

NCC TEST REPORT

Equipment : RFID module
Brand Name : HID
Model Name : OMNIKEY 5127CK MINI
Host Equipment Name : Tablet
Host Brand Name : Getac
Host Model Name : F110, F110G5, F110-Ex
Applicant : 神基科技股份有限公司
新竹科學工業園區新竹縣寶山鄉研發二路 1 號 4 樓
Manufacturer : HID Global Corporation
15730 Barranca Parkway Irvine, CA 92618 USA
Standard : LP0002 Section 2.8 (2018-01-10)

The product was received on May 21, 2020, and testing was started from May 25, 2020 and completed on May 26, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
TR391803-71AO	01	Initial issue of report	Jun. 10, 2020
TR391803-71AO	02	Revise Accessories Information (This report is the latest version replacing for the report issued on Jun. 10, 2020)	Jun. 12, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	2.2	Antenna Requirement	PASS	-
3.1	2.3	AC Power-line Conducted Emissions	PASS	-
3.2	2.8	Transmitter Radiated Unwanted Emissions	PASS	-
3.3	-	Emission Bandwidth	PASS	-
3.4	2.11	Receiver Radiated Unwanted Emissions	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and explanations:

None

Reviewed by: Sam Tsai

Report Producer: Ann Hou

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information			
Modulation	Ch. Frequency (kHz)	Channel Number	Field Strength (dBuV/m)
OOK	125	1	61.86
Note 1: Field strength performed peak level at 3m.			

1.1.2 Antenna Information

Antenna Category	
☒	Integral antenna (antenna permanently attached)
☐	Temporary RF connector provided
☒	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
☐	External antenna (dedicated antennas)
☐	Single power level with corresponding antenna(s).
☐	Multiple power level and corresponding antenna(s).

No.	Ant. Cat.	Ant. Type
1	Integral	Loop

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From AC Adapter / Battery
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
☒	Operated normal mode for worst duty cycle
☐	Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)	
☒	100.00%

1.1.5 Table for Multiple Listing

Host Model Name	Description
F110	All the models are identical, the difference model for served as marketing strategy.
F110G5	
F110-Ex	

1.1.6 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: TR391803-26AO

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Host Model Name: F110G5, F110-Ex was added.	All
AC Adapter 2 and Battery 2 were added	-

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ LP0002 (2018-01-10)
- ♦ ANSI C63.10-2013
- ♦ ANSI C63.4-2014

The following reference test guidance is not within the scope of accreditation of TAF:

- ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location				
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)		
		TEL : 886-3-327-3456	FAX : 886-3-327-0973	
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)		
		TEL : 886-3-656-9065	FAX : 886-3-656-9085	
☐	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)		
		TEL : 886-3-318-0787	FAX : 886-3-318-0287	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	21.1~24.3°C / 56~62%	26/May/2020
RF Conducted	TH01-HY	Barry	23.4~25.1°C / 56~62%	25/May/2020
Radiated Emission	03CH03-HY	Jeff	23.1~24.8°C / 54~ 62%	25/May/2020

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
Tnom Vnom	Tnom	20°C
-	Vnom	110V

2.2 The Worst Case Configuration

Transmitter Mode	Test Channel Frequencies(kHz)	Field Strength (dBuV/m@3m)
RFID	125	61.86

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Operating Mode Description
1	Adapter Mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth Transmitter Radiated Unwanted Emissions Receiver Radiated Unwanted Emission		
Test Condition	Radiated measurement		
User Position	☐ EUT will be placed in fixed position.		
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes.		
	☒ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	CTX/CRX		
1	Adapter Mode		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

2.4 Accessory

Accessories Information				
AC Adapter 1	Brand Name	Chicony	Model Name	A12-065N2A
	Power Rating	I/P: 100-240Vac, 1.7A, O/P: 19Vdc, 3.42A, 65W		
	Power Cord	1.7meter, non-shielded cable, with ferrite core		
AC Adapter 2 (Add)	Brand Name	FSP	Model Name	FSP065-RBBN3
	Power Rating	I/P: 100-240Vac, 1.5A, O/P: 19Vdc, 3.42A, 65W		
	AC Power Cord	1.8 meter, non-shielded cable, w/o ferrite core		
	DC Power Cord	1.4 meter, non-shielded cable, with ferrite core		
Battery 1	Brand Name	Getac	Model Name	BP3S1P2160-S
	Power Rating	11.4Vdc, 2160mAh	Type	Li-ion
Battery 2 (Add)	Brand Name	Getac	Model Name	BP3S1P2290 A
	Power Rating	11.4Vdc, 2290mAh	Type	Li-ion
Power Cable 1	Brand Name	I-SHENG	Model Name	SP-305B+IS-14N
	Signal Line	1.7 meter, non-shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

2.5 Support Equipment

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	Remark
1	125kHz Card	SPORTON	SPORTON	-
2	Load	SPORTON	SPORTON	-
3	RJ-45 Cable	Power	UTP5-01	Note 1
4	HDMI Cable	SPORTON	SPORTON	Note 1
5	Mouse	Dell	MS111-P	Note 1
6	Earphone	Apple	MD827FEA	Note 1
7	Monitor	Dell	2408WFPb	-
8	AC Power Cable	Power sync	PW-GPC180-3	-

Note 1: The applicant has signed the recognizance that the equipment will not be sold with the accessory.

Support Equipment – Conducted				
No.	Equipment	Brand Name	Model Name	Remark
1	125k Card	SPORTON	SPORTON	-

Support Equipment – Radiated				
No.	Equipment	Brand Name	Model Name	Remark
1	125kHz Card	SPORTON	SPORTON	-
2	Load	SPORTON	SPORTON	-
3	RJ-45 Cable	Power	UTP5-01	Note 1
4	HDMI Cable	SPORTON	SPORTON	Note 1
5	Mouse	Dell	MS111-P	Note 1
6	Earphone	Apple	MD827FEA	Note 1
7	Monitor	Dell	2408WFPb	-

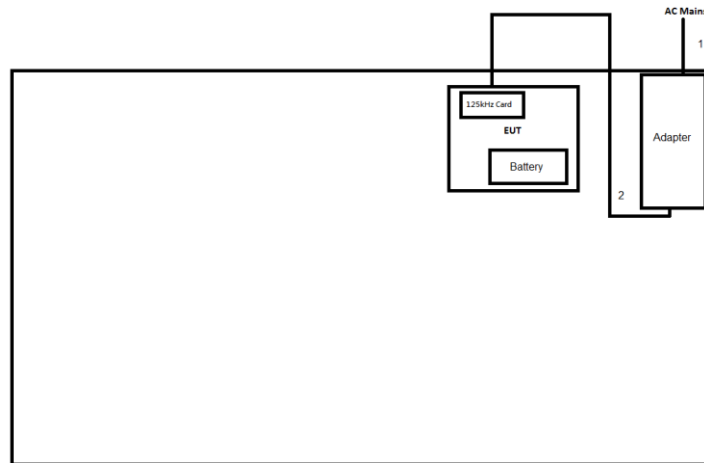


8	AC Power Cable	Power sync	PW-GPC180-3	-
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Note 1: The applicant has signed the recognizance that the equipment will not be sold with the accessory.

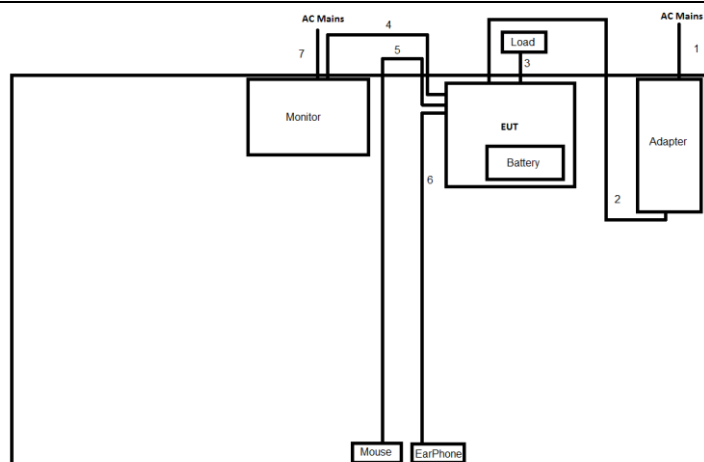
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (TX)

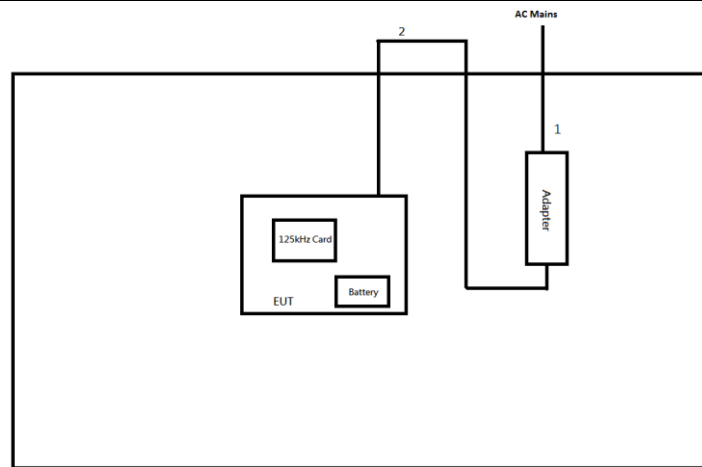


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	DC Power cable	No	1.4

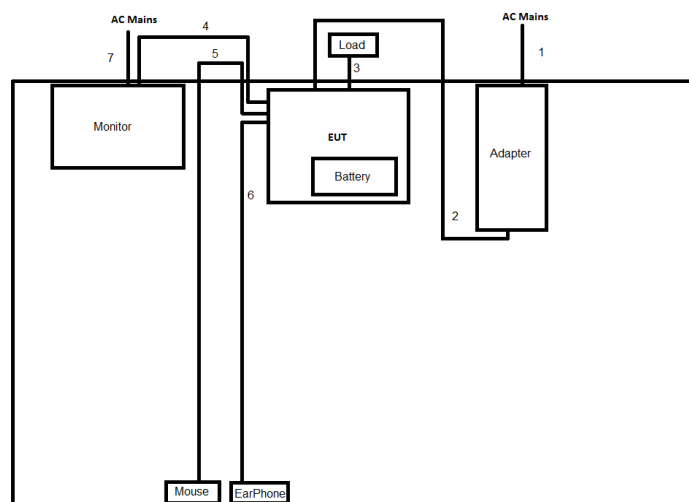
Test Setup Diagram – AC Line Conducted Emission Test (RX)



Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	DC Power cable	No	1.4
3	RJ-45 Cable	No	1.0
4	HDMI Cable	No	1.5
5	USB Cable	No	1.5
6	Audio Cable	No	1.25
7	AC Power cable	No	1.8

Test Setup Diagram - Radiated Test (TX)


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	DC Power cable	No	1.4

Test Setup Diagram - Radiated Test (RX)


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	DC Power cable	No	1.4
3	RJ-45 Cable	No	1.0
4	HDMI Cable	No	1.5
5	USB Cable	No	1.5
6	Audio Cable	No	1.25
7	AC Power cable	No	1.8

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

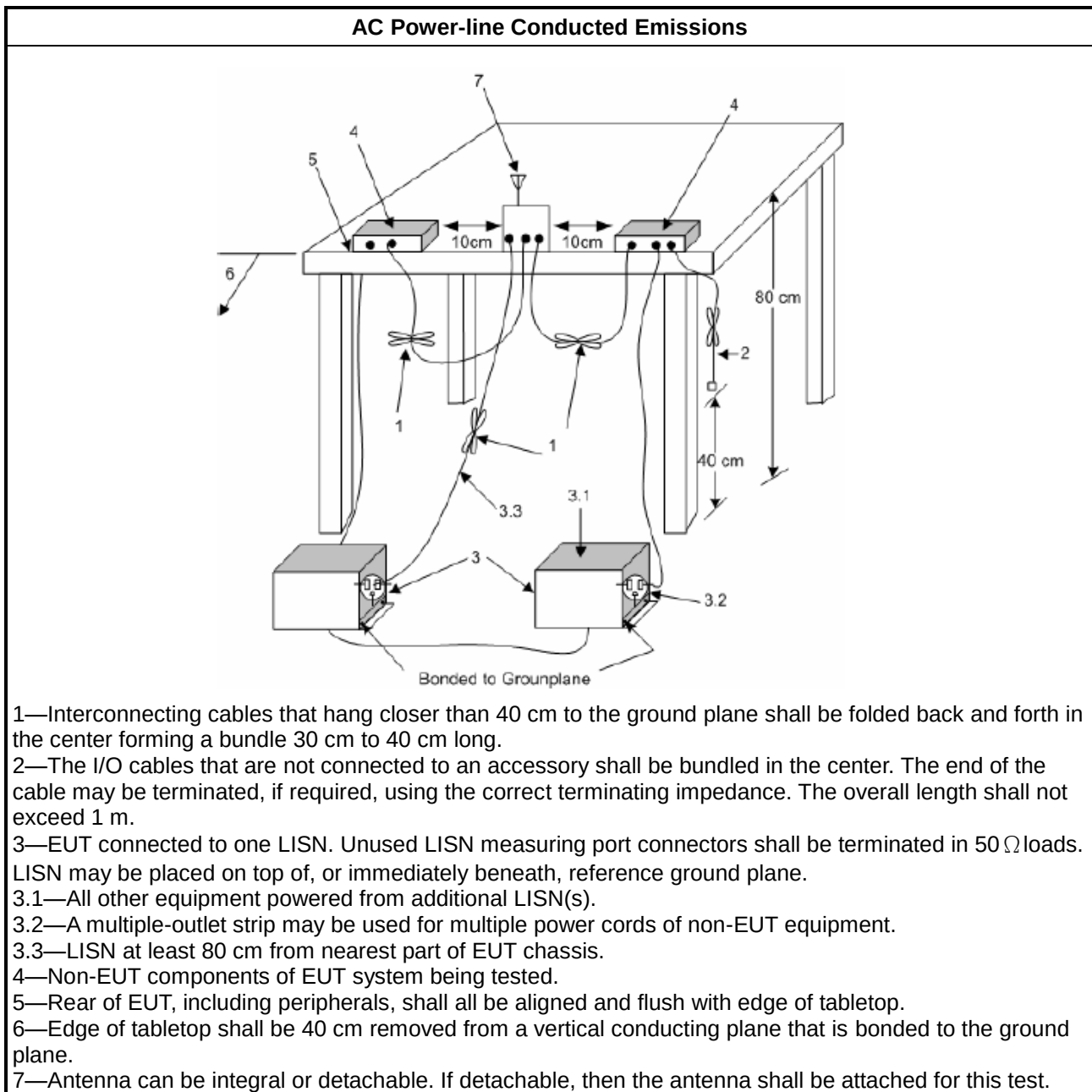
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
☒	If AC conducted emissions fall in operating band, then following below test method confirm final result.
☐	Accept measurements done with a suitable dummy load replacing the antenna under the following conditions: (1) Perform the AC line conducted tests with the antenna connected to determine compliance with LP0002-2.3 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load to determine compliance with LP0002-2.3 limits within the transmitter's fundamental emission band.
☒	For a device with a permanent antenna operating at or below 30 MHz, accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) Perform the AC line conducted tests with the permanent antenna to determine compliance with the LP0002-2.3 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load in lieu of the permanent antenna to determine compliance with the LP0002-2.3 limits within the transmitter's fundamental emission band.

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Transmitter Radiated Unwanted Emissions

3.2.1 Transmitter Radiated Unwanted Emissions Limit

Transmitter Radiated Unwanted Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.

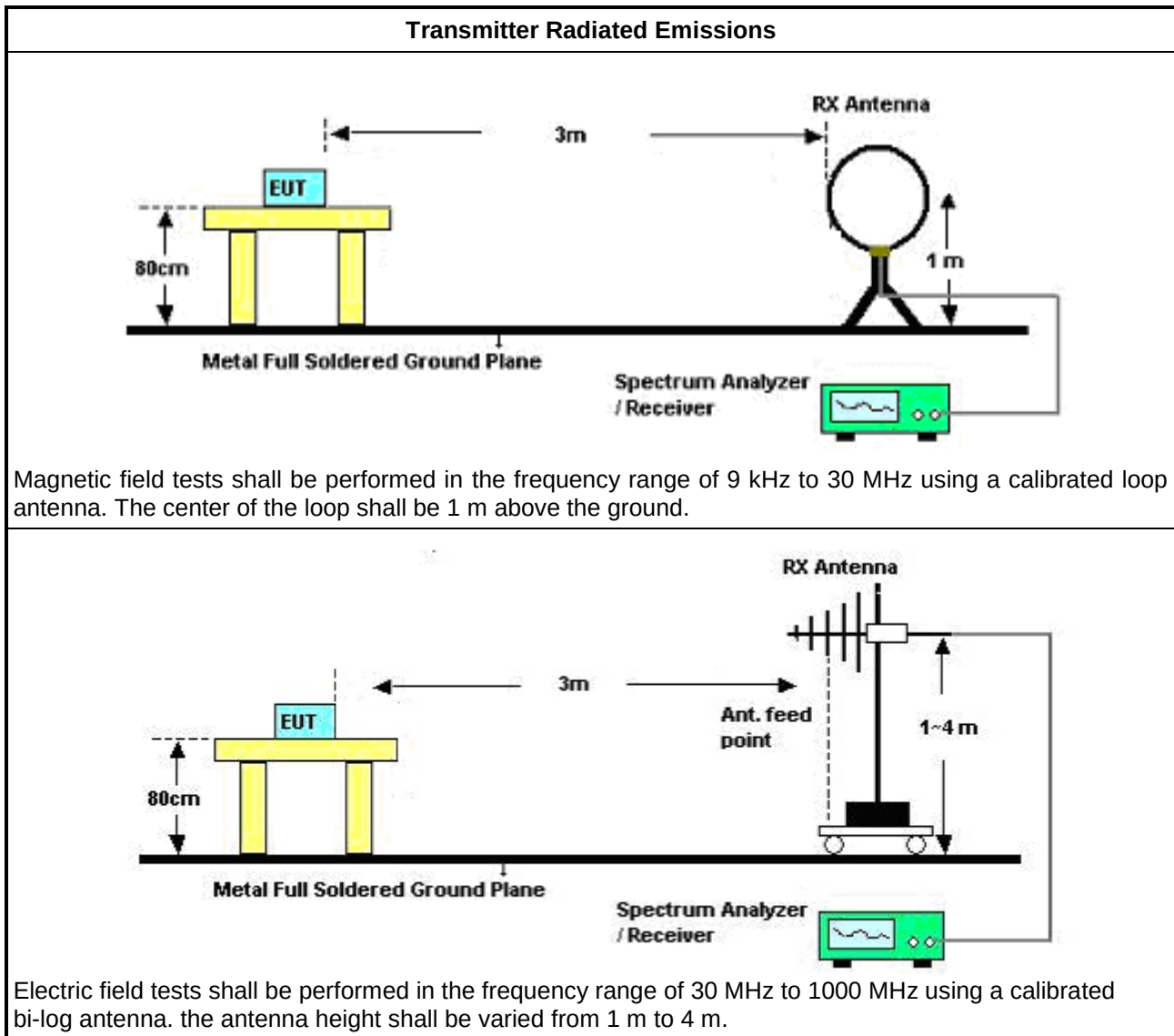
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3m.
☒	At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the requirements; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be following below methods.
☐	The results shall be extrapolated to the specified distance by making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
☒	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.
☒	The any unwanted emissions level shall not exceed the fundamental emission level.
☒	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
☒	KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
☐	Based on LP0002 5.5.2: measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
☐	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.2.4 Test Setup



3.2.5 Test Result of Transmitter Radiated Emissions

Refer as Appendix B

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

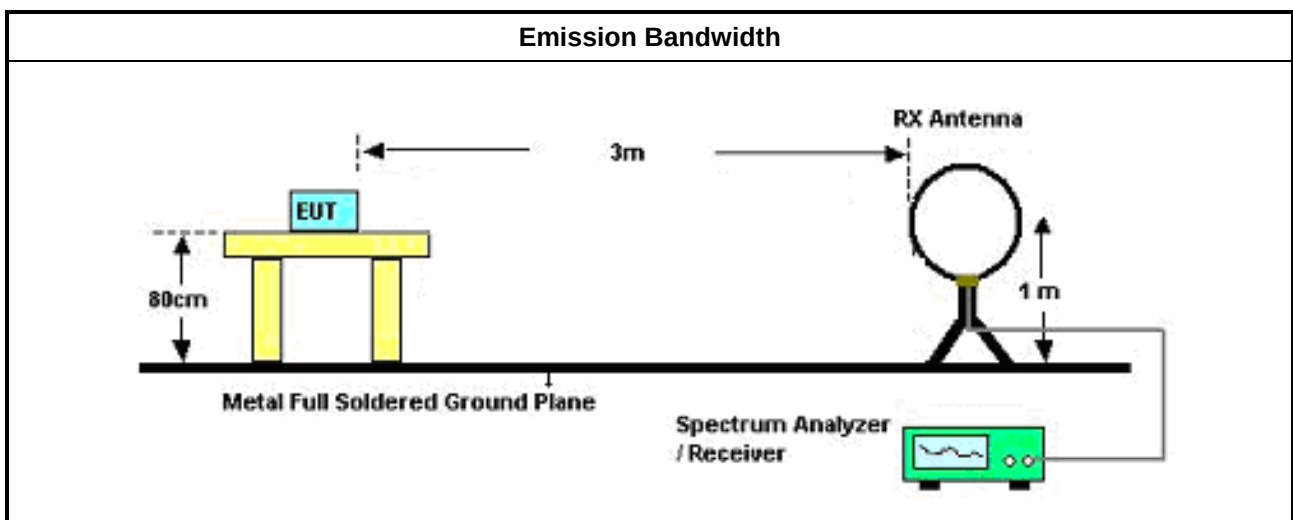
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method
☒ Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.
☒ For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

3.3.4 Test Setup



3.3.5 Test Result of Emission Bandwidth

Refer as Appendix C

3.4 Receiver Radiated Spurious Emissions

3.4.1 Receiver in Radiated Spurious Emissions Limit

Restricted Spurious Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

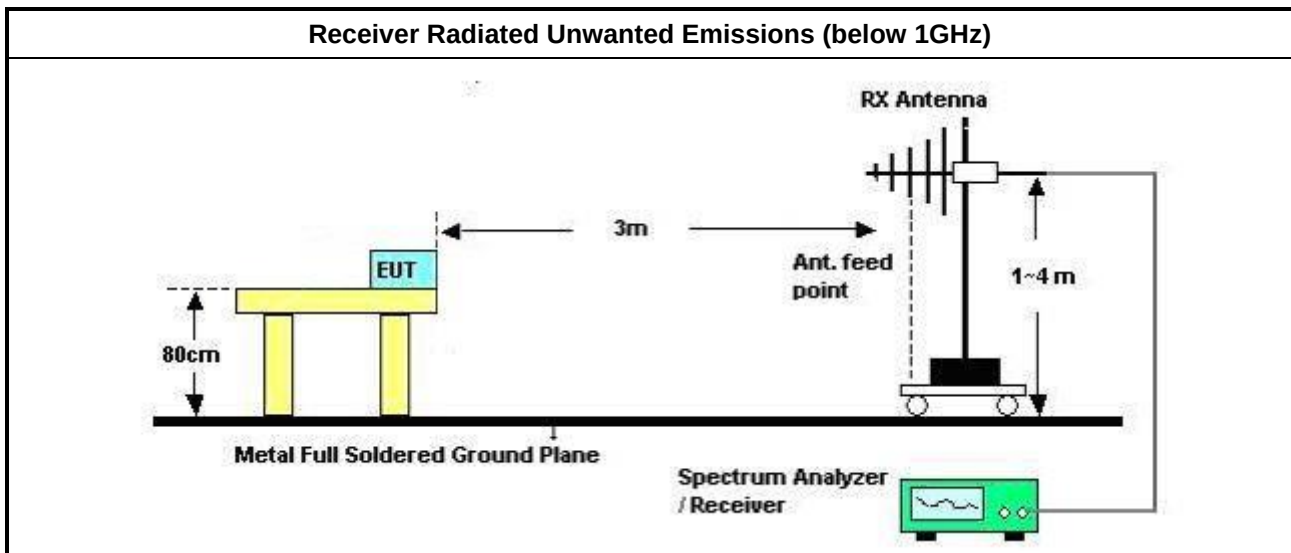
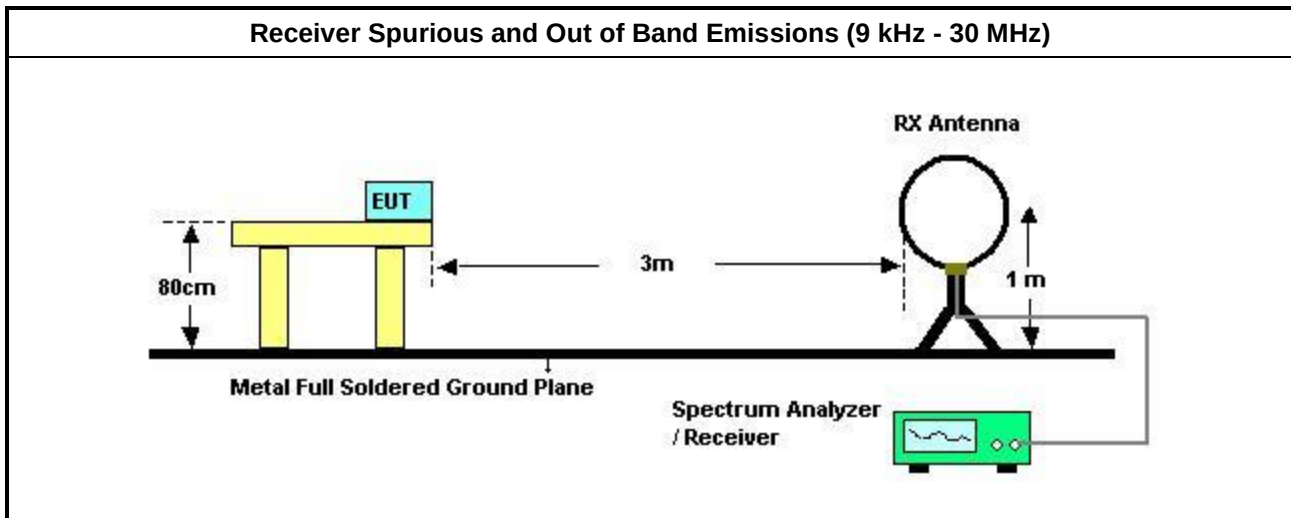
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
☒	For radiated measurement, refer as ANSI C63.4, clause 8.3.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☐	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

3.4.4 Test Setup



3.4.5 Test Result of Receiver Radiated Unwanted Emissions

Refer as Appendix D

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	28/May/2019	27/May/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	04/Nov/2019	05/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	24/Sep/2019	23/Sep/2020

NCR: No Calibration Require.

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	19/Mar/2020	18/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021

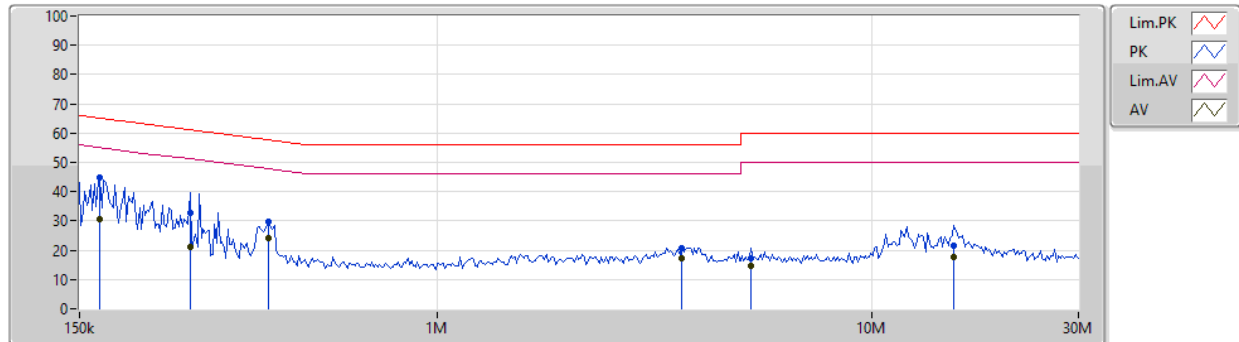
Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	30/Aug/2019	29/Aug/2020
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	14/Apr/2020	13/Apr/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	28/May/2019	27/May/2020
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	19/Apr/2020	18/Apr/2021
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	15/Aug/2019	14/Aug/2020
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~1GHz	18/Mar/2020	17/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter mode (TX)		

26/05/2020

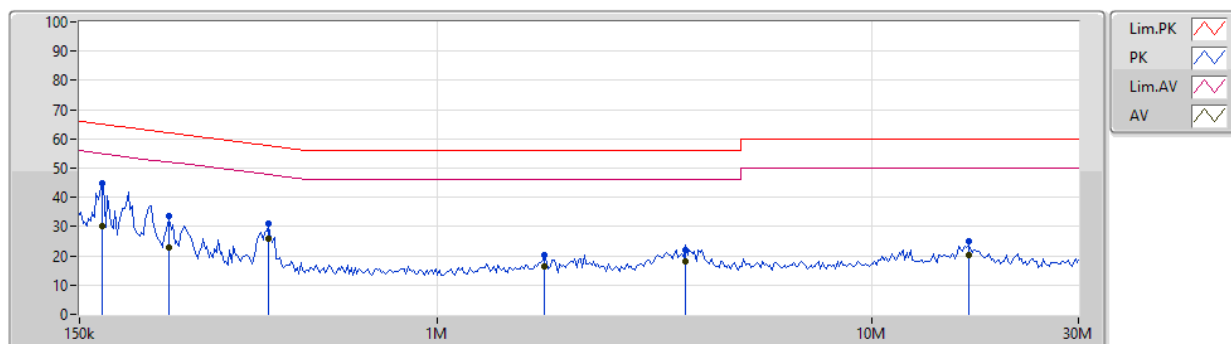


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	167.35k	44.98	65.08	-20.10	19.63	Neutral	"Worst"	25.35	9.65	0.11	9.87			
AV	167.35k	30.54	55.08	-24.54	19.63	Neutral	-	10.91	9.65	0.11	9.87			
QP	269.806k	32.61	61.12	-28.51	19.63	Neutral	-	12.98	9.64	0.12	9.87			
AV	269.806k	21.20	51.12	-29.92	19.63	Neutral	-	1.57	9.64	0.12	9.87			
QP	409.779k	29.94	57.64	-27.70	19.63	Neutral	-	10.31	9.63	0.13	9.87			
AV	409.779k	24.27	47.64	-23.37	19.63	Neutral	-	4.64	9.63	0.13	9.87			
QP	3.658M	20.54	56.00	-35.46	19.72	Neutral	-	0.82	9.66	0.18	9.88			
AV	3.658M	17.31	46.00	-28.69	19.72	Neutral	-	-2.41	9.66	0.18	9.88			
QP	5.286M	17.15	60.00	-42.85	19.76	Neutral	-	-2.61	9.67	0.21	9.88			
AV	5.286M	14.81	50.00	-35.19	19.76	Neutral	-	-4.95	9.67	0.21	9.88			
QP	15.483M	21.54	60.00	-38.46	19.91	Neutral	-	1.63	9.71	0.32	9.88			
AV	15.483M	17.67	50.00	-32.33	19.91	Neutral	-	-2.24	9.71	0.32	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter mode (TX)		

26/05/2020

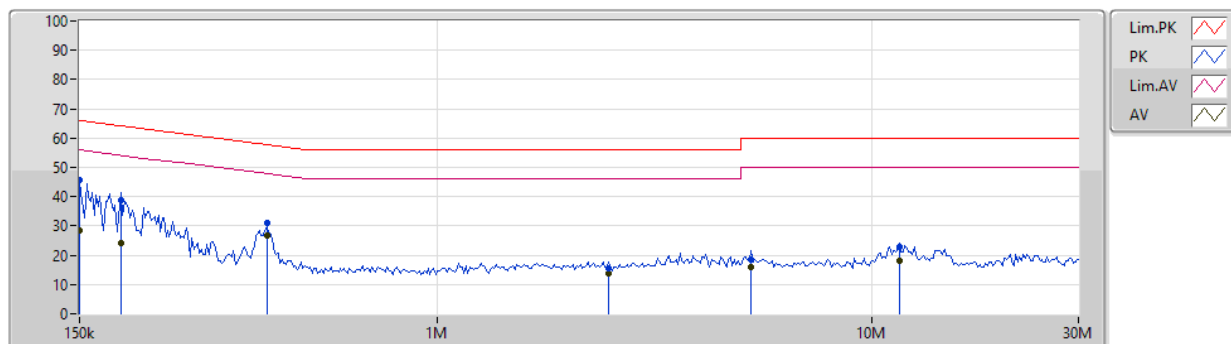


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	169.024k	44.83	65.01	-20.18	19.64	Line	"Worst"	25.19	9.66	0.11	9.87			
AV	169.024k	30.26	55.01	-24.75	19.64	Line	-	10.62	9.66	0.11	9.87			
QP	241.834k	33.64	62.02	-28.38	19.64	Line	-	14.00	9.65	0.12	9.87			
AV	241.834k	23.05	52.02	-28.97	19.64	Line	-	3.41	9.65	0.12	9.87			
QP	409.779k	31.17	57.64	-26.47	19.64	Line	-	11.53	9.64	0.13	9.87			
AV	409.779k	26.07	47.64	-21.57	19.64	Line	-	6.43	9.64	0.13	9.87			
QP	1.769M	20.22	56.00	-35.78	19.66	Line	-	0.56	9.65	0.14	9.87			
AV	1.769M	16.29	46.00	-29.71	19.66	Line	-	-3.37	9.65	0.14	9.87			
QP	3.732M	21.84	56.00	-34.16	19.72	Line	-	2.12	9.66	0.18	9.88			
AV	3.732M	17.90	46.00	-28.10	19.72	Line	-	-1.82	9.66	0.18	9.88			
QP	16.766M	25.08	60.00	-34.92	19.86	Line	-	5.22	9.65	0.33	9.88			
AV	16.766M	20.25	50.00	-29.75	19.86	Line	-	0.39	9.65	0.33	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter mode (RX)		

26/05/2020

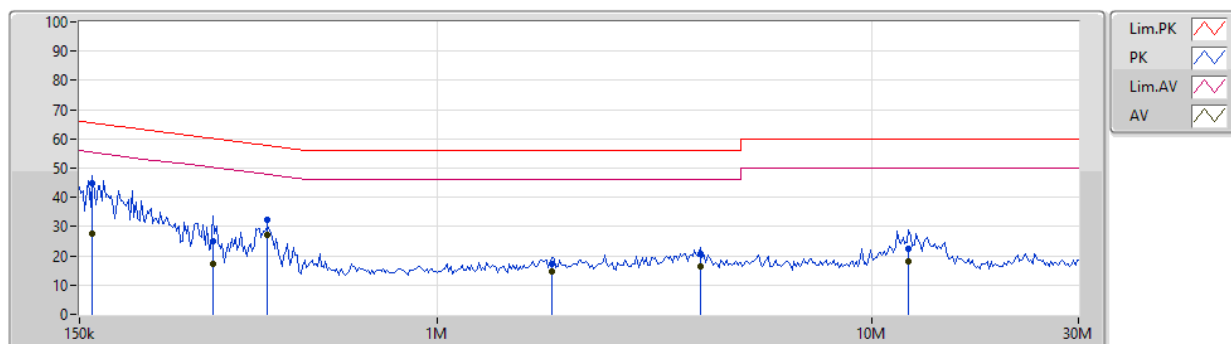


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	150k	45.54	66.00	-20.46	19.63	Neutral	"Worst"	25.91	9.65	0.11	9.87			
AV	150k	28.43	56.00	-27.57	19.63	Neutral	-	8.80	9.65	0.11	9.87			
QP	186.707k	38.87	64.18	-25.31	19.62	Neutral	-	19.25	9.64	0.11	9.87			
AV	186.707k	24.32	54.18	-29.86	19.62	Neutral	-	4.70	9.64	0.11	9.87			
QP	405.722k	31.12	57.74	-26.62	19.63	Neutral	-	11.49	9.63	0.13	9.87			
AV	405.722k	26.69	47.74	-21.05	19.63	Neutral	-	7.06	9.63	0.13	9.87			
QP	2.482M	15.72	56.00	-40.28	19.68	Neutral	-	-3.96	9.65	0.16	9.87			
AV	2.482M	13.61	46.00	-32.39	19.68	Neutral	-	-6.07	9.65	0.16	9.87			
QP	5.286M	18.40	60.00	-41.60	19.76	Neutral	-	-1.36	9.67	0.21	9.88			
AV	5.286M	15.74	50.00	-34.26	19.76	Neutral	-	-4.02	9.67	0.21	9.88			
QP	11.602M	22.99	60.00	-37.01	19.86	Neutral	-	3.13	9.70	0.28	9.88			
AV	11.602M	17.91	50.00	-32.09	19.86	Neutral	-	-1.95	9.70	0.28	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter mode (RX)		

26/05/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	160.82k	44.68	65.43	-20.75	19.64	Line	-	25.04	9.66	0.11	9.87			
AV	160.82k	27.68	55.43	-27.75	19.64	Line	-	8.04	9.66	0.11	9.87			
QP	304.025k	25.05	60.13	-35.08	19.63	Line	-	5.42	9.64	0.12	9.87			
AV	304.025k	17.31	50.13	-32.82	19.63	Line	-	-2.32	9.64	0.12	9.87			
QP	405.722k	32.46	57.74	-25.28	19.64	Line	-	12.82	9.64	0.13	9.87			
AV	405.722k	27.36	47.74	-20.38	19.64	Line	"Worst"	7.72	9.64	0.13	9.87			
QP	1.841M	17.04	56.00	-38.96	19.66	Line	-	-2.62	9.65	0.14	9.87			
AV	1.841M	14.44	46.00	-31.56	19.66	Line	-	-5.22	9.65	0.14	9.87			
QP	4.041M	20.49	56.00	-35.51	19.73	Line	-	0.76	9.66	0.19	9.88			
AV	4.041M	16.25	46.00	-29.75	19.73	Line	-	-3.48	9.66	0.19	9.88			
QP	12.194M	22.22	60.00	-37.78	19.85	Line	-	2.37	9.68	0.29	9.88			
AV	12.194M	17.94	50.00	-32.06	19.85	Line	-	-1.91	9.68	0.29	9.88			



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	Pass	PK	2.12M	49.61	69.50	-19.89	20.18	3	Horizontal	360	1.00	-

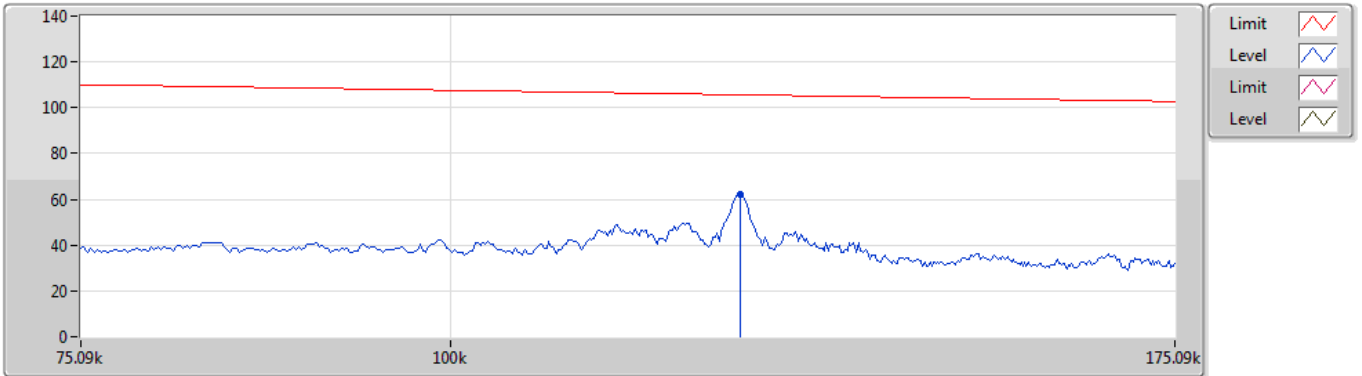
**Result**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.125MHz_TX	Pass	PK	125.09k	61.86	105.65	-43.79	20.10	3	Horizontal	216	1.00	-
0.125MHz_TX	Pass	PK	34.098k	53.73	116.93	-63.20	21.27	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	49.326k	51.21	113.73	-62.52	21.27	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	66.246k	48.56	111.17	-62.61	20.75	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	2.12M	49.61	69.50	-19.89	20.18	3	Horizontal	360	1.00	-
0.125MHz_TX	Pass	PK	3.672M	37.67	69.50	-31.83	20.38	3	Horizontal	360	1.00	-
0.125MHz_TX	Pass	PK	6.299M	35.75	69.50	-33.75	21.45	3	Horizontal	360	1.00	-

SRD

25/05/2020

0.125MHz_TX

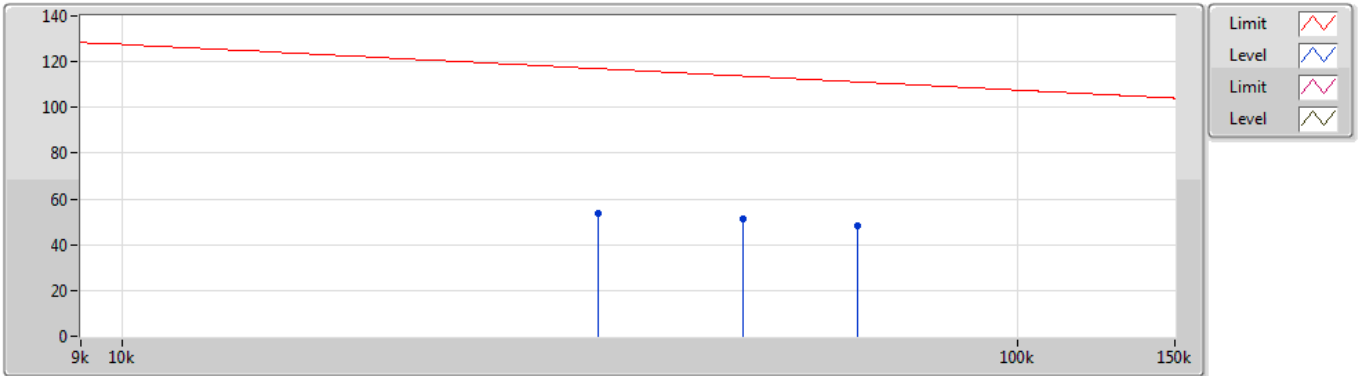


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	125.09k	61.86	105.65	-43.79	20.10	3	Horizontal	216	1.00	-	41.76	20.00	0.10	-

SRD

25/05/2020

0.125MHz_TX

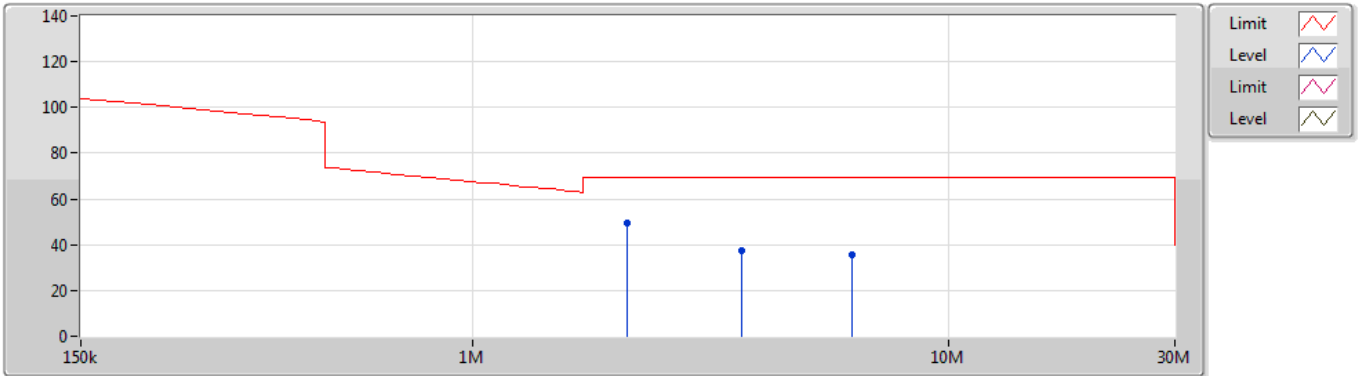


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	34.098k	53.73	116.93	-63.20	21.27	3	Horizontal	0	1.00	-	32.46	21.20	0.07	-
PK	49.326k	51.21	113.73	-62.52	21.27	3	Horizontal	0	1.00	-	29.94	21.20	0.07	-
PK	66.246k	48.56	111.17	-62.61	20.75	3	Horizontal	0	1.00	-	27.81	20.67	0.08	-

SRD

25/05/2020

0.125MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	2.12M	49.61	69.50	-19.89	20.18	3	Horizontal	360	1.00	-	29.43	19.99	0.19	-
PK	3.672M	37.67	69.50	-31.83	20.38	3	Horizontal	360	1.00	-	17.29	20.16	0.22	-
PK	6.299M	35.75	69.50	-33.75	21.45	3	Horizontal	360	1.00	-	14.30	21.13	0.32	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
	-	-	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	456.8M	33.93	46.00	-12.07	-2.13	3	Horizontal	0	1.00	-

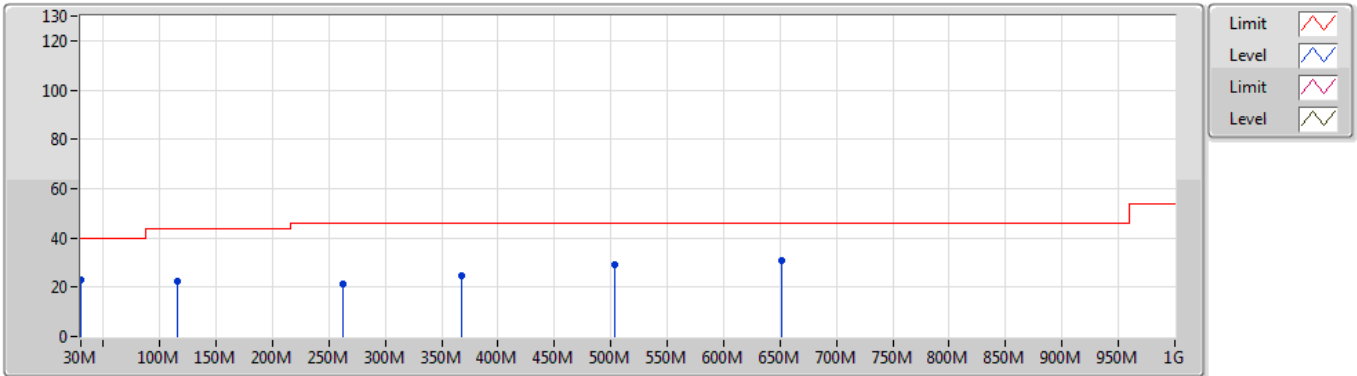
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.125MHz_TX	Pass	PK	30M	23.01	40.00	-16.99	-3.35	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	115.36M	22.32	43.50	-21.18	-8.40	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	262.8M	21.28	46.00	-24.72	-5.44	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	367.56M	24.63	46.00	-21.37	-3.98	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	503.36M	29.37	46.00	-16.63	-1.61	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	650.8M	31.01	46.00	-14.99	0.09	3	Vertical	360	1.00	-
0.125MHz_TX	Pass	PK	30M	23.15	40.00	-16.85	-3.35	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	113.42M	24.70	43.50	-18.80	-8.52	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	262.8M	26.42	46.00	-19.58	-5.44	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	408.3M	30.38	46.00	-15.62	-2.54	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	456.8M	33.93	46.00	-12.07	-2.13	3	Horizontal	0	1.00	-
0.125MHz_TX	Pass	PK	503.36M	33.65	46.00	-12.35	-1.61	3	Horizontal	0	1.00	-

SRD

25/05/2020

0.125MHz_TX

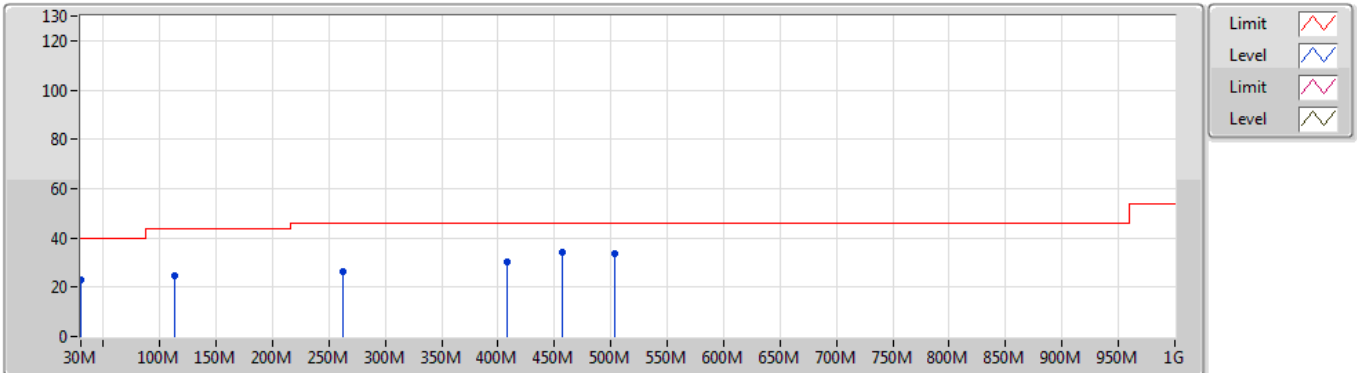


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	23.01	40.00	-16.99	-3.35	3	Vertical	360	1.00	-	26.36	23.33	0.90	27.58
PK	115.36M	22.32	43.50	-21.18	-8.40	3	Vertical	360	1.00	-	30.72	17.16	1.75	27.31
PK	262.8M	21.28	46.00	-24.72	-5.44	3	Vertical	360	1.00	-	26.72	18.57	2.68	26.69
PK	367.56M	24.63	46.00	-21.37	-3.98	3	Vertical	360	1.00	-	28.61	19.90	3.17	27.05
PK	503.36M	29.37	46.00	-16.63	-1.61	3	Vertical	360	1.00	-	30.98	22.49	3.71	27.81
PK	650.8M	31.01	46.00	-14.99	0.09	3	Vertical	360	1.00	-	30.92	23.89	4.30	28.10

SRD

0.125MHz_TX

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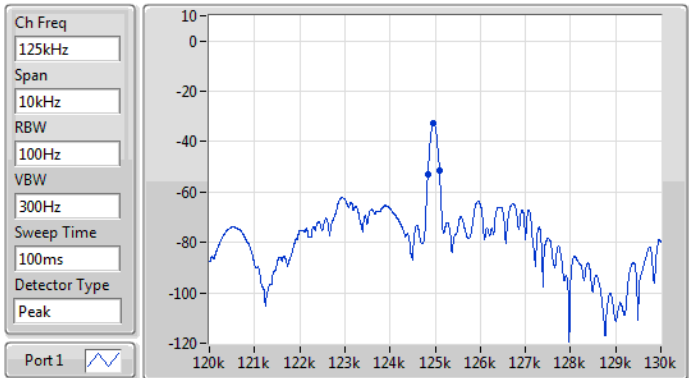
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	23.15	40.00	-16.85	-3.35	3	Horizontal	0	1.00	-	26.50	23.33	0.90	27.58
PK	113.42M	24.70	43.50	-18.80	-8.52	3	Horizontal	0	1.00	-	33.22	17.07	1.73	27.32
PK	262.8M	26.42	46.00	-19.58	-5.44	3	Horizontal	0	1.00	-	31.86	18.57	2.68	26.69
PK	408.3M	30.38	46.00	-15.62	-2.54	3	Horizontal	0	1.00	-	32.92	21.46	3.32	27.32
PK	456.8M	33.93	46.00	-12.07	-2.13	3	Horizontal	0	1.00	-	36.06	22.13	3.44	27.70
PK	503.36M	33.65	46.00	-12.35	-1.61	3	Horizontal	0	1.00	-	35.26	22.49	3.71	27.81

Result

Mode	Result	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	FI-OBW (Hz)	Fh-OBW (Hz)	Limit (Range)
SRD	-	-	-	-	-	-	-	-
0.125MHz_TnomVnom	Pass	255	124.84000k	125.09500k	2.394k	123.99050k	126.38431k	-

SRD

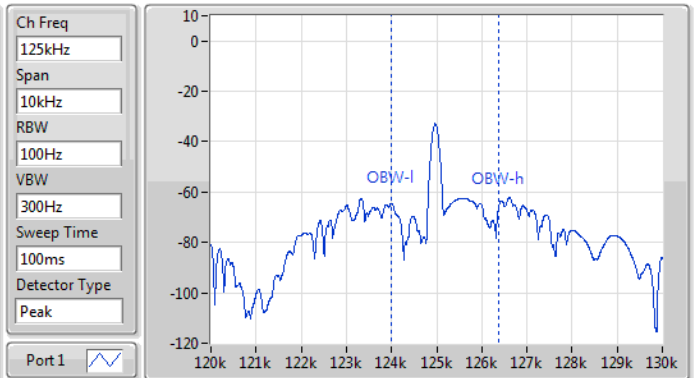
0.125MHz_TnomVnom



20dB(Hz)	FI-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	FI-OBW(Hz)	Fh-OBW(Hz)	Limit(Range)
255	124.84000k	125.09500k	2.394k	123.99050k	126.38431k	-

EBW

25/05/2020





Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
	-	-	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	1.881M	48.37	69.50	-21.13	20.25	3	Horizontal	360	1.00	-

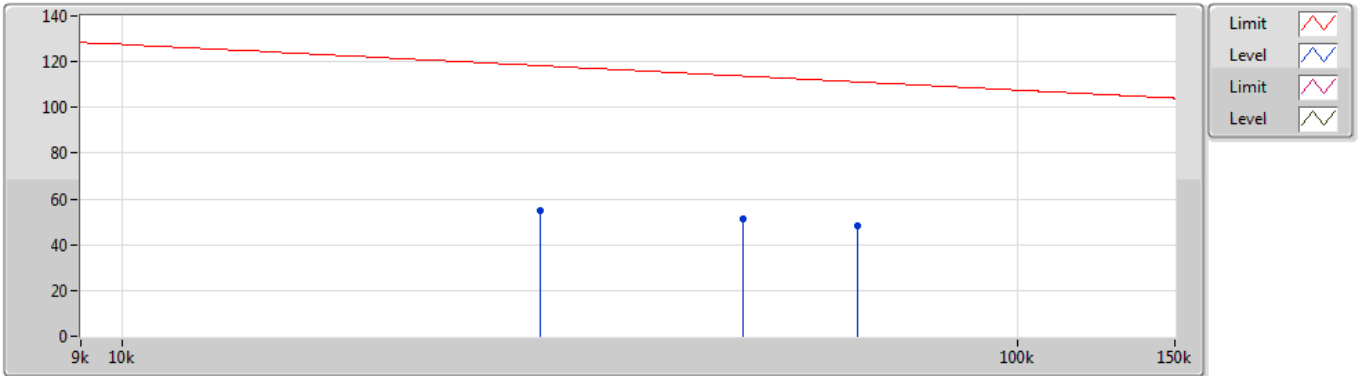
**Result**

Mode	Result	Type	Freq (Hz)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.125MHz_RX	Pass	PK	29.304k	54.98	118.25	-63.27	21.24	3	Horizontal	0	1.00	-
0.125MHz_RX	Pass	PK	49.326k	51.25	113.73	-62.48	21.27	3	Horizontal	0	1.00	-
0.125MHz_RX	Pass	PK	66.246k	47.98	111.17	-63.19	20.75	3	Horizontal	0	1.00	-
0.125MHz_RX	Pass	PK	1.881M	48.37	69.50	-21.13	20.25	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	3.672M	38.20	69.50	-31.30	20.38	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	8.21M	34.87	69.50	-34.63	22.02	3	Horizontal	360	1.00	-

SRD

25/05/2020

0.125MHz_RX

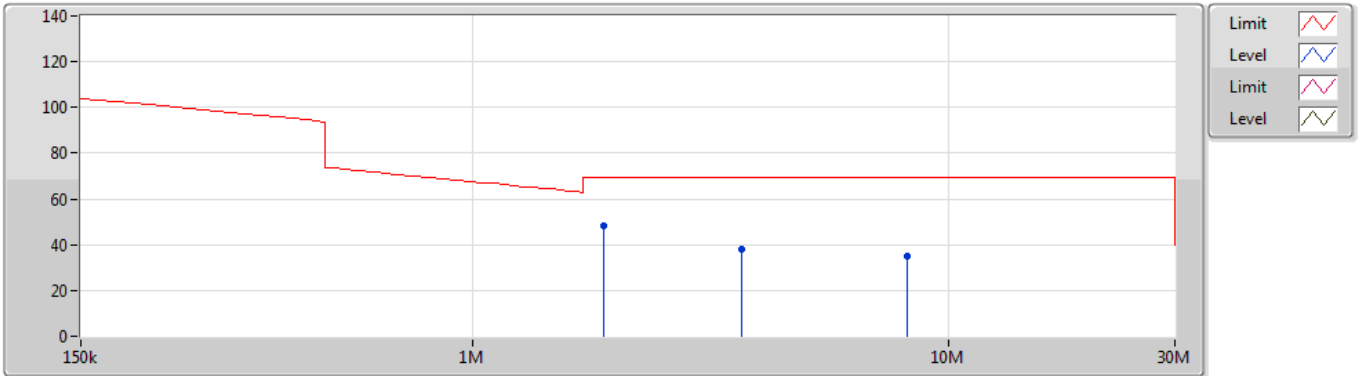


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	29.304k	54.98	118.25	-63.27	21.24	3	Horizontal	0	1.00	-	33.74	21.17	0.07	-
PK	49.326k	51.25	113.73	-62.48	21.27	3	Horizontal	0	1.00	-	29.98	21.20	0.07	-
PK	66.246k	47.98	111.17	-63.19	20.75	3	Horizontal	0	1.00	-	27.23	20.67	0.08	-

SRD

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0.125MHz_RX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	1.881M	48.37	69.50	-21.13	20.25	3	Horizontal	360	1.00	-	28.12	20.06	0.19	-
PK	3.672M	38.20	69.50	-31.30	20.38	3	Horizontal	360	1.00	-	17.82	20.16	0.22	-
PK	8.21M	34.87	69.50	-34.63	22.02	3	Horizontal	360	1.00	-	12.85	21.63	0.39	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
	-	-	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	456.8M	35.88	46.00	-10.12	-2.13	3	Horizontal	360	1.00	-

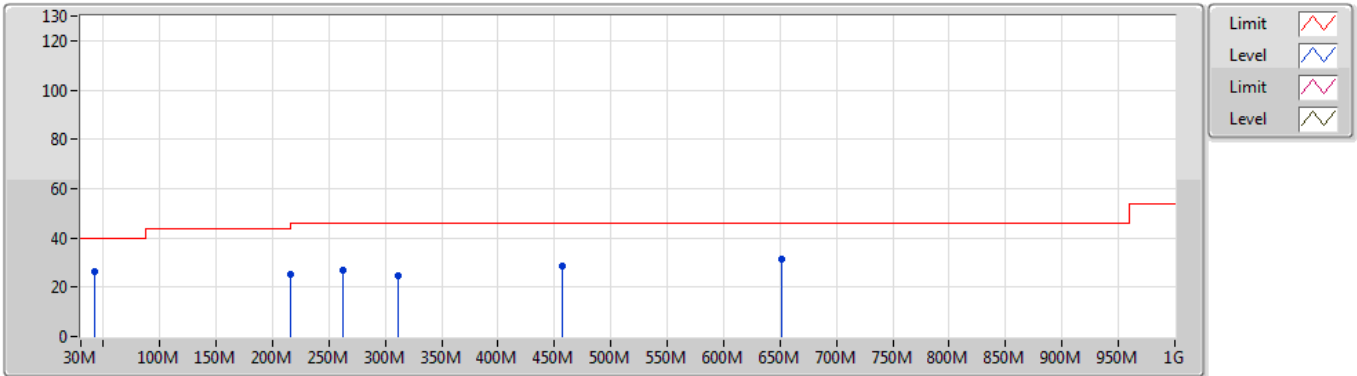
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.125MHz_RX	Pass	PK	41.64M	26.08	40.00	-13.92	-9.82	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	216.24M	25.21	46.00	-20.79	-10.48	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	262.8M	26.79	46.00	-19.21	-5.44	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	311.3M	24.89	46.00	-21.11	-5.09	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	456.8M	28.80	46.00	-17.20	-2.13	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	650.8M	31.61	46.00	-14.39	0.09	3	Vertical	0	1.00	-
0.125MHz_RX	Pass	PK	30M	23.00	40.00	-17.00	-3.35	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	216.24M	30.25	46.00	-15.75	-10.48	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	262.8M	32.10	46.00	-13.90	-5.44	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	408.3M	31.49	46.00	-14.51	-2.54	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	456.8M	35.88	46.00	-10.12	-2.13	3	Horizontal	360	1.00	-
0.125MHz_RX	Pass	PK	503.36M	31.59	46.00	-14.41	-1.61	3	Horizontal	360	1.00	-

SRD

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0.125MHz_RX

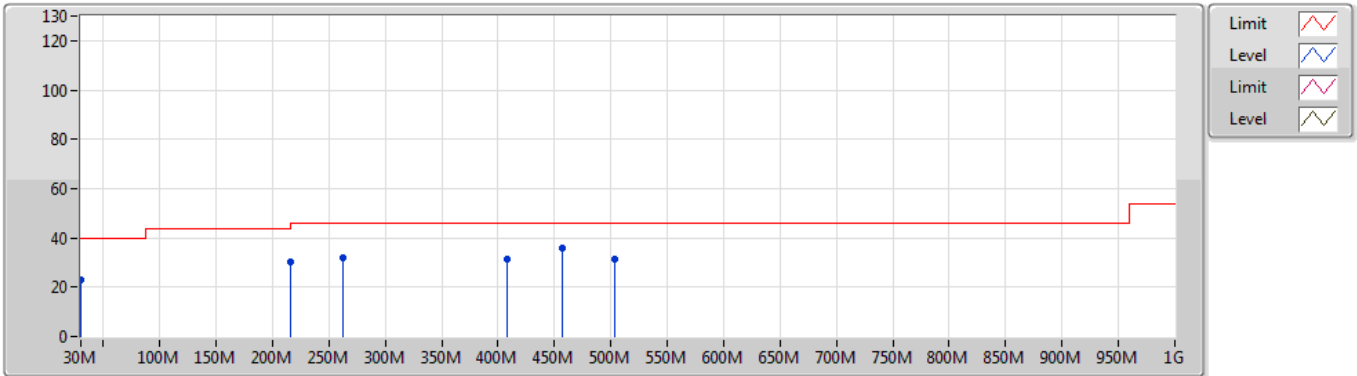


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	41.64M	26.08	40.00	-13.92	-9.82	3	Vertical	0	1.00	-	35.90	16.72	1.00	27.54
PK	216.24M	25.21	46.00	-20.79	-10.48	3	Vertical	0	1.00	-	35.69	13.97	2.40	26.85
PK	262.8M	26.79	46.00	-19.21	-5.44	3	Vertical	0	1.00	-	32.23	18.57	2.68	26.69
PK	311.3M	24.89	46.00	-21.11	-5.09	3	Vertical	0	1.00	-	29.98	18.68	2.95	26.72
PK	456.8M	28.80	46.00	-17.20	-2.13	3	Vertical	0	1.00	-	30.93	22.13	3.44	27.70
PK	650.8M	31.61	46.00	-14.39	0.09	3	Vertical	0	1.00	-	31.52	23.89	4.30	28.10

SRD

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0.125MHz_RX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	23.00	40.00	-17.00	-3.35	3	Horizontal	360	1.00	-	26.35	23.33	0.90	27.58
PK	216.24M	30.25	46.00	-15.75	-10.48	3	Horizontal	360	1.00	-	40.73	13.97	2.40	26.85
PK	262.8M	32.10	46.00	-13.90	-5.44	3	Horizontal	360	1.00	-	37.54	18.57	2.68	26.69
PK	408.3M	31.49	46.00	-14.51	-2.54	3	Horizontal	360	1.00	-	34.03	21.46	3.32	27.32
PK	456.8M	35.88	46.00	-10.12	-2.13	3	Horizontal	360	1.00	-	38.01	22.13	3.44	27.70
PK	503.36M	31.59	46.00	-14.41	-1.61	3	Horizontal	360	1.00	-	33.20	22.49	3.71	27.81