



# TEST REPORT

*For*

**Applicant : ACOUSTMAX INTERNATIONAL CO., LTD**

**Address : Unit D16/F Cheuk Nang Plaza 250 Hennessy Road  
WanchaiHongKong**

**Product Name : Monster Solara**

**Model Name : MNSOL-BLK**

**Remark : N/A**

**Brand Name : Monster**

**FCC Number : FCC ID: 2AAIN-MNSOLBLK**

**Report No. : MTE/CEC/B17040675**

**Date of Issue : Apr.25,2017**

**Issued by : Most Technology Service Co., Limited**

**Address : No.5, 2nd Langshan Road, North District, Hi-tech Industrial  
Park, Nanshan, Shenzhen, Guangdong, China**

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## TABLE OF CONTENTS

Description	Page
<b>Test Report Certification</b>	
1. GENERAL INFORMATION .....	5
1.1. Description of Device (EUT).....	5
1.2. Description of Test Facility.....	6
2. MEASURING DEVICE AND TEST EQUIPMENT.....	7
3. OPERATION OF EUT DURING TEST.....	8
3.1. Operating Mode.....	8
3.2. Configuration and peripherals .....	8
4. TEST PROCEDURES AND RESULTS .....	9
5. 6DB OCCUPIED BANDWIDTH TEST.....	10
5.1. Block Diagram of Test Setup.....	10
5.2. The Requirement For Section 15.247(a)(1).....	10
5.3. EUT Configuration on Measurement.....	10
5.4. Operating Condition of EUT .....	10
5.6. Test Result .....	11
6. POWER SPECTRAL DENSITY TEST .....	15
6.1. Block Diagram of Test Setup.....	15
6.2. The Requirement For Section 15.247(e).....	15
6.3. EUT Configuration on Measurement.....	15
6.4. Operating Condition of EUT .....	15
6.5. Test Procedure .....	15
6.6. Test Result .....	16
7. RF CONDUCTED SPURIOUS EMISSIONS TEST.....	20
7.1. Block Diagram of Test Setup.....	20
7.2. The Requirement For Section 15.247(d) .....	20
7.3. EUT Configuration on Measurement.....	20
7.4. Operating Condition of EUT .....	20
7.5. Test Procedure .....	20
7.6. Test Result .....	20
8. CONDUCTED PEAK OUTPUT POWER TEST .....	24
8.1. Block Diagram of Test Setup.....	24
8.2. The Requirement For Section 15.247(b)(3).....	24
8.3. EUT Configuration on Measurement.....	24
8.4. Operating Condition of EUT .....	24
8.5. Test Procedure .....	25
8.6. Test Result .....	26
9. RADIATED EMISSION TEST .....	30
9.1. Block Diagram of Test Setup.....	30
9.2. The Limit For Section 15.247(d) .....	30
9.3. Restricted bands of operation .....	31
9.4. Configuration of EUT on Measurement .....	31
9.5. Test Procedure .....	32
9.6. The Field Strength of Radiation Emission Measurement Results .....	33
10. D EDGE COMPLIANCE TEST.....	38
10.1. Block Diagram of Test Setup.....	38
10.2. The Requirement For Section 15.247(d) .....	38
10.3. EUT Configuration on Measurement.....	38
10.4. Operating Condition of EUT .....	38
10.5. Test Procedure .....	39
10.6. Test Result: PASS.....	39

11. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A).....	46
11.1. Block Diagram of Test Setup.....	46
11.2. The Emission Limit.....	46
11.3. Configuration of EUT on Measurement .....	47
11.4. Operating Condition of EUT .....	47
11.5. Test Procedure.....	47
11.6. Power Line Conducted Emission Measurement Results .....	47
12. ANTENNA REQUIREMENT.....	50
12.1. The Requirement .....	50
12.2. Antenna Construction .....	50

## Test Report Certification

Applicant : ACOUSTMAX INTERNATIONAL  
CO., LTD

Manufacturer : Shenzhen AngSi Technology

Co., LTD EUT Description : Monster  
Solara

(A) MODEL NO.: MNSOL-BLK

(B) Trade Name: Monster

(C) POWER SUPPLY: DC 5V by Adapter

Measurement  
Procedure Used:

FCC Rules and Regulations Part 15 Subpart C  
Section 15.247 KDB558074 D01

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Tested by (+ signature):

*chloe*

Chloe Cai(Engineer)

Apr.11-24,2017

Review by (+ signature):

*John*

John Lin(Engineer)



Apr.25,2017

Approved by (+ signature):

*Yvette Zhou*

Yvette Zhou(Manager)

Apr.25,2017

## 1.GENERAL INFORMATION

### 1.1.Description of Device (EUT)

EUT : Monster Solara  
Model Number : MNSOL-BLK

Operation Frequency : 5736MHz, 5762MHz,  
5814MHz Number of Channels : 3

Modulation type : QPSK  
Antenna Gain : 4.0dBi  
Antenna type : PCB Antenna  
Power Supply : DC 5V by Adapter  
Applicant : ACOUSTMAX INTERNATIONAL CO., LTD  
Address : Unit D16/F Cheuk Nang Plaza 250  
Hennessy Road WanchaiHongKong

Manufacturer : Shenzhen AngSi Technology Co., LTD  
Address : 902B,LingYun Buiding,Honglang North NO  
2.Road ,  
Baoan District, Shenzhen

Date of sample received : Apr.10, 2017  
Date of Test : Apr.11-24, 2017

## 1.2. Description of Test Facility

EMC Lab : Most Technology Service Co., Limited

Location : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,  
Nanshan, Shenzhen, Guangdong, China

## 1.3. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty (9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty (30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty (Above 1GHz) = 4.06dB, k=2

## 2.MEASURING DEVICE AND TEST EQUIPMENT

**Instrumentation:** The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

No.	Equipment	Manufacturer	Model No.	S/N	Calibration date	Calibration Interval
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2017/03/10	1 Year
2	Spectrum Analyzer	Agilent	E7405A	US44210471	2017/03/14	1 Year
3	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2017/03/10	1 Year
4	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2017/03/07	1 Year
5	Terminator	Hubersuhner	50Ω	No.1	2017/03/07	1 Year
6	RF Cable	SchwarzBeck	N/A	No.1	2017/03/07	1 Year
7	Test Receiver	Rohde & Schwarz	ESPI	101202	2017/03/10	1 Year
8	Bilog Antenna	Sunol	JB3	A121206	2017/03/14	1 Year
9	Horn Antenna	SCHWARZBECK	BBHA9120D	756	2017/03/14	1 Year
10	Horn Antenna	Penn Engineering	9034	8376	2017/03/14	1 Year
11	Cable	Resenberger	N/A	NO.1	2017/03/07	1 Year
12	Cable	SchwarzBeck	N/A	NO.2	2017/03/07	1 Year
13	Cable	SchwarzBeck	N/A	NO.3	2017/03/07	1 Year
14	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2017/03/07	1 Year
15	Test Receiver	Rohde & Schwarz	ESCI	100492	2017/03/10	1 Year
16	Loop antenna	ARA	PLA-1030/B	1039	2017/03/14	1 Year
17	Power Meter	Anritsu	ML2495A	1204008	2017/03/10	1 Year

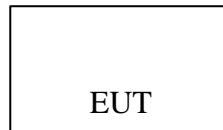
**NOTE:** Equipments listed above have been calibrated and are in the period of validation.

### 3. OPERATION OF EUT DURING TES

#### 3.1. Operating Mode

The mode is used: Transmitting mode:  
Low Channel: 5736MHz  
Middle Channel: 5762MHz  
High Channel: 5814MHz

#### 3.2. Configuration and peripherals



(EUT: Monster Solara)

Note: The EUT have two antenna(A and B), They can not transmit simultaneously, The EUT select a antenna to transmit according to signal strength automatically, One Antenna of EUT does not work when Another antenna is transmitting

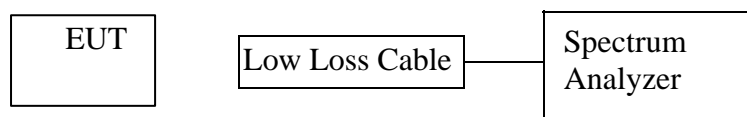


## 4. TEST PROCEDURES AND RESULTS

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
Section 15.207	AC power Line Conducted Emission Test	Compliant
Section 15.247(a)(2)	6dB Occupied Bandwidth Test	Compliant
Section 15.247(b)(3)	Conducted Peak Output Power Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.205 Section 15.209	Radiated Spurious Emissions Test	Compliant
Section 15.247(d)	RF Conducted spurious emissions Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

## 5. 6DB OCCUPIED BANDWIDTH TEST

### 5.1. Block Diagram of Test Setup



(EUT: Monster Solara)

### 5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz

### 5.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 5.4. Operating Condition of EUT

5.4.1 Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.

### 5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer through a low loss cable.

Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

### 5.6. Test Result

Antenna A test data

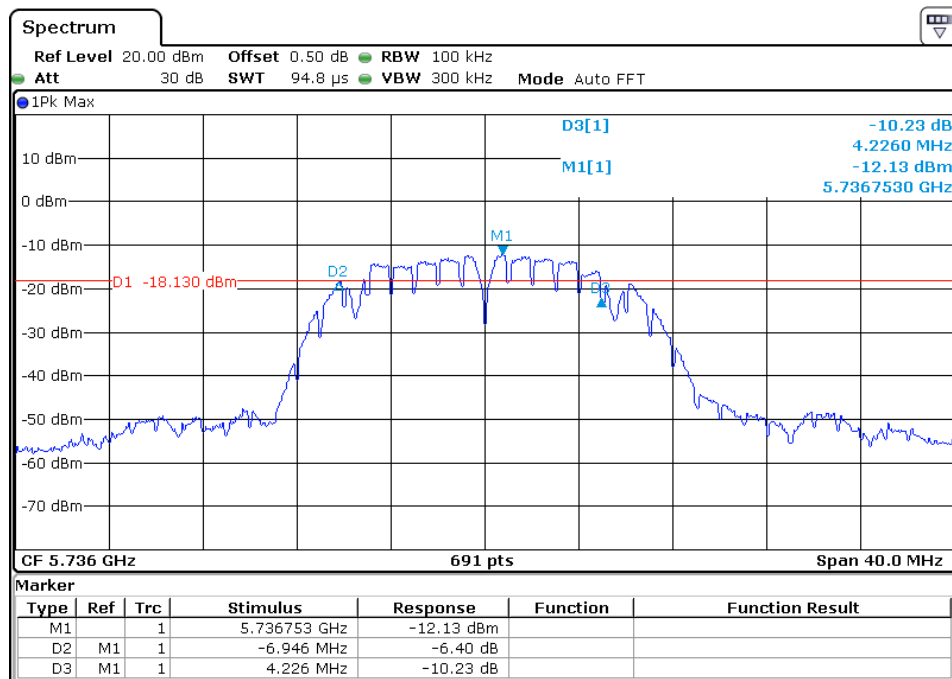
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Result
Low	5736	11.172	Pass
Middle	5762	11.057	Pass
High	5814	11.115	Pass

Antenna B test data

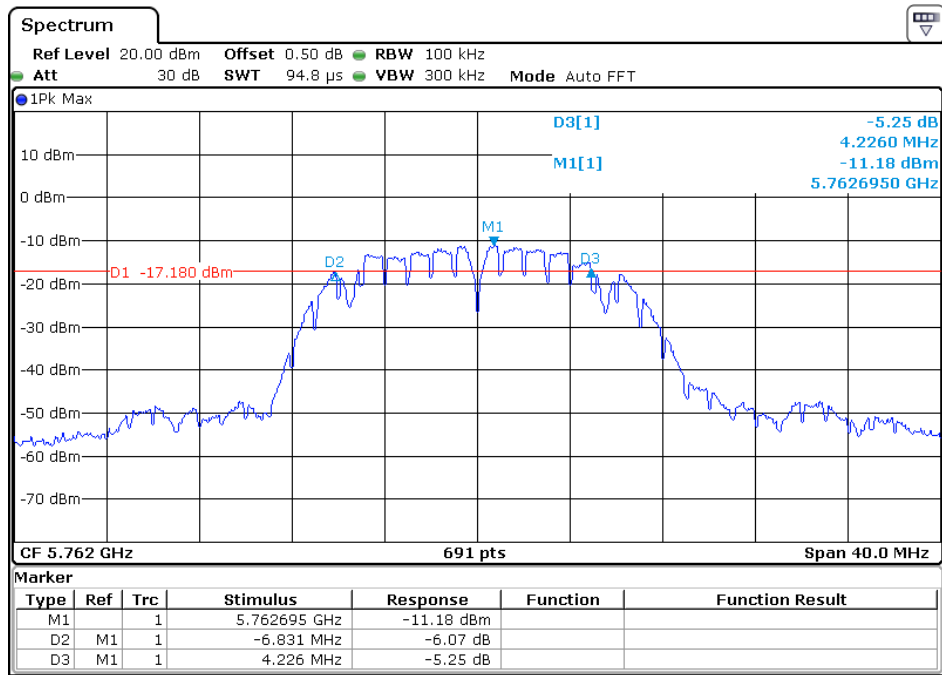
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Result
Low	5736	11.057	Pass
Middle	5762	11.057	Pass
High	5814	11.057	Pass

The spectrum analyzer plots are attached as below.

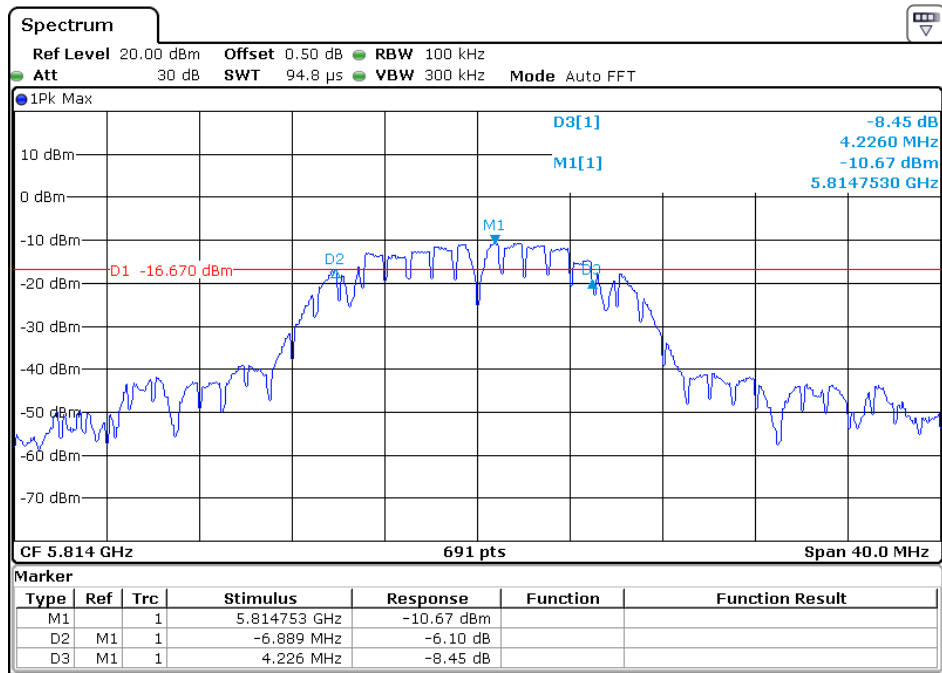
Low channel(Antenna A)



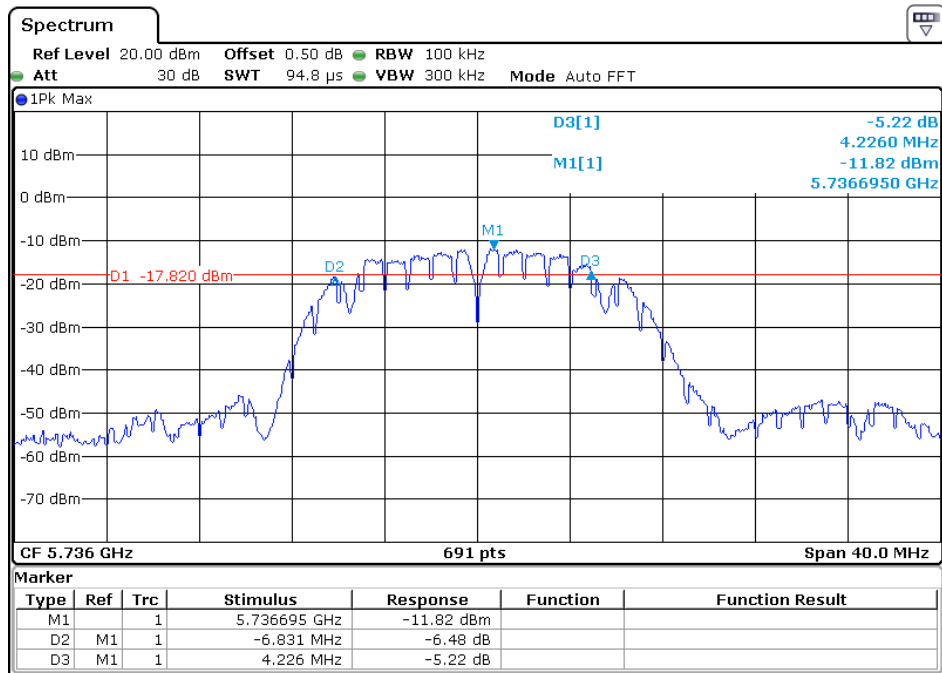
### Middle channel(Antenna A)



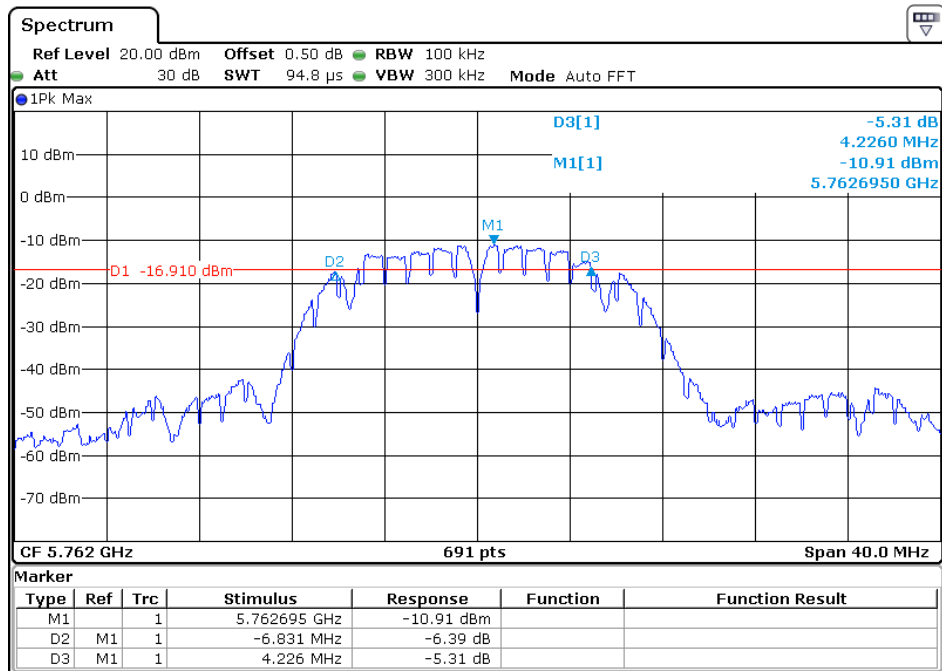
### High channel(Antenna A)



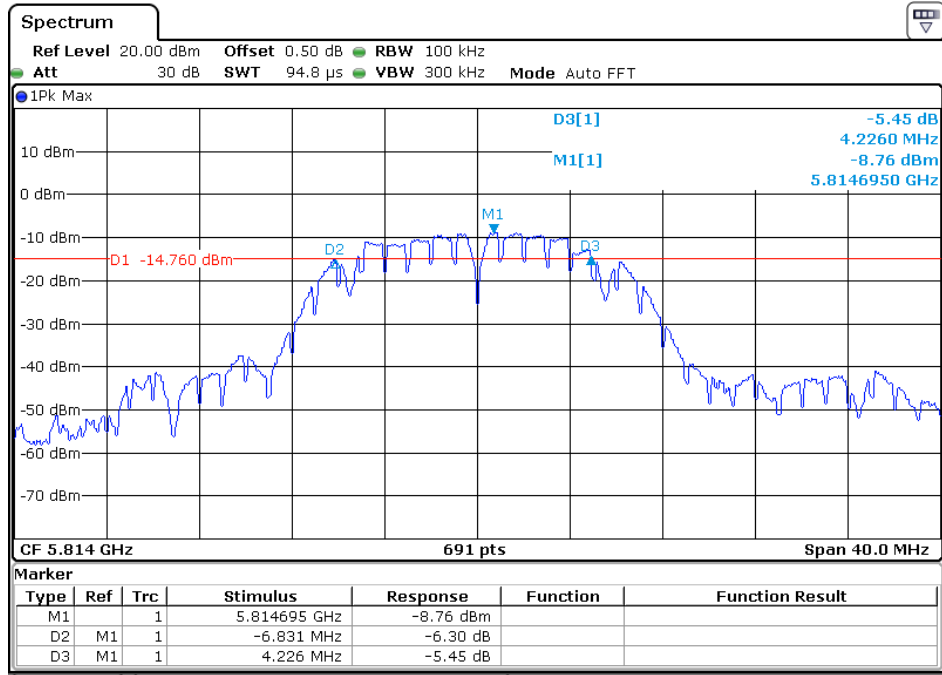
### Low channel(Antenna B)



### Middle channel(Antenna B)

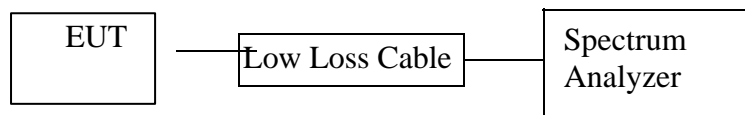


### High channel(Antenna B)



## 6. POWER SPECTRAL DENSITY TEST

### 6.1. Block Diagram of Test Setup



(EUT: Monster Solara)

### 6.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 6.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 6.4. Operating Condition of EUT

6.4.1 Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.

### 6.5. Test Procedure

Refer to KDB558074 D01

### 6.6.Test Result

#### Antenna B test result

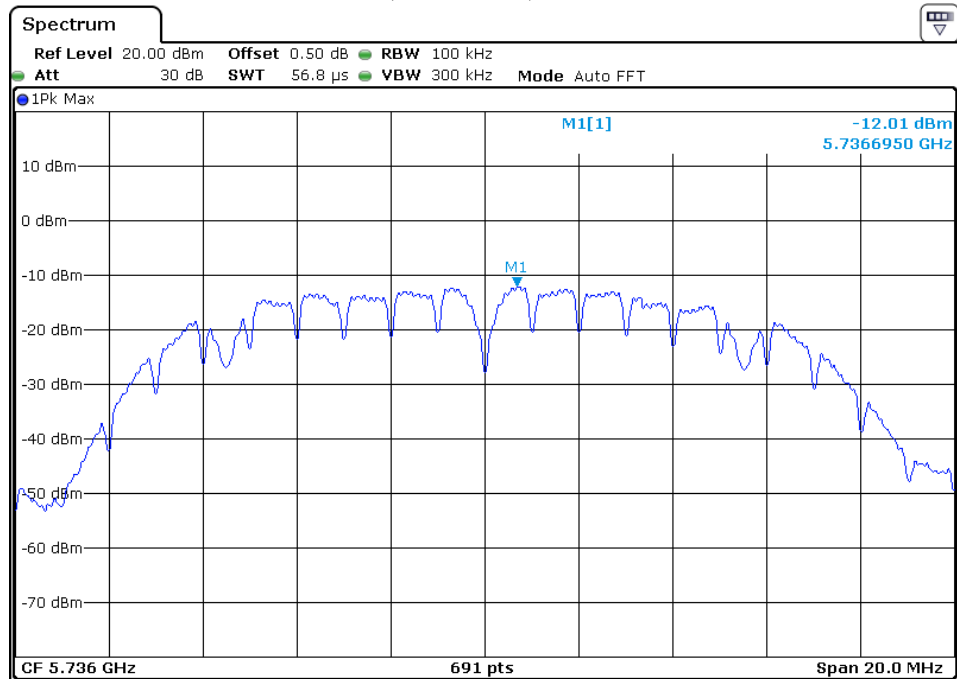
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Result
Low	5736MHz	-12.01	≤8.00	PASS
Middle	5762MHz	-11.94	≤8.00	PASS
High	5814MHz	-10.75	≤8.00	PASS

#### Antenna A test result

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limit (dBm)	Result
Low	5736MHz	-10.71	≤8.00	PASS
Middle	5762MHz	-10.91	≤8.00	PASS
High	5814MHz	-8.45	≤8.00	PASS

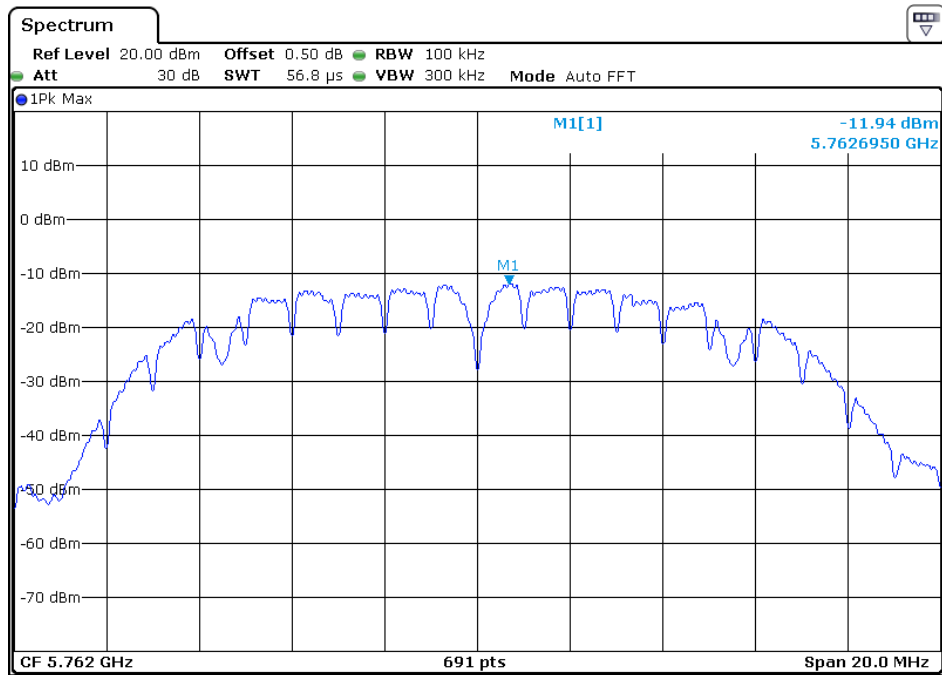
The spectrum analyzer plots are attached as below.

Low channel(Antenna B)

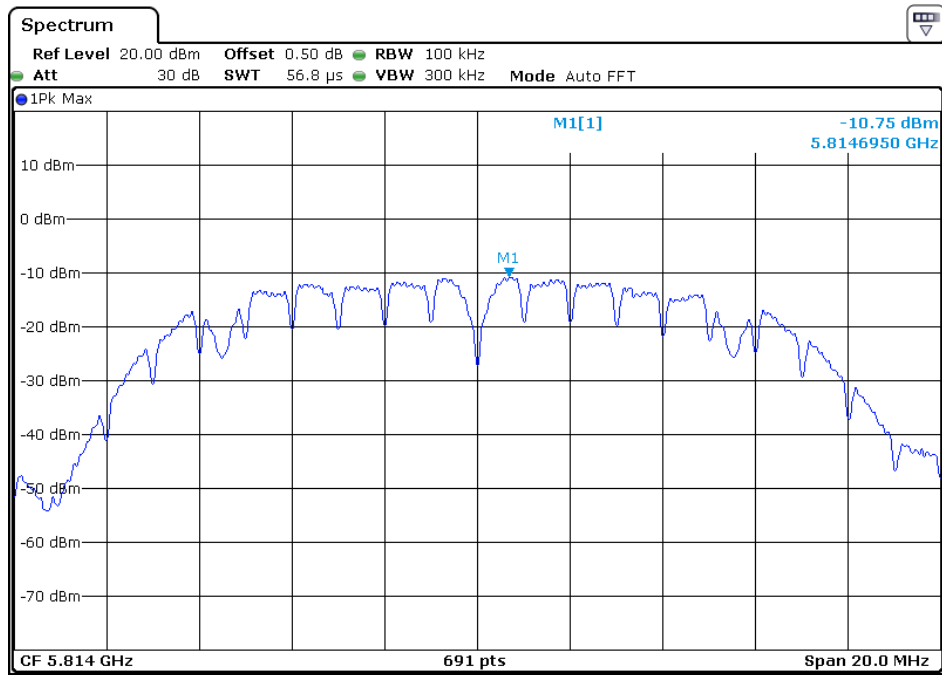




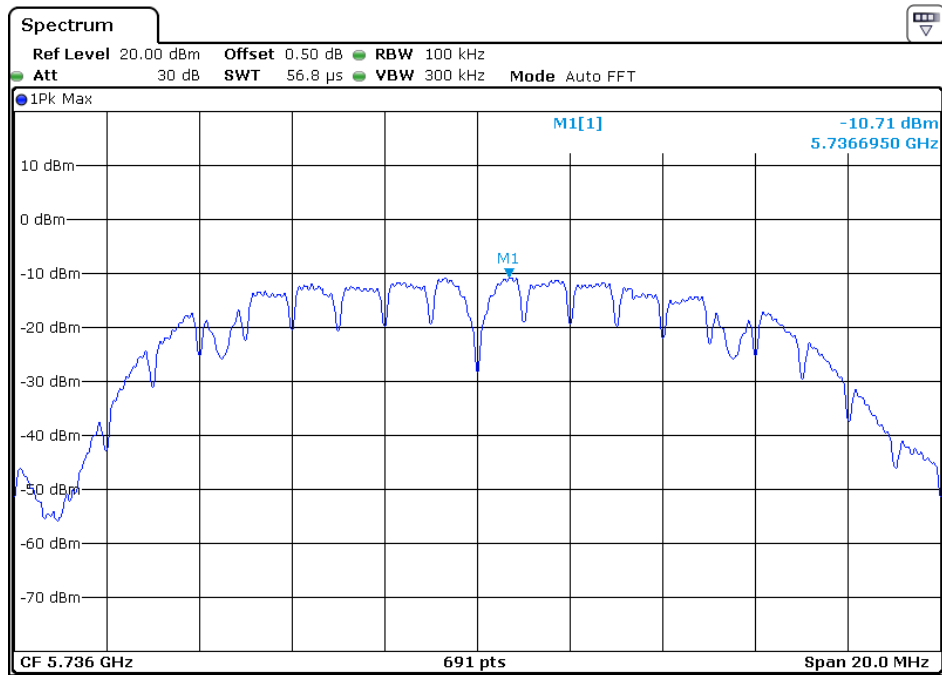
### Middle channel(Antenna B)



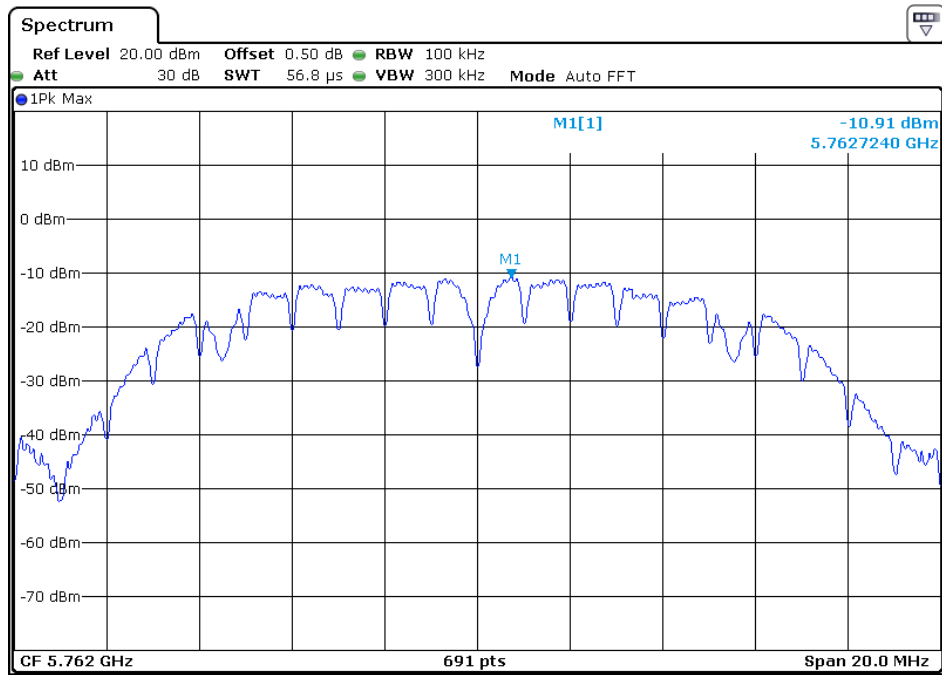
### High channel(Antenna B)



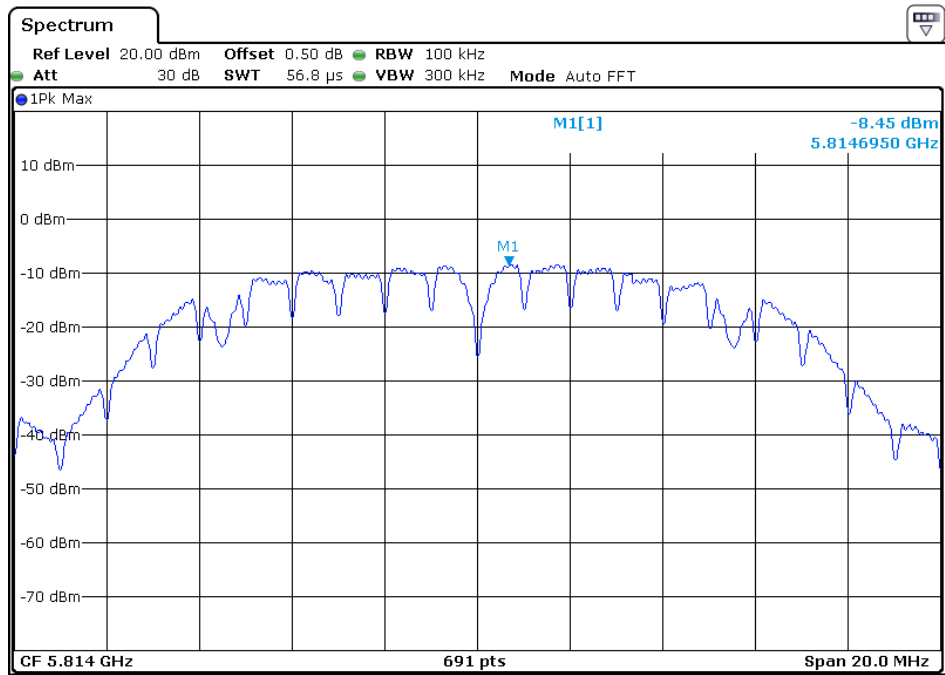
### Low channel(Antenna A)



### Middle channel(Antenna A)

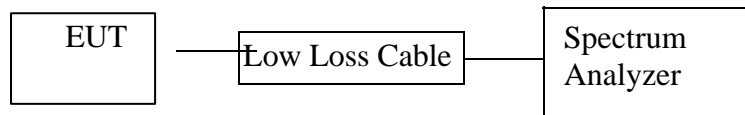


### High channel(Antenna A)



## 7. RF CONDUCTED SPURIOUS EMISSIONS TEST

### 7.1. Block Diagram of Test Setup



(EUT: Monster Solara)

### 7.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### 7.3. EUT Configuration on Measurement

The equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 7.4. Operating Condition of EUT

- 7.4.1. Setup the EUT and simulator as shown as Section 7.1.
- 7.4.2. Turn on the power of all equipment.
- 7.4.3. Let the EUT work in TX modes measure it.

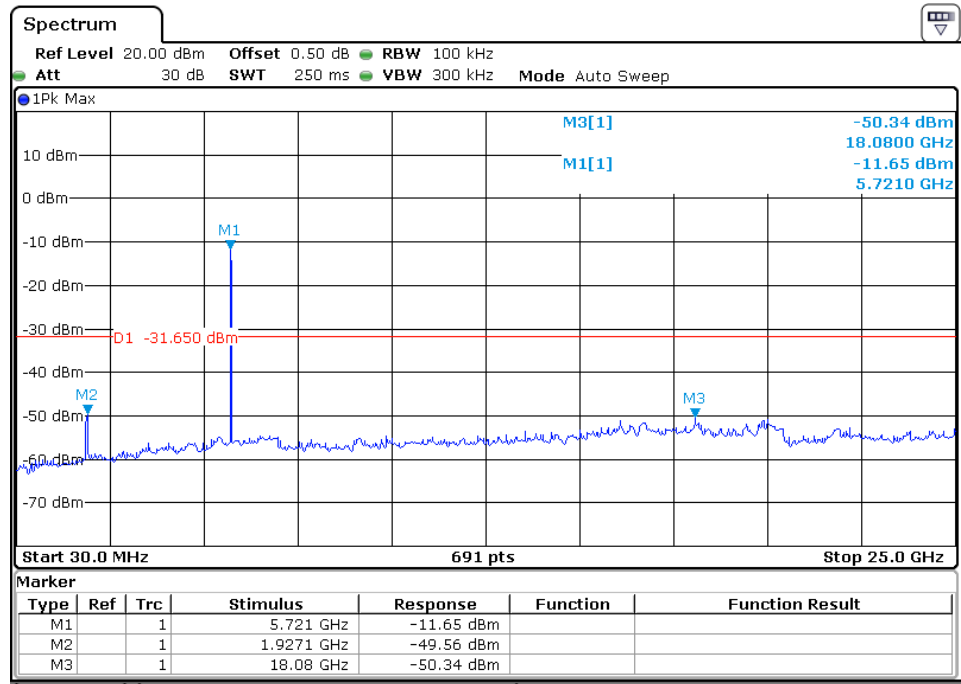
### 7.5. Test Procedure

- 7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 7.5.2. Set the test frequency range from 30MHz to 25GHz and set RBW=100 kHz, VBW=300 kHz.

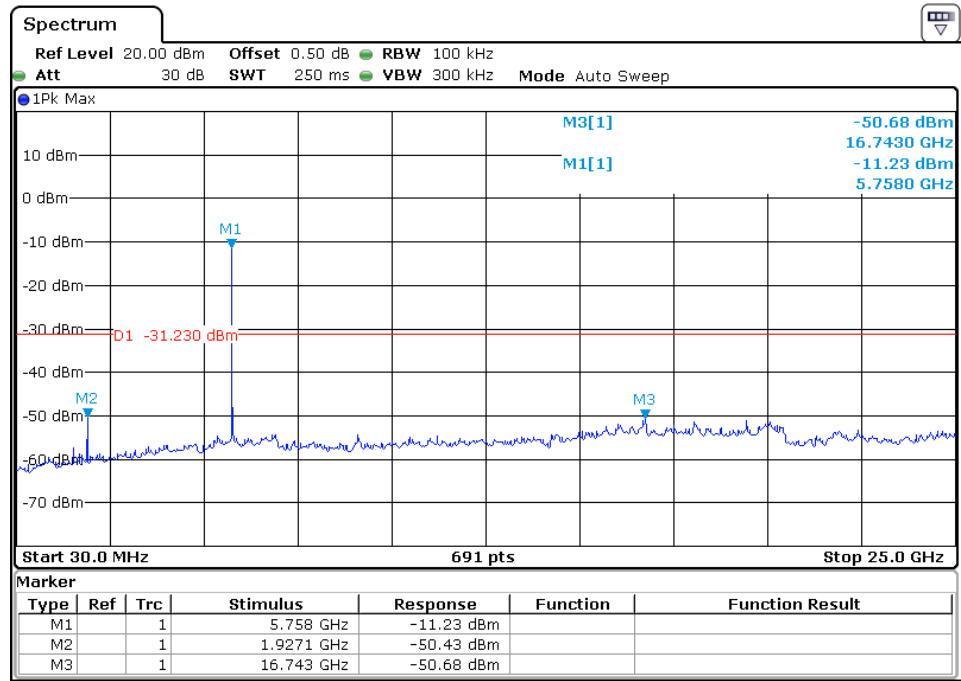
### 7.6. Test Result

The spectrum analyzer plots are attached as below.

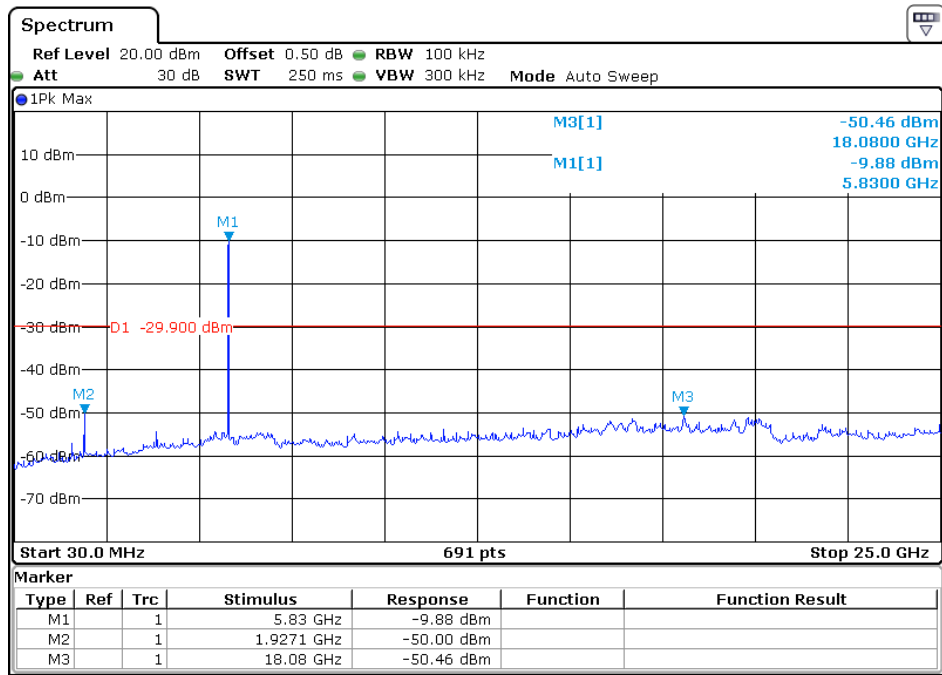
Low channel(Antenna A)



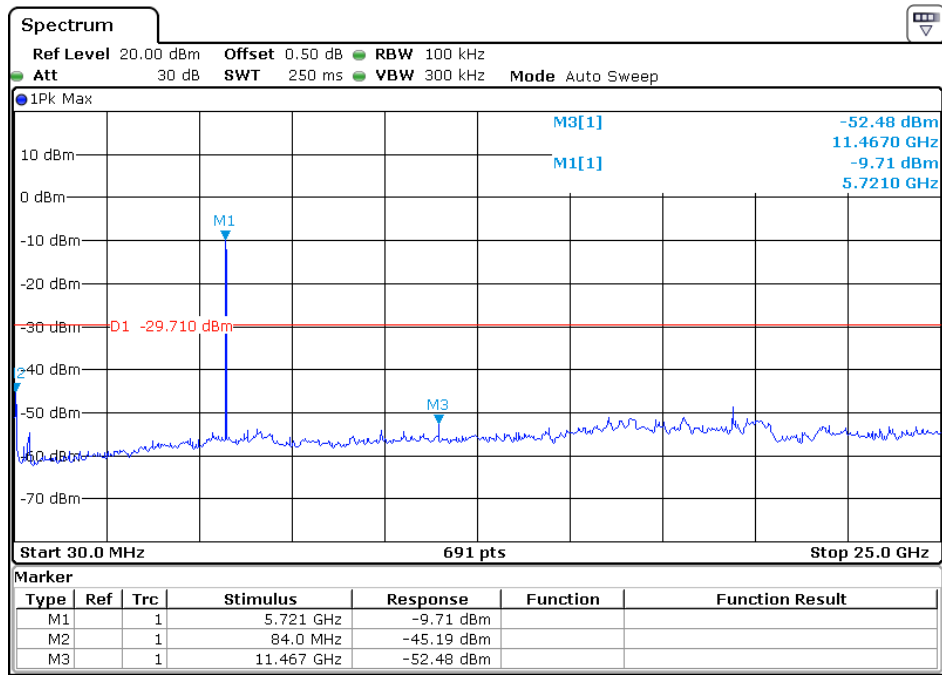
Middle channel(Antenna A)



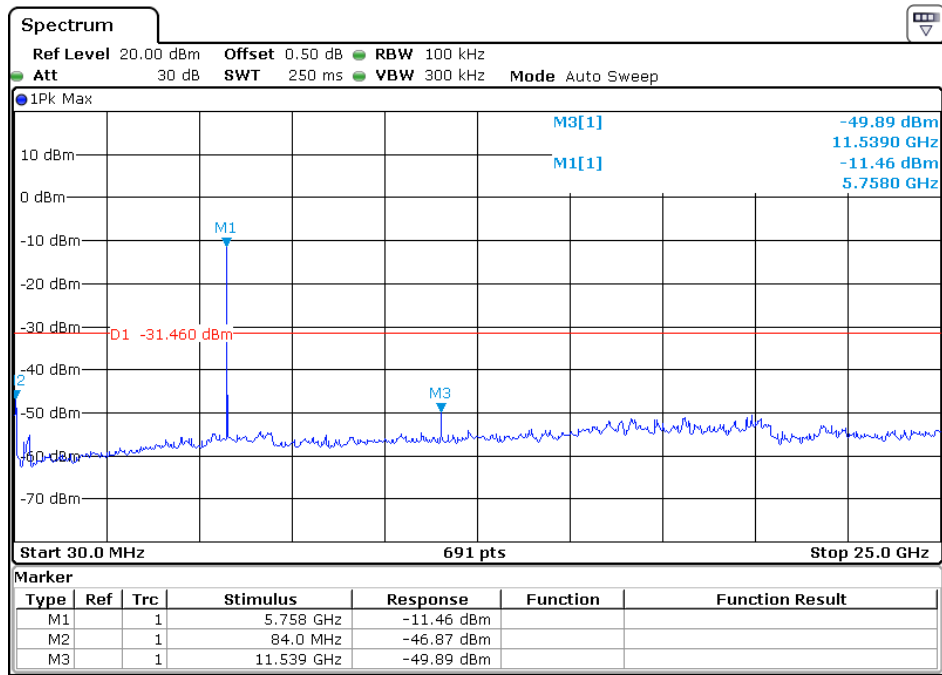
### High channel(Antenna A)



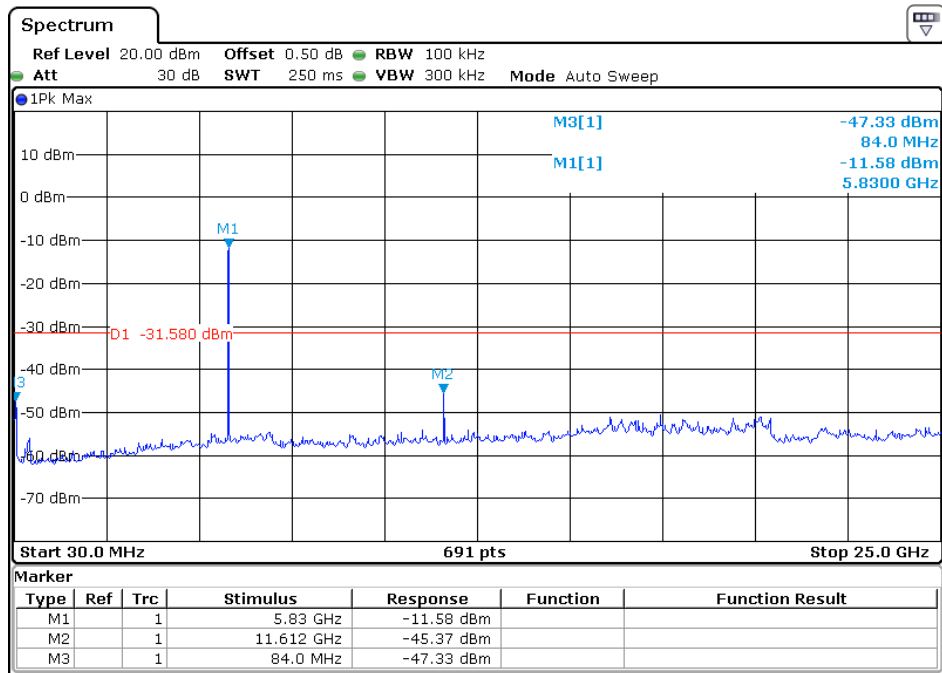
### Low channel(Antenna B)



### Middle channel(Antenna B)

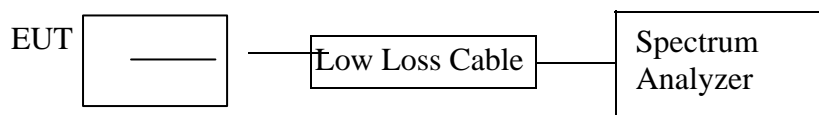


### High channel(Antenna B)



## 8. CONDUCTED PEAK OUTPUT POWER TEST

### 8.1. Block Diagram of Test Setup



(EUT: Monster Solara)

### 8.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.

### 8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 8.4. Operating Condition of EUT

8.4.1 Setup the EUT and simulator as shown as Section 9.1.

8.4.2 Turn on the power of all equipment.

8.4.3 Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 5736MHz, 5762MHz, 5814MHz,. We select these frequency to transmit.



## 8.5. Test Procedure

8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

8.5.2. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz for test

8.5.3. Measurement the maximum peak output power.

### 8.6. Test Result

Antenna A test result

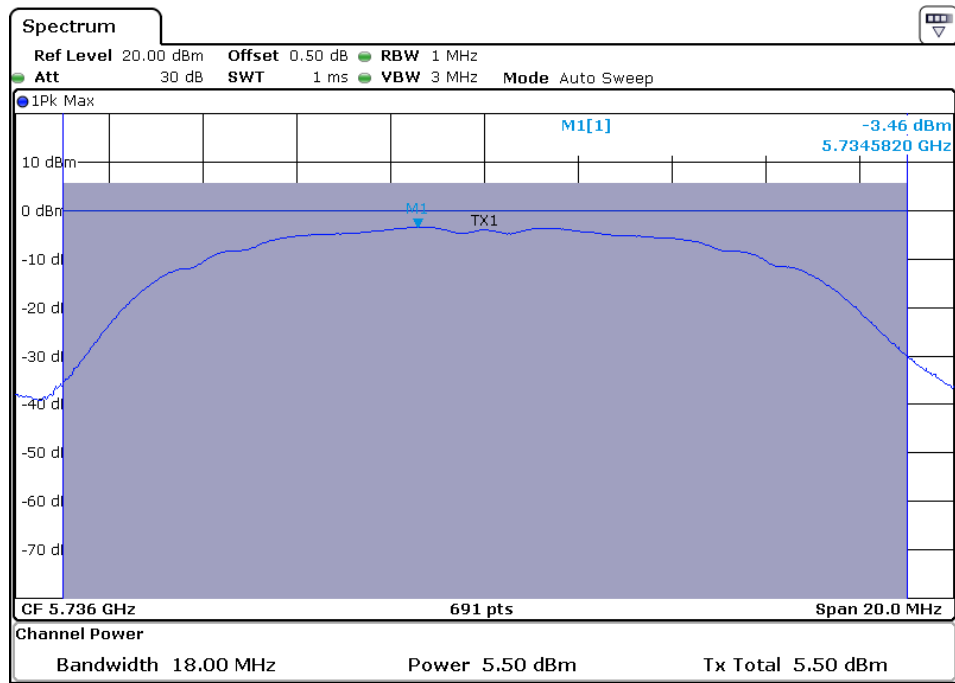
Channel	Frequency (MHz)	Peak Output Power (dBm)	Limits dBm
Low	5736	5.50	30
Middle	5762	7.90	30
High	5814	8.20	30

Antenna B test result

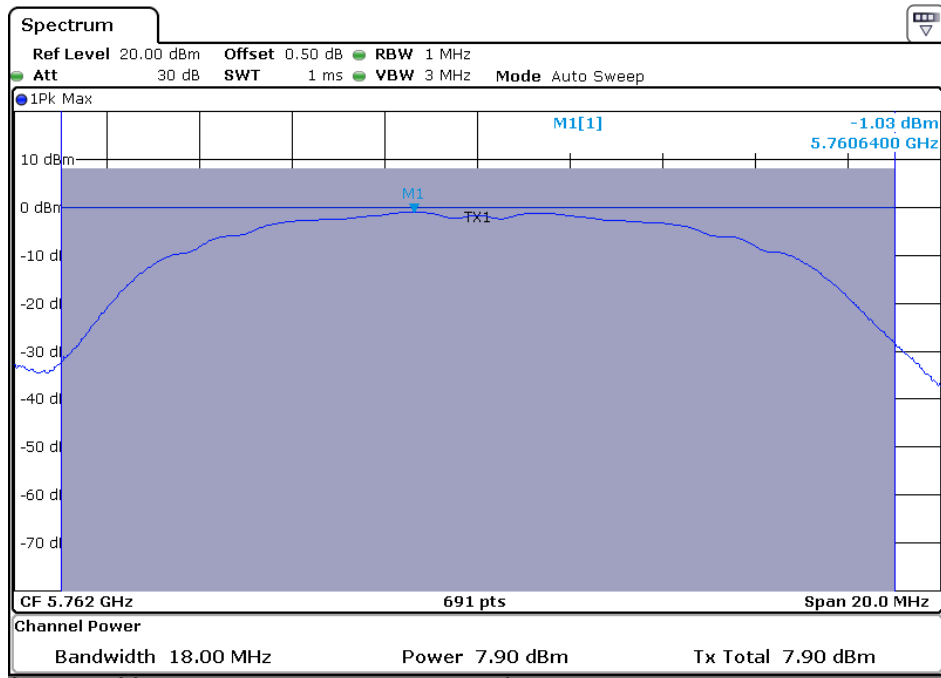
Channel	Frequency (MHz)	Peak Output Power (dBm)	Limits dBm
Low	5736	6.22	30
Middle	5762	6.82	30
High	5814	7.96	30

The spectrum analyzer plots are attached as below.

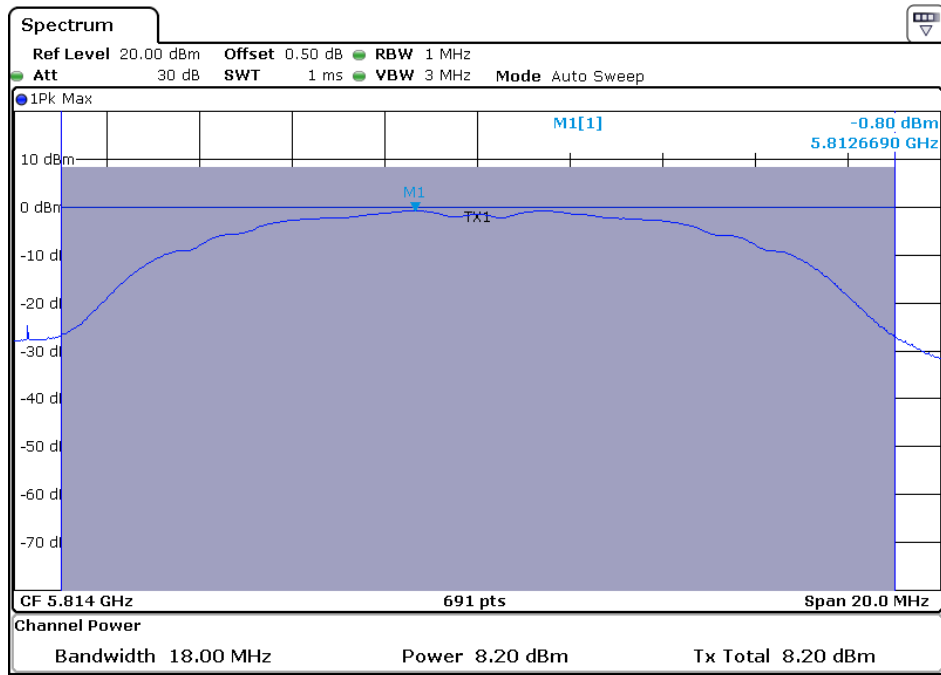
Low channel (Antenna A)



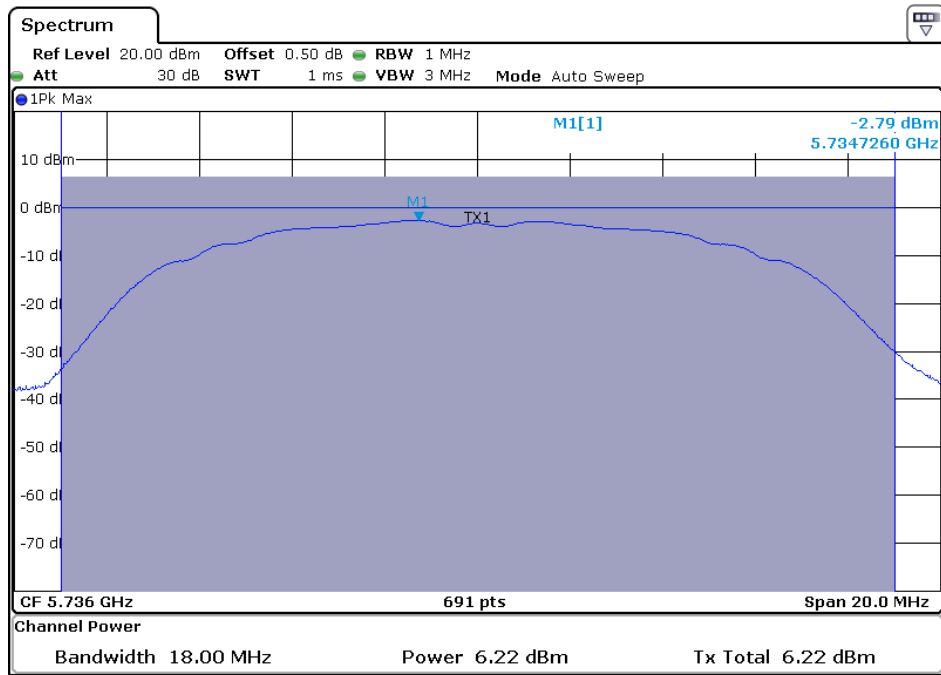
Middle channel (Antenna A)



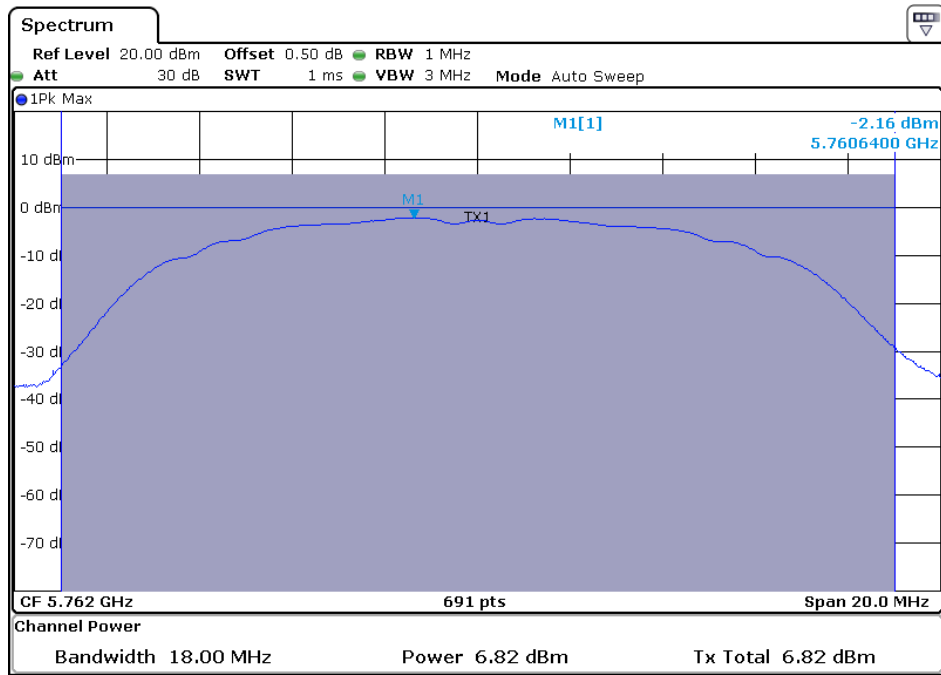
High channel (Antenna A)



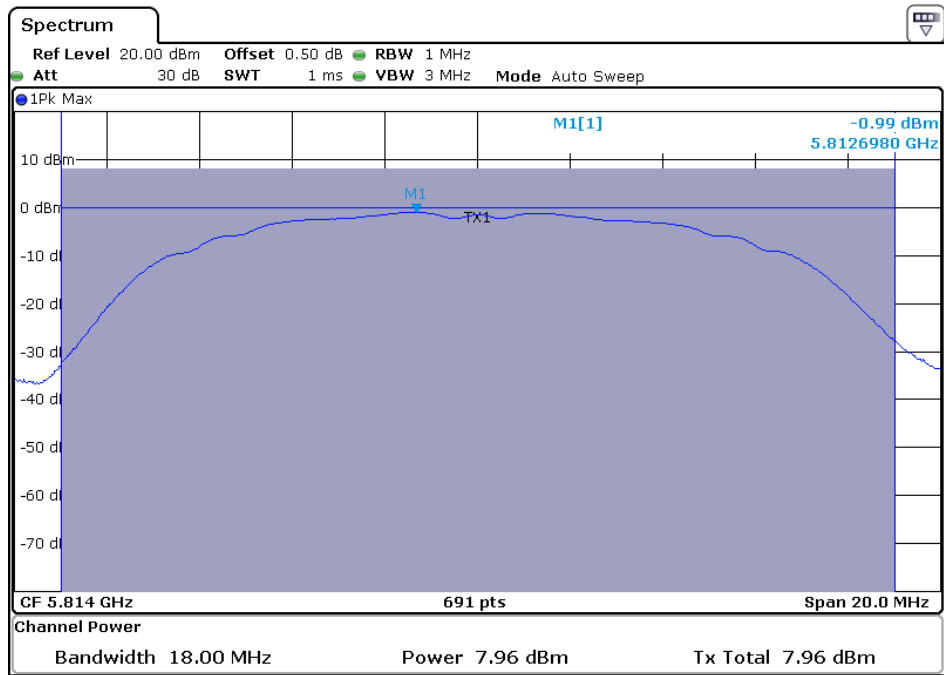
### Low channel (Antenna B)



### Middle channel (Antenna B)



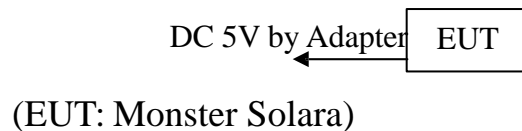
### High channel (Antenna B)



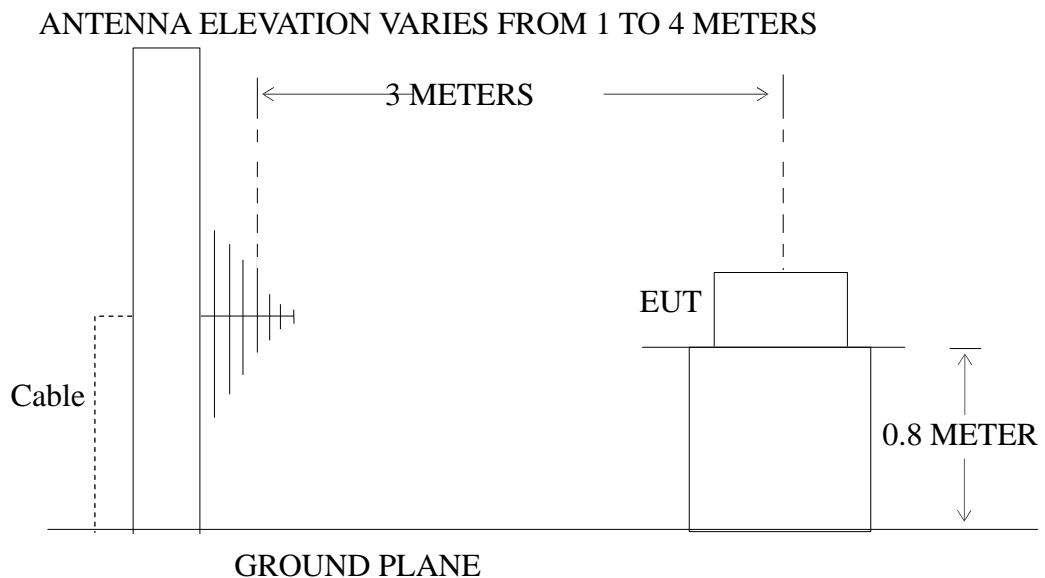
## 9. RADIATED EMISSION TEST

### 9.1. Block Diagram of Test Setup

#### 9.1.1. Block diagram of connection between the EUT and simulators



#### 9.1.2. Anechoic Chamber Test Setup Diagram



### 9.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 9.3. Restricted bands of operation

#### FCC Part 15.205 Restricted bands of operation

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

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<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			

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

<sup>2</sup>Above 38.6

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

15.35 apply to these measurements.

### 9.4. Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements

and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 9.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground.

The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4

meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna)

is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.

The bandwidth of test receiver (R&S ESI26) is set at 120 KHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 40000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector. The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain



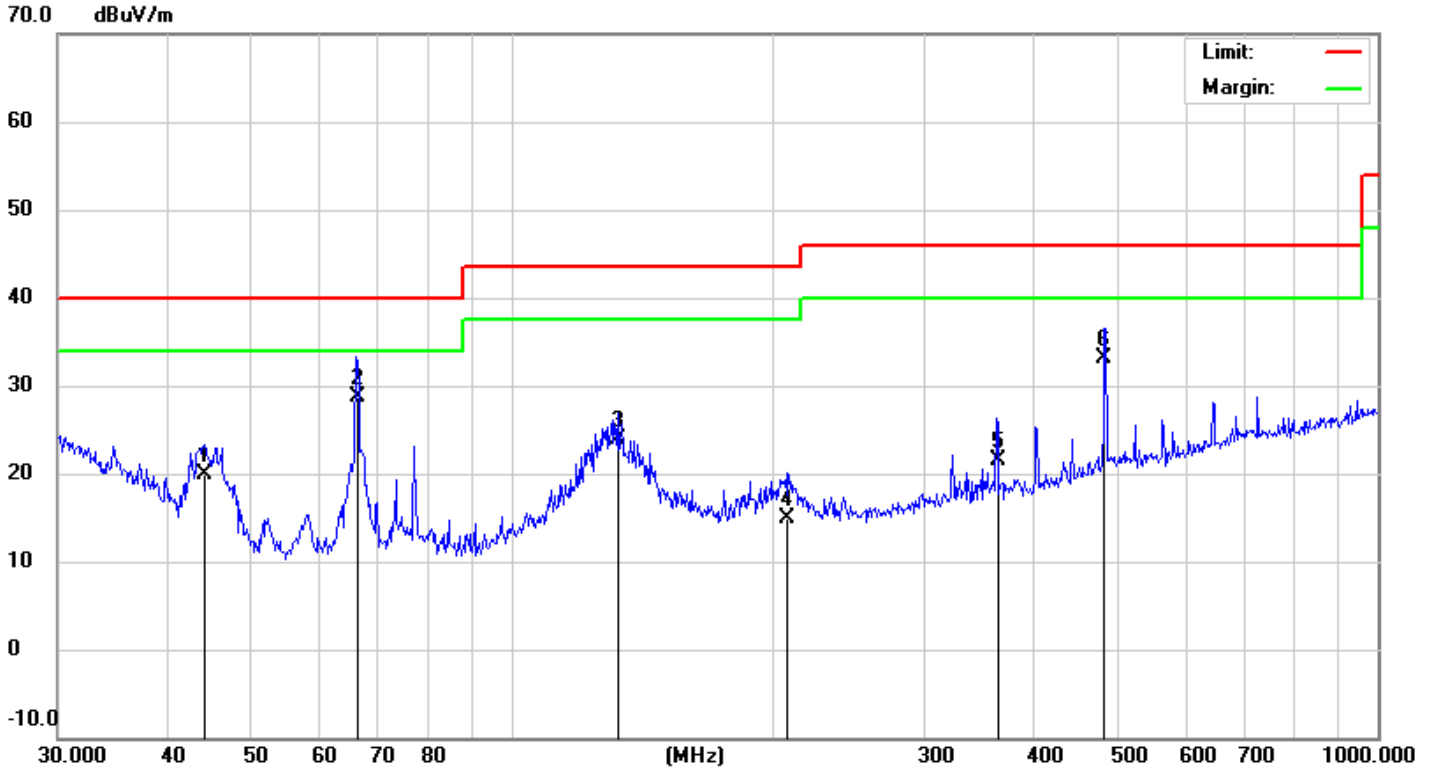
## 9.6.The Field Strength of Radiation Emission Measurement Results

**Note: 1.We tested battery mode and AC mode and recorded the worst case data(AC mode) for all test mode.**

**2. The 18-40GHz emissions are not reported, because the levels are too low against the limit.**

**3. we tested radiation emission of Antenna A and Antenna B, The following test data is the worst case(Antenna A) data which I have recorded**

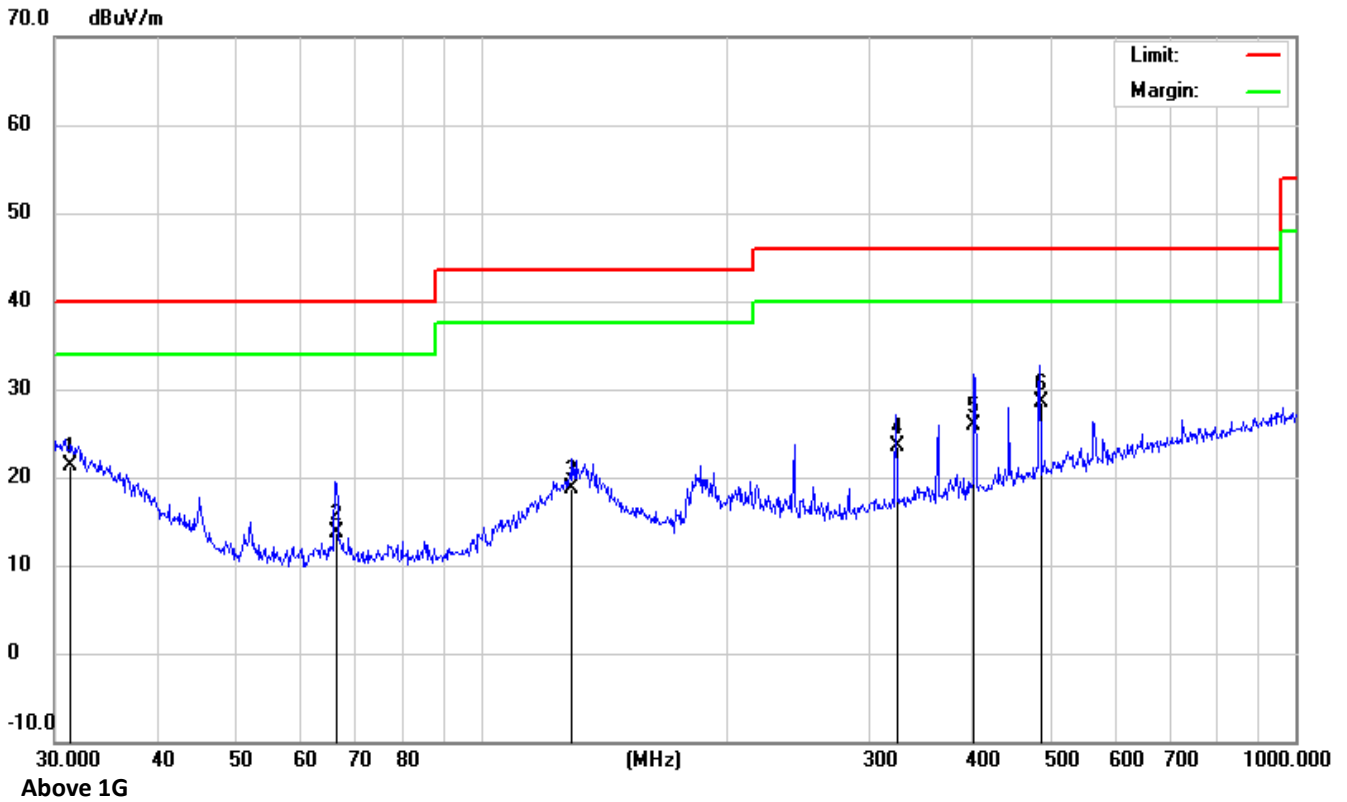
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Table
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		44.2752	8.96	10.98	19.94	40.00	-20.06	QP		
2	*	66.2662	20.64	8.04	28.68	40.00	-11.32	QP		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	Table
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		44.2752	8.96	10.98	19.94	40.00	-20.06	QP		
2	*	66.2662	20.64	8.04	28.68	40.00	-11.32	QP		
3		132.6850	10.25	13.69	23.94	43.50	-19.56	QP		
4		207.8501	2.80	12.14	14.94	43.50	-28.56	QP		
5		362.9844	6.74	14.70	21.44	46.00	-24.56	QP		
6		483.9094	15.69	17.33	33.02	46.00	-12.98	QP		

\*:Maximum data    x:Over limit    !:over margin

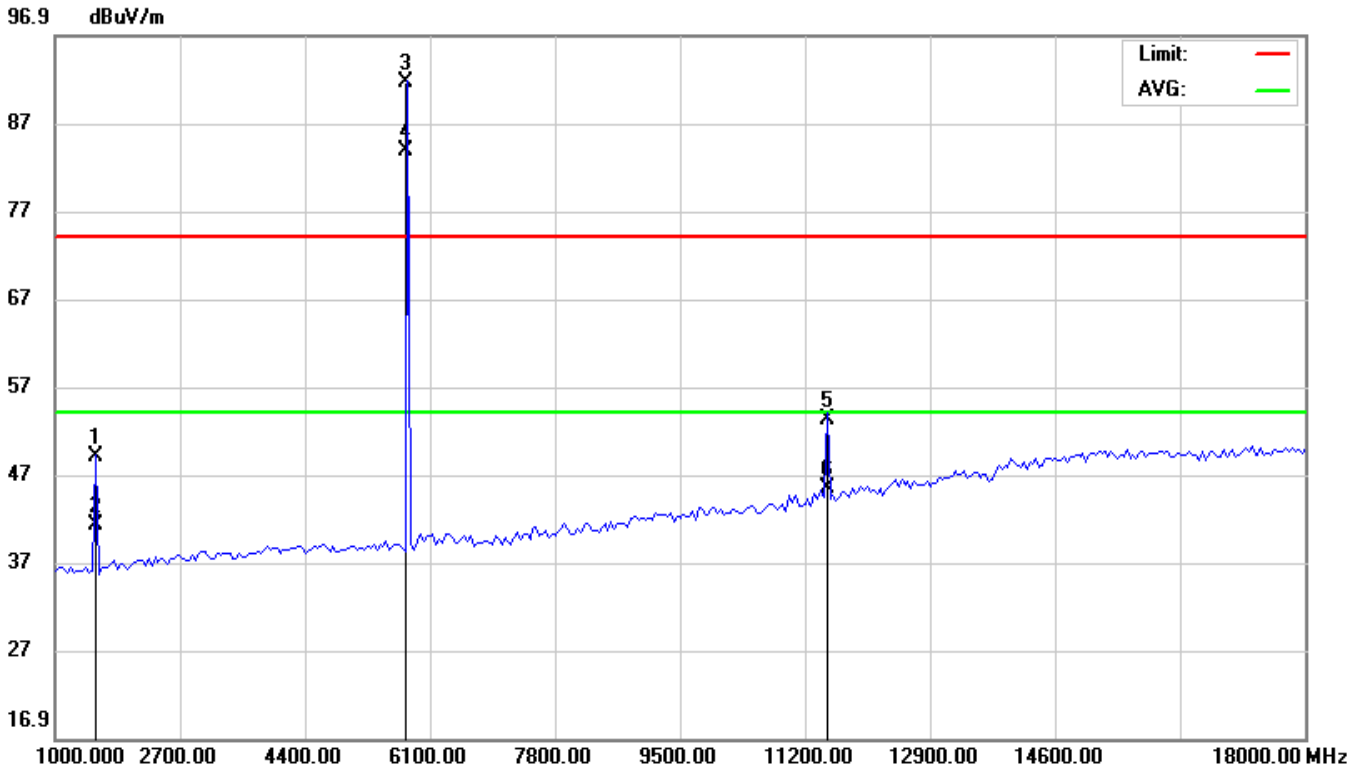
EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX 5762	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		31.3992	1.35	19.95	21.30	40.00	-18.70	QP		
2		66.2662	5.70	8.04	13.74	40.00	-26.26	QP		
3		129.4677	4.94	13.82	18.76	43.50	-24.74	QP		
4		323.3204	9.60	13.94	23.54	46.00	-22.46	QP		
5		403.2500	10.39	15.47	25.86	46.00	-20.14	QP		
6	*	485.6093	11.07	17.37	28.44	46.00	-17.56	QP		

\*:Maximum data    x:Over limit    !:over margin

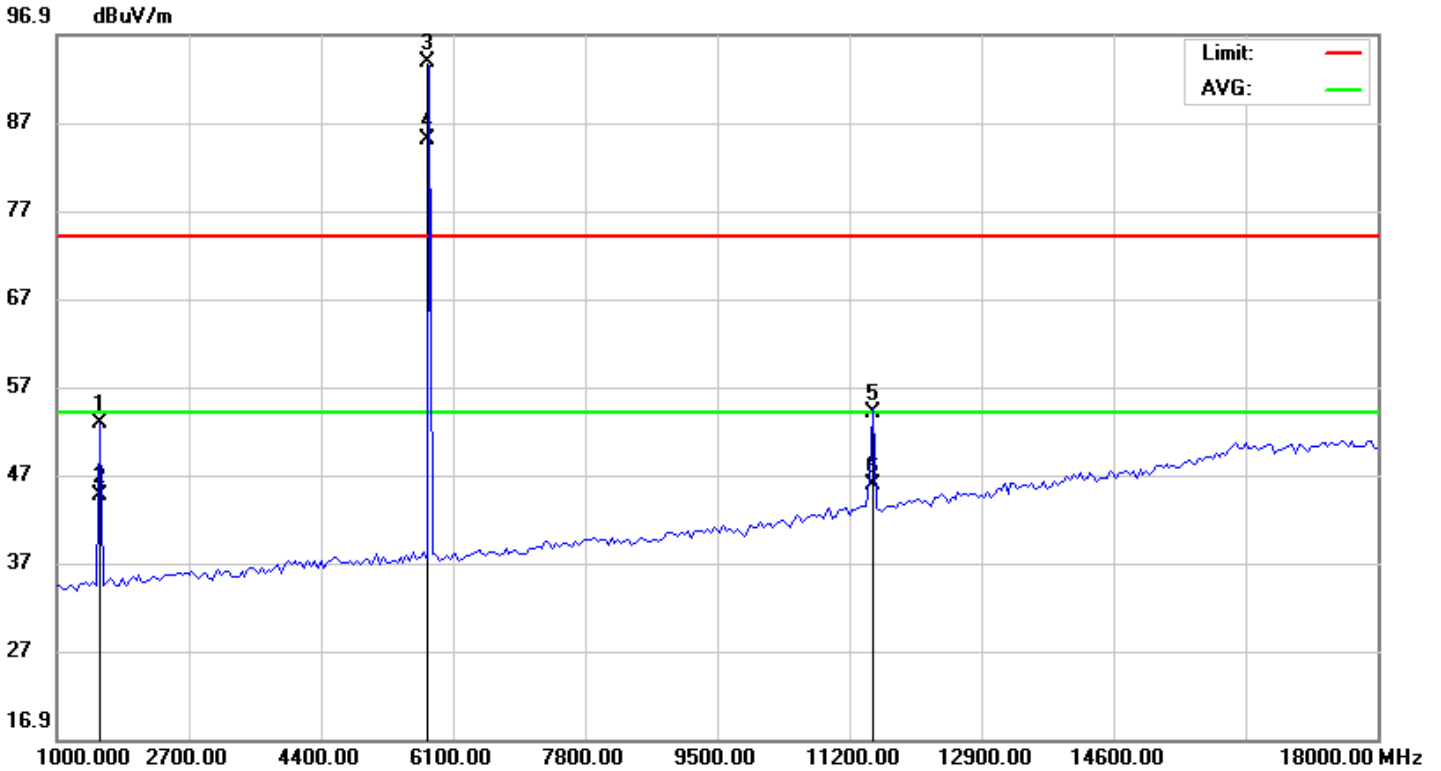
EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1529.414	57.30	-8.35	48.95	74.00	-25.05	peak			
2		1529.414	49.50	-8.35	41.15	54.00	-12.85	AVG			
3	X	5736.095	95.19	-3.49	91.70	74.00	17.70	peak			
4	*	5736.095	87.30	-3.49	83.81	54.00	29.81	AVG			
5		11467.00	54.20	-0.91	53.29	74.00	-20.71	peak			
6		11467.00	46.40	-0.91	45.49	54.00	-8.51	AVG			

\*:Maximum data    x:Over limit    !:over margin

EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19

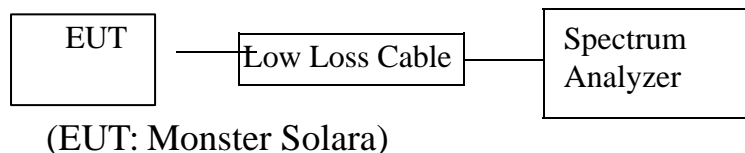


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Detector	Comment
1		1529.414	61.20	-8.35	52.85	74.00	-21.15			peak	
2		1529.414	52.90	-8.35	44.55	54.00	-9.45			AVG	
3	X	5736.095	97.20	-3.49	93.71	74.00	19.71			peak	
4	*	5736.095	88.50	-3.49	85.01	54.00	31.01			AVG	
5		11467.00	55.00	-0.91	54.09	74.00	-19.91			peak	
6		11467.00	46.70	-0.91	45.79	54.00	-8.21			AVG	

\*:Maximum data    x:Over limit    !:over margin

## 10. D EDGE COMPLIANCE TEST

### 10.1. Block Diagram of Test Setup



### 10.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth

within the band that contains the highest level of the desired power, based on either an RF conducted

or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation

below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 10.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 10.4. Operating Condition of EUT

10.4.1 Setup the EUT and simulator as shown as Section 11.1.

10.4.2. Turn on the power of all equipment.

10.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 5736-5814MHz. We select 5736MHz, 5814MHz TX frequency to transmit.

## 10.5. Test Procedure

### Conducted Band Edge:

10.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

10.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz. Radiate

### Band Edge:

10.5.3. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

10.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

10.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

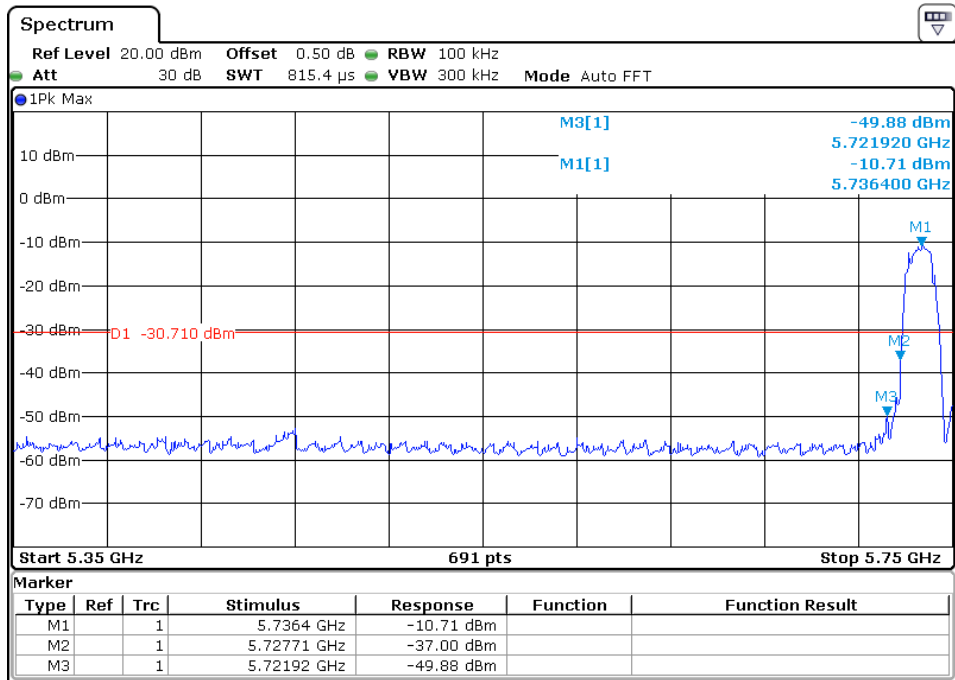
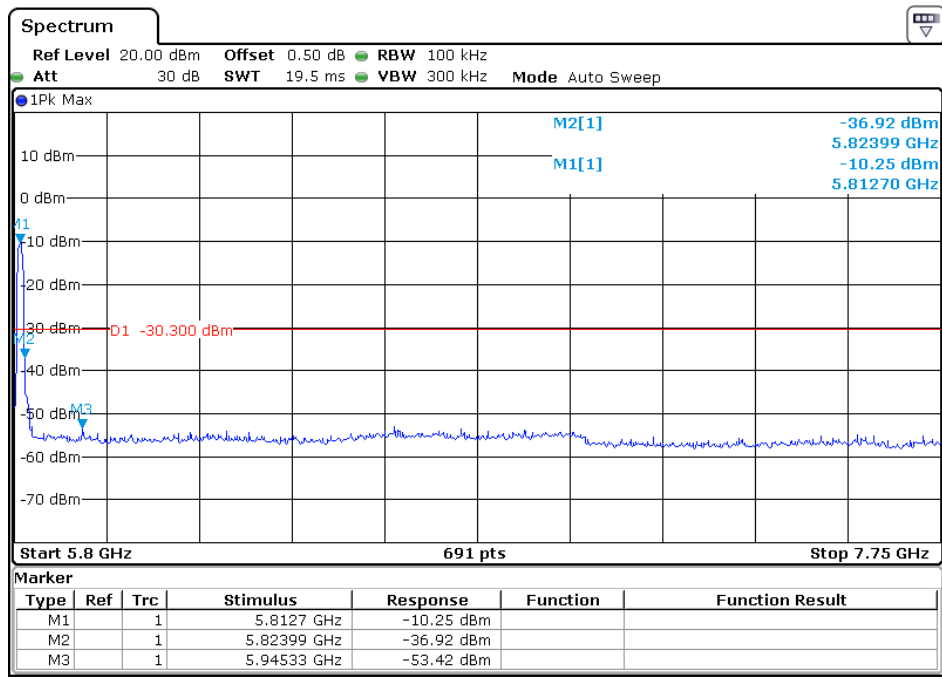
10.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

10.5.7. RBW=1MHz, VBW=1MHz

10.5.8. The band edges was measured and recorded.

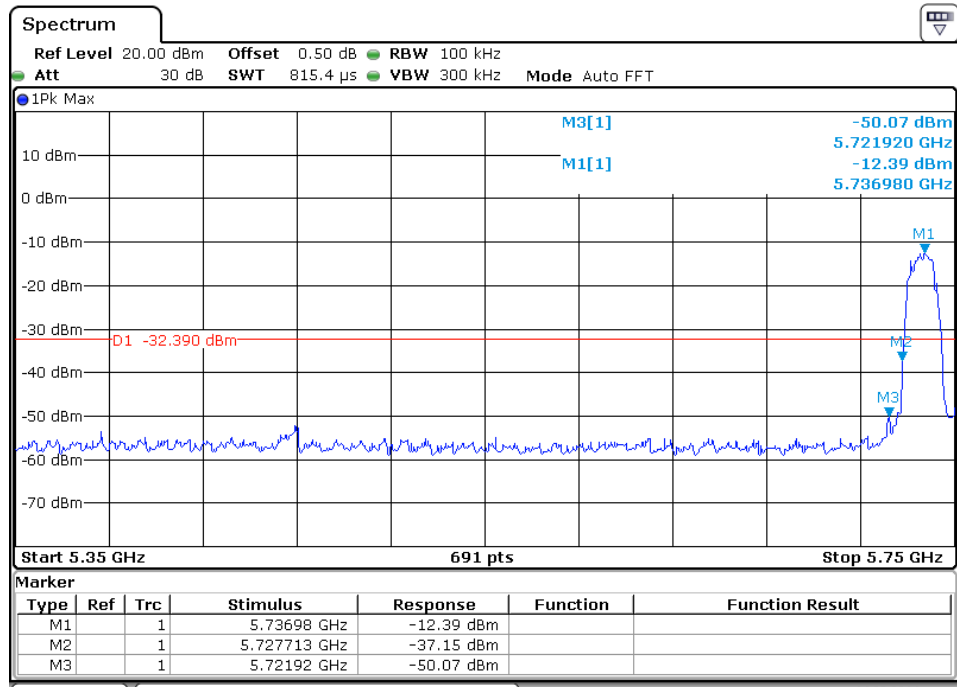
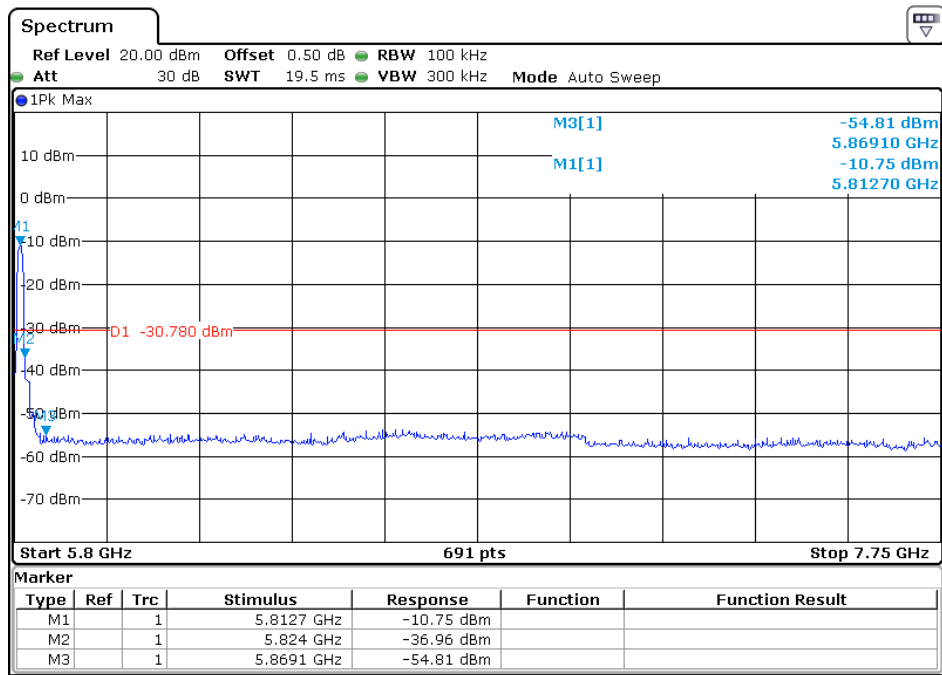
10.6. Test Result: PASS.

### Antenna A test plot





### Antenna B test plot



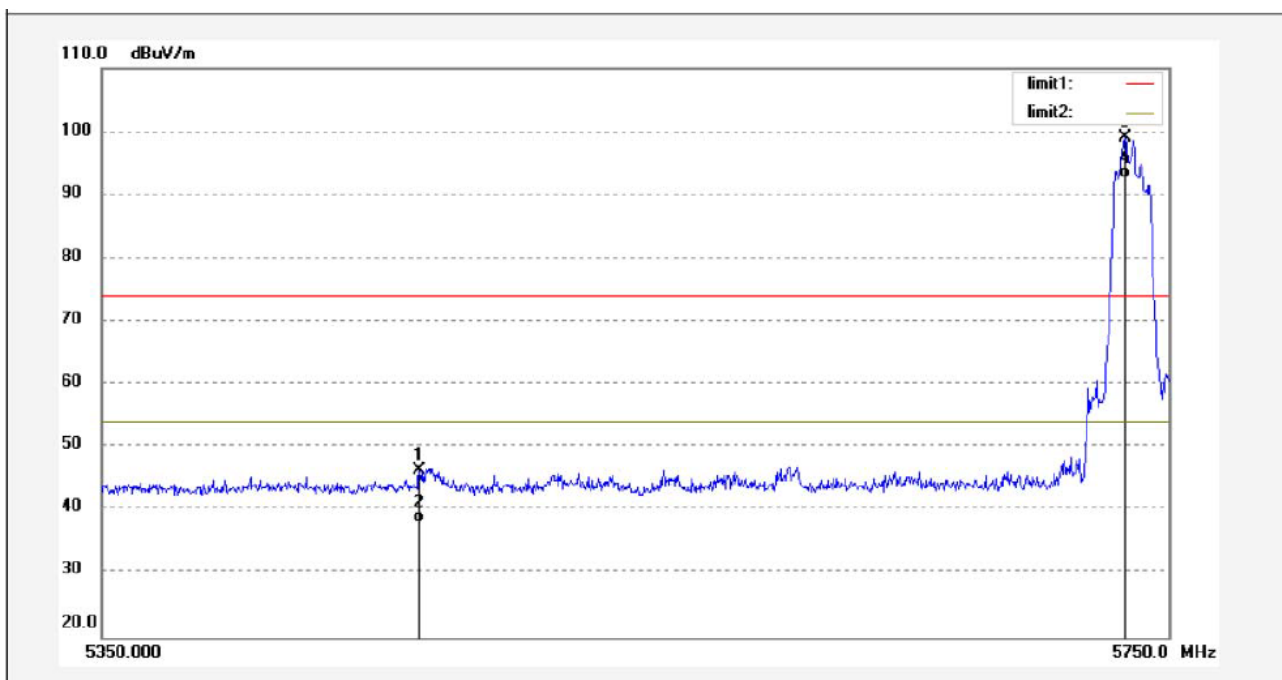
## Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. we tested radiated band edge of Antenna A and Antenna B, The following test data is the worst case(Antenna A) data which I have recorded
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

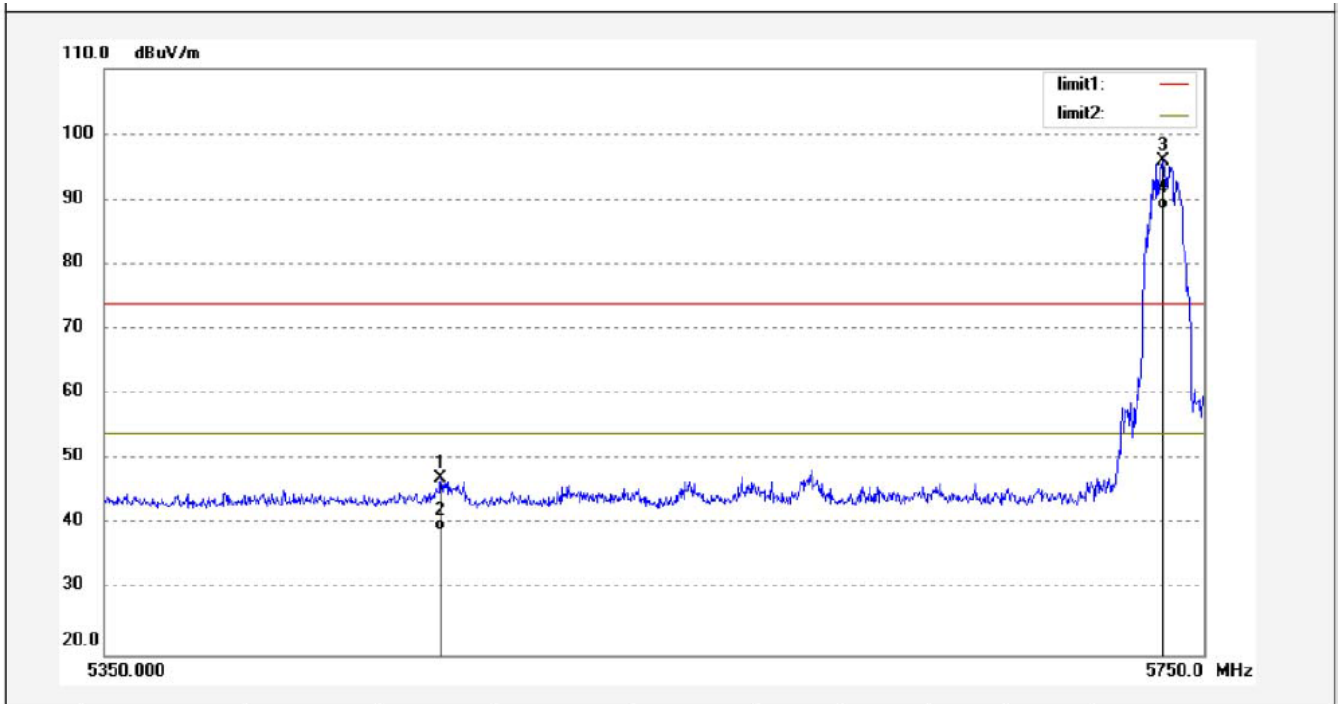
$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

<b>EUT:</b>	<b>Monster Solara</b>	<b>M/N:</b>	<b>MNSOL-BLK</b>
<b>Mode:</b>	<b>TX5736</b>	<b>Phase:</b>	<b>Horizontal</b>
<b>Tested by:</b>	<b>Sky(Engineer)</b>	<b>Power:</b>	<b>DC 5V by Adapter</b>
<b>Temperature: Humidity</b>	<b>23.7°C / 51.6%</b>	<b>Test date:</b>	<b>2016-04-19</b>



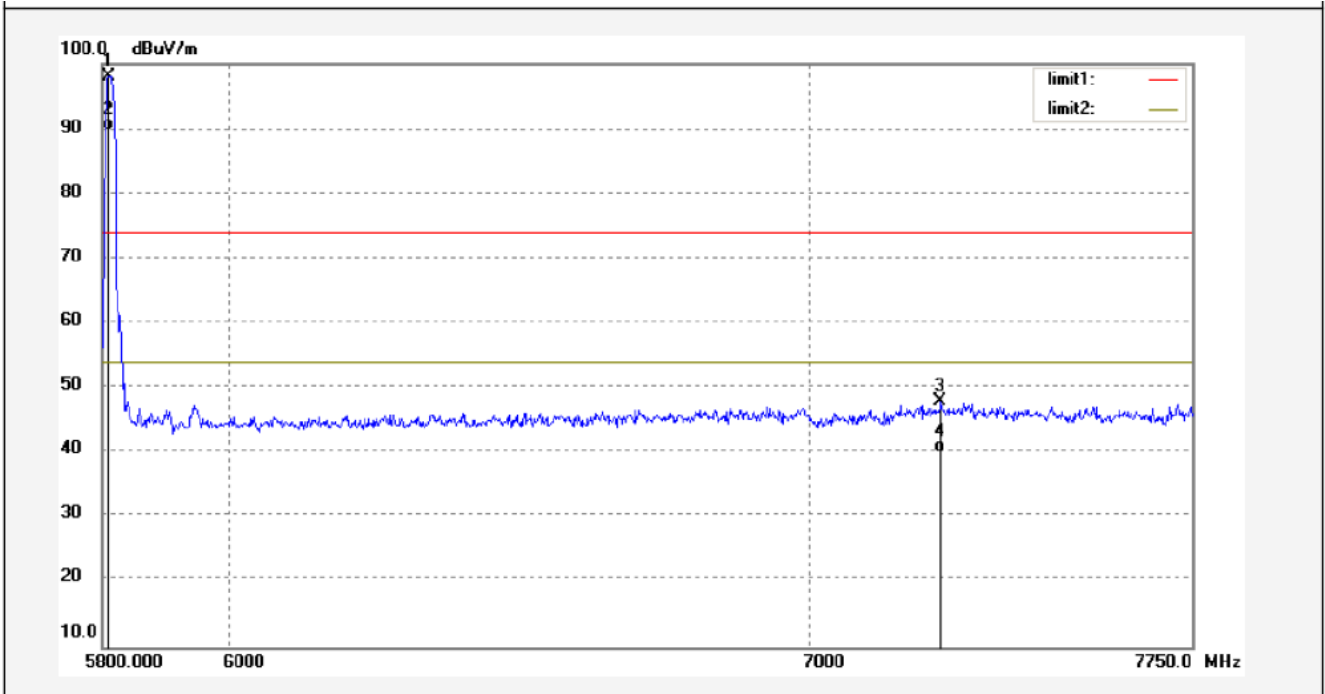
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5466.400	47.02	-0.63	46.39	74.00	-27.61	peak			
2	5466.400	38.65	-0.63	38.02	54.00	-15.98	AVG			
3	5736.000	99.39	-0.37	99.02			peak			
4	5736.000	92.98	-0.37	92.61			AVG			

EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19



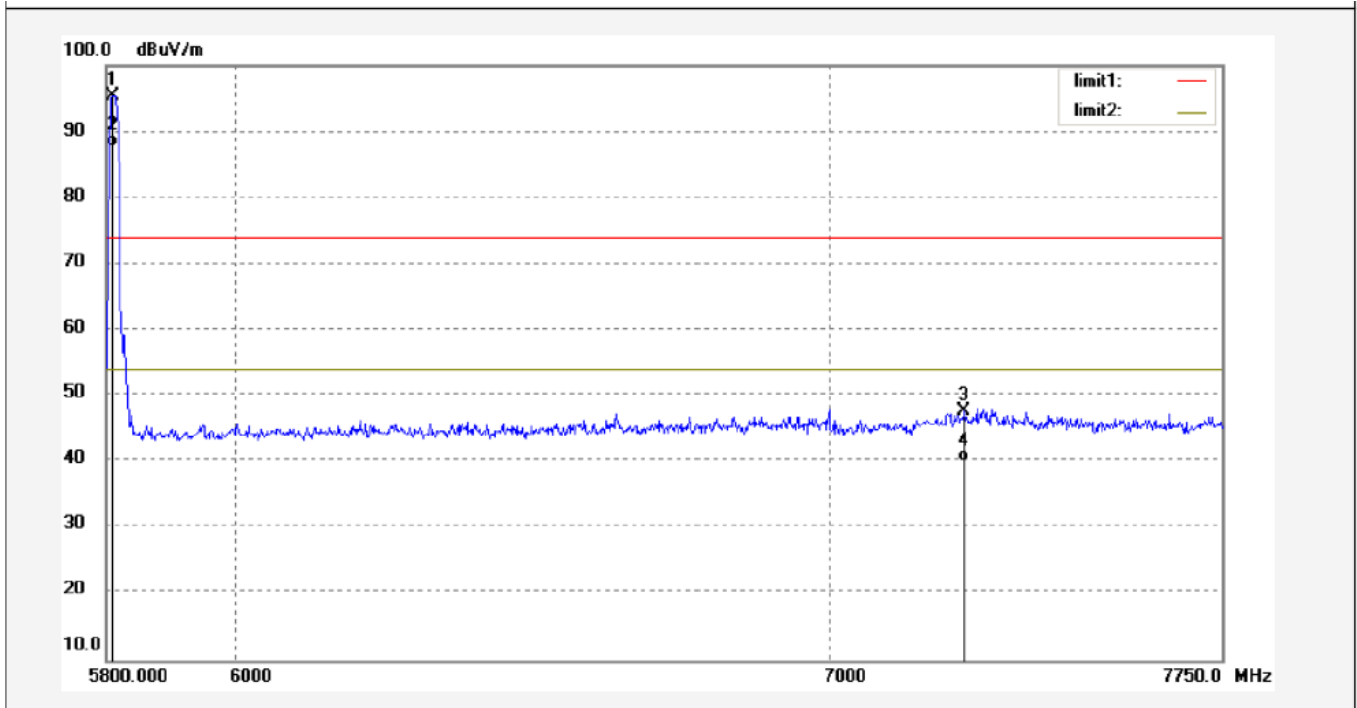
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5469.600	47.71	-0.62	47.09	74.00	-26.91	peak			
2	5469.600	39.56	-0.62	38.94	54.00	-15.06	AVG			
3	5736.000	96.26	-0.36	95.90			peak			
4	5736.000	88.78	-0.36	88.42			AVG			

EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5814.000	98.43	-0.29	98.14			peak			
2	5814.000	90.10	-0.29	89.81			AVG			
3	7248.850	46.50	1.33	47.83	74.00	-26.17	peak			
4	7248.850	38.65	1.33	39.98	54.00	-14.02	AVG			

EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	Horizontal
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 51.6%	Test date:	2016-04-19

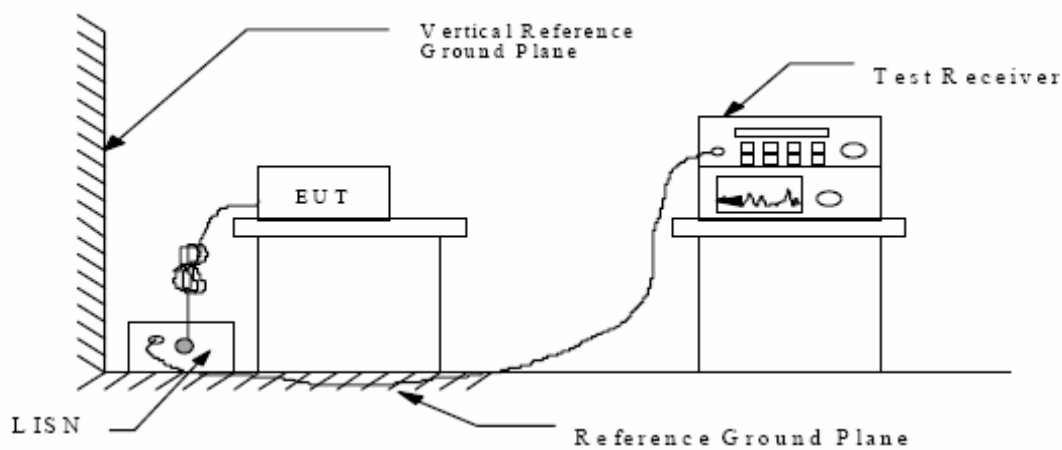


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5814.000	95.73	-0.29	95.44			peak			
2	5814.000	87.98	-0.29	87.69			AVG			
3	7248.850	46.42	1.33	47.75	74.00	-26.25	peak			
4	7248.850	38.69	1.33	40.02	54.00	-13.98	AVG			

## 11. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

### 11.1. Block Diagram of Test Setup

Shielding Room Test Setup Diagram



### 11.2. The Emission Limit

Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB( $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

\* Decreases with the logarithm of the frequency.

### 11.3. Configuration of EUT on Measurement

The equipment is installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 11.4. Operating Condition of EUT

11.4.1 Setup the EUT and simulator as shown as

Section 11.1.

11.4.2. Turn on the power of all equipment.

11.4.3. Let the EUT work in Test mode measure it.

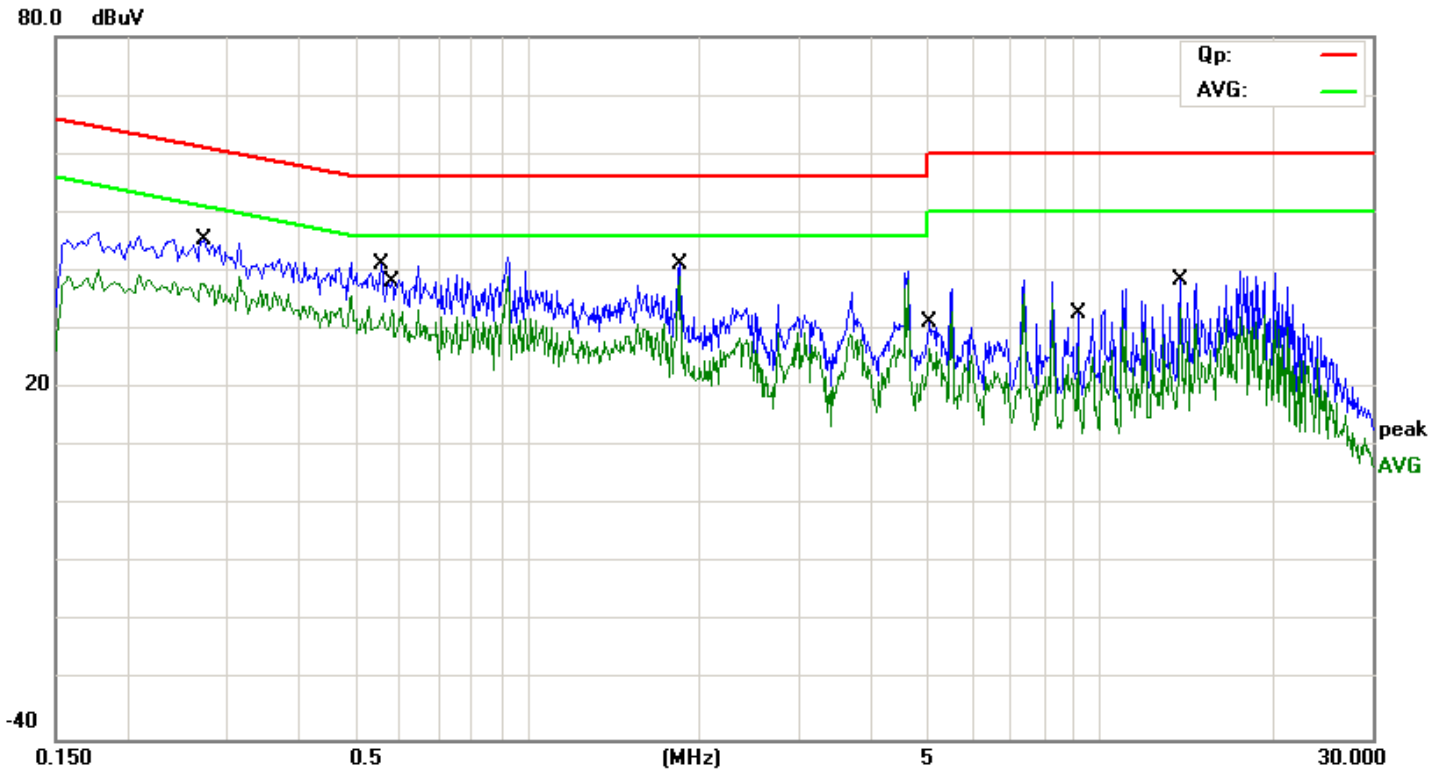
### 11.5. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz. The frequency range from 150 kHz to 30MHz is checked.

11.6. Power Line Conducted Emission Measurement Results : **PASS.**

EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	L
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 52.7%	Test date:	2016-04-19

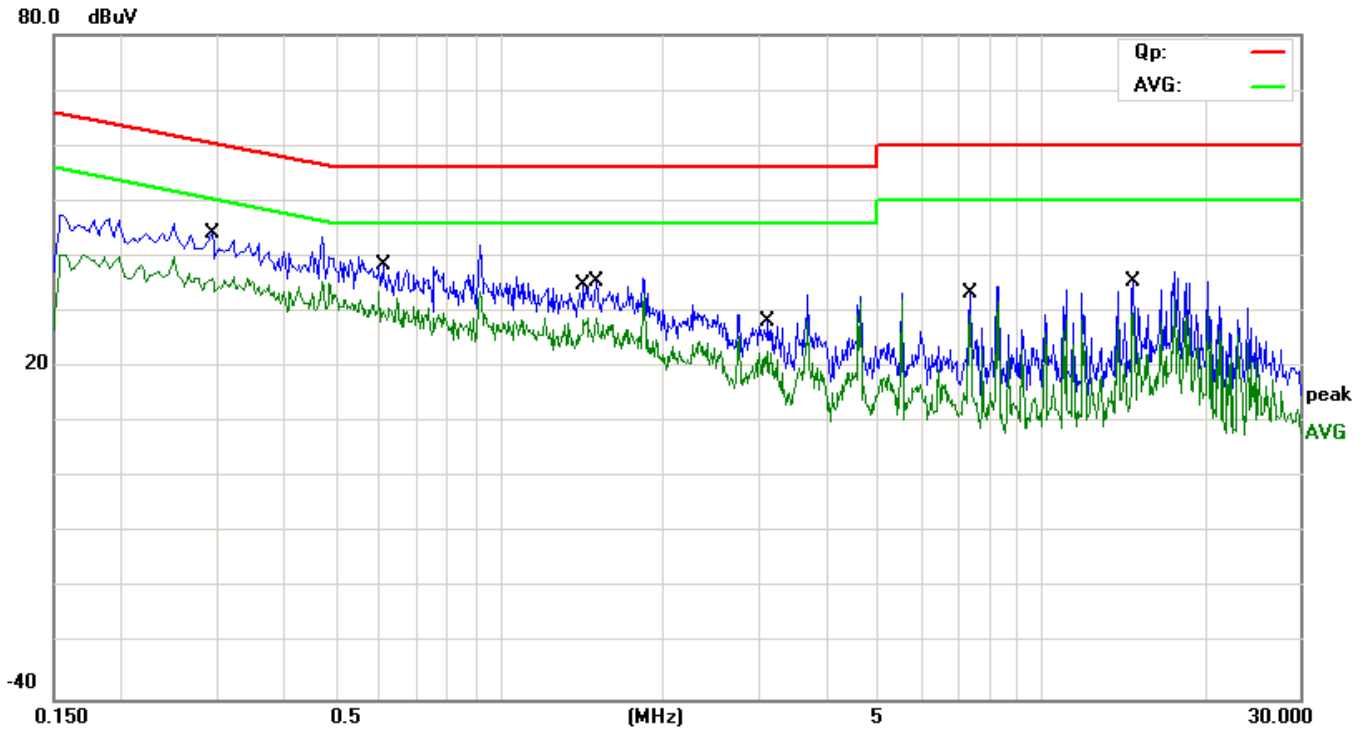


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.2700	28.23	9.60	37.83	51.12	-13.29	AVG	
2	0.2740	35.64	9.60	45.24	61.00	-15.76	QP	
3	0.5580	31.47	9.59	41.06	56.00	-14.94	QP	
4	0.5820	23.61	9.59	33.20	46.00	-12.80	AVG	
5	1.8500	31.65	9.60	41.25	56.00	-14.75	QP	
6 *	1.8500	29.46	9.60	39.06	46.00	-6.94	AVG	
7	5.0460	21.62	9.63	31.25	60.00	-28.75	QP	
8	5.0460	17.03	9.63	26.66	50.00	-23.34	AVG	
9	9.1820	22.97	9.68	32.65	60.00	-27.35	QP	
10	9.1820	17.35	9.68	27.03	50.00	-22.97	AVG	
11	13.8860	28.74	9.70	38.44	60.00	-21.56	QP	
12	13.8860	23.91	9.70	33.61	50.00	-16.39	AVG	

\*:Maximum data    x:Over limit    !:over margin



EUT:	Monster Solara	M/N:	MNSOL-BLK
Mode:	TX5736	Phase:	N
Tested by:	Sky(Engineer)	Power:	DC 5V by Adapter
Temperature: Humidity	/ 23.7°C / 52.7%	Test date:	2016-04-19



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2940	34.55	9.59	44.14	60.41	-16.27	QP	
2		0.2940	26.39	9.59	35.98	50.41	-14.43	AVG	
3	*	0.5980	24.19	9.59	33.78	46.00	-12.22	AVG	
4		0.6100	28.97	9.59	38.56	56.00	-17.44	QP	
5		1.4300	25.22	9.60	34.82	56.00	-21.18	QP	
6		1.5100	19.29	9.60	28.89	46.00	-17.11	AVG	
7		3.1260	18.70	9.61	28.31	56.00	-27.69	QP	
8		3.1260	13.32	9.61	22.93	46.00	-23.07	AVG	
9		7.4060	23.55	9.66	33.21	60.00	-26.79	QP	
10		7.4060	19.79	9.66	29.45	50.00	-20.55	AVG	
11		14.8100	25.63	9.70	35.33	60.00	-24.67	QP	
12		14.8100	19.94	9.70	29.64	50.00	-20.36	AVG	

\*:Maximum data    x:Over limit    !:over margin

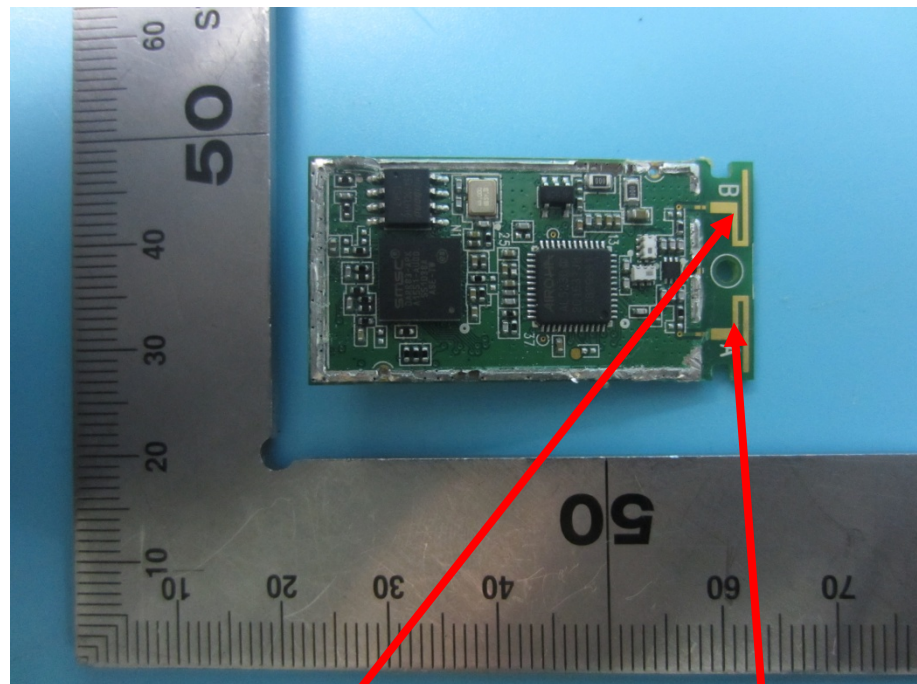
## 12. ANTENNA REQUIREMENT

### 12.1.The Requirement

According to Section 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.

### 12.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna A

Antenna B