

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Scantek, Inc.**
Columbia, MD

Sound Power Level
RAL™-LW26-011

CONDUCTED: 2026-06-01

Page 1 of 5

ON: Reference Sound Source, Acculab R.S.S. 400, Serial Number 0792 409

TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The calibration test reported in this document conformed with the procedures and requirements stated in International Standard ISO 6926: 2016, *Acoustics — Requirements for the performance and calibration of reference sound sources used for the determination of sound power levels*, except for the omission of measurements quantifying the effects of variation in input electrical power described in Clause 5.2. The calibration procedure was carried out in a reverberation chamber. Sound power levels were determined according to the Direct Method described in ANSI/ASA S12.51-2012 / ISO 3741:2010. Detailed descriptions of the measurement procedure and test chamber are available upon request.

SPECIMEN MEASUREMENTS & TEST CONDITIONS

The specimen under test was a reference sound source intended for use in reverberation test rooms complying with ISO 3741. A full external visual inspection of the test specimen by RAL staff verified the following information:

Test Specimen

Manufacturer: Acculab
Model: R.S.S. 400
Serial Number: 0792 409
Sounding Apparatus: Motor-driven centrifugal fan
Rotational Speed: 3449 revolutions per minute
Input Voltage: 115 V @ 60 Hz

Reverberation Test Room

Room Volume: 292 m³ (10,311 ft³)
Air Temperature: 23.0 ± 0.4 °C (73.4 ± 0.6) °F
Relative Humidity: 58.9 ± 4.2 %
Static Pressure: 99.0 ± 0.1 kPa
Correction C₂: 0.1066 dB

Note: The acoustic radiation impedance correction C₂ is calculated from ISO 6926 Eq. A.2, which assumes that the specimen structure vibrates as a monopole with higher frequencies.

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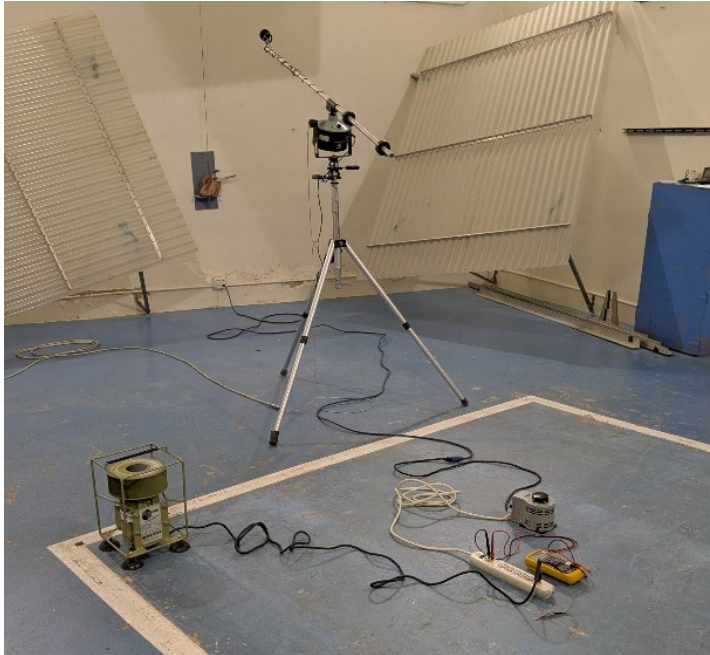


Figure 1 – Sound source positioned in test chamber



Figure 2 – Detail of sound source

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SPECIMEN MOUNTING

The specimen was placed directly on the reverberation test room floor. The unit was successively located at four predetermined locations around the center of the room, spaced at least 1.5 m (59 in.) from any wall of the room and at least 2.0 m (79.0 in.) apart.

TEST RESULTS


Specimen sound power levels are expressed in dB ref 1 pW under the reference meteorological conditions as specified in Clause 4 of ISO 6926: 2016. Results are tabulated in one-third octave frequency bands from 31.5 Hz to 12.5 kHz on the following page. A-weighted sound power levels are calculated using the weighting values from Table F.1 of ANSI/ASA S12.51-2012. Overall levels are calculated by summation of one-third octave band levels from 100 Hz through 10 kHz. Measurement uncertainty is tabulated on Page 5. The extent of conformance to requirements specified in Clause 5 of ISO 6926: 2016 is detailed in the calibration certificate appended to this report.

The reverberation test room has been qualified for the measurement of broad-band sound at 1/3 octave frequency bands from 50 Hz through 10 kHz, per Annex C of ANSI/ASA S12.51-2012. Reported results outside this frequency range are representative of the RAL test environment and are intended for use only in research and development applications.

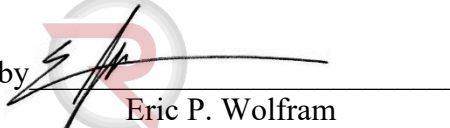
Tested by


Marc Sciaky
Senior Experimentalist

Report by


Keith Kimberling
Test Engineer

Approved by


Eric P. Wolfram
Laboratory Manager

INSTRUMENTS OF TRACEABILITY

<u>Instrument</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Brüel & Kjær Analyzer	Type 3160-A-042	3160-106968	2025-07-21
Brüel & Kjær Pistonphone	Type 4228	2781248	2025-07-21
Brüel & Kjær Microphone/Preamplifier	Type 4943	2525859	2025-11-18
EXTECH Hygrometer	SD700	A103639	2025-12-29
Monarch LED Stroboscope	PLS 200	2750750	2025-10-17
Fluke Multimeter	87-5 TRMS	28430260	2025-10-17



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TEST RESULTS (continued)

1/3-Octave Band Center Frequency (Hz)	Sound Power Level (L _w) dB ref 1 pW	A-weighted Sound Power Level (L _{WA})
31.5*	71.1	-
40*	79.2	-
50	75.5	45.3
63	78.4	52.2
80	77.7	55.2
100	78.3	59.2
125	79.2	63.1
160	80.2	66.8
200	80.6	69.7
250	80.5	71.9
315	80.3	73.7
400	80.1	75.3
500	80.3	77.1
630	80.8	78.9
800	81.6	80.8
1000	83.3	83.3
1250	84.0	84.6
1600	84.3	85.3
2000	83.5	84.7
2500	82.8	84.1
3150	82.4	83.6
4000	81.8	82.8
5000	81.6	82.1
6300	80.7	80.6
8000	78.8	77.7
10000	75.4	72.9
12500*	71.7	-
Overall level, unweighted	94.6	
Overall A-weighted Sound Power Level, L_{WA} (100-10k)	-	94.0

*Highlighted gray fields are outside of the test chamber's qualified frequency range (50Hz to 10,000Hz).



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MEASUREMENT UNCERTAINTY

Midband frequency (Hz)	σ_R	σ_{OMC}	σ_{tot}	U
50	2.50	1.08	2.72	5.45
63	2.50	0.47	2.54	5.09
80	2.50	0.73	2.60	5.21
100	1.00	0.58	1.15	2.31
125	1.00	0.25	1.03	2.06
160	1.00	0.40	1.08	2.15
200	0.30	0.28	0.41	0.82
250	0.30	0.21	0.37	0.74
315	0.30	0.25	0.39	0.78
400	0.30	0.19	0.35	0.71
500	0.30	0.17	0.34	0.69
630	0.30	0.16	0.34	0.68
800	0.30	0.19	0.36	0.71
1000	0.30	0.20	0.36	0.72
1250	0.30	0.20	0.36	0.73
1600	0.30	0.22	0.37	0.75
2000	0.30	0.20	0.36	0.73
2500	0.30	0.18	0.35	0.70
3150	0.30	0.22	0.37	0.74
4000	0.30	0.36	0.47	0.94
5000	0.30	0.33	0.45	0.89
6300	0.30	0.13	0.33	0.66
8000	0.30	0.21	0.37	0.73
10000	0.30	0.39	0.50	0.99
12500	0.40	0.35	0.53	1.07

- σ_R = Estimated standard deviation of reproducibility of test method with reference sound source in reverberation rooms, dB (ISO 6926, Table 2)
- σ_{OMC} = Standard deviation due to the instability of the operating and mounting conditions of the specimen, dB (ISO 3741 Clause 10.2 & G.3), estimated from RAL control tests on RSS of similar design
- σ_{tot} = Total standard deviation, dB (ISO 3741 Clause 10.1, equation 33)
- U = Expanded measurement uncertainty for 95 % interval, dB = 2 x σ_{tot} (ISO 3741 Clause 10.1, equation 34)



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APPENDIX A: Revisions to Original Test Report

<u>Date</u>	<u>Revision</u>
2026-06-02	Original report issued

END

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CALIBRATION TEST CERTIFICATE for REFERENCE SOUND SOURCE

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Reference Test Report RAL™-LW26-011

Test conducted 2026-06-01
Report issued 2026-06-02

Calibration Test Method

The subject instrument described below was calibrated to the specifications of ISO 6926:2016. The instrument is intended for use as a reference sound source in reverberation test rooms complying with ISO 3741.

From ISO 6926:2016(E): *This International Standard is titled as a calibration standard even though the method is conducted in a testing laboratory and the level calibration results are not directly traceable to national standards of measure in a strict metrological sense. Testing laboratories performing this method are not expected to meet all requirements normally associated with a calibration laboratory. Laboratories testing reference sound sources in accordance with this International Standard would typically comply with the requirements for testing laboratories but not necessarily with those for calibration laboratories.*

Test Sponsor Scantek, Inc.
6430 Dobbin Rd., Suite C,
Columbia, MD 21045

Instrument Description

Manufacturer: Acculab
Model No: R.S.S. 400
Serial No: 0792 409
Speed: 3449 revolutions per minute

As received examination: The device was inspected for general overall condition, and was determined to be good.

Environmental Conditions

Air Temperature: 23.0 ± 0.4 °C
Relative Humidity: 58.9 ± 4.2 %
Static Pressure: 99.0 ± 0.1 kPa

Document prepared by



Keith Kimberling
Test Engineer



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tel: 630.232.0104 fax: 630.232.0138
Founded in 1918 by Wallace Clement Sabine

Calibration Test Procedure

The test specimen sound power levels were determined using the Direct Method described in ISO 3741 Clause 9.1.4. The unit was tested in the laboratory's 292 m³ (10,311 ft³) reverberation test room.

Test Results

Reference sound sources are not typically manufactured with any type of correction adjustments, mechanical or otherwise. No adjustments were made to the test specimen prior to testing. Sound power level results are expressed in dB ref 1 pW under the reference meteorological conditions as specified in Clause 4 of ISO 6926: 2016. Results are tabulated in 1/3 octave bands on the following page, along with a comparison to results from the specimen's previous calibration test, if available.

Temporal Stability (ISO 6926:2016 Clause 5.2)

Per ISO 6926 Clause 5.6.2 NOTE, the temporal stability of a reference sound source can be considered compliant with ISO 6926 if the difference in sound power level between two consecutive calibrations is less than 2.83 times the maximum standard deviations given in Table I of the Standard. This maximum difference in sound power level is equal to 1.13 dB at frequency bands from 100 Hz to 160 Hz and equal to 0.57 dB at frequency bands from 200 Hz to 20,000 Hz. Differences exceeding these limits are marked at the applicable frequency bands on the following page.

Total Broadband Sound Power Level (ISO 6926:2016 Clause 5.3)

Unweighted and A-weighted broadband sound power levels are reported for the frequency range of 100 Hz to 10,000 Hz on the following page.

Spectral Characteristics (ISO 6926:2016 Clause 5.4)

Frequency range shall be within 12 dB for 100 to 10k Hz: PASS

No greater than 3 dB deviation from adjacent bands 100 Hz to 10 kHz: FAIL* (3.4 dB @ 8-10kHz) *Failure within range of expanded uncertainty for this method.

Comment: RAL has observed that many reference sound source makes/models fail the requirement for <3dB variation from adjacent bands at 10 kHz. ISO 6926:2016 Clause 5.4 states that if an RSS does not comply with the requirements of the frequency range from 100 Hz to 10kHz, it shall not be declared in compliance for the full frequency range. The standard provides language to support the use of special sound sources that meet these criteria over a limited frequency range.

Directivity (ISO 6926:2016 Clause 5.5)

Measurements of directivity index were not performed; the test specimen is to be used as a reference sound source only in reverberation test rooms complying with ISO 3741.

Report No: LW26-011
 Sponsor: Scantek, Inc.
 Date Issued: 2026-06-02

Frequency (Hz)	Sound Power Level (L_w), dB ref 1 pW		Change	ISO 6926:2016 Clause 5.6.2
	<u>RAL-LW19-008</u>	<u>RAL-LW26-011</u>		
	2019-05-17 Previous	2026-06-01 Current		
50	74.4	75.5	1.1	
63	79.9	78.4	-1.5	
80	78.1	77.7	-0.4	
100	78.5	78.3	-0.2	
125	78.7	79.2	0.5	
160	80.0	80.2	0.2	
200	80.8	80.6	-0.2	
250	80.6	80.5	-0.1	
315	80.3	80.3	0.0	
400	80.1	80.1	0.0	
500	80.5	80.3	-0.2	
630	81.0	80.8	-0.2	
800	81.7	81.6	-0.1	
1000	83.4	83.3	-0.1	
1250	84.0	84.0	0.0	
1600	84.5	84.3	-0.2	
2000	83.5	83.5	0.0	
2500	82.9	82.8	-0.1	
3150	82.4	82.4	0.0	
4000	81.9	81.8	-0.1	
5000	81.5	81.6	0.1	
6300	80.4	80.7	0.3	
8000	78.8	78.8	0.0	
10000	75.5	75.4	-0.1	
Overall level, unweighted	94.7	94.6	-0.1	
Overall A-weighted Sound Level, L_{WA} (100-10K)	94.0	94.0	0.0	



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