



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Polaris Power Pack

MODEL NUMBER: PP02

FCC ID: SXO-PP02

REPORT NUMBER: 4788569835.3-3

ISSUE DATE: July 13, 2018

Prepared for

Sphero HK Limited

4/F, 299QRC, 287-299 Queen's Road Central, Sheung Wan. Hong Kong

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Room 101, Building 10, Innovation Technology Park,

Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Tel: +86 769 33817100

Fax: +86 769 33244054

Website: www.ul.com

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.



Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/13/2018	Initial Issue	



Summary of Test Results		
Description of Test Item	Standard	Results
20dB Bandwidth	FCC 15.215	PASS
Radiated Emission	FCC 15.209	PASS
Conducted Emission Test For AC Power Port	FCC 15.207	PASS



TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	5
2. TEST METHODOLOGY.....	6
3. FACILITIES AND ACCREDITATION.....	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. MEASURING INSTRUMENT CALIBRATION	7
4.2. MEASUREMENT UNCERTAINTY	7
5. EQUIPMENT UNDER TEST	8
5.1. DESCRIPTION OF EUT	8
5.2. TEST MODE.....	8
5.3. ACCESSORY	9
5.4. BLOCK DIAGRAM SHOWING THE CONIGURATION OF SYSTEM TESTED	10
5.5. DESCRIPTION OF SUPPROT UNITS.....	10
5.6. MEASURING INSTRUMENT LIST.....	11
6. 20dB BANDWIDTH TEST	12
7. EMISSION TEST	14
7.1. SPURIOUS EMISSIONS 30M ~ 1 GHz.....	17
7.2. SPURIOUS EMISSIONS BELOW 30M.....	19
8. AC POWER LINE CONDUCTED EMISSIONS	23
9. ANTENNA REQUIREMENTS	26



1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Sphero HK Limited
Address: 4/F, 299QRC, 287-299 Queen's Road Central, Sheung Wan.
Hong Kong

Manufacturer Information

Company Name: Sphero, Inc.
Address: 4772 Walnut Street, Suite 206, Boulder, CO 80301
USA

EUT Description

EUT Name: Polaris Power Pack
Model: PP02
Brand Name: sphero
Sample Status: Normal
Sample ID: 1693356
Sample Received Date: July 09, 2018
Date of Tested: July 10, 2018 ~ July 12, 2018

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 15 Subpart C	PASS

Tested By:

Checked By:

Denny Huang
Engineer Project Associate
Approved By:

Shawn Wen
Laboratory Leader

Stephen Guo
Laboratory Manager



2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB414788 D01 Radiated Test Site v01, ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. IAS (Lab Code: TL-702) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has demonstrated compliance with ISO/IEC Standard 17025:2005, General requirements for the competence of testing and calibration laboratories FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules IC(Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011
---------------------------	--

Note:

1. All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
2. The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.
3. For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OATS.



4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.90
Radiated disturbance test	9kHz-150kHz	2	2.76
	150kHz-30MHz	2	2.45
Radiated Emission Test	30MHz~1GHz	2	4.52

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Bolt Power Pack	
EUT Description	The EUT wireless charging box for K002.	
Model	PP02	
Product Description	Operation Frequency	125KHz
Number of channel	1	
Modulation Type	CW	
Rate Input	DC 12V	
AC/DC Adapter	Input:AC 100V~240V, 50~60Hz, 1.5A Output: DC 12V, 5000mA	
Antenna	0dBi	
Antenna type	Coil	

5.2. TEST MODE

For Radiated Test	
Test Mode	Description
Mode 1	Zero Charge
Mode 2	Intermediate Charge
Mode 3	Full Charge

Note: For Full Load, Zero charge and Intermediate Charge mode, the battery capacity is 100%, 1% and 50%, 15 K002 were put in the EUT and all of them were in charging mode during test.



5.3. ACCESSORY

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remark
1	Sphero BOLT	Sphero	K002	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	DC	DC	Unshielded	0.8	/

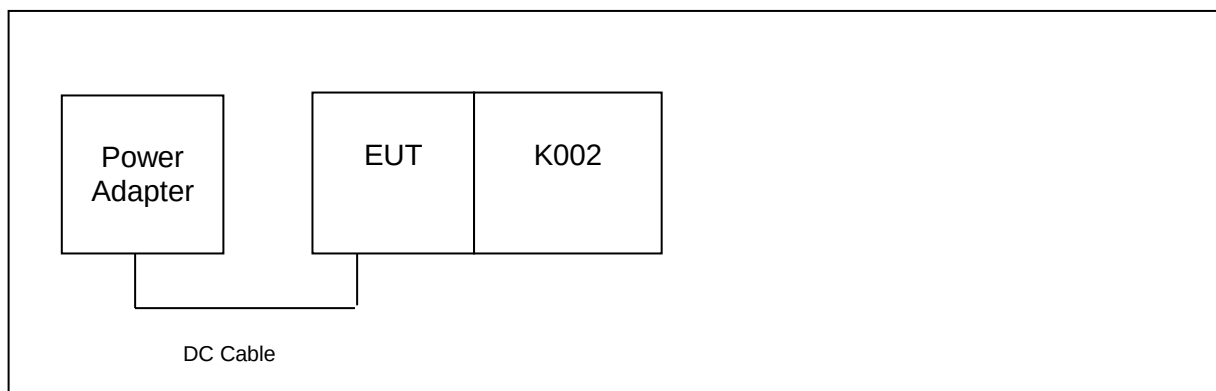
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	AC/DC Adapter	H	SNB1205000P2	Input:AC 100V~240V, 50~60Hz, 1.5A Output: DC 12V, 5000mA

TEST SETUP

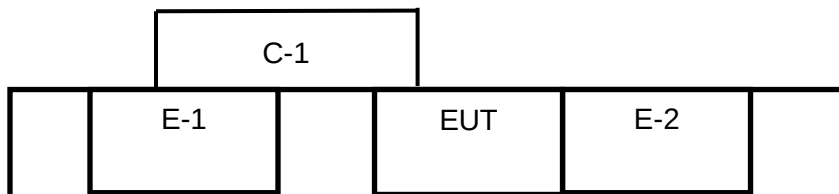
The EUT support wireless charging.

SETUP DIAGRAM FOR TEST





5.4. BLOCK DIAGRAM SHOWING THE CONIGURATION OF SYSTEM TESTED



5.5. DESCRIPTION OF SUPPROT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
E-1	Power Adapter	H	SNB1205000P2	Input:AC 100V~240V, 50~60Hz, 1.5A Output: DC 12V, 5000mA	/
E-2	Sphero BOLT	Sphero	K002	/	/

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.80m	USB Cable

Note:

- (1) For detachable type I/O cable should be specified the length in m in 『Length』 column.
- (2) 15 K002 were put into the EUT during test.



5.6. MEASURING INSTRUMENT LIST

Conducted Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	EMI Test Receiver	R&S	ESR3	101961	Dec.12,2017	Dec.11,2018
☒	Two-Line V-Network	R&S	ENV216	101983	Dec.12,2017	Dec.11,2018
☒	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Dec.12,2017	Dec.11,2018
Software						
Used	Description		Manufacturer	Name		Version
☒	Test Software for Conducted disturbance		Farad	EZ-EMC		Ver. UL-3A1
Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.12,2017	Dec.11,2018
☒	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2019
☒	Preamplifier	HP	8447D	2944A09099	Dec.12,2017	Dec.11,2018
☒	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 25, 2019
Software						
Used	Description		Manufacturer	Name		Version
☒	Test Software for Radiated disturbance		Farad	EZ-EMC		Ver. UL-3A1
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
☒	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.12,2017	Dec.11,2018



6. 20dB BANDWIDTH TEST

LIMITS

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.215, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

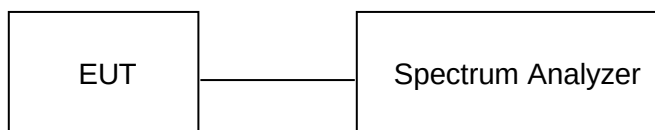
TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	1%~5% of the OBW
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

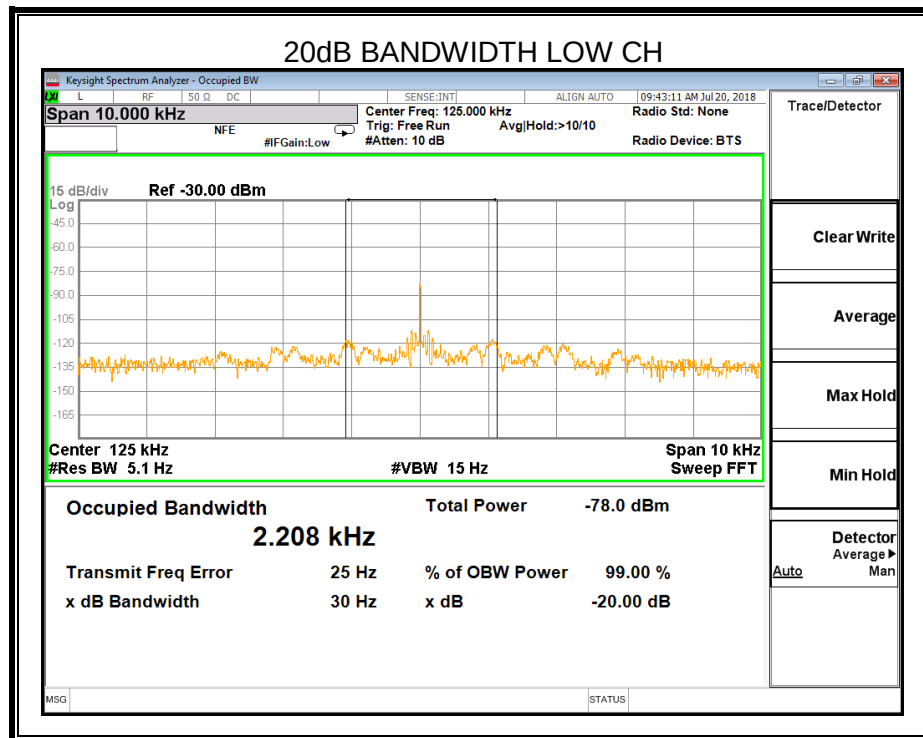
Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



**RESULTS**

Frequency (KHz)	20dB Bandwidth (Hz)
125	30





7. EMISSION TEST

LIMITS

Please refer to FCC §15.205 and §15.209

Radiation Disturbance Test Limit for FCC (Class B)(9KHz-1GHz)

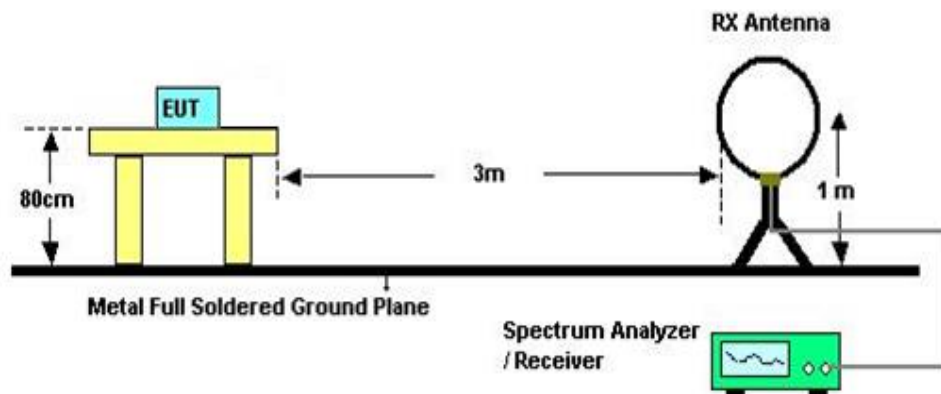
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. 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 linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; 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 extrapolated to the specified distance by either making measurements at a minimum of two 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). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.

TEST SETUP AND PROCEDURE

Below 30MHz

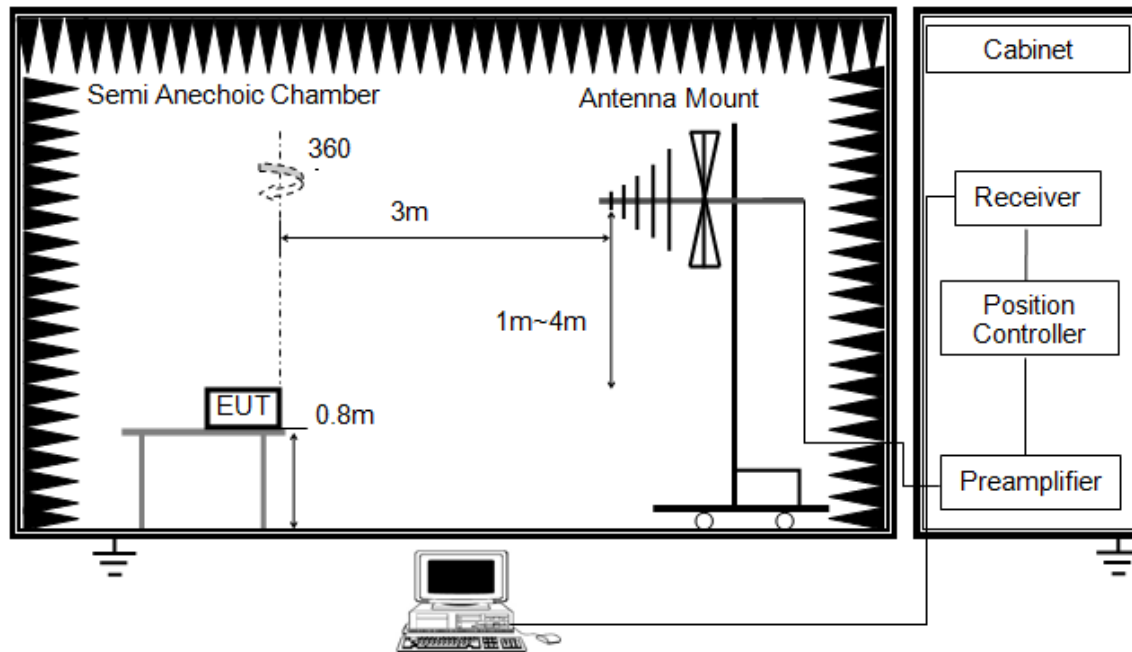


The setting of the spectrum analyzer

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 and 414788 D01 Radiated Test Site v01.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80cm meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788. Anechoic chamber is shown to be equivalent to or worst case from the open field site.

Below 1G and above 30MHz



The setting of the spectrum analyzer

RBW	120K
VBW	300K
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

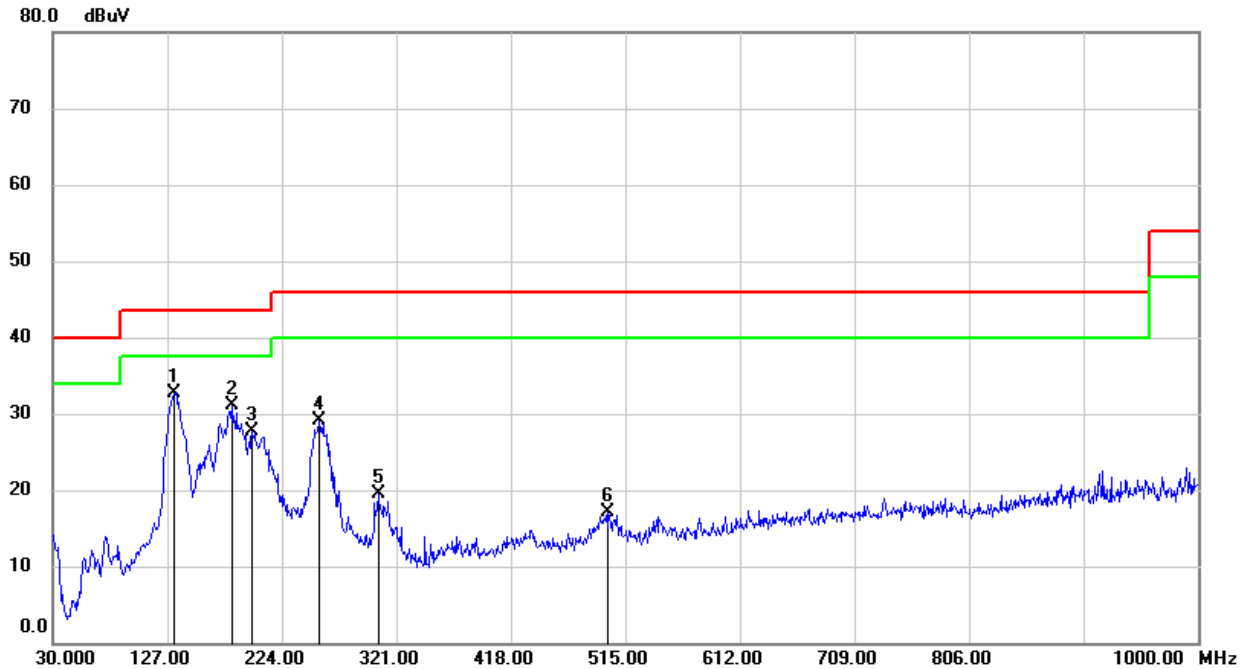
1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 0.8m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.



RESULTS

7.1. SPURIOUS EMISSIONS 30M ~ 1 GHz

SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, HORIZONTAL)

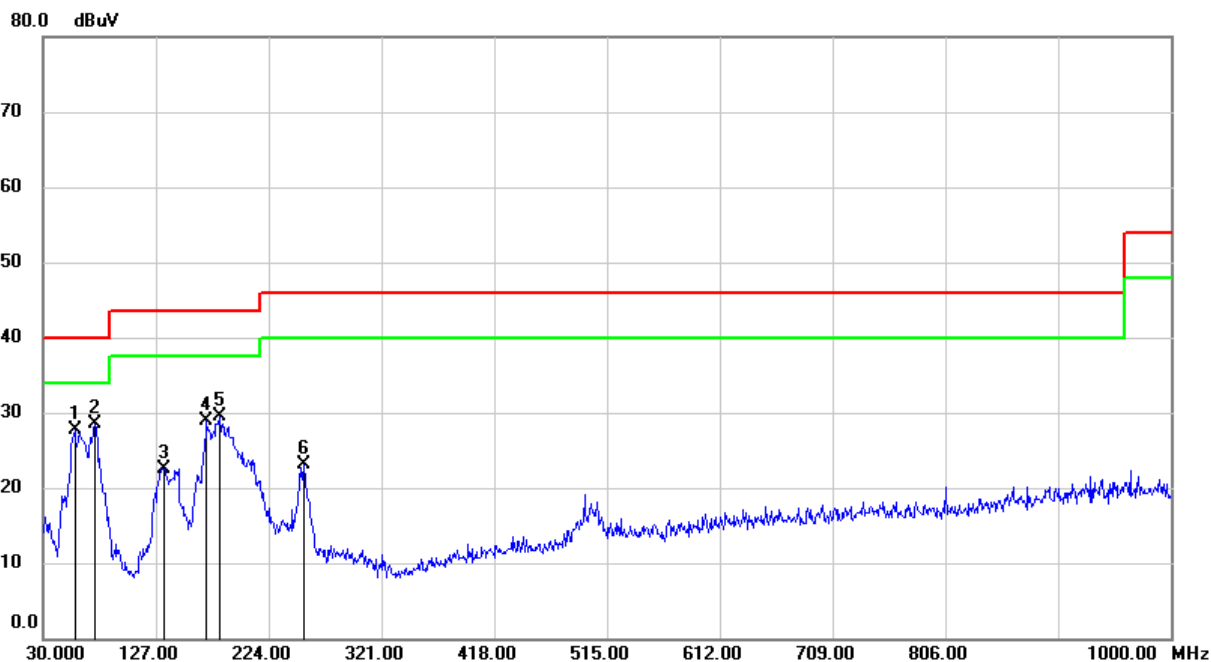


No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	132.8200	51.33	-18.55	32.78	43.50	-10.72	QP
2	181.3200	46.17	-15.13	31.04	43.50	-12.46	QP
3	198.7800	42.52	-14.89	27.63	43.50	-15.87	QP
4	255.0400	46.60	-17.53	29.07	46.00	-16.93	QP
5	305.4800	34.47	-15.06	19.41	46.00	-26.59	QP
6	500.4500	28.17	-11.11	17.06	46.00	-28.94	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	57.1600	48.60	-20.96	27.64	40.00	-12.36	QP
2	74.6200	50.49	-21.90	28.59	40.00	-11.41	QP
3	133.7899	41.10	-18.51	22.59	43.50	-20.91	QP
4	170.6500	44.33	-15.49	28.84	43.50	-14.66	QP
5	181.3200	44.59	-15.13	29.46	43.50	-14.04	QP
6	254.0700	40.61	-17.57	23.04	46.00	-22.96	QP

Note: 1. Result Level = Read Level + Correct Factor.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

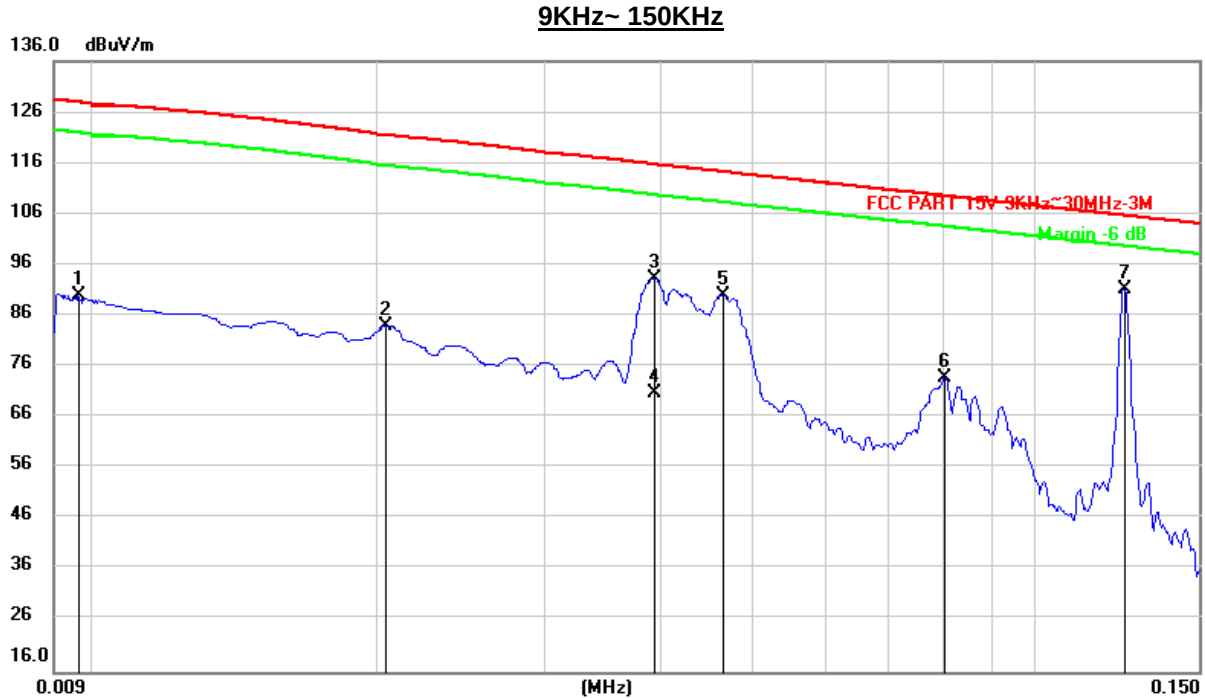
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

Note: All the modes had been tested, but only the worst data recorded in the report.



7.2. SPURIOUS EMISSIONS BELOW 30M

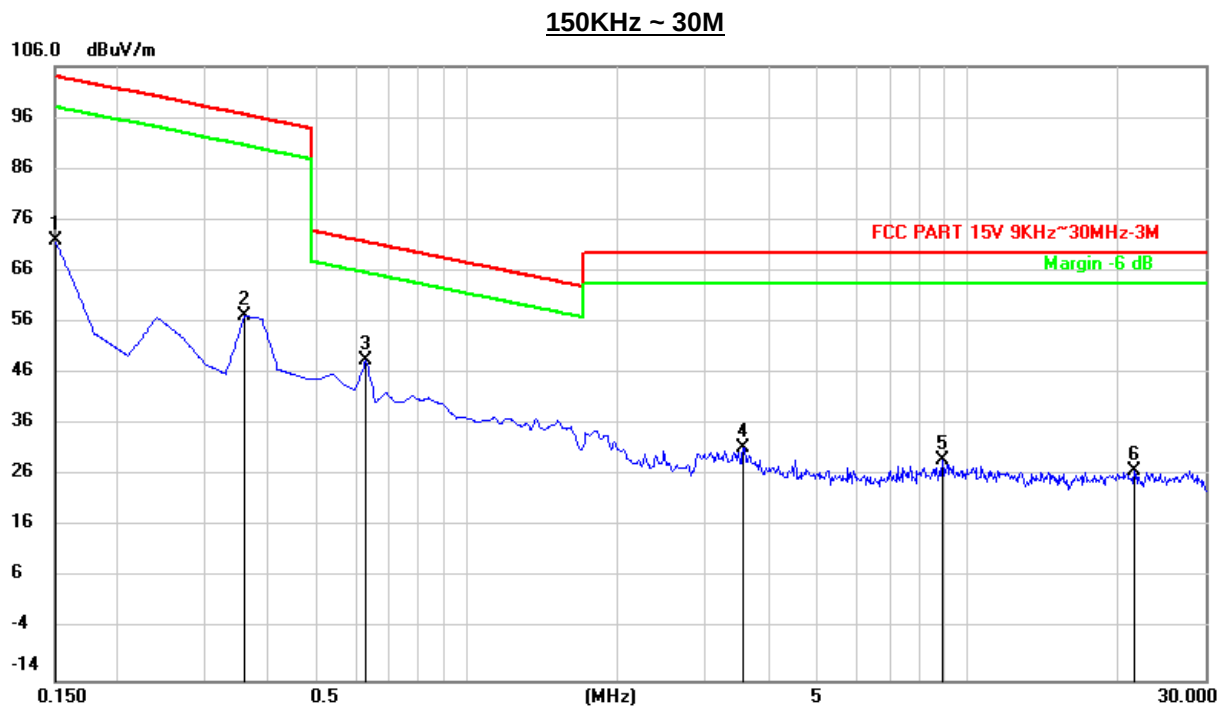
SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0095	111.25	-21.30	89.95	128.02	-38.07	peak
2	0.0204	105.37	-21.30	84.07	121.44	-37.37	peak
3	0.0393	114.63	-21.38	93.25	115.73	-22.48	peak
4	0.0393	92.15	-21.38	70.77	115.73	-44.96	AVG
5	0.0465	111.50	-21.42	90.08	114.30	-24.22	peak
6	0.0802	95.34	-21.58	73.76	109.52	-35.76	peak
7	0.1248	112.85	-21.67	91.18	105.69	-14.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1500	93.58	-21.58	72.00	104.08	-32.08	peak
2	0.3590	79.17	-21.86	57.31	96.59	-39.28	peak
3	0.6276	70.68	-22.07	48.61	71.67	-23.06	peak
4	3.5828	53.04	-21.45	31.59	69.54	-37.95	peak
5	8.9558	50.25	-21.15	29.10	69.54	-40.44	peak
6	21.6420	48.31	-21.41	26.90	69.54	-42.64	peak

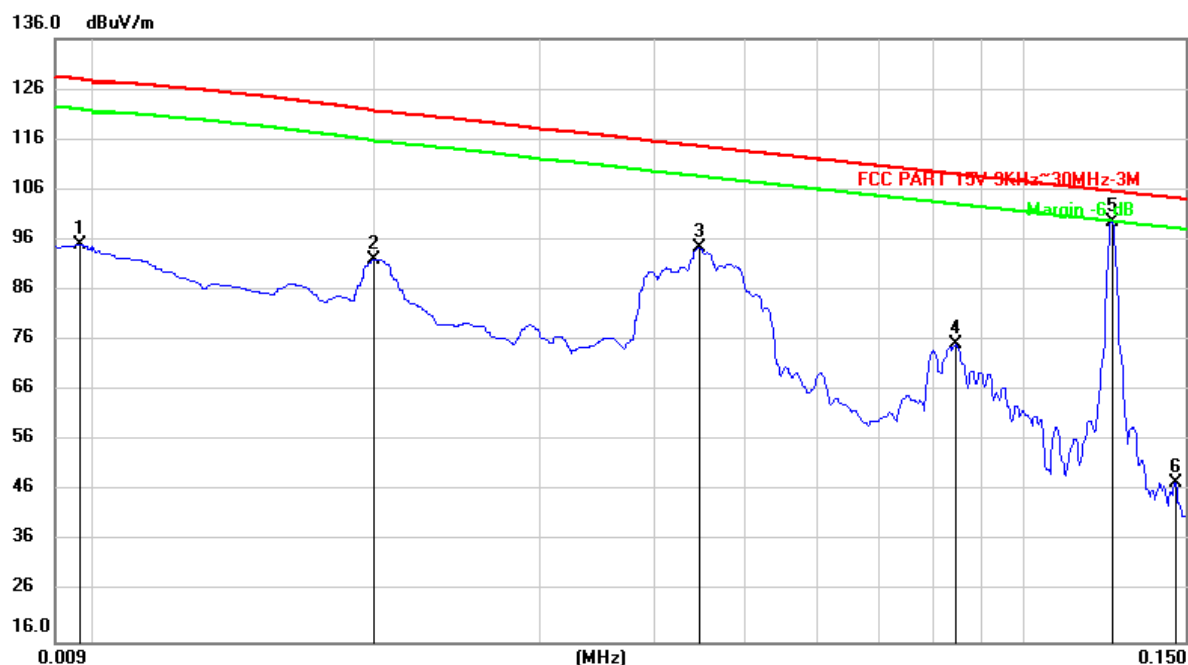
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, HORIZONTAL)

9KHz~ 150KHz



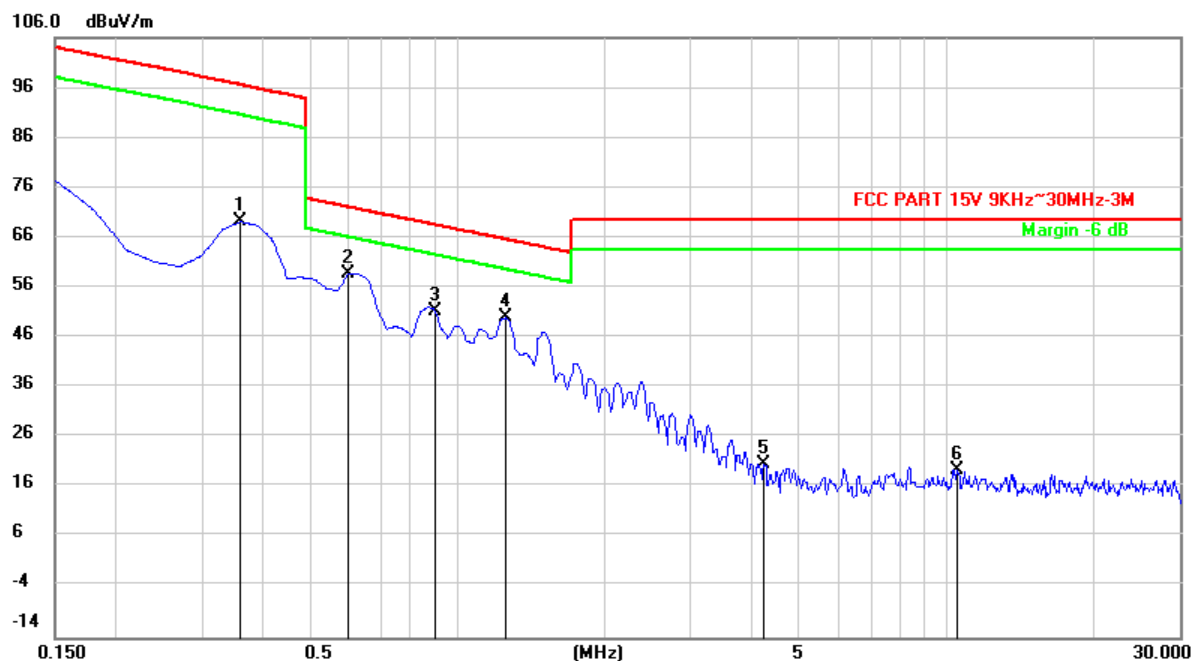
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0095	116.47	-21.30	95.17	128.02	-32.85	peak
2	0.0200	113.44	-21.30	92.14	121.58	-29.44	peak
3	0.0447	115.86	-21.41	94.45	114.65	-20.20	peak
4	0.0847	96.74	-21.62	75.12	109.06	-33.94	peak
5	0.1248	121.24	-21.67	99.57	105.69	-6.12	peak
6	0.1462	69.33	-21.59	47.74	104.31	-56.57	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.



150KHz ~ 30M



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.3590	91.03	-21.86	69.17	96.59	-27.42	peak
2	0.5978	80.84	-22.07	58.77	72.08	-13.31	peak
3	0.8992	73.48	-22.13	51.35	68.53	-17.18	peak
4	1.2545	72.07	-22.15	49.92	65.64	-15.72	peak
5	4.2395	41.92	-21.39	20.53	69.54	-49.01	peak
6	10.5378	40.38	-21.07	19.31	69.54	-50.23	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

Note: All the modes had been tested, but only the worst data recorded in the report.

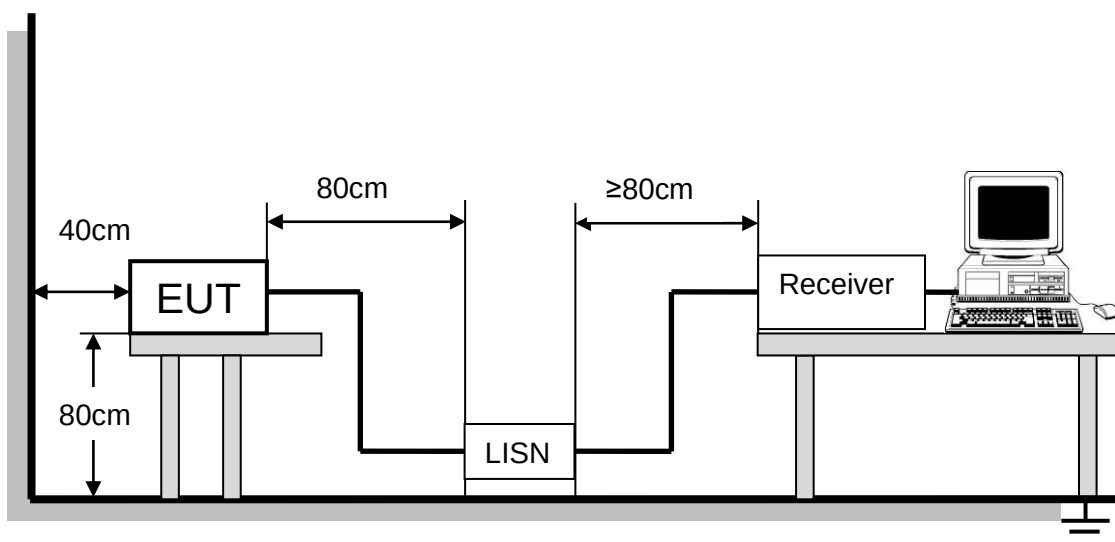
8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

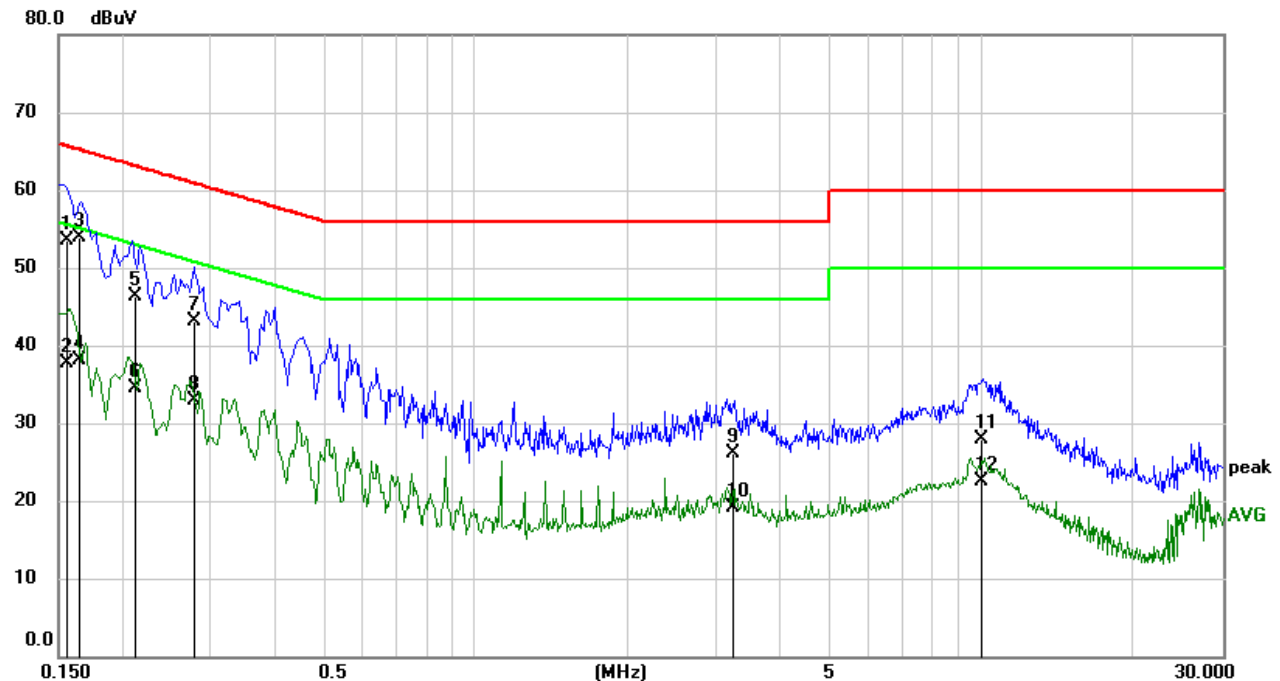
Please refer to FCC §15.207 (a) and RSS-Gen Clause 8.8.

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 0.8m high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). An EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz. The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

**TEST RESULTS (MODE 2, WORST-CASE CONFIGURATION)****LINE L1 RESULTS**

No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1560	43.95	9.64	53.59	65.67	-12.08	QP
2	0.1560	28.13	9.64	37.77	55.67	-17.90	AVG
3	0.1650	44.23	9.63	53.86	65.21	-11.35	QP
4	0.1650	28.52	9.63	38.15	55.21	-17.06	AVG
5	0.2138	36.64	9.63	46.27	63.06	-16.79	QP
6	0.2138	24.80	9.63	34.43	53.06	-18.63	AVG
7	0.2759	33.42	9.63	43.05	60.94	-17.89	QP
8	0.2759	23.35	9.63	32.98	50.94	-17.96	AVG
9	3.2341	16.42	9.68	26.10	56.00	-29.90	QP
10	3.2341	9.40	9.68	19.08	46.00	-26.92	AVG
11	10.0014	17.71	10.12	27.83	60.00	-32.17	QP
12	10.0014	12.32	10.12	22.44	50.00	-27.56	AVG

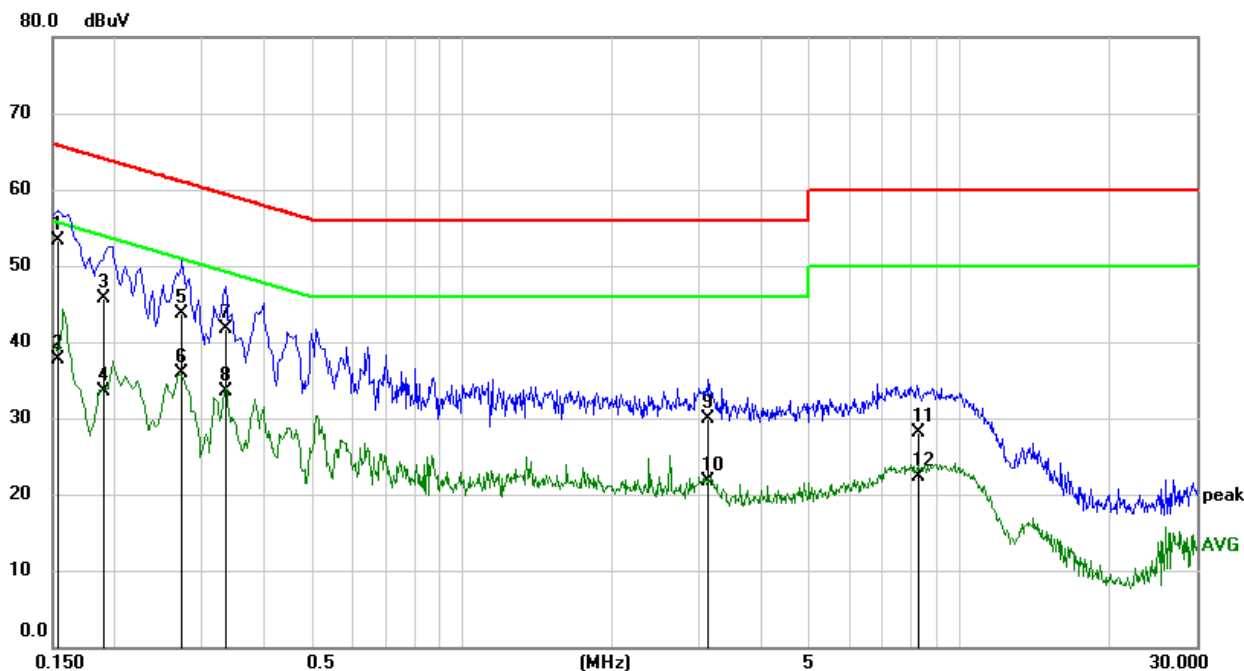
Note: 1. Result = Reading +Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

5. The extension cord/outlet strip was calibrated with the LISN as required by ANSI C63.10:2013 Clause 6.2.2.

**LINE N RESULTS**

No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1535	43.63	9.62	53.25	65.81	-12.56	QP
2	0.1535	28.05	9.62	37.67	55.81	-18.14	AVG
3	0.1901	36.10	9.62	45.72	64.03	-18.31	QP
4	0.1901	23.95	9.62	33.57	54.03	-20.46	AVG
5	0.2720	34.14	9.63	43.77	61.06	-17.29	QP
6	0.2720	26.31	9.63	35.94	51.06	-15.12	AVG
7	0.3337	32.04	9.63	41.67	59.36	-17.69	QP
8	0.3337	23.92	9.63	33.55	49.36	-15.81	AVG
9	3.1251	20.17	9.68	29.85	56.00	-26.15	QP
10	3.1251	11.95	9.68	21.63	46.00	-24.37	AVG
11	8.2698	18.26	9.91	28.17	60.00	-31.83	QP
12	8.2698	12.36	9.91	22.27	50.00	-27.73	AVG

Note: 1. Result = Reading +Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

5. The extension cord/outlet strip was calibrated with the LISN as required by ANSI C63.10:2013 Clause 6.2.2.

Note: All the modes had been tested, but only the worst data recorded in the report.



9. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

ANTENNA CONNECTOR

EUT has a coil antenna without an antenna connector.

ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

END OF REPORT