


FCC Radio Test Report

FCC ID : YOM-VSAWCGP3132
Equipment : Vscan Air Wireless Charger
Brand Name :  GE HealthCare
Model Name : GP310000, GP320000
Applicant : GE HealthCare
John F Welch Technology Center, Odyssey, #122,EPIP
Phase II, Whitefield, Bangalore, 560066 India.
Manufacturer : BizLink (Kunshan) Co., Ltd.
No.168, Nanhe Rd., Kunshan Economic & Technology
Development Zone, Kunshan City, Jiangsu 215300, China
Standard : 47 CFR FCC Part 15, Subpart C

The product was received on Jan. 05, 2023, and testing was started from Feb. 27, 2023 and completed on Mar. 06, 2023. 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: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



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PHOTOGRAPHS OF EUT V01



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: Ben Tseng

Report Producer: Ann Hou



1 General Description

1.1 Information

1.1.1 General Information

Wireless Power Transfer General Information			
Frequency Range	Modulation	Operating Freq. (kHz)	Field Strength (dBuV/m)
112-148.5 kHz	FSK	146.96	82.02
Power Transfer Method	Output power from each primary coil	That may have multiple primary coils	Operating Method
Magnetic induction and only single primary coil	≤ 15W	No	Client directly contact

Note 1: Field strength performed peak level at 3m.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	CHILISIN	BTWW00505024TXB011	Wireless charging antenna coils	N/A

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From AC Adapter
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 normally 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%

1.1.5 Table for Multiple Listing

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

Model Name	Molex Cable	USB Cable	Description
GP310000	V		The only difference between the models is the interface of USB cable.
GP320000		V	

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 680106 D01 RF Exposure Wireless Charging Apps v03r01
- ◆ 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	Wayne Chiu	21.9~22.8°C / 53~57%	01/Mar/2023~02/Mar/2023
RF Conducted	TH01-HY	Vivi Jiang	22.2~23.3°C / 50~53%	27/Feb/2023
Radiated	03CH03-HY	Edward Wang	16.6~18.3°C / 55~59%	01/Mar/2023~06/Mar/2023
<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
AC Power-line Conducted Emissions	4.53 dB	Confidence levels of 95%
Transmitter Radiated Emissions	4.8 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	2.30 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Test Software	N/A
---------------	-----

Note: The EUT transmits RF signal continuously by itself

Mode	Power Setting
WPC	default

2.2 The Worst Case Configuration




Mode	Field Strength (dBuV/m at 3 m)	Charger Frequencies (kHz)
WPC	82.02	146.96

Note.1: Wireless charger were performed all charging conditions including variable loading and non-charging operation, the worst mode is full charging loading.

Note.2: Wireless charger frequencies are variable frequency range (112-148.5 kHz) and depend on charging loading.

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 Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
	Adapter mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Emissions, Emission Bandwidth		
Test Condition	Radiated measurement		
Operating Mode	CTX		
	Adapter mode		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		



2.4 Accessories

Accessories				
Molex Cable (USB Type-C to Molex)	Brand Name	BizLink	Model Name	114G0-031835-01
	Cable Spec	1.0 meter, shielded cable		
USB Cable (USB Type-C to USB Type-A)	Brand Name	BizLink	Model Name	114G0-031833-01
	Power Cord	0.5 meter, shielded cable		

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

2.5 Support Equipment

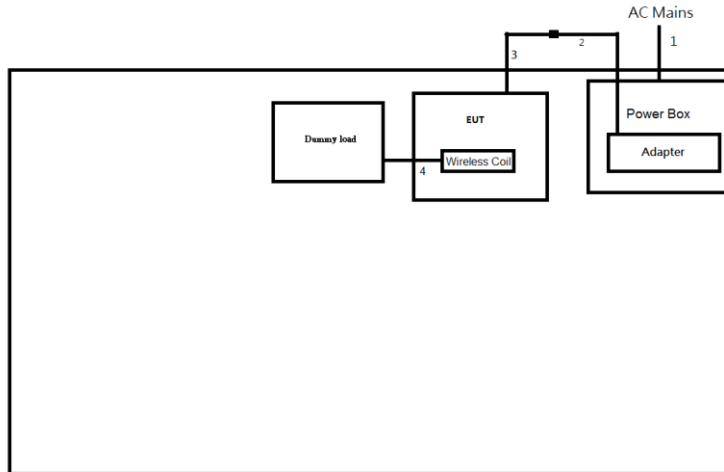
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC adapter	ASUS	AD83531	-	-
2	Dummy load	BizLink	CWQ1100	-	Provided by Customer
3	Wireless Coil	BizLink	CWQ1100	-	Provided by Customer
4	Molex to USB-Type A	BizLink	Molex to USB-Type A	-	Provided by Customer
5	AC Power cable	Power Sync	TPCMRN0018	-	-

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Dummy load	BizLink	CWQ1100	-	-
2	Molex to USB-Type A	BizLink	Molex to USB-Type A	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC adapter	ASUS	AD83531	-	-
2	Dummy load	BizLink	CWQ1100	-	Provided by Customer
3	Wireless Coil	BizLink	CWQ1100	-	Provided by Customer
4	Molex to USB-Type A	BizLink	Molex to USB-Type A	-	Provided by Customer

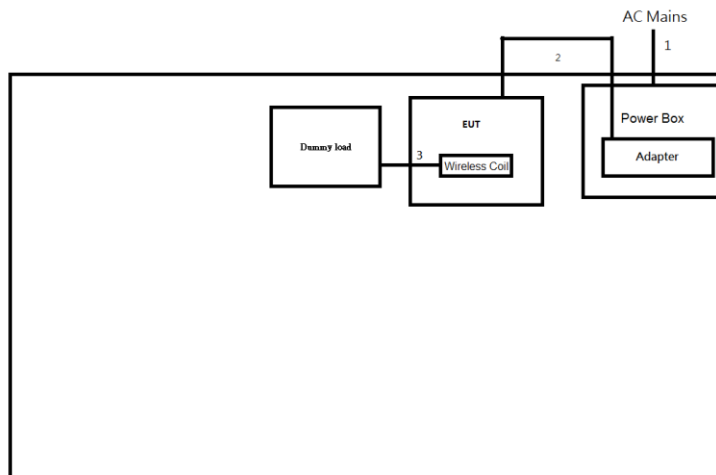
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (GP310000)



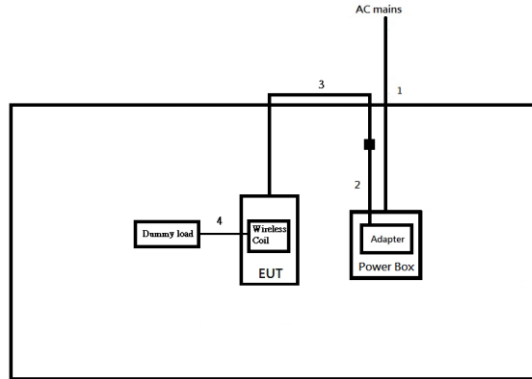
Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	Molex to USB-Type A	YES	0.25
3	Molex Cable (to USB-Type C)	YES	1.0
4	DC power cable	No	1.0

Test Setup Diagram – AC Line Conducted Emission Test (GP320000)



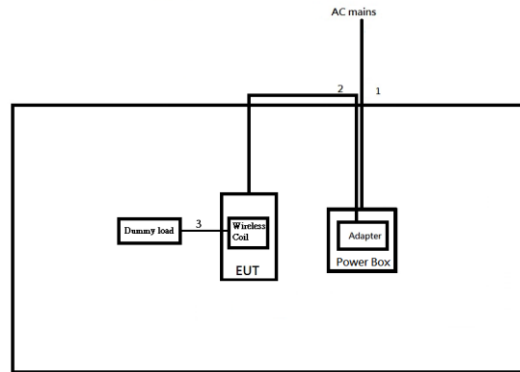
Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	USB Cable (USB Type-C to USB Type-A)	YES	0.5
3	DC power cable	No	1.0

Test Setup Diagram –Radiated Test (GP310000)



Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	Molex to USB-Type A	YES	0.25
3	Molex Cable (to USB-Type C)	YES	1.0
4	DC power cable	No	1.0

Test Setup Diagram –Radiated Test (GP320000)



Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	USB Cable (USB Type-C to USB Type-A)	YES	0.5
3	DC power cable	No	1.0

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

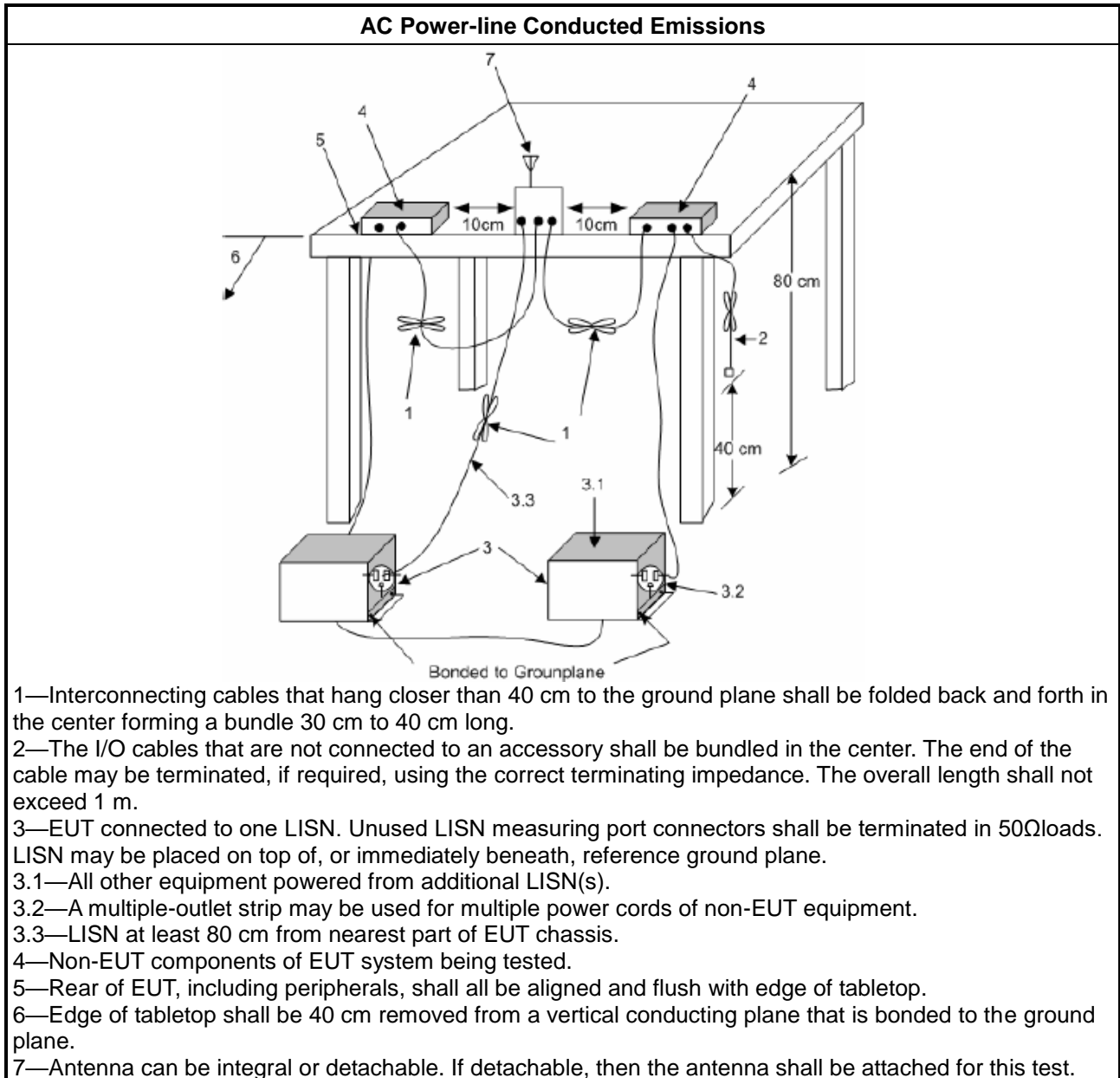
Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
<input checked="" type="checkbox"/>	If AC conducted emissions fall in operating band, then following below test method confirm final result.
<input type="checkbox"/>	Accept measurements 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

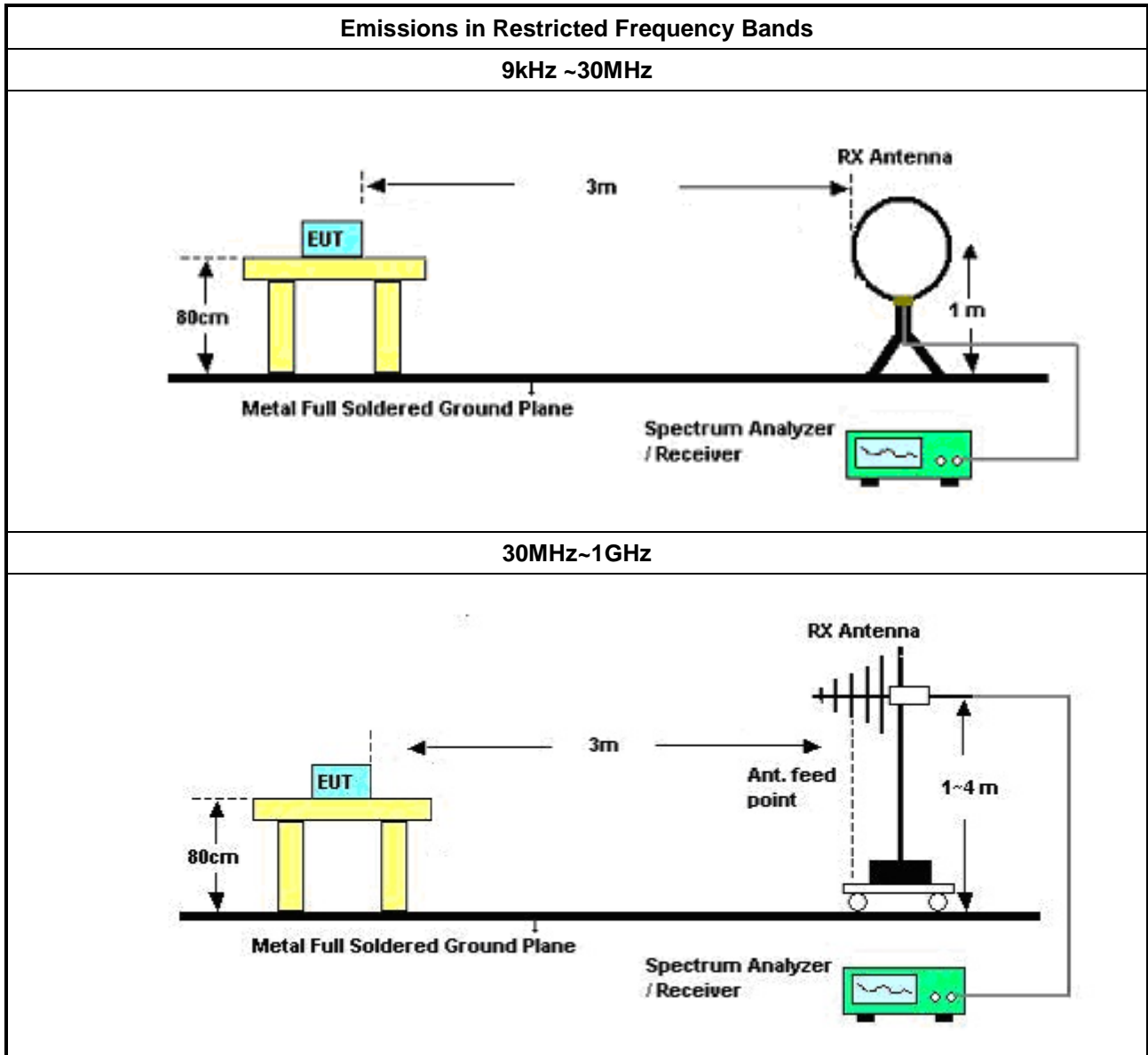
Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3 m.
<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.
<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 checked="" type="checkbox"/>	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 checked="" type="checkbox"/>	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 Transmitter Radiated Emissions (Below 30MHz)

Refer as Appendix B

3.2.7 Transmitter Radiated Emissions (Above 30MHz)

Refer as Appendix B

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

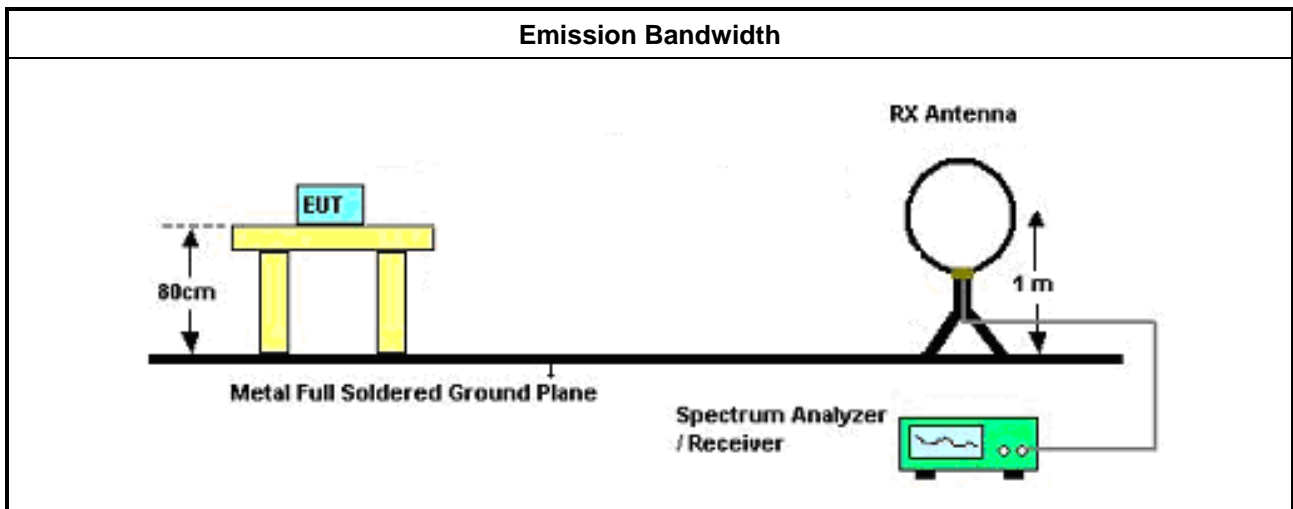
3.3.2 Measuring Instruments

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.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR	102051	9kHz ~ 3.6GHz	13/May/2022	12/May/2023
Two-Line V-Network	R&S	ENV 216	101295	9kHz ~ 30MHz	31/Jan/2023	30/Jan/2024
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9 kHz~200MHz	28/Feb/2023	27/Feb/2024
Impuls Begrenzer Pulse Limiter	SCHWARZBEC K	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	25/Oct/2022	24/Oct/2023
Software	Sporton	SENSE-EMI	V5.10.8.7	-	NCR	NCR

NCR: No Calibration Required

Instrument for Conducted Test

Instrument	Manufacturer / Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101013	10Hz~40GHz	01/Apr/2022	31/Mar/2023
SENSE-NFC	Sporton	V5.11.0	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer / Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	01/Aug/2022	31/Jul/2023
Signal Analyzer	R&S	FSV40	101500	10Hz~40GHz	26/Oct/2022	25/Oct/2023
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	08/Apr/2022	07/Apr/2023
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMC1	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	16/Oct/2022	15/Oct/2023
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	13/Jun/2022	12/Jun/2023
RF Cable-R03m	Jye Bao	RG142	MY37335/4+CB021-1+CB021-2	30MHz~1GHz	22/Mar/2022	21/Mar/2023
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	18/Mar/2022	17/Mar/2023
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	30/May/2022	29/May/2023
Software	Sporton	SENSE-303417	V5.10.4	-	NCR	NCR

NCR: No Calibration Required



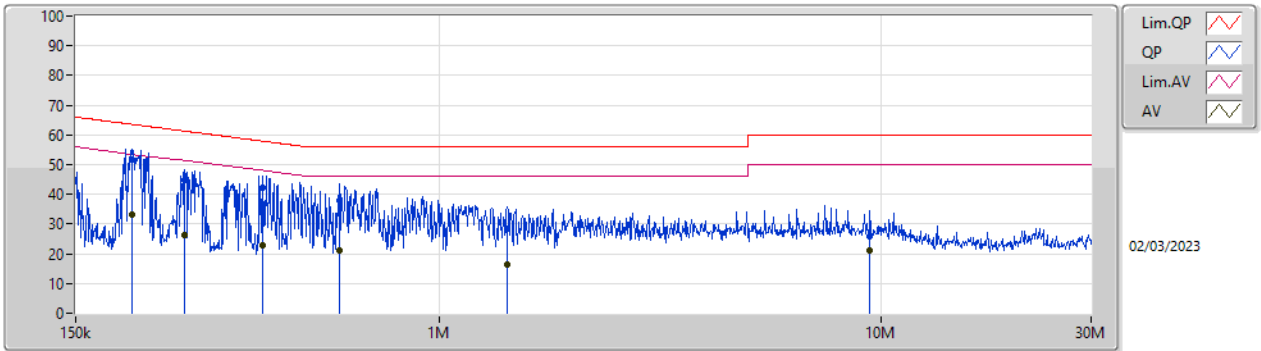
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	201.551k	51.63	63.55	-11.92	Line

Result

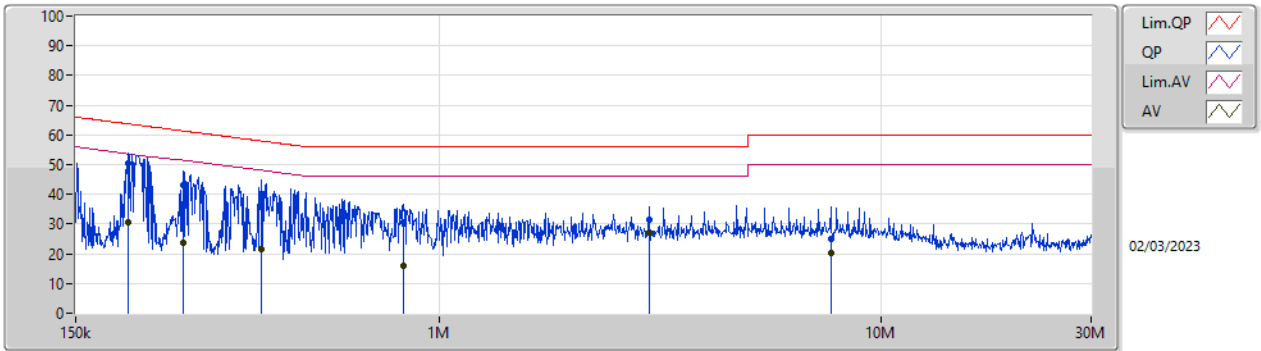
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	201.551k	51.63	63.55	-11.92	Line	-
Mode 1	Pass	AV	201.551k	33.40	53.55	-20.15	Line	-
Mode 1	Pass	QP	265.468k	44.82	61.26	-16.44	Line	-
Mode 1	Pass	AV	265.468k	26.33	51.26	-24.93	Line	-
Mode 1	Pass	QP	398.888k	42.22	57.87	-15.65	Line	-
Mode 1	Pass	AV	398.888k	22.92	47.87	-24.95	Line	-
Mode 1	Pass	QP	594.596k	38.09	56.00	-17.91	Line	-
Mode 1	Pass	AV	594.596k	21.04	46.00	-24.96	Line	-
Mode 1	Pass	QP	1.425M	28.66	56.00	-27.34	Line	-
Mode 1	Pass	AV	1.425M	16.36	46.00	-29.64	Line	-
Mode 1	Pass	QP	9.456M	26.00	60.00	-34.00	Line	-
Mode 1	Pass	AV	9.456M	21.07	50.00	-28.93	Line	-
Mode 1	Pass	QP	197.568k	50.29	63.71	-13.42	Neutral	-
Mode 1	Pass	AV	197.568k	30.57	53.71	-23.14	Neutral	-
Mode 1	Pass	QP	262.308k	43.11	61.35	-18.24	Neutral	-
Mode 1	Pass	AV	262.308k	23.71	51.35	-27.64	Neutral	-
Mode 1	Pass	QP	394.139k	40.28	57.97	-17.69	Neutral	-
Mode 1	Pass	AV	394.139k	21.55	47.97	-26.42	Neutral	-
Mode 1	Pass	QP	828.172k	30.52	56.00	-25.48	Neutral	-
Mode 1	Pass	AV	828.172k	16.00	46.00	-30.00	Neutral	-
Mode 1	Pass	QP	2.983M	31.50	56.00	-24.50	Neutral	-
Mode 1	Pass	AV	2.983M	27.20	46.00	-18.80	Neutral	-
Mode 1	Pass	QP	7.714M	25.01	60.00	-34.99	Neutral	-
Mode 1	Pass	AV	7.714M	20.05	50.00	-29.95	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	201.551k	51.63	63.55	-11.92	19.55	Line	-	32.08	9.59	0.03	9.93
AV	201.551k	33.40	53.55	-20.15	19.55	Line	-	13.85	9.59	0.03	9.93
QP	265.468k	44.82	61.26	-16.44	19.56	Line	-	25.26	9.59	0.03	9.94
AV	265.468k	26.33	51.26	-24.93	19.56	Line	-	6.77	9.59	0.03	9.94
QP	398.888k	42.22	57.87	-15.65	19.60	Line	-	22.62	9.60	0.04	9.96
AV	398.888k	22.92	47.87	-24.95	19.60	Line	-	3.32	9.60	0.04	9.96
QP	594.596k	38.09	56.00	-17.91	19.59	Line	-	18.50	9.60	0.04	9.95
AV	594.596k	21.04	46.00	-24.96	19.59	Line	-	1.45	9.60	0.04	9.95
QP	1.425M	28.66	56.00	-27.34	19.64	Line	-	9.02	9.63	0.07	9.94
AV	1.425M	16.36	46.00	-29.64	19.64	Line	-	-3.28	9.63	0.07	9.94
QP	9.456M	26.00	60.00	-34.00	19.87	Line	-	6.13	9.73	0.18	9.96
AV	9.456M	21.07	50.00	-28.93	19.87	Line	-	1.20	9.73	0.18	9.96

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	197.568k	50.29	63.71	-13.42	19.56	Neutral	-	30.73	9.60	0.03	9.93
AV	197.568k	30.57	53.71	-23.14	19.56	Neutral	-	11.01	9.60	0.03	9.93
QP	262.308k	43.11	61.35	-18.24	19.57	Neutral	-	23.54	9.60	0.03	9.94
AV	262.308k	23.71	51.35	-27.64	19.57	Neutral	-	4.14	9.60	0.03	9.94
QP	394.139k	40.28	57.97	-17.69	19.60	Neutral	-	20.68	9.60	0.04	9.96
AV	394.139k	21.55	47.97	-26.42	19.60	Neutral	-	1.95	9.60	0.04	9.96
QP	828.172k	30.52	56.00	-25.48	19.60	Neutral	-	10.92	9.61	0.05	9.94
AV	828.172k	16.00	46.00	-30.00	19.60	Neutral	-	-3.60	9.61	0.05	9.94
QP	2.983M	31.50	56.00	-24.50	19.67	Neutral	-	11.83	9.63	0.11	9.93
AV	2.983M	27.20	46.00	-18.80	19.67	Neutral	-	7.53	9.63	0.11	9.93
QP	7.714M	25.01	60.00	-34.99	19.80	Neutral	-	5.21	9.68	0.17	9.95
AV	7.714M	20.05	50.00	-29.95	19.80	Neutral	-	0.25	9.68	0.17	9.95



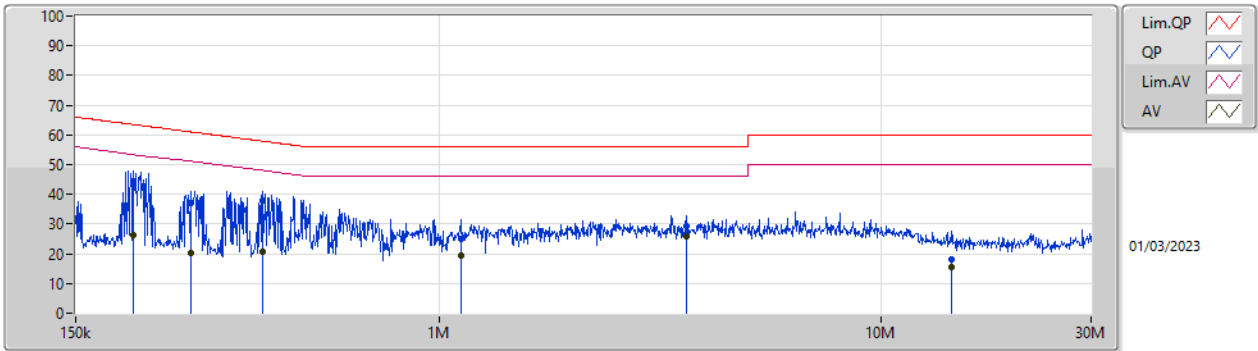
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	402.085k	40.15	57.82	-17.67	Neutral

Result

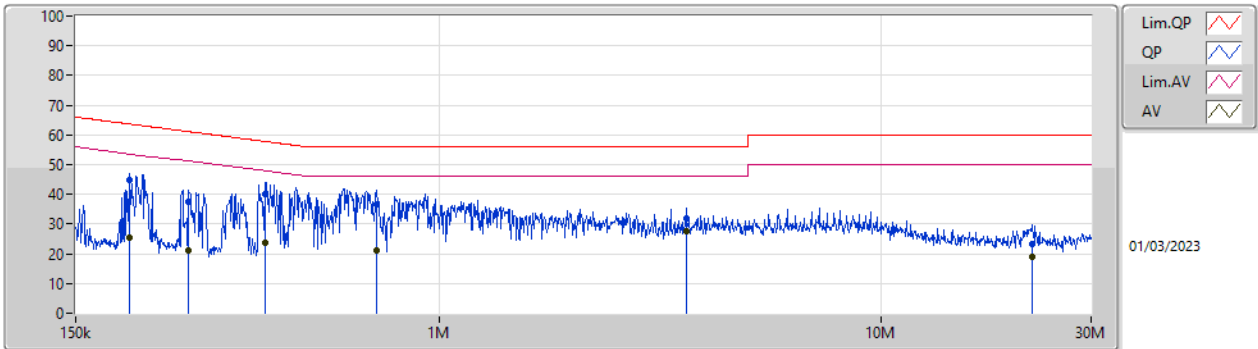
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	202.358k	44.47	63.51	-19.04	Line	-
Mode 1	Pass	AV	202.358k	26.19	53.51	-27.32	Line	-
Mode 1	Pass	QP	272.991k	37.02	61.03	-24.01	Line	-
Mode 1	Pass	AV	272.991k	20.42	51.03	-30.61	Line	-
Mode 1	Pass	QP	397.299k	38.10	57.91	-19.81	Line	-
Mode 1	Pass	AV	397.299k	20.67	47.91	-27.24	Line	-
Mode 1	Pass	QP	1.117M	24.99	56.00	-31.01	Line	-
Mode 1	Pass	AV	1.117M	19.32	46.00	-26.68	Line	-
Mode 1	Pass	QP	3.627M	29.32	56.00	-26.68	Line	-
Mode 1	Pass	AV	3.627M	25.83	46.00	-20.17	Line	-
Mode 1	Pass	QP	14.436M	18.03	60.00	-41.97	Line	-
Mode 1	Pass	AV	14.436M	15.57	50.00	-34.43	Line	-
Mode 1	Pass	QP	199.152k	44.73	63.65	-18.92	Neutral	-
Mode 1	Pass	AV	199.152k	25.36	53.65	-28.29	Neutral	-
Mode 1	Pass	QP	269.741k	37.42	61.12	-23.70	Neutral	-
Mode 1	Pass	AV	269.741k	21.12	51.12	-30.00	Neutral	-
Mode 1	Pass	QP	402.085k	40.15	57.82	-17.67	Neutral	-
Mode 1	Pass	AV	402.085k	23.64	47.82	-24.18	Neutral	-
Mode 1	Pass	QP	723.06k	36.63	56.00	-19.37	Neutral	-
Mode 1	Pass	AV	723.06k	21.11	46.00	-24.89	Neutral	-
Mode 1	Pass	QP	3.627M	31.84	56.00	-24.16	Neutral	-
Mode 1	Pass	AV	3.627M	27.73	46.00	-18.27	Neutral	-
Mode 1	Pass	QP	22.041M	23.41	60.00	-36.59	Neutral	-
Mode 1	Pass	AV	22.041M	18.95	50.00	-31.05	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	202.358k	44.47	63.51	-19.04	19.55	Line	-	24.92	9.59	0.03	9.93
AV	202.358k	26.19	53.51	-27.32	19.55	Line	-	6.64	9.59	0.03	9.93
QP	272.991k	37.02	61.03	-24.01	19.56	Line	-	17.46	9.59	0.03	9.94
AV	272.991k	20.42	51.03	-30.61	19.56	Line	-	0.86	9.59	0.03	9.94
QP	397.299k	38.10	57.91	-19.81	19.60	Line	-	18.50	9.60	0.04	9.96
AV	397.299k	20.67	47.91	-27.24	19.60	Line	-	1.07	9.60	0.04	9.96
QP	1.117M	24.99	56.00	-31.01	19.60	Line	-	5.39	9.61	0.05	9.94
AV	1.117M	19.32	46.00	-26.68	19.60	Line	-	-0.28	9.61	0.05	9.94
QP	3.627M	29.32	56.00	-26.68	19.72	Line	-	9.60	9.67	0.12	9.93
AV	3.627M	25.83	46.00	-20.17	19.72	Line	-	6.11	9.67	0.12	9.93
QP	14.436M	18.03	60.00	-41.97	19.90	Line	-	-1.87	9.70	0.23	9.97
AV	14.436M	15.57	50.00	-34.43	19.90	Line	-	-4.33	9.70	0.23	9.97

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	199.152k	44.73	63.65	-18.92	19.56	Neutral	-	25.17	9.60	0.03	9.93
AV	199.152k	25.36	53.65	-28.29	19.56	Neutral	-	5.80	9.60	0.03	9.93
QP	269.741k	37.42	61.12	-23.70	19.57	Neutral	-	17.85	9.60	0.03	9.94
AV	269.741k	21.12	51.12	-30.00	19.57	Neutral	-	1.55	9.60	0.03	9.94
QP	402.085k	40.15	57.82	-17.67	19.60	Neutral	-	20.55	9.60	0.04	9.96
AV	402.085k	23.64	47.82	-24.18	19.60	Neutral	-	4.04	9.60	0.04	9.96
QP	723.06k	36.63	56.00	-19.37	19.61	Neutral	-	17.02	9.61	0.05	9.95
AV	723.06k	21.11	46.00	-24.89	19.61	Neutral	-	1.50	9.61	0.05	9.95
QP	3.627M	31.84	56.00	-24.16	19.69	Neutral	-	12.15	9.64	0.12	9.93
AV	3.627M	27.73	46.00	-18.27	19.69	Neutral	-	8.04	9.64	0.12	9.93
QP	22.041M	23.41	60.00	-36.59	19.97	Neutral	-	3.44	9.71	0.29	9.97
AV	22.041M	18.95	50.00	-31.05	19.97	Neutral	-	-1.02	9.71	0.29	9.97



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
WPT	-	-	-	-	-	-	-	-	-	-	-
100-300kHz	Pass	PK	2.299M	51.96	69.50	-17.54	19.94	3	Horizontal	360	1.00

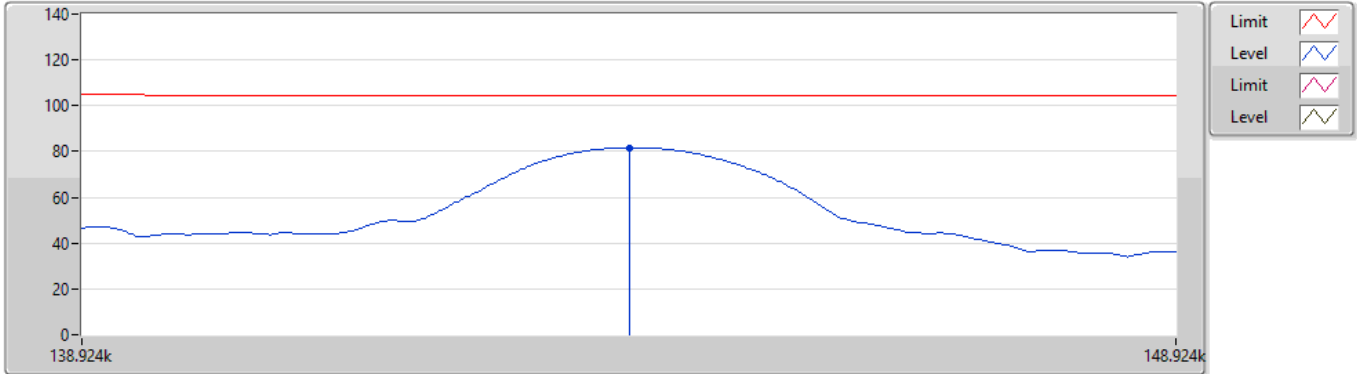
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
100-300kHz	-	-	-	-	-	-	-	-	-	-	-
0.14812MHz_TX	Pass	PK	143.844k	81.50	104.43	-22.93	19.92	3	Horizontal	124	1.00
0.14812MHz_TX	Pass	PK	34.098k	58.26	116.93	-58.67	21.43	3	Horizontal	0	1.00
0.14812MHz_TX	Pass	PK	65.682k	60.26	111.25	-50.99	20.40	3	Horizontal	0	1.00
0.14812MHz_TX	Pass	PK	103.188k	42.84	107.31	-64.47	19.75	3	Horizontal	0	1.00
0.14812MHz_TX	Pass	PK	2.299M	51.96	69.50	-17.54	19.94	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	2.598M	45.77	69.50	-23.73	19.88	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	3.493M	43.64	69.50	-25.86	20.03	3	Horizontal	360	1.00

100-300kHz

01/03/2023

0.14812MHz_TX

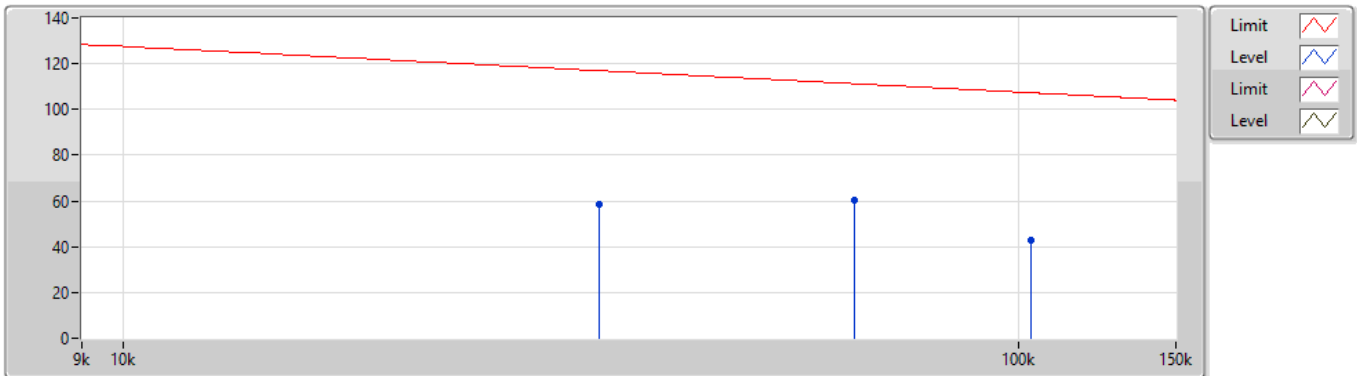


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	143.844k	81.50	104.43	-22.93	19.92	3	Horizontal	124	1.00	61.58	19.87	0.05	-

100-300kHz

01/03/2023

0.14812MHz_TX

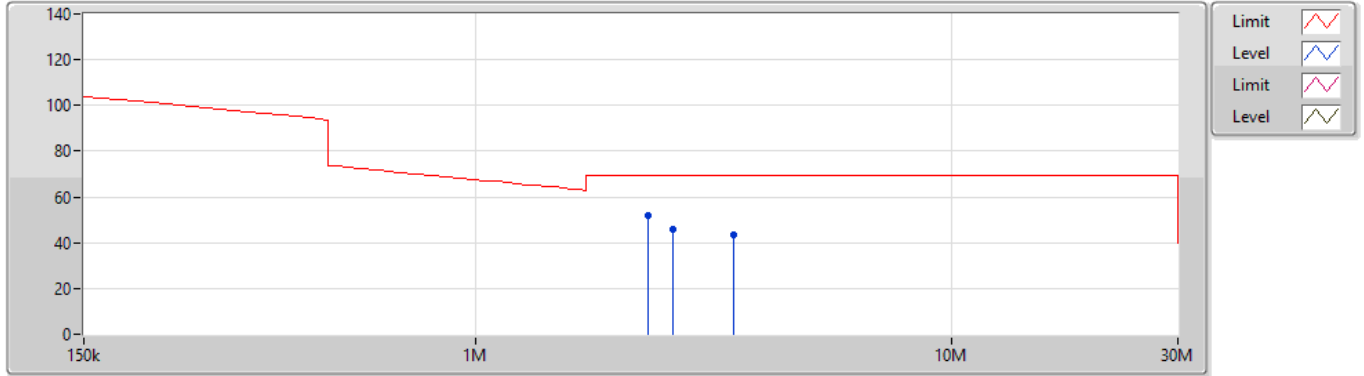


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	34.098k	58.26	116.93	-58.67	21.43	3	Horizontal	0	1.00	36.83	21.40	0.03	-
PK	65.682k	60.26	111.25	-50.99	20.40	3	Horizontal	0	1.00	39.86	20.37	0.03	-
PK	103.188k	42.84	107.31	-64.47	19.75	3	Horizontal	0	1.00	23.09	19.71	0.04	-

100-300kHz

01/03/2023

0.14812MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	2.299M	51.96	69.50	-17.54	19.94	3	Horizontal	360	1.00	32.02	19.77	0.17	-
PK	2.598M	45.77	69.50	-23.73	19.88	3	Horizontal	360	1.00	25.89	19.69	0.19	-
PK	3.493M	43.64	69.50	-25.86	20.03	3	Horizontal	360	1.00	23.61	19.81	0.22	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
WPT	-	-	-	-	-	-	-	-	-	-	-
100-300kHz	Pass	PK	90.14M	36.36	43.50	-7.14	-12.34	3	Vertical	0	1.00

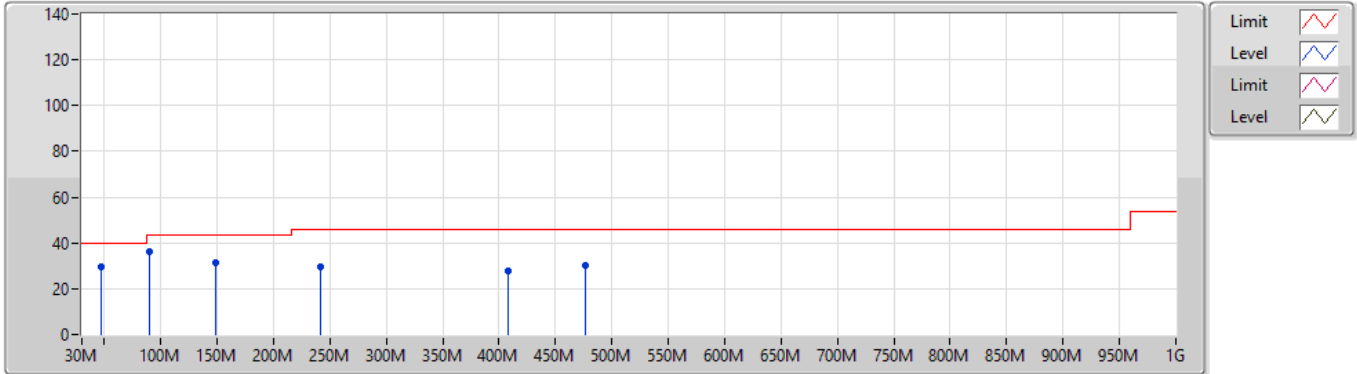
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
100-300kHz	-	-	-	-	-	-	-	-	-	-	-
0.14812MHz_TX	Pass	PK	90.14M	36.36	43.50	-7.14	-12.34	3	Vertical	0	1.00
0.14812MHz_TX	Pass	PK	148.34M	31.17	43.50	-12.33	-9.53	3	Vertical	0	1.00
0.14812MHz_TX	Pass	PK	241.46M	29.84	46.00	-16.16	-7.49	3	Vertical	0	1.00
0.14812MHz_TX	Pass	PK	408.3M	27.72	46.00	-18.28	-2.46	3	Vertical	0	1.00
0.14812MHz_TX	Pass	PK	476.2M	30.20	46.00	-15.80	-1.26	3	Vertical	0	1.00
0.14812MHz_TX	Pass	QP	47.46M	29.83	40.00	-10.17	-12.34	3	Vertical	305	1.00
0.14812MHz_TX	Pass	PK	119.24M	35.24	43.50	-8.26	-8.02	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	229.82M	37.09	46.00	-8.91	-8.97	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	321M	30.30	46.00	-15.70	-4.99	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	450.98M	30.13	46.00	-15.87	-1.87	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	489.78M	30.80	46.00	-15.20	-1.25	3	Horizontal	360	1.00
0.14812MHz_TX	Pass	PK	582.9M	27.81	46.00	-18.19	0.16	3	Horizontal	360	1.00

100-300kHz

02/03/2023

0.14812MHz_TX

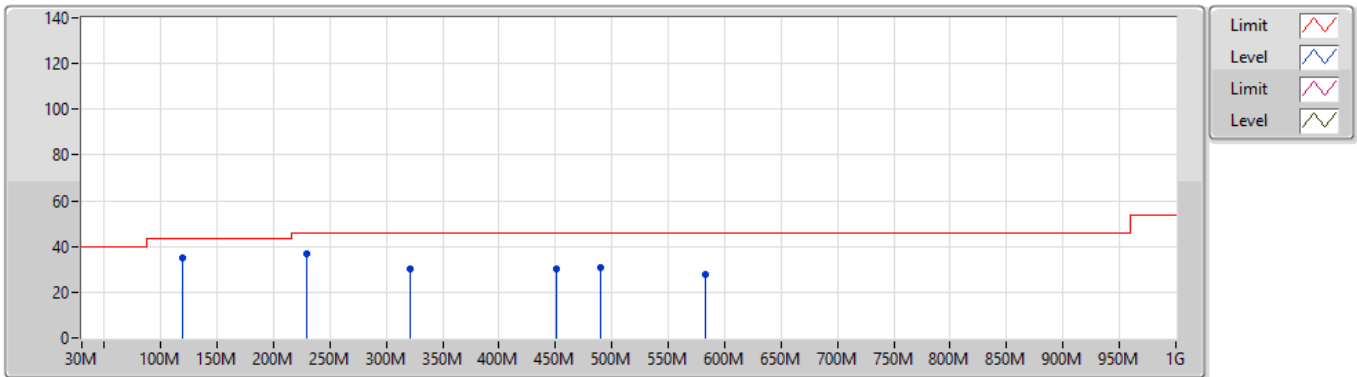


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	90.14M	36.36	43.50	-7.14	-12.34	3	Vertical	0	1.00	47.88	14.34	1.54	27.40
PK	148.34M	31.17	43.50	-12.33	-9.53	3	Vertical	0	1.00	40.70	15.63	2.00	27.16
PK	241.46M	29.84	46.00	-16.16	-7.49	3	Vertical	0	1.00	37.33	16.65	2.58	26.72
PK	408.3M	27.72	46.00	-18.28	-2.46	3	Vertical	0	1.00	30.18	21.38	3.41	27.25
PK	476.2M	30.20	46.00	-15.80	-1.26	3	Vertical	0	1.00	31.46	22.70	3.71	27.67
QP	47.46M	29.83	40.00	-10.17	-12.34	3	Vertical	305	1.00	42.17	14.07	1.10	27.51

100-300kHz

02/03/2023

0.14812MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	119.24M	35.24	43.50	-8.26	-8.02	3	Horizontal	360	1.00	43.26	17.47	1.79	27.28
PK	229.82M	37.09	46.00	-8.91	-8.97	3	Horizontal	360	1.00	46.06	15.27	2.52	26.76
PK	321M	30.30	46.00	-15.70	-4.99	3	Horizontal	360	1.00	35.29	18.71	3.01	26.71
PK	450.98M	30.13	46.00	-15.87	-1.87	3	Horizontal	360	1.00	32.00	22.10	3.59	27.56
PK	489.78M	30.80	46.00	-15.20	-1.25	3	Horizontal	360	1.00	32.05	22.71	3.77	27.73
PK	582.9M	27.81	46.00	-18.19	0.16	3	Horizontal	360	1.00	27.65	23.99	4.13	27.96



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
WPT	-	-	-	-	-	-	-	-	-	-	-
100-300kHz	Pass	PK	2.299M	52.53	69.50	-16.97	19.94	3	Horizontal	360	1.00

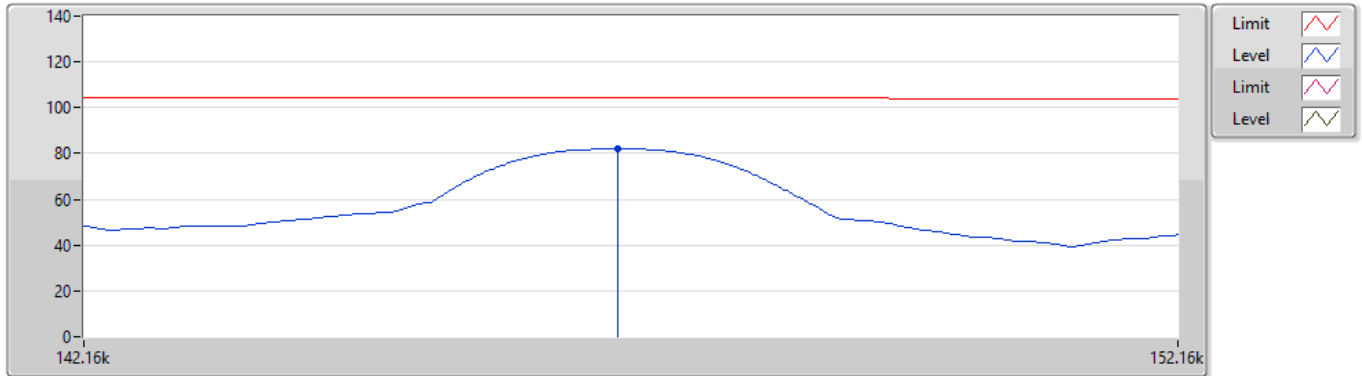
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
100-300kHz	-	-	-	-	-	-	-	-	-	-	-
0.14634MHz_TX	Pass	PK	146.96k	82.02	104.25	-22.23	19.93	3	Horizontal	303	1.00
0.14634MHz_TX	Pass	PK	65.964k	60.51	111.21	-50.70	20.39	3	Horizontal	0	1.00
0.14634MHz_TX	Pass	PK	102.624k	43.10	107.37	-64.27	19.75	3	Horizontal	0	1.00
0.14634MHz_TX	Pass	PK	131.952k	51.98	105.19	-53.21	19.87	3	Horizontal	0	1.00
0.14634MHz_TX	Pass	PK	2.299M	52.53	69.50	-16.97	19.94	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	3.195M	43.77	69.50	-25.73	19.89	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	13.583M	41.06	69.50	-28.44	23.03	3	Horizontal	360	1.00

100-300kHz

01/03/2023

0.14634MHz_TX

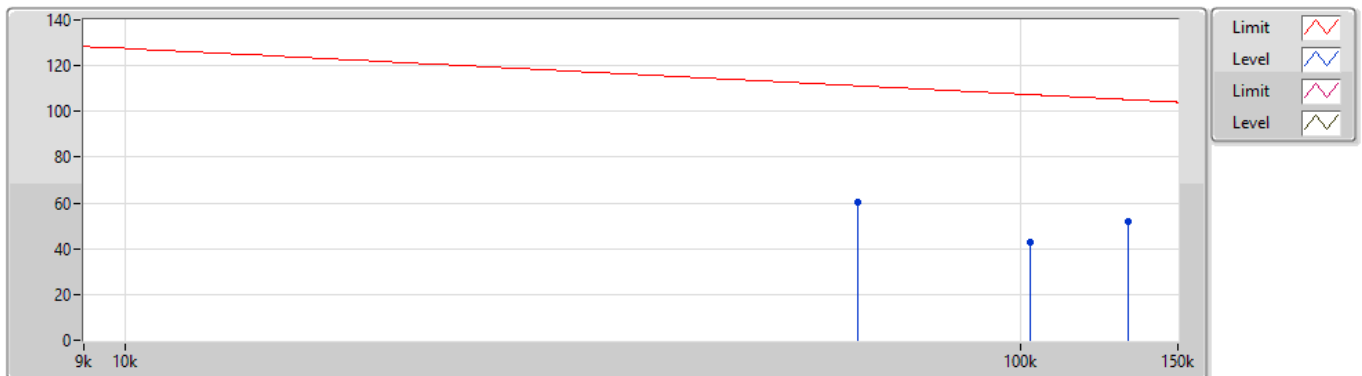


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	146.96k	82.02	104.25	-22.23	19.93	3	Horizontal	303	1.00	62.09	19.88	0.05	-

100-300kHz

01/03/2023

0.14634MHz_TX



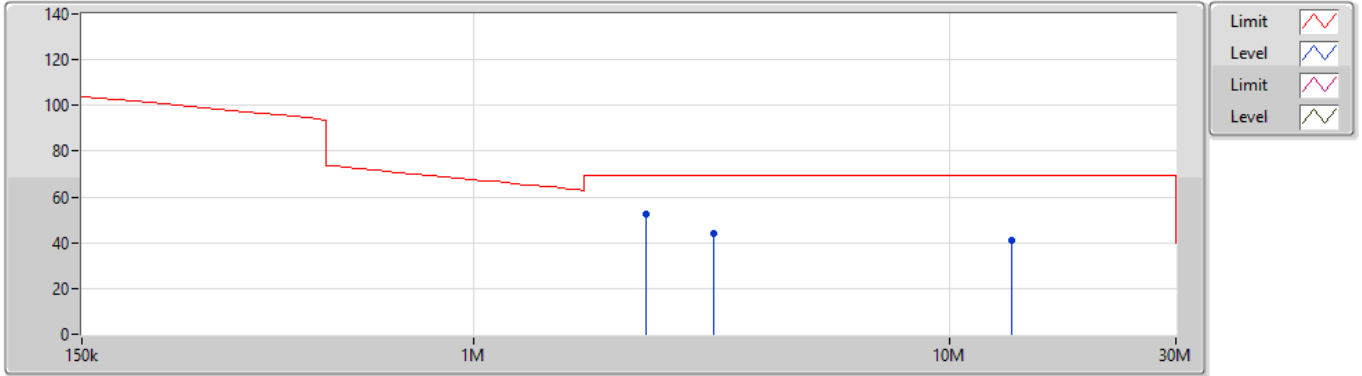
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	65.964k	60.51	111.21	-50.70	20.39	3	Horizontal	0	1.00	40.12	20.36	0.03	-
PK	102.624k	43.10	107.37	-64.27	19.75	3	Horizontal	0	1.00	23.35	19.71	0.04	-
PK	131.952k	51.98	105.19	-53.21	19.87	3	Horizontal	0	1.00	32.11	19.83	0.04	-



100-300kHz

01/03/2023

0.14634MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	2.299M	52.53	69.50	-16.97	19.94	3	Horizontal	360	1.00	32.59	19.77	0.17	-
PK	3.195M	43.77	69.50	-25.73	19.89	3	Horizontal	360	1.00	23.88	19.68	0.21	-
PK	13.583M	41.06	69.50	-28.44	23.03	3	Horizontal	360	1.00	18.03	22.54	0.49	-



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
WPT	-	-	-	-	-	-	-	-	-	-	-
100-300kHz	Pass	PK	156.1M	39.66	43.50	-3.84	-9.89	3	Horizontal	360	1.00

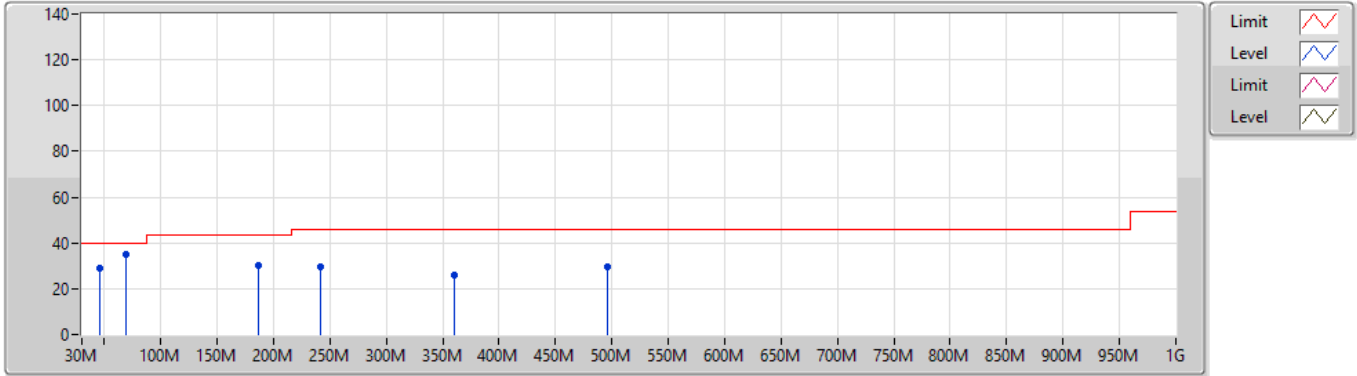
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
100-300kHz	-	-	-	-	-	-	-	-	-	-	-
0.14634MHz_TX	Pass	PK	68.8M	35.19	40.00	-4.81	-14.49	3	Vertical	0	1.00
0.14634MHz_TX	Pass	PK	187.14M	29.94	43.50	-13.56	-10.45	3	Vertical	0	1.00
0.14634MHz_TX	Pass	PK	241.46M	29.65	46.00	-16.35	-7.49	3	Vertical	0	1.00
0.14634MHz_TX	Pass	PK	359.8M	25.65	46.00	-20.35	-3.89	3	Vertical	0	1.00
0.14634MHz_TX	Pass	PK	495.6M	29.40	46.00	-16.60	-1.22	3	Vertical	0	1.00
0.14634MHz_TX	Pass	QP	45.52M	29.23	40.00	-10.77	-11.50	3	Vertical	329	1.00
0.14634MHz_TX	Pass	PK	156.1M	39.66	43.50	-3.84	-9.89	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	253.1M	36.42	46.00	-9.58	-6.03	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	355.92M	33.47	46.00	-12.53	-4.02	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	355.92M	33.47	46.00	-12.53	-4.02	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	468.44M	30.33	46.00	-15.67	-1.34	3	Horizontal	360	1.00
0.14634MHz_TX	Pass	PK	497.54M	30.05	46.00	-15.95	-1.20	3	Horizontal	360	1.00

100-300kHz

02/03/2023

0.14634MHz_TX

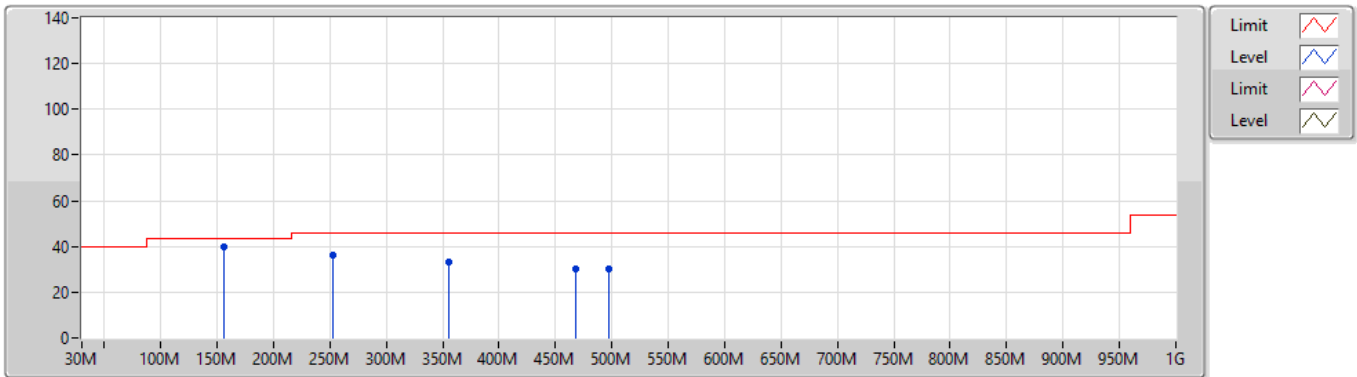


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	68.8M	35.19	40.00	-4.81	-14.49	3	Vertical	0	1.00	49.68	11.62	1.34	27.45
PK	187.14M	29.94	43.50	-13.56	-10.45	3	Vertical	0	1.00	40.39	14.23	2.27	26.95
PK	241.46M	29.65	46.00	-16.35	-7.49	3	Vertical	0	1.00	37.14	16.65	2.58	26.72
PK	359.8M	25.65	46.00	-20.35	-3.89	3	Vertical	0	1.00	29.54	19.84	3.19	26.92
PK	495.6M	29.40	46.00	-16.60	-1.22	3	Vertical	0	1.00	30.62	22.74	3.79	27.75
QP	45.52M	29.23	40.00	-10.77	-11.50	3	Vertical	329	1.00	40.73	14.92	1.09	27.51

100-300kHz

02/03/2023

0.14634MHz_TX



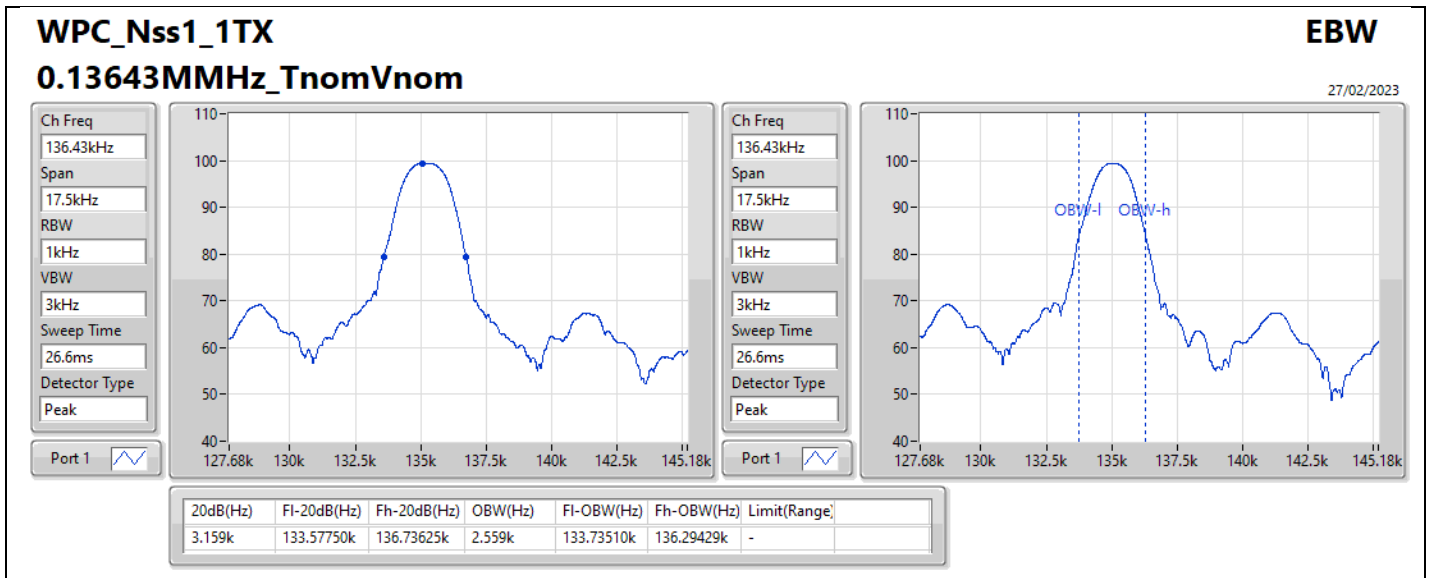
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	156.1M	39.66	43.50	-3.84	-9.89	3	Horizontal	360	1.00	49.55	15.19	2.05	27.13
PK	253.1M	36.42	46.00	-9.58	-6.03	3	Horizontal	360	1.00	42.45	18.00	2.65	26.68
PK	355.92M	33.47	46.00	-12.53	-4.02	3	Horizontal	360	1.00	37.49	19.71	3.17	26.90
PK	355.92M	33.47	46.00	-12.53	-4.02	3	Horizontal	360	1.00	37.49	19.71	3.17	26.90
PK	468.44M	30.33	46.00	-15.67	-1.34	3	Horizontal	360	1.00	31.67	22.63	3.67	27.64
PK	497.54M	30.05	46.00	-15.95	-1.20	3	Horizontal	360	1.00	31.25	22.76	3.80	27.76

Summary

Mode	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Limit (Range)
0.13643M	-	-	-	-	-
WPC	3.159k	133.57750k	136.73625k	2.559k	-

Result

Mode	Result	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	FI-OBW (Hz)	Fh-OBW (Hz)	Limit (Range)
WPC	-	-	-	-	-	-	-	-
0.13643MHz_TnomVnom	Pass	3.159k	133.57750k	136.73625k	2.559k	133.73510k	136.29429k	-



Summary

Mode	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Limit (Range)
0.1121M	-	-	-	-	-
WPC	3.001k	110.56875k	113.57000k	2.573k	-

Result

Mode	Result	20dB (Hz)	FI-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	FI-OBW (Hz)	Fh-OBW (Hz)	Limit (Range)
WPC	-	-	-	-	-	-	-	-
0.1121MHz_TnomVnom	Pass	3.001k	110.56875k	113.57000k	2.573k	110.78631k	113.35888k	-

