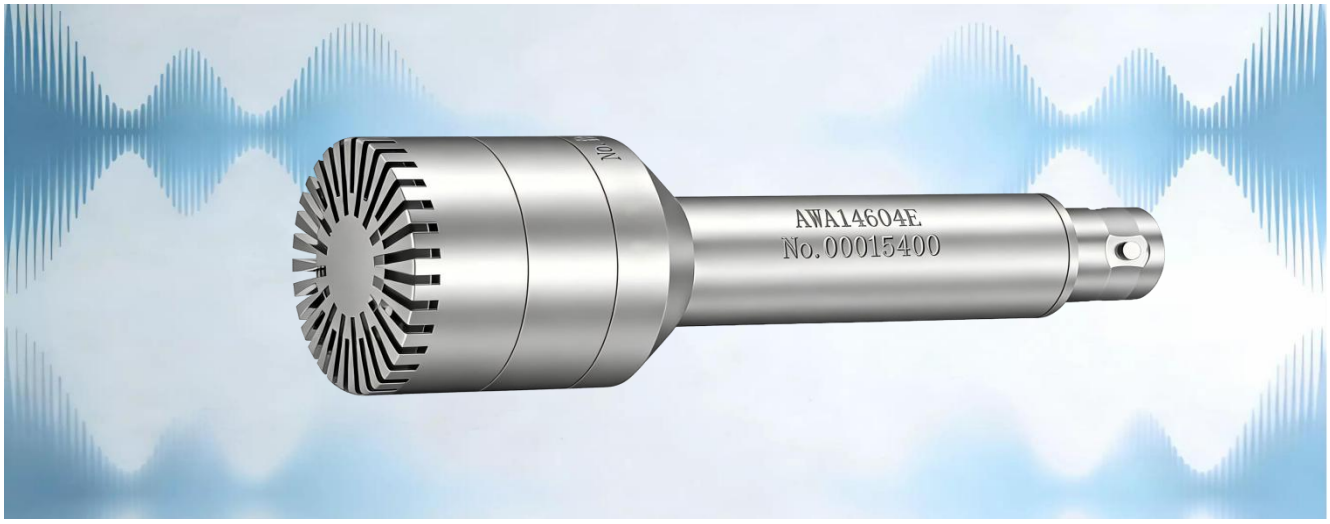
# AWA1411-S04E 1” Free-field Low-noise Measurement Microphone Set




## Features

### Key Specifications

Sensitivity: 100 mV/Pa

Frequency Range: 10 Hz – 16 kHz

Dynamic Range: 11.5 dBA – 129 dB

### Typical Applications

Low-level sound testing

Free-field testing

Electroacoustic testing

Noise testing

### Standards

IEC 61094-4:1995 Measurement microphones – Part 4: Specifications for working standard microphones

### Main Components

AWA14411: 1" Low-noise free-field measurement microphone

AWA8751: Connector

AWA14604E: 1" IEPE preamplifier

## Brief Introduction

The AWA1411-S04E is an assembly comprising a free-field low-noise measurement microphone, an adapter, and a preamplifier. Featuring a large 18 mm diaphragm and an ultra-low noise floor

of 11.5 dBA, it meets the requirements for various low-level sound measurements. Supplied with an individual calibration certificate, the unit is designed for acoustic environments characterized by the absence of reflections or sound incidence from specific directions (such as anechoic or semi-anechoic chambers). It utilizes a high-precision capacitive sensor offering a frequency range of 10 Hz to 16 kHz, high sensitivity, and excellent stability. Compatible with mainstream acoustic analysis instruments, the unit is widely used in applications such as low-level sound measurement, sound power measurement, and automotive NVH assessment.

## Product Highlights

Applications of Free-Field Low-Noise Microphone Units

These free-field low-noise microphone units feature an exceptionally low noise floor—down to 8 dBA—making them suitable for a wide range of applications, including low-noise measurements, sound power determination, and automotive NVH (Noise, Vibration, and Harshness) assessment. They are also compatible with standard acoustic measurements, serving fields such as acoustic research, noise monitoring, and sound system testing.

Compatibility

The AWA1411-S04E measurement microphone unit requires an external constant-current power supply module capable of delivering 2 mA to 20 mA of current and an open-circuit voltage of 24 V. Manufacturers may use various terms for such power modules and their supply modes, such as IEPE (Integrated Electronics Piezo-Electric), ICP (Integrated Circuit Piezoelectric), CCP (Constant Current Power), or CCLD (Constant Current Line Drive).

TEDS-Enabled Measurement Microphone Units

These units support TEDS (Transducer Electronic Data Sheet) functionality, are programmed according to the IEEE 1451.4 standard, and comply with V1.0 format requirements. They are compatible with smart sensor technology, facilitating the integration and automated management of sensor information.

Calibration

Each measurement microphone unit is calibrated at the factory using traceable calibration equipment and is supplied with a calibration certificate. Annual recalibration is recommended.

Quality and Warranty

All Aihua microphones utilize second-generation alloy diaphragms, high-strength protective grids, and synthetic corundum insulators, ensuring exceptional stability and reliability in the

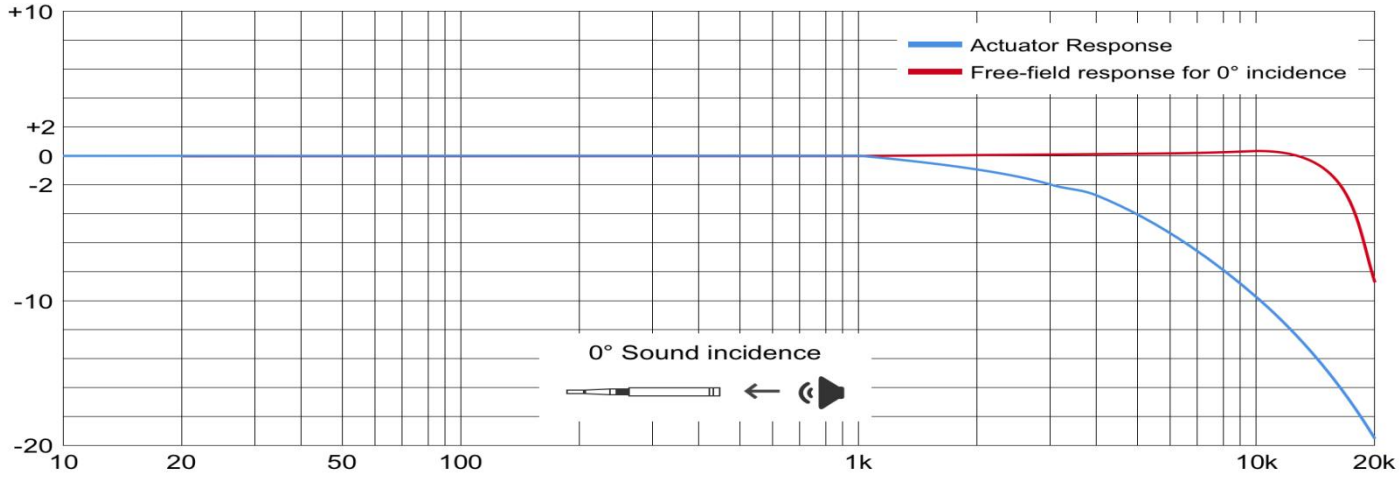
measurement microphone market. Compared to traditional nickel or stainless steel, these alloy diaphragms offer superior corrosion resistance, high-temperature stability, impact resistance, and specific strength. To ensure the highest quality, all microphones are assembled and tested in Class 1,000 cleanrooms. The measurement microphone units come with a one-year warranty, backed by comprehensive after-sales support.

## Technical Specifications

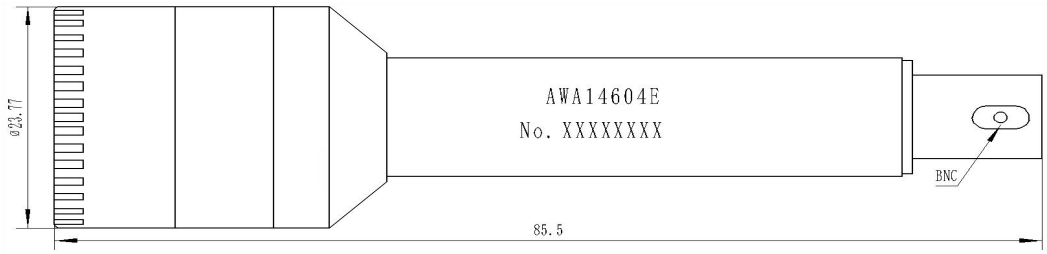
| AWA1411-S04E 1” Free-field Low-noise Measurement Microphone Set | | | |
|---|---|---|---|
| Sound Field Type | Pressure field | Pressure Equalization | Side pressure equalization |
| Diameter | 1 inch | Operating Temperature (°C) | -30 to +80 |
| Dimensions Standard (IEC 61094) | WS1F | Temperature Coefficient (dB/°C) (@250 Hz) | -0.02（-10 ℃～50 ℃） |
| Power Supply | ICP （2 mA～20 mA） | Static Pressure Coefficient (dB/kPa) | -0.015 |
| Sensitivity (mV/Pa) (@250 Hz ±2.0 dB) | 100 | Input Impedance/Capacitance | ≥10 GΩ/≤0.5 pF |
| Frequency Range (Hz) | 10～16k | Output Voltage | ≥5 Vrms@24 Vsupply |
| Polarization Voltage (V) | 0 | Output Impedance | ≤50 Ω |
| Dynamic Range | 11.5 dBA ～ 129 dB | TEDS | Standard |
| Noise Floor (dBA) | ≤11.5 | Output Connector | BNC |

## Frequency response

Test conditions: Temperature 23 ℃, Relative humidity 50 %RH



## Specifications and Dimensions




## Ordering Information

Optional Accessories

| | |
|---|---|
| Microphone test clip | 1/2” Microphone Test Clip |
| Preamplifier power supply | AWA1710 |
| Cable | Customizable length |

## Related Products:

AWA14404-S00E 1/2" Pressure-field working standard microphone set
12.6 mV/Pa, 3.15 Hz – 20 kHz, 24 dBA – 160 dB

AWA14403-S00E 1/2" Free-field working standard microphone set
14.1 mV/Pa, 3.15 Hz – 40 kHz, 23 dBA – 159 dB

AWA14423-S04E 1/2" Free-field measurement microphone set
50 mV/Pa, 3.15 Hz – 20 kHz, 17 dBA – 135 dB

AWA14423C-S01C 1/2" Free-field infrasound measurement microphone set
50 mV/Pa, 0.125 Hz – 20 kHz, 17 dBA – 135 dB

AWA14424C-S01C 1/2" Pressure-field infrasound measurement microphone set
26.6 mV/Pa, 0.2 Hz – 16 kHz, 22.5 dBA – 140 dB

AWA14523-S04E 1/2" Free-field infrasound/wideband measurement microphone set
31.6 mV/Pa, 0.5 Hz – 40 kHz, 21 dBA – 139 dB

AWA14434-S14E 1/4" Pressure-field high sound pressure measurement microphone set
0.63 mV/Pa, 3.15 Hz – 40 kHz, 61 dBA – 173 dB

AWA14435-S14E 1/4" Free-field high sound pressure measurement microphone set
4.0 mV/Pa, 5 Hz – 20 kHz, 43 dBA – 160 dB

AWA14436-S14E 1/4” Pressure-field wideband high-SPL measurement microphone set
1.0 mV/Pa, 3.15 Hz – 70 kHz, 57 dBA – 171 dB

AWA14431-S14E 1/4” Free-field wideband measurement microphone set

4.0 mV/Pa, 3.15 Hz – 80 kHz, 43 dBA – 160 dB