



## 7.1 NOISE MONITORING FORMS

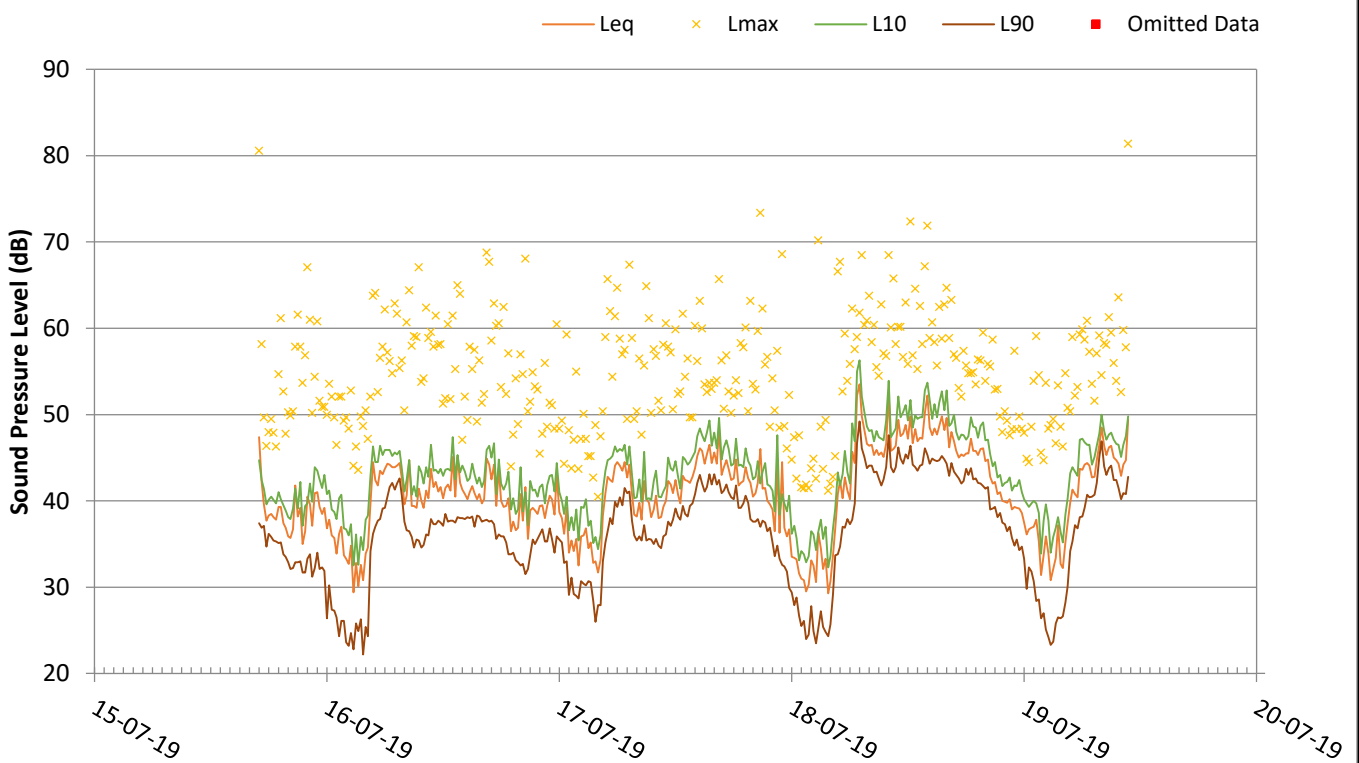
# Noise Monitoring Form



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	LT 1 (Grid Ref: SU 9488605775)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 s/n: 1021289	<b>Weather:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period			Description of Audible Noise
Date	Start / Stop Time	Measurement Intervals	
15/07/2019	17:00	15 min	Dominant noise source is sporadic noise from the existing A29. Other noise sources include birdsong and foliage movement.
19/07/2019	10:45		



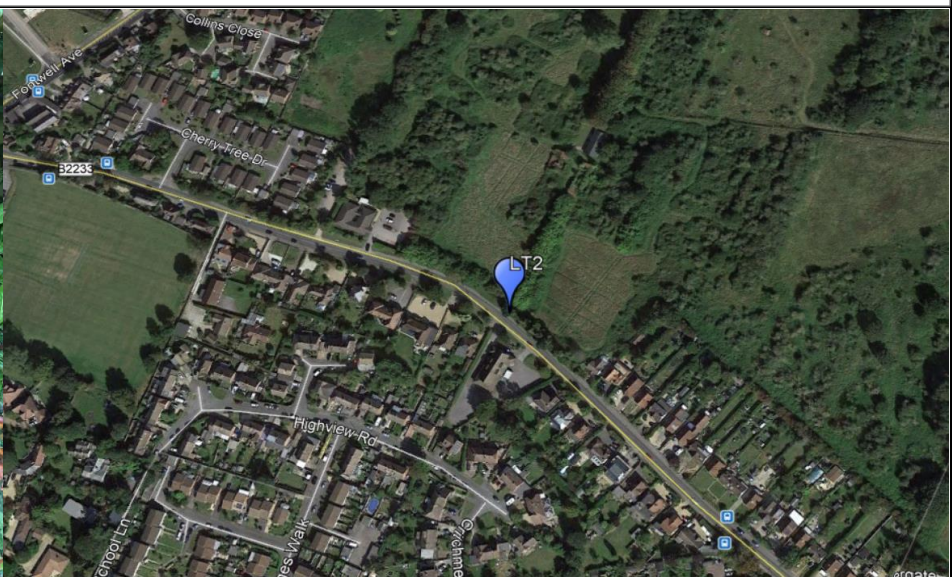
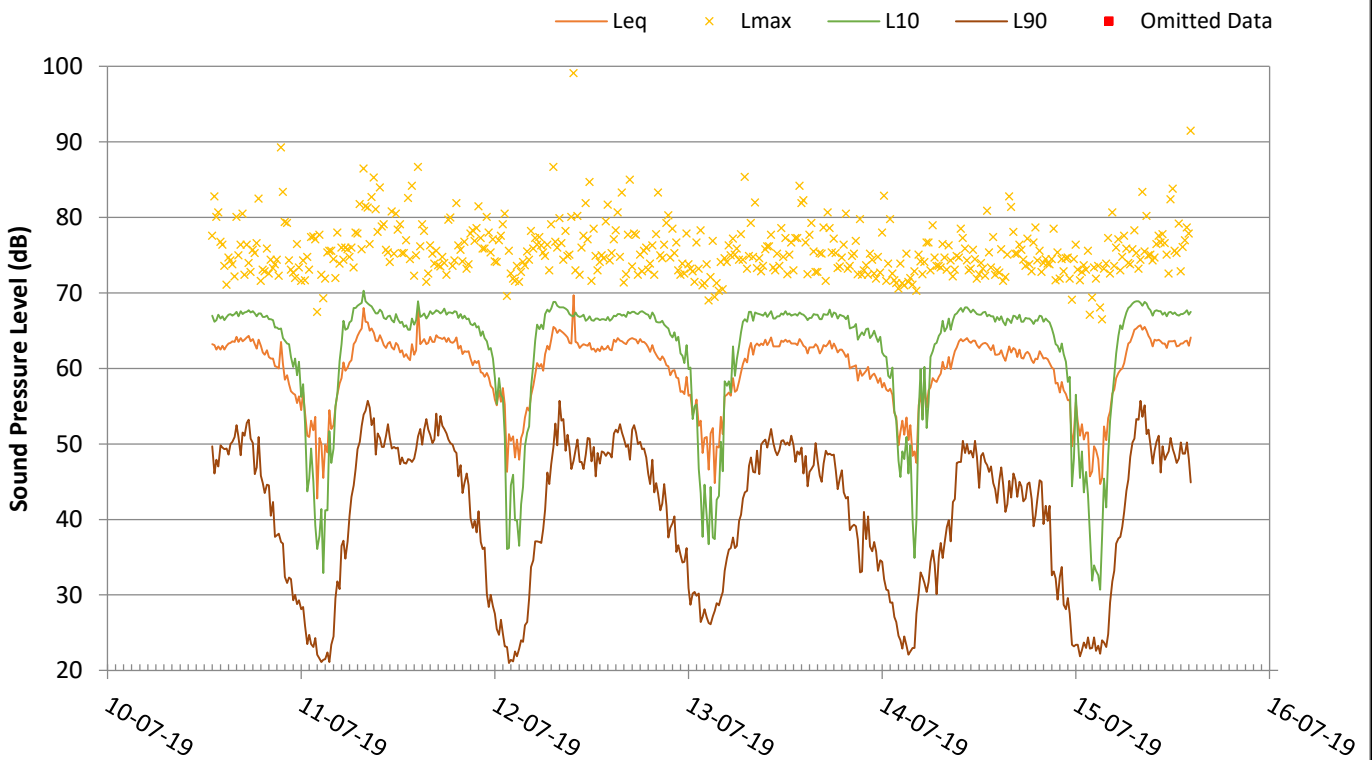
# Noise Monitoring Form



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	LT 2 (Grid Ref: SU 9477505476)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 s/n: 632043	<b>Weather:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period			Description of Audible Noise
Date	Start / Stop Time	Measurement Intervals	
10/07/2019	13:00	15 min	Dominant noise source is road traffic on B2233. Other noise sources include birdsong and foliage movement.
15/07/2019	14:15		



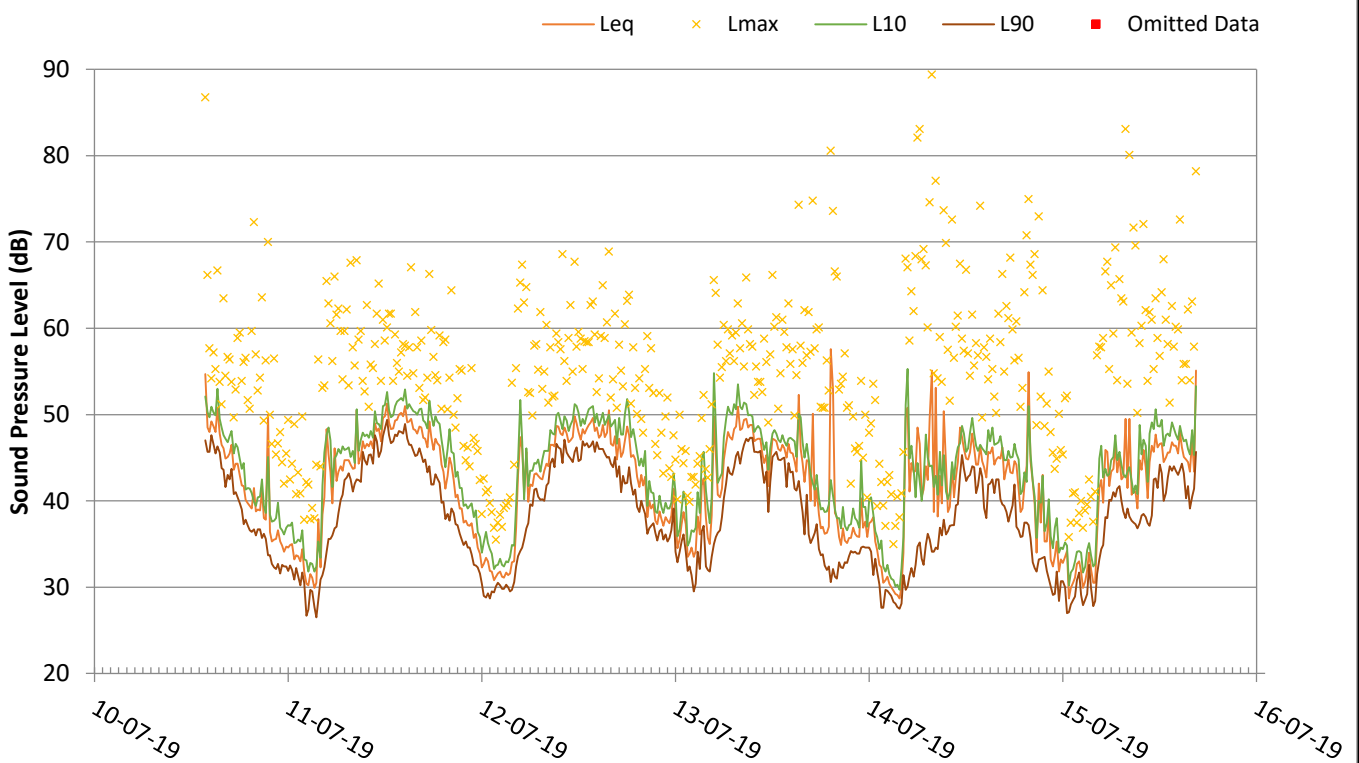
# Noise Monitoring Form



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	LT 3 (Grid Ref: SU 9533805591)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 s/n: 1021289	<b>Weather:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:** Position considered to be representative of receptors along Downview Road / cul-de-sacs along this road.

Measurement Period			Description of Audible Noise
Date	Start / Stop Time	Measurement Intervals	
10/07/2019	13:45	15 min	Dominant noise source is road traffic on B2233. Plant noise was quite prominent from the plant associated with the Halo site.
15/07/2019	16:30		

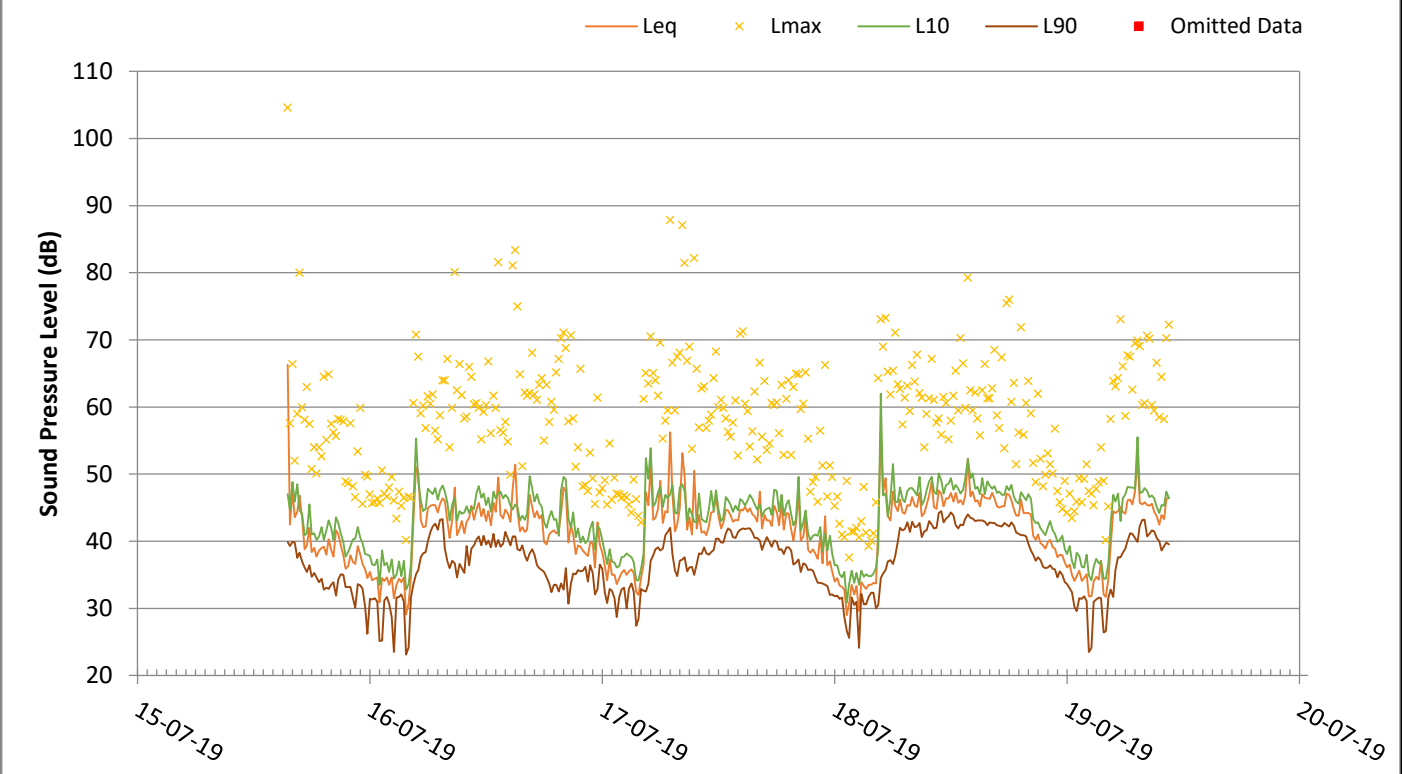


# Noise Monitoring Form



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	LT 4 (Grid Ref: SU 9500805957)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 s/n: 632043	<b>Weather:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

<b>Additional Comments:</b>		
<b>Measurement Period</b>		<b>Description of Audible Noise</b>
<b>Date</b>	<b>Start / Stop Time</b>	Dominant background noise source was insects, however road traffic along Eastergate Lane dominates ambient noise levels when passing. Other noise sources include light air traffic and commercial air traffic and distant construction noise.
15/07/2019	15:30	
19/07/2019	10:30	



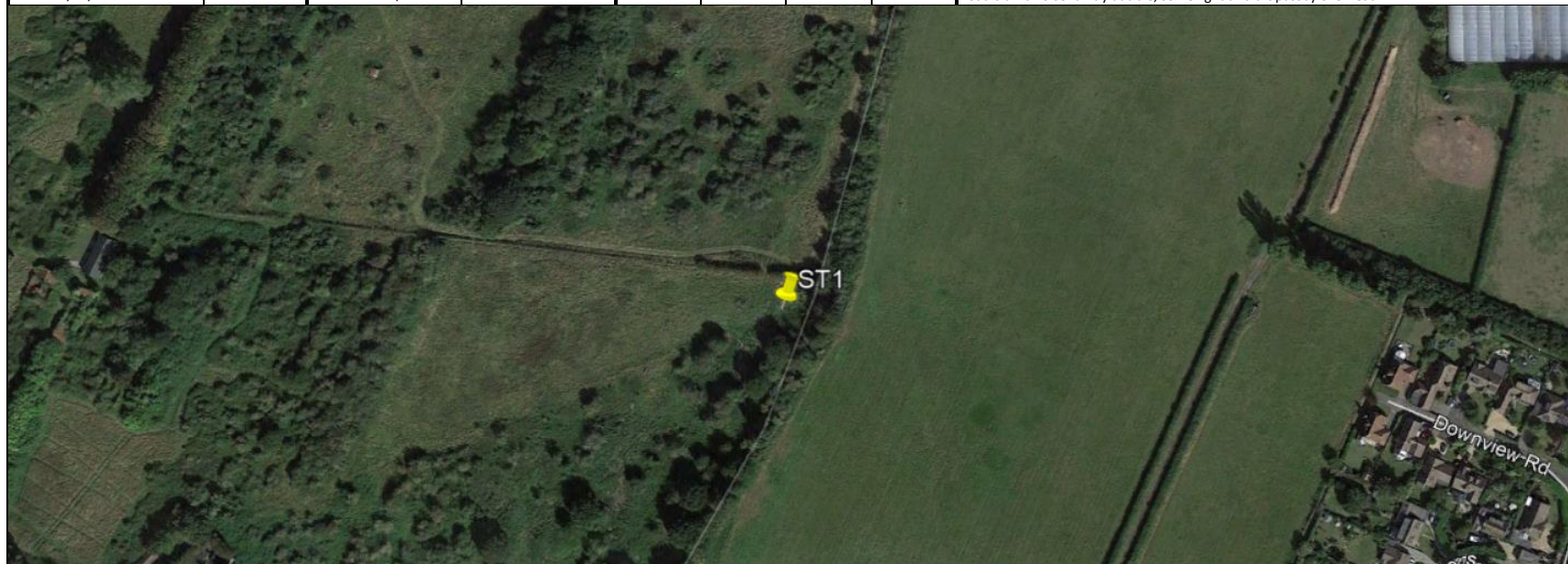
**Noise Monitoring Form**



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	ST 1 (Grid Ref: SU 9512705578)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 (s/n: 1021288)	<b>General Weather Description:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period		Weather		Statistical Noise Levels / dB				Description of Audible Noise
Date/Time	Elapsed Minutes	Wind Speed (m/s)	Temperature (°C)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
10/07/2019 13:20	15.00	< 5 m/s	19	43.3	63.4	44.9	39.3	Road traffic noise barely audible, some distant sawing audible
10/07/2019 16:22	15.00	< 5 m/s	19	42.0	61.9	43.4	38.2	Road traffic noise barely audible
11/07/2019 08:45	15.00	< 5 m/s	19	40.0	55.9	43.1	35.5	Road traffic noise faintly audible, some light aircraft passby overhead



**Noise Monitoring Form**



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	ST 2 (Grid Ref: SU 9521305119)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 (s/n: 1021288)	<b>General Weather Description:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period		Weather		Statistical Noise Levels / dB				Description of Audible Noise
Date/Time	Elapsed Minutes	Wind Speed (m/s)	Temperature (°C)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
10/07/2019 13:45	15.00	< 5 m/s	19	70.7	87.7	75.1	49.7	Road traffic noise dominant from B2233
11/07/2019 09:15	15.00	< 5 m/s	19	70.8	90.3	74.8	52.4	Road traffic noise dominant from B2233



**Noise Monitoring Form**



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	ST 3 (Grid Ref: SU 9445005670)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 (s/n: 1021288)	<b>General Weather Description:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period		Weather		Statistical Noise Levels / dB				Description of Audible Noise
Date/Time	Elapsed Minutes	Wind Speed (m/s)	Temperature (°C)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
10/07/2019 12:15	15.00	< 5 m/s	19	65.9	84.5	69.5	53.0	Road traffic noise dominant from A29, distant construction noise also audible
10/07/2019 15:00	15.00	< 5 m/s	19	63.3	78.4	67.2	51.4	Road traffic noise dominant from A29, distant construction noise also audible





**Noise Monitoring Form**



<b>Project Name:</b>	A29 Phase 1	<b>Project No:</b>	70060779
<b>Location:</b>	ST 4 (Grid Ref: SU 9476006229)	<b>Engineer:</b>	Aaron Tomlinson & James Heaney-Ellis
<b>Equipment:</b>	Rion NL-52 (s/n: 1021288)	<b>General Weather Description:</b>	Overcast and Dry, Wind speeds less than 5m/s
<b>Pre-Calibration Level:</b>	94.0		
<b>Post-Calibration Level:</b>	94.0		

**Additional Comments:**

Measurement Period		Weather		Statistical Noise Levels / dB				Description of Audible Noise
Date/Time	Elapsed Minutes	Wind Speed (m/s)	Temperature (°C)	L <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>A10</sub>	L <sub>A90</sub>	
10/07/2019 12:45	15.00	< 5 m/s	19	69.0	84.1	73.5	48.4	Road traffic noise dominant from A29
10/07/2019 15:50	15.00	< 5 m/s	19	70.2	84.6	74.3	53.7	Road traffic noise dominant from A29





# CERTIFICATE OF CALIBRATION



0653

**Date of Issue: 07 January 2019**

**Certificate Number: UCRT19/1022**

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](mailto:info@noise-and-vibration.co.uk)

Web: [www.noise-and-vibration.co.uk](http://www.noise-and-vibration.co.uk)

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory

K. Mistry

Customer WSP UK Ltd  
 3rd Floor, Kings Orchard  
 1 Queen Street  
 Bristol  
 BS2 0HQ

Order No. 20084040  
 Description Sound Level Meter / Pre-amp / Microphone / Associated Calibrator  
 Identification

Manufacturer	Instrument	Type	Serial No. / Version
Rion	Sound Level Meter	NL-52	01021289
Rion	Firmware		1.8
Rion	Pre Amplifier	NH-25	21331
Rion	Microphone	UC-59	04345
Rion	Calibrator	NC-74	00830766
	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 03 January 2019 ANV Job No. UKAS19/01011  
 Date Calibrated 07 January 2019

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
	11 January 2017	UCRT17/1012	7623

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# CERTIFICATE OF CALIBRATION

**Certificate Number**

**UCRT19/1022**

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	Customers Calibrator	
Calibrator adaptor type if applicable	NC-74-002	
Calibrator cal. date	04 January 2019	
Calibrator cert. number	UCRT19/1013	
Calibrator cal cert issued by	0653	
Calibrator SPL @ STP	93.99	dB Calibration reference sound pressure level
Calibrator frequency	1002.65	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	23.21	23.50	±	0.40 °C
Humidity	34.2	36.6	±	3.00 %RH
Ambient Pressure	102.21	102.19	±	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		
	11.5	dB	UR	16.3	dB	UR	22.1	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



# CERTIFICATE OF CALIBRATION



0653

**Date of Issue: 13 September 2017**

**Certificate Number: UCRT17/1780**

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](mailto:info@noise-and-vibration.co.uk)

Web: [www.noise-and-vibration.co.uk](http://www.noise-and-vibration.co.uk)

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Page 1 of 2 Pages
Approved Signatory
K. Mistry

Customer WSP UK Ltd  
 3rd Floor, Kings Orchard  
 1 Queen Street  
 Bristol  
 BS2 0HQ

Order No. 20052621

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

Identification	Manufacturer	Instrument	Type	Serial No. / Version
	Rion	Sound Level Meter	NL-52	00632043
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	32071
	Rion	Microphone	UC-59	05210
	Brüel & Kjær	Calibrator	4231	3002998
		Calibrator adaptor type if applicable		UC 0210

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 11 September 2017 ANV Job No. UKAS17/09476

Date Calibrated 13 September 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
	17 September 2015	TCRT15/1254	ANV Measurement Systems

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# CERTIFICATE OF CALIBRATION

Certificate Number

UCRT17/1780

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	UC 0210	
Calibrator cal. date	07 September 2017	
Calibrator cert. number	UCRT17/1768	
Calibrator cal cert issued by	0653	
Calibrator SPL @ STP	94.13	dB Calibration reference sound pressure level
Calibrator frequency	999.96	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	20.48	20.84	± 0.20 °C
Humidity	53.1	49.3	± 3.00 %RH
Ambient Pressure	98.83	98.91	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.			
Initial indicated level	94.2	dB	Adjusted indicated level 94.1 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	
	10.5	dB UR	15.4	dB UR	21.5	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

Additional Comments

None

R 1



# CERTIFICATE OF CALIBRATION



0653

**Date of Issue: 12 September 2017**

**Certificate Number: UCRT17/1777**

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

Page 1 of 2 Pages

Approved Signatory

K. Mistry

Customer WSP UK Ltd  
3rd Floor, Kings Orchard  
1 Queen Street  
Bristol  
BS2 0HQ

Order No.	20052621			
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	01021288
	Rion	Firmware		1.8
	Rion	Pre Amplifier	NH-25	21330
	Rion	Microphone	UC-59	08198
	Brüel & Kjær	Calibrator	4231	3002998
		Calibrator adaptor type if applicable		UC 0210

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 11 September 2017 ANV Job No. UKAS17/09476

Date Calibrated 12 September 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	<i>Dated</i>	<i>Certificate No.</i>	<i>Laboratory</i>
	04 November 2015	TCRT15/1301	ANV Measurement Systems

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# CERTIFICATE OF CALIBRATION

Certificate Number

UCRT17/1777

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		UC 0210
Calibrator cal. date		07 September 2017
Calibrator cert. number		UCRT17/1768
Calibrator cal cert issued by		0653
Calibrator SPL @ STP	94.13	dB Calibration reference sound pressure level
Calibrator frequency	999.96	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	21.91	21.70	± 0.20 °C
Humidity	45.2	43.3	± 3.00 %RH
Ambient Pressure	99.61	99.58	± 0.03 kPa

Response to associated Calibrator at the environmental conditions above.

Initial indicated level	94.2	dB	Adjusted indicated level	94.1	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				
	11.6	dB	UR	17.1	dB	UR	22.3	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

Additional Comments

None

R 1



# CERTIFICATE OF CALIBRATION



0653

**Date of Issue: 04 January 2019**

**Certificate Number: UCRT19/1013**

Issued by:

ANV Measurement Systems

Beaufort Court


17 Roebuck Way

Milton Keynes MK5 8HL

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Page 1 of 2 Pages
Approved Signatory

K. Mistry

Acoustics Noise and Vibration Ltd trading as ANV Measurement Systems

Customer WSP UK Ltd  
3rd Floor, Kings Orchard  
1 Queen Street  
Bristol  
BS2 0HQ

Order No. 20084040

Test Procedure Procedure TP 1 Calibration of Sound Calibrators

Description Acoustic Calibrator

Identification	Manufacturer	Instrument	Model	Serial No.
	Rion	Calibrator	NC-74	00830766

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. UKAS19/01011

Date Received 03 January 2019

Date Calibrated 04 January 2019

Previous Certificate

<i>Dated</i>	18 January 2018
<i>Certificate No.</i>	UCRT18/1044
<i>Laboratory</i>	0653

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# CERTIFICATE OF CALIBRATION

Certificate Number

UCRT19/1013

UKAS Accredited Calibration Laboratory No. 0653

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## 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

93.99 ± 0.10 dB rel 20 µPa

## Functional Tests and Observations

The frequency of the sound produced was	1002.65 Hz	±	0.13 Hz
The total distortion was	1.25 %	±	6.7 % of Reading

During the measurements environmental conditions were

Temperature	23	to	24 °C
Relative Humidity	29	to	36 %
Barometric Pressure	103.2	to	103.3 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 UKAS requirements.

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

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