



# FCC TEST REPORT

for

## 47 CFR Part 15 Subpart C

**Equipment** : GSM Tri-band mobile phone with GPRS, Bluetooth  
**Trade Name** : NEC  
**Model No.** : N344i  
**FCC ID** : HFS-KMP6J1CK1  
**Filing Type** : Certification  
**Applicant** : **Quanta Computer Inc.**  
No. 211, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

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- The data shown in this test report were carried out on Apr. 03, 2006 at **Sporton International Inc. LAB.**
- Report No.: FR632806, Report Version: Rev. 02.

Dr. Daniel Lee  
EMC/SAR Director

***SPORTON International Inc.***

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***SPORTON International Inc.***

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Report Version: Rev. 02



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### History of this test report

Report Issue Date: Apr. 14, 2006

Report No.	Description



# 1. General Description of Equipment under Test

## 1.1. Applicant

**Quanta Computer Inc.**

No. 211, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

## 1.2. Manufacturer

**Quanta Computer Inc.**

No. 211, Wen Hwa 2nd Road, Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

## 1.3. Basic Description of Equipment under Test

- Equipment : GSM Tri-band mobile phone with GPRS, Bluetooth
- Trade Name : NEC
- Model No. : N344i
- FCC ID : HFS-KMP6J1CK1
- Power Supply Type : Switching, From battery 3.7V
- AC Power Cord : AC 120V, Wall-mount, 1.8 meter, 2 pin
- Earphone : Merry CO., LTD., 85C143037001
- Adapter : PI Electronics (H.K.) Ltd., KWT05B18CN2250 LF
- Battery : Sanyo Electric Company Co., Ltd., EUF553436

## 1.4. Feature of Equipment under Test

Product Feature & Specification	
1. Modulation Type/Data Rate	GFSK
2. Frequency Range.	2400 MHz ~ 2483.5 MHz
Number of Channels	79
3. Carrier Frequency of each channel	2402+ n*1 MHz, n= 0~78
4. Channel Spacing	1 MHz
5. Maximum Output Power to Antenna (Normal condition)	-2.58 dBm
6. Type of Antenna Connector	N/A
7. Antenna Type	PIFA
8. Antenna Gain	3 dBi
9. HW Version	E1A
10. SW Version	060315n-08.00VI3.KEN-0.07D DTCW-iDF
11. Function Type	Transmitter <input type="checkbox"/> Transceiver <input checked="" type="checkbox"/>
12. Power Rating (DC/AC , Voltage)	3.8V / 300mA
13. DUT Stage	Production Unit

## 2. Test Configuration of Equipment under Test

### 2.1. Test Manner

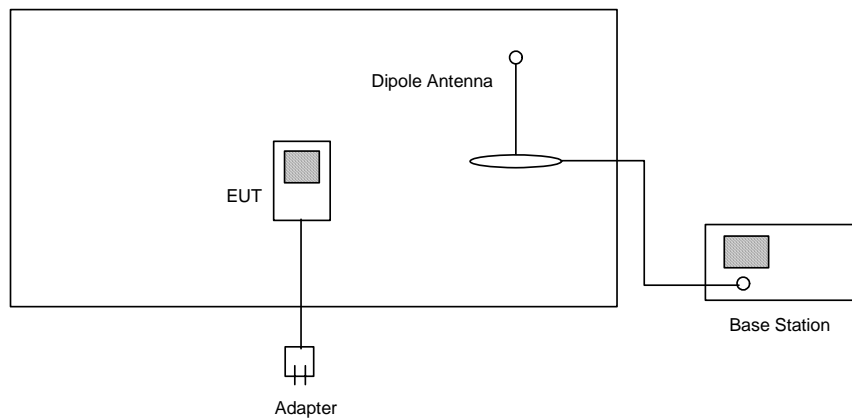
- a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
- b. For spurious emission below 1GHz, only one channel of each application was tested because it is not related 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

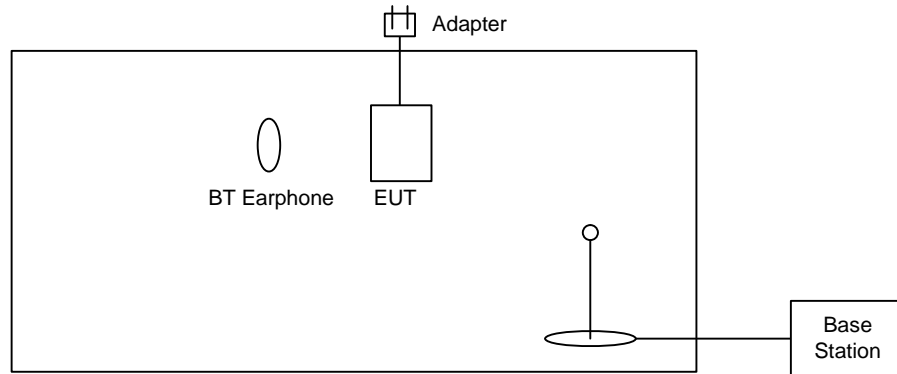
Application	Bluetooth
Radiated Emission and conducted test items	Mode 1: Tx_CH00_2402 MHz Mode 2: Tx_CH39_2441 MHz Mode 3: Tx_CH78_2480 MHz
Conducted Emission	Mode 1: PCS1900 Idle Mode + BT Link + Camera Mode 2: PCS1900 Idle Mode + BT Link + MP3 Player

### 2.3. Connection Diagram of Test System

<Radiation Emission>



**<Conduction Emission>**



**2.4. Ancillary Equipment List**

Item	Equipment	Model No.	Power Cord
1.	Base Station (R&S)	CMU200	N/A
2.	Bluetooth Earphone (Free Style)	JD-100	N/A



### **3. RF Utility**

The EUT is in BT link mode with BT earphone for conducted emission or in BT continuous Tx Mode controlled by RF utility and base station simulator 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

### 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	Description of Test	Result	Section
15.247(a)(1)	Hopping Channel Separation	Pass	5.2
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass	5.3
15.247(a)(1)	Hopping Channel Bandwidth	Pass	5.4
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass	5.5
15.247(b)(1)	Output Power	Pass	5.6
15.247(c)	100kHz Bandwidth of Frequency Band Edges	Pass	5.7
15.207	Conducted Emission	Pass	5.8
15.209	Radiated Emission	Pass	5.9
15.203	Antenna Requirement	Pass	5.10

## 5.2. Hopping Channel Separation

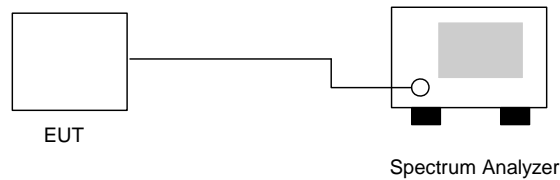
### 5.2.1. Measuring Instruments :

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 30kHz 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: 25°C
- Relative Humidity: 52%
- Test Engineer : Anderson

Channel	Frequency ( MHz )	Hopping Channel Separation ( MHz )	Limits ( MHz )	Plot Ref. No.
00	2402	0.992	0.868	Mode 1
39	2441	1.004	0.870	Mode 2
78	2480	1.000	0.868	Mode 3

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

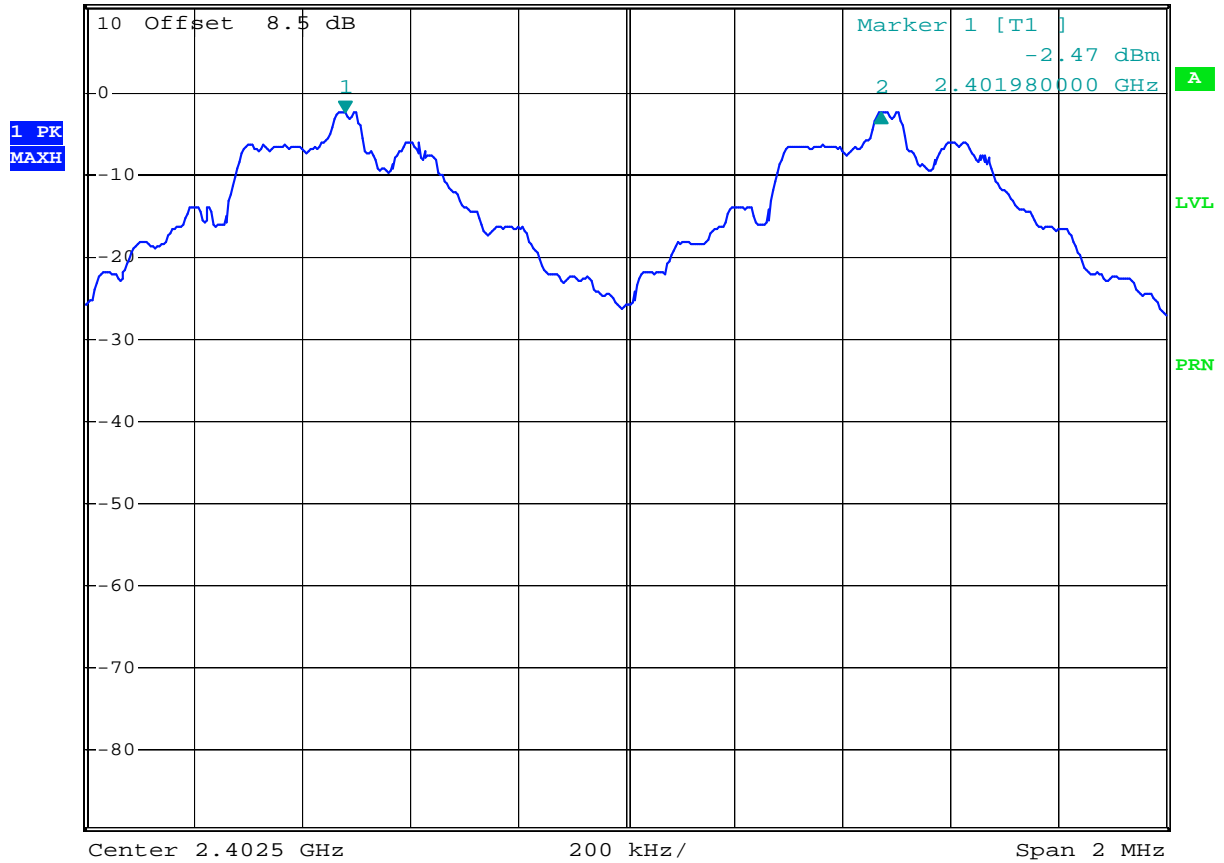


5.2.5 Hopping Channel Separation

Mode 1: CH00 (2402MHz)



Ref 10.5 dBm      \* Att 20 dB      \* RBW 30 kHz      Delta 2 [T1 ]  
 \* VBW 100 kHz      -0.06 dB  
 \* SWT 500 ms      992.00000000 kHz



Date: 2.APR.2006 00:13:18



Mode 2: CH39 (2441MHz)



\*RBW 30 kHz Delta 2 [T1 ]  
\*VBW 100 kHz 0.01 dB  
\*SWT 500 ms 1.004000000 MHz

Ref 10.5 dBm \*Att 20 dB

1 PK  
MAXH



Center 2.4415 GHz 200 kHz/ Span 2 MHz

Date: 2.APR.2006 00:14:55



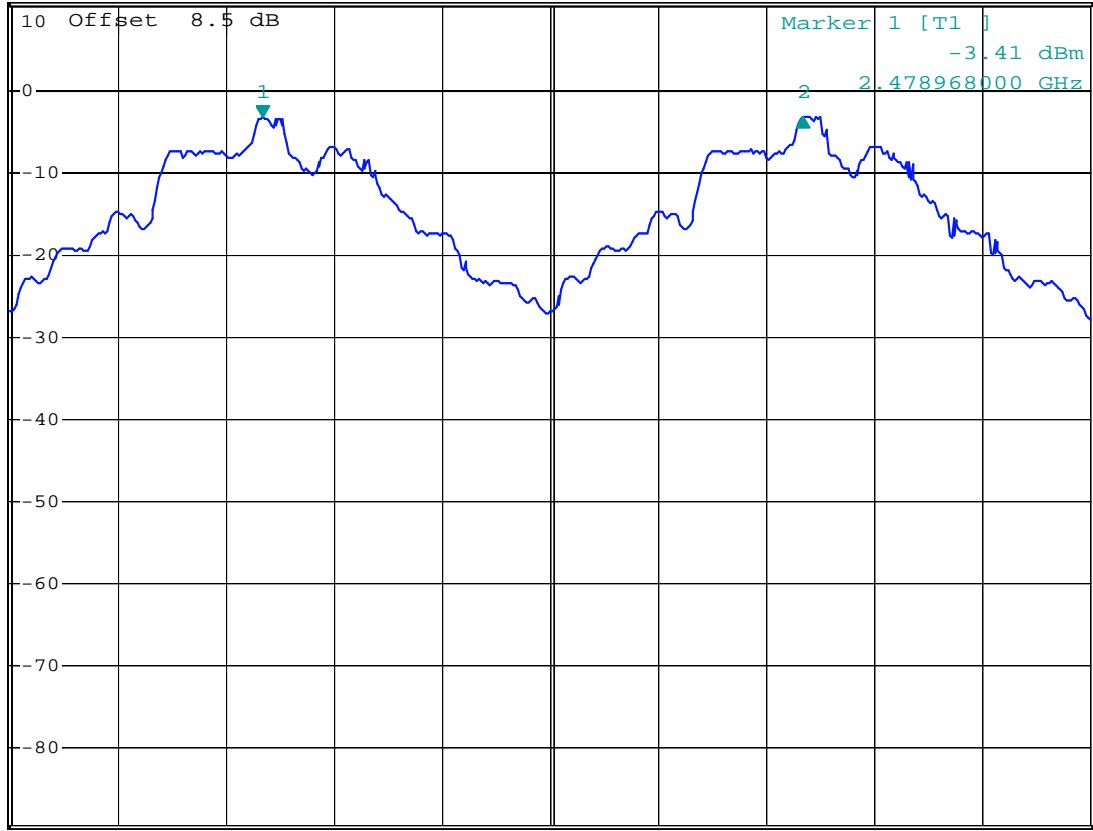
Mode 3: CH78 (2480MHz)



\*RBW 30 kHz      Delta 2 [T1 ]  
 \*VBW 100 kHz      0.03 dB  
 \*SWT 500 ms      1.000000000 MHz

Ref 10.5 dBm      \*Att 20 dB

1 PK  
MAXH



Center 2.4795 GHz      200 kHz/      Span 2 MHz

Date: 2.APR.2006 00:16:24

**5.3. Number of Hopping Frequency**

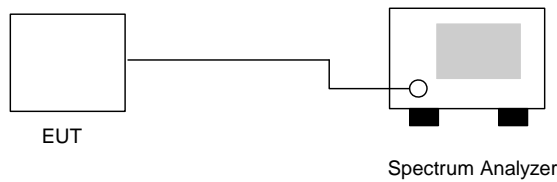
5.3.1. Measuring Instruments :

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: 25°C
- Relative Humidity: 52%
- Test Engineer : Anderson

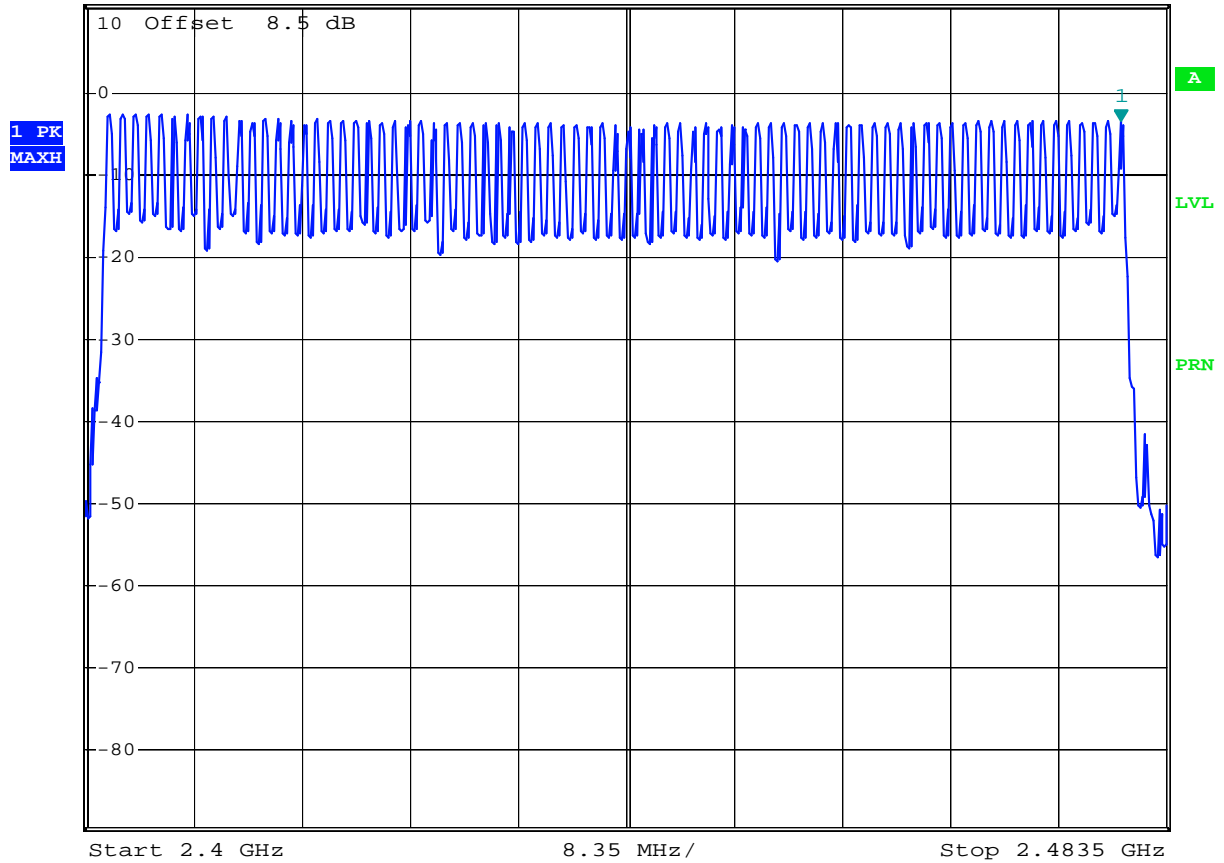
Number of Hopping Frequency (Channel)	Limits (Channel)
79	15



5.3.5 Number of Hopping Frequency



Ref 10.5 dBm      \*Att 20 dB      \*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 100 kHz      -3.54 dBm  
 \*SWT 500 ms      2.479930000 GHz



Date: 2.APR.2006 00:06:53

## 5.4 Hopping Channel Bandwidth

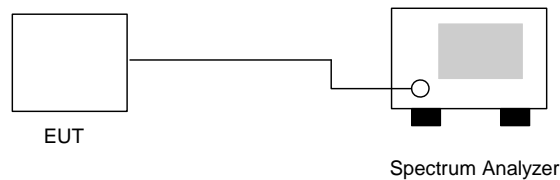
### 5.4.1 Measuring Instruments :

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: 25°C
- Relative Humidity: 52%
- Test Engineer : Anderson

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.868	1.0	Mode 1
39	2441	0.870	1.0	Mode 2
78	2480	0.868	1.0	Mode 3





5.4.5 Hopping Channel Bandwidth

Mode 1: CH00 (2402MHz)



\*RBW 30 kHz Delta 2 [T1 ]
\*VBW 300 kHz -0.20 dB
\*SWT 500 ms 868.00000000 kHz

Ref 10.5 dBm

\*Att 20 dB

1 PK\*
VIEW



Center 2.402 GHz 100 kHz/ Span 1 MHz

Date: 1.APR.2006 23:48:57

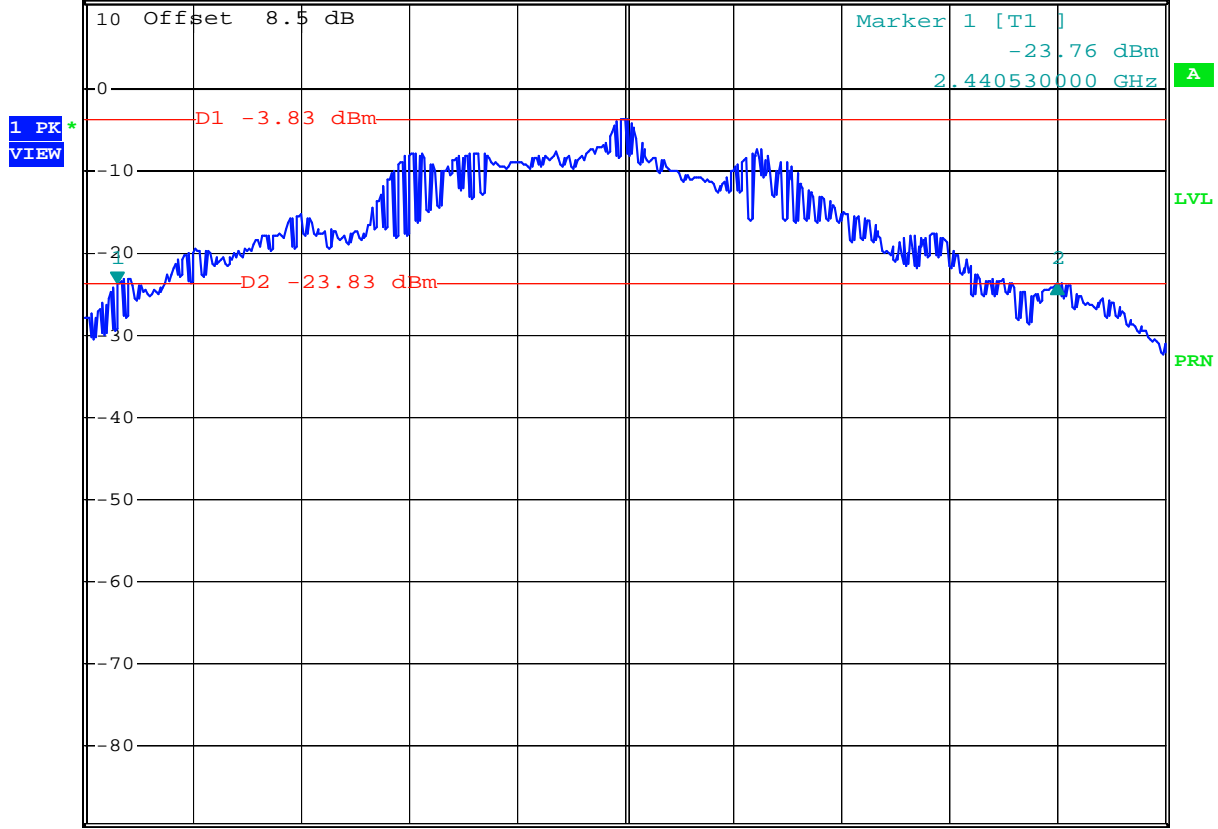


Mode 2: CH39 (2441MHz)



\*RBW 30 kHz      Delta 2 [T1 ]  
 \*VBW 300 kHz      0.00 dB  
 \*SWT 500 ms      870.000000000 kHz

Ref 10.5 dBm      \*Att 20 dB



Center 2.441 GHz      100 kHz/      Span 1 MHz

Date: 2.APR.2006 00:09:58

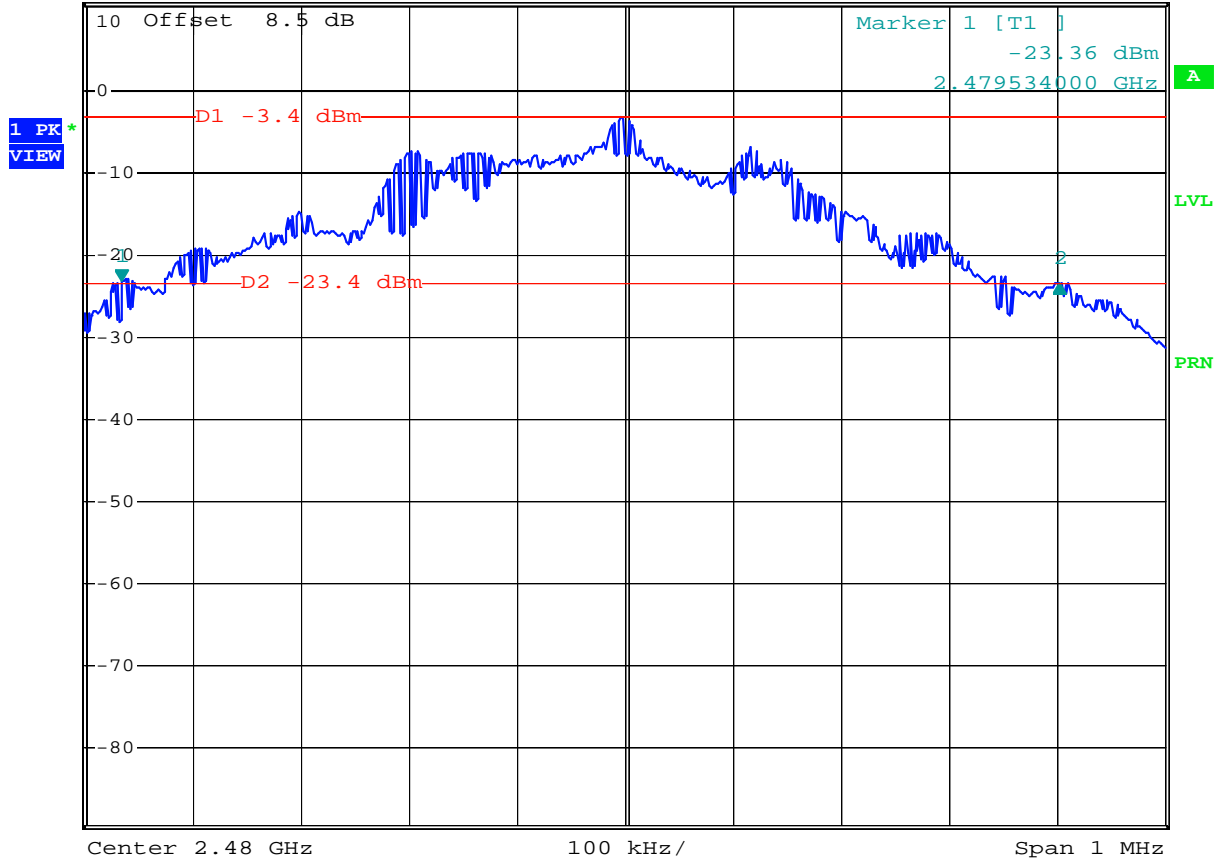


Mode 3: CH78 (2480MHz)



\*RBW 30 kHz      Delta 2 [T1 ]  
 \*VBW 300 kHz      -0.02 dB  
 \*SWT 500 ms      868.00000000 kHz

Ref 10.5 dBm      \*Att 20 dB



Date: 1.APR.2006 23:55:08

### 5.5 Dwell Time of Each Frequency

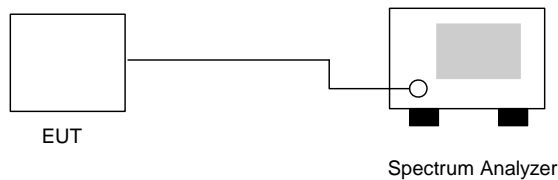
#### 5.5.1 Measuring Instruments :

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 =  $79 \times 0.4 \times (1600/79) \times t$  (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: 25°C
- Relative Humidity: 52%
- Test Engineer : Anderson

Ch00

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.5	456	0.122	0.4
DH3	4.7	1716	0.255	0.4
DH5	3.2	2996	0.303	0.4



CH39

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Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.6	456	0.124	0.4
DH3	4.6	1716	0.249	0.4
DH5	2.9	2996	0.275	0.4

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CH78

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Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.8	456	0.127	0.4
DH3	4.3	1716	0.233	0.4
DH5	3.1	2996	0.293	0.4

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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)

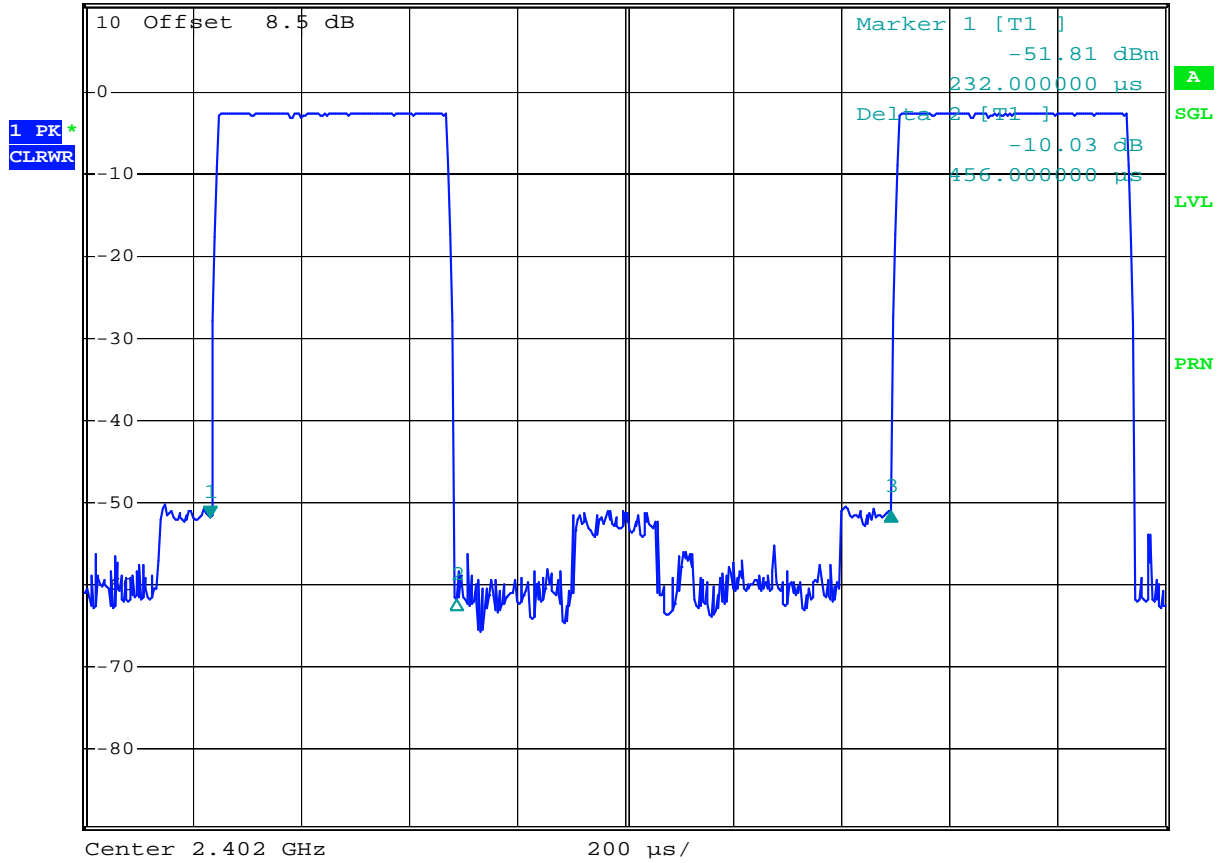


5.5.5 Dwell Time

DH1 (CH00)



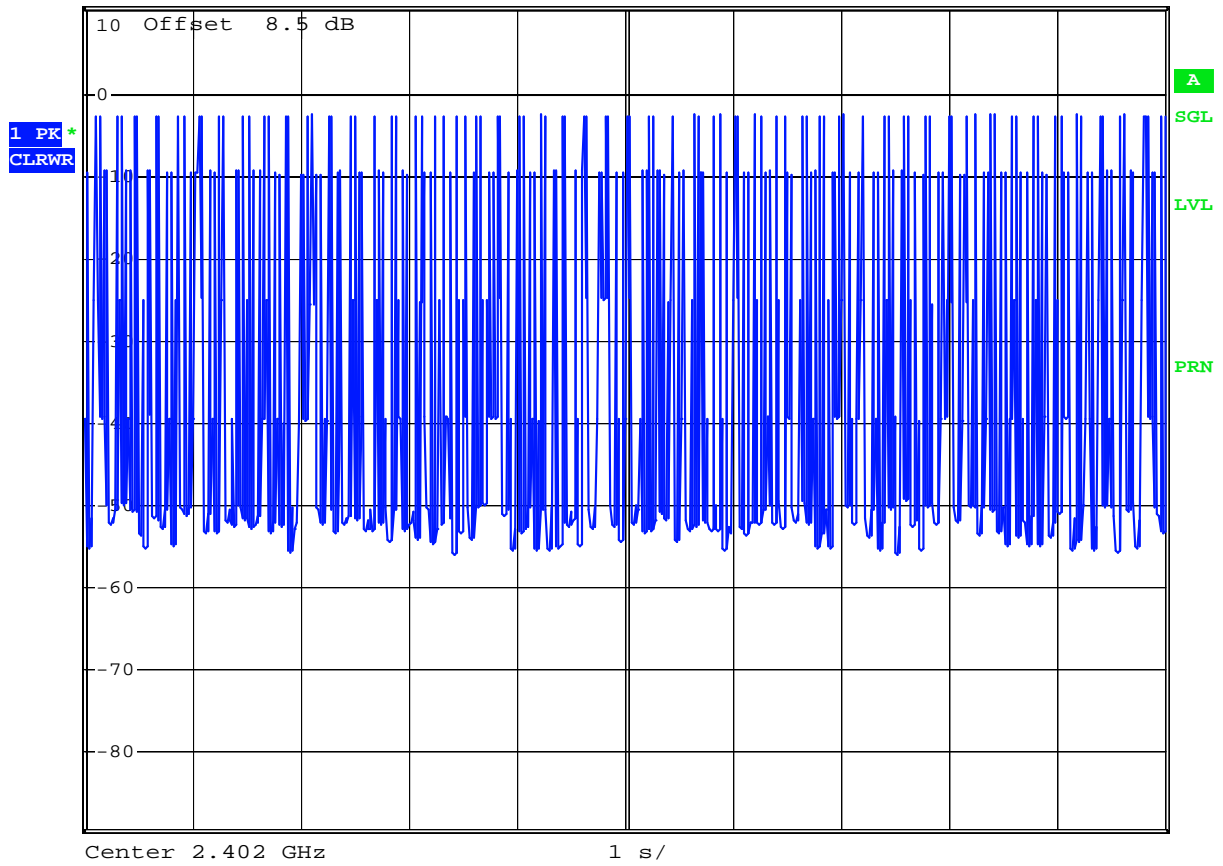
RBW 1 MHz      Delta 3 [T1 ]  
 \*VBW 1 MHz      0.82 dB  
 Ref 10.5 dBm      \*Att 20 dB      SWT 2 ms      1.260000 ms



Date: 2.APR.2006 00:19:11



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



Date: 2.APR.2006 00:37:45



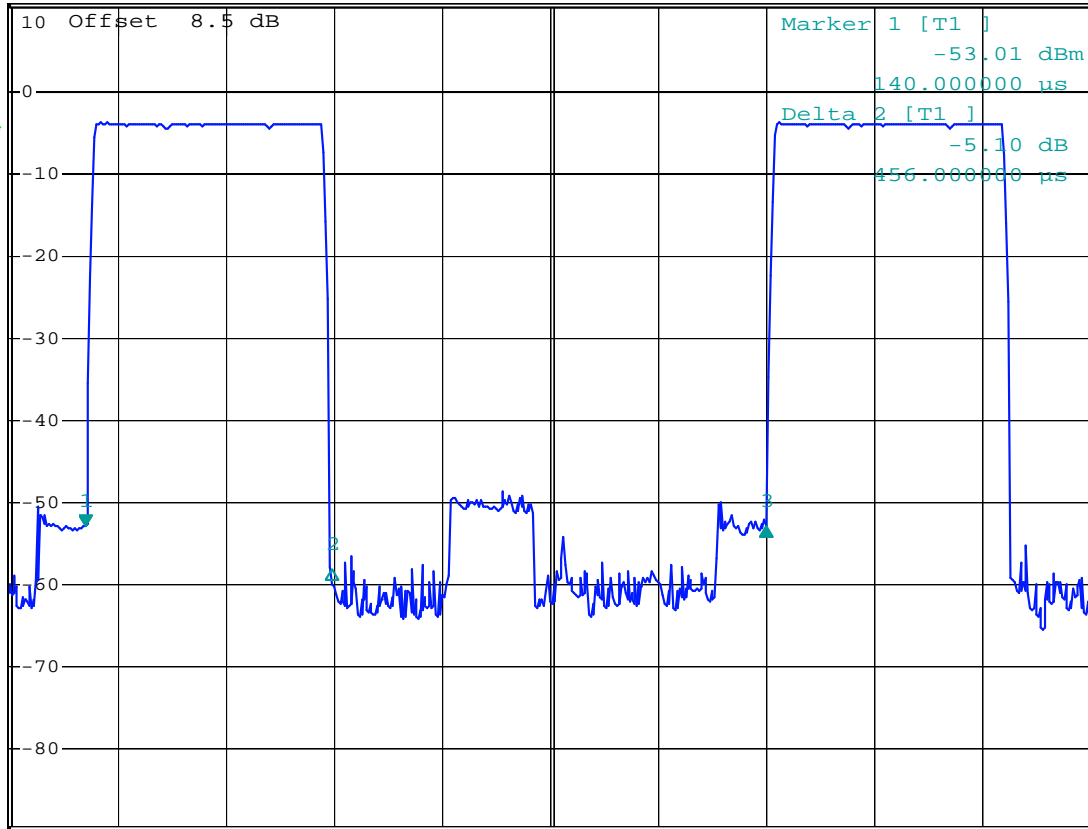
DH1 (CH39)



RBW 1 MHz      Delta 3 [T1 ]  
 \*VBW 1 MHz      0.10 dB  
 SWT 2 ms      1.260000 ms

Ref 10.5 dBm      \*Att 20 dB

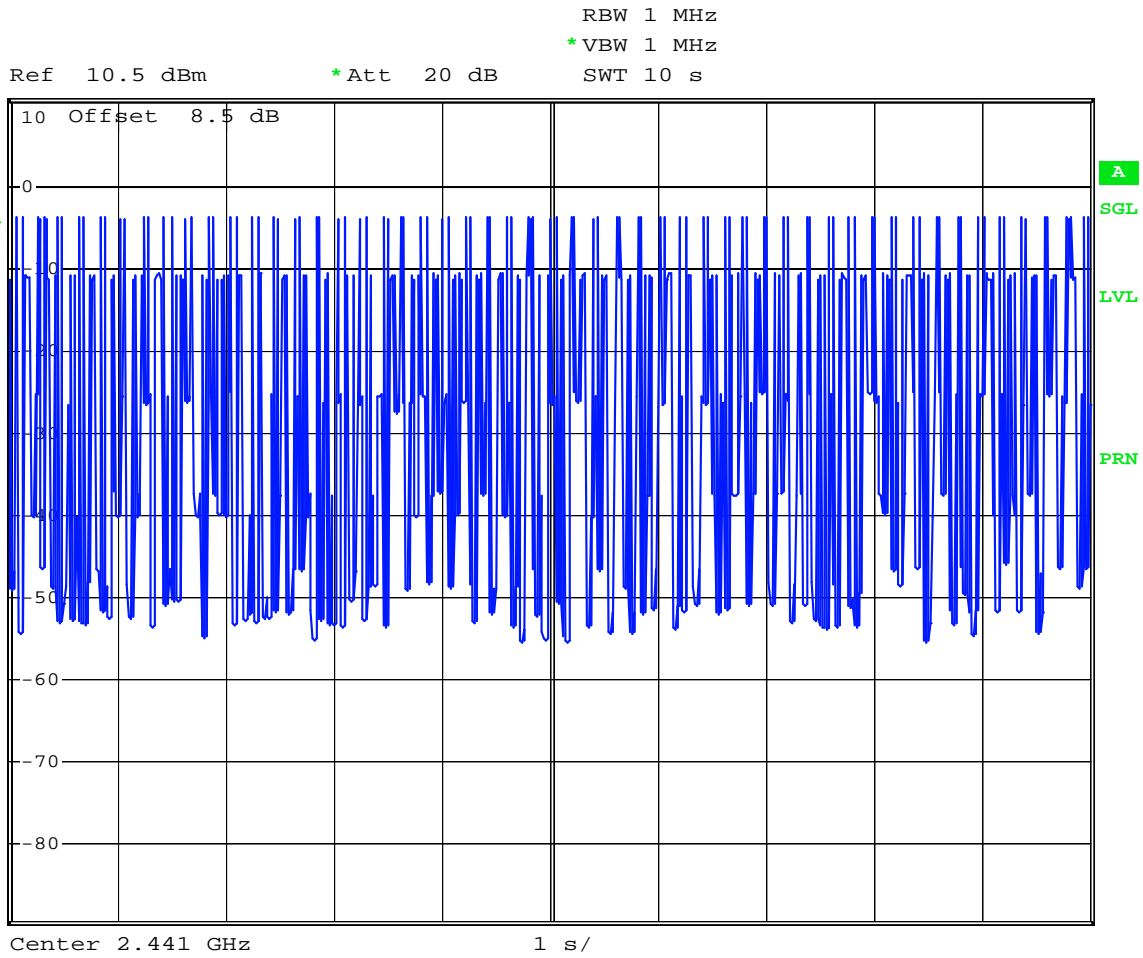
1 PK\*  
CLRWR



Center 2.441 GHz      200 μs/

Date: 2.APR.2006 00:28:19





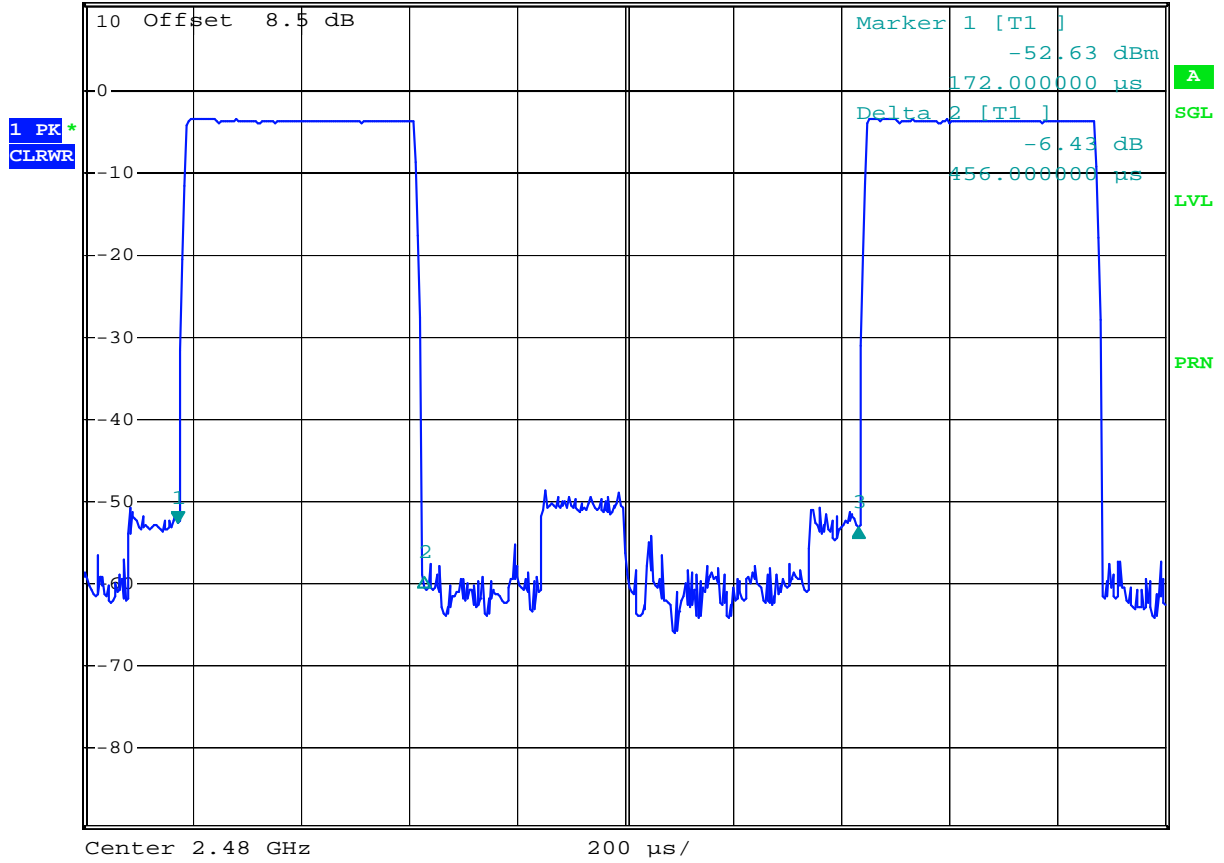
Date: 2.APR.2006 00:38:16



DH1 (CH78)



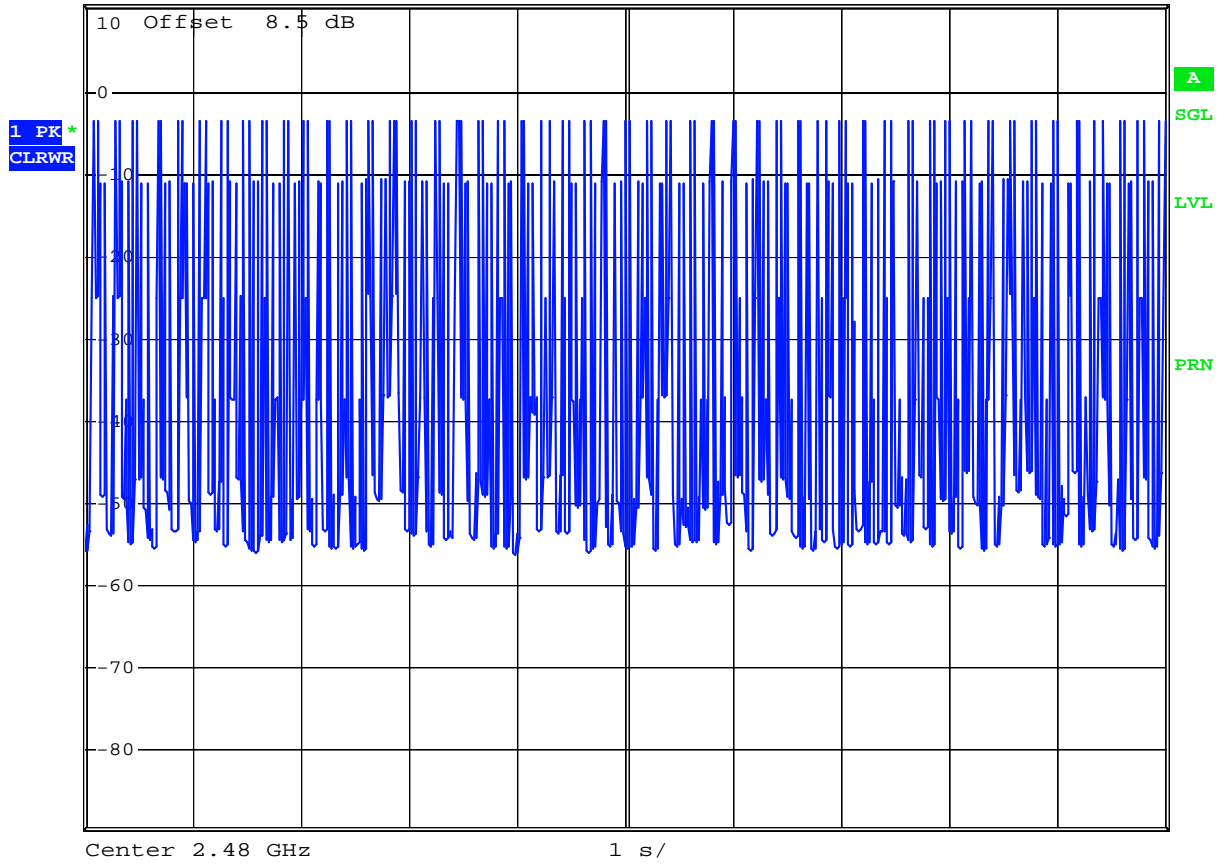
Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      -0.49 dB  
 \*VBW 1 MHz      SWT 2 ms      1.260000 ms



Date: 2.APR.2006 00:20:41



Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz  
 \*VBW 1 MHz      SWT 10 s



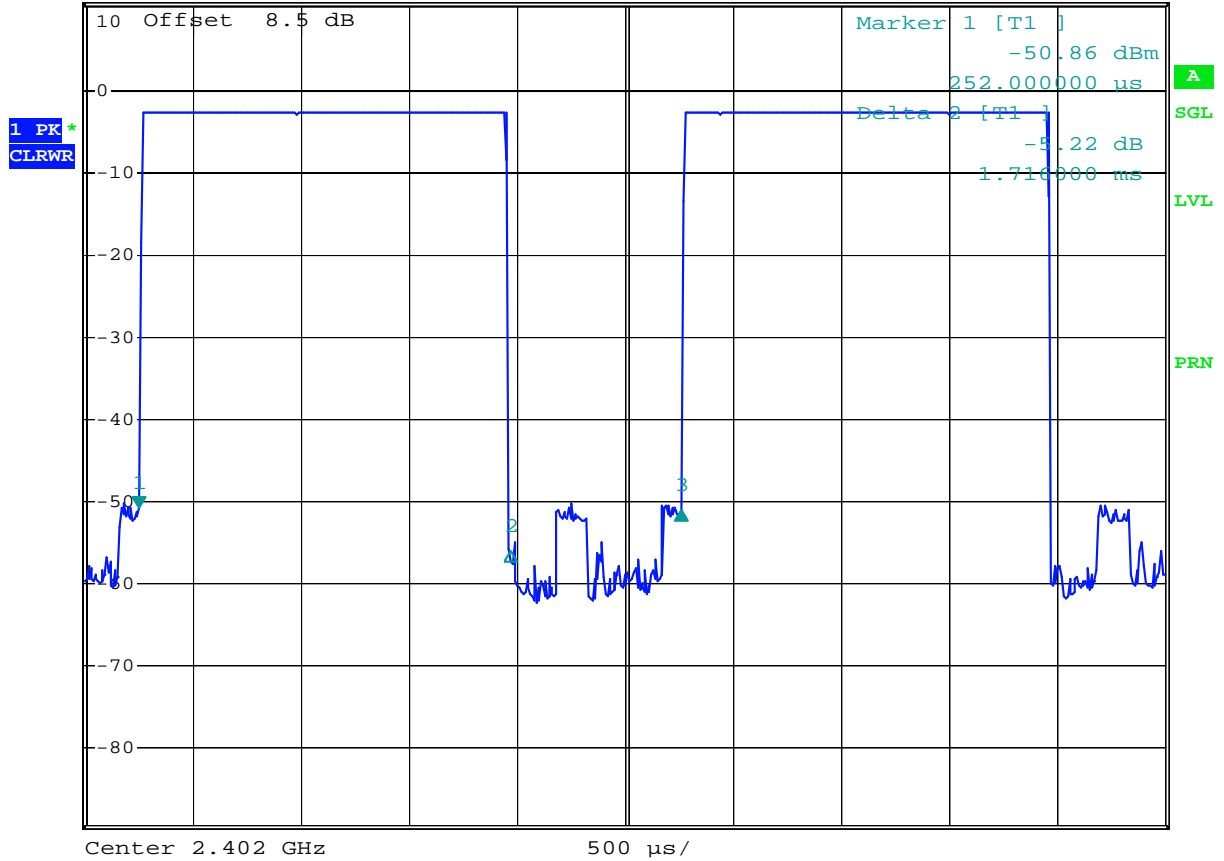
Date: 2.APR.2006 00:38:51



DH3 (CH00)



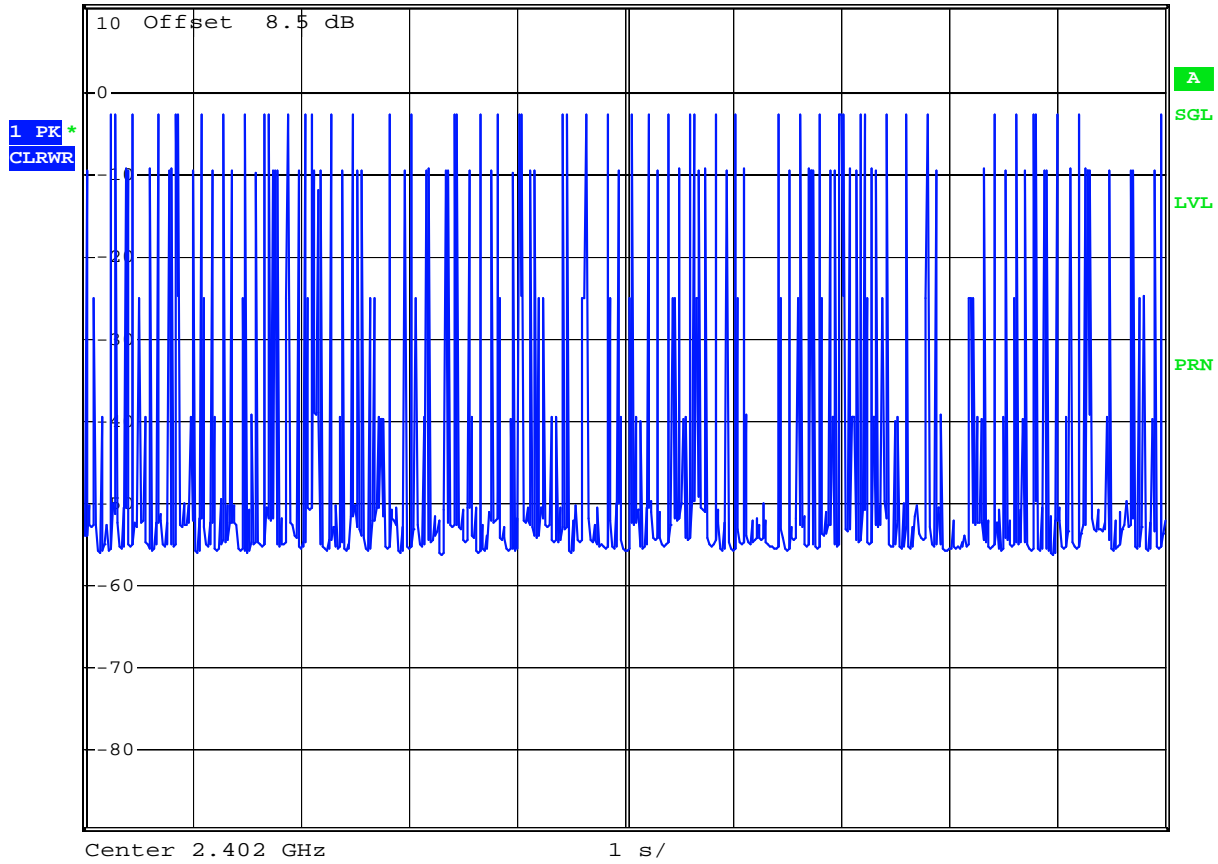
Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      -0.32 dB  
 \*VBW 1 MHz      SWT 5 ms      2.510000 ms



Date: 2.APR.2006 00:21:45



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



Date: 2.APR.2006 00:39:42

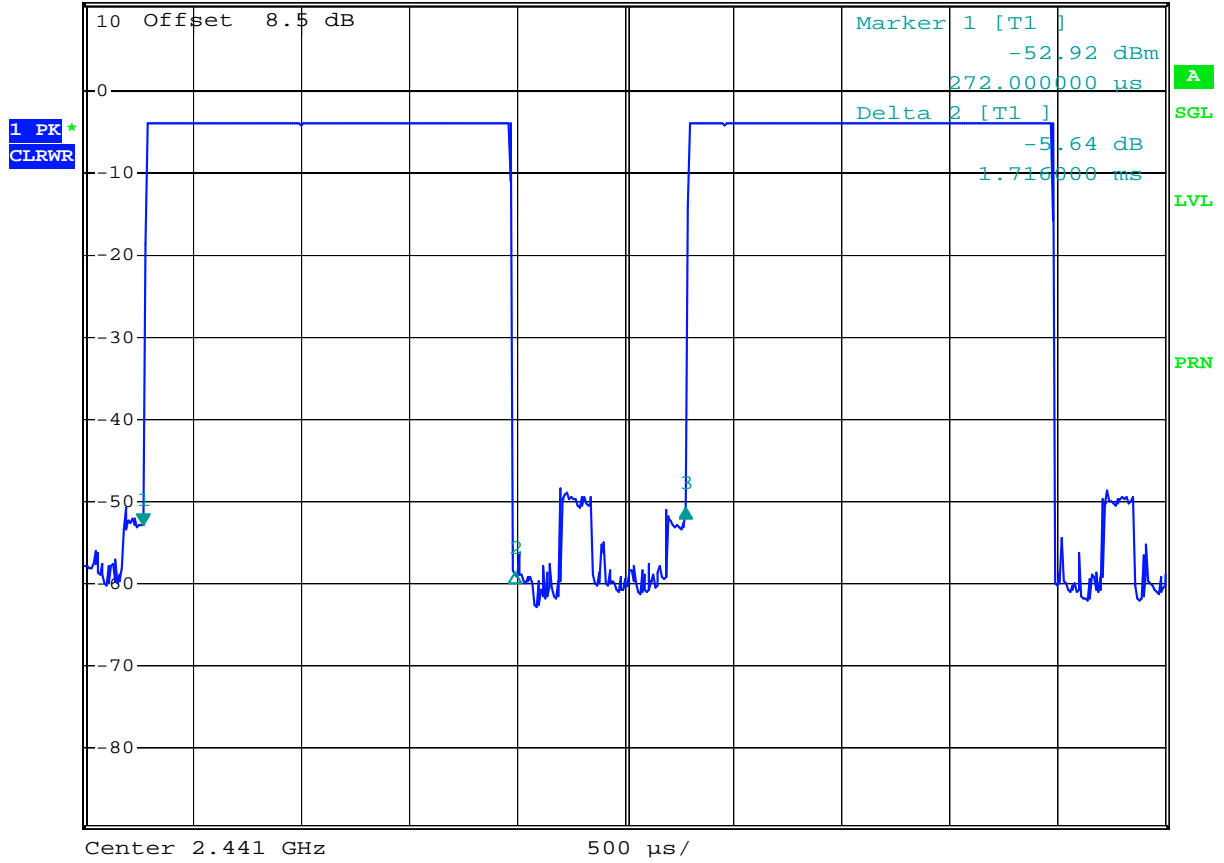


DH3 (CH39)



Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      2.01 dB

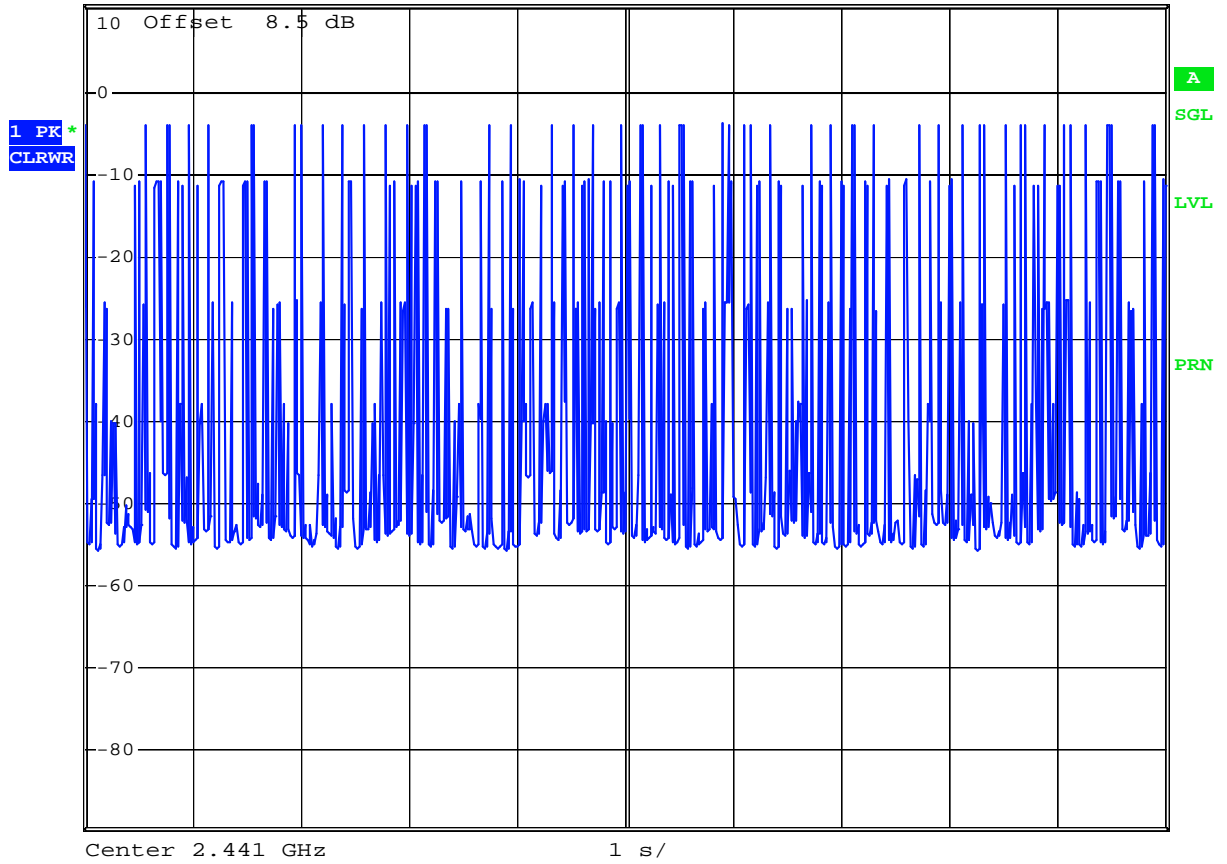
SWT 5 ms      2.510000 ms



Date: 2.APR.2006 00:22:18



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
 \* VBW 1 MHz      SWT 10 s



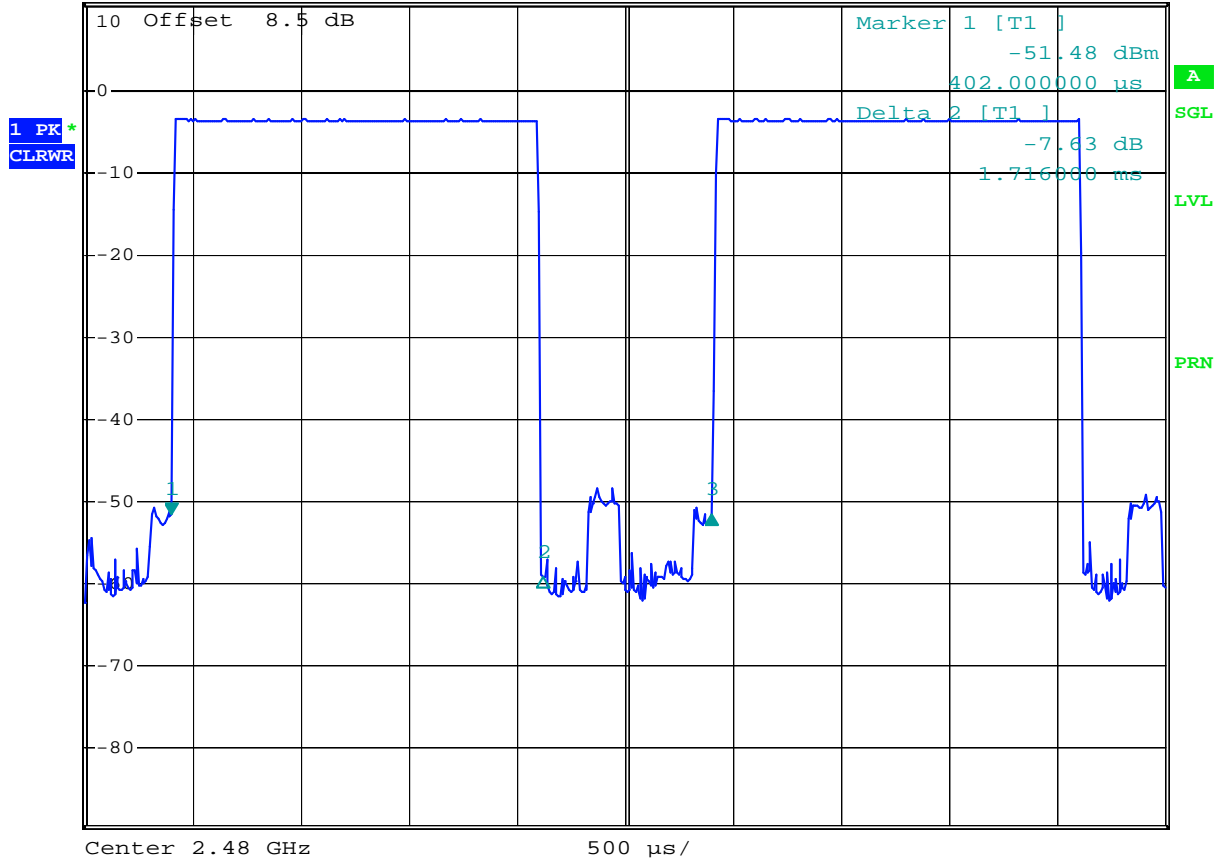
Date: 2.APR.2006 00:40:18



DH3 (CH78)



RBW 1 MHz      Delta 3 [T1 ]  
 \*VBW 1 MHz      -0.06 dB  
 Ref 10.5 dBm      \*Att 20 dB      SWT 5 ms      2.500000 ms

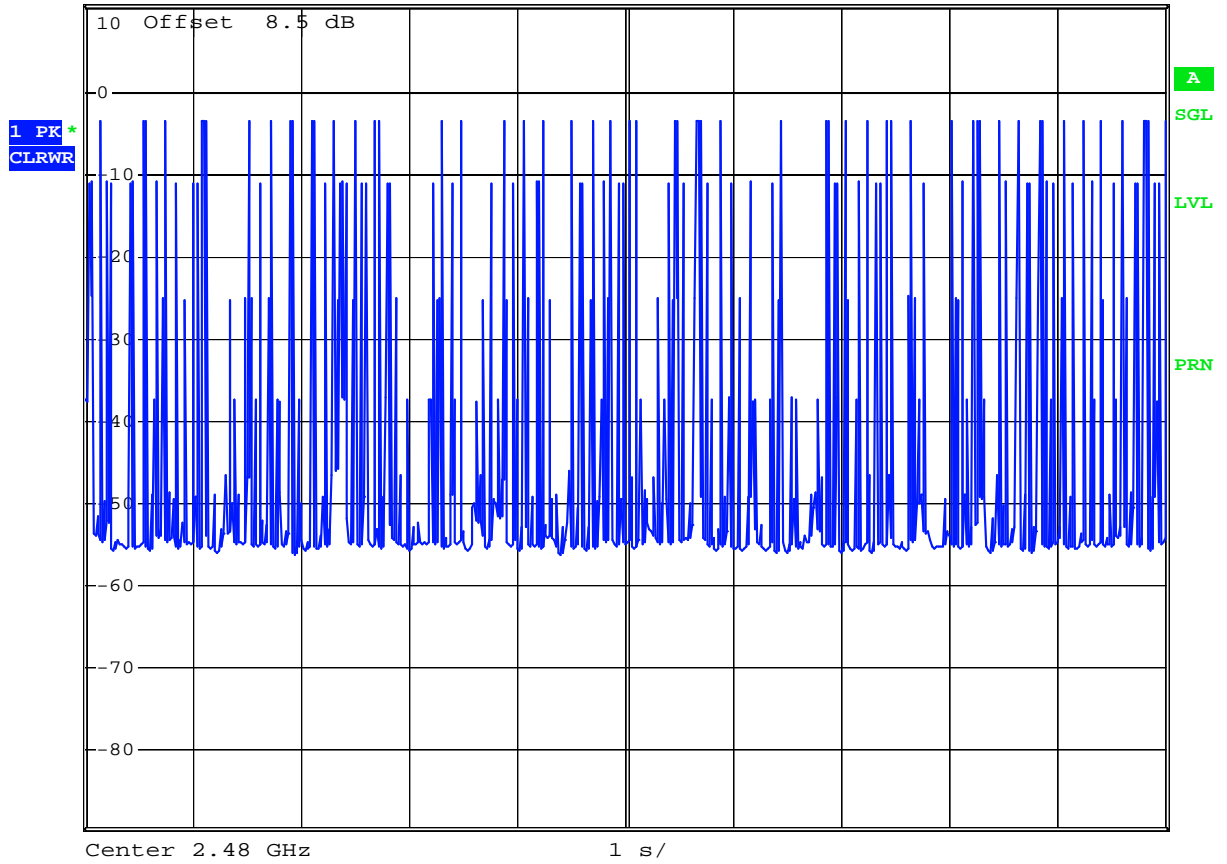


Date: 2.APR.2006 00:22:51





Ref 10.5 dB      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



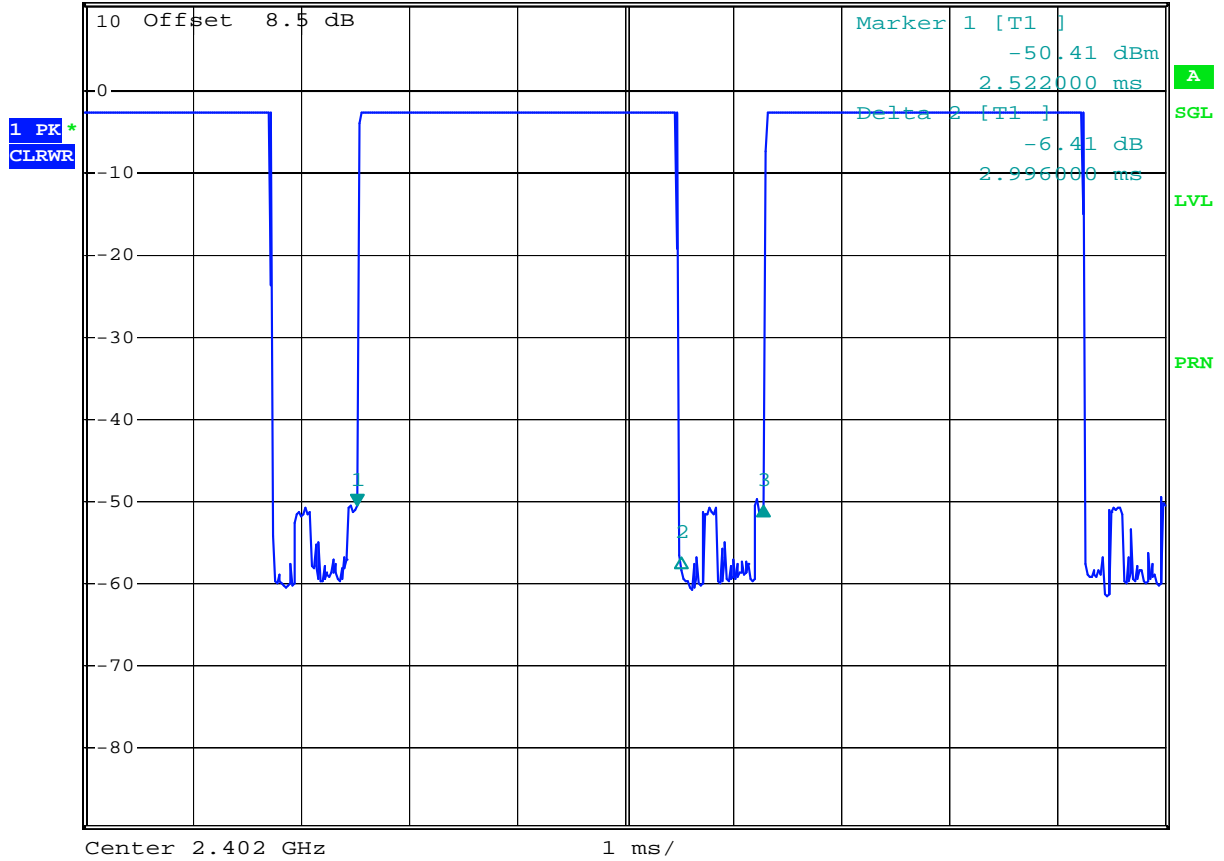
Date: 2.APR.2006 00:40:53



DH5 (CH00)



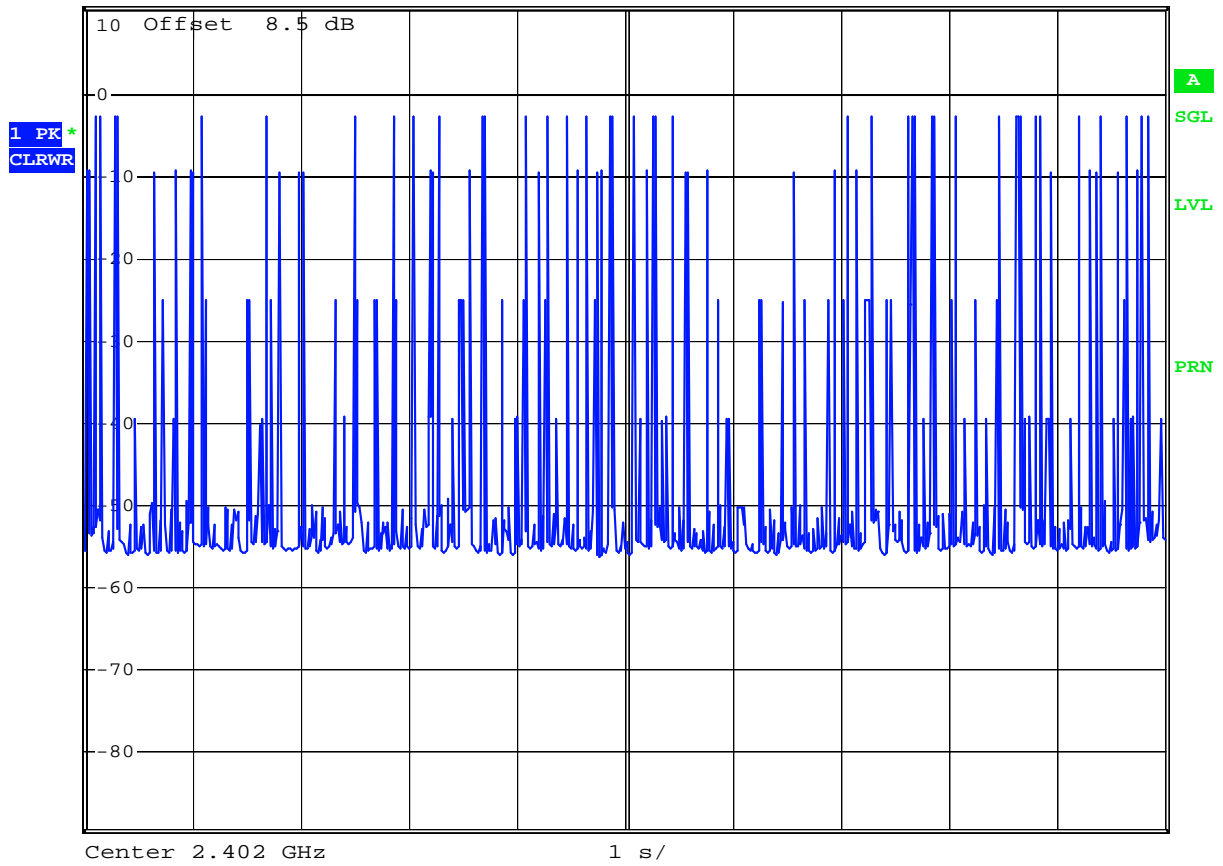
Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      0.00 dB  
 \*VBW 1 MHz      SWT 10 ms      3.760000 ms



Date: 2.APR.2006 00:27:19



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



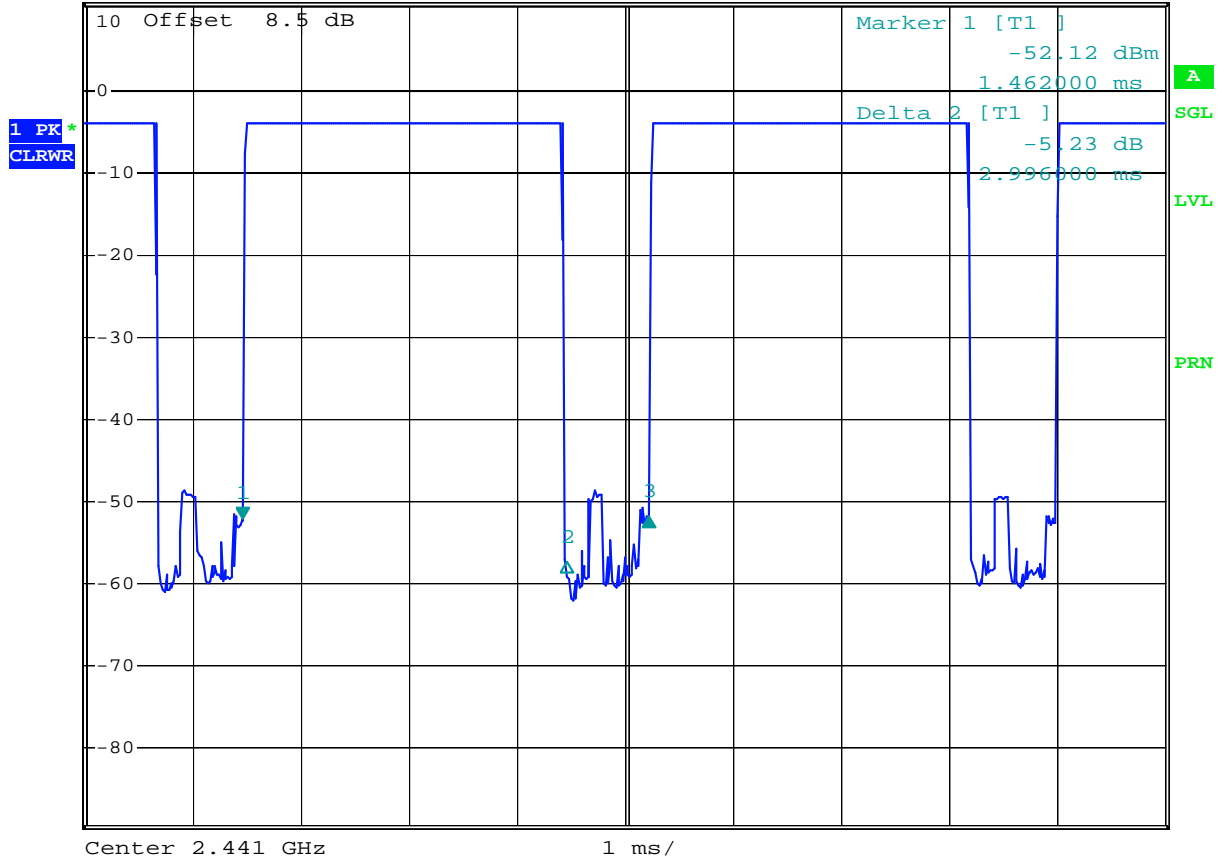
Date: 2.APR.2006 00:41:31



DH5 (CH39)



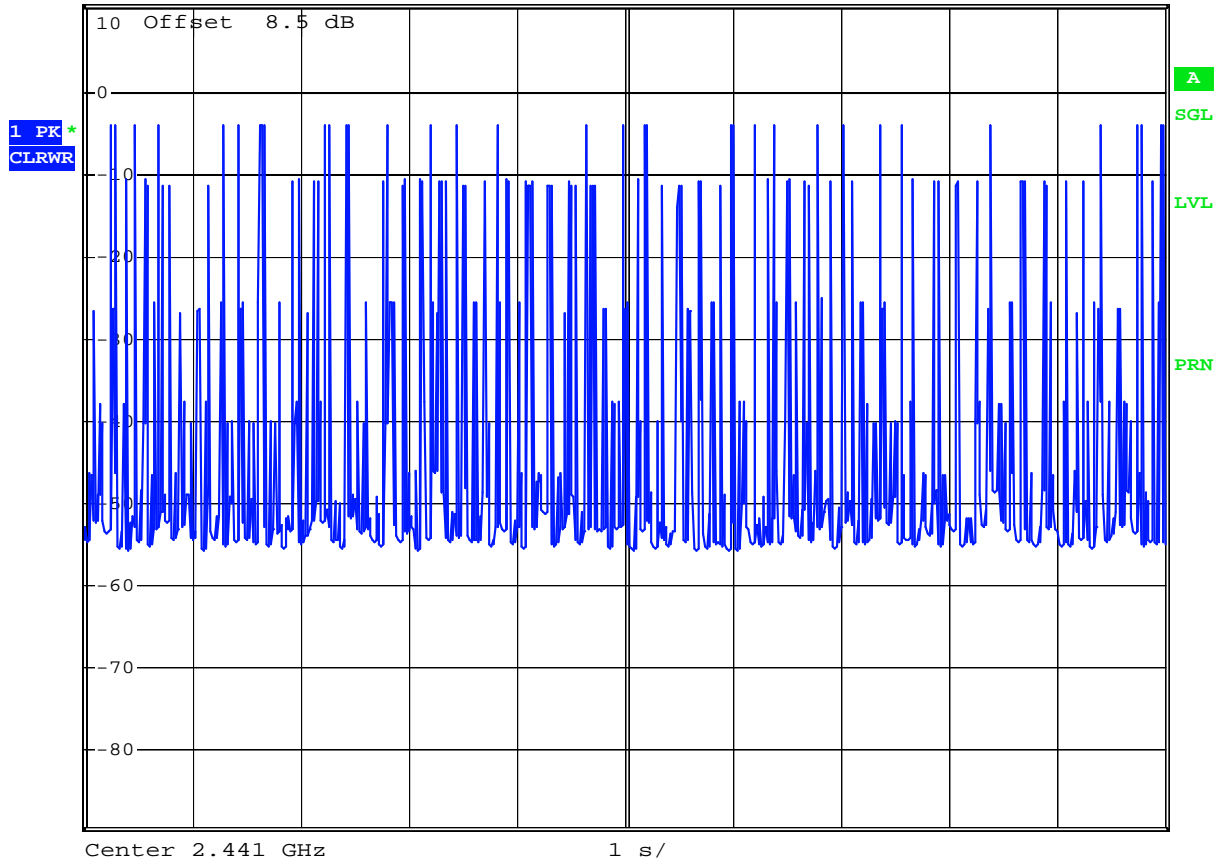
Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      0.36 dB  
 \*VBW 1 MHz      SWT 10 ms      3.760000 ms



Date: 2.APR.2006 00:26:48



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



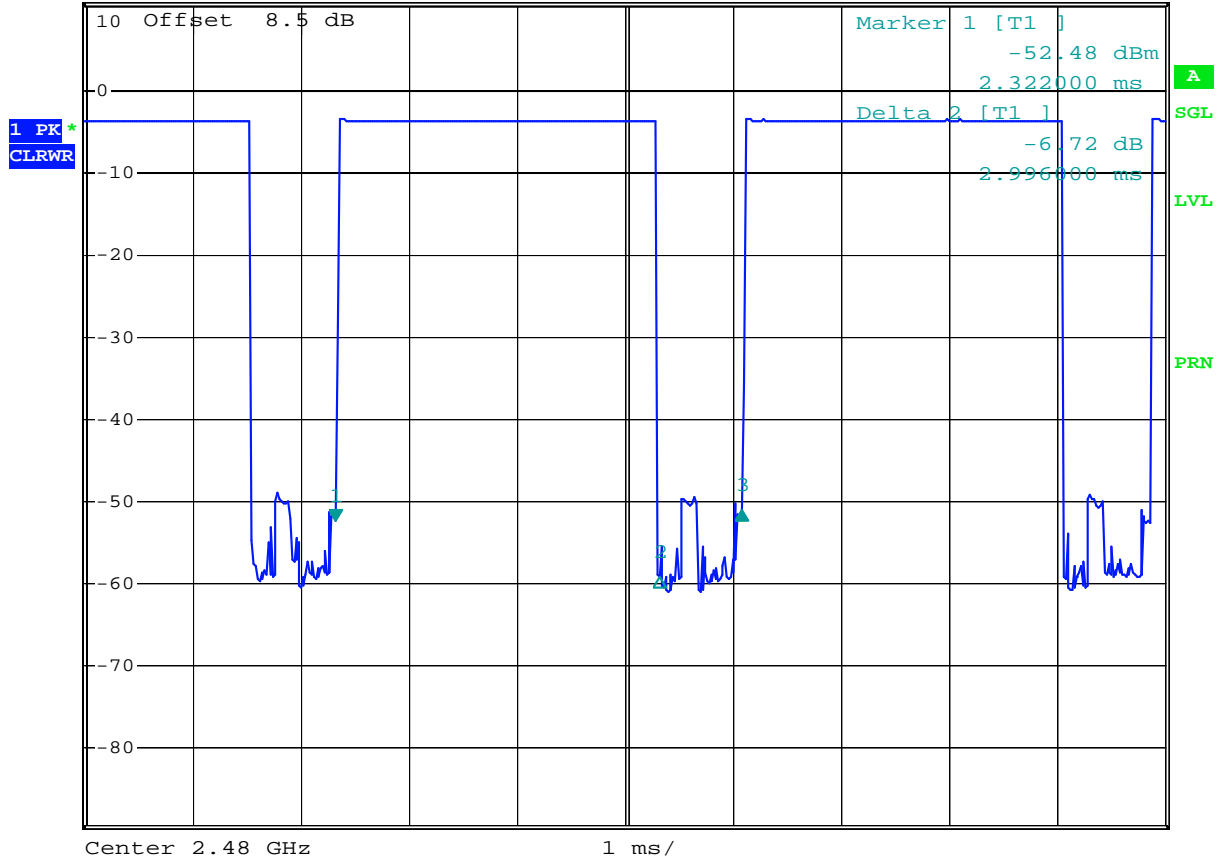
Date: 2.APR.2006 00:42:08



DH5 (CH78)



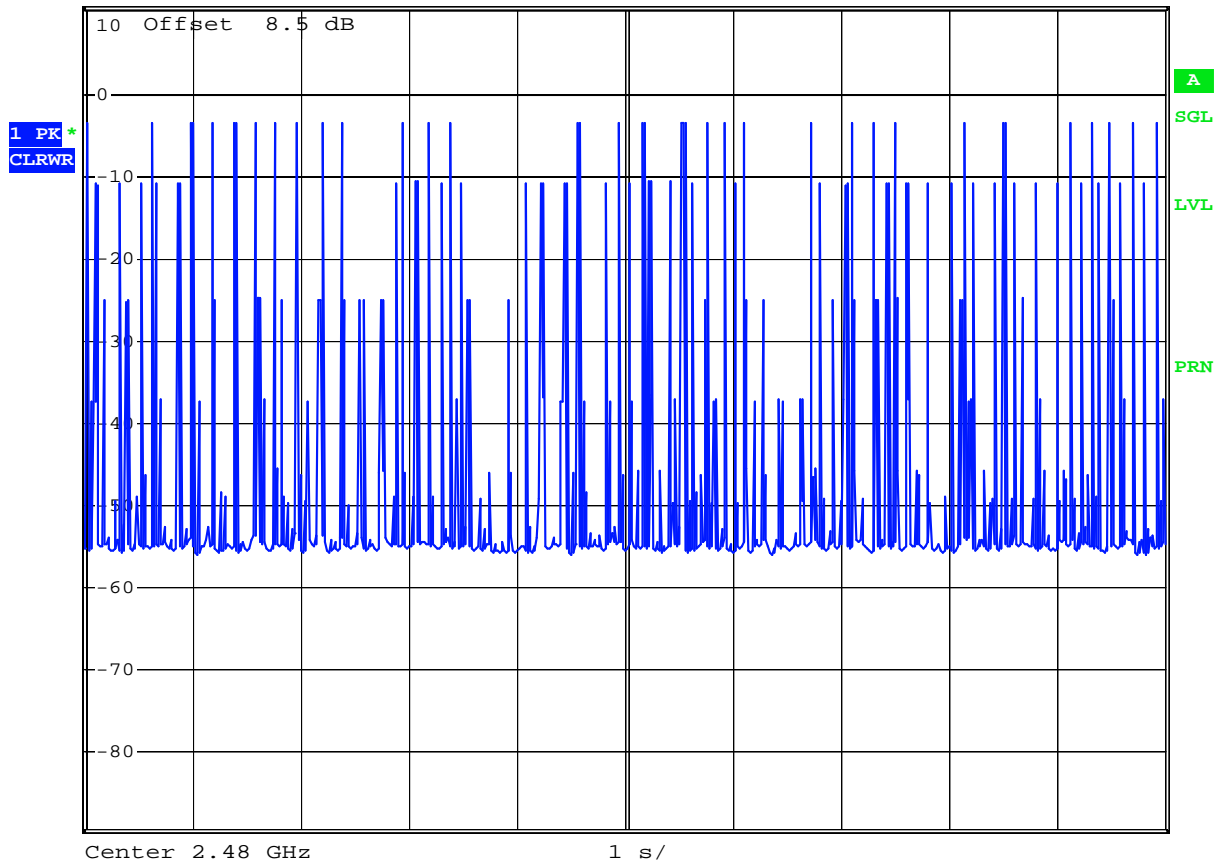
Ref 10.5 dBm      \*Att 20 dB      RBW 1 MHz      Delta 3 [T1 ]      1.40 dB  
 \*VBW 1 MHz      SWT 10 ms      3.760000 ms



Date: 2.APR.2006 00:23:34



Ref 10.5 dBm      \* Att 20 dB      RBW 1 MHz  
\* VBW 1 MHz      SWT 10 s



Date: 2.APR.2006 00:42:41

## 5.6 Output Power

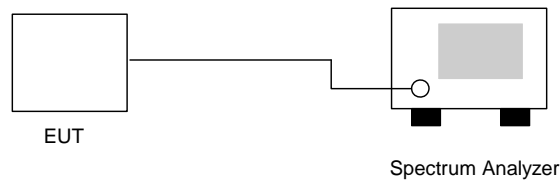
### 5.6.1 Measuring Instruments :

As described in chapter 6 of this test report.

### 5.6.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer directly.
2. The center frequency of the spectrum analyzer was set to the fundamental frequency and set RBW to 3MHz and VBW to 3MHz.

### 5.6.3 Test Setup Layout :



### 5.6.4 Test Result : See spectrum analyzer plots below

- Temperature: 25°C
- Relative Humidity: 52%
- Test Engineer : Anderson

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm )	Plot Ref. No.
00	2402	-2.58	1W/30 dBm	Mode 1
39	2441	-3.85	1W/30 dBm	Mode 2
78	2480	-3.46	1W/30 dBm	Mode 3



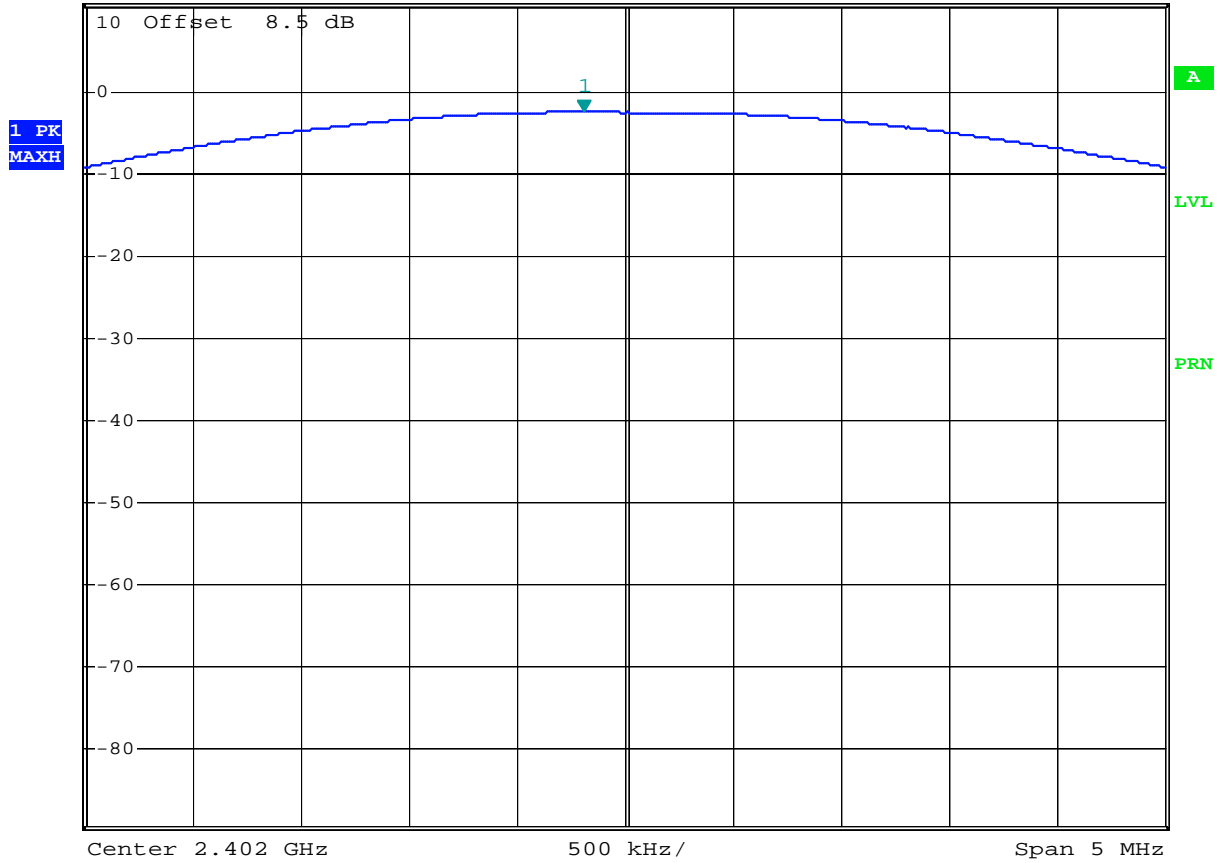


5.6.5 Output Power

Mode 1: CH00 (2402MHz)



\*RBW 3 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -2.58 dBm  
 \*SWT 500 ms      2.401810000 GHz  
 Ref 10.5 dBm      \*Att 20 dB



Date: 2.APR.2006 00:00:29



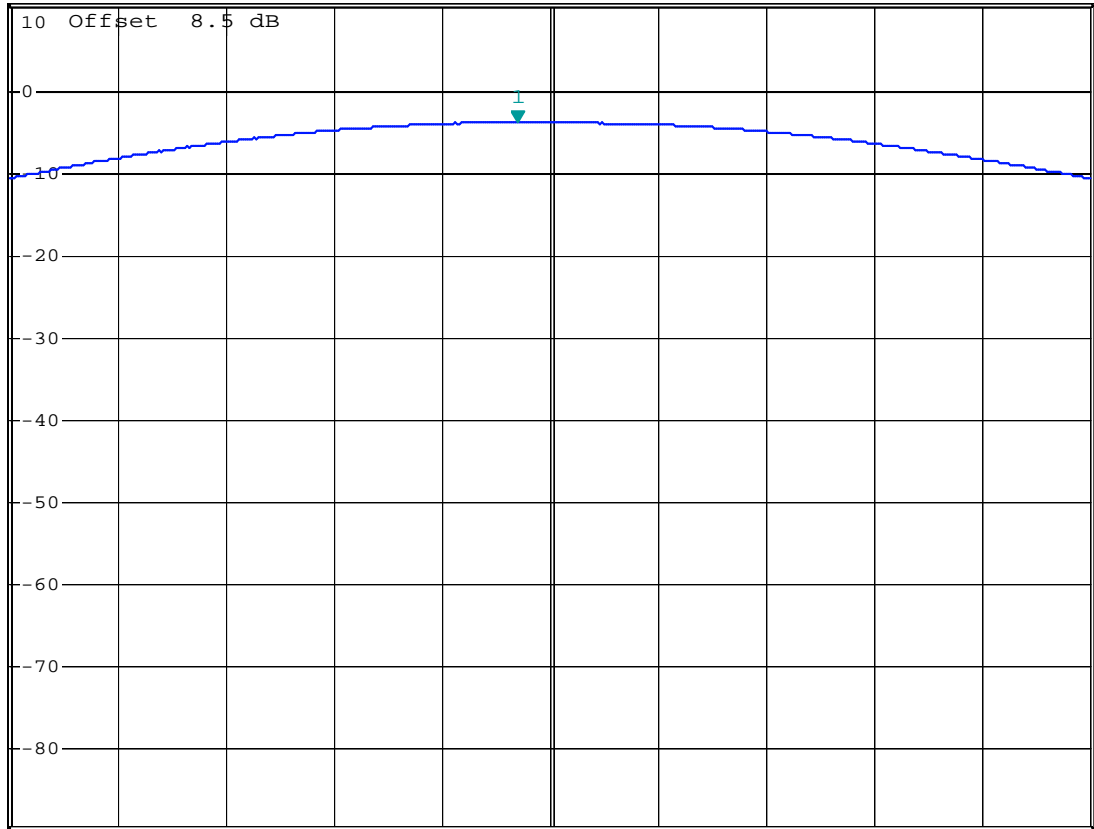
Mode 2: CH39 (2441MHz)



\*RBW 3 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -3.85 dBm  
\*SWT 500 ms      2.440850000 GHz

Ref 10.5 dBm      \*Att 20 dB

1 PK  
MAXH



Center 2.441 GHz      500 kHz/      Span 5 MHz

Date: 2.APR.2006 00:01:22



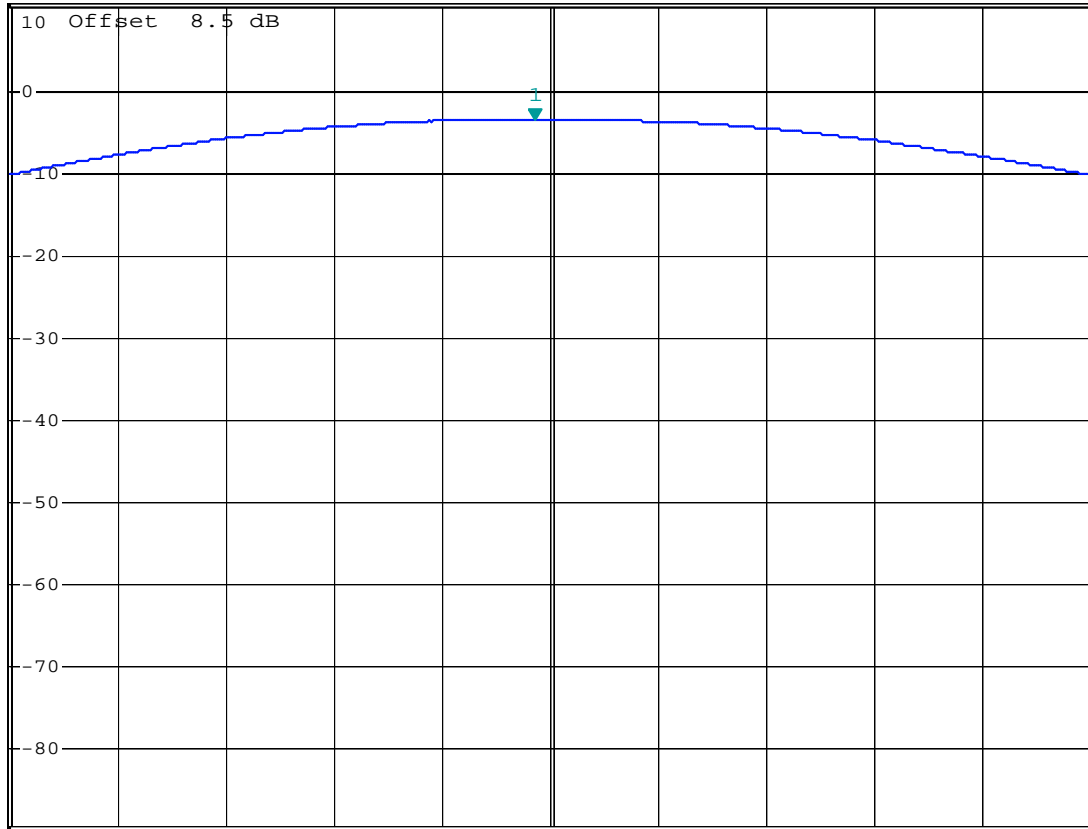
Mode 3: CH78 (2480MHz)



\*RBW 3 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -3.46 dBm  
\*SWT 500 ms      2.479930000 GHz

Ref 10.5 dBm      \*Att 20 dB

1 PK  
MAXH



Center 2.48 GHz      500 kHz/      Span 5 MHz

Date: 2.APR.2006 00:01:55



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: 25°C
Relative Humidity: 52%
Test Engineer : Anderson

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)

Table with 11 columns: Frequency, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Preamp Factor, Cable Loss, Ant Pos, Table Pos, Detect Mode. Rows for 2374.00 MHz showing Peak and Average modes.

CH00 (Vertical)

Table with 11 columns: Frequency, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Preamp Factor, Cable Loss, Ant Pos, Table Pos, Detect Mode. Rows for 2334.00 MHz showing Peak and Average modes.



CH78 (Horizontal)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Preamp Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Detect Mode
2484.00	57.14	-16.86	74.00	57.88	30.41	35.51	4.36	100	360	Peak
2484.00	43.85	-10.15	54.00	44.59	30.41	35.51	4.36	154	48	Average

CH78 (Vertical)

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Preamp Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Detect Mode
2484.00	70.65	-3.35	74.00	71.39	30.41	35.51	4.36	111	0	Peak
2484.00	41.09	-12.91	54.00	41.83	30.41	35.51	4.36	168	103	Average



5.7.5 Frequency Band Edge

Mode 1: CH00 (2402 MHz)

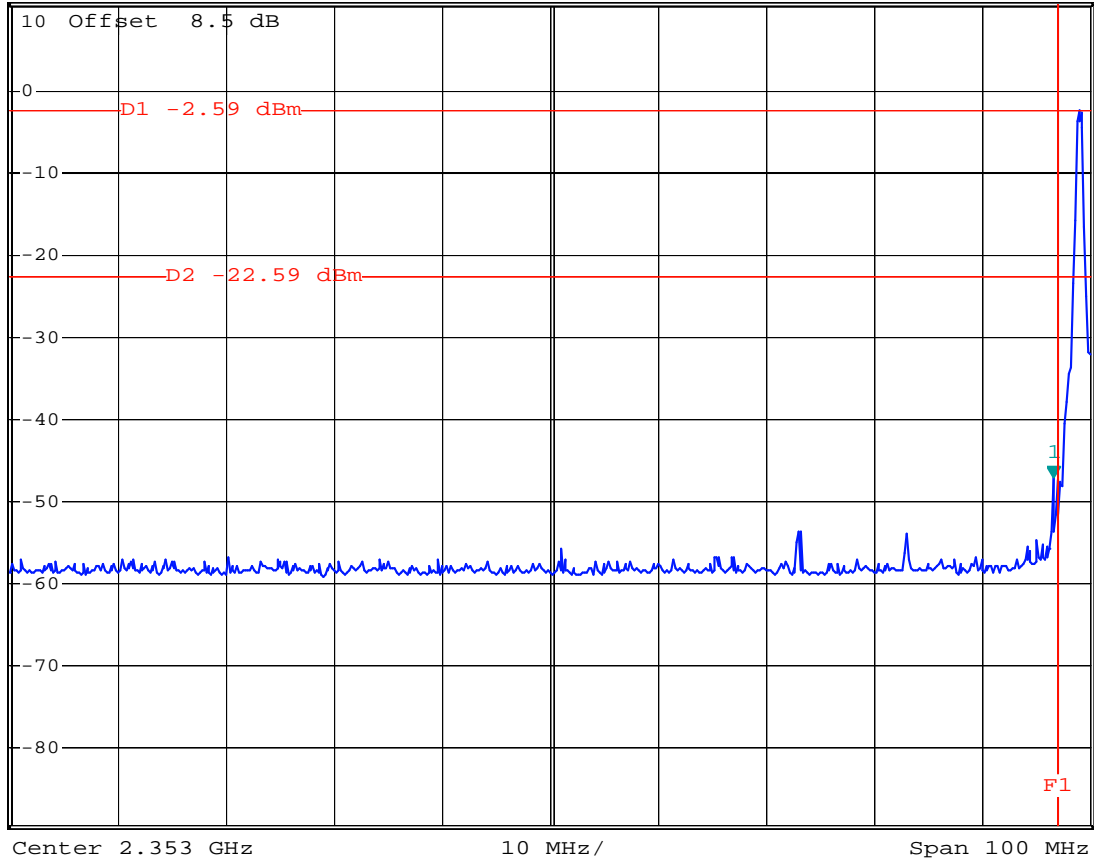


\*RBW 100 kHz Marker 1 [T1 ]  
\*VBW 100 kHz -47.11 dBm  
\*SWT 500 ms 2.399600000 GHz

Ref 10.5 dBm

\*Att 20 dB

1 PK  
MAXH



Date: 1.APR.2006 23:57:33



Mode 3: CH78 (2480 MHz)

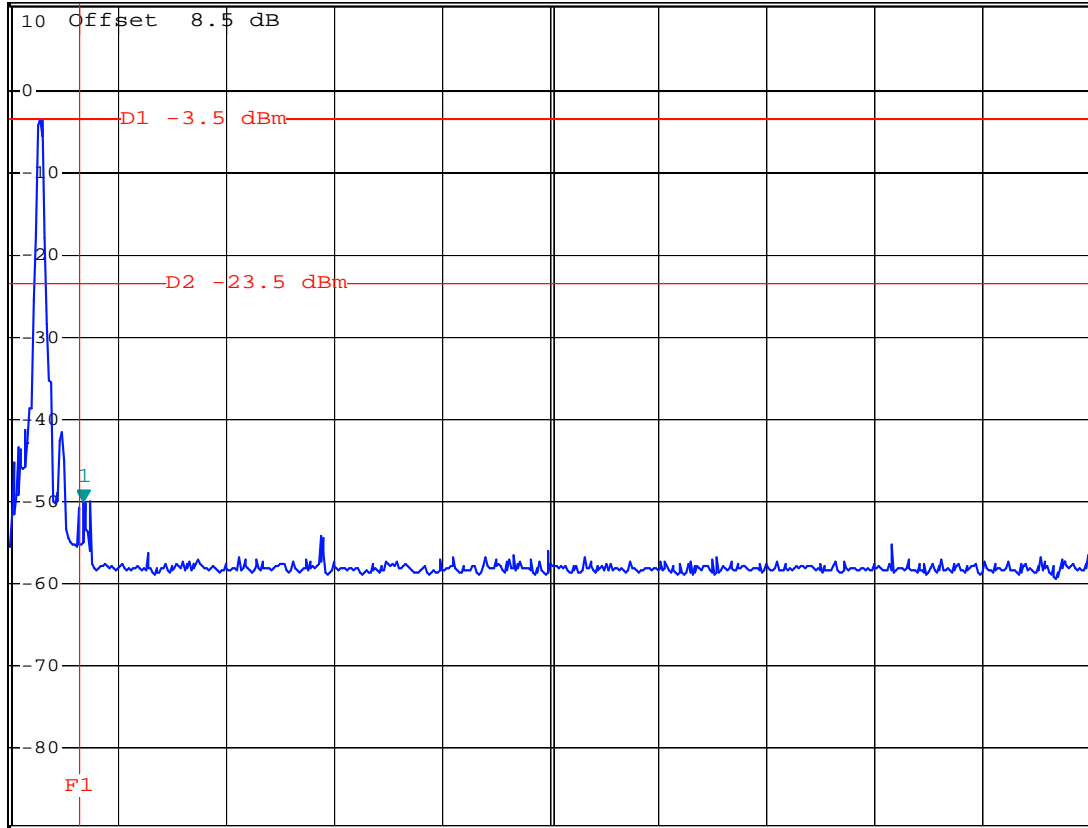


\*RBW 100 kHz Marker 1 [T1 ]  
\*VBW 100 kHz -50.00 dBm  
\*SWT 500 ms 2.48380000 GHz

Ref 10.5 dBm

\*Att 20 dB

1 PK  
MAXH



Date: 1.APR.2006 23:59:31



## **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.

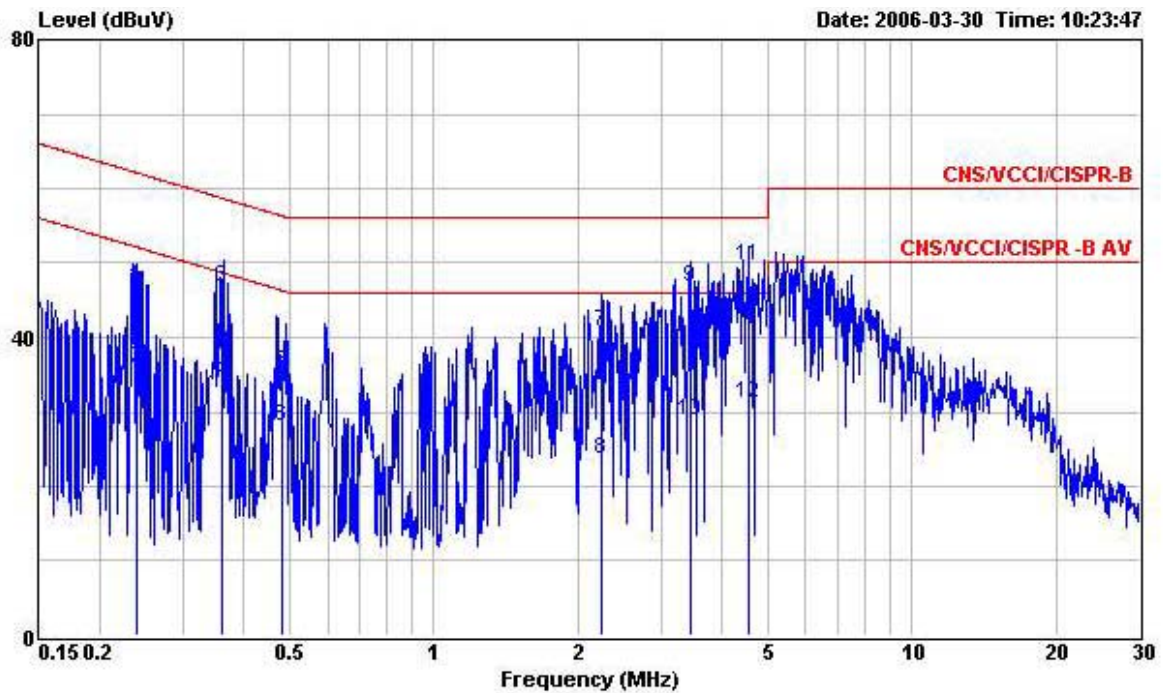




5.8.3 Test Data

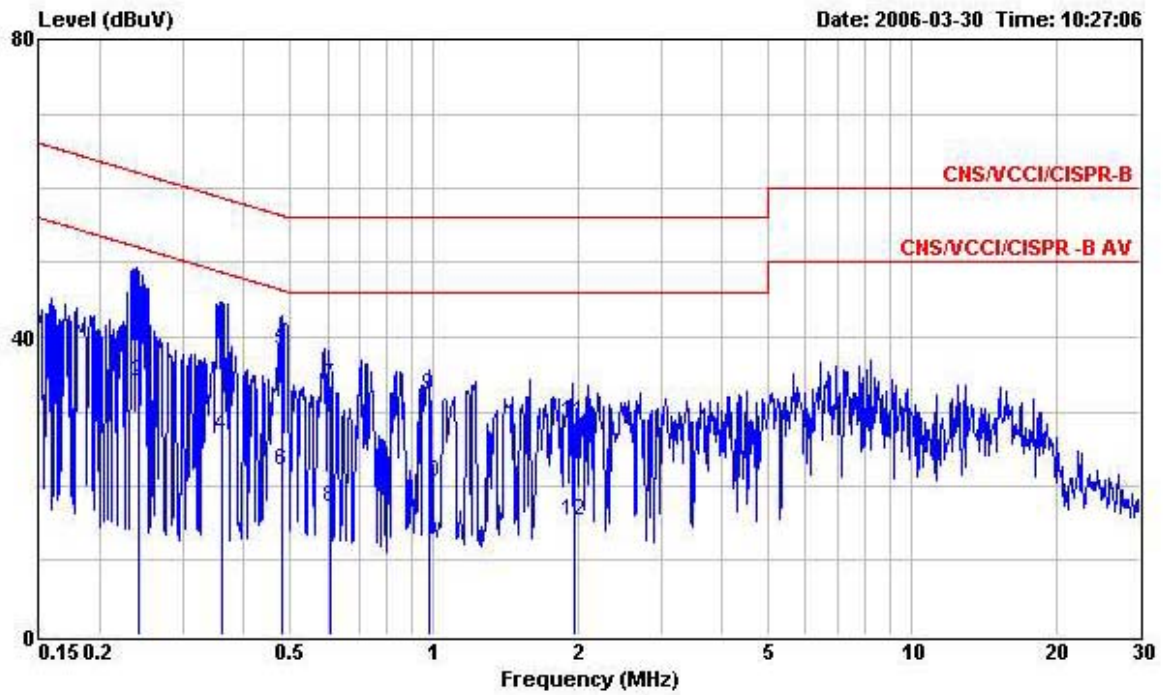
- Test Mode: Mode 1
- Temperature: 24°C
- Relative Humidity: 52%
- Test Engineer: Anderson

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



Site : CO01-HY  
 Condition : CNS/WCCI/CISPR-B 2001/004 200505 LINE  
 EUT : GSM/GPRS Mobile Phone with Bluetooth  
 Power : 120W/60Hz  
 Model : FD632806  
 Memo : PCS1900 IDLE + BT LINK + Camera  
 Memo :  
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.240	46.69	-15.40	62.09	46.53	0.06	0.10	QP
2	0.240	35.87	-16.22	52.09	35.71	0.06	0.10	Average
3	0.360	46.73	-11.99	58.72	46.60	0.06	0.07	QP
4	0.360	34.15	-14.57	48.72	34.02	0.06	0.07	Average
5	0.483	35.21	-21.09	56.30	35.07	0.07	0.07	QP
6	0.483	27.96	-18.34	46.30	27.82	0.07	0.07	Average
7	2.243	40.88	-15.12	56.00	40.60	0.13	0.15	QP
8	2.243	23.60	-22.40	46.00	23.32	0.13	0.15	Average
9	3.435	46.64	-9.36	56.00	46.28	0.19	0.17	QP
10	3.435	28.84	-17.16	46.00	28.48	0.19	0.17	Average
<b>11</b>	<b>4.550</b>	<b>49.62</b>	<b>-6.38</b>	<b>56.00</b>	<b>49.22</b>	<b>0.21</b>	<b>0.19</b>	<b>QP</b>
12	4.550	31.17	-14.83	46.00	30.77	0.21	0.19	Average



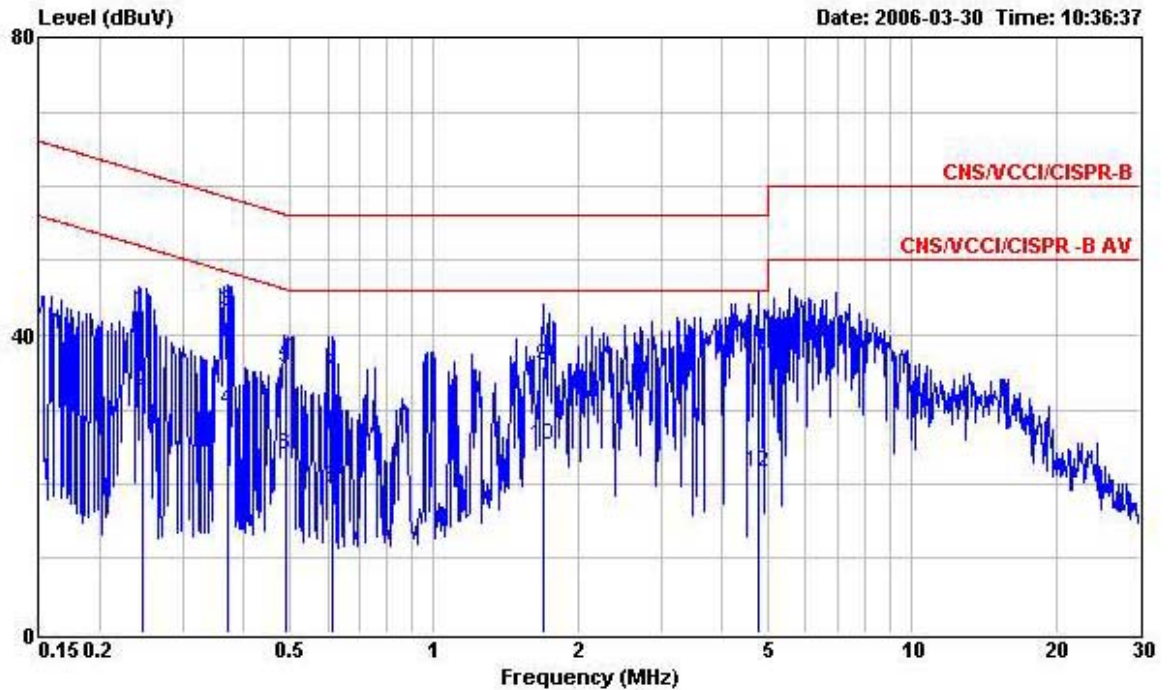
Site : CO01-HY  
 Condition : CNS/VCCI/CISPR-B 2001/004 200505 NEUTRAL  
 EUT : GSM/GPRS Mobile Phone with Bluetooth  
 Power : 120V/60Hz  
 Model : FD632806  
 Memo : PCS1900 IDLE + BT LINK + Camera  
 Memo :  
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.240	45.86	-16.23	62.09	45.65	0.11	0.10	QP
2	0.240	33.95	-18.14	52.09	33.74	0.11	0.10	Average
3	0.361	40.63	-18.09	58.72	40.45	0.11	0.07	QP
4	0.361	26.73	-21.99	48.72	26.55	0.11	0.07	Average
5	0.482	38.09	-18.21	56.30	37.89	0.13	0.07	QP
6	0.482	22.06	-24.24	46.30	21.86	0.13	0.07	Average
7	0.609	33.59	-22.41	56.00	33.35	0.16	0.08	QP
8	0.609	17.26	-28.74	46.00	17.02	0.16	0.08	Average
9	0.976	32.10	-23.90	56.00	31.77	0.23	0.10	QP
10	0.976	20.40	-25.60	46.00	20.07	0.23	0.10	Average
11	1.961	28.60	-27.40	56.00	28.23	0.23	0.14	QP
12	1.961	15.22	-30.78	46.00	14.85	0.23	0.14	Average



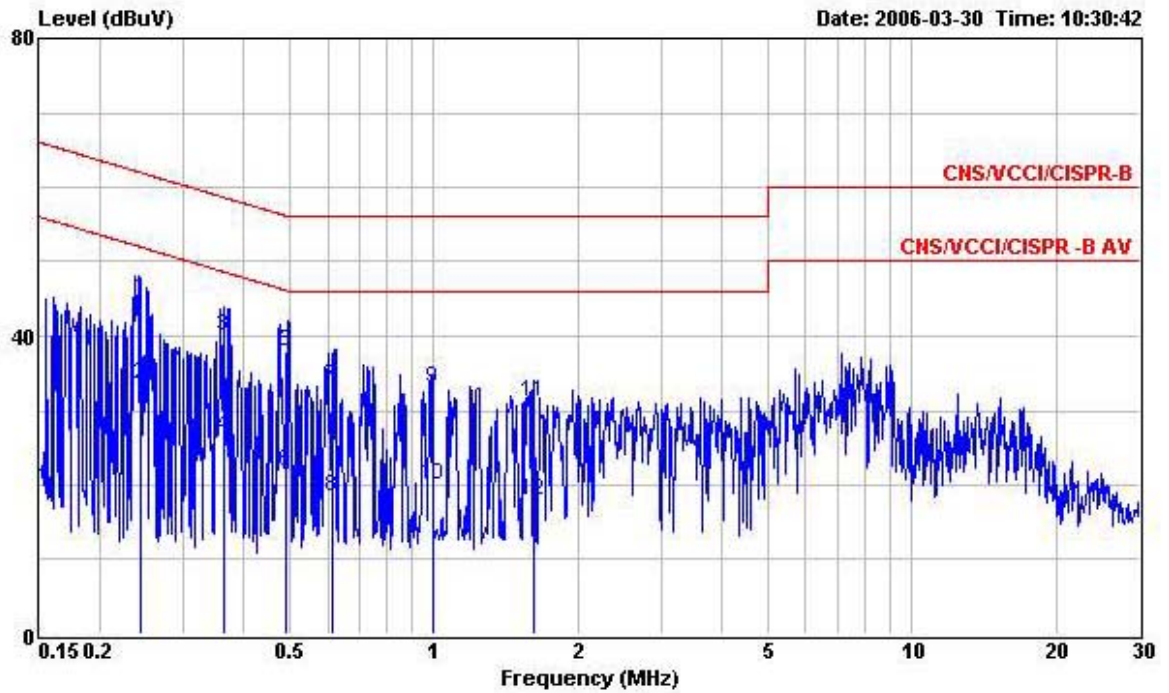
- Test Mode: Mode 2
- Temperature: 24°C
- Relative Humidity: 52%
- Test Engineer: Anderson

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 200505 LINE  
 EUT : GSM/GPRS Mobile Phone with Bluetooth  
 Power : 120V/60Hz  
 Model : FD632806  
 Memo : PCS1900 IDLE + BT LINK + mp3  
 Memo :  
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.245	43.41	-18.51	61.92	43.25	0.06	0.10	QP
2	0.245	32.59	-19.33	51.92	32.43	0.06	0.10	Average
3	0.369	43.01	-15.51	58.52	42.88	0.06	0.07	QP
4	0.369	29.97	-18.55	48.52	29.84	0.06	0.07	Average
5	0.492	35.59	-20.54	56.13	35.45	0.07	0.07	QP
6	0.492	23.84	-22.29	46.13	23.70	0.07	0.07	Average
7	0.614	34.67	-21.33	56.00	34.51	0.08	0.08	QP
8	0.614	19.49	-26.51	46.00	19.33	0.08	0.08	Average
9	1.695	35.92	-20.08	56.00	35.68	0.11	0.13	QP
10	1.695	25.08	-20.92	46.00	24.84	0.11	0.13	Average
11	4.771	38.02	-17.98	56.00	37.61	0.21	0.20	QP
12	4.771	21.52	-24.48	46.00	21.11	0.21	0.20	Average



Site : CO01-HY  
 Condition : CNS/VCCI/CISPR-B 2001/004 200505 NEUTRAL  
 EUT : GSM/GPRS Mobile Phone with Bluetooth  
 Power : 120V/60Hz  
 Model : FD632806  
 Memo : PCS1900 IDLE + BT LINK + mp3  
 Memo :  
 Memo :

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.243	44.98	-17.03	62.01	44.77	0.11	0.10	QP
2	0.243	33.47	-18.54	52.01	33.26	0.11	0.10	Average
3	0.364	39.97	-18.66	58.63	39.79	0.11	0.07	QP
4	0.364	26.50	-22.13	48.63	26.32	0.11	0.07	Average
5	0.490	37.85	-18.31	56.16	37.64	0.14	0.07	QP
6	0.490	21.78	-24.38	46.16	21.57	0.14	0.07	Average
7	0.616	33.22	-22.78	56.00	32.97	0.17	0.08	QP
8	0.616	18.40	-27.60	46.00	18.15	0.17	0.08	Average
9	0.993	33.11	-22.89	56.00	32.78	0.23	0.10	QP
10	0.993	19.89	-26.11	46.00	19.56	0.23	0.10	Average
11	1.612	31.06	-24.94	56.00	30.70	0.23	0.13	QP
12	1.612	17.94	-28.06	46.00	17.58	0.23	0.13	Average

## 5.9 Radiated Emission Measurement

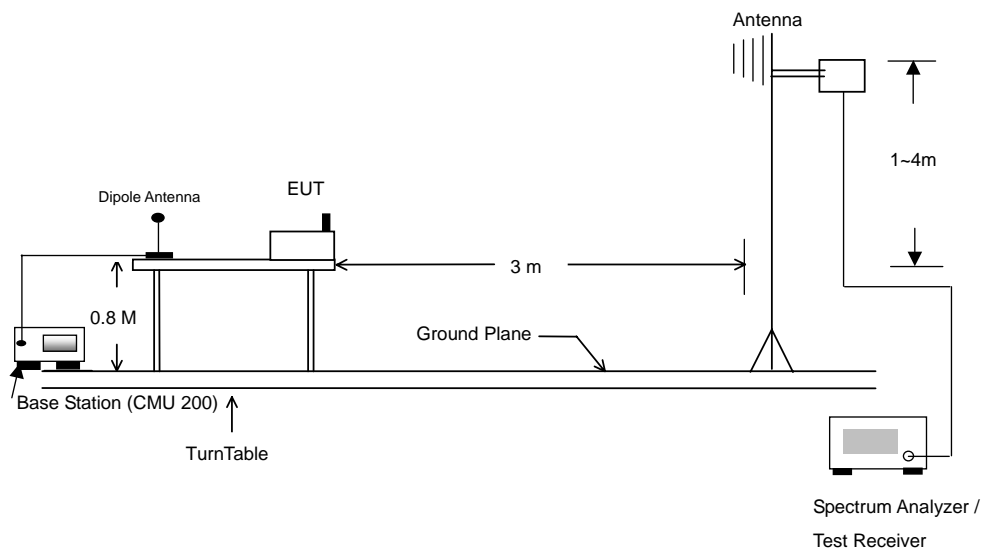
### 5.9.1 Measuring Instruments

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

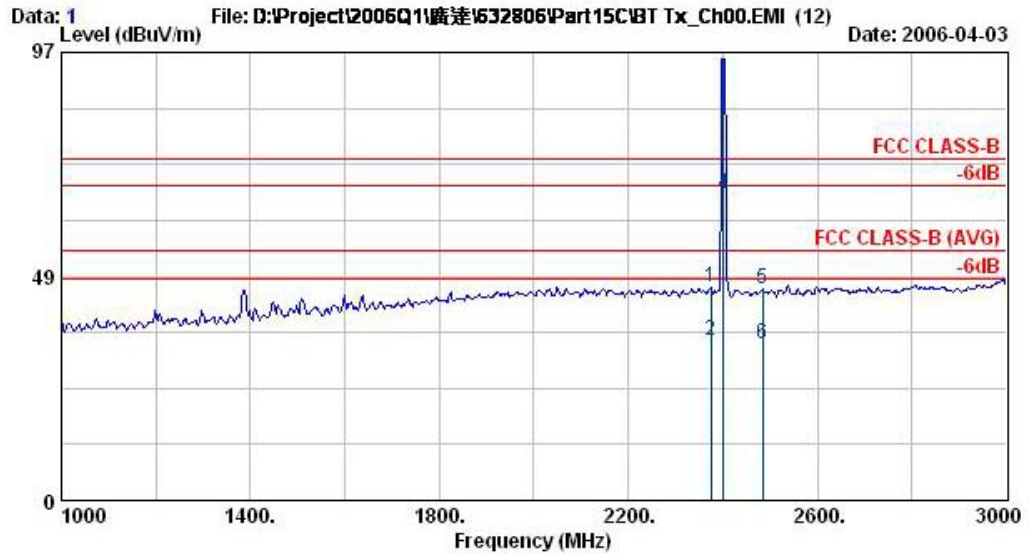




5.9.4 Test Data

- Temperature : 25 °C
- Relating Humidity : 52 %
- Test Engineer : Sam
- Test Mode : Mode 1
- Polarization : Horizontal

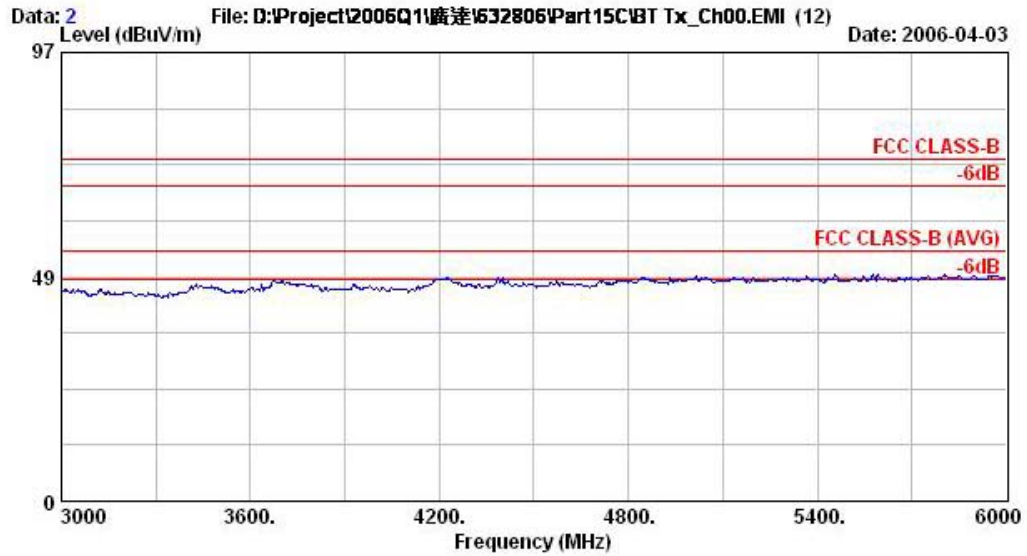
The test that passed at the minimum margin was marked by the frame in the following test record



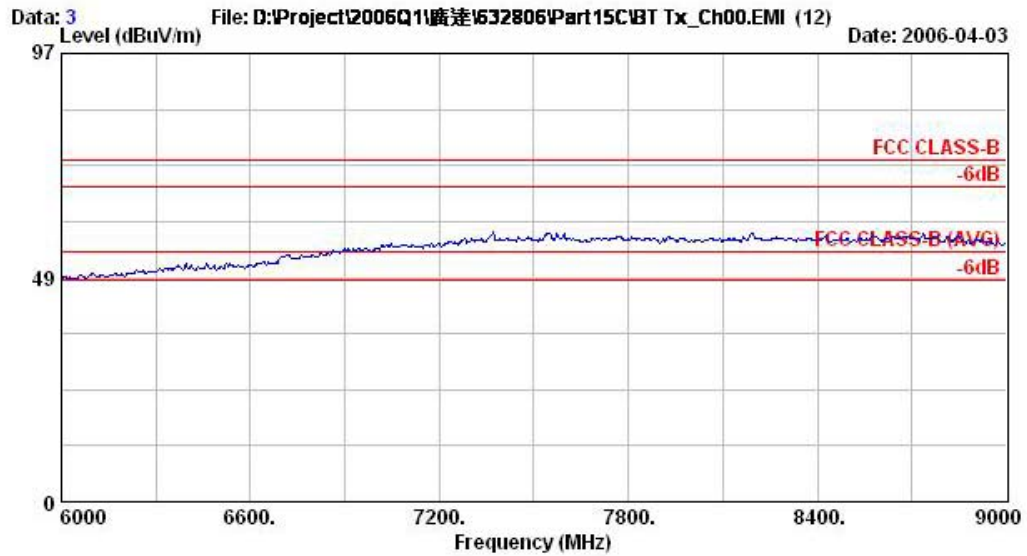
Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR.632806  
 Memo : Bluetooth Tx\_Ch00,2402MHz  
 Plane : E2

	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2374.00	46.07	-27.93	74.00	46.79	30.50	35.44	4.23	100	1	Peak
2 @	2374.00	34.76	-19.24	54.00	35.47	30.50	35.44	4.23	100	32	Average
3 @	2402.00	95.68			96.39	30.48	35.46	4.26	100	1	Peak
4 @	2402.00	66.42			67.13	30.48	35.46	4.26	100	32	Average
5 @	2484.00	45.93	-28.07	74.00	46.67	30.41	35.51	4.36	100	1	Peak
6 @	2484.00	34.00	-20.00	54.00	34.74	30.41	35.51	4.36	100	32	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 HORIZONTAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch00;2402MHz  
Plane : E2

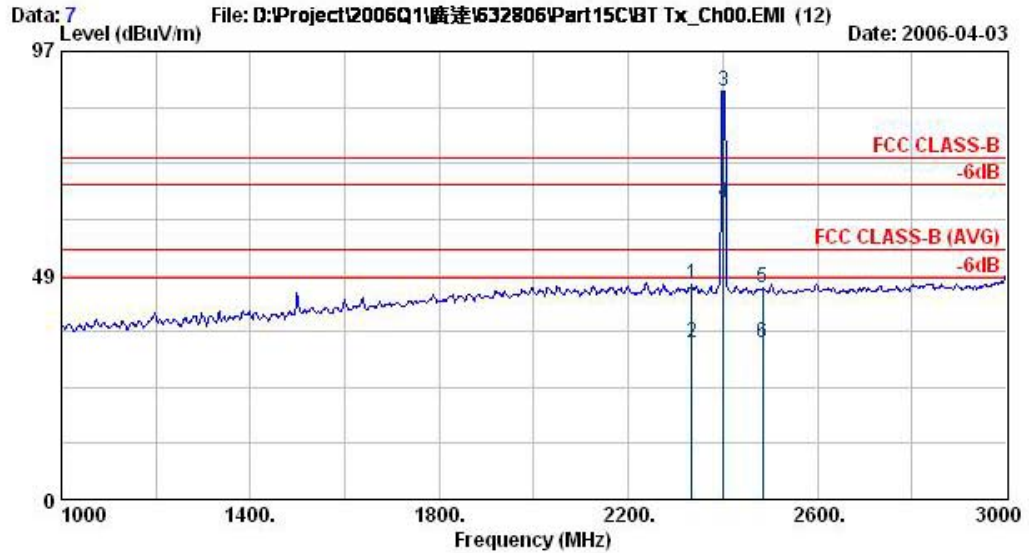


Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 HORIZONTAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch00;2402MHz  
Plane : E2



- Test Mode : Mode 1
- Polarization : Vertical

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

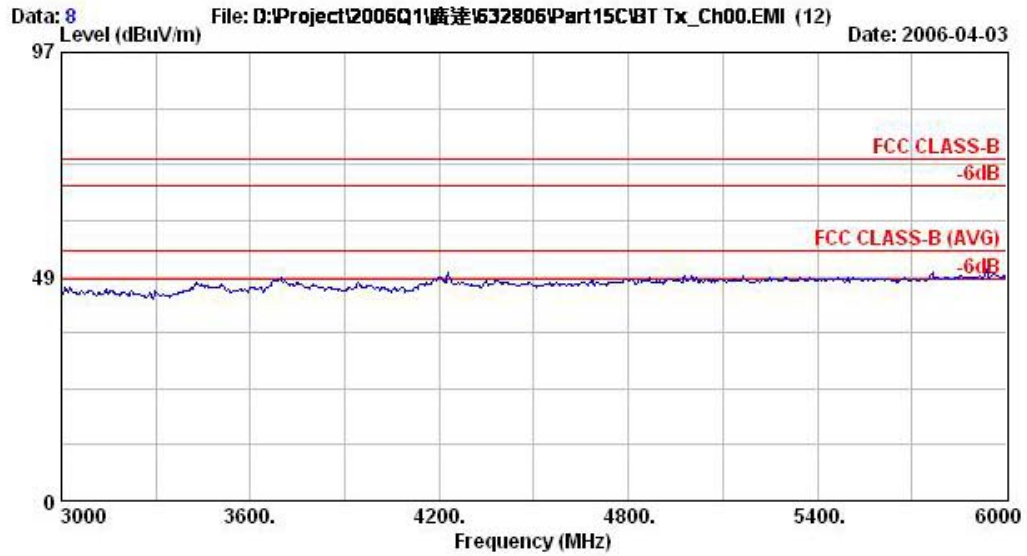


Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 VERTICAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch00,2402MHz  
 Plane : E2

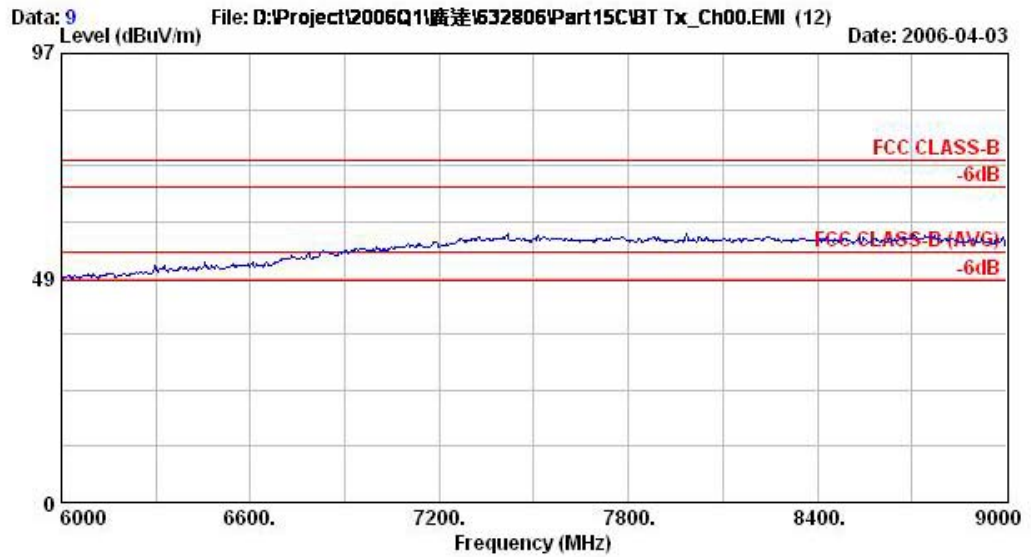
	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	2334.00	46.46	-27.54	74.00	47.16	30.54	35.40	100	359	Peak
2 @	2334.00	34.07	-19.93	54.00	34.77	30.54	35.40	111	346	Average
3 @	2402.00	88.26			88.97	30.48	35.46	100	359	Peak
4 @	2402.00	64.25			64.96	30.48	35.46	111	346	Average
5 @	2484.00	45.63	-28.37	74.00	46.37	30.41	35.51	100	359	Peak
6 @	2484.00	33.96	-20.04	54.00	34.70	30.41	35.51	111	346	Average

Remark: #3 and #4 Fundamental Signal





Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 VERTICAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch00;2402MHz  
Plane : E2

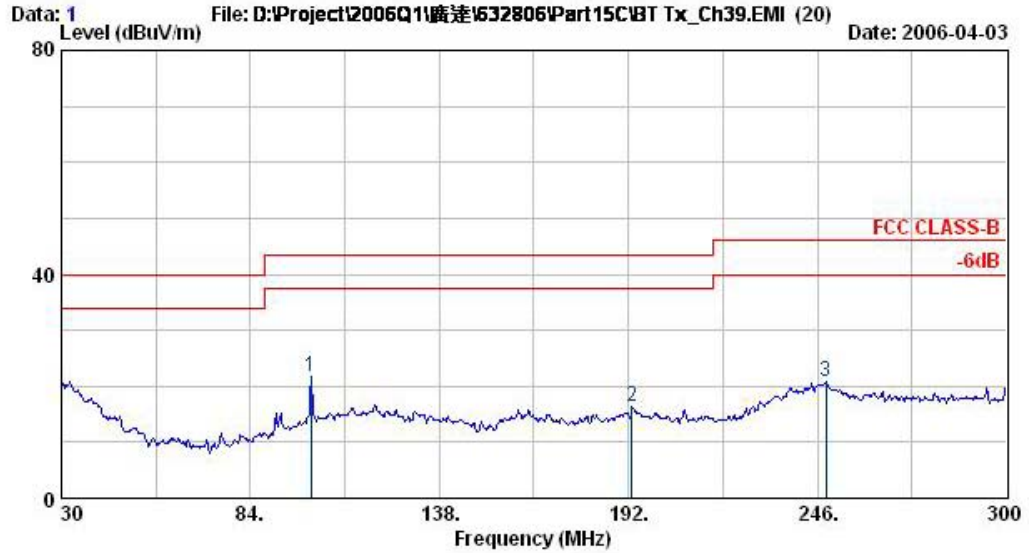


Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 VERTICAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch00;2402MHz  
Plane : E2



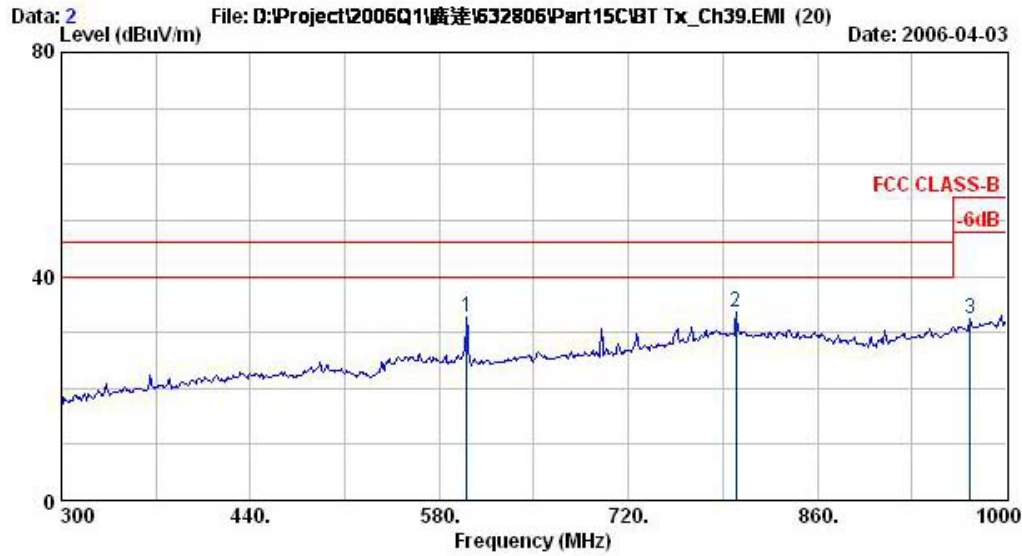
- Test Mode : Mode 2
- Polarization : Horizontal

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



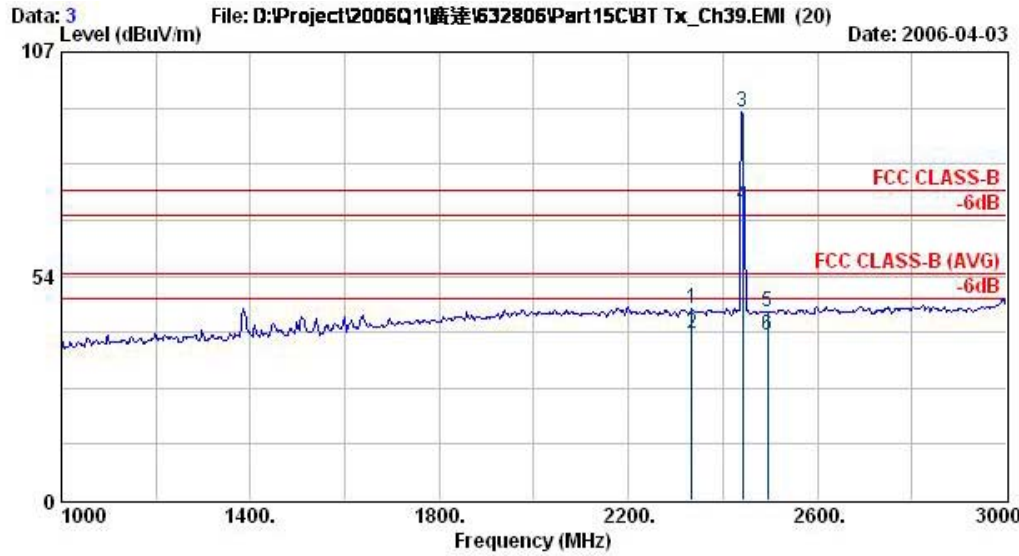
Site : 03CH06-HY  
 Condition : BI-LOG-2004-1122 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	101.28	21.78	-21.72	43.50	40.03	10.57	31.29	2.46	400	0 Peak
2 @	193.08	16.28	-27.22	43.50	34.38	9.64	31.19	3.45	400	0 Peak
3 @	248.43	20.78	-25.22	46.00	36.25	11.59	30.98	3.92	400	0 Peak



Site : 03CH06-HY  
 Condition : BI-LOG-2004-1122 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

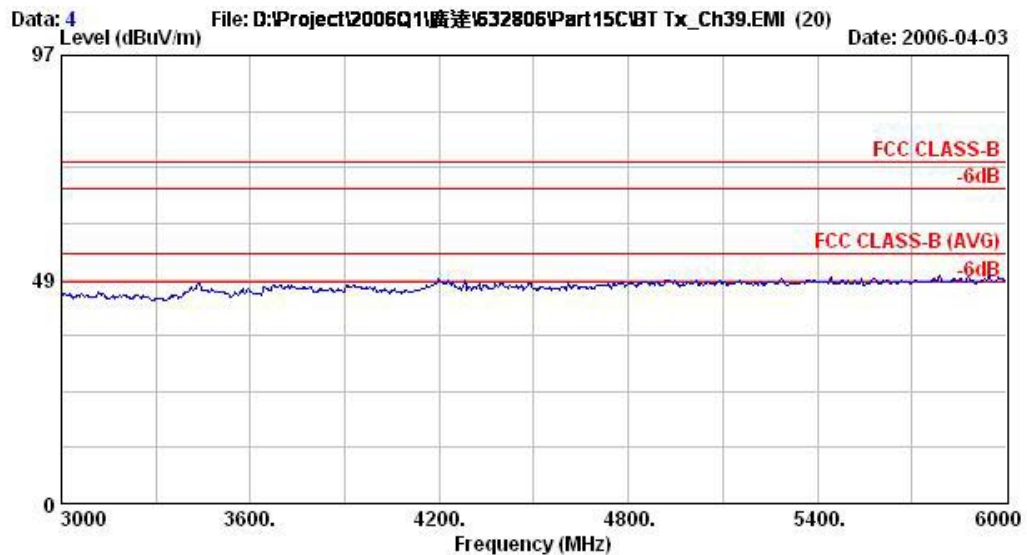
	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	600.30	32.64	-13.36	46.00	38.99	17.94	30.64	6.35	100	0 Peak
2 @	799.80	33.58	-12.42	46.00	34.35	21.90	30.12	7.45	100	243 Peak
3 @	973.40	32.29	-21.71	54.00	32.13	22.18	30.34	8.33	100	0 Peak



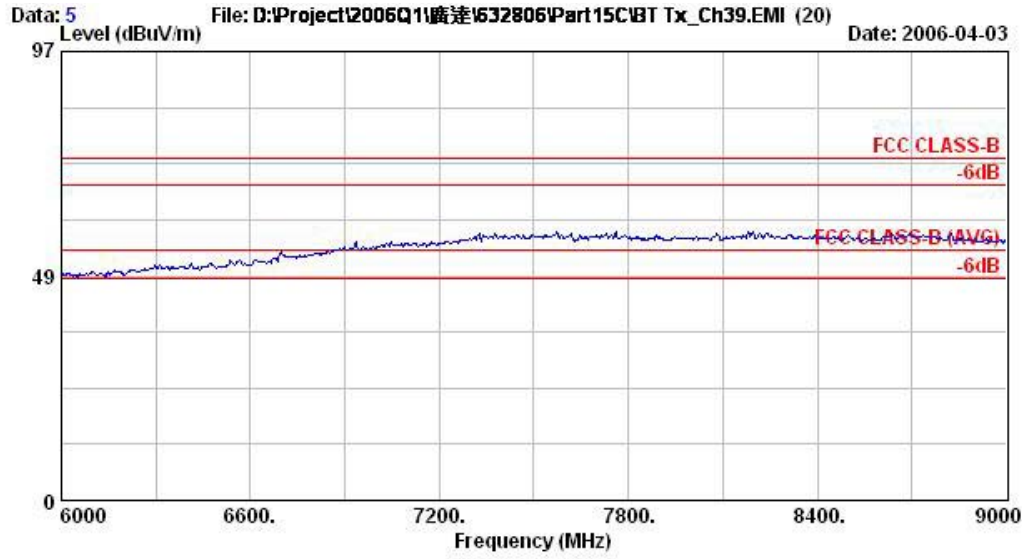
Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2334.00	45.63	-28.37	74.00	46.33	30.54	35.40	4.17	100	0	Peak
2 @	2334.00	39.76	-14.24	54.00	40.46	30.54	35.40	4.17	154	51	Average
3 @	2441.00	92.87			93.61	30.44	35.47	4.29	100	0	Peak
4 @	2441.00	70.30			71.03	30.44	35.49	4.33	154	51	Average
5 @	2494.00	45.03	-28.97	74.00	45.76	30.40	35.53	4.39	100	0	Peak
6 @	2494.00	39.47	-14.53	54.00	40.21	30.40	35.53	4.39	154	51	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

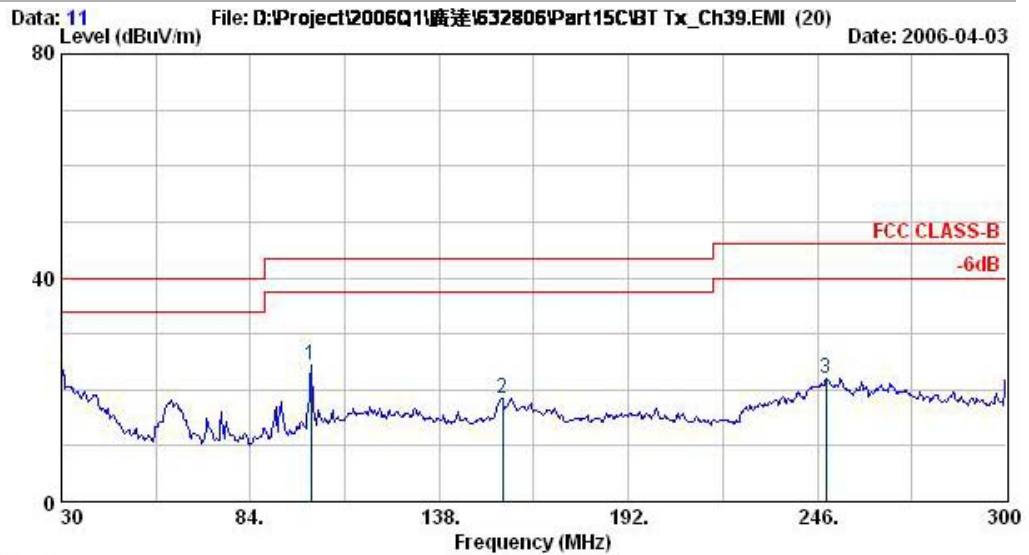


Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 HORIZONTAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch39,2441MHz  
Plane : E2



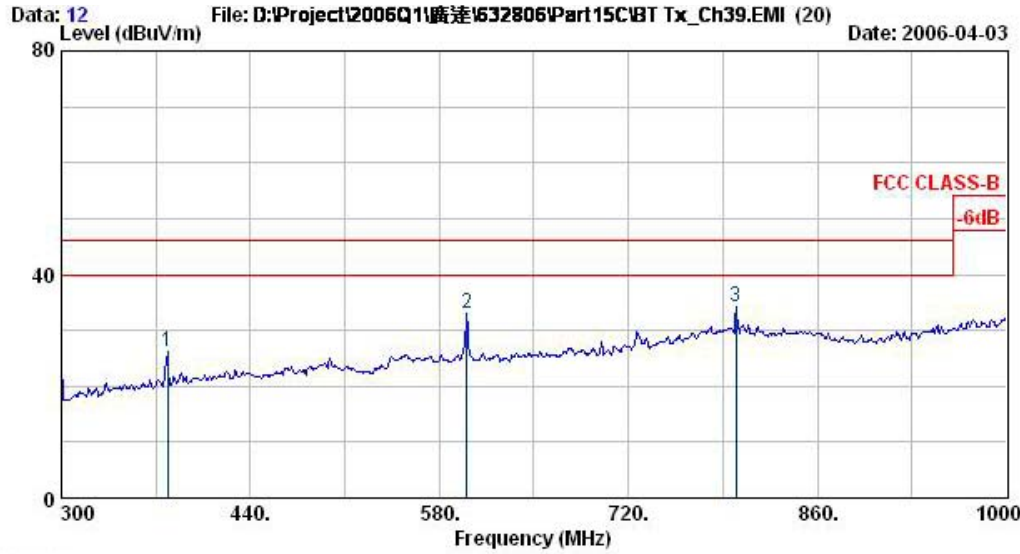
- Test Mode : Mode 2
- Polarization : Vertical

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 : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	101.28	24.41	-19.09	43.50	42.66	10.57	31.29	2.46	400	0	Peak
2 @	156.09	18.58	-24.92	43.50	37.30	9.78	31.58	3.07	400	0	Peak
3 @	248.43	21.91	-24.09	46.00	37.38	11.59	30.98	3.92	400	0	Peak

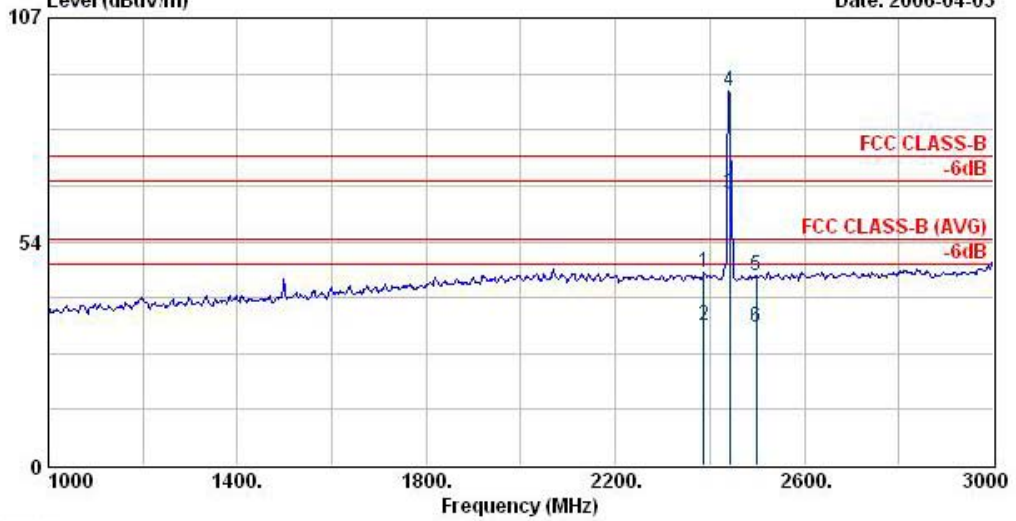


Site : 03CH06-HY  
 Condition : BI-LOG-2004-1122 VERTICAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch39,2441MHz  
 Plane : E2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	378.40	26.09	-19.91	46.00	36.86	15.24	30.90	4.88	100	0	Peak
2 @	600.30	33.02	-12.98	46.00	39.36	17.94	30.64	6.35	100	0	Peak
3 @	799.80	34.21	-11.79	46.00	34.98	21.90	30.12	7.45	100	152	Peak



Data: 13 File: D:\Project\2006Q1\廣達\632806\Part15C\BT Tx\_Ch39.EMI (20) Date: 2006-04-03

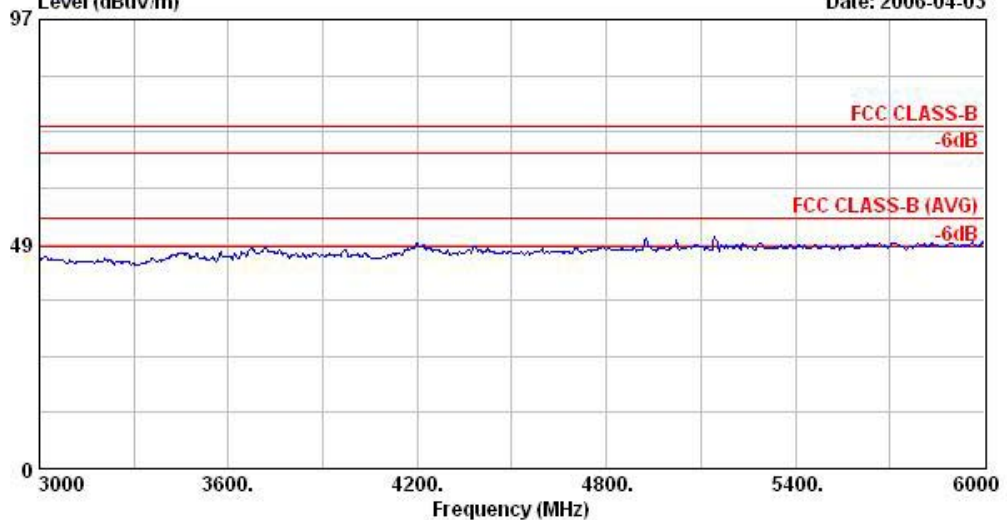


Site : 03CH06-HY
Condition : HF-ANT-071025-940201 VERTICAL
EUT : (GSM/GPRS)Mobile Phone with Bluetooth
Power : 120Vac/60Hz
Model : FR 632806
Memo : Bluetooth Tx\_Ch39,2441MHz
Plane : E2

Table with 12 columns: Freq, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Preamp Factor, Cable Loss, Ant Pos, Table Pos, Remark. It lists 6 measurement points with their respective frequencies and levels.

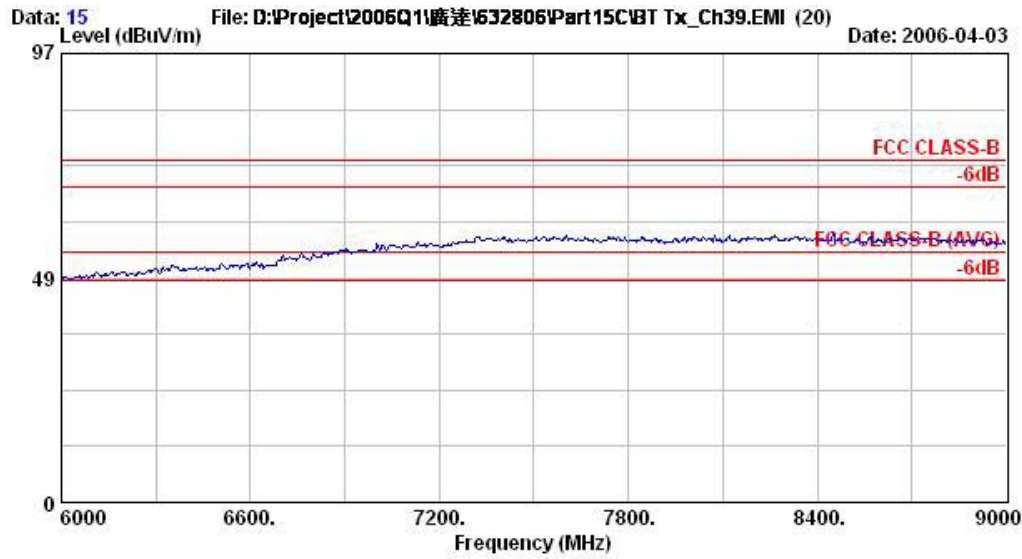
Remark: #3 and #4 Fundamental Signal

Data: 14 File: D:\Project\2006Q1\廣達\632806\Part15C\BT Tx\_Ch39.EMI (20) Date: 2006-04-03



Site : 03CH06-HY
Condition : HF-ANT-071025-940201 VERTICAL
EUT : (GSM/GPRS)Mobile Phone with Bluetooth
Power : 120Vac/60Hz
Model : FR 632806
Memo : Bluetooth Tx\_Ch39,2441MHz
Plane : E2



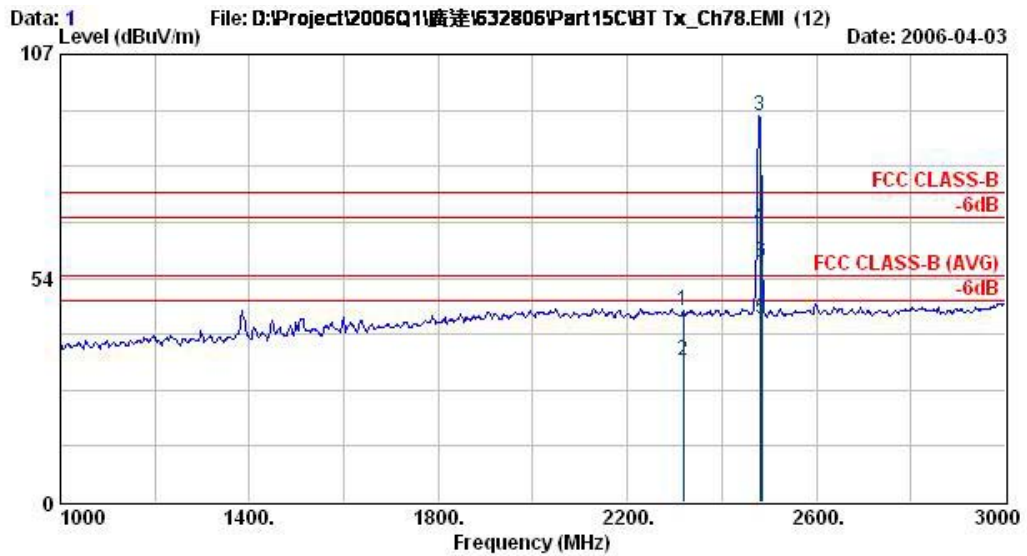


Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 VERTICAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch39,2441MHz  
Plane : E2



- Test Mode : Mode 3
- Polarization : Horizontal

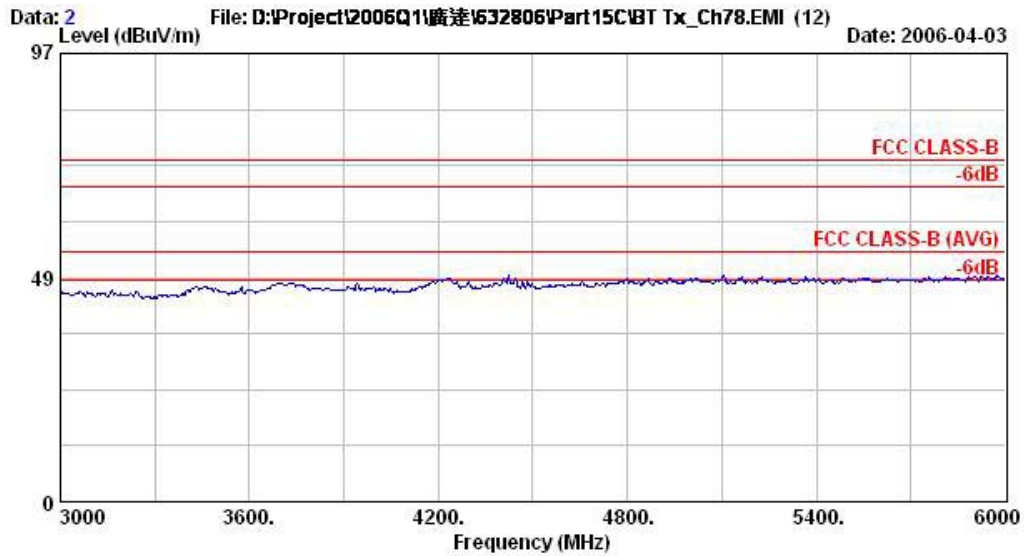
The test that passed at minimum margin was marked by the frame in the following table.



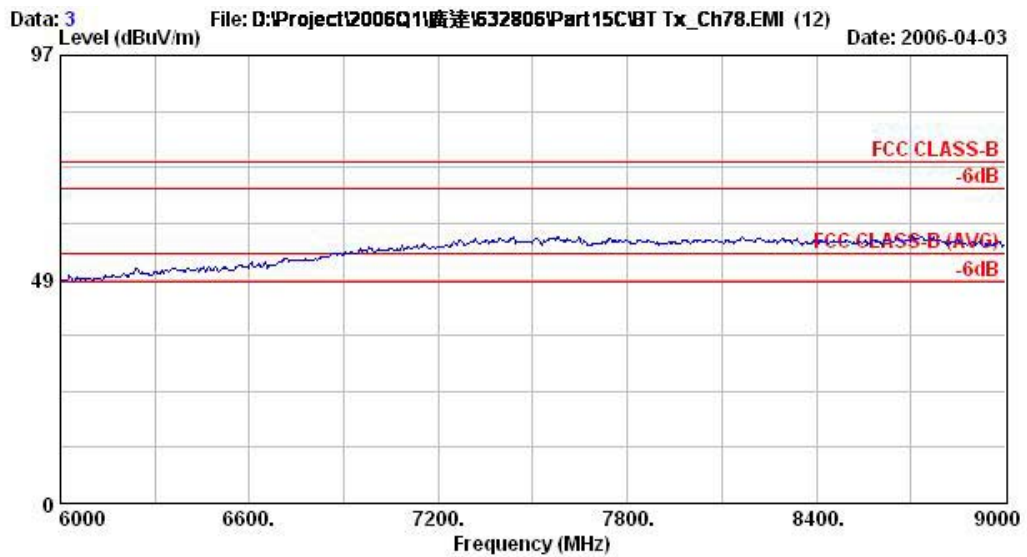
Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 HORIZONTAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR.632806  
 Memo : Bluetooth Tx\_Ch78,2480MHz  
 Plane : E2

	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1 @	2318.00	45.87	-28.13	74.00	46.57	30.54	35.40	4.17	100	360 Peak
2 @	2318.00	33.71	-20.29	54.00	34.41	30.54	35.40	4.17	154	48 Average
3 @	2480.00	92.47			93.21	30.41	35.51	4.36	100	360 Peak
4 @	2480.00	65.80			66.54	30.41	35.51	4.36	154	48 Average
5 @	2484.00	43.85	-10.15	54.00	44.59	30.41	35.51	4.36	154	48 Average
6 @	2484.00	57.14	-16.86	74.00	57.88	30.41	35.51	4.36	100	360 Peak

Remark: #4 and #5 Fundamental Signal.



Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 HORIZONTAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch78,2480MHz  
Plane : E2

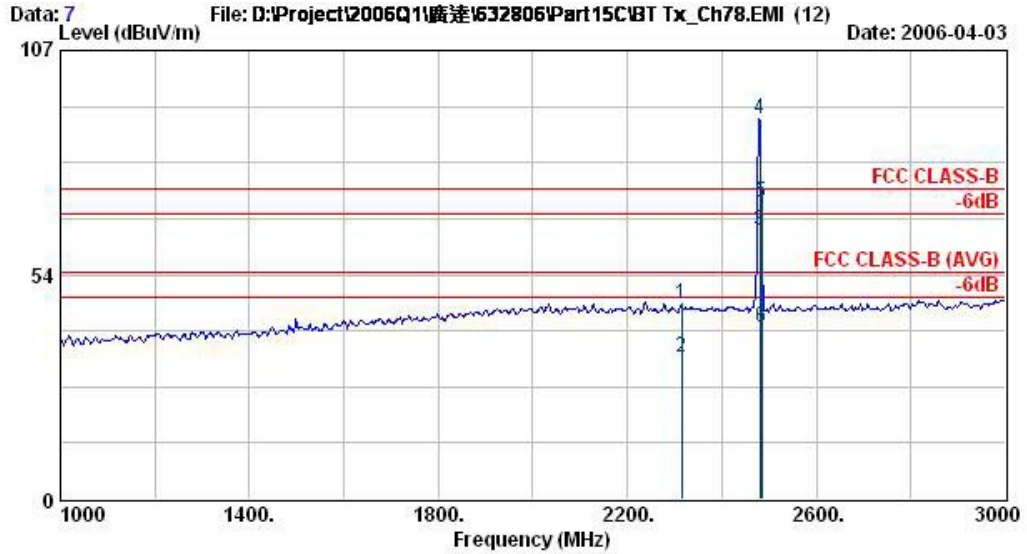


Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 HORIZONTAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch78,2480MHz  
Plane : E2



- Test Mode : Mode 3
- Polarization : Vertical

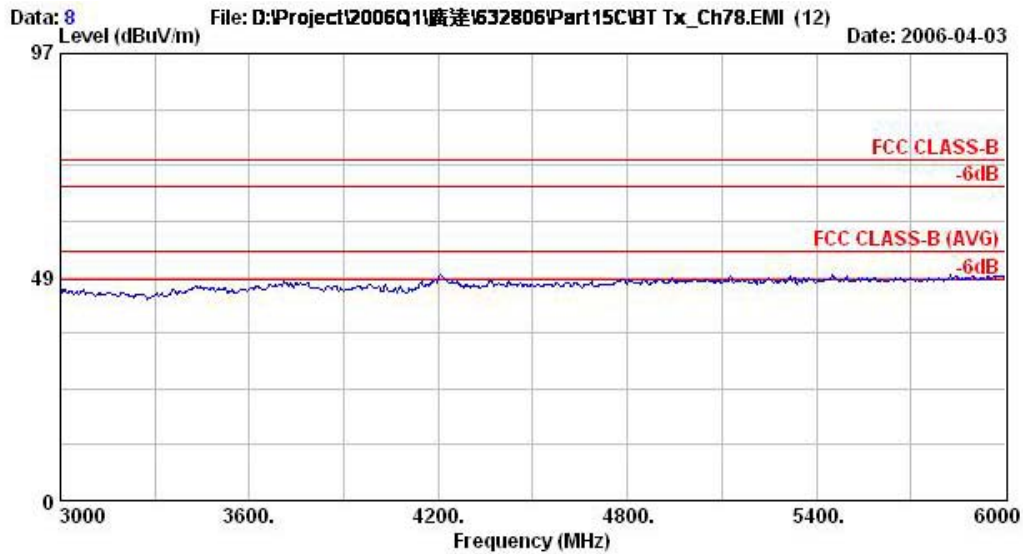
The test that passed at minimum margin was marked by the frame in the following table.



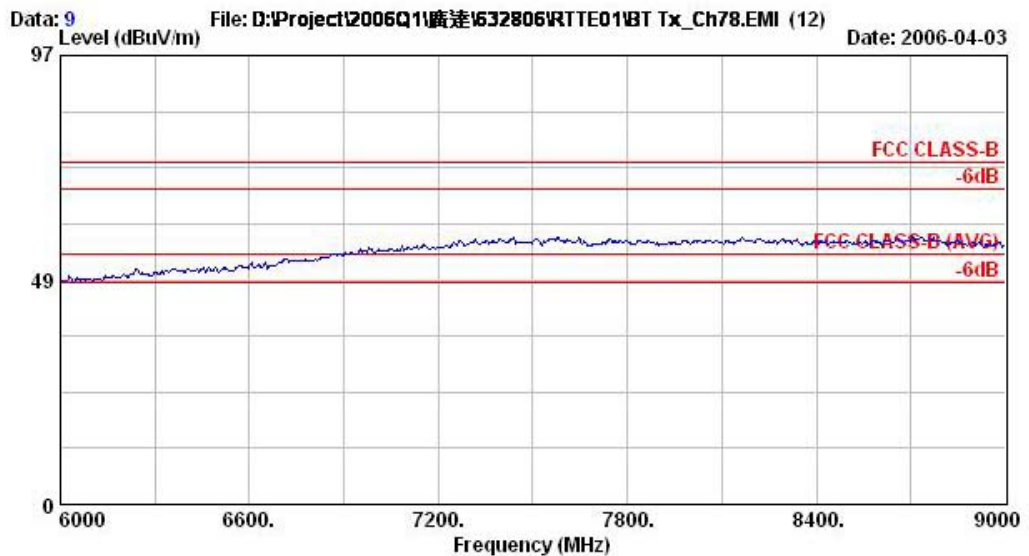
Site : 03CH06-HY  
 Condition : HF-ANT-071025-940201 VERTICAL  
 EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
 Power : 120Vac/60Hz  
 Model : FR 632806  
 Memo : Bluetooth Tx\_Ch78,2480MHz  
 Plane : E2

	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	2314.00	46.49	-27.51	74.00	47.17	30.55	35.40	4.17	111	0	Peak
2 @	2314.00	33.65	-20.35	54.00	34.33	30.55	35.40	4.17	168	103	Average
3 @	2480.00	64.03			64.77	30.41	35.51	4.36	168	103	Average
4 @	2480.00	90.55			91.29	30.41	35.51	4.36	111	0	Peak
<b>5 @</b>	<b>2484.00</b>	<b>70.65</b>	<b>-3.35</b>	<b>74.00</b>	<b>71.39</b>	<b>30.41</b>	<b>35.51</b>	<b>4.36</b>	<b>111</b>	<b>0</b>	<b>Peak</b>
6 @	2484.00	41.09	-12.91	54.00	41.83	30.41	35.51	4.36	168	103	Average

Remark: #3 and #4 Fundamental Signal



Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 VERTICAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 120Vac/60Hz  
Model : FR 632806  
Memo : Bluetooth Tx\_Ch78;2480MHz  
Plane : E2



Site : 03CH06-HY  
Condition : HF-ANT-071025-940201 VERTICAL  
EUT : (GSM/GPRS)Mobile Phone with Bluetooth  
Power : 110Vac/60Hz  
Model : TR632806  
Memo : Bluetooth Tx\_Ch78;2480MHz  
Plane : E2

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 an PIFA without connector 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	100174	9kHz – 2.75GHz	Oct. 19, 2005	Oct. 19, 2006	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Apr. 26, 2005	Apr. 26, 2006	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Apr. 20, 2005	Apr. 20, 2006	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	Jul. 25, 2005	Jul. 24, 2006	Radiation (03CH06-HY)
Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jun. 28, 2005	Jun. 27, 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	Nov. 22, 2004	Nov. 22, 2006	Radiation (03CH06-HY)
Horn Antenna	Com-Power	AH118	071025	1G-18G	Feb. 22, 2006	Feb. 22, 2007	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-249	14G - 40G	Jul. 21, 2005	Jul. 20, 2006	Radiation (03CH06-HY)
HF Amplifier	MITEQ	AFS44	973248	0.1G - 26.5G	Nov. 23, 2005	Nov. 22, 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)



## 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
<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>				