HGC ENGINEERING

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ACOUSTIC TEST REPORT, WTG S33

Version 01

Amherst Island Wind Project

Amherst Island, ON

Report Number: 01800287.004

Project Number: 01800287

Prepared for:

Windlectric Inc.
354 Davis Road
Oakville, ON
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Prepared by

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Ian R. Bonsma, PEng.

December 14, 2018

VERSION CONTROL

Version	Date	Version Description
01	December 14, 2018	Original Report

EXECUTIVE SUMMARY

Howe Gastmeier Chapnik Limited ("HGC Engineering") was retained by Windlectric Inc. to complete an Acoustic Noise test in accordance with IEC 61400-11 of wind turbine generator WTG S33, part of the Amherst Island Wind Project, located on Amherst Island, Ontario. The measurements were completed on November 7 and November 8, 2018.

HGC Engineering has assessed the acoustic emissions of Wind Turbine Generator S33, a Siemens SWT-3.2-113, rated at 2942 kW, in accordance with IEC 61400-11:2012 (CAN/CSA-C61400-11:13). A summary of the acoustic results is provided in the following tables:

Hub Height Wind Speed [m/s]	**7.5**	**8**	**8.5**	**9**	**9.5**	**10**	**10.5***	**11***	**11.5***	**12***	**12.5***	**13***
Sound Power Level $L_{WA,K}$ in dB(A)	**101.7**	**103.1**	**104.4**	**104.5**	**104.5**	**104.3**	**104.3**	**104.5**	**104.4**	**104.5**	**104.5**	**104.3**
Tonal Audibility, ΔL_{ak} in dB:	<-3.0	-1.4	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0
Total Uncertainty $u_{LWA,k}$ in dB:	0.9	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.9	0.9

* Above *allowed range* of power curve.

10 m Height Wind Speed [m/s]	**5**	**6**	**7**	**8***	**9***
Sound Power Level $L_{WA,k}$ in dB(A):	**103.9**	**104.6**	**104.3**	**104.4**	**104.3**
Total Uncertainty U_C in dB:	0.6	0.6	0.8	0.8	0.8

* Above *allowed range* of power curve.

TABLE OF CONTENTS

1 INTRODUCTION

Howe Gastmeier Chapnik Limited ("HGC Engineering") was retained by Windlectric Inc. to complete sound level measurements (Emission Audit) of Wind Turbine Generator S33 ("WTG S33") in order to determine the sound power level of the turbine. The turbine is part of the Amherst Island Wind Project which includes 26 Siemens wind turbines of various generation capacities, each with a hub height of 99.5 m, with an overall project nameplate capacity of 74.3 MW. Measurements were completed on November 7 and November 8, 2018. Figure 1 shows the location of the wind turbine generator.

This report summarizes measurements that were completed in accordance with IEC Standard 61400-11 "Wind turbine generator systems – Part 11: Acoustic Noise Measurement Techniques". The CAN/CSA-C61400-11:13 standard is an adoption without modification of the identically titled IEC Standard IEC 61400-11:2012 [1].

2 WIND TURBINE GENERATOR

The wind turbine generator is manufactured by Siemens and is the SWT-3.2-113 model, rated at 2942 kW with a rotor diameter of 113 m and a hub height of 99.5 m. This turbine is an upwind, pitch controlled, horizontal axis wind turbine with three blades. Specific details of the wind turbine generator are included in Table 1.

Table 1: Wind Turbine Generator Characteristics

Wind Turbine					
Manufacturer	Siemens				
Model Number	SWT 3.2-113				
Serial Number	S33				
Hub Height	99.5 m				
Tower Type (lattice or tube)	Tubular				
Horizontal Distance from Rotor Centre to Tower Axis	5.5 m				
Rotor Diameter	113 m				
Speed (constant or variable)	Variable				
	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s
Pitch Angle	Confidential				
Rotational Speed	Confidential				
Rated Power Output	2942 kW				
Control Software Version	133.0.0.6				
Rotor Details					
Rotor Control Devices	Pitch Control				
Presence of Votex Generators, Stall Strips Trailing Edges	Vortex Generators and Dino Tails				
Blade Type	B55				
Serial Number	A: 550342101 B: 550342401 C: 550341901				
Gearbox					
Manufacturer	N/A - Direct Drive				
Model Number	N/A - Direct Drive				
Serial Number	N/A - Direct Drive				
Generator					
Manufacturer	Siemens				
Model Number	DD22_02				
Serial Number	5100229899				
UTM Coordinates					
Easting	369337				
Northing	4892806				

The power curve utilized for the sound level measurements is shown in Figure 2. From the supplied power curve, 85% of maximum electrical power is reached at 2501 kW or at a hub height wind speed of 9.7 m/s. The required minimum wind speeds for reporting is from 0.8 to 1.3 times the wind speed at 85% electrical power which is 7.5 to 13 m/s for this wind turbine.

3 TEST ENVIRONMENT

WTG S33 is part of the Amherst Island Wind Project located on Amherst Island, Ontario. Figure 1 shows the specific location of WTG S33. The surrounding land is used mainly for livestock grazing and includes gently rolling terrain. The area surrounding WTG S33 included agriculture fields with short grass. The sound level measurement location was in an area with recently grazed grass.

There are a number of additional wind turbine generators located in the vicinity of the test turbine. WTG S28 is located approximately 405 m to the northwest. Additional turbines are located more than 1500 m away. WTG S28, part of the Amherst Island Wind Project, was parked during the testing of WTG S33.

The sound level measurement location was established at 156 m from the base of the turbine. This distance was determined utilizing the reference distance calculation provided in IEC 61400; $R_0 = H + D/2 \pm 20\%$ where H is the hub height and D is the rotor diameter. An R_1 distance of 192 m was determined for this test using the equation:

$$R_1 = \sqrt{(D_1 + D_2 + D_3)^2 + {H_{hub}}^2}$$

Where D_1 is the distance from turbine base to the microphone (156 m), D_2 is the tower radius (2.15 m), D_3 is the distance from rotor to tower axis (5.5 m) and H_{hub} is the hub height (99.5 m). Photos of the sound level measurement location, the test turbine, and wind mast location are included under Appendix A.

4 INSTRUMENTATION AND SETUP

A Wolfel RoBin measurement system was utilized to complete the IEC measurements. Sound pressure level measurements and recordings were completed utilizing a 01 dB DUO Smart Noise Monitor. The microphone was mounted on a one metre diameter board with a primary and secondary windscreen. A standard Bruel & Kjaer 3” wind screen (half) was used on the microphone as well as a secondary Bruel & Kjaer UA-2133 wind screen. The influence of the secondary windscreen is shown in Table 2. The acoustic influence of the secondary windscreen contributes approximately 0.2 dBA to the overall sound level and the sound levels have been corrected herein.

Table 2: Frequency Dependent Influence for UA-2133 Windscreen

Frequency [Hz]	SPL Influence [dB]	Frequency [Hz]	SPL Influence [dB]
100	-0.07	1600	-0.3
125	0.06	2000	-0.03
160	0.01	2500	-0.12
200	0.18	3150	-0.25
250	-0.03	4000	-0.73
315	-0.25	5000	-0.5
400	-0.26	6300	-0.03
500	-0.18	8000	-0.99
630	0.04	10000	-0.77
800	-0.14	12500	-0.75
1000	-0.44	16000	-1.23
1250	-0.14	20000	-0.59

The RoBin and DUO system were time synchronized prior to the start of the measurements (within 1 second).

For the measurements, the electrical power, rotor RPM, azimuth and hub height wind speeds were provided by the customer as analogue signals and were directly connected into the RoBin system.

Wind speed and direction at 10 m height were measured utilizing a Vaisala ultrasonic anemometer while a Reinhardt DFT485 sensor was utilized to measure air pressure, temperature and air humidity. Table 3 shows the weather conditions during the measurement periods.

Table 3: Weather Conditions

	November 7, 2018		November 8, 2018	
	Start of Test	**End of Test**	**Start of Test**	**End of Test**
Air Temperature (°C)	9.5	8.3	9.8	6.5
Air Pressure (hPa)	998	1000	1011	1012
Relative Humidity (%)	63	60	64	65
Sky Condition	Overcast		Overcast	
Range of Wind Direction	245 to 260		270	

The measurement equipment and the relevant calibration information are shown in Table 4.

Table 4: Instrumentation

Instrumentation	Manufacturer / Model / Serial Number	Calibration Date
Measurement System	Wolfel / RoBin / ROBIN.00.0003	NA
Sound Level Meter	01 dB-Metravib / DUO / 10815	March 2, 2018
Microphone	GRAS / 40CD / 154426	March 2, 2018
Anemometer	Vaisala / WMT701 / J3920012	August 21, 2018
Air Pressure / Temperature and Humidity	Reinhardt / DFT485 / 1027951	August 29, 2018
Acoustic Calibrator	Bruel & Kjaer / 4231 / 3010241	March 1, 2018
Primary Wind Screen	Bruel & Kjaer	NA
Secondary Wind Screen and Ground Board	Bruel & Kjaer / UA 2133	NA
Noisy Software	Wolfel / Noisy Version 2018	NA

Correct calibration of the acoustic instrumentation was verified using an acoustic calibrator manufactured by Brüel & Kjær. Verification of calibration status was carried out at the start and end of the measurement period and when the microphone was disconnected from the sound level meter. Calibration certificates for the test equipment are provided in Appendix B. Unless indicated otherwise, the same equipment was utilized during the entire test period.

During testing on November 7, 2018, the anemometer was located 228 m west of the turbine at 10 m above grade while on November 08, 2018, the anemometer was located 227 m southwest of the turbine also at 10 m above grade.

The standard roughness length applicable for this site is 0.05 given the surrounding farmland with some vegetation.

Sound level measurements were completed with the turbine operational and with the turbine parked. Significant interfering sound from road traffic, aircraft, bird calls, local agricultural activity, etc. was not included in the analyzed data for either the turbine on or off condition. The microphone position was maintained to be within +/- 15° of the downwind direction through visual inspection and the recording of the azimuth position. Downwind directions ranged between 245° and 270°.

4.1 TYPE B UNCERTAINTIES

The uncertainty components of Type B are provided in Table 5. Additional one-third octave Type B uncertainty components for the instrument and wind screen insertion loss can be provided upon request. These uncertainty components are provided by the instrument manufacturers.

Table 5: Type B Uncertainty Components

Component	Value
Calibration, u_{B1}	0.2 dB
Instrument, u_{B2}	0.2 - 0.5 dB
Board, u_{B3}	0.3 dB
Wind screen insertion loss, u_{B4}	0.1 - 0.5 dB
Distance and Direction, u_{B5}	0.1 dB
Air Absorption, u_{B6}	0.2 dB
Weather Conditions, u_{B7}	0.5 dB
Wind Speed, Measured, u_{B8}	0.7 m/s
Wind Speed Derived, u_{B8}	0.3 m/s
Wind Speed, Power Curve, u_{B9}	0.2 m/s

The uncertainty associated with the electrical power transducer (derived wind speed, u_{B8}) has been increased to 0.3 m/s as the electrical power signal was provided by the manufacturer. The manufacturer has indicated a measurement chain uncertainty of 1% on the measured electrical power, which corresponds to approximately 0.05 m/s. An increase of 0.1 m/s, over the typical standard uncertainty, has been included for the derived wind speed uncertainty.

5 MEASUREMENTS AND RESULTS

Sound level measurements were conducted of WTG S33 on November 7, between 11:00 and 15:45, and on November 8, 2018, between 08:30 and 10:05. Temperature and other weather characteristics are reported in Table 3 above.

The data points where the turbine was operating at or below the allowed power curve range are identified as the *allowed range* (intervals on the electrical power curve where no duplicated values exist and the slope of the power curve including the uncertainty is positive). For data within the *allowed range* of the electrical power curve the wind speed ($V_{P,n}$) is determined. The average value of the ratio between the derived wind speed from the electrical power curve and the measured nacelle wind speed ($V_{nac,m}$), k_{nac} is determined. $k_{\mathrm{nac}} = \frac{V_{\mathrm{nac,n}}}{V_{\mathrm{nac,m}}}$. For this data set the k_{nac} value of 0.89 was applied to the measured nacelle wind speed to derive the normalized wind speed outside the allowed range.

For background noise measurements, the measured 10 m wind speed ($V_{Z,m}$) and the wind speed derived from the power curve $V_{P,n}$ are utilized to determine k_Z. $k_{\mathrm{Z}} = \frac{V_{\mathrm{P,n}}}{V_{Z,\mathrm{m}}}$. For this data set, the k_Z value of 1.29, was applied to the measured 10 m wind speed ($V_{Z,m}$) to derive the normalised wind speed at hub height ($V_{B,n}$) during background noise measurements.

Figure 3 shows the sound pressure level at the measurement location versus the hub height wind speed. Blue circles represent sound level data points collected with the turbine operating in the allowed range, above this point the sound levels are shown as black squares. Magenta triangles indicate data points of the background sound level (turbine off).

Figure 4 shows the measured total noise versus electrical power. Figure 5 plots the wind speed determined from the electrical power curve (V_p) relative to the measured nacelle wind speed ($V_{nac,m}$) and 10 m met mast wind speed ($V_{z,m}$).

Table 6 summarizes the analysis of the measured results.

Table 6: Sound Level Data

Hub Height Wind Speed [m/s]	7.5	8	8.5	9	9.5	10	10.5*	11*	11.5*	12*	12.5*	13*
Collected Data Points, Total	24	38	49	40	29	30	46	101	27	28	42	24
Collected Data Points, Background	16	27	19	26	18	22	20	23	20	23	27	32
Average Wind Speed, V_K [m/s]	7.5	8.0	8.5	9.0	9.4	10.0	10.6	10.9	11.6	12.0	12.5	13.0
Total Noise, $L_{V,T,}$ in dB(A)	51.2	52.7	53.9	54.1	54.1	54.0	54.1	54.5	54.6	54.5	54.5	54.5
Background Noise, $L_{V,B}$ in dB(A)	37.3	39.4	39.0	41.4	42.0	42.6	43.3	46.3	47.4	46.0	46.6	47.5
Difference T-B, dB(A)	13.9	13.3	14.8	12.7	12.2	11.3	10.7	8.2	7.3	8.4	7.9	7.0
Corrected L_{Aeq}, in dB(A)	51.0	52.5	53.7	53.9	53.9	53.6	53.7	53.8	53.7	53.8	53.8	53.6

* Above *allowed range* of power curve.

Table 6 shows that at least 180 measurements were collected for both total noise and background noise and at least 10 measurements or data points are included in the analysis for each wind speed bin for total noise, as required by IEC 61400-11.

Table 7 shows the calculated sound level data, the resulting sound power levels, tonality and measurement uncertainty at hub height, while Table 8 shows the apparent sound power levels at a reference height of 10 metres. Figure 6 presents the apparent sound power level at the integer wind speeds.

Table 7: Apparent Sound Power Level of WTG S33 at Hub Height

Hub Height Wind Speed [m/s]	7.5	8	8.5	9	9.5	10	10.5*	11*	11.5*	12*	12.5*	13*
Corrected L_{Aeq}, in dB(A)	51.0	52.5	53.7	53.9	53.9	53.6	53.7	53.8	53.7	53.8	53.8	53.6
Sound Power Level $L_{WA,K}$ in dB(A)	**101.7**	**103.1**	**104.4**	**104.5**	**104.5**	**104.3**	**104.3**	**104.5**	**104.4**	**104.5**	**104.5**	**104.3**
Tonal Audibility, ΔL_{ak} in dB:	1267	1519	1816	2113	2374	2634	2757	2879	2908	2936	2939	2942
Total Uncertainty $u_{LWA,k}$ in dB:	<-3.0	-1.4	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0

* Above *allowed range* of power curve.

Table 8: Apparent Sound Power Level at 10 m Height

10 m Height Wind Speed [m/s]	5	6	7	8*	9*
Sound Power Level $L_{WA,k}$ in dB(A):	**103.9**	**104.6**	**104.3**	**104.4**	**104.3**
Total Uncertainty U_C in dB:	0.6	0.6	0.8	0.8	0.8

* Above *allowed range* of power curve.

A table and plot of the sound pressure spectrum in third octaves for each integer wind speed are included under Appendix C.

The tonality assessment indicates no tonal audibility greater than or equal to -1.4 dB. The measurement times and average narrowband spectra used in the tonality assessment are included under Appendix D.

6 CONCLUSIONS

The measurements and analysis, performed in accordance with the methods prescribed in IEC Standard 61400-11:2012 indicate that the sound power level of WTG S33, rated at 2942 kW and part of the Amherst Island Wind Project, has the following sound power levels:

Table 9: Sound Power Level Summary

Hub Height Wind Speed [m/s]	7.5	8	8.5	9	9.5	10	10.5*	11*	11.5*	12*	12.5*	13*
Sound Power Level $L_{WA,K}$ in dB(A)	**101.7**	**103.1**	**104.4**	**104.5**	**104.5**	**104.3**	**104.3**	**104.5**	**104.4**	**104.5**	**104.5**	**104.3**
Tonal Audibility, ΔL_{ak} in dB:	<-3.0	-1.4	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0	<-3.0
Total Uncertainty $u_{LWA,k}$ in dB:	0.9	0.8	0.7	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.9	0.9

* Above *allowed range* of power curve.

The sound levels presented above are relevant for Siemens SWT-3.2-113 turbine WTG S33 given the environmental conditions and the operating parameters of the turbine during the testing periods.

REFERENCES

1. International Electrotechnical Commission, 61400-11: 2012 *Wind turbine generator systems – Part 11: Acoustic noise measurement techniques*.
2. Google Maps Aerial Imagery, Internet Application: *maps.google.com*

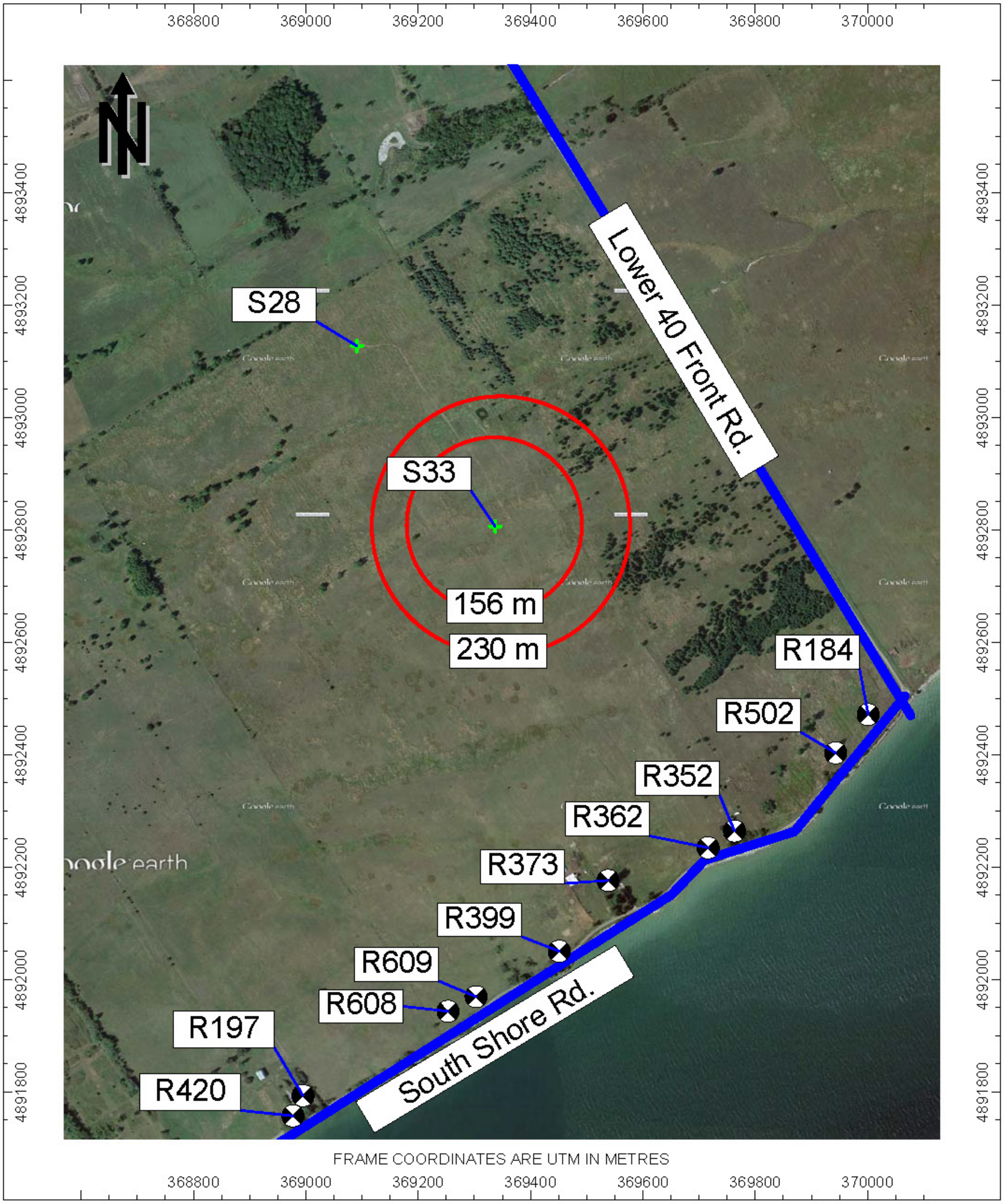


Figure 1 - Location of Test Turbine S33

Figure 2: Reference Electrical Power Curve
WTG S33, 2942 kW, Amherst Island Wind Project, Ontario

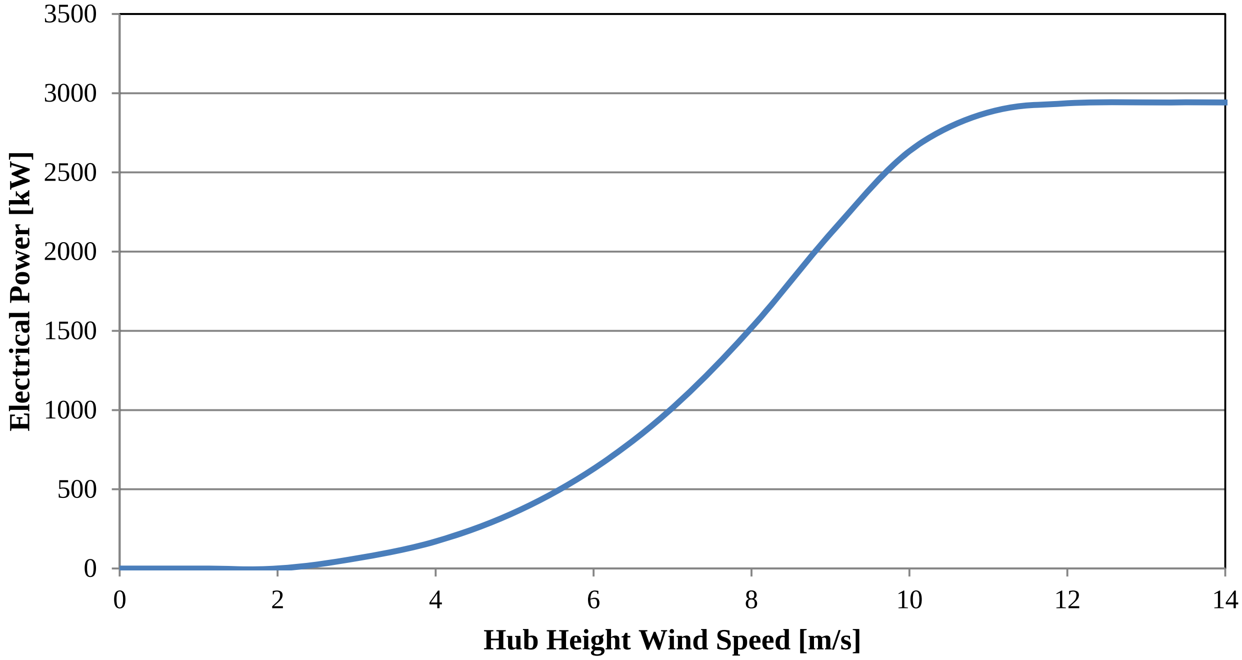


Figure 3: Acoustic Noise Measurements of the Wind Turbine Generator WTG S33, 2942 kW, Amherst Island Wind Project, Ontario

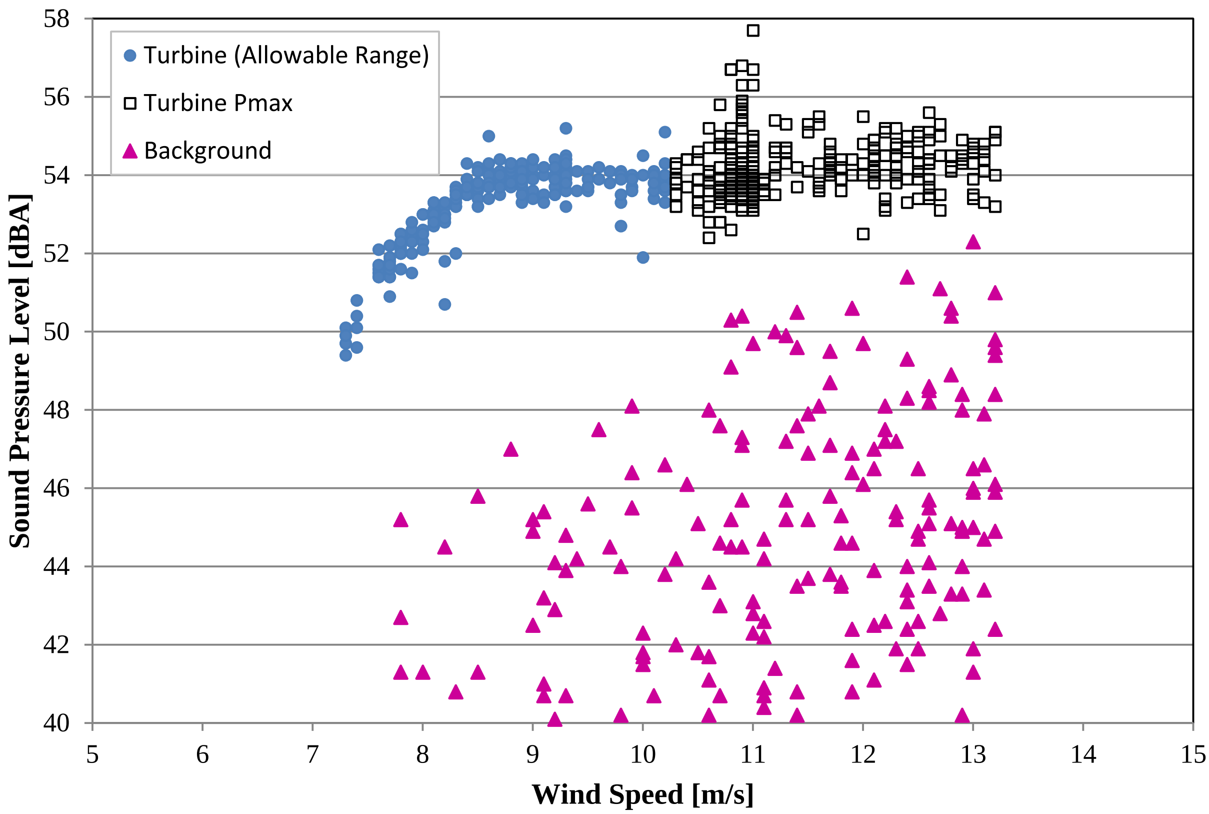


Figure 4: Total Sound Level [dBA] versus Electrical Power [kW]
WTG S33, 2942 kW, Amherst Island Wind Project, Ontario

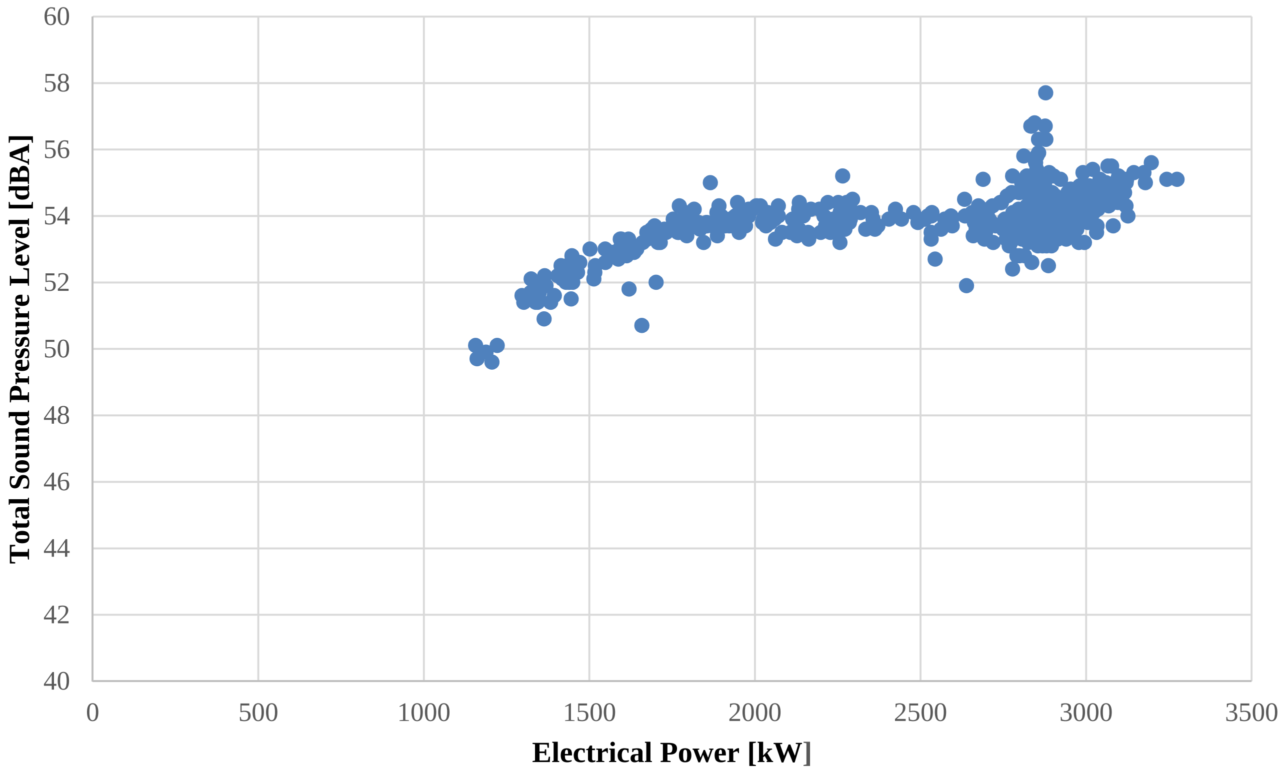


Figure 5: Measured Wind Speed (Nacelle and 10m) vs Derived Wind Speed WTG S33, 2942 kW, Amherst Island Wind Project, Ontario

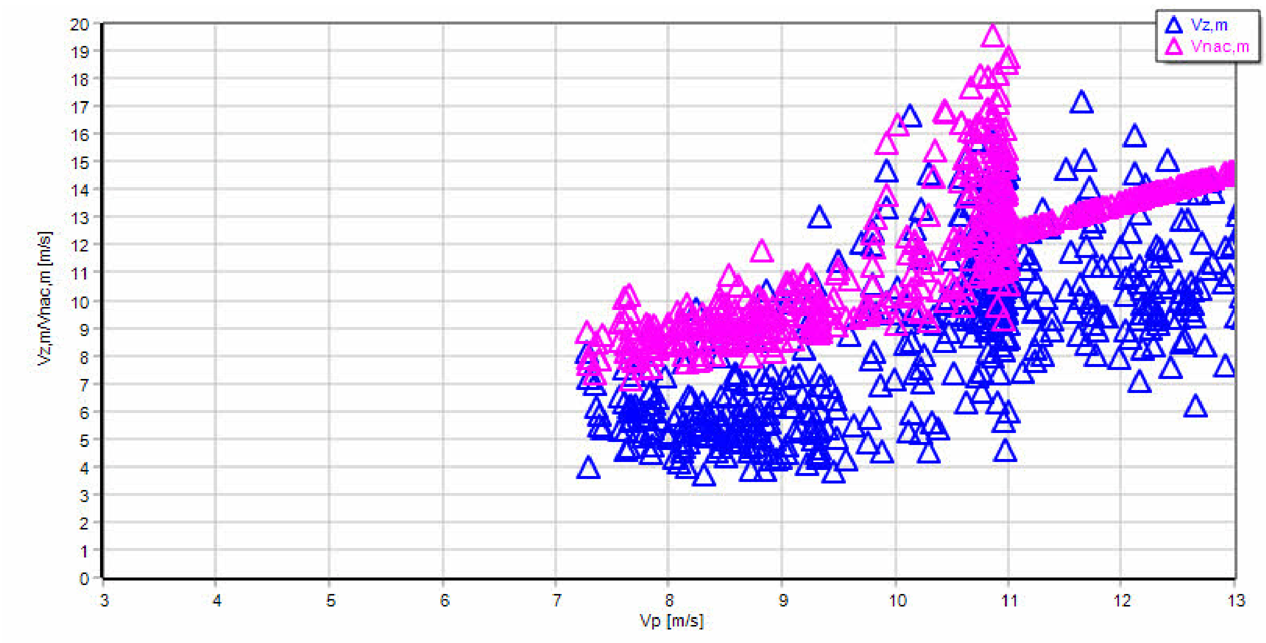
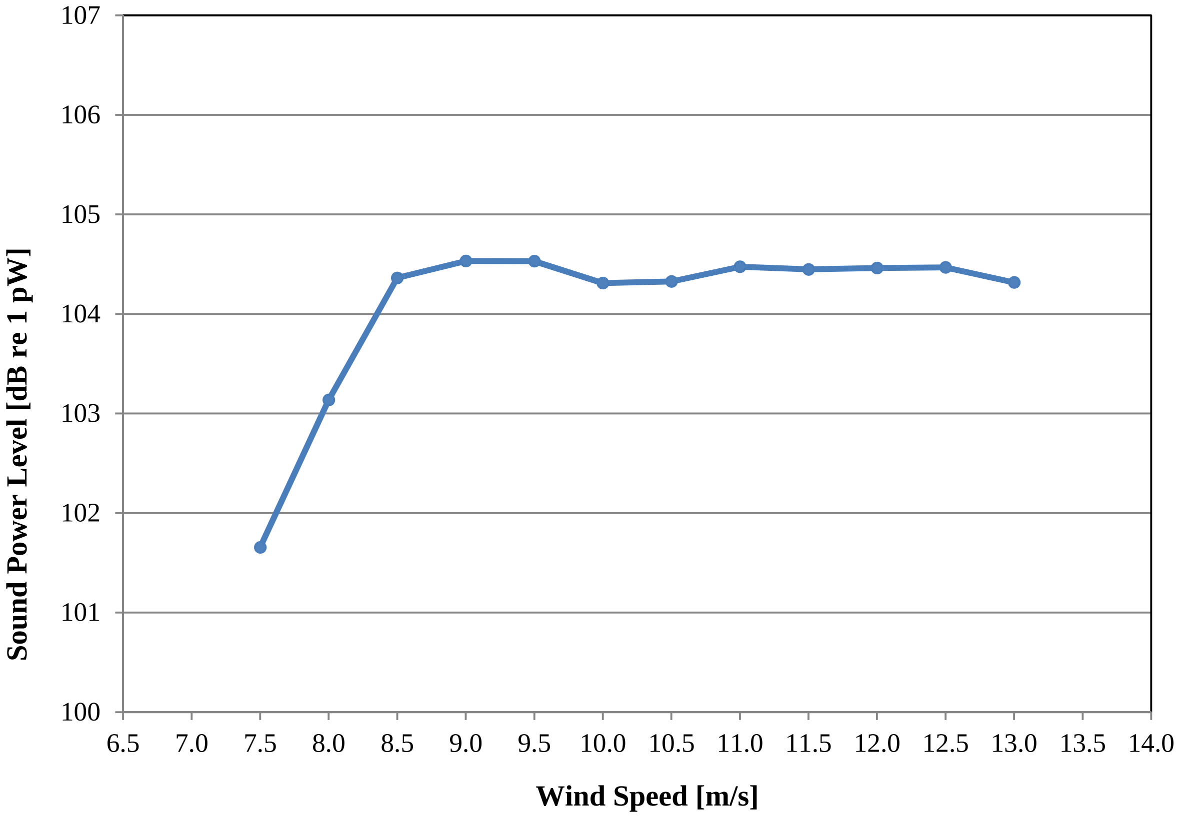
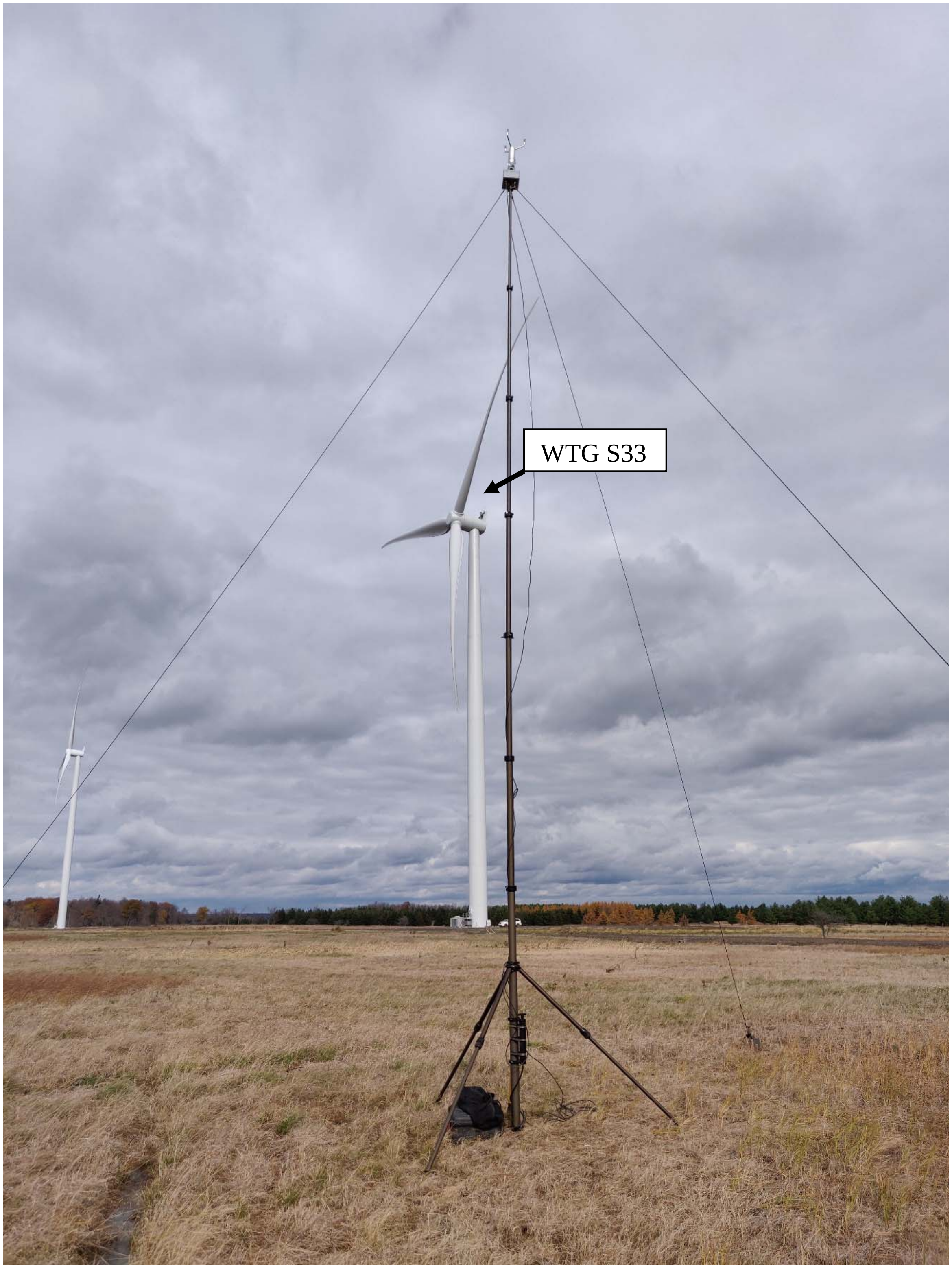


Figure 6: Apparent Sound Power Level versus Wind Speed
WTG S33, 2942 kW, Amherst Island Wind Project, Ontario



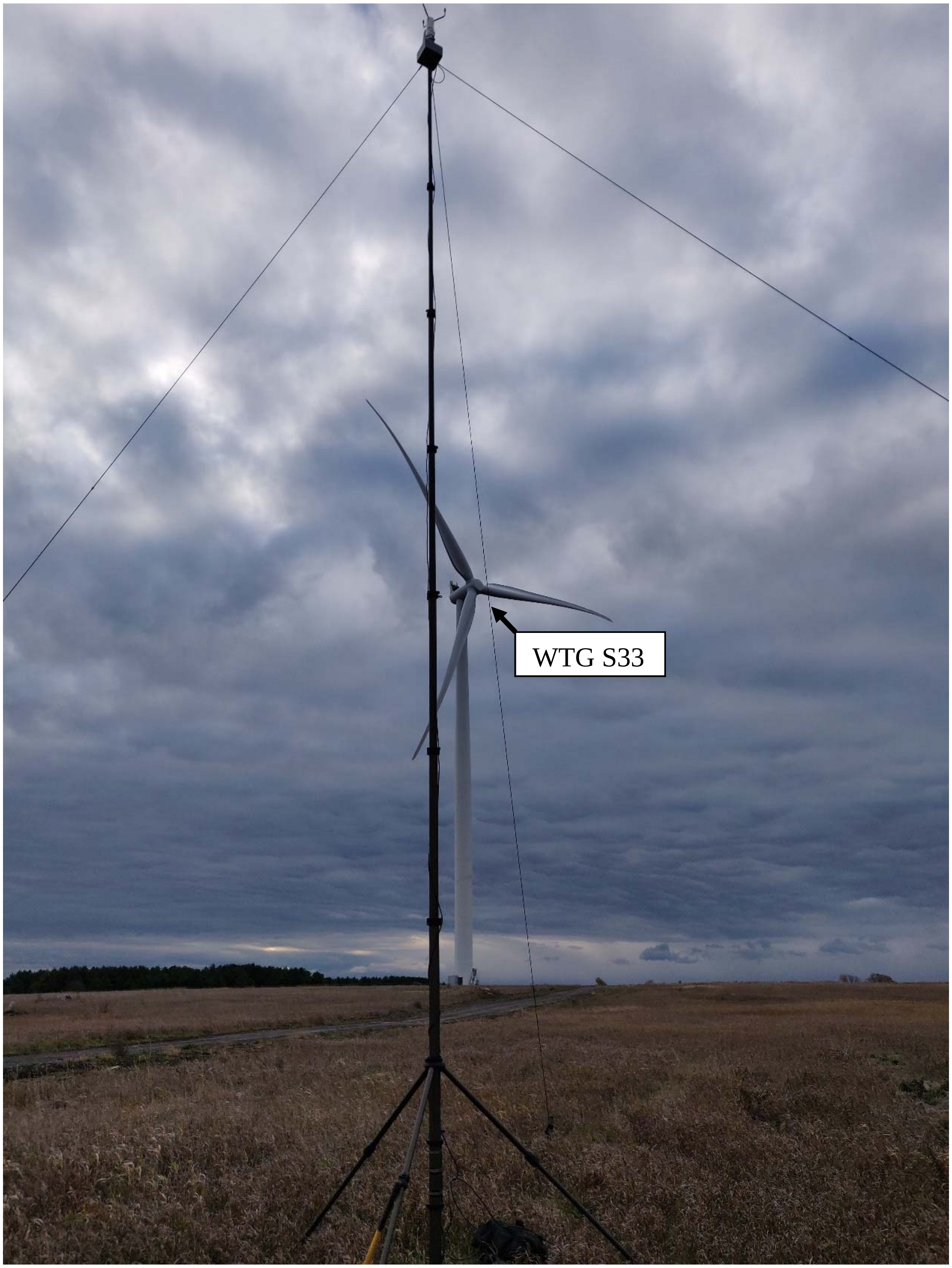
APPENDIX A:
LOCATION PHOTOS



Wind Mast Location - November 7, 2018

Sound Level Measurement Location - November 7, 2018

Sound Level Microphone on Board - November 7, 2018



Wind Mast Location - November 8, 2018

Sound Level Measurement Location - November 8, 2018

Sound Level Microphone on Board - November 8, 2018

APPENDIX B:

CALIBRATION CERTIFICATES

Scantek, Inc.

CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40217

JG
6 Mar 18

Instrument: **Acoustical Calibrator**
Model: **4231**
Manufacturer: **Brüel and Kjær**
Serial number: **3010241**
Class (IEC 60942): **1**
Barometer type:
Barometer s/n:
Customer: **HGC Engineering**
Tel/Fax: **905-826-4044 /**

Date Calibrated: **3/1/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _X_ **No**

Address: **2000 Argentia Road, Plaza One**
Suite 203
Mississauga, Ontario, Canada L5N 1P7

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
140-Norsonic	Real Time Analyzer	1403978	Mar 22, 2017	Scantek, Inc. / NVLAP	Mar 22, 2018
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4192-Brüel&Kjær	Microphone	2854675	Nov 11, 2017	Scantek, Inc. / NVLAP	Nov 11, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature	[signature]	Signature	[signature]
Date	3/1/18	Date	3/3/2018

Document stored as: Z:\Calibration Lab\Cal 2018\BNK4231_3010241_M1.doc

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40219 *NG*

Instrument:	**Sound Level Meter**	*Date Calibrated:* **3/2/2018**	*Cal Due:* *6 Mar 2018*	
Model:	**Duo**	*Status:*	**Received**	**Sent**
Manufacturer:	**01dB**	*In tolerance:*	X	X
Serial number:	**10815**	*Out of tolerance:*		
Tested with:	**Microphone 40CD s/n 154426** **Preamplifier PRE21 s/n 16453**	*See comments:*		

Contains non-accredited tests: __Yes X No
Calibration service: __ **Basic** X **Standard**

Type (class): **1**
Customer: **HGC Engineering**
Tel/Fax: **905-826-4044 /**
Address: **2000 Argentia Road, Plaza One**
Suite 203
Mississauga, Ontario, Canada L5N 1P7

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.5	98.80	38.0

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E. Marshall
Signature	*[signature]*	Signature	*[signature]*
Date	3/2/18	Date	3/3/2018

Document stored Z:\Calibration Lab\SLM 2018\01dBDuo_10815_M1.doc

Scantek, Inc.

CALIBRATION LABORATORY

ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.40220

NG
6 Mar 2018

Instrument: **Microphone**
Model: **40CD**
Manufacturer: **GRAS**
Serial number: **154426**
Composed of:

Date Calibrated: **3/2/2018** *Cal Due:*

Status:	**Received**	**Sent**
In tolerance:	**X**	**X**
Out of tolerance:		
See comments:		

Contains non-accredited tests: __**Yes** _X_ **No**

Customer: **HGC Engineering**
Tel/Fax: **905-826-4044/**
Address: **2000 Argentia Road, Plaza One**
Suite 203
Mississauga, Ontario, Canada L5N 1P7

Tested in accordance with the following procedures and standards:
Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

Instrumentation used for calibration: N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31061	Jul 28, 2017	Scantek, Inc./ NVLAP	Jul 28, 2018
DS-360-SRS	Function Generator	88077	Sep 15, 2016	ACR Env./ A2LA	Sep 15, 2018
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Sep 20, 2017	ACR Env./ A2LA	Sep 20, 2018
HM30-Thommen	Meteo Station	1040170/39633	Oct 25, 2017	ACR Env./ A2LA	Oct 25, 2018
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Nov 10, 2017	Scantek, Inc./ NVLAP	Nov 10, 2018
1203-Norsonic	Preamplifier	92268	Oct 18, 2017	Scantek, Inc./ NVLAP	Oct 18, 2018
4180-Brüel&Kjær	Microphone	2246115	Oct 24, 2017	DANAK / DPLA	Oct 24, 2019

Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)

Calibrated by:	Jeremy Gotwalt	**Authorized signatory:**	Steven E Marshall
Signature	[signature]	Signature	Steven E Marshall
Date	3/2/18	Date	3/3/2018

Document stored as: Z:\Calibration Lab\Mic 2018\GRAS40CD_154426_M1.doc

REINHARDT
System- und Messelectronic GmbH

Kalibrierzertifikat   Calibration Certificate

MG
25 Sept 2017

Typ/Gegenstand
Type/Object
DFT-485

Hersteller
Manufacturer
REINHARDT System- und Messelectronic GmbH

Seriennummer
Serial Number
1027951

Inventarnummer
Inventory Number
- - -

Auftraggeber
Customer
HGC Engineering
2000 Argentia Road, Plaza 1, Suite 203
Mississauga, ON L5N 1P7 - CANADA

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
Sie wurde in Übereinstimmung mit den Normen DIN EN ISO 9000ff und DIN ISO 10012 durchgeführt.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

This calibration certficate documents the traceability to national standards which realize the units of measurement according to the International System of Units (SI).
The calibration is performed according to the standards DIN EN ISO 9000ff and DIN ISO 10012.
The user is obliged to have the object recalibrated at appropriate intervals.

Kalibrierdatum
Date of Calibration
29/08/2017

Nächste Kalibrierung in 24 Monaten
Recalibration in months

Prüfer
person in charge
Harald Stiegelmayer

Unterschrift
....

Messeinrichtungen
measuring equipment

Referenz Reference	**Bezeichnung** Name	**Rückführung** Traceability	**Zertifikat-Nr.** Certificate No.	**Rekalibrierung** Recalibration	**Seriennummer** Serial Number
Klimakammer/ Climatic Chamber	Weiss SB111 Typ 1005				95032
Multimeter/ Multimeter Temperaturreferenz/ Temperature Reference	Keithley 2000 PT100 Typ W60/1, 1/10 DIN	FGQControl	403902	02/08/2018	0760839
Feuchtereferenz/ Humidity Reference	DFT 485	REINHARDT	F29992	09/09/2018	1030885
Druck/ Pressure Transmitter	Digiquarz 1030A	TESTO	D11481	02/09/2018	30840
Windgeschwindigkeit/ Wind Speed Sensor	WDS 55	REINHARDT	S16091	02/09/2018	1031069
Pyranometer/ Pyranometer	Kipp & Zonen CM11	Kipp & Zonen	014334850731	08/09/2018	112383

REINHARDT
System- und Messelectronic GmbH

MG 25 sept 2017

Kalibrierprotokoll / Calibration Protocol
Sensoren und Wetterstationen / Sensors and Weather Stations

Sensor/Wetterstation
Sensor/Weather Station: DFT-485

Seriennummer
Serial Number: 1027951

Seriennummer Platine/n
Serial Number (Board/s): V1.7

Abgleichnummer
Calibration Number: 025

Datum
Date: 29/08/2017

Firmware-Version
Firmware Version: 1.40

Prüfer
Calibrated by: Harald Stiegelmayer

ABWEICHUNG / DEVIATION

at	**Temperatur** Temperature [° C]	**Druck** Pressure bei/at [hPa]		**Feuchte** Humidity [%]		**Globalstrahlung** Global Radiation Offset [W/m²]	**Wind-richtung** Wind Direction 0–360° [°]	**Windgeschwindigkeit** Wind Speed [km/h]	**Zusatz Sensor 1** Additional Sensor 1 [ ]	**Zusatz Sensor 2** Additional Sensor 2 [ ]	**Zusatz Sensor 3** Additional Sensor 3 [ ]	at [mV]	TD [°C]
-28.0°C	0.0	900	---	20 %	n.A.*							2000	+2.4
		1000	-0.3	50 %	n.A. *							4000	
		1100	---	70 %	n.A. *							6000	
0.0 °C	-0.1	900	---	20 %	n.A.*							2000	+1.9
		1000	+0.1	50 %	n.A. *							4000	
		1100	---	70 %	n.A. *							6000	
5.0 °C	-0.2	900	---	20 %	-2.2							2000	+1.7
		1000	+0.1	50 %	-1.0							4000	
		1100	---	70 %	-1.9							6000	
10.0 °C	-0.2	900	---	20 %	-1.9							2000	+1.7
		1000	0.0	50 %	-0.8							4000	
		1100	---	70 %	-1.6							6000	
25.0 °C	-0.2	900	+0.1	20 %	-0.1							2000	+1.3
		1000	+0.1	50 %	+0.9							4000	
		1100	+0.2	70 %	+0.1							6000	
30.0 °C	-0.1	900	---	20 %	-1.4							2000	+1.2
		1000	+0.1	50 %	-0.3							4000	
		1100	---	70 %	-1.2							6000	
40.0 °C	-0.1	900	---	20 %	-1.6							2000	+1.0
		1000	0,2	50 %	-0.7							4000	
		1100	---	70 %	-1.3							6000	
50.0 °C	-0.1	900	---	20 %	-1.1							2000	+0.8
		1000	+0.1	50 %	-0.4							4000	
		1100	---	70 %	-0.9							6000	

Niederschlagssensor [mm], kalibriert mit 100 ml Wasser: max. Abweichung +/-0,5 mm ☐
Precipitation Sensor [mm], calibrated with 100 ml water: max. deviation +/-0.5 mm
Die Windgeschwindigkeit wurde bei 15 km/h und 25 °C geprüft. ☐

Gerät hält Spezifikationen ein / Device meets the specifications ja/yes ☑ nein/no ☐

REINHARDT System- und Messelectronic GmbH Bergstr. 33 86911 Diessen-Obermühlhausen
Tel. 08196 934100 Fax 7005 + 1414 E-Mail: info@reinhardt-testsystem.de www.reinhardt-testsystem.de

SOH Wind Engineering LLC

141 Leroy Road · Williston, VT 05495 · USA

Tel 802.316.4368 · Fax 802.735.9106 · www.sohwind.com

CERTIFICATE FOR CALIBRATION OF SONIC ANEMOMETER

Certificate number: 17.US1.07294 **Date of issue:** August 21, 2017

Type: Vaisala WMT700 with ROBIN Transmitter **Serial number:** J3920012

Manufacturer: Vaisala, Oyj, Pl 26, FIN-00421 Helsinki, Finland

Client: HGC Engineering, 2000 Argentia Road, Plaza One, Suite 203, Mississauga, ON L5N 1P7, Canada

Anemometer received: August 21, 2017 **Anemometer calibrated:** August 21, 2017

Calibrated by: EJF **Procedure:** MEASNET, IEC 61400-12-1:2017 Annex F

Certificate prepared by: EJF **Approved by:** Calibration engineer, EJF

Calibration equation obtained: v [m/s] = 1.01170 · f [m/s] + 0.00386

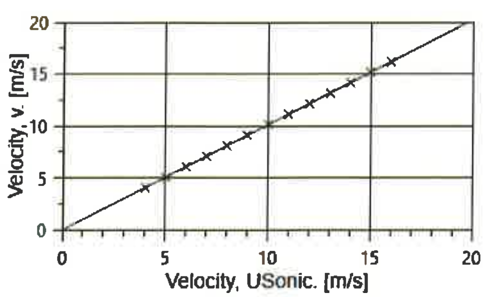
Standard uncertainty, slope: 0.00185 **Standard uncertainty, offset:** 5.16622

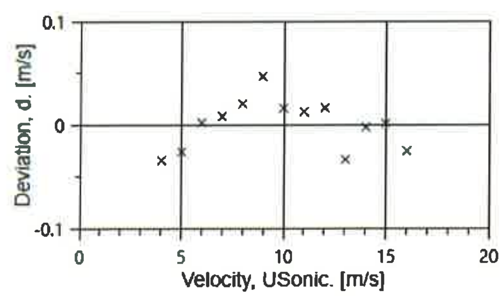
Covariance: -0.0000350 $(m/s)^2/m/s$ **Coefficient of correlation:** ρ = 0.999981

Absolute maximum deviation: 0.047 m/s at 9.126 m/s

Barometric pressure: 1006.9 hPa **Relative humidity:** 54.7% **Avg. Direction Output:** 179.4

Succession	Velocity pressure, q. [Pa]	Temperature in wind tunnel [°C]	Temperature in d.p. box [°C]	Wind velocity, v. [m/s]	Anemometer Output, f. [m/s]	Deviation, d. [m/s]	Uncertainty u_c (k=2) [m/s]
2	9.49	25.6	28.0	4.033	4.0170	-0.034	0.024
4	14.82	25.7	28.0	5.042	5.0059	-0.026	0.025
6	21.48	25.7	28.0	6.070	5.9940	0.002	0.027
8	29.26	25.8	28.0	7.085	6.9913	0.008	0.030
10	38.27	25.8	28.0	8.103	7.9860	0.020	0.033
12	48.54	25.8	28.0	9.126	8.9707	0.047	0.036
13-last	59.87	25.8	28.0	10.136	9.9990	0.016	0.039
11	72.17	25.8	28.0	11.129	10.9840	0.012	0.042
9	86.19	25.8	28.0	12.162	12.0010	0.016	0.045
7	100.79	25.7	28.0	13.151	13.0287	-0.034	0.048
5	117.04	25.7	28.0	14.172	14.0067	-0.003	0.051
3	134.00	25.7	28.0	15.163	14.9827	0.001	0.054
1-first	152.26	25.6	28.0	16.162	15.9963	-0.026	0.057

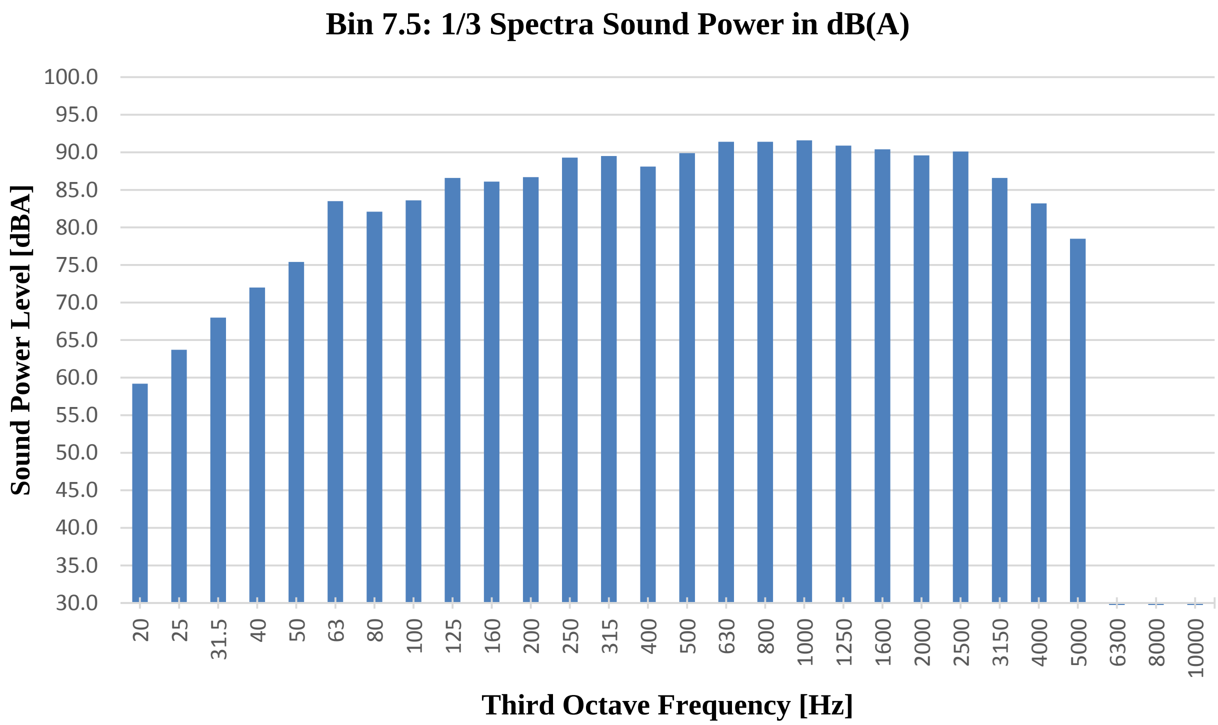




AC-1746

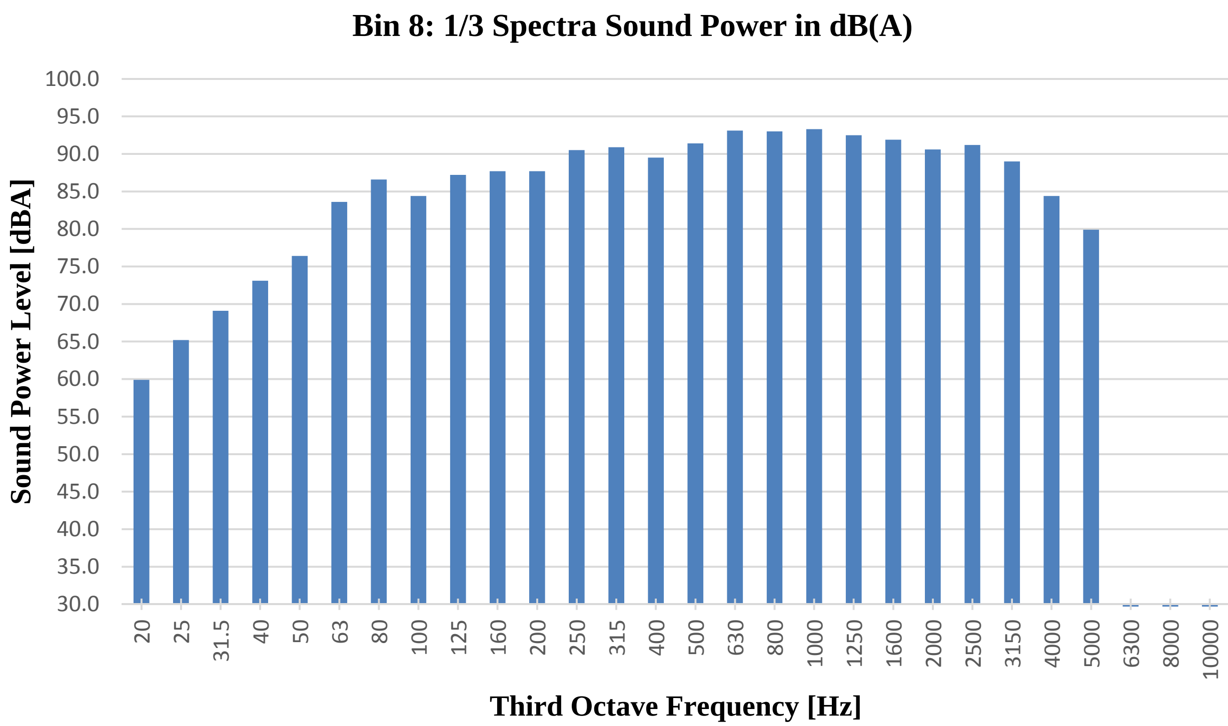
APPENDIX C:

OCTAVE BAND SOUND LEVEL RESULT



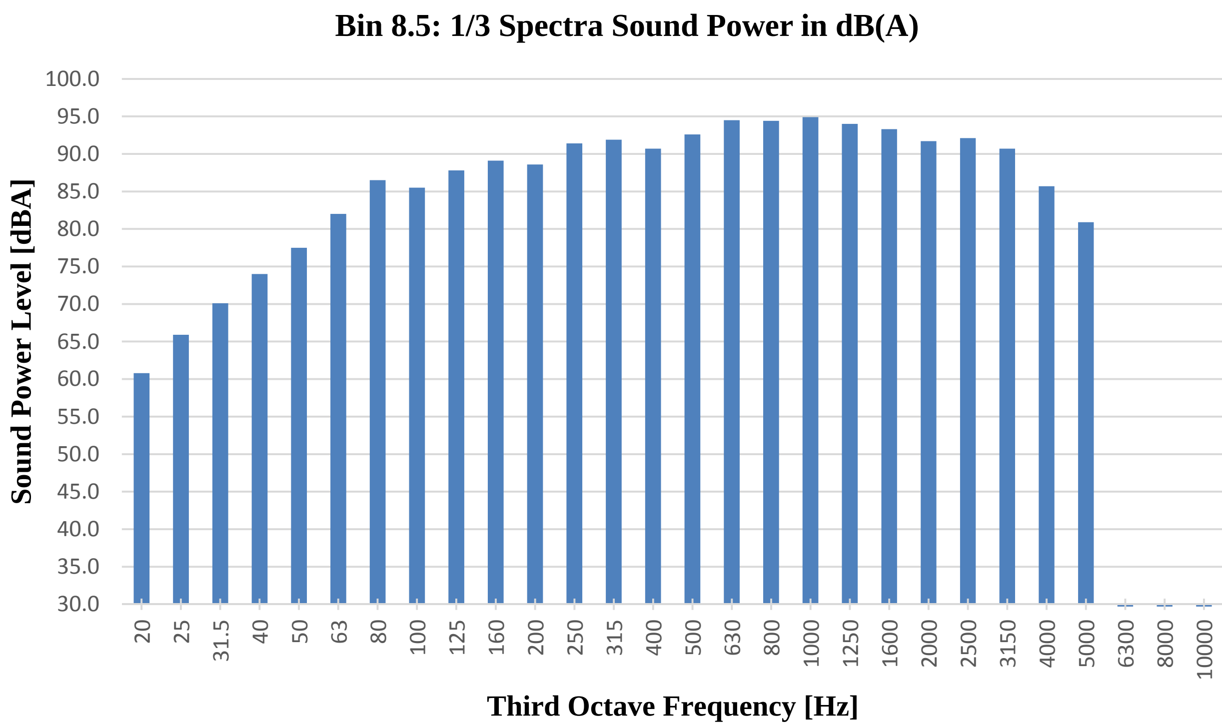
Bin 7.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	59.2	63.7	68.0	72.0	75.4	83.5	82.1	83.6	86.6	86.1	86.7	89.3	89.5	88.1
U_C	1.0	1.1	1.0	1.0	1.0	1.0	1.1	0.9	0.9	0.8	0.9	0.8	0.8	0.8
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	89.9	91.4	91.4	91.6	90.9	90.4	89.6	90.1	86.6	83.2	78.5	[74.3]	[72.8]	[71.8]
U_C	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.6	2.4	2.6	2.6

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



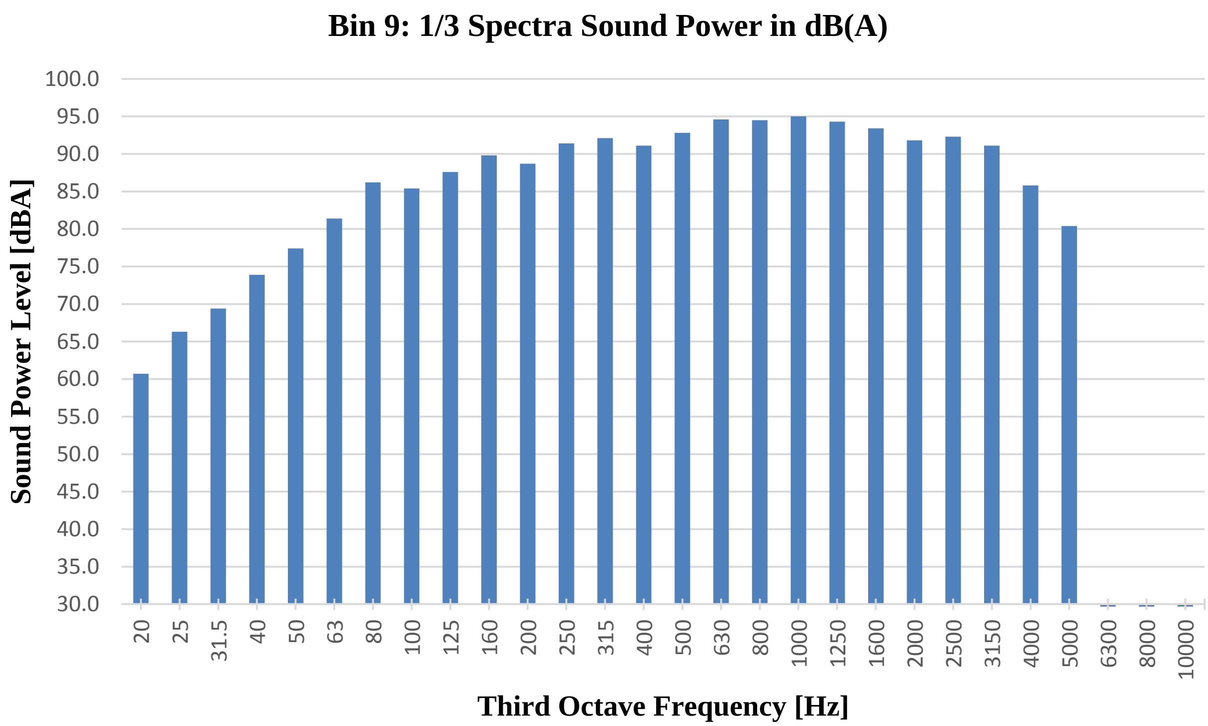
Bin 8: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	59.9	65.2	69.1	73.1	76.4	83.6	86.6	84.4	87.2	87.7	87.7	90.5	90.9	89.5
U_C	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.8	0.7	0.7	0.7
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	91.4	93.1	93.0	93.3	92.5	91.9	90.6	91.2	89.0	84.4	79.9	[75.7]	[74.4]	[73.5]
U_C	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1.4	2.2	2.3	2.2

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



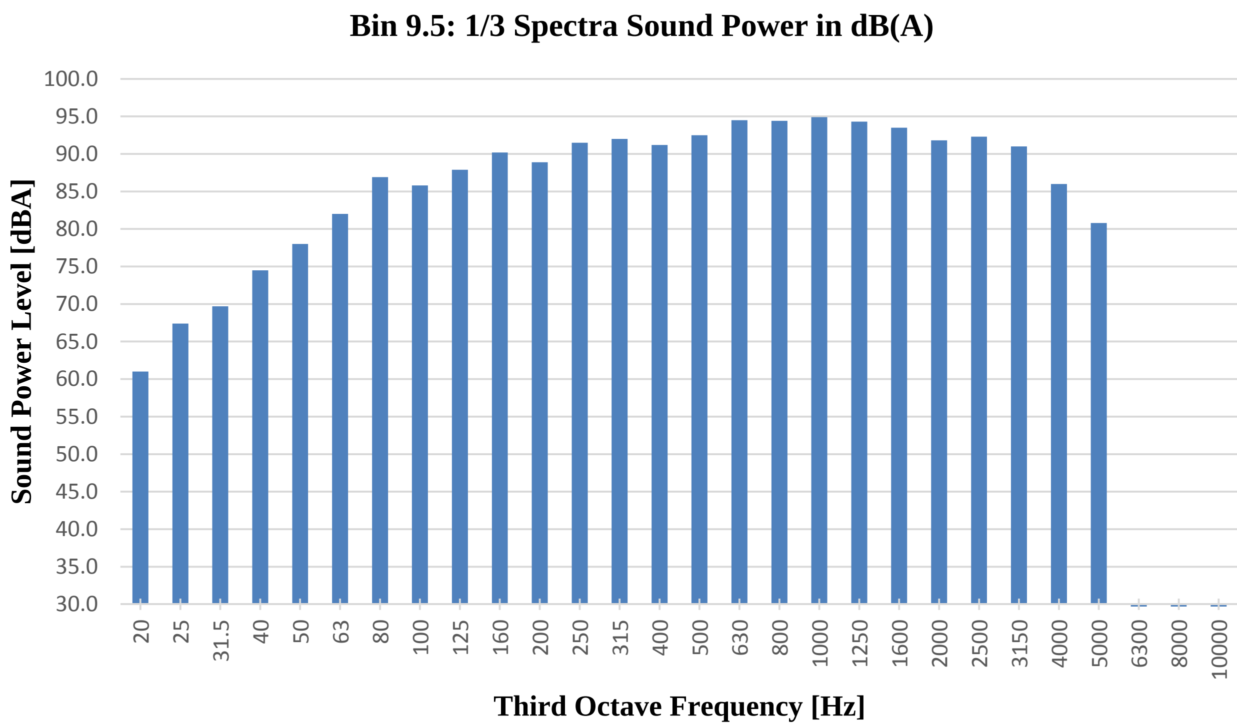
Bin 8.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	60.8	65.9	70.1	74.0	77.5	82.0	86.5	85.5	87.8	89.1	88.6	91.4	91.9	90.7
U_C	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.8	0.7	0.7	0.7
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	92.6	94.5	94.4	94.9	94.0	93.3	91.7	92.1	90.7	85.7	80.9	[76.5]	[75]	[74]
U_C	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.9	1.4	2.4	2.4	2.3

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



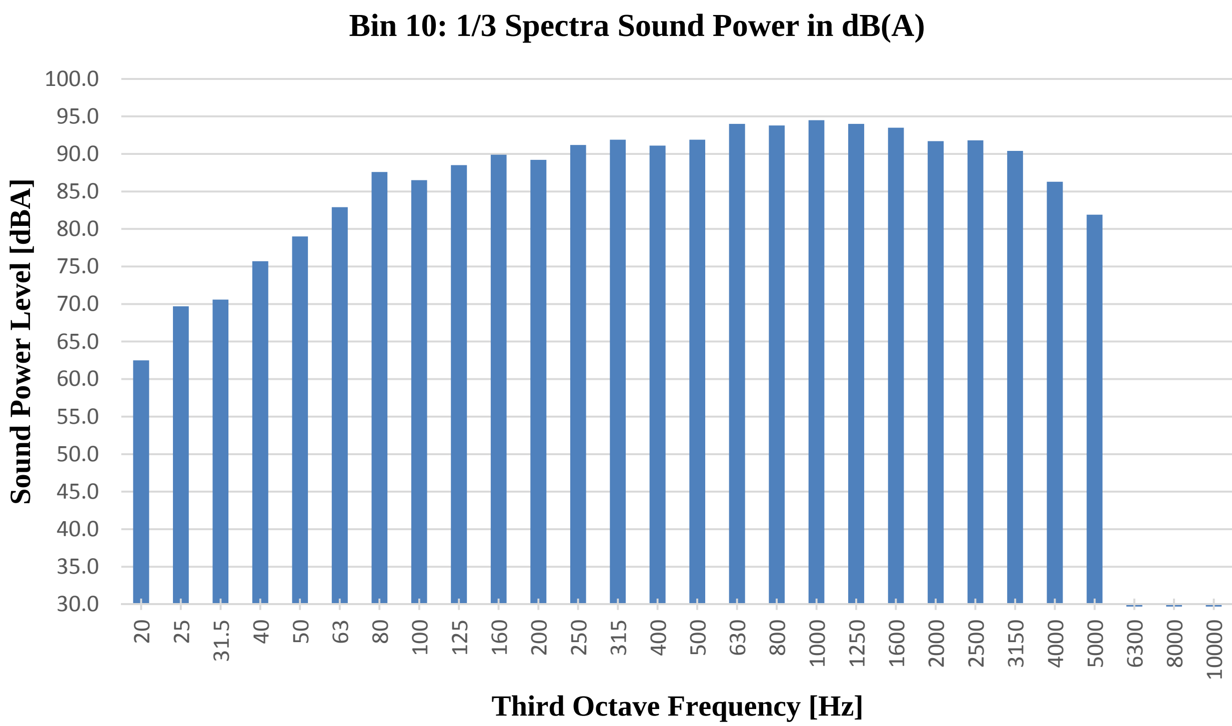
Bin 9: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	60.7	66.3	69.4	74.0	77.4	81.4	86.2	85.4	87.6	89.8	88.7	91.4	92.1	91.1
U_C	0.9	0.9	1.1	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.8	0.7	0.7	0.7
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	92.8	94.6	94.5	95.0	94.3	93.5	91.8	92.3	91.2	85.8	80.4	[76.8]	[75.3]	[74.5]
U_C	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	1.6	2.1	2.1	2.0

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



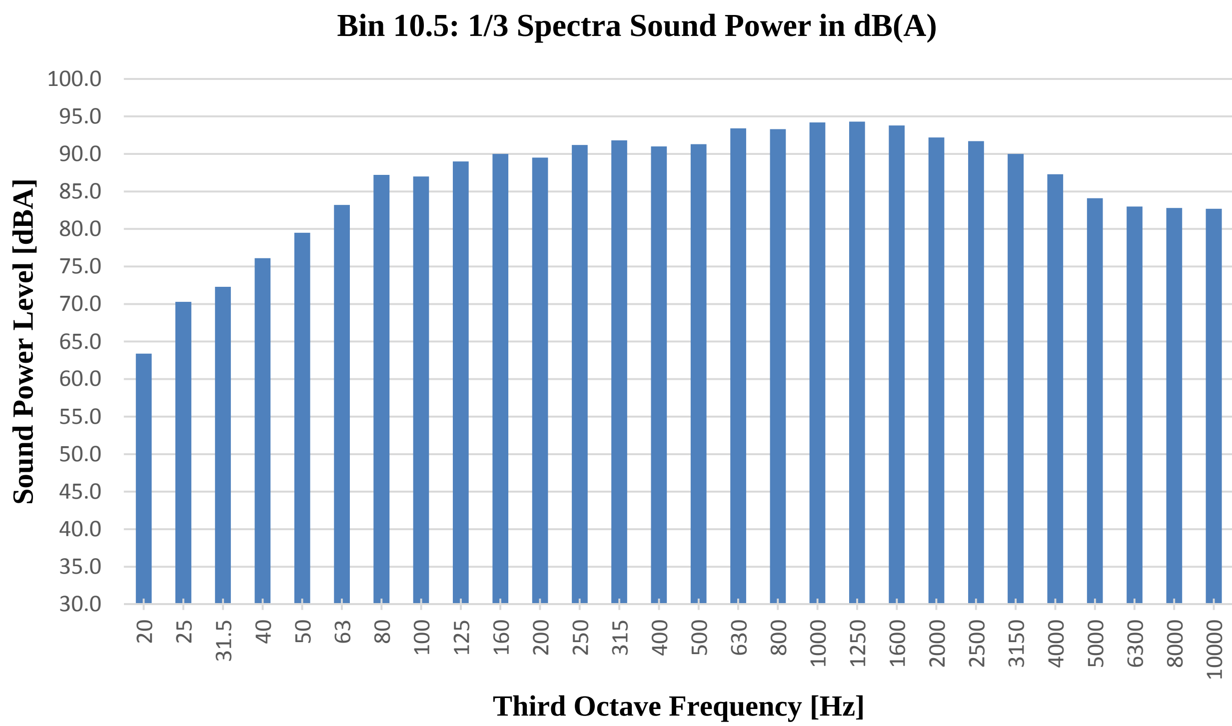
Bin 9.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	61.0	67.4	69.7	74.5	78.0	82.0	86.9	85.8	87.9	90.2	88.9	91.5	92.0	91.2
U_C	0.9	0.8	1.4	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	92.5	94.5	94.4	94.9	94.3	93.5	91.8	92.3	91.0	86.0	80.8	[77.3]	[76]	[75.3]
U_C	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	1.6	2.1	2.1	2.0

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



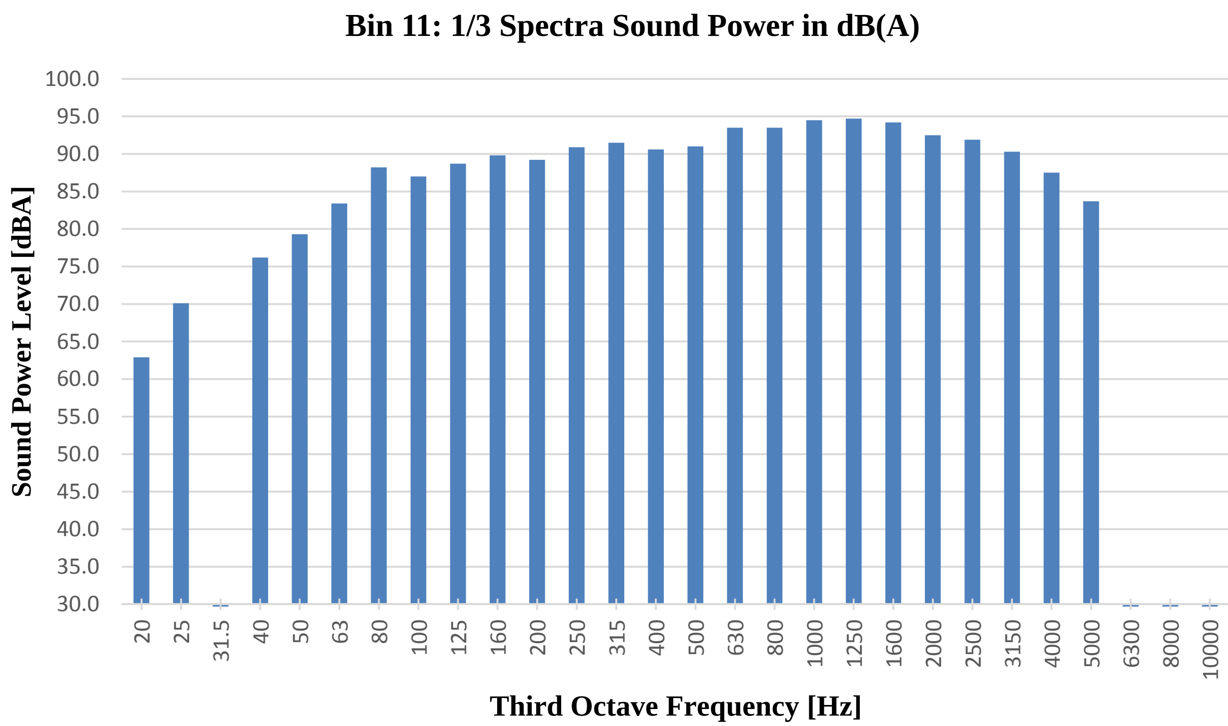
Bin 10: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	62.5	69.7	70.7	75.7	79.0	82.9	87.6	86.5	88.5	89.9	89.2	91.2	91.9	91.1
U_C	1.1	0.9	1.7	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	91.9	94.0	93.8	94.5	94.0	93.5	91.7	91.8	90.4	86.3	81.9	[79.3]	[79.1]	[78.7]
U_C	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	1.6	2.3	2.5	2.4

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



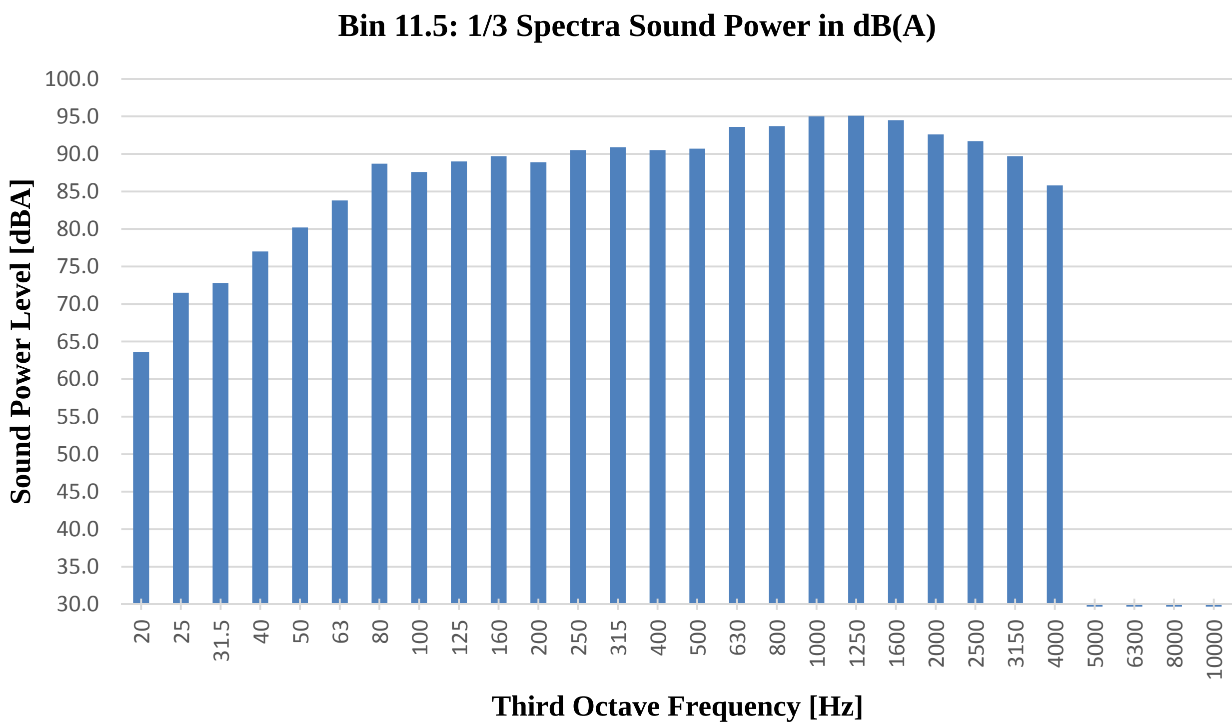
Bin 10.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	63.4	70.3	72.3	76.1	79.5	83.2	87.2	87.0	89.0	90.0	89.5	91.2	91.8	91.0
U_C	0.8	0.8	1.1	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.7
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	91.3	93.4	93.3	94.2	94.3	93.8	92.2	91.7	90.0	87.3	84.1	83.0	82.8	82.7
U_C	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.9	1.3	1.7	1.9	1.7

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



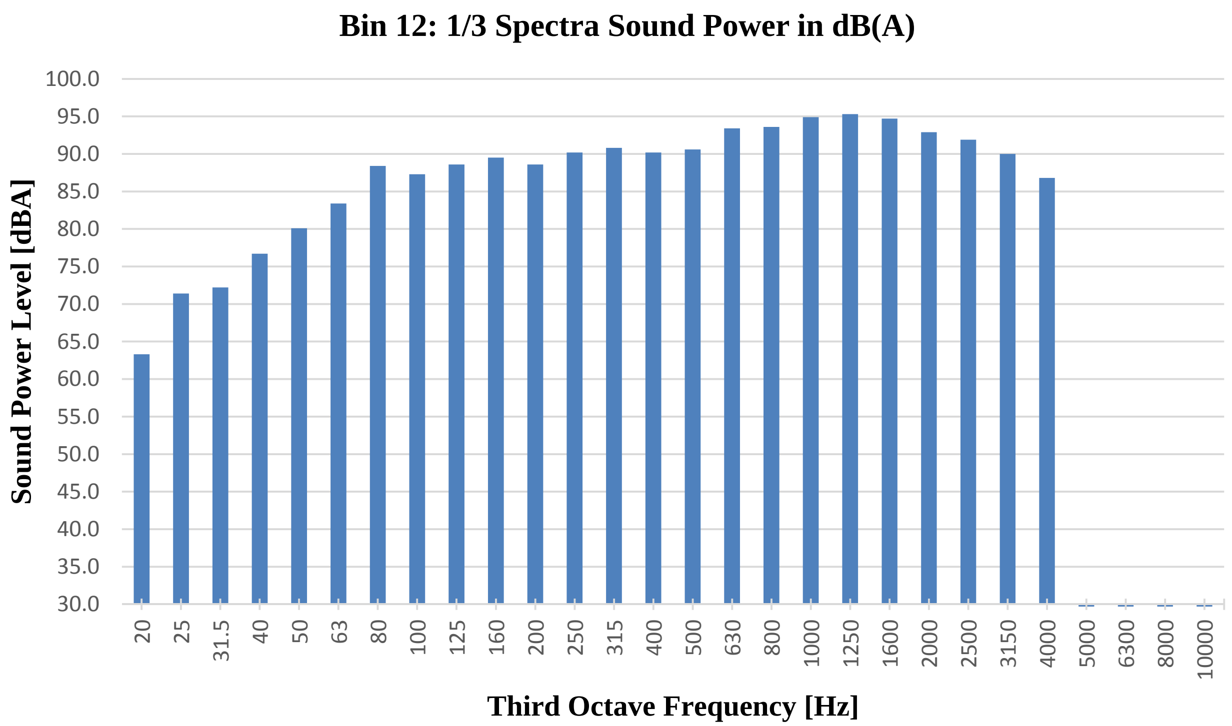
Bin 11: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	62.9	70.1	[71.2]	76.2	79.3	83.4	88.2	87.0	88.7	89.8	89.2	91.0	91.5	90.7
U_C	0.9	0.9	2.3	0.9	0.9	0.9	0.8	0.7	0.8	0.7	0.9	0.8	0.9	0.8
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	91.1	93.5	93.5	94.5	94.8	94.2	92.6	91.9	90.3	87.6	84.0	[82.9]	[83.2]	[83.1]
U_C	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	1.1	1.9	2.2	2.2	2.1

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



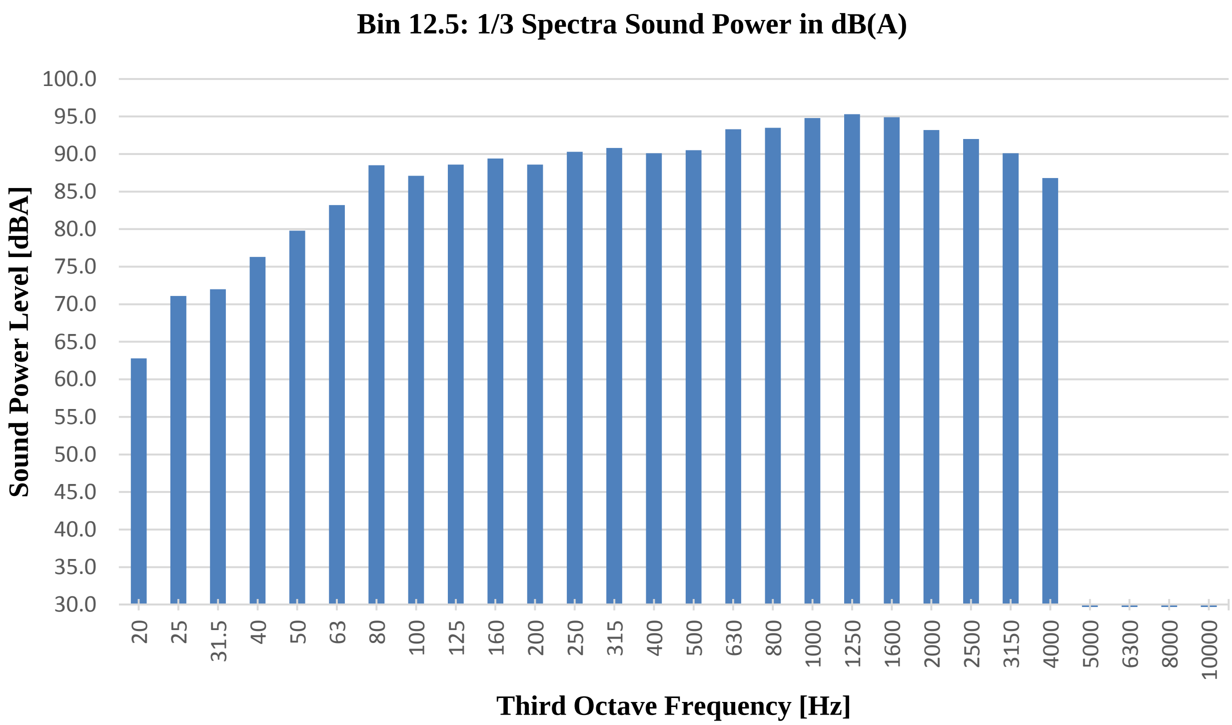
Bin 11.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	63.6	71.5	72.8	77.0	80.2	83.8	88.7	87.6	89.0	89.7	88.9	90.5	90.9	90.5
Laeq	0.9	0.9	1.5	0.9	0.9	0.9	0.8	0.8	0.8	0.8	1.0	1.0	1.0	0.9
U_C	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Frequency[Hz]	90.7	93.6	93.7	95.0	95.1	94.5	92.6	91.7	89.7	85.8	[81.7]	[80.5]	[80.6]	[80.3]
Laeq	0.9	0.8	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.4	2.1	2.2	2.3	2.2
U_C	63.6	71.5	72.8	77.0	80.2	83.8	88.7	87.6	89.0	89.7	88.9	90.5	90.9	90.5

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



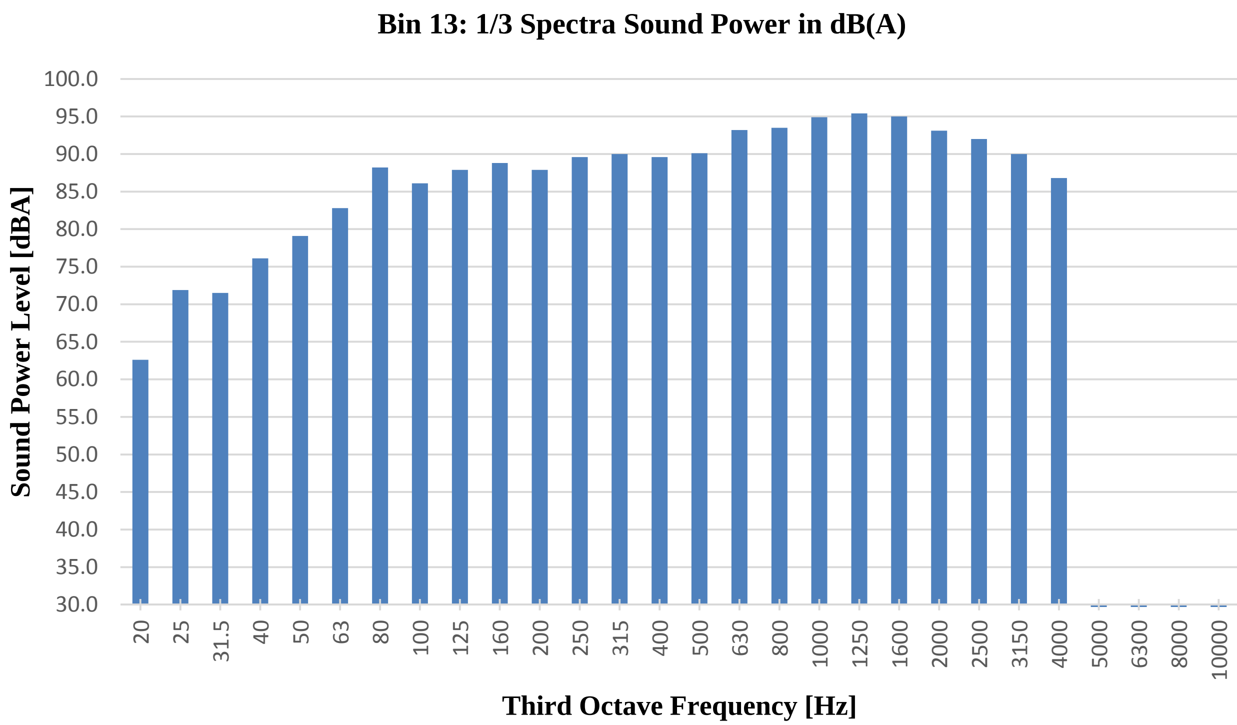
Bin 12: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	63.3	71.4	72.2	76.7	80.1	83.4	88.4	87.3	88.6	89.5	88.6	90.1	90.8	90.3
U_C	0.9	0.9	1.9	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.9	0.9	0.9	0.8
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	90.7	93.5	93.6	94.9	95.3	94.7	92.9	91.9	90.0	86.9	[81.9]	[81]	[81.3]	[81.1]
U_C	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	1.1	2.2	2.2	2.2	2.1

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



Bin 12.5: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
Laeq	62.8	71.1	72.0	76.3	79.8	83.2	88.5	87.1	88.6	89.4	88.6	90.3	90.8	90.1
U_C	1.0	1.0	2.0	1.0	1.0	1.0	0.9	0.8	0.9	0.8	1.0	1.0	1.0	0.9
Frequency[Hz]	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Laeq	90.5	93.3	93.5	94.8	95.3	94.9	93.2	92.0	90.1	86.8	[82.2]	[81.3]	[81.6]	[81.5]
U_C	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.2	2.2	2.3	2.3	2.1

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).



Bin 13: 1/3 Spectra Sound Power in dB(A)														
Frequency[Hz]	62.6	71.9	71.5	76.1	79.1	82.8	88.2	86.1	87.9	88.8	87.9	89.6	90.0	89.6
Laeq	1.0	1.0	1.6	1.0	1.0	1.0	0.9	1.0	0.9	0.9	1.1	1.1	1.1	1.0
U_C	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Frequency[Hz]	90.1	93.2	93.5	94.9	95.4	95.0	93.1	92.0	90.0	86.8	[82.5]	[81.6]	[81.8]	[81.5]
Laeq	1.0	0.8	0.8	0.7	0.8	0.8	0.9	0.9	0.9	1.3	2.2	2.4	2.4	2.3
U_C	62.6	71.9	71.5	76.1	79.1	82.8	88.2	86.1	87.9	88.8	87.9	89.6	90.0	89.6

[ ] Total Noise less than 3 dB greater than background (3 dB correction applied).

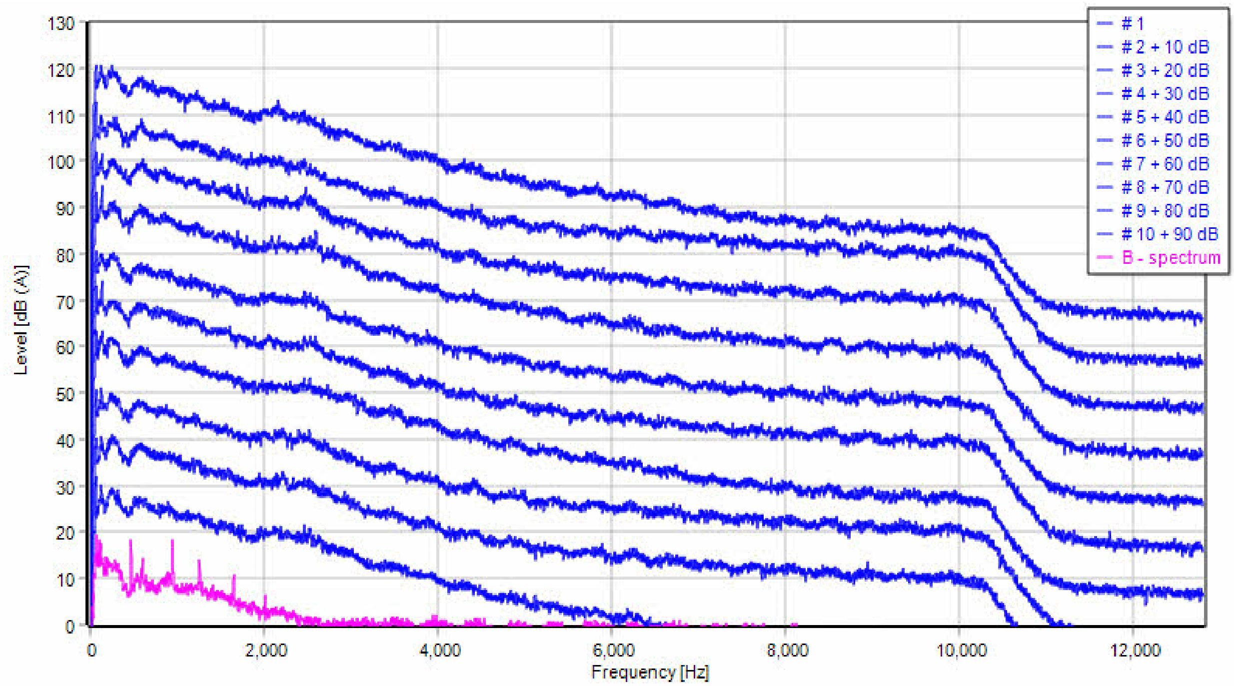
APPENDIX D:

TONALITY ASSESSMENT

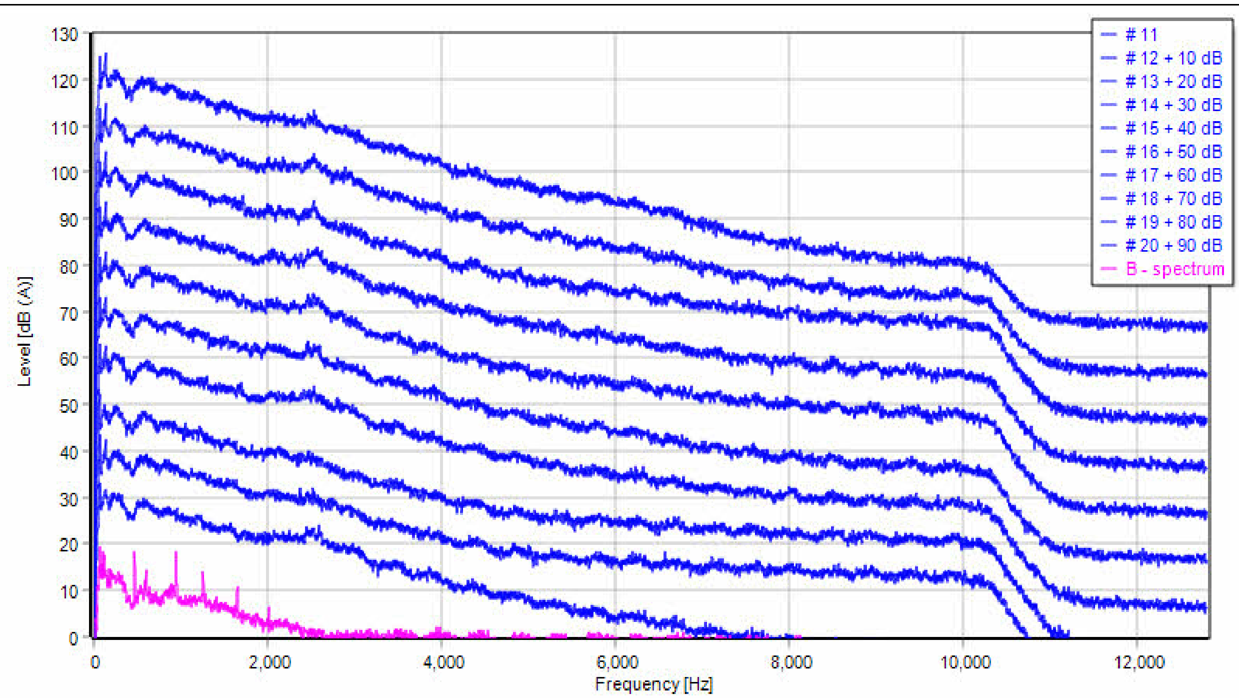
BIN 7.5: Tonal components determined								
	Frequency	**delta f**	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	**[Hz]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**
$dL_{t1,1,7.5}$:	62.5	3.13	24.2	32.5	37.3	-4.8	-2.0	-2.8
$dL_{t1,5,7.5}$:	68.8	3.13	27.1	33.2	40.2	-7.0	-2.0	-5.0
$dL_{t1,7,7.5}$:	68.8	3.13	26.7	33.2	39.8	-6.6	-2.0	-4.6
$dL_{t1,9,7.5}$:	62.5	3.13	24.7	33.1	37.8	-4.7	-2.0	-2.7
$dL_{t1,12,7.5}$:	68.8	3.13	25.7	34.4	38.8	-4.4	-2.0	-2.4
$dL_{t1,13,7.5}$:	62.5	3.13	25.2	33.2	38.4	-5.2	-2.0	-3.2
$dL_{t1,14,7.5}$:	68.8	3.13	26.5	34.3	39.7	-5.4	-2.0	-3.4
$dL_{t1,19,7.5}$:	68.8	3.13	26.8	33.7	39.9	-6.3	-2.0	-4.3
$dL_{t1,20,7.5}$:	68.8	3.13	28.6	34.8	41.7	-6.9	-2.0	-4.9
$dL_{t1,21,7.5}$:	65.6	3.13	25.3	33.8	38.4	-4.6	-2.0	-2.6
$dL_{t1,22,7.5}$:	65.6	3.13	27.0	35.6	40.2	-4.6	-2.0	-2.6
$dL_{t1,23,7.5}$:	68.8	3.13	27.0	33.6	40.1	-6.5	-2.0	-4.5
$dL_{t1,24,7.5}$:	68.8	3.13	26.6	33.8	39.8	-6.0	-2.0	-4.0

BIN 7.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$										
##	**[Hz]**	**[dB]**										
1	62.5	-4.8										
2	---	---										
3	---	---										
4	---	---										
5	68.8	-7.0										
6	---	---										
7	68.8	-6.6										
8	---	---										
9	62.5	-4.7										
10	---	---										
11	---	---										
12	68.8	-4.4										
13	62.5	-5.2										
14	68.8	-5.4										
15	---	---										
16	---	---										
17	---	---										
18	---	---										
19	68.8	-6.3										
20	68.8	-6.9										
21	65.6	-4.6										
22	65.6	-4.6										
23	68.8	-6.5										
24	68.8	-6.0										
f_t**[Hz] | dL_k[dB]**	64.9	-7.6										
L_a**[dB]**		-2.0										
$dL_{a,k}$**[dB]**		-5.6										
K_{TN}**[dB]**		0										

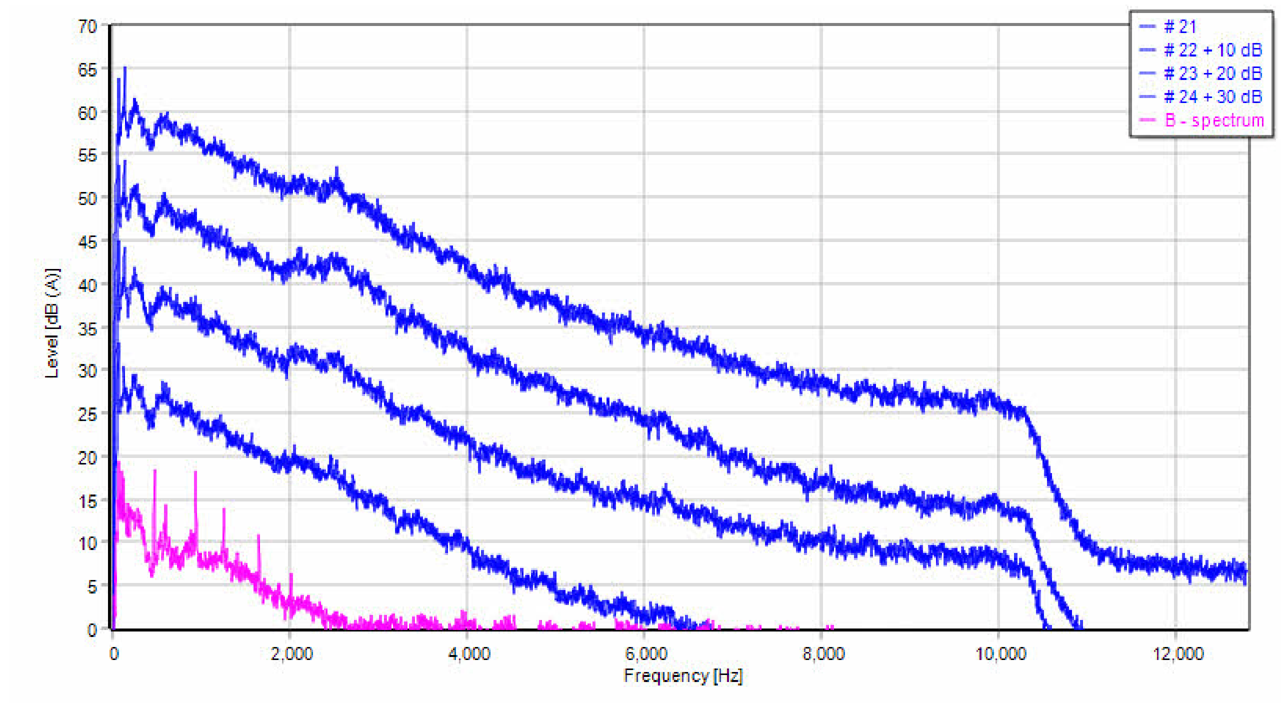
BIN 7.5: Narrowband spectrum



BIN 7.5: Narrowband spectrum



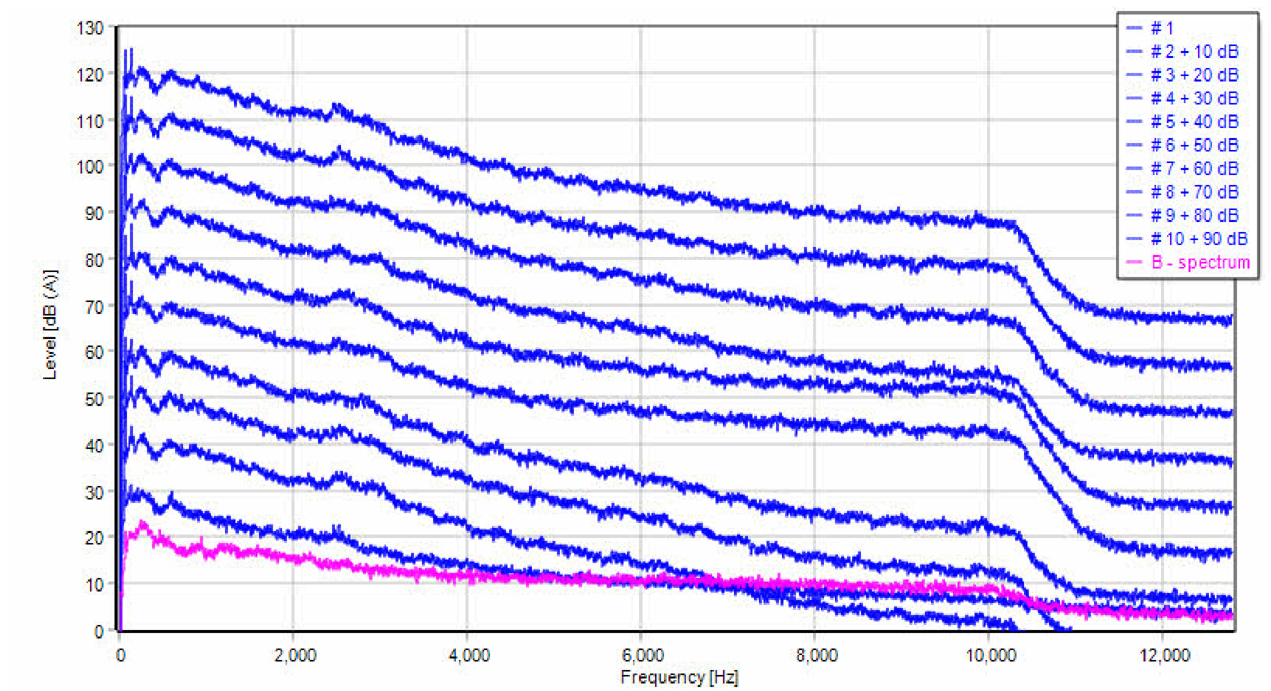
BIN 7.5: Narrowband spectrum



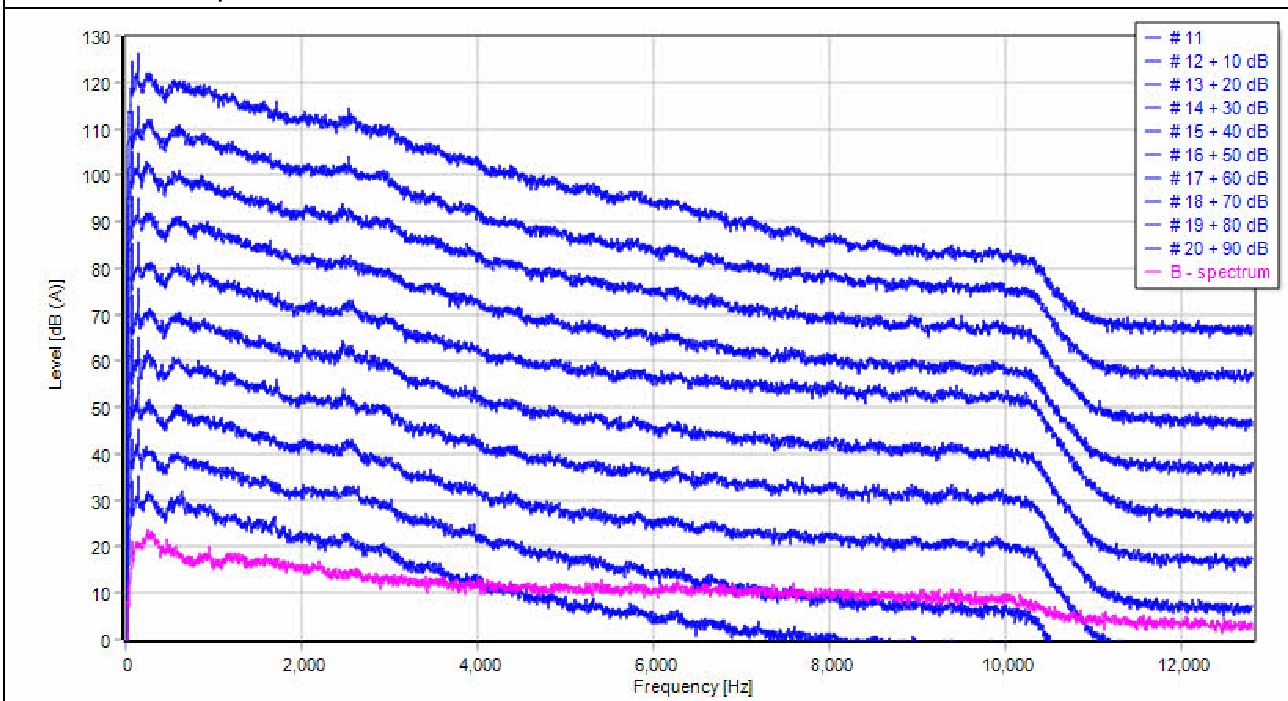
BIN 8: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,2,8}$:	71.9	3.13	27.3	38.8	40.6	-1.7	-2.0	0.3
$dL_{t1,3,8}$:	71.9	3.13	27.8	39.0	41.1	-2.1	-2.0	-0.1
$dL_{t1,4,8}$:	71.9	3.13	26.2	34.2	39.5	-5.3	-2.0	-3.3
$dL_{t1,5,8}$:	71.9	3.13	27.9	38.9	41.2	-2.2	-2.0	-0.2
$dL_{t1,6,8}$:	68.8	3.13	27.1	35.5	40.2	-4.7	-2.0	-2.7
$dL_{t1,7,8}$:	71.9	3.13	29.7	39.6	43.0	-3.4	-2.0	-1.4
$dL_{t1,8,8}$:	71.9	3.13	28.2	39.4	41.5	-2.1	-2.0	-0.1
$dL_{t1,9,8}$:	68.8	3.13	27.5	38.0	40.7	-2.7	-2.0	-0.7
$dL_{t1,10,8}$:	68.8	3.13	26.8	34.9	40.0	-5.2	-2.0	-3.1
$dL_{t1,11,8}$:	68.8	3.13	27.4	34.2	40.6	-6.4	-2.0	-4.4
$dL_{t1,13,8}$:	68.8	3.13	28.0	34.1	41.2	-7.1	-2.0	-5.1
$dL_{t1,14,8}$:	68.8	3.13	26.5	35.0	39.7	-4.6	-2.0	-2.6
$dL_{t1,15,8}$:	68.8	3.13	25.9	34.6	39.1	-4.5	-2.0	-2.5
$dL_{t1,16,8}$:	68.8	3.13	27.4	35.3	40.6	-5.3	-2.0	-3.3
$dL_{t1,17,8}$:	68.8	3.13	28.4	36.4	41.6	-5.2	-2.0	-3.2
$dL_{t1,18,8}$:	68.8	3.13	28.1	35.2	41.2	-6.1	-2.0	-4.1
$dL_{t1,19,8}$:	68.8	3.13	26.7	34.7	39.8	-5.2	-2.0	-3.2
$dL_{t1,20,8}$:	68.8	3.13	27.9	34.7	41.1	-6.4	-2.0	-4.4
$dL_{t1,21,8}$:	68.8	3.13	28.4	35.1	41.6	-6.5	-2.0	-4.5
$dL_{t1,22,8}$:	68.8	3.13	26.9	36.4	40.1	-3.6	-2.0	-1.6
$dL_{t1,23,8}$:	68.8	3.13	28.4	36.3	41.6	-5.3	-2.0	-3.3
$dL_{t1,24,8}$:	71.9	3.13	26.6	37.5	39.9	-2.4	-2.0	-0.4
$dL_{t1,25,8}$:	71.9	3.13	24.5	38.7	37.8	0.9	-2.0	2.9
$dL_{t1,26,8}$:	71.9	3.13	25.2	38.3	38.5	-0.2	-2.0	1.8
$dL_{t1,27,8}$:	71.9	3.13	26.8	39.6	40.1	-0.5	-2.0	1.5
$dL_{t1,28,8}$:	71.9	3.13	27.9	39.8	41.2	-1.5	-2.0	0.6
$dL_{t1,29,8}$:	71.9	3.13	28.4	36.0	41.7	-5.7	-2.0	-3.7
$dL_{t1,30,8}$:	71.9	3.13	26.7	38.0	40.0	-1.9	-2.0	0.1
$dL_{t1,31,8}$:	71.9	3.13	26.3	38.3	39.6	-1.3	-2.0	0.7
$dL_{t1,32,8}$:	68.8	3.13	26.8	37.4	40.0	-2.6	-2.0	-0.6
$dL_{t1,33,8}$:	71.9	3.13	27.0	37.2	40.3	-3.1	-2.0	-1.1
$dL_{t1,34,8}$:	71.9	3.13	27.5	38.7	40.8	-2.1	-2.0	-0.1
$dL_{t1,35,8}$:	68.8	3.13	25.5	34.1	38.7	-4.6	-2.0	-2.6
$dL_{t1,36,8}$:	68.8	3.13	27.5	34.0	40.6	-6.6	-2.0	-4.6
$dL_{t1,37,8}$:	71.9	3.13	27.0	37.4	40.3	-2.8	-2.0	-0.8
$dL_{t1,38,8}$:	71.9	3.13	26.8	37.4	40.1	-2.7	-2.0	-0.7
$dL_{t2,6,8}$:	137.5	3.13	29.4	38.4	42.7	-4.3	-2.0	-2.2
$dL_{t2,10,8}$:	137.5	3.13	29.3	35.5	42.6	-7.1	-2.0	-5.1
$dL_{t2,13,8}$:	137.5	3.13	29.9	36.6	43.2	-6.7	-2.0	-4.6
$dL_{t2,15,8}$:	137.5	3.13	29.0	35.6	42.3	-6.7	-2.0	-4.7
$dL_{t2,16,8}$:	140.6	3.13	29.3	36.9	42.6	-5.7	-2.0	-3.7
$dL_{t2,20,8}$:	137.5	3.13	30.1	36.3	43.4	-7.1	-2.0	-5.1
$dL_{t2,35,8}$:	137.5	3.13	28.6	35.9	41.9	-5.9	-2.0	-3.9
$dL_{t2,36,8}$:	137.5	3.13	29.4	37.5	42.7	-5.2	-2.0	-3.2

BIN 8: Tonal components determined - Compact													
Spectrum	**f_T**	**$dL_{tn,j,k}$**	**f_T**	**$dL_{tn,j,k}$**									
##	**[Hz]**	**[dB]**	**[Hz]**	**[dB]**									
1	---	---	---	---									
2	71.9	-1.7	---	---									
3	71.9	-2.1	---	---									
4	71.9	-5.3	---	---									
5	71.9	-2.2	---	---									
6	68.8	-4.7	137.5	-4.3									
7	71.9	-3.4	---	---									
8	71.9	-2.1	---	---									
9	68.8	-2.7	---	---									
10	68.8	-5.2	137.5	-7.1									
11	68.8	-6.4	---	---									
12	---	---	---	---									
13	68.8	-7.1	137.5	-6.7									
14	68.8	-4.6	---	---									
15	68.8	-4.5	137.5	-6.7									
16	68.8	-5.3	140.6	-5.7									
17	68.8	-5.2	---	---									
18	68.8	-6.1	---	---									
19	68.8	-5.2	---	---									
20	68.8	-6.4	137.5	-7.1									
21	68.8	-6.5	---	---									
22	68.8	-3.6	---	---									
23	68.8	-5.3	---	---									
24	71.9	-2.4	---	---									
25	71.9	0.9	---	---									
26	71.9	-0.2	---	---									
27	71.9	-0.5	---	---									
28	71.9	-1.5	---	---									
29	71.9	-5.7	---	---									
30	71.9	-1.9	---	---									
31	71.9	-1.3	---	---									
32	68.8	-2.6	---	---									
33	71.9	-3.1	---	---									
34	71.9	-2.1	---	---									
35	68.8	-4.6	137.5	-5.9									
36	68.8	-6.6	137.5	-5.2									
37	71.9	-2.8	---	---									
38	71.9	-2.7	---	---									
f_t[Hz] | dL_k[dB]	70.4	-3.4	137.6	-10.5									
L_a[dB]		-2.0		-2.0									
$dL_{a,k}$[dB]		-1.4		-8.5									
K_{TN}[dB]		0		0									

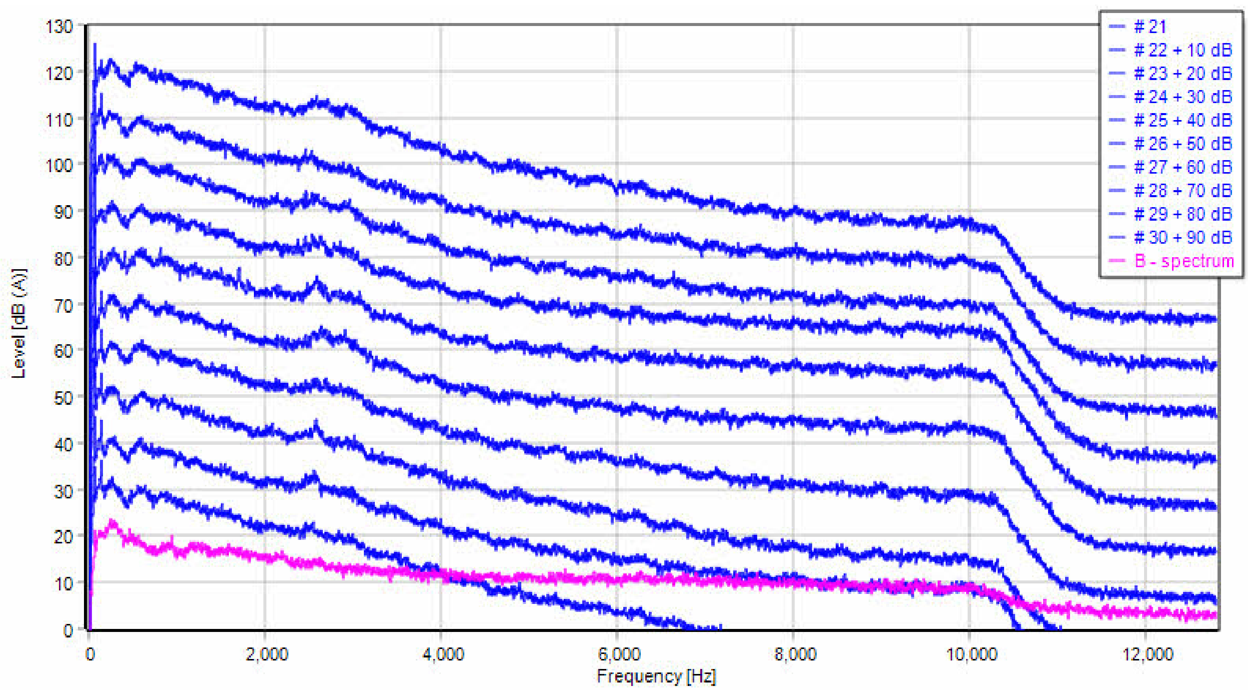
BIN 8: Narrowband spectrum



BIN 8: Narrowband spectrum



BIN 8: Narrowband spectrum

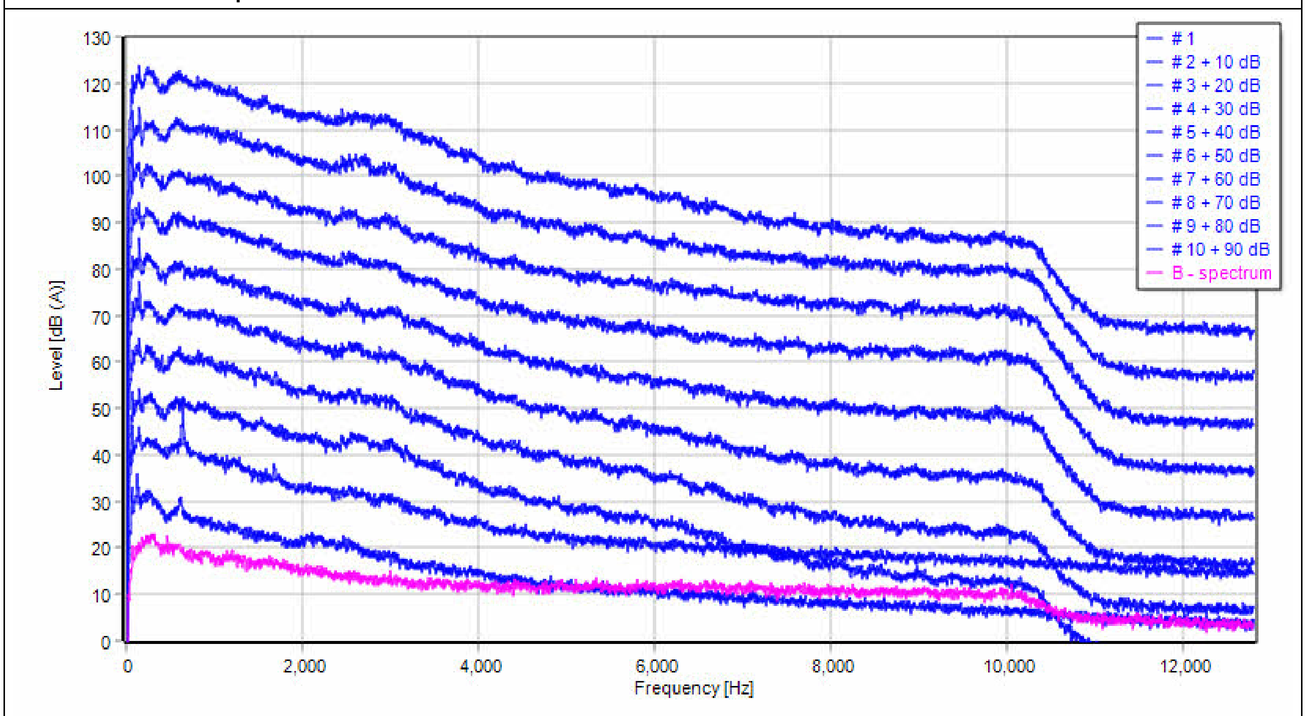


BIN 8.5: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,2,8.5}$:	643.8	3.13	33.2	43.7	47.5	-3.7	-2.5	-1.3
$dL_{t2,16,8.5}$:	150.0	3.13	30.6	40.4	43.9	-3.5	-2.0	-1.5
$dL_{t2,22,8.5}$:	150.0	3.13	30.3	38.7	43.6	-5.0	-2.0	-3.0
$dL_{t2,28,8.5}$:	146.9	3.13	29.7	35.9	43.0	-7.0	-2.0	-5.0
$dL_{t2,29,8.5}$:	150.0	3.13	29.6	35.8	42.9	-7.1	-2.0	-5.1
$dL_{t2,30,8.5}$:	150.0	3.13	30.2	37.9	43.5	-5.5	-2.0	-3.5
$dL_{t2,31,8.5}$:	146.9	3.13	29.9	37.9	43.2	-5.3	-2.0	-3.3
$dL_{t2,32,8.5}$:	150.0	3.13	30.0	36.2	43.3	-7.2	-2.0	-5.2
$dL_{t2,35,8.5}$:	150.0	3.13	30.7	37.9	43.9	-6.1	-2.0	-4.0
$dL_{t2,37,8.5}$:	146.9	3.13	29.9	37.6	43.2	-5.6	-2.0	-3.6
$dL_{t2,44,8.5}$:	150.0	3.13	30.1	36.6	43.4	-6.8	-2.0	-4.8
$dL_{t2,49,8.5}$:	146.9	3.13	30.7	38.2	44.0	-5.8	-2.0	-3.8
$dL_{t3,2,8.5}$:	643.8	3.13	33.2	43.7	47.5	-3.7	-2.5	-1.3

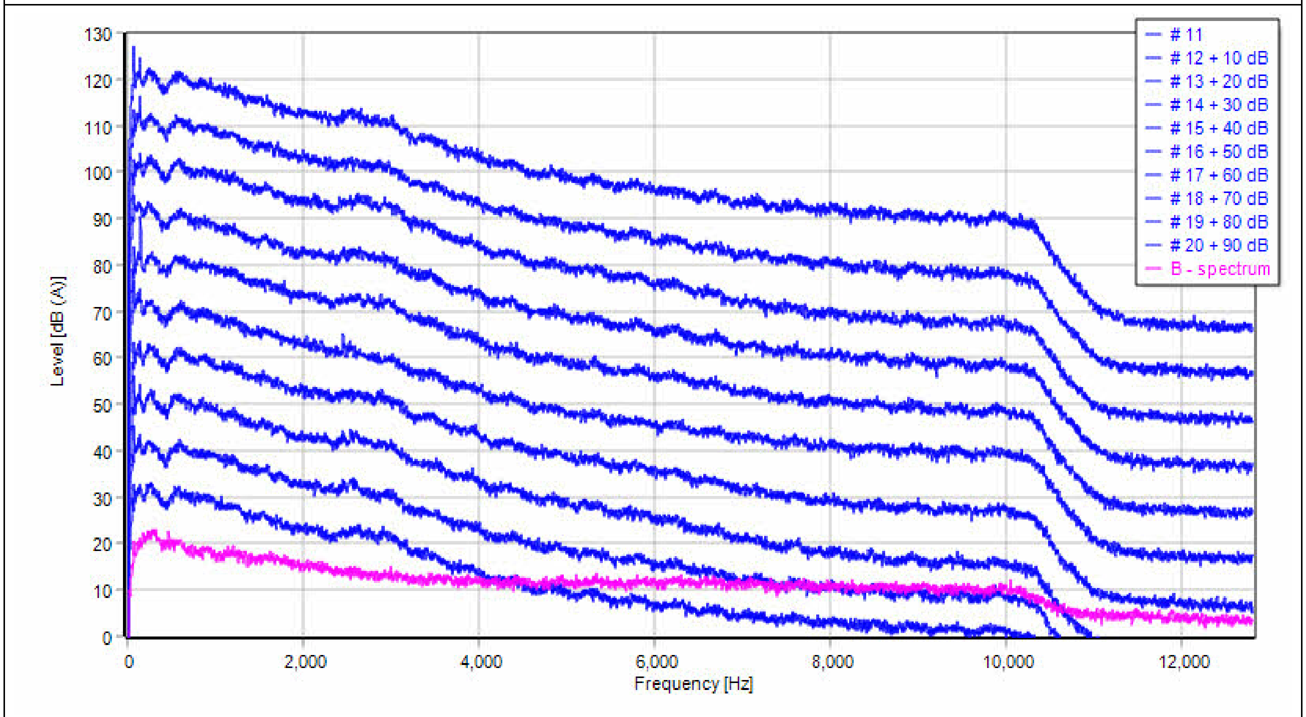
BIN 8.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$						
##	[Hz]	[dB]	[Hz]	[dB]	[Hz]	[dB]						
1	---	---	---	---	---	---						
2	---	---	---	---	643.8	-3.7						
3	---	---	---	---	---	---						
4	---	---	---	---	---	---						
5	---	---	---	---	---	---						
6	---	---	---	---	---	---						
7	---	---	---	---	---	---						
8	---	---	---	---	---	---						
9	75.0	-7.2	---	---	---	---						
10	---	---	---	---	---	---						
11	---	---	---	---	---	---						
12	75.0	-7.2	---	---	---	---						
13	71.9	-5.1	---	---	---	---						
14	---	---	---	---	---	---						
15	71.9	-7.3	---	---	---	---						
16	---	---	150.0	-3.5	---	---						
17	---	---	---	---	---	---						
18	---	---	---	---	---	---						
19	---	---	---	---	---	---						
20	71.9	-3.9	---	---	---	---						
21	75.0	-5.3	---	---	---	---						
22	---	---	150.0	-5.0	---	---						
23	---	---	---	---	---	---						
24	---	---	---	---	---	---						
25	71.9	-7.2	---	---	---	---						
26	---	---	---	---	---	---						
27	71.9	-4.8	---	---	---	---						
28	75.0	-6.0	146.9	-7.0	---	---						
29	---	---	150.0	-7.1	---	---						
30	---	---	150.0	-5.5	---	---						
31	75.0	-6.8	146.9	-5.3	---	---						
32	75.0	-7.2	150.0	-7.2	---	---						
33	75.0	-4.7	---	---	---	---						
34	71.9	-3.1	---	---	---	---						

35	75.0	-7.2	150.0	-6.1	---	---							
36	---	---	---	---	---	---							
37	---	---	146.9	-5.6	---	---							
38	---	---	---	---	---	---							
39	---	---	---	---	---	---							
40	---	---	---	---	---	---							
41	---	---	---	---	---	---							
42	---	---	---	---	---	---							
43	75.0	-6.4	---	---	---	---							
44	---	---	150.0	-6.8	---	---							
45	---	---	---	---	---	---							
46	---	---	---	---	---	---							
47	71.9	-5.7	---	---	---	---							
48	---	---	---	---	---	---							
49	---	---	146.9	-5.8	---	---							
f_t[Hz] | dL_k[dB]	74.6	-9.3	149.8	-10.2	643.8	-13.5							
L_a[dB]		-2.0		-2.0		-2.5							
$dL_{a,k}$[dB]		-7.2		-8.2		-11.0							
K_{TN}[dB]		0		0		0							

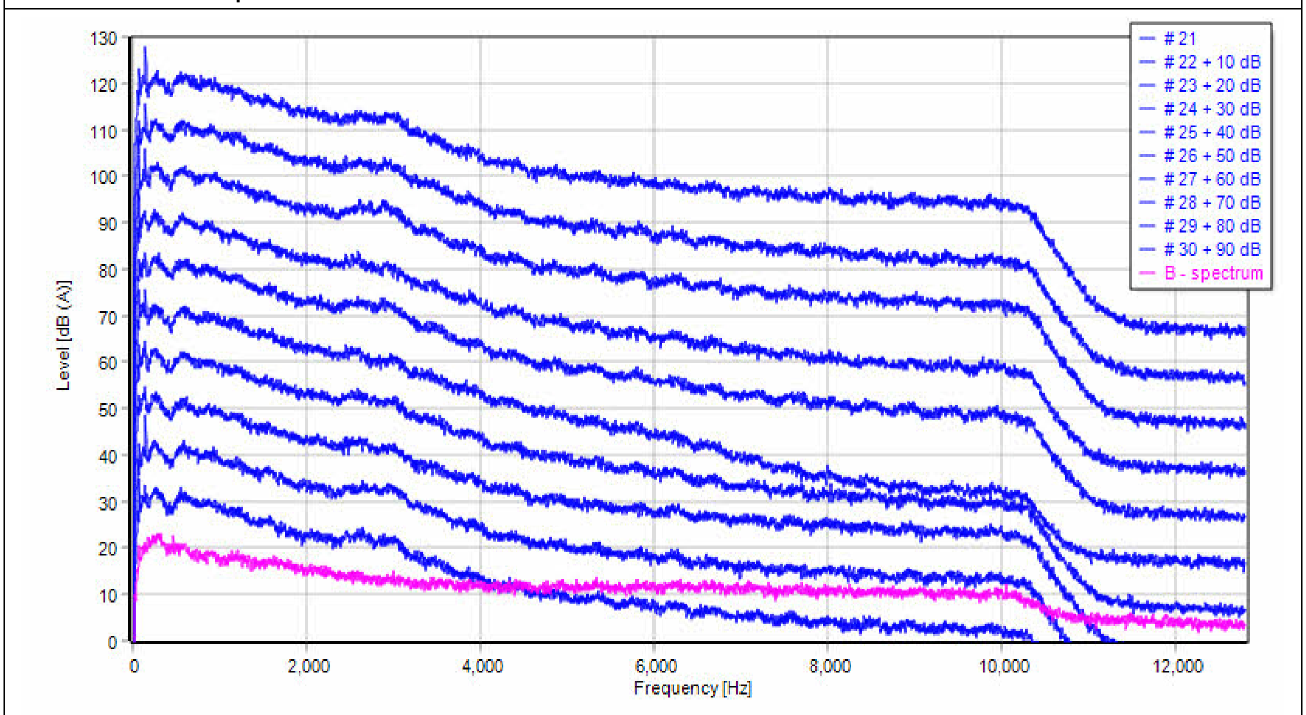
BIN 8.5: Narrowband spectrum



BIN 8.5: Narrowband spectrum



BIN 8.5: Narrowband spectrum

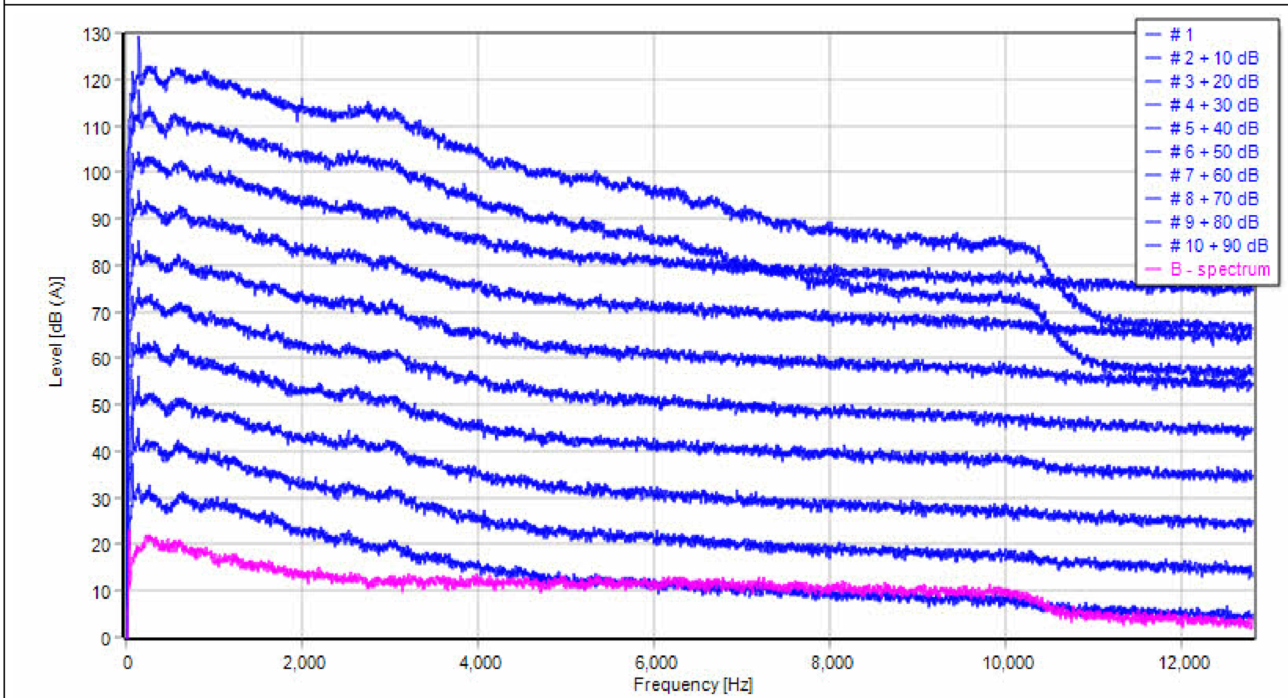


BIN 9: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,1,9}$:	71.9	3.13	29.0	38.3	42.3	-4.0	-2.0	-2.0
$dL_{t1,2,9}$:	71.9	3.13	29.7	38.1	42.9	-4.9	-2.0	-2.9
$dL_{t1,3,9}$:	75.0	3.13	29.3	35.5	42.6	-7.1	-2.0	-5.1
$dL_{t1,11,9}$:	75.0	3.13	27.4	33.7	40.7	-7.0	-2.0	-5.0
$dL_{t1,17,9}$:	75.0	3.13	26.9	33.9	40.2	-6.3	-2.0	-4.3
$dL_{t1,25,9}$:	75.0	3.13	27.9	34.4	41.2	-6.9	-2.0	-4.9
$dL_{t1,29,9}$:	75.0	3.13	26.4	34.2	39.7	-5.5	-2.0	-3.5
$dL_{t1,39,9}$:	75.0	3.13	27.8	35.5	41.1	-5.6	-2.0	-3.6
$dL_{t2,9,9}$:	150.0	3.13	31.7	37.8	45.0	-7.2	-2.0	-5.2
$dL_{t2,10,9}$:	150.0	3.13	30.5	39.3	43.7	-4.4	-2.0	-2.4
$dL_{t2,15,9}$:	150.0	3.13	31.8	40.4	45.1	-4.7	-2.0	-2.6
$dL_{t2,17,9}$:	150.0	3.13	29.2	42.2	42.5	-0.4	-2.0	1.7
$dL_{t2,19,9}$:	150.0	3.13	31.2	39.1	44.5	-5.4	-2.0	-3.4
$dL_{t2,22,9}$:	150.0	3.13	29.5	35.5	42.8	-7.2	-2.0	-5.2
$dL_{t2,24,9}$:	146.9	3.13	29.2	38.9	42.5	-3.6	-2.0	-1.6
$dL_{t2,29,9}$:	150.0	3.13	29.1	40.9	42.3	-1.5	-2.0	0.5
$dL_{t2,31,9}$:	150.0	3.13	30.8	38.0	44.1	-6.1	-2.0	-4.1
$dL_{t2,33,9}$:	150.0	3.13	30.1	38.0	43.4	-5.4	-2.0	-3.4
$dL_{t2,38,9}$:	150.0	3.13	31.1	38.2	44.4	-6.1	-2.0	-4.1
$dL_{t2,39,9}$:	150.0	3.13	30.0	41.0	43.3	-2.3	-2.0	-0.3
$dL_{t2,40,9}$:	146.9	3.13	30.5	39.7	43.7	-4.0	-2.0	-2.0

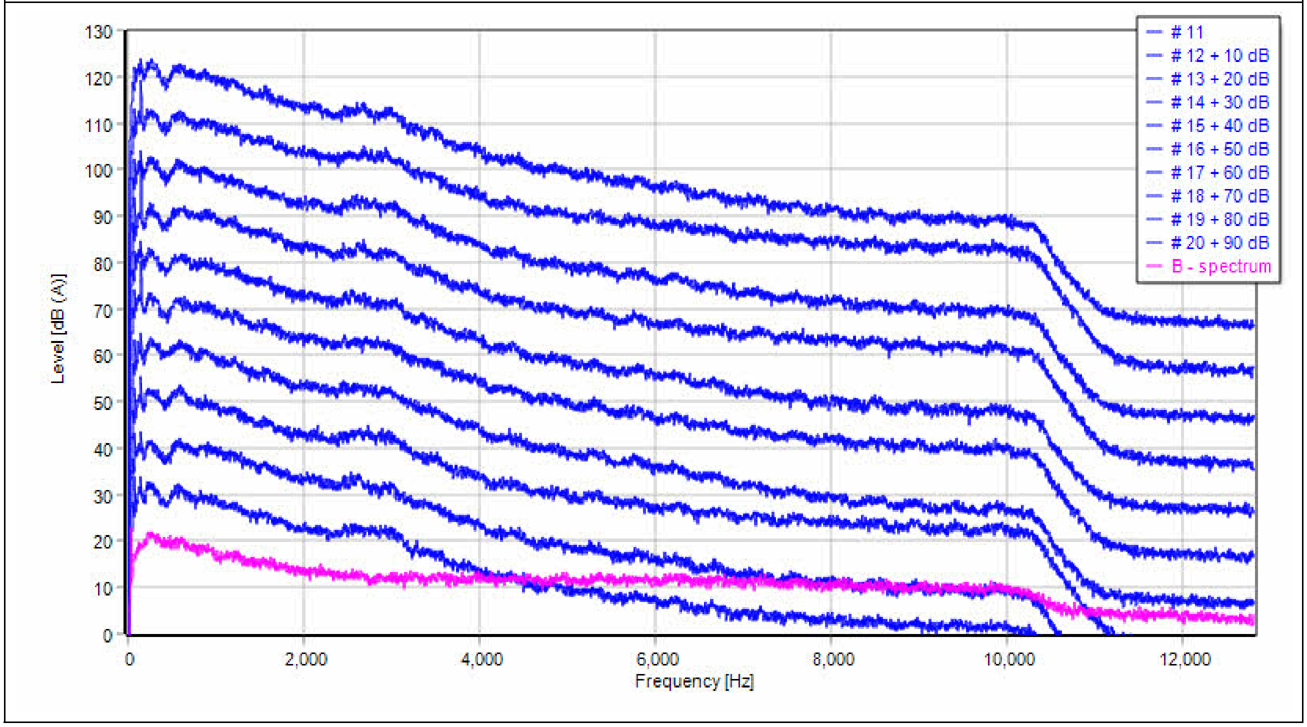
BIN 9: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$								
##	[Hz]	[dB]	[Hz]	[dB]								
1	71.9	-4.0	---	---								
2	71.9	-4.9	---	---								
3	75.0	-7.1	---	---								
4	---	---	---	---								
5	---	---	---	---								
6	---	---	---	---								
7	---	---	---	---								
8	---	---	---	---								
9	---	---	150.0	-7.2								
10	---	---	150.0	-4.4								
11	75.0	-7.0	---	---								
12	---	---	---	---								
13	---	---	---	---								
14	---	---	---	---								
15	---	---	150.0	-4.7								
16	---	---	---	---								
17	75.0	-6.3	150.0	-0.4								
18	---	---	---	---								
19	---	---	150.0	-5.4								
20	---	---	---	---								
21	---	---	---	---								
22	---	---	150.0	-7.2								
23	---	---	---	---								
24	---	---	146.9	-3.6								
25	75.0	-6.9	---	---								
26	---	---	---	---								

27	---	---	---	---								
28	---	---	---	---								
29	75.0	-5.5	150.0	-1.5								
30	---	---	---	---								
31	---	---	150.0	-6.1								
32	---	---	---	---								
33	---	---	150.0	-5.4								
34	---	---	---	---								
35	---	---	---	---								
36	---	---	---	---								
37	---	---	---	---								
38	---	---	150.0	-6.1								
39	75.0	-5.6	150.0	-2.3								
40	---	---	146.9	-4.0								
f_t[Hz] | dL_k[dB]	72.4	-10.4	149.9	-7.9								
L_a[dB]		-2.0		-2.0								
$dL_{a,k}$[dB]		-8.4		-5.9								
K_{TN}[dB]		0		0								

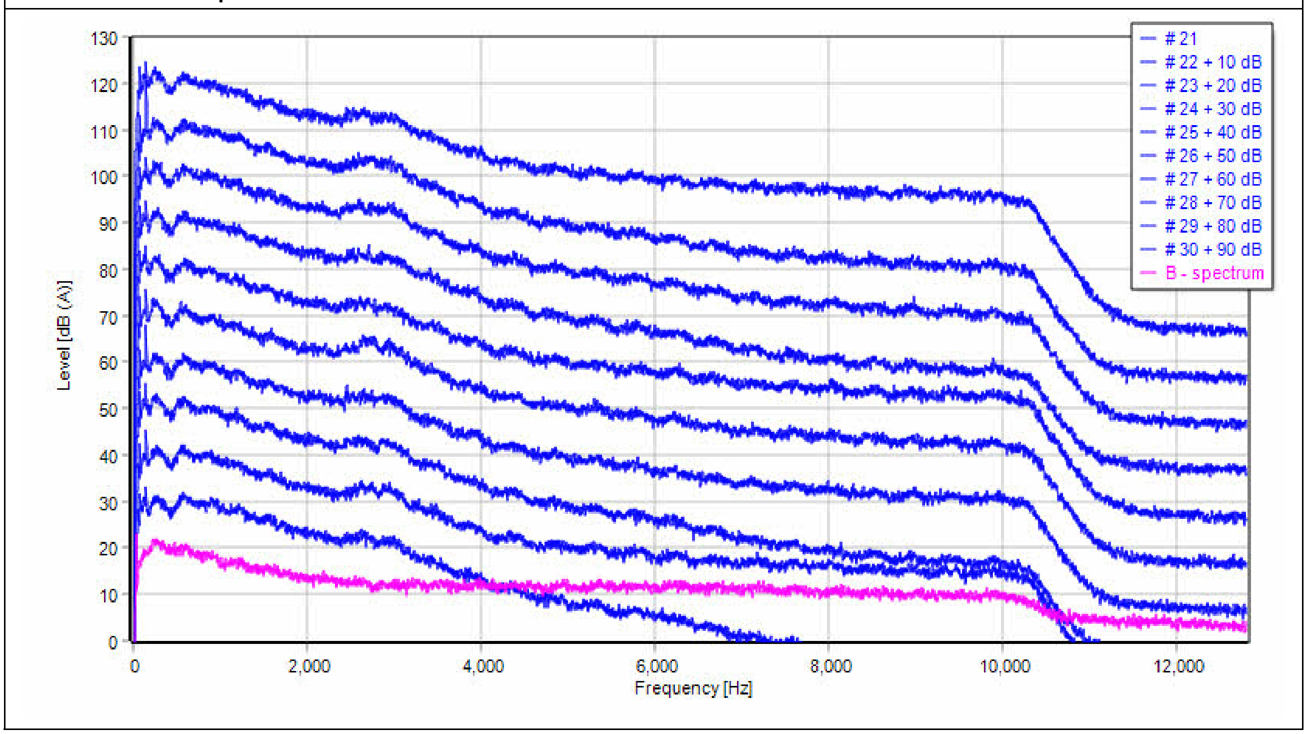
BIN 9: Narrowband spectrum



BIN 9: Narrowband spectrum



BIN 9: Narrowband spectrum

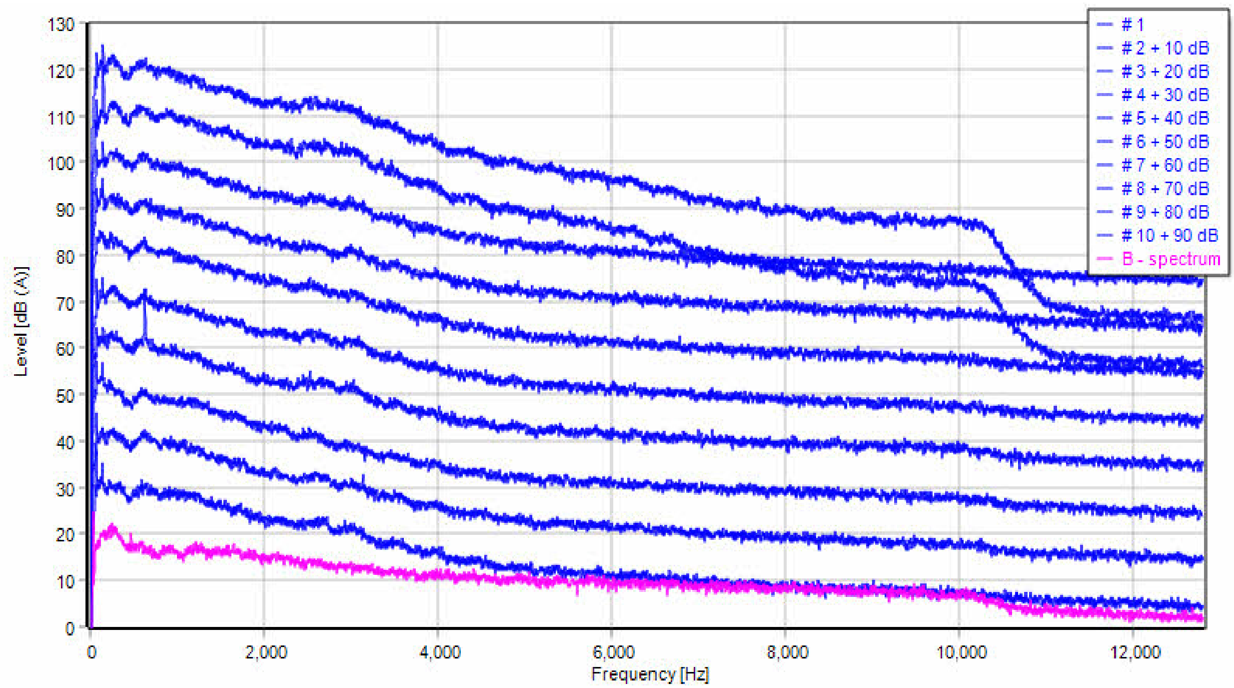


BIN 9.5: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,1,9.5}$:	71.9	3.13	29.3	38.3	42.6	-4.3	-2.0	-2.3
$dL_{t1,2,9.5}$:	75.0	3.13	29.4	37.2	42.7	-5.5	-2.0	-3.5
$dL_{t1,5,9.5}$:	75.0	3.13	29.0	35.1	42.2	-7.2	-2.0	-5.2
$dL_{t1,11,9.5}$:	75.0	3.13	28.0	34.2	41.3	-7.1	-2.0	-5.0
$dL_{t1,14,9.5}$:	75.0	3.13	26.0	32.4	39.3	-6.9	-2.0	-4.9
$dL_{t1,17,9.5}$:	75.0	3.13	26.9	34.7	40.2	-5.5	-2.0	-3.5
$dL_{t1,25,9.5}$:	75.0	3.13	26.5	33.3	39.8	-6.4	-2.0	-4.4
$dL_{t1,26,9.5}$:	75.0	3.13	26.4	34.1	39.7	-5.6	-2.0	-3.6
$dL_{t1,27,9.5}$:	75.0	3.13	27.3	35.9	40.6	-4.7	-2.0	-2.7
$dL_{t1,28,9.5}$:	75.0	3.13	26.5	33.6	39.8	-6.1	-2.0	-4.1
$dL_{t1,29,9.5}$:	75.0	3.13	28.3	34.6	41.6	-7.0	-2.0	-5.0
$dL_{t2,9,9.5}$:	150.0	3.13	29.9	40.0	43.2	-3.2	-2.0	-1.2
$dL_{t2,15,9.5}$:	150.0	3.13	31.4	37.6	44.7	-7.1	-2.0	-5.0
$dL_{t2,16,9.5}$:	150.0	3.13	31.1	41.1	44.4	-3.3	-2.0	-1.3
$dL_{t2,17,9.5}$:	146.9	3.13	30.1	38.0	43.4	-5.4	-2.0	-3.4
$dL_{t2,20,9.5}$:	150.0	3.13	30.6	40.1	43.9	-3.7	-2.0	-1.7
$dL_{t2,21,9.5}$:	150.0	3.13	30.5	38.6	43.8	-5.2	-2.0	-3.2
$dL_{t2,22,9.5}$:	150.0	3.13	31.3	37.7	44.6	-6.9	-2.0	-4.8
$dL_{t2,23,9.5}$:	150.0	3.13	30.0	37.3	43.3	-6.0	-2.0	-4.0
$dL_{t2,25,9.5}$:	146.9	3.13	29.5	40.5	42.8	-2.3	-2.0	-0.3
$dL_{t2,26,9.5}$:	146.9	3.13	28.9	37.1	42.2	-5.1	-2.0	-3.1
$dL_{t2,27,9.5}$:	150.0	3.13	29.2	42.1	42.5	-0.4	-2.0	1.6
$dL_{t2,28,9.5}$:	146.9	3.13	29.7	40.9	43.0	-2.1	-2.0	0.0
$dL_{t2,29,9.5}$:	150.0	3.13	30.6	40.1	43.9	-3.9	-2.0	-1.8
$dL_{t3,4,9.5}$:	628.2	3.13	32.0	43.8	46.2	-2.5	-2.4	0.0

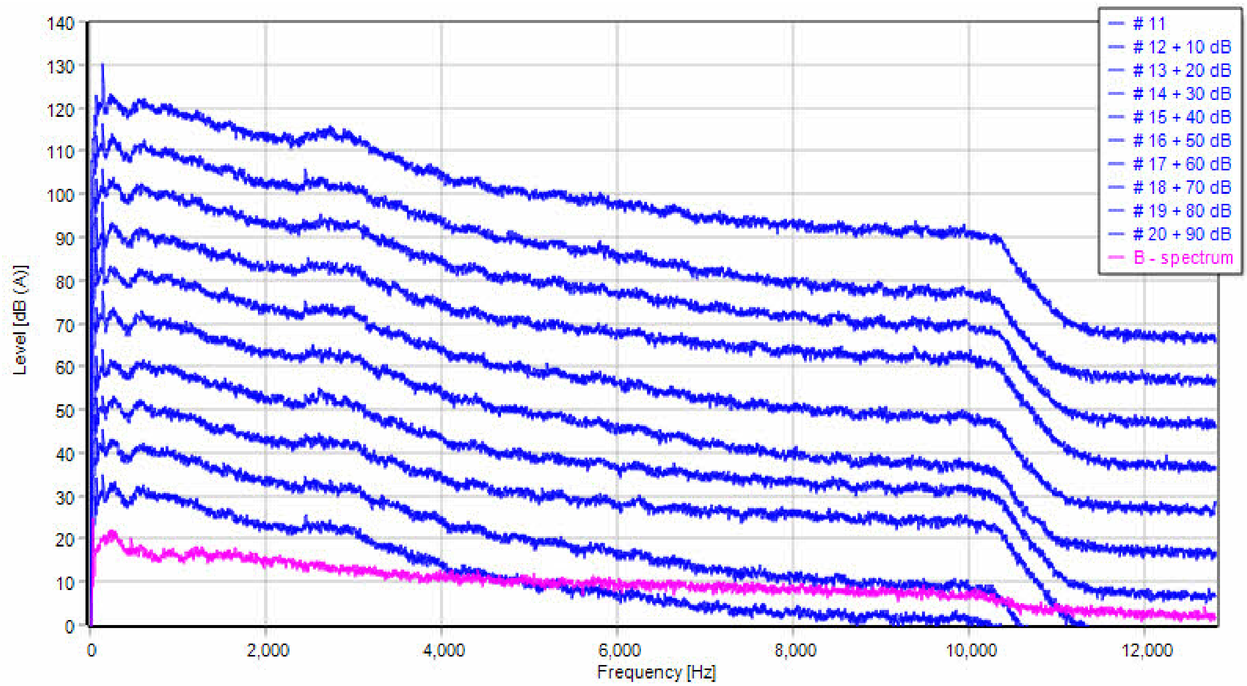
BIN 9.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$						
##	[Hz]	[dB]	[Hz]	[dB]	[Hz]	[dB]						
1	71.9	-4.3	---	---	---	---						
2	75.0	-5.5	---	---	---	---						
3	---	---	---	---	---	---						
4	---	---	---	---	628.2	-2.5						
5	75.0	-7.2	---	---	---	---						
6	---	---	---	---	---	---						
7	---	---	---	---	---	---						
8	---	---	---	---	---	---						
9	---	---	150.0	-3.2	---	---						
10	---	---	---	---	---	---						
11	75.0	-7.1	---	---	---	---						
12	---	---	---	---	---	---						
13	---	---	---	---	---	---						
14	75.0	-6.9	---	---	---	---						
15	---	---	150.0	-7.1	---	---						
16	---	---	150.0	-3.3	---	---						
17	75.0	-5.5	146.9	-5.4	---	---						
18	---	---	---	---	---	---						
19	---	---	---	---	---	---						
20	---	---	150.0	-3.7	---	---						
21	---	---	150.0	-5.2	---	---						
22	---	---	150.0	-6.9	---	---						

23	---	---	150.0	-6.0	---	---						
24	---	---	---	---	---	---						
25	75.0	-6.4	146.9	-2.3	---	---						
26	75.0	-5.6	146.9	-5.1	---	---						
27	75.0	-4.7	150.0	-0.4	---	---						
28	75.0	-6.1	146.9	-2.1	---	---						
29	75.0	-7.0	150.0	-3.9	---	---						
f_t[Hz] | dL_k[dB]	73.0	-9.0	149.6	-6.7	628.2	-12.6						
L_a[dB]		-2.0		-2.0		-2.4						
$dL_{a,k}$[dB]		-7.0		-4.7		-10.1						
K_{TN}[dB]		0		0		0						

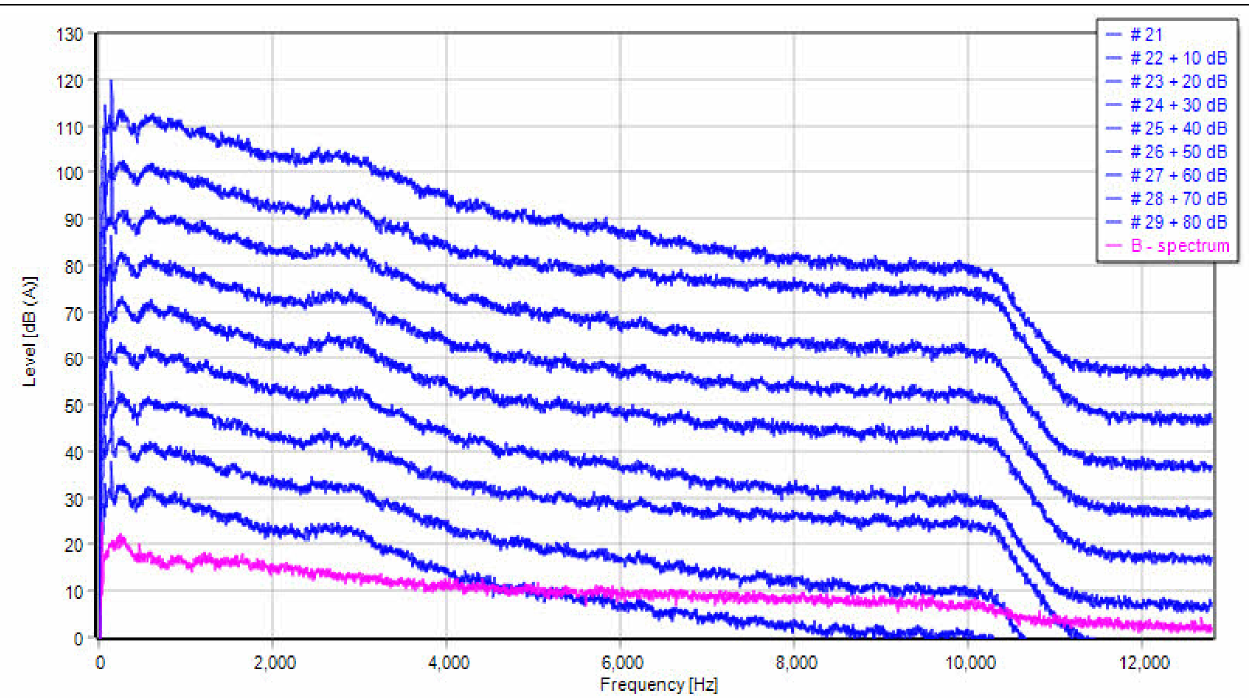
BIN 9.5: Narrowband spectrum



BIN 9.5: Narrowband spectrum



BIN 9.5: Narrowband spectrum

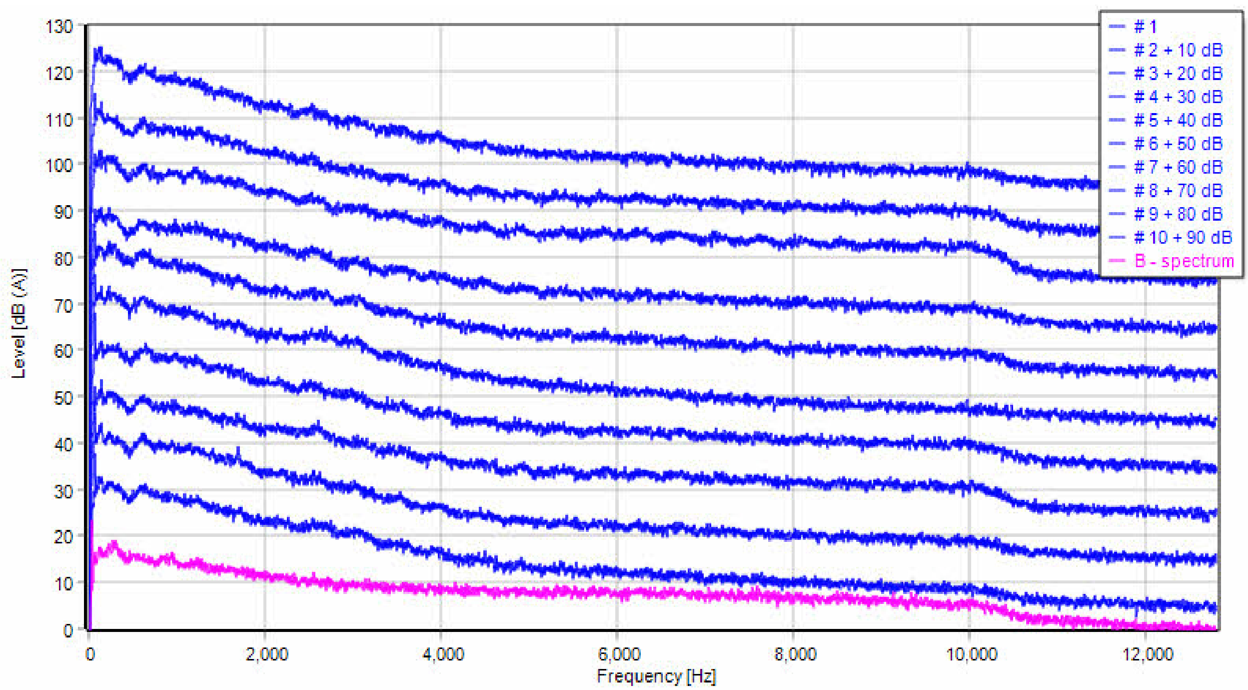


BIN 10: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,1,10}$:	71.9	3.13	29.4	39.0	42.7	-3.7	-2.0	-1.7
$dL_{t1,2,10}$:	71.9	3.13	30.1	36.5	43.4	-6.9	-2.0	-4.9
$dL_{t1,4,10}$:	71.9	3.13	28.1	39.6	41.4	-1.8	-2.0	0.2
$dL_{t1,6,10}$:	71.9	3.13	29.4	35.8	42.7	-6.8	-2.0	-4.8
$dL_{t1,9,10}$:	68.8	3.13	29.2	35.2	42.4	-7.1	-2.0	-5.1
$dL_{t1,16,10}$:	75.0	3.13	28.4	34.7	41.7	-7.0	-2.0	-5.0
$dL_{t1,18,10}$:	71.9	3.13	28.6	35.0	41.9	-6.9	-2.0	-4.9
$dL_{t1,24,10}$:	75.0	3.13	26.7	33.8	40.0	-6.2	-2.0	-4.2
$dL_{t1,25,10}$:	75.0	3.13	27.0	34.0	40.3	-6.3	-2.0	-4.3
$dL_{t1,26,10}$:	75.0	3.13	26.9	35.3	40.2	-4.9	-2.0	-2.9
$dL_{t1,27,10}$:	75.0	3.13	27.0	33.1	40.3	-7.2	-2.0	-5.2
$dL_{t1,28,10}$:	75.0	3.13	26.9	35.8	40.2	-4.5	-2.0	-2.5
$dL_{t1,29,10}$:	75.0	3.13	26.2	33.2	39.5	-6.3	-2.0	-4.3
$dL_{t2,23,10}$:	150.0	3.13	29.2	38.1	42.5	-4.4	-2.0	-2.4
$dL_{t2,24,10}$:	150.0	3.13	29.1	38.8	42.4	-3.6	-2.0	-1.6
$dL_{t2,25,10}$:	146.9	3.13	30.0	38.1	43.3	-5.2	-2.0	-3.2
$dL_{t2,26,10}$:	146.9	3.13	29.7	37.8	43.0	-5.2	-2.0	-3.2
$dL_{t2,27,10}$:	146.9	3.13	29.5	36.3	42.8	-6.5	-2.0	-4.5
$dL_{t2,28,10}$:	146.9	3.13	29.7	42.0	43.0	-1.0	-2.0	1.0
$dL_{t2,29,10}$:	150.0	3.13	29.3	38.8	42.6	-3.8	-2.0	-1.8
$dL_{t2,30,10}$:	150.0	3.13	29.6	39.2	42.9	-3.7	-2.0	-1.6
$dL_{t3,16,10}$:	625.1	3.13	31.1	38.0	45.4	-7.3	-2.4	-4.9

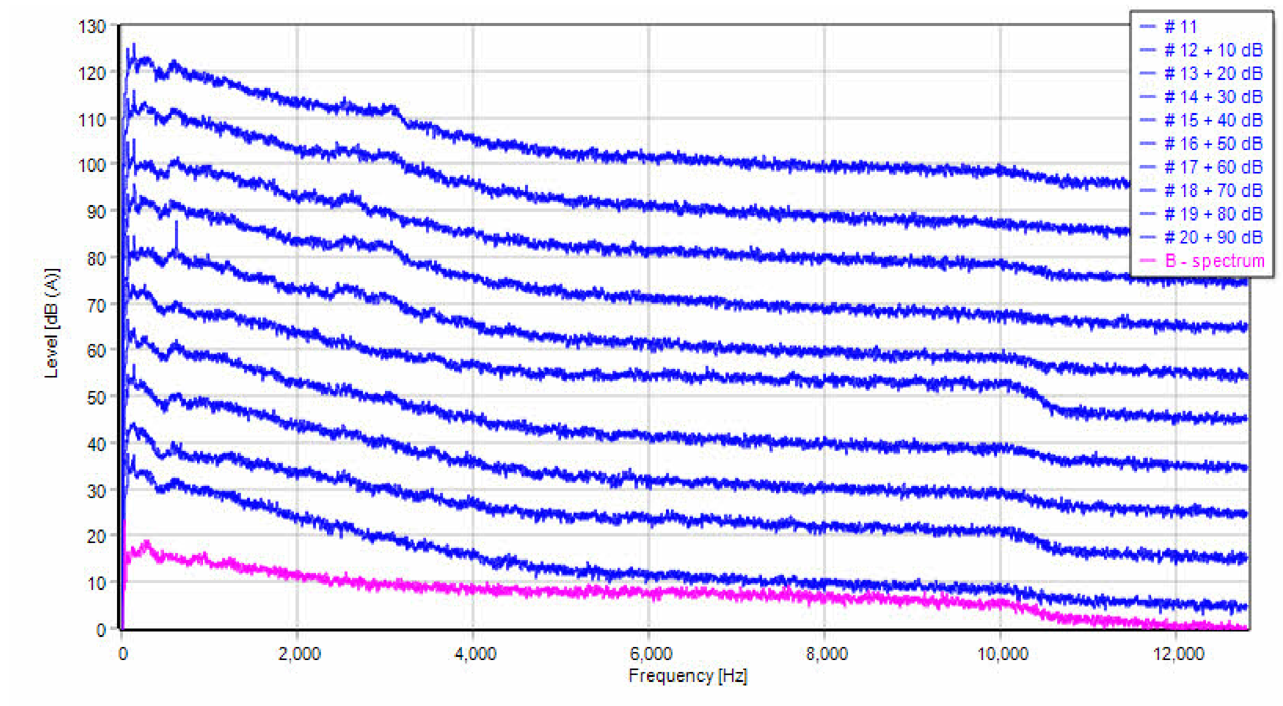
BIN 10: Tonal components determined - Compact													
Spectrum	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$							
##	[Hz]	[dB]	[Hz]	[dB]	[Hz]	[dB]							
1	71.9	-3.7	---	---	---	---							
2	71.9	-6.9	---	---	---	---							
3	---	---	---	---	---	---							
4	71.9	-1.8	---	---	---	---							
5	---	---	---	---	---	---							
6	71.9	-6.8	---	---	---	---							
7	---	---	---	---	---	---							
8	---	---	---	---	---	---							
9	68.8	-7.1	---	---	---	---							
10	---	---	---	---	---	---							
11	---	---	---	---	---	---							
12	---	---	---	---	---	---							
13	---	---	---	---	---	---							
14	---	---	---	---	---	---							
15	---	---	---	---	---	---							
16	75.0	-7.0	---	---	625.1	-7.3							
17	---	---	---	---	---	---							
18	71.9	-6.9	---	---	---	---							
19	---	---	---	---	---	---							
20	---	---	---	---	---	---							
21	---	---	---	---	---	---							
22	---	---	---	---	---	---							
23	---	---	150.0	-4.4	---	---							
24	75.0	-6.2	150.0	-3.6	---	---							
25	75.0	-6.3	146.9	-5.2	---	---							

26	75.0	-4.9	146.9	-5.2	---	---						
27	75.0	-7.2	146.9	-6.5	---	---						
28	75.0	-4.5	146.9	-1.0	---	---						
29	75.0	-6.3	150.0	-3.8	---	---						
30	---	---	150.0	-3.7	---	---						
f_t[Hz] | dL_k[dB]	72.5	-8.3	149.6	-8.5	625.1	-13.8						
L_a[dB]		-2.0		-2.0		-2.4						
$dL_{a,k}$[dB]		-6.3		-6.4		-11.3						
K_{TN}[dB]		0		0		0						

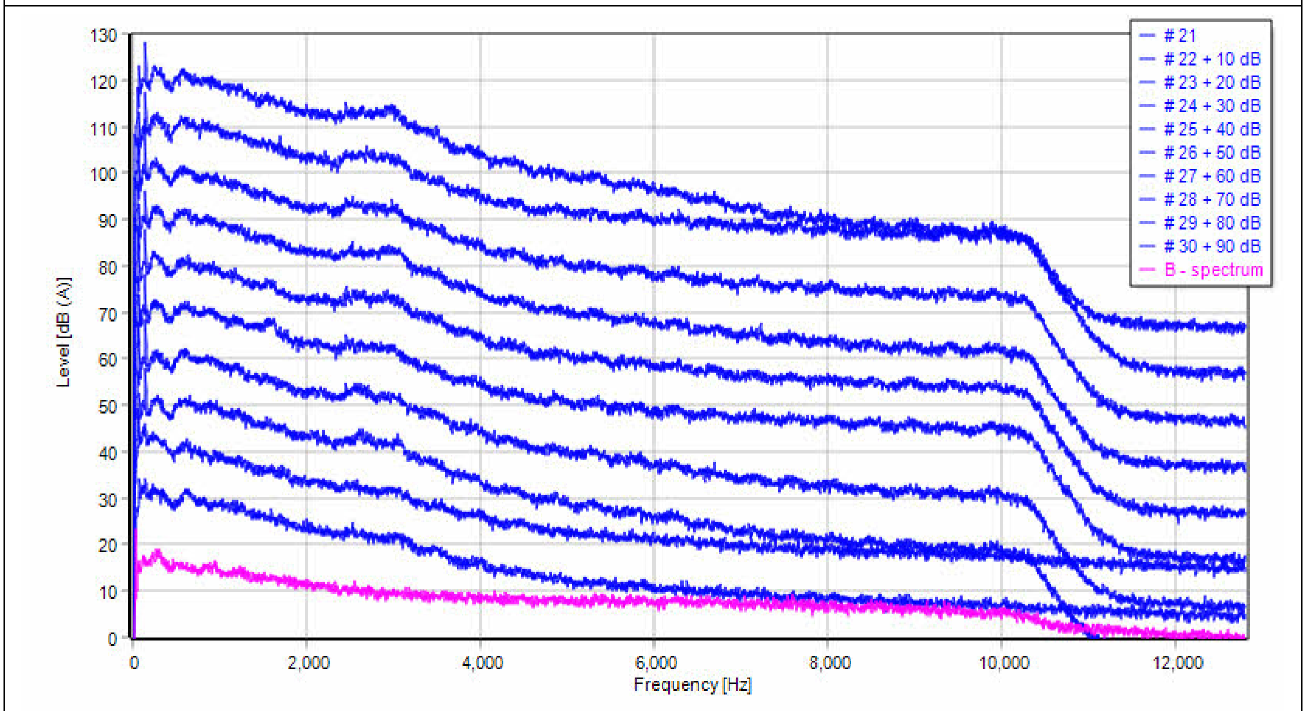
BIN 10: Narrowband spectrum



BIN 10: Narrowband spectrum



BIN 10: Narrowband spectrum

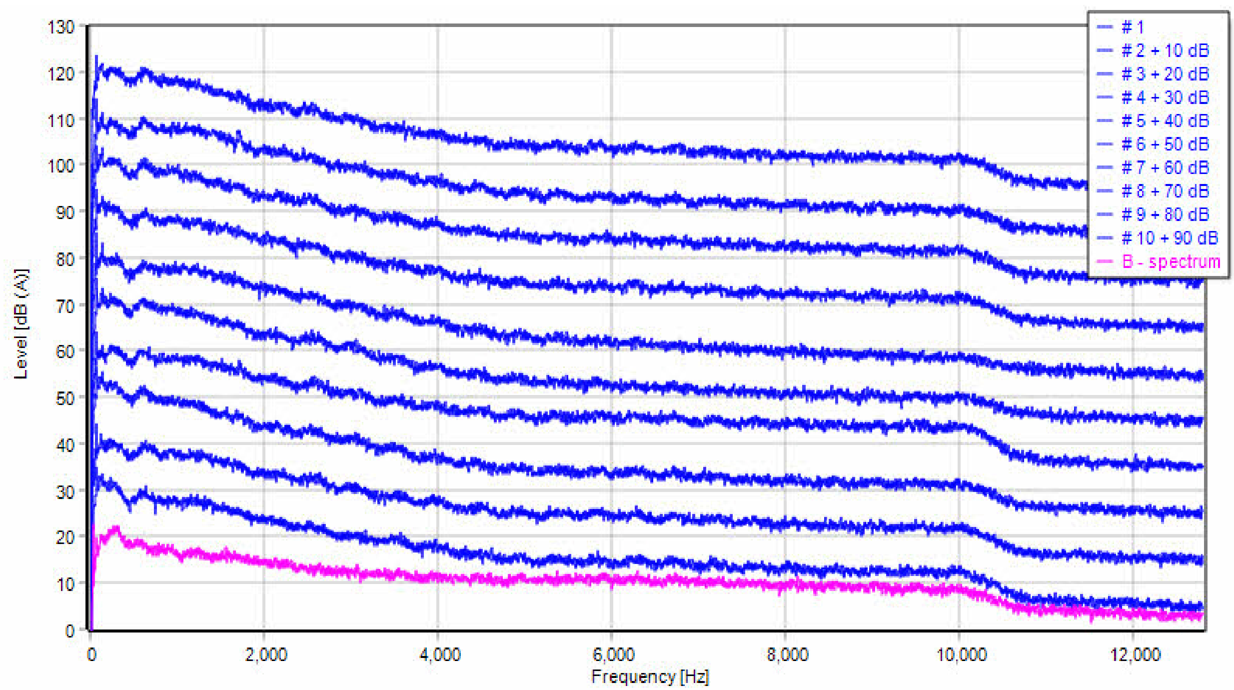


BIN 10.5: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,2,10.5}$:	71.9	3.13	27.7	34.2	41.0	-6.8	-2.0	-4.8
$dL_{t1,4,10.5}$:	71.9	3.13	27.9	34.3	41.2	-6.9	-2.0	-4.9
$dL_{t1,5,10.5}$:	71.9	3.13	28.2	37.0	41.5	-4.5	-2.0	-2.5
$dL_{t1,6,10.5}$:	71.9	3.13	27.8	35.3	41.1	-5.8	-2.0	-3.8
$dL_{t1,9,10.5}$:	71.9	3.13	26.8	34.8	40.1	-5.3	-2.0	-3.3
$dL_{t1,11,10.5}$:	71.9	3.13	29.5	37.5	42.8	-5.3	-2.0	-3.3
$dL_{t1,44,10.5}$:	71.9	3.13	28.1	36.3	41.4	-5.1	-2.0	-3.1
$dL_{t1,46,10.5}$:	75.0	3.13	25.8	37.6	39.1	-1.5	-2.0	0.5
$dL_{t2,37,10.5}$:	143.8	3.13	30.9	37.9	44.2	-6.3	-2.0	-4.3
$dL_{t2,43,10.5}$:	146.9	3.13	30.8	38.3	44.1	-5.9	-2.0	-3.8
$dL_{t2,44,10.5}$:	146.9	3.13	29.9	37.5	43.2	-5.7	-2.0	-3.7
$dL_{t2,45,10.5}$:	146.9	3.13	30.5	38.1	43.8	-5.7	-2.0	-3.7
$dL_{t2,46,10.5}$:	146.9	3.13	28.4	42.7	41.7	1.0	-2.0	3.0

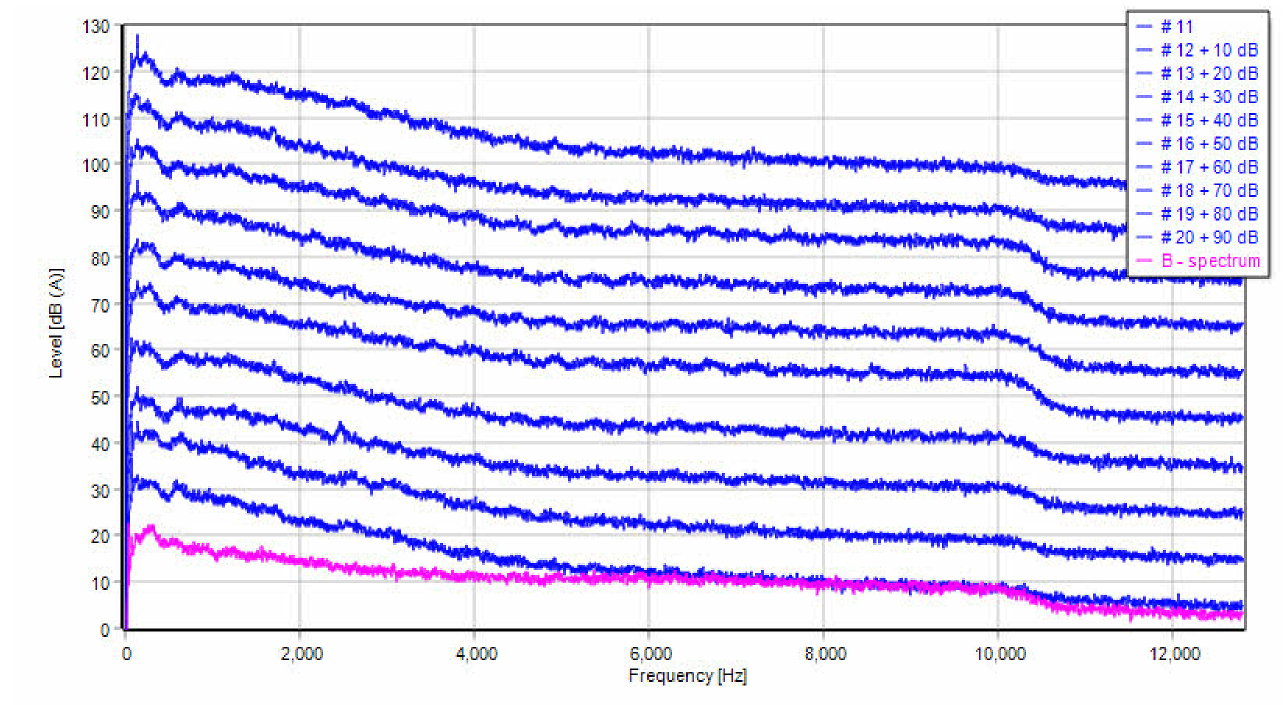
BIN 10.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$	f_T	$dL_{tn,j,k}$								
##	[Hz]	[dB]	[Hz]	[dB]								
1	---	---	---	---								
2	71.9	-6.8	---	---								
3	---	---	---	---								
4	71.9	-6.9	---	---								
5	71.9	-4.5	---	---								
6	71.9	-5.8	---	---								
7	---	---	---	---								
8	---	---	---	---								
9	71.9	-5.3	---	---								
10	---	---	---	---								
11	71.9	-5.3	---	---								
12	---	---	---	---								
13	---	---	---	---								
14	---	---	---	---								
15	---	---	---	---								
16	---	---	---	---								
17	---	---	---	---								
18	---	---	---	---								
19	---	---	---	---								
20	---	---	---	---								
21	---	---	---	---								
22	---	---	---	---								
23	---	---	---	---								
24	---	---	---	---								
25	---	---	---	---								
26	---	---	---	---								
27	---	---	---	---								
28	---	---	---	---								
29	---	---	---	---								
30	---	---	---	---								
31	---	---	---	---								
32	---	---	---	---								
33	---	---	---	---								
34	---	---	---	---								

35	---	---	---	---								
36	---	---	---	---								
37	---	---	143.8	-6.3								
38	---	---	---	---								
39	---	---	---	---								
40	---	---	---	---								
41	---	---	---	---								
42	---	---	---	---								
43	---	---	146.9	-5.9								
44	71.9	-5.1	146.9	-5.7								
45	---	---	146.9	-5.7								
46	75.0	-1.5	146.9	1.0								
f_t[Hz] | dL_k[dB]	72.0	-10.2	144.0	-10.4								
L_a[dB]		-2.0		-2.0								
$dL_{a,k}$[dB]		-8.2		-8.4								
K_{TN}[dB]		0		0								

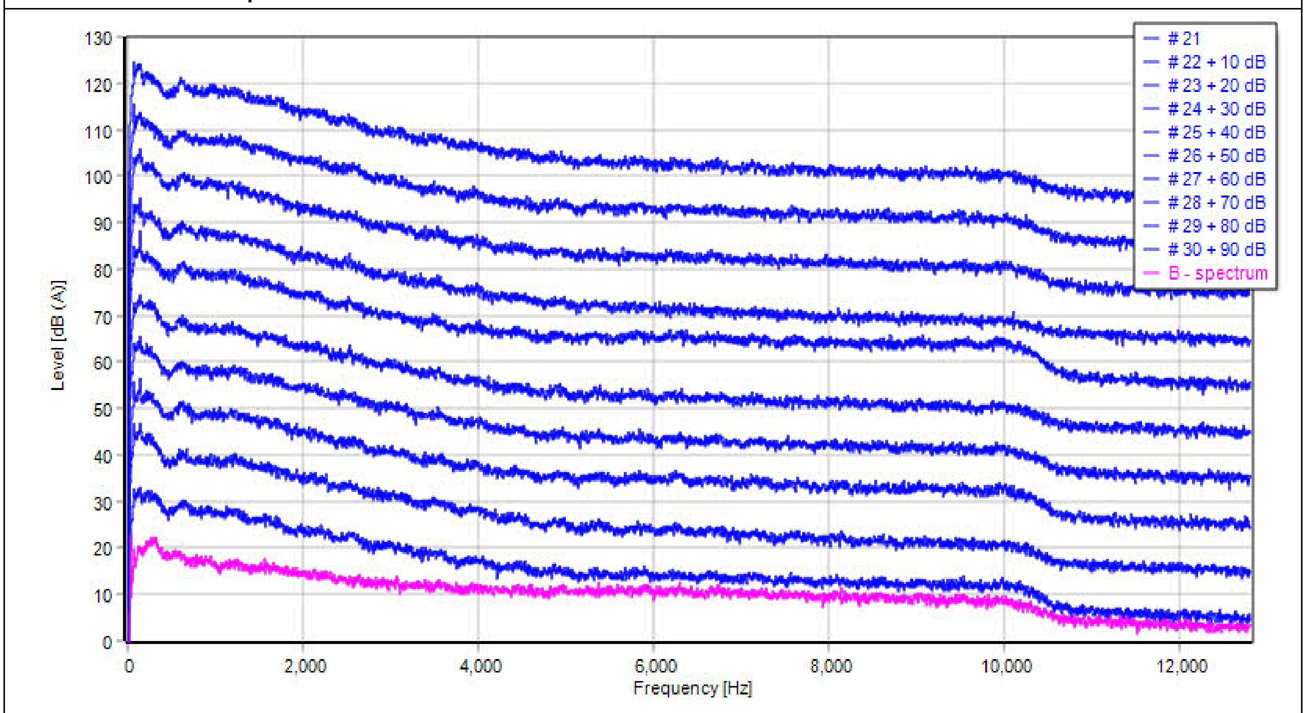
BIN 10.5: Narrowband spectrum



BIN 10.5: Narrowband spectrum



BIN 10.5: Narrowband spectrum



BIN 11: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,2,11}$:	71.9	3.13	29.3	36.2	42.5	-6.4	-2.0	-4.4
$dL_{t1,3,11}$:	71.9	3.13	29.2	35.9	42.5	-6.6	-2.0	-4.6
$dL_{t1,4,11}$:	71.9	3.13	27.2	37.4	40.5	-3.1	-2.0	-1.1
$dL_{t1,6,11}$:	71.9	3.13	29.5	37.4	42.8	-5.4	-2.0	-3.4
$dL_{t1,7,11}$:	71.9	3.13	29.6	36.9	42.9	-6.0	-2.0	-4.0
$dL_{t1,9,11}$:	71.9	3.13	28.7	35.1	42.0	-6.9	-2.0	-4.9
$dL_{t1,11,11}$:	71.9	3.13	27.2	37.7	40.5	-2.8	-2.0	-0.8
$dL_{t1,12,11}$:	71.9	3.13	28.2	34.3	41.5	-7.2	-2.0	-5.2
$dL_{t1,13,11}$:	71.9	3.13	28.6	35.4	41.9	-6.5	-2.0	-4.5
$dL_{t1,14,11}$:	71.9	3.13	29.1	36.9	42.4	-5.5	-2.0	-3.5
$dL_{t1,15,11}$:	71.9	3.13	28.7	38.2	42.0	-3.8	-2.0	-1.8
$dL_{t1,16,11}$:	71.9	3.13	28.6	34.8	41.9	-7.1	-2.0	-5.1
$dL_{t1,17,11}$:	71.9	3.13	29.6	35.9	42.9	-7.0	-2.0	-5.0
$dL_{t1,18,11}$:	71.9	3.13	29.7	37.4	43.0	-5.6	-2.0	-3.6
$dL_{t1,19,11}$:	71.9	3.13	29.0	36.7	42.2	-5.5	-2.0	-3.5
$dL_{t1,22,11}$:	71.9	3.13	28.1	36.8	41.4	-4.6	-2.0	-2.6
$dL_{t1,23,11}$:	71.9	3.13	28.5	36.0	41.8	-5.8	-2.0	-3.8
$dL_{t1,24,11}$:	71.9	3.13	29.7	35.9	43.0	-7.1	-2.0	-5.1
$dL_{t1,26,11}$:	71.9	3.13	28.1	34.3	41.4	-7.1	-2.0	-5.1
$dL_{t1,30,11}$:	71.9	3.13	30.1	36.3	43.4	-7.0	-2.0	-5.0
$dL_{t1,31,11}$:	71.9	3.13	29.4	36.7	42.7	-6.0	-2.0	-4.0
$dL_{t1,32,11}$:	71.9	3.13	27.9	36.0	41.1	-5.2	-2.0	-3.2
$dL_{t1,33,11}$:	71.9	3.13	27.6	35.7	40.9	-5.3	-2.0	-3.3
$dL_{t1,34,11}$:	71.9	3.13	29.5	35.9	42.8	-6.9	-2.0	-4.9
$dL_{t1,35,11}$:	71.9	3.13	26.9	35.6	40.2	-4.6	-2.0	-2.6
$dL_{t1,38,11}$:	71.9	3.13	28.7	37.4	42.0	-4.6	-2.0	-2.6
$dL_{t1,39,11}$:	71.9	3.13	29.1	37.4	42.3	-5.0	-2.0	-3.0
$dL_{t1,42,11}$:	71.9	3.13	27.9	37.8	41.2	-3.4	-2.0	-1.4
$dL_{t1,43,11}$:	71.9	3.13	28.6	37.0	41.9	-4.9	-2.0	-2.9
$dL_{t1,45,11}$:	75.0	3.13	27.8	36.7	41.1	-4.4	-2.0	-2.4
$dL_{t1,46,11}$:	71.9	3.13	26.6	36.1	39.9	-3.8	-2.0	-1.8
$dL_{t1,47,11}$:	71.9	3.13	28.0	35.8	41.3	-5.5	-2.0	-3.5
$dL_{t1,49,11}$:	71.9	3.13	30.3	37.0	43.6	-6.6	-2.0	-4.6
$dL_{t1,53,11}$:	71.9	3.13	29.5	35.8	42.8	-7.0	-2.0	-5.0
$dL_{t1,54,11}$:	71.9	3.13	29.7	35.7	43.0	-7.3	-2.0	-5.3
$dL_{t1,71,11}$:	71.9	3.13	31.0	37.0	44.2	-7.2	-2.0	-5.2
$dL_{t1,75,11}$:	71.9	3.13	30.9	37.4	44.2	-6.8	-2.0	-4.8
$dL_{t1,78,11}$:	71.9	3.13	30.0	36.0	43.3	-7.2	-2.0	-5.2
$dL_{t1,79,11}$:	71.9	3.13	29.8	36.6	43.0	-6.4	-2.0	-4.4
$dL_{t1,83,11}$:	71.9	3.13	30.2	36.8	43.5	-6.6	-2.0	-4.6
$dL_{t1,88,11}$:	71.9	3.13	29.3	36.9	42.6	-5.7	-2.0	-3.7
$dL_{t1,89,11}$:	71.9	3.13	31.1	37.6	44.4	-6.8	-2.0	-4.8
$dL_{t1,92,11}$:	71.9	3.13	27.8	33.9	41.1	-7.2	-2.0	-5.2
$dL_{t1,93,11}$:	71.9	3.13	28.6	36.7	41.9	-5.2	-2.0	-3.2
$dL_{t1,97,11}$:	71.9	3.13	28.8	37.7	42.1	-4.4	-2.0	-2.4
$dL_{t1,99,11}$:	75.0	3.13	25.5	36.5	38.8	-2.3	-2.0	-0.2
$dL_{t1,100,11}$:	75.0	3.13	28.1	34.2	41.4	-7.2	-2.0	-5.2
$dL_{t1,101,11}$:	75.0	3.13	25.6	34.2	38.9	-4.7	-2.0	-2.7
$dL_{t1,103,11}$:	75.0	3.13	26.7	35.4	40.0	-4.5	-2.0	-2.5
$dL_{t2,91,11}$:	143.8	3.13	29.7	36.2	43.0	-6.8	-2.0	-4.7
$dL_{t2,92,11}$:	143.8	3.13	30.4	36.5	43.7	-7.2	-2.0	-5.2
$dL_{t2,98,11}$:	146.9	3.13	30.3	37.6	43.6	-6.0	-2.0	-4.0

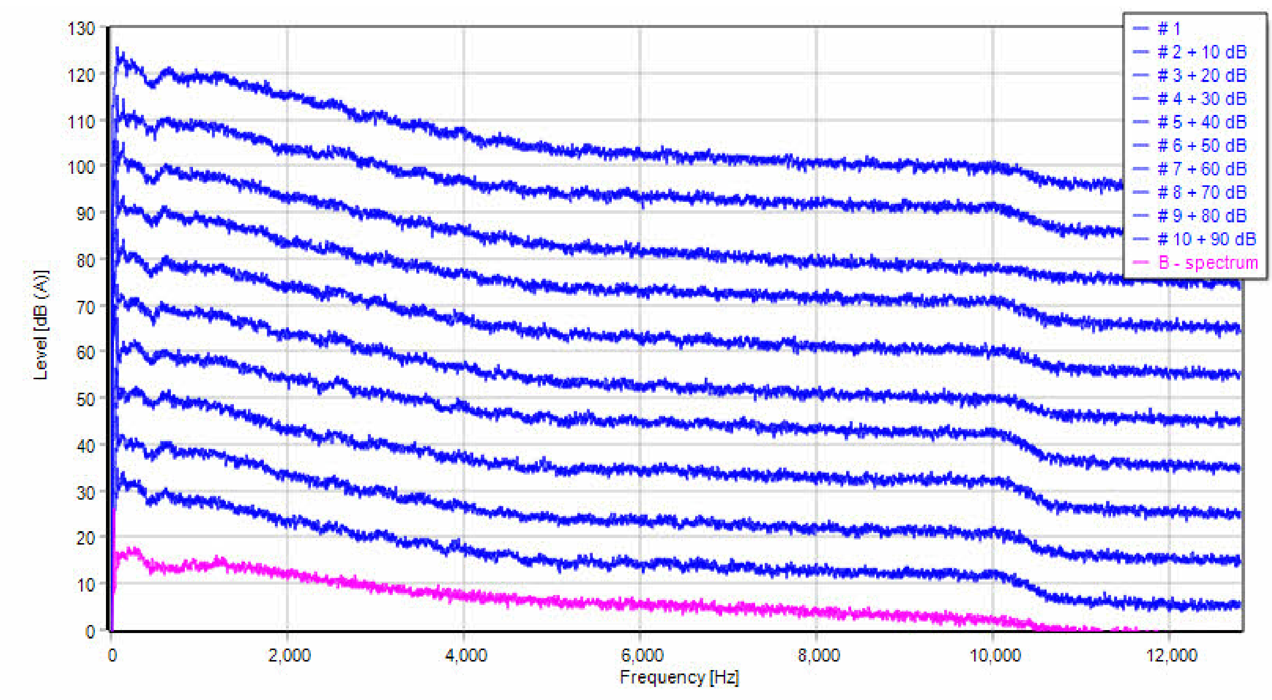
$dL_{t2,99,11}$:	146.9	3.13	28.8	42.6	42.1	0.5	-2.0	2.5
$dL_{t2,100,11}$:	150.0	3.13	30.2	39.6	43.5	-3.9	-2.0	-1.9
$dL_{t2,101,11}$:	150.0	3.13	29.4	39.6	42.7	-3.1	-2.0	-1.1
$dL_{t2,102,11}$:	146.9	3.13	30.0	40.4	43.3	-3.0	-2.0	-0.9
$dL_{t2,103,11}$:	146.9	3.13	29.2	42.3	42.5	-0.2	-2.0	1.8

BIN 11: Tonal components determined - Compact												
Spectrum	**f_T**	**$dL_{tn,j,k}$**	**f_T**	**$dL_{tn,j,k}$**								
##	**[Hz]**	**[dB]**	**[Hz]**	**[dB]**								
1	---	---	---	---								
2	71.9	-6.4	---	---								
3	71.9	-6.6	---	---								
4	71.9	-3.1	---	---								
5	---	---	---	---								
6	71.9	-5.4	---	---								
7	71.9	-6.0	---	---								
8	---	---	---	---								
9	71.9	-6.9	---	---								
10	---	---	---	---								
11	71.9	-2.8	---	---								
12	71.9	-7.2	---	---								
13	71.9	-6.5	---	---								
14	71.9	-5.5	---	---								
15	71.9	-3.8	---	---								
16	71.9	-7.1	---	---								
17	71.9	-7.0	---	---								
18	71.9	-5.6	---	---								
19	71.9	-5.5	---	---								
20	---	---	---	---								
21	---	---	---	---								
22	71.9	-4.6	---	---								
23	71.9	-5.8	---	---								
24	71.9	-7.1	---	---								
25	---	---	---	---								
26	71.9	-7.1	---	---								
27	---	---	---	---								
28	---	---	---	---								
29	---	---	---	---								
30	71.9	-7.0	---	---								
31	71.9	-6.0	---	---								
32	71.9	-5.2	---	---								
33	71.9	-5.3	---	---								
34	71.9	-6.9	---	---								
35	71.9	-4.6	---	---								
36	---	---	---	---								
37	---	---	---	---								
38	71.9	-4.6	---	---								
39	71.9	-5.0	---	---								
40	---	---	---	---								
41	---	---	---	---								
42	71.9	-3.4	---	---								
43	71.9	-4.9	---	---								
44	---	---	---	---								
45	75.0	-4.4	---	---								

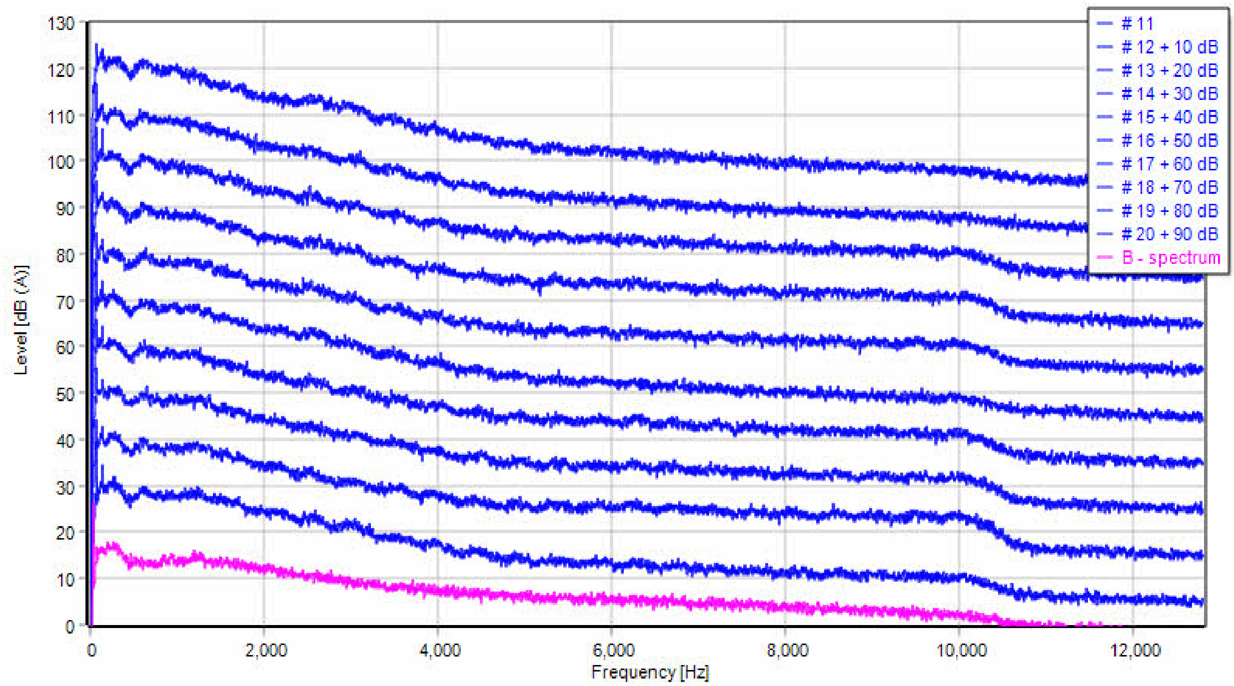
46	71.9	-3.8	---	---								
47	71.9	-5.5	---	---								
48	---	---	---	---								
49	71.9	-6.6	---	---								
50	---	---	---	---								
51	---	---	---	---								
52	---	---	---	---								
53	71.9	-7.0	---	---								
54	71.9	-7.3	---	---								
55	---	---	---	---								
56	---	---	---	---								
57	---	---	---	---								
58	---	---	---	---								
59	---	---	---	---								
60	---	---	---	---								
61	---	---	---	---								
62	---	---	---	---								
63	---	---	---	---								
64	---	---	---	---								
65	---	---	---	---								
66	---	---	---	---								
67	---	---	---	---								
68	---	---	---	---								
69	---	---	---	---								
70	---	---	---	---								
71	71.9	-7.2	---	---								
72	---	---	---	---								
73	---	---	---	---								
74	---	---	---	---								
75	71.9	-6.8	---	---								
76	---	---	---	---								
77	---	---	---	---								
78	71.9	-7.2	---	---								
79	71.9	-6.4	---	---								
80	---	---	---	---								
81	---	---	---	---								
82	---	---	---	---								
83	71.9	-6.6	---	---								
84	---	---	---	---								
85	---	---	---	---								
86	---	---	---	---								
87	---	---	---	---								
88	71.9	-5.7	---	---								
89	71.9	-6.8	---	---								
90	---	---	---	---								
91	---	---	143.8	-6.8								
92	71.9	-7.2	143.8	-7.2								
93	71.9	-5.2	---	---								
94	---	---	---	---								
95	---	---	---	---								
96	---	---	---	---								
97	71.9	-4.4	---	---								
98	---	---	146.9	-6.0								
99	75.0	-2.3	146.9	0.5								
100	75.0	-7.2	150.0	-3.9								

101	75.0	-4.7	150.0	-3.1								
102	---	---	146.9	-3.0								
103	75.0	-4.5	146.9	-0.2								
f_t[Hz] | dL_k[dB]	72.0	-8.0	144.0	-10.8								
L_a[dB]		-2.0		-2.0								
$dL_{a,k}$[dB]		-6.0		-8.8								
K_{TN}[dB]		0		0								

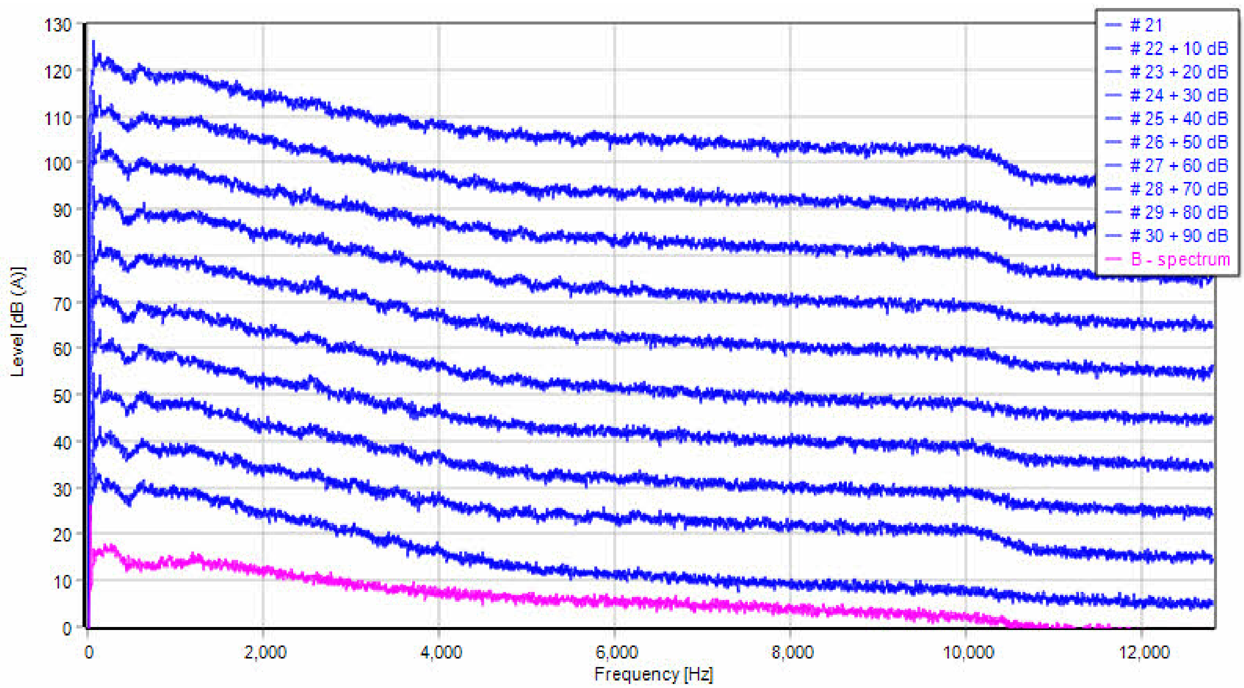
BIN 11: Narrowband spectrum



BIN 11: Narrowband spectrum



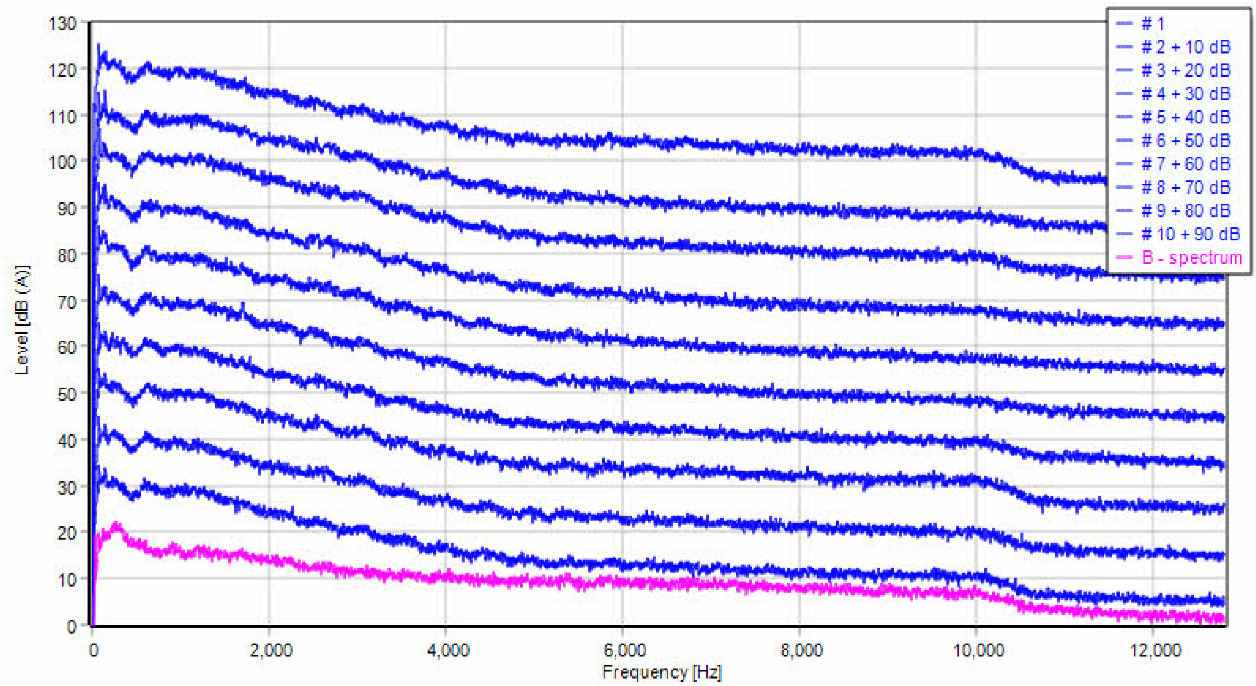
BIN 11: Narrowband spectrum



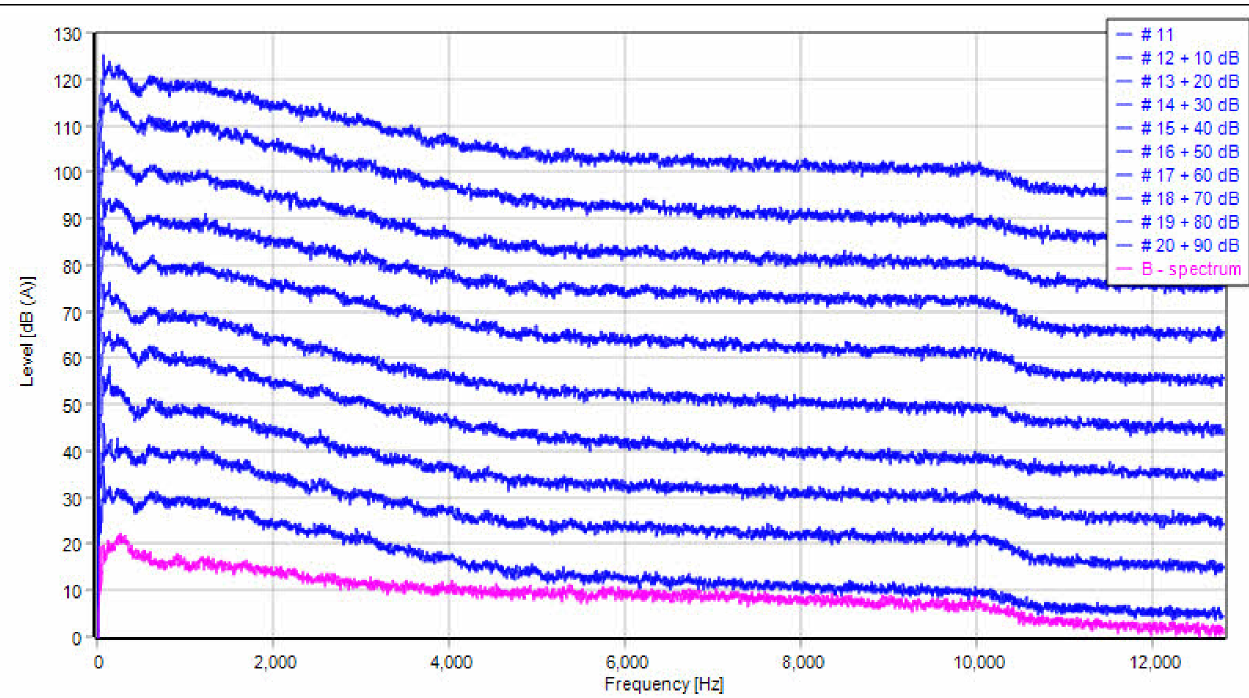
BIN 11.5: Tonal components determined								
	Frequency	**delta f**	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	**[Hz]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**
$dL_{t1,8,11.5}$:	81.3	3.13	30.9	37.0	44.2	-7.2	-2.0	-5.2
$dL_{t1,11,11.5}$:	75.0	3.13	29.3	36.8	42.6	-5.8	-2.0	-3.8
$dL_{t1,12,11.5}$:	75.0	3.13	28.8	37.2	42.1	-5.0	-2.0	-3.0

BIN 11.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$										
##	**[Hz]**	**[dB]**										
1	---	---										
2	---	---										
3	---	---										
4	---	---										
5	---	---										
6	---	---										
7	---	---										
8	81.3	-7.2										
9	---	---										
10	---	---										
11	75.0	-5.8										
12	75.0	-5.0										
13	---	---										
14	---	---										
15	---	---										
16	---	---										
17	---	---										
18	---	---										
19	---	---										
20	---	---										
21	---	---										
22	---	---										
23	---	---										
24	---	---										
25	---	---										
26	---	---										
f_t[Hz] | dL_k[dB]	80.8	-11.5										
L_a[dB]		-2.0										
$dL_{a,k}$[dB]		-9.5										
K_{TN}[dB]		0										

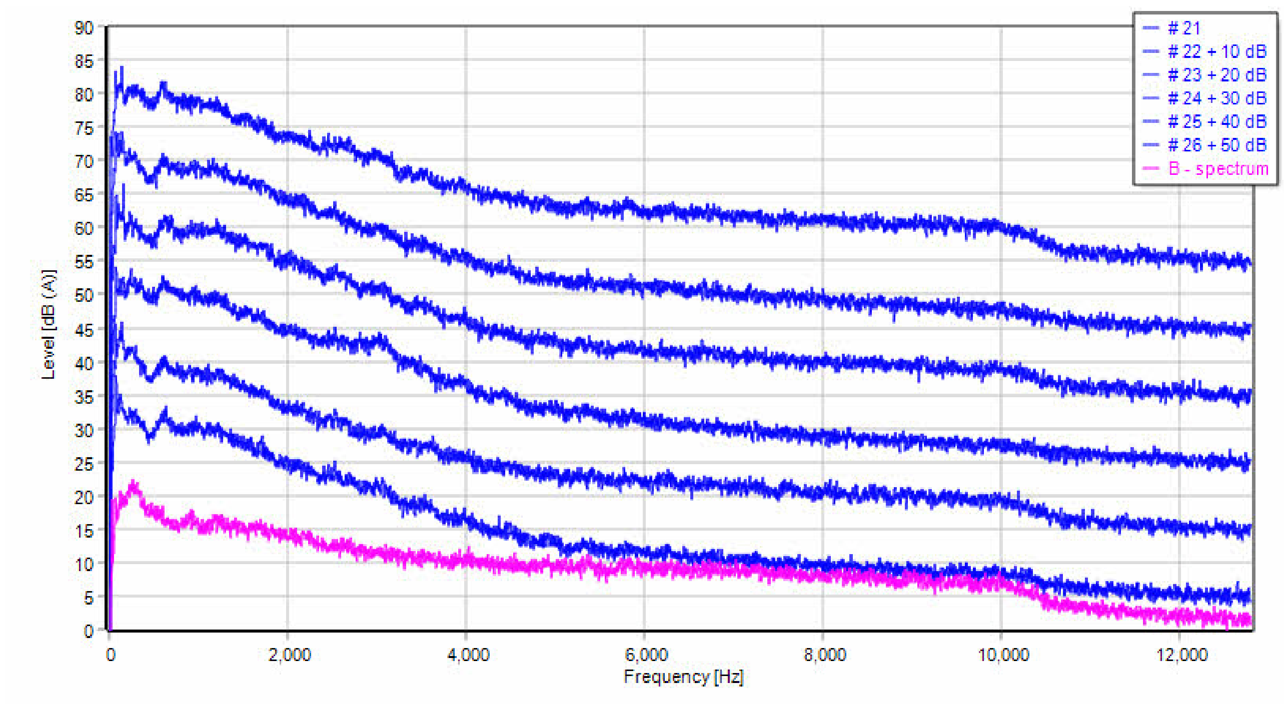
BIN 11.5: Narrowband spectrum



BIN 11.5: Narrowband spectrum



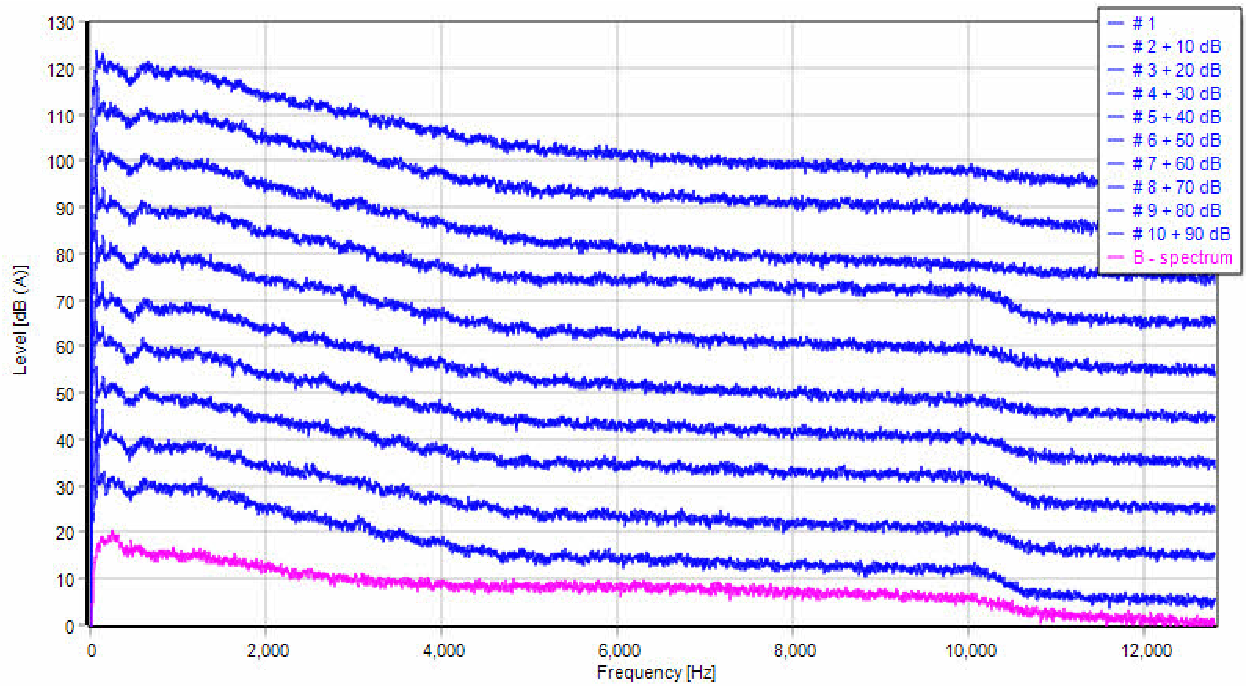
BIN 11.5: Narrowband spectrum



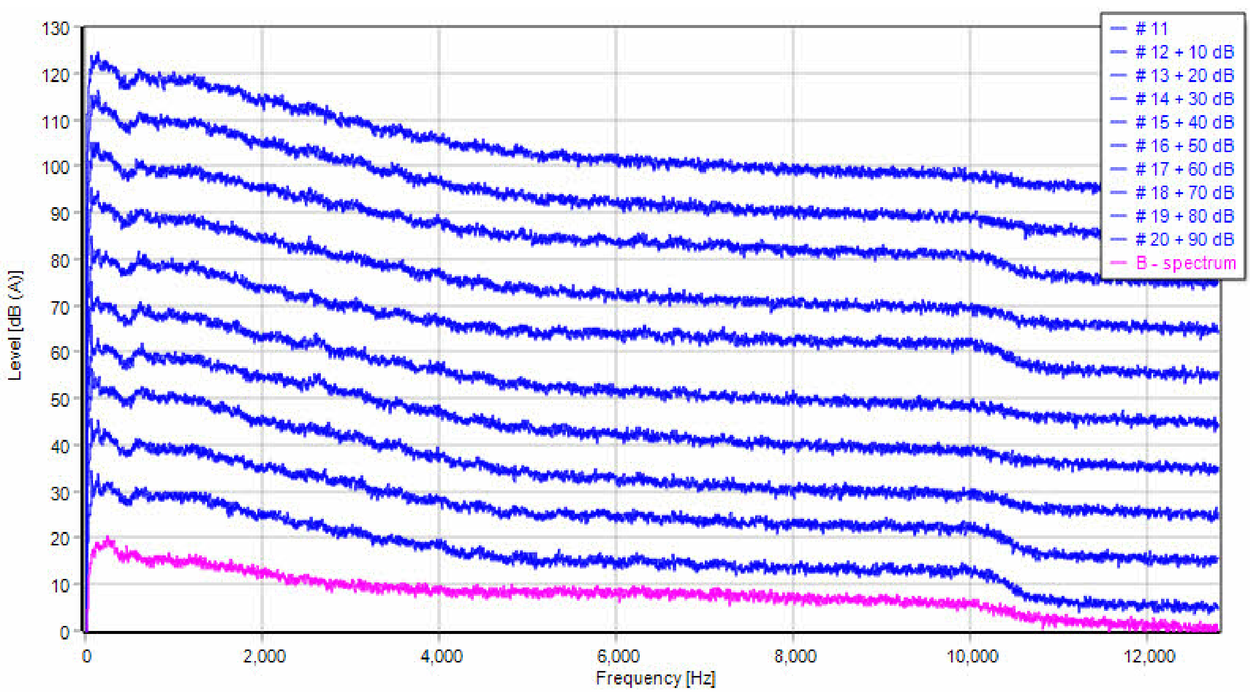
BIN 12: Tonal components determined								
	Frequency	delta f	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]
$dL_{t1,1,12}$:	78.1	3.13	30.1	38.9	43.4	-4.5	-2.0	-2.4
$dL_{t1,2,12}$:	71.9	3.13	28.6	37.6	41.9	-4.3	-2.0	-2.3
$dL_{t1,3,12}$:	75.0	3.13	29.1	35.7	42.4	-6.8	-2.0	-4.8
$dL_{t1,6,12}$:	75.0	3.13	28.9	34.9	42.2	-7.2	-2.0	-5.2
$dL_{t1,7,12}$:	75.0	3.13	29.1	37.1	42.4	-5.2	-2.0	-3.2
$dL_{t1,8,12}$:	75.0	3.13	29.0	37.2	42.3	-5.2	-2.0	-3.2
$dL_{t1,9,12}$:	78.1	3.13	29.9	37.4	43.1	-5.7	-2.0	-3.7
$dL_{t1,14,12}$:	71.9	3.13	28.8	36.8	42.1	-5.2	-2.0	-3.2
$dL_{t1,15,12}$:	75.0	3.13	29.2	35.4	42.5	-7.1	-2.0	-5.1
$dL_{t1,16,12}$:	75.0	3.13	29.0	35.1	42.3	-7.2	-2.0	-5.2

BIN 12: Tonal components determined - Compact		
Spectrum	**f_T**	**$dL_{tn,j,k}$**
##	**[Hz]**	**[dB]**
1	78.1	-4.5
2	71.9	-4.3
3	75.0	-6.8
4	---	---
5	---	---
6	75.0	-7.2
7	75.0	-5.2
8	75.0	-5.2
9	78.1	-5.7
10	---	---
11	---	---
12	---	---
13	---	---
14	71.9	-5.2
15	75.0	-7.1
16	75.0	-7.2
17	---	---
18	---	---
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	---	---
26	---	---
27	---	---
28	---	---
29	---	---
30	---	---
f_t[Hz] | dL_k[dB]	77.1	-9.2
L_a[dB]		-2.0
$dL_{a,k}$[dB]		-7.2
K_{TN}[dB]		0

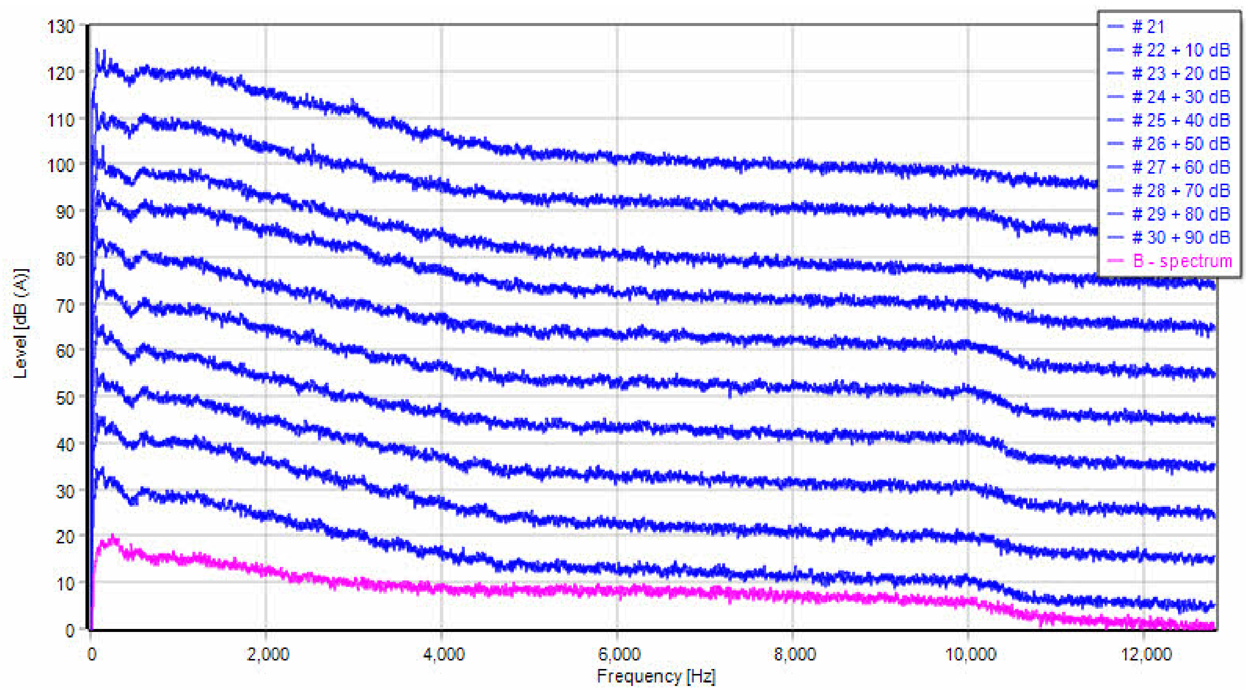
BIN 12: Narrowband spectrum



BIN 12: Narrowband spectrum



BIN 12: Narrowband spectrum

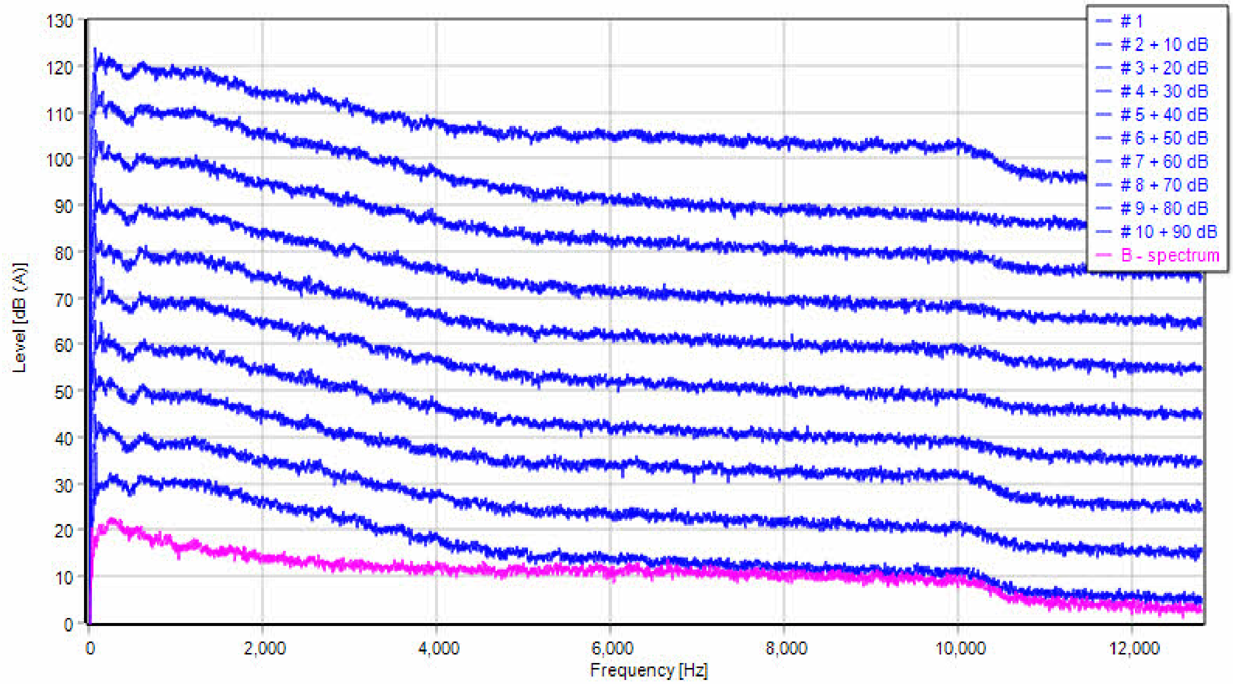


BIN 12.5: Tonal components determined								
	Frequency	**delta f**	$L_{pn,avg,j,k}$	$L_{pt,j,k}$	$L_{pn,j,k}$	$dL_{tn,j,k}$	L_a	$dL_{a,j,k}$
	[Hz]	**[Hz]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**
$dL_{t1,1,12.5}$:	81.3	3.13	28.2	37.8	41.5	-3.7	-2.0	-1.7
$dL_{t1,4,12.5}$:	75.0	3.13	28.8	35.1	42.1	-7.0	-2.0	-5.0
$dL_{t1,5,12.5}$:	75.0	3.13	29.8	37.8	43.1	-5.3	-2.0	-3.2
$dL_{t1,6,12.5}$:	75.0	3.13	29.1	36.1	42.4	-6.3	-2.0	-4.3
$dL_{t1,7,12.5}$:	75.0	3.13	28.4	36.0	41.7	-5.7	-2.0	-3.7
$dL_{t1,9,12.5}$:	78.1	3.13	30.9	38.0	44.2	-6.2	-2.0	-4.2
$dL_{t1,11,12.5}$:	78.1	3.13	29.0	40.2	42.3	-2.0	-2.0	0.0
$dL_{t1,13,12.5}$:	71.9	3.13	27.7	36.8	41.0	-4.2	-2.0	-2.2
$dL_{t1,14,12.5}$:	71.9	3.13	30.0	36.1	43.3	-7.2	-2.0	-5.2
$dL_{t1,15,12.5}$:	71.9	3.13	28.1	36.0	41.4	-5.4	-2.0	-3.4
$dL_{t1,16,12.5}$:	78.1	3.13	30.2	36.7	43.5	-6.8	-2.0	-4.8
$dL_{t1,17,12.5}$:	78.1	3.13	30.3	37.5	43.6	-6.1	-2.0	-4.1
$dL_{t1,18,12.5}$:	78.1	3.13	30.3	37.4	43.6	-6.2	-2.0	-4.2
$dL_{t1,19,12.5}$:	78.1	3.13	30.3	36.8	43.6	-6.8	-2.0	-4.8
$dL_{t1,20,12.5}$:	75.0	3.13	28.1	34.1	41.4	-7.3	-2.0	-5.3
$dL_{t1,22,12.5}$:	71.9	3.13	29.0	37.8	42.3	-4.5	-2.0	-2.4
$dL_{t1,39,12.5}$:	78.1	3.13	30.1	36.3	43.4	-7.1	-2.0	-5.1

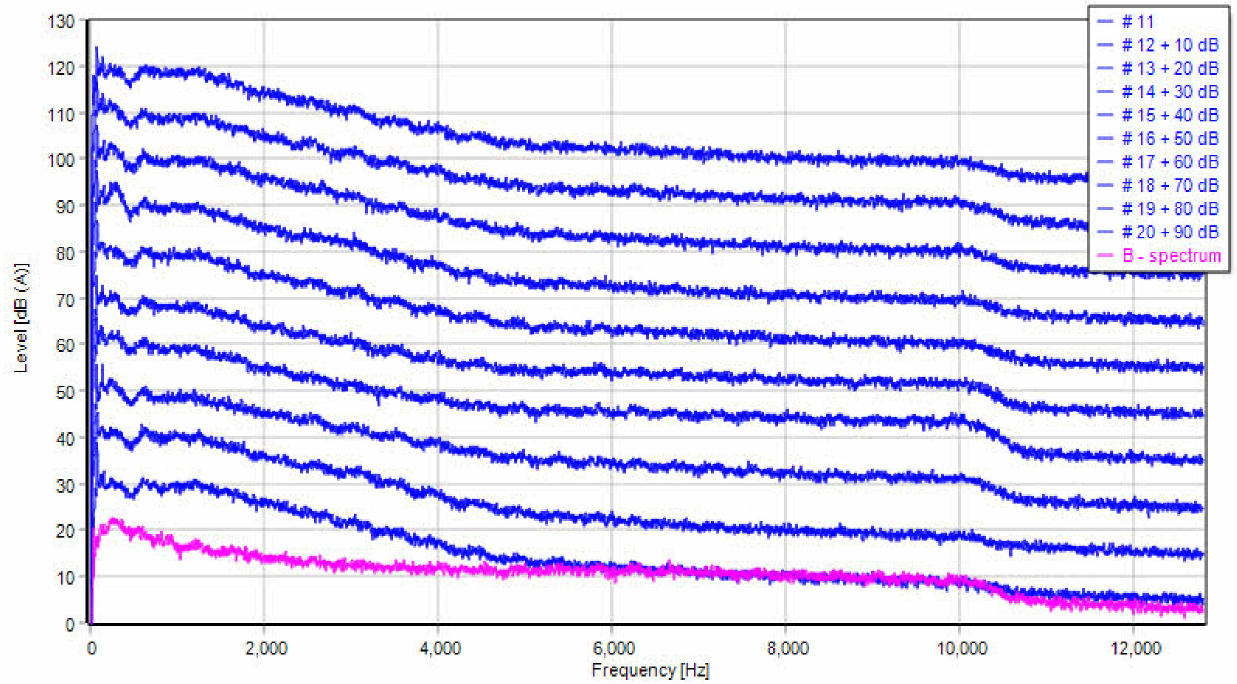
BIN 12.5: Tonal components determined - Compact												
Spectrum	f_T	$dL_{tn,j,k}$										
##	**[Hz]**	**[dB]**										
1	81.3	-3.7										
2	---	---										
3	---	---										
4	75.0	-7.0										
5	75.0	-5.3										
6	75.0	-6.3										
7	75.0	-5.7										
8	---	---										
9	78.1	-6.2										
10	---	---										
11	78.1	-2.0										
12	---	---										
13	71.9	-4.2										
14	71.9	-7.2										
15	71.9	-5.4										
16	78.1	-6.8										
17	78.1	-6.1										
18	78.1	-6.2										
19	78.1	-6.8										
20	75.0	-7.3										
21	---	---										
22	71.9	-4.5										
23	---	---										
24	---	---										
25	---	---										
26	---	---										
27	---	---										
28	---	---										
29	---	---										
30	---	---										

31	---	---										
32	---	---										
33	---	---										
34	---	---										
35	---	---										
36	---	---										
37	---	---										
38	---	---										
39	78.1	-7.1										
40	---	---										
f_t[Hz] | dL_k[dB]	79.0	-8.3										
L_a[dB]		-2.0										
$dL_{a,k}$[dB]		-6.3										
K_{TN}[dB]		0										

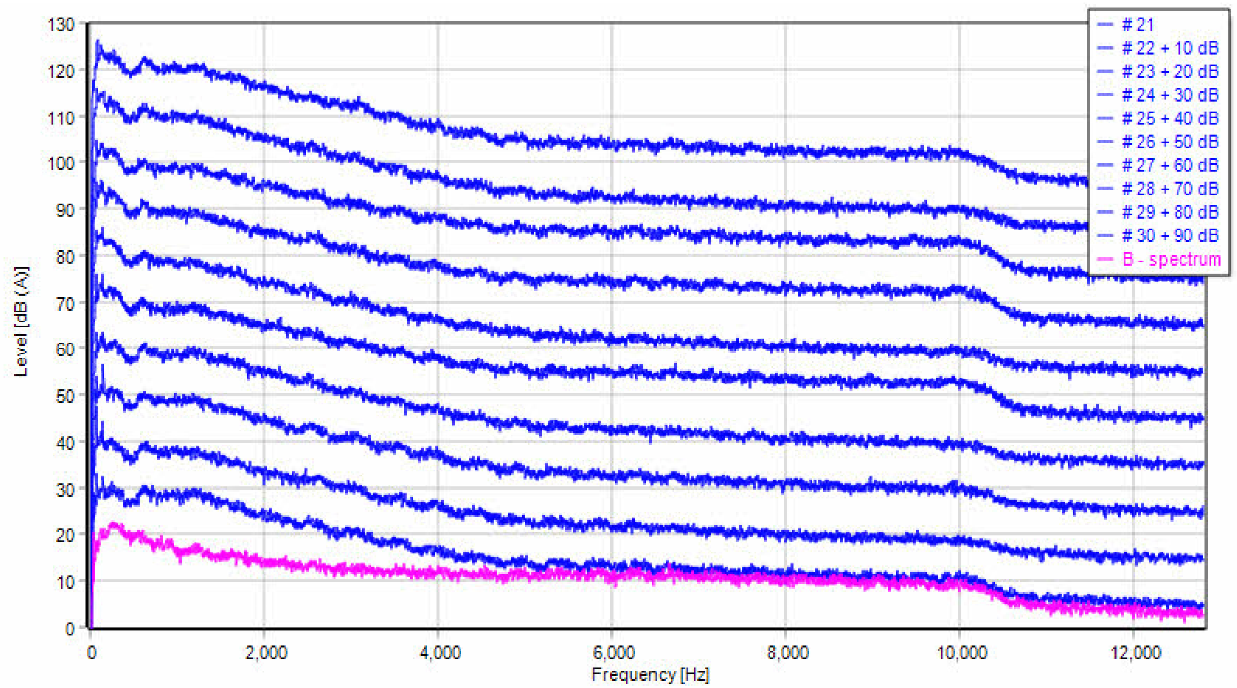
BIN 12.5: Narrowband spectrum



BIN 12.5: Narrowband spectrum



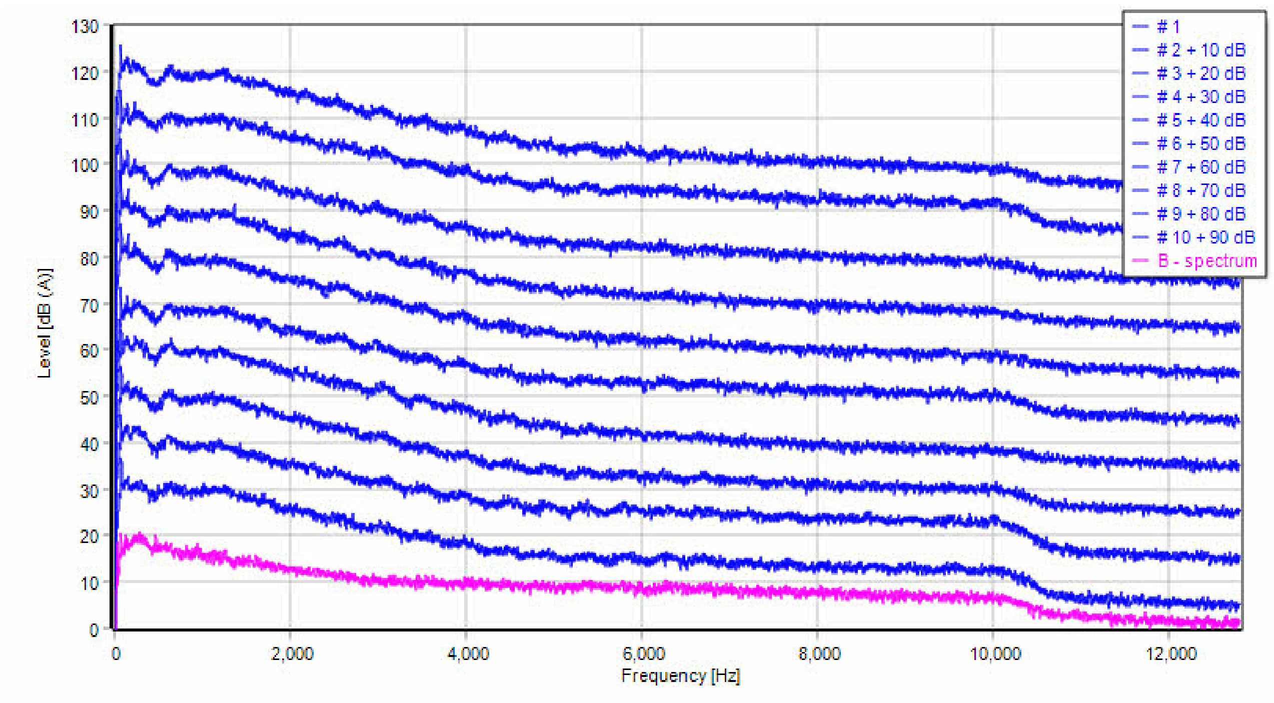
BIN 12.5: Narrowband spectrum



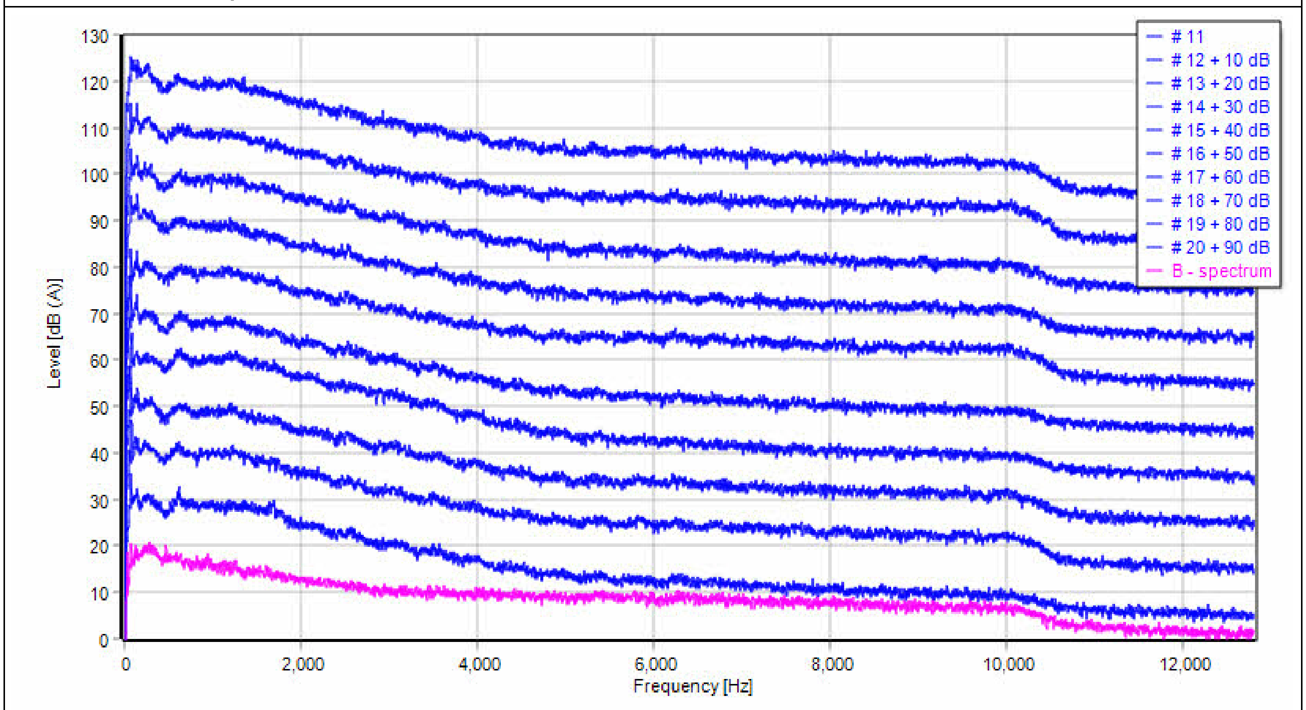
BIN 13: Tonal components determined								
	Frequency	**delta f**	**$L_{pn,avg,j,k}$**	**$L_{pt,j,k}$**	**$L_{pn,j,k}$**	**$dL_{tn,j,k}$**	**L_a**	**$dL_{a,j,k}$**
	[Hz]	**[Hz]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**	**[dB]**
$dL_{t1,1,13}$:	78.1	3.13	29.9	36.7	43.2	-6.5	-2.0	-4.5
$dL_{t1,3,13}$:	78.1	3.13	30.2	36.6	43.5	-6.9	-2.0	-4.9
$dL_{t1,5,13}$:	75.0	3.13	26.3	34.3	39.6	-5.2	-2.0	-3.2
$dL_{t1,6,13}$:	75.0	3.13	30.3	38.3	43.6	-5.3	-2.0	-3.3
$dL_{t1,7,13}$:	75.0	3.13	30.0	38.7	43.3	-4.6	-2.0	-2.6
$dL_{t1,8,13}$:	75.0	3.13	27.7	35.6	41.0	-5.4	-2.0	-3.4
$dL_{t1,9,13}$:	75.0	3.13	28.5	36.7	41.8	-5.1	-2.0	-3.1
$dL_{t1,10,13}$:	75.0	3.13	29.5	35.8	42.8	-7.0	-2.0	-5.0
$dL_{t1,11,13}$:	75.0	3.13	28.8	35.6	42.1	-6.5	-2.0	-4.5
$dL_{t1,12,13}$:	78.1	3.13	30.0	37.9	43.3	-5.3	-2.0	-3.3
$dL_{t1,14,13}$:	81.3	3.13	29.1	35.9	42.4	-6.4	-2.0	-4.4
$dL_{t1,15,13}$:	75.0	3.13	29.0	37.3	42.3	-5.0	-2.0	-3.0
$dL_{t1,16,13}$:	75.0	3.13	27.1	33.7	40.4	-6.7	-2.0	-4.7

BIN 13: Tonal components determined - Compact												
Spectrum	**f_T**	**$dL_{tn,j,k}$**										
##	**[Hz]**	**[dB]**										
1	78.1	-6.5										
2	---	---										
3	78.1	-6.9										
4	---	---										
5	75.0	-5.2										
6	75.0	-5.3										
7	75.0	-4.6										
8	75.0	-5.4										
9	75.0	-5.1										
10	75.0	-7.0										
11	75.0	-6.5										
12	78.1	-5.3										
13	---	---										
14	81.3	-6.4										
15	75.0	-5.0										
16	75.0	-6.7										
17	---	---										
18	---	---										
19	---	---										
20	---	---										
21	---	---										
22	---	---										
23	---	---										
24	---	---										
f_t[Hz] | dL_k[dB]	77.1	-7.8										
L_a[dB]		-2.0										
$dL_{a,k}$[dB]		-5.8										
K_{TN}[dB]		0										

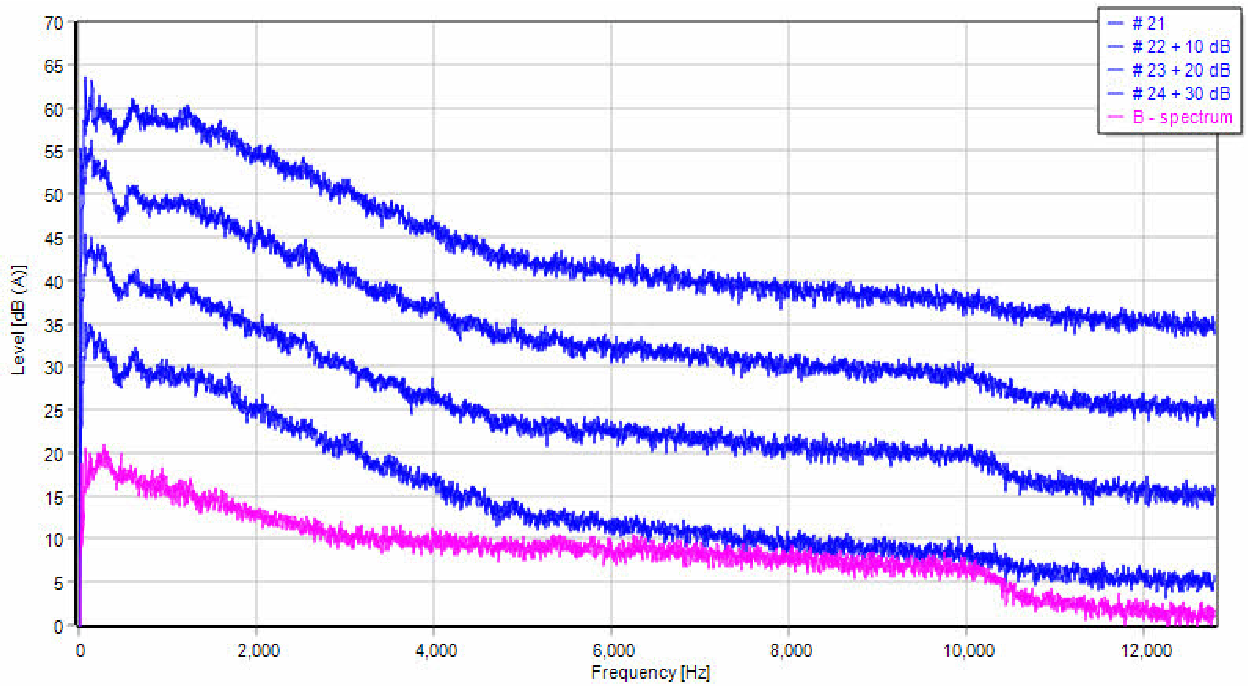
BIN 13: Narrowband spectrum



BIN 13: Narrowband spectrum



BIN 13: Narrowband spectrum



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