

FCC TEST REPORT

FCC ID : HV4CTL4100WLA
Equipment : Pen Tablet
Brand Name : Wacom
Model Name : CTL-4100WL, CTL-4100WLA
Applicant : Wacom Co., Ltd.
2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148
Japan
Manufacturer : Wacom Co., Ltd.
2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148
Japan
Standard : 47 CFR FCC Part 15.209

The product was received on Sep. 15, 2021, and testing was started from Nov. 06, 2021 and completed on Nov. 09, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua 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 test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FR7N1309-07AP	01	Initial issue of report	Nov. 19, 2021



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.209	Transmitter Radiated Emissions	PASS	-
3.3	15.215(c)	Emission Bandwidth	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: Amber Chiu



1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information			
Modulation	Ch. Frequency(kHz)	Channel Number	Field Strength (dBuV)
OOK	667	1	52.12
Note 1: Field strength performed peak level at 3m.			

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	-	-	Integral antenna	-

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From AC Adapter / From Host system
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
<input checked="" type="checkbox"/>	Operated normal mode for worst duty cycle
<input type="checkbox"/>	Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)	
<input checked="" type="checkbox"/>	100.00%

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
CTL-4100WL, CTL-4100WLA	All the models are identical, the different model served as marketing strategy.

1.2 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

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

- ◆ KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab. : Sporton International Inc. Hsinhua Laboratory				
<input checked="" type="checkbox"/> Hsinhua (TAF: 3785)	ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		FAX: 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward Wang	21.5~22.0°C / 50~54%	09/Nov/2021
RF Conducted	TH01-HY	Johnny Yu	20.1~26.9°C / 50~60%	06/Nov/2021
Radiated Emission	03CH03-HY	Edward Wang	21.1~22.3°C / 50~54%	09/Nov/2021
<input type="checkbox"/> Wen 33rd.St. (TAF: 3785)	ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		FAX: 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				

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 The Worst Case Configuration

Mode	Test Channel Frequencies(kHz)	Field Strength (dBuV/m@3m)
Touch Panel	667	52.12

2.2 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	CTX
1	USB Mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Field Strength of Fundamental Emissions Transmitter Radiated Unwanted Emissions		
Test Condition	Radiated measurement		
User Position	<input type="checkbox"/> EUT will be placed in fixed position.		
	<input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes.		
	<input checked="" type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	CTX		
1	USB Mode		
Transmitter Mode	OOK		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		



2.3 Accessory

Accessories				
Battery	Brand Name	Wacom	Model Name	PR-234385G
	Manufacturer	TCL Hyperpower Batteries		
	Power Rating	3.8Vdc, 1260mAh	Type	Li-ion
Touch Pen	Brand Name	Wacom	Model Name	LP-1100
Micro USB Cable	Brand Name	Wacom	Model Name	STJ-A393
	signal line	1.5 meter, shielded cable, w/o ferrite core		

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

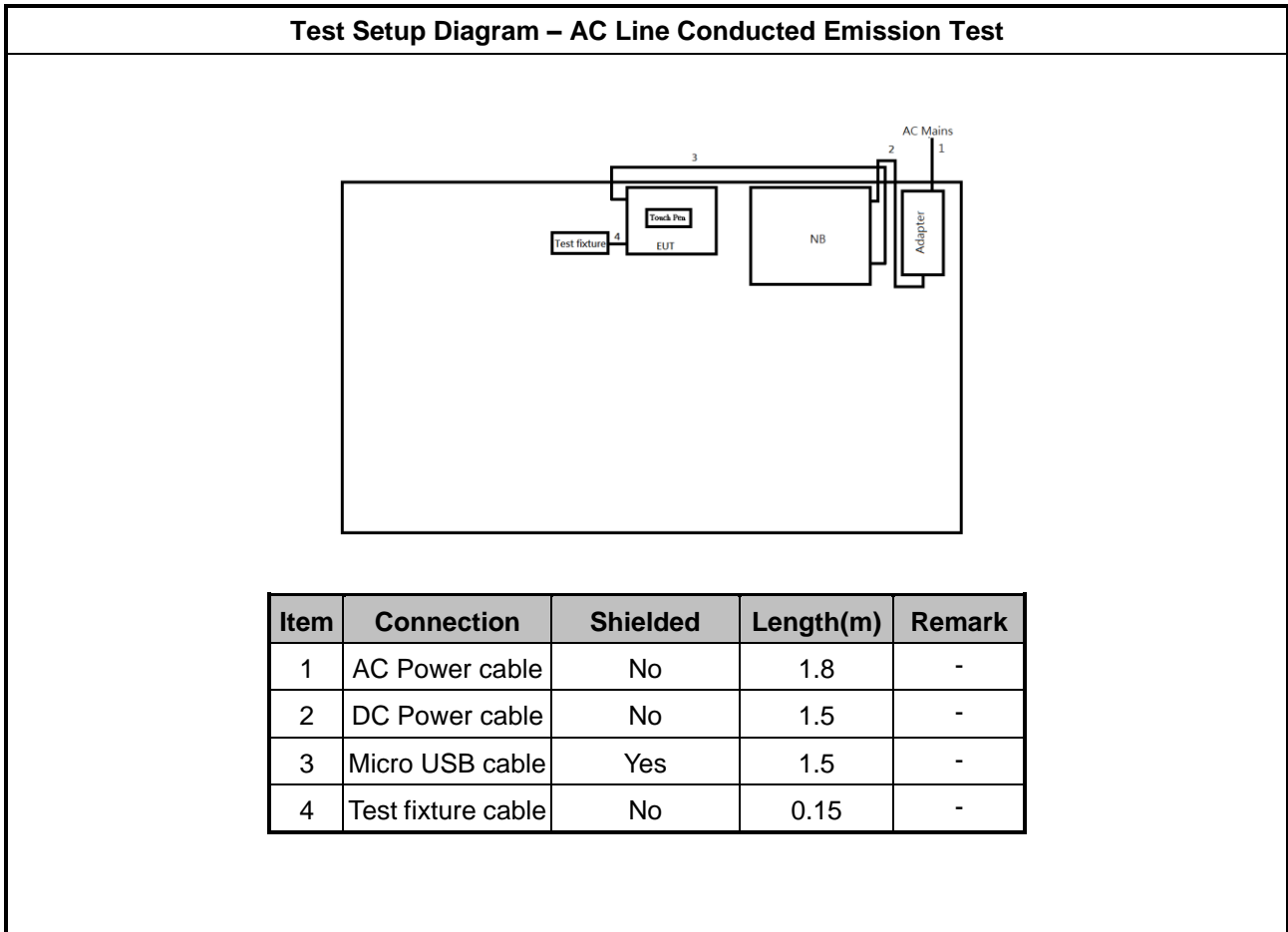
2.4 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	Test fixture	-	-	-	Provided by Customer

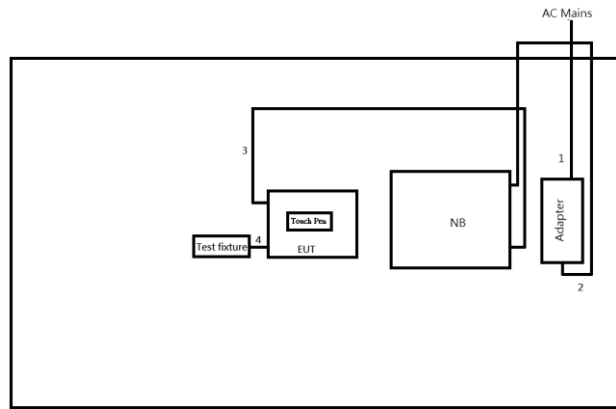
Support Equipment –AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	HSTNN-Q85C	-	-
2	Adapter for NB	HP	PPP012L-E	-	-
3	Test fixture	-	-	-	Provided by Customer

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	HSTNN-Q85C	-	-
2	Adapter for NB	HP	PPP012L-E	-	-
3	Test fixture	-	-	-	Provided by Customer

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-
3	Micro USB cable	Yes	1.5	-
4	Test fixture cable	No	0.15	-



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

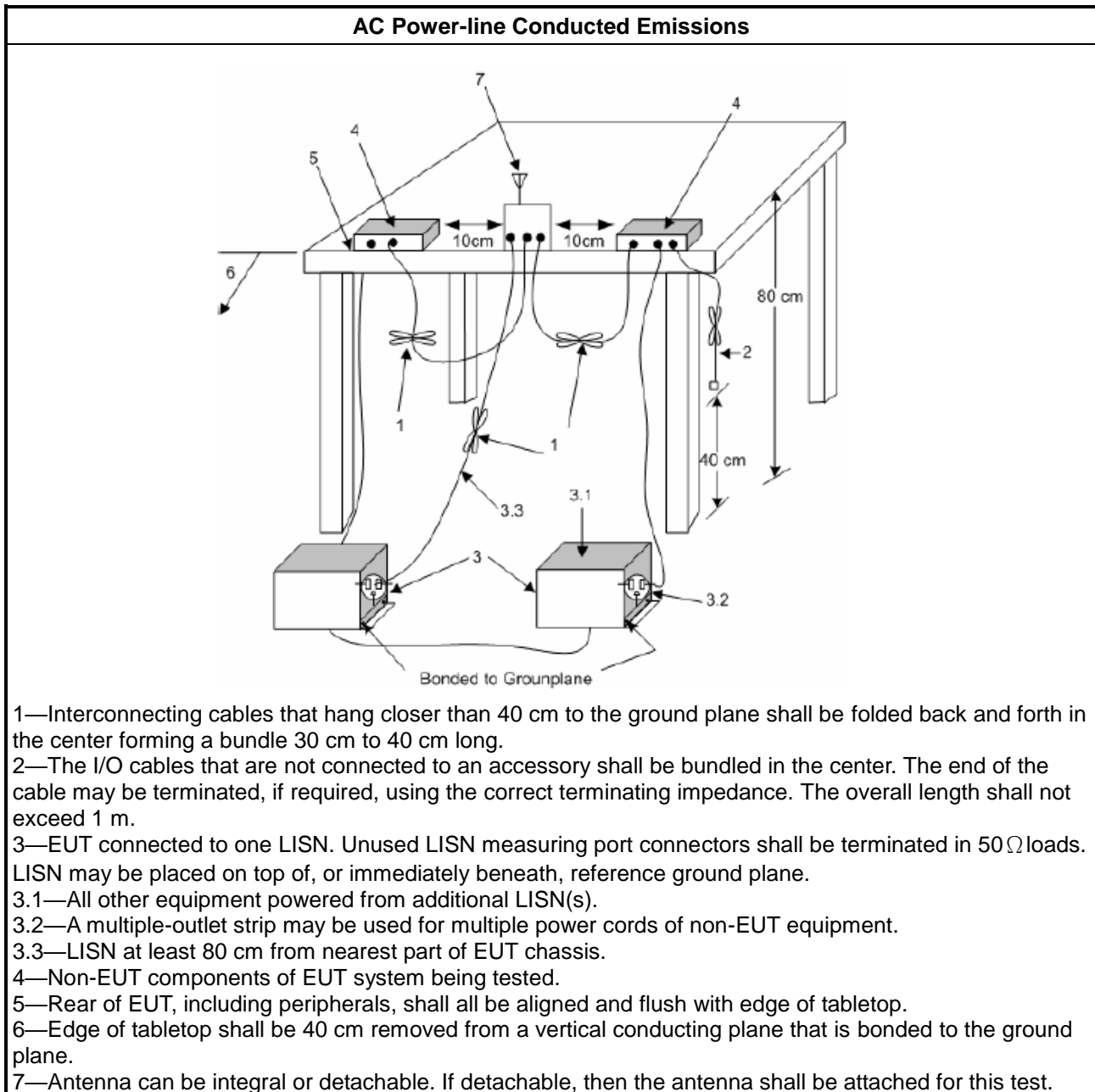
Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
<input checked="" type="checkbox"/>	If AC conducted emissions fall in operating band, then following below test method confirm final result.
<input type="checkbox"/>	Accept measurements 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 FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load to determine compliance with FCC 15.207 limits within the transmitter's fundamental emission band.
<input checked="" type="checkbox"/>	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 FCC 15.207 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 FCC 15.207 limits within the transmitter's fundamental emission band.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) +LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 Transmitter Radiated Emissions

3.2.1 Transmitter Radiated Emissions Limit

Transmitter Radiated 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

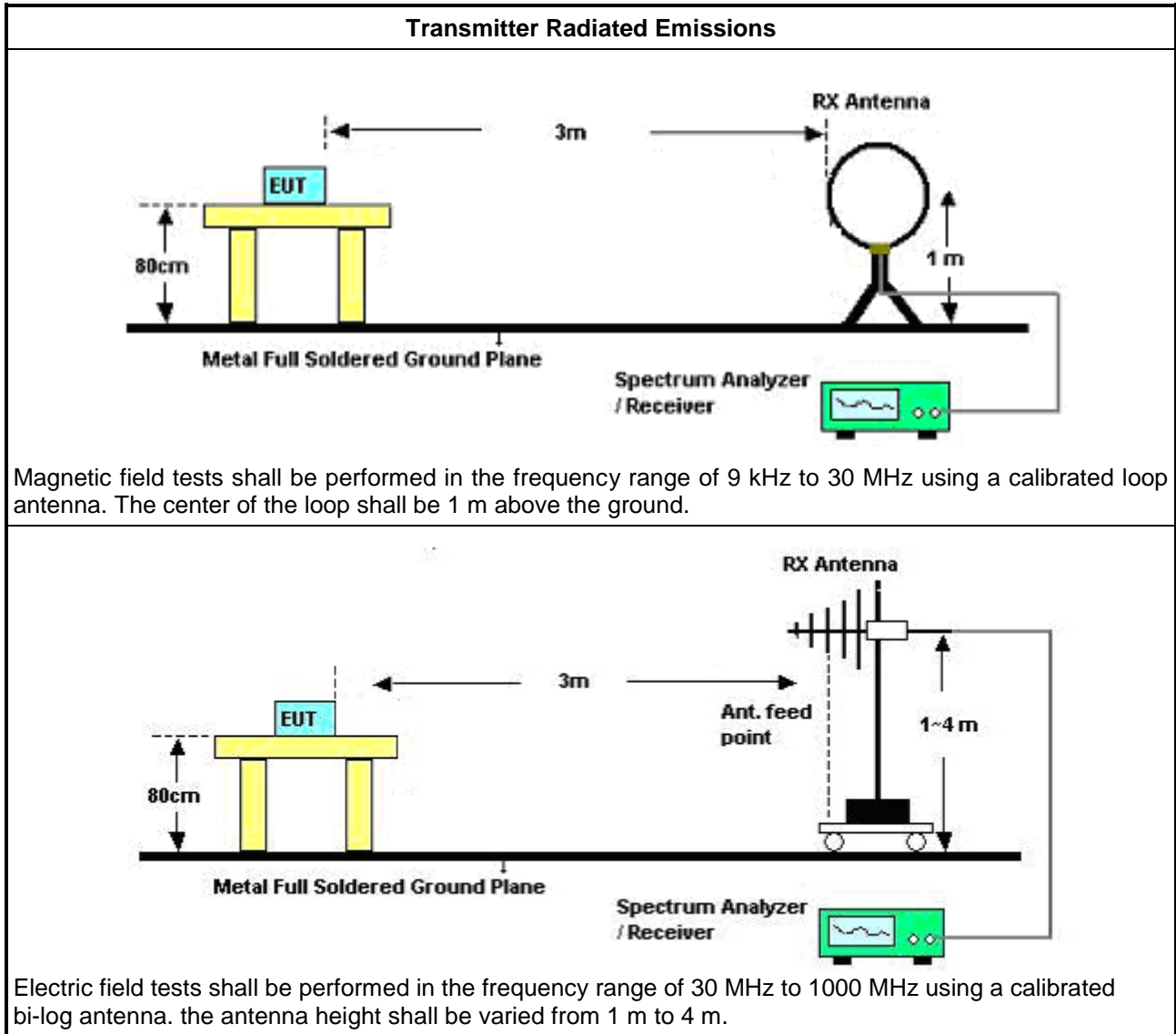
Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3m.
<input checked="" type="checkbox"/>	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. Note: If fundamental emission level is smaller than noise at 3m , we will change distance to 1m.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	The any unwanted emissions level shall not exceed the fundamental emission level.
<input checked="" type="checkbox"/>	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
<input checked="" type="checkbox"/>	KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
<input type="checkbox"/>	<ul style="list-style-type: none"> Based on FCC 15.31 (f) (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.
<input type="checkbox"/>	<ul style="list-style-type: none"> Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.2.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.2.5 Test Setup



3.2.6 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

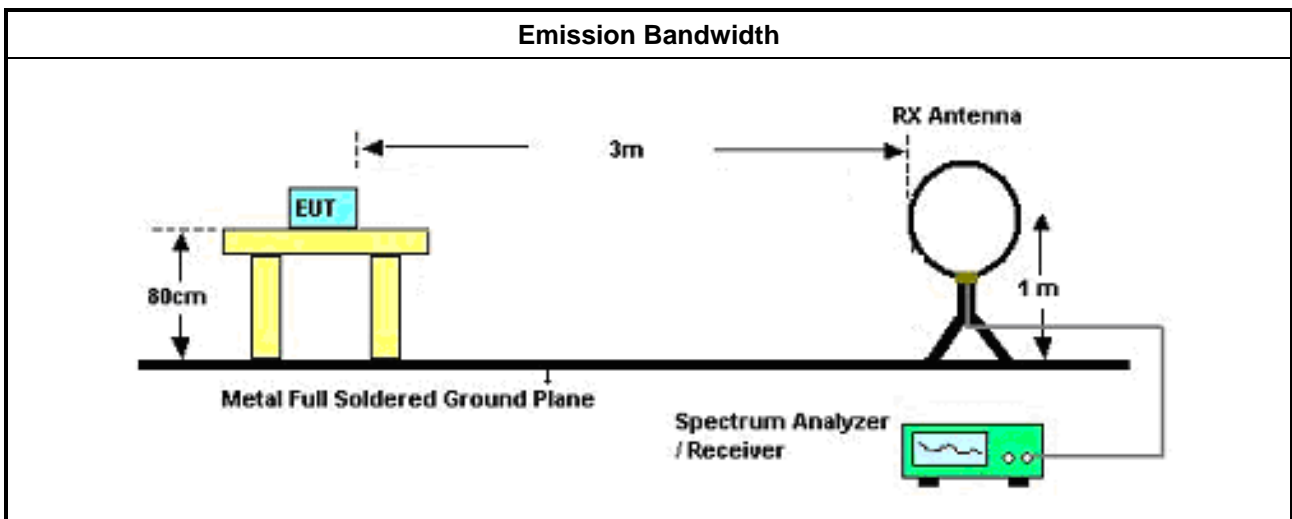
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> 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.
<input checked="" type="checkbox"/> 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



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer / Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	21/May/2021	20/May/2022
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
RF Cable 5m	TITAN	TITAN	CO04-cable-01	0.1MHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	15/Sep/2021	14/Sep/2022

Instrument for Conducted Test

Instrument	Manufacturer / Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	30/Mar/2021	29/Mar/2022

Instrument for Radiated Test

Instrument	Manufacturer / Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	03/Aug/2021	02/Aug/2022
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	12/Oct/2021	11/Oct/2022
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	13/Apr/2021	12/Apr/2022
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	17/Oct/2021	16/Oct/2022
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	16/Jun/2021	15/Jun/2022
RF Cable-R03m	Jye Bao	RG142	MY37335/4+CB021-1+CB021-2	30MHz~1GHz	17/Mar/2021	16/Mar/2022
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2021	15/Mar/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022



Summary

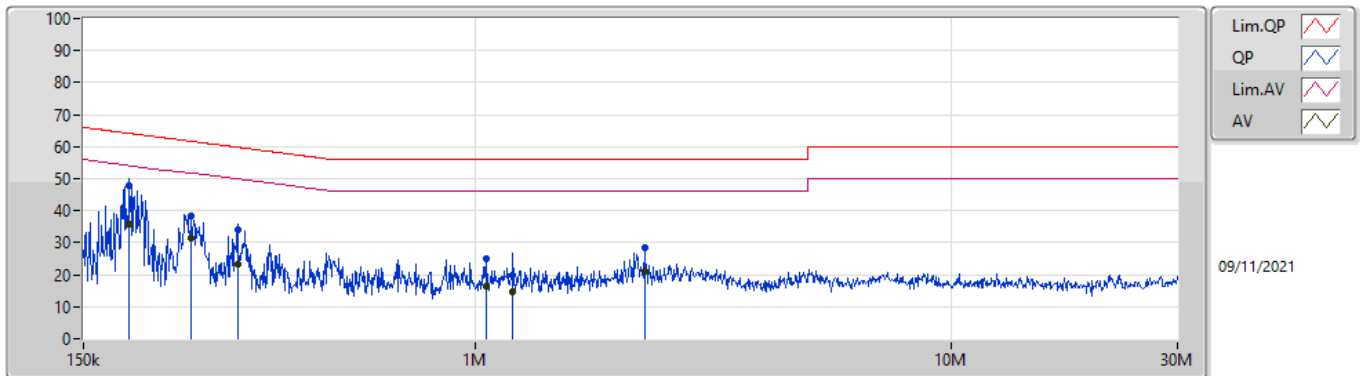
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	187.577k	48.06	64.15	-16.09	Neutral



Mode Configure

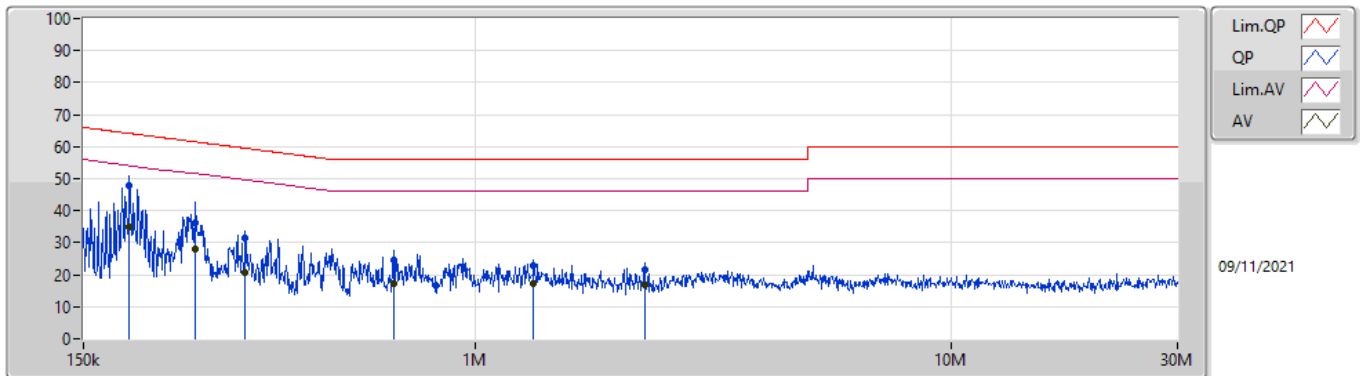
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	187.577k	48.04	64.15	-16.11	Line	-
Mode 1	Pass	AV	187.577k	35.71	54.15	-18.44	Line	-
Mode 1	Pass	QP	253.051k	38.49	61.66	-23.17	Line	-
Mode 1	Pass	AV	253.051k	31.34	51.66	-20.32	Line	-
Mode 1	Pass	QP	316.443k	34.26	59.80	-25.54	Line	-
Mode 1	Pass	AV	316.443k	23.07	49.80	-26.73	Line	-
Mode 1	Pass	QP	1.052M	24.83	56.00	-31.17	Line	-
Mode 1	Pass	AV	1.052M	16.38	46.00	-29.62	Line	-
Mode 1	Pass	QP	1.2M	19.86	56.00	-36.14	Line	-
Mode 1	Pass	AV	1.2M	14.84	46.00	-31.16	Line	-
Mode 1	Pass	QP	2.274M	28.29	56.00	-27.71	Line	-
Mode 1	Pass	AV	2.274M	21.03	46.00	-24.97	Line	-
Mode 1	Pass	QP	187.577k	48.06	64.15	-16.09	Neutral	-
Mode 1	Pass	AV	187.577k	34.71	54.15	-19.44	Neutral	-
Mode 1	Pass	QP	258.152k	36.31	61.49	-25.18	Neutral	-
Mode 1	Pass	AV	258.152k	28.13	51.49	-23.36	Neutral	-
Mode 1	Pass	QP	328.019k	31.44	59.50	-28.06	Neutral	-
Mode 1	Pass	AV	328.019k	20.56	49.50	-28.94	Neutral	-
Mode 1	Pass	QP	672.926k	24.44	56.00	-31.56	Neutral	-
Mode 1	Pass	AV	672.926k	17.06	46.00	-28.94	Neutral	-
Mode 1	Pass	QP	1.326M	22.92	56.00	-33.08	Neutral	-
Mode 1	Pass	AV	1.326M	17.10	46.00	-28.90	Neutral	-
Mode 1	Pass	QP	2.274M	21.48	56.00	-34.52	Neutral	-
Mode 1	Pass	AV	2.274M	16.94	46.00	-29.06	Neutral	-

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	187.577k	48.04	64.15	-16.11	19.61	Line	-	28.43	9.68	0.04	9.89			
AV	187.577k	35.71	54.15	-18.44	19.61	Line	-	16.10	9.68	0.04	9.89			
QP	253.051k	38.49	61.66	-23.17	19.62	Line	-	18.87	9.68	0.05	9.89			
AV	253.051k	31.34	51.66	-20.32	19.62	Line	-	11.72	9.68	0.05	9.89			
QP	316.443k	34.26	59.80	-25.54	19.61	Line	-	14.65	9.67	0.05	9.89			
AV	316.443k	23.07	49.80	-26.73	19.61	Line	-	3.46	9.67	0.05	9.89			
QP	1.052M	24.83	56.00	-31.17	19.64	Line	-	5.19	9.67	0.08	9.89			
AV	1.052M	16.38	46.00	-29.62	19.64	Line	-	-3.26	9.67	0.08	9.89			
QP	1.2M	19.86	56.00	-36.14	19.65	Line	-	0.21	9.67	0.09	9.89			
AV	1.2M	14.84	46.00	-31.16	19.65	Line	-	-4.81	9.67	0.09	9.89			
QP	2.274M	28.29	56.00	-27.71	19.67	Line	-	8.62	9.68	0.11	9.88			
AV	2.274M	21.03	46.00	-24.97	19.67	Line	-	1.36	9.68	0.11	9.88			

Conducted Emissions at Powerline_Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	187.577k	48.06	64.15	-16.09	19.61	Neutral	-	28.45	9.68	0.04	9.89
AV	187.577k	34.71	54.15	-19.44	19.61	Neutral	-	15.10	9.68	0.04	9.89
QP	258.152k	36.31	61.49	-25.18	19.62	Neutral	-	16.69	9.68	0.05	9.89
AV	258.152k	28.13	51.49	-23.36	19.62	Neutral	-	8.51	9.68	0.05	9.89
QP	328.019k	31.44	59.50	-28.06	19.61	Neutral	-	11.83	9.67	0.05	9.89
AV	328.019k	20.56	49.50	-28.94	19.61	Neutral	-	0.95	9.67	0.05	9.89
QP	672.926k	24.44	56.00	-31.56	19.63	Neutral	-	4.81	9.67	0.07	9.89
AV	672.926k	17.06	46.00	-28.94	19.63	Neutral	-	-2.57	9.67	0.07	9.89
QP	1.326M	22.92	56.00	-33.08	19.65	Neutral	-	3.27	9.67	0.09	9.89
AV	1.326M	17.10	46.00	-28.90	19.65	Neutral	-	-2.55	9.67	0.09	9.89
QP	2.274M	21.48	56.00	-34.52	19.67	Neutral	-	1.81	9.68	0.11	9.88
AV	2.274M	16.94	46.00	-29.06	19.67	Neutral	-	-2.73	9.68	0.11	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
WPT	-	-	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	667.87k	52.12	71.11	-18.99	20.53	3	Horizontal	27	1.00	-



Result

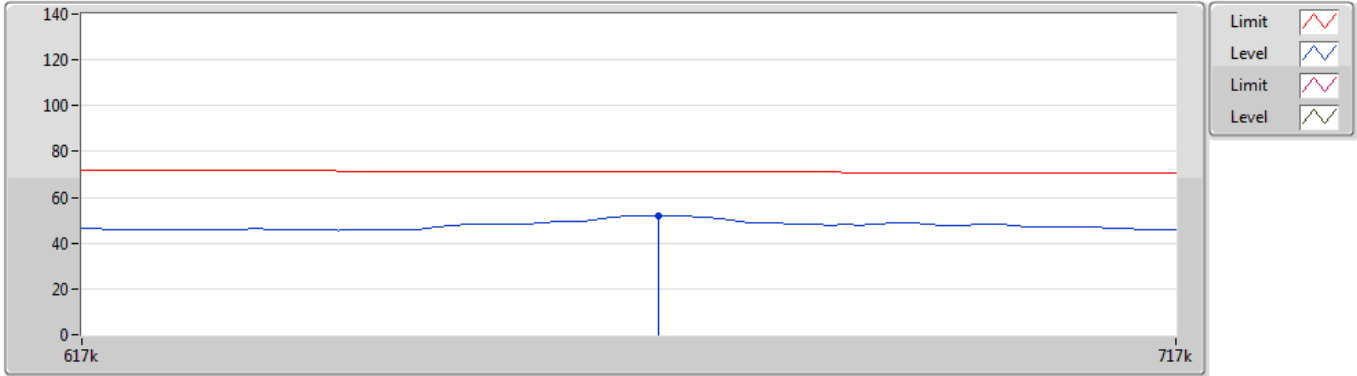
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.667MHz_TX	Pass	PK	667.87k	52.12	71.11	-18.99	20.53	3	Horizontal	27	1.00	-
0.667MHz_TX	Pass	PK	49.257k	49.80	113.75	-63.95	21.04	3	Horizontal	360	1.00	-
0.667MHz_TX	Pass	PK	63.357k	46.01	111.55	-65.54	20.67	3	Horizontal	360	1.00	-
0.667MHz_TX	Pass	PK	98.504k	42.66	107.73	-65.07	19.98	3	Horizontal	360	1.00	-
0.667MHz_TX	Pass	PK	409.565k	51.60	95.36	-43.76	20.54	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	842.174k	45.53	69.12	-23.59	20.54	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	3.395M	40.63	69.50	-28.87	20.42	3	Horizontal	0	1.00	-



SRD

09/11/2021

0.667MHz_TX

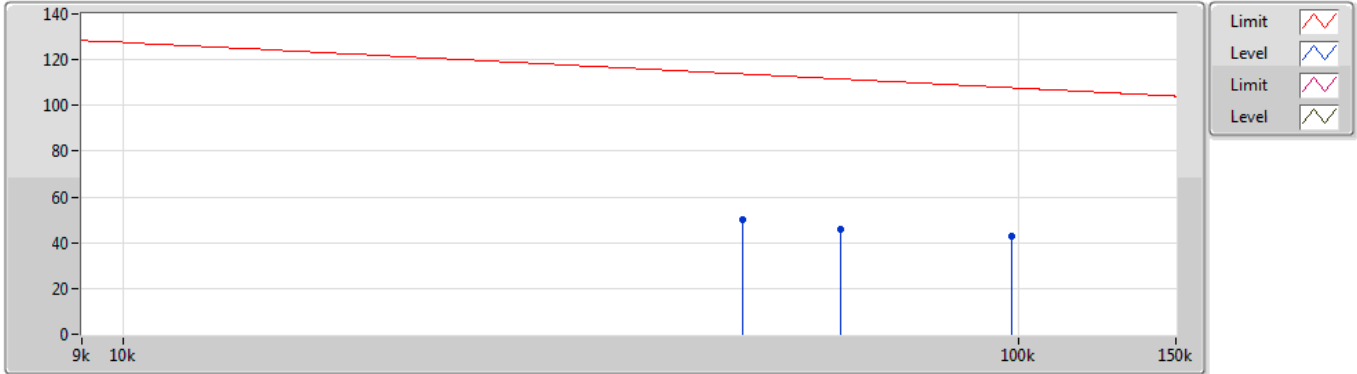


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	667.87k	52.12	71.11	-18.99	20.53	3	Horizontal	27	1.00	-	31.59	20.40	0.13	-

SRD

09/11/2021

0.667MHz_TX

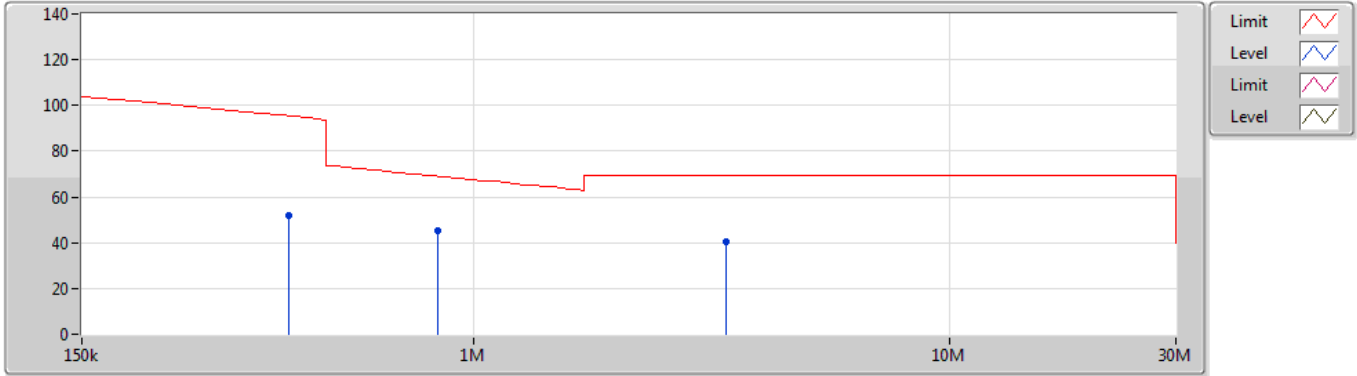


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	49.257k	49.80	113.75	-63.95	21.04	3	Horizontal	360	1.00	-	28.76	21.01	0.03	-
PK	63.357k	46.01	111.55	-65.54	20.67	3	Horizontal	360	1.00	-	25.34	20.62	0.05	-
PK	98.504k	42.66	107.73	-65.07	19.98	3	Horizontal	360	1.00	-	22.68	19.93	0.05	-

SRD

09/11/2021

0.667MHz_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	409.565k	51.60	95.36	-43.76	20.54	3	Horizontal	0	1.00	-	31.06	20.44	0.10	-
PK	842.174k	45.53	69.12	-23.59	20.54	3	Horizontal	0	1.00	-	24.99	20.40	0.14	-
PK	3.395M	40.63	69.50	-28.87	20.42	3	Horizontal	0	1.00	-	20.21	20.17	0.25	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
WPT	-	-	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	49.4M	30.95	40.00	-9.05	-13.09	3	Vertical	360	1.00	-



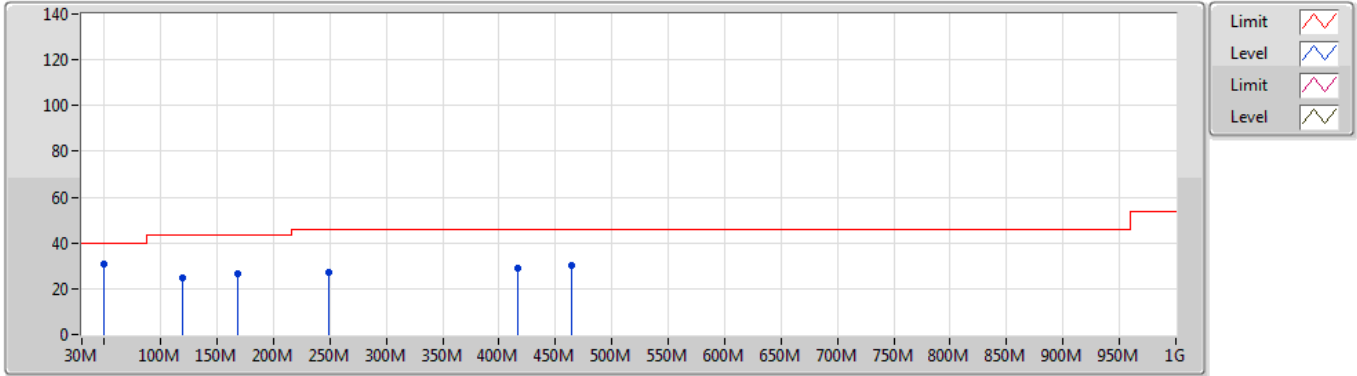
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
SRD	-	-	-	-	-	-	-	-	-	-	-	-
0.667MHz_TX	Pass	PK	49.4M	30.95	40.00	-9.05	-13.09	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	119.24M	24.74	43.50	-18.76	-8.14	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	167.74M	26.44	43.50	-17.06	-10.22	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	249.22M	27.40	46.00	-18.60	-6.62	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	416.06M	29.18	46.00	-16.82	-2.16	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	464.56M	30.33	46.00	-15.67	-1.42	3	Vertical	360	1.00	-
0.667MHz_TX	Pass	PK	119.24M	32.27	43.50	-11.23	-8.14	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	183.26M	32.60	43.50	-10.90	-10.68	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	198.78M	32.37	43.50	-11.13	-10.33	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	249.22M	32.82	46.00	-13.18	-6.62	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	336.52M	29.98	46.00	-16.02	-4.76	3	Horizontal	0	1.00	-
0.667MHz_TX	Pass	PK	431.58M	28.88	46.00	-17.12	-2.10	3	Horizontal	0	1.00	-

SRD

09/11/2021

0.667MHz_TX

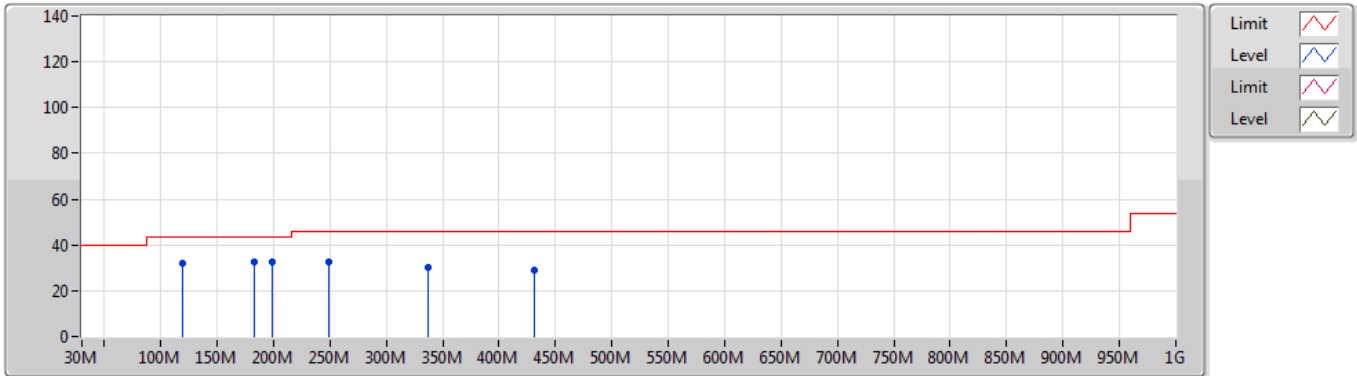


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	49.4M	30.95	40.00	-9.05	-13.09	3	Vertical	360	1.00	-	44.04	13.41	1.13	27.63
PK	119.24M	24.74	43.50	-18.76	-8.14	3	Vertical	360	1.00	-	32.88	17.35	1.88	27.37
PK	167.74M	26.44	43.50	-17.06	-10.22	3	Vertical	360	1.00	-	36.66	14.78	2.18	27.18
PK	249.22M	27.40	46.00	-18.60	-6.62	3	Vertical	360	1.00	-	34.02	17.44	2.67	26.73
PK	416.06M	29.18	46.00	-16.82	-2.16	3	Vertical	360	1.00	-	31.34	21.73	3.52	27.41
PK	464.56M	30.33	46.00	-15.67	-1.42	3	Vertical	360	1.00	-	31.75	22.56	3.74	27.72

SRD

09/11/2021

0.667MHz_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	119.24M	32.27	43.50	-11.23	-8.14	3	Horizontal	0	1.00	-	40.41	17.35	1.88	27.37
PK	183.26M	32.60	43.50	-10.90	-10.68	3	Horizontal	0	1.00	-	43.28	14.18	2.27	27.13
PK	198.78M	32.37	43.50	-11.13	-10.33	3	Horizontal	0	1.00	-	42.70	14.34	2.39	27.06
PK	249.22M	32.82	46.00	-13.18	-6.62	3	Horizontal	0	1.00	-	39.44	17.44	2.67	26.73
PK	336.52M	29.98	46.00	-16.02	-4.76	3	Horizontal	0	1.00	-	34.74	18.99	3.17	26.92
PK	431.58M	28.88	46.00	-17.12	-2.10	3	Horizontal	0	1.00	-	30.98	21.86	3.60	27.56



Summary

Mode	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Limit (Range)
667k	-	-	-	-	-
SRD_Nss1_1TX	16.992k	658.25000k	675.24250k	16.608k	Inf

Result

Mode	Result	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	FI-OBW (Hz)	Fh-OBW (Hz)	Limit (Range)
SRD_Nss1_1TX	-	-	-	-	-	-	-	-
0.667MHz_TnomVnom	Pass	16.992k	658.25000k	675.24250k	16.608k	658.31559k	674.92354k	Inf

SRD_Nss1_1TX
0.667MHz_TnomVnom

EBW

06/11/2021

Ch Freq
667kHz

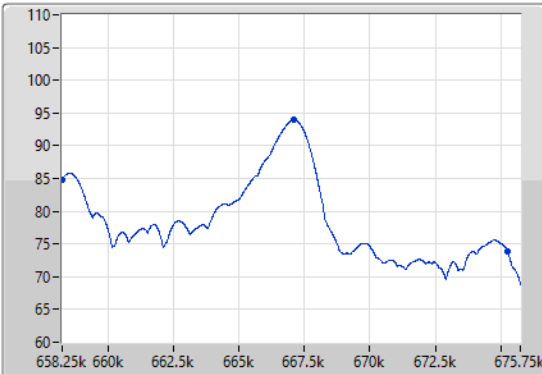
Span
17.5kHz

RBW
1kHz

VBW
3kHz

Sweep Time
10ms

Detector Type
Peak



Ch Freq
667kHz

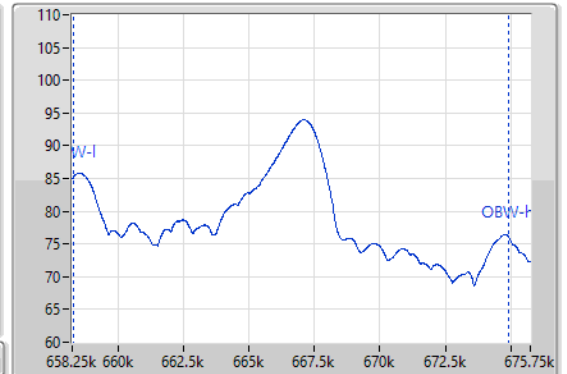
Span
17.5kHz

RBW
1kHz

VBW
3kHz

Sweep Time
10ms

Detector Type
Peak



Port 1

Port 1

20dB(Hz)	F1-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	F1-OBW(Hz)	Fh-OBW(Hz)	Limit(Range)
16.992k	658.25000k	675.24250k	16.608k	658.31559k	674.92354k	Inf