# ภาคผนวก ค-10

ระดับเสียงรบกวน

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658780-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-1
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C=B-A) ผลต่างระดับเสียง | (D) ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (dBA) | ปรับค่าเสียงจากแหล่งกำเนิด (F) กลางคืน (dBA) | (G) เสียงพื้นฐาน | (H=G-E) ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 61.0 | 54.4 | 6.6 | 1.0 | 60.0 | - | 46.6 | 13.4 |
| 11:00 AM - 12:00 PM | 60.1 | 54.5 | 5.6 | 1.5 | 58.6 | - | 46.0 | 12.6 |
| 12:00 PM - 01:00 PM | 58.6 | 53.4 | 5.2 | 1.5 | 57.1 | - | 43.0 | 14.1 |
| 01:00 PM - 02:00 PM | 59.4 | 54.3 | 5.1 | 1.5 | 57.9 | - | 47.7 | 10.2 |
| 02:00 PM - 03:00 PM | 56.4 | 51.3 | 5.1 | 1.5 | 54.9 | - | 43.7 | 11.2 |
| 03:00 PM - 04:00 PM | 55.5 | 51.4 | 4.1 | 2.0 | 53.5 | - | 43.8 | 9.7 |
| 04:00 PM - 05:00 PM | 59.1 | 54.6 | 4.5 | 1.5 | 57.6 | - | 48.3 | 9.3 |
| 05:00 PM - 06:00 PM | 62.6 | 54.4 | 8.2 | 0.5 | 62.1 | - | 47.3 | 14.8 |
| 06:00 PM - 07:00 PM | 59.0 | 63.3 | -4.3 | 7.0 | 52.0 | - | 60.5 | -8.5 |
| 07:00 PM - 08:00 PM | 50.8 | 49.6 | 1.2 | 7.0 | 43.8 | - | 45.6 | -1.8 |
| 08:00 PM - 09:00 PM | 48.4 | 48.4 | 0.0 | 7.0 | 41.4 | - | 43.7 | -2.3 |
| 09:00 PM - 10:00 PM | 50.6 | 53.3 | -2.7 | 7.0 | 43.6 | - | 47.2 | -3.6 |
| 10:00 PM - 10:05 PM | 43.6 | 44.2 | -0.6 | 7.0 | - | 39.6 | 42.7 | -3.1 |
| 10:05 PM - 10:10 PM | 45.4 | 44.4 | 1.0 | 7.0 | - | 41.4 | 42.4 | -1.0 |
| 10:10 PM - 10:15 PM | 45.5 | 45.2 | 0.3 | 7.0 | - | 41.5 | 43.0 | -1.5 |
| 10:15 PM - 10:20 PM | 47.9 | 46.1 | 1.8 | 4.5 | - | 46.4 | 43.4 | 3.0 |
| 10:20 PM - 10:25 PM | 44.7 | 42.7 | 2.0 | 4.5 | - | 43.2 | 40.2 | 3.0 |
| 10:25 PM - 10:30 PM | 50.2 | 44.7 | 5.5 | 1.5 | - | 51.7 | 40.1 | 11.6 |
| 10:30 PM - 10:35 PM | 43.7 | 47.9 | -4.2 | 7.0 | - | 39.7 | 40.0 | -0.3 |
| 10:35 PM - 10:40 PM | 43.5 | 43.1 | 0.4 | 7.0 | - | 39.5 | 39.8 | -0.3 |
| 10:40 PM - 10:45 PM | 48.5 | 44.1 | 4.4 | 2.0 | - | 49.5 | 38.6 | 10.9 |
| 10:45 PM - 10:50 PM | 44.6 | 40.7 | 3.9 | 2.0 | - | 45.6 | 37.7 | 7.9 |
| 10:50 PM - 10:55 PM | 42.9 | 42.1 | 0.8 | 7.0 | - | 38.9 | 38.5 | 0.4 |
| 10:55 PM - 11:00 PM | 47.1 | 41.9 | 5.2 | 1.5 | - | 48.6 | 38.3 | 10.3 |
| 11:00 PM - 11:05 PM | 60.9 | 57.1 | 3.8 | 2.0 | - | 61.9 | 39.5 | 22.4 |
| 11:05 PM - 11:10 PM | 60.1 | 63.6 | -3.5 | 7.0 | - | 56.1 | 60.5 | -4.4 |
| 11:10 PM - 11:15 PM | 55.0 | 58.8 | -3.8 | 7.0 | - | 51.0 | 54.7 | -3.7 |
| 11:15 PM - 11:20 PM | 46.0 | 48.4 | -2.4 | 7.0 | - | 42.0 | 39.0 | 3.0 |
| 11:20 PM - 11:25 PM | 45.1 | 44.1 | 1.0 | 7.0 | - | 41.1 | 39.7 | 1.4 |
| 11:25 PM - 11:30 PM | 42.9 | 41.2 | 1.7 | 4.5 | - | 41.4 | 38.2 | 3.2 |
| 11:30 PM - 11:35 PM | 46.1 | 41.6 | 4.5 | 1.5 | - | 47.6 | 37.4 | 10.2 |
| 11:35 PM - 11:40 PM | 49.5 | 44.4 | 5.1 | 1.5 | - | 51.0 | 37.8 | 13.2 |
| 11:40 PM - 11:45 PM | 42.2 | 43.3 | -1.1 | 7.0 | - | 38.2 | 37.5 | 0.7 |
| 11:45 PM - 11:50 PM | 45.5 | 43.4 | 2.1 | 4.5 | - | 44.0 | 37.7 | 6.3 |
| 11:50 PM - 11:55 PM | 40.4 | 43.7 | -3.3 | 7.0 | - | 36.4 | 37.6 | -1.2 |
| 11:55 PM - 12:00 AM | 40.9 | 40.7 | 0.2 | 7.0 | - | 36.9 | 37.3 | -0.4 |
| 12:00 AM - 12:05 AM | 38.9 | 39.3 | -0.4 | 7.0 | - | 34.9 | 36.8 | -1.9 |
| 12:05 AM - 12:10 AM | 40.2 | 39.1 | 1.1 | 7.0 | - | 36.2 | 36.8 | -0.6 |
| 12:10 AM - 12:15 AM | 43.3 | 39.8 | 3.5 | 2.0 | - | 44.3 | 36.9 | 7.4 |
| 12:15 AM - 12:20 AM | 40.1 | 40.6 | -0.5 | 7.0 | - | 36.1 | 37.1 | -1.0 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658780-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-1
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C=B-A) ผลต่างระดับเสียง | (D) ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (dBA) | ปรับค่าเสียงจากแหล่งกำเนิด (F) กลางคืน (dBA) | (G) เสียงพื้นฐาน | (H=G-E) ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 40.1 | 43.2 | -3.1 | 7.0 | - | 36.1 | 36.9 | -0.8 |
| 12:25 AM - 12:30 AM | 45.1 | 43.7 | 1.4 | 7.0 | - | 41.1 | 37.0 | 4.1 |
| 12:30 AM - 12:35 AM | 39.8 | 41.0 | -1.2 | 7.0 | - | 35.8 | 36.3 | -0.5 |
| 12:35 AM - 12:40 AM | 39.9 | 39.0 | 0.9 | 7.0 | - | 35.9 | 35.9 | 0.0 |
| 12:40 AM - 12:45 AM | 40.7 | 40.8 | -0.1 | 7.0 | - | 36.7 | 36.2 | 0.5 |
| 12:45 AM - 12:50 AM | 41.3 | 40.2 | 1.1 | 7.0 | - | 37.3 | 35.8 | 1.5 |
| 12:50 AM - 12:55 AM | 40.9 | 37.2 | 3.7 | 2.0 | - | 41.9 | 35.7 | 6.2 |
| 12:55 AM - 01:00 AM | 40.4 | 40.1 | 0.3 | 7.0 | - | 36.4 | 35.7 | 0.7 |
| 01:00 AM - 01:05 AM | 47.1 | 39.1 | 8.0 | 0.5 | - | 49.6 | 35.8 | 13.8 |
| 01:05 AM - 01:10 AM | 38.9 | 42.5 | -3.6 | 7.0 | - | 34.9 | 35.8 | -0.9 |
| 01:10 AM - 01:15 AM | 45.2 | 38.5 | 6.7 | 1.0 | - | 47.2 | 36.4 | 10.8 |
| 01:15 AM - 01:20 AM | 39.2 | 44.7 | -5.5 | 7.0 | - | 35.2 | 36.0 | -0.8 |
| 01:20 AM - 01:25 AM | 41.0 | 37.5 | 3.5 | 2.0 | - | 42.0 | 35.4 | 6.6 |
| 01:25 AM - 01:30 AM | 37.7 | 37.4 | 0.3 | 7.0 | - | 33.7 | 35.3 | -1.6 |
| 01:30 AM - 01:35 AM | 43.9 | 39.5 | 4.4 | 2.0 | - | 44.9 | 35.9 | 9.0 |
| 01:35 AM - 01:40 AM | 56.8 | 52.6 | 4.2 | 2.0 | - | 57.8 | 43.9 | 13.9 |
| 01:40 AM - 01:45 AM | 59.7 | 64.7 | -5.0 | 7.0 | - | 55.7 | 60.3 | -4.6 |
| 01:45 AM - 01:50 AM | 55.3 | 65.3 | -10.0 | 7.0 | - | 51.3 | 64.2 | -12.9 |
| 01:50 AM - 01:55 AM | 43.2 | 61.3 | -18.1 | 7.0 | - | 39.2 | 38.7 | 0.5 |
| 01:55 AM - 02:00 AM | 46.2 | 43.2 | 3.0 | 3.0 | - | 46.2 | 37.2 | 9.0 |
| 02:00 AM - 02:05 AM | 37.5 | 37.6 | -0.1 | 7.0 | - | 33.5 | 36.0 | -2.5 |
| 02:05 AM - 02:10 AM | 42.5 | 37.9 | 4.6 | 1.5 | - | 44.0 | 35.0 | 9.0 |
| 02:10 AM - 02:15 AM | 39.5 | 38.6 | 0.9 | 7.0 | - | 35.5 | 35.2 | 0.3 |
| 02:15 AM - 02:20 AM | 44.0 | 40.0 | 4.0 | 2.0 | - | 45.0 | 35.4 | 9.6 |
| 02:20 AM - 02:25 AM | 49.5 | 43.8 | 5.7 | 1.5 | - | 51.0 | 36.1 | 14.9 |
| 02:25 AM - 02:30 AM | 48.1 | 42.5 | 5.6 | 1.5 | - | 49.6 | 35.3 | 14.3 |
| 02:30 AM - 02:35 AM | 36.3 | 42.8 | -6.5 | 7.0 | - | 32.3 | 34.9 | -2.6 |
| 02:35 AM - 02:40 AM | 40.7 | 39.2 | 1.5 | 4.5 | - | 39.2 | 35.1 | 4.1 |
| 02:40 AM - 02:45 AM | 38.9 | 38.2 | 0.7 | 7.0 | - | 34.9 | 35.5 | -0.6 |
| 02:45 AM - 02:50 AM | 38.0 | 37.4 | 0.6 | 7.0 | - | 34.0 | 35.3 | -1.3 |
| 02:50 AM - 02:55 AM | 39.1 | 37.0 | 2.1 | 4.5 | - | 37.6 | 35.2 | 2.4 |
| 02:55 AM - 03:00 AM | 43.0 | 38.1 | 4.9 | 1.5 | - | 44.5 | 35.1 | 9.4 |
| 03:00 AM - 03:05 AM | 46.1 | 42.6 | 3.5 | 2.0 | - | 47.1 | 36.0 | 11.1 |
| 03:05 AM - 03:10 AM | 42.4 | 45.2 | -2.8 | 7.0 | - | 38.4 | 35.2 | 3.2 |
| 03:10 AM - 03:15 AM | 44.9 | 42.8 | 2.1 | 4.5 | - | 43.4 | 35.5 | 7.9 |
| 03:15 AM - 03:20 AM | 38.9 | 39.8 | -0.9 | 7.0 | - | 34.9 | 35.3 | -0.4 |
| 03:20 AM - 03:25 AM | 38.3 | 36.7 | 1.6 | 4.5 | - | 36.8 | 34.9 | 1.9 |
| 03:25 AM - 03:30 AM | 46.2 | 39.2 | 7.0 | 1.0 | - | 48.2 | 35.3 | 12.9 |
| 03:30 AM - 03:35 AM | 43.0 | 46.2 | -3.2 | 7.0 | - | 39.0 | 35.8 | 3.2 |
| 03:35 AM - 03:40 AM | 45.0 | 43.4 | 1.6 | 4.5 | - | 43.5 | 36.8 | 6.7 |

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658780-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-1
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C=B-A) ผลต่างระดับเสียง | (D) ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (dBA) | ปรับค่าเสียงจากแหล่งกำเนิด (F) กลางคืน (dBA) | (G) เสียงพื้นฐาน | (H=G-E) ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 41.6 | 41.4 | 0.2 | 7.0 | - | 37.6 | 36.5 | 1.1 |
| 03:45 AM - 03:50 AM | 39.5 | 40.0 | -0.5 | 7.0 | - | 35.5 | 36.2 | -0.7 |
| 03:50 AM - 03:55 AM | 41.2 | 40.0 | 1.2 | 7.0 | - | 37.2 | 36.1 | 1.1 |
| 03:55 AM - 04:00 AM | 44.6 | 42.9 | 1.7 | 4.5 | - | 43.1 | 37.0 | 6.1 |
| 04:00 AM - 04:05 AM | 45.2 | 42.1 | 3.1 | 3.0 | - | 45.2 | 37.2 | 8.0 |
| 04:05 AM - 04:10 AM | 40.7 | 44.8 | -4.1 | 7.0 | - | 36.7 | 37.1 | -0.4 |
| 04:10 AM - 04:15 AM | 46.5 | 39.3 | 7.2 | 1.0 | - | 48.5 | 37.2 | 11.3 |
| 04:15 AM - 04:20 AM | 49.4 | 48.7 | 0.7 | 7.0 | - | 45.4 | 38.4 | 7.0 |
| 04:20 AM - 04:25 AM | 42.5 | 44.9 | -2.4 | 7.0 | - | 38.5 | 37.7 | 0.8 |
| 04:25 AM - 04:30 AM | 41.9 | 42.6 | -0.7 | 7.0 | - | 37.9 | 37.9 | 0.0 |
| 04:30 AM - 04:35 AM | 42.6 | 42.5 | 0.1 | 7.0 | - | 38.6 | 38.7 | -0.1 |
| 04:35 AM - 04:40 AM | 51.1 | 44.8 | 6.3 | 1.5 | - | 52.6 | 40.1 | 12.5 |
| 04:40 AM - 04:45 AM | 61.6 | 52.5 | 9.1 | 0.5 | - | 64.1 | 43.1 | 21.0 |
| 04:45 AM - 04:50 AM | 68.1 | 71.0 | -2.9 | 7.0 | - | 64.1 | 49.0 | 15.1 |
| 04:50 AM - 04:55 AM | 67.5 | 72.1 | -4.6 | 7.0 | - | 63.5 | 69.0 | -5.5 |
| 04:55 AM - 05:00 AM | 62.8 | 65.8 | -3.0 | 7.0 | - | 58.8 | 59.4 | -0.6 |
| 05:00 AM - 05:05 AM | 51.4 | 54.3 | -2.9 | 7.0 | - | 47.4 | 44.7 | 2.7 |
| 05:05 AM - 05:10 AM | 48.1 | 46.8 | 1.3 | 7.0 | - | 44.1 | 44.1 | 0.0 |
| 05:10 AM - 05:15 AM | 58.0 | 48.2 | 9.8 | 0.5 | - | 60.5 | 44.2 | 16.3 |
| 05:15 AM - 05:20 AM | 62.4 | 52.8 | 9.6 | 0.5 | - | 64.9 | 45.5 | 19.4 |
| 05:20 AM - 05:25 AM | 61.1 | 48.7 | 12.4 | 0.5 | - | 63.6 | 44.8 | 18.8 |
| 05:25 AM - 05:30 AM | 56.6 | 53.3 | 3.3 | 3.0 | - | 56.6 | 46.1 | 10.5 |
| 05:30 AM - 05:35 AM | 53.2 | 50.2 | 3.0 | 3.0 | - | 53.2 | 45.5 | 7.7 |
| 05:35 AM - 05:40 AM | 61.7 | 52.7 | 9.0 | 0.5 | - | 64.2 | 47.1 | 17.1 |
| 05:40 AM - 05:45 AM | 61.1 | 55.7 | 5.4 | 1.5 | - | 62.6 | 46.4 | 16.2 |
| 05:45 AM - 05:50 AM | 65.4 | 53.5 | 11.9 | 0.5 | - | 67.9 | 46.6 | 21.3 |
| 05:50 AM - 05:55 AM | 64.6 | 53.1 | 11.5 | 0.5 | - | 67.1 | 48.2 | 18.9 |
| 05:55 AM - 06:00 AM | 56.5 | 53.5 | 3.0 | 3.0 | - | 56.5 | 47.8 | 8.7 |
| 06:00 AM - 07:00 AM | 60.6 | 54.9 | 5.7 | 1.5 | 59.1 | - | 47.1 | 12.0 |
| 07:00 AM - 08:00 AM | 58.5 | 53.9 | 4.6 | 1.5 | 57.0 | - | 46.5 | 10.5 |
| 08:00 AM - 09:00 AM | 59.2 | 53.7 | 5.5 | 1.5 | 57.7 | - | 44.1 | 13.6 |
| 09:00 AM - 10:00 AM | 57.1 | 53.5 | 3.6 | 2.0 | 55.1 | - | 45.3 | 9.8 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่ามาตรฐานเสียงรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานเสียงอันตรายจากกิจการที่เป็นมลพิษต่อชุมชน พ.ศ. 2561
ระดับเสียงรบกวนแต่ละจุดตรวจวัด ไม่เกิน 70 dB(A)
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338623-1 วันที่ตรวจวัด 06-07 พฤษภาคม 2566)

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**Approved by**
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Manager

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658781-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-2
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C=B-A) ผลต่างระดับเสียง | (D) ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (dBA) | ปรับค่าเสียงจากแหล่งกำเนิด (F) กลางคืน (dBA) | (G) เสียงพื้นฐาน | (H=G-E) ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 58.4 | 54.1 | 4.3 | 2.0 | 56.4 | - | 45.8 | 10.6 |
| 11:00 AM - 12:00 PM | 59.7 | 61.1 | -1.4 | 7.0 | 52.7 | - | 44.9 | 7.8 |
| 12:00 PM - 01:00 PM | 56.5 | 52.3 | 4.2 | 2.0 | 54.5 | - | 44.0 | 10.5 |
| 01:00 PM - 02:00 PM | 55.9 | 52.0 | 3.9 | 2.0 | 53.9 | - | 43.8 | 10.1 |
| 02:00 PM - 03:00 PM | 58.0 | 57.8 | 0.2 | 7.0 | 51.0 | - | 52.4 | -1.4 |
| 03:00 PM - 04:00 PM | 57.2 | 52.9 | 4.3 | 2.0 | 55.2 | - | 44.3 | 10.9 |
| 04:00 PM - 05:00 PM | 55.0 | 51.7 | 3.3 | 3.0 | 52.0 | - | 46.2 | 5.8 |
| 05:00 PM - 06:00 PM | 55.7 | 51.9 | 3.8 | 2.0 | 53.7 | - | 45.0 | 8.7 |
| 06:00 PM - 07:00 PM | 61.5 | 62.1 | -0.6 | 7.0 | 54.5 | - | 60.1 | -5.6 |
| 07:00 PM - 08:00 PM | 49.9 | 47.4 | 2.5 | 3.0 | 46.9 | - | 41.8 | 5.1 |
| 08:00 PM - 09:00 PM | 46.4 | 45.1 | 1.3 | 7.0 | 39.4 | - | 39.4 | 0.0 |
| 09:00 PM - 10:00 PM | 54.7 | 55.0 | -0.3 | 7.0 | 47.7 | - | 50.3 | -2.6 |
| 10:00 PM - 10:05 PM | 43.4 | 44.9 | -1.5 | 7.0 | - | 39.4 | 38.7 | 0.7 |
| 10:05 PM - 10:10 PM | 50.7 | 42.7 | 8.0 | 0.5 | - | 53.2 | 38.1 | 15.1 |
| 10:10 PM - 10:15 PM | 46.9 | 47.2 | -0.3 | 7.0 | - | 42.9 | 39.6 | 3.3 |
| 10:15 PM - 10:20 PM | 45.7 | 43.5 | 2.2 | 4.5 | - | 44.2 | 37.6 | 6.6 |
| 10:20 PM - 10:25 PM | 44.5 | 46.3 | -1.8 | 7.0 | - | 40.5 | 40.2 | 0.3 |
| 10:25 PM - 10:30 PM | 48.8 | 44.8 | 4.0 | 2.0 | - | 49.8 | 41.2 | 8.6 |
| 10:30 PM - 10:35 PM | 46.5 | 47.6 | -1.1 | 7.0 | - | 42.5 | 41.7 | 0.8 |
| 10:35 PM - 10:40 PM | 45.7 | 44.4 | 1.3 | 7.0 | - | 41.7 | 37.4 | 4.3 |
| 10:40 PM - 10:45 PM | 44.6 | 47.0 | -2.4 | 7.0 | - | 40.6 | 36.8 | 3.8 |
| 10:45 PM - 10:50 PM | 43.1 | 46.9 | -3.8 | 7.0 | - | 39.1 | 37.2 | 1.9 |
| 10:50 PM - 10:55 PM | 48.1 | 47.6 | 0.5 | 7.0 | - | 44.1 | 38.4 | 5.7 |
| 10:55 PM - 11:00 PM | 41.3 | 47.2 | -5.9 | 7.0 | - | 37.3 | 35.6 | 1.7 |
| 11:00 PM - 11:05 PM | 38.2 | 47.8 | -9.6 | 7.0 | - | 34.2 | 35.8 | -1.6 |
| 11:05 PM - 11:10 PM | 37.5 | 48.3 | -10.8 | 7.0 | - | 33.5 | 35.7 | -2.2 |
| 11:10 PM - 11:15 PM | 37.5 | 47.8 | -10.3 | 7.0 | - | 33.5 | 35.3 | -1.8 |
| 11:15 PM - 11:20 PM | 43.1 | 48.0 | -4.9 | 7.0 | - | 39.1 | 37.4 | 1.7 |
| 11:20 PM - 11:25 PM | 43.1 | 45.2 | -2.1 | 7.0 | - | 39.1 | 39.4 | -0.3 |
| 11:25 PM - 11:30 PM | 45.9 | 42.2 | 3.7 | 2.0 | - | 46.9 | 38.3 | 8.6 |
| 11:30 PM - 11:35 PM | 49.0 | 48.4 | 0.6 | 7.0 | - | 45.0 | 39.1 | 5.9 |
| 11:35 PM - 11:40 PM | 45.4 | 53.3 | -7.9 | 7.0 | - | 41.4 | 47.6 | -6.2 |
| 11:40 PM - 11:45 PM | 40.7 | 46.5 | -5.8 | 7.0 | - | 36.7 | 38.0 | -1.3 |
| 11:45 PM - 11:50 PM | 39.1 | 41.4 | -2.3 | 7.0 | - | 35.1 | 36.9 | -1.8 |
| 11:50 PM - 11:55 PM | 42.5 | 39.2 | 3.3 | 3.0 | - | 42.5 | 36.6 | 5.9 |
| 11:55 PM - 12:00 AM | 36.8 | 42.7 | -5.9 | 7.0 | - | 32.8 | 36.4 | -3.6 |
| 12:00 AM - 12:05 AM | 42.4 | 42.7 | -0.3 | 7.0 | - | 38.4 | 35.8 | 2.6 |
| 12:05 AM - 12:10 AM | 39.9 | 40.9 | -1.0 | 7.0 | - | 35.9 | 36.4 | -0.5 |
| 12:10 AM - 12:15 AM | 55.0 | 42.2 | 12.8 | 0.0 | - | 58.0 | 37.2 | 20.8 |
| 12:15 AM - 12:20 AM | 60.8 | 54.8 | 6.0 | 1.5 | - | 62.3 | 46.1 | 16.2 |

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

**Approved by**
Wilawan Borirak
Manager

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# Analysis / Test Report

TESTING No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658781-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-2
**Parameter** เสียงรบกวน
**Location** บ้านวังฉลาหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (C) กลางวัน (A+C) | กลางคืน (A+C+3) | (D) เสียงพื้นฐาน | ค่าระดับการรบกวน (D-A) |
| 12:20 AM - 12:25 AM | 59.1 | 56.3 | 2.8 | 3.0 | - | 59.1 | 54.3 | 4.8 |
| 12:25 AM - 12:30 AM | 48.3 | 52.6 | -4.3 | 7.0 | - | 44.3 | 36.7 | 7.6 |
| 12:30 AM - 12:35 AM | 36.3 | 40.1 | -3.8 | 7.0 | - | 32.3 | 35.4 | -3.1 |
| 12:35 AM - 12:40 AM | 39.0 | 37.1 | 1.9 | 4.5 | - | 37.5 | 34.9 | 2.6 |
| 12:40 AM - 12:45 AM | 39.3 | 39.1 | 0.2 | 7.0 | - | 35.3 | 35.1 | 0.2 |
| 12:45 AM - 12:50 AM | 40.5 | 40.0 | 0.5 | 7.0 | - | 36.5 | 35.4 | 1.1 |
| 12:50 AM - 12:55 AM | 44.1 | 42.1 | 2.0 | 4.5 | - | 42.6 | 36.9 | 5.7 |
| 12:55 AM - 01:00 AM | 42.8 | 46.4 | -3.6 | 7.0 | - | 38.8 | 42.1 | -3.3 |
| 01:00 AM - 01:05 AM | 38.4 | 44.7 | -6.3 | 7.0 | - | 34.4 | 42.9 | -8.5 |
| 01:05 AM - 01:10 AM | 42.3 | 44.3 | -2.0 | 7.0 | - | 38.3 | 41.7 | -3.4 |
| 01:10 AM - 01:15 AM | 39.5 | 44.8 | -5.3 | 7.0 | - | 35.5 | 38.8 | -3.3 |
| 01:15 AM - 01:20 AM | 43.9 | 45.6 | -1.7 | 7.0 | - | 39.9 | 41.4 | -1.5 |
| 01:20 AM - 01:25 AM | 40.9 | 45.1 | -4.2 | 7.0 | - | 36.9 | 42.3 | -5.4 |
| 01:25 AM - 01:30 AM | 43.8 | 42.6 | 1.2 | 7.0 | - | 39.8 | 35.7 | 4.1 |
| 01:30 AM - 01:35 AM | 36.0 | 45.5 | -9.5 | 7.0 | - | 32.0 | 37.7 | -5.7 |
| 01:35 AM - 01:40 AM | 42.4 | 42.6 | -0.2 | 7.0 | - | 38.4 | 36.0 | 2.4 |
| 01:40 AM - 01:45 AM | 38.1 | 44.3 | -6.2 | 7.0 | - | 34.1 | 35.3 | -1.2 |
| 01:45 AM - 01:50 AM | 41.4 | 43.8 | -2.4 | 7.0 | - | 37.4 | 36.8 | 0.6 |
| 01:50 AM - 01:55 AM | 36.9 | 41.3 | -4.4 | 7.0 | - | 32.9 | 35.7 | -2.8 |
| 01:55 AM - 02:00 AM | 39.7 | 41.6 | -1.9 | 7.0 | - | 35.7 | 35.7 | 0.0 |
| 02:00 AM - 02:05 AM | 48.6 | 36.8 | 11.8 | 0.5 | - | 51.1 | 34.6 | 16.5 |
| 02:05 AM - 02:10 AM | 42.3 | 45.4 | -3.1 | 7.0 | - | 38.3 | 35.4 | 2.9 |
| 02:10 AM - 02:15 AM | 37.4 | 37.9 | -0.5 | 7.0 | - | 33.4 | 35.0 | -1.6 |
| 02:15 AM - 02:20 AM | 40.8 | 38.5 | 2.3 | 4.5 | - | 39.3 | 34.5 | 4.8 |
| 02:20 AM - 02:25 AM | 51.6 | 46.9 | 4.7 | 1.5 | - | 53.1 | 35.3 | 17.8 |
| 02:25 AM - 02:30 AM | 38.0 | 45.9 | -7.9 | 7.0 | - | 34.0 | 34.7 | -0.7 |
| 02:30 AM - 02:35 AM | 35.4 | 37.6 | -2.2 | 7.0 | - | 31.4 | 33.9 | -2.5 |
| 02:35 AM - 02:40 AM | 42.1 | 39.4 | 2.7 | 3.0 | - | 42.1 | 34.4 | 7.7 |
| 02:40 AM - 02:45 AM | 36.1 | 40.4 | -4.3 | 7.0 | - | 32.1 | 34.7 | -2.6 |
| 02:45 AM - 02:50 AM | 37.4 | 37.1 | 0.3 | 7.0 | - | 33.4 | 34.5 | -1.1 |
| 02:50 AM - 02:55 AM | 43.7 | 37.0 | 6.7 | 1.0 | - | 45.7 | 34.3 | 11.4 |
| 02:55 AM - 03:00 AM | 42.3 | 40.3 | 2.0 | 4.5 | - | 40.8 | 35.2 | 5.6 |
| 03:00 AM - 03:05 AM | 38.4 | 39.7 | -1.3 | 7.0 | - | 34.4 | 35.3 | -0.9 |
| 03:05 AM - 03:10 AM | 36.4 | 38.9 | -2.5 | 7.0 | - | 32.4 | 35.0 | -2.6 |
| 03:10 AM - 03:15 AM | 39.6 | 39.2 | 0.4 | 7.0 | - | 35.6 | 34.8 | 0.8 |
| 03:15 AM - 03:20 AM | 36.7 | 39.2 | -2.5 | 7.0 | - | 32.7 | 34.5 | -1.8 |
| 03:20 AM - 03:25 AM | 36.3 | 37.9 | -1.6 | 7.0 | - | 32.3 | 34.7 | -2.4 |
| 03:25 AM - 03:30 AM | 41.9 | 38.1 | 3.8 | 2.0 | - | 42.9 | 34.5 | 8.4 |
| 03:30 AM - 03:35 AM | 38.2 | 42.8 | -4.6 | 7.0 | - | 34.2 | 34.7 | -0.5 |
| 03:35 AM - 03:40 AM | 41.4 | 41.7 | -0.3 | 7.0 | - | 37.4 | 35.5 | 1.9 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658781-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-2
**Parameter** เสียงรบกวน
**Location** บ้านวังฉลาหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (C) กลางวัน (A+C) | กลางคืน (A+C+3) | (D) เสียงพื้นฐาน | ค่าระดับการรบกวน (D-A) |
| 03:40 AM - 03:45 AM | 40.3 | 41.1 | -0.8 | 7.0 | - | 36.3 | 36.0 | 0.3 |
| 03:45 AM - 03:50 AM | 41.7 | 43.4 | -1.7 | 7.0 | - | 37.7 | 37.7 | 0.0 |
| 03:50 AM - 03:55 AM | 39.8 | 41.8 | -2.0 | 7.0 | - | 35.8 | 36.5 | -0.7 |
| 03:55 AM - 04:00 AM | 41.2 | 44.1 | -2.9 | 7.0 | - | 37.2 | 37.8 | -0.6 |
| 04:00 AM - 04:05 AM | 46.5 | 46.9 | -0.4 | 7.0 | - | 42.5 | 39.0 | 3.5 |
| 04:05 AM - 04:10 AM | 38.5 | 39.9 | -1.4 | 7.0 | - | 34.5 | 36.5 | -2.0 |
| 04:10 AM - 04:15 AM | 43.3 | 40.2 | 3.1 | 3.0 | - | 43.3 | 36.9 | 6.4 |
| 04:15 AM - 04:20 AM | 40.3 | 42.4 | -2.1 | 7.0 | - | 36.3 | 37.6 | -1.3 |
| 04:20 AM - 04:25 AM | 39.2 | 40.2 | -1.0 | 7.0 | - | 35.2 | 37.4 | -2.2 |
| 04:25 AM - 04:30 AM | 45.6 | 40.3 | 5.3 | 1.5 | - | 47.1 | 37.2 | 9.9 |
| 04:30 AM - 04:35 AM | 43.7 | 45.2 | -1.5 | 7.0 | - | 39.7 | 39.4 | 0.3 |
| 04:35 AM - 04:40 AM | 50.8 | 49.0 | 1.8 | 4.5 | - | 49.3 | 38.1 | 11.2 |
| 04:40 AM - 04:45 AM | 53.4 | 51.2 | 2.2 | 4.5 | - | 51.9 | 45.4 | 6.5 |
| 04:45 AM - 04:50 AM | 68.0 | 67.6 | 0.4 | 7.0 | - | 64.0 | 45.8 | 18.2 |
| 04:50 AM - 04:55 AM | 67.9 | 73.7 | -5.8 | 7.0 | - | 63.9 | 72.8 | -8.9 |
| 04:55 AM - 05:00 AM | 61.4 | 71.3 | -9.9 | 7.0 | - | 57.4 | 67.2 | -9.8 |
| 05:00 AM - 05:05 AM | 53.2 | 57.6 | -4.4 | 7.0 | - | 49.2 | 46.0 | 3.2 |
| 05:05 AM - 05:10 AM | 53.9 | 53.7 | 0.2 | 7.0 | - | 49.9 | 45.5 | 4.4 |
| 05:10 AM - 05:15 AM | 55.1 | 52.7 | 2.4 | 4.5 | - | 53.6 | 44.9 | 8.7 |
| 05:15 AM - 05:20 AM | 48.4 | 49.4 | -1.0 | 7.0 | - | 44.4 | 45.5 | -1.1 |
| 05:20 AM - 05:25 AM | 48.3 | 47.7 | 0.6 | 7.0 | - | 44.3 | 44.6 | -0.3 |
| 05:25 AM - 05:30 AM | 51.4 | 48.8 | 2.6 | 3.0 | - | 51.4 | 43.7 | 7.7 |
| 05:30 AM - 05:35 AM | 56.8 | 52.2 | 4.6 | 1.5 | - | 58.3 | 44.6 | 13.7 |
| 05:35 AM - 05:40 AM | 53.8 | 51.9 | 1.9 | 4.5 | - | 52.3 | 46.0 | 6.3 |
| 05:40 AM - 05:45 AM | 52.4 | 50.7 | 1.7 | 4.5 | - | 50.9 | 45.9 | 5.0 |
| 05:45 AM - 05:50 AM | 61.3 | 51.5 | 9.8 | 0.5 | - | 63.8 | 46.2 | 17.6 |
| 05:50 AM - 05:55 AM | 57.2 | 52.2 | 5.0 | 1.5 | - | 58.7 | 46.5 | 12.2 |
| 05:55 AM - 06:00 AM | 53.5 | 50.9 | 2.6 | 3.0 | - | 53.5 | 45.3 | 8.2 |
| 06:00 AM - 07:00 AM | 58.2 | 54.0 | 4.2 | 2.0 | 56.2 | - | 48.4 | 7.8 |
| 07:00 AM - 08:00 AM | 59.4 | 57.1 | 2.3 | 4.5 | 54.9 | - | 46.1 | 8.8 |
| 08:00 AM - 09:00 AM | 56.3 | 53.8 | 2.5 | 3.0 | 53.3 | - | 50.3 | 3.0 |
| 09:00 AM - 10:00 AM | 54.6 | 52.4 | 2.2 | 4.5 | 50.1 | - | 44.4 | 5.7 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานเสริมทางเสียงสำหรับการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 07-08 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-2 วันที่ตรวจวัด 07-08 พฤษภาคม 2566)

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658782-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-3
**Parameter** เสียงรบกวน
**Location** บ้านวังฉลาหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (C) กลางวัน (A+C) | กลางคืน (A+C+3) | (D) เสียงพื้นฐาน | ค่าระดับการรบกวน (D-A) |
| 10:00 AM - 11:00 AM | 57.5 | 54.4 | 3.1 | 3.0 | 54.5 | - | 44.4 | 10.1 |
| 11:00 AM - 12:00 PM | 63.2 | 54.0 | 9.2 | 0.5 | 62.7 | - | 46.8 | 15.9 |
| 12:00 PM - 01:00 PM | 60.2 | 52.3 | 7.9 | 0.5 | 59.7 | - | 44.4 | 15.3 |
| 01:00 PM - 02:00 PM | 54.6 | 51.0 | 3.6 | 2.0 | 52.6 | - | 44.3 | 8.3 |
| 02:00 PM - 03:00 PM | 52.3 | 49.4 | 2.9 | 3.0 | 49.3 | - | 43.4 | 5.9 |
| 03:00 PM - 04:00 PM | 59.5 | 63.7 | -4.2 | 7.0 | 52.5 | - | 60.4 | -7.9 |
| 04:00 PM - 05:00 PM | 62.8 | 59.8 | 3.0 | 3.0 | 59.8 | - | 47.1 | 12.7 |
| 05:00 PM - 06:00 PM | 57.8 | 52.7 | 5.1 | 1.5 | 56.3 | - | 46.2 | 10.1 |
| 06:00 PM - 07:00 PM | 60.5 | 64.6 | -4.1 | 7.0 | 53.5 | - | 61.8 | -8.3 |
| 07:00 PM - 08:00 PM | 51.3 | 50.0 | 1.3 | 7.0 | 44.3 | - | 43.6 | 0.7 |
| 08:00 PM - 09:00 PM | 50.1 | 48.3 | 1.8 | 4.5 | 45.6 | - | 41.2 | 4.4 |
| 09:00 PM - 10:00 PM | 48.1 | 47.9 | 0.2 | 7.0 | 41.1 | - | 38.8 | 2.3 |
| 10:00 PM - 10:05 PM | 44.9 | 45.1 | -0.2 | 7.0 | - | 40.9 | 38.9 | 2.0 |
| 10:05 PM - 10:10 PM | 45.4 | 45.9 | -0.5 | 7.0 | - | 41.4 | 39.8 | 1.6 |
| 10:10 PM - 10:15 PM | 45.8 | 46.9 | -1.1 | 7.0 | - | 41.8 | 40.7 | 1.1 |
| 10:15 PM - 10:20 PM | 46.5 | 44.1 | 2.4 | 4.5 | - | 45.0 | 37.7 | 7.3 |
| 10:20 PM - 10:25 PM | 40.6 | 44.0 | -3.4 | 7.0 | - | 36.6 | 37.6 | -1.0 |
| 10:25 PM - 10:30 PM | 45.6 | 46.5 | -0.9 | 7.0 | - | 41.6 | 38.5 | 3.1 |
| 10:30 PM - 10:35 PM | 46.6 | 45.7 | 0.9 | 7.0 | - | 42.6 | 38.2 | 4.4 |
| 10:35 PM - 10:40 PM | 44.4 | 46.7 | -2.3 | 7.0 | - | 40.4 | 37.3 | 3.1 |
| 10:40 PM - 10:45 PM | 50.3 | 44.0 | 6.3 | 1.5 | - | 51.8 | 37.4 | 14.4 |
| 10:45 PM - 10:50 PM | 44.9 | 46.5 | -1.6 | 7.0 | - | 40.9 | 38.7 | 2.2 |
| 10:50 PM - 10:55 PM | 38.4 | 43.4 | -5.0 | 7.0 | - | 34.4 | 37.2 | -2.8 |
| 10:55 PM - 11:00 PM | 45.8 | 41.8 | 4.0 | 2.0 | - | 46.8 | 35.0 | 11.8 |
| 11:00 PM - 11:05 PM | 38.3 | 41.8 | -3.5 | 7.0 | - | 34.3 | 36.7 | -2.4 |
| 11:05 PM - 11:10 PM | 45.9 | 41.5 | 4.4 | 2.0 | - | 46.9 | 35.9 | 11.0 |
| 11:10 PM - 11:15 PM | 43.6 | 43.8 | -0.2 | 7.0 | - | 39.6 | 37.6 | 2.0 |
| 11:15 PM - 11:20 PM | 48.1 | 43.9 | 4.2 | 2.0 | - | 49.1 | 36.5 | 12.6 |
| 11:20 PM - 11:25 PM | 41.9 | 46.3 | -4.4 | 7.0 | - | 37.9 | 36.0 | 1.9 |
| 11:25 PM - 11:30 PM | 41.1 | 44.0 | -2.9 | 7.0 | - | 37.1 | 35.1 | 2.0 |
| 11:30 PM - 11:35 PM | 44.3 | 46.0 | -1.7 | 7.0 | - | 40.3 | 36.5 | 3.8 |
| 11:35 PM - 11:40 PM | 44.7 | 45.2 | -0.5 | 7.0 | - | 40.7 | 36.0 | 4.7 |
| 11:40 PM - 11:45 PM | 44.9 | 46.7 | -1.8 | 7.0 | - | 40.9 | 38.2 | 2.7 |
| 11:45 PM - 11:50 PM | 43.4 | 47.8 | -4.4 | 7.0 | - | 39.4 | 39.3 | 0.1 |
| 11:50 PM - 11:55 PM | 46.4 | 48.4 | -2.0 | 7.0 | - | 42.4 | 38.7 | 3.7 |
| 11:55 PM - 12:00 AM | 44.9 | 49.2 | -4.3 | 7.0 | - | 40.9 | 42.1 | -1.2 |
| 12:00 AM - 12:05 AM | 46.1 | 51.2 | -5.1 | 7.0 | - | 42.1 | 46.1 | -4.0 |
| 12:05 AM - 12:10 AM | 43.1 | 48.7 | -5.6 | 7.0 | - | 39.1 | 44.4 | -5.3 |
| 12:10 AM - 12:15 AM | 42.9 | 46.0 | -3.1 | 7.0 | - | 38.9 | 39.6 | -0.7 |
| 12:15 AM - 12:20 AM | 41.4 | 42.7 | -1.3 | 7.0 | - | 37.4 | 39.3 | -1.9 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658782-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-3
**Parameter** เสียงรบกวน
**Location** บ้านวังฉลาหม่อน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด (C) กลางวัน (A+C) | กลางคืน (A+C+3) | (D) เสียงพื้นฐาน | ค่าระดับการรบกวน (D-A) |
| 12:20 AM - 12:25 AM | 42.0 | 42.3 | -0.3 | 7.0 | - | 38.0 | 38.3 | -0.3 |
| 12:25 AM - 12:30 AM | 47.6 | 43.4 | 4.2 | 2.0 | - | 48.6 | 38.6 | 10.0 |
| 12:30 AM - 12:35 AM | 53.0 | 48.8 | 4.2 | 2.0 | - | 54.0 | 46.2 | 7.8 |
| 12:35 AM - 12:40 AM | 44.6 | 47.9 | -3.3 | 7.0 | - | 40.6 | 39.8 | 0.8 |
| 12:40 AM - 12:45 AM | 44.3 | 40.7 | 3.6 | 2.0 | - | 45.3 | 38.5 | 6.8 |
| 12:45 AM - 12:50 AM | 45.2 | 44.0 | 1.2 | 7.0 | - | 41.2 | 38.9 | 2.3 |
| 12:50 AM - 12:55 AM | 38.0 | 41.8 | -3.8 | 7.0 | - | 34.0 | 38.2 | -4.2 |
| 12:55 AM - 01:00 AM | 43.4 | 39.3 | 4.1 | 2.0 | - | 44.4 | 37.8 | 6.6 |
| 01:00 AM - 01:05 AM | 48.6 | 44.3 | 4.3 | 2.0 | - | 49.6 | 39.3 | 10.3 |
| 01:05 AM - 01:10 AM | 39.2 | 41.0 | -1.8 | 7.0 | - | 35.2 | 37.7 | -2.5 |
| 01:10 AM - 01:15 AM | 41.8 | 40.4 | 1.4 | 7.0 | - | 37.8 | 37.7 | 0.1 |
| 01:15 AM - 01:20 AM | 39.8 | 39.6 | 0.2 | 7.0 | - | 35.8 | 37.2 | -1.4 |
| 01:20 AM - 01:25 AM | 46.6 | 40.3 | 6.3 | 1.5 | - | 48.1 | 38.0 | 10.1 |
| 01:25 AM - 01:30 AM | 40.4 | 44.5 | -4.1 | 7.0 | - | 36.4 | 38.4 | -2.0 |
| 01:30 AM - 01:35 AM | 40.5 | 41.4 | -0.9 | 7.0 | - | 36.5 | 37.8 | -1.3 |
| 01:35 AM - 01:40 AM | 39.8 | 42.7 | -2.9 | 7.0 | - | 35.8 | 38.0 | -2.2 |
| 01:40 AM - 01:45 AM | 39.9 | 44.0 | -4.1 | 7.0 | - | 35.9 | 36.6 | -0.7 |
| 01:45 AM - 01:50 AM | 41.3 | 43.1 | -1.8 | 7.0 | - | 37.3 | 36.3 | 1.0 |
| 01:50 AM - 01:55 AM | 46.9 | 45.1 | 1.8 | 4.5 | - | 45.4 | 36.6 | 8.8 |
| 01:55 AM - 02:00 AM | 39.4 | 43.7 | -4.3 | 7.0 | - | 35.4 | 34.9 | 0.5 |
| 02:00 AM - 02:05 AM | 38.9 | 43.9 | -5.0 | 7.0 | - | 34.9 | 34.0 | 0.9 |
| 02:05 AM - 02:10 AM | 43.9 | 42.9 | 1.0 | 7.0 | - | 39.9 | 33.7 | 6.2 |
| 02:10 AM - 02:15 AM | 41.9 | 44.3 | -2.4 | 7.0 | - | 37.9 | 34.6 | 3.3 |
| 02:15 AM - 02:20 AM | 46.0 | 46.2 | -0.2 | 7.0 | - | 42.0 | 36.1 | 5.9 |
| 02:20 AM - 02:25 AM | 48.4 | 46.5 | 1.9 | 4.5 | - | 46.9 | 36.2 | 10.7 |
| 02:25 AM - 02:30 AM | 45.4 | 46.1 | -0.7 | 7.0 | - | 41.4 | 36.3 | 5.1 |
| 02:30 AM - 02:35 AM | 47.2 | 47.1 | 0.1 | 7.0 | - | 43.2 | 37.1 | 6.1 |
| 02:35 AM - 02:40 AM | 39.4 | 45.3 | -5.9 | 7.0 | - | 35.4 | 36.0 | -0.6 |
| 02:40 AM - 02:45 AM | 36.8 | 38.1 | -1.3 | 7.0 | - | 32.8 | 35.8 | -3.0 |
| 02:45 AM - 02:50 AM | 35.3 | 40.9 | -5.6 | 7.0 | - | 31.3 | 36.1 | -4.8 |
| 02:50 AM - 02:55 AM | 38.8 | 40.4 | -1.6 | 7.0 | - | 34.8 | 35.2 | -0.4 |
| 02:55 AM - 03:00 AM | 36.5 | 43.7 | -7.2 | 7.0 | - | 32.5 | 35.1 | -2.6 |
| 03:00 AM - 03:05 AM | 38.1 | 43.2 | -5.1 | 7.0 | - | 34.1 | 35.0 | -0.9 |
| 03:05 AM - 03:10 AM | 39.8 | 44.8 | -5.0 | 7.0 | - | 35.8 | 35.6 | 0.2 |
| 03:10 AM - 03:15 AM | 36.3 | 42.8 | -6.5 | 7.0 | - | 32.3 | 35.4 | -3.1 |
| 03:15 AM - 03:20 AM | 41.7 | 38.6 | 3.1 | 3.0 | - | 41.7 | 34.5 | 7.2 |
| 03:20 AM - 03:25 AM | 46.1 | 39.0 | 7.1 | 1.0 | - | 48.1 | 34.1 | 14.0 |
| 03:25 AM - 03:30 AM | 37.6 | 46.2 | -8.6 | 7.0 | - | 33.6 | 35.3 | -1.7 |
| 03:30 AM - 03:35 AM | 43.0 | 39.1 | 3.9 | 2.0 | - | 44.0 | 35.6 | 8.4 |
| 03:35 AM - 03:40 AM | 40.6 | 41.1 | -0.5 | 7.0 | - | 36.6 | 35.1 | 1.5 |

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**Approved by**
Wilawan Borirak
Manager

# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658782-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-3
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=A-B) ระดับเสียง | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E=C+D) | กลางคืน (E=C+D) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 35.9 | 39.9 | -4.0 | 7.0 | - | 31.9 | 35.0 | -3.1 |
| 03:45 AM - 03:50 AM | 39.8 | 38.4 | 1.4 | 7.0 | - | 35.8 | 34.5 | 1.3 |
| 03:50 AM - 03:55 AM | 46.4 | 41.4 | 5.0 | 1.5 | - | 47.9 | 35.8 | 12.1 |
| 03:55 AM - 04:00 AM | 39.7 | 42.6 | -2.9 | 7.0 | - | 35.7 | 36.2 | -0.5 |
| 04:00 AM - 04:05 AM | 46.5 | 42.5 | 4.0 | 2.0 | - | 47.5 | 37.1 | 10.4 |
| 04:05 AM - 04:10 AM | 40.1 | 47.9 | -7.8 | 7.0 | - | 36.1 | 38.6 | -2.5 |
| 04:10 AM - 04:15 AM | 44.3 | 48.5 | -4.2 | 7.0 | - | 40.3 | 37.9 | 2.4 |
| 04:15 AM - 04:20 AM | 44.3 | 48.5 | -4.2 | 7.0 | - | 40.3 | 39.1 | 1.2 |
| 04:20 AM - 04:25 AM | 39.2 | 50.8 | -9.6 | 7.0 | - | 46.2 | 38.7 | 7.5 |
| 04:25 AM - 04:30 AM | 50.8 | 52.1 | -1.3 | 7.0 | - | 46.8 | 39.9 | 6.9 |
| 04:30 AM - 04:35 AM | 45.3 | 52.0 | -6.7 | 7.0 | - | 41.3 | 41.0 | 0.3 |
| 04:35 AM - 04:40 AM | 45.7 | 53.1 | -7.4 | 7.0 | - | 41.7 | 41.0 | 0.7 |
| 04:40 AM - 04:45 AM | 54.5 | 53.6 | 0.9 | 7.0 | - | 50.5 | 40.9 | 9.6 |
| 04:45 AM - 04:50 AM | 71.1 | 68.0 | 3.1 | 3.0 | - | 71.1 | 48.5 | 22.6 |
| 04:50 AM - 04:55 AM | 73.2 | 73.2 | 0.0 | 7.0 | - | 69.2 | 70.0 | -0.8 |
| 04:55 AM - 05:00 AM | 70.2 | 68.8 | 1.4 | 7.0 | - | 66.2 | 66.5 | -0.3 |
| 05:00 AM - 05:05 AM | 54.5 | 61.3 | -6.8 | 7.0 | - | 50.5 | 52.0 | -1.5 |
| 05:05 AM - 05:10 AM | 46.1 | 52.7 | -6.6 | 7.0 | - | 42.1 | 47.2 | -5.1 |
| 05:10 AM - 05:15 AM | 52.9 | 53.2 | -0.3 | 7.0 | - | 48.9 | 49.2 | -0.3 |
| 05:15 AM - 05:20 AM | 50.9 | 53.7 | -2.8 | 7.0 | - | 46.9 | 47.6 | -0.7 |
| 05:20 AM - 05:25 AM | 51.5 | 54.7 | -3.2 | 7.0 | - | 47.5 | 47.1 | 0.4 |
| 05:25 AM - 05:30 AM | 50.3 | 55.5 | -5.2 | 7.0 | - | 46.3 | 48.8 | -2.5 |
| 05:30 AM - 05:35 AM | 50.4 | 57.2 | -6.8 | 7.0 | - | 46.4 | 52.3 | -5.9 |
| 05:35 AM - 05:40 AM | 53.1 | 57.7 | -4.6 | 7.0 | - | 49.1 | 53.4 | -4.3 |
| 05:40 AM - 05:45 AM | 59.5 | 57.9 | 1.6 | 4.5 | - | 58.0 | 50.6 | 7.4 |
| 05:45 AM - 05:50 AM | 55.4 | 60.3 | -4.9 | 7.0 | - | 51.4 | 53.3 | -1.9 |
| 05:50 AM - 05:55 AM | 57.6 | 57.3 | 0.3 | 7.0 | - | 53.6 | 54.1 | -0.5 |
| 05:55 AM - 06:00 AM | 62.1 | 57.4 | 4.7 | 1.5 | - | 63.6 | 53.2 | 10.4 |
| 06:00 AM - 07:00 AM | 58.9 | 55.9 | 3.0 | 3.0 | 55.9 | - | 49.5 | 6.4 |
| 07:00 AM - 08:00 AM | 55.8 | 52.8 | 3.0 | 3.0 | 52.8 | - | 46.9 | 5.9 |
| 08:00 AM - 09:00 AM | 55.7 | 52.6 | 3.1 | 3.0 | 52.7 | - | 44.1 | 8.6 |
| 09:00 AM - 10:00 AM | 58.1 | 53.6 | 4.5 | 1.5 | 56.6 | - | 48.0 | 8.6 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานผลลัพธ์ทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทางการตรวจวัด วันที่ 08-09 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-3 วันที่ตรวจวัด 08-09 พฤษภาคม 2566)

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658783-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-4
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=A-B) ระดับเสียง | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E=C+D) | กลางคืน (E=C+D) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 55.7 | 52.7 | 3.0 | 3.0 | 52.7 | - | 43.8 | 8.9 |
| 11:00 AM - 12:00 PM | 58.0 | 52.5 | 5.5 | 1.5 | 56.5 | - | 45.8 | 10.7 |
| 12:00 PM - 01:00 PM | 56.4 | 53.4 | 3.0 | 3.0 | 53.4 | - | 45.6 | 7.8 |
| 01:00 PM - 02:00 PM | 54.6 | 51.6 | 3.0 | 3.0 | 51.6 | - | 45.1 | 6.5 |
| 02:00 PM - 03:00 PM | 55.2 | 51.9 | 3.3 | 3.0 | 52.2 | - | 46.1 | 6.1 |
| 03:00 PM - 04:00 PM | 56.3 | 53.0 | 3.3 | 3.0 | 53.3 | - | 45.2 | 8.1 |
| 04:00 PM - 05:00 PM | 62.1 | 54.3 | 7.8 | 0.5 | 61.6 | - | 50.0 | 11.6 |
| 05:00 PM - 06:00 PM | 59.7 | 52.1 | 7.6 | 0.5 | 59.2 | - | 46.3 | 12.9 |
| 06:00 PM - 07:00 PM | 63.9 | 66.4 | -2.5 | 7.0 | 56.9 | - | 63.2 | -6.3 |
| 07:00 PM - 08:00 PM | 50.7 | 52.7 | -2.0 | 7.0 | 43.7 | - | 50.8 | -7.1 |
| 08:00 PM - 09:00 PM | 47.9 | 50.1 | -2.2 | 7.0 | 40.9 | - | 47.5 | -6.6 |
| 09:00 PM - 10:00 PM | 46.2 | 45.9 | 0.3 | 7.0 | 39.2 | - | 40.7 | -1.5 |
| 10:00 PM - 10:05 PM | 42.1 | 43.9 | -1.8 | 7.0 | - | 38.1 | 38.4 | -0.3 |
| 10:05 PM - 10:10 PM | 43.2 | 42.9 | 0.3 | 7.0 | - | 39.2 | 38.0 | 1.2 |
| 10:10 PM - 10:15 PM | 44.4 | 43.2 | 1.2 | 7.0 | - | 40.4 | 37.4 | 3.0 |
| 10:15 PM - 10:20 PM | 42.0 | 44.0 | -2.0 | 7.0 | - | 38.0 | 37.8 | 0.2 |
| 10:20 PM - 10:25 PM | 42.8 | 41.9 | 0.9 | 7.0 | - | 38.8 | 37.7 | 1.1 |
| 10:25 PM - 10:30 PM | 43.3 | 42.7 | 0.6 | 7.0 | - | 39.3 | 38.1 | 1.2 |
| 10:30 PM - 10:35 PM | 47.3 | 43.6 | 3.7 | 2.0 | - | 48.3 | 37.8 | 10.5 |
| 10:35 PM - 10:40 PM | 47.2 | 42.5 | 4.7 | 1.5 | - | 48.7 | 37.9 | 10.8 |
| 10:40 PM - 10:45 PM | 48.2 | 44.1 | 4.1 | 2.0 | - | 49.2 | 38.3 | 10.9 |
| 10:45 PM - 10:50 PM | 46.9 | 48.3 | -1.4 | 7.0 | - | 42.9 | 38.8 | 4.1 |
| 10:50 PM - 10:55 PM | 46.0 | 43.4 | 2.6 | 3.0 | - | 46.0 | 39.0 | 7.0 |
| 10:55 PM - 11:00 PM | 43.8 | 44.8 | -1.0 | 7.0 | - | 39.8 | 39.4 | 0.4 |
| 11:00 PM - 11:05 PM | 42.6 | 43.7 | -1.1 | 7.0 | - | 38.6 | 39.2 | -0.6 |
| 11:05 PM - 11:10 PM | 44.6 | 41.1 | 3.5 | 2.0 | - | 45.6 | 38.2 | 7.4 |
| 11:10 PM - 11:15 PM | 42.7 | 42.4 | 0.3 | 7.0 | - | 38.7 | 37.7 | 1.0 |
| 11:15 PM - 11:20 PM | 44.3 | 44.3 | 0.0 | 7.0 | - | 40.3 | 38.3 | 2.0 |
| 11:20 PM - 11:25 PM | 46.8 | 42.9 | 3.9 | 2.0 | - | 47.8 | 38.0 | 9.8 |
| 11:25 PM - 11:30 PM | 45.3 | 45.1 | 0.2 | 7.0 | - | 41.3 | 43.1 | -1.8 |
| 11:30 PM - 11:35 PM | 45.8 | 44.3 | 1.5 | 4.5 | - | 44.3 | 42.4 | 1.9 |
| 11:35 PM - 11:40 PM | 49.3 | 46.2 | 3.1 | 3.0 | - | 49.3 | 42.2 | 7.1 |
| 11:40 PM - 11:45 PM | 43.3 | 43.8 | -0.5 | 7.0 | - | 39.3 | 40.5 | -1.2 |
| 11:45 PM - 11:50 PM | 51.2 | 43.6 | 7.6 | 0.5 | - | 53.7 | 39.7 | 14.0 |
| 11:50 PM - 11:55 PM | 51.6 | 52.7 | -1.1 | 7.0 | - | 47.6 | 41.4 | 6.2 |
| 11:55 PM - 12:00 AM | 48.3 | 47.6 | 0.7 | 7.0 | - | 44.3 | 40.8 | 3.5 |
| 12:00 AM - 12:05 AM | 50.5 | 49.8 | 0.7 | 7.0 | - | 46.5 | 41.5 | 5.0 |
| 12:05 AM - 12:10 AM | 49.5 | 50.5 | -1.0 | 7.0 | - | 45.5 | 46.6 | -1.1 |
| 12:10 AM - 12:15 AM | 47.6 | 49.7 | -2.1 | 7.0 | - | 43.6 | 47.6 | -4.0 |
| 12:15 AM - 12:20 AM | 43.7 | 46.4 | -2.7 | 7.0 | - | 39.7 | 43.1 | -3.4 |

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Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658783-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-4
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=A-B) ระดับเสียง | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E=C+D) | กลางคืน (E=C+D) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 42.0 | 43.7 | -1.7 | 7.0 | - | 38.0 | 39.6 | -1.6 |
| 12:25 AM - 12:30 AM | 39.1 | 41.9 | -2.8 | 7.0 | - | 35.1 | 39.4 | -4.3 |
| 12:30 AM - 12:35 AM | 37.4 | 39.1 | -1.7 | 7.0 | - | 33.4 | 36.7 | -3.3 |
| 12:35 AM - 12:40 AM | 44.4 | 39.1 | 5.3 | 1.5 | - | 45.9 | 36.3 | 9.6 |
| 12:40 AM - 12:45 AM | 42.7 | 42.3 | 0.4 | 7.0 | - | 38.7 | 36.2 | 2.5 |
| 12:45 AM - 12:50 AM | 40.2 | 43.2 | -3.0 | 7.0 | - | 36.2 | 36.3 | -0.1 |
| 12:50 AM - 12:55 AM | 44.3 | 44.1 | 0.2 | 7.0 | - | 40.3 | 36.9 | 3.4 |
| 12:55 AM - 01:00 AM | 49.2 | 39.4 | 9.8 | 0.5 | - | 51.7 | 36.7 | 15.0 |
| 01:00 AM - 01:05 AM | 37.9 | 43.7 | -5.8 | 7.0 | - | 33.9 | 36.9 | -3.0 |
| 01:05 AM - 01:10 AM | 39.8 | 38.3 | 1.5 | 4.5 | - | 38.3 | 36.7 | 1.6 |
| 01:10 AM - 01:15 AM | 40.9 | 39.3 | 1.6 | 4.5 | - | 39.4 | 36.6 | 2.8 |
| 01:15 AM - 01:20 AM | 39.5 | 39.8 | -0.3 | 7.0 | - | 35.5 | 37.4 | -1.9 |
| 01:20 AM - 01:25 AM | 41.6 | 39.0 | 2.6 | 3.0 | - | 41.6 | 35.4 | 6.2 |
| 01:25 AM - 01:30 AM | 44.4 | 37.8 | 6.6 | 1.0 | - | 46.4 | 36.2 | 10.2 |
| 01:30 AM - 01:35 AM | 39.9 | 43.7 | -3.8 | 7.0 | - | 35.9 | 37.1 | -1.2 |
| 01:35 AM - 01:40 AM | 40.1 | 40.2 | -0.1 | 7.0 | - | 36.1 | 37.9 | -1.8 |
| 01:40 AM - 01:45 AM | 36.1 | 37.7 | -1.6 | 7.0 | - | 32.1 | 34.7 | -2.6 |
| 01:45 AM - 01:50 AM | 41.1 | 38.7 | 2.4 | 4.5 | - | 39.6 | 35.0 | 4.6 |
| 01:50 AM - 01:55 AM | 48.6 | 41.9 | 6.7 | 1.0 | - | 50.6 | 33.7 | 16.9 |
| 01:55 AM - 02:00 AM | 41.6 | 45.3 | -3.7 | 7.0 | - | 37.6 | 33.6 | 4.0 |
| 02:00 AM - 02:05 AM | 36.9 | 41.8 | -4.9 | 7.0 | - | 32.9 | 32.5 | 0.4 |
| 02:05 AM - 02:10 AM | 40.7 | 38.8 | 1.9 | 4.5 | - | 39.2 | 33.4 | 5.8 |
| 02:10 AM - 02:15 AM | 44.8 | 41.6 | 3.2 | 3.0 | - | 44.8 | 33.8 | 11.0 |
| 02:15 AM - 02:20 AM | 49.3 | 46.4 | 2.9 | 3.0 | - | 49.3 | 36.6 | 12.7 |
| 02:20 AM - 02:25 AM | 47.8 | 36.5 | 11.3 | 0.5 | - | 50.3 | 35.5 | 14.8 |
| 02:25 AM - 02:30 AM | 48.6 | 48.5 | 0.1 | 7.0 | - | 44.6 | 35.9 | 8.7 |
| 02:30 AM - 02:35 AM | 39.5 | 40.9 | -1.4 | 7.0 | - | 35.5 | 36.2 | -0.7 |
| 02:35 AM - 02:40 AM | 39.7 | 39.4 | 0.3 | 7.0 | - | 35.7 | 36.1 | -0.4 |
| 02:40 AM - 02:45 AM | 41.7 | 41.4 | 0.3 | 7.0 | - | 37.7 | 36.0 | 1.7 |
| 02:45 AM - 02:50 AM | 43.5 | 40.6 | 2.9 | 3.0 | - | 43.5 | 34.7 | 8.8 |
| 02:50 AM - 02:55 AM | 44.3 | 44.7 | -0.4 | 7.0 | - | 40.3 | 34.4 | 5.9 |
| 02:55 AM - 03:00 AM | 45.7 | 46.1 | -0.4 | 7.0 | - | 41.7 | 35.9 | 5.8 |
| 03:00 AM - 03:05 AM | 52.9 | 46.7 | 6.2 | 1.5 | - | 54.4 | 35.8 | 18.6 |
| 03:05 AM - 03:10 AM | 47.1 | 46.8 | 0.3 | 7.0 | - | 43.1 | 42.0 | 1.1 |
| 03:10 AM - 03:15 AM | 51.3 | 49.7 | 1.6 | 4.5 | - | 49.8 | 46.8 | 3.0 |
| 03:15 AM - 03:20 AM | 51.9 | 52.4 | -0.5 | 7.0 | - | 47.9 | 51.8 | -3.9 |
| 03:20 AM - 03:25 AM | 53.0 | 53.2 | -0.2 | 7.0 | - | 49.0 | 51.6 | -2.6 |
| 03:25 AM - 03:30 AM | 51.8 | 53.5 | -1.7 | 7.0 | - | 47.8 | 52.7 | -4.9 |
| 03:30 AM - 03:35 AM | 51.5 | 51.7 | -0.2 | 7.0 | - | 47.5 | 50.7 | -3.2 |
| 03:35 AM - 03:40 AM | 50.4 | 52.1 | -1.7 | 7.0 | - | 46.4 | 50.4 | -4.0 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658783-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-4
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

| เวลา | ระดับเสียง (dB(A)) เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=A-B) ระดับเสียง | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E=C+D) | กลางคืน (E=C+D) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 49.5 | 51.0 | -1.5 | 7.0 | - | 45.5 | 49.8 | -4.3 |
| 03:45 AM - 03:50 AM | 48.7 | 49.0 | -0.3 | 7.0 | - | 44.7 | 47.8 | -3.1 |
| 03:50 AM - 03:55 AM | 51.2 | 49.7 | 1.5 | 4.5 | - | 49.7 | 48.3 | 1.4 |
| 03:55 AM - 04:00 AM | 48.3 | 49.6 | -1.3 | 7.0 | - | 44.3 | 47.6 | -3.3 |
| 04:00 AM - 04:05 AM | 49.8 | 49.2 | 0.6 | 7.0 | - | 45.8 | 48.2 | -2.4 |
| 04:05 AM - 04:10 AM | 49.4 | 50.3 | -0.9 | 7.0 | - | 45.4 | 49.3 | -3.9 |
| 04:10 AM - 04:15 AM | 49.2 | 49.6 | -0.4 | 7.0 | - | 45.2 | 48.7 | -3.5 |
| 04:15 AM - 04:20 AM | 50.5 | 49.5 | 1.0 | 7.0 | - | 46.5 | 48.6 | -2.1 |
| 04:20 AM - 04:25 AM | 50.5 | 51.3 | -0.8 | 7.0 | - | 46.5 | 50.2 | -3.7 |
| 04:25 AM - 04:30 AM | 49.5 | 50.8 | -1.3 | 7.0 | - | 45.5 | 49.8 | -4.3 |
| 04:30 AM - 04:35 AM | 48.3 | 49.4 | -1.1 | 7.0 | - | 44.3 | 47.6 | -3.3 |
| 04:35 AM - 04:40 AM | 51.7 | 50.1 | 1.6 | 4.5 | - | 50.2 | 46.4 | 3.8 |
| 04:40 AM - 04:45 AM | 48.0 | 51.9 | -3.9 | 7.0 | - | 44.0 | 46.9 | -2.9 |
| 04:45 AM - 04:50 AM | 57.3 | 54.2 | 3.1 | 3.0 | - | 57.3 | 47.7 | 9.6 |
| 04:50 AM - 04:55 AM | 73.9 | 68.1 | 5.8 | 1.5 | - | 75.4 | 49.9 | 25.5 |
| 04:55 AM - 05:00 AM | 74.0 | 75.7 | -1.7 | 7.0 | - | 70.0 | 74.8 | -4.8 |
| 05:00 AM - 05:05 AM | 65.9 | 73.8 | -7.9 | 7.0 | - | 61.9 | 70.3 | -8.4 |
| 05:05 AM - 05:10 AM | 53.9 | 62.5 | -8.6 | 7.0 | - | 49.9 | 55.6 | -5.7 |
| 05:10 AM - 05:15 AM | 52.3 | 56.5 | -4.2 | 7.0 | - | 48.3 | 53.5 | -5.2 |
| 05:15 AM - 05:20 AM | 52.2 | 56.2 | -4.0 | 7.0 | - | 48.2 | 53.4 | -5.2 |
| 05:20 AM - 05:25 AM | 54.1 | 56.0 | -1.9 | 7.0 | - | 50.1 | 53.1 | -3.0 |
| 05:25 AM - 05:30 AM | 51.4 | 56.3 | -4.9 | 7.0 | - | 47.4 | 52.8 | -5.4 |
| 05:30 AM - 05:35 AM | 50.3 | 55.0 | -4.7 | 7.0 | - | 46.3 | 50.5 | -4.2 |
| 05:35 AM - 05:40 AM | 53.9 | 53.7 | 0.2 | 7.0 | - | 49.9 | 49.9 | 0.0 |
| 05:40 AM - 05:45 AM | 53.6 | 53.2 | 0.4 | 7.0 | - | 49.6 | 49.8 | -0.2 |
| 05:45 AM - 05:50 AM | 54.7 | 55.4 | -0.7 | 7.0 | - | 50.7 | 51.0 | -0.3 |
| 05:50 AM - 05:55 AM | 58.9 | 58.1 | 0.8 | 7.0 | - | 54.9 | 51.2 | 3.7 |
| 05:55 AM - 06:00 AM | 56.5 | 55.1 | 1.4 | 7.0 | - | 52.5 | 50.4 | 2.1 |
| 06:00 AM - 07:00 AM | 58.2 | 55.6 | 2.6 | 3.0 | 55.2 | - | 50.9 | 4.3 |
| 07:00 AM - 08:00 AM | 56.7 | 54.0 | 2.7 | 3.0 | 53.7 | - | 48.4 | 5.3 |
| 08:00 AM - 09:00 AM | 55.9 | 53.5 | 2.4 | 4.5 | 51.4 | - | 47.1 | 4.3 |
| 09:00 AM - 10:00 AM | 53.6 | 51.3 | 2.3 | 4.5 | 49.1 | - | 45.5 | 3.6 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานผลลัพธ์ทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทางการตรวจวัด วันที่ 09-10 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-4 วันที่ตรวจวัด 09-10 พฤษภาคม 2566)

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**Approved by**
Wilawan Borirak
Manager

Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658784-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-5
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อม (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 56.3 | 53.4 | 2.9 | 3.0 | 53.3 | - | 46.5 | 6.8 |
| 11:00 AM - 12:00 PM | 58.1 | 57.1 | 1.0 | 7.0 | 51.1 | - | 44.3 | 6.8 |
| 12:00 PM - 01:00 PM | 57.5 | 64.2 | -6.7 | 7.0 | 50.5 | - | 61.3 | -10.8 |
| 01:00 PM - 02:00 PM | 54.0 | 50.8 | 3.2 | 3.0 | 51.0 | - | 42.7 | 8.3 |
| 02:00 PM - 03:00 PM | 55.2 | 53.0 | 2.2 | 4.5 | 50.7 | - | 44.5 | 6.2 |
| 03:00 PM - 04:00 PM | 59.8 | 57.4 | 2.4 | 4.5 | 55.3 | - | 51.4 | 3.9 |
| 04:00 PM - 05:00 PM | 56.6 | 54.0 | 2.6 | 3.0 | 53.6 | - | 49.4 | 4.2 |
| 05:00 PM - 06:00 PM | 56.5 | 53.1 | 3.4 | 3.0 | 53.5 | - | 47.3 | 6.2 |
| 06:00 PM - 07:00 PM | 61.4 | 65.8 | -4.4 | 7.0 | 54.4 | - | 61.9 | -7.5 |
| 07:00 PM - 08:00 PM | 53.3 | 54.4 | -1.1 | 7.0 | 46.3 | - | 48.5 | -2.2 |
| 08:00 PM - 09:00 PM | 52.3 | 53.6 | -1.3 | 7.0 | 45.3 | - | 46.8 | -1.5 |
| 09:00 PM - 10:00 PM | 49.6 | 49.6 | 0.0 | 7.0 | 42.6 | - | 45.0 | -2.4 |
| 10:00 PM - 10:05 PM | 46.1 | 46.7 | -0.6 | 7.0 | - | 42.1 | 44.1 | -2.0 |
| 10:05 PM - 10:10 PM | 46.4 | 45.9 | 0.5 | 7.0 | - | 42.4 | 42.7 | -0.3 |
| 10:10 PM - 10:15 PM | 43.6 | 46.2 | -2.6 | 7.0 | - | 39.6 | 40.2 | -0.6 |
| 10:15 PM - 10:20 PM | 43.3 | 43.3 | 0.0 | 7.0 | - | 39.3 | 40.7 | -1.4 |
| 10:20 PM - 10:25 PM | 42.8 | 44.1 | -1.3 | 7.0 | - | 38.8 | 41.8 | -3.0 |
| 10:25 PM - 10:30 PM | 50.1 | 47.3 | 2.8 | 3.0 | - | 50.1 | 41.9 | 8.2 |
| 10:30 PM - 10:35 PM | 47.2 | 46.8 | 0.4 | 7.0 | - | 43.2 | 40.8 | 2.4 |
| 10:35 PM - 10:40 PM | 44.3 | 44.7 | -0.4 | 7.0 | - | 40.3 | 40.7 | -0.4 |
| 10:40 PM - 10:45 PM | 42.0 | 44.0 | -2.0 | 7.0 | - | 38.0 | 40.4 | -2.4 |
| 10:45 PM - 10:50 PM | 53.9 | 43.0 | 10.9 | 0.5 | - | 56.4 | 41.0 | 15.4 |
| 10:50 PM - 10:55 PM | 48.4 | 49.3 | -0.9 | 7.0 | - | 44.4 | 41.3 | 3.1 |
| 10:55 PM - 11:00 PM | 42.6 | 46.9 | -4.3 | 7.0 | - | 38.6 | 42.2 | -3.6 |
| 11:00 PM - 11:05 PM | 48.9 | 43.9 | 5.0 | 1.5 | - | 50.4 | 41.8 | 8.6 |
| 11:05 PM - 11:10 PM | 47.5 | 46.7 | 0.8 | 7.0 | - | 43.5 | 42.2 | 1.3 |
| 11:10 PM - 11:15 PM | 52.0 | 44.6 | 7.4 | 1.0 | - | 54.0 | 41.2 | 12.8 |
| 11:15 PM - 11:20 PM | 50.8 | 47.5 | 3.3 | 3.0 | - | 50.8 | 39.4 | 11.4 |
| 11:20 PM - 11:25 PM | 51.6 | 49.0 | 2.6 | 3.0 | - | 51.6 | 39.6 | 12.0 |
| 11:25 PM - 11:30 PM | 42.3 | 46.7 | -4.4 | 7.0 | - | 38.3 | 44.8 | -6.5 |
| 11:30 PM - 11:35 PM | 44.9 | 47.9 | -3.0 | 7.0 | - | 40.9 | 45.5 | -4.6 |
| 11:35 PM - 11:40 PM | 46.2 | 45.7 | 0.5 | 7.0 | - | 42.2 | 41.5 | 0.7 |
| 11:40 PM - 11:45 PM | 44.9 | 47.1 | -2.2 | 7.0 | - | 40.9 | 44.6 | -3.7 |
| 11:45 PM - 11:50 PM | 45.9 | 47.4 | -1.5 | 7.0 | - | 41.9 | 42.8 | -0.9 |
| 11:50 PM - 11:55 PM | 51.0 | 46.1 | 4.9 | 1.5 | - | 52.5 | 40.3 | 12.2 |
| 11:55 PM - 12:00 AM | 42.0 | 45.1 | -3.1 | 7.0 | - | 38.0 | 40.8 | -2.8 |
| 12:00 AM - 12:05 AM | 47.7 | 42.6 | 5.1 | 1.5 | - | 49.2 | 40.4 | 8.8 |
| 12:05 AM - 12:10 AM | 48.6 | 45.4 | 3.2 | 3.0 | - | 48.6 | 42.0 | 6.6 |
| 12:10 AM - 12:15 AM | 52.0 | 47.2 | 4.8 | 1.5 | - | 53.5 | 42.2 | 11.3 |
| 12:15 AM - 12:20 AM | 40.0 | 48.7 | -8.7 | 7.0 | - | 36.0 | 40.1 | -4.1 |

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Approved by
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658784-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-5
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อม (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 40.3 | 43.4 | -3.1 | 7.0 | - | 36.3 | 41.0 | -4.7 |
| 12:25 AM - 12:30 AM | 41.5 | 41.2 | 0.3 | 7.0 | - | 37.5 | 39.2 | -1.7 |
| 12:30 AM - 12:35 AM | 42.0 | 43.1 | -1.1 | 7.0 | - | 38.0 | 39.4 | -1.4 |
| 12:35 AM - 12:40 AM | 52.9 | 48.8 | 4.1 | 2.0 | - | 53.9 | 39.4 | 14.5 |
| 12:40 AM - 12:45 AM | 42.3 | 41.7 | 0.6 | 7.0 | - | 38.3 | 39.0 | -0.7 |
| 12:45 AM - 12:50 AM | 40.6 | 41.4 | -0.8 | 7.0 | - | 36.6 | 39.2 | -2.6 |
| 12:50 AM - 12:55 AM | 41.7 | 41.8 | -0.1 | 7.0 | - | 37.7 | 39.1 | -1.4 |
| 12:55 AM - 01:00 AM | 47.3 | 42.9 | 4.4 | 2.0 | - | 48.3 | 38.4 | 9.9 |
| 01:00 AM - 01:05 AM | 51.7 | 42.8 | 8.9 | 0.5 | - | 54.2 | 38.5 | 15.7 |
| 01:05 AM - 01:10 AM | 40.3 | 47.1 | -6.8 | 7.0 | - | 36.3 | 36.1 | 0.2 |
| 01:10 AM - 01:15 AM | 45.0 | 44.3 | 0.7 | 7.0 | - | 41.0 | 37.2 | 3.8 |
| 01:15 AM - 01:20 AM | 48.2 | 40.8 | 7.4 | 1.0 | - | 50.2 | 37.4 | 12.8 |
| 01:20 AM - 01:25 AM | 43.8 | 47.8 | -4.0 | 7.0 | - | 39.8 | 39.6 | 0.2 |
| 01:25 AM - 01:30 AM | 52.3 | 43.8 | 8.5 | 0.5 | - | 54.8 | 41.9 | 12.9 |
| 01:30 AM - 01:35 AM | 42.1 | 48.5 | -6.4 | 7.0 | - | 38.1 | 41.7 | -3.6 |
| 01:35 AM - 01:40 AM | 40.6 | 44.5 | -3.9 | 7.0 | - | 36.6 | 41.1 | -4.5 |
| 01:40 AM - 01:45 AM | 43.2 | 45.5 | -2.3 | 7.0 | - | 39.2 | 41.6 | -2.4 |
| 01:45 AM - 01:50 AM | 40.3 | 45.6 | -5.3 | 7.0 | - | 36.3 | 41.1 | -4.8 |
| 01:50 AM - 01:55 AM | 48.1 | 48.7 | -0.6 | 7.0 | - | 44.1 | 40.4 | 3.7 |
| 01:55 AM - 02:00 AM | 53.4 | 47.2 | 6.2 | 1.5 | - | 54.9 | 41.4 | 13.5 |
| 02:00 AM - 02:05 AM | 39.5 | 49.0 | -9.5 | 7.0 | - | 35.5 | 42.5 | -7.0 |
| 02:05 AM - 02:10 AM | 38.3 | 45.5 | -7.2 | 7.0 | - | 34.3 | 40.7 | -6.4 |
| 02:10 AM - 02:15 AM | 41.4 | 44.3 | -2.9 | 7.0 | - | 37.4 | 40.7 | -3.3 |
| 02:15 AM - 02:20 AM | 59.5 | 51.9 | 7.6 | 0.5 | - | 62.0 | 40.7 | 21.3 |
| 02:20 AM - 02:25 AM | 48.1 | 44.9 | 3.2 | 3.0 | - | 48.1 | 39.7 | 8.4 |
| 02:25 AM - 02:30 AM | 41.5 | 46.3 | -4.8 | 7.0 | - | 37.5 | 40.8 | -3.3 |
| 02:30 AM - 02:35 AM | 53.2 | 44.7 | 8.5 | 0.5 | - | 55.7 | 40.2 | 15.5 |
| 02:35 AM - 02:40 AM | 45.0 | 49.3 | -4.3 | 7.0 | - | 41.0 | 42.0 | -1.0 |
| 02:40 AM - 02:45 AM | 38.5 | 44.1 | -5.6 | 7.0 | - | 34.5 | 40.1 | -5.6 |
| 02:45 AM - 02:50 AM | 41.8 | 43.5 | -1.7 | 7.0 | - | 37.8 | 40.8 | -3.0 |
| 02:50 AM - 02:55 AM | 40.7 | 45.8 | -5.1 | 7.0 | - | 36.7 | 41.5 | -4.8 |
| 02:55 AM - 03:00 AM | 52.7 | 48.5 | 4.2 | 2.0 | - | 53.7 | 41.3 | 12.4 |
| 03:00 AM - 03:05 AM | 44.8 | 46.3 | -1.5 | 7.0 | - | 40.8 | 41.0 | -0.2 |
| 03:05 AM - 03:10 AM | 40.6 | 46.1 | -5.5 | 7.0 | - | 36.6 | 41.0 | -4.4 |
| 03:10 AM - 03:15 AM | 43.9 | 45.3 | -1.4 | 7.0 | - | 39.9 | 41.4 | -1.5 |
| 03:15 AM - 03:20 AM | 41.7 | 45.3 | -3.6 | 7.0 | - | 37.7 | 40.3 | -2.6 |
| 03:20 AM - 03:25 AM | 47.8 | 45.2 | 2.6 | 3.0 | - | 47.8 | 40.4 | 7.4 |
| 03:25 AM - 03:30 AM | 46.8 | 51.9 | -5.1 | 7.0 | - | 42.8 | 41.8 | 1.0 |
| 03:30 AM - 03:35 AM | 52.7 | 45.7 | 7.0 | 1.0 | - | 54.7 | 41.5 | 13.2 |
| 03:35 AM - 03:40 AM | 42.7 | 49.3 | -6.6 | 7.0 | - | 38.7 | 43.1 | -4.4 |

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Approved by
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658784-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-5
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อม (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 44.1 | 45.4 | -1.3 | 7.0 | - | 40.1 | 39.5 | 0.6 |
| 03:45 AM - 03:50 AM | 42.3 | 46.0 | -3.7 | 7.0 | - | 38.3 | 39.9 | -1.6 |
| 03:50 AM - 03:55 AM | 54.2 | 46.6 | 7.6 | 0.5 | - | 56.7 | 41.2 | 15.5 |
| 03:55 AM - 04:00 AM | 45.2 | 49.5 | -4.3 | 7.0 | - | 41.2 | 41.5 | -0.3 |
| 04:00 AM - 04:05 AM | 43.9 | 47.2 | -3.3 | 7.0 | - | 39.9 | 40.9 | -1.0 |
| 04:05 AM - 04:10 AM | 43.9 | 45.9 | -2.0 | 7.0 | - | 39.9 | 40.8 | -0.9 |
| 04:10 AM - 04:15 AM | 46.4 | 48.9 | -2.5 | 7.0 | - | 42.4 | 41.4 | 1.0 |
| 04:15 AM - 04:20 AM | 43.1 | 46.1 | -3.0 | 7.0 | - | 39.1 | 42.1 | -3.0 |
| 04:20 AM - 04:25 AM | 44.4 | 46.3 | -1.9 | 7.0 | - | 40.4 | 42.6 | -2.2 |
| 04:25 AM - 04:30 AM | 44.9 | 46.6 | -1.7 | 7.0 | - | 40.9 | 42.5 | -1.6 |
| 04:30 AM - 04:35 AM | 45.8 | 46.9 | -1.1 | 7.0 | - | 41.8 | 42.9 | -1.1 |
| 04:35 AM - 04:40 AM | 47.5 | 48.0 | -0.5 | 7.0 | - | 43.5 | 44.0 | -0.5 |
| 04:40 AM - 04:45 AM | 64.5 | 51.5 | 13.0 | 0.0 | - | 67.5 | 45.0 | 22.5 |
| 04:45 AM - 04:50 AM | 72.8 | 73.1 | -0.3 | 7.0 | - | 68.8 | 61.4 | 7.4 |
| 04:50 AM - 04:55 AM | 71.8 | 74.1 | -2.5 | 7.0 | - | 67.8 | 73.6 | -5.8 |
| 04:55 AM - 05:00 AM | 63.3 | 71.1 | -7.8 | 7.0 | - | 59.3 | 67.5 | -8.2 |
| 05:00 AM - 05:05 AM | 51.9 | 54.2 | -2.3 | 7.0 | - | 47.9 | 47.9 | 0.0 |
| 05:05 AM - 05:10 AM | 51.9 | 51.1 | 0.8 | 7.0 | - | 47.9 | 47.5 | 0.4 |
| 05:10 AM - 05:15 AM | 50.3 | 52.1 | -1.8 | 7.0 | - | 46.3 | 47.1 | -0.8 |
| 05:15 AM - 05:20 AM | 49.7 | 51.5 | -1.8 | 7.0 | - | 45.7 | 48.7 | -3.0 |
| 05:20 AM - 05:25 AM | 55.4 | 55.0 | 0.4 | 7.0 | - | 51.4 | 52.2 | -0.8 |
| 05:25 AM - 05:30 AM | 50.2 | 55.9 | -5.7 | 7.0 | - | 46.2 | 54.3 | -8.1 |
| 05:30 AM - 05:35 AM | 50.2 | 55.1 | -4.9 | 7.0 | - | 46.2 | 54.2 | -8.0 |
| 05:35 AM - 05:40 AM | 54.3 | 55.4 | -1.1 | 7.0 | - | 50.3 | 54.1 | -3.8 |
| 05:40 AM - 05:45 AM | 52.3 | 52.0 | 0.3 | 7.0 | - | 48.3 | 49.1 | -0.8 |
| 05:45 AM - 05:50 AM | 55.9 | 54.2 | 1.7 | 4.5 | - | 54.4 | 50.3 | 4.1 |
| 05:50 AM - 05:55 AM | 56.7 | 56.0 | 0.7 | 7.0 | - | 52.7 | 54.1 | -1.4 |
| 05:55 AM - 06:00 AM | 54.1 | 57.1 | -3.0 | 7.0 | - | 50.1 | 54.7 | -4.6 |
| 06:00 AM - 07:00 AM | 61.3 | 58.1 | 3.2 | 3.0 | 58.3 | - | 53.5 | 4.8 |
| 07:00 AM - 08:00 AM | 58.9 | 57.2 | 1.7 | 4.5 | 54.4 | - | 53.6 | 0.8 |
| 08:00 AM - 09:00 AM | 54.0 | 53.2 | 0.8 | 7.0 | 47.0 | - | 49.0 | -2.0 |
| 09:00 AM - 10:00 AM | 54.9 | 52.7 | 2.2 | 4.5 | 50.4 | - | 48.0 | 2.4 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกระทรวงอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานผลพิษทางเสียงที่เกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 10-11 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-5 วันที่ตรวจวัด 10-11 พฤษภาคม 2566)

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Approved by
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658785-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-6
**Parameter** เสียงรบกวน
**Location** บ้านวังอาลหม่อม (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 64.8 | 64.6 | 0.2 | 7.0 | 57.8 | - | 61.6 | -3.8 |
| 11:00 AM - 12:00 PM | 54.4 | 51.8 | 2.6 | 3.0 | 51.4 | - | 43.6 | 7.8 |
| 12:00 PM - 01:00 PM | 56.6 | 54.0 | 2.6 | 3.0 | 53.6 | - | 46.1 | 7.5 |
| 01:00 PM - 02:00 PM | 54.4 | 51.3 | 3.1 | 3.0 | 51.4 | - | 43.3 | 8.1 |
| 02:00 PM - 03:00 PM | 63.2 | 63.4 | -0.2 | 7.0 | 56.2 | - | 57.3 | -1.1 |
| 03:00 PM - 04:00 PM | 59.1 | 60.1 | -1.0 | 7.0 | 52.1 | - | 55.2 | -3.1 |
| 04:00 PM - 05:00 PM | 64.2 | 61.8 | 2.4 | 4.5 | 59.7 | - | 50.7 | 9.0 |
| 05:00 PM - 06:00 PM | 62.8 | 55.8 | 7.0 | 1.0 | 61.8 | - | 50.6 | 11.2 |
| 06:00 PM - 07:00 PM | 64.2 | 66.4 | -2.2 | 7.0 | 57.2 | - | 64.1 | -6.9 |
| 07:00 PM - 08:00 PM | 52.2 | 54.3 | -2.1 | 7.0 | 45.2 | - | 52.6 | -7.4 |
| 08:00 PM - 09:00 PM | 48.9 | 52.7 | -3.8 | 7.0 | 41.9 | - | 51.0 | -9.1 |
| 09:00 PM - 10:00 PM | 46.6 | 52.9 | -6.3 | 7.0 | 39.6 | - | 51.5 | -11.9 |
| 10:00 PM - 10:05 PM | 41.5 | 51.9 | -10.4 | 7.0 | - | 37.5 | 51.0 | -13.5 |
| 10:05 PM - 10:10 PM | 47.7 | 51.9 | -4.2 | 7.0 | - | 43.7 | 51.1 | -7.4 |
| 10:10 PM - 10:15 PM | 43.7 | 52.0 | -8.3 | 7.0 | - | 39.7 | 50.7 | -11.0 |
| 10:15 PM - 10:20 PM | 45.8 | 51.5 | -5.7 | 7.0 | - | 41.8 | 50.3 | -8.5 |
| 10:20 PM - 10:25 PM | 44.2 | 49.5 | -5.3 | 7.0 | - | 40.2 | 46.6 | -6.4 |
| 10:25 PM - 10:30 PM | 41.5 | 47.7 | -6.2 | 7.0 | - | 37.5 | 45.3 | -7.8 |
| 10:30 PM - 10:35 PM | 62.9 | 45.7 | 17.2 | 0.0 | - | 65.9 | 43.8 | 22.1 |
| 10:35 PM - 10:40 PM | 41.6 | 55.8 | -14.2 | 7.0 | - | 37.6 | 41.2 | -3.6 |
| 10:40 PM - 10:45 PM | 46.4 | 43.8 | 2.6 | 3.0 | - | 46.4 | 40.0 | 6.4 |
| 10:45 PM - 10:50 PM | 46.0 | 44.7 | 1.3 | 7.0 | - | 42.0 | 41.2 | 0.8 |
| 10:50 PM - 10:55 PM | 41.3 | 46.6 | -5.3 | 7.0 | - | 37.3 | 41.0 | -3.7 |
| 10:55 PM - 11:00 PM | 44.6 | 43.1 | 1.5 | 4.5 | - | 43.1 | 41.3 | 1.8 |
| 11:00 PM - 11:05 PM | 44.9 | 42.7 | 2.2 | 4.5 | - | 43.4 | 37.5 | 5.9 |
| 11:05 PM - 11:10 PM | 52.3 | 46.8 | 5.5 | 1.5 | - | 53.8 | 38.4 | 15.4 |
| 11:10 PM - 11:15 PM | 50.6 | 54.5 | -3.9 | 7.0 | - | 46.6 | 51.6 | -5.0 |
| 11:15 PM - 11:20 PM | 45.2 | 54.0 | -8.8 | 7.0 | - | 41.2 | 44.5 | -3.3 |
| 11:20 PM - 11:25 PM | 41.0 | 45.1 | -4.1 | 7.0 | - | 37.0 | 41.9 | -4.9 |
| 11:25 PM - 11:30 PM | 42.2 | 41.6 | 0.6 | 7.0 | - | 38.2 | 39.2 | -1.0 |
| 11:30 PM - 11:35 PM | 38.6 | 42.7 | -4.1 | 7.0 | - | 34.6 | 40.0 | -5.4 |
| 11:35 PM - 11:40 PM | 39.9 | 41.9 | -2.0 | 7.0 | - | 35.9 | 39.6 | -3.7 |
| 11:40 PM - 11:45 PM | 39.7 | 43.1 | -3.4 | 7.0 | - | 35.7 | 39.8 | -4.1 |
| 11:45 PM - 11:50 PM | 38.1 | 41.3 | -3.2 | 7.0 | - | 34.1 | 38.2 | -4.1 |
| 11:50 PM - 11:55 PM | 39.6 | 43.2 | -3.6 | 7.0 | - | 35.6 | 41.2 | -5.6 |
| 11:55 PM - 12:00 AM | 40.1 | 43.6 | -3.5 | 7.0 | - | 36.1 | 41.4 | -5.3 |
| 12:00 AM - 12:05 AM | 42.4 | 43.2 | -0.8 | 7.0 | - | 38.4 | 40.8 | -2.4 |
| 12:05 AM - 12:10 AM | 39.3 | 43.7 | -4.4 | 7.0 | - | 35.3 | 40.2 | -4.9 |
| 12:10 AM - 12:15 AM | 39.0 | 42.0 | -3.0 | 7.0 | - | 35.0 | 38.8 | -3.8 |
| 12:15 AM - 12:20 AM | 38.8 | 43.4 | -4.6 | 7.0 | - | 34.8 | 41.2 | -6.4 |

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Approved by
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658785-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-6
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด: กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด: กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 38.5 | 43.2 | -4.7 | 7.0 | - | 34.5 | 41.0 | -6.5 |
| 12:25 AM - 12:30 AM | 40.9 | 43.3 | -2.4 | 7.0 | - | 36.9 | 40.0 | -3.1 |
| 12:30 AM - 12:35 AM | 40.4 | 44.6 | -4.2 | 7.0 | - | 36.4 | 41.9 | -5.5 |
| 12:35 AM - 12:40 AM | 45.7 | 45.5 | 0.2 | 7.0 | - | 41.7 | 41.4 | 0.3 |
| 12:40 AM - 12:45 AM | 43.8 | 45.0 | -1.2 | 7.0 | - | 39.8 | 41.4 | -1.6 |
| 12:45 AM - 12:50 AM | 42.2 | 45.8 | -3.6 | 7.0 | - | 38.2 | 42.9 | -4.7 |
| 12:50 AM - 12:55 AM | 40.8 | 43.7 | -2.9 | 7.0 | - | 36.8 | 41.3 | -4.5 |
| 12:55 AM - 01:00 AM | 41.5 | 43.7 | -2.2 | 7.0 | - | 37.5 | 40.5 | -3.0 |
| 01:00 AM - 01:05 AM | 38.9 | 44.6 | -5.7 | 7.0 | - | 34.9 | 42.2 | -7.3 |
| 01:05 AM - 01:10 AM | 41.3 | 44.7 | -3.4 | 7.0 | - | 37.3 | 42.8 | -5.5 |
| 01:10 AM - 01:15 AM | 37.8 | 44.1 | -6.3 | 7.0 | - | 33.8 | 42.5 | -8.7 |
| 01:15 AM - 01:20 AM | 37.3 | 44.4 | -7.1 | 7.0 | - | 33.3 | 43.0 | -9.7 |
| 01:20 AM - 01:25 AM | 38.4 | 44.1 | -5.7 | 7.0 | - | 34.4 | 41.1 | -6.7 |
| 01:25 AM - 01:30 AM | 36.4 | 43.5 | -7.1 | 7.0 | - | 32.4 | 41.5 | -9.1 |
| 01:30 AM - 01:35 AM | 38.9 | 42.4 | -3.5 | 7.0 | - | 34.9 | 39.5 | -4.6 |
| 01:35 AM - 01:40 AM | 53.2 | 43.7 | 9.5 | 0.5 | - | 55.7 | 40.4 | 15.3 |
| 01:40 AM - 01:45 AM | 44.8 | 51.0 | -6.2 | 7.0 | - | 40.8 | 39.4 | 1.4 |
| 01:45 AM - 01:50 AM | 37.4 | 41.3 | -3.9 | 7.0 | - | 33.4 | 37.7 | -4.3 |
| 01:50 AM - 01:55 AM | 39.8 | 39.4 | 0.4 | 7.0 | - | 35.8 | 37.1 | -1.3 |
| 01:55 AM - 02:00 AM | 36.1 | 40.4 | -4.3 | 7.0 | - | 32.1 | 36.1 | -4.0 |
| 02:00 AM - 02:05 AM | 46.0 | 38.5 | 7.5 | 0.5 | - | 48.5 | 35.4 | 13.1 |
| 02:05 AM - 02:10 AM | 38.2 | 42.2 | -4.0 | 7.0 | - | 34.2 | 36.3 | -2.1 |
| 02:10 AM - 02:15 AM | 40.0 | 39.5 | 0.5 | 7.0 | - | 36.0 | 35.5 | 0.5 |
| 02:15 AM - 02:20 AM | 39.0 | 37.8 | 1.2 | 7.0 | - | 35.0 | 35.5 | -0.5 |
| 02:20 AM - 02:25 AM | 47.4 | 37.9 | 9.5 | 0.5 | - | 49.9 | 35.6 | 14.3 |
| 02:25 AM - 02:30 AM | 48.6 | 46.4 | 2.2 | 4.5 | - | 47.1 | 35.4 | 11.7 |
| 02:30 AM - 02:35 AM | 37.0 | 38.1 | -1.1 | 7.0 | - | 33.0 | 35.7 | -2.7 |
| 02:35 AM - 02:40 AM | 39.5 | 38.9 | 0.6 | 7.0 | - | 35.5 | 37.6 | -2.1 |
| 02:40 AM - 02:45 AM | 47.2 | 40.4 | 6.8 | 1.0 | - | 49.2 | 37.4 | 11.8 |
| 02:45 AM - 02:50 AM | 42.2 | 46.3 | -4.1 | 7.0 | - | 38.2 | 40.0 | -1.8 |
| 02:50 AM - 02:55 AM | 45.6 | 41.0 | 4.6 | 1.5 | - | 47.1 | 38.5 | 8.6 |
| 02:55 AM - 03:00 AM | 46.3 | 45.5 | 0.8 | 7.0 | - | 42.3 | 39.0 | 3.3 |
| 03:00 AM - 03:05 AM | 40.5 | 43.4 | -2.9 | 7.0 | - | 36.5 | 38.6 | -2.1 |
| 03:05 AM - 03:10 AM | 41.5 | 41.0 | 0.5 | 7.0 | - | 37.5 | 38.3 | -0.8 |
| 03:10 AM - 03:15 AM | 43.3 | 41.8 | 1.5 | 4.5 | - | 41.8 | 39.4 | 2.4 |
| 03:15 AM - 03:20 AM | 42.5 | 39.7 | 2.8 | 3.0 | - | 42.5 | 38.6 | 3.9 |
| 03:20 AM - 03:25 AM | 43.3 | 41.7 | 1.6 | 4.5 | - | 41.8 | 38.9 | 2.9 |
| 03:25 AM - 03:30 AM | 41.9 | 39.6 | 2.3 | 4.5 | - | 40.4 | 38.6 | 1.8 |
| 03:30 AM - 03:35 AM | 42.3 | 40.2 | 2.1 | 4.5 | - | 40.8 | 38.5 | 2.3 |
| 03:35 AM - 03:40 AM | 44.7 | 40.9 | 3.8 | 2.0 | - | 45.7 | 37.5 | 8.2 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658785-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-6
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด: กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด: กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 46.8 | 44.6 | 2.2 | 4.5 | - | 45.3 | 37.7 | 7.6 |
| 03:45 AM - 03:50 AM | 44.6 | 45.0 | -0.4 | 7.0 | - | 40.6 | 38.0 | 2.6 |
| 03:50 AM - 03:55 AM | 43.5 | 44.2 | -0.7 | 7.0 | - | 39.5 | 37.4 | 2.1 |
| 03:55 AM - 04:00 AM | 38.5 | 40.7 | -2.2 | 7.0 | - | 34.5 | 36.9 | -2.4 |
| 04:00 AM - 04:05 AM | 43.7 | 40.6 | 3.1 | 3.0 | - | 43.7 | 36.9 | 6.8 |
| 04:05 AM - 04:10 AM | 47.5 | 44.6 | 2.9 | 3.0 | - | 47.5 | 38.7 | 8.8 |
| 04:10 AM - 04:15 AM | 44.6 | 49.4 | -4.8 | 7.0 | - | 40.6 | 38.1 | 2.5 |
| 04:15 AM - 04:20 AM | 43.1 | 42.9 | 0.2 | 7.0 | - | 39.1 | 38.3 | 0.8 |
| 04:20 AM - 04:25 AM | 46.7 | 44.9 | 1.8 | 4.5 | - | 45.2 | 38.4 | 6.8 |
| 04:25 AM - 04:30 AM | 49.8 | 48.8 | 1.0 | 7.0 | - | 45.8 | 40.5 | 5.3 |
| 04:30 AM - 04:35 AM | 48.5 | 49.7 | -1.2 | 7.0 | - | 44.5 | 41.9 | 2.6 |
| 04:35 AM - 04:40 AM | 51.2 | 49.9 | 1.3 | 7.0 | - | 47.2 | 42.0 | 5.2 |
| 04:40 AM - 04:45 AM | 62.4 | 51.1 | 11.3 | 0.5 | - | 64.9 | 42.2 | 22.7 |
| 04:45 AM - 04:50 AM | 70.6 | 71.6 | -1.0 | 7.0 | - | 66.6 | 42.3 | 24.3 |
| 04:50 AM - 04:55 AM | 70.6 | 73.4 | -2.8 | 7.0 | - | 66.6 | 72.8 | -6.2 |
| 04:55 AM - 05:00 AM | 60.0 | 72.2 | -12.2 | 7.0 | - | 56.0 | 69.2 | -13.2 |
| 05:00 AM - 05:05 AM | 50.1 | 61.7 | -11.6 | 7.0 | - | 46.1 | 47.2 | -1.1 |
| 05:05 AM - 05:10 AM | 51.7 | 50.8 | 0.9 | 7.0 | - | 47.7 | 47.4 | 0.3 |
| 05:10 AM - 05:15 AM | 49.6 | 50.2 | -0.6 | 7.0 | - | 45.6 | 47.8 | -2.2 |
| 05:15 AM - 05:20 AM | 54.9 | 49.9 | 5.0 | 1.5 | - | 56.4 | 47.1 | 9.3 |
| 05:20 AM - 05:25 AM | 51.1 | 53.1 | -2.0 | 7.0 | - | 47.1 | 47.2 | -0.1 |
| 05:25 AM - 05:30 AM | 52.7 | 51.7 | 1.0 | 7.0 | - | 48.7 | 46.9 | 1.8 |
| 05:30 AM - 05:35 AM | 51.6 | 51.9 | -0.3 | 7.0 | - | 47.6 | 48.0 | -0.4 |
| 05:35 AM - 05:40 AM | 50.6 | 51.5 | -0.9 | 7.0 | - | 46.6 | 48.5 | -1.9 |
| 05:40 AM - 05:45 AM | 54.0 | 49.7 | 4.3 | 2.0 | - | 55.0 | 47.3 | 7.7 |
| 05:45 AM - 05:50 AM | 51.5 | 53.0 | -1.5 | 7.0 | - | 47.5 | 47.9 | -0.4 |
| 05:50 AM - 05:55 AM | 56.6 | 52.1 | 4.5 | 1.5 | - | 58.1 | 47.6 | 10.5 |
| 05:55 AM - 06:00 AM | 55.5 | 53.2 | 2.3 | 4.5 | - | 54.0 | 48.9 | 5.1 |
| 06:00 AM - 07:00 AM | 64.6 | 64.6 | 0.0 | 7.0 | 57.6 | - | 62.7 | -5.1 |
| 07:00 AM - 08:00 AM | 58.4 | 57.2 | 1.2 | 7.0 | 51.4 | - | 53.3 | -1.9 |
| 08:00 AM - 09:00 AM | 57.0 | 53.7 | 3.3 | 3.0 | 54.0 | - | 47.3 | 6.7 |
| 09:00 AM - 10:00 AM | 61.0 | 59.4 | 1.6 | 4.5 | 56.5 | - | 47.3 | 9.2 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศคณะกรรมการอนุรักษ์สภาพแวดล้อมแห่งชาติ เรื่อง หลักเกณฑ์และวิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง ค่ามลพิษทางเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามลพิษทางเสียงที่เกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงรบกวนแหล่งกำเนิด ทำการตรวจวัด วันที่ 11-12 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงรบกวนไม่มีการรบกวน (Sample No.2338621-6 วันที่ตรวจวัด 11-12 พฤษภาคม 2566)

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Approved by
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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658786-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-7
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด: กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด: กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 59.4 | 53.3 | 6.1 | 1.5 | 57.9 | - | 46.1 | 11.8 |
| 11:00 AM - 12:00 PM | 59.0 | 52.7 | 6.3 | 1.5 | 57.5 | - | 46.7 | 10.8 |
| 12:00 PM - 01:00 PM | 56.6 | 54.8 | 2.6 | 3.0 | 53.6 | - | 49.4 | 4.2 |
| 01:00 PM - 02:00 PM | 57.9 | 53.0 | 4.9 | 1.5 | 56.4 | - | 44.5 | 11.9 |
| 02:00 PM - 03:00 PM | 61.1 | 63.2 | -2.1 | 7.0 | 54.1 | - | 59.0 | -4.9 |
| 03:00 PM - 04:00 PM | 54.3 | 51.8 | 2.5 | 3.0 | 51.3 | - | 47.2 | 4.1 |
| 04:00 PM - 05:00 PM | 57.2 | 54.1 | 3.1 | 3.0 | 54.2 | - | 48.4 | 5.8 |
| 05:00 PM - 06:00 PM | 57.1 | 53.3 | 3.8 | 2.0 | 55.1 | - | 48.3 | 6.8 |
| 06:00 PM - 07:00 PM | 63.3 | 64.9 | -1.6 | 7.0 | 56.3 | - | 63.0 | -6.7 |
| 07:00 PM - 08:00 PM | 53.7 | 51.0 | 2.7 | 3.0 | 50.7 | - | 45.6 | 5.1 |
| 08:00 PM - 09:00 PM | 56.2 | 49.9 | 6.3 | 1.5 | 54.7 | - | 44.8 | 9.9 |
| 09:00 PM - 10:00 PM | 46.8 | 46.2 | 0.6 | 7.0 | 39.8 | - | 42.8 | -3.0 |
| 10:00 PM - 10:05 PM | 49.1 | 46.7 | 2.4 | 4.5 | - | 47.6 | 42.9 | 4.7 |
| 10:05 PM - 10:10 PM | 48.2 | 48.6 | -0.4 | 7.0 | - | 44.2 | 42.5 | 1.7 |
| 10:10 PM - 10:15 PM | 48.7 | 46.1 | 2.6 | 3.0 | - | 48.7 | 42.3 | 6.4 |
| 10:15 PM - 10:20 PM | 46.2 | 44.9 | 1.3 | 7.0 | - | 42.2 | 41.9 | 0.3 |
| 10:20 PM - 10:25 PM | 44.5 | 44.9 | -0.4 | 7.0 | - | 40.5 | 42.7 | -2.2 |
| 10:25 PM - 10:30 PM | 44.9 | 43.9 | 1.0 | 7.0 | - | 40.9 | 42.3 | -1.4 |
| 10:30 PM - 10:35 PM | 45.9 | 43.9 | 2.0 | 4.5 | - | 44.4 | 42.3 | 2.1 |
| 10:35 PM - 10:40 PM | 49.3 | 46.7 | 2.6 | 3.0 | - | 49.3 | 42.1 | 7.2 |
| 10:40 PM - 10:45 PM | 47.0 | 44.7 | 2.3 | 4.5 | - | 45.5 | 41.7 | 3.8 |
| 10:45 PM - 10:50 PM | 43.0 | 43.8 | -0.8 | 7.0 | - | 39.0 | 41.1 | -2.1 |
| 10:50 PM - 10:55 PM | 44.4 | 43.9 | 0.5 | 7.0 | - | 40.4 | 40.9 | -0.5 |
| 10:55 PM - 11:00 PM | 45.5 | 45.4 | 0.1 | 7.0 | - | 41.5 | 42.4 | -0.9 |
| 11:00 PM - 11:05 PM | 47.2 | 43.9 | 3.3 | 3.0 | - | 47.2 | 40.5 | 6.7 |
| 11:05 PM - 11:10 PM | 44.0 | 45.2 | -1.2 | 7.0 | - | 40.0 | 40.7 | -0.7 |
| 11:10 PM - 11:15 PM | 41.1 | 44.9 | -3.8 | 7.0 | - | 37.1 | 40.6 | -3.5 |
| 11:15 PM - 11:20 PM | 40.6 | 49.4 | -8.8 | 7.0 | - | 36.6 | 46.7 | -10.1 |
| 11:20 PM - 11:25 PM | 44.5 | 50.0 | -5.5 | 7.0 | - | 40.5 | 47.8 | -7.3 |
| 11:25 PM - 11:30 PM | 46.5 | 43.8 | 2.7 | 3.0 | - | 46.5 | 39.8 | 6.7 |
| 11:30 PM - 11:35 PM | 42.8 | 43.4 | -0.6 | 7.0 | - | 38.8 | 40.0 | -1.2 |
| 11:35 PM - 11:40 PM | 43.7 | 44.3 | -0.6 | 7.0 | - | 39.7 | 41.7 | -2.0 |
| 11:40 PM - 11:45 PM | 48.1 | 45.4 | 2.7 | 3.0 | - | 48.1 | 41.8 | 6.3 |
| 11:45 PM - 11:50 PM | 47.8 | 46.7 | 1.1 | 7.0 | - | 43.8 | 42.2 | 1.6 |
| 11:50 PM - 11:55 PM | 45.1 | 46.8 | -1.7 | 7.0 | - | 41.1 | 41.9 | -0.8 |
| 11:55 PM - 12:00 AM | 44.2 | 44.4 | -0.2 | 7.0 | - | 40.2 | 42.1 | -1.9 |
| 12:00 AM - 12:05 AM | 44.7 | 46.4 | -1.7 | 7.0 | - | 40.7 | 43.8 | -3.1 |
| 12:05 AM - 12:10 AM | 42.4 | 45.4 | -3.0 | 7.0 | - | 38.4 | 44.1 | -5.7 |
| 12:10 AM - 12:15 AM | 48.4 | 47.8 | 0.6 | 7.0 | - | 44.4 | 43.8 | 0.6 |
| 12:15 AM - 12:20 AM | 41.6 | 45.2 | -3.6 | 7.0 | - | 37.6 | 44.1 | -6.5 |

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658786-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-7
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด: กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด: กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 42.5 | 44.3 | -1.8 | 7.0 | - | 38.5 | 42.6 | -4.1 |
| 12:25 AM - 12:30 AM | 44.7 | 44.7 | 0.0 | 7.0 | - | 40.7 | 43.4 | -2.7 |
| 12:30 AM - 12:35 AM | 41.7 | 44.7 | -3.0 | 7.0 | - | 37.7 | 42.5 | -4.8 |
| 12:35 AM - 12:40 AM | 41.3 | 43.5 | -2.2 | 7.0 | - | 37.3 | 39.2 | -1.9 |
| 12:40 AM - 12:45 AM | 40.6 | 44.2 | -3.6 | 7.0 | - | 36.6 | 43.2 | -6.6 |
| 12:45 AM - 12:50 AM | 41.0 | 44.2 | -3.2 | 7.0 | - | 37.0 | 43.4 | -6.4 |
| 12:50 AM - 12:55 AM | 40.9 | 44.3 | -3.4 | 7.0 | - | 36.9 | 43.4 | -6.5 |
| 12:55 AM - 01:00 AM | 41.0 | 43.5 | -2.5 | 7.0 | - | 37.0 | 41.9 | -4.9 |
| 01:00 AM - 01:05 AM | 43.9 | 42.1 | 1.8 | 4.5 | - | 42.4 | 37.9 | 4.5 |
| 01:05 AM - 01:10 AM | 41.0 | 40.8 | 0.2 | 7.0 | - | 37.0 | 38.2 | -1.2 |
| 01:10 AM - 01:15 AM | 46.4 | 45.9 | 0.5 | 7.0 | - | 42.4 | 38.5 | 3.9 |
| 01:15 AM - 01:20 AM | 43.9 | 46.5 | -2.6 | 7.0 | - | 39.9 | 39.9 | 0.0 |
| 01:20 AM - 01:25 AM | 41.3 | 42.2 | -0.9 | 7.0 | - | 37.3 | 39.2 | -1.9 |
| 01:25 AM - 01:30 AM | 44.0 | 42.3 | 1.7 | 4.5 | - | 42.5 | 40.7 | 1.8 |
| 01:30 AM - 01:35 AM | 41.4 | 42.7 | -1.3 | 7.0 | - | 37.4 | 39.7 | -2.3 |
| 01:35 AM - 01:40 AM | 42.4 | 41.9 | 0.5 | 7.0 | - | 38.4 | 40.1 | -1.7 |
| 01:40 AM - 01:45 AM | 43.0 | 40.4 | 2.6 | 3.0 | - | 43.0 | 37.2 | 5.8 |
| 01:45 AM - 01:50 AM | 40.9 | 43.0 | -2.1 | 7.0 | - | 36.9 | 40.3 | -3.4 |
| 01:50 AM - 01:55 AM | 41.5 | 41.5 | 0.0 | 7.0 | - | 37.5 | 37.4 | 0.1 |
| 01:55 AM - 02:00 AM | 42.2 | 43.0 | -0.8 | 7.0 | - | 38.2 | 41.7 | -3.5 |
| 02:00 AM - 02:05 AM | 42.2 | 43.5 | -1.3 | 7.0 | - | 38.2 | 42.2 | -4.0 |
| 02:05 AM - 02:10 AM | 48.2 | 44.8 | 3.4 | 3.0 | - | 48.2 | 42.4 | 5.8 |
| 02:10 AM - 02:15 AM | 48.0 | 46.7 | 1.3 | 7.0 | - | 44.0 | 42.9 | 1.1 |
| 02:15 AM - 02:20 AM | 47.4 | 42.9 | 4.5 | 1.5 | - | 48.9 | 42.4 | 6.5 |
| 02:20 AM - 02:25 AM | 40.4 | 45.5 | -5.1 | 7.0 | - | 36.4 | 42.4 | -6.0 |
| 02:25 AM - 02:30 AM | 41.9 | 42.8 | -0.9 | 7.0 | - | 37.9 | 41.9 | -4.0 |
| 02:30 AM - 02:35 AM | 44.4 | 41.9 | 2.5 | 3.0 | - | 44.4 | 38.2 | 6.2 |
| 02:35 AM - 02:40 AM | 41.2 | 41.1 | 0.1 | 7.0 | - | 37.2 | 38.4 | -1.2 |
| 02:40 AM - 02:45 AM | 41.0 | 41.0 | 0.0 | 7.0 | - | 37.0 | 38.7 | -1.7 |
| 02:45 AM - 02:50 AM | 41.8 | 41.1 | 0.7 | 7.0 | - | 37.8 | 38.9 | -1.1 |
| 02:50 AM - 02:55 AM | 41.7 | 41.6 | 0.1 | 7.0 | - | 37.7 | 38.9 | -1.2 |
| 02:55 AM - 03:00 AM | 42.3 | 41.3 | 1.0 | 7.0 | - | 38.3 | 38.2 | 0.1 |
| 03:00 AM - 03:05 AM | 42.9 | 43.0 | -0.1 | 7.0 | - | 38.9 | 41.2 | -2.3 |
| 03:05 AM - 03:10 AM | 44.7 | 43.1 | 1.6 | 4.5 | - | 43.2 | 39.9 | 3.3 |
| 03:10 AM - 03:15 AM | 42.2 | 42.9 | -0.7 | 7.0 | - | 38.2 | 38.9 | -0.7 |
| 03:15 AM - 03:20 AM | 44.3 | 41.3 | 3.0 | 3.0 | - | 44.3 | 38.5 | 5.8 |
| 03:20 AM - 03:25 AM | 44.8 | 42.7 | 2.1 | 4.5 | - | 43.3 | 38.5 | 4.8 |
| 03:25 AM - 03:30 AM | 41.0 | 42.0 | -1.0 | 7.0 | - | 37.8 | 38.2 | -1.2 |
| 03:30 AM - 03:35 AM | 48.1 | 40.5 | 7.6 | 0.5 | - | 50.6 | 38.0 | 12.6 |
| 03:35 AM - 03:40 AM | 48.6 | 47.7 | 0.9 | 7.0 | - | 44.6 | 39.1 | 5.5 |

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658786-1



**Sample No.** 2338623-7
**Parameter** เสียงรบกวน
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734063, 1432127)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900072

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (A-B) | ตัวปรับค่า (C) | ปรับค่าเสียงจากแหล่งกำเนิด (D) กลางวัน (D=C) | กลางคืน (D=C+5) | เสียงพื้นฐาน (E) | ค่าระดับการรบกวน (D-E) |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 46.1 | 45.7 | 0.4 | 7.0 | - | 42.1 | 37.9 | 4.2 |
| 03:45 AM - 03:50 AM | 45.0 | 43.4 | 1.6 | 4.5 | - | 43.5 | 38.2 | 5.3 |
| 03:50 AM - 03:55 AM | 41.2 | 44.1 | -2.9 | 7.0 | - | 37.2 | 41.3 | -4.1 |
| 03:55 AM - 04:00 AM | 42.3 | 42.4 | -0.1 | 7.0 | - | 38.3 | 38.4 | -0.1 |
| 04:00 AM - 04:05 AM | 46.1 | 40.0 | 6.1 | 1.5 | - | 47.6 | 37.7 | 9.9 |
| 04:05 AM - 04:10 AM | 47.3 | 43.4 | 3.9 | 2.0 | - | 48.3 | 37.6 | 10.7 |
| 04:10 AM - 04:15 AM | 42.9 | 47.6 | -4.7 | 7.0 | - | 38.9 | 38.9 | 0.0 |
| 04:15 AM - 04:20 AM | 43.1 | 42.6 | 0.5 | 7.0 | - | 39.1 | 38.4 | 0.7 |
| 04:20 AM - 04:25 AM | 52.0 | 46.4 | 5.6 | 1.5 | - | 53.5 | 38.6 | 14.9 |
| 04:25 AM - 04:30 AM | 43.2 | 51.1 | -7.9 | 7.0 | - | 39.2 | 38.6 | 0.6 |
| 04:30 AM - 04:35 AM | 48.0 | 45.8 | 2.2 | 4.5 | - | 46.5 | 40.7 | 5.8 |
| 04:35 AM - 04:40 AM | 50.1 | 49.4 | 0.7 | 7.0 | - | 46.1 | 42.3 | 3.8 |
| 04:40 AM - 04:45 AM | 68.2 | 53.4 | 14.8 | 0.0 | - | 71.2 | 43.0 | 28.2 |
| 04:45 AM - 04:50 AM | 73.0 | 73.6 | -0.6 | 7.0 | - | 69.0 | 59.1 | 9.9 |
| 04:50 AM - 04:55 AM | 70.2 | 72.7 | -2.5 | 7.0 | - | 66.2 | 71.4 | -5.2 |
| 04:55 AM - 05:00 AM | 60.7 | 69.1 | -8.4 | 7.0 | - | 56.7 | 66.7 | -10.0 |
| 05:00 AM - 05:05 AM | 49.0 | 58.8 | -9.8 | 7.0 | - | 45.0 | 49.0 | -4.0 |
| 05:05 AM - 05:10 AM | 48.1 | 49.7 | -1.6 | 7.0 | - | 44.1 | 48.1 | -4.0 |
| 05:10 AM - 05:15 AM | 50.6 | 51.5 | -0.9 | 7.0 | - | 46.6 | 48.2 | -1.6 |
| 05:15 AM - 05:20 AM | 53.5 | 51.3 | 2.2 | 4.5 | - | 52.0 | 47.8 | 4.2 |
| 05:20 AM - 05:25 AM | 50.9 | 54.3 | -3.4 | 7.0 | - | 46.9 | 48.1 | -1.2 |
| 05:25 AM - 05:30 AM | 51.9 | 50.3 | 1.6 | 4.5 | - | 50.4 | 48.5 | 1.9 |
| 05:30 AM - 05:35 AM | 52.2 | 50.5 | 1.7 | 4.5 | - | 50.7 | 48.3 | 2.4 |
| 05:35 AM - 05:40 AM | 56.2 | 51.7 | 4.5 | 1.5 | - | 57.7 | 48.5 | 9.2 |
| 05:40 AM - 05:45 AM | 54.7 | 55.3 | -0.6 | 7.0 | - | 50.7 | 48.8 | 1.9 |
| 05:45 AM - 05:50 AM | 56.7 | 52.8 | 3.9 | 2.0 | - | 57.7 | 49.3 | 8.4 |
| 05:50 AM - 05:55 AM | 54.5 | 54.2 | 0.3 | 7.0 | - | 50.5 | 50.0 | 0.5 |
| 05:55 AM - 06:00 AM | 56.7 | 51.2 | 5.5 | 1.5 | - | 58.2 | 48.3 | 9.9 |
| 06:00 AM - 07:00 AM | 57.5 | 54.5 | 3.0 | 3.0 | 54.5 | - | 49.8 | 4.7 |
| 07:00 AM - 08:00 AM | 57.6 | 56.0 | 1.6 | 4.5 | 53.1 | - | 48.4 | 4.7 |
| 08:00 AM - 09:00 AM | 53.5 | 59.8 | -6.3 | 7.0 | 46.5 | - | 47.7 | -1.2 |
| 09:00 AM - 10:00 AM | 56.6 | 53.8 | 2.8 | 3.0 | 53.6 | - | 47.3 | 6.3 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานเสียงที่เกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงรบกวนแหล่งกำเนิด ทางการตรวจวัด วันที่ 12-13 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-7 วันที่ตรวจวัด 12-13 พฤษภาคม 2566)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658799-1



**Sample No.** 2338621-1
**Parameter** Noise
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 54.4 | 79.1 | 46.6 |
| 11:00 AM - 12:00 PM | 54.5 | 78.6 | 46.0 |
| 12:00 PM - 01:00 PM | 53.4 | 76.3 | 43.0 |
| 01:00 PM - 02:00 PM | 54.3 | 69.2 | 47.7 |
| 02:00 PM - 03:00 PM | 51.3 | 70.8 | 43.7 |
| 03:00 PM - 04:00 PM | 51.4 | 73.3 | 43.8 |
| 04:00 PM - 05:00 PM | 54.6 | 74.0 | 48.3 |
| 05:00 PM - 06:00 PM | 54.4 | 85.2 | 47.3 |
| 06:00 PM - 07:00 PM | 63.3 | 80.4 | 60.5 |
| 07:00 PM - 08:00 PM | 49.6 | 63.2 | 45.6 |
| 08:00 PM - 09:00 PM | 48.4 | 68.5 | 43.7 |
| 09:00 PM - 10:00 PM | 53.3 | 66.5 | 47.2 |
| 10:00 PM - 10:05 PM | 44.2 | 51.4 | 42.7 |
| 10:05 PM - 10:10 PM | 44.4 | 51.5 | 42.4 |
| 10:10 PM - 10:15 PM | 45.2 | 54.8 | 43.0 |
| 10:15 PM - 10:20 PM | 46.1 | 58.1 | 43.4 |
| 10:20 PM - 10:25 PM | 42.7 | 52.7 | 40.2 |
| 10:25 PM - 10:30 PM | 44.7 | 59.5 | 40.1 |
| 10:30 PM - 10:35 PM | 47.9 | 63.0 | 40.0 |
| 10:35 PM - 10:40 PM | 43.1 | 56.6 | 39.8 |
| 10:40 PM - 10:45 PM | 44.1 | 55.9 | 38.6 |
| 10:45 PM - 10:50 PM | 40.7 | 51.2 | 37.7 |
| 10:50 PM - 10:55 PM | 42.1 | 51.5 | 38.5 |
| 10:55 PM - 11:00 PM | 41.9 | 55.5 | 38.3 |
| 11:00 PM - 11:05 PM | 57.1 | 64.3 | 39.5 |
| 11:05 PM - 11:10 PM | 63.6 | 65.9 | 60.5 |
| 11:10 PM - 11:15 PM | 58.8 | 64.6 | 54.7 |
| 11:15 PM - 11:20 PM | 48.4 | 59.0 | 39.0 |
| 11:20 PM - 11:25 PM | 44.1 | 54.4 | 39.7 |
| 11:25 PM - 11:30 PM | 41.2 | 52.2 | 38.2 |
| 11:30 PM - 11:35 PM | 41.6 | 54.6 | 37.4 |
| 11:35 PM - 11:40 PM | 44.4 | 58.6 | 37.8 |
| 11:40 PM - 11:45 PM | 43.3 | 54.8 | 37.5 |
| 11:45 PM - 11:50 PM | 43.4 | 56.7 | 37.7 |
| 11:50 PM - 11:55 PM | 43.7 | 59.2 | 37.6 |
| 11:55 PM - 12:00 AM | 40.7 | 52.9 | 37.3 |
| 12:00 AM - 12:05 AM | 39.3 | 48.2 | 36.8 |
| 12:05 AM - 12:10 AM | 39.1 | 47.1 | 36.8 |
| 12:10 AM - 12:15 AM | 39.8 | 52.2 | 36.9 |
| 12:15 AM - 12:20 AM | 40.6 | 52.8 | 37.1 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658799-1



**Sample No.** 2338621-1
**Parameter** Noise
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 43.2 | 61.1 | 36.9 |
| 12:25 AM - 12:30 AM | 43.7 | 60.6 | 37.0 |
| 12:30 AM - 12:35 AM | 41.0 | 53.7 | 36.3 |
| 12:35 AM - 12:40 AM | 39.0 | 50.4 | 35.9 |
| 12:40 AM - 12:45 AM | 40.8 | 54.2 | 36.2 |
| 12:45 AM - 12:50 AM | 40.2 | 57.2 | 35.8 |
| 12:50 AM - 12:55 AM | 37.2 | 46.5 | 35.7 |
| 12:55 AM - 01:00 AM | 40.1 | 54.0 | 35.7 |
| 01:00 AM - 01:05 AM | 39.1 | 51.8 | 35.8 |
| 01:05 AM - 01:10 AM | 42.5 | 55.7 | 35.8 |
| 01:10 AM - 01:15 AM | 38.5 | 48.7 | 36.4 |
| 01:15 AM - 01:20 AM | 44.7 | 64.8 | 36.0 |
| 01:20 AM - 01:25 AM | 37.5 | 49.0 | 35.4 |
| 01:25 AM - 01:30 AM | 37.4 | 46.4 | 35.3 |
| 01:30 AM - 01:35 AM | 39.5 | 47.1 | 35.9 |
| 01:35 AM - 01:40 AM | 52.6 | 60.2 | 43.9 |
| 01:40 AM - 01:45 AM | 64.7 | 68.5 | 60.3 |
| 01:45 AM - 01:50 AM | 65.3 | 67.6 | 64.2 |
| 01:50 AM - 01:55 AM | 61.3 | 64.9 | 38.7 |
| 01:55 AM - 02:00 AM | 43.2 | 54.2 | 37.2 |
| 02:00 AM - 02:05 AM | 37.6 | 47.5 | 36.0 |
| 02:05 AM - 02:10 AM | 37.9 | 48.9 | 35.0 |
| 02:10 AM - 02:15 AM | 38.6 | 50.7 | 35.2 |
| 02:15 AM - 02:20 AM | 40.0 | 55.0 | 35.4 |
| 02:20 AM - 02:25 AM | 43.8 | 56.6 | 36.1 |
| 02:25 AM - 02:30 AM | 42.5 | 57.9 | 35.3 |
| 02:30 AM - 02:35 AM | 42.8 | 60.7 | 34.9 |
| 02:35 AM - 02:40 AM | 39.2 | 54.0 | 35.1 |
| 02:40 AM - 02:45 AM | 38.2 | 48.7 | 35.5 |
| 02:45 AM - 02:50 AM | 37.4 | 48.7 | 35.3 |
| 02:50 AM - 02:55 AM | 37.0 | 48.0 | 35.2 |
| 02:55 AM - 03:00 AM | 38.1 | 48.5 | 35.1 |
| 03:00 AM - 03:05 AM | 42.6 | 54.2 | 36.0 |
| 03:05 AM - 03:10 AM | 45.2 | 61.2 | 35.2 |
| 03:10 AM - 03:15 AM | 42.8 | 58.4 | 35.5 |
| 03:15 AM - 03:20 AM | 39.8 | 57.3 | 35.3 |
| 03:20 AM - 03:25 AM | 36.7 | 44.6 | 34.9 |
| 03:25 AM - 03:30 AM | 39.2 | 53.4 | 35.3 |
| 03:30 AM - 03:35 AM | 46.2 | 62.1 | 35.8 |
| 03:35 AM - 03:40 AM | 43.4 | 55.6 | 36.8 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658799-1



**Sample No.** 2338621-1
**Parameter** Noise
**Location** บ้านวังตาหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 41.4 | 53.6 | 36.5 |
| 03:45 AM - 03:50 AM | 40.0 | 52.3 | 36.2 |
| 03:50 AM - 03:55 AM | 40.0 | 52.1 | 36.1 |
| 03:55 AM - 04:00 AM | 42.9 | 58.4 | 37.0 |
| 04:00 AM - 04:05 AM | 42.1 | 52.0 | 37.2 |
| 04:05 AM - 04:10 AM | 44.8 | 60.1 | 37.1 |
| 04:10 AM - 04:15 AM | 39.3 | 48.4 | 37.2 |
| 04:15 AM - 04:20 AM | 48.7 | 65.0 | 38.4 |
| 04:20 AM - 04:25 AM | 44.9 | 59.5 | 37.7 |
| 04:25 AM - 04:30 AM | 42.6 | 56.4 | 37.9 |
| 04:30 AM - 04:35 AM | 42.5 | 50.4 | 38.7 |
| 04:35 AM - 04:40 AM | 44.8 | 56.6 | 40.1 |
| 04:40 AM - 04:45 AM | 52.5 | 66.5 | 43.1 |
| 04:45 AM - 04:50 AM | 71.0 | 74.9 | 49.0 |
| 04:50 AM - 04:55 AM | 72.1 | 74.9 | 69.0 |
| 04:55 AM - 05:00 AM | 65.8 | 69.7 | 59.4 |
| 05:00 AM - 05:05 AM | 54.3 | 63.7 | 44.7 |
| 05:05 AM - 05:10 AM | 46.8 | 53.9 | 44.1 |
| 05:10 AM - 05:15 AM | 48.2 | 60.1 | 44.2 |
| 05:15 AM - 05:20 AM | 52.8 | 64.7 | 45.5 |
| 05:20 AM - 05:25 AM | 48.7 | 68.4 | 44.8 |
| 05:25 AM - 05:30 AM | 53.3 | 65.2 | 46.1 |
| 05:30 AM - 05:35 AM | 50.2 | 63.5 | 45.5 |
| 05:35 AM - 05:40 AM | 52.7 | 64.8 | 47.1 |
| 05:40 AM - 05:45 AM | 55.7 | 70.9 | 46.4 |
| 05:45 AM - 05:50 AM | 53.5 | 67.1 | 46.6 |
| 05:50 AM - 05:55 AM | 53.1 | 63.2 | 48.2 |
| 05:55 AM - 06:00 AM | 53.5 | 66.0 | 47.8 |
| 06:00 AM - 07:00 AM | 54.9 | 73.1 | 47.1 |
| 07:00 AM - 08:00 AM | 53.9 | 72.1 | 46.5 |
| 08:00 AM - 09:00 AM | 53.7 | 80.0 | 44.1 |
| 09:00 AM - 10:00 AM | 53.5 | 73.3 | 45.3 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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**Approved by**
Wilawan Borirak
Manager

# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658800-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-2
**Parameter** Noise
**Location** บ้านวังตาลหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 54.1 | 70.6 | 43.8 |
| 11:00 AM - 12:00 PM | 61.1 | 100.3 | 44.9 |
| 12:00 PM - 01:00 PM | 52.3 | 69.3 | 44.0 |
| 01:00 PM - 02:00 PM | 52.0 | 86.1 | 43.8 |
| 02:00 PM - 03:00 PM | 57.8 | 70.6 | 52.4 |
| 03:00 PM - 04:00 PM | 52.9 | 85.9 | 44.3 |
| 04:00 PM - 05:00 PM | 51.7 | 70.6 | 46.2 |
| 05:00 PM - 06:00 PM | 51.9 | 72.0 | 45.0 |
| 06:00 PM - 07:00 PM | 62.1 | 70.5 | 60.1 |
| 07:00 PM - 08:00 PM | 47.4 | 70.2 | 41.8 |
| 08:00 PM - 09:00 PM | 45.1 | 65.1 | 39.4 |
| 09:00 PM - 10:00 PM | 55.0 | 66.5 | 50.3 |
| 10:00 PM - 10:05 PM | 44.9 | 60.0 | 38.7 |
| 10:05 PM - 10:10 PM | 42.7 | 52.8 | 38.1 |
| 10:10 PM - 10:15 PM | 47.2 | 58.9 | 39.6 |
| 10:15 PM - 10:20 PM | 43.5 | 54.0 | 37.6 |
| 10:20 PM - 10:25 PM | 46.3 | 56.7 | 40.2 |
| 10:25 PM - 10:30 PM | 44.8 | 51.8 | 41.2 |
| 10:30 PM - 10:35 PM | 47.6 | 59.3 | 41.7 |
| 10:35 PM - 10:40 PM | 44.4 | 60.2 | 37.4 |
| 10:40 PM - 10:45 PM | 47.0 | 56.3 | 36.8 |
| 10:45 PM - 10:50 PM | 46.9 | 56.0 | 37.2 |
| 10:50 PM - 10:55 PM | 47.6 | 59.9 | 38.4 |
| 10:55 PM - 11:00 PM | 47.2 | 55.4 | 35.6 |
| 11:00 PM - 11:05 PM | 47.8 | 55.9 | 35.8 |
| 11:05 PM - 11:10 PM | 48.3 | 55.6 | 35.7 |
| 11:10 PM - 11:15 PM | 47.8 | 55.3 | 35.3 |
| 11:15 PM - 11:20 PM | 48.0 | 55.3 | 37.4 |
| 11:20 PM - 11:25 PM | 45.2 | 56.4 | 39.4 |
| 11:25 PM - 11:30 PM | 42.2 | 51.3 | 38.3 |
| 11:30 PM - 11:35 PM | 48.4 | 57.5 | 39.1 |
| 11:35 PM - 11:40 PM | 53.3 | 59.1 | 47.6 |
| 11:40 PM - 11:45 PM | 46.5 | 56.4 | 38.0 |
| 11:45 PM - 11:50 PM | 41.4 | 58.9 | 36.9 |
| 11:50 PM - 11:55 PM | 39.2 | 44.3 | 36.6 |
| 11:55 PM - 12:00 AM | 42.7 | 58.7 | 36.4 |
| 12:00 AM - 12:05 AM | 42.7 | 58.4 | 35.8 |
| 12:05 AM - 12:10 AM | 40.9 | 53.0 | 36.4 |
| 12:10 AM - 12:15 AM | 42.2 | 52.1 | 37.2 |
| 12:15 AM - 12:20 AM | 54.8 | 58.7 | 46.1 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658800-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-2
**Parameter** Noise
**Location** บ้านวังตาลหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 56.3 | 58.5 | 54.3 |
| 12:25 AM - 12:30 AM | 52.6 | 57.6 | 36.7 |
| 12:30 AM - 12:35 AM | 40.1 | 52.5 | 35.4 |
| 12:35 AM - 12:40 AM | 37.1 | 52.4 | 34.9 |
| 12:40 AM - 12:45 AM | 39.1 | 54.9 | 35.1 |
| 12:45 AM - 12:50 AM | 40.0 | 51.5 | 35.4 |
| 12:50 AM - 12:55 AM | 42.1 | 48.0 | 36.9 |
| 12:55 AM - 01:00 AM | 46.4 | 62.4 | 42.1 |
| 01:00 AM - 01:05 AM | 44.7 | 52.0 | 42.9 |
| 01:05 AM - 01:10 AM | 44.3 | 48.1 | 41.7 |
| 01:10 AM - 01:15 AM | 44.8 | 57.8 | 38.8 |
| 01:15 AM - 01:20 AM | 45.6 | 56.3 | 41.4 |
| 01:20 AM - 01:25 AM | 45.1 | 56.4 | 42.3 |
| 01:25 AM - 01:30 AM | 42.6 | 53.7 | 35.7 |
| 01:30 AM - 01:35 AM | 45.5 | 62.8 | 37.7 |
| 01:35 AM - 01:40 AM | 42.6 | 50.2 | 36.0 |
| 01:40 AM - 01:45 AM | 44.3 | 60.7 | 35.3 |
| 01:45 AM - 01:50 AM | 43.8 | 53.3 | 36.8 |
| 01:50 AM - 01:55 AM | 41.3 | 47.6 | 35.7 |
| 01:55 AM - 02:00 AM | 41.6 | 49.3 | 35.7 |
| 02:00 AM - 02:05 AM | 36.8 | 45.1 | 34.6 |
| 02:05 AM - 02:10 AM | 45.4 | 60.0 | 35.4 |
| 02:10 AM - 02:15 AM | 37.9 | 48.1 | 35.0 |
| 02:15 AM - 02:20 AM | 38.5 | 50.0 | 34.5 |
| 02:20 AM - 02:25 AM | 46.9 | 67.4 | 35.3 |
| 02:25 AM - 02:30 AM | 45.9 | 59.9 | 34.7 |
| 02:30 AM - 02:35 AM | 37.6 | 50.0 | 33.9 |
| 02:35 AM - 02:40 AM | 39.4 | 55.4 | 34.4 |
| 02:40 AM - 02:45 AM | 40.4 | 57.9 | 34.7 |
| 02:45 AM - 02:50 AM | 37.1 | 45.3 | 34.5 |
| 02:50 AM - 02:55 AM | 37.0 | 47.0 | 34.3 |
| 02:55 AM - 03:00 AM | 40.3 | 53.6 | 35.2 |
| 03:00 AM - 03:05 AM | 39.7 | 52.7 | 35.3 |
| 03:05 AM - 03:10 AM | 38.9 | 50.4 | 35.0 |
| 03:10 AM - 03:15 AM | 39.2 | 47.1 | 34.8 |
| 03:15 AM - 03:20 AM | 39.2 | 52.9 | 34.5 |
| 03:20 AM - 03:25 AM | 37.9 | 46.7 | 34.7 |
| 03:25 AM - 03:30 AM | 38.1 | 47.3 | 34.5 |
| 03:30 AM - 03:35 AM | 42.8 | 61.7 | 34.7 |
| 03:35 AM - 03:40 AM | 41.7 | 57.3 | 35.5 |

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Manager

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658800-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-2
**Parameter** Noise
**Location** บ้านวังตาลหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 41.1 | 48.9 | 36.0 |
| 03:45 AM - 03:50 AM | 43.4 | 54.9 | 37.7 |
| 03:50 AM - 03:55 AM | 41.8 | 47.4 | 36.5 |
| 03:55 AM - 04:00 AM | 44.1 | 52.7 | 37.8 |
| 04:00 AM - 04:05 AM | 46.9 | 62.2 | 39.0 |
| 04:05 AM - 04:10 AM | 39.9 | 48.1 | 36.5 |
| 04:10 AM - 04:15 AM | 40.2 | 50.0 | 36.9 |
| 04:15 AM - 04:20 AM | 42.4 | 52.0 | 37.6 |
| 04:20 AM - 04:25 AM | 40.2 | 48.4 | 37.4 |
| 04:25 AM - 04:30 AM | 40.3 | 49.6 | 37.2 |
| 04:30 AM - 04:35 AM | 45.2 | 56.4 | 39.4 |
| 04:35 AM - 04:40 AM | 49.0 | 64.5 | 38.1 |
| 04:40 AM - 04:45 AM | 51.2 | 60.8 | 45.4 |
| 04:45 AM - 04:50 AM | 67.6 | 73.6 | 45.8 |
| 04:50 AM - 04:55 AM | 73.7 | 75.4 | 72.8 |
| 04:55 AM - 05:00 AM | 71.3 | 75.1 | 67.2 |
| 05:00 AM - 05:05 AM | 57.6 | 67.1 | 46.0 |
| 05:05 AM - 05:10 AM | 53.7 | 63.8 | 45.5 |
| 05:10 AM - 05:15 AM | 52.7 | 65.6 | 44.9 |
| 05:15 AM - 05:20 AM | 49.4 | 62.9 | 45.5 |
| 05:20 AM - 05:25 AM | 47.7 | 63.6 | 44.6 |
| 05:25 AM - 05:30 AM | 48.8 | 57.2 | 43.7 |
| 05:30 AM - 05:35 AM | 52.2 | 70.0 | 44.6 |
| 05:35 AM - 05:40 AM | 51.9 | 64.5 | 46.0 |
| 05:40 AM - 05:45 AM | 50.7 | 64.3 | 45.9 |
| 05:45 AM - 05:50 AM | 51.5 | 67.7 | 46.2 |
| 05:50 AM - 05:55 AM | 52.2 | 65.8 | 46.5 |
| 05:55 AM - 06:00 AM | 50.9 | 62.3 | 45.3 |
| 06:00 AM - 07:00 AM | 54.0 | 71.9 | 48.4 |
| 07:00 AM - 08:00 AM | 57.1 | 93.0 | 46.1 |
| 08:00 AM - 09:00 AM | 53.8 | 78.9 | 50.3 |
| 09:00 AM - 10:00 AM | 52.4 | 73.5 | 44.4 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Manager

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658801-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-3
**Parameter** Noise
**Location** บ้านวังตาลหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 54.4 | 74.2 | 44.4 |
| 11:00 AM - 12:00 PM | 54.0 | 77.8 | 46.8 |
| 12:00 PM - 01:00 PM | 52.3 | 71.8 | 44.4 |
| 01:00 PM - 02:00 PM | 51.0 | 67.6 | 44.3 |
| 02:00 PM - 03:00 PM | 49.4 | 66.4 | 43.4 |
| 03:00 PM - 04:00 PM | 63.7 | 72.9 | 60.4 |
| 04:00 PM - 05:00 PM | 59.8 | 96.4 | 47.1 |
| 05:00 PM - 06:00 PM | 52.7 | 77.5 | 46.2 |
| 06:00 PM - 07:00 PM | 64.6 | 74.3 | 61.8 |
| 07:00 PM - 08:00 PM | 50.0 | 68.1 | 43.6 |
| 08:00 PM - 09:00 PM | 48.3 | 73.9 | 41.2 |
| 09:00 PM - 10:00 PM | 47.9 | 65.0 | 38.8 |
| 10:00 PM - 10:05 PM | 45.1 | 55.3 | 38.9 |
| 10:05 PM - 10:10 PM | 45.9 | 55.3 | 39.8 |
| 10:10 PM - 10:15 PM | 46.9 | 57.4 | 40.7 |
| 10:15 PM - 10:20 PM | 44.1 | 54.0 | 37.7 |
| 10:20 PM - 10:25 PM | 44.0 | 54.2 | 37.6 |
| 10:25 PM - 10:30 PM | 46.5 | 63.3 | 38.5 |
| 10:30 PM - 10:35 PM | 45.7 | 55.4 | 38.2 |
| 10:35 PM - 10:40 PM | 46.7 | 63.9 | 37.3 |
| 10:40 PM - 10:45 PM | 44.8 | 55.2 | 37.4 |
| 10:45 PM - 10:50 PM | 46.5 | 57.0 | 38.7 |
| 10:50 PM - 10:55 PM | 43.4 | 54.5 | 37.2 |
| 10:55 PM - 11:00 PM | 41.8 | 54.5 | 35.0 |
| 11:00 PM - 11:05 PM | 41.8 | 52.6 | 36.7 |
| 11:05 PM - 11:10 PM | 41.5 | 52.3 | 35.9 |
| 11:10 PM - 11:15 PM | 43.8 | 53.8 | 37.6 |
| 11:15 PM - 11:20 PM | 43.9 | 53.8 | 36.5 |
| 11:20 PM - 11:25 PM | 46.3 | 56.8 | 36.0 |
| 11:25 PM - 11:30 PM | 44.0 | 53.8 | 35.1 |
| 11:30 PM - 11:35 PM | 46.0 | 57.4 | 36.5 |
| 11:35 PM - 11:40 PM | 45.2 | 54.6 | 36.0 |
| 11:40 PM - 11:45 PM | 46.7 | 55.3 | 38.2 |
| 11:45 PM - 11:50 PM | 47.8 | 60.4 | 39.3 |
| 11:50 PM - 11:55 PM | 48.4 | 55.9 | 38.7 |
| 11:55 PM - 12:00 AM | 49.2 | 57.9 | 42.1 |
| 12:00 AM - 12:05 AM | 51.2 | 57.2 | 46.1 |
| 12:05 AM - 12:10 AM | 48.7 | 53.6 | 44.4 |
| 12:10 AM - 12:15 AM | 46.0 | 55.9 | 39.6 |
| 12:15 AM - 12:20 AM | 42.7 | 52.3 | 39.3 |

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**Approved by**
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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658801-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-3
**Parameter** Noise
**Location** บ้านวังตาคมป่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 42.3 | 54.5 | 38.3 |
| 12:25 AM - 12:30 AM | 43.4 | 49.7 | 38.6 |
| 12:30 AM - 12:35 AM | 48.8 | 53.0 | 46.2 |
| 12:35 AM - 12:40 AM | 47.9 | 53.2 | 39.8 |
| 12:40 AM - 12:45 AM | 40.7 | 49.8 | 38.5 |
| 12:45 AM - 12:50 AM | 44.0 | 57.0 | 38.9 |
| 12:50 AM - 12:55 AM | 41.8 | 54.6 | 38.2 |
| 12:55 AM - 01:00 AM | 39.3 | 46.4 | 37.8 |
| 01:00 AM - 01:05 AM | 44.3 | 56.4 | 39.3 |
| 01:05 AM - 01:10 AM | 41.0 | 48.9 | 37.7 |
| 01:10 AM - 01:15 AM | 40.4 | 48.9 | 37.7 |
| 01:15 AM - 01:20 AM | 39.6 | 48.8 | 37.2 |
| 01:20 AM - 01:25 AM | 40.3 | 52.0 | 38.0 |
| 01:25 AM - 01:30 AM | 44.5 | 60.9 | 38.4 |
| 01:30 AM - 01:35 AM | 41.4 | 51.9 | 37.8 |
| 01:35 AM - 01:40 AM | 42.7 | 54.4 | 38.0 |
| 01:40 AM - 01:45 AM | 44.0 | 53.8 | 36.6 |
| 01:45 AM - 01:50 AM | 43.1 | 54.0 | 36.3 |
| 01:50 AM - 01:55 AM | 45.1 | 57.1 | 36.6 |
| 01:55 AM - 02:00 AM | 43.7 | 54.2 | 34.9 |
| 02:00 AM - 02:05 AM | 43.9 | 55.0 | 34.0 |
| 02:05 AM - 02:10 AM | 42.9 | 54.0 | 33.7 |
| 02:10 AM - 02:15 AM | 44.3 | 56.6 | 34.6 |
| 02:15 AM - 02:20 AM | 46.2 | 57.8 | 36.1 |
| 02:20 AM - 02:25 AM | 46.5 | 60.0 | 36.2 |
| 02:25 AM - 02:30 AM | 46.1 | 59.9 | 36.3 |
| 02:30 AM - 02:35 AM | 47.1 | 57.3 | 37.1 |
| 02:35 AM - 02:40 AM | 45.3 | 56.3 | 36.0 |
| 02:40 AM - 02:45 AM | 38.1 | 48.5 | 35.8 |
| 02:45 AM - 02:50 AM | 40.9 | 50.9 | 36.1 |
| 02:50 AM - 02:55 AM | 40.4 | 51.5 | 35.2 |
| 02:55 AM - 03:00 AM | 43.7 | 53.6 | 35.1 |
| 03:00 AM - 03:05 AM | 43.2 | 52.7 | 35.0 |
| 03:05 AM - 03:10 AM | 44.8 | 54.5 | 35.6 |
| 03:10 AM - 03:15 AM | 42.8 | 55.5 | 35.4 |
| 03:15 AM - 03:20 AM | 38.6 | 48.5 | 34.5 |
| 03:20 AM - 03:25 AM | 39.0 | 55.1 | 34.1 |
| 03:25 AM - 03:30 AM | 46.2 | 62.1 | 35.3 |
| 03:30 AM - 03:35 AM | 39.1 | 48.4 | 35.6 |
| 03:35 AM - 03:40 AM | 41.1 | 55.5 | 35.1 |

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658801-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-3
**Parameter** Noise
**Location** บ้านวังตาคมป่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 39.9 | 53.3 | 35.0 |
| 03:45 AM - 03:50 AM | 38.4 | 53.7 | 34.5 |
| 03:50 AM - 03:55 AM | 41.4 | 53.1 | 35.8 |
| 03:55 AM - 04:00 AM | 42.6 | 57.4 | 36.2 |
| 04:00 AM - 04:05 AM | 42.5 | 57.6 | 37.1 |
| 04:05 AM - 04:10 AM | 47.9 | 65.4 | 38.6 |
| 04:10 AM - 04:15 AM | 48.5 | 59.9 | 37.9 |
| 04:15 AM - 04:20 AM | 48.5 | 59.7 | 39.1 |
| 04:20 AM - 04:25 AM | 50.8 | 65.0 | 38.7 |
| 04:25 AM - 04:30 AM | 52.1 | 69.1 | 39.9 |
| 04:30 AM - 04:35 AM | 52.0 | 58.6 | 41.0 |
| 04:35 AM - 04:40 AM | 53.1 | 59.2 | 41.0 |
| 04:40 AM - 04:45 AM | 53.6 | 64.4 | 40.9 |
| 04:45 AM - 04:50 AM | 68.0 | 76.1 | 48.5 |
| 04:50 AM - 04:55 AM | 73.2 | 76.4 | 70.0 |
| 04:55 AM - 05:00 AM | 68.8 | 71.3 | 66.5 |
| 05:00 AM - 05:05 AM | 61.3 | 67.7 | 52.0 |
| 05:05 AM - 05:10 AM | 52.7 | 59.4 | 47.2 |
| 05:10 AM - 05:15 AM | 53.2 | 61.9 | 49.2 |
| 05:15 AM - 05:20 AM | 53.7 | 63.7 | 47.6 |
| 05:20 AM - 05:25 AM | 54.7 | 61.2 | 47.1 |
| 05:25 AM - 05:30 AM | 55.5 | 61.4 | 48.8 |
| 05:30 AM - 05:35 AM | 57.2 | 62.2 | 52.3 |
| 05:35 AM - 05:40 AM | 57.7 | 63.8 | 53.4 |
| 05:40 AM - 05:45 AM | 57.9 | 65.8 | 50.6 |
| 05:45 AM - 05:50 AM | 60.3 | 84.5 | 53.3 |
| 05:50 AM - 05:55 AM | 57.3 | 66.6 | 54.1 |
| 05:55 AM - 06:00 AM | 57.4 | 63.2 | 53.2 |
| 06:00 AM - 07:00 AM | 55.9 | 70.8 | 49.5 |
| 07:00 AM - 08:00 AM | 52.8 | 67.3 | 46.9 |
| 08:00 AM - 09:00 AM | 52.6 | 69.9 | 44.1 |
| 09:00 AM - 10:00 AM | 53.6 | 70.2 | 48.0 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658802-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-4
**Parameter** Noise
**Location** บ้านวังตาคมป่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 52.7 | 74.3 | 43.8 |
| 11:00 AM - 12:00 PM | 52.5 | 74.8 | 45.8 |
| 12:00 PM - 01:00 PM | 53.4 | 71.5 | 45.6 |
| 01:00 PM - 02:00 PM | 51.6 | 72.3 | 45.1 |
| 02:00 PM - 03:00 PM | 51.9 | 77.2 | 46.1 |
| 03:00 PM - 04:00 PM | 53.0 | 76.9 | 45.2 |
| 04:00 PM - 05:00 PM | 54.3 | 73.6 | 50.0 |
| 05:00 PM - 06:00 PM | 52.1 | 80.0 | 46.3 |
| 06:00 PM - 07:00 PM | 66.4 | 76.0 | 63.2 |
| 07:00 PM - 08:00 PM | 52.7 | 66.7 | 50.8 |
| 08:00 PM - 09:00 PM | 50.1 | 61.4 | 47.5 |
| 09:00 PM - 10:00 PM | 45.9 | 64.5 | 40.7 |
| 10:00 PM - 10:05 PM | 43.9 | 54.1 | 38.4 |
| 10:05 PM - 10:10 PM | 42.9 | 50.8 | 38.0 |
| 10:10 PM - 10:15 PM | 43.2 | 51.9 | 37.4 |
| 10:15 PM - 10:20 PM | 44.0 | 52.9 | 37.8 |
| 10:20 PM - 10:25 PM | 41.9 | 52.7 | 37.7 |
| 10:25 PM - 10:30 PM | 42.7 | 53.7 | 38.1 |
| 10:30 PM - 10:35 PM | 43.6 | 56.1 | 37.8 |
| 10:35 PM - 10:40 PM | 42.5 | 55.3 | 37.9 |
| 10:40 PM - 10:45 PM | 44.1 | 54.8 | 38.3 |
| 10:45 PM - 10:50 PM | 48.3 | 66.8 | 38.8 |
| 10:50 PM - 10:55 PM | 43.4 | 52.8 | 39.0 |
| 10:55 PM - 11:00 PM | 44.8 | 58.3 | 39.4 |
| 11:00 PM - 11:05 PM | 43.7 | 53.4 | 39.2 |
| 11:05 PM - 11:10 PM | 41.1 | 51.9 | 38.2 |
| 11:10 PM - 11:15 PM | 42.4 | 57.3 | 37.7 |
| 11:15 PM - 11:20 PM | 44.3 | 56.9 | 38.3 |
| 11:20 PM - 11:25 PM | 42.9 | 58.4 | 38.0 |
| 11:25 PM - 11:30 PM | 45.1 | 52.7 | 43.1 |
| 11:30 PM - 11:35 PM | 44.3 | 52.0 | 42.4 |
| 11:35 PM - 11:40 PM | 46.2 | 58.9 | 42.2 |
| 11:40 PM - 11:45 PM | 43.8 | 57.3 | 40.5 |
| 11:45 PM - 11:50 PM | 43.6 | 64.0 | 39.7 |
| 11:50 PM - 11:55 PM | 52.7 | 76.0 | 41.4 |
| 11:55 PM - 12:00 AM | 47.6 | 65.3 | 40.8 |
| 12:00 AM - 12:05 AM | 49.8 | 71.9 | 41.5 |
| 12:05 AM - 12:10 AM | 50.5 | 64.5 | 46.6 |
| 12:10 AM - 12:15 AM | 49.7 | 63.9 | 47.6 |
| 12:15 AM - 12:20 AM | 46.4 | 60.1 | 43.1 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658802-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-4
**Parameter** Noise
**Location** บ้านวังตาคมป่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 43.7 | 69.0 | 39.6 |
| 12:25 AM - 12:30 AM | 41.9 | 62.4 | 39.4 |
| 12:30 AM - 12:35 AM | 39.1 | 57.6 | 36.7 |
| 12:35 AM - 12:40 AM | 39.1 | 56.4 | 36.3 |
| 12:40 AM - 12:45 AM | 42.3 | 55.1 | 36.2 |
| 12:45 AM - 12:50 AM | 43.2 | 56.8 | 36.3 |
| 12:50 AM - 12:55 AM | 44.1 | 66.2 | 36.9 |
| 12:55 AM - 01:00 AM | 39.4 | 52.1 | 36.7 |
| 01:00 AM - 01:05 AM | 43.7 | 59.3 | 36.9 |
| 01:05 AM - 01:10 AM | 38.3 | 56.2 | 36.7 |
| 01:10 AM - 01:15 AM | 39.3 | 49.6 | 36.6 |
| 01:15 AM - 01:20 AM | 39.8 | 58.1 | 37.4 |
| 01:20 AM - 01:25 AM | 39.0 | 50.2 | 35.4 |
| 01:25 AM - 01:30 AM | 37.8 | 49.8 | 36.2 |
| 01:30 AM - 01:35 AM | 43.7 | 58.9 | 37.1 |
| 01:35 AM - 01:40 AM | 40.2 | 48.0 | 37.9 |
| 01:40 AM - 01:45 AM | 37.7 | 49.1 | 34.7 |
| 01:45 AM - 01:50 AM | 38.7 | 48.6 | 35.0 |
| 01:50 AM - 01:55 AM | 41.9 | 59.6 | 33.7 |
| 01:55 AM - 02:00 AM | 45.3 | 59.3 | 33.6 |
| 02:00 AM - 02:05 AM | 41.8 | 57.8 | 32.5 |
| 02:05 AM - 02:10 AM | 38.8 | 49.2 | 33.4 |
| 02:10 AM - 02:15 AM | 41.6 | 57.9 | 33.8 |
| 02:15 AM - 02:20 AM | 46.4 | 58.5 | 36.6 |
| 02:20 AM - 02:25 AM | 36.5 | 48.9 | 35.5 |
| 02:25 AM - 02:30 AM | 48.5 | 68.8 | 35.9 |
| 02:30 AM - 02:35 AM | 40.9 | 54.5 | 36.2 |
| 02:35 AM - 02:40 AM | 39.4 | 48.7 | 36.1 |
| 02:40 AM - 02:45 AM | 41.4 | 56.3 | 36.0 |
| 02:45 AM - 02:50 AM | 40.6 | 52.9 | 34.7 |
| 02:50 AM - 02:55 AM | 44.7 | 62.2 | 34.4 |
| 02:55 AM - 03:00 AM | 46.1 | 65.0 | 35.9 |
| 03:00 AM - 03:05 AM | 46.7 | 62.7 | 35.8 |
| 03:05 AM - 03:10 AM | 46.8 | 62.6 | 42.0 |
| 03:10 AM - 03:15 AM | 49.7 | 57.2 | 46.8 |
| 03:15 AM - 03:20 AM | 52.4 | 63.7 | 51.8 |
| 03:20 AM - 03:25 AM | 53.2 | 61.3 | 51.6 |
| 03:25 AM - 03:30 AM | 53.5 | 63.0 | 52.7 |
| 03:30 AM - 03:35 AM | 51.7 | 63.9 | 50.7 |
| 03:35 AM - 03:40 AM | 52.1 | 66.5 | 50.4 |

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**Approved by**
Wilawan Borirak
Manager

# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658802-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-4
**Parameter** Noise
**Location** บ้านวังตาคมปอม (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 51.0 | 66.3 | 49.8 |
| 03:45 AM - 03:50 AM | 49.0 | 64.5 | 47.8 |
| 03:50 AM - 03:55 AM | 49.7 | 58.9 | 48.3 |
| 03:55 AM - 04:00 AM | 49.6 | 59.7 | 47.6 |
| 04:00 AM - 04:05 AM | 49.2 | 65.7 | 48.2 |
| 04:05 AM - 04:10 AM | 50.3 | 67.0 | 49.3 |
| 04:10 AM - 04:15 AM | 49.6 | 56.3 | 48.7 |
| 04:15 AM - 04:20 AM | 49.5 | 59.1 | 48.6 |
| 04:20 AM - 04:25 AM | 51.3 | 59.7 | 50.2 |
| 04:25 AM - 04:30 AM | 50.8 | 62.6 | 49.8 |
| 04:30 AM - 04:35 AM | 49.4 | 59.6 | 47.6 |
| 04:35 AM - 04:40 AM | 50.1 | 59.4 | 46.4 |
| 04:40 AM - 04:45 AM | 51.9 | 61.2 | 46.9 |
| 04:45 AM - 04:50 AM | 54.2 | 65.7 | 47.7 |
| 04:50 AM - 04:55 AM | 68.1 | 74.9 | 49.9 |
| 04:55 AM - 05:00 AM | 75.7 | 77.3 | 74.8 |
| 05:00 AM - 05:05 AM | 73.8 | 77.2 | 70.3 |
| 05:05 AM - 05:10 AM | 62.5 | 70.7 | 55.6 |
| 05:10 AM - 05:15 AM | 56.5 | 61.8 | 53.5 |
| 05:15 AM - 05:20 AM | 56.2 | 61.3 | 53.4 |
| 05:20 AM - 05:25 AM | 56.0 | 61.3 | 53.1 |
| 05:25 AM - 05:30 AM | 56.3 | 61.5 | 52.8 |
| 05:30 AM - 05:35 AM | 55.0 | 64.9 | 50.5 |
| 05:35 AM - 05:40 AM | 53.7 | 60.1 | 49.9 |
| 05:40 AM - 05:45 AM | 53.2 | 68.1 | 49.8 |
| 05:45 AM - 05:50 AM | 55.4 | 66.7 | 51.0 |
| 05:50 AM - 05:55 AM | 58.1 | 71.6 | 51.2 |
| 05:55 AM - 06:00 AM | 55.1 | 66.4 | 50.4 |
| 06:00 AM - 07:00 AM | 55.6 | 70.8 | 50.9 |
| 07:00 AM - 08:00 AM | 54.0 | 74.9 | 48.4 |
| 08:00 AM - 09:00 AM | 53.5 | 79.8 | 47.1 |
| 09:00 AM - 10:00 AM | 51.3 | 69.8 | 45.5 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658803-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-5
**Parameter** Noise
**Location** บ้านวังตาคมปอม (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 53.4 | 71.3 | 46.5 |
| 11:00 AM - 12:00 PM | 57.1 | 74.2 | 44.3 |
| 12:00 PM - 01:00 PM | 64.2 | 76.1 | 61.3 |
| 01:00 PM - 02:00 PM | 50.8 | 77.7 | 42.7 |
| 02:00 PM - 03:00 PM | 53.0 | 76.2 | 44.5 |
| 03:00 PM - 04:00 PM | 57.4 | 85.5 | 51.4 |
| 04:00 PM - 05:00 PM | 54.0 | 70.3 | 49.4 |
| 05:00 PM - 06:00 PM | 53.1 | 70.6 | 47.3 |
| 06:00 PM - 07:00 PM | 65.8 | 75.8 | 61.9 |
| 07:00 PM - 08:00 PM | 54.4 | 65.4 | 48.5 |
| 08:00 PM - 09:00 PM | 53.6 | 69.9 | 46.8 |
| 09:00 PM - 10:00 PM | 49.6 | 65.5 | 45.0 |
| 10:00 PM - 10:05 PM | 46.7 | 56.4 | 44.1 |
| 10:05 PM - 10:10 PM | 45.9 | 57.8 | 42.7 |
| 10:10 PM - 10:15 PM | 46.2 | 59.0 | 40.2 |
| 10:15 PM - 10:20 PM | 43.3 | 52.0 | 40.7 |
| 10:20 PM - 10:25 PM | 44.1 | 54.6 | 41.8 |
| 10:25 PM - 10:30 PM | 47.3 | 62.4 | 41.9 |
| 10:30 PM - 10:35 PM | 46.8 | 74.3 | 40.8 |
| 10:35 PM - 10:40 PM | 44.7 | 56.6 | 40.7 |
| 10:40 PM - 10:45 PM | 44.0 | 53.3 | 40.4 |
| 10:45 PM - 10:50 PM | 43.0 | 55.6 | 41.0 |
| 10:50 PM - 10:55 PM | 49.3 | 63.0 | 41.3 |
| 10:55 PM - 11:00 PM | 46.9 | 64.8 | 42.2 |
| 11:00 PM - 11:05 PM | 43.9 | 53.4 | 41.8 |
| 11:05 PM - 11:10 PM | 46.7 | 57.7 | 42.2 |
| 11:10 PM - 11:15 PM | 44.6 | 52.7 | 41.2 |
| 11:15 PM - 11:20 PM | 47.5 | 61.4 | 39.4 |
| 11:20 PM - 11:25 PM | 49.0 | 59.1 | 39.6 |
| 11:25 PM - 11:30 PM | 46.7 | 53.0 | 44.8 |
| 11:30 PM - 11:35 PM | 47.9 | 59.3 | 45.5 |
| 11:35 PM - 11:40 PM | 45.7 | 54.7 | 41.5 |
| 11:40 PM - 11:45 PM | 47.1 | 57.3 | 44.6 |
| 11:45 PM - 11:50 PM | 47.4 | 59.4 | 42.8 |
| 11:50 PM - 11:55 PM | 46.1 | 57.1 | 40.3 |
| 11:55 PM - 12:00 AM | 45.1 | 55.8 | 40.8 |
| 12:00 AM - 12:05 AM | 42.6 | 51.1 | 40.4 |
| 12:05 AM - 12:10 AM | 45.4 | 60.3 | 42.0 |
| 12:10 AM - 12:15 AM | 47.2 | 62.0 | 42.2 |
| 12:15 AM - 12:20 AM | 48.7 | 58.3 | 40.1 |

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658803-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-5
**Parameter** Noise
**Location** บ้านวังตาคมปอม (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 43.4 | 52.0 | 41.0 |
| 12:25 AM - 12:30 AM | 41.2 | 52.0 | 39.2 |
| 12:30 AM - 12:35 AM | 43.1 | 49.7 | 39.4 |
| 12:35 AM - 12:40 AM | 46.8 | 63.2 | 39.4 |
| 12:40 AM - 12:45 AM | 41.7 | 53.0 | 39.0 |
| 12:45 AM - 12:50 AM | 41.4 | 51.7 | 39.2 |
| 12:50 AM - 12:55 AM | 41.8 | 52.8 | 39.1 |
| 12:55 AM - 01:00 AM | 42.9 | 55.9 | 38.4 |
| 01:00 AM - 01:05 AM | 42.8 | 53.2 | 38.5 |
| 01:05 AM - 01:10 AM | 47.1 | 61.4 | 36.1 |
| 01:10 AM - 01:15 AM | 44.3 | 62.7 | 37.2 |
| 01:15 AM - 01:20 AM | 40.8 | 51.9 | 37.4 |
| 01:20 AM - 01:25 AM | 47.8 | 62.3 | 39.6 |
| 01:25 AM - 01:30 AM | 43.8 | 52.1 | 41.9 |
| 01:30 AM - 01:35 AM | 48.5 | 69.8 | 41.7 |
| 01:35 AM - 01:40 AM | 44.5 | 52.2 | 41.1 |
| 01:40 AM - 01:45 AM | 45.5 | 53.5 | 41.6 |
| 01:45 AM - 01:50 AM | 45.6 | 52.7 | 41.1 |
| 01:50 AM - 01:55 AM | 48.7 | 62.8 | 40.4 |
| 01:55 AM - 02:00 AM | 47.2 | 57.9 | 41.4 |
| 02:00 AM - 02:05 AM | 49.0 | 58.6 | 42.5 |
| 02:05 AM - 02:10 AM | 45.5 | 52.6 | 40.7 |
| 02:10 AM - 02:15 AM | 44.3 | 52.3 | 40.7 |
| 02:15 AM - 02:20 AM | 51.9 | 70.8 | 40.7 |
| 02:20 AM - 02:25 AM | 44.9 | 52.3 | 39.7 |
| 02:25 AM - 02:30 AM | 46.3 | 59.4 | 40.8 |
| 02:30 AM - 02:35 AM | 44.7 | 52.5 | 40.2 |
| 02:35 AM - 02:40 AM | 49.3 | 61.7 | 42.0 |
| 02:40 AM - 02:45 AM | 44.1 | 53.7 | 40.1 |
| 02:45 AM - 02:50 AM | 43.5 | 51.6 | 40.8 |
| 02:50 AM - 02:55 AM | 45.8 | 55.9 | 41.5 |
| 02:55 AM - 03:00 AM | 48.5 | 60.6 | 41.3 |
| 03:00 AM - 03:05 AM | 46.3 | 53.1 | 41.0 |
| 03:05 AM - 03:10 AM | 46.1 | 54.0 | 41.0 |
| 03:10 AM - 03:15 AM | 45.3 | 52.9 | 41.4 |
| 03:15 AM - 03:20 AM | 45.3 | 53.9 | 40.3 |
| 03:20 AM - 03:25 AM | 45.2 | 51.7 | 40.4 |
| 03:25 AM - 03:30 AM | 51.9 | 66.5 | 41.8 |
| 03:30 AM - 03:35 AM | 45.7 | 53.2 | 41.5 |
| 03:35 AM - 03:40 AM | 49.3 | 59.1 | 43.1 |

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658803-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-5
**Parameter** Noise
**Location** บ้านวังตาคมปอม (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 45.4 | 52.0 | 39.5 |
| 03:45 AM - 03:50 AM | 46.0 | 54.2 | 39.9 |
| 03:50 AM - 03:55 AM | 46.6 | 53.4 | 41.2 |
| 03:55 AM - 04:00 AM | 49.5 | 67.1 | 41.5 |
| 04:00 AM - 04:05 AM | 47.2 | 62.4 | 40.9 |
| 04:05 AM - 04:10 AM | 45.9 | 61.1 | 40.8 |
| 04:10 AM - 04:15 AM | 48.9 | 64.4 | 41.4 |
| 04:15 AM - 04:20 AM | 46.1 | 53.5 | 42.1 |
| 04:20 AM - 04:25 AM | 46.3 | 52.9 | 42.6 |
| 04:25 AM - 04:30 AM | 46.6 | 55.5 | 42.5 |
| 04:30 AM - 04:35 AM | 46.9 | 53.1 | 42.9 |
| 04:35 AM - 04:40 AM | 48.0 | 58.7 | 44.0 |
| 04:40 AM - 04:45 AM | 51.5 | 71.7 | 45.0 |
| 04:45 AM - 04:50 AM | 73.1 | 76.5 | 61.4 |
| 04:50 AM - 04:55 AM | 74.3 | 76.8 | 73.6 |
| 04:55 AM - 05:00 AM | 71.1 | 74.6 | 67.5 |
| 05:00 AM - 05:05 AM | 54.2 | 68.1 | 47.9 |
| 05:05 AM - 05:10 AM | 51.1 | 63.0 | 47.5 |
| 05:10 AM - 05:15 AM | 52.1 | 67.7 | 47.1 |
| 05:15 AM - 05:20 AM | 51.5 | 57.4 | 48.7 |
| 05:20 AM - 05:25 AM | 55.0 | 66.6 | 52.2 |
| 05:25 AM - 05:30 AM | 55.9 | 63.3 | 54.3 |
| 05:30 AM - 05:35 AM | 55.1 | 59.9 | 54.2 |
| 05:35 AM - 05:40 AM | 55.4 | 62.5 | 54.1 |
| 05:40 AM - 05:45 AM | 52.0 | 62.1 | 49.1 |
| 05:45 AM - 05:50 AM | 54.2 | 65.5 | 50.3 |
| 05:50 AM - 05:55 AM | 56.0 | 64.4 | 54.1 |
| 05:55 AM - 06:00 AM | 57.1 | 67.5 | 54.7 |
| 06:00 AM - 07:00 AM | 58.1 | 79.0 | 53.5 |
| 07:00 AM - 08:00 AM | 57.2 | 73.1 | 53.6 |
| 08:00 AM - 09:00 AM | 53.2 | 76.4 | 49.0 |
| 09:00 AM - 10:00 AM | 52.7 | 69.2 | 48.0 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658804-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-6
**Parameter** Noise
**Location** บ้านวังตาลหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 64.6 | 74.3 | 61.6 |
| 11:00 AM - 12:00 PM | 51.8 | 78.1 | 43.6 |
| 12:00 PM - 01:00 PM | 54.0 | 86.0 | 46.1 |
| 01:00 PM - 02:00 PM | 51.3 | 70.9 | 43.3 |
| 02:00 PM - 03:00 PM | 63.4 | 73.5 | 57.3 |
| 03:00 PM - 04:00 PM | 60.1 | 73.0 | 55.2 |
| 04:00 PM - 05:00 PM | 61.8 | 96.8 | 50.7 |
| 05:00 PM - 06:00 PM | 55.8 | 74.5 | 50.6 |
| 06:00 PM - 07:00 PM | 66.4 | 76.1 | 64.1 |
| 07:00 PM - 08:00 PM | 54.3 | 64.8 | 52.6 |
| 08:00 PM - 09:00 PM | 52.7 | 65.8 | 51.0 |
| 09:00 PM - 10:00 PM | 52.9 | 65.9 | 51.5 |
| 10:00 PM - 10:05 PM | 51.9 | 55.3 | 51.0 |
| 10:05 PM - 10:10 PM | 51.9 | 56.0 | 51.1 |
| 10:10 PM - 10:15 PM | 52.0 | 56.3 | 50.7 |
| 10:15 PM - 10:20 PM | 51.5 | 55.4 | 50.3 |
| 10:20 PM - 10:25 PM | 49.5 | 53.8 | 46.6 |
| 10:25 PM - 10:30 PM | 47.7 | 58.0 | 45.3 |
| 10:30 PM - 10:35 PM | 45.7 | 53.7 | 43.8 |
| 10:35 PM - 10:40 PM | 55.8 | 74.9 | 41.2 |
| 10:40 PM - 10:45 PM | 43.8 | 54.2 | 40.0 |
| 10:45 PM - 10:50 PM | 44.7 | 57.0 | 41.2 |
| 10:50 PM - 10:55 PM | 46.6 | 61.5 | 41.0 |
| 10:55 PM - 11:00 PM | 43.1 | 54.4 | 41.3 |
| 11:00 PM - 11:05 PM | 42.7 | 51.4 | 37.5 |
| 11:05 PM - 11:10 PM | 46.8 | 53.5 | 38.4 |
| 11:10 PM - 11:15 PM | 54.5 | 58.3 | 51.6 |
| 11:15 PM - 11:20 PM | 54.0 | 58.9 | 44.5 |
| 11:20 PM - 11:25 PM | 45.1 | 55.0 | 41.9 |
| 11:25 PM - 11:30 PM | 41.6 | 48.0 | 39.2 |
| 11:30 PM - 11:35 PM | 42.7 | 54.1 | 40.0 |
| 11:35 PM - 11:40 PM | 41.9 | 48.7 | 39.6 |
| 11:40 PM - 11:45 PM | 43.1 | 51.9 | 39.8 |
| 11:45 PM - 11:50 PM | 41.3 | 46.2 | 38.2 |
| 11:50 PM - 11:55 PM | 43.2 | 50.7 | 41.2 |
| 11:55 PM - 12:00 AM | 43.6 | 57.9 | 41.4 |
| 12:00 AM - 12:05 AM | 43.2 | 59.5 | 40.8 |
| 12:05 AM - 12:10 AM | 43.7 | 55.3 | 40.2 |
| 12:10 AM - 12:15 AM | 42.0 | 50.8 | 38.8 |
| 12:15 AM - 12:20 AM | 43.4 | 50.4 | 41.2 |

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Wilawan Borirak
Manager

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ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658804-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-6
**Parameter** Noise
**Location** บ้านวังตาลหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 43.2 | 47.3 | 41.0 |
| 12:25 AM - 12:30 AM | 43.3 | 51.6 | 40.0 |
| 12:30 AM - 12:35 AM | 44.6 | 52.7 | 41.9 |
| 12:35 AM - 12:40 AM | 45.5 | 60.0 | 41.4 |
| 12:40 AM - 12:45 AM | 45.0 | 62.5 | 41.4 |
| 12:45 AM - 12:50 AM | 45.8 | 59.0 | 42.9 |
| 12:50 AM - 12:55 AM | 43.7 | 50.7 | 41.3 |
| 12:55 AM - 01:00 AM | 43.7 | 49.8 | 40.5 |
| 01:00 AM - 01:05 AM | 44.6 | 53.4 | 42.2 |
| 01:05 AM - 01:10 AM | 44.7 | 54.2 | 42.8 |
| 01:10 AM - 01:15 AM | 44.1 | 51.4 | 42.5 |
| 01:15 AM - 01:20 AM | 44.4 | 55.7 | 43.0 |
| 01:20 AM - 01:25 AM | 44.1 | 52.8 | 41.1 |
| 01:25 AM - 01:30 AM | 43.5 | 57.2 | 41.5 |
| 01:30 AM - 01:35 AM | 42.4 | 48.0 | 39.5 |
| 01:35 AM - 01:40 AM | 43.7 | 48.9 | 40.4 |
| 01:40 AM - 01:45 AM | 51.0 | 67.7 | 39.4 |
| 01:45 AM - 01:50 AM | 41.3 | 51.1 | 37.7 |
| 01:50 AM - 01:55 AM | 39.4 | 49.7 | 37.1 |
| 01:55 AM - 02:00 AM | 40.4 | 54.4 | 36.1 |
| 02:00 AM - 02:05 AM | 38.5 | 48.5 | 35.4 |
| 02:05 AM - 02:10 AM | 42.2 | 52.6 | 36.3 |
| 02:10 AM - 02:15 AM | 39.5 | 53.2 | 35.5 |
| 02:15 AM - 02:20 AM | 37.8 | 48.4 | 35.5 |
| 02:20 AM - 02:25 AM | 37.9 | 47.5 | 35.6 |
| 02:25 AM - 02:30 AM | 46.4 | 58.4 | 35.4 |
| 02:30 AM - 02:35 AM | 38.3 | 46.2 | 35.7 |
| 02:35 AM - 02:40 AM | 38.9 | 48.0 | 37.6 |
| 02:40 AM - 02:45 AM | 40.4 | 52.2 | 37.4 |
| 02:45 AM - 02:50 AM | 46.3 | 56.2 | 40.0 |
| 02:50 AM - 02:55 AM | 41.0 | 52.0 | 38.5 |
| 02:55 AM - 03:00 AM | 45.5 | 64.2 | 39.0 |
| 03:00 AM - 03:05 AM | 43.4 | 55.6 | 38.6 |
| 03:05 AM - 03:10 AM | 41.0 | 53.6 | 38.3 |
| 03:10 AM - 03:15 AM | 41.8 | 51.2 | 39.4 |
| 03:15 AM - 03:20 AM | 39.7 | 51.5 | 38.6 |
| 03:20 AM - 03:25 AM | 41.7 | 54.3 | 38.9 |
| 03:25 AM - 03:30 AM | 39.6 | 46.7 | 38.6 |
| 03:30 AM - 03:35 AM | 40.2 | 52.6 | 38.5 |
| 03:35 AM - 03:40 AM | 40.9 | 49.9 | 37.5 |

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**Approved by**
Wilawan Borirak
Manager

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658804-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-6
**Parameter** Noise
**Location** บ้านวังตาลหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 44.6 | 60.8 | 37.7 |
| 03:45 AM - 03:50 AM | 45.0 | 60.7 | 38.0 |
| 03:50 AM - 03:55 AM | 44.2 | 59.1 | 37.4 |
| 03:55 AM - 04:00 AM | 40.7 | 49.7 | 36.9 |
| 04:00 AM - 04:05 AM | 40.6 | 53.8 | 36.9 |
| 04:05 AM - 04:10 AM | 44.6 | 69.1 | 38.7 |
| 04:10 AM - 04:15 AM | 49.4 | 66.2 | 38.1 |
| 04:15 AM - 04:20 AM | 42.9 | 53.0 | 38.3 |
| 04:20 AM - 04:25 AM | 44.9 | 67.1 | 38.4 |
| 04:25 AM - 04:30 AM | 48.8 | 65.3 | 40.5 |
| 04:30 AM - 04:35 AM | 49.7 | 66.2 | 41.9 |
| 04:35 AM - 04:40 AM | 49.9 | 66.6 | 42.0 |
| 04:40 AM - 04:45 AM | 51.1 | 67.1 | 42.2 |
| 04:45 AM - 04:50 AM | 71.6 | 76.0 | 42.3 |
| 04:50 AM - 04:55 AM | 73.4 | 75.1 | 72.8 |
| 04:55 AM - 05:00 AM | 72.2 | 74.4 | 69.2 |
| 05:00 AM - 05:05 AM | 61.7 | 68.9 | 47.2 |
| 05:05 AM - 05:10 AM | 50.8 | 57.7 | 47.4 |
| 05:10 AM - 05:15 AM | 50.2 | 62.9 | 47.8 |
| 05:15 AM - 05:20 AM | 49.9 | 60.8 | 47.1 |
| 05:20 AM - 05:25 AM | 53.1 | 64.9 | 47.2 |
| 05:25 AM - 05:30 AM | 51.7 | 61.7 | 46.9 |
| 05:30 AM - 05:35 AM | 51.9 | 62.9 | 48.0 |
| 05:35 AM - 05:40 AM | 51.5 | 62.2 | 48.5 |
| 05:40 AM - 05:45 AM | 49.7 | 59.1 | 47.3 |
| 05:45 AM - 05:50 AM | 53.0 | 65.1 | 47.9 |
| 05:50 AM - 05:55 AM | 52.1 | 73.8 | 47.6 |
| 05:55 AM - 06:00 AM | 53.2 | 61.5 | 48.9 |
| 06:00 AM - 07:00 AM | 64.6 | 75.2 | 62.7 |
| 07:00 AM - 08:00 AM | 57.2 | 77.7 | 53.3 |
| 08:00 AM - 09:00 AM | 53.7 | 72.8 | 47.3 |
| 09:00 AM - 10:00 AM | 59.4 | 91.0 | 47.3 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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**Approved by**
Wilawan Borirak
Manager

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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658805-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-7
**Parameter** Noise
**Location** บ้านวังตาลหมอน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 53.3 | 80.8 | 46.1 |
| 11:00 AM - 12:00 PM | 52.7 | 74.4 | 46.7 |
| 12:00 PM - 01:00 PM | 54.0 | 74.6 | 49.4 |
| 01:00 PM - 02:00 PM | 53.0 | 73.5 | 44.5 |
| 02:00 PM - 03:00 PM | 63.2 | 73.5 | 59.0 |
| 03:00 PM - 04:00 PM | 51.8 | 73.4 | 47.2 |
| 04:00 PM - 05:00 PM | 54.1 | 78.7 | 48.4 |
| 05:00 PM - 06:00 PM | 53.3 | 77.6 | 48.3 |
| 06:00 PM - 07:00 PM | 64.9 | 74.8 | 63.0 |
| 07:00 PM - 08:00 PM | 51.0 | 75.7 | 45.6 |
| 08:00 PM - 09:00 PM | 49.9 | 76.7 | 44.8 |
| 09:00 PM - 10:00 PM | 46.2 | 59.5 | 42.8 |
| 10:00 PM - 10:05 PM | 46.7 | 62.3 | 42.9 |
| 10:05 PM - 10:10 PM | 48.6 | 68.2 | 42.5 |
| 10:10 PM - 10:15 PM | 46.1 | 55.5 | 42.3 |
| 10:15 PM - 10:20 PM | 44.9 | 54.8 | 41.9 |
| 10:20 PM - 10:25 PM | 44.9 | 53.8 | 42.7 |
| 10:25 PM - 10:30 PM | 43.9 | 49.6 | 42.3 |
| 10:30 PM - 10:35 PM | 43.9 | 51.1 | 42.3 |
| 10:35 PM - 10:40 PM | 46.7 | 57.0 | 42.1 |
| 10:40 PM - 10:45 PM | 44.7 | 55.1 | 41.7 |
| 10:45 PM - 10:50 PM | 43.8 | 54.1 | 41.1 |
| 10:50 PM - 10:55 PM | 43.9 | 53.1 | 40.9 |
| 10:55 PM - 11:00 PM | 45.4 | 53.9 | 42.4 |
| 11:00 PM - 11:05 PM | 43.9 | 52.7 | 40.5 |
| 11:05 PM - 11:10 PM | 45.2 | 58.1 | 40.7 |
| 11:10 PM - 11:15 PM | 44.9 | 52.5 | 40.6 |
| 11:15 PM - 11:20 PM | 49.4 | 54.9 | 46.7 |
| 11:20 PM - 11:25 PM | 50.0 | 57.5 | 47.8 |
| 11:25 PM - 11:30 PM | 43.8 | 56.1 | 39.8 |
| 11:30 PM - 11:35 PM | 43.4 | 54.3 | 40.0 |
| 11:35 PM - 11:40 PM | 44.3 | 53.5 | 41.7 |
| 11:40 PM - 11:45 PM | 45.4 | 58.1 | 41.8 |
| 11:45 PM - 11:50 PM | 46.7 | 64.0 | 42.2 |
| 11:50 PM - 11:55 PM | 46.8 | 62.8 | 41.9 |
| 11:55 PM - 12:00 AM | 44.4 | 49.4 | 42.1 |
| 12:00 AM - 12:05 AM | 46.4 | 58.9 | 43.8 |
| 12:05 AM - 12:10 AM | 45.4 | 51.9 | 44.1 |
| 12:10 AM - 12:15 AM | 47.8 | 58.1 | 43.8 |
| 12:15 AM - 12:20 AM | 45.2 | 53.2 | 44.1 |

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**Approved by**
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# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658805-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-7
**Parameter** Noise
**Location** บ้านวังลาดหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 44.3 | 49.7 | 42.6 |
| 12:25 AM - 12:30 AM | 44.7 | 51.2 | 43.4 |
| 12:30 AM - 12:35 AM | 44.7 | 53.3 | 42.5 |
| 12:35 AM - 12:40 AM | 43.5 | 49.7 | 39.2 |
| 12:40 AM - 12:45 AM | 44.2 | 50.8 | 43.2 |
| 12:45 AM - 12:50 AM | 44.2 | 50.7 | 43.4 |
| 12:50 AM - 12:55 AM | 44.3 | 56.5 | 43.4 |
| 12:55 AM - 01:00 AM | 43.5 | 48.3 | 41.9 |
| 01:00 AM - 01:05 AM | 42.1 | 53.4 | 37.9 |
| 01:05 AM - 01:10 AM | 40.8 | 50.6 | 38.2 |
| 01:10 AM - 01:15 AM | 45.9 | 63.8 | 38.5 |
| 01:15 AM - 01:20 AM | 46.5 | 68.5 | 39.9 |
| 01:20 AM - 01:25 AM | 42.2 | 52.5 | 39.2 |
| 01:25 AM - 01:30 AM | 42.3 | 52.6 | 40.7 |
| 01:30 AM - 01:35 AM | 42.7 | 54.0 | 39.7 |
| 01:35 AM - 01:40 AM | 41.9 | 46.3 | 40.1 |
| 01:40 AM - 01:45 AM | 40.4 | 49.3 | 37.2 |
| 01:45 AM - 01:50 AM | 43.0 | 55.0 | 40.3 |
| 01:50 AM - 01:55 AM | 41.5 | 51.3 | 37.4 |
| 01:55 AM - 02:00 AM | 43.0 | 55.2 | 41.7 |
| 02:00 AM - 02:05 AM | 43.5 | 53.7 | 42.2 |
| 02:05 AM - 02:10 AM | 44.8 | 54.2 | 42.4 |
| 02:10 AM - 02:15 AM | 46.7 | 57.9 | 42.9 |
| 02:15 AM - 02:20 AM | 42.9 | 47.1 | 42.4 |
| 02:20 AM - 02:25 AM | 45.5 | 60.0 | 42.4 |
| 02:25 AM - 02:30 AM | 42.8 | 49.2 | 41.9 |
| 02:30 AM - 02:35 AM | 41.9 | 48.8 | 38.2 |
| 02:35 AM - 02:40 AM | 41.1 | 52.9 | 38.4 |
| 02:40 AM - 02:45 AM | 41.0 | 49.7 | 38.7 |
| 02:45 AM - 02:50 AM | 41.1 | 47.7 | 38.9 |
| 02:50 AM - 02:55 AM | 41.6 | 52.7 | 38.9 |
| 02:55 AM - 03:00 AM | 41.3 | 48.8 | 38.2 |
| 03:00 AM - 03:05 AM | 43.0 | 51.5 | 41.2 |
| 03:05 AM - 03:10 AM | 43.1 | 54.5 | 39.9 |
| 03:10 AM - 03:15 AM | 42.9 | 55.1 | 38.9 |
| 03:15 AM - 03:20 AM | 41.3 | 49.9 | 38.5 |
| 03:20 AM - 03:25 AM | 42.7 | 54.5 | 38.5 |
| 03:25 AM - 03:30 AM | 42.0 | 56.7 | 38.2 |
| 03:30 AM - 03:35 AM | 40.5 | 48.3 | 38.0 |
| 03:35 AM - 03:40 AM | 47.7 | 61.6 | 39.1 |

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Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658805-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-7
**Parameter** Noise
**Location** บ้านวังลาดหม่อน (N1) (GPS 47P 0734013, 1432165) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623390

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 45.7 | 64.5 | 37.9 |
| 03:45 AM - 03:50 AM | 43.4 | 58.6 | 38.2 |
| 03:50 AM - 03:55 AM | 44.1 | 55.0 | 41.3 |
| 03:55 AM - 04:00 AM | 42.4 | 56.6 | 38.4 |
| 04:00 AM - 04:05 AM | 40.0 | 49.8 | 37.7 |
| 04:05 AM - 04:10 AM | 43.4 | 56.5 | 37.6 |
| 04:10 AM - 04:15 AM | 47.6 | 63.8 | 38.9 |
| 04:15 AM - 04:20 AM | 42.6 | 61.0 | 38.4 |
| 04:20 AM - 04:25 AM | 46.4 | 60.0 | 38.5 |
| 04:25 AM - 04:30 AM | 51.1 | 67.0 | 38.6 |
| 04:30 AM - 04:35 AM | 45.8 | 54.2 | 40.7 |
| 04:35 AM - 04:40 AM | 49.4 | 62.9 | 42.3 |
| 04:40 AM - 04:45 AM | 53.4 | 76.0 | 43.0 |
| 04:45 AM - 04:50 AM | 73.6 | 76.3 | 59.1 |
| 04:50 AM - 04:55 AM | 72.7 | 75.3 | 71.4 |
| 04:55 AM - 05:00 AM | 69.1 | 72.6 | 66.7 |
| 05:00 AM - 05:05 AM | 58.8 | 67.6 | 49.0 |
| 05:05 AM - 05:10 AM | 49.7 | 58.9 | 48.1 |
| 05:10 AM - 05:15 AM | 51.5 | 64.0 | 48.2 |
| 05:15 AM - 05:20 AM | 51.3 | 64.3 | 47.8 |
| 05:20 AM - 05:25 AM | 54.3 | 68.0 | 48.1 |
| 05:25 AM - 05:30 AM | 50.3 | 57.3 | 48.5 |
| 05:30 AM - 05:35 AM | 50.5 | 65.2 | 48.3 |
| 05:35 AM - 05:40 AM | 51.7 | 63.6 | 48.5 |
| 05:40 AM - 05:45 AM | 55.3 | 68.9 | 48.8 |
| 05:45 AM - 05:50 AM | 52.8 | 68.1 | 49.3 |
| 05:50 AM - 05:55 AM | 54.2 | 75.7 | 50.0 |
| 05:55 AM - 06:00 AM | 51.2 | 62.2 | 48.3 |
| 06:00 AM - 07:00 AM | 54.5 | 72.3 | 49.8 |
| 07:00 AM - 08:00 AM | 56.0 | 88.6 | 48.4 |
| 08:00 AM - 09:00 AM | 59.8 | 91.5 | 47.7 |
| 09:00 AM - 10:00 AM | 53.8 | 81.3 | 47.3 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658787-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-8
**Parameter** เสียงรบกวน
**Location** บ้านพักอาทิย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่าง ระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
| 10:00 AM - 11:00 AM | 61.6 | 58.0 | 3.6 | 2.0 | 59.6 | - | 41.9 | 17.7 |
| 11:00 AM - 12:00 PM | 61.2 | 57.3 | 3.9 | 2.0 | 59.2 | - | 40.9 | 18.3 |
| 12:00 PM - 01:00 PM | 60.4 | 57.7 | 2.7 | 3.0 | 57.4 | - | 42.4 | 15.0 |
| 01:00 PM - 02:00 PM | 64.5 | 61.2 | 3.3 | 3.0 | 61.5 | - | 43.8 | 17.7 |
| 02:00 PM - 03:00 PM | 65.6 | 62.3 | 3.3 | 3.0 | 62.6 | - | 49.1 | 13.5 |
| 03:00 PM - 04:00 PM | 65.7 | 64.6 | 1.1 | 7.0 | 58.7 | - | 50.9 | 7.8 |
| 04:00 PM - 05:00 PM | 64.0 | 61.2 | 2.8 | 3.0 | 61.0 | - | 49.9 | 11.1 |
| 05:00 PM - 06:00 PM | 61.7 | 58.8 | 2.9 | 3.0 | 58.7 | - | 46.5 | 12.2 |
| 06:00 PM - 07:00 PM | 63.0 | 58.5 | 4.5 | 1.5 | 61.5 | - | 45.4 | 16.1 |
| 07:00 PM - 08:00 PM | 60.6 | 57.9 | 2.7 | 3.0 | 57.6 | - | 46.4 | 11.2 |
| 08:00 PM - 09:00 PM | 56.8 | 55.0 | 1.8 | 4.5 | 52.3 | - | 43.7 | 8.6 |
| 09:00 PM - 10:00 PM | 57.8 | 55.1 | 2.7 | 3.0 | 54.8 | - | 42.9 | 11.9 |
| 10:00 PM - 10:05 PM | 41.3 | 43.5 | -2.2 | 7.0 | - | 37.3 | 42.5 | -5.2 |
| 10:05 PM - 10:10 PM | 60.3 | 65.7 | -5.4 | 7.0 | - | 56.3 | 43.4 | 12.9 |
| 10:10 PM - 10:15 PM | 61.9 | 48.9 | 13.0 | 0.0 | - | 64.9 | 42.8 | 22.1 |
| 10:15 PM - 10:20 PM | 51.5 | 49.0 | 2.5 | 3.0 | - | 51.5 | 42.9 | 8.6 |
| 10:20 PM - 10:25 PM | 51.1 | 45.6 | 5.5 | 1.5 | - | 52.6 | 42.8 | 9.8 |
| 10:25 PM - 10:30 PM | 41.8 | 57.0 | -15.2 | 7.0 | - | 37.8 | 42.4 | -4.6 |
| 10:30 PM - 10:35 PM | 60.9 | 47.3 | 13.6 | 0.0 | - | 63.9 | 42.5 | 21.4 |
| 10:35 PM - 10:40 PM | 47.6 | 45.7 | 1.9 | 4.5 | - | 46.1 | 42.6 | 3.5 |
| 10:40 PM - 10:45 PM | 41.7 | 45.3 | -3.6 | 7.0 | - | 37.7 | 42.6 | -4.9 |
| 10:45 PM - 10:50 PM | 45.6 | 49.8 | -4.2 | 7.0 | - | 41.6 | 42.4 | -0.8 |
| 10:50 PM - 10:55 PM | 56.5 | 55.7 | 0.8 | 7.0 | - | 52.5 | 42.6 | 9.9 |
| 10:55 PM - 11:00 PM | 49.2 | 48.2 | 1.0 | 7.0 | - | 45.2 | 42.6 | 2.6 |
| 11:00 PM - 11:05 PM | 51.0 | 43.6 | 7.4 | 1.0 | - | 53.0 | 42.5 | 10.5 |
| 11:05 PM - 11:10 PM | 40.7 | 49.6 | -8.9 | 7.0 | - | 36.7 | 42.4 | -5.7 |
| 11:10 PM - 11:15 PM | 53.0 | 46.8 | 6.2 | 1.5 | - | 54.5 | 42.0 | 12.5 |
| 11:15 PM - 11:20 PM | 50.4 | 51.0 | -0.6 | 7.0 | - | 46.4 | 41.9 | 4.5 |
| 11:20 PM - 11:25 PM | 55.5 | 42.9 | 12.6 | 0.0 | - | 58.5 | 41.8 | 16.7 |
| 11:25 PM - 11:30 PM | 42.6 | 46.2 | -3.6 | 7.0 | - | 38.6 | 41.7 | -3.1 |
| 11:30 PM - 11:35 PM | 49.1 | 42.7 | 6.4 | 1.5 | - | 50.6 | 41.3 | 9.3 |
| 11:35 PM - 11:40 PM | 52.7 | 52.9 | -0.2 | 7.0 | - | 48.7 | 40.2 | 8.5 |
| 11:40 PM - 11:45 PM | 51.0 | 41.9 | 9.1 | 0.5 | - | 53.5 | 40.4 | 13.1 |
| 11:45 PM - 11:50 PM | 43.6 | 42.1 | 1.5 | 4.5 | - | 42.1 | 41.3 | 0.8 |
| 11:50 PM - 11:55 PM | 41.4 | 41.9 | -0.5 | 7.0 | - | 37.4 | 41.2 | -3.8 |
| 11:55 PM - 12:00 AM | 40.9 | 41.7 | -0.8 | 7.0 | - | 36.9 | 41.0 | -4.1 |
| 12:00 AM - 12:05 AM | 40.7 | 41.3 | -0.6 | 7.0 | - | 36.7 | 39.8 | -3.1 |
| 12:05 AM - 12:10 AM | 40.1 | 44.3 | -4.2 | 7.0 | - | 36.1 | 41.0 | -4.9 |
| 12:10 AM - 12:15 AM | 45.1 | 42.4 | 2.7 | 3.0 | - | 45.1 | 41.6 | 3.5 |
| 12:15 AM - 12:20 AM | 48.6 | 46.3 | 2.3 | 4.5 | - | 47.1 | 41.4 | 5.7 |

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**Approved by**
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658787-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-8
**Parameter** เสียงรบกวน
**Location** บ้านพักอาทิย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่าง ระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
| 12:20 AM - 12:25 AM | 41.3 | 44.5 | -3.2 | 7.0 | - | 37.3 | 40.9 | -3.6 |
| 12:25 AM - 12:30 AM | 47.5 | 48.0 | -0.5 | 7.0 | - | 43.5 | 41.1 | 2.4 |
| 12:30 AM - 12:35 AM | 47.5 | 42.0 | 5.5 | 1.5 | - | 49.0 | 40.8 | 8.2 |
| 12:35 AM - 12:40 AM | 41.1 | 42.1 | -1.0 | 7.0 | - | 37.1 | 40.2 | -3.1 |
| 12:40 AM - 12:45 AM | 45.9 | 44.5 | 1.4 | 7.0 | - | 41.9 | 40.7 | 1.2 |
| 12:45 AM - 12:50 AM | 47.0 | 53.7 | -6.7 | 7.0 | - | 43.0 | 40.9 | 2.1 |
| 12:50 AM - 12:55 AM | 61.2 | 54.0 | 7.2 | 1.0 | - | 63.2 | 40.3 | 22.9 |
| 12:55 AM - 01:00 AM | 42.5 | 47.6 | -5.1 | 7.0 | - | 38.5 | 40.4 | -1.9 |
| 01:00 AM - 01:05 AM | 54.7 | 49.2 | 5.5 | 1.5 | - | 56.2 | 40.4 | 15.8 |
| 01:05 AM - 01:10 AM | 54.0 | 51.7 | 2.3 | 4.5 | - | 52.5 | 40.6 | 11.9 |
| 01:10 AM - 01:15 AM | 48.6 | 53.1 | -4.5 | 7.0 | - | 44.6 | 40.5 | 4.1 |
| 01:15 AM - 01:20 AM | 57.1 | 47.1 | 10.0 | 0.5 | - | 59.6 | 40.7 | 18.9 |
| 01:20 AM - 01:25 AM | 53.4 | 52.1 | 1.3 | 7.0 | - | 49.4 | 41.5 | 7.9 |
| 01:25 AM - 01:30 AM | 52.4 | 44.7 | 7.7 | 0.5 | - | 54.9 | 40.1 | 14.8 |
| 01:30 AM - 01:35 AM | 47,5 | 48.0 | -0.5 | 7.0 | - | 43.5 | 41.1 | 2.4 |
| 01:35 AM - 01:40 AM | 56.9 | 53.2 | 3.7 | 2.0 | - | 57.9 | 41.6 | 16.3 |
| 01:40 AM - 01:45 AM | 51.7 | 47.0 | 4.7 | 1.5 | - | 53.2 | 41.1 | 12.1 |
| 01:45 AM - 01:50 AM | 47.7 | 55.3 | -7.6 | 7.0 | - | 43.7 | 40.8 | 2.9 |
| 01:50 AM - 01:55 AM | 59.4 | 53.1 | 6.3 | 1.5 | - | 60.9 | 41.2 | 19.7 |
| 01:55 AM - 02:00 AM | 56.1 | 55.1 | 1.0 | 7.0 | - | 52.1 | 41.4 | 10.7 |
| 02:00 AM - 02:05 AM | 58.2 | 46.7 | 11.5 | 0.5 | - | 60.7 | 41.3 | 19.4 |
| 02:05 AM - 02:10 AM | 51.3 | 49.7 | 1.6 | 4.5 | - | 49.8 | 42.0 | 7.8 |
| 02:10 AM - 02:15 AM | 53.3 | 49.7 | 3.6 | 2.0 | - | 54.3 | 41.9 | 12.4 |
| 02:15 AM - 02:20 AM | 60.5 | 59.4 | 1.1 | 7.0 | - | 56.5 | 43.0 | 13.5 |
| 02:20 AM - 02:25 AM | 58.8 | 48.9 | 9.9 | 0.5 | - | 61.3 | 42.7 | 18.6 |
| 02:25 AM - 02:30 AM | 52.2 | 57.3 | -5.1 | 7.0 | - | 48.2 | 49.4 | -1.2 |
| 02:30 AM - 02:35 AM | 58.4 | 58.5 | -0.1 | 7.0 | - | 54.4 | 49.1 | 5.3 |
| 02:35 AM - 02:40 AM | 60.4 | 51.0 | 9.4 | 0.5 | - | 62.9 | 44.6 | 18.3 |
| 02:40 AM - 02:45 AM | 55.7 | 54.6 | 1.1 | 7.0 | - | 51.7 | 44.8 | 6.9 |
| 02:45 AM - 02:50 AM | 58.6 | 58.0 | 0.6 | 7.0 | - | 54.6 | 45.6 | 9.0 |
| 02:50 AM - 02:55 AM | 61.0 | 54.0 | 7.0 | 1.0 | - | 63.0 | 44.6 | 18.4 |
| 02:55 AM - 03:00 AM | 60.7 | 58.0 | 2.7 | 3.0 | - | 60.7 | 44.9 | 15.8 |
| 03:00 AM - 03:05 AM | 59.7 | 53.0 | 6.7 | 1.0 | - | 61.7 | 43.7 | 18.0 |
| 03:05 AM - 03:10 AM | 55.1 | 53.2 | 1.9 | 4.5 | - | 53.6 | 43.2 | 10.4 |
| 03:10 AM - 03:15 AM | 58.8 | 54.2 | 4.6 | 1.5 | - | 60.3 | 43.7 | 16.6 |
| 03:15 AM - 03:20 AM | 58.7 | 55.9 | 2.8 | 3.0 | - | 58.7 | 44.2 | 14.5 |
| 03:20 AM - 03:25 AM | 57.1 | 55.3 | 1.8 | 4.5 | - | 55.6 | 44.0 | 11.6 |
| 03:25 AM - 03:30 AM | 63.4 | 61.1 | 2.3 | 4.5 | - | 61.9 | 45.2 | 16.7 |
| 03:30 AM - 03:35 AM | 63.9 | 58.2 | 5.7 | 1.5 | - | 65.4 | 44.3 | 21.1 |
| 03:35 AM - 03:40 AM | 63.9 | 59.5 | 4.4 | 2.0 | - | 64.9 | 45.3 | 19.6 |

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**Approved by**
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658787-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-8
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า (C) | ปรับค่าเสียงจากแหล่งกำเนิด (D) กลางวัน (A-C)+C | กลางคืน (A-C)+C | (E) เสียงพื้นฐาน | (D-E) ค่าระดับการรบกวน |
| 03:40 AM - 03:45 AM | 62.6 | 59.4 | 3.2 | 3.0 | - | 62.6 | 44.1 | 18.5 |
| 03:45 AM - 03:50 AM | 60.3 | 58.7 | 1.6 | 4.5 | - | 58.8 | 45.5 | 13.3 |
| 03:50 AM - 03:55 AM | 62.3 | 56.7 | 5.6 | 1.5 | - | 63.8 | 44.3 | 19.5 |
| 03:55 AM - 04:00 AM | 60.6 | 61.2 | -0.6 | 7.0 | - | 56.6 | 44.7 | 11.9 |
| 04:00 AM - 04:05 AM | 64.1 | 60.2 | 3.9 | 2.0 | - | 65.1 | 44.5 | 20.6 |
| 04:05 AM - 04:10 AM | 63.0 | 58.3 | 4.7 | 1.5 | - | 64.5 | 45.1 | 19.4 |
| 04:10 AM - 04:15 AM | 62.4 | 58.3 | 4.1 | 2.0 | - | 63.4 | 45.1 | 18.3 |
| 04:15 AM - 04:20 AM | 66.0 | 63.3 | 2.7 | 3.0 | - | 66.0 | 44.5 | 21.5 |
| 04:20 AM - 04:25 AM | 58.7 | 57.1 | 1.6 | 4.5 | - | 57.2 | 44.7 | 12.5 |
| 04:25 AM - 04:30 AM | 60.8 | 61.5 | -0.7 | 7.0 | - | 56.8 | 44.8 | 12.0 |
| 04:30 AM - 04:35 AM | 63.2 | 57.4 | 5.8 | 1.5 | - | 64.7 | 42.9 | 21.8 |
| 04:35 AM - 04:40 AM | 60.0 | 65.5 | -5.5 | 7.0 | - | 56.0 | 44.4 | 11.6 |
| 04:40 AM - 04:45 AM | 69.0 | 57.2 | 11.8 | 0.5 | - | 71.5 | 43.1 | 28.4 |
| 04:45 AM - 04:50 AM | 61.6 | 57.2 | 4.4 | 2.0 | - | 62.6 | 42.9 | 19.7 |
| 04:50 AM - 04:55 AM | 59.9 | 57.7 | 2.2 | 4.5 | - | 58.4 | 42.5 | 15.9 |
| 04:55 AM - 05:00 AM | 60.3 | 59.3 | 1.0 | 7.0 | - | 56.3 | 44.7 | 11.6 |
| 05:00 AM - 05:05 AM | 62.0 | 56.4 | 5.6 | 1.5 | - | 63.5 | 42.6 | 20.9 |
| 05:05 AM - 05:10 AM | 59.4 | 57.6 | 1.8 | 4.5 | - | 57.9 | 47.3 | 10.6 |
| 05:10 AM - 05:15 AM | 60.6 | 61.7 | -1.1 | 7.0 | - | 56.6 | 48.3 | 8.3 |
| 05:15 AM - 05:20 AM | 65.4 | 59.5 | 5.9 | 1.5 | - | 66.9 | 41.8 | 25.1 |
| 05:20 AM - 05:25 AM | 62.2 | 58.1 | 4.1 | 2.0 | - | 63.2 | 42.4 | 20.8 |
| 05:25 AM - 05:30 AM | 61.9 | 57.5 | 4.4 | 2.0 | - | 62.9 | 44.6 | 18.3 |
| 05:30 AM - 05:35 AM | 60.1 | 63.0 | -2.9 | 7.0 | - | 56.1 | 43.8 | 12.3 |
| 05:35 AM - 05:40 AM | 68.4 | 60.4 | 8.0 | 0.5 | - | 70.9 | 44.3 | 26.6 |
| 05:40 AM - 05:45 AM | 64.3 | 60.5 | 3.8 | 2.0 | - | 65.3 | 44.1 | 21.2 |
| 05:45 AM - 05:50 AM | 63.9 | 57.3 | 6.6 | 1.0 | - | 65.9 | 42.6 | 23.3 |
| 05:50 AM - 05:55 AM | 59.6 | 59.1 | 0.5 | 7.0 | - | 55.6 | 40.8 | 14.8 |
| 05:55 AM - 06:00 AM | 62.9 | 60.4 | 2.5 | 3.0 | - | 62.9 | 44.2 | 18.7 |
| 06:00 AM - 07:00 AM | 62.4 | 58.9 | 3.5 | 2.0 | 60.4 | - | 43.1 | 17.3 |
| 07:00 AM - 08:00 AM | 62.3 | 59.5 | 2.8 | 3.0 | 59.3 | - | 42.5 | 16.8 |
| 08:00 AM - 09:00 AM | 62.6 | 60.3 | 2.3 | 4.5 | 58.1 | - | 43.9 | 14.2 |
| 09:00 AM - 10:00 AM | 62.3 | 59.1 | 3.2 | 3.0 | 59.3 | - | 42.4 | 16.9 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานและวิธีทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 06-07 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-8 วันที่ตรวจวัด 06-07 พฤษภาคม 2566)

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**Approved by**
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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658788-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-9
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า (C) | ปรับค่าเสียงจากแหล่งกำเนิด (D) กลางวัน (A-C)+C | กลางคืน (A-C)+C | (E) เสียงพื้นฐาน | (D-E) ค่าระดับการรบกวน |
| 10:00 AM - 11:00 AM | 62.3 | 58.8 | 3.5 | 2.0 | 60.3 | - | 42.3 | 18.0 |
| 11:00 AM - 12:00 PM | 59.7 | 56.8 | 2.9 | 3.0 | 56.7 | - | 42.9 | 13.8 |
| 12:00 PM - 01:00 PM | 62.4 | 59.0 | 3.4 | 3.0 | 59.4 | - | 42.8 | 16.6 |
| 01:00 PM - 02:00 PM | 63.4 | 60.0 | 3.4 | 3.0 | 60.4 | - | 46.0 | 14.4 |
| 02:00 PM - 03:00 PM | 64.2 | 62.5 | 1.7 | 4.5 | 59.7 | - | 47.4 | 12.3 |
| 03:00 PM - 04:00 PM | 63.9 | 60.8 | 3.1 | 3.0 | 60.9 | - | 52.2 | 8.7 |
| 04:00 PM - 05:00 PM | 62.6 | 59.1 | 3.5 | 2.0 | 60.6 | - | 46.0 | 14.6 |
| 05:00 PM - 06:00 PM | 60.4 | 57.3 | 3.1 | 3.0 | 57.4 | - | 45.6 | 11.8 |
| 06:00 PM - 07:00 PM | 63.1 | 59.6 | 3.5 | 2.0 | 61.1 | - | 43.7 | 17.4 |
| 07:00 PM - 08:00 PM | 57.1 | 54.7 | 2.4 | 4.5 | 52.6 | - | 42.8 | 9.8 |
| 08:00 PM - 09:00 PM | 63.1 | 55.7 | 7.4 | 1.0 | 62.1 | - | 42.8 | 19.3 |
| 09:00 PM - 10:00 PM | 52.3 | 50.2 | 2.1 | 4.5 | 47.8 | - | 41.2 | 6.6 |
| 10:00 PM - 10:05 PM | 56.8 | 51.2 | 5.6 | 1.5 | - | 58.3 | 42.1 | 16.2 |
| 10:05 PM - 10:10 PM | 47.2 | 47.4 | -0.2 | 7.0 | - | 43.2 | 41.6 | 1.6 |
| 10:10 PM - 10:15 PM | 49.7 | 45.5 | 4.2 | 2.0 | - | 50.7 | 41.7 | 9.0 |
| 10:15 PM - 10:20 PM | 47.9 | 44.6 | 3.3 | 3.0 | - | 47.9 | 40.9 | 7.0 |
| 10:20 PM - 10:25 PM | 40.4 | 43.4 | -3.0 | 7.0 | - | 36.4 | 40.5 | -4.1 |
| 10:25 PM - 10:30 PM | 46.7 | 43.3 | 3.4 | 3.0 | - | 46.7 | 41.1 | 5.6 |
| 10:30 PM - 10:35 PM | 41.4 | 41.9 | -0.5 | 7.0 | - | 37.4 | 40.3 | -2.9 |
| 10:35 PM - 10:40 PM | 40.3 | 47.3 | -7.0 | 7.0 | - | 36.3 | 39.8 | -3.5 |
| 10:40 PM - 10:45 PM | 50.0 | 44.0 | 6.0 | 1.5 | - | 51.5 | 41.1 | 10.4 |
| 10:45 PM - 10:50 PM | 44.3 | 48.5 | -4.2 | 7.0 | - | 40.3 | 39.8 | 0.5 |
| 10:50 PM - 10:55 PM | 50.9 | 42.9 | 8.0 | 0.5 | - | 53.4 | 40.6 | 12.8 |
| 10:55 PM - 11:00 PM | 41.6 | 45.5 | -3.9 | 7.0 | - | 37.6 | 41.0 | -3.4 |
| 11:00 PM - 11:05 PM | 44.8 | 46.1 | -1.3 | 7.0 | - | 40.8 | 41.1 | -0.3 |
| 11:05 PM - 11:10 PM | 50.3 | 45.7 | 4.6 | 1.5 | - | 51.8 | 40.6 | 11.2 |
| 11:10 PM - 11:15 PM | 41.3 | 41.6 | -0.3 | 7.0 | - | 37.3 | 39.9 | -2.6 |
| 11:15 PM - 11:20 PM | 44.3 | 64.1 | -19.8 | 7.0 | - | 40.3 | 40.6 | -0.3 |
| 11:20 PM - 11:25 PM | 63.8 | 42.8 | 21.0 | 0.0 | - | 66.8 | 40.5 | 26.3 |
| 11:25 PM - 11:30 PM | 41.1 | 41.6 | -0.5 | 7.0 | - | 37.1 | 40.1 | -3.0 |
| 11:30 PM - 11:35 PM | 40.4 | 50.3 | -9.9 | 7.0 | - | 36.4 | 40.5 | -4.1 |
| 11:35 PM - 11:40 PM | 53.0 | 49.6 | 3.4 | 3.0 | - | 53.0 | 40.9 | 12.1 |
| 11:40 PM - 11:45 PM | 52.3 | 42.4 | 9.9 | 0.5 | - | 54.8 | 40.6 | 14.2 |
| 11:45 PM - 11:50 PM | 40.3 | 41.6 | -1.3 | 7.0 | - | 36.3 | 40.0 | -3.7 |
| 11:50 PM - 11:55 PM | 40.8 | 41.9 | -1.1 | 7.0 | - | 36.8 | 40.1 | -3.3 |
| 11:55 PM - 12:00 AM | 41.2 | 46.0 | -4.8 | 7.0 | - | 37.2 | 41.2 | -4.0 |
| 12:00 AM - 12:05 AM | 47.7 | 42.7 | 5.0 | 1.5 | - | 49.2 | 40.7 | 8.5 |
| 12:05 AM - 12:10 AM | 41.7 | 42.6 | -0.9 | 7.0 | - | 37.7 | 40.9 | -3.2 |
| 12:10 AM - 12:15 AM | 41.4 | 47.3 | -5.9 | 7.0 | - | 37.4 | 41.1 | -3.7 |
| 12:15 AM - 12:20 AM | 51.5 | 52.8 | -1.3 | 7.0 | - | 47.5 | 40.8 | 6.7 |

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658788-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-9
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า (C) | ปรับค่าเสียงจากแหล่งกำเนิด (D) กลางวัน (A-C)+C | กลางคืน (A-C)+C | (E) เสียงพื้นฐาน | (D-E) ค่าระดับการรบกวน |
| 12:20 AM - 12:25 AM | 57.1 | 48.0 | 9.1 | 0.5 | - | 59.6 | 41.1 | 18.5 |
| 12:25 AM - 12:30 AM | 43.7 | 43.3 | 0.4 | 7.0 | - | 39.7 | 41.4 | -1.7 |
| 12:30 AM - 12:35 AM | 52.3 | 50.4 | 1.9 | 4.5 | - | 50.8 | 41.1 | 9.7 |
| 12:35 AM - 12:40 AM | 49.6 | 47.8 | 1.8 | 4.5 | - | 48.1 | 41.0 | 7.1 |
| 12:40 AM - 12:45 AM | 45.0 | 50.1 | -5.1 | 7.0 | - | 41.0 | 40.7 | 0.3 |
| 12:45 AM - 12:50 AM | 54.0 | 45.3 | 8.7 | 0.5 | - | 56.5 | 38.7 | 17.8 |
| 12:50 AM - 12:55 AM | 40.3 | 45.9 | -5.6 | 7.0 | - | 36.3 | 39.4 | -3.1 |
| 12:55 AM - 01:00 AM | 48.2 | 42.7 | 5.5 | 1.5 | - | 49.7 | 40.6 | 9.1 |
| 01:00 AM - 01:05 AM | 50.5 | 53.8 | -3.3 | 7.0 | - | 46.5 | 42.8 | 3.7 |
| 01:05 AM - 01:10 AM | 64.4 | 56.9 | 7.5 | 0.5 | - | 66.9 | 48.1 | 18.8 |
| 01:10 AM - 01:15 AM | 70.2 | 54.8 | 15.4 | 0.0 | - | 73.2 | 41.3 | 31.9 |
| 01:15 AM - 01:20 AM | 54.5 | 51.3 | 3.2 | 3.0 | - | 54.5 | 40.5 | 14.0 |
| 01:20 AM - 01:25 AM | 54.1 | 41.1 | 13.0 | 0.0 | - | 57.1 | 39.6 | 17.5 |
| 01:25 AM - 01:30 AM | 45.5 | 46.4 | -0.9 | 7.0 | - | 41.5 | 40.6 | 0.9 |
| 01:30 AM - 01:35 AM | 49.3 | 42.9 | 6.4 | 1.5 | - | 50.8 | 40.1 | 10.7 |
| 01:35 AM - 01:40 AM | 45.0 | 53.3 | -8.3 | 7.0 | - | 41.0 | 40.1 | 0.9 |
| 01:40 AM - 01:45 AM | 58.9 | 52.7 | 6.2 | 1.5 | - | 60.4 | 40.6 | 19.8 |
| 01:45 AM - 01:50 AM | 48.4 | 52.9 | -4.5 | 7.0 | - | 44.4 | 40.1 | 4.3 |
| 01:50 AM - 01:55 AM | 55.9 | 52.9 | 3.0 | 3.0 | - | 55.9 | 40.6 | 15.3 |
| 01:55 AM - 02:00 AM | 58.3 | 52.2 | 6.1 | 1.5 | - | 59.8 | 40.7 | 19.1 |
| 02:00 AM - 02:05 AM | 51.4 | 48.3 | 3.1 | 3.0 | - | 51.4 | 40.5 | 10.9 |
| 02:05 AM - 02:10 AM | 51.6 | 48.6 | 3.0 | 3.0 | - | 51.6 | 41.7 | 9.9 |
| 02:10 AM - 02:15 AM | 54.3 | 53.6 | 0.7 | 7.0 | - | 50.3 | 41.9 | 8.4 |
| 02:15 AM - 02:20 AM | 57.7 | 54.3 | 3.4 | 3.0 | - | 57.7 | 42.2 | 15.5 |
| 02:20 AM - 02:25 AM | 55.6 | 53.0 | 2.6 | 3.0 | - | 55.6 | 41.2 | 14.4 |
| 02:25 AM - 02:30 AM | 56.0 | 53.8 | 2.2 | 4.5 | - | 54.5 | 42.8 | 11.7 |
| 02:30 AM - 02:35 AM | 57.8 | 60.5 | -2.7 | 7.0 | - | 53.8 | 57.6 | -3.8 |
| 02:35 AM - 02:40 AM | 60.2 | 60.7 | -0.5 | 7.0 | - | 56.2 | 50.7 | 5.5 |
| 02:40 AM - 02:45 AM | 60.2 | 57.1 | 3.1 | 3.0 | - | 60.2 | 44.7 | 15.5 |
| 02:45 AM - 02:50 AM | 60.2 | 60.5 | -0.3 | 7.0 | - | 56.2 | 43.6 | 12.6 |
| 02:50 AM - 02:55 AM | 65.0 | 54.4 | 10.6 | 0.5 | - | 67.5 | 43.7 | 23.8 |
| 02:55 AM - 03:00 AM | 57.3 | 59.4 | -2.1 | 7.0 | - | 53.3 | 45.9 | 7.4 |
| 03:00 AM - 03:05 AM | 63.2 | 60.5 | 2.7 | 3.0 | - | 63.2 | 45.6 | 17.6 |
| 03:05 AM - 03:10 AM | 64.5 | 60.1 | 4.4 | 2.0 | - | 65.5 | 45.4 | 20.1 |
| 03:10 AM - 03:15 AM | 64.9 | 63.0 | 1.9 | 4.5 | - | 63.4 | 46.8 | 16.6 |
| 03:15 AM - 03:20 AM | 66.8 | 58.2 | 8.6 | 0.5 | - | 69.3 | 46.0 | 23.3 |
| 03:20 AM - 03:25 AM | 61.0 | 59.6 | 1.4 | 7.0 | - | 57.0 | 47.0 | 10.0 |
| 03:25 AM - 03:30 AM | 62.5 | 62.0 | 0.5 | 7.0 | - | 58.5 | 47.0 | 11.5 |
| 03:30 AM - 03:35 AM | 66.5 | 60.3 | 6.2 | 1.5 | - | 68.0 | 51.1 | 16.9 |
| 03:35 AM - 03:40 AM | 63.5 | 61.9 | 1.6 | 4.5 | - | 62.0 | 52.0 | 10.0 |

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658788-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-9
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (A-B) ผลต่างระดับเสียง | ตัวปรับค่า (C) | ปรับค่าเสียงจากแหล่งกำเนิด (D) กลางวัน (A-C)+C | กลางคืน (A-C)+C | (E) เสียงพื้นฐาน | (D-E) ค่าระดับการรบกวน |
| 03:40 AM - 03:45 AM | 65.7 | 60.2 | 5.5 | 1.5 | - | 67.2 | 47.4 | 19.8 |
| 03:45 AM - 03:50 AM | 63.8 | 61.9 | 1.9 | 4.5 | - | 62.3 | 51.6 | 10.7 |
| 03:50 AM - 03:55 AM | 64.3 | 62.7 | 1.6 | 4.5 | - | 62.8 | 46.4 | 16.4 |
| 03:55 AM - 04:00 AM | 67.6 | 62.7 | 4.9 | 1.5 | - | 69.1 | 49.6 | 19.5 |
| 04:00 AM - 04:05 AM | 66.1 | 63.7 | 2.4 | 4.5 | - | 64.6 | 50.6 | 14.0 |
| 04:05 AM - 04:10 AM | 69.2 | 64.8 | 4.4 | 2.0 | - | 70.2 | 49.2 | 21.0 |
| 04:10 AM - 04:15 AM | 66.5 | 66.3 | 0.2 | 7.0 | - | 62.5 | 53.3 | 9.2 |
| 04:15 AM - 04:20 AM | 69.3 | 65.1 | 4.2 | 2.0 | - | 70.3 | 55.4 | 14.9 |
| 04:20 AM - 04:25 AM | 67.0 | 65.1 | 1.9 | 4.5 | - | 65.5 | 55.3 | 10.2 |
| 04:25 AM - 04:30 AM | 68.0 | 64.7 | 3.3 | 3.0 | - | 68.0 | 53.8 | 14.2 |
| 04:30 AM - 04:35 AM | 66.6 | 62.8 | 3.8 | 2.0 | - | 67.6 | 48.1 | 19.5 |
| 04:35 AM - 04:40 AM | 66.3 | 65.0 | 1.3 | 7.0 | - | 62.3 | 52.9 | 9.4 |
| 04:40 AM - 04:45 AM | 68.2 | 63.9 | 4.3 | 2.0 | - | 69.2 | 53.8 | 15.4 |
| 04:45 AM - 04:50 AM | 67.2 | 64.0 | 3.2 | 3.0 | - | 67.2 | 53.2 | 14.0 |
| 04:50 AM - 04:55 AM | 66.8 | 63.2 | 3.6 | 2.0 | - | 67.8 | 52.7 | 15.1 |
| 04:55 AM - 05:00 AM | 67.5 | 68.5 | -1.0 | 7.0 | - | 63.5 | 54.3 | 9.2 |
| 05:00 AM - 05:05 AM | 71.9 | 60.4 | 11.5 | 0.5 | - | 74.4 | 48.2 | 26.2 |
| 05:05 AM - 05:10 AM | 63.7 | 60.9 | 2.8 | 3.0 | - | 63.7 | 45.9 | 17.8 |
| 05:10 AM - 05:15 AM | 63.7 | 57.3 | 6.4 | 1.5 | - | 65.2 | 46.2 | 19.0 |
| 05:15 AM - 05:20 AM | 60.9 | 59.5 | 1.4 | 7.0 | - | 56.9 | 46.6 | 10.3 |
| 05:20 AM - 05:25 AM | 63.2 | 60.2 | 3.0 | 3.0 | - | 63.2 | 48.7 | 14.5 |
| 05:25 AM - 05:30 AM | 61.7 | 62.1 | -0.4 | 7.0 | - | 57.7 | 47.4 | 10.3 |
| 05:30 AM - 05:35 AM | 65.0 | 61.5 | 3.5 | 2.0 | - | 66.0 | 47.4 | 18.6 |
| 05:35 AM - 05:40 AM | 61.8 | 58.1 | 3.7 | 2.0 | - | 62.8 | 42.3 | 20.5 |
| 05:40 AM - 05:45 AM | 64.6 | 61.0 | 3.6 | 2.0 | - | 65.6 | 43.9 | 21.7 |
| 05:45 AM - 05:50 AM | 61.0 | 56.8 | 4.2 | 2.0 | - | 62.0 | 42.6 | 19.4 |
| 05:50 AM - 05:55 AM | 58.3 | 59.1 | -0.8 | 7.0 | - | 54.3 | 42.6 | 11.7 |
| 05:55 AM - 06:00 AM | 64.2 | 58.3 | 5.9 | 1.5 | - | 65.7 | 43.9 | 21.8 |
| 06:00 AM - 07:00 AM | 62.6 | 60.2 | 2.4 | 4.5 | 58.1 | - | 44.0 | 14.1 |
| 07:00 AM - 08:00 AM | 61.7 | 58.6 | 3.1 | 3.0 | 58.7 | - | 43.9 | 14.8 |
| 08:00 AM - 09:00 AM | 63.1 | 60.8 | 2.3 | 4.5 | 58.6 | - | 46.7 | 11.9 |
| 09:00 AM - 10:00 AM | 64.3 | 60.8 | 3.5 | 2.0 | 62.3 | - | 45.4 | 16.9 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานและวิธีทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 07-08 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-9 วันที่ตรวจวัด 07-08 พฤษภาคม 2566)

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658789-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-10
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 61.3 | 58.1 | 3.2 | 3.0 | 58.3 | - | 46.9 | 11.4 |
| 11:00 AM - 12:00 PM | 62.2 | 60.2 | 2.0 | 4.5 | 57.7 | - | 45.7 | 12.0 |
| 12:00 PM - 01:00 PM | 62.2 | 60.9 | 1.3 | 7.0 | 55.2 | - | 44.2 | 11.0 |
| 01:00 PM - 02:00 PM | 61.2 | 58.6 | 2.6 | 3.0 | 58.2 | - | 44.9 | 13.3 |
| 02:00 PM - 03:00 PM | 66.1 | 62.8 | 3.3 | 3.0 | 63.1 | - | 49.6 | 13.5 |
| 03:00 PM - 04:00 PM | 63.9 | 60.9 | 3.0 | 3.0 | 60.9 | - | 51.2 | 9.7 |
| 04:00 PM - 05:00 PM | 63.7 | 60.3 | 3.4 | 3.0 | 60.7 | - | 46.3 | 14.4 |
| 05:00 PM - 06:00 PM | 63.1 | 59.7 | 3.4 | 3.0 | 60.1 | - | 46.4 | 13.7 |
| 06:00 PM - 07:00 PM | 60.4 | 57.0 | 3.4 | 3.0 | 57.4 | - | 44.0 | 13.4 |
| 07:00 PM - 08:00 PM | 56.9 | 53.8 | 3.1 | 3.0 | 53.9 | - | 42.4 | 11.5 |
| 08:00 PM - 09:00 PM | 59.3 | 57.4 | 1.9 | 4.5 | 54.8 | - | 43.9 | 10.9 |
| 09:00 PM - 10:00 PM | 51.4 | 49.1 | 2.3 | 4.5 | 46.9 | - | 43.3 | 3.6 |
| 10:00 PM - 10:05 PM | 56.3 | 56.5 | -0.2 | 7.0 | - | 52.3 | 43.8 | 8.5 |
| 10:05 PM - 10:10 PM | 54.9 | 47.9 | 7.0 | 1.0 | - | 56.9 | 42.8 | 14.1 |
| 10:10 PM - 10:15 PM | 54.4 | 55.2 | -0.8 | 7.0 | - | 50.4 | 43.0 | 7.4 |
| 10:15 PM - 10:20 PM | 50.2 | 45.3 | 4.9 | 1.5 | - | 51.7 | 43.5 | 8.2 |
| 10:20 PM - 10:25 PM | 45.0 | 49.6 | -4.6 | 7.0 | - | 41.0 | 43.3 | -2.3 |
| 10:25 PM - 10:30 PM | 51.0 | 45.2 | 5.8 | 1.5 | - | 52.5 | 43.3 | 9.2 |
| 10:30 PM - 10:35 PM | 45.8 | 45.1 | 0.7 | 7.0 | - | 41.8 | 43.0 | -1.2 |
| 10:35 PM - 10:40 PM | 44.9 | 44.3 | 0.6 | 7.0 | - | 40.9 | 42.5 | -1.6 |
| 10:40 PM - 10:45 PM | 45.1 | 50.9 | -5.8 | 7.0 | - | 41.1 | 42.3 | -1.2 |
| 10:45 PM - 10:50 PM | 53.7 | 47.0 | 6.7 | 1.0 | - | 55.7 | 42.6 | 13.1 |
| 10:50 PM - 10:55 PM | 48.4 | 43.7 | 4.7 | 1.5 | - | 49.9 | 42.0 | 7.9 |
| 10:55 PM - 11:00 PM | 43.2 | 49.6 | -6.4 | 7.0 | - | 39.2 | 41.7 | -2.5 |
| 11:00 PM - 11:05 PM | 52.3 | 43.5 | 8.8 | 0.5 | - | 54.8 | 41.6 | 13.2 |
| 11:05 PM - 11:10 PM | 42.3 | 43.9 | -1.6 | 7.0 | - | 38.3 | 42.2 | -3.9 |
| 11:10 PM - 11:15 PM | 42.7 | 43.2 | -0.5 | 7.0 | - | 38.7 | 41.9 | -3.2 |
| 11:15 PM - 11:20 PM | 41.1 | 43.2 | -2.1 | 7.0 | - | 37.1 | 42.0 | -4.9 |
| 11:20 PM - 11:25 PM | 40.7 | 42.9 | -2.2 | 7.0 | - | 36.7 | 41.7 | -5.0 |
| 11:25 PM - 11:30 PM | 39.6 | 48.1 | -8.5 | 7.0 | - | 35.6 | 39.9 | -4.3 |
| 11:30 PM - 11:35 PM | 51.6 | 44.1 | 7.5 | 0.5 | - | 54.1 | 39.5 | 14.6 |
| 11:35 PM - 11:40 PM | 45.3 | 40.1 | 5.2 | 1.5 | - | 46.8 | 39.0 | 7.8 |
| 11:40 PM - 11:45 PM | 37.1 | 45.8 | -8.7 | 7.0 | - | 33.1 | 39.5 | -6.4 |
| 11:45 PM - 11:50 PM | 47.7 | 45.4 | 2.3 | 4.5 | - | 49.2 | 39.6 | 9.6 |
| 11:50 PM - 11:55 PM | 49.1 | 40.2 | 8.9 | 0.5 | - | 51.6 | 38.6 | 13.0 |
| 11:55 PM - 12:00 AM | 37.2 | 39.9 | -2.7 | 7.0 | - | 33.2 | 38.7 | -5.5 |
| 12:00 AM - 12:05 AM | 43.2 | 55.9 | -12.7 | 7.0 | - | 39.2 | 38.8 | 0.4 |
| 12:05 AM - 12:10 AM | 58.4 | 39.5 | 18.9 | 0.0 | - | 61.4 | 38.4 | 23.0 |
| 12:10 AM - 12:15 AM | 38.0 | 58.8 | -20.8 | 7.0 | - | 34.0 | 38.2 | -4.2 |
| 12:15 AM - 12:20 AM | 60.0 | 52.3 | 7.7 | 0.5 | - | 62.5 | 38.8 | 23.7 |

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658789-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-10
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 54.5 | 43.3 | 11.2 | 0.5 | - | 57.0 | 38.2 | 18.8 |
| 12:25 AM - 12:30 AM | 45.0 | 46.7 | -1.7 | 7.0 | - | 41.0 | 38.2 | 2.8 |
| 12:30 AM - 12:35 AM | 50.2 | 46.5 | 3.7 | 2.0 | - | 51.2 | 38.1 | 13.1 |
| 12:35 AM - 12:40 AM | 48.4 | 39.5 | 8.9 | 0.5 | - | 50.9 | 38.4 | 12.5 |
| 12:40 AM - 12:45 AM | 51.5 | 53.2 | -1.7 | 7.0 | - | 47.5 | 39.6 | 7.9 |
| 12:45 AM - 12:50 AM | 56.6 | 47.0 | 9.6 | 0.5 | - | 59.1 | 38.8 | 20.3 |
| 12:50 AM - 12:55 AM | 46.7 | 56.5 | -9.8 | 7.0 | - | 42.7 | 38.4 | 4.3 |
| 12:55 AM - 01:00 AM | 56.2 | 46.2 | 10.0 | 0.5 | - | 58.7 | 37.7 | 21.0 |
| 01:00 AM - 01:05 AM | 49.7 | 40.8 | 8.9 | 0.5 | - | 52.2 | 38.1 | 14.1 |
| 01:05 AM - 01:10 AM | 51.7 | 50.0 | 1.7 | 4.5 | - | 50.2 | 38.1 | 12.1 |
| 01:10 AM - 01:15 AM | 50.8 | 42.4 | 8.4 | 0.5 | - | 53.3 | 37.1 | 16.2 |
| 01:15 AM - 01:20 AM | 43.8 | 42.9 | 0.9 | 7.0 | - | 39.8 | 37.6 | 2.2 |
| 01:20 AM - 01:25 AM | 52.8 | 50.4 | 2.4 | 4.5 | - | 51.3 | 37.2 | 14.1 |
| 01:25 AM - 01:30 AM | 48.8 | 52.4 | -3.6 | 7.0 | - | 44.8 | 37.2 | 7.6 |
| 01:30 AM - 01:35 AM | 56.7 | 49.7 | 7.0 | 1.0 | - | 58.7 | 37.9 | 20.8 |
| 01:35 AM - 01:40 AM | 53.3 | 43.4 | 9.9 | 0.5 | - | 55.8 | 37.2 | 18.6 |
| 01:40 AM - 01:45 AM | 45.4 | 43.4 | 2.0 | 4.5 | - | 43.9 | 37.7 | 6.2 |
| 01:45 AM - 01:50 AM | 50.5 | 47.0 | 3.5 | 2.0 | - | 51.5 | 38.0 | 13.5 |
| 01:50 AM - 01:55 AM | 48.2 | 60.3 | -12.1 | 7.0 | - | 44.2 | 39.8 | 4.4 |
| 01:55 AM - 02:00 AM | 63.0 | 51.8 | 11.2 | 0.5 | - | 65.5 | 38.4 | 27.1 |
| 02:00 AM - 02:05 AM | 53.1 | 47.9 | 5.2 | 1.5 | - | 54.6 | 38.8 | 15.8 |
| 02:05 AM - 02:10 AM | 52.5 | 53.9 | -1.4 | 7.0 | - | 48.5 | 40.4 | 8.1 |
| 02:10 AM - 02:15 AM | 57.3 | 51.2 | 6.1 | 1.5 | - | 58.8 | 40.6 | 18.2 |
| 02:15 AM - 02:20 AM | 55.8 | 54.0 | 1.8 | 4.5 | - | 54.3 | 40.0 | 14.3 |
| 02:20 AM - 02:25 AM | 57.1 | 51.0 | 6.1 | 1.5 | - | 58.6 | 40.2 | 18.4 |
| 02:25 AM - 02:30 AM | 53.5 | 54.8 | -1.3 | 7.0 | - | 49.5 | 42.3 | 7.2 |
| 02:30 AM - 02:35 AM | 57.2 | 59.0 | -1.8 | 7.0 | - | 53.2 | 55.4 | -2.2 |
| 02:35 AM - 02:40 AM | 61.8 | 59.6 | 2.2 | 4.5 | - | 60.3 | 52.1 | 8.2 |
| 02:40 AM - 02:45 AM | 58.5 | 58.5 | 0.0 | 7.0 | - | 54.5 | 42.5 | 12.0 |
| 02:45 AM - 02:50 AM | 63.1 | 51.7 | 11.4 | 0.5 | - | 65.6 | 42.4 | 23.2 |
| 02:50 AM - 02:55 AM | 57.2 | 55.7 | 1.5 | 4.5 | - | 55.7 | 43.6 | 12.1 |
| 02:55 AM - 03:00 AM | 58.7 | 57.4 | 1.3 | 7.0 | - | 54.7 | 43.4 | 11.3 |
| 03:00 AM - 03:05 AM | 62.6 | 55.5 | 7.1 | 1.0 | - | 64.6 | 43.3 | 21.3 |
| 03:05 AM - 03:10 AM | 60.1 | 59.0 | 1.1 | 7.0 | - | 56.1 | 42.3 | 13.8 |
| 03:10 AM - 03:15 AM | 61.6 | 59.3 | 2.3 | 4.5 | - | 60.1 | 43.9 | 16.2 |
| 03:15 AM - 03:20 AM | 65.3 | 61.3 | 4.0 | 2.0 | - | 66.3 | 44.6 | 21.7 |
| 03:20 AM - 03:25 AM | 64.3 | 61.5 | 2.8 | 3.0 | - | 64.3 | 46.0 | 18.3 |
| 03:25 AM - 03:30 AM | 64.2 | 61.5 | 2.7 | 3.0 | - | 64.2 | 52.6 | 11.6 |
| 03:30 AM - 03:35 AM | 66.9 | 63.0 | 3.9 | 2.0 | - | 67.9 | 48.5 | 19.4 |
| 03:35 AM - 03:40 AM | 64.6 | 62.0 | 2.6 | 3.0 | - | 64.6 | 45.5 | 19.1 |

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658789-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-10
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 65.7 | 62.2 | 3.5 | 2.0 | - | 66.7 | 51.9 | 14.8 |
| 03:45 AM - 03:50 AM | 67.3 | 63.3 | 4.0 | 2.0 | - | 68.3 | 48.6 | 19.7 |
| 03:50 AM - 03:55 AM | 65.3 | 60.9 | 4.4 | 2.0 | - | 66.3 | 44.7 | 21.6 |
| 03:55 AM - 04:00 AM | 65.0 | 62.0 | 3.0 | 3.0 | - | 65.0 | 47.9 | 17.1 |
| 04:00 AM - 04:05 AM | 65.4 | 63.6 | 1.8 | 4.5 | - | 63.9 | 51.7 | 12.2 |
| 04:05 AM - 04:10 AM | 67.1 | 64.1 | 3.0 | 3.0 | - | 67.1 | 52.0 | 15.1 |
| 04:10 AM - 04:15 AM | 67.5 | 64.0 | 3.5 | 2.0 | - | 68.5 | 52.6 | 15.9 |
| 04:15 AM - 04:20 AM | 67.4 | 66.5 | 0.9 | 7.0 | - | 63.4 | 51.1 | 12.3 |
| 04:20 AM - 04:25 AM | 68.4 | 64.3 | 4.1 | 2.0 | - | 69.4 | 52.0 | 17.4 |
| 04:25 AM - 04:30 AM | 68.4 | 65.4 | 3.0 | 3.0 | - | 68.4 | 52.8 | 15.6 |
| 04:30 AM - 04:35 AM | 68.7 | 64.0 | 4.7 | 1.5 | - | 70.2 | 49.8 | 20.4 |
| 04:35 AM - 04:40 AM | 66.3 | 62.7 | 3.6 | 2.0 | - | 67.3 | 49.7 | 17.6 |
| 04:40 AM - 04:45 AM | 66.0 | 64.9 | 1.1 | 7.0 | - | 62.0 | 51.1 | 10.9 |
| 04:45 AM - 04:50 AM | 67.9 | 68.2 | -0.3 | 7.0 | - | 63.9 | 50.7 | 13.2 |
| 04:50 AM - 04:55 AM | 70.9 | 61.2 | 9.7 | 0.5 | - | 73.4 | 44.6 | 28.8 |
| 04:55 AM - 05:00 AM | 65.5 | 60.7 | 4.8 | 1.5 | - | 67.0 | 46.2 | 20.8 |
| 05:00 AM - 05:05 AM | 64.3 | 60.4 | 3.9 | 2.0 | - | 65.3 | 45.0 | 20.3 |
| 05:05 AM - 05:10 AM | 62.3 | 62.7 | -0.4 | 7.0 | - | 58.3 | 45.5 | 12.8 |
| 05:10 AM - 05:15 AM | 66.0 | 67.4 | -1.4 | 7.0 | - | 62.0 | 45.5 | 16.5 |
| 05:15 AM - 05:20 AM | 64.8 | 64.6 | 0.2 | 7.0 | - | 60.8 | 46.2 | 14.6 |
| 05:20 AM - 05:25 AM | 68.1 | 61.2 | 6.9 | 1.0 | - | 70.1 | 47.1 | 23.0 |
| 05:25 AM - 05:30 AM | 64.9 | 63.0 | 1.9 | 4.5 | - | 63.4 | 45.0 | 18.4 |
| 05:30 AM - 05:35 AM | 66.1 | 58.5 | 7.6 | 0.5 | - | 68.6 | 44.9 | 23.7 |
| 05:35 AM - 05:40 AM | 61.6 | 57.9 | 3.7 | 2.0 | - | 62.6 | 44.6 | 18.0 |
| 05:40 AM - 05:45 AM | 61.7 | 56.5 | 5.2 | 1.5 | - | 63.2 | 44.5 | 18.7 |
| 05:45 AM - 05:50 AM | 58.7 | 57.9 | 0.8 | 7.0 | - | 54.7 | 45.5 | 9.2 |
| 05:50 AM - 05:55 AM | 61.7 | 61.6 | 0.1 | 7.0 | - | 57.7 | 45.1 | 12.6 |
| 05:55 AM - 06:00 AM | 65.1 | 59.3 | 5.8 | 1.5 | - | 66.6 | 43.0 | 23.6 |
| 06:00 AM - 07:00 AM | 61.5 | 58.5 | 3.0 | 3.0 | 58.5 | - | 43.2 | 15.3 |
| 07:00 AM - 08:00 AM | 61.8 | 58.4 | 3.4 | 3.0 | 58.8 | - | 43.3 | 15.5 |
| 08:00 AM - 09:00 AM | 61.7 | 59.1 | 2.6 | 3.0 | 58.7 | - | 45.8 | 12.9 |
| 09:00 AM - 10:00 AM | 63.4 | 60.8 | 2.6 | 3.0 | 60.4 | - | 44.0 | 16.4 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนของระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามาตรฐานและวิธีการตรวจวัดเสียงอันเกิดจากสภาวะการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ค่ามาตรการวัด วันที่ 08-09 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-10 วันที่ตรวจวัด 08-09 พฤษภาคม 2566)

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## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658790-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-11
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด | เสียงขณะไม่มีการรบกวน | ผลต่างระดับเสียง | ตัวปรับค่า | ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน | ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน | เสียงพื้นฐาน | ค่าระดับการรบกวน |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 60.3 | 58.1 | 2.2 | 4.5 | 55.8 | - | 44.9 | 10.9 |
| 11:00 AM - 12:00 PM | 61.8 | 59.2 | 2.6 | 3.0 | 58.8 | - | 46.4 | 12.4 |
| 12:00 PM - 01:00 PM | 62.7 | 59.8 | 2.9 | 3.0 | 59.7 | - | 46.2 | 13.5 |
| 01:00 PM - 02:00 PM | 62.4 | 59.9 | 2.5 | 3.0 | 59.4 | - | 45.1 | 14.3 |
| 02:00 PM - 03:00 PM | 65.4 | 62.2 | 3.2 | 3.0 | 62.4 | - | 48.0 | 14.4 |
| 03:00 PM - 04:00 PM | 65.1 | 61.8 | 3.3 | 3.0 | 62.1 | - | 51.3 | 10.8 |
| 04:00 PM - 05:00 PM | 62.9 | 59.8 | 3.1 | 3.0 | 59.9 | - | 47.2 | 12.7 |
| 05:00 PM - 06:00 PM | 63.1 | 59.9 | 3.2 | 3.0 | 60.1 | - | 46.4 | 13.7 |
| 06:00 PM - 07:00 PM | 58.9 | 56.6 | 2.3 | 4.5 | 54.4 | - | 43.0 | 11.4 |
| 07:00 PM - 08:00 PM | 57.1 | 54.8 | 2.3 | 4.5 | 52.6 | - | 40.6 | 12.0 |
| 08:00 PM - 09:00 PM | 54.5 | 51.9 | 2.6 | 3.0 | 51.5 | - | 41.1 | 10.4 |
| 09:00 PM - 10:00 PM | 53.5 | 52.5 | 1.0 | 7.0 | 46.5 | - | 47.4 | -0.9 |
| 10:00 PM - 10:05 PM | 48.5 | 54.7 | -6.2 | 7.0 | - | 44.5 | 50.4 | -5.9 |
| 10:05 PM - 10:10 PM | 54.5 | 48.6 | 5.9 | 1.5 | - | 56.0 | 43.2 | 12.8 |
| 10:10 PM - 10:15 PM | 50.5 | 56.2 | -5.7 | 7.0 | - | 46.5 | 41.4 | 5.1 |
| 10:15 PM - 10:20 PM | 60.0 | 47.2 | 12.8 | 0.0 | - | 63.0 | 39.2 | 23.8 |
| 10:20 PM - 10:25 PM | 46.7 | 40.5 | 6.2 | 1.5 | - | 48.2 | 38.5 | 9.7 |
| 10:25 PM - 10:30 PM | 40.2 | 46.0 | -5.8 | 7.0 | - | 36.2 | 38.9 | -2.7 |
| 10:30 PM - 10:35 PM | 57.4 | 53.2 | 4.2 | 2.0 | - | 58.4 | 39.1 | 19.3 |
| 10:35 PM - 10:40 PM | 43.5 | 40.8 | 2.7 | 3.0 | - | 43.5 | 38.1 | 5.4 |
| 10:40 PM - 10:45 PM | 38.7 | 40.0 | -1.3 | 7.0 | - | 34.7 | 38.1 | -3.4 |
| 10:45 PM - 10:50 PM | 39.8 | 52.1 | -12.3 | 7.0 | - | 35.8 | 38.5 | -2.7 |
| 10:50 PM - 10:55 PM | 53.2 | 56.3 | -3.1 | 7.0 | - | 49.2 | 38.6 | 10.6 |
| 10:55 PM - 11:00 PM | 59.3 | 40.6 | 18.7 | 0.0 | - | 62.3 | 39.3 | 23.0 |
| 11:00 PM - 11:05 PM | 39.9 | 41.6 | -1.7 | 7.0 | - | 35.9 | 39.4 | -3.5 |
| 11:05 PM - 11:10 PM | 49.3 | 44.7 | 4.6 | 1.5 | - | 50.8 | 39.7 | 11.1 |
| 11:10 PM - 11:15 PM | 41.1 | 40.3 | 0.8 | 7.0 | - | 37.1 | 39.4 | -2.3 |
| 11:15 PM - 11:20 PM | 39.5 | 53.6 | -14.1 | 7.0 | - | 35.5 | 39.5 | -4.0 |
| 11:20 PM - 11:25 PM | 55.1 | 41.4 | 13.7 | 0.0 | - | 58.1 | 39.9 | 18.2 |
| 11:25 PM - 11:30 PM | 40.2 | 44.4 | -4.2 | 7.0 | - | 36.2 | 40.2 | -4.0 |
| 11:30 PM - 11:35 PM | 45.9 | 50.1 | -4.2 | 7.0 | - | 41.9 | 41.2 | 0.7 |
| 11:35 PM - 11:40 PM | 51.8 | 50.2 | 1.6 | 4.5 | - | 50.3 | 40.6 | 9.7 |
| 11:40 PM - 11:45 PM | 54.6 | 46.5 | 8.1 | 0.5 | - | 57.1 | 40.5 | 16.6 |
| 11:45 PM - 11:50 PM | 43.6 | 43.7 | -0.1 | 7.0 | - | 39.6 | 40.9 | -1.3 |
| 11:50 PM - 11:55 PM | 42.9 | 44.6 | -1.7 | 7.0 | - | 38.9 | 40.6 | -1.7 |
| 11:55 PM - 12:00 AM | 49.5 | 47.1 | 2.4 | 4.5 | - | 48.0 | 41.1 | 6.9 |
| 12:00 AM - 12:05 AM | 44.2 | 44.4 | -0.2 | 7.0 | - | 40.2 | 40.8 | -0.6 |
| 12:05 AM - 12:10 AM | 45.2 | 45.3 | -0.1 | 7.0 | - | 41.2 | 42.0 | -0.8 |
| 12:10 AM - 12:15 AM | 48.2 | 46.4 | 1.8 | 4.5 | - | 46.7 | 39.7 | 7.0 |
| 12:15 AM - 12:20 AM | 39.2 | 47.5 | -8.3 | 7.0 | - | 35.2 | 39.1 | -3.9 |

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Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658790-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-11
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| ระดับเสียง (dB(A)) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=B-A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางวัน (E1) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางคืน (E2=E+5) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
| 12:20 AM - 12:25 AM | 47.2 | 41.5 | 5.7 | 1.5 | - | 48.7 | 39.7 | 9.0 |
| 12:25 AM - 12:30 AM | 39.5 | 44.9 | -5.4 | 7.0 | - | 35.5 | 39.7 | -4.2 |
| 12:30 AM - 12:35 AM | 49.7 | 48.4 | 1.3 | 7.0 | - | 45.7 | 39.5 | 6.2 |
| 12:35 AM - 12:40 AM | 51.3 | 55.3 | -4.0 | 7.0 | - | 47.3 | 40.9 | 6.4 |
| 12:40 AM - 12:45 AM | 59.1 | 49.9 | 9.2 | 0.5 | - | 61.6 | 44.9 | 16.7 |
| 12:45 AM - 12:50 AM | 51.1 | 53.6 | -2.5 | 7.0 | - | 47.1 | 45.4 | 1.7 |
| 12:50 AM - 12:55 AM | 54.9 | 57.5 | -2.6 | 7.0 | - | 50.9 | 55.4 | -4.5 |
| 12:55 AM - 01:00 AM | 55.6 | 59.6 | -4.0 | 7.0 | - | 51.6 | 58.3 | -6.7 |
| 01:00 AM - 01:05 AM | 58.0 | 59.8 | -1.8 | 7.0 | - | 54.0 | 58.7 | -4.7 |
| 01:05 AM - 01:10 AM | 57.2 | 60.0 | -2.8 | 7.0 | - | 53.2 | 58.9 | -5.7 |
| 01:10 AM - 01:15 AM | 57.6 | 59.8 | -2.2 | 7.0 | - | 53.6 | 58.9 | -5.3 |
| 01:15 AM - 01:20 AM | 57.2 | 58.9 | -1.7 | 7.0 | - | 53.2 | 57.1 | -3.9 |
| 01:20 AM - 01:25 AM | 56.9 | 57.5 | -0.6 | 7.0 | - | 52.9 | 55.3 | -2.4 |
| 01:25 AM - 01:30 AM | 56.5 | 56.9 | -0.4 | 7.0 | - | 52.5 | 54.8 | -2.3 |
| 01:30 AM - 01:35 AM | 56.6 | 56.1 | 0.5 | 7.0 | - | 52.6 | 55.3 | -2.7 |
| 01:35 AM - 01:40 AM | 52.6 | 55.3 | -2.7 | 7.0 | - | 48.6 | 54.4 | -5.8 |
| 01:40 AM - 01:45 AM | 50.4 | 55.2 | -4.8 | 7.0 | - | 46.4 | 54.4 | -8.0 |
| 01:45 AM - 01:50 AM | 52.0 | 58.2 | -6.2 | 7.0 | - | 48.0 | 54.6 | -6.6 |
| 01:50 AM - 01:55 AM | 59.4 | 63.8 | -4.4 | 7.0 | - | 55.4 | 55.0 | 0.4 |
| 01:55 AM - 02:00 AM | 66.8 | 57.6 | 9.2 | 0.5 | - | 69.3 | 55.9 | 13.4 |
| 02:00 AM - 02:05 AM | 58.4 | 60.5 | -2.1 | 7.0 | - | 54.4 | 56.8 | -2.4 |
| 02:05 AM - 02:10 AM | 60.5 | 59.1 | 1.4 | 7.0 | - | 56.5 | 56.8 | -0.3 |
| 02:10 AM - 02:15 AM | 59.7 | 56.5 | 3.2 | 3.0 | - | 59.7 | 54.9 | 4.8 |
| 02:15 AM - 02:20 AM | 53.7 | 57.1 | -3.4 | 7.0 | - | 49.7 | 52.7 | -3.0 |
| 02:20 AM - 02:25 AM | 58.1 | 55.2 | 2.9 | 3.0 | - | 58.1 | 52.2 | 5.9 |
| 02:25 AM - 02:30 AM | 56.5 | 57.3 | -0.8 | 7.0 | - | 52.5 | 53.0 | -0.5 |
| 02:30 AM - 02:35 AM | 58.8 | 57.1 | 1.7 | 4.5 | - | 57.3 | 53.5 | 3.8 |
| 02:35 AM - 02:40 AM | 56.7 | 60.0 | -3.3 | 7.0 | - | 52.7 | 57.1 | -4.4 |
| 02:40 AM - 02:45 AM | 59.7 | 59.5 | 0.2 | 7.0 | - | 55.7 | 56.7 | -1.0 |
| 02:45 AM - 02:50 AM | 58.8 | 59.8 | -1.0 | 7.0 | - | 54.8 | 55.9 | -1.1 |
| 02:50 AM - 02:55 AM | 63.0 | 62.1 | 0.9 | 7.0 | - | 59.0 | 56.7 | 2.3 |
| 02:55 AM - 03:00 AM | 63.2 | 59.3 | 3.9 | 2.0 | - | 64.2 | 56.8 | 7.4 |
| 03:00 AM - 03:05 AM | 60.3 | 62.2 | -1.9 | 7.0 | - | 56.3 | 55.4 | 0.9 |
| 03:05 AM - 03:10 AM | 67.8 | 63.4 | 4.4 | 2.0 | - | 68.8 | 54.8 | 14.0 |
| 03:10 AM - 03:15 AM | 63.3 | 60.7 | 2.6 | 3.0 | - | 63.3 | 54.5 | 8.8 |
| 03:15 AM - 03:20 AM | 64.2 | 60.5 | 3.7 | 2.0 | - | 65.2 | 53.6 | 11.6 |
| 03:20 AM - 03:25 AM | 62.0 | 62.6 | -0.6 | 7.0 | - | 58.0 | 53.6 | 4.4 |
| 03:25 AM - 03:30 AM | 67.7 | 63.6 | 4.1 | 2.0 | - | 68.7 | 52.4 | 16.3 |
| 03:30 AM - 03:35 AM | 66.3 | 62.8 | 3.5 | 2.0 | - | 67.3 | 50.9 | 16.4 |
| 03:35 AM - 03:40 AM | 66.6 | 63.5 | 3.1 | 3.0 | - | 66.6 | 52.9 | 13.7 |

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced, except in full.

**Approved by**
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658790-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-11
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| ระดับเสียง (dB(A)) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=B-A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางวัน (E1) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางคืน (E2=E+5) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
| 03:40 AM - 03:45 AM | 66.3 | 62.5 | 3.8 | 2.0 | - | 67.3 | 53.2 | 14.1 |
| 03:45 AM - 03:50 AM | 68.1 | 64.8 | 3.3 | 3.0 | - | 68.1 | 56.0 | 12.1 |
| 03:50 AM - 03:55 AM | 68.5 | 64.8 | 3.7 | 2.0 | - | 69.5 | 55.8 | 13.7 |
| 03:55 AM - 04:00 AM | 68.1 | 65.9 | 2.2 | 4.5 | - | 66.6 | 55.2 | 11.4 |
| 04:00 AM - 04:05 AM | 68.3 | 65.0 | 3.3 | 3.0 | - | 68.3 | 54.5 | 13.8 |
| 04:05 AM - 04:10 AM | 67.8 | 65.9 | 1.9 | 4.5 | - | 66.3 | 55.9 | 10.4 |
| 04:10 AM - 04:15 AM | 69.4 | 64.4 | 5.0 | 1.5 | - | 70.9 | 54.6 | 16.3 |
| 04:15 AM - 04:20 AM | 68.8 | 67.0 | 1.8 | 4.5 | - | 67.3 | 54.7 | 12.6 |
| 04:20 AM - 04:25 AM | 70.4 | 65.9 | 4.5 | 1.5 | - | 71.9 | 54.0 | 17.9 |
| 04:25 AM - 04:30 AM | 68.0 | 64.7 | 3.3 | 3.0 | - | 68.0 | 53.9 | 14.1 |
| 04:30 AM - 04:35 AM | 67.9 | 65.2 | 2.7 | 3.0 | - | 67.9 | 54.9 | 13.0 |
| 04:35 AM - 04:40 AM | 69.3 | 64.6 | 4.7 | 1.5 | - | 70.8 | 53.0 | 17.8 |
| 04:40 AM - 04:45 AM | 68.5 | 65.7 | 2.8 | 3.0 | - | 68.5 | 54.9 | 13.6 |
| 04:45 AM - 04:50 AM | 69.1 | 64.2 | 4.9 | 1.5 | - | 70.6 | 54.0 | 16.6 |
| 04:50 AM - 04:55 AM | 68.1 | 66.8 | 1.3 | 7.0 | - | 64.1 | 54.3 | 9.8 |
| 04:55 AM - 05:00 AM | 68.6 | 65.6 | 3.0 | 3.0 | - | 68.6 | 51.8 | 16.8 |
| 05:00 AM - 05:05 AM | 69.6 | 64.0 | 5.6 | 1.5 | - | 71.1 | 48.2 | 22.9 |
| 05:05 AM - 05:10 AM | 63.8 | 60.3 | 3.5 | 2.0 | - | 64.8 | 48.7 | 16.1 |
| 05:10 AM - 05:15 AM | 64.8 | 61.3 | 3.5 | 2.0 | - | 65.8 | 47.6 | 18.2 |
| 05:15 AM - 05:20 AM | 65.3 | 61.4 | 3.9 | 2.0 | - | 66.3 | 48.6 | 17.7 |
| 05:20 AM - 05:25 AM | 62.8 | 60.9 | 1.9 | 4.5 | - | 61.3 | 48.4 | 12.9 |
| 05:25 AM - 05:30 AM | 63.6 | 60.9 | 2.7 | 3.0 | - | 63.6 | 47.0 | 16.6 |
| 05:30 AM - 05:35 AM | 63.9 | 61.7 | 2.2 | 4.5 | - | 62.4 | 48.3 | 14.1 |
| 05:35 AM - 05:40 AM | 65.2 | 60.4 | 4.8 | 1.5 | - | 66.7 | 52.4 | 14.3 |
| 05:40 AM - 05:45 AM | 63.5 | 61.2 | 2.3 | 4.5 | - | 62.0 | 52.2 | 9.8 |
| 05:45 AM - 05:50 AM | 63.2 | 61.5 | 1.7 | 4.5 | - | 61.7 | 52.3 | 9.4 |
| 05:50 AM - 05:55 AM | 65.0 | 60.0 | 5.0 | 1.5 | - | 66.5 | 45.0 | 21.5 |
| 05:55 AM - 06:00 AM | 63.9 | 61.9 | 2.0 | 4.5 | - | 62.4 | 44.2 | 18.2 |
| 06:00 AM - 07:00 AM | 62.5 | 59.6 | 2.9 | 3.0 | 59.5 | - | 44.8 | 14.7 |
| 07:00 AM - 08:00 AM | 63.1 | 59.0 | 4.1 | 2.0 | 61.1 | - | 44.9 | 16.2 |
| 08:00 AM - 09:00 AM | 63.7 | 60.6 | 3.1 | 3.0 | 60.7 | - | 46.7 | 14.0 |
| 09:00 AM - 10:00 AM | 62.2 | 59.6 | 2.6 | 3.0 | 59.2 | - | 45.5 | 13.7 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานผลพิทางเสียงอันเกิดจากการปล่อยจากสถานที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด หาการตรวจวัด วันที่ 09-10 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-11 วันที่ตรวจวัด 09-10 พฤษภาคม 2566)

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**Approved by**
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658791-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-12
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| ระดับเสียง (dB(A)) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=B-A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางวัน (E1) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางคืน (E2=E+5) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
| 10:00 AM - 11:00 AM | 62.5 | 59.9 | 2.6 | 3.0 | 59.5 | - | 44.2 | 15.3 |
| 11:00 AM - 12:00 PM | 60.4 | 58.2 | 2.2 | 4.5 | 55.9 | - | 43.6 | 12.3 |
| 12:00 PM - 01:00 PM | 61.9 | 59.9 | 2.0 | 4.5 | 57.4 | - | 45.2 | 12.2 |
| 01:00 PM - 02:00 PM | 65.9 | 64.2 | 1.7 | 4.5 | 61.4 | - | 57.6 | 3.8 |
| 02:00 PM - 03:00 PM | 68.0 | 64.6 | 3.4 | 3.0 | 65.0 | - | 52.6 | 12.4 |
| 03:00 PM - 04:00 PM | 65.8 | 62.5 | 3.3 | 3.0 | 62.8 | - | 51.4 | 11.4 |
| 04:00 PM - 05:00 PM | 64.5 | 60.5 | 4.0 | 2.0 | 62.5 | - | 48.1 | 14.4 |
| 05:00 PM - 06:00 PM | 66.0 | 60.8 | 5.2 | 1.5 | 64.5 | - | 48.2 | 16.3 |
| 06:00 PM - 07:00 PM | 60.0 | 57.0 | 3.0 | 3.0 | 57.0 | - | 44.9 | 12.1 |
| 07:00 PM - 08:00 PM | 55.7 | 54.3 | 1.4 | 7.0 | 48.7 | - | 45.0 | 3.7 |
| 08:00 PM - 09:00 PM | 56.8 | 55.2 | 1.6 | 4.5 | 52.3 | - | 43.2 | 9.1 |
| 09:00 PM - 10:00 PM | 54.3 | 53.6 | 0.7 | 7.0 | 47.3 | - | 44.2 | 3.1 |
| 10:00 PM - 10:05 PM | 52.0 | 48.6 | 3.4 | 3.0 | - | 52.0 | 42.7 | 9.3 |
| 10:05 PM - 10:10 PM | 53.4 | 60.1 | -6.7 | 7.0 | - | 49.4 | 42.6 | 6.8 |
| 10:10 PM - 10:15 PM | 70.2 | 50.9 | 19.3 | 0.0 | - | 73.2 | 42.4 | 30.8 |
| 10:15 PM - 10:20 PM | 56.1 | 53.0 | 3.1 | 3.0 | - | 56.1 | 43.1 | 13.0 |
| 10:20 PM - 10:25 PM | 50.2 | 45.3 | 4.9 | 1.5 | - | 51.7 | 42.7 | 9.0 |
| 10:25 PM - 10:30 PM | 51.3 | 49.9 | 1.4 | 7.0 | - | 47.3 | 43.0 | 4.3 |
| 10:30 PM - 10:35 PM | 42.7 | 53.1 | -10.4 | 7.0 | - | 38.7 | 43.1 | -4.4 |
| 10:35 PM - 10:40 PM | 55.7 | 48.1 | 7.6 | 0.5 | - | 58.2 | 43.1 | 15.1 |
| 10:40 PM - 10:45 PM | 54.1 | 51.8 | 2.3 | 4.5 | - | 52.6 | 42.9 | 9.7 |
| 10:45 PM - 10:50 PM | 44.9 | 46.2 | -1.3 | 7.0 | - | 40.9 | 43.3 | -2.4 |
| 10:50 PM - 10:55 PM | 47.6 | 52.5 | -4.9 | 7.0 | - | 43.6 | 43.6 | 0.0 |
| 10:55 PM - 11:00 PM | 44.1 | 50.6 | -6.5 | 7.0 | - | 40.1 | 43.6 | -3.5 |
| 11:00 PM - 11:05 PM | 43.6 | 55.3 | -11.7 | 7.0 | - | 39.6 | 44.0 | -4.4 |
| 11:05 PM - 11:10 PM | 52.1 | 55.7 | -3.6 | 7.0 | - | 48.1 | 44.3 | 3.8 |
| 11:10 PM - 11:15 PM | 53.6 | 51.1 | 2.5 | 3.0 | - | 53.6 | 43.5 | 10.1 |
| 11:15 PM - 11:20 PM | 44.2 | 55.9 | -11.7 | 7.0 | - | 40.2 | 43.7 | -3.5 |
| 11:20 PM - 11:25 PM | 45.7 | 56.5 | -10.8 | 7.0 | - | 41.7 | 45.2 | -3.5 |
| 11:25 PM - 11:30 PM | 45.7 | 57.0 | -11.3 | 7.0 | - | 41.7 | 43.8 | -2.1 |
| 11:30 PM - 11:35 PM | 49.1 | 57.6 | -8.5 | 7.0 | - | 45.1 | 46.8 | -1.7 |
| 11:35 PM - 11:40 PM | 49.9 | 56.6 | -6.7 | 7.0 | - | 45.9 | 45.1 | 0.8 |
| 11:40 PM - 11:45 PM | 44.4 | 58.1 | -13.7 | 7.0 | - | 40.4 | 47.8 | -7.4 |
| 11:45 PM - 11:50 PM | 46.1 | 58.5 | -12.4 | 7.0 | - | 42.1 | 51.1 | -9.0 |
| 11:50 PM - 11:55 PM | 55.2 | 57.8 | -2.6 | 7.0 | - | 51.2 | 49.3 | 1.9 |
| 11:55 PM - 12:00 AM | 50.0 | 57.6 | -7.6 | 7.0 | - | 46.0 | 50.5 | -4.5 |
| 12:00 AM - 12:05 AM | 47.4 | 57.8 | -10.4 | 7.0 | - | 43.4 | 50.1 | -6.7 |
| 12:05 AM - 12:10 AM | 48.7 | 57.3 | -8.6 | 7.0 | - | 44.7 | 50.0 | -5.3 |
| 12:10 AM - 12:15 AM | 50.3 | 54.7 | -4.4 | 7.0 | - | 46.3 | 45.1 | 1.2 |
| 12:15 AM - 12:20 AM | 44.8 | 56.6 | -11.8 | 7.0 | - | 40.8 | 46.4 | -5.6 |

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**Approved by**
Wilawan Borirak
Manager



Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658791-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-12
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| ระดับเสียง (dB(A)) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่าง (C=B-A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางวัน (E1) | ปรับค่าเสียงจากแหล่งกำเนิด (E=C+D) กลางคืน (E2=E+5) | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G=E-F) |
| 12:20 AM - 12:25 AM | 52.0 | 54.9 | -2.9 | 7.0 | - | 48.0 | 44.4 | 3.6 |
| 12:25 AM - 12:30 AM | 48.1 | 50.6 | -2.5 | 7.0 | - | 44.1 | 42.5 | 1.6 |
| 12:30 AM - 12:35 AM | 52.8 | 53.7 | -0.9 | 7.0 | - | 48.8 | 42.5 | 6.3 |
| 12:35 AM - 12:40 AM | 56.7 | 51.4 | 5.3 | 1.5 | - | 58.2 | 41.0 | 17.2 |
| 12:40 AM - 12:45 AM | 50.8 | 50.7 | 0.1 | 7.0 | - | 46.8 | 42.1 | 4.7 |
| 12:45 AM - 12:50 AM | 47.4 | 49.9 | -2.5 | 7.0 | - | 43.4 | 42.0 | 1.4 |
| 12:50 AM - 12:55 AM | 42.7 | 43.3 | -0.6 | 7.0 | - | 38.7 | 41.6 | -2.9 |
| 12:55 AM - 01:00 AM | 55.8 | 53.0 | 2.8 | 3.0 | - | 55.8 | 42.1 | 13.7 |
| 01:00 AM - 01:05 AM | 42.8 | 51.2 | -8.4 | 7.0 | - | 38.8 | 42.1 | -3.3 |
| 01:05 AM - 01:10 AM | 53.0 | 47.2 | 5.8 | 1.5 | - | 54.5 | 42.8 | 11.7 |
| 01:10 AM - 01:15 AM | 49.3 | 50.7 | -1.4 | 7.0 | - | 45.3 | 43.5 | 1.8 |
| 01:15 AM - 01:20 AM | 50.5 | 51.3 | -0.8 | 7.0 | - | 46.5 | 42.6 | 3.9 |
| 01:20 AM - 01:25 AM | 53.9 | 49.9 | 4.0 | 2.0 | - | 54.9 | 42.9 | 12.0 |
| 01:25 AM - 01:30 AM | 46.1 | 43.4 | 2.7 | 3.0 | - | 46.1 | 42.0 | 4.1 |
| 01:30 AM - 01:35 AM | 43.3 | 49.0 | -5.7 | 7.0 | - | 39.3 | 41.6 | -2.3 |
| 01:35 AM - 01:40 AM | 51.8 | 44.9 | 6.9 | 1.0 | - | 53.8 | 41.3 | 12.5 |
| 01:40 AM - 01:45 AM | 43.0 | 48.6 | -5.6 | 7.0 | - | 39.0 | 41.6 | -2.6 |
| 01:45 AM - 01:50 AM | 48.7 | 48.3 | 0.4 | 7.0 | - | 44.7 | 41.4 | 3.3 |
| 01:50 AM - 01:55 AM | 51.0 | 49.1 | 1.9 | 4.5 | - | 49.5 | 41.1 | 8.4 |
| 01:55 AM - 02:00 AM | 52.5 | 50.9 | 1.6 | 4.5 | - | 51.0 | 41.3 | 9.7 |
| 02:00 AM - 02:05 AM | 55.1 | 51.0 | 4.1 | 2.0 | - | 56.1 | 41.8 | 14.3 |
| 02:05 AM - 02:10 AM | 52.6 | 49.9 | 2.7 | 3.0 | - | 52.6 | 42.0 | 10.6 |
| 02:10 AM - 02:15 AM | 53.9 | 53.4 | 0.5 | 7.0 | - | 49.9 | 42.0 | 7.9 |
| 02:15 AM - 02:20 AM | 55.5 | 49.4 | 6.1 | 1.5 | - | 57.0 | 42.0 | 15.0 |
| 02:20 AM - 02:25 AM | 55.9 | 54.3 | 1.6 | 4.5 | - | 54.4 | 43.1 | 11.3 |
| 02:25 AM - 02:30 AM | 61.2 | 59.4 | 1.8 | 4.5 | - | 59.7 | 52.7 | 7.0 |
| 02:30 AM - 02:35 AM | 56.6 | 56.0 | 0.6 | 7.0 | - | 52.6 | 46.9 | 5.7 |
| 02:35 AM - 02:40 AM | 60.7 | 56.9 | 3.8 | 2.0 | - | 61.7 | 43.1 | 18.6 |
| 02:40 AM - 02:45 AM | 60.4 | 55.8 | 4.6 | 1.5 | - | 61.9 | 44.9 | 17.0 |
| 02:45 AM - 02:50 AM | 63.1 | 59.3 | 3.8 | 2.0 | - | 64.1 | 43.5 | 20.6 |
| 02:50 AM - 02:55 AM | 61.4 | 58.5 | 2.9 | 3.0 | - | 61.4 | 44.2 | 17.2 |
| 02:55 AM - 03:00 AM | 61.8 | 55.8 | 6.0 | 1.5 | - | 63.3 | 43.8 | 19.5 |
| 03:00 AM - 03:05 AM | 62.6 | 63.0 | -0.4 | 2.0 | - | 58.6 | 43.9 | 14.7 |
| 03:05 AM - 03:10 AM | 65.7 | 55.8 | 9.9 | 0.5 | - | 68.2 | 43.8 | 24.4 |
| 03:10 AM - 03:15 AM | 61.6 | 61.0 | 0.6 | 7.0 | - | 57.6 | 44.3 | 13.3 |
| 03:15 AM - 03:20 AM | 66.1 | 61.1 | 5.0 | 1.5 | - | 67.6 | 44.9 | 22.7 |
| 03:20 AM - 03:25 AM | 62.6 | 60.3 | 2.3 | 4.5 | - | 61.1 | 45.2 | 15.9 |
| 03:25 AM - 03:30 AM | 63.9 | 60.9 | 3.0 | 3.0 | - | 63.9 | 48.8 | 15.1 |
| 03:30 AM - 03:35 AM | 64.3 | 60.1 | 4.2 | 2.0 | - | 65.3 | 45.4 | 19.9 |
| 03:35 AM - 03:40 AM | 63.6 | 63.0 | 0.6 | 7.0 | - | 59.6 | 47.8 | 11.8 |

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**Approved by**
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658791-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-12
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่างระดับเสียง (C)=(B)-(A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E1)=(A)+(D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางคืน (E2)=(A)+5 | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G)=(E)-(F) |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 66.8 | 61.0 | 5.8 | 1.5 | - | 68.3 | 47.4 | 20.9 |
| 03:45 AM - 03:50 AM | 64.6 | 62.5 | 2.1 | 4.5 | - | 63.1 | 50.5 | 12.6 |
| 03:50 AM - 03:55 AM | 65.5 | 63.3 | 2.2 | 4.5 | - | 64.0 | 46.4 | 17.6 |
| 03:55 AM - 04:00 AM | 67.4 | 63.4 | 4.0 | 2.0 | - | 68.4 | 51.1 | 17.3 |
| 04:00 AM - 04:05 AM | 67.1 | 65.5 | 1.6 | 4.5 | - | 65.6 | 51.9 | 13.7 |
| 04:05 AM - 04:10 AM | 69.5 | 64.6 | 4.9 | 1.5 | - | 71.0 | 50.3 | 20.7 |
| 04:10 AM - 04:15 AM | 67.9 | 63.1 | 4.8 | 1.5 | - | 69.4 | 53.5 | 15.9 |
| 04:15 AM - 04:20 AM | 66.8 | 65.8 | 1.0 | 7.0 | - | 62.8 | 51.3 | 11.5 |
| 04:20 AM - 04:25 AM | 69.6 | 65.4 | 4.2 | 2.0 | - | 70.6 | 51.1 | 19.5 |
| 04:25 AM - 04:30 AM | 66.8 | 64.3 | 2.5 | 3.0 | - | 66.8 | 55.7 | 11.1 |
| 04:30 AM - 04:35 AM | 68.0 | 63.6 | 4.4 | 2.0 | - | 69.0 | 53.9 | 15.1 |
| 04:35 AM - 04:40 AM | 66.4 | 64.2 | 2.2 | 4.5 | - | 64.9 | 53.9 | 11.0 |
| 04:40 AM - 04:45 AM | 66.8 | 64.6 | 2.2 | 4.5 | - | 65.3 | 49.9 | 15.4 |
| 04:45 AM - 04:50 AM | 67.8 | 62.7 | 5.1 | 1.5 | - | 69.3 | 49.3 | 20.0 |
| 04:50 AM - 04:55 AM | 68.5 | 65.9 | 2.6 | 3.0 | - | 68.5 | 46.8 | 21.7 |
| 04:55 AM - 05:00 AM | 66.2 | 68.0 | -1.8 | 7.0 | - | 62.2 | 47.9 | 14.3 |
| 05:00 AM - 05:05 AM | 71.2 | 59.0 | 12.2 | 0.5 | - | 73.7 | 46.3 | 27.4 |
| 05:05 AM - 05:10 AM | 62.7 | 60.6 | 2.1 | 4.5 | - | 61.2 | 51.3 | 9.9 |
| 05:10 AM - 05:15 AM | 63.6 | 60.8 | 2.8 | 3.0 | - | 63.6 | 54.6 | 9.0 |
| 05:15 AM - 05:20 AM | 64.1 | 61.9 | 2.2 | 4.5 | - | 62.6 | 55.0 | 7.6 |
| 05:20 AM - 05:25 AM | 63.5 | 59.6 | 3.9 | 2.0 | - | 64.5 | 48.9 | 15.6 |
| 05:25 AM - 05:30 AM | 63.0 | 59.7 | 3.3 | 3.0 | - | 63.0 | 47.9 | 15.1 |
| 05:30 AM - 05:35 AM | 61.8 | 64.3 | -2.5 | 7.0 | - | 57.8 | 47.0 | 10.8 |
| 05:35 AM - 05:40 AM | 67.8 | 61.1 | 6.7 | 1.0 | - | 69.8 | 45.9 | 23.9 |
| 05:40 AM - 05:45 AM | 64.2 | 57.2 | 7.0 | 1.0 | - | 66.2 | 45.0 | 21.2 |
| 05:45 AM - 05:50 AM | 65.0 | 61.8 | 3.2 | 3.0 | - | 65.0 | 46.3 | 18.7 |
| 05:50 AM - 05:55 AM | 63.2 | 61.0 | 2.2 | 4.5 | - | 61.7 | 46.2 | 15.5 |
| 05:55 AM - 06:00 AM | 63.9 | 61.0 | 2.9 | 3.0 | - | 63.9 | 46.9 | 17.0 |
| 06:00 AM - 07:00 AM | 62.0 | 58.1 | 3.9 | 2.0 | 60.0 | - | 44.3 | 15.7 |
| 07:00 AM - 08:00 AM | 60.5 | 58.0 | 2.5 | 3.0 | 57.5 | - | 42.9 | 14.6 |
| 08:00 AM - 09:00 AM | 62.7 | 59.7 | 3.0 | 3.0 | 59.7 | - | 44.9 | 14.8 |
| 09:00 AM - 10:00 AM | 65.1 | 61.7 | 3.4 | 3.0 | 62.1 | - | 43.0 | 19.1 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามาตรฐานที่ทำหน้าที่ออกจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 10-11 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงรบกวนไม่มีการรบกวน (Sample No.2338621-12 วันที่ตรวจวัด 10-11 พฤษภาคม 2566)

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658792-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-13
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่างระดับเสียง (C)=(B)-(A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E1)=(A)+(D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางคืน (E2)=(A)+5 | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G)=(E)-(F) |
|---|---|---|---|---|---|---|---|---|
| 10:00 AM - 11:00 AM | 62.9 | 59.7 | 3.2 | 3.0 | 59.9 | - | 43.8 | 16.1 |
| 11:00 AM - 12:00 PM | 62.1 | 59.9 | 2.2 | 4.5 | 57.6 | - | 43.4 | 14.2 |
| 12:00 PM - 01:00 PM | 60.7 | 57.8 | 2.9 | 3.0 | 57.7 | - | 42.5 | 15.2 |
| 01:00 PM - 02:00 PM | 64.6 | 62.1 | 2.5 | 3.0 | 61.6 | - | 44.9 | 16.7 |
| 02:00 PM - 03:00 PM | 65.4 | 62.5 | 2.9 | 3.0 | 62.4 | - | 51.9 | 10.5 |
| 03:00 PM - 04:00 PM | 64.4 | 62.1 | 2.3 | 4.5 | 59.9 | - | 53.2 | 6.7 |
| 04:00 PM - 05:00 PM | 63.4 | 60.5 | 2.9 | 3.0 | 60.4 | - | 47.2 | 13.2 |
| 05:00 PM - 06:00 PM | 64.1 | 61.2 | 2.9 | 3.0 | 61.1 | - | 47.6 | 13.5 |
| 06:00 PM - 07:00 PM | 59.0 | 56.2 | 2.8 | 3.0 | 56.0 | - | 43.9 | 12.1 |
| 07:00 PM - 08:00 PM | 56.9 | 52.8 | 4.1 | 2.0 | 54.9 | - | 43.2 | 11.7 |
| 08:00 PM - 09:00 PM | 52.2 | 50.7 | 1.5 | 4.5 | 47.7 | - | 42.4 | 5.3 |
| 09:00 PM - 10:00 PM | 54.4 | 49.0 | 5.4 | 1.5 | 52.9 | - | 41.7 | 11.2 |
| 10:00 PM - 10:05 PM | 40.7 | 54.2 | -13.5 | 7.0 | - | 36.7 | 40.6 | -3.9 |
| 10:05 PM - 10:10 PM | 56.9 | 42.4 | 14.5 | 0.0 | - | 59.9 | 41.0 | 18.9 |
| 10:10 PM - 10:15 PM | 42.3 | 42.8 | -0.5 | 7.0 | - | 38.3 | 41.5 | -3.2 |
| 10:15 PM - 10:20 PM | 41.9 | 50.2 | -8.3 | 7.0 | - | 37.9 | 41.3 | -3.4 |
| 10:20 PM - 10:25 PM | 55.8 | 51.0 | 4.8 | 1.5 | - | 57.3 | 41.2 | 16.1 |
| 10:25 PM - 10:30 PM | 47.9 | 46.9 | 1.0 | 7.0 | - | 43.9 | 41.4 | 2.5 |
| 10:30 PM - 10:35 PM | 45.3 | 54.1 | -8.8 | 7.0 | - | 41.3 | 41.7 | -0.4 |
| 10:35 PM - 10:40 PM | 57.4 | 45.7 | 11.7 | 0.5 | - | 59.9 | 41.2 | 18.7 |
| 10:40 PM - 10:45 PM | 47.7 | 42.8 | 4.9 | 1.5 | - | 49.2 | 41.5 | 7.7 |
| 10:45 PM - 10:50 PM | 41.0 | 46.5 | -5.5 | 7.0 | - | 37.0 | 40.5 | -3.5 |
| 10:50 PM - 10:55 PM | 49.0 | 41.3 | 7.7 | 0.5 | - | 51.5 | 40.1 | 11.4 |
| 10:55 PM - 11:00 PM | 39.6 | 44.4 | -4.8 | 7.0 | - | 35.6 | 40.4 | -4.8 |
| 11:00 PM - 11:05 PM | 45.2 | 44.2 | 1.0 | 7.0 | - | 41.2 | 39.8 | 1.4 |
| 11:05 PM - 11:10 PM | 44.6 | 43.4 | 1.2 | 7.0 | - | 40.6 | 38.9 | 1.7 |
| 11:10 PM - 11:15 PM | 45.8 | 49.6 | -3.8 | 7.0 | - | 41.8 | 38.7 | 3.1 |
| 11:15 PM - 11:20 PM | 52.4 | 41.2 | 11.2 | 0.5 | - | 54.9 | 39.7 | 15.2 |
| 11:20 PM - 11:25 PM | 39.6 | 41.1 | -1.5 | 7.0 | - | 35.6 | 39.7 | -4.1 |
| 11:25 PM - 11:30 PM | 40.4 | 46.4 | -6.0 | 7.0 | - | 36.4 | 40.2 | -3.8 |
| 11:30 PM - 11:35 PM | 49.9 | 44.4 | 5.5 | 1.5 | - | 51.4 | 39.9 | 11.5 |
| 11:35 PM - 11:40 PM | 41.4 | 41.8 | -0.4 | 7.0 | - | 37.4 | 40.2 | -2.8 |
| 11:40 PM - 11:45 PM | 39.5 | 44.2 | -4.7 | 7.0 | - | 35.5 | 39.3 | -3.8 |
| 11:45 PM - 11:50 PM | 46.6 | 48.0 | -1.4 | 7.0 | - | 42.6 | 39.2 | 3.4 |
| 11:50 PM - 11:55 PM | 50.4 | 45.4 | 5.0 | 1.5 | - | 51.9 | 38.9 | 13.0 |
| 11:55 PM - 12:00 AM | 47.5 | 40.8 | 6.7 | 1.0 | - | 49.5 | 39.5 | 10.0 |
| 12:00 AM - 12:05 AM | 38.8 | 44.4 | -5.6 | 7.0 | - | 34.8 | 39.6 | -4.8 |
| 12:05 AM - 12:10 AM | 46.9 | 40.4 | 6.5 | 1.0 | - | 48.9 | 38.8 | 10.1 |
| 12:10 AM - 12:15 AM | 41.5 | 43.9 | -2.4 | 7.0 | - | 37.5 | 40.0 | -2.5 |
| 12:15 AM - 12:20 AM | 45.0 | 47.0 | -2.0 | 7.0 | - | 41.0 | 40.2 | 0.8 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658792-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-13
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่างระดับเสียง (C)=(B)-(A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E1)=(A)+(D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางคืน (E2)=(A)+5 | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G)=(E)-(F) |
|---|---|---|---|---|---|---|---|---|
| 12:20 AM - 12:25 AM | 47.0 | 46.0 | 1.0 | 7.0 | - | 43.0 | 40.0 | 3.0 |
| 12:25 AM - 12:30 AM | 52.4 | 50.5 | 1.9 | 4.5 | - | 50.9 | 40.6 | 10.3 |
| 12:30 AM - 12:35 AM | 49.0 | 44.8 | 4.2 | 2.0 | - | 50.0 | 40.4 | 9.6 |
| 12:35 AM - 12:40 AM | 47.1 | 46.6 | 0.5 | 7.0 | - | 43.1 | 40.2 | 2.9 |
| 12:40 AM - 12:45 AM | 47.5 | 56.4 | -8.9 | 7.0 | - | 43.5 | 39.9 | 3.6 |
| 12:45 AM - 12:50 AM | 58.6 | 45.6 | 13.0 | 0.0 | - | 61.6 | 38.8 | 22.8 |
| 12:50 AM - 12:55 AM | 55.4 | 54.2 | 1.2 | 7.0 | - | 51.4 | 40.1 | 11.3 |
| 12:55 AM - 01:00 AM | 53.5 | 44.8 | 8.7 | 0.5 | - | 56.0 | 39.3 | 16.7 |
| 01:00 AM - 01:05 AM | 41.3 | 42.0 | -0.7 | 7.0 | - | 37.3 | 40.0 | -2.7 |
| 01:05 AM - 01:10 AM | 45.8 | 49.5 | -3.7 | 7.0 | - | 41.8 | 41.6 | 0.2 |
| 01:10 AM - 01:15 AM | 51.8 | 51.7 | 0.1 | 7.0 | - | 47.8 | 41.5 | 6.3 |
| 01:15 AM - 01:20 AM | 55.1 | 49.2 | 5.9 | 1.5 | - | 56.6 | 42.4 | 14.2 |
| 01:20 AM - 01:25 AM | 51.2 | 46.2 | 5.0 | 1.5 | - | 52.7 | 41.1 | 11.6 |
| 01:25 AM - 01:30 AM | 51.2 | 57.4 | -6.2 | 7.0 | - | 47.2 | 43.5 | 3.7 |
| 01:30 AM - 01:35 AM | 70.6 | 47.4 | 23.2 | 0.0 | - | 73.6 | 41.4 | 32.2 |
| 01:35 AM - 01:40 AM | 50.2 | 48.4 | 1.8 | 4.5 | - | 48.7 | 41.8 | 6.9 |
| 01:40 AM - 01:45 AM | 50.3 | 48.6 | 1.7 | 4.5 | - | 48.8 | 41.9 | 6.9 |
| 01:45 AM - 01:50 AM | 51.1 | 46.0 | 5.1 | 1.5 | - | 52.6 | 41.9 | 10.7 |
| 01:50 AM - 01:55 AM | 48.8 | 51.4 | -2.6 | 7.0 | - | 44.8 | 41.0 | 3.8 |
| 01:55 AM - 02:00 AM | 56.2 | 51.3 | 4.9 | 1.5 | - | 57.7 | 41.9 | 15.8 |
| 02:00 AM - 02:05 AM | 51.5 | 51.4 | 0.1 | 7.0 | - | 47.5 | 42.8 | 4.7 |
| 02:05 AM - 02:10 AM | 53.9 | 48.5 | 5.4 | 1.5 | - | 55.4 | 42.4 | 13.0 |
| 02:10 AM - 02:15 AM | 53.8 | 53.3 | 0.5 | 7.0 | - | 49.8 | 42.9 | 6.9 |
| 02:15 AM - 02:20 AM | 55.7 | 51.1 | 4.6 | 1.5 | - | 57.2 | 43.3 | 13.9 |
| 02:20 AM - 02:25 AM | 54.3 | 52.1 | 2.2 | 4.5 | - | 52.8 | 43.4 | 9.4 |
| 02:25 AM - 02:30 AM | 55.2 | 59.9 | -4.7 | 7.0 | - | 51.2 | 55.1 | -3.9 |
| 02:30 AM - 02:35 AM | 55.2 | 58.3 | -3.1 | 7.0 | - | 51.2 | 45.2 | 6.0 |
| 02:35 AM - 02:40 AM | 59.3 | 55.2 | 4.1 | 2.0 | - | 60.3 | 44.4 | 15.9 |
| 02:40 AM - 02:45 AM | 58.9 | 56.2 | 2.7 | 3.0 | - | 58.9 | 43.2 | 15.7 |
| 02:45 AM - 02:50 AM | 59.9 | 56.5 | 3.4 | 3.0 | - | 59.9 | 43.7 | 16.2 |
| 02:50 AM - 02:55 AM | 61.4 | 57.3 | 4.1 | 2.0 | - | 62.4 | 43.4 | 19.0 |
| 02:55 AM - 03:00 AM | 60.4 | 56.6 | 3.8 | 2.0 | - | 61.4 | 44.9 | 16.5 |
| 03:00 AM - 03:05 AM | 61.1 | 59.2 | 1.9 | 4.5 | - | 59.6 | 45.8 | 13.8 |
| 03:05 AM - 03:10 AM | 64.1 | 60.8 | 3.3 | 3.0 | - | 64.1 | 45.2 | 18.9 |
| 03:10 AM - 03:15 AM | 64.4 | 57.2 | 7.2 | 1.0 | - | 66.4 | 44.2 | 22.2 |
| 03:15 AM - 03:20 AM | 58.0 | 59.5 | -1.5 | 7.0 | - | 54.0 | 43.5 | 10.5 |
| 03:20 AM - 03:25 AM | 65.0 | 65.6 | -0.6 | 7.0 | - | 61.0 | 43.3 | 17.7 |
| 03:25 AM - 03:30 AM | 69.6 | 62.3 | 7.3 | 1.0 | - | 71.6 | 48.8 | 22.8 |
| 03:30 AM - 03:35 AM | 64.6 | 62.8 | 1.8 | 4.5 | - | 63.1 | 47.2 | 15.9 |
| 03:35 AM - 03:40 AM | 67.0 | 62.6 | 4.4 | 2.0 | - | 68.0 | 48.8 | 19.2 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658792-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-13
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

ระดับเสียง (dB(A))

| เวลา | เสียงจากแหล่งกำเนิด (A) | เสียงขณะไม่มีการรบกวน (B) | ผลต่างระดับเสียง (C)=(B)-(A) | ตัวปรับค่า (D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางวัน (E1)=(A)+(D) | ปรับค่าเสียงจากแหล่งกำเนิด (E) กลางคืน (E2)=(A)+5 | เสียงพื้นฐาน (F) | ค่าระดับการรบกวน (G)=(E)-(F) |
|---|---|---|---|---|---|---|---|---|
| 03:40 AM - 03:45 AM | 69.0 | 65.1 | 3.9 | 2.0 | - | 70.0 | 51.3 | 18.7 |
| 03:45 AM - 03:50 AM | 67.5 | 61.9 | 5.6 | 1.5 | - | 69.0 | 49.5 | 19.5 |
| 03:50 AM - 03:55 AM | 65.3 | 63.8 | 1.5 | 4.5 | - | 63.8 | 53.4 | 10.4 |
| 03:55 AM - 04:00 AM | 67.0 | 65.1 | 1.9 | 4.5 | - | 65.5 | 55.2 | 10.3 |
| 04:00 AM - 04:05 AM | 68.6 | 72.6 | -4.0 | 7.0 | - | 64.6 | 65.2 | -0.6 |
| 04:05 AM - 04:10 AM | 74.1 | 75.5 | -1.4 | 7.0 | - | 70.1 | 73.2 | -3.1 |
| 04:10 AM - 04:15 AM | 74.3 | 73.1 | 1.2 | 7.0 | - | 70.3 | 68.4 | 1.9 |
| 04:15 AM - 04:20 AM | 72.1 | 69.9 | 2.2 | 4.5 | - | 70.6 | 64.8 | 5.8 |
| 04:20 AM - 04:25 AM | 71.8 | 72.2 | -0.4 | 7.0 | - | 67.8 | 66.5 | 1.3 |
| 04:25 AM - 04:30 AM | 72.5 | 69.7 | 2.8 | 3.0 | - | 72.5 | 65.4 | 7.1 |
| 04:30 AM - 04:35 AM | 70.7 | 69.8 | 0.9 | 7.0 | - | 66.7 | 65.3 | 1.4 |
| 04:35 AM - 04:40 AM | 71.7 | 68.7 | 3.0 | 3.0 | - | 71.7 | 62.5 | 9.2 |
| 04:40 AM - 04:45 AM | 69.5 | 67.0 | 2.5 | 3.0 | - | 69.5 | 59.7 | 9.8 |
| 04:45 AM - 04:50 AM | 70.4 | 66.9 | 3.5 | 2.0 | - | 71.4 | 59.5 | 11.9 |
| 04:50 AM - 04:55 AM | 68.7 | 66.1 | 2.6 | 3.0 | - | 68.7 | 56.3 | 12.4 |
| 04:55 AM - 05:00 AM | 68.7 | 66.1 | 2.6 | 3.0 | - | 68.7 | 55.3 | 13.4 |
| 05:00 AM - 05:05 AM | 70.1 | 65.0 | 5.1 | 1.5 | - | 71.6 | 55.3 | 16.3 |
| 05:05 AM - 05:10 AM | 68.8 | 61.1 | 7.7 | 0.5 | - | 71.3 | 51.1 | 20.2 |
| 05:10 AM - 05:15 AM | 65.8 | 61.7 | 4.1 | 2.0 | - | 66.8 | 48.3 | 18.5 |
| 05:15 AM - 05:20 AM | 63.2 | 60.9 | 2.3 | 4.5 | - | 61.7 | 47.9 | 13.8 |
| 05:20 AM - 05:25 AM | 64.7 | 61.7 | 3.0 | 3.0 | - | 64.7 | 50.0 | 14.7 |
| 05:25 AM - 05:30 AM | 64.5 | 60.4 | 4.1 | 2.0 | - | 65.5 | 49.4 | 16.1 |
| 05:30 AM - 05:35 AM | 64.6 | 59.8 | 4.8 | 1.5 | - | 66.1 | 48.2 | 17.9 |
| 05:35 AM - 05:40 AM | 63.9 | 61.9 | 2.0 | 4.5 | - | 62.4 | 48.8 | 13.6 |
| 05:40 AM - 05:45 AM | 65.2 | 59.2 | 6.0 | 1.5 | - | 66.7 | 49.0 | 17.7 |
| 05:45 AM - 05:50 AM | 62.5 | 59.6 | 2.9 | 3.0 | - | 62.5 | 50.9 | 11.6 |
| 05:50 AM - 05:55 AM | 61.7 | 59.1 | 2.6 | 3.0 | - | 61.7 | 48.3 | 13.4 |
| 05:55 AM - 06:00 AM | 63.1 | 61.0 | 2.1 | 4.5 | - | 61.6 | 48.5 | 13.1 |
| 06:00 AM - 07:00 AM | 63.1 | 59.0 | 4.1 | 2.0 | 61.1 | - | 48.1 | 13.0 |
| 07:00 AM - 08:00 AM | 64.6 | 61.9 | 2.7 | 3.0 | 61.6 | - | 43.9 | 17.7 |
| 08:00 AM - 09:00 AM | 62.6 | 60.0 | 2.6 | 3.0 | 59.6 | - | 45.0 | 14.6 |
| 09:00 AM - 10:00 AM | 64.7 | 62.8 | 1.9 | 4.5 | 60.2 | - | 43.7 | 16.5 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงการรบกวนและระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง ค่ามาตรฐานที่ทำหน้าที่ออกจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561

ระดับเสียงจากแหล่งกำเนิด ทำการตรวจวัด วันที่ 11-12 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงรบกวนไม่มีการรบกวน (Sample No.2338621-13 วันที่ตรวจวัด 11-12 พฤษภาคม 2566)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658793-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-14
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C) ผลต่างระดับเสียง | (D) ตัวปรับค่า | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน (A-C) | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน (B+D+3) | (F) เสียงพื้นฐาน | (G) ค่าระดับการรบกวน |
| 10:00 AM - 11:00 AM | 60.5 | 57.8 | 2.7 | 3.0 | 57.5 | - | 44.4 | 13.1 |
| 11:00 AM - 12:00 PM | 63.7 | 60.0 | 3.7 | 2.0 | 61.7 | - | 44.1 | 17.6 |
| 12:00 PM - 01:00 PM | 59.9 | 57.1 | 2.8 | 3.0 | 56.9 | - | 43.3 | 13.6 |
| 01:00 PM - 02:00 PM | 62.4 | 60.0 | 2.4 | 4.5 | 57.9 | - | 47.7 | 10.2 |
| 02:00 PM - 03:00 PM | 65.6 | 62.9 | 2.7 | 3.0 | 62.6 | - | 51.0 | 11.6 |
| 03:00 PM - 04:00 PM | 65.1 | 61.9 | 3.2 | 3.0 | 62.1 | - | 52.0 | 10.1 |
| 04:00 PM - 05:00 PM | 63.8 | 60.5 | 3.3 | 3.0 | 60.8 | - | 48.6 | 12.2 |
| 05:00 PM - 06:00 PM | 64.1 | 61.0 | 3.1 | 3.0 | 61.1 | - | 48.9 | 12.2 |
| 06:00 PM - 07:00 PM | 61.1 | 58.0 | 3.1 | 3.0 | 58.1 | - | 46.0 | 12.1 |
| 07:00 PM - 08:00 PM | 58.5 | 57.7 | 0.8 | 7.0 | 51.5 | - | 45.4 | 6.1 |
| 08:00 PM - 09:00 PM | 60.6 | 55.2 | 5.4 | 1.5 | 59.1 | - | 44.1 | 15.0 |
| 09:00 PM - 10:00 PM | 54.0 | 54.6 | -0.6 | 7.0 | 47.0 | - | 43.2 | 3.8 |
| 10:00 PM - 10:05 PM | 53.6 | 43.1 | 10.5 | 0.5 | - | 56.1 | 42.1 | 14.0 |
| 10:05 PM - 10:10 PM | 44.8 | 49.3 | -4.5 | 7.0 | - | 40.8 | 42.9 | -2.1 |
| 10:10 PM - 10:15 PM | 45.7 | 47.2 | -1.5 | 7.0 | - | 41.7 | 42.4 | -0.7 |
| 10:15 PM - 10:20 PM | 48.6 | 49.8 | -1.2 | 7.0 | - | 44.6 | 42.7 | 1.9 |
| 10:20 PM - 10:25 PM | 45.6 | 43.7 | 1.9 | 4.5 | - | 44.1 | 42.5 | 1.6 |
| 10:25 PM - 10:30 PM | 41.2 | 47.9 | -6.7 | 7.0 | - | 37.2 | 42.3 | -5.1 |
| 10:30 PM - 10:35 PM | 43.2 | 47.1 | -3.9 | 7.0 | - | 39.2 | 42.7 | -3.5 |
| 10:35 PM - 10:40 PM | 43.5 | 52.9 | -9.4 | 7.0 | - | 39.5 | 42.5 | -3.0 |
| 10:40 PM - 10:45 PM | 52.8 | 49.5 | 3.3 | 3.0 | - | 52.8 | 42.0 | 10.8 |
| 10:45 PM - 10:50 PM | 51.2 | 50.4 | 0.8 | 7.0 | - | 47.2 | 40.8 | 6.4 |
| 10:50 PM - 10:55 PM | 47.0 | 51.0 | -4.0 | 7.0 | - | 43.0 | 41.1 | 1.9 |
| 10:55 PM - 11:00 PM | 44.5 | 52.9 | -8.4 | 7.0 | - | 40.5 | 41.4 | -0.9 |
| 11:00 PM - 11:05 PM | 48.9 | 49.8 | -0.9 | 7.0 | - | 44.9 | 41.6 | 3.3 |
| 11:05 PM - 11:10 PM | 43.1 | 54.9 | -11.8 | 7.0 | - | 39.1 | 41.4 | -2.3 |
| 11:10 PM - 11:15 PM | 52.4 | 55.2 | -2.8 | 7.0 | - | 48.4 | 41.1 | 7.3 |
| 11:15 PM - 11:20 PM | 51.7 | 54.8 | -3.1 | 7.0 | - | 47.7 | 41.1 | 6.6 |
| 11:20 PM - 11:25 PM | 47.1 | 55.9 | -8.8 | 7.0 | - | 43.1 | 41.8 | 1.3 |
| 11:25 PM - 11:30 PM | 47.3 | 60.1 | -12.8 | 7.0 | - | 43.3 | 42.4 | 0.9 |
| 11:30 PM - 11:35 PM | 58.0 | 52.8 | 5.2 | 1.5 | - | 59.5 | 42.5 | 17.0 |
| 11:35 PM - 11:40 PM | 45.9 | 53.7 | -7.8 | 7.0 | - | 41.9 | 42.4 | -0.5 |
| 11:40 PM - 11:45 PM | 52.8 | 58.1 | -5.3 | 7.0 | - | 48.8 | 42.8 | 6.0 |
| 11:45 PM - 11:50 PM | 55.7 | 56.9 | -1.2 | 7.0 | - | 51.7 | 43.1 | 8.6 |
| 11:50 PM - 11:55 PM | 52.5 | 56.0 | -3.5 | 7.0 | - | 48.5 | 43.4 | 5.1 |
| 11:55 PM - 12:00 AM | 52.9 | 58.9 | -6.0 | 7.0 | - | 48.9 | 43.2 | 5.7 |
| 12:00 AM - 12:05 AM | 53.8 | 60.4 | -6.6 | 7.0 | - | 49.8 | 42.8 | 7.0 |
| 12:05 AM - 12:10 AM | 55.2 | 59.8 | -4.6 | 7.0 | - | 51.2 | 42.4 | 8.8 |
| 12:10 AM - 12:15 AM | 50.4 | 55.6 | -5.2 | 7.0 | - | 46.4 | 42.8 | 3.6 |
| 12:15 AM - 12:20 AM | 55.5 | 55.8 | -0.3 | 7.0 | - | 51.5 | 42.7 | 8.8 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658793-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-14
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C) ผลต่างระดับเสียง | (D) ตัวปรับค่า | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน (A-C) | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน (B+D+3) | (F) เสียงพื้นฐาน | (G) ค่าระดับการรบกวน |
| 12:20 AM - 12:25 AM | 56.5 | 54.9 | 1.6 | 4.5 | | 55.0 | 43.1 | 11.9 |
| 12:25 AM - 12:30 AM | 56.6 | 50.0 | -2.3 | 7.0 | - | 52.6 | 43.2 | 9.4 |
| 12:30 AM - 12:35 AM | 62.1 | 52.2 | 9.9 | 0.5 | - | 64.6 | 42.9 | 21.7 |
| 12:35 AM - 12:40 AM | 45.0 | 51.0 | -6.0 | 7.0 | - | 41.0 | 42.5 | -1.5 |
| 12:40 AM - 12:45 AM | 54.7 | 57.4 | -2.7 | 7.0 | - | 50.7 | 42.8 | 7.9 |
| 12:45 AM - 12:50 AM | 60.2 | 49.8 | 10.4 | 0.5 | - | 62.7 | 41.8 | 20.9 |
| 12:50 AM - 12:55 AM | 50.9 | 45.2 | 5.7 | 1.5 | - | 52.4 | 41.7 | 10.7 |
| 12:55 AM - 01:00 AM | 43.2 | 42.6 | 0.6 | 7.0 | - | 39.2 | 41.3 | -2.1 |
| 01:00 AM - 01:05 AM | 42.4 | 48.9 | -6.5 | 7.0 | - | 38.4 | 41.4 | -3.0 |
| 01:05 AM - 01:10 AM | 48.5 | 56.2 | -7.7 | 7.0 | - | 44.5 | 41.2 | 3.3 |
| 01:10 AM - 01:15 AM | 58.6 | 45.3 | 13.3 | 0.0 | - | 61.6 | 40.7 | 20.9 |
| 01:15 AM - 01:20 AM | 41.5 | 59.3 | -17.8 | 7.0 | - | 37.5 | 41.2 | -3.7 |
| 01:20 AM - 01:25 AM | 55.3 | 51.1 | 4.2 | 2.0 | - | 56.3 | 40.6 | 15.7 |
| 01:25 AM - 01:30 AM | 68.0 | 47.9 | 20.1 | 0.0 | - | 71.0 | 40.7 | 30.3 |
| 01:30 AM - 01:35 AM | 51.7 | 48.4 | 3.3 | 3.0 | - | 51.7 | 41.1 | 10.6 |
| 01:35 AM - 01:40 AM | 51.6 | 47.4 | 4.2 | 2.0 | - | 52.6 | 40.8 | 11.8 |
| 01:40 AM - 01:45 AM | 49.3 | 54.0 | -4.7 | 7.0 | - | 45.3 | 40.9 | 4.4 |
| 01:45 AM - 01:50 AM | 56.4 | 54.1 | 2.3 | 4.5 | - | 54.9 | 41.2 | 13.7 |
| 01:50 AM - 01:55 AM | 55.0 | 57.0 | -2.0 | 7.0 | - | 51.0 | 42.4 | 8.6 |
| 01:55 AM - 02:00 AM | 54.6 | 56.9 | -2.3 | 7.0 | - | 50.6 | 42.3 | 8.3 |
| 02:00 AM - 02:05 AM | 59.9 | 50.0 | 9.9 | 0.5 | - | 62.4 | 42.4 | 20.0 |
| 02:05 AM - 02:10 AM | 53.4 | 44.8 | 8.6 | 0.5 | - | 55.9 | 42.6 | 13.3 |
| 02:10 AM - 02:15 AM | 46.8 | 57.0 | -10.2 | 7.0 | - | 42.8 | 43.6 | -0.8 |
| 02:15 AM - 02:20 AM | 60.3 | 51.5 | 8.8 | 0.5 | - | 62.8 | 43.4 | 19.4 |
| 02:20 AM - 02:25 AM | 55.4 | 53.5 | 1.9 | 4.5 | - | 53.9 | 44.2 | 9.7 |
| 02:25 AM - 02:30 AM | 52.6 | 55.6 | -3.0 | 7.0 | - | 48.6 | 46.5 | 2.1 |
| 02:30 AM - 02:35 AM | 56.2 | 56.5 | -0.3 | 7.0 | - | 52.2 | 45.3 | 6.9 |
| 02:35 AM - 02:40 AM | 59.6 | 55.7 | 3.9 | 2.0 | - | 60.6 | 45.4 | 15.2 |
| 02:40 AM - 02:45 AM | 58.1 | 54.7 | 3.4 | 3.0 | - | 58.1 | 46.0 | 12.1 |
| 02:45 AM - 02:50 AM | 57.7 | 52.8 | 4.9 | 1.5 | - | 59.2 | 45.5 | 13.7 |
| 02:50 AM - 02:55 AM | 57.6 | 55.9 | 1.7 | 4.5 | - | 56.1 | 45.8 | 10.3 |
| 02:55 AM - 03:00 AM | 59.8 | 61.6 | -1.8 | 7.0 | - | 55.8 | 46.7 | 9.1 |
| 03:00 AM - 03:05 AM | 60.2 | 58.0 | 2.2 | 4.5 | - | 58.7 | 45.8 | 12.9 |
| 03:05 AM - 03:10 AM | 64.6 | 57.4 | 7.2 | 1.0 | - | 66.6 | 46.6 | 20.0 |
| 03:10 AM - 03:15 AM | 62.0 | 58.9 | 3.1 | 3.0 | - | 62.0 | 46.9 | 15.1 |
| 03:15 AM - 03:20 AM | 62.6 | 55.9 | 6.7 | 1.0 | - | 64.6 | 45.6 | 19.0 |
| 03:20 AM - 03:25 AM | 59.5 | 57.4 | 2.1 | 4.5 | - | 58.0 | 46.4 | 11.6 |
| 03:25 AM - 03:30 AM | 59.7 | 62.0 | -2.3 | 7.0 | - | 55.7 | 47.1 | 8.6 |
| 03:30 AM - 03:35 AM | 68.3 | 57.6 | 10.7 | 0.5 | - | 70.8 | 46.1 | 24.7 |
| 03:35 AM - 03:40 AM | 62.1 | 63.9 | -1.8 | 7.0 | - | 58.1 | 47.5 | 10.6 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338623**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report Number : 2658793-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338623-14
**Parameter** เสียงรบกวน
**Location** บ้านพักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P0733642, 1434006)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 00900073

| เวลา | ระดับเสียง (dB(A)) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (A) เสียงจากแหล่งกำเนิด | (B) เสียงขณะไม่มีการรบกวน | (C) ผลต่างระดับเสียง | (D) ตัวปรับค่า | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางวัน (A-C) | (E) ปรับค่าเสียงจากแหล่งกำเนิด กลางคืน (B+D+3) | (F) เสียงพื้นฐาน | (G) ค่าระดับการรบกวน |
| 03:40 AM - 03:45 AM | 67.8 | 63.4 | 4.4 | 2.0 | - | 68.8 | 49.6 | 19.2 |
| 03:45 AM - 03:50 AM | 65.2 | 61.6 | 3.6 | 2.0 | - | 66.2 | 49.7 | 16.5 |
| 03:50 AM - 03:55 AM | 66.0 | 65.3 | 0.7 | 7.0 | - | 62.0 | 49.9 | 12.1 |
| 03:55 AM - 04:00 AM | 68.8 | 61.2 | 7.6 | 0.5 | - | 71.3 | 49.0 | 22.3 |
| 04:00 AM - 04:05 AM | 64.4 | 62.8 | 1.6 | 4.5 | - | 62.9 | 50.2 | 12.7 |
| 04:05 AM - 04:10 AM | 66.3 | 63.0 | 3.3 | 3.0 | - | 66.3 | 48.1 | 18.2 |
| 04:10 AM - 04:15 AM | 67.0 | 63.7 | 3.3 | 3.0 | - | 67.0 | 49.9 | 17.1 |
| 04:15 AM - 04:20 AM | 66.0 | 63.3 | 2.7 | 3.0 | - | 66.0 | 50.7 | 15.3 |
| 04:20 AM - 04:25 AM | 67.6 | 62.9 | 4.7 | 1.5 | - | 69.1 | 50.1 | 19.0 |
| 04:25 AM - 04:30 AM | 65.8 | 63.5 | 2.3 | 4.5 | - | 64.3 | 51.2 | 13.1 |
| 04:30 AM - 04:35 AM | 66.4 | 62.1 | 4.3 | 2.0 | - | 67.4 | 49.2 | 18.2 |
| 04:35 AM - 04:40 AM | 65.5 | 61.6 | 3.9 | 2.0 | - | 66.5 | 47.5 | 19.0 |
| 04:40 AM - 04:45 AM | 64.1 | 63.2 | 0.9 | 7.0 | - | 60.1 | 49.9 | 10.2 |
| 04:45 AM - 04:50 AM | 65.8 | 61.2 | 4.6 | 1.5 | - | 67.3 | 48.7 | 18.6 |
| 04:50 AM - 04:55 AM | 64.5 | 64.9 | -0.4 | 7.0 | - | 60.5 | 49.9 | 10.6 |
| 04:55 AM - 05:00 AM | 69.2 | 64.4 | 4.8 | 1.5 | - | 70.7 | 46.0 | 24.7 |
| 05:00 AM - 05:05 AM | 67.4 | 61.3 | 6.1 | 1.5 | - | 68.9 | 46.0 | 22.9 |
| 05:05 AM - 05:10 AM | 64.5 | 58.7 | 5.8 | 1.5 | - | 66.0 | 44.7 | 21.3 |
| 05:10 AM - 05:15 AM | 60.8 | 61.6 | -0.8 | 7.0 | - | 56.8 | 48.3 | 8.5 |
| 05:15 AM - 05:20 AM | 64.2 | 57.6 | 6.6 | 1.0 | - | 66.2 | 45.9 | 20.3 |
| 05:20 AM - 05:25 AM | 63.5 | 60.6 | 2.9 | 3.0 | - | 63.5 | 46.2 | 17.3 |
| 05:25 AM - 05:30 AM | 63.5 | 58.8 | 4.7 | 1.5 | - | 65.0 | 45.7 | 19.3 |
| 05:30 AM - 05:35 AM | 61.4 | 56.9 | 4.5 | 1.5 | - | 62.9 | 46.5 | 16.4 |
| 05:35 AM - 05:40 AM | 60.7 | 58.6 | 2.1 | 4.5 | - | 59.2 | 46.4 | 12.8 |
| 05:40 AM - 05:45 AM | 60.5 | 68.7 | -8.2 | 7.0 | - | 56.5 | 48.5 | 8.0 |
| 05:45 AM - 05:50 AM | 62.9 | 55.8 | 7.1 | 1.0 | - | 64.9 | 44.2 | 20.7 |
| 05:50 AM - 05:55 AM | 59.2 | 58.2 | 1.0 | 7.0 | - | 55.2 | 42.6 | 12.6 |
| 05:55 AM - 06:00 AM | 58.5 | 56.6 | 1.9 | 4.5 | - | 57.0 | 43.4 | 13.6 |
| 06:00 AM - 07:00 AM | 62.6 | 59.6 | 3.0 | 3.0 | 59.6 | - | 43.7 | 15.9 |
| 07:00 AM - 08:00 AM | 65.2 | 56.7 | 8.5 | 0.5 | 64.7 | - | 42.9 | 21.8 |
| 08:00 AM - 09:00 AM | 64.9 | 59.6 | 5.3 | 1.5 | 63.4 | - | 47.3 | 16.1 |
| 09:00 AM - 10:00 AM | 64.6 | 62.5 | 2.1 | 4.5 | 60.1 | - | 50.6 | 9.5 |
| ค่ามาตรฐาน | | | | | | | | ≤ 10 |

Reference Method :
1. ISO 1996-1
2. ประกาศกระทรวงอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

มาตรฐาน
1. ประกาศกระทรวงอุตสาหกรรม เรื่อง กำหนดค่าระดับเสียงจากการทดสอบและระดับเสียงที่เกิดจากประกอบกิจการโรงงาน พ.ศ. 2548
2. ประกาศกระทรวงสาธารณสุข เรื่อง กำหนดค่ามาตรฐานผลทางเสียงอันเกิดจากการประกอบกิจการที่เป็นอันตรายต่อสุขภาพ พ.ศ. 2561
ระดับเสียงจากแหล่งกำเนิด ทางราชการวันที่ 12-13 พฤษภาคม 2566
ระดับเสียงพื้นฐานและระดับเสียงขณะไม่มีการรบกวน (Sample No.2338621-14 วันที่ตรวจวัด 12-13 พฤษภาคม 2566)

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658806-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-8
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 58.0 | 81.9 | 41.9 |
| 11:00 AM - 12:00 PM | 57.3 | 81.1 | 40.9 |
| 12:00 PM - 01:00 PM | 57.7 | 82.0 | 42.4 |
| 01:00 PM - 02:00 PM | 61.2 | 87.6 | 43.8 |
| 02:00 PM - 03:00 PM | 62.3 | 83.7 | 49.1 |
| 03:00 PM - 04:00 PM | 64.6 | 96.7 | 50.9 |
| 04:00 PM - 05:00 PM | 61.2 | 84.7 | 49.9 |
| 05:00 PM - 06:00 PM | 58.8 | 85.1 | 46.5 |
| 06:00 PM - 07:00 PM | 58.5 | 85.9 | 45.4 |
| 07:00 PM - 08:00 PM | 57.9 | 86.6 | 46.4 |
| 08:00 PM - 09:00 PM | 55.0 | 81.4 | 43.7 |
| 09:00 PM - 10:00 PM | 55.1 | 87.1 | 42.9 |
| 10:00 PM - 10:05 PM | 61.5 | 67.9 | 42.5 |
| 10:05 PM - 10:10 PM | 65.7 | 81.6 | 43.4 |
| 10:10 PM - 10:15 PM | 48.9 | 67.5 | 42.8 |
| 10:15 PM - 10:20 PM | 49.0 | 66.2 | 42.9 |
| 10:20 PM - 10:25 PM | 45.6 | 60.6 | 42.8 |
| 10:25 PM - 10:30 PM | 57.0 | 80.0 | 42.4 |
| 10:30 PM - 10:35 PM | 47.3 | 64.1 | 42.5 |
| 10:35 PM - 10:40 PM | 45.7 | 61.8 | 42.6 |
| 10:40 PM - 10:45 PM | 45.3 | 62.5 | 42.6 |
| 10:45 PM - 10:50 PM | 49.8 | 64.9 | 42.4 |
| 10:50 PM - 10:55 PM | 55.7 | 79.6 | 42.6 |
| 10:55 PM - 11:00 PM | 48.2 | 66.0 | 42.6 |
| 11:00 PM - 11:05 PM | 43.6 | 47.5 | 42.5 |
| 11:05 PM - 11:10 PM | 49.6 | 67.5 | 42.4 |
| 11:10 PM - 11:15 PM | 46.8 | 66.3 | 42.0 |
| 11:15 PM - 11:20 PM | 51.0 | 71.9 | 41.9 |
| 11:20 PM - 11:25 PM | 42.9 | 46.6 | 41.8 |
| 11:25 PM - 11:30 PM | 46.2 | 63.3 | 41.7 |
| 11:30 PM - 11:35 PM | 42.7 | 56.3 | 41.3 |
| 11:35 PM - 11:40 PM | 52.9 | 70.6 | 40.2 |
| 11:40 PM - 11:45 PM | 41.9 | 45.1 | 40.4 |
| 11:45 PM - 11:50 PM | 42.1 | 45.9 | 41.3 |
| 11:50 PM - 11:55 PM | 41.9 | 45.0 | 41.2 |
| 11:55 PM - 12:00 AM | 41.7 | 44.5 | 41.0 |
| 12:00 AM - 12:05 AM | 41.3 | 44.5 | 39.8 |
| 12:05 AM - 12:10 AM | 44.3 | 61.3 | 41.0 |
| 12:10 AM - 12:15 AM | 42.4 | 45.2 | 41.6 |
| 12:15 AM - 12:20 AM | 46.3 | 65.3 | 41.4 |

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**Approved by**
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658806-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-8
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 44.5 | 62.6 | 40.9 |
| 12:25 AM - 12:30 AM | 48.0 | 62.5 | 41.1 |
| 12:30 AM - 12:35 AM | 42.0 | 63.5 | 40.8 |
| 12:35 AM - 12:40 AM | 42.1 | 52.7 | 40.2 |
| 12:40 AM - 12:45 AM | 44.5 | 57.0 | 40.7 |
| 12:45 AM - 12:50 AM | 53.7 | 73.6 | 40.9 |
| 12:50 AM - 12:55 AM | 54.0 | 76.1 | 40.3 |
| 12:55 AM - 01:00 AM | 47.6 | 61.6 | 40.4 |
| 01:00 AM - 01:05 AM | 49.2 | 72.6 | 40.4 |
| 01:05 AM - 01:10 AM | 51.7 | 73.3 | 40.6 |
| 01:10 AM - 01:15 AM | 53.1 | 72.7 | 40.5 |
| 01:15 AM - 01:20 AM | 47.1 | 64.6 | 40.7 |
| 01:20 AM - 01:25 AM | 52.1 | 73.2 | 41.5 |
| 01:25 AM - 01:30 AM | 44.7 | 56.8 | 40.1 |
| 01:30 AM - 01:35 AM | 48.0 | 65.8 | 41.1 |
| 01:35 AM - 01:40 AM | 53.2 | 74.9 | 41.6 |
| 01:40 AM - 01:45 AM | 47.0 | 64.4 | 41.1 |
| 01:45 AM - 01:50 AM | 55.3 | 72.0 | 40.8 |
| 01:50 AM - 01:55 AM | 53.1 | 70.5 | 41.2 |
| 01:55 AM - 02:00 AM | 55.1 | 75.2 | 41.4 |
| 02:00 AM - 02:05 AM | 46.7 | 61.8 | 41.3 |
| 02:05 AM - 02:10 AM | 49.7 | 66.1 | 42.0 |
| 02:10 AM - 02:15 AM | 49.7 | 64.9 | 41.9 |
| 02:15 AM - 02:20 AM | 59.4 | 78.5 | 43.6 |
| 02:20 AM - 02:25 AM | 48.9 | 66.0 | 42.7 |
| 02:25 AM - 02:30 AM | 57.3 | 72.3 | 49.4 |
| 02:30 AM - 02:35 AM | 58.5 | 78.0 | 49.1 |
| 02:35 AM - 02:40 AM | 51.0 | 69.4 | 44.6 |
| 02:40 AM - 02:45 AM | 54.6 | 68.9 | 44.8 |
| 02:45 AM - 02:50 AM | 58.0 | 75.3 | 45.6 |
| 02:50 AM - 02:55 AM | 54.0 | 69.3 | 44.6 |
| 02:55 AM - 03:00 AM | 58.0 | 76.5 | 44.9 |
| 03:00 AM - 03:05 AM | 53.0 | 70.5 | 43.7 |
| 03:05 AM - 03:10 AM | 53.2 | 66.4 | 43.2 |
| 03:10 AM - 03:15 AM | 54.2 | 69.3 | 43.7 |
| 03:15 AM - 03:20 AM | 55.9 | 70.2 | 44.2 |
| 03:20 AM - 03:25 AM | 55.3 | 70.7 | 44.0 |
| 03:25 AM - 03:30 AM | 61.1 | 79.8 | 45.2 |
| 03:30 AM - 03:35 AM | 58.2 | 76.4 | 44.3 |
| 03:35 AM - 03:40 AM | 59.5 | 77.9 | 45.3 |

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658806-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-8
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 06 - 07, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 59.4 | 80.0 | 44.1 |
| 03:45 AM - 03:50 AM | 58.7 | 72.8 | 45.5 |
| 03:50 AM - 03:55 AM | 56.7 | 69.0 | 44.3 |
| 03:55 AM - 04:00 AM | 61.2 | 81.8 | 44.7 |
| 04:00 AM - 04:05 AM | 60.2 | 73.3 | 44.5 |
| 04:05 AM - 04:10 AM | 58.3 | 71.4 | 45.1 |
| 04:10 AM - 04:15 AM | 58.3 | 72.2 | 45.1 |
| 04:15 AM - 04:20 AM | 63.3 | 82.5 | 44.5 |
| 04:20 AM - 04:25 AM | 57.1 | 70.6 | 44.7 |
| 04:25 AM - 04:30 AM | 61.5 | 79.3 | 44.8 |
| 04:30 AM - 04:35 AM | 57.4 | 74.6 | 42.9 |
| 04:35 AM - 04:40 AM | 65.5 | 86.3 | 44.4 |
| 04:40 AM - 04:45 AM | 57.2 | 72.5 | 43.1 |
| 04:45 AM - 04:50 AM | 57.2 | 71.1 | 42.9 |
| 04:50 AM - 04:55 AM | 57.7 | 75.2 | 42.5 |
| 04:55 AM - 05:00 AM | 59.3 | 73.4 | 44.7 |
| 05:00 AM - 05:05 AM | 56.4 | 68.3 | 42.6 |
| 05:05 AM - 05:10 AM | 57.6 | 69.9 | 47.3 |
| 05:10 AM - 05:15 AM | 61.7 | 80.6 | 48.3 |
| 05:15 AM - 05:20 AM | 59.5 | 75.6 | 41.8 |
| 05:20 AM - 05:25 AM | 58.1 | 71.7 | 42.4 |
| 05:25 AM - 05:30 AM | 57.5 | 69.3 | 44.6 |
| 05:30 AM - 05:35 AM | 63.0 | 86.2 | 43.8 |
| 05:35 AM - 05:40 AM | 60.4 | 79.9 | 44.3 |
| 05:40 AM - 05:45 AM | 60.5 | 75.6 | 44.1 |
| 05:45 AM - 05:50 AM | 57.3 | 70.6 | 42.6 |
| 05:50 AM - 05:55 AM | 59.1 | 79.0 | 40.8 |
| 05:55 AM - 06:00 AM | 60.4 | 75.9 | 44.2 |
| 06:00 AM - 07:00 AM | 58.9 | 79.3 | 43.1 |
| 07:00 AM - 08:00 AM | 59.5 | 86.8 | 42.5 |
| 08:00 AM - 09:00 AM | 60.3 | 88.7 | 43.9 |
| 09:00 AM - 10:00 AM | 59.1 | 83.9 | 42.4 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658807-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-9
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 58.8 | 87.3 | 42.3 |
| 11:00 AM - 12:00 PM | 56.8 | 78.8 | 42.9 |
| 12:00 PM - 01:00 PM | 59.0 | 87.2 | 42.8 |
| 01:00 PM - 02:00 PM | 60.0 | 81.6 | 46.0 |
| 02:00 PM - 03:00 PM | 62.5 | 91.4 | 47.4 |
| 03:00 PM - 04:00 PM | 60.8 | 82.5 | 52.2 |
| 04:00 PM - 05:00 PM | 59.1 | 83.0 | 46.0 |
| 05:00 PM - 06:00 PM | 57.3 | 81.3 | 45.6 |
| 06:00 PM - 07:00 PM | 59.6 | 90.4 | 43.7 |
| 07:00 PM - 08:00 PM | 54.7 | 83.1 | 42.8 |
| 08:00 PM - 09:00 PM | 55.7 | 89.4 | 42.8 |
| 09:00 PM - 10:00 PM | 50.2 | 82.6 | 41.2 |
| 10:00 PM - 10:05 PM | 51.2 | 70.0 | 42.1 |
| 10:05 PM - 10:10 PM | 47.4 | 66.3 | 41.6 |
| 10:10 PM - 10:15 PM | 45.5 | 61.5 | 41.7 |
| 10:15 PM - 10:20 PM | 44.6 | 62.3 | 40.9 |
| 10:20 PM - 10:25 PM | 43.4 | 54.8 | 40.5 |
| 10:25 PM - 10:30 PM | 43.3 | 50.1 | 41.1 |
| 10:30 PM - 10:35 PM | 41.9 | 48.2 | 40.3 |
| 10:35 PM - 10:40 PM | 47.3 | 68.8 | 39.8 |
| 10:40 PM - 10:45 PM | 44.0 | 63.2 | 41.1 |
| 10:45 PM - 10:50 PM | 48.5 | 67.7 | 39.8 |
| 10:50 PM - 10:55 PM | 42.9 | 50.7 | 40.6 |
| 10:55 PM - 11:00 PM | 45.5 | 63.9 | 41.0 |
| 11:00 PM - 11:05 PM | 46.1 | 60.9 | 41.1 |
| 11:05 PM - 11:10 PM | 45.7 | 61.3 | 40.6 |
| 11:10 PM - 11:15 PM | 41.6 | 46.0 | 39.9 |
| 11:15 PM - 11:20 PM | 64.1 | 87.3 | 40.6 |
| 11:20 PM - 11:25 PM | 42.8 | 49.5 | 40.5 |
| 11:25 PM - 11:30 PM | 41.6 | 44.9 | 40.1 |
| 11:30 PM - 11:35 PM | 50.3 | 71.0 | 40.5 |
| 11:35 PM - 11:40 PM | 49.6 | 69.4 | 40.9 |
| 11:40 PM - 11:45 PM | 42.4 | 48.1 | 40.6 |
| 11:45 PM - 11:50 PM | 41.6 | 46.9 | 40.0 |
| 11:50 PM - 11:55 PM | 41.9 | 45.8 | 40.1 |
| 11:55 PM - 12:00 AM | 46.0 | 61.9 | 41.2 |
| 12:00 AM - 12:05 AM | 42.7 | 48.2 | 40.7 |
| 12:05 AM - 12:10 AM | 42.6 | 47.2 | 40.9 |
| 12:10 AM - 12:15 AM | 47.3 | 62.5 | 41.1 |
| 12:15 AM - 12:20 AM | 52.8 | 74.5 | 40.8 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658807-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-9
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 48.0 | 66.4 | 41.1 |
| 12:25 AM - 12:30 AM | 43.3 | 53.4 | 41.4 |
| 12:30 AM - 12:35 AM | 58.4 | 67.2 | 41.1 |
| 12:35 AM - 12:40 AM | 47.8 | 64.7 | 41.0 |
| 12:40 AM - 12:45 AM | 50.1 | 72.9 | 40.7 |
| 12:45 AM - 12:50 AM | 45.3 | 66.1 | 38.7 |
| 12:50 AM - 12:55 AM | 45.9 | 63.0 | 39.4 |
| 12:55 AM - 01:00 AM | 42.7 | 51.5 | 40.6 |
| 01:00 AM - 01:05 AM | 53.8 | 70.8 | 42.8 |
| 01:05 AM - 01:10 AM | 56.9 | 76.5 | 48.1 |
| 01:10 AM - 01:15 AM | 54.8 | 69.0 | 41.3 |
| 01:15 AM - 01:20 AM | 51.3 | 71.4 | 40.5 |
| 01:20 AM - 01:25 AM | 41.1 | 51.5 | 39.6 |
| 01:25 AM - 01:30 AM | 46.4 | 60.1 | 40.6 |
| 01:30 AM - 01:35 AM | 42.9 | 56.5 | 40.1 |
| 01:35 AM - 01:40 AM | 53.3 | 74.2 | 40.1 |
| 01:40 AM - 01:45 AM | 52.7 | 70.6 | 40.6 |
| 01:45 AM - 01:50 AM | 52.9 | 72.9 | 40.1 |
| 01:50 AM - 01:55 AM | 52.9 | 70.3 | 40.6 |
| 01:55 AM - 02:00 AM | 52.2 | 71.6 | 40.7 |
| 02:00 AM - 02:05 AM | 48.3 | 65.0 | 40.5 |
| 02:05 AM - 02:10 AM | 48.6 | 66.4 | 41.7 |
| 02:10 AM - 02:15 AM | 53.6 | 68.1 | 41.9 |
| 02:15 AM - 02:20 AM | 54.3 | 71.1 | 42.2 |
| 02:20 AM - 02:25 AM | 53.0 | 71.7 | 41.2 |
| 02:25 AM - 02:30 AM | 53.8 | 68.7 | 42.8 |
| 02:30 AM - 02:35 AM | 60.5 | 67.8 | 57.6 |
| 02:35 AM - 02:40 AM | 60.7 | 71.3 | 50.7 |
| 02:40 AM - 02:45 AM | 57.1 | 70.6 | 44.7 |
| 02:45 AM - 02:50 AM | 60.5 | 80.7 | 43.6 |
| 02:50 AM - 02:55 AM | 54.4 | 67.2 | 43.7 |
| 02:55 AM - 03:00 AM | 59.4 | 79.4 | 45.9 |
| 03:00 AM - 03:05 AM | 60.5 | 75.8 | 45.6 |
| 03:05 AM - 03:10 AM | 60.1 | 75.4 | 45.4 |
| 03:10 AM - 03:15 AM | 63.0 | 85.4 | 46.8 |
| 03:15 AM - 03:20 AM | 58.2 | 70.3 | 46.0 |
| 03:20 AM - 03:25 AM | 59.6 | 71.4 | 47.0 |
| 03:25 AM - 03:30 AM | 62.0 | 78.0 | 47.0 |
| 03:30 AM - 03:35 AM | 60.3 | 70.1 | 51.1 |
| 03:35 AM - 03:40 AM | 61.9 | 73.0 | 52.0 |

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of the report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

**Approved by**
Wilawan Borirak
Manager

# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658807-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-9
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 07 - 08, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 60.2 | 71.2 | 47.4 |
| 03:45 AM - 03:50 AM | 61.9 | 71.9 | 51.6 |
| 03:50 AM - 03:55 AM | 62.7 | 78.5 | 46.4 |
| 03:55 AM - 04:00 AM | 62.7 | 73.4 | 49.6 |
| 04:00 AM - 04:05 AM | 63.7 | 79.2 | 50.6 |
| 04:05 AM - 04:10 AM | 64.8 | 84.4 | 49.2 |
| 04:10 AM - 04:15 AM | 66.3 | 83.6 | 53.3 |
| 04:15 AM - 04:20 AM | 65.1 | 82.4 | 55.4 |
| 04:20 AM - 04:25 AM | 65.1 | 78.9 | 55.3 |
| 04:25 AM - 04:30 AM | 64.7 | 81.2 | 53.8 |
| 04:30 AM - 04:35 AM | 62.8 | 72.7 | 48.1 |
| 04:35 AM - 04:40 AM | 65.0 | 79.0 | 52.9 |
| 04:40 AM - 04:45 AM | 63.9 | 76.9 | 53.8 |
| 04:45 AM - 04:50 AM | 64.0 | 82.8 | 53.2 |
| 04:50 AM - 04:55 AM | 63.2 | 77.6 | 52.7 |
| 04:55 AM - 05:00 AM | 68.5 | 86.7 | 54.3 |
| 05:00 AM - 05:05 AM | 60.4 | 75.0 | 48.2 |
| 05:05 AM - 05:10 AM | 60.9 | 77.3 | 45.9 |
| 05:10 AM - 05:15 AM | 57.3 | 69.1 | 46.2 |
| 05:15 AM - 05:20 AM | 59.5 | 76.9 | 46.6 |
| 05:20 AM - 05:25 AM | 60.2 | 72.1 | 48.7 |
| 05:25 AM - 05:30 AM | 62.1 | 84.9 | 47.4 |
| 05:30 AM - 05:35 AM | 61.5 | 81.1 | 47.4 |
| 05:35 AM - 05:40 AM | 58.1 | 74.8 | 42.3 |
| 05:40 AM - 05:45 AM | 61.0 | 78.9 | 43.9 |
| 05:45 AM - 05:50 AM | 56.8 | 73.2 | 42.6 |
| 05:50 AM - 05:55 AM | 59.1 | 77.3 | 42.6 |
| 05:55 AM - 06:00 AM | 58.3 | 72.9 | 43.9 |
| 06:00 AM - 07:00 AM | 60.2 | 86.3 | 44.0 |
| 07:00 AM - 08:00 AM | 58.6 | 85.5 | 43.9 |
| 08:00 AM - 09:00 AM | 60.8 | 85.7 | 46.7 |
| 09:00 AM - 10:00 AM | 60.8 | 86.1 | 45.4 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Approved by
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658808-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-10
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 58.1 | 78.3 | 46.9 |
| 11:00 AM - 12:00 PM | 60.2 | 86.6 | 45.7 |
| 12:00 PM - 01:00 PM | 60.9 | 86.8 | 44.2 |
| 01:00 PM - 02:00 PM | 58.6 | 78.2 | 44.9 |
| 02:00 PM - 03:00 PM | 62.8 | 89.1 | 49.6 |
| 03:00 PM - 04:00 PM | 60.9 | 83.1 | 51.2 |
| 04:00 PM - 05:00 PM | 60.3 | 81.5 | 46.3 |
| 05:00 PM - 06:00 PM | 59.7 | 80.1 | 46.4 |
| 06:00 PM - 07:00 PM | 57.0 | 82.9 | 44.0 |
| 07:00 PM - 08:00 PM | 53.8 | 74.3 | 42.4 |
| 08:00 PM - 09:00 PM | 57.4 | 91.9 | 43.9 |
| 09:00 PM - 10:00 PM | 49.1 | 70.0 | 43.3 |
| 10:00 PM - 10:05 PM | 56.5 | 75.1 | 43.8 |
| 10:05 PM - 10:10 PM | 47.9 | 65.8 | 42.8 |
| 10:10 PM - 10:15 PM | 55.2 | 79.0 | 43.0 |
| 10:15 PM - 10:20 PM | 45.3 | 49.4 | 43.5 |
| 10:20 PM - 10:25 PM | 49.6 | 67.1 | 43.3 |
| 10:25 PM - 10:30 PM | 45.2 | 49.1 | 43.3 |
| 10:30 PM - 10:35 PM | 45.1 | 48.8 | 43.0 |
| 10:35 PM - 10:40 PM | 44.3 | 48.8 | 42.5 |
| 10:40 PM - 10:45 PM | 50.9 | 70.3 | 42.3 |
| 10:45 PM - 10:50 PM | 47.0 | 67.1 | 42.6 |
| 10:50 PM - 10:55 PM | 43.7 | 47.7 | 42.0 |
| 10:55 PM - 11:00 PM | 49.6 | 68.3 | 41.7 |
| 11:00 PM - 11:05 PM | 43.5 | 48.7 | 41.6 |
| 11:05 PM - 11:10 PM | 43.9 | 48.2 | 42.2 |
| 11:10 PM - 11:15 PM | 43.2 | 48.8 | 41.9 |
| 11:15 PM - 11:20 PM | 43.2 | 46.5 | 42.0 |
| 11:20 PM - 11:25 PM | 42.9 | 45.8 | 41.7 |
| 11:25 PM - 11:30 PM | 48.1 | 67.8 | 39.9 |
| 11:30 PM - 11:35 PM | 44.1 | 63.7 | 39.5 |
| 11:35 PM - 11:40 PM | 40.1 | 43.1 | 39.0 |
| 11:40 PM - 11:45 PM | 45.8 | 62.7 | 39.5 |
| 11:45 PM - 11:50 PM | 45.4 | 62.6 | 39.6 |
| 11:50 PM - 11:55 PM | 40.2 | 48.9 | 38.6 |
| 11:55 PM - 12:00 AM | 39.9 | 44.0 | 38.7 |
| 12:00 AM - 12:05 AM | 55.9 | 76.0 | 38.8 |
| 12:05 AM - 12:10 AM | 39.5 | 47.4 | 38.4 |
| 12:10 AM - 12:15 AM | 58.8 | 83.3 | 38.2 |
| 12:15 AM - 12:20 AM | 52.3 | 71.4 | 38.0 |

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Approved by
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658808-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-10
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 43.3 | 62.6 | 38.2 |
| 12:25 AM - 12:30 AM | 46.7 | 65.4 | 38.2 |
| 12:30 AM - 12:35 AM | 46.5 | 65.6 | 38.1 |
| 12:35 AM - 12:40 AM | 39.5 | 44.2 | 38.4 |
| 12:40 AM - 12:45 AM | 53.2 | 71.9 | 39.6 |
| 12:45 AM - 12:50 AM | 47.0 | 65.8 | 38.8 |
| 12:50 AM - 12:55 AM | 56.5 | 80.0 | 38.4 |
| 12:55 AM - 01:00 AM | 46.2 | 63.8 | 37.7 |
| 01:00 AM - 01:05 AM | 40.8 | 53.3 | 38.1 |
| 01:05 AM - 01:10 AM | 50.0 | 70.3 | 38.1 |
| 01:10 AM - 01:15 AM | 42.4 | 60.5 | 37.1 |
| 01:15 AM - 01:20 AM | 42.9 | 59.3 | 37.6 |
| 01:20 AM - 01:25 AM | 50.4 | 67.8 | 37.2 |
| 01:25 AM - 01:30 AM | 52.4 | 73.6 | 37.2 |
| 01:30 AM - 01:35 AM | 49.7 | 68.2 | 37.9 |
| 01:35 AM - 01:40 AM | 43.4 | 58.7 | 37.2 |
| 01:40 AM - 01:45 AM | 43.4 | 62.4 | 37.7 |
| 01:45 AM - 01:50 AM | 47.0 | 67.7 | 38.0 |
| 01:50 AM - 01:55 AM | 60.3 | 82.9 | 39.8 |
| 01:55 AM - 02:00 AM | 51.8 | 69.8 | 38.4 |
| 02:00 AM - 02:05 AM | 47.9 | 62.5 | 38.8 |
| 02:05 AM - 02:10 AM | 53.9 | 74.0 | 40.4 |
| 02:10 AM - 02:15 AM | 51.2 | 66.9 | 40.6 |
| 02:15 AM - 02:20 AM | 54.0 | 70.2 | 40.0 |
| 02:20 AM - 02:25 AM | 51.0 | 65.3 | 40.2 |
| 02:25 AM - 02:30 AM | 54.8 | 71.6 | 42.3 |
| 02:30 AM - 02:35 AM | 59.0 | 74.6 | 55.4 |
| 02:35 AM - 02:40 AM | 59.6 | 72.2 | 52.1 |
| 02:40 AM - 02:45 AM | 58.5 | 78.3 | 42.5 |
| 02:45 AM - 02:50 AM | 51.7 | 66.4 | 42.4 |
| 02:50 AM - 02:55 AM | 55.7 | 70.3 | 43.6 |
| 02:55 AM - 03:00 AM | 57.4 | 76.9 | 43.4 |
| 03:00 AM - 03:05 AM | 55.5 | 70.0 | 43.3 |
| 03:05 AM - 03:10 AM | 59.0 | 75.0 | 42.3 |
| 03:10 AM - 03:15 AM | 59.3 | 75.7 | 43.9 |
| 03:15 AM - 03:20 AM | 61.3 | 79.7 | 44.6 |
| 03:20 AM - 03:25 AM | 61.5 | 78.0 | 46.0 |
| 03:25 AM - 03:30 AM | 61.5 | 71.9 | 52.6 |
| 03:30 AM - 03:35 AM | 63.0 | 80.9 | 48.5 |
| 03:35 AM - 03:40 AM | 62.0 | 78.8 | 45.5 |

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Approved by
Wilawan Borirak
Manager



# Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658808-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-10
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 08 - 09, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 62.2 | 75.9 | 51.9 |
| 03:45 AM - 03:50 AM | 63.3 | 79.4 | 48.6 |
| 03:50 AM - 03:55 AM | 60.9 | 73.2 | 44.7 |
| 03:55 AM - 04:00 AM | 62.0 | 72.8 | 47.9 |
| 04:00 AM - 04:05 AM | 63.6 | 79.2 | 51.7 |
| 04:05 AM - 04:10 AM | 64.1 | 82.6 | 52.0 |
| 04:10 AM - 04:15 AM | 64.0 | 74.8 | 52.6 |
| 04:15 AM - 04:20 AM | 66.5 | 89.0 | 51.1 |
| 04:20 AM - 04:25 AM | 64.3 | 75.9 | 52.0 |
| 04:25 AM - 04:30 AM | 65.4 | 79.7 | 52.8 |
| 04:30 AM - 04:35 AM | 64.0 | 80.7 | 49.8 |
| 04:35 AM - 04:40 AM | 62.7 | 72.0 | 49.7 |
| 04:40 AM - 04:45 AM | 64.9 | 83.5 | 51.1 |
| 04:45 AM - 04:50 AM | 68.2 | 88.2 | 50.7 |
| 04:50 AM - 04:55 AM | 61.2 | 75.3 | 44.6 |
| 04:55 AM - 05:00 AM | 60.7 | 77.7 | 46.2 |
| 05:00 AM - 05:05 AM | 60.4 | 76.3 | 45.0 |
| 05:05 AM - 05:10 AM | 62.7 | 78.0 | 45.5 |
| 05:10 AM - 05:15 AM | 67.4 | 94.9 | 45.5 |
| 05:15 AM - 05:20 AM | 64.6 | 82.7 | 46.2 |
| 05:20 AM - 05:25 AM | 61.2 | 77.3 | 47.1 |
| 05:25 AM - 05:30 AM | 63.0 | 82.5 | 45.0 |
| 05:30 AM - 05:35 AM | 58.5 | 72.0 | 44.9 |
| 05:35 AM - 05:40 AM | 57.9 | 74.1 | 44.6 |
| 05:40 AM - 05:45 AM | 56.5 | 71.3 | 44.5 |
| 05:45 AM - 05:50 AM | 57.9 | 75.6 | 45.5 |
| 05:50 AM - 05:55 AM | 61.6 | 75.6 | 45.1 |
| 05:55 AM - 06:00 AM | 59.3 | 79.5 | 43.0 |
| 06:00 AM - 07:00 AM | 58.5 | 83.7 | 43.2 |
| 07:00 AM - 08:00 AM | 58.4 | 84.2 | 43.3 |
| 08:00 AM - 09:00 AM | 59.1 | 80.9 | 45.8 |
| 09:00 AM - 10:00 AM | 60.8 | 86.6 | 44.0 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Approved by
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658809-1

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-11
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 58.1 | 81.3 | 44.9 |
| 11:00 AM - 12:00 PM | 59.2 | 84.8 | 46.4 |
| 12:00 PM - 01:00 PM | 59.8 | 85.0 | 46.2 |
| 01:00 PM - 02:00 PM | 59.9 | 82.4 | 45.1 |
| 02:00 PM - 03:00 PM | 62.2 | 82.4 | 48.0 |
| 03:00 PM - 04:00 PM | 61.8 | 83.0 | 51.3 |
| 04:00 PM - 05:00 PM | 59.8 | 79.5 | 47.2 |
| 05:00 PM - 06:00 PM | 59.9 | 80.5 | 46.4 |
| 06:00 PM - 07:00 PM | 56.6 | 78.2 | 43.0 |
| 07:00 PM - 08:00 PM | 54.8 | 78.9 | 40.6 |
| 08:00 PM - 09:00 PM | 51.9 | 82.7 | 41.1 |
| 09:00 PM - 10:00 PM | 52.5 | 78.8 | 47.4 |
| 10:00 PM - 10:05 PM | 54.7 | 70.1 | 50.4 |
| 10:05 PM - 10:10 PM | 48.6 | 64.1 | 43.2 |
| 10:10 PM - 10:15 PM | 56.2 | 75.5 | 41.4 |
| 10:15 PM - 10:20 PM | 47.2 | 64.8 | 39.2 |
| 10:20 PM - 10:25 PM | 40.5 | 54.3 | 38.5 |
| 10:25 PM - 10:30 PM | 46.0 | 64.8 | 38.9 |
| 10:30 PM - 10:35 PM | 53.2 | 71.7 | 39.1 |
| 10:35 PM - 10:40 PM | 40.8 | 51.8 | 38.1 |
| 10:40 PM - 10:45 PM | 40.0 | 51.3 | 38.1 |
| 10:45 PM - 10:50 PM | 52.1 | 79.9 | 38.5 |
| 10:50 PM - 10:55 PM | 56.3 | 78.9 | 38.6 |
| 10:55 PM - 11:00 PM | 40.6 | 47.8 | 39.3 |
| 11:00 PM - 11:05 PM | 41.6 | 53.1 | 39.4 |
| 11:05 PM - 11:10 PM | 44.7 | 60.5 | 39.7 |
| 11:10 PM - 11:15 PM | 40.3 | 45.6 | 39.4 |
| 11:15 PM - 11:20 PM | 53.6 | 75.2 | 39.5 |
| 11:20 PM - 11:25 PM | 41.4 | 45.8 | 39.9 |
| 11:25 PM - 11:30 PM | 44.4 | 54.9 | 40.2 |
| 11:30 PM - 11:35 PM | 50.1 | 72.3 | 41.2 |
| 11:35 PM - 11:40 PM | 50.2 | 70.2 | 40.6 |
| 11:40 PM - 11:45 PM | 46.5 | 66.2 | 40.5 |
| 11:45 PM - 11:50 PM | 43.7 | 52.0 | 40.9 |
| 11:50 PM - 11:55 PM | 44.6 | 61.2 | 40.6 |
| 11:55 PM - 12:00 AM | 47.1 | 63.4 | 41.1 |
| 12:00 AM - 12:05 AM | 44.4 | 61.4 | 40.8 |
| 12:05 AM - 12:10 AM | 45.3 | 50.7 | 42.0 |
| 12:10 AM - 12:15 AM | 46.4 | 65.9 | 39.7 |
| 12:15 AM - 12:20 AM | 47.5 | 67.5 | 39.1 |

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658809-1

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-11
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 41.5 | 52.0 | 39.7 |
| 12:25 AM - 12:30 AM | 44.9 | 59.9 | 39.7 |
| 12:30 AM - 12:35 AM | 48.4 | 66.7 | 39.5 |
| 12:35 AM - 12:40 AM | 55.2 | 75.5 | 40.9 |
| 12:40 AM - 12:45 AM | 49.9 | 67.2 | 44.9 |
| 12:45 AM - 12:50 AM | 53.6 | 76.5 | 45.4 |
| 12:50 AM - 12:55 AM | 57.5 | 65.6 | 55.4 |
| 12:55 AM - 01:00 AM | 59.6 | 72.6 | 58.3 |
| 01:00 AM - 01:05 AM | 59.8 | 70.3 | 58.7 |
| 01:05 AM - 01:10 AM | 60.0 | 69.1 | 58.9 |
| 01:10 AM - 01:15 AM | 59.8 | 67.7 | 58.9 |
| 01:15 AM - 01:20 AM | 58.9 | 71.9 | 57.1 |
| 01:20 AM - 01:25 AM | 57.5 | 68.3 | 55.3 |
| 01:25 AM - 01:30 AM | 56.9 | 70.0 | 54.8 |
| 01:30 AM - 01:35 AM | 56.1 | 60.5 | 55.3 |
| 01:35 AM - 01:40 AM | 55.3 | 61.5 | 54.4 |
| 01:40 AM - 01:45 AM | 55.2 | 65.6 | 54.4 |
| 01:45 AM - 01:50 AM | 58.2 | 73.5 | 54.6 |
| 01:50 AM - 01:55 AM | 63.8 | 85.8 | 55.0 |
| 01:55 AM - 02:00 AM | 57.6 | 70.4 | 55.9 |
| 02:00 AM - 02:05 AM | 60.5 | 74.7 | 56.8 |
| 02:05 AM - 02:10 AM | 59.1 | 71.9 | 56.8 |
| 02:10 AM - 02:15 AM | 56.5 | 67.9 | 54.9 |
| 02:15 AM - 02:20 AM | 57.1 | 72.4 | 52.7 |
| 02:20 AM - 02:25 AM | 55.2 | 69.7 | 52.2 |
| 02:25 AM - 02:30 AM | 57.3 | 71.6 | 53.0 |
| 02:30 AM - 02:35 AM | 57.1 | 71.4 | 53.5 |
| 02:35 AM - 02:40 AM | 60.0 | 68.3 | 57.1 |
| 02:40 AM - 02:45 AM | 59.5 | 71.4 | 56.7 |
| 02:45 AM - 02:50 AM | 59.8 | 69.1 | 55.9 |
| 02:50 AM - 02:55 AM | 62.1 | 75.7 | 56.7 |
| 02:55 AM - 03:00 AM | 59.3 | 70.7 | 56.8 |
| 03:00 AM - 03:05 AM | 62.2 | 78.6 | 55.4 |
| 03:05 AM - 03:10 AM | 63.4 | 79.1 | 54.8 |
| 03:10 AM - 03:15 AM | 60.7 | 75.1 | 54.5 |
| 03:15 AM - 03:20 AM | 60.5 | 74.9 | 53.6 |
| 03:20 AM - 03:25 AM | 62.6 | 74.4 | 53.6 |
| 03:25 AM - 03:30 AM | 63.6 | 79.6 | 52.4 |
| 03:30 AM - 03:35 AM | 62.8 | 75.2 | 50.9 |
| 03:35 AM - 03:40 AM | 63.5 | 76.1 | 52.9 |

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**Approved by**
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658809-1

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-11
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 09 - 10, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 62.5 | 74.4 | 53.2 |
| 03:45 AM - 03:50 AM | 64.8 | 74.5 | 56.0 |
| 03:50 AM - 03:55 AM | 64.8 | 74.5 | 55.8 |
| 03:55 AM - 04:00 AM | 65.9 | 86.1 | 55.2 |
| 04:00 AM - 04:05 AM | 65.0 | 75.7 | 54.5 |
| 04:05 AM - 04:10 AM | 65.9 | 80.9 | 55.9 |
| 04:10 AM - 04:15 AM | 64.4 | 71.9 | 54.6 |
| 04:15 AM - 04:20 AM | 67.0 | 81.1 | 54.7 |
| 04:20 AM - 04:25 AM | 65.9 | 76.0 | 54.0 |
| 04:25 AM - 04:30 AM | 64.7 | 73.3 | 53.9 |
| 04:30 AM - 04:35 AM | 65.2 | 75.3 | 54.9 |
| 04:35 AM - 04:40 AM | 64.6 | 77.2 | 53.0 |
| 04:40 AM - 04:45 AM | 65.7 | 76.5 | 54.9 |
| 04:45 AM - 04:50 AM | 64.2 | 74.0 | 54.0 |
| 04:50 AM - 04:55 AM | 66.8 | 85.5 | 54.3 |
| 04:55 AM - 05:00 AM | 65.6 | 84.5 | 51.8 |
| 05:00 AM - 05:05 AM | 64.0 | 84.4 | 48.2 |
| 05:05 AM - 05:10 AM | 60.3 | 71.8 | 48.7 |
| 05:10 AM - 05:15 AM | 61.3 | 74.7 | 47.6 |
| 05:15 AM - 05:20 AM | 61.4 | 73.1 | 48.6 |
| 05:20 AM - 05:25 AM | 60.9 | 73.0 | 48.4 |
| 05:25 AM - 05:30 AM | 60.9 | 73.4 | 47.0 |
| 05:30 AM - 05:35 AM | 61.7 | 72.6 | 48.3 |
| 05:35 AM - 05:40 AM | 60.4 | 70.9 | 52.4 |
| 05:40 AM - 05:45 AM | 61.2 | 73.2 | 52.2 |
| 05:45 AM - 05:50 AM | 61.5 | 75.9 | 52.3 |
| 05:50 AM - 05:55 AM | 60.0 | 74.9 | 45.0 |
| 05:55 AM - 06:00 AM | 61.9 | 83.1 | 44.2 |
| 06:00 AM - 07:00 AM | 59.6 | 88.9 | 44.8 |
| 07:00 AM - 08:00 AM | 59.0 | 82.5 | 44.9 |
| 08:00 AM - 09:00 AM | 60.6 | 82.1 | 46.7 |
| 09:00 AM - 10:00 AM | 59.6 | 83.3 | 45.5 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658810-1

**P/O** :
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-12
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 59.9 | 91.2 | 44.2 |
| 11:00 AM - 12:00 PM | 58.2 | 83.4 | 43.6 |
| 12:00 PM - 01:00 PM | 59.9 | 85.5 | 45.2 |
| 01:00 PM - 02:00 PM | 64.2 | 87.4 | 57.6 |
| 02:00 PM - 03:00 PM | 64.6 | 85.1 | 52.6 |
| 03:00 PM - 04:00 PM | 62.5 | 86.9 | 51.4 |
| 04:00 PM - 05:00 PM | 60.5 | 82.1 | 48.1 |
| 05:00 PM - 06:00 PM | 60.8 | 89.8 | 48.2 |
| 06:00 PM - 07:00 PM | 57.0 | 80.9 | 44.9 |
| 07:00 PM - 08:00 PM | 54.3 | 77.9 | 45.8 |
| 08:00 PM - 09:00 PM | 55.2 | 85.1 | 43.2 |
| 09:00 PM - 10:00 PM | 53.6 | 78.6 | 44.2 |
| 10:00 PM - 10:05 PM | 48.6 | 61.8 | 42.7 |
| 10:05 PM - 10:10 PM | 60.1 | 86.6 | 42.6 |
| 10:10 PM - 10:15 PM | 50.9 | 69.5 | 42.4 |
| 10:15 PM - 10:20 PM | 53.0 | 64.6 | 43.1 |
| 10:20 PM - 10:25 PM | 45.3 | 60.3 | 42.7 |
| 10:25 PM - 10:30 PM | 49.9 | 70.6 | 43.0 |
| 10:30 PM - 10:35 PM | 53.1 | 70.1 | 43.1 |
| 10:35 PM - 10:40 PM | 48.1 | 61.2 | 43.1 |
| 10:40 PM - 10:45 PM | 51.8 | 73.0 | 42.9 |
| 10:45 PM - 10:50 PM | 46.2 | 62.8 | 43.3 |
| 10:50 PM - 10:55 PM | 52.5 | 63.5 | 43.6 |
| 10:55 PM - 11:00 PM | 50.6 | 61.6 | 43.6 |
| 11:00 PM - 11:05 PM | 55.3 | 65.5 | 44.0 |
| 11:05 PM - 11:10 PM | 55.7 | 68.4 | 44.3 |
| 11:10 PM - 11:15 PM | 51.1 | 61.3 | 43.5 |
| 11:15 PM - 11:20 PM | 55.9 | 65.3 | 43.7 |
| 11:20 PM - 11:25 PM | 56.5 | 62.6 | 45.2 |
| 11:25 PM - 11:30 PM | 57.0 | 66.7 | 43.8 |
| 11:30 PM - 11:35 PM | 57.6 | 67.3 | 46.8 |
| 11:35 PM - 11:40 PM | 56.6 | 62.6 | 45.1 |
| 11:40 PM - 11:45 PM | 58.1 | 63.4 | 47.8 |
| 11:45 PM - 11:50 PM | 58.5 | 67.1 | 51.1 |
| 11:50 PM - 11:55 PM | 57.8 | 66.9 | 49.3 |
| 11:55 PM - 12:00 AM | 57.6 | 67.3 | 50.5 |
| 12:00 AM - 12:05 AM | 57.8 | 63.3 | 50.1 |
| 12:05 AM - 12:10 AM | 57.3 | 65.3 | 50.0 |
| 12:10 AM - 12:15 AM | 54.7 | 62.2 | 45.1 |
| 12:15 AM - 12:20 AM | 56.6 | 62.5 | 46.4 |

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**Approved by**
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658810-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-12
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 54.9 | 68.0 | 44.4 |
| 12:25 AM - 12:30 AM | 50.6 | 68.0 | 42.5 |
| 12:30 AM - 12:35 AM | 53.7 | 73.1 | 42.5 |
| 12:35 AM - 12:40 AM | 51.4 | 64.9 | 41.0 |
| 12:40 AM - 12:45 AM | 50.7 | 63.6 | 42.1 |
| 12:45 AM - 12:50 AM | 49.9 | 61.4 | 42.0 |
| 12:50 AM - 12:55 AM | 43.3 | 52.9 | 41.6 |
| 12:55 AM - 01:00 AM | 53.0 | 73.4 | 42.1 |
| 01:00 AM - 01:05 AM | 51.2 | 74.0 | 42.1 |
| 01:05 AM - 01:10 AM | 47.2 | 63.3 | 42.8 |
| 01:10 AM - 01:15 AM | 50.7 | 65.5 | 43.5 |
| 01:15 AM - 01:20 AM | 51.3 | 65.9 | 42.6 |
| 01:20 AM - 01:25 AM | 49.9 | 68.2 | 42.9 |
| 01:25 AM - 01:30 AM | 43.4 | 55.4 | 42.0 |
| 01:30 AM - 01:35 AM | 49.0 | 69.2 | 41.6 |
| 01:35 AM - 01:40 AM | 44.9 | 57.1 | 41.3 |
| 01:40 AM - 01:45 AM | 48.6 | 64.6 | 41.6 |
| 01:45 AM - 01:50 AM | 48.3 | 66.1 | 41.4 |
| 01:50 AM - 01:55 AM | 49.1 | 68.4 | 41.1 |
| 01:55 AM - 02:00 AM | 50.9 | 69.2 | 41.3 |
| 02:00 AM - 02:05 AM | 51.0 | 66.9 | 41.8 |
| 02:05 AM - 02:10 AM | 49.9 | 66.7 | 42.0 |
| 02:10 AM - 02:15 AM | 53.4 | 69.2 | 42.0 |
| 02:15 AM - 02:20 AM | 49.4 | 65.9 | 42.0 |
| 02:20 AM - 02:25 AM | 54.3 | 68.4 | 43.1 |
| 02:25 AM - 02:30 AM | 59.4 | 71.5 | 52.7 |
| 02:30 AM - 02:35 AM | 56.0 | 70.5 | 46.9 |
| 02:35 AM - 02:40 AM | 56.9 | 74.0 | 43.1 |
| 02:40 AM - 02:45 AM | 55.8 | 74.3 | 44.9 |
| 02:45 AM - 02:50 AM | 59.3 | 77.3 | 43.5 |
| 02:50 AM - 02:55 AM | 58.5 | 77.3 | 44.2 |
| 02:55 AM - 03:00 AM | 55.8 | 69.5 | 43.8 |
| 03:00 AM - 03:05 AM | 63.0 | 80.6 | 43.9 |
| 03:05 AM - 03:10 AM | 55.8 | 70.3 | 43.8 |
| 03:10 AM - 03:15 AM | 61.0 | 76.1 | 44.3 |
| 03:15 AM - 03:20 AM | 61.1 | 78.5 | 44.9 |
| 03:20 AM - 03:25 AM | 60.3 | 73.8 | 45.2 |
| 03:25 AM - 03:30 AM | 60.9 | 73.1 | 48.8 |
| 03:30 AM - 03:35 AM | 60.1 | 69.4 | 45.4 |
| 03:35 AM - 03:40 AM | 63.0 | 79.8 | 47.8 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658810-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-12
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 10 - 11, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 61.0 | 71.3 | 47.4 |
| 03:45 AM - 03:50 AM | 62.5 | 72.9 | 50.5 |
| 03:50 AM - 03:55 AM | 63.3 | 79.4 | 46.4 |
| 03:55 AM - 04:00 AM | 63.4 | 76.9 | 51.1 |
| 04:00 AM - 04:05 AM | 65.5 | 83.0 | 51.9 |
| 04:05 AM - 04:10 AM | 64.6 | 78.2 | 50.3 |
| 04:10 AM - 04:15 AM | 63.1 | 71.9 | 53.5 |
| 04:15 AM - 04:20 AM | 65.8 | 79.9 | 51.3 |
| 04:20 AM - 04:25 AM | 65.4 | 82.7 | 51.1 |
| 04:25 AM - 04:30 AM | 64.3 | 75.3 | 55.7 |
| 04:30 AM - 04:35 AM | 63.6 | 76.6 | 53.9 |
| 04:35 AM - 04:40 AM | 64.2 | 84.4 | 53.9 |
| 04:40 AM - 04:45 AM | 64.6 | 80.0 | 49.9 |
| 04:45 AM - 04:50 AM | 62.7 | 75.1 | 49.3 |
| 04:50 AM - 04:55 AM | 65.9 | 84.6 | 46.8 |
| 04:55 AM - 05:00 AM | 68.0 | 92.1 | 47.9 |
| 05:00 AM - 05:05 AM | 59.0 | 71.5 | 46.3 |
| 05:05 AM - 05:10 AM | 60.6 | 75.4 | 51.3 |
| 05:10 AM - 05:15 AM | 60.8 | 71.1 | 54.6 |
| 05:15 AM - 05:20 AM | 61.9 | 74.8 | 55.0 |
| 05:20 AM - 05:25 AM | 59.6 | 76.4 | 48.9 |
| 05:25 AM - 05:30 AM | 59.7 | 76.0 | 47.9 |
| 05:30 AM - 05:35 AM | 64.3 | 78.7 | 47.0 |
| 05:35 AM - 05:40 AM | 61.1 | 78.8 | 45.9 |
| 05:40 AM - 05:45 AM | 57.2 | 72.5 | 45.0 |
| 05:45 AM - 05:50 AM | 61.8 | 79.2 | 46.3 |
| 05:50 AM - 05:55 AM | 61.0 | 79.8 | 46.2 |
| 05:55 AM - 06:00 AM | 61.0 | 76.8 | 46.9 |
| 06:00 AM - 07:00 AM | 58.1 | 80.9 | 44.3 |
| 07:00 AM - 08:00 AM | 58.0 | 85.6 | 42.9 |
| 08:00 AM - 09:00 AM | 59.7 | 82.0 | 44.9 |
| 09:00 AM - 10:00 AM | 61.7 | 88.2 | 43.0 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง วิธีการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658811-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-13
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 59.7 | 86.8 | 43.8 |
| 11:00 AM - 12:00 PM | 59.9 | 87.6 | 43.4 |
| 12:00 PM - 01:00 PM | 57.8 | 83.8 | 42.5 |
| 01:00 PM - 02:00 PM | 62.1 | 90.1 | 44.9 |
| 02:00 PM - 03:00 PM | 62.5 | 81.6 | 51.9 |
| 03:00 PM - 04:00 PM | 62.1 | 82.3 | 53.2 |
| 04:00 PM - 05:00 PM | 60.5 | 84.2 | 47.2 |
| 05:00 PM - 06:00 PM | 61.2 | 83.0 | 47.6 |
| 06:00 PM - 07:00 PM | 56.2 | 80.0 | 43.9 |
| 07:00 PM - 08:00 PM | 52.8 | 74.7 | 43.2 |
| 08:00 PM - 09:00 PM | 50.7 | 76.5 | 42.4 |
| 09:00 PM - 10:00 PM | 49.0 | 77.7 | 41.7 |
| 10:00 PM - 10:05 PM | 54.2 | 74.2 | 40.6 |
| 10:05 PM - 10:10 PM | 42.4 | 49.1 | 41.0 |
| 10:10 PM - 10:15 PM | 42.8 | 50.4 | 41.5 |
| 10:15 PM - 10:20 PM | 50.2 | 69.9 | 41.3 |
| 10:20 PM - 10:25 PM | 51.0 | 74.4 | 41.2 |
| 10:25 PM - 10:30 PM | 46.9 | 63.9 | 41.4 |
| 10:30 PM - 10:35 PM | 54.1 | 72.4 | 41.7 |
| 10:35 PM - 10:40 PM | 45.7 | 64.1 | 41.2 |
| 10:40 PM - 10:45 PM | 42.8 | 45.1 | 41.5 |
| 10:45 PM - 10:50 PM | 46.5 | 63.4 | 40.5 |
| 10:50 PM - 10:55 PM | 41.3 | 44.3 | 40.1 |
| 10:55 PM - 11:00 PM | 44.4 | 63.1 | 40.4 |
| 11:00 PM - 11:05 PM | 44.2 | 63.6 | 39.8 |
| 11:05 PM - 11:10 PM | 43.4 | 59.7 | 38.9 |
| 11:10 PM - 11:15 PM | 49.6 | 67.8 | 38.7 |
| 11:15 PM - 11:20 PM | 41.2 | 45.2 | 39.7 |
| 11:20 PM - 11:25 PM | 41.1 | 44.9 | 39.7 |
| 11:25 PM - 11:30 PM | 46.4 | 67.0 | 40.2 |
| 11:30 PM - 11:35 PM | 44.4 | 63.1 | 39.9 |
| 11:35 PM - 11:40 PM | 41.8 | 55.2 | 40.2 |
| 11:40 PM - 11:45 PM | 44.2 | 62.3 | 39.3 |
| 11:45 PM - 11:50 PM | 48.0 | 69.2 | 39.2 |
| 11:50 PM - 11:55 PM | 45.4 | 65.9 | 38.9 |
| 11:55 PM - 12:00 AM | 40.8 | 45.0 | 39.5 |
| 12:00 AM - 12:05 AM | 44.4 | 60.6 | 39.6 |
| 12:05 AM - 12:10 AM | 40.4 | 45.1 | 38.8 |
| 12:10 AM - 12:15 AM | 43.9 | 60.5 | 40.0 |
| 12:15 AM - 12:20 AM | 47.0 | 63.5 | 40.2 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658811-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-13
**Parameter** Noise
**Location** บ้านพักอาศัย หมู่ 2 ซ.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 46.0 | 67.0 | 40.0 |
| 12:25 AM - 12:30 AM | 50.5 | 66.9 | 40.6 |
| 12:30 AM - 12:35 AM | 44.8 | 59.6 | 40.4 |
| 12:35 AM - 12:40 AM | 46.6 | 64.1 | 40.2 |
| 12:40 AM - 12:45 AM | 56.4 | 80.3 | 39.9 |
| 12:45 AM - 12:50 AM | 45.6 | 67.0 | 38.8 |
| 12:50 AM - 12:55 AM | 54.2 | 73.9 | 40.1 |
| 12:55 AM - 01:00 AM | 44.8 | 62.2 | 39.3 |
| 01:00 AM - 01:05 AM | 42.0 | 55.5 | 40.0 |
| 01:05 AM - 01:10 AM | 49.5 | 65.6 | 41.6 |
| 01:10 AM - 01:15 AM | 51.7 | 73.4 | 41.5 |
| 01:15 AM - 01:20 AM | 49.2 | 69.0 | 42.4 |
| 01:20 AM - 01:25 AM | 46.2 | 63.6 | 41.1 |
| 01:25 AM - 01:30 AM | 57.4 | 77.5 | 43.5 |
| 01:30 AM - 01:35 AM | 47.4 | 61.8 | 41.4 |
| 01:35 AM - 01:40 AM | 48.4 | 65.7 | 41.8 |
| 01:40 AM - 01:45 AM | 48.6 | 66.5 | 41.9 |
| 01:45 AM - 01:50 AM | 46.0 | 64.6 | 41.9 |
| 01:50 AM - 01:55 AM | 51.4 | 67.9 | 41.0 |
| 01:55 AM - 02:00 AM | 51.3 | 69.0 | 41.9 |
| 02:00 AM - 02:05 AM | 51.4 | 67.5 | 42.8 |
| 02:05 AM - 02:10 AM | 48.5 | 66.7 | 42.4 |
| 02:10 AM - 02:15 AM | 53.3 | 68.9 | 42.9 |
| 02:15 AM - 02:20 AM | 51.1 | 68.3 | 43.3 |
| 02:20 AM - 02:25 AM | 52.1 | 68.9 | 43.4 |
| 02:25 AM - 02:30 AM | 59.9 | 65.2 | 55.1 |
| 02:30 AM - 02:35 AM | 58.3 | 72.2 | 45.2 |
| 02:35 AM - 02:40 AM | 55.2 | 68.2 | 44.4 |
| 02:40 AM - 02:45 AM | 56.2 | 70.7 | 43.2 |
| 02:45 AM - 02:50 AM | 56.5 | 72.2 | 43.7 |
| 02:50 AM - 02:55 AM | 57.3 | 75.1 | 43.4 |
| 02:55 AM - 03:00 AM | 56.6 | 70.5 | 44.9 |
| 03:00 AM - 03:05 AM | 59.2 | 72.0 | 45.8 |
| 03:05 AM - 03:10 AM | 60.8 | 75.3 | 45.2 |
| 03:10 AM - 03:15 AM | 57.2 | 69.2 | 44.2 |
| 03:15 AM - 03:20 AM | 59.5 | 77.3 | 43.5 |
| 03:20 AM - 03:25 AM | 65.6 | 86.6 | 43.3 |
| 03:25 AM - 03:30 AM | 62.3 | 75.3 | 48.8 |
| 03:30 AM - 03:35 AM | 62.8 | 81.3 | 47.2 |
| 03:35 AM - 03:40 AM | 62.6 | 76.2 | 48.8 |

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Approved by
Wilawan Borirak
Manager

## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658811-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-13
**Parameter** Noise
**Location** บ้านหักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 11 - 12, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 65.1 | 80.2 | 51.3 |
| 03:45 AM - 03:50 AM | 61.9 | 72.6 | 49.5 |
| 03:50 AM - 03:55 AM | 63.8 | 76.5 | 53.4 |
| 03:55 AM - 04:00 AM | 65.1 | 82.3 | 55.2 |
| 04:00 AM - 04:05 AM | 72.6 | 81.1 | 65.2 |
| 04:05 AM - 04:10 AM | 75.5 | 79.9 | 73.2 |
| 04:10 AM - 04:15 AM | 73.1 | 80.7 | 68.4 |
| 04:15 AM - 04:20 AM | 69.9 | 81.7 | 64.8 |
| 04:20 AM - 04:25 AM | 72.2 | 79.4 | 66.5 |
| 04:25 AM - 04:30 AM | 69.7 | 78.7 | 65.4 |
| 04:30 AM - 04:35 AM | 69.8 | 77.4 | 65.3 |
| 04:35 AM - 04:40 AM | 68.7 | 77.2 | 62.5 |
| 04:40 AM - 04:45 AM | 67.0 | 76.8 | 59.7 |
| 04:45 AM - 04:50 AM | 66.9 | 75.0 | 59.5 |
| 04:50 AM - 04:55 AM | 66.1 | 81.0 | 56.3 |
| 04:55 AM - 05:00 AM | 66.1 | 79.1 | 55.3 |
| 05:00 AM - 05:05 AM | 65.0 | 79.2 | 55.3 |
| 05:05 AM - 05:10 AM | 61.1 | 74.2 | 51.1 |
| 05:10 AM - 05:15 AM | 61.7 | 74.7 | 48.3 |
| 05:15 AM - 05:20 AM | 60.9 | 77.5 | 47.9 |
| 05:20 AM - 05:25 AM | 61.7 | 74.8 | 50.0 |
| 05:25 AM - 05:30 AM | 60.4 | 78.6 | 49.4 |
| 05:30 AM - 05:35 AM | 59.8 | 73.9 | 48.2 |
| 05:35 AM - 05:40 AM | 61.9 | 77.0 | 48.8 |
| 05:40 AM - 05:45 AM | 59.2 | 72.7 | 49.0 |
| 05:45 AM - 05:50 AM | 59.6 | 71.8 | 50.9 |
| 05:50 AM - 05:55 AM | 59.1 | 75.6 | 48.3 |
| 05:55 AM - 06:00 AM | 61.0 | 80.4 | 48.5 |
| 06:00 AM - 07:00 AM | 59.0 | 83.7 | 48.1 |
| 07:00 AM - 08:00 AM | 61.9 | 90.0 | 43.9 |
| 08:00 AM - 09:00 AM | 60.0 | 83.7 | 45.0 |
| 09:00 AM - 10:00 AM | 62.8 | 92.5 | 43.7 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง หลักการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658812-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-14
**Parameter** Noise
**Location** บ้านหักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 10:00 AM - 11:00 AM | 57.8 | 89.5 | 44.4 |
| 11:00 AM - 12:00 PM | 60.0 | 85.8 | 44.1 |
| 12:00 PM - 01:00 PM | 57.1 | 82.1 | 43.3 |
| 01:00 PM - 02:00 PM | 60.0 | 88.7 | 47.7 |
| 02:00 PM - 03:00 PM | 62.9 | 87.3 | 51.0 |
| 03:00 PM - 04:00 PM | 61.9 | 84.2 | 52.0 |
| 04:00 PM - 05:00 PM | 60.5 | 83.9 | 48.6 |
| 05:00 PM - 06:00 PM | 61.0 | 84.9 | 48.9 |
| 06:00 PM - 07:00 PM | 58.0 | 87.5 | 46.0 |
| 07:00 PM - 08:00 PM | 57.7 | 86.7 | 45.4 |
| 08:00 PM - 09:00 PM | 55.2 | 74.9 | 44.1 |
| 09:00 PM - 10:00 PM | 54.6 | 76.4 | 43.2 |
| 10:00 PM - 10:05 PM | 43.1 | 48.5 | 42.1 |
| 10:05 PM - 10:10 PM | 49.3 | 62.2 | 42.9 |
| 10:10 PM - 10:15 PM | 47.2 | 61.5 | 42.4 |
| 10:15 PM - 10:20 PM | 49.8 | 62.1 | 42.7 |
| 10:20 PM - 10:25 PM | 43.7 | 64.1 | 42.5 |
| 10:25 PM - 10:30 PM | 47.9 | 62.5 | 42.3 |
| 10:30 PM - 10:35 PM | 47.1 | 61.4 | 42.7 |
| 10:35 PM - 10:40 PM | 52.9 | 67.9 | 42.5 |
| 10:40 PM - 10:45 PM | 49.5 | 66.0 | 42.0 |
| 10:45 PM - 10:50 PM | 50.4 | 62.3 | 40.8 |
| 10:50 PM - 10:55 PM | 51.0 | 62.5 | 41.1 |
| 10:55 PM - 11:00 PM | 52.9 | 65.2 | 41.4 |
| 11:00 PM - 11:05 PM | 49.8 | 62.2 | 41.6 |
| 11:05 PM - 11:10 PM | 54.9 | 66.0 | 41.4 |
| 11:10 PM - 11:15 PM | 55.2 | 66.6 | 41.1 |
| 11:15 PM - 11:20 PM | 54.8 | 63.8 | 41.1 |
| 11:20 PM - 11:25 PM | 55.9 | 63.3 | 41.8 |
| 11:25 PM - 11:30 PM | 60.1 | 85.8 | 42.4 |
| 11:30 PM - 11:35 PM | 52.8 | 71.1 | 42.5 |
| 11:35 PM - 11:40 PM | 51.7 | 63.7 | 42.4 |
| 11:40 PM - 11:45 PM | 58.1 | 72.5 | 42.8 |
| 11:45 PM - 11:50 PM | 56.9 | 69.0 | 43.1 |
| 11:50 PM - 11:55 PM | 56.0 | 63.8 | 43.4 |
| 11:55 PM - 12:00 AM | 58.9 | 71.8 | 43.2 |
| 12:00 AM - 12:05 AM | 60.4 | 76.1 | 42.8 |
| 12:05 AM - 12:10 AM | 59.8 | 77.0 | 42.4 |
| 12:10 AM - 12:15 AM | 55.6 | 73.1 | 42.8 |
| 12:15 AM - 12:20 AM | 55.8 | 69.3 | 42.7 |

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Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658812-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-14
**Parameter** Noise
**Location** บ้านหักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 12:20 AM - 12:25 AM | 54.9 | 73.4 | 43.1 |
| 12:25 AM - 12:30 AM | 58.9 | 80.2 | 43.2 |
| 12:30 AM - 12:35 AM | 52.2 | 71.9 | 42.9 |
| 12:35 AM - 12:40 AM | 51.0 | 65.7 | 42.5 |
| 12:40 AM - 12:45 AM | 57.4 | 77.4 | 42.8 |
| 12:45 AM - 12:50 AM | 49.8 | 63.6 | 41.8 |
| 12:50 AM - 12:55 AM | 45.2 | 61.2 | 41.7 |
| 12:55 AM - 01:00 AM | 42.6 | 46.9 | 41.3 |
| 01:00 AM - 01:05 AM | 48.9 | 63.9 | 41.4 |
| 01:05 AM - 01:10 AM | 56.2 | 76.7 | 41.2 |
| 01:10 AM - 01:15 AM | 45.3 | 61.6 | 40.7 |
| 01:15 AM - 01:20 AM | 59.3 | 85.5 | 41.2 |
| 01:20 AM - 01:25 AM | 51.1 | 72.6 | 40.6 |
| 01:25 AM - 01:30 AM | 47.9 | 66.8 | 40.7 |
| 01:30 AM - 01:35 AM | 48.4 | 64.6 | 41.1 |
| 01:35 AM - 01:40 AM | 47.4 | 64.8 | 40.8 |
| 01:40 AM - 01:45 AM | 54.0 | 72.4 | 40.9 |
| 01:45 AM - 01:50 AM | 54.1 | 68.7 | 41.2 |
| 01:50 AM - 01:55 AM | 57.0 | 72.3 | 42.4 |
| 01:55 AM - 02:00 AM | 56.9 | 76.9 | 42.3 |
| 02:00 AM - 02:05 AM | 50.0 | 68.1 | 42.4 |
| 02:05 AM - 02:10 AM | 44.8 | 56.8 | 42.6 |
| 02:10 AM - 02:15 AM | 57.0 | 81.4 | 43.6 |
| 02:15 AM - 02:20 AM | 51.5 | 66.1 | 43.4 |
| 02:20 AM - 02:25 AM | 53.5 | 73.4 | 44.2 |
| 02:25 AM - 02:30 AM | 55.6 | 67.2 | 46.5 |
| 02:30 AM - 02:35 AM | 56.5 | 72.1 | 45.3 |
| 02:35 AM - 02:40 AM | 55.7 | 69.2 | 45.4 |
| 02:40 AM - 02:45 AM | 54.7 | 69.4 | 46.0 |
| 02:45 AM - 02:50 AM | 52.8 | 67.6 | 45.5 |
| 02:50 AM - 02:55 AM | 55.9 | 71.8 | 45.8 |
| 02:55 AM - 03:00 AM | 61.6 | 84.9 | 46.7 |
| 03:00 AM - 03:05 AM | 58.0 | 71.4 | 45.8 |
| 03:05 AM - 03:10 AM | 57.4 | 75.5 | 46.6 |
| 03:10 AM - 03:15 AM | 58.9 | 72.4 | 46.9 |
| 03:15 AM - 03:20 AM | 55.9 | 69.1 | 45.6 |
| 03:20 AM - 03:25 AM | 57.4 | 71.3 | 46.4 |
| 03:25 AM - 03:30 AM | 62.0 | 81.3 | 47.1 |
| 03:30 AM - 03:35 AM | 57.6 | 72.8 | 46.1 |
| 03:35 AM - 03:40 AM | 63.9 | 82.4 | 47.5 |

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Approved by
Wilawan Borirak
Manager



## Analysis / Test Report

TESTING
No.0042

**Client** : Rojana Industrial Park Rayong 2 Co., Ltd.
54/5 Moo 1, Map Yang Phon, Pluak Daeng, Rayong Thailand 21140

**Lot ID: 2338621**
Date Received :May 16, 2023
Date Reported :May 24, 2023
Report No. : 2658812-1

**P/O :**
**Project Name** : Pluak Daeng
**Project Location** :



**Sample No.** 2338621-14
**Parameter** Noise
**Location** บ้านหักอาศัย หมู่ 2 ช.มาบยางพร 15 (N2) (GPS 47P 0733679, 1433997) (Shut down)
**Measurement Date** May 12 - 13, 2023
**Measurement by** Satcha Phetsawaeng
**Sound Level Meter** 623389

| Time | Leq (dB(A)) | Lmax (dB(A)) | L90 (dB(A)) |
|---|---|---|---|
| 03:40 AM - 03:45 AM | 63.4 | 78.1 | 49.6 |
| 03:45 AM - 03:50 AM | 61.6 | 74.3 | 49.7 |
| 03:50 AM - 03:55 AM | 65.3 | 84.4 | 49.9 |
| 03:55 AM - 04:00 AM | 61.2 | 74.0 | 49.0 |
| 04:00 AM - 04:05 AM | 62.8 | 73.7 | 50.2 |
| 04:05 AM - 04:10 AM | 63.0 | 79.2 | 48.1 |
| 04:10 AM - 04:15 AM | 63.7 | 81.3 | 49.9 |
| 04:15 AM - 04:20 AM | 63.3 | 73.0 | 50.7 |
| 04:20 AM - 04:25 AM | 62.9 | 72.7 | 50.1 |
| 04:25 AM - 04:30 AM | 63.5 | 73.6 | 51.2 |
| 04:30 AM - 04:35 AM | 62.1 | 74.8 | 49.2 |
| 04:35 AM - 04:40 AM | 61.6 | 76.1 | 47.5 |
| 04:40 AM - 04:45 AM | 63.2 | 77.5 | 49.9 |
| 04:45 AM - 04:50 AM | 61.2 | 72.6 | 48.7 |
| 04:50 AM - 04:55 AM | 64.9 | 80.9 | 49.9 |
| 04:55 AM - 05:00 AM | 64.4 | 81.9 | 46.0 |
| 05:00 AM - 05:05 AM | 61.3 | 77.5 | 46.8 |
| 05:05 AM - 05:10 AM | 58.7 | 78.2 | 44.7 |
| 05:10 AM - 05:15 AM | 61.6 | 76.0 | 48.3 |
| 05:15 AM - 05:20 AM | 57.6 | 69.5 | 45.9 |
| 05:20 AM - 05:25 AM | 60.6 | 75.3 | 46.2 |
| 05:25 AM - 05:30 AM | 58.8 | 71.6 | 45.7 |
| 05:30 AM - 05:35 AM | 56.9 | 70.6 | 46.5 |
| 05:35 AM - 05:40 AM | 58.6 | 71.6 | 46.4 |
| 05:40 AM - 05:45 AM | 68.7 | 96.1 | 48.5 |
| 05:45 AM - 05:50 AM | 55.8 | 75.5 | 44.2 |
| 05:50 AM - 05:55 AM | 58.2 | 76.3 | 42.6 |
| 05:55 AM - 06:00 AM | 56.6 | 76.4 | 43.4 |
| 06:00 AM - 07:00 AM | 59.6 | 85.4 | 43.7 |
| 07:00 AM - 08:00 AM | 56.7 | 81.7 | 42.9 |
| 08:00 AM - 09:00 AM | 59.6 | 88.3 | 47.3 |
| 09:00 AM - 10:00 AM | 62.5 | 86.9 | 50.6 |

Reference Method :
1. ISO 1996-1
2. ประกาศกรมโรงงานอุตสาหกรรม เรื่อง หลักการตรวจวัดระดับเสียงรบกวน ระดับเสียงเฉลี่ย 24 ชั่วโมง และระดับเสียงสูงสุดที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2553

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Wilawan Borirak
Manager

# ภาคผนวก ง

เอกสารการสอบเทียบเครื่องมือตรวจวิเคราะห์

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รายการเครื่องมือที่ใช้ในการวิเคราะห์ / ทดสอบ

| Sample Name | Parameter | Equipment Name | ID No. | Calibrated Date | Next Cal | Freq. Calibrate (Months) |
|---|---|---|---|---|---|---|
| Ambient | Total Suspended Particulate | High Volume | RYG_FS0174 | - | - | On site Calibration |
| Ambient | Total Suspended Particulate | High Volume | RYG_FS0177 | - | - | On site Calibration |
| Ambient | Total Suspended Particulate | High Volume | RYG_FS0182 | - | - | On site Calibration |
| Ambient | Total Suspended Particulate | High Volume | RYG_FS0173 | - | - | On site Calibration |
| Ambient | Total Suspended Particulate | Digital Balance | RYG_EN0001 | 1-Mar-23 | 1-Mar-24 | 12 |
| Ambient | Particulate Matter (PM-10) | High Volume | RYG_FS0399 | - | - | On site Calibration |
| Ambient | Particulate Matter (PM-10) | High Volume | RYG_FS0187 | - | - | On site Calibration |
| Ambient | Particulate Matter (PM-10) | High Volume | RYG_FS0184 | - | - | On site Calibration |
| Ambient | Particulate Matter (PM-10) | High Volume | RYG_FS0400 | - | - | On site Calibration |
| Ambient | Particulate Matter (PM-10) | Digital Balance | RYG_EN0001 | 1-Mar-23 | 1-Mar-24 | 12 |
| Ambient | Nitrogen Dioxide | $NO_2$ Analyzer | RYG_FS0255 | 5-Jan-23 | 5-Jul-23 | 6 |
| Ambient | Nitrogen Dioxide | $NO_2$ Analyzer | RYG_FS0535 | 5-Jan-23 | 5-Jul-23 | 6 |
| Ambient | Nitrogen Dioxide | $NO_2$ Analyzer | BKK_FS1064 | 5-Jan-23 | 5-Jul-23 | 6 |
| Ambient | Nitrogen Dioxide | $NO_2$ Analyzer | RYG_FS0453 | 5-Jan-23 | 5-Jul-23 | 6 |
| Ambient | Sulfur Dioxide | $SO_2$ Analyzer | RYG_FS0254 | 4-Jan-23 | 4-Jul-23 | 6 |
| Ambient | Sulfur Dioxide | $SO_2$ Analyzer | RYG_FS0257 | 4-Jan-23 | 4-Jul-23 | 6 |
| Ambient | Sulfur Dioxide | $SO_2$ Analyzer | RYG_FS0266 | 4-Jan-23 | 4-Jul-23 | 6 |
| Ambient | Sulfur Dioxide | $SO_2$ Analyzer | RYG_FS0452 | 4-Jan-23 | 4-Jul-23 | 6 |
| Ambient | Wind Speed / Wind Direction | Wind Speed / Wind Direction | RYG_FS0087 | 19-Jan-23 | 19-Jul-24 | 18 |
| Noise | Leq 24 hrs | Sound Calibrator | RYG_FS0215 | 31-Aug-22 | 31-Aug-23 | 12 |
| Noise | Leq 24 hrs | Sound Level Meter | RYG_FS0493 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Leq 24 hrs | Sound Level Meter | RYG_FS0494 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Leq 5 min | Sound Calibrator | RYG_FS0215 | 31-Aug-22 | 31-Aug-23 | 12 |
| Noise | Leq 5 min | Sound Level Meter | RYG_FS0493 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Leq 5 min | Sound Level Meter | RYG_FS0494 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Noise Annoyance | Sound Calibrator | RYG_FS0215 | 31-Aug-22 | 31-Aug-23 | 12 |
| Noise | Noise Annoyance | Sound Level Meter | RYG_FS0493 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Noise Annoyance | Sound Level Meter | RYG_FS0494 | 13-Jan-23 | 13-Jan-24 | 12 |
| Noise | Noise Annoyance | Sound Level Meter | RYG_FS0615 | 12-Oct-22 | 12-Oct-23 | 12 |
| Noise | Noise Annoyance | Sound Level Meter | RYG_FS0614 | 12-Oct-22 | 12-Oct-23 | 12 |
| Rayong Lab | Cyanide | SPECTROPHOTOMETER | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | Phenol | SPECTROPHOTOMETER | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | pH at 25 °C | pH Meter | RYG_EN0152 | 22-Dec-22 | 22-Dec-23 | 12 |
| Rayong Lab | Nitrate | Spectrophotometer | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | Ammonia Nitrogen | SPECTROPHOTOMETER | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | Dissolved Oxygen | Chamber (Cold Room) | RYG_EN0184 | 25-Jan-23 | 25-Jul-24 | 18 |
| Rayong Lab | BOD | DO meter with Sensor | RYG_EN0032 | 14-Feb-22 | 15-Aug-23 | 18 |
| Rayong Lab | BOD | Incubator | RYG_EN0154 | 22-Apr-22 | 21-Oct-23 | 18 |
| Rayong Lab | COD | Spectrophotometer | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | Temperature | Digital Thermometer With Sens | RYG_FS0469 | 31-Aug-22 | 31-Aug-23 | 12 |
| Rayong Lab | Temperature | pH meter | RYG_FS0605 | 7-Sep-22 | 7-Sep-23 | 12 |
| Rayong Lab | Temperature | pH meter | RYG_FS0299 | 2-May-23 | 2-May-24 | 12 |
| Rayong Lab | Temperature | pH meter | RYG_FS0420 | 3-Apr-23 | 3-Apr-24 | 12 |
| Rayong Lab | Total Dissolved Solids 180°C | Electronic Balance | RYG_EN0002 | 1-Mar-23 | 1-Mar-24 | 12 |
| Rayong Lab | Total Dissolved Solids 180°C | Hot Air Oven | RYG_EN0010 | 20-Oct-22 | 20-Apr-24 | 18 |
| Rayong Lab | Chloride | Burette | 243007 | 21-Sep-18 | 21-Sep-23 | 60 |
| Rayong Lab | Fluoride | pH ISE Meter | RYG_EN0152 | 22-Dec-22 | 22-Dec-23 | 12 |
| Rayong Lab | Total Suspended Solids | Electronic Balance | RYG_EN0002 | 1-Mar-23 | 1-Mar-24 | 12 |
| Rayong Lab | Total Suspended Solids | Hot Air Oven | RYG_EN0010 | 20-Oct-22 | 20-Apr-24 | 18 |
| Rayong Lab | Total Kjeldahl Nitrogen | Block Digestion Unit | RYG_EN0188 | 15-Mar-23 | 15-Mar-24 | 12 |
| Rayong Lab | Total Kjeldahl Nitrogen | pH Meter | RYG_EN0152 | 22-Dec-22 | 22-Dec-23 | 12 |
| Water Lab | Oil & Grease | Electronic Top-Loading Balance | BKK_EN0002 | 8-Feb-23 | 8-Feb-24 | 12 |
| Water Lab | Oil & Grease | Water Bath | BKK_EN0148 | 31-Jan-22 | 1-Aug-23 | 18 |
| Rayong Lab | Formaldehyde | SPECTROPHOTOMETER | RYG_EN0037 | 27-Sep-22 | 27-Mar-24 | 18 |
| Rayong Lab | Sulfide | Chamber (Cold Room) | RYG_EN0184 | 25-Jan-23 | 25-Jul-24 | 18 |
| Water Lab | Hexavalent Chromium | Spectrophotometer | BKK_EN0018 | 16-Sep-22 | 16-Sep-23 | 12 |



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right partner.

รายการเครื่องมือที่ใช้ในการวิเคราะห์ / ทดสอบ

| Sample Name | Parameter | Equipment Name | ID No. | Calibrated Date | Next Cal | Freq. Calibrate (Months) |
|---|---|---|---|---|---|---|
| Water Lab | Silver | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Silver | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Silver | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Iron | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Iron | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Iron | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Aluminium | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Aluminium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Aluminium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Copper | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Copper | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Copper | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Lead | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Lead | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Lead | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Nickel | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Nickel | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Nickel | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Arsenic | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Arsenic | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Arsenic | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Cadmium | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Cadmium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Cadmium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Zinc | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Zinc | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Zinc | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Trivalent Chromium | ICP-MS | BKK_EL0026 | 14-Jun-22 | 14-Dec-23 | 18 |
| Water Lab | Trivalent Chromium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Water Lab | Trivalent Chromium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Water Lab | Mercury | Mercury Analyzer | BKK_EL0128 | 30-Nov-22 | 30-Nov-23 | 12 |
| Water Lab | Total Coliform | Autoclave | BKK_ML0041 | 20-May-22 | 20-Nov-23 | 18 |
| Water Lab | Total Coliform | Incubator | BKK_ML0010 | 21-Jan-22 | 22-Jul-23 | 18 |
| Water Lab | Total Coliform | Hot Air Oven | BKK_ML0013 | 21-Nov-22 | 21-May-24 | 18 |
| Water Lab | Fecal Coliform | Autoclave | BKK_ML0041 | 20-May-22 | 20-Nov-23 | 18 |
| Water Lab | Fecal Coliform | Incubator | BKK_ML0010 | 21-Jan-22 | 22-Jul-23 | 18 |
| Water Lab | Fecal Coliform | Hot Air Oven | BKK_ML0013 | 21-Nov-22 | 21-May-24 | 18 |
| Water Lab | Fecal Coliform | Water Bath | BKK_ML0056 | 20-Apr-23 | 20-Apr-24 | 12 |
| Sludge | Silver | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Silver | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Silver | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Aluminium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Aluminium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Aluminium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Mercury | Mercury Analyzer | BKK_EL0128 | 30-Nov-22 | 30-Nov-23 | 12 |
| Sludge | Copper | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Copper | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Copper | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Nickel | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Nickel | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Nickel | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Arsenic | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Arsenic | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Arsenic | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Cadmium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Cadmium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Cadmium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |



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รายการเครื่องมือที่ใช้ในการวิเคราะห์ / ทดสอบ

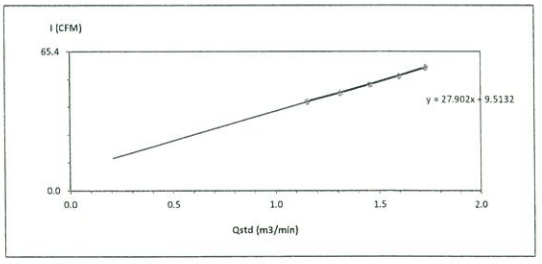
| Sample Name | Parameter | Equipment Name | ID No. | Calibrated Date | Next Cal | Freq. Calibrate (Months) |
|---|---|---|---|---|---|---|
| Sludge | Zinc | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Zinc | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Zinc | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Trivalent Chromium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Sludge | Trivalent Chromium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Sludge | Trivalent Chromium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Sludge | Hexavalent Chromium | Spectrophotometer | BKK_EN0018 | 16-Sep-22 | 16-Sep-23 | 12 |
| Soil | Mercury | Mercury Analyzer | BKK_EL0128 | 30-Nov-22 | 30-Nov-23 | 12 |
| Soil | Aluminium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Aluminium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Aluminium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Arsenic | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Arsenic | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Arsenic | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Cadmium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Cadmium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Cadmium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Copper | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Copper | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Copper | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Nickel | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Nickel | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Nickel | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Silver | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Silver | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Silver | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Trivalent Chromium | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Trivalent Chromium | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Trivalent Chromium | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Zinc | ICP-OES | BKK_EL0037 | 20-Mar-23 | 19-Sep-24 | 18 |
| Soil | Zinc | Hot Block | BKK_EL0054 | 7-Apr-22 | 7-Oct-23 | 18 |
| Soil | Zinc | Chamber (Cold Room) | BKK_EN0167 | 30-Jun-22 | 30-Dec-23 | 18 |
| Soil | Hexavalent Chromium | Spectrophotometer | BKK_EN0018 | 16-Sep-22 | 16-Sep-23 | 12 |



## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| **Project Site :** | Rojana Industrial Park Rayong 2 Co.,Ltd. | **Barometric Pressure (mm Hg) :** | 757 |
| **Calibrate Location :** | วัดมาบยางพร (A1) | **Temperature (°C) :** | 31 |
| **Calibrate Date :** | 6-May-23 | **High Volume ID :** | RYG_FS0174 |
| **CalibrationSheet No.:** | C-060523-RYG_FS0174 | **High Volume Model :** | TE-5170D |
| **Calibrator ID:** | RYG_FS0205 | **High Volume S/N :** | 4800 |
| **Calibrator Model :** | TE-5028A | **Calibrator Slope :** | 1.50765 |
| **Calibrator S/N :** | 1166 | **Calibrator Intercept :** | -0.02043 |

| Test No. | Delta $H_2O$ (inch) | $Q_{std}$ ($m^3$/min) | I : Chart (CFM) | Linear Regression |
|---|---|---|---|---|
| 1 | 3.0 | 1.1556 | 42 | Slope : 27.9024 |
| 2 | 3.9 | 1.3147 | 46 | Intercept : 9.5132 |
| 3 | 4.8 | 1.4563 | 50 | Correlation Coefficient : 0.9994 |
| 4 | 5.8 | 1.5989 | 54 | |
| 5 | 6.8 | 1.7295 | 58 | |




Calibrated by _____

( Mr.Norranon Tathongkham )
Field Scientist(2)

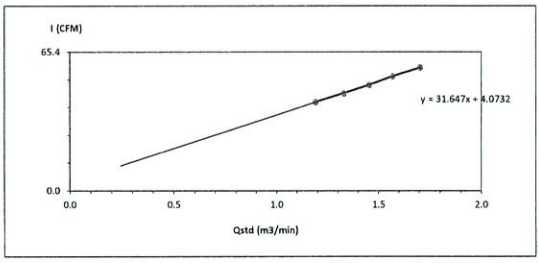
Approved by : _____

(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| **Project Site :** | Rojana Industrial Park Rayong 2 Co.,Ltd. | **Barometric Pressure (mm Hg) :** | 757 |
| **Calibrate Location :** | บ้านวังตาคีน (A2) | **Temperature (°C) :** | 31 |
| **Calibrate Date :** | 6-May-23 | **High Volume ID :** | RYG_FS0177 |
| **CalibrationSheet No.:** | C-060523-RYG_FS0177 | **High Volume Model :** | TE-5170D |
| **Calibrator ID:** | RYG_FS0205 | **High Volume S/N :** | 4803 |
| **Calibrator Model :** | TE-5028A | **Calibrator Slope :** | 1.50765 |
| **Calibrator S/N :** | 1166 | **Calibrator Intercept :** | -0.02043 |

| Test No. | Delta $H_2O$ (inch) | $Q_{std}$ ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 3.2 | 1.1929 | 42 | Slope : | 31.6474 |
| 2 | 4.0 | 1.3312 | 46 | Intercept : | 4.0732 |
| 3 | 4.8 | 1.4563 | 50 | Correlation Coefficient : | 0.9996 |
| 4 | 5.6 | 1.5714 | 54 | | |
| 5 | 6.6 | 1.7042 | 58 | | |




Calibrated by _____ Approved by : _____

( Mr.Norranon Tathongkham )
Field Scientist(2)

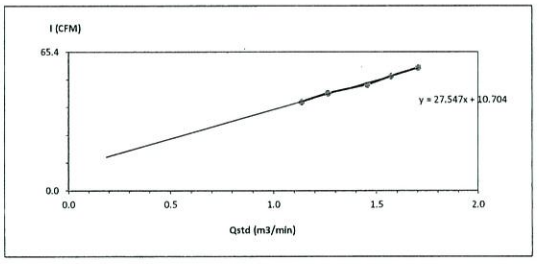
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

FORM NO.: F 06-073 REVISION NO.: - ISSUE DATE: 14/03/16

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| **Project Site :** | Rojana Industrial Park Rayong 2 Co.,Ltd. | **Barometric Pressure (mm Hg) :** | 757 |
| **Calibrate Location :** | วัดประสิทธิ์ธาราม (A3) | **Temperature (°C) :** | 31 |
| **Calibrate Date :** | 6-May-23 | **High Volume ID :** | RYG_FS0182 |
| **CalibrationSheet No.:** | C-060523-RYG_FS0182 | **High Volume Model :** | TE-5170D |
| **Calibrator ID:** | RYG_FS0205 | **High Volume S/N :** | 5335 |
| **Calibrator Model :** | TE-5028A | **Calibrator Slope :** | 1.50765 |
| **Calibrator S/N :** | 1166 | **Calibrator Intercept :** | -0.02043 |

| Test No. | Delta $H_2O$ (inch) | $Q_{std}$ ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 2.9 | 1.1365 | 42 | Slope : | 27.5473 |
| 2 | 3.6 | 1.2640 | 46 | Intercept : | 10.7040 |
| 3 | 4.8 | 1.4563 | 50 | Correlation Coefficient : | 0.9968 |
| 4 | 5.6 | 1.5714 | 54 | | |
| 5 | 6.6 | 1.7042 | 58 | | |




Calibrated by _____ Approved by : _____

( Mr.Norranon Tathongkham )
Field Scientist(2)

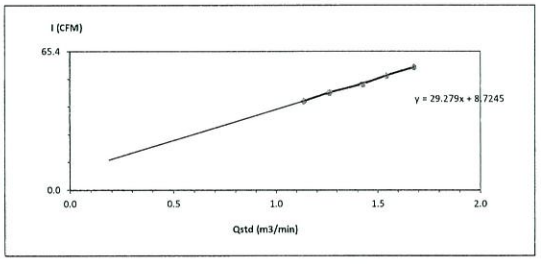
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

FORM NO.: F 06-073 REVISION NO.: - ISSUE DATE: 14/03/16

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| **Project Site :** | Rojana Industrial Park Rayong 2 Co.,Ltd. | **Barometric Pressure (mm Hg) :** | 757 |
| **Calibrate Location :** | วัดวังประดู่ (A4) | **Temperature (°C) :** | 31 |
| **Calibrate Date :** | 6-May-23 | **High Volume ID :** | RYG_FS0173 |
| **CalibrationSheet No.:** | C-060523-RYG_FS0173 | **High Volume Model :** | TE-5170D |
| **Calibrator ID:** | RYG_FS0205 | **High Volume S/N :** | 4799 |
| **Calibrator Model :** | TE-5028A | **Calibrator Slope :** | 1.50765 |
| **Calibrator S/N :** | 1166 | **Calibrator Intercept :** | -0.02043 |

| Test No. | Delta $H_2O$ (inch) | $Q_{std}$ ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 2.9 | 1.1365 | 42 | Slope : | 29.2794 |
| 2 | 3.6 | 1.2640 | 46 | Intercept : | 8.7245 |
| 3 | 4.6 | 1.4261 | 50 | Correlation Coefficient : | 0.9990 |
| 4 | 5.4 | 1.5435 | 54 | | |
| 5 | 6.4 | 1.6785 | 58 | | |




Calibrated by _____ Approved by : _____

( Mr.Norranon Tathongkham )
Field Scientist(2)

(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

FORM NO.: F 06-073 REVISION NO.: - ISSUE DATE: 14/03/16

RYG_EN0001

**Sartorius (Thailand) Co., Ltd.**
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel: +66 2643 8361-6 , e-mail: service.thailand@sartorius.com

NSC-TISI-TIS 17025
CALIBRATION 0426

SARTORIUS

REVIEW BY Mr.Ch.U
APPROVED BY D. [illegible]
NEXT CAL DATE 01/03/24

# Certificate of Calibration

| | | | |
|---|---|---|---|
| Model Number : | LA130S-F | Certificate No. : | 23BCI0110 |
| Description : | Analytical Balance | Issued Date : | Friday, March 03, 2023 |
| Serial Number : | 25409664 | Reference No. : | 204833 |
| ID No. : | RYG_EN0001 | | |
| Manufacturer : | Sartorius | Page No. : | 1 of 2 |

Customer Name : ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)
616/10 Moo 5 T.Maenam Khu, A.Pluak Daeng, Rayong 21140, Thailand.

Calibrated Place : ALS Laboratory Group (Thailand) Co., Ltd.(Balance Room)
616/10 Moo 5 T.Maenam Khu, A.Pluak Daeng, Rayong 21140, Thailand.

Calibrated By : Mr.Chonchai Inthana
Calibration Date : Wednesday, March 01, 2023

Calibration Procedure No. : This calibration was conducted by Using in-house calibration procedure number (WI-003) Based on UKAS LAB 14 : 2019

*Metrological data :*
Capacity : 150 g Readability : 0.0001 g

*Ambients Conditions:*
Temperature : 24.2 °C ± 5.0 °C
Humidity : 60.0 % RH ± 10.0 % RH
Pressure ± _____

*Reasons for calibration*
☐ New Installation ☐ Service / Repaired ☑ Re-calibration/ Maintenance

*Equipment Condition:* ☑ Good Operate ☐ Fair

## Measurement Method UKAS Publication Ref :Lab 14

The measurement uncertainty stated is the expended uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which realise the unit of measurement according to the International Standard System of Units (SI) Report of Tolerance came form list of Sartorius Metrological Specifications.

## Traceability:

| Model Number | Description | Traceability | Cetificate No. | Due Date |
|---|---|---|---|---|
| YCS011-522-00 | Sartorius weight set 1mg - 5000g E2,YCS011-522-00 | SPC-RT | C02212565 | 14-Sep-2023 |
| MHB-382SD | Humidity/Barometer/Temp Lutron MHB-382SD | DKSH | C19220444 | 5-Sep-2023 |

This certificate relate and apply this equipment only.
This certificate may not be reproduced other than in full except with the prior written approval of the Verification Operation Division Sartorius (Thailand) Co., Ltd.

Mr.chonchai Inthana(Technical Manager)

STAMP

SOP FM 33 03 February 2022

**Sartorius (Thailand) Co., Ltd.**
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel: +66 2643 8361-6 Fax: +66 2643-8367, e-mail: service.thailand@sartorius.com

SARTORIUS

# Certificate of Calibration

| | | | |
|---|---|---|---|
| Model Number : | LA130S-F | Certificate No. : | 23BCI0110 |
| Description : | Analytical Balance | Issued Date : | Friday, March 03, 2023 |
| Serial Number : | 25409664 | Reference No. : | 204833 |
| ID No. : | RYG_EN0001 | | |
| Manufacturer : | Sartorius | Page No. : | 2 of 2 |

## Calibration Results : Without Adjustment

### Repeatability

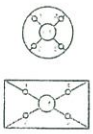
*The reproducibility is the ability of a weighing instrument to display nearly identical readouts under constant test conditions when the same load within a measurement series is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express reproducibility quantitatively*

| | | |
|---|---|---|
| Nominal Value : (Low Load) | 10.0000 | 100.0001 |
| 10 g | 10.0000 | 100.0002 |
| Tolerance | 10.0001 | 100.0001 |
| *0.0001* g | 10.0000 | 100.0000 |
| | 9.9999 | 100.0002 |
| Nominal Value : (High Load) | 10.0000 | 100.0001 |
| 100 g | 10.0001 | 100.0001 |
| Tolerance | 10.0000 | 100.0001 |
| *0.0001* g | 9.9999 | 100.0002 |
| | 9.9998 | 100.0001 |
| *Standard Deviation* | 0.00009 | 0.00006 |

### Eccentricity (Off-center loading error)

*The off-center loading error is yielded by the difference between the readout of the load, i.e. 1/3 or 1/4 of maximim capacity, placed in the middle of the weighing pan and between each of four additional measurement points ( positions defined according to OIML R76)*

Nominal value : 50 g
Tolerance *0.0004* g



| | Difference |
|---|---|
| 1 | - |
| 2 | 0.0000 |
| 3 | -0.0001 |
| 4 | 0.0001 |
| 5 | 0.0000 |
| 6 | - |

### Linearity

*The linearity, also called linearity error. Describes the deviation of the characteristic curve of a weighing instrument from the linear slope.*

Tolerance *0.0002* g

| Nominal Value (g) | Conventional Mass Value (g) | Displayed Value (g) | Deviation (g) | Uncertainty (g) |
|---|---|---|---|---|
| 0.01 | 0.0100 | 0.0100 | 0.0000 | 0.00022 |
| 0.05 | 0.0500 | 0.0500 | 0.0000 | 0.00023 |
| 0.1 | 0.1000 | 0.1000 | 0.0000 | 0.00023 |
| 0.5 | 0.5000 | 0.5000 | 0.0000 | 0.00023 |
| 1 | 1.0000 | 1.0000 | 0.0000 | 0.00023 |
| 2 | 2.0000 | 2.0000 | 0.0000 | 0.00023 |
| 5 | 5.0000 | 5.0000 | 0.0000 | 0.00022 |
| 10 | 10.0000 | 10.0001 | 0.0001 | 0.00024 |
| 20 | 20.0000 | 20.0001 | 0.0001 | 0.00023 |
| 100 | 100.0000 | 100.0002 | 0.0002 | 0.00026 |

End of Report.

SOP FM 33 03 February 2022

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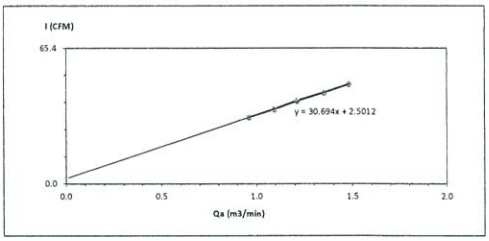
## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| Project Site : | Rojana Industrial Park Rayong 2 Co.,Ltd. | Barometric Pressure (mm Hg) : | 757 |
| Calibrate Location : | วัดมาบยางพร (A1) | Temperature (°C) : | 31 |
| Calibrate Date : | 6-May-23 | High Volume ID : | RYG_FS0399 |
| CalibrationSheet No.: | C-060523-RYG_FS0399 | High Volume Model : | TE-5009X |
| Calibrator ID: | RYG_FS0205 | High Volume S/N : | 5683 |
| Calibrator Model : | TE-5028A | Calibrator Slope : | 0.94434 |
| Calibrator S/N : | 1166 | Calibrator Intercept : | -0.01292 |

| Test No. | Delta $H_2O$ (inch) | Qa ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 2.0 | 0.962 | 32 | Slope : | 30.6943 |
| 2 | 2.6 | 1.095 | 36 | Intercept : | 2.5012 |
| 3 | 3.2 | 1.213 | 40 | Correlation Coefficient : | 0.9997 |
| 4 | 4.0 | 1.355 | 44 | | |
| 5 | 4.8 | 1.483 | 48 | | |




Calibrated by _____
( Mr.Norranon Tathongkham )
Field Scientist(2)

Approved by : _____
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

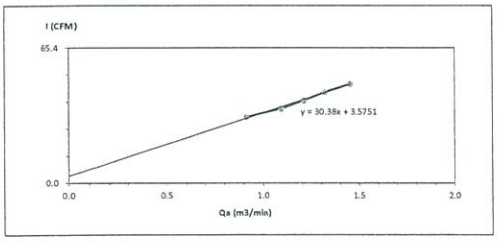
FORM NO.: F 06-074 REVISION NO.: - ISSUE DATE: 14/03/16

---

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| Project Site : | Rojana Industrial Park Rayong 2 Co.,Ltd. | Barometric Pressure (mm Hg) : | 757 |
| Calibrate Location : | บ้านวังตาคีน (A2) | Temperature (°C) : | 31 |
| Calibrate Date : | 6-May-23 | High Volume ID : | RYG_FS0187 |
| CalibrationSheet No.: | C-060523-RYG_FS0187 | High Volume Model : | TE-5009X |
| Calibrator ID: | RYG_FS0205 | High Volume S/N : | 4795 |
| Calibrator Model : | TE-5028A | Calibrator Slope : | 0.94434 |
| Calibrator S/N : | 1166 | Calibrator Intercept : | -0.01292 |

| Test No. | Delta $H_2O$ (inch) | Qa ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 1.8 | 0.913 | 32 | Slope : | 30.3805 |
| 2 | 2.6 | 1.095 | 36 | Intercept : | 3.5751 |
| 3 | 3.2 | 1.213 | 40 | Correlation Coefficient : | 0.9952 |
| 4 | 3.8 | 1.321 | 44 | | |
| 5 | 4.6 | 1.452 | 48 | | |




Calibrated by _____
( Mr.Norranon Tathongkham )
Field Scientist(2)

Approved by : _____
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

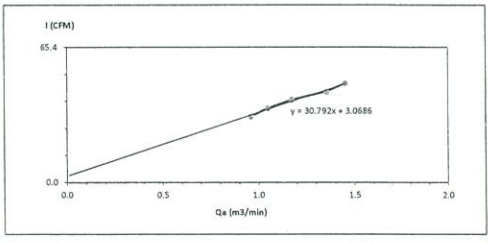
FORM NO.: F 06-074 REVISION NO.: - ISSUE DATE: 14/03/16

---

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| Project Site : | Rojana Industrial Park Rayong 2 Co.,Ltd. | Barometric Pressure (mm Hg) : | 757 |
| Calibrate Location : | วัดประสิทธิ์ธาราม (A3) | Temperature (°C) : | 31 |
| Calibrate Date : | 6-May-23 | High Volume ID : | RYG_FS0184 |
| CalibrationSheet No.: | C-060523-RYG_FS0184 | High Volume Model : | TE-5009X |
| Calibrator ID: | RYG_FS0205 | High Volume S/N : | 4792 |
| Calibrator Model : | TE-5028A | Calibrator Slope : | 0.94434 |
| Calibrator S/N : | 1166 | Calibrator Intercept : | -0.01292 |

| Test No. | Delta $H_2O$ (inch) | Qa ($m^3$/min) | I : Chart (CFM) | Linear Regression | |
|---|---|---|---|---|---|
| 1 | 2.0 | 0.962 | 32 | Slope : | 30.7920 |
| 2 | 2.4 | 1.053 | 36 | Intercept : | 3.0686 |
| 3 | 3.0 | 1.175 | 40 | Correlation Coefficient : | 0.9938 |
| 4 | 4.0 | 1.355 | 44 | | |
| 5 | 4.6 | 1.452 | 48 | | |




Calibrated by _____
( Mr.Norranon Tathongkham )
Field Scientist(2)

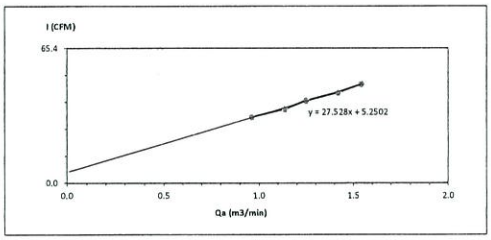
Approved by : _____
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)

FORM NO.: F 06-074 REVISION NO.: - ISSUE DATE: 14/03/16

## High Volume Air Sampler Calibration Worksheet

| | | | |
|---|---|---|---|
| Project Site : | Rojana Industrial Park Rayong 2 Co.,Ltd. | Barometric Pressure (mm Hg) : | 757 |
| Calibrate Location : | จัดวางบนรูป (A4) | Temperature ( °C) : | 31 |
| Calibrate Date : | 6-May-23 | High Volume ID : | RYG_FS0400 |
| CalibrationSheet No.: | C-060523-RYG_FS0400 | High Volume Model : | TE-5009X |
| Calibrator ID: | RYG_FS0205 | High Volume S/N : | 5691 |
| Calibrator Model : | TE-5028A | Calibrator Slope : | 0.94434 |
| Calibrator S/N : | 1166 | Calibrator Intercept : | -0.01292 |

| Test No. | Delta $H_2O$ (inch) | Qa ($m^3$/min) | I : Chart (CFM) | Linear Regression |
|---|---|---|---|---|
| 1 | 2.0 | 0.962 | 32 | |
| 2 | 2.8 | 1.136 | 36 | Slope : 27.5278 |
| 3 | 3.4 | 1.250 | 40 | Intercept : 5.2502 |
| 4 | 4.4 | 1.421 | 44 | Correlation Coefficient : 0.9980 |
| 5 | 5.2 | 1.543 | 48 | |




Calibrated by _____ Approved by : _____

( Mr.Norranon Tathongkham )
Field Scientist(2)

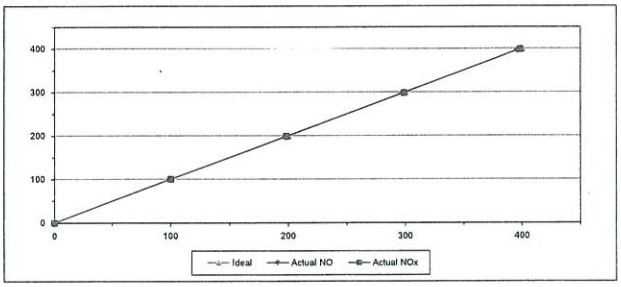
(Mr. Noppong Juntarupan)
Enviro Field Coordinator Scientist (3)



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 5-Jan-23 | Equipment Name | NOx Analyzer |
| Manufacturer | Teledyne API | Model | T200 |
| Serial No. | 2197 | Equipment ID | RYG_FS0255 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 55.88 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ideal | Actual NO | Error NO | %Error NO | Actual NOx | Error NOx | %Error NOx |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 99.60 | -0.40 | -0.40 | 100.20 | 0.20 | 0.20 |
| 2 | 200.00 | 198.10 | -1.90 | -0.95 | 198.50 | -1.50 | -0.75 |
| 3 | 300.00 | 297.50 | -2.50 | -0.83 | 298.70 | -1.30 | -0.43 |
| 4 | 400.00 | 396.50 | -3.50 | -0.88 | 398.60 | -1.40 | -0.35 |
| AVERAGE (%) | | | | -0.59 | | | -0.25 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

( Mr.Sarayuth Jittranont )
Assistant General Manager

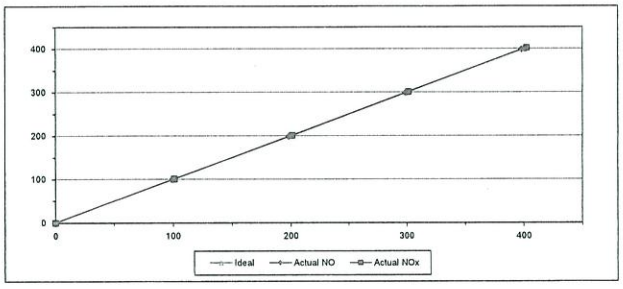
*ALS Laboratory Group*



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 5-Jan-23 | Equipment Name | NOx Analyzer |
| Manufacturer | Teledyne API | Model | T200 |
| Serial No. | 7239 | Equipment ID | RYG_FS0535 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 55.88 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ideal | Actual NO | Error NO | %Error NO | Actual NOx | Error NOx | %Error NOx |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 99.60 | -0.40 | -0.40 | 101.00 | 1.00 | 1.00 |
| 2 | 200.00 | 198.30 | -1.70 | -0.85 | 201.10 | 1.10 | 0.55 |
| 3 | 300.00 | 298.80 | -1.20 | -0.40 | 301.50 | 1.50 | 0.50 |
| 4 | 400.00 | 398.20 | -1.80 | -0.45 | 402.30 | 2.30 | 0.58 |
| AVERAGE (%) | | | | -0.40 | | | 0.55 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

( Mr.Sarayuth Jittranont )
Assistant General Manager

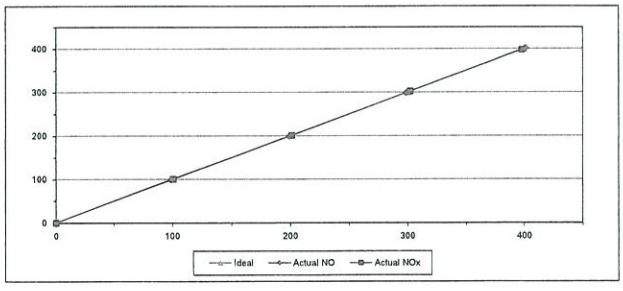
*ALS Laboratory Group*



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 5-Jan-23 | Equipment Name | NOx Analyzer |
| Manufacturer | HORIBA | Model | APNA-370 |
| Serial No. | 148EH0E0 | Equipment ID | BKK_FS1064 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 55.88 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ideal | Actual NO | Error NO | %Error NO | Actual NOx | Error NOx | %Error NOx |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 99.00 | -1.00 | -1.00 | 100.70 | 0.70 | 0.70 |
| 2 | 200.00 | 199.40 | -0.60 | -0.30 | 201.50 | 1.50 | 0.75 |
| 3 | 300.00 | 298.60 | -1.40 | -0.47 | 302.30 | 2.30 | 0.77 |
| 4 | 400.00 | 401.40 | 1.40 | 0.35 | 398.00 | -2.00 | -0.50 |
| AVERAGE (%) | | | | -0.26 | | | 0.36 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

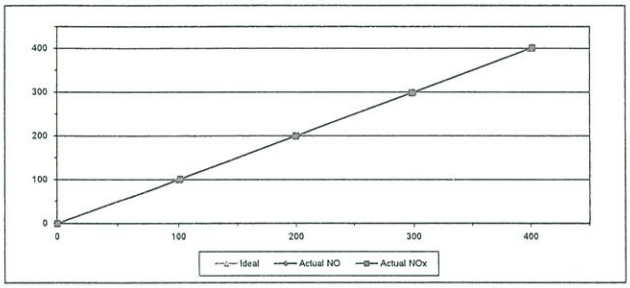
( Mr.Sarayuth Jittranont )
Assistant General Manager

*ALS Laboratory Group*

## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 5-Jan-23 | Equipment Name | NOx Analyzer |
| Manufacturer | HORIBA | Model | APNA-370 |
| Serial No. | AWXG87CR | Equipment ID | RYG_FS0453 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 55.88 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ideal | Actual NO | Error NO | %Error NO | Actual NOx | Error NOx | %Error NOx |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 99.60 | -0.40 | -0.40 | 101.40 | 1.40 | 1.40 |
| 2 | 200.00 | 198.60 | -1.40 | -0.70 | 199.80 | -0.20 | -0.10 |
| 3 | 300.00 | 299.00 | -1.00 | -0.33 | 298.50 | -1.50 | -0.50 |
| 4 | 400.00 | 402.10 | 2.10 | 0.53 | 401.20 | 1.20 | 0.30 |
| AVERAGE (%) | | | | -0.16 | | | 0.24 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

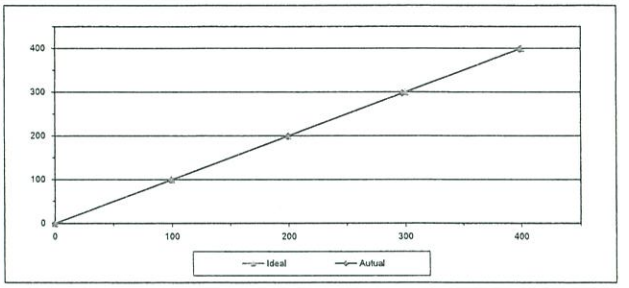
( Mr.Sarayuth Jittranont )
Assistant General Manager



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 4-Jan-23 | Equipment Name | SO2 Analyzer |
| Manufacturer | Teledyne API | Model | T100 |
| Serial No. | 1772 | Equipment ID | RYG_FS0254 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 56.3 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | |
|---|---|---|---|---|
| | Ideal | Autual | Error | %Error |
| ZERO | 0.00 | 0.05 | 0.05 | 0.05 |
| 1 | 100.00 | 99.10 | -0.90 | -0.90 |
| 2 | 200.00 | 199.50 | -0.50 | -0.25 |
| 3 | 300.00 | 297.50 | -2.50 | -0.83 |
| 4 | 400.00 | 398.80 | -1.20 | -0.30 |
| AVERAGE (%) | | | | -0.45 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

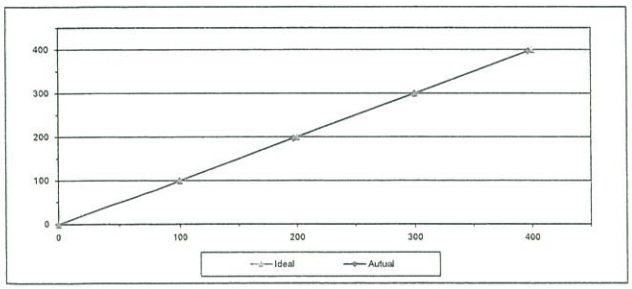
( Mr.Sarayuth Jittranont )
Assistant General Manager



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 4-Jan-23 | Equipment Name | SO2 Analyzer |
| Manufacturer | HORIBA | Model | APSA-370 |
| Serial No. | 24PH0KNA | Equipment ID | RYG_FS0257 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 56.3 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | |
|---|---|---|---|---|
| | Ideal | Autual | Error | %Error |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 99.40 | -0.60 | -0.60 |
| 2 | 200.00 | 197.30 | -2.70 | -1.35 |
| 3 | 300.00 | 299.50 | -0.50 | -0.17 |
| 4 | 400.00 | 397.00 | -3.00 | -0.75 |
| AVERAGE (%) | | | | -0.55 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

Approved By

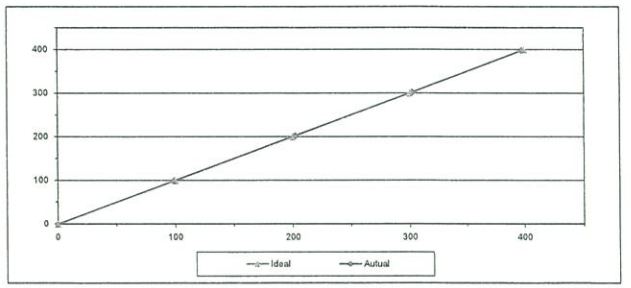
( Mr.Sarayuth Jittranont )
Assistant General Manager



## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 4-Jan-23 | Equipment Name | SO2 Analyzer |
| Manufacturer | HORIBA | Model | APSA-370 |
| Serial No. | NM3M2D5M | Equipment ID | RYG_FS0266 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 56.3 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | |
|---|---|---|---|---|
| | Ideal | Autual | Error | %Error |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 98.90 | -1.10 | -1.10 |
| 2 | 200.00 | 202.40 | 2.40 | 1.20 |
| 3 | 300.00 | 302.30 | 2.30 | 0.77 |
| 4 | 400.00 | 398.00 | -2.00 | -0.50 |
| AVERAGE (%) | | | | 0.09 |




Calibrated By

( Mr.Jirawut Sakarn )
Field Environmental Scientist (3)

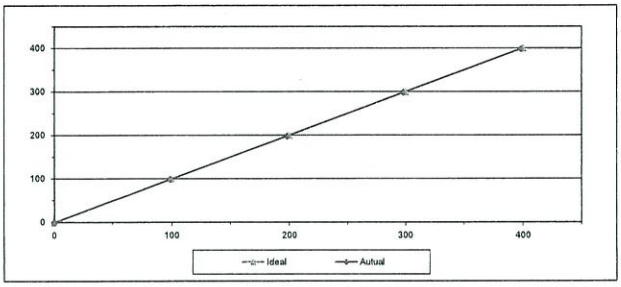
Approved By

( Mr.Sarayuth Jittranont )
Assistant General Manager

## MULTIPOINT CALIBRATION REPORT

| | | | |
|---|---|---|---|
| Calibration Date | 4-Jan-23 | Equipment Name | SO2 Analyzer |
| Manufacturer | HORIBA | Model | APSA-370 |
| Serial No. | 90U0XJ31 | Equipment ID | RYG_FS0452 |
| Calibrator Manufacturer | Teledyne API | Model | 700 |
| Serial No. | 947 | | |
| Std. Gas Concentration (PPM) | 56.3 | Cylinder No. | GN0027222 |
| Cylinder Pressure (psi) | 1800 | Certified By | Airgas Inc. |
| Certified Date | 9-Feb-22 | Expired Date | 9-Feb-30 |

| Point | CALIBRATION RESULTS | | | |
|---|---|---|---|---|
| | Ideal | Autual | Error | %Error |
| ZERO | 0.00 | 0.10 | 0.10 | 0.10 |
| 1 | 100.00 | 98.60 | -1.40 | -1.40 |
| 2 | 200.00 | 198.00 | -2.00 | -1.00 |
| 3 | 300.00 | 298.10 | -1.90 | -0.63 |
| 4 | 400.00 | 398.20 | -1.80 | -0.45 |
| AVERAGE (%) | | | | -0.68 |




Calibrated By

( Mr.Jirawut Sakam )
Field Environmental Scientist (3)

Approved By

( Mr.Sarayuth Jittranont )
Assistant General Manager

ALS Laboratory Group

FORM NO.: F 06-056 REVISION NO.: - ISSUE DATE: 02/04/12

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JNAC
JIRANATEE ASSOCIATES CO.,LTD.

Jiranatee Associates Co.,Ltd
63/14-15, 67/35-36
Petchkasem 7,7/1, Rd. Watthapra, Bangkokyai,
Bangkok 10600(Thailand)
Tel. +6620860812
Mobile: +66863959453
E-mail: jnac-calibration@jiranatee.com
Web site: www.jiranatee.com

*Accredited calibration laboratory*
*ISO/IEC 17025:2017*
*NSC-TISI-TIS 17025*
*CALIBRATION 0367*

*Air speed measurement laboratory*
*Calibration services department.*

CHECKED BY Nanakorn P.
APPROVED BY
DATE 19/4/24

| Certificate Number |
|---|
| CL-010-66 |

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM : Wind Direction Sensor
MANUFACTURER : Novalynx
MODEL/TYPE : Sensor: WS-02F
Data logger: 200-WS-25DL
SERIAL NUMBER : Sensor: -
Data logger: A4986
ID NUMBER : RYG_FS0087
CONDITION AS-RECEIVED : Used item
CUSTOMER : ALS laboratory group (Thailand) Co., Ltd.
104 Phatthanakan 40, Phatthanakan Rd, Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE : 16 Jan 2023
MEASUREMENT DATE : 19 Jan 2023
ISSUE DATE : 20 Jan 2023

ENVIRONMENTAL CONDITIONS:
Ambient condition in the laboratory are as follow:

| | | |
|---|---|---|
| Temperature | : 23.0 ± 3.0 | °C |
| Relative Humidity | : 55.0 ± 15.0 | %RH |
| Atmospheric Pressure | : 1010± 10 | hPa |

PLACE OF CALIBRATION : Eiffel-type wind tunnel of Jiranatee Associates Co., Ltd.

CALIBRATION CONDITION

| | | |
|---|---|---|
| : Wind tunnel cross-section area[1] | 900 | $cm^2$ |
| Win direction frontal area[2] | 129 | $cm^2$ |
| Diameter of mounting pipe[3] | - | mm |
| Blockage ratio of test object[4] | 0.143 | [-] |

Preconditioning : 24 hours at ambient conditions.
Measurement Condition : The average values during measurement are (23.5)°C, (47.4) %RH and (1015.6) hPa.

TABULATION OF RESULTS:
The table on next page give the measured values.

*Calibration procedure:*
*The wind direction sensor was calibrated against Standard Rotary Encoder model: AK4209TS-DM04-P3-S-U0 in an close test section of Eiffel-type wind tunnel with 900 $cm^2$ cross test section area. The WI-CL-008 based on IEC 61400-12-1, Wind energy generation systems – Part 12-1: Power performance measurements of electricity producing wind turbines, March 2017 was used as a calibration guideline.*

*Traceability:*
*This certificate provides a traceability of The measurement to recognized the national standards, and to realization of the international system of units (SI) through the NIMT (National Metrology Institute of Thailand) via Certificate number: DA-0043-22*

*Uncertainty of Measurement:*
*The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, Which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM 'Evaluation of measurement data - Guide to the expression of uncertainty in measurement'*

Calibrated by:
☑ Mr. Sorawit Thachalad
☐ Miss Jittraporn Lertsomphol

Approved signatory: .....
Mr. Parinya Booncharoen
Calibration Department Manager

Remark:
[1] Nozzle cross-section area of the wind tunnel
[2] Projected cross-section area of the tested object include mounting pipe
[3] Diameter of mounting pipe
[4] Ratio [2] to [1]

THIS CERTIFICATE OF CALIBRATION MAY NOT BE REPRODUCED EXCEPT IN FULL UNLESS PERMISSION FOR REPRODUCTION HAS BEEN OBTAINED IN WRITING FROM THE LABORATORY

---

| Certificate Number |
|---|
| CL-010-66 |

Page 2 of 2 Pages

MEASUREMENT RESULTS [5]

The wind direction sensor was calibrated against standard rotary encoder by comparison method. During calibration, the measurement was carried out at 45° intervals in clockwise and counterclockwise directions after offset adjustment has been made. The flow speed of wind tunnel (usually 5 m/s) is kept constant while the sensor is rotated around its vertical axis. The results of calibration and associated measurement uncertainties are reported in the table below.

| Air speed | $D'_{std}$ | $D'_{uut}$ | Error | U (k=2) |
|---|---|---|---|---|
| m/s | Degree (°) | Degree (°) | Degree (°) | Degree (°) |
| 5.02 | 0.000 | 0 | 0 | 0.58 |
| | 45.000 | 43 | -2 | 0.74 |
| | 90.000 | 88 | -2 | 0.74 |
| | 135.000 | 133 | -2 | 0.74 |
| | 180.000 | 179 | -1 | 0.74 |
| | 225.000 | 225 | 0 | 0.68 |
| | 270.000 | 273 | 3 | 0.58 |
| | 315.000 | 319 | 4 | 0.74 |

Remark:
[1] Calibration results only count for the tested circumstances and environmental conditions during which calibration took place
[2] Direction of standard
[3] Direction of Unit Under Calibration

***End of Certificate of Calibration***

---

JNAC
JIRANATEE ASSOCIATES CO.,LTD.

Jiranatee Associates Co.,Ltd
63/14-15, 67/35-36
Petchkasem 7,7/1, Rd. Watthapra, Bangkokyai,
Bangkok 10600(Thailand)
Tel. +6620860812
Mobile: +66863959453
E-mail: jnac-calibration@jiranatee.com
Web site: www.jiranatee.com

*Accredited calibration laboratory*
*ISO/IEC 17025:2017*
*NSC-TISI-TIS 17025*
*CALIBRATION 0367*

*Air speed measurement laboratory*
*Calibration services department.*

| Certificate Number |
|---|
| CL-010-66 |

## CERTIFICATE OF CALIBRATION

Page 1 of 2 Pages

MEASUREMENT ITEM : Cup anemometer
MANUFACTURER : Novalynx
MODEL/TYPE : Sensor: WS-02F
Data logger: 200-WS-25DL
SERIAL NUMBER : Sensor: -
Data logger: A4986
ID NUMBER : RYG_FS0087
CONDITION AS-RECEIVED : Used item
CUSTOMER : ALS laboratory group (Thailand) co., ltd.
104 Phatthanakan 40, Phatthanakan Rd, Khwaeng Suan Luang, Khet Suan Luang, Bangkok 10250 Thailand.

RECEIVED DATE : 16 Jan 2023
MEASUREMENT DATE : 18 Jan 2023
ISSUE DATE : 20 Jan 2023

ENVIRONMENTAL CONDITIONS:
Ambient condition in the laboratory are as follow:

| | | |
|---|---|---|
| Temperature | : 23.0 ± 3.0 | °C |
| Relative Humidity | : 55.0 ± 15.0 | %RH |
| Atmospheric Pressure | : 1010 ± 10 | hPa |

PLACE OF CALIBRATION : Eiffel-type wind tunnel of Jiranatee Associates Co., Ltd.

CALIBRATION CONDITIONS

| | | |
|---|---|---|
| : Wind tunnel cross-section area[1] | 900 | $cm^2$ |
| Win direction frontal area[2] | 100 | $cm^2$ |
| Diameter of mounting pipe[3] | - | mm |
| Blockage ratio of test object[4] | 0.111 | [-] |

Preconditioning : 24 hours at ambient conditions.
Measurement Condition : The average values during measurement are (23.6) °C, (55.3) %RH and (1013.5) hPa.

TABULATION OF RESULTS:
The table on next page give the measured values.

*Calibration procedure:*
*The cup anemometer was calibrated against Standard air velocity transducer model: 8455-12 and pitot tube with precision differential pressure meter model: DPM2500 in an close test section of Eiffel-type wind tunnel with 900 $cm^2$ cross test section area. The WI-CL-007 based on IEC 61400-12-1, Wind energy generation systems – Part 12-1: Power performance measurements of electricity producing wind turbines, March 2017 was used as a calibration guideline.*

*Traceability:*
*This certificate provides a traceability of The measurement to recognized the national standards, and to realization of the international system of units (SI) through the NIMT (National Metrology Institute of Thailand) via Certificate number: MW-0052-21 and MW-0066-22*

*Uncertainty of Measurement:*
*The reported uncertainty of measurement is based on the standard uncertainty multiplied by a coverage factor k=2, Which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with the GUM 'Evaluation of measurement data - Guide to the expression of uncertainty in measurement'*

Calibrated by:
☑ Mr. Sorawit Thachalad
☐ Miss Jittraporn Lertsomphol

Approved signatory: .....
Mr. Parinya Booncharoen
Calibration Department Manager

Remark:
[1] Nozzle cross-section area of the wind tunnel
[2] Projected cross-section area of the tested object include mounting pipe
[3] Diameter of mounting pipe
[4] Ratio [2] to [1]

THIS CERTIFICATE OF CALIBRATION MAY NOT BE REPRODUCED EXCEPT IN FULL UNLESS PERMISSION FOR REPRODUCTION HAS BEEN OBTAINED IN WRITING FROM THE LABORATORY

| Certificate Number |
|---|
| CL-010-66 |



MEASUREMENT RESULTS [5]

The cup anemometer, Unit Under Calibration (UUC) was exercise at 10 m/s for 5 minutes prior to calibration being performed. The standard air velocity 0.5 m/s to 5 m/s was calculated by a standard air velocity transducer and above 5 m/s to 30 m/s was calculated by a pitot tube with precision differential pressure meter which was installed 40 mm and 300 mm respectively away from wind tunnel nozzle, UUC was installedat center of the test section. The calibration was carried out under both rising and falling air velocity in the range of 1 m/s to 16 m/s at calibration interval of 1 m/s. The results of calibration and associated measurement uncertainties are reported in the table below.

| $v_{std}$ [6] (m/s) | Temp. wind tunnel (°C) | Temp. room (°C) | $v_{uuc}$ [7] (m/s) | Error (m/s) | U (k=2) (m/s) |
|---|---|---|---|---|---|
| 0.985 | 23.68 | 23.60 | 0.8 | -0.2 | 0.15 |
| 2.033 | 23.54 | 23.60 | 1.8 | -0.2 | 0.16 |
| 3.046 | 23.68 | 23.60 | 2.9 | -0.1 | 0.19 |
| 4.136 | 23.66 | 23.60 | 3.9 | -0.2 | 0.20 |
| 5.03 | 23.50 | 23.60 | 4.9 | -0.1 | 0.20 |
| 5.98 | 23.50 | 23.60 | 5.9 | -0.1 | 0.18 |
| 7.05 | 23.36 | 23.60 | 7.0 | -0.1 | 0.18 |
| 8.18 | 23.54 | 23.60 | 8.0 | -0.2 | 0.20 |
| 9.10 | 23.30 | 23.60 | 8.9 | -0.2 | 0.20 |
| 10.10 | 23.50 | 23.60 | 10.0 | -0.1 | 0.19 |
| 11.14 | 23.28 | 23.60 | 11.1 | -0.1 | 0.22 |
| 12.12 | 23.40 | 23.60 | 11.9 | -0.2 | 0.21 |
| 13.19 | 23.10 | 23.60 | 13.0 | -0.2 | 0.26 |
| 14.25 | 23.46 | 23.60 | 14.0 | -0.2 | 0.22 |
| 15.26 | 23.10 | 23.60 | 15.0 | -0.2 | 0.23 |
| 16.31 | 23.26 | 23.60 | 16.2 | -0.1 | 0.29 |

Remark:

[5] Calibration results only count for the tested circumstances and environmental conditions during which calibration took place

[6] Velocity of standard

[7] Velocity of Unit Under Calibration

PHOTO OF CALIBRATION SET-UP



Calibration set-up of the cup anemometer calibration in the wind tunnel of Jiranatee Associates Co., Ltd. The cup anemometer shown may differ from the calibrated one. Remark: The proportion of the set- up is not true to scale due to imaging geometry.

***End of Certificate of Calibration***

Jiranatee Associates Co., Ltd.

# SITHIPORN ASSOCIATES CO.,LTD.
# CALIBRATION LABORATORY

451-451/1 Sirinthorn Rd.,Bangbumru, Bangplud Bangkok 10700 THAILAND.
Tel.0-2435-8800 Fax.0-2433-1679 e-mail:cal-center@sithiphorn.com http://www.sithiphorn.com

NSC-TISI-TIS 17025 CALIBRATION 0394

Cert. No. : ACC22023
Pages : 1 of 3

## Calibration Certificate

**Equipment :** SOUND CALIBRATOR
**Manufacturer :** RION
**Model :** NC-74
**Serial No.:** 34178123
**ID No.:** RYG_FS0215

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,
BANGKOK, 10250 THAILAND.

**Location :** -
**Ambient Temperature :** ( 23.0 ± 3 ) °C
**Pressure :** ( 101.3 ± 3 ) kPa
**Relative Humidity :** ( 50.0 ± 20 ) %

CALIBRATED BY Nathakorn P.
APPROVED BY
NEXT CAL. DATE 31/8/23

**Received Date :** 22 AUGUST 2022
**Calibration Date :** 31 AUGUST 2022
**Date of Issue :** 02 SEPTEMBER 2022

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** ( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.



SITHIPORN associates SITHIPORN ASSOCIATES CO.,LTD.
CALIBRATION LABORATORY

Continuation of Calibration Certificate

Cert. No. : ACC22023
Job No. : VC65AC0077
Pages : 2 of 3

**Calibration Procedure :** CP-AC-03

**Calibration Method :**
This equipment was calibrated by based on IEC-60942-2003 Standard.
The sound pressure level, frequency and total distortion of the sound calibrator was measured using the reference microphone.

**Condition of this result of calibration :**
1. Reference Standard Instruments :

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| Waveform Generator | 33511B | MY52302742 | EF-0008-22 | 04-Feb-23 |
| Digital Multimeter | 33461A | MY53220104 | EEL.BP. 04/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY53220076 | EEL.BP. 03/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY60024273 | EEL.BP. 05/0265 | 09-Feb-23 |
| Programmable Attenuator | MAT-1070 | 62100114 | EF-0009-22 | 07-Feb-23 |
| Condenser Microphone | 4180 | 2977900 | AA-1013-22 | 24-Feb-23 |
| Measuring Amplifier | NA-42KAI | 34560495 | AA-3005-22 | 22-Feb-23 |
| Audio Analyzer | AVR-3360A | V744B6069 | EF-0010-22 | 07-Feb-23 |

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.
3. This certificate is traceable to the international system of unit maintained at :
   3.1 National Institute of Metrology (Thailand).
   3.2 Thailand Institute of Scientific and Technological Research (TISTR).



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CALIBRATION LABORATORY

Continuation of Calibration Certificate

Cert. No. : ACC22023
Job No. : VC65AC0077
Pages : 3 of 3

**Result of calibration :**

**1. Sound pressure level**

| Specified sound pressure level (dB) | Measured value (dB) | Deviated value (dB) | Uncertainty (dB) | Tolerance limit (dB) |
|---|---|---|---|---|
| 94 | 94.04 | 0.04 | 0.14 | 0.40 |

**2. Frequency**

| Specified Frequency (Hz) | Measured value (Hz) | Deviated value (%) | Uncertainty (%) | Tolerance limit (%) |
|---|---|---|---|---|
| 1000 | 1001.5 | 0.1 | 0.1 | 1.0 |

**3. Total distortion**

| Measured value (%) | Uncertainty (%) | Tolerance limit (%) |
|---|---|---|
| 1.70 | 0.10 | 3.0 |

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation,providing a lavel of confidence of approximately 95 %

**End of Calibration Certificate**

SITHIPORN ASSOCIATES CO.,LTD.
CALIBRATION LABORATORY

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Tel.0-2435-8800 Fax.0-2433-1679 e-mail:cal-center@sithiphorn.com http://www.sithiphorn.com

NSC-TISI-TIS 17025
CALIBRATION 0394

Cert. No. : ACL23043
Pages : 1 of 8

# Calibration Certificate

**Equipment :** SOUND LEVEL METER
**Manufacturer :** RION
**Model :** NL-42/ Microphone UC-52 / Preamplifier NH-24
**Serial No.:** 00900072 / 188465 / 01734
**ID No.:** RYG_FS0493

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,
BANGKOK, 10250 THAILAND.

**Location :** -
**Ambient Temperature :** ( 23.0 ± 3 ) °C
**Pressure :** ( 101.3 ± 3 ) kPa
**Relative Humidity :** ( 50.0 ± 20 ) %

CHECKED BY Nathakorn P.
APPROVED BY
NEXT CAL.DATE 12/1/24

**Received Date :** 06 JANUARY 2023
**Calibration Date :** 13-18 JANUARY 2023
**Date of Issue :** 19 JANUARY 2023

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :**
( Thanakul Petchurai )

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**Calibration Procedure :** CP-AC-01

**Calibration Method :**
This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**
1. Reference Standard Instruments :

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| Waveform Generator | 33210A | MY48017076 | EF-0007-22 | 04-Feb-23 |
| Waveform Generator | 33511B | MY52302742 | EF-0008-22 | 04-Feb-23 |
| Digital Multimeter | 33461A | MY53220104 | EEL.BP. 04/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY53220076 | EEL.BP. 03/0265 | 09-Feb-23 |
| Digital Multimeter | 34461A | MY60024273 | EEL.BP. 05/0265 | 09-Feb-23 |
| Programmable Attenuator | MAT-1070 | 62100114 | EF-0009-22 | 07-Feb-23 |
| Condenser Microphone | 4180 | 2977900 | AA-1013-22 | 24-Feb-23 |
| Measuring Amplifier | NA-42KAI | 34560495 | AA-3005-22 | 22-Feb-23 |

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.
3. This certificate is traceable to the international system of unit maintained at :
3.1 National Institute of Metrology (Thailand).
3.2 Thailand Institute of Scientific and Technological Research (TISTR).





**Summary of Measurement Result :**

| Parameter | Pass | Fail | Uncertainty (dB) | Maximum-permitted uncertainty of measurement (dB) |
|---|---|---|---|---|
| 1. Absolute sensitivity | ✓ | - | 0.2 | N/A |
| 2. Self-generated noise | ✓ | - | 0.2 | N/A |
| 3. Acoustical signal tests of frequency weightings | | | | |
| 125 Hz | ✓ | - | 0.3 | 0.6 |
| 1000 Hz | ✓ | - | 0.3 | 0.6 |
| 8000 Hz | ✓ | - | 0.3 | 0.7 |
| 4. Electrical signal tests of frequency weightings | | | | |
| For 10 Hz to 4 kHz | ✓ | - | 0.3 | 0.6 |
| For > 4 kHz to 10 kHz | ✓ | - | 0.3 | 0.7 |
| For > 10 kHz to 20 kHz | - | - | - | 1.0 |
| 5. Frequency and time weightings at 1 kHz | ✓ | - | 0.2 | 0.2 |
| 6. Long - term stability | ✓ | - | 0.1 | 0.1 |
| 7. Level linearity on the reference level range | ✓ | - | 0.2 | 0.3 |
| 8. Level linearity including the level range control | ✓ | - | 0.2 | 0.3 |
| 9. Tone burst response | ✓ | - | 0.2 | 0.3 |
| 10. Peak C sound level | ✓ | - | 0.2 | 0.35 |
| 11. Overload indication | ✓ | - | 0.2 | 0.25 |
| 12. High level stability | ✓ | - | 0.1 | 0.1 |





**Result of calibration :**

**1. Absolute sensitivity**

| Reference Acoustic Signal ( dB ) | Measured Value ( dB ) | Deviation ( dB ) | Acceptance Limit ( dB ) |
|---|---|---|---|
| 93.9 (93.95) | 93.9 | 0.0 | ±0.3 |

**2. Self-generated noise**

2.1 Normal test

| Measured Value ( dB ) |
|---|
| 14.2 |

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

| Frequency Weighting | Measured value ( dB ) |
|---|---|
| A - weight | 10.8 |
| C - weight | 17.2 |
| Flat | 22.9 |

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

| Frequency ( Hz ) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 125 | 0.3 | 0.3 | 0.3 | ± 1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ± 1.0 |
| 8000 | -1.0 | -0.9 | -0.9 | ±5.0 |

## Continuation of Calibration Certificate

Cert. No. : ACL23043
Job No. : VC66AC0024
Pages : 5 of 8

**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

| Frequency (Hz) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 63 | -0.1 | -0.1 | -0.1 | ±2.0 |
| 125 | -0.1 | 0.0 | -0.1 | ±1.5 |
| 250 | 0.0 | 0.0 | -0.1 | ±1.5 |
| 500 | 0.0 | 0.0 | -0.1 | ±1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ±1.0 |
| 2000 | 0.0 | 0.0 | 0.0 | ±2.0 |
| 4000 | 0.0 | 0.0 | 0.0 | ±3.0 |
| 8000 | 0.0 | 0.1 | 0.1 | ±5.0 |

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| A - weight | 94.0 | 0.0 | - |
| C - weight | 94.0 | 0.0 | ± 0.2 |
| Flat | 94.0 | 0.0 | ± 0.2 |

5.2 Time weighting at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Fast | 94.0 | 0.0 | - |
| Slow | 94.0 | 0.0 | ± 0.1 |
| Leq | 94.0 | 0.0 | ± 0.1 |

**6. Long - term stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 94.0 | 94.0 | 0.0 | ± 0.3 |



T. Rotchon.



## Continuation of Calibration Certificate

Cert. No. : ACL23043
Job No. : VC66AC0024
Pages : 6 of 8

**7. Level linearity on the reference level range**

| Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| 137.0 | 137.0 | 0.0 | ± 1.1 |
| 136.0 | 136.0 | 0.0 | ± 1.1 |
| 135.0 | 135.0 | 0.0 | ± 1.1 |
| 134.0 | 134.0 | 0.0 | ± 1.1 |
| 133.0 | 133.0 | 0.0 | ± 1.1 |
| 132.0 | 132.0 | 0.0 | ± 1.1 |
| 131.0 | 131.0 | 0.0 | ± 1.1 |
| 129.0 | 129.0 | 0.0 | ± 1.1 |
| 124.0 | 124.0 | 0.0 | ± 1.1 |
| 119.0 | 119.0 | 0.0 | ± 1.1 |
| 114.0 | 114.0 | 0.0 | ± 1.1 |
| 109.0 | 109.0 | 0.0 | ± 1.1 |
| 104.0 | 104.0 | 0.0 | ± 1.1 |
| 99.0 | 99.0 | 0.0 | ± 1.1 |
| 94.0 | 94.0 | 0.0 | ± 1.1 |
| 89.0 | 89.0 | 0.0 | ± 1.1 |
| 84.0 | 84.0 | 0.0 | ± 1.1 |
| 79.0 | 79.0 | 0.0 | ± 1.1 |
| 74.0 | 74.0 | 0.0 | ± 1.1 |
| 69.0 | 69.0 | 0.0 | ± 1.1 |
| 64.0 | 64.0 | 0.0 | ± 1.1 |
| 59.0 | 59.0 | 0.0 | ± 1.1 |
| 54.0 | 54.0 | 0.0 | ± 1.1 |
| 49.0 | 49.0 | 0.0 | ± 1.1 |
| 44.0 | 44.0 | 0.0 | ± 1.1 |
| 39.0 | 39.0 | 0.0 | ± 1.1 |
| 34.0 | 34.0 | 0.0 | ± 1.1 |
| 30.0 | 30.0 | 0.0 | ± 1.1 |
| 29.0 | 28.9 | -0.1 | ± 1.1 |
| 28.0 | 28.0 | 0.0 | ± 1.1 |
| 27.0 | 26.9 | -0.1 | ± 1.1 |
| 26.0 | 25.9 | -0.1 | ± 1.1 |
| 25.0 | 24.9 | -0.1 | ± 1.1 |



T. Rotchon.



## Continuation of Calibration Certificate

Cert. No. : ACL23043
Job No. : VC66AC0024
Pages : 7 of 8

**8. Level linearity including the level range control**

| Range | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Auto | 94.0 | 94.0 | 0.0 | ±1.1 |

**9. Tone burst response**

| Time Weighting | Tone burst duration, Tb (ms) | Cycle | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|---|---|
| Fast | 0.25 | 1 | 108.0 | 107.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 117.0 | 117.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 134.0 | 134.0 | 0.0 | ±1.0 |
| Slow | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.5 ; -5.0 |
| | 200 | 800 | 127.6 | 127.6 | 0.0 | ±1.0 |
| SEL | 0.25 | 1 | 99.0 | 98.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 128.0 | 128.0 | 0.0 | ±1.0 |

**10. Peak C sound level**

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value, Lcpeak (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| One | 136.4 | 136.4 | 0.0 | ±3.0 |

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| Positive half cycle | 135.4 | 135.1 | -0.3 | ±2.0 |
| Negative half cycle | 135.4 | 135.1 | -0.3 | ±2.0 |



T. Rotchon.



## Continuation of Calibration Certificate

Cert. No. : ACL23043
Job No. : VC66AC0024
Pages : 8 of 8

**11. Overload indication**

| Measured value (dB) | | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Positive one-half cycle | Negative one-half cycle | | |
| 89.6 | 89.6 | 0.0 | ±1.5 |

**12. High level stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 137.0 | 137.0 | 0.0 | ±0.3 |

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation,providing a lavel of confidence of approximately 95 %

End of Calibration Certificate



T. Rotchon.

SITHIPORN ASSOCIATES CO.,LTD.
CALIBRATION LABORATORY

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NSC-TISI-TIS 17025
CALIBRATION 0394

Cert. No. : ACL23044
Pages : 1 of 8

# Calibration Certificate

| | |
|---|---|
| **Equipment :** | SOUND LEVEL METER |
| **Manufacturer :** | RION |
| **Model :** | NL-42/ Microphone UC-52 / Preamplifier NH-24 |
| **Serial No.:** | 00900073 / 188466 / 01735 |
| **ID No.:** | RYG_FS0494 |
| **Condition As Found :** | GOOD |
| **Customer :** | ALS LABORATORY GROUP (THAILAND) CO., LTD.<br>104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,<br>KHWAENG PHATTHANAKAN, KHET SUAN LUANG,<br>BANGKOK, 10250 THAILAND. |
| **Location :** | - |
| **Ambient Temperature :** | ( 23.0 ± 3 ) °C |
| **Pressure :** | ( 101.3 ± 3 ) kPa |
| **Relative Humidity :** | ( 50.0 ± 20 ) % |
| **Received Date :** | 06 JANUARY 2023 |
| **Calibration Date :** | 13-18 JANUARY 2023 |
| **Date of Issue :** | 19 JANUARY 2023 |

CHECKED BY Abraham P.
APPROVED BY
NEXT CAL DATE 13/1/24

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** T. Petchurai.
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.





**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| Waveform Generator | 33210A | MY48017076 | EF-0007-22 | 04-Feb-23 |
| Waveform Generator | 33511B | MY52302742 | EF-0008-22 | 04-Feb-23 |
| Digital Multimeter | 33461A | MY53220104 | EEL.BP. 04/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY53220076 | EEL.BP. 03/0265 | 09-Feb-23 |
| Digital Multimeter | 34461A | MY60024273 | EEL.BP. 05/0265 | 09-Feb-23 |
| Programmable Attenuator | MAT-1070 | 62100114 | EF-0009-22 | 07-Feb-23 |
| Condenser Microphone | 4180 | 2977900 | AA-1013-22 | 24-Feb-23 |
| Measuring Amplifier | NA-42KAI | 34560495 | AA-3005-22 | 22-Feb-23 |

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.
3. This certificate is traceable to the international system of unit maintained at :
   3.1 National Institute of Metrology (Thailand).
   3.2 Thailand Institute of Scientific and Technological Research (TISTR).



T. P.t.h.



**Summary of Measurement Result :**

| Parameter | Pass | Fail | Uncertainty (dB) | Maximum-permitted uncertainty of measurement (dB) |
|---|---|---|---|---|
| 1. Absolute sensitivity | ✓ | - | 0.2 | N/A |
| 2. Self-generated noise | ✓ | - | 0.2 | N/A |
| 3. Acoustical signal tests of frequency weightings | | | | |
| 125 Hz | ✓ | - | 0.3 | 0.6 |
| 1000 Hz | ✓ | - | 0.3 | 0.6 |
| 8000 Hz | ✓ | - | 0.3 | 0.7 |
| 4. Electrical signal tests of frequency weightings | | | | |
| For 10 Hz to 4 kHz | ✓ | - | 0.3 | 0.6 |
| For > 4 kHz to 10 kHz | ✓ | - | 0.3 | 0.7 |
| For > 10 kHz to 20 kHz | - | - | - | 1.0 |
| 5. Frequency and time weightings at 1 kHz | ✓ | - | 0.2 | 0.2 |
| 6. Long - term stability | ✓ | - | 0.1 | 0.1 |
| 7. Level linearity on the reference level range | ✓ | - | 0.2 | 0.3 |
| 8. Level linearity including the level range control | ✓ | - | 0.2 | 0.3 |
| 9. Tone burst response | ✓ | - | 0.2 | 0.3 |
| 10. Peak C sound level | ✓ | - | 0.2 | 0.35 |
| 11. Overload indication | ✓ | - | 0.2 | 0.25 |
| 12. High level stability | ✓ | - | 0.1 | 0.1 |



T. P.t.h.



**Result of calibration :**

**1. Absolute sensitivity**

| Reference Acoustic Signal ( dB ) | Measured Value ( dB ) | Deviation ( dB ) | Acceptance Limit ( dB ) |
|---|---|---|---|
| 93.9 (93.95) | 93.9 | 0.0 | ±0.3 |

**2. Self-generated noise**

2.1 Normal test

| Measured Value ( dB ) |
|---|
| 14.8 |

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

| Frequency Weighting | Measured value ( dB ) |
|---|---|
| A - weight | 11.6 |
| C - weight | 17.8 |
| Flat | 23.7 |

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

| Frequency ( Hz ) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 125 | 0.1 | 0.1 | 0.1 | ± 1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ± 1.0 |
| 8000 | -0.2 | -0.2 | -0.1 | ±5.0 |



T. P.t.h.

**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

| Frequency (Hz) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 63 | -0.1 | -0.1 | 0.0 | ±2.0 |
| 125 | 0.0 | 0.1 | 0.0 | ±1.5 |
| 250 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 500 | 0.0 | 0.1 | 0.0 | ±1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ±1.0 |
| 2000 | 0.0 | 0.1 | 0.0 | ±2.0 |
| 4000 | 0.0 | 0.1 | 0.0 | ±3.0 |
| 8000 | 0.0 | 0.1 | 0.1 | ±5.0 |

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| A - weight | 94.0 | 0.0 | - |
| C - weight | 94.0 | 0.0 | ± 0.2 |
| Flat | 94.0 | 0.0 | ± 0.2 |

5.2 Time weighting at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Fast | 94.0 | 0.0 | - |
| Slow | 94.0 | 0.0 | ± 0.1 |
| Leq | 94.0 | 0.0 | ± 0.1 |

**6. Long - term stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 94.0 | 94.1 | 0.1 | ± 0.3 |



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CALIBRATION LABORATORY

Continuation of Calibration Certificate

Cert. No. : ACL23044
Job No. : VC66AC0024
Pages : 6 of 8

**7. Level linearity on the reference level range**

| Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| 137.0 | 137.0 | 0.0 | ± 1.1 |
| 136.0 | 136.0 | 0.0 | ± 1.1 |
| 135.0 | 135.0 | 0.0 | ± 1.1 |
| 134.0 | 134.0 | 0.0 | ± 1.1 |
| 133.0 | 133.0 | 0.0 | ± 1.1 |
| 132.0 | 132.0 | 0.0 | ± 1.1 |
| 131.0 | 131.0 | 0.0 | ± 1.1 |
| 129.0 | 129.0 | 0.0 | ± 1.1 |
| 124.0 | 124.0 | 0.0 | ± 1.1 |
| 119.0 | 119.1 | 0.1 | ± 1.1 |
| 114.0 | 114.0 | 0.0 | ± 1.1 |
| 109.0 | 109.0 | 0.0 | ± 1.1 |
| 104.0 | 104.1 | 0.1 | ± 1.1 |
| 99.0 | 99.0 | 0.0 | ± 1.1 |
| 94.0 | 94.0 | 0.0 | ± 1.1 |
| 89.0 | 89.0 | 0.0 | ± 1.1 |
| 84.0 | 84.0 | 0.0 | ± 1.1 |
| 79.0 | 79.0 | 0.0 | ± 1.1 |
| 74.0 | 74.0 | 0.0 | ± 1.1 |
| 69.0 | 69.0 | 0.0 | ± 1.1 |
| 64.0 | 64.0 | 0.0 | ± 1.1 |
| 59.0 | 59.0 | 0.0 | ± 1.1 |
| 54.0 | 54.0 | 0.0 | ± 1.1 |
| 49.0 | 49.0 | 0.0 | ± 1.1 |
| 44.0 | 44.0 | 0.0 | ± 1.1 |
| 39.0 | 39.0 | 0.0 | ± 1.1 |
| 34.0 | 34.0 | 0.0 | ± 1.1 |
| 30.0 | 29.9 | -0.1 | ± 1.1 |
| 29.0 | 28.9 | -0.1 | ± 1.1 |
| 28.0 | 28.0 | 0.0 | ± 1.1 |
| 27.0 | 26.9 | -0.1 | ± 1.1 |
| 26.0 | 25.9 | -0.1 | ± 1.1 |
| 25.0 | 24.9 | -0.1 | ± 1.1 |



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Pages : 7 of 8

**8. Level linearity including the level range control**

| Range | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Auto | 94.0 | 94.0 | 0.0 | ±1.1 |

**9. Tone burst response**

| Time Weighting | Tone burst duration, Tb (ms) | Cycle | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|---|---|
| Fast | 0.25 | 1 | 108.0 | 108.0 | 0.0 | 1.5 ; -5.0 |
| | 2 | 8 | 117.0 | 117.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 134.0 | 134.1 | 0.1 | ±1.0 |
| Slow | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.5 ; -5.0 |
| | 200 | 800 | 127.6 | 127.6 | 0.0 | ±1.0 |
| SEL | 0.25 | 1 | 99.0 | 98.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 128.0 | 128.1 | 0.1 | ±1.0 |

**10. Peak C sound level**

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value, Lcpeak (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| One | 136.4 | 136.1 | -0.3 | ±3.0 |

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 132.9 | -0.1 | - |
| Positive half cycle | 135.4 | 135.1 | -0.3 | ±2.0 |
| Negative half cycle | 135.4 | 135.1 | -0.3 | ±2.0 |



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Continuation of Calibration Certificate

Cert. No. : ACL23044
Job No. : VC66AC0024
Pages : 8 of 8

**11. Overload indication**

| Measured value (dB) | | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Positive one-half cycle | Negative one-half cycle | | |
| 89.5 | 89.6 | 0.1 | ±1.5 |

**12. High level stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 137.0 | 137.0 | 0.0 | ±0.3 |

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation,providing a lavel of confidence of approximately 95 %

End of Calibration Certificate

# SITHIPORN ASSOCIATES CO.,LTD.
# CALIBRATION LABORATORY

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Tel.0-2435-8800 Fax.0-2433-1679 e-mail:cal-center@sithiphorn.com http://www.sithiphorn.com

NSC-TISI-TIS 17025 CALIBRATION 0394

Cert. No. : ACL22229
Pages : 1 of 8

## Calibration Certificate

**Equipment :** SOUND LEVEL METER
**Manufacturer :** RION
**Model :** NL-42A/ Microphone UC-52 / Preamplifier NH-24
**Serial No.:** 00623390 / 198637 / 26418
**ID No.:** -

**Condition As Found :** GOOD

**Customer :** ALS LABORATORY GROUP (THAILAND) CO., LTD.
104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,
KHWAENG PHATTHANAKAN, KHET SUAN LUANG,
BANGKOK, 10250 THAILAND.

**Location :** -
**Ambient Temperature :** ( 23.0 ± 3 ) °C
**Pressure :** ( 101.3 ± 3 ) kPa
**Relative Humidity :** ( 50.0 ± 20 ) %

REVIEW BY Nathakorn P.
APPROVED BY
NEXT CAL DATE 12/10/23

**Received Date :** 28 SEPTEMBER 2022
**Calibration Date :** 12-17 OCTOBER 2022
**Date of Issue :** 18 OCTOBER 2022

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** T. Petchurai.
( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.





**Calibration Procedure :** CP-AC-01

**Calibration Method :**
This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**
1. Reference Standard Instruments :

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| Waveform Generator | 33210A | MY48017076 | EF-0007-22 | 04-Feb-23 |
| Waveform Generator | 33511B | MY52302742 | EF-0008-22 | 04-Feb-23 |
| Digital Multimeter | 33461A | MY53220104 | EEL.BP. 04/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY53220076 | EEL.BP. 03/0265 | 09-Feb-23 |
| Digital Multimeter | 34461A | MY60024273 | EEL.BP. 05/0265 | 09-Feb-23 |
| Programmable Attenuator | MAT-1070 | 62100114 | EF-0009-22 | 07-Feb-23 |
| Condenser Microphone | 4180 | 2977900 | AA-1013-22 | 24-Feb-23 |
| Measuring Amplifier | NA-42KAI | 34560495 | AA-3005-22 | 22-Feb-23 |

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.
3. This certificate is traceable to the international system of unit maintained at :
   3.1 National Institute of Metrology (Thailand).
   3.2 Thailand Institute of Scientific and Technological Research (TISTR).



T. Petch.



**Summary of Measurement Result :**

| Parameter | Pass | Fail | Uncertainty (dB) | Maximum-permitted uncertainty of measurement (dB) |
|---|---|---|---|---|
| 1. Absolute sensitivity | ✓ | - | 0.2 | N/A |
| 2. Self-generated noise | ✓ | - | 0.2 | N/A |
| 3. Acoustical signal tests of frequency weightings | | | | |
| 125 Hz | ✓ | - | 0.3 | 0.6 |
| 1000 Hz | ✓ | - | 0.3 | 0.6 |
| 8000 Hz | ✓ | - | 0.3 | 0.7 |
| 4. Electrical signal tests of frequency weightings | | | | |
| For 10 Hz to 4 kHz | ✓ | - | 0.3 | 0.6 |
| For > 4 kHz to 10 kHz | ✓ | - | 0.3 | 0.7 |
| For > 10 kHz to 20 kHz | - | - | - | 1.0 |
| 5. Frequency and time weightings at 1 kHz | ✓ | - | 0.2 | 0.2 |
| 6. Long - term stability | ✓ | - | 0.1 | 0.1 |
| 7. Level linearity on the reference level range | ✓ | - | 0.2 | 0.3 |
| 8. Level linearity including the level range control | ✓ | - | 0.2 | 0.3 |
| 9. Tone burst response | ✓ | - | 0.2 | 0.3 |
| 10. Peak C sound level | ✓ | - | 0.2 | 0.35 |
| 11. Overload indication | ✓ | - | 0.2 | 0.25 |
| 12. High level stability | ✓ | - | 0.1 | 0.1 |



T. Petch.



**Result of calibration :**

**1. Absolute sensitivity**

| Reference Acoustic Signal ( dB ) | Measured Value ( dB ) | Deviation ( dB ) | Acceptance Limit ( dB ) |
|---|---|---|---|
| 93.9 (93.95) | 93.9 | 0.0 | ±0.3 |

**2. Self-generated noise**

2.1 Normal test

| Measured Value ( dB ) |
|---|
| 14.6 |

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

| Frequency Weighting | Measured value ( dB ) |
|---|---|
| A - weight | 10.8 |
| C - weight | 17.3 |
| Flat | 23.1 |

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

| Frequency ( Hz ) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 125 | 0.2 | 0.2 | 0.2 | ± 1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ± 1.0 |
| 8000 | 0.4 | 0.5 | 0.5 | ±5.0 |



T. Petch.

**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

| Frequency (Hz) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 63 | 0.0 | -0.1 | -0.1 | ±2.0 |
| 125 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 250 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 500 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ±1.0 |
| 2000 | 0.0 | 0.0 | 0.0 | ±2.0 |
| 4000 | 0.0 | 0.0 | 0.0 | ±3.0 |
| 8000 | 0.0 | 0.1 | 0.1 | ±5.0 |

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| A - weight | 94.0 | 0.0 | - |
| C - weight | 94.0 | 0.0 | ± 0.2 |
| Flat | 94.0 | 0.0 | ± 0.2 |

5.2 Time weighting at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Fast | 94.0 | 0.0 | - |
| Slow | 94.0 | 0.0 | ± 0.1 |
| Leq | 94.0 | 0.0 | ± 0.1 |

**6. Long - term stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 94.0 | 94.0 | 0.0 | ± 0.3 |



T. Rotth.



**7. Level linearity on the reference level range**

| Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| 137.0 | 137.0 | 0.0 | ± 1.1 |
| 136.0 | 136.0 | 0.0 | ± 1.1 |
| 135.0 | 135.0 | 0.0 | ± 1.1 |
| 134.0 | 134.0 | 0.0 | ± 1.1 |
| 133.0 | 133.0 | 0.0 | ± 1.1 |
| 132.0 | 132.0 | 0.0 | ± 1.1 |
| 131.0 | 131.0 | 0.0 | ± 1.1 |
| 129.0 | 129.0 | 0.0 | ± 1.1 |
| 124.0 | 124.0 | 0.0 | ± 1.1 |
| 119.0 | 119.0 | 0.0 | ± 1.1 |
| 114.0 | 114.0 | 0.0 | ± 1.1 |
| 109.0 | 109.0 | 0.0 | ± 1.1 |
| 104.0 | 104.0 | 0.0 | ± 1.1 |
| 99.0 | 99.0 | 0.0 | ± 1.1 |
| 94.0 | 94.0 | 0.0 | ± 1.1 |
| 89.0 | 89.0 | 0.0 | ± 1.1 |
| 84.0 | 84.0 | 0.0 | ± 1.1 |
| 79.0 | 79.0 | 0.0 | ± 1.1 |
| 74.0 | 74.1 | 0.1 | ± 1.1 |
| 69.0 | 69.0 | 0.0 | ± 1.1 |
| 64.0 | 64.0 | 0.0 | ± 1.1 |
| 59.0 | 59.1 | 0.1 | ± 1.1 |
| 54.0 | 54.0 | 0.0 | ± 1.1 |
| 49.0 | 49.0 | 0.0 | ± 1.1 |
| 44.0 | 44.0 | 0.0 | ± 1.1 |
| 39.0 | 39.0 | 0.0 | ± 1.1 |
| 34.0 | 34.0 | 0.0 | ± 1.1 |
| 30.0 | 30.0 | 0.0 | ± 1.1 |
| 29.0 | 29.1 | 0.1 | ± 1.1 |
| 28.0 | 28.0 | 0.0 | ± 1.1 |
| 27.0 | 27.1 | 0.1 | ± 1.1 |
| 26.0 | 26.1 | 0.1 | ± 1.1 |
| 25.0 | 25.1 | 0.1 | ± 1.1 |



T. Rotth.



**8. Level linearity including the level range control**

| Range | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Auto | 94.0 | 94.0 | 0.0 | ±1.1 |

**9. Tone burst response**

| Time Weighting | Tone burst duration, Tb (ms) | Cycle | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|---|---|
| Fast | 0.25 | 1 | 108.0 | 107.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 117.0 | 117.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 134.0 | 134.0 | 0.0 | ±1.0 |
| Slow | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.5 ; -5.0 |
| | 200 | 800 | 127.6 | 127.6 | 0.0 | ±1.0 |
| SEL | 0.25 | 1 | 99.0 | 98.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 128.0 | 128.0 | 0.0 | ±1.0 |

**10. Peak C sound level**

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value, Lcpeak (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| One | 136.4 | 136.4 | 0.0 | ±3.0 |

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| Positive half cycle | 135.4 | 135.2 | -0.2 | ±2.0 |
| Negative half cycle | 135.4 | 135.2 | -0.2 | ±2.0 |



T. Rotth.



**11. Overload indication**

| Measured value (dB) | | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Positive one-half cycle | Negative one-half cycle | | |
| 89.6 | 89.5 | -0.1 | ±1.5 |

**12. High level stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 137.0 | 137.0 | 0.0 | ±0.3 |

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation,providing a level of confidence of approximately 95 %

End of Calibration Certificate



T. Rotth.

SITHIPORN ASSOCIATES CO.,LTD.
CALIBRATION LABORATORY

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NSC-TISI-TIS 17025 CALIBRATION 0394

Cert. No. : ACL22228
Pages : 1 of 8

# Calibration Certificate

| | |
|---|---|
| **Equipment :** | SOUND LEVEL METER |
| **Manufacturer :** | RION |
| **Model :** | NL-42A/ Microphone UC-52 / Preamplifier NH-24 |
| **Serial No.:** | 00623389 / 198636 / 26417 |
| **ID No.:** | - |
| **Condition As Found :** | GOOD |
| **Customer :** | ALS LABORATORY GROUP (THAILAND) CO., LTD.<br>104 PHATTHANAKAN 40, PHATTHANAKAN ROAD,<br>KHWAENG PHATTHANAKAN, KHET SUAN LUANG,<br>BANGKOK, 10250 THAILAND. |
| **Location :** | - |
| **Ambient Temperature :** | ( 23.0 ± 3 ) °C |
| **Pressure :** | ( 101.3 ± 3 ) kPa |
| **Relative Humidity :** | ( 50.0 ± 20 ) % |
| **Received Date :** | 28 SEPTEMBER 2022 |
| **Calibration Date :** | 12-17 OCTOBER 2022 |
| **Date of Issue :** | 18 OCTOBER 2022 |

REVIEW BY Nathakorn P.
APPROVED BY
NEXT CAL. DATE 12/10/23

**Calibrated by :** Nathakorn Pisutpaisan

**Approved by :** T. Petchurai.

( Thanakul Petchurai )

This certificate is issued in accordance with the requirements of ISO/IEC 17025 standard, may not be reproduced other than in full, except with the prior written approval of the head of Calibration Laboratory.





**Calibration Procedure :** CP-AC-01

**Calibration Method :**

This equipment was calibrated by based on IEC-61672-3 (2013) Standard for sound level meter (SLM).
The SLM had tests to Acoustical and Electrical signal tests of frequency weighting with Anechoic chamber and Reference Standard Instruments.
For tests results of each items were made by observation of each Instruments display and also with SLM's display.

**Condition of this result of calibration :**

1. Reference Standard Instruments :

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| Waveform Generator | 33210A | MY48017076 | EF-0007-22 | 04-Feb-23 |
| Waveform Generator | 33511B | MY52302742 | EF-0008-22 | 04-Feb-23 |
| Digital Multimeter | 33461A | MY53220104 | EEL.BP. 04/0265 | 09-Feb-23 |
| Digital Multimeter | 33461A | MY53220076 | EEL.BP. 03/0265 | 09-Feb-23 |
| Digital Multimeter | 34461A | MY60024273 | EEL.BP. 05/0265 | 09-Feb-23 |
| Programmable Attenuator | MAT-1070 | 62100114 | EF-0009-22 | 07-Feb-23 |
| Condenser Microphone | 4180 | 2977900 | AA-1013-22 | 24-Feb-23 |
| Measuring Amplifier | NA-42KAI | 34560495 | AA-3005-22 | 22-Feb-23 |

2. This result of calibration was found accurate as shown on date and place of calibration for this calibrated item only.
3. This certificate is traceable to the international system of unit maintained at :
   3.1 National Institute of Metrology (Thailand).
   3.2 Thailand Institute of Scientific and Technological Research (TISTR).



T. Petch.



**Summary of Measurement Result :**

| Parameter | Pass | Fail | Uncertainty (dB) | Maximum-permitted uncertainty of measurement (dB) |
|---|---|---|---|---|
| 1. Absolute sensitivity | ✓ | - | 0.2 | N/A |
| 2. Self-generated noise | ✓ | - | 0.2 | N/A |
| 3. Acoustical signal tests of frequency weightings | | | | |
| 125 Hz | ✓ | - | 0.3 | 0.6 |
| 1000 Hz | ✓ | - | 0.3 | 0.6 |
| 8000 Hz | ✓ | - | 0.3 | 0.7 |
| 4. Electrical signal tests of frequency weightings | | | | |
| For 10 Hz to 4 kHz | ✓ | - | 0.3 | 0.6 |
| For > 4 kHz to 10 kHz | ✓ | - | 0.3 | 0.7 |
| For > 10 kHz to 20 kHz | - | - | - | 1.0 |
| 5. Frequency and time weightings at 1 kHz | ✓ | - | 0.2 | 0.2 |
| 6. Long - term stability | ✓ | - | 0.1 | 0.1 |
| 7. Level linearity on the reference level range | ✓ | - | 0.2 | 0.3 |
| 8. Level linearity including the level range control | ✓ | - | 0.2 | 0.3 |
| 9. Tone burst response | ✓ | - | 0.2 | 0.3 |
| 10. Peak C sound level | ✓ | - | 0.2 | 0.35 |
| 11. Overload indication | ✓ | - | 0.2 | 0.25 |
| 12. High level stability | ✓ | - | 0.1 | 0.1 |



T. Petch.



**Result of calibration :**

**1. Absolute sensitivity**

| Reference Acoustic Signal ( dB ) | Measured Value ( dB ) | Deviation ( dB ) | Acceptance Limit ( dB ) |
|---|---|---|---|
| 93.9 (93.95) | 93.9 | 0.0 | ±0.3 |

**2. Self-generated noise**

2.1 Normal test

| Measured Value ( dB ) |
|---|
| 14.2 |

2.2 The microphone of the sound level meter was replaced by electrical signal input device.

| Frequency Weighting | Measured value ( dB ) |
|---|---|
| A - weight | 9.9 |
| C - weight | 16.5 |
| Flat | 22.2 |

**3. Acoustical signal tests of frequency weightings**

Meter free-field acoustic response at a level of 84 dB

| Frequency ( Hz ) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 125 | 0.2 | 0.2 | 0.2 | ± 1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ± 1.0 |
| 8000 | 1.0 | 1.1 | 1.1 | ±5.0 |



T. Petch.

**4. Electrical signal tests of frequency weightings**

Weighting network response with relative to 1 kHz.

| Frequency (Hz) | Deviation from various frequency weighting response curve (dB) | | | |
|---|---|---|---|---|
| | Flat | C-weight | A-weight | Acceptance Limits |
| 63 | 0.0 | -0.1 | -0.1 | ±2.0 |
| 125 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 250 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 500 | 0.0 | 0.0 | 0.0 | ±1.5 |
| 1000 | 0.0 | 0.0 | 0.0 | ±1.0 |
| 2000 | 0.0 | 0.0 | 0.0 | ±2.0 |
| 4000 | 0.0 | 0.0 | 0.0 | ±3.0 |
| 8000 | 0.0 | 0.1 | 0.1 | ±5.0 |

**5. Frequency and time weightings at 1 kHz**

5.1 Frequency weightings at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| A - weight | 94.0 | 0.0 | - |
| C - weight | 94.0 | 0.0 | ± 0.2 |
| Flat | 94.0 | 0.0 | ± 0.2 |

5.2 Time weighting at 1 kHz

| Frequency Weighting | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Fast | 94.0 | 0.0 | - |
| Slow | 94.0 | 0.0 | ± 0.1 |
| Leq | 94.0 | 0.0 | ± 0.1 |

**6. Long - term stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 94.0 | 94.0 | 0.0 | ± 0.3 |





**7. Level linearity on the reference level range**

| Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| 137.0 | 137.0 | 0.0 | ± 1.1 |
| 136.0 | 136.0 | 0.0 | ± 1.1 |
| 135.0 | 135.0 | 0.0 | ± 1.1 |
| 134.0 | 134.0 | 0.0 | ± 1.1 |
| 133.0 | 133.0 | 0.0 | ± 1.1 |
| 132.0 | 132.0 | 0.0 | ± 1.1 |
| 131.0 | 131.0 | 0.0 | ± 1.1 |
| 129.0 | 129.0 | 0.0 | ± 1.1 |
| 124.0 | 124.0 | 0.0 | ± 1.1 |
| 119.0 | 119.0 | 0.0 | ± 1.1 |
| 114.0 | 114.0 | 0.0 | ± 1.1 |
| 109.0 | 109.0 | 0.0 | ± 1.1 |
| 104.0 | 104.0 | 0.0 | ± 1.1 |
| 99.0 | 99.0 | 0.0 | ± 1.1 |
| 94.0 | 94.0 | 0.0 | ± 1.1 |
| 89.0 | 89.1 | 0.1 | ± 1.1 |
| 84.0 | 84.1 | 0.1 | ± 1.1 |
| 79.0 | 79.0 | 0.0 | ± 1.1 |
| 74.0 | 74.1 | 0.1 | ± 1.1 |
| 69.0 | 69.1 | 0.1 | ± 1.1 |
| 64.0 | 64.0 | 0.0 | ± 1.1 |
| 59.0 | 59.1 | 0.1 | ± 1.1 |
| 54.0 | 54.0 | 0.0 | ± 1.1 |
| 49.0 | 49.0 | 0.0 | ± 1.1 |
| 44.0 | 44.0 | 0.0 | ± 1.1 |
| 39.0 | 39.0 | 0.0 | ± 1.1 |
| 34.0 | 34.0 | 0.0 | ± 1.1 |
| 30.0 | 30.1 | 0.1 | ± 1.1 |
| 29.0 | 29.1 | 0.1 | ± 1.1 |
| 28.0 | 28.0 | 0.0 | ± 1.1 |
| 27.0 | 27.0 | 0.0 | ± 1.1 |
| 26.0 | 26.1 | 0.1 | ± 1.1 |
| 25.0 | 25.1 | 0.1 | ± 1.1 |





**8. Level linearity including the level range control**

| Range | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Auto | 94.0 | 94.0 | 0.0 | ±1.1 |

**9. Tone burst response**

| Time Weighting | Tone burst duration, Tb (ms) | Cycle | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|---|---|
| Fast | 0.25 | 1 | 108.0 | 107.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 117.0 | 117.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 134.0 | 134.0 | 0.0 | ±1.0 |
| Slow | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.5 ; -5.0 |
| | 200 | 800 | 127.6 | 127.6 | 0.0 | ±1.0 |
| SEL | 0.25 | 1 | 99.0 | 98.9 | -0.1 | 1.5 ; -5.0 |
| | 2 | 8 | 108.0 | 108.0 | 0.0 | 1.0 ; -2.5 |
| | 200 | 800 | 128.0 | 128.0 | 0.0 | ±1.0 |

**10. Peak C sound level**

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value, Lepeak (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| One | 136.4 | 135.8 | -0.6 | ±3.0 |

| Number of cycle in test signal | Anticipated Value (dB) | Measured Value (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| Continuous | 133.0 | 133.0 | 0.0 | - |
| Positive half cycle | 135.4 | 135.2 | -0.2 | ±2.0 |
| Negative half cycle | 135.4 | 135.2 | -0.2 | ±2.0 |





**11. Overload indication**

| Measured value (dB) | | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|
| Positive one-half cycle | Negative one-half cycle | | |
| 89.5 | 89.6 | 0.1 | ±1.5 |

**12. High level stability**

| Frequency Weighting | SLM Display at initial (dB) | SLM Display at final (dB) | Deviated Value (dB) | Acceptance Limits (dB) |
|---|---|---|---|---|
| A - weight | 137.0 | 137.0 | 0.0 | ±0.3 |

The reported uncertainty is based on a standard uncertainty multiplied by coverage factor $k = 2$ or any value following calculation,providing a lavel of confidence of approximately 95 %

End of Calibration Certificate

DKSH

# Certificate of Calibration

| | | | |
|---|---|---|---|
| **Equipment:** | SPECTROPHOTOMETER | Certificate No.: | C06220464 |
| **Model:** | DR6000 | Issued Date: | 27 September 2022 |
| **Serial No. (or ID.):** | 1627845 (RYG_EN0037) | Job No.: | KSPR2212224 |
| **Manufacturer:** | HACH | Page: | 1 of 3 |
| **Condition:** | In Condition | | |

**Customer:** ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)
616/10 Moo 5 T.Maenam Khu,
A.Pluakdaeng, Rayong 21140, Thailand.

REVIEW BY N.Banjit
APPROVED BY
NEXT CAL. DATE 27/3/24

**Environment Condition:** Temperature 23.1 °C ± 3.2 %RH
Humidity 65.4 %RH ± 3.2 %RH

**Calibration Place:** ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch) ( Wet Chemistry )
616/10 Moo 5 T.Maenam Khu,
A.Pluakdaeng, Rayong 21140, Thailand.

**Calibration By:** Mr. Chattuphon Folthong
**Calibration Date:** 27 September 2022
**The Method used:** In house method, CAL-WI-24, base on ASTM E 275-08 and ASTM E 387-04
**Traceability:** This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Stama Scientific Limited.

The standard for Wavelength Certificate No. 91418 and 91435
The standard for Photometric Certificate No. 91441 and 101068
The standard for Stray light Certificate No. 101041 and 101040
The standard for Spectral resolution Certificate No. 101037

(Mr. Chattuphon Folthong)
Person in charge

(Mr. Thaleangkeat Poungngam)
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.
The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

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Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand





**Calibration Results:**
**Without Adjustment**

**Wavelength Accuracy (nm), The spectral bandwidth of Std at 2 nm and UUC at 2 nm**

| Standard Wavelength | Unit Under Calibration | Correction | Uncertainty |
|---|---|---|---|
| 418.61 | 418.4 | 0.21 | 0.14 |
| 536.66 | 536.7 | -0.04 | 0.14 |
| 637.98 | 638.3 | -0.32 | 0.14 |
| 748.48 | 748.8 | -0.32 | 0.14 |
| 807.03 | 807.4 | -0.37 | 0.13 |

**Photometric Accuracy (Absorbance)**

| Wavelength | Standard absorbance | Unit Under Calibration | Correction | Uncertainty |
|---|---|---|---|---|
| 420 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5605 | 0.563 | -0.0025 | 0.0045 |
| | 0.7334 | 0.737 | -0.0036 | 0.0045 |
| | 1.0534 | 1.057 | -0.0036 | 0.0045 |
| 440 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5503 | 0.553 | -0.0027 | 0.0045 |
| | 0.7179 | 0.720 | -0.0021 | 0.0045 |
| | 1.0312 | 1.034 | -0.0028 | 0.0045 |
| 465 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5024 | 0.506 | -0.0036 | 0.0045 |
| | 0.6693 | 0.672 | -0.0027 | 0.0045 |
| | 0.9604 | 0.964 | -0.0036 | 0.0045 |
| 546.1 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5166 | 0.519 | -0.0022 | 0.0045 |
| | 0.6903 | 0.691 | -0.0007 | 0.0045 |
| | 0.9904 | 0.992 | -0.0016 | 0.0045 |
| 590 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5525 | 0.554 | -0.0015 | 0.0045 |
| | 0.7175 | 0.718 | -0.0005 | 0.0045 |
| | 1.0301 | 1.031 | -0.0009 | 0.0045 |
| 635 nm | 0.0000 | 0.000 | 0.0000 | 0.0045 |
| | 0.5387 | 0.538 | -0.0013 | 0.0045 |
| | 0.6847 | 0.685 | -0.0003 | 0.0046 |
| | 0.9823 | 0.983 | -0.0007 | 0.0045 |

บริษัท ดีเคเอสเอช เทคโนโลยี จำกัด
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Delivering Growth – In Asia and Beyond.
CALFM-C06-13: 20 Jul 2022



**Calibration Results:**
**Without Adjustment**

**Photometric Accuracy (Absorbance)**

| Wavelength | Standard absorbance | Unit Under Calibration | Correction | Uncertainty |
|---|---|---|---|---|
| 235 nm | 0.0000 | 0.000 | 0.0000 | 0.0080 |
| | 0.7423 | 0.744 | -0.0017 | 0.0083 |
| 257 nm | 0.0000 | 0.000 | 0.0000 | 0.0080 |
| | 0.8609 | 0.861 | -0.0001 | 0.0084 |
| 313 nm | 0.0000 | 0.000 | 0.0000 | 0.0080 |
| | 0.2895 | 0.292 | -0.0025 | 0.0080 |
| 350 nm | 0.0000 | 0.000 | 0.0000 | 0.0080 |
| | 0.6381 | 0.638 | 0.0001 | 0.0080 |

**Stray light ***

| Standard: cut-off | UUC: Wavelength (nm) | UUC: Transmission (%T) | Absorbance ( A) |
|---|---|---|---|
| 260.67 +/- 0.11 nm | 260.7 | 2.1 | 1.678 |
| 391.94 +/- 0.11 nm | 391.9 | 1.7 | 1.770 |

**Spectral Resolution ***

| Nominal Concentration 0.02 % w/v | Peak | Trough | Ratio | SBW |
|---|---|---|---|---|
| Standard Wavelength ( nm ) | 268.60 | 266.63 | 1.39 | 2.00 |
| UUC: Wavelength (nm) | 268.2 | 266.1 | | |
| Std Absorbance ( A) | 0.4810 | 0.3176 | | |
| Absorbance ( A) | 0.373 | 0.268 | | |

* Calibration Marked " Not TISI Accredited " in this Certificate have been included for completeness.

The End of Certificate

บริษัท ดีเคเอสเอช เทคโนโลยี จำกัด
DKSH Technology Limited
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CALFM-C06-13: 20 Jul 2022

DKSH

# ใบตรวจสอบสภาพเครื่องวัดสิ่งแวดล้อม

เลขที่ใบงาน: KSPR2212224

ชนิดเครื่องมือ: SPECTROPHOTOMETER รุ่น: DR6000 หมายเลขเครื่อง: 1627845

| ตรวจสอบ (รับ) 27 Sep 2022 ปกติ | ตรวจสอบ (รับ) 27 Sep 2022 ไม่ปกติ | รายการตรวจเช็ค | ตรวจสอบ (ส่ง) 27 Sep 2022 ปกติ | ตรวจสอบ (ส่ง) 27 Sep 2022 ไม่ปกติ | หมายเหตุ |
|---|---|---|---|---|---|
| | | *General* | | | |
| ☑ | ☐ | 1. ความสมบูรณ์เครื่อง | ☑ | ☐ | |
| ☑ | ☐ | 2. ความสะอาด ( ช่องใส่ตัวอย่าง, ภายใน-นอกเครื่อง) | ☑ | ☐ | |
| ☑ | ☐ | 3. สวิทช์ ปิด – เปิด เครื่อง (On-Off Switch) | ☑ | ☐ | |
| ☑ | ☐ | 4. ปุ่มกด (Keypad) | ☑ | ☐ | |
| ☑ | ☐ | 5. หน้าจอ (Display, Screen Contrast) | ☑ | ☐ | |
| | | *Spectrophotometer* | | | |
| ☐ | ☐ | 6. แรงดันไฟฟ้า (Battery Backup) >= 2.5 VDC | ☐ | ☐ | |
| ☐ | ☐ | 7. ตัวหมุนเลือกความยาวคลื่น (Wavelength Control) | ☐ | ☐ | |
| ☑ | ☐ | 8. ความยาวคลื่น (Wavelength Check) | ☑ | ☐ | 656.1 ได้ 656.1 nm |
| ☑ | ☐ | 9. แหล่งกำเนิดแสง (UV < 3,000 hour) | ☑ | ☐ | |
| ☑ | ☐ | 10. แหล่งกำเนิดแสง (Visible < 5,000 hour) | ☑ | ☐ | |
| ☑ | ☐ | 11. ช่องวัดหลายตัวอย่าง (Carousel Module) | ☑ | ☐ | |
| | | *pH Meter and Conductivity Meter* | | | |
| ☐ | ☐ | 12. อิเล็คโทรด ( Electrode and Connection Cable ) | ☐ | ☐ | |
| ☐ | ☐ | 13. ระดับสารละลายใน Electrode (Level KCl ) | ☐ | ☐ | |
| ☐ | ☐ | 14. ฝาปิดกันปลาย Electrode (Dust Protection Hood) | ☐ | ☐ | |
| ☐ | ☐ | 15. ขาจับอิเล็คโทรด (Stand) | ☐ | ☐ | |
| | | *Turbidimeter* | | | |
| ☐ | ☐ | 16. ค่าความขุ่นที่ต่ำสุด (No Sample) | ☐ | ☐ | |
| ☐ | ☐ | 17. ระดับการห่องว่างของแสง (>= 2.5 ไม่เกิน 3.0) | ☐ | ☐ | |
| | | *Automatic titrator* | | | |
| ☐ | ☐ | 18. สภาพ Piston Burettes | ☐ | ☐ | |
| ☐ | ☐ | 19. Function Rinsing and Dosing | ☐ | ☐ | |
| ☐ | ☐ | 20. ระบบท่อสายยางและอุปกรณ์ประกอบ | ☐ | ☐ | |

เพิ่มเติม/ข้อแนะนำ :

Mr. Chattuphon Folthong
Service Engineer

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3600-27 FAX. 0-2719-9281

NSC-TISI-TIS17025 CALIBRATION 0008

Cert.No.: 22CH1733
Page.: 1 of 3

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | pH Meter |
| **Manufacturer :** | Mettler Toledo |
| **Model :** | SevenExcellence |
| **Serial No. :** | B834291445 |
| **ID No. :** | RYG_EN0152 |
| **Condition As-Received:** | Used Item |
| **Received Date :** | 21 December 2022 |
| **Calibration Date :** | 22 December 2022 |
| **Reference :** | 2212-0602DSC-1 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>Rayong Branch<br>616/10 Moo 5 T.Maenam Khu,<br>A.Pluakdaeng, Rayong 21140, Thailand |
| **Ambient Temperature :** | (25 ± 2.5) °C |
| **Relative Humidity :** | (50 ± 15) % |
| **Calibration Procedure :** | In - house method :<br>- CP-CH5 by direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM)<br>- CP-CH8 by comparison with standard thermometer |

REVIEW BY N.Bangsri
APPROVED BY
22/12/65
NEXT CAL. DATE 22/Dec/24

**Calibrated by :** Warakorn Lerngagtrakul

**Approved by :** Malee .
Approved Signatory

(/) Malee Butkruea
( ) Saithip Meangmai
( ) Warakorn Lerngagtrakul

**Issue Date :** 26 December 2022

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced other than in full, except with the prior written Approval of the head of Corporate Services 3 - Equipment Calibration and Testing Services

A 0048758

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Cert.No.: 22CH1733
Page.: 2 of 3

**Condition of this calibration result**

1. Reference Standard Instrument : -

| Instrument | Serial No. | ID No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Document Process Calibrator | 54030049 | 130RC116 | 22E2769 | 24 Aug 2023 |
| 2) Ref. Standard Thermometer | 4982054 | 110RC044 | 2211306 | 27 Oct 2023 |

This certification is traceable to the International System of Unit maintained at:-
- Traceable to National Institute of Metrology (Thailand), NIMT

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

| Buffer Solution | Manufacturer | Lot No. | Exp. date |
|---|---|---|---|
| pH 4.008 | CPA chem | 826588 | 09 July 2024 |
| pH 6.987 | CPA chem | 823322 | 20 June 2023 |
| pH 10.008 | CPA chem | 826590 | 09 July 2023 |

3. This certificate is valid only to the item calibrated on date and place of calibration.

**Calibration Results**

**Function : mV Measurement**

**Performing standard curve by Fluke at pH (4,7,10)**

| Unit Under Calibration | Nominal Value | Standard Voltage Input | Actual Reading | | Uncertainty of Measurement | Coverage factor |
|---|---|---|---|---|---|---|
| | pH | mV | mV | pH | ( ±mV ) | *k* |
| pH Meter | 4.000 | 177.48 | 177.3 | 4.000 | 0.058 | 2.00 |
| S/N.: B834291445 | 7.000 | 0.00 | -0.1 | 7.000 | 0.058 | 2.00 |
| | 10.000 | -177.48 | -177.5 | 10.000 | 0.058 | 2.00 |

Malee .

a 1141167

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Cert.No.: 22CH1733
Page.: 3 of 3

**Calibration Results**

**Function : pH Measurement**

**Performing three buffers standard curve by using buffer nominal pH (4,7,10)**

| Unit Under Calibration | Standard pH Buffer Solution | Actual pH Reading | Actual mV Reading ( mV ) | Uncertainty of pH measurement ( ± ) | Coverage factor *k* |
|---|---|---|---|---|---|
| pH Electrode | 4.008 | 4.011 | 185.2 | 0.0052 | 2.06 |
| S/N.: 1475518 | 6.987 | 6.990 | 10.4 | 0.0088 | 2.00 |
| | 10.008 | 10.014 | -166.5 | 0.0072 | 2.00 |

**Function : Temperature Measurement**

**( * ) Without adjustment**

This equipment was connected with Temperature Probe;
- Model : InLab Expert Pro-ISM
- Serial No. : 1475518

Dimension of probe;
- Length : 120 mm.
- Diameter : 12 mm.
- Immersion Depth : 100 mm.

| Calibration Point ( °C ) | Standard Temperature ( °C ) | UUC* Reading ( °C ) | Error ( °C ) | Uncertainty of measurement ( ± °C ) | Coverage factor *k* |
|---|---|---|---|---|---|
| 25.0 | 25.001 | 24.9 | -0.101 | 0.13 | 2.00 |

**Remark : - UUC* = Unit Under Calibration**

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG, BANGKOK 10250
TEL. 0-2717-3000-24 FAX. 0-2719-9481

NSC-TISI-TIS17025 CALIBRATION 0008

# Certificate of Calibration

Certificate No. : 22E4098
Page : 1 of 2

| | |
|---|---|
| **Equipment :** | pH Meter |
| **Manufacturer:** | Mettler Toledo |
| **Model :** | SevenExcellence |
| **Serial No.:** | B834291445 |
| **ID No.:** | RYG_EN0152 |
| **Condition As-Received:** | Used Item |
| **Received Date:** | 21 December 2022 |
| **Calibration Date:** | 23 December 2022 |
| **Reference:** | 2212-0602DSC |
| **Ambient Temperature:** | ( 23 ± 2 ) °C |
| **Relative Humidity:** | ( 50 ± 10 ) % |
| **Submitted by:** | ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch<br>616/10 Moo 5, T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand |

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**Procedure used:** Calibration were conducted using In-house calibration Procedure CP-E17 According to direct measurement method with Multi-Product Calibrator.

**Condition of this result of calibration**

1 Reference standards instruments :

| Instrument | Model | Serial No. | Certificate No. | Due Date |
|---|---|---|---|---|
| 1) Multi-Product Calibrator | 5500A | 6315011 | 22E1431 | 05 May 2023 |

2 This result of calibration was made on requested at the point specified by customer.

3 The certificate is valid only to the item calibrated on date and place of calibration.

4 This Certification is traceable to the International System of Unit maintained at:-
-National Institute of Metrology Thailand (NIMT)

**Calibrated by :** Wutchareeporn Wongchutikrane
**Issue Date :** 26 December 2022

**Approved Signatory :**
[✓] Phalinee Prabpalpal
[ ] Nuntawat Khamchai
[ ] Pornthippa Tameyakul

B 0304803

Cert. No.: 22E4098
Page.: 2 of 2

**Result of calibration :-** (*) Without adjustment ( ) After adjustment

**Function:** DC voltage measuremer **Range:** 2000 mV

| Standard Value | UUC* Reading | Error | Uncertainty |
|---|---|---|---|
| ( mV ) | ( mV ) | ( mV ) | ( ± µV ) |
| -200.0000 | -200.0 | 0.0 | 72 |
| -150.0000 | -150.0 | 0.0 | 69 |
| -100.0000 | -100.0 | 0.0 | 65 |
| -50.0000 | -50.0 | 0.0 | 62 |
| 0.0000 | 0.0 | 0.0 | 58 |
| 50.0000 | 50.0 | 0.0 | 62 |
| 100.0000 | 100.0 | 0.0 | 65 |
| 150.0000 | 150.0 | 0.0 | 69 |
| 200.0000 | 199.9 | -0.1 | 72 |

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*=2, providing a level of confidence of approximately 95 %

***UUC= Unit Under Calibration.**

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a 1140616


Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100
Bangkok Tel : +668 9205 6851 , +669 8247 2360
Website : www.scieco.co.th E-Mail : calibrate@scg.com
NSC-TISI-TIS 17025 CALIBRATION 0244


**Certificate No. T230116** **Page 1 of 4**

## Certificate of Calibration

| | | |
|---|---|---|
| Equipment | : | Chamber ( Cooling Room ) |
| Manufacturer | : | MODULAR |
| Model | : | IREVCOHCOO |
| Serial No. | : | C00351459 |
| Customer Code | : | RYG_EN0184 |
| ID No. | : | T1939A5 |
| Customer | : | ALS Laboratory Group (Thailand) Co.,Ltd. ( Rayong Branch) |
| | | 616/10 Moo 5 T.Maenam Khu, |
| | | A.Pluakdaeng, Rayong 21140 |
| Customer Location | : | Laboratory |
| Date of Receipt | : | 23 January 2023 |
| Calibrated By | : | Atiphong Rongrat ( Technician ) |
| Approved By | : | / Boonchai Suriyawong (Site Calibration Manager) |
| Date of Issue | : | 07 FEB 2023 |

REVIEW BY
APPROVED BY
NEXT CAL. DATE 20/07/24

The uncertainties are for a confidence probability of approximately 95%.


This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.





Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
NSC-TISI-TIS 17025 CALIBRATION 0244


**Certificate No. T230116** **Page 2 of 4**

## Calibration Report

**Equipment** : **Chamber ( Cooling Room )**
**Date of Calibration** : **25 January 2023**
**Environment** : **Temperature : 23.4-24.9 °C**
**Line Voltage : 221.4-230.2 V**
**Relative Humidity : 55 - 65 %RH**

**Condition of this results of calibration :**

1. Thisequipment was calibrated by insert 16 standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Reapproved 2001) and AS2853-1986 ).
   All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
2. Reference Standard Instrument :

| Instrument | Model | Instrument No. | Certificate No. | Due Date |
|---|---|---|---|---|
| TC | TYPE T | TN141-TN150 | T222123 | 5 October 2023 |
| TC | TYPE T | TN151-TN160 | T222123 | 5 October 2023 |
| DATA LOGGER | 34970A | T150 | T222123 | 5 October 2023 |

3. This certificate is traceable to :
   National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.)
4. Condition of calibrated item : good
   Equipment Description :
   Time Constant 1 Hour - Minute At 3 °C
   Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
   ☐ Close
   ☒ Not Available
5. Adjustment :
   ( X ) without adjustment ( ) after adjustment

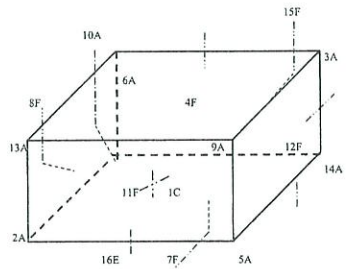
**Approved By.**




Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
NSC-TISI-TIS 17025 CALIBRATION 0244


**Certificate No. T230116** **Page 3 of 4**

## Calibration Report




C = Centre , F = Centre of Face , A = Corner , E = Centre of Edge

| | | | |
|---|---|---|---|
| 1C | = TN141 | 12F | = TN152 |
| 2A | = TN142 | 13A | = TN153 |
| 3A | = TN143 | 14A | = TN154 |
| 4F | = TN144 | 15F | = TN155 |
| 5A | = TN145 | 16E | = TN156 |
| 6A | = TN146 | | |
| 7F | = TN147 | | |
| 8F | = TN148 | | |
| 9A | = TN149 | | |
| 10A | = TN150 | | |
| 11F | = TN151 | | |

**Approved By.**

SCG

## Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110. Thailand.

NSC-TISI-TIS 17025 CALIBRATION 0064

Certificate No. T230116



# Calibration Report

**Measurement Results**

| Calibration Point | Average Standard Reading at each position (°C) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TN141 | TN142 | TN143 | TN144 | TN145 | TN146 | TN147 | TN148 | TN149 | TN150 | TN151 | TN152 |
| 3.0 | 3.03 | 3.16 | 3.15 | 3.19 | 3.45 | 3.47 | 3.21 | 3.35 | 3.54 | 3.45 | 3.24 | 3.34 |
| | TN153 | TN154 | TN155 | TN156 | | | | | | | | |
| | 3.28 | 3.22 | 3.28 | 3.21 | | | | | | | | |

| Chamber ( Cooling Room ) | | | Temperature Distribution | | | |
|---|---|---|---|---|---|---|
| Setting (°C) | Reading (°C) | | Stability (±°C) | Uniformity (°C) | Uncertainty (±°C) | Coverage Factor *k* |
| | Min , Max | Average | | | | |
| 3.0 | 2.8 , 4.1 | 3.5 | 1.20 | 1.20 | 1.90 | 2.07 |

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor *k* which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By. Banm Loon

FM-L15 117-15-05-63

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

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534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250

TEL. 0-2717-3000 FAX. 0-2719-9484



# Certificate of Testing

REVIEW BY N.Bamrit
APPROVED BY D.
NEXT CAL. DATE 15/8/23

| | |
|---|---|
| **Equipment :** | DO Meter |
| **Manufacturer :** | YSI |
| **Model :** | 5000-115V |
| **Serial No. :** | 15E102796 |
| **ID No. :** | RYG_EN0032 |
| **Received Date :** | 11 February 2022 |
| **Test Date :** | 14 February 2022 |
| **Reference :** | 2202-0404DSC-4 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch) 616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand |
| **Laboratory Condition :** | Temperature ( 25 ± 5 ) °C<br>Humidity (50 ± 20) % |
| **Test Procedure :** | In - house method : CP-CH9<br>by Comparison Technique with Azide Modification Method |
| **Tested by :** | Walalak Sirithean |
| **Approved by :** | Saithip<br>Approved Signatory |

( ) Malee Butkruea
(✓) Saithip Meangmai
( ) Warakorn Lerngagtrakul

**Issue Date :** 18 February 2022

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**Result :** Dissolved Oxygen Meter Adjustment With Air 100 %

Dissolved Oxygen Probe No.: 15E100464

| Titration Method (Azide Modification Method) (mg/L) | DO Meter Reading (mg/L) | Standard Deviation (mg/L) |
|---|---|---|
| 8.02 | 8.02 | 0.0084 |

This report was certified only for the instrument we tested.It is allowable to use for study the system efficiency,The environmental impact control and present to organization it may concerned Intend to use for advertising and referral purpose is prohibited.This report may not be reproduced other in full,without written approval of the laboratory

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Saithip

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)

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NSC-TISI-TIS1925 CALIBRATION 0008



# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | DO Meter with Sensor |
| **Manufacturer :** | YSI |
| **Model :** | 5000-115V |
| **Serial No. :** | 15E102796 |
| **ID No. :** | RYG_EN0032 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branc 616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand |
| **Location :** | TPA On Site Calibration Laboratory |
| **Received Order :** | 11 February 2022 |
| **Calibrated Date :** | 21 February 2022 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **AC Line Voltage :** | ( 220 ± 22 ) V |
| **Calibrated by :** | Kunchit Promprat |
| **Approved by :** | Mabs .<br>Approved Signatory |

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 21 February 2022

The Uncertainties are for a confidence probability of approximately 95%

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A 0038008

**Equipment :** DO Meter with Sensor **Cert. No.:** 22LM12
**Condition As-Received :** Used Item **Page.:** 2 of 2
**Reference :** 2202-0404DSC-5
**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with Industrial Platinum Resistance Thermometer ( IPRT ) into Temperature Bath.

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Digital Thermometer | 1523 | 2188080 | 21I1273 | 22 Nov 2022 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment
**Function :** Temperature measurement.
This instrument was connected with temperature sensor, S/N.: 15E100464

| Calibration Point ( °C ) | Immersion Depth ( mm ) | Standard Temperature ( °C ) | UUC* Reading ( °C ) | Error ( °C ) | Uncertainty ( ± °C ) | Coverage Factor *k* |
|---|---|---|---|---|---|---|
| 20.00 | 45 | 20.001 | 19.88 | -0.121 | 0.15 | 2.00 |

**UUC* :** Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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ISO/IEC 17025 ACCREDITATION NO. 0035
ISO/IEC 17025 CALIBRATION 0006

# Certificate of Calibration

**Cert. No.:** 22TM317
**Page.:** 1 of 3

**Equipment :** Low Temp. Incubator
**Manufacturer :** Memmert
**Model :** IPP750
**Serial No. :** V818.0084
**ID No. :** RYG_EN0154

REVIEW BY N.Bamrat
APPROVED BY D
NEXT CAL. DATE 21/10/23

**Submitted by :** ALS Laboratory Group (Thailand) Co.,Ltd.
(Rayong Branch)
616/10 Moo 5 T.Maenam Khu,
A.Pluakdaeng, Rayong 21140, Thailand
**Location :** BOD Room

**Received Order :** 22 April 2022
**Calibration Date :** 22 April 2022
**Ambient Temperature :** ( 26 ± 10 ) °C
**Relative Humidity :** ( 50 ± 30 ) %

**Calibrated by :** Man Pattanapongpaiboon

**Approved by :** Malee .
Approved Signatory
( ) Pornthippa Tameyakul
(/) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 3 May 2022

The Uncertainties are for a confidence probability of approximately 95%

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A 0040735

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**Equipment :** Low Temp. Incubator **Cert. No.:** 22TM317
**Condition As-Received :** Used Item **Page.:** 2 of 3
**Reference :** 2204-0146OC-1
**Procedure Used :-**

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

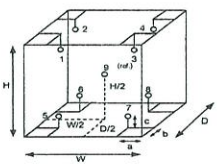
1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34970A | MY44031769 | 21LM12 | 02 Sep 2022 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Close

| Environment during calibration | Beginning | Finished |
|---|---|---|
| Temp. ( °C ) | 25 | 25 |
| REL.Humid. ( % ) | 54 | 58 |
| AC Supply ( Volt ) | 221 | 223 |




| Position : | Ref. Std. ID No.: |
|---|---|
| 1 | 9RTD-2/1 |
| 2 | 9RTD-2/2 |
| 3 | 9RTD-2/3 |
| 4 | 9RTD-2/4 |
| 5 | 9RTD-2/5 |
| 6 | 9RTD-2/6 |
| 7 | 9RTD-2/7 |
| 8 | 9RTD-2/8 |
| 9 (ref.) | 9RTD-2/9 |

**Probe Installation Details :**
a = 10 cm
b = 10 cm
c = 10 cm

**Dimension of Chamber :**
D = 0.60 m
W = 1.0 m
H = 1.2 m
Capacity = 0.75 m³

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**Equipment :** Low Temp. Incubator **Cert. No.:** 22TM317
**Condition As-Received :** Used Item **Page.:** 3 of 3
**Reference :** 2204-0146OC-1
**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Close

| Calibration Point ( °C ) | UUC* Setting ( °C ) | UUC* Reading ( °C ) | Temperature stability ( ± °C ) | Temperature uniformity ( °C ) | Overall Variation ( °C ) | Uncertainty ( ±°C ) | Coverage Factor *k* |
|---|---|---|---|---|---|---|---|
| 20.0 | 20.0 | 20.0 | 0.022 | 0.20 | 0.22 | 0.30 | 2 |

| Calibration Point | Measured Temperature ( °C ) Position | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ( °C ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 (ref.) |
| 20.0 | 20.209 | 20.174 | 20.199 | 20.110 | 20.075 | 20.062 | 20.027 | 20.069 | 20.030 |

**Average* :** The average of 30 values in each position.
**Temperature stability :** One-half of the greatest maximum difference of measured temperature at any one sensor.
**Temperature uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.
**Overall Variation :** The Difference of the maximum and minimum measured temperatures throughout observation.
**UUC* :** Unit Under Calibration
Note : The reported uncertainty of measurement was included stability and excluded uniformity .

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG, BANGKOK 10250
TEL. 0-2717-3000-24 FAX. 0-2719-9484

NSC-TH-T:517025
CALIBRATION 0005

# Certificate of Calibration

Certificate No. : 22T1594
Page : 1 of 2

| | |
|---|---|
| Equipment : | Digital Thermometer With Sensor |
| Manufacturer: | Testo |
| Model : | 106 |
| Serial No.: | 31281488/504 |
| ID No.: | RYG_FS0469 |
| Condition As-Received: | Used Item |
| Received Date: | 26 August 2022 |
| Calibration Date: | 31 August 2022 to 06 September 2022 |
| Reference: | 2208-0984DSC |
| Ambient Temperature: | ( 25 ± 3 ) °C |
| Relative Humidity: | ( 50 ± 20 ) % |

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Submitted by: ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch

616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng, Rayong 21140, Thailand

Procedure used: Calibration were conducted using in-house calibration procedure CP-T01 according to comparison with Industrial Platinum Resistance Thermometer (IPRT) into liquid bath temperature controller.
The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1.Reference standards instuments :

| Instrument | Model | Serial No. | Certificate No. | Due Date |
|---|---|---|---|---|
| 1) Digital Thermometer | 1529 | A7A809 | 2111126 | 14 Oct 2022 |
| 2) Industrial Platinum Resistance Thermometer | 5627 | 824304 | 2111126 | 14 Oct 2022 |

2.The certificate is valid only to the item calibrated on date and place of calibration.

3.This Certification is traceable to the International System of Unit maintained at:-

-National Institute of Metrology Thailand (NIMT)

REVIEW BY Tanasit
APPROVED BY Supat S.
NEXT CAL. DATE 31/08/23

Calibrated by : Pitak Srimongkol
Issue Date : 12 September 2022

Approved Signatory :
[ ] Phalinee Prabpaipat
[ ] Chatchawan Khunpituck
[✓] Wanlop Larpkurn

B 0296668

Cert. No.: 22T1594
Page.: 2 of 2

**Result of Calibration:-** Without Adjustment

**Function:** Temperature measurement

Dimension of probe : Diameter 3 mm., Length 55 mm. Sheath material : Stainless Steel

| Immersion Depth ( mm.) | Standard Temperature ( °C ) | UUC* Reading ( °C ) | Error ( °C ) | Uncertainty of Measurement ( ±°C ) | Coverage factor ( k ) |
|---|---|---|---|---|---|
| 50 | 25.0000 | 24.9 | -0.1000 | 0.17 | 2.17 |
| 50 | 29.9998 | 29.9 | -0.0998 | 0.12 | 2 |
| 50 | 40.0020 | 40.0 | -0.0020 | 0.12 | 2 |

UUC* : Unit Under Calibration

The reported uncertainty of measurement was based on standard uncertainty multiplied by a coverage factor k, providing a level of confidence of approximately 95%.

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R46_FS0605

METTLER TOLEDO

Certificate Number CPH-0205-22

## Calibration Certificate
## Seven2Go™ pH/mV meter S2

**Customer**

| | |
|---|---|
| Company | ALS LABORATORY GROUP (THAILAND) CO. LTD |
| Address | 616/10 Moo 5, T.Maenamkoo, A.Pluakdaeng |
| | RAYONG 21140 |
| Customer ID number | I01668973 |
| Customer representative | - |

**Instrument**

| | | | |
|---|---|---|---|
| Type | Seven2Go™ pH/mV S2 | Instrument Serial Number | C232568424 |
| Internal identification | - | Firmware version | 1.01 |

**Technical specifications**

| | | |
|---|---|---|
| Measuring Range | -1999.9 1999.9 mV | -2 20 pH |
| Resolution | 1 mV | 0.01 pH |
| Limit of Error | ± 1 mV | ± 0.01 pH |
| Temperature range MTC | -5 105 °C | |
| Temperature range ATC | -5 105 °C | |
| Resolution | 0.1 °C | |
| Limit of Error | ± 0.5 °C °C | |

REVIEW BY Tanasit
APPROVED BY Supat S.
NEXT CAL. DATE Sep 7, 23

**Procedure Statement**

METTLER TOLEDO Seven2Go Service Manual Section B (Doc. No. 30232219) will be used as referring documentation to adjust and certify the instrument indicated in the "Type" and "Serial number" section. The measurement results of this certification were obtained at ambient conditions.

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METTLER TOLEDO

Certificate Number CPH-0205-22

**Certification Tools**

| | | | |
|---|---|---|---|
| Certified digital voltmeter | Manufacturer HEWLETT PACKARD / 34401A | Serial number | US36033161 |
| | Type - | Certificate number | E1U22931 |
| | | Date of Certification | September 7, 2022 |
| Certified Temperature Resistors | Manufacturer METTLER-TOLEDO | Serial number | A227 |
| | Type 51302450 | Certificate number | 63871 |
| | | Date of Certification | April 27, 2022 |

| Designation | Nominal value | Certified value |
|---|---|---|
| NTC 30 kΩ, 0 °C | 94.580 kΩ | 94.9814 kΩ |
| NTC 30 kΩ, 25 °C | 30.000 kΩ | 30.0022 kΩ |
| NTC 30 kΩ, 50 °C | 10.969 kΩ | 10.96530 kΩ |
| NTC 30 kΩ, 75 °C | 4.528 kΩ | 4.52584 kΩ |
| NTC 30 kΩ, 100 °C | 2.000 kΩ | 2.00026 kΩ |

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**METTLER TOLEDO**

Certificate Number CPH-0205-22

**Certification Measurements**

pH/mV Sensor Input

| Designation | Certified value | Measured value | Max. Tolerance | Passed / Failed |
|---|---|---|---|---|
| -1900 mV | -1900.0 mV | -1900 mV | 1 mV | Passed |
| -1000 mV | -1000.0 mV | -1000 mV | 1 mV | Passed |
| -500 mV | -500.0 mV | -500 mV | 1 mV | Passed |
| -180 mV | -180.0 mV | -180 mV | 1 mV | Passed |
| 0 mV | 0.0 mV | 0 mV | 1 mV | Passed |
| 180 mV | 180.0 mV | 180 mV | 1 mV | Passed |
| 500 mV | 500.0 mV | 500 mV | 1 mV | Passed |
| 1000 mV | 1000.0 mV | 1000 mV | 1 mV | Passed |
| 1900 mV | 1900.0 mV | 1900 mV | 1 mV | Passed |

Temperature Sensor Input

| Designation | Nominal value | Measured value | Max. Tolerance | Passed / Failed |
|---|---|---|---|---|
| NTC 30 kΩ, 0 °C | 0.0 °C | 0.0 °C | 0.5 °C | Passed |
| NTC 30 kΩ, 25 °C | 25.0 °C | 25.1 °C | 0.5 °C | Passed |
| NTC 30 kΩ, 50 °C | 50.0 °C | 50.2 °C | 0.5 °C | Passed |
| NTC 30 kΩ, 75 °C | 75.0 °C | 75.1 °C | 0.5 °C | Passed |
| NTC 30 kΩ, 105 °C | 100.0 °C | 100.0 °C | 0.5 °C | Passed |

**Summary of Certification**

Certification of instrument: Passed

The instrument referred to in this certificate has fulfilled the criteria of the certification. This is indicated by the notation Passed in the column above.

Remarks: Service Assignment ID: 0370210803
Test high impedance at 1900.0 mV, Results: 1900 mV
Difference = 0.0% Within MPE (0.1%)

Certification of the instrument was performed by

Name: Watinee Thongrod  Function: Service Technician

Company: METTLER-TOLEDO

Date: September 26, 2022  Signature: Watinee T.

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**METTLER TOLEDO**

## Performance Test

*Attachment to Certificate No.* CPH-0205-22

**pH Electrode**

*Type:* InLab Expert Go-ISM  *S/N:* 2304440

**Certified standards used**

| | | | | | |
|---|---|---|---|---|---|
| *Standard 1:* | Type: pH Buffer | Manufacturer: METTLER TOLEDO | | Exp. date: | Jun-24 |
| | Nominal value: pH ( 25.00 °C): | 4.01 | | Lot No.: | 1H158G |
| *Standard 2:* | Type: pH Buffer | Manufacturer: METTLER TOLEDO | | Exp. date: | Jan-24 |
| | Nominal value: pH ( 25.00 °C): | 7.00 | | Lot No.: | 1H013D |
| *Standard 3:* | Type: pH Buffer | Manufacturer: METTLER TOLEDO | | Exp. date: | May-24 |
| | Nominal value: pH ( 25.00 °C): | 9.20 | | Lot No.: | 1H139A |
| *Standard 4:* | Type: Redox Solution | Manufacturer: METTLER TOLEDO | | Exp. date: | - |
| | Nominal value: pH ( 25.00 °C): | - | | Lot No.: | - |

**Adjustment**

| *Set Calibration Buffer* | *B2 (25 °C) 2.00, 4.01, 7.00, 9.21, 11.00* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Select Calibration Mode* | *3-Point calibration* | | | *2-Point calibration* | | | *2-Point calibration* | | |
| *3-Point Calibration* | °C | | pH | °C | | pH | °C | | pH |
| Cal 1 | ATC | 25.3 | 4.01 | ATC | 25.0 | - | ATC | 25.0 | - |
| Cal 2 | ATC | 25.2 | 7.00 | ATC | 25.0 | - | ATC | 25.0 | - |
| Offset (mV) | 10 | | | - | | | - | | |
| Slope % (or mV/pH) | 97.7 | | | - | | | - | | |
| Cal 3 | ATC | 25.3 | 9.21 | | | | | | |
| Slope % (or mV/pH) | 99.0 | | | | | | | | |

**Measurements**

| *Before adjustment* | | | | | *After adjustment* | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Buffer Values* | | *Measured* | | *Difference* | *Buffer Values* | | *Measured* | | *Difference* |
| pH | °C | | pH | pH | pH | °C | | pH | pH |
| 4.01 | 25.4 | ATC | 3.98 | -0.03 | 4.01 | 25.3 | ATC | 4.02 | 0.01 |
| 7.00 | 25.1 | ATC | 6.96 | -0.04 | 7.00 | 25.1 | ATC | 7.01 | 0.01 |
| 9.20 | 25.2 | ATC | 9.13 | -0.07 | 9.20 | 25.3 | ATC | 9.21 | 0.01 |

Redox Measurement Result = - mV

*Note:* The difference result of calibrated electrode should be within +/- 0.05 pH

*Remarks:* -

*Place:* Chemical Laboratory  *Calibration Date:* September 26, 2022

*Service Specialist:* Watinee Thongrod  *Signature:* Watinee T.

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534/3 PAITANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000-29 FAX. 0-2719-9484

NSC-TISI-TIS17025 CALIBRATION 0008

Cert.No.: 23CH552
Page.: 1 of 2

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | pH Meter |
| **Manufacturer :** | Mettler Toledo |
| **Model :** | Seven2Go S2 |
| **Serial No. :** | B712869298 |
| **ID No. :** | RYG_FS0299 |
| **Condition As-Received:** | Used Item |
| **Received Date :** | 28 April 2023 |
| **Calibration Date :** | 02 May 2023 |
| **Reference :** | 2304-0759DSC-1 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch<br>616/10 Moo 5, T.Maenam Khu,<br>A.Pluakdaeng, Rayong 21140, Thailand |
| **Ambient Temperature :** | (25 ± 2.5) °C |
| **Relative Humidity :** | (50 ± 15) % |
| **Calibration Procedure :** | In - house method :<br>- CP-CH5 by direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM) |

REVIEW BY Pitthayath
APPROVED BY
NEXT CAL. DATE 02/05/24

**Calibrated by :** Warakorn Lerngagtrakul

**Approved by :**

Approved Signatory

( / ) Malee Butkruea
( ) Saithip Meangmai
( ) Warakorn Lerngagtrakul

**Issue Date :** 8 May 2023

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services

A 0053786

Cert. No.: 23CH552
Page.: 2 of 2

**Condition of this calibration result**

1. Reference Standard Instrument : -

| Instrument | Serial No. | ID No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Document Process Calibrator | 54030049 | 130RC116 | 22E2769 | 24 Aug 2023 |

This certification is traceable to the International System of Unit maintained at:-
- Traceable to National Institute of Metrology (Thailand), NIMT

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

| Buffer Solution | Manufacturer | Lot No. | Exp. date |
|---|---|---|---|
| pH 4.008 | CPA chem | 863832 | 28 Dec 2024 |
| pH 6.987 | CPA chem | 826589 | 09 July 2023 |
| pH 10.010 | CPA chem | 863835 | 28 Dec 2023 |

3. This certificate is valid only to the item calibrated on date and place of calibration.

**Calibration Results**

**Function : mV Measurement**

**Performing standard curve by Fluke at pH (4,7,10)**

| Unit Under Calibration | Nominal Value | Standard Voltage Input | Actual Reading | | Uncertainty of Measurement | Coverage factor |
|---|---|---|---|---|---|---|
| | pH | mV | mV | pH | (±mV) | k |
| pH Meter | 4.00 | 177.48 | 178 | 4.00 | 0.58 | 2.00 |
| S/N.: B712869298 | 7.00 | 0.00 | 0 | 7.00 | 0.58 | 2.00 |
| | 10.00 | -177.48 | -177 | 10.00 | 0.58 | 2.00 |

**Function : pH Measurement**

**Performing three buffers standard curve by using buffer nominal pH (4,7,10)**

| Unit Under Calibration | Standard pH Buffer Solution | Actual pH Reading | Actual mV Reading (mV) | Uncertainty of pH measurement (±) | Coverage factor k |
|---|---|---|---|---|---|
| pH Electrode | 4.008 | 4.01 | 180 | 0.0079 | 2.00 |
| S/N.: 8455109 | 6.987 | 6.99 | 7 | 0.011 | 2.00 |
| | 10.010 | 10.01 | -167 | 0.0095 | 2.00 |

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor $k$, providing a level of confidence of approximately 95 %.

-o0o-

Malee.

a 1159704

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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TEL. 0-2717-3000-29 FAX 0-2719-0184

Cert. No.: 23LM91
Page.: 1 of 2

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | pH Meter with Sensor |
| **Manufacturer :** | Mettler Toledo |
| **Model :** | Seven2Go S2 |
| **Serial No. :** | B712869298 |
| **ID No. :** | RYG_FS0299 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>Rayong Branch<br>616/10 Moo 5, T.Maenam Khu,<br>A.Pluakdaeng, Rayong 21140, Thailand |
| **Location :** | TPA On Site Calibration Laboratory |
| **Received Order :** | 28 April 2023 |
| **Calibrated Date :** | 03 May 2023 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **AC Line Voltage :** | ( 220 ± 22 ) V |
| **Calibrated by :** | Kunchit Promprat |
| **Approved by :** | Approved Signatory |

( ) Pornthippa Tameyakul
(/) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 8 May 2023

The Uncertainties are for a confidence probability of approximately 95%

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Approval of the head of Corporate Services 3 - Equipment Calibration and Testing Services.

A 0053787

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**Equipment :** pH Meter with Sensor
**Condition As-Received :** Used Item
**Reference :** 2304-0759DSC-3

Cert. No.: 23LM91
Page.: 2 of 2

**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with Industrial Platinum Resistance Thermometer ( IPRT ) into Temperature Bath.

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Digital Thermometer | 1502A | A7B843 | 23I24 | 04 Jan 2024 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment

**Function :** Temperature measurement.

This instrument was connected with temperature sensor, S/N.: 8455109

| Calibration Point ( °C ) | Immersion Depth ( mm ) | Standard Temperature ( °C ) | UUC* Reading ( °C ) | Error ( °C ) | Uncertainty ( ± °C ) | Coverage Factor *k* |
|---|---|---|---|---|---|---|
| 25.0 | 100 | 25.003 | 25.2 | 0.197 | 0.16 | 2.00 |
| 30.0 | 100 | 30.000 | 30.3 | 0.300 | 0.16 | 2.00 |
| 40.0 | 100 | 40.003 | 40.3 | 0.297 | 0.16 | 2.00 |
| 50.0 | 100 | 50.002 | 50.3 | 0.298 | 0.16 | 2.00 |

**UUC* :** Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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a 1159703

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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TEL. 0-2717-3000-29 FAX. 0-2719-0184

Cert.No.: 23CH441
Page.: 1 of 2

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | pH Meter |
| **Manufacturer :** | Mettler Toledo |
| **Model :** | Seven2Go |
| **Serial No. :** | B531256371 |
| **ID No. :** | RYG_FS0420 |
| **Condition As-Received:** | Used Item |
| **Received Date :** | 31 March 2023 |
| **Calibration Date :** | 03 April 2023 |
| **Reference :** | 2303-1133DSC-1 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd. Rayong Branch<br>616/10 Moo 5, T.Maenam Khu,<br>A.Pluakdaeng, Rayong 21140, Thailand |
| **Ambient Temperature :** | (25 ± 2.5) °C |
| **Relative Humidity :** | (50 ± 15) % |
| **Calibration Procedure :** | In - house method :<br>- CP-CH5 by direct measurement with standard voltage calibrator and direct measurement with certified reference material (CRM) |
| **Calibrated by :** | Warakorn Lerngagtrakul |
| **Approved by :** | Approved Signatory |

REVIEW BY Pitthaya Th
APPROVED BY Sup's
NEXT CAL. DATE 03/04/24

(/) Malee Butkruea
( ) Saithip Meangmai
( ) Warakorn Lerngagtrakul

**Issue Date :** 5 April 2023

The Uncertainties are for a confidence probability of approximately 95%

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A 0052953

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Cert. No.: 23CH441
Page.: 2 of 2

**Condition of this calibration result**

1. Reference Standard Instrument :-

| Instrument | Serial No. | ID No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Document Process Calibrator | 54030049 | 130RC116 | 22E2769 | 24 Aug 2023 |

This certification is traceable to the International System of Unit maintained at:-
- Traceable to National Institute of Metrology (Thailand), NIMT

2. Certified Reference Materials : The measurement results are traceable to SI through CPA chem Ltd., ANSI-ASQ National Accreditation Board, Accredited No. AR-1835

| Buffer Solution | Manufacturer | Lot No. | Exp. date |
|---|---|---|---|
| pH 4.008 | CPA chem | 863832 | 28 Dec 2024 |
| pH 6.987 | CPA chem | 826589 | 09 July 2023 |
| pH 10.010 | CPA chem | 863835 | 28 Dec 2023 |

3. This certificate is valid only to the item calibrated on date and place of calibration.

**Calibration Results**

**Function : mV Measurement**

**Performing standard curve by Fluke at pH (4,7,10)**

| Unit Under Calibration | Nominal Value | Standard Voltage Input | Actual Reading | | Uncertainty of Measurement ( ±mV ) | Coverage factor *k* |
|---|---|---|---|---|---|---|
| | pH | mV | mV | pH | | |
| pH Meter S/N.: B531256371 | 4.00 | 177.48 | 177 | 4.00 | 0.58 | 2.00 |
| | 7.00 | 0.00 | 0 | 7.00 | 0.58 | 2.00 |
| | 10.00 | -177.48 | -178 | 10.00 | 0.58 | 2.00 |

**Function : pH Measurement**

**Performing three buffers standard curve by using buffer nominal pH (4,7,10)**

| Unit Under Calibration | Standard pH Buffer Solution | Actual pH Reading | Actual mV Reading ( mV ) | Uncertainty of pH measurement (±) | Coverage factor *k* |
|---|---|---|---|---|---|
| pH Electrode S/N.: 2465866 | 4.008 | 4.01 | 191 | 0.0071 | 2.00 |
| | 6.987 | 6.99 | 16 | 0.011 | 2.00 |
| | 10.010 | 10.02 | -162 | 0.0095 | 2.00 |

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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a 1156433

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
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TEL. 0-2717-3000-27 FAX. 0-2719-9481

NSC-TISI-TIS 17025 CALIBRATION 0005

Cert. No.: 23LM85
Page.: 1 of 2

# Certificate of Calibration

| | |
|---|---|
| Equipment : | pH Meter with Sensor |
| Manufacturer : | Mettler Toledo |
| Model : | Seven2Go |
| Serial No. : | B531256371 |
| ID No. : | RYG_FS0420 |
| Submitted by : | ALS Laboratory Group (Thailand) Co.,Ltd.<br>Rayong Branch<br>616/10 Moo 5, T.Maenam Khu, A.Pluakdaeng,<br>Rayong 21140, Thailand |
| Location : | TPA On Site Calibration Laboratory |
| Received Order : | 31 March 2023 |
| Calibrated Date : | 05 April 2023 |
| Ambient Temperature : | ( 26 ± 10 ) °C |
| Relative Humidity : | ( 50 ± 30 ) % |
| AC Line Voltage : | ( 220 ± 22 ) V |
| Calibrated by : | Preecha Hlahib |
| Approved by : | Approved Signatory |

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Suwit Imjai

Issue Date : 21 April 2023

**The Uncertainties are for a confidence probability of approximately 95%**

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A 0045967

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**Equipment :** pH Meter with Sensor
**Condition As-Received :** Used Item
**Reference :** 2303-1133DSC-2

Cert. No.: 23LM85
Page.: 2 of 2

**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT01 according to comparison with Industrial Platinum Resistance Thermometer ( IPRT ) into Temperature Bath.
The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1) Digital Thermometer | 1502A | A52847 | 22I1325 | 31 Oct 2023 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment

**Function :** Temperature measurement.

This instrument was connected with temperature sensor, S/N.: 2465866

| Calibration Point ( °C ) | Immersion Depth ( mm ) | Standard Temperature ( °C ) | UUC* Reading ( °C ) | Error ( °C ) | Uncertainty ( ± °C ) | Coverage Factor k |
|---|---|---|---|---|---|---|
| 25.0 | 100 | 25.003 | 25.3 | 0.297 | 0.16 | 2.00 |
| 30.0 | 100 | 30.003 | 30.3 | 0.297 | 0.16 | 2.00 |
| 40.0 | 100 | 40.001 | 40.4 | 0.399 | 0.16 | 2.00 |
| 50.0 | 100 | 50.003 | 50.5 | 0.497 | 0.16 | 2.00 |

**UUC*** : Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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a 1157394

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RYG_EN0002

**Sartorius (Thailand) Co., Ltd.**
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel. +66 2643 8361-8 , e-mail. service.thailand@sartorius.com

NSC-TISI-TIS 17025 CALIBRATION 0426

REVIEW BY
APPROVED BY
NEXT CAL. DATE 01/03/2024

# Certificate of Calibration

| | | | |
|---|---|---|---|
| Model Number : | MSE224S-100-DU | Certificate No. : | 23BCI0112 |
| Description : | Analytical Balance | Issued Date : | Friday, March 03, 2023 |
| Serial Number : | 0026207038 | Reference No. : | 204833 |
| ID No. : | RYG_EN0002 | | |
| Manufacturer : | Sartorius | Page No. : | 1 Of 2 |

Customer Name : ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)
616/10 Moo 5 T.Maenam Khu, A.Pluak Daeng, Rayong 21140, Thailand.

Calibrated Place : ALS Laboratory Group (Thailand) Co., Ltd.(Balance Room)
616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng, Rayong.21140, Thailand.

Calibrated By : Mr.Chonchai Inthana
Calibration Date : Wednesday, March 01, 2023

Calibration Procedure No. : This calibration was conducted by Using in-house calibration procedure number (WI-003) Based on UKAS LAB 14 : 2019

*Metrological data :*
Capacity : 220 g Readability : 0.0001 g

*Ambients Conditions:*
Temperature : 23.6 °C ± 5.0 °C
Humidity : 60.0 % RH ± 10.0 % RH
Pressure ± -

*Reasons for calibration*
☐ New Installation ☐ Service / Repaired ☑ Re-calibration/ Maintenance

*Equipment Condition:* ☑ Good Operate ☐ Fair

## Measurement Method UKAS Publication Ref :Lab 14

The measurement uncertainty stated is the expended uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came form list of Sartorius Metrological Specifications.

## Traceability:

| Model Number | Description | Traceability | Cetificate No. | Due Date |
|---|---|---|---|---|
| YCS011-522-00 | Sartorius weight set 1mg - 5000g E2,YCS011-522-00 | SPC-RT | C02212565 | 14-Sep-2023 |
| MHB-382SD | Humidity/Barometer/Temp Lutron MHB-382SD | DKSH | C19220444 | 5-Sep-2023 |

This certificate relate and apply this equipment only.
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Mr.chonchai Inthana(Technical Manager)

STAMP



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**Sartorius (Thailand) Co., Ltd.**
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel. +66 2643 8361-8 Fax. +66 2643-8367, e-mail. service.thailand@sartorius.com

SARTORIUS

# Certificate of Calibration

| | | | |
|---|---|---|---|
| Model Number : | MSE224S-100-DU | Certificate No. : | 23BCI0112 |
| Description : | Analytical Balance | Issued Date : | Friday, March 03, 2023 |
| Serial Number : | 0026207038 | Reference No. : | 204833 |
| ID No. : | RYG_EN0002 | | |
| Manufacturer : | Sartorius | Page No. : | 2 of 2 |

## Calibration Results : Without Adjustment

### Repeatability

*The reproducibility is the ability of a weighing instrument to display nearly identical readouts under constant test conditions when the same load within a measurement series is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express reproducibility quantitatively.*

| | | |
|---|---|---|
| Nominal Value : (Low Load) | 20.0000 | 199.9999 |
| 20 g | 20.0000 | 200.0000 |
| Tolerance | 20.0000 | 199.9999 |
| *0.0001* g | 20.0000 | 200.0000 |
| | 20.0000 | 199.9999 |
| Nominal Value : (High Load) | 20.0000 | 199.9999 |
| 200 g | 19.9999 | 200.0000 |
| Tolerance | 20.0000 | 200.0000 |
| *0.0001* g | 20.0000 | 199.9999 |
| | 20.0000 | 200.0000 |
| *Standard Deviation* | 0.00003 | 0.00005 |

### Eccentricity (Off-center loading error)

*The off-center loading error is yielded by the difference between the readout of the load, i.e. 1/3 or 1/4 of maximim capacity, placed in the middle of the weighing pan and between each of four additional measurement points ( positions defined according to OIML R76).*

Nominal value : 100 g
Tolerance *0.0004* g



| | Difference |
|---|---|
| 1 | - |
| 2 | -0.0001 |
| 3 | -0.0001 |
| 4 | 0.0001 |
| 5 | 0.0002 |
| 6 | - |

### Linearity

*The linearity, also called linearity error, Describes the deviation of the characteristic curve of a weighing instrument from the linear slope.*

Tolerance *0.0002* g

| Nominal Value (g) | Conventional Mass Value (g) | Displayed Value (g) | Deviation (g) | Uncertainty (g) |
|---|---|---|---|---|
| 0.01 | 0.0100 | 0.0100 | 0.0000 | 0.00014 |
| 0.05 | 0.0500 | 0.0500 | 0.0000 | 0.00014 |
| 0.1 | 0.1000 | 0.1000 | 0.0000 | 0.00014 |
| 0.5 | 0.5000 | 0.5000 | 0.0000 | 0.00014 |
| 1 | 1.0000 | 1.0000 | 0.0000 | 0.00014 |
| 5 | 5.0000 | 5.0000 | 0.0000 | 0.00014 |
| 10 | 10.0000 | 10.0001 | 0.0001 | 0.00014 |
| 20 | 20.0000 | 20.0000 | 0.0000 | 0.00024 |
| 50 | 50.0000 | 50.0000 | 0.0000 | 0.00015 |
| 100 | 100.0000 | 99.9999 | -0.0001 | 0.00019 |
| 200 | 200.0000 | 200.0000 | 0.0000 | 0.00032 |

End of Report.

RYG_EN0010

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000-27 FAX. 0-2719-9484

NSC-TIGI-TIG17035 CALIBRATION 0008

Cert. No.: 22TM1517
Page : 1 of 3

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | Hot Air Oven |
| **Manufacturer :** | Memmert |
| **Model :** | UFE 500 |
| **Serial No. :** | G511.1572 |
| **ID No. :** | RYG_EN0010 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)<br>616/10 Moo 5 T. Maenam Khu,<br>A. Pluakdaeng,<br>Rayong 21140 Thailand |
| **Location :** | Oven Room |
| **Received Order :** | 20 October 2022 |
| **Calibration Date :** | 20 October 2022 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **Calibrated by :** | Man Pattanapongpaiboon |

REVIEW BY Thanthalit
APPROVED BY
NEXT CAL. DATE 20/Oct/2023

**Approved by :** Malee.
Approved Signatory

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 2 November 2022

**The Uncertainties are for a confidence probability of approximately 95%**

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Approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0046908

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**Equipment :** Hot Air Oven
**Condition As-Received :** Used Item
**Reference :** 2210-0376OC-2

Cert. No.: 22TM1517
Page : 2 of 3

**Procedure Used :-**

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector ( RTD ) and Thermocouple Type T.

The temperature scale used was based on ITS-90.

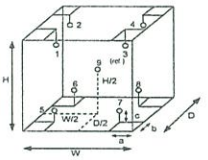
**Condition of this result of calibration**

1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34972A | MY49023932 | 22LM97 | 29 Jul 2023 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Close




| Environment during calibration | Beginning | Finished |
|---|---|---|
| Temp. ( °C ) | 25 | 25 |
| REL.Humid. ( % ) | 54 | 59 |
| AC Supply ( Volt ) | 223 | 225 |

| Position : | Ref. Std. ID No.: @ Calibration Point ( 180 ) °C | ( 104 ) °C |
|---|---|---|
| 1 | 21-16TC-01 | 20-16RTD-01 |
| 2 | 21-16TC-02 | 20-16RTD-02 |
| 3 | 21-16TC-03 | 20-16RTD-03 |
| 4 | 21-16TC-04 | 20-16RTD-04 |
| 5 | 21-16TC-05 | 22-16RTD-05 |
| 6 | 21-16TC-06 | 20-16RTD-06 |
| 7 | 21-16TC-07 | 20-16RTD-07 |
| 8 | 21-16TC-08 | 22-16RTD-08 |
| 9 (ref.) | 21-16TC-09 | 22-16RTD-09 |

**Probe Installation Details :**

| | | |
|---|---|---|
| a = | 5.0 | cm |
| b = | 5.0 | cm |
| c = | 5.0 | cm |

**Dimension of Chamber :**

| | | |
|---|---|---|
| D = | 0.40 | m |
| W = | 0.56 | m |
| H = | 0.48 | m |
| Capacity = | 0.11 | m³ |

Malee.

a 1132466

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**Equipment :** Hot Air Oven
**Condition As-Received :** Used Item
**Reference :** 2210-0376OC-2
**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Close

Cert. No.: 22TM1517
Page : 3 of 3

| Calibration Point ( °C ) | UUC* Setting ( °C ) | UUC* Reading ( °C ) | Temperature stability ( ± °C ) | Temperature uniformity ( °C ) | Overall Variation ( °C ) | Uncertainty ( ±°C ) | Coverage Factor *k* |
|---|---|---|---|---|---|---|---|
| 104.0 | 104.0 | 104.0 | 0.076 | 0.52 | 0.60 | 0.42 | 2 |
| 180.0 | 180.0 | 180.0 | 0.13 | 0.88 | 1.2 | 1.1 | 2 |

| Calibration Point | Measured Temperature ( °C ) Position | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ( °C ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 (ref.) |
| 104.0 | 103.768 | 103.734 | 103.723 | 103.800 | 104.215 | 104.131 | 104.132 | 103.740 | 103.747 |
| 180.0 | 179.723 | 179.359 | 179.439 | 179.489 | 180.361 | 180.114 | 180.131 | 180.243 | 179.605 |

**Average*** : The average of 30 values in each position.
**Temperature stability :** One-half of the greatest maximum difference of measured temperature at any one sensor
**Temperature uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.
**Overall Variation :** The Difference of the maximum and minimum measured temperatures throughout observation
**UUC*** : Unit Under Calibration
Note : The reported uncertainty of measurement was included stability and excluded uniformity .

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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Malee.

a 1132465

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3 : EQUIPMENT CALIBRATION AND TESTING SERVICES
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000 24 FAX. 0-2719-9484

NSC-TIGI-TIG17035 CALIBRATION 0008

Cert.No.: 18CG4595
Page.: 1 of 2

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | Burette |
| **Capacity :** | 50 mL |
| **Serial No. :** | - |
| **ID. No. :** | 243007 |
| **Manufacturer :** | Witeg |
| **Made In :** | Germany |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>Eastern Seaboard Industrial Estate (Rayong)<br>64/77 Moo 4, Building No.B1, Highway 331, km 91.5<br>T.Pluakdaeng, A.Pluakdaeng, Rayong 21140 |
| **Ambient Temperature :** | (22 ± 2.5) °C |
| **Relative Humidity :** | (50 ± 10) % |
| **Barometric Pressure :** | 757 mmHg |
| **Calibration Procedure :** | ASTM E 542 - 01 |
| **Calibrated by :** | Natcha Chayyingcheiw |

REVIEW BY N Bamgid
APPROVED BY
NEXT CAL. DATE 27/Oct/2019

**Approved by :** Malee.
Approved Signatory

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Ponpan Paipim
( ) Srisuda Khamtha

**Issue Date :** 27 September 2018

**The Uncertainties are for a confidence probability of approximately 95%.**

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approval of the head of Corporate Services 3 : Equipment Calibration and Testing Services.

A 0087224

| | | |
|---|---|---|
| **Equipment :** | Burette | **Cert.No.:** 18CG4595 |
| **Capacity :** | 50 mL | **Page.:** 2 of 2 |
| **Serial No. :** | - | |
| **ID. No. :** | 243007 | |
| **Manufacturer :** | Witeg | |
| **Received Date :** | 10 September 2018 | |
| **Condition As-Received :** | Used Item | |
| **Calibration Date :** | 21 September 2018 | |
| **Reference :** | 1809-0411DPC | |

**Condition of this result of calibration**

1. Reference Standard Instruments :

| Instruments | Model | Serial No. | ID. No. | Certificate No. | Traceability | Due date |
|---|---|---|---|---|---|---|
| 1) Balance | XP205DR | 1126143764 | 140RC004 | 18MM1 | NIMT | 2 Jan 2019 |

This certification is traceable to SI Unit

2. This certificate was certified only for the measuring instrument we calibrated.
3. This result of calibration was found accurate as shown on date and place of calibration only.
4. True value is converted to true volume at the standard temperature of 20 °C

**Calibration result :**

| Nominal capacity ( mL ) | Reading ( mL ) | Uncertainty ( ± mL ) | *k* Factor |
|---|---|---|---|
| 50 | 49.9901 | 0.010 | 2.00 |

**Remark** mL = $cm^3$

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k* , providing a level of confidence of approximately 95 %.

-o0o-

a 0901034

RYG_EN0188

DKSH

# Certificate of Calibration

| | | | |
|---|---|---|---|
| **Equipment:** | Block Digestion Unit | Certificate No.: | C29230010 |
| Model: | KT-20s | Issued Date: | 16 March 2023 |
| Serial No. (or ID.): | 5720210009/5770200073 | Job No.: | KSPR2304362 |
| Manufacturer: | Gerhardt | Page: | 1 of 4 |
| Condition: | In Condition | Digestion Block: | 20 holes. |

**Customer:** ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)
616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng,
Rayong 21140, Thailand.

REVIEW BY N.Ruenros
APPROVED BY D.
NEXT CAL. DATE 15/03/24

**Environment Condition:**

| | | | |
|---|---|---|---|
| Temperature: | 25 °C | ± | 0.5 °C |
| Humidity: | 65 %RH | ± | 3.7 %RH |
| Voltage: | 231 VAC | ± | 3.1 VAC |

**Calibration Place:** ALS Laboratory Group (Thailand) Co.,Ltd. (Rayong Branch)
( Wet Chemistry Lab )
616/10 Moo 5 T.Maenam Khu, A.Pluakdaeng,
Rayong 21140, Thailand.

**Calibration By:** Mr. Nakarin Ruenros

**Calibration Date:** 15 March 2023

**The Method used:** In house method, base on by comparison with standard

**Traceability:** This certificate is traceable to the SI Units maintained by National Institute of Metrology (NIMT), Thailand through N.M. Technical Center Laboratory (NTL) Certificate No.: TC22/0080

(Mr. Nakarin Ruenros)
Person in charge

(Mr. Udon Srichana)
Authorized signatory

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.
The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).
These results may be effected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of DKSH Technology Limited.

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DKSH Technology Limited
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2633 CDM Building, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand



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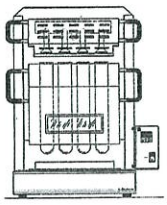
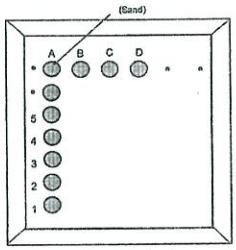


Fig. 1.: Front view




Location of standard

Fig. 2.: Digestion block

**Definitions**

***Indicating Temperature:*** The average reading of indicating device which forms the integral part of the Digestion block.

***Measured Temperature:*** The average reading of working standard at any positions or location.

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Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand



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**Calibration Results:**
**Before adjustment**

| Locations | Desired (°C) | Setting (°C) | Indicating (°C) | Measured Temperature (°C) | Correction of UUC. (°C) | Uncertainty (± °C) |
|---|---|---|---|---|---|---|
| A1 | 380 | 380 | 380 | 375.1 | -4.9 | 1.5 |
| A2 | | | | 374.3 | -5.7 | 1.5 |
| A3 | | | | 374.6 | -5.4 | 1.5 |
| A4 | | | | 376.3 | -3.7 | 1.5 |
| A5 | | | | 373.2 | -6.8 | 1.5 |
| B1 | | | | 374.4 | -5.6 | 1.5 |
| B2 | | | | 374.3 | -5.7 | 1.5 |
| B3 | | | | 374.6 | -5.4 | 1.5 |
| B4 | | | | 375.2 | -4.8 | 1.5 |
| B5 | | | | 375.1 | -4.9 | 1.5 |
| C1 | | | | 373.5 | -6.5 | 1.5 |
| C2 | | | | 372.8 | -7.2 | 1.5 |
| C3 | | | | 372.1 | -7.9 | 1.5 |
| C4 | | | | 372.2 | -7.8 | 1.5 |
| C5 | | | | 374.5 | -5.5 | 1.5 |
| D1 | | | | 374.7 | -5.3 | 1.5 |
| D2 | | | | 375.3 | -4.7 | 1.5 |
| D3 | | | | 375.5 | -4.5 | 1.5 |
| D4 | | | | 375.8 | -4.2 | 1.5 |
| D5 | | | | 375.1 | -4.9 | 1.5 |

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2633 CDM Building, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Phone: +66 2639 7000 Email: info.calibration@dksh.com Website: www.dksh.com/scientific-thailand

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Certificate No.: C29230010 Page: 4 of 4

**Calibration Results:**
**After adjustment**

| Locations | Desired (°C) | Setting (°C) | Indicating (°C) | Measured Temperature (°C) | Correction of UUC. (°C) | Uncertainty (± °C) |
|---|---|---|---|---|---|---|
| A1 | 380 | 380 | 380 | 379.0 | -1.0 | 1.5 |
| A2 | | | | 378.7 | -1.3 | 1.5 |
| A3 | | | | 379.4 | -0.6 | 1.5 |
| A4 | | | | 379.2 | -0.8 | 1.5 |
| A5 | | | | 379.2 | -0.8 | 1.5 |
| B1 | | | | 379.8 | -0.2 | 1.5 |
| B2 | | | | 379.2 | -0.8 | 1.5 |
| B3 | | | | 379.5 | -0.5 | 1.5 |
| B4 | | | | 378.9 | -1.1 | 1.5 |
| B5 | | | | 379.1 | -0.9 | 1.5 |
| C1 | | | | 379.1 | -0.9 | 1.5 |
| C2 | | | | 377.7 | -2.3 | 1.5 |
| C3 | | | | 378.4 | -1.6 | 1.5 |
| C4 | | | | 378.2 | -1.8 | 1.5 |
| C5 | | | | 378.0 | -2.0 | 1.5 |
| D1 | | | | 379.5 | -0.5 | 1.5 |
| D2 | | | | 378.7 | -1.3 | 1.5 |
| D3 | | | | 379.7 | -0.3 | 1.5 |
| D4 | | | | 379.5 | -0.5 | 1.5 |
| D5 | | | | 379.4 | -0.6 | 1.5 |

The End of Certificate

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## ใบตรวจสอบสภาพเครื่องควบคุมอุณหภูมิ

เลขที่ใบงาน: KSPR2304362

ชนิดเครื่องมือ: Block Digestion Unit รุ่น: KT-20s

หมายเลขเครื่อง: 5720210009/5770200073

| ตรวจสอบ (รับ) | | รายการตรวจเช็ค | ตรวจสอบ (ส่ง) | | หมายเหตุ |
|---|---|---|---|---|---|
| 15 Mar 2023 | | | 15 Mar 2023 | | |
| ปกติ | ไม่ปกติ | | ปกติ | ไม่ปกติ | |
| | | *General* | | | |
| ☑ | ☐ | 1. สายไฟ | ☑ | ☐ | |
| ☑ | ☐ | 2. การทำงาน Main Switch | ☑ | ☐ | |
| ☑ | ☐ | 3. การทำงาน Selector Key | ☑ | ☐ | |
| ☑ | ☐ | 4. การแสดงผล Display | ☑ | ☐ | |
| ☑ | ☐ | 5. สภาพ Hole | ☑ | ☐ | |
| ☐ | ☐ | 6. สภาพฝาปิด | ☐ | ☐ | ไม่มี |
| ☑ | ☐ | 7. สภาพตัวเครื่อง | ☑ | ☐ | |
| ☑ | ☐ | 8. สภาวะแวดล้อม ณ สถานที่ตั้งเครื่อง | ☑ | ☐ | |

ข้อแนะนำ : _____

Mr. Nakarin Ruenros

Service Engineer

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NSC-TISI-TIS 17025
CALIBRATION 0426

SARTORIUS

REVIEW BY Sirilut P.
APPROVED BY
NEXT CAL. DATE 8/2/24

# Certificate of Calibration

Model Number : MSE224S-100-DU
Description : Analytical Balance
Serial Number : 26207042
ID No. : BKK_EN0002
Manufacturer : Sartorius

Certificate No. : 23BCI0072
Issued Date : Monday, February 13, 2023
Reference No. : 203245
Page No. : 1 of 2

Customer Name : ALS Laboratory Group (Thailand)Co., Ltd.
104 Phatthanakan 40,Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250.
Calibrated Place : Balance Room

Calibrated By : Mr. Chonchai Inthana
Calibration Date : Wednesday, February 08, 2023

Calibration Procedure No. : This calibration was conducted by
Using in-house calibration procedure number (WI-003)
Based on UKAS LAB 14 : 2019

*Metrological data :*
Capacity : 220 g Readability : 0.0001 g

*Ambients Conditions:*
Temperature : 23.2 °C ± 5.0 °C
Humidity : 60.0 % RH ± 10.0 % RH
Pressure _ ± _

*Reasons for calibration*
☐ New Installation ☐ Service / Repaired ☑ Re-calibration/ Maintenance

*Equipment Condition:* ☑ Good Operate ☐ Fair

## Measurement Method UKAS Publication Ref :Lab 14

The measurement uncertainty stated is the expended uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The calibration certificate documents the traceability to National Standards, which realise the unit of measurement according to the International Standard System of Units (SI). Report of Tolerance came form list of Sartorius Metrological Specifications.

## Traceability:

| Model Number | Description | Traceability | Cetificate No. | Due Date |
|---|---|---|---|---|
| YCS011-522-00 | Sartorius weight set 1mg - 5000g E2 YCS011-522-00 | SPC-RT | C02212565 | 14-Sep-2023 |
| MHB-382SD | Humidity/Barometer/Temp Lutron MHB-382SD | DKSH | C19220444 | 5-Sep-2023 |

This certificate relate and apply this equipment only.
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Mr.Chonchai Inthana(Technical Manager)

STAMP



**Sartorius (Thailand) Co., Ltd.**
129 Rama 9 Road, Huaykwang, Huaykwang, Bangkok 10310
Tel: +66 2643 8361-6 Fax: +66 2643-8367, e-mail: service.thailand@sartorius.com

SARTORIUS

# Certificate of Calibration

Model Number : MSE224S-100-DU
Description : Analytical Balance
Serial Number : 26207042
ID No. : BKK_EN0002
Manufacturer : Sartorius

Certificate No. : 23BCI0072
Issued Date : Monday, February 13, 2023
Reference No. : 203245
Page No. : 2 of 2

## Calibration Results : Without Adjustment

### Repeatability

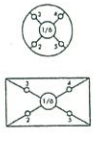
*The reproducibility is the ability of a weighing instrument to display nearly identical readouts under constant test conditions when the same load within a measurement series is placed repeatedly on the weighing pan in the same manner. The standard deviation is used to express reproducibility quantitatively.*

| | | |
|---|---|---|
| Nominal Value : (Low Load) 20 g | 20.0000 | 200.0000 |
| | 20.0000 | 199.9999 |
| Tolerance 0.0001 g | 20.0000 | 200.0000 |
| | 20.0000 | 199.9999 |
| | 20.0001 | 200.0000 |
| Nominal Value : (High Load) 200 g | 20.0000 | 200.0000 |
| | 20.0000 | 199.9999 |
| Tolerance 0.0001 g | 20.0000 | 199.9999 |
| | 20.0000 | 200.0000 |
| | 20.0001 | 199.9999 |
| *Standard Deviation* | 0.00004 | 0.00005 |

### Eccentricity (Off-center loading error)

*The off-center loading error is yielded by the difference between the readout of the load, i.e. 1/3 or 1/4 of maximm capacity, placed in the middle of the weighing pan and between each of four additional measurement points ( positions defined according to OIML R76).*

Nominal value : 50 g
Tolerance 0.0004 g




| | Difference |
|---|---|
| 1 | _ |
| 2 | -0.0001 |
| 3 | 0.0000 |
| 4 | 0.0001 |
| 5 | 0.0000 |
| 6 | _ |

### Linearity

*The linearity, also called linearity error. Describes the deviation of the characteristic curve of a weighing instrument from the linear slope.*

Tolerance 0.0002 g

| Nominal Value (g) | Conventional Mass Value (g) | Displayed Value (g) | Deviation (g) | Uncertainty (g) |
|---|---|---|---|---|
| 0.01 | 0.0100 | 0.0100 | 0.0000 | 0.00014 |
| 0.1 | 0.1000 | 0.1000 | 0.0000 | 0.00014 |
| 1 | 1.0000 | 1.0000 | 0.0000 | 0.00014 |
| 2 | 2.0000 | 2.0000 | 0.0000 | 0.00014 |
| 5 | 5.0000 | 5.0000 | 0.0000 | 0.00014 |
| 10 | 10.0000 | 10.0000 | 0.0000 | 0.00014 |
| 20 | 20.0000 | 20.0000 | 0.0000 | 0.00014 |
| 50 | 50.0000 | 50.0000 | 0.0000 | 0.00015 |
| 100 | 100.0000 | 100.0000 | 0.0000 | 0.00019 |
| 200 | 200.0000 | 199.9999 | -0.0001 | 0.00030 |

End of Report.

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100
Bangkok Tel : +668 9205 6851 , +669 8247 2360
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T220139 Page 1 of 3

# Certificate of Calibration

| | | |
|---|---|---|
| Equipment | : | Liquid Bath ( Water ) |
| Manufacturer | : | MEMMERT |
| Model | : | WNB29 |
| Serial No. | : | L611.0135 |
| Customer Code | : | BKK_EN0148 |
| ID No. | : | T6455A4 |
| Customer | : | ALS Laboratory Group (Thailand) Co.,Ltd. |
| | | 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, |
| | | Khet Suan Luang, Bangkok 10250 |
| Customer Location | : | ORGANIC PREPARATION LAB |
| Date of Receipt | : | 26 January 2022 |
| Calibrated By | : | Watcharapon Sangtong (Technician ) |
| Approved By | : | _____/ Sujjar Naknakred (Site Calibration Manager) |
| Date of Issue | : | 08 FEB 2022 |

REVIEW BY Siriluk P.
APPROVED BY
NEXT CAL. DATE 1/8/23

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

FM-L14 117/01-02-64

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.

Certificate No. T220139 Page 2 of 3

## Calibration Report

| | | |
|---|---|---|
| Equipment | : | Liquid Bath ( Water ) |
| Date of Calibration | : | 31 January 2022 |
| Environment | : | Temperature : 22.4-23.9 °C |
| | | Line Voltage : 221.4-225.4 V |
| | | Relative Humidity : 55 - 65 %RH |

**Condition of this results of calibration :**

1. This equipment was calibrated by insert five resistance thermometer detectors into its water bath , the other one thermocouple type T use for ambient temperature measurement . The calibration was done in according to WI-T36 ( based on ASTM E715-80 ( Reapproved 2001 )).
   All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
2. Reference Standard Instrument :

| Instrument | Model | Instrument No. | Certificate No. | Due Date |
|---|---|---|---|---|
| RTD | 100 OHM | M34 (CH1-CH5) | T210115 | 2 February 2022 |
| DATA LOGGER | 34970A | T47 | T210115 | 2 February 2022 |

3. This certificate is traceable to :
   National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244 )
4. Condition of calibrated item : good
   Equipment Description :
   Time Constant 1 Hour - Minute At 60 °C
5. Adjustment :
   ( X ) without adjustment ( ) after adjustment

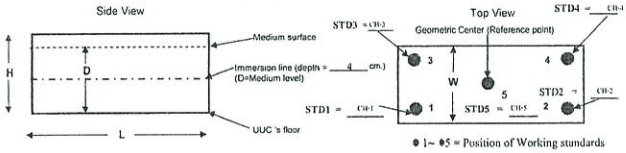
Approved By_____

FM-L15 117/15-05-63

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.

Certificate No. T220139 Page 3 of 3

## Calibration Report




● 1~ ●5 = Position of Working standards

- D = Medium level : 8 cm. Working space dimension : 62 × 41 × 14 (WxLxH)
- UUC 's medium : Water
- Working standards are located at 2.5 cm. away from each coner and walls.

**Measurement Results:**

| Calibration Point | Average Standard Reading at each position (°C) | | | | |
|---|---|---|---|---|---|
| | CH-1 | CH-2 | CH-3 | CH-4 | CH-5 |
| 60 | 59.95 | 60.04 | 60.12 | 60.01 | 59.89 |
| 85 | 85.17 | 84.89 | 85.34 | 84.78 | 84.93 |
| 95 | 93.46 | 93.14 | 93.81 | 93.05 | 93.28 |

| Liquid Bath ( Water ) | | | Temperature Distribution | | | |
|---|---|---|---|---|---|---|
| Setting (°C) | Reading (°C) | | Stability | Uniformity | Uncertainty | Coverage |
| | Min , Max | Average | (±°C) | (±°C) | (±°C) | Factor k |
| 61.0 | 60.9 , 61 | 61.0 | 0.10 | 0.19 | 0.25 | 2.00 |
| 86.0 | 85.9 , 86.1 | 86.0 | 0.12 | 0.39 | 0.32 | 2.06 |
| 95.0 | 94.8 , 95.1 | 94.9 | 0.14 | 0.51 | 0.38 | 2.11 |

* The quoted uncertainty exclude "uniformity"
The calibration result apply only the above calibrated item.
The result of test was found accurate as shown on date and place of test only.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By_____

FM-L15 117/15-05-63

Bara Scientific Co., Ltd.
968 U Chu Liang Building Floor7 Rama4 Road
Silom Bangrak Bangkok Thailand 10500
Tel : 02-6324300 Fax : 02-6375496-7
www.barascientific.com

# Certificate of Calibration

Number of Page(s) 1 of 3

| | |
|---|---|
| Certificate No. | BSCC-UV-307/22 |
| Equipment | UV/Vis Spectrophotometer |
| Model | UV-1800 |
| Manufacturer | Shimadzu |
| Serial No. | A11454908533CD |
| ID No. | BKK_EN0018 |
| Date of receipt | 16 September 2022 |
| Date of calibration | 16 September 2022 |
| Date of issue | 23 September 2022 |

REVIEW BY Siriluk P.
APPROVED BY
NEXT CAL. DATE 16/9/23

| | |
|---|---|
| Customer name | ALS Laboratory Group (Thailand) Co., Ltd. |
| Address | 104 Soi Phatthanakan 40, Phatthanakan Road, Phatthanakan, Suan Luang, Bangkok 10250 |
| Temperature | (22.1-23.3) °C (On site) |
| Humidity | (58.8-63.2) %RH (On site) |
| Equipment condition | Good Operation |
| Calibration Location | Organic Prep |
| Calibration Procedure | In-house method WI-UV-702-01 based on ASTM E275-01 |
| Traceability | Wavelength Accuracy is traceable to certificate No. 95917 and 95918<br>Photometric Accuracy is traceable to certificate No. 95924 and 95937<br>Stray Light is traceable to certificate No. 95908<br>The above certificate are traceable to SI unit through Starna Scientific Ltd.<br>(UKAS accredited calibration laboratory NO. 0659) |
| Calibrated by | Mr.Waruth Janphung |

Approved by

Mr.Kanchit Choothep
Technical Manager

The above results are valid exclusively for the calibrated item(s) as mention in this report / certificate.
Advertising the report / Certificate and publicity of the results are prohibited and also shall not be reproduced except in full, without written approval of the Bara Scientific Co., Ltd.

FM-UV-708-02 Rev.01 (23/01/63)

Bara Scientific Co., Ltd.
968 U Chu Liang Building Floor7 Rama4 Road
Silom Bangrak Bangkok Thailand 10500
Tel : 02-6324300 Fax : 02-6375496-7
www.barascientific.com

# Certificate of Calibration

Certificate No. BSCC-UV-307/22 Number of Page(s) 2 of 3

Calibration Results:

1.Wavelength Accuracy

| Certified Wavelength (nm) | UUC (nm) | Error (nm) | Uncertainty (±nm) |
|---|---|---|---|
| 241.70 | 241.65 | -0.05 | 0.18 |
| 334.02 | 333.92 | -0.10 | 0.18 |
| 418.53 | 418.46 | -0.07 | 0.18 |
| 572.99 | 572.96 | -0.03 | 0.18 |
| 879.41 | 879.17 | -0.24 | 0.18 |

2.Photometric Accuracy (UV)

| Wavelength (nm) | Certified Absorbance (A) | UUC (A) | Error (A) | Uncertainty (±A) |
|---|---|---|---|---|
| 235 | 0.0000 | 0.0000 | 0.0000 | 0.0075 |
| | 0.7467 | 0.7461 | -0.0006 | 0.0075 |
| 257 | 0.0000 | 0.0000 | 0.0000 | 0.0075 |
| | 0.8662 | 0.8647 | -0.0015 | 0.0075 |
| 313 | 0.0000 | 0.0000 | 0.0000 | 0.0075 |
| | 0.2904 | 0.2911 | 0.0007 | 0.0075 |
| 350 | 0.0000 | 0.0000 | 0.0000 | 0.0075 |
| | 0.6429 | 0.6426 | -0.0003 | 0.0075 |

*CNR = Customer not request

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968 U Chu Liang Building Floor7 Rama4 Road
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Tel : 02-6324300 Fax : 02-6375496-7
www.barascientific.com

# Certificate of Calibration

Certificate No. BSCC-UV-307/22 Number of Page(s) 3 of 3

Calibration Results:

3.Photometric Accuracy (Visible)

| Wavelength (nm) | Certified Absorbance (A) | UUC (A) | Error (A) | Uncertainty (±A) |
|---|---|---|---|---|
| 420.0 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5783 | 0.5777 | -0.0006 | 0.0042 |
| | 0.7628 | 0.7635 | 0.0007 | 0.0048 |
| | 1.0206 | 1.0230 | 0.0024 | 0.0042 |
| 440.0 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5621 | 0.5618 | -0.0003 | 0.0042 |
| | 0.7455 | 0.7460 | 0.0005 | 0.0048 |
| | 0.9985 | 1.0005 | 0.0020 | 0.0042 |
| 465.0 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5227 | 0.5219 | -0.0008 | 0.0042 |
| | 0.6880 | 0.6884 | 0.0004 | 0.0051 |
| | 0.9487 | 0.9503 | 0.0016 | 0.0042 |
| 546.1 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5207 | 0.5199 | -0.0008 | 0.0042 |
| | 0.6973 | 0.6971 | -0.0002 | 0.0049 |
| | 0.9959 | 0.9964 | 0.0005 | 0.0042 |
| 590.0 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5544 | 0.5534 | -0.0010 | 0.0042 |
| | 0.7253 | 0.7242 | -0.0011 | 0.0050 |
| | 1.0942 | 1.0943 | 0.0001 | 0.0042 |
| 635.0 | 0.0000 | 0.0000 | 0.0000 | 0.0042 |
| | 0.5616 | 0.5606 | -0.0010 | 0.0042 |
| | 0.6927 | 0.6921 | -0.0006 | 0.0053 |
| | 1.0881 | 1.0885 | 0.0004 | 0.0042 |

*CNR = Customer not request

4.Stray Light*

| Standard | Unit Under Calibration(UUC) | | |
|---|---|---|---|
| cut-off wavelenght (nm) | Wavelength (nm) | Transmission (%T) | Absorbance (A) |
| 200.96±0.11nm | 200.30 | 0.9505 | 2.0229 |

The Stray light transmission reference is less than 1.0%T and Stray light absorbance reference is greater than 2.00A
*Stray Light not NSC-ONSC Accredited.

The measurement uncertainty is base on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%.

***End of Certificate***

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Agilent CrossLab Compliance Services

Agilent CrossLab
From Insight to Outcome

# EQUIPMENT QUALIFICATION REPORT (EQR)

## Agilent CrossLab Compliance

REVIEW BY Tathapan C.
APPROVED BY Surata N.
NEXT CAL DATE 14/11/22

| | |
|---|---|
| Qualification Type: | ICPMS-OQ |
| System ID: | JP12091612 |
| EQP Name: | AgilentRecommended |
| EQP Revision: | ICPMS.02.50 |
| EQP Publish Date: | March 2020 |
| Date: | June 14, 2022 10:32:16 AM |
| Report Type: | Report |
| Org. Name: | ALS Laboratory Group (Thailand) Co.,Ltd. |
| Org. Location: | 104 Phatthanakarn 40, Suan Luang, Bangkok 10250 Thailand. |



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Agilent CrossLab Compliance Services

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## Test Summary

**Purpose**

This section includes a status for each scheduled test and the overall qualification. For each test that is run, (1) the status is automatically determined based on pre-defined limits, and (2) the total number of times the test was run is displayed. For detailed results and specifications for a test, refer to the test results in this EQR.

**Details**

| Test | Status | Runs |
|---|---|---|
| Autosampler Check : ASX-520 | Pass | 1 |
| Integrated Sample Introduction System (ISIS) Check : ISIS2 | Pass | 1 |
| Autotune : G3281A | Pass | 1 |
| Background (No Gas Mode) : G3281A | Pass | 1 |
| Background (Gas Modes) : G3281A | Pass | 1 |
| 20-Minute Stability (No Gas Mode) : G3281A | Pass | 1 |

**Overall Qualification Status**

Pass



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## Service Details

**Purpose**

This section includes local contact and delivery details for this service.

**General Details**

| | |
|---|---|
| Service Order No./Request: | 6005218484 |
| EQP Name: | AgilentRecommended |
| EQP Revision: | ICPMS.02.50 |
| Report Type: | Report |

**Organization Details**

| | |
|---|---|
| Name: | ALS Laboratory Group (Thailand) Co.,Ltd. |
| Location: | 104 Phatthanakarn 40, Suan Luang, Bangkok 10250 Thailand. |

**Local Contact Details**

| | |
|---|---|
| Name: | Khan Chatchansi |
| Job Title: | Lab Manager |
| Qualification Location: | Spectro Room |

**Operator Details**

| | |
|---|---|
| Name: | Panthep Kurasathain |
| Job Title: | Field Service Engineer |

**Data Acquisition Details**

| | |
|---|---|
| Acquisition Software Name: | MassHunter |
| Acquisition Software Revision: | D.01.01 |
| Customer Data System (CDS): | IcpMs: MassHunter |



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## Instrument Details

**Purpose**

This section describes the as found system configuration.

**Details**

ICP-MS 1

| | |
|---|---|
| Manufacturer | Agilent Technologies |
| Name | 7700x |
| Model Number | G3281A |
| Detector Type | SQ |
| Nebulizer | Mira Mist (G3161) |
| Spray Chamber | Quartz |
| Torch | Quartz |
| Sampling Cone | Ni |
| Skimmer Cone | Ni |
| Serial Number | JP12091612 |
| Firmware Revision | D.01.01 |

ISIS 1

| | |
|---|---|
| Manufacturer | Agilent Technologies |
| Name | ISIS2 |
| Model Number | G4911A |
| Installed Options | #003: 2 pumps, 1 valve, auto dilution and discrete sampling |
| Type | Peristaltic pump system |

Autosampler 1

| | |
|---|---|
| Manufacturer | Agilent Technologies |
| Name | ASX-520 |
| Model Number | G3286A |
| Serial Number | 031403A520 |

Chiller 1

| | |
|---|---|
| Manufacturer | Agilent Technologies |
| Name | Chiller |
| Model Number | G3292A |
| Serial Number | 4N1220700 |



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## Calculation Formulas

**Purpose**

This section includes calculation formulas for all available tests. Depending upon which tests are scheduled, all or some apply to your qualification.

For a description of calculations for ICP-MS tests performed by the MassHunter software, refer to the MassHunter application and documentation.

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## Protocol Details

Purpose

This section lists the revisions for all test units used in this report. For complete test-specific and high-level change details, refer to the Revision History document.

| Test Revision | Test |
|---|---|
| ICPMS.02.50 | 20-Minute Stability (No Gas Mode) |
| ICPMS.02.50 | Autosampler Check |
| ICPMS.02.50 | Autotune |
| ICPMS.02.50 | Background (Gas Modes) |
| ICPMS.02.50 | Background (No Gas Mode) |
| ICPMS.02.50 | Integrated Sample Introduction System (ISIS) Check |



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## Autosampler Check

Purpose

This test demonstrates that the autosampler module is correctly installed and connected. It does not test module performance.

Setpoint

Results

| Criteria | Observed Result | Expected Result | Status |
|---|---|---|---|
| After the self test, is probe in the home position? | Yes | Yes | Pass |
| As commanded, is the probe positioned at vial 2? | Yes | Yes | Pass |

**Setpoint Status:** Pass Runs: 1

Overall Autosampler Check Test Status

Pass



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## Integrated Sample Introduction System (ISIS) Check

Purpose

This test demonstrates that the ISIS module is correctly installed and connected. It does not test module performance.

Setpoint

Results

| Criteria | Observed Result | Expected Result | Status |
|---|---|---|---|
| As commanded, does the pump rotate? | Yes | Yes | Pass |
| As commanded, do the valves load and inject? | Yes | Yes | Pass |

**Setpoint Status:** Pass Runs: 1

Overall Integrated Sample Introduction System (ISIS) Check Test Status

Pass



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## Autotune

Purpose

This test uses traceable checkout standards to run a software-executed autotune in all modes. The tune report provides values for peak width, mass axis, sensitivity, oxide species, and doubly-charged species tests.

Setpoint

Results

| | | | |
|---|---|---|---|
| Peakwidth Mass 7 | | 0.735 | AMU |
| Agilent Recommended: | >= | 0.65 | |
| | <= | 0.80 | |
| Status: | Pass | | |
| Peakwidth Mass 89 | | 0.732 | AMU |
| Agilent Recommended: | >= | 0.65 | |
| | <= | 0.80 | |
| Status: | Pass | | |
| Peakwidth Mass 205 | | 0.746 | AMU |
| Agilent Recommended: | >= | 0.65 | |
| | <= | 0.80 | |
| Status: | Pass | | |
| Mass Axis 7 | | 7.00 | AMU |
| Agilent Recommended: | >= | 6.9 | |
| | <= | 7.1 | |
| Status: | Pass | | |
| Mass Axis 89 | | 89.00 | AMU |
| Agilent Recommended: | >= | 88.9 | |
| | <= | 89.1 | |
| Status: | Pass | | |
| Mass Axis 205 | | 205.00 | AMU |
| Agilent Recommended: | >= | 204.9 | |
| | <= | 205.1 | |
| Status: | Pass | | |

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| | | | |
|---|---|---|---|
| Mass 7 Sensitivity No Gas | | 81.18 | Mcps/ppm |
| Agilent Recommended: | >= | 25.6 | |
| Status: | Pass | | |
| Mass 89 Sensitivity No Gas | | 247.81 | Mcps/ppm |
| Agilent Recommended: | >= | 85 | |
| Status: | Pass | | |
| Mass 205 Sensitivity No Gas | | 184.67 | Mcps/ppm |
| Agilent Recommended: | >= | 51 | |
| Status: | Pass | | |
| Mass 59 Sensitivity He | | 84.86 | Mcps/ppm |
| Agilent Recommended: | >= | 20.4 | |
| Status: | Pass | | |
| Oxide Ratio 156/140 | | 1.119 | % |
| Agilent Recommended: | <= | 1.38 | |
| Status: | Pass | | |
| Doubly Charged Species Ratio 70/140 | | 1.140 | % |
| Agilent Recommended: | <= | 2.3 | |
| Status: | Pass | | |

**Setpoint Status:** Pass Runs: 1

**Overall Autotune Test Status**

Pass



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## Background (No Gas Mode)

**Purpose**

This test examines the background of the ICP-MS in no gas mode by monitoring ions during a blank run.

**Setpoint**

**Conditions**

| | | |
|---|---|---|
| Masses: | 7 | AMU |
| | 89 | AMU |
| | 205 | AMU |

**Measurements and Results**

| | | | | | | |
|---|---|---|---|---|---|---|
| Masses (AMU): | | 7 | | 89 | | 205 |
| Measured Value: | | 4.900 | | 7.100 | | 18.400 cps |
| Agilent Recommended: | <= | 10 | <= | 10 | <= | 30 |
| Status: | Pass | | Pass | | Pass | |

**Setpoint Status:** Pass Runs: 1

**Overall Background (No Gas Mode) Test Status**

Pass



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## Background (Gas Mode)

**Purpose**

This test examines the background of the ICP-MS in the various gas modes by monitoring ions during a blank run.

**Setpoint** Gas Mode: Helium

**Conditions**

| | | |
|---|---|---|
| Mass: | 78 | AMU |
| Integration Time: | 1.0 | sec |
| Cycles: | 20 | |

**Measurements and Results**

| | | | |
|---|---|---|---|
| Mass (AMU): | | 78 | |
| Measured Value: | | 21.1000 | cps |
| Agilent Recommended: | <= | 460 | |
| Status: | Pass | | |

**Setpoint Status:** Pass Runs: 1

**Overall Background (Gas Mode) Test Status**

Pass



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## 20-Minute Stability (No Gas Mode)

**Purpose**

This test monitors the abundance of ions present in the checkout standard over a 20-minute period to verify that the signal is stable. The %RSD of the abundance of given ions is calculated internally by the software and compared to the limit.

**Setpoint**

**Conditions**

| | | |
|---|---|---|
| Mode: | Spectrum | |
| Masses: | 7, 9, 59, 89, 140, 205 | |
| Integration Time: | 9.99 | sec |
| Peak Pattern: | 3 | points/peak |
| Repetitions: | 20 | |
| Sweeps/Replicates: | 100 | |

**Measurements and Results**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Masses (AMU): | | 7 | | 89 | | 205 | |
| Stability RSD: | | 0.2 | | 0.6 | | 0.6 | % |
| Agilent Recommended: | <= | 3.45 | <= | 3.45 | <= | 3.45 | |
| Status: | Pass | | Pass | | Pass | | |

**Setpoint Status:** Pass Runs: 1

**Overall 20-Minute Stability (No Gas Mode) Test Status**

Pass

## Declaration of Change Control

This document is under change control. Revision history is maintained and printed on each document. Access to the master documents is limited to process owners. Documents receive periodic review and cannot be assigned an evergreen status. The qualification performed according to this document refers only to the hardware/software configuration in place at the time of the qualification. Agilent Technologies recommends that instrument configuration change management procedures be in place in order to maintain the validation process. Any changes to the analytical or computer hardware or software must be clearly specified. A change management system provides a means for determining the degree of requalification required according to the extent of the changes made. All details of the changes must be thoroughly recorded and documented, together with details of completed tests and their results. Note: Hardware/software configuration management is the customer's responsibility.





## Attachments

Training requirements note: The delivery engineer attaches an ACE technique-specific training certificate to the Equipment Qualification Report (EQR). Obtaining ACE technique-specific certification includes pre-requisite trainings for Data Integrity, General Compliance topics (GMP, GLP, ALCOA, etc.), instrument hardware and software components, and the ACE technique itself. The one certificate encompasses all pre-requisite trainings as documented in the Agilent Learning Management System called Success Factors.


| Location | Category | Document Name | Page |
|---|---|---|---|
| EQR | General | Certificate of System Qualification | 17 |
| EQR | General | Operator's training certificate and qualifications | 18 |
| EQR | General | Certificate of Qualification for ACE | 19 |
| EQR | General | Certificate of Qualification for ACE | 20 |
| EQR | General | Tune reports | 21 |
| EQR | General | Test Report | 24 |
| EQR | General | Test Report | 26 |






General

Document Name: Certificate of System Qualification

Agilent Technologies

### Agilent Compliance Engine Self Qualification

Date: September 14, 2021 4:59:15 PM
Drive Serial #: ACA025C9 Platform Revision: ACE 3.11

Individual self-qualification reports for each specific technique installed are also available upon request. They provide additional details on the general report from the concise summary and are structured by the actual algorithms challenged during the process. There is not a one-to-one relationship between algorithms and OQ program tests because some algorithms are used by several tests and across multiple similar hardware components of the qualified systems.

| Technique Type | Tests Completed | Result |
|---|---|---|
| Atomic Absorption | 7 | Conforms |
| Capillary Electrophoresis | 10 | Conforms |
| Dissolution | 6 | Conforms |
| Emission Spectroscopy | 3 | Conforms |
| Gas Chromatography - GCMS | 17 | Conforms |
| Gas Chromatography | 29 | Conforms |
| Gel Permeation Chromatography | 9 | Conforms |
| ICP-MS | 6 | Conforms |
| Infrared Spectroscopy | 7 | Conforms |
| Liquid Chromatography | 17 | Conforms |
| Liquid Chromatography - LCMS | 8 | Conforms |
| Microfluidics | 18 | Conforms |
| Sample Preparation - Gas Chromatography | 9 | Conforms |
| Sample Preparation - Liquid Chromatography | 6 | Conforms |
| Supercritical Fluid Chromatography | 15 | Conforms |
| Software | 6 | Conforms |
| UV-Vis Spectrophotometer | 13 | Conforms |

Overall Qualification Status
Conforms





General

Document Name: Operator's training certificate and qualifications

Agilent Technologies

### Certificate of Completion

Learner Name: Pasilhep Kunsathsio

Title Of Course: AN-CE-ICPMS-2-017-B:7700x/7700s ICP-MS Intro. -Oper.H/W,S/W & OQ/PV

Completion Date: November 22, 2012

Certified By Company: Learning at Agilent

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General

Document Name: Certificate of Qualification for ACE

Agilent Technologies

## Certificate of Completion

Learner Name: Panthep Kurasathain

Title Of Course: AN-CE-SS-II-030-A: ACE 3.X User Update Training

Completion Date: July 7, 2020

Certified By Company: Learning at Agilent

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General

Document Name: Certificate of Qualification for ACE

Agilent Technologies

## Certificate of Completion

Learner Name: Panthep Kurasathain

Title Of Course: AN-CE-ICPMS-2-035-B: CrossLab Compliance Hardware Specific Delivery for Agilent ICP-MS Systems

Completion Date: October 31, 2020

Certified By Company: Learning at Agilent

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General

Document Name: Tune reports

## Tune Report

Operator Name: Supakorn Mak
Acq/Data Batch: C:\Agilent\ICPMH1\1\User\Tune.b
Acq. Date-Time: 6/14/2022 9:03:15 AM
Report Comment: PMOQ 14 June 2022
Instrument Name: G3281A JP12091612

[No Gas]

Sensitivity

| Mass | Range | Count | RSD% | Background |
|---|---|---|---|---|
| 7 | 10000 | 8118 | 3.585 | 4,830 |
| 89 | 50000 | 24781 | 3.128 | 7,100 |
| 205 | 50000 | 18467 | 3.808 | 18,490 |

Sampling Period [sec] 0.311
Integration Time [sec] 0.1

Oxide/Doubly Charged Ratio
Oxide 156 / 140 1.119 %
Doubly Charged 70 / 140 1.140 %

Resolution/Axis

| Mass | Peak Height | Axis | W-50% | W-10% |
|---|---|---|---|---|
| 7 | 8050.47 | 7.09 | 0.65 | 0.726 |
| 89 | 24735.81 | 89.00 | 0.67 | 0.732 |
| 205 | 18599.81 | 205.00 | 0.49 | 0.746 |

Integration Time [sec] 0.1
Acquisition Time [sec] 22.74
Y Axis Linear

Tune Parameters

Plasma Parameters

| | | | | | |
|---|---|---|---|---|---|
| Plasma Mode | --- | Nebulizer Gas | 1.05 L/min | Makeup Gas | 0.00 L/min |
| RF Power | 1550 W | Option Gas | --- | Auxiliary Gas | 0.80 L/min |
| RF Matching | 1.80 V | Nebulizer Pump | 0.10 rps | Plasma Gas | 15.0 L/min |
| Sample Depth | 8.0 mm | S/C Temp | 2 °C | | |

Lens Parameters

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 8.6 V | Deflect | 12.0 V |
| Extract 2 | -190.0 V | Cell Entrance | -30 V | Plate Bias | -40 V |
| Omega Bias | -99 V | Cell Exit | -50 V | | |

Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | No | 3rd Gas Flow | --- | Energy Discrimination 5.0 V | |
| He Flow | 0.0 mL/min | OctP Bias | -8.0 V | | |

1 of 3 6/14/2022 9:03 AM



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General

Document Name: Tune reports

## Tune Report

H2 Flow --- OctP RF 200 V

QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 152 | Axis Gain | 1.0032 | QP Bias | -3.0 V |
| Mass Offset | 123 | Axis Offset | 0.12 | | |

Hardware Settings

Torch

| | | | |
|---|---|---|---|
| Torch H | -0.4 mm | Torch V | 0.0 mm |

EM

| | | | | | |
|---|---|---|---|---|---|
| Discriminator | 4.5 mV | Analog HV | 1709 V | Pulse HV | 1356 V |

[He]

Sensitivity

| Mass | Range | Count | RSD% | Background |
|---|---|---|---|---|
| 59 | 10000 | 9485 | 3.292 | 15,700 |
| 89 | 20000 | 10734 | 3.135 | 13,900 |
| 205 | 50000 | 20000 | 3.185 | 22,100 |

Sampling Period [sec] 0.31
Integration Time [sec] 0.1

Oxide/Doubly Charged Ratio
Oxide 156 / 140 1.122 %
Doubly Charged 70 / 140 1.288 %

Tune Parameters

Plasma Parameters

| | | | | | |
|---|---|---|---|---|---|
| Plasma Mode | --- | Nebulizer Gas | 1.05 L/min | Makeup Gas | 0.00 L/min |
| RF Power | 1550 W | Option Gas | --- | Auxiliary Gas | 0.80 L/min |
| RF Matching | 1.80 V | Nebulizer Pump | 0.10 rps | Plasma Gas | 15.0 L/min |
| Sample Depth | 8.0 mm | S/C Temp | 2 °C | | |

Lens Parameters

| | | | | | |
|---|---|---|---|---|---|
| Extract 1 | 0.0 V | Omega Lens | 7.4 V | Deflect | 3.6 V |
| Extract 2 | -200.0 V | Cell Entrance | -90 V | Plate Bias | -115 V |
| Omega Bias | -92 V | Cell Exit | -70 V | | |

Cell Parameters

| | | | | | |
|---|---|---|---|---|---|
| Use Gas | Yes | 3rd Gas Flow | --- | Energy Discrimination 3.0 V | |
| He Flow | 4.5 mL/min | OctP Bias | -21.0 V | | |
| H2 Flow | --- | OctP RF | 193 V | | |

QP Parameters

| | | | | | |
|---|---|---|---|---|---|
| Mass Gain | 152 | Axis Gain | 1.0032 | QP Bias | -16.0 V |
| Mass Offset | 123 | Axis Offset | 0.12 | | |

Hardware Settings

Torch

| | | | |
|---|---|---|---|
| Torch H | -0.4 mm | Torch V | 0.0 mm |

2 of 3 6/14/2022 9:03 AM

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Document Name: Tune reports

## Tune Report

EM
Discriminator 4.5 mV Analog HV 1708 V Pulse HV 1356 V

3 of 3 6/14/2022 9:03 AM



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General

Document Name: Test Report

### Batch Summary Report

Batch Folder: D:\Agilent Service\PMOQ 13-6-22\BG He.b\
Analysis File: BG He batch.bin
Tune Step: #1 He

| | Rct | Acq. Date-Time | Data File | Sample Name | Type | Level | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | | 6/14/2022 10:03:38 AM | 0015$APR.d | BG He | Sample | | 1.0000 |

Page 1 / 2 6/14/2022 10:09:04 AM



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Document Name: Test Report

### Batch Summary Report

Analyte Table

| | | 78 ( He ) | |
|---|---|---|---|
| | Sample Name | CPS | CPS RSD |
| 1 | BG He | 71.1000 | 38.0 |

Page 2 / 2 6/14/2022 10:09:04 AM



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General

Document Name: Test Report

### Batch Summary Report

Batch Folder: D:\Agilent Service\PMOQ 13-6-22\ OQ 20 Min.b\
Analysis File: OQ 20 Min batch.bin
Tune Step: #1 No Gas

| | Rct | Acq. Date-Time | Data File | Sample Name | Type | Level | Dilution |
|---|---|---|---|---|---|---|---|
| 1 | | 6/14/2022 9:29:27 AM | 0015$APR.d | 20 min | Sample | | 1.0000 |

Page 1 / 2 6/14/2022 9:53:59 AM

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**Document Name:** Test Report

## Batch Summary Report

Analyte Table

| | Sample Name | 7 [ No Gas ] CPS | 7 [ No Gas ] CPS RSD | 9 [ No Gas ] CPS | 9 [ No Gas ] CPS RSD | 59 [ No Gas ] CPS | 59 [ No Gas ] CPS RSD | 89 [ No Gas ] CPS | 89 [ No Gas ] CPS RSD |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 min | 62477.8975 | 0.2 | 285.3975 | 5.8 | 1620111.0035 | 0.7 | 241211.0700 | 0.6 |

| | Sample Name | 140 [ No Gas ] CPS | 140 [ No Gas ] CPS RSD | 205 [ No Gas ] CPS | 205 [ No Gas ] CPS RSD |
|---|---|---|---|---|---|
| 1 | 20 min | 252452.6980 | 0.7 | 181154.8205 | 0.6 |

Page 2 / 2 6/14/2022 9:53:59 AM



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Details

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| Full Name of Signer: | Panthep Kurasathaln |
| Logged On User Name: | panthep_kurasathaln@agilent.com |
| Signature Creation Date: | June 14, 2022 |
| Reason for Signature: | Executed protocol and published this original version of document |

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User Name: panthep_kurasathaln
Hostname: ASBKKWX313

System Id: JP12091612
Print Date: June 14, 2022 10:32:20 AM

**ALS OQHW 7700 14Jun2022 Transaction log :**

| Time | Transaction State | Activity Performed | Type of Transaction | Optional Information |
|---|---|---|---|---|
| June 14, 2022 10:14:43 AM | Audit | SessionCreated | Session | None |
| June 14, 2022 10:14:43 AM | Start | Configuration | Session | None |
| June 14, 2022 10:14:43 AM | Audit | Entitlement | Licensing | User is FieldEngineer and does not require an unlock code |
| June 14, 2022 10:19:18 AM | Audit | EqpLoaded | Session | EQP details for primary technique [icpMs] - File path: [ProtocolPacks/IcpMs/Configurations/02.50/IcpMs.02.50.eqp], EQP File Name: [IcpMs.02.50.eqp], EQP Name: [AgilentRecommended] |
| June 14, 2022 10:19:20 AM | End | Configuration | Session | None |
| June 14, 2022 10:19:24 AM | Start | Qualification | Session | OQ |
| June 14, 2022 10:19:24 AM | Start | Execution | Autosampler Check : ASX-520: Autosampler Check | None |
| June 14, 2022 10:19:42 AM | End | Execution | Autosampler Check : ASX-520: Autosampler Check | Run Count : 1 |
| June 14, 2022 10:19:43 AM | Start | Execution | Integrated Sample Introduction System (ISIS) Check : ISIS2: Integrated Sample Introduction System (ISIS) Check | None |
| June 14, 2022 10:19:47 AM | End | Execution | Integrated Sample Introduction System (ISIS) Check : ISIS2: Integrated Sample Introduction System (ISIS) Check | Run Count : 1 |
| June 14, 2022 10:19:50 AM | Start | Execution | Autotune : G3281A: Autotune 1 | None |
| June 14, 2022 10:22:22 AM | End | Execution | Autotune : G3281A: Autotune 1 | Run Count : 1 |

Page 1 / 2



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User Name: panthep_kurasathaln
Hostname: ASBKKWX313

System Id: JP12091612
Print Date: June 14, 2022 10:32:20 AM

**ALS OQHW 7700 14Jun2022 Transaction log :**

| Time | Transaction State | Activity Performed | Type of Transaction | Optional Information |
|---|---|---|---|---|
| June 14, 2022 10:22:24 AM | Start | Execution | Background (No Gas Mode) : G3281A: No Gas Mode Background 1 | None |
| June 14, 2022 10:22:48 AM | End | Execution | Background (No Gas Mode) : G3281A: No Gas Mode Background 1 | Run Count : 1 |
| June 14, 2022 10:22:49 AM | Start | Execution | Background (Gas Modes) : G3281A: Gas Mode Background :Helium | None |
| June 14, 2022 10:23:35 AM | End | Execution | Background (Gas Modes) : G3281A: Gas Mode Background :Helium | Run Count : 1 |
| June 14, 2022 10:23:37 AM | Start | Execution | 20-Minute Stability (No Gas Mode) : G3281A: 20-Minute Stability (No Gas Mode) 1 | None |
| June 14, 2022 10:24:08 AM | End | Execution | 20-Minute Stability (No Gas Mode) : G3281A: 20-Minute Stability (No Gas Mode) 1 | Run Count : 1 |
| June 14, 2022 10:24:08 AM | End | Qualification | Session | OQ |
| June 14, 2022 10:24:08 AM | Start | Reporting | Session | None |
| June 14, 2022 10:30:26 AM | Audit | Reporting | Session | Report Generated : Certificate |
| June 14, 2022 10:30:38 AM | Audit | Reporting | Session | Report Generated : Report |

Page 2 / 2

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# Certificate of System Qualification

ICPMS-OQ

| | |
|---|---|
| System ID: | JP12091612 |
| Organization Name: | ALS Laboratory Group (Thailand) Co.,Ltd. |
| Organization Location: | 104 Phatthanakarn 40, Suan Luang, Bangkok 10250 Thailand. |
| Date: | June 14, 2022 10:32:51 AM |
| EQP Name: | AgilentRecommended |
| EQP Revision: | ICPMS.02.50 |
| Overall Qualification Status: | Pass |

## Autosampler Check

**Overall Autosampler Check Test Status**

Pass

## Integrated Sample Introduction System (ISIS) Check

**Overall Integrated Sample Introduction System (ISIS) Check Test Status**

Pass

## Autotune

| | |
|---|---|
| Peakwidth Mass 7 | Pass |
| Peakwidth Mass 89 | Pass |
| Peakwidth Mass 205 | Pass |
| Mass Axis 7 | Pass |
| Mass Axis 89 | Pass |
| Mass Axis 205 | Pass |
| Mass 7 Sensitivity No Gas | Pass |
| Mass 89 Sensitivity No Gas | Pass |
| Mass 205 Sensitivity No Gas | Pass |
| Mass 59 Sensitivity He | Pass |
| Oxide Ratio 156/140 | Pass |
| Doubly Charged Species Ratio 70/140 | Pass |

**Overall Autotune Test Status**

Pass



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## Background (No Gas Mode)

**Setpoint Status:** Pass

| Masses (AMU): | 7 | 89 | 205 | |
|---|---|---|---|---|
| Measured Value: | 4.900 | 7.100 | 18.400 | cps |
| Agilent Recommended: | <= 10 | <= 10 | <= 30 | |
| Status: | Pass | Pass | Pass | |

**Overall Background (No Gas Mode) Test Status**

Pass

## Background (Gas Mode)

Gas Mode: Helium

**Setpoint Status:** Pass

| Mass (AMU): | 78 | |
|---|---|---|
| Measured Value: | 21.1000 | cps |
| Agilent Recommended: | <= 460 | |
| Status: | Pass | |

**Overall Background (Gas Mode) Test Status**

Pass

## 20-Minute Stability (No Gas Mode)

| Masses (AMU): | 7 | 89 | 205 | |
|---|---|---|---|---|
| Stability RSD: | 0.2 | 0.6 | 0.6 | % |
| Agilent Recommended: | <= 3.45 | <= 3.45 | <= 3.45 | |
| Status: | Pass | Pass | Pass | |

**Overall 20-Minute Stability (No Gas Mode) Test Status**

Pass



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# Instrument Details

Purpose

This section describes the as found system configuration.

Details

| | |
|---|---|
| ICP-MS 1 | |
| Manufacturer | Agilent Technologies |
| Name | 7700x |
| Model Number | G3281A |
| Detector Type | SQ |
| Nebulizer | Mira Mist (G3161) |
| Spray Chamber | Quartz |
| Torch | Quartz |
| Sampling Cone | Ni |
| Skimmer Cone | Ni |
| Serial Number | JP12091612 |
| Firmware Revision | D.01.01 |
| ISIS 1 | |
| Manufacturer | Agilent Technologies |
| Name | ISIS2 |
| Model Number | G4911A |
| Installed Options | #003: 2 pumps, 1 valve, auto dilution and discrete sampling |
| Type | Peristaltic pump system |
| Autosampler 1 | |
| Manufacturer | Agilent Technologies |
| Name | ASX-520 |
| Model Number | G3286A |
| Serial Number | 031403A520 |
| Chiller 1 | |
| Manufacturer | Agilent Technologies |
| Name | Chiller |
| Model Number | G3292A |
| Serial Number | 4N1220700 |



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| Reason for Signature: | Executed protocol and published this original version of document |

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User Name: panthep_kurasathain
Hostname: ASBKKWX313

System Id: JP12091612
Print Date: June 14, 2022 10:32:52 AM

ALS OQHW 7700 14Jun2022 Transaction log :

| Time | Transaction State | Activity Performed | Type of Transaction | Optional Information |
|---|---|---|---|---|
| June 14, 2022 10:14:43 AM | Audit | SessionCreated | Session | None |
| June 14, 2022 10:14:43 AM | Start | Configuration | Session | None |
| June 14, 2022 10:14:43 AM | Audit | Entitlement | Licensing | User is FieldEngineer and does not require an unlock code |
| June 14, 2022 10:19:18 AM | Audit | EqpLoaded | Session | EQP details for primary technique [icpMs] - File path: [ProtocolPacks/icpMs/Configurations/02.50/icpMs.02.50.eqp], EQP File Name: [icpMs.02.50.eqp], EQP Name: [AgilentRecommended] |
| June 14, 2022 10:19:20 AM | End | Configuration | Session | None |
| June 14, 2022 10:19:24 AM | Start | Qualification | Session | OQ |
| June 14, 2022 10:19:24 AM | Start | Execution | Autosampler Check : ASX-520: Autosampler Check | None |
| June 14, 2022 10:19:42 AM | End | Execution | Autosampler Check : ASX-520: Autosampler Check | Run Count : 1 |
| June 14, 2022 10:19:43 AM | Start | Execution | Integrated Sample Introduction System (ISIS) Check : ISIS2: Integrated Sample Introduction System (ISIS) Check | None |
| June 14, 2022 10:19:47 AM | End | Execution | Integrated Sample Introduction System (ISIS) Check : ISIS2: Integrated Sample Introduction System (ISIS) Check | Run Count : 1 |
| June 14, 2022 10:19:50 AM | Start | Execution | Autotune : G3281A: Autotune 1 | None |
| June 14, 2022 10:22:22 AM | End | Execution | Autotune : G3281A: Autotune 1 | Run Count : 1 |



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Print Date: June 14, 2022 10:32:52 AM

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|---|---|---|---|---|
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| June 14, 2022 10:22:48 AM | End | Execution | Background (No Gas Mode) : G3281A: No Gas Mode Background 1 | Run Count : 1 |
| June 14, 2022 10:22:49 AM | Start | Execution | Background (Gas Modes) : G3281A: Gas Mode Background :Helium | None |
| June 14, 2022 10:23:35 AM | End | Execution | Background (Gas Modes) : G3281A: Gas Mode Background :Helium | Run Count : 1 |
| June 14, 2022 10:23:37 AM | Start | Execution | 20-Minute Stability (No Gas Mode) : G3281A: 20-Minute Stability (No Gas Mode) 1 | None |
| June 14, 2022 10:24:06 AM | End | Execution | 20-Minute Stability (No Gas Mode) : G3281A: 20-Minute Stability (No Gas Mode) 1 | Run Count : 1 |
| June 14, 2022 10:24:06 AM | End | Qualification | Session | OQ |
| June 14, 2022 10:24:08 AM | Start | Reporting | Session | None |
| June 14, 2022 10:30:26 AM | Audit | Reporting | Session | Report Generated : Certificate |
| June 14, 2022 10:30:39 AM | Audit | Reporting | Session | Report Generated : Report |







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User Name: panthep_kurasathain
Hostname: ASBKKWX313

System Id: JP12091612
Print Date: June 14, 2022 10:32:52 AM

ALS OQHW 7700 14Jun2022 Transaction log :

| Time | Transaction State | Activity Performed | Type of Transaction | Optional Information |
|---|---|---|---|---|
| June 14, 2022 10:32:26 AM | Audit | Reporting | Session | Report Signed : Report PDF Name: ALS OQHW 7700 14Jun2022_20220614_OQ Report_1.pdf User Name: panthep_kurasathain@agilent.com Full Name of Signer: Panthep Kurasathain Reason for signature: Executed protocol and published this original version of document |





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Metrological Center
SCI ECO Services Company Limited
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Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th

Certificate No. T220730



# Certificate of Calibration

| | | |
|---|---|---|
| Equipment | : | HEATING BLOCK |
| Manufacturer | : | Environmental Express |
| Model | : | SC 196 |
| Serial No. | : | 6974CECW3285 |
| Customer Code | : | BKK_EL0054 |
| ID No. | : | T5306A3 |
| Customer | : | ALS Laboratory Group (Thailand) Co.,Ltd. 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 |
| Customer Location | : | Acid Digestion Lab |
| Date of Receipt | : | 30 March 2022 |
| Calibrated By | : | Watcharapon Sangtong (Technician ) |
| Approved By | : | _____ / Sujjar Naknakred ( Site Calibration Manager ) |
| Date of Issue | : | 12 APR 2022 |

REVIEW BY Tatthapon C.
APPROVED BY Sujjar N.
NEXT CAL. DATE 7/10/23

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.

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33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



## Calibration Report

**Equipment** : **HEATING BLOCK**
**Date of Calibration** : **7 April 2022**
**Environment** : **Temperature : 21.8-23.1 °C**
**Line Voltage : 221.6-226.3 V**
**Relative Humidity : 55 - 65 %RH**

**Condition of this results of calibration :**

1. This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20.
   All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
2. Reference Standard Instrument :

| Instrument | Model | Instrument No. | Certificate No. | Due Date |
|---|---|---|---|---|
| TC | TYPE T | TN221-TN230 | T210008 | 08 June 2022 |
| TC | TYPE T | TN231-TN240 | T210008 | 08 June 2022 |
| DATA LOGGER | 34970A | T149 | T210008 | 08 June 2022 |

3. This certificate is traceable to :
   National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.)
4. Condition of calibrated item : good
   Equipment Description :
   Time Constant 2 Hour 25 Minute At 95 °C
   Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
   ☐ Close
   ☒ Not Available
5. Adjustment :
   ( ) without adjustment ( X ) after adjustment

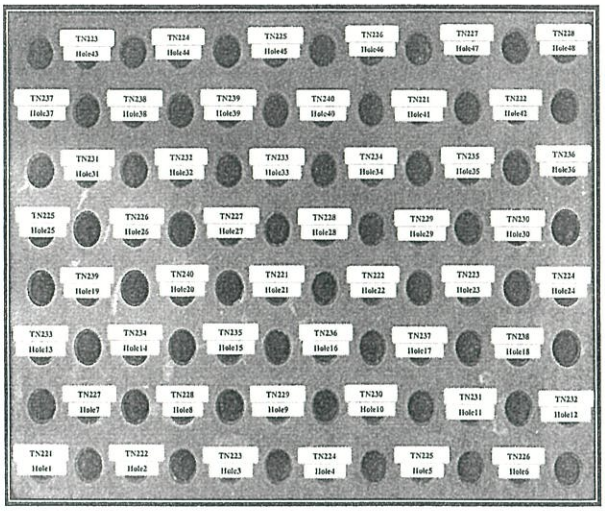
Approved By._____



Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



## Calibration Report




FRONT CONTROL

Approved By. _____

FM-L13 I08/30-05-57

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



## Calibration Report

**Measurement Results**

| Calibration Point | | Average Standard Reading at each position (°C) | | | | | |
|---|---|---|---|---|---|---|---|
| R1 Hole1-Hole6 | | TN221 | TN222 | TN223 | TN224 | TN225 | TN226 |
| CAL POINT | Max | 93.60 | 93.82 | 94.05 | 94.20 | 94.36 | 94.26 |
| 95 | Min | 93.07 | 93.26 | 93.51 | 93.66 | 93.82 | 93.71 |
| | Average | 93.33 | 93.54 | 93.78 | 93.93 | 94.09 | 93.98 |
| R2 Hole7-Hole12 | | TN227 | TN228 | TN229 | TN230 | TN231 | TN232 |
| | Max | 94.59 | 94.79 | 94.63 | 94.55 | 94.82 | 95.00 |
| | Min | 94.05 | 94.25 | 94.08 | 93.97 | 94.26 | 94.44 |
| | Average | 94.32 | 94.52 | 94.36 | 94.26 | 94.54 | 94.72 |
| R3 Hole13-Hole18 | | TN233 | TN234 | TN235 | TN236 | TN237 | TN238 |
| | Max | 95.03 | 94.54 | 94.78 | 94.84 | 95.06 | 94.73 |
| | Min | 94.46 | 93.98 | 94.20 | 94.26 | 94.49 | 94.18 |
| | Average | 94.74 | 94.26 | 94.49 | 94.56 | 94.78 | 94.45 |
| R4 Hole19-Hole24 | | TN239 | TN240 | TN221 | TN222 | TN223 | TN224 |
| | Max | 94.89 | 94.82 | 95.73 | 95.85 | 95.73 | 96.10 |
| | Min | 94.33 | 94.26 | 95.51 | 95.62 | 95.51 | 95.85 |
| | Average | 94.61 | 94.54 | 95.62 | 95.73 | 95.62 | 95.97 |
| R5 Hole25-Hole30 | | TN225 | TN226 | TN227 | TN228 | TN229 | TN230 |
| | Max | 96.28 | 96.39 | 96.37 | 96.54 | 96.19 | 96.04 |
| | Min | 96.01 | 96.10 | 96.02 | 96.20 | 95.89 | 95.71 |
| | Average | 96.15 | 96.24 | 96.20 | 96.37 | 96.04 | 95.88 |
| R6 Hole31-Hole36 | | TN231 | TN232 | TN233 | TN234 | TN235 | TN236 |
| | Max | 96.84 | 96.97 | 97.03 | 96.48 | 96.33 | 95.76 |
| | Min | 96.53 | 96.65 | 96.71 | 96.08 | 95.98 | 95.43 |
| | Average | 96.68 | 96.81 | 96.87 | 96.28 | 96.16 | 95.60 |
| R7 Hole37-Hole42 | | TN237 | TN238 | TN239 | TN240 | TN221 | TN222 |
| | Max | 96.46 | 96.15 | 96.19 | 96.06 | 96.95 | 97.09 |
| | Min | 96.13 | 95.84 | 95.85 | 95.72 | 96.64 | 96.78 |
| | Average | 96.30 | 95.99 | 96.02 | 95.89 | 96.80 | 96.93 |
| R8 Hole43-Hole48 | | TN223 | TN224 | TN225 | TN226 | TN227 | TN228 |
| | Max | 96.91 | 96.58 | 96.13 | 96.19 | 96.34 | 96.19 |
| | Min | 96.55 | 96.21 | 95.80 | 95.87 | 96.03 | 95.88 |
| | Average | 96.73 | 96.40 | 95.96 | 96.03 | 96.18 | 96.03 |

Approved By. _____

FM-L13 I08/30-05-57

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



## Calibration Report

**Measurement Results**

| Calibration Point | | Average Standard Reading at each position (°C) | | | | | |
|---|---|---|---|---|---|---|---|
| R1 Hole1-Hole6 | | TN221 | TN222 | TN223 | TN224 | TN225 | TN226 |
| CAL POINT | Max | 104.47 | 104.65 | 104.79 | 105.31 | 105.47 | 105.46 |
| 105 | Min | 104.15 | 104.27 | 104.45 | 104.98 | 105.14 | 105.20 |
| | Average | 104.31 | 104.46 | 104.62 | 105.15 | 105.31 | 105.33 |
| R2 Hole7-Hole12 | | TN227 | TN228 | TN229 | TN230 | TN231 | TN232 |
| | Max | 105.55 | 105.73 | 105.65 | 105.84 | 105.97 | 106.07 |
| | Min | 105.28 | 105.43 | 105.35 | 105.52 | 105.68 | 105.83 |
| | Average | 105.42 | 105.58 | 105.50 | 105.68 | 105.82 | 105.95 |
| R3 Hole13-Hole18 | | TN233 | TN234 | TN235 | TN236 | TN237 | TN238 |
| | Max | 106.14 | 106.06 | 105.81 | 106.05 | 105.81 | 105.87 |
| | Min | 105.85 | 105.81 | 105.55 | 105.80 | 105.53 | 105.64 |
| | Average | 106.00 | 105.94 | 105.68 | 105.92 | 105.67 | 105.75 |
| R4 Hole19-Hole24 | | TN239 | TN240 | TN221 | TN222 | TN223 | TN224 |
| | Max | 105.86 | 105.60 | 104.44 | 104.51 | 104.28 | 104.78 |
| | Min | 105.61 | 105.37 | 104.27 | 104.35 | 104.12 | 104.61 |
| | Average | 105.74 | 105.48 | 104.35 | 104.43 | 104.20 | 104.69 |
| R5 Hole25-Hole30 | | TN225 | TN226 | TN227 | TN228 | TN229 | TN230 |
| | Max | 104.94 | 104.93 | 104.97 | 105.08 | 104.68 | 104.69 |
| | Min | 104.77 | 104.75 | 104.76 | 104.90 | 104.51 | 104.49 |
| | Average | 104.85 | 104.84 | 104.86 | 104.99 | 104.60 | 104.59 |
| R6 Hole31-Hole36 | | TN231 | TN232 | TN233 | TN234 | TN235 | TN236 |
| | Max | 105.44 | 105.45 | 105.61 | 104.95 | 104.84 | 104.42 |
| | Min | 105.27 | 105.27 | 105.44 | 104.76 | 104.66 | 104.25 |
| | Average | 105.36 | 105.36 | 105.53 | 104.86 | 104.75 | 104.33 |
| R7 Hole37-Hole42 | | TN237 | TN238 | TN239 | TN240 | TN221 | TN222 |
| | Max | 105.17 | 104.70 | 104.59 | 104.51 | 105.22 | 105.53 |
| | Min | 105.00 | 104.53 | 104.41 | 104.35 | 105.04 | 105.37 |
| | Average | 105.08 | 104.62 | 104.50 | 104.43 | 105.13 | 105.45 |
| R8 Hole43-Hole48 | | TN223 | TN224 | TN225 | TN226 | TN227 | TN228 |
| | Max | 105.61 | 105.45 | 105.10 | 104.77 | 104.87 | 105.02 |
| | Min | 105.44 | 105.28 | 104.92 | 104.60 | 104.70 | 104.85 |
| | Average | 105.53 | 105.37 | 105.01 | 104.69 | 104.79 | 104.93 |

Approved By. _____

FM-L13 I08/30-05-57

Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110
Telephone : +66 2 586 5792-4 Fax : +66 2 586 5109
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th



## Calibration Report

**Measurement Results:**

| HEATING BLOCK | | | Temperature Distribution | |
|---|---|---|---|---|
| Setting (°C) | Reading (°C) | | Stability (±°C) | Uncertainty (±°C) |
| | Min , Max | Average | | |
| 100.0 | 100.0 , 100.4 | 100.1 | 0.29 | 0.83 |
| 105.0 | 105.0 , 105.4 | 105.1 | 0.20 | 0.79 |

* The quoted uncertainty exclude " uniformity "

The calibration result apply only the above calibrated item.

The result of test was found accurate as shown on date and place of test only.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor *k* which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By. _____



Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
Saraburi Tel : +66 3627 3096 Fax : +66 3627 3100
Bangkok Tel : +668 9205 6851 , +669 8247 2360
Website : www.scieco.co.th E-Mail : calibrate@scg.co.th
NSC-TISI-TIS 17025 CALIBRATION 0244



## Certificate of Calibration

REVIEW BY Sittik P.
APPROVED BY VL AL
NEXT CAL. DATE 30/12/23

**Equipment** : Chamber ( Cold Room )
**Manufacturer** : KOLDTECH
**Model** : KM 320
**Serial No.** : TBN-1012061/05
**Customer Code** : BKK_EN0167
**ID No.** : T2463A3
**Customer** : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250
**Customer Location** : Environmental Laboratory
**Date of Receipt** : 27 June 2022
**Calibrated By** : Sujjar Naknakred ( Site Calibration Manager )
**Approved By** : _____ / Boonchai Suriyawong (Site Calibration Manager)
**Date of Issue** : 04 JUL 2022

The uncertainties are for a confidence probability of approximately 95%.

This Certificate is issued in accordance with the conditions of accreditation granted by the Thai Laboratory Accreditation Scheme which has assessed the measurement capability of the laboratory and its traceability to recognized national standards and to the units of measurement realized at the corresponding national standard laboratory. This certificate may not be reproduced other than in full except with the prior written approval of the Metrological Center.



Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
NSC-TISI-TIS 17025 CALIBRATION 0244



## Calibration Report

**Equipment** : Chamber ( Cold Room )
**Date of Calibration** : 30 June - 1 July 2022
**Environment** : Temperature : 18.9-23.7 °C
Line Voltage : 222.9-226.5 V
Relative Humidity : 55 - 65 %RH

**Condition of this results of calibration :**

1. This equipment was calibrated by insert nine standard thermocouples type T into its chamber , the other one standard thermocouples type T use for ambient temperature measurement . The calibration was done in according to WI-T20 ( based on ASTM E145-94 ( Reapproved 2001) and AS2853-1986 ).
All data show below were final values and the initial data from customer request . The temperature scale used was based on ITS - 90 .
2. Reference Standard Instrument :

| Instrument | Model | Instrument No. | Certificate No. | Due Date |
|---|---|---|---|---|
| TC | TYPE T | TN161-TN170 | T210009 | 30 July 2022 |
| TC | TYPE T | TN171-TN180 | T210009 | 30 July 2022 |
| DATA LOGGER | 34970A | T149 | T210009 | 30 July 2022 |

3. This certificate is traceable to :
National Institute of Metrology ( Thailand ) through Metrological Center ( NSC-TISI-TIS 17025 CALIBRATION 0244.)
4. Condition of calibrated item : good
Equipment Description :
Time Constant 3 Hour - Minute At 3 °C
Fresh Air Damper ☐ Open ☐ Min ☐ Medium ☐ Max
☐ Close
☒ Not Available
5. Adjustment :
( ) without adjustment ( X ) after adjustment

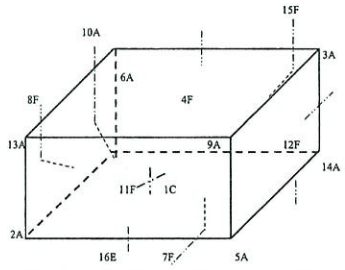
Approved By. _____



Metrological Center
SCI ECO Services Company Limited
33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.
NSC-TISI-TIS 17025 CALIBRATION 0244



## Calibration Report




C = Centre , F = Centre of Face , A = Corner , E = Centre of Edge

| | | | | | |
|---|---|---|---|---|---|
| 1C | = | TN161 | 11F | = | TN171 |
| 2A | = | TN162 | 12F | = | TN172 |
| 3A | = | TN163 | 13A | = | TN173 |
| 4F | = | TN164 | 14A | = | TN174 |
| 5A | = | TN165 | 15F | = | TN175 |
| 6A | = | TN166 | 16E | = | TN176 |
| 7F | = | TN167 | | | |
| 8F | = | TN168 | | | |
| 9A | = | TN169 | | | |
| 10A | = | TN170 | | | |

Approved By. _____

SCG

# Metrological Center

SCI ECO Services Company Limited

33/2 Moo 3, T.Banpa, A.Kaengkhoi, Saraburi 18110, Thailand.

NSC-TISI-TIS 17025
CALIBRATION 0244

Certificate No. T221644



## Calibration Report

**Measurement Results:**

| Calibration Point | Average Standard Reading at each position (°C) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | TN161 | TN162 | TN163 | TN164 | TN165 | TN166 | TN167 | TN168 | TN169 | TN170 |
| 3 | 2.71 | 2.82 | 2.75 | 2.89 | 2.95 | 3.68 | 3.02 | 2.96 | 3.03 | 2.85 |
| | TN171 | TN172 | TN173 | TN174 | TN175 | TN176 | | | | |
| | 2.97 | 3.02 | 2.89 | 3.04 | 2.97 | 3.33 | | | | |

| Chamber ( Cold Room ) | | | Temperature Distribution | | | | |
|---|---|---|---|---|---|---|---|
| Setting (°C) | Reading (°C) | | Average (°C) | Stability (±°C) | Uniformity (°C) | Uncertainty (±°C) | Coverage Factor *k* |
| | Min , Max | Average | | | | | |
| 3.0 | 2.9 , 4.0 | 3.2 | 2.99 | 1.05 | 1.30 | 1.66 | 2.00 |

* The quoted uncertainty exclude " uniformity "
The calibration result apply only the above calibrated item.
The result of test was found accurate as shown on date and place of test only.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor *k* which for a t-distribution, providing a level of confidence of approximately 95 % .

Approved By

FM-L15 117/15-05-63

---

Scientist Instrument

REVIEW BY P. Suwiyang
APPROVED BY South N.
NEXT CAL. DATE 30/11/23

# Performance Verification Certificate

## for Mercury Analyzer

**Product ID** *Quicktrace M-8000 , Teledyne Leeman Labs*

**Equipment ID** BKK_EL0128 Mercury Analyzer
S/N: US22133002

BKK_EL0129 Autosampler
S/N: 052222A560

**Customer Name** ALS Laboratory Group (Thailand) Co., Ltd.
**Address** 104 Soi Pattana 40, Pattana Rd. Suan Luang, Suan Luang
Bangkok 10250 Thailand

**Date of Qualified** November 30, 2022
**Next Due date** November 30, 2023

This certifies for products which was performed in acceptable criteria specifications

| | |
|---|---|
| **Autosampler & Sample Introduction** | **PASSED** |
| **Analyzer** | **PASSED** |
| **Gas Liquid Separator & Dryer** | **PASSED** |
| **CVFS Detector** | **PASSED** |
| **Electronics/Mechanical** | **PASSED** |
| **Data station/PC** | **PASSED** |
| **Analytical test** | **PASSED** |

**Provided by**

**Scientist Instrument Co.,Ltd.**
113 Soi Ekachai 44, Ekachai Road
Khlong Bang Phran, Bangbon
Bangkok 10150 Thailand

Certified by

Thunraphol Sukdayos
*Service Engineer*

---

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL 0-2717-3999-27 FAX 0-2719-9484

ISO/IEC 17025 TESTING
ISO/IEC 17025 CALIBRATION 0003

Cert. No.: 22TM676
Page.: 1 of 3

# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | Autoclave |
| **Manufacturer :** | TOMY |
| **Model :** | SX-700 |
| **Serial No. :** | 48134190 |
| **ID No. :** | BKK_ML0041 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>104 Phatthanakan 40, Phatthanakan Rd.,<br>Khwaeng Phatthanakan, Khet Suan Luang,<br>Bangkok 10250 Thailand |
| **Location :** | Media Preparation Room |
| **Received Order :** | 20 May 2022 |
| **Calibration Date :** | 20 May 2022 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **Calibrated by :** | Prescha Hlahib |
| **Approved by :** | Approved Signatory |

REVIEW BY Sithichok
APPROVED BY
NEXT CAL. DATE 20/11/65

( ) Pornthippa Tameyakul
( ) Malee Butkruea
(✓) Suwit Imjai

**Issue Date :** 24 May 2022

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced except in full, except with the prior written approval of the Head of Corporate Services 3 : Equipment Calibration and Testing Services

A 0041435

---

**Equipment :** Autoclave
**Condition As-Received :** Used Item
**Reference :** 2205-0404OC-2

Cert. No.: 22TM676
Page.: 2 of 3

**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT03 according to direct measurement method with Data Acquisition which connected with Thermocouple Type T

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

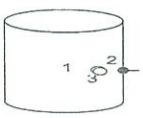
1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34972A | MY57013823 | 22LM24 | 26 Feb 2023 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.
4. This result of calibration covers laboratory autoclaves for the sterilization of goods and material which could be infected with organisms categorized as Hazard Group 1, 2 and 3**

(** = Categorization of pathogens according to hazard and categories of containment, second edition, 1990 )
It does not cover autoclaves for use with material infect with organisms in Hazard Group 4, for which complete containment and sterilization of infected condensate is considered to be essential.
This result of calibration does not apply to sterilizers or disinfectors used for medical, dental, pharmaceutical or veterinary purposes which are directry concerned with patient care, or those used for fabrics subjected to sterilization which are required to be dry at the end of cycle.

**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source




| | Environmental | | |
|---|---|---|---|
| | ( °C ) | ( %R.H. ) | ( Volt ) |
| Beginning of Calibration | 24 | 55 | 220 |
| Finished of Calibration | 26 | 57 | 221 |

| Position | Description | Ref. Std. ID No.: |
|---|---|---|
| 1 = | Center of chamber | 19-17TC-11 |
| 2 = | Temperature sensor | 19-17TC-12 |
| 3 = | Exhaust port | 19-17TC-13 |

a 1109670

Equipment : Autoclave
Condition As-Received : Used Item
Reference : 2205-0404OC-2
Result of Calibration :- ( * ) Without Adjustment

Cert. No.: 22TM676
Page.: 3 of 3

Operating parameter Set : Temperature = 108 °C
Sterilization period = 10 minute

| UUC* Setting ( °C ) | UUC* Reading ( °C ) | Position | Average* Standard Reading ( °C ) | Stability ( ± °C ) | Pressure Reading ( MPa ) | Uncertainty ( ± °C ) | Coverage Factor k |
|---|---|---|---|---|---|---|---|
| 108 | 108 | 1 | 107.536 | 0.19 | 0.04 | 0.91 | 2 |
| | | 2 | 107.542 | | | | |
| | | 3 | 107.471 | | | | |

Operating parameter Set : Temperature = 115 °C
Sterilization period = 20 minute

| UUC* Setting ( °C ) | UUC* Reading ( °C ) | Position | Average* Standard Reading ( °C ) | Stability ( ± °C ) | Pressure Reading ( MPa ) | Uncertainty ( ± °C ) | Coverage Factor k |
|---|---|---|---|---|---|---|---|
| 115 | 115 | 1 | 114.502 | 0.15 | 0.08 | 0.89 | 2 |
| | | 2 | 114.582 | | | | |
| | | 3 | 114.539 | | | | |

Operating parameter Set : Temperature = 118 °C
Sterilization period = 10 minute

| UUC* Setting ( °C ) | UUC* Reading ( °C ) | Position | Average* Standard Reading ( °C ) | Stability ( ± °C ) | Pressure Reading ( MPa ) | Uncertainty ( ± °C ) | Coverage Factor k |
|---|---|---|---|---|---|---|---|
| 118 | 118 | 1 | 117.517 | 0.094 | 0.09 | 0.88 | 2 |
| | | 2 | 117.616 | | | | |
| | | 3 | 117.530 | | | | |

Result of Calibration :- ( * ) Without Adjustment
Operating parameter Set : Temperature = 121 °C
Sterilization period = 30 minute

| UUC* Setting ( °C ) | UUC* Reading ( °C ) | Position | Average* Standard Reading ( °C ) | Stability ( ± °C ) | Pressure Reading ( MPa ) | Uncertainty ( ± °C ) | Coverage Factor k |
|---|---|---|---|---|---|---|---|
| 121 | 121 | 1 | 120.400 | 0.18 | 1.1 | 0.90 | 2 |
| | | 2 | 120.511 | | | | |
| | | 3 | 120.465 | | | | |

Average* : The average of 30 values in each position.
Stability : One-half of the greatest maximum difference of measured temperature at any one probe.
UUC* : Unit Under Calibration
Note : The reported uncertainty of measurement was included stability and excluded uniformity .
The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

-o0o-

a 1109669

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES & EQUIPMENT CALIBRATION AND TESTING SERVICES
534/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL 0-2717-3000-27 FAX 0-2719-9484

NSC-TH54-TIS17025 CALIBRATION 0008

Cert. No.: 22TM102
Page.: 1 of 3

# Certificate of Calibration

Equipment : Incubator
Manufacturer : SHEL-LAB
Model : 1915A
Serial No. : 0200599
ID No. : BKK_ML0010
Submitted by : ALS Laboratory Group (Thailand) Co.,Ltd.
104 Phatthanakan 40, Phatthanakan Rd.,
Khwaeng Phatthanakan, Khet Suan Luang,
Bangkok 10250 Thailand
Location : Incubation & Micrological Reading
Received Order : 21 January 2022
Calibration Date : 21 January 2022
Ambient Temperature : ( 26 ± 10 ) °C
Relative Humidity : ( 50 ± 30 ) %
Calibrated by : Krisda Malee

REVIEW BY Sirinchokt.
APPROVED BY
NEXT CAL. DATE 22/07/23

Approved by : Malee .
Approved Signatory

( ) Pornthippa Tameyakul
( ✓ ) Malee Butkruea
( ) Suwit Imjai

Issue Date : 3 February 2022

The Uncertainties are for a confidence probability of approximately 95%

This certificate may not be reproduced either than in full, except with the prior written Approval of the head of Corporate Services & Equipment Calibration and Testing Services

A 0037377

---

Equipment : Incubator
Condition As-Received : Used Item
Reference : 2201-0616OC-1

Cert. No.: 22TM102
Page.: 2 of 3

Procedure Used :-
Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Resistance Temperature Detector ( RTD ).
The temperature scale used was based on ITS-90.

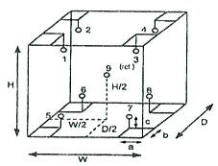
Condition of this result of calibration
1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34972A | MY57013711 | 21LM7 | 16 Jun 2022 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

Result of Calibration :- ( * ) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

| Environment during calibration | Beginning | Finished |
|---|---|---|
| Temp. ( °C ) | 26 | 25 |
| REL.Humid. ( % ) | 53 | 54 |
| AC Supply ( Volt ) | 220 | 221 |




| Position : | Ref. Std. ID No.: |
|---|---|
| 1 | 18-18RTD-01 |
| 2 | 18-18RTD-02 |
| 3 | 18-18RTD-03 |
| 4 | 18-18RTD-04 |
| 5 | 18-18RTD-05 |
| 6 | 18-18RTD-06 |
| 7 | 18-18RTD-07 |
| 8 | 18-18RTD-08 |
| 9 (ref.) | 18-18RTD-09 |

Probe Installation Details :
a = 10 cm
b = 10 cm
c = 10 cm

Dimension of Chamber :
D = 0.90 m
W = 0.75 m
H = 1.2 m
Capacity = 0.81 m³

Malee .

a 1092309

---

Equipment : Incubator
Condition As-Received : Used Item
Reference : 2201-0616OC-1
Result of Calibration :- ( * ) Without Adjustment
Function of UUC* : Temperature Source
Fresh air setting : Close

Cert. No.: 22TM102
Page.: 3 of 3

| Calibration Point ( °C ) | UUC* Setting ( °C ) | UUC* Reading ( °C ) | Temperature stability ( ± °C ) | Temperature uniformity ( °C ) | Overall Variation ( °C ) | Uncertainty ( ±°C ) | Coverage Factor k |
|---|---|---|---|---|---|---|---|
| 35.0 | 35.0 | 35.0 | 0.043 | 0.41 | 0.42 | 0.30 | 2 |

| Calibration Point ( °C ) | Measured Temperature ( °C ) Position | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 (ref.) |
| 35.0 | 34.801 | 34.868 | 34.852 | 35.012 | 35.040 | 35.010 | 35.084 | 35.040 | 35.178 |

Average* : The average of 30 values in each position.
Temperature stability : One-half of the greatest maximum difference of measured temperature at any one sensor.
Temperature uniformity : The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.
Overall Variation : The Difference of the maximum and minimum measured temperatures throughout observation.
UUC* : Unit Under Calibration
Note : The reported uncertainty of measurement was included stability and excluded uniformity .
The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

-o0o-

Malee .

a 1092308

TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000-29 FAX. 0-2719-9384

NSC-TISI-TIS17025 CALIBRATION 0008



# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | Hot Air Oven |
| **Manufacturer :** | Binder |
| **Model :** | ED 240/E2 |
| **Serial No. :** | 00-15533 |
| **ID No. :** | BKK_ML0013 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>104 Phatthanakan 40, Phatthanakan Rd.,<br>Khwaeng Phatthanakan, Khet Suan Luang,<br>Bangkok 10250 Thailand |
| **Location :** | Media Preparatiom Room |
| **Received Order :** | 21 November 2022 |
| **Calibration Date :** | 21 November 2022 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **Calibrated by :** | Krisda Malee |

REVIEW BY Sithichok
APPROVED BY
NEXT CAL. DATE 21/05/24

**Approved by :** Malu.
Approved Signatory

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 29 November 2022

The Uncertainties are for a confidence probability of approximately 95%

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A 0048150

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**Procedure Used :-**

Calibration were conducted using calibration procedure CP-OT02 according to direct measurement method with Data Acquisition which connected with Thermocouple Type T.

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

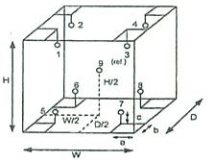
1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34970A | MY44067817 | 22LM121 | 22 Aug 2023 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) After Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Not Available

| Environment during calibration | Beginning | Finished |
|---|---|---|
| Temp. ( °C ) | 26 | 26 |
| REL.Humid. ( % ) | 53 | 55 |
| AC Supply ( Volt ) | 219 | 220 |




**Probe Installation Details :**

| | | |
|---|---|---|
| a = | 5.0 | cm |
| b = | 5.0 | cm |
| c = | 5.0 | cm |

**Dimension of Chamber :**

| | | |
|---|---|---|
| D = | 0.50 | m |
| W = | 0.80 | m |
| H = | 0.60 | m |
| Capacity = | 0.24 | m³ |

| Position : | Ref. Std. ID No.: |
|---|---|
| 1 | 21-15TC-01 |
| 2 | 21-15TC-02 |
| 3 | 21-15TC-03 |
| 4 | 21-15TC-04 |
| 5 | 21-15TC-05 |
| 6 | 21-15TC-06 |
| 7 | 21-15TC-07 |
| 8 | 21-15TC-08 |
| 9 (ref.) | 21-15TC-09 |

Malu.

a 1138049

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**Result of Calibration :-** ( * ) After Adjustment
**Function of UUC* :** Temperature Source
**Fresh air setting :** Not Available

| Calibration Point ( °C ) | UUC* Setting ( °C ) | UUC* Reading ( °C ) | Temperature stability ( ± °C ) | Temperature uniformity ( °C ) | Overall Variation ( °C ) | Uncertainty ( ±°C ) | Coverage Factor *k* |
|---|---|---|---|---|---|---|---|
| 180 | 180 | 180 | 0.70 | 1.5 | 2.9 | 1.4 | 2 |

| Calibration Point | Measured Temperature ( °C ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Position | | | | | | | | |
| ( °C ) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 (ref.) |
| 180 | 179.520 | 180.585 | 178.855 | 179.482 | 178.827 | 179.938 | 179.074 | 180.199 | 180.068 |

**Average* :** The average of 30 values in each position.
**Temperature stability :** One-half of the greatest maximum difference of measured temperature at any one sensor.
**Temperature uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.
**Overall Variation :** The Difference of the maximum and minimum measured temperatures throughout observation.
**UUC* :** Unit Under Calibration
Note : The reported uncertainty of measurement was included stability and excluded uniformity .

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

-o0o-

Malu.

a 1138053

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TECHNOLOGY PROMOTION ASSOCIATION (THAILAND-JAPAN)
CORPORATE SERVICES 3: EQUIPMENT CALIBRATION AND TESTING SERVICES
53/4 PATTANAKARN ROAD SOI 18, SUANLUANG, SUANLUANG BANGKOK 10250
TEL. 0-2717-3000-29 FAX. 0-2719-9384

NSC-TISI-TIS17025 CALIBRATION 0008



# Certificate of Calibration

| | |
|---|---|
| **Equipment :** | Water Bath |
| **Manufacturer :** | Memmert |
| **Model :** | WNE 45 |
| **Serial No. :** | L712.0429 |
| **ID No. :** | BKK_ML0056 |
| **Submitted by :** | ALS Laboratory Group (Thailand) Co.,Ltd.<br>104 Phatthanakan 40, Phatthanakan Rd.,<br>Khwaeng Phatthanakan, Khet Suan Luang,<br>Bangkok 10250 Thailand |
| **Location :** | Incubator & Microbiological Reading |
| **Received Order :** | 20 April 2023 |
| **Calibration Date :** | 20 April 2023 |
| **Ambient Temperature :** | ( 26 ± 10 ) °C |
| **Relative Humidity :** | ( 50 ± 30 ) % |
| **Calibrated by :** | Kunchit Promprat |

REVIEW BY Sithichok
APPROVED BY
NEXT CAL. DATE 20/4/24

**Approved by :** Malu.
Approved Signatory

( ) Pornthippa Tameyakul
(✓) Malee Butkruea
( ) Suwit Imjai

**Issue Date :** 24 April 2023

The Uncertainties are for a confidence probability of approximately 95%

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A 0053357

**Equipment :** Water Bath
**Condition As-Received :** Used Item
**Reference :** 2304-0253OC-1
**Cert. No.:** 23TM637
**Page :** 2 of 3

**Procedure Used :-**

Calibration were conducted using in-house calibration procedure CP-OT04 according to direct measurement method with Data Acquisition which connected with Industrial Platinum Resistance Thermometer ( IPRT ).

The temperature scale used was based on ITS-90.

**Condition of this result of calibration**

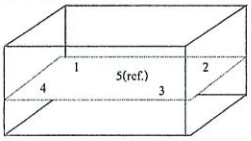
1. Reference standard instrument:-

| Instrument | Model | Serial No. | Cert. No. | Due Date |
|---|---|---|---|---|
| 1 ) Data Acquisition | 34970A | MY44073381 | 22LM78/1 | 12 May 2023 |

2. This certificate is valid only to the item calibrated on date and place of calibration.
3. This certification is traceable to the International System of Unit.

**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source
**Heat transfer medium used :** Water

| | Environmental | | AC Voltage Supply |
|---|---|---|---|
| | ( °C ) | ( %R.H. ) | ( Volt ) |
| **Beginning of Calibration** | 25 | 45 | 223 |
| **Finished of Calibration** | 25 | 43 | 223 |



Front

| Position : | Ref. Std. S/N.: |
|---|---|
| 1 | 4803988-006 |
| 2 | 4803988-007 |
| 3 | 4804539-014 |
| 4 | 4804539-015 |
| 5(ref.) | 4804539-016 |

Mala.

a 1158265

**Equipment :** Water Bath
**Condition As-Received :** Used Item
**Reference :** 2304-0253OC-1
**Cert. No.:** 23TM637
**Page :** 3 of 3

**Result of Calibration :-** ( * ) Without Adjustment
**Function of UUC* :** Temperature Source

| Calibration point ( °C ) | UUC* Setting ( °C ) | UUC* Reading ( °C ) | Average* Standard Reading ( °C ) Position 1 | 2 | 3 | 4 | 5 (ref.) | Uncertainty ( ± °C ) |
|---|---|---|---|---|---|---|---|---|
| 44.5 | 44.5 | 44.5 | 44.492 | 44.463 | 44.475 | 44.510 | 44.491 | 0.15 |
| 45.0 | 45.0 | 45.0 | 45.005 | 44.962 | 44.979 | 45.016 | 44.986 | 0.15 |

| Calibration point ( °C ) | Uniformity ( °C ) | Stability ( ± °C ) | Coverage Factor *k* |
|---|---|---|---|
| 44.5 | 0.051 | 0.022 | 2 |
| 45.0 | 0.080 | 0.026 | 2 |

**Average* :** The average of 30 values in each position.
**Uniformity :** The maximum difference of measured temperatures at any sensors and the measured temperature at the reference location which are observed at the same time or at as close an observation time as possible to determine the temperature pattern or homogeneity within the chamber under steady-state conditions.
**Stability :** One-half of the greatest maximum difference of measured temperature at any one probe.
**UUC* :** Unit Under Calibration
**Note :** The reported uncertainty of measurement was included stability and excluded uniformity.

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor *k*, providing a level of confidence of approximately 95 %.

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Mala.

a 1158264

BKK_EL0037

Agilent Technologies

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Khwaeng Phatthanakan Khet Suan
TAX ID : 0105540004859
Chanattagarn.lmchom@alsglobal.com
27603068

**Invoice To:**
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Khwaeng Phatthanakan Khet Suan

**Delivery Site:**
ALS Laboratory Group (Thailand) Co Ltd
Head Office
104 Phatthanakan 40 Phatthanakan Rd
Khwaeng Phatthanakan Khet Suan

**Location:**
**Room**
**Bldg**
**Lab**
**Dept**

## SERVICE REPORT

| Customer Purchase Order Number: | Customer Number: 70371013 |
|---|---|
| Service Request: | Service Request Date: |
| Service Order: 6006933911 | Service Confirmation: 6904800024 |

REVIEW BY Thitima I.
APPROVED BY
NEXT CAL DATE 19 Sep 2024

**Direct Inquiries to:**
Contact Name: Customer Contact Center
Contact E-mail: ccc-smt@agilent.com
Contact Telephone: +662 637 6363
Contact Fax: +662 632 4334

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Acc. No. 012-4452-007.
THB.Krung Thai Bank PCL
Siam Square Br.,416/1-2 Rama I Rd.,Pathumwan, BKK 10330 Thailand

ORIGINAL



**Service Confirmation Number:** 6904800024
**Service Confirmation Date:** 20.03.2023

**Service Instrument:**

| Model Number | Model Description | Serial Number | System Handle | Parent Asset |
|---|---|---|---|---|
| SYS-IO-5100 | ICP-OES 5100/5110 System | | | |
| G8010A | Agilent 5100 SVDV ICP-OES Spectrometer | MY16010065 | ICP OES 5100 | SYS-IO-5100 |
| G8410A | SPS 4 Autosampler | AU15440764 | ICP OES 5100 | SYS-IO-5100 |

**Service Items:**

| Item | Service/Part # | Description | Qty | Entitlement | Service Start | Service End |
|---|---|---|---|---|---|---|
| 1000 | E00 | Enterprise Operational Qualification | 1.00 | Agreement Entitlement - 100 % covered | 20.03.2023 | 20.03.2023 |

**Additional Information:**

**Service Confirmation Number:** 6904800024
**Service Confirmation Date:** 20.03.2023

**Service Information:**

| | | |
|---|---|---|
| **Problem Description:**<br>WU-S-OO-IO-5100-5001143313 | | |
| **Service Provided:**<br>Complete OOHW 5100ICPOES<br>Equipment ID: BKK_EL0037, all tests passed | | |
| **Service Overview Code:**<br>Reason Code: Scheduled Service<br>Diagnosis Code: Scheduled Service<br>Resolution Code: Scheduled Service | | |
| **Reported Hours:**<br>4.0 | **Travel Hours:**<br>2.0 | |
| **Customer Field Service Representative Name:**<br>Kanyakorn Sukpathrajarern | **Customer Field Service Representative Signature:** | **Date:**<br>20 Mar 2023 |
| **Customer Name:**<br>Thitima Boonpeng | **Customer Signature:** | **Date:**<br>20 Mar 2023 |
| **Additional Comments:** | | |