FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Xtorm Power Bank Wireless 8000 - Alpha

DS200

FCC ID: 2AQOFDS200

REPORT NUMBER: 4789251031.2-1

ISSUE DATE: March 4, 2020

Prepared for

Telco Accessories B.V.
Hoofdveste 19, 3992DH, Houten, The Netherlands

Prepared by

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

Rev.	Issue Date	Revisions	Revised By
V0	01/06/2020	Initial Issue	

Summary of Test Results		
Description of Test Item	**Standard**	**Results**
Power Line Conducted Emission Test	FCC 15.207	PASS
Radiated Emission Test	FCC 15.209	PASS
20dB Bandwidth	FCC 15.215	PASS
This test report is only published to and used by the applicant, and it is not for evidence purpose in China.		

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Telco Accessories B.V.
Address:	Hoofdveste 19, 3992DH, Houten, The Netherlands

Manufacturer Information

Company Name:	Shenzhen Trusda Industrial Co.，Ltd.
Address:	3/F, Building 4, Lianchuang Technology Park, Bulan Road,Nanwan Street,Longgang District, Shenzhen, China

EUT Description

EUT Name:	Xtorm Power Bank Wireless 8000 - Alpha
Model:	DS200
Brand Name:	XTORM
Sample Status:	Normal
Sample ID:	2756339
Sample Received Date:	December 13, 2019
Date of Tested:	December 18, 2019 ~ March 4, 2020

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	PASS

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Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC CFR 47 Part 2, FCC CFR 47 Part 15C, KDB414788 D01 Radiated Test Site v01r01 and ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China
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. **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 Delcaration 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 OFS.

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	3.62
Radiated disturbance test	9kHz-150kHz	2	3.32
	150kHz-30MHz	2	3.72
Radiated Emission Test	30MHz~1GHz	2	4.00
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	Xtorm Power Bank Wireless 8000 - Alpha	
EUT Description	The EUT is a power bank with wireless charger.	
Model	DS200	
Product Description	Operation Frequency	110 ~ 205kHz
Modulation Type	MSK	
Rated wireless output power	Maximum 15W	
Rated total output	Maximum 18W	
Antenna type	Coil	
Ratings	Type-C Input: DC 5V, 3A / DC 9V, 2A Type-C Output: DC 5V, 3A / DC 9V, 2A / DC 12V, 1.5A USB-A A1 Output: DC 5V, 3A / DC 9V, 2A / DC 12V, 1.5A USB-A A2 Output: DC 5V, 2.1A	

Note: The wireless charger function can't use in standup configuration due to the shape of enclosure.

5.2. TEST MODE

Test Mode	Description
Mode 1	DS200 being Charged + 10W Wireless Charging With Load
Mode 2 (*)	DS200 being Charged + 5W Wireless Charging With Load + USB-A1 Charging With Mobile Phone + USB-A2: 5V/1.0A Output Discharging
Mode 3(*)	USB-A1: 5V/1A Output Discharging + USB-A A2: Charging With Mobile Phone + USB-Type C: 5V/1A Output Discharging
Mode 4	15W Wireless Charging With Load
Mode 5	USB-C: 5V/3A Output Discharging
Mode 6(*)	USB-C: 9V/2A Output Discharging
Mode 7(*)	USB-C: 12V/1.5A Output Discharging
Mode 8	USB-A A1: 5V/3A Output Discharging
Mode 9(*)	USB-A A1: 9V/2A Output Discharging
Mode 10(*)	USB-A A1: 12V/1.5A Output Discharging
Mode 11	USB-A A2: 5V/2.1A Output Discharging
Mode 12	DS200 being Charged + Wireless Charger Standby
Mode 13	DS200 being Charged + Wireless Charging With iPhone
Mode 14 (*)	Wireless Charging With iPhone + USB-A1 Charging With Mobilephone + USB-A2 Charging With Mobilephone + USB-Type C Charging With Mobilephone

(*) Note: The output power for the adapter is 18W. The total power for Mode 2, 3, 6, 7, 9, 10, 14 is 18W. If the user use the 15W wireless charging load, because of the big lose of energy, the others USB port will shut down.

5.3. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1018Pa	
Temperature	TN	22 ~ 28°C
Voltage :	VL	/
	VN	DC 5V ~ 9V
	VH	/

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.4. ACCESSORY

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Series No.
1	Power Adapter	/	SW-5912-18	Input: AC 100-240V, 50/60Hz, 0.5A Output: 5V, 3A / DC 9V, 2A / DC 12V 1.5A
2	Mobile Phone	Apple	iPhone XS	/
3	Mobile Phone	SUMSUNG	SM-G5108Q	/
4	Mobile Phone	HUAWEI	ALP-AL00	/
5	Mobile Phone	MEIZU	NOTE 2	/
6	5W/7.5W/10W/ 15W Wireless Charging Load	EESON	/	/
7	Rheostat	/	/	800W/4A
8	Rheostat	/	/	800W/4A

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	Type C	Shielded	1.0m	/
2	USB	Type A	Shielded	1.0m	/
3	USB	Type A	Shielded	1.0m	/

ACCESSORY

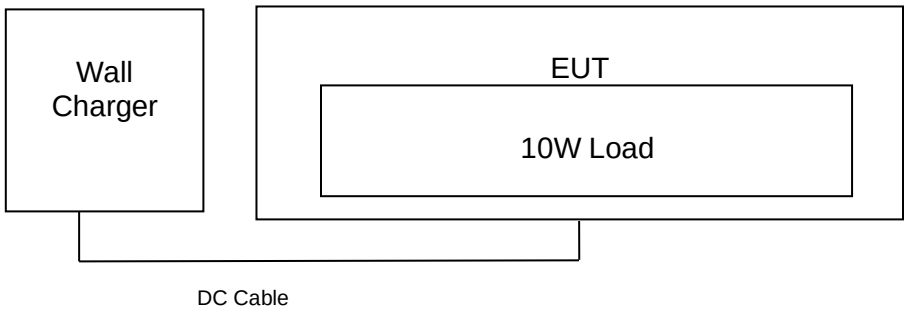
Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

TEST SETUP

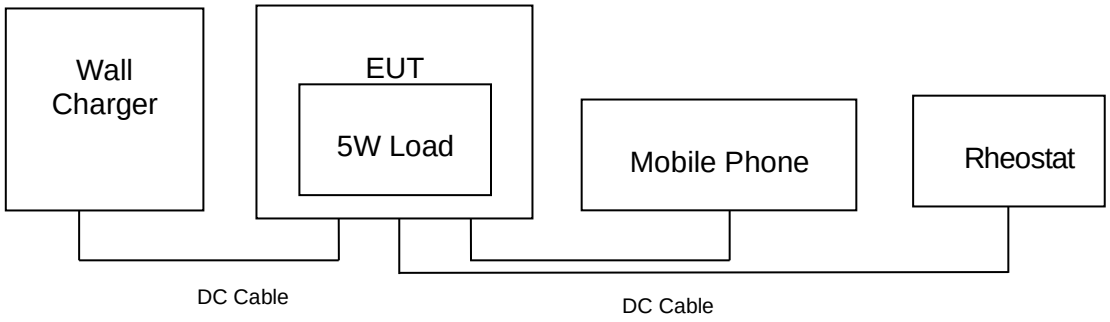
The EUT support wireless charging.

SETUP DIAGRAM FOR TEST

Mode 1:



Mode 2:



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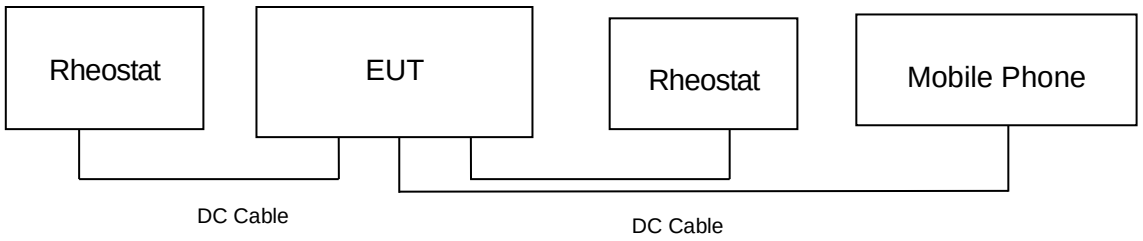

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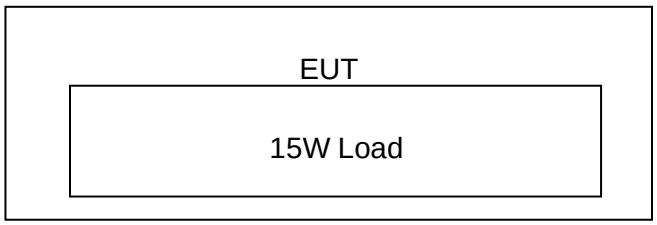
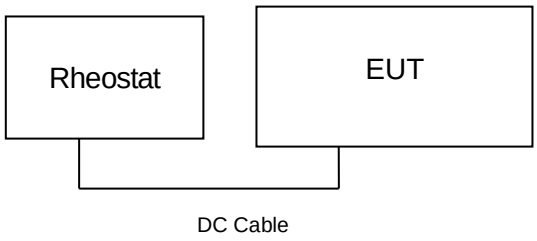
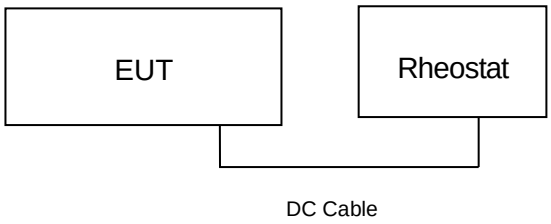


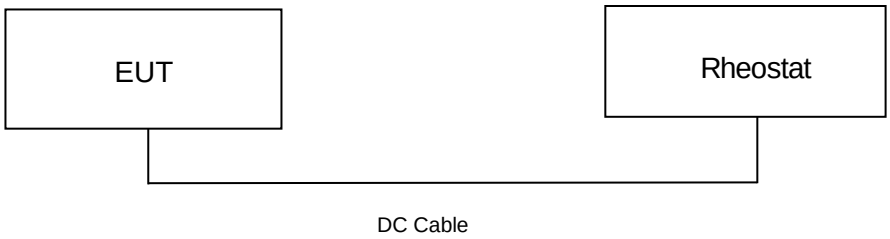
Mode 5~7:



Mode 8~10:

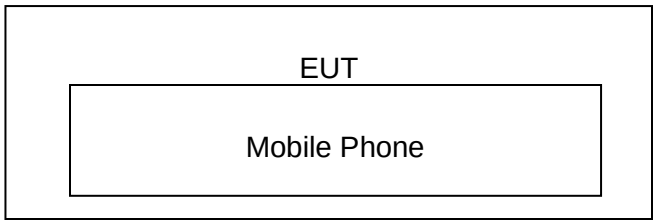


Mode 11:

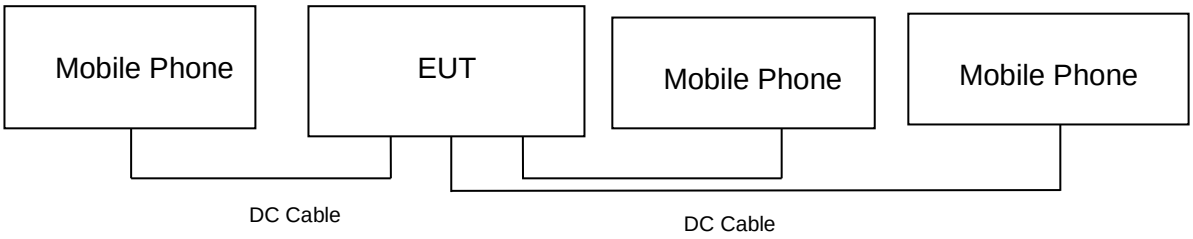


Mode 12:

Mode 13:



Mode 14:



5.5. 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. 5, 2019	Dec. 5, 2020
☑	Two-Line V-Network	R&S	ENV216	101983	Dec. 5, 2019	Dec. 5, 2020
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. 6, 2019	Dec. 6, 2020
☑	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug.11,2018	Aug.11,2021
☑	Preamplifier	HP	8447D	2944A09099	Dec. 5, 2019	Dec. 5, 2020
☑	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
☑	Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Dec. 5, 2019	Dec. 5, 2020
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.
☑	PXA Signal Analyzer	KESIGHT	N9030A	MY55410512	Dec. 6, 2019	Dec. 6, 2020

6. 20dB BANDWIDTH TEST

LIMITS

20dB Bandwidth

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.

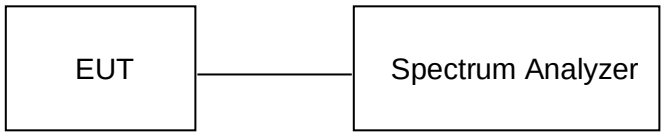
TEST PROCEDURE

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% to 5% of the occupied bandwidth
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

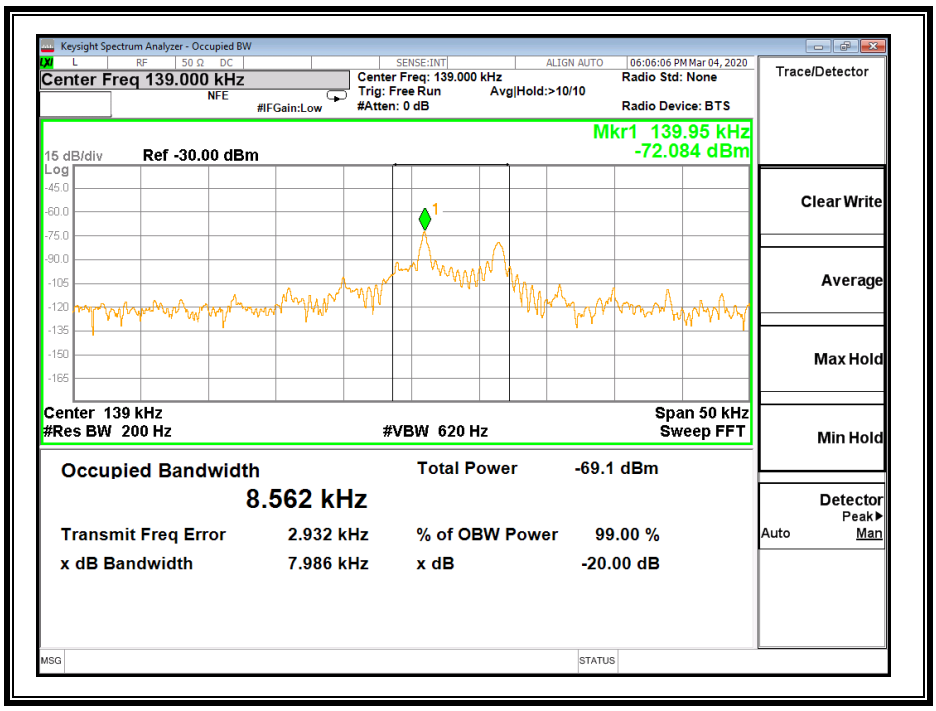
Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 99%/20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



RESULTS

Frequency (kHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
139.95	7.986	8.562



Note: All the modes have been tested, only the worst data record in the report.

7. EMISSION TEST

LIMITS

Please refer to FCC §15.205 and §15.209

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

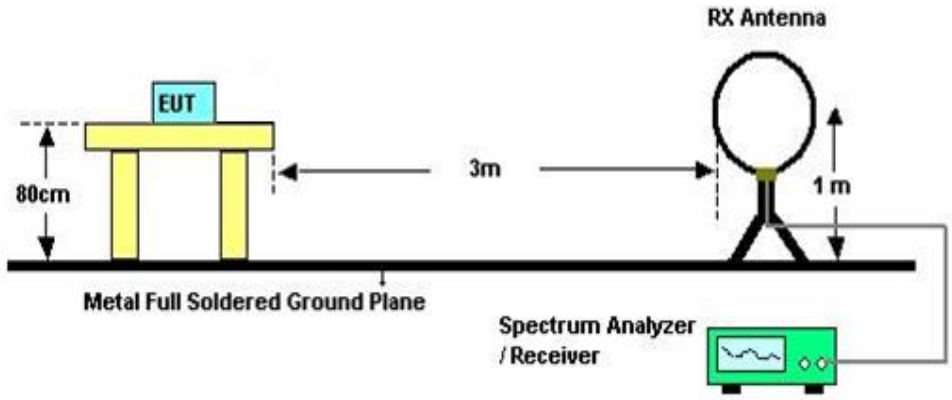
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

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 (Loop Antenna)



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, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80cm meter above ground.

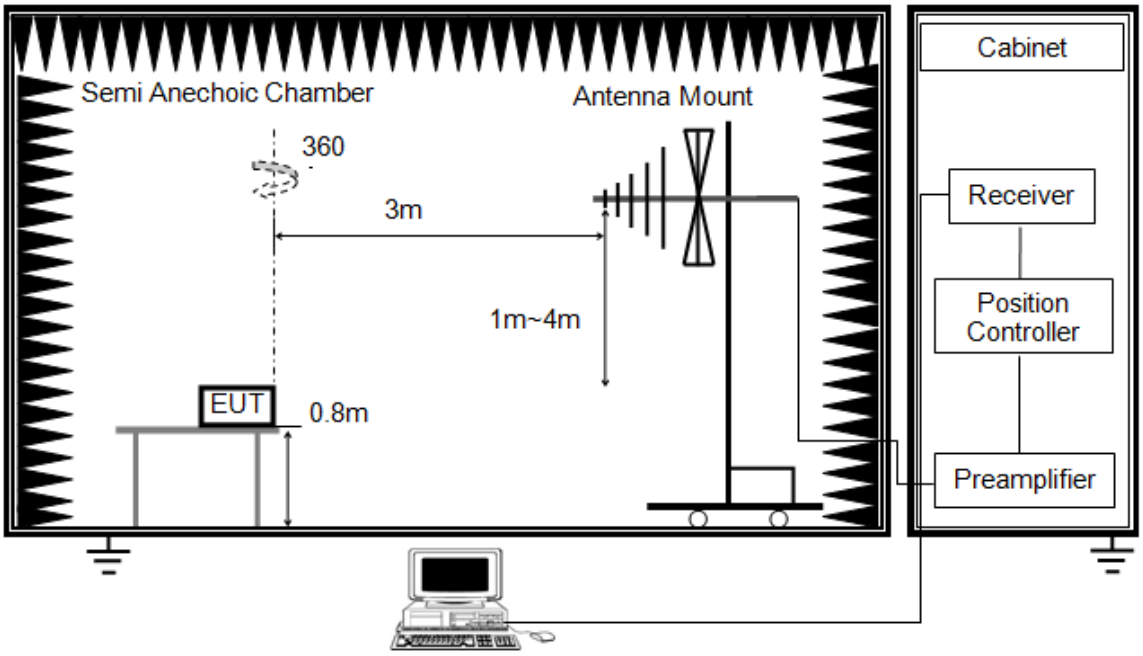
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1m height antenna tower.

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 are 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.

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.

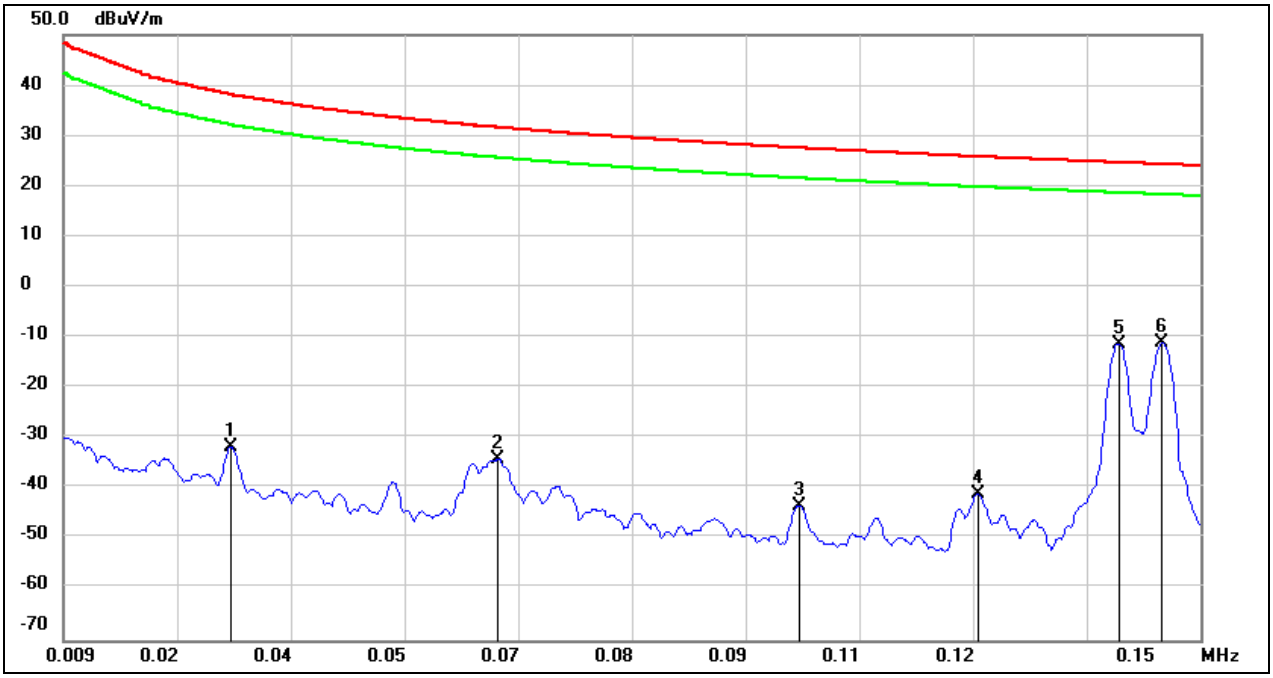
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

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

FCC PART 15C BELOW 30MHz SPURIOUS EMISSIONS (MODE 4, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

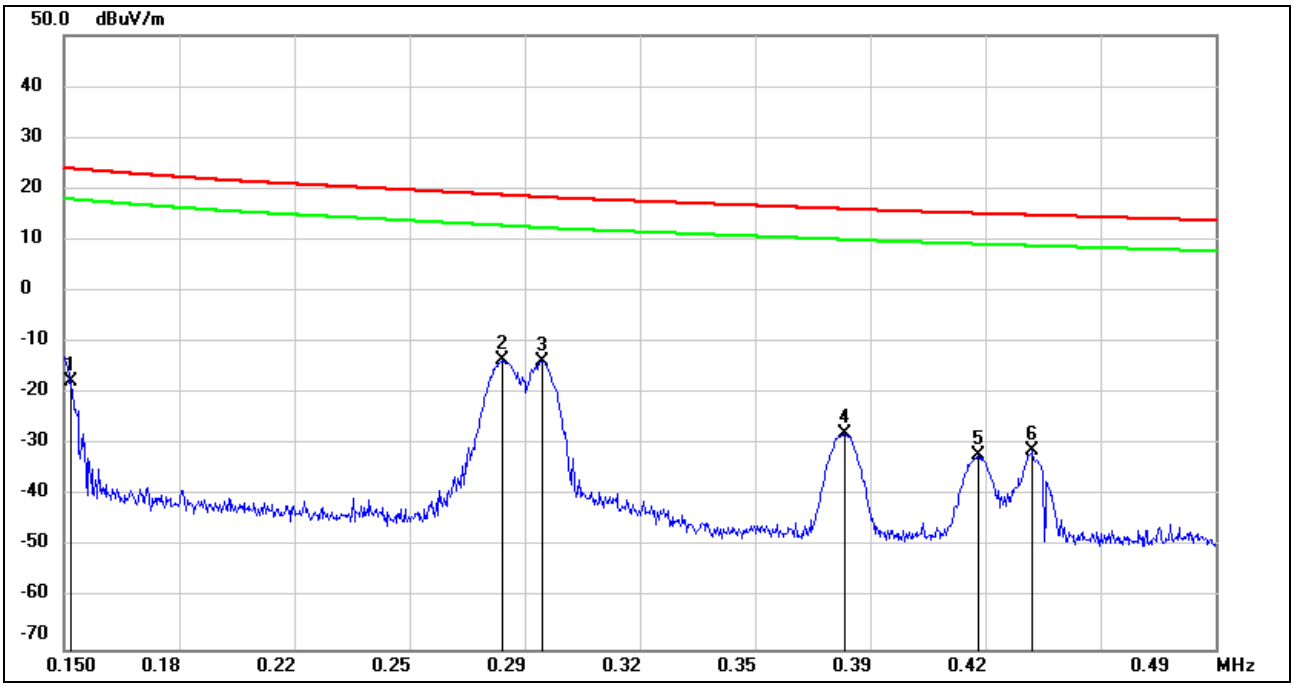
9kHz~ 150kHz



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0297	69.35	-101.11	-31.76	38.17	-69.93	peak
2	0.0629	67.08	-101.12	-34.04	31.65	-65.69	peak
3	0.1002	57.90	-101.28	-43.38	27.58	-70.96	peak
4	0.1224	60.44	-101.56	-41.12	25.85	-66.97	peak
5	0.1398	90.52	-101.77	-11.25	24.69	-35.94	peak
6	0.1452	90.64	-101.83	-11.19	24.37	-35.56	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.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

150kHz ~ 490kHz



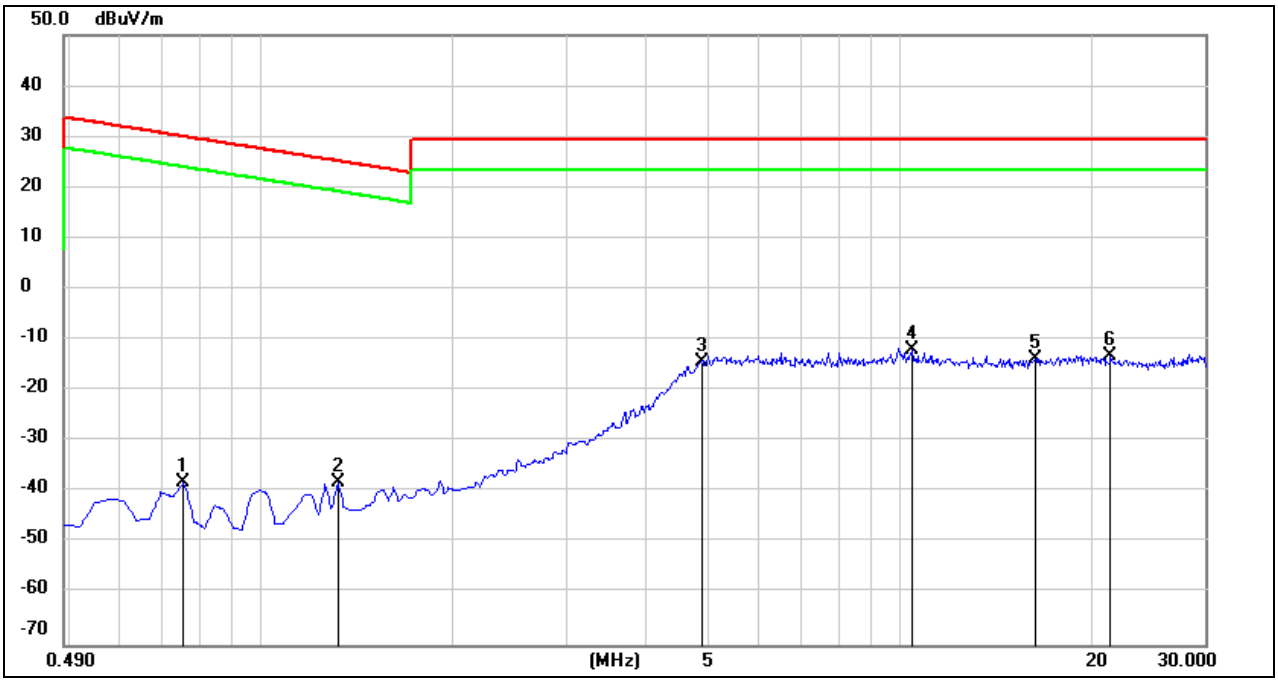
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1520	84.20	-101.89	-17.69	23.97	-41.66	peak
2	0.2795	88.19	-101.78	-13.59	18.78	-32.37	peak
3	0.2911	88.09	-101.77	-13.68	18.37	-32.05	peak
4	0.3805	73.80	-101.75	-27.95	16.05	-44.00	peak
5	0.4200	69.76	-101.73	-31.97	15.17	-47.14	peak
6	0.4359	70.48	-101.73	-31.25	14.86	-46.11	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.

3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

490kHz ~ 30MHz



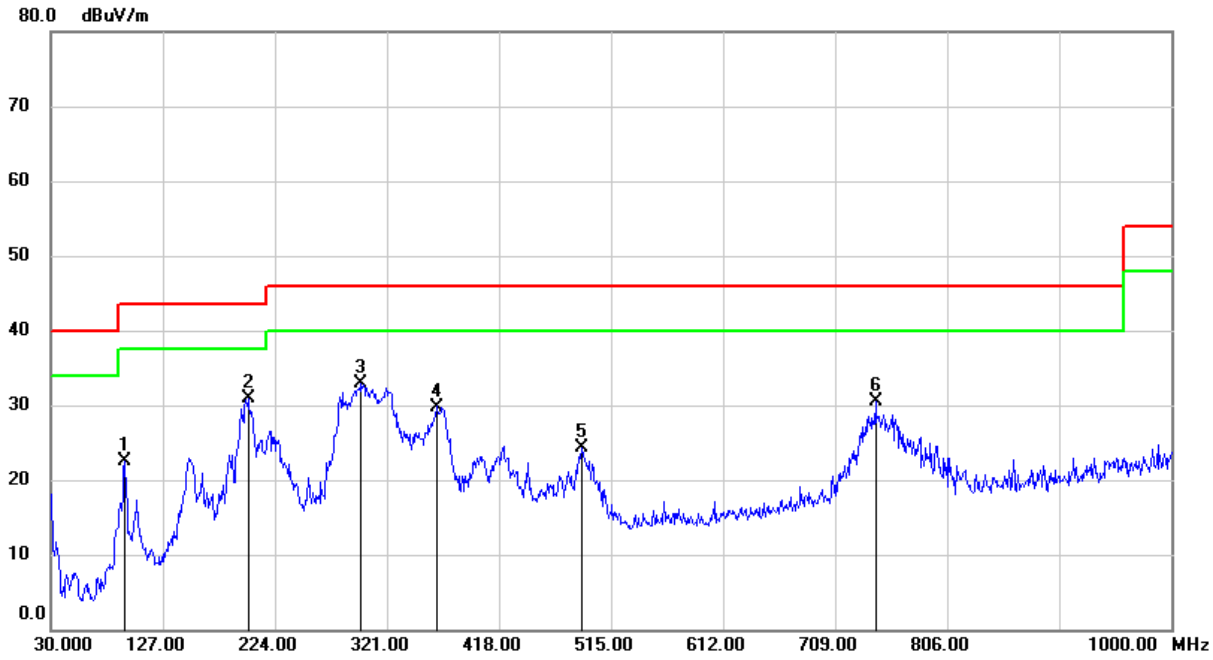
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.7556	61.92	-99.84	-37.92	30.05	-67.97	peak
2	1.3163	56.46	-94.51	-38.05	25.22	-63.27	peak
3	4.8875	48.72	-62.92	-14.20	29.54	-43.74	peak
4	10.4349	49.22	-61.23	-12.01	29.54	-41.55	peak
5	16.3074	47.77	-61.40	-13.63	29.54	-43.17	peak
6	21.3831	47.80	-61.05	-13.25	29.54	-42.79	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.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All the modes have been tested, only the worst data record in the report.

7.1. SPURIOUS EMISSIONS 30MHz - 1GHz

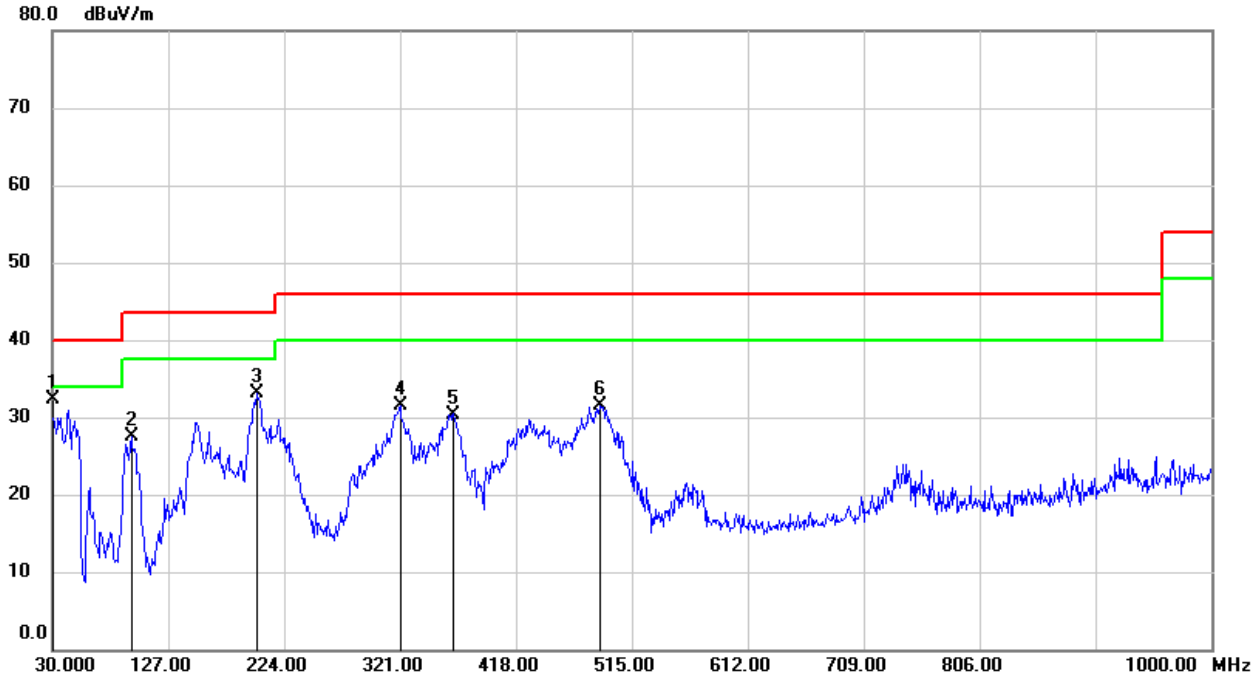
FCC PART15C SPURIOUS EMISSIONS (MODE 1, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	94.0199	43.85	-21.28	22.57	43.50	-20.93	QP
2	200.7200	47.23	-16.30	30.93	43.50	-12.57	QP
3	298.6900	47.07	-14.26	32.81	46.00	-13.19	QP
4	363.6800	43.11	-13.31	29.80	46.00	-16.20	QP
5	489.7800	35.46	-11.06	24.40	46.00	-21.60	QP
6	743.9200	36.85	-6.42	30.43	46.00	-15.57	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

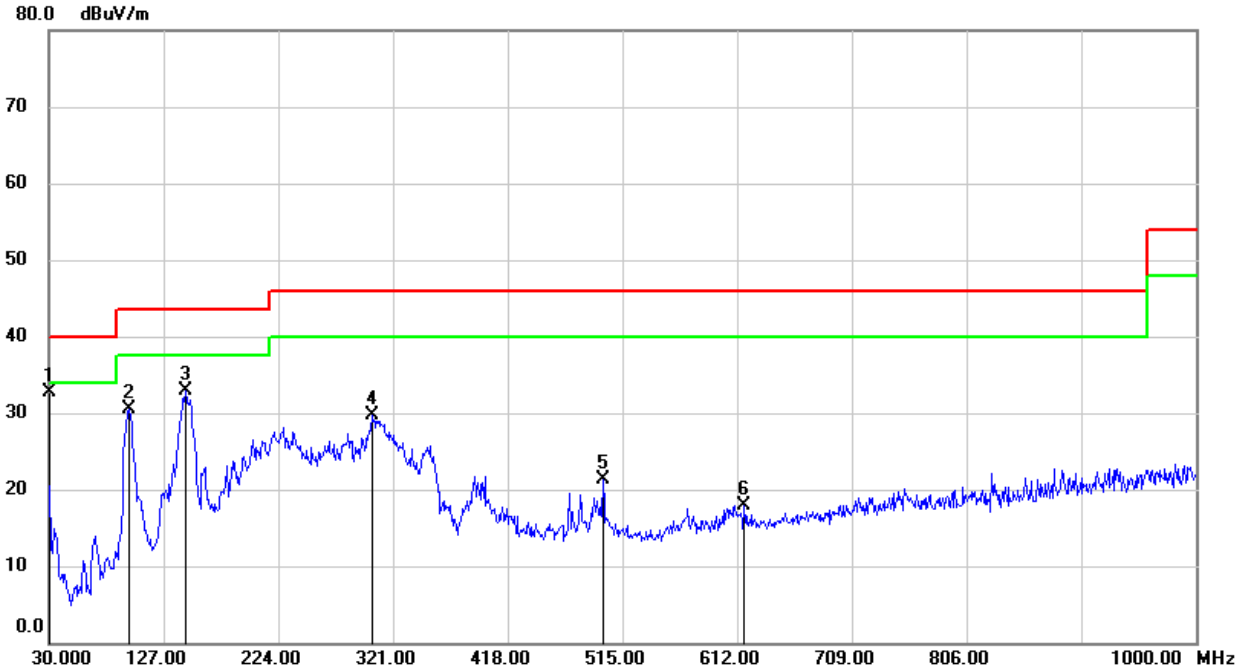
FCC PART15C SPURIOUS EMISSIONS (MODE 1, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	30.0000	49.21	-16.94	32.27	40.00	-7.73	QP
2	95.9600	48.94	-21.42	27.52	43.50	-15.98	QP
3	200.7200	49.31	-16.30	33.01	43.50	-10.49	QP
4	321.0000	45.42	-13.96	31.46	46.00	-14.54	QP
5	365.6200	43.67	-13.27	30.40	46.00	-15.60	QP
6	487.8400	42.57	-11.11	31.46	46.00	-14.54	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

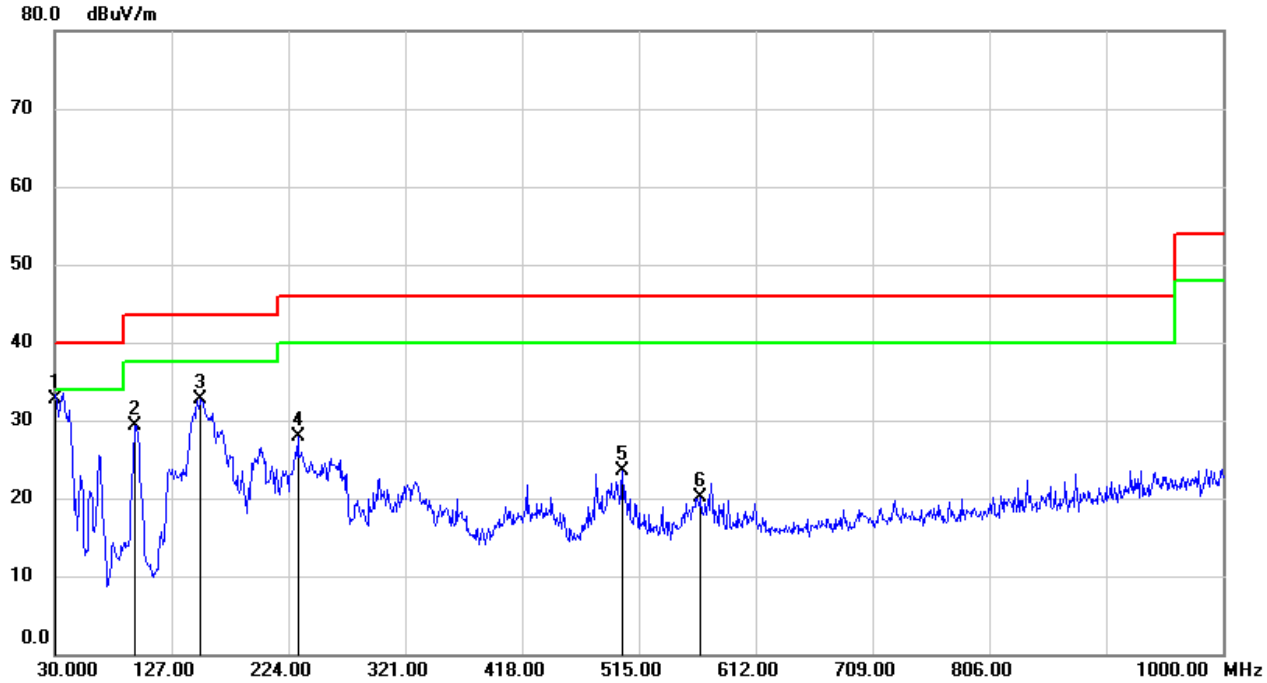
FCC PART15C SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	49.73	-16.94	32.79	40.00	-7.21	QP
2	97.9000	52.13	-21.58	30.55	43.50	-12.95	QP
3	145.4299	51.70	-18.71	32.99	43.50	-10.51	QP
4	303.5400	43.80	-14.15	29.65	46.00	-16.35	QP
5	498.5100	32.40	-11.04	21.36	46.00	-24.64	QP
6	617.8200	26.33	-8.49	17.84	46.00	-28.16	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.
4. The noise create from the digital circuit. It is not created by wireless charging mode.

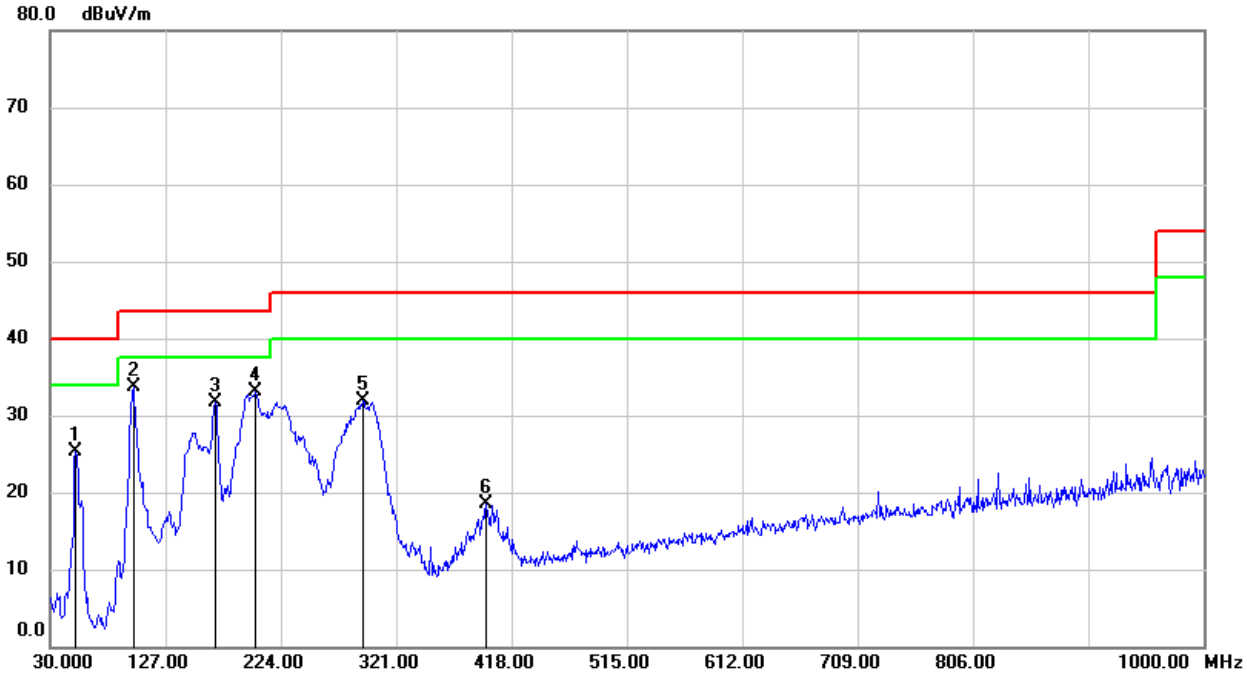
FCC PART15C SPURIOUS EMISSIONS (MODE 2, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	30.0000	49.70	-16.94	32.76	40.00	-7.24	QP
2	96.9300	50.79	-21.49	29.30	43.50	-14.20	QP
3	151.2500	51.02	-18.22	32.80	43.50	-10.70	QP
4	231.7600	45.73	-17.78	27.95	46.00	-18.05	QP
5	501.4200	34.47	-10.97	23.50	46.00	-22.50	QP
6	566.4099	29.69	-9.57	20.12	46.00	-25.88	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

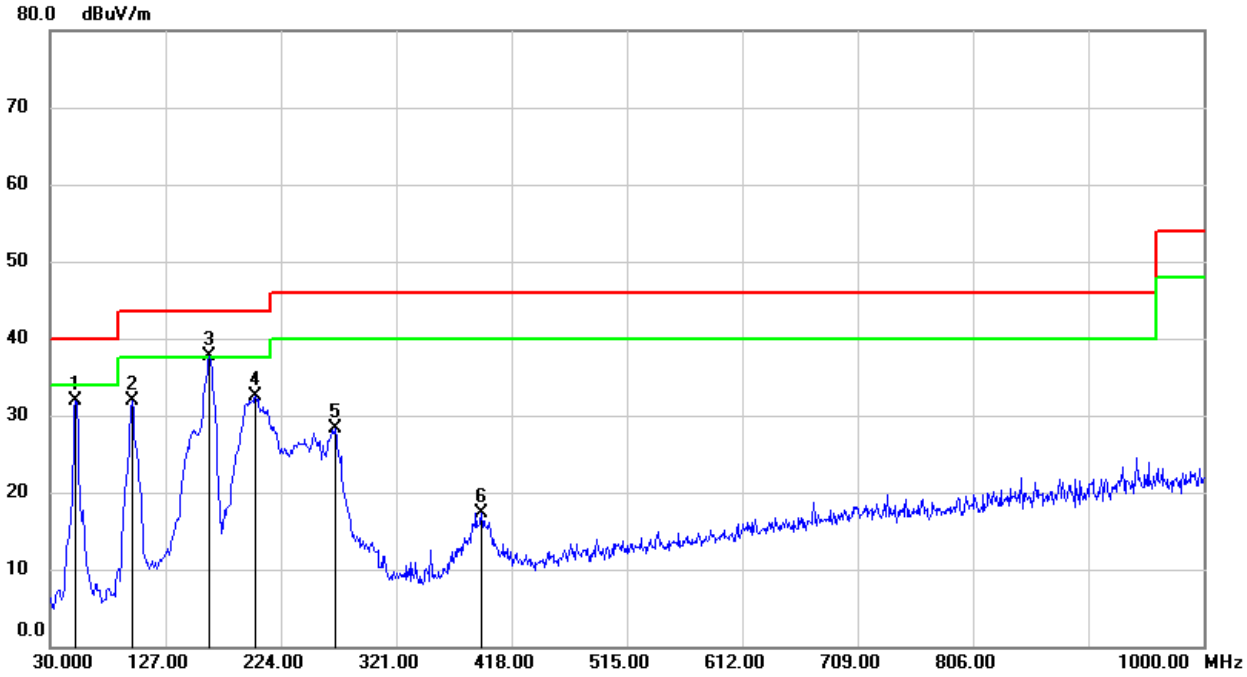
FCC PART15C SPURIOUS EMISSIONS (MODE 3, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	51.3400	43.83	-18.43	25.40	40.00	-14.60	QP
2	99.8399	55.44	-21.73	33.71	43.50	-9.79	QP
3	168.7100	48.80	-17.05	31.75	43.50	-11.75	QP
4	202.6600	49.27	-16.17	33.10	43.50	-10.40	QP
5	292.8700	46.43	-14.60	31.83	46.00	-14.17	QP
6	396.6600	31.34	-12.83	18.51	46.00	-27.49	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.
4. The noise create from the digital circuit. It is not created by wireless charging mode.

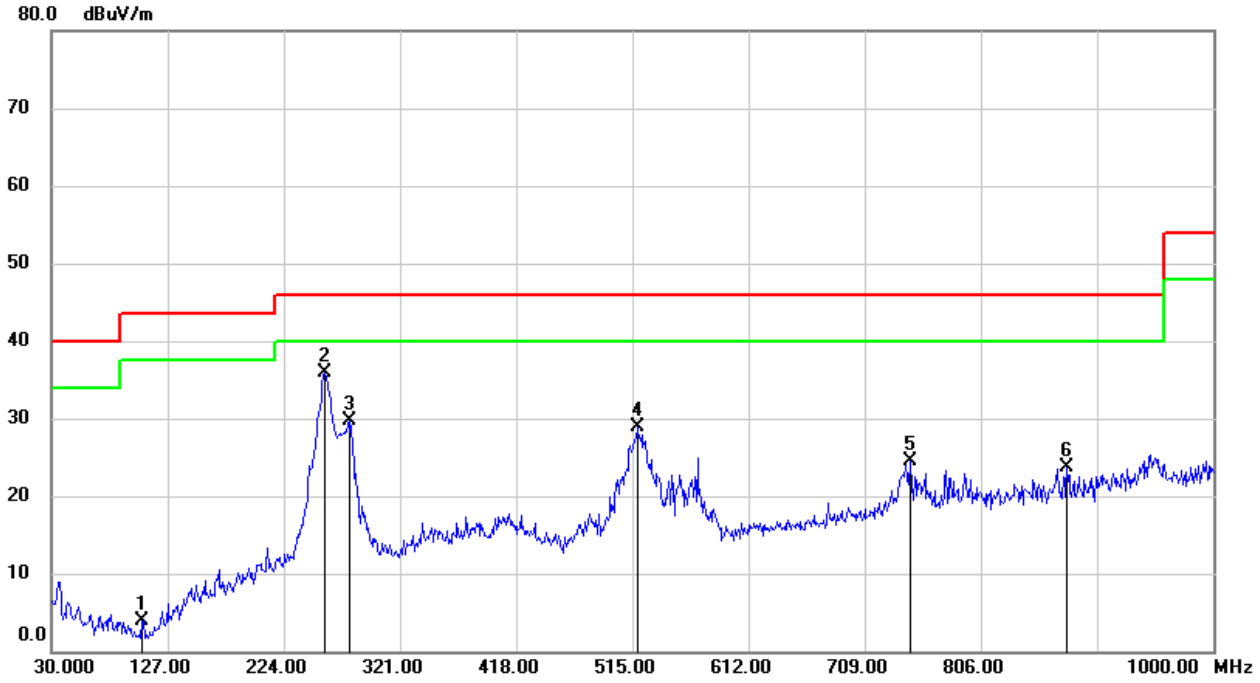
FCC PART15C SPURIOUS EMISSIONS (MODE 3, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	51.3400	50.25	-18.43	31.82	40.00	-8.18	QP
2	98.8700	53.57	-21.65	31.92	43.50	-11.58	QP
3	163.8600	55.40	-17.63	37.77	43.50	-5.73	QP
4	202.6600	48.58	-16.17	32.41	43.50	-11.09	QP
5	269.5900	43.89	-15.64	28.25	46.00	-17.75	QP
6	392.7800	30.11	-12.86	17.25	46.00	-28.75	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

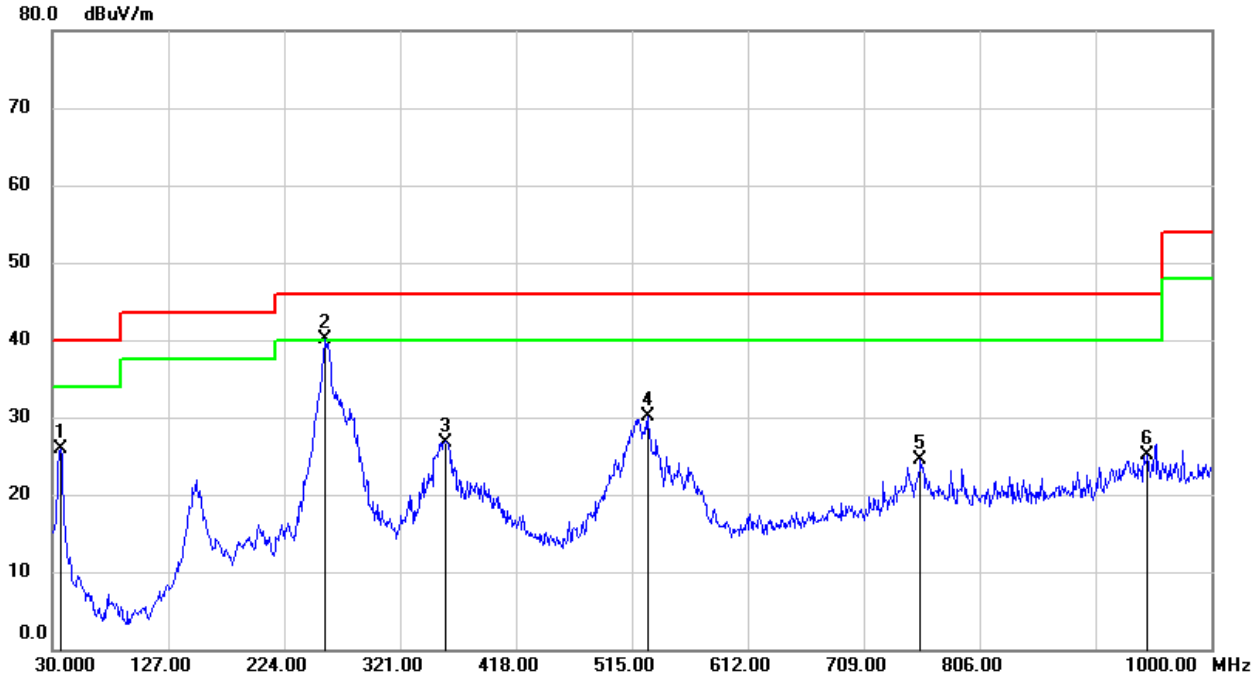
FCC PART15C SPURIOUS EMISSIONS (MODE 4, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	105.6600	25.37	-21.51	3.86	43.50	-39.64	QP
2	257.9500	52.09	-16.09	36.00	46.00	-10.00	QP
3	278.3200	44.93	-15.22	29.71	46.00	-16.29	QP
4	518.8800	39.27	-10.44	28.83	46.00	-17.17	QP
5	746.8300	30.98	-6.44	24.54	46.00	-21.46	QP
6	877.7800	28.20	-4.44	23.76	46.00	-22.24	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.
4. The noise create from the digital circuit. It is not created by wireless charging mode.

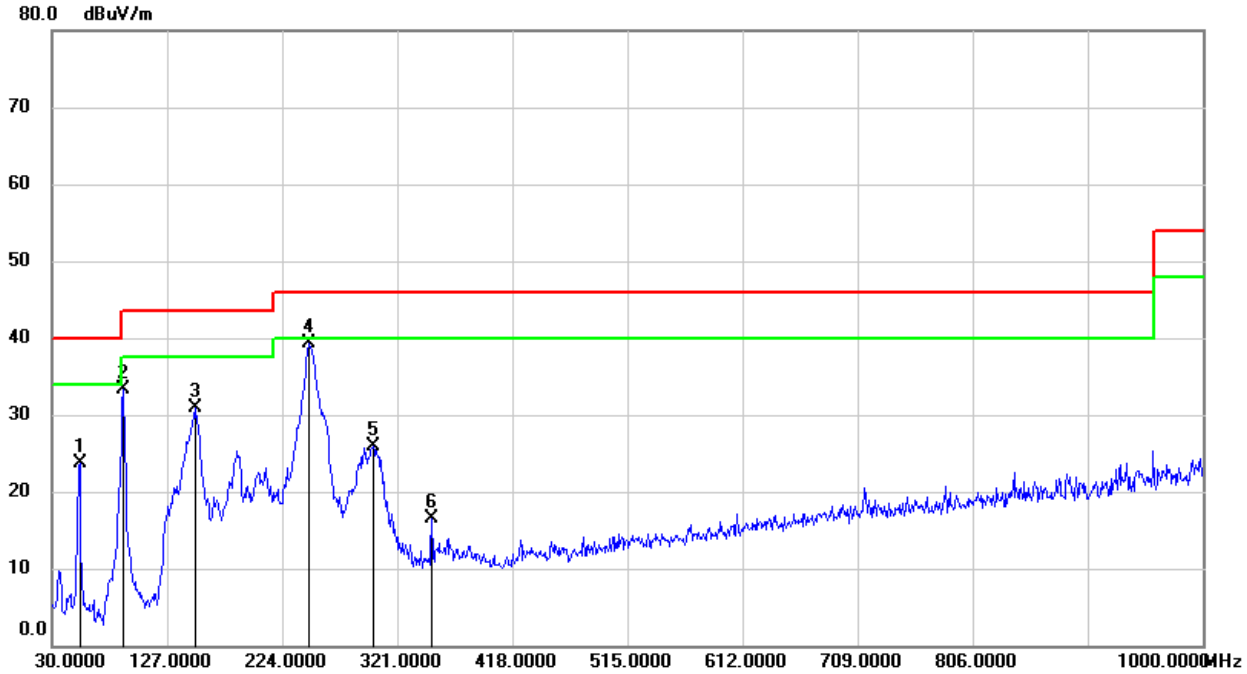
FCC PART15C SPURIOUS EMISSIONS (MODE 4, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	36.7900	43.51	-17.65	25.86	40.00	-14.14	QP
2	257.9500	56.15	-16.09	40.06	46.00	-5.94	QP
3	358.8299	40.22	-13.42	26.80	46.00	-19.20	QP
4	528.5800	40.29	-10.24	30.05	46.00	-15.95	QP
5	756.5300	30.72	-6.18	24.54	46.00	-21.46	QP
6	946.6500	28.65	-3.51	25.14	46.00	-20.86	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

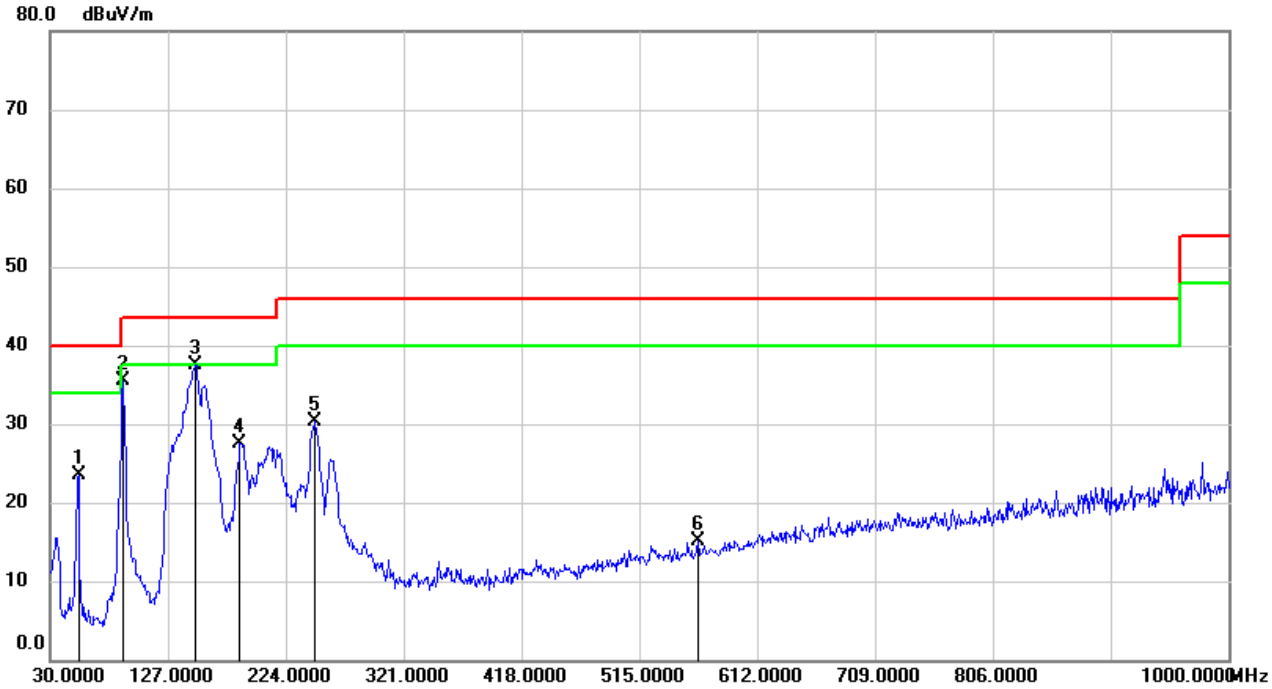
FCC PART15C SPURIOUS EMISSIONS (MODE 14, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	53.2800	42.27	-18.62	23.65	40.00	-16.35	QP
2	90.1400	54.40	-21.01	33.39	43.50	-10.11	QP
3	150.2800	49.10	-18.28	30.82	43.50	-12.68	QP
4	246.3100	55.96	-16.69	39.27	46.00	-6.73	QP
5	300.6300	40.03	-14.17	25.86	46.00	-20.14	QP
6	350.1000	29.97	-13.52	16.45	46.00	-29.55	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.
4. The noise create from the digital circuit. It is not created by wireless charging mode.

FCC PART15C SPURIOUS EMISSIONS (MODE 4, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	53.2800	42.21	-18.62	23.59	40.00	-16.41	QP
2	90.1400	56.60	-21.01	35.59	43.50	-7.91	QP
3	149.3100	55.84	-18.36	37.48	43.50	-6.02	QP
4	186.1700	44.25	-16.71	27.54	43.50	-15.96	QP
5	247.2800	46.80	-16.59	30.21	46.00	-15.79	QP
6	563.5000	24.67	-9.66	15.01	46.00	-30.99	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
4. The noise create from the digital circuit. It is not created by wireless charging mode.

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

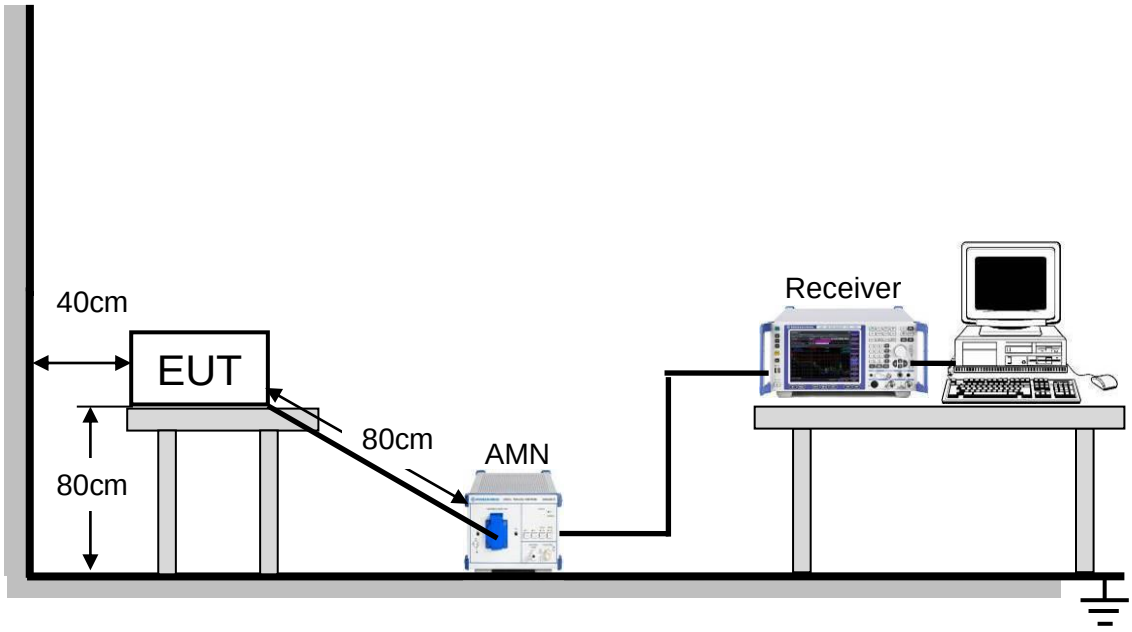
8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to FCC §15.207 (a) .

FREQUENCY (MHz)	(dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

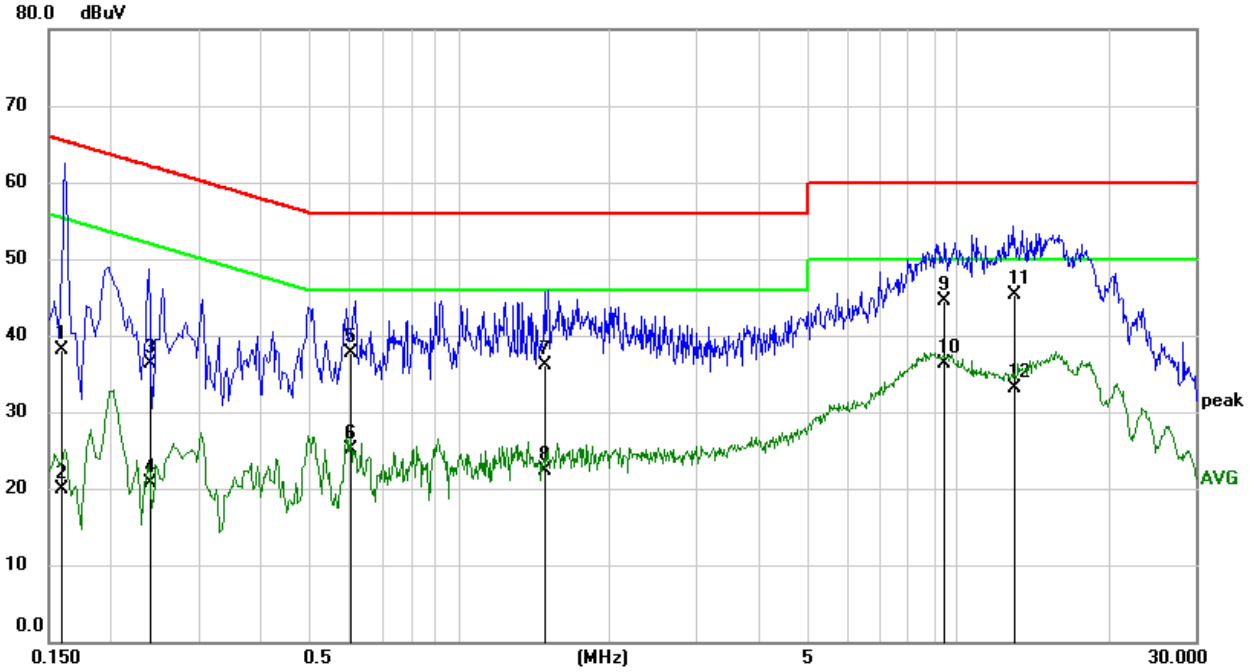
TEST SETUP AND PROCEDURE



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

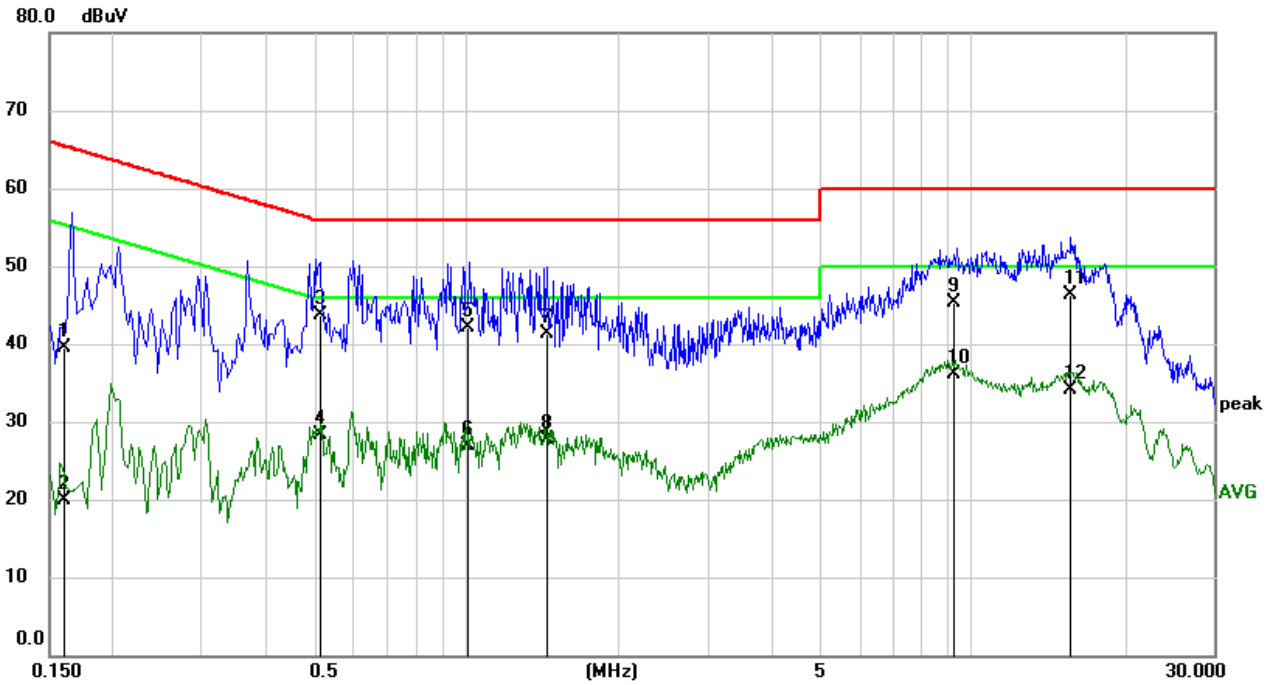
LINE L RESULTS (MODE 2, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1584	28.46	9.61	38.07	65.55	-27.48	QP
2	0.1584	10.21	9.61	19.82	55.55	-35.73	AVG
3	0.2414	26.68	9.60	36.28	62.05	-25.77	QP
4	0.2414	11.20	9.60	20.80	52.05	-31.25	AVG
5	0.6021	28.11	9.60	37.71	56.00	-18.29	QP
6	0.6021	15.58	9.60	25.18	46.00	-20.82	AVG
7	1.4853	26.54	9.61	36.15	56.00	-19.85	QP
8	1.4853	12.69	9.61	22.30	46.00	-23.70	AVG
9	9.4055	34.67	9.74	44.41	60.00	-15.59	QP
10	9.4055	26.65	9.74	36.39	50.00	-13.61	AVG
11	12.9688	35.44	9.80	45.24	60.00	-14.76	QP
12	12.9688	23.38	9.80	33.18	50.00	-16.82	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 (MODE 2, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1610	29.97	9.60	39.57	65.41	-25.84	QP
2	0.1610	10.24	9.60	19.84	55.41	-35.57	AVG
3	0.5107	34.11	9.60	43.71	56.00	-12.29	QP
4	0.5107	18.65	9.60	28.25	46.00	-17.75	AVG
5	1.0021	32.44	9.61	42.05	56.00	-13.95	QP
6	1.0021	17.24	9.61	26.85	46.00	-19.15	AVG
7	1.4465	31.76	9.61	41.37	56.00	-14.63	QP
8	1.4465	18.10	9.61	27.71	46.00	-18.29	AVG
9	9.2998	35.51	9.75	45.26	60.00	-14.74	QP
10	9.2998	26.45	9.75	36.20	50.00	-13.80	AVG
11	15.7348	36.35	9.94	46.29	60.00	-13.71	QP
12	15.7348	24.13	9.94	34.07	50.00	-15.93	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 recoreded in the report.

END OF REPORT