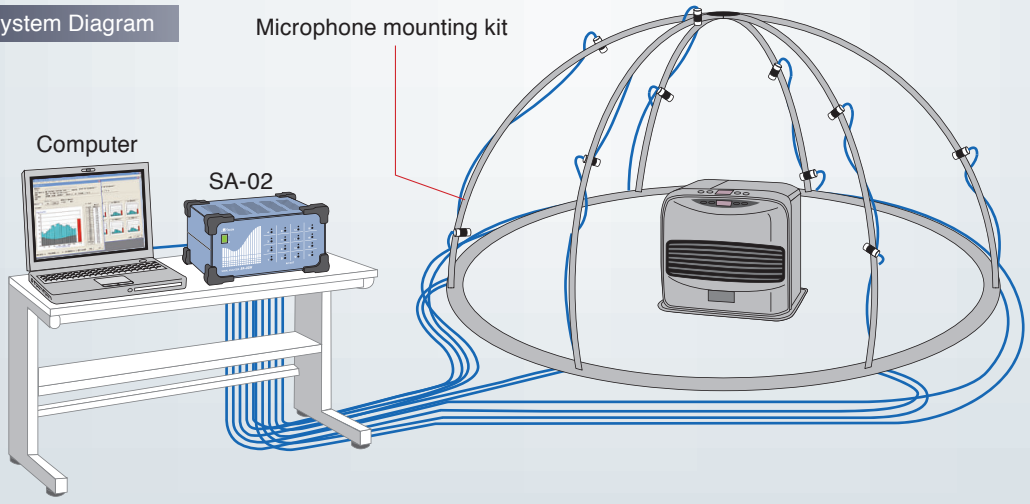
RION

Hemi-Anechoic Acoustic Power Level Measurement System

The acoustic power level is a quantity used to express the intensity of sound emitted by machinery or equipment.
It represents the total acoustic energy generated by the sound source. If likened to an earthquake, the noise level is similar to the seismic intensity at various locations, and the acoustic power level corresponds to the magnitude of the seismic event. The seismic intensity depends not only on the distance to the epicenter but also on factors such as the transmission path and structure of the ground. Similarly, the directional characteristics of the sound source and the distance to the measurement point have an influence on the noise level. To eliminate this variable, the acoustic power level is used as an evaluation quantity, and its rating is often required for equipment, especially in Europe and North America.
Measurement methods for the acoustic power level are covered by ISO standards, including the sound pressure method and the acoustic intensity method. The sound pressure method involves the use of hemi-anechoic or anechoic chamber, hemi-free sound field on a reflecting surface, or a reverberation room. Acoustic intensity measurement can be performed using either the discrete point method or scanning method. The current system is designed for automatic measurement of acoustic power levels using a hemi-anechoic chamber.

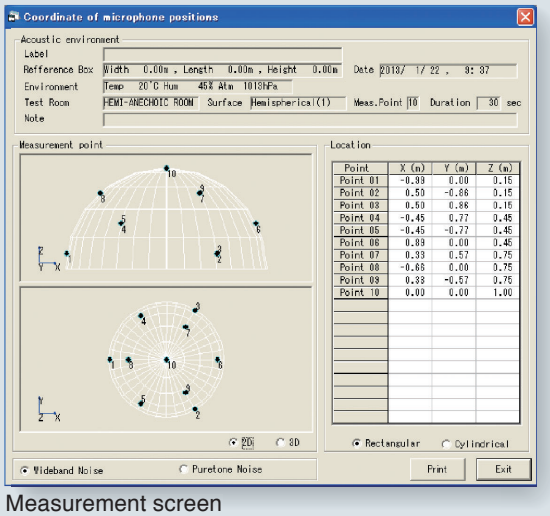
System Diagram



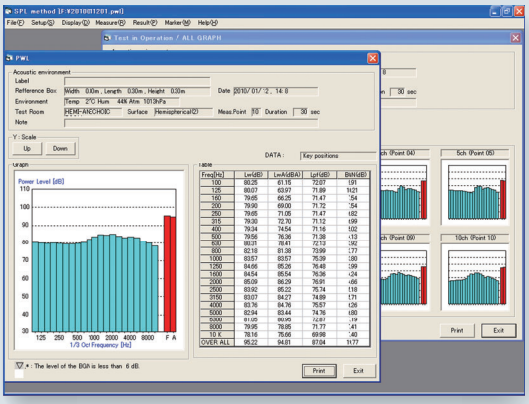
Equipment configuration

Product	Model	Quantity
4-Channel Signal Analyzer or Multi-Channel Signal Analyzer	SA-02A4 or SA-02M	1 to 2
Computer for SA-02		1
Hemi-Anechoic Acoustic Power Level Measurement Software	AS-30PA5	1
Connecting kit (required for simultaneous measurement at 20 points)		1
Microphone/Preamplifier	UC-52/53A/57/59+NH-22A, UC-52T/57T/59T	1 to 10 or 20
BNC-BNC coaxial cable	EC-90 series	1 to 10 or 20
Microphone stand		1 to 10 or 20
Microphone mounting kit		1
1/2 inch microphone holder	UA-90	1 to 10 or 20

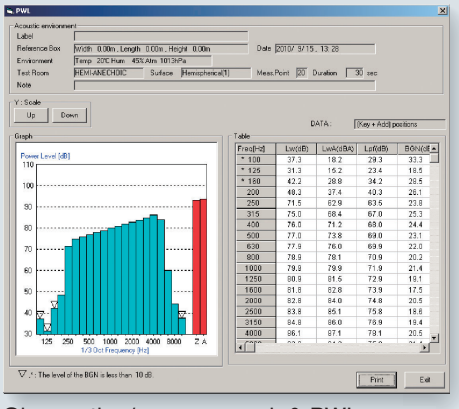
Measurement result examples



Measurement screen



Observation/graph screen



Observation/average graph & PWL screen

Application examples

Acoustic power level measurements of consumer electric appliances, office automation equipment, motors, etc.

Applicable standards, reference material

ISO 3745 Acoustics - Determination of sound power levels of noise sources using sound pressure - Precision methods for anechoic and hemi-anechoic rooms
ISO 3744 Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane

∗ Specifications subject to change without notice.

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