

**ENVIRONMENTAL QUALITY MONITORING REPORT
FOR MANUFACTURING OF METALLIC COATED
STEEL STRIP AND PAINTED STEEL STRIP OF
JFE MYANMAR COATED STEEL CO., LTD.
IN THILAWA SPECIAL ECONOMIC ZONE B
(OPERATION STAGE)**



July 2025

Myanmar Koei International Ltd.





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Document Certification

Environmental Quality Monitoring Report for manufacturing of metallic coated steel stripe and painted steel stripe of JFE MYANMAR Coated Steel Co., Ltd. in Thilawa SEZ Zone B was prepared by MYANMAR KOEI INTERNATIONAL LIMITED. The undersigned hereby certify that the monitoring data presented in this report have been accurately obtained and validated under the prevailing environmental conditions at the time of monitoring.

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EIA-AC 090/2024



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CHAPTER 1: OUTLINES AND SUMMARY OF MONITORING PLAN

1.1 General

JFE MYANMAR Coated Steel Co., Ltd. is the manufacturing of metallic coated steel strip and painted steel strip. The project is located at Lot No. BC1, Zone B, Thilawa Special Economic Zone, Yangon, Myanmar. The environmental monitoring report has been prepared for JFE MYANMAR Coated Steel Co., Ltd. by Myanmar Koei International Ltd (MKI).

JFE MYANMAR Coated Steel Co., Ltd. has a responsibility to carry out regular monitoring for manufacturing of metallic coated steel strip and painted steel strip factory in accordance with the approved Environmental Impact Assessment (EIA) report and Environmental Monitoring Plan (EMoP). JFE MYANMAR Coated Steel Co., Ltd. has implemented monitoring of various environmental items with the specified time frame to know the environmental conditions in and around the area. The detail description of the project is shown in Table 1.1-1.

Table 1.1-1 Project Description

Item	Description
Name of Project Proponent	JFE MYANMAR Coated Steel Co., Ltd.
Type of Project	Manufacturing of metallic coated steel strip and painted steel strip
Location	Lot No. BC1, Zone B, Thilawa Special Economic Zone, Yangon, Myanmar
Total Production Capacity	Phase 1: - Up to 100,000 tonnes per annum of painted steel strip from imported metallic coated feed Phase 2: - Up to 180,000 tonnes per annum of metallic coated strip, of which, up to 100,000 tonnes will be painted
Total Production Days in July 2025	9 days
Total Output Tons (painted steel strip) in July 2025	1200.00 MT
Total Project Area	77,800 square meters (19.22 Acre)
Total Production Area	3,440 square meters (0.85 Acre)
Contact Person	Ms. Khaing Cho Khant Senior Environmental Engineer, Manufacturing
Email and Telephone	kkhant@jfemeranti.com +95 9-950683557

Source: JFE MYANMAR Coated Steel Co., Ltd.



1.2 Outlines of Monitoring Plan

To assess the impact on the manufacturing of painted steel strip of JFE MYANMAR Coated Steel factory to the surrounding environment, ambient air quality, boundary noise and vibration level, indoor air quality, workplace noise and vibration level, air emission monitoring, heat stress and light measurement had been monitored from 8 July to 10 July, 2025 as follows:

Table 1.2-1 Outline of the Field Survey

Ambient Air Quality	Survey Parameter	1) CO, 2) CO ₂ , 3) NO ₂ , 4) PM _{2.5} , 5) PM ₁₀ , 6) Ozone, 7) SO ₂ , 8) Wind Speed and 9) Wind Direction
	Survey Period	8 – 10 July, 2025
	Number of Survey	at one point and 48 consecutive hours for two days
	Location	1 Point (Inside and south of the JFE MYANMAR Coated Steel factory compound, which is nearest place to the sensitive receptors).
Boundary Noise Level	Survey Parameter	L _{Aeq} (dB)
	Survey Period	8 – 10 July, 2025
	Number of Survey	at two points and 48 consecutive hours for two days
	Location	2 Points: Inside the JFE MYANMAR Coated Steel factory compound, one on the south side and one on the north side, each closest to nearby sensitive receptors.
Boundary Vibration Level	Survey Parameter	L _{v10} (dB)
	Survey Period	8 – 10 July, 2025
	Number of Survey	at two points and 48 consecutive hours for two days
	Location	2 Points: Inside the JFE MYANMAR Coated Steel factory compound, one on the south side and one on the north side, each closest to nearby sensitive receptors.
Indoor Air Quality	Survey Parameter	PM _{2.5} , PM ₁₀ and VOC
	Survey Period	8 July 2025
	Number of Survey	PM _{2.5} , PM ₁₀ and VOC: at two points and one hour/point
	Location	PM _{2.5} , PM ₁₀ and VOC: 2 Points 1) Coater-A and 2) Coater-B
Workplace Noise Level	Survey Parameter	L _{Aeq} (dB)
	Survey Period	8 July 2025
	Number of Survey	at three points and one hour/point
	Location	3 Points: 1) Near Coater-A, 2) Entry Accumulator and 3) Near Quality Control Laboratory
Workplace Vibration Level	Survey Parameter	L _{v10} (dB)
	Survey Period	8 July 2025
	Number of Survey	at three points and one hour/point
	Location	3 Points: 1) Near Coater-A, 2) Entry Accumulator and 3) Near Quality Control Laboratory
Emission Monitoring	Survey Parameter	NO _x
	Survey Period	8 July 2025
	Number of Survey	at two points and one hour/point
	Location	2 Points: 1) Regenerative Thermal Oxidizer (RTO) Stack and 2) Chemical Drier Stack



*Environmental Quality Monitoring Report for Manufacturing of Metallic Coated Steel Strip and Painted Steel Strip of
JFE MYANMAR Coated Steel Co., Ltd. in Thilawa SEZ Zone B*

Heat Stress	Survey Parameter	WBGT, TA, TG and RH
	Survey Period	9 July 2025
	Number of Survey	at eight points and 8-hour record of spot-check
	Location	8 Points: 1) FC 9Storage), 2) FC (Packaging), 3) Workshop, 4) CPL (GF), 5) CPL (2 nd F), 6) RTO, 7) Roll Shop and 8) CRC
Illuminance	Survey Parameter	Illuminance
	Survey Period	9 July 2025
	Number of Survey	at four points and 8-hour record of spot-check
	Location	4 Points: 1) FCPT, 2) CPL, 3) Roll Shop and 4) CRC

Source: Myanmar Koei International Ltd.



CHAPTER 2: FIELD SURVEY

2.1 Ambient Air Quality

The survey of ambient air quality, AQ-1, has been monitored south corner inside of the JFE MYANMAR Coated Steel factory compound, which is nearest place to the sensitive receptors. Ambient air quality and meteorology survey have been conducted for 48 hours continuously to know the current air quality of the project area. Table 2.1-1 shows the outline of the ambient air quality monitoring.

Table 2.1-1 Outlines of Ambient Air Quality Monitoring

Survey Period	Survey Item	Parameters	Number of Point	Duration	Survey Methodology
8 July – 10 July, 2025	Ambient Air Quality	CO, CO ₂ , NO ₂ , PM _{2.5} , PM ₁₀ , Ozone and SO ₂	1 point (AQ-1)	48 Hours	On site measurement by Oceanus AQM-09 Air Quality Monitoring System

Source: Myanmar Koei International Ltd.

2.1.1 Survey Items

The parameters for ambient air quality survey were CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂ and the parameters for meteorology survey were wind speed and wind direction.

2.1.2 Survey Location

The location of ambient air quality monitoring point is shown in Table 2.1-2 and Figure 2.1-1.

Table 2.1-2 Location of Air Quality Monitoring

Survey Point	Coordinates	Description of Survey Point
AQ-1	N: 16°39'57.38", E: 96°17'8.57"	South of the JFE MYANMAR Coated Steel factory compound, which is nearest place to the sensitive receptors

Source: Myanmar Koei International Ltd.





Source: Google Earth

Figure 2.1-1 Location of Ambient Air Quality Monitoring Point

AQ-1

AQ-1 is located south corner inside of the JFE MYANMAR Coated Steel factory compound, which is nearest place to the sensitive receptors. The surrounding area are SIAM GS Battery Myanmar Ltd. in the southwest, RK Yangon Steel factory in the southeast, vacant lands and Thilawa Development Road in the east and northeast, Phalan monastery and Phalan village in the south.

2.1.3 Survey Period

Ambient air quality and meteorology survey were conducted 48 hours from 8 July 2025 – 10 July 2025.

2.1.4 Survey Method

Survey of meteorology and ambient air quality (CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂) were conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). The Oceanus AQM-09 Air Quality Monitoring System was used to collect ambient air pollutants. The system measures automatically every one minute and directly reads and records onsite for CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂. Wind data are analyzed by using the WRPLOT View (Ver. 8.0.2), in which calm wind is defined below 0.5 m/s in term of the classification stipulated by National Oceanic and Atmospheric Administration (USA). The equipment of meteorological and ambient air quality survey is shown in Figure 2.1-2.





Source: Myanmar Koei International Ltd.

Figure 2.1-2 Status of Ambient Air Quality Monitoring Point at AQ-1

2.1.5 Survey Results

The daily average value of ambient air quality monitoring results of CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂ are described in Table 2.1-3. Comparing with the guideline values of CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂ prescribed in final EIA report for JFE MYANMAR Coated Steel Co., Ltd. (referred to Section 2.2.1, Air Quality, Table 2.2-2), 48 hours average concentration of CO, CO₂, NO₂ and Ozone were lower than the target value. Moreover, the results of PM_{2.5}, PM₁₀ and SO₂ were also lower than the target value and interim target value of WHO Air Quality Guideline, 2021.

There is no guideline value for CO₂ and no country has a specific rule for boundary CO₂ levels for ambient air quality monitoring. The average global CO₂ level is usually between 400 and 420 ppm (719.84 and 755.83 mg/m³). International groups like the World Meteorological Organization (WMO) and the National Oceanic and Atmospheric Administration (NOAA) monitor these levels. Countries agree to reduce CO₂ emissions to mitigate climate change through the Paris Agreement, instead of setting standards for ambient CO₂. 24 hours average concentration of CO₂ at the monitoring point was lower than the average global CO₂ level.

Table 2.1-3 Ambient Air Quality Survey Result (Daily Average)

Date	Unit – mg/m ³						
	CO 24-hr Avg	CO ₂ 24-hr Avg	NO ₂ 24-hr Avg	PM _{2.5} 24-hr Avg	PM ₁₀ 24-hr Avg	SO ₂ 24-hr Avg	Ozone 8-hr Max
8 ~ 9 July, 2025	0.083	648.316	0.008	0.011	0.015	0.016	0.082
9 ~ 10 July, 2025	0.098	648.821	0.009	0.009	0.013	0.013	0.085
48-hour Result	0.091	648.569	0.009	0.010	0.014	0.014	0.085 ²⁾
Target Value ¹⁾	10.26	NG	0.1	0.025	0.05	0.02	0.1
WHO ³⁾ (Interim Target Value)	-	NG	-	0.050	0.100	0.050	-

Note:

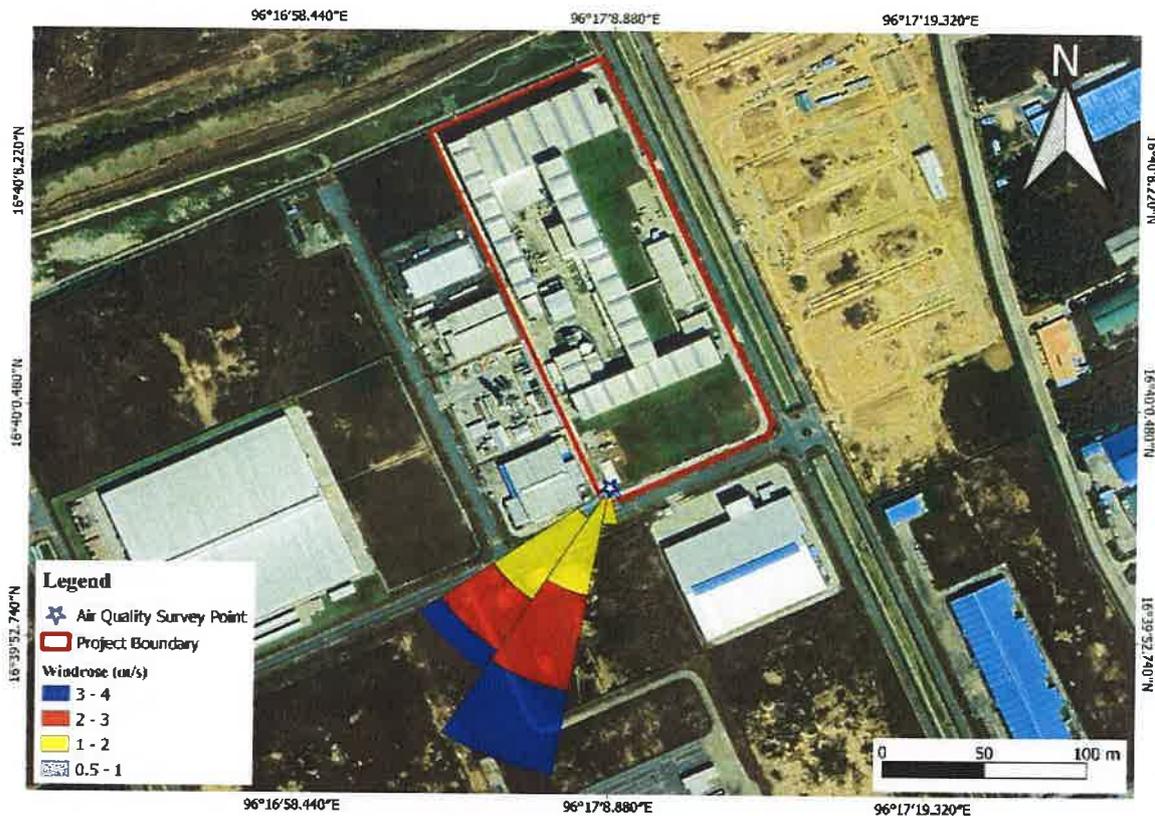
- 1) Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
- 2) (Ozone, mg/m³) = 8-hr maximum duration for Ozone concentration is from 15:00 to 22:00 on 9 July 2025.
- 3) WHO (AQG) - World Health Organization Air Quality Guideline, 2021

Source: Myanmar Koei International Ltd.



Wind direction and wind speed were measured at AQ-1. Hourly average values of measured wind direction and wind speed data are described in Appendix-1. Frequency of wind direction at AQ-1 and its wind rose diagram are described in Figure 2.1-3 and Figure 2.1-4. According to the wind rose analysis, the prevailing wind direction during monitoring was South-Southwest (SSW) and the least frequency wind direction was Southeast (SE). During the monitoring period, while the maximum wind speed was 3.93 m/s, the average speed is 1.98 m/s. No calm wind was recorded during monitoring, whereas the calm wind is defined below 0.5 m/s. As the average wind speed is higher than the defined calm wind, it is assumed that the wind was light air during the monitoring period.

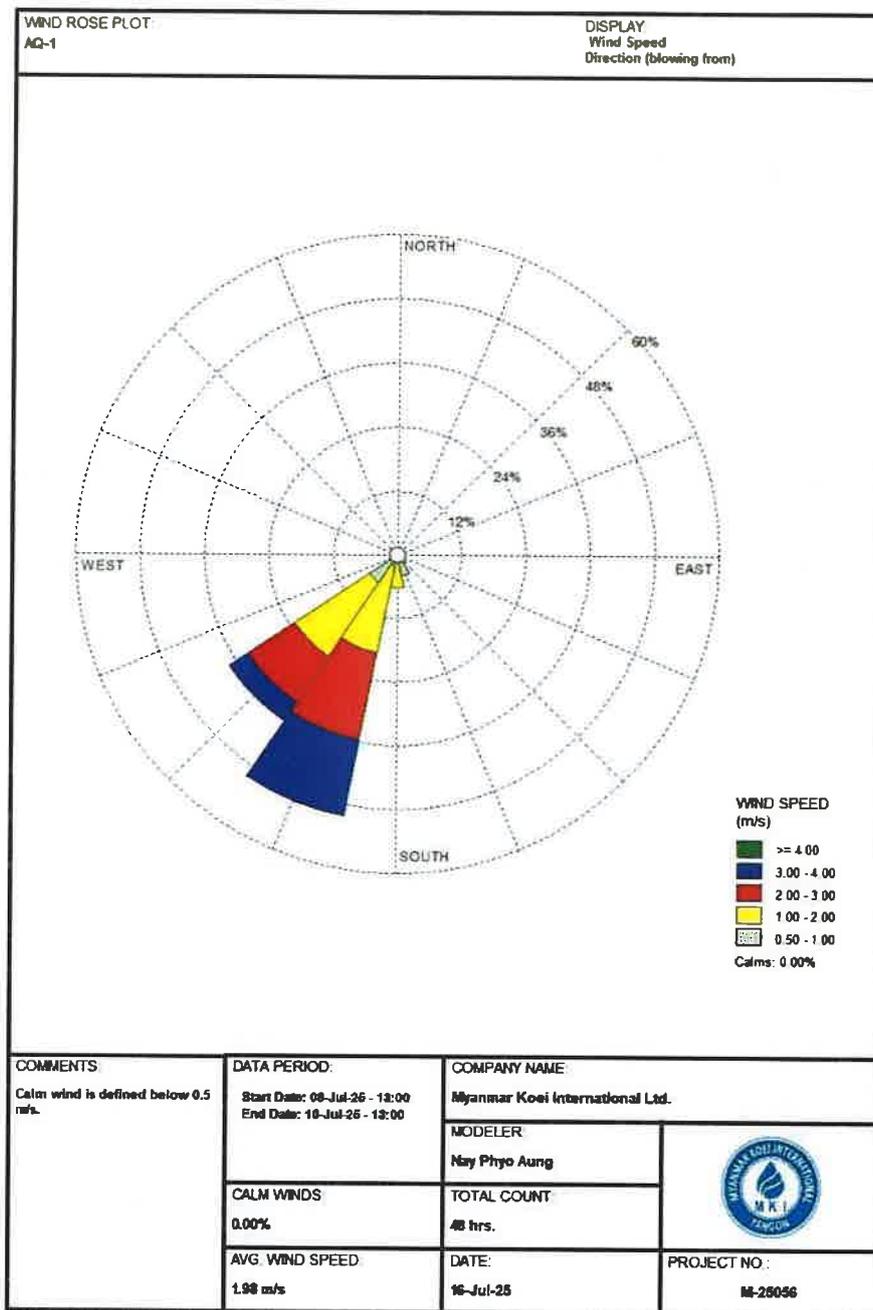
According to the summary of wind direction at AQ-1, most of the prominent wind were blowing from Southwest (SW) quadrants.



Source: Myanmar Koei International Ltd.

Figure 2.1-3 Wind Status at AQ-1





Source: Myanmar Koei International Ltd.

Figure 2.1-4 Wind Rose Diagram of AQ-1



The vehicle usage record of JFE MYANMAR Coated Steel factory during ambient air quality monitoring period is shown in Table 2.1-4.

Table 2.1-4 Vehicle Usage Record During Ambient Air Quality Monitoring Period

Date	Vehicle type	Quantity	Total
8 July, 2025	JFE MYANMAR Coated Steel Ferry	21	53
	JFE MYANMAR Coated Steel Rental Car	7	
	Visitor' Car	23	
	Employee' Car	2	
9 July, 2025 (Public Holiday)	JFE MYANMAR Coated Steel Ferry	16	19
	JFE MYANMAR Coated Steel Rental Car	0	
	Visitor' Car	3	
	Employee' Car	0	
10 July, 2025	JFE MYANMAR Coated Steel Ferry	21	48
	JFE MYANMAR Coated Steel Rental Car	7	
	Visitor' Car	18	
	Employee' Car	2	

Source: JFE MYANMAR Coated Steel Co., Ltd.



2.2 Boundary Noise and Vibration Level

The survey of Boundary noise and vibration level at NV-1 was conducted within the JFE MYANMAR Coated Steel factory compound. Boundary noise and vibration level monitoring was conducted 48 hours for survey point to know the boundary noise and vibration level near the JFE MYANMAR Coated Steel factory. Table 2.2-1 shows the outline of the boundary noise and vibration level monitoring.

Table 2.2-1 Outlines of Boundary Noise and Vibration Level Monitoring

Survey Date	Survey Item	Parameters	Number of Points	Duration	Survey Methodology
8 – 10 July, 2025	Boundary Noise Level	L _{Aeq} (dB)	2 (NV-1 and NV-2)	48 hours	On-site measurement by “Rion NL-42 and NL-43 sound level meters”
8 – 10 July, 2025	Boundary Vibration Level	L _{v10} (dB)	2 (NV-1 and NV-2)	48 hours	On-site measurement by “Vibration Level Meters - VM-53A and VM 55”

Source: Myanmar Koei International Ltd

2.2.1 Survey Items

The boundary noise and vibration level monitoring items are shown in Table 2.2-2.

Table 2.2-2 Survey Parameters for Boundary Noise and Vibration Level

No.	Item	Parameter
1	Boundary Noise	A-weighted loudness equivalent (L _{Aeq})
2	Boundary Vibration	Vibration level, vertical, percentile (L _{v10})

Source: Myanmar Koei International Ltd.

2.2.2 Survey Location

The location of boundary noise and vibration level points is shown in Table 2.2-3. The detail of survey point is described below. The location of the boundary noise and vibration monitoring points is shown in Figure 2.2-1.

Table 2.2-3 Location of Boundary Noise and Vibration Monitoring Station

Survey Point	Coordinates	Description of Monitoring Point
NV-1	N: 16°39'57.39", E: 96°17'8.56"	South of the factory compound
NV-2	N: 16°40'11.99", E: 96°17'8.37"	North of the factory compound

Source: Myanmar Koei International Ltd.





Source: Google Earth

Figure 2.2-1 Location of Boundary Noise and Vibration Level Monitoring Point

NV-1

NV-1 is located at the south corner inside the factory compound which is the nearest place to the sensitive receptors. The surrounding area are SIAM GS Battery Myanmar Ltd. in the southwest, RK Yangon Steel factory in the southeast, vacant lands and Thilawa Development Road in the east and northeast, Phalan monastery and Phalan village in the south.

NV-2

NV-2 is located at the north corner inside the factory compound which is the nearest place to the sensitive receptors. The surrounding area are Royal Groups in the north, SIAM GS Battery Myanmar Ltd. in the southwest, RK Yangon Steel factory in the southeast, vacant lands and Thilawa Development Road in the east and northeast, Phalan monastery and Phalan village in the south.

2.2.3 Survey Period

Boundary noise and vibration level monitoring were conducted 48 hours from 8 July 2025 – 10 July 2025.

2.2.4 Survey Method

Boundary noise levels were measured by “Rion NL-42 and NL-43 sound level meters” and automatically recorded every 10 minutes on a memory card. The boundary vibration level meters, VM-53A and VM-55 (Rion Co. Ltd., Japan), accompanied by a 3-axis accelerometer PV-83C (Rion Co. Ltd.), were placed on solid soil ground. Vertical vibration (Z axis), L_{v10} , was measured every 10 minutes within the adaptable range of (10-70) dB at NV-1 and NV-2 recorded on a memory card. The measurement period of boundary noise and vibration was 48 hours for each survey point. The status of the noise and vibration level monitoring on NV-1 and NV-2 are shown in Figure 2.2-2 and Figure 2.2-3.



Source: Myanmar Koei International Ltd.

Figure 2.2-2 Status of Boundary Noise and Vibration Level Monitoring at NV-1



Source: Myanmar Koei International Ltd.

Figure 2.2-3 Status of Boundary Noise and Vibration Level Monitoring at NV-2



2.2.5 Survey Results

Boundary Noise Level Monitoring Results

Boundary noise level monitoring results are separated daytime (7:00 AM to 7:00 PM), evening time (7:00 PM to 10:00 PM), and night time (10:00 PM to 7:00 AM), time frames for NV-1 and NV-2 respectively. Boundary noise level monitoring was carried out for two locations on a 48-hours at each location. The monitoring results are summarized in Table 2.2-4 and Table 2.2-5. Hourly boundary noise level (L_{Aeq}) monitoring results at NV-1 and NV-2 are shown in Table 2.2-6 and Table 2.2-7. Figure 2.2-4 and Figure 2.2-5 show the results of boundary noise levels (L_{Aeq}) at NV-1 and NV-2. Comparing with the target value of boundary noise level in operation stage prescribed in final EIA report for JFE MYANMAR Coated Steel Co., Ltd. (referred to Section 2.2.3 Noise, Table 2.2-13), all results were under the target values.

Table 2.2-4 Results of Boundary Noise Level (L_{Aeq}) Monitoring at NV-1

Date	(Commercial and Industrial areas) Equivalent Noise Level (L_{Aeq} , dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
8 - 9 July, 2025	58	58	57
9 - 10 July, 2025	57	54	52
Average Result	58	56	55
Target Value	70	65	60

Note: Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
 Source: Myanmar Koei International Ltd

Table 2.2-5 Results of Boundary Noise Level (L_{Aeq}) Monitoring at NV-2

Date	(Commercial and Industrial areas) Equivalent Noise Level (L_{Aeq} , dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
8 - 9 July, 2025	52	48	49
9 - 10 July, 2025	53	49	49
Average Result	53	49	49
Target Value	70	65	60

Note: Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
 Source: Myanmar Koei International Ltd.



Table 2.2-6 Hourly Boundary Noise Level (L_{Aeq}) Monitoring Results at NV-1

Time	8 – 9 July, 2025 Hourly Result L _{Aeq} (dB)	9 – 10 July, 2025 Hourly Result L _{Aeq} (dB)	8 – 9 July, 2025 Interval Result L _{Aeq} (dB)	9 – 10 July, 2025 Interval Result L _{Aeq} (dB)	Target Value L _{Aeq} (dB)
7:00-8:00	58	53	58	57	70
8:00-9:00	56	57			
9:00-10:00	57	59			
10:00-11:00	56	57			
11:00-12:00	56	58			
12:00-13:00	56	57			
13:00-14:00	59	56			
14:00-15:00	59	56			
15:00-16:00	60	58			
16:00-17:00	60	55			
17:00-18:00	59	54			
18:00-19:00	60	57			
19:00-20:00	58	54	58	54	65
20:00-21:00	59	54			
21:00-22:00	58	54			
22:00-23:00	57	53	57	52	60
23:00-24:00	58	53			
24:00-1:00	57	52			
1:00-2:00	57	51			
2:00-3:00	57	52			
3:00-4:00	58	52			
4:00-5:00	58	51			
5:00-6:00	57	51			
6:00-7:00	56	50			

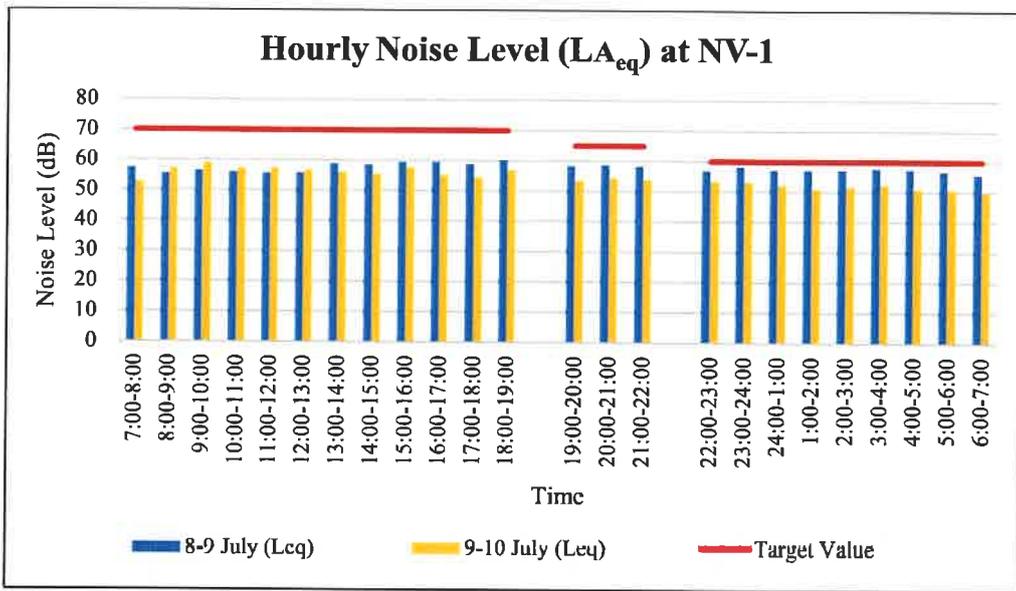
Source: Myanmar Koei International Ltd.

Table 2.2-7 Hourly Boundary Noise Level (L_{Aeq}) Monitoring Results at NV-2

Time	8 – 9 July, 2025 Hourly Result L _{Aeq} (dB)	9 – 10 July, 2025 Hourly Result L _{Aeq} (dB)	8 – 9 July, 2025 Interval Result L _{Aeq} (dB)	9 – 10 July, 2025 Interval Result L _{Aeq} (dB)	Target Value L _{Aeq} (dB)
7:00-8:00	50	51	52	53	70
8:00-9:00	50	52			
9:00-10:00	53	50			
10:00-11:00	53	52			
11:00-12:00	47	50			
12:00-13:00	54	47			
13:00-14:00	51	48			
14:00-15:00	50	58			
15:00-16:00	52	54			
16:00-17:00	50	52			
17:00-18:00	51	52			
18:00-19:00	55	53			
19:00-20:00	48	49	48	49	65
20:00-21:00	48	48			
21:00-22:00	48	49			
22:00-23:00	48	48	49	49	60
23:00-24:00	50	50			
24:00-1:00	47	49			
1:00-2:00	48	47			
2:00-3:00	48	48			
3:00-4:00	48	48			
4:00-5:00	48	49			
5:00-6:00	51	50			
6:00-7:00	51	51			

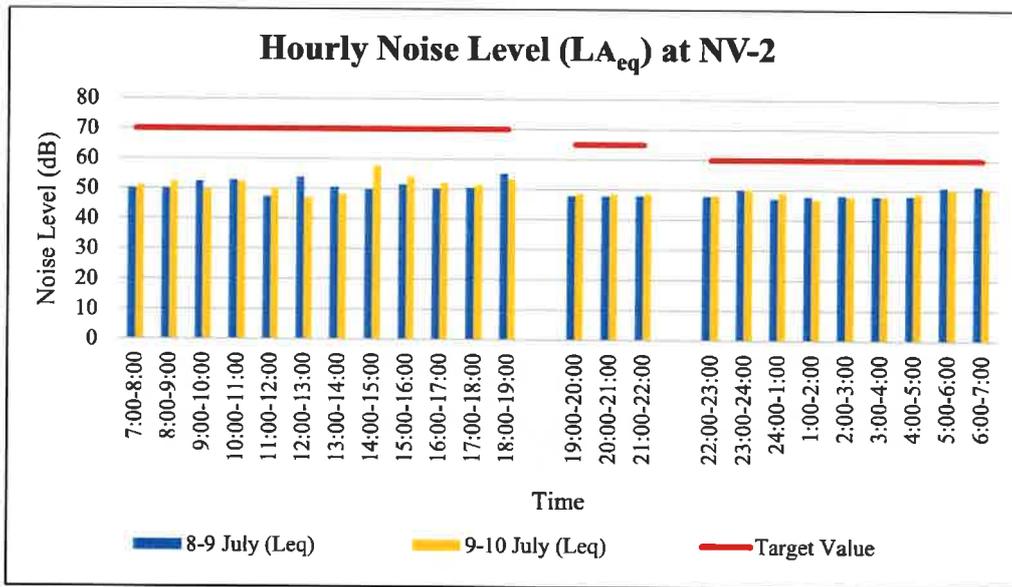
Source: Myanmar Koei International Ltd.





Source: Myanmar Koei International Ltd.

Figure 2.2-4 Results of Boundary Noise Level (LA_{eq}) Monitoring at NV-1



Source: Myanmar Koei International Ltd.

Figure 2.2-5 Results of Boundary Noise Level (LA_{eq}) Monitoring at NV-2



Boundary Vibration Level Monitoring Results

Boundary vibration monitoring results are separated daytime (7:00 AM to 7:00 PM), evening time (7:00 PM to 10:00 PM) and night time (10:00 PM to 7:00 AM) time frames for NV-1 and NV-2 respectively. Boundary vibration level monitoring was carried out for two locations on a 48-hours at each location. The monitoring results are summarized in Table 2.2-8 and Table 2.2-9. Hourly boundary noise level (L_{Aeq}) monitoring results at NV-1 and NV-2 are shown in Table 2.2-10 and Table 2.2-11. Figure 2.2-6 and Figure 2.2-7 show the results of boundary noise level (L_{Aeq}) at NV-1 and NV-2. Comparing with the target value of boundary noise level in operation stage prescribed in final EIA report for JFE MYANMAR Coated Steel Co., Ltd. (referred to Section 2.2.3 Noise, Table 2.2-13), all results were under the target values.

Table 2.2-8 Results of Boundary Vibration Level (L_{v10}) Monitoring at NV-1

Date	(Office, Commercial facilities, and Factories) Equivalent Vibration Level (L_{v10} , dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
8 - 9 July, 2025	29	27	27
9 - 10 July, 2025	27	25	25
Average Result	28	26	26
Target Value	70	65	60

Note: Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
 Source: Myanmar Koci International Ltd.

Table 2.2-9 Results of Boundary Vibration Level (L_{v10}) Monitoring at NV-2

Date	(Office, Commercial facilities, and Factories) Equivalent Vibration Level (L_{v10} , dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
8 - 9 July, 2025	28	24	24
9 - 10 July, 2025	27	23	23
Average Result	28	24	24
Target Value	70	65	60

Note: Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
 Source: Myanmar Koci International Ltd.



Table 2.2-10 Hourly Boundary Vibration Level (L_{v10}) Monitoring Results at NV-1

Time	8 – 9 July, 2025 Hourly Result L_{v10} (dB)	9 – 10 July, 2025 Hourly Result L_{v10} (dB)	8 – 9 July, 2025 Interval Result L_{v10} (dB)	9 – 10 July, 2025 Interval Result L_{v10} (dB)	Target Value L_{v10} (dB)
7:00-8:00	26	25	29	27	70
8:00-9:00	29	31			
9:00-10:00	30	29			
10:00-11:00	28	29			
11:00-12:00	29	29			
12:00-13:00	27	27			
13:00-14:00	29	27			
14:00-15:00	30	26			
15:00-16:00	32	26			
16:00-17:00	30	24			
17:00-18:00	28	27			
18:00-19:00	29	23			
19:00-20:00	28	26			
20:00-21:00	26	24	27	25	65
21:00-22:00	28	26			
22:00-23:00	24	23	27	25	60
23:00-24:00	27	25			
24:00-1:00	26	25			
1:00-2:00	27	24			
2:00-3:00	27	26			
3:00-4:00	26	24			
4:00-5:00	28	27			
5:00-6:00	26	23			
6:00-7:00	27	27			

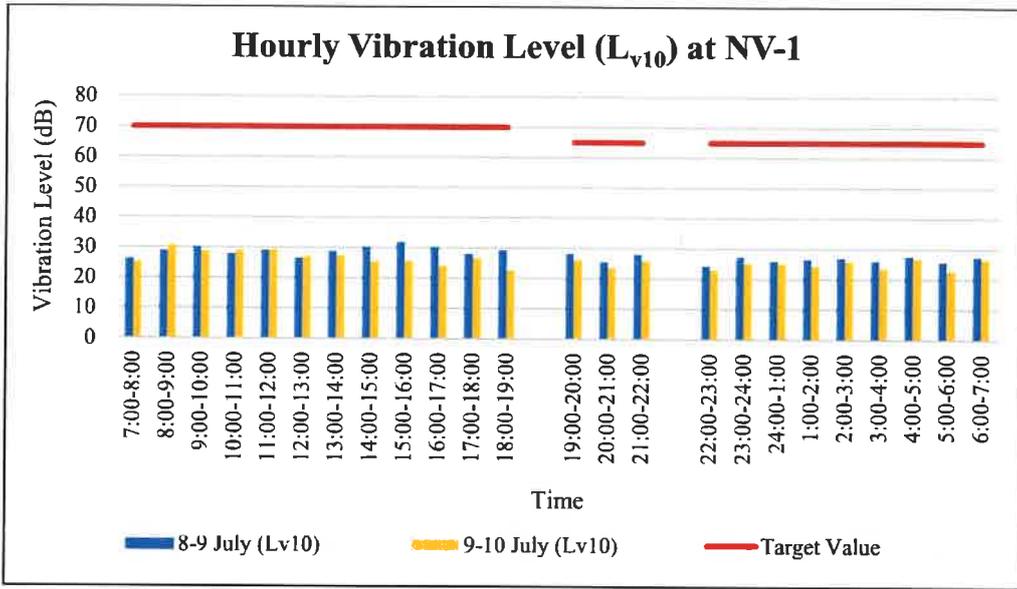
Source: Myanmar Koci International Ltd.

Table 2.2-11 Hourly Boundary Vibration Level (L_{v10}) Monitoring Results at NV-2

Time	8 – 9 July, 2025 Hourly Result L_{v10} (dB)	9 – 10 July, 2025 Hourly Result L_{v10} (dB)	8 – 9 July, 2025 Interval Result L_{v10} (dB)	9 – 10 July, 2025 Interval Result L_{v10} (dB)	Target Value L_{v10} (dB)
7:00-8:00	26	26	28	27	70
8:00-9:00	26	31			
9:00-10:00	28	27			
10:00-11:00	28	24			
11:00-12:00	24	28			
12:00-13:00	30	23			
13:00-14:00	30	27			
14:00-15:00	28	27			
15:00-16:00	28	29			
16:00-17:00	26	27			
17:00-18:00	26	26			
18:00-19:00	32	23			
19:00-20:00	22	25			
20:00-21:00	25	23	24	23	65
21:00-22:00	25	21			
22:00-23:00	22	21	24	23	60
23:00-24:00	29	26			
24:00-1:00	21	22			
1:00-2:00	25	24			
2:00-3:00	21	23			
3:00-4:00	21	21			
4:00-5:00	21	21			
5:00-6:00	25	22			
6:00-7:00	24	23			

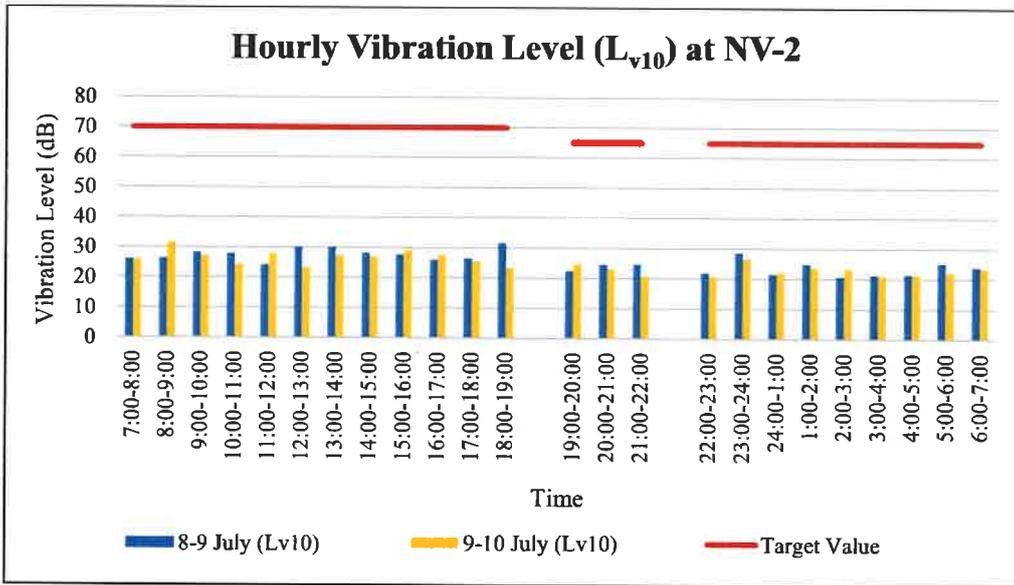
Source: Myanmar Koci International Ltd.





Source: Myanmar Koei International Ltd.

Figure 2.2-6 Results of Boundary Vibration Level (L_{v10}) Monitoring at NV-1



Source: Myanmar Koei International Ltd.

Figure 2.2-7 Results of Boundary Vibration Level (L_{v10}) Monitoring at NV-2



The vehicle usage record of JFE MYANMAR Coated Steel factory during the boundary noise and vibration monitoring period is shown in Table 2.2-12.

Table 2.2-12 Vehicle Usage Record During Boundary Noise and Vibration Monitoring Period

Date	Vehicle type	Quantity	Total
8 July, 2025	JFE MYANMAR Coated Steel Ferry	21	53
	JFE MYANMAR Coated Steel Rental Car	7	
	Visitor' Car	23	
	Employee' Car	2	
9 July, 2025 (Public Holiday)	JFE MYANMAR Coated Steel Ferry	16	19
	JFE MYANMAR Coated Steel Rental Car	0	
	Visitor' Car	3	
	Employee' Car	0	
10 July, 2025	JFE MYANMAR Coated Steel Ferry	21	48
	JFE MYANMAR Coated Steel Rental Car	7	
	Visitor' Car	18	
	Employee' Car	2	

Source: JFE MYANMAR Coated Steel Co., Ltd.



2.3 Indoor Air Quality

The survey of indoor air quality has been monitored at two locations, Coater-A and Coater-B inside the JFE MYANMAR Coated Steel factory. Indoor air quality has been conducted for one hour at each point to know the current indoor air quality of the JFE MYANMAR Coated Steel factory. Table 2.3-1 shows the outline of the indoor air quality monitoring.

Table 2.3-1 Outlines of Indoor Air Quality Monitoring

Survey Period	Survey Item	Parameter	Survey Location	Number of Point	Duration	Survey Methodology
8 July, 2025	Indoor Air Quality	PM _{2.5} , PM ₁₀ and VOC	Coater-A and Coater-B	2 points	1 hour/ point	On site measurement by Oceanus AQM-09 Air Quality Monitoring System

Source: Myanmar Koei International Ltd.

2.3.1 Survey Item

The parameters for indoor air quality monitoring were PM_{2.5}, PM₁₀ and VOC.

2.3.2 Survey Location

The location of indoor air quality monitoring point is shown in Table 2.3-2. The detail of the monitoring point is described below. The location of the indoor air quality monitoring point is shown in Figure 2.3-1.

Table 2.3-2 Location of Indoor Air Quality Monitoring

Survey Point	Coordinates	Description of Monitoring Point
Indoor Air Quality	16°40'4.49"N, 96°17'6.22"E	Two locations, Coater-A and Coater-B inside the compound of JFE MYANMAR Coated Steel factory.

Source: Myanmar Koei International Ltd.



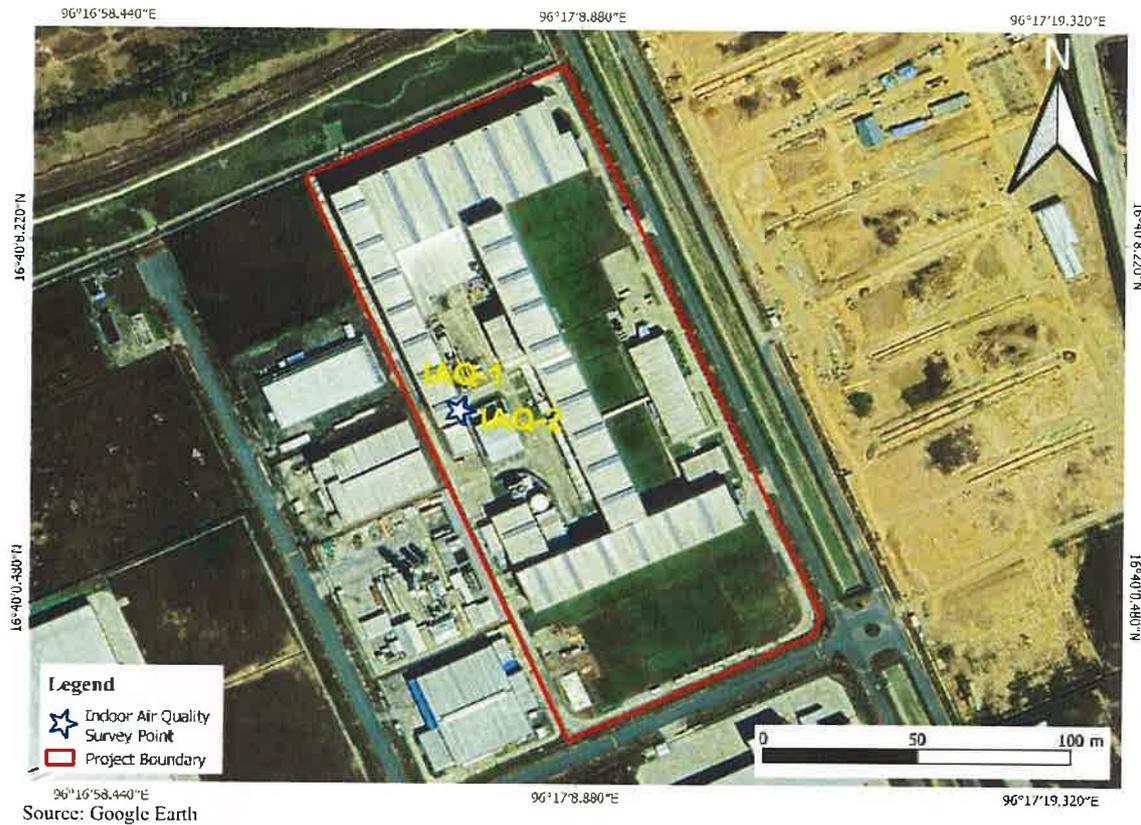


Figure 2.3-1 Location of Indoor Air Quality Monitoring Point

IAQ-1

IAQ-1 is located outside the Coater A room in the Continuous Paint Line (CPL) building of JFE MYANMAR Coated Steel factory, and it is located near to the walkway platform.

IAQ-2

IAQ-2 is located outside the Coater B room in the Continuous Paint Line (CPL) building of JFE MYANMAR Coated Steel factory, and it is located near to the walkway platform.

2.3.3 Survey Period

Indoor air quality monitoring was conducted one hour per point (total 2 points) on 8 July 2025.

2.3.4 Survey Method

Survey of indoor air quality (PM_{2.5} and PM₁₀) was conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). Volatile organic compound (VOC) monitoring was carried out using a Photoionization Detector (PID) sensor, with a measurement range of 0–50 ppm, which was additionally installed in the AQM-09 Air Quality Monitoring System. The Oceanus AQM-09 Air Quality Monitoring System was used to collect indoor air pollutants. The system measures automatically every one minute and directly reads and records onsite for PM_{2.5} and PM₁₀.

The status of indoor air quality monitoring for PM_{2.5}, PM₁₀ and VOC are shown in Figure 2.3-2 and Figure 2.3-3.





Figure 2.3-2 Status of Indoor Air Quality Monitoring at Coater-A



Figure 2.3-3 Status of Indoor Air Quality Monitoring at Coater-B

2.3.5 Survey Results

The one-hour average value of indoor air quality monitoring results of $PM_{2.5}$, PM_{10} and VOC are described in Table 2.3-3. There is no guideline value for indoor air quality for $PM_{2.5}$ and PM_{10} in Myanmar's EQEG guideline. Therefore, the values of $PM_{2.5}$ and PM_{10} were compared with The National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), U.S. However, the value of VOC was compared with the final EIA report for JFE MYANMAR Coated Steel Co., Ltd. (referred to Section 2.2.1, (2) Air Emission Level, Table 2.2-4). The one hour average concentration of $PM_{2.5}$, PM_{10} and VOC were lower than the guideline value and the target value at Coater-A and Coater-B. Figure 2.3-4 to Figure 2.3-7 showed the results of $PM_{2.5}$, PM_{10} and VOC for indoor air quality monitoring.



Table 2.3-3 Indoor Air Quality Monitoring Results of PM_{2.5}, PM₁₀ and VOC (One Hour Average)

Date	Time	Survey Point	Survey Location	Relative Humidity	Temperature	PM _{2.5}	PM ₁₀	VOC
				(%)	(°C)	(mg/m ³)	(mg/m ³)	(mg/Nm ³)
8 July, 2025	09:55 ~ 10:54	IAQ-1	Coater-A	77.2	31.8	0.0091	0.0113	1
8 July, 2025	11:30 ~ 12:29	IAQ-2	Coater-B	69.4	34.0	0.0086	0.0106	3
Target Value				-	-	15 ¹⁾	15 ¹⁾	75 ²⁾

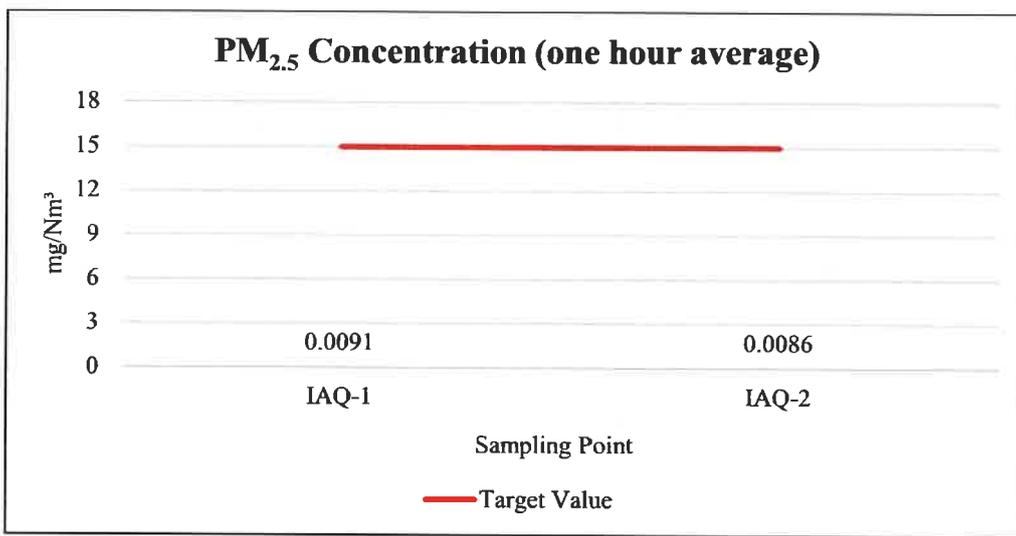
Note:

1) Target value is referred to the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), U.S.

(Link: <https://www.cdc.gov/niosh/pef88/dusts.html>)

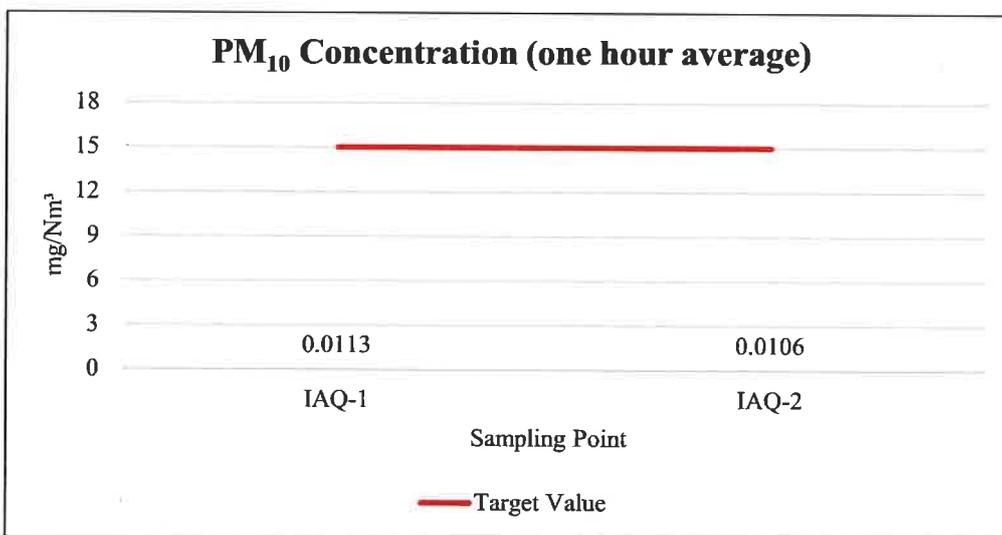
2) Target value is referred to the final EIA report for JFE MYANMAR Coated Steel Co., Ltd.

Source: Myanmar Koei International Ltd.



Source: Myanmar Koei International Ltd.

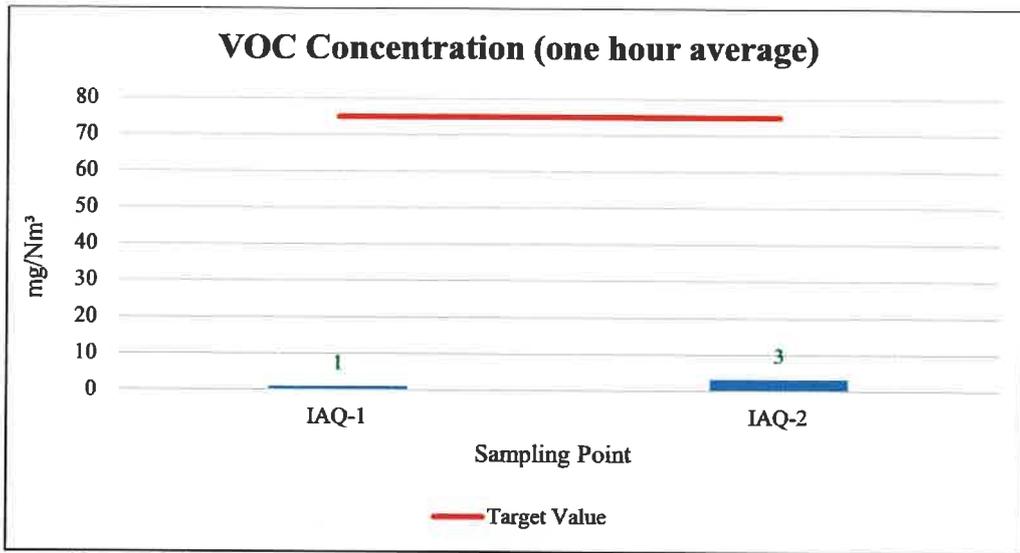
Figure 2.3-4 Results of Indoor Air Quality Monitoring (PM_{2.5})



Source: Myanmar Koei International Ltd.

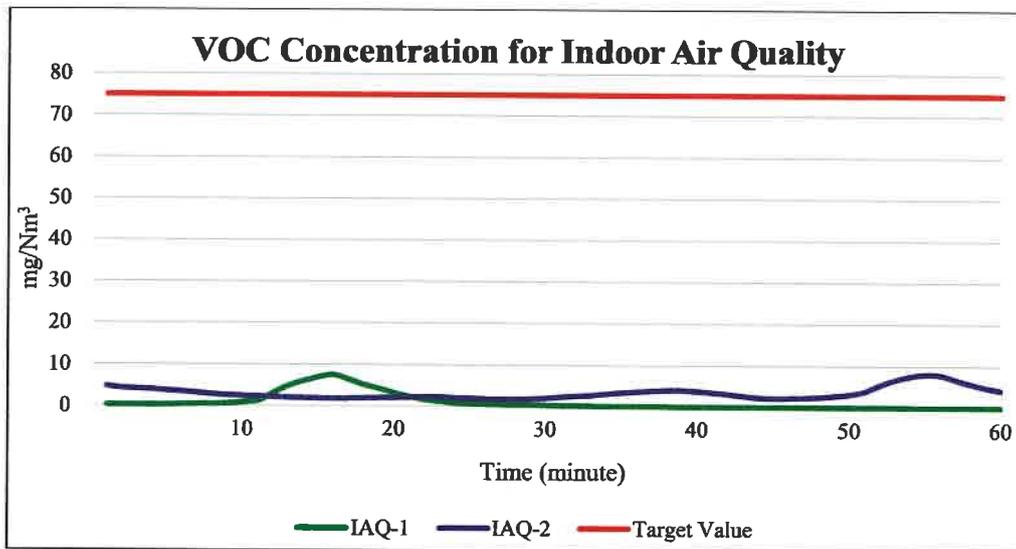
Figure 2.3-5 Results of Indoor Air Quality Monitoring (PM₁₀)





Source: Myanmar Koei International Ltd.

Figure 2.3-6 Results of Indoor Air Quality Monitoring (VOC)



Source: Myanmar Koei International Ltd.

Figure 2.3-7 Results of Indoor Air Quality Monitoring (VOC)



The operating activities of JFE MYANMAR Coated Steel Co., Ltd. during the indoor air quality monitoring period is shown in Table 2.3-4.

Table 2.3-4 Operating activities for Indoor Air Quality Monitoring

Monitoring Location	Operating activities	Working Hours	Man-power
Coater-A	<p>Inside Pulpit – Operators monitor and control HMI for production.</p> <p>Inside Coater Room – Operators use respirators, goggles, and earmuffs to set coater equipment setting, to check viscosity and prepare paint.</p> <p>Outside Coater Room – This is a walkway platform. Operators use half-masks, goggles, and earmuffs to walk from coater room to pulpit during production. Operators walk through this area less than a minute.</p>	3 shifts per day	4 persons per shift
Coater-B	<p>Inside Pulpit – Operators monitor and control HMI for production.</p> <p>Inside Coater Room – Operators use respirators, goggles, and earmuffs to set coater equipment setting, to check viscosity and prepare paint.</p> <p>Outside Coater Room – This is a walkway platform. Operators use half-masks, goggles, and earmuffs to walk from coater room to pulpit during production. Operators walk through this area less than a minute.</p>	3 shifts per day	3 persons per shift

Source: JFE MYANMAR Coated Steel Co., Ltd.



2.4 Workplace Noise and Vibration Level Monitoring

The survey of workplace noise and vibration level, WNV-1, WNV-2 and WNV-3, have been monitored inside the JFE MYANMAR Coated Steel factory which is the nearest place to near coater-A, entry accumulator and near quality control laboratory. Workplace noise and vibration level monitoring have been conducted one hour for each survey point to know the occupational noise and vibration level inside the JFE MYANMAR Coated Steel factory. Table 2.4-1 shows the outline of the workplace noise and vibration level monitoring.

Table 2.4-1 Outlines of Workplace Noise and Vibration Level Monitoring

Survey Date	Survey Item	Parameters	Number of Points	Duration	Survey Methodology
8 July, 2025	Workplace Noise Level	L_{Aeq} (dB)	1 (WNV-1)	1 hour/point	On-site measurement by "Rion NL-42 and NL-43 sound level meters"
8 July, 2025	Workplace Noise Level	L_{Aeq} (dB)	1 (WNV-2)	1 hour/point	On-site measurement by "Rion NL-42 and NL-43 sound level meters"
8 July, 2025	Workplace Noise Level	L_{Aeq} (dB)	1 (WNV-3)	1 hour/point	On-site measurement by "Rion NL-42 and NL-43 sound level meters"
8 July, 2025	Workplace Vibration Level	L_{v10} (dB)	1 (WNV-1)	1 hour/point	On-site measurement by "Vibration Level Meter- VM-53A and VM-55"
8 July, 2025	Workplace Vibration Level	L_{v10} (dB)	1 (WNV-2)	1 hour/point	On-site measurement by "Vibration Level Meter- VM-53A and VM-55"
8 July, 2025	Workplace Vibration Level	L_{v10} (dB)	1 (WNV-3)	1 hour/point	On-site measurement by "Vibration Level Meter- VM-53A and VM-55"

Source: Myanmar Koei International Ltd.

2.4.1 Survey Items

The noise and vibration level survey items are shown in Table 2.4-2.

Table 2.4-2 Survey Parameters for Noise and Vibration Level

No.	Item	Parameter
1	Noise	A-weighted loudness equivalent (L_{Aeq})
2	Vibration	Vibration level, vertical, percentile (L_{v10})

Source: Myanmar Koei International Ltd.

2.4.2 Survey Location

The location of the workplace noise and vibration level points is shown in Table 2.4-3. The detail of each survey point is described below. The location of the workplace noise and vibration monitoring points is shown in Figure 2.4-1.

Table 2.4-3 Location of Noise and Vibration Monitoring Station

Survey Point	Coordinates	Description of Monitoring Point
WNV-1	N: 16°40'4.50", E: 96° 17'6.14"	Near Coater-A which is inside the JFE MYANMAR Coated Steel factory
WNV-2	N: 16°40'7.17", E: 96° 17'4.90"	Entry Accumulator which is inside the JFE MYANMAR Coated Steel factory
WNV-3	N: 16°40'8.22", E: 96° 17'4.87"	Near Quality Control Laboratory which is inside the JFE MYANMAR Coated Steel factory

Source: Myanmar Koei International Ltd.



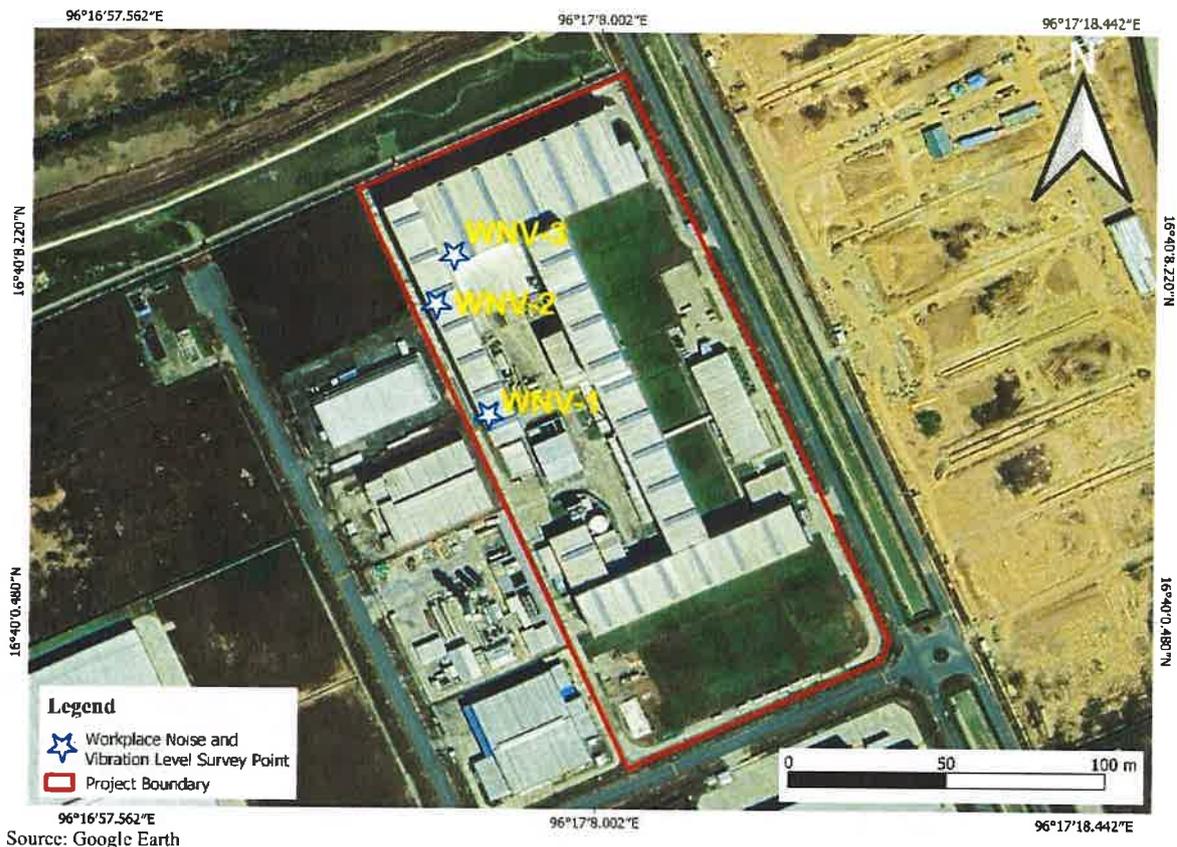


Figure 2.4-1 Location of Workplace Noise and Vibration Level Monitoring Points

WNV-1

WNV-1 is located inside the Continuous Paint Line (CPL) building of JFE MYANMAR Coated Steel factory which is the nearest place to the Coater-A.

WNV-2

WNV-2 is located inside the Continuous Paint Line (CPL) building of JFE MYANMAR Coated Steel factory which is the nearest place to the entry accumulator.

WNV-3

WNV-3 is located inside the Continuous Paint Line (CPL) building of JFE MYANMAR Coated Steel factory which is the nearest place to the quality control laboratory.

2.4.3 Survey Period

Workplace noise and vibration level monitoring were conducted one hour for each point on 8 July 2025.

2.4.4 Survey Method

Workplace noise level was measured by “Rion NL-42 and NL-43 sound level meters” and automatically recorded every 10 minutes on a memory card. Workplace vibration level meter, VM-53A and VM-55 (Rion Co. Ltd., Japan), accompanied by a 3-axis accelerometer PV-83C (Rion Co. Ltd.), was placed on



solid soil ground. Vertical vibration (Z axis), L_{v10} , was measured every 10 minutes within the adaptable range of (10-70) dB at WNV-1, WNV-2 and WNV-3 recorded on a memory card.

The measurement period of workplace noise and vibration were one hour for each survey point. The status of the workplace noise and vibration level monitoring on WNV-1, WNV-2 and WNV-3 is shown in Figure 2.4-2, Figure 2.4-3 and Figure 2.4-4.



Figure 2.4-2 Status of Workplace Noise and Vibration Level Monitoring Near Coater-A



Figure 2.4-3 Status of Workplace Noise and Vibration Level Monitoring at Entry Accumulator



Figure 2.4-4 Status of Workplace Noise and Vibration Level Monitoring Near Quality Control Laboratory



2.4.5 Survey Results

Workplace Noise Level Monitoring Results

The one-hour average value of workplace noise level monitoring results of WNV-1, WNV-2 and WNV-3 are described in Table 2.4-4. The values of WNV-1, WNV-2 and WNV-3 were compared with The National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), U.S. The one-hour average concentration of WNV-1, WNV-2 and WNV-3 were lower than the guideline value. Figure 2.4-5 and Figure 2.4-6 showed the results of WNV-1, WNV-2 and WNV-3 for workplace noise level monitoring.

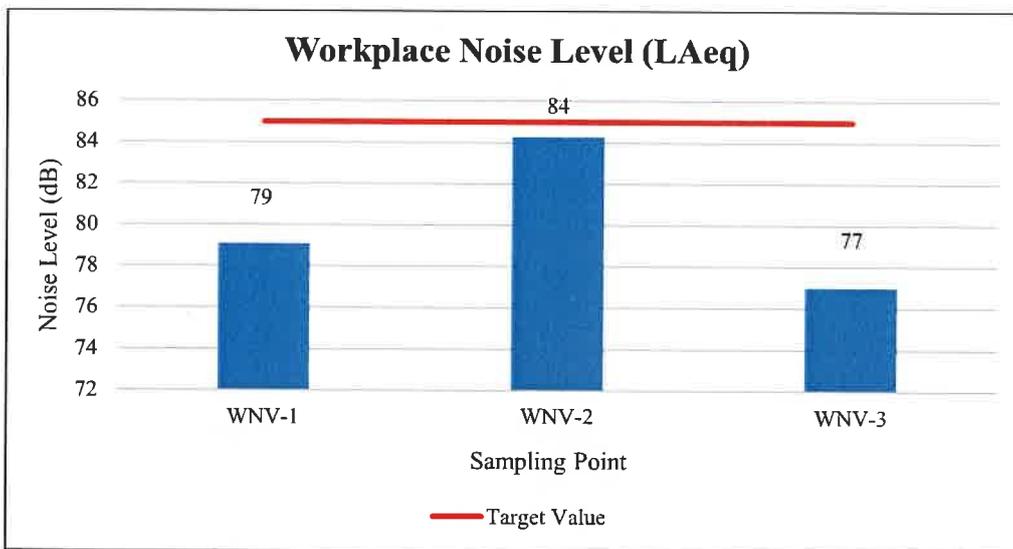
Table 2.4-4 Results of Workplace Noise Level (L_{Aeq}) Monitoring

Date	Time	Survey Point	Location	L_{Aeq} , dB
8 July, 2025	09:32 ~ 10:31	WNV-1	Near Coater-A	79
8 July, 2025	10:56 ~ 11:55	WNV-2	Entry Accumulator	84
8 July, 2025	10:44 ~ 11:43	WNV-3	Near Quality Control Laboratory	77
Target Value				85

Note: 1) The value of L_{Aeq} is one hour average. All results are lower than the guideline value.

2) Target value is referred to the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), U.S (June, 1998).

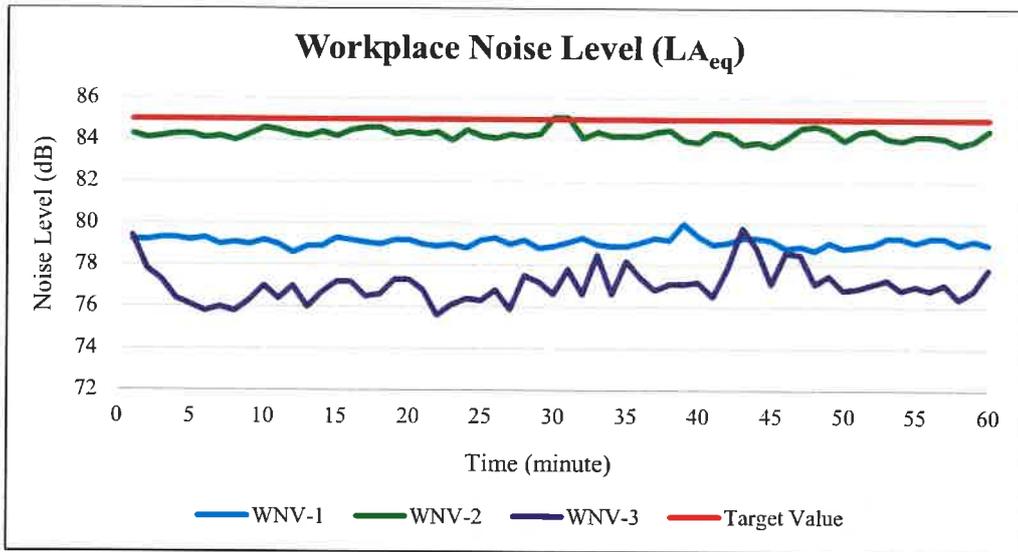
Source: Myanmar Koei International Ltd.



Source: Myanmar Koei International Ltd.

Figure 2.4-5 Results of Workplace Noise Level (L_{Aeq}) Monitoring





Source: Myanmar Koei International Ltd.

Figure 2.4-6 Results of Workplace Noise Level (L_{Aeq}) Monitoring

Workplace Vibration Level Monitoring Results

The one-hour average value of workplace vibration monitoring results of WNV-1, WNV-2 and WNV-3 are described in Table 2.4-5. The values of WNV-1, WNV-2 and WNV-3 were compared with the Australia Technical Guideline value. The one-hour average concentration of WNV-1, WNV-2 and WNV-3 were lower than the guideline value. Figure 2.4-7 and Figure 2.4-8 showed the results of WNV-1, WNV-2 and WNV-3 for workplace vibration level monitoring.

Table 2.4-5 Results of Workplace Vibration Levels (L_{v10}) Monitoring

Date	Time	Survey Point	Location	L_{v10} (dB)
8 July, 2025	09:32 ~ 10:31	WNV-1	Near Coater-A	42
8 July, 2025	10:56 ~ 11:55	WNV-2	Entry Accumulator	38
8 July, 2025	10:44 ~ 11:43	WNV-3	Near Quality Control Laboratory	38
Target Value				92

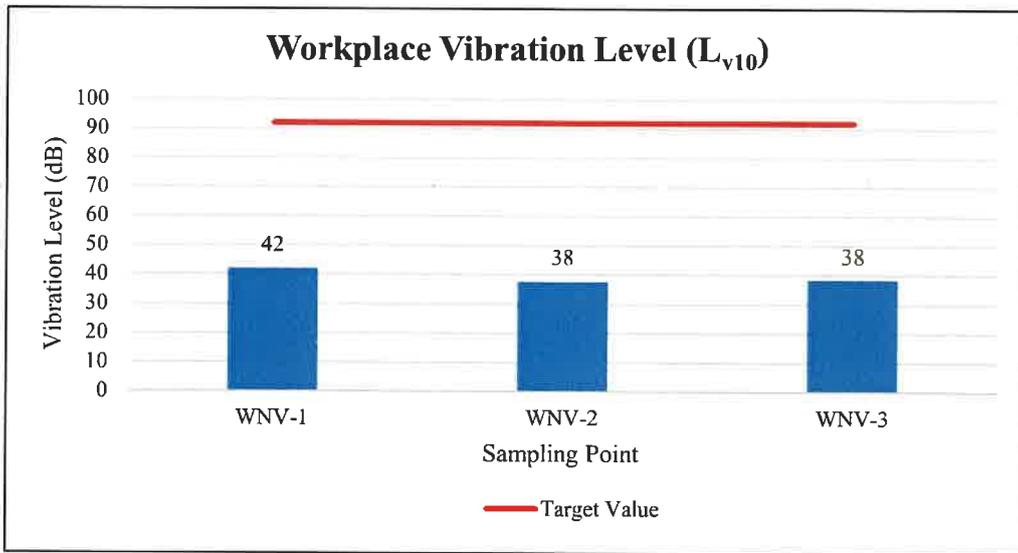
Note:

- 1) The value of L_{v10} is one hour average. All results are lower than the guideline value.
- 2) Target value is referred to the Australia Technical Guideline Value.

(Link: [Assessing vibration: a technical guideline \(nsw.gov.au\)](https://www.nsw.gov.au/assessing-vibration-a-technical-guideline))

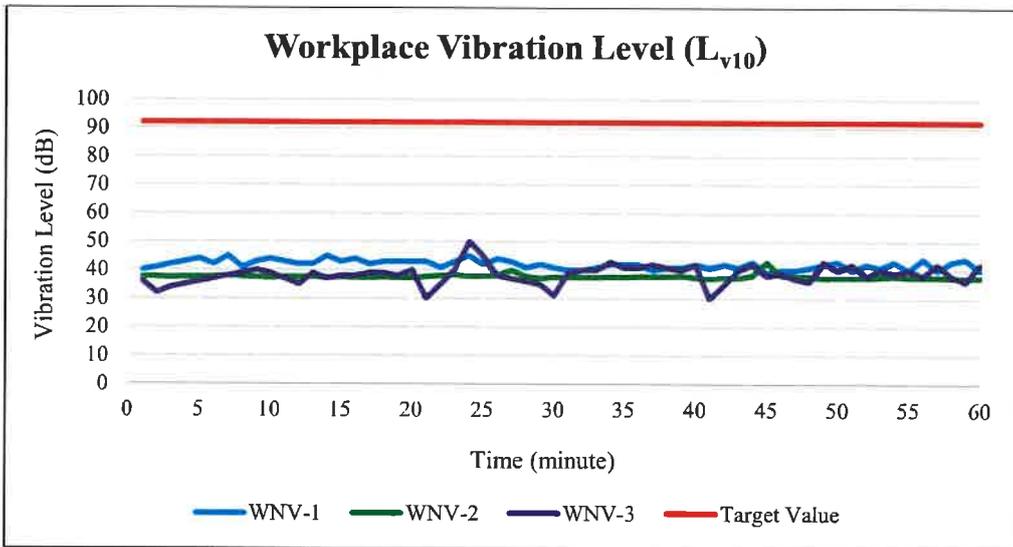
Source: Myanmar Koei International Ltd.





Source: Myanmar Koei International Ltd.

Figure 2.4-7 Results of Workplace Vibration Level (L_{v10}) Monitoring



Source: Myanmar Koei International Ltd.

Figure 2.4-8 Results of Workplace Vibration Level (L_{v10}) Monitoring



The operating activities of JFE MYANMAR Coated Steel factory during the workplace noise and vibration monitoring period is shown in Table 2.4-6.

Table 2.4-6 Operating activities for Workplace Noise and Vibration Monitoring

Monitoring Location	Operating activities	Working Hours	Man-power
Coater-A	<p>Inside Pulpit – Operators monitor and control HMI for production.</p> <p>Inside Coater Room – Operators use respirators, goggles, and earmuffs to set coater equipment setting, to check viscosity and prepare paint.</p> <p>Outside Coater Room – This is a walkway platform. Operators use half-masks, goggles, and earmuffs to walk from coater room to pulpit during production. Operators walk through this area less than a minute.</p>	3 shifts per day	4 persons per shift
Coater-B	<p>Inside Pulpit – Operators monitor and control HMI for production.</p> <p>Inside Coater Room – Operators use respirators, goggles, and earmuffs to set coater equipment setting, to check viscosity and prepare paint.</p> <p>Outside Coater Room – This is a walkway platform. Operators use half-masks, goggles, and earmuffs to walk from coater room to pulpit during production. Operators walk through this area less than a minute.</p>	3 shifts per day	3 persons per shift
Entry Accumulator	Coil feeding and stitching operations are controlled by control room operators. No working activities in near entry accumulator.	3 shifts per day	2 persons per shift
Near Quality Control Laboratory	<p>Quality Control members conduct the quality checks on the painted product from the line.</p> <p>Inside Quality Control Lab - Two persons conduct Quality Control lab test.</p> <p>Outside Quality Control Lab - It is not a working area, used for walkway during production.</p>	3 shifts per day	3 persons per shift

Source: JFE MYANMAR Coated Steel Co., Ltd..

2.4.6 Control for Noise Exposure

The Hierarchy of Control

The hierarchy of control can be used to determine how to implement feasible and effective controls. This approach groups actions by their likely effectiveness in reducing or removing the noise hazard.

Elimination: In most cases, the preferred approach is to eliminate the source of hazardous noise.

Substitution: When elimination is not possible, the substitution of loud equipment for quieter equipment may be the next best alternative to protect workers from hazardous noise.

Engineering Controls: Engineering controls require physical changes to the workplace such as redesigning equipment to eliminate noise sources and constructing barriers that prevent noise from reaching a worker.

Administrative Controls: Engineering control is not possible to remove the hazard through the use of administrative controls. Employers may change an employee's work schedule to avoid too much noise.



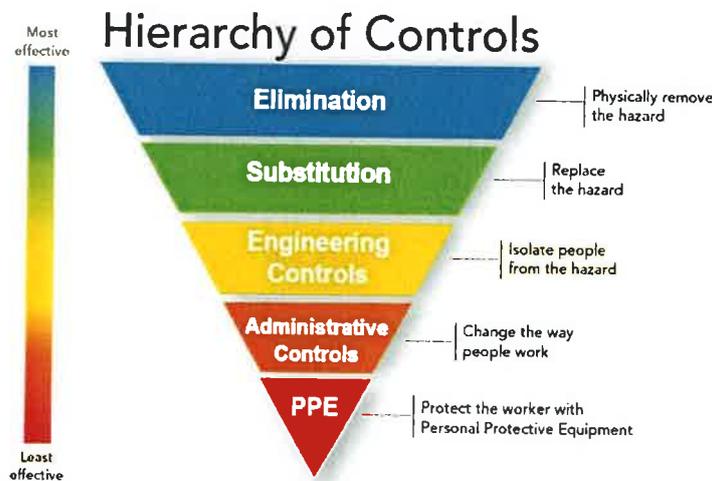
Personal Protective Equipment (PPE): The last option in the hierarchy of control PPE is generally less effective than elimination, substitution, and engineering controls because they rely on human actions to reduce noise. Personal protective equipment (PPE) for hearing protection is shown in Table 2.4-7.

Table 2.4-7 Personal Protective Equipment (PPE) for Hearing Protection

	HPD with ear shells (ear muffs) Also called earmuffs, headphones, or ear shells, it can either be assembled on an industrial safety helmet or worn independently. It is positioned around the ear, and is connected by a hoop or headband passing overhead. It is reusable. It is advisable to change the ear pads every year to ensure effective blocking of noise.
	Earplugs with hoop/headband It is worn either at the ear canal or is placed within. The earplugs are connected by a plastic band (hoop) which holds them together.
	The standard earplug The pre-formed/pre-molded earplug is made of silicone, rubber, etc. It can be inserted into the ear without prior shaping.
	The earplug that must be shaped by the user is generally malleable and made of compressible foam. It will thus be shaped by the employee prior to being placed in the ear canal. This type of earplug is generally disposable.
	The personalized molded earplug (customized) Made from an impression of the employee's ear, this hearing protector is made of silicone or acrylic resin. New technologies now allow for full digital manufacturing of these hearing protectors, offering an accuracy of about 100µ. A passive acoustic filter helps select the attenuation level to meet the needs of the wearer.

Source: HearingProTech.com

The hierarchy of controls are show in Figure 2.4-9.



Source: The National Institute for Occupational Safety and Health (NIOSH)

Figure 2.4-9 Hierarchy of Controls



2.5 Air Emission Monitoring

The survey of air emission monitoring has been monitored inside the compound of JFE MYANMAR Coated Steel factory. Air emission monitoring has been conducted to know the current emission level of the project area. Table 2.5-1 shows the outline of the emission monitoring.

Table 2.5-1 Outlines of Emission Monitoring

Survey Period	Survey Item	Parameters	Number of Point	Duration	Survey Methodology
8 July, 2025	Air Emission Monitoring	NO _x	2 points	1 hour/ point	On site measurement by "PG 350 Horiba Portable Gas Analyzer"

Source: Myanmar Koei International Ltd.

2.5.1 Survey Items

The parameter for emission monitoring was NO_x.

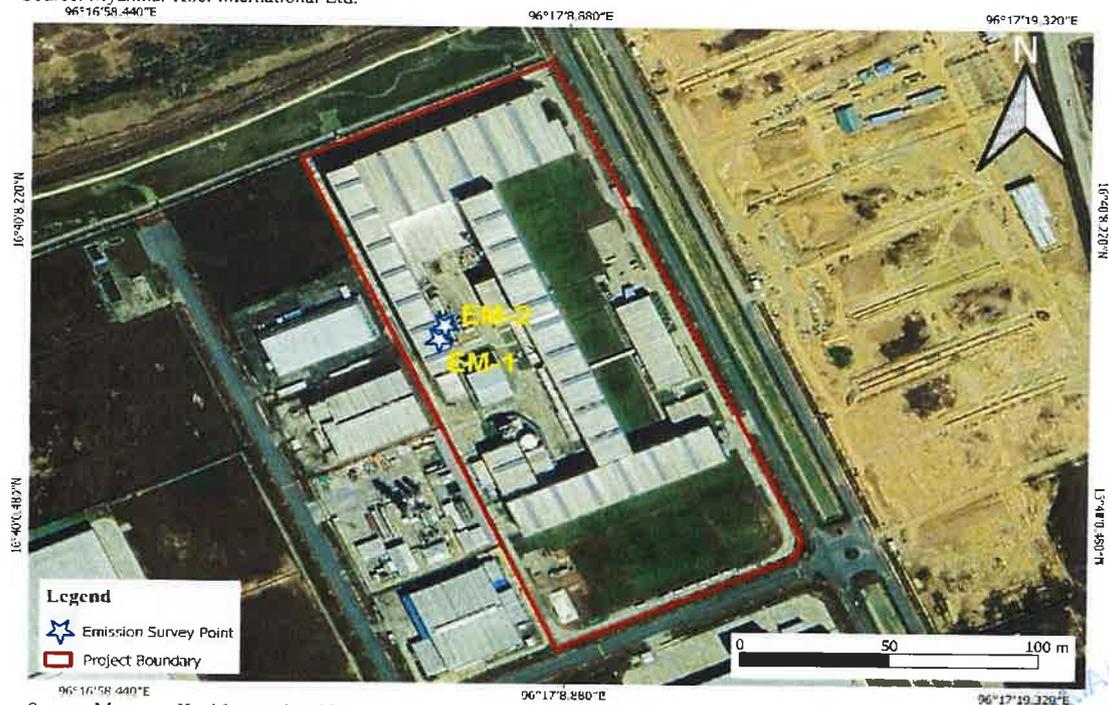
2.5.2 Survey Location

The air emission monitoring measurement equipment, "PG-350 Horiba Portable Gas Analyzer" was set up at Regenerative Thermal Oxidizer (RTO) Stack and Chemical Drier Stack. The detail location of air emission monitoring points is described in Table 2.5-2 and the location of air emission monitoring points are shown in the Figure 2.5-1.

Table 2.5-2 Location of Air Emission Monitoring Point

Survey Point	Coordinates	Description of Survey Point
EM-1	16°40'5.04"N, 96°17'6.35"E	Regenerative Thermal Oxidizer (RTO) Stack
EM-2	16°40'5.39"N, 96°17'6.17"E	Chemical Drier Stack

Source: Myanmar Koei International Ltd.



Source: Myanmar Koei International Ltd.

Figure 2.5-1 Location of Air Emission Monitoring Point



2.5.3 Survey Period

Air Emission monitoring was conducted on 8 July, 2025.

2.5.4 Survey Method

Survey of air emission monitoring (NO_x) was conducted by following the analysis principle of the PG-350 Horiba Portable Gas Analyzer as shown in Table 2.5-3. The equipment was used to collect emission air pollutants, and it measured automatically every one minute and directly read and recorded onsite for NO_x . The status of air emission monitoring is shown in Figure 2.5-2 and Figure 2.5-3.

Table 2.5-3 Analytic Method for Air Emission Monitoring

No.	Parameter	Method
1	NO_x	Cross-Flow Modulation Chemiluminescence Detection Method

Source: Myanmar Koei International Ltd.



Figure 2.5-2 Status of Air Emission Monitoring at Regenerative Thermal Oxidizer (RTO) Stack



Figure 2.5-3 Status of Air Emission Monitoring at Chemical Drier Stack

2.5.5 Survey Results

The one-hour average value of air emission monitoring results of NO_x are described in Table 2.5-4. The value of NO_x was compared with the final EIA report for JFE MYANMAR Coated Steel Co., Ltd. (referred to Section 2.2.1, (2) Air Emissions Level, Table 2.2-7). One-hour average concentration of NO_x at Regenerative Thermal Oxidizer (RTO) Stack and Chemical Drier Stack were lower than the target value.

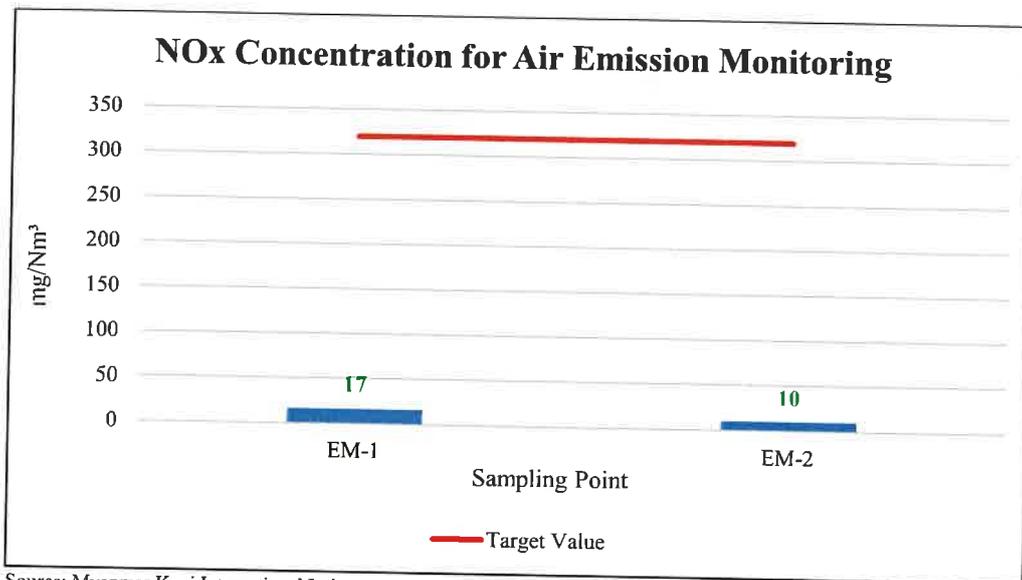
Table 2.5-4 Air Emission Monitoring NO_x Result

Date	Time	Survey Point	Location	Temperature	NO _x
				(°C)	(mg/Nm ³)
8 July, 2025	17:00 ~ 17:59	EM-1	Regenerative Thermal Oxidizer (RTO) Stack	155.4	17
8 July, 2025	15:25 ~ 16:24	EM-2	Chemical Drier Stack	154.7	10
Target Value				-	320

Note:

- 1) The value of NO_x is one hour average. All results are lower than the guideline value.
- 2) The value of NO_x was converted to mg/Nm³ from ppm.
- 3) The target value is referenced to the Final EIA report for JFE MYANMAR Coated Steel Co., Ltd.

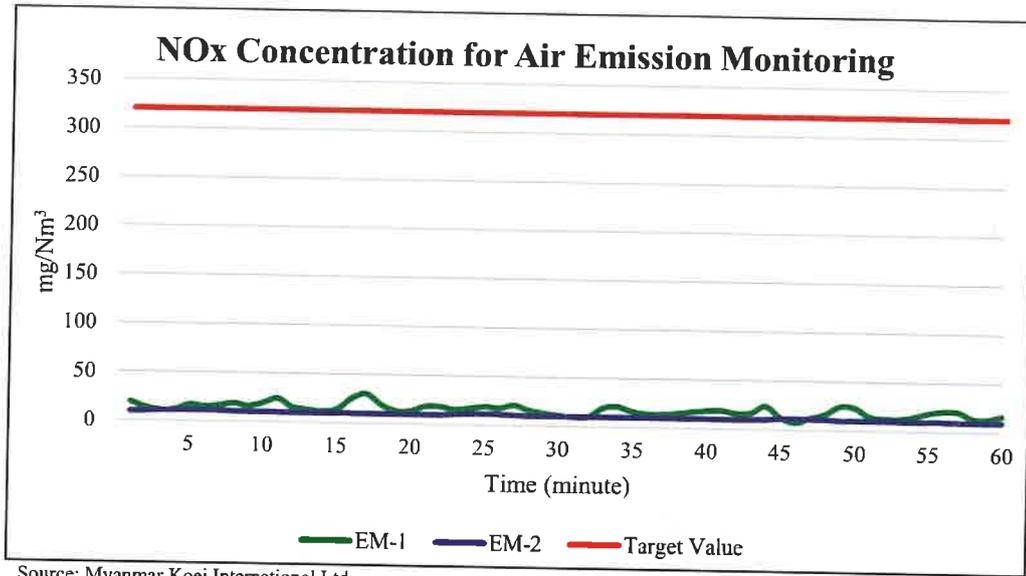
Source: Myanmar Koei International Ltd.



Source: Myanmar Koei International Ltd.

Figure 2.5-4 Results of Air Emission Monitoring





Source: Myanmar Koei International Ltd.

Figure 2.5-5 Results of Air Emission Monitoring

The operating activities of JFE MYANMAR Coated Steel during the air emission monitoring period is shown in Table 2.5-5.

Table 2.5-5 Operating activities for Air Emission Monitoring

Monitoring Location	Operating activities	Working Hours	Man-power
Regenerative Thermal Oxidizer (RTO) Stack	Oven Exhaust Fumes has been treated in RTO to convert flue gases upstream of RTO stack. After passing through two heat exchangers, these flue gases have been vented into atmosphere through RTO stack by RTO Exhaust Fan. Only one or two persons perform start up and shutdown of RTO. RTO operation is controlled by control room. No person is needed to attend at RTO stack during production.	3 shifts per day	No working activities at the stack itself during production.
Chemical Drier Stack	Gases in Chemical drying oven has been vented into atmosphere through Chemical Dyer Stack by Chemical dryer Exhaust Fan. Only one or two persons perform start up and shutdown of chemical dryer. Chemical Dryer operation is controlled by control room. No person is needed to attend at Chemical Dryer stack during production.	3 shifts per day	No working activities at the stack itself during production.

Source: JFE MYANMAR Coated Steel Co., Ltd.



2.6 Heat Stress Measurement

The survey of heat stress measurement has been conducted inside JFE MYANMAR Coated Steel factory to know the current heat stress level of the working area. Table 2.6-1 shows the outline of the heat stress measurement.

Table 2.6-1 Outlines of Heat Stress Measurement

Survey Period	Survey Item	Parameters	Number of Point	Duration	Survey Methodology
9 July, 2025	Heat Stress Measurement	WGBT, TA, TG and RH	8 points	8-hour average	On site measurement by "SATO SK-150GT Heat Stress Monitor"

Source: Myanmar Koci International Ltd.

2.6.1 Survey Items

The parameters for heat stress measurement were Wet Bulb Globe Temperature (WGBT), Temperature (TA), Globe Temperature (TG) and Relative Humidity (RH).

2.6.2 Survey Location

The heat stress measurement equipment, "SATO SK-150GT Heat Stress Monitor" was set up at FC (Storage), FC (Packaging), Workshop, CPL (GF), CPL (2nd F), RTO, Roll Shop and CRC. The detail location of heat stress measurement points is described in Table 2.6-2 and the location of heat stress measurement points are shown in the Figure 2.6-1.

Table 2.6-2 Location of Heat Stress Measurement Point

Survey Point	Coordinates	Description of Survey Point
H-1	16°40'10.59"N, 96°17'7.25"E	FC (Storage)
H-2	16°40'9.45"N, 96°17'4.37"E	FC (Packaging)
H-3	16°40'7.84"N, 96°17'5.71"E	Workshop
H-4	16°40'6.11"N, 96°17'5.05"E	CPL(GF)
H-5	16°40'6.20"N, 96°17'5.26"E	CPL (2 nd F)
H-6	16°40'6.13"N, 96°17'5.79"E	RTO
H-7	16°40'1.74"N, 96°17'7.61"E	Roll Shop
H-8	16°40'1.99"N, 96°17'11.18"E	CRC

Source: Myanmar Koci International Ltd.





Figure 2.6-1 Location of Heat Stress Measurement Points

2.6.3 Survey Period

Heat Stress Measurement was conducted on 9 July, 2025.

2.6.4 Survey Method

Heat stress measurement was conducted using the SATO SK-150GT, which can measure globe temperature (TG), air temperature (TA), and relative humidity (RH) at the same time. From the measured values, this instrument can calculate the WBGT index, which is used as a preventive measure for heat stress. The device was set up at an appropriate height in a representative work area. Measurements were taken at regular intervals after the instrument was stabilized. Recorded values were compared with WBGT range of specified heat stress risks. The status of heat stress measurement is shown in Figure 2.6-2.



Figure 2.6-2 Location of Heat Stress Measurement Point



2.6.5 Survey Results

The eight-hour average value of heat stress measurement results are described in Table 2.6-3. Based on the working nature of the factory, light work conditions such as sitting with light manual work, hand and arm work, light machine/vehicle driving, light walking, etc., at the monitoring points can be recognized. The workers are also assumed to be acclimatized for the WBGT index value. By referring health risk category specified in the Final EIA Report for JFE MYANMAR Coated Steel Co., Ltd. (Table 8.3-6), WBGT values at all monitoring points are within low risk category (26.5–29.5°C), and thus the staffs can work continuously by taking 0.5 liter of water per hour.

Table 2.6-3 Heat Stress Measurement Result

Date	Survey Point	Location	Work (Acclimatized)	Parameters			
				WBGT (°C)	TA (°C)	TG (°C)	RH (%)
9 July, 2025	H-1	FC (Storage)	Light	26.7	29.3	29.3	73.9
	H-2	FC (Packaging)	Light	26.7	29.4	29.8	72.3
	H-3	Workshop	Light	26.7	29.5	29.9	71.9
	H-4	CPL(GF)	Light	26.7	29.8	30.2	70.2
	H-5	CPL (2 nd F)	Light	28.2	32.6	34.0	59.3
	H-6	RTO	Light	28.0	31.5	33.3	63.8
	H-7	Roll Shop	Light	27.2	30.3	30.7	70.1
	H-8	CRC	Light	26.6	29.7	29.4	71.1
WBGT for Low Health Risk				26.5 to 29.5 ¹⁾	-	-	-

Note: 1) WBGT value is referred to the Final EIA report for JFE MYANMAR Coated Steel Co., Ltd.
 Source: Myanmar Koei International Ltd.



The operating activities at heat stress measurement points during survey period is shown in Table 2.6-4.

Table 2.6-4 Operating Activities at Heat Stress Measurement Points

Date	Survey Point	Location	Operating Activities
9 July, 2025	H-1	FC (Storage)	During production, warehouse staffs must provide maximum support for loading and unloading coils with equipment in the FC area according production schedule as needed.
	H-2	FC (Packaging)	In the FC (packaging) area, activities such as product coil packaging, movement by equipment, and cleaning were carried out during the production period.
	H-3	Workshop	Production Time: Regular repair and servicing activities were carried out in the workshop area. Approximately 3 to 4 technicians involved daily in tasks such as preventive maintenance, parts replacement, and equipment servicing to support continuous plant operations. Shutdown Period: During the shutdown period, welding and machining tasks were performed, including fabrication of parts and repair work for various machinery components.
	H-4	CPL(GF)	Inside Pulpit – Operators monitor and control HMI for production. Inside Coater Room – Operators use respirators, goggles, and earmuffs to set coater equipment setting, to check viscosity and prepare paint. Outside Coater Room – This is a walkway platform. Operators use half-masks, goggles, and earmuffs to walk from coater room to pulpit during production. Operators walk through this area less than a minute.
	H-5	CPL (2 nd F)	Finish Oven – Solvent fumes in Finish Oven have been vented into RTO through by Oven Exhaust Fan. Finish Oven operation is controlled by control room. No working activities in near Finish Oven. Finish Quench Tank – before production, pneumatic valve and Squeeze rolls set are need to open manually at Finish Quench Tank. No person is needed to attend at Finish Quench Tank during production.
	H-6	RTO	Oven Exhaust Fumes has been treated in RTO to convert flue gases upstream of RTO stack. After passing through two heat exchangers, these flue gases have been vented into atmosphere through RTO stack by RTO Exhaust Fan. Only one or two persons perform start up and shutdown of RTO. RTO operation is controlled by control room. No person is needed to attend at RTO stack during production.
	H-7	Roll Shop	Roll Grinding activities. Equipment maintenance activities.
	H-8	CRC	Paint Feed coil, finished good coil, packing item, Pup coil, commissioning coil, Scrap and general waste storage area. Warehouse staffs are operated the equipment to movement material from FC, FCPT to CRC.



2.7 Illuminance Measurement

The survey of illuminance measurement has been conducted inside JFE MYANMAR Coated Steel factory to know the current illuminance (light intensity) of the working area. Table 2.7-1 shows the outline of the illuminance measurement.

Table 2.7-1 Outlines of Illuminance Measurement

Survey Period	Survey Item	Location	Number of Point	Duration	Survey Methodology
9 July, 2025	Illuminance Measurement	FCPT, CPL, Roll Shop and CRC	4 points	8-hour average	On site measurement by "HIOKI FT3424 Lux Meter"

Source: Myanmar Koci International Ltd.

2.7.1 Survey Items

The parameter for illuminance measurement was illuminance (light intensity).

2.7.2 Survey Location

The illuminance measurement equipment, "HIOKI FT3424 Lux Meter" was set up at FCPT, CPL, Roll Shop and CRC. The detail location of illuminance measurement points is described in Table 2.7-2 and the location of illuminance measurement points are shown in the Figure 2.7-1.

Table 2.7-2 Location of Illuminance Measurement Point

Survey Point	Coordinates	Description of Survey Point
L-1	16°40'10.18"N, 96°17'6.28"E	FCPT
L-2	16°40'7.87"N, 96°17'4.21"E	CPL
L-3	16°40'1.67"N, 96°17'7.65"E	Roll Shop
L-4	16°40'2.07"N, 96°17'11.36"E	CRC

Source: Myanmar Koci International Ltd.



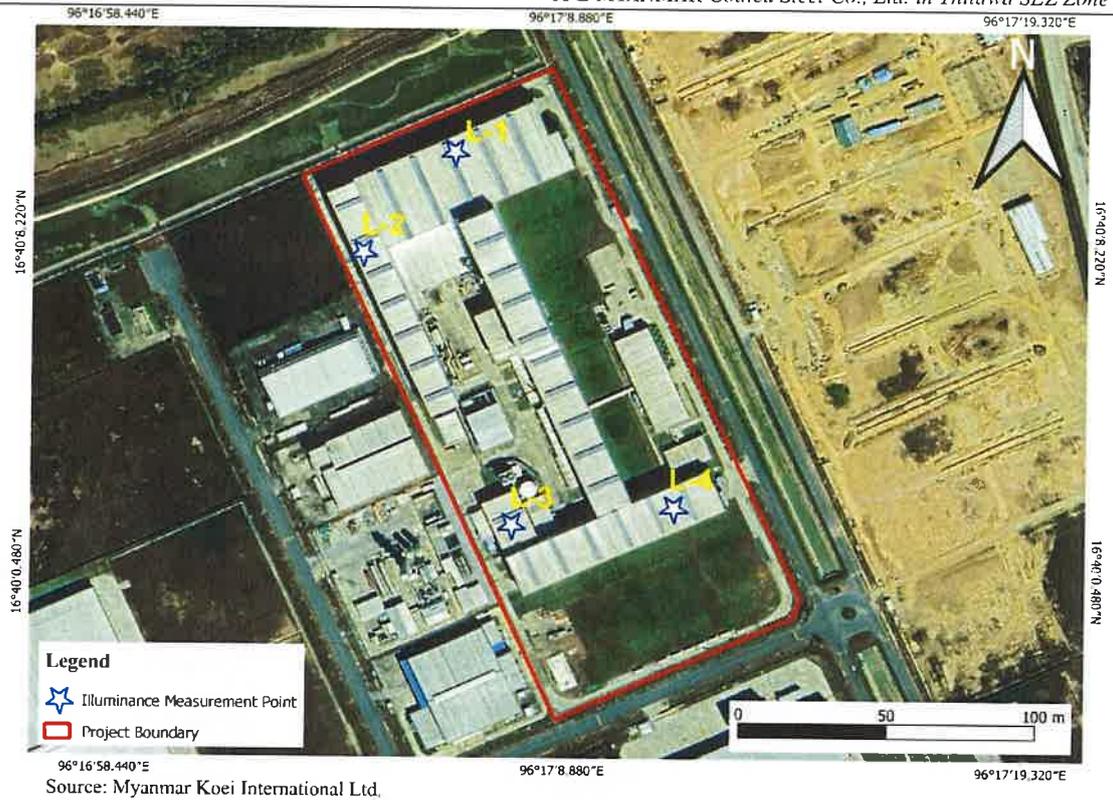


Figure 2.7-1 Location of Illuminance Measurement Point

2.7.3 Survey Period

Illuminance measurement was conducted on 9 July, 2025.

2.7.4 Survey Method

Survey of illuminance measurement was conducted using the HOIKI FT3424 Lux Meter to assess the lighting conditions in the working environment. The device was mounted on a tripod at an appropriate height corresponding to the typical working area, and the sensor was oriented horizontally facing upward at each measurement point, avoiding any direct shading or reflection. Readings were recorded under normal operational lighting conditions, and the measured values were compared with minimum limit for illuminance levels mentioned in IFC EHS General Guidelines (2007). The status of illuminance measurement is shown in Figure 2.7-2.





Figure 2.7-2 Location of Illuminance Measurement Point

2.7.5 Survey Results

The eight-hour average value of illuminance measurement results are described in Table 2.7-3. Based on the operation activities at each monitoring point, illuminance measurement values are compared with minimum limit for workplace illumination intensity at specified work location and activity mentioned in IFC EHS General Guidelines (2007). By comparing the results with guideline values, illuminances at FCPT, CPL and Roll Shop meet the minimum limit of guideline, while the result at CRC is slightly lower than minimum limit.

Table 2.7-3 Light Measurement Result

Date	Survey Point	Location	Result (lux)	Minimum Limit (lux), IFC EHS General Guidelines	
				Value	Activity
9 July, 2025	L-1	FCPT	316.5	200	Medium precision work
	L-2	CPL	162.7	100	Workspace with occasional visual task
	L-3	Roll Shop	291.0	200	Medium precision work
	L-4	CRC	182.6	200	Medium precision work

Note: Workspace with occasional visual task (corridors, stairways, lobby, elevator, auditorium, etc.)
Medium precision work (simple assembly, rough machine works, welding, packing, etc.)

Source: Myanmar Koei International Ltd.



The operating activities at heat stress measurement points during survey period is shown in Table 2.7-4.

Table 2.7-4 Operating Activities at Illuminance Measurement Points

Date	Survey Point	Location	Operating Activities
9 July, 2025	L-1	FCPT	During production packing process, movement, and cleaning process.
	L-2	CPL	Coil painting activities.
	L-3	Roll Shop	Roll Grinding activities. Equipment maintenance activities.
	L-4	CRC	Paint Feed coil, finished good coil, packing item, Pup coil, commissioning coil, Scrap and general waste storage area Warehouse staffs are operated the equipment to movement material from FC, FCPT to CRC.



CHAPTER 3: CONCLUSION AND RECOMMENDATIONS

Air Quality

The result of 48 hours average air quality of CO, CO₂, NO₂, PM_{2.5}, PM₁₀, Ozone and SO₂ are under the target value at AQ-1. Thus, there are no impacts from the operating activities of JFE MYANMAR Coated Steel Factory to the surrounding environment.

Noise and Vibration Level

The results of noise and vibration level for NV-1 and NV-2 are lower than the target levels. Thus, there are no impacts from the operating activities of JFE MYANMAR Coated Steel Factory to the surrounding environment.

Indoor Air Quality

The results of indoor air quality of PM_{2.5}, PM₁₀ and VOC at Coater-A and Coater-B were lower than the target value. Thus, there are no impacts from the operating activities of JFE MYANMAR Coated Steel Factory to the workplace environment.

Workplace Noise and Vibration Level

The results of workplace noise and vibration level at near Coater-A, entry accumulator and near quality control laboratory were lower than the NIOSH guideline value. However, the results of workplace noise level at near Coater-A (WNV-1) and entry accumulator (WNV-2) were close to the NIOSH guideline value and the result of workplace noise level at near quality control laboratory was lower than the target value. Therefore, the standard earplug must be used when working in WNV-1, WNV-2 and WNV-3.

The results of workplace vibration level at near Coater-A, entry accumulator and near quality control laboratory were lower than the target value. Thus, there are no impacts from the operating activities of JFE MYANMAR Coated Steel Factory to the workplace environment.

Emission Monitoring

The results of emission monitoring of NO_x at Regenerative Thermal Oxidizer (RTO) Stack and Chemical Drier Stack were lower than the target value. Thus, there are no impacts from the operating activities of JFE MYANMAR Coated Steel Factory to the surrounding environment.

Heat Stress Measurement

WBGT values at FC (Storage), FC (Packaging), Workshop, CPL (GF), CPL (2nd F), RTO, Roll Shop and CRC were recognized as low health risk and thus the staffs can work continuously with taking 0.5 liter of water per hour.

Light Measurement

Illuminances at FCPT, CPL and Roll Shop met the minimum limit for workplace illumination intensity mentioned in IFC EHS General Guidelines, while the result at CRC were slightly lower than minimum limit. Thus, intensity emitted from luminous flux should be improved to operate well at CRC.

In conclusion of this environmental survey, periodical monitoring will be necessary to grasp the surrounding environmental conditions and to show the compliance status in the operation phase of the JFE MYANMAR Coated Steel Factory. Once enough environmental data is collected, the mitigation measures for environmental management will be considered in the future, as necessary.





ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
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 Ministry of Natural Resources and Environmental Conservation



ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန
 Environmental Conservation Department

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာလုပ်ငန်းလိုင်စင် (ပုဂ္ဂိုလ်)

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It is hereby issued that **U Khin Maung Thane, 12/YaKaNa(N)061981** has fulfilled the requirements for obtaining an Environmental Impact Assessment License to conduct as an **Associate Consultant** under the Licensing Procedure for the Third Persons or Organizations Undertaking Initial Environmental Examination and Environmental Impact Assessment, approved by the Ministry of Natural Resources and Environmental Conservation.

လေ့လာဆန်းစစ်ခွင့်ရှိသည့် ကျွမ်းကျင်မှုနယ်ပယ်များမှာ အောက်ပါအတိုင်းဖြစ်သည်-

The areas of expertise, eligible to be conducted, are as follows:

1. အထွေထွေပတ်ဝန်းကျင်စီမံခန့်ခွဲခြင်း (General Environmental Management)
- 2.
- 3.
- 4.
- 5.

လိုင်စင်နံပါတ် License Number	: EIA-AC 090/2024
ထုတ်ပေးသည့် ရက်စွဲ Date of Issue	: 30-4-2024
ကုန်ဆုံးသည့် ရက်စွဲ Date of Expiry	: 29-4-2027



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APPENDIX-1 HOURLY AIR QUALITY RESULTS



Date	Time	CO	CO ₂	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	O ₃	Wind Speed	Wind Direction		
		mg/m ³	m/s	Deg.	Direction							
		Hourly	Hourly	Hourly	Hourly							
8 July, 2025	13:00 ~ 13:59	0.107	629.882	0.007	0.013	0.016	0.014	0.067	3.87	204	SSW	
8 July, 2025	14:00 ~ 14:59	0.116	636.437	0.006	0.012	0.014	0.015	0.078	3.93	192	SSW	
8 July, 2025	15:00 ~ 15:59	0.072	636.396	0.007	0.010	0.012	0.019	0.070	3.81	202	SSW	
8 July, 2025	16:00 ~ 16:59	0.095	641.272	0.007	0.010	0.012	0.020	0.075	3.67	207	SSW	
8 July, 2025	17:00 ~ 17:59	0.041	642.956	0.005	0.010	0.012	0.018	0.083	3.80	204	SSW	
8 July, 2025	18:00 ~ 18:59	0.025	652.678	0.009	0.009	0.012	0.020	0.088	2.73	202	SSW	
8 July, 2025	19:00 ~ 19:59	0.127	652.774	0.007	0.010	0.012	0.018	0.087	3.51	206	SSW	
8 July, 2025	20:00 ~ 20:59	0.022	654.150	0.005	0.010	0.013	0.012	0.082	2.84	204	SSW	
8 July, 2025	21:00 ~ 21:59	0.095	654.911	0.008	0.010	0.013	0.019	0.078	2.48	209	SSW	
8 July, 2025	22:00 ~ 22:59	0.078	655.656	0.006	0.010	0.013	0.017	0.075	2.73	210	SSW	
8 July, 2025	23:00 ~ 23:59	0.044	657.261	0.008	0.011	0.013	0.015	0.079	2.81	217	SW	
9 July, 2025	0:00 ~ 0:59	0.124	656.458	0.015	0.011	0.015	0.017	0.084	3.07	216	SW	
9 July, 2025	1:00 ~ 1:59	0.116	650.563	0.008	0.010	0.013	0.016	0.068	1.76	228	SW	
9 July, 2025	2:00 ~ 2:59	0.120	656.564	0.007	0.010	0.014	0.016	0.064	1.75	217	SW	
9 July, 2025	3:00 ~ 3:59	0.099	660.747	0.010	0.011	0.014	0.017	0.070	2.17	216	SW	
9 July, 2025	4:00 ~ 4:59	0.034	665.084	0.008	0.012	0.017	0.019	0.076	1.39	219	SW	
9 July, 2025	5:00 ~ 5:59	0.111	669.356	0.006	0.012	0.019	0.018	0.073	1.14	217	SW	
9 July, 2025	6:00 ~ 6:59	0.065	661.847	0.006	0.011	0.015	0.016	0.077	1.11	204	SSW	
9 July, 2025	7:00 ~ 7:59	0.086	648.317	0.006	0.012	0.015	0.014	0.067	1.85	204	SSW	
9 July, 2025	8:00 ~ 8:59	0.063	637.689	0.007	0.018	0.022	0.016	0.057	2.10	209	SSW	
9 July, 2025	9:00 ~ 9:59	0.088	635.639	0.008	0.013	0.017	0.015	0.045	2.30	226	SW	
9 July, 2025	10:00 ~ 10:59	0.139	634.642	0.008	0.011	0.015	0.014	0.044	2.60	220	SW	
9 July, 2025	11:00 ~ 11:59	0.055	635.433	0.007	0.011	0.015	0.010	0.044	2.28	212	SSW	
9 July, 2025	12:00 ~ 12:59	0.076	632.880	0.008	0.011	0.014	0.008	0.050	2.68	196	SSW	

Max	0.139	669.356	0.015	0.018	0.022	0.020
Avg	0.083	648.316	0.008	0.011	0.015	0.016
Min	0.022	629.882	0.005	0.009	0.012	0.008



Date	Time	CO	CO ₂	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	O ₃	Wind Speed	Wind Direction		
		mg/m ³	m/s	Deg.	Direction							
		Hourly	Hourly	Hourly	Hourly							
9 July, 2025	13:00 ~ 13:59	0.071	628.918	0.008	0.010	0.012	0.011	0.056	3.01	192	SSW	
9 July, 2025	14:00 ~ 14:59	0.069	640.777	0.009	0.010	0.012	0.016	0.046	3.01	218	SW	
9 July, 2025	15:00 ~ 15:59	0.124	637.089	0.015	0.011	0.013	0.016	0.103	1.20	225	SW	
9 July, 2025	16:00 ~ 16:59	0.107	629.063	0.026	0.009	0.012	0.014	0.115	1.12	222	SW	
9 July, 2025	17:00 ~ 17:59	0.065	631.855	0.017	0.009	0.014	0.010	0.097	0.92	225	SW	
9 July, 2025	18:00 ~ 18:59	0.103	647.734	0.012	0.008	0.009	0.017	0.085	0.59	233	SW	
9 July, 2025	19:00 ~ 19:59	0.095	665.016	0.006	0.008	0.010	0.018	0.071	0.63	136	SE	
9 July, 2025	20:00 ~ 20:59	0.111	673.252	0.005	0.008	0.010	0.014	0.076	0.71	164	SSE	
9 July, 2025	21:00 ~ 21:59	0.080	673.062	0.006	0.009	0.013	0.010	0.070	1.15	217	SW	
9 July, 2025	22:00 ~ 22:59	0.115	676.409	0.007	0.008	0.012	0.015	0.064	0.74	221	SW	
9 July, 2025	23:00 ~ 23:59	0.115	680.530	0.008	0.008	0.012	0.017	0.059	0.57	195	SSW	
10 July, 2025	0:00 ~ 0:59	0.126	684.241	0.008	0.010	0.013	0.015	0.055	0.92	152	SSE	
10 July, 2025	1:00 ~ 1:59	0.115	677.318	0.008	0.009	0.012	0.009	0.057	1.17	171	S	
10 July, 2025	2:00 ~ 2:59	0.115	654.163	0.008	0.008	0.012	0.008	0.062	1.16	185	S	
10 July, 2025	3:00 ~ 3:59	0.076	654.314	0.008	0.008	0.012	0.009	0.061	1.26	183	S	
10 July, 2025	4:00 ~ 4:59	0.107	654.372	0.008	0.008	0.012	0.009	0.059	1.22	192	SSW	
10 July, 2025	5:00 ~ 5:59	0.061	655.869	0.008	0.008	0.012	0.010	0.057	0.97	206	SSW	
10 July, 2025	6:00 ~ 6:59	0.113	655.114	0.007	0.009	0.013	0.009	0.058	1.24	212	SSW	
10 July, 2025	7:00 ~ 7:59	0.153	632.553	0.008	0.009	0.013	0.013	0.057	1.59	197	SSW	
10 July, 2025	8:00 ~ 8:59	0.115	622.943	0.009	0.011	0.015	0.011	0.040	1.94	201	SSW	
10 July, 2025	9:00 ~ 9:59	0.071	625.165	0.009	0.010	0.014	0.009	0.018	1.97	203	SSW	
10 July, 2025	10:00 ~ 10:59	0.061	625.515	0.009	0.011	0.016	0.012	0.023	1.69	210	SSW	
10 July, 2025	11:00 ~ 11:59	0.113	619.819	0.009	0.011	0.015	0.018	0.033	1.80	217	SW	
10 July, 2025	12:00 ~ 12:59	0.078	626.519	0.009	0.010	0.013	0.016	0.029	2.12	214	SW	

Max	0.153	684.241	0.026	0.011	0.016	0.018
Avg	0.098	648.821	0.009	0.009	0.013	0.013
Min	0.061	619.819	0.005	0.008	0.009	0.008



APPENDIX-2 8-HOUR OZONE RESULTS



Date	Time	O ₃ (8-hr)
		mg/m ³
8 July, 2025	13:00 ~ 20:59	0.079
8 July, 2025	14:00 ~ 21:59	0.080
8 July, 2025	15:00 ~ 22:59	0.080
8 July, 2025	16:00 ~ 23:59	0.081
8 July, 2025	17:00 ~ 00:59	0.082
8 July, 2025	18:00 ~ 01:59	0.080
8 July, 2025	19:00 ~ 02:59	0.077
8 July, 2025	20:00 ~ 03:59	0.075
8 July, 2025	21:00 ~ 04:59	0.074
8 July, 2025	22:00 ~ 05:59	0.074
8 July, 2025	23:00 ~ 06:59	0.074
9 July, 2025	00:00 ~ 07:59	0.072
9 July, 2025	01:00 ~ 08:59	0.069
9 July, 2025	02:00 ~ 09:59	0.066
9 July, 2025	03:00 ~ 10:59	0.064
9 July, 2025	11:00 ~ 18:59	0.060
9 July, 2025	12:00 ~ 19:59	0.057

Max	0.082
Min	0.057

Date	Time	O ₃ (8-hr)
		mg/m ³
9 July, 2025	13:00 ~ 20:59	0.081
9 July, 2025	14:00 ~ 21:59	0.083
9 July, 2025	15:00 ~ 22:59	0.085
9 July, 2025	16:00 ~ 23:59	0.080
9 July, 2025	17:00 ~ 00:59	0.072
9 July, 2025	18:00 ~ 01:59	0.067
9 July, 2025	19:00 ~ 02:59	0.064
9 July, 2025	20:00 ~ 03:59	0.063
9 July, 2025	21:00 ~ 04:59	0.061
9 July, 2025	22:00 ~ 05:59	0.059
9 July, 2025	23:00 ~ 06:59	0.059
9 July, 2025	00:00 ~ 07:59	0.058
9 July, 2025	01:00 ~ 08:59	0.056
10 July, 2025	02:00 ~ 09:59	0.052
10 July, 2025	03:00 ~ 10:59	0.047
10 July, 2025	11:00 ~ 18:59	0.043
10 July, 2025	12:00 ~ 19:59	0.039

Max	0.085
Min	0.039



APPENDIX-3 CERTIFICATE OF CALIBRATION



Calibrate report

Product	Air Quality Monitor System	Model	AQM-09
Quantity	1pcs	Call date	January,14,2025
Product No.	OC202501140420007		
Appearance	<input checked="" type="checkbox"/> Clean <input checked="" type="checkbox"/> Non corrosive <input checked="" type="checkbox"/> No damage		
Gas type	CO:ppm SO ₂ :ppb NO _x :ppb O ₃ :ppb CO ₂ :ppb VOC:ppm PM2.5:ug/m ³ PM10:ug/m ³ TSP:ug/m ³ Wind veloc: m/s Wind direct: ° Atmospheric : hpa Temperature and humidity: °C/%RH		
Accuracy	± 3%F.S		
resolution	0.1ppm 1ppm 1ppb 1ug/m ³		
Response time	≤30S		
Survey range	CO:0-200.0ppm SO ₂ :0-2000ppb NO _x :0-2000ppb O ₃ :0-2000ppb CO ₂ :0-5000ppm VOC:0-50.0ppm PM2.5:0-1000ug/m ³ PM10:0-1000ug/m ³ TSP : 0-1000ug/m ³ Wind veloc:0-30.0m/s Wind direct:0-360° Humidity:0%-100%RH Atmospheric :600-1100 hpa Temperature: -20.0~50.0°C		
Signal output mode	4G LTE		
Power supply voltage	AC 220V/50Hz		
Power dissipation	≤ 30W		
Working temperature and humidity range	-20°C~50°C / 0%RH-100%RH		
Testing condition indoor	Temperature: 15°C Humidity: 55%RH		
Calibration gas	CO SO ₂ NO _x O ₃ CO ₂ C ₄ H ₄		
Call gas test	1.CO: Call gas concentration: <u>12.0</u> ppm Inspect concentration: <u>11.9</u> ppm 2.SO ₂ :Call gas concentration: <u>1480</u> ppb Inspect concentration: <u>1477</u> ppb 3.NO _x : Call gas concentration: <u>1830</u> ppb Inspect concentration: <u>1830</u> ppb 4.O ₃ : Call gas concentration: <u>1500</u> ppb Inspect concentration: <u>1499</u> ppb 5.CO ₂ : Call gas concentration: <u>4000</u> ppm Inspect concentration: <u>3999</u> ppm 6.C ₄ H ₄ : Call gas concentration: <u>48.0</u> ppm Inspect concentration: <u>47.9</u> ppm 7.PM2.5: Measured value: <u>30</u> ug/m ³ 8.PM10: Measured value: <u>36</u> ug/m ³ 9.TSP: Measured value: <u>39</u> ug/m ³ 10.Wind direct: Measured value: <u>201</u> 11.Wind veloci: Measured value: <u>3.4</u> m/s 12.Atmospheric : Measured value: <u>1013</u> hpa 13.Temperature: Measured value: <u>26.9</u> °C 14.Humidity: Measured value: <u>45</u> %RH		
Test result	Qualified		
Remark			

Tester: Bing Wen Wang

Quality judgment:

OQC : Ying Liu

Date: January, 14, 2025

Auditor: Yan Hui Wang





MYANMAR KOEI INTERNATIONAL LTD.
Consulting Engineers

No. 38A, 1st Floor, Grand Pho Sein Condo,
Pho Sein Road, Tamu Township, Yangon,
Myanmar. Tel: +85 1 9648814

Calibration Record

Project Name: JFE Myanmar Coated Steel (M25056)

Calibration Date: July 3, 2025

No.	Instrument (Brand, Model)	Sensor/Probe	Calibration Equipment	Unit	Calibration Index	Before Calibration	After Calibration	Remark
1.	Sound Level Meter (RION NL-43) Sr.No.00230104	Sound Level	NC-74 Sound Calibrator	dB	94	93.6	94.0	Completed.
2.	Sound Level Meter (RION NL-42) Sr.No.00546217	Sound Level	NC-74 Sound Calibrator	dB	94	93.1	94.0	Completed
3.	Vibration Level Meter (RION VM-53A) Sr.No.00546766	Vibration Level	-	-	-	-	-	Calibration by manufacturer in June 2024.
4.	Vibration Level Meter (RION VM-55) Sr.No.00627370	Vibration Level	-	-	-	-	-	Calibration by manufacturer in June 2023.*

* As calibration by original manufacturer or local service is not feasible, parallel monitoring of the vibration meters VM53A (Sr.No.00546766) and VM55 (Sr.No.00627370) was performed. The difference between the results is less than 1 dB and hence VM55 (Sr.No.00627370) and VM53A (Sr.No.00546766) can be functioned well. Next time monitoring will be conducted by the vibration level meters with valid calibration period.

Calibrated by

Nay Phyo Aung
Environmental Expert

Checked by

Ye Tun Oo
Assistance Manager, Environmental Expert





RION 3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
RION Co.,Ltd. Phone:+81-42-359-7898 <https://www.rion.co.jp>

To Myanmar Koei International Ltd.

Issuing Date: June 7, 2024

Service Report

Dear Sir/Madame,

We are glad to inform you that following check/adjustment, repair and calibration have been carried out on your instrument:

VM-53A, Vibration level meter
Serial Number: 00546766
Option: PV-83C (S/No.: 49854)

Your Declaration: Calibration with test report, calibration certificate, and traceability flow chart is required.

Our Judgement: It was time to replace the backup battery.
The sub LCD was blurred.

Our Treatment: Replacement of the backup battery and the sub LCD.
Check and calibration.
Attachment of test report, calibration certificate, and traceability flow chart.

The instrument works well now, the followings show the check results:

Check & adjustment: Good
General: Good

RION CO., LTD.

Manager

Y. Sato



CALIBRATION CERTIFICATE

Equipment Data		Date : 09/08/2024			
Equipment	Portable Gas Analyzer				
Model	PG-350				
Serial No.	36EG0SYR				
Manufacturer	Horiba Co., Ltd				
Customer Record					
Country/City :	Myanmar / Yangon				
customer Address:	Myanmar Koei International Ltd				
Telephone No:					
Testing Program					
Test Parameter	Display	Status	Remark		
Initialization	Good	OK			
Operation and Functioning	Good	OK			
Calibration					
Ambient Temp & Humidity	25°C / 60%				
Calibrator Gas	SO ₂ = 2400ppm, CO ₂ = 14%, O ₂ = 16%, NO _x = 2000ppm, CO = 4000ppm				
Linearity (+2.0%)	Calibration Parameter				
	NO _x (ppm)	SO ₂ (ppm)	CO (ppm)	CO ₂ (%)	O ₂ (%)
	1999.9	2399.0	3999.9	23.6	15.6
	2001.0	2398.0	4001.0	23.8	15.9
	2003.0	2398.0	4002.0	23.6	16.1
AVG	2001.3	2398.3	4001.0	23.7	15.9
Repeatability (CV%)	0.0008	0.0002	0.0003	0.0049	0.0159
Accuracy	-0.6496	0.0695	-0.0242	1.4085	0.8403
Accessories	1. User Manual				
Calibration Procedure	(1) Zero calibration with (N ₂) (2) Span calibration with (Standard calibration gas)				
Judgement	PASS	<input checked="" type="checkbox"/>	FAIL	<input type="checkbox"/>	
This is to certify that the above Portable Gas Analyzer has been calibrated on 09/08/2024 and it should again on 09/08/2025.					
Performed By Htein Lin Han Date 09.08.2024			Checked By Mar Mar Khaing Date 09.08.2024		

Head Office

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Consulting Engineers

No. 39A, 1st Floor, Grand Pho Sein Condo,
Pho Sein Koat, Tarnier Township, Yangon,
Myanmar. Tel: +95 1 9548814

Inspection and Maintenance Record

Instrument Information

Instrument Heat Stress Monitor
Brand SATO SK-150GT
Serial Number No. 8310-00
Maintenance Date July 3, 2025
Project JFE Myanmar Coated Steel (M25056)

Maintenance

Inspection Item	Visual inspection, sensor condition check, battery level, display check	
Action	1.	Cleaned sensors, checked display and buttons, verified stable readings under standard room condition
	2.	Performed on-site before measurement according to device manual
	3.	Internal check is used for field reliability; safety instruction error codes are all clear.
Remark	Satisfactory operation condition during site measurements!	

Checked by

Nay Phy Aung
Environmental Expert

Verified by

Ye Tun Oo
Assistance Manager





MYANMAR KOEI INTERNATIONAL LTD.
Consulting Engineers

No. 36A, 1st Floor, Grand Pho Sain Condo,
Pho Sain Road, Tattaya Township, Yangon,
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Inspection and Maintenance Record

Instrument Information

Instrument Lux Meter
Brand HIOKI
Serial Number FT3424
Maintenance Date July 3, 2025
Project JFE Myanmar Coated Steel (M25056)

Maintenance

Inspection Item	Visual check for physical damage, battery condition, and lens cleanliness	
Action	1.	Cleaned sensor area, replaced batteries, checked display and buttons
	2.	Performed zero adjustment prior to measurement according to manufacturer's instruction
	3.	Functional accuracy is verified through zero adjustment prior to field use.
Remark	Device is in good working condition at time of use.	

Checked by

Nay Phyto Aung
Environmental Expert

Verified by

Ye Tun Oo
Assistance Manager

