APPENDIX 11-2

CALIBRATION CERTIFICATES





Date of Issue: 28 July 2017

Issued by:

ANV Measurement Systems

Beaufort Court 17 Roebuck Way Milton Keynes MK5 8HL

Telephone 01908 642846 Fax 01903 642814

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

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

Acoustics Noise and Vibration Ltd trading as ANV Measu

Certificate Number: UCRT17/1627

	Page	1	of	2	Pages	
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K. Mistry	-					

Customer

Grenke Ltd Unit 5D Fifth Floor Co. Cork Ireland

Order No.

1741

Description Identification Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Manufacturer Instrument Type Serial No. / Version Rion NL-52 Sound Level Meter 00575785 Rion Firmware 1.8 Rion Pre Amplifier NH-25 65812 Rion UC-59 Microphone 11406 Rion Calibrator NC-74

Calibrator adaptor type if applicable

34536109 NC-74-002

Performance Class

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

27 July 2017

ANV Job No.

UKAS17/07375

Date Calibrated

28 July 2017

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

Initial Calibration

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 Number UCRT17/1627

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

Sound Level Meter Instruc					nd leve	els ind	dicated	l.		
SLM instruction manual title	Sound Level	71 0000 TO SECTION 171 150	-42 / NL-52							
SLM instruction manual ref / i		1	1-03							
SLM instruction manual source	ce	Manu	ufacturer							
Internet download date if app	licable		N/A							
Case corrections available		,	Yes							
Uncertainties of case correcti	ons	,	Yes							
Source of case data		Manu	facturer							
Wind screen corrections avail			Yes							
Uncertainties of wind screen	corrections		Yes							
Source of wind screen data			facturer							
Mic pressure to free field corr			Yes							
Uncertainties of Mic to F.F. co			Yes							
Source of Mic to F.F. correction			facturer	2000						
Total expanded uncertainties Specified or equivalent Calibration				2002	Yes					
Customer or Lab Calibrator	ator	- 1-	ecified alibrator							
Calibrator adaptor type if appl	icable		74-002							
Calibrator cal. date	icable		r4-002 ily 2017							
Calibrator cert. number			-							
		UCRT17/15	91							
Calibrator cal cert issued by		0653	175220							
Calibrator SPL @ STP		94.03	_	Calibra	ation re	eferen	ce sour	nd pres	sure le	vel
Calibrator frequency		1001.9		Calibra	ation ch	heck f	requen	су		
Reference level range		25 - 13	30 dB							
Accessories used or corrected	d for during calib	ration -	Wind Shie							
Note - if a pre-amp extension	cable is listed th	en it was use	ed between	the SLM	and the	e pre-	amp.			
Environmental conditions duri	ng tests	Star	t T	End						
Ter	mperature	22.56		22.97		±	0.20	°C		
Hui	midity	47.6	X .	43.3		±	3.00	%RH		
Am	bient Pressure	99.76	3	99.75		±	0.03	kPa		
Response to associated Calib	rator at the envir	ronmental co	nditions abo	ove.						
Initial indicated level	93.9	dB	Adjusted	indicated	dlevel		94.0		dB	
The uncertainty of the associa	ited calibrator su	pplied with t	he sound le	vel meter	±		0.10		dB	
	s test is currently									
Microphone installed (if reques	sted by custome	r) = Less Th	nan I	N/A		dB .	A Weig	htino		
Uncertainty of the microphone	installed self ge	nerated nois	e ±	N/A		dB	T	THE STATE OF		
Microphone replaced with elec			UR = Unde	or Danne			1			
Weighting	A Dat device		C	n range	mulcat Z		_	1		
13.5	IdB IUR	15.6	dB IUR	21		dB	IUR			
Uncertainty of the electrical se			100	0.12	_	dB	OI V	1		
The reported expanded uncert			uncertainty	multiplie			ann fan	tor k=2	. manus allah	line.
a coverage probability of appro	oximately 95%	The uncertain	inty evaluation	on has he	on car	ried o	age rac	tor K =2	, provid	ling
UKAS requirements.	minimizery of the	THE BRIDERIES	nity ovaluation	on nas be	zori Gai	neu u	ut iii ac	curuari	ce with	
For the test of the frequency w	eightings as per	paragraph 1	2 of IEC 61	1672-3-20	M6 the	actus	al micro	nhone	fron fin	l-l
response was used.	organia go do por	paragrapir	2. 01 120 0	1012-0.20	NO trie	actue	ai illicio	priorie	iree nei	u
The acoustical frequency tests	of a frequency	weighting se	nor naroara	onh 11 of	IEC 64	070 0	.2000			
using an electrostatic actuator.	or a frequency	weighting as	per paragra	apri 11 or	IEC 61	6/2-3	3:2006 V	were ca	irried o	ut
and an order or an artifactor		-	ND.							
Calibrated by: A Patel		E	ND			• • • • • • • • • • • • • • • • • • • •			•••••	
Additional Comments										R 1
None										





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Acoustics Noise and Vibration Ltd trading as ANV Mes

Certificate Number: UCRT17/1624

Page of Approved Signatory Mistry

Customer

Grenke Ltd Unit 5D Fifth Floor Co. Cork Ireland

Order No.

1741

Description Identification Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Manufacturer Instrument Type Serial No. / Version Rion Sound Level Meter 00575802 NL-52 Rion Firmware 1.8 Rion Pre Amplifier NH-25 75829 Rion UC-59 Microphone 11426 Rion Calibrator NC-74 34536109 Calibrator adaptor type if applicable NC-74-002

Performance Class Test Procedure

TP 2.SLM 61672-3 TPS-49

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

Type Approved to IEC 61672-1:2002

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

27 July 2017

ANV Job No.

UKAS17/07375

Date Calibrated 28 July 2017

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 we're 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 Initial Calibration

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Certificate Number UCRT17/1624

UKAS Accredited Calibration Laboratory No. 0653

Page 2 of 2 Pages

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SLM instruction manual title	Sound Level		-42 / NL-	-52				
SLM instruction manual ref /			1-03					
SLM instruction manual soun		Manu	ufacturer					
Internet download date if app	licable		N/A					
Case corrections available		,	Yes					
Uncertainties of case correcti	ions	,	Yes					
Source of case data		Manu	facturer					
Wind screen corrections avail		,	Yes					
Uncertainties of wind screen	corrections	,	Yes					
Source of wind screen data		Manu	ufacturer					
Mic pressure to free field corr			Yes					
Uncertainties of Mic to F.F. co			Yes					
Source of Mic to F.F. correcti			ıfacturer					
Total expanded uncertainties				-1:20	02 Yes			
Specified or equivalent Calibr	rator		ecified					
Customer or Lab Calibrator			alibrator					
Calibrator adaptor type if app	licable		74-002					
Calibrator cal. date		14 Ju	ıly 2017					
Calibrator cert. number		UCRT17/15	591					
Calibrator cal cert issued by		0653						
Calibrator SPL @ STP		94.03	3 0	ďΒ	Calibration re	feren	ce sound o	ressure level
Calibrator frequency		1001.9	93 H	Hz	Calibration cl			
Reference level range		25 - 13	30 c	iB.	- Committee of the Comm	10011	requeriej	
Accessories used or correcte	d for during callb	ration -	Wind S	hield	WS-10			
Note - if a pre-amp extension	cable is listed th	en it was us				e nre.	amn	
Environmental conditions duri			-	011 01	End	o pro	unip.	
Environmental conditions duri	ing tests	Star			Fnd			
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Te	mperature	21.72	2		22.23	±	0.20 °C	
Tei Hu	mperature midity	21.72 51.2	2		22.23 47.3	±	3.00 %F	
Tei Hu Am	mperature midity bient Pressure	21.72 51.2 99.76	3		22.23 47.3 99.75			
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K. Mistry

Certificate Number: UCRT18/1440

Page

Approved Signatory



Date of Issue: 20 April 2018

Issued by:

ANV Measurement Systems

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

AWN Consulting Limited

The Tecpro Building

Clonshaugh Business and Technology Park

Dublin 17 Ireland D17 NX50

Order No.

Customer

Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

Identification Manufacturer Instrument Type Serial No. / Version

Rion Sound Level Meter NL-52 00186669 Rion Firmware 1.9 Rion Pre Amplifier NH-25 76819 Rion Microphone UC-59 12814 Rion Calibrator NC-74 34536109

Calibrator NC-74 34536109
Calibrator adaptor type if applicable NC-74-002

Performance Class

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 20 April 2018

20 April 2018 ANV Job No. UKAS18/04261

Date Calibrated 20 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 Dated Certificate No. Laboratory

Initial Calibration

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Certificate Number UCRT18/1440

UKAS Accredited Calibration Laboratory No. 0653

page 2 of 2 Pages

	iruciion manuai an	d data u	sed to adj	ust the	e sour	id leve	ls ind	icated.		
SLM instruction manual to	tle Sound Level	Meter	NL-42 / NL	-52						
SLM instruction manual re	ef / issue		11-03							
SLM instruction manual s	ource	Ma	anufacturer							
Internet download date if	applicable		N/A							
Case corrections available	e		Yes							
Uncertainties of case corr	rections		Yes							
Source of case data		Ma	anufacturer							
Wind screen corrections	available		Yes							
Uncertainties of wind scre	een corrections		Yes							
Source of wind screen da		Ma	anufacturer							
Mic pressure to free field			Yes							
Uncertainties of Mic to F.			Yes							
Source of Mic to F.F. corr			anufacturer		00		_			
Total expanded uncertain				2-1:20	02	Yes				
Specified or equivalent Co			Specified							
Customer or Lab Calibrat Calibrator adaptor type if			b Calibrato IC-74-002							
Calibrator cal, date	applicable	-	April 2018							
			RT18/134							
Calibrator cert. number	h	00	0653	,						
Calibrator cal cert issued	by			-ID						
Calibrator SPL @ STP			3.98	dB						sure level
Calibrator frequency			01.90	Hz	Calibra	etion ch	neck f	requenc	y	
Reference level range		25	- 130	dB						
Accessories used or corre								WS-15		
Note - if a pre-amp extens	sion cable is listed th	en it was	used betw	een the	e SLM	and the	e pre-a	amp.		
Englander and all and different		-	11		End					
Environmental conditions	during tests	S	tart		End					
Environmental conditions	Temperature		3.35		23.84		±		°C	
Environmental conditions		23			23.84 35.6		±	3.00 9	%RH	
Environmental conditions	Temperature	23	3.35		23.84				%RH	
	Temperature Humidity Ambient Pressure	23 3 10	3.35 8.4 1.37	s above	23.84 35.6 101.36		±	3.00 9	%RH	
Response to associated (Temperature Humidity Ambient Pressure Calibrator at the envi	23 3 10 ronmenta	3.35 8.4 1.37 I conditions		23.84 35.6 101.36 e.	3	±	3.00 9	%RH «Pa	dB
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Date of Issue: 28 July 2017

Issued by:

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Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Certificate Number: UCRT17/1627

Page 1 of 2 Pages
Approved Signatory

K. Mistry

Customer Gr

Grenke Ltd Unit 5D Fifth Flocr Co. Cork Ireland

Order No.

1741

Description Identification Sound Level Meter / Pre-amp / Microphone / Associated Calibrator

 Manufacturer
 Instrument
 Type

 Rion
 Sound Level Meter
 NL-52

 Rion
 Firmware

 Rion
 Pre Amplifier
 NH-25

 Rion
 Microphone
 UC-59

 Rion
 Calibrator
 NC-74

Serial No. / Version 00575785

Firmware 1.8

Pre Amplifier NH-25 65812

Microphone UC-59 11406

Calibrator NC-74 34536109

Calibrator adaptor type if applicable NC-74-002

Performance Class

Test Procedure

Date Calibrated

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 27 July 2017

28 July 2017

ANV Job No.

UKAS17/07375

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

Initial Calibration

This certificate is issued in accordance with the laboratory accordinates

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