



**FCC PART 15 SUBPART C  
CERTIFICATION TEST REPORT**

*For*

**Car Radio**

**MODEL NUMBER: New Radio Ultra Low SBT**

**FCC ID: 2AEQT-TR7229-71**

**REPORT NUMBER: 4788645536-1**

**ISSUE DATE: September 4, 2018**

*Prepared for*

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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	09/04/2018	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6dB DTS Bandwidth	FCC 15.247 (a) (2)	Pass
2	Peak Conducted Power	FCC 15.247 (b) (3)	Pass
3	Power Spectral Density	FCC 15.247 (3)	Pass
4	Conducted Band edge And Spurious emission	FCC 15.247 (d)	Pass
5	Radiated Band edges and Spurious emission	FCC 15.247 (d) FCC 15.209 FCC 15.205	Pass
6	Conducted Emission Test For AC Power Port	FCC 15.207	N/A <sup>note</sup>
7	Antenna Requirement	FCC 15.203	Pass

Note: N/A means not applicable, the EUT was used in vehicle environment.



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# 1. ATTESTATION OF TEST RESULTS

## Applicant Information

Company Name: Huizhou Desay SV Automotive Co., Ltd.  
Address: NO.103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China

## Manufacturer Information

Company Name: Huizhou Desay SV Automotive Co., Ltd.  
Address: NO.103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China

## EUT Description

Product Name: Car Radio  
Brand Name: Volkswagen, DESAY SV AUTOMOTIVE  
Model Name: New Radio Ultra Low SBT  
Sample ID: 1775114  
Sample Status: Normal  
Sample Received date: August 24, 2018  
Date Tested: August 25, 2018 ~ September 4, 2018

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 15 Subpart C	PASS

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 558074 D01 DTS Meas Guidance v04, 414788 D01 Radiated Test Site v01, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and 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>IAS (Lab Code: TL-702)</b> UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has demonstrated compliance with ISO/IEC Standard 17025:2005, General requirements for the competence of testing and calibration laboratories</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 OATS.



## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

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

### 4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.90dB
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.52dB
Uncertainty for Radiation Emission test (1GHz to 26GHz)( include Fundamental emission)	5.04dB(1-6GHz)
	5.30dB (6GHz-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	Car Radio		
Model	New Radio Ultra Low SBT		
Product Description (Bluetooth)	Operation Frequency	2400~2480MHz	
	Modulation Type	Data Rate	
	GFSK	1Mbps	
Rated Input	DC 12V		

### 5.2. MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Number of Transmit Chains (NTX)	Bluetooth Mode	Frequency (MHz)	Channel Number	Max PK Conducted Power (dBm)	EIRP (dBm)
2400-2483.5	1	BLE	2402-2480	0-39[40]	7.278	7.678

### 5.3. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	11	2424	22	2446	33	2468
01	2404	12	2426	23	2448	34	2470
02	2406	13	2428	24	2450	35	2472
03	2408	14	2430	25	2452	36	2474
04	2410	15	2432	26	2454	37	2476
05	2412	16	2434	27	2456	38	2478
06	2414	17	2436	28	2458	39	2480
07	2416	18	2438	29	2460		
08	2418	19	2440	30	2462		
09	2420	20	2442	31	2464		
10	2422	21	2444	32	2466		

### 5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 00, CH 19, CH 39	2402MHz, 2440MHz, 2480MHz



### 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worst Case Power Setting Parameter under 2400 ~ 2483.5MHz Band				
Test Software		BlueTest3		
Modulation Type	Transmit Antenna Number	Test Channel		
		CH 00	CH 19	CH 39
GFSK	1	Default	Default	Default

### 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2402-2480	PCB Antenna	0.4

Test Mode	Transmit and Receive Mode	Description
GFSK	<input checked="" type="checkbox"/> 1TX, 1RX	Chain 1 can be used as transmitting/receiving antenna.

### 5.7. WORST-CASE CONFIGURATIONS

Bluetooth Mode	Modulation Technology	Modulation Type	Data Rate (Mbps)
BLE	DTS	GFSK	1Mbit/s

## 5.8. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
1	Laptop	ThinkPad	T460S	SL10K24796 JS
2	CSR Control Board	/	/	/

### I/O CABLES

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

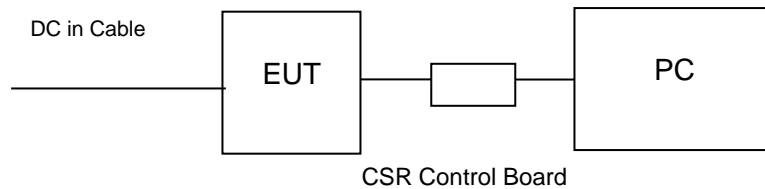
### ACCESSORY

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

### TEST SETUP

The EUT can work in an engineer mode with a software through a Laptop.

### SETUP DIAGRAM FOR TESTS





## 6. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions							
Instrument							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Dec.20, 2016	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Dec.20, 2016	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Artificial Mains Networks	Schwarzbeck	NSLK 8126	8126465	Feb.10, 2017	Dec.12, 2017	Dec.11, 2018
Software							
Used	Description	Manufacturer	Name	Version			
<input checked="" type="checkbox"/>	Test Software for Conducted disturbance	Farad	EZ-EMC	Ver. UL-3A1			
Radiated Emissions							
Instrument							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY5640003 6	Feb. 24, 2017	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Jan.09, 2016	Jan.09, 2016	Jan.09, 2019
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A09099	Feb. 13, 2017	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Dec. 20, 2016	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Jan. 09, 2016	Jan. 09, 2016	Jan. 09, 2019
<input checked="" type="checkbox"/>	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Jan.06, 2016	Jan.06, 2016	Jan.06, 2019
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Jan. 14, 2017	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-2	TRS-307-00003	Dec. 20, 2016	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Mar. 26, 2016	Mar. 26, 2016	Mar. 26, 2019
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.	Upper Last Cal.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY5541051 2	Dec. 20, 2016	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Power Meter	Keysight	N9031A	MY5541602 4	Feb. 13, 2017	Dec.12, 2017	Dec.11, 2018
<input checked="" type="checkbox"/>	Power Sensor	Keysight	N9323A	MY5544001 3	Feb. 13, 2017	Dec.12, 2017	Dec.11, 2018



## 7. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth and 99% Bandwidth	KDB 558074 D01 DTS Meas Guidance v04	8.0
2	Peak Output Power	KDB 558074 D01 DTS Meas Guidance v04	9.1.3
3	Power Spectral Density	KDB 558074 D01 DTS Meas Guidance v04	10.2
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 DTS Meas Guidance v04	11.0
5	Out-of-band emissions in restricted bands	KDB 558074 D01 DTS Meas Guidance v04	12.1
6	Band-edge	KDB 558074 D01 DTS Meas Guidance v04	13.3.2



## 8. ANTENNA PORT TEST RESULTS

### 8.1. ON TIME AND DUTY CYCLE

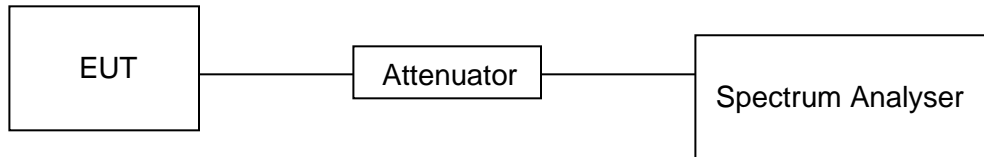
#### LIMITS

None; for reporting purposes only

#### PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

#### TEST SETUP



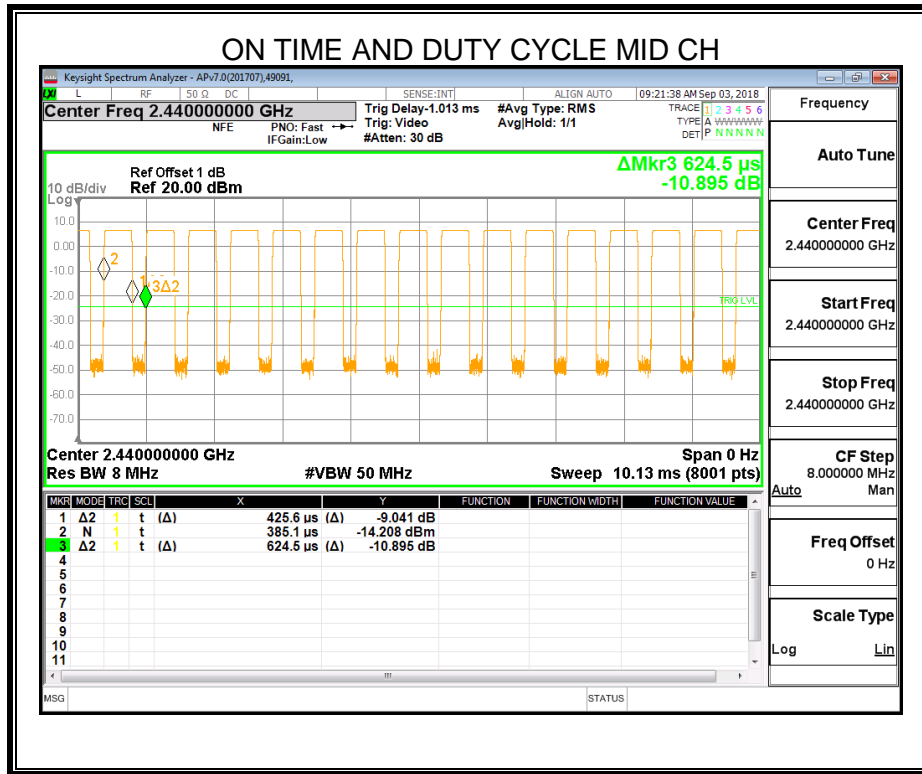
#### TEST ENVIRONMENT

Temperature	22.5°C	Relative Humidity	65%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

#### RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)
GFSK	0.426	0.625	0.682	68.2	1.66

Note: Duty Cycle Correction Factor=10log(1/x).  
Where: x is Duty Cycle(Linear)



## 8.2. 6 dB BANDWIDTH & 99% BANDWIDTH

### LIMITS

FCC Part15 (15.247) Subpart C RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2)	6dB Bandwidth	$\geq 500\text{KHz}$	2400-2483.5

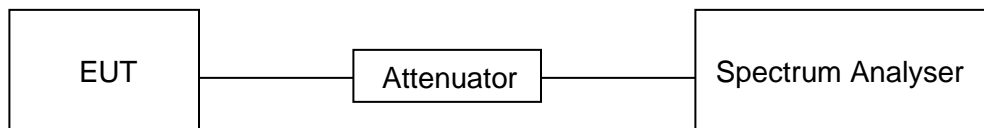
### TEST PROCEDURE

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

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth : 100K For 99% Bandwidth : 1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : $\geq 3 \times \text{RBW}$ For 99% Bandwidth : approximately $3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99% relative to the maximum level measured in the fundamental emission.

### TEST SETUP





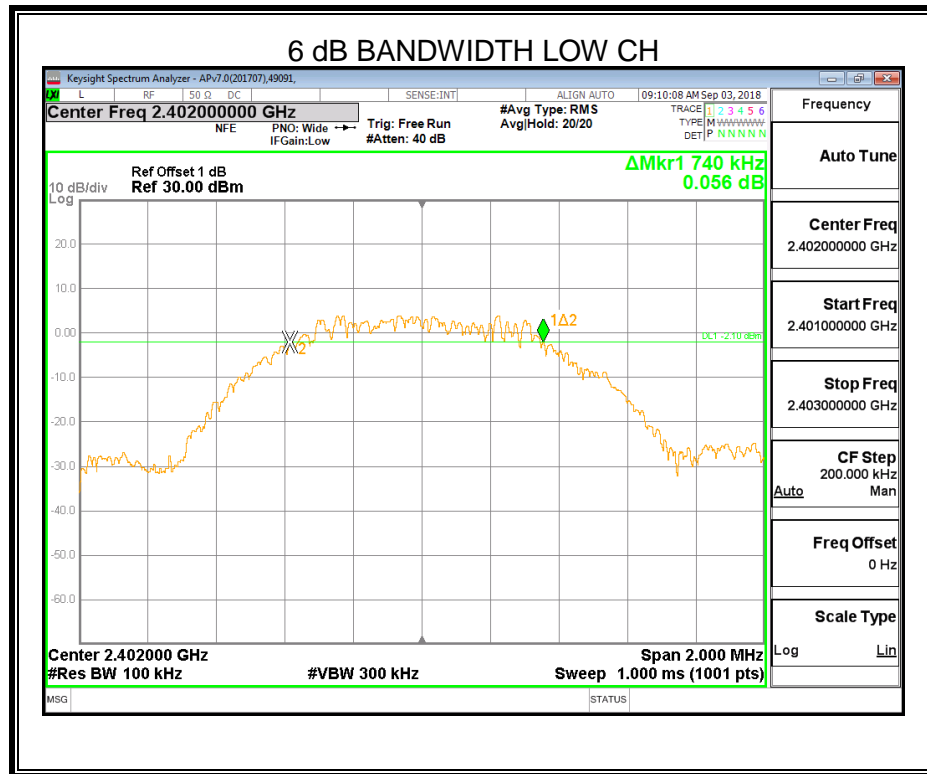


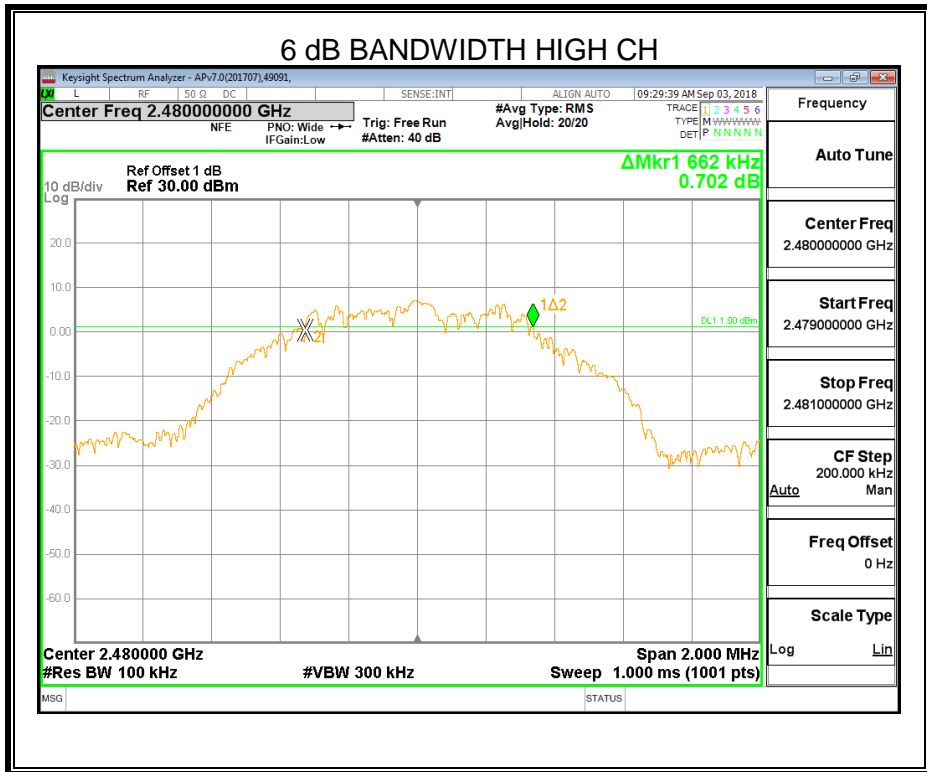
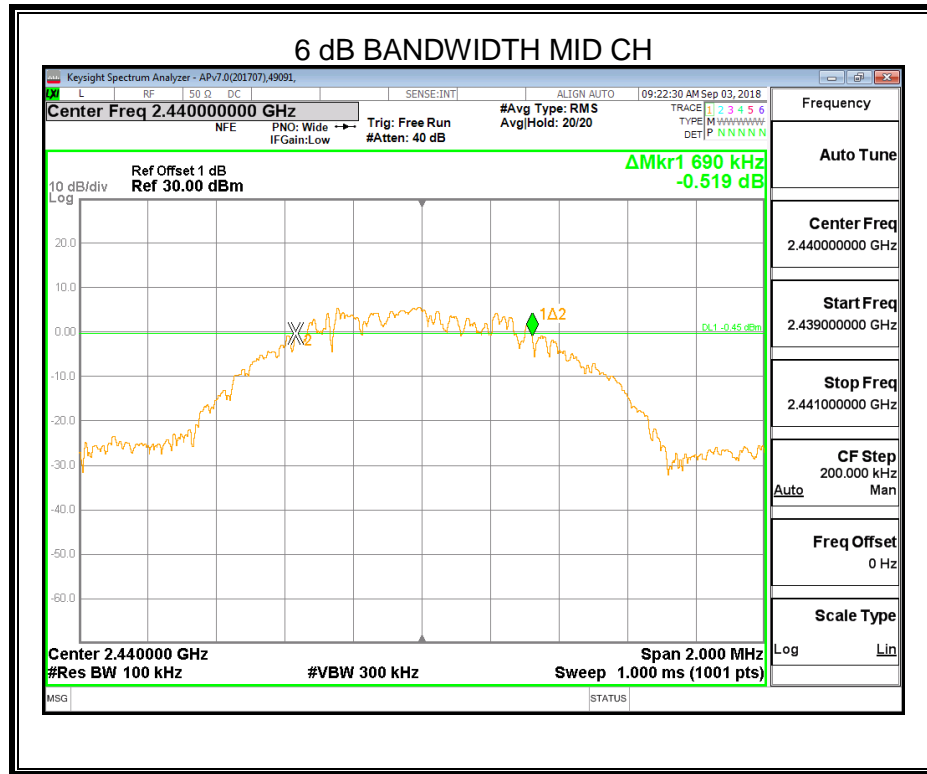
**TEST ENVIRONMENT**

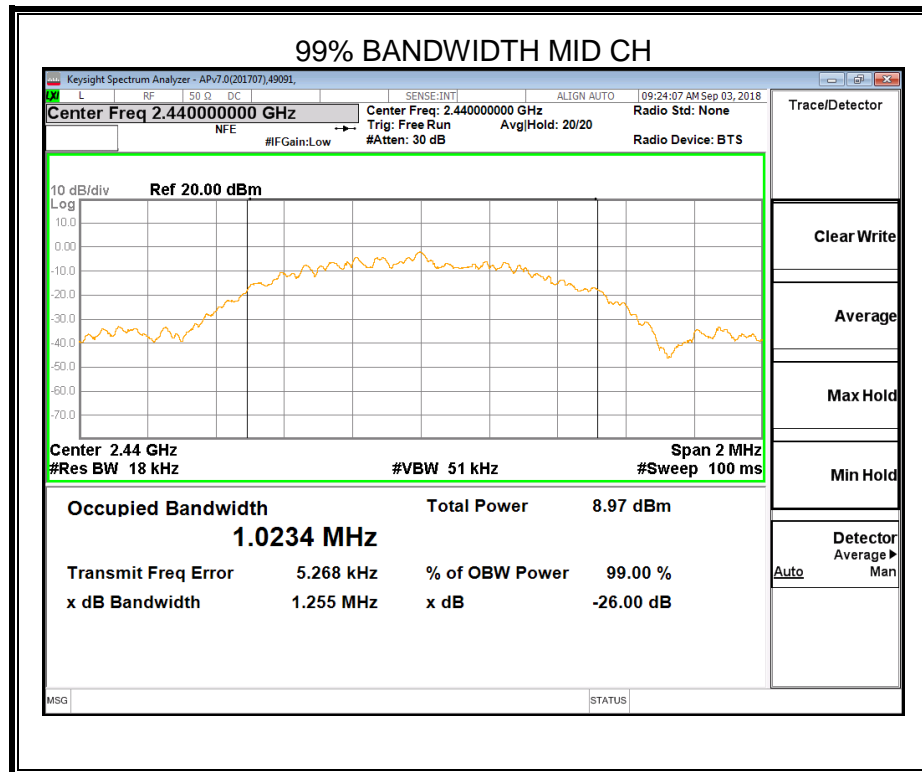
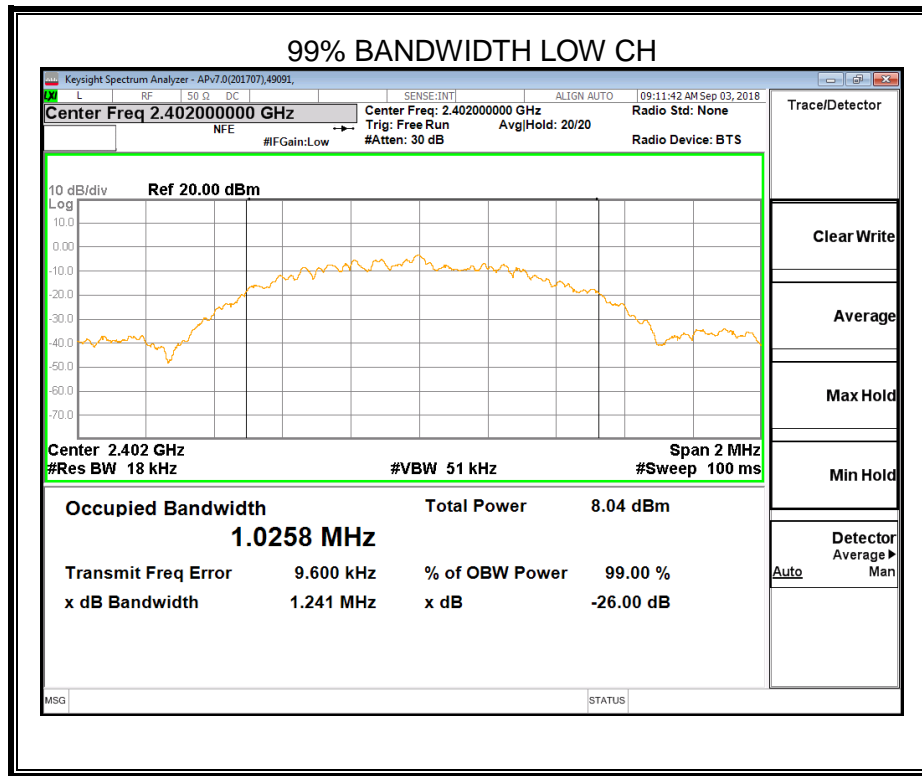
Temperature	22.5°C	Relative Humidity	65%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

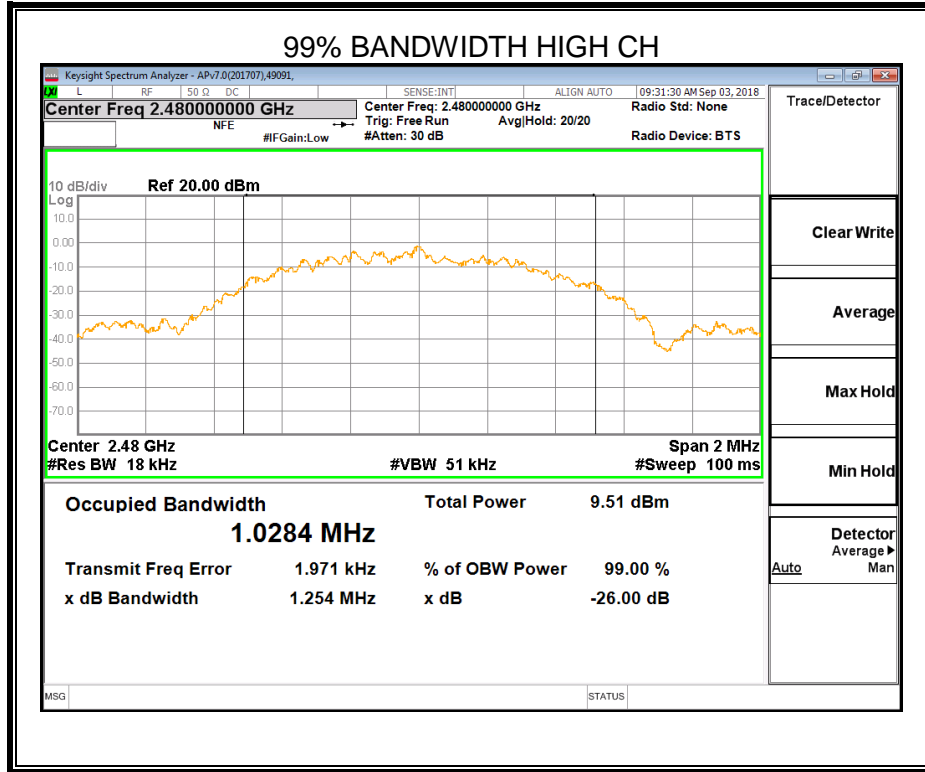
**RESULTS**

Channel	Frequency (MHz)	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (kHz)	Result
Low	2412	0.740	1.0258	500	Pass
Middle	2437	0.690	1.0234	500	Pass
High	2462	0.662	1.0284	500	Pass











### 8.3. PEAK CONDUCTED OUTPUT POWER

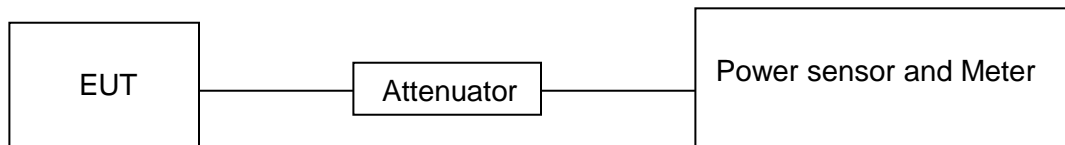
#### LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5

#### TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.  
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.  
Measure peak power each channel.

#### TEST SETUP



#### TEST ENVIRONMENT

Temperature	22.5°C	Relative Humidity	65%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

#### RESULTS

Channel	Frequency	Maximum Conducted Output Power(PK)	PK EIRP	Result
	(MHz)	(dBm)	(dBm)	
Low	2402	5.619	6.019	Pass
Middle	2441	6.427	6.827	Pass
High	2480	7.278	7.678	Pass

## 8.4. POWER SPECTRAL DENSITY

### LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

### TEST PROCEDURE

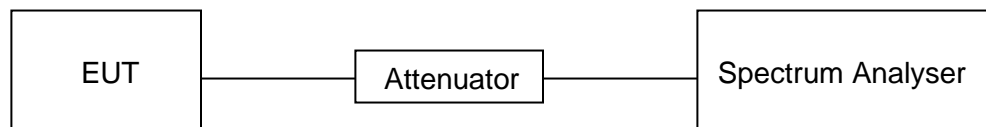
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100\text{kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### TEST SETUP



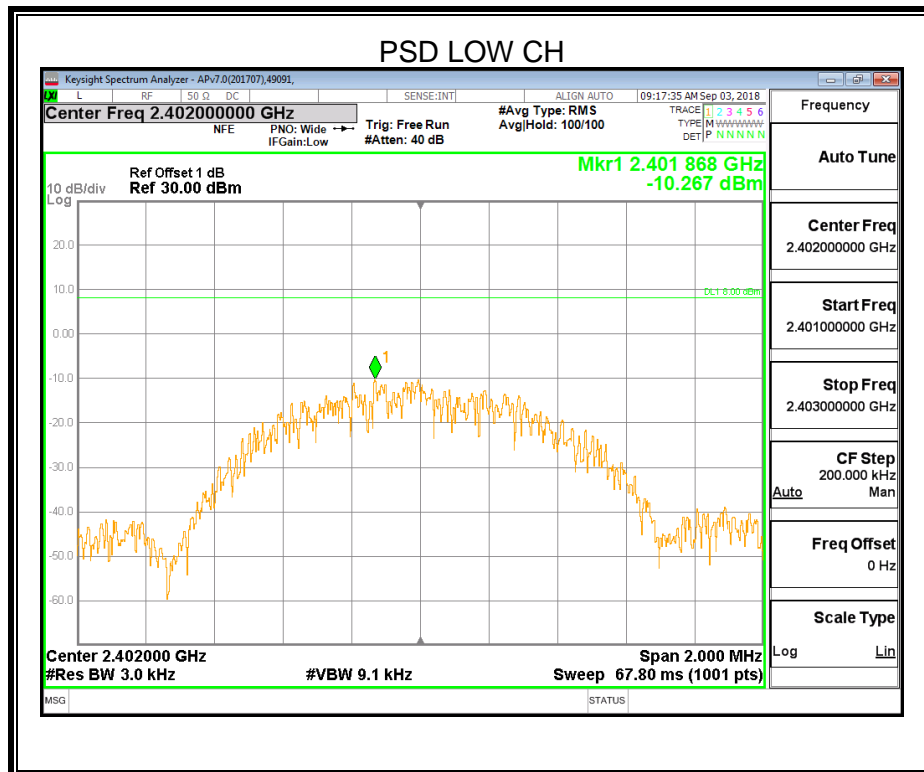
### TEST ENVIRONMENT

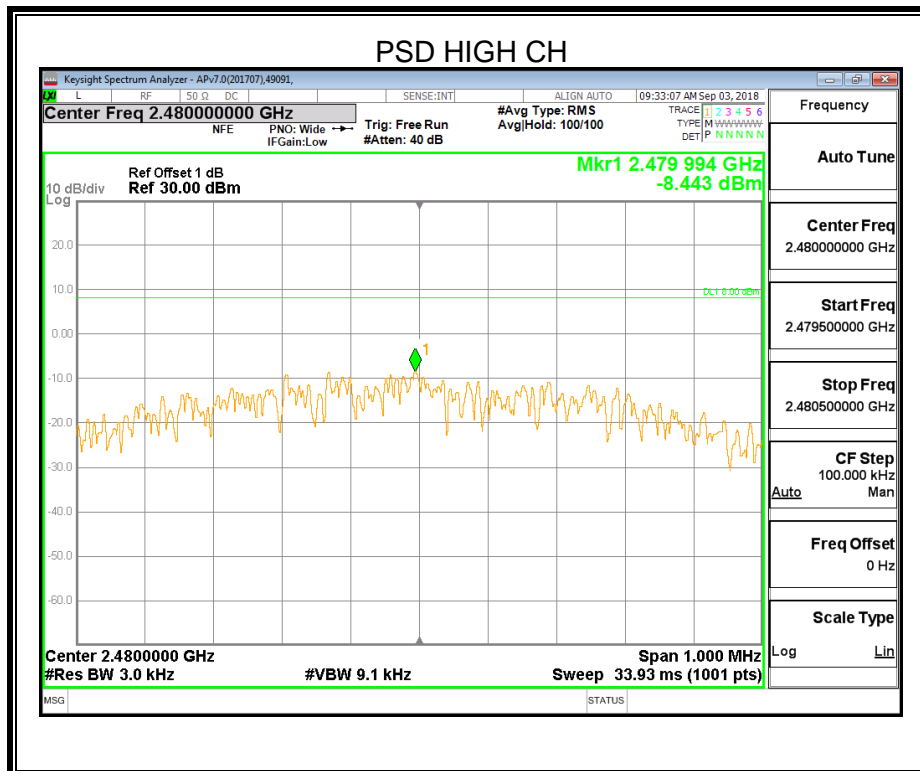
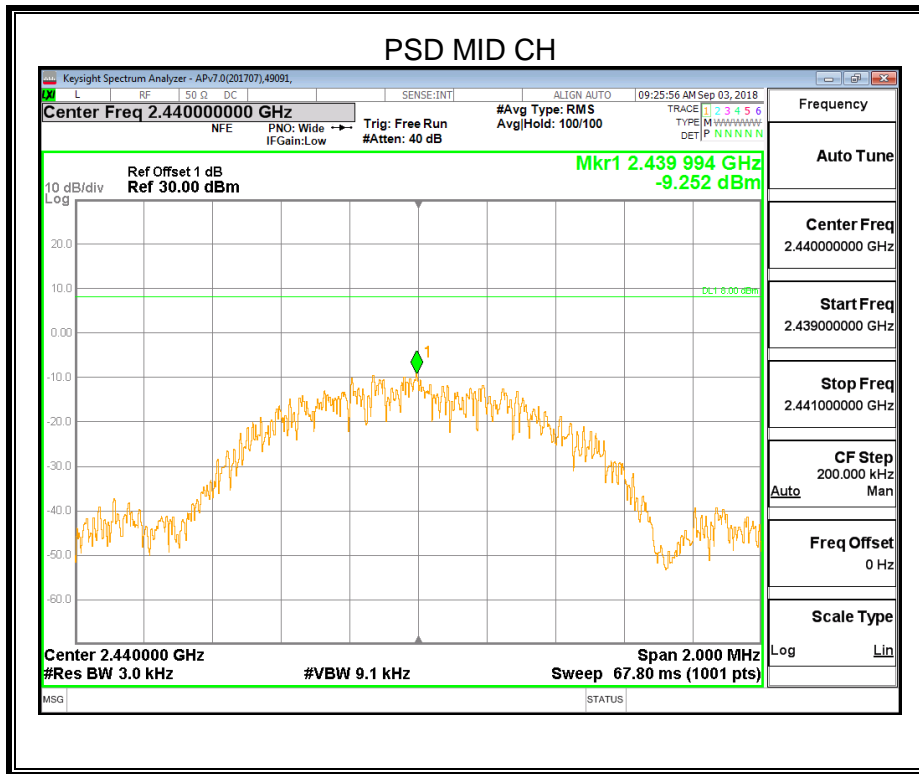


Temperature	22.3°C	Relative Humidity	63%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

**RESULTS**

Test Channel	Frequency	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	2412MHz	-10.267	8	PASS
Middle	2437MHz	-9.252	8	PASS
High	2462MHz	-8.443	8	PASS







## 8.5. CONDUCTED BANDEGE AND SPURIOUS EMISSIONS

### LIMITS

FCC Part15 (15.247) , Subpart C IC RSS-247 ISSUE 2		
Section	Test Item	Limit
FCC §15.247 (d)	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

### TEST PROCEDURE

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

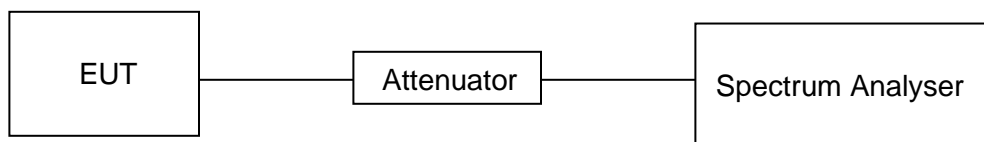
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

### TEST SETUP

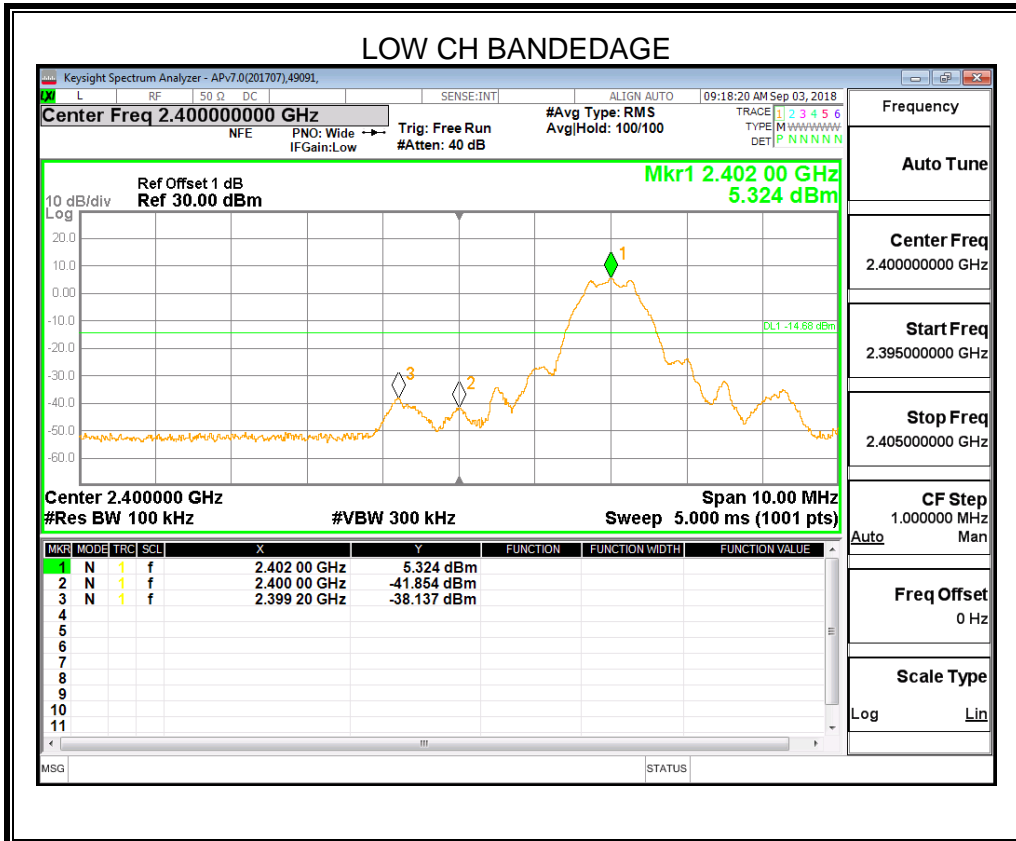


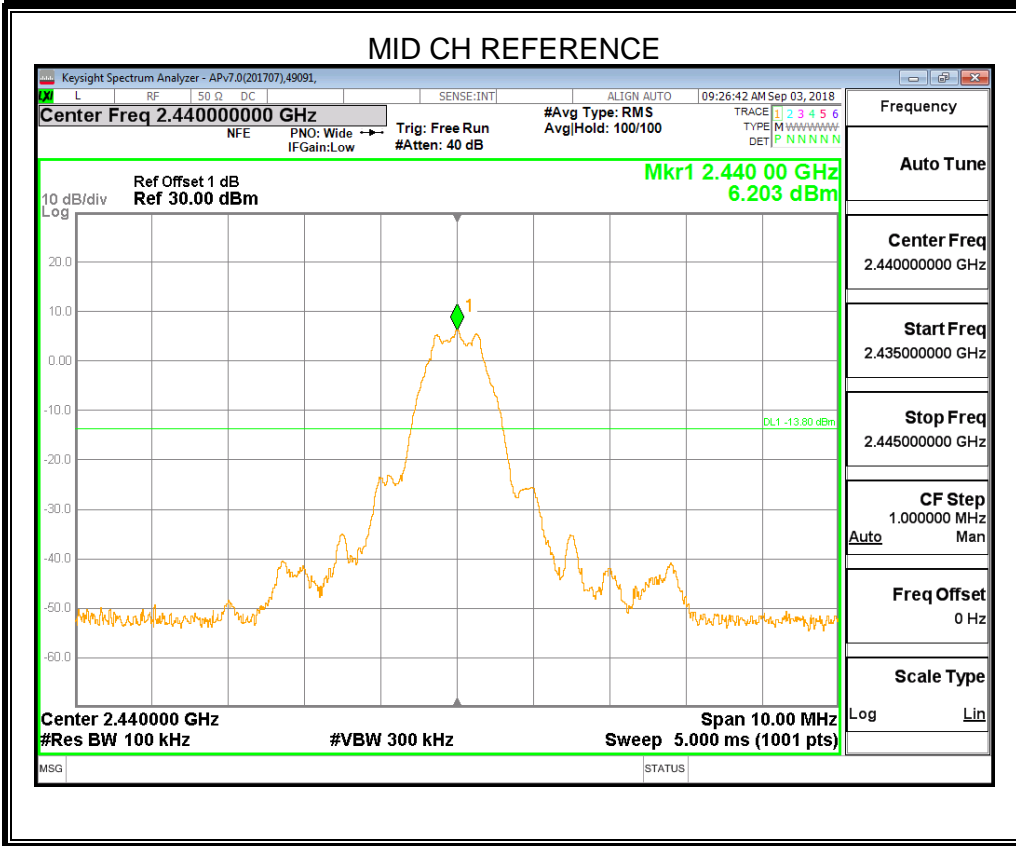
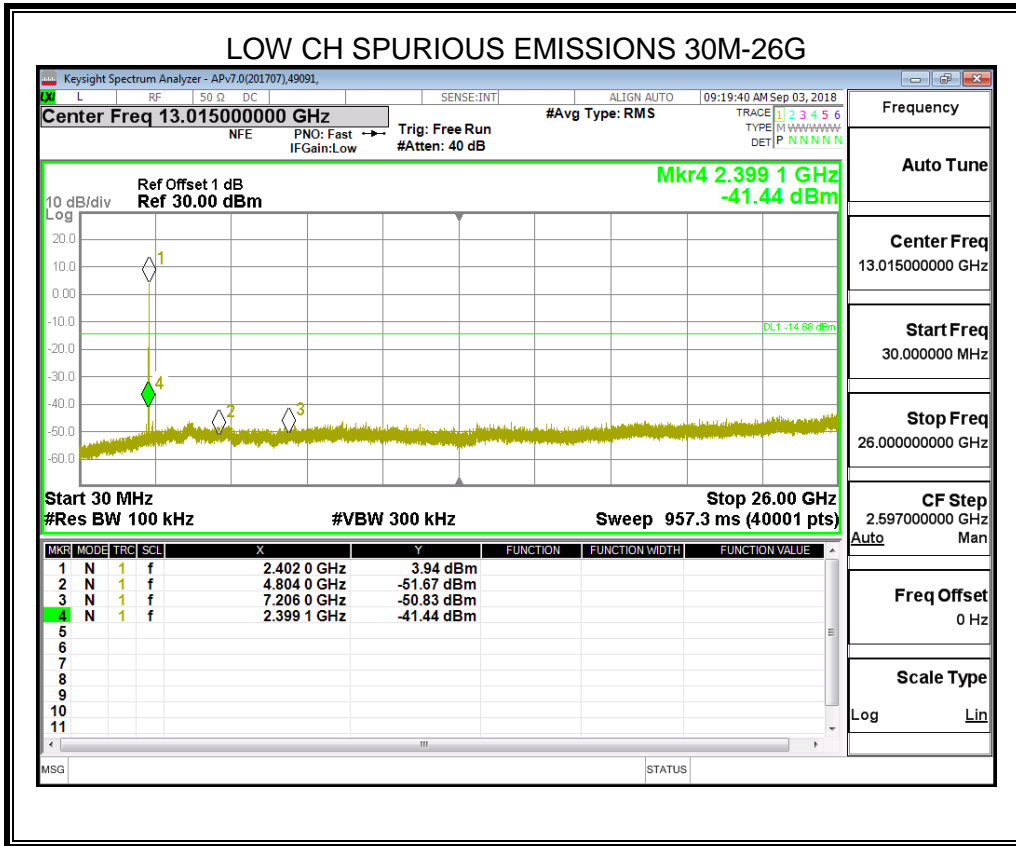


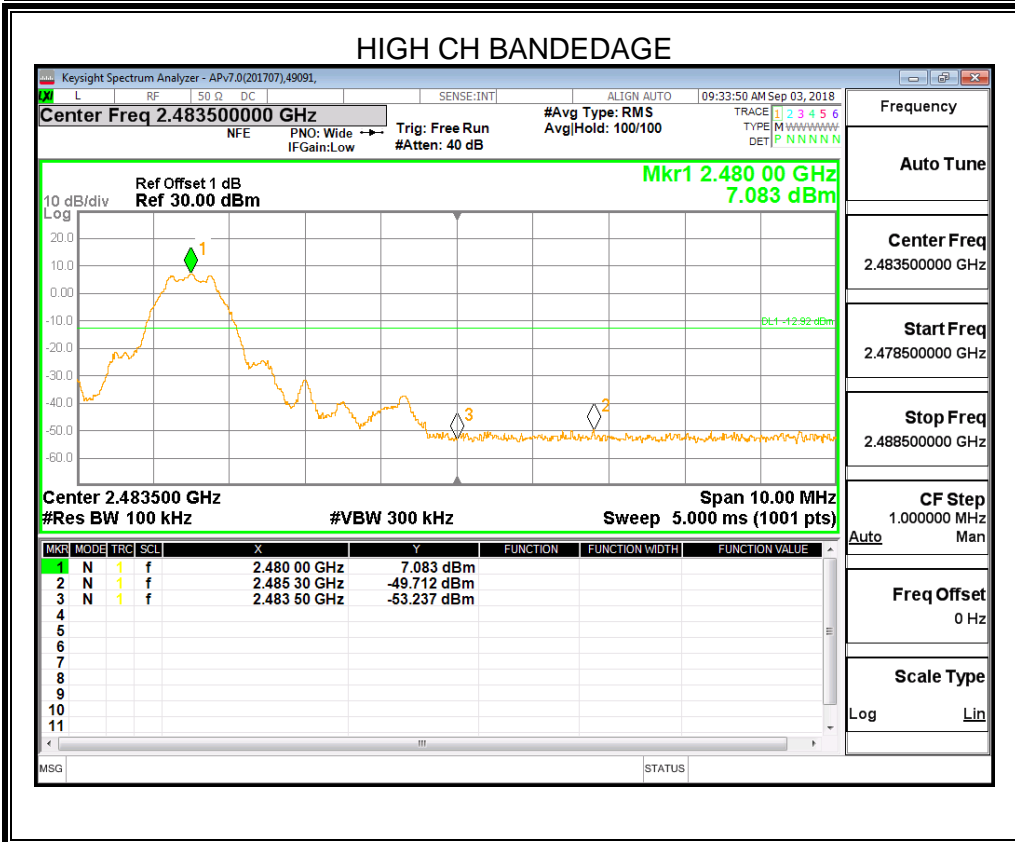
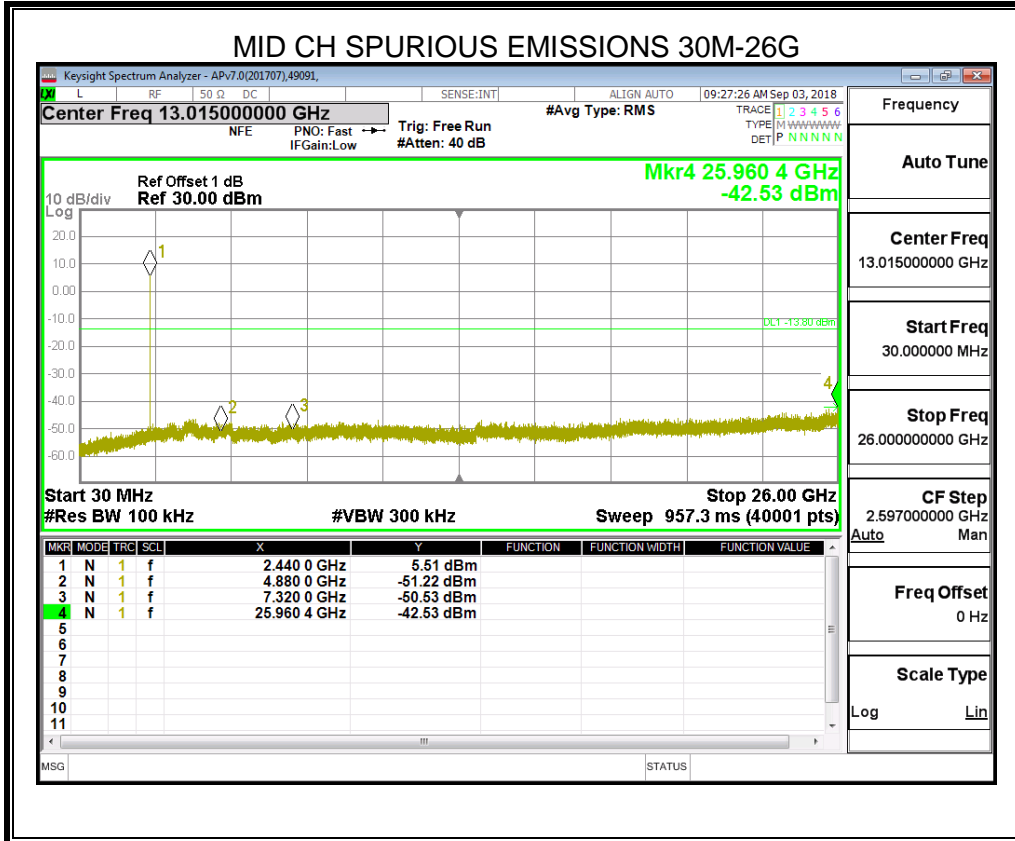
**TEST ENVIRONMENT**

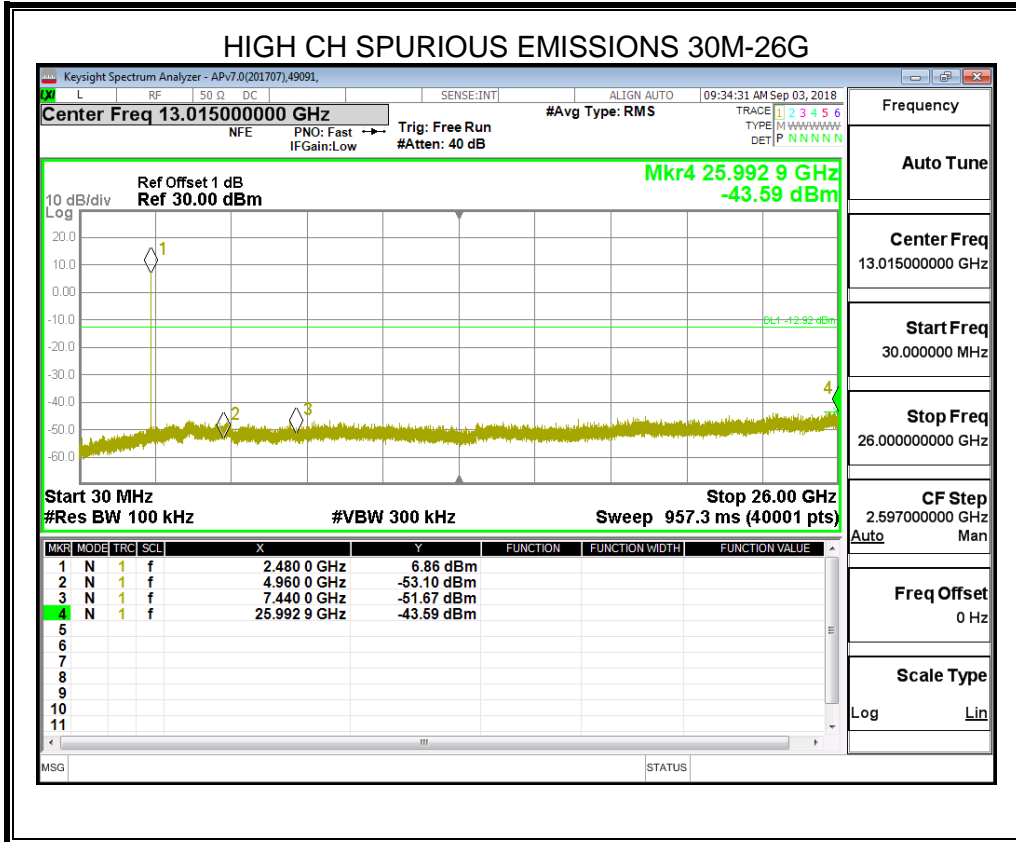
Temperature	22.3°C	Relative Humidity	63%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

**RESULTS**











## 9. RADIATED TEST RESULTS

### 9.1. LIMITS AND PROCEDURE

Please refer to FCC §15.205 and §15.209

Please refer to RSS-GEN Clause 8.9 (Transmitter)

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

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

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.



Radiation Disturbance Test Limit for FCC (Above 1G)

Frequency (MHz)	dB(uV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

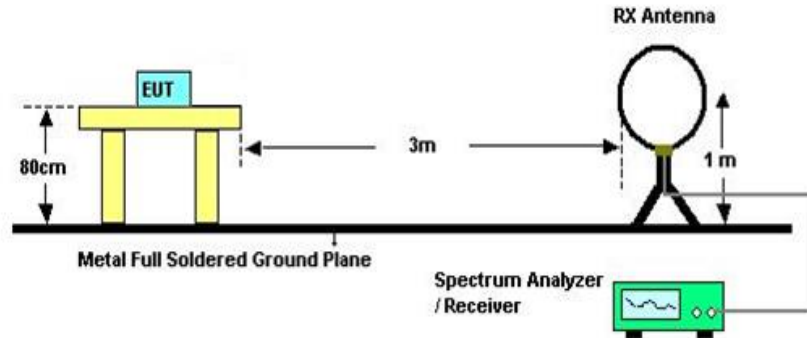
Restricted bands of operation

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



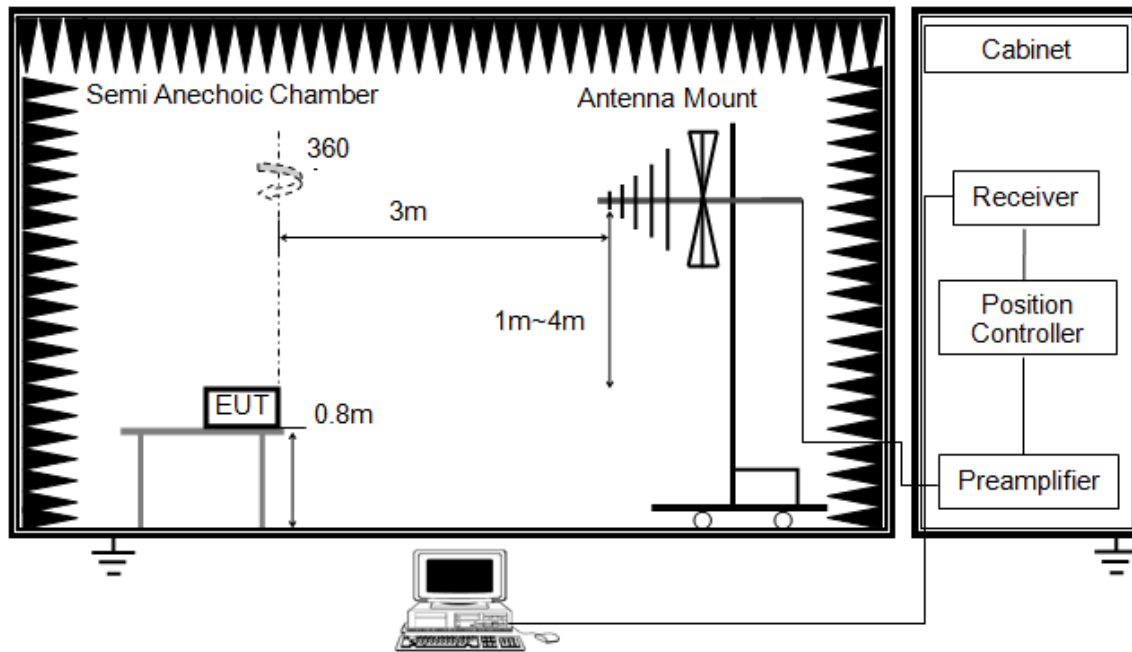
The setting of the spectrum analyser

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



Below 1G

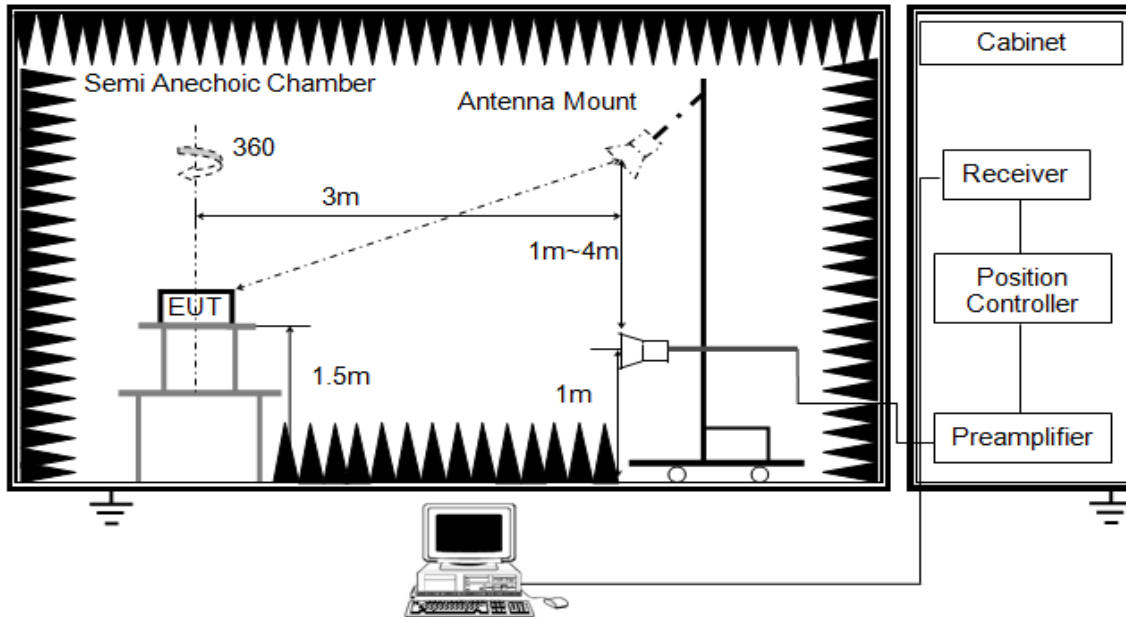


The setting of the spectrum analyser

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 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. 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

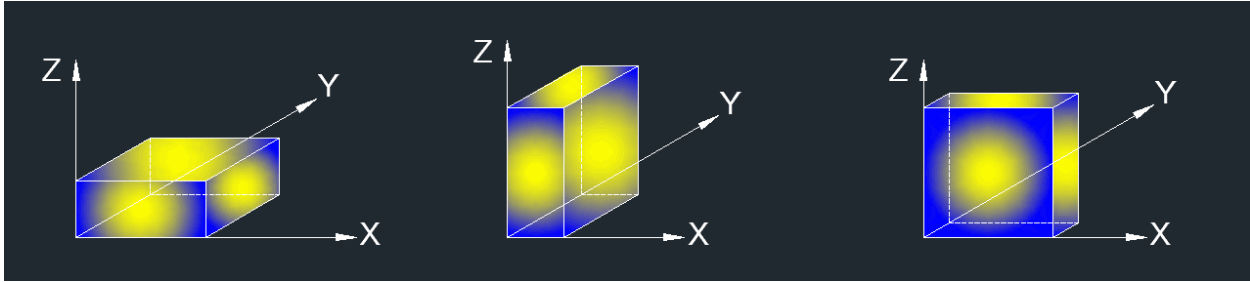


The setting of the spectrum analyser

RBW	1M
VBW	PEAK: 3M AVG: see note 6
Sweep	Auto
Detector	Peak
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. For average power measurement, set the Detector to RMS, averaging type shall be set for linear voltage averaging, while maintaining all of the other instrument settings, if the duty cycle of the EUT is less than 98%, the Duty Cycle Correction Factor shall be added to the measured emission levels. For the Duty Cycle and Correction Factor please refer to clause 8.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note: The EUT is not a portable devices and used at one axis X only.

### **TEST ENVIRONMENT**

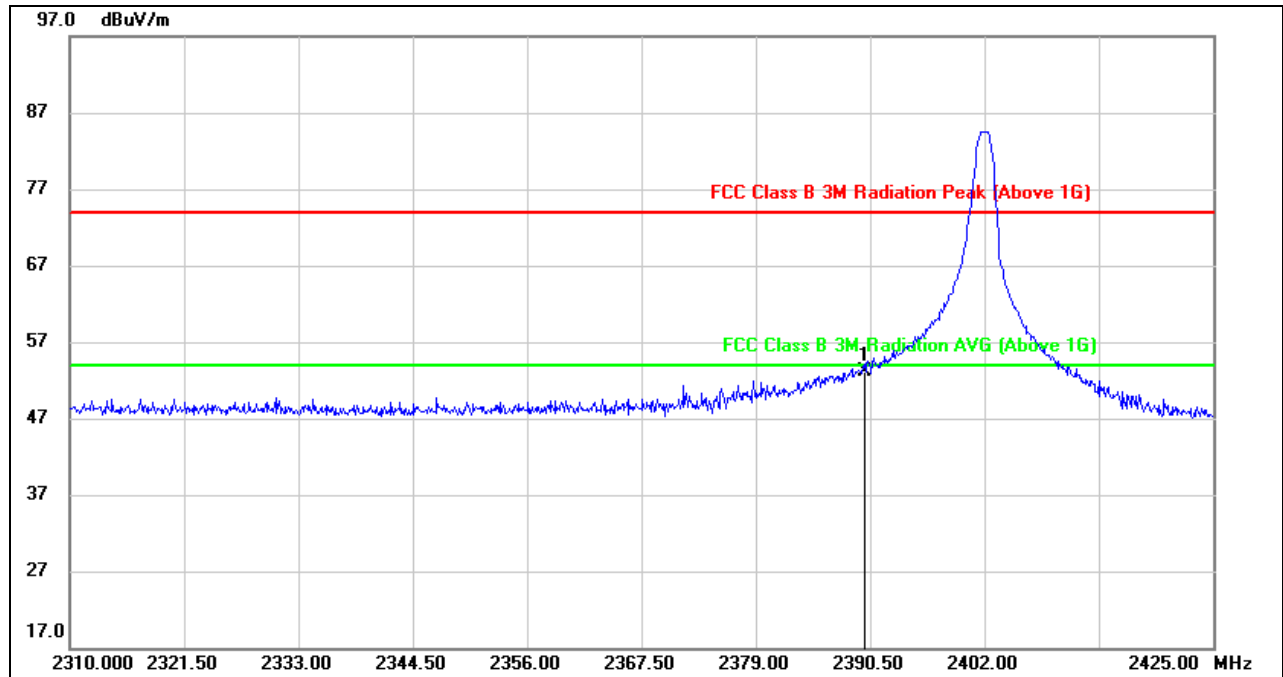
Temperature	23.3°C	Relative Humidity	66%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

### **RESULTS**



## 9.2. RESTRICTED BANDEDGE

### RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

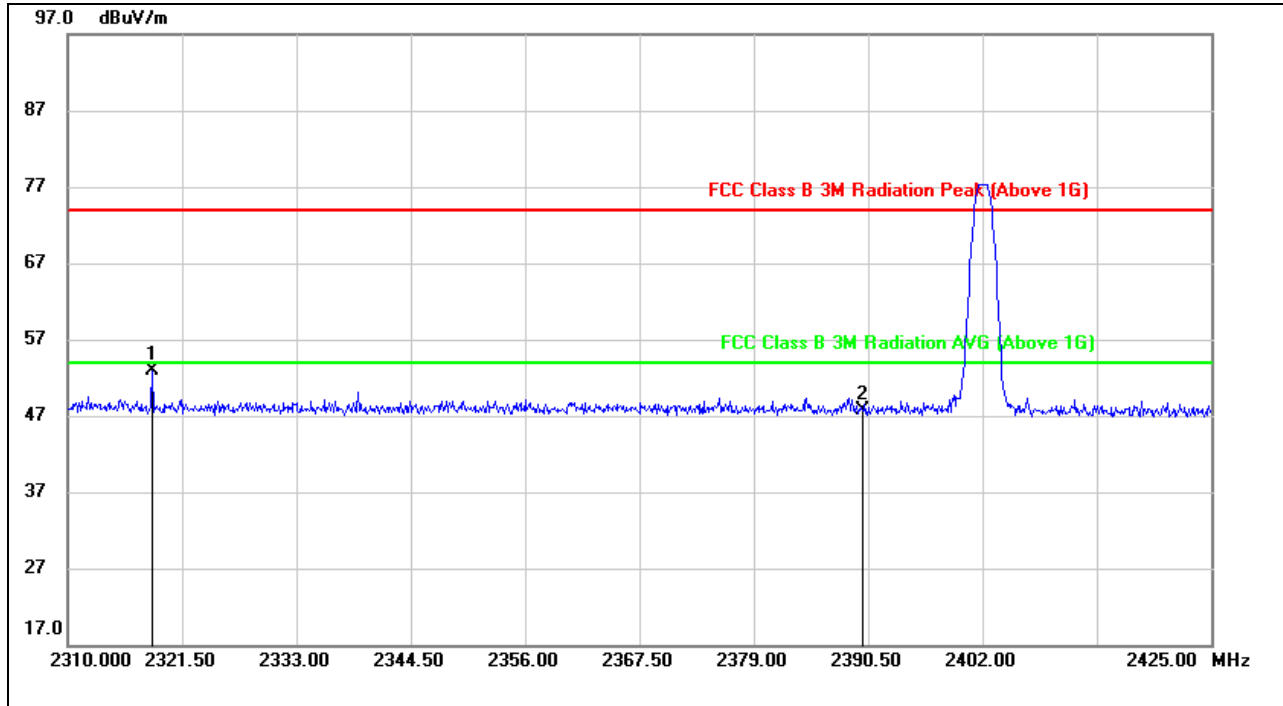


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2390.000	19.88	33.14	53.02	74.00	-20.98	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)**

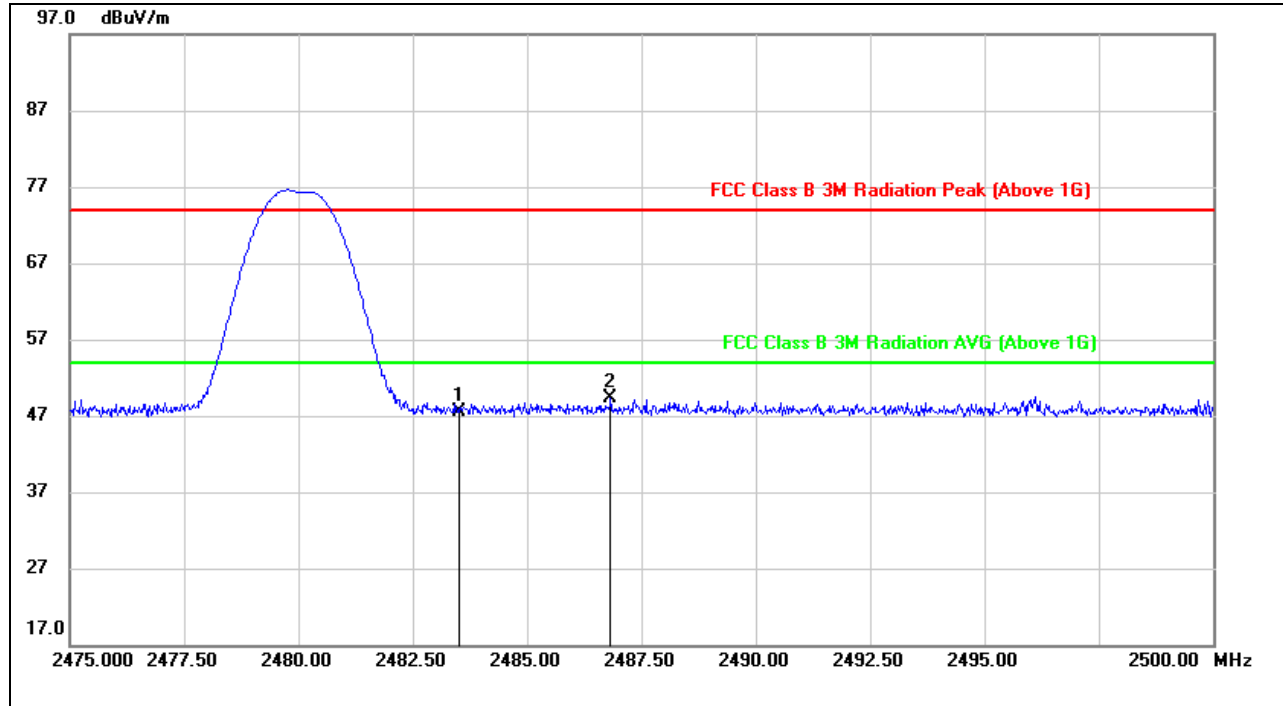


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2318.510	19.08	33.81	52.89	74.00	-21.11	peak
2	2390.000	14.37	33.24	47.61	74.00	-26.39	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)**



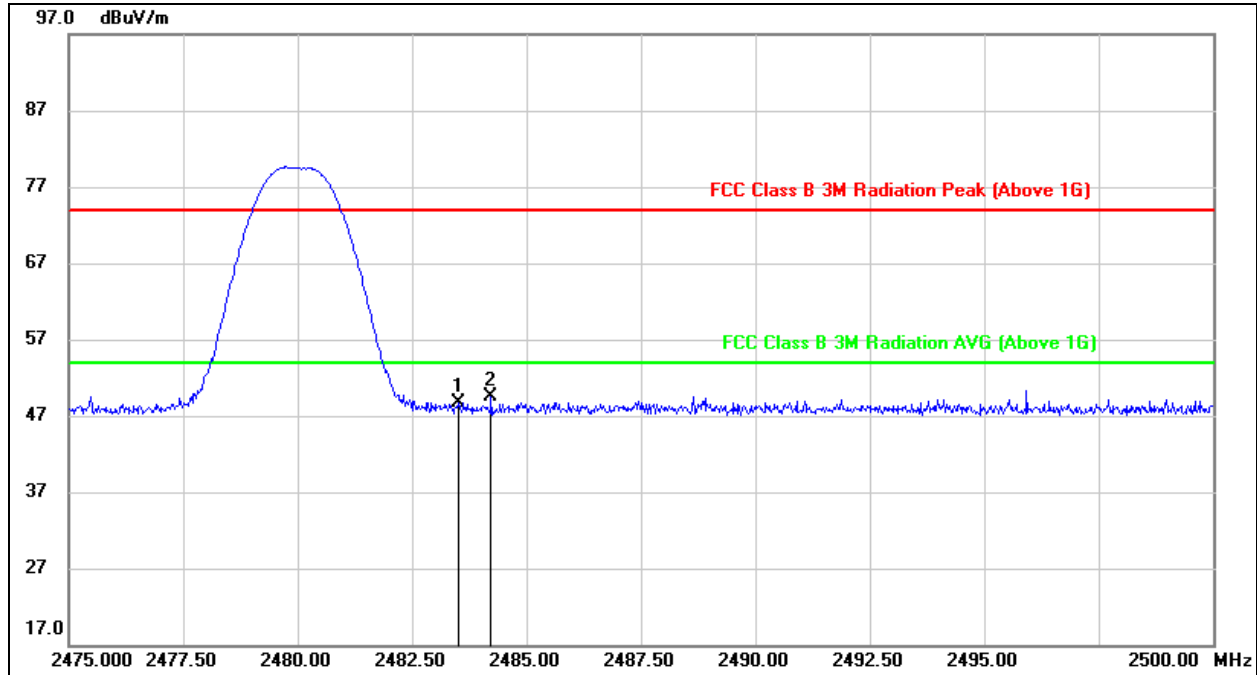
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	14.70	32.78	47.48	74.00	-26.52	peak
2	2486.825	16.42	32.79	49.21	74.00	-24.79	peak

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

2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.



**RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	15.88	32.88	48.76	74.00	-25.24	peak
2	2484.225	16.64	32.88	49.52	74.00	-24.48	peak

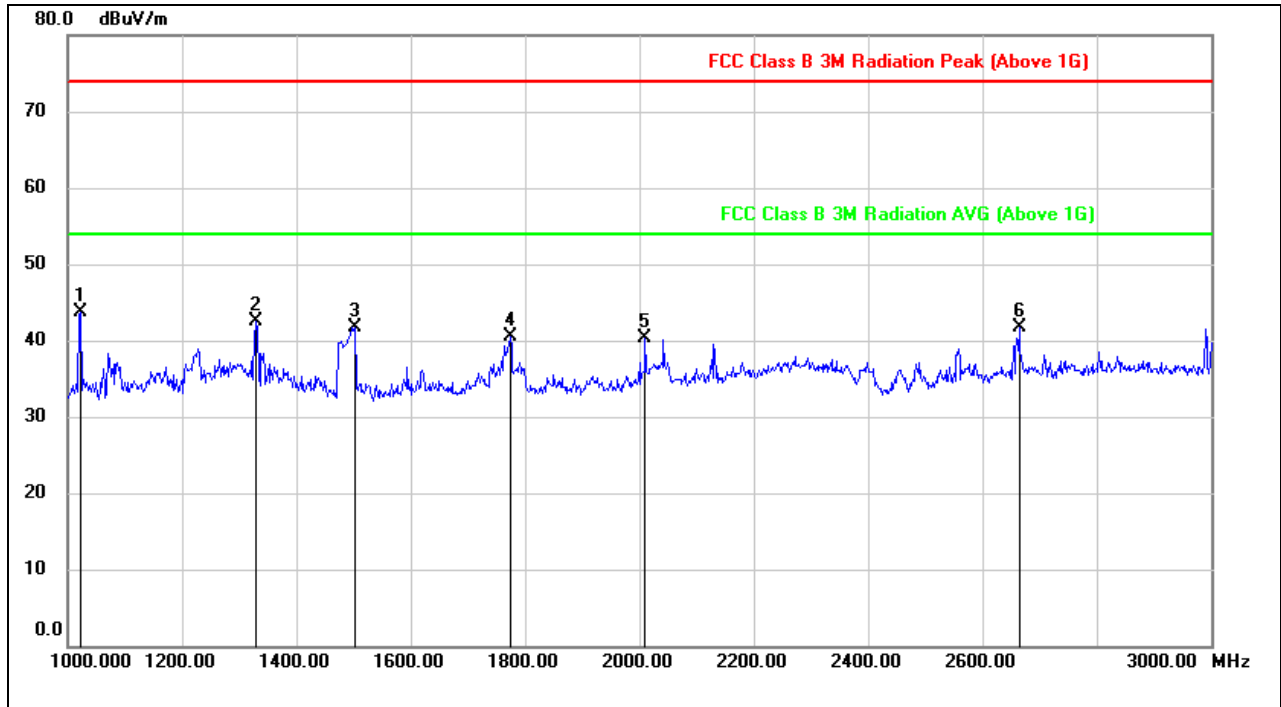
- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. Only the worst case emission recorded in the report, if Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



### 9.3. SPURIOUS EMISSIONS 1~18GHz

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

#### 1-3G



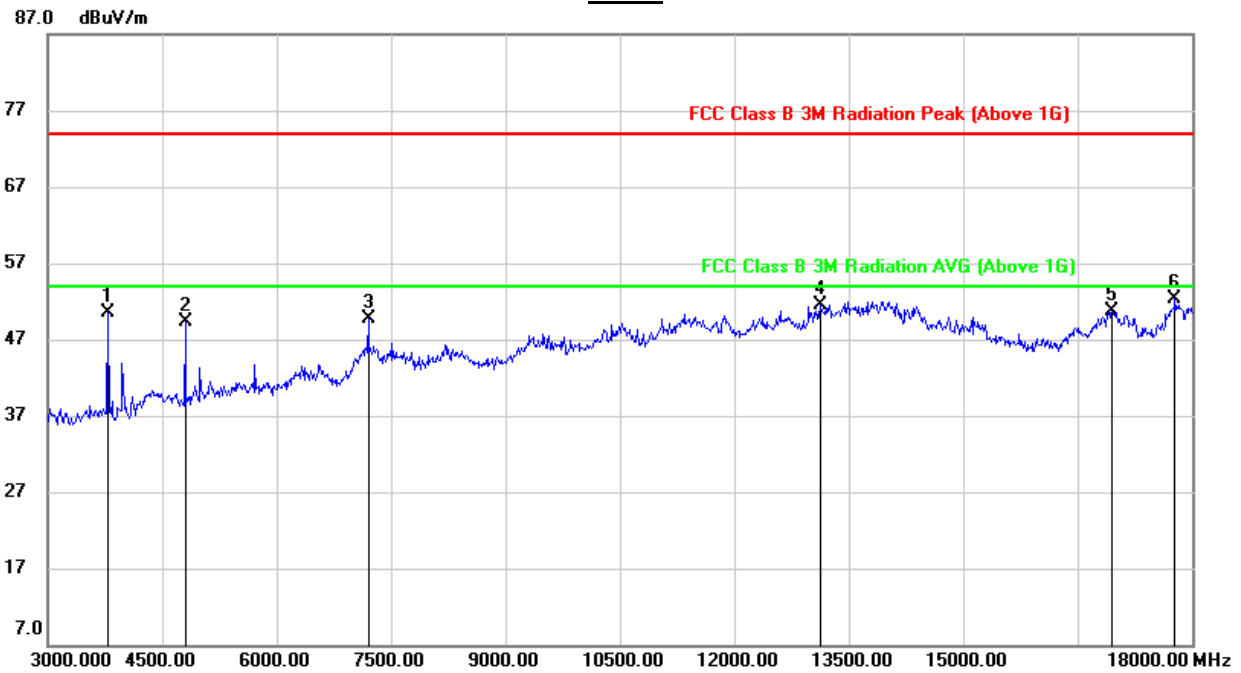
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1022.000	57.72	-13.96	43.76	74.00	-30.24	peak
2	1330.000	54.79	-12.38	42.41	74.00	-31.59	peak
3	1502.000	53.81	-12.19	41.62	74.00	-32.38	peak
4	1774.000	51.68	-11.21	40.47	74.00	-33.53	peak
5	2010.000	50.78	-10.54	40.24	74.00	-33.76	peak
6	2664.000	49.40	-7.78	41.62	74.00	-32.38	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.





**3-18G**



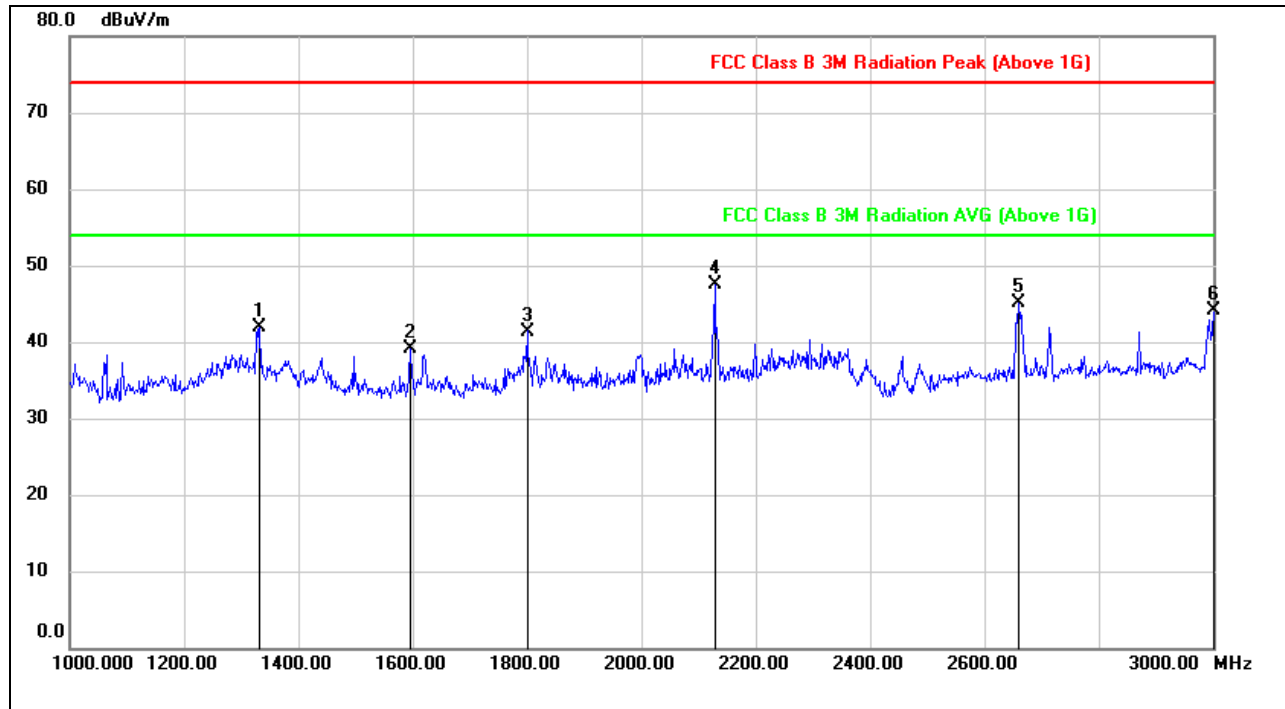
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3780.000	53.96	-3.44	50.52	74.00	-23.48	peak
2	4800.000	49.79	-0.56	49.23	74.00	-24.77	peak
3	7200.000	41.99	7.75	49.74	74.00	-24.26	peak
4	13125.000	33.05	18.37	51.42	74.00	-22.58	peak
5	16950.000	29.13	21.50	50.63	74.00	-23.37	peak
6	17775.000	26.12	26.17	52.29	74.00	-21.71	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

**1-3G**

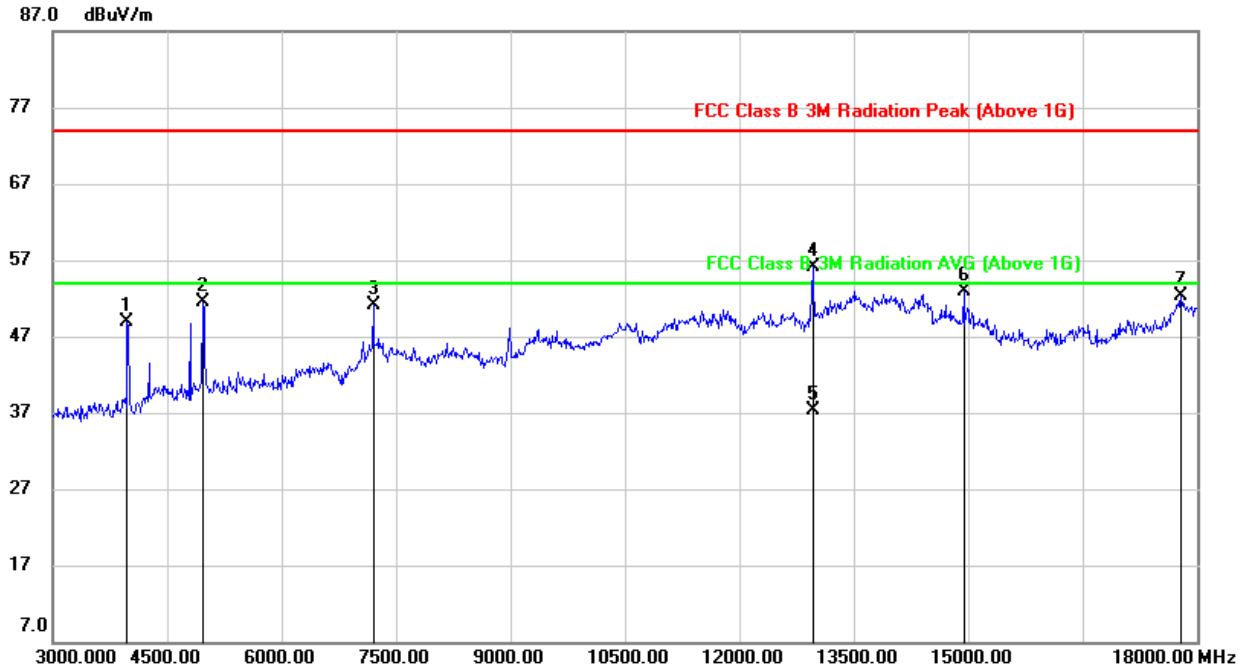


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1332.000	54.45	-12.48	41.97	74.00	-32.03	peak
2	1596.000	51.28	-12.08	39.20	74.00	-34.80	peak
3	1800.000	52.53	-11.13	41.40	74.00	-32.60	peak
4	2128.000	56.73	-9.31	47.42	74.00	-26.58	peak
5	2660.000	53.08	-7.88	45.20	74.00	-28.80	peak
6	3000.000	50.61	-6.60	44.01	74.00	-29.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.



**3-18G**



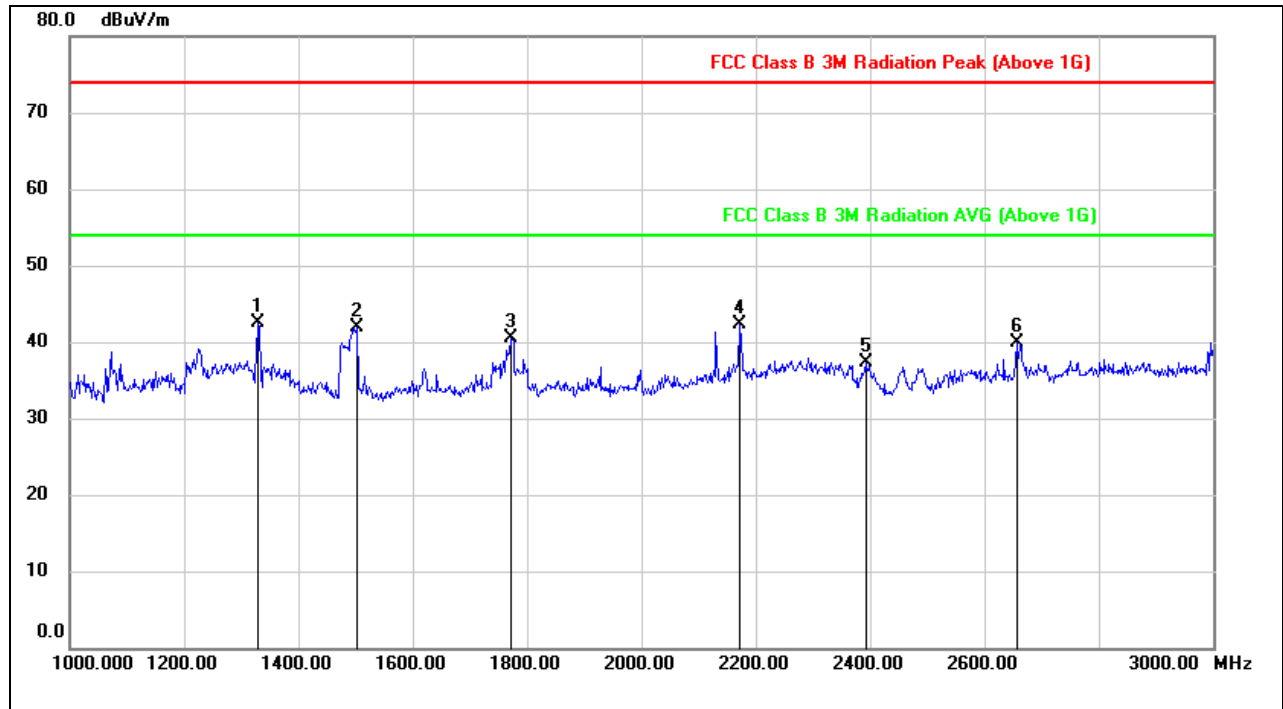
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3975.000	51.97	-3.02	48.95	74.00	-25.05	peak
2	4965.000	50.96	0.59	51.55	74.00	-22.45	peak
3	7200.000	43.17	7.85	51.02	74.00	-22.98	peak
4	12960.000	37.49	18.64	56.13	74.00	-17.87	peak
5	12960.000	18.67	20.30	38.97	54.00	-15.03	AVG
6	14940.000	34.52	18.36	52.88	74.00	-21.12	peak
7	17790.000	25.48	26.76	52.24	74.00	-21.76	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 3. Peak: Peak detector.  
 4. AVG: RMS detector, the detector and averaging type may be set for linear voltage averaging.  
 5. DCCF: Duty Cycle Correction Factor (Please refer to clause 8.1.ON TIME AND DUTY CYCLE)  
 6. The DCCF already added in Correct Factor.



**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)**

**1-3G**

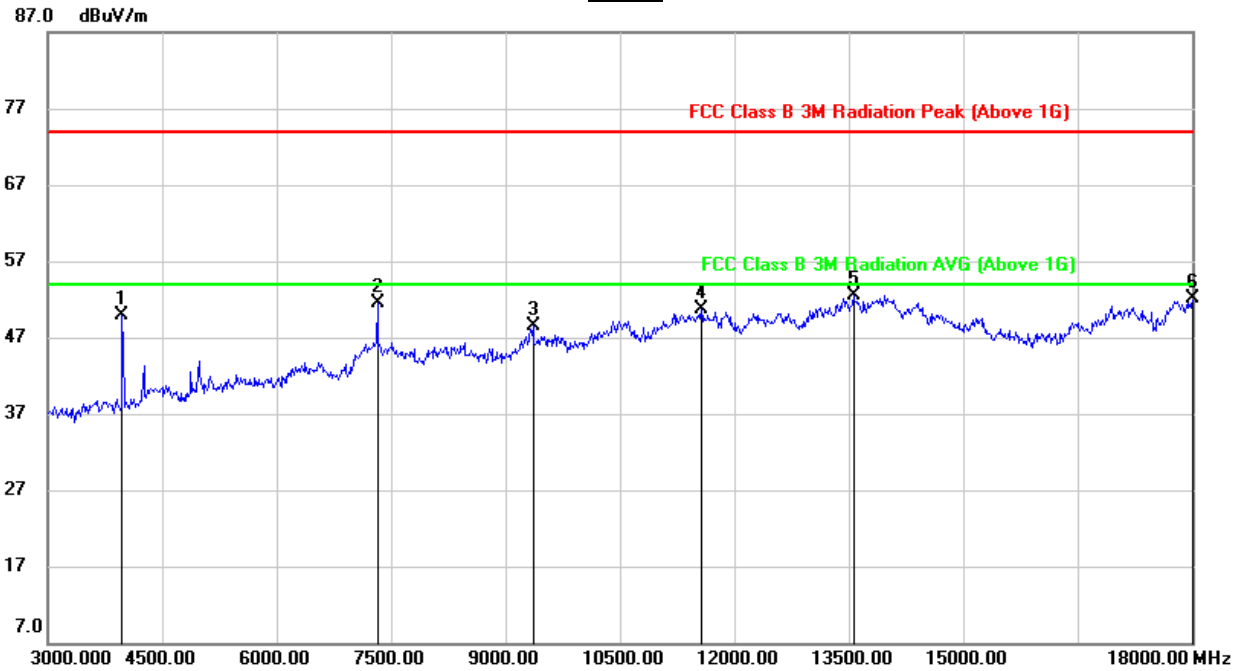


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1330.000	54.93	-12.38	42.55	74.00	-31.45	peak
2	1502.000	54.17	-12.19	41.98	74.00	-32.02	peak
3	1772.000	51.71	-11.22	40.49	74.00	-33.51	peak
4	2172.000	50.99	-8.65	42.34	74.00	-31.66	peak
5	2392.000	45.40	-8.04	37.36	74.00	-36.64	peak
6	2656.000	47.64	-7.83	39.81	74.00	-34.19	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**3-18G**



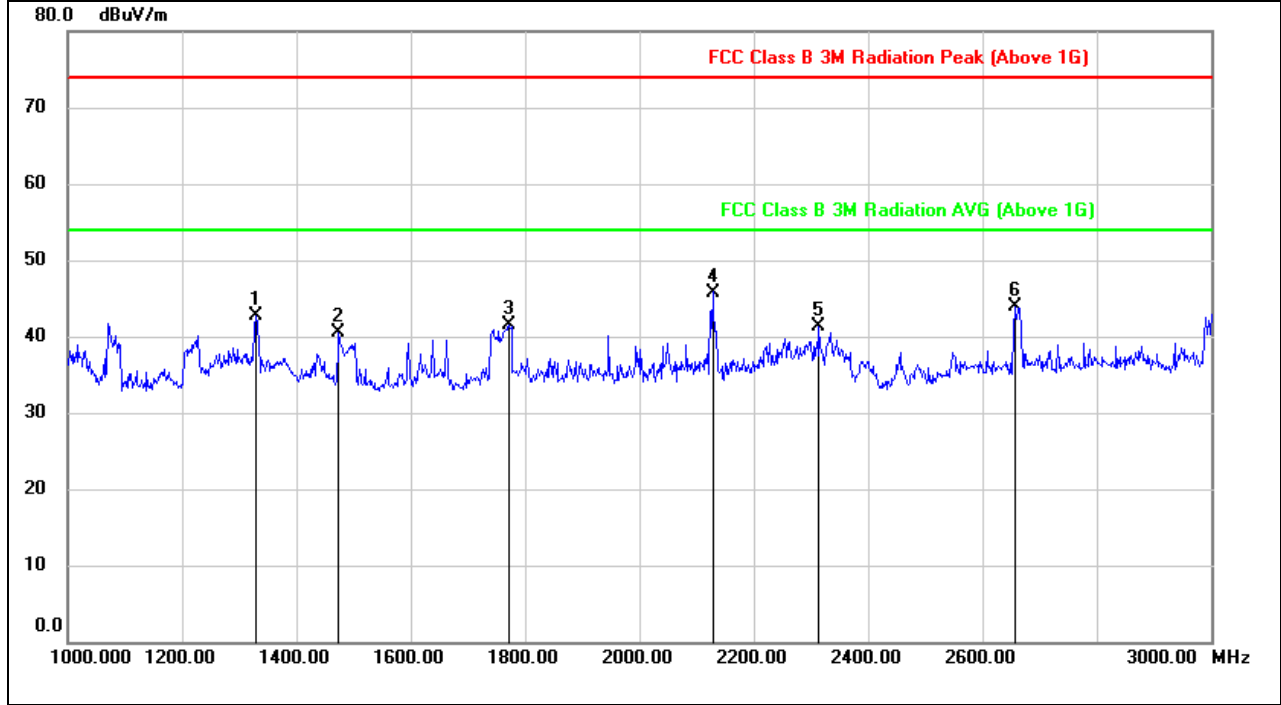
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3975.000	52.92	-3.02	49.90	74.00	-24.10	peak
2	7320.000	43.95	7.63	51.58	74.00	-22.42	peak
3	9360.000	37.71	10.83	48.54	74.00	-25.46	peak
4	11565.000	34.77	15.95	50.72	74.00	-23.28	peak
5	13560.000	32.14	20.37	52.51	74.00	-21.49	peak
6	18000.000	24.95	27.06	52.01	74.00	-21.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)**

**1-3G**

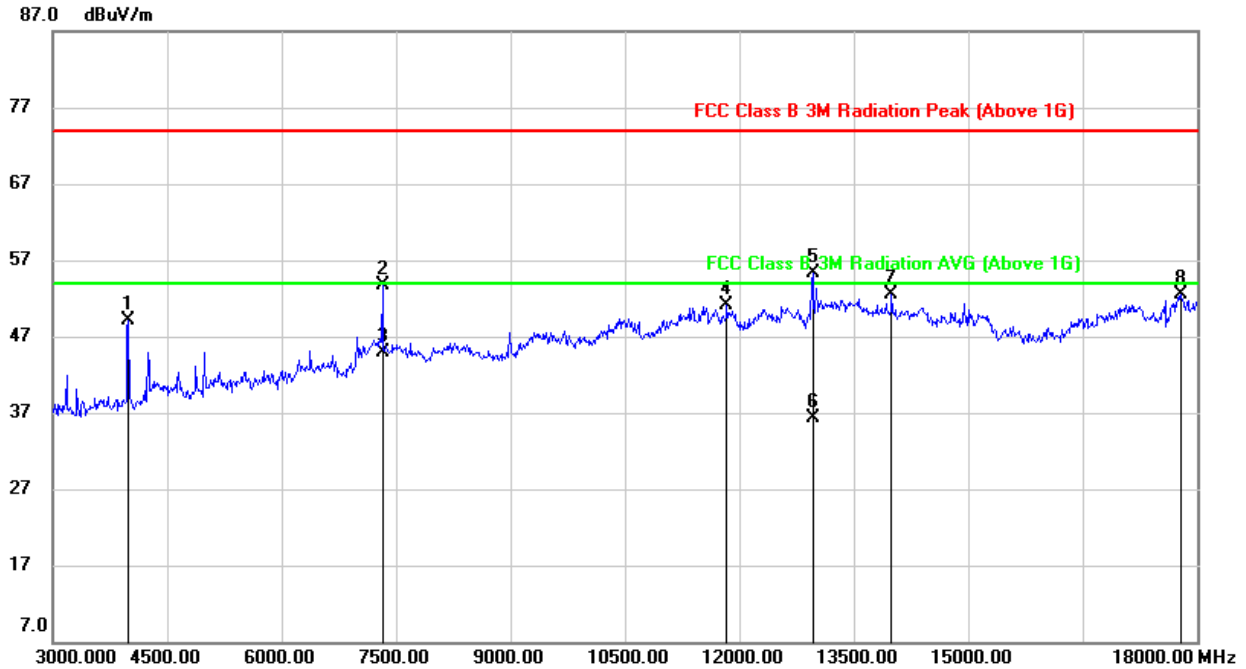


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	55.23	-12.51	42.72	74.00	-31.28	peak
2	1474.000	52.77	-12.28	40.49	74.00	-33.51	peak
3	1772.000	52.67	-11.22	41.45	74.00	-32.55	peak
4	2128.000	55.11	-9.31	45.80	74.00	-28.20	peak
5	2314.000	48.62	-7.32	41.30	74.00	-32.70	peak
6	2656.000	51.81	-7.91	43.90	74.00	-30.10	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**3-18G**



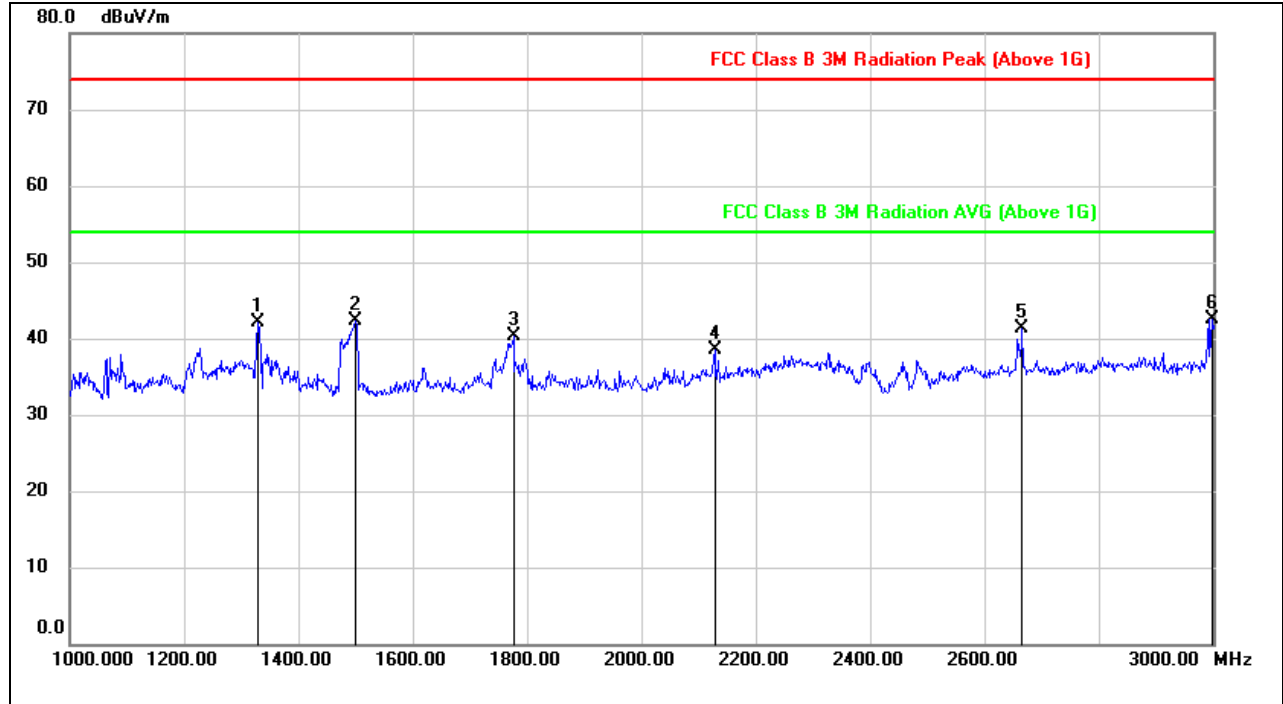
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3990.000	52.14	-3.00	49.14	74.00	-24.86	peak
2	7320.000	46.01	7.67	53.68	74.00	-20.32	peak
3	7320.000	37.16	9.33	46.49	54.00	-7.51	AVG
4	11835.000	34.45	16.61	51.06	74.00	-22.94	peak
5	12960.000	36.60	18.64	55.24	74.00	-18.76	peak
6	12960.000	17.76	18.64	36.40	54.00	-17.60	AVG
7	13995.000	31.70	20.72	52.42	74.00	-21.58	peak
8	17790.000	25.67	26.76	52.43	74.00	-21.57	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG: RMS detector, the detector and averaging type may be set for linear voltage averaging.  
 5. DCCF: Duty Cycle Correction Factor (Please refer to clause 8.1.ON TIME AND DUTY CYCLE)  
 6. The DCCF already added in Correct Factor.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

**1-3G**



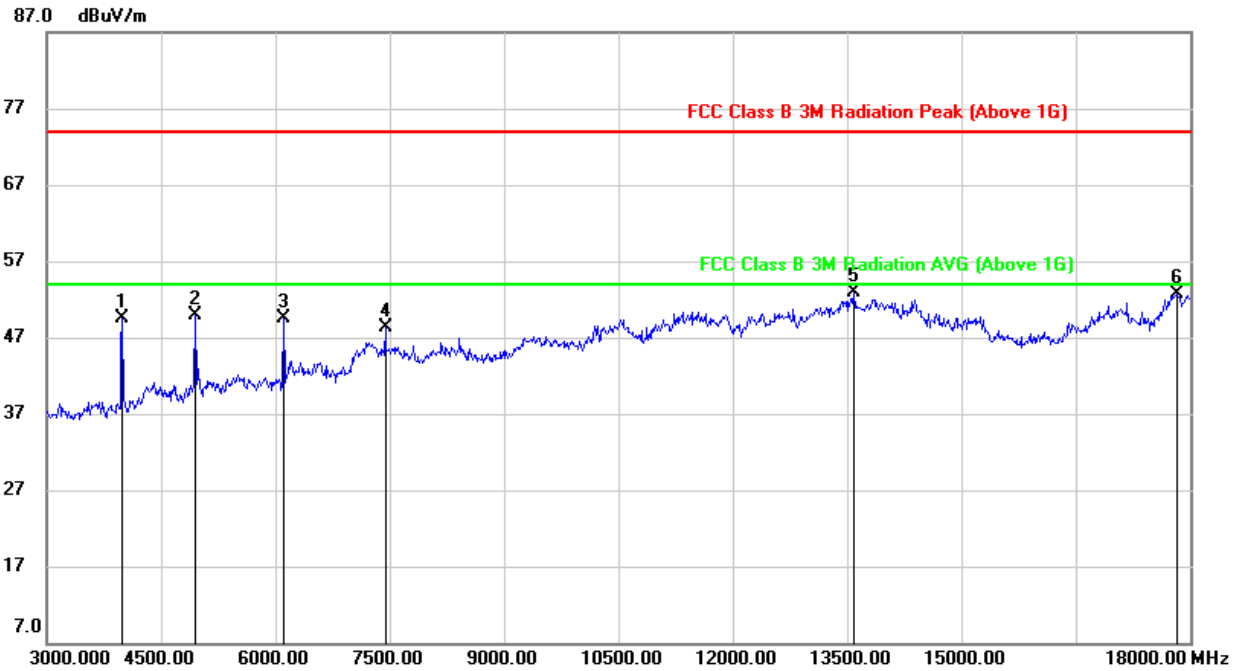
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	54.58	-12.38	42.20	74.00	-31.80	peak
2	1500.000	54.40	-12.18	42.22	74.00	-31.78	peak
3	1776.000	51.48	-11.20	40.28	74.00	-33.72	peak
4	2128.000	47.75	-9.21	38.54	74.00	-35.46	peak
5	2666.000	49.00	-7.78	41.22	74.00	-32.78	peak
6	2998.000	49.13	-6.60	42.53	74.00	-31.47	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.





**3-18G**



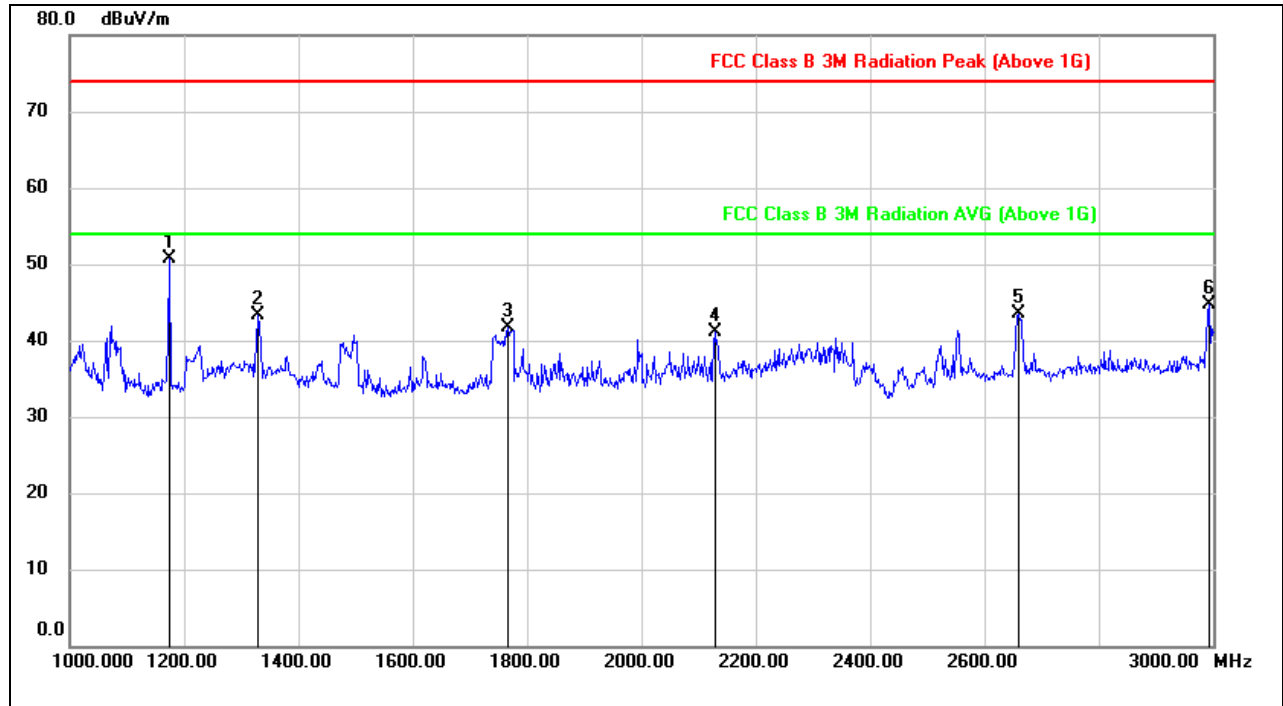
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3990.000	52.55	-3.00	49.55	74.00	-24.45	peak
2	4950.000	49.22	0.59	49.81	74.00	-24.19	peak
3	6105.000	45.99	3.53	49.52	74.00	-24.48	peak
4	7440.000	40.89	7.44	48.33	74.00	-25.67	peak
5	13590.000	32.32	20.51	52.83	74.00	-21.17	peak
6	17820.000	26.19	26.48	52.67	74.00	-21.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**

**1-3G**

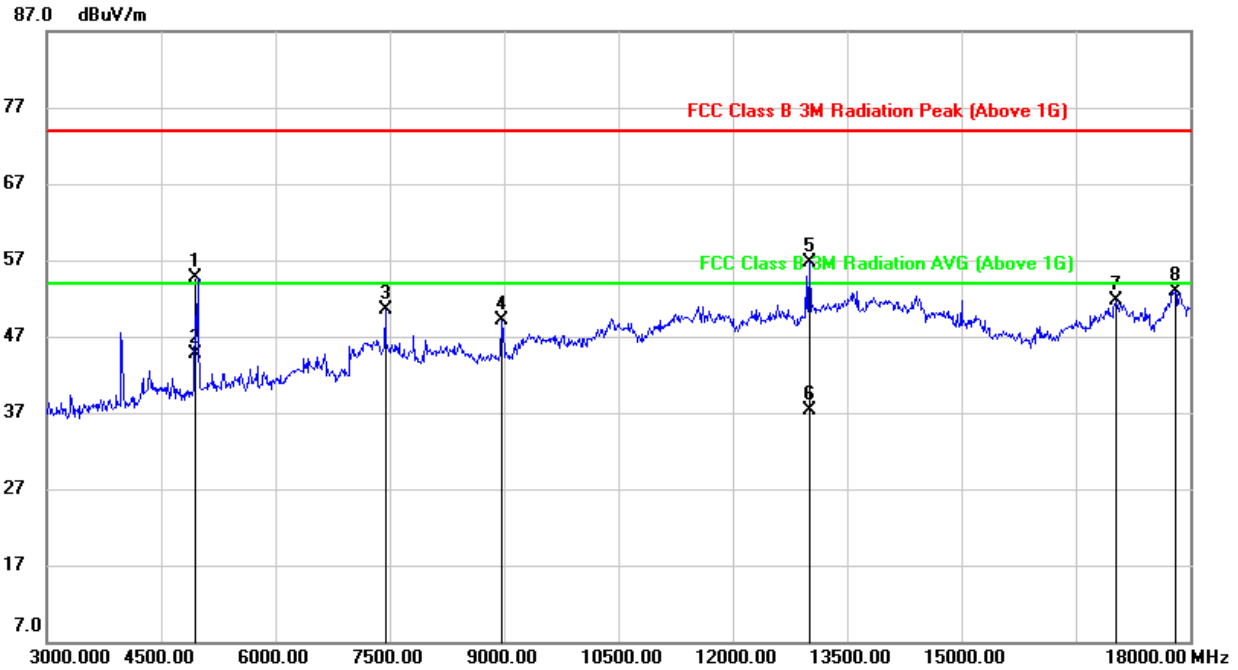


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1174.000	64.06	-13.38	50.68	74.00	-23.32	peak
2	1330.000	55.71	-12.50	43.21	74.00	-30.79	peak
3	1766.000	52.92	-11.23	41.69	74.00	-32.31	peak
4	2130.000	50.31	-9.28	41.03	74.00	-32.97	peak
5	2660.000	51.31	-7.88	43.43	74.00	-30.57	peak
6	2992.000	51.36	-6.59	44.77	74.00	-29.23	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**3-18G**



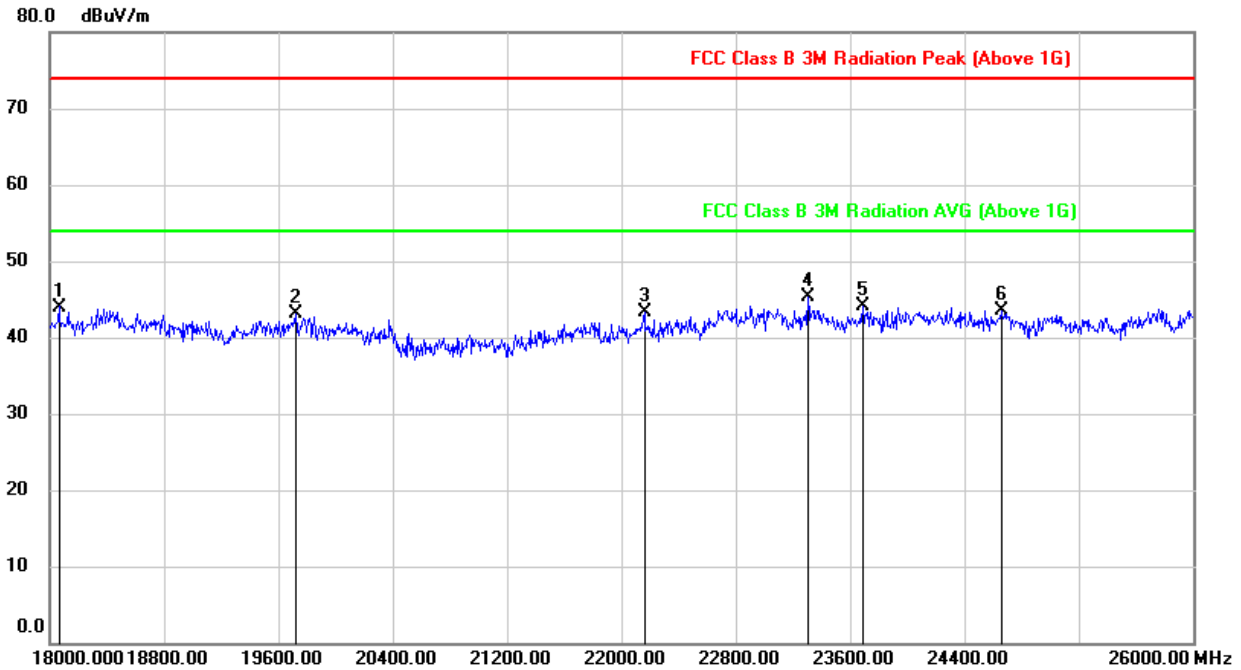
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	54.18	0.58	54.76	74.00	-19.24	peak
2	4960.000	44.06	2.24	46.30	54.00	-7.70	AVG
3	7440.000	43.01	7.52	50.53	74.00	-23.47	peak
4	8970.000	39.54	9.57	49.11	74.00	-24.89	peak
5	13005.000	37.86	18.84	56.70	74.00	-17.30	peak
6	13005.000	18.5	20.50	39.00	54.00	-15.00	AVG
7	17025.000	29.23	22.48	51.71	74.00	-22.29	peak
8	17805.000	26.16	26.80	52.96	74.00	-21.04	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 3. Peak: Peak detector.  
 4. AVG: RMS detector, the detector and averaging type may be set for linear voltage averaging.  
 5. DCCF: Duty Cycle Correction Factor (Please refer to clause 8.1.ON TIME AND DUTY CYCLE)  
 6. The DCCF already added in Correct Factor.



### 9.4. SPURIOUS EMISSIONS 18G ~ 26GHz

#### SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

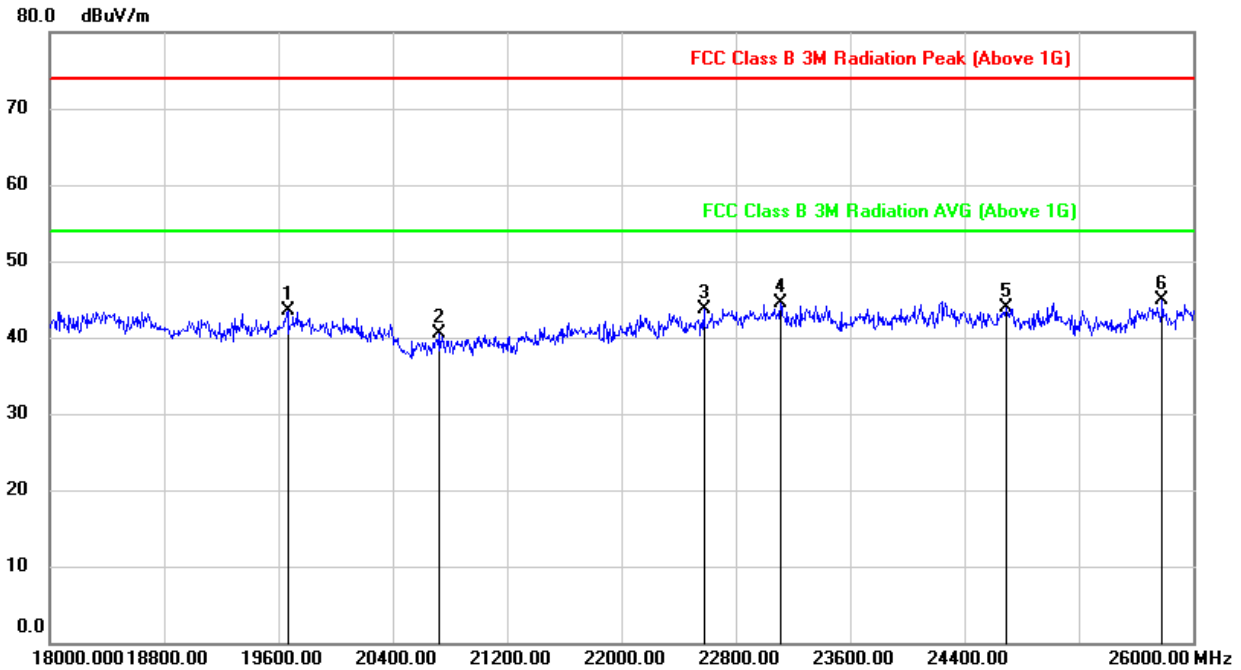


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18064.000	48.00	-4.00	44.00	74.00	-30.00	peak
2	19720.000	47.25	-4.12	43.13	74.00	-30.87	peak
3	22160.000	48.47	-5.26	43.21	74.00	-30.79	peak
4	23304.000	49.00	-3.64	45.36	74.00	-28.64	peak
5	23688.000	47.73	-3.66	44.07	74.00	-29.93	peak
6	24656.000	46.57	-3.05	43.52	74.00	-30.48	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)**



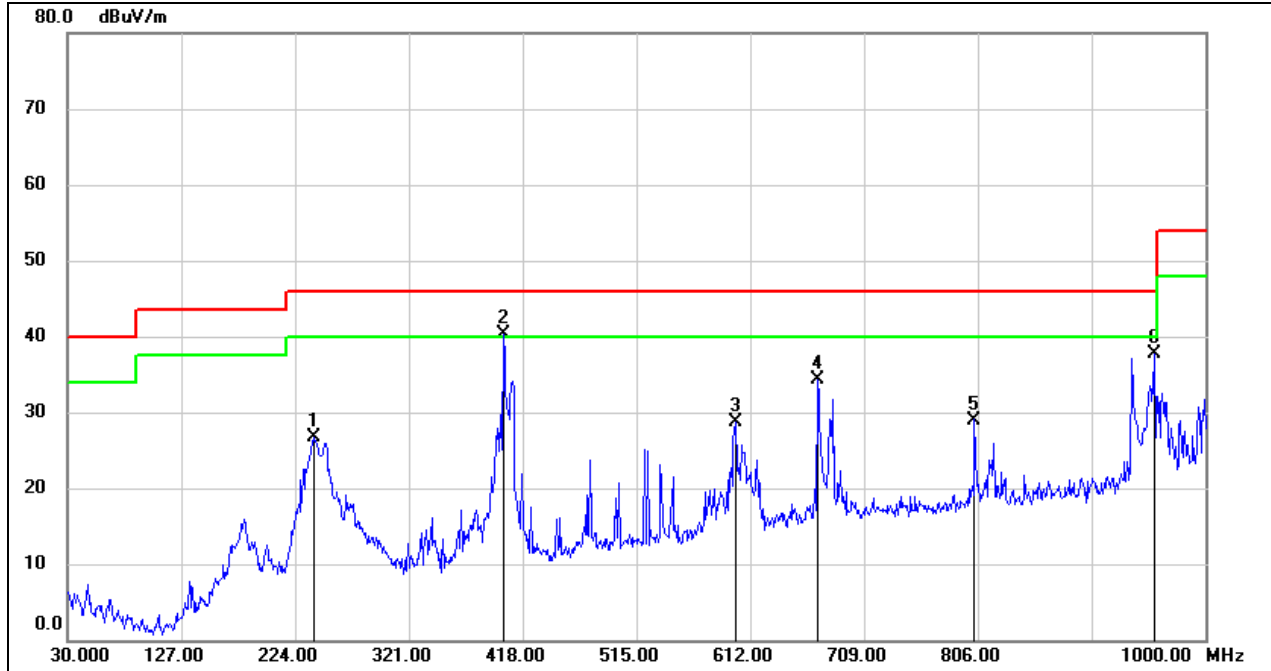
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19664.000	47.75	-4.26	43.49	74.00	-30.51	peak
2	20728.000	45.94	-5.46	40.48	74.00	-33.52	peak
3	22576.000	48.12	-4.41	43.71	74.00	-30.29	peak
4	23112.000	48.25	-3.65	44.60	74.00	-29.40	peak
5	24696.000	47.05	-3.06	43.99	74.00	-30.01	peak
6	25784.000	47.40	-2.49	44.91	74.00	-29.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



### 9.5. SPURIOUS EMISSIONS 30M ~ 1 GHz

#### SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)

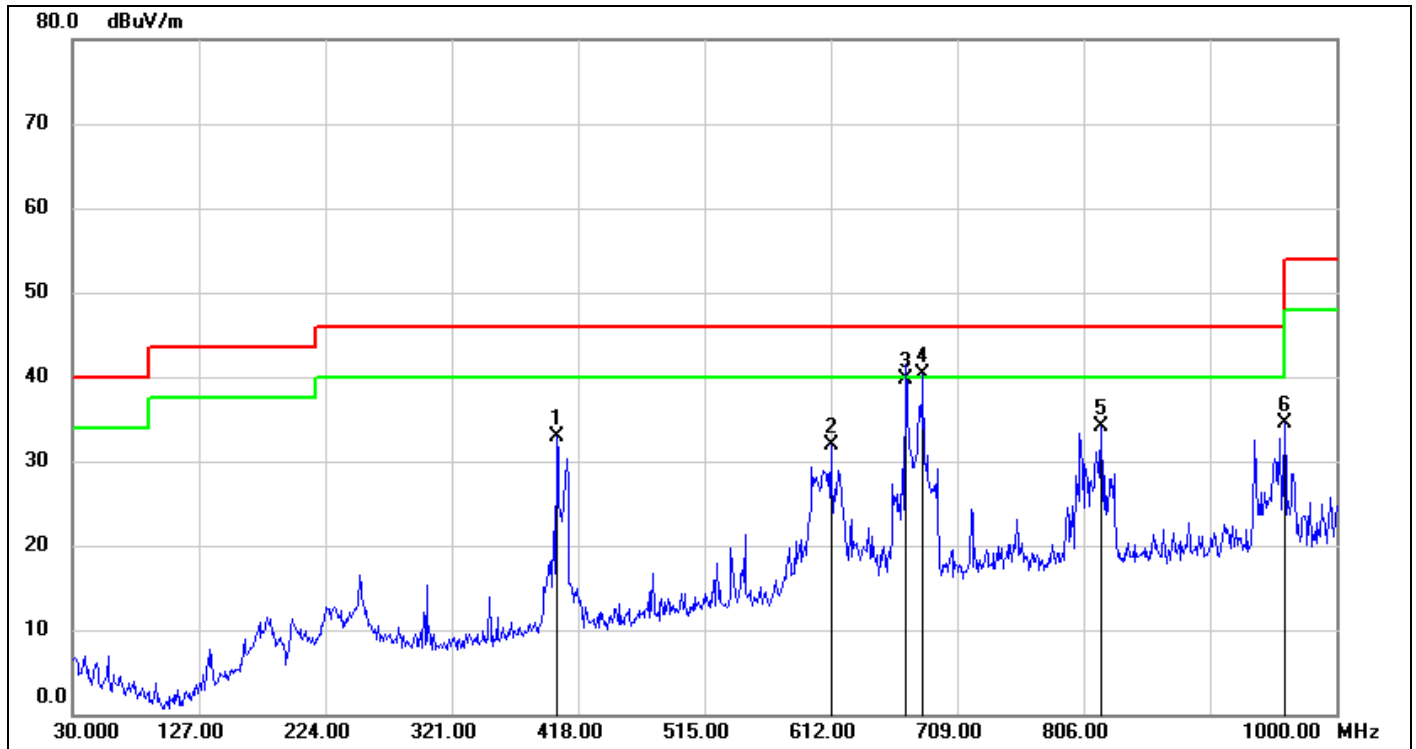


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	239.5200	44.14	-17.37	26.77	46.00	-19.23	QP
2	401.5100	53.37	-13.06	40.31	46.00	-5.69	QP
3	599.3900	37.84	-9.13	28.71	46.00	-17.29	QP
4	669.2300	42.23	-7.93	34.30	46.00	-11.70	QP
5	803.0900	34.85	-5.85	29.00	46.00	-17.00	QP
6	956.3500	41.57	-3.81	37.76	46.00	-8.24	QP

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



**SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	401.5100	45.93	-13.06	32.87	46.00	-13.13	QP
2	612.0000	40.75	-8.91	31.84	46.00	-14.16	QP
3	669.2300	47.61	-7.93	39.68	46.00	-6.32	QP
4	682.8100	47.88	-7.64	40.24	46.00	-5.76	QP
5	819.5800	39.62	-5.44	34.18	46.00	-11.82	QP
6	960.2300	38.32	-3.85	34.47	54.00	-19.53	QP

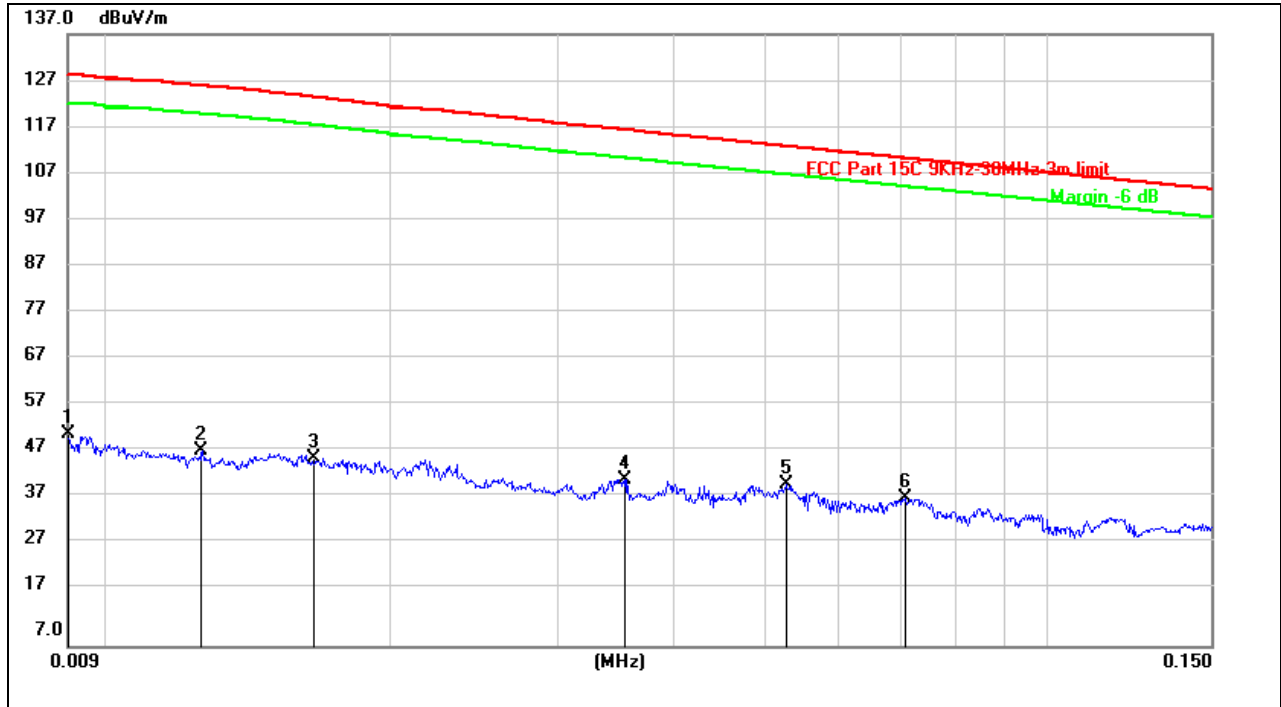
- Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto



## 9.6. SPURIOUS EMISSIONS BELOW 30M

### SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)

#### 0.09KHz~ 150KHz



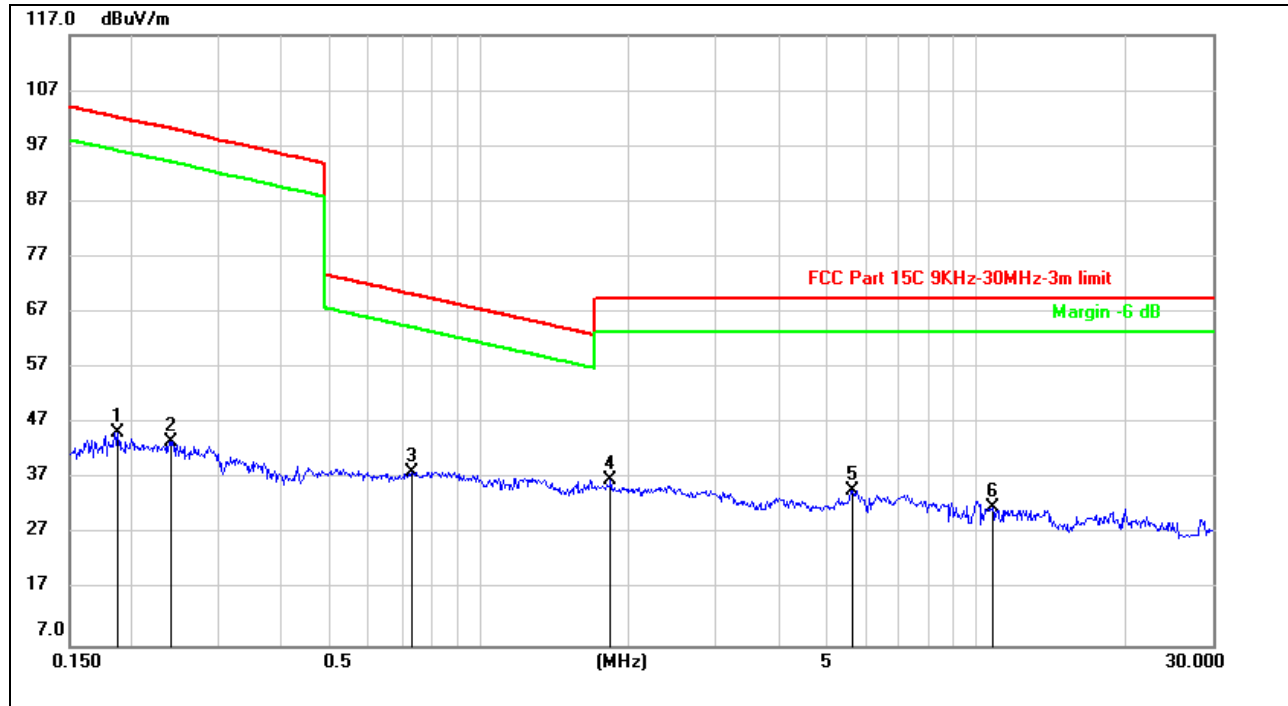
No.	Frequency (KHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0090	31.78	20.29	52.07	128.37	-76.30	peak
2	0.0125	28.36	20.23	48.59	126.09	-77.50	peak
3	0.0165	26.42	20.27	46.69	123.69	-77.00	peak
4	0.0354	21.97	20.31	42.28	116.71	-74.43	peak
5	0.0526	20.83	20.31	41.14	113.21	-72.07	peak
6	0.0708	18.14	20.31	38.45	110.61	-72.16	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
3. Peak: Peak detector.





**150KHz ~ 30M**



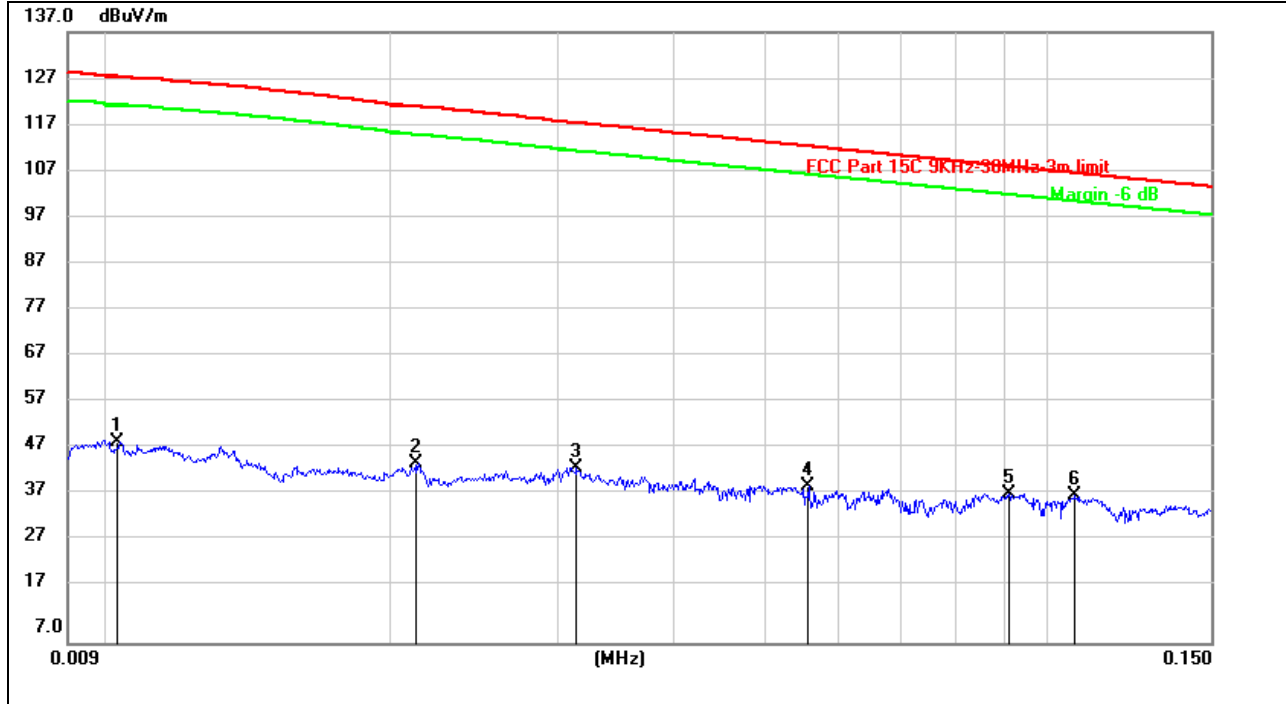
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1874	25.04	20.38	45.42	102.15	-56.73	peak
2	0.2391	23.36	20.33	43.69	100.20	-56.51	peak
3	0.7308	18.00	20.34	38.34	70.34	-32.00	peak
4	1.8386	16.28	20.67	36.95	69.54	-32.59	peak
5	5.6234	14.20	20.85	35.05	69.54	-34.49	peak
6	10.7900	10.80	21.04	31.84	69.54	-37.70	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)**

**0.09KHz~ 150KHz**

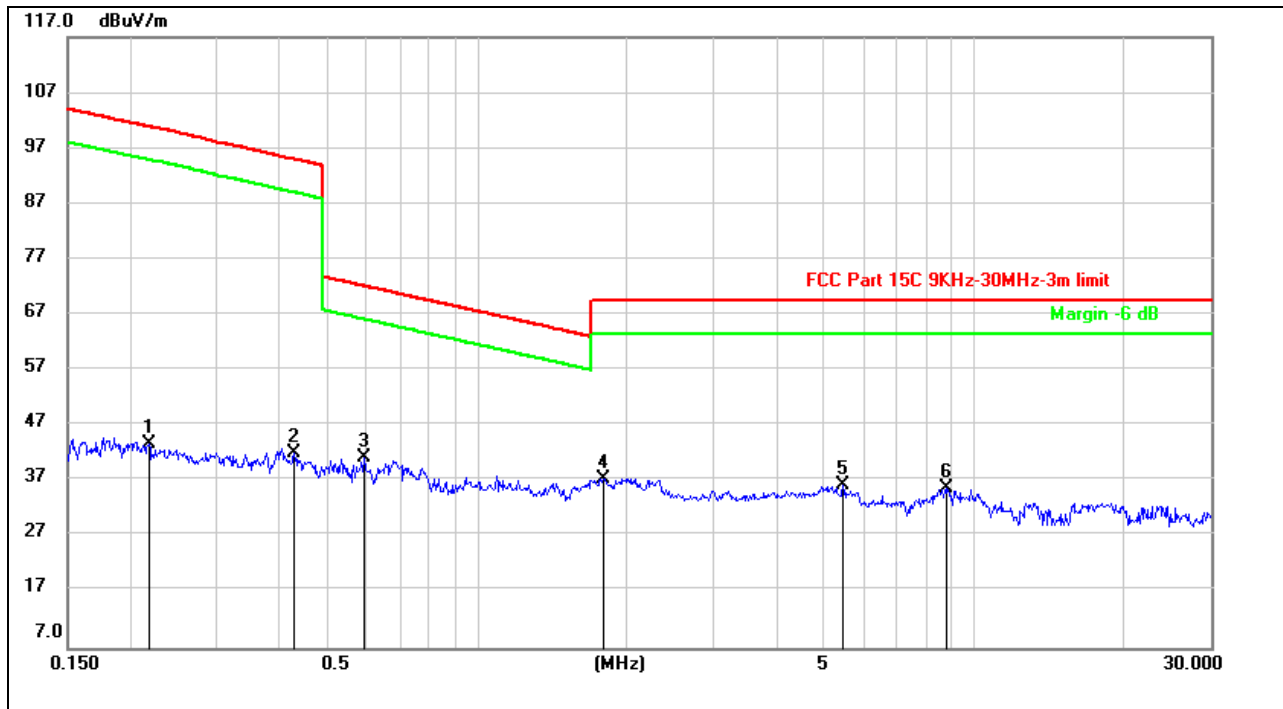


No.	Frequency (KHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0102	29.37	20.21	49.58	127.48	-77.90	peak
2	0.0212	24.84	20.31	45.15	121.16	-76.01	peak
3	0.0314	24.03	20.31	44.34	117.71	-73.37	peak
4	0.0555	19.89	20.31	40.20	112.75	-72.55	peak
5	0.0912	18.42	20.25	38.67	108.41	-69.74	peak
6	0.1073	18.08	20.25	38.33	107.00	-68.67	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.



**150KHz ~ 30M**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2184	23.23	20.35	43.58	100.93	-57.35	peak
2	0.4282	21.73	20.27	42.00	95.01	-53.01	peak
3	0.5916	20.90	20.29	41.19	72.17	-30.98	peak
4	1.8000	16.80	20.66	37.46	69.54	-32.08	peak
5	5.4474	15.54	20.84	36.38	69.54	-33.16	peak
6	8.7757	14.79	21.01	35.80	69.54	-33.74	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.

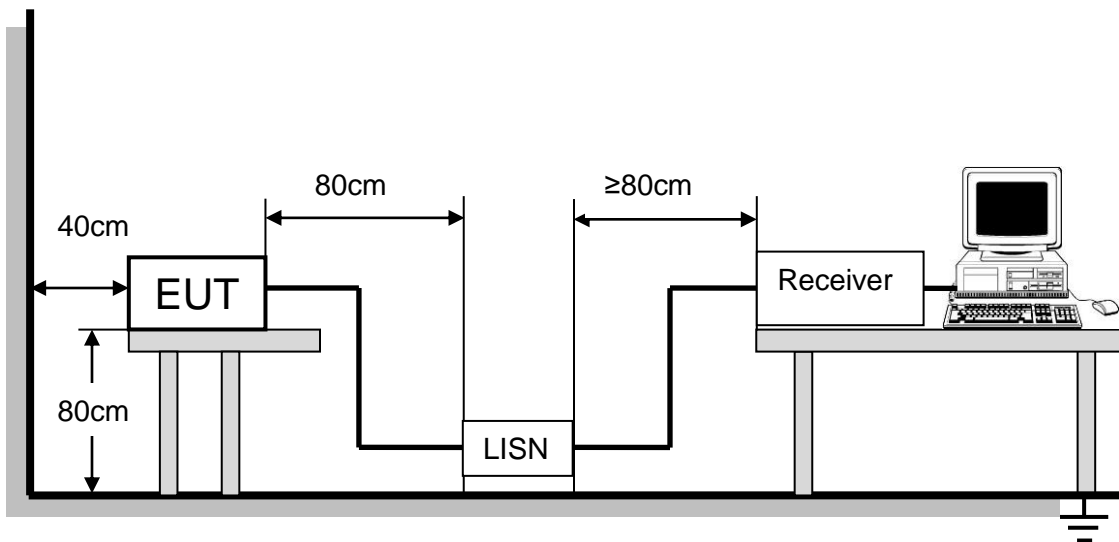
## 10. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

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

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

### TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.



**TEST RESULTS**

Note Applicable.

Note: The EUT was used in vehicle environment.



## 11. ANTENNA REQUIREMENTS

### APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

### ANTENNA CONNECTOR

EUT has a PCB antenna without antenna connector.

### ANTENNA GAIN

The antenna gain of EUT is less than 6 dBi.

**END OF REPORT**