CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **25 September 2026** CERTIFICATE NUMBER **275380**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Approved signatory
C.murrell
Electronically signed:

Sound Level Meter : IEC 61672-3:2013

Instrument information

Manufacturer:	Cirrus Research plc	Notes:
Model:	CR:171B	
Serial number:	G301172	
Class:	1	
Firmware version:	5.9.3442	

Test summary

Date of calibration: 25 September 2026

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.
Periodic tests were performed in accordance with procedures from IEC 61672-3:2013.

The sound level meter submitted for testing successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to determine that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Notes

This certificate provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Environmental conditions

The following conditions were recorded at the time of the test:

Before	Pressure:	101.53 kPa	Temperature:	21.6 °C	Humidity:	52.7 %
After	Pressure:	101.09 kPa	Temperature:	20.5 °C	Humidity:	54.4 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Signal Generator	SIGLENT	SDG1032X	SDG1XDDC7R0237
Attenuator	Cirrus Research	ZE:952	96920
Environmental Monitor	Comet	T7510	16966334

Additional instrument information

Instruction manual:

Reference level range: Single range

Pattern approval: No

Source of pattern approval: -

Preamplifier

Model: MV:200F

Serial number: 9660F

Microphone

Model: MK:224

Serial number: 212404D

Test results summary

Test	Result
Electrical noise-floor	Complies
Overload indication	Complies
Toneburst response	Complies
Linearity	Complies
Electrical Frequency weightings	Complies
Frequency and time weightings at 1 kHz	Complies
C-weighted peak	Complies
High level stability	Complies
Long-term stability	Complies
Acoustic Frequency weightings	Complies

Acoustic Calibrator

Manufacturer: Bruel and Kjaer

Model: 4231

Serial number: 3008770

Note: This sound calibrator is not of a model that is specified in the instruction manual.

Calibration

Calibration check frequency: 1000 Hz

Calibrator's certificate ref: 265288

Level before adjustment: 93.70 dB(A)

Level after adjustment: 93.70 dB(A)

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DATE OF ISSUE **25 September 2026** CERTIFICATE NUMBER **275381**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Approved signatory
C.murrell
Electronically signed:

Third-octave-band filter : IEC 61260:1995

Instrument information

Manufacturer:	Cirrus Research plc
Model:	CR:171B
Serial number:	G301172
Class:	1
Firmware version:	5.9.3442

Notes:

Test summary

Date of calibration: 25 September 2026

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.
Periodic tests were performed in accordance with procedures from IEC 61260:1995.

The filter submitted for testing successfully completed the Relative Attenuation test of IEC 61260 for the environmental conditions under which the test was performed.

Notes

It provides traceability of measurement to the SI system of units and/or to units of measurement realised at a recognised national metrology institute. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Environmental conditions

The following conditions were recorded at the time of the test:

Before	Pressure:	101.53 kPa	Temperature:	21.6 °C	Humidity:	52.7 %
After	Pressure:	101.09 kPa	Temperature:	20.5 °C	Humidity:	54.4 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Signal Generator	SIGLENT	SDG1032X	SDG1XDDC7R0237
Attenuator	Cirrus Research	ZE:952	96920
Environmental Monitor	Comet	T7510	16966334

Filters information

Filter class: 1

Filter base: 2

Reference attenuation: 0.0 dB

Additional instrument information

Instruction manual:

Pattern approval: No

Source of pattern approval: -

Reference level range: Single range

Laboratory uncertainties

Requirement	Value (dB)
Relative Attenuation High	0.25
Relative Attenuation Mid	0.14
Relative Attenuation Low	0.13

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ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **25 September 2026** CERTIFICATE NUMBER **275382**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Approved signatory
C.murrell
Electronically signed:

Octave-band filter : IEC 61260:1995

Instrument information

Manufacturer:	Cirrus Research plc	Notes:
Model:	CR:171B	
Serial number:	G301172	
Class:	1	
Firmware version:	5.9.3442	

Test summary

Date of calibration: 25 September 2026

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.
Periodic tests were performed in accordance with procedures from IEC 61260:1995.

The filter submitted for testing successfully completed the Relative Attenuation test of IEC 61260 for the environmental conditions under which the test was performed.

Notes

It provides traceability of measurement to the SI system of units and/or to units of measurement realised at a recognised national metrology institute. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory. The results within this certificate relate only to the items calibrated. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%.

CERTIFICATE OF CALIBRATION

Environmental conditions

The following conditions were recorded at the time of the test:

Before	Pressure:	101.53 kPa	Temperature:	21.6 °C	Humidity:	52.7 %
After	Pressure:	101.09 kPa	Temperature:	20.5 °C	Humidity:	54.4 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Signal Generator	SIGLENT	SDG1032X	SDG1XDDC7R0237
Attenuator	Cirrus Research	ZE:952	96920
Environmental Monitor	Comet	T7510	16966334

Filters information

Filter class: 1

Filter base: 2

Reference attenuation: 0.0 dB

Additional instrument information

Instruction manual:

Pattern approval: No

Source of pattern approval: -

Reference level range: Single range

Laboratory uncertainties

Requirement	Value (dB)
Relative Attenuation High	0.25
Relative Attenuation Mid	0.14
Relative Attenuation Low	0.13

CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **23 September 2026** CERTIFICATE NUMBER **275383**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Test engineer:
S.Hall
Electronically signed:

Microphone

Microphone capsule

Manufacturer: Cirrus Research plc

Model: MK:224

Serial Number: 212404D

Calibration procedure

Date of calibration: 23 September 2026

Open circuit: 49.0 mV/Pa

Sensitivity at 1 kHz: -26.2 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Environmental conditions

Pressure: 101.34 kPa

Temperature: 20.1 °C

Humidity: 69.6 %

CERTIFICATE OF CALIBRATION

Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator Response (dB)
63	**-0.00**	**-0.55**
80	0.02	-0.43
100	-0.00	-0.35
125	**-0.01**	**-0.29**
160	-0.02	-0.25
200	-0.02	-0.18
250	**-0.05**	**-0.14**
315	-0.06	-0.09
400	-0.02	-0.05
500	**-0.03**	**-0.01**
630	-0.00	0.00
800	0.00	0.01
1 000	**0.00**	**0.00**
1 250	0.02	-0.03
1 600	0.04	-0.09
2 000	**0.05**	**-0.20**
2 500	0.06	-0.36
3 150	0.11	-0.61
4 000	**0.06**	**-1.01**
5 000	0.05	-1.54
6 300	0.10	-2.26
8 000	**0.21**	**-3.25**
10 000	0.41	-4.66
12 500	0.87	-6.21
16 000	**0.47**	**-7.93**
20 000	-1.97	-10.90

Free-Field Frequency Response : Graphical

