8 January 2020

Roger Harborough
Director of Public Services
Uttlesford District Council
Council Offices
London Road
Saffron Walden
CB11 4ER

Dear Roger,

Re: UTT/18/0460/FUL: Airfield works comprising two new taxiway links to the existing runway (a Rapid Access Taxiway and a Rapid Exit Taxiway), six additional remote aircraft stands (adjacent Yankee taxiway); and three additional aircraft stands (extension of the Echo Apron) to enable combined airfield operations of 274,000 aircraft movements (of which not more than 16,000 movements would be Cargo Air Transport Movements (CATM)) and a throughput of 43 million terminal passengers, in a 12-month calendar period.

I refer to the meetings held on 15th and 22nd November 2019 with you and Gordon concerning the S106 agreement as drafted, following the heads of terms that were before the Planning Committee in November 2018.

The minutes of that meeting reflect the changes to the S106 that were agreed in order to form an amended proposed mitigation package. In addition, it was also agreed that some matters required further clarification and I set these out below.

Noise Calibration Certificates

The noise monitors that were utilised for the baseline measurements are owned by our appointed noise consultants, Cole Jarman. Cole Jarman is ISO 9001 accredited and also a member of the Association of Noise Consultants and its staff members of the Institute of Acoustics, the industry body for noise professionals. Both these bodies require and uphold professional standards and codes of conduct within the noise industry.

I have attached the relevant calibration certificates as an appendix to this letter.

Sound Insulation Grant Scheme (SIGS) Qualifying Properties

Contained within the submitted ES addendum dated 5 July 2018, the relevant section on noise contained the following table (ref 3.1.10 of Appendix 3b):

Enterprise House
Bassingbourn Road
Essex
CM24 1QW
United Kingdom

Scheme	Residences	Schools	Healthcare Facilities	Places of Worship	Community Facilities
Existing	1,088	-	-	-	-
Proposed:					
High	50	-	-	-	-
Medium	400				
Low	1,600 [a]	5	2	8 [b]	3

T1 Approximate number of properties eligible for SIGS

[a] Estimated for the 'peak noise year' based on dwelling counts within the 2024 DC 57dB $L_{Aeq,16h}$ and 2023 DC N65 200 contours.

[b] Reducing to 7 if the Ebenezer Chapel in Molehill green is excluded, the building having been sold.

The above table is based on the rounded numbers provided via the ERCD modelling undertaken as part of the ES and it therefore an estimate as to numbers of properties that are included within the identified tiers and are rounded to the nearest 50. Ultimately, the new SIGS will rely on GIS building point data to provide a greater degree of accuracy for property qualification assessment.

Stansted College Lease

The current lease granted to the college is specific to the existing building. Accordingly, it doesn't allow for an extension to the facility. As part of our future plans for the college, recently published in the press, we are keen to see expansion and therefore the wording "from time to time" contained in the current S106 agreement is specifically intended to allow for a new or amended lease to be agreed, as and when necessary.

Surface Water Discharge

The Environment Agency is the responsible body for water quality matters.

S106 Value

I have attached a table to this letter that contains our estimated capital value of the S106 obligations for the proposed 2020 draft S106, thus, this table includes the recently agreed increase in Local Road Fund (to include fly-parking sum) and the UDC monitoring costs.

Sensitivity Tests Contained within the ES

We remain entirely confident about the robustness of our Environmental Statement and the assumptions that are contained within it. In respect of the fleet mix assumptions used, i.e. the extent of use of next generation aircraft, the ES takes a proportionate view of families of aircraft that may operate at Stansted in respect of calculating impacts. This point is covered in the methodology sections of each relevant chapter in the ES.

Further to this, I would refer you back to section 5 of my letter to you dated 13 November 2018 which addresses fleet consequences of the forecast aircraft movements. I would also point to the recent public comments made in early November 2019 by Ryanair's Chief Financial Officer that the airlines' target of flying 200million passengers by 2024 remained on track; fleet renewals of aircraft with greater seating

capacity form part of the company's business plan. As the fleet forecasts are based on assumption made for fleet mix some eight years in the future, and in light of the above references, it is not reasonable to suggest that short term issues will definitely and substantially distort long-term forecasts. This alone is enough to conclude no need for sensitivity tests to be carried out.

Nevertheless, within the ES, there is already a sensitivity test of the air noise impacts. This analysed the impact of slower fleet replacement and concluded that the impact would be imperceptible. The air quality assessment does not contain sensitivity tests, as all the modelling undertaken concluded negligible impact for human receptors, and no significant effects for ecological receptors. In consideration of the points above concerning fleet mix assumptions, there can be no suggestion that the ES conclusions on change in impact are fundamentally flawed. We firmly believe them to remain relevant and robust.

I trust the above is self-explanatory, but if you have any further questions please do not hesitate to contact me.

Sincerely,

Alistair Andrew, MRTPI
Planning Manager
London Stansted Airport

Memorandum

Project: **Stansted Airport: 35 mppa + Development**
Subject: **Sound Measuring Equipment Calibration Certificates**
Prepared: **Vernon Cole**
Date: **11 October 2019**
Reference: **16/0366/M26** **Revision:** **0** **Approved:** **AE**

Technical Appendix 7.4 Background Noise Measurements, which was submitted as part of the Environmental Statement for planning application UTT/18/0460/FUL, contains details and results of environmental noise measurements undertaken around Stansted Airport during 2017 and January 2018.

Table T1, below, identifies the type and serial number of the equipment used on each of the measurement dates and references the calibration certificates that were valid at the time of the measurements.

All referenced calibration certificates are appended to this memo.

Sound Measuring Equipment Calibration Certificates

Item	Manufacturer	Type	Serial No.	Measurement Dates	Calibration Certificate Number
Real Time Sound Level Analyser	Norsonic	118	31707	30/March/ 2017	15014
Microphone	GRAS	40AF	102511	07/April/2017	15014
Pre-amplifier	Norsonic	1206	30742	08/May/2017	15014
Acoustic Calibrator	Norsonic	1251	31432	25/July/2017	15256
Real Time Sound Level Analyser	Norsonic	140	1405822	28/April/2017	21189
Microphone	Norsonic	1225	91806	25/July/2017	21188
Pre-amplifier	Norsonic	1209	12343	26/July/2017	21188
Acoustic Calibrator	Norsonic	1251	31878	15/January/2018	15323
Real Time Sound Level Analyser	Rion	NL52	00253698	11/April/2017	TCRT17/1328
Microphone	Rion	UC-59	07491		TCRT17/1328
Pre-amplifier	Rion	NH-25	43728		TCRT17/1328
Acoustic Calibrator	Rion	NC-74	34257026		TCRT17/1327
Real Time Sound Level Analyser	Rion	NL52	00142653	15/August/2017	1604198
Microphone	Rion	UC-59	06098		1604198
Pre-amplifier	Rion	NH-25	32681		1604198
Acoustic Calibrator	Rion	NC-74	34236428		14979

T1 Equipment utilised during environmental noise measurements around Stansted Airport

End of Section

Acoustic Calibration Services Limited,
Unit 6F, Diamond Industrial Centre,
Works Road, Letchworth Garden City,
Hertfordshire SG6 1LW

Tel: 01462-610085/87 Fax: 01462-610087
e-mail: cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Norsonic 118 **Serial No: 31707**

Organisation: Cole Jarman Limited, John Cree House, 24B High Street Addlestone, Surrey, KT15 1TN

Job Number: 2492 **Customer Order Reference:** P16/0016

The Sound Level Meter was assessed for conformance with International Standards *IEC 60651* and *IEC 60804* using test procedures described in *BS 7580* Part 1. The meter claims Type 1 accuracy conformance and it was against these requirements that all the results were evaluated.

The sound level meter was fitted with a **GRAS 40AF** measurement microphone Serial No. **102511** and a **Norsonic 1206** preamplifier Serial No. **30742**. The microphone has a nominal capacitance of 18 pF and the device used to apply electrical signals to the preamplifier was of the same nominal capacitance.

A **Norsonic 1251** Acoustic Calibrator Serial No: **31432** was supplied with the sound level meter and was utilised in establishing the initial acoustic calibration setting.

The sound level meter passed all applied tests with no deviations from Type 1 specification, in accordance with *IEC 60651* and *IEC 60804*. Accordingly, the meter meets the requirements of *BS 7580* Part 1.

The sound level meter should be set to read 113.9dB when used with the associated acoustic calibrator, microphone and preamplifier as detailed above at reference atmospheric pressure.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **15014**
Date of Issue: **14th June 2016**

Signature:
Print Name: **Trevor Lewis**

Acoustic Calibration Services Limited
Unit 6H, Diamond Industrial Centre
Works Road, Letchworth Garden City
Hertfordshire SG6 1LW
Tel: 01462-610085 Mobile: 0771 886 4944
Email: trevjohnlewis@aol.com
or
cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Norsonic 1251 **Serial No: 31432**

Organisation: Cole Jarman Limited, John Cree House, 24B High Street Addlestone, Surrey, KT15 1TN

Job Number: 2589 **Customer Order Reference:** P17/0023

The acoustic calibrator was fitted with a Norsonic type 1443 coupler for ½" microphones. The acoustic calibrator was run for a period of time until a stable level was measured. The output level was compared to the certified level of the laboratory measurement references. The measurements were repeated 5 times and the average value calculated.

The ambient temperature during calibration was **24.0** ± 1°C.
The barometric pressure was **101.3** to **101.4** kPa.
The relative humidity was 48 to 58 %

The sound pressure level output from the Acoustic Calibrator was measured in its half inch configuration using a B&K 4188 microphone. The mean level output of the acoustic calibrator was 114.1dB when corrected to the standard atmospheric pressure of 101.3kPa at the reference setting.

The signal output frequency of the acoustic calibrator is 1000Hz.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **15256**
Date of Issue: **11th July 2017**

Signature:
Print Name: **Trevor Lewis**

Campbell Associates Ltd
5b Chelmsford Road Industrial Estate
GREAT DUNMOW, Essex, GB-CM6 1HD
www.campbell-associates.co.uk
Phone 01371 871030 Facsimile 01371879106

CALIBRATION

Certificate of Calibration and Conformance

Certificate Number:- 21189

Test object:	**Sound Level Meter, Class 1 (Precision)**
Manufacturer:	**Norsonic**
Type:	**140**
Serial no:	**1405822**
Customer:	**Cole Jarman Ltd**
Address:	**John Cree House, 24B High Street, Addlestone, Surrey. KT15 1TN.**
Contact Person:	**Andy Emery**
Order No:	**P16/0009**

Method :
Calibration has been performed as set out in CA Technical Procedures TP01 & 02 as appropriate. These are based on the procedures for periodic verification set out in BS EN IEC 61672-3:2006. Results and conformance statement are overleaf and detailed results are in the attached Test Report.

	Producer:	Type:	Serial No:	Certificate number
Microphone	Norsonic	1225	91806	21188
Calibrator*	Norsonic	1251	31878	14856
Preamplifier	Norsonic	1209	12343	Included

Additional items that also have been submitted for verification

Wind shield	None
Attenuator	None
Extension cable	None

These items have been taken into account wherever appropriate.

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Measurement conditions:	99.67 kPa	23.8 °C	39.0 %RH

Date received :	17/03/2016
Date of calibration:	04/04/2016
Date of issue:	04/04/2016

Engineer

M. Panivel

Palanivel Marappan B.Eng (Hons), M.Sc

Supervisor

Darren Batten Tech IOA

Certificate of Calibration and Conformance

Certificate Number:- 21189

Conformance

From markings on the sound level meter or by reference to the manufacturer's published literature it has been determined that the instrument submitted for verification was originally manufactured to BS EN IEC 61672-1:2002 and similarly that the associated sound calibrator conforms to BS EN IEC 60942.

Statement of conformance

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

[1] This evidence is held on file at the calibration laboratory

Measurement Results:

Indication at the calibration check frequency - IEC61672-3 Ed.1 #9	Passed
Self-generated noise - IEC 61672-3 Ed.1 #10	Passed
Acoustical test of a frequency weighting - IEC 61672-3 Ed.1 #11	Passed
Frequency weightings: A Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency weightings: C Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency weightings: Z Network - IEC 61672-3 Ed.1 #12.3	Passed
Frequency and time weightings at 1 kHz IEC 61672-3 Ed.1 #13	Passed
Level linearity on the reference level range - IEC 61672-3 Ed.1 #14	Passed
Toneburst response - IEC 61672-3 Ed.1 #16	Passed
Peak C sound level - IEC 61672-3 Ed.1 #17	Passed
Overload indication - IEC 61672-3 Ed.1 #18	Passed
Combined electrical and acoustical test - IEC 61672-3 Ed.1 #12	Passed

Comment

Correct level with associated calibrator is 114.0dB(A).

Observations

The details of the uncertainty for each measurement is available from the Calibration Laboratory on request and is based on the standard uncertainty multiplied by a coverage factor K=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with EA publication EA-4/02. Details on the sources of corrections and their associated uncertainties that relate to this verification are contained the detailed test report accompanying this certificate.

Acoustic Calibration Services Limited
Unit 6H Diamond Industrial Centre
Works Road Letchworth Garden City
Hertfordshire SG6 1LW
Tel: 01462-610085 Mobile: 0771 886 4944
Email: trevjohnlewis@aol.com
or
cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Norsonic 1251 **Serial No: 31878**

Organisation: Cole Jarman Limited, John Cree House, 24B High Street Addlestone, Surrey, KT15 1TN

Job Number: 2627 **Customer Order Reference:** P17/0039

The acoustic calibrator was fitted with a Norsonic type 1443 coupler for ½" microphones. The acoustic calibrator was run for a period of time until a stable level was measured. The output level was compared to the certified level of the laboratory measurement references. The measurements were repeated 5 times and the average value calculated.

The ambient temperature during calibration was **19.3** ± 1°C.
The barometric pressure was **99.2** to **99.3** kPa.
The relative humidity was **55** to **65**%

The sound pressure level output from the Acoustic Calibrator was measured in its half inch configuration using a B&K 4188 microphone. The mean level output of the acoustic calibrator, corrected to the standard atmospheric pressure of 101.3kPa, was 114.0dB.

The output frequency of the acoustic calibrator is 1000Hz.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **15323**
Date of Issue: **22nd November 2017**

Signature:
Print Name: **Trevor Lewis**

CERTIFICATE OF CALIBRATION

Date of Issue: 02 June 2017 **Certificate Number: TCRT17/1328**

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

Approved Signatory

J. Harriman

Customer	Cole Jarman Associates John Cree House 24B High Street Addlestone Surrey KT15 1TN			
Order No.	17/0019			
Description	Sound Level Meter / Pre-amp / Microphone / Associated Calibrator			
Identification	*Manufacturer*	*Instrument*	*Type*	*Serial No. / Version*
	Rion	Sound Level Meter	NL-52	00253698
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	43728
	Rion	Microphone	UC-59	07491
	Rion	Calibrator	NC-74	34257026
		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	31 May 2017	ANV Job No.	TRAC17/05178	
Date Calibrated	02 June 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		

CERTIFICATE OF CALIBRATION

Certificate Number
TCRT17/1328

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		Customers Calibrator
Calibrator adaptor type if applicable		NC-74-002
Calibrator cal. date		02 June 2017
Calibrator cert. number		TCRT17/1327
Calibrator cal cert issued by		ANV Measurement Systems
Calibrator SPL @ STP	94.00 dB	Calibration reference sound pressure level
Calibrator frequency	1003.31 Hz	Calibration check frequency
Reference level range	25 - 130 dB	

Accessories used or corrected for during calibration - Wind Shield WS-10
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	22.87	23.14	± 0.20 °C
Humidity	49.6	49.8	± 3.00 %RH
Ambient Pressure	100.56	100.54	± 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		
	12.1	dB	UR	16.7	dB	UR	22.2	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 the Guide to the Expression of Uncertainty in Measurement published by ISO.

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

Acoustic Calibration Services Limited,
Unit 6F, Diamond Industrial Centre,
Works Road, Letchworth Garden City,
Hertfordshire SG6 1LW

Tel: 01462-610085/87 Fax: 01462-610087
e-mail: cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Rion NC-74 **Serial No: 35236428**

Organisation: Cole Jarman Limited, John Cree House, 24B High Street Addlestone, Surrey, KT15 1TN

Job Number: 2478 **Customer Order Reference:** P16/0011

The acoustic calibrator was fitted with a Norsonic type 1443 coupler for ½" microphones. The acoustic calibrator was run for a period of time until a stable level was measured. The output level was compared to the certified level of the laboratory measurement references. The measurements were repeated 5 times and the average value calculated.

Ambient Temperature: **24.0** ± 1°C.
Barometric Pressure: **102.3** kPa.
Relative Humidity: **46** %

The sound pressure level output from the Acoustic Calibrator was measured in its half inch configuration using a B&K 4188 microphone. The mean level output of the acoustic calibrator, corrected to the standard atmospheric pressure of 101.3kPa, was 94.0dB.

The signal output frequency of the acoustic calibrator is 1000Hz.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **14979**
Date of Issue: **19th April 2016**

Signature:
Print Name: **Trevor Lewis**

Acoustic Calibration Services Limited
Unit 6H, Diamond Industrial Centre
Works Road, Letchworth Garden City
Hertfordshire SG6 1LW
Tel: 01462-610085 Mobile: 0771 886 4944
Email: trevjohnlewis@aol.com
or
cal@acousticcalibration.co.uk
web: www.acousticcalibration.co.uk

ACSL
Acoustic Calibration Services Limited

CERTIFICATE OF CALIBRATION

Model: Rion NC-74 **Serial No: 35236428**

Organisation: Cole Jarman Limited, John Cree House, 24B High Street Addlestone, Surrey, KT15 1TN

Job Number: 2575 **Customer Order Reference:** P17/0010

The acoustic calibrator was fitted with a Norsonic type 1443 coupler for ½" microphones. The acoustic calibrator was run for a period of time until a stable level was measured. The output level was compared to the certified level of the laboratory measurement references. The measurements were repeated 5 times and the average value calculated.

The ambient temperature during calibration was **24.0** ± 1°C.
The barometric pressure was **101.4** to **101.5** kPa.
The relative humidity was **48** to **58%**

The sound pressure level output from the Acoustic Calibrator was measured in its half inch configuration using a B&K 4188 microphone. The mean level output of the acoustic calibrator, corrected to the standard atmospheric pressure of 101.3kPa, was 94.0dB.

The signal output frequency of the acoustic calibrator is 1000Hz.

All ACSL's calibration instrumentation is fully traceable to National Standards. The acoustic references are calibrated by laboratories which are UKAS accredited for the purpose.

Certificate No: **15214**
Date of Issue: **29th April 2017**

Signature:
Print Name: **Trevor Lewis**

CERTIFICATE OF CALIBRATION

ISSUED BY AV CALIBRATION

Date of issue 19 April 2016 Certificate N° 1604198

AV Calibration
2 Warren Court
Chicksands, Shefford
Bedfordshire SG17 5QB
U.K.
Tel: +44 (0)1462 638600
Fax: +44 (0)1462 638601
Email: lab@avcalib.co.uk
www.avcalibration.co.uk
Acoustics Noise and Vibration Ltd trading as AV Calibration

Signed

G. Parry [ ] B. Baker [ ]

CLIENT	Acoustic Calibration Services Ltd Unit 6 Diamond Industrial Centre Works Road Letchworth Garden City Hertfordshire SG6 1LW
F.A.O.	Trevor Lewis
ORDER No	- Job No TRAC16/04106/01
DATE OF RECEIPT	12 April 2016
PROCEDURE	AV Calibration Engineer's Handbook, section 25
IDENTIFICATION	Sound level meter Rion type NL-52 serial No 00142653 connected via a preamplifier type NH-25 serial No 32681 to a half-inch microphone type UC-59 serial No 06098.
CALIBRATED ON	19 April 2016
PREVIOUS CALIBRATION	None known

The measurements detailed herein are traceable to units of measurement realised at the National Physical Laboratory.

CERTIFICATE OF CALIBRATION

ISSUED BY AV CALIBRATION

Certificate N° 1604198

The sound level meter was set up using a type 4231 sound calibrator supplied by the laboratory; it was set to frequency weighting A, and initially read 94.3 dB. It was then adjusted to read 94.1 dB (corresponding to 94.1 dB at standard atmospheric pressure). This reading was derived from the certified output level of the calibrator and manufacturers' information on the free-field response of the sound level meter. The calibration check frequency was 1kHz.

Procedures based on IEC 61672-3:2006 (BS EN 61672-3:2006) were used to perform the periodic tests.

RESULTS

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

The self-generated noise recorded with the microphone replaced by the electrical input device was:

11.3 dB (A) 15.7 dB (C) 21.3 dB (Z)

The environmental conditions recorded at the start and end of testing were:

Start: 22 to 23 °C, 41 to 51 %RH and 102.2 to 102.3 kPa
End: 22 to 23 °C, 38 to 48 %RH and 102.2 to 102.3 kPa

Technical information including adjustment data specified in the manufacturers' Technical Notes 55750 (11-03) and , Instruction Manual 55530 (11-03) , Description for IEC 61672-1 56030 (11-04) has been used to carry out this verification. These data include manufacturer-specified uncertainties.

Publicly-available evidence has been found that the Rion NL-52 sound level meter design has successfully undergone pattern evaluation in accordance with IEC 61672-2:2002 (BS EN 61672-2:2003) by Physikalisch-Technische Bundesanstalt (PTB), an independent testing organisation responsible for pattern approvals.

All measurement data are held at AV Calibration for a period of at least six years.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with the *Guide to the Expression of Uncertainty in Measurement* published by the International Organisation for Standards (ISO).

CERTIFICATE OF CALIBRATION

ISSUED BY AV CALIBRATION

Certificate N° 1604198

NOTES

1 Windscreen correction filter was set to "None" and the diffuse field correction filter to "off".

2 No suitable microphone frequency response information was supplied with the instrument. It was therefore measured by this laboratory using the electrostatic actuator method.

3 The instrument was running firmware version 1.5

4 All tests were carried out on the main measurement channel, with the exception of that for Peak C sound level which is available only on the sub-channel.

5 Typical case reflection factors specified by the manufacturer have been used for this verification.

6 The foam windshield type WS-10 supplied was not used or taken into account during this verification.

7 The following adjustment data, to be added to the electrostatic actuator response, have been issued by Rion. Where conflicting data are shown in the Technical Notes supplied with the instrument, they are superseded by the revised values shown below. The uncertainties are for a coverage factor $k=2$.

Frequency Hz	Correction dB	Uncertainty dB
63	-0.02	± 0.23
125	-0.02	± 0.23
250	-0.02	± 0.23
500	-0.04	± 0.23
1000	0.00	± 0.23

Frequency Hz	Correction dB	Uncertainty dB
2000	0.25	± 0.23
4000	1.04	± 0.28
8000	3.55	± 0.41
16000	9.25	± 0.57

END

CERTIFICATE OF CALIBRATION

Date of Issue: 02 June 2017

Certificate Number: TCRT17/1327

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

Approved Signatory

J. Harriman

Customer	Cole Jarman Associates John Cree House 24B High Street Addlestone Surrey KT15 1TN
Order No.	17/0019
Test Procedure	Procedure TP 1 Calibration of Sound Calibrators
Description	Acoustic Calibrator

Identification	*Manufacturer*	*Instrument*	*Model*	*Serial No.*
	Rion	Calibrator	NC-74	34257026

The calibrator has been tested as specified in Annex B of IEC 60942:2003. As public evidence was available from a testing organisation (PTB) responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the class 1 requirements of IEC 60942:2003.

ANV Job No.	TRAC17/05178
Date Received	31 May 2017
Date Calibrated	02 June 2017
Previous Certificate	*Dated* Initial Calibration *Certificate No.* *Laboratory*

CERTIFICATE OF CALIBRATION

Measurements

The sound pressure level generated by the calibrator in its WS2 configuration was measured five times by the Insert Voltage Method using a microphone as detailed below. The mean of the results obtained is shown below. It is corrected to the standard atmospheric pressure of 101.3 kPa (1013 mBar) using original manufacturers information.

Test Microphone	*Manufacturer*	*Type*
	Brüel & Kjær	4134

Results

The level of the calibrator output under the conditions outlined above was

94.00 ± 0.10 dB rel 20 µPa

Functional Tests and Observations

The frequency of the sound produced was	1003.33 Hz	±	0.13 Hz
The total distortion was	1.03 %	±	6.9 % of Reading

During the measurements environmental conditions were

Temperature	22	to	23	°C
Relative Humidity	50	to	56	%
Barometric Pressure	100.6	to	100.7	kPa

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 the Guide to the Expression of Uncertainty in Measurement published by the International Organisation for Standards (ISO).

The uncertainties refer to the measured values only with no account being taken of the ability of the instrument to maintain its calibration.

A small correction factor may need to be applied to the sound pressure level quoted above if the device is used to calibrate a sound level meter which is fitted with a free-field response microphone. See manufacturers handbook for details.

..... END .....

Note:

Calibrator adjusted prior to calibration?	NO	
Initial Level	N/A	dB
Initial Frequency	N/A	Hz

Additional Comments

None

Calibrated by: B. Bogdan

2020 Draft S106 Value of Benefits		
Topic Area	**Item**	**Value to 2028**
Community & Skills / Education	Provision of a Sound Insulation Grant Scheme (SIGS), including Homeowner Relocation Assistance	£14.2-19.2m *(Range based on 50-100% take up of SIGS)* *(above does not include a value for community building SIGS – this could be in region of £200k +).*
	Delivering an annual 'Meet the Buyers' event	
	On-going supporting and expansion of the Aerozone, Academy and College (and wider Employment Forum).	
	Provision of funds to the Community Trust	
	Supporting the Stansted Airport Business Forum (SABF)	
	Reporting via the publication of an annual Corporate Social Responsibility Report.	
Transport	J8	£1.16m
	Local Roads (inc Fly-parking sum)	£1m
	Local Road Monitoring	£0.25m
	Transport Levy	£12m
	Bus Investment Fund	£1m
Environment	Air Quality/SSSI	£0.18m *(does not include any ecological works that may be required in long term)*
	Water Quality	£0.04m
UDC Monitoring	S106 Monitoring Fee	£0.075m
Total		**£30.1m - £35.1m***

**Value of the S106 is expressed as nominal amounts. Inflation (indexation) is built into all clauses within the S106 draft agreement. An estimated indexation of the value range above to 2028 would be in the region of £33m-38m.*