Wilga Park Power Station - Compliance Noise Modelling

February 2022

Santos

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Appendices

1. Introduction

1.1 Purpose of this report

Santos NSW (Eastern) Limited (Santos) is the operator of the Wilga Park Power Station (WPPS) which was approved in 2008.

The Department of Planning, Industry and Environment (the Department) Minister's condition of approval (Project Approval) places standards on the proponent with regards to noise monitoring once the WPPS is operating above 12 MW capacity. Santos also agreed to subsequent monitoring during the following winter period. On 22 December 2018, the WPPS operated above 12 MW, and a subsequent monitoring program was undertaken in January 2019. Following this, the power station operated above 16 MW on 13 July 2020 and monitoring was undertaken on 15 to 17 September 2020 within 90 days, to satisfy Project Approval Condition 3.5. Subsequent noise monitoring in summer has been undertaken between 8 to 10 February 2021 and 14 to 16 February 2022.

GHD Pty Ltd (GHD) was commissioned by Santos to undertake this noise monitoring program and this report provides details and results. The GHD assessment of the monitoring results concluded on 4 March 2022. On this basis, the due date for this report's submission is 1 April 2022 as per Condition 3.5.

2. Requirements

The Planning Approval requirements are provided in the following sections.

2.1 Condition 3.5

Condition 3.5: *Within 90 days of the commencement of operation of the power station at a capacity of more than 12 megawatts and at every stage that new generation capacity is added to the power station or as otherwise agreed by the Secretary, and during a period in which the power station is operating under normal operating conditions (considering all operational generators at the time), the Proponent shall undertake a program to confirm the noise emission performance of the project. The program shall include, but not necessarily be limited to:*

a) noise monitoring, consistent with the guidelines provided in the New South Wales Industrial Noise Policy (EPA, 2000), to assess compliance with the maximum allowable noise contributions specified in Table 2 of condition 2.8 of this approval in relation to the locations specified in condition 2.8; and

b) details of any entries in the Complaints Register (condition 5.3 of this approval) relating to noise impacts.

A report providing the results of the program shall be submitted to the Secretary and the EPA within 28 days of completion of the assessment required under condition 3.5.

2.2 Condition 2.8 and 2.9

Condition 2.8: *The Proponent shall implement all reasonable and feasible at-source noise control measures at the Wilga Park power station to ensure that the noise contributions from the operation of the power station does not exceed the maximum allowable noise contributions specified in Table 2, at the following locations:*

a) all existing sensitive receivers identified in Attachment A;

b) any residential dwelling within the land area shown in Attachment A for which an approval has been obtained under the Environmental Planning and Assessment Act 1979 at the date of this project approval; and

c) over 25% or more of a vacant allotment within the land area shown in Attachment A in existence at the date of this project approval and for which a dwelling is permissible under the Environmental Planning and Assessment Act 1979 at the date of this project approval.

The maximum allowable noise contributions apply under wind speeds up to 3 ms-1 (measured at 10 metres above ground level), or under temperature inversion conditions of up to 3 ºC/ 100 metres and wind speeds of up to 2m/s at 10 metres above the ground.

Table 2 Maximum Allowable Noise Contribution

7:00am to 6:00pm Mondays to Saturdays 8:00am to 6:00pm Sundays and public holidays	***Evening 6:00pm to 10:00pm on any day***	***Night 10:00pm to 7:00am Mondays to Saturdays 10:00pm to 8:00am Sundays and public holidays***	
35 LAeq(15 minute)	*35 LAeq(15 minute)*	*35 LAeq(15 minute)*	*45 LA1 (1 minute)*

Condition 2.9: *For the purpose of assessment of noise contributions specified under condition 2.8 of this approval, noise from the project shall be:*

a) measured at the most affected point within the residential boundary or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary to determine compliance with the LAeq(15 minute) noise limits;

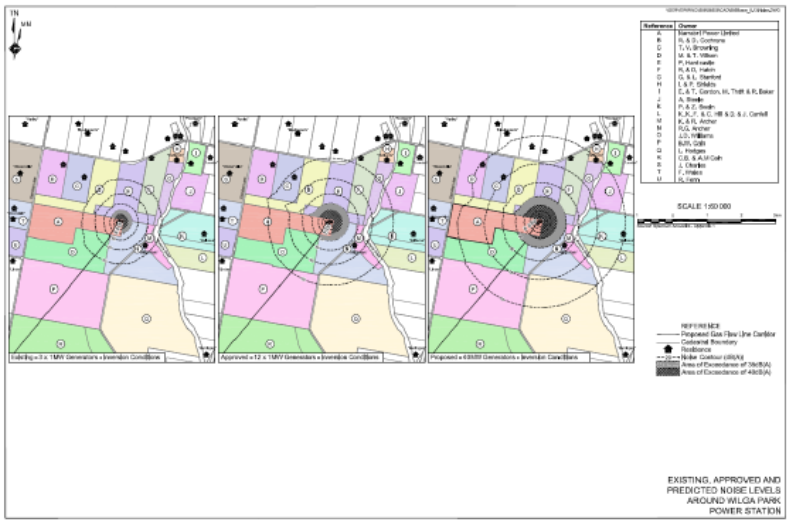
b) measured at 1 metre from the dwelling façade to determine compliance with the LA1 (1 minute) noise limits; and

c) subject to the modification factors provided in Section 4 of the New South Wales Industrial Noise Policy (EPA, 2000), where applicable.

Notwithstanding the above, should direct measurement of noise from the project be impractical, the Proponent may employ an alternative noise assessment method deemed acceptable by the EPA (refer to Section 11 of the New South Wales Industrial Noise Policy (EPA, 2000)). Details of such an alternative noise assessment method accepted by the EPA shall be submitted to the Secretary prior to the implementation of the assessment method.

Condition 2.16*: Should the monitoring required under condition 3.5 indicate that the operational noise contributions of the Wilga Park Power Station, following the implementation of all reasonable and feasible at-source mitigation measures in accordance with condition 2.8, exceed the maximum allowable noise contributions specified in Table 2 at the location identified in condition 2.8c) by more than 5 dB(A), then the Proponent shall, upon receiving a written request for acquisition from the landowner within two years of the date of that landowner being notified of his/her acquisition rights, acquire the land in accordance with the procedures in conditions 2.17 to 2.21 of this approval.*

Attachment A: Noise Receivers



3. Assessment

3.1 Assessment methodology

A noise monitoring program was undertaken between 14 and 16 February 2022 at the WPPS to confirm compliance with Condition 2.8 and 2.9 of the Planning Approval. The WPPS was operating at its full available output.

The following Type 1 Sound Level Meters (SLMs) were used for the monitoring program

– Svantek SV979 serial number 36873 within NATA calibration
– Svantek SV979 serial number 45744 within NATA calibration

The LAeq(15min) measurements were set to linear averaging and the LAmax and LA90(15min) measurements were set to Fast time-response. Field calibration checks were performed at the start and end of the measurement sessions and were with acceptable tolerances.

Temperatures at 10 m and 60 m elevation and wind speeds at 10 m were obtained from Whitehaven Coal's weather station which is located 27 km to the south east of the WPPS. This data was used to determine the presence of noise enhancing meteorological conditions including the temperature lapse rate and wind speed at 10 m. Wind speed observations were also undertaken simultaneously with the noise measurements at the WPPS site at ground level (2 m) to confirm the influence of wind over the microphone did not affect the noise measurements. At ground level, during all measurements, the wind speed was observed to be light and less than 2 m/s.

Direct noise measurements were undertaken at all of the locations identified in Condition 2.8 of the Planning Approval where practical, or conservatively on the intervening site boundary. Where the receiver was a vacant allotment, the measurement was either taken on the lot boundary nearest the WPPS or at a location within the allotment set back so that it is representative of 25% of the vacant land area (estimated based on spherical spreading).

The ambient noise environment has an influence on the measured WPPS noise levels. The WPPS was observed to be a steady state noise source, whereas attended observations noted that the ambient environment contained significant contributions from insects. The total measured noise level (LAeq) in Table 1 includes all extraneous contribution and would be a conservative estimate of noise levels from the WPPS. The LA90 noise level provides a better representation of a steady-state noise source where there are irregular contributions from extraneous noise and using the LA90 noise level to estimate noise levels from the WPPS is consistent with EPA guidance (Noise Policy for Industry (EPA, 2017) Section 7.1.1 and Industrial Noise Policy (EPA, 2000) Section 2.3) for steady state noise sources. However due to the prevalence of consistent background insect noise, the LA90 is over estimating the contribution of noise from the WPPS . Therefore in this instance based on the conditions at the time of monitoring high frequency noise (3.15 – 4 kHz) from insects needs to be excluded. Based on historic data It is noted that noise emissions from the WPPS are low to mid frequency and do not have any emissions in the higher frequencies. It is understood that these methods are considered acceptable from the EPA as they are based on latest EPA guidance and were provided to EPA for comment (GHD Letter to EPA dated 11 May 2018).

3.1 Noise level contribution from WPPS

The total measured ambient noise level and the noise level contribution from the WPPS is provided in Table 2. The WPPS noise level contribution has been determined based on the direct operator attended measurements and the frequency analysis assessment method described in Section 3.1. It is noted that the noise level contribution may still contain influence from ambient noise, particularly for receivers where the WPPS was only just audible.

During all operator attended measurements, when the WPPS was audible, no impulsive noise characteristics or maximum noise events were attributed to the WPPS. Source measurements on site at the WPPS shows that the difference between the LAeq noise level and the LA1 noise level was less than 1 dBA. As such the received LA1(1minute) noise level should not exceed the WPPS contribution shown in Table 2 by more than 1 dBA. As

such the WPPS is assessed to be compliant with the 45 dBA LA1 (1 minute) maximum allowable noise contribution.

Condition 2.9 requires the adoption of the modification factors provided in Section 4 of the New South Wales Industrial Noise Policy (EPA, 2000). Note that under the *Implementation and transitional arrangements for the Noise Policy for Industry (2017) (EPA 2017P0293; October 2017),* where conditions reference the *New South Wales Industrial Noise Policy (EPA, 200*0) the modification factors these are to be transitioned to the *Noise Policy for Industry (2017) Fact Sheet C* through the practice notes issued on the EPA website. The potential for low frequency noise impacts were assessed using the difference between the modelled C- and A-weighted noise levels. At some locations a difference of 15 dB was measured. Therefore, there is the potential for low frequency noise if the threshold levels are exceeded. The measured one-third octave noise levels were reviewed and assessed against the Noise Policy for Industry (2017) one-third octave noise threshold levels provided in Table 1. The measured noise levels are below the noise threshold levels in all one-third octave bands at all locations.

Table 1 One-third octave low-frequency noise threshold level

Frequency	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
dBZ criteria	92	89	86	77	69	61	54	50	50	48	48	46	44

Based on the direct attended noise measurements and the assessment methodology in Section 3.1, all receivers comply with the criteria (considering any low frequency noise modification factor).

Table 2 WPPS noise contribution, $L_{Aeq(15minute)}$

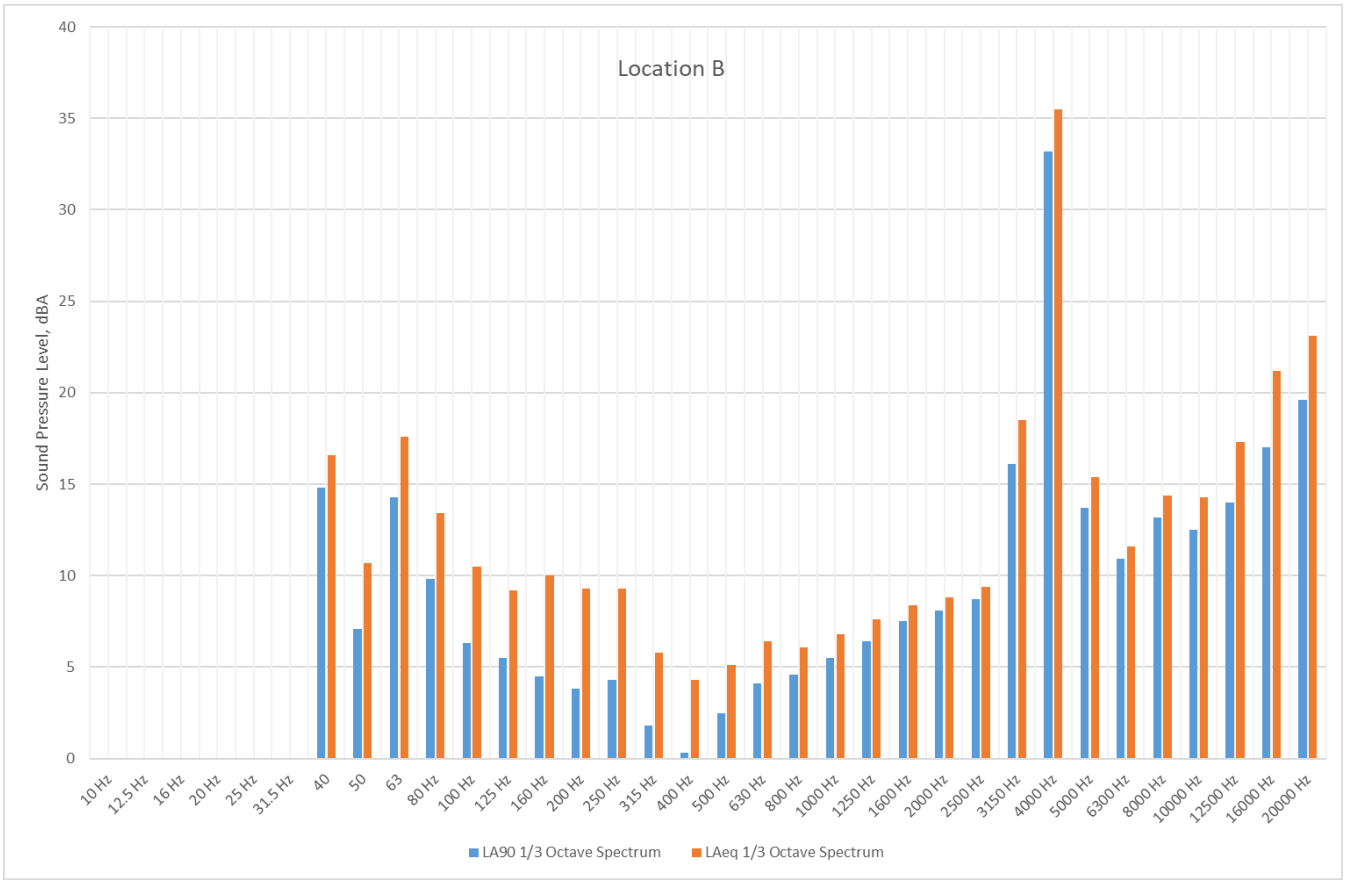
Receiver	Criteria	Total noise level	WPPS Contribution (dBA)	Date (Start time)	Wind speed (Direction)	Temperature Lapse rate	Observations
B	40 (vacant lot)	36	24	14/02/2022 11:15 pm	1.9 m/s (273°)	1 °C/100m	WPPS not audible Insects noise dominant
C	35	47	31	14/02/2022 11:53 pm	2.1 m/s (223°)	4 °C/100m	WPPS not audible Insect noise dominant Pump, car and alarm
D (Boundary)	35	48	31	14/02/2022 11:50 pm	2.1 m/s (223°)	4 °C/100m	WPPS not audible Insect noise dominant Horse, car
E	40 (vacant lot)	31	31	14/02/2022 10:40 pm	1.9 m/s (0°)	1.8 °C/100m	WPPS audible No insects
F	35	37	26	15/02/2022 12:52 am	3.1 m/s (176°)	1.4 °C/100m	WPPS not audible Insect noise dominant
G	35	43	22	15/02/2022 12:23 am	1.7 m/s (189°)	2.8 °C/100m	WPPS not audible Insect noise dominant
H	35	36	23	15/02/2022 12:23 am	1.7 m/s (189°)	2.8 °C/100m	WPPS not audible Insect noise dominant
I	35	32	22	15/02/2022 1:21 am	2.4 m/s (178°)	4 °C/100m	WPPS not audible Insect noise dominant
J	35	40	23	15/02/2022 1:19 am	2.4 m/s (178°)	4 °C/100m	WPPS not audible Insect noise dominant
K	35	41	23	16/02/2022 12:43 am	1.9 m/s (222°)	0.4 °C/100m	WPPS not audible Insect noise dominant
L	40 (vacant lot)	34	25	16/02/2022 1:20 am	2.1 m/s (182°)	2.4 °C/100m	WPPS not audible Insect noise dominant
M	Negotiated agreement in place	36	27	15/02/2022 9:47 pm	1.8 m/s (85°)	-1.6 °C/100m	WPPS not audible Insect noise dominant

Receiver	Criteria	Total noise level	WPPS Contribution (dBA)	Date (Start time)	Wind speed (Direction)	Temperature Lapse rate	Observations
N	Negotiated agreement in place (vacant lot)	45	32	15/02/2022 10:11 pm	2.2 m/s (134 °)	4.4°C/100m	WPPS low frequency noise audible Insect noise dominant
O	40 (vacant lot)	34	32	15/02/2022 11:32 pm	2.7 m/s (139°)	1.4 °C/100m	WPPS audible Insect noise
P, Q, R (Boundary)	40 (vacant lot)	56	23	15/02/2022 10:45 pm	2.6 m/s (168°)	1.8 °C/100m	WPPS not audible Insect noise dominant
S, T, U (Boundary)	35	39	26	14/02/2022 9:57 pm	3.2 m/s (171°)	5.6 °C/100m	WPPS not audible Insect noise dominant

Appendices

Appendix A

Measured noise level charts and frequency spectrums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35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
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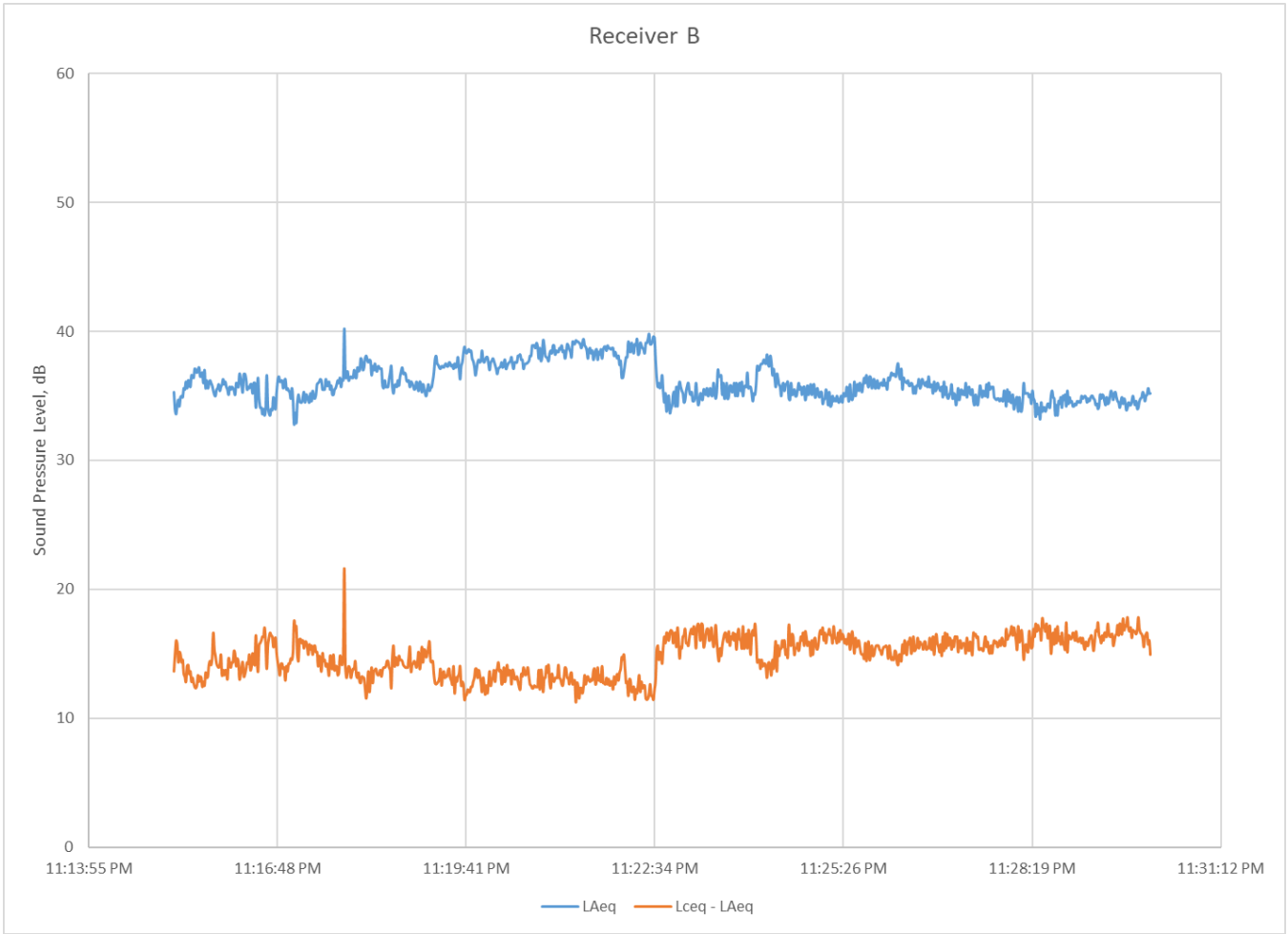
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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40
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20
10
0
11:13:55 PM
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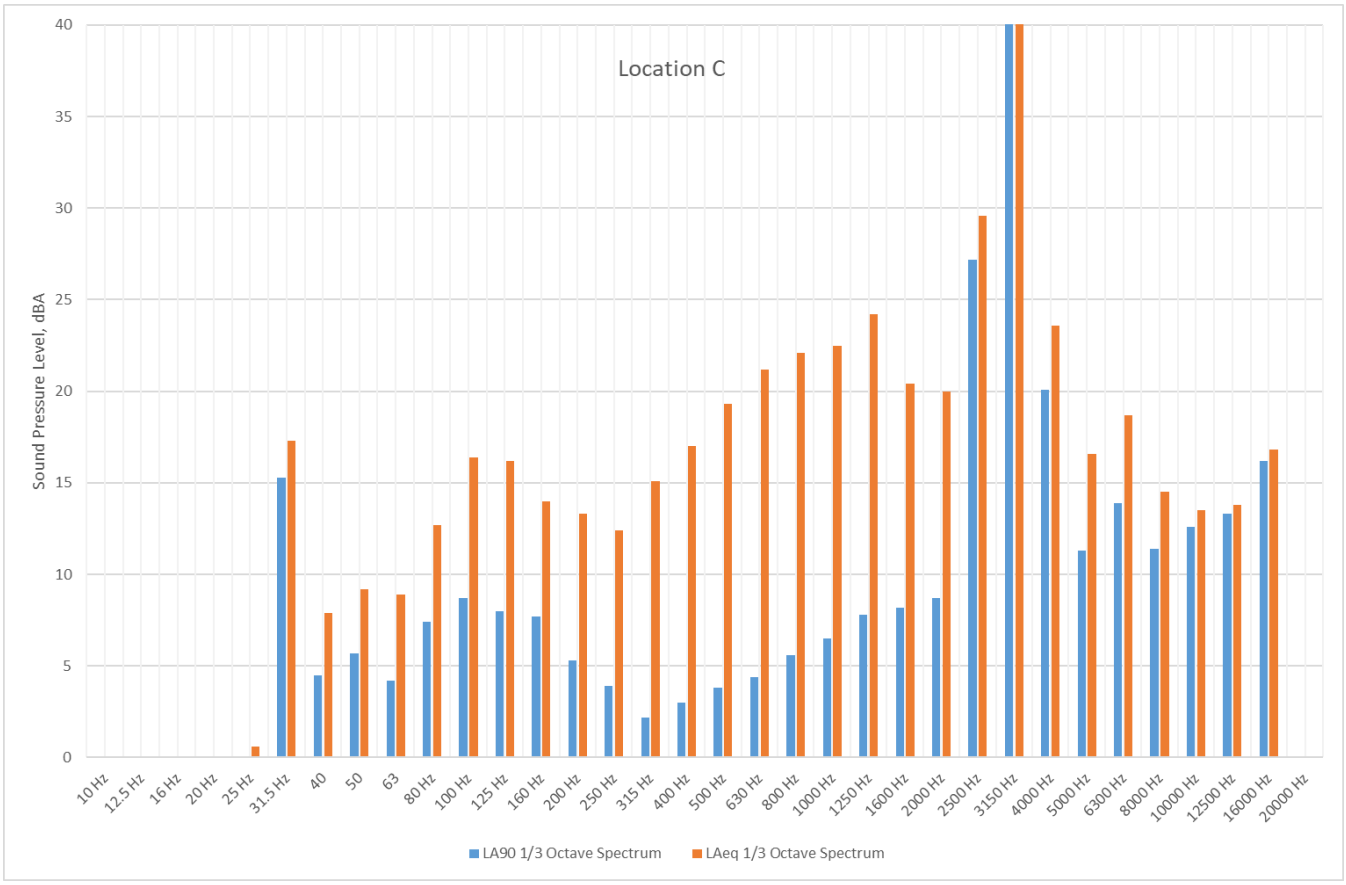
11:28:19 PM
11:31:12 PM
LAeq
Lceq - LAeq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Sound Pressure Level, dBA
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35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
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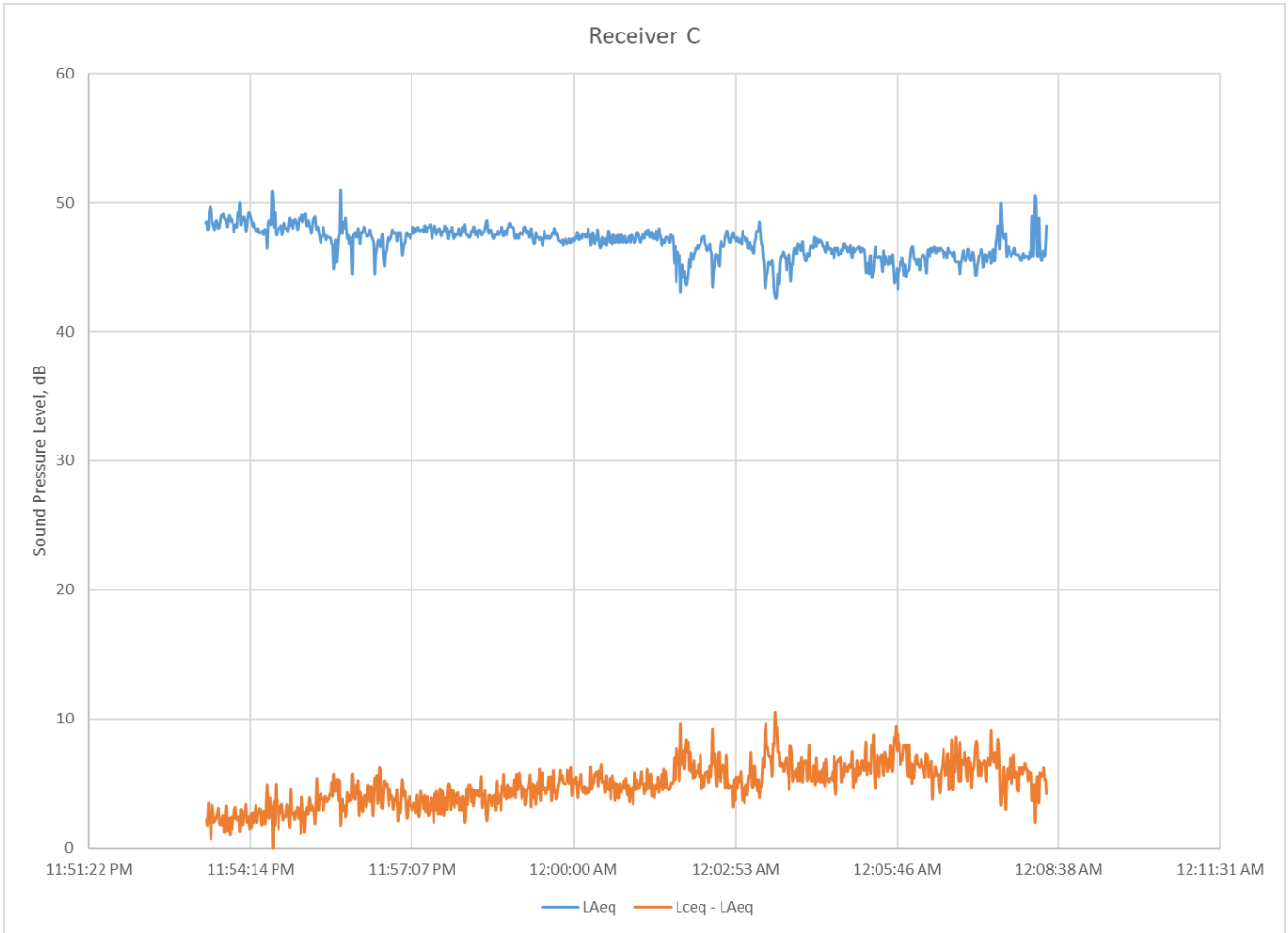
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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Sound Pressure Level, dB
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50
40
30
20
10
0
11:51:22 PM
11:54:14 PM
11:57:07 PM
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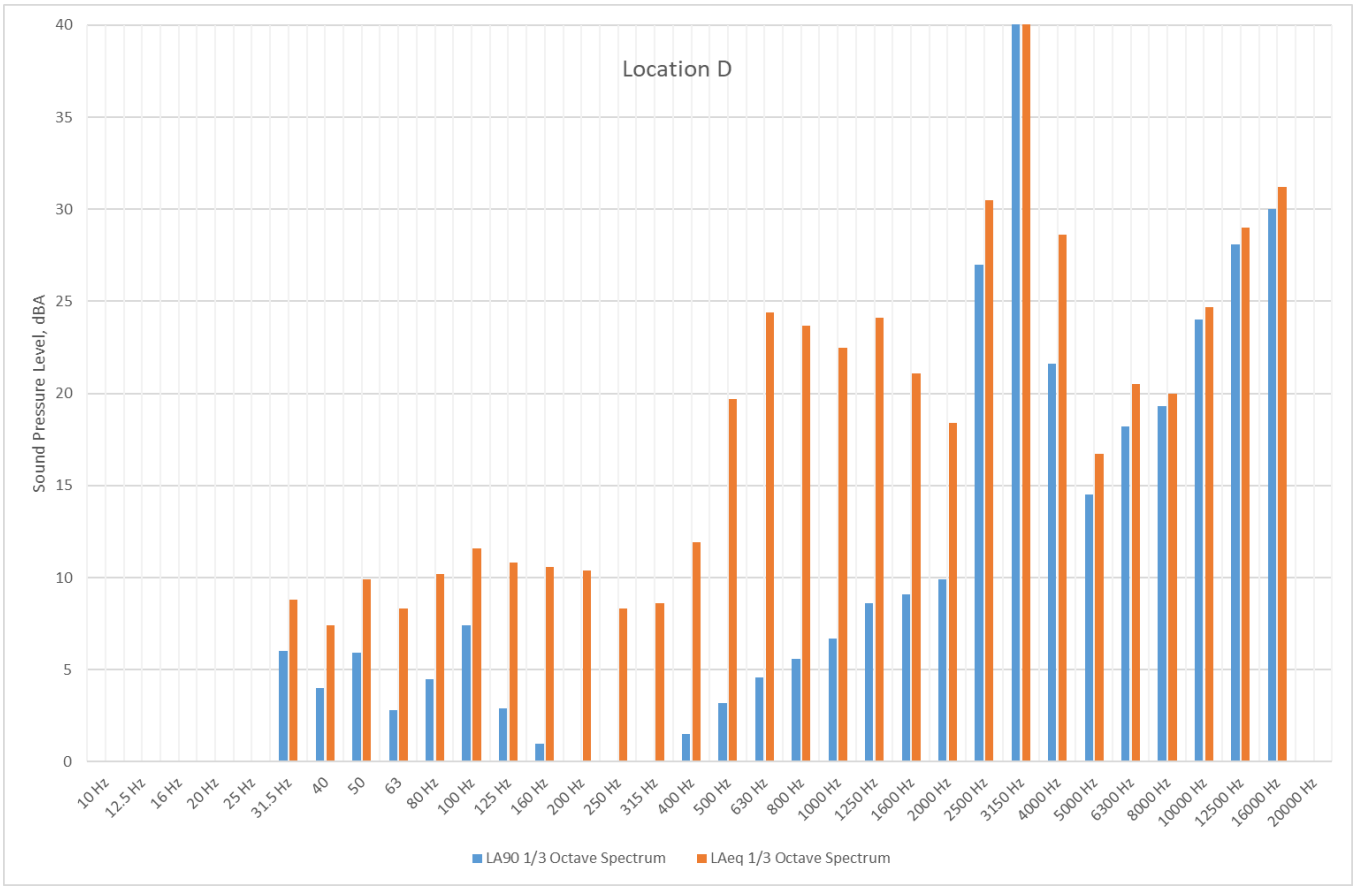
12:02:53 AM
12:05:46 AM
12:08:38 AM
12:11:31 AM
LAeq
Lceq - LAeq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Sound Pressure Level, dBA
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20 Hz
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31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
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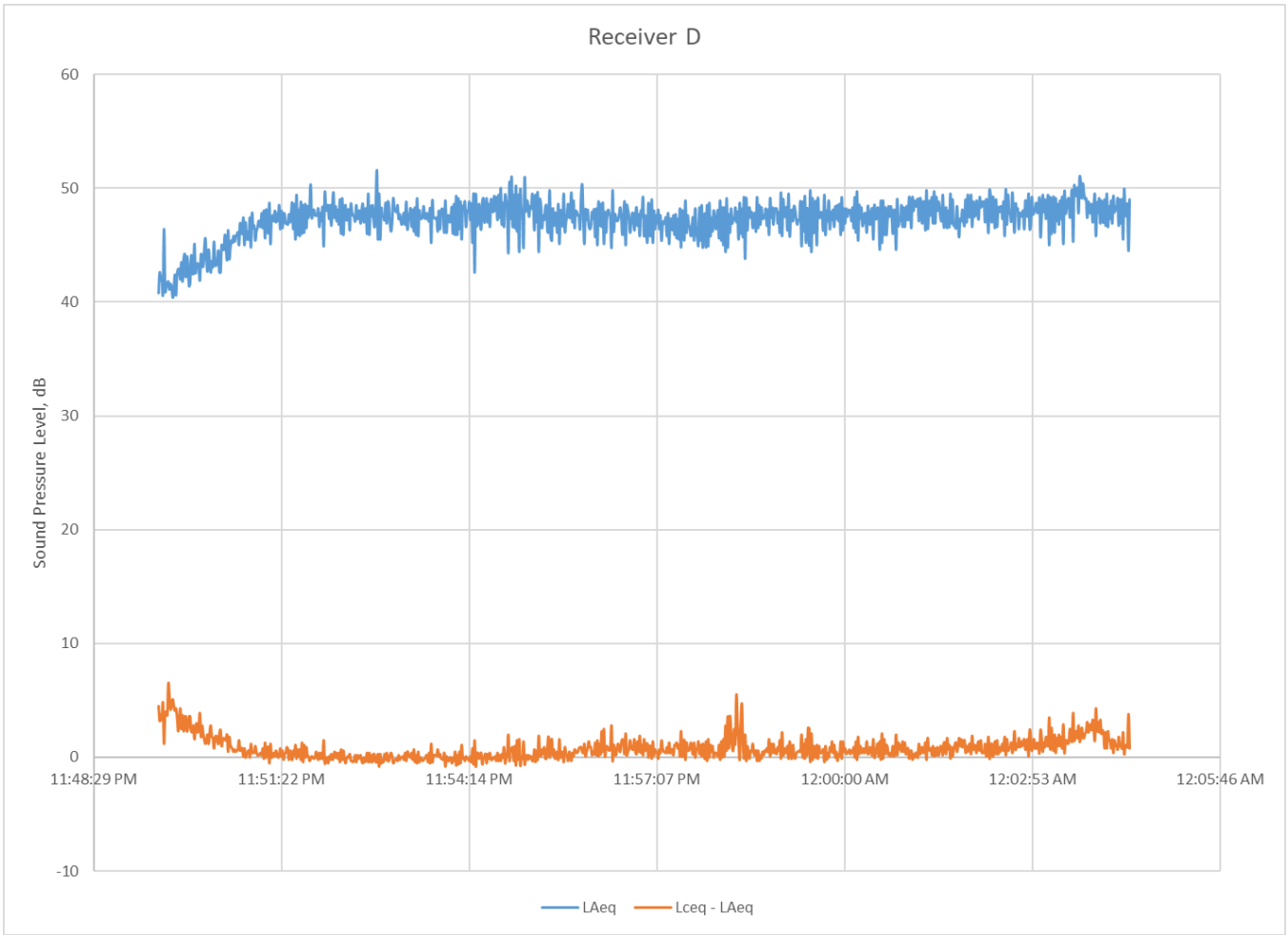
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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11:48:29 PM
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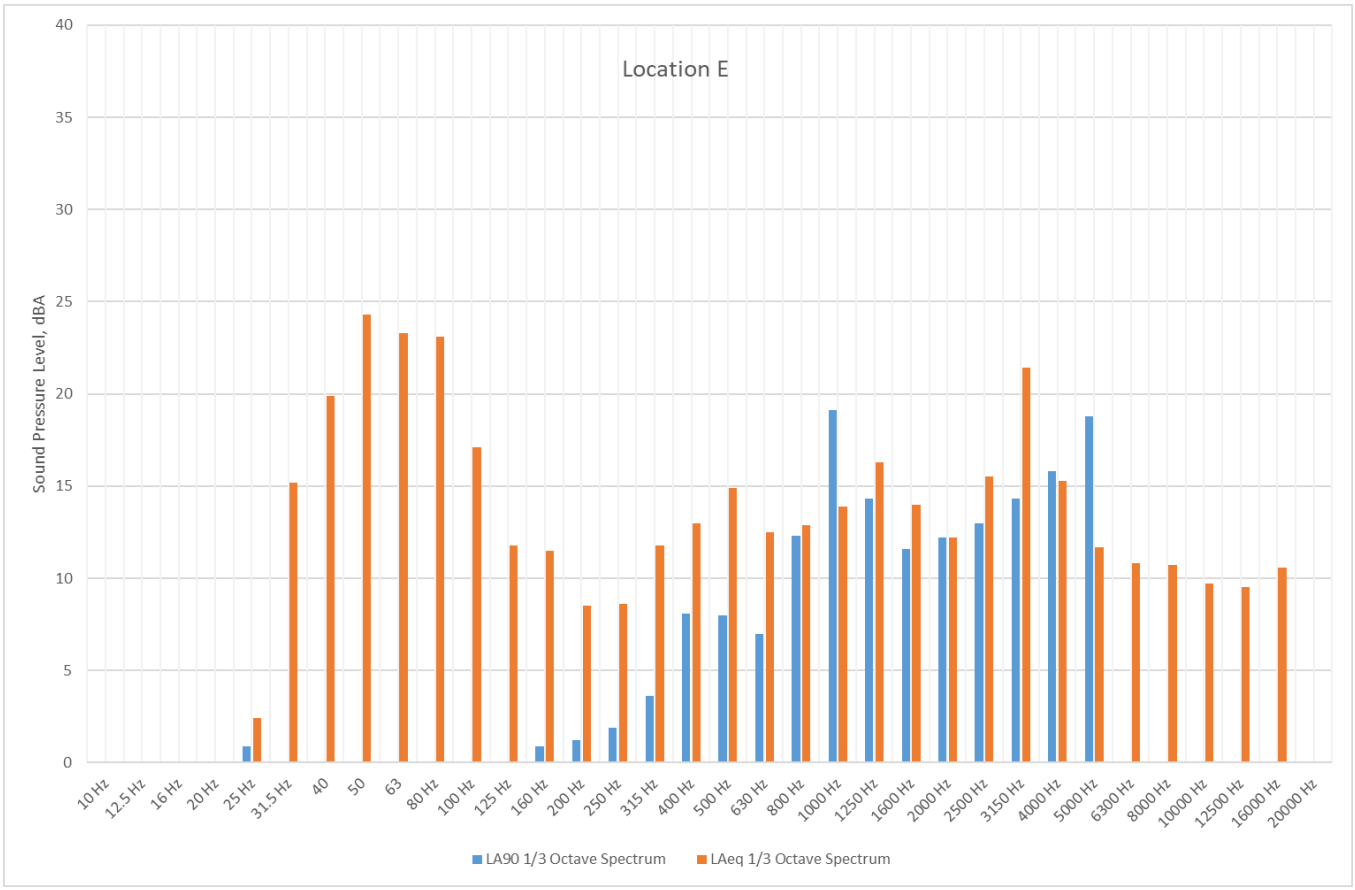
LAeq
Lceq - LAeq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40
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1600 Hz
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2500 Hz
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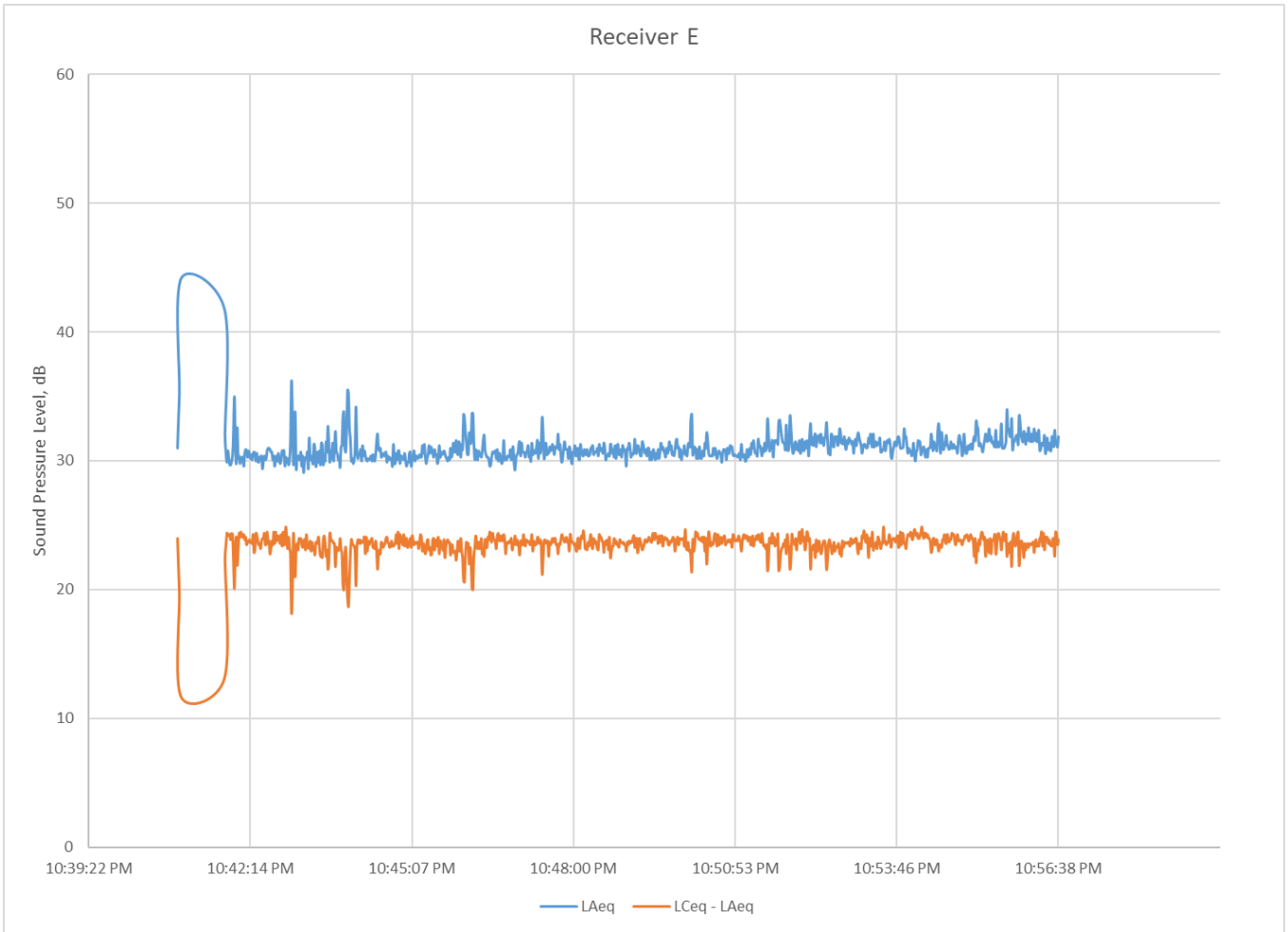
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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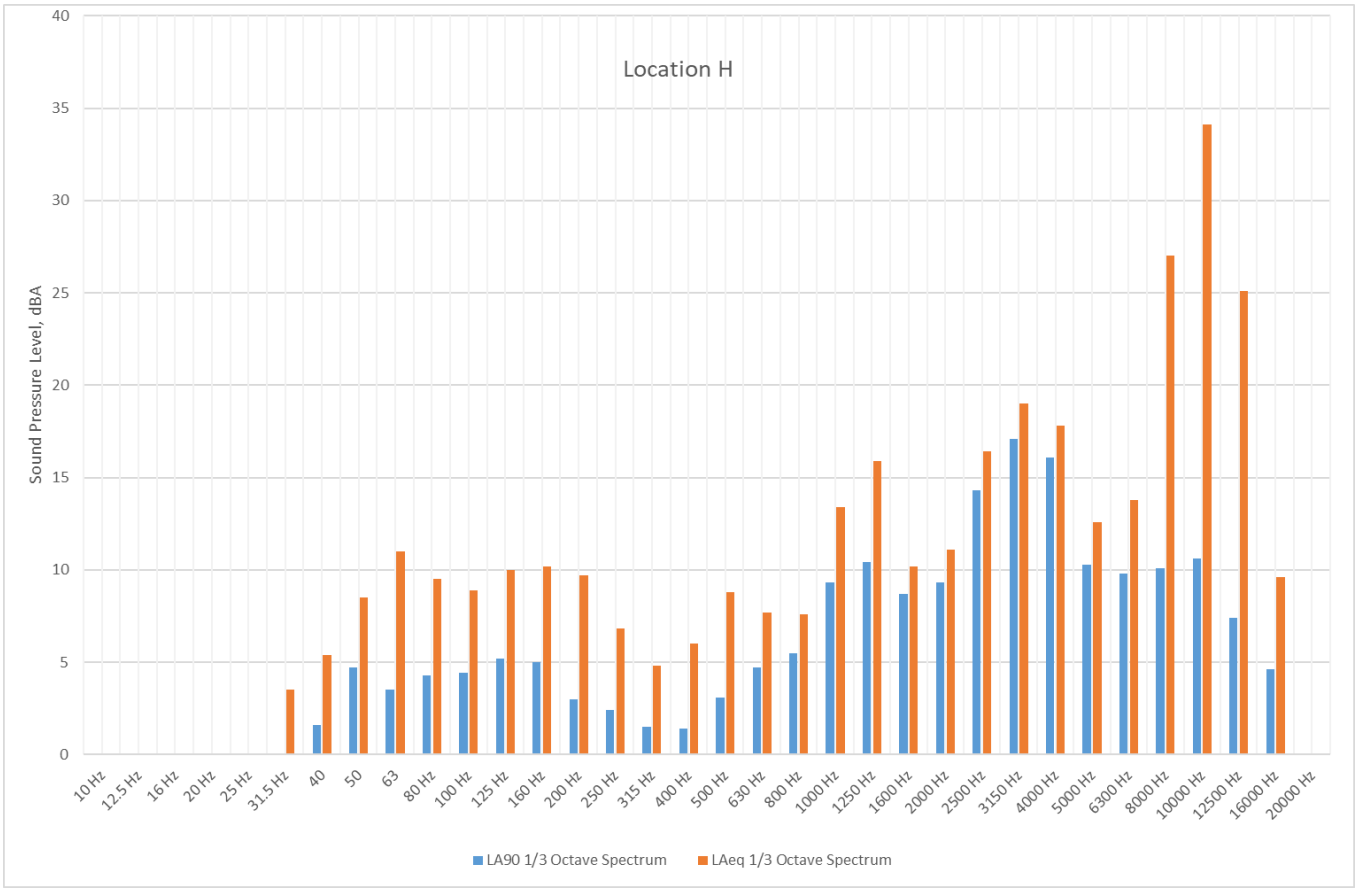
LAeq
LCeq - LAeq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Sound Pressure Level, dBA
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15
10
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0
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12.5 Hz
16 Hz
20 Hz
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1600 Hz
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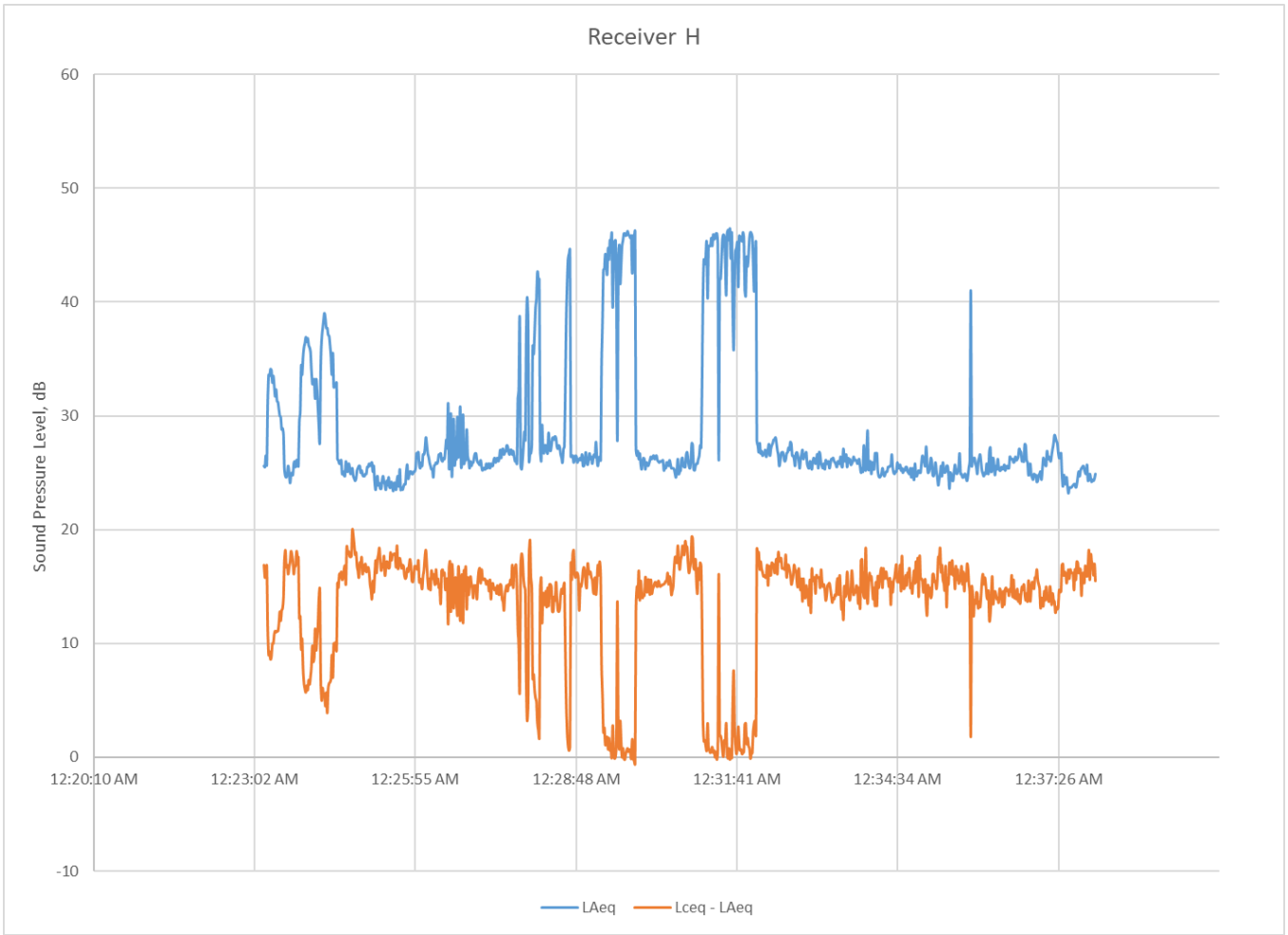
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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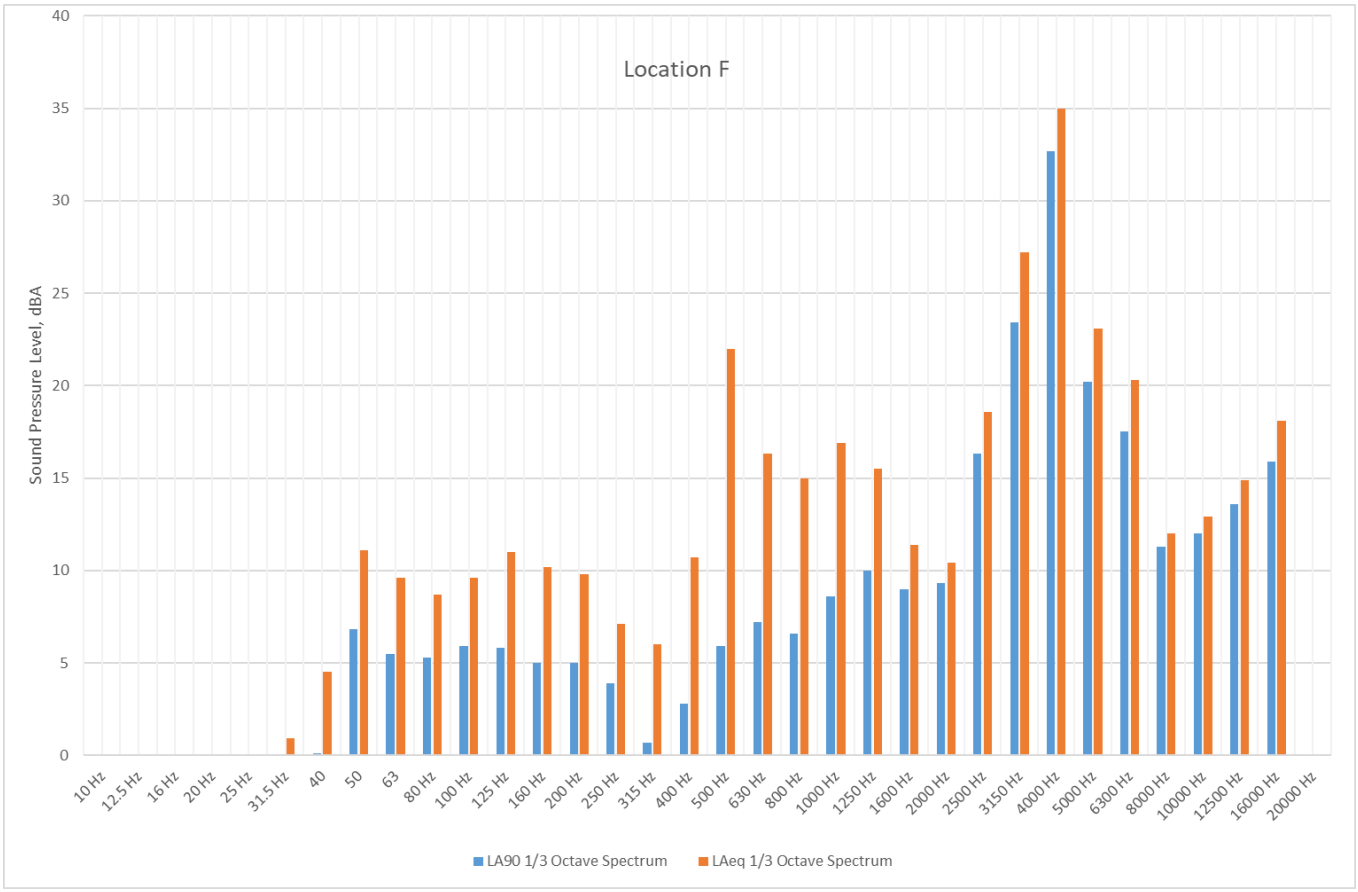
LAeq
Lceq - LAeq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16 Hz
20 Hz
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40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
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500 Hz
630 Hz
800 Hz
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1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum


Receiver F
Sound Pressure Level, dB
60
50
40
30
20
10
0
12:48:58 AM
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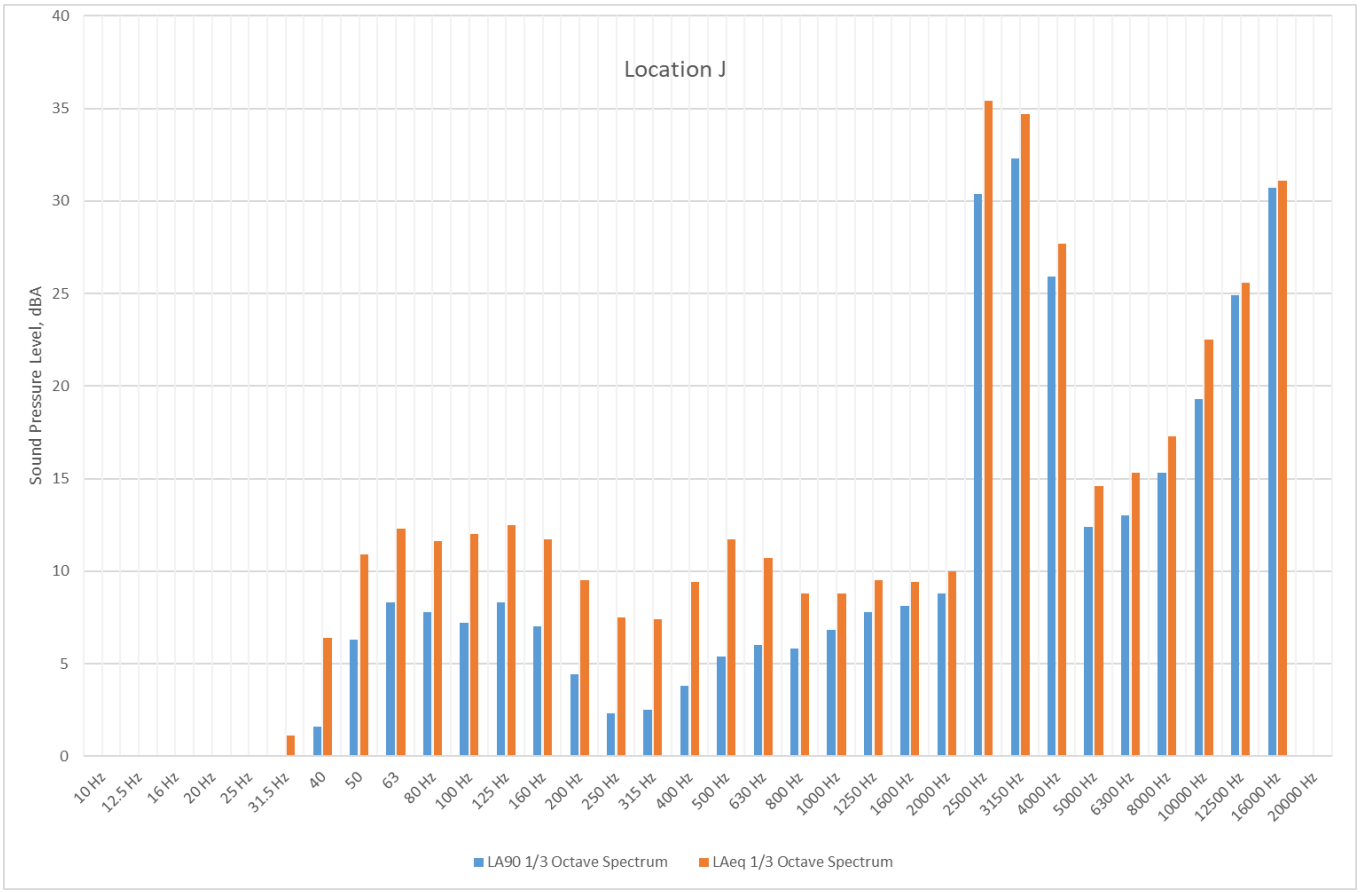
Lceq - LAeq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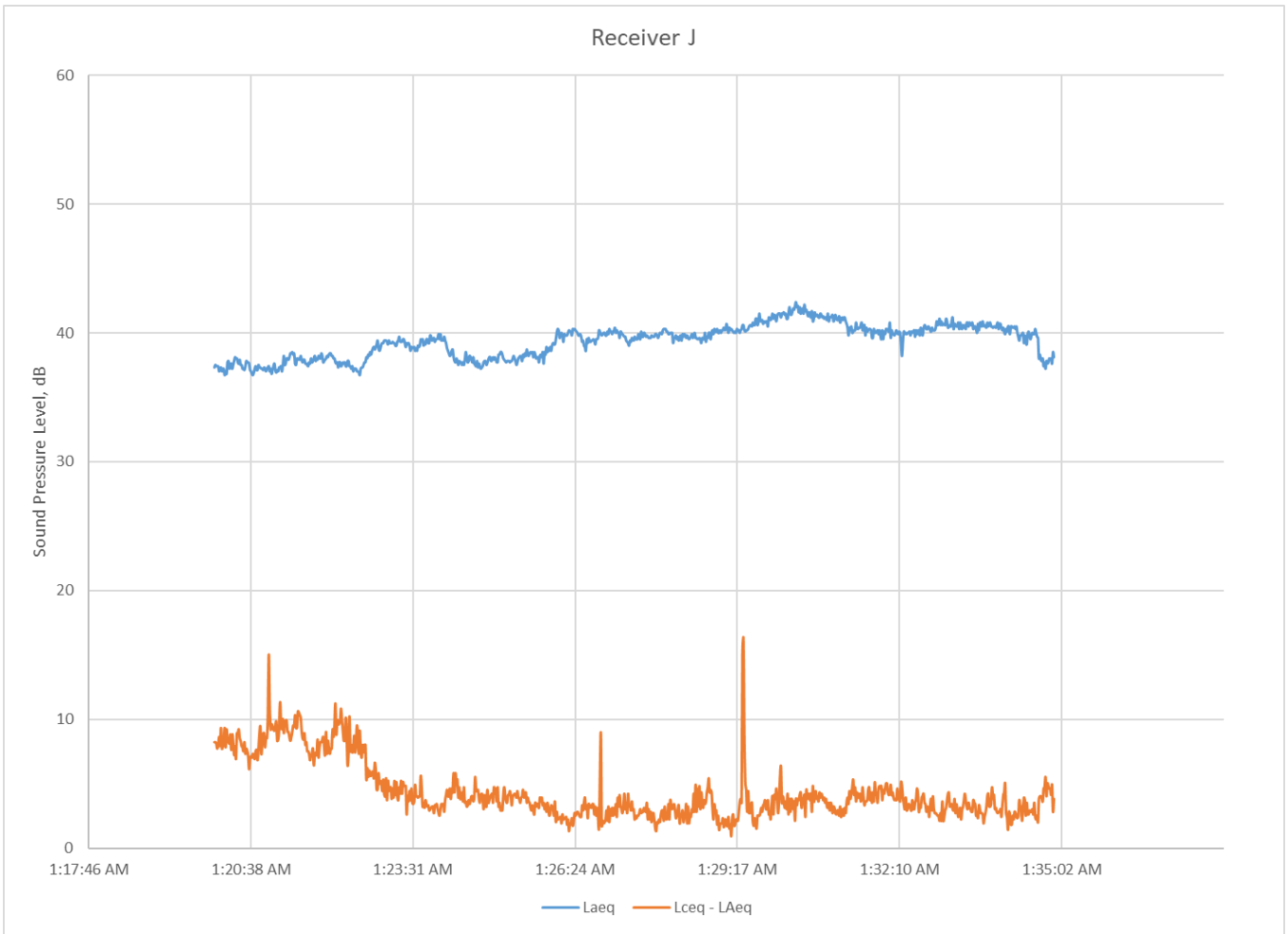
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum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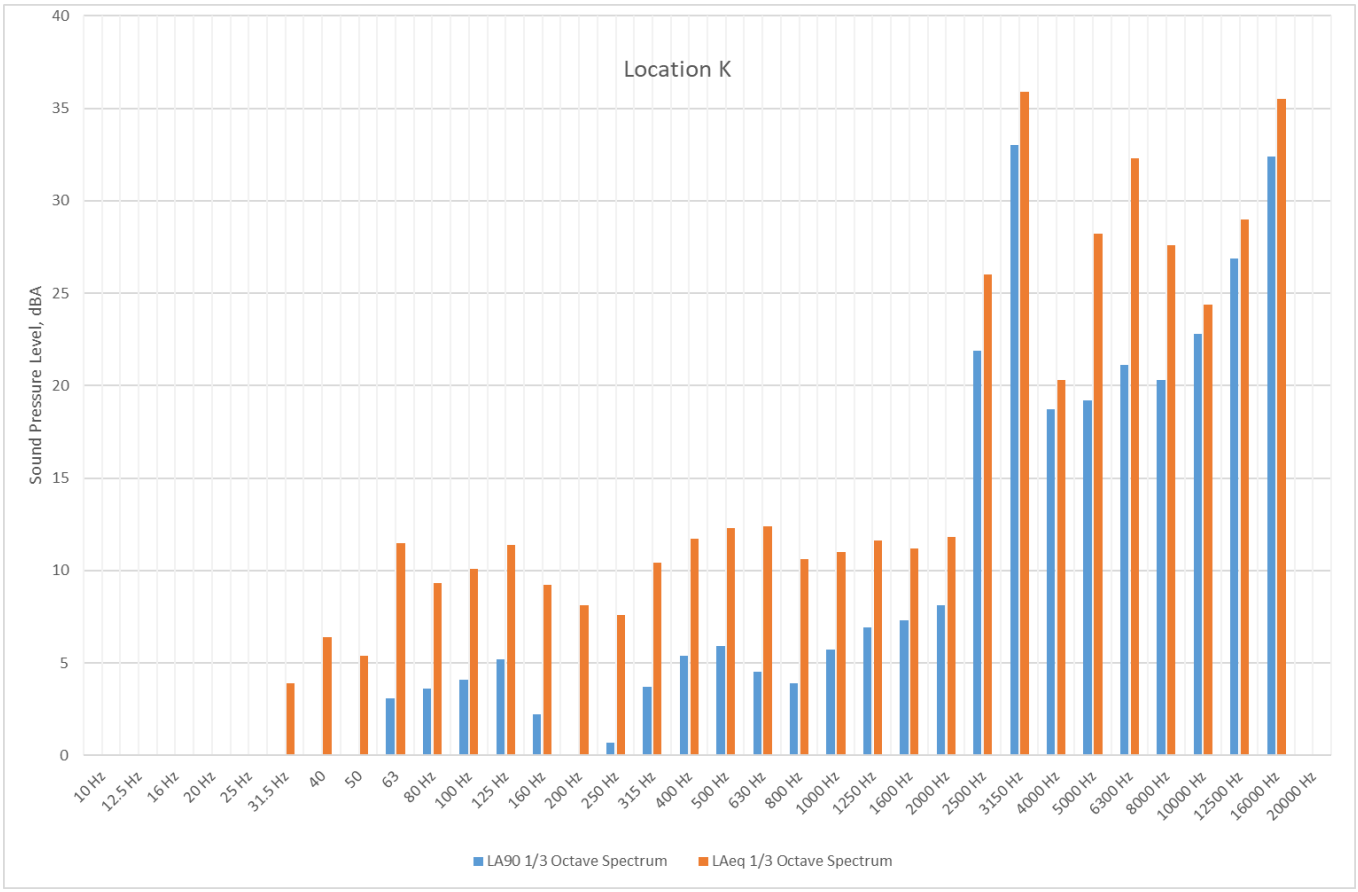
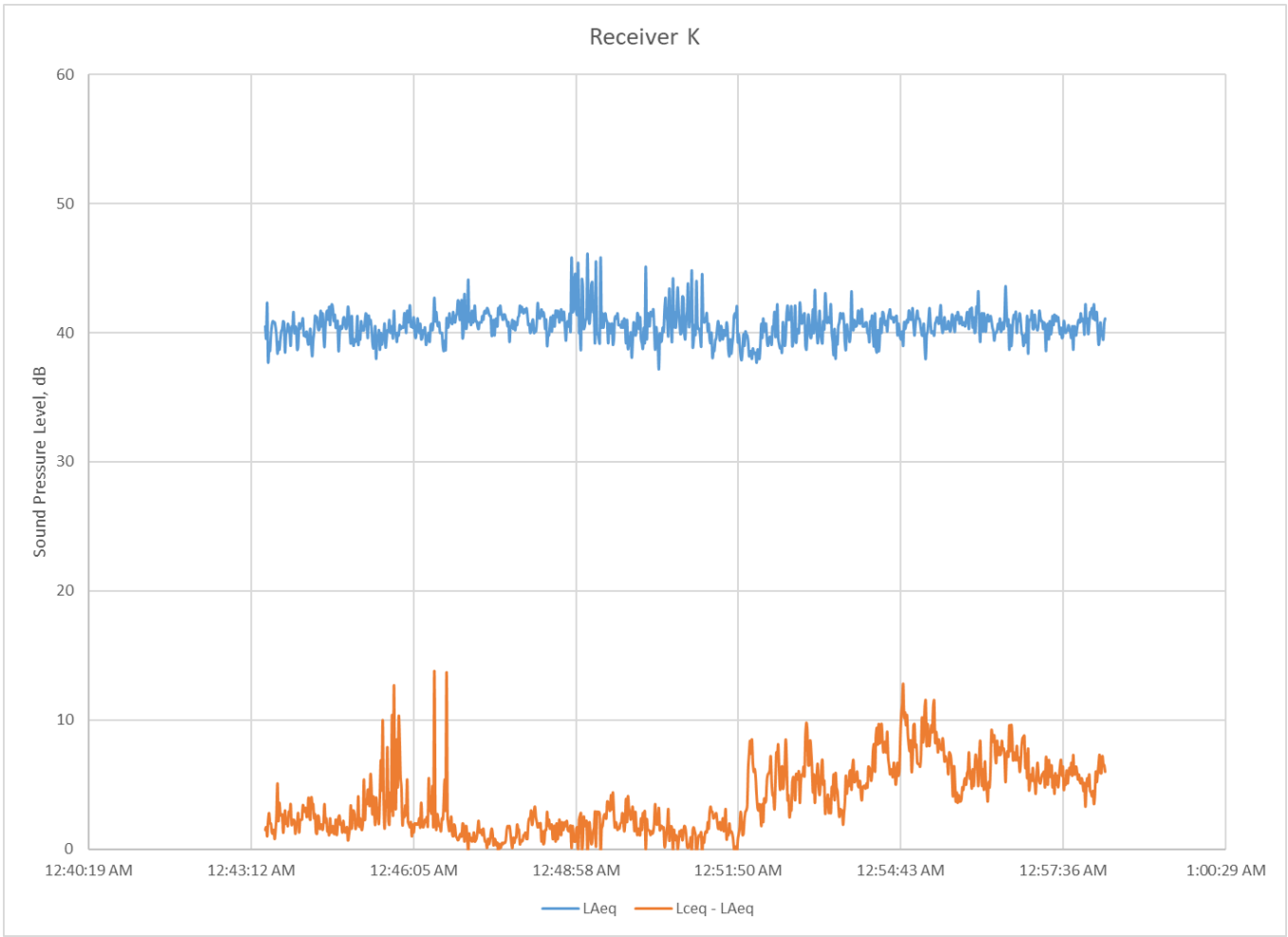
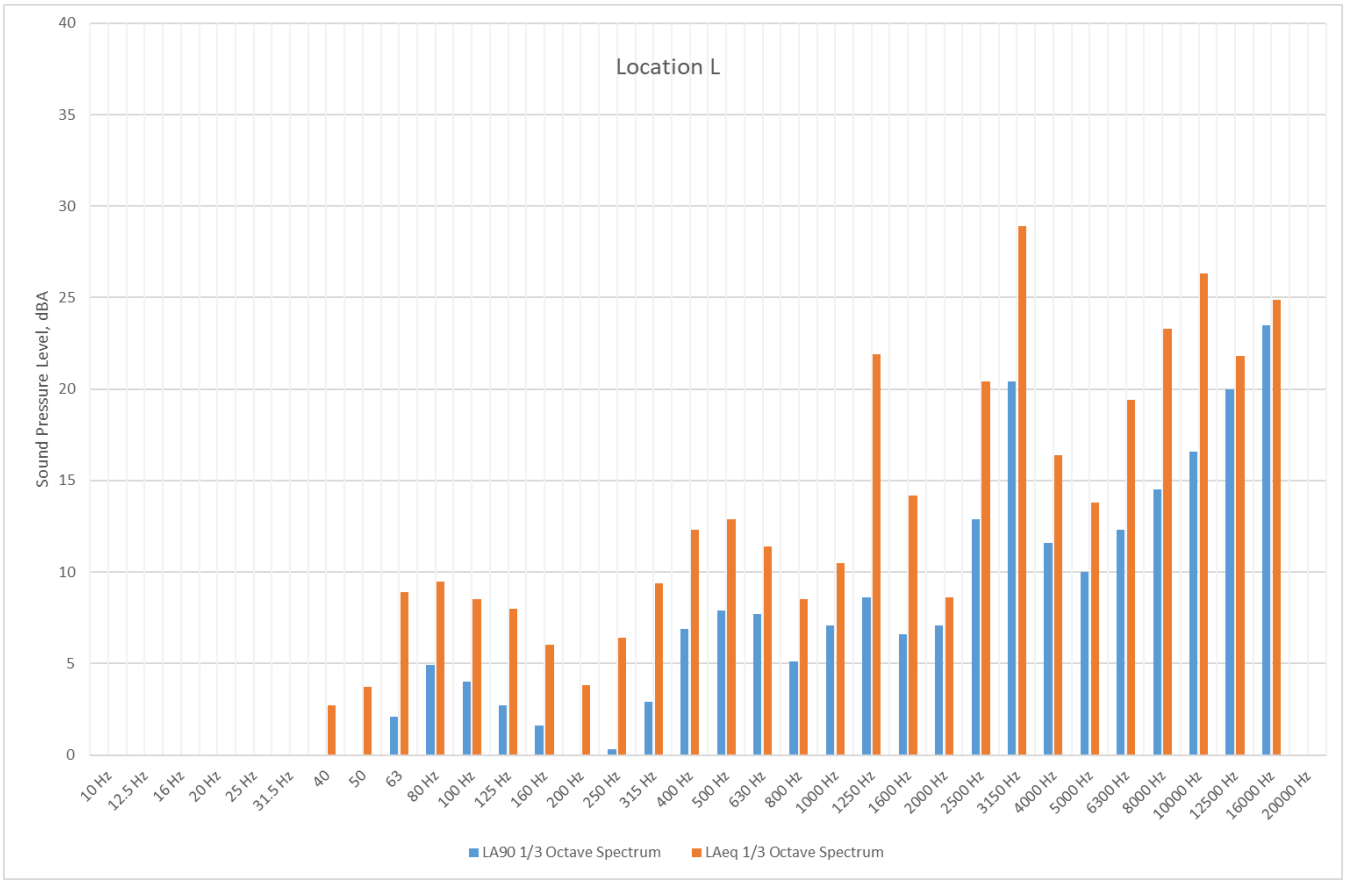
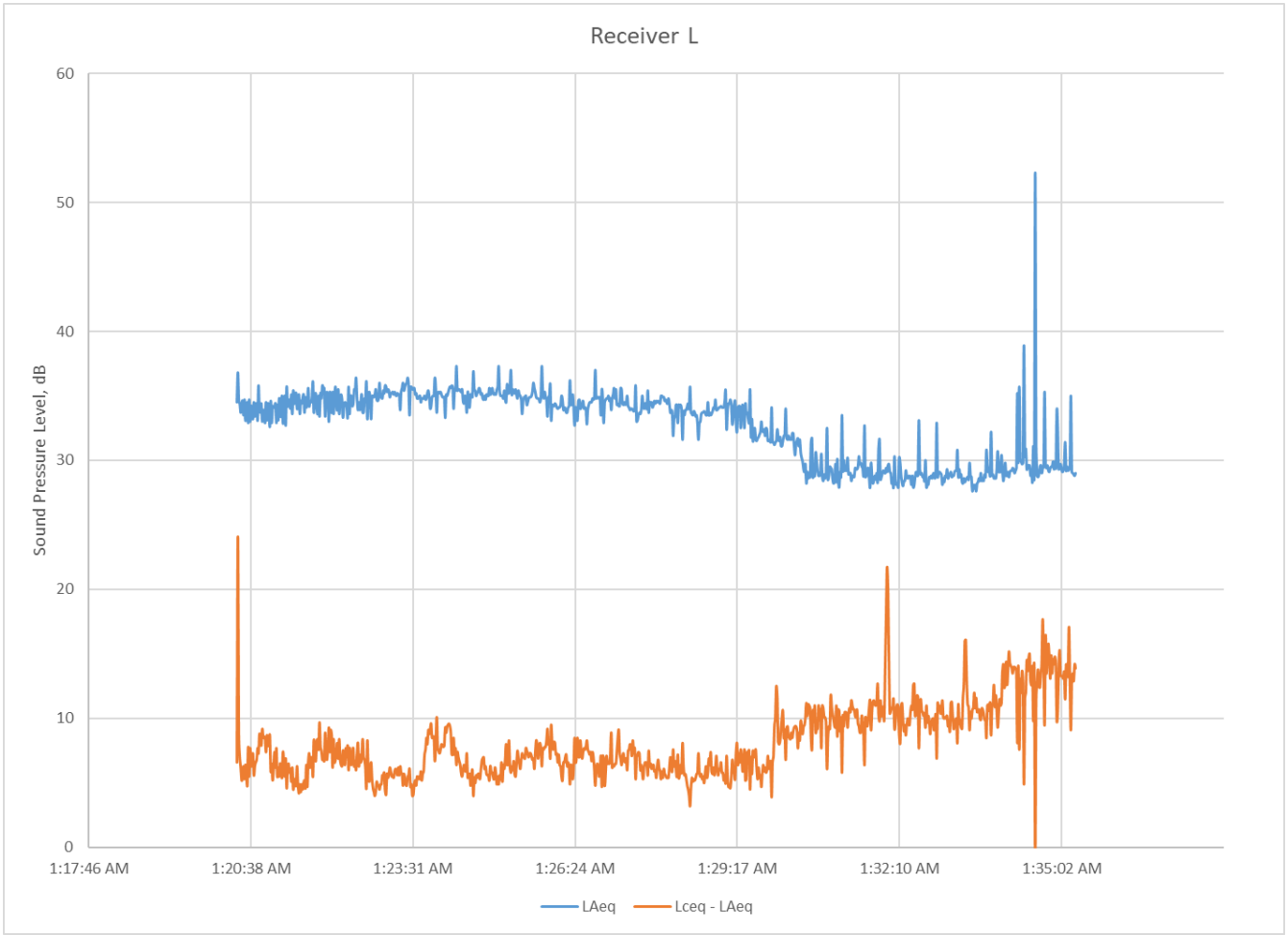
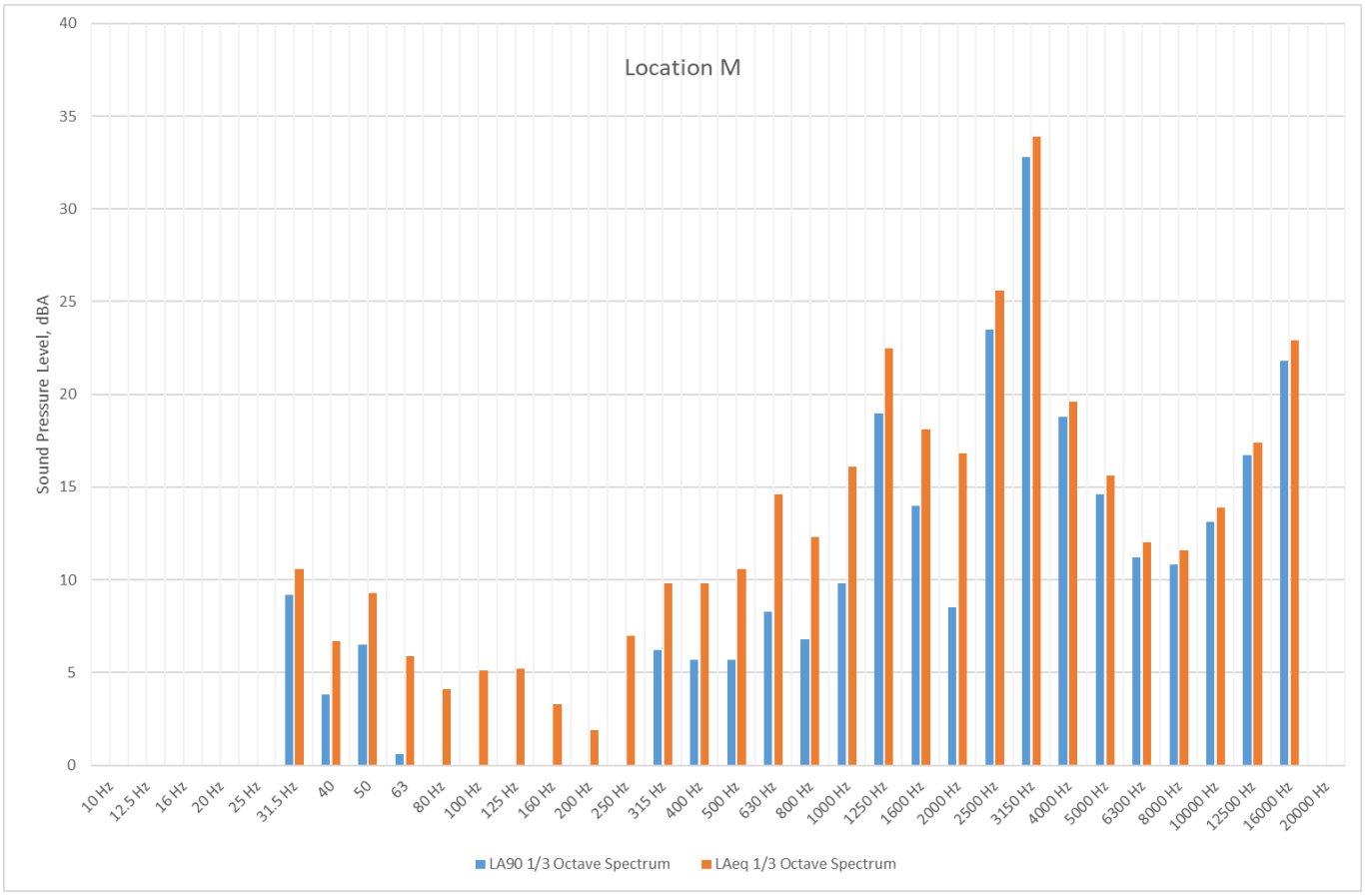
Laeq
Lceq - LAeq

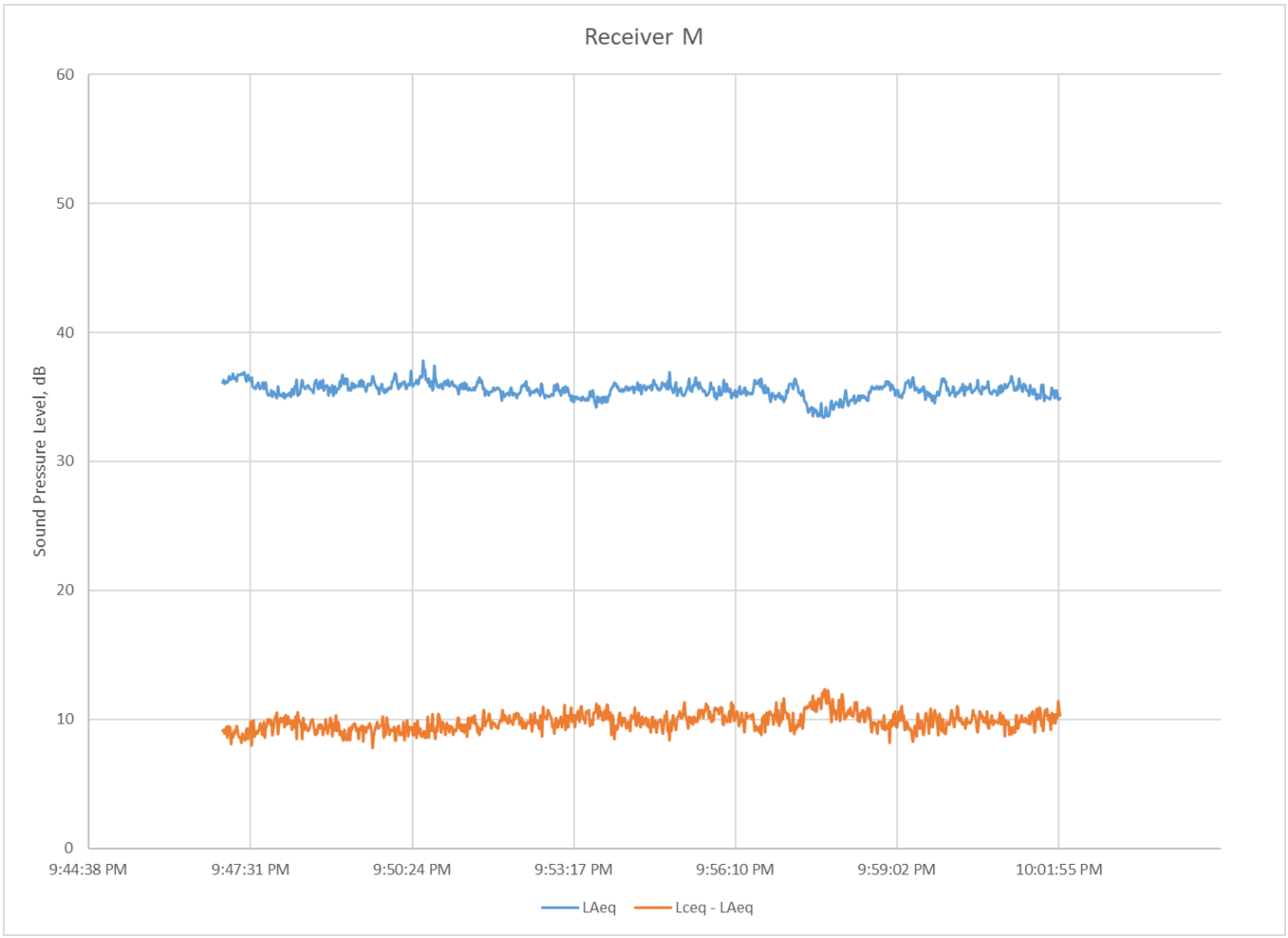

Location K
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

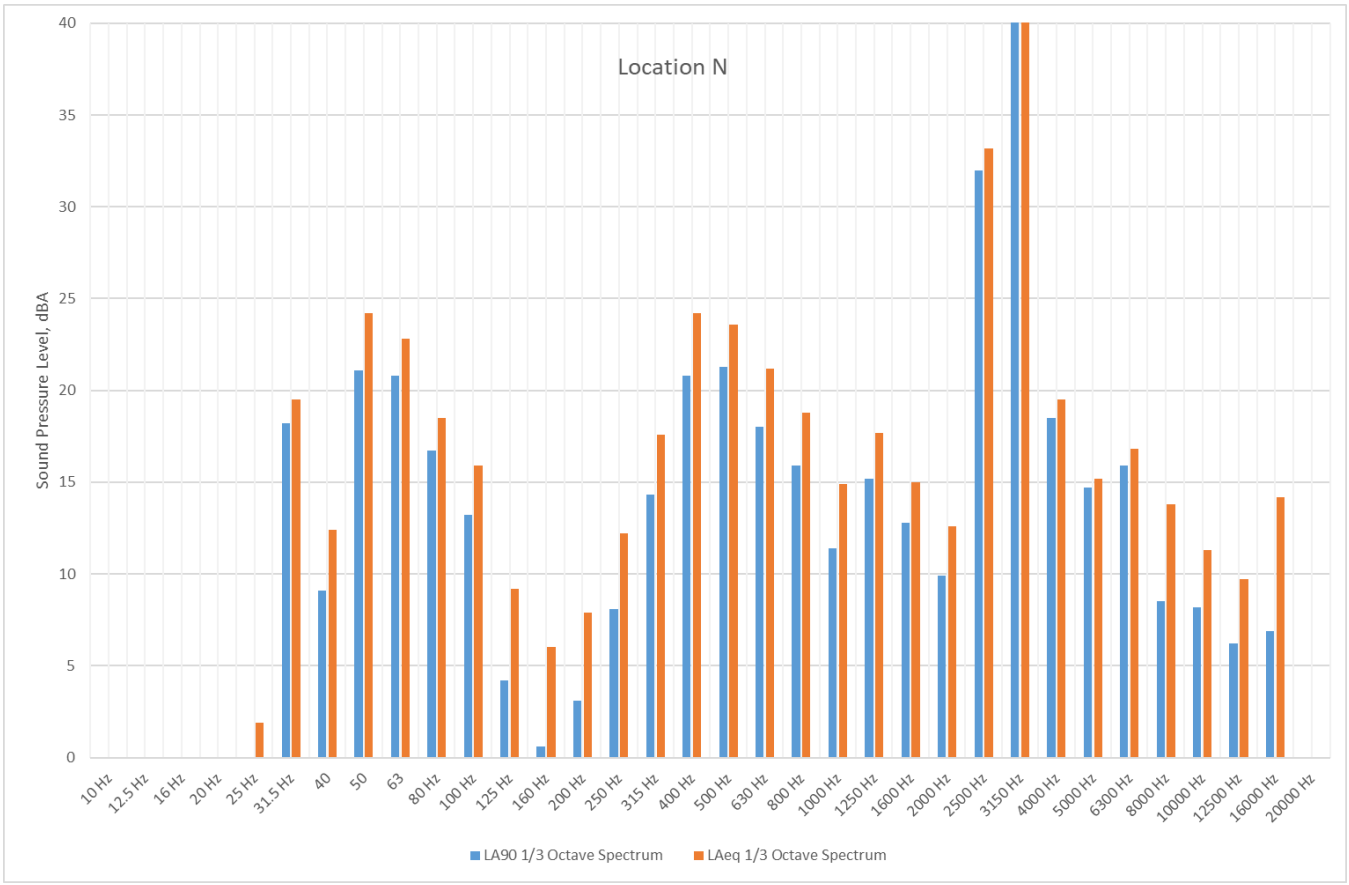

Receiver K
Sound Pressure Level, dB
60
50
40
30
20
10
0
12:40:19 AM
12:43:12 AM
12:46:05 AM
12:48:58 AM
12:51:50 AM
12:54:43 AM
12:57:36 AM
1:00:29 AM
LAeq
Lceq - LAeq

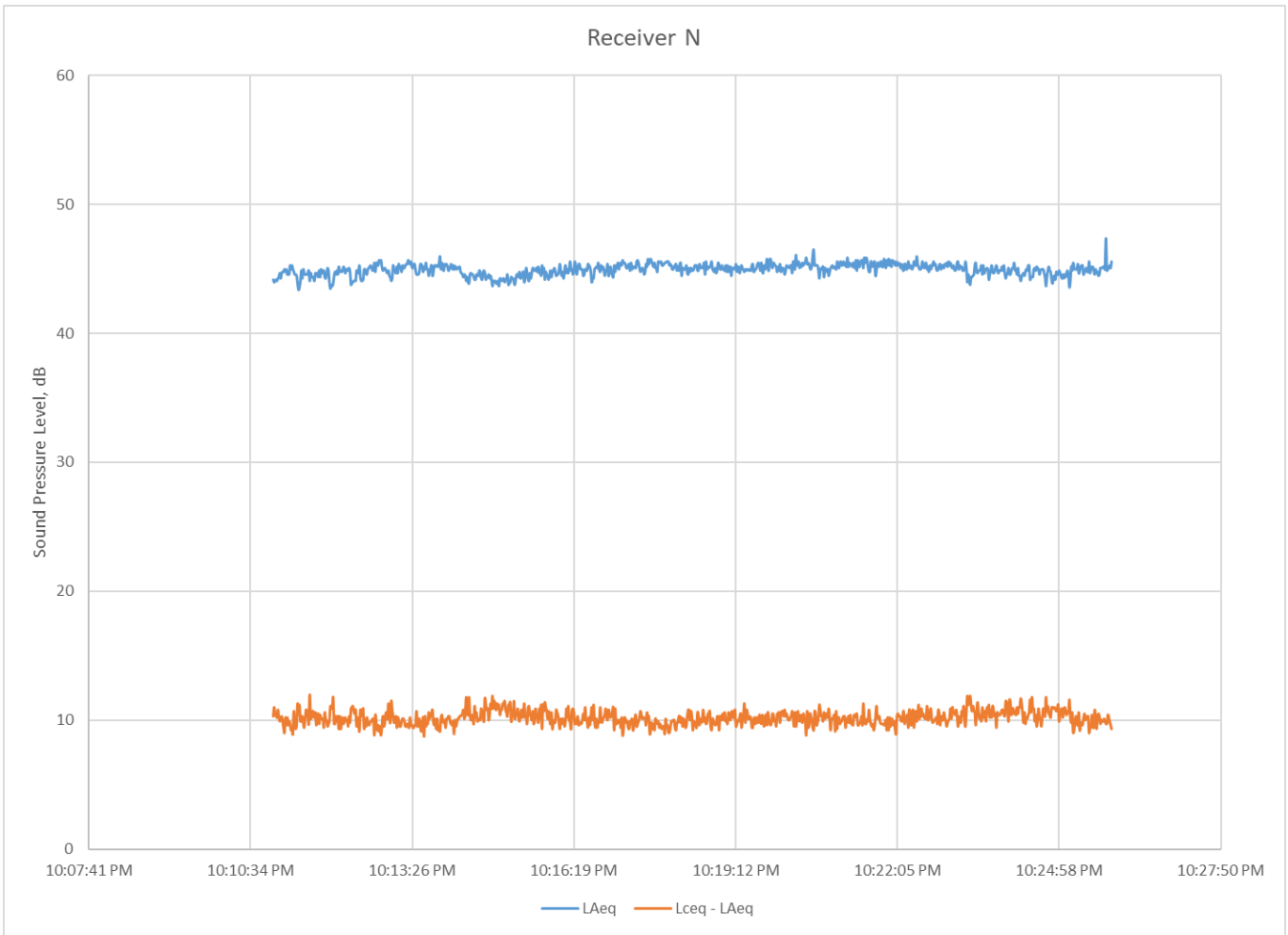

Location L
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

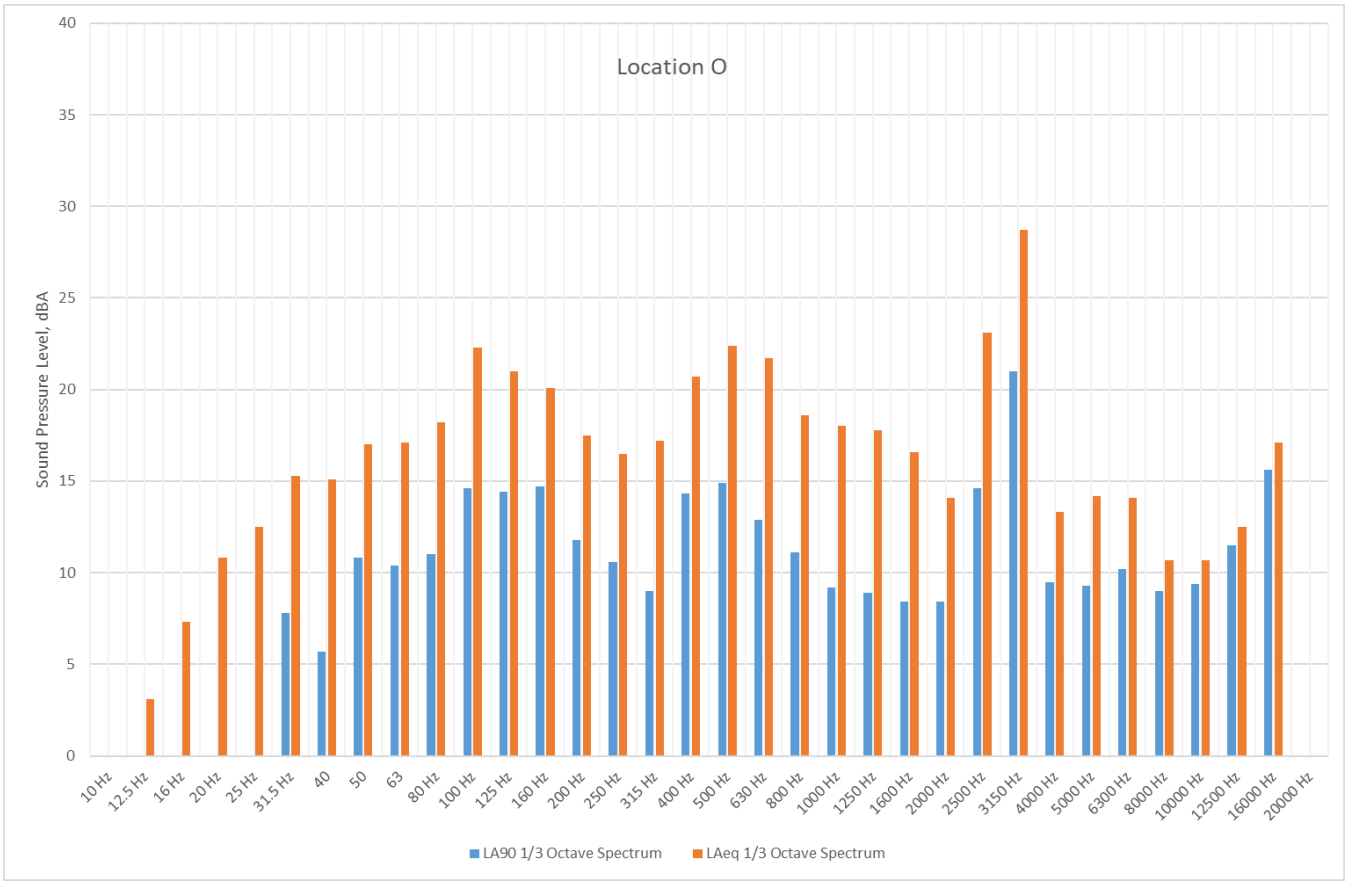

Receiver L
Sound Pressure Level, dB
60
50
40
30
20
10
0
1:17:46 AM
1:20:38 AM
1:23:31 AM
1:26:24 AM
1:29:17 AM
1:32:10 AM
1:35:02 AM
LAeq
Lceq - LAeq

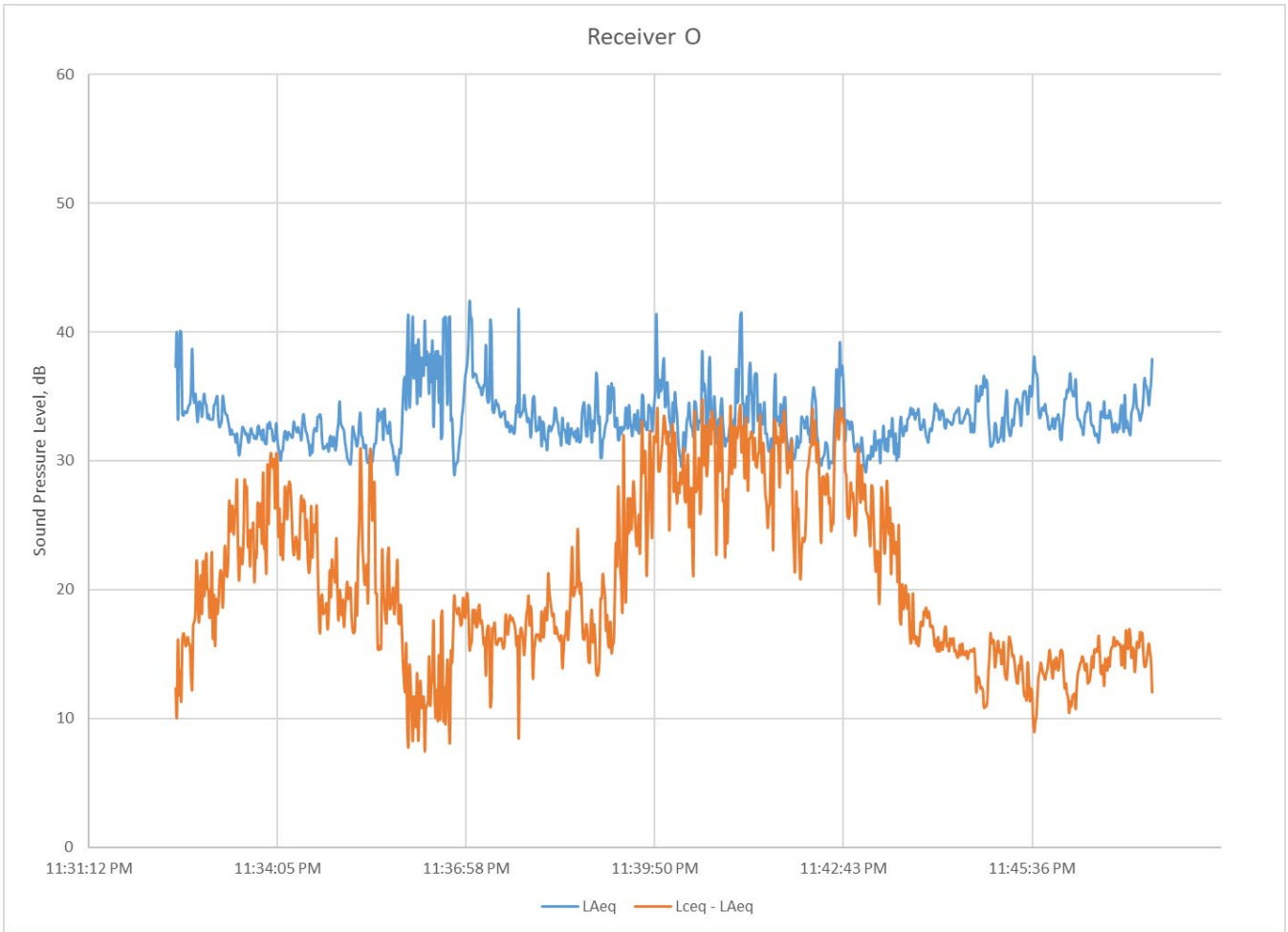

Location M
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

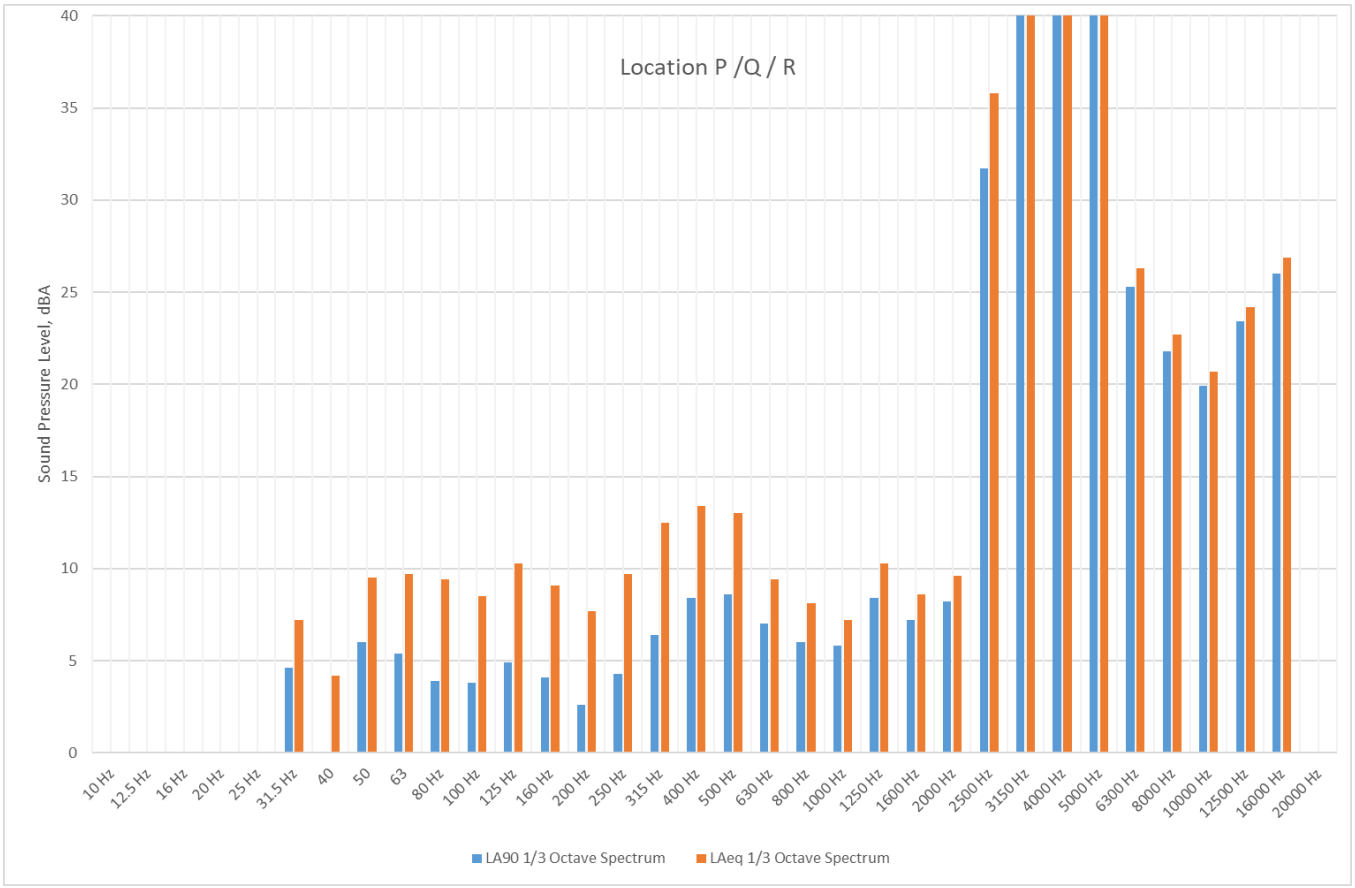

Receiver M
Sound Pressure Level, dB
60
50
40
30
20
10
0
9:44:38 PM
9:47:31 PM
9:50:24 PM
9:53:17 PM
9:56:10 PM
9:59:02 PM
10:01:55 PM
LAeq
Lceq - LAeq

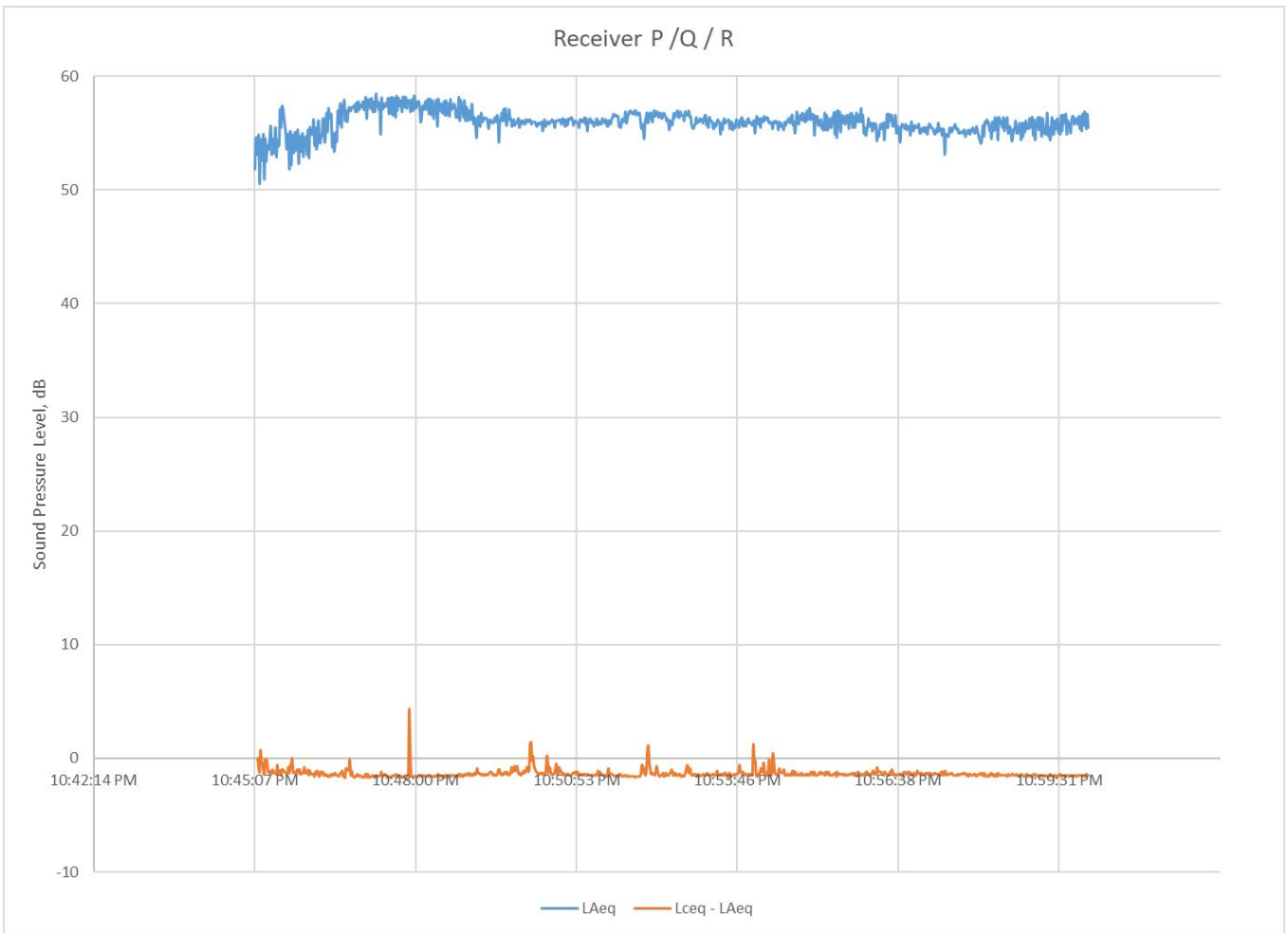

Location N
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

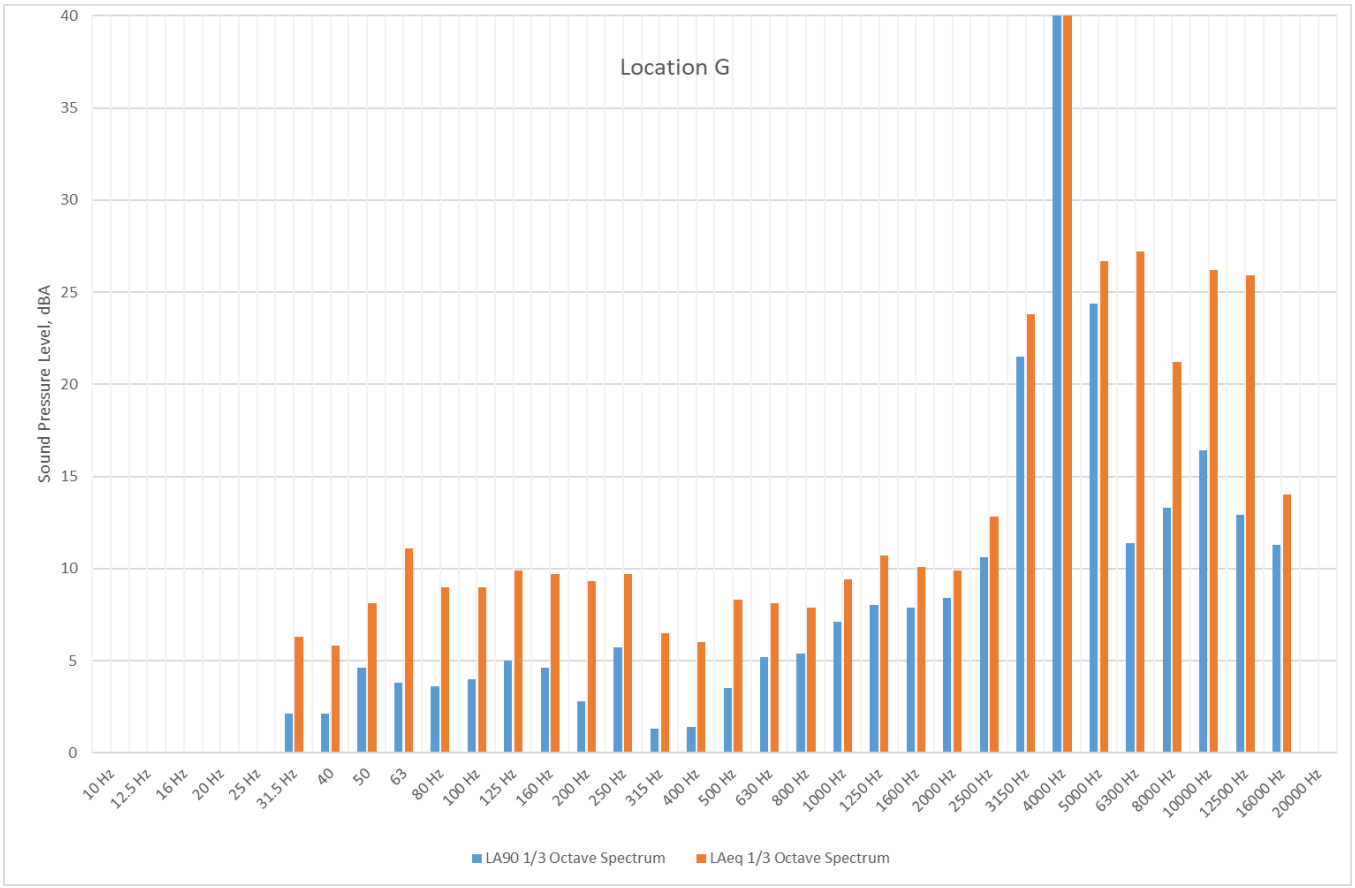

Receiver N
Sound Pressure Level, dB
60
50
40
30
20
10
0
10:07:41 PM
10:10:34 PM
10:13:26 PM
10:16:19 PM
10:19:12 PM
10:22:05 PM
10:24:58 PM
10:27:50 PM
LAeq
Lceq - LAeq

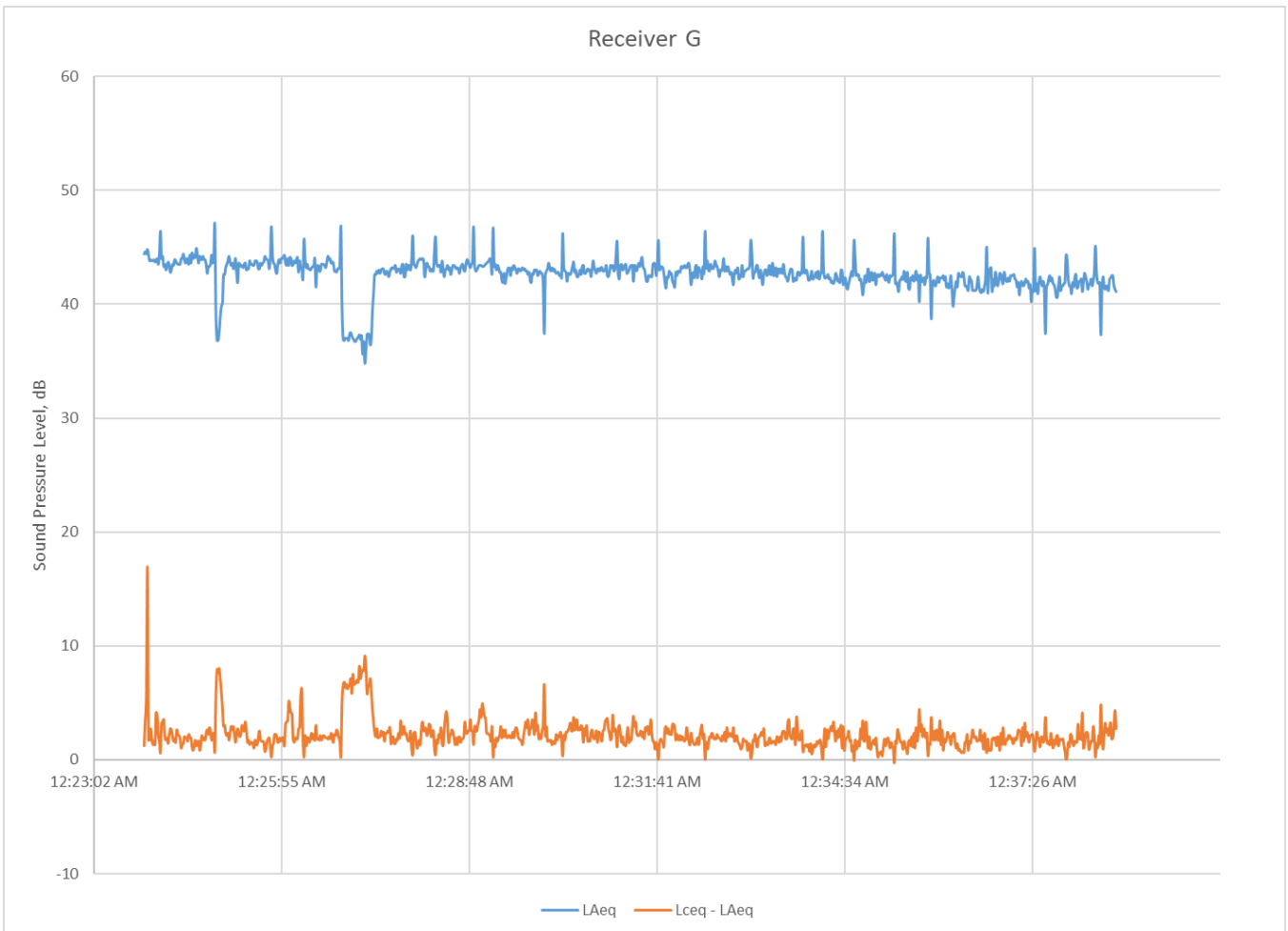

Location O
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

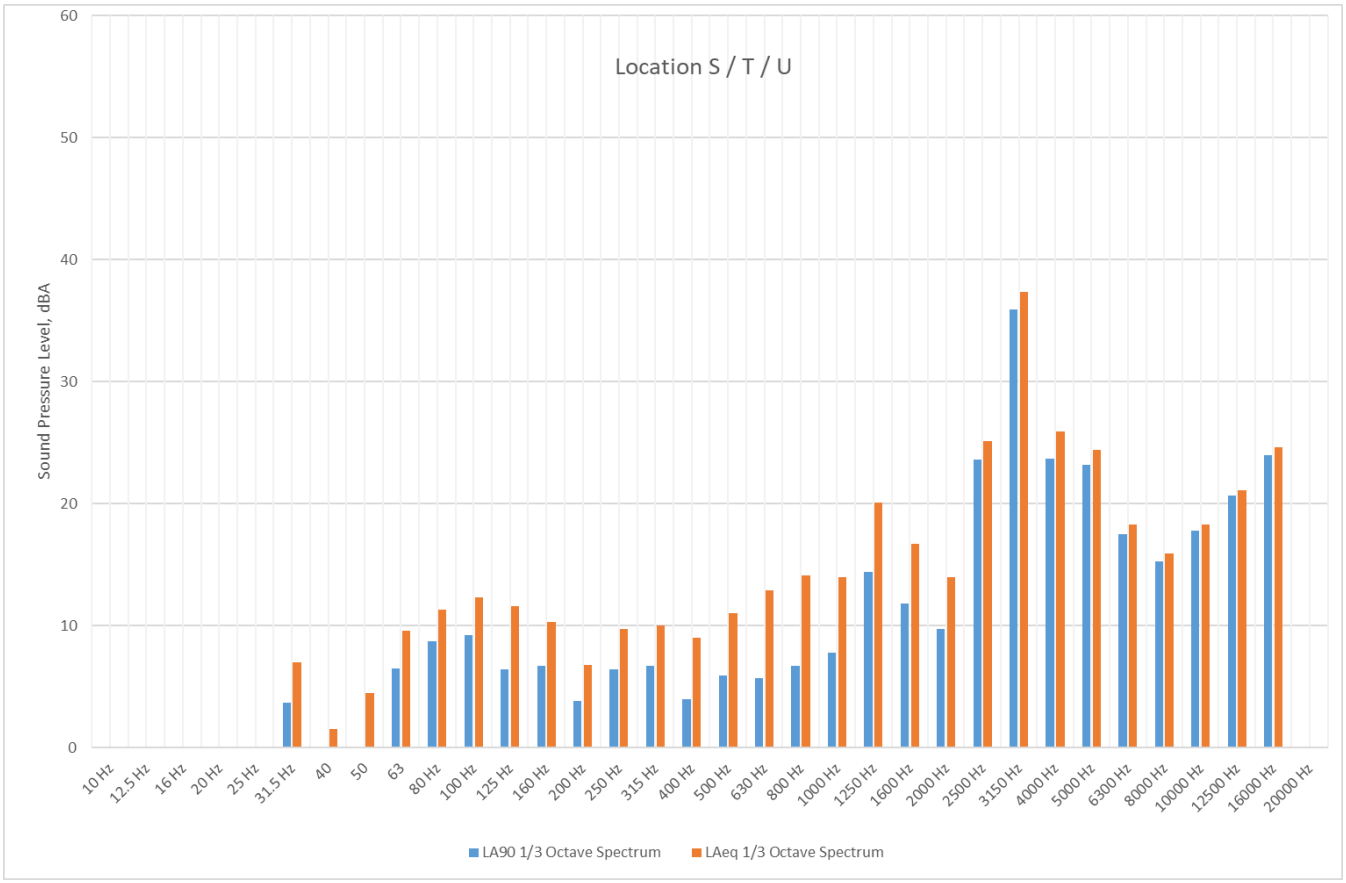

Receiver O
Sound Pressure Level, dB
60
50
40
30
20
10
0
11:31:12 PM
11:34:05 PM
11:36:58 PM
11:39:50 PM
11:42:43 PM
11:45:36 PM
LAeq
Lceq - LAeq

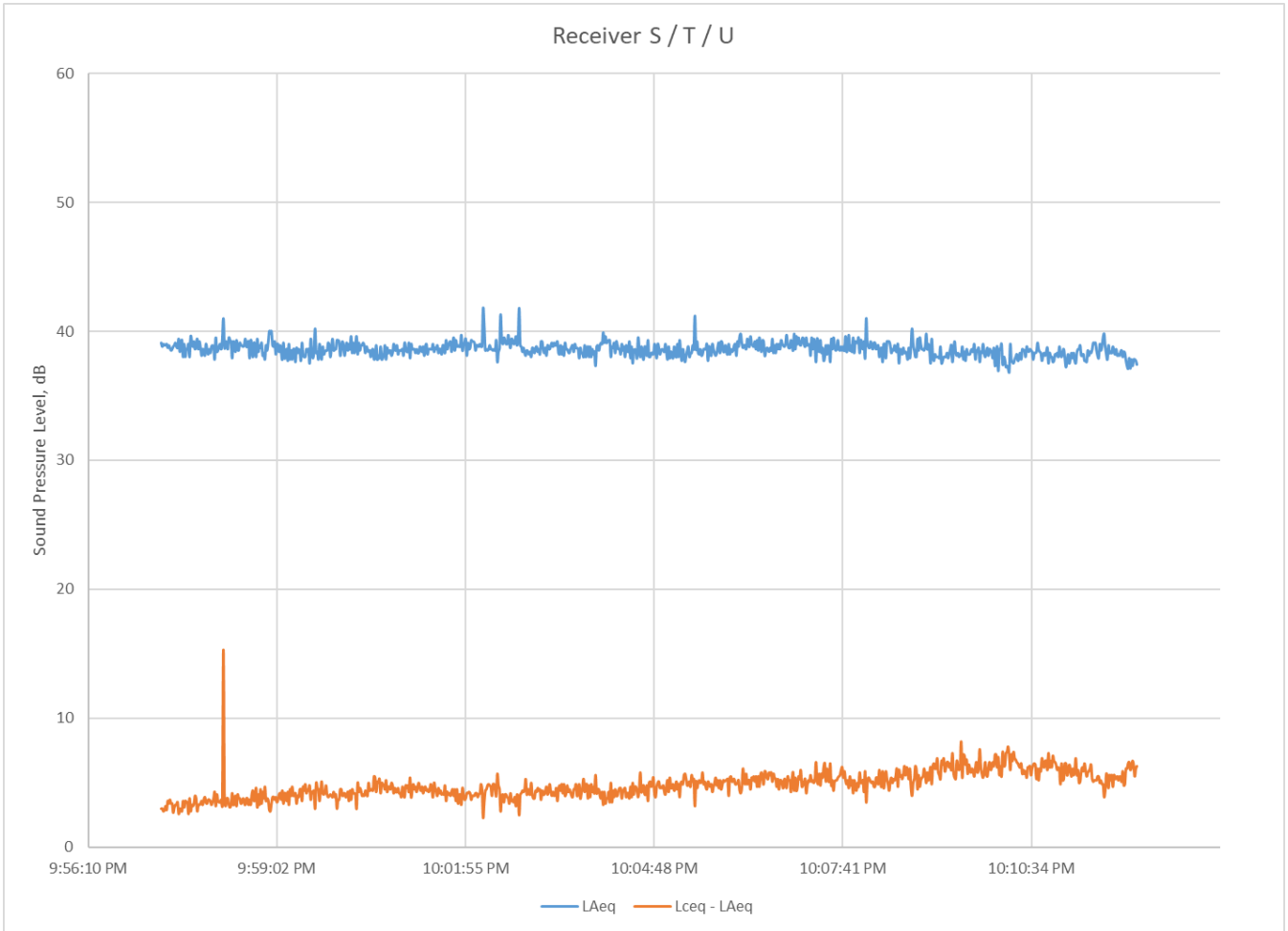

Location P /Q / R
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum

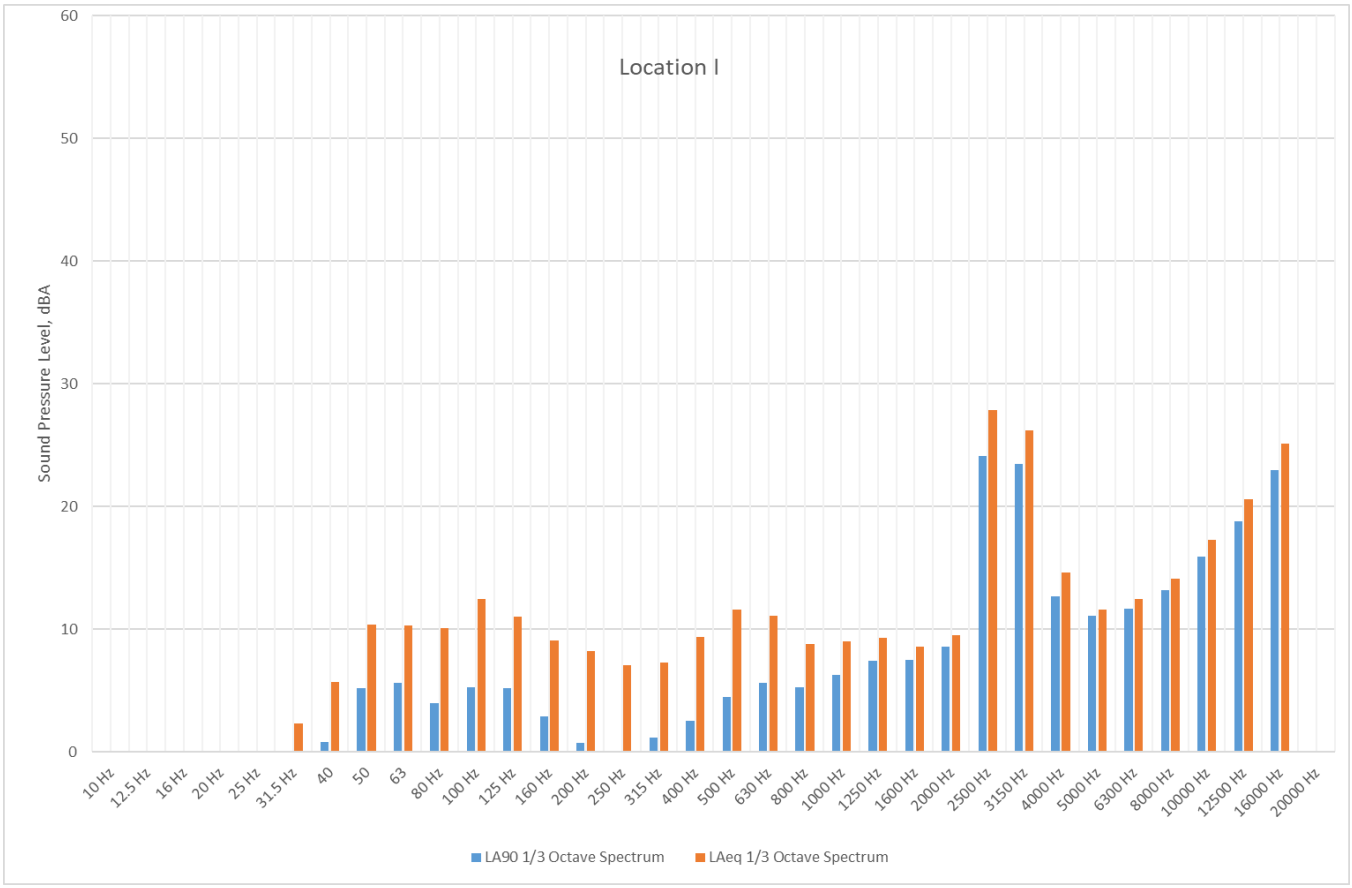

Receiver P /Q / R
Sound Pressure Level, dB
60
50
40
30
20
10
0
-10
10:42:14 PM
10:45:07 PM
10:48:00 PM
10:50:53 PM
10:53:46 PM
10:56:38 PM
10:59:31 PM
LAeq
Lceq - LAeq

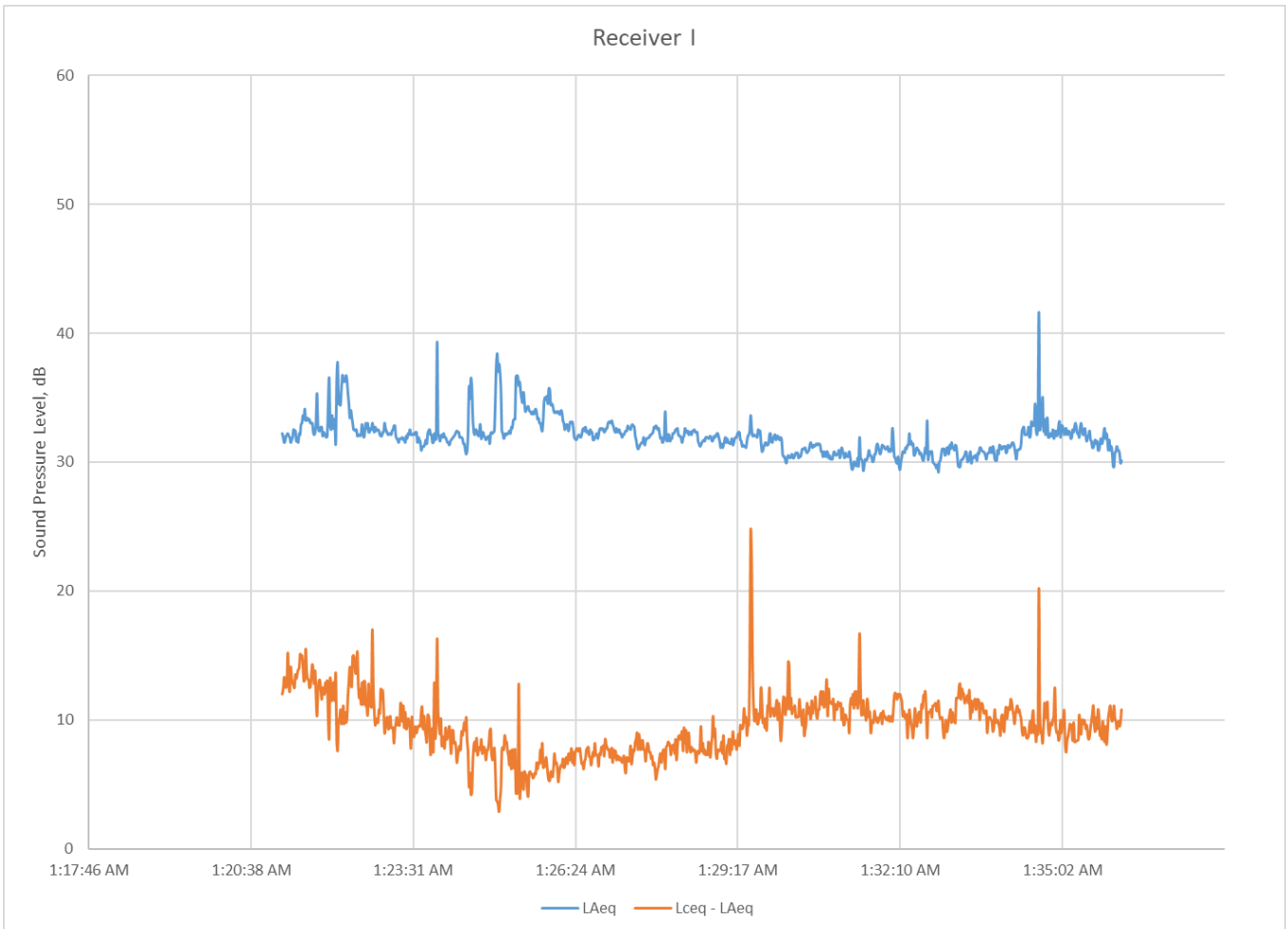

Location G
Sound Pressure Level, dBA
40
35
30
25
20
15
10
5
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum


Receiver G
Sound Pressure Level, dB
60
50
40
30
20
10
0
-10
12:23:02 AM
12:25:55 AM
12:28:48 AM
12:31:41 AM
12:34:34 AM
12:37:26 AM
LAeq
Lceq - LAeq


Location S / T / U
Sound Pressure Level, dBA
60
50
40
30
20
10
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum


Receiver S / T / U
Sound Pressure Level, dB
60
50
40
30
20
10
0
9:56:10 PM
9:59:02 PM
10:01:55 PM
10:04:48 PM
10:07:41 PM
10:10:34 PM
LAeq
Lceq - LAeq


Location I
Sound Pressure Level, dBA
60
50
40
30
20
10
0
10 Hz
12.5 Hz
16 Hz
20 Hz
25 Hz
31.5 Hz
40
50
63
80 Hz
100 Hz
125 Hz
160 Hz
200 Hz
250 Hz
315 Hz
400 Hz
500 Hz
630 Hz
800 Hz
1000 Hz
1250 Hz
1600 Hz
2000 Hz
2500 Hz
3150 Hz
4000 Hz
5000 Hz
6300 Hz
8000 Hz
10000 Hz
12500 Hz
16000 Hz
20000 Hz
LA90 1/3 Octave Spectrum
LAeq 1/3 Octave Spectrum


Receiver I
Sound Pressure Level, dB
60
50
40
30
20
10
0
1:17:46 AM
1:20:38 AM
1:23:31 AM
1:26:24 AM
1:29:17 AM
1:32:10 AM
1:35:02 AM
LAeq
Lceq - LAeq

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