

# FCC TEST REPORT

for

**47 CFR, Part 15 Subpart E**

**Equipment : Notebook PC**

**Trade Name : GETAC; MTC; GTK**

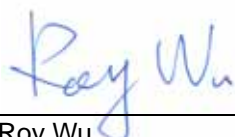
**Model No. : P470**

**FCC ID : MAU470**

**Filing Type : Certification**

**Applicant : MiTAC Technology Corp.**  
9th FL., No. 75, Ming Sheng E. Rd., Sec. 3, Taipei, 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.**
- The data shown in this test report were carried out on June 06, 2007 at **Sporton International Inc. LAB.**
- Report No.: FR731320-B, Report Version: Rev. 03.



Roy Wu  
Deputy Manager

***SPORTON International Inc.***

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

---

***SPORTON International Inc.***

TEL : 886-2-2696-2468

FAX : 886-2-2696-2255

Report Version: Rev. 03

## Table of Contents

**History of this test report.....ii**

**1. General Description of Equipment under Test.....1**

    1.1 Applicant.....1

    1.2 Manufacturer .....1

    1.3 Basic Description of Equipment under Test .....1

    1.4 Feature of Equipment under Test .....2

**2. Test Configuration of Equipment under Test .....3**

    2.1 Test Manner .....3

    2.2 Description of Test System .....3

    2.3 Connection Diagram of Test System .....4

**3. Operation of Equipment under Test .....6**

**4. General Information of Test.....7**

    4.1 Test Voltage .....7

    4.2 Standard for Methods of Measurement.....7

    4.3 Test in Compliance with .....7

    4.4 Frequency Range Investigated .....7

    4.5 Test Distance .....7

**5. Report of Measurements and Examinations .....8**

    5.1 List of Measurements and Examinations .....8

    5.2 Emission Bandwidth.....9

    5.3 Peak Transmit Power.....13

    5.4 Peak Power Spectral Density.....17

    5.5 Test of Conducted Emission .....21

    5.6 Test of Radiated Emission .....24

    5.7 Band Edges Measurement.....47

    5.8 Peak Excursion Ratio Measurement.....49

    5.9 Frequency Stability.....54

    5.10 Automatically discontinue transmission .....55

    5.11 Antenna Requirements .....56

**5 List of Measuring Equipments Used .....57**

**6 Uncertainty of Test Site .....58**

**Appendix A. Photographs of EUT External**

**Appendix B. Photographs of EUT Internal**

**Appendix C. Photographs of Setup**



## **1. General Description of Equipment under Test**

### **1.1 Applicant**

**MiTAC Technology Corp.**

9th FL., No. 75, Ming Sheng E. Rd., Sec. 3, Taipei, Taiwan

### **1.2 Manufacturer**

**GeTAC Technology (Kunshan) LTD.**

No. 269, 2<sup>nd</sup> Road, Export Processing Zone, Changjiang South Road, Kunshan, Jiangsu, P.R.C.

### **1.3 Basic Description of Equipment under Test**

Equipment	: Notebook PC
Trade Name	: GETAC; MTC; GTK
Model No.	: P470
AC Power Cord	: AC 120V, Wall-mount, 1.8 meter, 3 pin
DC Power Cable	: DC 19V, 1.8 meter, 3 pin

**1.4 Feature of Equipment under Test**

Product Feature & Specification				
1. DUT Type	Notebook PC			
2. Trade Name	GETAC; MTC; GTK			
3. Model Name	P470			
4. Freq. Range/Carrier Freqs.	802.11a : 5150 ~ 5250MHz (Band I) / 5250 ~ 5350MHz (Band II) / 5725MHz ~ 5850MHz (Band III) 802.11b/g : 2400MHz ~ 2483.5MHz BT : 2400MHz ~ 2483.5MHz			
5. Number of Channels	802.11a : 8 (Band I and II) / 5 (Band III) 802.11b/g : 11 BT : 79			
6. Carrier Frequency of each channel	802.11a Band I and Band II : 5000+n*5 MHz, n=36, 40, 44, 48, 52, 56, 60, 64 802.11a Band III : 5000+n*5 MHz, n=149, 153, 157, 161, 165 802.11b/g : 2412MHz+(n-1)*5MHz, n=1~11 BT : 2402MHz+n*1MHz, n=0~78			
7. Channel Spacing	802.11a : 20MHz 802.11b/g : 5MHz BT : 1MHz			
8. Type of Antenna Connector	I-PEX			
9. Antenna Type	PIFA Antenna			
10. Antenna Gain	802.11a : 0.65 dBi (Right) / 1.3 dBi (Left) 802.11b/g : 0.31 dBi (Right) / 1.09 dBi (Left) BT : 0.75 dBi			
11. Maximum Output Power to Antenna (Normal condition)	802.11a : 16.35 dBm (Band I) / 15.60 dBm (Band II) / 18.87 dBm (Band III) 802.11b : 16.81 dBm / 802.11g: 20.4 dBm BT : -1.09 dBm			
12. Modulation Type/Data Rate	802.11a : OFDM 802.11b/g : DSSS / OFDM BT : GFSK			
13. Function Type	Transmitter		Transceiver	V

## 2. Test Configuration of Equipment under Test

### 2.1 Test Manner

- a. 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.
- b. Power Table as below:

Channel	Frequency (MHz)	Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 036	5180 MHz	15.79	15.01	15.11	15.09	14.94	15.62	15.54	15.64
CH 044	5220 MHz	15.37	14.56	14.49	15.15	15.02	15.25	15.15	15.12
CH 048	5240 MHz	16.35	15.28	14.7	15.08	16.22	15.73	15.38	15.1
CH 052	5260 MHz	15.22	14.56	14.49	15.15	15.02	15.25	15.15	15.12
CH 064	5320 MHz	15.6	15.1	14.9	15.21	15.12	15.32	15.23	15.14

- c. The data rates, 6Mbps, was chosen to being tested, due to the highest RF output power.
- d. The complete test system refers to section 2.2 and EUT for EMI test.
- e. The EUT can operate on 5150MHz to 5350MHz and 5725MHz to 5850MHz as listed in section 1.4.
- f. Test Mode for radiated emission and conducted emission:

Radiated Emission	Mode 1: Tx_Ch36_5180 MHz Mode 2: Tx_CH44_5220 MHz Mode 3: Tx_CH48_5240 MHz Mode 4: Tx_CH52_5260 MHz Mode 5: Tx_CH64_5320 MHz
Conducted Emission	Mode 1: WLAN Link Mode + Adapter

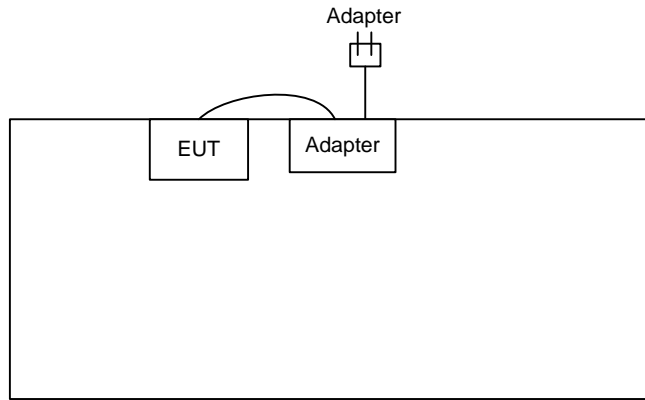
- g. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 40000MHz.

### 2.2 Description of Test System

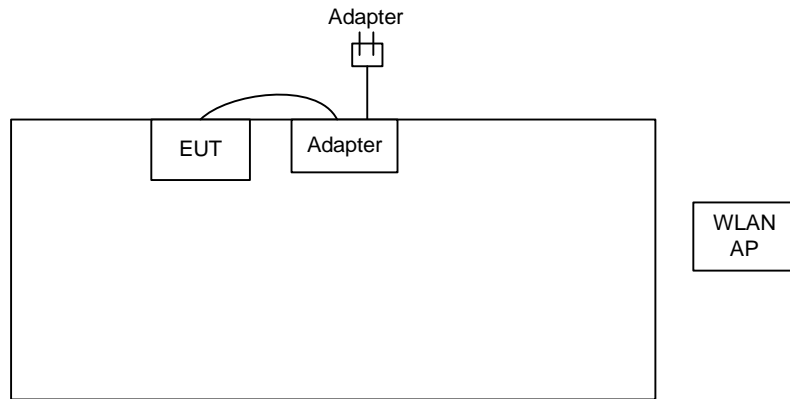
Item	Asset	Model Name	FCC ID	Power Cord
1.	WLAN AP (SMC)	SMC-100	HEDWG4005ACC	N/A

### 2.3 Connection Diagram of Test System

<Radiated Emission>



**<Conducted Emission>**





### **3. Operation of Equipment under Test**

During the test, the following programs on WINXP were executed:  
one self test program "CRTU" to keep transmitting signals.

## **4. General Information of Test**

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park,  
Kwei-Shan Hsiag, Tao Yuan Hsien, Taiwan, R.O.C.  
TEL : 886-3-327-3456  
FAX : 886-3-318-0055  
Test Site No : CO04-HY, 03CH06-HY

### **4.1 Test Voltage**

120V/ 60Hz

### **4.2 Standard for Methods of Measurement**

ANSI C63.4-2003

### **4.3 Test in Compliance with**

FCC Part 15, Subpart E

### **4.4 Frequency Range Investigated**

- a. Conduction: from 150 kHz to 30 MHz
- b. Radiation: from 30 MHz to 40000MHz

### **4.5 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

FCC Rule	Description of Test	Result
15.407(b)(5)	Conducted Emission	Pass
15.407(a)(1)(2)	Peak Transmit Power	Pass
15.407(b)(1)(2)(5)	Radiated Emission	Pass
15.407(a)(1)(2)	Power Spectral Density	Pass
15.407(b)(1)(2)	Band Edges Measurement	Pass
15.407(a)(1)(2)	Antenna Requirement	Pass
15.407(a)(6)	Peak Excursion Ratio Measurement	Pass
15.407(c)	Automatically Discontinue Transmission	Pass

**5.2 Emission Bandwidth**

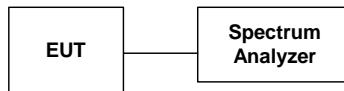
5.2.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.2.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. For these tests, the resolution bandwidth is 1 MHz, peak detection and view function is used. The 26 dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 26 dB.

Test Setup Layout :



5.2.3 Test Result :

- Temperature : 26
- Relative Humidity :54%

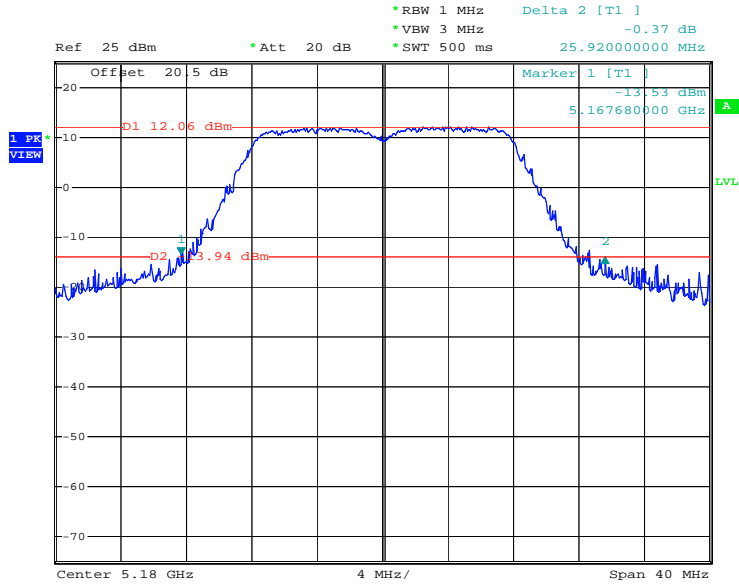
➤ Application: 802.11a

Channel	Frequency ( MHz )	26dB Emission bandwidth ( MHz )	Mode Ref. No.
36	5180	25.92	1
44	5220	25.92	2
48	5240	29.68	3
52	5260	22.72	4
64	5320	22.56	5

5.2.4 Test Data

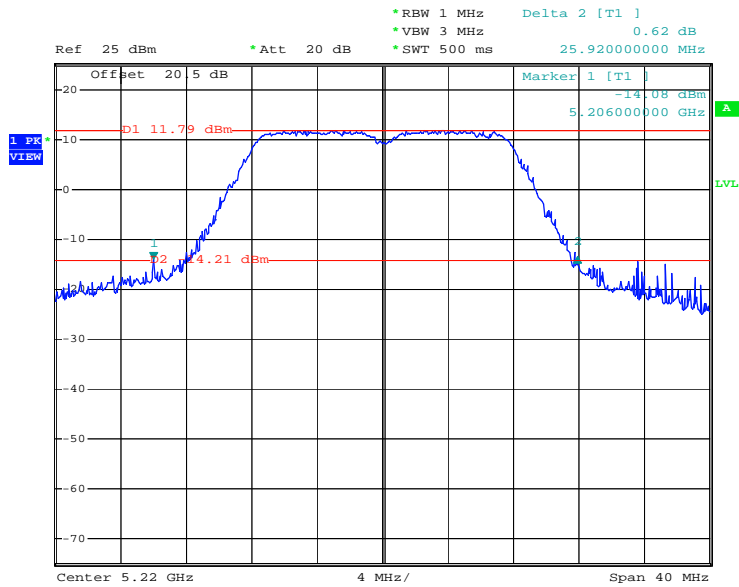
Mode Ref. No.

1



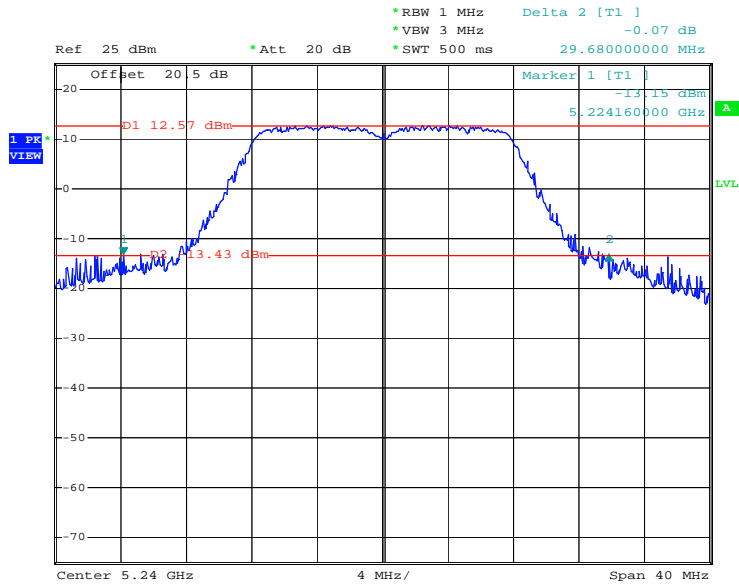
Date: 4.JUN.2007 20:41:09

2



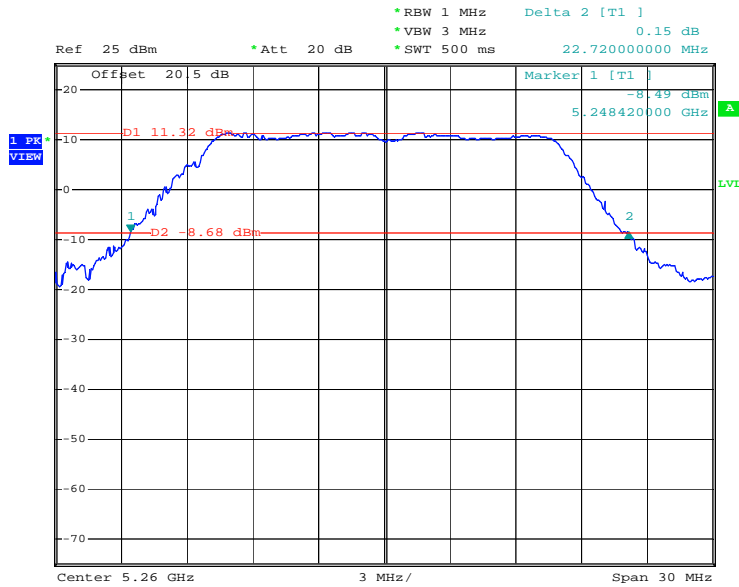
Date: 4.JUN.2007 20:43:07

3

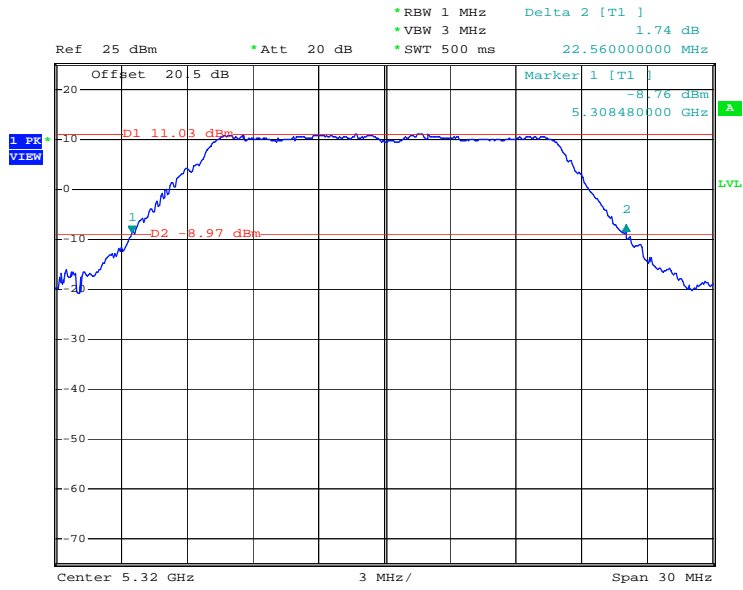


Date: 4.JUN.2007 20:47:06

4



Date: 6.JUN.2007 17:21:10



5

Date: 6.JUN.2007 17:22:52

**5.3 Peak Transmit Power**

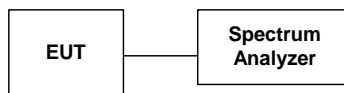
5.3.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.3.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. According to the method 3 of DA-02-2138, the resolution bandwidth is set to 1 MHz, video bandwidth is 1MHz, set max hold to run for 60 seconds, and sample detection is used. The peak power is measured by channel power integration over the previously measured emissions bandwidth..

5.3.3 Test Setup Layout :





## 5.3.4 Test Result :

- Temperature : 26
- Relative Humidity :54%

## ➤ Application: 802.11a

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (dBm )	Mode Ref. No.
36	5180	15.79	17	1
44	5220	15.37	17	2
48	5240	16.35	17	3
52	5260	15.22	24	4
64	5320	15.60	24	5

Comments : The peak transmit power shall not exceed the lesser of 17dBm or 4dBm+10logB in 5150~5250 band.

5180MHz 4dBm + 10log(25.92 MHz) = 18.14 dBm

5220MHz 4dBm + 10log(25.92 MHz) = 18.14 dBm

5240MHz 4dBm + 10log(29.68 MHz) = 18.72 dBm

Comments : The peak transmit power shall not exceed the lesser of 24dBm or 11dBm+10logB in 5150~5350 band.

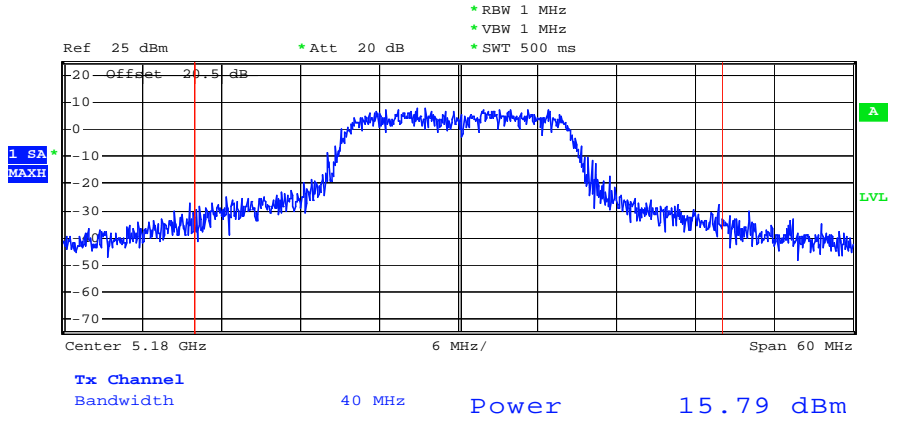
5260MHz 11dBm + 10log(22.72 MHz) = 24.56 dBm

5320MHz 11dBm + 10log(22.56 MHz) = 24.53 dBm

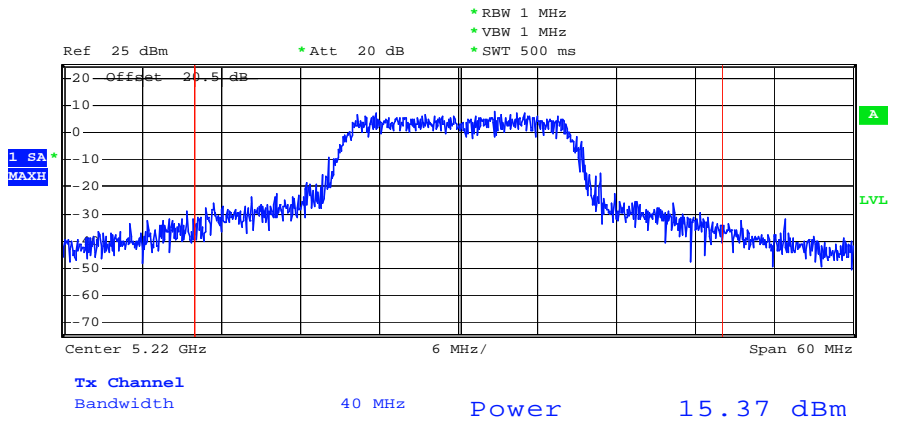
5.3.5 Test Data

Mode Ref. No.

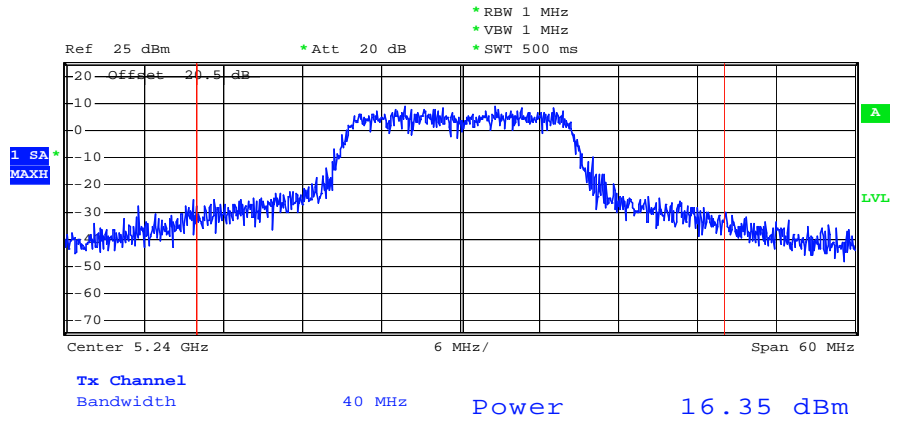
1



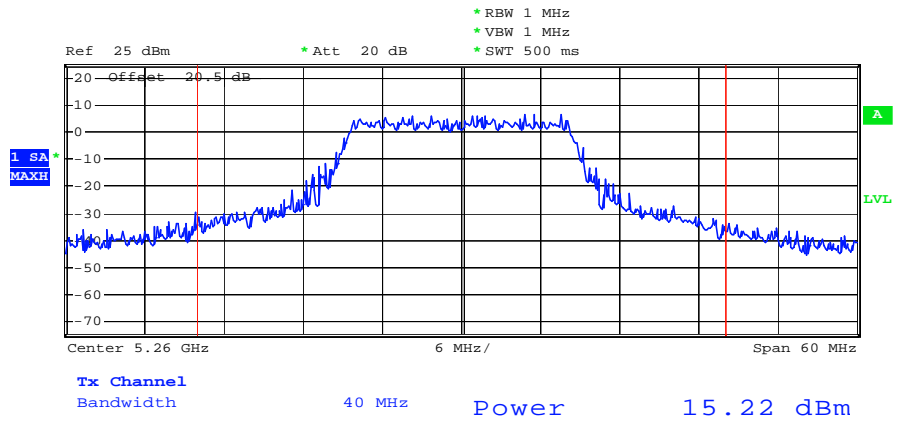
2



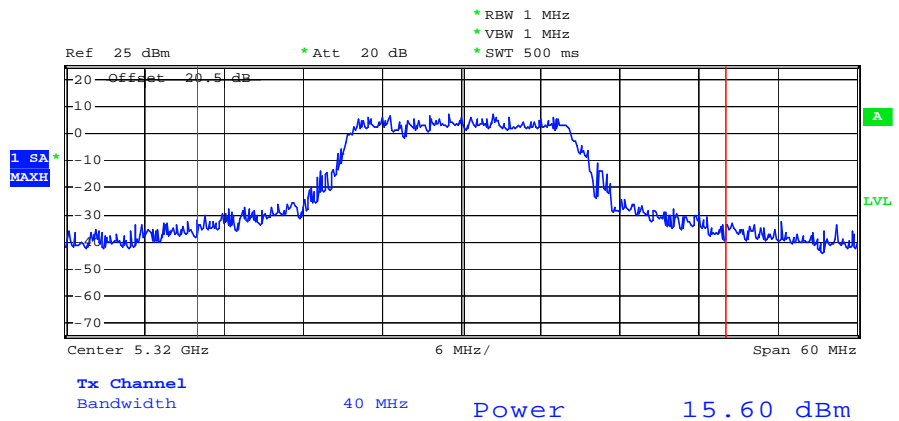
3



4



5



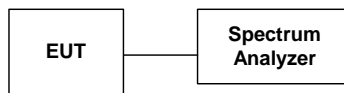
**5.4 Peak Power Spectral Density**

5.4.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.4.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. According to the method 3 of DA-02-2138, the resolution bandwidth is set to 1 MHz, video bandwidth is 3MHz, trace average 100 traces in power averaging mode, and sample detection is used, and the analyzer is set for video averaging.



5.4.3 Test Result :

- Temperature : 26
- Relative Humidity :54%

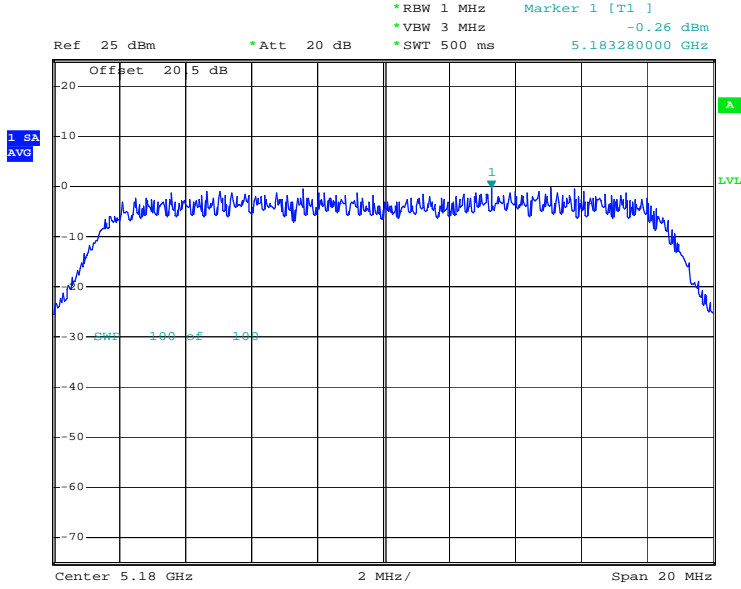
➤ Application: 802.11a

Channel	Frequency (MHz)	Power Spectral	Limits (dBm)	Mode
		Density (dBm)		Ref. No.
36	5180	-0.26	4	1
44	5220	0.21	4	2
48	5240	0.18	4	3
52	5260	-2.38	11	4
64	5320	-1.82	11	5

5.4.4 Test Data

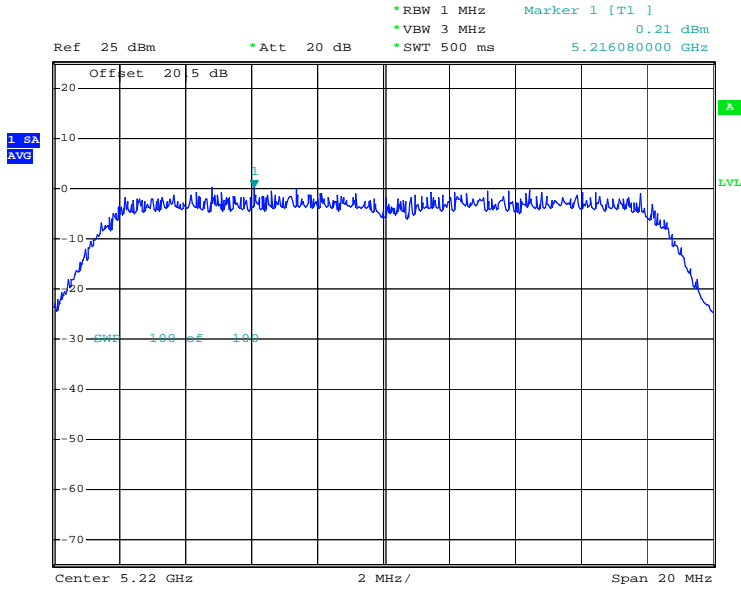
Mode Ref. No.

1



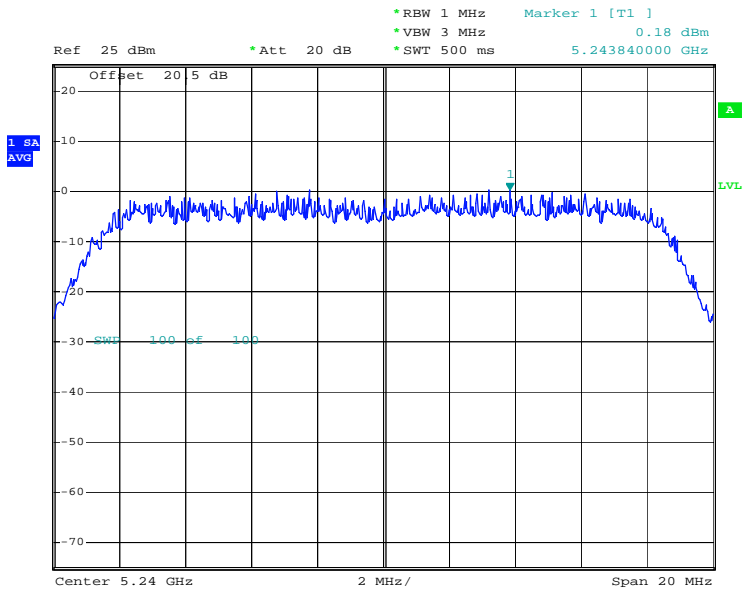
Date: 4.JUN.2007 21:19:08

2



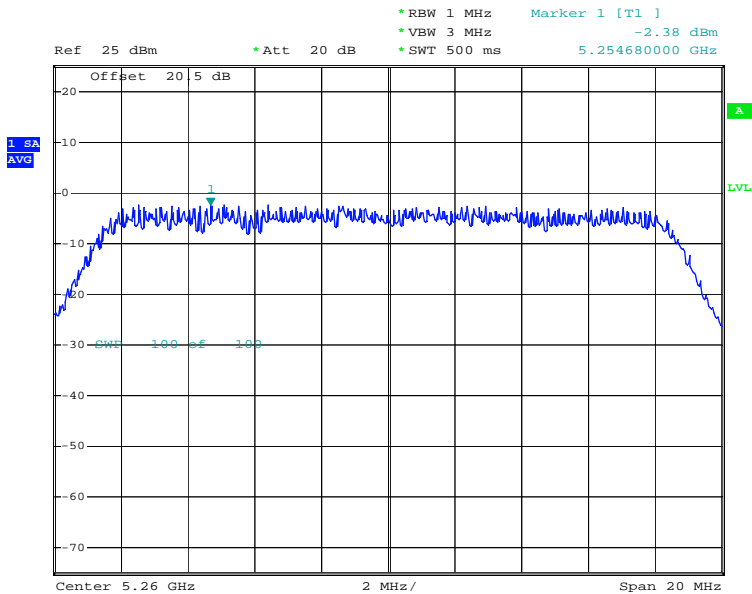
Date: 4.JUN.2007 21:20:36

3

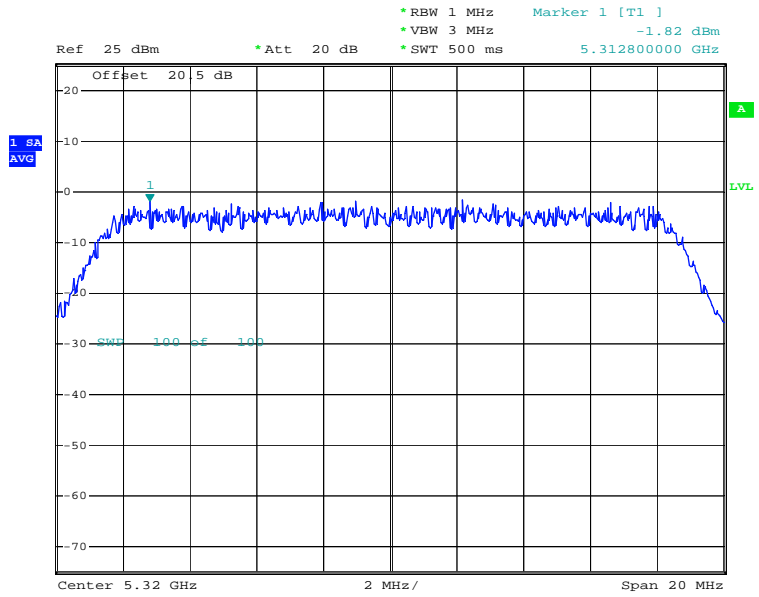


Date: 4.JUN.2007 21:21:47

4



Date: 6.JUN.2007 17:35:09



5

Date: 6.JUN.2007 17:36:50

## 5.5 Test of Conducted Emission

As described in chapter 6 of this test report.

### 5.5.1 Test Procedures :

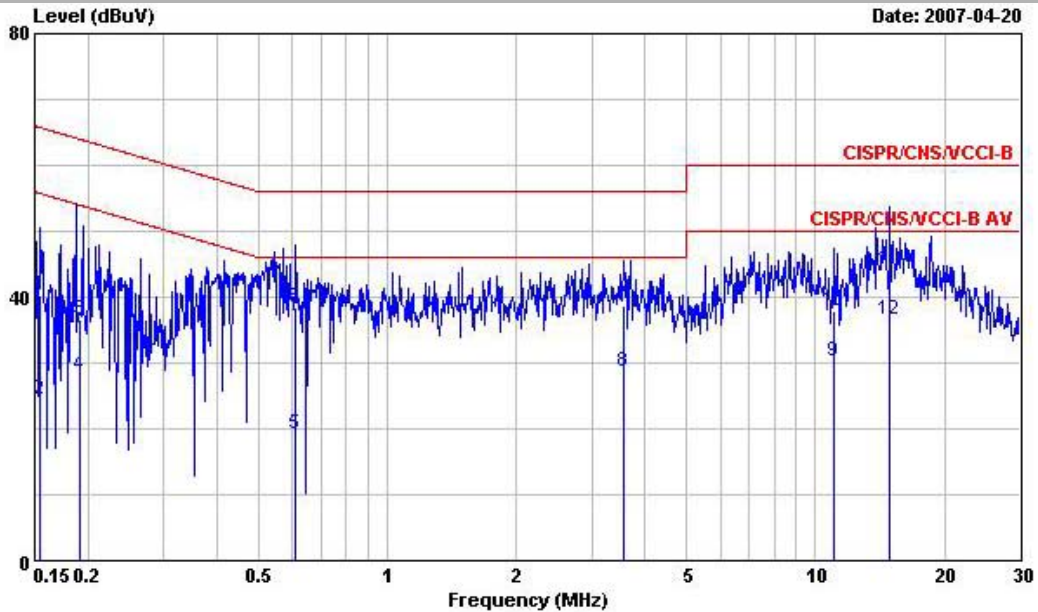
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power port of a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISN.
4. The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



5.5.2 Test Data

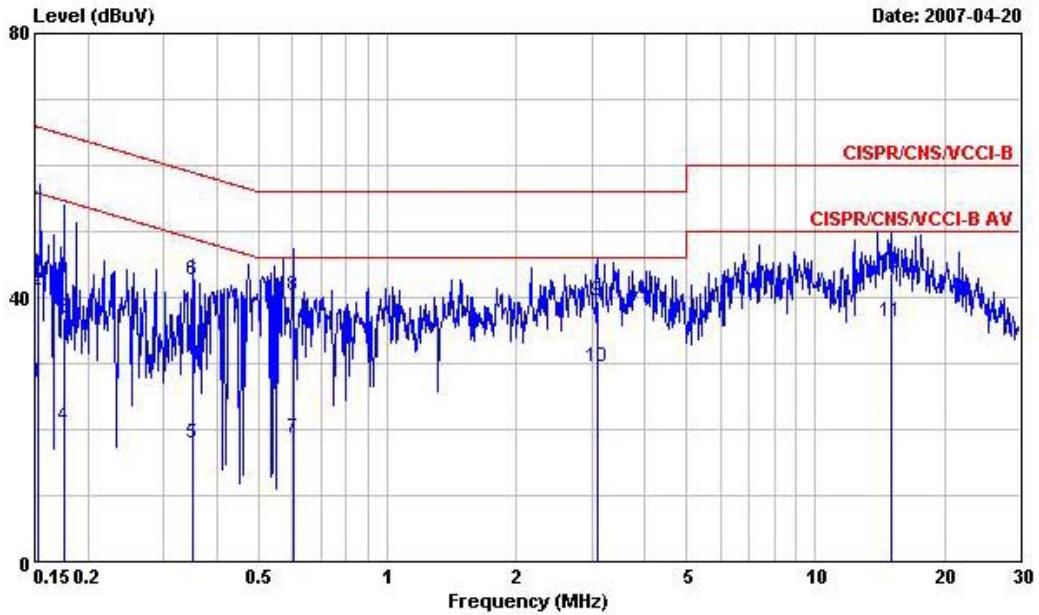
- Frequency Range of Test : 150kHz to 30 MHz
- Test Mode : Mode 1
- Temperature : 24 °C
- Relating Humidity : 52 %
- Test Enginner : James

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



Site : CO04-HY  
 Condition : CISPR/CNS/VCCI-B LISN 200604 99041 LINE  
 EUT : Notebook PC  
 POWER: AC 120V/60Hz  
 Model : FR731320  
 Memo : WLAN Link+Adapter

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1548450	40.36	-25.38	65.74	39.58	0.10	0.68	QP
2	@0.1548450	24.56	-31.18	55.74	23.78	0.10	0.68	Average
3	@0.1912050	36.60	-27.38	63.98	35.97	0.10	0.53	QP
4	@0.1912050	28.16	-25.82	53.98	27.53	0.10	0.53	Average
5	@0.6107510	19.30	-26.70	46.00	18.80	0.10	0.40	Average
6	@0.6107510	38.49	-17.51	56.00	37.99	0.10	0.40	QP
7	@ 3.570	38.81	-17.19	56.00	38.11	0.10	0.60	QP
8	@ 3.570	28.70	-17.30	46.00	28.00	0.10	0.60	Average
9	@ 11.080	30.31	-19.69	50.00	29.28	0.30	0.73	Average
10	@ 11.080	37.86	-22.14	60.00	36.83	0.30	0.73	QP
11	@ 14.910	44.15	-15.85	60.00	42.75	0.60	0.80	QP
12	@ 14.910	36.66	-13.34	50.00	35.26	0.60	0.80	Average



Site : CO04-HY  
 Condition : CISPR/CNS/VCCI-B LISN 200604 99041 NEUTRAL  
 EUT : Notebook PC  
 POWER: AC 120V/60Hz  
 Model : FR731320  
 Memo : WLAN Link+Adapter

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	@0.1522950	27.01	-28.86	55.87	26.22	0.10	0.69	Average
2	@0.1522950	41.14	-24.73	65.87	40.35	0.10	0.69	QP
3	@0.1758420	36.96	-27.72	64.68	36.27	0.10	0.59	QP
4	@0.1758420	20.51	-34.17	54.68	19.82	0.10	0.59	Average
5	@0.3520120	17.81	-31.10	48.91	17.31	0.10	0.40	Average
6	@0.3520120	42.59	-16.32	58.91	42.09	0.10	0.40	QP
7	@0.6011200	18.57	-27.43	46.00	18.07	0.10	0.40	Average
8	@0.6011200	40.15	-15.85	56.00	39.65	0.10	0.40	QP
9	@3.090	39.54	-16.46	56.00	38.78	0.16	0.60	QP
10	@3.090	29.34	-16.66	46.00	28.58	0.16	0.60	Average
11	@15.070	36.37	-13.63	50.00	35.27	0.30	0.80	Average
12	@15.070	43.72	-16.28	60.00	42.62	0.30	0.80	QP

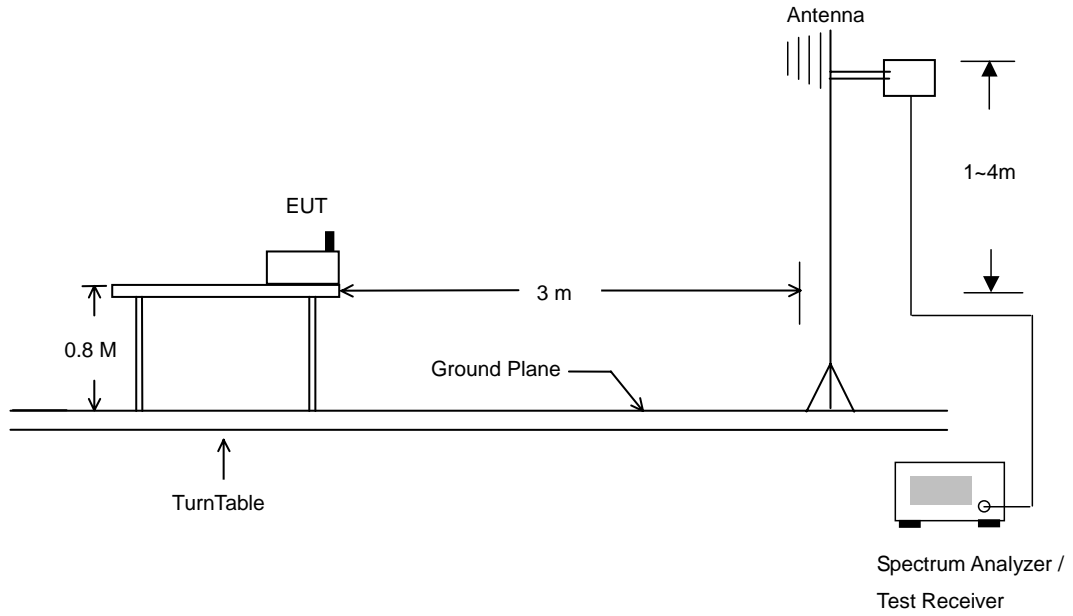
## 5.6 Test of Radiated Emission

As described in chapter 6 of this test report.

### 5.6.1 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- e. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

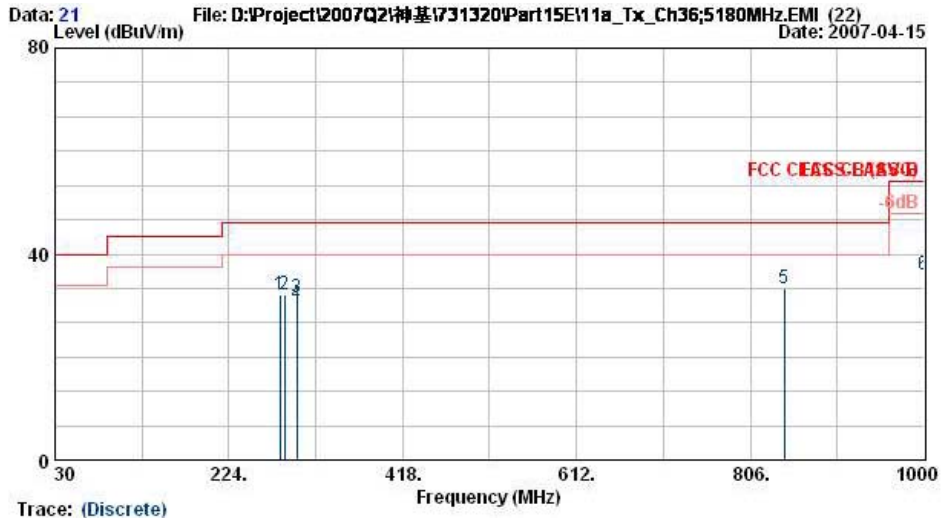
5.6.2 Typical Test Setup Layout of Radiated Emission



5.6.3 Test Data

- Test Mode : Mode 1
  - Temperature : 26
  - Relative Humidity :54%
  - Test Engineer : Andrew
  - Polarization : Horizontal (30MHz-1GHz)

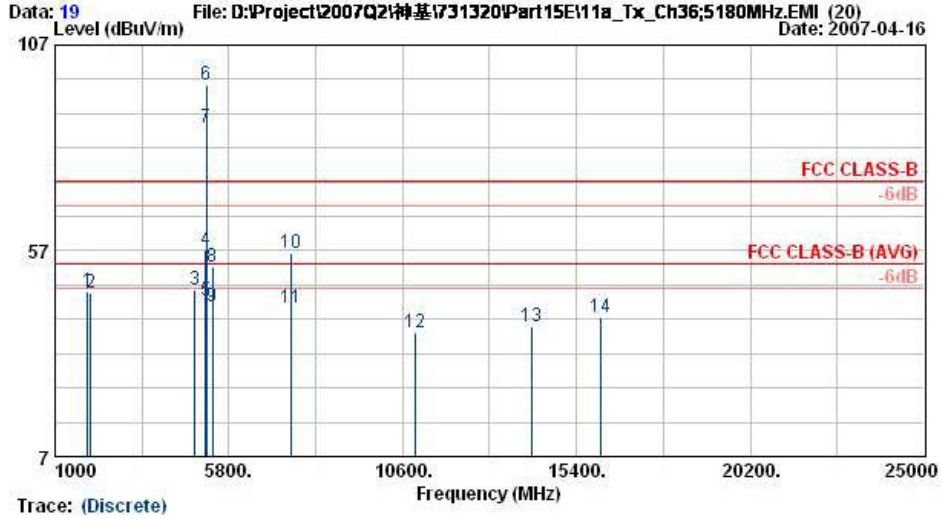
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBUV/m)	Over Limit (dB)	Limit Line (dBUV/m)	Read Level (dBUV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	280.83	31.98	-14.02	46	47.52	12.86	2.57	30.97	100	360	Peak
2	286.23	32.17	-13.83	46	47.59	12.95	2.59	30.96	100	360	Peak
3	299.73	31.5	-14.5	46	46.59	13.21	2.63	30.93	100	360	Peak
4	300	30.48	-15.52	46	45.57	13.21	2.63	30.93	100	360	Peak
5	843.9	33.22	-12.78	46	38.88	20.13	4.65	30.44	100	231	Peak
6	1000	36.02	-17.98	54	39.91	21.24	5.14	30.27	100	360	Peak

- Polarization : Horizontal (1GHz-25GHz)

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

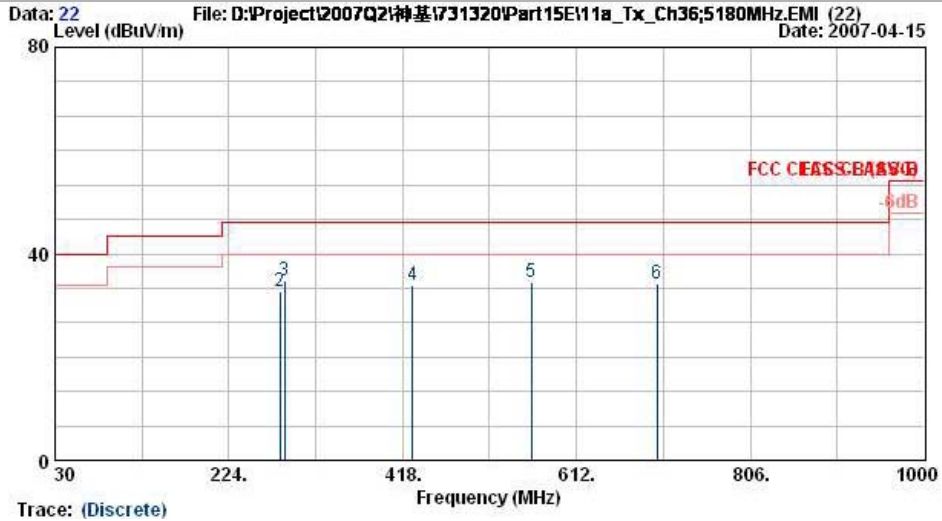


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898	47.26	-26.74	74	50.02	29.3	3.22	35.28	100	360	Peak
2	1990	46.83	-27.17	74	48.73	29.97	3.3	35.17	100	360	Peak
3	4868	47.43	-26.57	74	44.57	33.14	5.88	36.16	100	360	Peak
4	5150	57.33	-16.67	74	53.71	33.6	6.21	36.19	100	0	Peak
5	5150	44.91	-9.09	54	41.29	33.6	6.21	36.19	100	116	Average
6	X 5180	97.16	23.16	74	93.46	33.6	6.28	36.18	100	0	Peak
7	X 5180	86.91	32.91	54	83.21	33.6	6.28	36.18	100	116	Average
8	5350	53.21	-20.79	74	49.1	33.6	6.59	36.08	100	0	Peak
9	5350	43.57	-10.43	54	39.46	33.6	6.59	36.08	100	116	Average
10	7524	56.28	-17.72	74	45.76	38.95	7.62	36.05	100	360	Peak
11	7524	43.06	-10.94	54	32.54	38.95	7.62	36.05	100	239	Average
12	10941	36.95	-37.05	74	71.48	-8.32	9.83	36.04	100	360	Peak
13	14181	38.58	-35.42	74	68.08	-6.28	11.67	34.89	100	360	Peak
14	16056	40.93	-33.07	74	69.62	-4.64	11.78	35.83	100	360	Peak

Remark: "X" represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

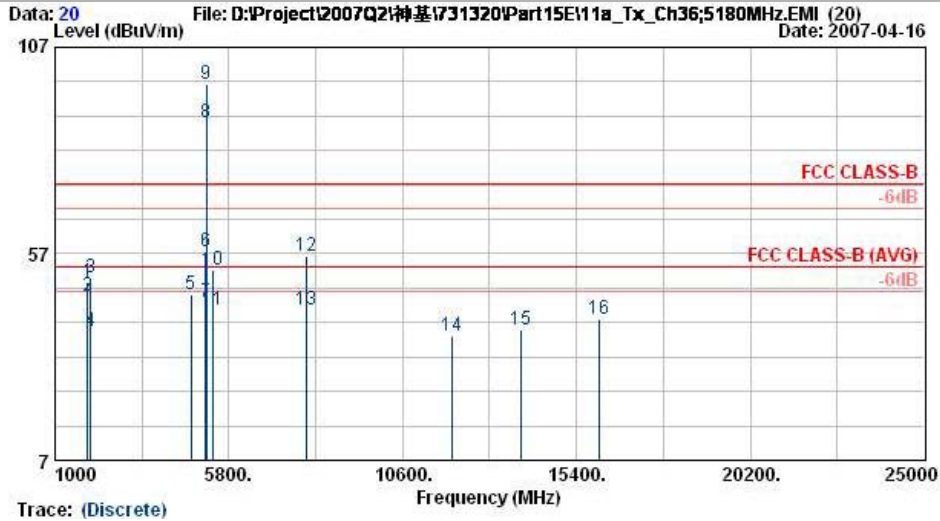
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
<b>1</b>	<b>30</b>	<b>33.01</b>	<b>-6.99</b>	<b>40</b>	<b>43.97</b>	<b>19.66</b>	<b>0.84</b>	<b>31.46</b>	<b>100</b>	<b>138</b>	<b>Peak</b>
2	280.83	32.79	-13.21	46	48.33	12.86	2.57	30.97	100	360	Peak
3	286.23	34.93	-11.07	46	50.35	12.95	2.59	30.96	100	360	Peak
4	428.8	34.03	-11.97	46	45.37	16.24	3.26	30.84	100	360	Peak
5	561.8	34.4	-11.6	46	43.28	18.07	3.76	30.71	100	360	Peak
6	701.8	34.12	-11.88	46	41.55	18.91	4.25	30.59	100	360	Peak

- Polarization : Vertical (1GHz-25GHz)

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



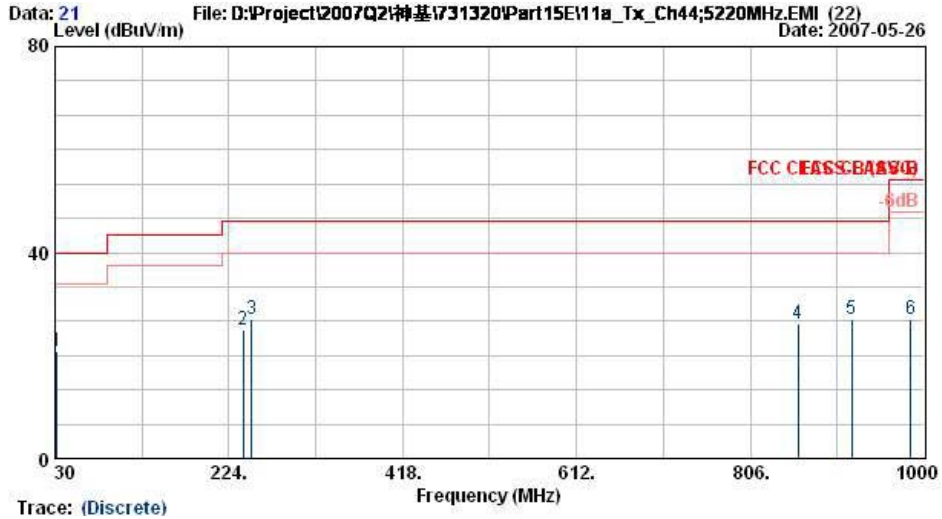
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898	50.08	-23.92	74	52.84	29.3	3.22	35.28	100	360	Peak
2	1898	46.88	-7.12	54	49.64	29.3	3.22	35.28	100	267	Average
3	1994	51.37	-22.63	74	53.27	29.97	3.3	35.17	100	360	Peak
4	1994	38.26	-15.74	54	40.16	29.97	3.3	35.17	100	259	Average
5	4758	47.18	-26.82	74	44.75	32.68	5.8	36.05	100	360	Peak
6	5150	57.66	-16.34	74	54.04	33.6	6.21	36.19	100	0	Peak
7	5150	45.38	-8.62	54	41.76	33.6	6.21	36.19	100	133	Average
8	X 5180	88.69	34.69	54	84.99	33.6	6.28	36.18	100	133	Average
9	X 5180	98.1	24.1	74	94.4	33.6	6.28	36.18	100	0	Peak
10	5350	53.25	-20.75	74	49.14	33.6	6.59	36.08	100	0	Peak
11	5350	43.33	-10.67	54	39.22	33.6	6.59	36.08	100	133	Average
12	7944	56.47	-17.53	74	45.06	39.51	7.77	35.87	100	360	Peak
13	7944	43.48	-10.52	54	32.07	39.51	7.77	35.87	100	216	Average
14	11982	37.16	-36.84	74	72.81	-9.69	10.62	36.58	100	360	Peak
15	13866	38.69	-35.31	74	68.63	-6.96	11.5	34.48	100	360	Peak
16	16041	41.13	-32.87	74	69.58	-4.4	11.78	35.83	100	360	Peak

Remark: "X" represents the Fundamental Signal



- Test Mode : Mode 2
  - Temperature : 26
  - Relative Humidity :54%
  - Test Engineer : Andrew
  - Polarization : Horizontal (30MHz-1GHz)

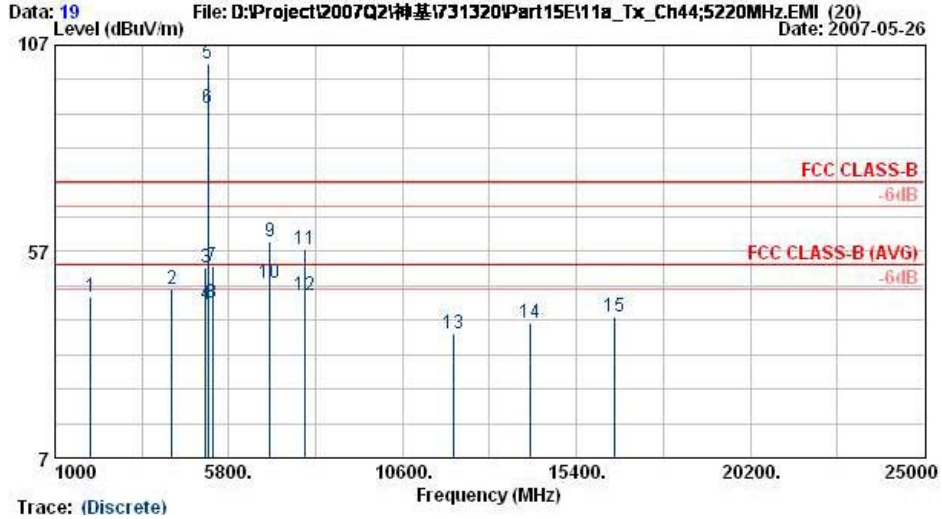
**The test that passed at minimum margin was marked by the boldface in the following table.**



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	32.43	20.83	-19.17	40	33.79	17.54	0.86	31.36	100	360	Peak
2	239.79	25	-21	46	41.97	11.64	2.32	30.93	100	360	Peak
3	249.24	26.98	-19.02	46	43.27	12.21	2.42	30.92	100	360	Peak
4	859.3	26.19	-19.81	46	31.69	20.24	4.68	30.42	100	360	Peak
5	918.8	27.03	-18.97	46	31.84	20.66	4.87	30.34	100	226	Peak
6	985.3	26.97	-27.03	54	31.01	21.14	5.09	30.27	100	360	Peak

- Polarization : Horizontal (1GHz-25GHz)

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

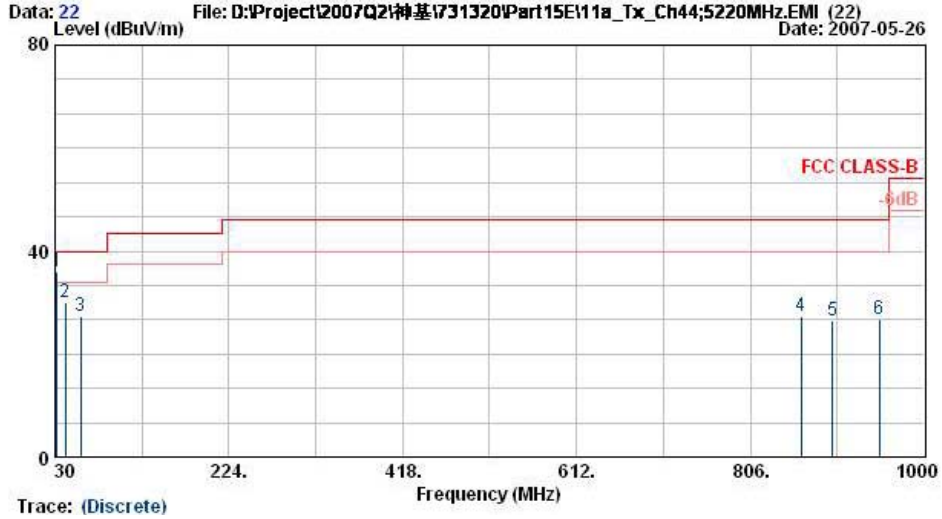


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1994	46.16	-27.84	74	48.06	29.97	3.3	35.17	100	360	Peak
2	4224	47.76	-26.24	74	46.81	31.33	5.35	35.73	100	360	Peak
3	5150	53.25	-20.75	74	49.63	33.6	6.21	36.19	100	0	Peak
4	5150	44.26	-9.74	54	40.64	33.6	6.21	36.19	100	127	Average
5	X 5220	102.68	28.68	74	98.88	33.6	6.35	36.15	100	0	Peak
6	X 5220	91.76	37.76	54	87.97	33.6	6.35	36.16	100	127	Average
7	5350	53.38	-20.62	74	49.27	33.6	6.59	36.08	100	0	Peak
8	5350	44.46	-9.54	54	40.35	33.6	6.59	36.08	100	127	Average
9	6938	59.45	-14.55	74	49.92	37.43	7.84	35.74	100	0	Peak
10	! 6938	49.45	-4.55	54	39.92	37.43	7.84	35.74	100	210	Average
11	7908	57.51	-16.49	74	46.17	39.46	7.76	35.88	100	360	Peak
12	7908	46.41	-7.59	54	35.07	39.46	7.76	35.88	100	302	Average
13	11991	37.17	-36.83	74	72.77	-9.64	10.62	36.58	100	360	Peak
14	14136	39.82	-34.18	74	69.19	-6.24	11.66	34.79	100	360	Peak
15	16461	41.09	-32.91	74	69.93	-9.6	11.87	31.11	100	360	Peak

Remark: "X" represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

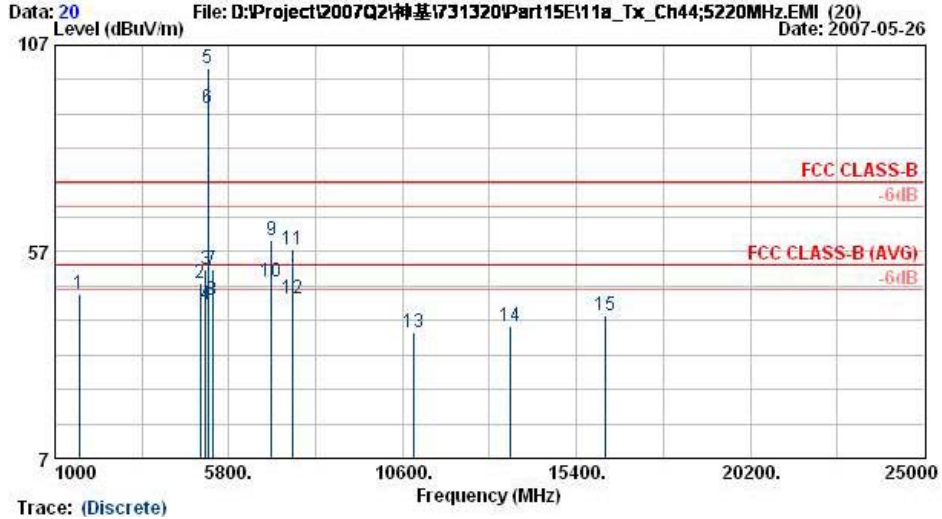
The test data that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
<b>1</b>	<b>32.43</b>	<b>36.06</b>	<b>-3.94</b>	<b>40</b>	<b>49.02</b>	<b>17.54</b>	<b>0.86</b>	<b>31.36</b>	<b>100</b>	<b>354</b>	<b>Peak</b>
2	41.34	29.98	-10.02	40	47.72	12.51	0.92	31.17	100	360	Peak
3	58.89	27.35	-12.65	40	50.7	6.77	1.11	31.23	100	360	Peak
4	862.8	27.23	-18.77	46	32.67	20.27	4.7	30.41	100	360	Peak
5	897.8	26.6	-19.4	46	31.64	20.52	4.81	30.37	100	360	Peak
6	950.3	26.81	-19.19	46	31.24	20.89	4.96	30.28	100	360	Peak

- Polarization : Vertical (1GHz-25GHz)

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

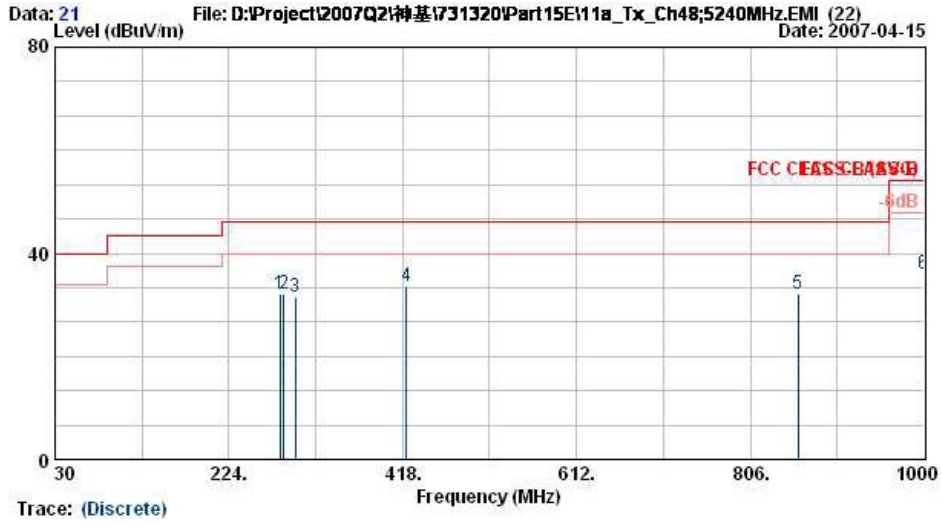


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1664	46.92	-27.08	74	51.99	27.43	3.03	35.53	100	360	Peak
2	5000	49.25	-24.75	74	45.96	33.6	5.97	36.28	100	360	Peak
3	5150	52.89	-21.11	74	49.27	33.6	6.21	36.19	100	0	Peak
4	5150	44	-10	54	40.38	33.6	6.21	36.19	100	36	Average
5	X 5220	101.45	27.45	74	97.66	33.6	6.35	36.16	100	0	Peak
6	X 5220	91.58	37.58	54	87.79	33.6	6.35	36.16	100	36	Average
7	5350	52.8	-21.2	74	48.69	33.6	6.59	36.08	100	0	Peak
8	5350	45.16	-8.84	54	41.05	33.6	6.59	36.08	100	36	Average
9	6984	59.7	-14.3	74	49.85	37.71	7.89	35.75	100	0	Peak
10	! 6984	49.77	-4.23	54	39.92	37.71	7.89	35.75	100	265	Average
11	7564	57.69	-16.31	74	47.11	38.99	7.63	36.04	100	360	Peak
12	7564	45.65	-8.35	54	35.07	38.99	7.63	36.04	100	266	Average
13	10911	37.57	-36.43	74	72.18	-8.34	9.81	36.08	100	360	Peak
14	13587	39.13	-34.87	74	71.2	-8.81	11.22	34.48	100	360	Peak
15	16191	41.5	-32.5	74	70.01	-6.26	11.81	34.06	100	360	Peak

Remark: "X" represents the Fundamental Signal

- Test Mode : Mode 3
  - Temperature : 26
  - Relative Humidity :54%
  - Test Engineer : Andrew
  - Polarization : Horizontal (30MHz-1GHz)

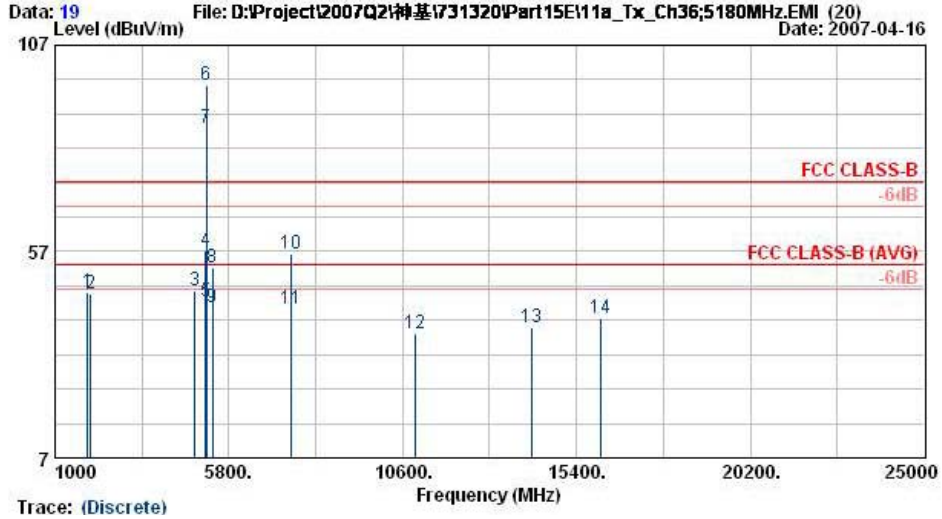
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	280.83	32	-14	46	47.54	12.86	2.57	30.97	100	360	Peak
2	285.69	31.98	-14.02	46	47.41	12.95	2.59	30.97	100	360	Peak
3	298.38	31.5	-14.5	46	46.62	13.19	2.63	30.94	100	360	Peak
4	421.8	33.46	-12.54	46	44.93	16.13	3.24	30.84	100	32	Peak
5	859.3	32.12	-13.88	46	37.62	20.24	4.68	30.42	100	360	Peak
6	1000	36.13	-17.87	54	40.02	21.24	5.14	30.27	100	360	Peak

- Polarization : Horizontal (1GHz-25GHz)

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

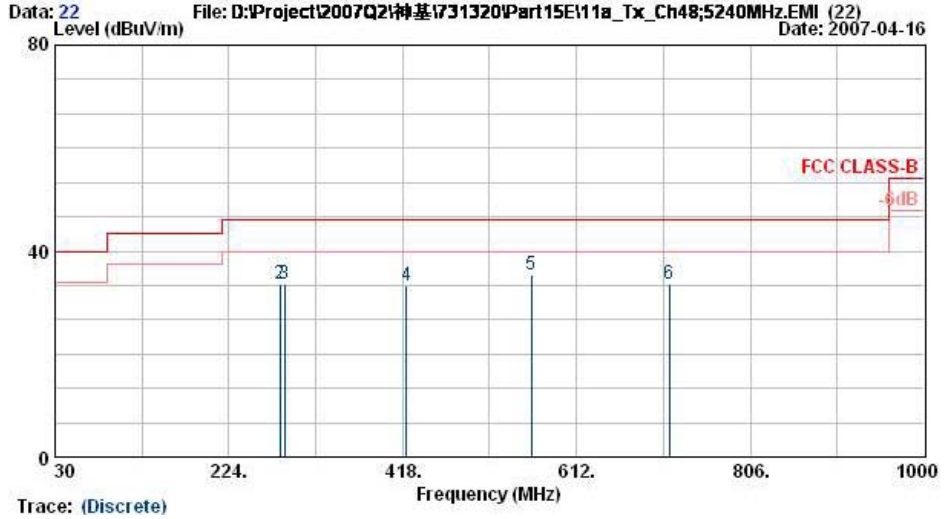


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898	46.72	-27.28	74	49.48	29.3	3.22	35.28	100	360	Peak
2	1988	46.99	-27.01	74	48.89	29.97	3.3	35.17	100	360	Peak
3	4988	47.04	-26.96	74	43.73	33.6	5.96	36.25	100	360	Peak
4	5150	52.49	-21.51	74	48.87	33.6	6.21	36.19	100	0	Peak
5	5150	43.45	-10.55	54	39.83	33.6	6.21	36.19	100	125	Average
6	X 5240	104.78	30.78	74	100.94	33.6	6.39	36.15	100	0	Peak
7	X 5240	93.97	39.97	54	90.13	33.6	6.39	36.15	100	125	Average
8	5350	52.93	-21.07	74	48.82	33.6	6.59	36.08	100	0	Peak
9	5350	44.24	-9.76	54	40.13	33.6	6.59	36.08	100	125	Average
10	7864	56.72	-17.28	74	45.47	39.41	7.74	35.9	100	360	Peak
11	7864	43.21	-10.79	54	31.96	39.41	7.74	35.9	100	245	Average
12	10956	36.96	-37.04	74	71.48	-8.32	9.84	36.04	100	360	Peak
13	14247	38.87	-35.13	74	68.53	-6.35	11.68	34.99	100	360	Peak
14	16137	42.32	-31.68	74	70.81	-5.64	11.8	34.65	100	360	Peak

Remark: "X" represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

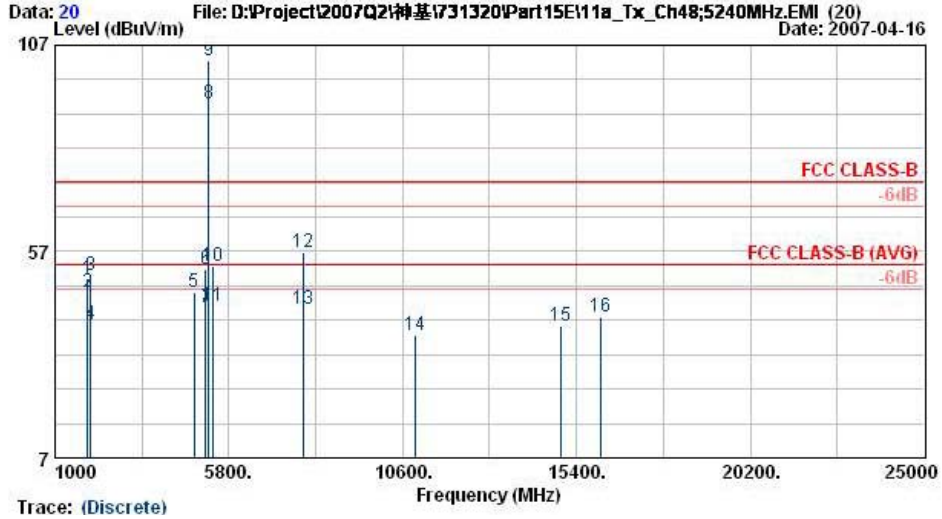
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30	32.44	-7.56	40	43.4	19.66	0.84	31.46	100	189	Peak
2	280.83	33.62	-12.38	46	49.16	12.86	2.57	30.97	100	360	Peak
3	286.23	33.66	-12.34	46	49.08	12.95	2.59	30.96	100	360	Peak
4	421.8	33.3	-12.7	46	44.77	16.13	3.24	30.84	100	360	Peak
5	561.8	35.34	-10.66	46	44.22	18.07	3.76	30.71	100	360	Peak
6	715.8	33.67	-12.33	46	40.92	19.03	4.29	30.57	100	360	Peak

- Polarization : Vertical (1GHz-25GHz)

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



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898	50.31	-23.69	74	53.07	29.3	3.22	35.28	100	360	Peak
2	<b>1898</b>	<b>47.04</b>	<b>-6.96</b>	<b>54</b>	<b>49.8</b>	<b>29.3</b>	<b>3.22</b>	<b>35.28</b>	<b>100</b>	<b>267</b>	<b>Average</b>
3	1988	51.21	-22.79	74	53.11	29.97	3.3	35.17	100	360	Peak
4	1988	39.31	-14.69	54	41.21	29.97	3.3	35.17	100	257	Average
5	4848	47.33	-26.67	74	44.59	33.01	5.87	36.14	100	360	Peak
6	5150	52.76	-21.24	74	49.14	33.6	6.21	36.19	100	0	Peak
7	5150	43.32	-10.68	54	39.7	33.6	6.21	36.19	100	39	Average
8	X 5240	93.04	39.04	54	89.2	33.6	6.39	36.15	100	39	Average
9	X 5240	103.38	29.38	74	99.5	33.6	6.42	36.14	100	0	Peak
10	5350	53.28	-20.72	74	49.17	33.6	6.59	36.08	100	0	Peak
11	5350	43.8	-10.2	54	39.69	33.6	6.59	36.08	100	39	Average
12	7864	56.72	-17.28	74	45.47	39.41	7.74	35.9	100	360	Peak
13	7864	43.11	-10.89	54	31.86	39.41	7.74	35.9	100	216	Average
14	10926	36.62	-37.38	74	71.22	-8.33	9.81	36.08	100	360	Peak
15	14982	38.8	-35.2	74	69.76	-6.22	11.27	36.01	100	360	Peak
16	16077	41.16	-32.84	74	69.79	-4.89	11.79	35.53	100	360	Peak

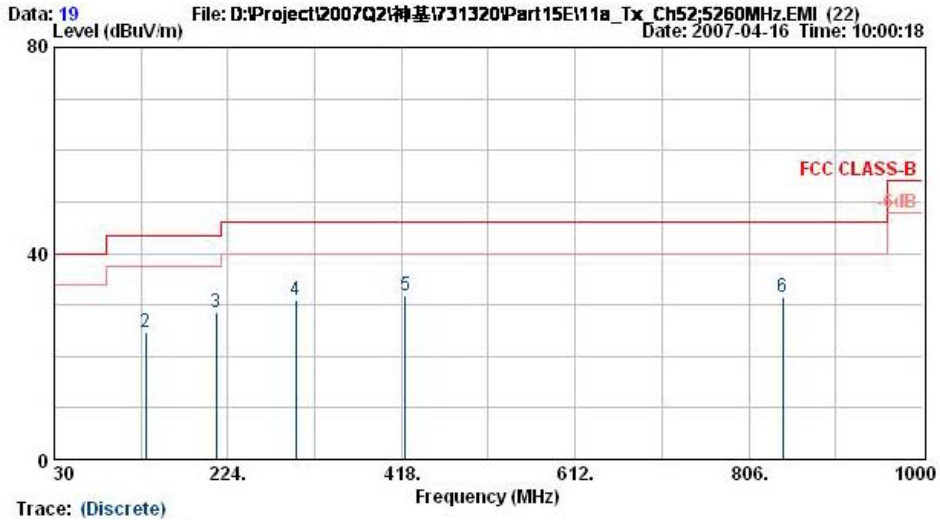
Remark: "X" represents the Fundamental Signal

Remark: Frequency from 25GHz to 40GHz, the emission emitted by the EUT is too low to be measured.



- Test Mode : Mode 4
  - Temperature : 26
  - Relative Humidity :54%
  - Test Engineer : Andrew
  - Polarization : Horizontal (30MHz-1GHz)

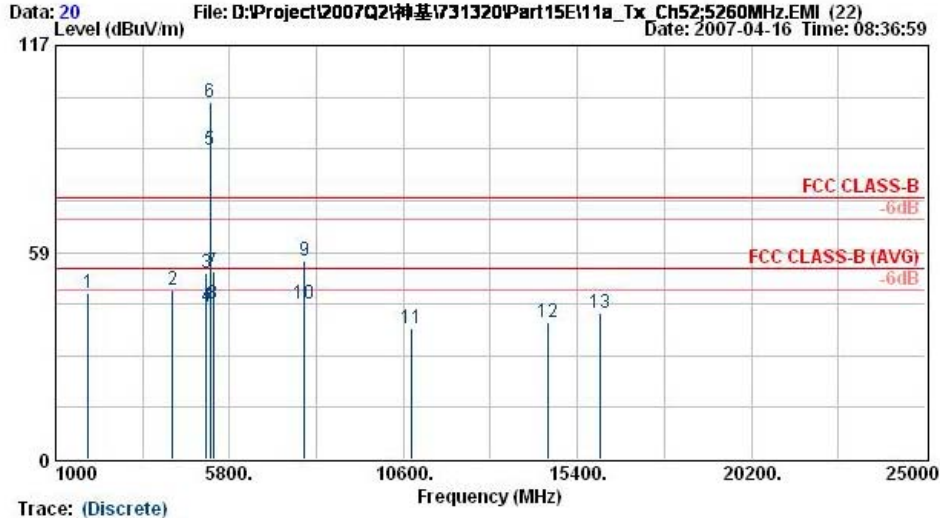
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	30.00	22.47	-17.53	40.00	33.43	19.66	31.46	0.84	100.00	360.00	Peak
2	132.60	24.55	-18.95	43.50	42.59	11.37	31.08	1.67	100.00	360.00	Peak
3	210.63	28.60	-14.90	43.50	47.53	9.93	31.03	2.17	100.00	360.00	Peak
4	300.00	30.94	-15.06	46.00	46.03	13.21	30.93	2.63	100.00	360.00	Peak
5	421.80	31.68	-14.32	46.00	43.15	16.13	30.84	3.24	100.00	177.00	Peak
6	843.90	31.40	-14.60	46.00	37.06	20.13	30.44	4.65	100.00	360.00	Peak

- Polarization : Horizontal (1GHz-25GHz)

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

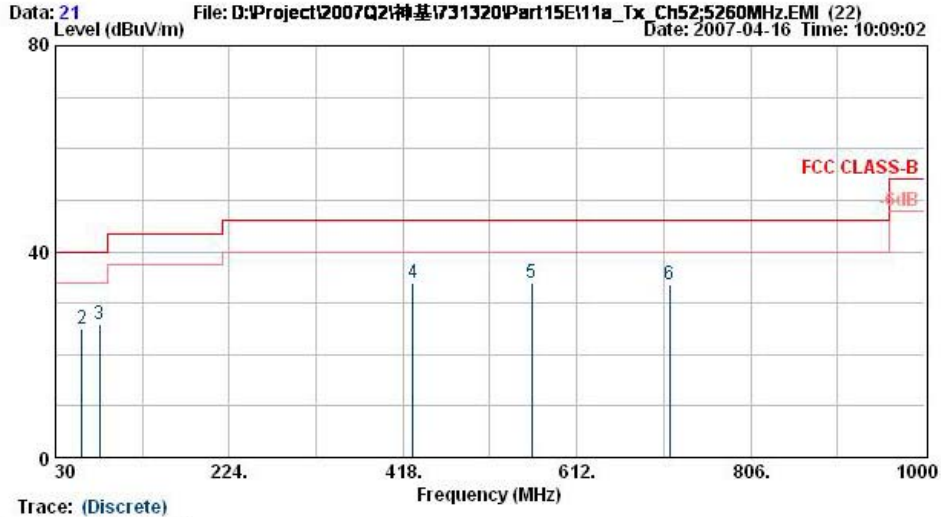


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898.00	47.18	-26.82	74.00	49.94	29.30	35.28	3.22	100.00	360.00	Peak
2	4238.00	48.00	-26.00	74.00	47.06	31.33	35.74	5.35	100.00	360.00	Peak
3	5150.00	52.53	-21.47	74.00	48.91	33.60	36.19	6.21	100.00	0.00	Peak
4	5150.00	43.27	-10.73	54.00	39.65	33.60	36.19	6.21	100.00	61.00	Average
5	X 5260.00	87.25	33.25	54.00	83.37	33.60	36.14	6.42	100.00	61.00	Average
6	X 5260.00	100.74	26.74	74.00	96.86	33.60	36.14	6.42	100.00	0.00	Peak
7	5350.00	53.04	-20.96	74.00	48.93	33.60	36.08	6.59	100.00	0.00	Peak
8	5350.00	43.75	-10.25	54.00	39.64	33.60	36.08	6.59	100.00	61.00	Average
9	7858.00	56.26	-17.74	74.00	45.03	39.39	35.90	7.74	100.00	360.00	Peak
10	7858.00	43.90	-10.10	54.00	32.67	39.39	35.90	7.74	100.00	231.00	Average
11	10821.00	36.93	-37.07	74.00	71.77	-8.37	36.21	9.74	100.00	360.00	Peak
12	14577.00	38.89	-35.11	74.00	69.34	-6.54	35.57	11.66	100.00	360.00	Peak
13	16041.00	41.30	-32.70	74.00	69.75	-4.40	35.83	11.78	100.00	360.00	Peak

Remark: "X" represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

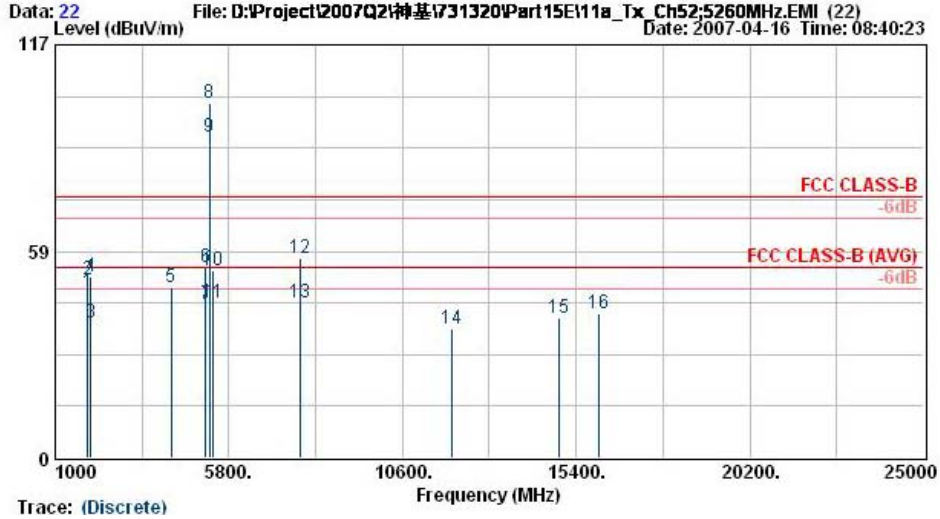
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
<b>1</b>	<b>30.00</b>	<b>33.13</b>	<b>-6.87</b>	<b>40.00</b>	<b>44.09</b>	<b>19.66</b>	<b>31.46</b>	<b>0.84</b>	<b>100.00</b>	<b>35.00</b>	<b>Peak</b>
2	59.43	25.10	-14.90	40.00	48.45	6.77	31.23	1.11	100.00	360.00	Peak
3	79.14	25.85	-14.15	40.00	48.17	7.46	31.09	1.31	100.00	360.00	Peak
4	428.80	33.94	-12.06	46.00	45.28	16.24	30.84	3.26	100.00	360.00	Peak
5	561.80	33.78	-12.22	46.00	42.66	18.07	30.71	3.76	100.00	360.00	Peak
6	715.80	33.46	-12.54	46.00	40.71	19.03	30.57	4.29	100.00	360.00	Peak

- Polarization : Vertical (1GHz-25GHz)

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



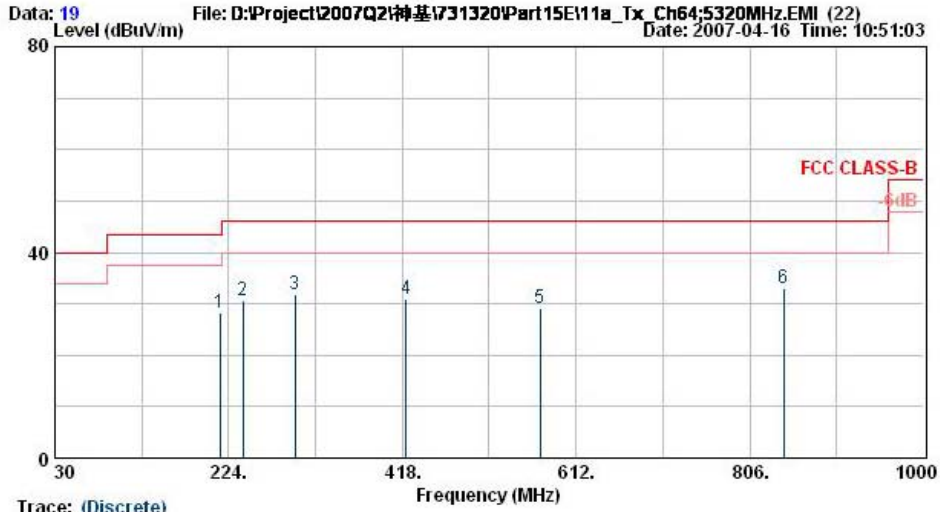
	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898.00	46.85	-7.15	54.00	49.61	29.30	35.28	3.22	100.00	267.00	Average
<b>2</b>	1898.00	50.31	-23.69	74.00	53.07	29.30	35.28	3.22	100.00	360.00	Peak
3	1994.00	38.26	-15.74	54.00	40.16	29.97	35.17	3.30	100.00	262.00	Average
4	1994.00	51.30	-22.70	74.00	53.20	29.97	35.17	3.30	100.00	360.00	Peak
5	4198.00	48.12	-25.88	74.00	47.25	31.28	35.72	5.31	100.00	360.00	Peak
6	5150.00	53.89	-20.11	74.00	50.27	33.60	36.19	6.21	100.00	0.00	Peak
7	5150.00	43.54	-10.46	54.00	39.92	33.60	36.19	6.21	100.00	33.00	Average
8	X 5254.00	100.48	26.48	74.00	96.60	33.60	36.14	6.42	100.00	0.00	Peak
9	X 5260.00	90.80	36.80	54.00	86.92	33.60	36.14	6.42	100.00	33.00	Average
10	5350.00	53.20	-20.80	74.00	49.09	33.60	36.08	6.59	100.00	0.00	Peak
11	5350.00	44.10	-9.90	54.00	39.99	33.60	36.08	6.59	100.00	33.00	Average
12	7774.00	56.48	-17.52	74.00	45.44	39.27	35.94	7.71	100.00	360.00	Peak
13	7774.00	43.82	-10.18	54.00	32.78	39.27	35.94	7.71	100.00	213.00	Average
14	11967.00	36.69	-37.31	74.00	72.37	-9.73	36.56	10.61	100.00	360.00	Peak
15	14937.00	39.41	-34.59	74.00	70.33	-6.25	35.98	11.31	100.00	360.00	Peak
16	16047.00	40.95	-33.05	74.00	69.52	-4.52	35.83	11.78	100.00	360.00	Peak

Remark: "X" represents the Fundamental Signal

Remark: Frequency from 25GHz to 40GHz, the emission emitted by the EUT is too low to be measured.

- Test Mode : Mode 5
  - Temperature : 26
  - Relative Humidity :54%
  - Test Engineer : Andrew
  - Polarization : Horizontal (30MHz-1GHz)

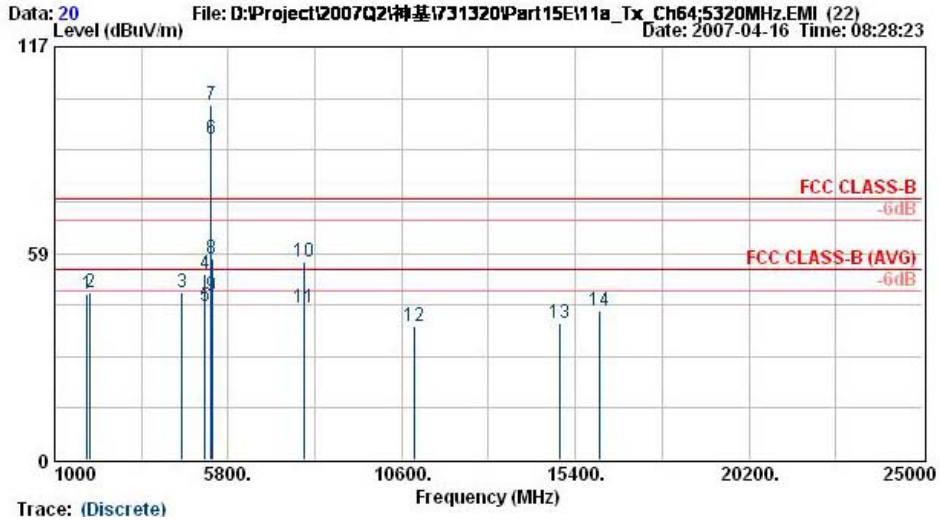
**The test that passed at minimum margin was marked by the boldface in the following table.**



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	214.68	28.17	-15.33	43.50	46.87	10.16	31.03	2.17	100.00	360.00	Peak
2	239.79	30.77	-15.23	46.00	47.74	11.64	30.93	2.32	100.00	360.00	Peak
3	298.38	31.71	-14.29	46.00	46.83	13.19	30.94	2.63	100.00	360.00	Peak
4	421.80	30.99	-15.01	46.00	42.46	16.13	30.84	3.24	100.00	360.00	Peak
5	572.30	29.08	-16.92	46.00	37.81	18.18	30.70	3.79	100.00	360.00	Peak
6	843.90	33.04	-12.96	46.00	38.70	20.13	30.44	4.65	100.00	196.00	Peak

- Polarization : Horizontal (1GHz-25GHz)

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

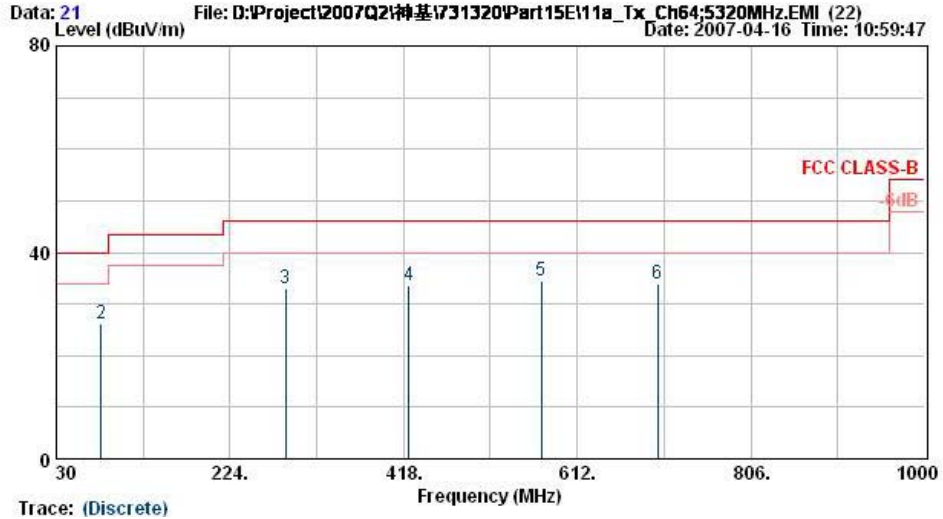


	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898.00	47.10	-26.90	74.00	49.86	29.30	35.28	3.22	100.00	360.00	Peak
2	1994.00	47.42	-26.58	74.00	49.32	29.97	35.17	3.30	100.00	360.00	Peak
3	4534.00	47.25	-26.75	74.00	45.64	31.83	35.87	5.65	100.00	360.00	Peak
4	5150.00	52.63	-21.37	74.00	49.01	33.60	36.19	6.21	100.00	0.00	Peak
5	5150.00	43.33	-10.67	54.00	39.71	33.60	36.19	6.21	100.00	126.00	Average
6	X 5320.00	90.87	36.87	54.00	86.86	33.60	36.11	6.52	100.00	126.00	Average
7	X 5320.00	100.64	26.64	74.00	96.63	33.60	36.11	6.52	100.00	0.00	Peak
8	5350.00	56.88	-17.12	74.00	52.77	33.60	36.08	6.59	100.00	0.00	Peak
9	5350.00	46.74	-7.26	54.00	42.63	33.60	36.08	6.59	100.00	126.00	Average
10	7888.00	56.26	-17.74	74.00	44.95	39.44	35.89	7.76	100.00	360.00	Peak
11	7888.00	43.19	-10.81	54.00	31.88	39.44	35.89	7.76	100.00	229.00	Average
12	10956.00	37.77	-36.23	74.00	72.29	-8.32	36.04	9.84	100.00	360.00	Peak
13	14952.00	38.70	-35.30	74.00	69.61	-6.24	35.98	11.31	100.00	360.00	Peak
14	16086.00	42.09	-31.91	74.00	70.56	-5.02	35.24	11.79	100.00	360.00	Peak

Remark: "X" represents the Fundamental Signal

- Polarization : Vertical (30MHz-1GHz)

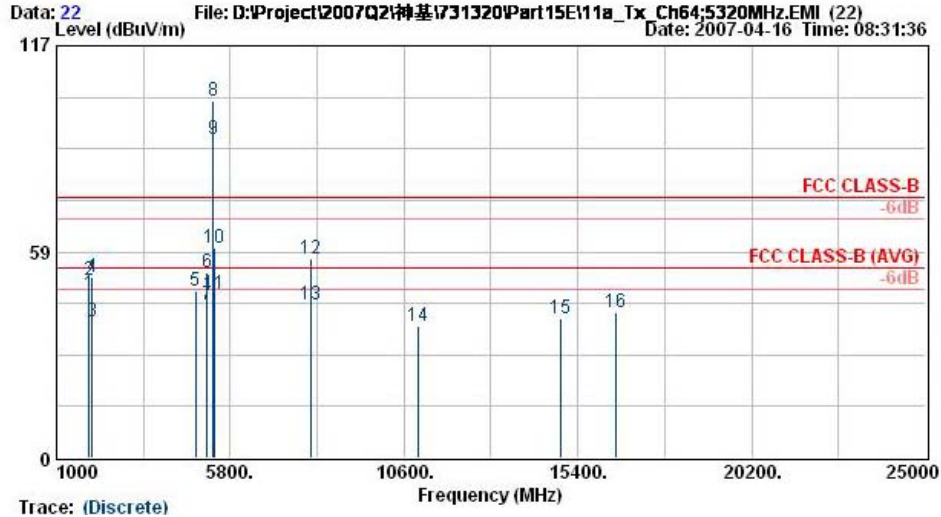
The test that passed at minimum margin was marked by the boldface in the following table.



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
<b>1</b>	<b>30.00</b>	<b>33.45</b>	<b>-6.55</b>	<b>40.00</b>	<b>44.41</b>	<b>19.66</b>	<b>31.46</b>	<b>0.84</b>	<b>100.00</b>	<b>48.00</b>	<b>Peak</b>
2	79.68	26.23	-13.77	40.00	48.55	7.46	31.09	1.31	100.00	360.00	Peak
3	286.23	33.07	-12.93	46.00	48.49	12.95	30.96	2.59	100.00	360.00	Peak
4	423.90	33.72	-12.28	46.00	45.15	16.16	30.84	3.25	100.00	360.00	Peak
5	572.30	34.63	-11.37	46.00	43.36	18.18	30.70	3.79	100.00	360.00	Peak
6	701.80	33.82	-12.18	46.00	41.25	18.91	30.59	4.25	100.00	360.00	Peak

- Polarization : Vertical (1GHz-25GHz)

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



	Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
1	1898.00	46.67	-7.33	54.00	49.43	29.30	35.28	3.22	100.00	267.00	Average
2	1898.00	50.65	-23.35	74.00	53.41	29.30	35.28	3.22	100.00	360.00	Peak
3	1994.00	38.79	-15.21	54.00	40.69	29.97	35.17	3.30	100.00	264.00	Average
4	1994.00	51.15	-22.85	74.00	53.05	29.97	35.17	3.30	100.00	360.00	Peak
5	4838.00	47.22	-26.78	74.00	44.50	33.01	36.14	5.85	100.00	360.00	Peak
6	5150.00	52.71	-21.29	74.00	49.09	33.60	36.19	6.21	100.00	0.00	Peak
7	5150.00	43.32	-10.68	54.00	39.70	33.60	36.19	6.21	100.00	38.00	Average
8	X 5320.00	101.30	27.30	74.00	97.29	33.60	36.11	6.52	100.00	0.00	Peak
9	X 5320.00	90.55	36.55	54.00	86.54	33.60	36.11	6.52	100.00	38.00	Average
10	5350.00	59.40	-14.60	74.00	55.29	33.60	36.08	6.59	100.00	0.00	Peak
11	5350.00	46.75	-7.25	54.00	42.64	33.60	36.08	6.59	100.00	38.00	Average
12	8008.00	56.52	-17.48	74.00	44.97	39.60	35.86	7.81	100.00	360.00	Peak
13	8008.00	43.41	-10.59	54.00	31.86	39.60	35.86	7.81	100.00	209.00	Average
14	10986.00	37.44	-36.56	74.00	71.85	-8.30	35.98	9.87	100.00	360.00	Peak
15	14937.00	39.59	-34.41	74.00	70.51	-6.25	35.98	11.31	100.00	360.00	Peak
16	16452.00	41.35	-32.65	74.00	70.07	-9.48	31.11	11.87	100.00	360.00	Peak

Remark: "X" represents the Fundamental Signal

Remark: Frequency from 25GHz to 40GHz, the emission emitted by the EUT is too low to be measured.



## 5.6.4 E.I.R.P. Power

Frequency (MHz)	Ant Polarization	Field Strength (dBuV/m)	EIRP (dBm)	Over Limit (dB)	Limit (EIPR dBm)
5150.00 MHz	V	57.66 dBuV/m	-38.71	-11.71	-27.00
5150.00 MHz	H	57.33 dBuV/m	-39.04	-12.04	-27.00
5350.00 MHz	V	59.40 dBuV/m	-36.97	-9.97	-27.00
5350.00 MHz	H	56.88 dBuV/m	-39.49	-12.49	-27.00

Remark:  $EIRP = 10 * \log\left(\frac{10^{(Field\ Strength - 120)/20} * distance^2}{30 * 10^{(Antenna\ Gain/10)}}\right) / 0.001$

5.7 Band Edges Measurement

5.7.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.7.2 Test Procedure :

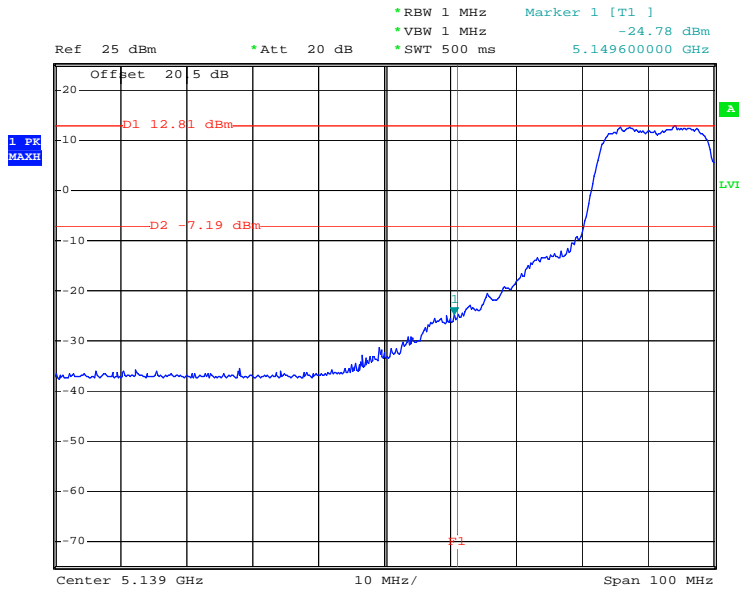
1. Set both RBW and VBW of spectrum analyzer to 1MHz with convenient frequency span including 1MHz bandwidth from band edge.
2. The band edges was measured and recorded.

5.7.3 Test Result :

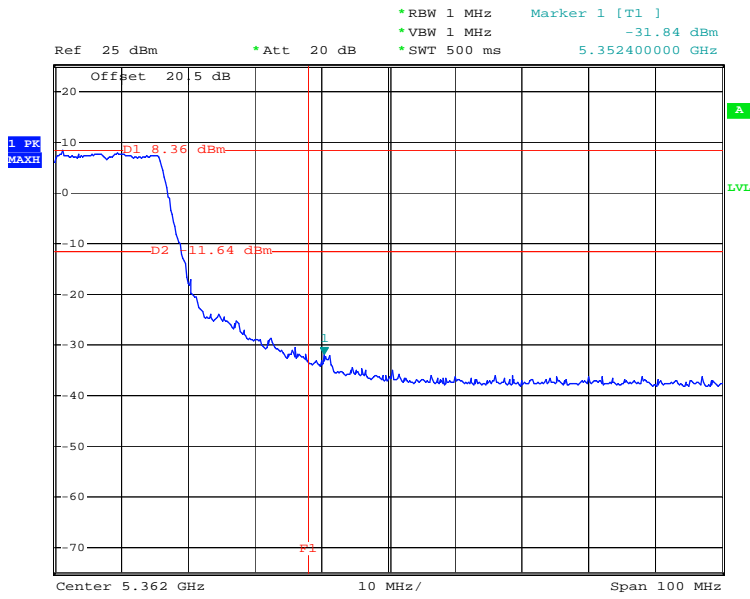
- Temperature : 26
- Relative Humidity :54%

Test Result Mode		Verdict
Test Result for 802.11a band I	:	PASS
Test Result for 802.11a band II	:	PASS

5.7.4 Test Data



802.11a CH36



802.11a CH64

## 5.8 Peak Excursion Ratio Measurement

### 5.8.1 Measuring Instruments :

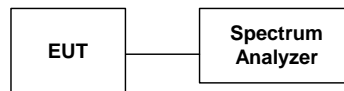
As described in chapter 6 of this test report.

### 5.8.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to and maintained at 1 MHz. The video bandwidth is set to 3 MHz. Trace A is set peak detector and to Max Hold, then to View. Then the detector is readjusted to sample detector, the video bandwidth set to 1MHz, and max hold to run for 60 seconds, and the signal under this measurement condition is captured in Trace B in Accordance with the method 3 of DA-02-2138.

The difference between the traces is investigated. The marker is placed at the frequency which shows the largest difference. The amplitude delta between the traces at this frequency is the peak excursion.

### 5.8.3 Test Setup Layout :



## 5.8.4 Test Result :

- Temperature : 26
- Relative Humidity :54%

## ➤ Application: 802.11a

---

---

Channel	Frequency (MHz)	Peak Excursion (dB)	Limits (dB)	Mode Ref. No.
36	5180	-7.26	13	1
44	5220	-7.37	13	2
48	5240	-7.96	13	3
52	5260	-4.33	13	4
64	5320	-4.04	13	5

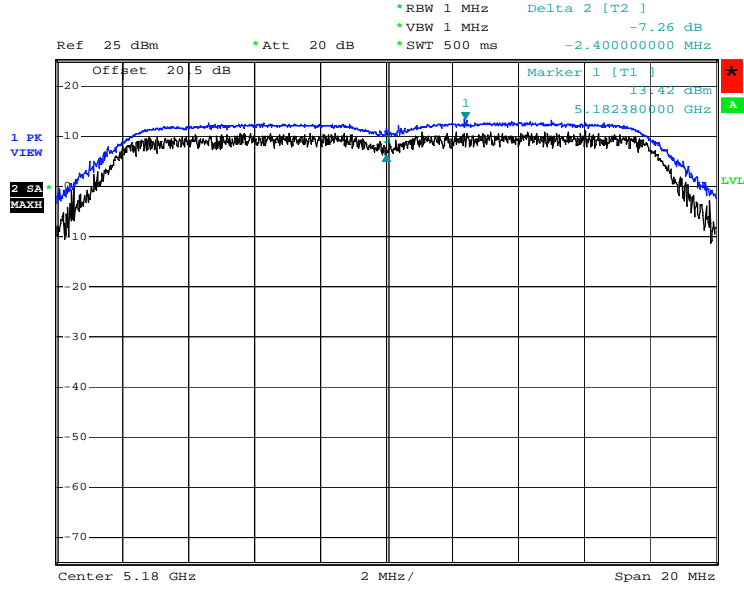
---

---

5.8.5 Test Data

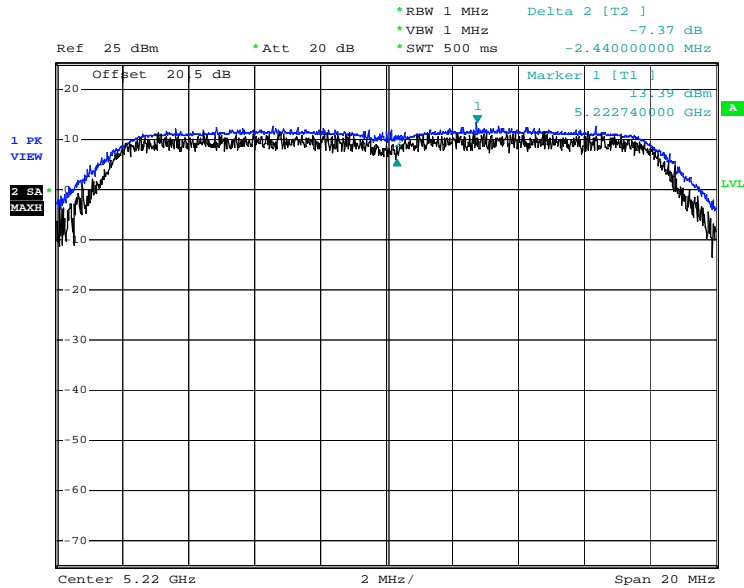
Mode Ref. No.

1



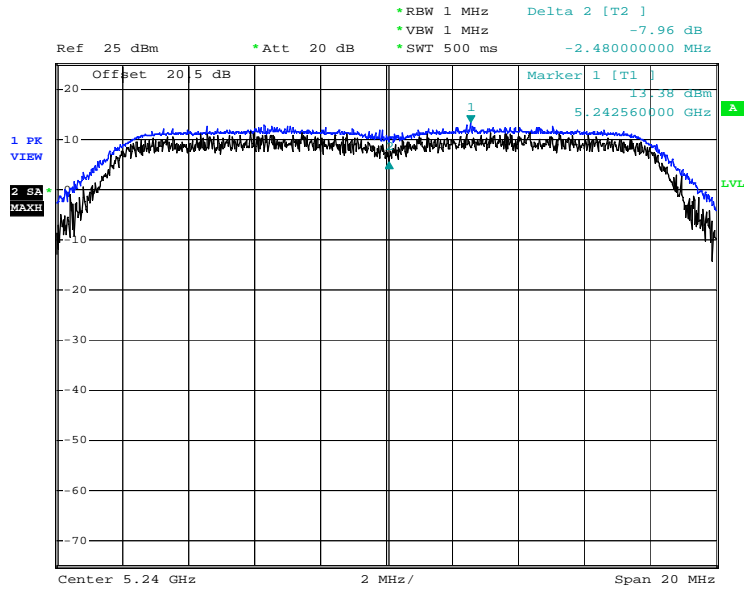
Date: 5.JUN.2007 14:33:47

2



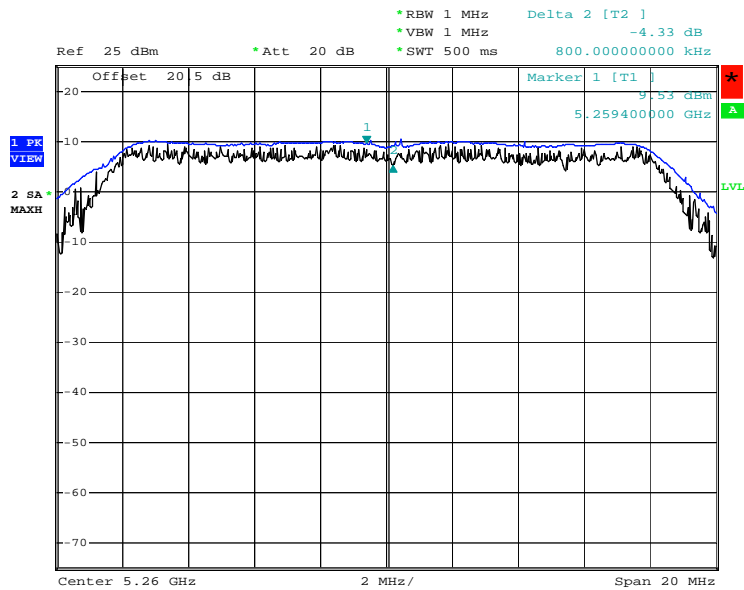
Date: 5.JUN.2007 14:34:57

3

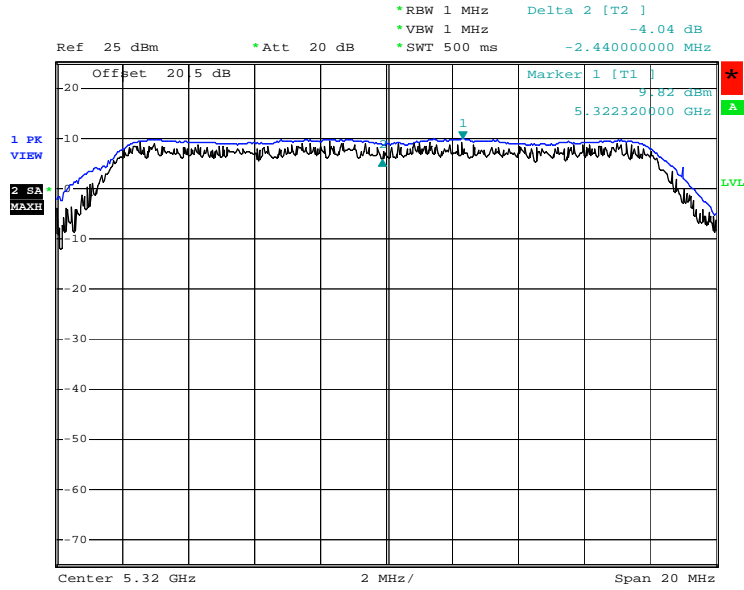


Date: 5.JUN.2007 14:36:04

4



Date: 6.JUN.2007 18:08:41



5

Date: 6.JUN.2007 18:06:03



### 5.9 Frequency Stability

To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.

The EUT was operated at the maximum output power, and connected to the spectrum analyzer which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

Frequency(MHz)	Low Frequency (Fl)	High Frequency (Fh)	Center Frequency (Fc)	Frequency Stability (ppm)
5180	5171.2	5188.88	5180.04	0.04
5220	5231	5249	5240	20.00
5240	5251.06	5269.02	5260.04	0.04
5260	5251.78	5269.88	5260.83	0.83
5320	5310.89	5329.18	5320.035	0.03

**5.10 Automatically discontinue transmission**

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving .The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission .

## 5.11 Antenna Requirements

The EUT meets antenna requirement of FCC for the following reasons.

### 5.11.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 5.11.2 Antenna Connected Construction

The antenna used in this product is PIFA for both WLAN and BT. The connector is I-PEX on antenna port and it is considered to meet antenna requirement of FCC.

## 5 List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100359	9kHz – 2.75GHz	Mar. 01, 2007	Mar. 01, 2008	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2007	Mar. 31, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2007	Mar. 22, 2008	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Mar. 27, 2007	Mar. 27, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	N/A	Conduction (CO04-HY)
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Oct. 05, 2006	Oct. 04, 2007	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 13, 2006	Jul. 12, 2007	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	10094	1G~18G	Dec. 26, 2006	Dec. 25, 2007	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Nov. 20, 2006	Nov. 19, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Pre Amplifier	Mini Circuits	ZKL-2	D092004-1	10~2500MHz	Nov. 15, 2006	Nov. 14, 2007	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	106656	WCDMA	Nov. 20, 2006	Nov. 19, 2007	Radiation (03CH06-HY)
Amplifier	MITEQ	AMF-6F-260400	923364	26.5GHz - 40GHz	Jan. 22, 2007	Jan. 22, 2008	Radiation (03CH06-HY)
Spectrum	R&S	FSP40	100055	9KHz – 40GHz	Jun. 23, 2006	Jun. 23, 2007	Radiation (03CH06-HY)

## 6 Uncertainty of Test Site

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch	+0.34/-0.35	U-shape	0.24
<b>combined standard uncertainty Uc(y)</b>	<b>1.13</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of $x_i$		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
<b>combined standard uncertainty Uc(y)</b>	<b>1.27</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.54</b>		

**Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)**

Contribution	Uncertainty of $x_i$		$u(x_i)$	$C_i$	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2 * \Gamma_3)$	+0.34/-0.35	U-shaped	0.244	1	0.244
<b>Combined standard uncertainty Uc(y)</b>	<b>2.36</b>				
<b>Measuring uncertainty for a level of confidence of 95% U=2Ue(y)</b>	<b>4.72</b>				