

TECHNICAL SPECIFICATION

1. Detail Specification

The Supplier shall provide equipment as described hereafter or better.

Equipment : Environmental Noise Measurement System

2. Outdoor Microphone Specifications

- Type: Prepolarized Outdoor Microphone
- Nominal Open Circuit Sensitivity: 31.6mV/Pa, (corresponding to -30dB re 1 V/Pa) ± 2 dB
- Capacitance: 12 pF (at 250Hz)
- Reference Direction: Selectable between 0° (Top) and 90° (Side)

3. Microphone Preamplifier Specifications

- Nominal Preamplifier Attenuation: 0.3 dB
- Compatible to Outdoor Microphone
- Extension Cable between Microphone Preamplifier and Micorphone : Up to 100 m without degradation of the specifications
- MEASURING RANGES (BROADBAND)
 - Dynamic Range: From typical noise floor to max. level for a 1 kHz pure tone signal, A-weighted: 20.0 – 141 dB
 - Linear Operating Range: In accordance with IEC 61672, A-weighted:
1 kHz: 31.1 – 141 dB
 - Primary Indicator Range: In accordance with IEC 60651, A-weighted:
29.8 – 124 dB
 - Linearity Range: In accordance with IEC60804,
A- weighted: 27.7 – 141dB
- MEASURING RANGES (1/3 OCTAVE)
 - Dynamic Range: From typical noise floor to max. level for a pure tone signal at 1 kHz 1/3-octave: 2.9 – 141 dB
 - Linear Operating Range: In accordance with IEC 61260: 29.5 – 139.3 dB

4. Environmental Noise Management Software (Server and Client)

- BASIC MEASUREMENTS
 - Logging Rate: ½ or 1s
 - Broadband Values:
 - ◆ X = frequency weightings A, C or Z
 - ◆ U = time weightings F, S or I
 - ◆ LXU(SPL) , LXeq
 - Frequency Analysis Values: LZeq

- EVENT DETECTION
 - Settings: Individual setting for each hour in a 24-hour period
 - Event Start Trigger: Leq or L(SPL) with minimum threshold exceeding duration
 - Event Stop Trigger: Leq or L(SPL) with minimum threshold exceeding duration

- REPORTS
 - Short Reports:
 - Period: User-defined 1 to 30 minutes, whole number of reports each hour
 - ◆ Data: Start Time; Stop Time; Minimum of L(SPL) over the period; Maximum of L(SPL) over the Period; Total Leq over the Period; Maximum LCpeak over the period; 5 LN Values with user-defined Percentile Levels
 - One Hour Reports:
 - ◆ Data: Start Time; Stop Time; Level Distribution (Per mil % for L (instantaneous) in 110 1 dB classes, plus an Overload Class and a Below Class; One Hour Minimum of L(SPL); One Hour Maximum of L(SPL); One hour total Leq; One Hour Minimum of Leq; One Hour Maximum of Leq; Leq Event Value (Total Leq for all the events during the one-hour period); Leq Background Value (Total Leq for all the periods between events during the one-hour period); Persistent Overload for the one-hour period
 - Event Reports:
 - ◆ Data Compression: Event data for ENM/Noise Sentinel are compressed. The event data samples are Leq values if the trigger is set

to Leq and L(SPL) values if the trigger is set to SPL. The maximum number of samples is 101 (always one sample before trigger). If the event period exceeds 100 samples the samples are compressed with a factor 2, 4, 8 ...

- ◆ Data for ENM/Noise Sentinel: Start Time; Stop Time; Event Data; T10 Duration (T10 is the time within the event where the level is below 10 dB of the maximum level); LE(T10) calculated over the T10 period; Leq Spectrum (Total Leq spectrum over the event period); EPNL over the event period; Total Leq over the event period, LE calculated over the event period; Maximum of Leq over the event period, Time of Maximum of Leq; Maximum of L(SPL) over the event period; Time of Maximum of L(SPL); 120 PNL and PNLT, where each value is a 0.5 sPNL/PNLT value (dB 10)
- ◆ Data for ANOMS: Start Time; Stop Time; Event Data; T10 Duration (T10 is the time within the event where the level is below 10 dB of the maximum level); LE(T10) calculated over the T10 period; Leq Spectrum (Total Leq spectrum over the event period); EPNL over the event period; Total Leq over the event period, LE calculated over the event period; Maximum of Leq over the event period, Time of Maximum of Leq; Maximum of L(SPL) over the event period; Time of Maximum of L(SPL); Wind speed at Time of Maximum Leq; Wind Direction at Time of Maximum Leq; Humidity; Temperature; Event Spectra

5. Mobile Computer

- Environmental Noise Management S/W can be installed and operated.
- This computer can be portable and easily movable.

6. Telemetry & Communication

- Measured data can be transferred to Mobile computer via Ethernet & Wireless
- All measured data can be monitored in other building (Whirl Tower Control Building at Goheung Aviation Test Center)

7. Other Specification : Compliance with Standards

- CE-mark indicates compliance with: EMC Directive and Low Voltage Directive.
- Safety
 - EN/IEC 61010–1: Safety requirements for electrical equipment for measurement, control and laboratory use.
 - UL 61010B–1: Standard for Safety – Electrical measuring and test equipment.

- EMC Emission
 - EN/IEC61000–6–3: Generic emission standard for residential, commercial and light industrial environments.
 - CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits.
 - FCC Rules, Part 15: Complies with the limits for a Class B digital device.
 - IEC 61672–1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards.

- EMC Immunity
 - EN/IEC61000–6–2: Generic standards – Immunity for industrial environments.
 - EN/IEC61326: Electrical equipment for measurement, control and laboratory use – EMC requirements.
 - IEC 61672–1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards.

- Conforms with the following National and International Sound Level Meter Standards
 - IEC61672–1 (2002-05) Class 1
 - IEC60651 (1979) plus Amendment 1 (1993–02) and Amendment 2 (2000–10), Type 1
 - IEC60804 (2000–10), Type 1
 - DIN 45657 (1997–07)
 - ANSIS1.4–1983 plus ANSI S1.4A–1985, Amendment, Type 1
 - ANSIS1.43–1997, Type 1

- Conforms to the following National and International Frequency Analysis Standards
 - IEC61260 (1995–07) plus Amendment 1 (2001–09), 1/3-octave Bands Class 0
 - ANSIS1.11–1986, 1/3-octave Bands, Order 3, Type 0–C
 - ANSIS1.11–2004, 1/3-octave Bands, Class 0

8. Acceptance and Training

- Visual inspection
- Performance check for acceptance
- Training for operation

9. Warranty : 2 years