



**CFR 47 FCC PART 15 SUBPART C  
ISED RSS-310 Issue 4**

**CERTIFICATION TEST REPORT**

*For*

**TOY Transmitter**

**MODEL NUMBER: GF21HH1RR**

**FCC ID: G6DGF21HH1RR**

**REPORT NUMBER: 4788949778.1-2**

**ISSUE DATE: May 16, 2019**

*Prepared for*

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	05/16/2019	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	20dB Bandwidth & 99% Occupied Bandwidth	CFR 47 FCC 15.215 (c) RSS-Gen Clause 6.7	PASS
2	Radiated emission	CFR 47 FCC 15.235 (a) and (b)/ 15.205/15.209 ISED RSS-310 Issue 4 Clause 3.9 RSS-GEN Clause 7.3 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	PASS
3	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 8.3	Pass



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# 1. ATTESTATION OF TEST RESULTS

## Applicant Information

Company Name: NEW BRIGHT INDUSTRIAL CO., LTD  
Address: 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,  
KOWLOON BAY, KOWLOON, HONG KONG.

## Manufacturer Information

Company Name: NEW BRIGHT INDUSTRIAL CO., LTD  
Address: 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,  
KOWLOON BAY, KOWLOON, HONG KONG.

## EUT Description

EUT Name: TOY Transmitter  
Model: GF21HH1RR  
Brand Name: /  
Sample Status: Normal  
Date of Tested: April 25, 2019 ~ May 15, 2019

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C	PASS
ISED RSS-310 Issue 4	PASS
ISED RSS-GEN Issue 5	PASS

Prepared By:

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB414788 D01 Radiated Test Site v01r01, ISED RSS-310 Issue 4 and ISED RSS-GEN Issue 5.

## 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>IC(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.</p> <p><b>VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)</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. 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</p>
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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 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	3.62dB
Radiation Emission test(include Fundamental emission) (9kHz-30MHz)	2.2dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Radiation Emission test (1GHz to 26GHz)( include Fundamental emission)	5.78dB (1GHz-18Gz)
	5.23dB (18GHz-26Gz)
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	TOY Transmitter
EUT Description	The EUT is controller.
Model	GF21HH1RR
Model Difference	/
Operation Frequency	49.86MHz
Modulation Type	AM
Battery	DC 3.0V

### 5.2. TEST CHANNEL CONFIGURATION

Test Mode	Frequency
AM	49.86MHz

### 5.3. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage :	VL	/
	VN	DC 3.0V
	VH	/

Note: VL= Lower Extreme Test Voltage  
VN= Nominal Voltage, DC 3V via Battery  
VH= Upper Extreme Test Voltage  
TN= Normal Temperature





#### 5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
49.86MHz	Wire antenna	2.5

#### 5.5. WORST-CASE CONFIGURATIONS

Mode
AM



## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	/	/	/	/

### I/O CABLES

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

### ACCESSORY

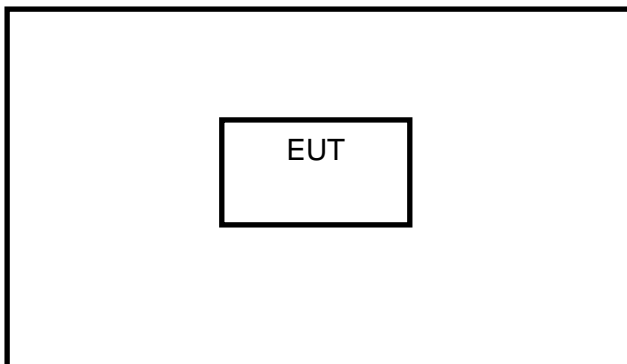
Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

### TEST SETUP

A fully charged battery was used for all tests.

The test sample can be into a transmission mode through the power on.

### SETUP DIAGRAM FOR TEST





### 5.7. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17,2018	Sep.17,2021
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A09099	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Sep.17,2018	Sep.17,2021
<input checked="" type="checkbox"/>	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.18,2018	Aug.18,2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance	Farad	EZ-EMC	Ver. UL-3A1		
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9020A	MY49100060	Dec.10,2018	Dec.10,2019

## 6. ANTENNA PORT TEST RESULTS

### 6.1. ON TIME AND DUTY CYCLE

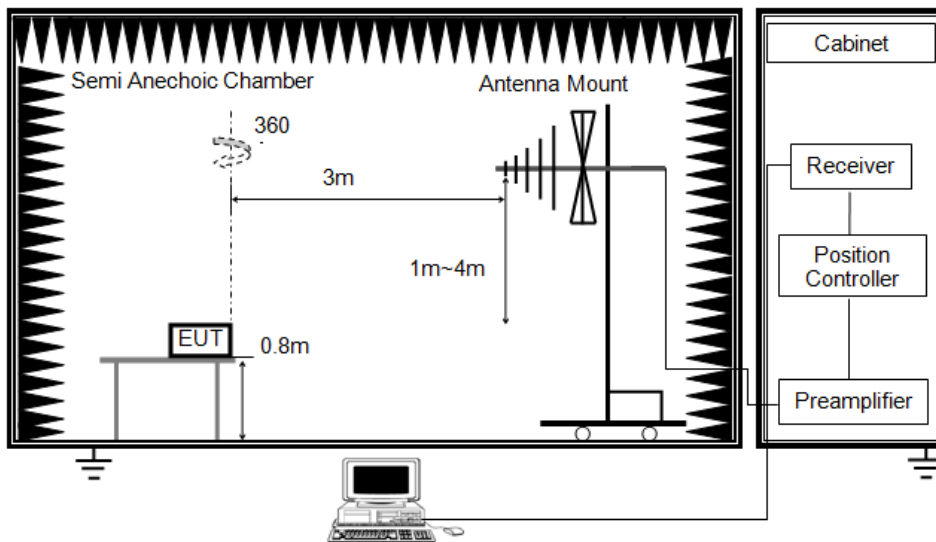
#### LIMITS

None; for reporting purposes only

#### PROCEDURE

FCC Reference:	CFR 47 Part 15.35(c)
Test Method Used:	ANSI C63.10 Section 7.5

#### TEST SETUP



- Set RBW of spectrum analyzer to 100KHz and VBW to 300KHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is at least a 100 ms.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.

#### TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	66%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V



**RESULTS**

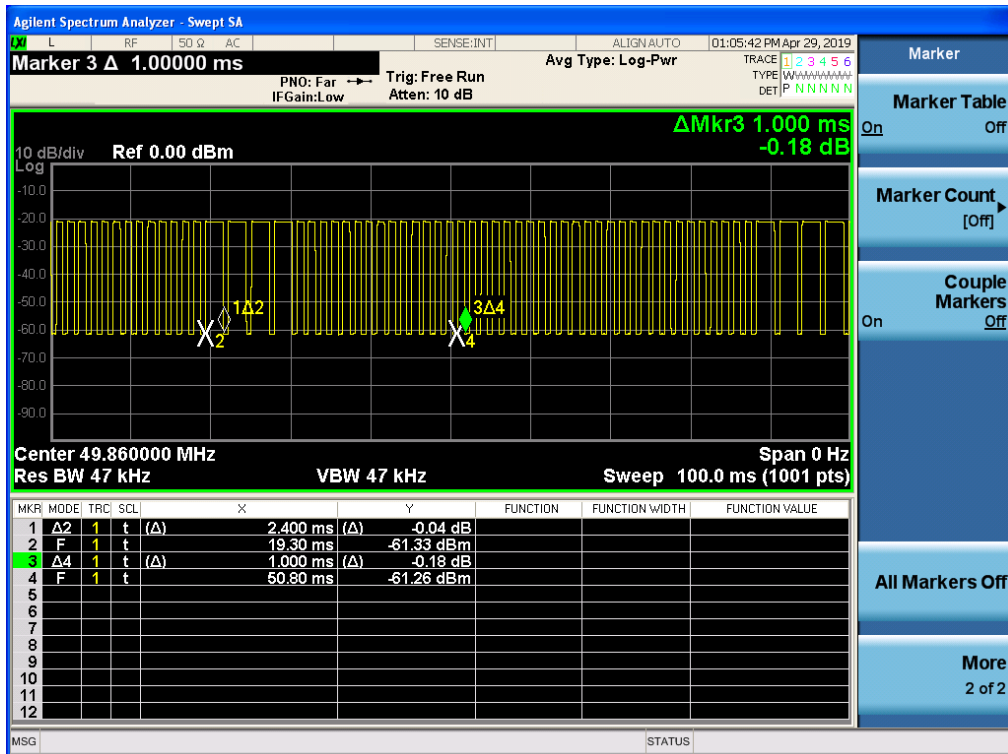
	On Time (ms)	Times	Ton (ms)	Total Ton times (ms)
Ton 1	2.40	4	9.60	49.60
Ton 2	1.00	40	40.00	

Note: Total Ton times= Ton1\*4+Ton2\*40

Total Ton times (ms)	Period (ms)	Duty Cycle (Linear)	Duty Cycle Correction Factor
49.60	68.80	0.72	-2.85

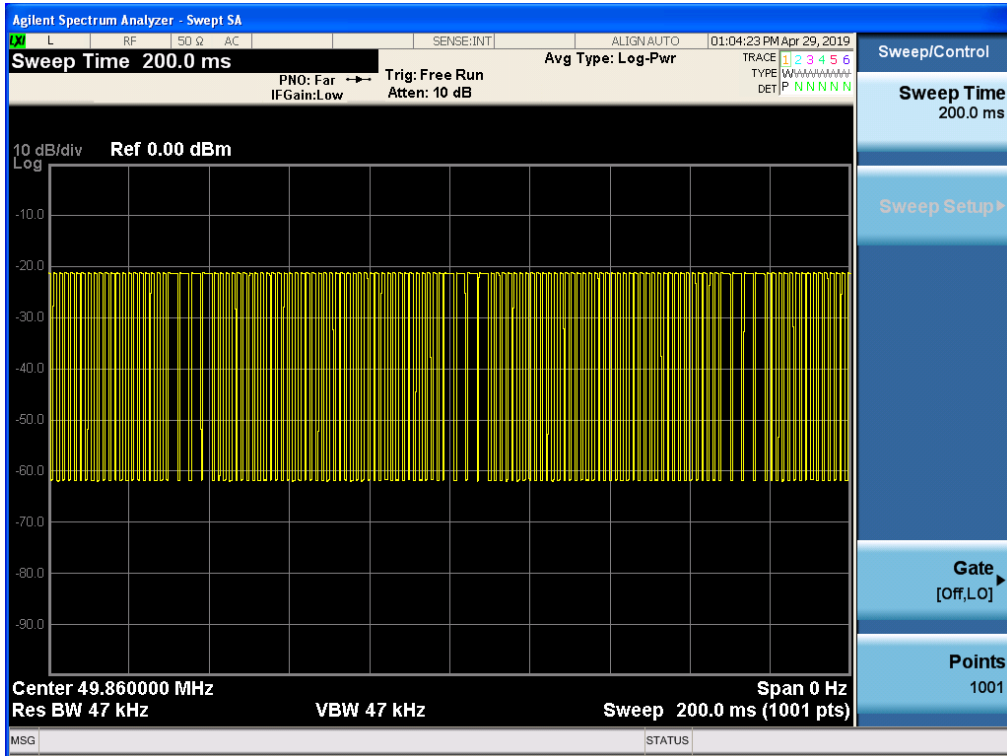
Note: Duty Cycle Correction Factor=20log(x).  
Where: x is Duty Cycle

Ton

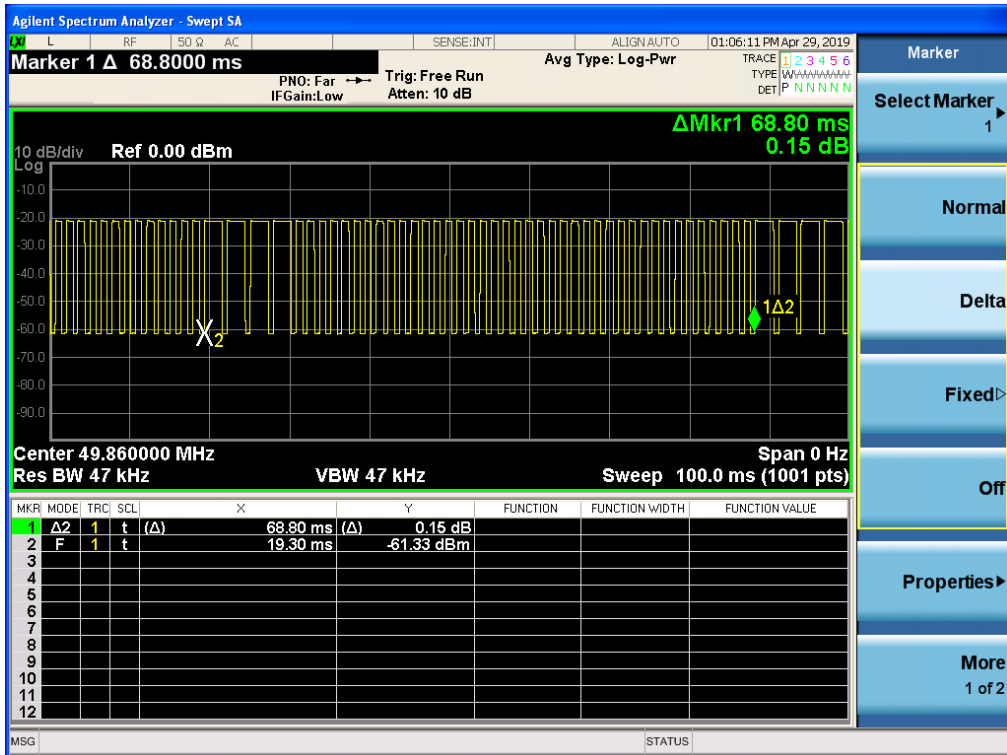




### Period - 1



### Period - 2



Note: All test mode has been tested, only the worst data record in the report.

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## 6.2. 20dB BANDWIDTH & 99% OCCUPIED BANDWIDTH

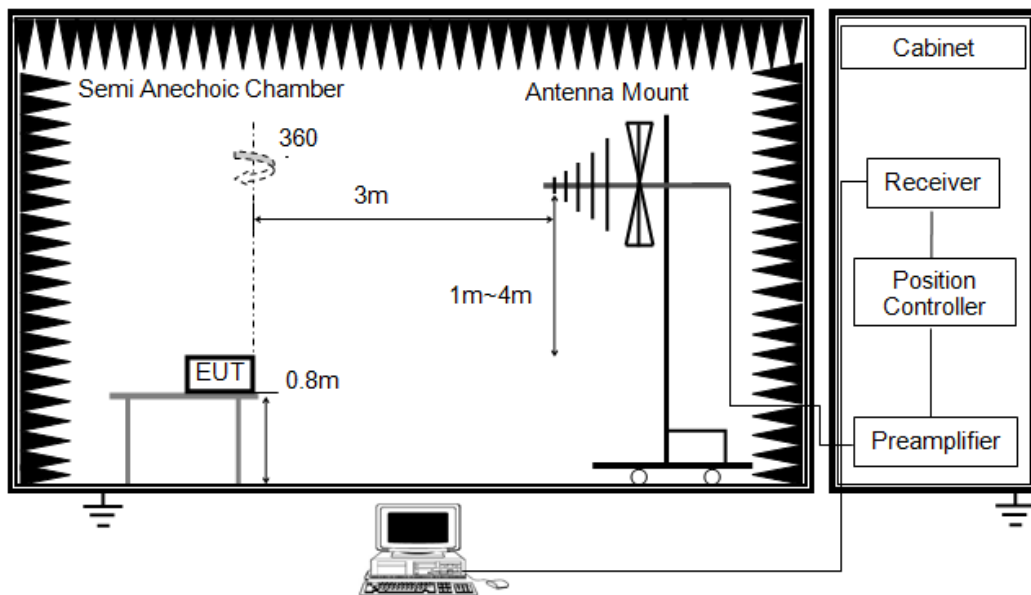
### LIMITS

None; for reporting purposes only

### TEST PROCEDURE

FCC Reference:	CFR 47 Part 15.215(c) for 20dB Bandwidth and ISED RSS-Gen Clause 6.7 for 99% Occupied Bandwidth
Test Method Used:	ANSI C63.10 Section 6.9.2

### TEST SETUP



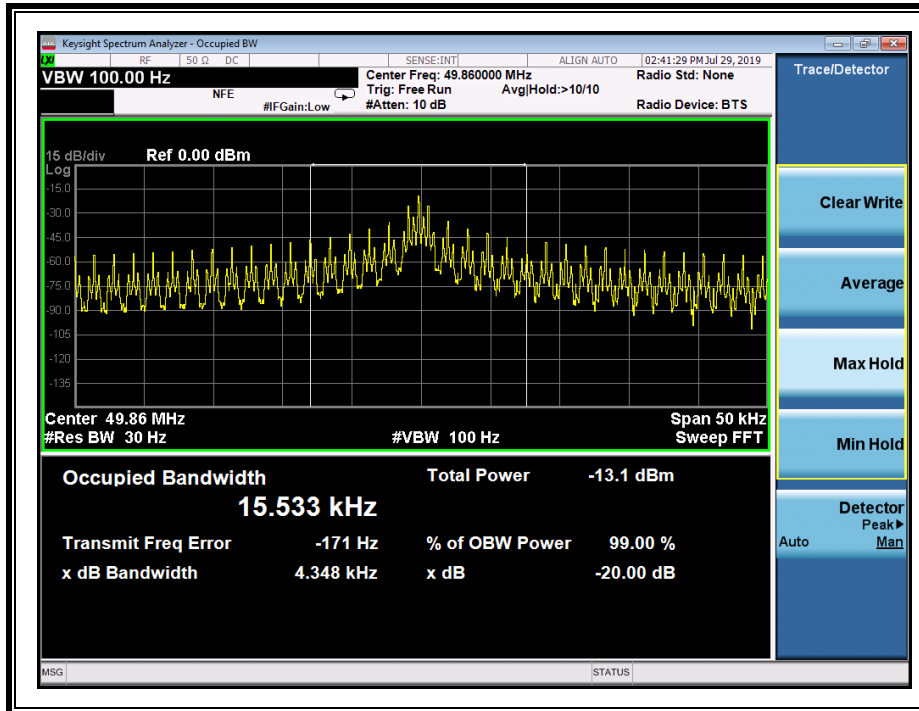
1. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower
4. Set the spectrum analyzer in the following setting as:  
The RBW shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.

### TEST ENVIRONMENT

Temperature	23.2°C	Relative Humidity	66%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V

**RESULTS**

20 dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Result
4.348	15.533	Pass



Note: All test mode has been tested, only the worst data record in the report.





### 6.3. RADIATED EMISSION

#### LIMITS

1. The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.
  
2. The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier or to the general limits in §15.209, whichever permits the higher emission levels. The field strength of any emissions removed by more than 10 kHz from the band edges shall not exceed the general radiated emission limits in §15.209 or RSS-Gen. All signals exceeding 20 microvolts/meter at 3 meters shall be reported in the application for certification
  
3. 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:

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
Above 960	500	3

\*\*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., §§15.231 and 15.241.



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).

Note: (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.



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



IC Restricted bands please refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands <sup>M200-1</sup>		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

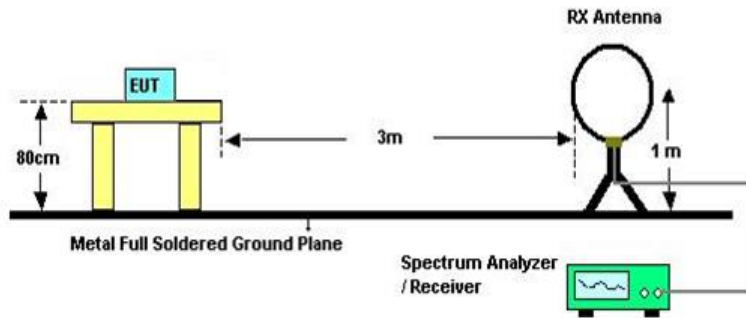
**Note 1:** Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

**TEST PROCEDURE**

FCC Reference:	CFR 47 Parts 15.231(b) / 15.209
Test Method Used:	ANSI C63.10 Sections 6.3 and 6.5

**TEST SETUP**

Below 30MHz

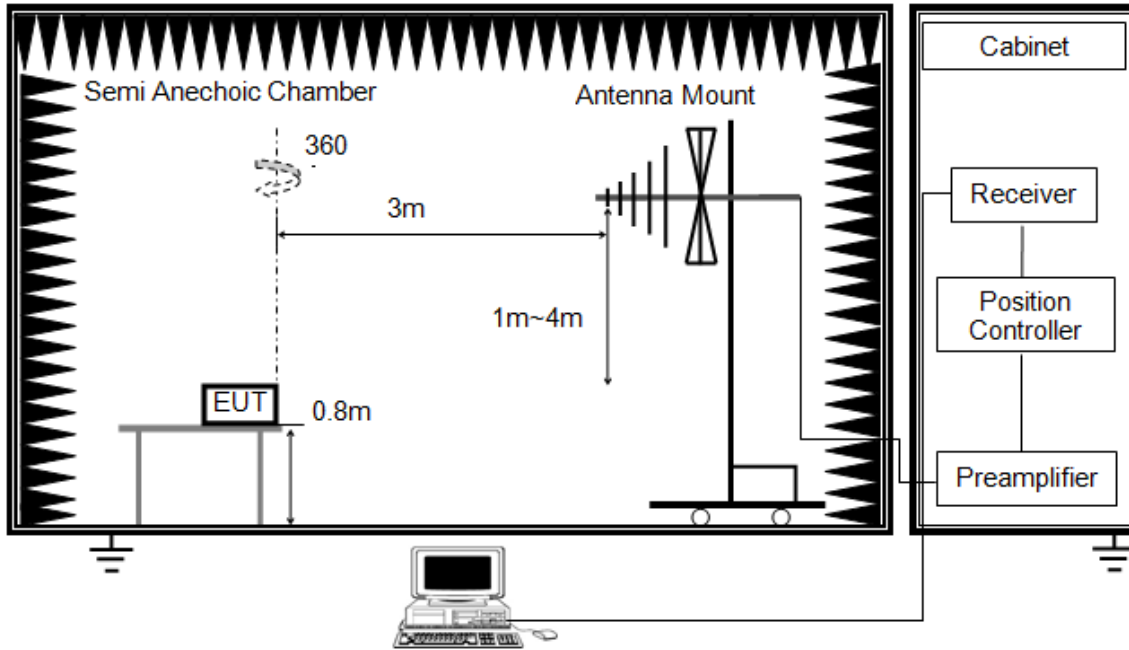


The setting of the spectrum analyser

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 and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average 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 and average detector and reported.
7. Although these tests were performed other than open field sites, adequate comparison measurements were confirmed against 30m open field sites. 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

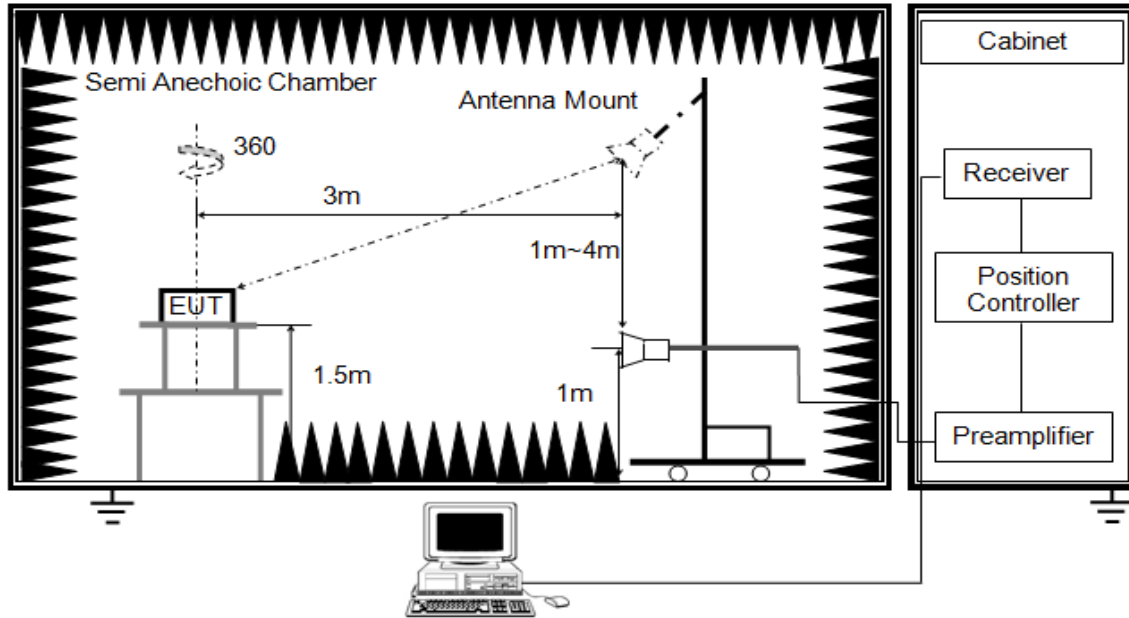


The setting of the spectrum analyser

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. 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.

ABOVE 1G

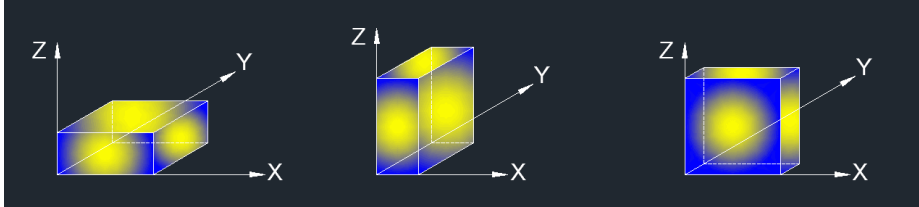


RBW	1M
VBW	3M
Sweep	Auto
Detector	Peak For Average see note 6
Trace	Max hold

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 1.5m 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 above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
  6. Average Value=Peak Value + Duty Correction Factor
- For the Duty Cycle and Correction Factor please refer to clause 6.1.ON TIME AND DUTY CYCLE.

## **RESULTS**

X axis, Y axis, Z axis positions:



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

## **TEST ENVIRONMENT**

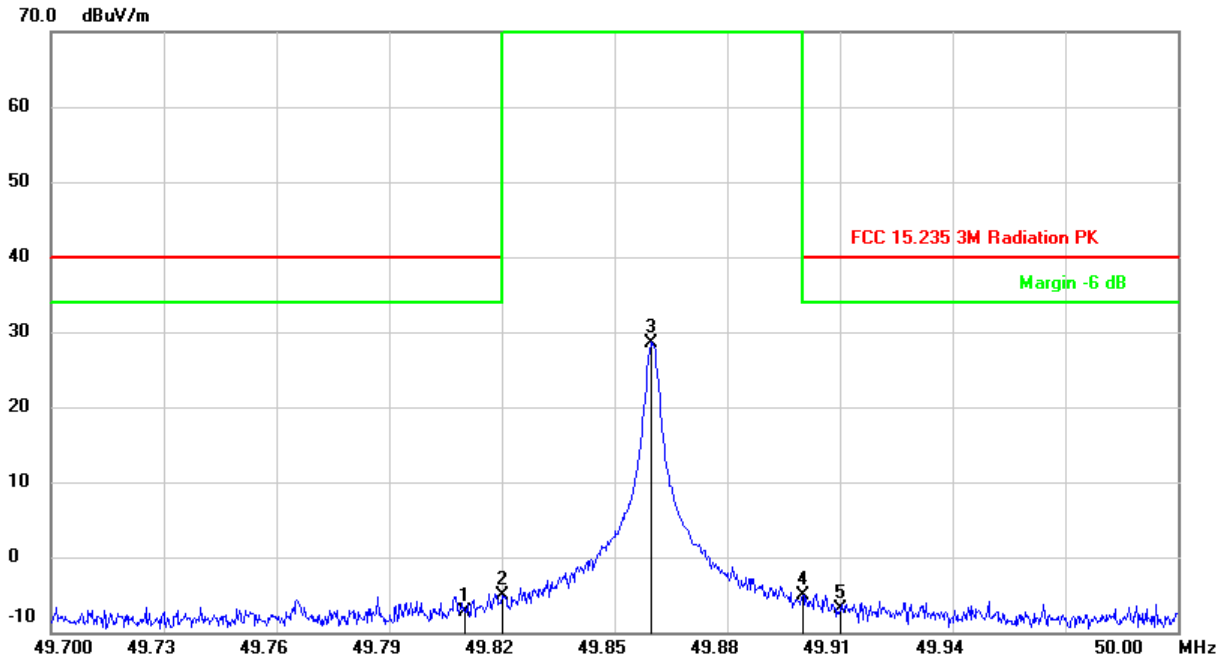
Temperature	22.6°C	Relative Humidity	66%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0V





### 6.3.1. BAND EDGE

#### HORIZONTAL



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	49.8100	10.99	-18.31	-7.32	40.00	-47.32	peak
2	49.8200	13.18	-18.31	-5.13	40.00	-45.13	peak
3	49.8600	46.89	-18.31	28.58	100.00	-71.42	peak
4	49.9000	13.28	-18.31	-5.03	40.00	-45.03	peak
5	49.9100	11.47	-18.31	-6.84	40.00	-46.84	peak

Note: 1. Peak Result = Reading+ Correct Factor

2. The field strength of any emissions appearing between the band edges and up to 10kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier.

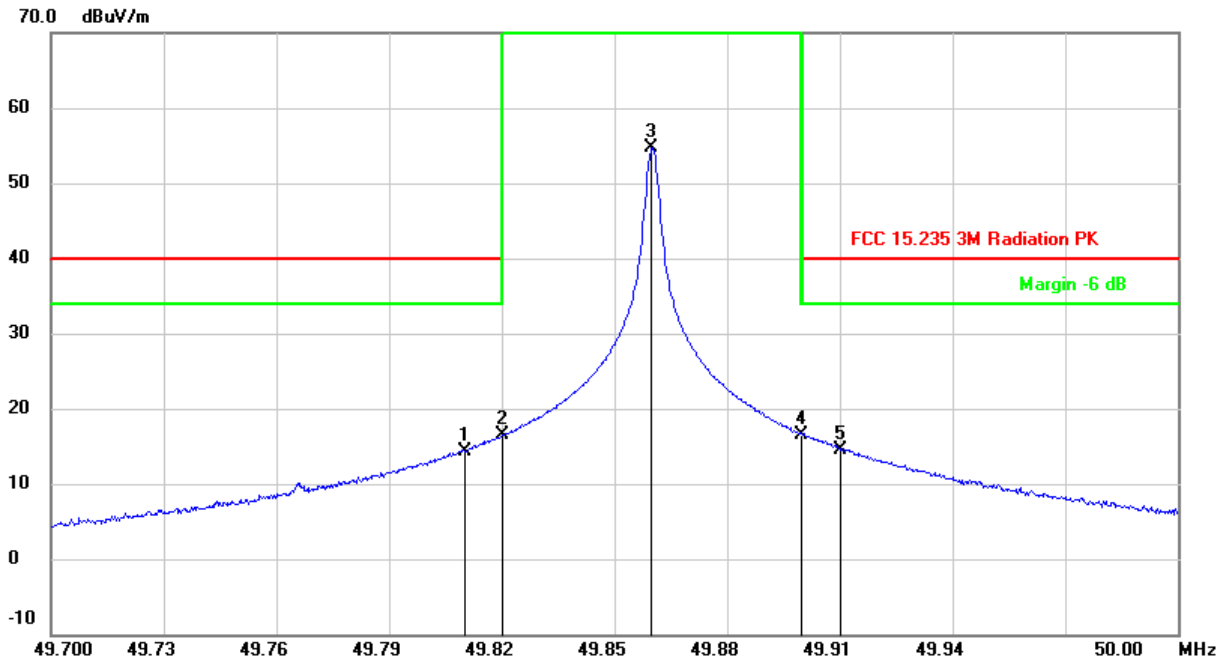
3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit.

5. The test signal is unmodulated carrier and without modulation.



**VERTICAL**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	49.8100	32.61	-18.31	14.30	40.00	-25.70	peak
2	49.8200	34.89	-18.31	16.58	40.00	-23.42	peak
3	49.8600	72.96	-18.31	54.65	100.00	-45.35	peak
4	49.9000	34.91	-18.31	16.60	40.00	-23.40	peak
5	49.9100	32.91	-18.31	14.60	40.00	-25.40	peak

Note: 1. Peak Result = Reading+ Correct Factor

2. The field strength of any emissions appearing between the band edges and up to 10kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier.

3. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

4. Only the worst case emission will be recorder, if it complies with the limit, the other emissions deemed to comply with the limit

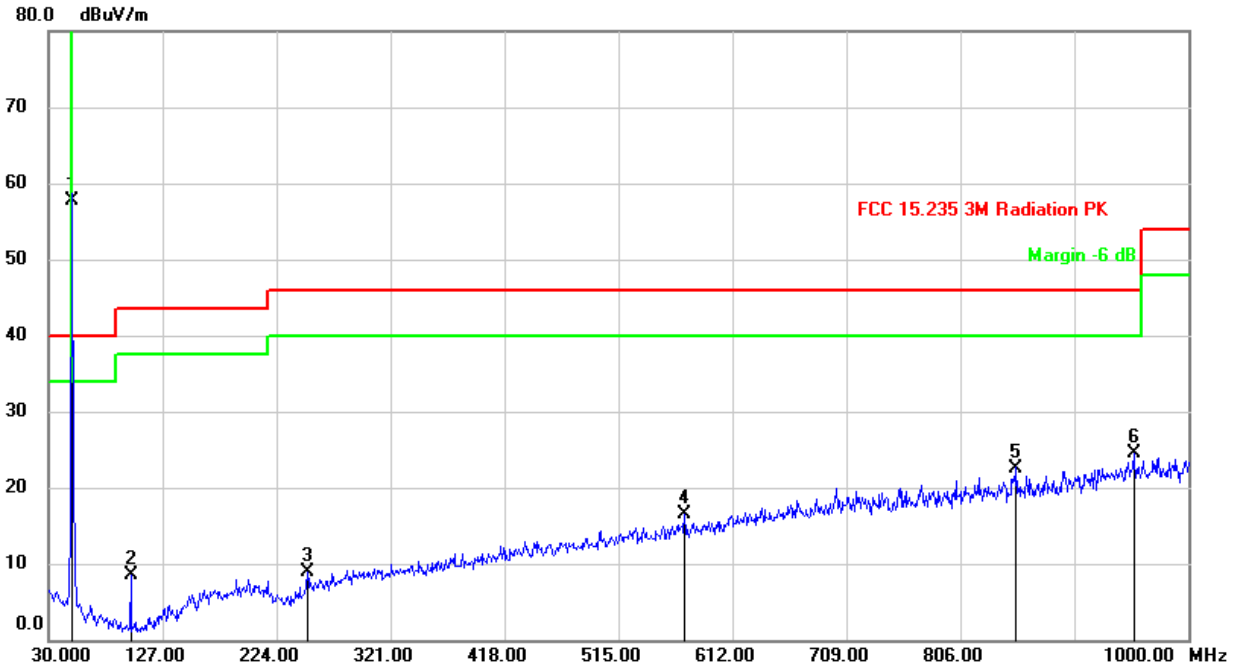
5. The test signal is unmodulated carrier and without modulation.

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



### 6.3.2. FUNDAMENTAL AND SPURIOUS EMISSIONS BELOW 1G

#### TRANSMITTER SPURIOUS EMISSIONS (HORIZONTAL)

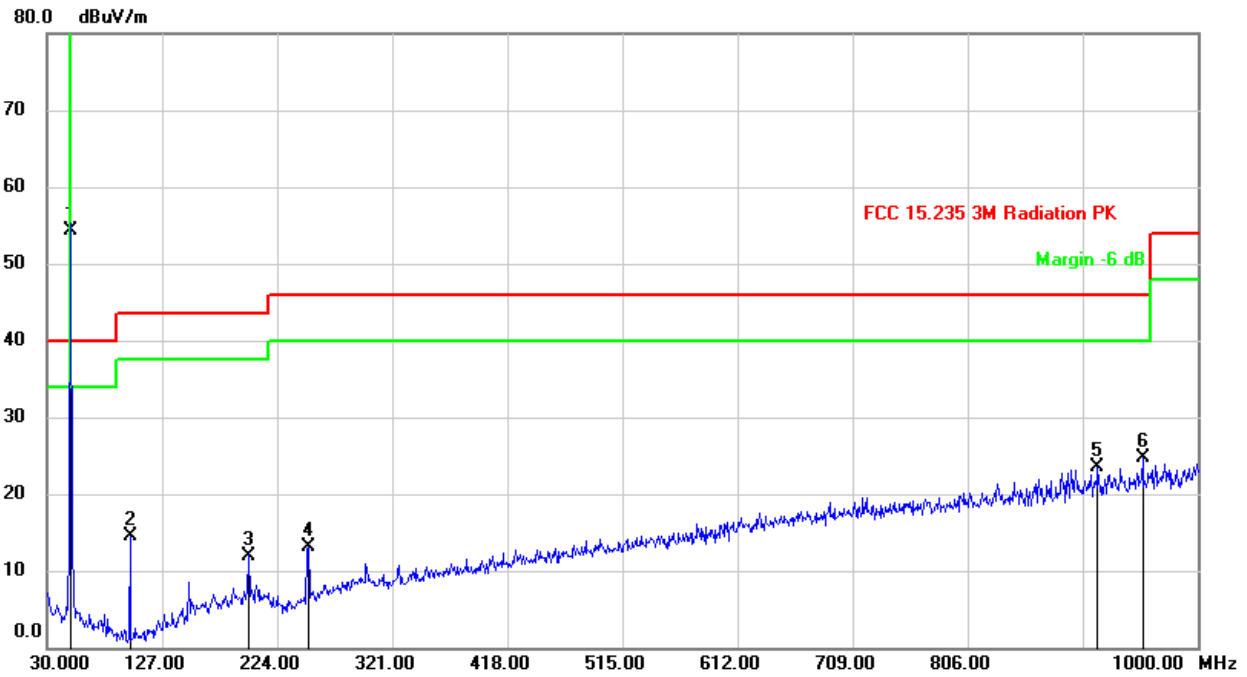


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	49.8600	76.00	-18.31	57.69	100.00	-42.31	peak
2	99.8399	30.38	-21.82	8.56	43.50	-34.94	peak
3	250.1900	24.99	-16.12	8.87	46.00	-37.13	peak
4	571.2600	25.40	-8.96	16.44	46.00	-29.56	peak
5	853.5300	27.17	-4.57	22.60	46.00	-23.40	peak
6	953.4400	27.86	-3.37	24.49	46.00	-21.51	peak

- 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. Peak Result = Reading Level + Correct Factor.  
 5. Mark 1 is the fundamental frequency, the AVG of the fundamental frequency limit is 80dBuV/m.  
 6. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



**TRANSMITTER SPURIOUS EMISSIONS (VERTICAL)**

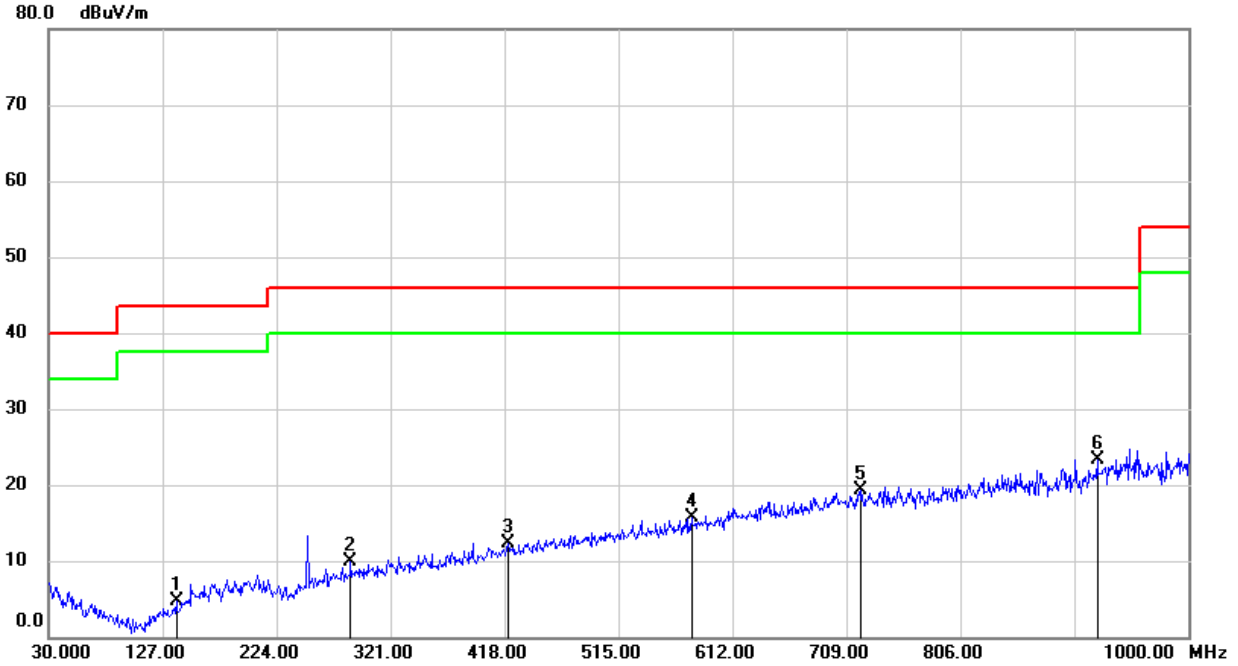


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	49.8600	72.53	-18.31	54.22	100.00	-45.78	peak
2	99.8399	36.30	-21.82	14.48	43.50	-29.02	peak
3	199.7500	28.25	-16.25	12.00	43.50	-31.50	peak
4	250.1900	29.27	-16.12	13.15	46.00	-32.85	peak
5	915.6100	27.40	-3.90	23.50	46.00	-22.50	peak
6	953.4400	28.13	-3.37	24.76	46.00	-21.24	peak

- 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. Peak Result = Reading Level + Correct Factor.
  5. Mark 1 is the fundamental frequency, the AVG of the fundamental frequency limit is 80dBuV/m.
  6. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



**RECEIVER SPURIOUS EMISSIONS (HORIZONTAL)**

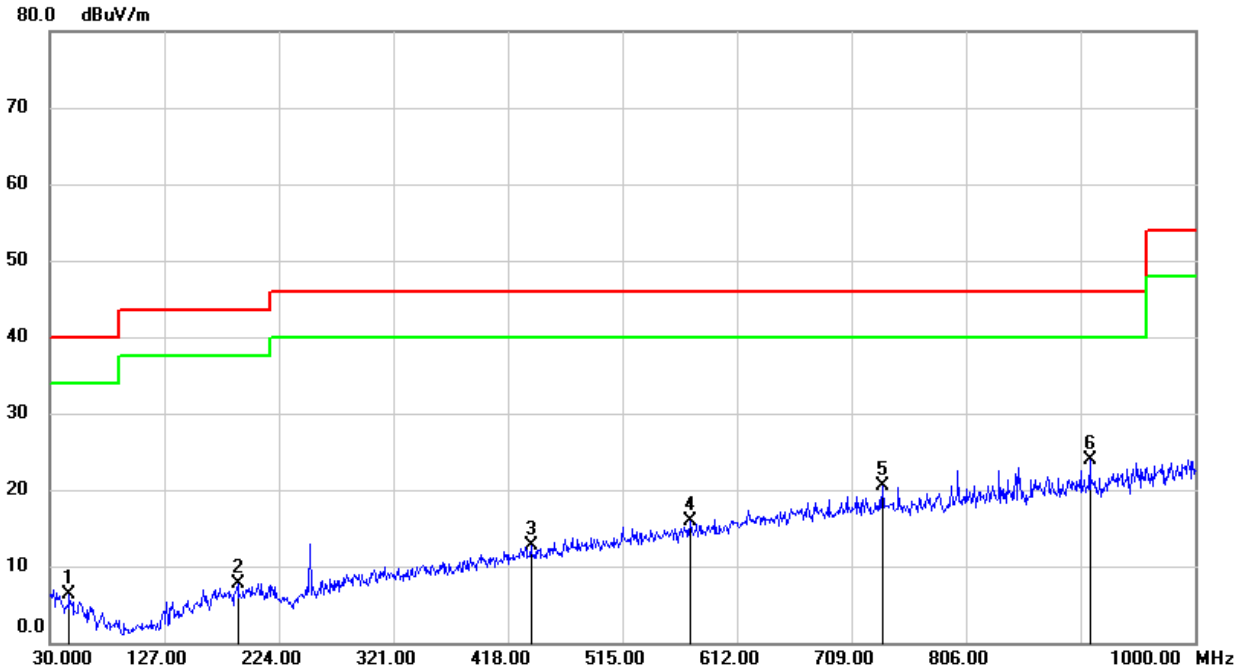


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	138.6400	24.02	-19.26	4.76	43.50	-38.74	peak
2	287.0500	24.36	-14.53	9.83	46.00	-36.17	peak
3	420.9100	24.23	-11.94	12.29	46.00	-33.71	peak
4	577.0800	24.46	-8.79	15.67	46.00	-30.33	peak
5	721.6100	25.37	-6.11	19.26	46.00	-26.74	peak
6	922.4000	27.08	-3.80	23.28	46.00	-22.72	peak

- 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. Peak Result = Reading Level + Correct Factor.



**RECEIVER SPURIOUS EMISSIONS (VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	46.4900	24.45	-18.16	6.29	40.00	-33.71	peak
2	189.0800	24.22	-16.51	7.71	43.50	-35.79	peak
3	437.4000	24.37	-11.64	12.73	46.00	-33.27	peak
4	572.2300	24.84	-8.93	15.91	46.00	-30.09	peak
5	735.1900	26.64	-6.16	20.48	46.00	-25.52	peak
6	910.7600	27.79	-3.97	23.82	46.00	-22.18	peak

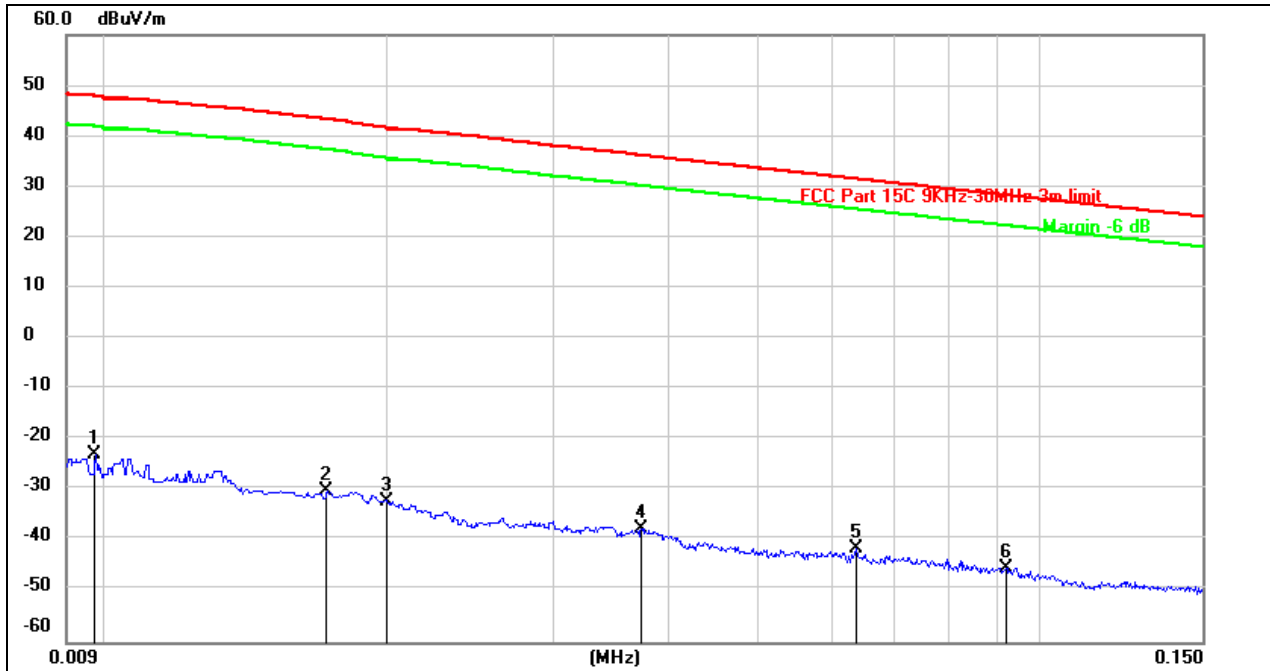
- Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.  
 4. Peak Result = Reading Level + Correct Factor.



### 6.3.3. SPURIOUS EMISSIONS BELOW 30M

#### SPURIOUS EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9kHz~150kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0097	78.29	-101.38	-23.09	47.83	-70.92	peak
2	0.0171	71.08	-101.36	-30.28	43.33	-73.61	peak
3	0.0200	69.11	-101.34	-32.23	41.58	-73.81	peak
4	0.0374	63.70	-101.42	-37.72	36.21	-73.93	peak
5	0.0636	60.04	-101.54	-41.50	31.56	-73.06	peak
6	0.0922	56.41	-101.74	-45.33	28.32	-73.65	peak

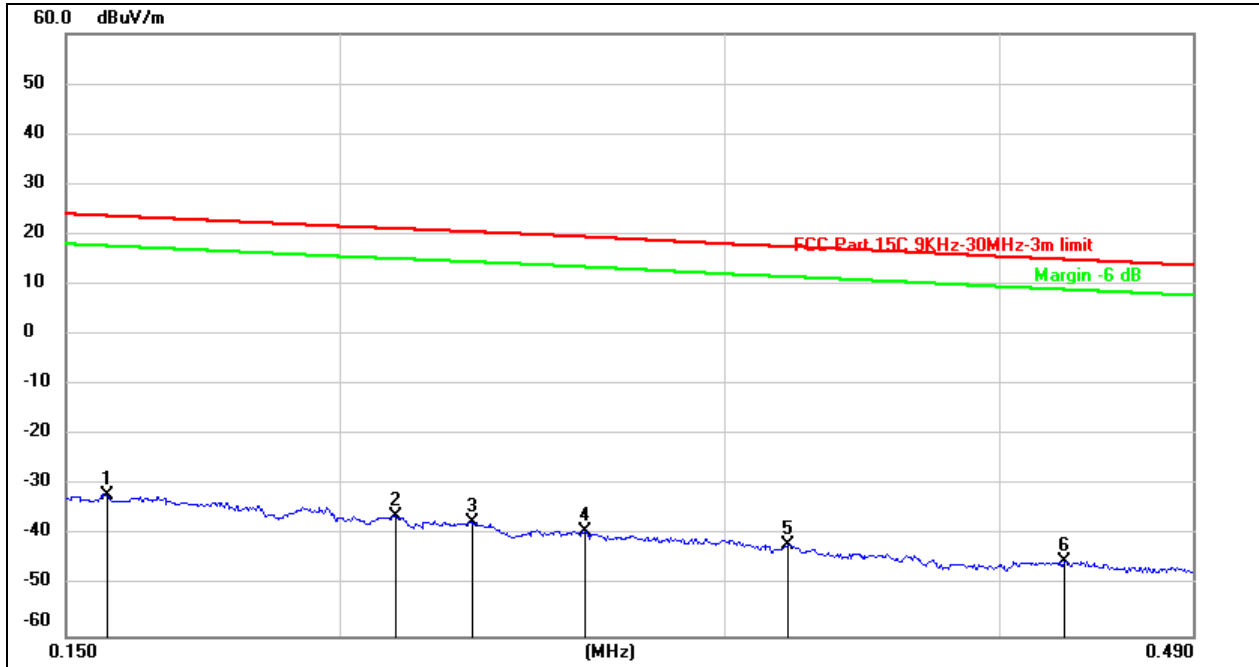
Note: 1. Measurement = Reading Level + Correct Factor.

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.



**0.15MHz ~ 0.49MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1567	69.71	-101.65	-31.94	23.70	-55.64	peak
2	0.2121	65.59	-101.73	-36.14	21.15	-57.29	peak
3	0.2298	64.50	-101.77	-37.27	20.53	-57.80	peak
4	0.2590	62.66	-101.81	-39.15	19.50	-58.65	peak
5	0.3205	59.94	-101.88	-41.94	17.55	-59.49	peak
6	0.4284	56.86	-101.99	-45.13	15.00	-60.13	peak

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

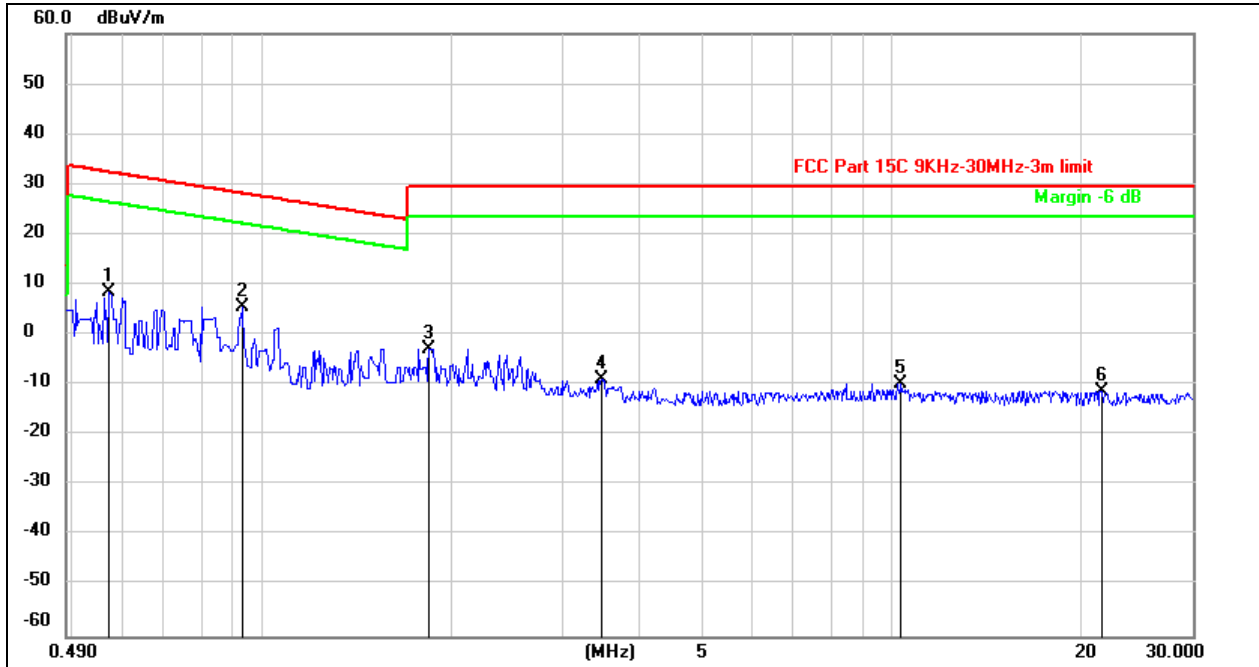
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

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.





**0.49MHz ~ 30MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5725	70.53	-62.07	8.46	32.48	-24.02	peak
2	0.9324	67.83	-62.22	5.61	28.22	-22.61	peak
3	1.8468	59.16	-61.89	-2.73	29.54	-32.27	peak
4	3.4704	52.67	-61.46	-8.79	29.54	-38.33	peak
5	10.3757	51.09	-60.82	-9.73	29.54	-39.27	peak
6	21.5304	49.61	-60.72	-11.11	29.54	-40.65	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(Transmitting and Receiving) has been tested, only the worst data record in the report.



## 7. ANTENNA REQUIREMENTS

### APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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

Please refer to FCC §15.247(b)(4)

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

### RESULTS

Complies

**END OF REPORT**