



## FCC PART 15.247 TEST REPORT

Prepared For	DAZA Electronics Company
Product Name:	MID
Trade Name:	N/A
Model Name :	M-223, M-203,M-300,M-300T,M-302B,M-301T, M-302, M-302G, M-305,M-309, M-307
FCC ID:	Z8VMID
Prepared By	DongGuan Precise Testing Service Co.,Ltd.
	F616A Room, 6th Floor, Meixin Business Center, Dongcheng Middle Road, Dongguan, Guangdong, China
Test Date:	Nov.09 ~ Nov.14, 2011
Date of Report :	Nov.14, 2011

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**VERIFICATION OF COMPLIANCE**

Applicant:	DAZA Electronics Company
Address	Bldg G, Xinmusheng Low Carbon Industrial Park,NO.6 Xinmu Road,Pinghu ShenZhen China
Manufacturer Name:	DAZA Electronics Company
Address:	Bldg G, Xinmusheng Low Carbon Industrial Park,NO.6 Xinmu Road,Pinghu ShenZhen China
Product Description:	MID
Brand Name:	N/A
Model Name:	M-223, M-203,M-300,M-300T,M-302B,M-301T, M-302, M-302G, M-305,M-309, M-307
Test procedure	ANSI C63.4 : 2003

Prepared by :

Assistant

Reviewer :

Supervisor

Approved &amp; Authorized Signer :

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## TABLE OF CONTENTS

<b>1. GENERAL INFORMATION .....</b>	<b>5</b>
1.1 PRODUCT DESCRIPTION.....	5
1.2 TABLE OF CARRIER FREQUENCIES.....	5
1.3 RELATED SUBMITTAL(S) / GRANT (S) .....	6
1.4 TEST METHODOLOGY .....	6
1.5 TEST FACILITY .....	6
1.6 SPECIAL ACCESSORIES .....	6
1.7 EQUIPMENT MODIFICATIONS .....	6
<b>2. SYSTEM TEST CONFIGURATION.....</b>	<b>7</b>
2.1 CONFIGURATION OF TESTED SYSTEM .....	7
2.2 EQUIPMENT USED IN TESTED SYSTEM .....	7
<b>3. SUMMARY OF TEST RESULTS .....</b>	<b>8</b>
<b>4. DESCRIPTION OF TEST MODES.....</b>	<b>9</b>
<b>5. CONDUCTION EMISSIONS.....</b>	<b>10</b>
5.1 MEASUREMENT PROCEDURE:.....	10
5.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) .....	10
5.3 MEASUREMENT EQUIPMENT USED: .....	11
5.4 LIMITS AND MEASUREMENT RESULT: .....	12
<b>6. MAXIMUM OUTPUT POWER .....</b>	<b>15</b>
6.1 MEASUREMENT PROCEDURE: .....	15
6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	15
6.3 MEASUREMENT EQUIPMENT USED (RADIATED EMISSION):.....	18
6.4 LIMITS AND MEASUREMENT RESULT:.....	19
<b>7. 6 DB BANDWIDTH.....</b>	<b>22</b>
7.1 MEASUREMENT PROCEDURE .....	22
7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	22
7.3 MEASUREMENT EQUIPMENT USED:.....	22
7.4 LIMITS AND MEASUREMENT RESULTS: .....	22
<b>8. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY .....</b>	<b>29</b>
8.1 MEASUREMENT PROCEDURE: .....	29
8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	29



8.3 MEASUREMENT EQUIPMENT USED:.....	29
8.4 LIMITS AND MEASUREMENT RESULT:.....	29
9. OUT OF BAND EMISSION .....	36
9.1 MEASUREMENT PROCEDURE: .....	36
9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	36
9.3 MEASUREMENT EQUIPMENT USED:.....	36
9.4 LIMITS AND MEASUREMENT RESULT:.....	36
RADIATED EMISSION.....	43
PPENDIX 1.....	69
PHOTOGRAPHS OF THE TEST SETUP.....	69
PHOTOGRAPHS OF THE TEST SETUP (>1GHZ).....	70

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## 1. GENERAL INFORMATION

### 1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Operation Frequency	2.412 GHz to 2.462GHz
Output Power	802.11b: 11.61dBm(Max) 802.11g: 10.51dBm(Max) 802.11n: 10.78dBm(Max)
Modulation	CCK/OFDM
Number of channels	11
Antenna Designation	Integrated Antenna
Antenna Gain	1.1dbi
Power Supply	DC 3.7V by battery
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	

### 1.2 TABLE OF CARRIER FREQUENCIES

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

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### 1.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: Z8VMID filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### 1.4 TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 1.5 TEST FACILITY

All measurement facilities used to collect the measurement data are located at

World Standardization Certification&TestingCO.,LTD

Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong, China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC register No.: 131628

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

### 1.6 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

### 1.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.



## 2. SYSTEM TEST CONFIGURATION

### 2.1 CONFIGURATION OF TESTED SYSTEM



### 2.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID
1	MID	N/A	M-223	Z8VMID
2	--	--	--	--

**3. SUMMARY OF TEST RESULTS**

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (c)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
1.1307 1.1310 2.1091 2.1093	RF Exposure Compliance	PASS	

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#### 4. DESCRIPTION OF TEST MODES

1. The EUT has been set to operate continuously on the lowest, the middle and the highest operation frequency individually.
2. The EUT stays in continuous transmitting mode on the operation frequency being set.

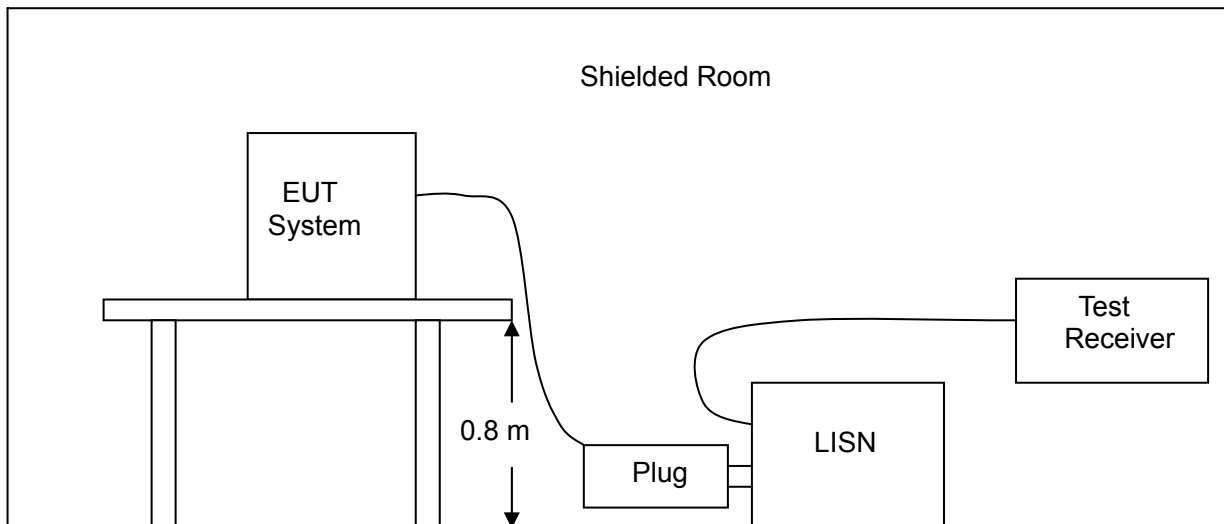


## 5. CONDUCTION EMISSIONS

### 5.1 MEASUREMENT PROCEDURE:

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. The EUT received DC3.7V through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

### 5.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



**5.3 MEASUREMENT EQUIPMENT USED:**

Conducted Emission Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Cal. Date
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/29/2012
LISN	Rohde & Schwarz	ESH2-Z5	834549/005	05/29/2012
LISN	EMCO	3816/2	00042990	05/29/2012
50 $\Omega$ Coaxial Switch	Anritsu	MP59B	M20531	05/29/2012

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**5.4 LIMITS AND MEASUREMENT RESULT:****LIMITS OF LINE CONDUCTED EMISSION TEST**

Frequency	Maximum RF Line Voltage	
	Q.P.( dBuV)	Average( dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

1\*\*Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

**MEASURING INSTRUMENT AND SETTING**

The following table is the setting of receiver.

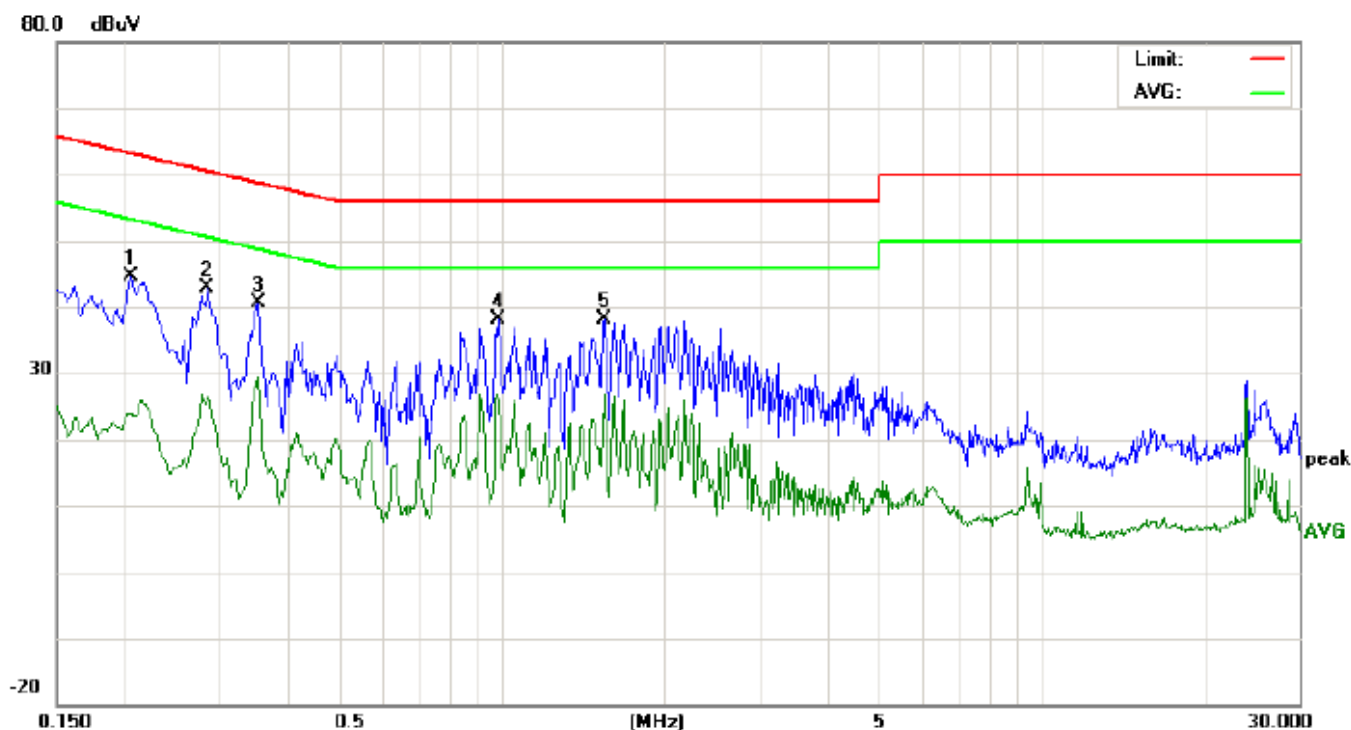
Receiver Parameter	Setting
Attenuation	10dB
Start Frequency	0.15MHz
Stop Frequency	30MHz
6dB bandwidth	9KHz for QP
IF bandwidth	9KHz for AV

**TEST RESULT**

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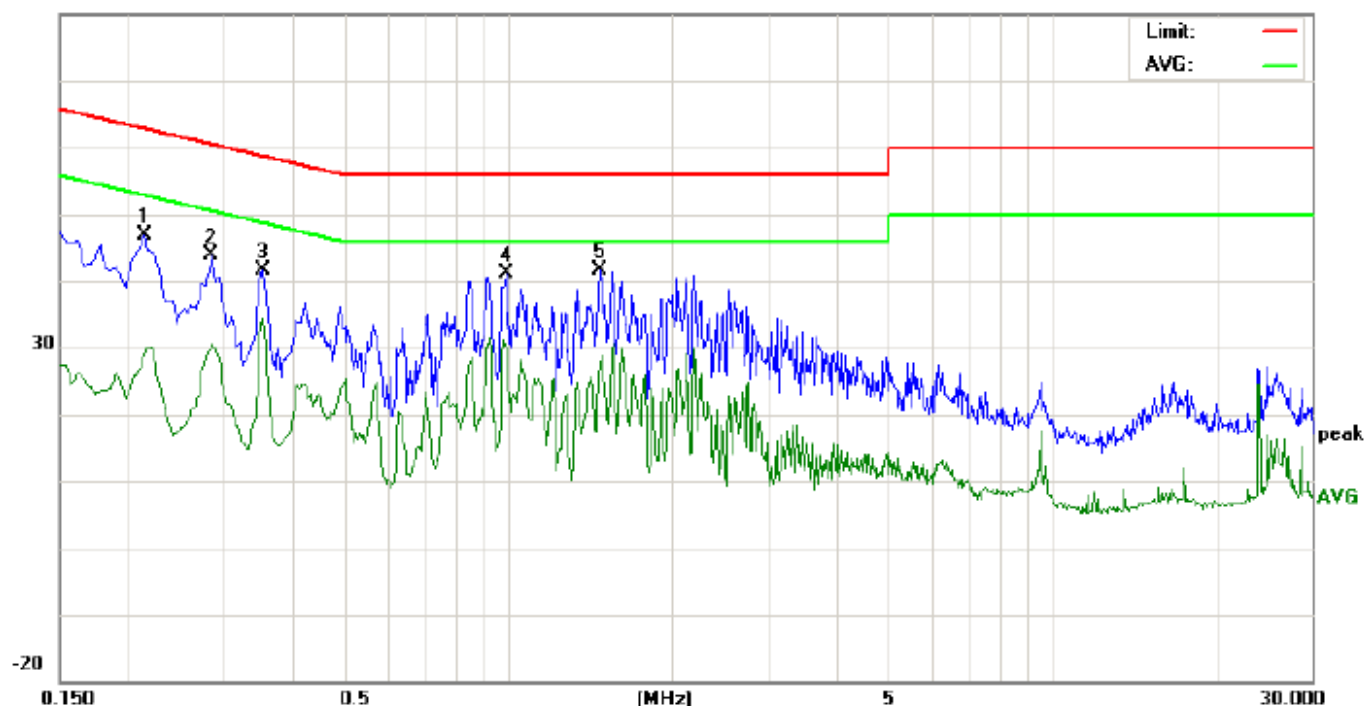
No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2060	34.45		13.59	10.22	44.67		23.81	63.36	53.36	-18.69	-29.55	P	
2	0.2860	32.71		16.41	10.28	42.99		26.69	60.64	50.64	-17.65	-23.95	P	
3	0.3540	30.30		19.12	10.31	40.61		29.43	58.87	48.87	-18.26	-19.44	P	
4	0.9860	27.67		15.44	10.38	38.05		25.82	56.00	46.00	-17.95	-20.18	P	
5	1.5500	27.83		16.15	10.36	38.19		26.51	56.00	46.00	-17.81	-19.49	P	

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LINE CONCUTED EMISSION TEST LINE 2-N



No.	Freq. (MHz)	Reading Level (dBuV)			Correct Factor (dB)	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2140	36.68		18.70	10.23	46.91		28.93	63.04	53.04	-16.13	-24.11	P	
2	0.2860	33.54		20.24	10.28	43.82		30.52	60.64	50.64	-16.82	-20.12	P	
3	0.3540	31.25		23.99	10.31	41.56		34.30	58.87	48.87	-17.31	-14.57	P	
4	0.9900	30.65		19.87	10.37	41.02		30.24	56.00	46.00	-14.98	-15.76	P	
5	1.4780	31.21		17.63	10.38	41.59		28.01	56.00	46.00	-14.41	-17.99	P	

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## 6. MAXIMUM OUTPUT POWER

### 6.1 MEASUREMENT PROCEDURE:

#### CONDUCTED METHOD

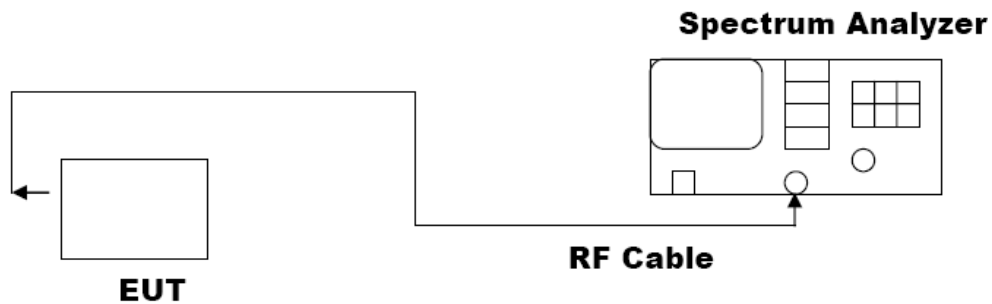
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Set SPA Centre Frequency = Operation Frequency, RBW= 3 MHz, VBW= 3 MHz.
5. Set SPA Trace 1 Max hold, then View.

#### RADIATED METHOD

According to ANSI C63.4:2003

### 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

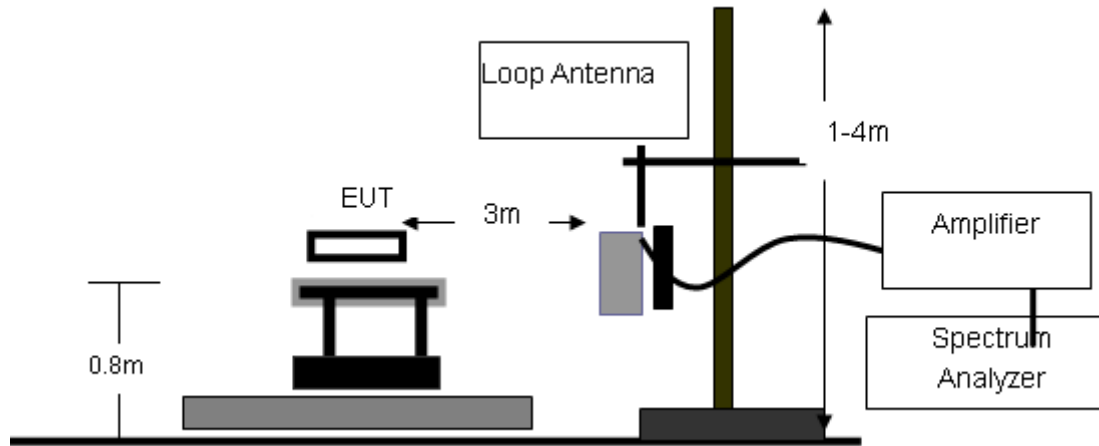
#### CONDUCTED METHOD



#### RADIATED EMISSION TEST SETUP



RADIATED EMISSION TEST SETUP BELOW 30MHz



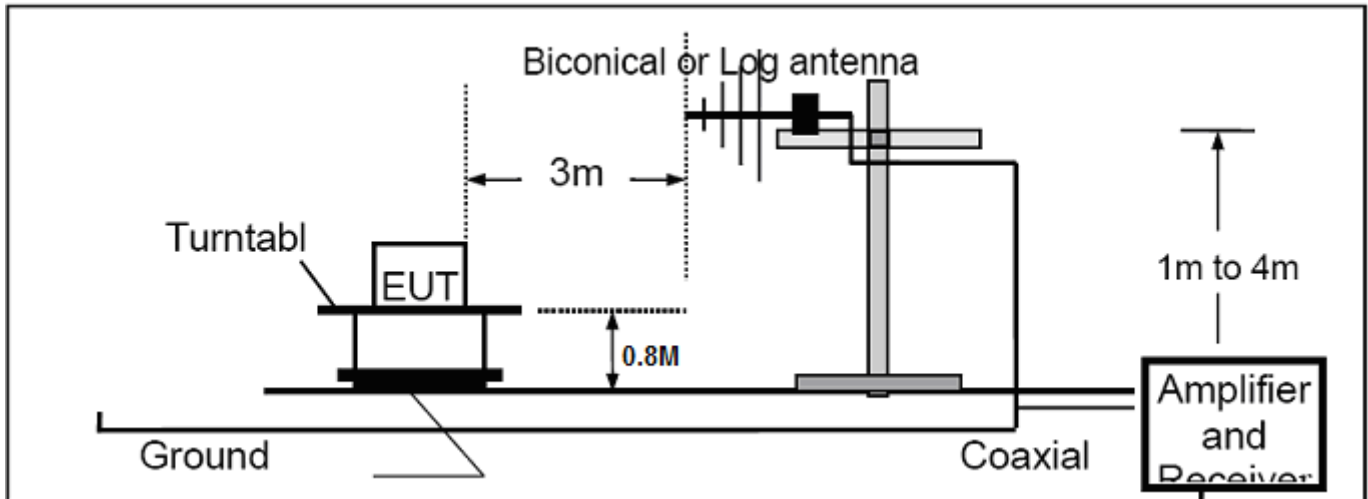
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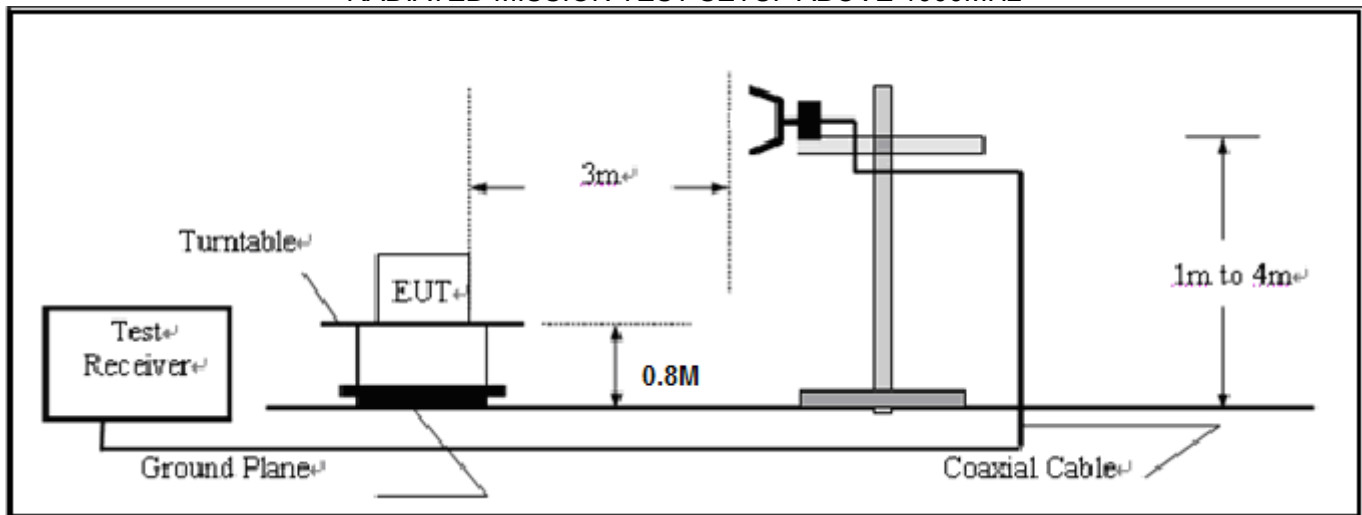
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### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



### RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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**6.3 MEASUREMENT EQUIPMENT USED (RADIATED EMISSION):**

Description	Manufacturer	Model	SERIAL NUMBER	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4407B	160400005	05/29/2011	05/29/2012
Amplifier	H.P.	8449B	3008A00277	05/29/2011	05/29/2012
Horn Antenna	Sunol Sciences	DRH-118	A052604	05/29/2011	05/29/2012
Horn Antenna	A.H. Systems Inc.	SAS-574	--	05/29/2011	05/29/2012
EMI Test Receiver	Rohde & Schwarz	ESCI	100028	05/29/2011	05/29/2012
Amplifier	H.P.	HP8447E	1937A01046	05/29/2011	05/29/2012
Broadband Antenna	Sunol Sciences	JB1	A040904-2	05/29/2011	05/29/2012
LOOP ANTENNA	R&S	HM525	--	05/29/2011	05/29/2012

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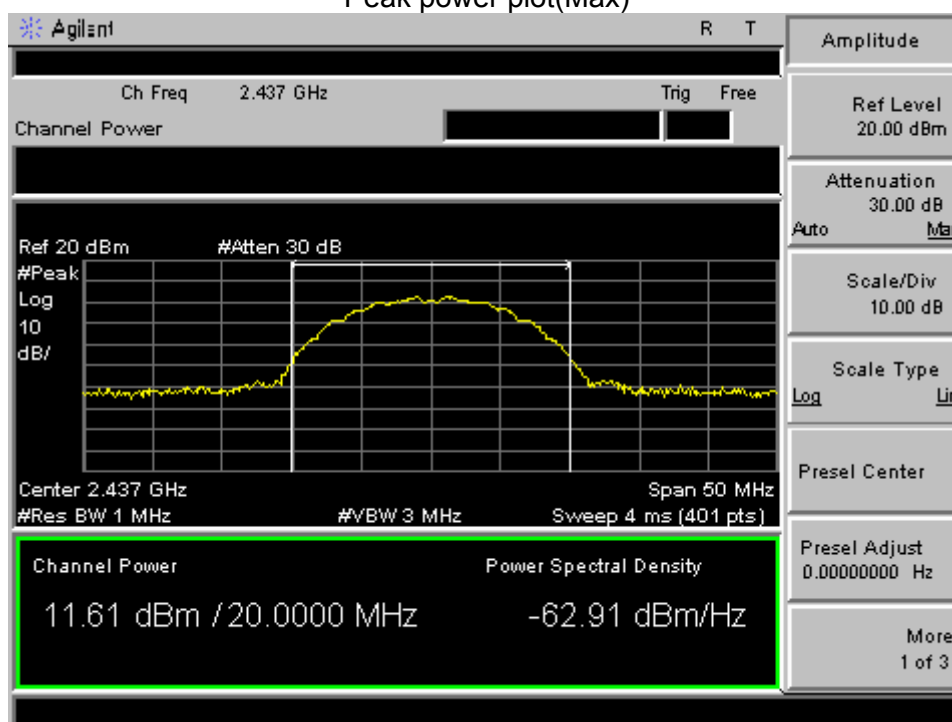
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**6.4 LIMITS AND MEASUREMENT RESULT:**

EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity::	60%
Pressure:	1012 hPa	Test Voltage :	DC3.7V by battery
Test Mode :	TX B MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Peak output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412	11.09	30	1
CH06	2437	11.61	30	1
CH11	2462	11.03	30	1

Peak power plot(Max)

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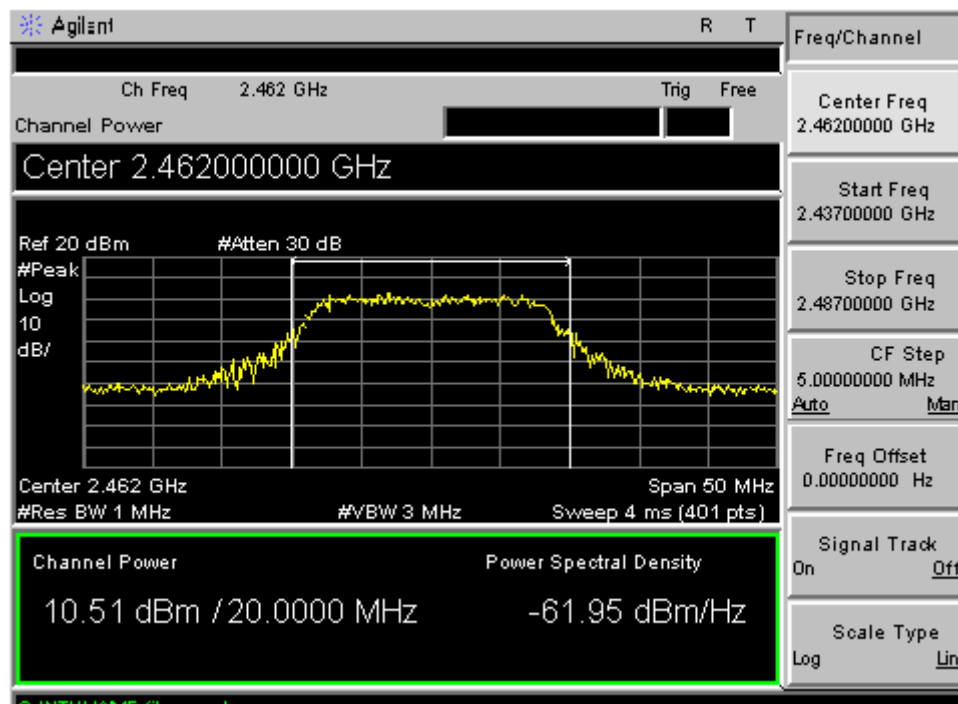
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EUT:	MID	Model Name :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC3.7V by battery
Test Mode :	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Peak output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412	9.74	30	1
CH06	2437	10.12	30	1
CH11	2462	10.51	30	1

Peak power plot(Max)

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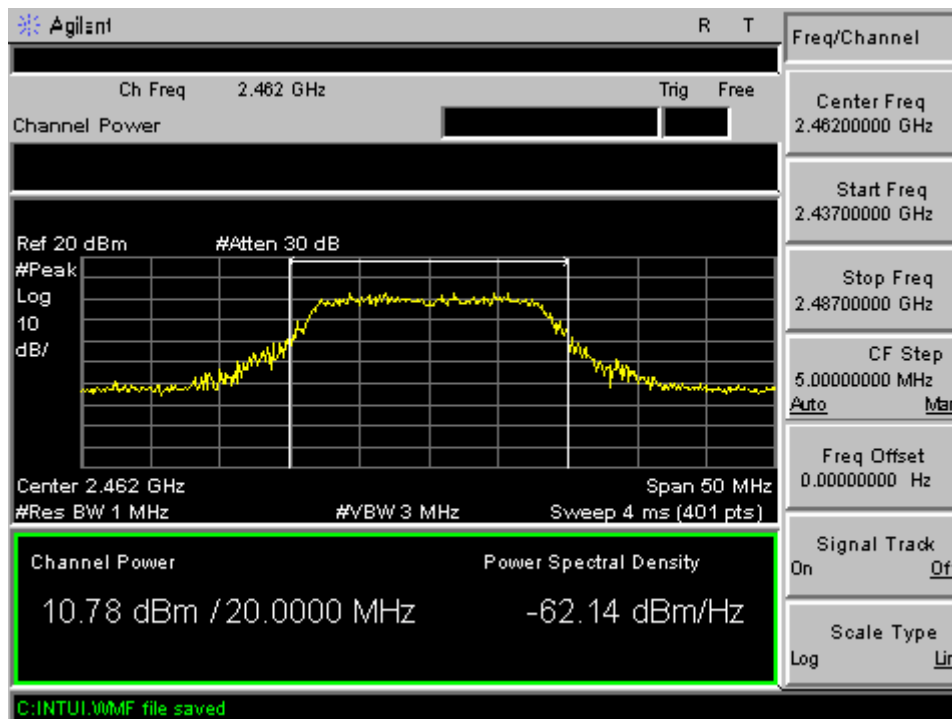
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EUT:	MID	Model Name :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC3.7V by battery
Test Mode :	TX N MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Peak output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412	9.97	30	1
CH06	2437	10.49	30	1
CH11	2462	10.78	30	1

Peak power plot (Max)

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## 7. 6 DB BANDWIDTH

### 7.1 MEASUREMENT PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW= 100 KHz.
4. Set SPA Trace 1 Max hold, then View.

### 7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in Section 6.2

### 7.3 MEASUREMENT EQUIPMENT USED:

The same as described in Section 6.3

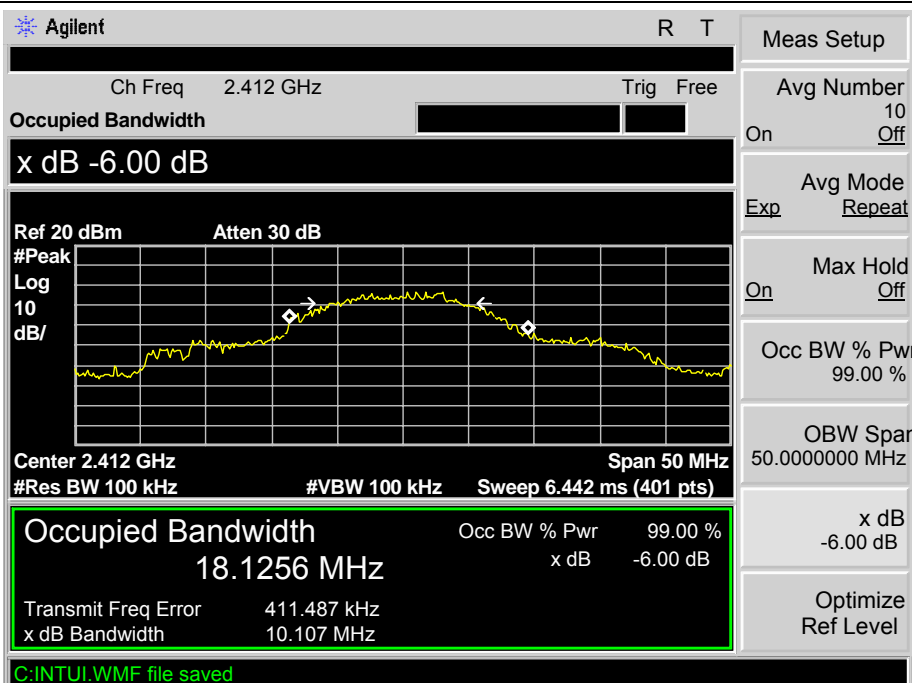
### 7.4 LIMITS AND MEASUREMENT RESULTS:

EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX B MODE /CH01, CH06, CH11		

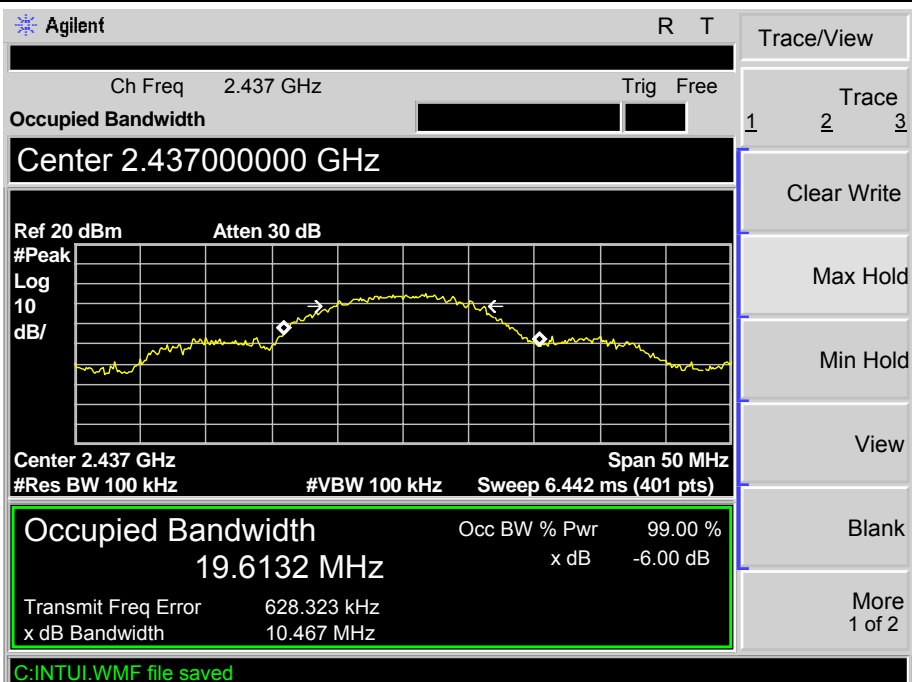
Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	10.10	18.12	>=500KHz	PASS
2437 MHz	10.47	19.61	>=500KHz	PASS
2462 MHz	9.34	18.24	>=500KHz	PASS



## TX CH 01

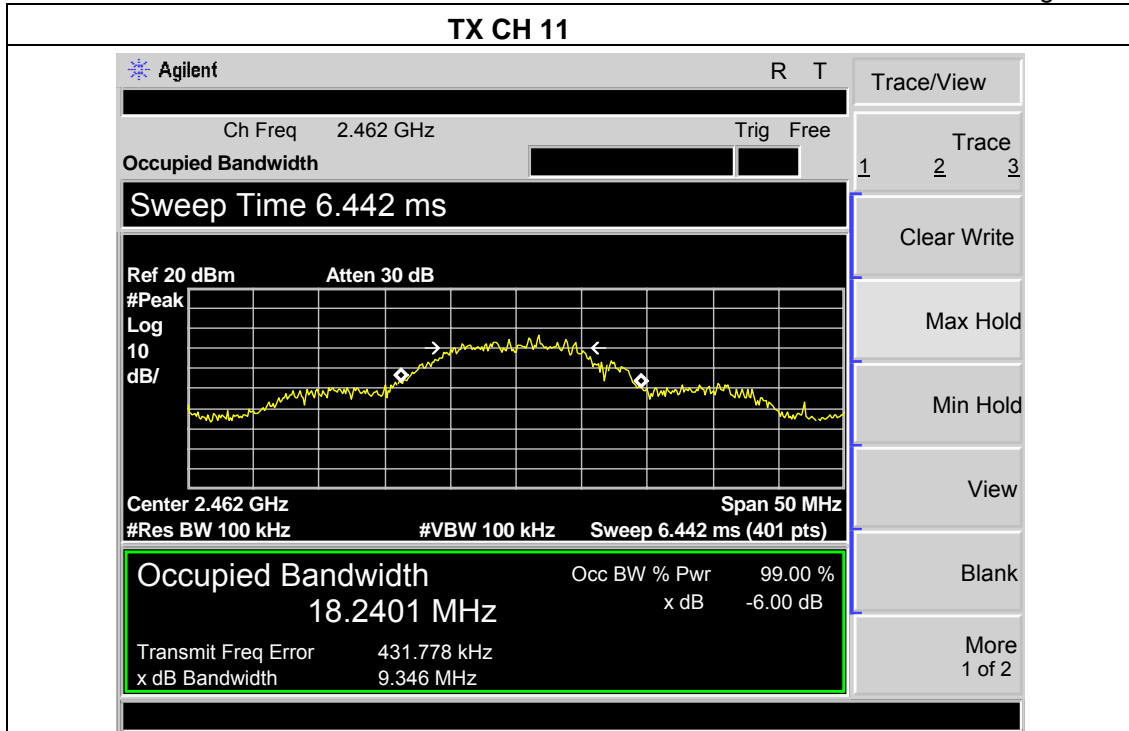


## TX CH 06



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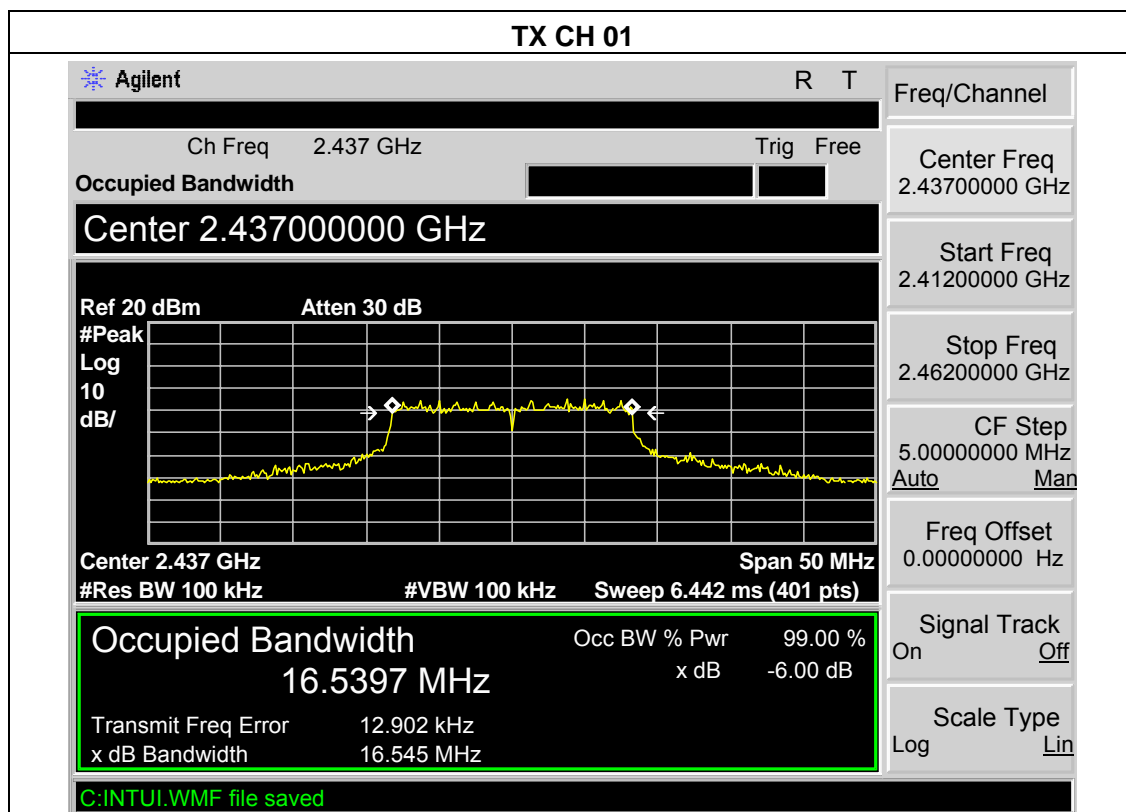
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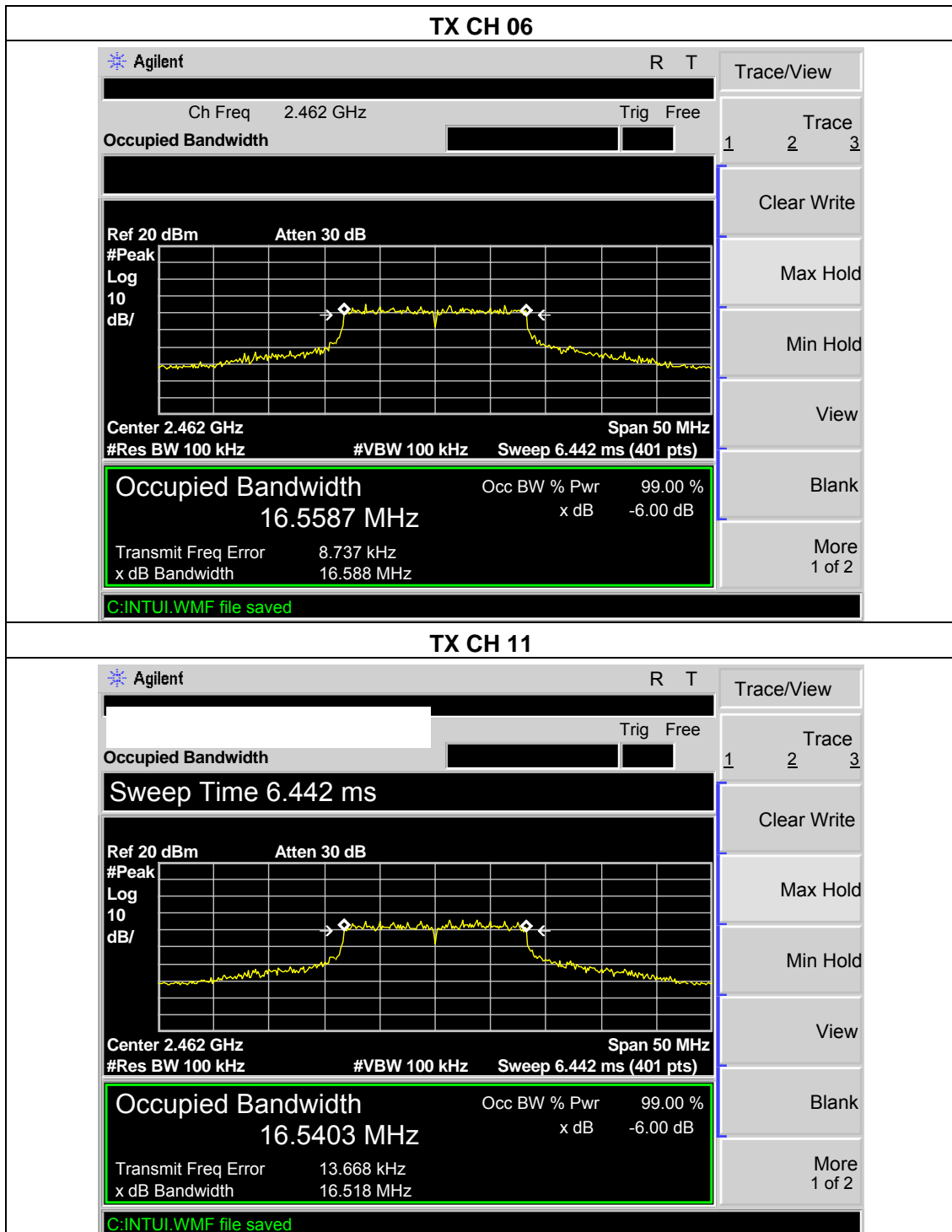
EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX G MODE /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.54	16.54	>=500KHz	<b>PASS</b>
2437 MHz	16.59	16.55	>=500KHz	<b>PASS</b>
2462 MHz	16.52	16.54	>=500KHz	<b>PASS</b>



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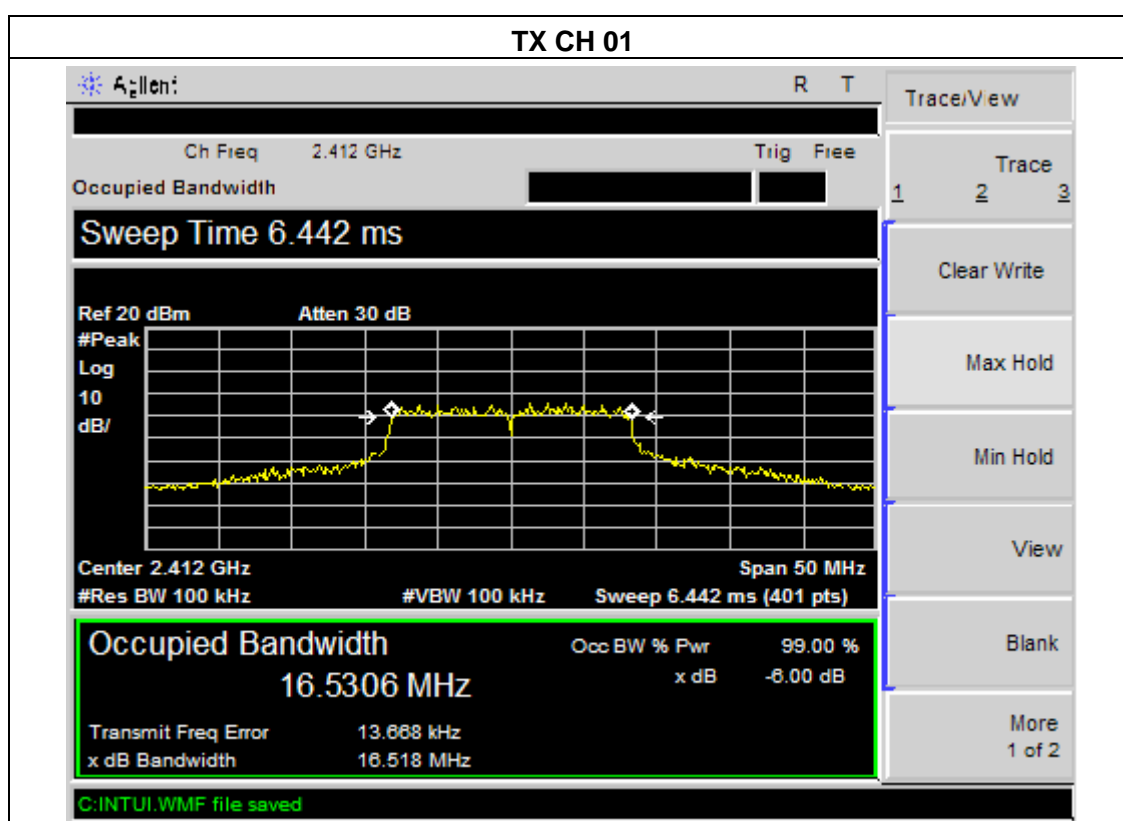
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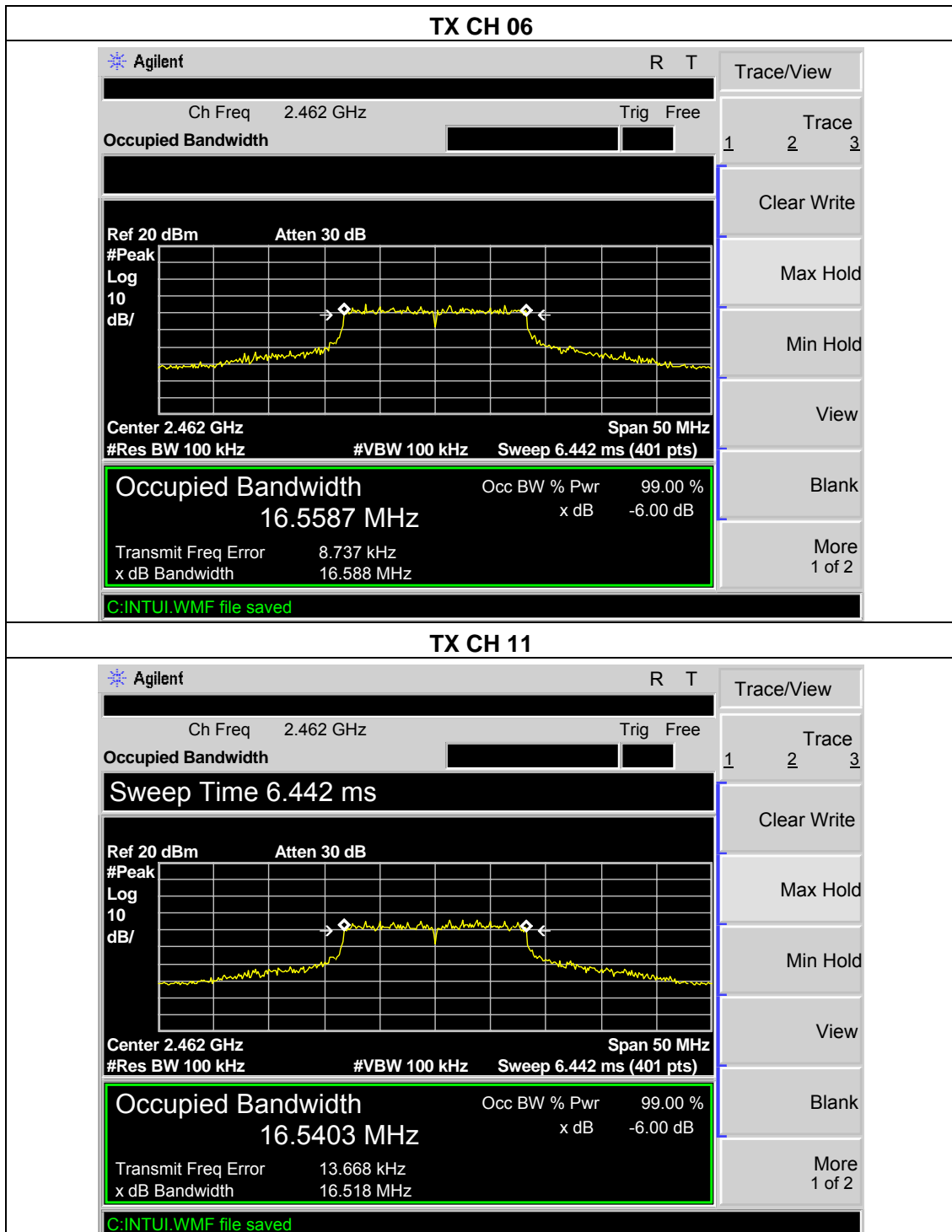


EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX N MODE /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.51	16.53	>=500KHz	PASS
2437 MHz	16.58	16.55	>=500KHz	PASS
2462 MHz	16.51	16.55	>=500KHz	PASS

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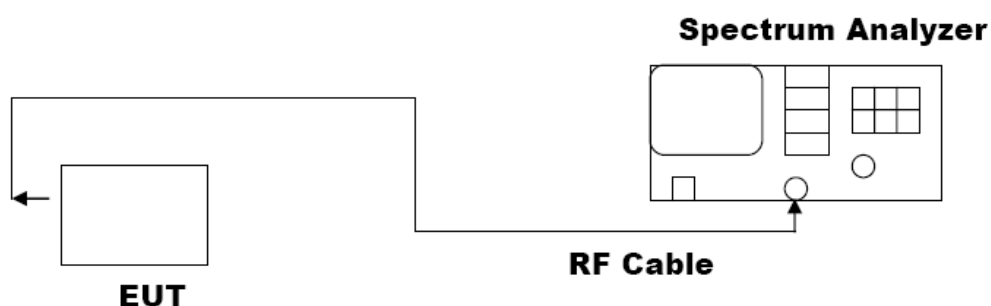


## 8. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

### 8.1 MEASUREMENT PROCEDURE:

- (1). The EUT was placed on a turn table which is 0.8m above ground plane.
- (2). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (3). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (4). Set SPA Centre Frequency = Operation Frequency, RBW= 3 KHz, VBW= 10 KHz., Sweep time= Auto
- (5). Set SPA Trace 1 Max hold, then View.

### 8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



### 8.3 MEASUREMENT EQUIPMENT USED:

SHIELDING ROOM					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4407B	US41421290	04/16/2011	04/15/2012

### 8.4 LIMITS AND MEASUREMENT RESULT:

---

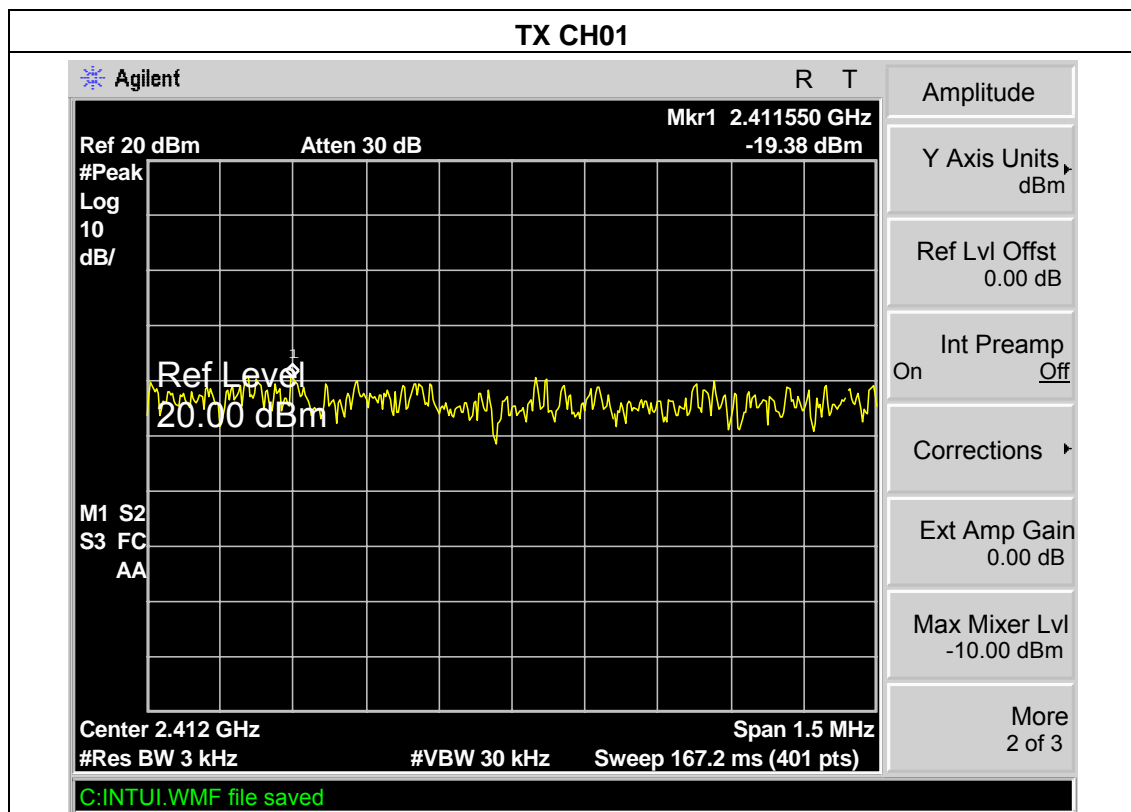
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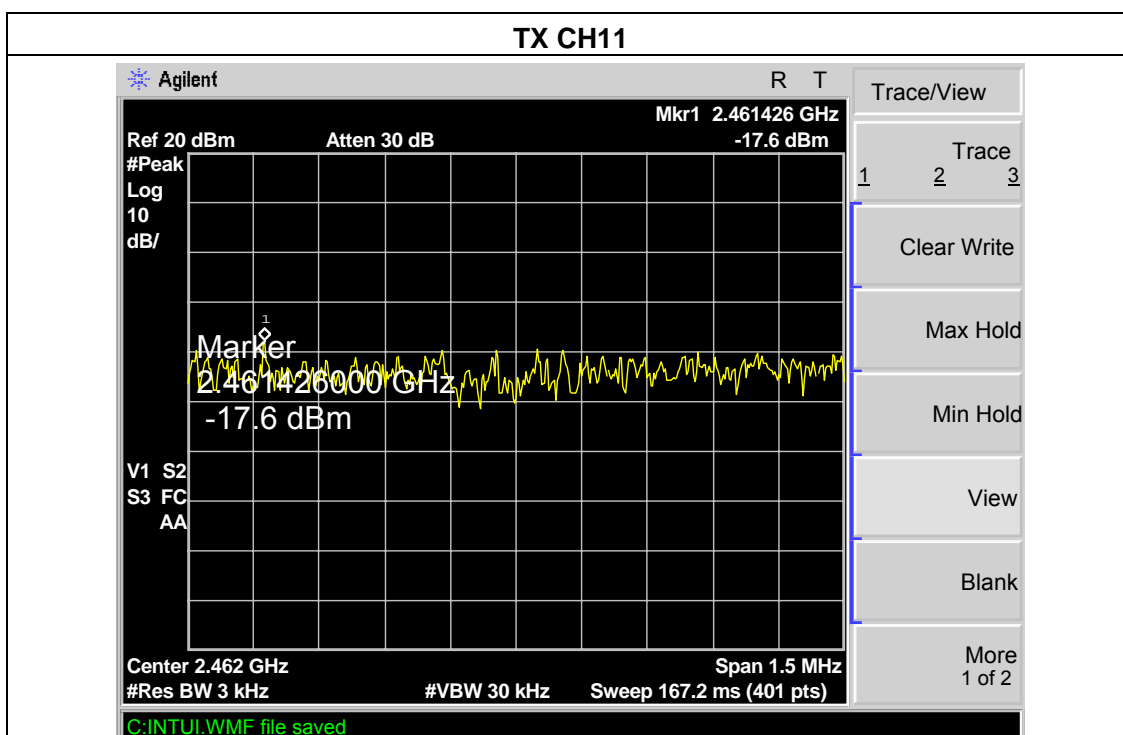
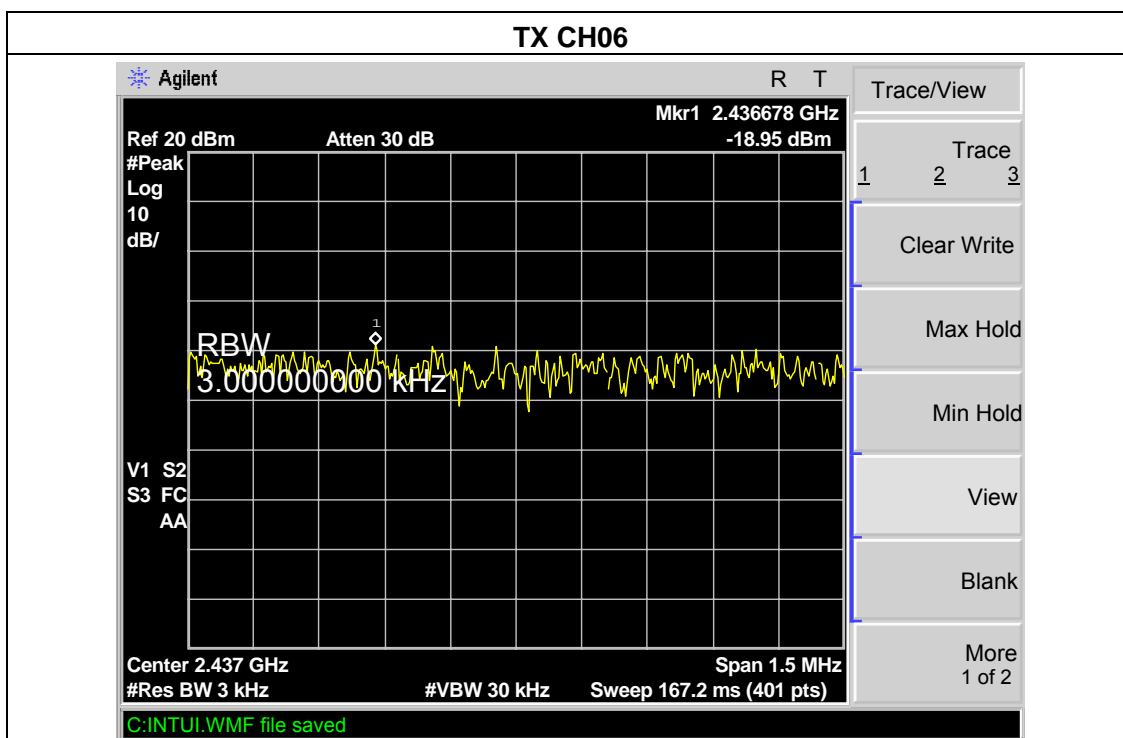


EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1015 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX B MODE /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-19.38	8	PASS
2437 MHz	-18.95	8	PASS
2462 MHz	-17.36	8	PASS

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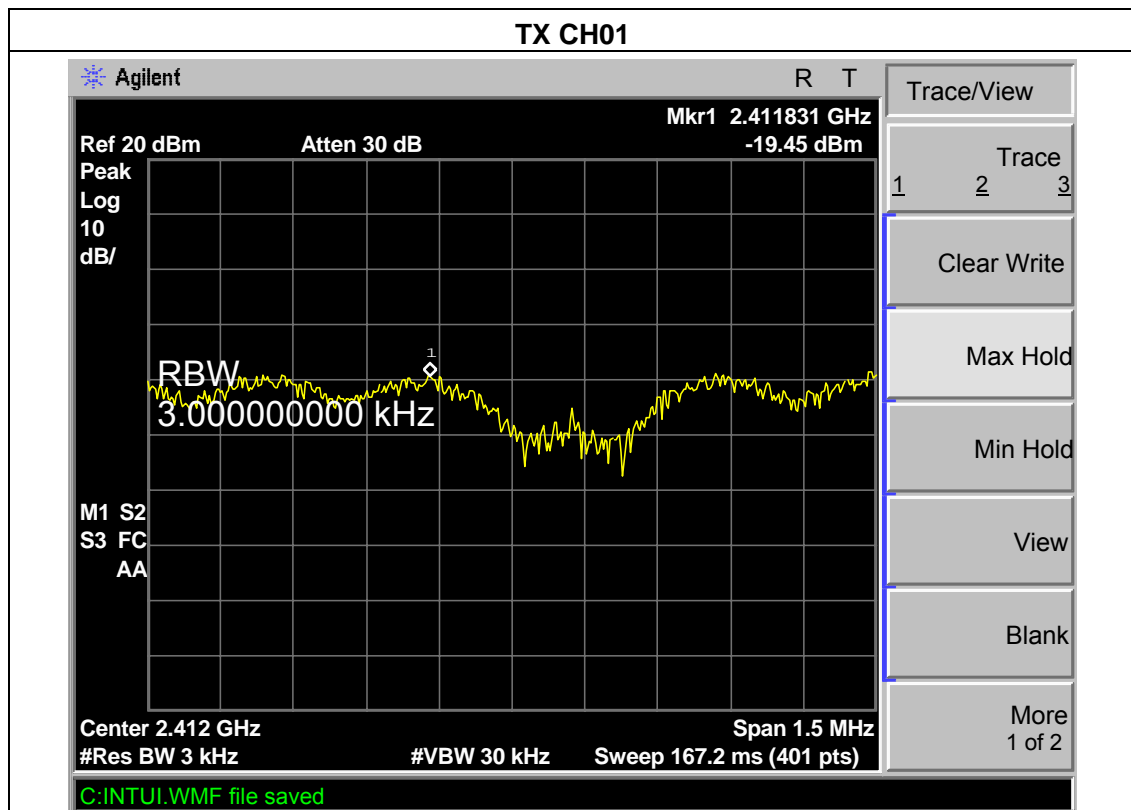
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Tel: 86-769-23368601 Fax: 86-769-23368602 [http:// www.pts-testing.com](http://www.pts-testing.com)



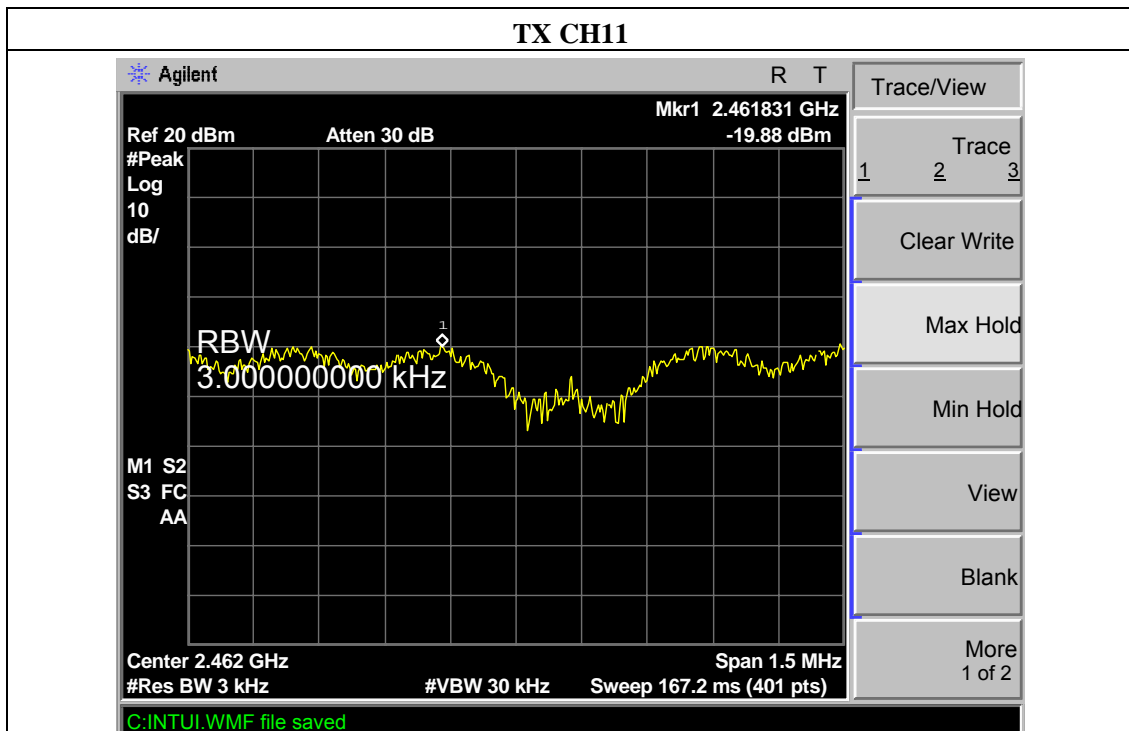
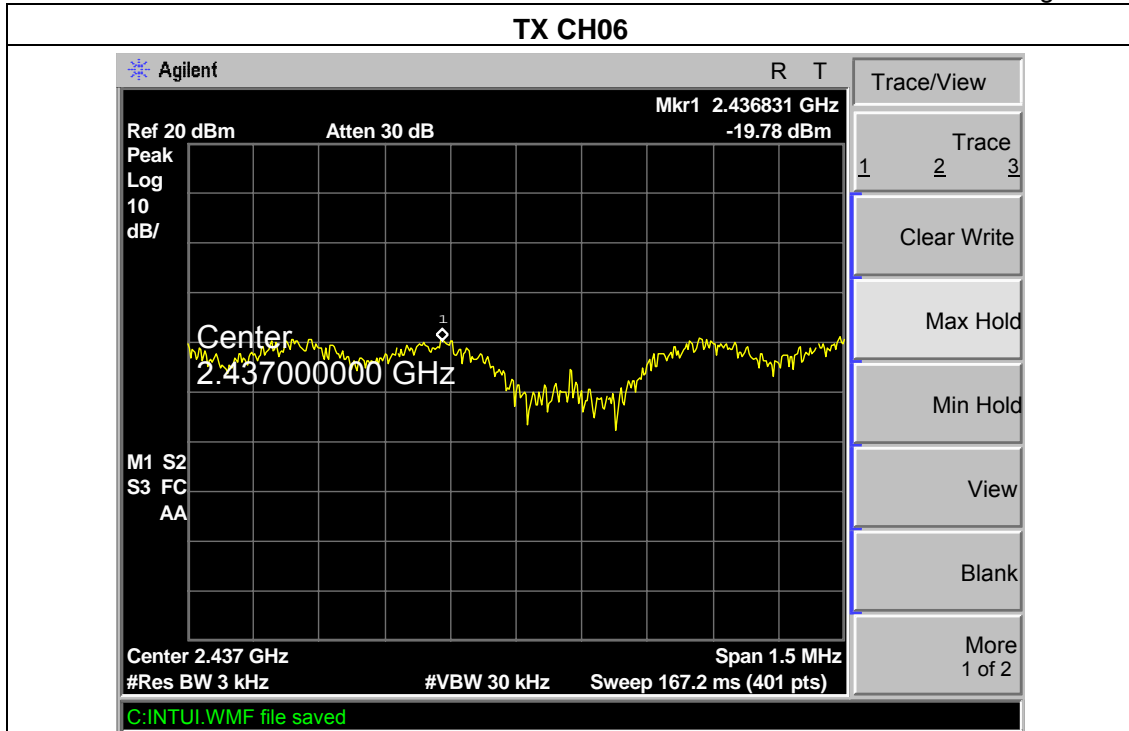
EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1015 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX G MODE /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-19.45	8	PASS
2437MHz	-19.78	8	PASS
2462 MHz	-19.88	8	PASS

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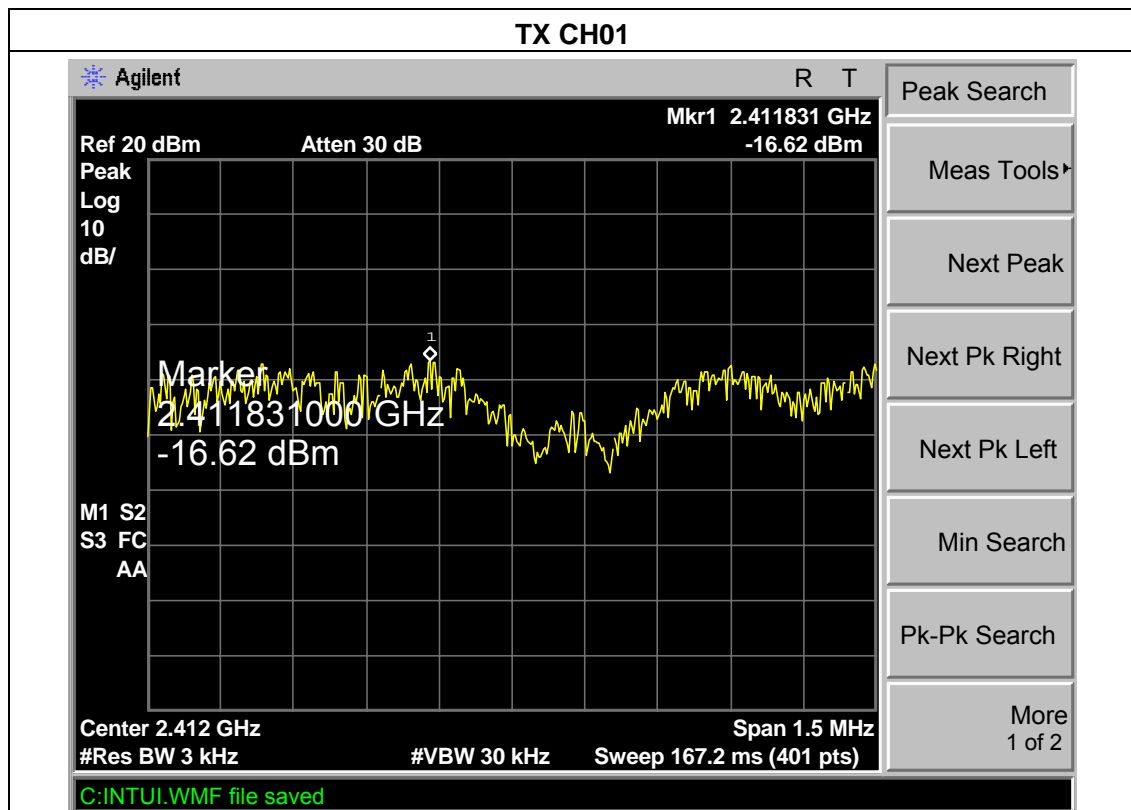
**DongGuan Precise Testing Service Co.,Ltd.**

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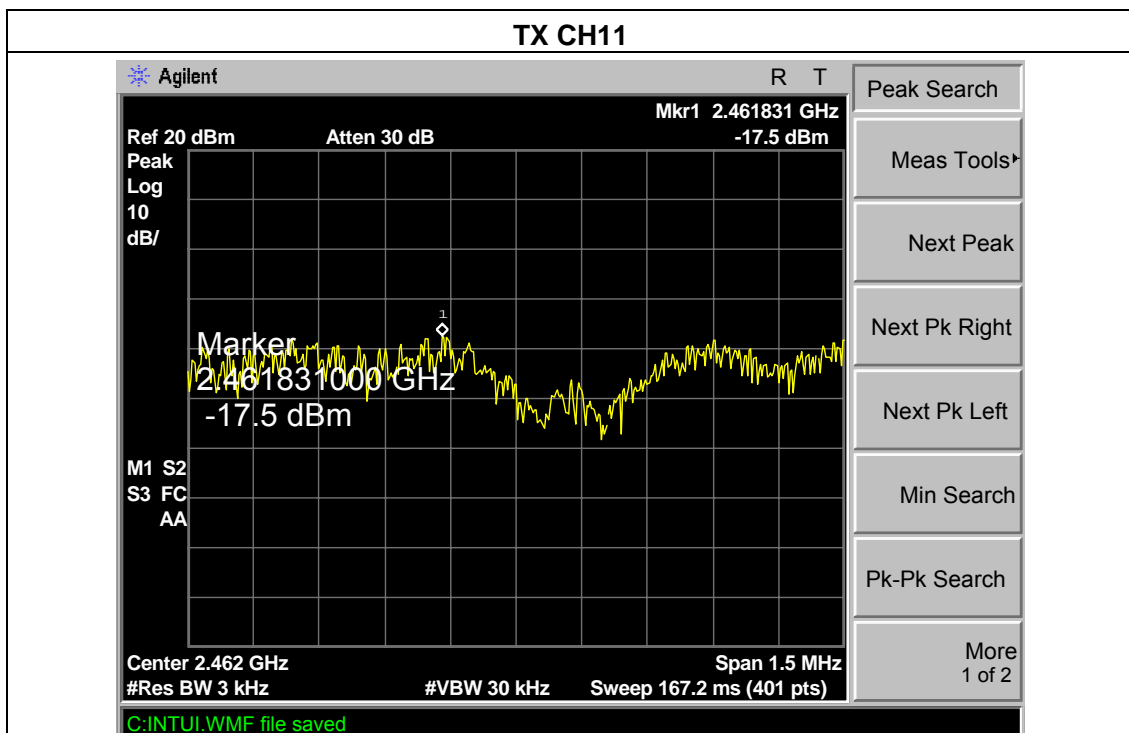
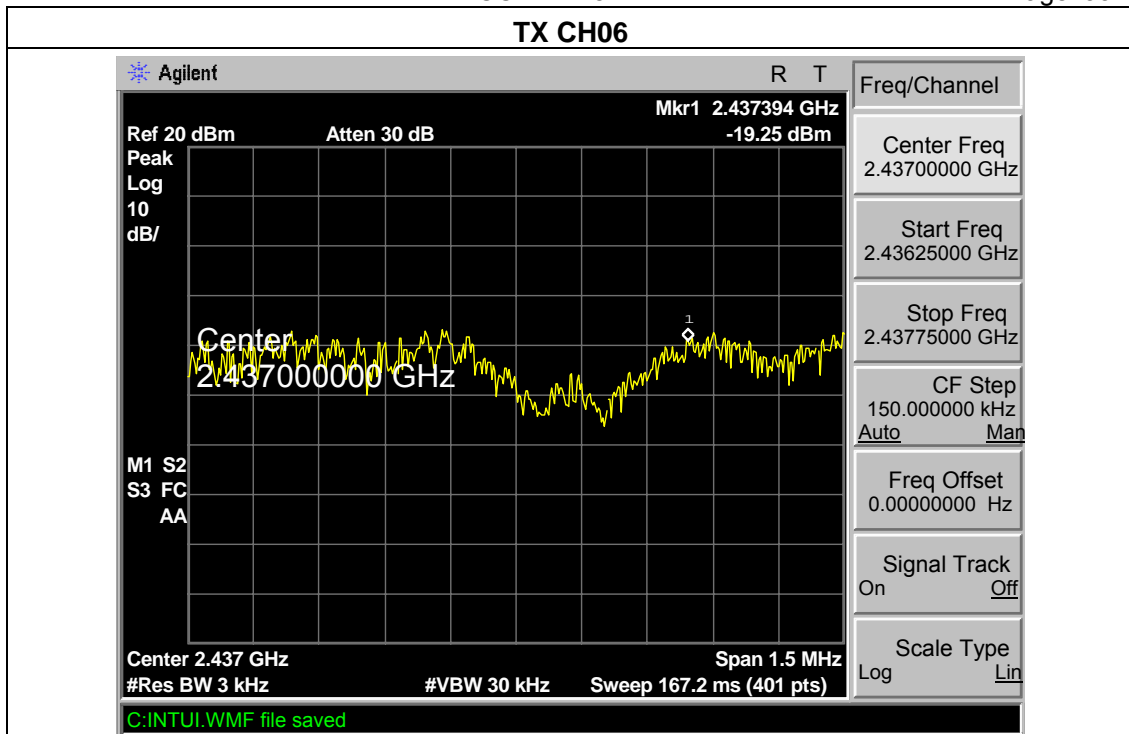


EUT:	MID	Model Name. :	M-223
Temperature:	25 °C	Relative Humidity:	60%
Pressure:	1015 hPa	Test Voltage :	DC 3.7V by battery
Test Mode :	TX G MODE /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-16.62	8	PASS
2437MHz	-19.25	8	PASS
2462 MHz	-17.5	8	PASS

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## 9. OUT OF BAND EMISSION

### 9.1 MEASUREMENT PROCEDURE:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW= 100 KHz.
4. Set SPA Trace 1 Max hold, then View.

### 9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The Same as described in section 6.2

1. Conducted test setup
2. Radiated Emission test Setup

### 9.3 MEASUREMENT EQUIPMENT USED:

The Same as described in section 6.3

### 9.4 LIMITS AND MEASUREMENT RESULT:

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test Data	Criteria
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.  In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a))	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS
	At least -20dBc than the limit Specified on the TOP Channel	PASS

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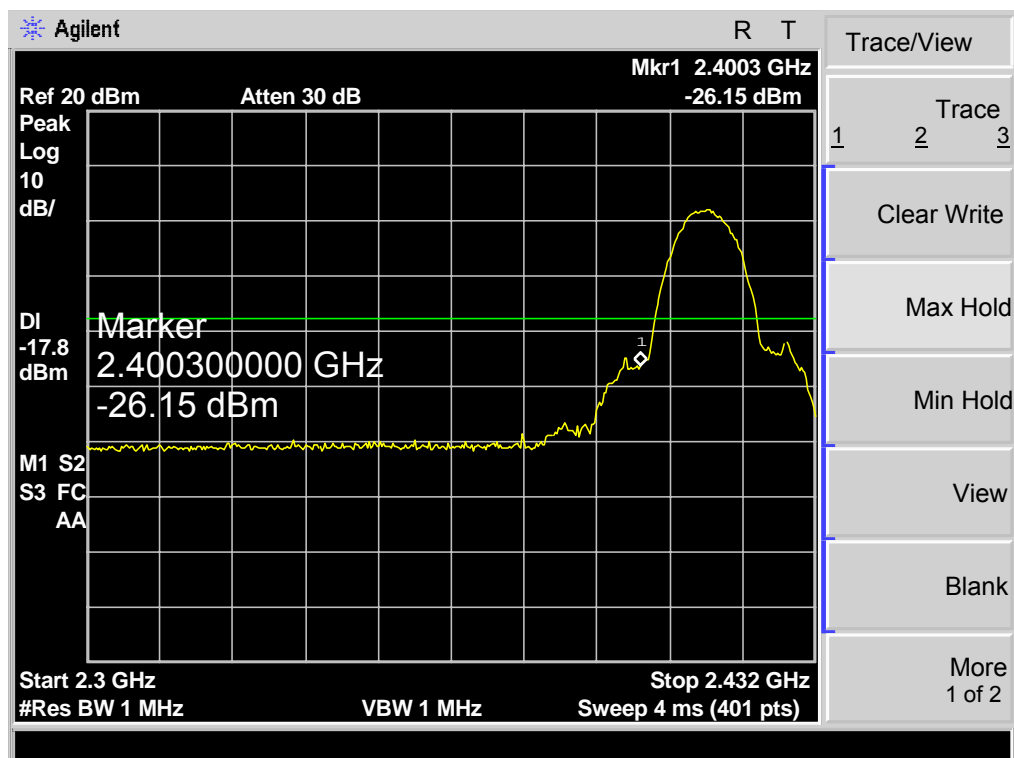
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Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	B MODE		

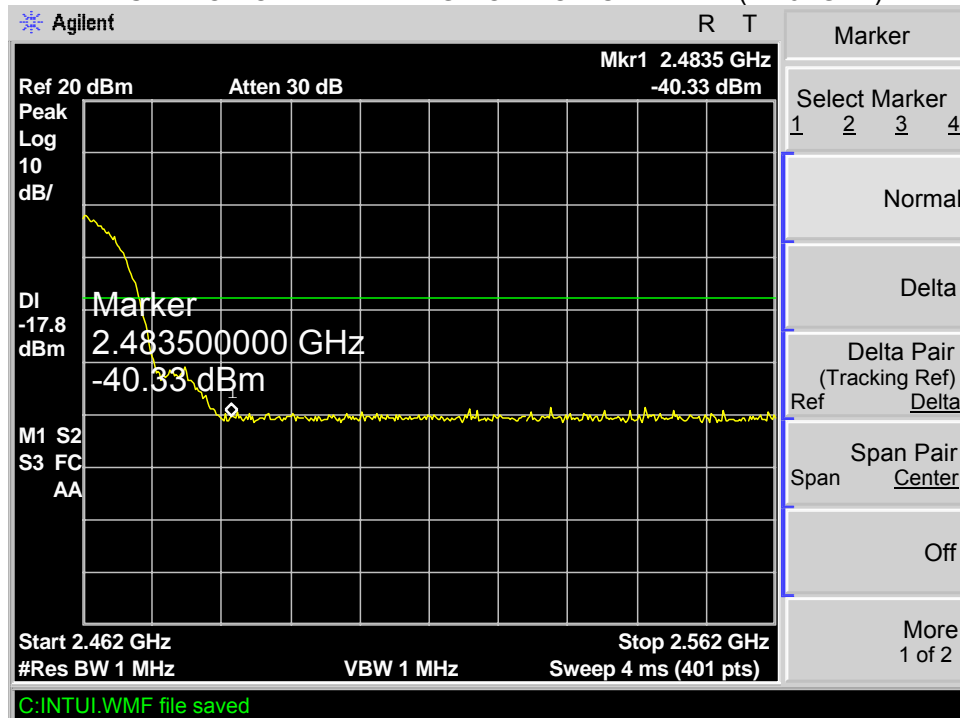
TEST PLOT OF BAND ELDG FOR BOTTOM CHANNEL (2.412GHz)

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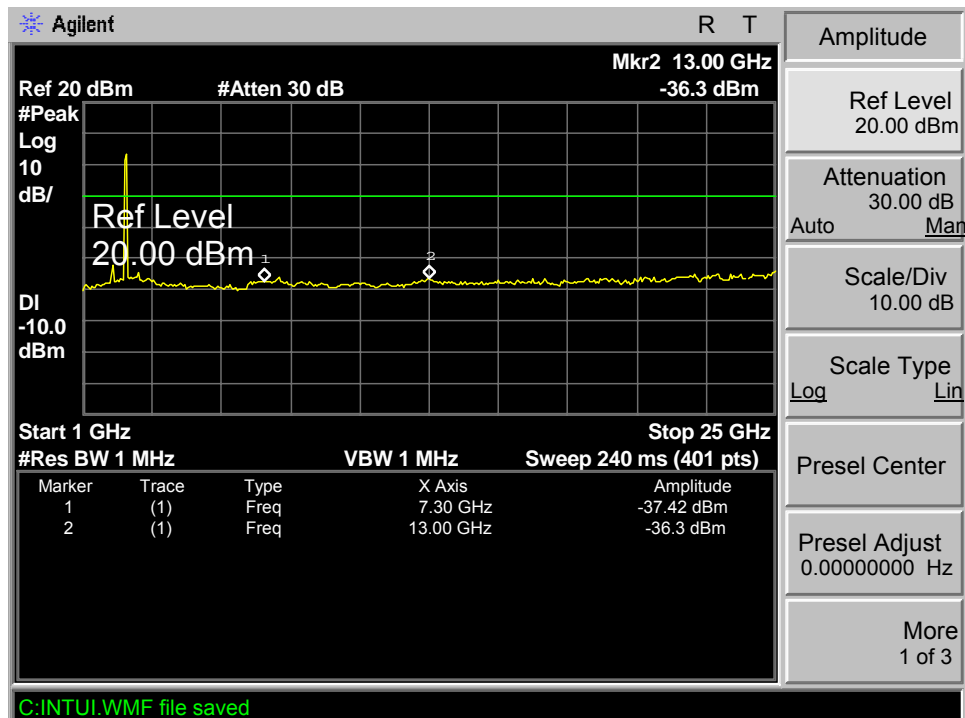
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## TEST PLOT OF BAND ELDG FOR TOP CHANNEL (2.462GHz)



conducted plot for Spurious emission(upto 10th harmonics)

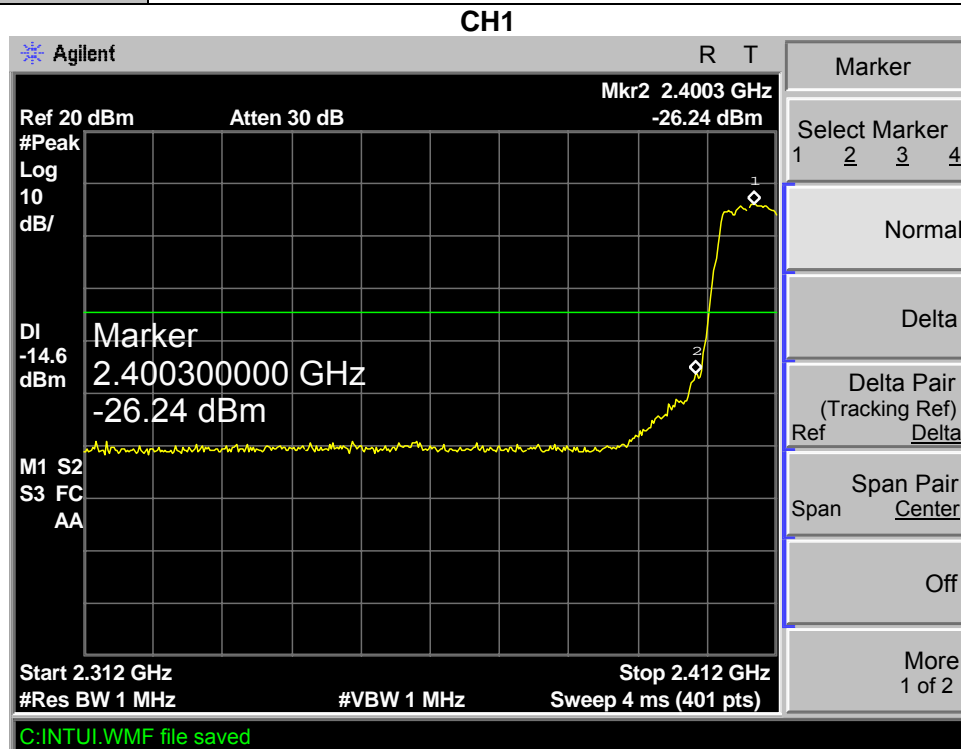


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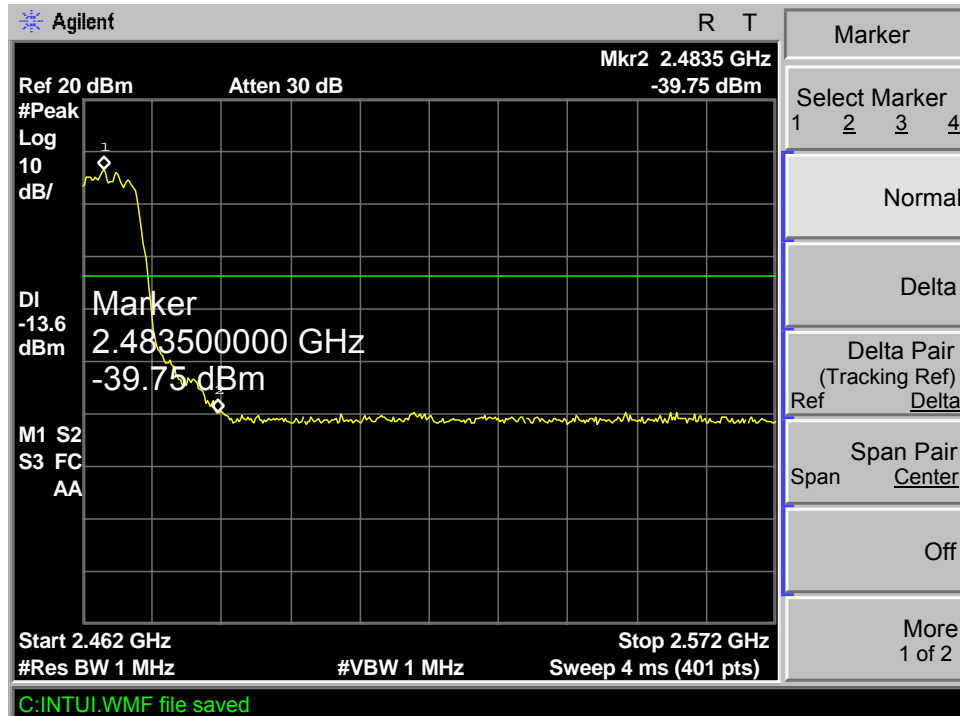
Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	G MODE		

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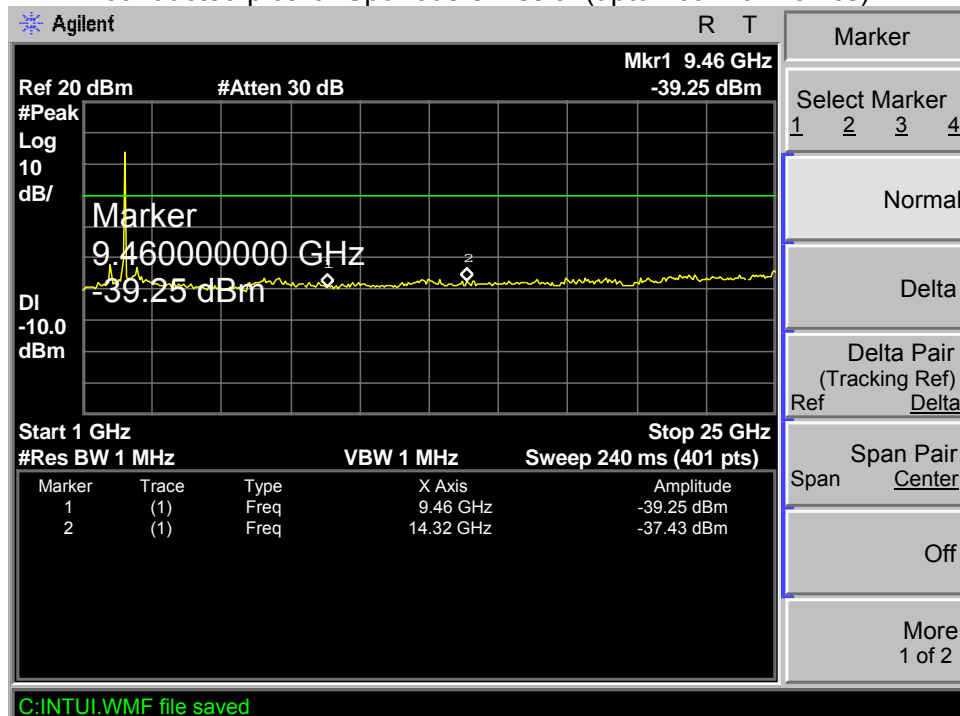
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## TX CH11



conducted plot for Spurious emission(upto 10th harmonics)



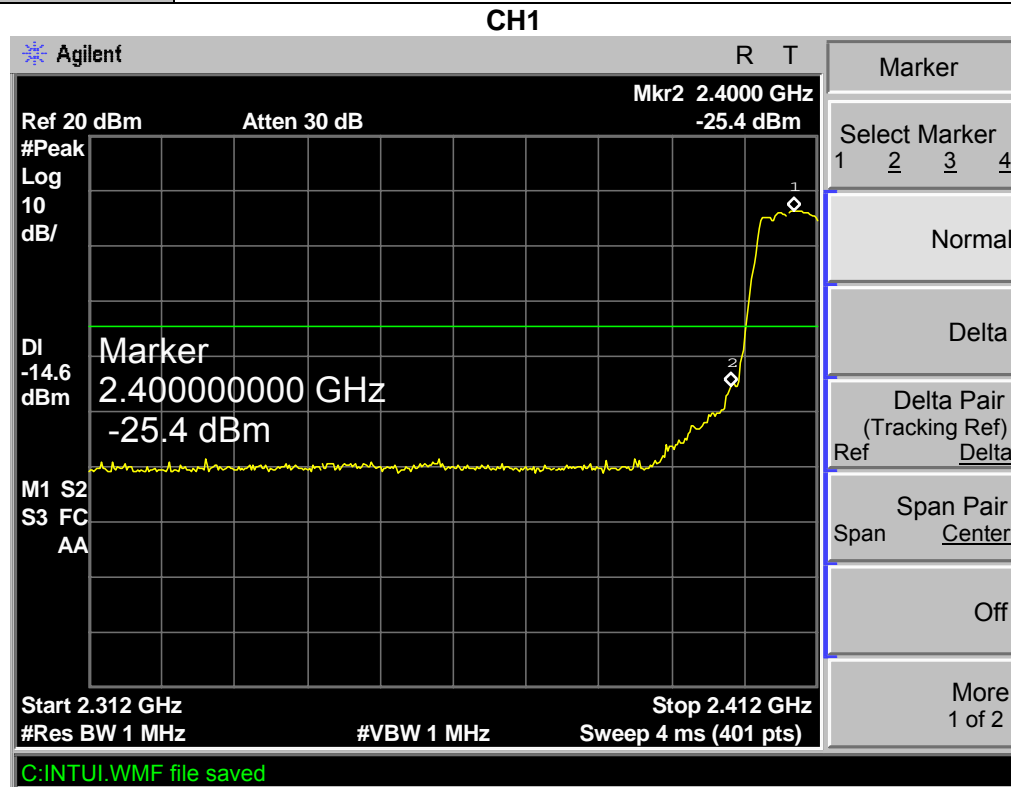
## DongGuan Precise Testing Service Co.,Ltd.

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Tel: 86-769-23368601 Fax: 86-769-23368602 [http:// www.pts-testing.com](http://www.pts-testing.com)





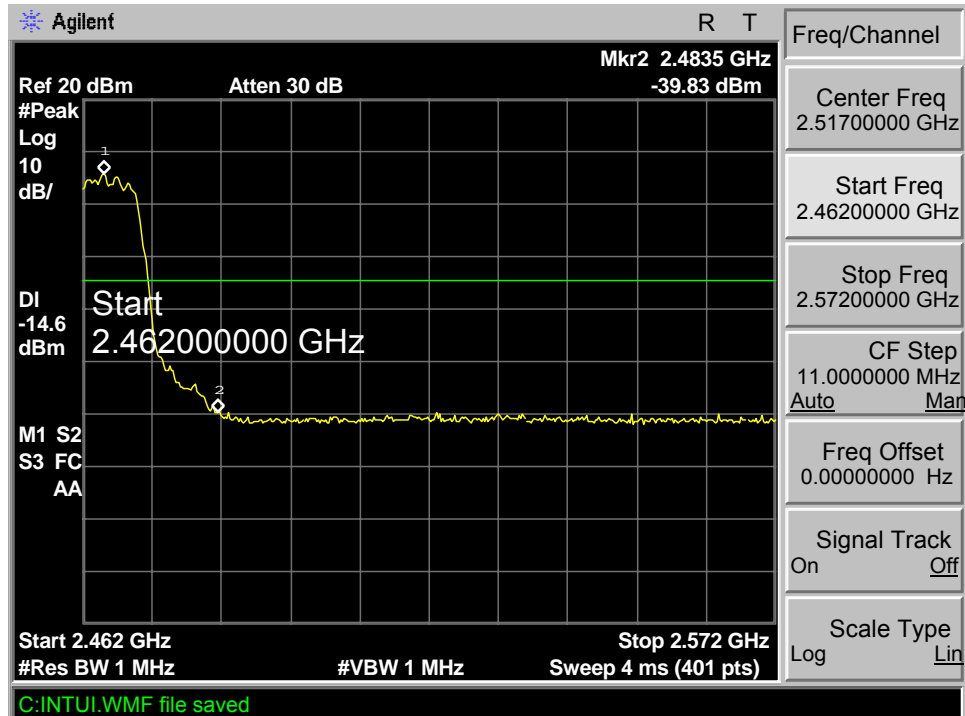
Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	N MODE		

**DongGuan Precise Testing Service Co.,Ltd.**

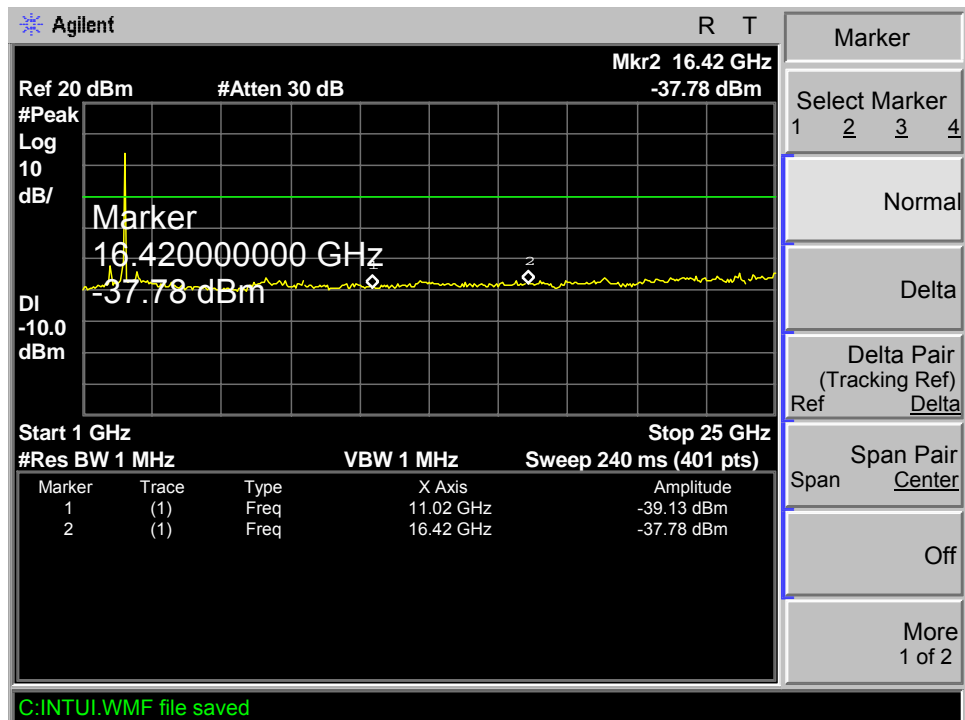
F616A Room, 6th Floor, Meixin Business Center, Dongcheng Middle Road, Dongguan, Guangdong, China  
Tel: 86-769-23368601 Fax: 86-769-23368602 [http:// www.pts-testing.com](http://www.pts-testing.com)



CH11



conducted plot for Spurious emission(upto 10th harmonics)

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## RADIATED EMISSION

### MEASUREMENT PROCEDURE

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

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The following table is the setting of spectrum analyzer and receiver.'

Spectrum Parameter	Setting
Start Frequency	1GHz
Stop Frequency	26.5GHz
RB/VB(Emission in restricted band)	1MHz/1MHz for Peak, 1MHz/10Hz for Average
RB/VB(Emission in non-restricted band)	1MHz/1MHz for Peak

Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

#### TEST SET-UP

The Same as described in section 6.2

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**TEST RESULT OF RADIATED EMISSION TEST (9KHz ~30MHz)**

Distance	3m	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Humidity:	55 % RH		

Operation Mode: RF Mode

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

## Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =  $20 \log (\text{specific distance} / \text{test distance})$  (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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**TEST RESULT OF RADIATED EMISSION TEST (30MHZ-1GHZ)**

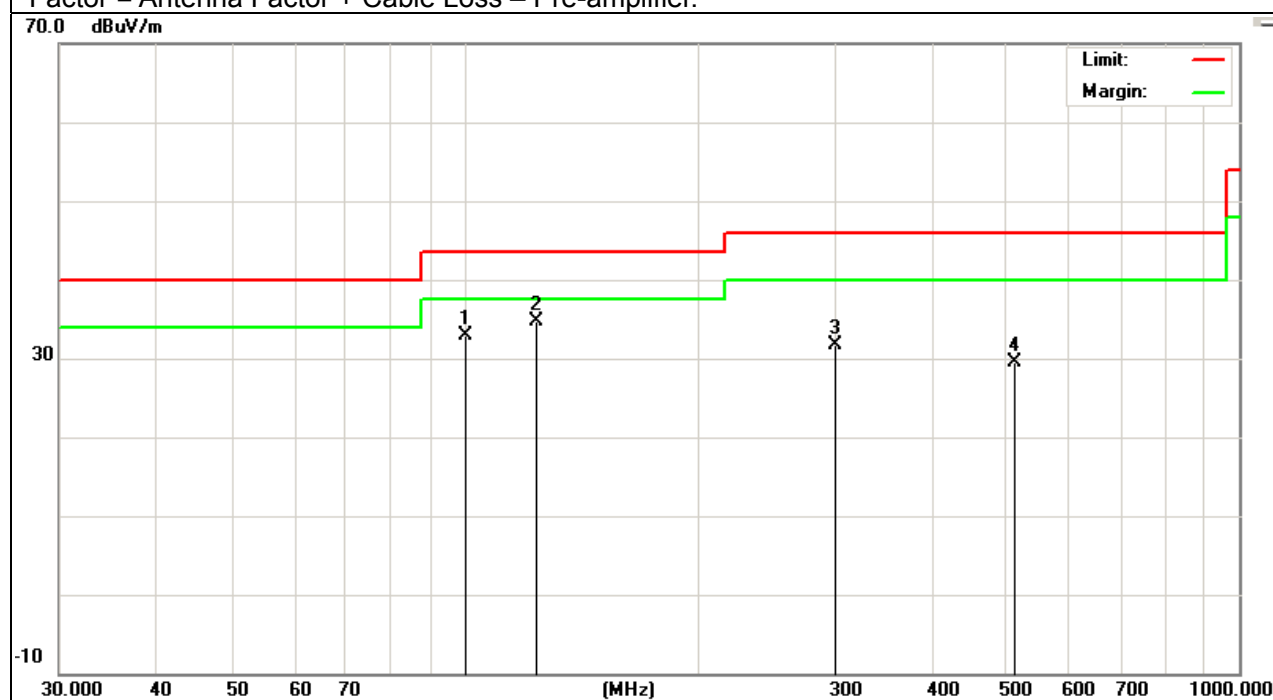
Operation Mode:	TX MODE	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Humidity:	55 % RH		

**Horizontal:**

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
99.9000	32.10	0.75	32.85	43.50	-10.65	
123.6700	34.20	0.60	34.80	43.50	-8.70	Quasi-Peak
300.2100	30.10	1.57	31.67	46.00	-14.33	Quasi-Peak
512.1200	28.05	1.42	29.47	46.00	-16.57	Quasi-Peak

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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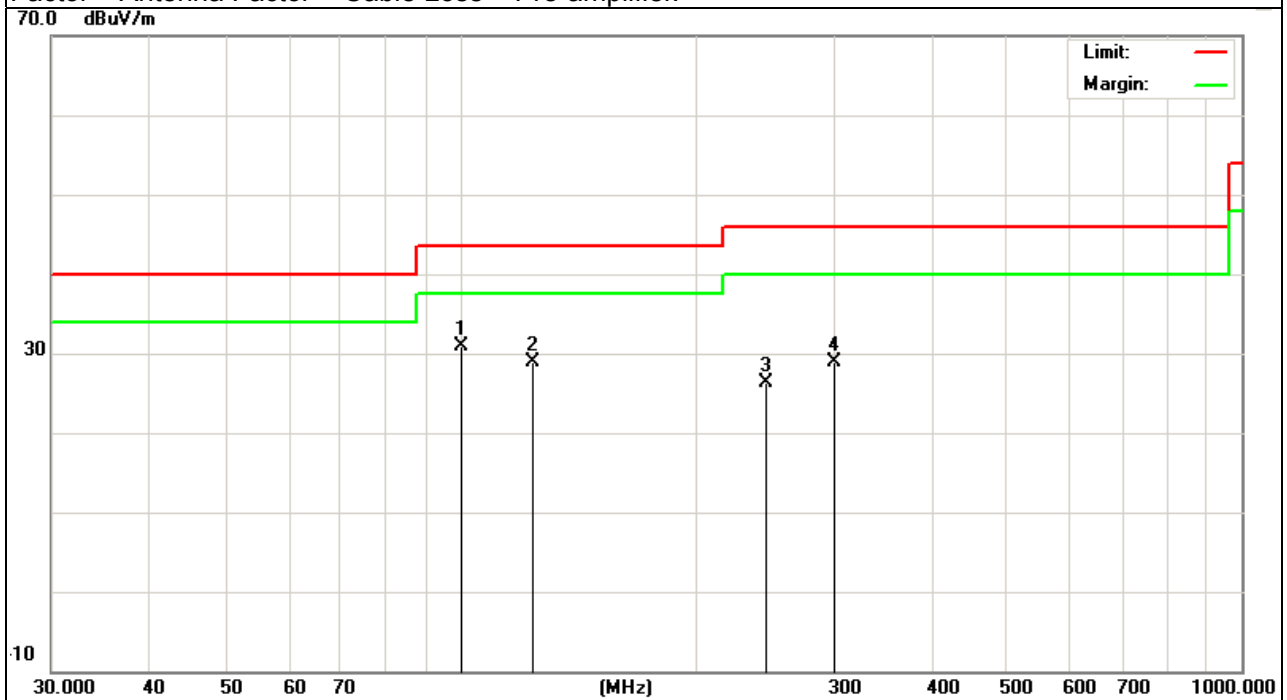
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**Vertical:**

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
99.9000	30.21	0.75	30.96	43.50	-12.54	Quasi-Peak
123.6900	28.34	0.60	28.94	43.50	-14.56	Quasi-Peak
245.1700	25.26	1.10	26.36	46.00	-19.64	Quasi-Peak
300.2700	27.32	1.56	28.88	46.00	-17.12	Quasi-Peak

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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**TEST RESULT OF RADIATED EMISSION TEST (1GHZ-10<sup>TH</sup> HARMONIC)**

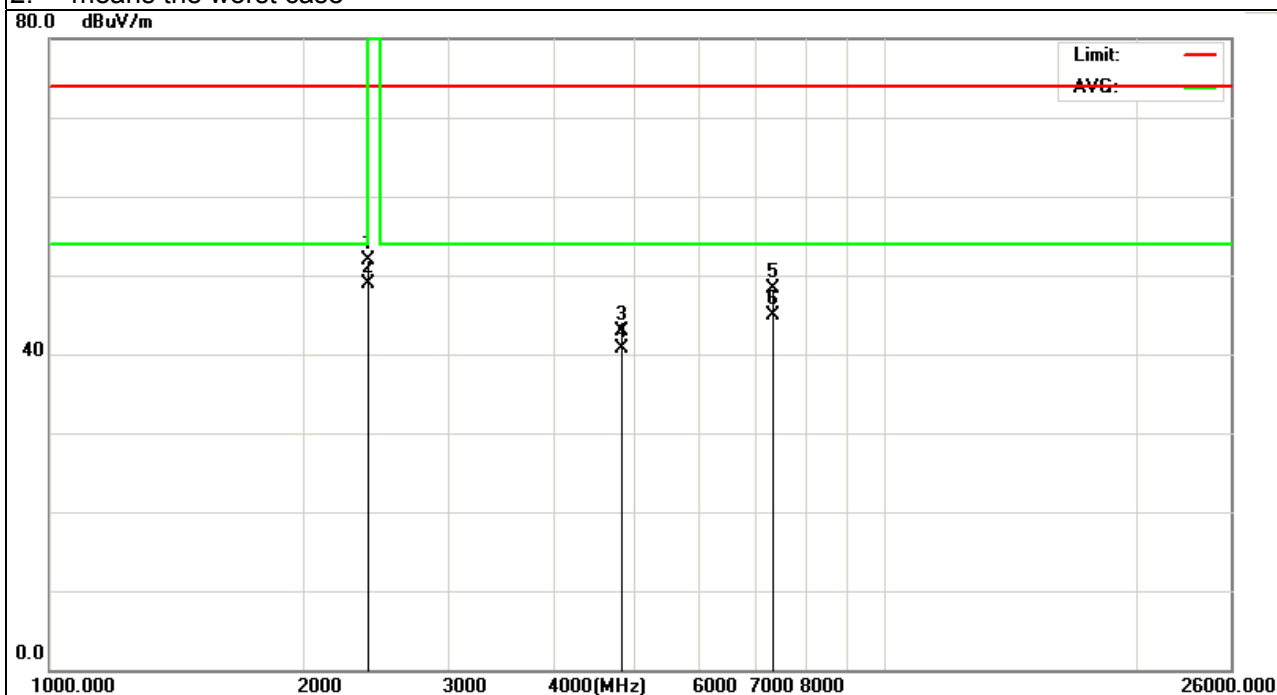
EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V
Test Mode :	CH1 (802.11b Mode)	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	19.31	32.65	51.96	74.00	-22.04	peak
*2400.00	16.21	32.65	48.86	54.00	-5.14	AVG
4824.00	-1.21	44.04	42.83	74.00	-31.17	peak
4824.00	-3.41	44.04	40.63	54.00	-13.37	AVG
7236.00	0.21	48.03	48.24	74.00	-25.76	peak
7236.00	-3.21	48.03	44.91	54.00	-9.09	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. '\*' means the worst case

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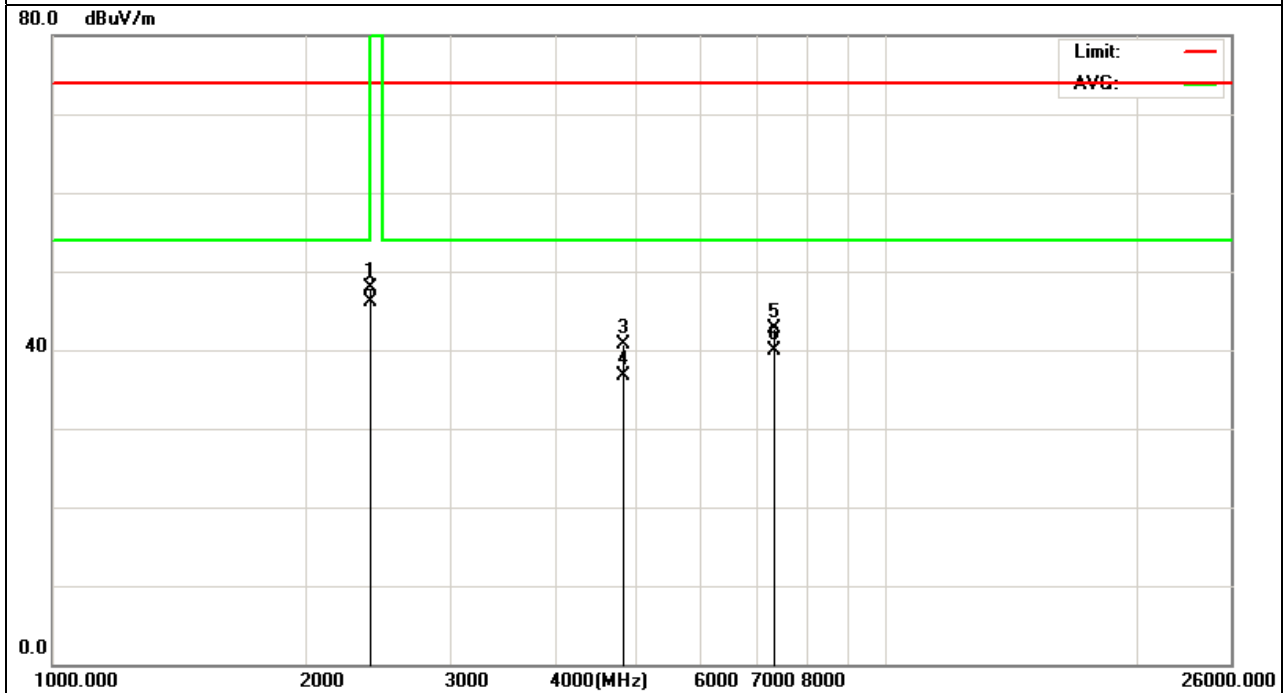


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH1 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2400.00	15.21	32.65	47.86	74.00	-26.14	peak
2400.00	13.44	32.65	46.09	54.00	-7.91	AVG
4824.00	-3.44	44.04	40.60	74.00	-33.40	peak
4824.00	-7.44	44.04	36.60	54.00	-17.40	AVG
7326.00	-5.32	48.03	42.71	74.00	-31.29	peak
7326.00	-8.13	48.03	39.90	54.00	-14.10	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. '\*' means the worst case



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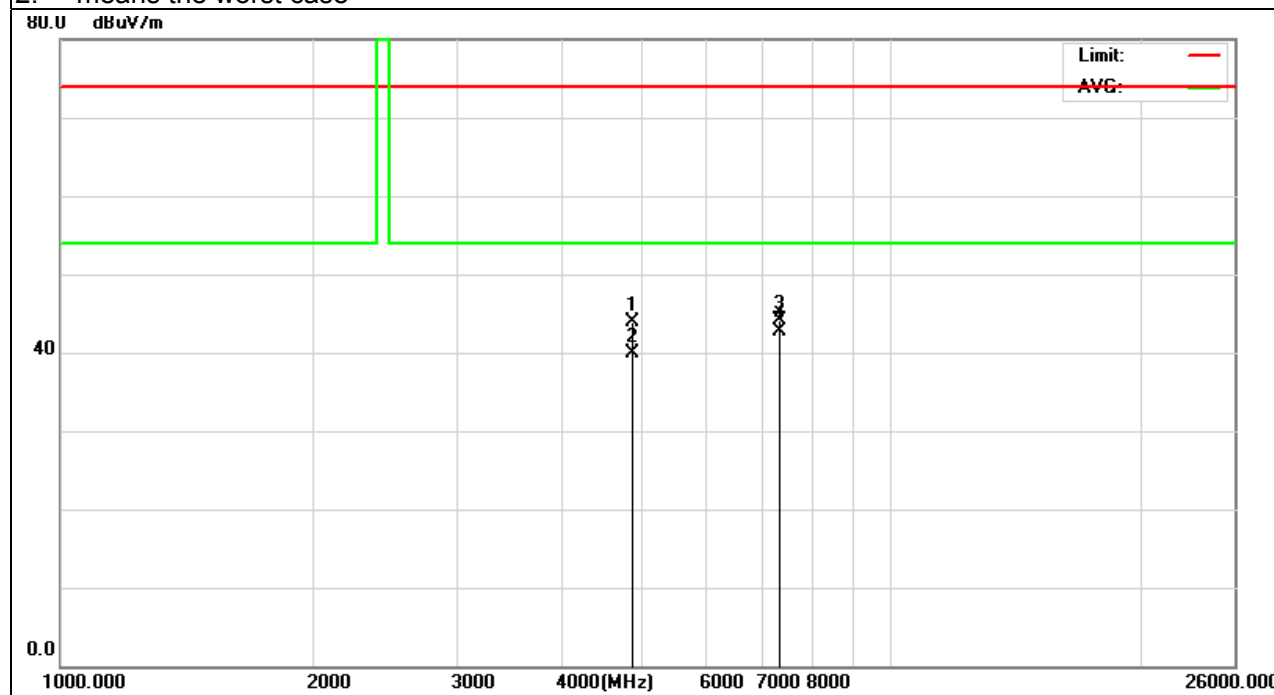


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.00	-0.13	44.07	43.94	74.00	-30.06	peak
4874.00	-4.25	44.07	39.82	54.00	-14.18	AVG
*7311.00	-3.87	47.97	44.10	74.00	-29.90	peak
7311.00	-5.22	47.97	42.75	54.00	-11.25	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. '\*' means the worst case



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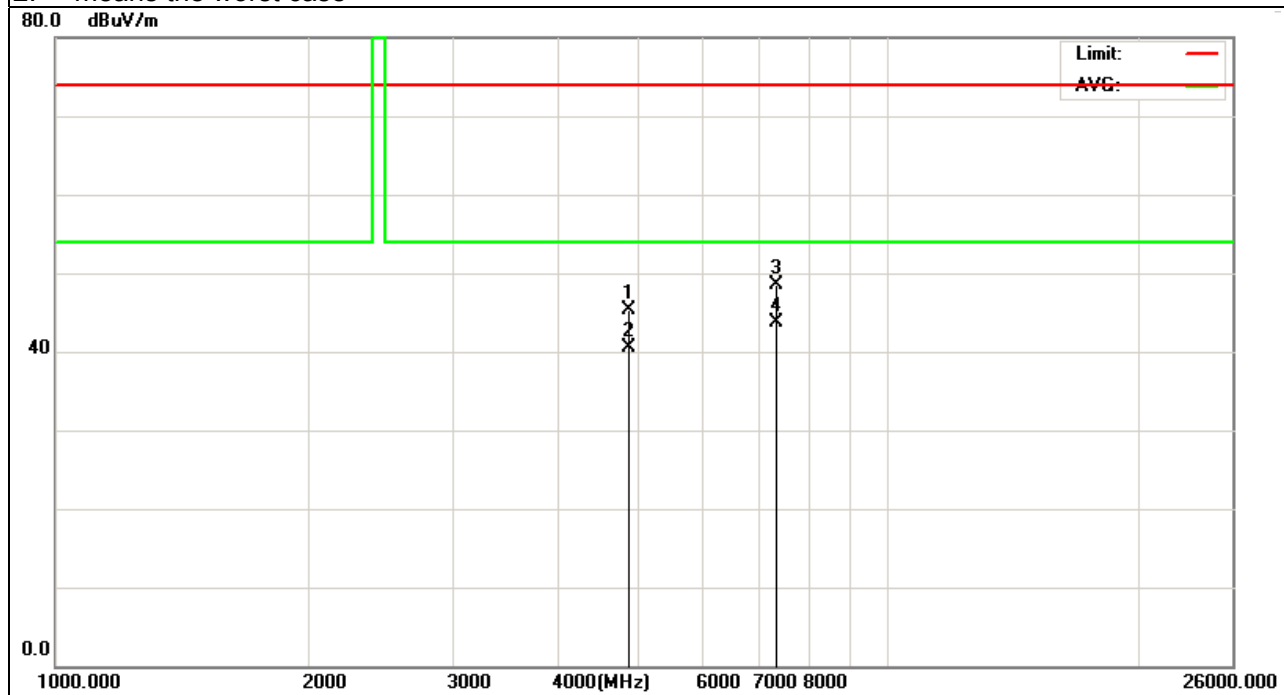


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.00	1.32	44.07	45.39	74.00	-28.61	peak
4874.00	-3.54	44.07	40.53	54.00	-13.47	AVG
*7311.00	0.54	47.97	48.51	74.00	-25.49	peak
7311.00	-4.31	47.97	43.66	54.00	-10.34	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
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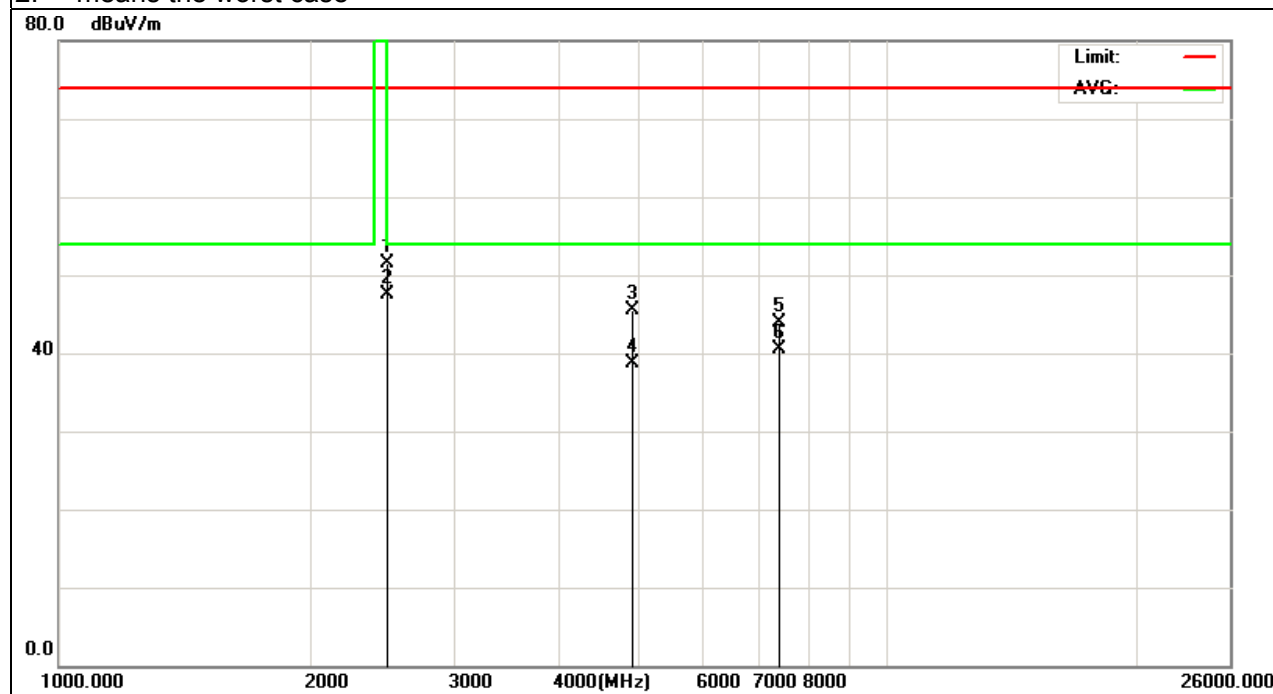


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH11 (802.11b Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	18.24	33.27	51.51	74.00	-22.49	peak
2483.5	14.33	33.27	47.60	54.00	-6.40	AVG
4924.00	1.31	44.10	45.41	74.00	-25.89	peak
4924.00	-5.31	44.10	38.79	54.00	-15.21	AVG
7386.00	-4.32	48.31	43.99	74.00	-30.01	peak
7386.00	-7.76	48.31	40.55	54.00	-13.45	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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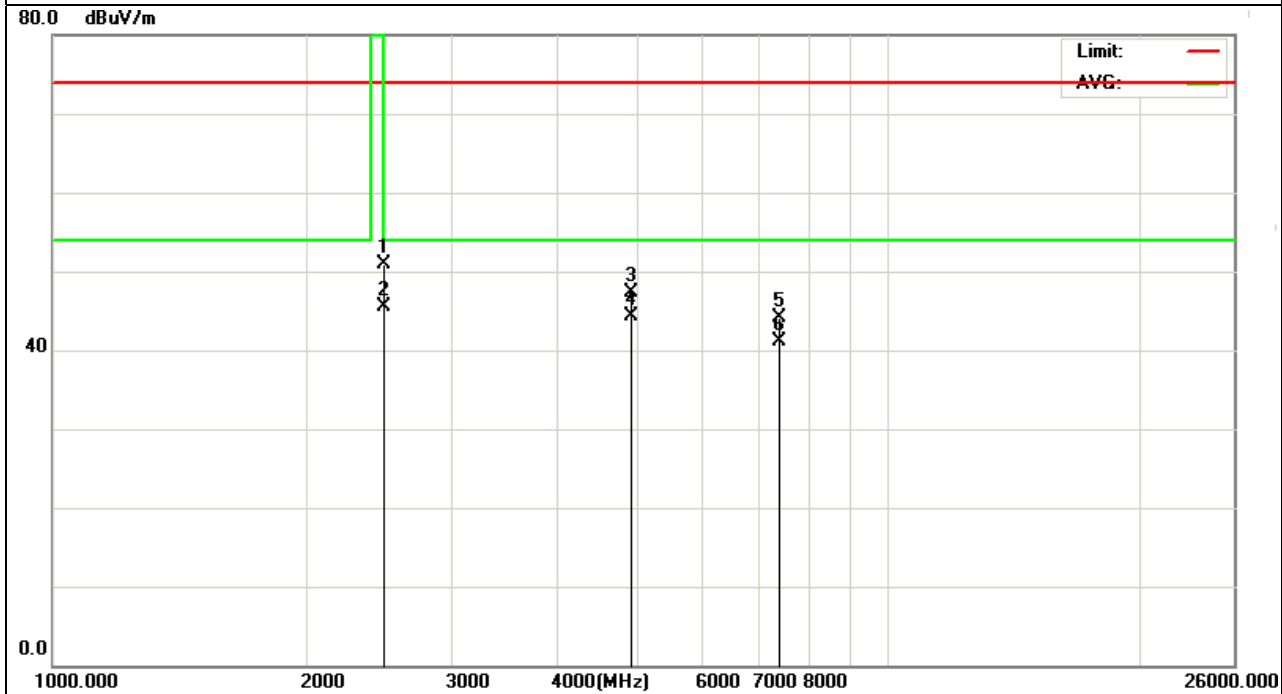


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH11 (802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2483.5	18.25	33.27	51.52	74.00	-22.48	peak
2483.5	14.35	33.27	47.62	54.00	-6.38	AVG
4924.00	1.32	44.10	45.42	74.00	-25.88	peak
4924.00	-5.31	44.10	38.79	54.00	-15.21	AVG
7386.00	-4.32	48.31	43.99	74.00	-30.01	peak
7386.00	-7.76	48.31	40.55	54.00	-13.45	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. '\*' means the worst case



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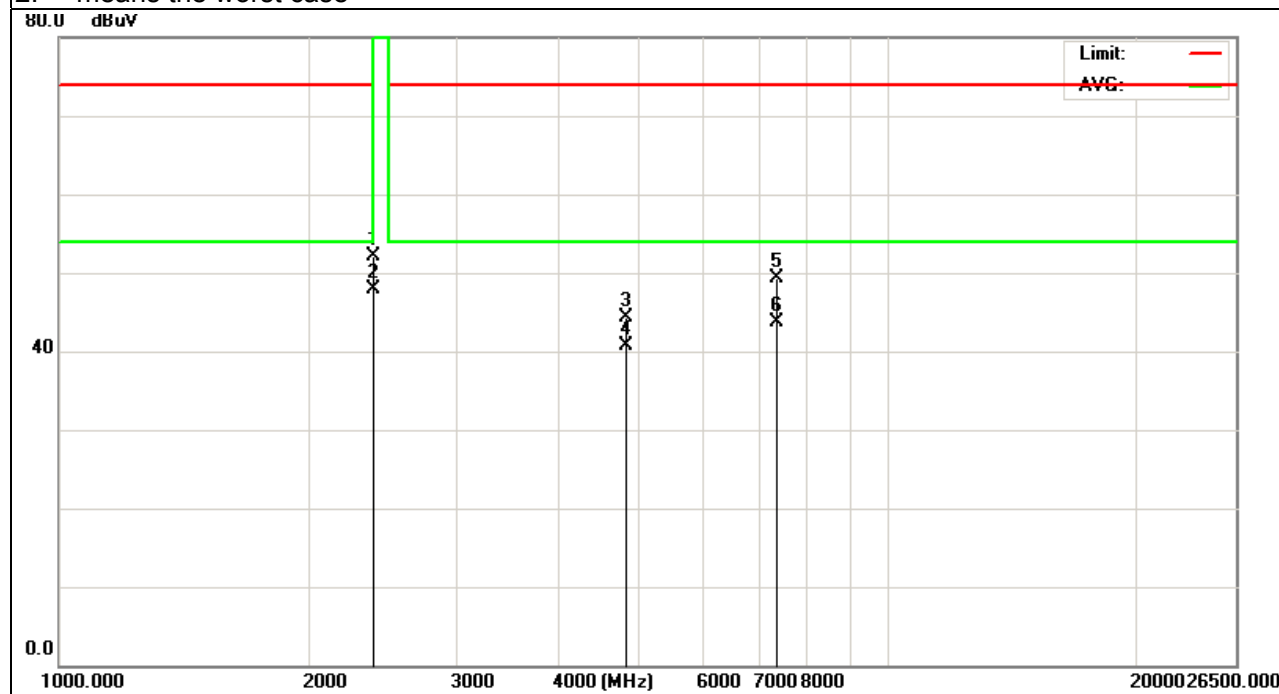


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH1 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2400.00	19.50	32.65	52.15	74.00	-21.85	peak
2400.00	15.23	32.65	47.88	54.00	-6.12	AVG
4824.00	0.23	44.04	44.27	74.00	-29.73	peak
4824.00	-3.43	44.04	40.61	54.00	-13.39	AVG
7236.00	1.21	48.03	49.24	74.00	-24.76	peak
7236.00	-4.23	48.03	43.80	54.00	-10.20	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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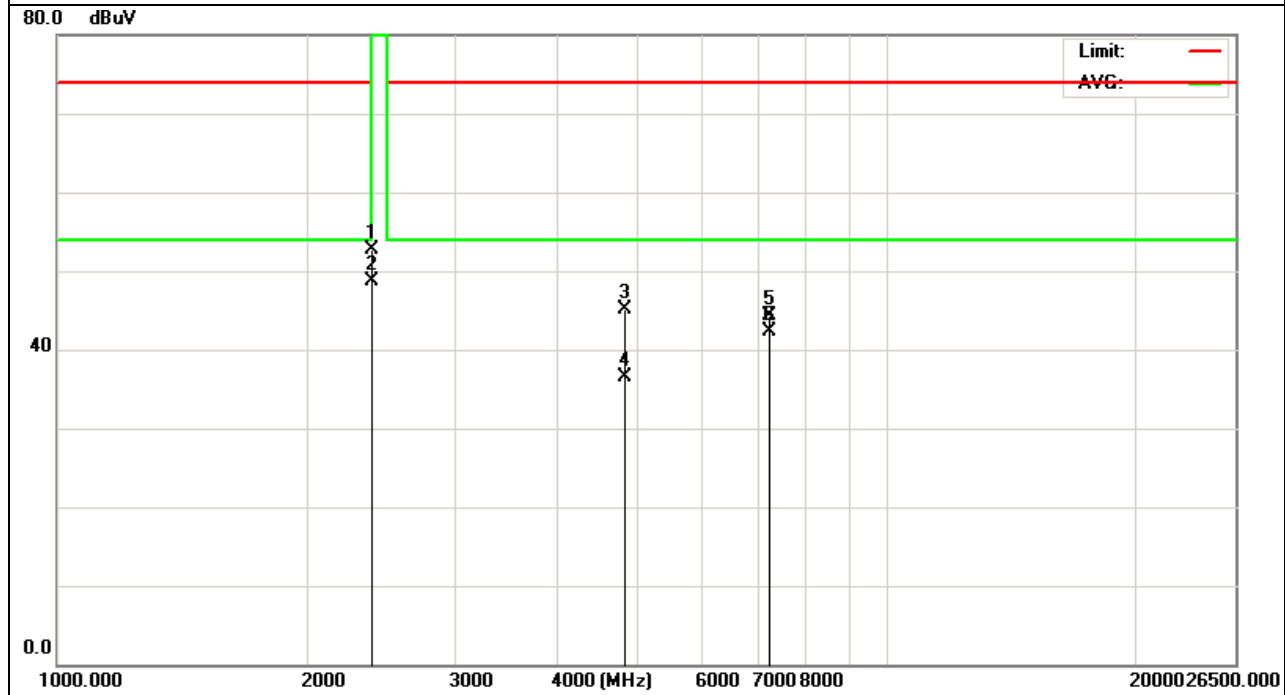


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH1 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400.00	20.09	32.65	52.74	74.00	-21.26	peak
2400.00	15.98	32.65	48.63	54.00	-5.37	AVG
4824.00	1.11	44.04	45.15	74.00	-28.85	peak
4824.00	-7.45	44.04	36.59	54.00	-17.41	AVG
7236.00	-3.33	47.63	44.30	74.00	-29.70	peak
7236.00	-5.43	47.63	42.20	54.00	-11.80	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
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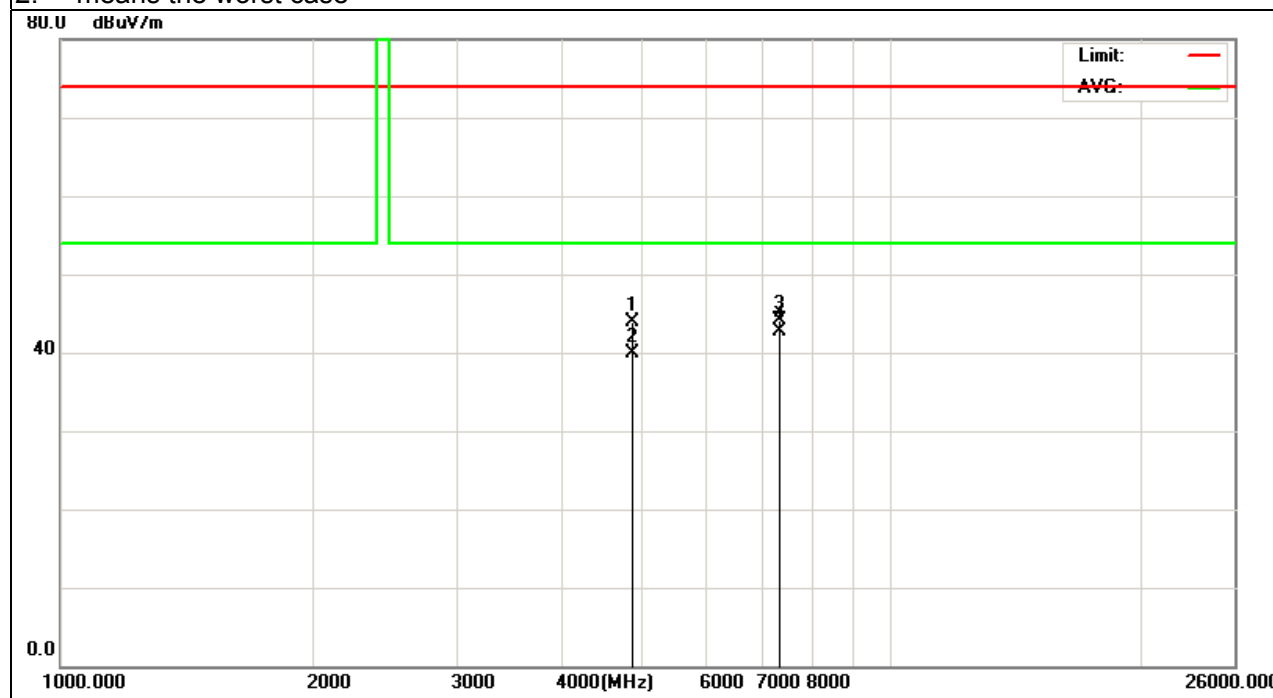


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.00	-0.13	44.07	43.94	74.00	-30.06	peak
4874.00	-4.25	44.07	39.82	54.00	-14.18	AVG
*7311.00	-3.87	47.97	44.10	74.00	-29.90	peak
7311.00	-5.22	47.97	42.75	54.00	-11.25	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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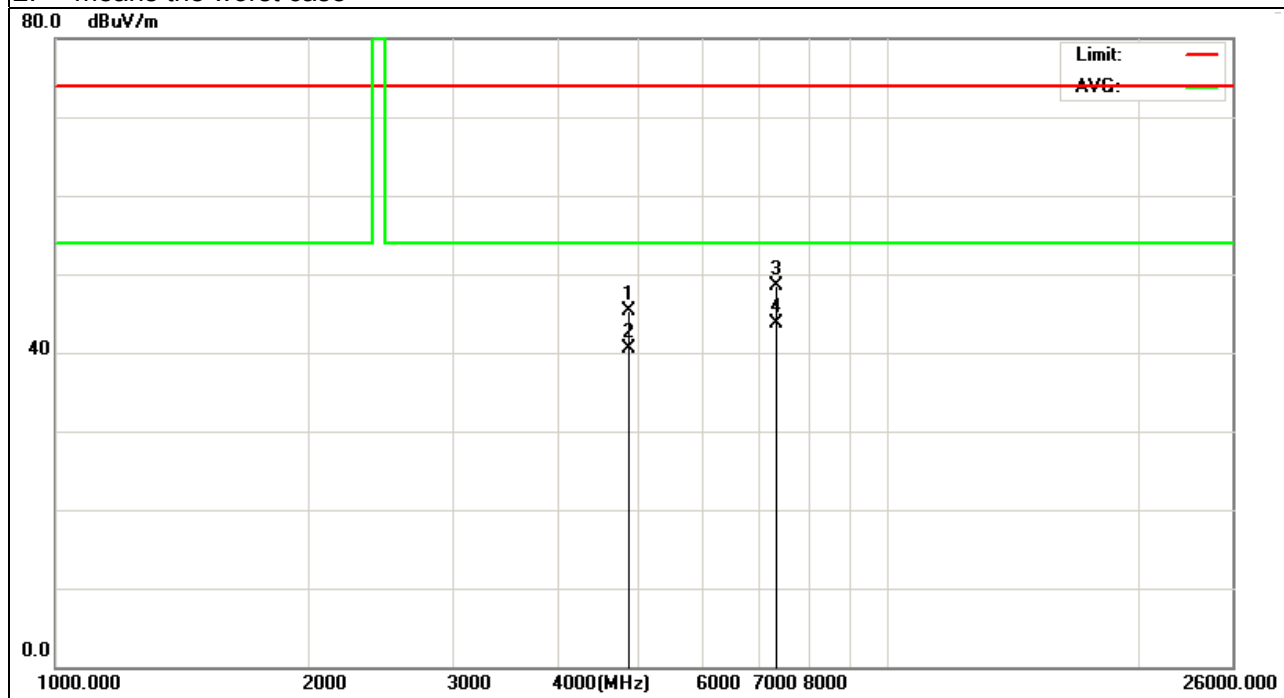


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.00	1.32	44.07	45.39	74.00	-28.61	peak
4874.00	-3.54	44.07	40.53	54.00	-13.47	AVG
*7311.00	0.54	47.97	48.51	74.00	-25.49	peak
7311.00	-4.31	47.97	43.66	54.00	-10.34	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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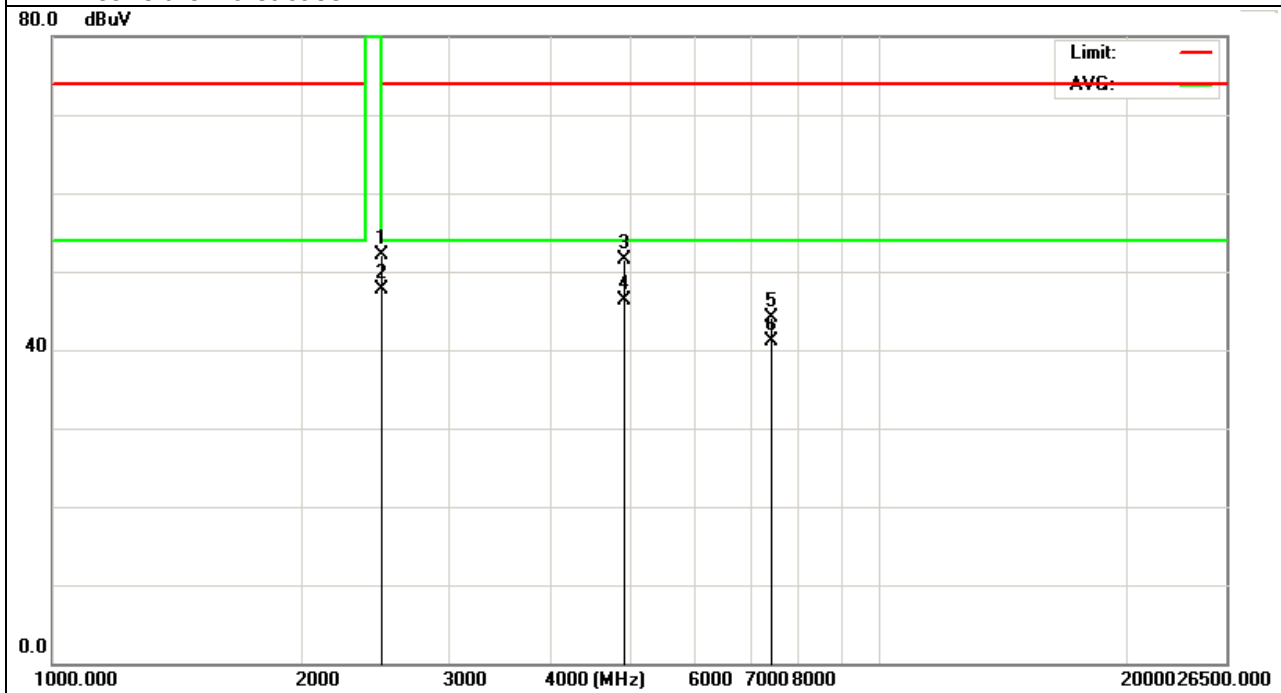
EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH11 (802.11g Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2483.5	18.76	33.27	52.03	74.00	-21.97	peak
2483.5	14.43	33.27	47.70	54.00	-6.30	AVG
4924.00	7.43	44.10	51.53	74.00	-22.47	peak
4924.00	2.12	44.10	46.22	54.00	-7.78	AVG
7386.00	-4.15	48.31	44.16	74.00	-29.84	peak
7386.00	28.56	48.31	41.09	54.00	-12.91	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. '\*' means the worst case



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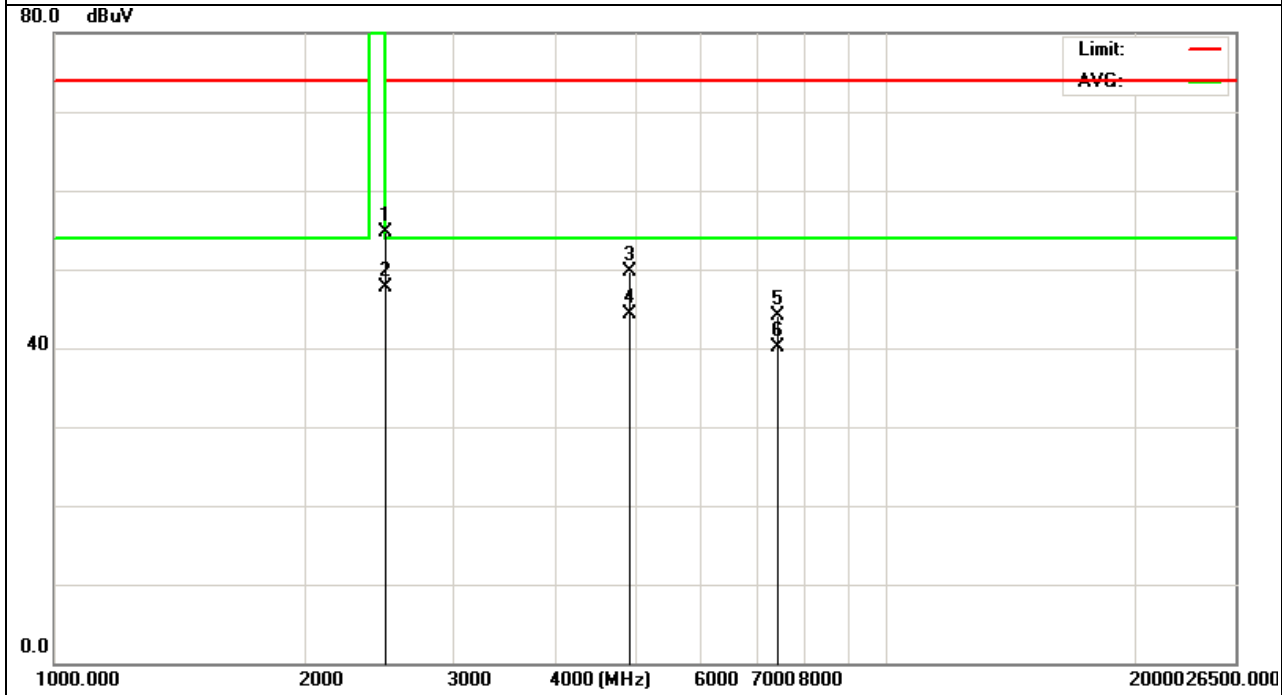


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH11(802.11g Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2483.50	21.43	33.27	54.70	74.00	-19.30	peak
2483.50	14.34	33.27	47.61	54.00	-6.39	AVG
4924.00	5.67	44.10	49.77	74.00	-24.23	peak
4924.00	0.12	44.10	44.22	54.00	-9.78	AVG
7386.00	-4.21	48.31	44.10	74.00	-29.90	peak
7386.00	-8.13	48.31	40.18	54.00	-13.82	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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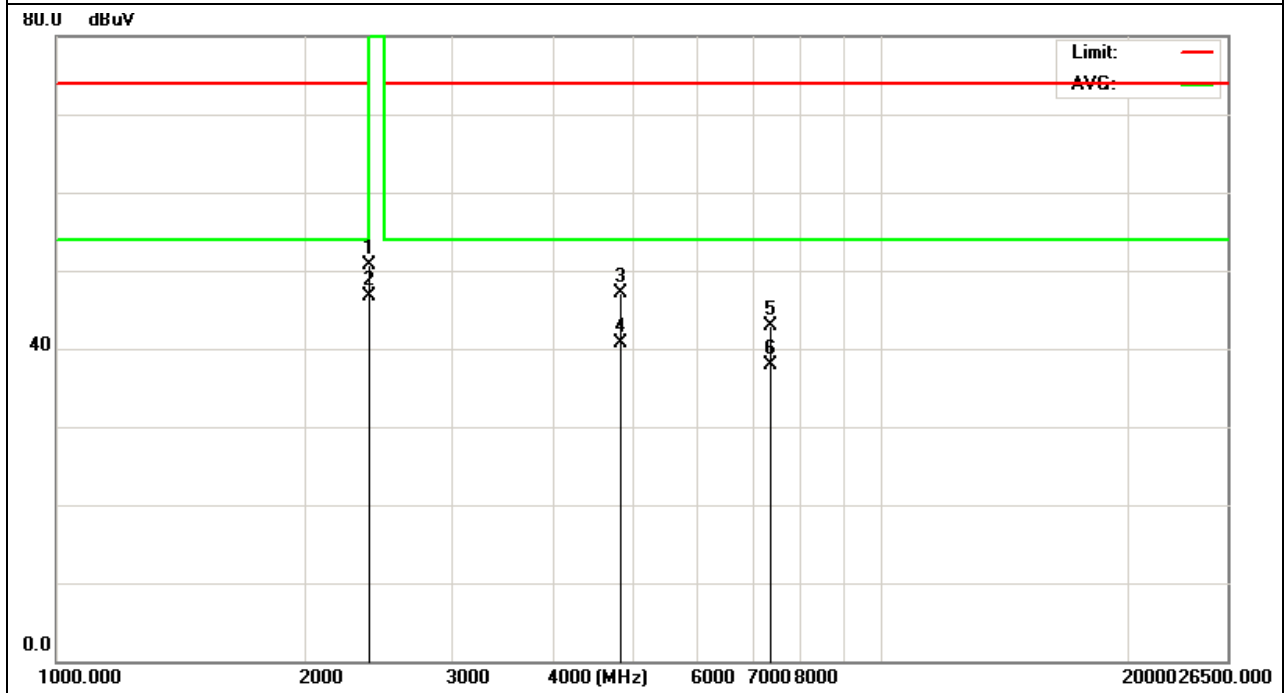
EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH1 (802.11N Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2400.00	18.12	32.65	50.77	74.00	-23.23	peak
2400.00	14.12	32.65	46.77	54.00	-7.23	AVG
4824.00	3.13	44.04	47.17	74.00	-26.83	peak
4824.00	-3.33	44.04	40.71	54.00	-13.29	AVG
7236.00	-5.14	48.03	42.89	74.00	-31.11	peak
7236.00	-10.22	48.03	37.81	54.00	-16.19	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. '\*' means the worst case



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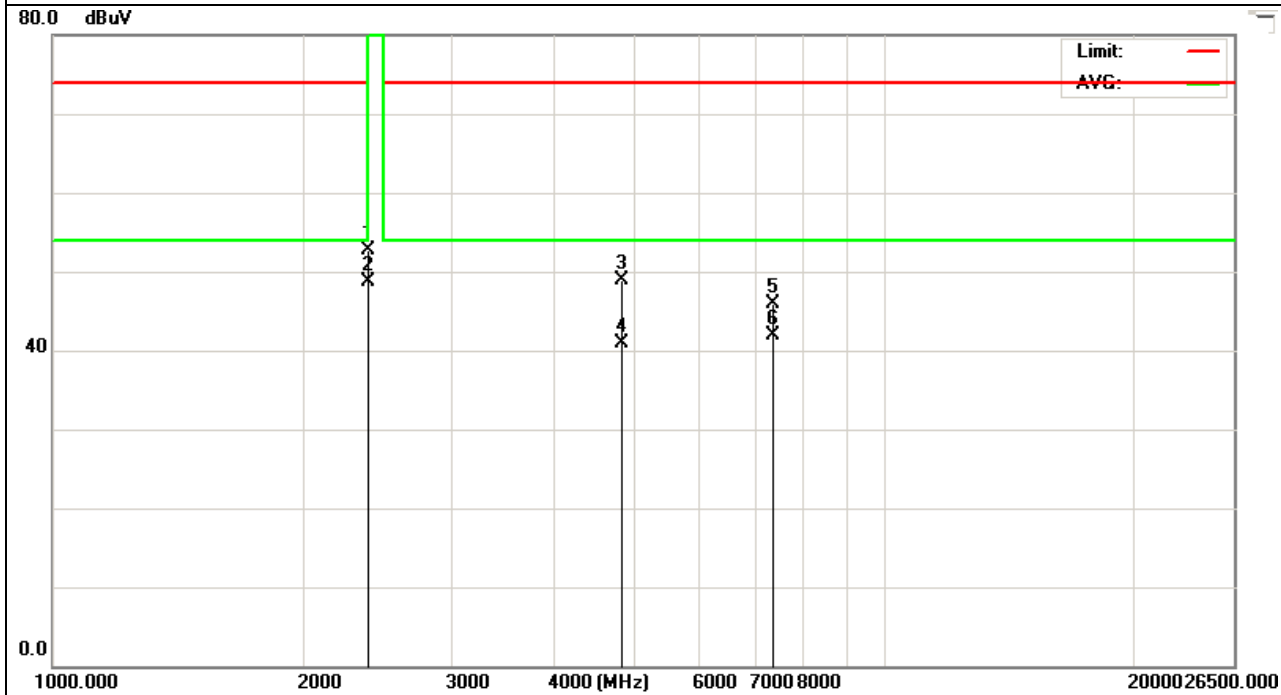


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH1 (802.11N Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2400.00	19.99	32.65	52.64	74.00	-21.36	peak
2400.00	15.98	32.65	48.63	54.00	-5.37	AVG
4824.00	4.96	44.04	49.00	74.00	-25.00	peak
4824.00	-3.10	44.04	40.90	54.00	-13.06	AVG
7236.00	-2.13	48.03	45.90	74.00	-28.10	peak
7236.00	-6.18	48.03	41.85	54.00	-12.15	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. '\*' means the worst case



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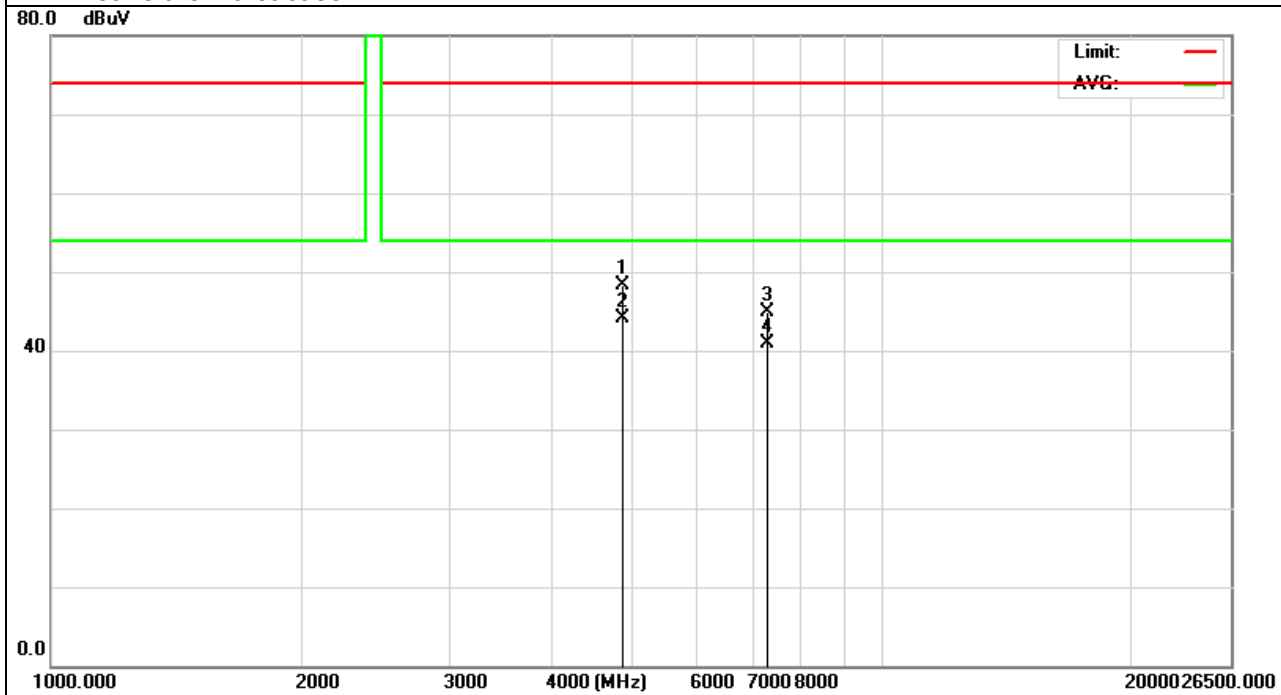
EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11N Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*4874.00	4.24	44.07	48.07	74.00	-25.70	peak
4874.00	0.05	44.07	44.12	54.00	-9.88	AVG
7311.00	-3.11	47.97	44.86	74.00	-29.14	peak
7311.00	-7.11	47.97	40.86	54.00	-13.14	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. '\*' means the worst case



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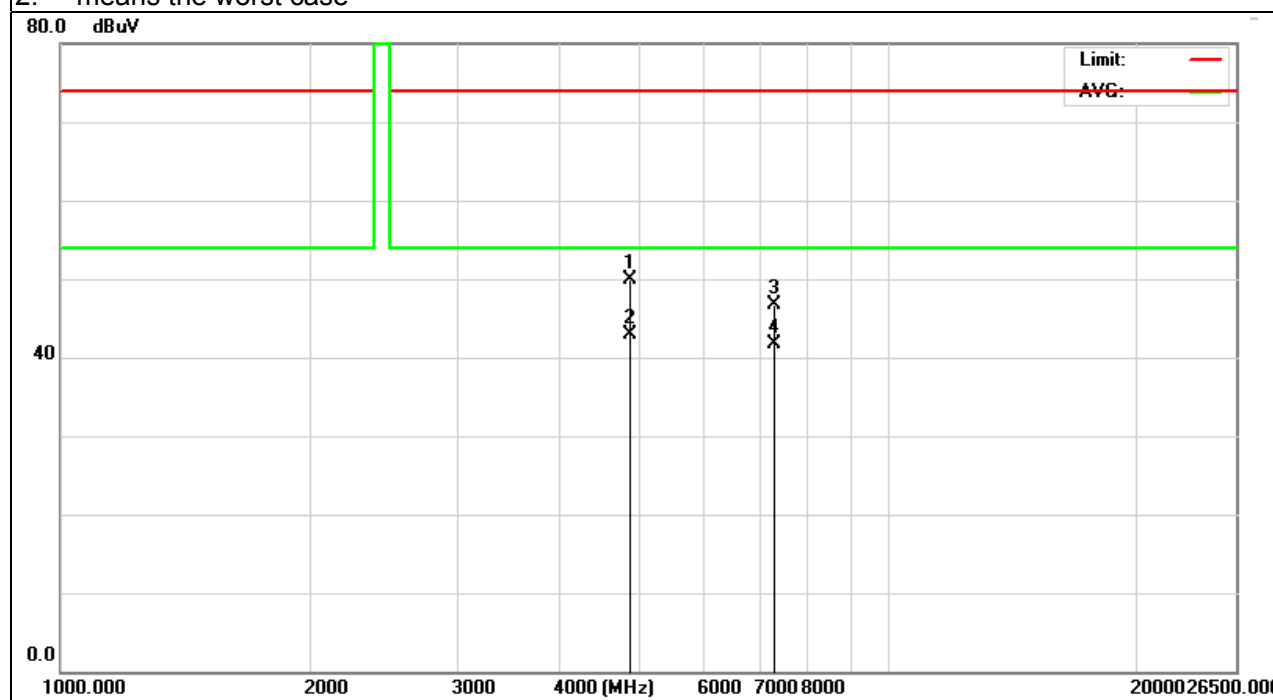


EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH6 (802.11N Mode,20MHz)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*4874.00	5.89	44.07	49.96	74.00	-24.04	peak
4874.00	-1.11	44.07	42.96	54.00	-11.04	AVG
7311.00	-1.21	47.97	46.76	74.00	-27.24	peak
7311.00	-6.34	47.97	41.63	54.00	-12.37	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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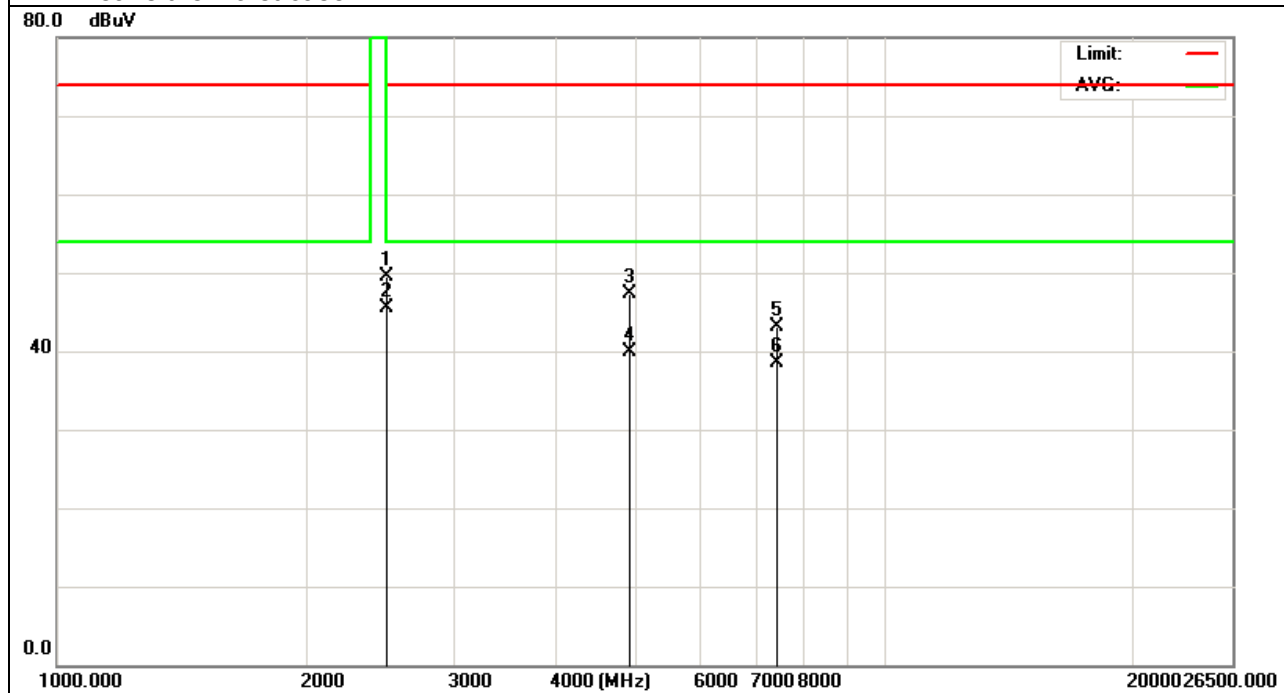
EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC3.7V from PC
Test Mode :	CH11 (802.11N Mode)	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2483.5	16.31	33.27	49.58	74.00	-24.42	peak
2483.5	12.31	33.27	45.58	54.00	-8.42	AVG
4924.00	3.12	44.10	47.22	74.00	-26.78	peak
4924.00	-4.19	44.10	39.91	54.00	-14.09	AVG
7386.00	-5.12	48.31	43.19	74.00	-30.81	peak
7386.00	-9.77	48.31	38.54	54.00	-15.46	AVG

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. '\*' means the worst case



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EUT:	MID	Model Name :	M-223
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5V from PC
Test Mode :	CH11(802.11N Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
*2483.50	21.43	33.27	54.70	74.00	-19.30	peak
2483.50	14.34	33.27	47.61	54.00	-6.39	AVG
4924.00	5.67	44.10	49.77	74.00	-24.23	peak
4924.00	0.12	44.10	44.22	54.00	-9.78	AVG
7386.00	-4.21	48.31	44.10	74.00	-29.90	peak
7386.00	-8.13	48.31	40.18	54.00	-13.82	AVG

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- '\*' means the worst case



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Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	Band Edge Emission(B mode)		

## Band Edge Emission for Bottom Channel Channel 1

### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	19.31	32.65	51.96	74.00	-22.04	peak
2400.00	16.21	32.65	48.86	54.00	-5.14	AVG

### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	15.21	32.65	47.86	74.00	-26.14	peak
2400.00	13.44	32.65	46.09	54.00	-7.91	AVG

## Channel 11

### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	18.24	33.27	51.51	74.00	-22.49	peak
2483.5	14.33	33.27	47.60	54.00	-6.40	AVG

### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	13.31	33.27	46.58	74.00	-27.42	peak
2483.5	8.81	33.27	42.08	54.00	-11.92	AVG

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Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	Band Edge Emission(G mode)		

### Band Edge Emission for Bottom Channel Channel 1

#### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	19.50	32.65	52.15	74.00	-21.85	peak
2400.00	15.23	32.65	47.88	54.00	-6.12	AVG

#### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	20.09	32.65	52.74	74.00	-21.26	peak
2400.00	15.98	32.65	48.63	54.00	-5.37	AVG

### Channel 11

#### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	18.76	33.27	52.03	74.00	-21.97	peak
2483.5	14.43	33.27	47.70	54.00	-6.30	AVG

#### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	15.34	33.27	48.62	74.00	-25.39	peak
2483.5	10.43	33.27	43.70	54.00	-10.30	AVG

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Humidity:	55 % RH	Test Date:	Nov.10, 2011
Temperature:	25°C	Tested by:	Jones
Test Method	Band Edge Emission(N mode)		

## Band Edge Emission for Bottom Channel Channel 1

### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	18.12	32.65	50.77	74.00	-23.23	peak
2400.00	14.12	32.65	46.77	54.00	-7.23	AVG

### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	19.99	32.65	52.64	74.00	-21.36	peak
2400.00	15.98	32.65	48.63	54.00	-5.37	AVG

## Channel 11

### Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	16.31	33.27	49.58	74.00	-24.42	peak
2483.5	12.31	33.27	45.58	54.00	-8.42	AVG

### Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	21.43	33.27	54.70	74.00	-19.30	peak
2483.50	14.34	33.27	47.61	54.00	-6.39	AVG

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**PPENDIX 1**

**PHOTOGRAPHS OF THE TEST SETUP**



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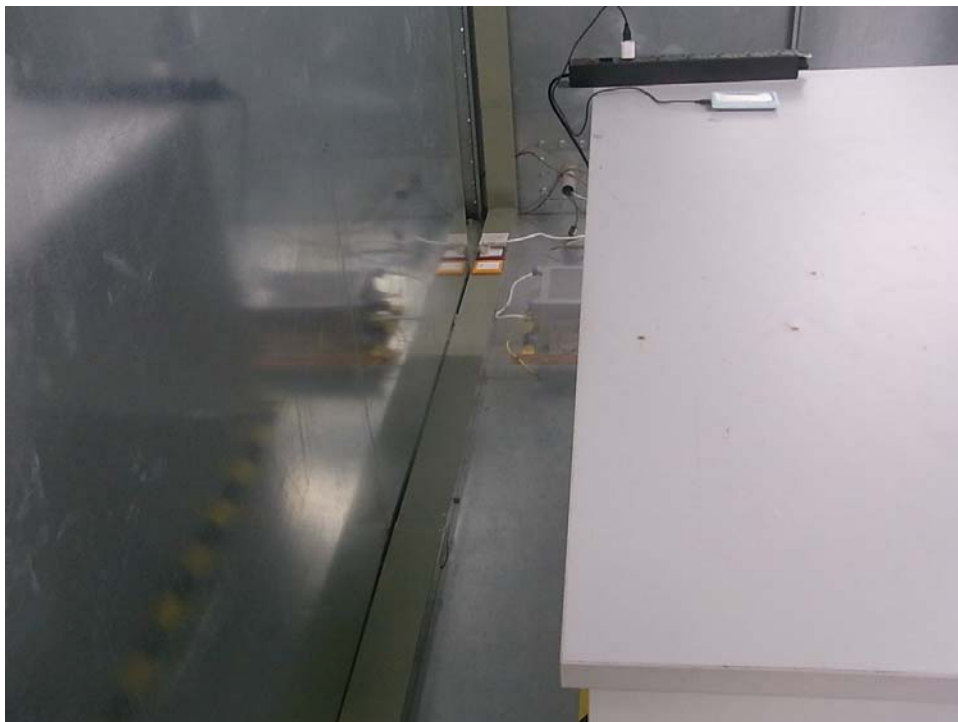
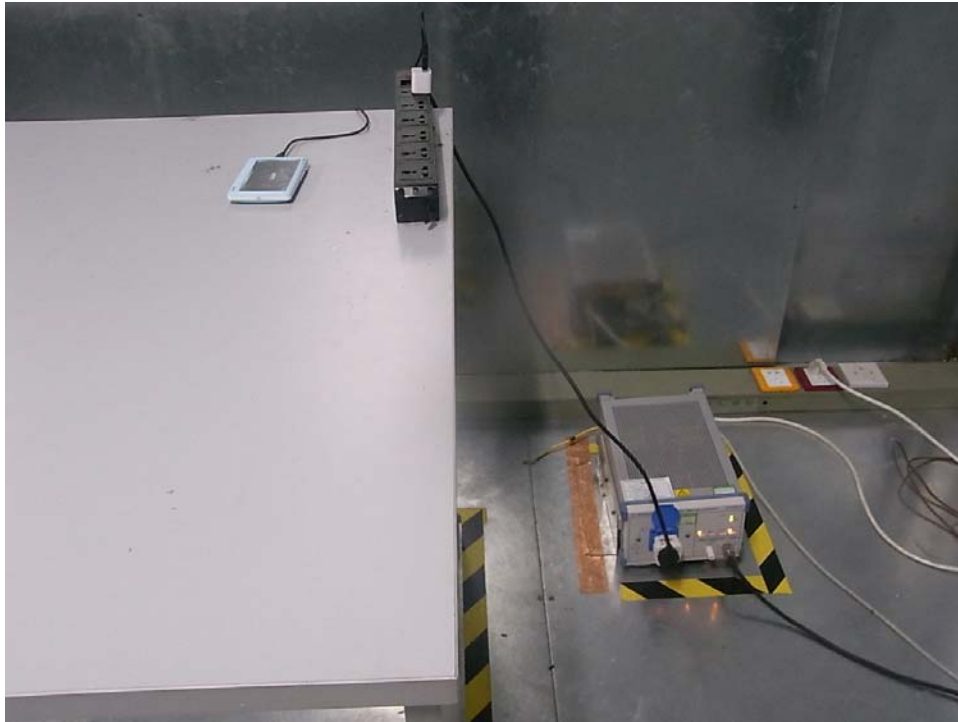
### PHOTOGRAPHS OF THE TEST SETUP (>1GHZ)



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---- END OF REPORT ----

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