

FCC TEST REPORT

for

47 CFR, Part 15 Subpart E

Equipment : NOTEBOOK(FLYBOOK)

Trade Name : DIALOGUE

Model No. : VMW1BBHA

FCC ID : JYV-VMW1BBHA

Filing Type : Certification

Applicant : Dialogue Technology Corp.

10F, No. 196, Sec.2, Jungshing Rd., Shindian City, Taipei 231, Taiwan, R.O.C.

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- The data shown in this test report were carried out on Jun. 08, 2006 at **Sporton International Inc. LAB.**
- Report No.: FR632813-02-B, Report Version: Rev. 01.



Roy Wu
Deputy Manager

SPORTON International Inc.

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

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History of this test report

Report Issue Date: Mar. 30, 2007

Report No.	Description

1. General Description of Equipment under Test

1.1 Applicant

Dialogue Technology Corp.
10F, No. 196, Sec.2, Jungshing Rd., Shindian City, Taipei 231, Taiwan, R.O.C.

1.2 Manufacturer

Dialogue Technology Corp.
10F, No. 196, Sec.2, Jungshing Rd., Shindian City, Taipei 231, Taiwan, R.O.C.

1.3 Basic Description of Equipment under Test

Equipment	: NOTEBOOK(FLYBOOK)
Trade Name	: DIALOGUE
Model No.	: VMW1BBHA
FCC ID	: JYV-VMW1BBHA
Power Supply Type	: Switching
AC Power Cord	: AC 120V, Non-shielded, Wall-mount, 2 meter, 2 pin

1.4 Feature of Equipment under Test

Product Feature & Specification				
1. Modulation Type/Data Rate	WLAN : DSSS / OFDM BT : GFSK			
2. Freq.Range/Carrier Freqs.	802.11b/g : 2400MHz ~ 2483.5MHz 802.11a : 5150 ~ 5250MHz (Band I) / 5725MHz ~ 5850MHz (Band III) BT : 2400MHz ~ 2483.5MHz			
3. Number of Channels	802.11b/g : 11 Channels 802.11a : 5 Channels (Band III) / 4 Channels (Band I) BT : 79 Channels			
4. Carrier Frequency of each channel	802.11b/g : 2412MHz+(n-1)*5MHz, n=1~11 802.11a Band III : 5000+n*5 MHz, n=149, 153, 157, 161, 165 802.11a Band I : 5000+n*5 MHz, n=36, 40, 44, 48 BT : 2402MHz+n*1MHz, n=0~78			
5. Channel Spacing	802.11b/g : 5MHz 802.11a : 20MHz BT : 1MHz			
6. Maximum Output Power to Antenna (Normal condition)	802.11b : 17.77 dBm / 802.11g: 21.94 dBm 802.11a : 15.73 dBm (Band I) / 18.37 dBm (Band III) BT : 1.99 dBm			
7. Type of Antenna Connector	I-PEX			
8. Antenna Type	PIFA Antenna			
9. Antenna Gain	802.11b/g : 0.1 dBi 802.11a : 3.49 dBi BT : -4.78 dBi			
10. 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. The complete test system refers to section 2.2 and EUT for EMI test.
- c. The EUT can operate on 5150MHz to 5250MHz as listed in section 1.4.
- d. The following test modes were tested for conduction test:

Mode 1: 802.11a_Tx_CH36

- e. Radiation test refer to Test Matrix:

Mode Ref. No.	1	2
Mode Name	802.11a Tx Ch36	802.11a Tx Ch48

- f. Conducted test refer to Test Matrix:

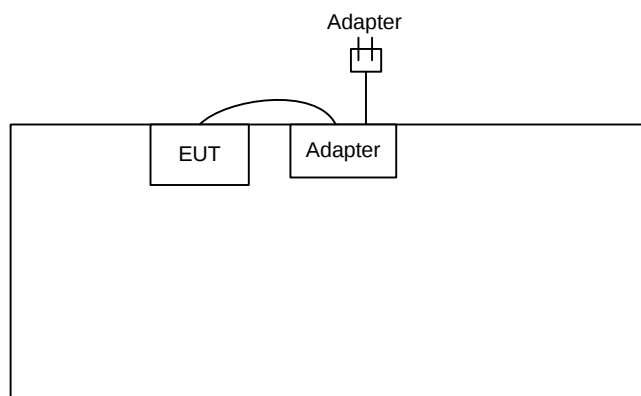
Mode Ref. No.	1	2
Mode Name	802.11a Tx Ch36	802.11a Tx Ch48

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

2.2 Description of Test System

N/A

2.3 Connection Diagram of Test System



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 : CO01-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

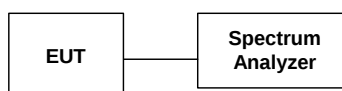
5.2.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.2.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to approximately 1% of the emission bandwidth. For these tests, the resolution bandwidth is 300 kHz, and peak detection 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 : 27
- Relative Humidity :53%

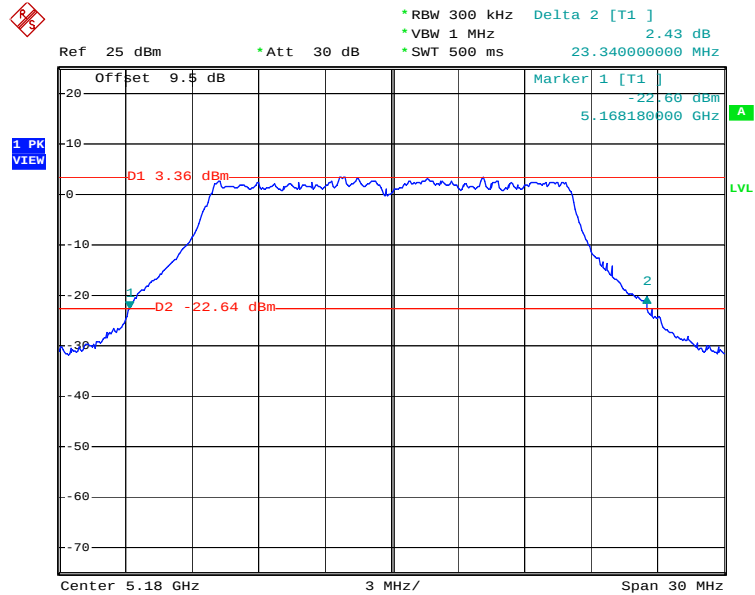
➤ Application: 802.11a

Channel	Frequency (MHz)	26dB Emission bandwidth (MHz)	Mode Ref. No.
36	5180	23.34	1
48	5240	23.16	2

5.2.4 Test Data

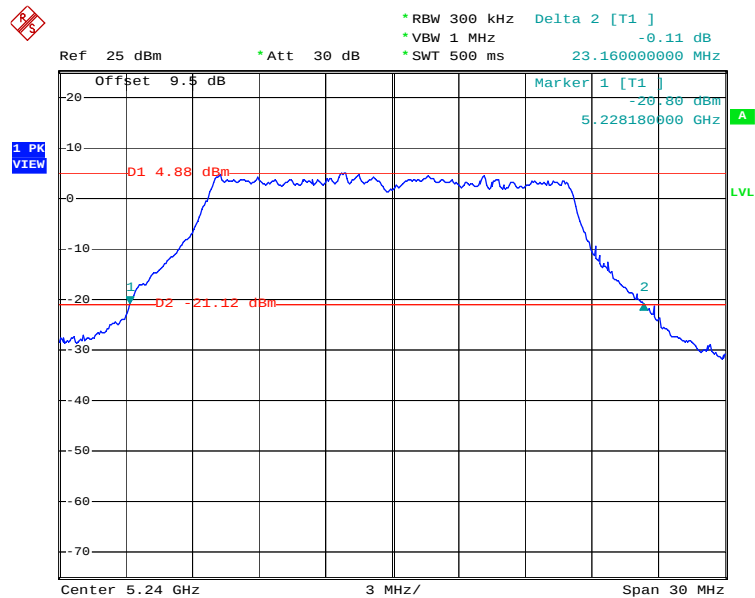
Mode Ref. No.

1



Date: 5.MAY.2006 15:55:15

2



Date: 5.MAY.2006 15:57:36

5.3 Peak Transmit Power

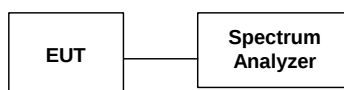
5.3.1 Measuring Instruments :

As described in chapter 6 of this test report.

5.3.2 Test Procedure :

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz, and peak 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 : 27
- Relative Humidity :53%

➤ Application: 802.11a

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (dBm)	Mode Ref. No.
36	5180	15.14	17	1
48	5240	15.73	17	2

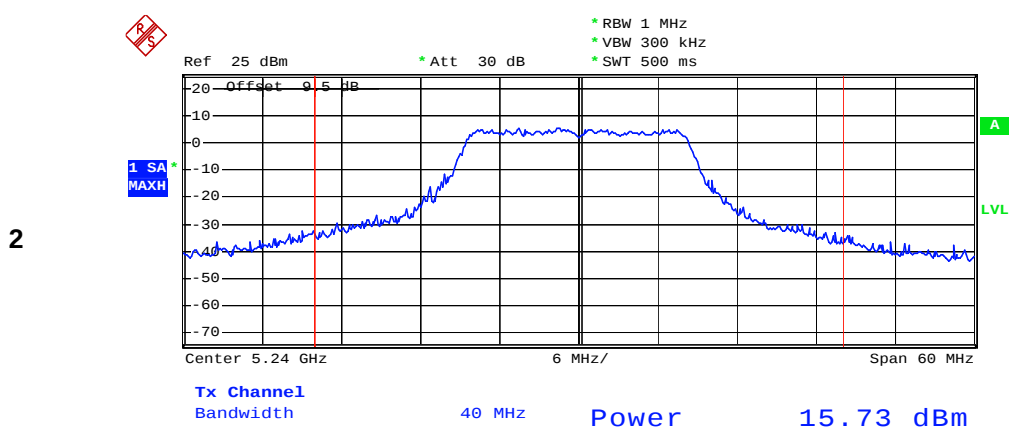
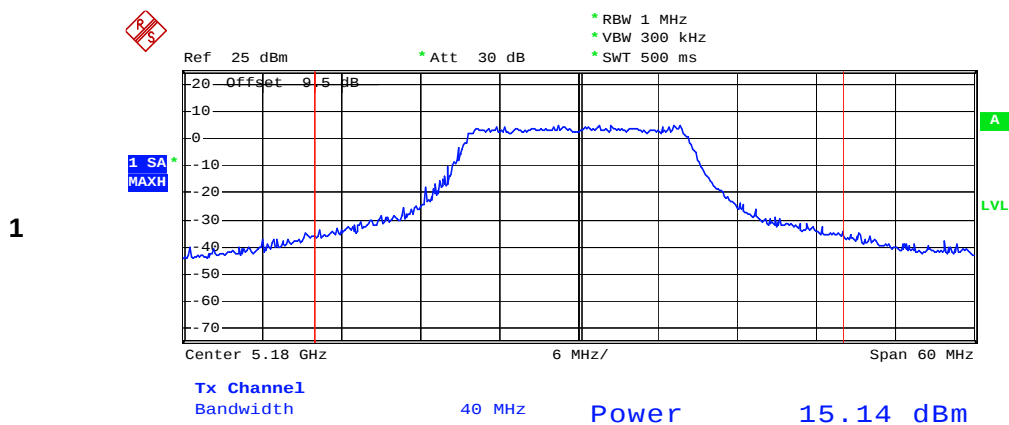
Comments : The peak transmit power shall not exceed the lesser of 17dBm or 4dBm+10logB in
5150~5250 band

5180MHz 4dBm + 10log(23.34 MHz) = 17.68 dBm

5240MHz 4dBm + 10log(23.16 MHz) = 17.65 dBm

5.3.5 Test Data

Mode Ref. No.



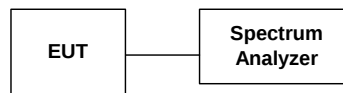
5.4 Peak Power Spectral Density

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. The resolution bandwidth is set to 1 MHz, sample detection is used, and the analyzer is set for video averaging.



5.4.3 Test Result :

- Temperature : 27
- Relative Humidity :53%

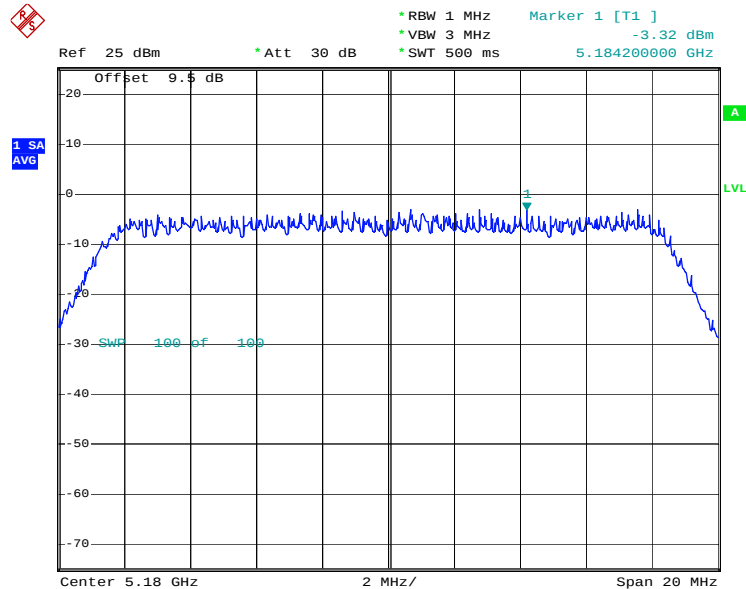
➤ Application: 802.11a

Channel	Frequency (MHz)	Power Spectral Density	Limits	Mode
		(dBm)	(dBm)	Ref. No.
36	5180	-3.32	4	1
48	5240	-2.22	4	2

5.4.4 Test Data

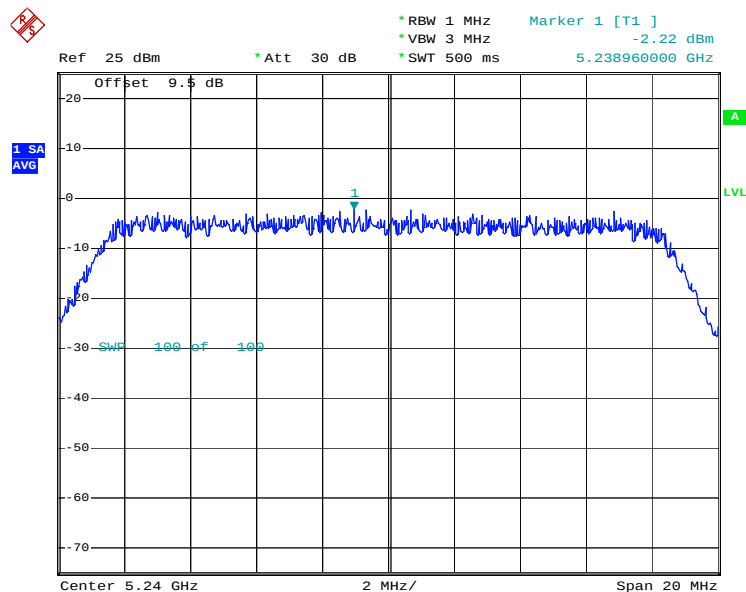
Mode Ref. No.

1



Date: 5.MAY.2006 21:39:39

2



Date: 5.MAY.2006 21:43:57

5.5 Test of Conducted Emission

As described in chapter 6 of this test report.

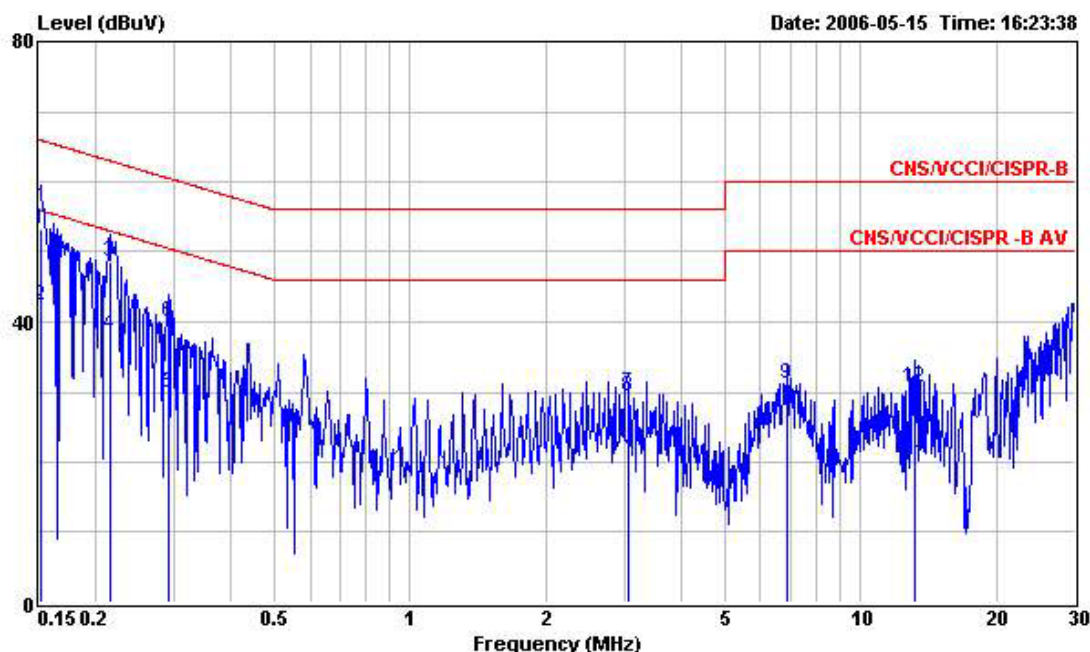
5.5.1 Test Procedures :

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

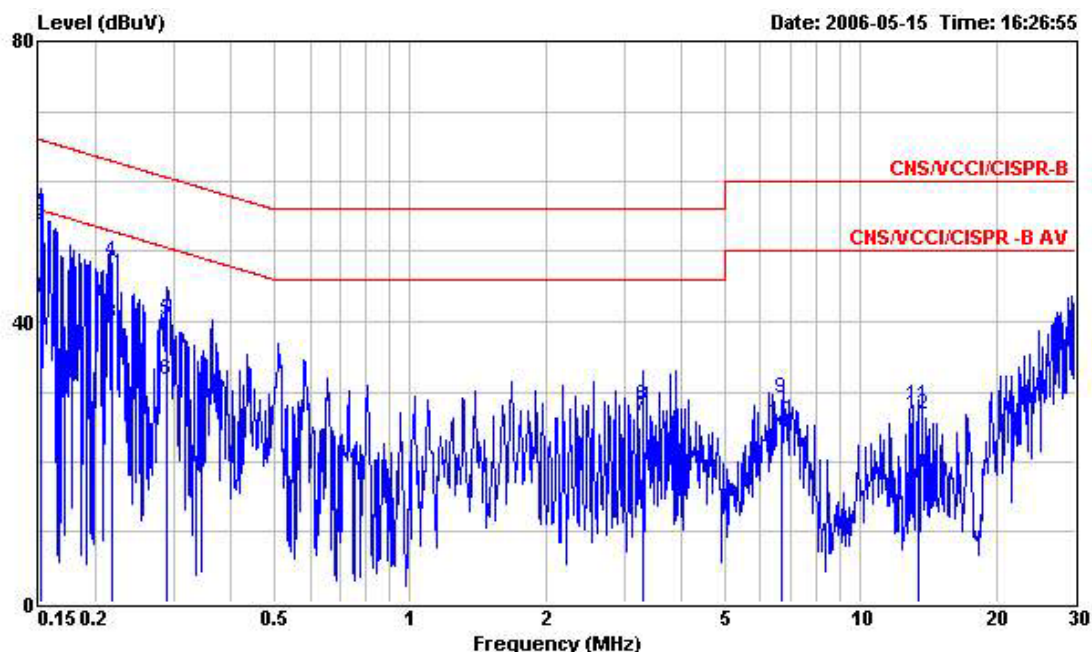
- Frequency Range of Test : 150kHz to 30 MHz
- Test Mode : Mode 1
- Temperature : 21 °C
- Relating Humidity : 61 %
- Test Enginner : James

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



Site : CO01-HY
 Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
 EUT : VM(CPU type:UL V/dual core,LV/singlecore
 Power : 120V/60Hz
 Model : FR632813
 Memo : 11a Tx CH036
 Memo :
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.151	53.29	-12.65	65.94	53.14	0.10	0.05	QP
2	0.151	42.22	-13.72	55.94	42.07	0.10	0.05	Average
3	0.216	48.58	-14.39	62.97	48.42	0.10	0.06	QP
4	0.216	38.09	-14.88	52.97	37.93	0.10	0.06	Average
5	0.291	29.76	-20.74	50.50	29.59	0.10	0.07	Average
6	0.291	39.94	-20.56	60.50	39.77	0.10	0.07	QP
7	3.060	29.96	-26.04	56.00	29.68	0.16	0.12	QP
8	3.060	29.27	-16.73	46.00	28.99	0.16	0.12	Average
9	6.846	31.08	-28.92	60.00	30.69	0.26	0.13	QP
10	6.846	27.60	-22.40	50.00	27.21	0.26	0.13	Average
11	13.189	19.85	-30.15	50.00	19.40	0.30	0.15	Average
12	13.189	30.71	-29.29	60.00	30.26	0.30	0.15	QP



Site : CO01-HY
 Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
 EUT : VM(CPU type:UL V/dual core,LV/singlecore
 Power : 120V/60Hz
 Model : FR632813
 Memo : 11a Tx CH036
 Memo :
 Memo :

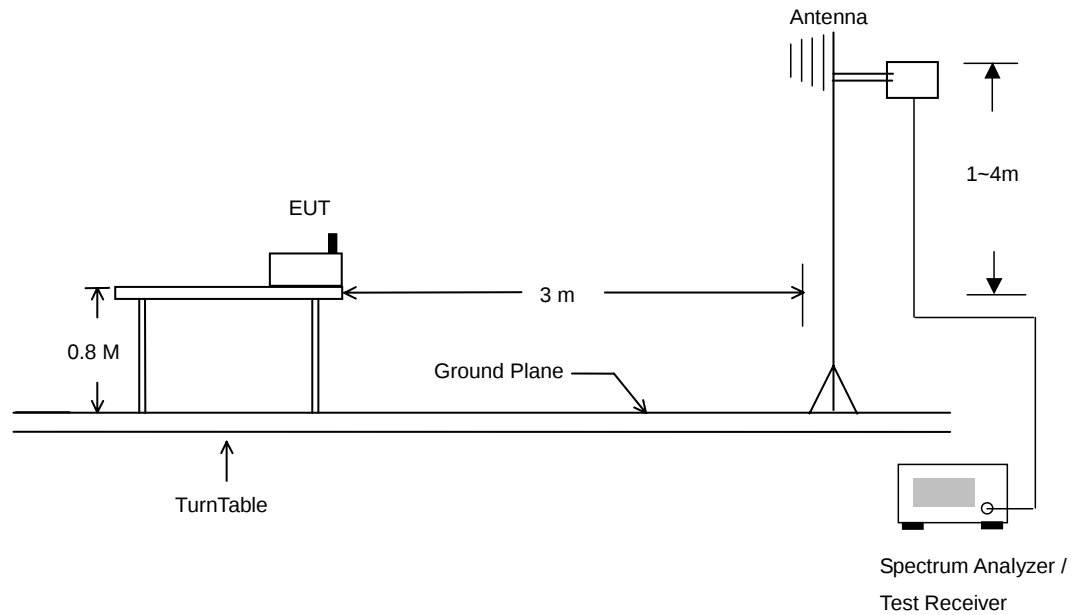
	Freq	Level	Over	Limit	Read	Probe	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.151	43.35	-12.59	55.94	43.20	0.10	0.05	Average
2	0.151	53.70	-12.24	65.94	53.55	0.10	0.05	QP
3	0.217	39.73	-13.20	52.93	39.57	0.10	0.06	Average
4	0.217	48.58	-14.35	62.93	48.42	0.10	0.06	QP
5	0.289	40.26	-20.29	60.55	40.09	0.10	0.07	QP
6	0.289	31.80	-18.75	50.55	31.63	0.10	0.07	Average
7	3.284	26.38	-29.62	56.00	26.16	0.10	0.12	QP
8	3.284	28.16	-17.84	46.00	27.94	0.10	0.12	Average
9	6.712	29.10	-30.90	60.00	28.81	0.16	0.13	QP
10	6.712	25.77	-24.23	50.00	25.48	0.16	0.13	Average
11	13.504	28.12	-31.88	60.00	27.70	0.27	0.15	QP
12	13.504	26.77	-23.23	50.00	26.35	0.27	0.15	Average

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.

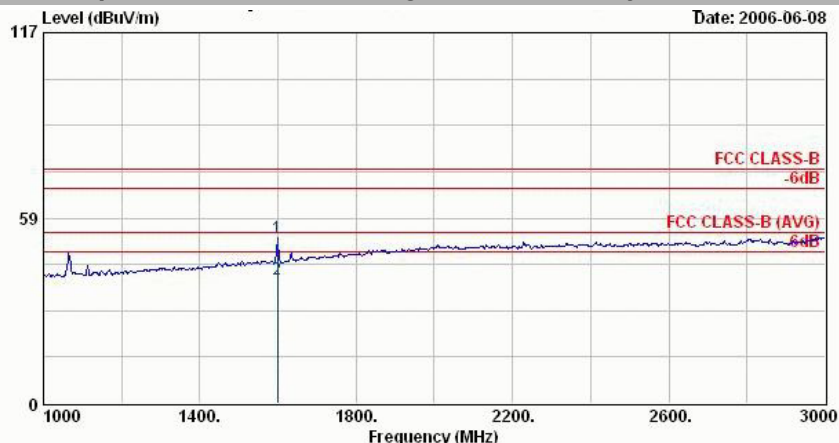
5.6.2 Typical Test Setup Layout of Radiated Emission

5.6.3 Test Data

➤ Test Mode : Mode 1

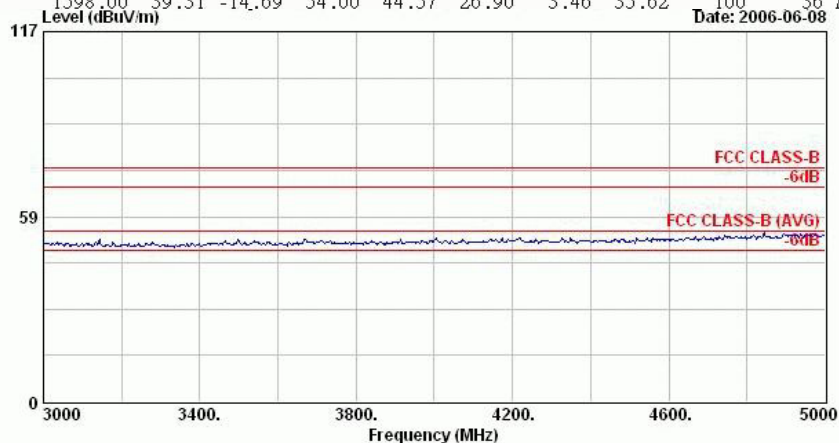
- Temperature : 27
- Relative Humidity :53%
- Test Enginner : Anderson
- Polarization : Horizontal

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

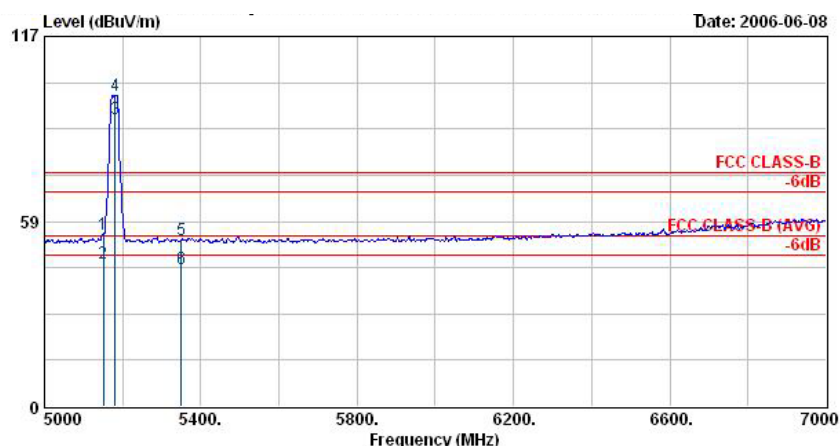


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : VM(CPU type:ULV dual core, LV/single
: core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	Pos	Pos Remark
									cm	deg
1	1598.00	52.40	-21.60	74.00	57.66	26.90	3.46	35.62	100	360 Peak
2 @	1598.00	39.31	-14.69	54.00	44.57	26.90	3.46	35.62	100	36 Average



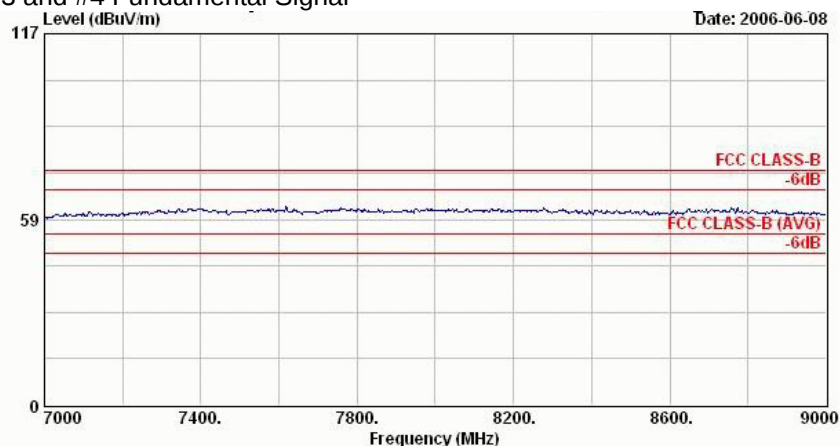
Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : VM(CPU type:ULV dual core, LV/single
: core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	dB	dBuV/m	Level	Factor	Loss	Factor	Pos	Pos	Remark
					dBuV	dB/m	dB	dB	cm	deg	
1	5150.00	54.55	-19.45	74.00	50.64	33.60	6.50	36.19	100	360	Peak
2 @	5150.00	45.05	-8.95	54.00	41.14	33.60	6.50	36.19	131	120	Average
3 @	5180.00	91.02			87.09	33.60	6.51	36.18	131	120	Average
4 @	5180.00	98.50			94.57	33.60	6.51	36.18	100	360	Peak
5	5350.00	52.53	-21.47	74.00	48.45	33.60	6.56	36.08	100	360	Peak
6 @	5350.00	43.44	-10.56	54.00	39.36	33.60	6.56	36.08	131	120	Average

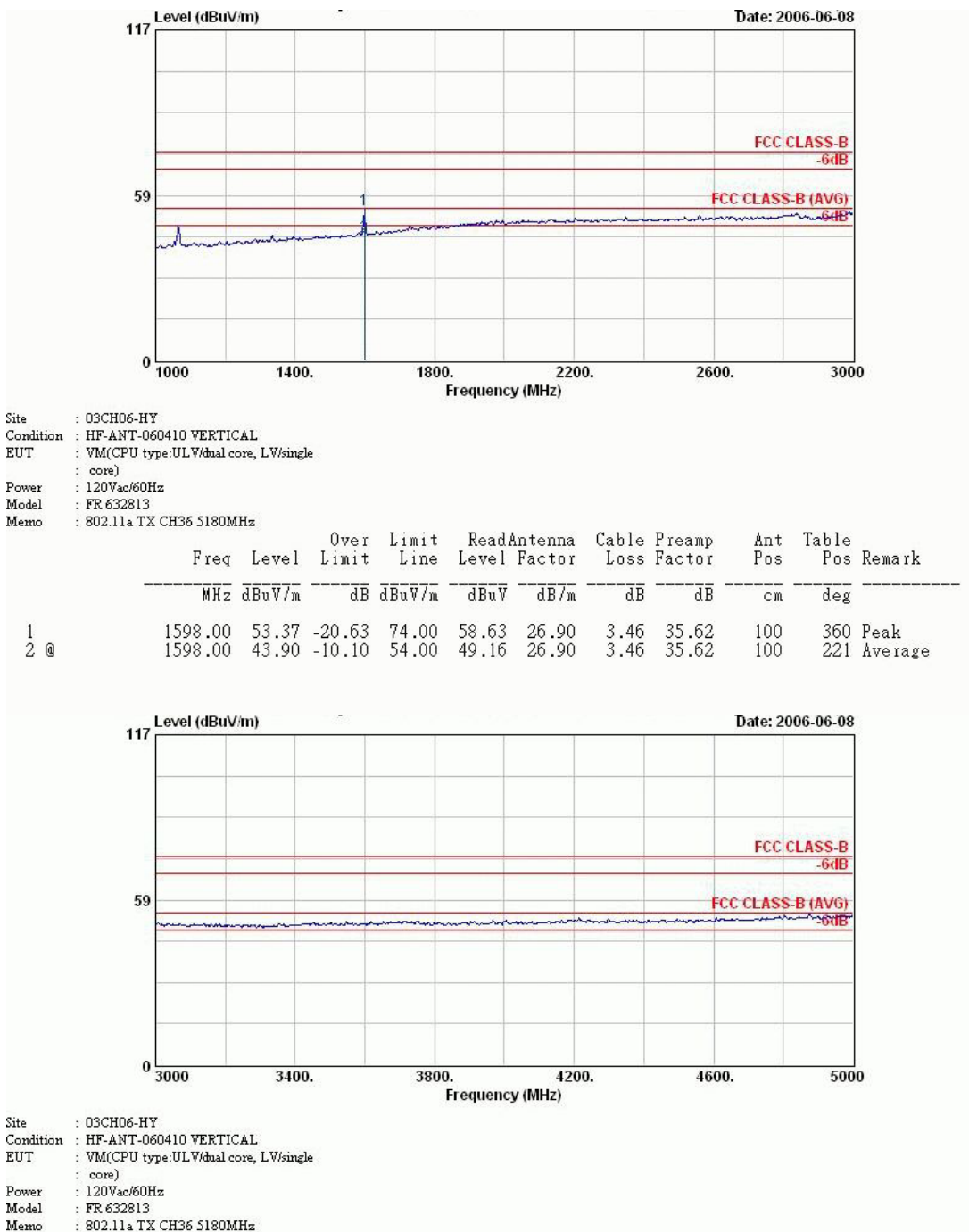
Remark: #3 and #4 Fundamental Signal

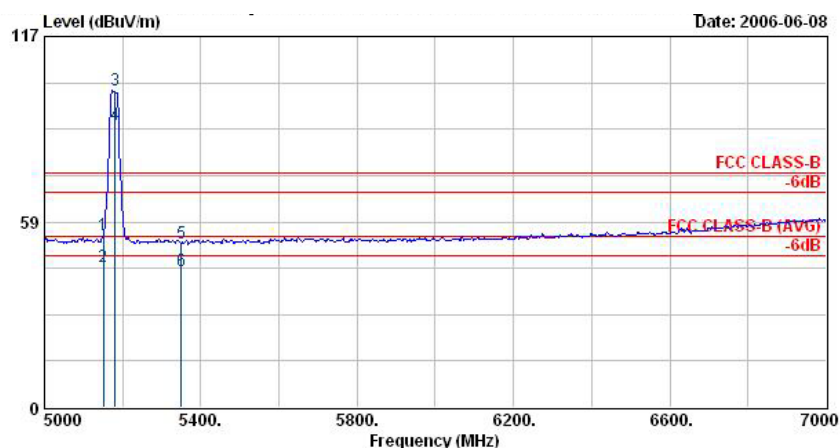


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz

- Polarization : Vertical

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

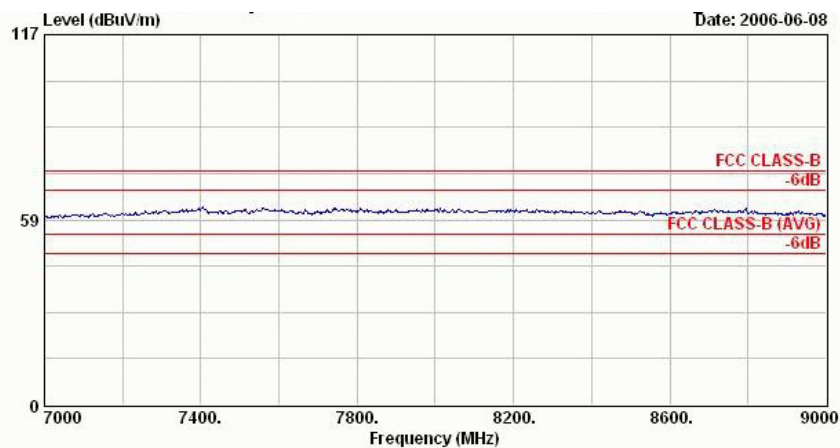




Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	Pos	Pos	
1	5150.00	54.56	-19.44	74.00	50.65	33.60	6.50	36.19	100	360	Peak
2 @	5150.00	44.35	-9.65	54.00	40.44	33.60	6.50	36.19	113	170	Average
3 @	5180.00	99.87			95.94	33.60	6.51	36.18	100	360	Peak
4 @	5180.00	89.03			85.10	33.60	6.51	36.18	113	170	Average
5	5350.00	51.93	-22.07	74.00	47.85	33.60	6.56	36.08	100	360	Peak
6 @	5350.00	42.87	-11.13	54.00	38.79	33.60	6.56	36.08	113	170	Average

Remark: #3 and #4 Fundamental Signal



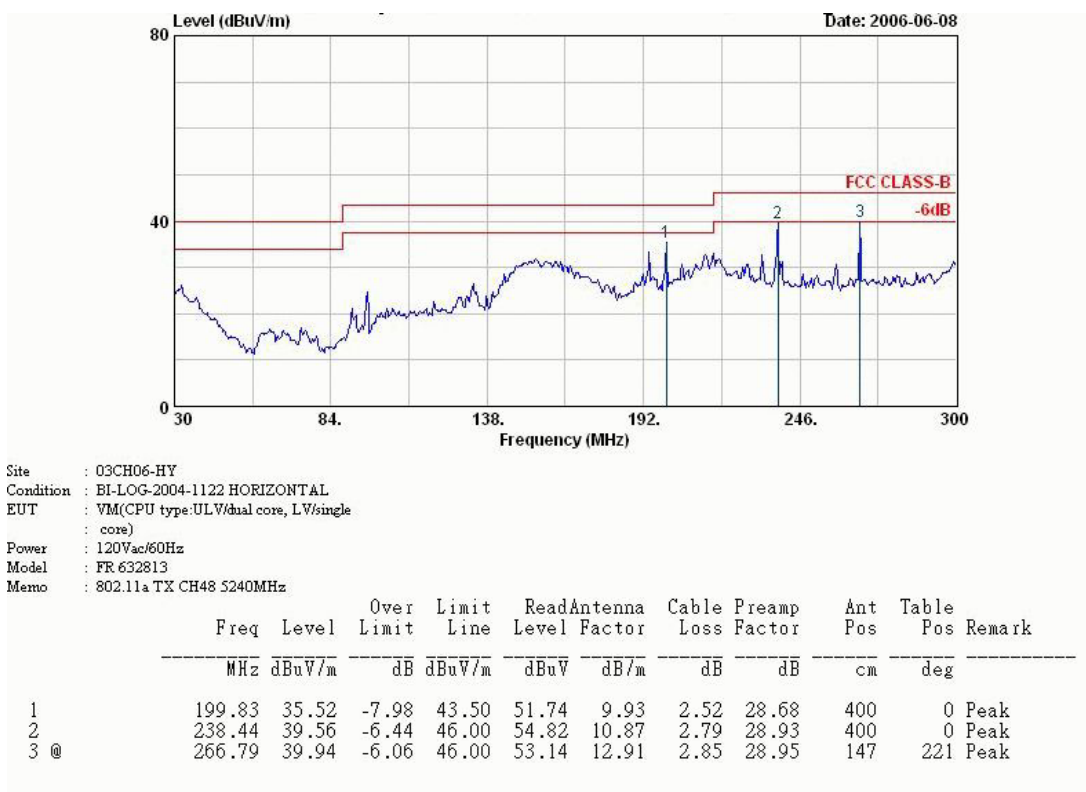
Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH36 5180MHz

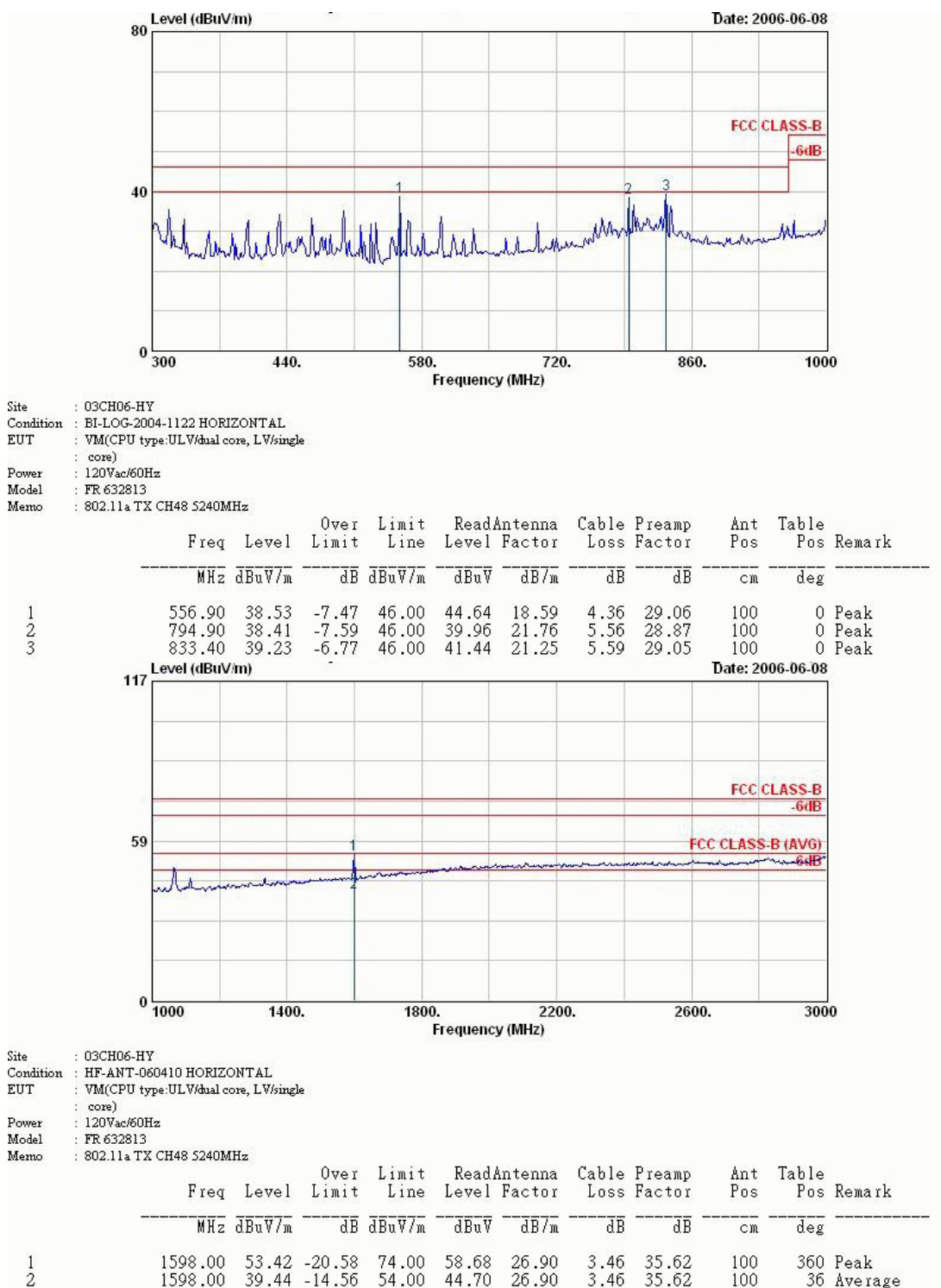
Remark : Frequency from 9GHz to 40GHz, the emission emitted by the EUT is too low to be measured.

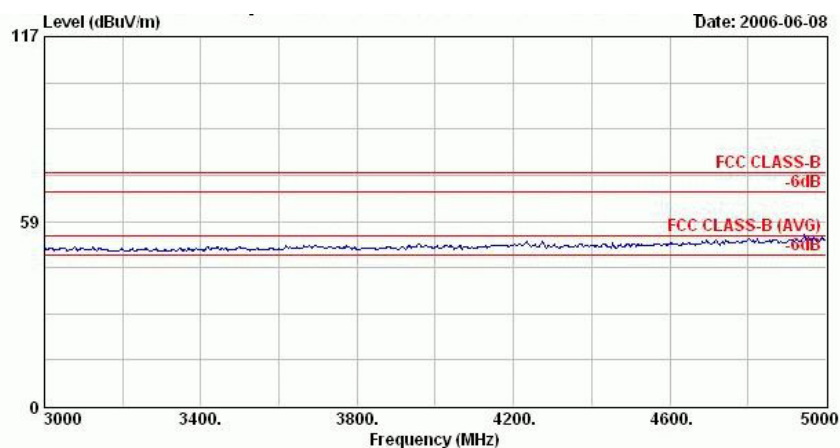
➤ Test Mode : Mode 2

- Temperature : 27
- Relative Humidity :53%
- Test Enginner : Anderson
- Polarization : Horizontal

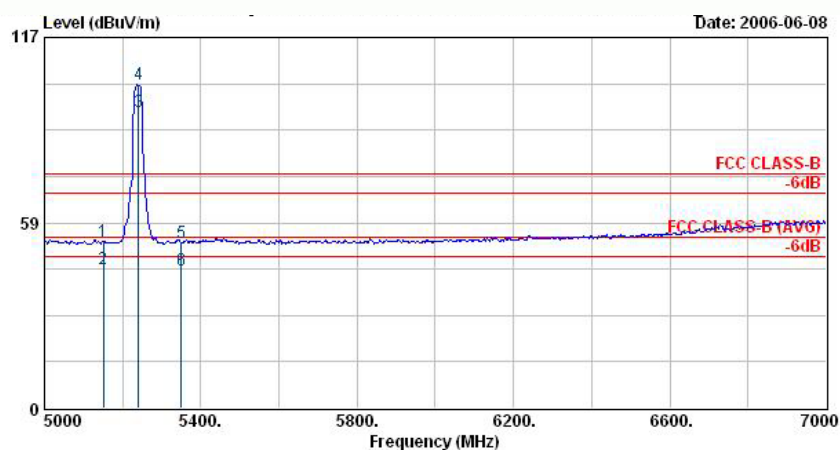
■ The test that passed at minimum margin was marked by the frame in the following table.







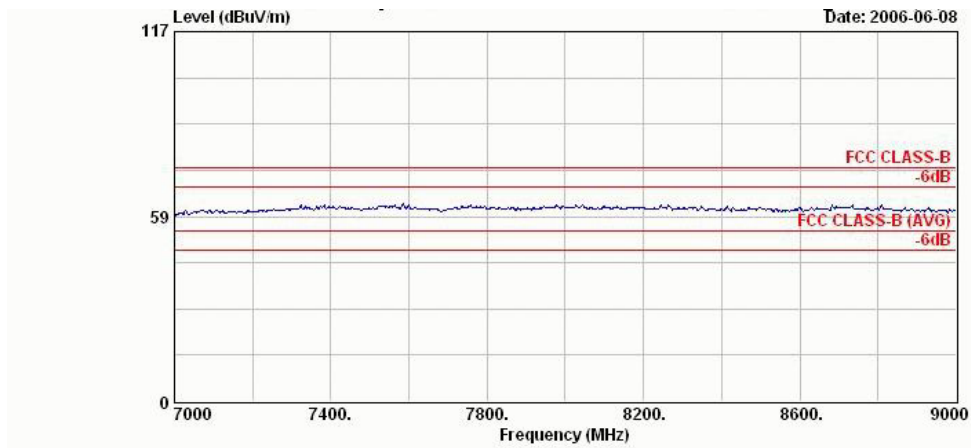
Site : 03CH06-HY
 Condition : HF-ANT-060410 HORIZONTAL
 EUT : VM(CPU type:ULV dual core, LV/single core)
 Power : 120Vac/60Hz
 Model : FR 632813
 Memo : 802.11a TX CH48 5240MHz



Site : 03CH06-HY
 Condition : HF-ANT-060410 HORIZONTAL
 EUT : VM(CPU type:ULV dual core, LV/single core)
 Power : 120Vac/60Hz
 Model : FR 632813
 Memo : 802.11a TX CH48 5240MHz

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	5150.00	52.58	-21.42	74.00	48.68	33.60	6.50	36.19	100	360	Peak
2	5150.00	43.90	-10.10	54.00	39.99	33.60	6.50	36.19	132	123	Average
3 @	5240.00	93.46			89.49	33.60	6.52	36.15	132	123	Average
4 @	5240.00	102.03			98.06	33.60	6.52	36.15	100	360	Peak
5	5350.00	52.24	-21.76	74.00	48.16	33.60	6.56	36.08	100	360	Peak
6	5350.00	43.63	-10.37	54.00	39.55	33.60	6.56	36.08	132	123	Average

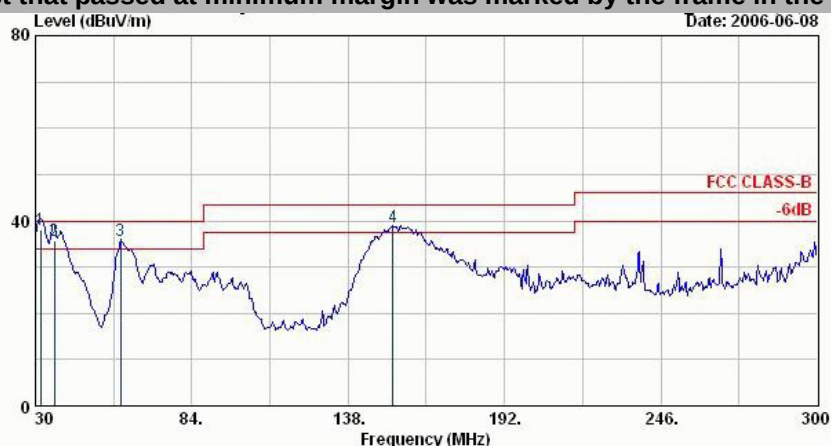
Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : VM(CPU type:ULV dual core, LV/single
: core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH48 5240MHz

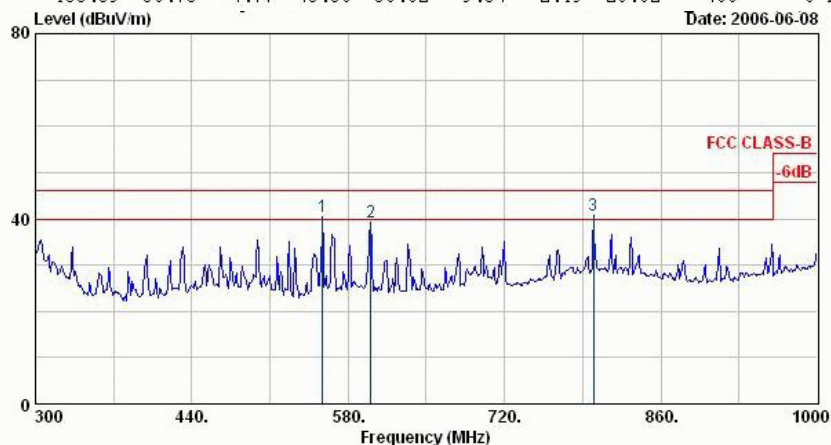
- Polarization : Vertical

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



Site : 03CH06-HY
 Condition : BI-LOG-2004-1122 VERTICAL
 EUT : VM(CPU type:ULV/dual core, LV/single
 : core)
 Power : 120Vac/60Hz
 Model : FR 632813
 Memo : 802.11a TX CH48 5240MHz

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level Factor	Loss Factor	Factor	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	31.89	38.21	-1.79	40.00	47.80	18.07	0.97	28.63	100	334 QP
2 @	36.48	35.80	-4.20	40.00	47.12	16.17	1.16	28.65	100	334 QP
3 @	59.43	35.66	-4.34	40.00	56.20	6.89	1.21	28.65	400	0 Peak
4 @	153.39	38.73	-4.77	43.50	56.02	9.34	2.19	28.82	400	0 Peak

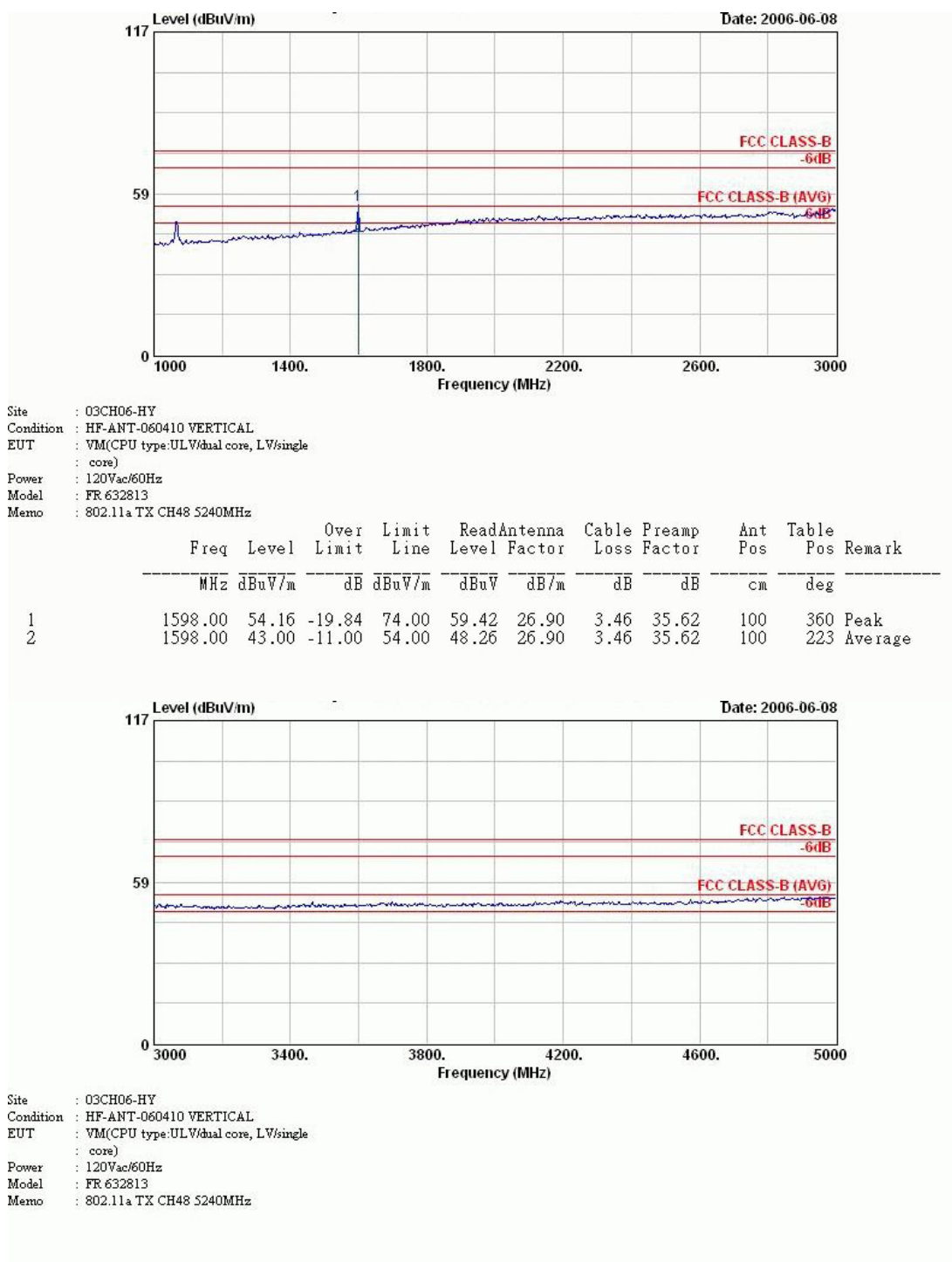


Site : 03CH06-HY
 Condition : BI-LOG-2004-1122 VERTICAL
 EUT : VM(CPU type:ULV/dual core, LV/single
 : core)
 Power : 120Vac/60Hz
 Model : FR 632813
 Memo : 802.11a TX CH48 5240MHz

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level Factor	Loss Factor	Factor	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	556.90	40.41	-5.59	46.00	46.52	18.59	4.36	29.06	100	0 Peak
2	600.30	39.30	-6.70	46.00	45.48	17.94	4.65	28.77	100	0 Peak
3 @	799.80	40.87	-5.13	46.00	42.22	21.90	5.62	28.87	100	0 Peak

FCC TEST REPORT

Report No. : FR632813-02-B



SPORTON International Inc.

TEL : 886-2-2696-2468

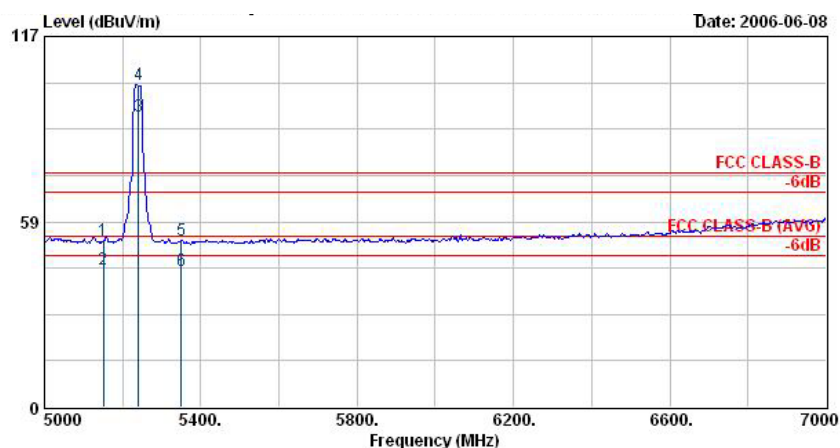
FAX : 886-2-2696-2255

FCC ID : JYV-VMW1BBHA

Page No. : 27 of 37

Report Issued Date : Mar. 30, 2007

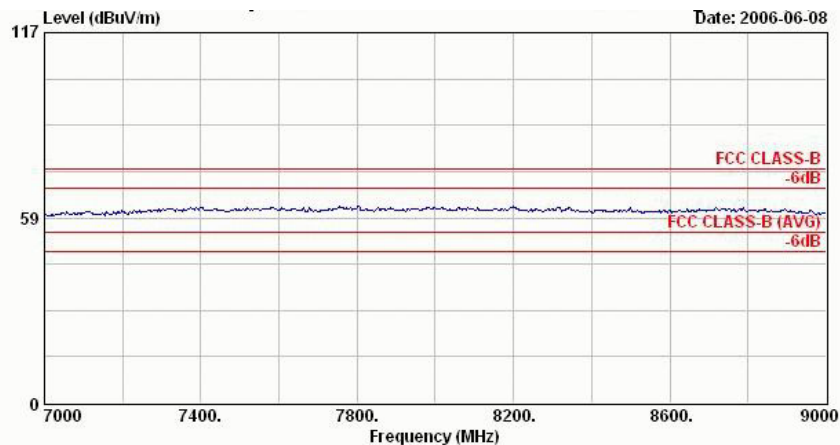
Report Version : Rev. 01



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH48 5240MHz

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	Level	Factor	Loss	Factor	Pos	Pos	
					dBuV	dB/m	dB	dB	cm	deg	
1	5150.00	52.42	-21.58	74.00	48.52	33.60	6.50	36.19	100	360	Peak
2	5150.00	43.62	-10.38	54.00	39.71	33.60	6.50	36.19	100	187	Average
3 @	5240.00	91.69			87.72	33.60	6.52	36.15	100	187	Average
4 @	5240.00	101.62			97.65	33.60	6.52	36.15	100	360	Peak
5	5350.00	52.49	-21.51	74.00	48.41	33.60	6.56	36.08	100	360	Peak
6	5350.00	43.04	-10.96	54.00	38.96	33.60	6.56	36.08	100	187	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : VM(CPU type:ULV dual core, LV/single core)
Power : 120Vac/60Hz
Model : FR 632813
Memo : 802.11a TX CH48 5240MHz

Remark : Frequency from 9GHz to 40GHz, the emission emitted by the EUT is too low to be measured.

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.

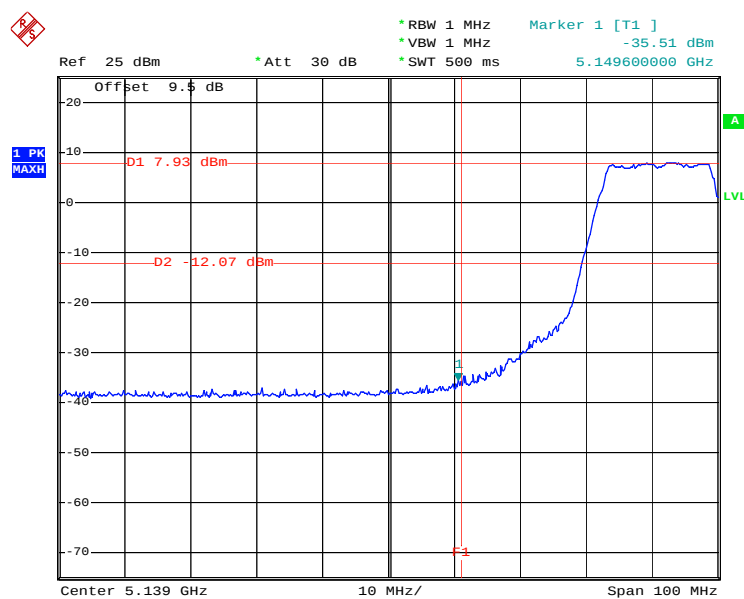
5.7.3 Test Result :

- Temperature : 27
- Relative Humidity :53%

Test Result Mode
Test Result for 802.11a band I

Verdict
PASS

5.7.4 Test Data



802.11a CH36

5.8 Peak Excursion Ratio Measurement

5.8.1 Measuring Instruments :

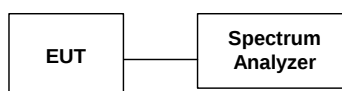
As described in chapter 6 of this test report.

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. First the video bandwidth is set to 1 MHz, Trace A is set to Max Hold, then to View. Then the video bandwidth is readjusted to 300 KHz, and the signal under this measurement condition is captured in Trace B.

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 : 27
- Relative Humidity :53%

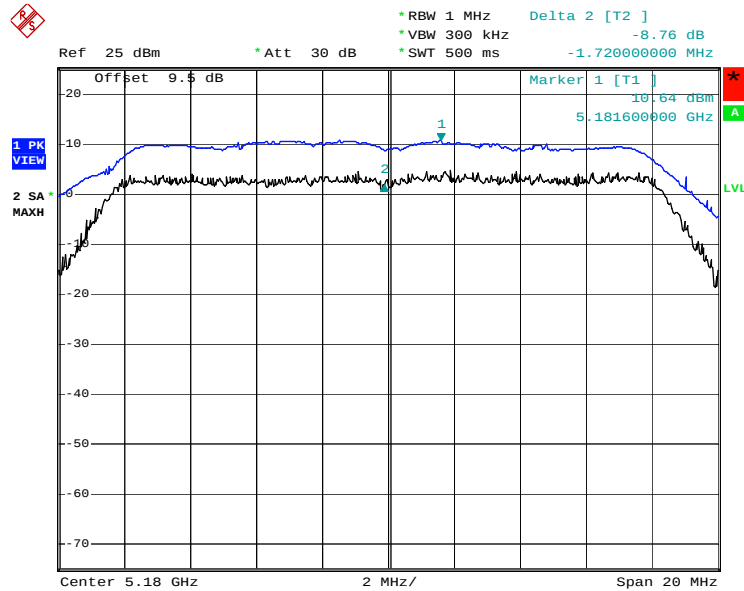
➤ Application: 802.11a

Channel	Frequency (MHz)	Peak Excursion (dB)	Limits (dB)	Mode Ref. No.
36	5180	-8.76	13	1
48	5240	-7.81	13	2

5.8.5 Test Data

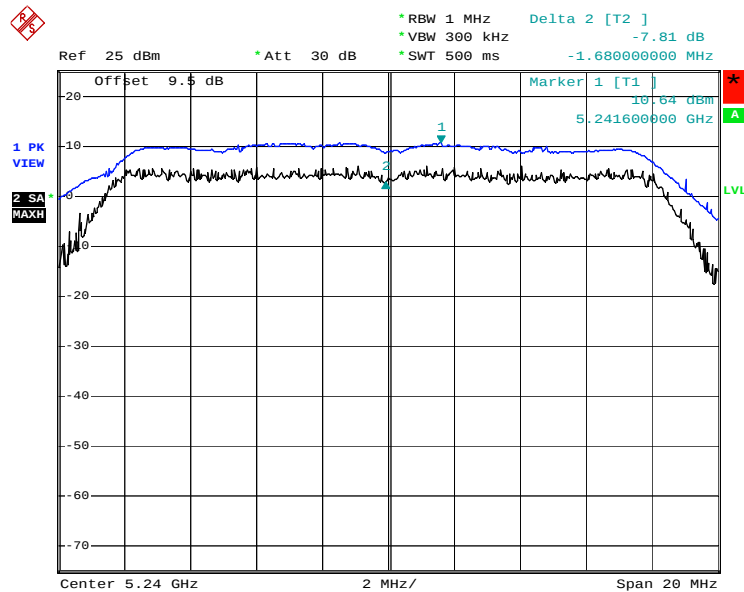
Mode Ref. No.

1



Date: 5.MAY.2006 17:22:48

2



Date: 5.MAY.2006 17:19:19

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)	Lower Frequency point (Fl)	Upper Frequency point (Fh)	Center Frequency (Fc)	frequency deviation (ppm)
5180	5171.68	5188.32	5180	0

Channel	*Frequency Stability	Measured Frequency(MHz)	frequency deviation (ppm)	Limit	Result
CH036	5166	5166	0	> 5150MHz	Pass

Frequency Stability = Measured Frequency + (frequency deviation Measured Frequency)

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	100174	9kHz – 2.75GHz	Feb. 22, 2006	Feb. 22, 2007	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 29, 2006	Mar. 29, 2007	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Apr. 19, 2006	Apr. 19, 2007	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 – 60Hz	N/A	N/A	Conduction (CO01-HY)
RF Cable-CON	Suhner Switzerland	RG223/U	CB029	9kHz – 30MHz	Dec. 22, 2005	Dec. 22, 2006	Conduction (CO01-HY)
Spectrum analyzer	Agilent	E4408B	MY44211030	9KHz-26.5GHz	Dec. 22, 2005	Dec. 22, 2006	Radiation (03CH06-HY)
Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 25, 2005	Jul. 24, 2006	Radiation (03CH06-HY)
Controller	CT	SC100	N/A	N/A	N/A	N/A	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	N/A	N/A	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Nov. 22, 2004	Nov. 22, 2006	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Feb. 1, 2005	Feb. 1, 2007	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	Jul. 21, 2005	Jul. 20, 2006	Radiation (03CH06-HY)
Amplifier	MITEQ	AMF-6F	997165	26G - 40G	Jul. 21, 2005	Jul. 20, 2006	Radiation (03CH06-HY)
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	N/A	Radiation (03CH06-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	N/A	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
combined standard uncertainty Uc(y)	1.13		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.26		

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
combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

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 = $20 \log(1 - \Gamma_1^2 * \Gamma_2^2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	4.72				