



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 01 November 2018

Certificate Number: UCRT18/2100

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV MS HIRE
 Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
 Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00231665
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	21609
Rion	Microphone	UC-59	13789
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
 Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 29 October 2018 ANV Job No. UKAS18/10680
 Date Calibrated 01 November 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	01 October 2018	UCRT18/1999	0653

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/2100

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator		Specified
Customer or Lab Calibrator		Lab Calibrator
Calibrator adaptor type if applicable		NC-74-002
Calibrator cal. date		03 October 2018
Calibrator cert. number		UCRT18/2010
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.01	dB Calibration reference sound pressure level
Calibrator frequency	1001.98	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	21.84	22.22	± 0.30 °C
Humidity	47.2	46.6	± 3.00 %RH
Ambient Pressure	99.30	99.34	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.			
Initial indicated level	94.0	dB	Adjusted indicated level
			94.0 dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device -		UR = Under Range indicated					
Weighting	A	C	Z				
	10.2	14.2	19.8	dB	dB	dB	
				UR	UR	UR	
Uncertainty of the electrical self generated noise ±			0.12 dB				

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END

Calibrated by: B. Bogdan

R 2

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 15 March 2018

Certificate Number: UCRT18/1297

Issued by:

ANV Measurement Systems

Beaufort Court

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Milton Keynes MK5 8HL

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

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Approved Signatory

K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV_MS_HIRE
 Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
 Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00320643
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	10651
Rion	Microphone	UC-59	03392
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
 Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 14 March 2018 ANV Job No. UKAS18/03174
 Date Calibrated 15 March 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	02 February 2017	UCRT17/1053	7623

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/1297

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source	Manufacturer	
Internet download date if applicable		N/A
Case corrections available	Yes	
Uncertainties of case corrections	Yes	
Source of case data	Manufacturer	
Wind screen corrections available	Yes	
Uncertainties of wind screen corrections	Yes	
Source of wind screen data	Manufacturer	
Mic pressure to free field corrections	Yes	
Uncertainties of Mic to F.F. corrections	Yes	
Source of Mic to F.F. corrections	Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002		Yes
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	07 March 2018	
Calibrator cert. number	UCRT18/1261	
Calibrator cal cert issued by	0653	
Calibrator SPL @ STP	94.00	dB Calibration reference sound pressure level
Calibrator frequency	1001.86	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15

Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	23.12	23.14	± 0.30 °C
Humidity	46.8	42.9	± 3.00 %RH
Ambient Pressure	97.87	97.88	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.1	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±				0.10	dB

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device -	UR = Under Range indicated				
Weighting	A	C	Z		
	13.8	18.1	22.8	dB	UR
				dB	UR
Uncertainty of the electrical self generated noise ±			0.12	dB	

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: B. Bogdan

R 2

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 21 May 2018

Certificate Number: UCRT18/1527

Issued by:

ANV Measurement Systems

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory

K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV MS HIRE
 Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
 Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00410083
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	10076
Rion	Microphone	UC-59	02432
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
 Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 17 May 2018 ANV Job No. UKAS18/05313
 Date Calibrated 21 May 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	06 June 2017	UCRT17/1454	0653

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/1527

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator		Specified
Customer or Lab Calibrator		Lab Calibrator
Calibrator adaptor type if applicable		NC-74-002
Calibrator cal. date		09 May 2018
Calibrator cert. number		UCRT18/1502
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.02	dB Calibration reference sound pressure level
Calibrator frequency	1001.88	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	23.73	24.05	± 0.30 °C
Humidity	45.9	42.3	± 3.00 %RH
Ambient Pressure	100.64	100.57	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.1	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB		

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device -		UR = Under Range indicated					
Weighting	A	C	Z				
	13.0	17.2	23.5	dB	dB	dB	
				UR	UR	UR	
Uncertainty of the electrical self generated noise ±			0.12 dB				

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END

Calibrated by: B. Bogdan

R 2

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 20 June 2018

Certificate Number: UCRT18/1634

Issued by:

ANV Measurement Systems

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV MS HIRE
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00620865
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	20925
Rion	Microphone	UC-59	03702
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 15 June 2018 ANV Job No. UKAS18/06382
Date Calibrated 20 June 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	24 August 2017	UCRT17/1719	0653

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/1634

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source	Manufacturer	
Internet download date if applicable	N/A	
Case corrections available	Yes	
Uncertainties of case corrections	Yes	
Source of case data	Manufacturer	
Wind screen corrections available	Yes	
Uncertainties of wind screen corrections	Yes	
Source of wind screen data	Manufacturer	
Mic pressure to free field corrections	Yes	
Uncertainties of Mic to F.F. corrections	Yes	
Source of Mic to F.F. corrections	Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator	Specified	
Customer or Lab Calibrator	Lab Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	11 June 2018	
Calibrator cert. number	UCRT18/1592	
Calibrator cal cert issued by	0653	
Calibrator SPL @ STP	94.02	dB Calibration reference sound pressure level
Calibrator frequency	1001.95	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15
 Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	22.31	22.40	± 0.30 °C
Humidity	39.8	40.1	± 3.00 %RH
Ambient Pressure	100.86	100.83	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.			
Initial indicated level	94.0	dB	Adjusted indicated level 94.0 dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than	N/A	dB	A Weighting
Uncertainty of the microphone installed self generated noise ±	N/A	dB	

Microphone replaced with electrical input device -		UR = Under Range indicated					
Weighting	A	C	Z				
	11.0	15.1	20.6	dB	dB	dB	
				UR	UR	UR	
Uncertainty of the electrical self generated noise ±			0.12	dB			

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

..... END

Calibrated by: A Patel

R 1

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 18 June 2018

Certificate Number: UCRT18/1622

Issued by:

ANV Measurement Systems

Beaufort Court

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV MS HIRE
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00620871
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	20931
Rion	Microphone	UC-59	04569
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 13 June 2018 ANV Job No. UKAS18/06374
Date Calibrated 18 June 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	03 July 2017	UCRT17/1555	0653

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/1622

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator		Specified
Customer or Lab Calibrator		Lab Calibrator
Calibrator adaptor type if applicable		NC-74-002
Calibrator cal. date		11 June 2018
Calibrator cert. number		UCRT18/1592
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.02	dB Calibration reference sound pressure level
Calibrator frequency	1001.95	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15

Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	23.13	23.12	± 0.30 °C
Humidity	52.3	42.8	± 3.00 %RH
Ambient Pressure	100.81	100.76	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.1	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±				0.10	dB

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than N/A dB A Weighting

Uncertainty of the microphone installed self generated noise ± N/A dB

Microphone replaced with electrical input device -	UR = Under Range indicated					
Weighting	A		C		Z	
	11.9	dB UR	16.0	dB UR	21.4	dB UR

Uncertainty of the electrical self generated noise ± 0.12 dB

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

R 1

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 11 April 2018

Certificate Number: UCRT18/1378

Issued by:

ANV Measurement Systems

Beaufort Court

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages

Approved Signatory

J. Harriman

Customer ANV Measurement Systems
Beaufort Court
17 Roebuck Way
Milton Keynes
MK5 8HL

Order No.	ANV MS Hire			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	<i>Manufacturer</i>	<i>Instrument</i>	<i>Type</i>	<i>Serial No. / Version</i>
	Rion	Sound Level Meter	NL-52	00620895
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	10678
	Rion	Microphone	UC-59	03789
	Rion	Calibrator	NC-74	34536109
		Calibrator adaptor type if applicable		NC-74-002

Performance Class 1

Test Procedure TP 2.SLM 61672-3 TPS-49

Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02

If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 09 April 2018

ANV Job No. UKAS18/04232

Date Calibrated 11 April 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	<i>Dated</i>	<i>Certificate No.</i>	<i>Laboratory</i>
	03 May 2017	UCRT17/1328	0653

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It 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.

CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/1378

UKAS Accredited Calibration Laboratory No. 0653

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Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52	
SLM instruction manual ref / issue		11-03	
SLM instruction manual source		Manufacturer	
Internet download date if applicable		N/A	
Case corrections available		Yes	
Uncertainties of case corrections		Yes	
Source of case data		Manufacturer	
Wind screen corrections available		Yes	
Uncertainties of wind screen corrections		Yes	
Source of wind screen data		Manufacturer	
Mic pressure to free field corrections		Yes	
Uncertainties of Mic to F.F. corrections		Yes	
Source of Mic to F.F. corrections		Manufacturer	
Total expanded uncertainties within the requirements of IEC 61672-1:2002		Yes	
Specified or equivalent Calibrator		Specified	
Customer or Lab Calibrator		Lab Calibrator	
Calibrator adaptor type if applicable		NC-74-002	
Calibrator cal. date		05 April 2018	
Calibrator cert. number		UCRT18/1348	
Calibrator cal cert issued by		0653	
Calibrator SPL @ STP	93.98	dB	Calibration reference sound pressure level
Calibrator frequency	1001.90	Hz	Calibration check frequency
Reference level range	25 - 130	dB	

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15

Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	23.38	23.63	± 0.30 °C
Humidity	36.2	32.1	± 3.00 %RH
Ambient Pressure	99.77	99.73	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.1	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±			0.10 dB		

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than N/A dB A Weighting

Uncertainty of the microphone installed self generated noise ± N/A dB

Microphone replaced with electrical input device -		UR = Under Range indicated					
Weighting	A	C	Z				
	12.4	16.4	21.9	dB	dB	dB	
				UR	UR	UR	

Uncertainty of the electrical self generated noise ± 0.12 dB

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

R 1

Additional Comments

None



CERTIFICATE OF CALIBRATION



0653

Date of Issue: 26 October 2018

Certificate Number: UCRT18/2082

Issued by:

ANV Measurement Systems

Beaufort Court

17 Roebuck Way

Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01908 642814

E-Mail: info@noise-and-vibration.co.uk

Web: www.noise-and-vibration.co.uk

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

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Approved Signatory
J. Harriman

Customer ANV Measurement Systems
 Beaufort Court
 17 Roebuck Way
 Milton Keynes
 MK5 8HL

Order No. ANV MS HIRE
Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator
Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	00976221
Rion	Firmware		1.9
Rion	Pre Amplifier	NH-25	76338
Rion	Microphone	UC-59	12154
Rion	Calibrator	NC-74	34536109
	Calibrator adaptor type if applicable		NC-74-002

Performance Class 1
Test Procedure TP 2.SLM 61672-3 TPS-49
Procedures from IEC 61672-3:2006 were used to perform the periodic tests.

Type Approved to IEC 61672-1:2002 YES Approval Number 21.21 / 13.02
If YES above there is public evidence that the SLM has successfully completed the applicable pattern evaluation tests of IEC 61672-2:2003

Date Received 25 October 2018 ANV Job No. UKAS18/10671
Date Calibrated 26 October 2018

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

Previous Certificate	Dated	Certificate No.	Laboratory
	29 November 2017	UCRT17/2061	0653

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CERTIFICATE OF CALIBRATION

Certificate Number

UCRT18/2082

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

Sound Level Meter Instruction manual and data used to adjust the sound levels indicated.

SLM instruction manual title	Sound Level Meter	NL-42 / NL-52
SLM instruction manual ref / issue		11-03
SLM instruction manual source		Manufacturer
Internet download date if applicable		N/A
Case corrections available		Yes
Uncertainties of case corrections		Yes
Source of case data		Manufacturer
Wind screen corrections available		Yes
Uncertainties of wind screen corrections		Yes
Source of wind screen data		Manufacturer
Mic pressure to free field corrections		Yes
Uncertainties of Mic to F.F. corrections		Yes
Source of Mic to F.F. corrections		Manufacturer
Total expanded uncertainties within the requirements of IEC 61672-1:2002	Yes	
Specified or equivalent Calibrator		Specified
Customer or Lab Calibrator		Lab Calibrator
Calibrator adaptor type if applicable		NC-74-002
Calibrator cal. date		03 October 2018
Calibrator cert. number		UCRT18/2010
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.01	dB Calibration reference sound pressure level
Calibrator frequency	1001.98	Hz Calibration check frequency
Reference level range	25 - 130	dB

Accessories used or corrected for during calibration - Extension Cable & Wind Shield WS-15

Note - if a pre-amp extension cable is listed then it was used between the SLM and the pre-amp.

Environmental conditions during tests	Start	End	
Temperature	20.82	21.38	± 0.40 °C
Humidity	47.2	43.1	± 3.00 %RH
Ambient Pressure	100.02	100.03	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.1	dB	Adjusted indicated level	94.0	dB
The uncertainty of the associated calibrator supplied with the sound level meter ±				0.10	dB

Self Generated Noise This test is currently not performed by this Lab.

Microphone installed (if requested by customer) = Less Than N/A dB A Weighting

Uncertainty of the microphone installed self generated noise ± N/A dB

Microphone replaced with electrical input device -	UR = Under Range indicated					
Weighting	A		C		Z	
	10.9	dB UR	15.0	dB UR	21.1	dB UR

Uncertainty of the electrical self generated noise ± 0.12 dB

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

For the test of the frequency weightings as per paragraph 12. of IEC 61672-3:2006 the actual microphone free field response was used.

The acoustical frequency tests of a frequency weighting as per paragraph 11 of IEC 61672-3:2006 were carried out using an electrostatic actuator.

END

Calibrated by: A Patel

R 1

Additional Comments

None