APPENDIX A12.1

BACKGROUND NOISE MONITORING EQUIPMENT



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

 $\tilde{}$

Certificate of Calibration

Certificate number:

U5681

5



CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Norsonic 118 31357			PY
Customer:		se, 5b Chelmsford F		Estato,
Contact name:		ow, Essex CM6 1HD an, Laboratory Mana		
Contact telephone:	01371 871 03		i i i i i i i i i i i i i i i i i i i	
Method of Calibration Calibration has been per The following items have			cedures TP01 8	& 2 as appropriata
······································	Producer	Τγρα:	Serial No;	Certificate number
Microphone	GRAS	40AF	73340	5680
Calibrator*	Norsonic	1251	31624	U4592
Preamplifier	Norsonic	1206	30392	_included
Adoitional items that also	have been submitte	d for verification		
Wind shield	Norsonic	Nor1451 (ø 60mm)	•	
Attenuator	None			
Those items have been t	aken into account w?	horever appropriate.		
Environmental conditions Reference conditions:	s. Pressure : 101.325 kPa	Temperati 23.0 °C	ure .	Relative humidity : 50 %RH
Measurement conditions	: 100 271 kPa	24.1 °C		53 %RH

Date received : Date of calibration: Date of issue:

Engineer

6 mest Michael Tickner

Supervisor

Darren Batten TechlOA

24/06/2009

24/08/2009

01/09/2009

This contribute is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

* The calibrator was complete with any required coupler for the microphone specified

Page 1 of 2

. _ _



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

)

Certificate of Calibration





Certificate number: U5653

CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Norsonic 118 28858	Meter	₽ С (OPY
Customer:	Hire Fleet Sonitus Hou	sociates Ltd se, 55 Cheimsfor ow, Essex CM6 1	rd Road Industrial E HD	Estate,
Contact name: Contact telephone:	Mr David Eg: 01371 871 03	an, Laboratory M 15	anager	
Method of Calibration				
Calibration has been per	formed as set out in	the CA Technical	procedures TP01 &:	2 as appropriate.
The following items have	e been tested accordi	ing to IEC 60651		
Microphone	Producer. Norsonic	Type: 1225	Serial No: 79709	Certificate number 5650
Calibrator*	Norsonic	1251	31824	U4592
Preamplifier	Norsonic	1206	28639	Included
Additional items that also Wind shield Attenuator These items have been	Norsonic None	Nor1451	te.	
Environmental condition Reference conditions: Measurement conditions	101.325 kPa	Tempe 23.0 °C 24.2 °C	-	Relative homidity : 50 %RH 52 %RH
Date received : Date of calibration: Date of issue: Engineer	19/08/2009 19/08/2009 24/08/2009	Matter.	<u></u>	
Supervisor	Darren Batier	n Tech IOA		

This certificate is issued in accordance with the Jaboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national Physical Laboratory or other recognized national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing faboratory.

* The calibrator was complete with any required coupler for the microphone specified

Page 1 of 2

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



)



Certificate of Calibration

Certificate number: U5112

CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Meter Norsonic 118 28955	COPY
Customer:	Campbell Associates Ltd Hire Fleet Sonitus House, 5b Chelmsfo Great Dunmow, Essex, CM6 Mr David Egan - Laboratory f	1HD
Order no.:	Schedule	

Method of Calibration

Calibration has been performed as set out in the CA Technical procedures TP01 & 2 as appropriate.

The following items have been tested according to BS 7580, Part 1, 1997

	Producer:	Туре:	Serial No:	Certificate number
Microphone	Norsonic	1225	33192	5114
Calibrator*	Norsonic	1251	31824	U4592
Preamplifier	Included preamp			
Additional items that also	have been submitted	for verification		
Wind shield	Norsonic	Nor1451		
Attenuator	None			
Environmental conditions:	Pressure :	Temperatur	a -	Relative humidity :
Reference conditions:	101,325 kPa	23,0 °C	u.	50 %RH
Measurement conditions :		24.3 °C		36.4 %RH
Date received :	01/05/2009			
Date of calibration:	05/05/2009			
Date of issue:	06/05/2009			
.		_		
Engineer	10 6	The second second		
	Michael Tickne	er		
Supervisor	~ ~	~		
ouperviso:	503			
		<u></u>		
	fan Campbell (MSc MIOA		

This contribute is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. If provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards laboratories. This certificates may not be reproduced other than in full, except with the pror written approval of the issuing laboratory.

* The calibrator was complete with any required coupler for the microphone specified

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

)

Certificate of Calibration

Certificate number: U5494 CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Norsonic 118 28912	Meter	₽ CO	PY
Customer:		sociates Ltd se, 55 Chelmsford Ro ow, Essex CM6 1HD	aad Industrial Esta	ate,
Contact person:	Cavid Egan, 01371 871 03	Laboratory Manager 0		
Method of Calibration Calibration has been perfo	rmed as set out in l	the CA Technical proc	educes 7P01 & 2 e	s appropriate.
The following items have b	een fested accordi	ng to BS 7580, Part 1,	1997	
	Producer:	Type:	Serial No:	Certificate number
Microphone	GRAS	40AF	32975	5472
Calibrator	Norsonic	1251	31824	U4592
Preamplifier	Norsania	1206	28656	Included
Additional items that also h	ave been submitte	d for verification		
Wind shield	Norsonic	Nor1451 (ø 60mm)		
Attenuator	None			
These items have been tai	ken into accoupt wa	nerever appropriate.		

Environmental conditions: Reference conditions. Measurement conditions :	Fressure : 101.325 kPa 99.775 kPa	Temperature : 23.0 °C 24.4 °C	Relative humidity : 50 %RH 52 7 %RH
Date received :	16/07/2009		
Date of calibration:	23/07/2009		
Date of issue:	27/07/2009	4	
Engineer		101	

Darren Batteil Tech

David Egár

Supervisor

This centricate is issued in accordance with the laboratory accorditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory of other recognized relitional standards laboratories. This certificate may not be reproduced other (train in full, except with the prior written approval of the issued (aboratory.

.

The calibrator was complete with any required coupler for the microphone opecified

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

)

Certificate of Calibration

Certificate	number:	U55
-------------	---------	-----

U5535



٦)



0789

· ·		
CAL	IBRATION	

Test object : Manufacturer: Type : Serial no: Sound Level Meter Norsonic 118 31708

COPY

Customer:	Campbell Associates Ltd
	Hire Fleet
	Sonitus House, 5b Chelmsford Road Industrial Estate,
	Great Dunmow, Essex CM6 1HD
Contact Person:	Mr David Egan, Laboratory Manager

Method of Calibration

Calibration has been performed as set out in the CA Technical procedures (P0) & 2 as appropriate.

The following items have been tested according to IEC 60551

U U	Producer:	Туре:	Sarial No:	Certificate number
Microphone	Norsonia	1225	68838	5534
Calibrator*	Norsonia	1251	31824	U4592
Preamplifier	Norsonic	1206	30752	Included
Additional items that also	have been submitter	d for verification		
Wind shield	Norsonic	No:1451 (ø 60mm)		
Attenuator	None			
These items have been ta	ken into account wh	erever appropriate.		
Environmental conditions:	Pressure :	Temperatu	ire :	Relative humidity :
Reference conditions:	101.325 kPa	23.0 °C		50 %RH
Measurement conditions :	101.562 kPa	23.7 °C		43 %RH
Date received :	30/07/2009			
Date of calibration:	31/07/2009			
Date of issue:	31/07/2009	<i>.</i>		
ängineer		MA		
	/	HARRA		
	Darren Batten	Tech 10A		
Supervisor	1	75-		
	David Egan	17	n	
	1 and the second s			

This cardificate is issued in acceletance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national standards, and to the Units of measurement realized at the National Physical Laboratory or other recognized national standards in Service. This contificate may not be reproduced other than in fall, except with the prof written approval of the isotional aboratory.

* The calibrator was complete with any required coupler for the microphone specified

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





Certificate of Calibration

Certificate number: U5500

CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Meter Norsonic 118 30550
Costomer:	Campbell Associates Ltd Hire Fleet Sonitus House, 5b Chelmsford Road Industrial Estate,
Contact Person:	Great Dunmow, Essex CM6 1HD David Egan, Laboratory Manager 01371 871 030

Method of Calibration

 \odot

J

Calibration has been performed as set out in the CA Technical procedures TP01 & 2 as appropriate.

. . DO 2600 D-

The following items have	been lested accord	ing to BS 7580, Par	1 1, 1 997	
-	Producer:	Туре:	Serial No:	Certificate number
Microphone	GRAS	40AF	32977	5499
Calibrator*	Norsonic	1251	31824	U4592
Preamplifier	Norsonic	1206	30237	Included .
Additional items that also	have been submitte	ed for verification		
Wind shield	Norsonic	Nor1451 (ø 60m	m)	
Attenuator	None			
These items have been ta	aken into account w	herever appropriate) .	
Environmental conditions	Pressure :	Tempera	sture :	Relative humidity :
Reference conditions:	101.325 kPa	23.0 °C		50 %RH
Measurement conditions	: 100.452 kPa	23.4 °C		47.4 %RH
Date received :	23/07/2009			
Date of calibration:	24/07/2009			
Date of issue:	27/07/2009	An		
Engineer		11 takes		
	Darren Batte	Tech IOA		
Supervisor	/	an		
	David Egan			
		r		

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Servica. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

The calibrator was complete with any required coupled for the microphone specified

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





0789

Certificate of Calibration

Certificate number: U5506

Test object : Manufacturer: Type : Serial no:

Э

)

Sound Level Meter Norsonic 118 30537

CALIBRATION

Serial no:	30537				
Customer:	Campbell Associates Ltd Hire Fleet Sonitus House, 5b Cheimsford Road Industrial Estate, Creat Duemany, Second CMS 190				
Contact Person:	Great Dunmow, Essex CM6 1HD David Egan, Laboratory Manager 01371 871 030				

Method of Calibration Calibration has been performed as set out in the CA Technical procedures TP01 & 2 as appropriate.

The following items have b	been tested accordi	ing to BS 7580, Part 1.	1997	
-	Producer:	Туре	Serial No.	Certificate number
Microphone	Norsonic	1225	40868	5505
Celibrator*	Notsonic	1251	31824	L/4592
Preamplifier	Norsonie	1205	30226	Included
Additional items that also t	have been submitte	ed for verification		
Wind shield	Norsonic	Nor1451 (o 60mm)		
Attenuator	None			
These items have been ta	ken into account wi	herever appropriate.		
Environmental conditions:	Pressure :	Temperatur	ie :	Relative humicity :
Reference conditions	101.325 kPa	23.0 °C		50 %RH
Measurement conditions :	100.452 kPa	23.4 °C		47.4 %RH
Date received	24/07/2009			
Date of calibration:	24/07/2009			
Date of issue.	27/07/2009	Day		
Engineer		H-Ha		
	Darren Batter	n Tech IOA		
Supervisor		and		
		1 contraction		
	David Egan-			
	Server a			

This Gérarcate to itsued in accordance with the taboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards laboratories. This certificate may not be reproduced other than in full except with the prior written approval of the issuing laboratory.

The calibrator was complete with any required coupler for the microphone specified



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

)





Certificate of Calibration

Certificate number: U5365

CALIBRATION

0789

Test object : Manufacturer: Type : Serial no:	Sound Level Meter Norsonic 118 28952
Customer:	Campbell Associates Ltd Hire Fleet Sonitus House, 5b Chelmsford Road Industrial Estate, Great Dunmow, Essex CM6 1HD 01371 871 030
Contact Person:	Mr David Egan, Laboratory Manager

Method of Calibration

Calibration has been performed as set out in the CA Technical procedures TP01 & 2 as appropriate.

	Producer:	Type:	Serial No:	Certificate number
Microphone	Norsonic	1225	29913	5364
Calibrator	Norsonic	1251	31824	U4592
Preamplifier	Narsonic	1208	30575	Included
· · · · · ·				
Additional items that also t	have been submitted	for verification		
Wind shield	Norsonic	Nor1451		
Attenuator	None			
These items have been tal	ken into account whe	erever appropriate.		
Environmental conditions:	Pressure :	Temperature	a :	Relative humidity :
Reference conditions:	101.325 kPa	23.0 °C		50 %RH
Measurement conditions :	100,516 kPa	23.2 °C		55 %RH
D-t	40/00/0000			
Date received :	19/06/2009			
Date of calibration:	26/06/2009			
Date of issue:	08/07/2009	40		
Engineer		111/1/		
		Latter		
	Darren Batten	Tech IOA		
Supervisor		~~~~~~		
	,			
		1200		
	Mr David Egar			
	-			

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It is provides traceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory of other recognized national standards faboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

* The calibrator was complete with any required coupler for the microphone specified



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

0

Certificate of Calibration

Certificate number:

.

.

CALIBRATION

0789

Test object : Manufacturer:	Sound Level Meter Norsonic	
Туре:	118	COPY
Serial no:	. 31735	
Customer:	Campbell Associates Ltd Hire Fleet	
	Sonitus House, 5b Chelmsf Great Dunmow, Essex, CM6	
	Mr Darren Batten TechlOA	
Order no.:	Schedule	
Method of Calibration		

Calibration has been performed as set out in the CA Technical procedures TP01 & 2 as appropriate.

The following items have been tested according to BS 7580, Part 1, 1997.

U4264

en resteo according to	Do 7000, Fait 1, 1991	
Producer:	Type:	Serial No:
Norsonic	1225	62640
Norsonic	1251	31824
Norsonic	1206	30767
ve been submitted for	verification	
Norsonic	Nor1451 (ø 60mmm)	þ
None		
Pressure :	Temperature :	Relative humidity :
101,325 kPa	23,0 °C	50 %RH
99.059 kPa	21.7 °C	56.7 %RH
02/09/2008		
04/09/2008		
31/10/2008		
	\sim	
/	17m	
David Egan 🖉		-
~ ~ ~	×	
	and the second second	_
Ian Campbell MSc	MIOA	-
	Producer: Norsonic Norsonic Norsonic Ve been submitted for Norsonic None Pressure : 101,325 kPa 99.059 kPa 02/09/2008 04/09/2008 31/10/2008 David Egan	Norsonic 1225 Norsonic 1251 Norsonic 1206 ve been submitted for verification Nor1451 (ø 60mmm) None Nor1451 (ø 60mmm) Pressure : Temperature : 101,325 kPa 23,0 °C 99.059 kPa 21,7 °C 02/09/2008 04/09/2008 04/09/2008 31/10/2008

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Bervice. It provides (raceability of measurement to recognized national standards, and to the units of measurement realized at the National Physical Laboratory or other recognized national standards faboratories. This certificates may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

.

* The calibrator was complete with any required coupler for the microphone specified