

FCC Radio Test Report

FCC ID : 2ASFB-2255
Equipment : Sound Level Meter
Brand Name : Hottinger Brüel & Kjær
Model Name : 2245, 2255
Applicant : Hottinger Bruel and Kjaer A/S
Teknikerbyen 28, 2830 Virum, Denmark
Manufacturer : Hottinger Brüel & Kjær
Teknikerbyen 28, 2830 Virum, Denmark
Standard : 47 CFR FCC Part 15.247

The product was received on Sep. 17, 2021, and testing was started from Dec. 08, 2021 and completed on Jan. 18, 2022. 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 partial 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.)



Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	7
1.3 Testing Location Information	7
1.4 Measurement Uncertainty	7
2 TEST CONFIGURATION OF EUT.....	8
2.1 The Worst Case Measurement Configuration.....	8
2.2 Accessories	9
2.3 Support Equipment.....	10
2.4 Test Setup Diagram	11
3 TRANSMITTER TEST RESULT	13
3.1 AC Power-line Conducted Emissions	13
3.2 Emissions in Restricted Frequency Bands.....	15
4 TEST EQUIPMENT AND CALIBRATION DATA	18
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS	
APPENDIX B. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX C. TEST PHOTOS	
PHOTOGRAPHS OF EUT V01	



History of this test report

Report No.	Version	Description	Issued Date
FR191420AC	01	Initial issue of report	Apr. 07, 2022

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	-
-	15.247(a)	DTS Bandwidth	Not Required	-
-	15.247(b)	Maximum Conducted Output Power	Not Required	-
-	15.247(e)	Power Spectral Density	Not Required	-
-	15.247(d)	Emissions in Non-restricted Frequency Bands	Not Required	-
3.2	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-
Remark: 1. Not required means after assessing, test items are not necessary to carry out. 2. This is a variant report by using certified RF module (FCC ID: SQG-60SIPT). Only AC Power-line Conducted Emissions and Emissions in Restricted Frequency Bands below 1GHz was verified in this test report, for other test items were leveraged from module certification report FR740701AC.				

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 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	2TX
2.4-2.4835GHz	802.11g	20	2TX
2.4-2.4835GHz	802.11n HT20	20	2TX
2.4-2.4835GHz	802.11n HT40	40	2TX

Note:

- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- BWch is the nominal channel bandwidth.
- The device supports TX antenna diversity function. The conducted power of single chain is same for 1TX and 2TX operation mode. There for, Ant.1 + Ant.2 configuration is chosen for final testing.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	Laird	CAF94505	PCB Antenna	I-PEX
2	Laird	CAF94505	PCB Antenna	I-PEX

Ant.	Port	Gain (dBi)	
		2.4G	BT
1	1	2	-
2	2	2	2

Note 1: The EUT has two antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n mode (2TX/2RX)

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

**1.1.3 EUT Information**

Operational Condition			
EUT Power Type	From Cradle / Power Adapter		
EUT Function	☒	Point-to-multipoint	☐ Point-to-point
Beamforming Function	☐	With beamforming	☒ Without beamforming
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 Table for Multiple Listing

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

Model Name	Description
2245, 2255	Model: 2245 with Fixed Preamplifier Connector for microphone Model: 2255 with Detachable Preamplifier Connector for microphone The main hardware and analog-board design are the same for both models.

1.1.5 Test Report Exhibits for Test Reduction

FCC ID	Test Report Number	Description
SQG-60SIPT	FR740701AC	Bandwidth, output power, power density, emissions in non-restricted frequency bands and emissions in restricted frequency bands (above 1GHz) were demonstrated to comply with FCC Part 15.247.
2ASFB-2255	FR191420AC	AC Conduction and spurious emission (below 1GHz) were evaluated.

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 558074 D01 v05r02
- ♦ KDB 662911 D01 v02r01
- ♦ 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
AC Conduction	CO04-HY	Daniel Lin	20.8~23.1°C / 54~59%	08/Dec/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.				
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH09-HY	Daniel Lin	20.5~22.6°C / 54~61%	08/Dec/2021~18/Jan/2022

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%

2 Test Configuration of EUT

2.1 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
1	Cradle mode
2	Adapter mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	Adapter mode		
2	Cradle mode		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

2.2 Accessories

Accessories				
Battery	Brand Name	Brüel & Kjær	Model Name	DM389B.804
	Power Rating	3.6Vdc, 6700mAh	Type	Li-ion
1/2" Free-field Microphone, 5 Hz to 20 kHz, Prepolarized	Brand Name	Brüel & Kjær	Model Name	Type 4966
1/4" Pressure-Field Microphone, Externally Polarized	Brand Name	Brüel & Kjær	Model Name	Type 4938
Extension Rod	Brand Name	Brüel & Kjær	Model Name	UA-0049
Outdoor Microphone	Brand Name	Brüel & Kjær	Model Name	Type 4952
Integral Windscreen (Upper Part)	Brand Name	Brüel & Kjær	Model Name	UA-1679
Microphone And Preamplifier Extension Cable	Brand Name	Brüel & Kjær	Model Name	AO-0414-D-300
	Signal line	30 meter, non-shielded cable		
Microphone And Preamplifier Extension Cable	Brand Name	Brüel & Kjær	Model Name	AO-0414-D-030
	Signal line	3 meter, non-shielded cable		
Switching Adapter	Brand Name	HN Electronic	Model Name	HNP12I-USBL6
	Part Number	ZG-0486		
	Power Rating	I/P: 100 - 240Vac, 0.45 A, O/P: 5.0Vdc, 2.4A		
USB C to USB A Cable	Brand Name	Brüel & Kjær	Part Number	AO-0821-D-010
	Power Cable	0.95 meter, non-shielded cable, with a ferrite core		
Adapter Cable, USB-C splitter to 3.5mm Jack and USB-C female	Brand Name	Brüel & Kjær	Part Number	AO-0846
	Power Cable	0.1 meter, non-shielded cable, without ferrite core		

The Alternate Accessory				
1/2" Prepolarized Infrasound Cartridge	Brand Name	Brüel & Kjær	Model Name	Type 4964
1/4" Pressure-field Microphone 4 Hz to 70 kHz Prepolarized, 1.0 mV/Pa	Brand Name	Brüel & Kjær	Model Name	Type 4944
1/4" Prepolarized Free-field Microphone 3.16 mV/Pa	Brand Name	Brüel & Kjær	Model Name	Type 4954
*Note: The manufacturer indicates that the above microphones are passive devices and identical in shape, Type 4964 is similar to Type 4966, Type 4944 and Type 4954 are similar to Type 4938, hence, the manufacturer specifies to perform the tests with Microphone Type 4966 and Type 4938 only.				

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

Testing Support Unit				
Docking Station	Brand Name	Brüel & Kjær	Model Name	UL-0089
	Power Rating	I/P: 15Vac, 20W		
Power Supply	Brand Name	switchbox	Model Name	TRG36A15
	Part Number	ZG-0881		
	Power Rating	I/P: 100 - 240Vac, 1.0A, O/P: 15Vdc, 2.4A		
	Power Cord	1.5 meter, non-shielded cable, with ferrite core		
AC Power Cable (EU plug)	Brand Name	Brüel & Kjær	Part Number	AN-0058
	Power Cord	1.5 meter, non-shielded cable, without ferrite core		
AC Power Cable (US plug)	Brand Name	Brüel & Kjær	Part Number	AN-0060
	Power Cord	1.5 meter, non-shielded cable, without ferrite core		
Standard Cat 6 Lan Cable	Brand Name	DIGITUS	Model Name	DK-1644-020/G
	Part Number	AO-1450-D-020	Category	Cat 6
	Power Cord	2 meter, non-shielded cable		

Note: The items mentioned above will not be sold with the EUT in the market, only used as testing support unit.

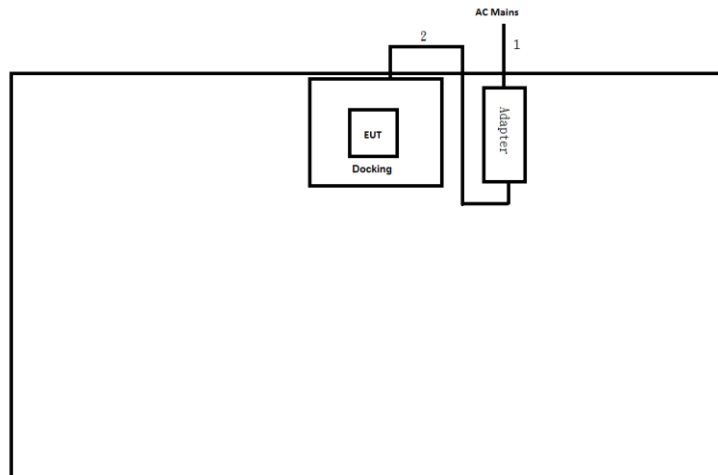
2.3 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Adapter for NB	HP	PPP009D	-	-
2	AC Power cable	Power sync	PW-GPC180-3	-	-
3	Notebook	HP	E5220	-	-
4	Power Supply	switchbox	TRG36A15	-	-
5	Docking Station	Brüel & Kjær	UL-0089	-	-
6	AC Power Cable (US plug)	Brüel & Kjær	AN-0060	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Adapter for NB	HP	PPP009D	-	-
2	AC Power cable	Power sync	PW-GPC180-3	-	-
3	Notebook	HP	E5220	-	-
4	Power Supply	switchbox	TRG36A15	-	-
5	Docking Station	Brüel & Kjær	UL-0089	-	-
6	AC Power Cable (US plug)	Brüel & Kjær	AN-0060	-	-

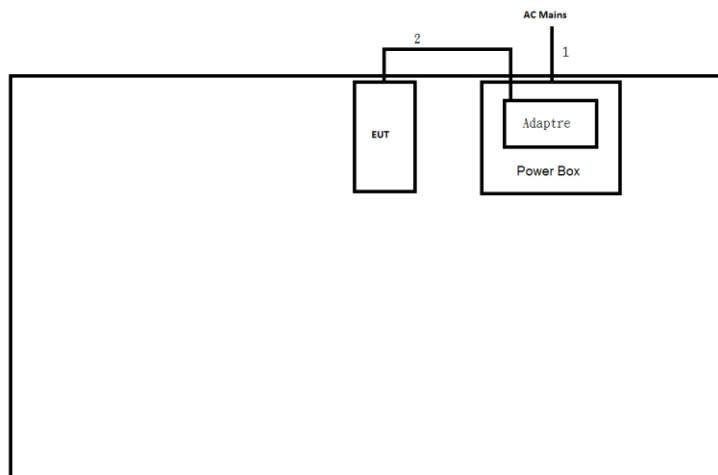
2.4 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (Cradle mode)

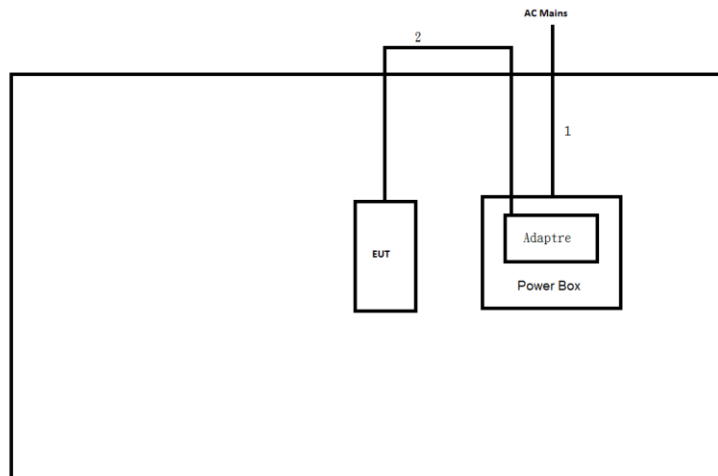


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.5
2	DC Power cable	No	1.5

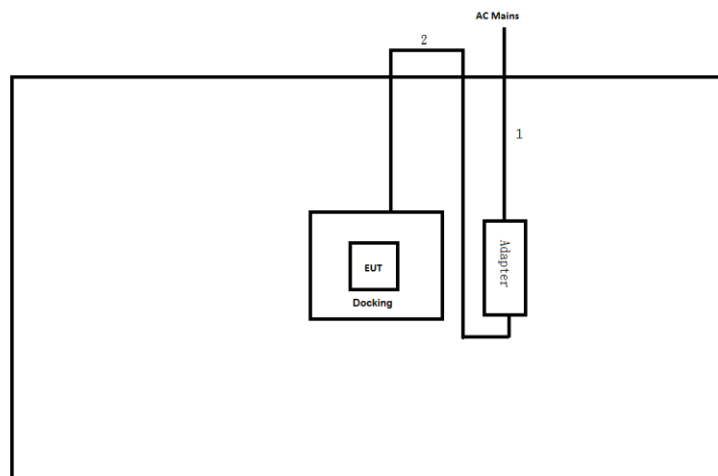
Test Setup Diagram – AC Line Conducted Emission Test (Adapter mode)



Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	USB C to USB A Cable	No	0.95

Test Setup Diagram - Radiated Test (Adapter mode)


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.8
2	USB C to USB A Cable	No	0.95

Test Setup Diagram - Radiated Test (Cradle mode)


Item	Connection	Shielded	Length(m)
1	AC Power cable	No	1.5
2	DC Power cable	No	1.5

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

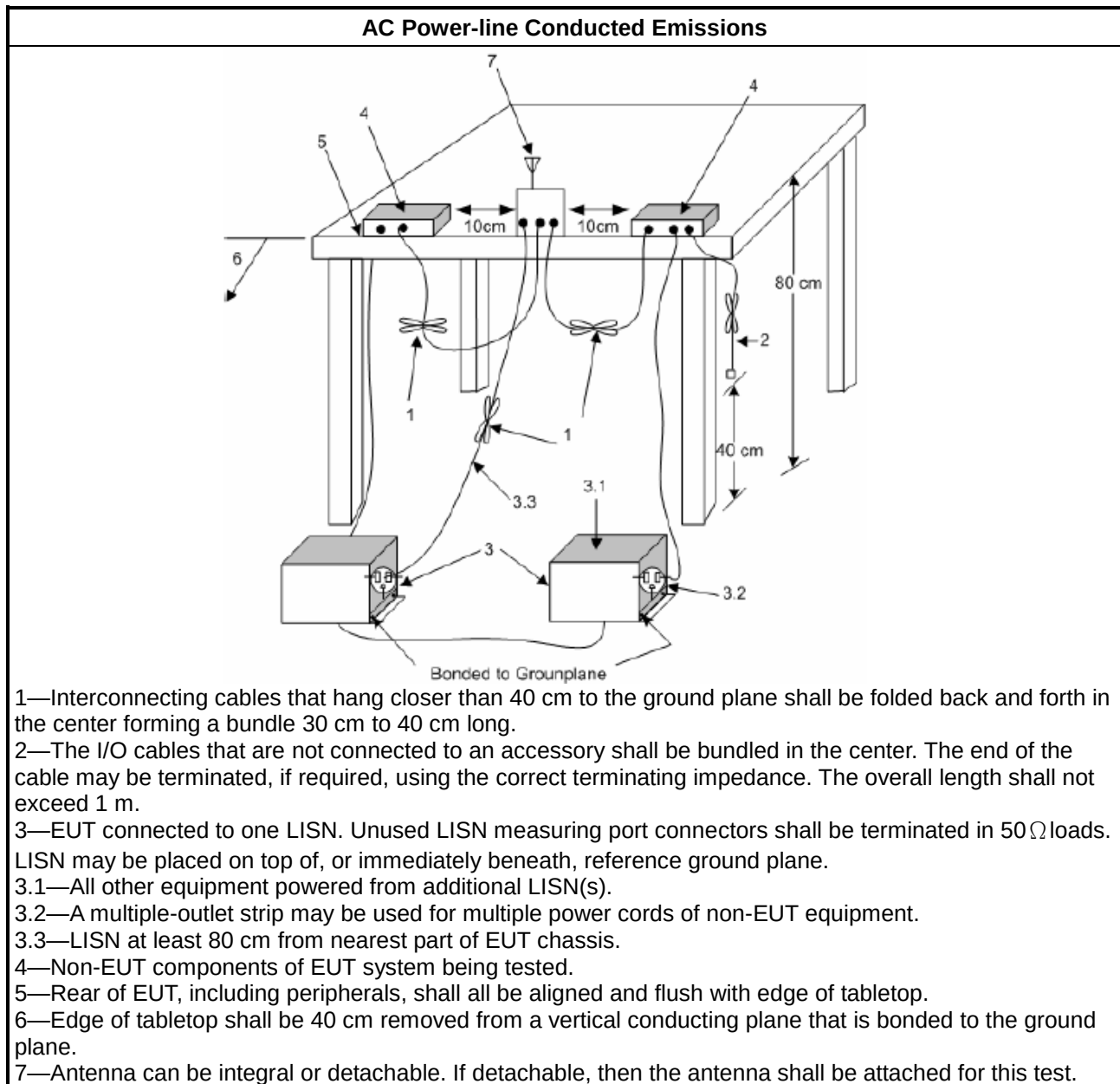
Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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 Emissions in Restricted Frequency Bands

3.2.1 Emissions in Restricted Frequency Bands Limit

Restricted Band 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: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

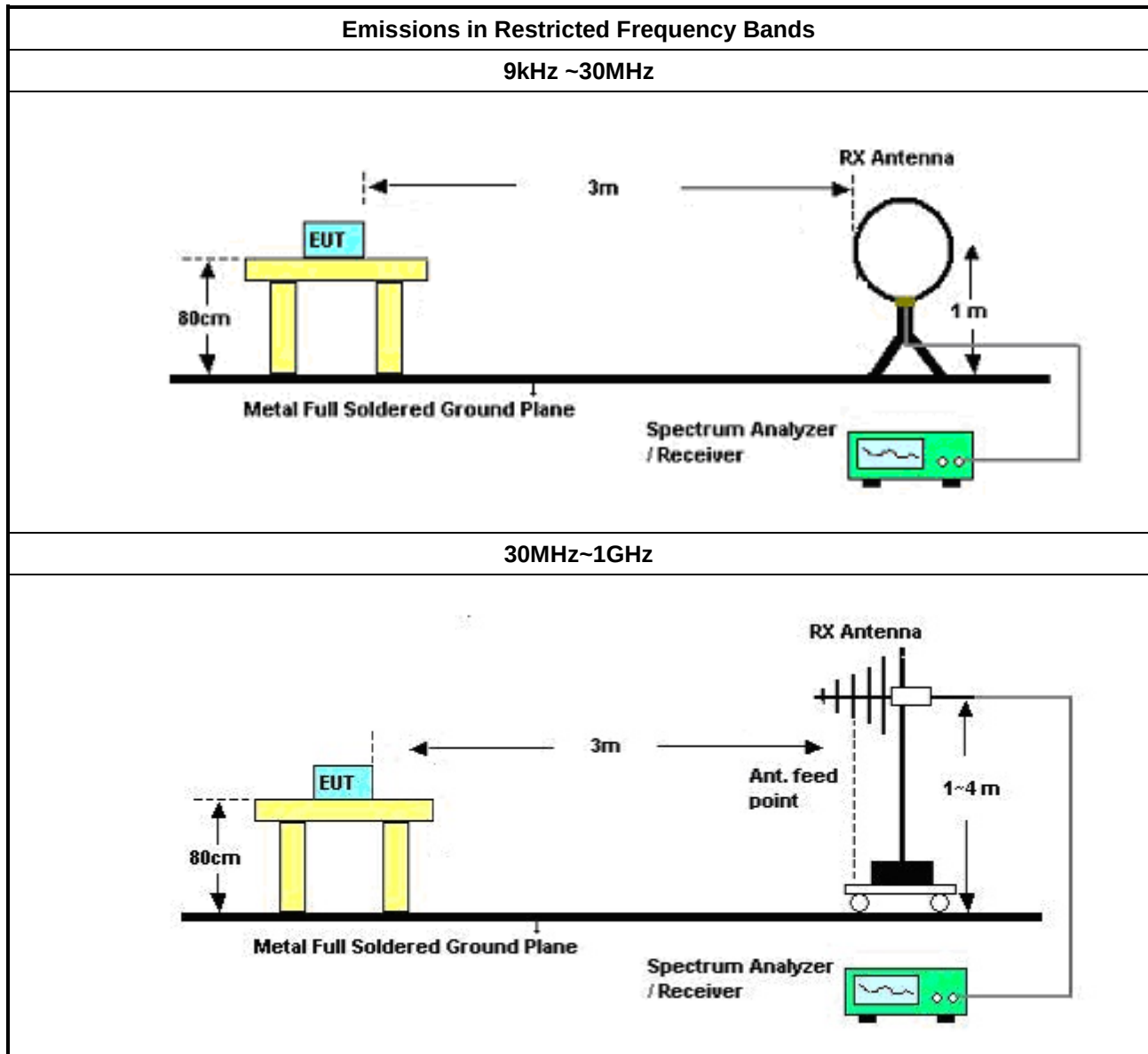
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
For the transmitter band-edge emissions shall be measured using following options below:	
	Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
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(Preamplifier Factor)

3.2.5 Test Setup



3.2.6 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.2.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix B



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
Two-Line V-Network	R&S	ENV216	100003	9kHz ~ 30MHz	15/Dec/2020	14/Dec/2021
RF Cable 5m	TITAN	TITAN	CO04-cable-01	9kHz~200MHz	03/Mar/2021	02/Mar/2022
Impuls Begrenzer Puls e Limiter	SCHWARZBEC K	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	26/Oct/2021	25/Oct/2022
SENSE-EMI	Sporton	v5.10.7.13	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	TDK	SAC-3M	03CH09-HY	30MHz~1GHz 3m	26/Mar/2021	25/Mar/2022
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	13/Aug/2021	12/Aug/2022
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	12/Apr/2021	11/Apr/2022
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MTJ 6102-05	35418 & 3	30MHz~1GHz	04/Sep/2021	03/Sep/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/ 4	9kHz~30MHz	30/Aug/2021	29/Aug/2022
RF Cable-low	Jye Bao	RG142	CB031+324530/ 4	30MHz~1GHz	09/Feb/2021	08/Feb/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
SENSE-15247_ DTS	Sporton	5.10.7.14	N/A	N/A	N/A	N/A



Conducted Emissions at Powerline

Appendix A

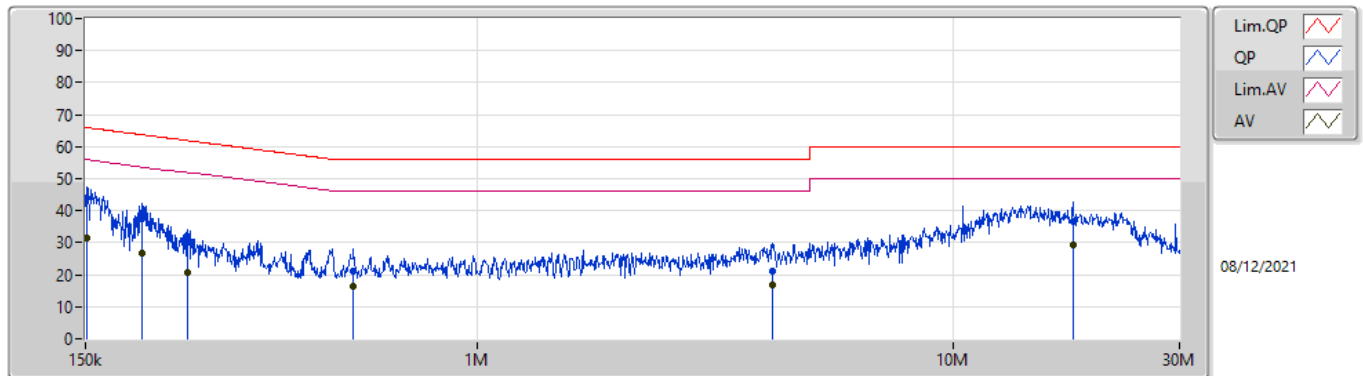
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	17.909M	29.36	50.00	-20.64	Line
Mode 2	Pass	AV	455.055k	28.53	46.78	-18.25	Line

Result

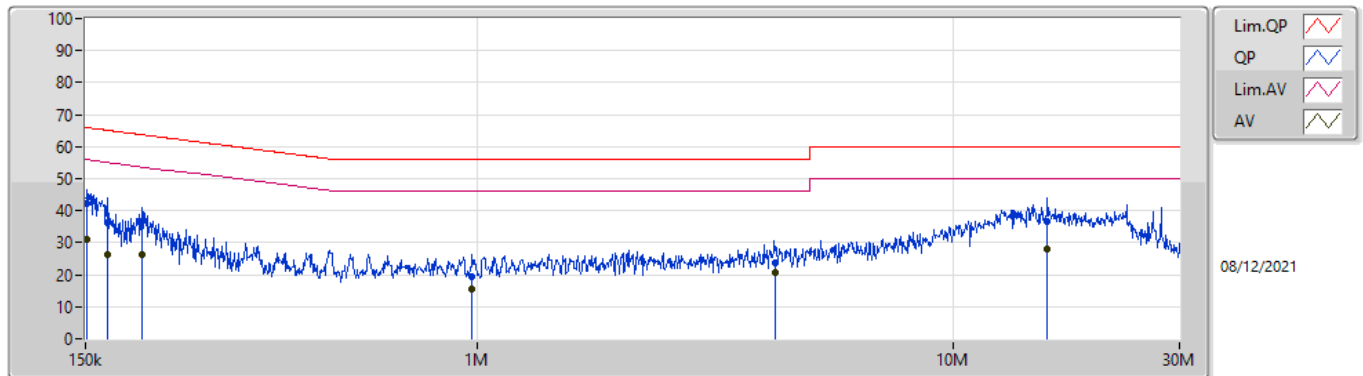
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	151.202k	43.76	65.92	-22.16	Line	-
Mode 1	Pass	AV	151.202k	31.60	55.92	-24.32	Line	-
Mode 1	Pass	QP	197.568k	37.61	63.71	-26.10	Line	-
Mode 1	Pass	AV	197.568k	26.81	53.71	-26.90	Line	-
Mode 1	Pass	QP	246.077k	30.17	61.89	-31.72	Line	-
Mode 1	Pass	AV	246.077k	20.52	51.89	-31.37	Line	-
Mode 1	Pass	QP	548.969k	20.96	56.00	-35.04	Line	-
Mode 1	Pass	AV	548.969k	16.48	46.00	-29.52	Line	-
Mode 1	Pass	QP	4.171M	21.30	56.00	-34.70	Line	-
Mode 1	Pass	AV	4.171M	16.76	46.00	-29.24	Line	-
Mode 1	Pass	QP	17.909M	36.48	60.00	-23.52	Line	-
Mode 1	Pass	AV	17.909M	29.36	50.00	-20.64	Line	-
Mode 1	Pass	QP	151.202k	42.38	65.92	-23.54	Neutral	-
Mode 1	Pass	AV	151.202k	31.02	55.92	-24.90	Neutral	-
Mode 1	Pass	QP	166.406k	36.09	65.14	-29.05	Neutral	-
Mode 1	Pass	AV	166.406k	26.20	55.14	-28.94	Neutral	-
Mode 1	Pass	QP	197.568k	36.69	63.71	-27.02	Neutral	-
Mode 1	Pass	AV	197.568k	26.30	53.71	-27.41	Neutral	-
Mode 1	Pass	QP	975.445k	19.41	56.00	-36.59	Neutral	-
Mode 1	Pass	AV	975.445k	15.68	46.00	-30.32	Neutral	-
Mode 1	Pass	QP	4.222M	23.73	56.00	-32.27	Neutral	-
Mode 1	Pass	AV	4.222M	20.54	46.00	-25.46	Neutral	-
Mode 1	Pass	QP	15.825M	36.59	60.00	-23.41	Neutral	-
Mode 1	Pass	AV	15.825M	28.12	50.00	-21.88	Neutral	-
Mode 2	Pass	QP	156.734k	30.52	65.64	-35.12	Line	-
Mode 2	Pass	AV	156.734k	20.51	55.64	-35.13	Line	-
Mode 2	Pass	QP	182.408k	27.86	64.37	-36.51	Line	-
Mode 2	Pass	AV	182.408k	18.29	54.37	-36.08	Line	-
Mode 2	Pass	QP	359.562k	32.18	58.73	-26.55	Line	-
Mode 2	Pass	AV	359.562k	23.09	48.73	-25.64	Line	-
Mode 2	Pass	QP	455.055k	38.37	56.78	-18.41	Line	-
Mode 2	Pass	AV	455.055k	28.53	46.78	-18.25	Line	-
Mode 2	Pass	QP	937.272k	32.69	56.00	-23.31	Line	-
Mode 2	Pass	AV	937.272k	20.75	46.00	-25.25	Line	-
Mode 2	Pass	QP	28.118M	22.04	60.00	-37.96	Line	-
Mode 2	Pass	AV	28.118M	17.86	50.00	-32.14	Line	-
Mode 2	Pass	QP	153.024k	30.75	65.83	-35.08	Neutral	-
Mode 2	Pass	AV	153.024k	20.35	55.83	-35.48	Neutral	-
Mode 2	Pass	QP	185.344k	28.86	64.24	-35.38	Neutral	-
Mode 2	Pass	AV	185.344k	17.76	54.24	-36.48	Neutral	-
Mode 2	Pass	QP	362.445k	28.24	58.68	-30.44	Neutral	-
Mode 2	Pass	AV	362.445k	19.34	48.68	-29.34	Neutral	-
Mode 2	Pass	QP	432.041k	32.50	57.20	-24.70	Neutral	-
Mode 2	Pass	AV	432.041k	20.70	47.20	-26.50	Neutral	-
Mode 2	Pass	QP	714.452k	20.89	56.00	-35.11	Neutral	-
Mode 2	Pass	AV	714.452k	15.18	46.00	-30.82	Neutral	-
Mode 2	Pass	QP	22.756M	16.23	60.00	-43.77	Neutral	-
Mode 2	Pass	AV	22.756M	14.63	50.00	-35.37	Neutral	-

Conducted Emissions at Powerline_Mode 1



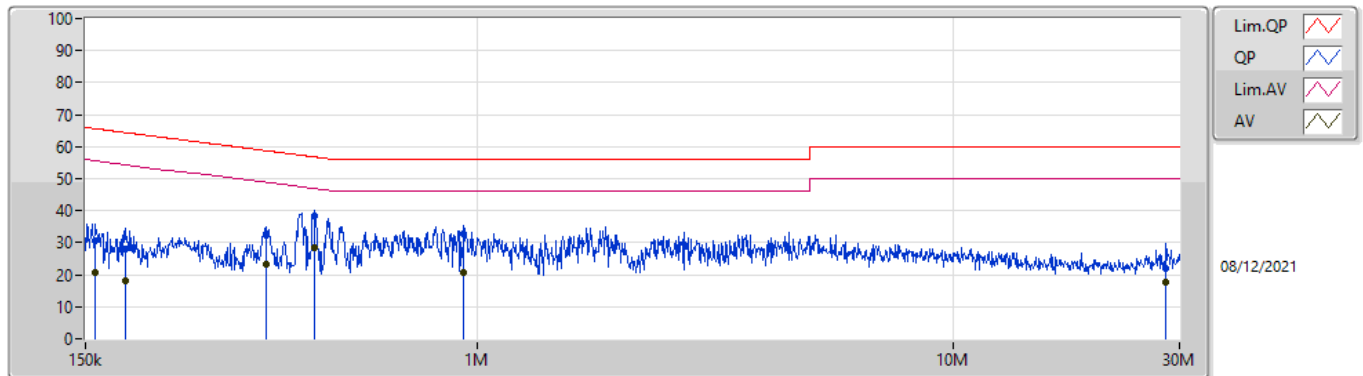
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	151.202k	43.76	65.92	-22.16	19.64	Line	-	24.12	9.69	0.04	9.91			
AV	151.202k	31.60	55.92	-24.32	19.64	Line	-	11.96	9.69	0.04	9.91			
QP	197.568k	37.61	63.71	-26.10	19.63	Line	-	17.98	9.68	0.04	9.91			
AV	197.568k	26.81	53.71	-26.90	19.63	Line	-	7.18	9.68	0.04	9.91			
QP	246.077k	30.17	61.89	-31.72	19.64	Line	-	10.53	9.68	0.05	9.91			
AV	246.077k	20.52	51.89	-31.37	19.64	Line	-	0.88	9.68	0.05	9.91			
QP	548.969k	20.96	56.00	-35.04	19.65	Line	-	1.31	9.67	0.07	9.91			
AV	548.969k	16.48	46.00	-29.52	19.65	Line	-	-3.17	9.67	0.07	9.91			
QP	4.171M	21.30	56.00	-34.70	19.76	Line	-	1.54	9.70	0.14	9.92			
AV	4.171M	16.76	46.00	-29.24	19.76	Line	-	-3.00	9.70	0.14	9.92			
QP	17.909M	36.48	60.00	-23.52	19.99	Line	-	16.49	9.78	0.28	9.93			
AV	17.909M	29.36	50.00	-20.64	19.99	Line	-	9.37	9.78	0.28	9.93			

Conducted Emissions at Powerline_Mode 1



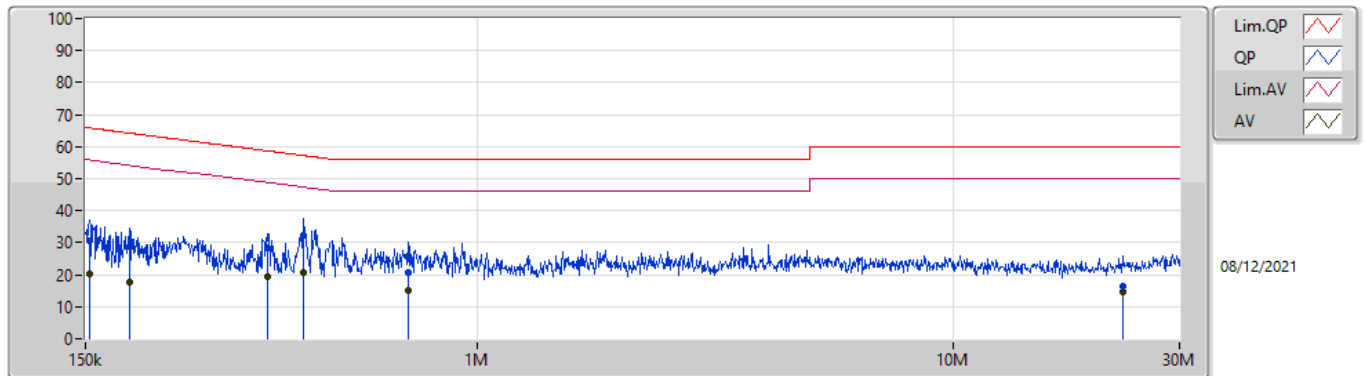
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	151.202k	42.38	65.92	-23.54	19.64	Neutral	-	22.74	9.69	0.04	9.91			
AV	151.202k	31.02	55.92	-24.90	19.64	Neutral	-	11.38	9.69	0.04	9.91			
QP	166.406k	36.09	65.14	-29.05	19.64	Neutral	-	16.45	9.69	0.04	9.91			
AV	166.406k	26.20	55.14	-28.94	19.64	Neutral	-	6.56	9.69	0.04	9.91			
QP	197.568k	36.69	63.71	-27.02	19.63	Neutral	-	17.06	9.68	0.04	9.91			
AV	197.568k	26.30	53.71	-27.41	19.63	Neutral	-	6.67	9.68	0.04	9.91			
QP	975.445k	19.41	56.00	-36.59	19.67	Neutral	-	-0.26	9.67	0.08	9.92			
AV	975.445k	15.68	46.00	-30.32	19.67	Neutral	-	-3.99	9.67	0.08	9.92			
QP	4.222M	23.73	56.00	-32.27	19.77	Neutral	-	3.96	9.71	0.14	9.92			
AV	4.222M	20.54	46.00	-25.46	19.77	Neutral	-	0.77	9.71	0.14	9.92			
QP	15.825M	36.59	60.00	-23.41	20.08	Neutral	-	16.51	9.89	0.26	9.93			
AV	15.825M	28.12	50.00	-21.88	20.08	Neutral	-	8.04	9.89	0.26	9.93			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	156.734k	30.52	65.64	-35.12	19.64	Line	-	10.88	9.69	0.04	9.91			
AV	156.734k	20.51	55.64	-35.13	19.64	Line	-	0.87	9.69	0.04	9.91			
QP	182.408k	27.86	64.37	-36.51	19.63	Line	-	8.23	9.68	0.04	9.91			
AV	182.408k	18.29	54.37	-36.08	19.63	Line	-	-1.34	9.68	0.04	9.91			
QP	359.562k	32.18	58.73	-26.55	19.64	Line	-	12.54	9.67	0.06	9.91			
AV	359.562k	23.09	48.73	-25.64	19.64	Line	-	3.45	9.67	0.06	9.91			
QP	455.055k	38.37	56.78	-18.41	19.64	Line	-	18.73	9.67	0.06	9.91			
AV	455.055k	28.53	46.78	-18.25	19.64	Line	-	8.89	9.67	0.06	9.91			
QP	937.272k	32.69	56.00	-23.31	19.68	Line	-	13.01	9.68	0.08	9.92			
AV	937.272k	20.75	46.00	-25.25	19.68	Line	-	1.07	9.68	0.08	9.92			
QP	28.118M	22.04	60.00	-37.96	20.05	Line	-	1.99	9.78	0.33	9.94			
AV	28.118M	17.86	50.00	-32.14	20.05	Line	-	-2.19	9.78	0.33	9.94			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	153.024k	30.75	65.83	-35.08	19.64	Neutral	-	11.11	9.69	0.04	9.91			
AV	153.024k	20.35	55.83	-35.48	19.64	Neutral	-	0.71	9.69	0.04	9.91			
QP	185.344k	28.86	64.24	-35.38	19.63	Neutral	-	9.23	9.68	0.04	9.91			
AV	185.344k	17.76	54.24	-36.48	19.63	Neutral	-	-1.87	9.68	0.04	9.91			
QP	362.445k	28.24	58.68	-30.44	19.64	Neutral	-	8.60	9.67	0.06	9.91			
AV	362.445k	19.34	48.68	-29.34	19.64	Neutral	-	-0.30	9.67	0.06	9.91			
QP	432.041k	32.50	57.20	-24.70	19.64	Neutral	-	12.86	9.67	0.06	9.91			
AV	432.041k	20.70	47.20	-26.50	19.64	Neutral	-	1.06	9.67	0.06	9.91			
QP	714.452k	20.89	56.00	-35.11	19.66	Neutral	-	1.23	9.67	0.07	9.92			
AV	714.452k	15.18	46.00	-30.82	19.66	Neutral	-	-4.48	9.67	0.07	9.92			
QP	22.756M	16.23	60.00	-43.77	20.20	Neutral	-	-3.97	9.96	0.31	9.93			
AV	22.756M	14.63	50.00	-35.37	20.20	Neutral	-	-5.57	9.96	0.31	9.93			



Summary

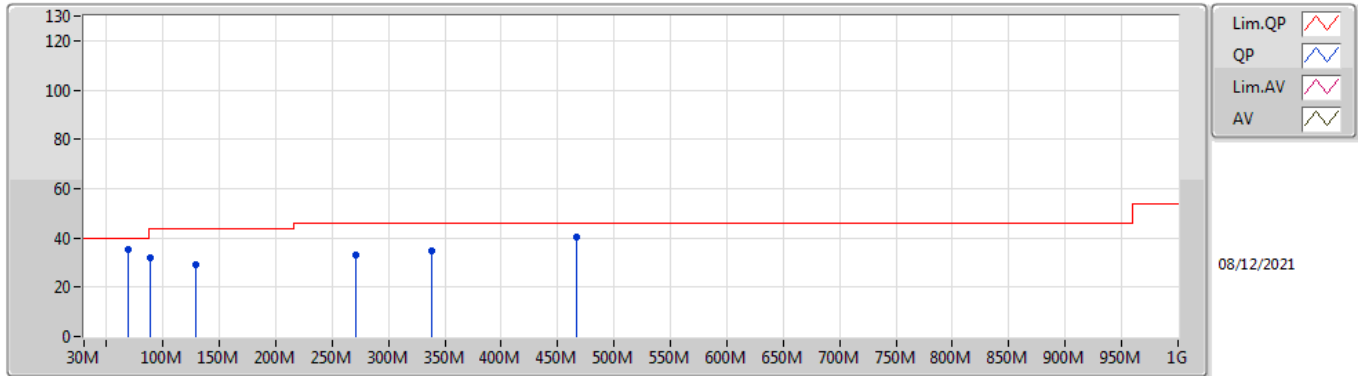
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
802.11n HT40_Nss1,(MCS0)_2TX	Pass	PK	68.8M	35.34	40.00	-4.66	3	Vertical	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
802.11n HT40_Nss1(MCS0)_2TX	-	-	-	-	-	-	-	-	-	-	-
2437MHz_Adapter	Pass	PK	68.8M	35.34	40.00	-4.66	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	88.2M	31.81	43.50	-11.69	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	128.94M	29.23	43.50	-14.27	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	270.56M	32.89	46.00	-13.11	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	338.46M	34.93	46.00	-11.07	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	466.5M	40.20	46.00	-5.80	3	Vertical	360	1.00	-
2437MHz_Adapter	Pass	PK	88M	30.17	40.00	-9.83	3	Horizontal	360	1.00	-
2437MHz_Adapter	Pass	PK	150.28M	35.64	43.50	-7.86	3	Horizontal	360	1.00	-
2437MHz_Adapter	Pass	PK	235.64M	36.29	46.00	-9.71	3	Horizontal	360	1.00	-
2437MHz_Adapter	Pass	PK	313.24M	36.02	46.00	-9.98	3	Horizontal	360	1.00	-
2437MHz_Adapter	Pass	PK	472.32M	33.42	46.00	-12.58	3	Horizontal	360	1.00	-
2437MHz_Adapter	Pass	PK	953.44M	36.04	46.00	-9.96	3	Horizontal	360	1.00	-
2437MHz_Cradle	Pass	PK	35.82M	27.32	40.00	-12.68	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	119.24M	23.20	43.50	-20.30	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	235.64M	28.45	46.00	-17.55	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	319.06M	38.58	46.00	-7.42	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	472.32M	35.04	46.00	-10.96	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	563.5M	30.49	46.00	-15.51	3	Vertical	360	1.00	-
2437MHz_Cradle	Pass	PK	90.14M	25.01	43.50	-18.49	3	Horizontal	0	1.00	-
2437MHz_Cradle	Pass	PK	125.06M	25.19	43.50	-18.31	3	Horizontal	0	1.00	-
2437MHz_Cradle	Pass	PK	235.64M	29.13	46.00	-16.87	3	Horizontal	0	1.00	-
2437MHz_Cradle	Pass	PK	319.06M	32.87	46.00	-13.13	3	Horizontal	0	1.00	-
2437MHz_Cradle	Pass	PK	472.32M	33.66	46.00	-12.34	3	Horizontal	0	1.00	-
2437MHz_Cradle	Pass	PK	563.5M	27.83	46.00	-18.17	3	Horizontal	0	1.00	-

802.11n HT40_Nss1,(MCS0)_2TX

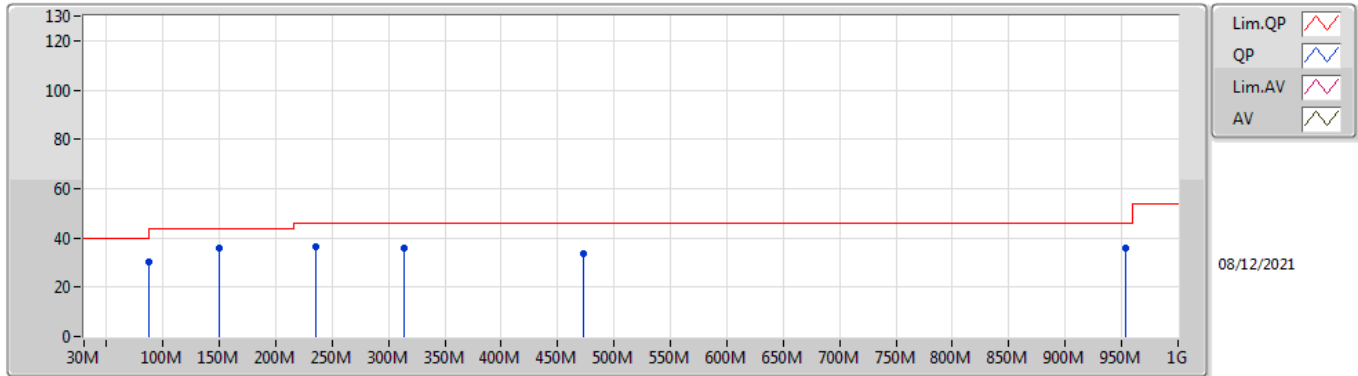
2437MHz_Adapter



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	68.8M	35.34	40.00	-4.66	-24.66	3	Vertical	360	1.00	-	60.00	11.49	0.84	36.99
PK	88.2M	31.81	43.50	-11.69	-22.19	3	Vertical	360	1.00	-	54.00	13.64	0.93	36.76
PK	128.94M	29.23	43.50	-14.27	-18.59	3	Vertical	360	1.00	-	47.82	16.85	1.12	36.56
PK	270.56M	32.89	46.00	-13.11	-16.60	3	Vertical	360	1.00	-	49.49	18.24	1.57	36.41
PK	338.46M	34.93	46.00	-11.07	-15.56	3	Vertical	360	1.00	-	50.49	19.20	1.75	36.51
PK	466.5M	40.20	46.00	-5.80	-11.97	3	Vertical	360	1.00	-	52.17	22.63	2.14	36.74

802.11n HT40_Nss1,(MCS0)_2TX

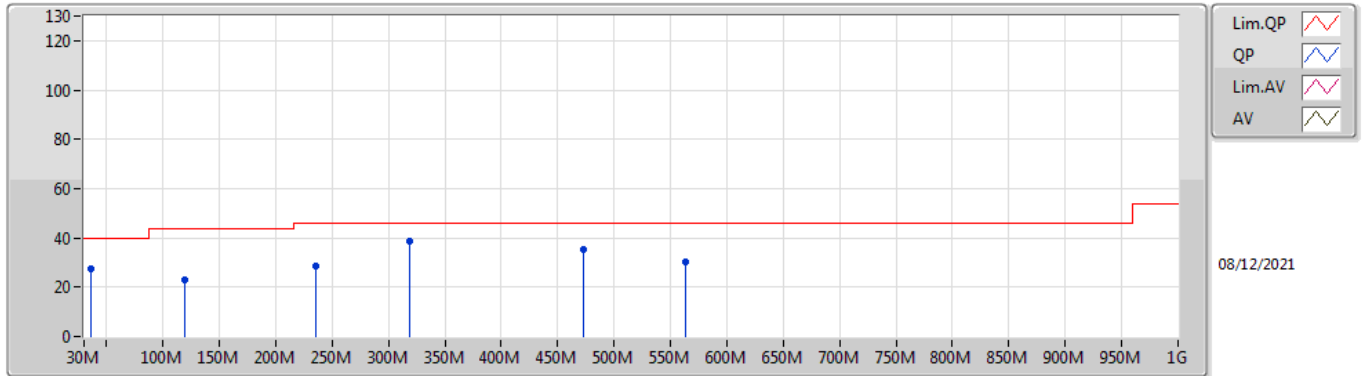
2437MHz_Adapter



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	88M	30.17	40.00	-9.83	-22.23	3	Horizontal	360	1.00	-	52.40	13.60	0.93	36.76
PK	150.28M	35.64	43.50	-7.86	-18.84	3	Horizontal	360	1.00	-	54.48	16.35	1.20	36.39
PK	235.64M	36.29	46.00	-9.71	-19.01	3	Horizontal	360	1.00	-	55.30	15.90	1.45	36.36
PK	313.24M	36.02	46.00	-9.98	-16.29	3	Horizontal	360	1.00	-	52.31	18.47	1.70	36.46
PK	472.32M	33.42	46.00	-12.58	-11.89	3	Horizontal	360	1.00	-	45.31	22.74	2.16	36.79
PK	953.44M	36.04	46.00	-9.96	-4.37	3	Horizontal	360	1.00	-	40.41	30.07	3.10	37.54

802.11n HT40_Nss1,(MCS0)_2TX

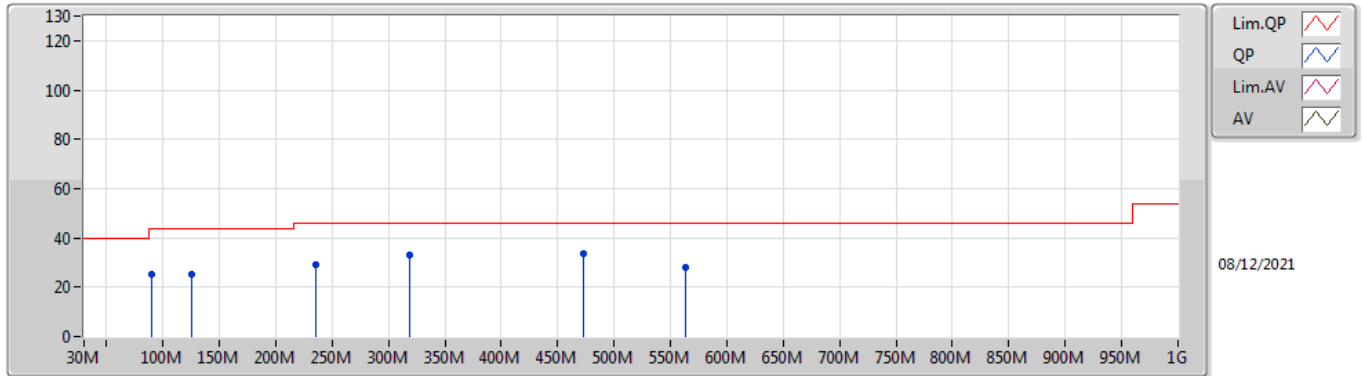
2437MHz_Cradle



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	35.82M	27.32	40.00	-12.68	-15.50	3	Vertical	360	1.00	-	42.82	20.90	0.67	37.07
PK	119.24M	23.20	43.50	-20.30	-18.91	3	Vertical	360	1.00	-	42.11	16.69	1.08	36.68
PK	235.64M	28.45	46.00	-17.55	-19.01	3	Vertical	360	1.00	-	47.46	15.90	1.45	36.36
PK	319.06M	38.58	46.00	-7.42	-16.17	3	Vertical	360	1.00	-	54.75	18.59	1.71	36.47
PK	472.32M	35.04	46.00	-10.96	-11.89	3	Vertical	360	1.00	-	46.93	22.74	2.16	36.79
PK	563.5M	30.49	46.00	-15.51	-9.38	3	Vertical	360	1.00	-	39.87	25.31	2.40	37.09

802.11n HT40_Nss1,(MCS0)_2TX

2437MHz_Cradle



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	90.14M	25.01	43.50	-18.49	-21.73	3	Horizontal	0	1.00	-	46.74	14.07	0.94	36.74
PK	125.06M	25.19	43.50	-18.31	-18.75	3	Horizontal	0	1.00	-	43.94	16.76	1.10	36.61
PK	235.64M	29.13	46.00	-16.87	-19.01	3	Horizontal	0	1.00	-	48.14	15.90	1.45	36.36
PK	319.06M	32.87	46.00	-13.13	-16.17	3	Horizontal	0	1.00	-	49.04	18.59	1.71	36.47
PK	472.32M	33.66	46.00	-12.34	-11.89	3	Horizontal	0	1.00	-	45.55	22.74	2.16	36.79
PK	563.5M	27.83	46.00	-18.17	-9.38	3	Horizontal	0	1.00	-	37.21	25.31	2.40	37.09