FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Product Name: Smart lighting Controller
Brand Name: N/A
Model No.: Smart controller Cone V2
Series Model: N/A
FCC ID: 2ANQB-SLC
Test Report Number:
C170825R01-RPW

Issued for

Shanghai Sixunited Intelligent Technology Co.,LTD
Building No. 68, Zhongchuang Road, Songjiang District, Shanghai City

Issued by

Compliance Certification Services Inc.
Kun shan Laboratory
No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China
TEL: 86-512-57355888
FAX: 86-512-57370818

TESTING CERT #2541.01

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1. TEST RESULT CERTIFICATION

Product Name:	Smart lighting Controller
Trade Name:	N/A
Model Name.:	Smart controller Cone V2
Series Model:	N/A
Applicant Discrepancy:	Initial
Device Category:	Mobile Device
Date of Test:	September 6, 2017 ~ September 7, 2017
Applicant:	**Shanghai Sixunited Intelligent Technology Co.,LTD** Building No. 68, Zhongchuang Road, Songjiang District, Shanghai City
Manufacturer:	**Shanghai Sixunited Intelligent Technology Co.,LTD** Building No. 68, Zhongchuang Road, Songjiang District, Shanghai City
Application Type:	Certification

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

We hereby certify that:

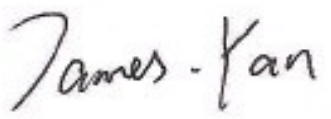
The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.249.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Jeff.Fang
RF Manager
Compliance Certification Service Inc.

Tested by:



James.Yan
Test Engineer
Compliance Certification Service Inc.

2. EUT DESCRIPTION

Product Name:	Smart lighting Controller
Brand Name:	N/A
Model Name:	Smart controller Cone V2
Series Model:	N/A
Model Discrepancy:	N/A
Power Rating :	Input: AC 100-240V 50-60Hz
Frequency Range:	902MHz-928MHz
Channels Spacing:	0.25 MHz
Number of Channels:	103 Channels
Antenna Specification:	2dBi

Remark:

1.The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2.This submittal(s) (test report) is intended for **FCC ID: 2ANQB-SLC** filing to comply with Section 15.207, 15.209 and 15.249 of the FCC Part 15, Subpart C Rules.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10 and FCC CFR 47 15.207, 15.209 and 15.249.

3.1. EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2. EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.249 under the FCC Rules Part 15 Subpart C.

3.3. GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.10 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

Under 1GHz

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10.

Above 1GHz

The EUT is placed on a turn table, which is 1.5 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.10.

3.4.FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

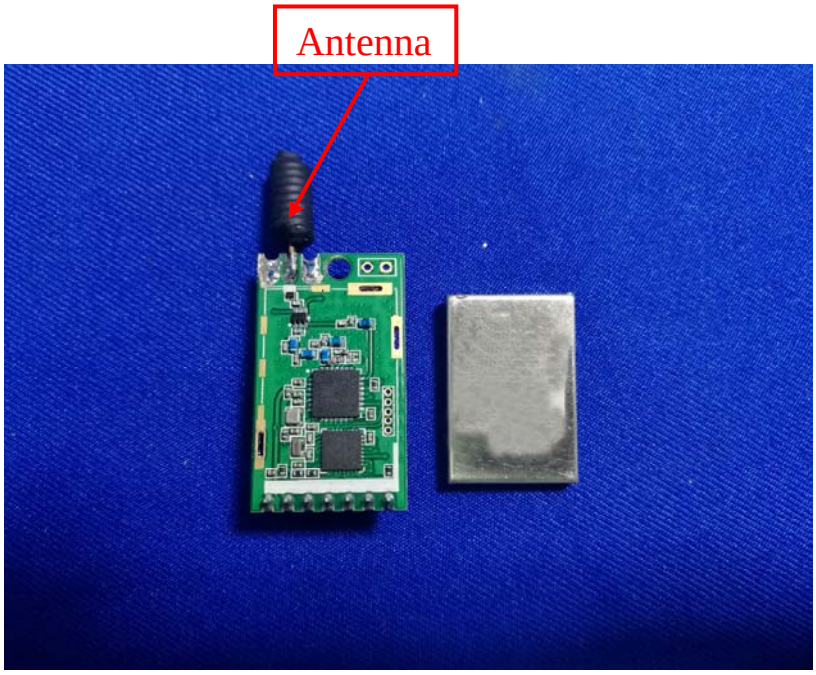
Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.5.DESCRIPTION OF TEST MODES

Software used to control the EUT for staying in continuous transmitting mode is programmed.

3.6.ANTENNA DESCRIPTION

According to FCC 47 CFR 15.203
“an intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section”
As the photo below, the EUT use a unique coupling to the intentional radiator attached antenna, so the EUT complies with the requirement of 15.203.



4. INSTRUMENT CALIBRATION

4.1.MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

Equipment Used for Emissions Measurement

Conducted Emissions Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2017-7-20	2018-7-19
Power meter	Anritsu	ML2495A	1445010	2017-4-26	2018-4-25
Power sensor	Anritsu	MA2411B	1339220	2017-4-26	2018-4-25
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R	N.C.R
DC Power Supply	AGILENT	E3632A	MY50340053	N.C.R	N.C.R
Temp. / Humidity Gauge	Anymetre	TH603	CCS007	2016-11-1	2017-10-31
Test Software			EZ-EMC		

977 Chamber					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2016-9-10	2017-9-9
Spectrum Analyzer	RS	FSU26	200789	2017-7-20	2018-7-19
EMI Test Receiver	R&S	ESCI	101378	2017-1-5	2018-1-4
Pre-Amplfier	MITEQ	AMF-6F-260400-40-8P	1037496	2016-11-15	2017-11-14
Amplifier	MITEQ	JS41-00101800-32-10P	1675713	2017-7-20	2018-7-19
Broad-Band Horn Antenna	SCHWARZBECK	BBHA 9170	9170-515	2017-3-6	2018-3-5
Bilog Antenna	Sunol	JB1	A110204-1	2017-5-27	2018-5-26
Loop Antenna	Hengweiyi	39501C	2014012	2017-1-5	2018-1-4
Horn-antenna	SCHWARZBECK	9120D	D:266	2017-3-5	2018-3-4
Horn-antenna	SCHWARZBECK	9120D	D:267	2016-11-10	2017-11-9
Turn Table	CT	CT123	4165	N.C.R	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R	N.C.R
Controller	CT	CT1OO	95637	N.C.R	N.C.R
Test Software			EZ-EMC		

Conducted Emission					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI	100781	2017-2-28	2018-2-27
V (V-LISN)	SCHWARZBECK	NNLK 8129	8129-143	2016-11-1	2017-10-31
TWO-LINE V-NETWORK	R&S	ENV216	101604	2016-11-1	2017-10-31
Pulse LIMITER	R&S	ESH3-Z2	100524	2017-1-5	2018-1-4
Test Software	EZ-EMC				

Remark: *Each piece of equipment is scheduled for calibration once a year.*

5. FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

All measurement facilities used to collect the measurement data are located at
CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3. LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 or 18 requirements. In addition, the test facilities are listed with Federal Communication Commission, Laboratory Division, 424105 for 10m chamber, 238958 for 3m chamber. Also the test facilities are listed with Industry Canada, Laboratory Division, 2324E-1 for 10m chamber, 2324E-2 for 3m chamber.

5.4.TABLE OF ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF
USA	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

6. SETUP OF EQUIPMENT UNDER TEST

6.1.SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2.SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	LED lamp	NVC	NLED9194	N/A	N/A

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

7. FCC PART 15.249 REQUIREMENTS

7.1. FIELD STRENGTH OF FUNDAMENTAL

SPECIFICATION REFERENCE

FCC CFR 47 Part 15C, Clause 15.249 (a)

LIMIT

Clause 15.249 (a)

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)
902 to 928	50
2400 to 2483.5	50
5725 to 5875	50
24000 to 24250	250

TEST PROCEDURE

The EUT is placed on a test table 800mm above the ground plane.
During formal measurement the spectrum analyser is tuned to the frequency of the fundamental. The turntable azimuth is adjusted from 0 to 360 degrees to determine the point at which the maximum level occurs. Then the height of the measuring antenna is adjusted from a height of 1m to 4m to determine the height at which the maximum level occurs. Once the point of maximum emission has been determined the emission is measured.

TEST RESULTS

Ch Low

Fundamental Frequency (MHz)	Fundamental Frequency (MHz)	Reading Level (dBµV/m)	Factor (dB)	Field Strength dBµV/m	Over Limit (dB)	Limit (dBµV/m)	Type QP/PK
902.25	H	65.68	25.97	91.65	-2.35	94.0	QP
902.25	V	62.74	25.97	88.71	-5.29	94.0	QP

Ch Mid

Fundamental Frequency (MHz)	Fundamental Frequency (MHz)	Reading Level (dBµV/m)	Factor (dB)	Field Strength dBµV/m	Over Limit (dB)	Limit (dBµV/m)	Type QP/PK
915.00	H	65.95	26.19	92.11	-1.89	94.0	QP
915.00	V	63.06	26.19	89.25	-4.75	94.0	QP

Ch High

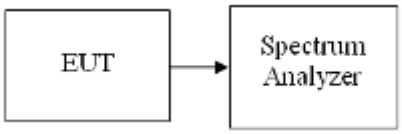
Fundamental Frequency (MHz)	Fundamental Frequency (MHz)	Reading Level (dBµV/m)	Factor (dB)	Field Strength dBµV/m	Over Limit (dB)	Limit (dBµV/m)	Type QP/PK
927.75	H	66.15	26.41	92.56	-1.44	94.0	QP
927.75	V	63.90	26.41	90.31	-3.69	94.0	QP

7.2. 20DB BANDWIDTH

LIMIT

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band (902~928MHz).

TEST CONFIGURATION



TEST PROCEDURE

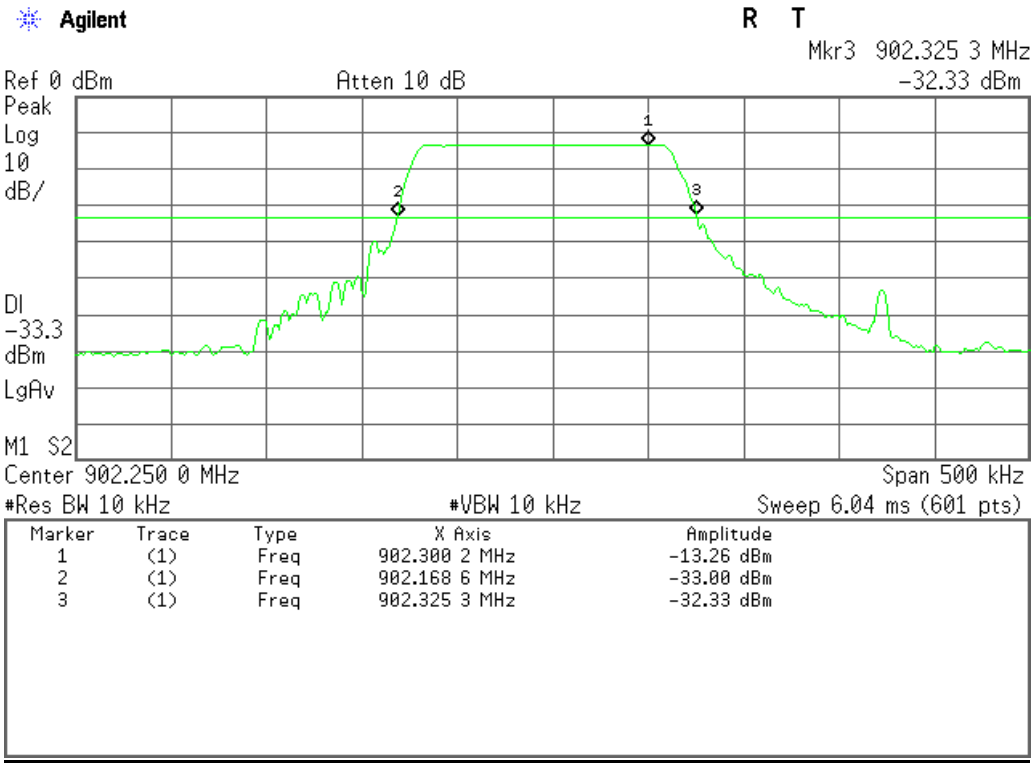
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 10kHz, VBW = 10kHz.
4. Measured the spectrum width with power higher than 20dB below carrier.

TEST RESULT

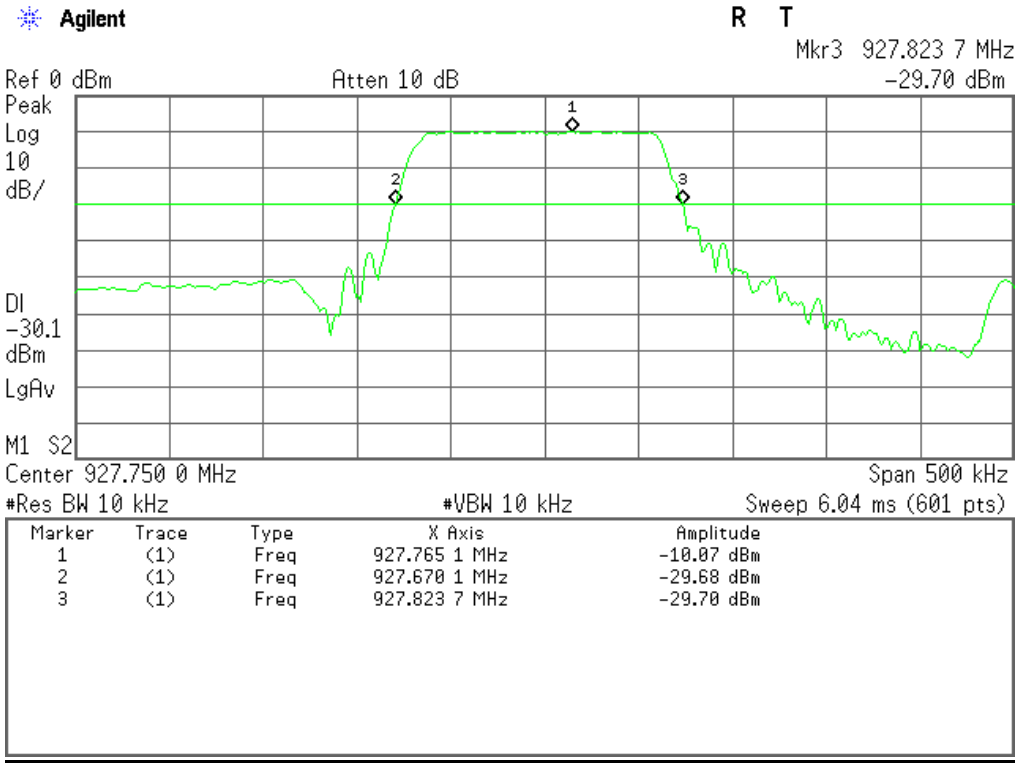
No non-compliance noted

Frequency (MHz)	20dB BW (KHz)	Frequency Range (MHz) F_L>902MHz	Frequency Range (MHz) F_H<928MHz	Test Result
902.25	156.7	902.1686	/	Complies
927.75	153.6	/	927.8237	Complies

20dB BW : 902.25MHz



20dB BW : 927.75MHz



7.3. RADIATED EMISSIONS

SPECIFICATION REFERENCE

FCC CFR 47 Part 15C, Clause 15.249 (a)

LIMIT

Radiated emissions from 9 kHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2009. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCIES(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
Above 960	500	3

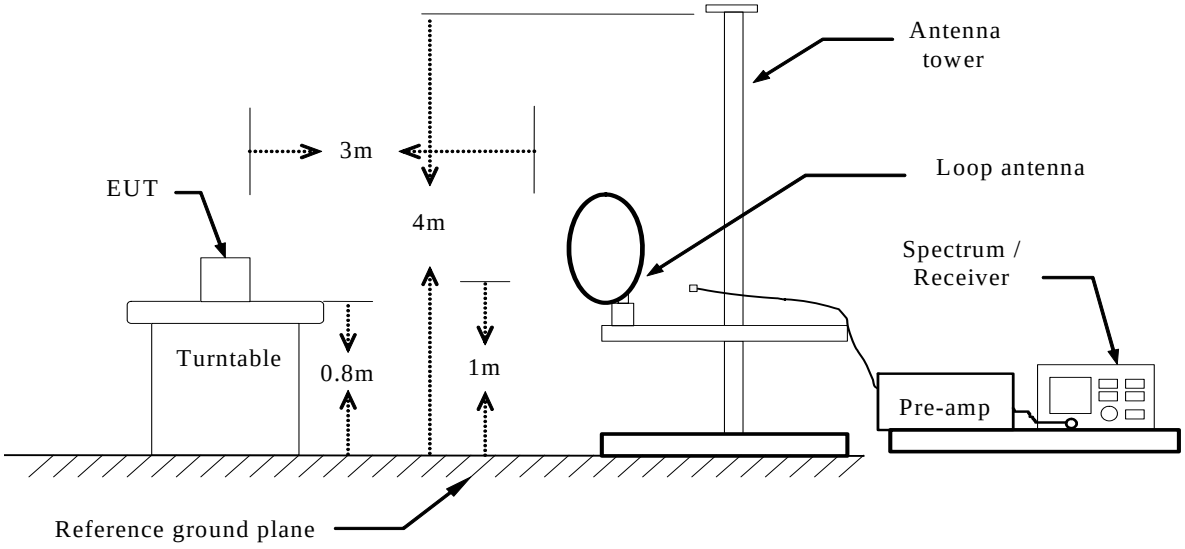
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2.In the emission table above, the tighter limit applies at the band edges.

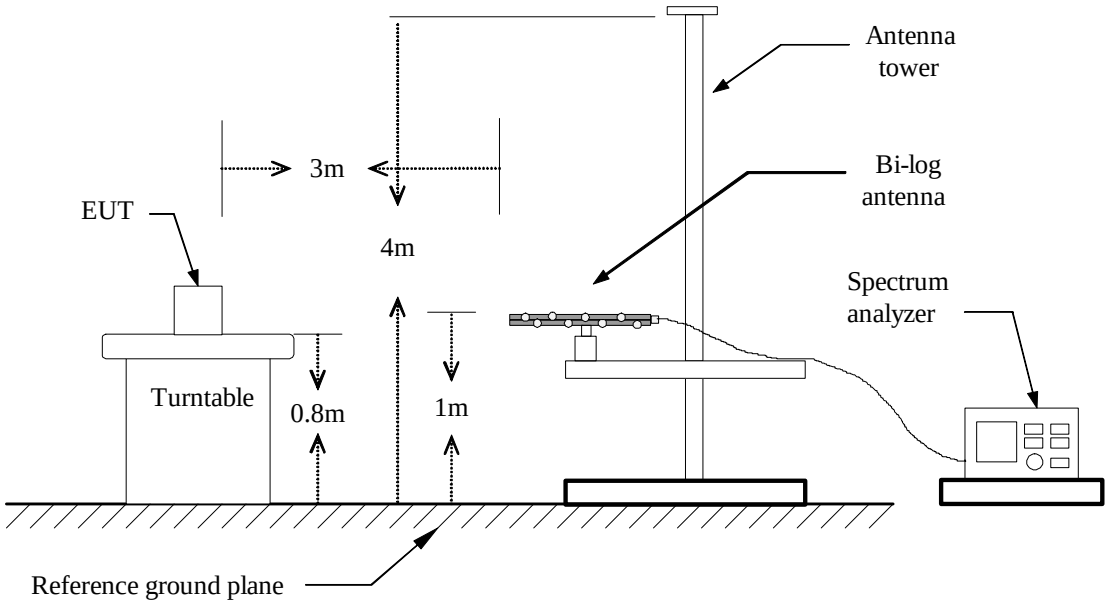
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

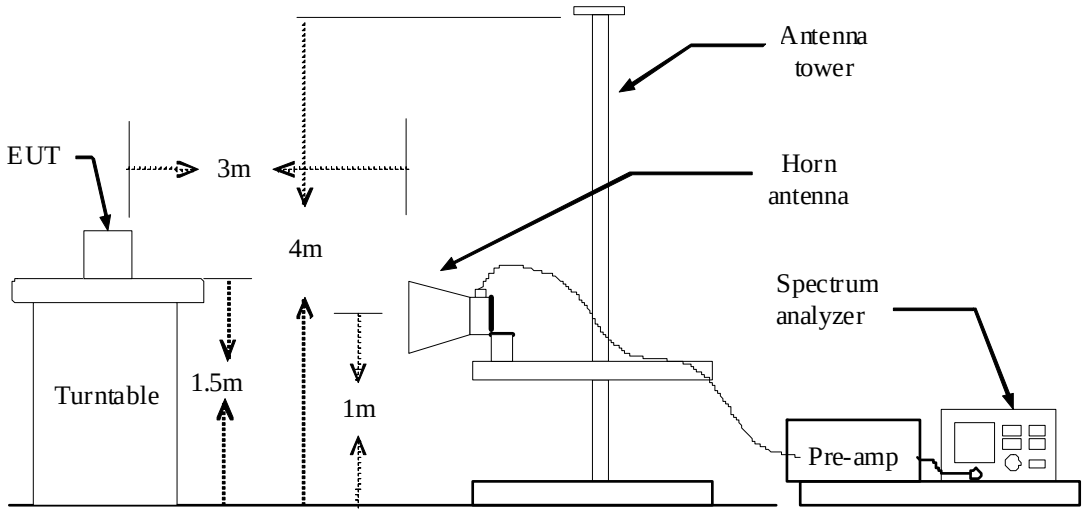
Below 30MHz



Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable above ground plane, which is 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

   Above 1GHz:

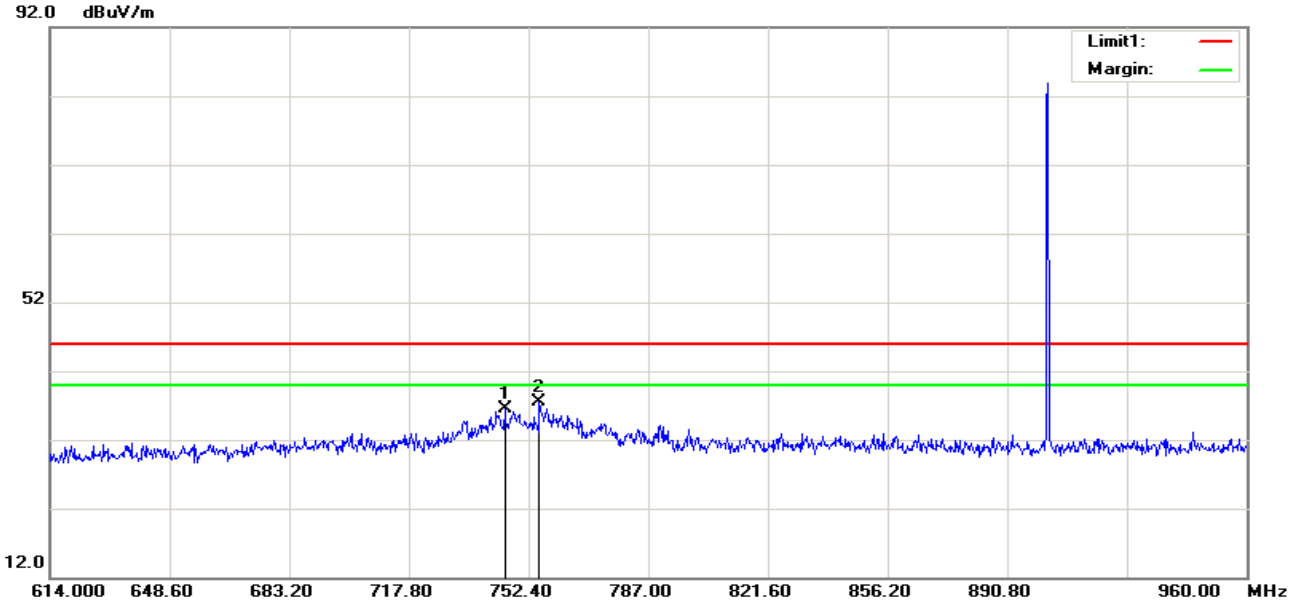
   PEAK: RBW=VBW=1MHz / Sweep=AUTO

   AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

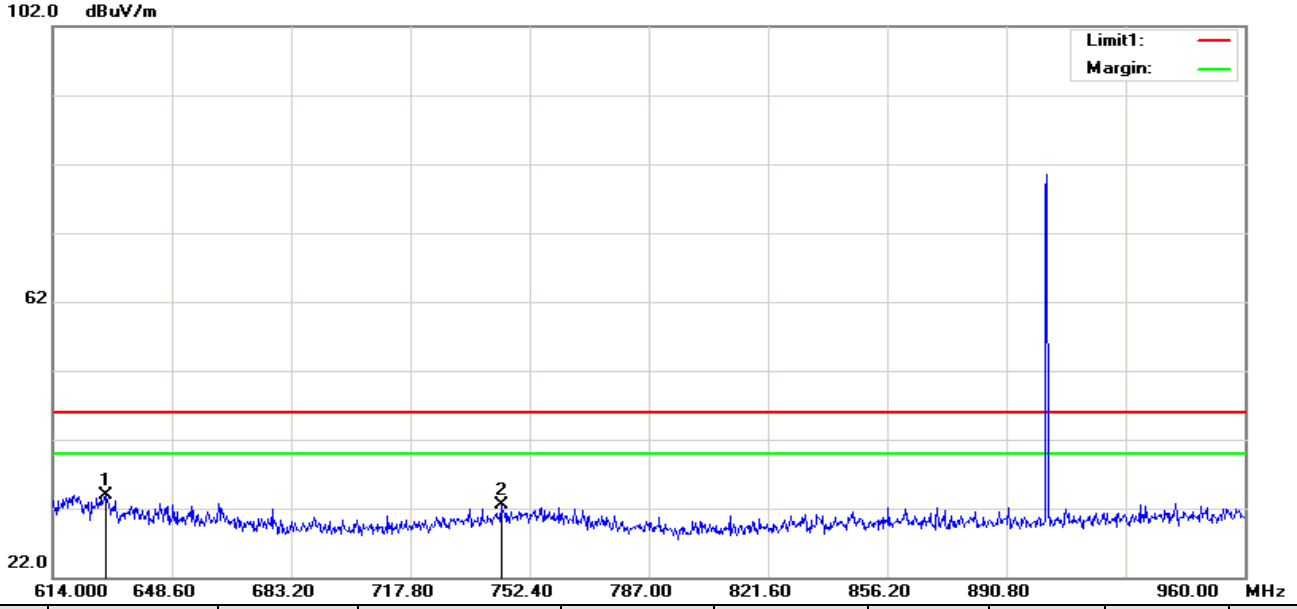
TEST RESULTS

Spurious emissions on restricted band (Low Channel, Horizontal)



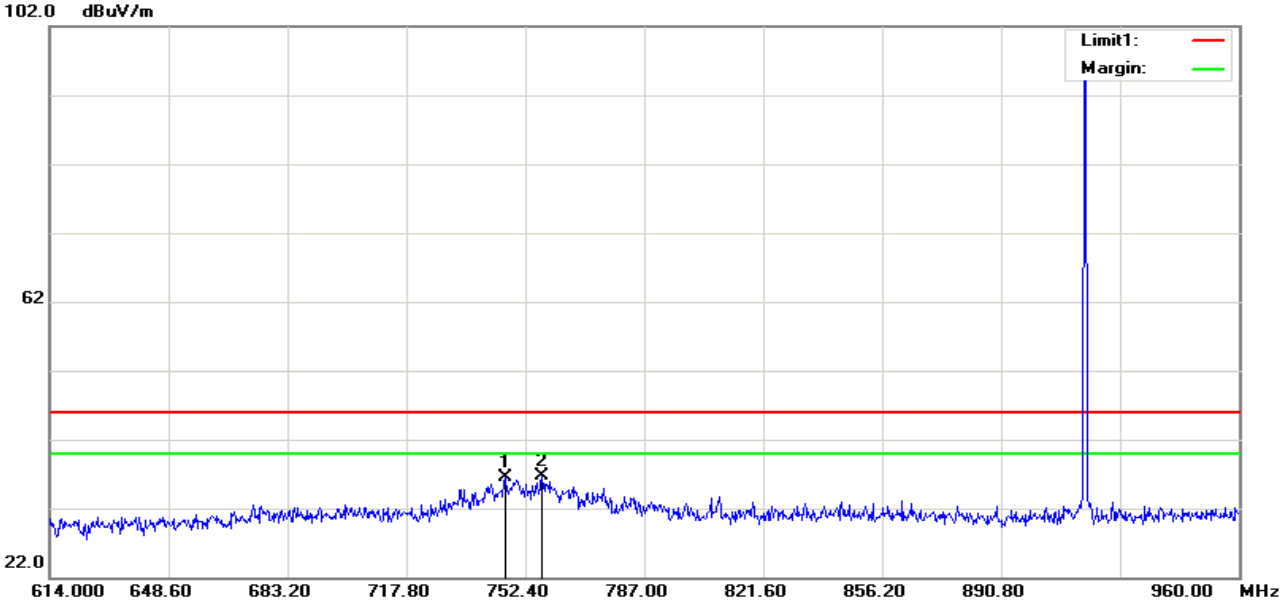
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	745.4800	10.22	26.31	36.53	46.00	-9.47	100	104	peak
2	755.5140	11.17	26.25	37.42	46.00	-8.58	100	100	peak

Spurious emissions on restricted band (Low Channel, Vertical)



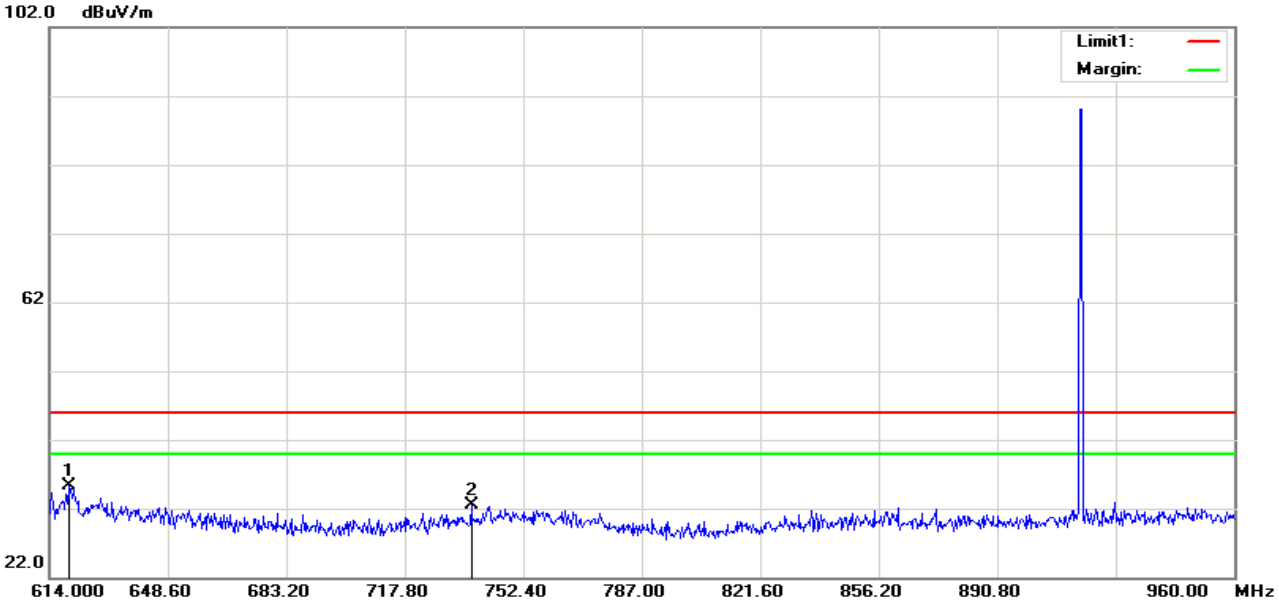
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	629.2240	10.31	23.54	33.85	46.00	-12.15	100	308	peak
2	744.0960	6.24	26.27	32.51	46.00	-13.49	100	228	peak

Spurious emissions on restricted band (Middle Channel, Horizontal)



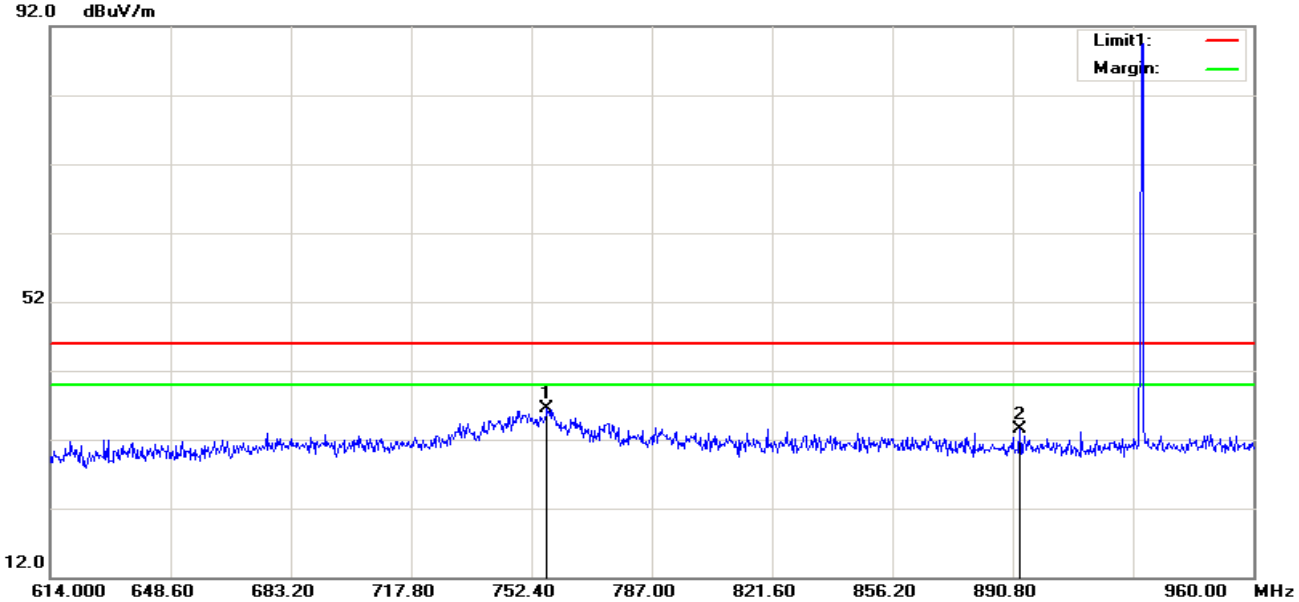
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	746.5180	10.19	26.35	36.54	46.00	-9.46	100	66	peak
2	757.2440	10.54	26.19	36.73	46.00	-9.27	100	114	peak

Spurious emissions on restricted band (Middle Channel, Vertical)



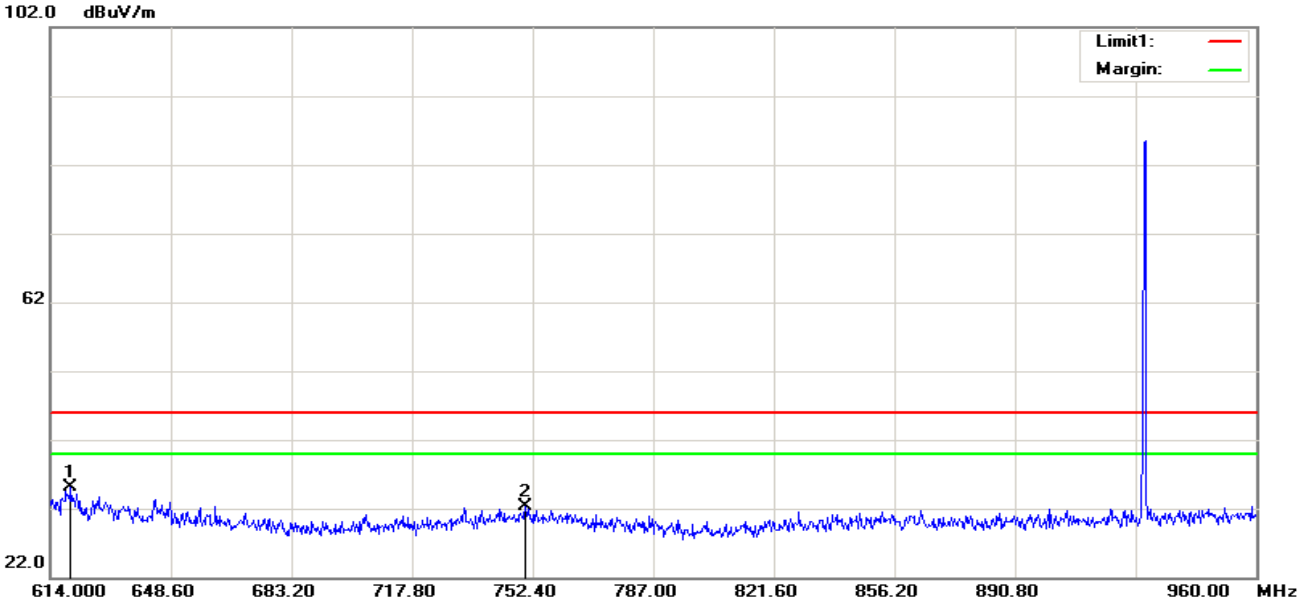
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	619.5360	12.23	23.12	35.35	46.00	-10.65	100	318	peak
2	737.1760	6.44	26.04	32.48	46.00	-13.52	100	82	peak

Spurious emissions on restricted band (High Channel, Horizontal)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	756.8980	10.22	26.20	36.42	46.00	-9.58	100	106	peak
2	892.8760	7.47	25.96	33.43	46.00	-12.57	100	71	peak

Spurious emissions on restricted band (High Channel, Vertical)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	619.8820	11.91	23.14	35.05	46.00	-10.95	100	314	peak
2	750.3240	5.78	26.45	32.23	46.00	-13.77	100	229	peak

Below 1GHz

Operation Mode: TX/CH Low **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
36.7900	V	17.37	18.02	35.39	40.00	-4.61	Peak
94.9900	V	19.03	10.03	29.06	43.50	-14.44	Peak
359.8000	V	18.07	17.71	35.78	46.00	-10.22	Peak
401.5100	V	14.82	19.96	34.78	46.00	-11.22	Peak
627.5200	V	10.52	23.47	33.99	46.00	-12.01	Peak
743.9200	V	6.76	26.26	33.02	46.00	-12.98	Peak
220.1200	H	18.43	15.48	33.91	46.00	-12.09	Peak
244.3700	H	19.59	15.14	34.73	46.00	-11.27	Peak
357.8600	H	24.71	17.60	42.31	46.00	-3.69	Peak
400.5400	H	22.02	19.94	41.96	46.00	-4.04	Peak
606.1800	H	11.54	22.55	34.09	46.00	-11.91	Peak
764.2900	H	9.03	25.92	34.95	46.00	-11.05	Peak

Operation Mode: TX/CH Mid **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
36.7900	V	17.57	18.02	35.59	40.00	-4.41	Peak
94.9900	V	20.32	10.03	30.35	43.50	-13.15	Peak
359.8000	V	17.47	17.71	35.18	46.00	-10.82	Peak
417.0300	V	13.87	20.26	34.13	46.00	-11.87	Peak
536.3400	V	10.99	21.67	32.66	46.00	-13.34	Peak
613.9400	V	11.83	22.88	34.71	46.00	-11.29	Peak
218.4500	H	18.77	15.48	34.25	46.00	-11.75	Peak
250.1900	H	18.74	15.06	33.80	46.00	-12.20	Peak
349.1300	H	25.44	17.15	42.59	46.00	-3.41	Peak
392.7800	H	21.95	19.53	41.48	46.00	-4.52	Peak
603.2700	H	12.29	22.42	34.71	46.00	-11.29	Peak
764.2900	H	9.08	25.92	35.00	46.00	-11.00	Peak

Operation Mode: TX/CH High **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
36.7900	V	17.42	18.02	35.44	40.00	-4.56	Peak
102.7500	V	18.34	11.03	29.37	43.50	-14.13	Peak
358.8300	V	15.77	17.66	33.43	46.00	-12.57	Peak
383.0800	V	14.86	19.00	33.86	46.00	-12.14	Peak
441.2800	V	12.63	20.73	33.36	46.00	-12.64	Peak
619.7600	V	10.17	23.13	33.30	46.00	-12.70	Peak
218.1800	H	17.98	15.51	33.49	46.00	-12.51	Peak
243.4000	H	18.65	15.15	33.80	46.00	-12.20	Peak
353.9800	H	25.35	17.39	42.74	46.00	-3.26	Peak
386.9600	H	21.83	19.21	41.04	46.00	-4.96	Peak
520.8200	H	12.60	21.64	34.24	46.00	-11.76	Peak
773.9900	H	9.26	25.55	34.81	46.00	-11.19	Peak

Remark:

Measuring frequencies from 30 MHz to the 1GHz (No emission found between lowest internal used/generated frequency to 30 MH).

Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.

Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Margin (dB) = Result (dBuV/m) – Limit (dBuV/m).

Above 1 GHz

Operation Mode: TX /CH Low **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	1807.692	46.12	-11.57	34.55	74.00	-39.45	100	121	peak
2	2701.923	49.15	-8.47	40.68	74.00	-33.32	100	58	peak
3	4504.808	44.70	-4.69	40.01	74.00	-33.99	100	195	peak
4	5413.462	50.44	-2.94	47.50	74.00	-26.50	100	157	peak
5	6322.115	44.12	-0.56	43.56	74.00	-30.44	100	102	peak
6	7216.346	44.65	2.76	47.41	74.00	-26.59	100	144	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2701.923	57.02	-8.47	48.55	74.00	-25.45	100	115	peak
2	3610.577	47.18	-6.35	40.83	74.00	-33.17	100	178	peak
3	4504.808	44.37	-4.69	39.68	74.00	-34.32	100	198	peak
4	5413.550	52.25	-2.94	49.31	54.00	-4.69	100	55	AVG
5	6322.115	46.19	-0.56	45.63	74.00	-28.37	100	178	peak
6	7216.346	46.10	2.76	48.86	74.00	-25.14	100	230	peak

Operation Mode: TX / CH Mid **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	1828.000	49.36	-11.52	37.84	74.00	-36.16	100	26	peak
2	2746.000	49.30	-8.30	41.00	74.00	-33.00	100	49	peak
3	3664.000	50.80	-6.26	44.54	74.00	-29.46	100	0	peak
4	4573.000	47.92	-4.55	43.37	74.00	-30.63	100	340	peak
5	5491.000	46.78	-2.81	43.97	74.00	-30.03	100	333	peak
6	7318.000	50.24	2.99	53.23	74.00	-20.77	100	325	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	2044.000	47.67	-10.98	36.69	74.00	-37.31	100	245	peak
2	2746.000	48.40	-8.30	40.10	74.00	-33.90	100	53	peak
3	3664.000	45.00	-6.26	38.74	74.00	-35.26	100	7	peak
4	4393.000	44.06	-4.92	39.14	74.00	-34.86	100	222	peak
5	5491.000	48.44	-2.81	45.63	74.00	-28.37	100	359	peak
6	7318.000	45.27	2.99	48.26	74.00	-25.74	100	331	peak

Operation Mode: TX / CH High **Test Date:** 2017-9-6

Temperature: 24°C **Tested by:** James.Yan

Humidity: 48 % RH **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1850.961	45.22	-11.47	33.75	74.00	-40.25	100	173	peak
2	2774.039	52.91	-8.19	44.72	74.00	-29.28	100	301	peak
3	3711.539	43.90	-6.18	37.72	74.00	-36.28	100	147	peak
4	4634.615	41.63	-4.43	37.20	74.00	-36.80	100	166	peak
5	5572.115	45.33	-2.66	42.67	74.00	-31.33	100	210	peak
6	7432.692	44.59	3.24	47.83	74.00	-26.17	100	187	Peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	1850.961	47.80	-11.47	36.33	74.00	-37.67	100	219	peak
2	2774.039	52.09	-8.19	43.90	74.00	-30.10	100	179	peak
3	3711.539	47.27	-6.18	41.09	74.00	-32.91	200	147	peak
4	4634.615	44.55	-4.43	40.12	74.00	-33.88	200	73	peak
5	5572.115	46.59	-2.66	43.93	74.00	-30.07	100	142	peak
6	7432.692	47.33	3.24	50.57	74.00	-23.43	100	132	peak

7.4. POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

** Decreases with the logarithm of the frequency.*

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1.The EUT was placed on a table, which is 0.8m above ground plane.

2.Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

3.Repeat above procedures until all frequency measured were complete.

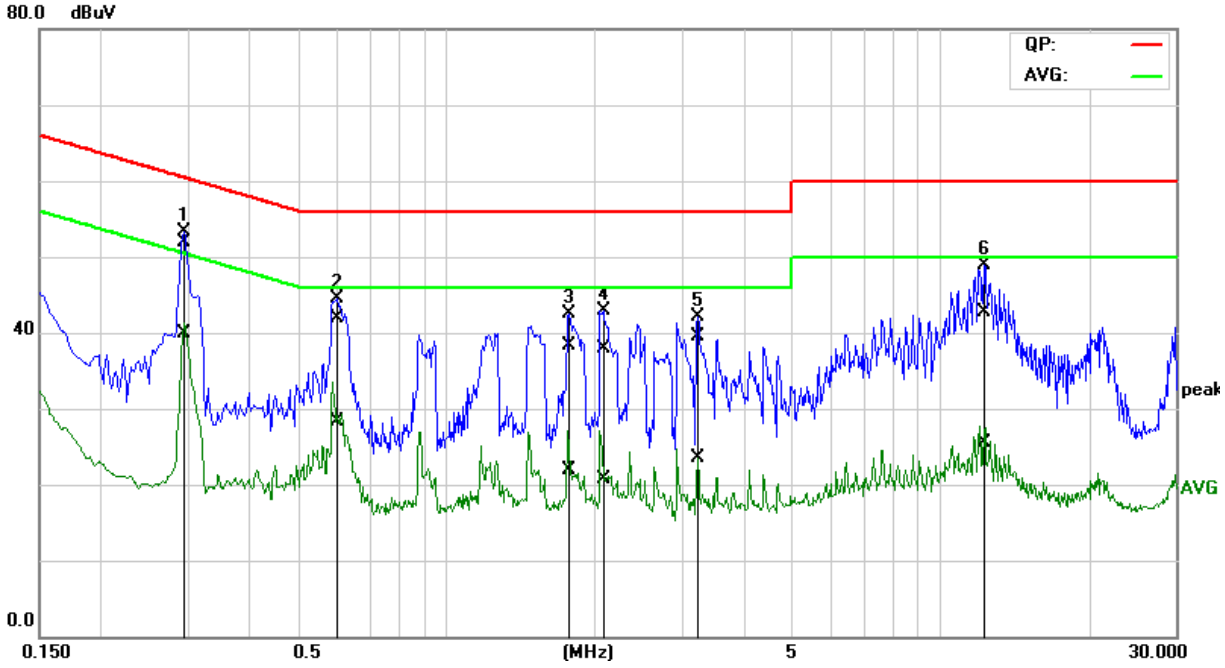
TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

TEST DATA

Job No.:	C170825R01	Date:	2017-9-7
Model:	Smart controller Cone V2	Time:	16:58:54
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L1	Test Voltage:	AC 120V/60Hz

L1

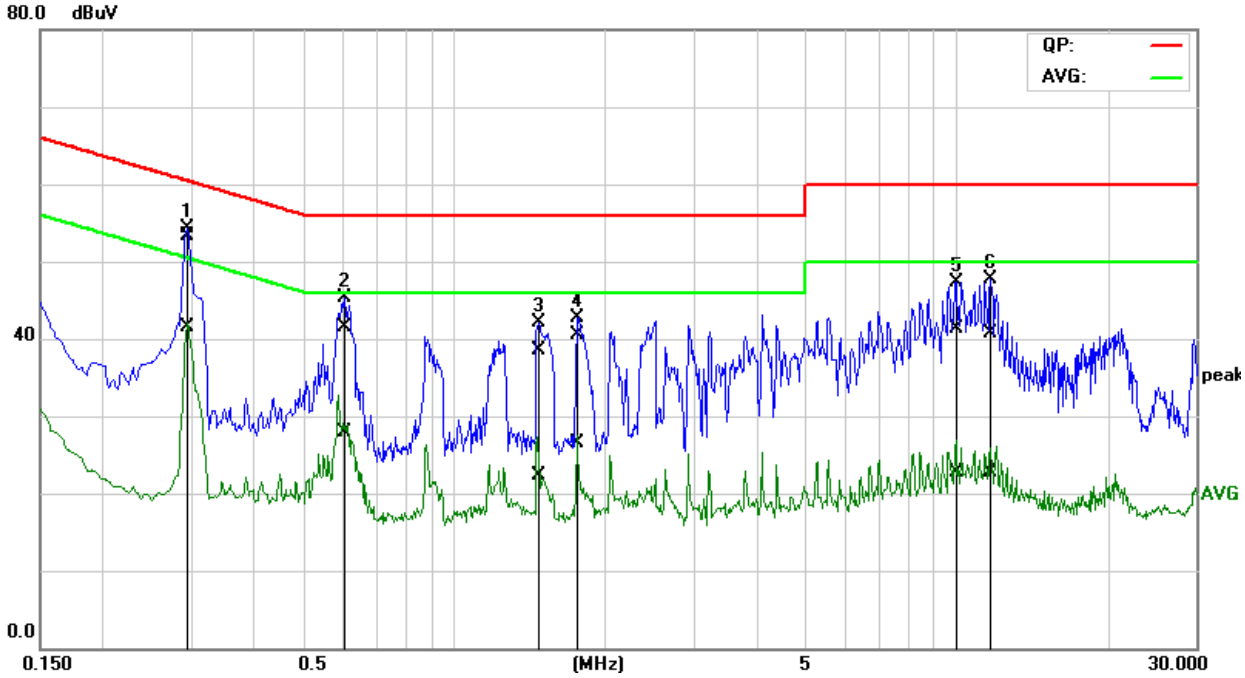


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.2920	31.32	19.31	20.51	51.83	39.82	60.47	50.47	-8.64	-10.65	Pass
2	0.5973	21.38	7.73	20.50	41.88	28.23	56.00	46.00	-14.12	-17.77	Pass
3	1.7763	17.78	1.40	20.46	38.24	21.86	56.00	46.00	-17.76	-24.14	Pass
4	2.0749	17.42	0.21	20.48	37.90	20.69	56.00	46.00	-18.10	-25.31	Pass
5	3.2222	19.00	3.02	20.53	39.53	23.55	56.00	46.00	-16.47	-22.45	Pass
6	12.3172	21.80	4.70	20.81	42.61	25.51	60.00	50.00	-17.39	-24.49	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170825R01	Date:	2017-9-7
Model:	Smart controller Cone V2	Time:	17:03:40
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L2	Test Voltage:	AC 120V/60Hz

L2

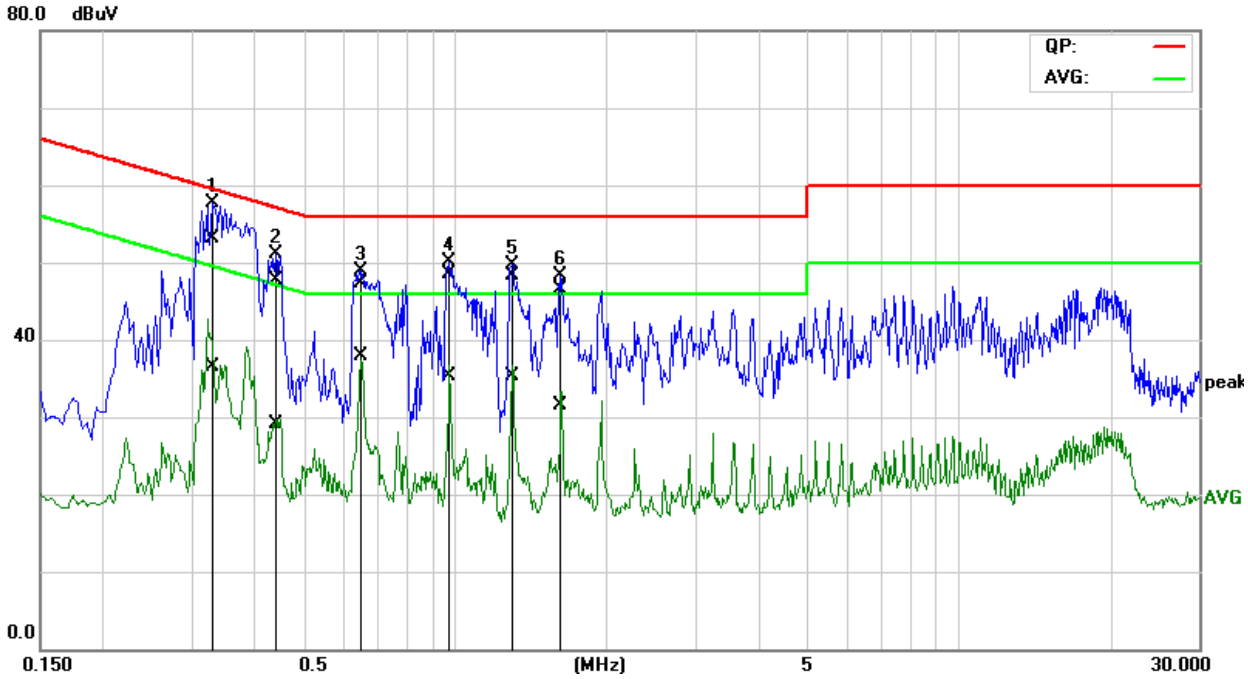


No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.2927	32.84	21.03	20.45	53.29	41.48	60.45	50.45	-7.16	-8.97	Pass
2	0.5975	21.03	7.47	20.46	41.49	27.93	56.00	46.00	-14.51	-18.07	Pass
3	1.4773	17.98	1.89	20.49	38.47	22.38	56.00	46.00	-17.53	-23.62	Pass
4	1.7542	19.91	5.90	20.51	40.42	26.41	56.00	46.00	-15.58	-19.59	Pass
5	9.9198	20.43	1.69	20.96	41.39	22.65	60.00	50.00	-18.61	-27.35	Pass
6	11.7316	19.72	1.82	20.90	40.62	22.72	60.00	50.00	-19.38	-27.28	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170825R01	Date:	2017-9-7
Model:	Smart controller Cone V2	Time:	17:11:33
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L1	Test Voltage:	AC 240V/60Hz

L1

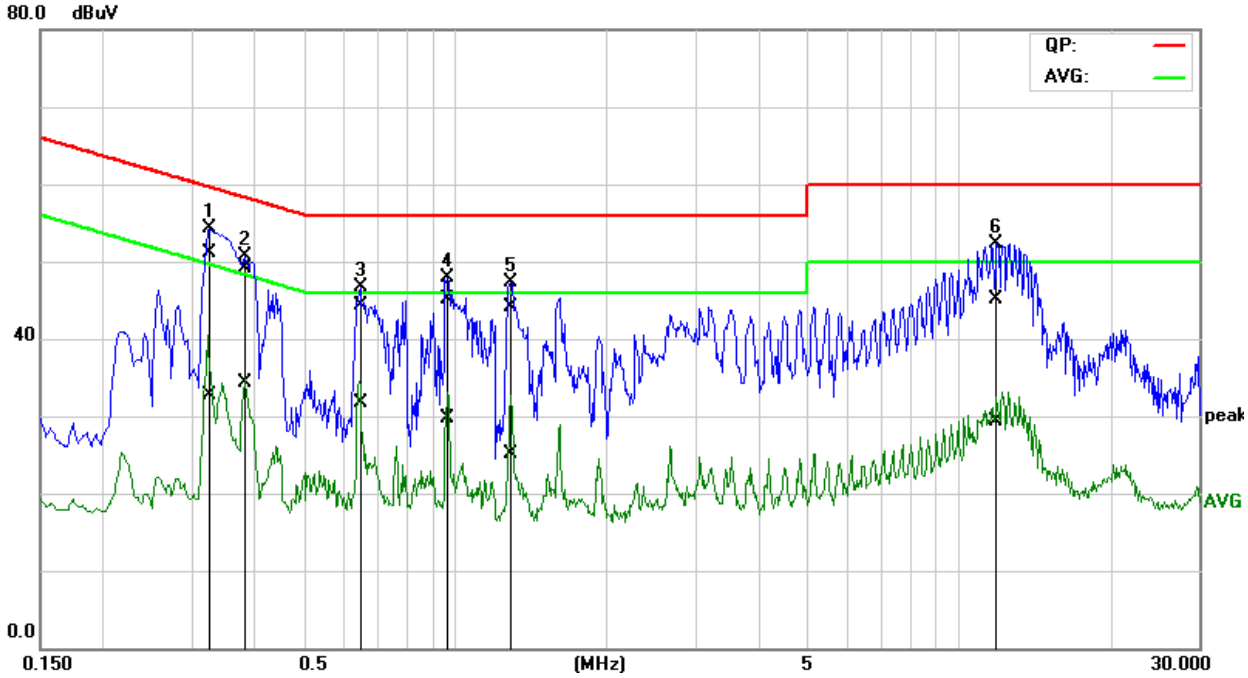


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.3290	32.61	15.91	20.57	53.18	36.48	59.48	49.48	-6.30	-13.00	Pass
2	0.4412	27.18	8.54	20.50	47.68	29.04	57.04	47.04	-9.36	-18.00	Pass
3	0.6451	26.85	17.46	20.50	47.35	37.96	56.00	46.00	-8.65	-8.04	Pass
4	0.9686	28.01	14.92	20.48	48.49	35.40	56.00	46.00	-7.51	-10.60	Pass
5	1.2918	27.82	14.93	20.44	48.26	35.37	56.00	46.00	-7.74	-10.63	Pass
6	1.6146	26.11	10.98	20.46	46.57	31.44	56.00	46.00	-9.43	-14.56	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

Job No.:	C170825R01	Date:	2017-9-7
Model:	Smart controller Cone V2	Time:	17:17:45
Standard:	FCC Class B	Temp.(C)/Hum.(%):	22(C)/48%
Test item:	Conduction test	Test By:	James.Yan
Line:	L2	Test Voltage:	AC 240V/60Hz

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.3249	30.60	12.21	20.46	51.06	32.67	59.58	49.58	-8.52	-16.91	Pass
2	0.3804	28.72	13.88	20.46	49.18	34.34	58.27	48.27	-9.09	-13.93	Pass
3	0.6501	23.77	11.30	20.46	44.23	31.76	56.00	46.00	-11.77	-14.24	Pass
4	0.9611	24.60	9.23	20.47	45.07	29.70	56.00	46.00	-10.93	-16.30	Pass
5	1.2718	23.71	4.60	20.47	44.18	25.07	56.00	46.00	-11.82	-20.93	Pass
6	11.9118	24.18	8.34	20.90	45.08	29.24	60.00	50.00	-14.92	-20.76	Pass

Note: 1. L1 = Line One (Live Line) / L2 = Line Two (Neutral Line).

END OF REPORT