

## **Appendix 10: Sound Level Survey**



## **Sound Level Monitoring Survey October 2025**

**for**

**Transkei Quarries (Pty) Ltd: Mthatha Quarry,  
Eastern Cape**

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# CONTROL SHEET

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This document should be cited as Hilton Environmental Instrumentation, 2025: *Sound Level Monitoring Survey, October 2025 for Transkei Quarries, Mthatha Quarry, Eastern Cape.*

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# EXECUTIVE SUMMARY

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## Introduction

Hilton Environmental Instrumentation (Pty Ltd was requested to conduct environmental sound level surveys at Transkei Quarries (Pty) Ltd, Mthatha Quarry (Mthatha) approximately 4km northeast of Mthatha central business district, Eastern Cape during October 2025. The quarry mines and processes various grades of aggregate for retail and operates during both day and night-time hours. Five fence line monitoring sites were utilised for the daytime and night-time monitoring survey.

The aims of the assessment were to:

- Determine environmental sound levels at the Mthatha Quarry property fence line and surrounding area during the daytime and night-time period while the quarry is in operation.
- Discern whether there are specific sources contributing to elevated sound levels (where possible).
- Determine compliance with the Eastern Cape Noise Control Regulations (1999).
- Evaluate ambient sound levels against SANS 10103:2008 typical land-use values with respect to potential noise propagation and impacts towards any neighbouring receptors.

## Methodology

Sound level measurements (dBA) were determined with an SABS-calibrated Type 1 Integrating Sound Level Meter (SLM) operated by a competent person in accordance with relevant national standards, including SANS 10103:2008. Measurements were undertaken during both daytime and night-time periods.

Five monitoring sites were selected for the day and night-time survey with a run time of 15 minutes for daytime monitoring and 10 minutes for night-time monitoring sites. The quarry shuts down for two hours each day between 04h00 and 06h00. Night-time measurements were therefore carried out during the late evening, to ensure completion prior to official shutdown, as crushers typically wind down gradually towards the end of this shift.

The quarry was operational during the survey with the inclusion of the primary crusher, secondary crusher and screening plant. The quarry was considered fully operational during both daytime and night-time surveys based on activity logs. Non-operational, shutdown surveys were not part of this scope of work.

## Summary Findings

The sound level meter calibration certificate, raw SLM data (histogram) and time series are presented in the Appendices.

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In summary, survey results and observations from October 2025 showed the following.

### Daytime

- Daytime sound levels at all urban locations remain below the applicable SANS urban daytime guideline of 55 dB(A) with the exception of RM02 (G5 Stockpile) which measured an  $L_{Aeq}$  of 62.0 dB(A). This slightly elevated reading was influenced by the primary and secondary crushers (within line of sight) and a front end loader (FEL) which arrived to load product for dispatch. The  $L_{A90}$  measurement (51.5 dB(A)), experienced by the area 90% of the time, is well within the urban guideline.
- Daytime sound levels at the industrial site RM03 surge pile ( $L_{Aeq}$  of 71.5 dB(A)) to the east of plant operations (effectively onsite) were slightly higher than the applicable SANS industrial daytime guideline of 70 dB(A). The key source of noise in this area are the crushers which are in close proximity. This measurement site can also be considered with in the occupational edge of the plant and therefore elevated sound levels can be expected. There are no sensitive receptors on the eastern fence line.
- Given the above findings, it is unlikely that the sound levels emanating from the quarry during the daytime impact significantly on the surrounding receptors.
- Given the above findings, it is unlikely the Mthatha Quarry is impacting the receiving environment at unacceptable levels to most people. Importantly, sound levels at most locations remain below their relevant SANS district guidelines.
- Given existing topography shielding the neighbouring residential area, it is unlikely that the MRA expansion will impact negatively on the surrounding environment during daytime hours.

### Night-time

- Night-time sound levels at all urban locations remain below the applicable SANS urban night-time guideline of 45 dB(A) with the exception of RM02 at the G5 stockpile ( $L_{Aeq}$  45.3 dB(A)), which was influenced by all crushers, screening plant and an articulated dump truck (ADT) and an operations siren.
- Night-time sound levels at the industrial site (RM03) were above the applicable SANS industrial night-time guideline of 65 dB(A). The monitoring site (effectively onsite) was influenced by the crushers and a FEL operating in close proximity.
- Measured sound levels at night along the northern fence line can typically be explained by the noise generated from Mthatha's crushers and screening plant, combined with tipper trucks (ADTs) moving materials around the site. Measured sound levels at night along the southern fence line can typically be explained by the noise generated from activities in the pit with the primary crusher in the distance.
- Sound levels recorded during the night-time survey suggest that mitigation and noise management measures at the quarry and plant are largely adequate. As the only site with elevated reading is RM03 with the cause being crushers and the screening plant, there is no real need to improve management measures. In addition, the quarry pit is

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well attenuated being well below the surface and surrounding hilly topography. These will also be worst-case results, given the cold air (9°C) enhances sound propagation.

- Given existing topography shielding the neighbouring residential area, it is unlikely that the MRA expansion will impact negatively on the surrounding environment during night-time hours.

## Recommendations

- There are no sensitive receptors on the eastern fence line near to monitoring site RM03. Therefore, it is suggested that this monitoring site be moved for future surveys to the MRA boundary to the east across the Corona River near to the unpaved district road. This will serve to cover the eastern boundary should future development occur in that area.
- Should the MRA extension be authorised, monitoring sites RM04 and RM05 will need to be relocated to the new southeast and southwest MRA boundary (i.e. further south).
- Given the encroaching residential area to the west, it is further suggested that future surveys include an additional monitoring site mid-way along the western fence line.
- Future surveys must be conducted when crushers are in constant operation (day and night), as these are key sources at the site.
- Future surveys may include baseline / non-operational measurements (where possible) to better understand the impact from the mine on the surrounding environment.
- Measures to reduce the pitch or intensity of reversing sirens of ADTs, FELs and RDTs could be implemented for night-time operations, as the pitch of such sirens makes them more audible (as is the intention onsite).
- Should complaints arise or sound levels increase in the near future, constructing a higher berm along the fence line or a wooden fence/structure surrounding the plant area may reduce the range of sound levels; i.e. attenuate any *disturbing noise*.
- Environmental noise monitoring is undertaken as specified in the site's environmental authorisation or more frequently should complaints arise from the quarry pit (and mining rights) expansion.
- A noise impact assessment is not necessary at this time based on the results of this survey.

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# TABLE OF CONTENTS

---

|     |                                                  |    |
|-----|--------------------------------------------------|----|
| 1   | Introduction .....                               | 1  |
| 2   | Locality .....                                   | 1  |
| 3   | Sound Level Measurement Methodology .....        | 3  |
| 3.1 | Background Information .....                     | 3  |
| 3.2 | Applicable Regulations and Guidelines .....      | 3  |
| 3.3 | Impact of Weather .....                          | 4  |
| 3.4 | Measurement Sites .....                          | 4  |
| 3.5 | Survey Times .....                               | 5  |
| 3.6 | Operational Activities .....                     | 5  |
| 4   | Survey Results .....                             | 6  |
| 4.1 | Daytime Sound Level Measurements .....           | 6  |
| 4.2 | Night-time Sound Level Measurements .....        | 8  |
| 5   | Data Interpretation .....                        | 10 |
| 5.1 | Daytime Sound Level Data Interpretation .....    | 10 |
| 5.2 | Night-time Sound Level Data Interpretation ..... | 11 |
| 6   | Conclusion and Recommendations .....             | 12 |
| 6.1 | Daytime .....                                    | 12 |
| 6.2 | Night-time .....                                 | 12 |
| 6.3 | Recommendations .....                            | 13 |

---

# LIST OF FIGURES

---

Figure 1: Locality map showing sample sites and mining rights area (MRA) ..... 2

Figure 2: Graphical representation of daytime sound levels measured at each site compared to the relevant SANS daytime guideline ..... 6

Figure 3: Graphical representation of night-time sound levels measured at each site compared to the relevant SANS night-time guideline ..... 8

---

# LIST OF TABLES

---

Table 1: Typical sound rating levels (dB(A)) for noise in districts (SANS 10103: 2008)..... 4

Table 2: Sound level measurement sites ..... 5

Table 3: Recorded daytime sound levels dB(A)): 03/10/2025 ..... 7

Table 4: Recorded night-time sound levels dB(A)): 02/10/2025 ..... 9

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# LIST OF APPENDICES

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Appendix A: Calibration Certificates

Appendix B: SLM Data (Graphical)

Appendix C: Field Observations

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## 1 Introduction

Transkei Quarries (Pty) Ltd operates the Mthatha Quarry located northeast of Mthatha central business district (CBD), between the residential areas of Ncambedlana and Gxulu, within the King Sabata Dalindyebo Local Municipality, Eastern Cape. The quarry mines, crushes, screens and produces various sizes of aggregate at a production rate of approximately 5000-6000 tons per day. Mthatha Quarry appointed Umhlaba Environmental Consulting cc to coordinate an environmental sound level survey as part of an environmental authorisation triggered by Section 102 of South Africa's Mineral and Petroleum Resources Development Act (MRRDA) which governs amendments to mining rights and related authorisations. Mthatha Quarry are in the process of an application to expand their current mining rights area. They need to determine the status quo of the quarry's activities to sound levels in the region (baseline) and to determine if there are cause for concern. This survey and reporting were undertaken by Hilton Environmental Instrumentation, specialists in air quality and environmental noise monitoring.

The aim of this assessment was to:

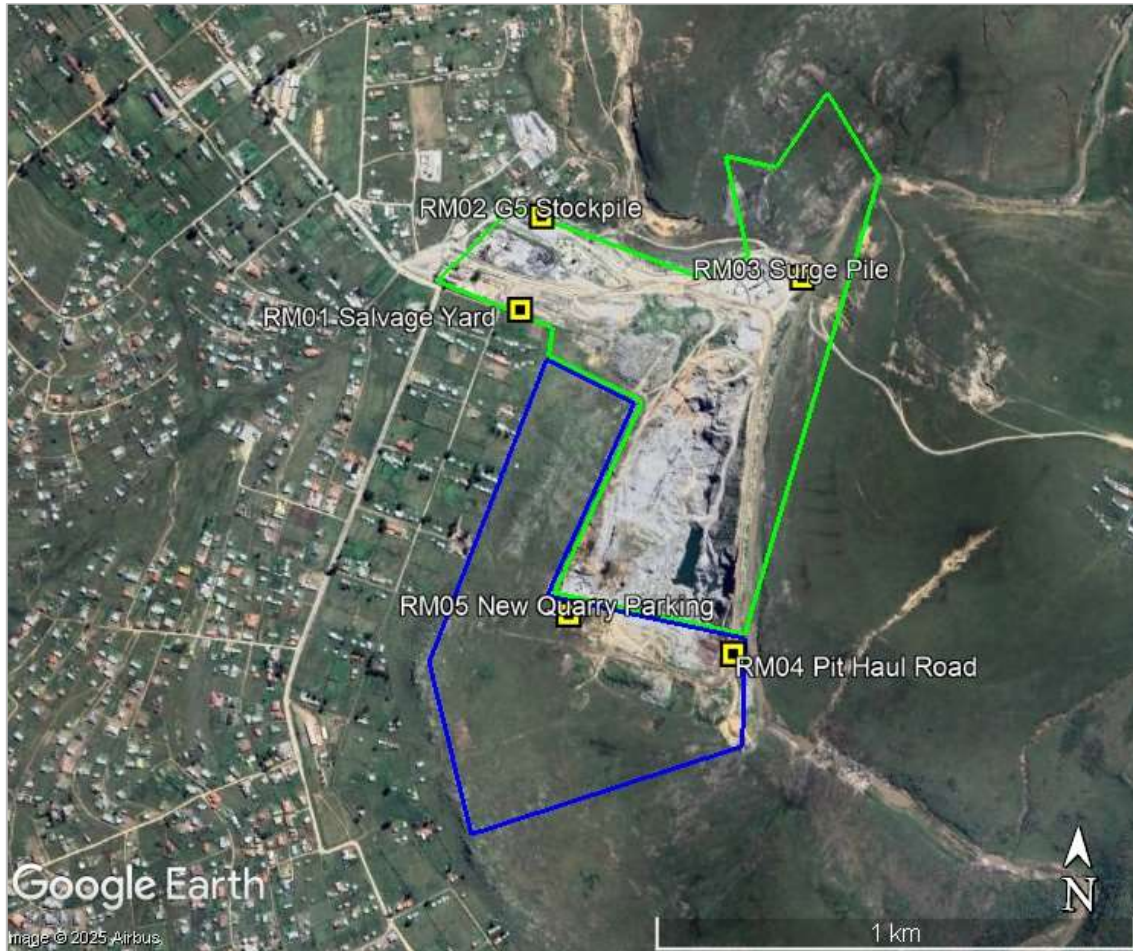
- Identify and quantify ambient sound level contributions by the mining activity to the receiving environment under routine operational conditions.
- Determine compliance with the Eastern Cape Noise Control Regulations (GN 181/PG824/20011210).
- Benchmark ambient sound levels against typical values for various land uses (SANS 10103:2008).
- Discern whether there are specific sources contributing to elevated sound levels (where possible).

This document reports the findings of the environmental sound level survey undertaken in October 2025 and compares the most recent data with previous results.

## 2 Locality

The Mthatha Quarry is in Mthatha 31°33'22.03" S and 28°50'27.50" E, approximately 4km northeast of Mthatha CBD, in the Eastern Cape Province. The surrounding land to the north, south and west consists of a mix of semi-formal and rural residential dwellings. The Corana river borders the quarry with open undeveloped rural land to the east. Unpaved residential access and district roads surround the mining right area. The N2 runs in a north south direction approximately 1.7km to the east of the quarry. A ready mix plant and an asphalt plant are located within 150 meters from the quarry's north east fence line.

Figure 1 illustrates the proximity of residential and open areas in relation to the Mthatha Quarry, with monitoring locations depicted by the prefix RM.



**Figure 1: Locality map showing sample sites and mining rights area (MRA)**

Mthatha operates during both daytime and night-time hours. During this latest survey, the quarry ceased operations for two hours at 04h00 and restarted at 06h00.

Key sources of noise potentially comprise:

- Loading aggregate into trucks for transport to the crusher;
- Crushing and / or screening operations;
- Transport of crushed and / screened rock on conveyor systems;
- Screening and stockpiling of crushed material;
- Washing of and stockpiling of selected products;
- Loading of product (overburden / aggregate) into trucks for transport off-site;
- Entry and exit of customer trucks;
- General heavy vehicle movements on the quarry premises; and
- Drilling and blasting activities occur at Mthatha Quarry, however these activities were not taking place on the day of the survey.

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## 3 Sound Level Measurement Methodology

### 3.1 Background Information

The sound level assessment quantified sound pressure levels at selected monitoring sites located on the site boundary of the active mining area and at key neighbouring receptors. These sites are consistent with previous noise surveys at the quarry and were shown to the monitoring team by onsite personnel.

Sound level measurements (dB(A)) were determined with an SABS-calibrated Type 1 Integrating Sound Level Meter (SLM) operated by a competent person in accordance with relevant national standards, including SANS 10103:2003 as amended 2008 – ‘The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication’ and best international practice from experience of surveys meeting current European Union directives for environmental noise. The instrument used for the sound measurement was a Zwinsoft HY128 Type 1 SLM manufactured by Zwinsoft. The instrument was field calibrated on 2 October 2025, prior to initiating measurements at the quarry. The sound level parameters that were recorded and their application in interpretation in this study are:

- $L_{Aeq}$  - The equivalent continuous sound level, normally measured on an A-weighted decibel scale. By law, the levels that are administered are the  $L_{Aeq}$  levels. The  $L_{Aeq}$  is an average of the recorded sound levels over the entire recording interval. As the decibel scale is logarithmic, relatively high intensity, albeit short-duration sound episodes will have a significant impact on the  $L_{Aeq}$ .
- $L_{Amax}$  - The maximum sound pressure level of a noise event, normally measured on a weighted decibel scale.  $L_{Amax}$  is the loudest sound interval recorded and gives an idea of the loudest instantaneous peak that occurs.
- $L_{Amin}$  - This is the lowest instantaneous sound pressure level in decibels with a specified frequency weighting and time weighting. The  $L_{Amin}$  shows the lowest levels recorded throughout the survey or the quietest moment over the survey at each site.
- $L_{A90}$  - This parameter indicates the noise levels the receiving environment is exposed to 90% of the time. This can be equated to the continuous noise levels present during the survey (those that occur for 90% of the run) as it excludes the loudest data. Often called ‘background noise’.
- $L_{A10}$  - This parameter indicates the noise levels that the receiving environment will be exposed to 10% of the time and describes only the loudest sounds measured. As the dB scale is logarithmic, the influence of the louder sounds is therefore far more imposing. This illustrates the effect of impact noise during the run period. Often called ‘foreground noise’ or ‘events’.

### 3.2 Applicable Regulations and Guidelines

Noise is regulated in this region by the Eastern Cape Noise Control Regulations of 2001 which were promulgated by the Province in terms of the Environment Conservation Act, Act 73 of 1989. The Eastern Cape Noise Control Regulations define a “disturbing noise” as follows:

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*Disturbing noise means a noise level that causes the ambient noise level to rise above the designated zone level, or if no zone has been designated, the typical ratings for ambient noise in districts as indicated in SABS 0103 (SANS 10103:2008).*

No zone levels have been defined for the King Sabata Dalindyebo Local Municipal area of Eastern Cape and hence the typical rating levels for noise in districts, are provided in Table 1 (summary from SANS 10103:2008).

**Table 1: Typical sound rating levels (dB(A)) for noise in districts (SANS 10103: 2008)**

| Type of District                            | Daytime<br>(dBA) | Night-time<br>(dBA) |
|---------------------------------------------|------------------|---------------------|
| Rural districts                             | 45               | 35                  |
| Suburban districts with little road traffic | 50               | 40                  |
| Urban districts                             | 55               | 45                  |
| Urban districts with main roads             | 60               | 50                  |
| Central business districts                  | 65               | 55                  |
| Industrial districts                        | 70               | 60                  |

Based on the location of the quarry *relevant to adjacent land uses* (as shown in Figure 1), the recorded levels are compared against the urban district sound rating level. The monitoring sites within the quarry (i.e. RM03) are compared against the industrial district sound rating level. The SANS 10103:2008 typical rating levels for noise in districts should be viewed as guidelines of typical noise levels that are likely to be experienced in the various land use zones and are *not directly enforceable by law*.

SANS 10103:2008 defines the daytime period to be between 06:00 and 22:00 and the night-time period to be between 22:00 and 06:00 whereas Mthatha Quarry operates until 04h00 and restarts operations at 06h00 each day (i.e. two hours shut down).

### 3.3 Impact of Weather

Wind speeds greater than 5 m/s can impact on the sound level meter and meaningful measurements cannot be obtained. Surveys should therefore ideally be taken in calm conditions (< 5 m/s) unless the effect of wind is the focus of the study. During the daytime survey, the average wind speed was calm (0 – 1.5 m/s) with cool temperatures ranging from 11°C - 13°C. During the night-time survey the wind speed remained consistently low to calm (0 – 1 m./s) with a temperature of 9°C.

### 3.4 Measurement Sites

The details of the measurement sites used for this survey are presented in Table 2. Figure 1 (p.2) illustrates the monitoring locations.

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**Table 2: Sound level measurement sites**

| Site | GPS Position                   | Site Description   | Classification |
|------|--------------------------------|--------------------|----------------|
| RM01 | 31°33'22.84"S<br>28°50'8.54"E  | Salvage Yard       | Urban          |
| RM02 | 31°33'16.09"S<br>28°50'10.07"E | G2 Stockpile       | Urban          |
| RM03 | 31°33'20.00"S<br>28°50'31.82"E | Surge Pile         | Industrial     |
| RM04 | 31°33'46.41"S<br>28°50'26.60"E | Pit Haul Road      | Urban          |
| RM05 | 31°33'44.02"S<br>28°50'13.24"E | New Quarry Parking | Urban          |

### 3.5 Survey Times

Mthatha operates between 06:00 – 04:00 daily (two hours shut down). Appendix C presents the field log sheets detailing monitoring sites, times, statistical results, weather and key sources of onsite and offsite noise identified at each measured site. All measurements during the daytime survey were 15 minutes duration while all measurements during the night-time survey were 10 minutes in duration (for safety reasons and given the more homogenous environment at night).

### 3.6 Operational Activities

Mining was taking place in the quarry pit and the main haul road was utilised to haul aggregate out the pit. The operational mobile equipment on the day of the survey included excavators (including a pecker excavator), articulated dump trucks (ADTs), front end loaders (FELs) and various client trucks. During the night-time survey, a pecker excavator was visible in the quarry pit (with its lights on) but was not operational. Primary and secondary crushers were operational throughout the survey and screening was continuous. Mthatha Quarry was fully operational during the monitoring surveys and thereby sound levels recorded can be assumed to accurately represent the typical sound levels impacting on the receiving environment.

## 4 Survey Results

Historical noise monitoring surveys have been undertaken at the Mthatha Quarry however these were done by a hygienist with very little analysis or interpretation. The historical surveys have only included daytime sampling whereas the operational activities are undertaken during both day and night-time. For these reasons, the historical results were deemed unsuitable for comparison.

### 4.1 Daytime Sound Level Measurements

The daytime sound levels recorded during each of the measurement events are presented in Table 3 and Figure 2. Figure 2 illustrates the variation in intensity of the sound pressure levels for each of the sound level parameters recorded at each measurement site, noting that only the  $L_{Aeq}$  (depicted by the purple diamond) must be compared against the appropriate SANS daytime guideline (typical land use rating).

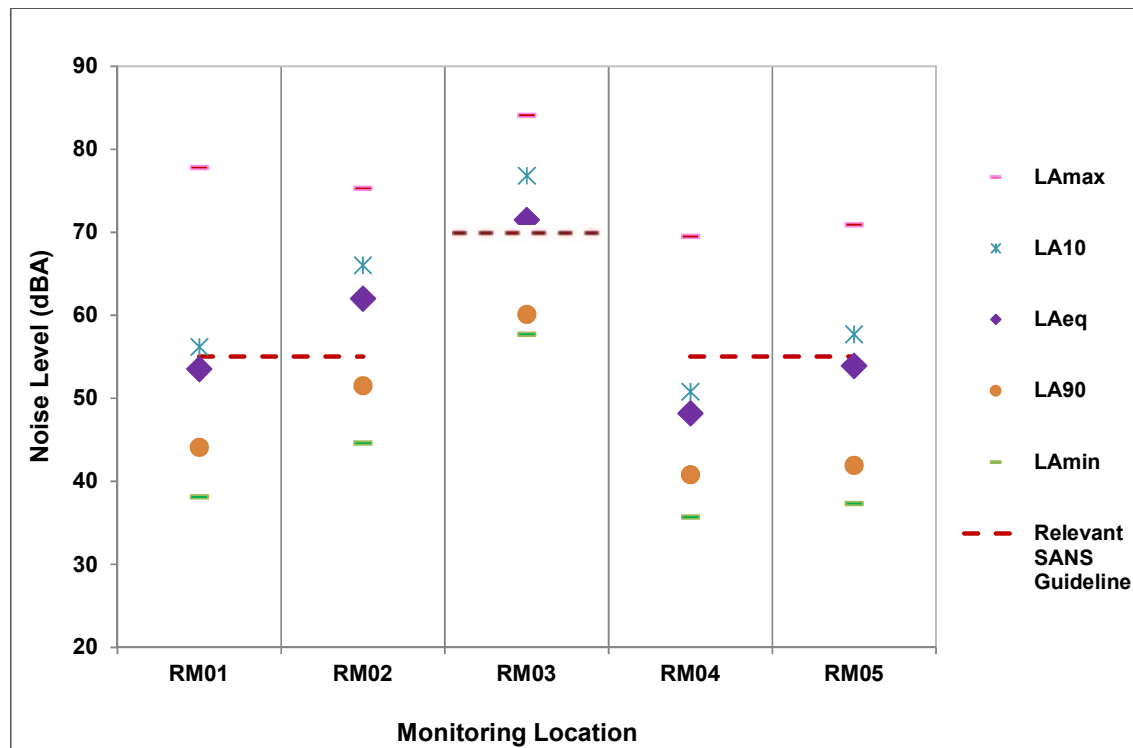


Figure 2: Graphical representation of daytime sound levels measured at each site compared to the relevant SANS daytime guideline

**Table 3: Recorded daytime sound levels dB(A): 03/10/2025**

| Site | L <sub>Aeq</sub> | L <sub>Amax</sub> | L <sub>Amin</sub> | L <sub>A90</sub> | L <sub>A10</sub> | Applicable<br>SANS Guideline | Key Source of Noise (Onsite)                                                                                                 | Key Source of<br>Noise (Offsite)         |
|------|------------------|-------------------|-------------------|------------------|------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| RM01 | 53.5             | 77.8              | 38.1              | 44.1             | 56.2             | 55.0                         | Relatively quiet. Primary and secondary crusher are audible. Reverse siren. FEL and contractor truck passing.                | Quiet                                    |
| RM02 | 62.0             | 75.3              | 44.6              | 51.5             | 66.0             | 55.0                         | Relatively quiet. Primary, secondary crusher and screening are audible. FEL arrived and loaded tipper trucks from stockpile. | Quiet                                    |
| RM03 | 71.5             | 84.1              | 57.7              | 60.1             | 76.8             | 70.0                         | Primary and secondary crushers.                                                                                              | Quiet.<br>Unpopulated beyond fence line. |
| RM04 | 48.2             | 69.5              | 35.7              | 40.8             | 50.8             | 55.0                         | Pecker and excavator operating in pit. Percussion sound.                                                                     | Goat bells                               |
| RM05 | 53.9             | 70.9              | 37.3              | 41.9             | 57.7             | 55.0                         | Pecker and excavator operating in pit. Percussion sound.                                                                     | Quiet. Sound attenuated by terrain/hill. |

## 4.2 Night-time Sound Level Measurements

The night-time sound levels recorded during each of the measurement events are presented in Table 4 and Figure 3. Figure 3 illustrates the variation in intensity of the sound pressure levels for each of the sound level parameters recorded at the five measurement sites, noting that only the  $L_{Aeq}$  (depicted by the purple diamond) should be compared against the appropriate SANS night-time guideline.

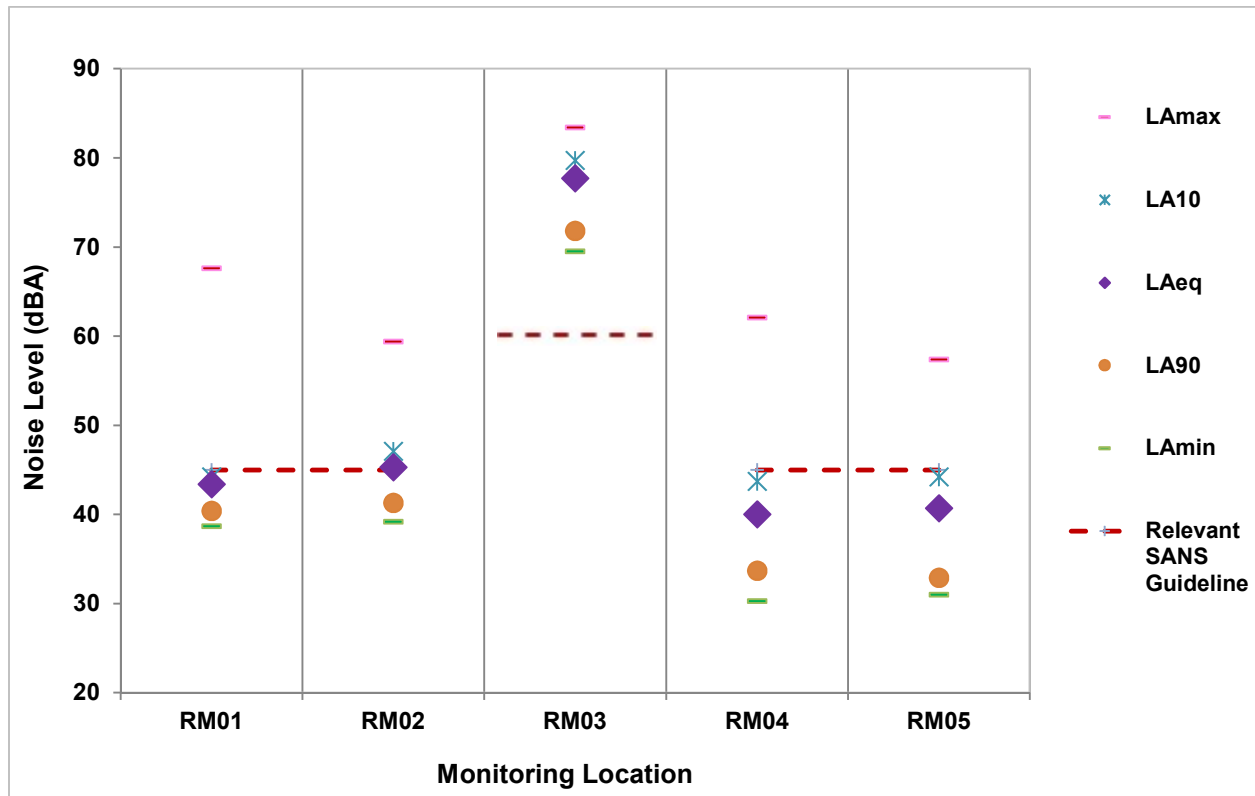


Figure 3: Graphical representation of night-time sound levels measured at each site compared to the relevant SANS night-time guideline

**Table 4: Recorded night-time sound levels dB(A): 02/10/2025**

| Site | L <sub>Aeq</sub> | L <sub>Amax</sub> | L <sub>Amin</sub> | L <sub>A90</sub> | L <sub>A10</sub> | Applicable<br>SANS Guideline | Key Source of Noise (Onsite)                                                     | Key Source of<br>Noise (Offsite) |
|------|------------------|-------------------|-------------------|------------------|------------------|------------------------------|----------------------------------------------------------------------------------|----------------------------------|
| RM01 | 43.4             | 67.6              | 38.7              | 40.4             | 44.2             | 45.0                         | Secondary crusher, screening plant                                               | Dog barking in distance          |
| RM02 | 45.3             | 59.4              | 39.2              | 41.3             | 47.1             | 45.0                         | Secondary crusher, screening plant. Quiet ADT and siren. Primary crusher audible | -                                |
| RM03 | 77.7             | 83.4              | 69.5              | 71.8             | 79.7             | 60.0                         | All crushers and FEL. Primary crusher dominant                                   | -                                |
| RM04 | 40.0             | 62.1              | 30.3              | 33.7             | 43.7             | 45.0                         | ADTs hauling. Primary crusher in distance                                        | Quiet                            |
| RM05 | 40.7             | 57.4              | 31.0              | 32.9             | 44.2             | 45.0                         | Excavator loading ADT in pit.<br>Erratic noise                                   | Insects                          |

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## 5 Data Interpretation

With a continuous process (noise source), acoustic specialists will often use the  $L_{A90}$  to be more representative of the impact than the  $L_{Aeq}$ ; the latter being easily distorted by even a short-duration interference such as a passing vehicle. The interpretation of the sound level results presented in Figure 2, Figure 3, Table 3 and Table 4 include the  $L_{A90}$  and  $L_{A10}$  statistics to better illustrate the ambient sound levels present at each site. Examination of the spread of the statistics presented in these figures for each run gives an indication of the nature of the noise being experienced:

- If the markers representing each measurement run are widely spaced across the dB(A) scale, it tends to indicate a noise environment being influenced by intermittent loud noises.
- If the markers are clustered at the bottom end of the dB(A) scale, the environment is generally quiet with little impact of intermittent loud noises.
- If the markers are clustered near the top end of the dB (A) scale, the steady state sound levels are high.

### 5.1 Daytime Sound Level Data Interpretation

As stated previously, historical monitoring surveys were carried out for the quarry however these were deemed inadequate for comparison with this latest October 2025 survey. Based on the information presented in Table 3 and Figure 2, the following is noted:

- Highest sound levels were measured at RM03, located at the surge pile. This slightly elevated reading was influenced by the primary and secondary crushers which are in close proximity to the monitoring site. The  $L_{Aeq}$  71.5 dB(A) is slightly higher than the SANS industrial guideline. The location borders the Corana River with no receptors beyond the fence line. Furthermore, there are no offsite sources of noise at this area.
- The second highest sound level was recorded at RM02, situated near the G5 stockpile. Levels here emanated largely from a mixture of quarry operations which are in direct line of site. The primary and secondary crusher were audible as well as rigid tipper trucks and a FEL which arrived to load near the stockpile. This type of activity is pertinent to daytime hours. The  $L_{Aeq}$  measurement of 62 dB(A) was above the applicable SANS urban guideline of 55 dB(A).
- Sound levels at RM05 at the new quarry parking were low, with a  $L_{Aeq}$  of 53.9 dB(A) which is below the SANS urban guideline. Moreover, the  $L_{A90}$  (sound levels experienced 90% of the time) for the monitoring site can be considered low (41.9 dB(A)). Sound levels in this vicinity are influenced by activities inside the quarry pit, namely a pecker and excavator operating at the base of the pit. The natural topography along the southern and western fence line is likely to shield noise from the neighbouring residential receptors to the west.
- RM01, situated at the salvage yard experienced fairly low sound levels ( $L_{Aeq}$  of 53.5 dB(A)). The key sources of noise at this location were the primary and secondary crushers

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as well as the screening plant. A reverse siren and a passing FEL and contractor truck were audible during the monitoring run. This measurement ( $L_{Aeq}$ ) remained below the applicable SANS guidelines for industrial areas.

- The lowest reading was recorded at RM04 situated at the pit haul road to the south east. Sound levels in this vicinity are influenced by activities inside the quarry pit, namely a pecker and excavator operating in the pit. The pecker excavator produces a percussion sound however this is attenuated by the pit walls and natural topographical ridge to the west. It is therefore unlikely that levels measured here will affect the residents to the west of the quarry. The readings were below the SANS daytime guideline for urban districts. As was the case for RM05, the  $L_{A90}$  for the monitoring site can be considered low (40.8 dB(A)) which indicates a very quiet environment.

## 5.2 Night-time Sound Level Data Interpretation

Based on the information presented in Table 4 and Figure 3, the following is noted:

- As per the daytime survey, the highest recordings were monitored at RM03, located at the surge pile. This elevated reading ( $L_{Aeq}$  of 77.7 dB(A)) was influenced by the crushers with the primary crusher dominating all other sources. With reference to Figure 3, the markers for RM03's sound level statistics clustered near the top end of the dB (A) scale which confirms the steady state sound levels from the crushers are constantly high. Line of site on a clear, cool night enhances propagation of noise from operations to this position. Whilst this measurement is above the stringent SANS industrial night-time guideline of 60 dB(A), it is effectively onsite well within the MRA eastern boundary.
- The second highest sound level was recorded at RM02, situated at the G5 stockpile area. Levels here may have been influenced by the secondary crusher, screening plant as well as ADTs operating in close proximity and a siren. This recording was slightly above (45.3 dB(A)) the SANS urban district guideline (45.0 dB(A)).
- Sound levels recorded at RM01 at the salvage yard (43.4  $L_{Aeq}$ ) were well below the SANS night-time urban guideline of 45 dB(A). The secondary crusher and screening plant could be heard along with occasional *distant* dogs barking from the neighbouring residential area. With reference to Figure 3, the markers for RM01 are clustered at the bottom end of the dB(A) scale, therefore the environment is generally quiet with little impact of intermittent loud noises. A mixture of noise from the plant propagates easily in the cold, dense, night air with relatively little background noise.
- RM05, situated south west of the quarry experienced low sound levels for the night-time survey. An excavator was loading ADTs in the pit. There is very little background noise at this site. The readings were well below the SANS night-time urban guideline.

- 
- Sound levels recorded at RM04 at the pit haul road were the lowest with key sound sources including ADTs hauling aggregate from the pit and the primary crusher in the distance. The readings were well below the SANS night-time urban guideline.

## 6 Conclusion and Recommendations

Based on the findings of the sound level data and interpretation, the following key statements and recommendations are relevant:

### 6.1 Daytime

- Daytime sound levels at all urban locations remain below the applicable SANS urban daytime guideline of 55 dB(A) with the exception of RM02 (G5 Stockpile) which measured an  $L_{Aeq}$  of 62.0 dB(A). This slightly elevated reading was influenced by the primary and secondary crushers (within line of sight) and a front end loader (FEL) which arrived to load product for dispatch. The  $L_{A90}$  measurement (51.5 dB(A)), experienced by the area 90% of the time, is well within the urban guideline.
- Daytime sound levels at the industrial site RM03 surge pile ( $L_{Aeq}$  of 71.5 dB(A)) to the east of plant operations (effectively onsite) were slightly higher than the applicable SANS industrial daytime guideline of 70 dB(A). The key source of noise in this area are the crushers which are in close proximity. This measurement site can also be considered with in the occupational edge of the plant and therefore elevated sound levels can be expected. There are no sensitive receptors on the eastern fence line.
- Given the above findings, it is unlikely that the sound levels emanating from the quarry during the daytime impact significantly on the surrounding receptors.
- Given the above findings, it is unlikely the Mthatha Quarry is impacting the receiving environment at unacceptable levels to most people. Importantly, sound levels at most locations remain below their relevant SANS district guidelines.
- Given existing topography shielding the neighbouring residential area, it is unlikely that the MRA expansion will impact negatively on the surrounding environment during daytime hours.

### 6.2 Night-time

- Night-time sound levels at all urban locations remain below the applicable SANS urban night-time guideline of 45 dB(A) with the exception of RM02 at the G5 stockpile ( $L_{Aeq}$  45.3 dB(A)), which was influenced by all crushers, screening plant and an articulated dump truck (ADT) and an operations siren.
- Night-time sound levels at the industrial site (RM03) were above the applicable SANS industrial night-time guideline of 65 dB(A). The monitoring site (effectively onsite) was influenced by the crushers and a FEL operating in close proximity.

- 
- Measured sound levels at night along the northern fence line can typically be explained by the noise generated from Mthatha's crushers and screening plant, combined with tipper trucks (ADTs) moving materials around the site. Measured sound levels at night along the southern fence line can typically be explained by the noise generated from activities in the pit with the primary crusher in the distance.
  - Sound levels recorded during the night-time survey suggest that mitigation and noise management measures at the quarry and plant are largely adequate. As the only site with elevated reading is RM03 with the cause being crushers and the screening plant, there is no real need to improve management measures. In addition, the quarry pit is well attenuated being well below the surface and surrounding hilly topography. These will also be worst-case results, given the cold air (9°C) enhances sound propagation.
  - Given existing topography shielding the neighbouring residential area, it is unlikely that the MRA expansion will impact negatively on the surrounding environment during night-time hours.

### 6.3 Recommendations

Based on the results of the monitoring surveys, the following is recommended:

- There are no sensitive receptors on the eastern fence line near to monitoring site RM03. Therefore, it is suggested that this monitoring site be moved for future surveys to the MRA boundary to the east across the Corona River near to the unpaved district road. This will serve to cover the eastern boundary should future development occur in that area.
- Should the MRA extension be authorised, monitoring sites RM04 and RM05 will need to be relocated to the new southeast and southwest MRA boundary (i.e. further south).
- Given the encroaching residential area to the west, it is further suggested that future surveys include an additional monitoring site mid-way along the western fence line.
- Future surveys must be conducted when crushers are in constant operation (day and night), as these are key sources at the site.
- Future surveys may include baseline / non-operational measurements (where possible) to better understand the impact from the mine on the surrounding environment.
- Measures to reduce the pitch or intensity of reversing sirens of ADTs, FELs and RDTs could be implemented for night-time operations, as the pitch of such sirens makes them more audible (as is the intention onsite).
- Should complaints arise or sound levels increase in the near future, constructing a higher berm along the fence line or a wooden fence/structure surrounding the plant area may reduce the range of sound levels; i.e. attenuate any *disturbing noise*.

- 
- Environmental noise monitoring is undertaken as specified in the site's environmental authorisation or more frequently should complaints arise from the quarry pit (and mining rights) expansion.
  - A noise impact assessment is not necessary at this time based on the results of this survey.

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# APPENDIX A: CALIBRATION CERTIFICATES

---



CAL-048-13-00  
CAL-048-01-00

## M AND N ACOUSTIC SERVICES (Pty) Ltd

Co. Reg. No: 2012/123238/07 VAT NO: 4300255876 BEE Status: Level 4

P.O. Box 61713, Pierre van Ryneveld, 0045

15 Mustang Avenue, Pierre van Ryneveld, 0045

Tel: 012 689-2008 (076 920 3070) • Fax: 086 211 4690

E-mail: admin@mnacoustics.co.za / marianka@mnacoustics.co.za

Website: www.mnacoustics.co.za

# CERTIFICATE OF CALIBRATION

|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| CERTIFICATE NUMBER   | 2025-AS-1892                                              |
| ORGANISATION         | HILTON ENVIRONMENTAL INSTRUMENTATION (PTY) LTD            |
| ORGANISATION ADDRESS | 10 THISTLE LANE, AMBERGLEN, HOWICK, 3290, SOUTH FRICA     |
| CALIBRATION OF       | INTEGRATING SOUND LEVEL METER complete with ½" MICROPHONE |
| MANUFACTURERS        | ZWINSOFT                                                  |
| MODEL NUMBERS        | ZWIN 128 and HY207                                        |
| SERIAL NUMBERS       | 12800829 and 02643                                        |
| DATE OF CALIBRATION  | 23 JUNE 2025                                              |
| RECOMMENDED DUE DATE | ----- (SEE REMARKS 4.7)                                   |
| PAGE NUMBER          | PAGE 1 OF 5                                               |

This certificate is issued in accordance with the conditions of approval granted by the South African National Accreditation System (SANAS). This Certificate may not be reproduced without the written approval of SANAS and M and N Acoustic Services.

The measurement results recorded in this certificate were correct at the time of calibration. The subsequent accuracy will depend on factors such as care, handling, frequency of use and the number of different users. It is recommended that re-calibration should be performed at an interval, which will ensure that the instrument remains within the desired limits and/or manufacturer's specifications.

The South African National Accreditation System (SANAS) is member of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). This arrangement allows for mutual recognition of technical test and calibration data by member accreditation bodies worldwide. For more information on the arrangement please consult [www.ilac.org](http://www.ilac.org)

|                                                     |                    |                                |
|-----------------------------------------------------|--------------------|--------------------------------|
| Calibrated/Supervised by<br>Calibration Technician: | <br>W.S. SIBANYONI | Clause 3                       |
| Authorized/Checked by<br>SANAS Technical Signatory: | <br>M. NAUDÉ       | Date of Issue:<br>24 JUNE 2025 |

Director: Marianka Naudé (082 727 3312)



CAL-048-13-00  
CAL-048-01-00

## M AND N ACOUSTIC SERVICES (Pty) Ltd

Co. Reg. No: 2012/123238/07 VAT NO: 4300255876 BEE Status: Level 4

P.O. Box 61713, Pierre van Ryneveld, 0045

15 Mustang Avenue, Pierre van Ryneveld, 0045

Tel: 012 689-2008 (076 920 3070) • Fax: 086 211 4690

E-mail: admin@mnacoustics.co.za / maranka@mnacoustics.co.za

Website: www.mnacoustics.co.za

# CERTIFICATE OF CALIBRATION

|                      |                                                        |
|----------------------|--------------------------------------------------------|
| CERTIFICATE NUMBER   | 2025-AS-1893                                           |
| ORGANISATION         | HILTON ENVIRONMENTAL INSTRUMENTATION (PTY) LTD         |
| ORGANISATION ADDRESS | 10 THISTLE LANE, AMBERGLEN, HOWICK, 3290, SOUTH AFRICA |
| CALIBRATION OF       | SOUND CALIBRATOR                                       |
| MANUFACTURER         | ZWINSOFT                                               |
| MODEL NUMBER         | HY604                                                  |
| SERIAL NUMBER        | 22740                                                  |
| DATE OF CALIBRATION  | 23 JUNE 2025                                           |
| RECOMMENDED DUE DATE | ----- (SEE REMARKS 4.7)                                |
| PAGE NUMBER          | PAGE 1 OF 3                                            |

This certificate is issued in accordance with the conditions of approval granted by the South African National Accreditation System (SANAS). This Certificate may not be reproduced without the written approval of SANAS and M and N Acoustic Services.

The measurement results recorded in this certificate were correct at the time of calibration. The subsequent accuracy will depend on factors such as care, handling, frequency of use and the number of different users. It is recommended that re-calibration should be performed at an interval, which will ensure that the instrument remains within the desired limits and/or manufacturer's specifications.

The South African National Accreditation System (SANAS) is member of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). This arrangement allows for mutual recognition of technical test and calibration data by member accreditation bodies worldwide. For more information on the arrangement please consult [www.ilac.org](http://www.ilac.org).

|                                                                  |                                                                       |                                    |
|------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------|
| Calibrated by:<br><br>W.S. SIBANYONI<br>(CALIBRATION TECHNICIAN) | Authorized/Checked by:<br><br>M. NAUDÉ<br>(SANAS TECHNICAL SIGNATORY) | Date of Issue:<br><br>24 JUNE 2025 |
|------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------|

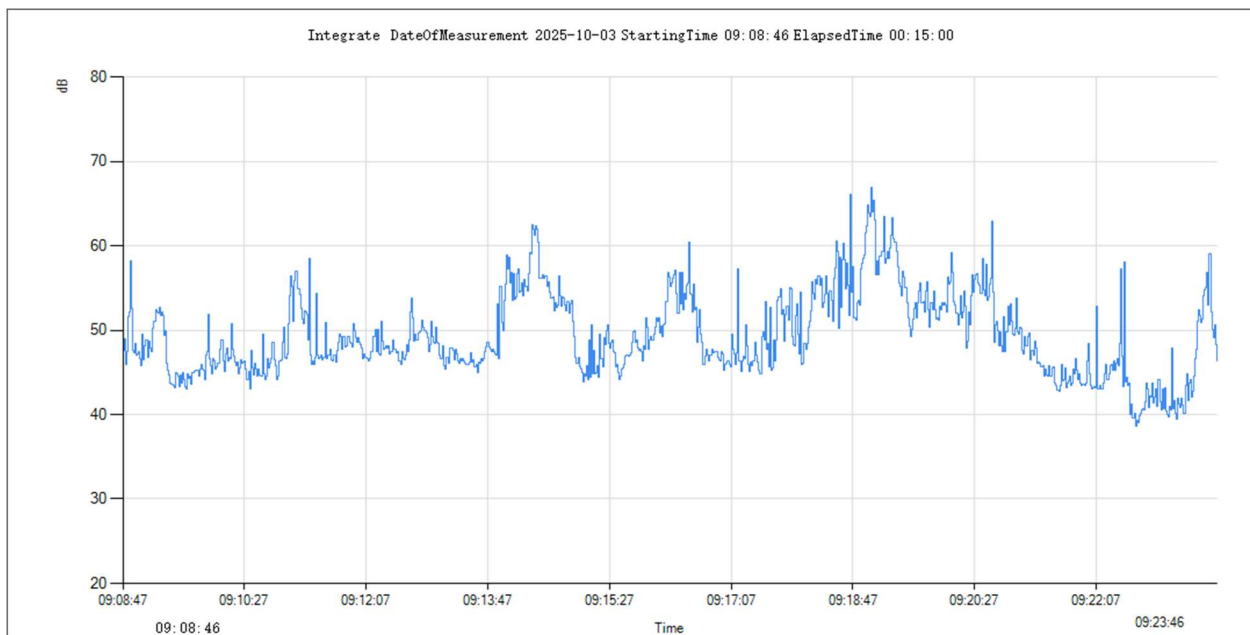
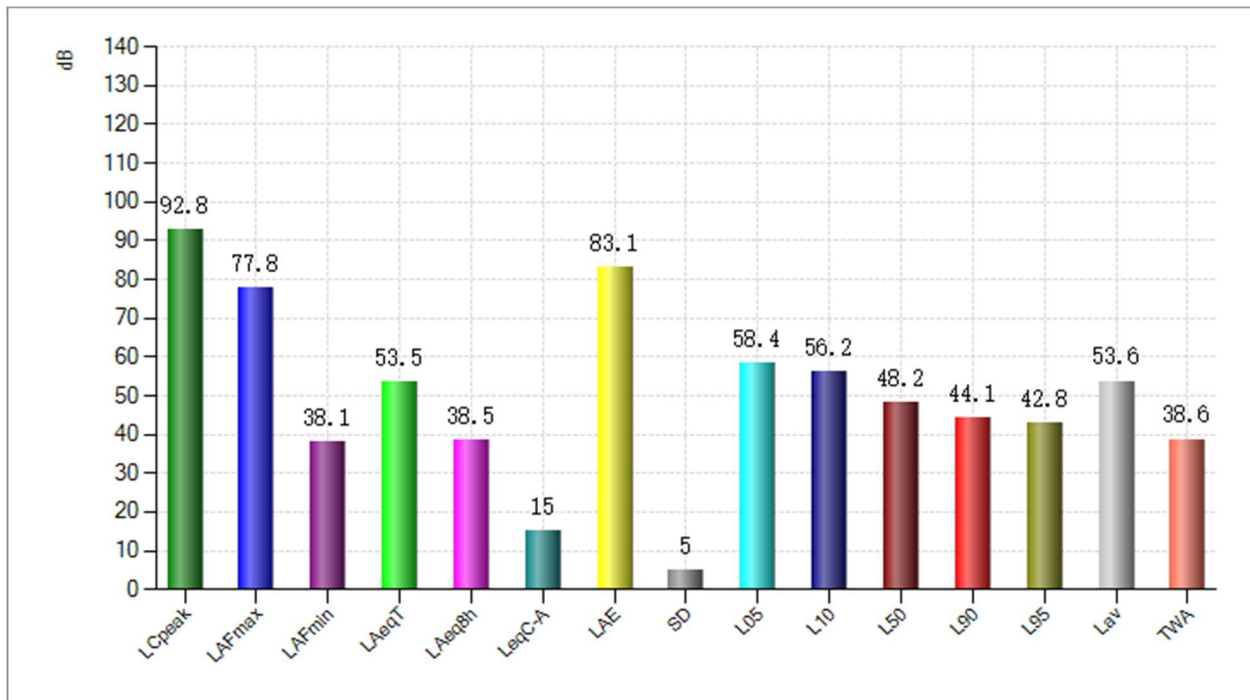
Director: Marianka Naudé (082 727 3312)

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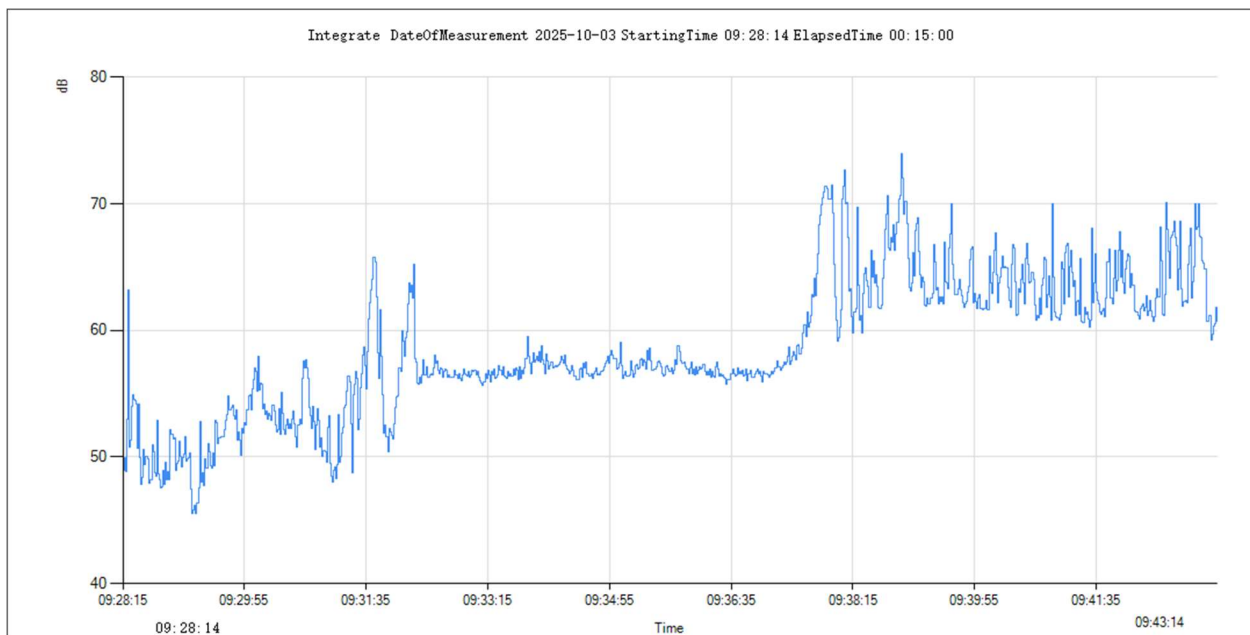
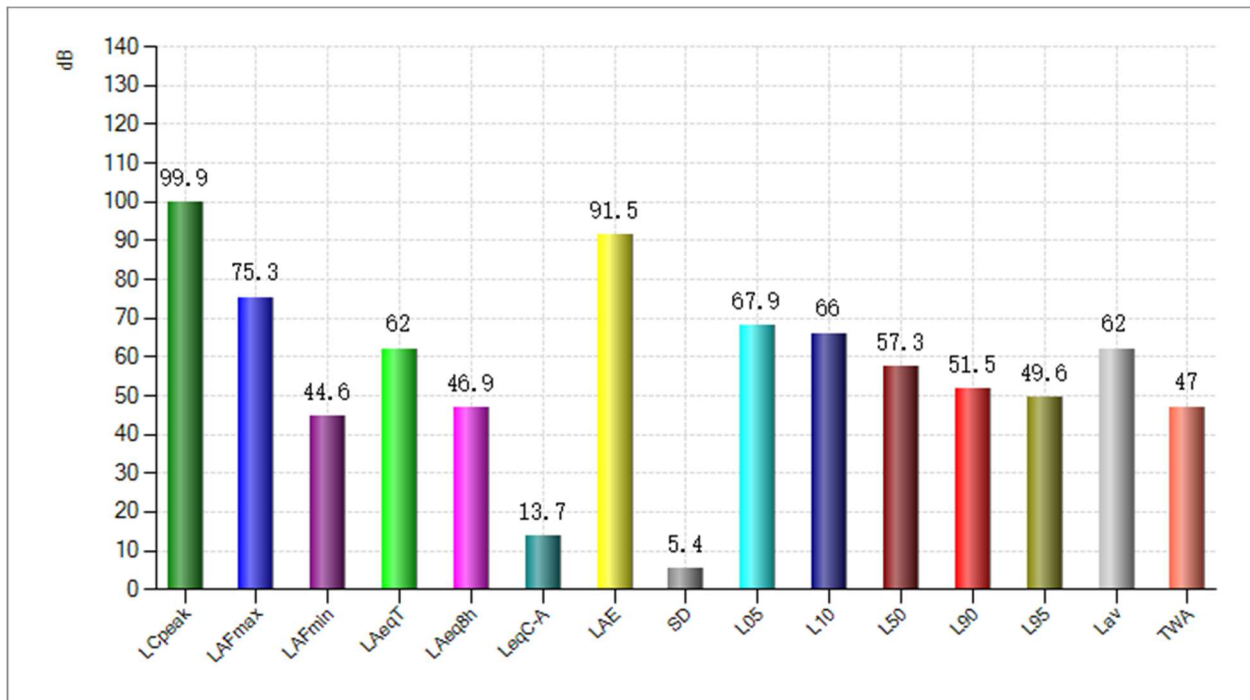
# APPENDIX B: SLM DATA (GRAPHICAL)

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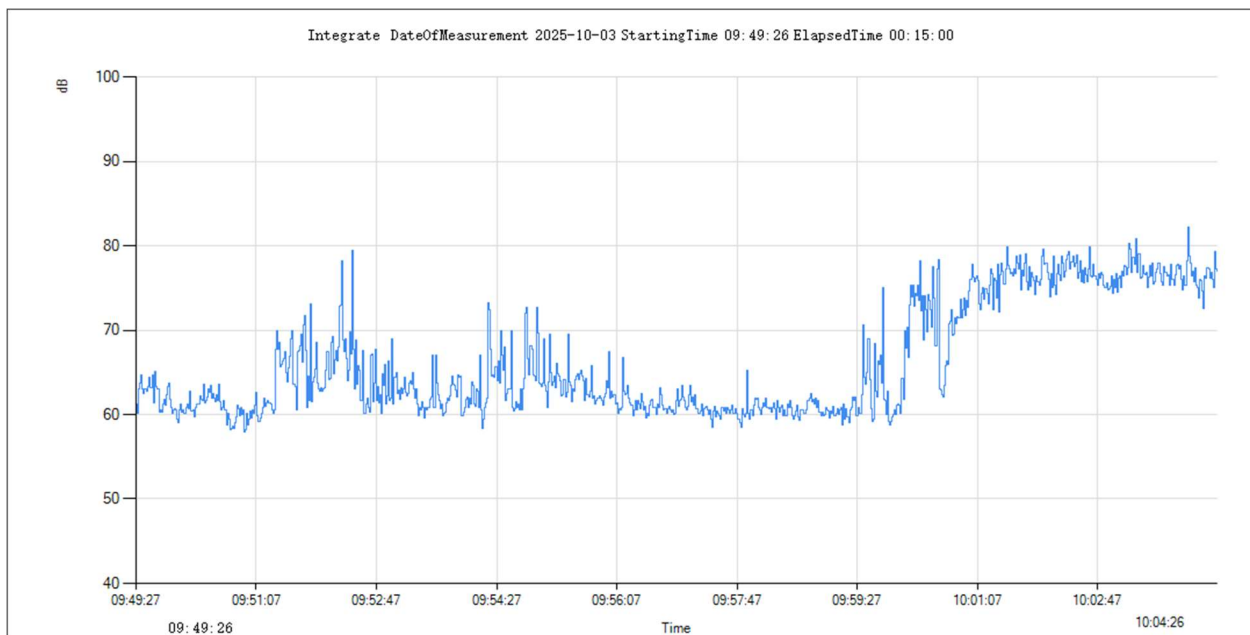
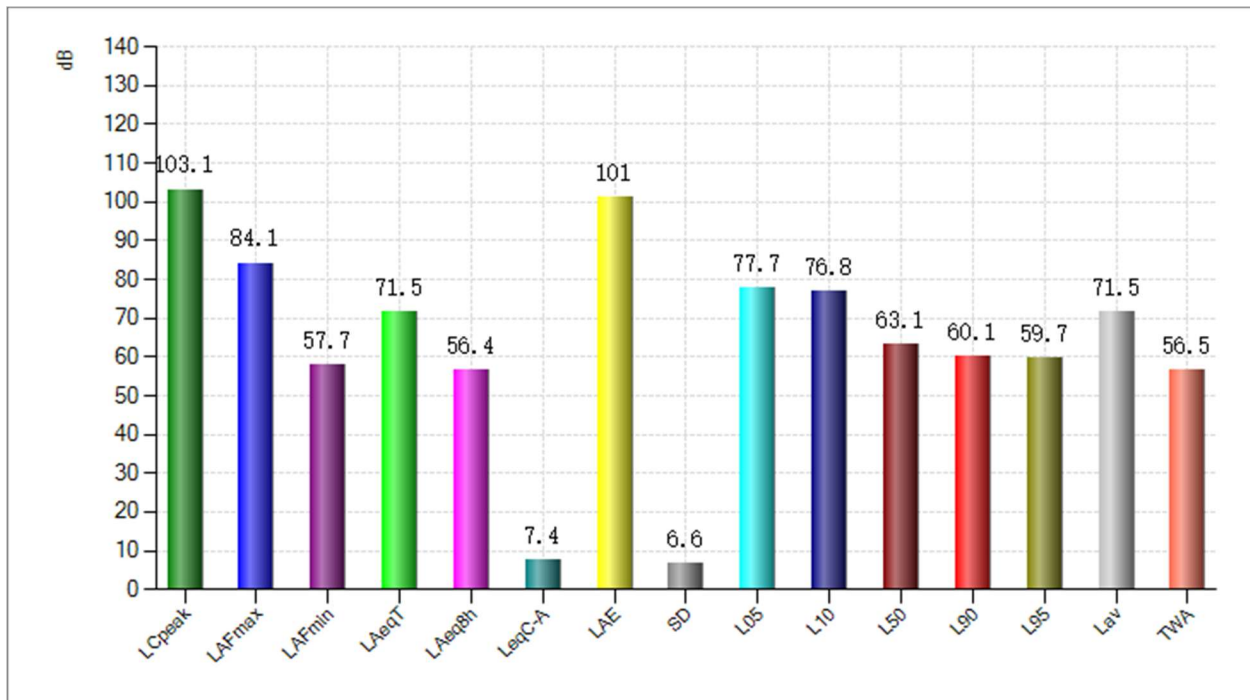
## RM01 – Daytime



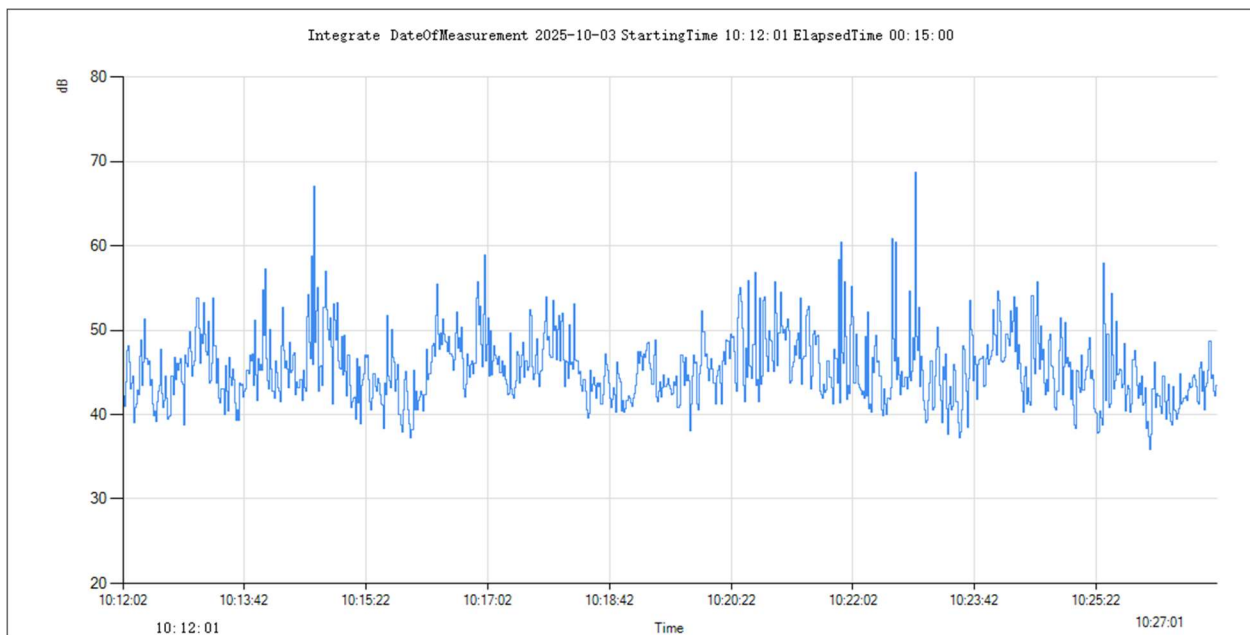
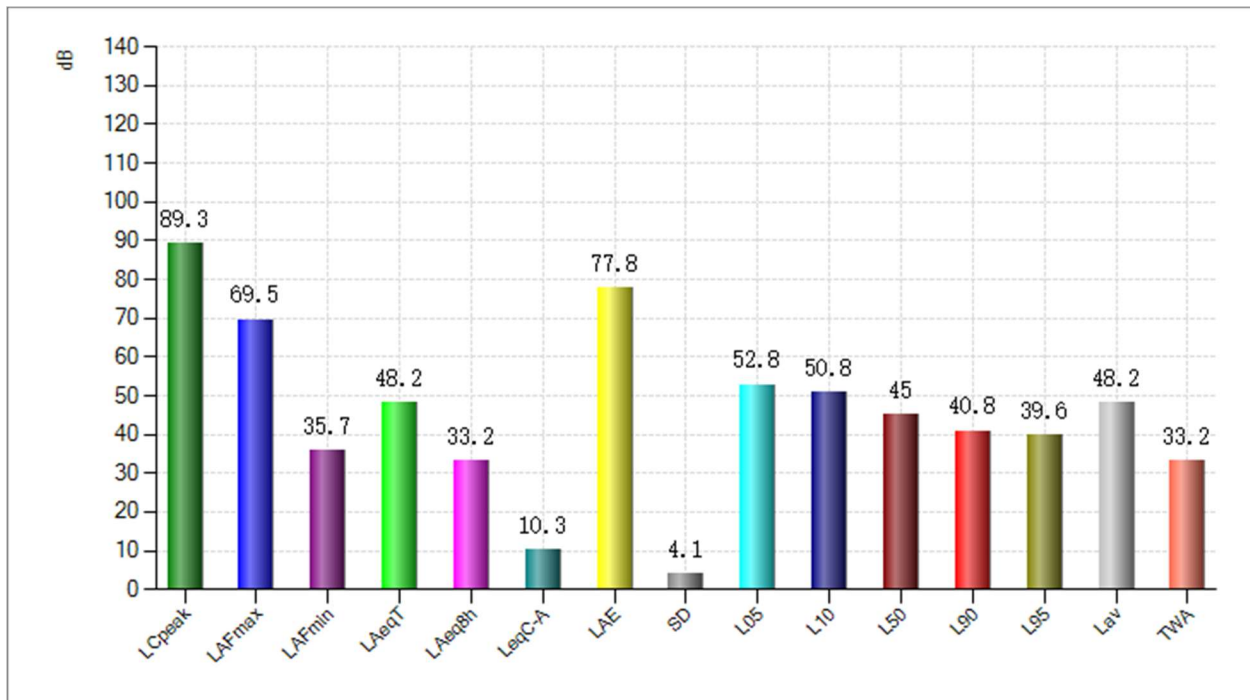
## RM02 – Daytime



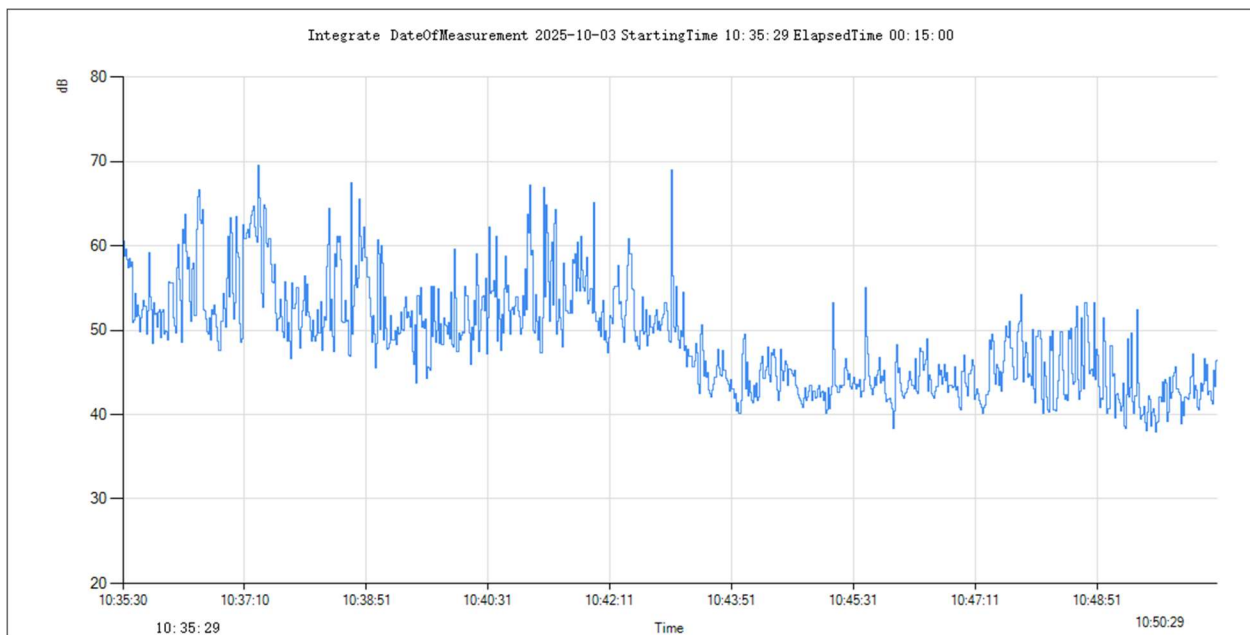
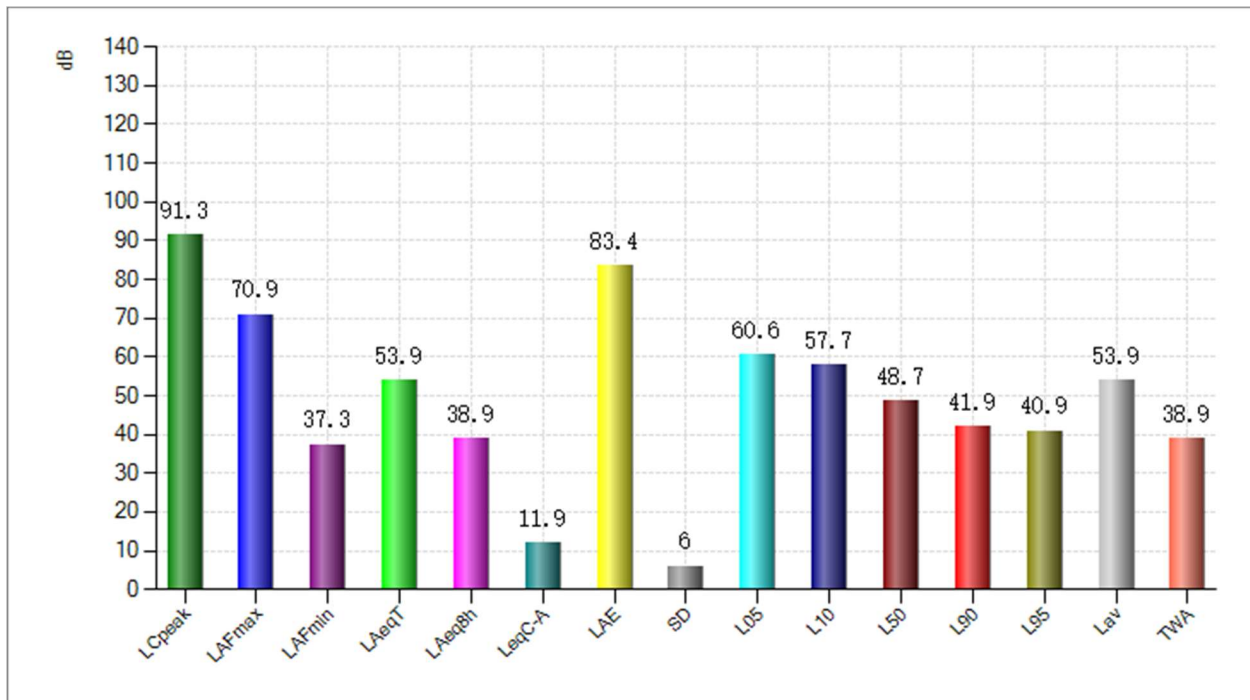
## RM03 – Daytime



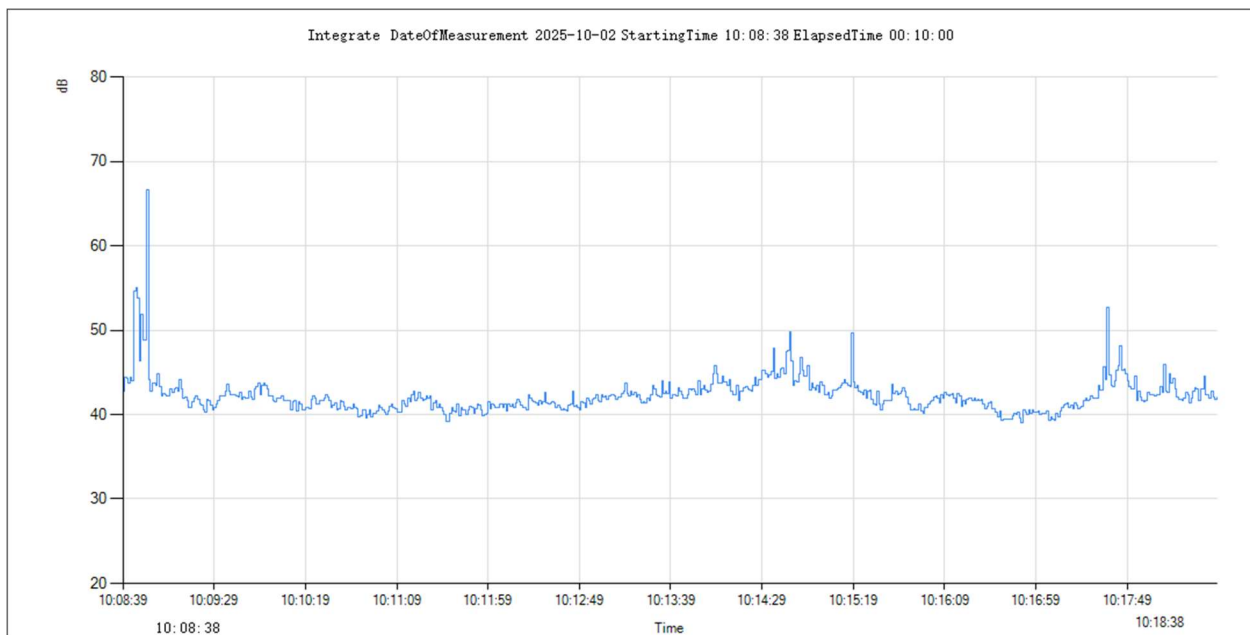
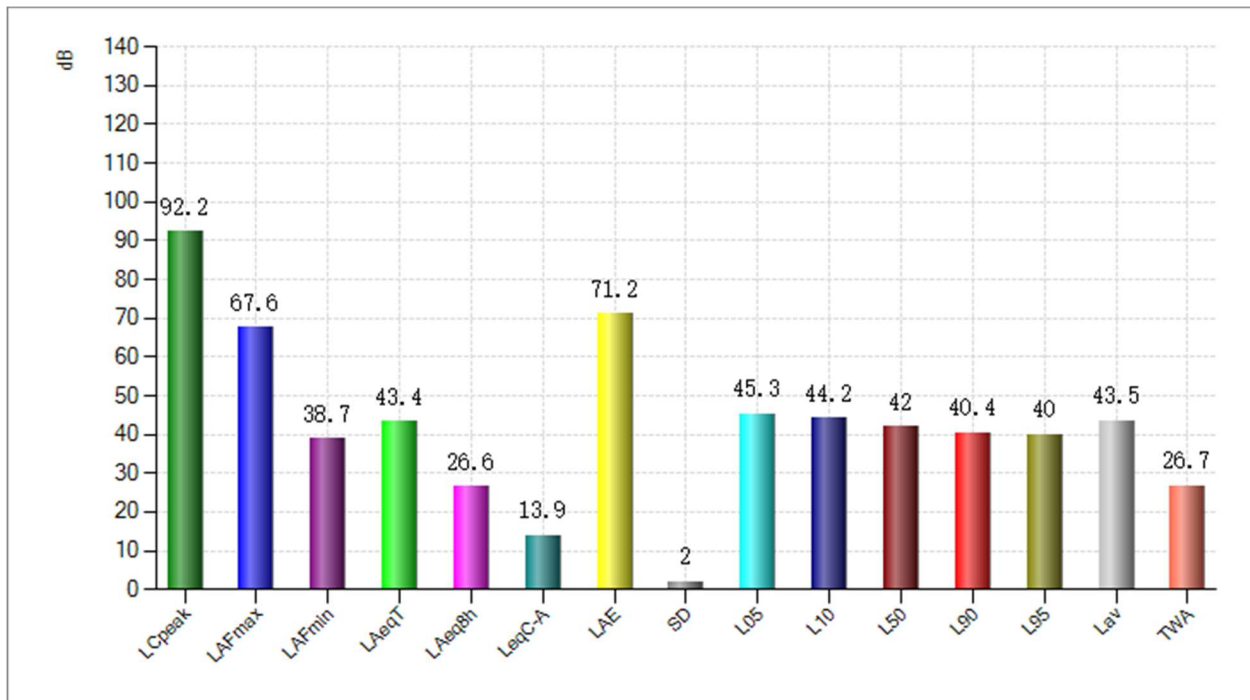
## RM04 – Daytime



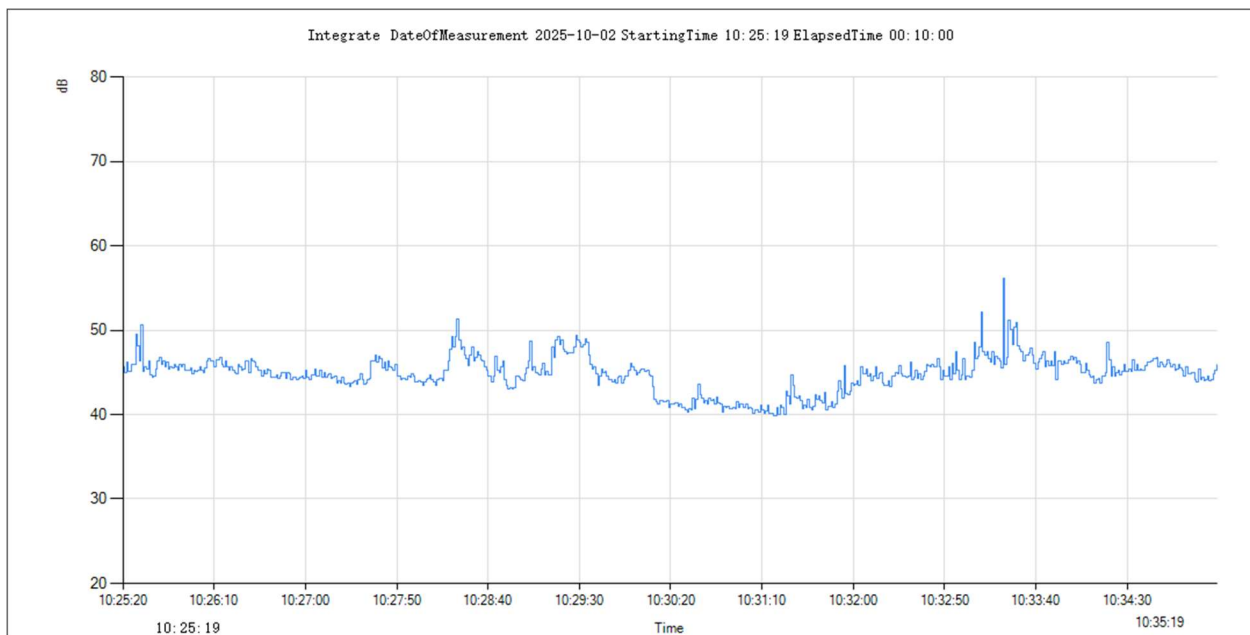
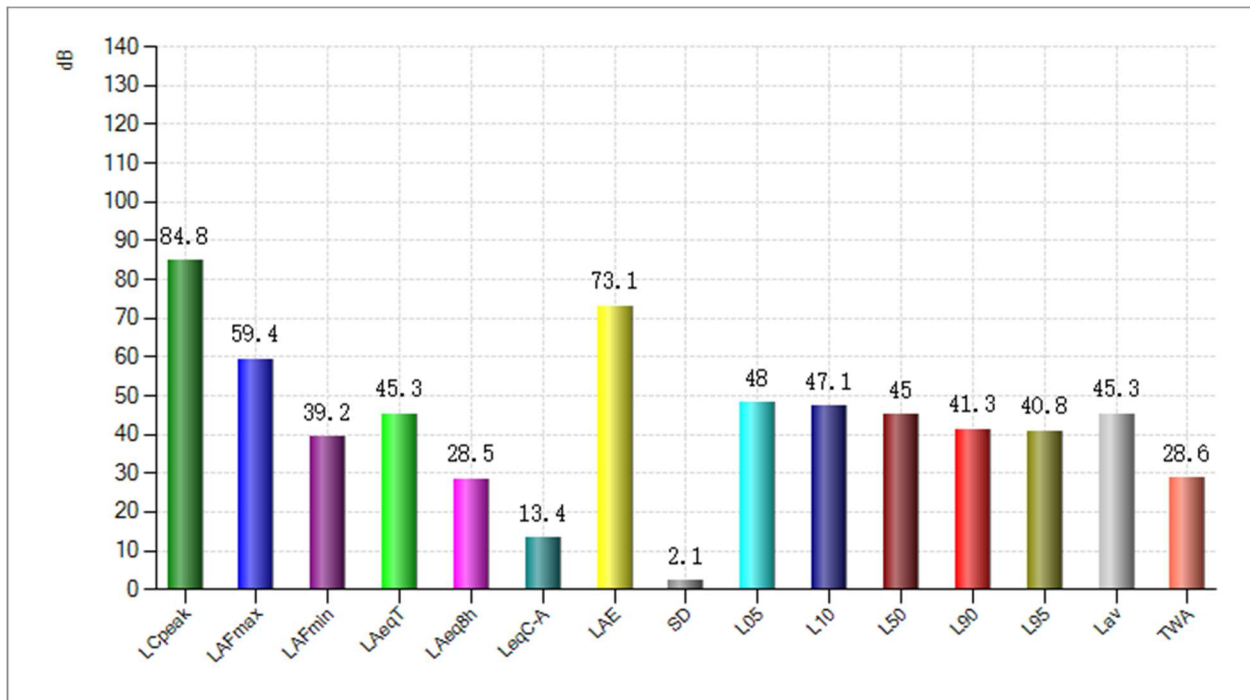
## RM05 – Daytime



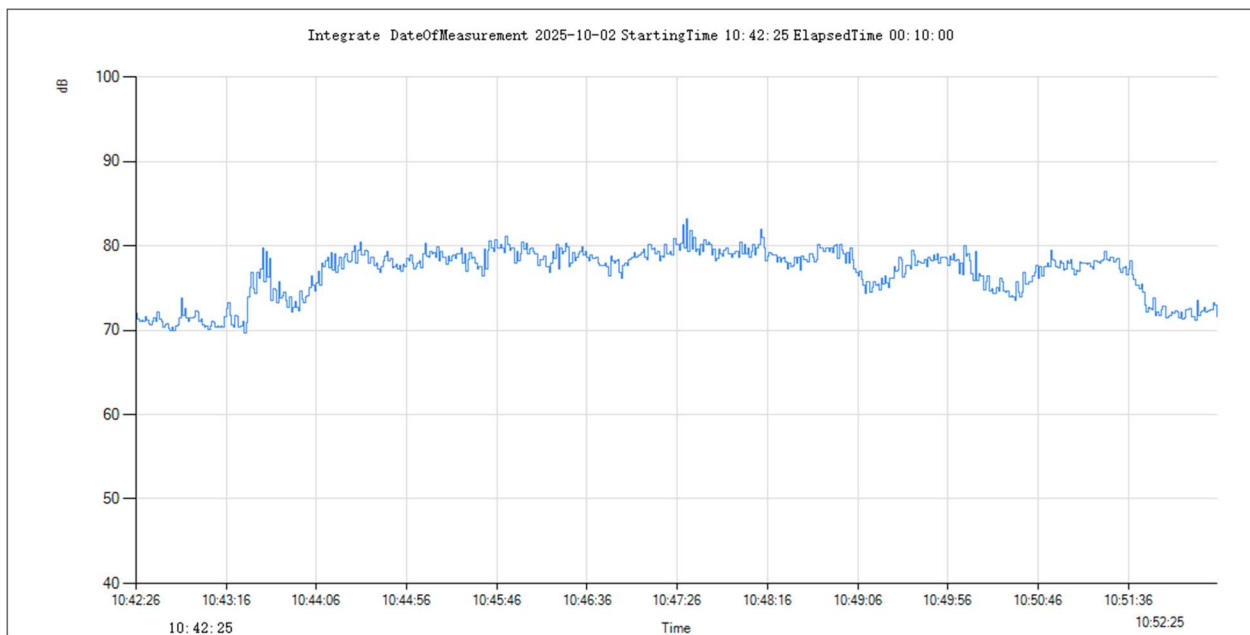
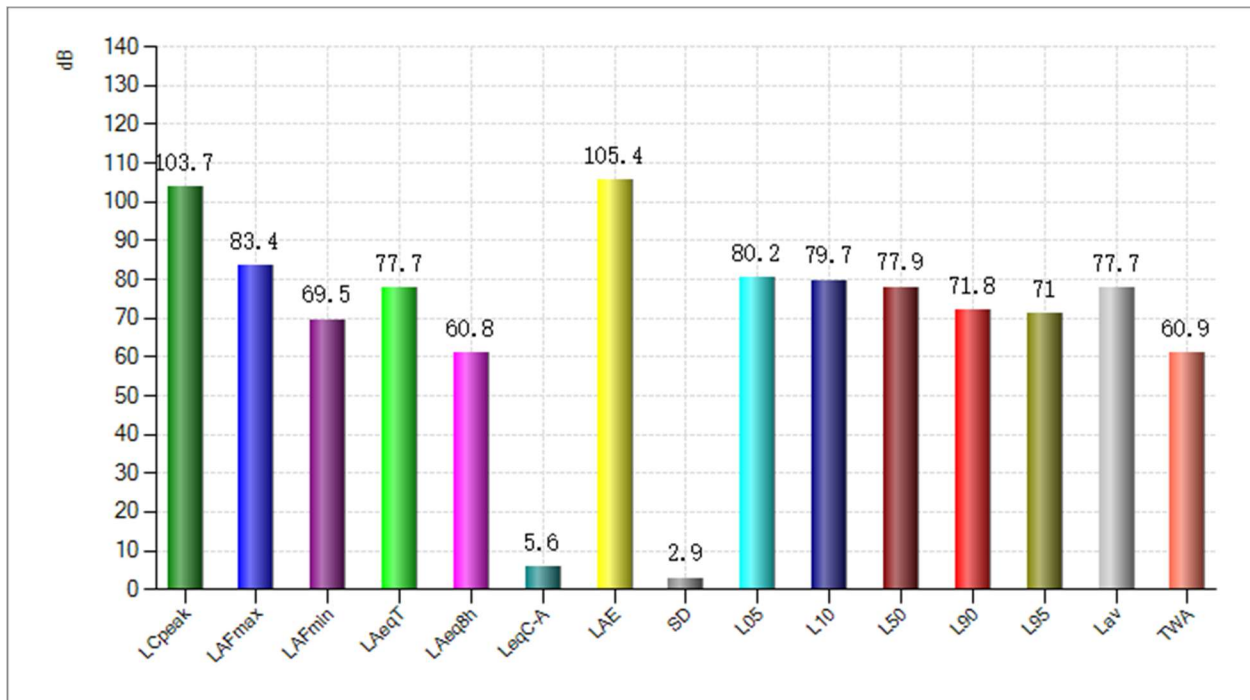
## RM01 – Night-time



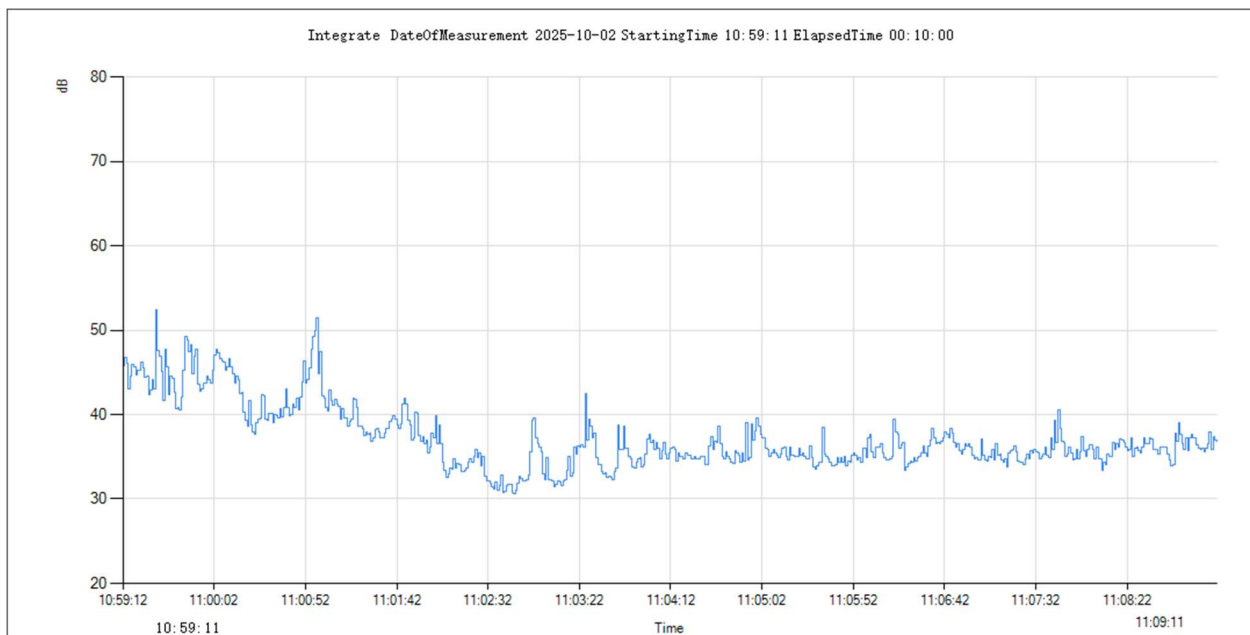
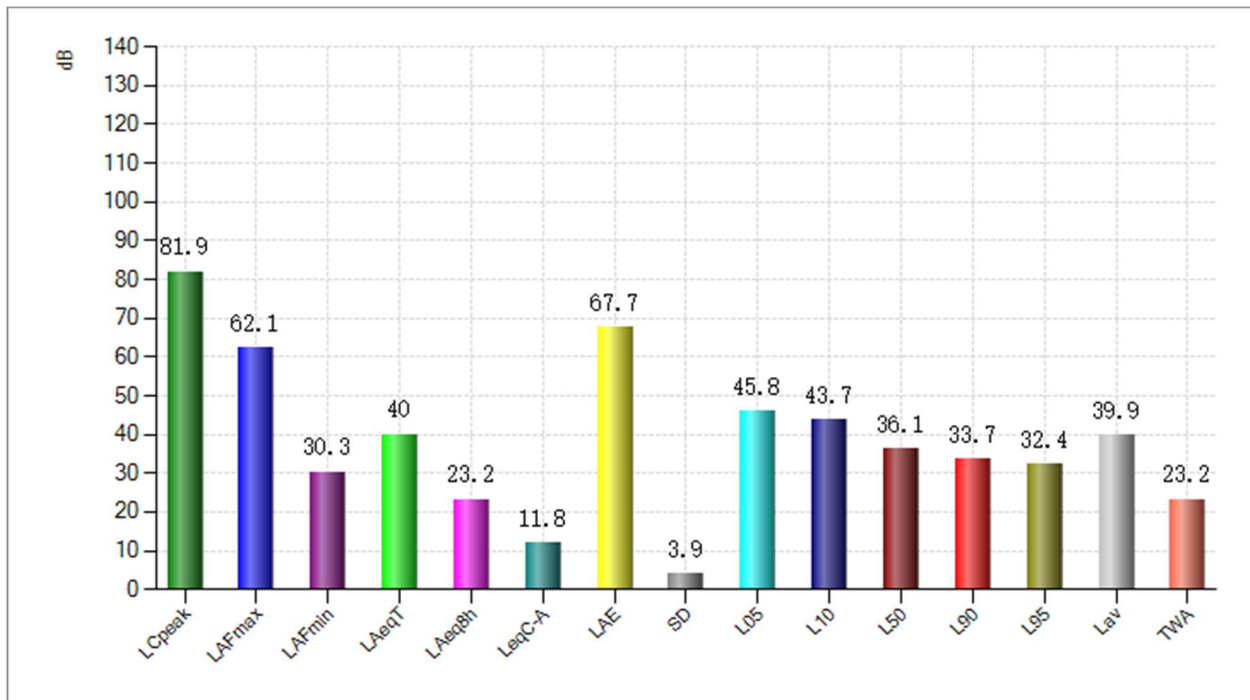
## RM02 – Night-time



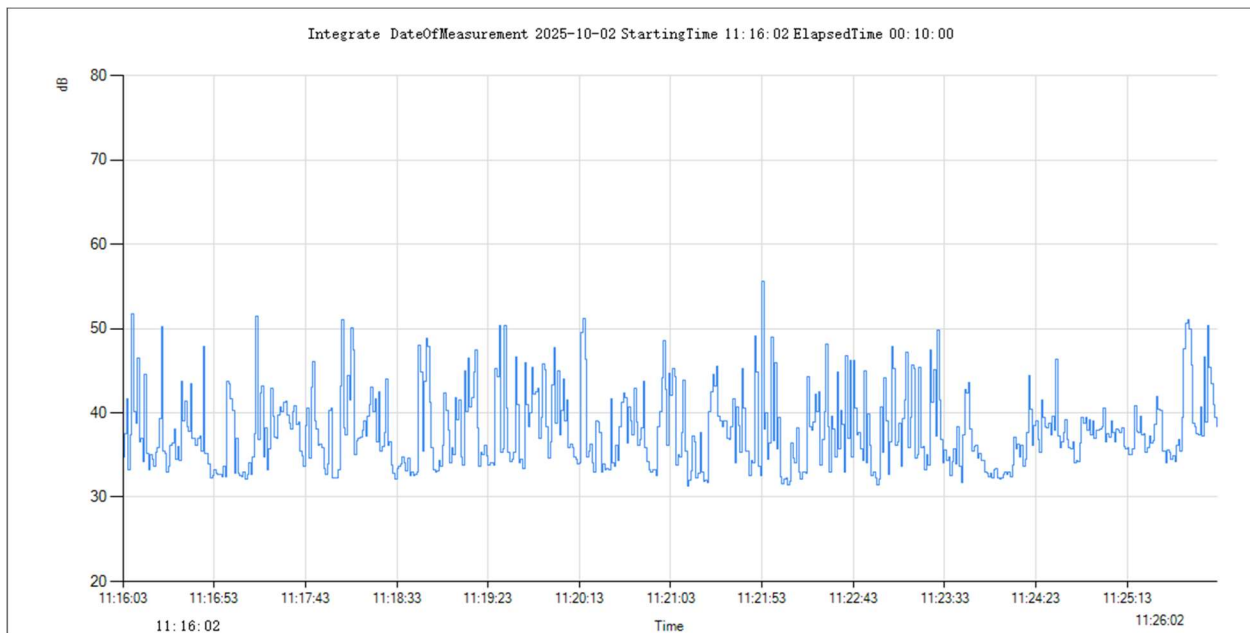
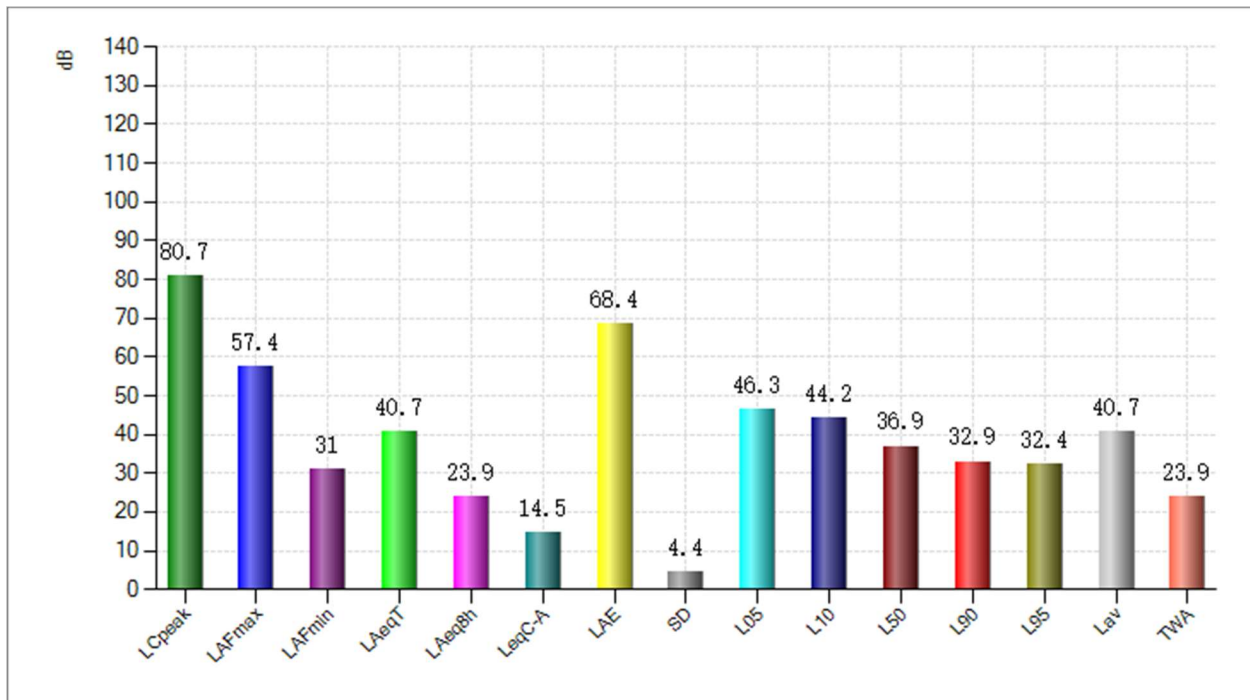
## RM03 – Night-time



## RM04 – Night-time



## RM05 – Night-time



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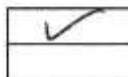
## APPENDIX C: FIELD OBSERVATIONS

---

**Sound Level Survey**  
**Field Observations**

Client: Raumix MTHATHA  
Site: TRANSKEI QUARRIES  
Technician(s): Andrew & Dave

Date: 08/10/25  
Day (06h00 to 22h00)  
Night (22h00 to 06h00)



Sheet No.:  
Operational  
Non-operational

002  
✓

| Run No. | Time  | Site Code | Site Description      | L <sub>eq</sub> | L <sub>max</sub> | L <sub>Amin</sub>       | L <sub>A10</sub> | L <sub>A90</sub> | Weather                        | Temp (°C) | Wind (m/s)<br>Speed &<br>Direction | Key Sources ONSITE                             | Key Sources OFFSITE | Comments                                       |
|---------|-------|-----------|-----------------------|-----------------|------------------|-------------------------|------------------|------------------|--------------------------------|-----------|------------------------------------|------------------------------------------------|---------------------|------------------------------------------------|
| 006     | 09h08 | RM01      | SALVAGE<br>YARD       | 53.5            | 77.8             | 38.1                    | 56.2             | 44.1             | CALM<br>OVERCAST<br>LIGHT RAIN | 11°C      | CALM                               | RELATIVELY<br>QUIET PRIMARY                    | QUIET               | REVERSE STREET<br>PEL PASSING<br>CONTRACTOR TR |
| 007     | 09h28 | RM02      | GS<br>STOCKPILE       | 62.0            | 75.3             | 44.6                    | 66.0             | 51.5             | OVERCAST<br>LIGHT RAIN         | 11°C      | CALM                               | + SECONDARY<br>AS ABOVE<br>+ SCREENING         | QUIET               | RIGID TIPPER<br>TRUCKS #1                      |
| 008     | 09h49 | RM03      | SURGE<br>PILE         | 71.5            | 84.1             | 57.7<br><del>76.8</del> | 76.8<br>60.1     | 60.1             | OVERCAST<br>DRIZZLE            | 12°C      | CALM                               | ALL CRASHER<br>PLANT INC. PRIMARY              | QUIET               | BOUNDARY<br>CLOSEST TO<br>PLANT #2             |
| 009     | 10h12 | RM04      | PIT HALL<br>ROAD      | 48.2            | 69.5             | 35.7                    | 50.8             | 40.8             | OVERCAST<br>DRY                | 13°C      | CALM                               | PECKER +<br>EXCAVATOR<br>OPERING IN/ON PIT     | GOAT BELLS          | PECKER<br>PERCUSSION                           |
| 010     | 10h35 | RM05      | NEW QUARRY<br>PARKING | 53.9            | 70.9             | 37.3                    | 57.7             | 41.9             | OVERCAST<br>DRIZZLE            | 13°C      | CALM                               | AS ABOVE<br>COMMUNITY ON<br>OTHER SIDE OF HILL | QUIET               | PECKER<br>PERCUSSION #3                        |
|         |       |           |                       |                 |                  |                         |                  |                  |                                |           |                                    |                                                |                     |                                                |
|         |       |           |                       |                 |                  |                         |                  |                  |                                |           |                                    |                                                |                     |                                                |
|         |       |           |                       |                 |                  |                         |                  |                  |                                |           |                                    |                                                |                     |                                                |

|                                                                   |                                                |
|-------------------------------------------------------------------|------------------------------------------------|
| Plant Status: OPERATIONAL, BUT ATTENUATED SLIGHTLY BY DAMP        | Quarry Status: OPERATIONAL (PECKER EXCAVATOR & |
| WEATHER + TOPOGRAPHY. PRIMARY CRASHER INTERMITTENT                | 2X ADT HAULAGE                                 |
| HIGH IMPULSE NOISE WHEN OPERATING (50% OF RUNS) 80dB AT FULL TILT | QUARRY PRODUCES 5000-6000 TPD                  |

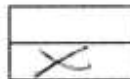
#1 ARRIVING AT STOCKPILE TO LOAD, THEN PEL ARRIVED TO LOAD - DAYTIME ONLY (PRODUCT DISPATCH) SEE PHOTOS TO WEST NO ACCESS  
#2 UNPOPULATED AREAS - SEE PANORAMIC PHOTOGRAPHS A TO LAST  
#3 PECKER MAY RUN THROUGH NIGHT BUT NOISE BUCKLED BY TERRAIN (HILL)

# Sound Level Survey

## Field Observations

Client: Raumix M MTHATHA  
 Site: TITAN SHEET QUARRIES  
 Technician(s): Andrew & Dave

Date: 02/10/2025  
 Day (06h00 to 22h00)  
 Night (22h00 to 06h00)



Sheet No.:  
 Operational  
 Non-operational

001  
 ✓

| Run No. | Time  | Site Code | Site Description      | L <sub>Aeq</sub> | L <sub>Amax</sub> | L <sub>Amin</sub> | L <sub>A10</sub> | L <sub>A90</sub> | Weather            | Temp (°C) | Wind (m/s)<br>Speed &<br>Direction | Key Sources ONSITE                 | Key Sources OFFSITE        | Comments           |
|---------|-------|-----------|-----------------------|------------------|-------------------|-------------------|------------------|------------------|--------------------|-----------|------------------------------------|------------------------------------|----------------------------|--------------------|
| 001     | 22h07 | RM01      | SALVAGE<br>YARD       | 43.4             | 67.6              | 38.7              | 44.2             | 40.4             | CLOUDY<br>COOL DRY | 9°C       | CALM                               | SECONDARY<br>+ SCREENING           | DOGS BARKING<br>(CONSTANT) |                    |
| 002     | 22h23 | RM02      | QS<br>STOCKPILE       | 45.3             | 59.4              | 39.2              | 47.1             | 41.3             | "                  | "         | "                                  | SECONDARY<br>+ SCREENING           | QUIET<br>ADT + SIREN       | PRIMARY<br>AUDIBLE |
| 003     | 22h41 | RM03      | SURGE<br>PILE         | 77.7             | 83.4              | 69.5              | 79.7             | 71.8             | "                  | "         | "                                  | ALL CRUSHERS<br>+ FEL              | OBSERVED BY<br>CRUSHERS    | PRIMARY<br>LOUD!   |
| 004     | 22h58 | RM04      | PIT Haul<br>ROAD      | 40.0             | 62.1              | 30.3              | 43.7             | 33.7             | "                  | "         | "                                  | ADTS HAULING<br>PRIMARY W/DISTANCE | QUIET                      |                    |
| 005     | 23h15 | RM05      | NEW QUARRY<br>PARKING | 40.7             | 57.4              | 31.0              | 44.2             | 32.9             | "                  | "         | "                                  | EXCAVATOR<br>LOADING ADT IN<br>PIT | INSECTS                    | ERRATIC<br>NOISE   |
|         |       |           |                       |                  |                   |                   |                  |                  |                    |           |                                    |                                    |                            |                    |
|         |       |           |                       |                  |                   |                   |                  |                  |                    |           |                                    |                                    |                            |                    |
|         |       |           |                       |                  |                   |                   |                  |                  |                    |           |                                    |                                    |                            |                    |

|                                                      |                                           |
|------------------------------------------------------|-------------------------------------------|
| Plant Status: ALL CRUSHERS + SCREENING OPERATIONAL   | Quarry Status: HAULAGE ONLY — ADTS        |
| PRIMARY NOT AS DESCRIBED AS EXPECTED AT RM01 & RM02  | BECKER VISIBLE (LIGHTS) BUT NOT OPERATING |
| RM03 IS ONSITE + NO NEARBY RECEPTORS (NO BUILDING!)  |                                           |
| PRIMARY CRUSHER IS A BATCH PROCESS DEPENDENT ON ADTS |                                           |