FCC/IC TEST REPORT

for

47 CFR Part 15 Subpart C and IC RSS-210

Equipment	:	**GPS PDA**
Trade Name	:	**ViaMichelin**
Model No.	:	**ViaMichelin Navigation X-980T**
FCC ID	:	**QQXPN3X001**
IC ID	:	**4626A-PN3X001**
Filing Type	:	**Certification**
Applicant	:	**COMPAL COMMUNICATIONS, INC.** 7th F1., No. 319, Sec. 4, Pa-Teh Rd., Taipei, Taiwan, R.O.C.

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- The data shown in this test report were carried out on Sep. 06, 2006 at **Sporton International Inc. LAB.**
- Report No.: FR680701, Report Version: Rev. 02.

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: Sep. 11, 2006

Report No.	Description

1. General Description of Equipment under Test

1.1. Applicant

COMPAL COMMUNICATIONS, INC.
7th F1., No. 319, Sec. 4, Pa-Teh Rd., Taipei, Taiwan, R.O.C.

1.2. Manufacturer

1. COMPAL COMMUNICATIONS, INC.
No. 8, Nan-Tung Rd., Pin-Cheng City, Tao-Yuan Hsien, Taiwan, R.O.C.
2. Compal Communications (Nanjing) CO., LTD.
No. 68-2 Suyuan Road, Nanjing Export Processing Zone (South Area) China
3. Compal Wireless Communications (Nan jing) CO., LTD.
No. 68-2 Suyuan Road, Nanjing Export Processing Zone (South Area) China

1.3. Basic Description of Equipment under Test

Equipment : GPS PDA
Trade Name : ViaMichelin
Model No. : ViaMichelin Navigation X-980T
FCC ID : QQXPN3X001
IC ID : 4626A-PN3X001
Power Supply Type : Switching
AC Power Cord : AC 120V, Wall-mount, 1.6 meter, 2 pin

1.4. Feature of Equipment under Test

Product Feature & Specification				
1. Modulation Type/Data Rate	GFSK			
2. Frequency Range.	2400 MHz ~ 2483.5 MHz			
3. Number of Channels	79			
4. Carrier Frequency of each channel	2402+ n*1 MHz, n= 0~78			
5. Channel Spacing	1 MHz			
6. Maximum Output Power to Antenna (Normal condition)	3.86 dBm			
7. Type of Antenna Connector	N/A			
8. Antenna Type	Chip Antenna			
9. Antenna Gain	-6.3 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. For spurious emission below 1GHz, only one channel of each application was tested because it is not related to channel selection.
c. The EUT is programmed to transmit signal continuously for all testings.
d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.

2.2. Test Mode

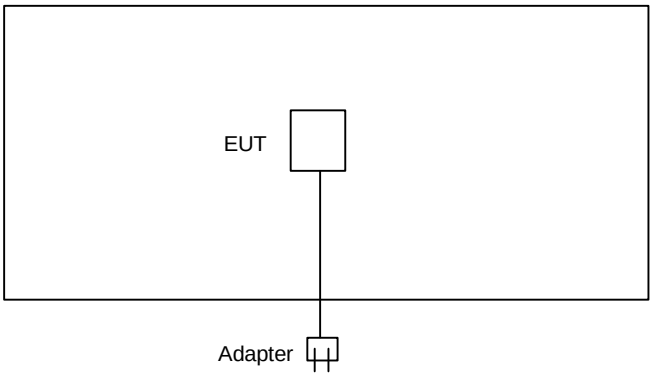
Application	Bluetooth
Radiated Emission and conducted test items	Mode 1: Tx_CH00_2402 MHz Mode 2: Tx_CH39_2441 MHz Mode 3: Tx_CH78_2480 MHz
Conducted Emission	Mode 1: BT Link Mode + H Pattern + MP3 Player + CDS + Adapter Mode 2: GPS Rx Mode + H Pattern + MP3 Player + CDS + Adapter Mode 3: BT Link Mode + H Pattern + MP3 Player + USB Link + Adapter

2.3. Ancillary Equipment List

Item	Equipment	Model No.	Power Cord
1.	Notebook (DELL)	D400	N/A
2.	GPS Station (T&E)	GP-50	N/A
3.	Bluetooth Earphone (Free Style)	JD-100	N/A
4.	BT Dongle (MSI)	BToES	N/A
5.	USB Cable		Weave-shielded, 1.2m

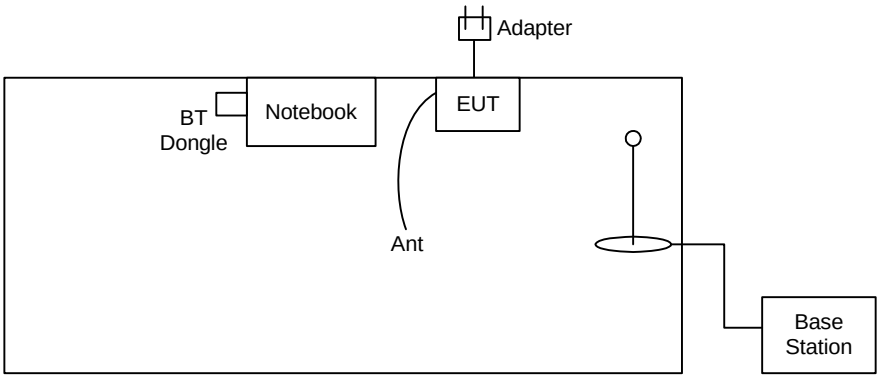
2.4. Connection Diagram of Test System

<Radiated Emission>



<Conducted Emission>

<Mode 1>



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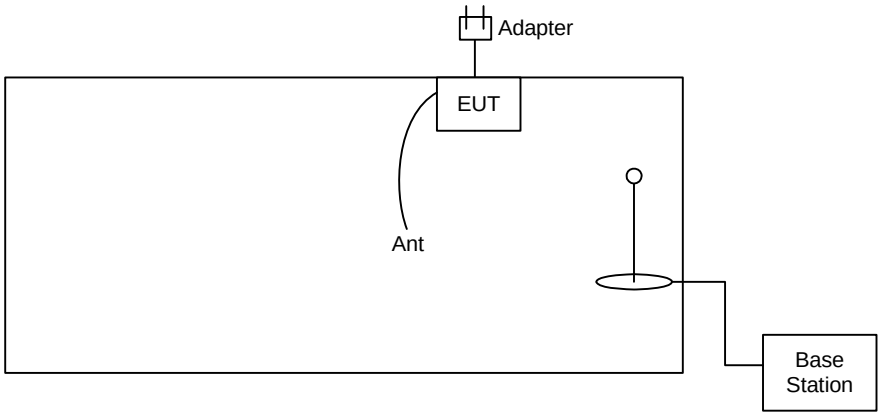
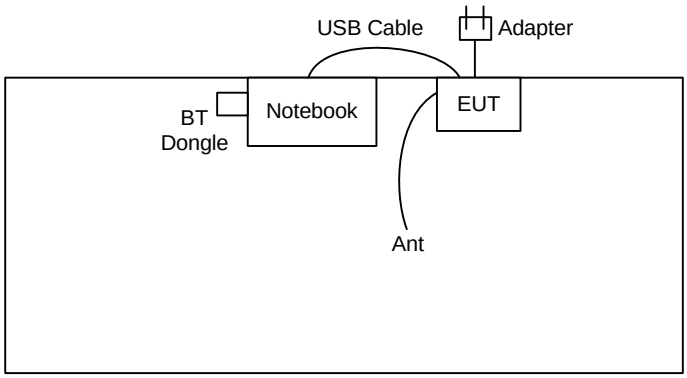

Adapter
EUT
Ant
Base
Station

<Mode 3>


USB Cable
Adapter
BT
Dongle
Notebook
EUT
Ant

3. RF Utility

The EUT is in BT link mode with notebook for conducted emission or in BT continuous Tx Mode controlled by RF utility for radiation emission and other conducted tests.

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, 03CH06-HY

4.1. Test Voltage

AC 120V

4.2. Standard for Methods of Measurement

ANSI C63.4-2003

4.3. Test in Compliance with

47 CFR Part 15 Subpart C and IC RSS-210 Issued 6

4.4. Frequency Range Investigated

Conduction: from 150 kHz to 30 MHz
Radiation: from 30 MHz to 25000MHz

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	IC Rule	Description of Test	Result	Section
15.247(a)(1)	A8.1 (2)	Hopping Channel Separation	Pass	5.2
15.247(a)(1)(iii)	A8.1 (4)	Number of Hopping Frequency Used	Pass	5.3
15.247(a)(1)	A8.1 (1)	Hopping Channel Bandwidth	Pass	5.4
15.247(a)(1)(iii)	A8.1 (4)	Dwell Time of Each Frequency	Pass	5.5
15.247(b)(1)	A8.4 (2)	Output Power	Pass	5.6
15.247(c)	A8.5	100kHz Bandwidth of Frequency Band Edges	Pass	5.7
15.207	RSS-Gen 7.2.2	Conducted Emission	Pass	5.8
15.209	2.6	Radiated Emission	Pass	5.9
15.203	A8.4 (6)	Antenna Requirement	Pass	5.10

5.2. Hopping Channel Separation

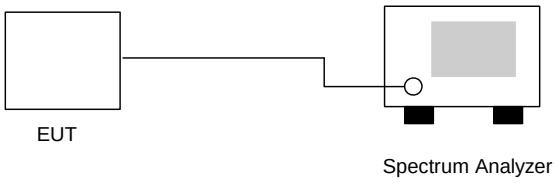
5.2.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.2.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
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.

5.2.3. Test Setup Layout：



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

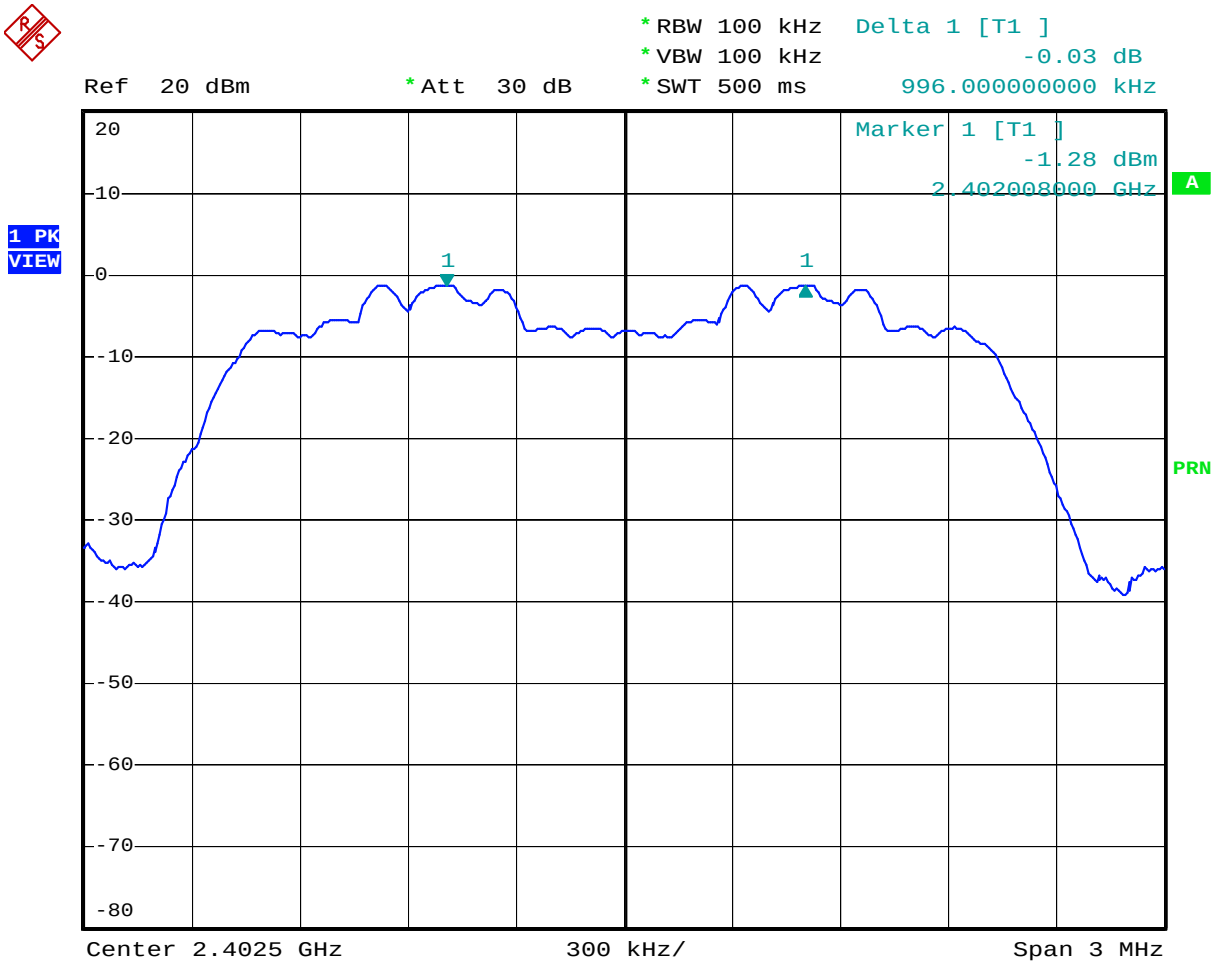
- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Channel	Frequency (MHz)	Hopping Channel Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.996	1.206	Mode 1
39	2441	1.002	1.206	Mode 2
78	2480	0.990	1.206	Mode 3

Remark: Limit is the greater one of 25kHz or the 20dB bandwidth of the hopping channel.

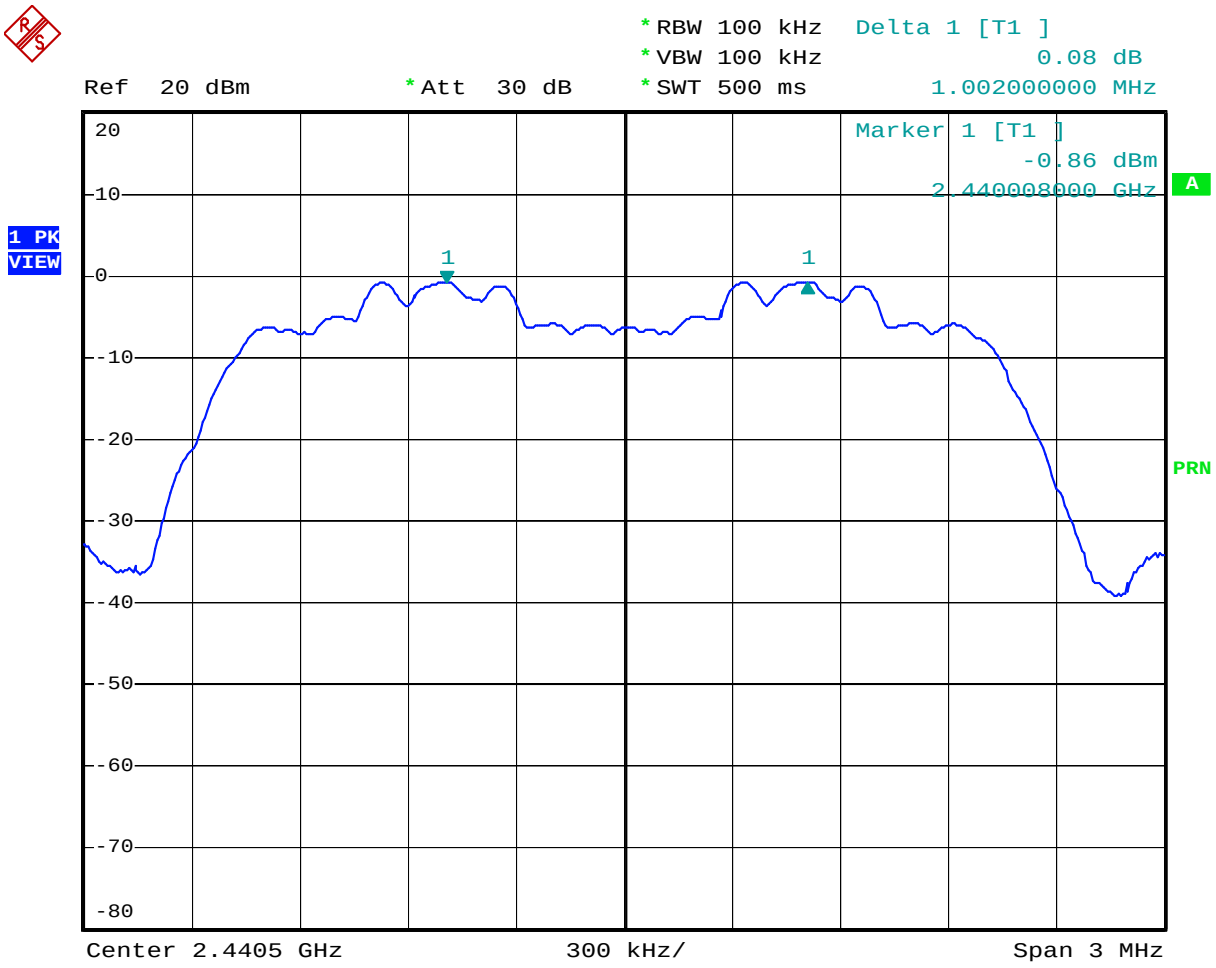
5.2.5 Hopping Channel Separation

Mode 1: CH00 (2402MHz)



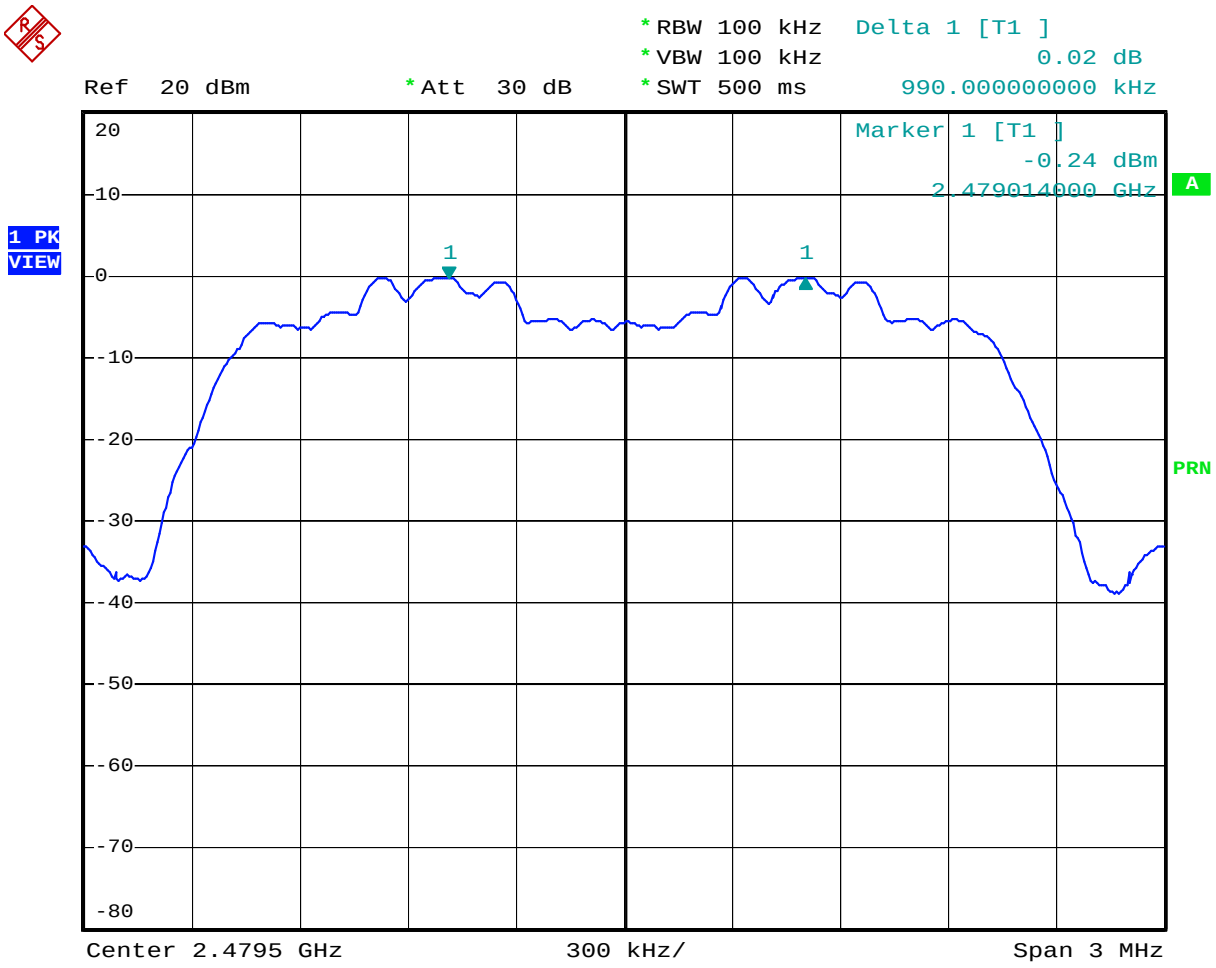
Date: 24.AUG.2006 14:58:52

Mode 2: CH39 (2441MHz)



Date: 24.AUG.2006 14:57:43

Mode 3: CH78 (2480MHz)



Date: 24.AUG.2006 14:56:17

5.3. Number of Hopping Frequency

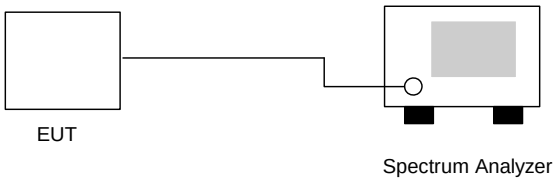
5.3.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.3.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
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.

5.3.3. Test Setup Layout：

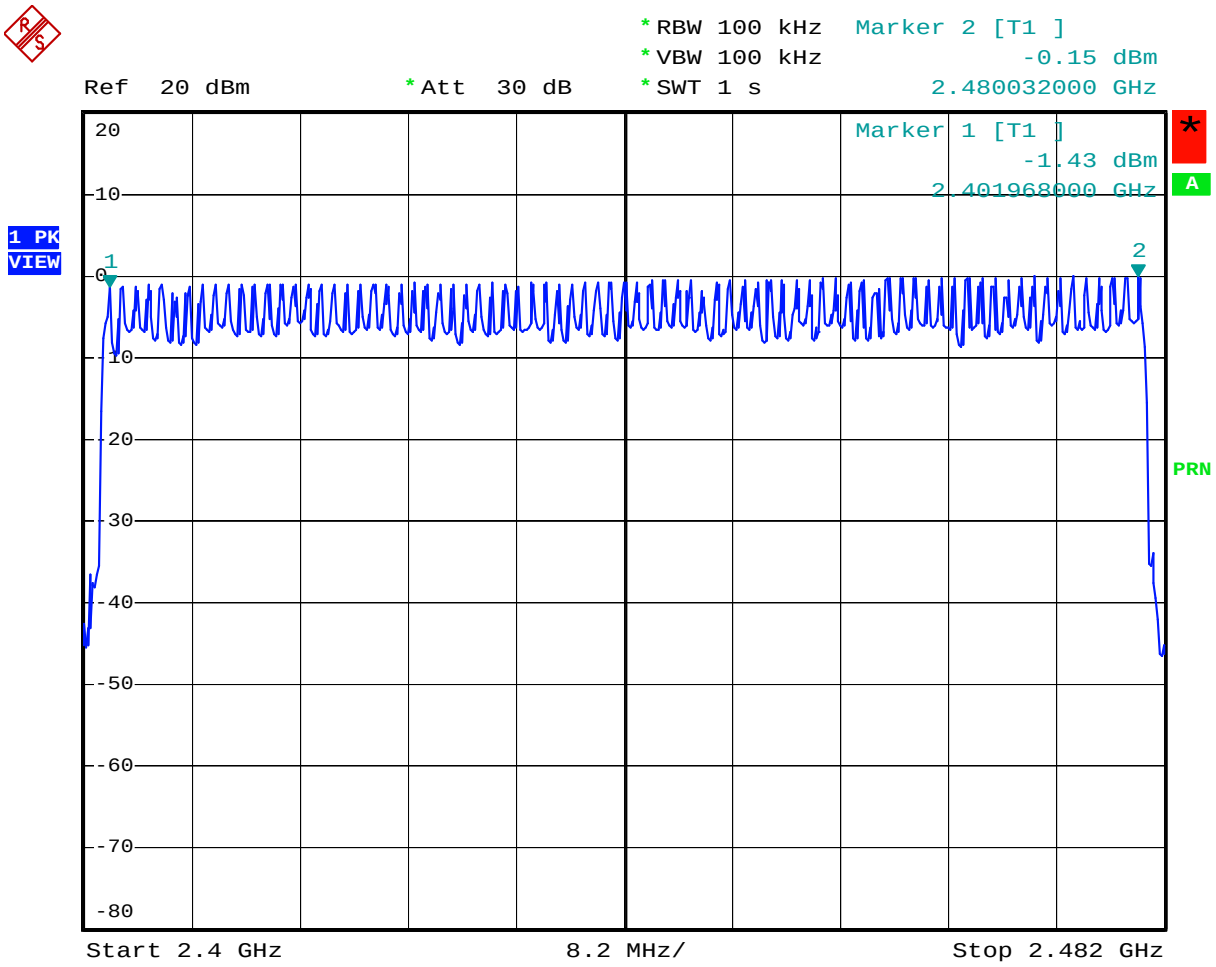


5.3.4. Test Result：See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Number of Hopping Frequency (Channel)	Limits (Channel)
79	15

5.3.5 Number of Hopping Frequency



Date: 24.AUG.2006 15:20:57

5.4 Hopping Channel Bandwidth

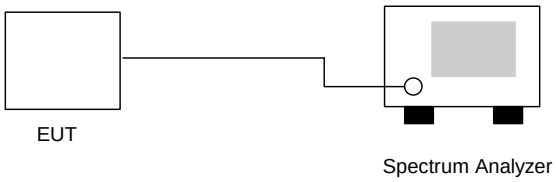
5.4.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.4.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 30kHz and VBW to 300kHz.
3. The Hopping Channel bandwidth is defined as the frequency range where the power is higher than peak power minus 20dB.

5.4.3 Test Setup Layout：



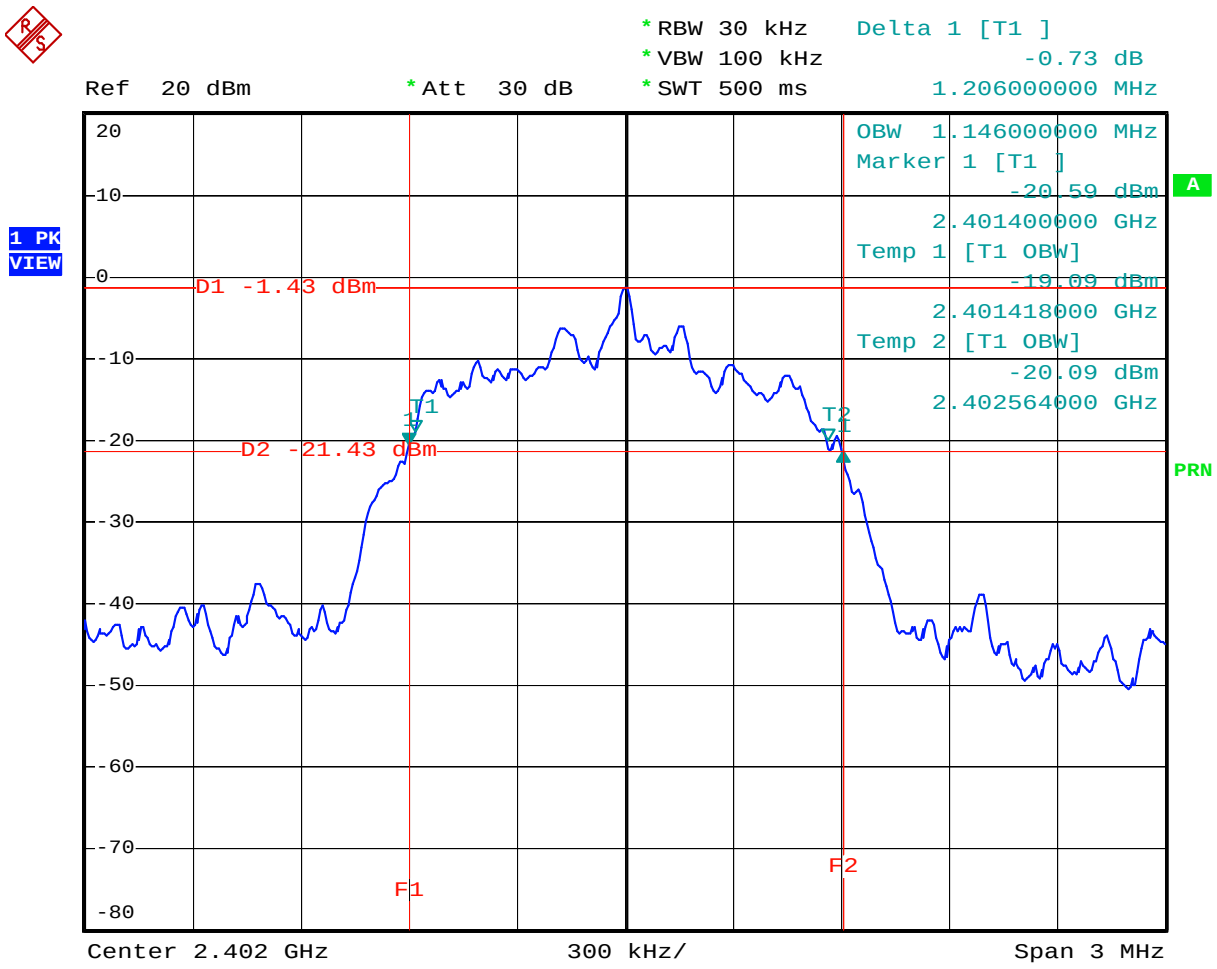
5.4.4 Test Result：See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	1.206	Mode 1
39	2441	1.206	Mode 2
78	2480	1.206	Mode 3

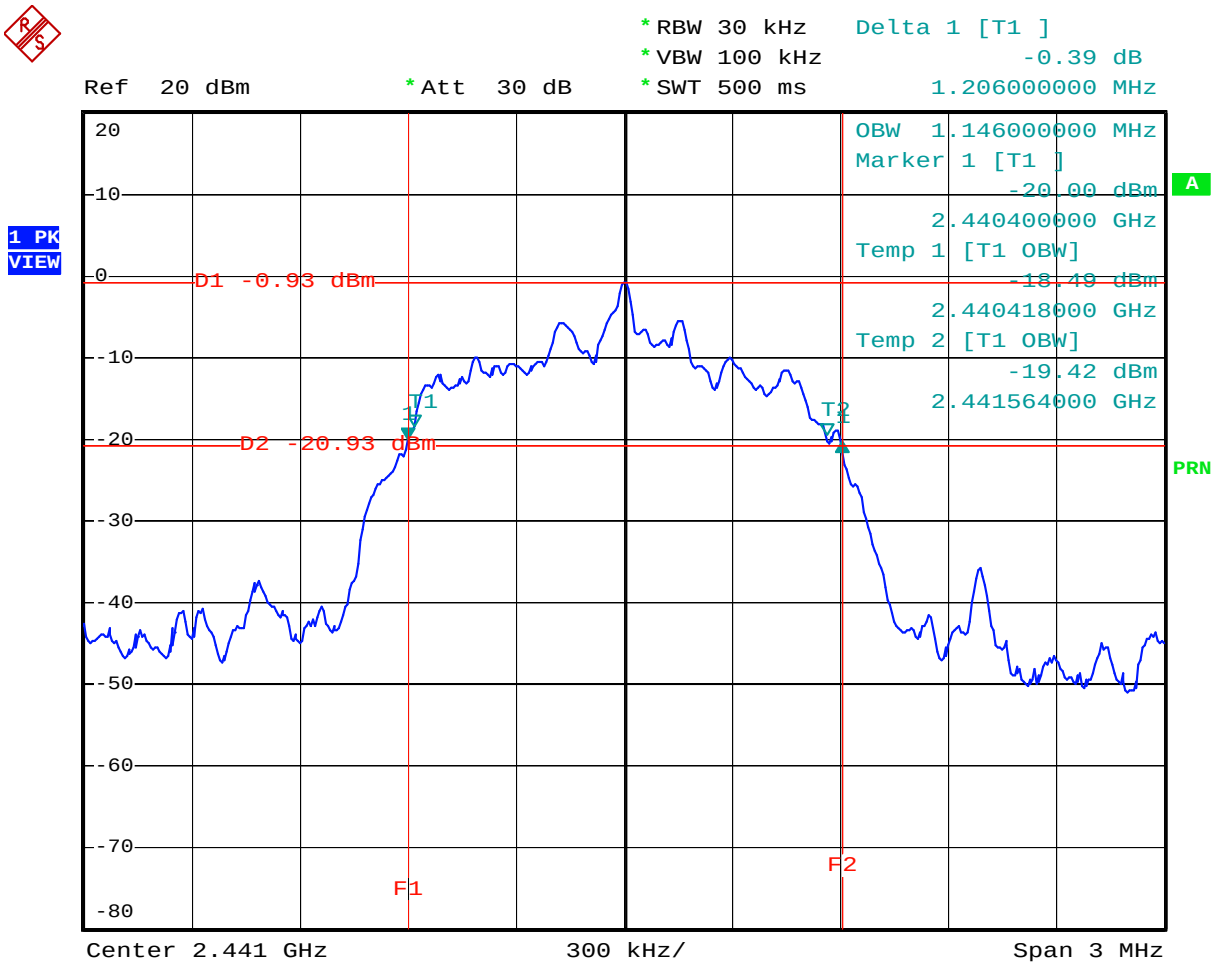
5.4.5 Hopping Channel Bandwidth

Mode 1: CH00 (2402MHz)



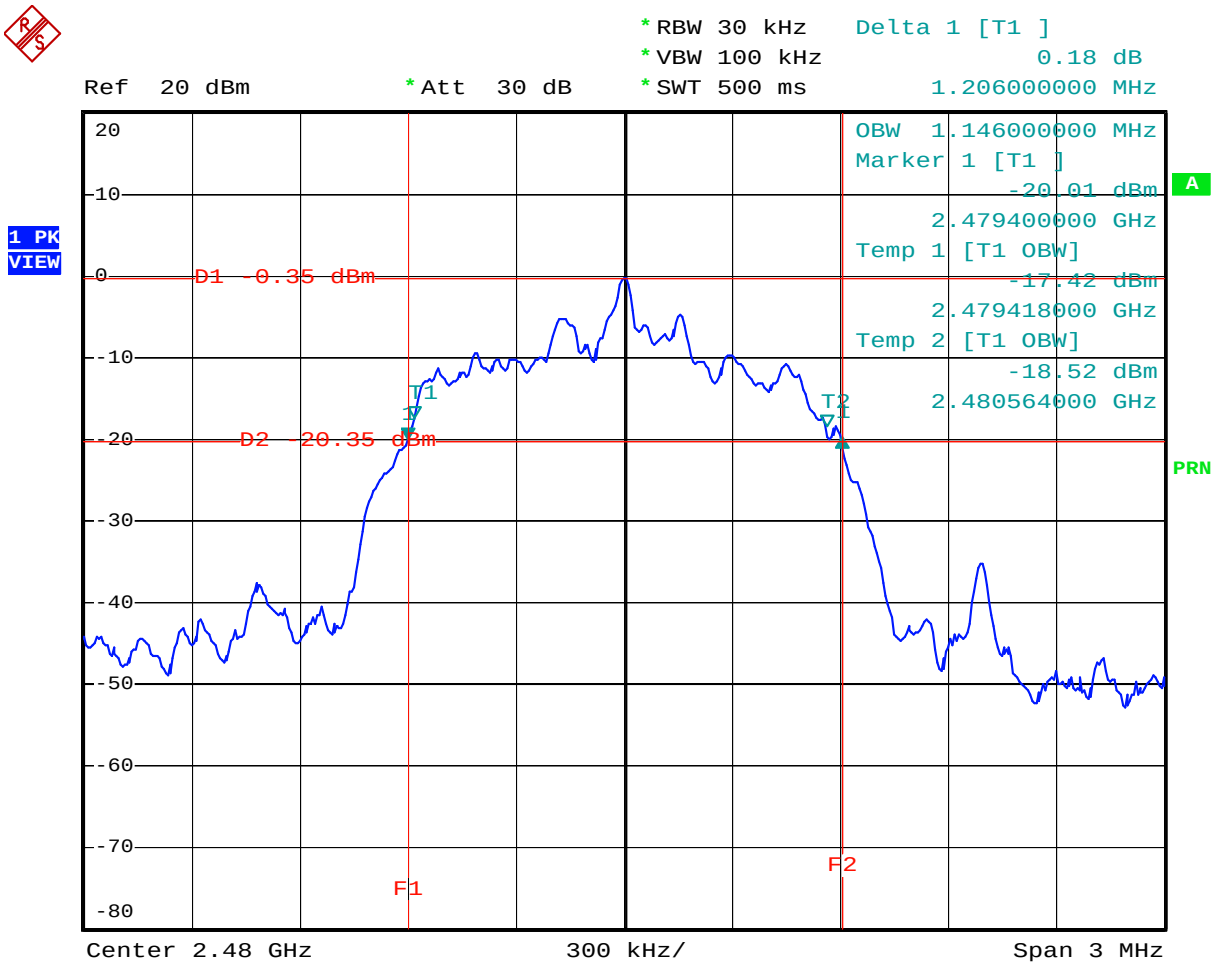
Date: 24.AUG.2006 14:50:06

Mode 2: CH39 (2441MHz)



Date: 24.AUG.2006 14:48:00

Mode 3: CH78 (2480MHz)



Date: 24.AUG.2006 14:43:15

5.5 Dwell Time of Each Frequency

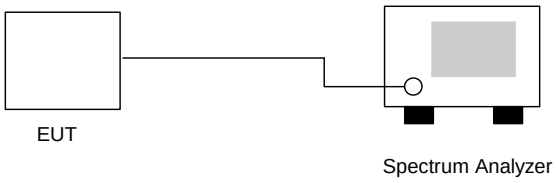
5.5.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.5.2 Test Procedure：

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

5.5.3 Test Setup Layout：



5.5.4 Test Result：See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Ch00

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	10.1	500	0.160	0.4
DH3	5.1	1760	0.282	0.4
DH5	3.4	3030	0.323	0.4

CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	10.1	600	0.192	0.4
DH3	5.1	1860	0.298	0.4
DH5	3.4	3120	0.333	0.4

CH78

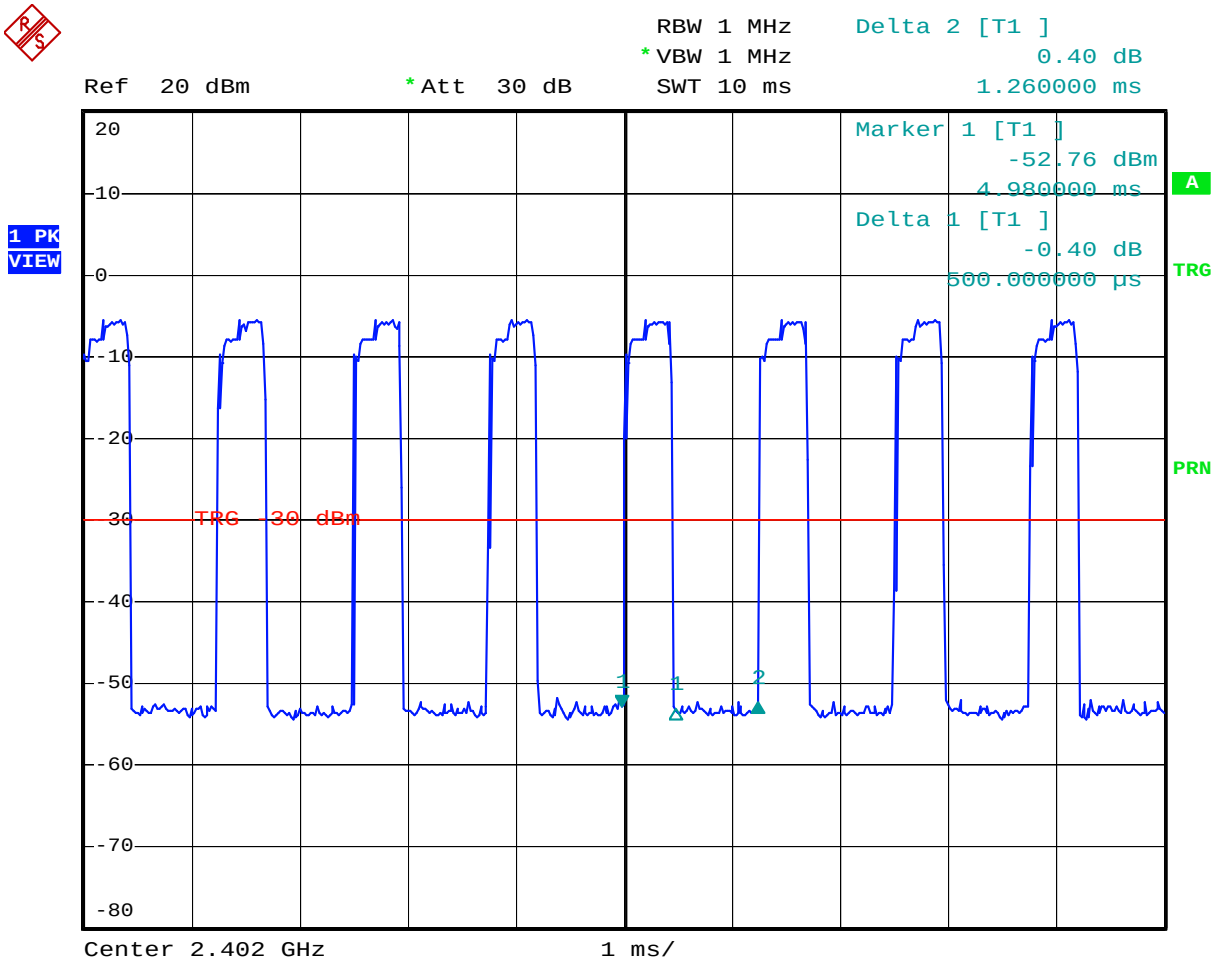
Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	10.1	600	0.192	0.4
DH3	5.1	1860	0.298	0.4
DH5	3.4	3120	0.333	0.4

※ Remark:

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

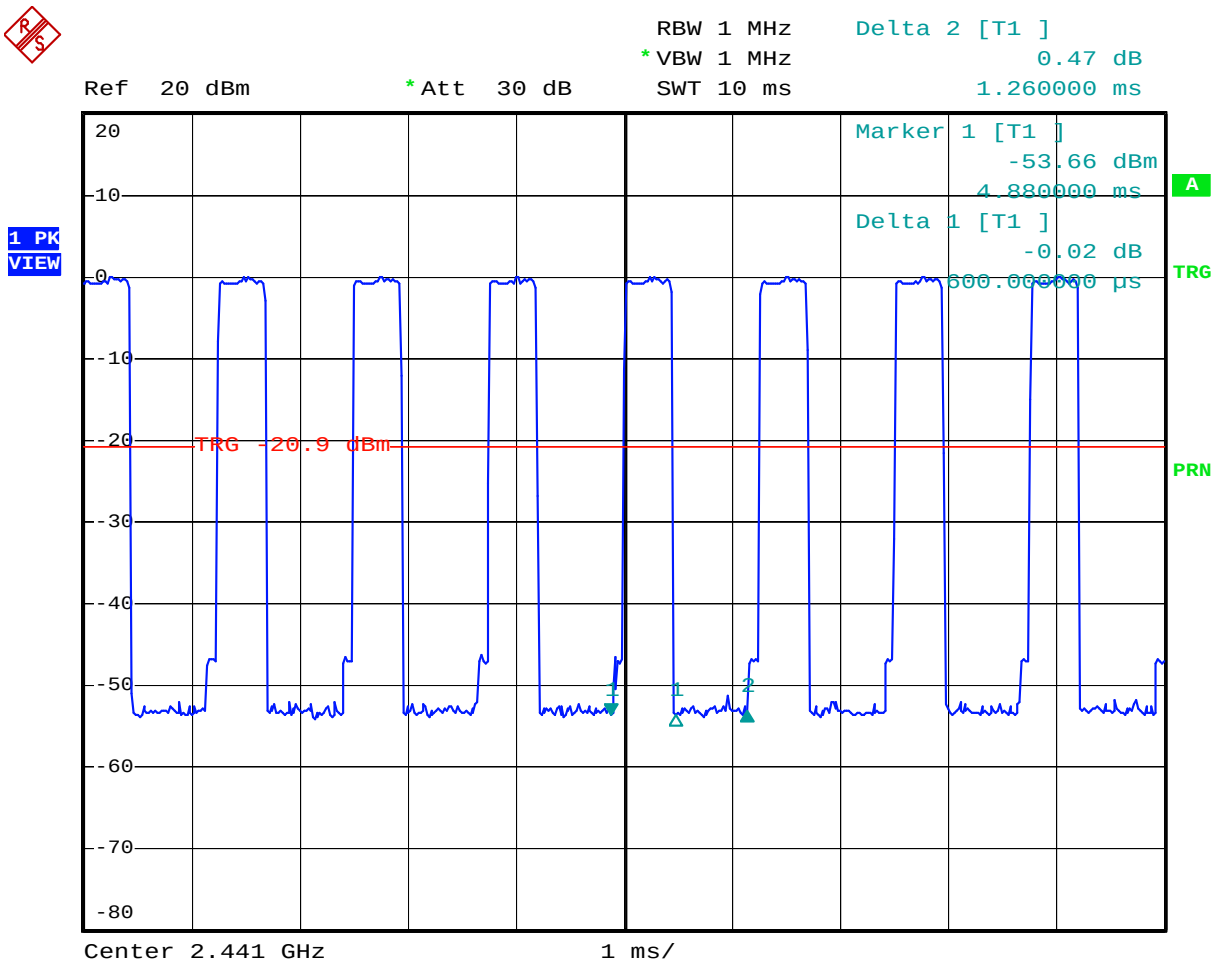
5.5.5 Dwell Time

DH1 (CH00)



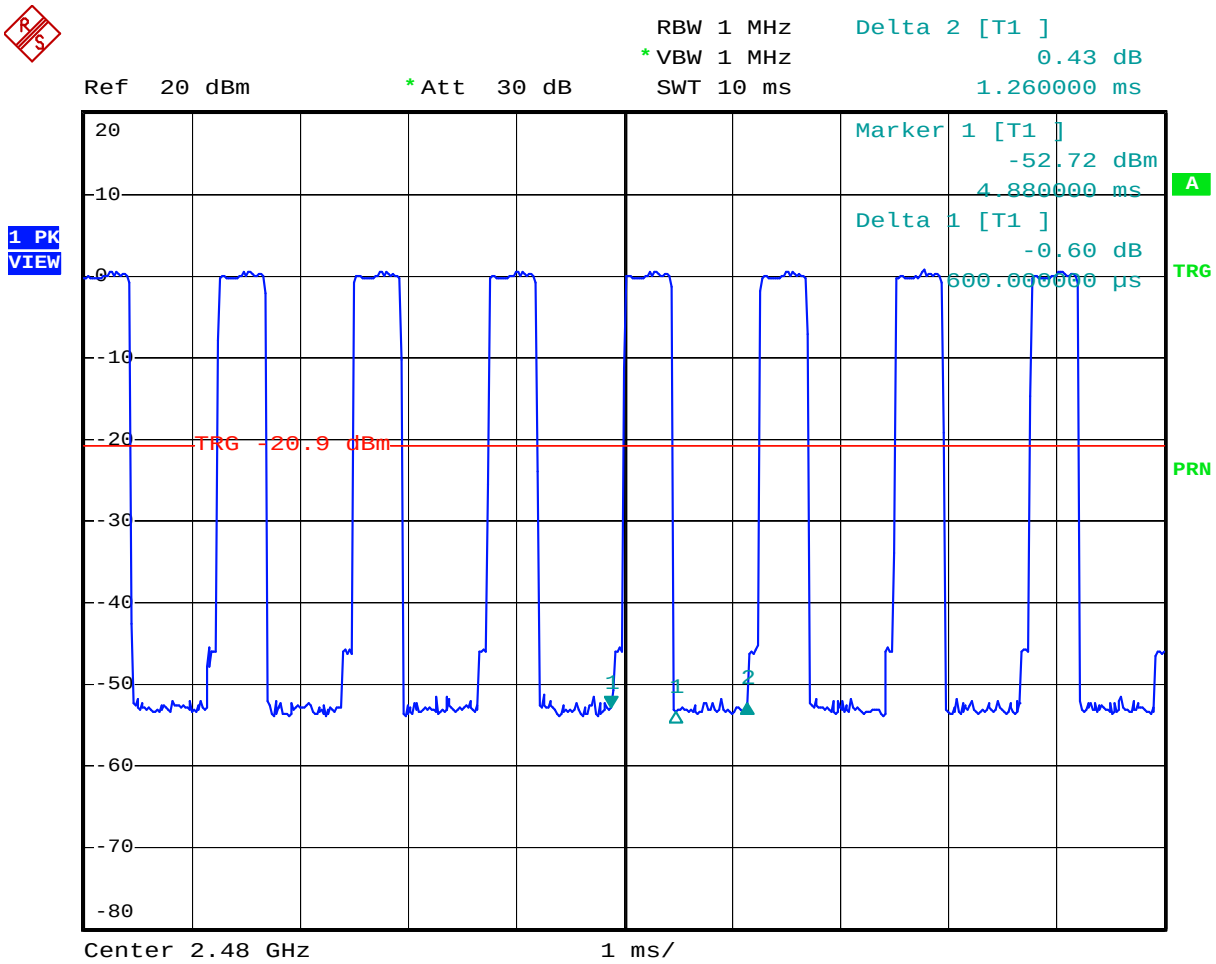
Date: 24.AUG.2006 15:02:08

DH1 (CH39)



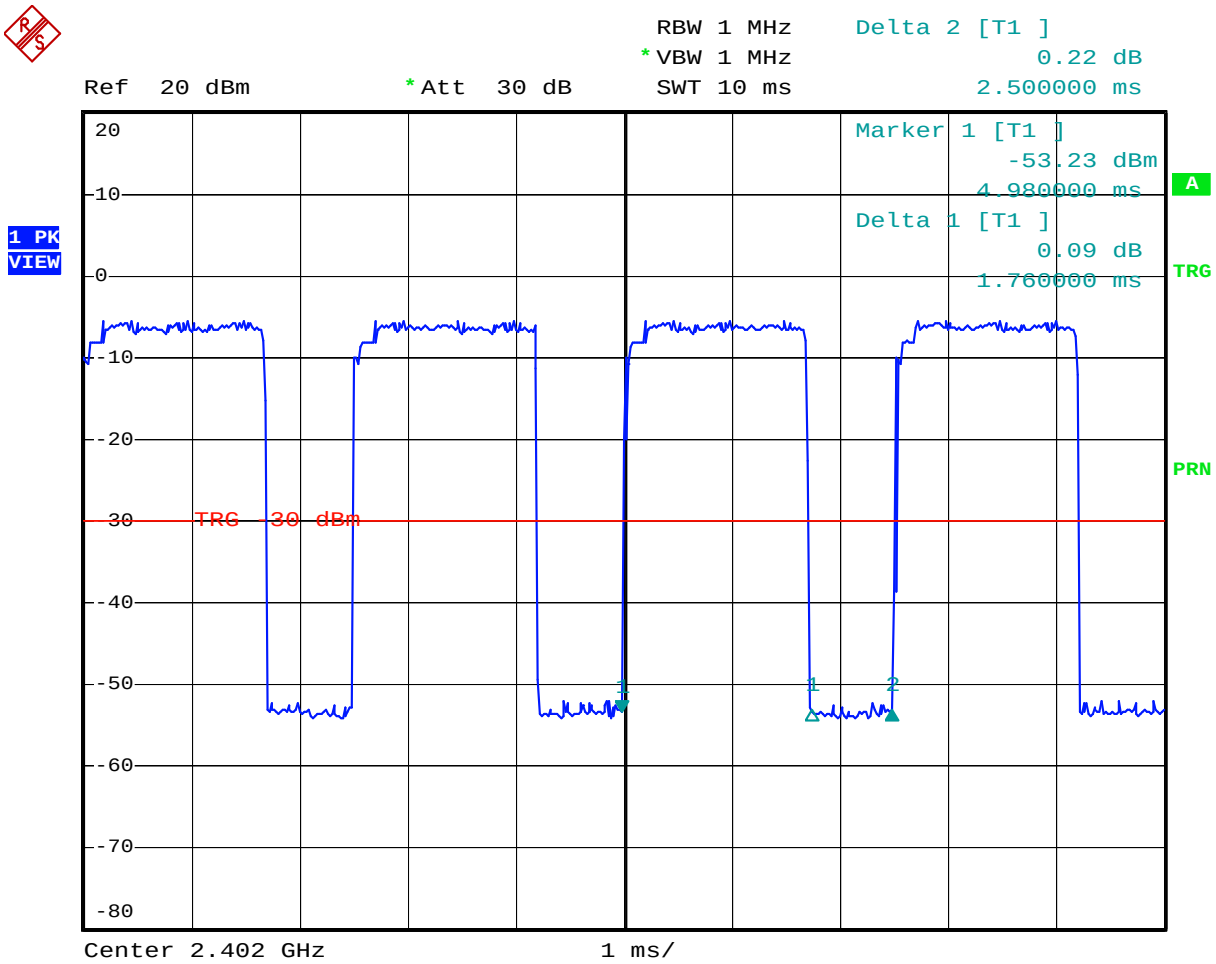
Date: 24.AUG.2006 15:11:08

DH1 (CH78)



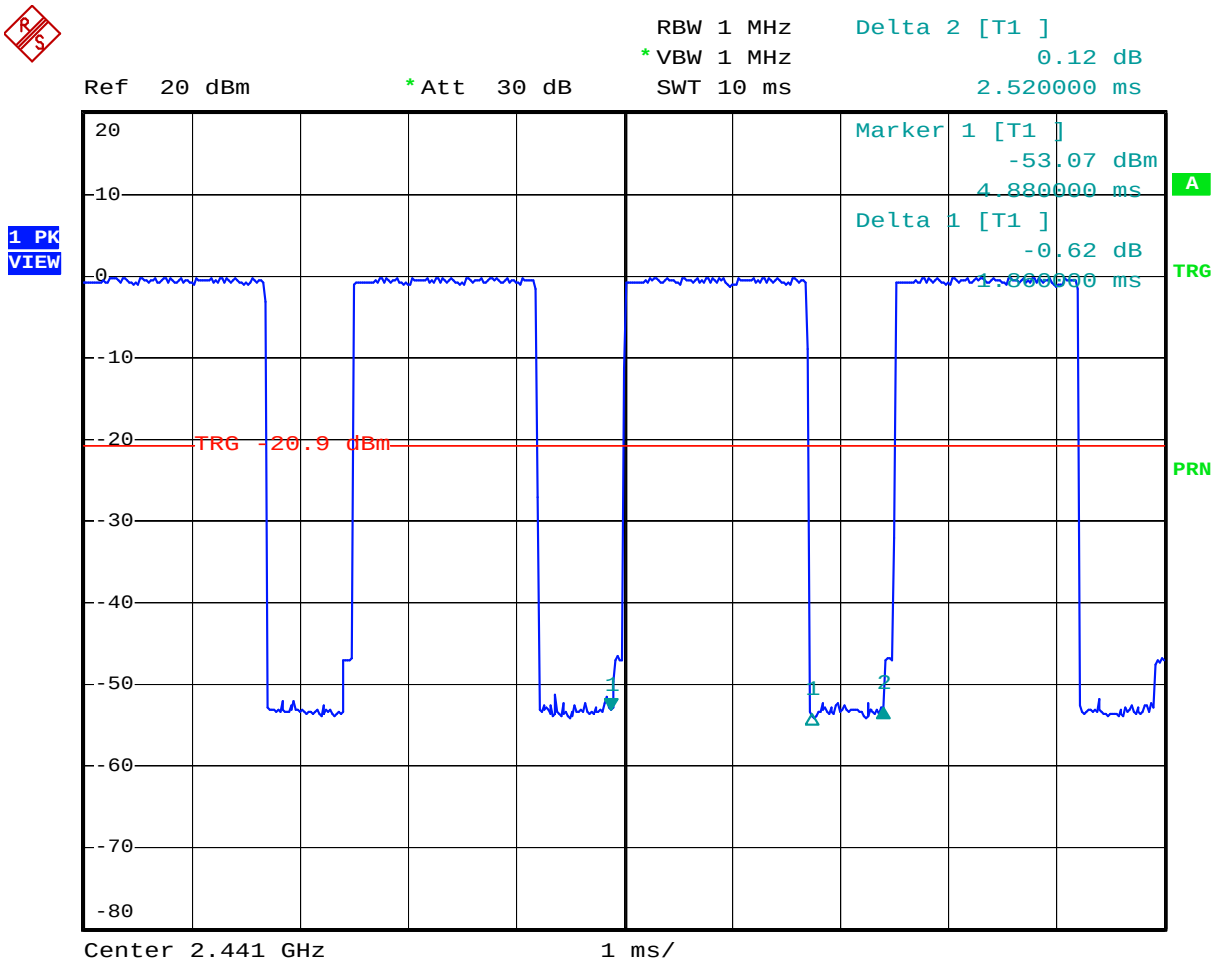
Date: 24.AUG.2006 15:13:41

DH3 (CH00)



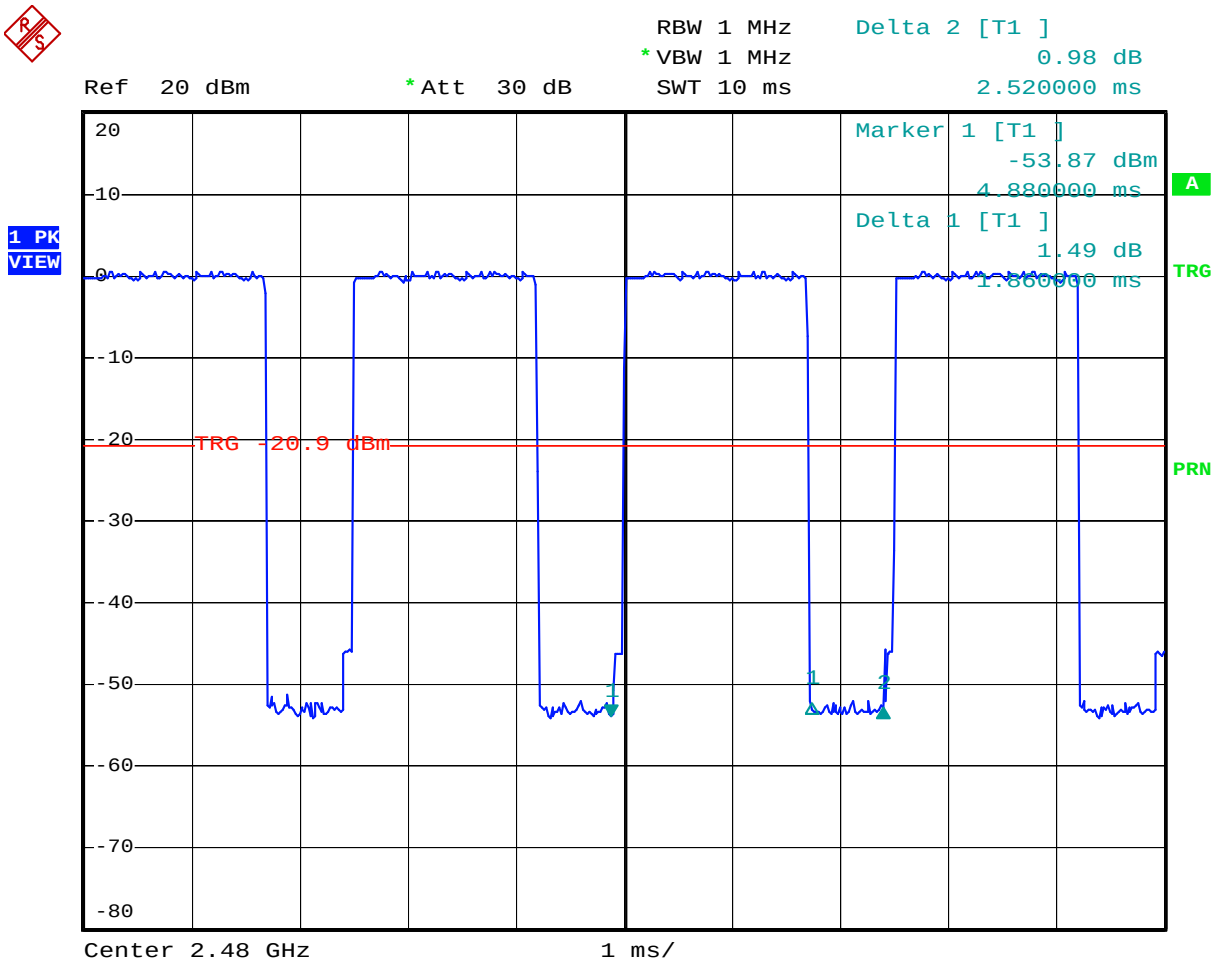
Date: 24.AUG.2006 15:04:57

DH3 (CH39)



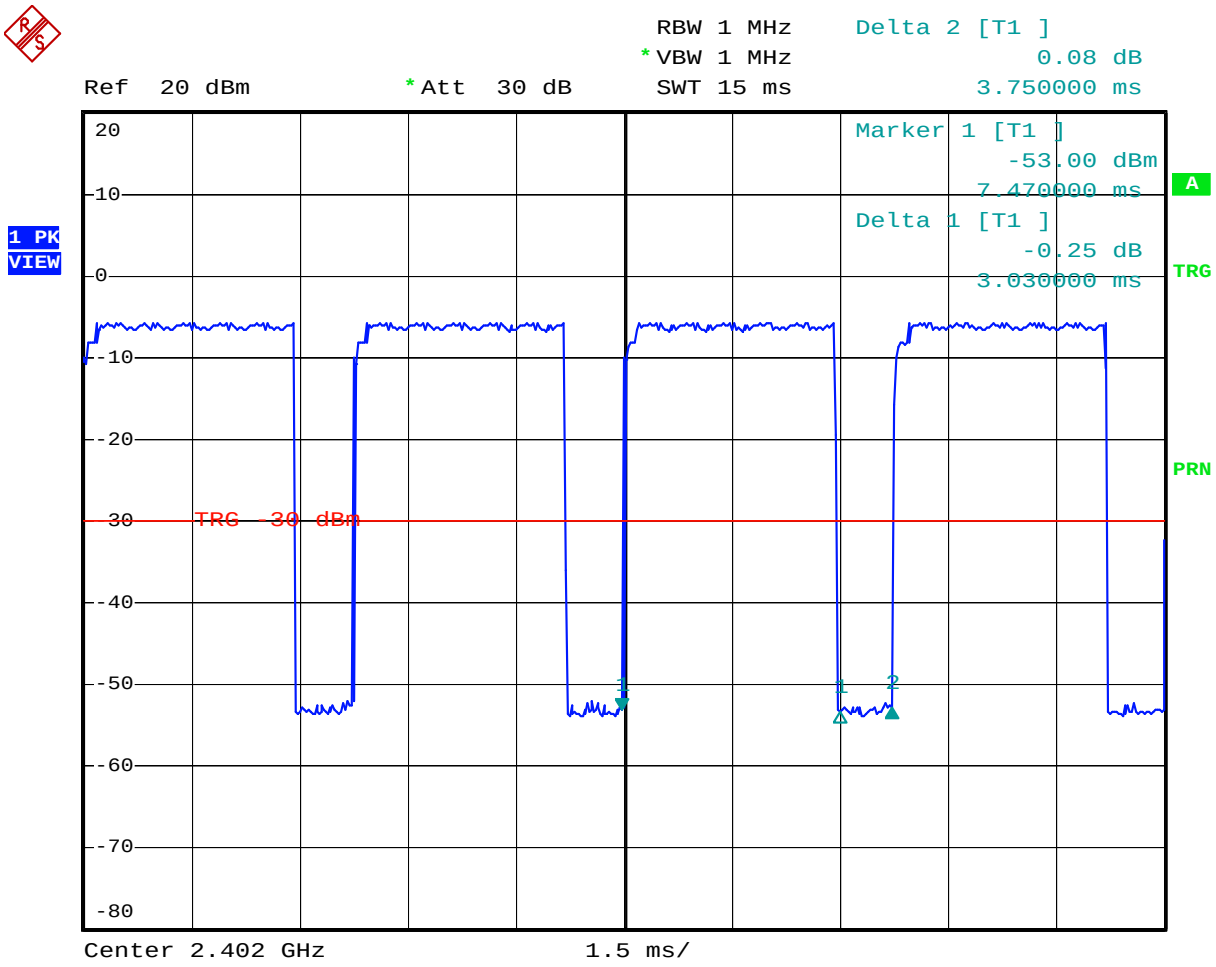
Date: 24.AUG.2006 15:11:57

DH3 (CH78)



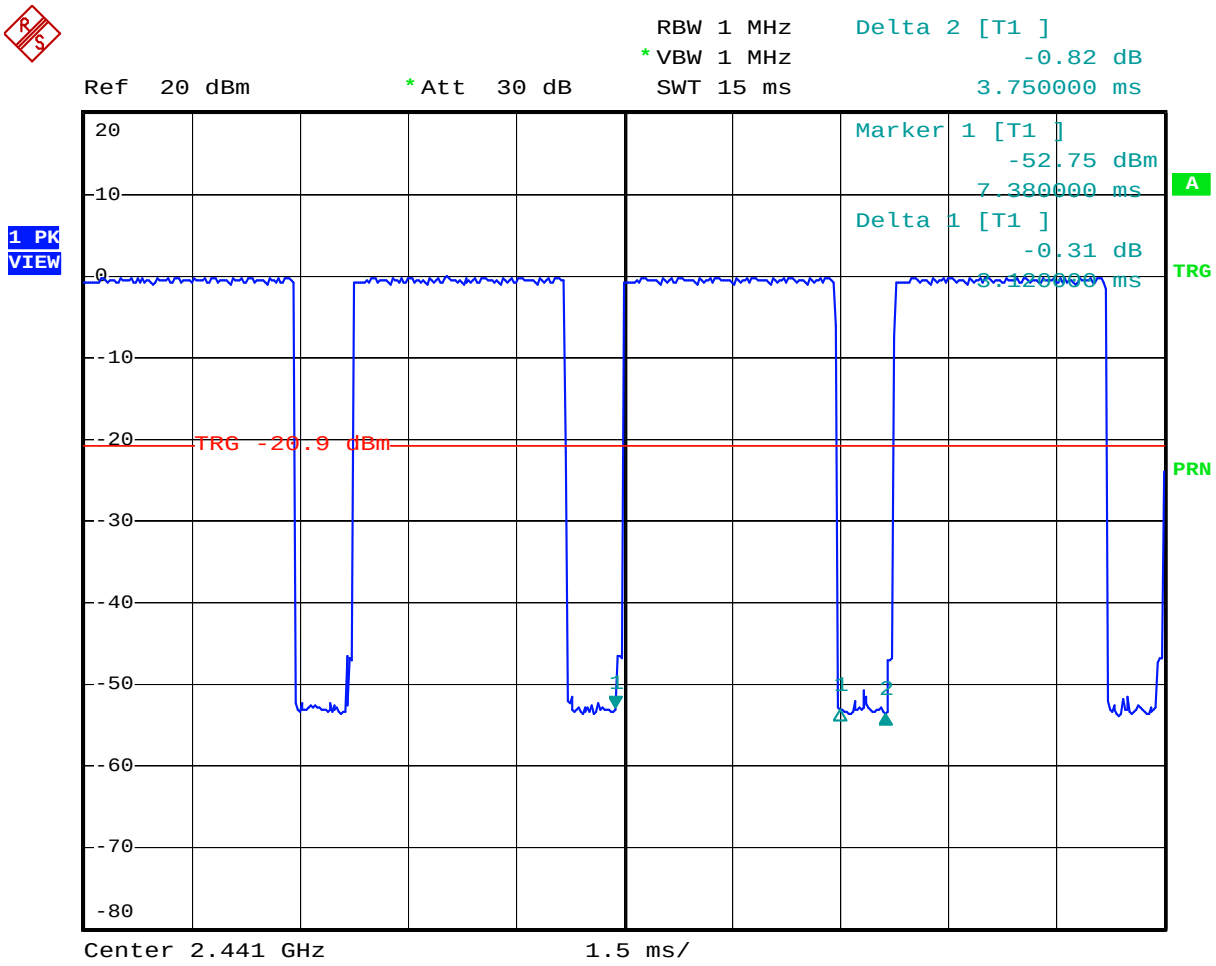
Date: 24.AUG.2006 15:14:31

DH5 (CH00)



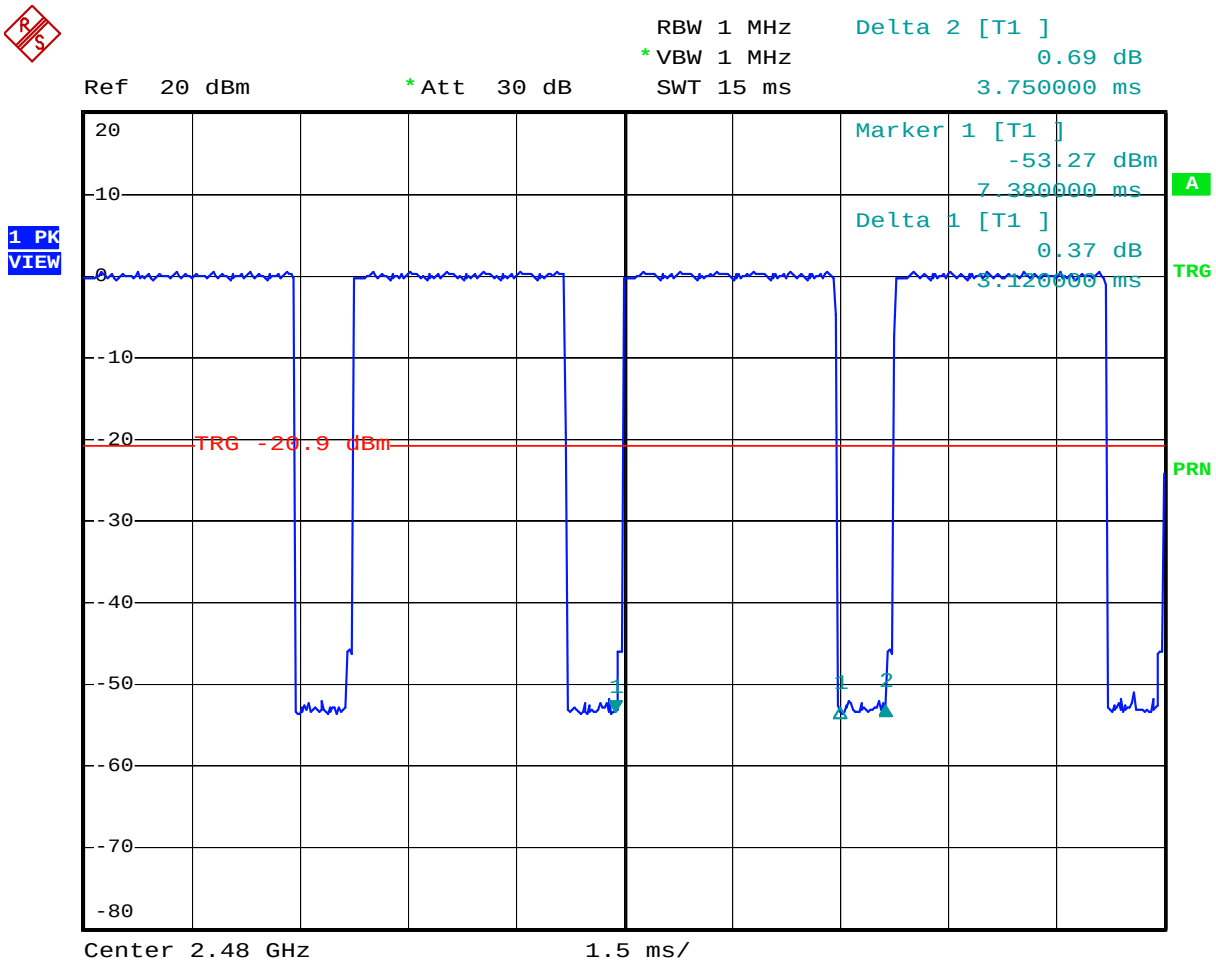
Date: 24.AUG.2006 15:06:39

DH5 (CH39)



Date: 24.AUG.2006 15:08:04

DH5 (CH78)



Date: 24.AUG.2006 15:15:26

5.6 Output Power

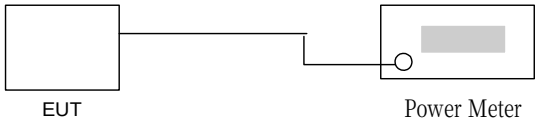
5.6.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.6.2 Test Procedure：

1. The antenna port（RF output） of the EUT was connected to the input（RF input）of a power meter for WLAN measurement. The power is equal to the reading level on power meter plus cable loss at the EUT antenna terminal.
2. The antenna port(RF output) of the EUT was connected to the input (RF input) of a spectrum analyzer for BT measurement. The cable loss has been offset before testing.

5.6.3 Test Setup Layout：



5.6.4 Test Result：See spectrum analyzer plots below

- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
00	2402	3.52	1W/30 dBm	Mode 1
39	2441	3.86	1W/30 dBm	Mode 2
78	2480	3.71	1W/30 dBm	Mode 3

5.7 100kHz Bandwidth of Frequency Band Edges

5.7.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.7.2 Test Procedure：

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span for the conducted measurement, and RBW/VBW=1MHz/1MHz for peak measurement and RBW/VBW=1MHz/300Hz for average measurement in the radiated measurement.
3. The band edges was measured and recorded.

5.7.3 Test Result：

- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer : James

Test Result in lower band (Channel 00)： PASS

Test Result in higher band(Channel 78)： PASS

5.7.4 Note on Band edge Emission

CH00 (Horizontal)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Detect Mode
2330.72	49.59	-24.41	74.00	50.59	30.23	4.17	35.40	100	360	Peak
2330.72	38.88	-15.12	54.00	39.88	30.23	4.17	35.40	100	71	Average

CH00 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Detect Mode
2327.92	49.70	-24.30	74.00	50.70	30.23	4.17	35.40	100	360	Peak
2327.92	38.78	-15.22	54.00	39.78	30.23	4.17	35.40	100	241	Average

CH78 (Horizontal)

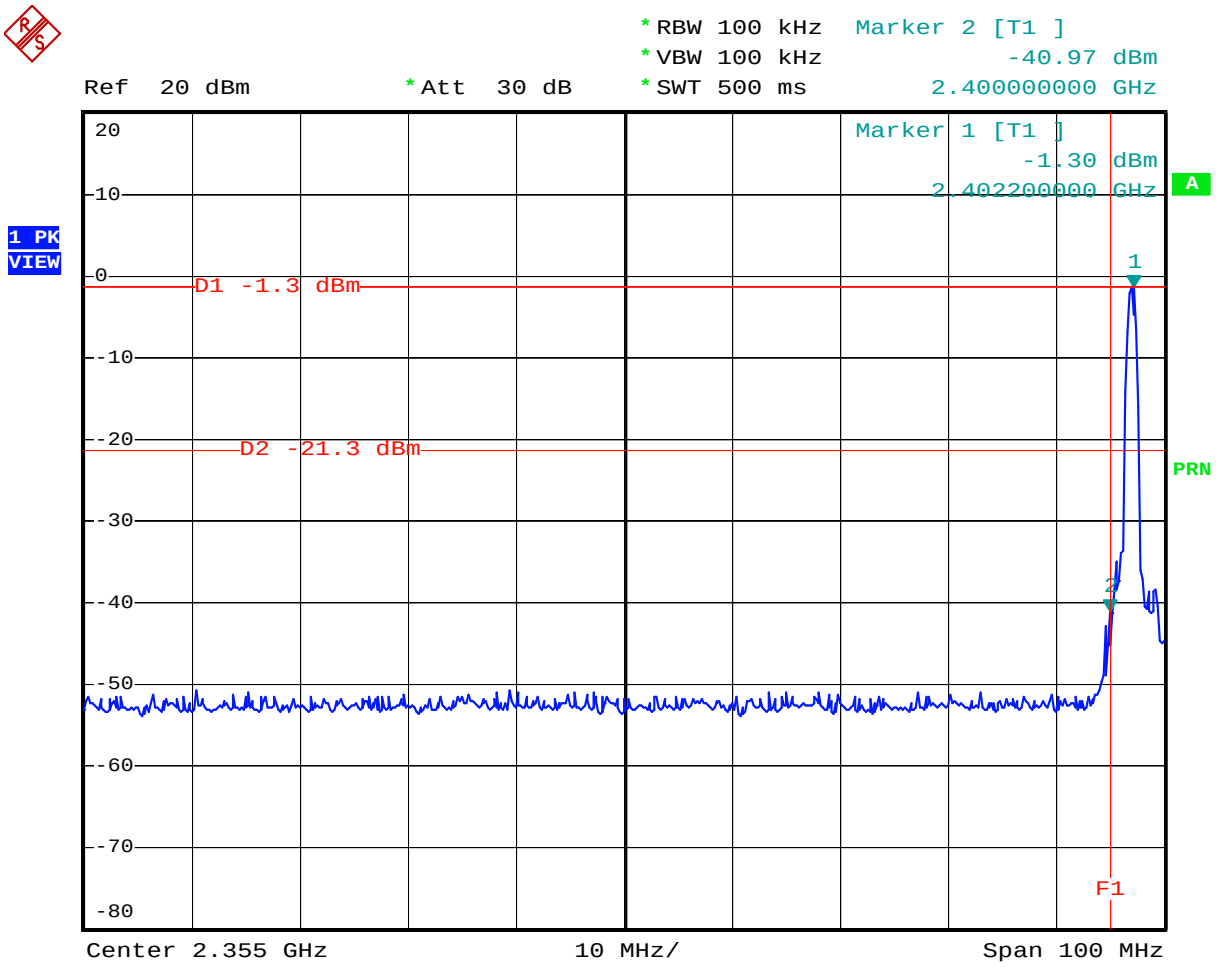
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Detect Mode
2498.00	50.21	-23.79	74.00	51.05	30.30	4.39	35.53	100	360	Peak
2498.00	38.86	-15.14	54.00	39.70	30.30	4.39	35.53	100	158	Average

CH78 (Vertical)

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Detect Mode
2494.00	50.12	-23.88	74.00	50.96	30.30	4.39	35.53	100	360	Peak
2494.00	38.81	-15.19	54.00	39.65	30.30	4.39	35.53	100	89	Average

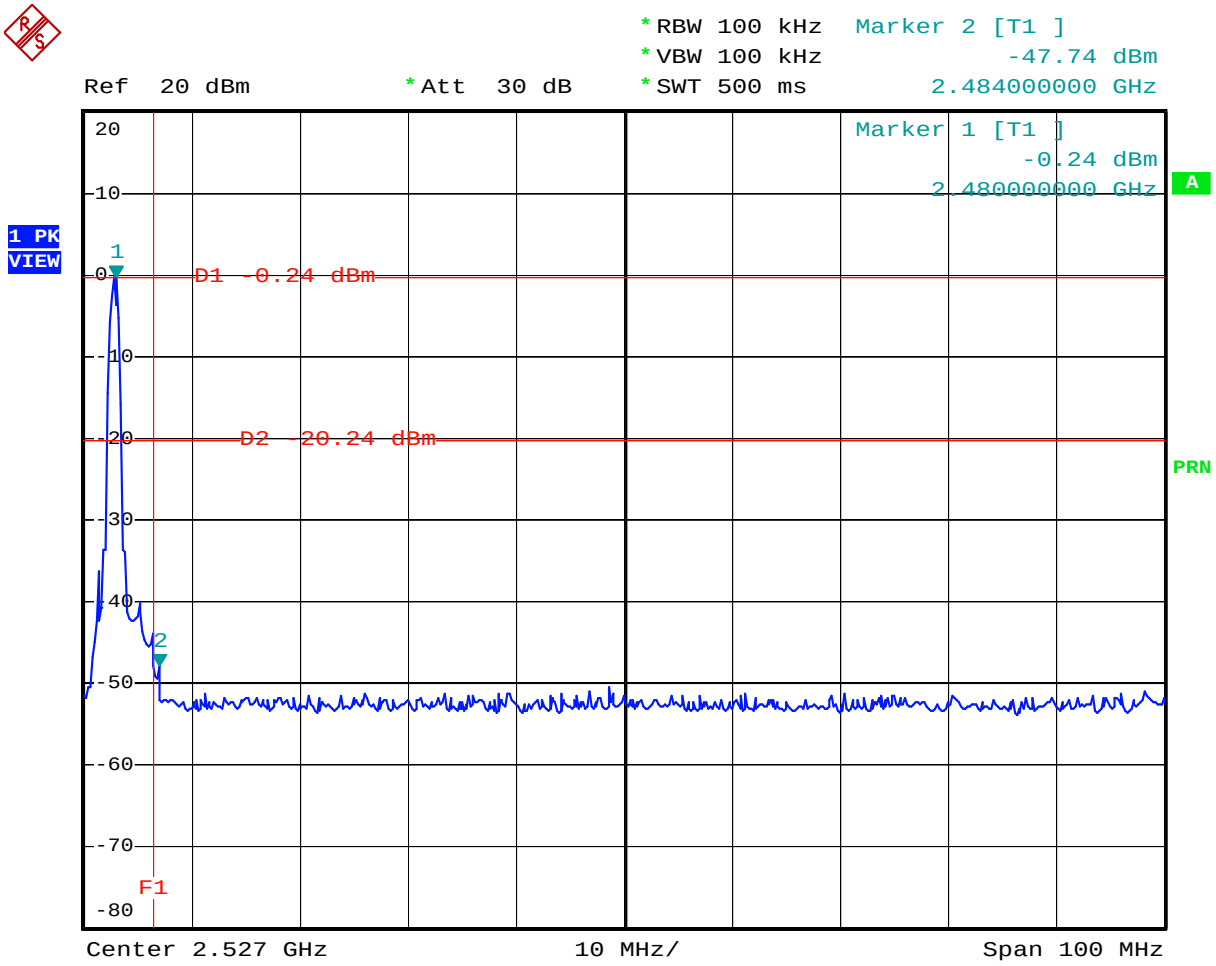
5.7.5 Frequency Band Edge

Mode 1: CH00 (2402 MHz)



Date: 24.AUG.2006 14:51:09

Mode 3: CH78 (2480 MHz)



Date: 24.AUG.2006 14:53:14

5.8 Conducted Emission

5.8.1 Measuring Instruments

As described in chapter 6 of this test Report.

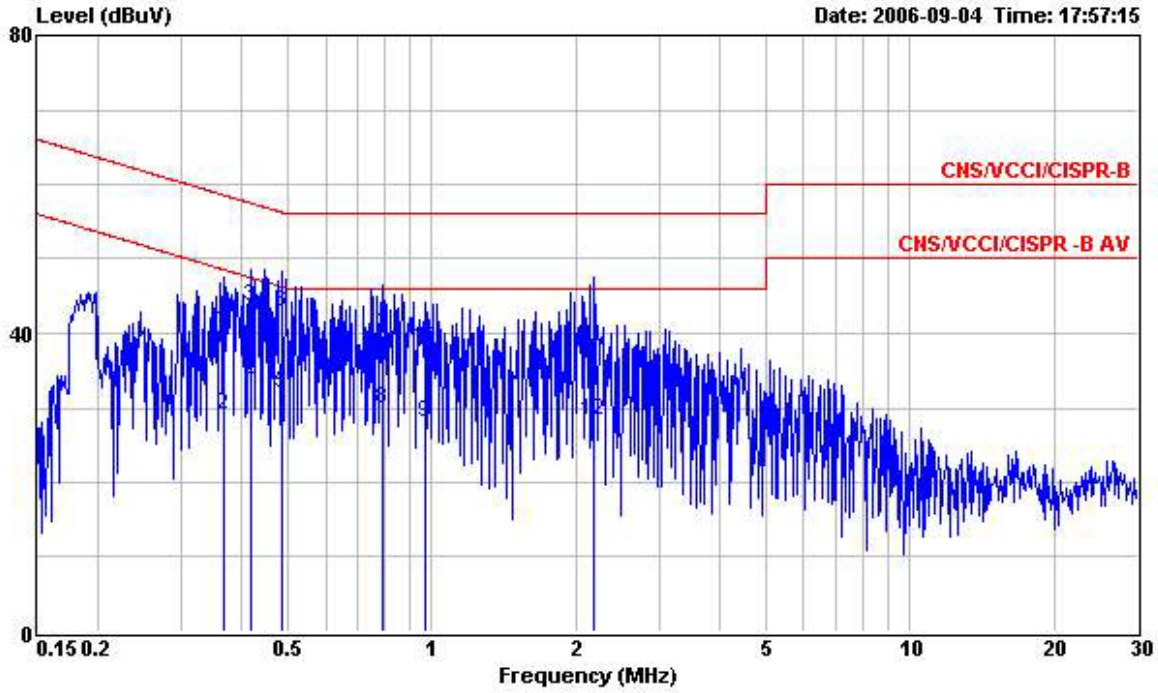
5.8.2 Test Procedures：

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 a line impedance stabilization network (LISN).
c. All the support units are connected 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.

5.8.3 Test Data Test Mode 1

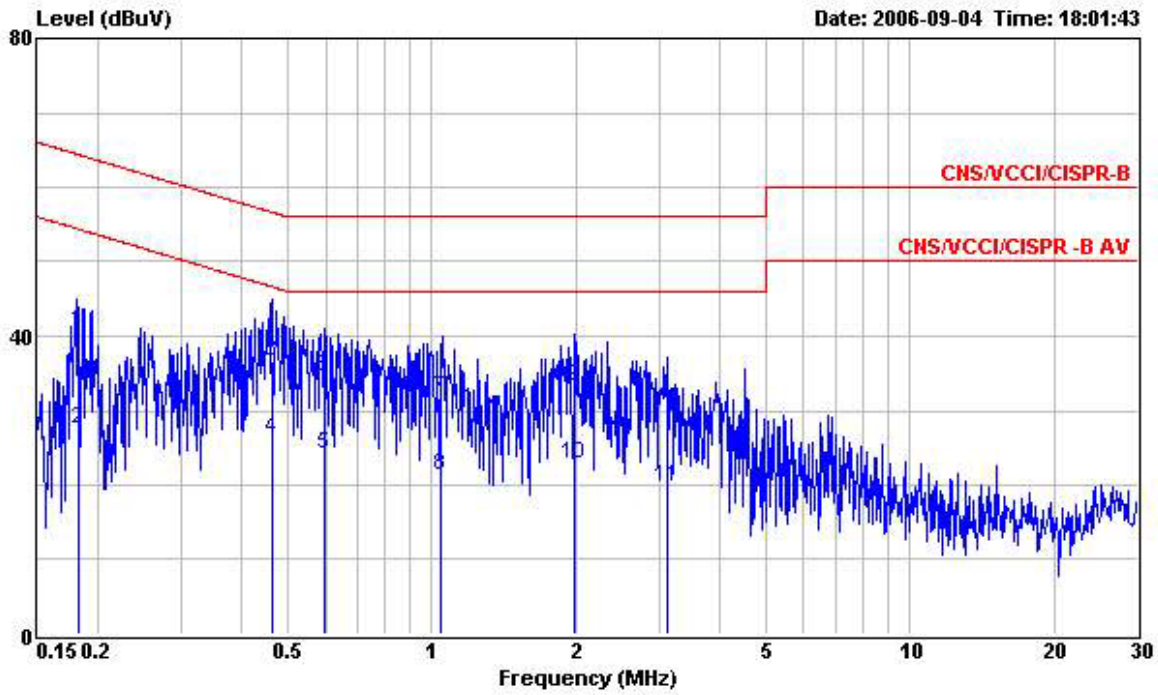
- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer: James

■ 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 : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : BT LINK+H PATTERN+MP3+CDS
Memo : +Adapter
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.367	40.46	-18.11	58.57	40.10	0.10	0.26	QP
2	0.367	29.22	-19.35	48.57	28.86	0.10	0.26	Average
3	0.417	43.68	-13.83	57.51	43.30	0.10	0.28	QP
4	0.417	33.17	-14.34	47.51	32.79	0.10	0.28	Average
5	0.486	31.88	-14.36	46.24	31.54	0.10	0.24	Average
6	0.486	42.76	-13.48	56.24	42.42	0.10	0.24	QP
7	0.792	39.83	-16.17	56.00	39.61	0.10	0.12	QP
8	0.792	30.00	-16.00	46.00	29.78	0.10	0.12	Average
9	0.968	27.98	-18.02	46.00	27.81	0.10	0.07	Average
10	0.968	37.82	-18.18	56.00	37.65	0.10	0.07	QP
11	2.190	38.28	-17.72	56.00	37.91	0.11	0.26	QP
12	2.190	28.39	-17.61	46.00	28.02	0.11	0.26	Average



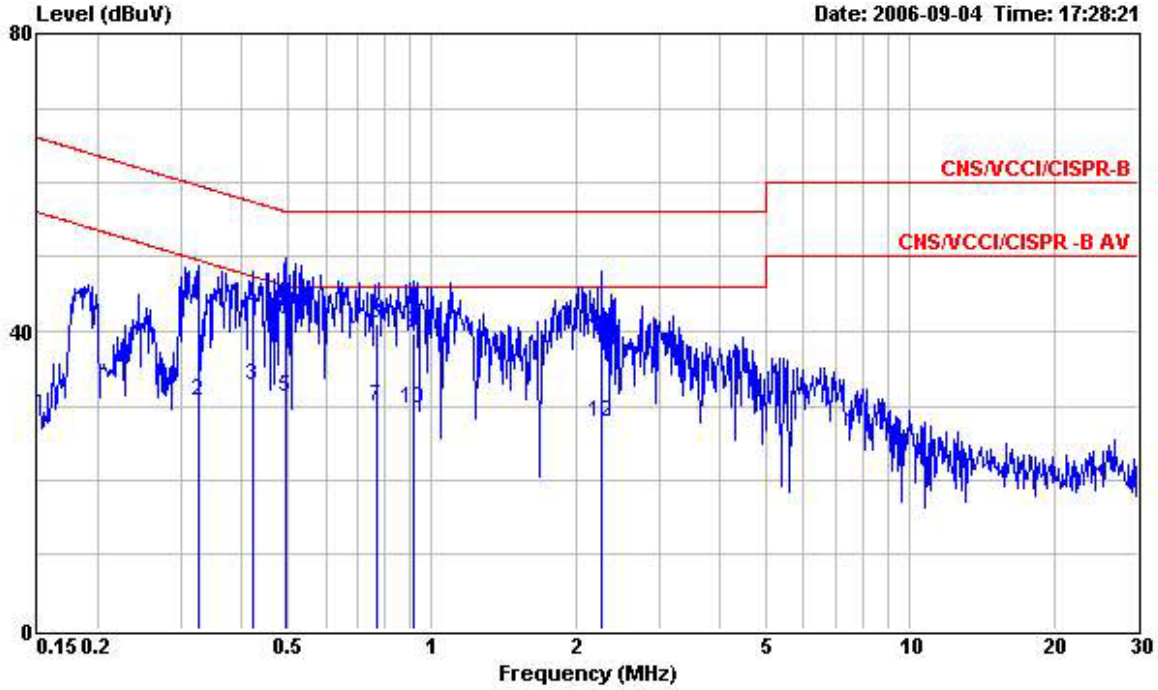
Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : BT LINK+H PATTERN+MP3+CDS
Memo : +Adapter
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.182	40.87	-23.52	64.39	40.75	0.10	0.02	QP
2	0.182	27.48	-26.91	54.39	27.36	0.10	0.02	Average
3	0.464	36.71	-19.91	56.62	36.36	0.10	0.25	QP
4	0.464	26.14	-20.48	46.62	25.79	0.10	0.25	Average
5	0.598	24.13	-21.87	46.00	23.84	0.10	0.19	Average
6	0.598	34.52	-21.48	56.00	34.23	0.10	0.19	QP
7	1.046	31.75	-24.25	56.00	31.58	0.10	0.07	QP
8	1.046	21.19	-24.81	46.00	21.02	0.10	0.07	Average
9	1.990	33.26	-22.74	56.00	32.90	0.10	0.26	QP
10	1.990	22.76	-23.24	46.00	22.40	0.10	0.26	Average
11	3.110	19.63	-26.37	46.00	19.28	0.10	0.25	Average
12	3.110	29.95	-26.05	56.00	29.60	0.10	0.25	QP

5.8.4 Test Data Test Mode 2

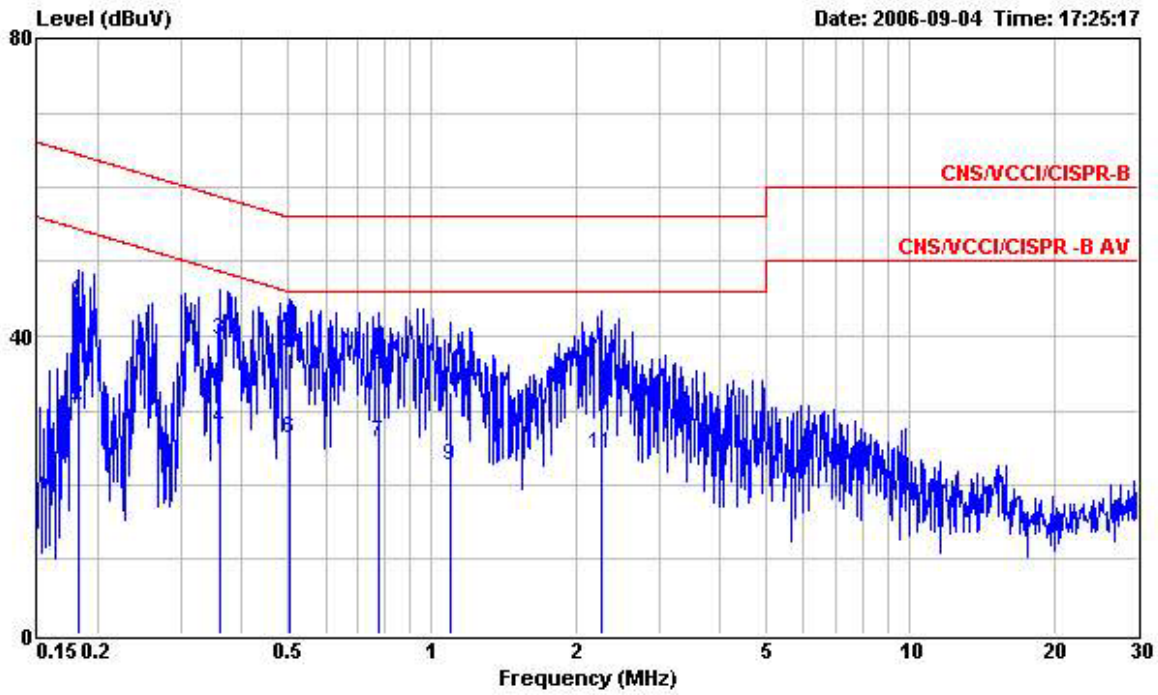
- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer: James

■ 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 : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : GPS+H PATTERN+MP3+CDS+adapter
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.325	43.27	-16.31	59.58	42.96	0.10	0.21	QP
2	0.325	30.67	-18.91	49.58	30.36	0.10	0.21	Average
3	0.421	32.62	-14.81	47.43	32.24	0.10	0.28	Average
4	0.421	42.93	-14.50	57.43	42.55	0.10	0.28	QP
5	0.494	31.15	-14.95	46.10	30.81	0.10	0.24	Average
6	0.494	41.46	-14.64	56.10	41.12	0.10	0.24	QP
7	0.771	29.91	-16.09	46.00	29.68	0.10	0.13	Average
8	0.771	41.03	-14.97	56.00	40.80	0.10	0.13	QP
9	0.914	39.68	-16.32	56.00	39.50	0.10	0.08	QP
10	0.914	29.69	-16.31	46.00	29.51	0.10	0.08	Average
11	2.270	39.14	-16.86	56.00	38.76	0.12	0.26	QP
12	2.270	27.76	-18.24	46.00	27.38	0.12	0.26	Average



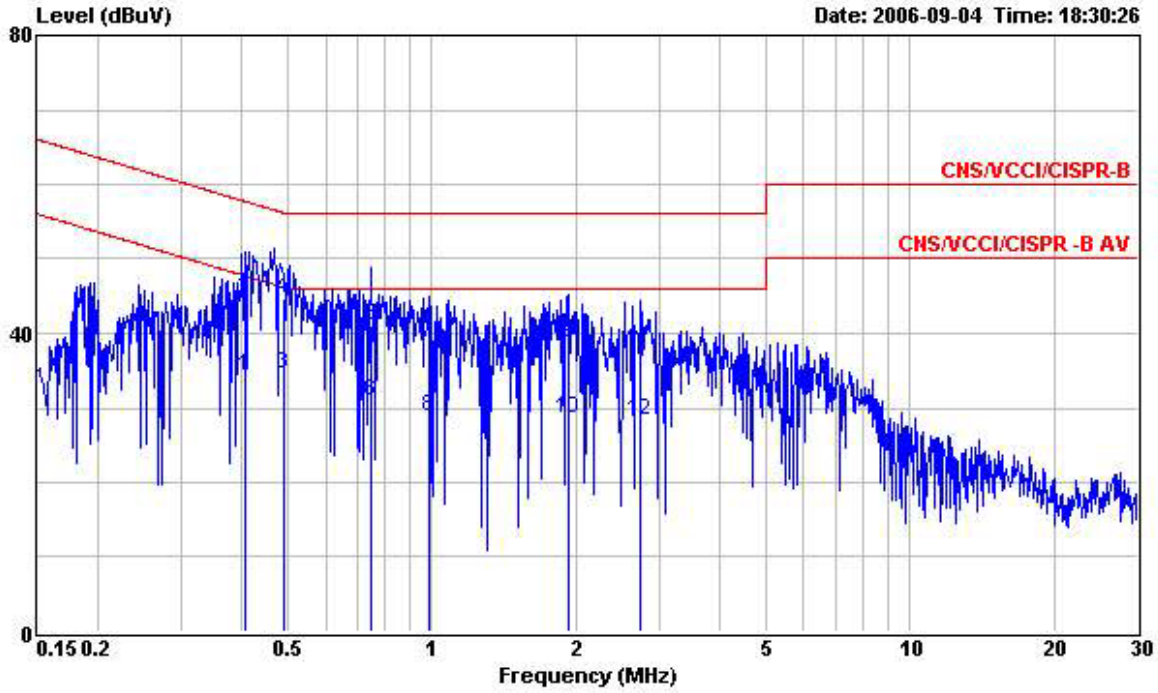
Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : GPS+H PATTERN+MP3+CDS+adapter
Memo :
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.182	44.66	-19.73	64.39	44.54	0.10	0.02	QP
2	0.182	30.64	-23.75	54.39	30.52	0.10	0.02	Average
3	0.360	39.57	-19.16	58.73	39.22	0.10	0.25	QP
4	0.360	27.48	-21.25	48.73	27.13	0.10	0.25	Average
5	0.505	37.58	-18.42	56.00	37.25	0.10	0.23	QP
6	0.505	26.28	-19.72	46.00	25.95	0.10	0.23	Average
7	0.775	25.75	-20.25	46.00	25.53	0.10	0.12	Average
8	0.775	36.15	-19.85	56.00	35.93	0.10	0.12	QP
9	1.090	22.63	-23.37	46.00	22.45	0.10	0.08	Average
10	1.090	32.58	-23.42	56.00	32.40	0.10	0.08	QP
11	2.269	24.11	-21.89	46.00	23.75	0.10	0.26	Average
12	2.269	33.24	-22.76	56.00	32.88	0.10	0.26	QP

5.8.5 Test Data Test Mode 3

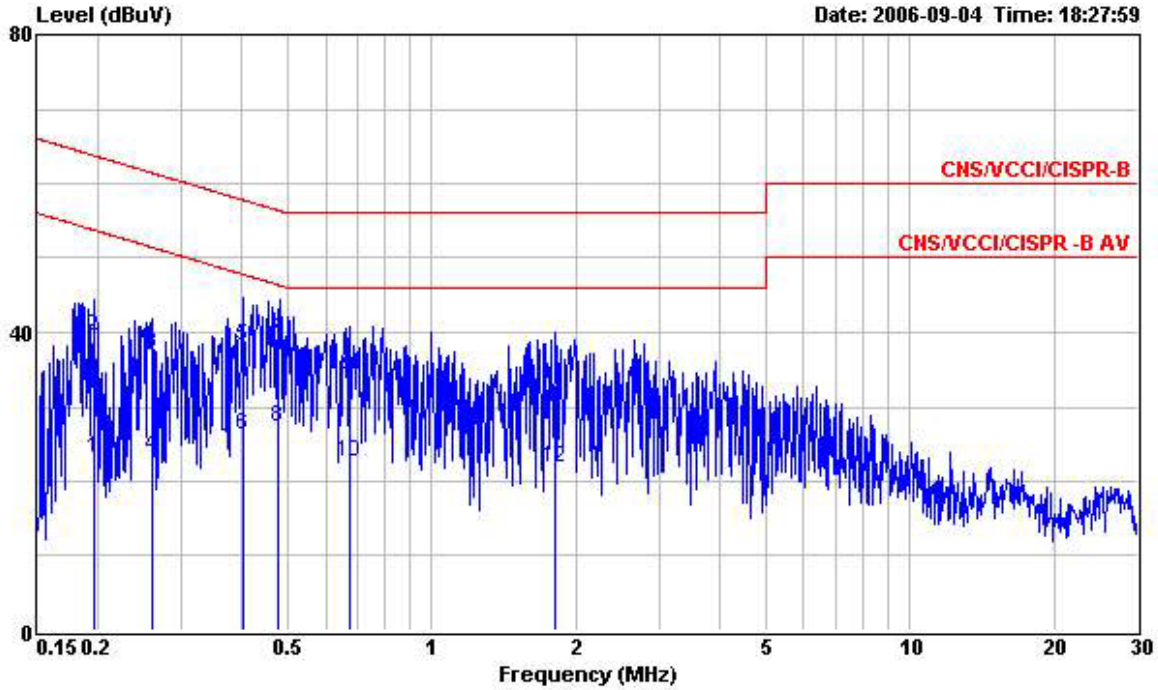
- Temperature: 26°C
- Relative Humidity: 57%
- Test Engineer: James

■ 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 : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : BT LINK+H PATTERN+MP3+USB LINK
Memo : +Adapter
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.406	34.20	-13.53	47.73	33.81	0.10	0.29	Average
2	0.406	44.78	-12.95	57.73	44.39	0.10	0.29	QP
3	0.489	34.51	-11.67	46.18	34.17	0.10	0.24	Average
4	0.489	44.78	-11.40	56.18	44.44	0.10	0.24	QP
5	0.747	41.13	-14.87	56.00	40.90	0.10	0.13	QP
6	0.747	30.96	-15.04	46.00	30.73	0.10	0.13	Average
7	0.989	38.70	-17.30	56.00	38.54	0.10	0.06	QP
8	0.989	28.78	-17.22	46.00	28.62	0.10	0.06	Average
9	1.930	38.83	-17.17	56.00	38.48	0.10	0.25	QP
10	1.930	28.56	-17.44	46.00	28.21	0.10	0.25	Average
11	2.740	37.93	-18.07	56.00	37.52	0.15	0.26	QP
12	2.740	28.21	-17.79	46.00	27.80	0.15	0.26	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : PDA+GPS
Power : 120V/60Hz
Model : FR680701
Memo : BT LINK+H PATTERN+MP3+USB LINK
Memo : +Adapter
Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.197	23.03	-30.71	53.74	22.91	0.10	0.02	Average
2	0.197	39.36	-24.38	63.74	39.24	0.10	0.02	QP
3	0.260	37.02	-24.41	61.43	36.80	0.10	0.12	QP
4	0.260	23.26	-28.17	51.43	23.04	0.10	0.12	Average
5	0.402	38.31	-19.50	57.81	37.92	0.10	0.29	QP
6	0.402	26.28	-21.53	47.81	25.89	0.10	0.29	Average
7	0.478	39.01	-17.36	56.37	38.66	0.10	0.25	QP
8	0.478	27.21	-19.16	46.37	26.86	0.10	0.25	Average
9	0.672	34.02	-21.98	56.00	33.76	0.10	0.16	QP
10	0.672	22.64	-23.36	46.00	22.38	0.10	0.16	Average
11	1.810	32.93	-23.07	56.00	32.60	0.10	0.23	QP
12	1.810	21.70	-24.30	46.00	21.37	0.10	0.23	Average

5.9 Radiated Emission Measurement

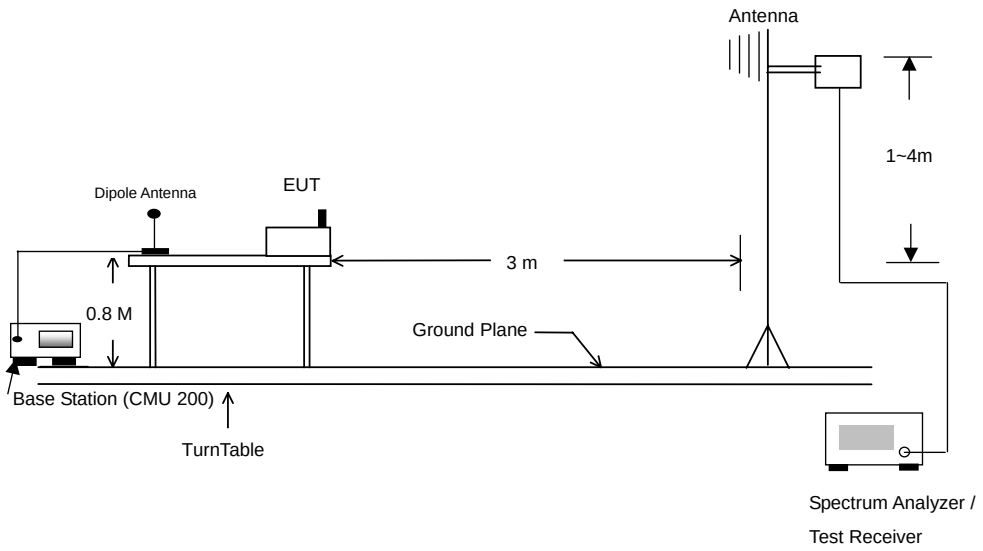
5.9.1 Measuring Instruments

As described in chapter 6 of this Report.

5.9.2 Test Procedures

1. The EUT was placed on a rotatable table top 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. 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.
5. 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.
6. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. 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.
8. 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.

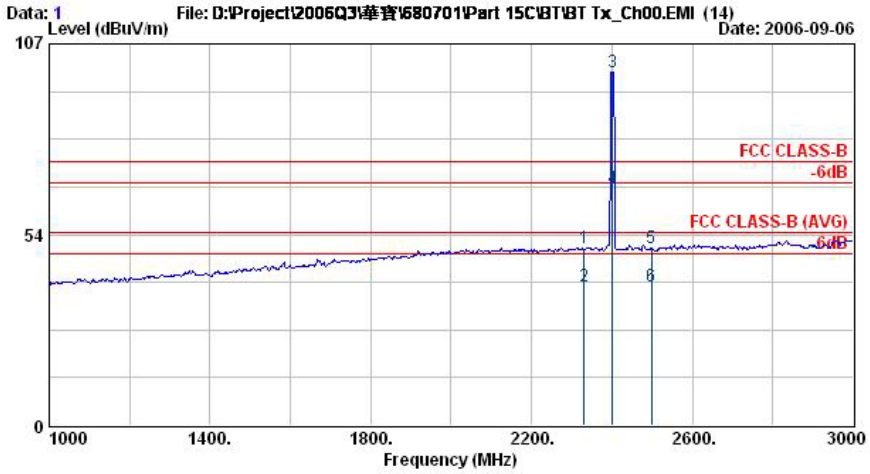
5.9.3 Typical Test Setup Layout of Radiated Emission



5.9.4 Test Data

- Temperature : 27 °C
- Relating Humidity : 52 %
- Test Enginner : Andrew
- Test Mode : Mode 1
- Polarization : Horizontal

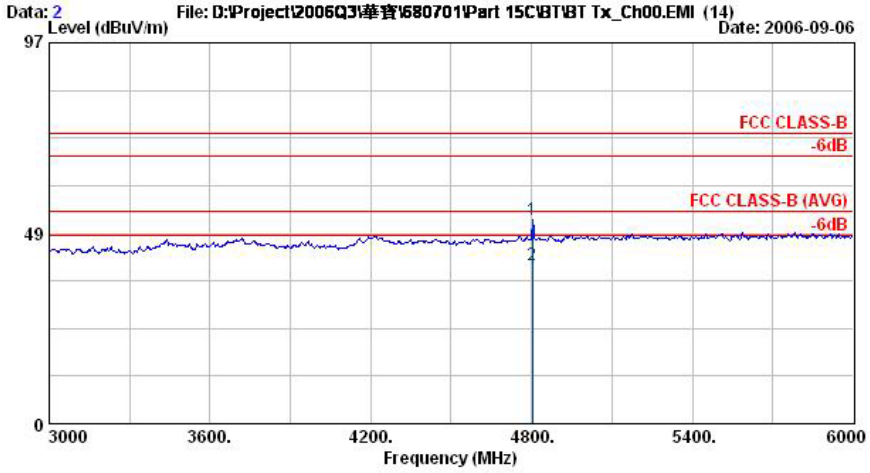
■ **The test that passed at the minimum margin was marked by the frame in the following test record**



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

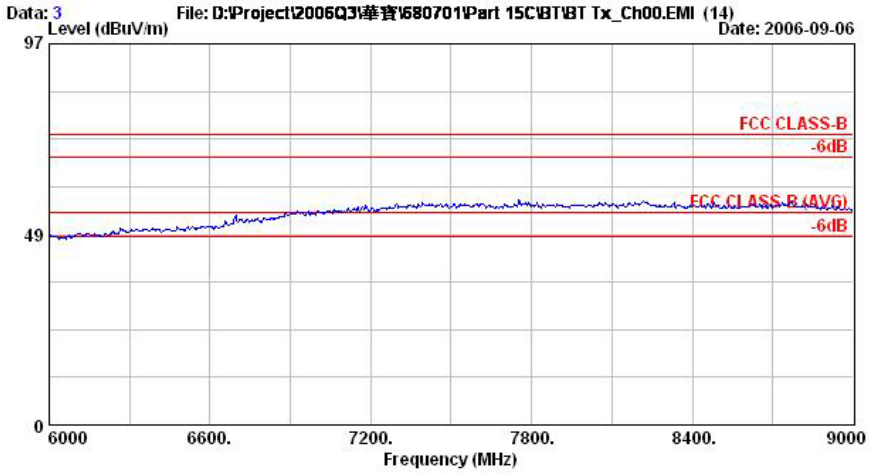
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2330.72	49.59	-24.41	74.00	50.59	30.23	4.17	35.40	100	360	Peak
2 @	2330.72	38.88	-15.12	54.00	39.88	30.23	4.17	35.40	100	71	Average
3 @	2402.00	99.08			100.01	30.26	4.26	35.46	100	360	Peak
4 @	2402.00	66.41			67.35	30.26	4.26	35.46	100	71	Average
5	2498.00	49.78	-24.22	74.00	50.62	30.30	4.39	35.53	100	360	Peak
6 @	2498.00	38.86	-15.14	54.00	39.70	30.30	4.39	35.53	100	71	Average

Remark: #3 and #4 Fundamental Signal

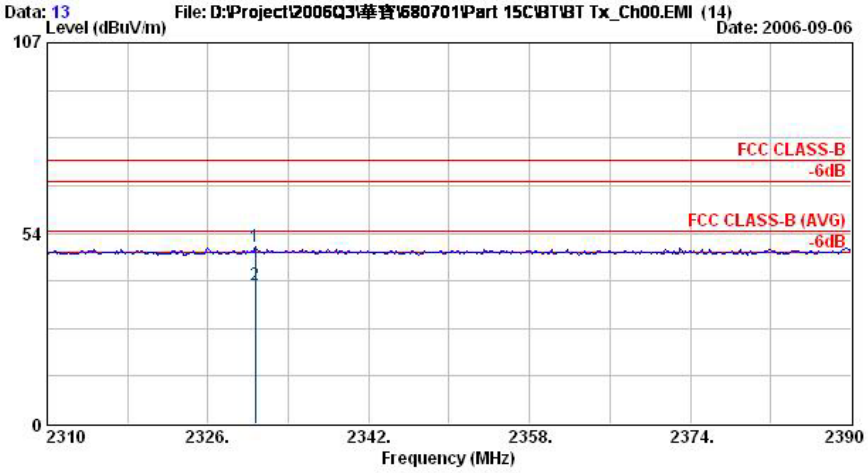


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4804.00	52.05	-21.95	74.00	49.06	32.88	6.21	36.10	200	0	Peak
2 @	4804.00	40.52	-13.48	54.00	37.52	32.88	6.21	36.10	100	338	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

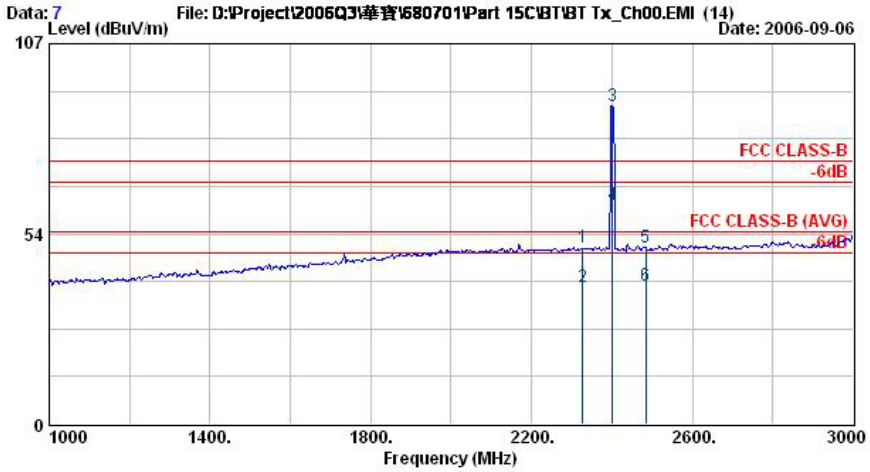


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2330.72	49.59	-24.41	74.00	50.59	30.23	4.17	35.40	100	0	Peak
2 @	2330.72	38.88	-15.12	54.00	39.88	30.23	4.17	35.40	100	71	Average

- Test Mode : Mode 1
- Polarization : Vertical

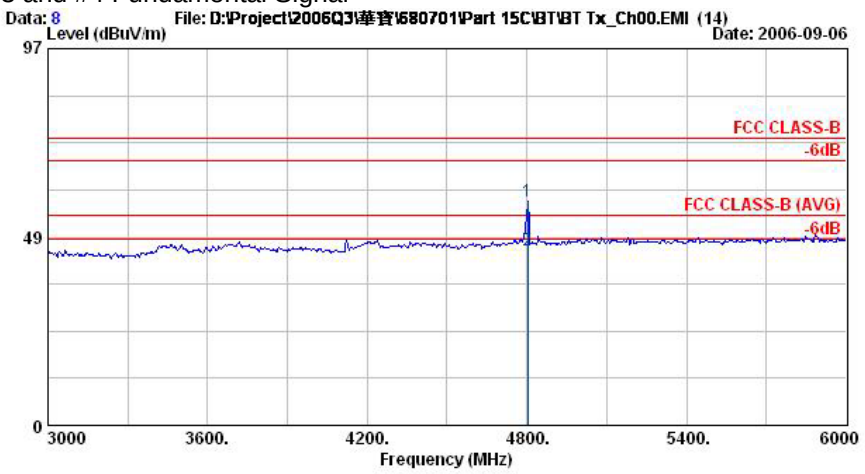
■ The test that passed at minimum margin was marked by the frame in the following table.



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

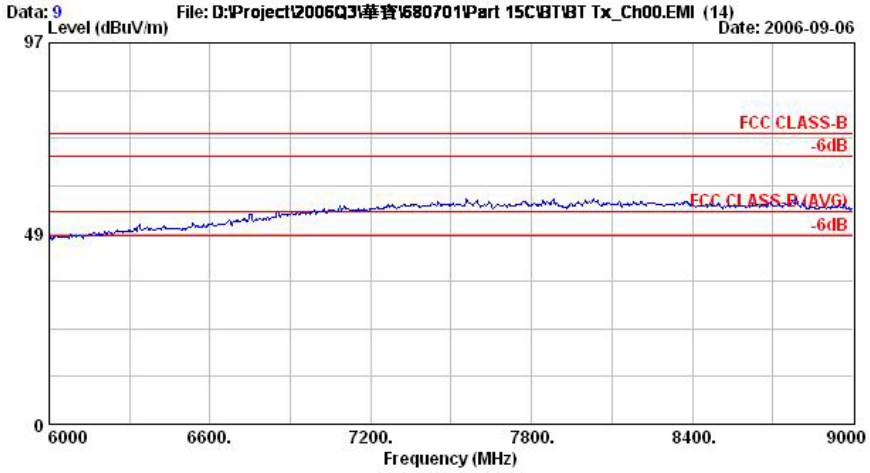
		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2327.92	49.70	-24.30	74.00	50.70	30.23	4.17	35.40	100	360	Peak
2	@	2327.92	38.78	-15.22	54.00	39.78	30.23	4.17	35.40	100	241	Average
3	@	2402.00	89.46			90.40	30.26	4.26	35.46	100	360	Peak
4	@	2402.00	61.58			62.52	30.26	4.26	35.46	100	241	Average
5		2484.00	49.56	-24.44	74.00	50.42	30.29	4.36	35.51	100	360	Peak
6	@	2484.00	38.87	-15.13	54.00	39.73	30.29	4.36	35.51	100	241	Average

Remark: #3 and #4 Fundamental Signal

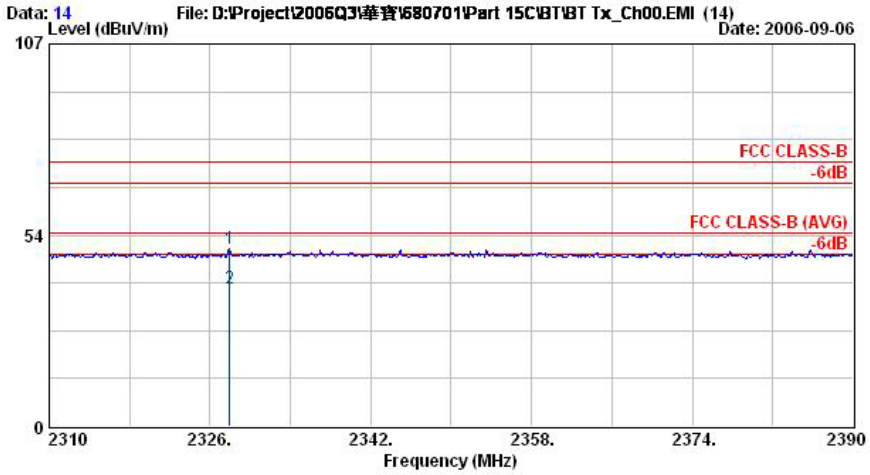


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		4804.00	57.57	-16.43	74.00	54.58	32.88	6.21	36.10	200	360	Peak
2	@	4804.00	45.06	-8.94	54.00	42.06	32.88	6.21	36.10	100	201	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

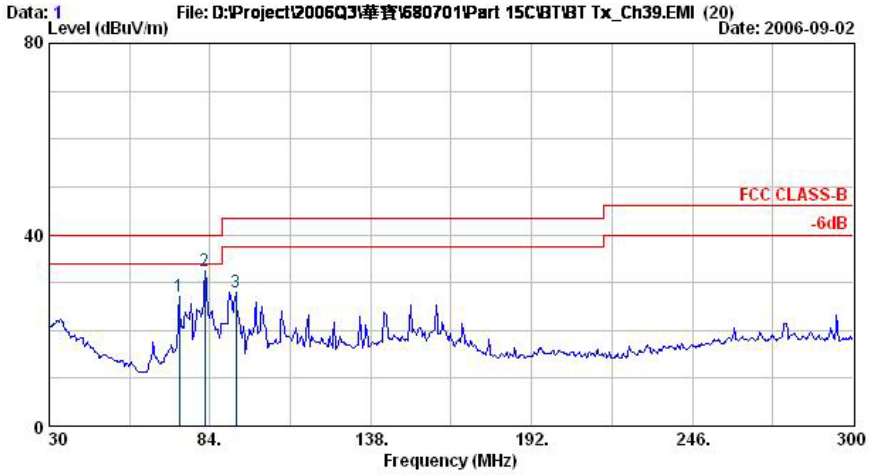


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_CH00,2402MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2327.92	49.70	-24.30	74.00	50.70	30.23	4.17	35.40	100	0	Peak
2 @	2327.92	38.78	-15.22	54.00	39.78	30.23	4.17	35.40	100	241	Average

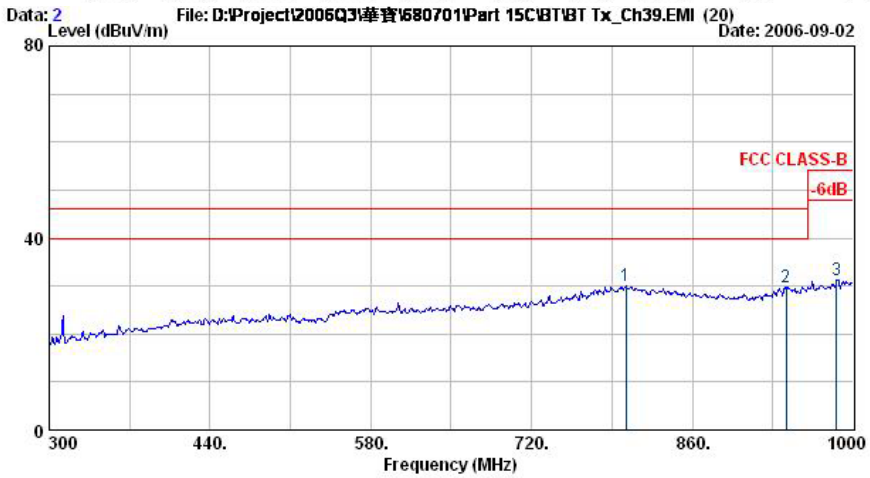
- Test Mode : Mode 2
- Polarization : Horizontal

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



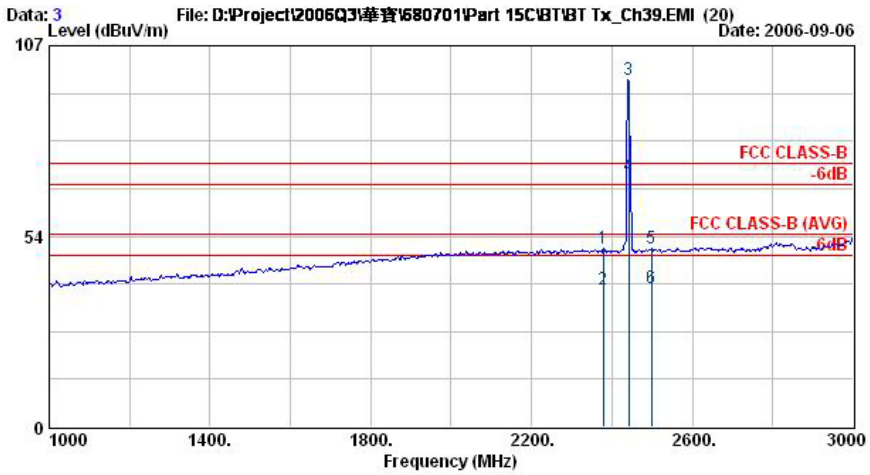
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	73.74	27.11	-12.89	40.00	47.82	6.55	1.43	28.70	400	0	Peak
2 @	82.38	32.32	-7.68	40.00	52.01	7.46	1.59	28.75	100	246	Peak
3 @	92.64	27.94	-15.56	43.50	45.62	9.47	1.67	28.82	400	0	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

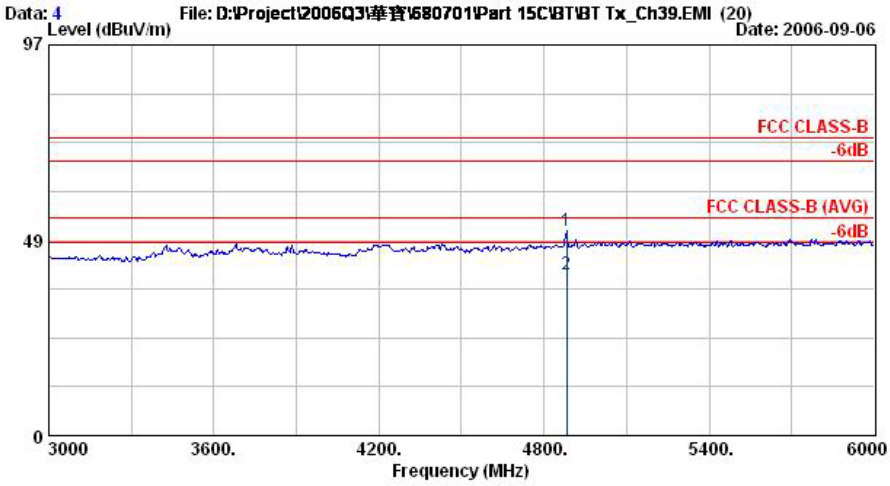
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	801.90	29.93	-16.07	46.00	31.34	21.86	5.61	28.88	100	0	Peak
2 @	941.90	29.84	-16.16	46.00	31.40	21.20	6.07	28.85	100	0	Peak
3 @	985.30	31.26	-22.74	54.00	31.47	22.53	6.08	28.81	100	0	Peak



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

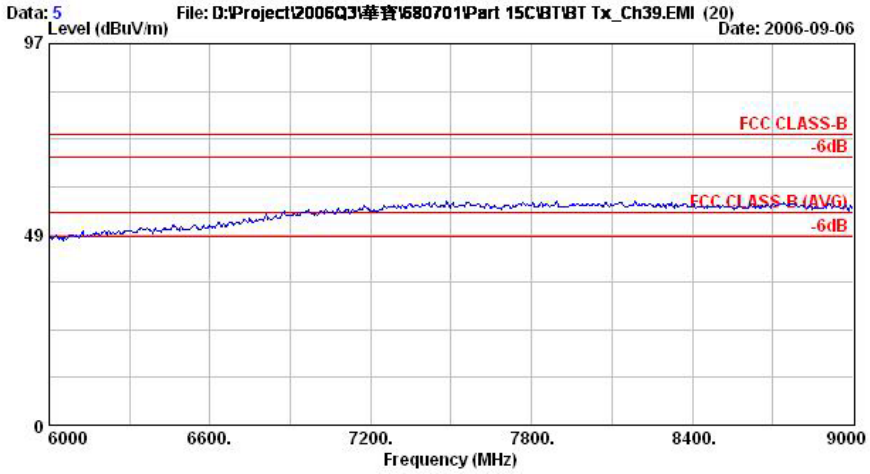
	Freq	Level	Over Limit	Limit Line	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2378.00	50.09	-23.91	74.00	51.04	30.25	4.23	35.44	100	360	Peak
2 @	2378.00	38.72	-15.28	54.00	39.68	30.25	4.23	35.44	100	158	Average
3 @	2441.00	97.60			98.50	30.28	4.29	35.47	100	360	Peak
4 @	2441.00	70.58			71.47	30.28	4.33	35.49	100	158	Average
5 @	2498.00	50.21	-23.79	74.00	51.05	30.30	4.39	35.53	100	360	Peak
6 @	2498.00	38.86	-15.14	54.00	39.70	30.30	4.39	35.53	100	158	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

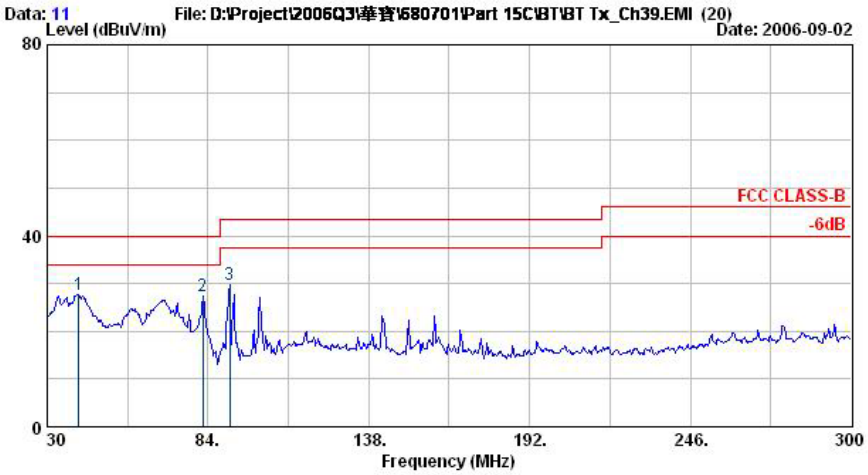
	Freq	Level	Over Limit	Limit Line	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	4882.00	50.71	-23.29	74.00	47.43	33.14	6.30	36.16	200	0	Peak
2 @	4882.00	40.11	-13.89	54.00	36.83	33.14	6.30	36.16	100	336	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

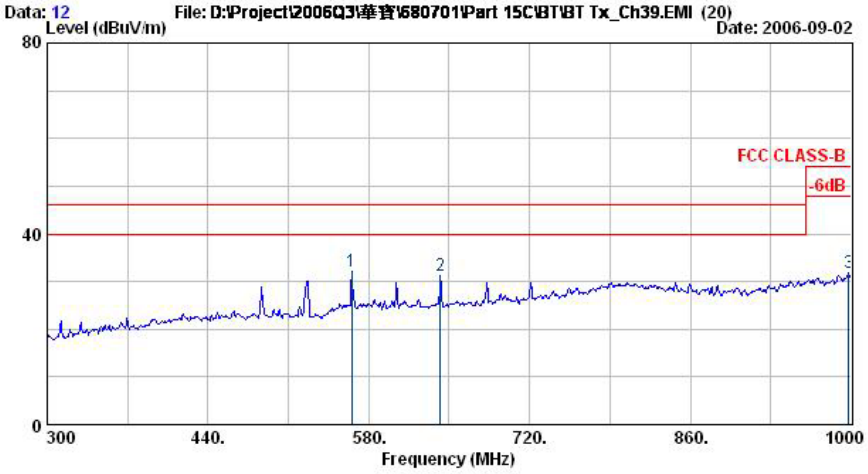
- Test Mode : Mode 2
- Polarization : Vertical

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



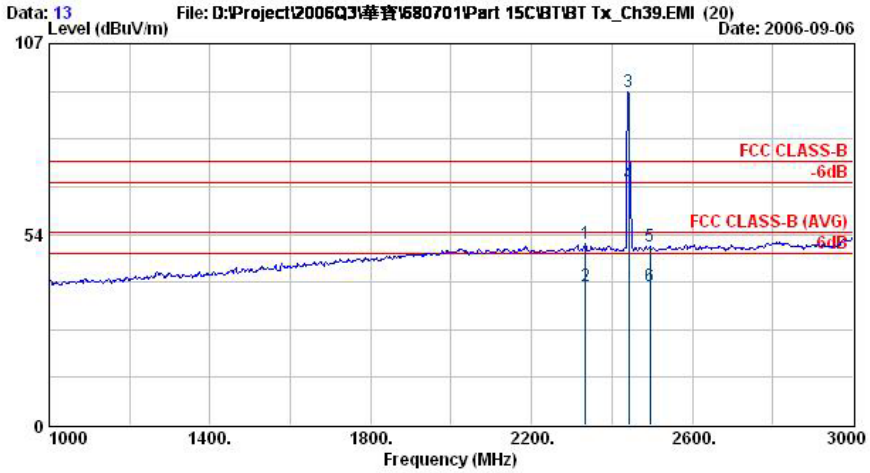
Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	40.53	27.71	-12.29	40.00	40.88	14.28	1.20	28.65	100	178	Peak
2 @	82.38	27.30	-12.70	40.00	46.99	7.46	1.59	28.75	400	0	Peak
3 @	91.29	29.80	-13.70	43.50	47.74	9.18	1.68	28.81	400	0	Peak



Site : 03CH06-HY
Condition : BI-LOG-2004-1122 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

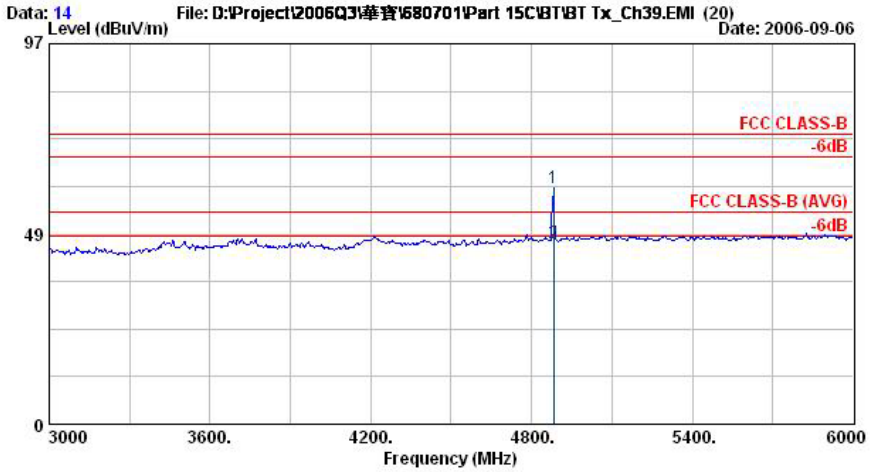
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	565.30	32.06	-13.94	46.00	38.14	18.46	4.45	29.00	100	0	Peak
2 @	642.30	31.32	-14.68	46.00	37.22	18.40	4.80	29.09	100	0	Peak
3 @	997.90	31.80	-22.20	54.00	31.46	22.91	6.22	28.79	100	0	Peak



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

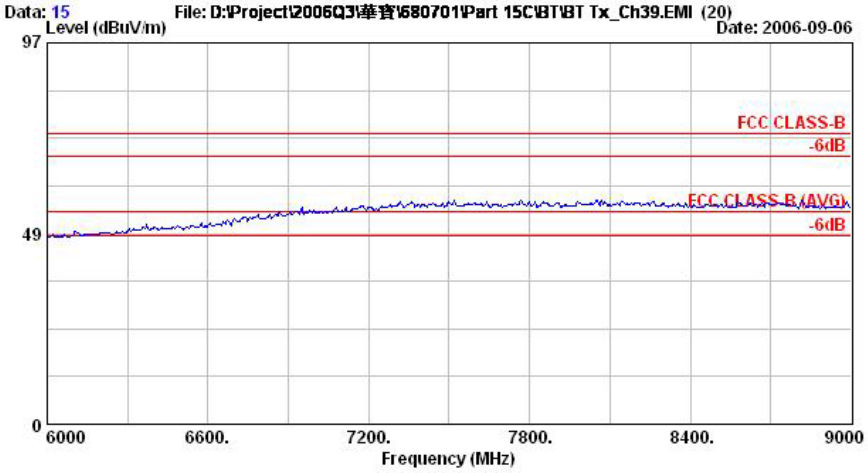
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2334.00	50.99	-23.01	74.00	51.99	30.23	4.17	35.40	100	360	Peak
2 @	2334.00	38.96	-15.04	54.00	39.96	30.23	4.17	35.40	100	89	Average
3 @	2441.00	93.38			94.28	30.28	4.29	35.47	100	360	Peak
4 @	2441.00	67.57			68.46	30.28	4.33	35.49	100	89	Average
5 @	2494.00	50.12	-23.88	74.00	50.96	30.30	4.39	35.53	100	360	Peak
6 @	2494.00	38.81	-15.19	54.00	39.65	30.30	4.39	35.53	100	89	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

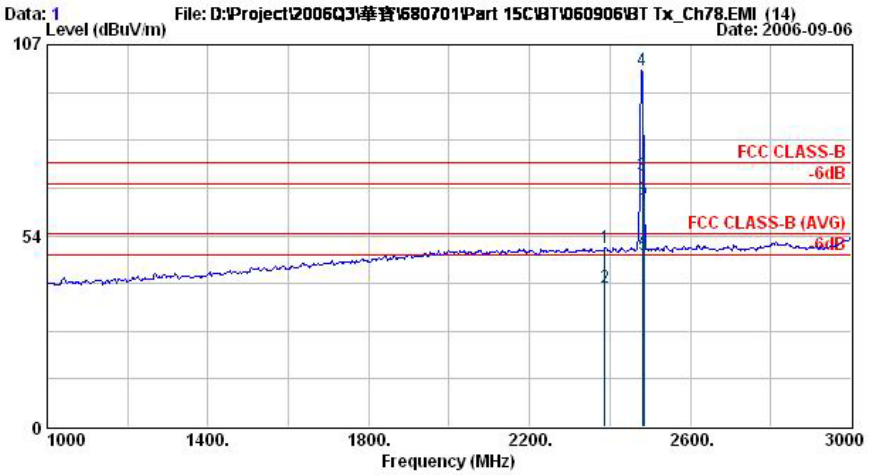
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	4882.00	60.36	-13.64	74.00	57.08	33.14	6.30	36.16	200	360	Peak
2 @	4882.00	46.19	-7.81	54.00	42.91	33.14	6.30	36.16	100	11	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch39;2441MHz
Plane : E2
Data Rate : DH1

- Test Mode : Mode 3
- Polarization : Horizontal

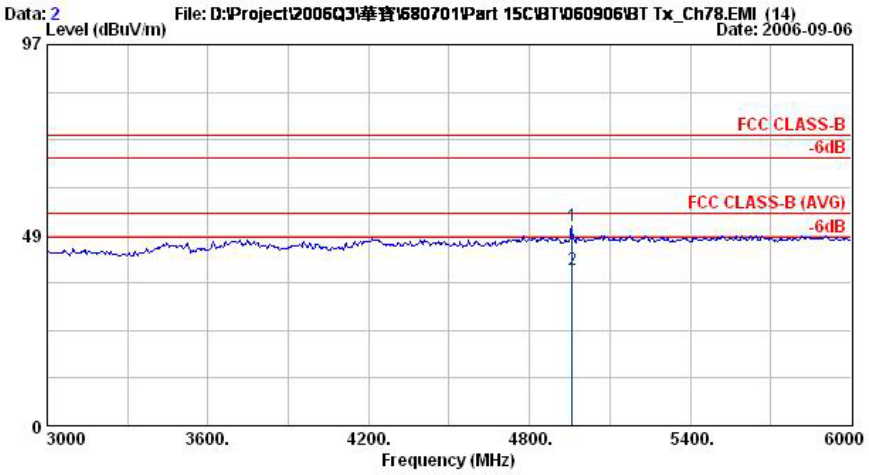
■ The test that passed at minimum margin was marked by the frame in the following table.



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

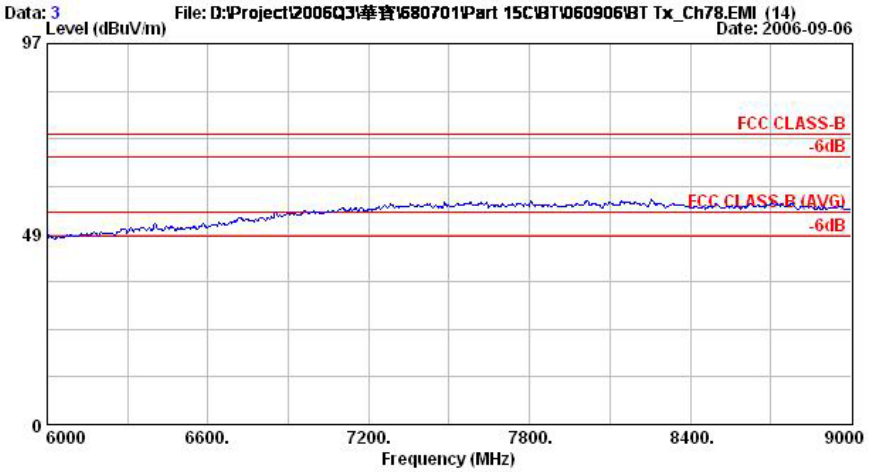
		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		2388.00	50.27	-23.73	74.00	51.22	30.26	4.23	35.44	100	360	Peak
2		2388.00	38.93	-15.07	54.00	39.88	30.26	4.23	35.44	100	171	Average
3	X	2480.00	70.37			71.23	30.29	4.36	35.51	100	171	Average
4	@	2480.00	100.03			100.89	30.29	4.36	35.51	100	360	Peak
5	!	2483.50	48.02	-5.98	54.00	48.88	30.29	4.36	35.51	100	171	Average
6		2483.50	63.76	-10.24	74.00	64.62	30.29	4.36	35.51	100	360	Peak

Remark: #3 and #4 Fundamental Signal

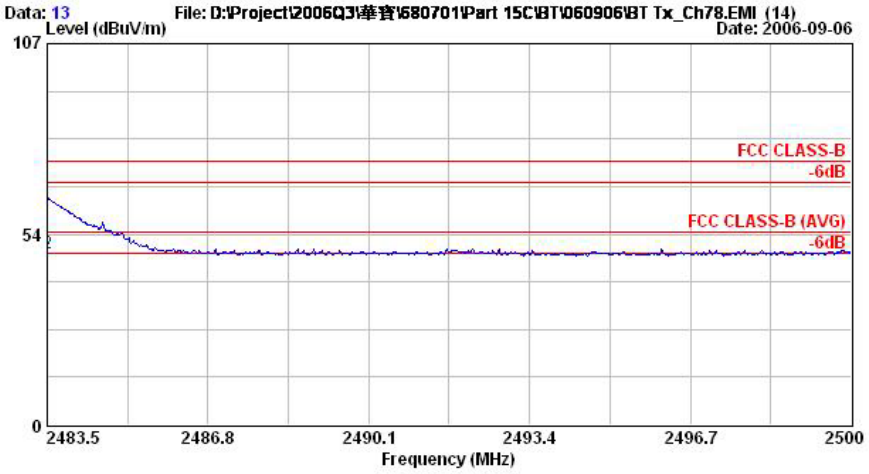


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4960.00	50.67	-23.33	74.00	47.04	33.47	6.39	36.23	200	0	Peak
2	4960.00	39.52	-14.48	54.00	35.89	33.47	6.39	36.23	100	337	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

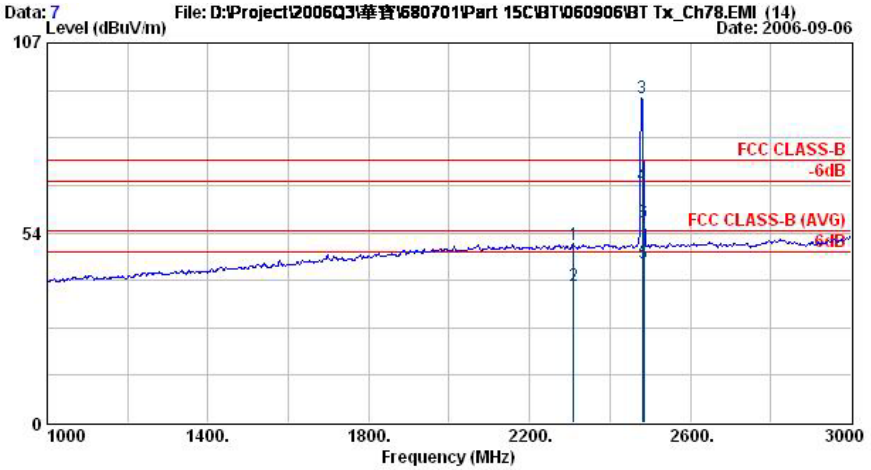


Site : 03CH06-HY
Condition : HF-ANT-060410 HORIZONTAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	63.76	-10.24	74.00	64.62	30.29	4.36	35.51	100	0	Peak
2 !	2483.50	48.02	-5.98	54.00	48.88	30.29	4.36	35.51	100	171	Average

- Test Mode : Mode 3
- Polarization : Vertical

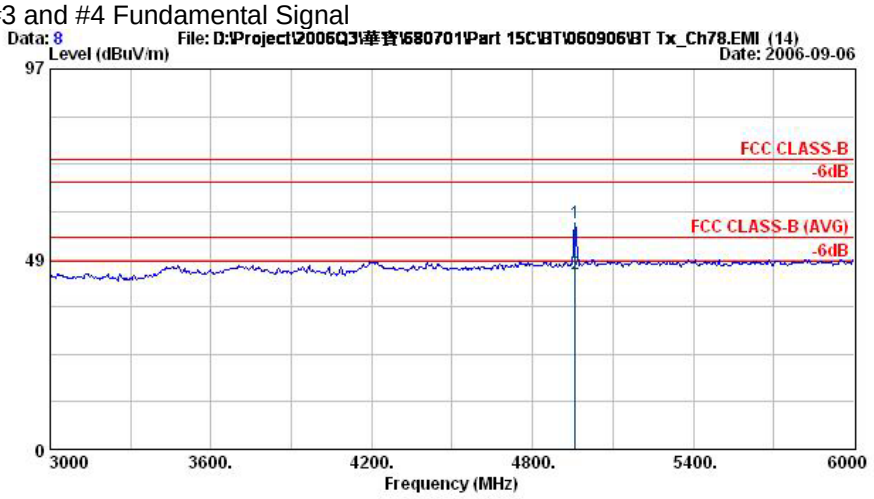
■ The test that passed at minimum margin was marked by the frame in the following table.



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

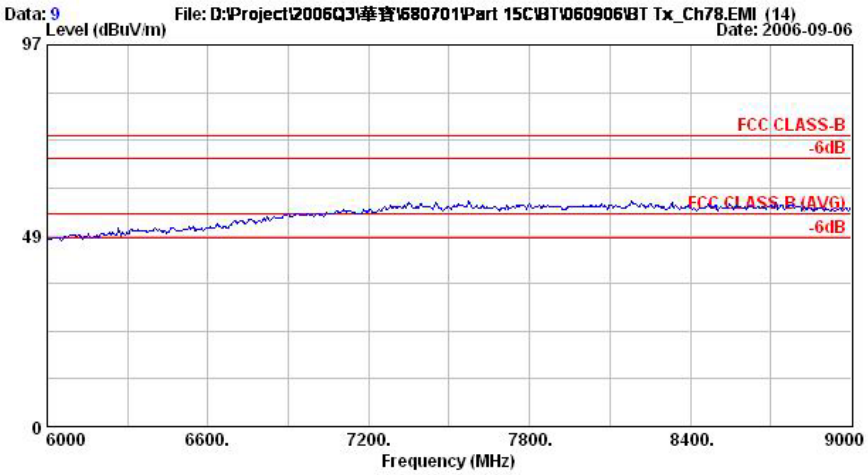
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2310.00	50.19	-23.81	74.00	51.22	30.22	4.14	35.39	100	360	Peak
2	2310.00	38.60	-15.40	54.00	39.62	30.22	4.14	35.39	100	71	Average
3 X	2480.00	91.51			92.37	30.29	4.36	35.51	100	360	Peak
4 X	2480.00	66.88			67.74	30.29	4.36	35.51	100	71	Average
5	2483.50	44.75	-9.25	54.00	45.61	30.29	4.36	35.51	100	71	Average
6	2483.50	56.42	-17.58	74.00	57.28	30.29	4.36	35.51	100	360	Peak

Remark: #3 and #4 Fundamental Signal

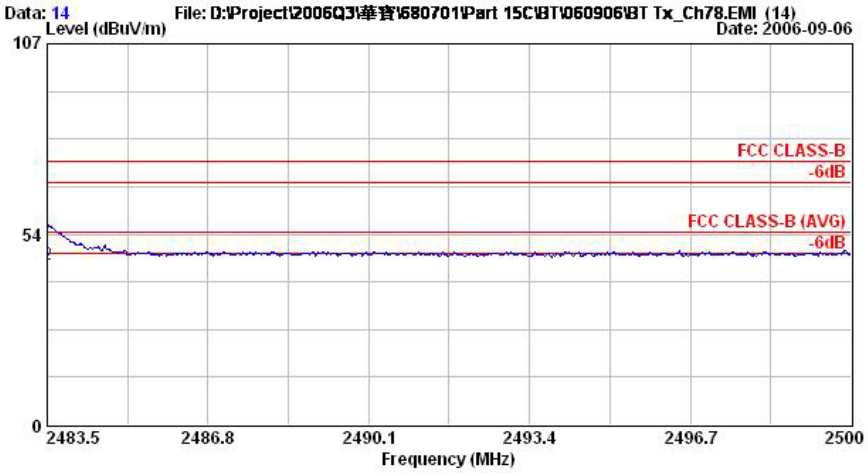


Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4960.00	57.73	-16.27	74.00	54.10	33.47	6.39	36.23	200	360	Peak
2	4960.00	44.80	-9.20	54.00	41.17	33.47	6.39	36.23	100	4	Average



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1



Site : 03CH06-HY
Condition : HF-ANT-060410 VERTICAL
EUT : PDA+GPS
Power : 120Vac/60Hz
Model : FR 680701
Memo : BT Tx_Ch78;2480MHz
Plane : E2
Data Rate : DH1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	56.42	-17.58	74.00	57.28	30.29	4.36	35.51	100	0	Peak
2	2483.50	44.75	-9.25	54.00	45.61	30.29	4.36	35.51	100	71	Average

Remark: There is no more obvious emission except the listings above.

5.10 Antenna Requirements

5.10.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no other antenna except assembled by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi.

5.10.2 Antenna Connected Construction

The antenna used in this product is a Chip antenna without connecter and it is considered to meet antenna requirement of FCC.

5.10.3 Antenna Gain

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

6. List of Measuring Equipments Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz – 2.75GHz	Jun. 28, 2006	Jun. 28, 2007	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/008	9kHz – 30MHz	Mar. 29, 2006	Mar. 29, 2007	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	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, 2006	Jul. 24, 2007	Radiation (03CH06-HY)
Controller	CT	SC100	N/A	N/A	Jun. 28, 2006	Jun. 27, 2007	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, 2006	Jul. 20, 2007	Radiation (03CH06-HY)
Amplifier	MITEQ	AMF-6F	997165	26G - 40G	Jul. 21, 2006	Jul. 20, 2007	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)

7. Uncertainty Evaluation

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		$u(x_i)$	Ci	$Ci*u(x_i)$
	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 Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+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**				