



## FCC 47 CFR PART 15 SUBPART C

### CERTIFICATION TEST REPORT

*For*

**5G Smart Phone**

**MODEL NUMBER: S6702X**

**REPORT NUMBER: 4791041023-1-RF-5**

**ISSUE DATE: January 11, 2024**

**FCC ID:2ADINS6702X**

*Prepared for*

**PAX Technology Limited**

**Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong**

*Prepared by*

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

**Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China**

**Tel: +86 769 22038881**

**Fax: +86 769 33244054**

**Website: [www.ul.com](http://www.ul.com)**

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	January 1, 2024	Initial Issue	

Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	Transmitter 99% Emission Bandwidth / 20dB Bandwidth	Part 15.215 (c)	PASS
2	Transmitter Frequency Stability (Temperature & Voltage Variation)	CFR 47 FCC §15.225(e)	PASS
3	Fundamental Field Strength	CFR 47 FCC §5.225(a)(b)(c)(d)	PASS
4	Radiated Emissions	CFR 47 FCC §15.209(a) CFR 47 FCC §15.225(d)	PASS
5	Band Edge Radiated Emissions	CFR 47 FCC §15.209(a) CFR 47 FCC §15.225(c)(d)	PASS
6	Conducted Emission Test for AC Power Port	CFR 47 FCC §15.207	PASS
7	Antenna Requirement	CFR 47 FCC §15.203	Pass

Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China.  
 Note 2: The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART C > when <Accuracy Method> decision rule is applied.

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS .....</b>	<b>5</b>
<b>2. TEST METHODOLOGY .....</b>	<b>6</b>
<b>3. FACILITIES AND ACCREDITATION .....</b>	<b>6</b>
<b>4. CALIBRATION AND UNCERTAINTY .....</b>	<b>7</b>
4.1. <i>MEASURING INSTRUMENT CALIBRATION .....</i>	<i>7</i>
4.2. <i>MEASUREMENT UNCERTAINTY .....</i>	<i>7</i>
<b>5. EQUIPMENT UNDER TEST .....</b>	<b>8</b>
5.1. <i>DESCRIPTION OF EUT .....</i>	<i>8</i>
5.2. <i>MAXIMUM FIELD STRENGTH .....</i>	<i>8</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS .....</i>	<i>8</i>
5.4. <i>TEST ENVIRONMENT .....</i>	<i>9</i>
5.5. <i>DESCRIPTION OF TEST SETUP .....</i>	<i>10</i>
5.6. <i>MEASURING INSTRUMENT AND SOFTWARE USED .....</i>	<i>11</i>
<b>6. ANTENNA PORT TEST RESULTS .....</b>	<b>13</b>
6.1. <i>99% &amp; 20dB BANDWIDTH .....</i>	<i>13</i>
6.2. <i>TRANSMITTER FREQUENCY STABILITY .....</i>	<i>15</i>
<b>7. RADIATED EMISSION TEST RESULTS .....</b>	<b>17</b>
7.1. <i>FIELD STRENGTH OF INTENTIONAL EMISSIONS .....</i>	<i>22</i>
7.2. <i>SPURIOUS EMISSIONS BELOW 1GHz AND ABOVE 30MHz .....</i>	<i>23</i>
7.3. <i>SPURIOUS EMISSIONS BELOW 30MHz .....</i>	<i>25</i>
<b>8. AC POWER LINE CONDUCTED EMISSIONS .....</b>	<b>28</b>
<b>9. ANTENNA REQUIREMENTS .....</b>	<b>34</b>

## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Sun Cupid Technology (HK) Ltd.  
Address: 16/F, CEO Tower, 77 Wing Hong St, Cheung Sha Wan, Kowloon Hong Kong

### Manufacturer Information

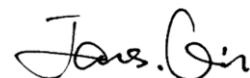
Company Name: Sun Cupid Technology (HK) Ltd.  
Address: 16/F, CEO Tower, 77 Wing Hong St, Cheung Sha Wan, Kowloon Hong Kong

### EUT Information

EUT Name: 5G Smart Phone  
Model: S6702X  
Series Model: B30 Pro, NUU B30 Pro  
Brand: NUU  
Sample Received Date: October 26, 2023  
Sample Status: Normal  
Sample ID: 6616020  
Date of Tested: October 26, 2023 to January 11, 2024

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

Prepared By:



James Qin  
Project Engineer

Checked By:



Denny Huang  
Senior Project Engineer

Approved By:



Stephen Guo  
Operations Manager

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013.

## 3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p><b>A2LA (Certificate No.: 4102.01)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b> 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</p> <p><b>ISED (Company No.: 21320)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202)</b> 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.</p> <p>Facility Name: Chamber D, the VCCI registration No. is G-20192 and R-20202 Shielding Room B, the VCCI registration No. is C-20153 and T-20155</p>
---------------------------	---

Note:

1. All tests measurement facilities used 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 recognize national standards.

### 4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiation Emission test (include Fundamental emission) (9KHz-30MHz)	2.2 dB
Radiation Emission test (include Fundamental emission) (30MHz-1GHz)	4.00 dB
Radiation Emission test (1GHz to 26GHz) (include Fundamental emission)	5.78 dB (1 GHz-18 GHz) 5.23 dB (18 GHz-26 GHz)
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:	5G Smart Phone
Model:	S6702X
Series Model:	B30 Pro, NUU B30 Pro
Model Difference:	B30 Pro, NUU B30 Pro have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with S6702X. The difference lies only the model number. all these changes do not degrade the unwanted emissions of the certified product.
Operation Frequency:	13.56MHz
Modulation:	ASK
Rated Input:	DC 5 V, 2 A
Battery:	3.87V/5000mAh

### 5.2. MAXIMUM FIELD STRENGTH

Frequency (MHz)	Max Peak field strength (dB $\mu$ V/m)
13.56	1.64

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
13.56	Loop antenna	0

#### 5.4. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage:	VL	DC 3.29 V
	VN	DC 3.87 V
	VH	DC 4.45 V

Note: VL= Lower Extreme Test Voltage

VL= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	E14	/

### I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	Type C	/	1.0	/

### ACCESSORIES

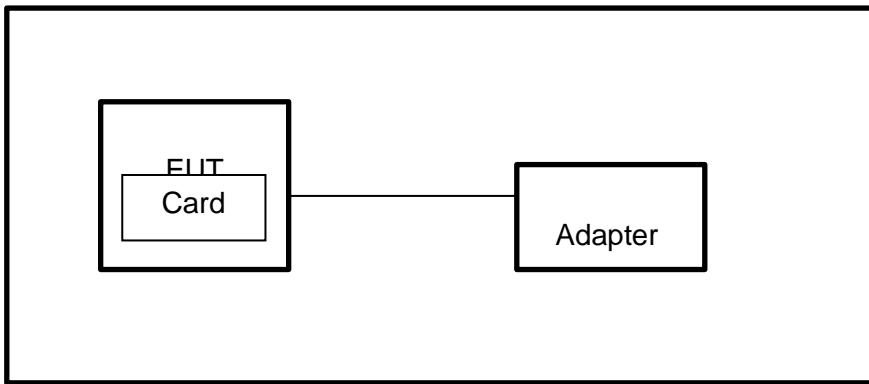
Item	Accessory	Brand Name	Model Name	Description
1	Adapter	/	HW-059200BHQ	Input Voltage: 100-240V ~50/60Hz, 0.5A Output Voltage: 5Vdc, 2A

### TEST SETUP

The EUT can transmit the NFC signal through Swiping card (NFC)

NFC support both ISO /IEC 14443A and ISO /IEC 14443B. All lowest and highest data rates as per the standards are supported - 106 kbps, 212 kbps, 424 kbps and 848 kbps, all the modes had been tested, but only the worst data (ISO 14443A 106 kbps) was recorded in the report.

### SETUP DIAGRAM FOR TESTS



Note: Test was performed with tag and without tag, but only the worst-case data (with tag) was recorded in the report.

## 5.6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR3	101961	Oct.13, 2023	Oct.12, 2024
Two-Line V-Network	R&S	ENV216	101983	Oct.13, 2023	Oct.12, 2024
Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Oct.13, 2023	Oct.12, 2024
Software					
Description		Manufacturer		Name	Version
Test Software for Conducted Emissions		Farad		EZ-EMC	Ver. UL-3A1

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Mar.31,2023	Mar.30,2024
Vector Signal Generator	R&S	SMBV100A	261637	Oct.12, 2023	Oct.11, 2024
Signal Generator	R&S	SMB100A	178553	Oct.12, 2023	Oct.11, 2024
Signal Analyzer	R&S	FSV40	101118	Oct.12, 2023	Oct.11, 2024
Software					
Description		Manufacturer		Name	Version
For R&S TS 8997 Test System		Rohde & Schwarz		EMC 32	10.60.10

Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wideband Radio Communication Tester	R&S	CMW500	155523	Oct.12, 2023	Oct.11, 2024
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.25, 2023	Sep.24, 2024
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Oct.12, 2023	Oct.11, 2024
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Oct.12, 2023	Oct.11, 2024
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Oct.12, 2023	Oct.11, 2024
DC power supply	Keysight	E3642A	MY55159130	Oct.12, 2023	Oct.11, 2024
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Oct.12, 2023	Oct.11, 2024
Attenuator	Aglient	8495B	2814a12853	Oct.12, 2023	Oct.11, 2024

RF Control Unit	Tonscend	JS0806-2	23B80620666	April 18, 2023	April 17, 2024
Software					
Description		Manufacturer	Name		Version
Tonsend SRD Test System		Tonsend	JS1120-3 RF Test System		V3.2.22

<b>Radiated Emissions</b>					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.12, 2023	Oct.11, 2024
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.12, 2023	Oct.11, 2024
EMI Measurement Receiver	R&S	ESR26	101377	Oct.12, 2023	Oct.11, 2024
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.12, 2023	Oct.11, 2024
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.12, 2023	Oct.11, 2024
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.12, 2023	Oct.11, 2024
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.12, 2023	Oct.11, 2024
Software					
Description		Manufacturer	Name		Version
Test Software for Radiated Emissions		Farad	EZ-EMC		Ver. UL-3A1

## 6. ANTENNA PORT TEST RESULTS

### 6.1. 99% & 20dB BANDWIDTH

#### LIMITS

Section	Test Item	Limit
ANSI C63.10 Section 6.9.2	20dB% Bandwidth	For reporting purposes only.
ISED RSS-Gen Clause 6.7 Issue 5	99 % Occupied Bandwidth	For reporting purposes only.

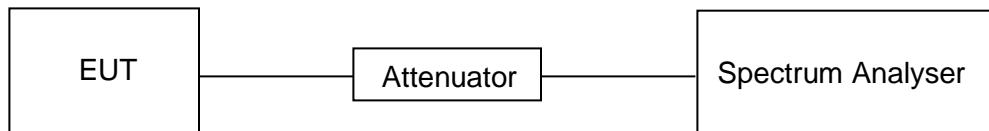
#### TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1 kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

Note: Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

The type of band for the signal is narrowband.

#### TEST SETUP

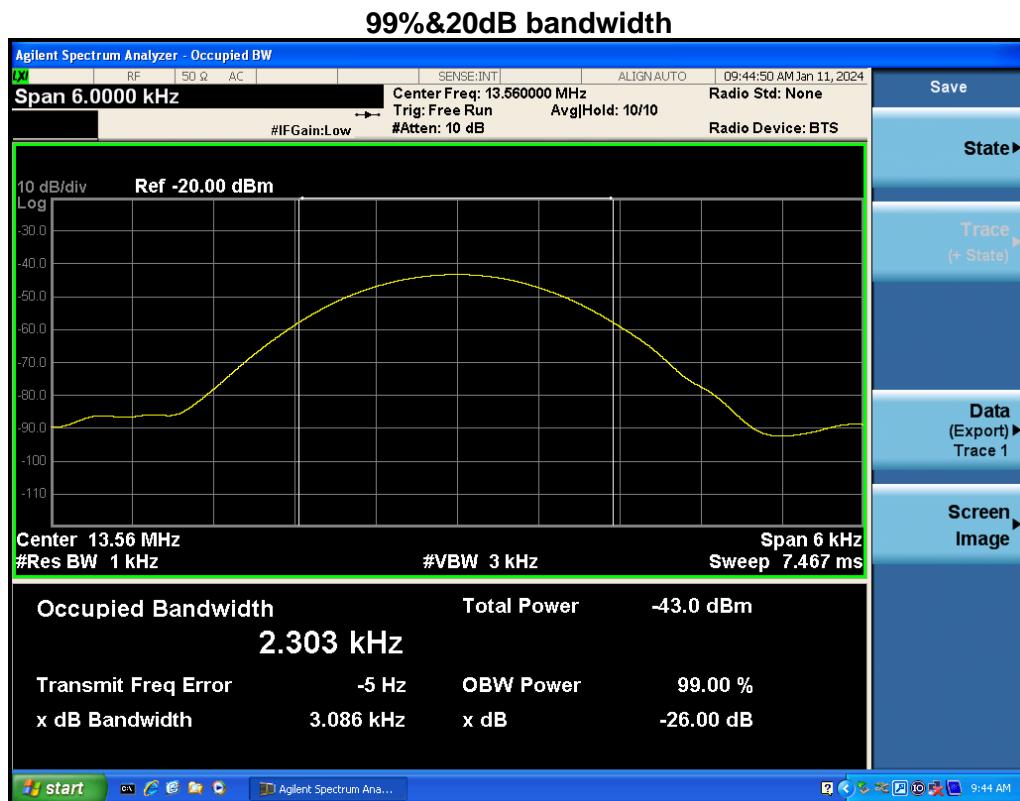


#### TEST ENVIRONMENT

Temperature	22.5°C	Relative Humidity	48%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.87 V

## RESULTS

Frequency (MHz)	99% Occupied Bandwidth (kHz)	20dB bandwidth (kHz)
13.56	2.303	3.086



## 6.2. TRANSMITTER FREQUENCY STABILITY

### LIMITS

CFR 47 FCC §15.225(e)

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of -20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

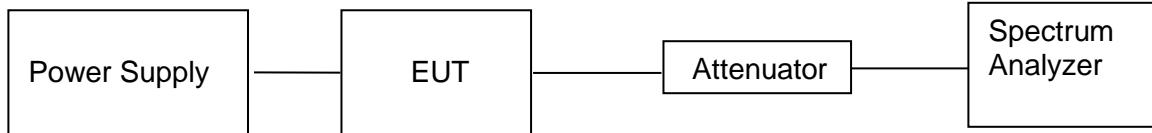
### TEST SETUP AND PROCEDURE

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

Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	10KHz
VBW	$\geq 3 \times$ RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculate the frequency drift.

### TEST SETUP



## TEST RESULTS

Maximum frequency error of the EUT with variations in ambient temperature

Temperature (°C)	Time after Start-up			
	0 minutes	2 minutes	5 minutes	10 minutes
0	13.5602	13.5603	13.5603	13.5602
10	13.5604	13.5605	13.5605	13.5603
20	13.5605	13.5606	13.5607	13.5601
30	13.5611	13.5604	13.5604	13.5602
35	13.5603	13.5612	13.5613	13.5605
Maximum frequency error	0.0081%	0.0088%	0.0096%	0.0037%
Limit	0.01%			
Result	Pass	Pass	Pass	Pass

Maximum frequency error of the EUT with variations in nominal operating voltage at an ambient 20 degrees C temperature.

Supply Voltage (V)	Time after Start-up			
	0 minutes	2 minutes	5 minutes	10 minutes
AC 108 V	13.5603	13.5605	13.5607	13.5612
AC 120 V	13.5602	13.5602	13.5608	13.5610
AC 132 V	13.5604	13.5604	13.5610	13.5611
Maximum frequency error	0.0029%	0.0037%	0.0074%	0.0088%
Limit	0.01%			
Result	Pass	Pass	Pass	Pass

## 7. RADIATED EMISSION TEST RESULTS

### LIMITS

Fundamental field strength

FCC Reference:	Part 15.225(a)(b)(c)(d) & 15.209(a)		
Test Method Used:	ANSI C63.10 Sections 6.3, 6.4 and 6.5		

Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measured Distance (Meters)
13.553-13.567	15848	84	30
13.410-13.553/13.567-13.710	334	50.47	30
13.110-13.410/13.710-14.010	106	40.51	30

Note(s):

1. The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.
2. The limit is specified at a test distance of 30 meters. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).

## 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 30MHz.

## Restricted bands of operation

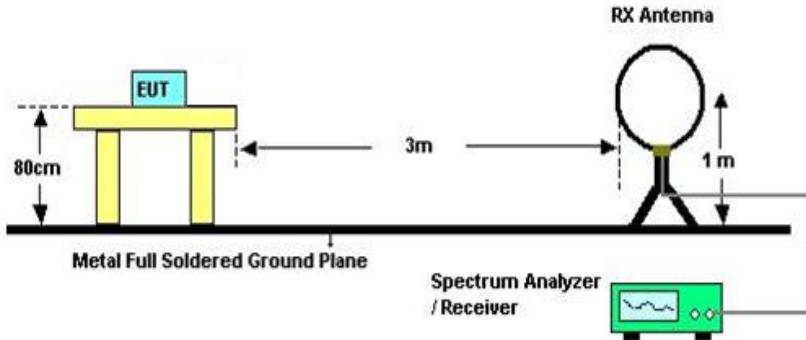
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
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	2690-2900	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	<sup>(2)</sup>
13.36-13.41			

Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6c

## TEST SETUP AND PROCEDURE

Below 30MHz

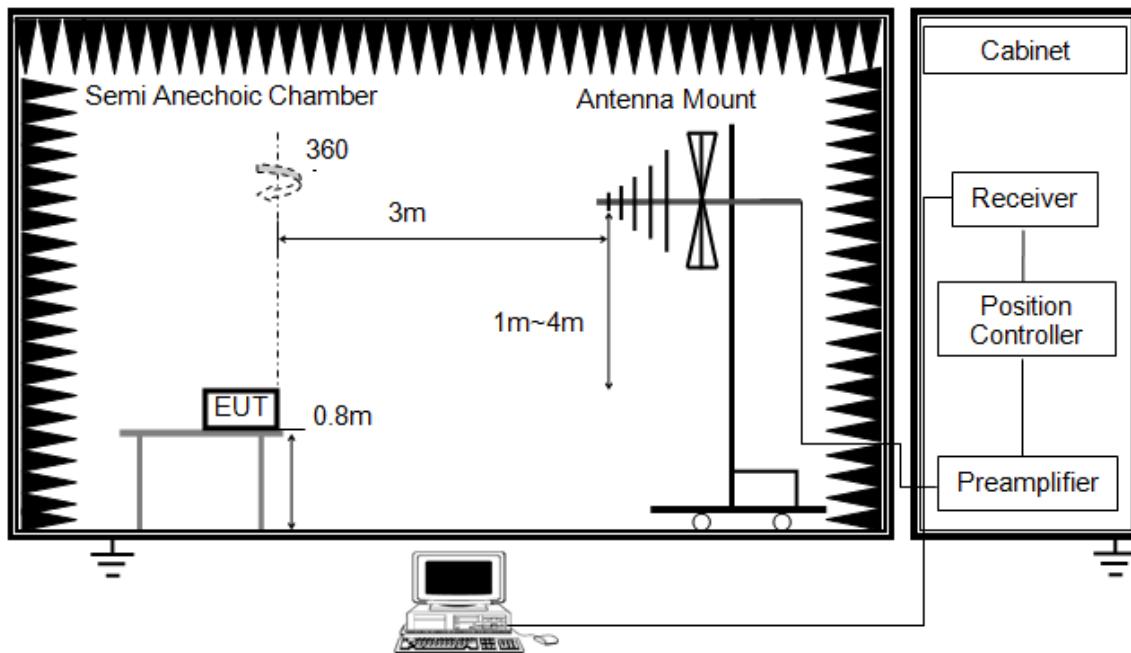


The setting of the spectrum analyser

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
Detector	Peak/QP/ Average
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 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. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
6. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
7. 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 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
8. Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open field site. Therefore, the 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

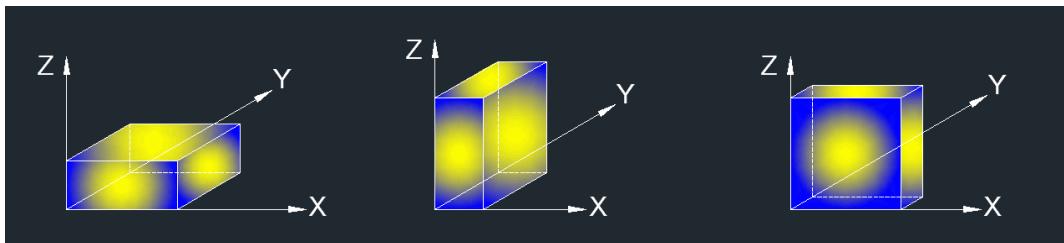


The setting of the spectrum analyser

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 80cm above ground.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
7. 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.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

#### TEST ENVIRONMENT

Temperature	22.4 °C	Relative Humidity	49 %
Atmosphere Pressure	101kPa	Test Voltage	DC 3.87 V

#### RESULTS

## 7.1. FIELD STRENGTH OF INTENTIONAL EMISSIONS

### FIELD STRENGTH OF INTENTIONAL EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT)



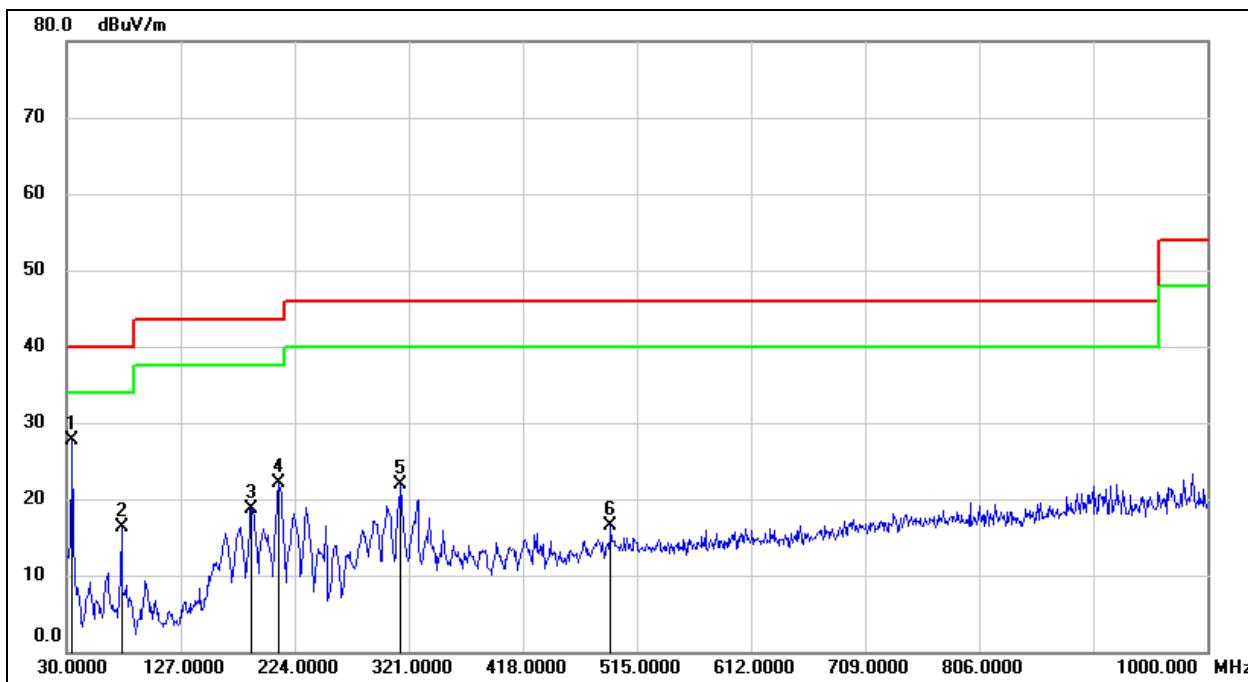
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13.5600	49.04	-47.43	1.61	84.00	-82.39	peak

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

2. 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.

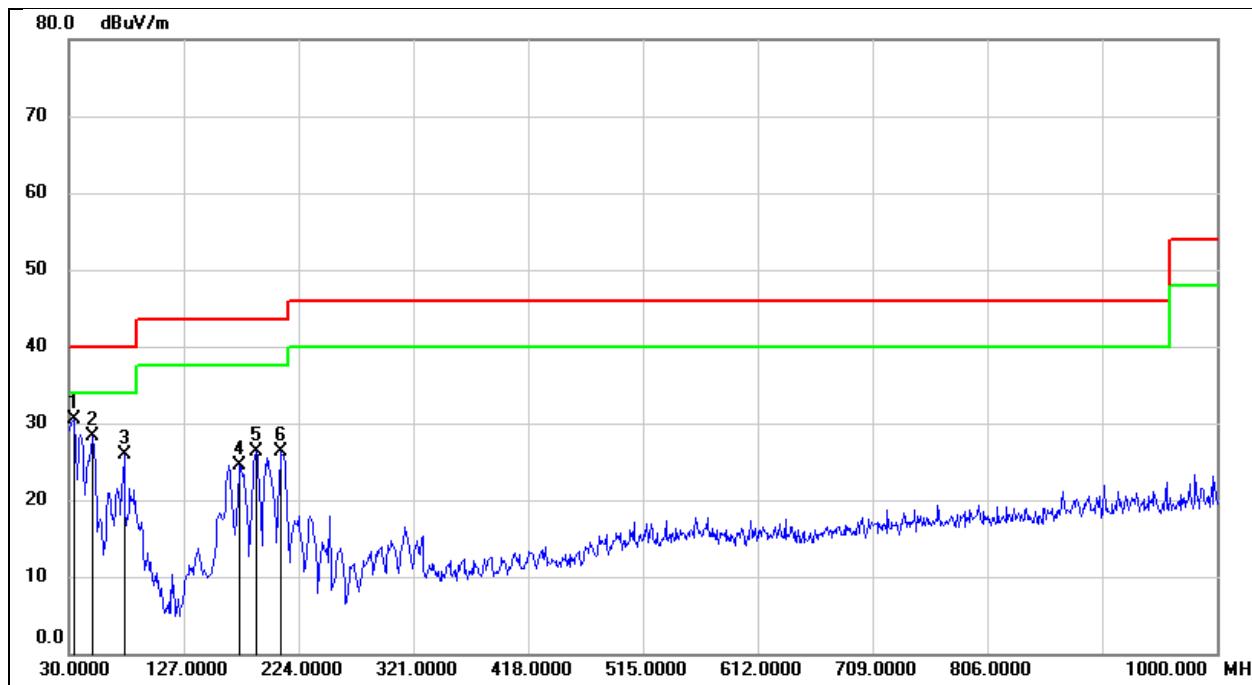
## 7.2. SPURIOUS EMISSIONS BELOW 1GHz AND ABOVE 30MHz

### SPURIOUS EMISSIONS (HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.8500	46.25	-18.53	27.72	40.00	-12.28	QP
2	76.5600	37.02	-20.76	16.26	40.00	-23.74	QP
3	187.1400	34.74	-16.01	18.73	43.50	-24.77	QP
4	210.4200	38.37	-16.32	22.05	43.50	-21.45	QP
5	314.2100	36.11	-14.15	21.96	46.00	-24.04	QP
6	492.6900	26.97	-10.52	16.45	46.00	-29.55	QP

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

**HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)**


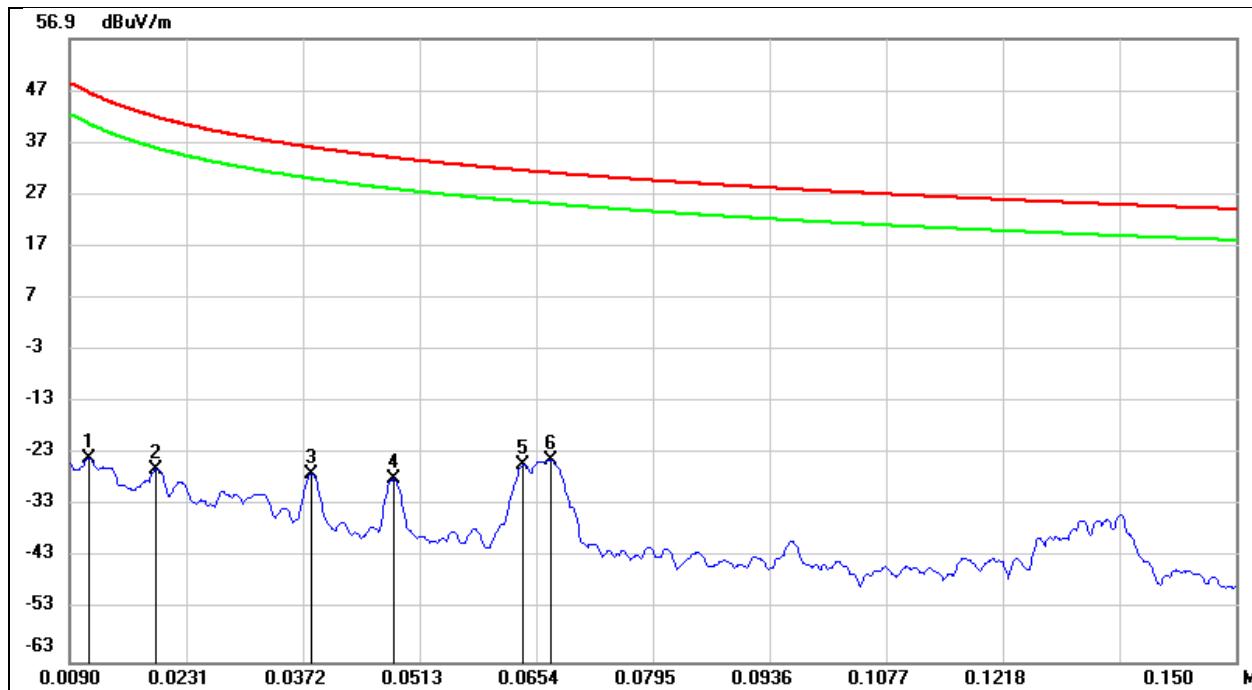
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.8800	48.92	-18.37	30.55	40.00	-9.45	QP
2	49.4000	48.25	-20.04	28.21	40.00	-11.79	QP
3	76.5600	46.67	-20.76	25.91	40.00	-14.09	QP
4	174.5300	40.58	-16.11	24.47	43.50	-19.03	QP
5	188.1100	42.26	-16.03	26.23	43.50	-17.27	QP
6	209.4500	42.67	-16.28	26.39	43.50	-17.11	QP

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

### 7.3. SPURIOUS EMISSIONS BELOW 30MHz

#### SPURIOUS EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT)

9 kHz~ 150 kHz

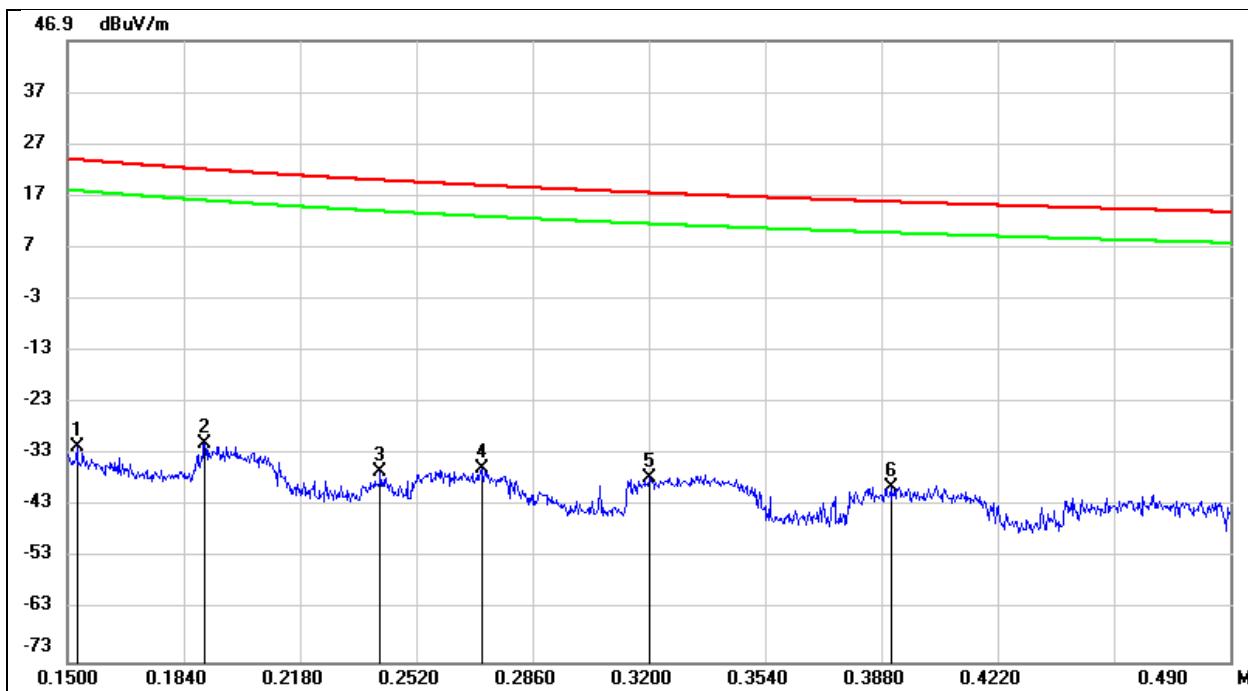


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0113	63.95	-87.87	-23.92	46.54	-70.46	QP
2	0.0194	61.79	-87.72	-25.93	41.84	-67.77	QP
3	0.0382	61.52	-88.38	-26.86	35.96	-62.82	QP
4	0.0481	60.63	-88.56	-27.93	33.96	-61.89	QP
5	0.0638	63.16	-88.32	-25.16	31.51	-56.67	QP
6	0.0670	64.07	-88.26	-24.19	31.08	-55.27	QP

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.

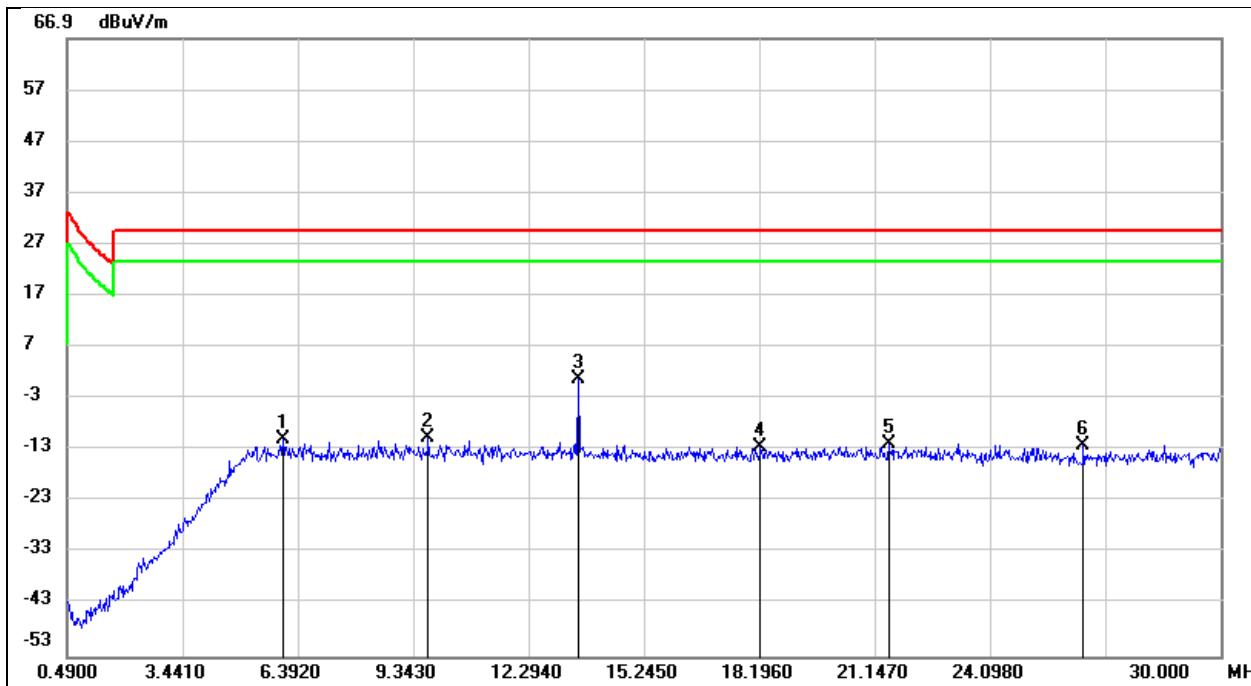
150 kHz ~ 490 kHz


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1527	57.47	-89.10	-31.63	23.93	-55.56	QP
2	0.1901	58.13	-89.06	-30.93	22.03	-52.96	QP
3	0.2415	52.80	-89.01	-36.21	19.94	-56.15	QP
4	0.2710	53.34	-88.99	-35.65	18.94	-54.59	QP
5	0.3203	51.32	-88.97	-37.65	17.49	-55.14	QP
6	0.3907	49.62	-88.94	-39.32	15.76	-55.08	QP

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 (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6.0083	37.29	-48.38	-11.09	29.54	-40.63	QP
2	9.7265	36.76	-47.47	-10.71	29.54	-40.25	QP
3	13.5629	48.09	-47.43	0.66	/	/	Note4
4	18.2255	34.73	-47.03	-12.30	29.54	-41.84	QP
5	21.5011	34.95	-46.75	-11.80	29.54	-41.34	QP
6	26.4882	34.29	-46.55	-12.26	29.54	-41.80	QP

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.
4. About the Fundamental emission test result please refer to section 7.1.

## 8. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

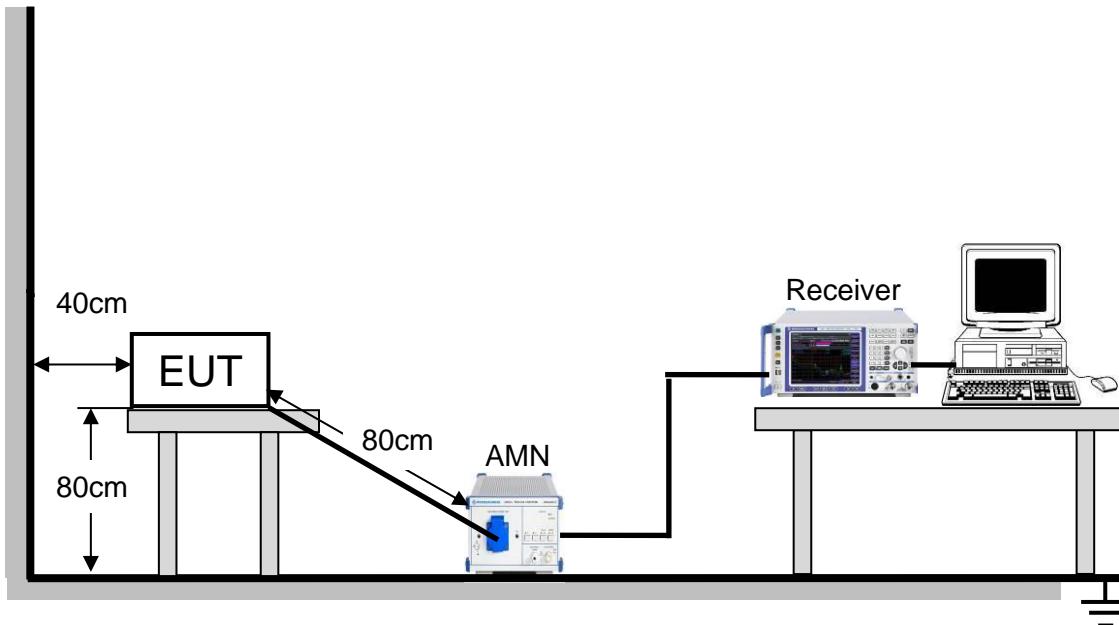
Please refer to CFR 47 FCC §15.207 (a).

FREQUENCY (MHz)	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

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

## TEST SETUP AND PROCEDURE



The following table is the setting of the receiver

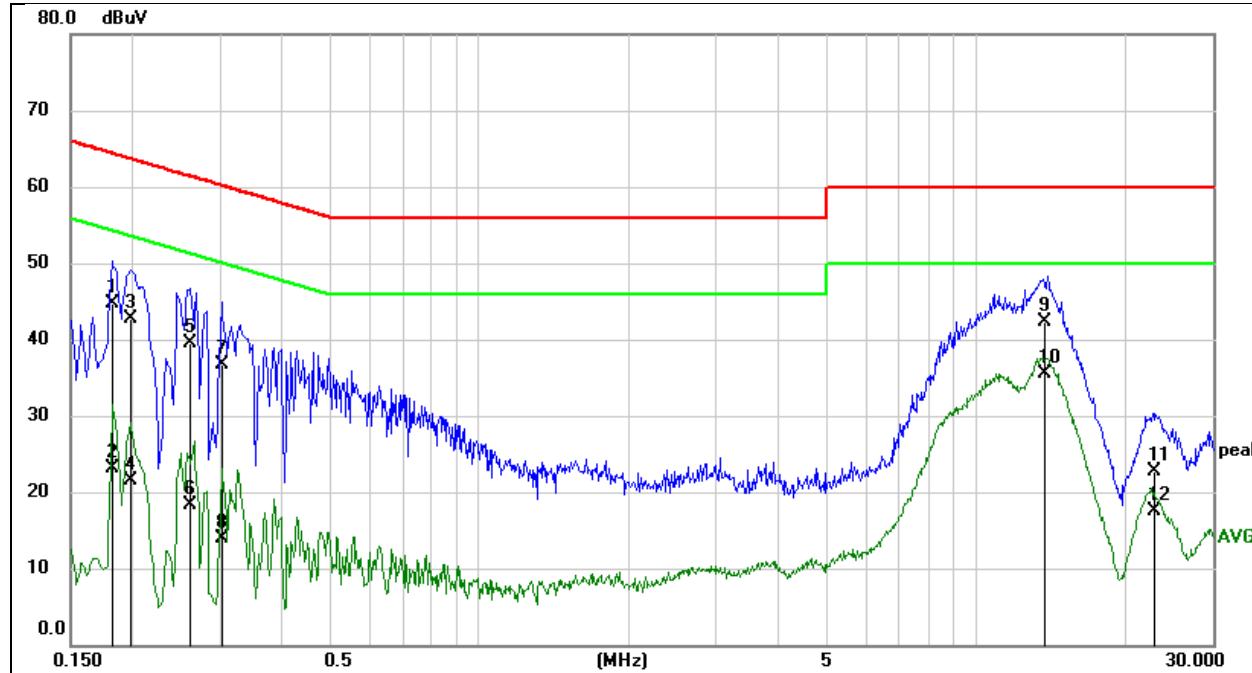
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was placed on the top of a rotating table 0.8 meters above the horizontal ground plane and being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 ohm/50uH of coupling impedance for the measuring instrument.
3. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
4. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
5. LISN at least 80 cm from nearest part of EUT chassis.
6. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.
7. 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 ENVIRONMENT

Temperature	22.1°C	Relative Humidity	52%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V_60Hz

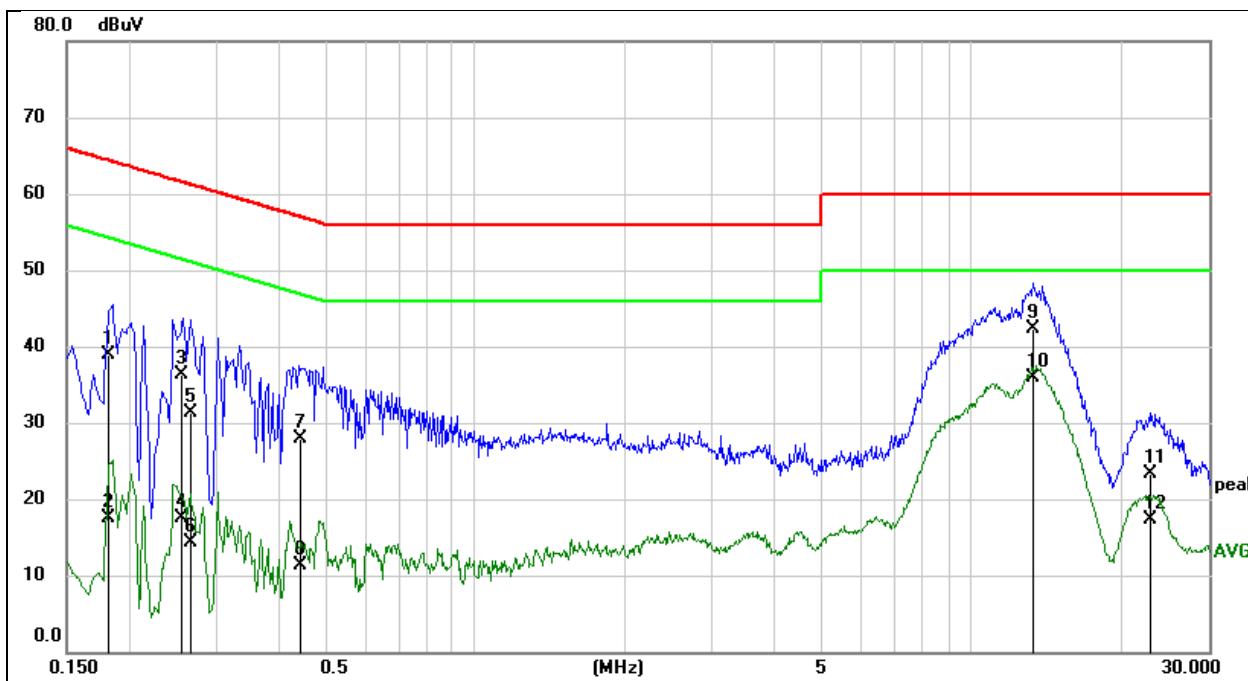
### LINE N RESULTS with modified sample (transmitter terminated into a dummy load)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1821	35.05	9.59	44.64	64.39	-19.75	QP
2	0.1821	13.45	9.59	23.04	54.39	-31.35	AVG
3	0.1966	33.18	9.59	42.77	63.75	-20.98	QP
4	0.1966	11.97	9.59	21.56	53.75	-32.19	AVG
5	0.2602	29.99	9.59	39.58	61.43	-21.85	QP
6	0.2602	8.65	9.59	18.24	51.43	-33.19	AVG
7	0.3005	27.18	9.59	36.77	60.23	-23.46	QP
8	0.3005	4.22	9.59	13.81	50.23	-36.42	AVG
9	13.8597	32.47	9.76	42.23	60.00	-17.77	QP
10	13.8597	25.84	9.76	35.60	50.00	-14.40	AVG
11	22.9623	12.89	9.80	22.69	60.00	-37.31	QP
12	22.9623	7.65	9.80	17.45	50.00	-32.55	AVG

Note: 1. Result = Reading +Correct Factor.

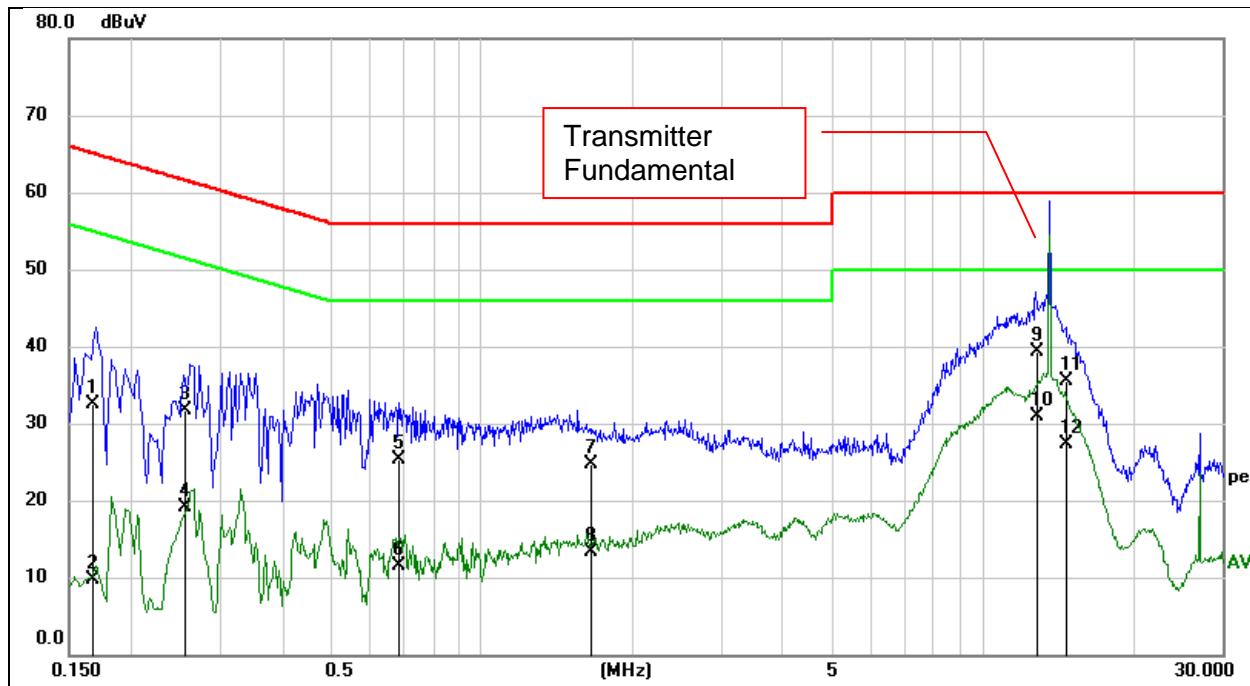
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

**LINE L RESULTS with modified sample (transmitter terminated into a dummy load)**


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1810	29.36	9.55	38.91	64.44	-25.53	QP
2	0.1810	7.98	9.55	17.53	54.44	-36.91	AVG
3	0.2543	26.74	9.57	36.31	61.62	-25.31	QP
4	0.2543	7.86	9.57	17.43	51.62	-34.19	AVG
5	0.2662	21.69	9.57	31.26	61.24	-29.98	QP
6	0.2662	4.76	9.57	14.33	51.24	-36.91	AVG
7	0.4421	18.34	9.52	27.86	57.02	-29.16	QP
8	0.4421	1.82	9.52	11.34	47.02	-35.68	AVG
9	13.3330	32.56	9.66	42.22	60.00	-17.78	QP
10	13.3330	26.34	9.66	36.00	50.00	-14.00	AVG
11	22.8466	13.56	9.73	23.29	60.00	-36.71	QP
12	22.8466	7.67	9.73	17.40	50.00	-32.60	AVG

Note: 1. Result = Reading +Correct Factor.

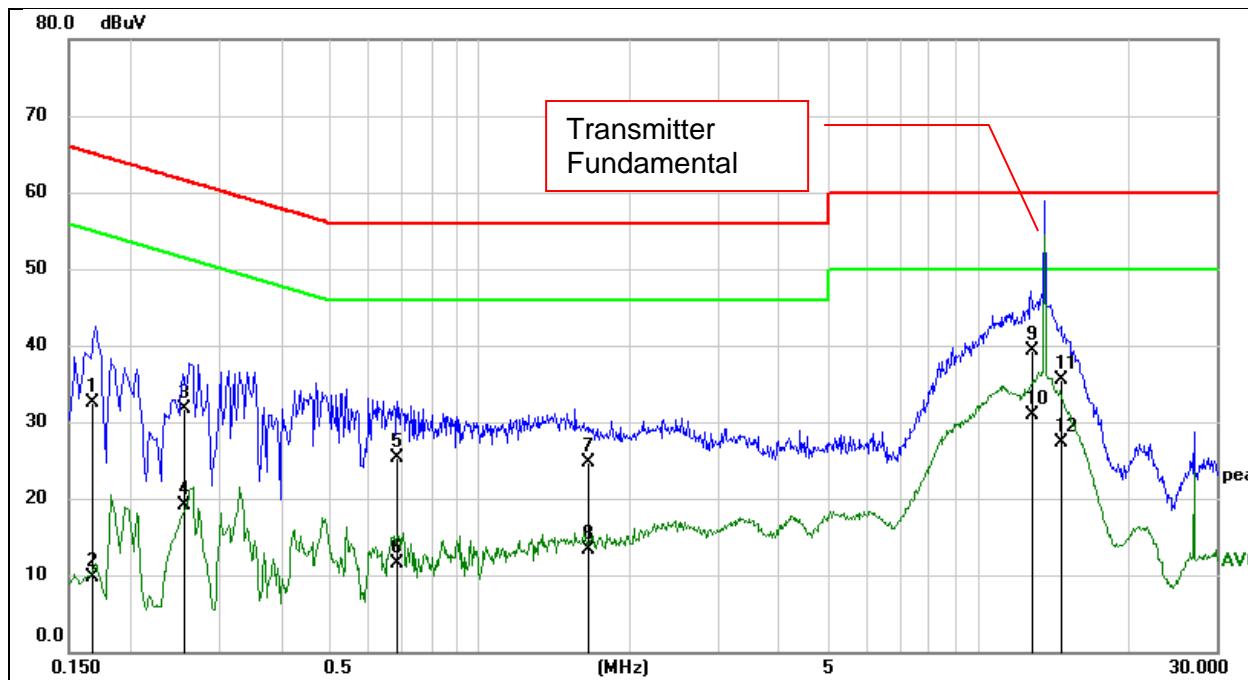
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

LINE N RESULTS with unmodified sample (antenna present)


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1663	22.97	9.52	32.49	65.14	-32.65	QP
2	0.1663	0.15	9.52	9.67	55.14	-45.47	AVG
3	0.2578	22.11	9.57	31.68	61.50	-29.82	QP
4	0.2578	9.62	9.57	19.19	51.50	-32.31	AVG
5	0.6846	15.83	9.50	25.33	56.00	-30.67	QP
6	0.6846	1.95	9.50	11.45	46.00	-34.55	AVG
7	1.6553	15.06	9.59	24.65	56.00	-31.35	QP
8	1.6553	3.72	9.59	13.31	46.00	-32.69	AVG
9	12.8176	29.67	9.66	39.33	60.00	-20.67	QP
10	12.8176	21.27	9.66	30.93	50.00	-19.07	AVG
11	14.6428	25.82	9.66	35.48	60.00	-24.52	QP
12	14.6428	17.73	9.66	27.39	50.00	-22.61	AVG

Note: 1. Result = Reading +Correct Factor.

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

**LINE L RESULTS with unmodified sample (antenna present)**


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1663	22.97	9.52	32.49	65.14	-32.65	QP
2	0.1663	0.15	9.52	9.67	55.14	-45.47	AVG
3	0.2578	22.11	9.57	31.68	61.50	-29.82	QP
4	0.2578	9.62	9.57	19.19	51.50	-32.31	AVG
5	0.6846	15.83	9.50	25.33	56.00	-30.67	QP
6	0.6846	1.95	9.50	11.45	46.00	-34.55	AVG
7	1.6553	15.06	9.59	24.65	56.00	-31.35	QP
8	1.6553	3.72	9.59	13.31	46.00	-32.69	AVG
9	12.8176	29.67	9.66	39.33	60.00	-20.67	QP
10	12.8176	21.27	9.66	30.93	50.00	-19.07	AVG
11	14.6428	25.82	9.66	35.48	60.00	-24.52	QP
12	14.6428	17.73	9.66	27.39	50.00	-22.61	AVG

Note: 1. Result = Reading +Correct Factor.

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

## 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.

### RESULTS

Complies

---

**END OF REPORT**