FCC Radio Test Report

FCC ID	:	**2APYS-HSNL01NFM**
Equipment	:	**Wireless Charging Module**
Brand Name	:	**hp**
Model Name	:	**HSN-L01NFM**
Applicant	:	**Lanto Electronic Ltd No.399 baisheng Road, jinxi Town, Kunshan City, Jiangsu, 215324, China**
Manufacturer	:	**Lanto Electronic Ltd No.399 baisheng Road, jinxi Town, Kunshan City, Jiangsu, 215324, China**
Standard	:	**47 CFR FCC Part 15.209**

The product was received on Aug. 25, 2021, and testing was started from Sep. 08, 2021 and completed on Oct. 20, 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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PHOTOGRAPHS OF EUT V01

History of this test report

Report No.	Version	Description	Issued Date
FR182057AW	01	Initial issue of report	Nov. 10, 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: Debby Hung

1 General Description

1.1 Information

1.1.1 General Information

Wireless Power Transfer General Information			
Frequency Range	**Modulation**	**Operating Freq. (MHz)**	**Field Strength (dBuV/m)**
13.56 MHz	ASK	13.56	60.12
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	Lbtcoil	WL1167	FPC	N/A

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From 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 normally mode for worst duty cycle
☒	Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)	
☒	100%

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				
☒ 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**
RF Conducted	TH01-HY	Barry Hsiao	24.3~26.9°C / 51~54%	10/Sep/2021
AC Conduction	CO04-HY	Billy Wang	21.4~21.8°C / 59~60%	19/Oct/2021
Radiated	03CH02-HY	Jack Tang	22.3~25.7°C / 51~63%	08/Sep/2021~20/Oct/2021
☐ 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%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 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
TnomVnom	Tnom	20°C
-	Vnom	5V

Note: AC Input Voltage of DC Power Supply: AC120V

2.2 Test Channel Mode

Test Software	N/A

Note: The EUT transmits RF signal continuously by itself

Mode	PowerSetting
WPT_Nss1_1TX	-
13.56MHz	default

2.3 The Worst Case Configuration

Mode	Field Strength (dBuV/m at 3 m)	Device Frequencies (MHz)
WPC	60.12	13.56
Note.1: Wireless device were performed all charging conditions including variable loading and non-charging operation, the worst mode is full charging loading. Note.2: Wireless device frequencies are variable frequency range (13.56 MHz) and depend on charging loading.		

2.4 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. DC power supply mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Emissions, Emission Bandwidth		
Test Condition	Radiated measurement		
Operating Mode	CTX		
	1. Battery Mode		
	2. DC power supply mode		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
			
Worst Planes of EUT			V

2.5 Support Equipment

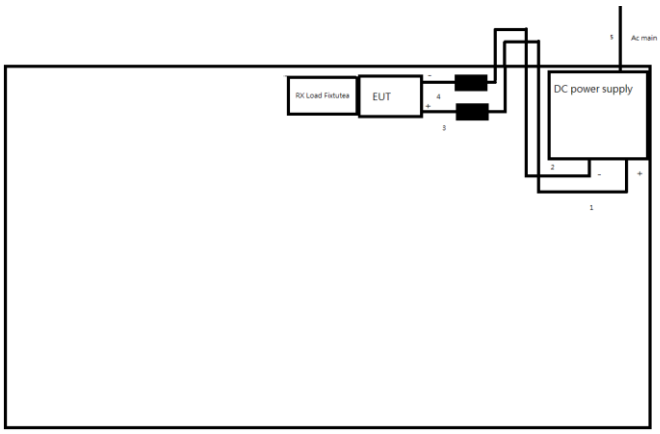
Support Equipment – Conducted					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	DC Power Supply	GW	GPS-3030DD	-	Provided by Customer
2	RX Load Fixture	luxshare	NFC WLC RX	-	Provided by Customer

Support Equipment – Radiated					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Battery Box	luxshare	18650	-	Provided by Customer
2	RX Load Fixture	luxshare	NFC WLC RX	-	Provided by Customer
3	DC power supply	GW	GPS-3030DD	-	-
4	DC Power cable(+)	MiSUMi	WTN1224A-RED	-	-
5	DC Power cable(-)	MiSUMi	WTN1224A-BLACK	-	-
6	DC Power cable(+)	MiSUMi	WTN1224A-RED	-	-
7	DC Power cable(-)	MiSUMi	WTN1224A-BLACK	-	-

Support Equipment – Conduction					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	RX Load Fixture	luxshare	NFC WLC RX	-	Provided by Customer
2	DC power supply	GW	GPS-3030DD	-	-
3	DC Power cable(+)	MiSUMi	WTN1224A-RED	-	-
4	DC Power cable(-)	MiSUMi	WTN1224A-BLACK	-	-
5	DC Power cable(+)	MiSUMi	WTN1224A-RED	-	-
6	DC Power cable(-)	MiSUMi	WTN1224A-BLACK	-	-

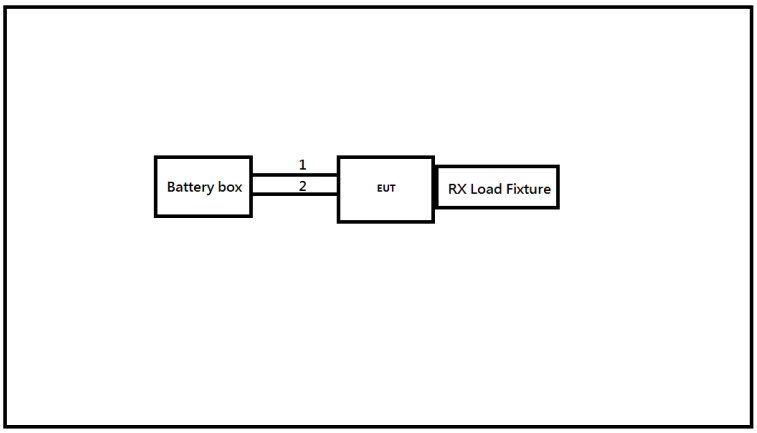
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



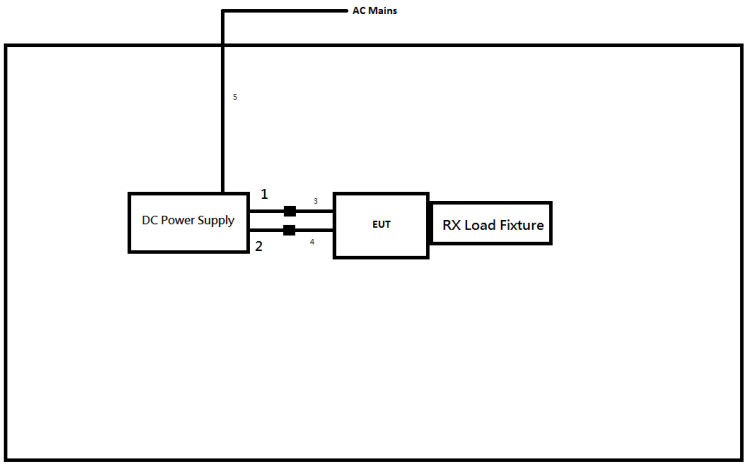
Item	Connection	Shielded	Length(m)	Remark
1	DC Power cable(+)	No	1.0	-
2	DC Power cable(-)	No	1.0	-
3	DC Power cable(+)	No	0.17	-
4	DC Power cable(-)	No	0.17	-
5	AC Power cable	No	1.8	-

Test Setup Diagram - Radiated Test – Mode 1



Item	Connection	Shielded	Length(m)	Remark
1	DC Power cable(+)	No	0.18	-
2	DC Power cable(-)	No	2.0	-

Test Setup Diagram - Radiated Test – Mode 2



Item	Connection	Shielded	Length(m)	Remark
1	DC Power cable(+)	No	1.0	-
2	DC Power cable(-)	No	1.0	-
3	DC Power cable(+)	No	0.17	-
4	DC Power cable(-)	No	0.17	-
5	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

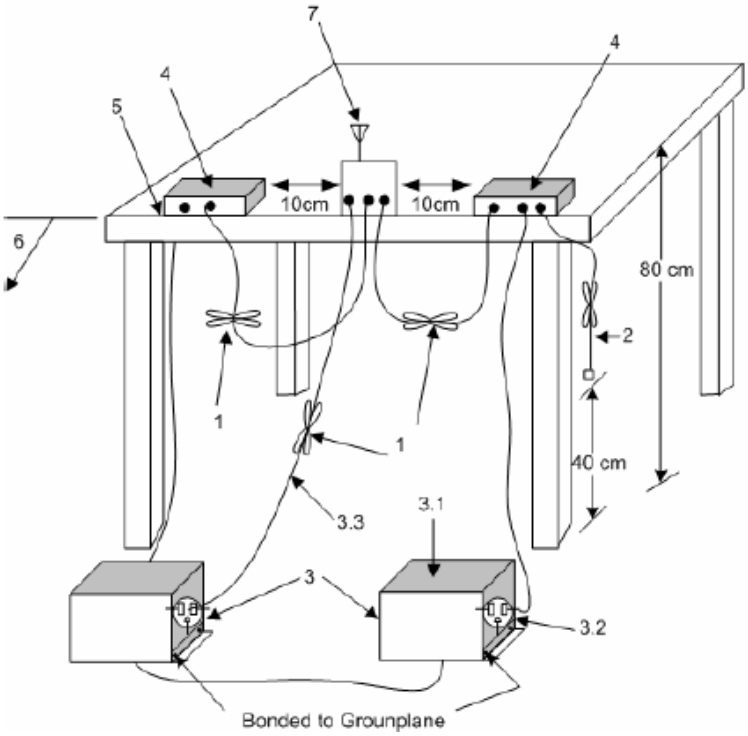
Test Method	
☒	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
☒	If AC conducted emissions fall in operating band, then following below test method confirm final result.
☐	Accept measurements done with a suitable dummy load replacing the antenna under the following conditions: (1) Perform the AC line conducted tests with the antenna connected to determine compliance with 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.
☒	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

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

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.

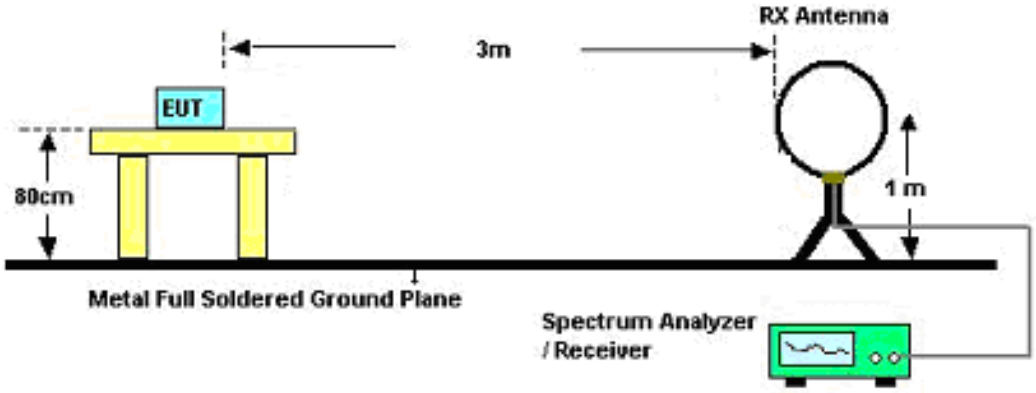
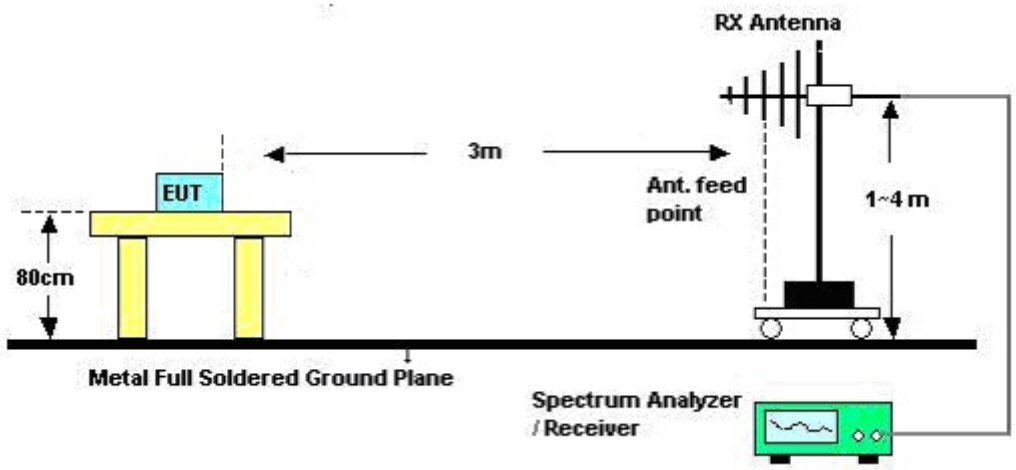
3.2.3 Test Procedures

Test Method	
☒	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 3 m.
☒	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 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.
☒	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

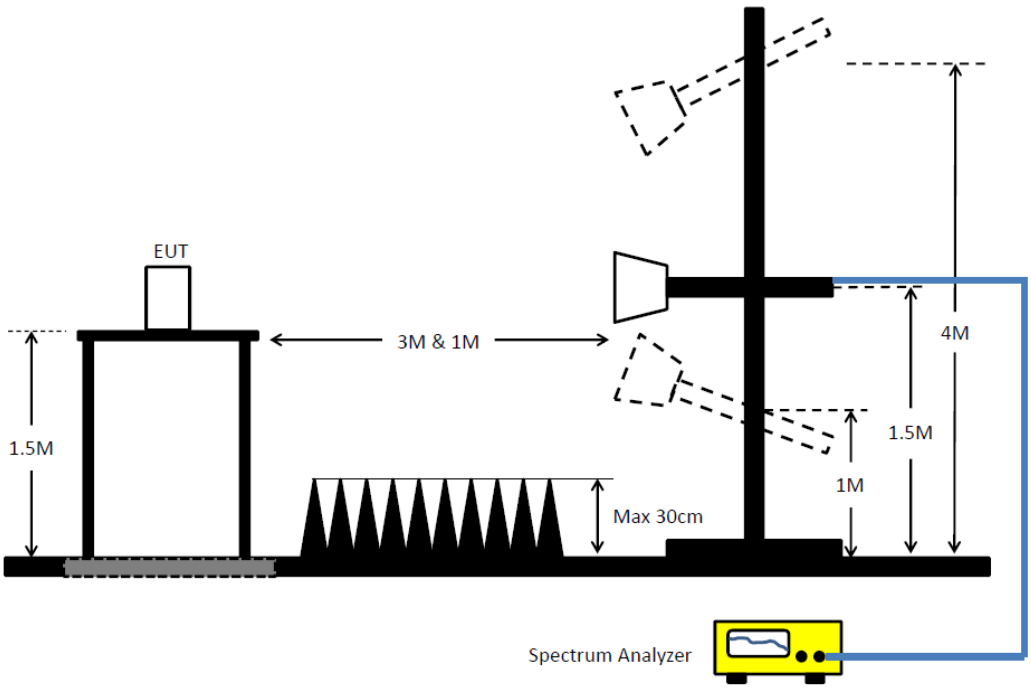
3.2.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

3.2.5 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



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

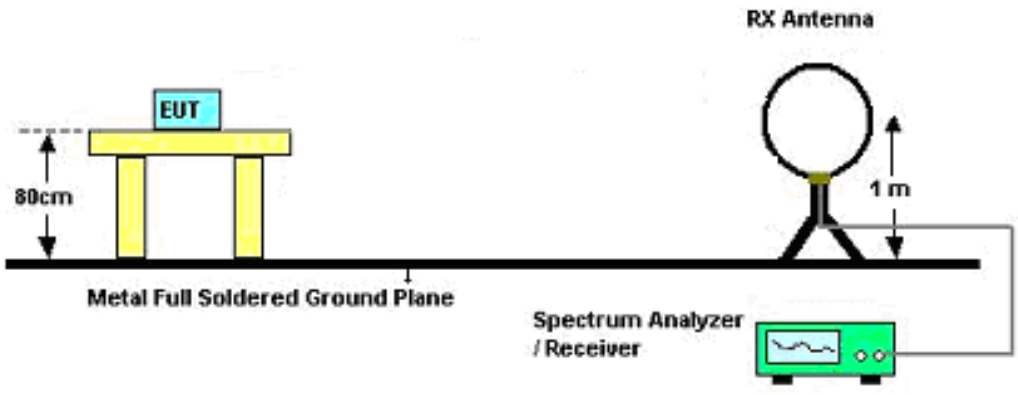
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
☒	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

Emission Bandwidth



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	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.	Spec.	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.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	02/Aug/2021	01/Aug/2022
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	12/Mar/2021	11/Mar/2022
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	29/Jun/2021	28/Jun/2022
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	04/Sep/2021	03/Sep/2022
RF Cable	MVE	400LL	MVE-1-0802	30MHz~1GHz	05/May/2021	04/May/2022
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	19/Apr/2021	18/Apr/2022

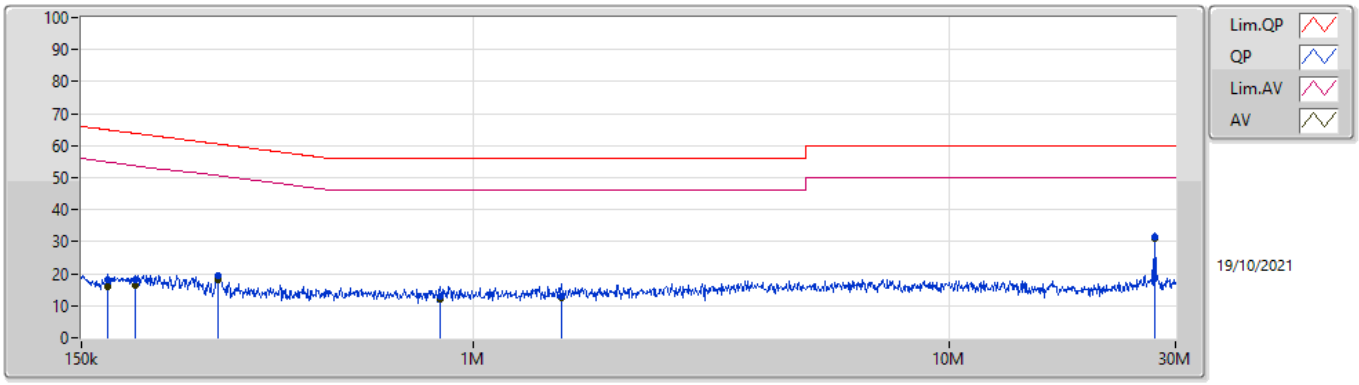
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	27.126M	32.40	50.00	-17.60	Neutral

Mode config

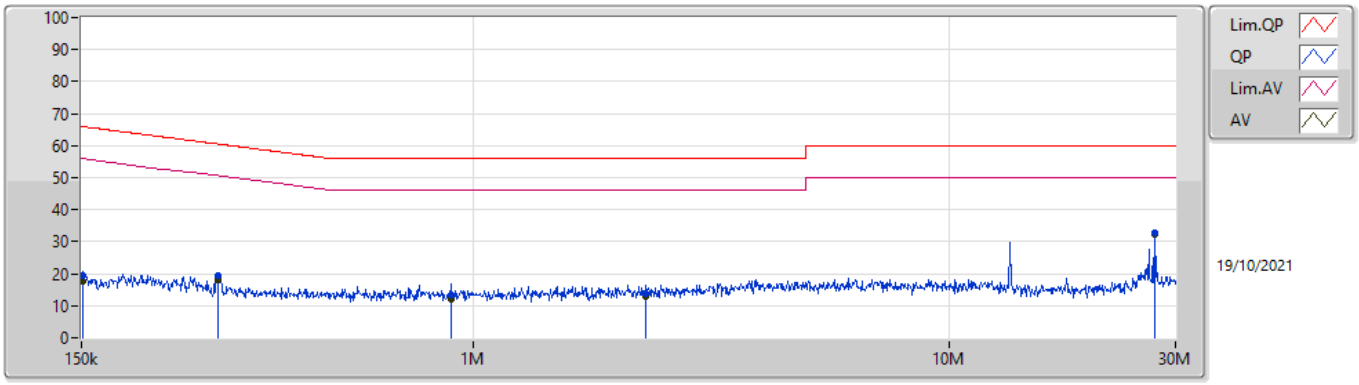
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	169.76k	18.21	64.97	-46.76	Line	-
Mode 1	Pass	AV	169.76k	15.95	54.97	-39.02	Line	-
Mode 1	Pass	QP	195.216k	18.29	63.80	-45.51	Line	-
Mode 1	Pass	AV	195.216k	16.27	53.80	-37.53	Line	-
Mode 1	Pass	QP	290.996k	19.47	60.49	-41.02	Line	-
Mode 1	Pass	AV	290.996k	18.25	50.49	-32.24	Line	-
Mode 1	Pass	QP	851.641k	13.01	56.00	-42.99	Line	-
Mode 1	Pass	AV	851.641k	12.01	46.00	-33.99	Line	-
Mode 1	Pass	QP	1.531M	13.02	56.00	-42.98	Line	-
Mode 1	Pass	AV	1.531M	12.29	46.00	-33.71	Line	-
Mode 1	Pass	QP	27.126M	31.30	60.00	-28.70	Line	-
Mode 1	Pass	AV	27.126M	30.88	50.00	-19.12	Line	-
Mode 1	Pass	QP	151.202k	19.42	65.92	-46.50	Neutral	-
Mode 1	Pass	AV	151.202k	17.84	55.92	-38.08	Neutral	-
Mode 1	Pass	QP	290.996k	19.53	60.49	-40.96	Neutral	-
Mode 1	Pass	AV	290.996k	18.12	50.49	-32.37	Neutral	-
Mode 1	Pass	QP	290.996k	19.40	60.49	-41.09	Neutral	-
Mode 1	Pass	AV	290.996k	18.07	50.49	-32.42	Neutral	-
Mode 1	Pass	QP	897.004k	13.15	56.00	-42.85	Neutral	-
Mode 1	Pass	AV	897.004k	12.07	46.00	-33.93	Neutral	-
Mode 1	Pass	QP	2.31M	13.73	56.00	-42.27	Neutral	-
Mode 1	Pass	AV	2.31M	12.90	46.00	-33.10	Neutral	-
Mode 1	Pass	QP	27.126M	32.75	60.00	-27.25	Neutral	-
Mode 1	Pass	AV	27.126M	32.40	50.00	-17.60	Neutral	-

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	169.76k	18.21	64.97	-46.76	19.62	Line	-	-1.41	9.69	0.04	9.89
AV	169.76k	15.95	54.97	-39.02	19.62	Line	-	-3.67	9.69	0.04	9.89
QP	195.216k	18.29	63.80	-45.51	19.61	Line	-	-1.32	9.68	0.04	9.89
AV	195.216k	16.27	53.80	-37.53	19.61	Line	-	-3.34	9.68	0.04	9.89
QP	290.996k	19.47	60.49	-41.02	19.61	Line	-	-0.14	9.67	0.05	9.89
AV	290.996k	18.25	50.49	-32.24	19.61	Line	-	-1.36	9.67	0.05	9.89
QP	851.641k	13.01	56.00	-42.99	19.64	Line	-	-6.63	9.67	0.08	9.89
AV	851.641k	12.01	46.00	-33.99	19.64	Line	-	-7.63	9.67	0.08	9.89
QP	1.531M	13.02	56.00	-42.98	19.65	Line	-	-6.63	9.68	0.09	9.88
AV	1.531M	12.29	46.00	-33.71	19.65	Line	-	-7.36	9.68	0.09	9.88
QP	27.126M	31.30	60.00	-28.70	19.79	Line	-	11.51	9.57	0.33	9.89
AV	27.126M	30.88	50.00	-19.12	19.79	Line	-	11.09	9.57	0.33	9.89

Conducted Emissions at Powerline_Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	151.202k	19.42	65.92	-46.50	19.62	Neutral	-	-0.20	9.69	0.04	9.89
AV	151.202k	17.84	55.92	-38.08	19.62	Neutral	-	-1.78	9.69	0.04	9.89
QP	290.996k	19.53	60.49	-40.96	19.61	Neutral	-	-0.08	9.67	0.05	9.89
AV	290.996k	18.12	50.49	-32.37	19.61	Neutral	-	-1.49	9.67	0.05	9.89
QP	290.996k	19.40	60.49	-41.09	19.61	Neutral	-	-0.21	9.67	0.05	9.89
AV	290.996k	18.07	50.49	-32.42	19.61	Neutral	-	-1.54	9.67	0.05	9.89
QP	897.004k	13.15	56.00	-42.85	19.64	Neutral	-	-6.49	9.67	0.08	9.89
AV	897.004k	12.07	46.00	-33.93	19.64	Neutral	-	-7.57	9.67	0.08	9.89
QP	2.31M	13.73	56.00	-42.27	19.67	Neutral	-	-5.94	9.68	0.11	9.88
AV	2.31M	12.90	46.00	-33.10	19.67	Neutral	-	-6.77	9.68	0.11	9.88
QP	27.126M	32.75	60.00	-27.25	19.93	Neutral	-	12.82	9.71	0.33	9.89
AV	27.126M	32.40	50.00	-17.60	19.93	Neutral	-	12.47	9.71	0.33	9.89

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
WPT	-	-	-	-	-	-	-	-	-	-	-	-
WPC	Pass	PK	13.561M	60.12	69.50	-9.38	23.33	3	Vertical	360	1.00	-

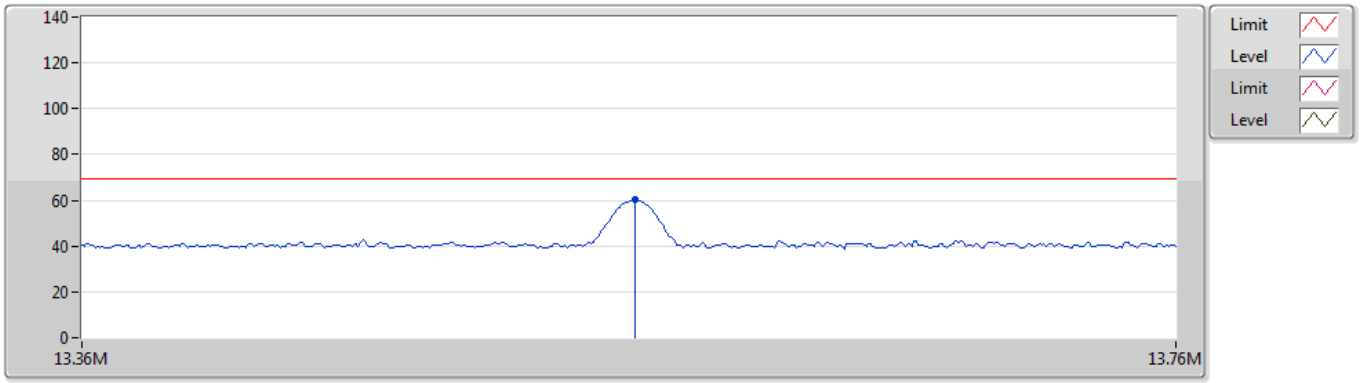
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
WPC	-	-	-	-	-	-	-	-	-	-	-	-
13.56MHz_Battery	Pass	PK	13.561M	60.12	69.50	-9.38	23.33	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	34.944k	58.52	116.73	-58.21	21.43	3	Vertical	0	1.00	-
13.56MHz_Battery	Pass	PK	112.212k	46.94	106.59	-59.65	20.19	3	Vertical	0	1.00	-
13.56MHz_Battery	Pass	PK	50.172k	49.06	113.59	-64.53	21.22	3	Vertical	0	1.00	-
13.56MHz_Battery	Pass	PK	388.8k	57.87	95.80	-37.93	20.72	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	985.8k	47.40	67.74	-20.34	20.71	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	2.896M	44.63	69.50	-24.87	20.53	3	Vertical	360	1.00	-

WPC

09/09/2021

13.56MHz_Battery



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	13.561M	60.12	69.50	-9.38	23.33	3	Vertical	360	1.00	-	36.79	22.65	0.68	-

WPC

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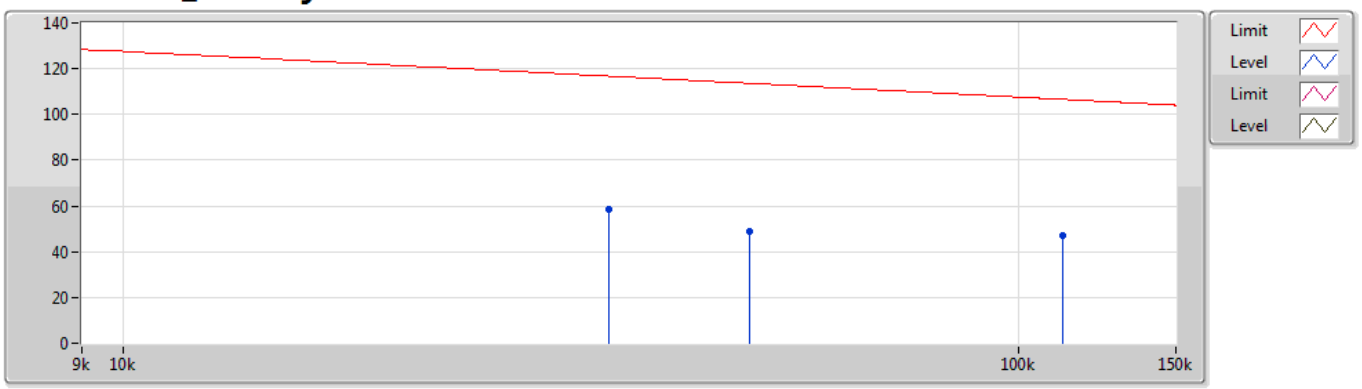
13.56MHz_Battery

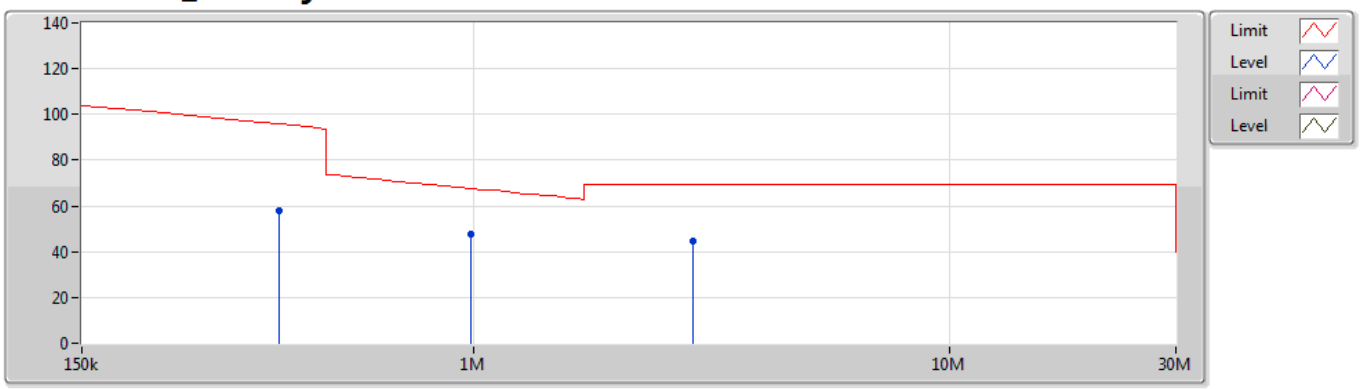


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	34.944k	58.52	116.73	-58.21	21.43	3	Vertical	0	1.00	-	37.09	21.21	0.22	-
PK	112.212k	46.94	106.59	-59.65	20.19	3	Vertical	0	1.00	-	26.75	19.96	0.23	-
PK	50.172k	49.06	113.59	-64.53	21.22	3	Vertical	0	1.00	-	27.84	21.00	0.22	-

WPC

09/09/2021

13.56MHz_Battery



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	388.8k	57.87	95.80	-37.93	20.72	3	Vertical	360	1.00	-	37.15	20.45	0.27	-
PK	985.8k	47.40	67.74	-20.34	20.71	3	Vertical	360	1.00	-	26.69	20.40	0.31	-
PK	2.896M	44.63	69.50	-24.87	20.53	3	Vertical	360	1.00	-	24.10	20.11	0.42	-

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
WPT	-	-	-	-	-	-	-	-	-	-	-	-
WPC	Pass	PK	66.86M	34.28	40.00	-5.72	-15.21	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
WPC	-	-	-	-	-	-	-	-	-	-	-	-
13.56MHz_Battery	Pass	PK	61.04M	27.77	40.00	-12.23	-15.11	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	297.72M	25.40	46.00	-20.60	-6.42	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	542.16M	29.08	46.00	-16.92	-1.77	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	619.76M	29.56	46.00	-16.44	-0.73	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	831.22M	32.92	46.00	-13.08	1.59	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	897.18M	33.43	46.00	-12.57	2.23	3	Vertical	360	1.00	-
13.56MHz_Battery	Pass	PK	66.86M	23.46	40.00	-16.54	-15.21	3	Horizontal	0	1.00	-
13.56MHz_Battery	Pass	PK	270.56M	29.70	46.00	-16.30	-6.74	3	Horizontal	0	1.00	-
13.56MHz_Battery	Pass	PK	297.72M	36.13	46.00	-9.87	-6.42	3	Horizontal	0	1.00	-
13.56MHz_Battery	Pass	PK	452.92M	28.62	46.00	-17.38	-3.20	3	Horizontal	0	1.00	-
13.56MHz_Battery	Pass	PK	676.02M	31.13	46.00	-14.87	-0.49	3	Horizontal	0	1.00	-
13.56MHz_Battery	Pass	PK	916.58M	33.95	46.00	-12.05	2.45	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	66.86M	34.28	40.00	-5.72	-15.21	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	161.92M	22.24	43.50	-21.26	-10.63	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	264.74M	25.22	46.00	-20.78	-6.23	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	392.78M	26.68	46.00	-19.32	-4.43	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	565.44M	30.24	46.00	-15.76	-1.15	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	765.26M	31.96	46.00	-14.04	0.70	3	Vertical	360	1.00	-
13.56MHz_DC Power Supply	Pass	PK	55.22M	32.13	40.00	-7.87	-14.62	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	66.86M	31.89	40.00	-8.11	-15.21	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	161.92M	28.59	43.50	-14.91	-10.63	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	229.82M	25.81	46.00	-20.19	-9.77	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	604.24M	31.52	46.00	-14.48	-1.08	3	Horizontal	0	1.00	-
13.56MHz_DC Power Supply	Pass	PK	868.08M	32.87	46.00	-13.13	2.00	3	Horizontal	0	1.00	-

WPC

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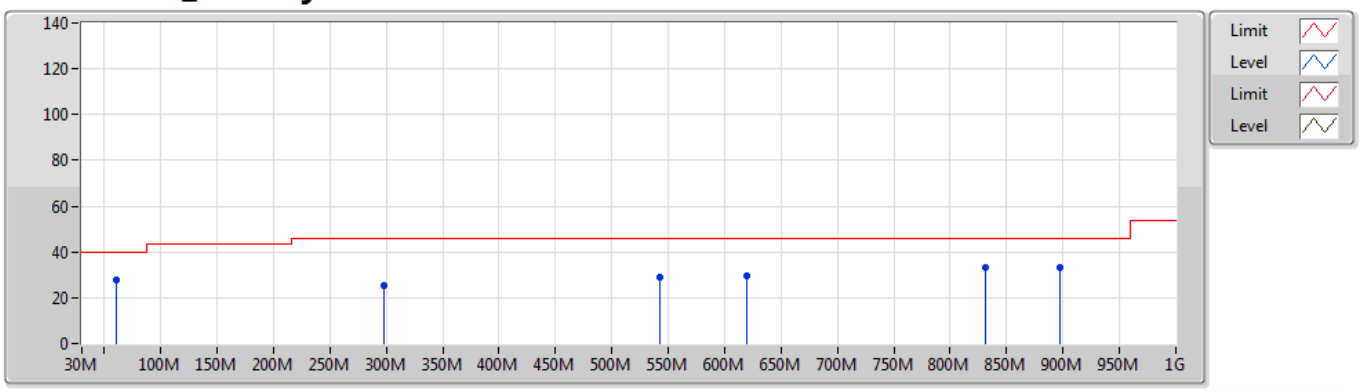
13.56MHz_Battery

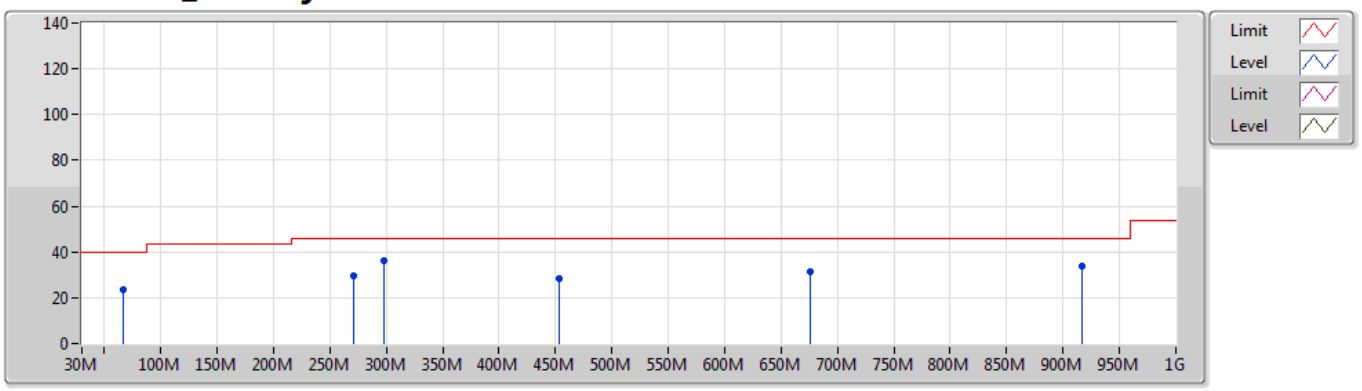


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	61.04M	27.77	40.00	-12.23	-15.11	3	Vertical	360	1.00	-	42.88	11.52	1.15	27.78
PK	297.72M	25.40	46.00	-20.60	-6.42	3	Vertical	360	1.00	-	31.82	18.29	2.35	27.06
PK	542.16M	29.08	46.00	-16.92	-1.77	3	Vertical	360	1.00	-	30.85	23.38	3.17	28.32
PK	619.76M	29.56	46.00	-16.44	-0.73	3	Vertical	360	1.00	-	30.29	24.21	3.40	28.34
PK	831.22M	32.92	46.00	-13.08	1.59	3	Vertical	360	1.00	-	31.33	25.42	3.95	27.78
PK	897.18M	33.43	46.00	-12.57	2.23	3	Vertical	360	1.00	-	31.20	25.64	4.10	27.51

WPC

09/09/2021

13.56MHz_Battery



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	66.86M	23.46	40.00	-16.54	-15.21	3	Horizontal	0	1.00	-	38.67	11.43	1.19	27.83
PK	270.56M	29.70	46.00	-16.30	-6.74	3	Horizontal	0	1.00	-	36.44	18.06	2.24	27.04
PK	297.72M	36.13	46.00	-9.87	-6.42	3	Horizontal	0	1.00	-	42.55	18.29	2.35	27.06
PK	452.92M	28.62	46.00	-17.38	-3.20	3	Horizontal	0	1.00	-	31.82	21.98	2.91	28.09
PK	676.02M	31.13	46.00	-14.87	-0.49	3	Horizontal	0	1.00	-	31.62	24.20	3.53	28.22
PK	916.58M	33.95	46.00	-12.05	2.45	3	Horizontal	0	1.00	-	31.50	25.75	4.13	27.43

WPC

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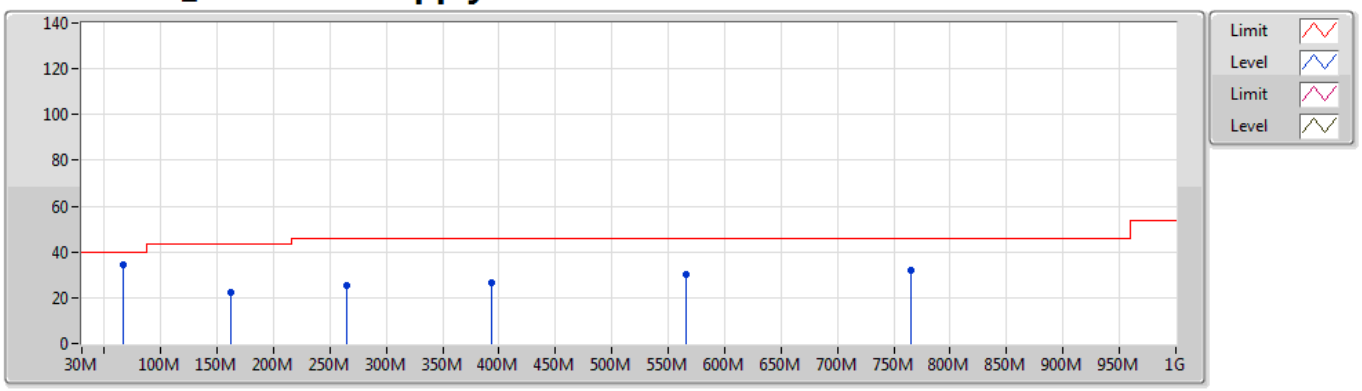
13.56MHz_DC Power Supply

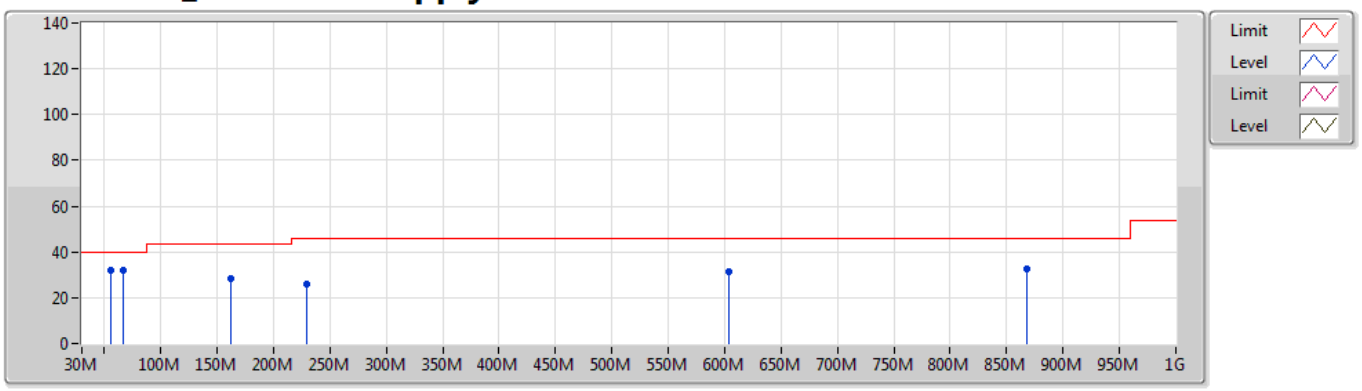


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	66.86M	34.28	40.00	-5.72	-15.21	3	Vertical	360	1.00	-	49.49	11.43	1.19	27.83
PK	161.92M	22.24	43.50	-21.26	-10.63	3	Vertical	360	1.00	-	32.87	15.10	1.78	27.51
PK	264.74M	25.22	46.00	-20.78	-6.23	3	Vertical	360	1.00	-	31.45	18.59	2.21	27.03
PK	392.78M	26.68	46.00	-19.32	-4.43	3	Vertical	360	1.00	-	31.11	20.58	2.71	27.72
PK	565.44M	30.24	46.00	-15.76	-1.15	3	Vertical	360	1.00	-	31.39	23.95	3.25	28.35
PK	765.26M	31.96	46.00	-14.04	0.70	3	Vertical	360	1.00	-	31.26	24.96	3.75	28.01

WPC

20/10/2021

13.56MHz_DC Power Supply



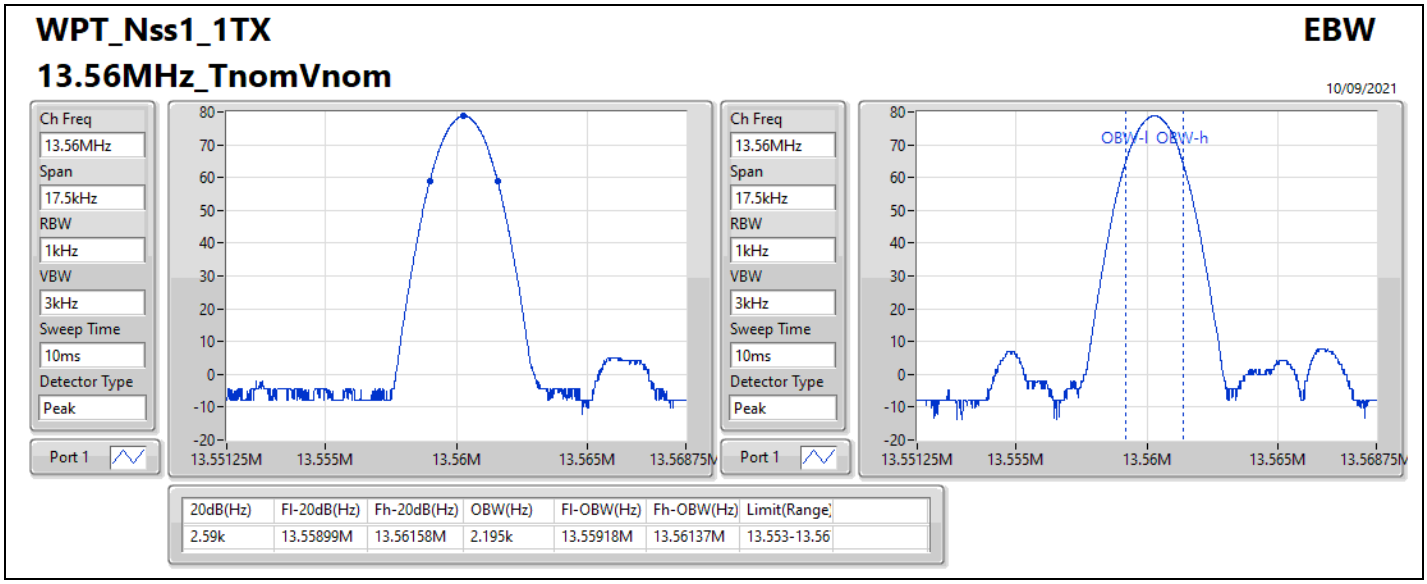
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	55.22M	32.13	40.00	-7.87	-14.62	3	Horizontal	0	1.00	-	46.75	12.01	1.10	27.73
PK	66.86M	31.89	40.00	-8.11	-15.21	3	Horizontal	0	1.00	-	47.10	11.43	1.19	27.83
PK	161.92M	28.59	43.50	-14.91	-10.63	3	Horizontal	0	1.00	-	39.22	15.10	1.78	27.51
PK	229.82M	25.81	46.00	-20.19	-9.77	3	Horizontal	0	1.00	-	35.58	15.30	2.07	27.14
PK	604.24M	31.52	46.00	-14.48	-1.08	3	Horizontal	0	1.00	-	32.60	23.95	3.38	28.41
PK	868.08M	32.87	46.00	-13.13	2.00	3	Horizontal	0	1.00	-	30.87	25.61	4.03	27.64

Summary

Mode	20dB (Hz)	Fl-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Limit (Range)
13.553-13.567MHz	-	-	-	-	-
WPT_Nss1_1TX	2.59k	13.55899M	13.56158M	2.195k	13.553-13.567

Result

Mode	Result	20dB (Hz)	Fl-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Fl-OBW (Hz)	Fh-OBW (Hz)	Limit (Range)
WPT_Nss1_1TX	-	-	-	-	-	-	-	-
13.56MHz_TnomVnom	Pass	2.59k	13.55899M	13.56158M	2.195k	13.55918M	13.56137M	13.553-13.567


WPT_Nss1_1TX
EBW
13.56MHz_TnomVnom
10/09/2021
Ch Freq
13.56MHz
Span
17.5kHz
RBW
1kHz
VBW
3kHz
Sweep Time
10ms
Detector Type
Peak
Port 1
80
70
60
50
40
30
20
10
0
-10
-20
13.55125M
13.555M
13.56M
13.565M
13.56875M
OBW-l
OBW-h
20dB(Hz)
Fl-20dB(Hz)
Fh-20dB(Hz)
OBW(Hz)
Fl-OBW(Hz)
Fh-OBW(Hz)
Limit(Range)
2.59k
13.55899M
13.56158M
2.195k
13.55918M
13.56137M
13.553-13.56