

# FCC Test Report

FCC Part 15 Subpart C §15.247

Product Name : GSM/WCDMA MOBILE PHONE  
Model No. : M4TEL SS330  
FCC ID : CLNSS330

Prepared By: : Inventec Appliances(Pudong) Corporation  
Address: : No.789 Pu Xing Road,Shanghai,PRC  
Date of Receipt : 2012.03.23  
Date of Test : 2012.03.23-2012.05.02  
Report No. : 20120323FCC-B



## Test Report Certification


Date of Issue : Mar.23.2012


Report No. : 20120323FCC-B

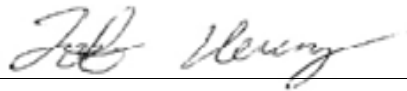
Product Name : GSM/WCDMA MOBILE PHONE  
Model No. : M4TEL SS330  
Trade Name : M4TEL  
Applicant : MFOURTEL MEXICO S.A. DE C.V.  
Address :  
Montecito 38, Piso 23, Oficina 15. Colonia Nápoles. C.P. 03810 Mexico  
Standard : FCC Part 15 Subpart C §15.247  
Classification : Bluetooth: Digital Transmission System (DTS)  
TX/RX Frequency Range Bluetooth ( 2400 MHz ~ 2483.5 MHz)  
Test Result : Complied

The Test Results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of IAC regulatory Laboratory

Documented By :  May. 02.2012  
Kelly Lin/Engineer

Tested By :  May. 02.2012  
Byran Hung/Senior Engineer

Approved By :  May. 02.2012  
Jeff Huang/Director of Operations

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## SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
4.1	15.247(a)(1)	A8.4(2)	Number of Channels	$\geq 15$ Chs	Pass	-
4.2	15.247(a)(1)	A8.1(a)	20dB Bandwidth	NA	Pass	-
4.2	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
4.3	15.247(a)(1)	A8.1(b)	Channel Separation	$\geq 2/3$ of 20dB BW	Pass	-
4.4	15.247(a)(1)	A8.1(d)	Dwell Time of Each	$\leq 0.4$ sec in	Pass	-
			Channel	31.6sec period		
4.5	15.247(b)(1)	A8.1(b)	Peak Output Power	$\leq 1$ W	Pass	-
4.6	15.247(d)	A8.5	Frequency Band Edges	$\leq 20$ dBc	Pass	-
4.7	15.247(d)	A8.5	Spurious Emission	$< 20$ dBc	Pass	-
4.8	15.207	Gen 7.2.2	AC Conducted Emission	Section 15.207(a)	Pass	-
4.9	15.247(d)	A8.5	Radiated Emission	FCC 47 CFR Part 15 Subpart C/ Section 15.209(a) &15.247(d)	Pass	-
4.10	15.203 &15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

**1. GENERAL INFORMATION****1.1 Applicant**

Company Name:MFOURTEL MEXICO S.A. DE C.V.

Address: Montecito 38, Piso 23, Oficina 15. Colonia Nápoles. C.P. 03810 Mexico

**1.2 Manufacturer**

Company Name:CK Telecom Limited

Address: Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.

### 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	GSM/WCDMA MOBILE PHONE
Brand Name	M4TEL
Model Name	M4TEL SS330
FCC ID	CLNSS330
Tx/Rx Frequency Range	Bluetooth ( 2400 MHz ~ 2483.5 MHz)
Number of Channels	BT : CH00 CH39 CH78
Carrier Frequency of Each Channel	BT : 2402MHz 2441MHz 2480MHz
Channel Spacing	BT : 1MHz
Maximum Output Power to Antenna	BT : 10.68 ( dBm )
Antenna Type	Monopole Antenna
HW Version	SATURN-V2.0
SW Version	SATURN-501A_TELCEL_L151N_100_120112
Type of Modulation	BT(1Mbps):GFSK BT EDR(2Mbps): $\pi$ /4-DQPSK BT EDR(3Mbps):8-DPSK

#### Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS) and Digital Spread Spectrum(DSS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description

### 1.4 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.4-2003

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2. Test Configuration of Equipment Under Test

### 2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF Output Power in the following table:

Channel	Frequency	Bluetooth RF Output Power (dBm)		
		Data Rate / Modulation		
		GFSK	$\pi$ /4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	10.20	10.12	10.10
Ch39	2441MHz	10.26	10.21	10.22
Ch78	2480MHz	10.68	10.65	10.59

**Remark:**

The EUT is programmed to transmit signal continuously for all testing.



## 2.2 Test Modes

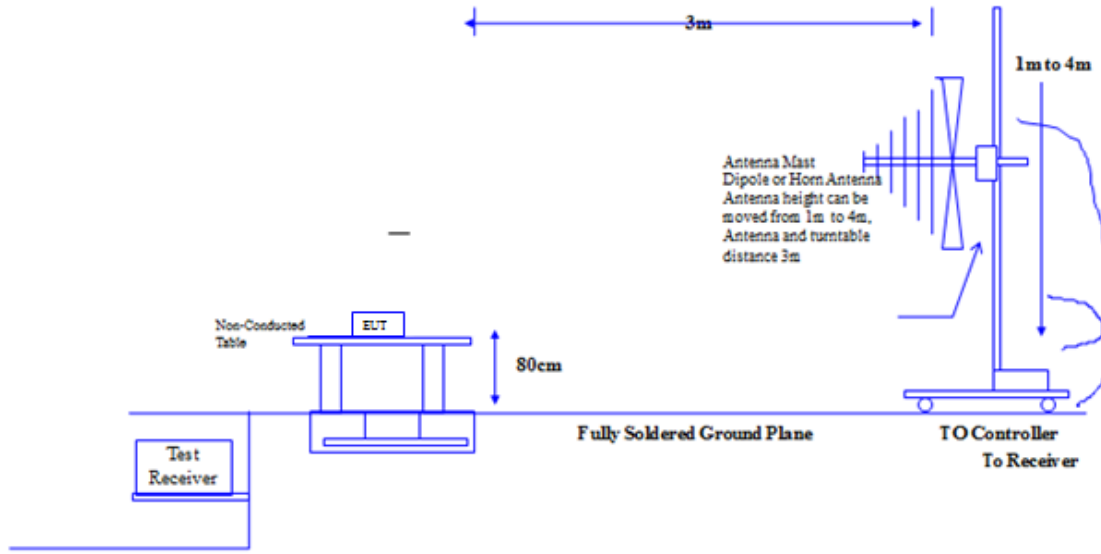
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Pre-scanned tests were conducted to determine the final configuration from all possible combinations. The following tables are showing the test modes as the worst cases and recorded in this report.

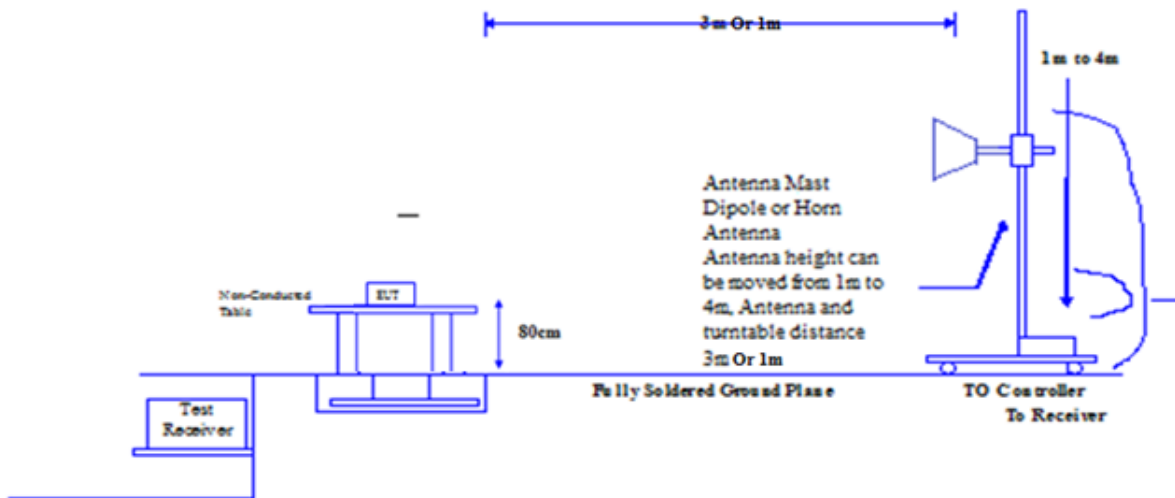
Test Cases			
Test Item	Data Rate / Modulation		
	Bluetooth 1Mbps GFSK	Bluetooth EDR 2Mbps $\pi$ /4-DQPSK	Bluetooth EDR 3Mbps 8-DPSK
<b>Conducted TCs</b>	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
<b>Radiated TCs</b>	N/A	N/A	Mode 1: CH00_2402 MHz +Battery Mode 2: CH39_2441 MHz +Battery Mode 3: CH78_2480 MHz +Battery
<b>AC Conducted Emission</b>	Mode 1 : GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + Adapter+ Battery Mode 2: GSM 1900 Idle + WLAN Link (2.4G) + Bluetooth Link + Adapter+ Battery Mode 3: WCDMA Band II Idle + WLAN Link (2.4G) + Bluetooth Link + Adapter+ Battery Mode 4: WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + Adapter+ Battery		

### 2.3 Connection Diagram of Test System

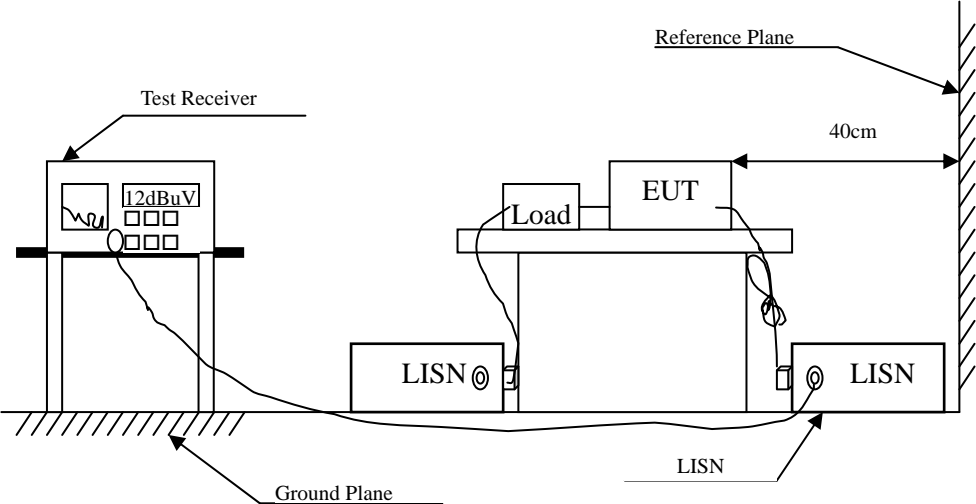
30MHz~1GHz



Above 1GHz



<Conduction Test>



### 3. Test Result

#### 3.1 Number of Channel Measurement

##### 3.1.1 Limits of Number of Hopping Frequency

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

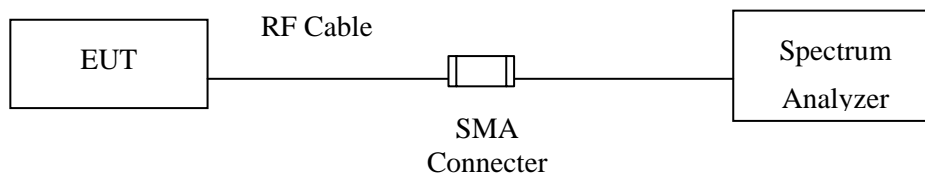
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The modulation types of EUT are irrelevant to number of hopping channels deviation.
4. The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:  
Span = the frequency band of operation;  $RBW \geq 1\%$  of the span;  $VBW \geq RBW$ ; Sweep = auto;  
Detector function = peak; Trace = max hold.
5. The number of hopping frequency used is defined as the device has the numbers of total channel.

##### 3.1.4 Test Setup

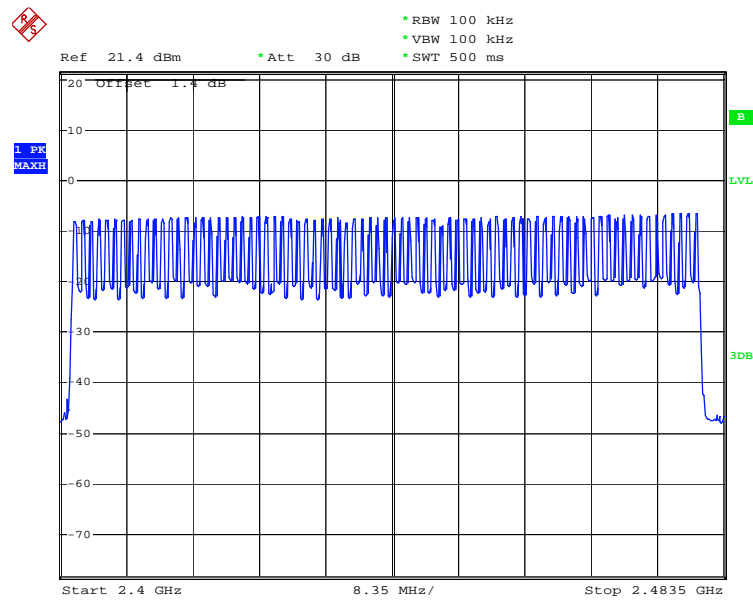


3.1.5 Test Result of Number of Hopping Frequency

Test Mode :	Mode 1~3	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail
79	> 15	Pass

Number of Hopping Channel Plot on Channel 00 - 78

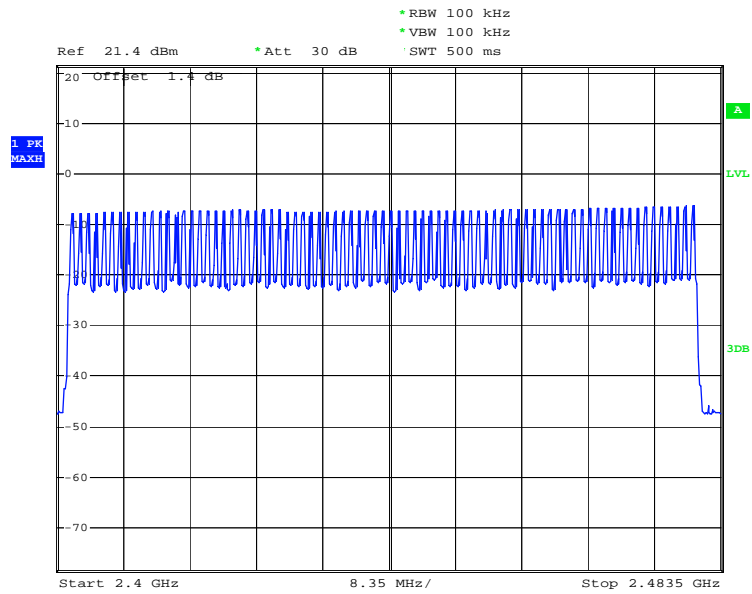


Date: 27.MAR.2012 08:40:52

<b>Test Mode :</b>	Mode 4~6	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail
79	> 15	Pass

**Number of Hopping Channel Plot on Channel 00 - 78**

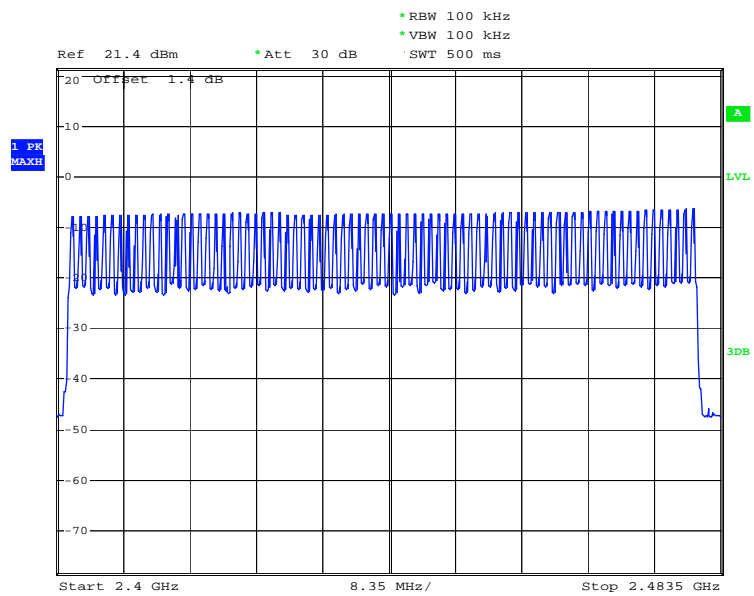


Date: 27.MAR.2012 08:30:58

<b>Test Mode :</b>	Mode 7~9	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

Number of Hopping Channels (Channel)	Limits (Channel)	Pass/Fail
79	> 15	Pass

**Number of Hopping Channel Plot on Channel 00 - 78**



Date: 27.MAR.2012 08:30:58

## 3.2 20dB and 99% Bandwidth Measurement

### 3.2.1 Limit of 20dB Bandwidth

N/A

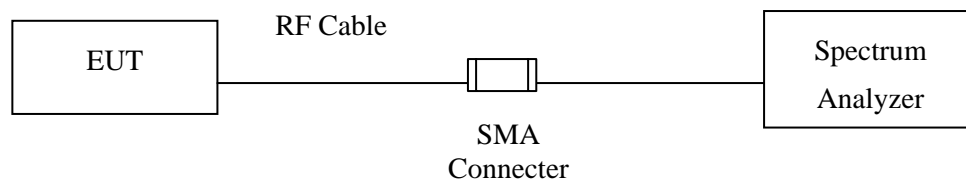
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. Use the following spectrum analyzer settings:
  - Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel;
  - RBW  $\geq$  1% of the 20 dB bandwidth; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak;
  - Trace = max hold.
5. The marker-delta reading at this point is the 20 dB bandwidth of the emission.

### 3.2.4 Test Setup



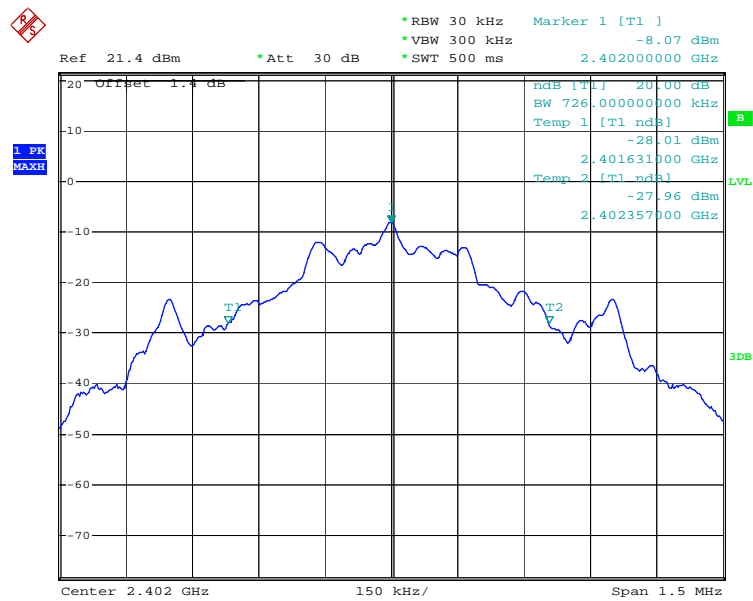


3.2.5 Test Result of 20dB Bandwidth

Test Mode :	Mode 1,2,3	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

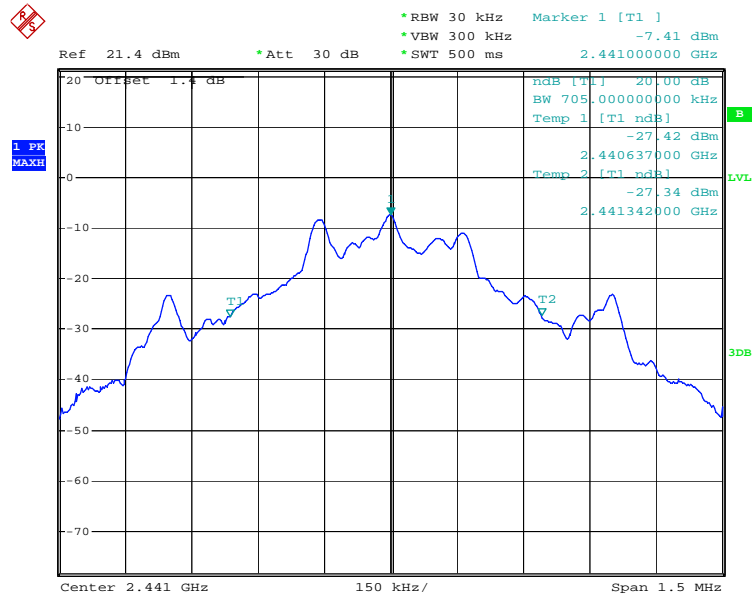
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.726
39	2441	0.705
78	2480	0.726

20 dB Bandwidth Plot on Channel 00



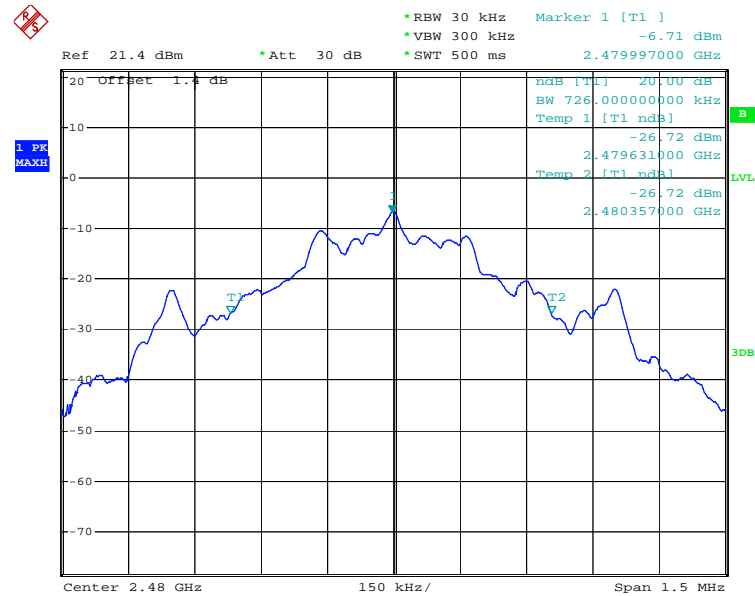
Date: 27.MAR.2012 08:50:30

### 20 dB Bandwidth Plot on Channel 39



Date: 27.MAR.2012 08:55:19

### 20 dB Bandwidth Plot on Channel 78

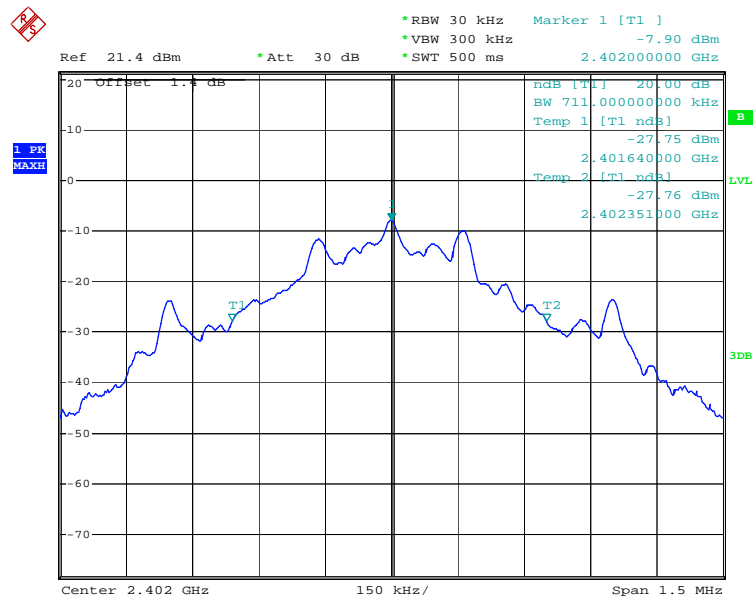


Date: 27.MAR.2012 08:56:08

<b>Test Mode :</b>	Mode 4,5,6	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

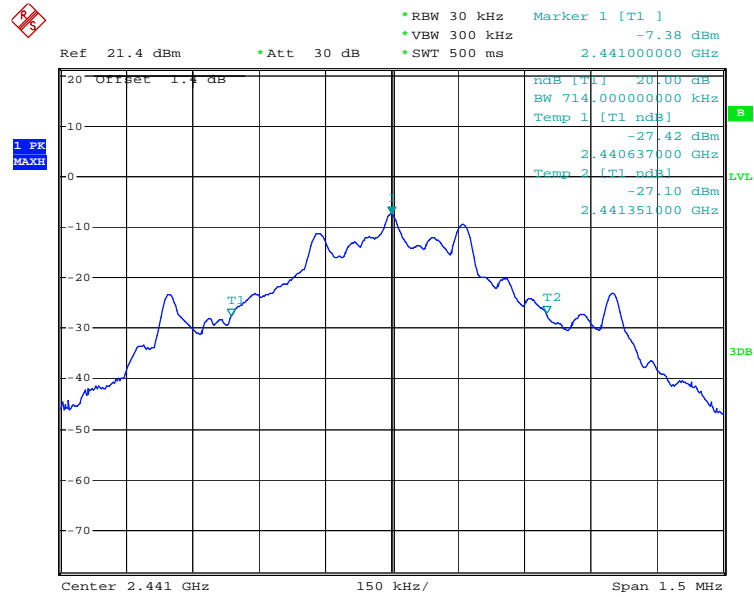
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.711
39	2441	0.714
78	2480	0.714

**20 dB Bandwidth Plot on Channel 00**



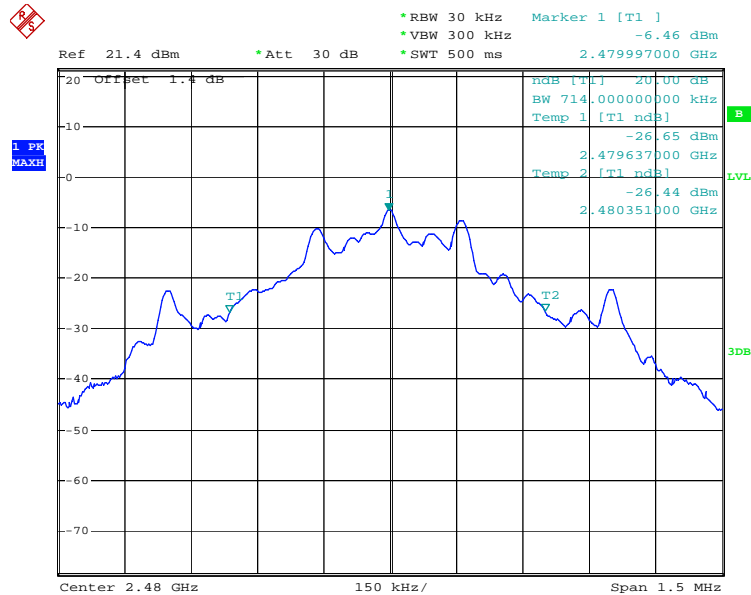
Date: 27.MAR.2012 08:51:16

### 20 dB Bandwidth Plot on Channel 39



Date: 27.MAR.2012 08:54:38

### 20 dB Bandwidth Plot on Channel 78

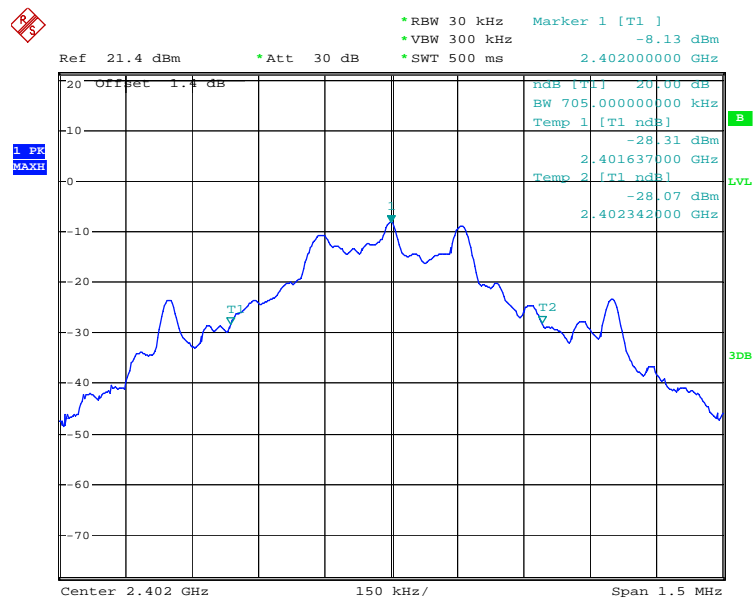


Date: 27.MAR.2012 08:56:41

Test Mode :	Mode 7,8,9	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

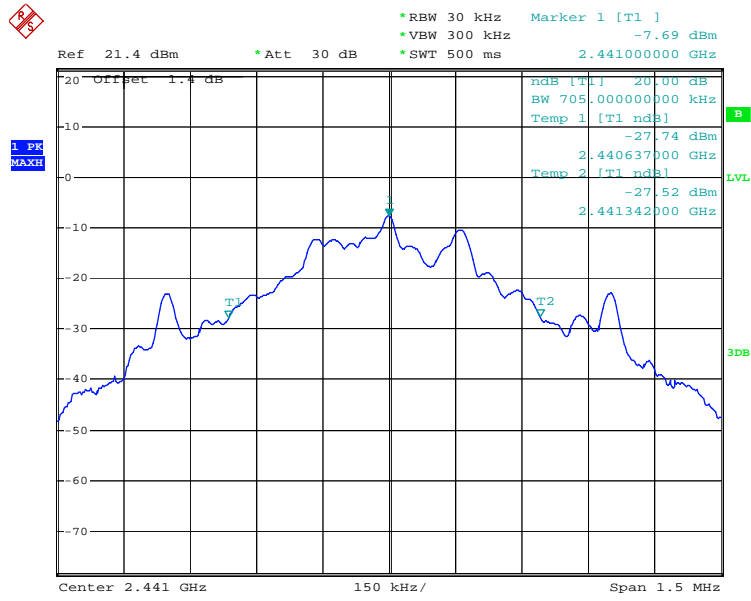
Channel	Frequency (MHz)	20dB Bandwidth (MHz)
00	2402	0.705
39	2441	0.705
78	2480	0.702

20 dB Bandwidth Plot on Channel 00



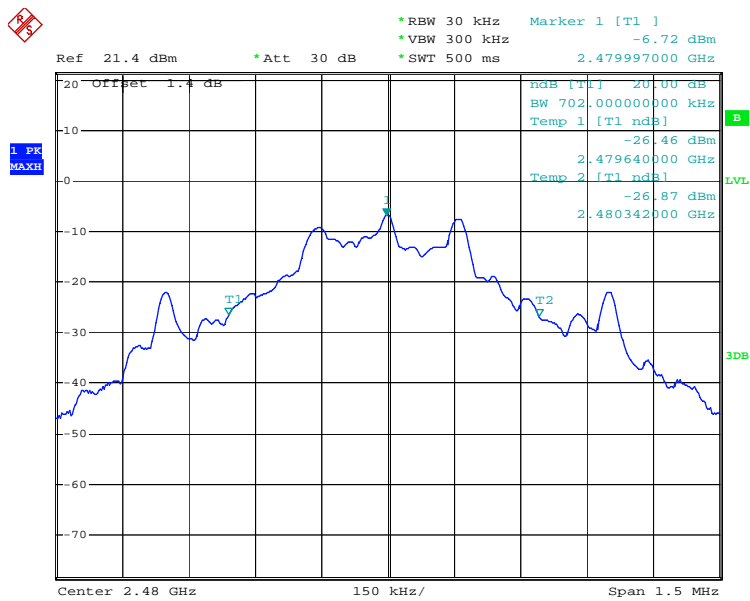
Date: 27.MAR.2012 08:52:46

### 20 dB Bandwidth Plot on Channel 39



Date: 27.MAR.2012 08:54:00

### 20 dB Bandwidth Plot on Channel 78



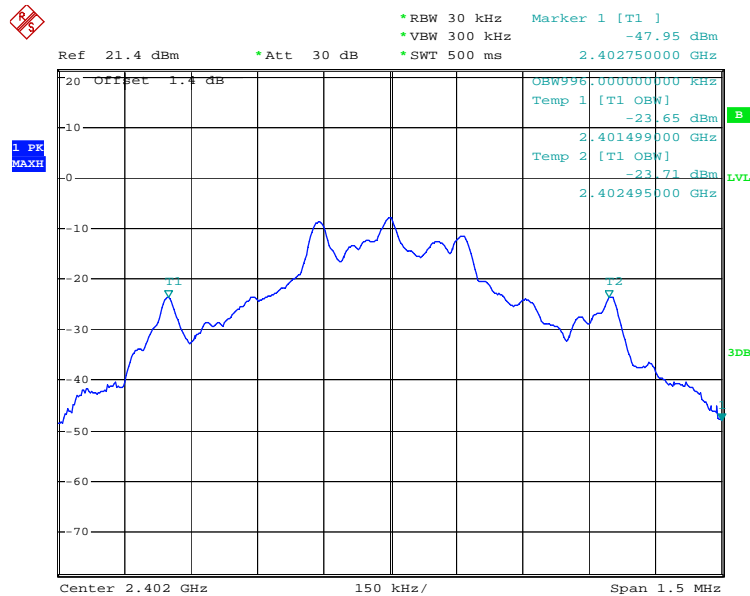
Date: 27.MAR.2012 08:57:23

3.2.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1,2,3	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

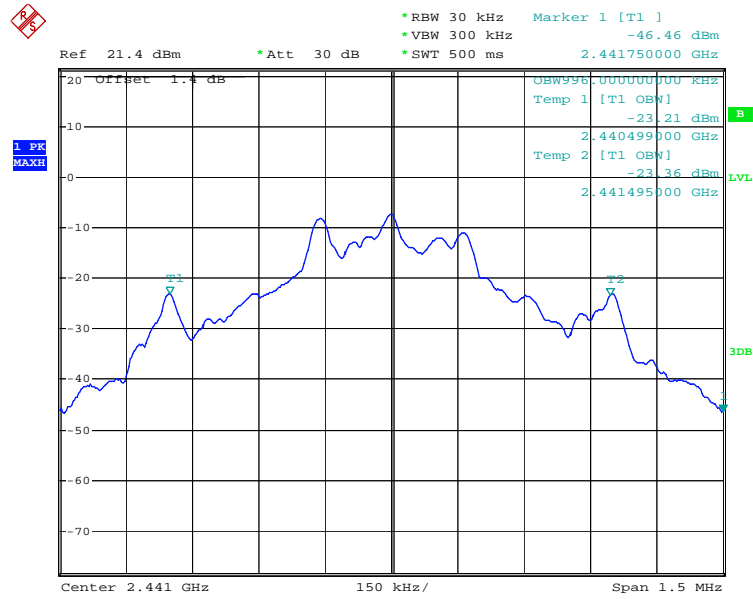
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.996
39	2441	0.996
78	2480	0.993

99% Bandwidth Plot on Channel 00



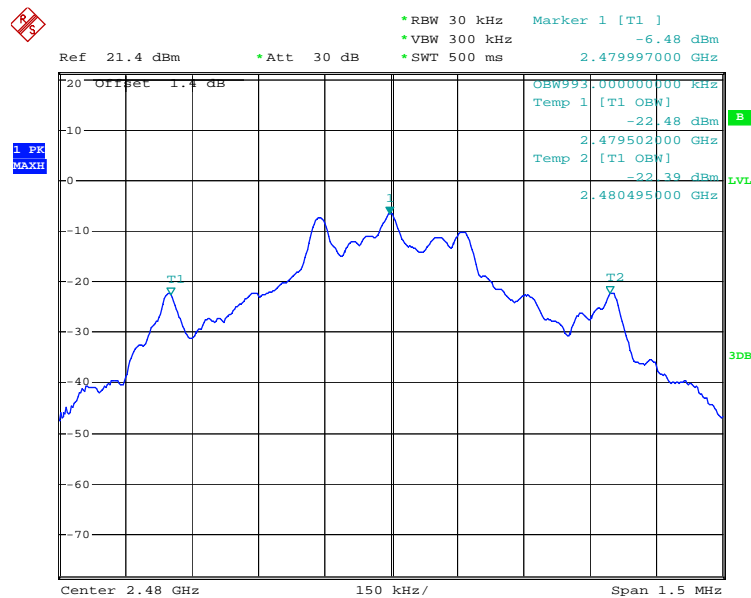
Date: 27.MAR.2012 09:07:41

### 99% Occupied Bandwidth Plot on Channel 39



Date: 27.MAR.2012 09:05:02

### 99% Occupied Bandwidth Plot on Channel 78



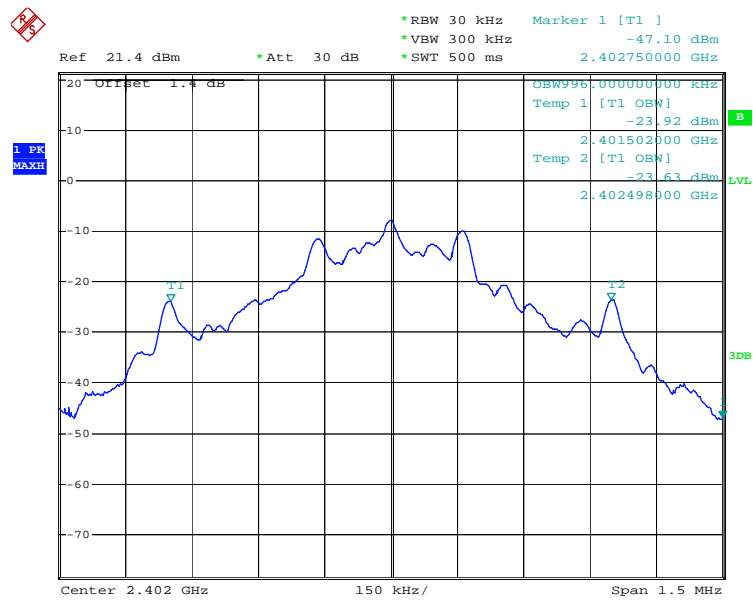
Date: 27.MAR.2012 08:59:33



<b>Test Mode :</b>	Mode 4,5,6	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

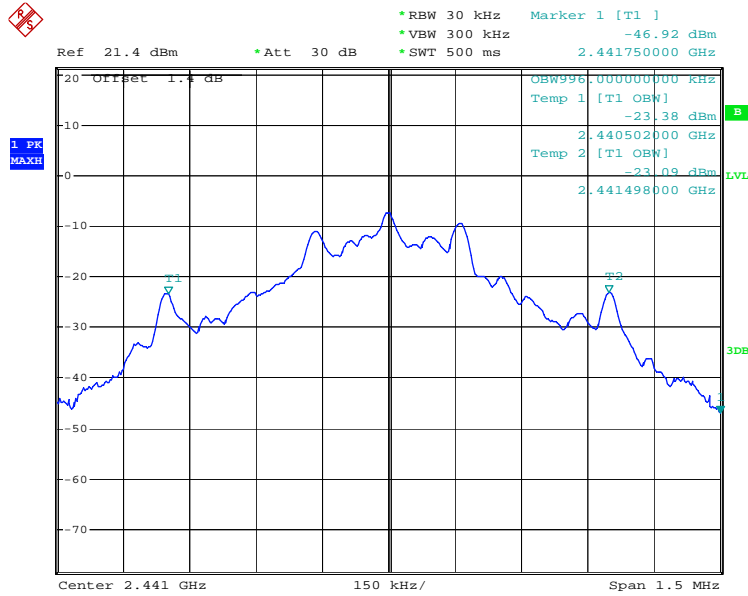
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.996
39	2441	0.996
78	2480	0.996

99% Bandwidth Plot on Channel 00



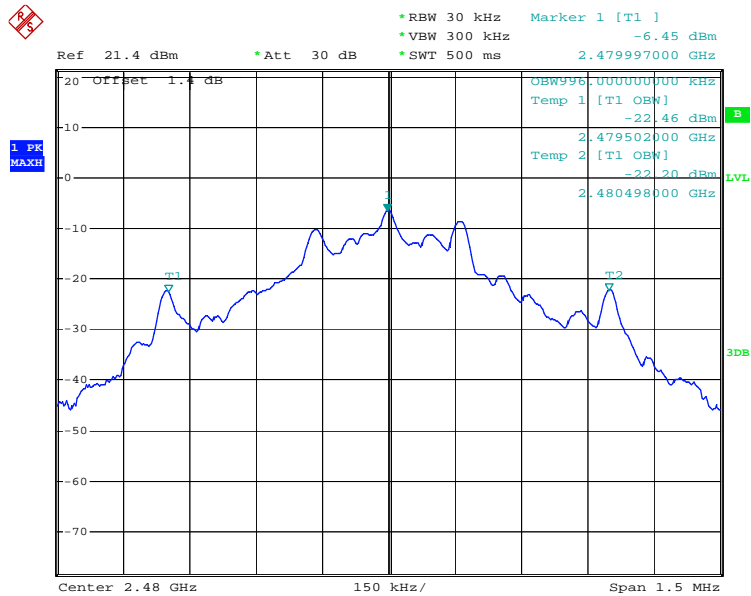
Date: 27.MAR.2012 09:07:07

### 99% Occupied Bandwidth Plot on Channel 39



Date: 27.MAR.2012 09:02:37

### 99% Occupied Bandwidth Plot on Channel 78

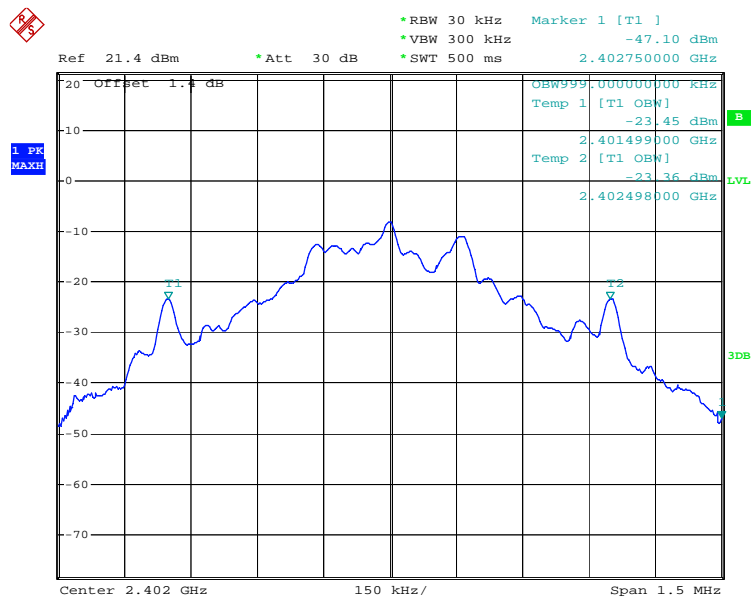


Date: 27.MAR.2012 08:59:07

Test Mode :	Mode 7,8,9	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

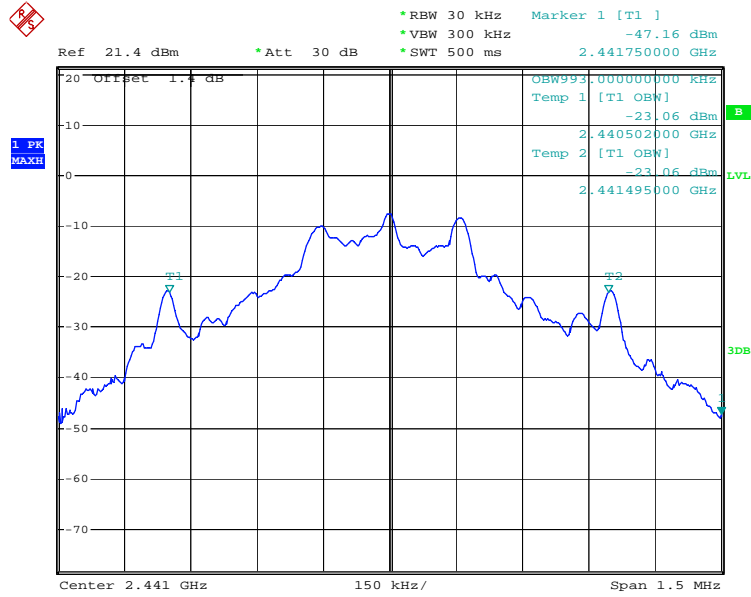
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
00	2402	0.999
39	2441	0.993
78	2480	0.993

99% Bandwidth Plot on Channel 00



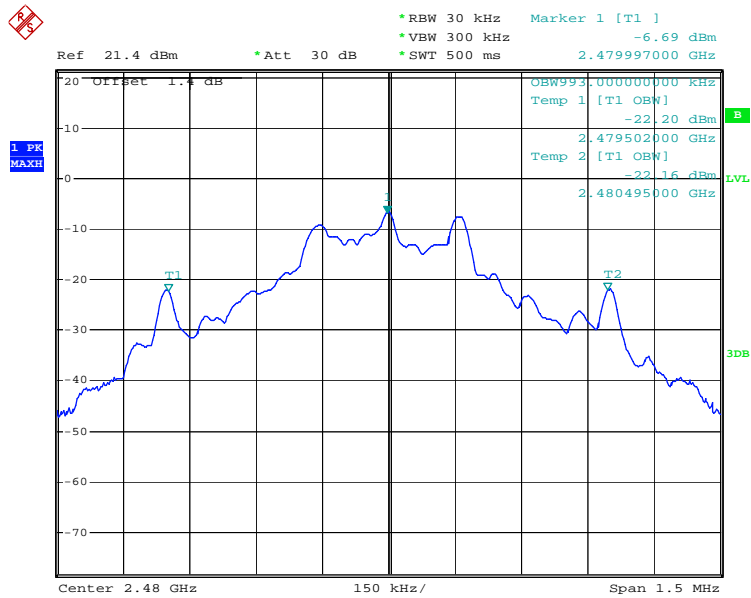
Date: 27.MAR.2012 09:06:23

### 99% Occupied Bandwidth Plot on Channel 39



Date: 27.MAR.2012 09:05:26

### 99% Occupied Bandwidth Plot on Channel 78



Date: 27.MAR.2012 08:58:33

### 3.3 Hopping Channel Separation Measurement

#### 3.3.1 Limit of Hopping Channel Separation

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

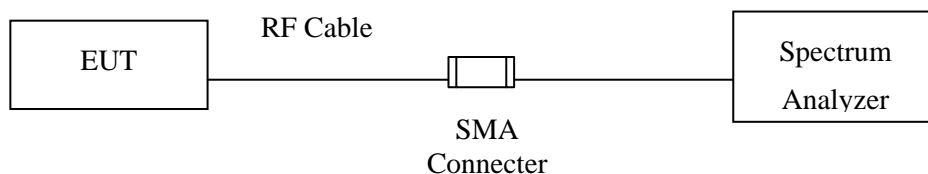
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. Please refer FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. Use the following spectrum analyzer settings:
  - Span = wide enough to capture the peaks of two adjacent channels;  $RBW \geq 1\%$  of the span;
  - $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold.
5. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

#### 3.3.4 Test Setup

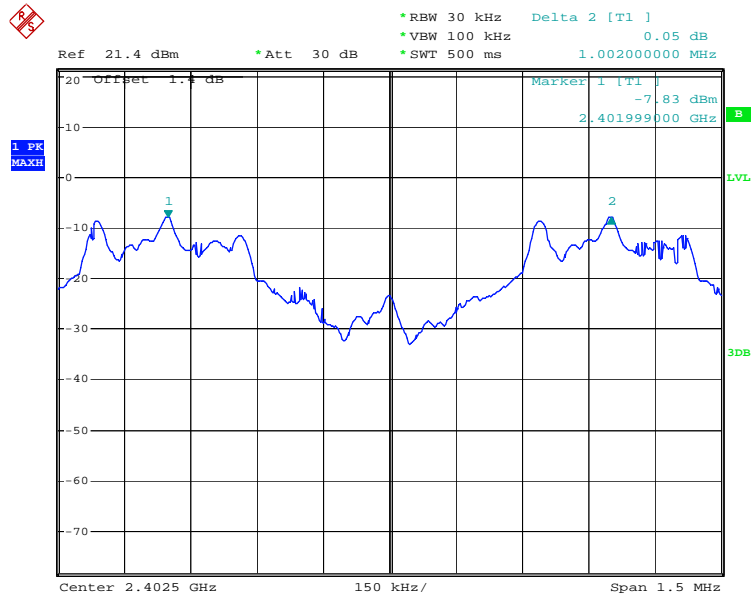


3.3.5 Test Result of Hopping Channel Separation

Test Mode :	Mode 1,2,3	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

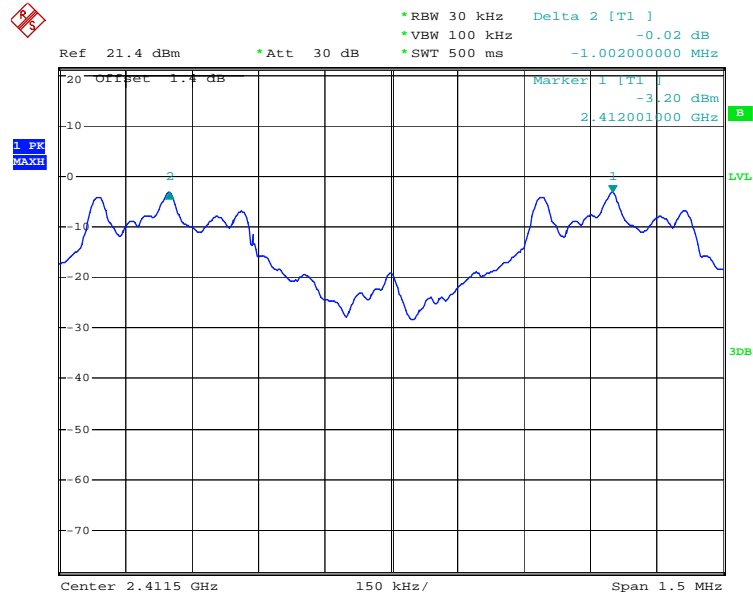
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.484	Pass
39	2441	1.002	0.483	Pass
78	2480	1.002	0.484	Pass

Channel Separation Plot on Channel 00 - 01



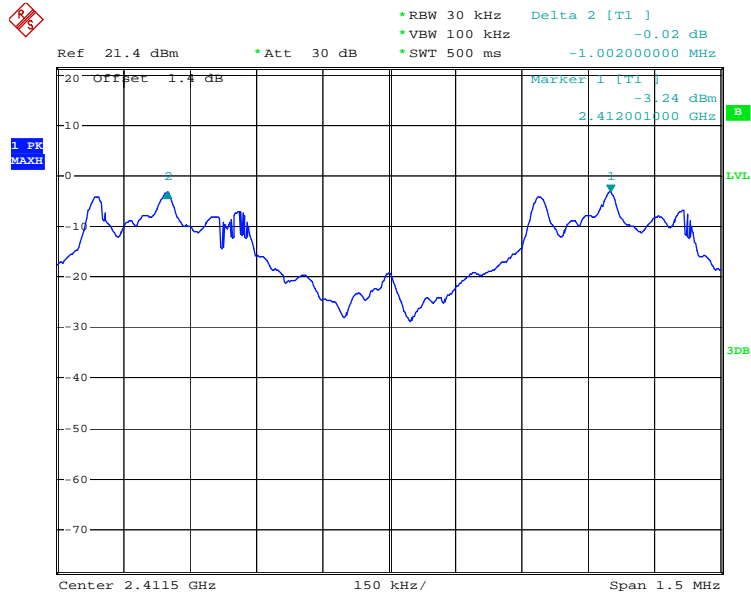
Date: 27.MAR.2012 09:21:38

### Channel Separation Plot on Channel 39 - 40



Date: 27.MAR.2012 10:46:30

### Channel Separation Plot on Channel 77 - 78

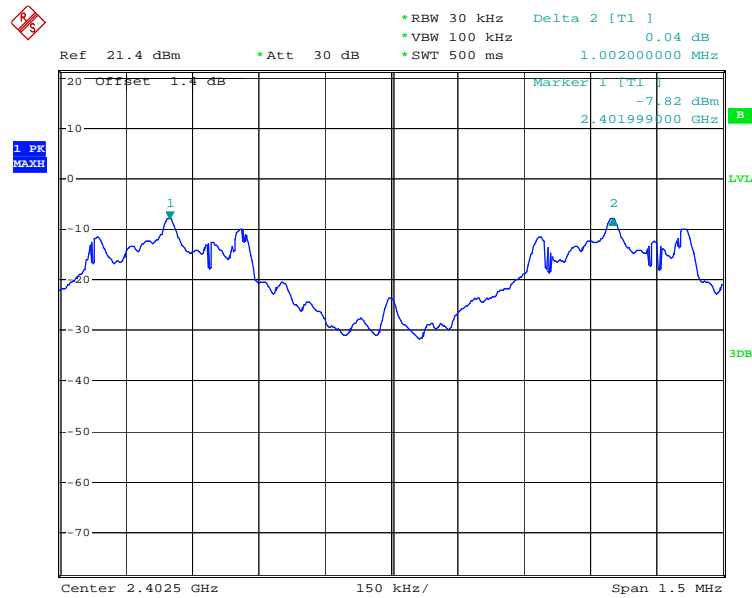


Date: 27.MAR.2012 10:51:03

<b>Test Mode :</b>	Mode 4,5,6	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.474	Pass
39	2441	1.002	0.476	Pass
78	2480	1.002	0.476	Pass

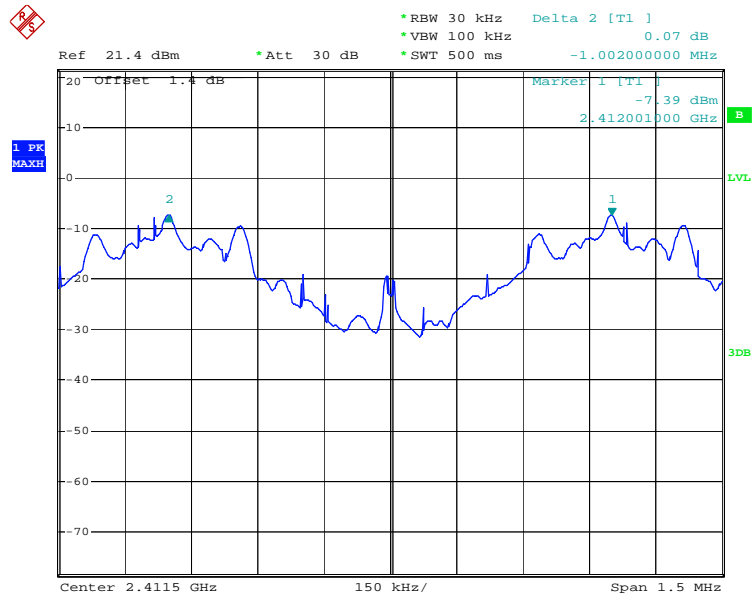
Channel Separation Plot on Channel 00 - 01



Date: 27.MAR.2012 09:30:58

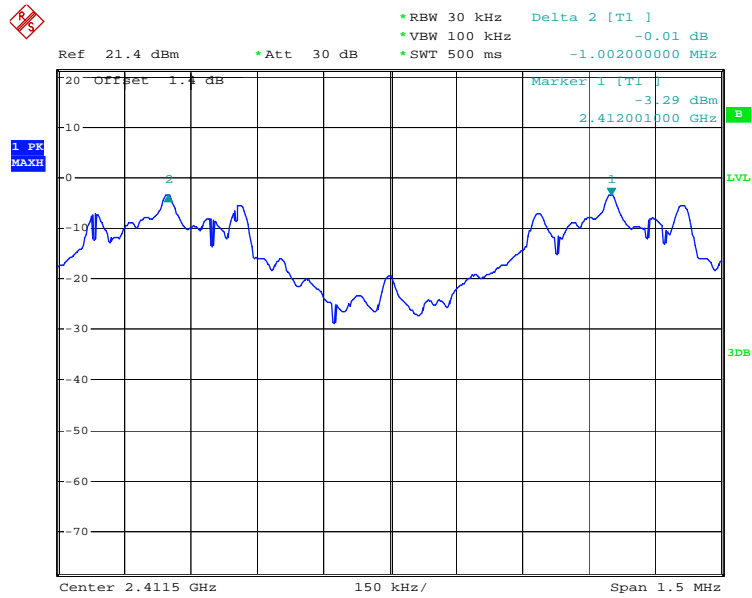


### Channel Separation Plot on Channel 39 - 40



Date: 27.MAR.2012 10:39:26

### Channel Separation Plot on Channel 77 - 78

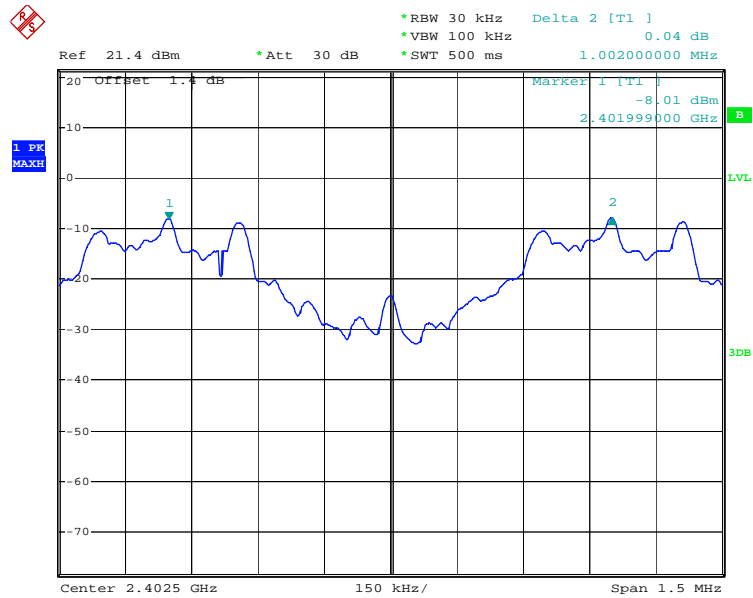


Date: 27.MAR.2012 10:59:57

<b>Test Mode :</b>	Mode 7,8,9	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

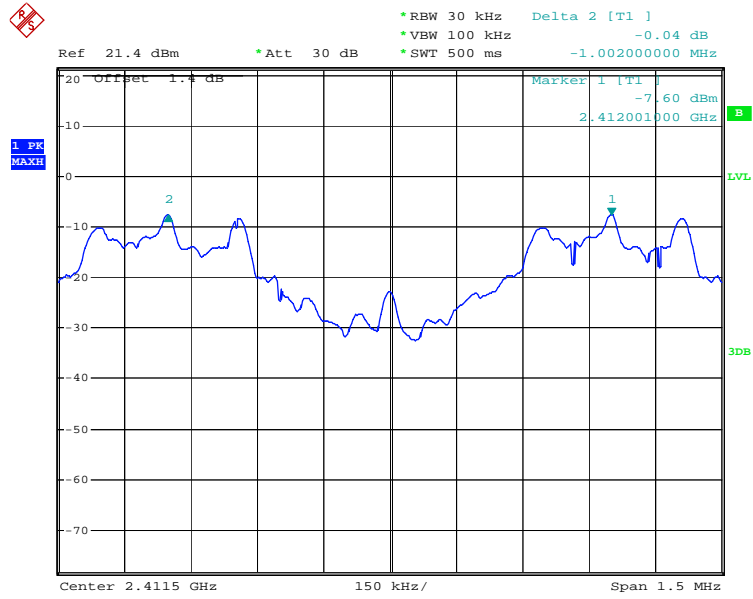
Channel	Frequency (MHz)	Frequency Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Pass/Fail
00	2402	1.002	0.470	Pass
39	2441	1.002	0.470	Pass
78	2480	1.002	0.468	Pass

Channel Separation Plot on Channel 00 - 01



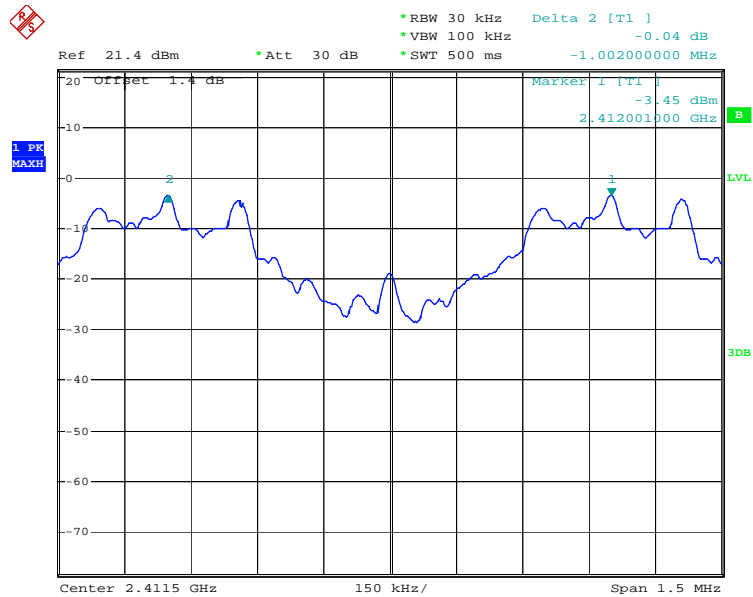
Date: 27.MAR.2012 09:52:15

### Channel Separation Plot on Channel 39 - 40



Date: 27.MAR.2012 10:12:59

### Channel Separation Plot on Channel 77 - 78



Date: 27.MAR.2012 11:23:01

### 3.4 Dwell Time Measurement

#### 3.4.1 Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

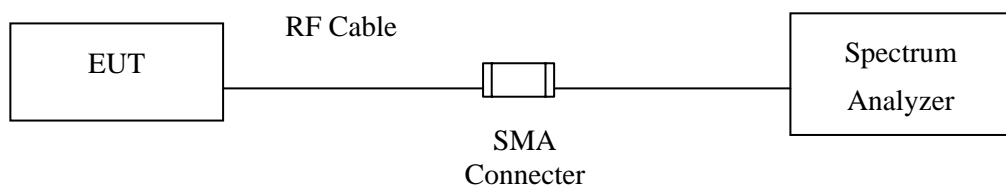
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The EUT should be transmitting at its maximum data rate as the worst cases.
4. The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:  
Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW  $\geq$  RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak;  
Trace = max hold.
5. Use the marker-delta function to calculate the dwell time.

#### 3.4.4 Test Setup



**3.4.5 Test Result of Dwell Time**

<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

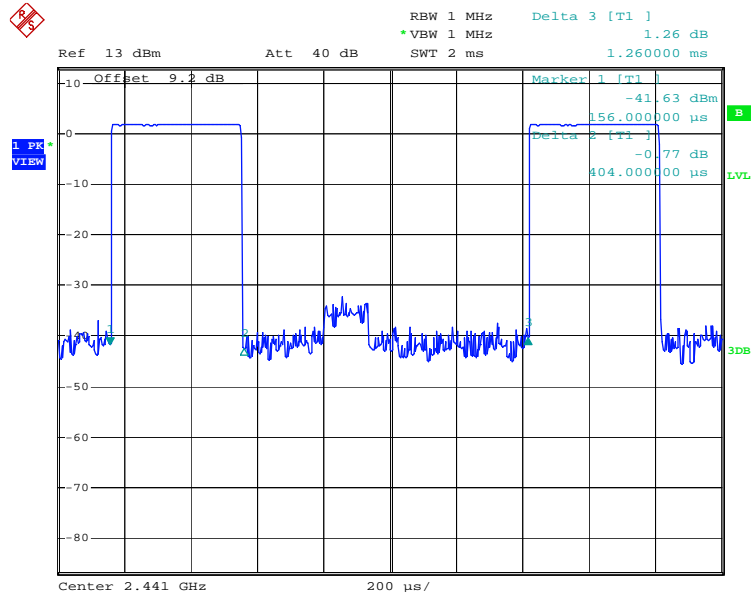
Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
DH1	10.1	404	0.129	0.4	Pass
DH3	5.1	1674	0.268	0.4	Pass
DH5	3.4	2954	0.315	0.4	Pass

**Remark:**

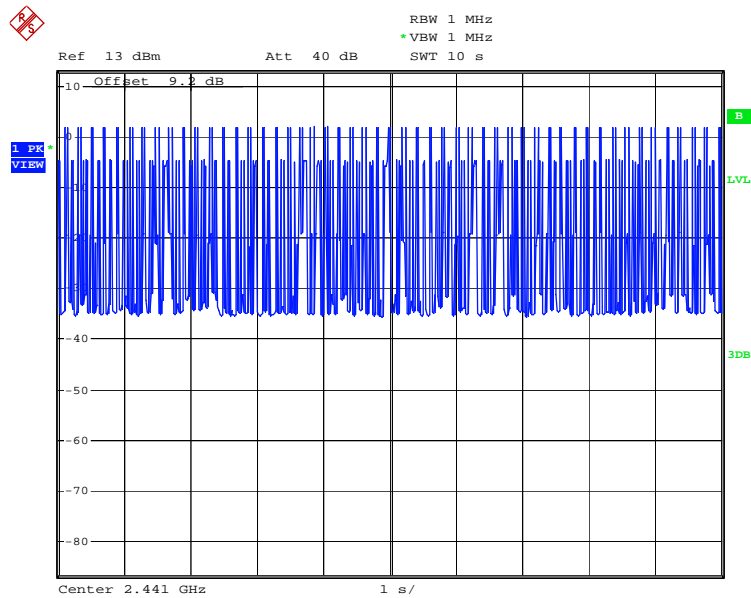
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79 channels come from the Hopping Channel number.
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)

GFSK:

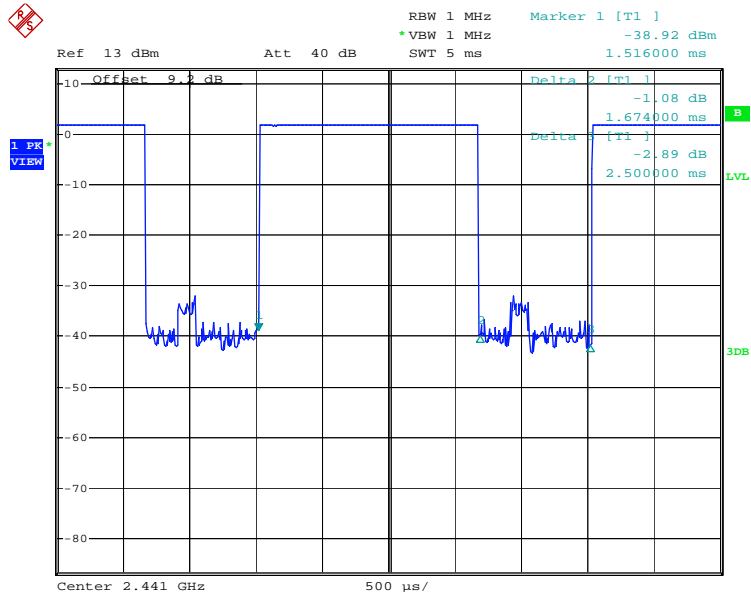
### DH1 Dwell Time (One Pulse) Plot on Channel 39



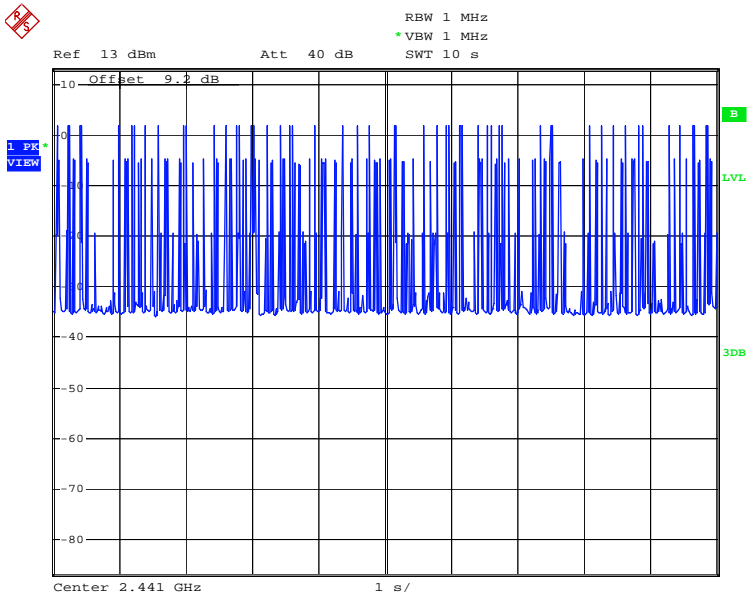
### DH1 Dwell Time (Count Pulses) Plot on Channel 39



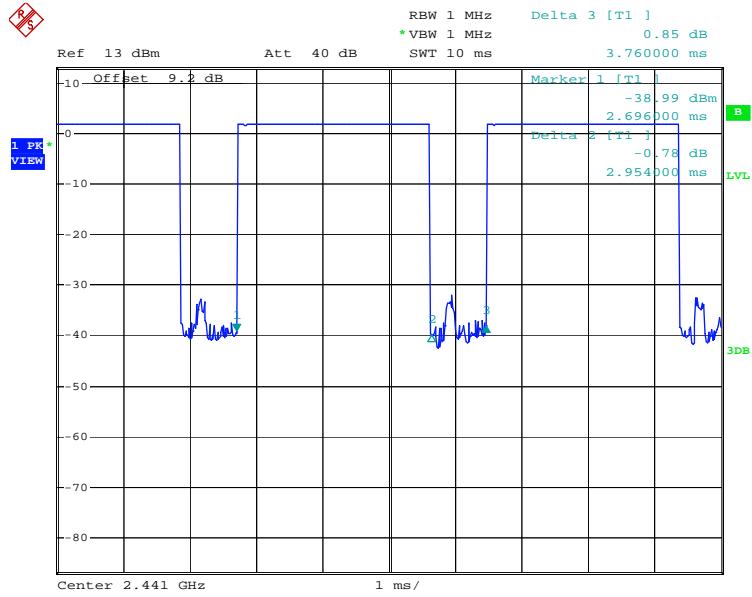
### DH3 Dwell Time (One Pulse) Plot on Channel 39



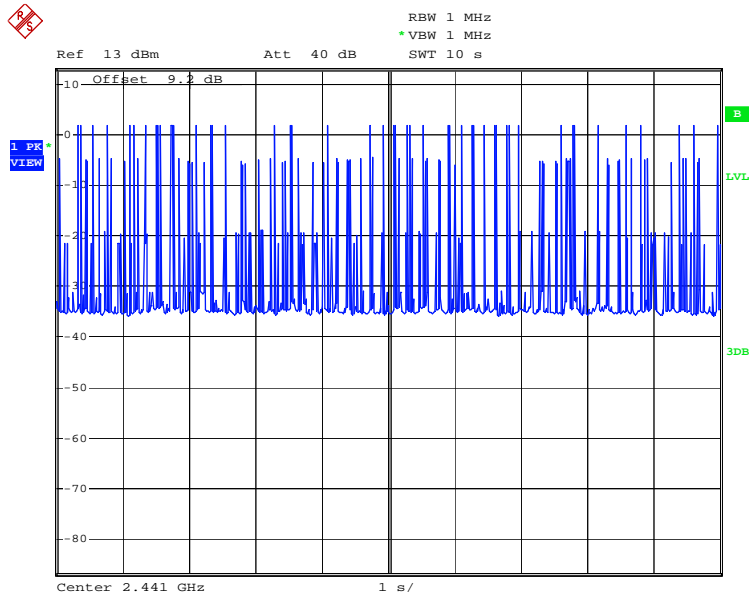
### DH3 Dwell Time (Count Pulses) Plot on Channel 39



### DH5 Dwell Time (One Pulse) Plot on Channel 39



### DH5 Dwell Time (Count Pulses) Plot on Channel 39





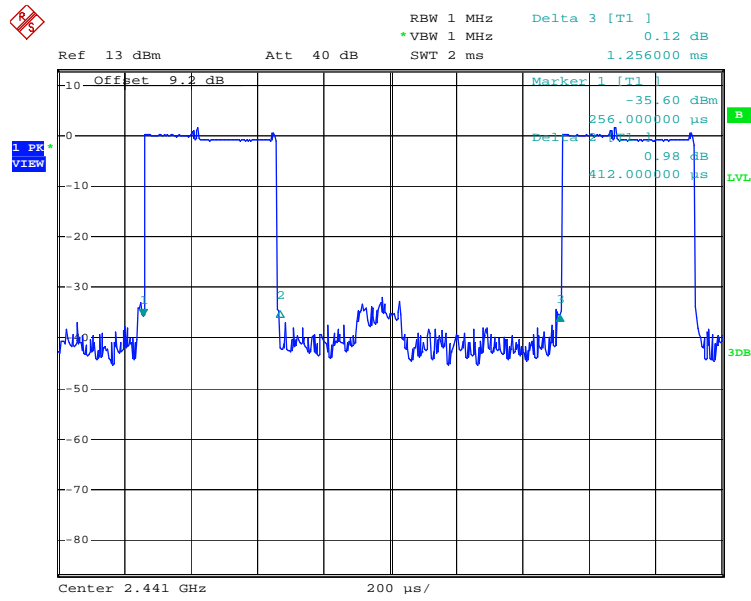
<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
2DH1	10.1	412	0.132	0.4	Pass
2DH3	5.1	1694	0.271	0.4	Pass
2DH5	3.4	2974	0.317	0.4	Pass

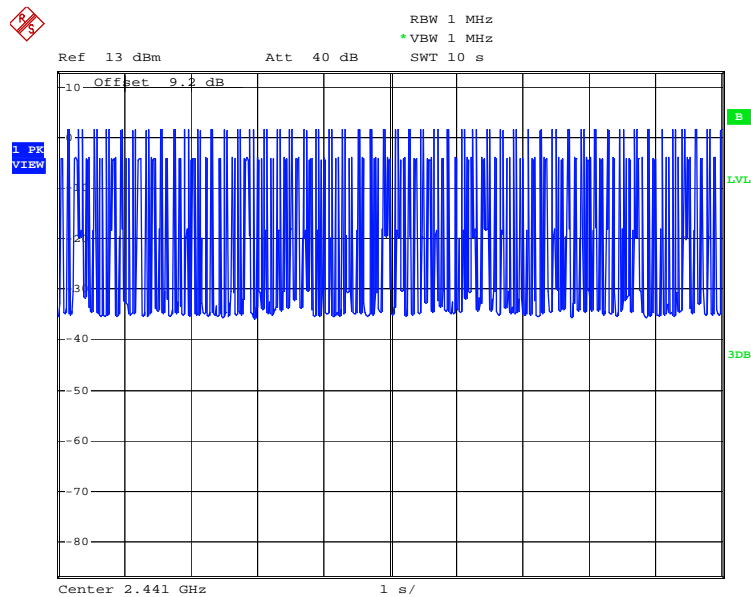
**Remark:**

5. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
6. 79 channels come from the Hopping Channel number.
7. Average Hopping Channel = hops/sweep time
8. t: Package Transfer Time(us)

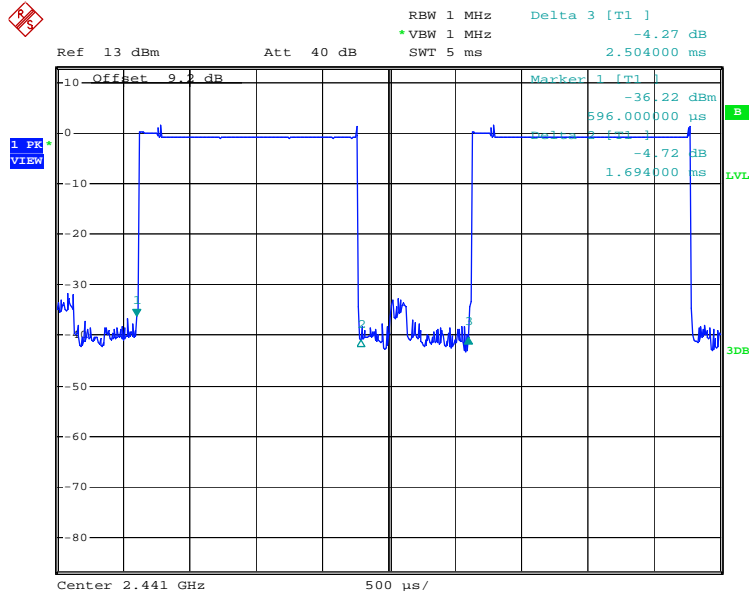
### 2DH1 Dwell Time (One Pulse) Plot on Channel 39



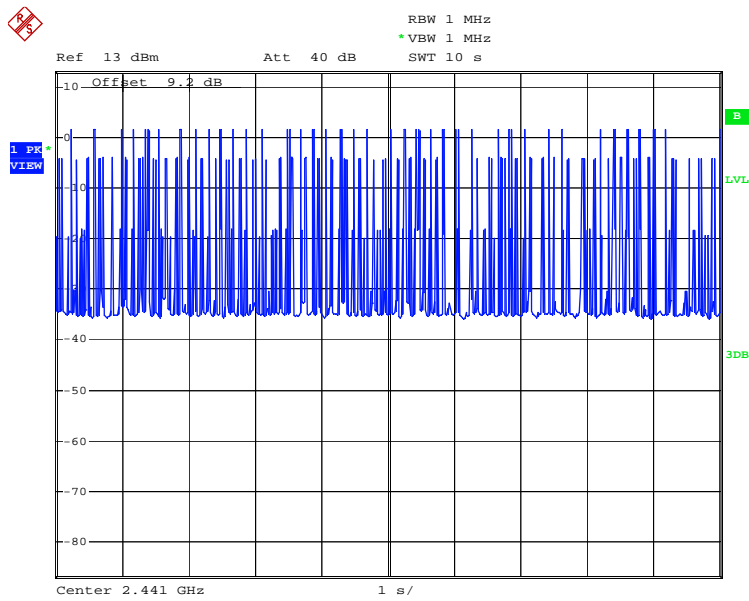
### 2DH1 Dwell Time (Count Pulses) Plot on Channel 39



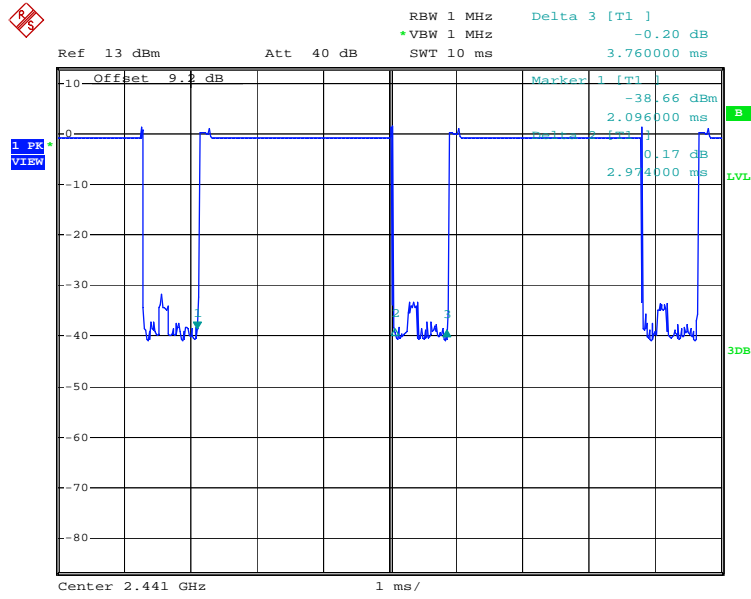
### 2DH3 Dwell Time (One Pulse) Plot on Channel 39



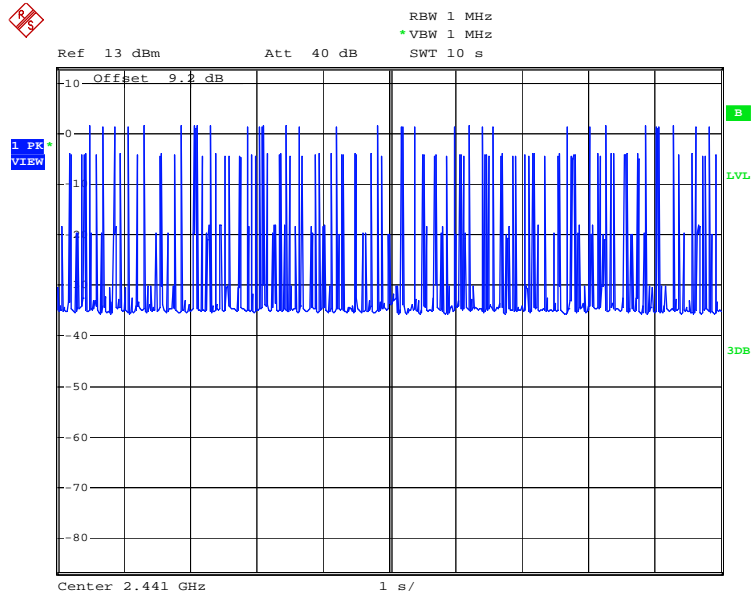
### 2DH3 Dwell Time (Count Pulses) Plot on Channel 39



### 2DH5 Dwell Time (One Pulse) Plot on Channel 39



### 2DH5 Dwell Time (Count Pulses) Plot on Channel 39



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

Package Mode	Average Hopping Channel	Package Transfer Time (usec)	Dwell Time (sec)	Limits (sec)	Pass/Fail
3DH1	10.1	424	0.136	0.4	Pass
3DH3	5.1	1704	0.273	0.4	Pass
3DH5	3.4	2964	0.316	0.4	Pass

**Remark:**

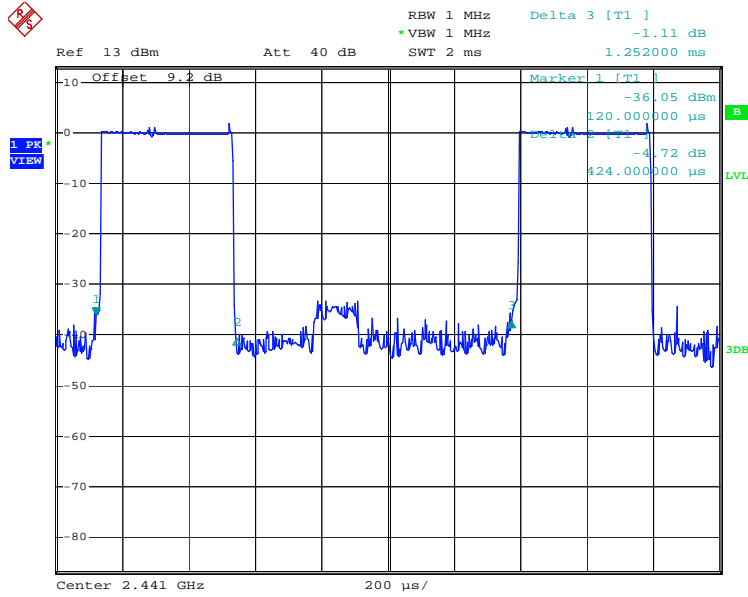
9. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time

10. 79 channels come from the Hopping Channel number.

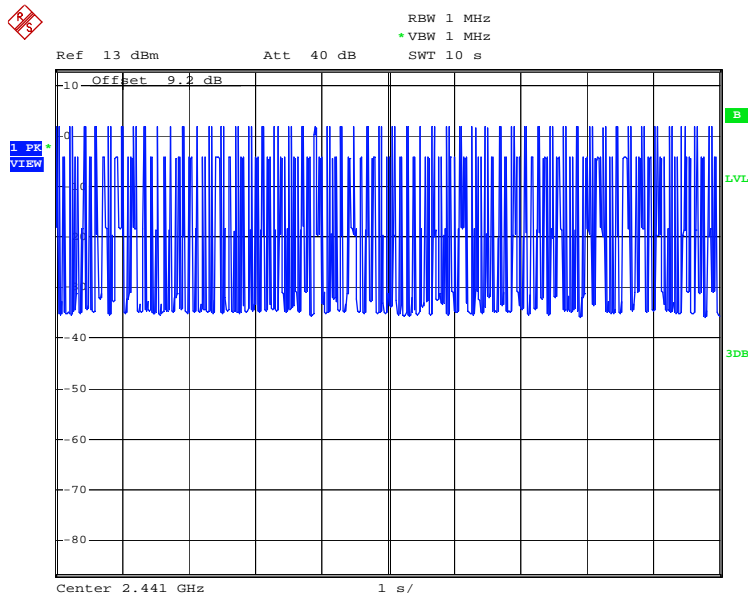
11. Average Hopping Channel = hops/sweep time

12. t: Package Transfer Time(us)

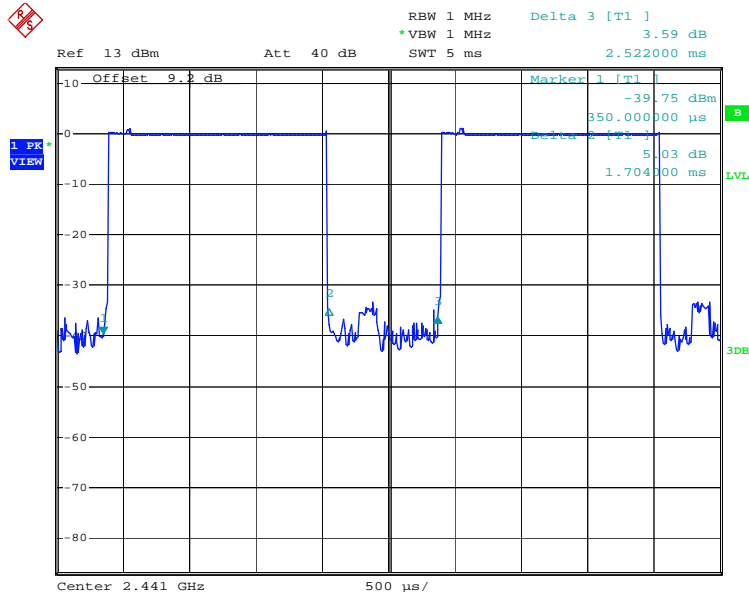
### 3DH1 Dwell Time (One Pulse) Plot on Channel 39



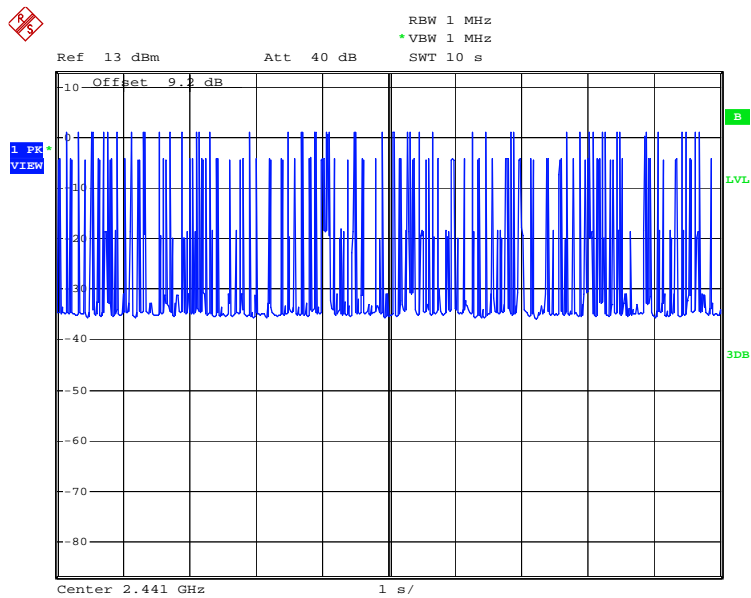
### 3DH1 Dwell Time (Count Pulses) Plot on Channel 39



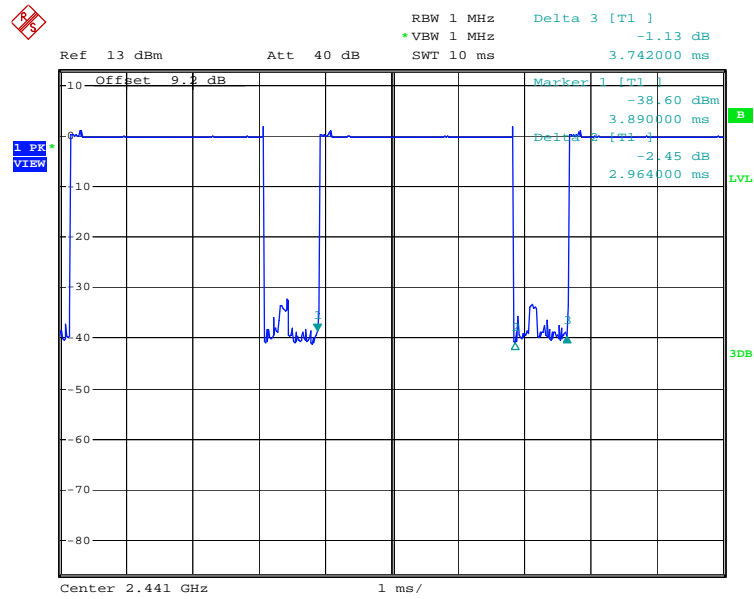
### 3DH3 Dwell Time (One Pulse) Plot on Channel 39



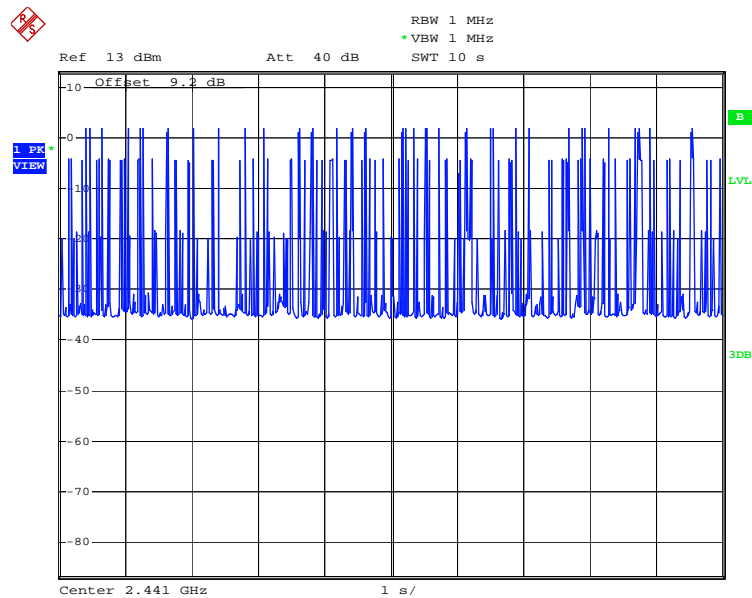
### 3DH3 Dwell Time (Count Pulses) Plot on Channel 39



### 3DH5 Dwell Time (One Pulse) Plot on Channel 39



### 3DH5 Dwell Time (Count Pulses) Plot on Channel 39





### 3.5 Peak Output Power Measurement

#### 3.5.1 Limit of Peak Output Power

Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels: 1W (30 dBm).

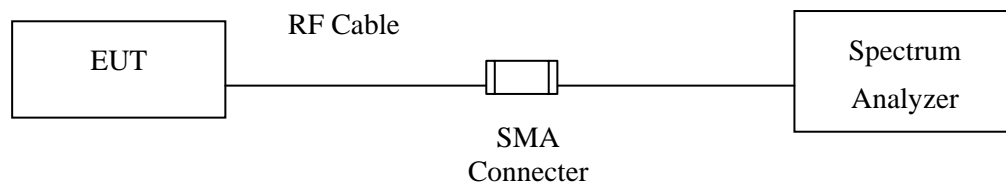
#### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.5.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.

#### 3.5.4 Test Setup

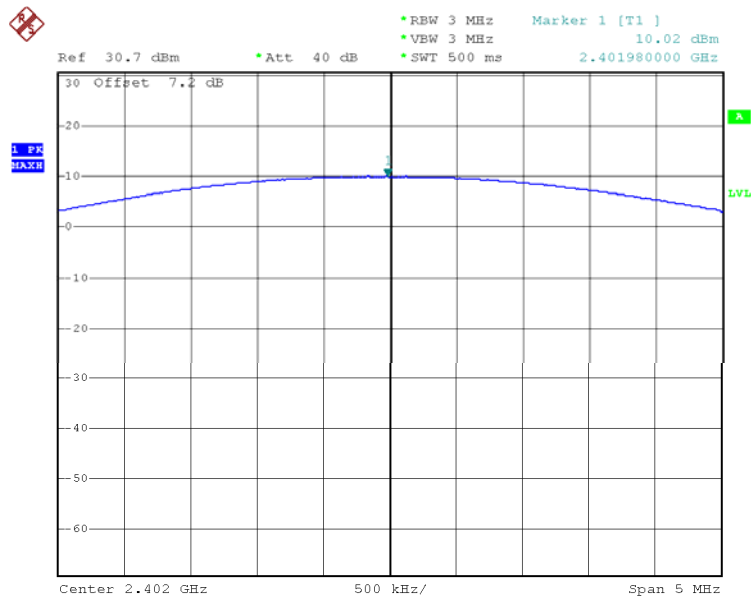


3.5.5 Test Result of Peak Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	23°C~26°C
Test Engineer :	Hogan He	Relative Humidity :	40%~60%

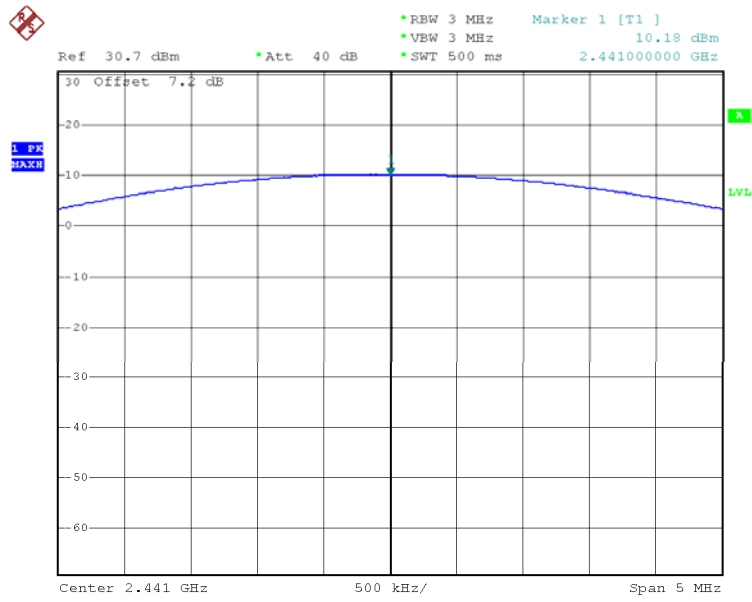
Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	10.02	30	Pass
39	2441	10.18	30	Pass
78	2480	10.60	30	Pass

Peak Output Power Plot on Channel 00



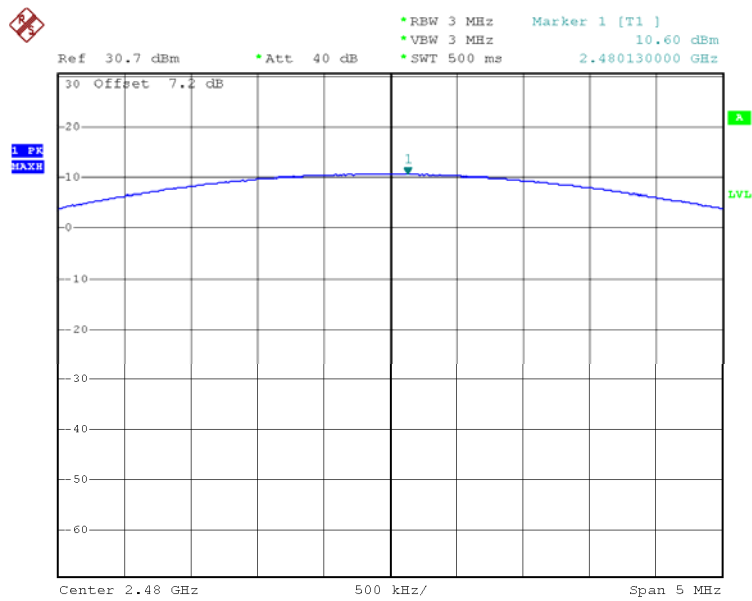
Date: 2.MAY.2012 14:27:26

### Peak Output Power Plot on Channel 39



Date: 2.MAY.2012 14:28:14

### Peak Output Power Plot on Channel 78

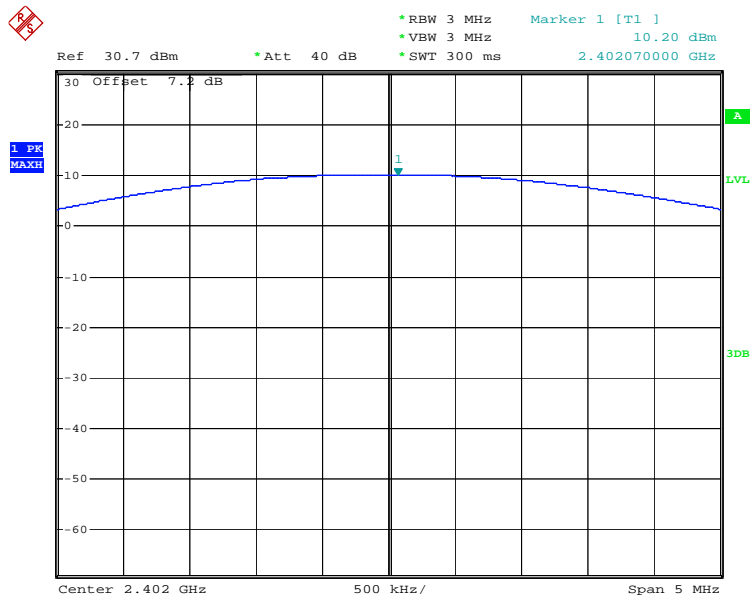


Date: 2.MAY.2012 14:29:12

<b>Test Mode :</b>	Mode 7, 8, 9	<b>Temperature :</b>	23°C~26°C
<b>Test Engineer :</b>	Hogan He	<b>Relative Humidity :</b>	40%~60%

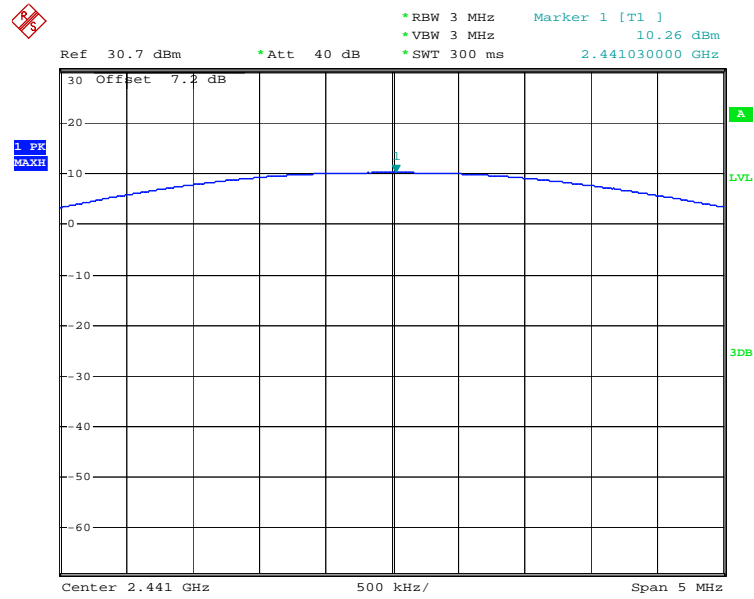
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	10.20	30	Pass
39	2441	10.26	30	Pass
78	2480	10.68	30	Pass

**Peak Output Power Plot on Channel 00**



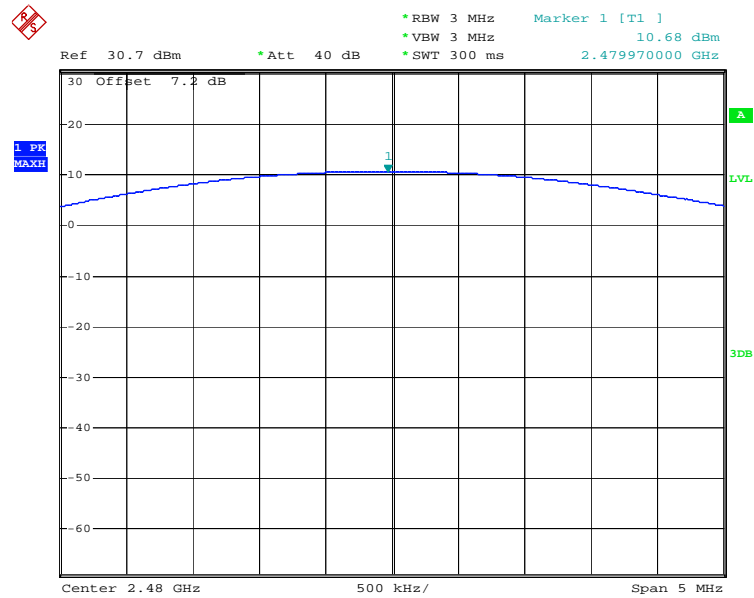
Date: 28.MAR.2012 04:19:02

Peak Output Power Plot on Channel 39



Date: 28.MAR.2012 04:21:57

Peak Output Power Plot on Channel 78



Date: 28.MAR.2012 04:22:27

### 3.6 Band Edges Measurement

#### 3.6.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

#### 3.6.2 Measuring Instruments

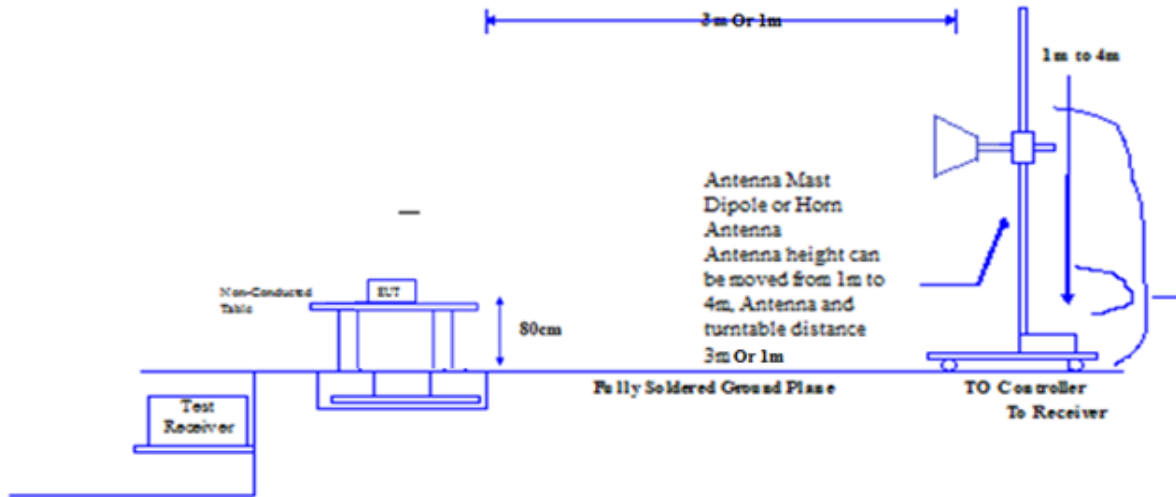
See list of measuring instruments of this test report.

#### 3.6.3 Test Procedures

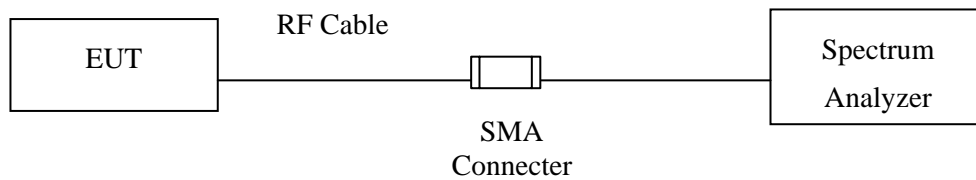
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC Public Notice DA 00-705 Measurement Guidelines.
2. RF antenna conducted test: Set RBW = 300kHz, Video bandwidth (VBW)  $\geq$  RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 300k Hz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Applies to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 1MHz, Sweep: Auto for Peak; set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto for Average. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See FCC Section 15.35(b) and (c).
4. In case the emission is fail due to the used RBW / VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

### 3.6.4 Test Setup

#### <Radiated Band Edges>



#### <Conducted Band Edges>



## 3.6.5 Test Result of Radiated Band Edges

<b>Test Band :</b>	Mode 1
<b>Test Channel</b>	00

Frequency GHz	Level dBuv/m	Over Limit dB	Limit Line dBuv/m	Read Level dBuv	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Polarity
2.4	60.44	-13.56	74	49.95	27.5	6.99	24	Peak	Vertical
2.4	47.92	-6.08	54	37.43	27.5	6.99	24	Average	Vertical
2.4	61.7	-12.3	74	51.21	27.5	6.99	24	Peak	Horizontal
2.4	50.62	-3.38	54	40.13	27.5	6.99	24	Average	Horizontal

<b>Test Band :</b>	Mode 2
<b>Test Channel</b>	78

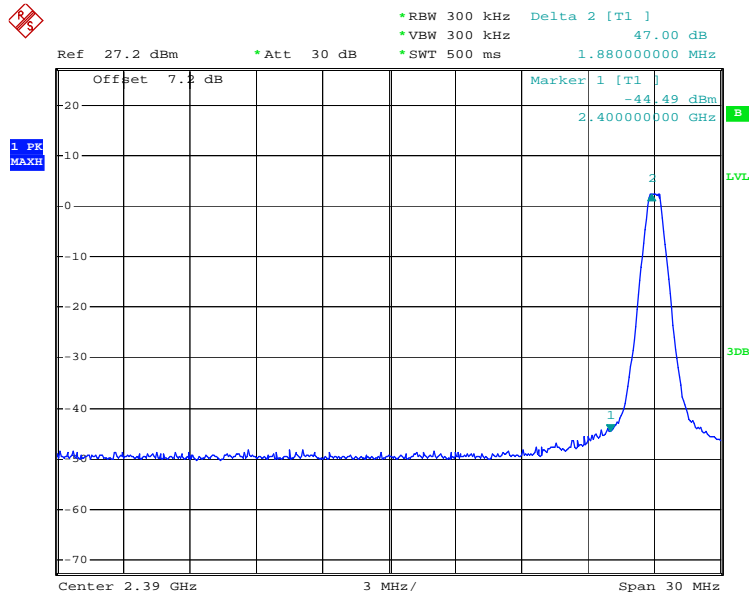
Frequency GHz	Level dBuv/m	Over Limit dB	Limit Line dBuv/m	Read Level dBuv	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Remark	Polarity
2.4835	61.86	-12.14	74	51.37	27.5	6.99	24	Peak	Vertical
2.4835	46.18	-7.82	54	35.69	27.5	6.99	24	Average	Vertical
2.4835	60.23	-13.77	74	49.74	27.5	6.99	24	Peak	Horizontal
2.4835	48.15	-5.85	54	37.66	27.5	6.99	24	Average	Horizontal



3.6.6 Test Result of Conducted Band Edges

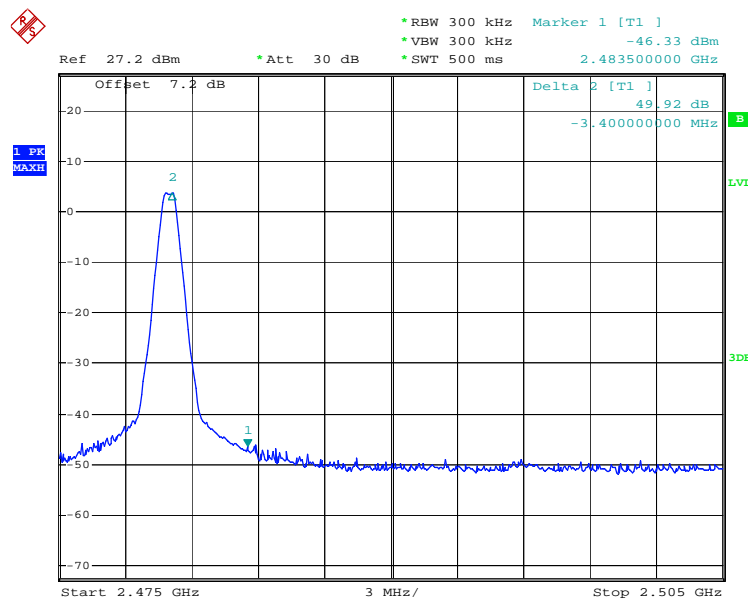
Test Mode :	Mode 1 and 3	Temperature :	23°C~26°C
Test Channel :	00 and 78	Relative Humidity :	40%~60%
		Test Engineer :	Hogan He

Low Band Edge Plot on Channel 00



Date: 27.MAR.2012 12:12:06

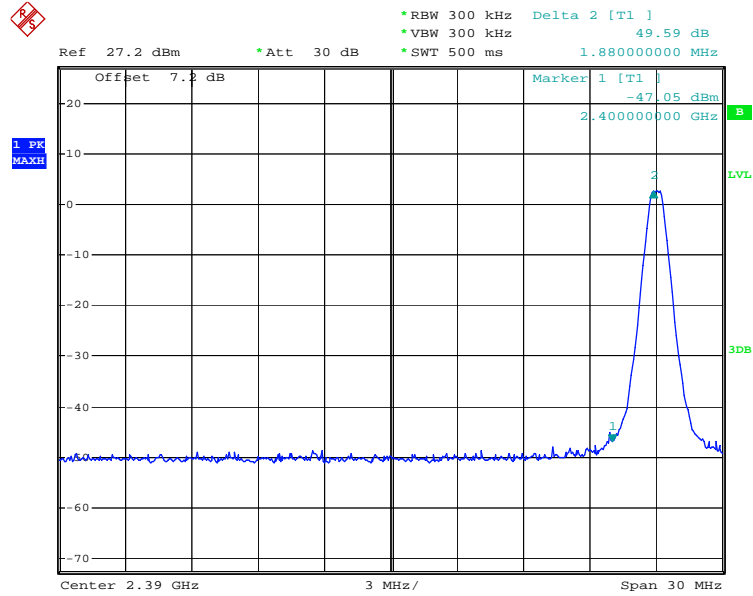
High Band Edge Plot on Channel 78



Date: 27.MAR.2012 12:18:44

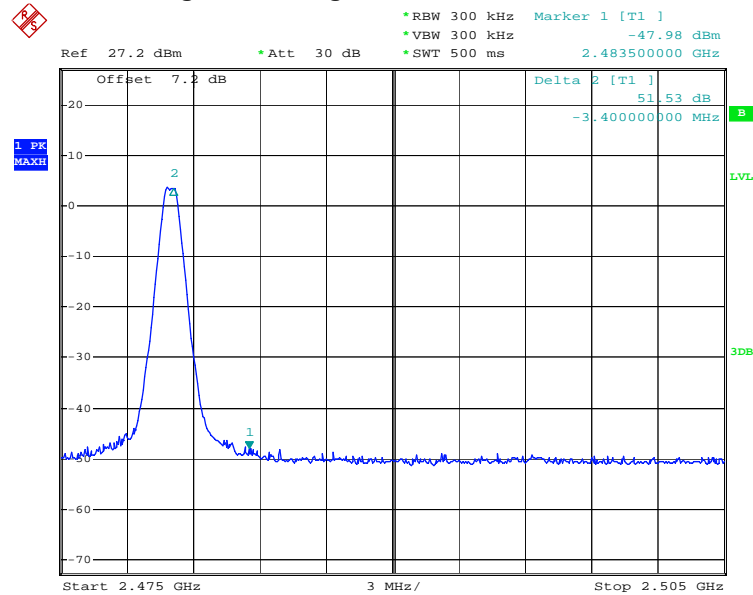
Test Mode :	Mode 4 and 6	Temperature :	23°C~26°C
Test Channel :	00 and 78	Relative Humidity :	40%~60%
		Test Engineer :	Hogan He

Low Band Edge Plot on Channel 00



Date: 27.MAR.2012 12:14:20

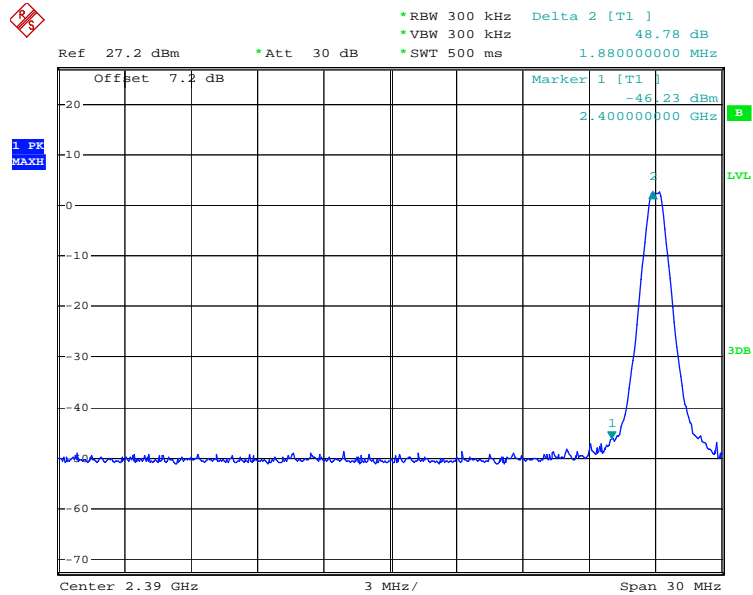
High Band Edge Plot on Channel 78



Date: 27.MAR.2012 12:18:10

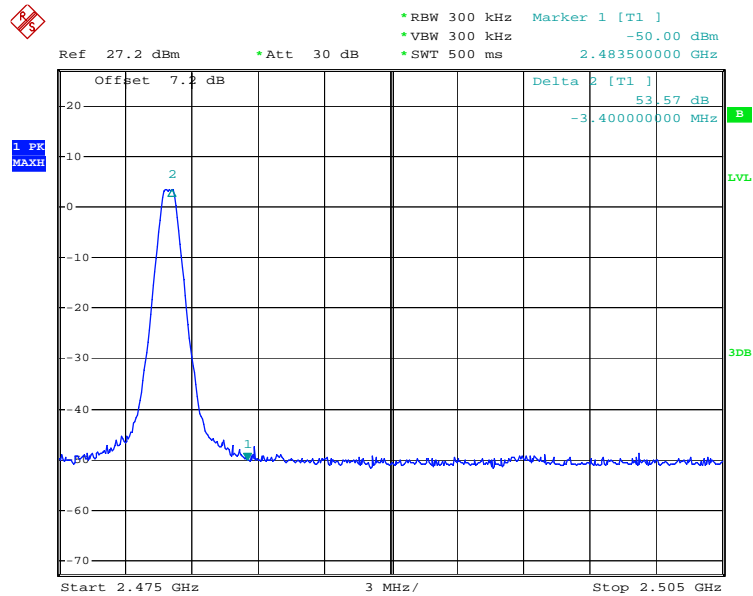
<b>Test Mode :</b>	Mode 7 and 9	<b>Temperature :</b>	23°C~26°C
<b>Test Channel :</b>	00 and 78	<b>Relative Humidity :</b>	40%~60%
		<b>Test Engineer :</b>	Hogan He

**Low Band Edge Plot on Channel 00**



Date: 27.MAR.2012 12:15:23

**High Band Edge Plot on Channel 78**



Date: 27.MAR.2012 12:17:20

### 3.7 Spurious Emission Measurement

#### 3.7.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

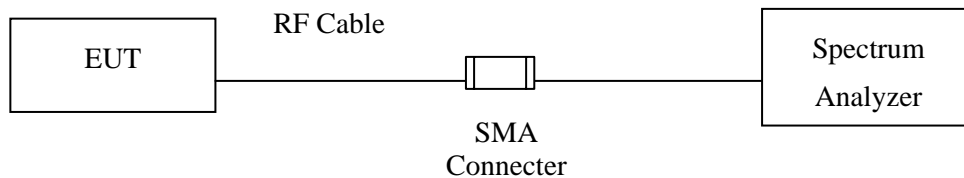
#### 3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.7.3 Test Procedures

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW)  $\geq$  RBW, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

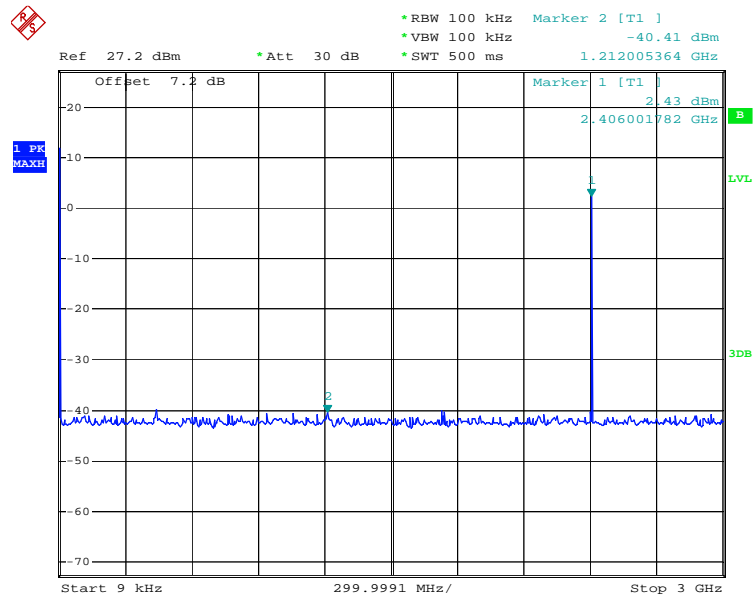
#### 3.7.4 Test Setup



3.7.5 Test Result of Output Power

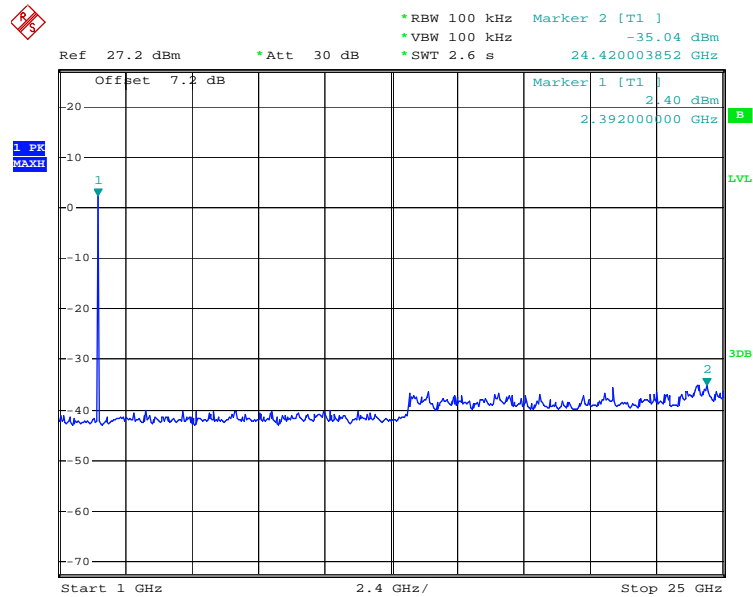
Test Mode :	Mode 7	Temperature :	23°C~26°C
Test Channel :	00	Relative Humidity :	40%~60%
		Test Engineer :	Hogan He

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



Date: 27.MAR.2012 12:23:03

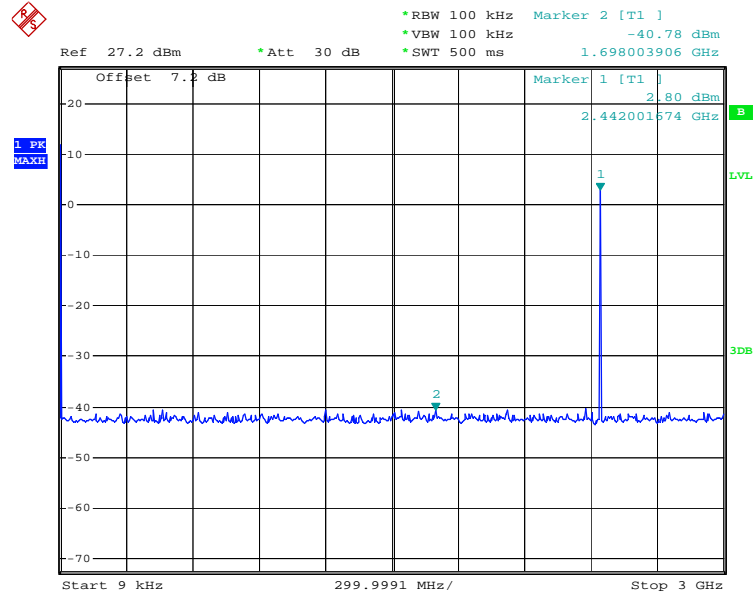
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 27.MAR.2012 12:27:57

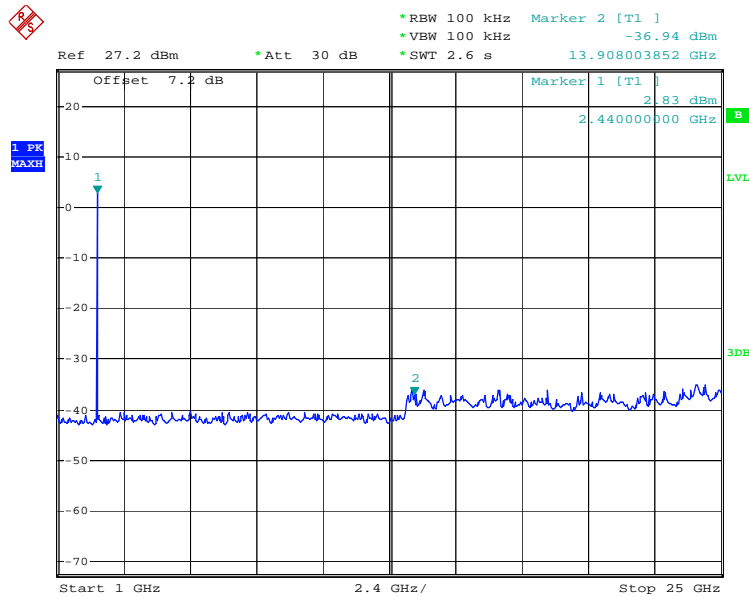
Test Mode :	Mode 8	Temperature :	23°C~26°C
Test Channel :	39	Relative Humidity :	40%~60%
		Test Engineer :	Hogan He

**Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz**



Date: 27.MAR.2012 12:23:44

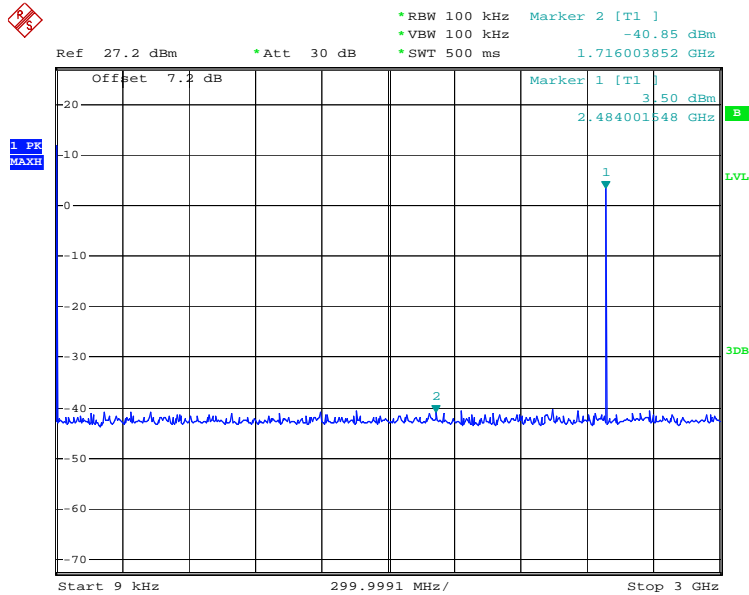
**Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz**



Date: 27.MAR.2012 12:26:22

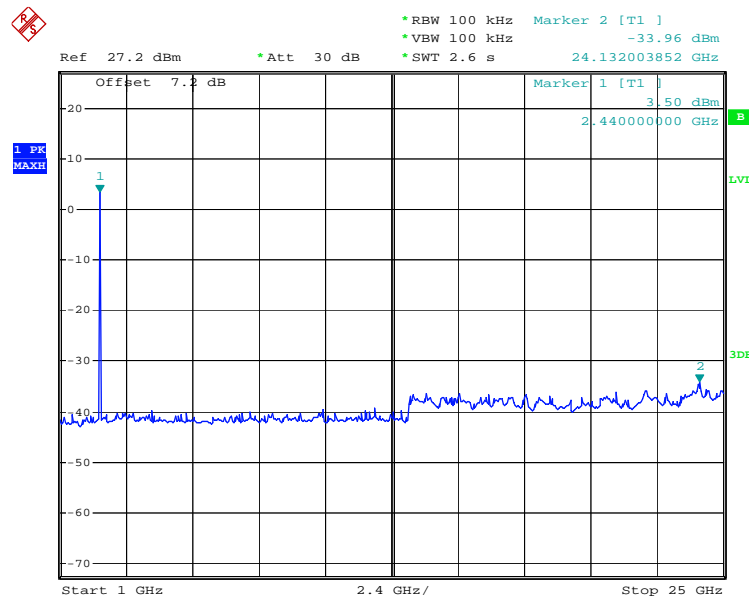
Test Mode :	Mode 9	Temperature :	23°C~26°C
Test Channel :	78	Relative Humidity :	40%~60%
		Test Engineer :	Hogan He

**Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz**



Date: 27.MAR.2012 12:24:16

**Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz**



Date: 27.MAR.2012 12:27:17

### 3.8 AC Conducted Emission Measurement

#### 3.8.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

#### 3.8.2 Measuring Instruments

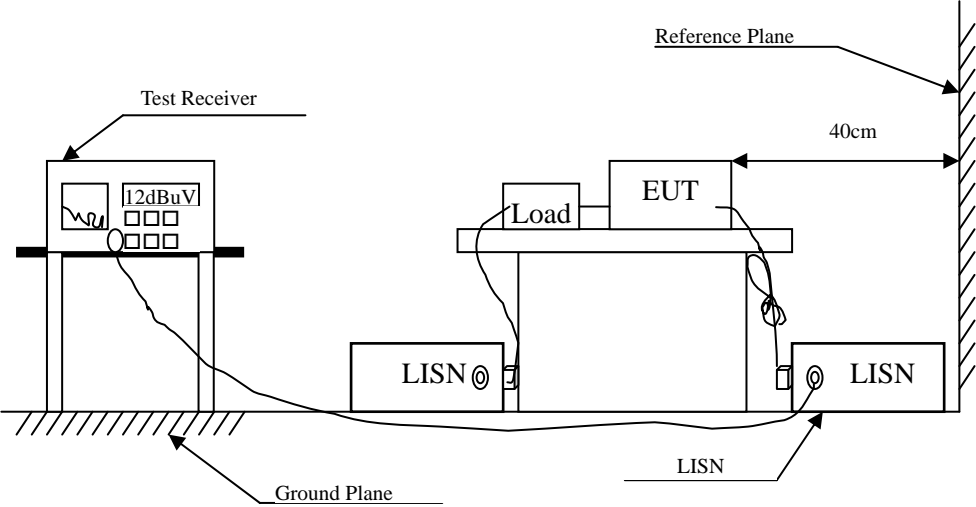
See list of measuring instruments of this test report.

#### 3.8.3 Test Procedures

1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.



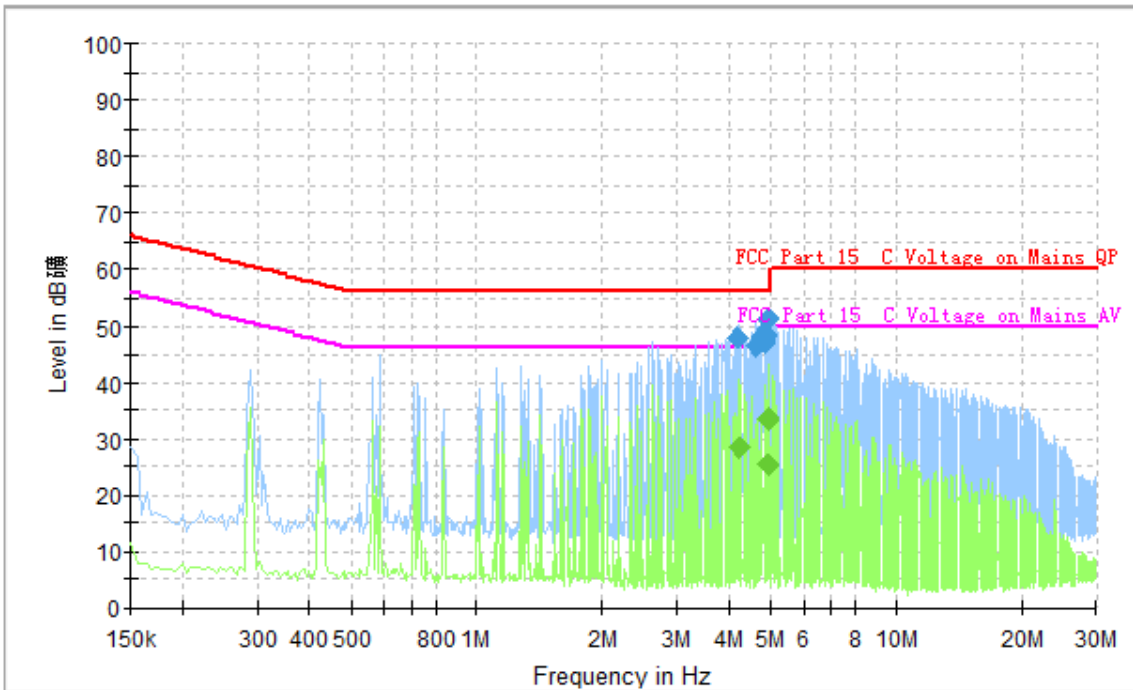
3.8.4 Test Setup



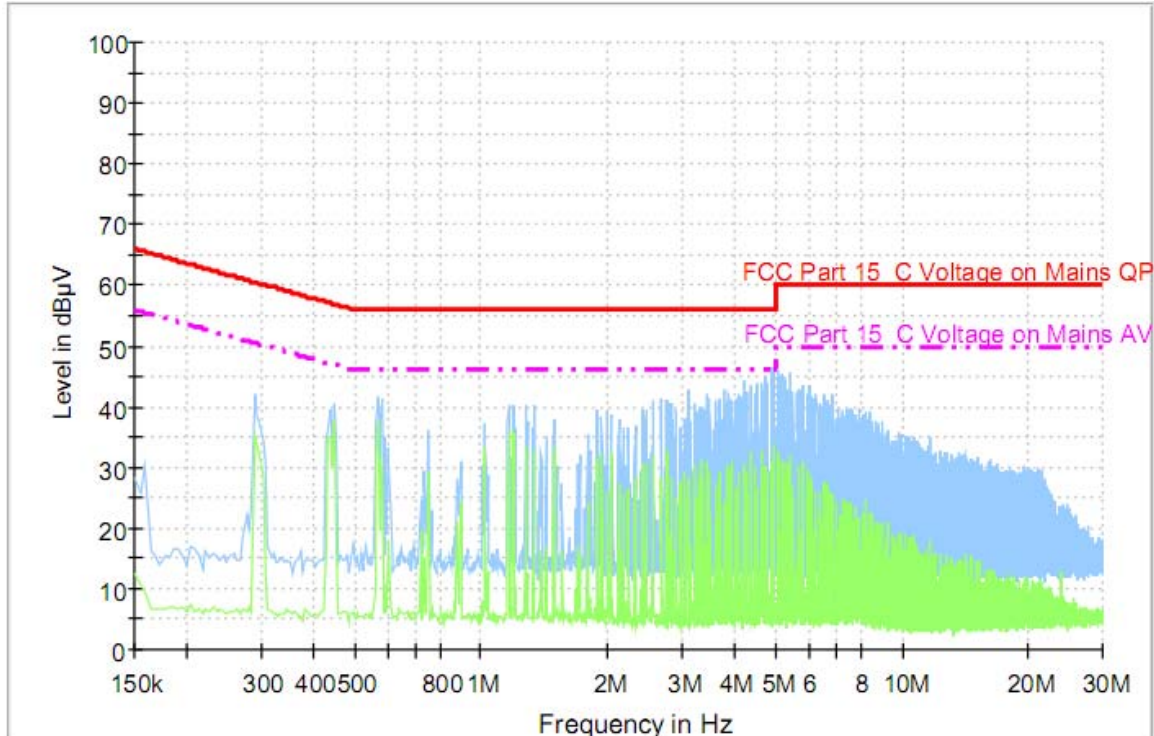
### 3.8.5 Test Result of AC Conducted Emission

Test Voltage:120V/60Hz

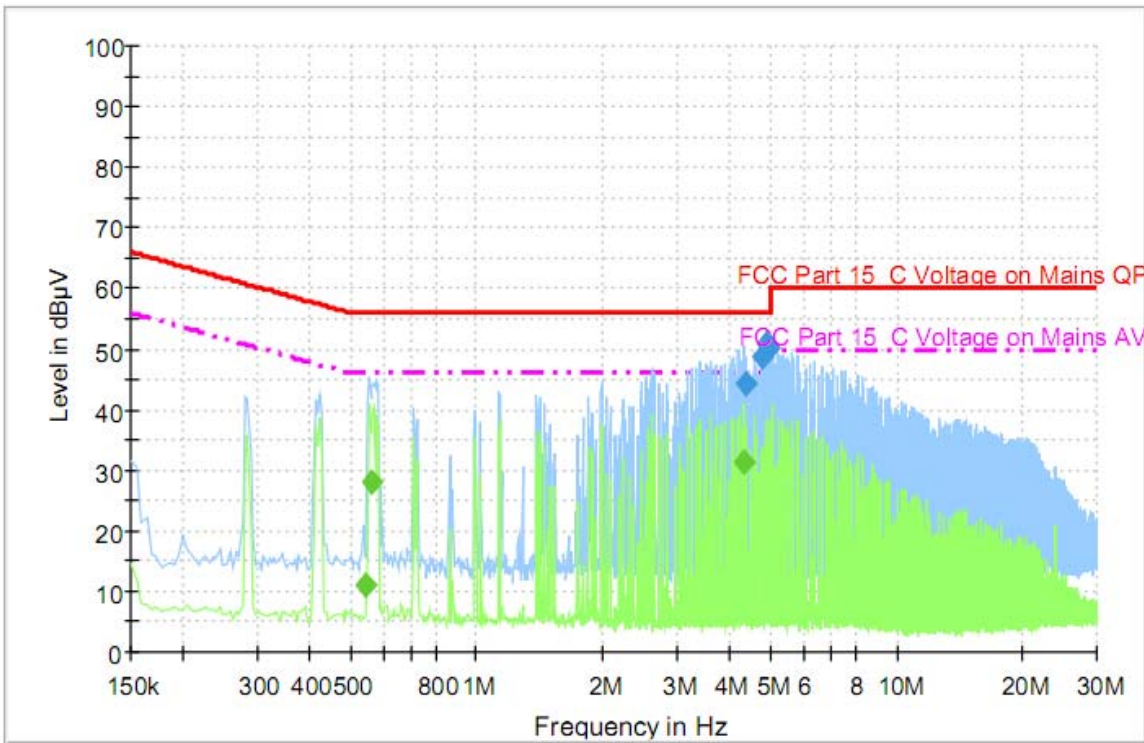
Test mode:GSM850+WLAN Link(2.4G)+Bluetooth Link+Earphone+Neutral



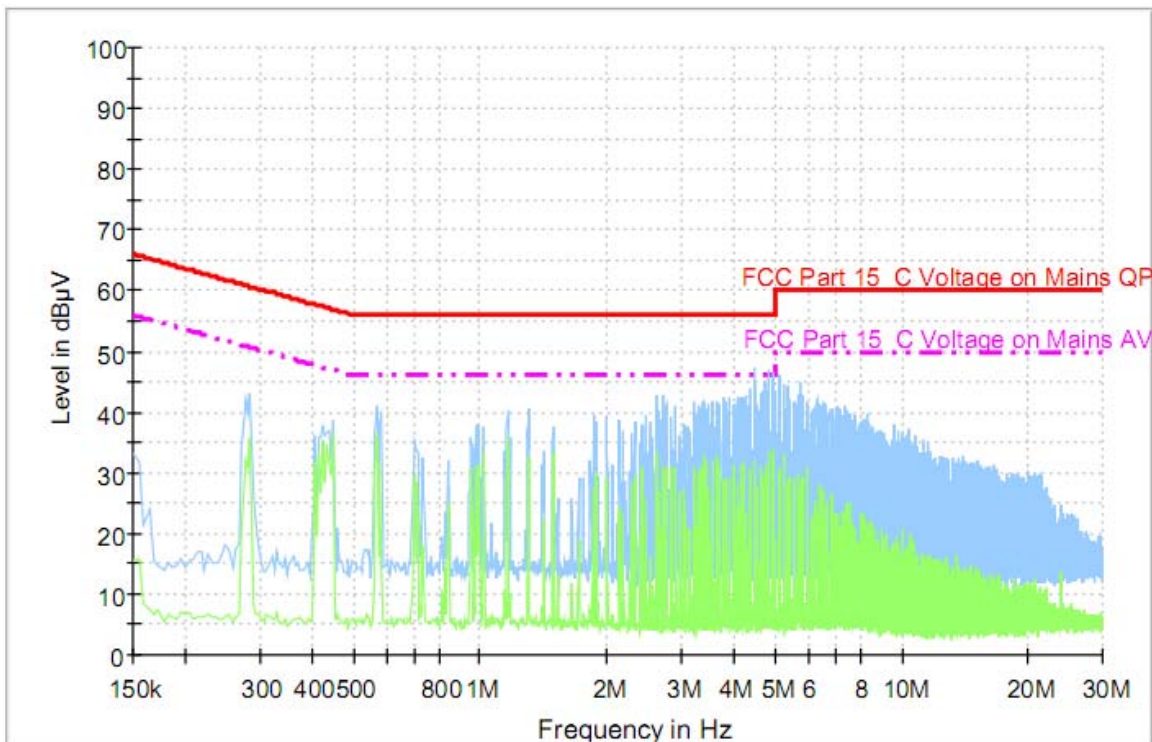
Test mode:GSM850+WLAN Link(2.4G)+Bluetooth Link+Earphone+Line



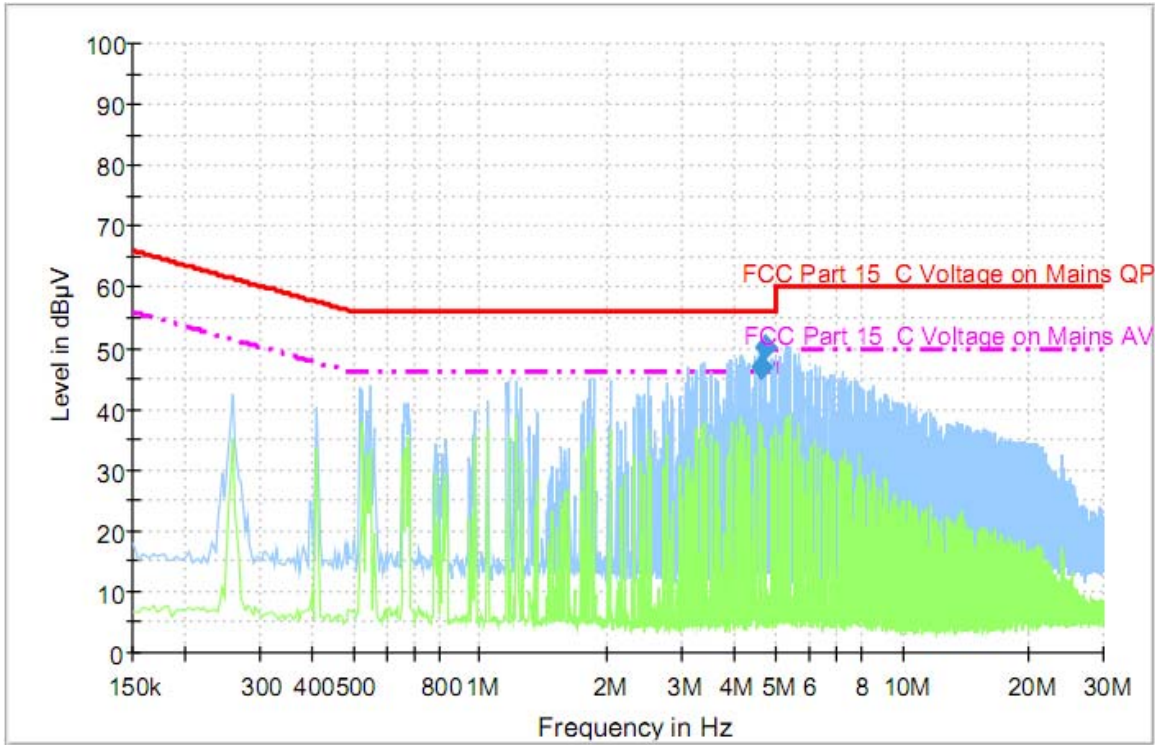
Test mode:GSM1900+WLAN Link(2.4G)+Bluetooth Link+Earphone+Neutral



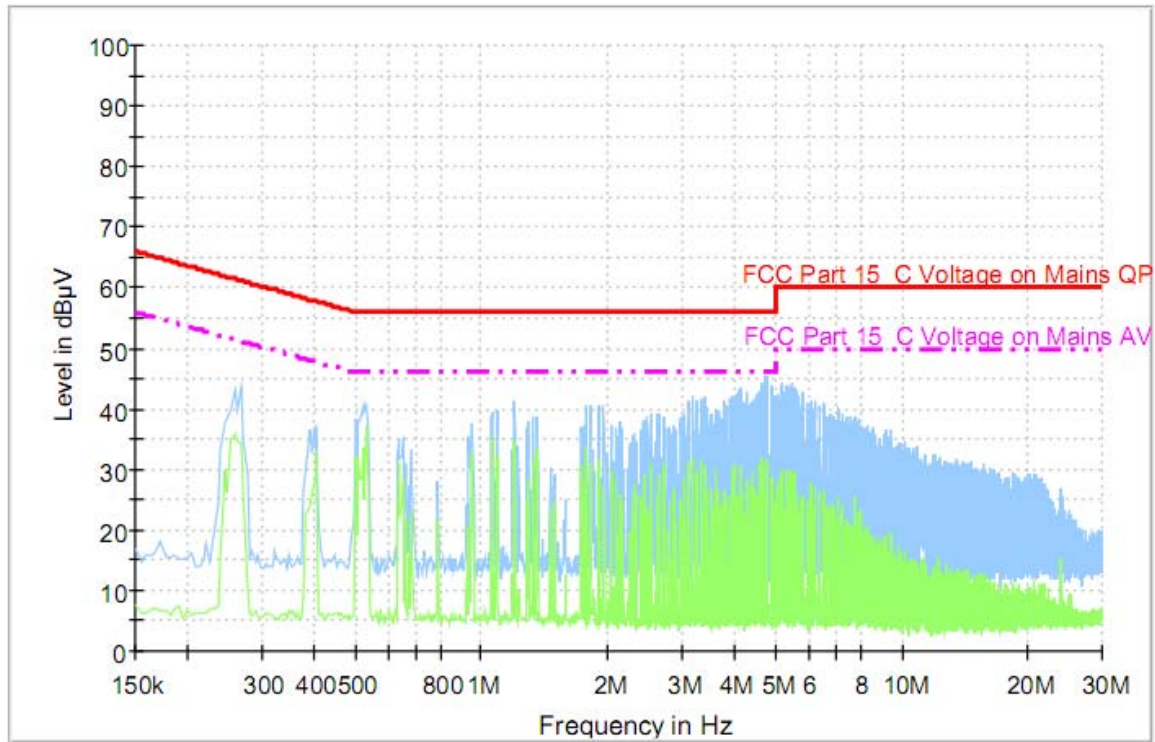
Test mode:GSM1900+WLAN Link(2.4G)+Bluetooth Link+Earphone+Line



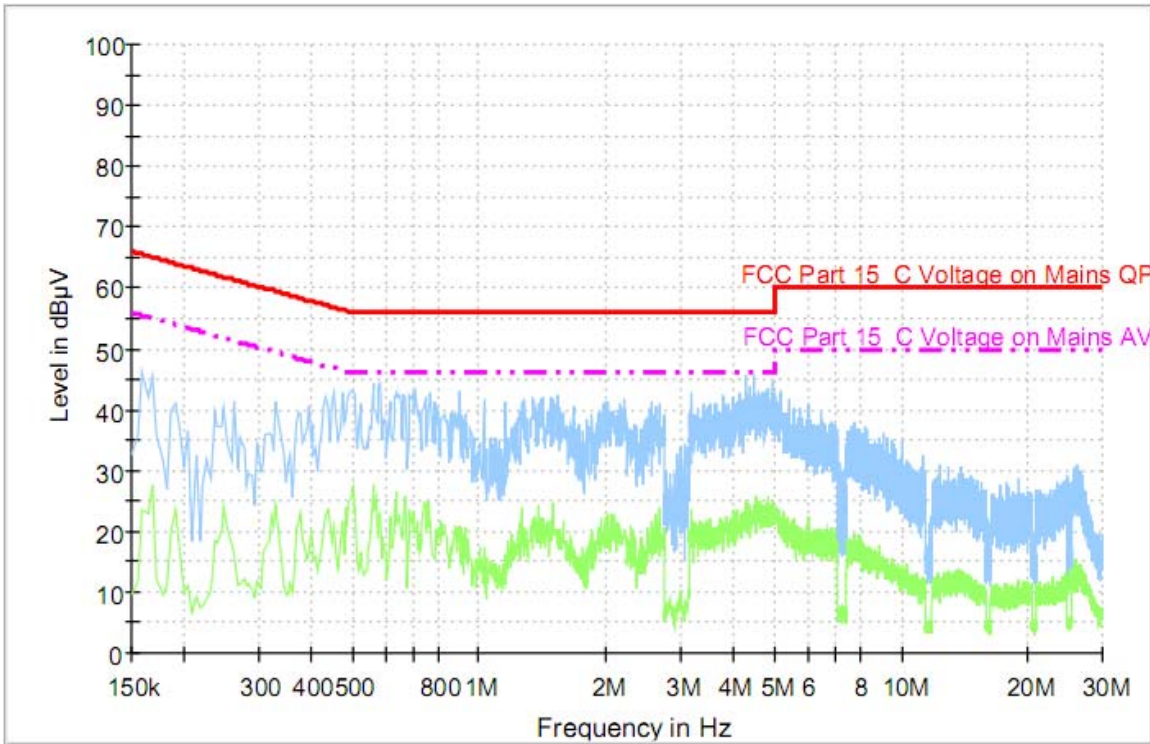
Test mode: WCDMA Band II+WLAN Link(2.4G)+Bluetooth Link+Earphone+Neutral



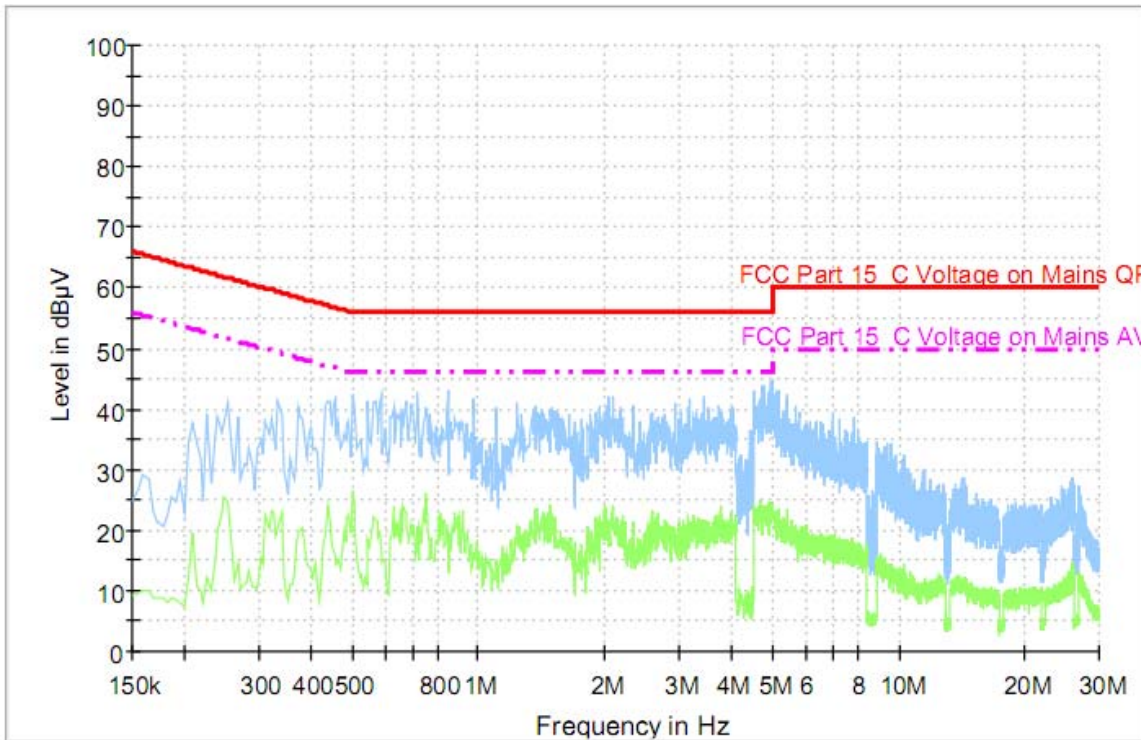
Test mode: WCDMA Band II+WLAN Link(2.4G)+Bluetooth Link+Earphone+Line



Test mode: WCDMA Band V+WLAN Link(2.4G)+Bluetooth Link+Earphone+Neutral



Test mode: WCDMA Band V+WLAN Link(2.4G)+Bluetooth Link+Earphone+Line



### 3.9 Radiated Emission Measurement

#### 3.9.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

#### 3.9.2 Measuring Instruments

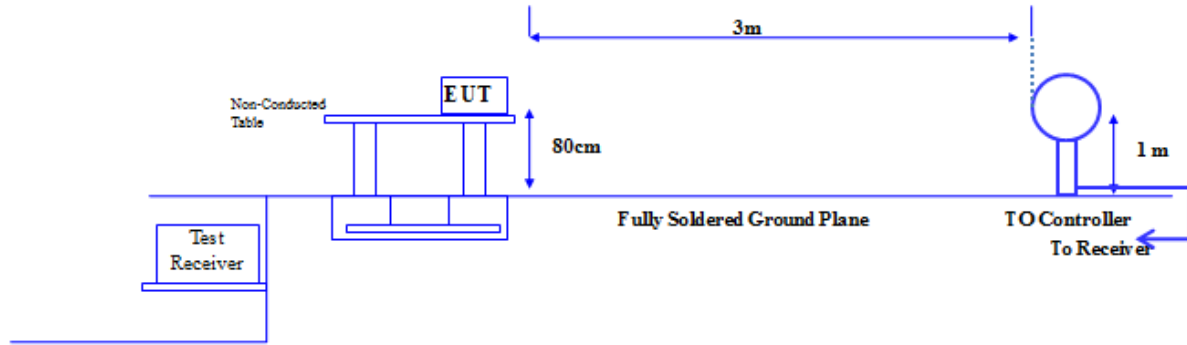
See list of measuring instruments of this test report.

#### 3.9.3 Test Procedures

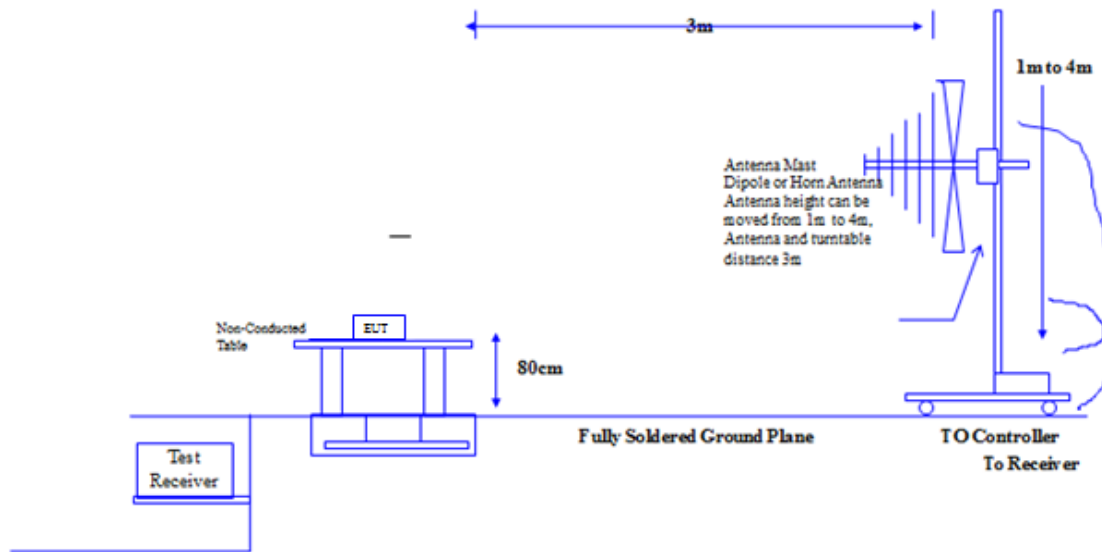
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
  - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold.
  - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.  
Distance extrapolation factor =  $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$  (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.9.4 Test Setup

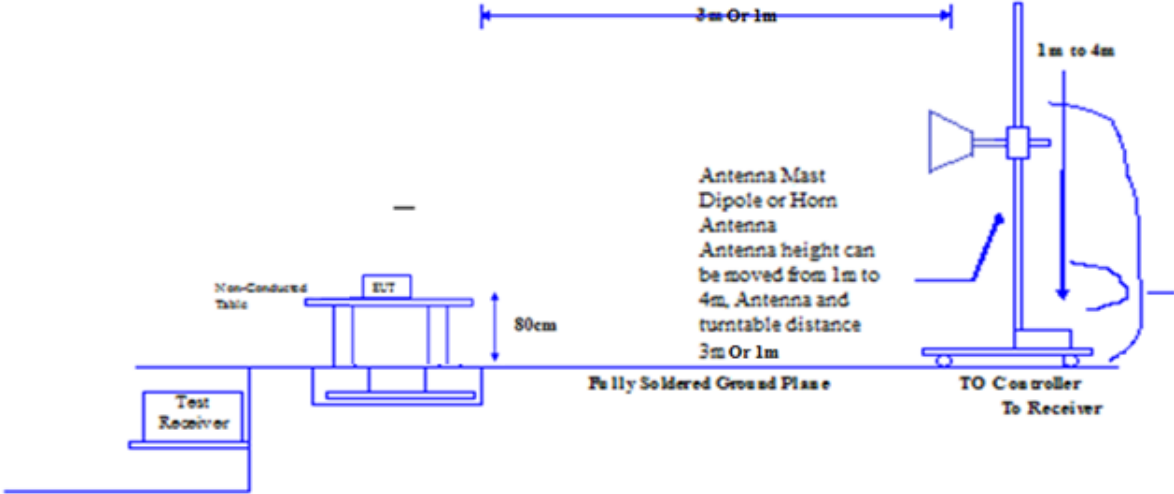
9kHz~30MHz



30MHz~1GHz



Above 1GHz





**3.9.5 Radiated Emission Measurement Results (9kHz ~ 30MHz)**

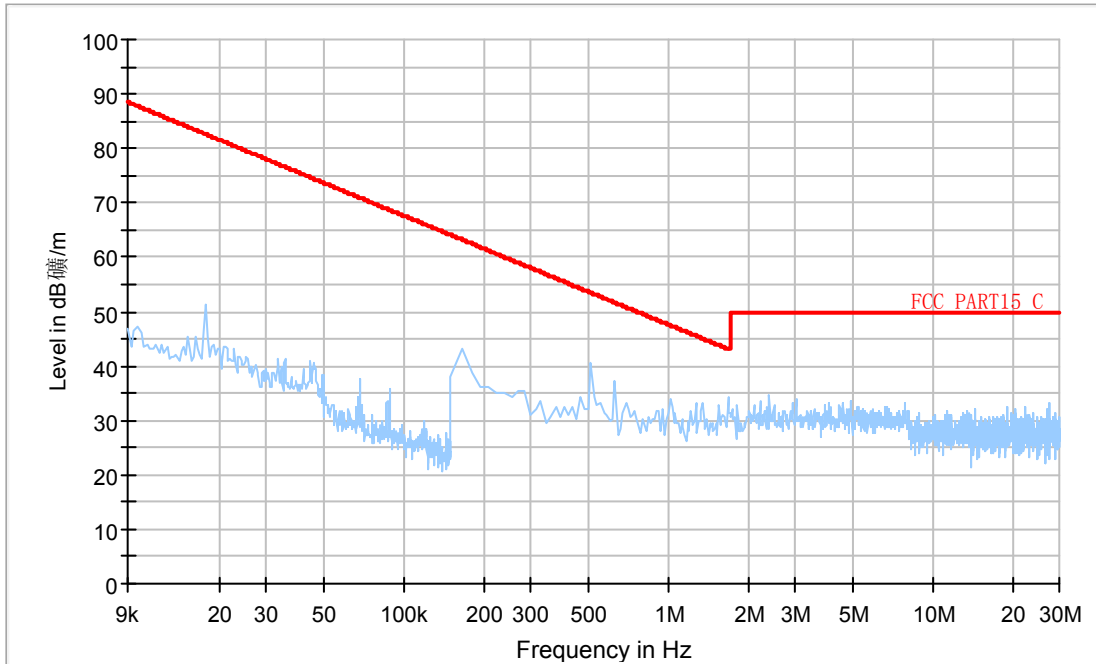
<b>Test Engineer :</b>	Hogan. He	<b>Temperature :</b>	23°C~26°C
		<b>Relative Humidity :</b>	45%~60%

<b>Frequency (MHz)</b>	<b>Level (dBuV)</b>	<b>Over Limit (dB)</b>	<b>Limit Line (dBuV)</b>	<b>Remark</b>
-	-	-	-	See Note

**Notes:** No emission found between lowest internal or generated frequency to 30MHz.

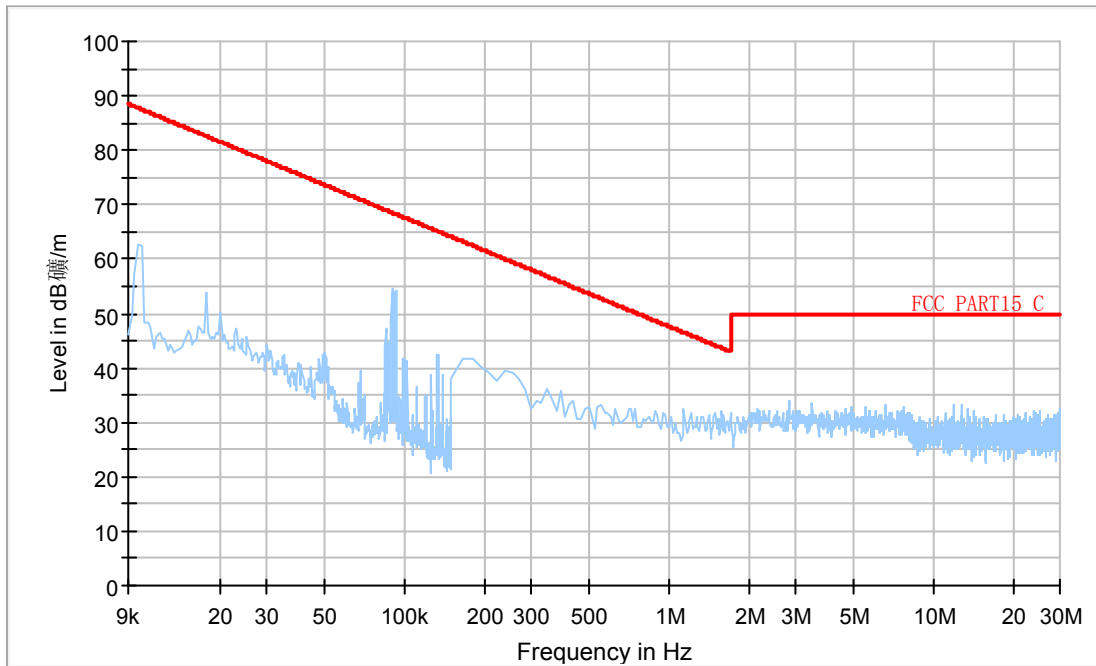
**Radiated Emission Plot between 9 kHz ~ 30MHz (Horizontal)**

20120419 FCC PART 15C 9K-30M



**Radiated Emission Plot between 9 kHz ~ 30MHz (Vertical)**

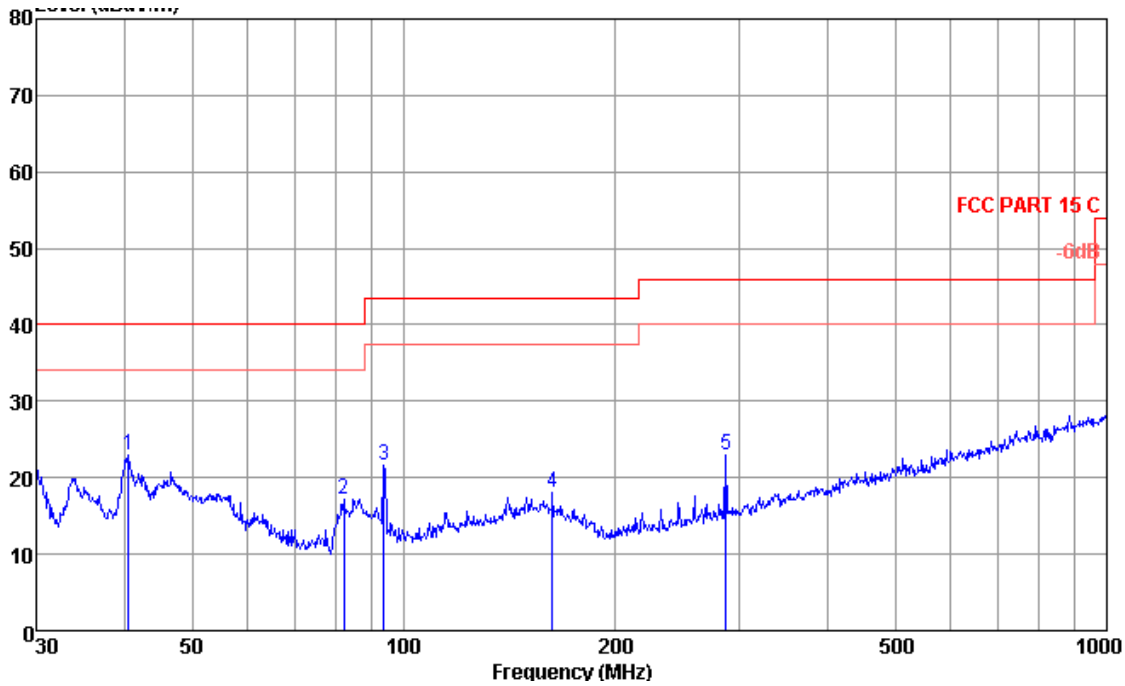
20120419 FCC PART 15C 9K-30M



3.9.6 Radiated Emission Measurement Results (30MHz-18GHz)

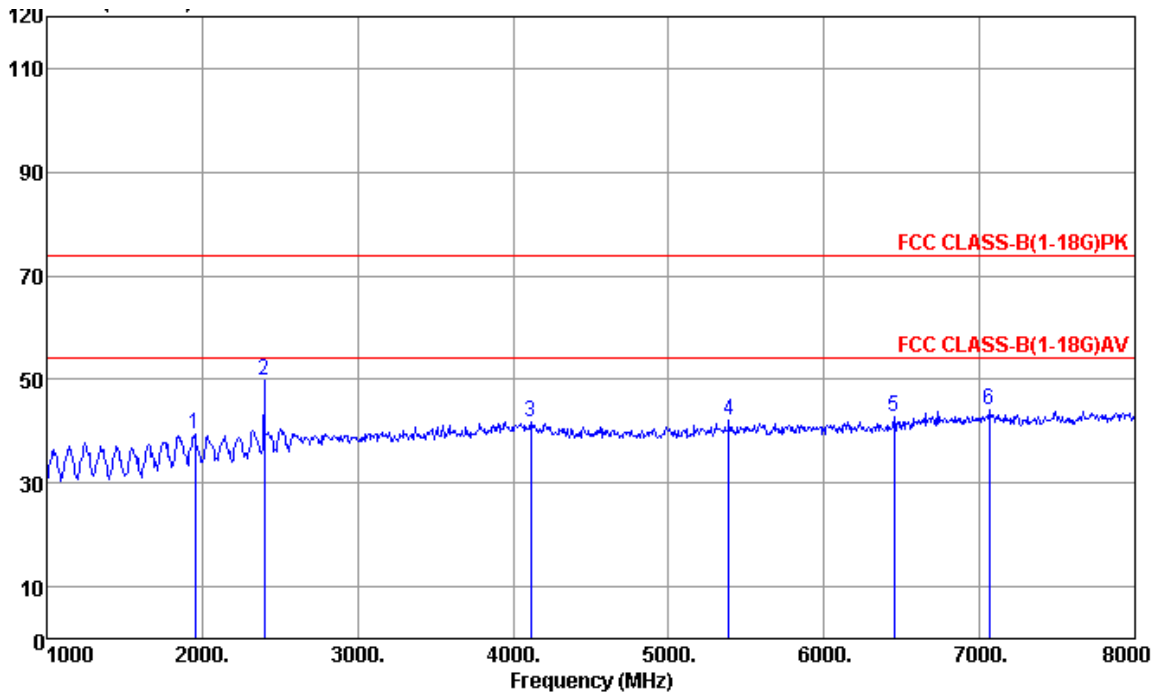
Test Channel :	00
Remark:	2412MHz is Fundamental signal which can be ignored

Radiated Emission 30MHz-1GHz Vertical



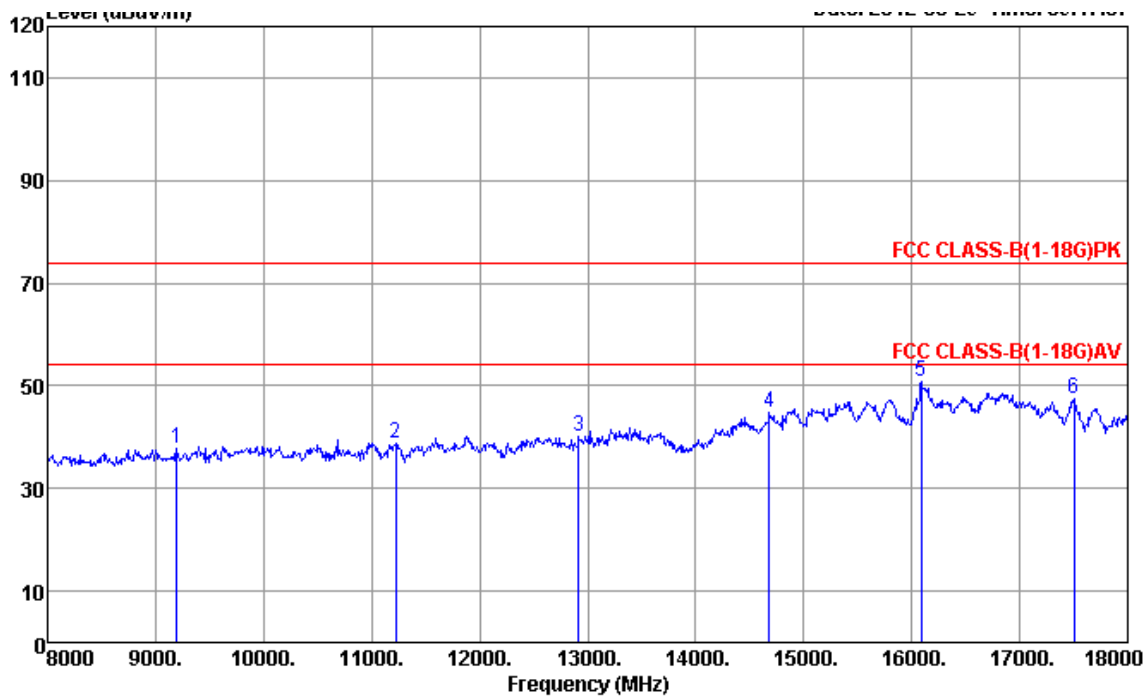
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	40.56	22.86	37.34	12.04	1.44	27.96	40.00	-17.14	Peak		
2	82.07	17.17	34.09	9.06	1.97	27.95	40.00	-22.83	Peak		
3	93.77	21.55	38.21	9.14	2.13	27.93	43.50	-21.95	Peak		
4	162.61	18.04	28.41	14.47	2.78	27.62	43.50	-25.46	Peak		
5	286.98	22.99	33.11	13.36	3.62	27.10	46.00	-23.01	Peak		

**Radiated Emission 1GHz-8GHz Vertical**



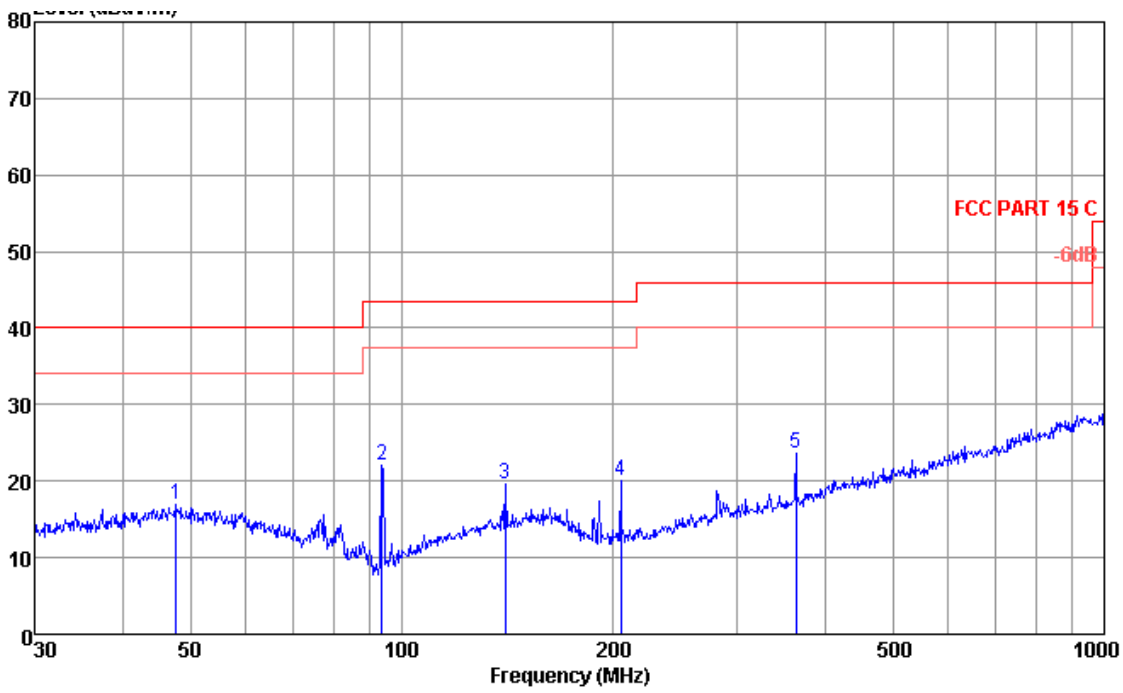
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	1952.00	39.46	52.20	30.30	9.57	52.61	74.00	-34.54	Peak		
2	2400.00	49.81	58.69	32.05	10.67	51.60	74.00	-24.19	Peak		
3	4115.00	41.77	47.35	34.20	14.19	53.97	74.00	-32.23	Peak		
4	5389.00	41.98	45.12	35.46	16.46	55.06	74.00	-32.02	Peak		
5	6453.00	42.78	42.81	36.39	18.21	54.63	74.00	-31.22	Peak		
6	7062.00	44.10	41.88	36.72	19.11	53.61	74.00	-29.90	Peak		

**Radiated Emission 8GHz-18GHz Vertical**



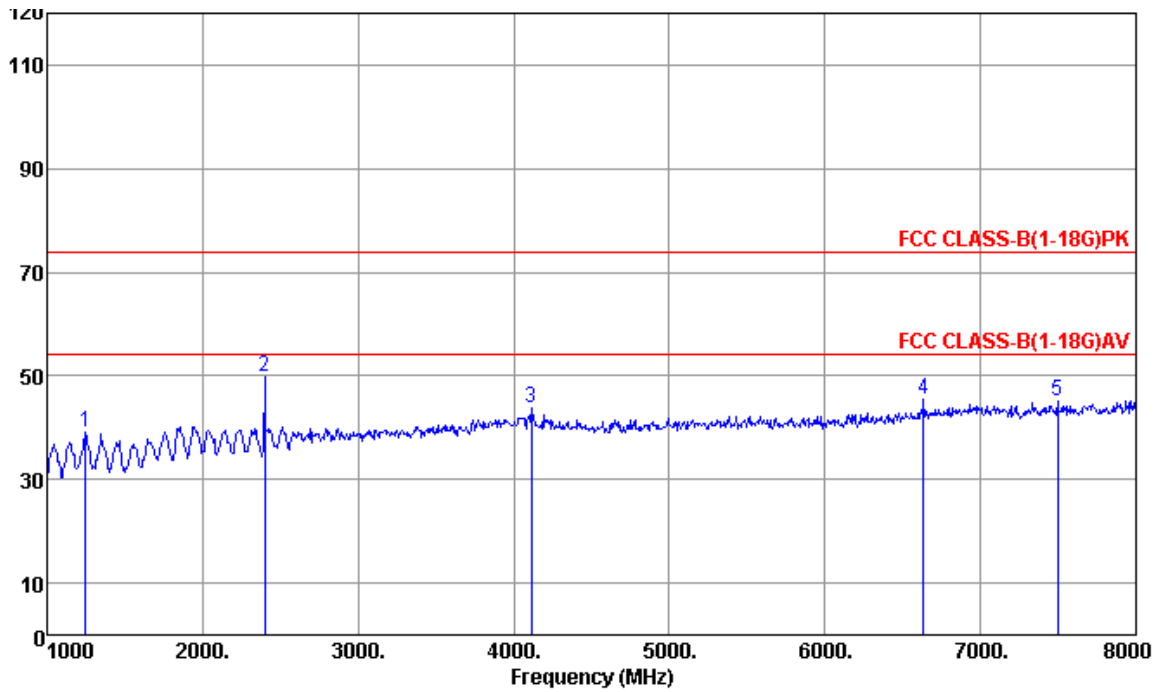
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	9200.00	37.64	38.51	30.63	22.39	53.89	74.00	-36.36	Peak		
2	11220.00	38.84	36.20	31.69	24.43	53.48	74.00	-35.16	Peak		
3	12920.00	40.18	35.42	32.02	26.13	53.39	74.00	-33.82	Peak		
4	14680.00	44.68	35.51	33.58	27.86	52.27	74.00	-29.32	Peak		
5	16090.00	50.71	34.62	36.63	29.26	49.80	74.00	-23.29	Peak		
6	17500.00	47.38	32.38	36.08	30.43	51.51	74.00	-26.62	Peak		

**Radiated Emission 30MHz-1GHz Horizontal**



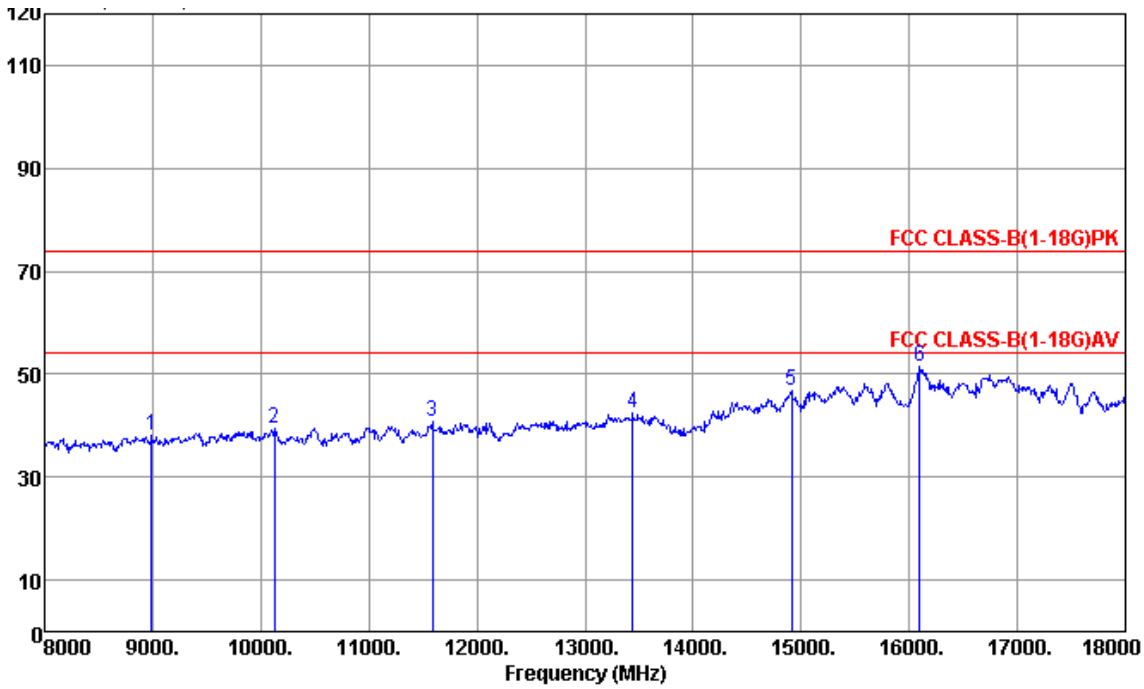
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	47.66	16.99	29.10	14.38	1.51	28.00	40.00	-23.01	Peak		
2	93.77	21.97	40.01	7.76	2.13	27.93	43.50	-21.53	Peak		
3	140.34	19.50	31.34	13.28	2.61	27.73	43.50	-24.00	Peak		
4	204.96	20.00	33.16	11.09	3.06	27.31	43.50	-23.50	Peak		
5	364.26	23.56	31.57	15.35	4.12	27.48	46.00	-22.44	Peak		

**Radiated Emission 1GHz-8GHz Horizontal**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	1245.00	39.01	58.00	28.13	7.58	54.70	74.00	-34.99	Peak		
2	2400.00	49.66	58.45	32.14	10.67	51.60	74.00	-24.34	Peak		
3	4115.00	43.93	48.95	34.76	14.19	53.97	74.00	-30.07	Peak		
4	6635.00	45.45	43.75	37.50	18.49	54.29	74.00	-28.55	Peak		
5	7496.00	45.24	41.26	38.10	19.72	53.84	74.00	-28.76	Peak		

**Radiated Emission 8GHz-18GHz Horizontal**

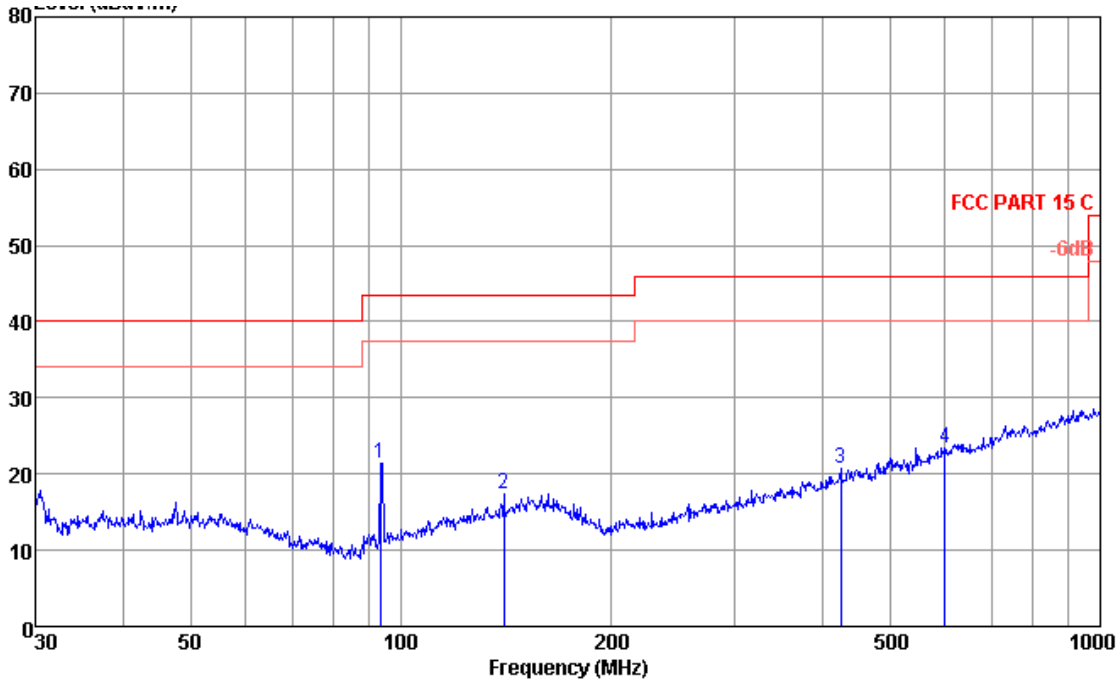


Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	8990.00	38.01	38.86	30.70	21.90	53.45	74.00	-35.99	Peak		
2	10130.00	39.57	39.03	30.51	23.56	53.53	74.00	-34.43	Peak		
3	11590.00	40.84	38.10	30.98	24.81	53.05	74.00	-33.16	Peak		
4	13440.00	42.38	36.82	32.25	26.54	53.23	74.00	-31.62	Peak		
5	14910.00	46.76	36.04	34.34	28.06	51.68	74.00	-27.24	Peak		
6	16100.00	51.62	34.84	37.32	29.26	49.80	74.00	-22.38	Peak		



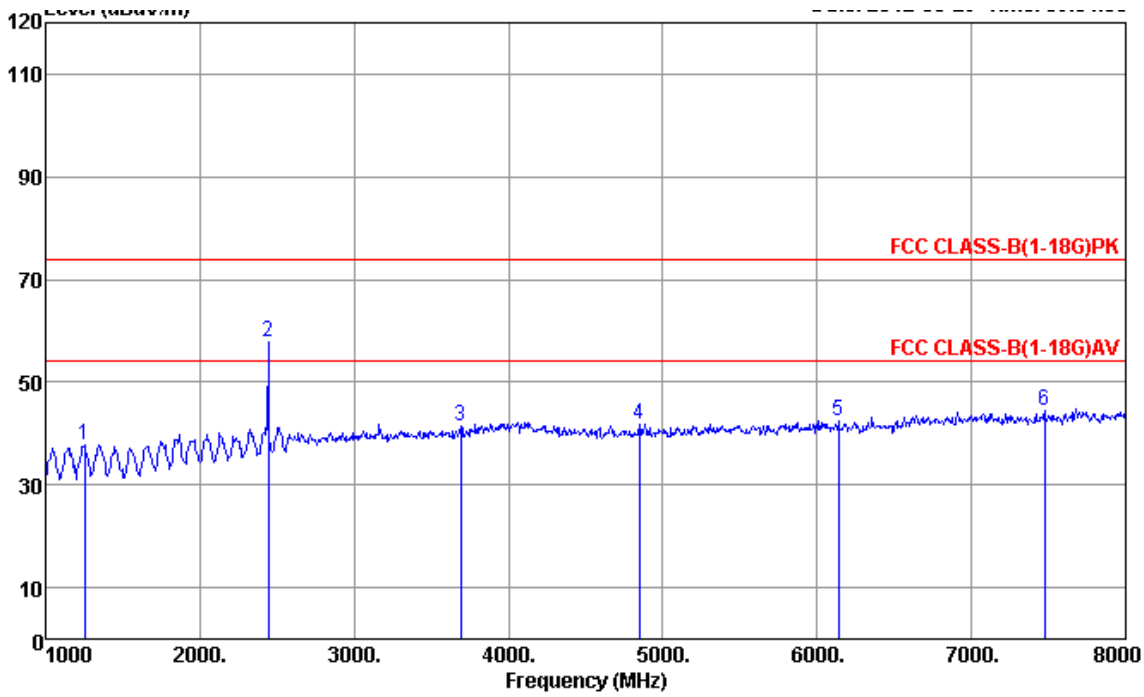
Test Channel :	39
Remark:	2412MHz is Fundamental signal which can be ignored

**Radiated Emission 30MHz-1GHz Vertical**



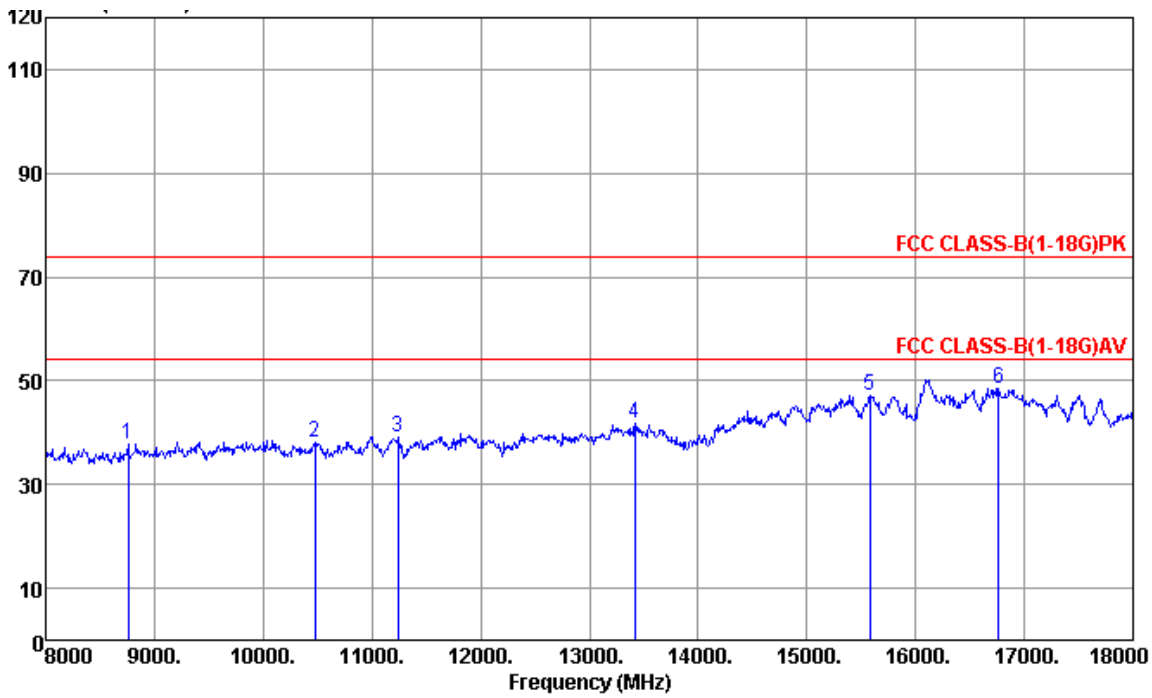
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	93.44	21.42	38.03	9.14	2.12	27.87	43.50	-22.08	Peak		
2	140.34	17.31	28.55	13.88	2.61	27.73	43.50	-26.19	Peak		
3	425.03	20.81	27.59	16.62	4.47	27.87	46.00	-25.19	Peak		
4	599.32	23.43	26.89	19.82	5.20	28.48	46.00	-22.57	Peak		

**Radiated Emission 1GHz-8GHz Vertical**



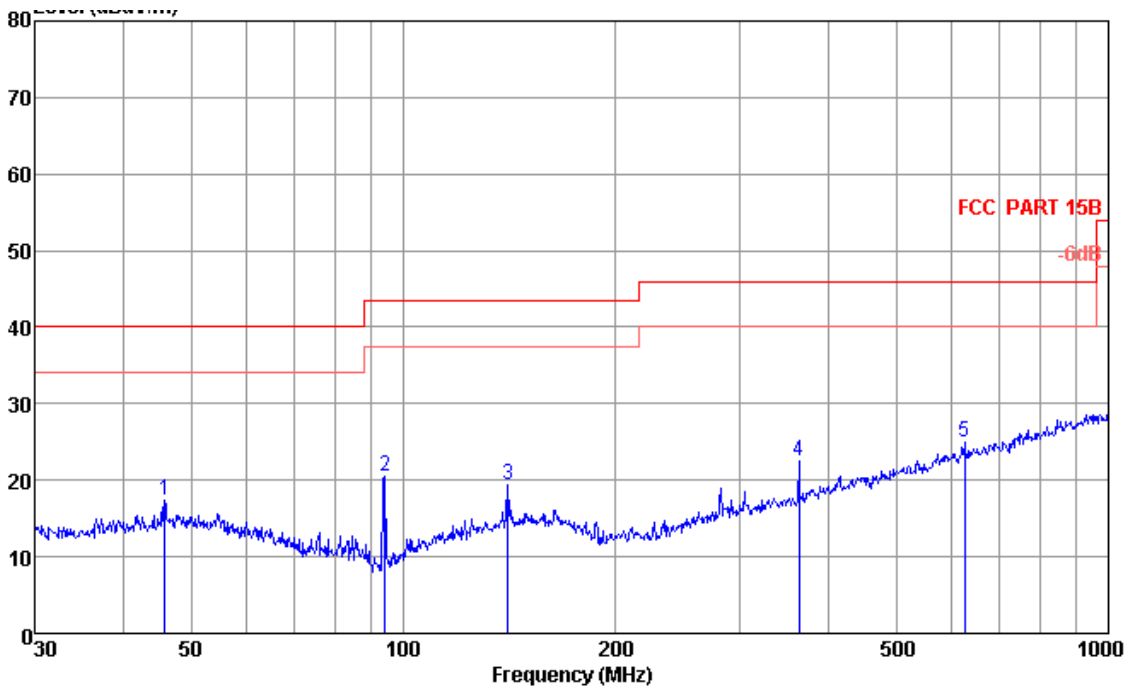
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	1252.00	37.91	57.44	27.59	7.61	54.73	74.00	-36.09	Peak		
2	2442.00	57.71	66.22	32.23	10.78	51.52	74.00	-16.29	Peak		
3	3688.00	41.31	48.22	33.57	13.32	53.80	74.00	-32.69	Peak		
4	4850.00	41.83	46.55	34.82	15.55	55.09	74.00	-32.17	Peak		
5	6138.00	42.42	43.43	36.32	17.71	55.04	74.00	-31.58	Peak		
6	7475.00	44.46	41.69	36.89	19.72	53.84	74.00	-29.54	Peak		

**Radiated Emission 8GHz-18GHz Vertical**



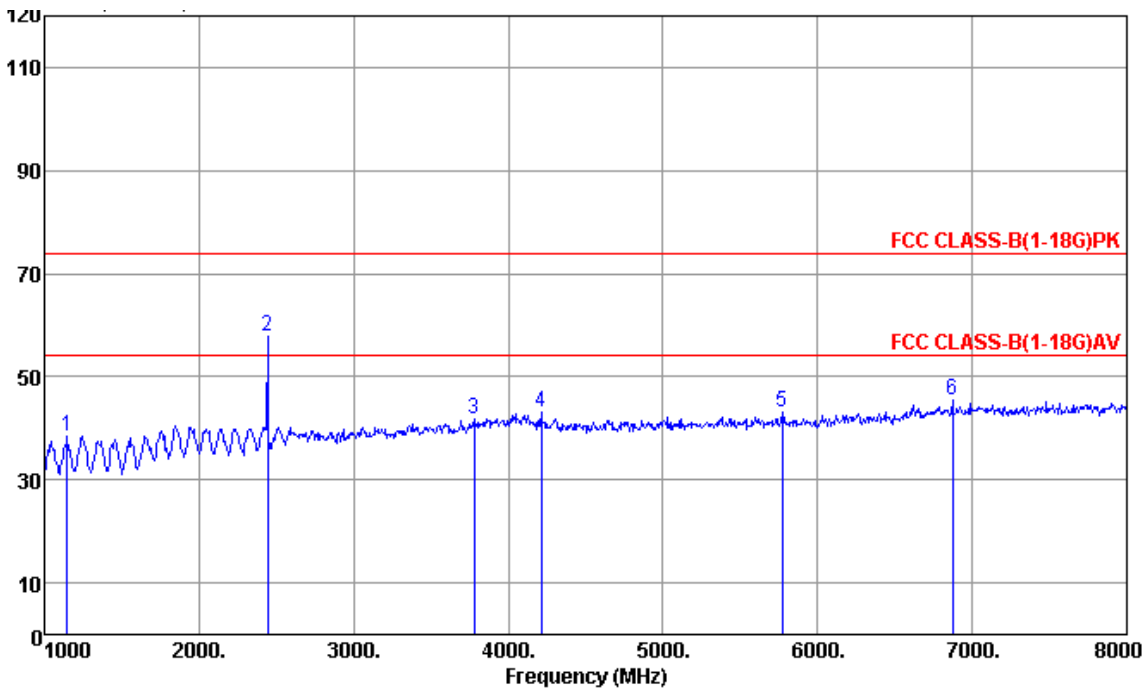
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	8760.00	37.68	39.22	30.54	21.51	53.59	74.00	-36.32	Peak		
2	10480.00	38.13	37.10	30.94	23.92	53.83	74.00	-35.87	Peak		
3	11240.00	39.06	36.85	31.11	24.50	53.40	74.00	-34.94	Peak		
4	13420.00	41.87	36.35	32.21	26.54	53.23	74.00	-32.13	Peak		
5	15580.00	47.05	33.83	33.63	28.68	49.09	74.00	-26.95	Peak		
6	16760.00	48.45	34.04	32.91	29.80	48.30	74.00	-25.55	Peak		

**Radiated Emission 30MHz-1GHz Horizontal**



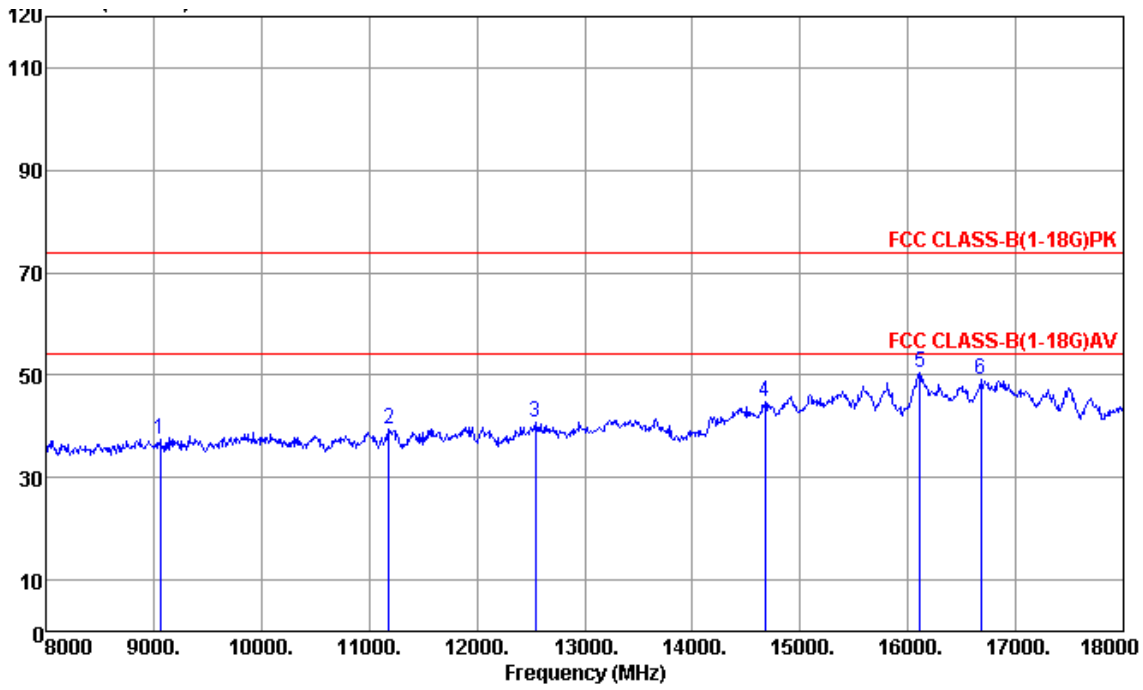
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamplifier Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	45.86	17.47	29.70	14.32	1.49	28.04	40.00	-22.53	Peak		
2	94.10	20.47	38.51	7.76	2.13	27.93	43.50	-23.03	Peak		
3	140.84	19.42	31.25	13.28	2.62	27.73	43.50	-24.08	Peak		
4	364.26	22.60	30.61	15.35	4.12	27.48	46.00	-23.40	Peak		
5	625.08	24.96	27.25	20.57	5.33	28.19	46.00	-21.04	Peak		

**Radiated Emission 1GHz-8GHz Horizontal**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	1147.00	38.60	57.71	27.98	7.27	54.36	74.00	-35.40	Peak		
2	2442.00	57.97	66.54	32.17	10.78	51.52	74.00	-16.03	Peak		
3	3779.00	41.71	47.77	34.15	13.54	53.75	74.00	-32.29	Peak		
4	4213.00	42.97	48.02	34.90	14.41	54.36	74.00	-31.03	Peak		
5	5774.00	43.01	44.36	36.68	17.10	55.13	74.00	-30.99	Peak		
6	6873.00	45.32	42.61	37.69	18.84	53.82	74.00	-28.68	Peak		

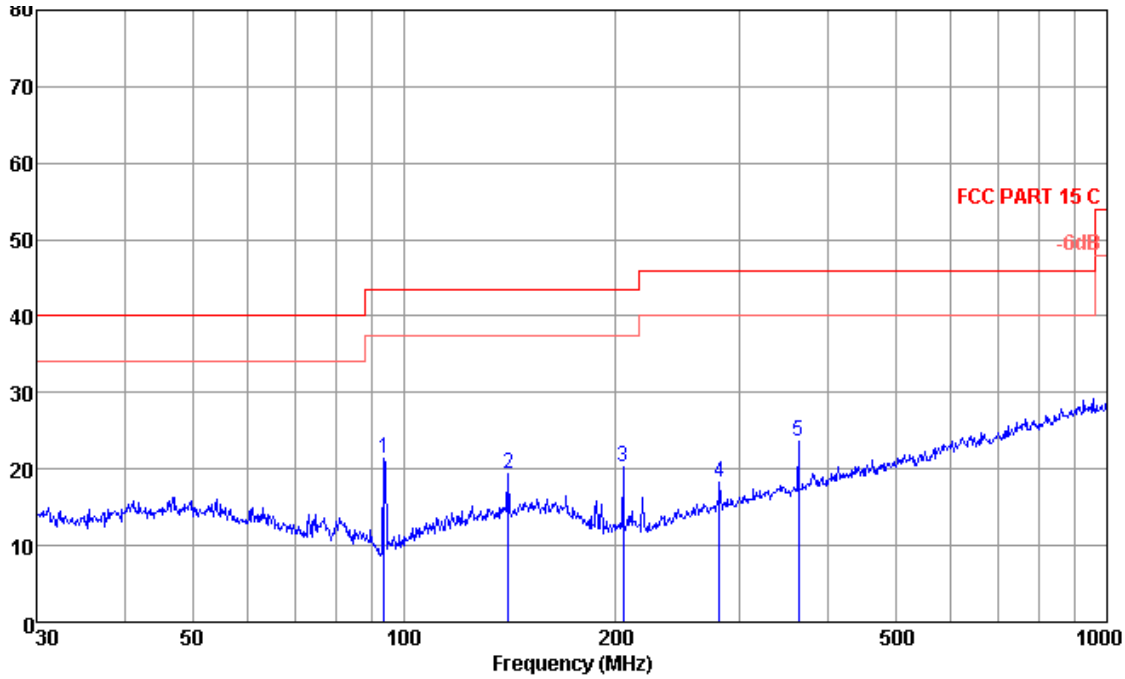
**Radiated Emission 8GHz-18GHz Horizontal**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	9060.00	37.44	38.61	30.38	22.00	53.55	74.00	-36.56	Peak		
2	11180.00	39.50	36.89	31.66	24.43	53.48	74.00	-34.50	Peak		
3	12540.00	40.92	36.78	31.95	25.77	53.58	74.00	-33.08	Peak		
4	14670.00	44.72	35.76	33.37	27.86	52.27	74.00	-29.28	Peak		
5	16110.00	50.40	34.09	36.85	29.26	49.80	74.00	-23.60	Peak		
6	16680.00	49.24	34.30	33.44	29.80	48.30	74.00	-24.76	Peak		

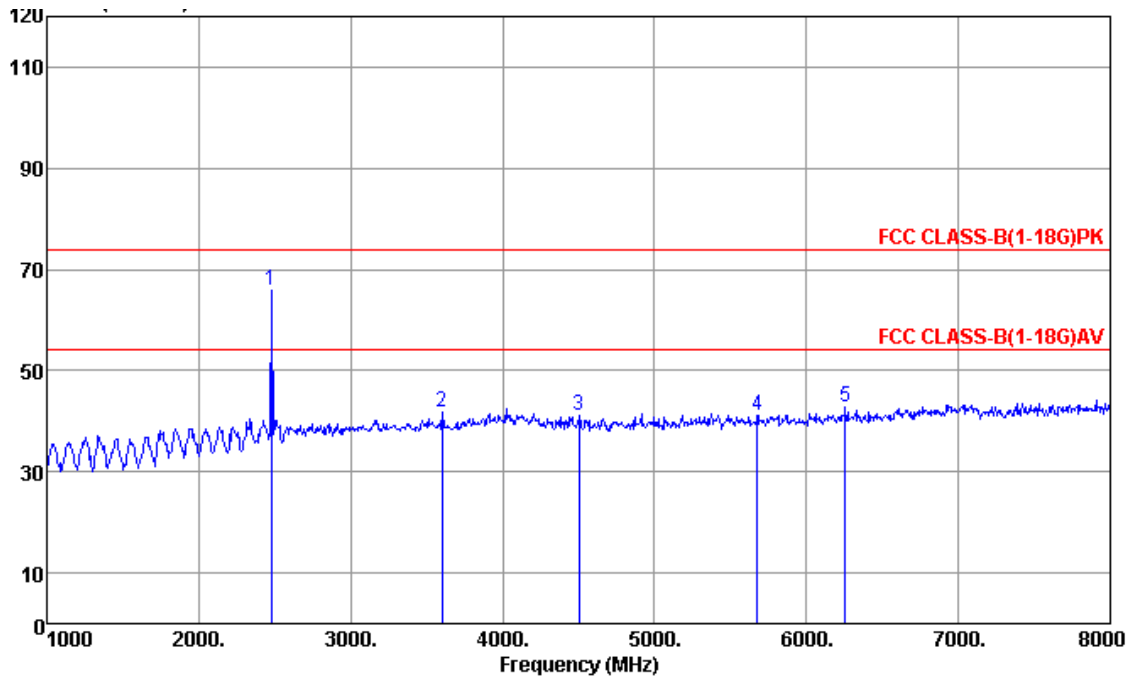
Test Channel :	78
Remark:	2412MHz is Fundamental signal which can be ignored

**Radiated Emission 30MHz-1GHz Vertical**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	93.77	21.36	39.40	7.76	2.13	27.93	43.50	-22.14	Peak		
2	140.84	19.41	31.24	13.28	2.62	27.73	43.50	-24.09	Peak		
3	204.96	20.20	33.36	11.09	3.06	27.31	43.50	-23.30	Peak		
4	281.01	18.34	28.28	13.58	3.58	27.10	46.00	-27.66	Peak		
5	364.26	23.65	31.66	15.35	4.12	27.48	46.00	-22.35	Peak		

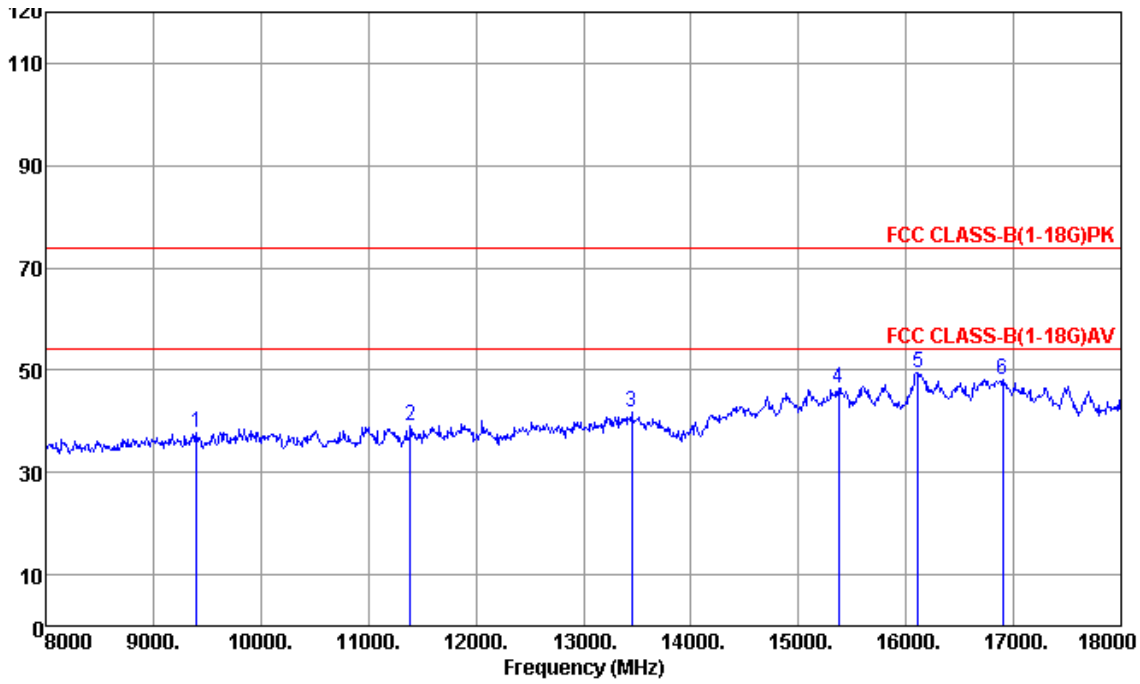
**Radiated Emission 1GHz-8GHz Vertical**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	2477.00	65.87	74.14	32.35	10.85	51.47	74.00	-8.13	Peak		
2	3604.00	41.90	49.15	33.43	13.15	53.83	74.00	-32.10	Peak		
3	4500.00	41.00	46.79	34.60	14.89	55.28	74.00	-33.00	Peak		
4	5676.00	41.17	43.50	35.81	16.97	55.11	74.00	-32.83	Peak		
5	6257.00	42.86	43.46	36.35	17.93	54.88	74.00	-31.14	Peak		

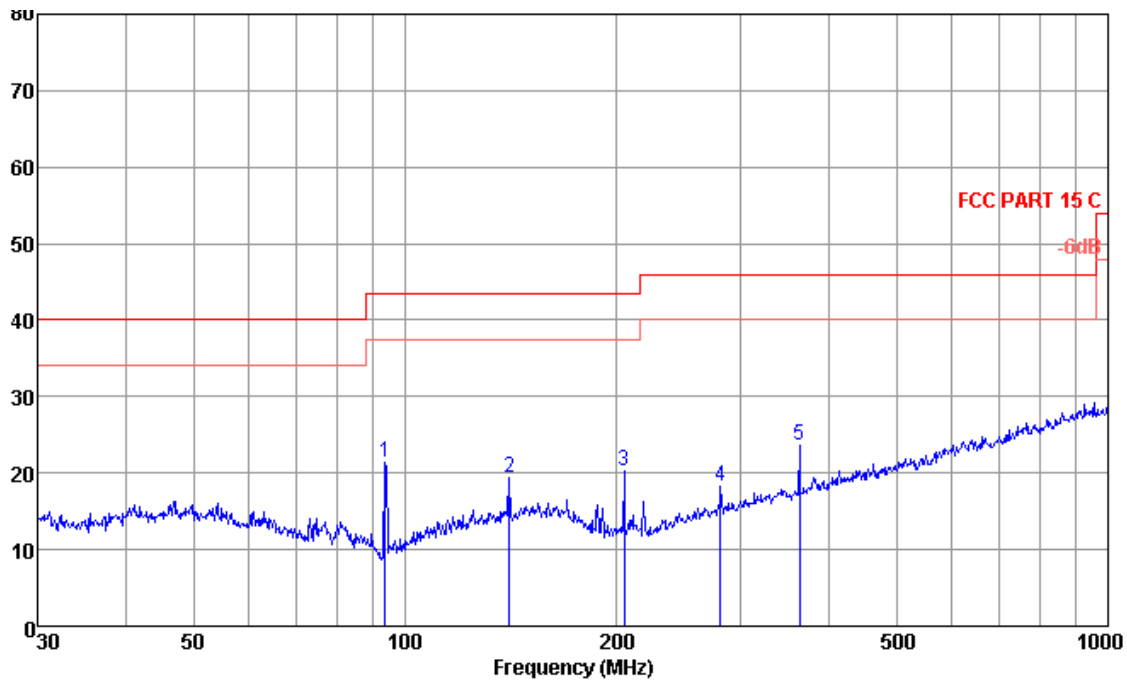


**Radiated Emission 8GHz-18GHz Vertical**



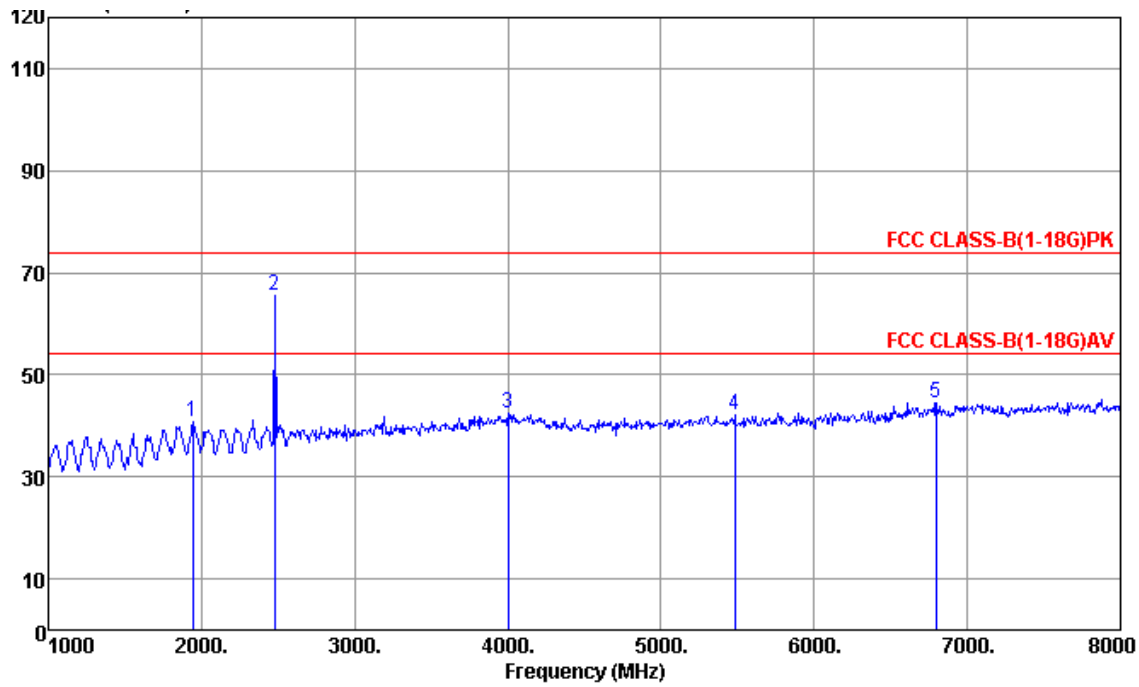
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	9400.00	37.89	38.31	31.04	22.77	54.23	74.00	-36.11	Peak		
2	11390.00	38.99	36.24	31.51	24.57	53.33	74.00	-35.01	Peak		
3	13450.00	41.87	36.18	32.28	26.62	53.21	74.00	-32.13	Peak		
4	15370.00	46.57	34.06	33.34	28.48	49.31	74.00	-27.43	Peak		
5	16110.00	49.61	33.30	36.85	29.26	49.80	74.00	-24.39	Peak		
6	16900.00	48.25	32.36	33.09	30.05	47.25	74.00	-25.75	Peak		

**Radiated Emission 30MHz-1GHz Horizontal**



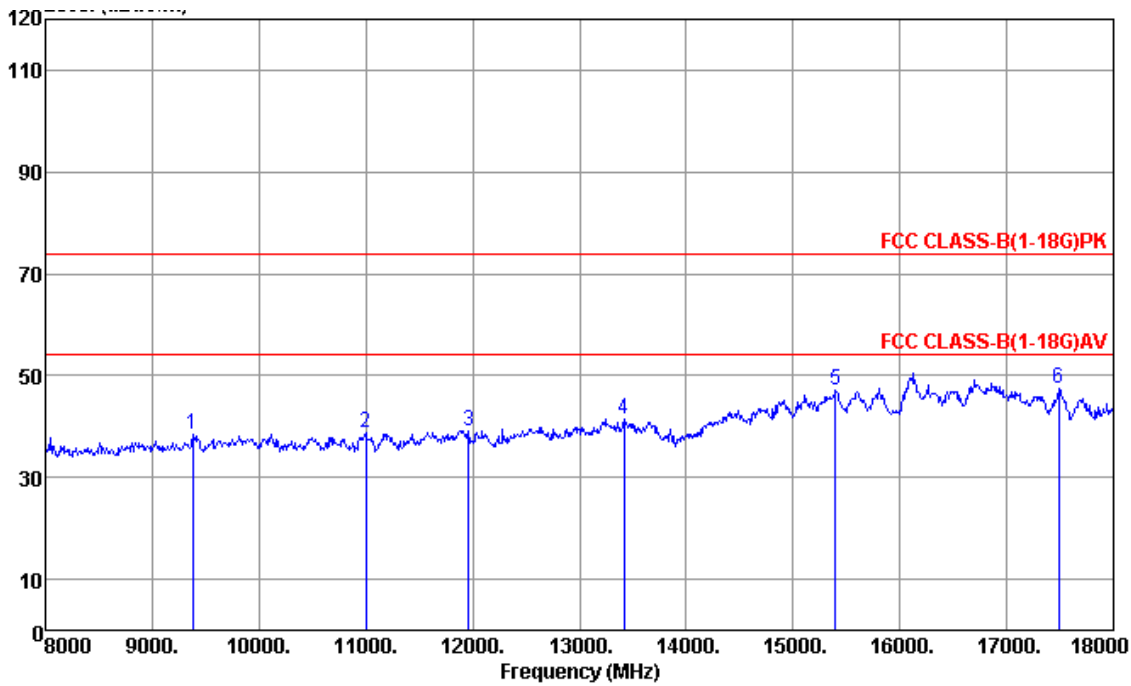
Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	93.77	21.36	39.40	7.76	2.13	27.93	43.50	-22.14	Peak		
2	140.84	19.41	31.24	13.28	2.62	27.73	43.50	-24.09	Peak		
3	204.96	20.20	33.36	11.09	3.06	27.31	43.50	-23.30	Peak		
4	281.01	18.34	28.28	13.58	3.58	27.10	46.00	-27.66	Peak		
5	364.26	23.65	31.66	15.35	4.12	27.48	46.00	-22.35	Peak		

**Radiated Emission 1GHz-8GHz Horizontal**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	1945.00	40.80	52.27	31.57	9.57	52.61	74.00	-33.20	Peak		
2	2477.00	65.41	73.84	32.19	10.85	51.47	74.00	-8.59	Peak		
3	4003.00	42.48	47.53	34.62	13.98	53.65	74.00	-31.52	Peak		
4	5480.00	42.12	44.16	36.38	16.65	55.07	74.00	-31.88	Peak		
5	6796.00	44.53	42.03	37.63	18.77	53.90	74.00	-29.47	Peak		

**Radiated Emission 8GHz-18GHz Horizontal**



Item	Freq MHz	Emission Level dBuV/m	Reading Level dBuV	Ant Factor dB/m	Cable Loss dB	Preamp Factor dB	limit dBuV/m	Over Limit dB	Remark	A/POS	T/POS
1	9380.00	38.42	39.02	30.88	22.64	54.12	74.00	-35.58	Peak		
2	11000.00	38.65	35.76	32.41	24.26	53.78	74.00	-35.35	Peak		
3	11960.00	39.13	35.94	30.20	25.36	52.37	74.00	-34.87	Peak		
4	13420.00	41.48	35.96	32.21	26.54	53.23	74.00	-32.52	Peak		
5	15400.00	47.11	34.35	33.59	28.48	49.31	74.00	-26.89	Peak		
6	17490.00	47.46	32.96	35.58	30.43	51.51	74.00	-26.54	Peak		

### 3.9.7 Radiated Emission Measurement Results (18GHz-25GHz)

<b>Test Engineer :</b>	Hogan. He	<b>Temperature :</b>	23°C~26°C
		<b>Relative Humidity :</b>	40%~60%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

#### Notes:

The amplitude of radiated emissions that are attenuated by more than 20dB below the permissible value has no need to be reported. The measurement performed at 1meter distance from turn table to antenna.

### 3.10 Antenna Requirements

#### 3.10.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

#### 3.10.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

#### 3.10.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

#### 4 List of Measuring Equipment

No	Instrument/Ancillary	Provider	Type/Model	Cal. Date
1	RF Preselector	Agilent	N9039A(9KHz-1GHz)	2011.10.12
2	Spectrum Analyzer	Agilent	E4440A(3Hz-26.5GHz)	2011.8.16
3	Spectrum Analyzer	Agilent	E4440A(3Hz-26.5GHz)	2011.8.16
4	Pre-Amplifier	Agilent	83006A(0.01GHz-26.5GHz)	2011.8.16
5	Pre-Amplifier	Agilent	83006A(0.01GHz-26.5GHz)	2011.8.16
6	Pre-Amplifier	Agilent	83006A(0.01GHz-26.5GHz)	2011.8.16
7	Pre-Amplifier	Agilent	8447D(0.1MHz-1300MHz)	2011.4.22
8	Pre-Amplifier	Agilent	8447D(0.1MHz-1300MHz)	2011.4.22
9	Loop Antenna	Schwarzbeck	FMZB1519(9KHz~30MHz)	2012.01.07
10	Antenna	Schwarzbeck	VULB9168(30MHz-1500MHz)	2012.2.22
11	Antenna	Schwarzbeck	VULB9168(30MHz-1500MHz)	2012.2.22
12	Antenna	Schwarzbeck	BBHA 9170 (15G-26.5G)	2011.11.09
13	Antenna	ETS-Lindgren	3117(1GHz-18GHz)	2012.2.22
14	Antenna	ETS-Lindgren	3117(1GHz-18GHz)	2012.2.22

#### 5 Uncertainty Evaluation

##### 5.1 Uncertainty of Radiated Spurious Emission evaluation (30MHz~1GHz)

Contribution		Probability Distribution	Partition Coefficient	Ucertainty (ui)	
				Horizontal 30MHz-1GHz	Vertical 30MHz-1GHz
Cable Loss Calibration	U01	Standard deviation	2.00	0.04	0.04
Sine wave voltage accuracy of Spectrum analyzer	U02	Triangle	2.45	0.82	0.82
Impulse response of spectrum analyzer	U03	Triangle	2.45	0.61	0.61
Pulse repetition rate of spectrum analyzer	U04	Triangle	2.45	0.61	0.61
Spectrum analyzer noise level	U05	Standard deviation	2.00	0.25	0.25
Measurement of the signal path mismatch	U06	U-Shape	1.41	0.69	0.69
Free-space antenna factor	U07	Standard deviation	2.00	0.50	0.50
Antenna Factor Interpolation for Frequency	U08	Rectangular	1.73	0.17	0.17
Antenna factor with height in the correlation	U09	Rectangular	1.73	0.17	0.17
Measurement antenna and the absorbing material in the image of the mutual coupling effect	U10	Rectangular	1.73	0.58	0.58
Antenna phase center variation	U11	Rectangular	1.73	0.42	0.42
Antenna cross polarization response	U12	Rectangular	1.73	0.52	0.52
Antenna imbalance	U13	Rectangular	1.73	0.52	0.52
Test distance error	U14	Triangle	2.45	0.46	0.56
Test distance error	U15	Rectangular	1.73	0.17	0.17
Desktop terrain clearance variation	U16	Standard deviation	2.00	0.05	0.05
Random uncertainty	U17	Standard deviation	1.00	0.18	0.03
Combined Standard Uncertainty $U_c(y)$	$U_c$	Standard deviation	1.00	1.89	1.91
Measuring Uncertainty for a level of Confidence of 95% ( $U=2U_c(y)$ )	$U=kU_c$	Standard deviation	k	3.79	3.82

**5.2 Uncertainty of Radiated Spurious Emission evaluation (1GHz~26.5GHz)**

Contribution		Probability Distribution	Partition Coefficient	Uncertainty (ui)	
				Horizontal 30MHz-1GHz	Vertical 30MHz-1GHz
Cable Loss Calibration	U01	Standard deviation	2	0.04	0.04
Sine wave voltage accuracy of Spectrum analyzer	U02	Triangle	2.45	0.82	0.82
Impulse response of spectrum analyzer	U03	Triangle	2.45	0.61	0.61
Pulse repetition rate of spectrum analyzer	U04	Triangle	2.45	0.61	0.61
Spectrum analyzer noise level	U05	Standard deviation	2.00	0.25	0.25
Measurement of the signal path mismatch	U06	U-Shape	1.41	0.69	0.69
Free-space antenna factor	U07	Standard deviation	2.00	0.50	0.50
Antenna Factor Interpolation for Frequency	U08	Rectangular	1.73	0.173	0.173
Antenna factor with height in the correlation	U09	Rectangular	1.73	NA	NA
Measurement antenna and the absorbing material in the image of the mutual coupling effect	U10	Rectangular	1.73	0.58	0.58
Antenna phase center variation	U11	Rectangular	1.73	0.13	0.13
Antenna cross polarization response	U12	Rectangular	1.73	0.52	0.52
Antenna imbalance	U13	Rectangular	1.73	0.52	0.52
Test distance error	U14	Triangle	2.45	1.48	1.55
Test distance error	U15	Rectangular	1.73	0.17	0.17
Desktop terrain clearance variation	U16	Standard deviation	2.00	0.05	0.05
Random uncertainty	U17	Standard deviation	1.00	0.01	0.08
Combined Standard Uncertainty Uc(y)	Uc	Standard deviation	1.00	2.31	2.36
Measuring Uncertainty for a level of Confidence of 95%(U= 2Uc(y))	U= kUc	Standard deviation	K	4.63	4.71