

Calibration Chart

40CE 1/2" Pre-polarized Free-field Microphone

Serial No: 331361

Operator: KDP

Calibration Date: 27. Jan 2020

Open Circuit Sensitivity

The calibration is performed by comparison with a Reference Microphone Cartridge GRAS 40AG and is traceable to the @@@@ (1, "FromScript/Traceable") @@@@.

The stated sensitivity for the microphone cartridge is the open circuit sensitivity. When used with a typical preamplifier, like the GRAS 26AH, the sensitivity will be 0.2 dB lower.

Test Freq. [Hz]	Measured Level [mV/Pa]	Measured Level [dB re. 1V/Pa]	Uncertainty [dB]
250	38.35	-28.32	±0.08

Reference conditions:

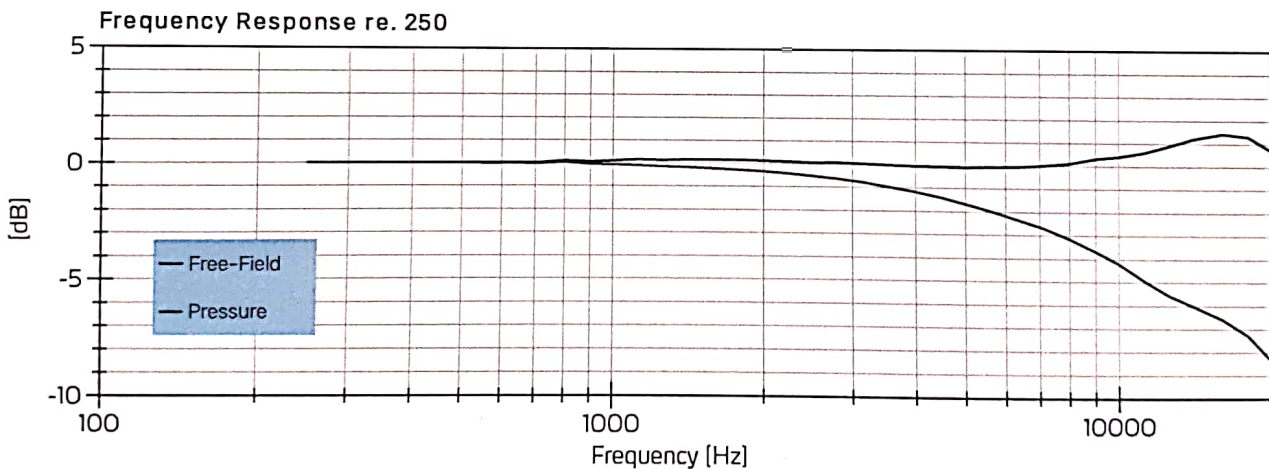
Temperature: 24 °C

Relative humidity: 32 %

Barometric pressure: 999 hPa

Frequency response

The table shows the frequency response and free-field correction for the microphone and preamplifier combination. The free-field correction is with @@@@ (1, "FromScript/CorrectionText") @@@@ and 0° incidence. The frequency response is recorded by electrostatic actuator and is measured relative to the response at @@@@Str{ChnVal{1, "Normalising}}



40CE 1/2" Pre-polarized Free-field Microphone

Serial No. 331361



Certificate number 48982

GRAS Sound & Vibration

GRAS Sound & Vibration A/S
Skovlytoften 33, 2840 Holte, Denmark
Email support@gras.dk • gras.dk

Calibration Chart

40CE 1/2" Prepolarized Free-field Microphone

The 40CE Free Field Microphone complies with the requirements in IEC Standard 61094-4. The free-field microphone is designed to essentially measure the sound pressure, as it existed before the microphone was introduced into the sound field. At higher frequencies the presence of the microphone itself in the sound field will change the sound pressure. In general the sound pressure around the microphone cartridge will increase due to reflections and diffraction. The free-field microphone is designed so that the frequency characteristics compensates for this pressure increase.

The resulting output of the free-field microphone is a signal proportional to the sound pressure, as it existed before the microphone was introduced into the sound field. The free-field microphone should always be pointed towards the sound source ('0° incidence'). In this situation the presence of the microphone diaphragm in the sound field will result in a pressure increase in front of the diaphragm. The microphone is then designed so that the sensitivity of the microphone decreases with the same amount as the acoustical pressure increases in front of the diaphragm. This is obtained by increasing the internal acoustical damping in the microphone cartridge. The result is an output from the microphone, which is proportional to the sound pressure as it existed before the microphone was introduced into the sound field.

Frequency Response Raw Data

Frequency [Hz]	Pressure [dB]	Free-Field [dB]	Frequency [Hz]	Pressure [dB]	Free-Field [dB]
250	0.00	0.00	2500	-0.52	0.06
280	0.01	0.01	2800	-0.63	0.07
315	0.00	0.00	3150	-0.78	0.03
355	0.00	0.00	3550	-0.96	-0.03
400	-0.00	-0.00	4000	-1.17	-0.07
450	-0.01	-0.01	4500	-1.41	-0.07
500	-0.01	-0.01	5000	-1.67	-0.10
560	-0.03	-0.01	5600	-1.97	-0.08
630	-0.03	-0.00	6300	-2.32	-0.06
710	-0.04	0.01	7100	-2.70	0.02
800	0.03	0.11	8000	-3.15	0.11
900	-0.06	0.06	9000	-3.68	0.31
1000	-0.08	0.10	10000	-4.21	0.42
1120	-0.10	0.14	11200	-4.93	0.60
1250	-0.15	0.13	12500	-5.54	0.88
1400	-0.16	0.16	14000	-6.01	1.21
1600	-0.22	0.15	16000	-6.57	1.45
1800	-0.27	0.16	18000	-7.28	1.31
2000	-0.33	0.13	20000	-8.33	0.72
2240	-0.42	0.10			

Traceability Table

Instrument	Model	Serial Number	Traceable To	Calibration Date
NI data-acquisition signal analyzer	PCI-4461	30850519	DFM	25-07-2018
Pistonphone	42AP	46344	DFM	20-08-2019

