



Baseline Noise Monitoring Report – Appendices

APPENDIX A

Calibration Certificate for Monitoring Equipment

Rion NL-52 S/N 1076328



CERTIFICATE OF CALIBRATION



Date of Issue: 15 August 2018

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

ustics Noise and Vibration Ltd trading as ANV Me

Certificate Number: UCRT18/1836

Page Pages Approved Signatory Harriman

Customer

AWN Consulting Limited

The Tecpro Building

IDA Business and Technology Park

Dublin 17 Ireland

Order No.

1869

Description

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

Identification

Manufacturer Instrument Type Serial No. / Version NL-52 01076328 Rion Sound Level Meter Rion Firmware 1.9 Pre Amplifier NH-25 76545

Rion UC-59 12271 Rion Microphone 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.

Type Approved to IEC 61672-1:2002

Approval Number YES

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 August 2018

ANV Job No.

UKAS18/08513

Date Calibrated 15 August 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 OF CALIBRATION	Certif		Num T18/18		8
UKAS Accredited Calibration Laboratory No. 0653	Page	2	of	2	Pages

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SLM instruction manual to SLM instruction manual re			-42 / NL-52							
		11-03								
SLM instruction manual s	777	Manufacturer								
Internet download date if			V/A							
Case corrections available			/es							
Uncertainties of case corr	ections		es es							
Source of case data			facturer							
Wind screen corrections			/es							
Uncertainties of wind scre			es .							
Source of wind screen da			facturer							
Mic pressure to free field			es .							
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Specified or equivalent Ca			ecified	102	res					
Customer or Lab Calibrate			alibrator							
Calibrator adaptor type if			74-002							
Calibrator cal, date	applicable	0.0000000000000000000000000000000000000	ust 2018							
			18/1784							
Calibrator cert. number										
Calibrator cal cert issued	ру	99.6	653			_				
Calibrator SPL @ STP		93.9					ce sound	pres	sure lev	/el
Calibrator frequency		1001.		Calibrati	on ch	eck f	requency			
Reference level range		25 - 1	30 dB							
Accessories used or corre			Extension C							
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Environmental conditions	during tests Start End									
Environmental containente					_			_		
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ETTEROTIFICATION	Temperature	22.84		22.87		_		RH		
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Rion NL-52 S/N 586940



CERTIFICATE OF CALIBRATION

Certificate Number: UCRT18/1831

Page

Approved Signatory

Harriman



Pages

Date of Issue: 15 August 2018

Issued by:

Customer

ANV Measurement Systems

Beaufort Court 17 Roebuck Way

Milton Keynes MK5 8HL

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

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

AWN Consulting Limited The Tecpro Building

IDA Business and Technology Park

Dublin 17 Ireland

Order No. 1869

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

Identification Manufacturer Instrument Type Serial No. / Version

NL-52 00586940 Rion Sound Level Meter Rion Firmware 1.9 Rion Pre Amplifier NH-25 87059 Rion Microphone UC-59 13402 NC-74 34536109 Rion Calibrator

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 13 August 2018 ANV Job No. UKAS18/08513

Date Calibrated 15 August 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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AWN Consulting Limited

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						_				
Sound Level Meter Inst	ruction manual an	d data	used to ad	ust the	e sour	nd leve	ls ind	icated.		
SLM instruction manual ti	SLM instruction manual title Sound Level Meter NL-42 / NL-52									
SLM instruction manual re	SLM instruction manual ref / issue 11-03									
SLM instruction manual s	ource	1	Manufacture	r						
Internet download date if	applicable		N/A							
Case corrections available	9		Yes							
Uncertainties of case corr	ections		Yes							
Source of case data			Manufacture	r						
Wind screen corrections a	available		Yes							
Uncertainties of wind scre	en corrections		Yes							
Source of wind screen da	ta	1	Manufacture	r						
Mic pressure to free field	corrections		Yes							
Uncertainties of Mic to F.F			Yes							
Source of Mic to F.F. corr			Manufacture							
Total expanded uncertain		ements		2-1:20	02	Yes				
Specified or equivalent Ca	alibrator		Specified							
Customer or Lab Calibrate		L	_ab Calibrato	r						
Calibrator adaptor type if	applicable		NC-74-002							
Calibrator cal. date		06	6 August 201	18						
Calibrator cert. number		L	JCRT18/178	4						
Calibrator cal cert issued	by		0653							
Calibrator SPL @ STP	0.500		93.99	dB	Calibr	ation re	feren	ce sound	ressure	level
Calibrator frequency		1	001.97	Hz				requency		
Reference level range		2	5 - 130	dB	Odilbi	adon o	TOOK II	oquonoj		
	atad far duvian salih				-bl- 0 '	Mind C	hiald!	WS-15		
Accessories used or corre Note - if a pre-amp extens										
		en it we	as used betw	een tn	e SLIVI	and the	pre-a	amp.		
Environmental conditions	during tests		Start		End					
	Temperature		21.89		22.52		±	0.30 °C		
	Humidity		61.4		53.7		±	3.00 %		
	Ambient Pressure		100.71		100.68		±	0.03 kP	а	
Response to associated C	alibrator at the envi	ronmen	tal condition	s above	e.					
Initial indicated level	94.0	dB	Adiu	sted in	dicate	d level		94.0	dB	7
The uncertainty of the ass		pplied						0.10	dB	┑
Self Generated Noise	This test is currently									_
Microphone installed (if re				liis Lat	N/A		dB /	A Weightir	10	7
Uncertainty of the microph				_	N/A		dB /	VVeignui	ig	_
				<u> </u>			-	1		
Microphone replaced with		ce -		Under	Range	indicat				
Weighting	A LID IUD	45	C	lun		- 7		LUD		
	.4 dB UR	15.	.5 dB	UR	0.12	.5	dB	UR		
Uncertainty of the electrication							dB	l		
The reported expanded ur										
a coverage probability of a	pproximately 95%.	The un	certainty eva	luation	has b	een car	ried o	ut in acco	dance w	<i>i</i> ith
UKAS requirements.										
For the test of the frequen	cy weightings as per	paragr	raph 12. of IE	C 616	72-3:2	006 the	actua	al microphe	one free	field
response was used.										
The acoustical frequency t	ests of a frequency	weightii	ng as per pa	ragrapi	h 11 of	IEC 61	672-3	:2006 wer	e carried	dout
using an electrostatic actu	ator.	-								
2002 (1942-1 95), 4-40 (1947-1947) (1947-1947) (1947-1947) (1947-1947) (1947-1947)			END							
Calibrated by: A Pat			LIND							R1
Additional Comments	J1									IX I
None										

Rion NL-52 S/N 586944



CERTIFICATE OF CALIBRATION

Certificate Number: UCRT18/1839

Page



Date of Issue: 16 August 2018

Issued by:

ANV Measurement Systems

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

J. Harriman stice Noise and Vibration Ltd trading as ANV M

> **AWN** Consulting Limited The Teopro Building

IDA Business and Technology Park

Dublin 17 Ireland

Order No.

Customer

1869

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

Identification

Manufacturer Instrument Serial No. / Version Type 00586944 Rion Sound Level Meter NL-52 Rion Firmware 1.9 Rion Pre Amplifier NH-25 87063 Rion Microphone UC-59 13407 NC-74 34536109 Rion Calibrator 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 15 August 2018 Date Calibrated 16 August 2018

UKAS18/08525 ANV Job No.

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 Certificate No. Laboratory Dated

Initial Calibration

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CERTIFICATE OF CALIBRATION	Certi		Num T18/18			
UKAS Accredited Calibration Laboratory No. 0653	Page	2	of	2	Pages	_

Sound Level Meter Ins	truction manual an	d data use	d to adjus	t the sour	nd leve	els in	dicated.		
SLM instruction manual ti	tle Sound Level	Meter NI	42 / NL 5	2					
SLM instruction manual ref / issue 11-03									
SLM instruction manual s	ource	Manu	ufacturer						
Internet download date if			N/A						
Case corrections available			Yes						
Uncertainties of case con	rections		Yes						
Source of case data			ufacturer						
Wind screen corrections	E-1-M11-M19-1-W		Yes						
Uncertainties of wind scre			Yes						
Source of wind screen da	****		ufacturer						
Mic pressure to free field			Yes						
Uncertainties of Mic to F.I. Source of Mic to F.F. com			Yes						
	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW		ufacturer	-2000	T v				_
Total expanded uncertain Specified or equivalent Ca			ecified	:2002	Yes				_
Customer or Lab Calibrat			Calibrator						
Calibrator adaptor type if			74-002						
Calibrator adaptor type ii	applicable		gust 2018						
Calibrator cert, number			T18/1784						
Calibrator cal cert issued	bus	Dec 2000	653						
Calibrator SPL @ STP	by .	93.9		Collbe	oston re			anning Inc	Terror
Calibrator frequency		1001.	-	Guille			nce sound pr	essure le	INGI
Reference level range		25 - 1			ation c	neck	frequency		
Accessories used or corre Note - if a pre-amp extens				n Cable &					
					GIIG III	o pro-	entrips.		
Environmental conditions		Star		End	_	-		_	
	Temperature Humidity	21.5 60.5		22.10 62.5		±	0.30 °C 3.00 %R		
	Ambient Pressure	100.1		100.15		±	0.03 kPa	_	
Danasas ta casa-late d					1	1	0.00 KF8	_	
Response to associated 0									
Initial indicated level		dB		ed indicate			94.0	dB	
The uncertainty of the ass				Complete Com	±	_	0.10	dB	Į.
	This test is currently								
Microphone installed (if re				N/A		dB	A Weighting		
Uncertainty of the microph	none installed self ge	nerated noi	se ±	N/A		dB			
Microphone replaced with	electrical input device	DB -	UR = Un	der Range	indicat	ted			
Weighting	A		C			2			
Marie Control of the	1.3 dB UR	15.3	dB UF			dB	UR		
Uncertainty of the electrical	al self generated noi	se ±		0.12		ďΒ			
The reported expanded ur	ncertainty is based o	n a standard	d uncertain	ty multiplie	d by a	cover	age factor k	=2, provi	iding
a coverage probability of a UKAS requirements.	approximately 95%.	The uncerta	iinty evalua	ition has b	een ca	rried o	out in accord	ance with	h
For the test of the frequen response was used.	cy weightings as per	paragraph	12. of IEC	61672-3:2	006 the	actu	al microphor	ne free fie	eld
The acoustical frequency tusing an electrostatic actu		weighting as	s per parag	raph 11 of	IEC 6	1672-	3:2006 were	carried o	out
ua-aj un elevirostatie actu	unot.	-	ND						
Calibrated by: A Pat	el	Е	ND	**********	*******	*****		******	D 4
	OI .								R 1
Additional Comments None									

Rion NL-52 S/N 1076330



CERTIFICATE OF CALIBRATION

J. Harriman



Date of Issue: 15 August 2018

Issued by:

Customer

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 M

AWN Consulting Limited The Tecpro Building

IDA Business and Technology Park

Dublin 17 Ireland

Order No.

1869

Rion

Rion

Rion

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

Identification

Manufacturer Instrument Rion Sound Level Meter Rion **Firmware**

NL-52

Type

UC-59

NC-74

NH-25

Certificate Number: UCRT18/1834

1.9 76547 12273 34536109

Calibrator adaptor type if applicable

NC-74-002

Serial No. / Version 01076330

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

Pre Amplifier

Microphone

Calibrator

13 August 2018

ANV Job No.

UKAS18/08513

Date Received **Date Calibrated**

15 August 2018

Initial Calibration

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

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

UKAS Accredited Calibration Laboratory No. 0653

Certificate Number

UCRT18/1834

Page 2 of 2 Pages

Sound Level Meter Inst	ruction manual an	d data used	to adjust the	he soun	d leve	ls ind	icated.	
SLM instruction manual tit			42 / NL-52					
SLM instruction manual re	11	-03						
SLM instruction manual se	ource	Manu	facturer					
Internet download date if		١	I/A					
Case corrections available	9	Y	'es					
Uncertainties of case corr	ections	Y	'es					
Source of case data			facturer					
Wind screen corrections a		9.5	'es					
Uncertainties of wind scre		A120/27-01 (477)	'es					
Source of wind screen date			facturer					
Mic pressure to free field		35	'es					
Uncertainties of Mic to F.F. Source of Mic to F.F. corn			es fecturer					
Total expanded uncertaint			facturer	002	Yes			
Specified or equivalent Ca			cified	002	res	_		
Customer or Lab Calibrate		200 200 400	alibrator					
Calibrator adaptor type if a			4-002					
Calibrator cal. date	аррисавіс		ust 2018					
Calibrator cert. number			18/1784					
Calibrator cal cert issued l	by		553					
Calibrator SPL @ STP	бу	93.99		0-11	-41	·		anna lavat
Calibrator frequency		1001.9					ce sound pre	ssure level
Reference level range		25 - 13		Calibra	ation cr	ieck ii	requency	
Accessories used or corre			Extension 0				a la	
Note - if a pre-amp extens		en it was use	ed between t	ne SLM	and the	pre-a	amp.	
Environmental conditions			Start End					-
	Temperature	22.73		22.92		±	0.30 °C	1
	Humidity	52.2		50.8		±	3.00 %RH	1
	Ambient Pressure	100.6	5	100.65		±	0.03 kPa]
Response to associated C	alibrator at the envir	onmental co	nditions abo	ve.				
Initial indicated level	94.0	dB	Adjusted	indicate	d level		94.0	dB
The uncertainty of the ass	ociated calibrator su	pplied with the	ne sound lev	el meter	±		0.10	dB
Self Generated Noise	This test is currently	not perform	ed by this La	ab.				
Microphone installed (if re				N/A		dB A	A Weighting	
Uncertainty of the microph				N/A	50	dB		
Microphone replaced with	electrical input device	e -	UR = Unde	r Range	indicate	ed	Ì	
Weighting	Α		Ċ	T	Z			
11	.5 dB UR	15.4	dB UR	21	.6	dB	UR	
Uncertainty of the electrica	al self generated nois	se ±		0.12		dB		
The reported expanded ur	certainty is based o	n a standard	uncertainty	multiplie	d by a	covere	age factor k=	2. providina
a coverage probability of a								
UKAS requirements.			•					
For the test of the frequen	cv weightings as per	paragraph 1	2. of IEC 61	672-3:20	006 the	actua	l microphone	free field
response was used.	, , ,							
The acoustical frequency t	ests of a frequency	weighting as	per paragra	ph 11 of	IEC 61	672-3	:2006 were	arried out
using an electrostatic actu		3 3	, F					
		FI	ND			****		
Calibrated by: A Pat	el							R
Additional Comments								13
None								
TOTAL CONTROL								

APPENDIX B

Unattended Monitoring Equipment Set Up

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Location	Equipment Set up
UT1	
Green area to front of residential and farm buildings in Lissenhall Great	
UT2	
Green area within grounds of Emmaus Retreat Centre, Estuary	
UT3	
Green area to rear of Tigín Montessoi School, Estuary	

Location **Equipment Set up** UT4 Rear Garden of residential building in Seatown Park, Swords UT5 At side of residential building in Estuary Court, Swords UT6 Rear Garden of residential building in Comyn Manor, Swords

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Location	Equipment Set up
UT7 Rear Garden of Kids Inc. Creche, Seatown Walk, Swords	
UT8 Rear Garden of residential building on Chapel Lane, Swords	
UT9 Rear Garden of residential building on Ashley Avenue, Swords	
UT10 Rear Garden of residential building in Castle Grove, Swords	

Location	Equipment Set up
UT11 Rear Garden of residential building in Foxwood, Swords	
UT12 Green Area to rear of commercial building in Airside Business Park, Swords	
UT13 Rear Garden of residential building in Carlton Court, Swords	

Location **Equipment Set up UT14** Green area to side of Hotel at Pinnock Hill Roundabout, Swords UT15 Green area to front of residential building at Cremona, Swords UT16 Rear Garden of residential building in Boroimhe Willows, Airside **UT17** Carpark area to side of Private Clinic in Nevinstown West

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Location	Equipment Set up
UT18 Rear Garden of residential building in Boroimhe Hazel, Nevinstown West	
UT19	
Rear Garden of residential building in Nevinstown West off R132	
UT20	
Rear Garden of residential building in Nevinstown West off R132	

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Location	Equipment Set up
UT21 Rear garden of the Dublin Airport Church grounds	
UT22 Rear Garden of residential building off Old Airport Road	
UT23 Green area within grounds of residential building in Charter School Hill, Ballymun Cross	
UT24 Garden to rear of residential apartment building at junction of Ballymun Road and Santry Avenue	

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Location	Equipment Set up
UT25 Garden to rear of Primary Education building in Ballymun	
UT26	
On roof of Civic Centre building in Ballymun	
UT27	
Garden to side of Secondary Education building off Ballymun Road	

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Location	Equipment Set up
UT28 Paved area to side of CDETB Building off Ballymun Road	
UT29 Carpark area to front of Primary Education building off Ballymun Road	
UT30 Carpark area to side of Church in Whitehall	
UT31 Paved area to front of residential building off R108 in Whitehall	

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Location	Equipment Cat
UT32 Green area within grounds of Special Education building off Ballymun Road in Ballygall	Equipment Set up
UT33 Green area to side of Scoil Chaitríona Secondary Schoolbuilding off St. Mobhi Road in Glasnevin	
UT34 Paved area to front of residential building off St. Mobhi Road in Glasnevin	

Location **Equipment Set up UT35** Green area to side of Scoil mobhí Primary Education building off St. Mobhi Road in Glasnevin **UT36** Garden to rear of residential building in Claremont Crescent **UT37** Garden to rear of house on St. Teresa's Rd UT38 Garden to rear of residential building in Claremont Lawns

Location	Equipment Set up
UT39 Garden to rear of residential building in Coke Oven Cottages	
UT41	F
Garden to rear of residential building off Whitworth Road	
UT42 Green area to front of Mater Hospital on Eccles St	

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Location	Equipment Set up
UT43 Green area to front of Mater Hospital on Eccles St	
UT44 Green area to side of St Joseph's Church, Berkeley Road	
UT45 To front of construction site off O'Connell Street Upper	

Location	Equipment Set up
UT46 To rear of construction site off O'Connell Street Upper	
UT47 To front of construction site/commercial carpark off O'Connell Street Upper	
UT48 On roof of Fire Station building on Townsend Street	
UT49 On roof of residential apartment building at Tara and Townsend Street junction	

Location	Equipment Set up
UT50 Green area within St. Stephen's Green maintenance compound	
UT51 Paved area withing compound of disused commercial building off Grand Parade in Charlemont	
UT52 Paved area withing compound of disused commercial building off Grand Parade in Charlemont	