FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment : Pocket PC

Model No. : QVGA: PL710MD

VGA: PL720MD

FCC ID : NM8BALI

Filing Type : Certification

Applicant : High Tech Computer Corp.
23 Hsin Hua Rd., Taoyuan 330, Taiwan

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

History of this test report

Original Report Issue Date: May 25, 2004

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : F451503

CERTIFICATE OF COMPLIANCE

for

47 CFR Part 15 Subpart C

Equipment : **Pocket PC**

Model No. : **QVA: PL710MD**

VGA: PL720MD

FCC ID : **NM8BALI**

Filing Type : **Certification**

Applicant : **High Tech Computer Corp.**
23 Hsin Hua Rd., Taoyuan 330, Taiwan

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 - 2001** and the equipment under test was ***passed*** all test items required in FCC Part 15 subpart C, relative to the equipment under test. Testing was carried out on May 18, 2004 at **SPORTON International Inc.** LAB.

Daniel Lee 5/26/2004

Daniel Lee
Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1 Applicant

High Tech Computer Corp.
23 Hsin Hua Rd., Taoyuan 330, Taiwan

1.2 Manufacturer

High Tech Computer Corp.
23 Hsin Hua Rd., Taoyuan 330, Taiwan

1.3 Basic Description of Equipment under Test

Equipment	: Pocket PC
Trade Name	: FUJITSU SIEMENS COMPUTER
Model No.	: QVGA: PL710MD, VGA: PL720MD
Power Supply Type	: Switching
AC Power Cord	: AC 120V/ 60Hz, Non-shielded ,1.7meter,2pin

1.4 Feature of Equipment under Test

The Emission Mode: Wireless LAN

Product Feature & Specification							
1. Type of Modulation	802.11b:CCK(11Mbps),DQPSK(5.5Mbps) DQPSK(2Mbps),DBPSK(1Mbps);						
2. Number of Channels	USA/Canada:11	V	European:13				
	Japan:13.14		Other:				
3. Frequency Band	2.4GHz~2.4835GHz						
4. Carrier Frequency of each channel	2412MHz+(n-1)*5MHz, n=1~11						
5. Channel Spacing	5MHz						
6. Maximum Output Power to Antenna (Normal Condition)	14.68 dBm						
7. Type of Antenna Connector	SMT switch connector						
8. Antenna Type	Inveted-F Antenna						
9. Antenna Gain	-4 dBi						
10. Function Type	Transmitter		Transceiver	V			
11. Power Rating (DC/AC Voltage)	DC 5V						
12. Temperature Range	0~ +45 degree C						
13. Duty Cycle	N/A						
14. Basic function of product	With Wireless LAN for data networking applications						

The Emission Mode: Bluetooth

Product Feature & Specification				
15. Type of Modulation	GFSK			
16. Number of Channels	79			
17. Frequency Band	2.4GHz~2.4835GHz			
18. Carrier Frequency of each channel	2402MHz+n*MHz, n=0~78			
19. Channel Spacing	1MHz			
20. Maximum Output Power to Antenna (Normal Condition)	2.9 dBm			
21. Type of Antenna Connector	SMT switch connector			
22. Antenna Type	Chip antenna			
23. Antenna Gain	-7 dBi			
24. Function Type	Transmitter		Transceiver	V
25. Power Rating (DC/AC Voltage)	DC 5V			
26. Temperature Range	0~ +45 degree C			
27. Duty Cycle	N/A			
28. Basic function of product	With Bluetooth for data networking applications			

2. Test Configuration of Equipment under Test

2.1 Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2001 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

b. The complete test system included VIEWSONIC Monitor, LCGITECH USB Mouse, EPSPN Printer, ACEEX Modem, DELL Notebook, IBM Keyboard, Stereo Earphone and EUT for EMI test.

c. The EUT can operate on eleven channels from 2412MHz to 2462MHz. For WLAN function and 79 channels from 2402 MHz to 2480 MHz for BT function.(as listed in section 1.4).

The following test modes were pretested for conduction test:

Mode 1: EUT Only Mode

Mode 2: Cradle Mode

Mode 3: Cradle+USB Mode

Mode 4: USB Mode

The following test modes were pretested for radiation test:

Mode 1: TX- BT CH00 (2402 MHz), WLAN CH01 (2412MHz)

Mode 2: TX- BT CH39 (2441 MHz), WLAN CH06 (2437 MHz)

Mode 3: TX- WLAN CH06 (2437 MHz)

Mode 4: TX- BT CH78 (2480 MHz), WLAN CH11 (2462 MHz)

Mode 5: TX- BT CH 78 (2480 MHz)

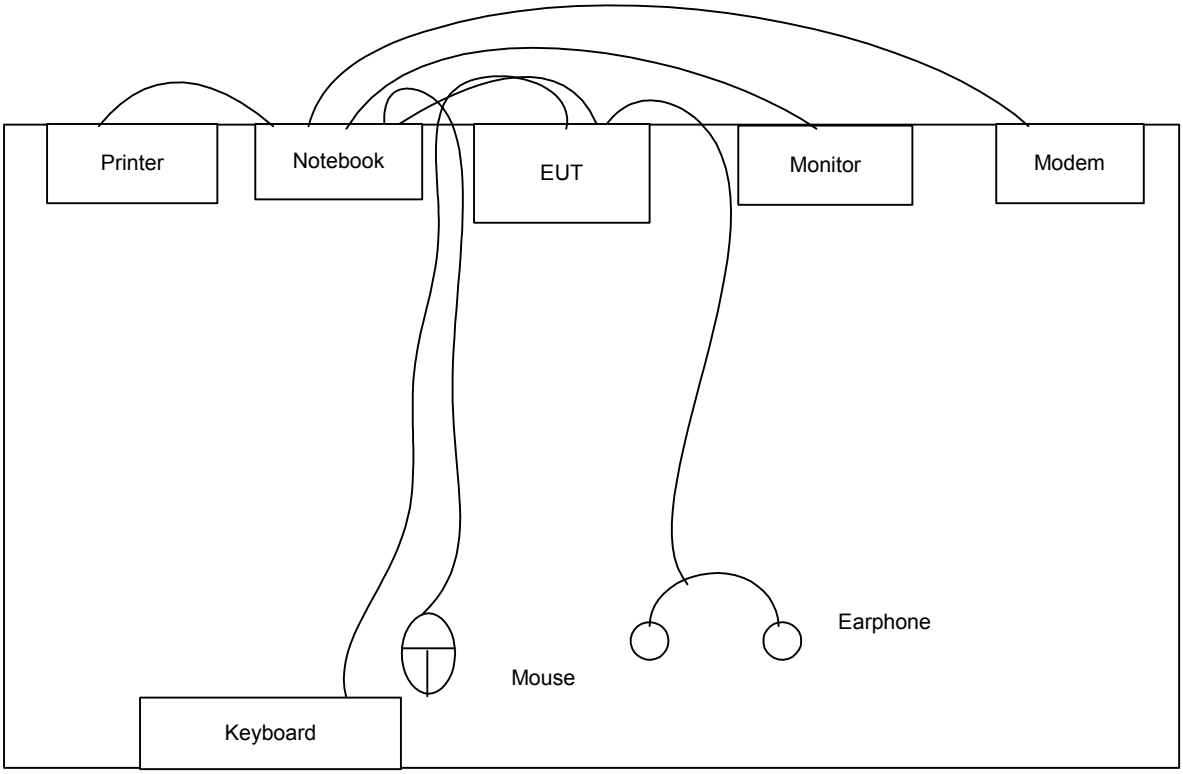
d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2 Description of Test System

<EMI>

Item	Asset	FCC ID	Model Name	Power Cord	S/N
1.	Earphone(STEREO)	N/A	HP-300	Shielded, 1.7m	SP0042
2.	Monitor (VIEWSONIC)	N/A	VCDTS21553-3P	Shielded, 1.7m	SP0050
3.	USB MOUSE (LCGITECH)	N/A	M-8E58	Shielded, 1.7m	SP0052
4.	PRINTER (EPSON)	N/A	STYLUS COLRO 680	Shielded, 1.35m	SP0054
5	MODEM (ACEEX)	IFAXCM141	CM141	Shielded, 1.35m	SP0058
6	Notebook (DELL)	N/A	PP05L	Non-Shielded	SP0061
7	Keyboard(IBM)	N/A	N/A	Shielded, 1.7m	SP0064

2.3 Connection Diagram of Test System



3. Operation of Equipment under Test

An executive program, EMCTEST.EXE on WIN2000 continuously generating a complete line of “H“ pattern, was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.
b. The PC reads the test program from the hard disk drive and runs it.
c. The PC sends “H” messages to the monitor, and the monitor displays “H“ patterns on the screen.
d. The PC sends “H” messages to the printer, then the printer prints them on the paper.
e. The PC sends “H” messages to the internal hard disk , and the hard disk reads and writes the message.
f. Repeat the steps from c to e.

At the same time, the following program was executed:

“BT Test Mode for 6150. exe”, keeps sending continuous Tx for BT, and “WLAN Test AP. exe.” Keeps sending continuous TX for WLAN.

4. General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH03-HY

2.4 Test Voltage

110V/ 60Hz

2.5 Standard for Methods of Measurement

ANSI C63.4-2001

2.6 Test in Compliance with

47 CFR Part 15 Subpart C

2.7 Frequency Range Investigated

a. Conduction: from 150 kHz to 30 MHz
b. Radiation: from 30 MHz to 25000 MHz

2.8 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.

5. Report of Measurements and Examinations

5.1 List of Measurements and Examinations

The Emission Mode: Wireless LAN

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.247(a)(2)	6dB Bandwidth	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.209(a)	Radiated Emission	Pass
15.247 (c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.247(d)	Power Spectral Density	Pass
15.203	Antenna Requirement	Pass

The Emission Mode: Bluetooth

FCC Rule	Description of Test	Result
15.247(a) (1)	Hopping Channel Bandwidth	Pass
15.247(a)(1)	Hopping Channel Separation	Pass
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
15.247(b) (1)	Output Power	Pass
15.247(c)	100KHz Bandwidth of Frequency Band Edges	Pass
15.207	Conducted Emission	Pass
15.209	Radiated Emission	Pass
15.203	Antenna Requirement	Pass

5.2 6dB Bandwidth

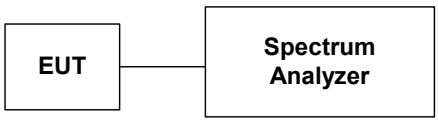
5.2.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.2.2 Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

5.2.3 Test Setup Layout：

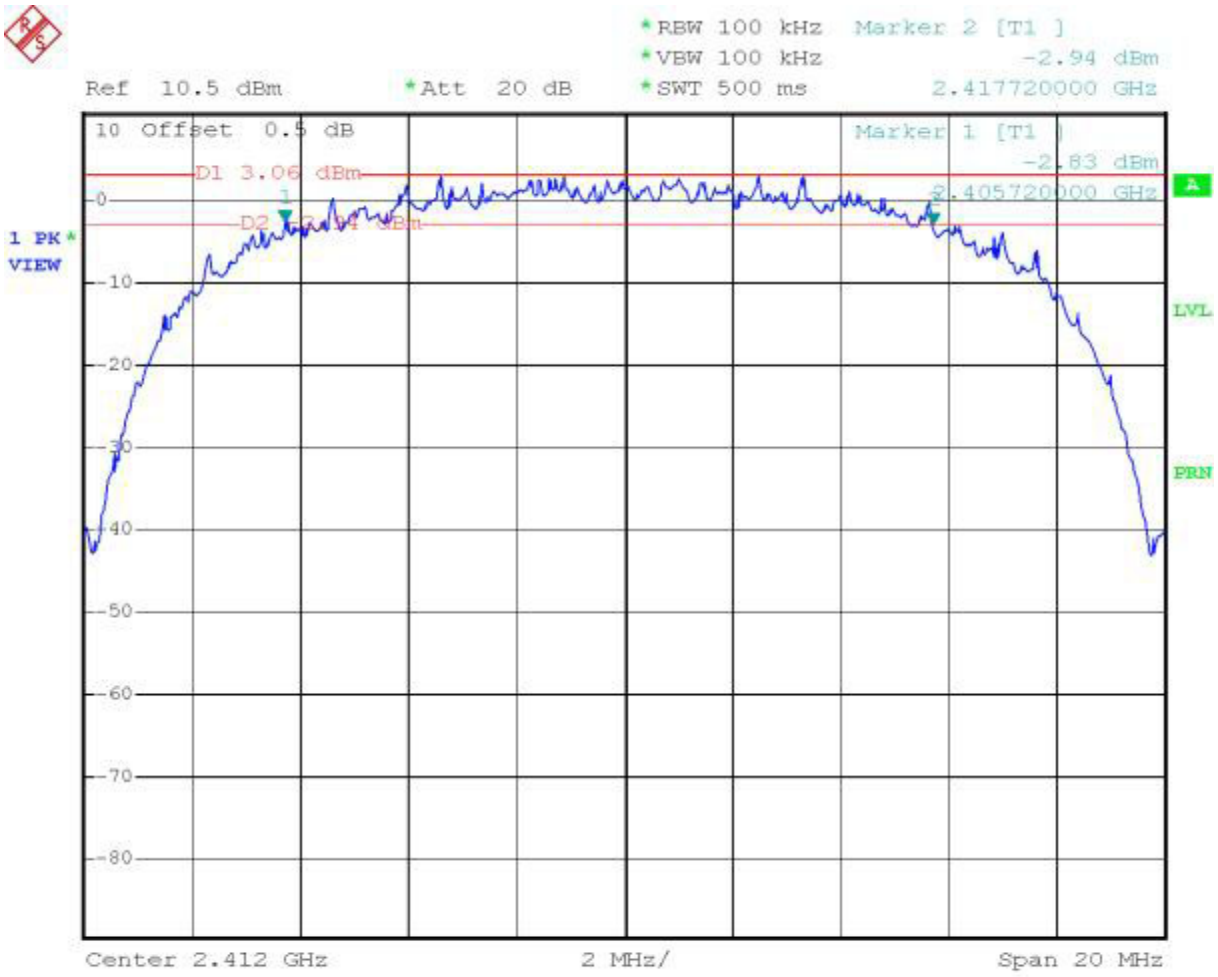


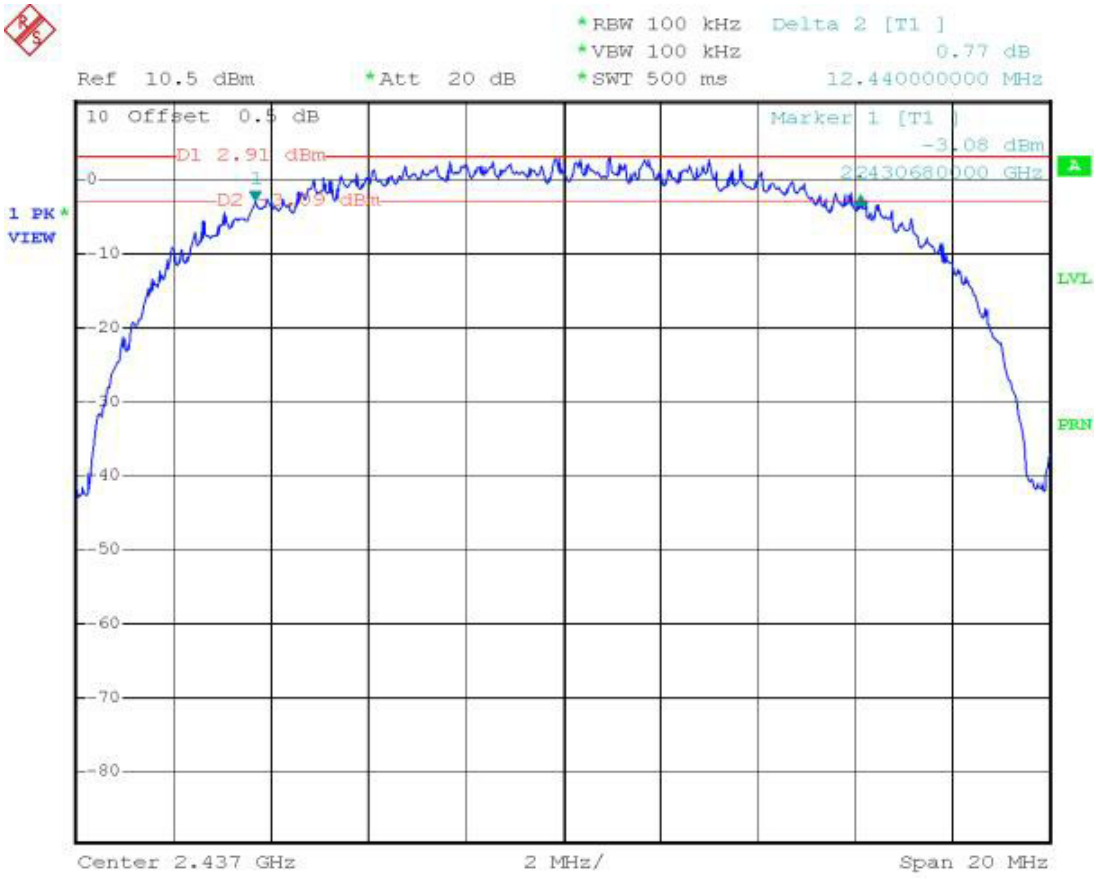
5.2.4 Test Result：The spectrum analyzer plots are attached as below

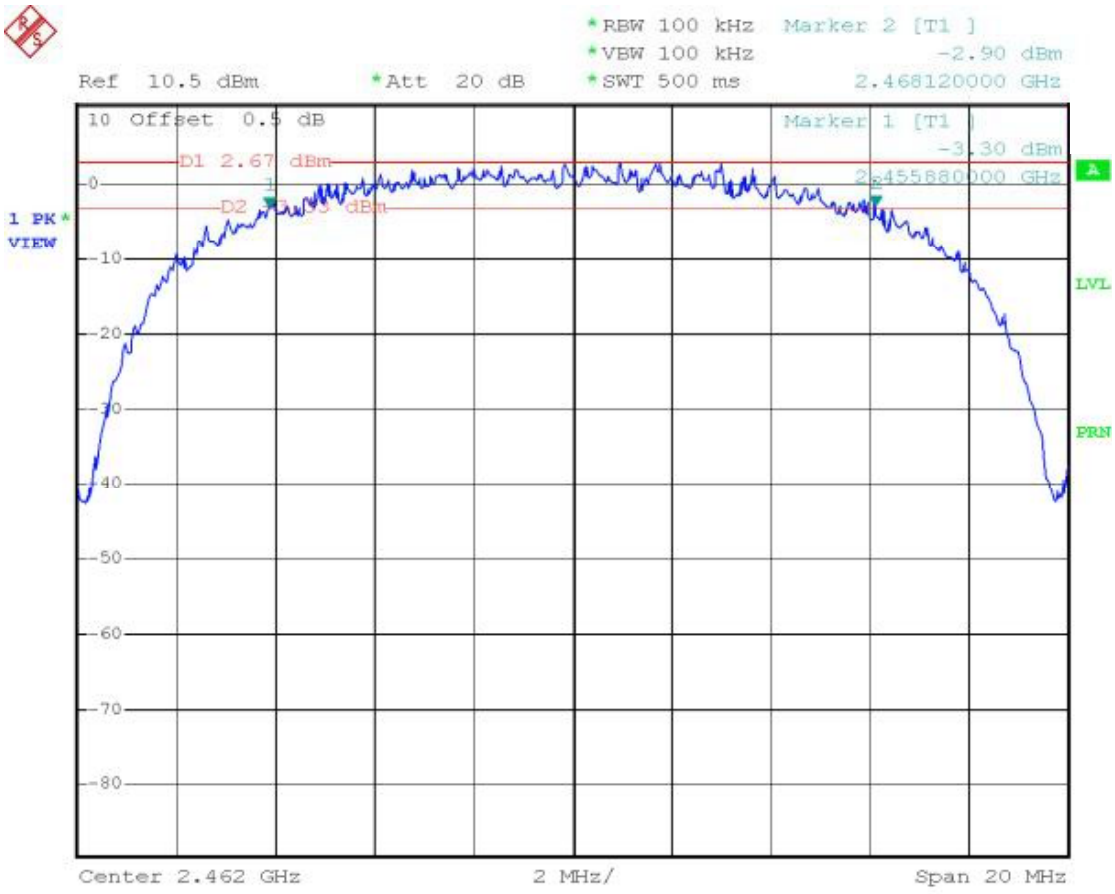
- Test Mode: WLAN 802.11b
- Temperature : 26 °C
- Relative Humidity : 53%

Channel	Frequency (MHz)	6dB Emission bandwidth (MHz)	Limits (MHz)
01	2412	12.00	0.5
06	2437	12.44	0.5
11	2462	12.24	0.5

5.2.5 6dB Bandwidth




*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 2 [T1]
0.77 dB
12.440000000 MHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-3.08 dBm
2.2430680000 GHz
D1 2.91 dBm
D2 -9.59 dBm
1 PK *
VIEW
LVL
PRN
Center 2.437 GHz
2 MHz/
Span 20 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Marker 2 [T1]
-2.90 dBm
2.468120000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-3.30 dBm
2.455880000 GHz
D1 2.67 dBm
D2
1 PK*
VIEW
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.462 GHz
2 MHz/
Span 20 MHz

5.3 Power Spectral Density

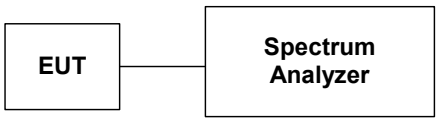
5.3.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.3.2 Test Procedure：

1. The output of EUT was connected to spectrum analyzer by a low loss cable.
2. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
3. The power spectral density was measured and recorded.
4. The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

5.3.3 Test Setup Layout：

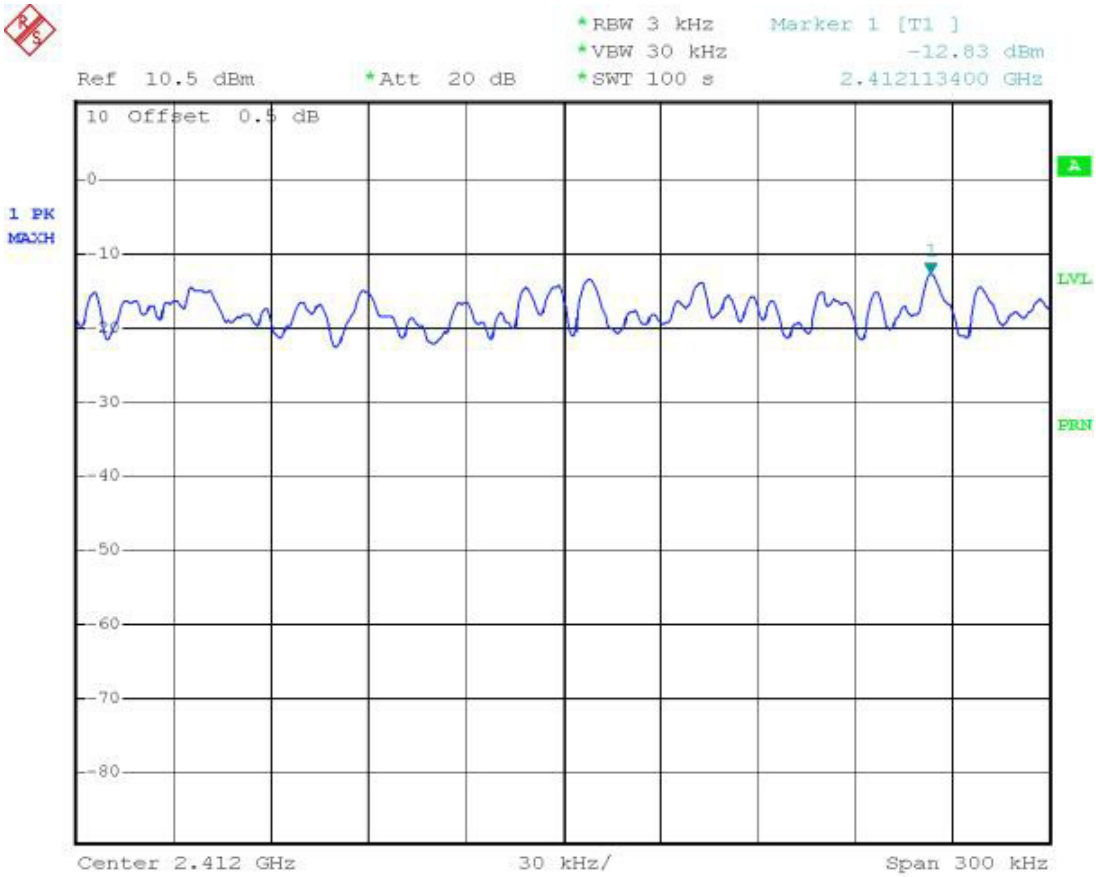


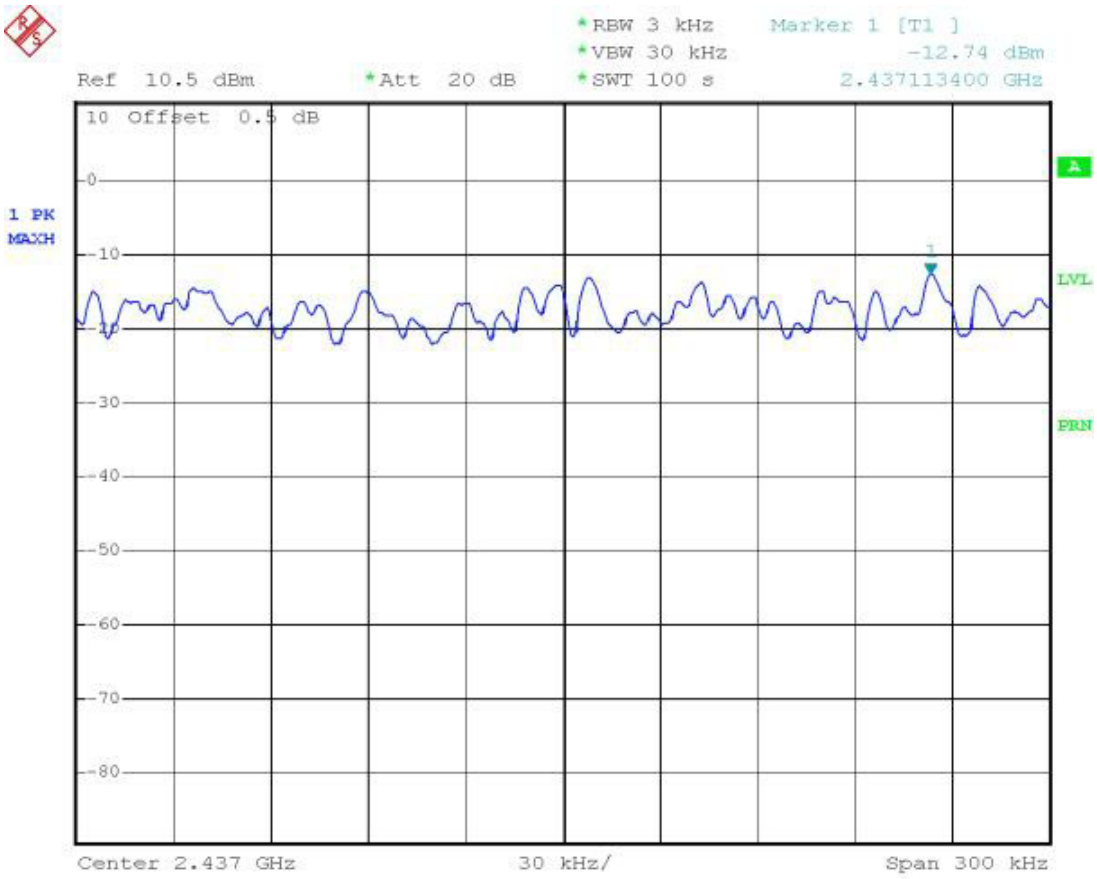
5.3.4 Test Result：See spectrum analyzer plots below

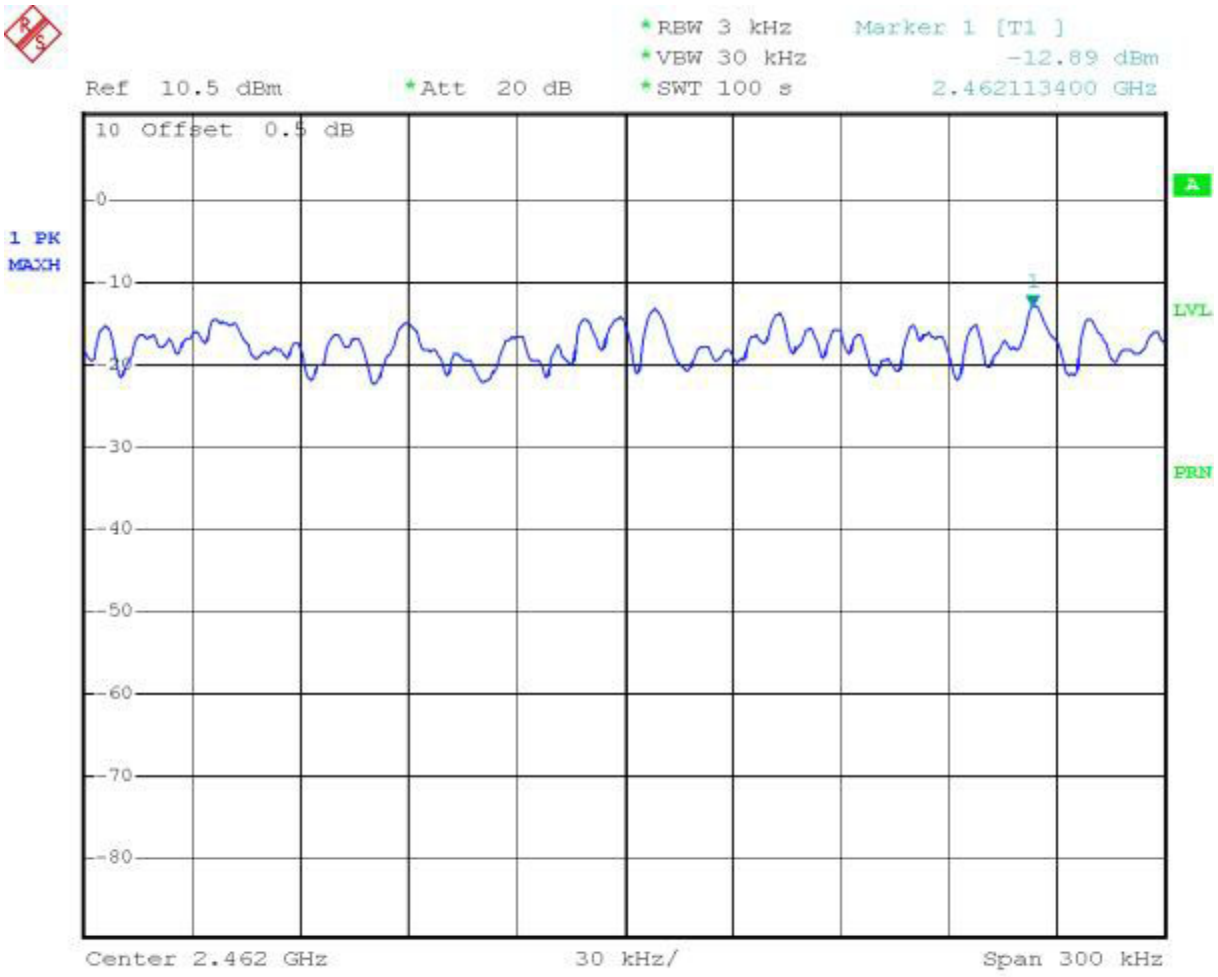
- Test Mode: WLAN 802.11b
- Temperature : 26 °C
- Relative Humidity : 53%

Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
01	2412	-12.83	8
06	2437	-12.74	8
11	2462	-12.89	8

5.3.5 Power Spectral Density




*RBW 3 kHz
*VBW 30 kHz
*SWT 100 s
Marker 1 [T1]
-12.74 dBm
2.437113400 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.437 GHz
30 kHz/
Span 300 kHz


RBW 3 kHz
VBW 30 kHz
SWT 100 s
Marker 1 [T1]
-12.89 dBm
2.462113400 GHz
Ref 10.5 dBm
Att 20 dB
Offset 0.5 dB
1 PK
MAXH
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.462 GHz
30 kHz/
Span 300 kHz

5.4 Band Edges Measurement

5.4.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.4.2 Test Procedure：

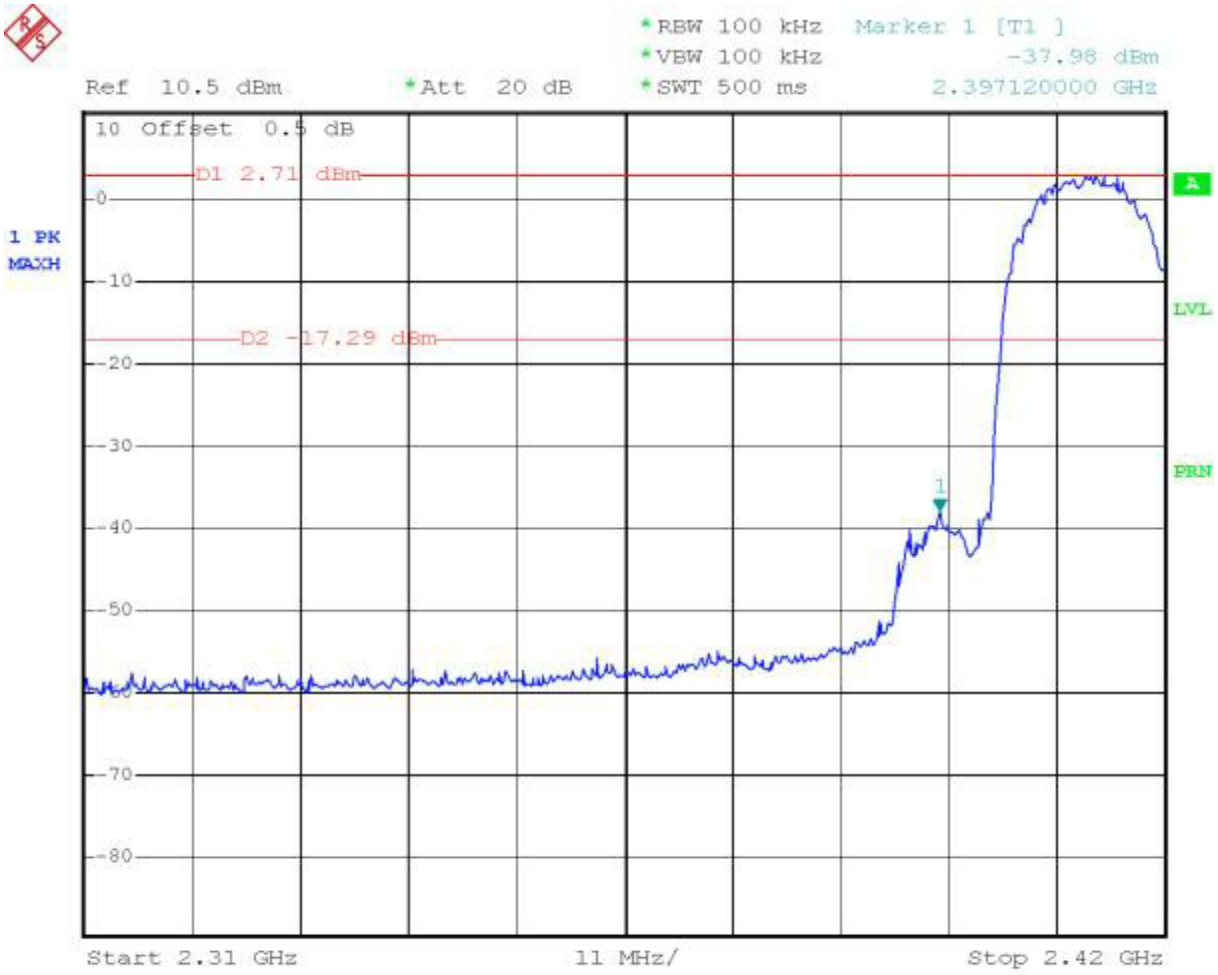
1. The output of EUT was connected to the spectrum analyzer by a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100 kHz bandwidth from band edge.
3. The band edges was measured and recorded.

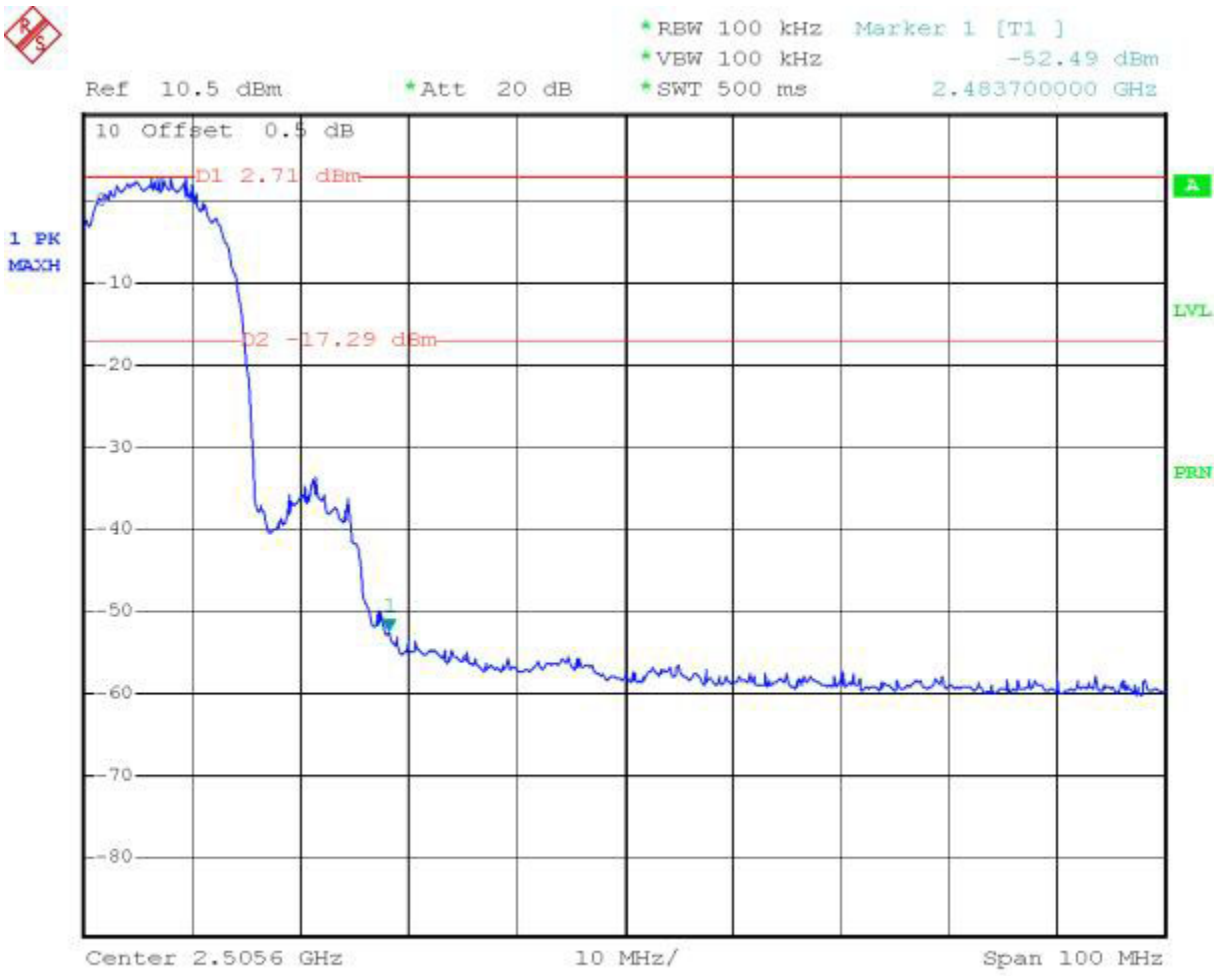
5.4.3 Test Result：

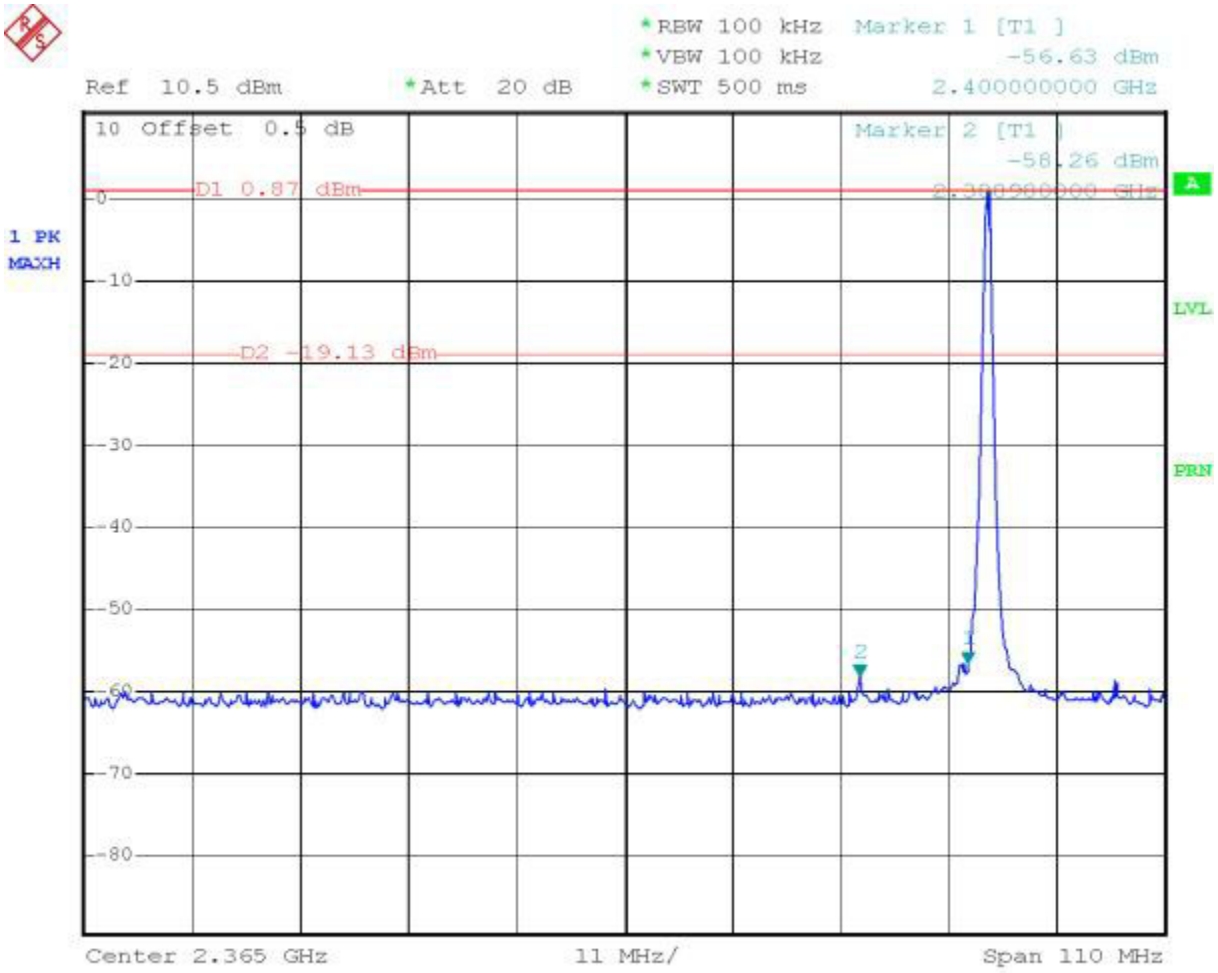
- Test Mode: WLAN 802.11b and BT
- Temperature : 26 °C
- Relative Humidity : 53%

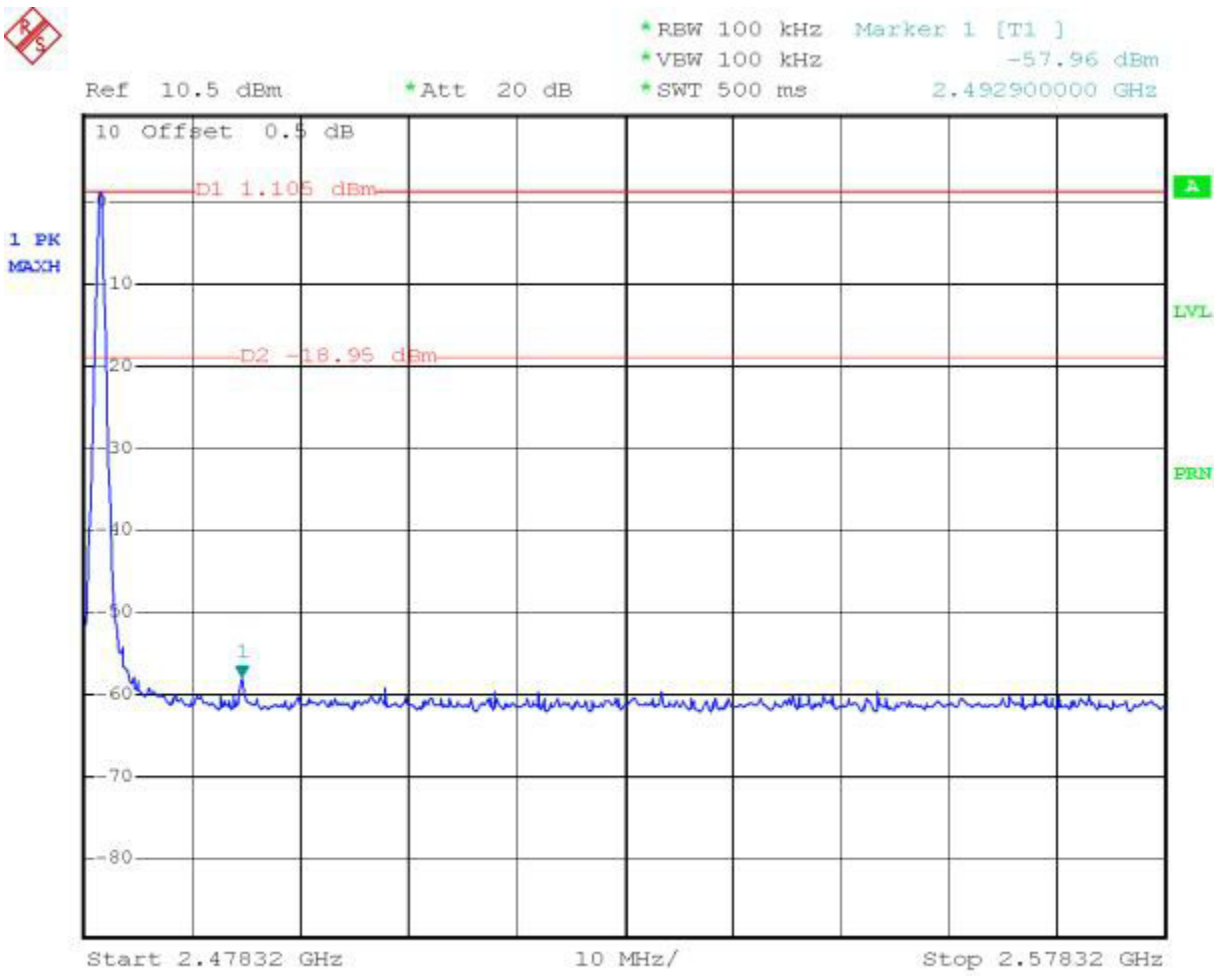
- Test Result in WLAN lower band (Channel 1) : PASS
- Test Result in WLAN higher band (Channel 11) : PASS
- Test Result in BT lower band (Channel 00) PASS
- Test Result in BT higher band (Channel 78) PASS

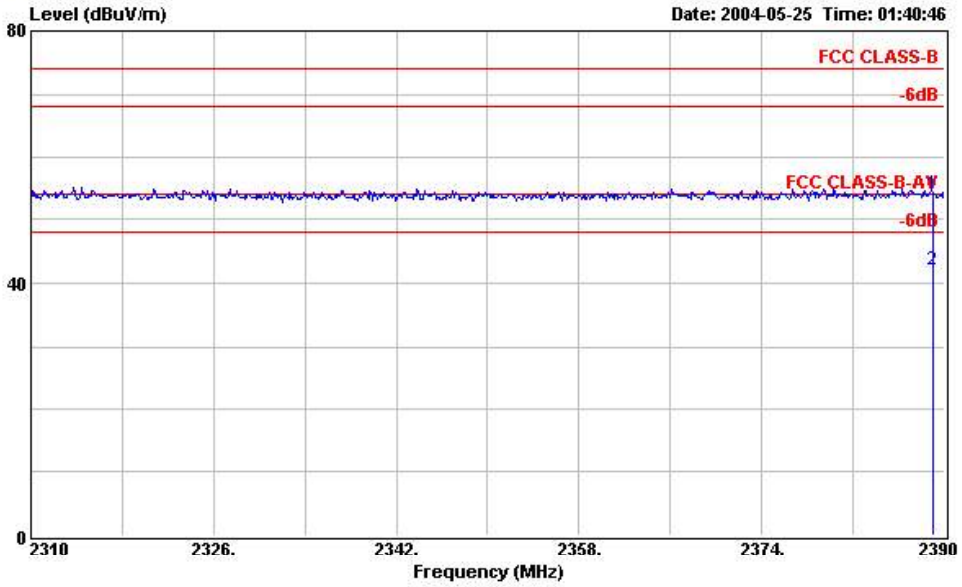
5.4.4 Band Edge Measurement




*RBW 100 kHz
Marker 1 [T1]
*VBW 100 kHz
-52.49 dBm
Ref 10.5 dBm
*Att 20 dB
*SWT 500 ms
2.483700000 GHz
10 Offset 0.5 dB
D1 2.71 dBm
1 PK
MAXH
-10
D2 -17.29 dBm
-20
-30
-40
-50
-60
-70
-80
A
LVL
PRN
Center 2.5056 GHz
10 MHz/
Span 100 MHz

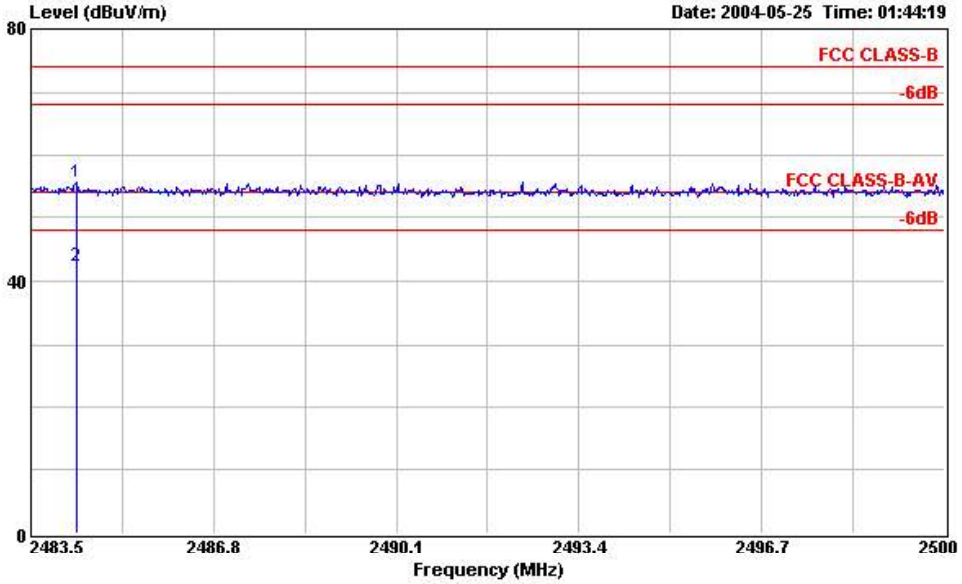

RBW 100 kHz
VBW 100 kHz
SWT 500 ms
Marker 1 [T1]
-56.63 dBm
2.400000000 GHz
Ref 10.5 dBm
Att 20 dB
10 Offset 0.5 dB
Marker 2 [T1]
-58.26 dBm
D1 0.87 dBm
D2 -19.13 dBm
1 PK
MAXH
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.365 GHz
11 MHz/
Span 110 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Marker 1 [T1]
-57.96 dBm
2.492900000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
D1 1.105 dBm
D2 -18.95 dBm
1 PK
MAXH
A
LVL
PRN
10
20
30
40
50
60
70
80
1
Start 2.47832 GHz
10 MHz/
Stop 2.57832 GHz



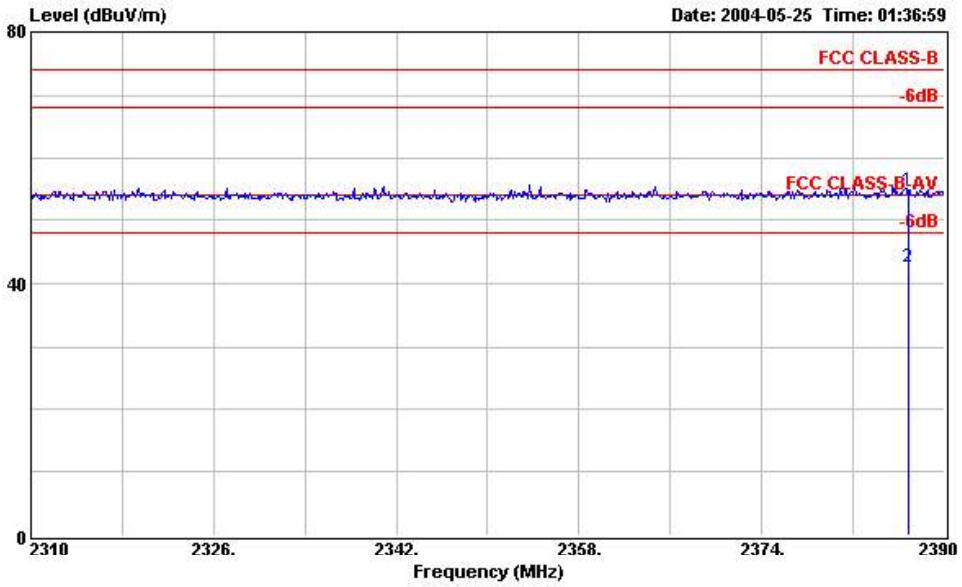
Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT :
Power : 120V/60Hz
Model :
Memo : WLAN TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2388.960	54.05	-19.95	74.00	24.14	28.19	1.72	0.00	Peak	---	---
2	2388.960	41.97	-12.03	54.00	12.06	28.19	1.72	0.00	Average	100	245



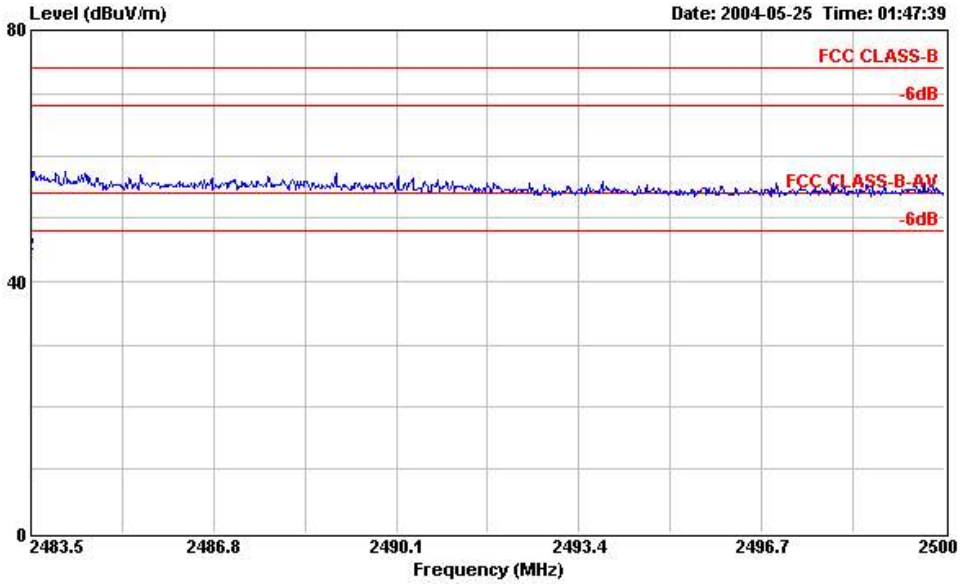
Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 HORIZONTAL
EUT :
Power : 120V/60Hz
Model :
Memo : WLAN TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2484.330	55.50	-18.50	74.00	25.34	28.37	1.79	0.00	Peak	---	---
2	2484.330	42.31	-11.69	54.00	12.15	28.37	1.79	0.00	Average	100	245



Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT :
Power : 120V/60Hz
Model :
Memo : WLAN TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2386.880	54.68	-19.32	74.00	24.77	28.19	1.72	0.00	Peak	100	125
2	2386.880	42.54	-11.46	54.00	12.63	28.19	1.72	0.00	Average	100	125



Site : 03CH03-HY
Condition : FCC CLASS-B 3m HORN-ANT-6741 VERTICAL
EUT :
Power : 120V/60Hz
Model :
Memo : WLAN TX CH01 2412MHz

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		cm	deg
1	2483.500	56.40	-17.60	74.00	26.24	28.37	1.79	0.00	Peak	---	---
2	2483.500	44.10	-9.90	54.00	13.94	28.37	1.79	0.00	Average	100	78

5.5. Hopping Channel Separation

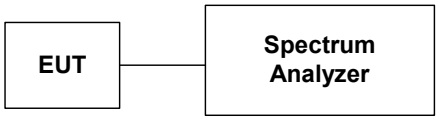
5.5.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.5.2 Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable..
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. The Hopping Channel Separation is defined as the channel is separated with the next channel.

5.5.3 Test Setup Layout：



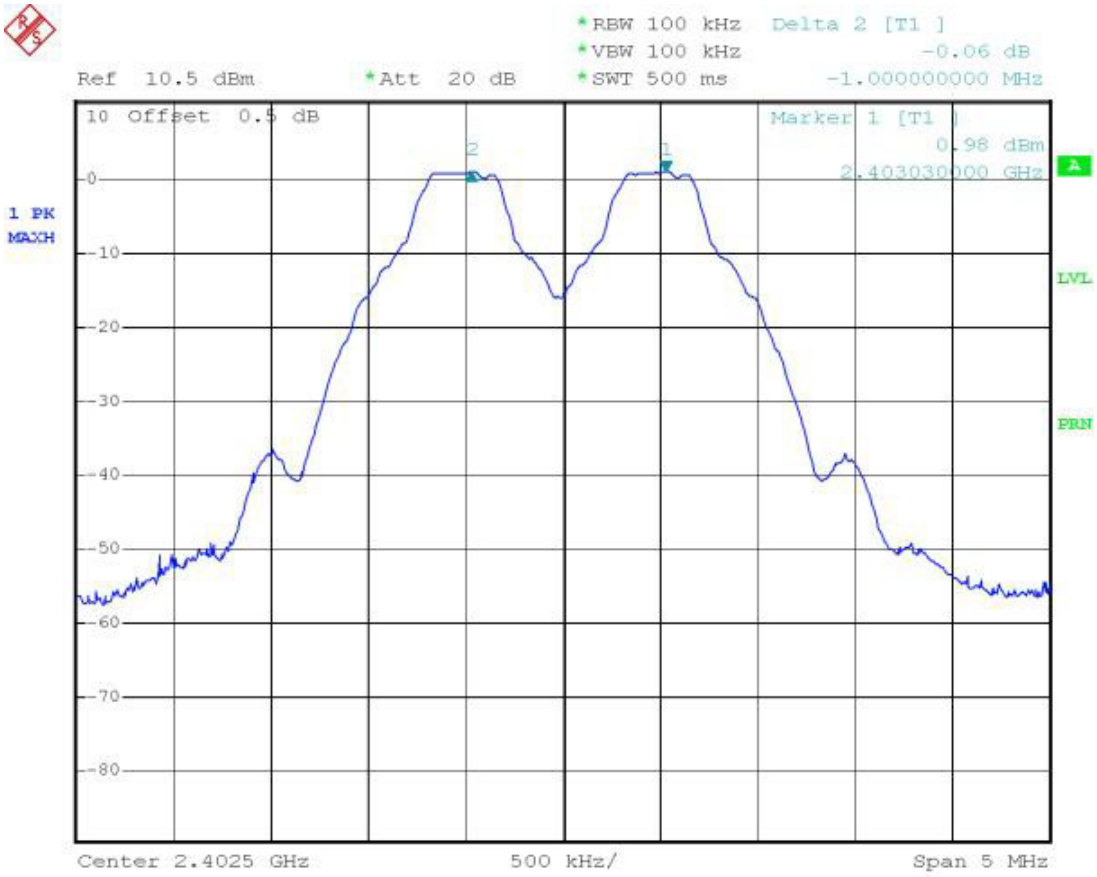
5.5.4 Test Result：The spectrum analyzer plots are attached as below

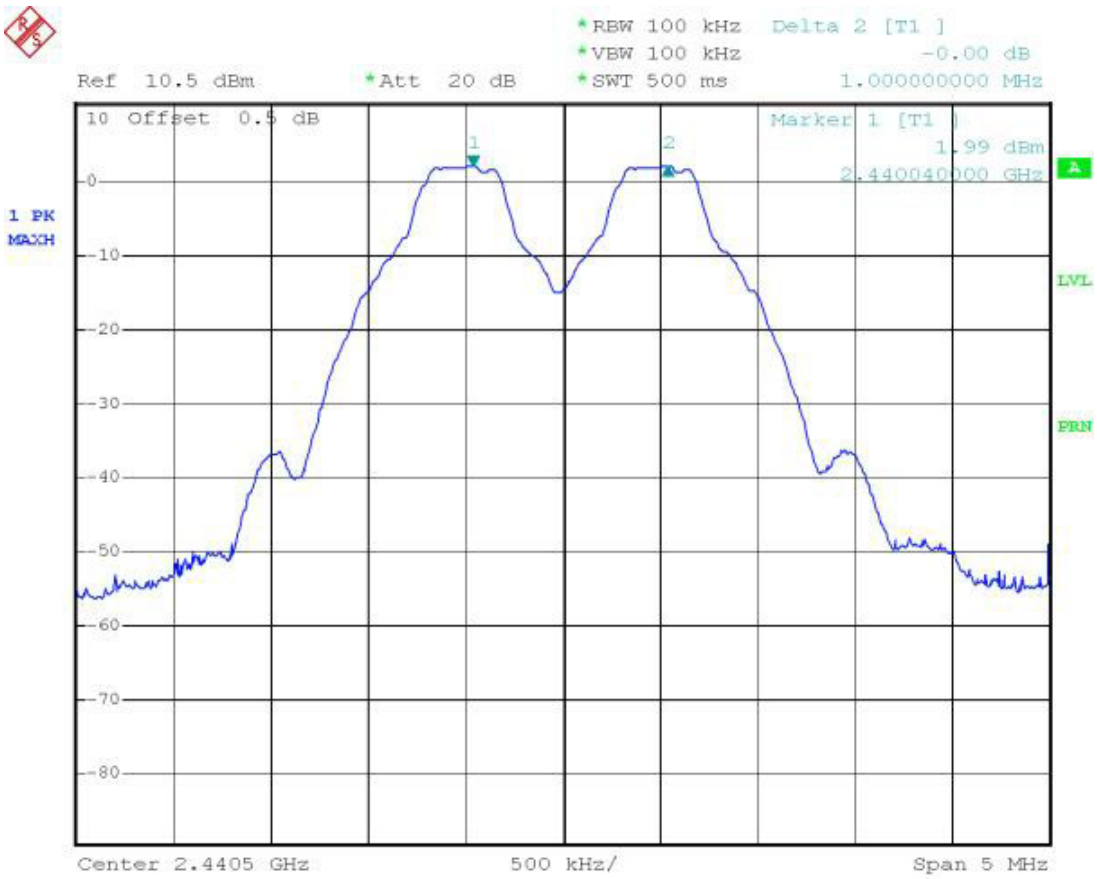
- Test Mode: BT
- Temperature: 26°C
- Relative Humidity: 53 %
- Duty cycle of the equipment during the test X ＝ 34%

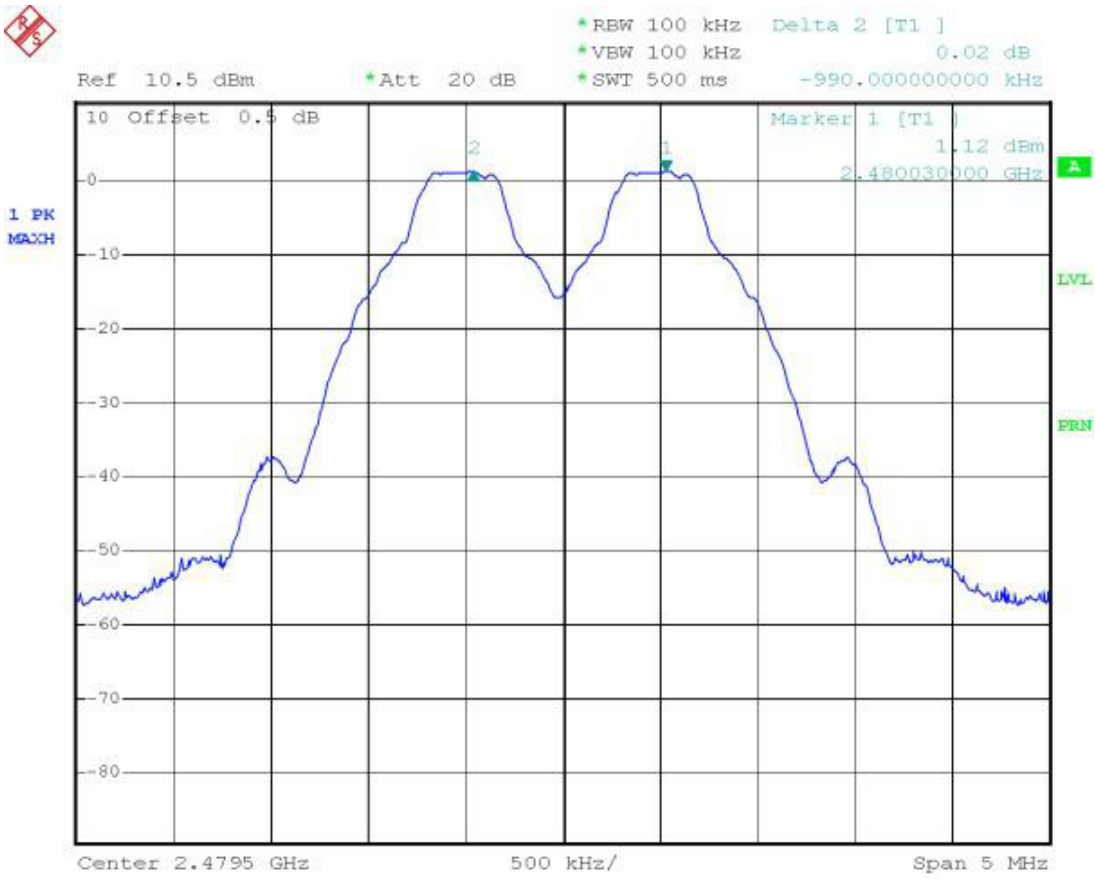
Channel	Frequency (MHz)	Carrier Frequency Separation (KHz)	Limits (KHz)
00	2402	1000	0.96KHz
39	2441	1000	0.96KHz
78	2480	990	0.96KHz

Note: Limits =25KHz or the 20dB bandwidth of the hopping channel, which ever is greater.

5.5.5 Hopping Channel Seperation




*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 2 [T1]
-0.00 dB
1.000000000 MHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
1.99 dBm
2.440040000 GHz
1 PK
MAXH
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.4405 GHz
500 kHz/
Span 5 MHz


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Delta 2 [T1]
0.02 dB
-990.000000000 kHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
1.12 dBm
2.480030000 GHz
1 PK
MAXH
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.4795 GHz
500 kHz/
Span 5 MHz

5.6 Number of Hopping Frequency

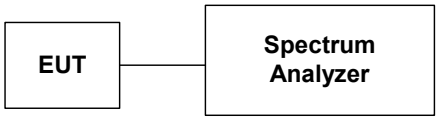
5.6.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.6.2 Test Procedure：

1. The output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 100KHz and VBW to 100KHz.
3. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.6.3 Test Setup Layout：

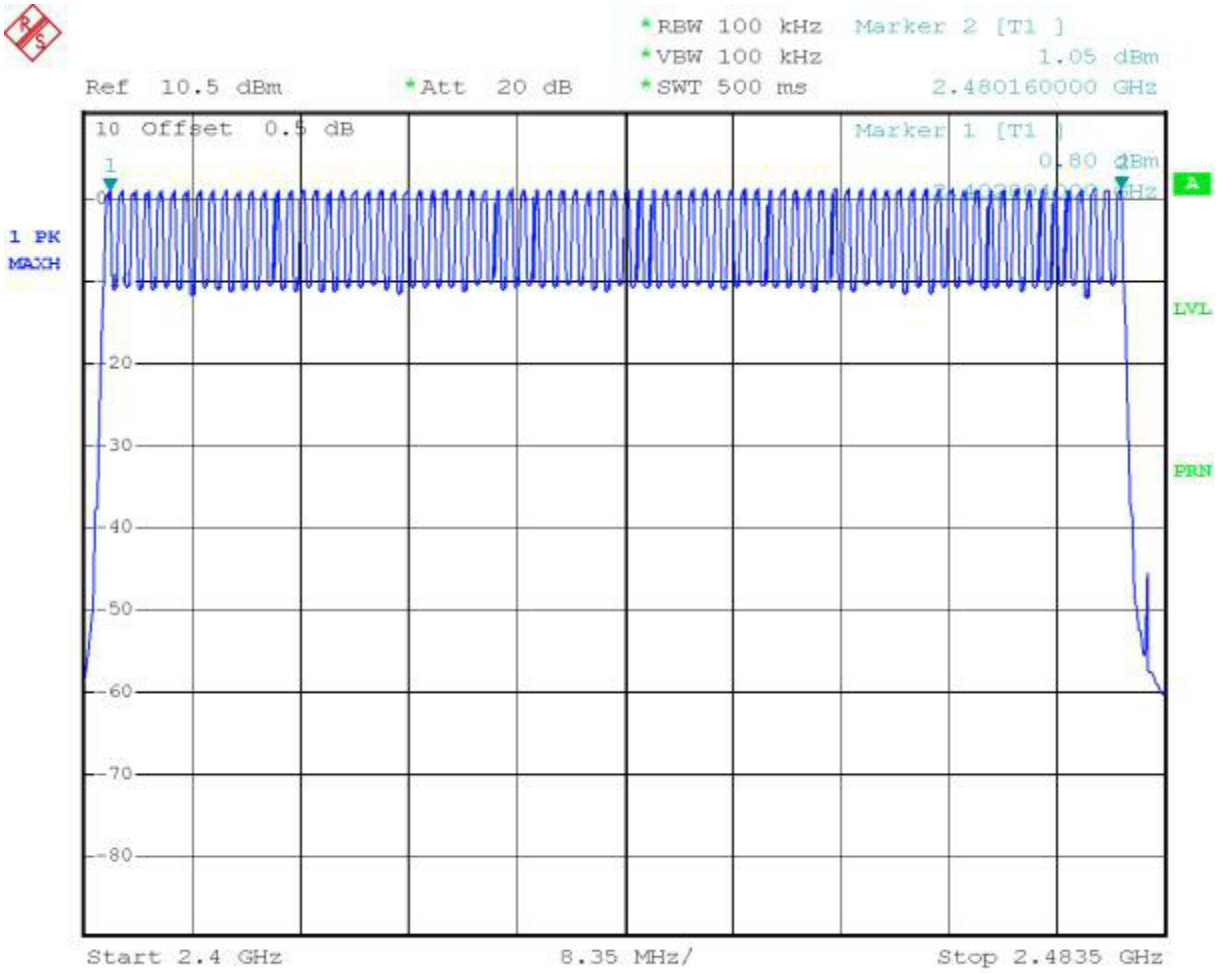


5.6.4 Test Result：See spectrum analyzer plots below

- Mode: BT
- Temperature: 26°C
- Relative Humidity: 53 %
- Duty cycle of the equipment during the test X ＝ 34%

Number of Hopping Frequency (Channel)	Limits (Channel)
79	75

5.6.5 Number of Hopping Frequency


*RBW 100 kHz
*VBW 100 kHz
*SWT 500 ms
Marker 2 [T1]
1.05 dBm
2.480160000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
0.80 dBm
1 PK
MAXH
A
LVL
PRN
20
30
40
50
60
70
80
Start 2.4 GHz
8.35 MHz/
Stop 2.4835 GHz

5.7 Hopping Channel Bandwidth

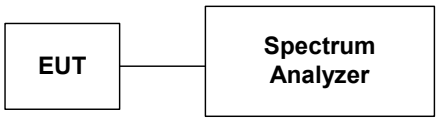
5.7.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.7.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 30KHz and VBW to 300KHz.
3. The Hopping Channel bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

5.7.3 Test Setup Layout：

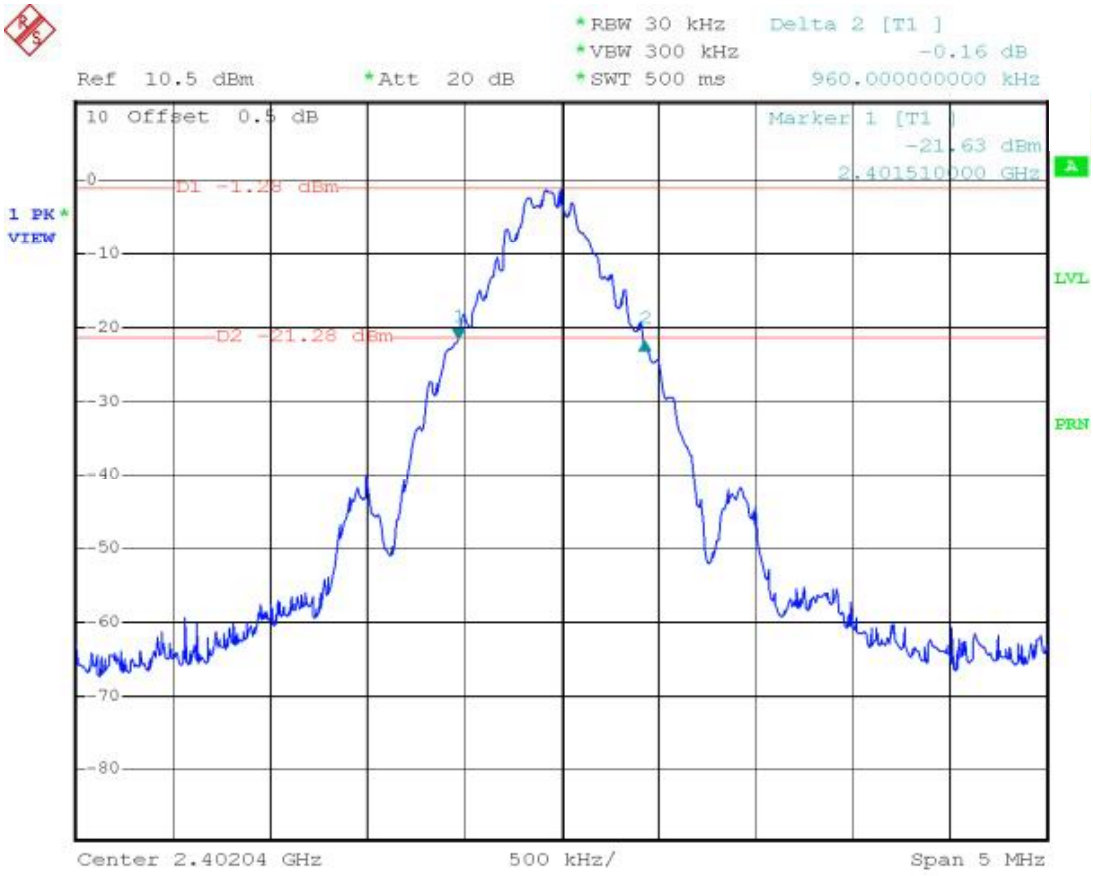


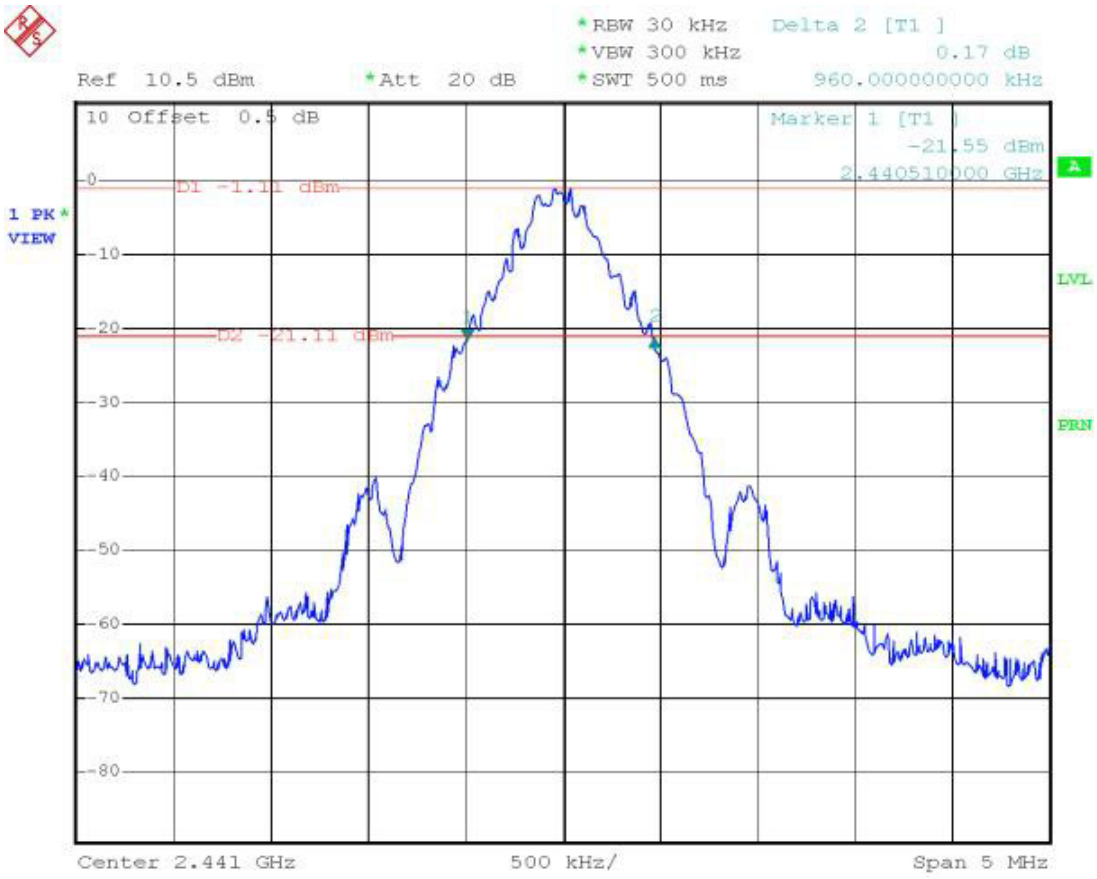
5.7.4 Test Result：See spectrum analyzer plots below

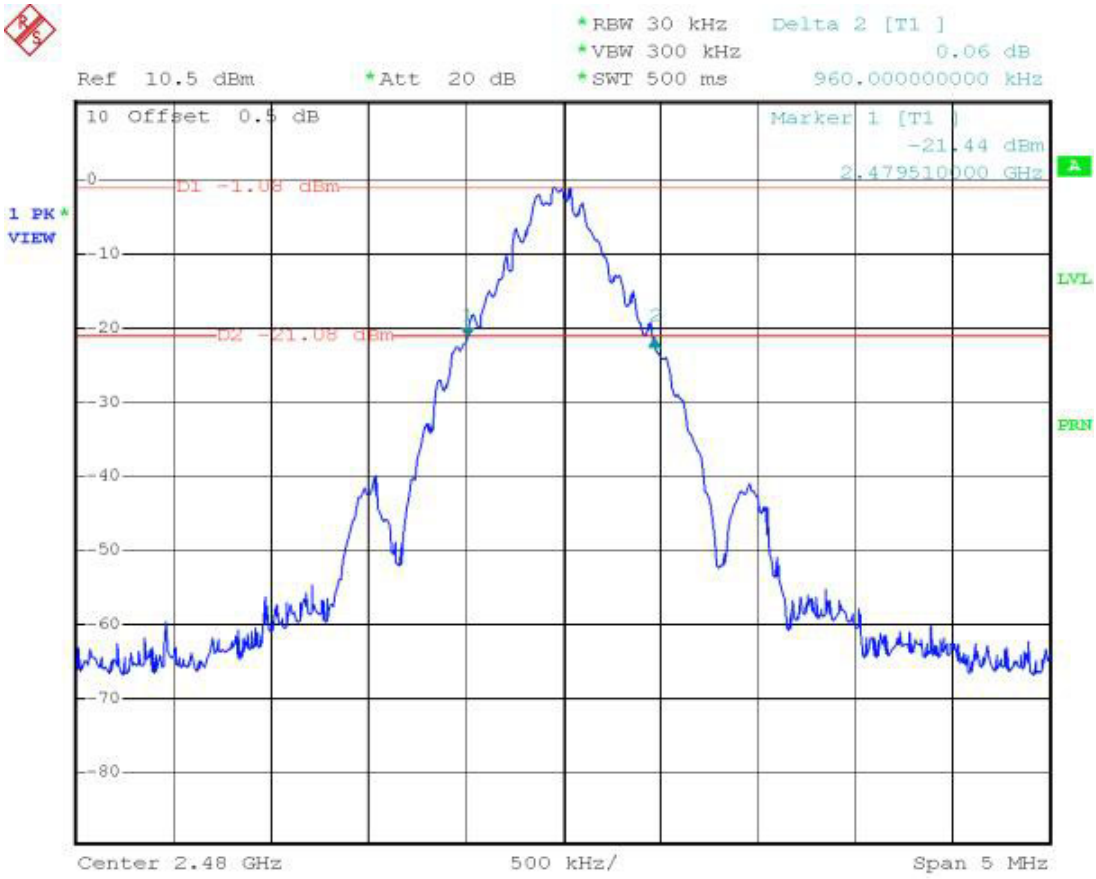
- Test Mode: BT
- Temperature: 23°C
- Relative Humidity: 60 %
- Duty cycle of the equipment during the test X ＝ 34%

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)
00	2402	0.9600	1.0
39	2441	0.9600	1.0
78	2480	0.9600	1.0

5.7.5 Hopping Channel Bandwidth




*RBW 30 kHz
*VBW 300 kHz
*SWT 500 ms
Delta 2 [T1]
0.17 dB
960.000000000 kHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-21.55 dBm
2.440510000 GHz
D1 -1.11 dBm
D2 -21.11 dBm
1 PK*
VIEW
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.441 GHz
500 kHz/
Span 5 MHz


*RBW 30 kHz
*VBW 300 kHz
*SWT 500 ms
Delta 2 [T1]
0.06 dB
960.000000000 kHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-21.44 dBm
2.479510000 GHz
D1 -1.08 dBm
D2 -21.08 dBm
1 PK*
VIEW
A
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.48 GHz
500 kHz/
Span 5 MHz

5.8. Dwell Time of Each Frequency within a 30 Seconds Period

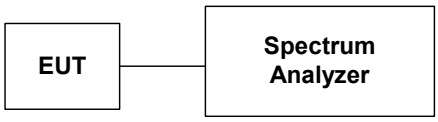
5.8.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.8.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer by a low loss cable.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
4. The calculate =0.4 * 79 * (1600/79) * t (t = the time duration of one single pulse)

5.8.3 Test Setup Layout：

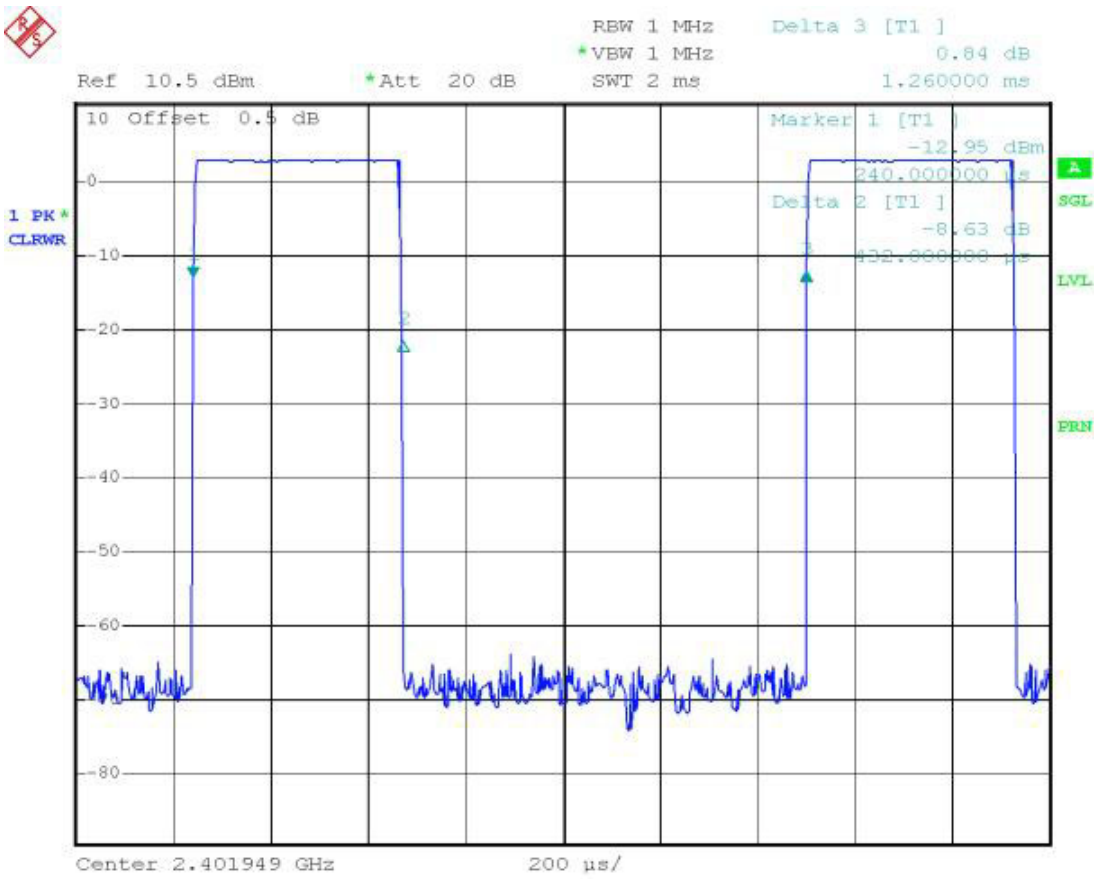


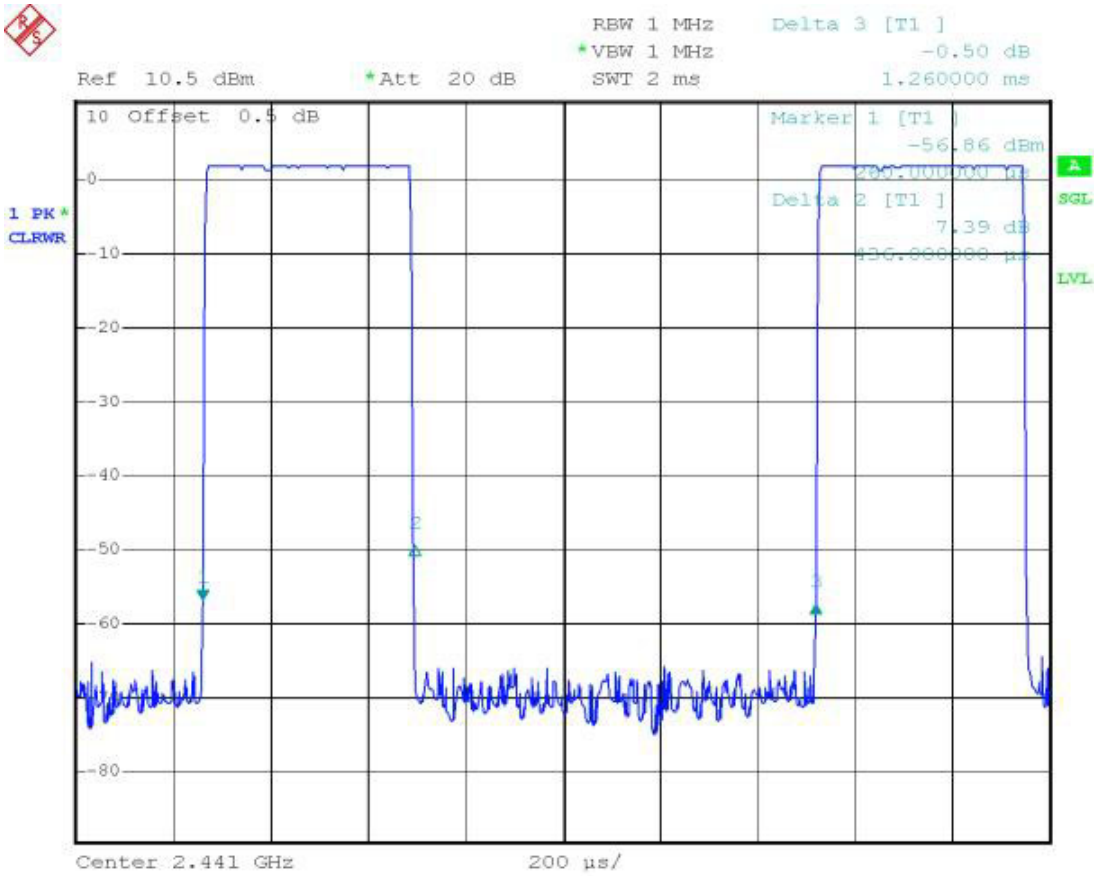
5.8.4 Test Result：See spectrum analyzer plots below

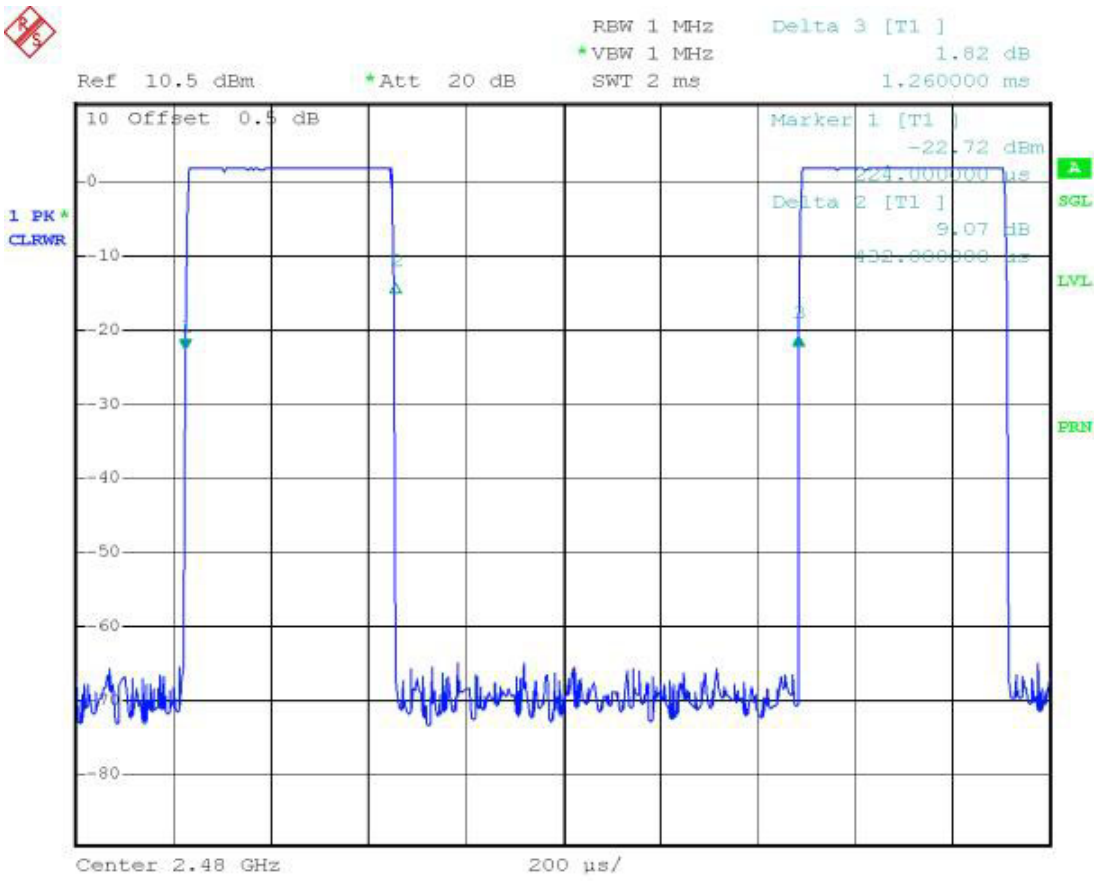
- Test Mode: BT
- Temperature: 23°C
- Relative Humidity: 60 %
- Duty cycle of the equipment during the test X ＝ 34%

Channel	Frequency (MHz)	Dwell Time (s)	Limits (s)
00	2402	0.28	0.4
39	2441	0.28	0.4
78	2480	0.28	0.4

5.8.5 Dell Time




RBW 1 MHz
*VBW 1 MHz
SWT 2 ms
Delta 3 [T1]
-0.50 dB
1.260000 ms
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-56.86 dBm
Delta 2 [T1]
7.39 dB
1 PK*
CLRWR
A
SGL
LVL
0
-10
-20
-30
-40
-50
-60
-80
Center 2.441 GHz
200 µs/


RBW 1 MHz
*VBW 1 MHz
SWT 2 ms
Delta 3 [T1]
1.82 dB
1.260000 ms
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
Marker 1 [T1]
-22.72 dBm
224.000000 µs
Delta 2 [T1]
9.07 dB
432.000000 µs
1 PK *
CLRWR
A
SGL
LVL
PRN
0
-10
-20
-30
-40
-50
-60
-80
Center 2.48 GHz
200 µs/

5.9. Peak Output Power

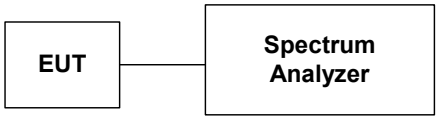
5.9.1 Measuring Instruments：

As described in chapter 9 of this test report.

5.9.2 Test Procedure：

The antenna port（RF output）of the EUT was connected to the input（RF input）of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

5.9.3 Test Setup Layout：



5.9.4 Test Result：See spectrum analyzer plots below

- Test Mode: WLAN 802.11b and BT
- Temperature : 26°C
- Relative Humidity : 53 %

WLAN 802.11b

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
01	2412	14.68	1W/30 dBm
06	2437	14.46	1W/30 dBm
11	2462	14.45	1W/30 dBm

BT

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	2.69	1W/30 dBm
39	2441	2.86	1W/30 dBm
78	2480	2.90	1W/30 dBm

6. Test of Conducted Emission

Conducted emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 kHz and return leads of the EUT according to the methods defined in ANSI C63.4-2001 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

6.1 Major Measuring Instruments

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

6.2 Test Procedures

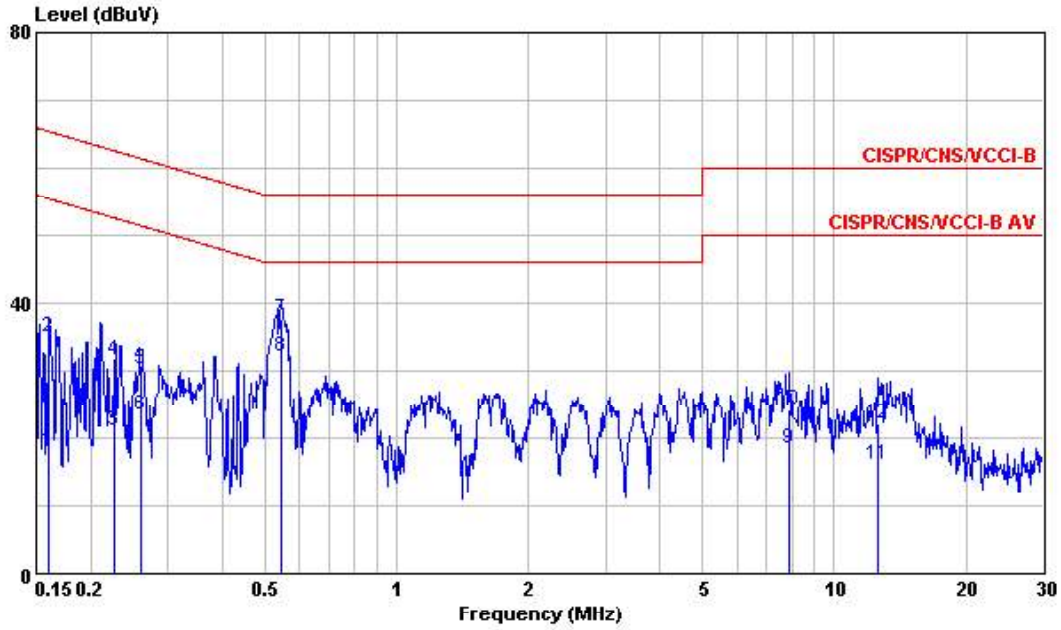
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power port of the line impedance stabilization network (LISN).
c. All the support units are connect to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

6.3 Test Result of Conducted Emission

6.3.1 Frequency Range of Test : 150kHz to 30 MHz

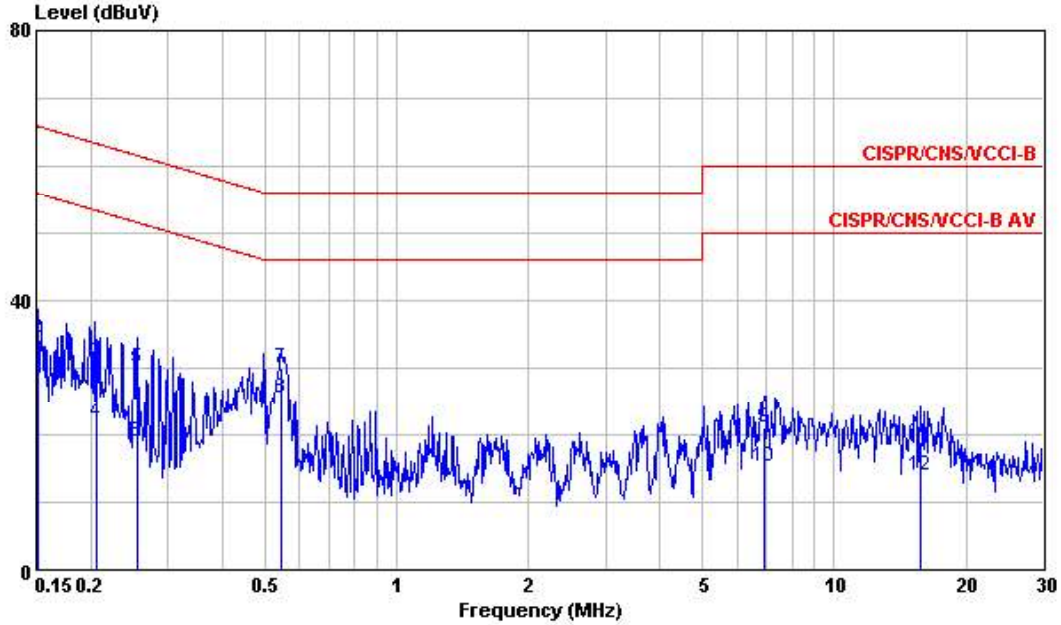
- Test Mode : Mode 1 EUT Only Mode
- Temperature : 26°C
- Relative Humidity : 53 %

■ The test that passed at minimum margin was marked by the frame in the following table.



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 LINE
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : EUT Only

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.1598470	18.06	-37.41	55.47	17.95	0.11	0.10	0.01	Average
2	0.1598470	34.92	-30.55	65.47	34.81	0.11	0.10	0.01	QP
3	0.2271010	21.10	-31.46	52.56	20.99	0.11	0.10	0.01	Average
4	0.2271010	31.50	-31.06	62.56	31.39	0.11	0.10	0.01	QP
5	0.2601590	30.29	-31.14	61.43	30.18	0.11	0.10	0.01	QP
6	0.2601590	23.50	-27.93	51.43	23.39	0.11	0.10	0.01	Average
7	@0.5464400	37.60	-18.40	56.00	37.47	0.13	0.10	0.03	QP
8	@0.5464400	32.23	-13.77	46.00	32.10	0.13	0.10	0.03	Average
9	7.890	18.41	-31.59	50.00	18.21	0.20	0.10	0.10	Average
10	7.890	24.17	-35.83	60.00	23.97	0.20	0.10	0.10	QP
11	12.580	16.05	-33.95	50.00	15.75	0.30	0.16	0.14	Average
12	12.580	21.99	-38.01	60.00	21.69	0.30	0.16	0.14	QP



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 NEUTRAL
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : EUT Only

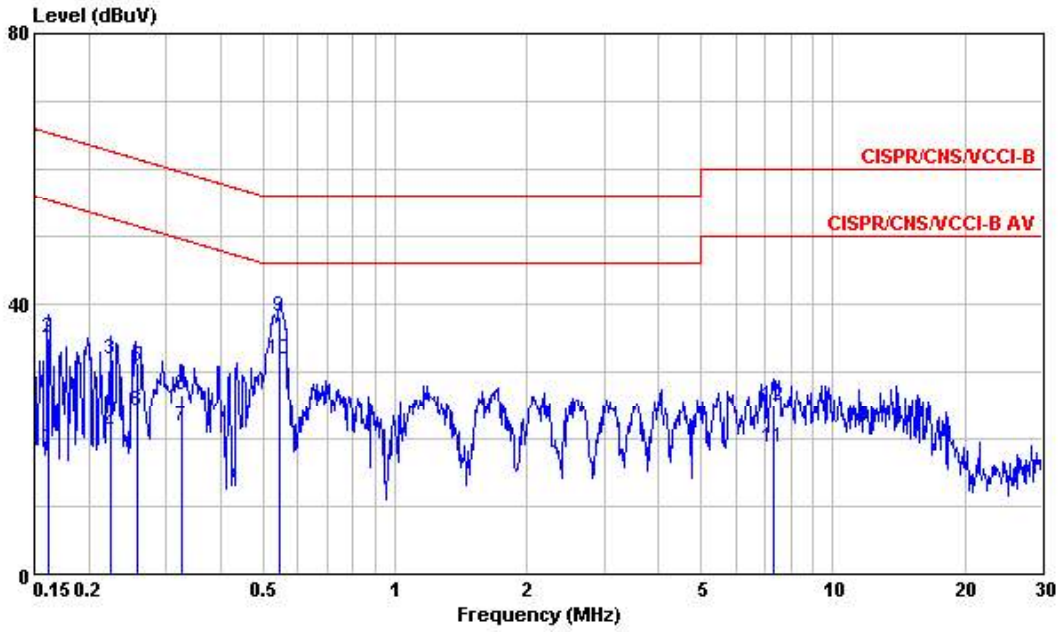
	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.1515980	26.69	-29.22	55.91	26.58	0.11	0.10	0.01	Average
2	0.1515980	34.51	-31.40	65.91	34.40	0.11	0.10	0.01	QP
3	0.2054430	30.92	-32.47	63.39	30.81	0.11	0.10	0.01	QP
4	0.2054430	21.89	-31.50	53.39	21.78	0.11	0.10	0.01	Average
5	0.2547970	30.08	-31.52	61.60	29.97	0.11	0.10	0.01	QP
6	0.2547970	18.91	-32.69	51.60	18.80	0.11	0.10	0.01	Average
7	0.5464400	30.01	-25.99	56.00	29.88	0.13	0.10	0.03	QP
8	@0.5464400	25.56	-20.44	46.00	25.43	0.13	0.10	0.03	Average
9	6.910	21.18	-38.82	60.00	20.93	0.25	0.16	0.09	QP
10	6.910	15.14	-34.86	50.00	14.89	0.25	0.16	0.09	Average
11	15.800	18.88	-41.12	60.00	18.49	0.39	0.22	0.17	QP
12	15.800	14.03	-35.97	50.00	13.64	0.39	0.22	0.17	Average

Test Engineer : Jay

6.3.2 Frequency Range of Test : 150kHz to 30 MHz

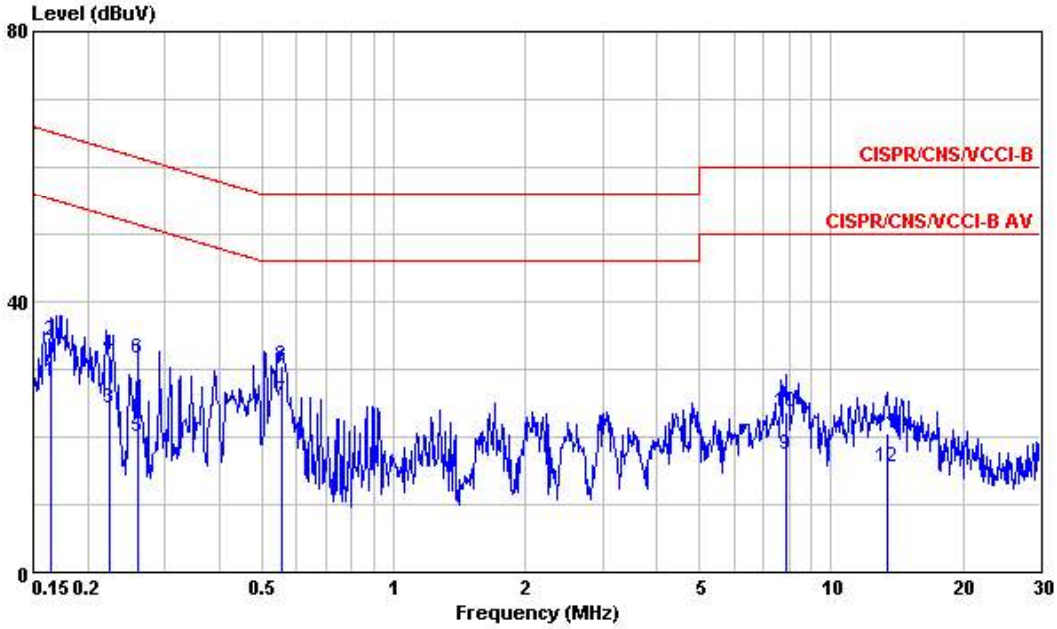
- Test Mode : Mode 2 Cradle Mode
- Temperature : 26°C
- Relative Humidity : 53 %

■ The test that passed at minimum margin was marked by the frame in the following table.



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 LINE
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : Cradle Mode

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.1615500	18.76	-36.62	55.38	18.65	0.11	0.10	0.01	Average
2	0.1615500	35.09	-30.29	65.38	34.98	0.11	0.10	0.01	QP
3	0.2243730	31.78	-30.88	62.66	31.67	0.11	0.10	0.01	QP
4	0.2243730	20.80	-31.86	52.66	20.69	0.11	0.10	0.01	Average
5	0.2587710	30.78	-30.69	61.47	30.67	0.11	0.10	0.01	QP
6	0.2587710	24.22	-27.25	51.47	24.11	0.11	0.10	0.01	Average
7	0.3251190	21.85	-27.72	49.57	21.73	0.12	0.10	0.02	Average
8	0.3251190	26.54	-33.03	59.57	26.42	0.12	0.10	0.02	QP
9	@0.5435530	38.16	-17.84	56.00	38.03	0.13	0.10	0.03	QP
10	@0.5435530	31.90	-14.10	46.00	31.77	0.13	0.10	0.03	Average
11	7.290	18.74	-31.26	50.00	18.54	0.20	0.10	0.10	Average
12	7.290	25.09	-34.91	60.00	24.89	0.20	0.10	0.10	QP



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 NEUTRAL
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : Cradle Mode

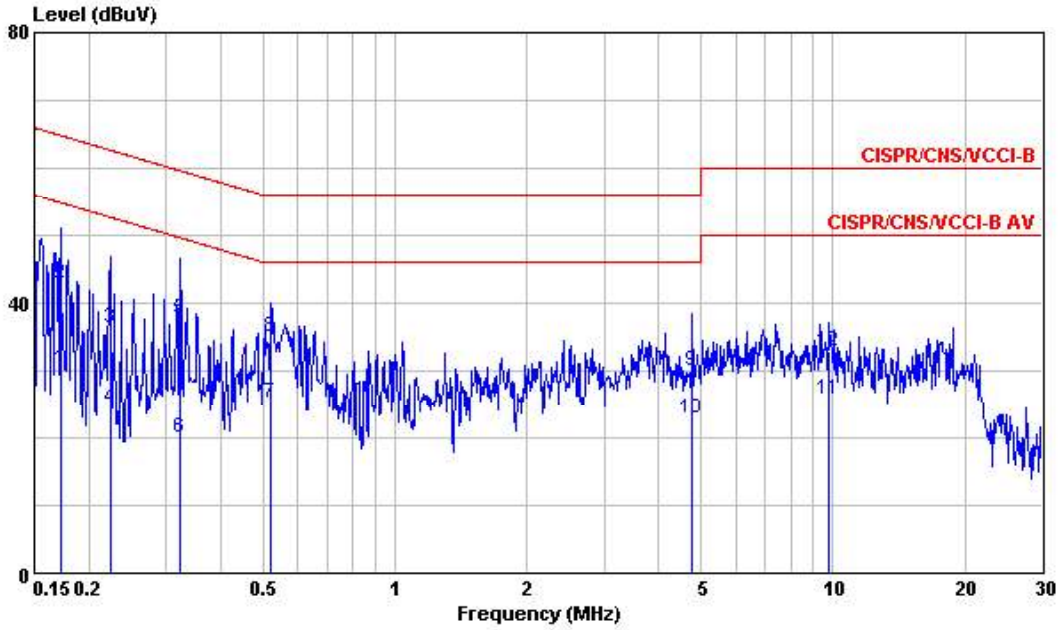
	Freq	Level	Over Limit	Limit Line	Read Level	Factor	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.1654390	28.06	-27.13	55.19	27.95	0.11	0.10	0.01	Average
2	0.1654390	34.33	-30.86	65.19	34.22	0.11	0.10	0.01	QP
3	0.2238840	24.19	-28.48	52.67	24.08	0.11	0.10	0.01	Average
4	0.2238840	32.11	-30.56	62.67	32.00	0.11	0.10	0.01	QP
5	0.2602550	20.02	-31.40	51.42	19.91	0.11	0.10	0.01	Average
6	0.2602550	31.46	-29.96	61.42	31.35	0.11	0.10	0.01	QP
7	@0.5551950	25.38	-20.62	46.00	25.25	0.13	0.10	0.03	Average
8	0.5551950	30.61	-25.39	56.00	30.48	0.13	0.10	0.03	QP
9	7.850	17.35	-32.65	50.00	17.08	0.27	0.17	0.10	Average
10	7.850	23.79	-36.21	60.00	23.52	0.27	0.17	0.10	QP
11	13.480	20.50	-39.50	60.00	20.15	0.35	0.20	0.15	QP
12	13.480	15.60	-34.40	50.00	15.25	0.35	0.20	0.15	Average

Test Engineer : Jay

6.3.3 Frequency Range of Test : 150kHz to 30 MHz

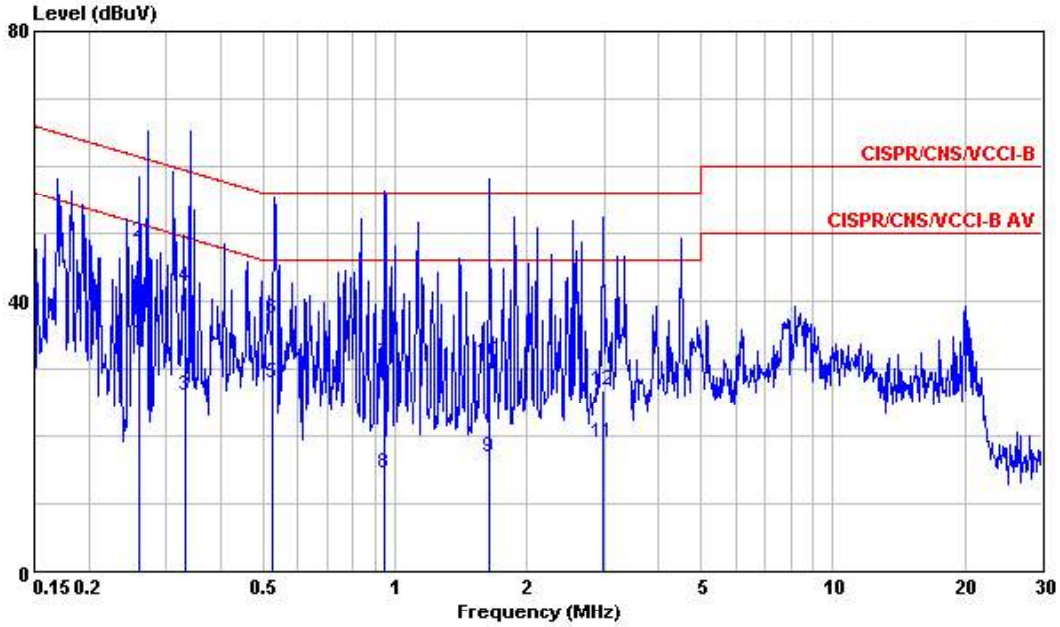
- Test Mode : Mode 3 Cradle+USB Mode
- Temperature : 26°C
- Relative Humidity : 53 %

■ The test that passed at minimum margin was marked by the frame in the following table.



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 LINE
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : Cradle + USB Mode

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.1721540	30.20	-24.66	54.86	30.09	0.11	0.10	0.01	Average
2	0.1721540	42.90	-21.96	64.86	42.79	0.11	0.10	0.01	QP
3	0.2231870	36.21	-26.49	62.70	36.10	0.11	0.10	0.01	QP
4	0.2231870	24.42	-28.28	52.70	24.31	0.11	0.10	0.01	Average
5	0.3234010	37.65	-21.97	59.62	37.53	0.12	0.10	0.02	QP
6	0.3234010	19.99	-29.63	49.62	19.87	0.12	0.10	0.02	Average
7	@0.5209950	25.25	-20.75	46.00	25.12	0.13	0.10	0.03	Average
8	0.5209950	34.96	-21.04	56.00	34.83	0.13	0.10	0.03	QP
9	4.770	29.91	-26.09	56.00	29.73	0.18	0.10	0.08	QP
10	4.770	22.96	-23.04	46.00	22.78	0.18	0.10	0.08	Average
11	9.760	25.72	-24.28	50.00	25.51	0.21	0.10	0.11	Average
12	9.760	32.82	-27.18	60.00	32.61	0.21	0.10	0.11	QP



Site : site
Condition : CISPR/CNS/VCCI-B 2003 2001/004 NEUTRAL
EUT : PDA
POWER : 120V/60Hz
MODEL :
MEMO : Cradle + USB Mode

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	@0.2603730	33.74	-17.68	51.42	33.63	0.11	0.10	0.01	Average
2	@0.2603730	48.59	-12.83	61.42	48.48	0.11	0.10	0.01	QP
3	0.3308170	26.14	-23.29	49.43	26.02	0.12	0.10	0.02	Average
4	@0.3308170	42.17	-17.26	59.43	42.05	0.12	0.10	0.02	QP
5	@0.5228120	27.93	-18.07	46.00	27.80	0.13	0.10	0.03	Average
6	@0.5228120	37.28	-18.72	56.00	37.15	0.13	0.10	0.03	QP
7	0.9480900	30.70	-25.30	56.00	30.56	0.14	0.10	0.04	QP
8	0.9480900	14.59	-31.41	46.00	14.45	0.14	0.10	0.04	Average
9	1.640	16.77	-29.23	46.00	16.64	0.13	0.10	0.03	Average
10	1.640	31.03	-24.97	56.00	30.90	0.13	0.10	0.03	QP
11	2.990	18.94	-27.06	46.00	18.79	0.15	0.10	0.05	Average
12	2.990	26.77	-29.23	56.00	26.62	0.15	0.10	0.05	QP

Test Engineer : Jay