FCC Test Report

According to

47 CFR Part 15 Subpart C

Equipment	:	**GSM(900&1800&1900 MHz) / GPRS / Mobile Phone / with Bluetooth v1.2 and WLAN (IEEE 802.11b&g)**
Trade Name	:	**WIN II**
Model No.	:	**DMP330**
FCC ID	:	**D6XDMP330**
Filing Type	:	**Certification**
Applicant	:	**TECOM CO., LTD.** 23, R & D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK, HSIN-CHU, TAIWAN R.O.C.

- The test result refers exclusively to the test presented test model / sample.
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- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out on Jan. 24-30 and Feb. 19, 2008 at **Sporton International Inc. LAB.**
- Report No.: FR812117-D, Report Version: Rev. 01.

Roy Wu
Manager

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History of This Test Report

Report Issue Date: Feb. 19, 2008

Report No.	Description

1. General Description of Equipment under Test

1.1 Applicant

TECOM CO., LTD.
23, R & D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK, HSIN-CHU, TAIWAN R.O.C.

1.2 Manufacturer

TECOM CO., LTD.
23, R & D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK, HSIN-CHU, TAIWAN R.O.C.

1.3 Basic Description of Equipment under Test

Equipment		GSM(900&1800&1900 MHz) / GPRS / Mobile Phone / with Bluetooth v1.2 and WLAN (IEEE 802.11b&g)
Trade Name		WIN II
Model Name		DMP330
FCC ID		D6XDMP330
AC Adapter	**Brand Name**	Tecom
	Model Name	KWT05A11CN01G
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 4.6~5.5Vdc, 550mA, 4.5W
	AC Power Cord Type	1.545 meter non-shielded cable without ferrite core
Battery	**Brand Name**	Tecom
	Model Name	306-0000-00001
	Power Rating	3.7Vdc, 1000mAh
	Type	Li-ion
Earphone	**Brand Name**	N/A
	Model Name	N/A
	Signal Line Type	1.45 meter non-shielded cable without ferrite core
USB Cable	**Brand Name**	N/A
	Model Name	N/A
	Signal Line Type	0.4 meter non-shielded cable without ferrite core

Remark: Above EUT's information was declared by manufacturer. Please refer to the specifications of manufacturer or User's Manual for more detailed features description.

1.4 Feature of Equipment under Test

Product Feature & Specification				
DUT Type :	GSM(900&1800&1900 MHz) / GPRS / Mobile Phone / with Bluetooth v1.2 and WLAN (IEEE 802.11b&g)			
Trade Name :	WIN II			
Model Name :	DMP330			
FCC ID :	D6XDMP330			
Tx Frequency :	GSM1900 : 1850 MHz ~1910 MHz WLAN / Bluetooth : 2400 MHz ~ 2483.5 MHz			
Rx Frequency :	GSM1900 : 1930 MHz ~ 1990 MHz WLAN / Bluetooth : 2400 MHz ~ 2483.5 MHz			
Number of Channels :	Bluetooth : 79 WLAN : 11			
Carrier Frequency of Each Channel :	Bluetooth : 2402+n*1 MHz; n=0~78 WLAN : 2412+(n-1)*5 MHz; n=1~11			
Channel Spacing :	GSM1900 : 200 KHz Bluetooth : 1 MHz WLAN : 5 MHz			
Maximum Output Power to Antenna :	GSM1900 : 28.26 dBm (GSM) / 28.09 dBm (GPRS) Bluetooth : -1.72 dBm (1Mbps) WLAN : 15.33 dBm (802.11b) / 13.85 dBm (802.11g)			
Type of Antenna Connector :	N/A			
Antenna Type :	GSM1900 : Fixed Internal Antenna Bluetooth : Chip Antenna WLAN : PIFA Antenna			
Antenna Gain :	GSM1900 : 0 dBi Bluetooth : 1 dBi WLAN : 1.07 dBi			
HW Version :	7510MB-008-A			
SW Version :	7S75100000-002-R1I			
GPRS Multislot Class :	12			
Type of Modulation :	GSM / GPRS : GMSK Bluetooth : GFSK WLAN : DSSS / OFDM			
Function Type :	Transmitter		Transceiver	V
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. The EUT is programmed to transmit signal continuously for all testings.
c. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.
d. For radiated measurements, the results were the maximum of those obtained in 3 orthogonal axes and only showed the worst data in this report.

2.2 Test Mode

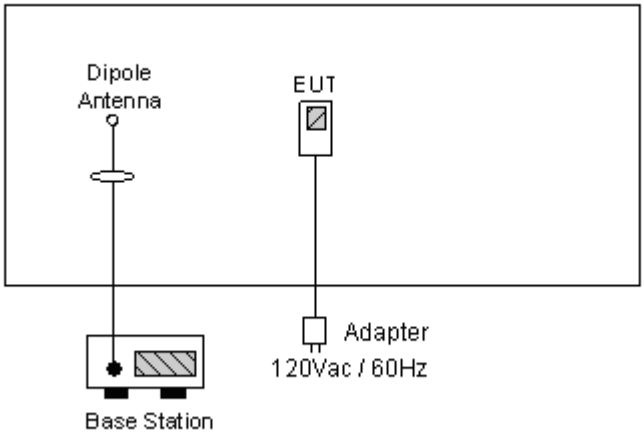
Application	Test Mode
Radiated Emission / RF Conducted	Mode 1: CH00_2402MHz Mode 2: CH39_2441MHz Mode 3: CH78_2480MHz Mode 4: CH78_2480 MHz + 802.11b Tx CH11_2462MHz
Conducted Emission	Mode 1: GSM1900 Idle Mode + BT Link + Camera + Adapter Mode 2: GSM1900 Idle Mode + BT Link + MPEG4 + Adapter Mode 3: WLAN Link Mode + BT Link + MPEG4 + Adapter Mode 4: GSM1900 Idle Mode + BT Link + MPEG4 + USB Link

2.3 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable / Power Cord
1.	Base Station	R&S	CMU 200	N/A	Unshielded, 1.8 m

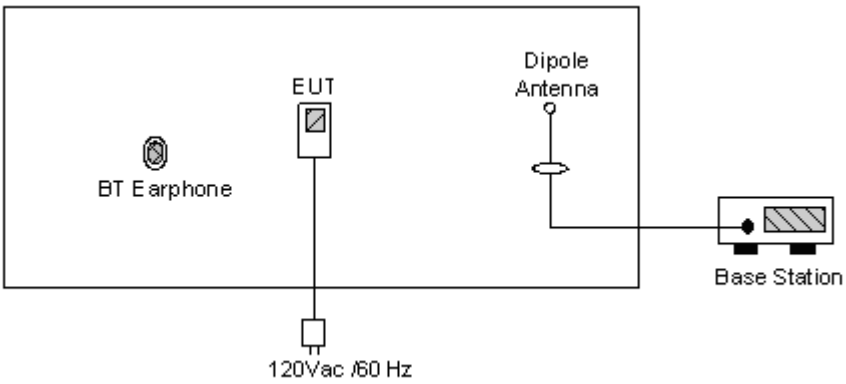
2.4 Connection Diagram of Test System

<Radiated Emission>



<Conducted Emission>

Mode 1~2



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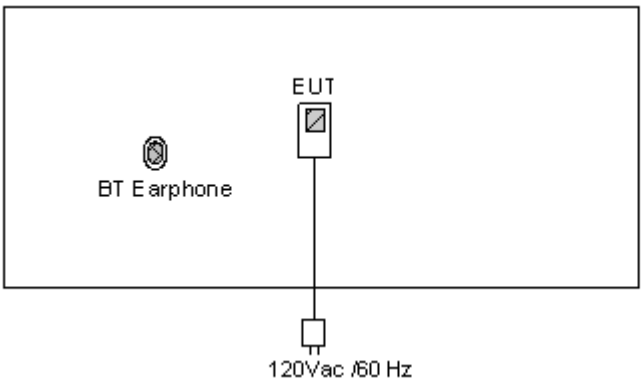

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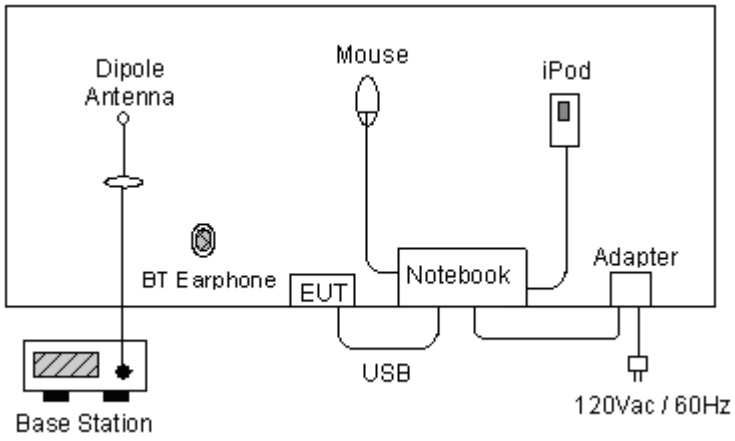

Dipole
Antenna
Mouse
iPod
BT Earphone
EUT
Notebook
Adapter
USB
Base Station
120Vac / 60Hz

3. RF Utility

Press key number ＊＃7415963＃ to make EUT into Engineer mode to link with the Base Station. The programmed RF Utility is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testings.

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 : 886-3-328-4978
Test Site No	:	CO01-HY, 03CH06-HY

4.1 Test Voltage

AC 120V / 60Hz

4.2 Standard for Methods of Measurement

ANSI C63.4-2003

4.3 Test Compliance

47 CFR Part 15 Subpart C

4.4 Frequency Range

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

4.5 Test Distance

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

5. Test Data and Test Result

5.1 List of Measurements and Examinations

The Emission Mode: Bluetooth

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.247(a)(1)(iii)	Hopping Channel Bandwidth	Pass
15.247(a)(1)	Hopping Channel Separation	Pass
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
15.247(b)(1)	Output Power	Pass
15.247(d)	100kHz Bandwidth of Frequency Band Edges	Pass
15.209(a) 15.247(d)	Radiated Emission	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass

5.2 Band Edges Measurement

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

5.2.3 Test Result：

- Application Type : BT
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Engineer : Sun

- Test Result in BT lower band : PASS
- Test Result in BT higher band : PASS

5.2.4 Note on Band Edge Emission：

➢ **BT(1Mbps)**

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)	Remark
2384.48	51.48	-22.52	74.00	51.40	31.83	3.92	35.68	100	0	Peak
2384.48	40.29	-13.71	54.00	40.21	31.83	3.92	35.68	100	166	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)	Remark
2386.76	55.06	-18.94	74.00	54.96	31.86	3.92	35.68	100	0	Peak
2386.76	40.33	-13.67	54.00	40.23	31.86	3.92	35.68	100	258	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)	Remark
2483.47	58.72	-15.28	74.00	58.39	31.98	4.05	35.70	100	0	Peak
2483.47	48.30	-5.70	54.00	47.97	31.98	4.05	35.70	191	152	Average

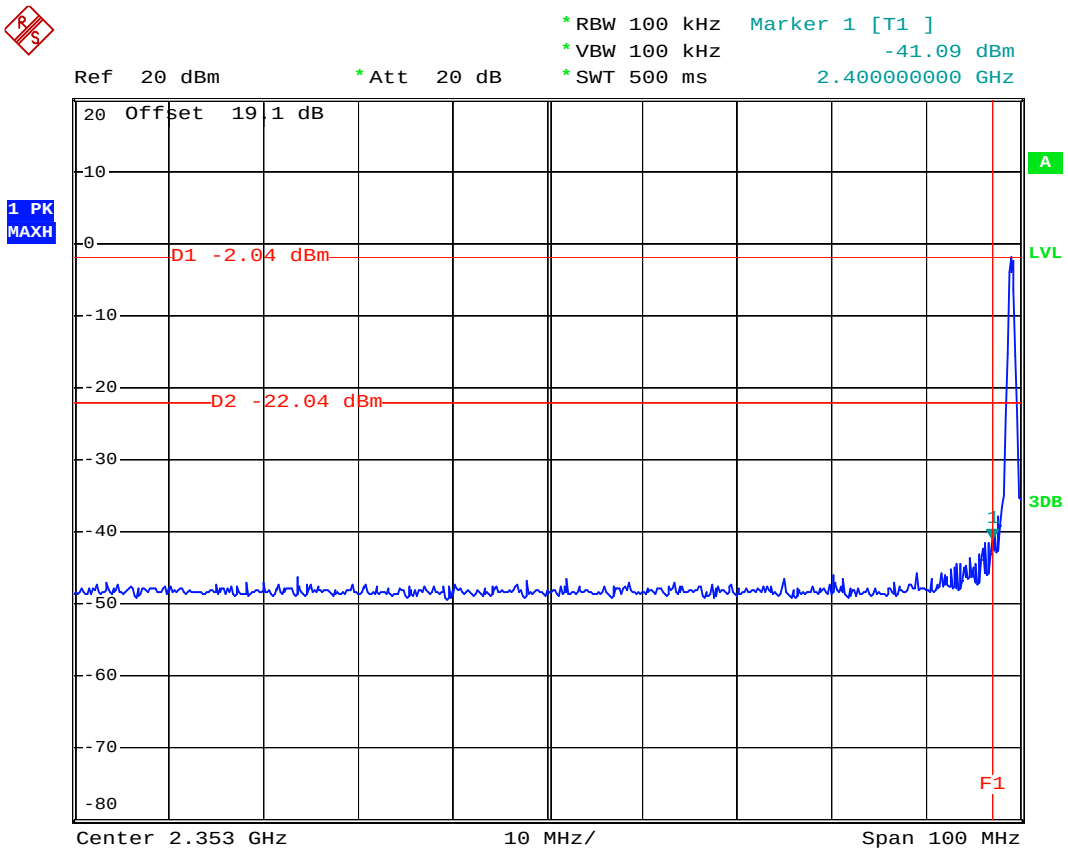
CH78 (Vertical)

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)	Remark
2483.47	60.83	-13.17	74.00	60.50	31.98	4.05	35.70	100	0	Peak
2483.47	48.84	-5.16	54.00	48.51	31.98	4.05	35.70	100	277	Average

5.2.5 Band Edge

BT

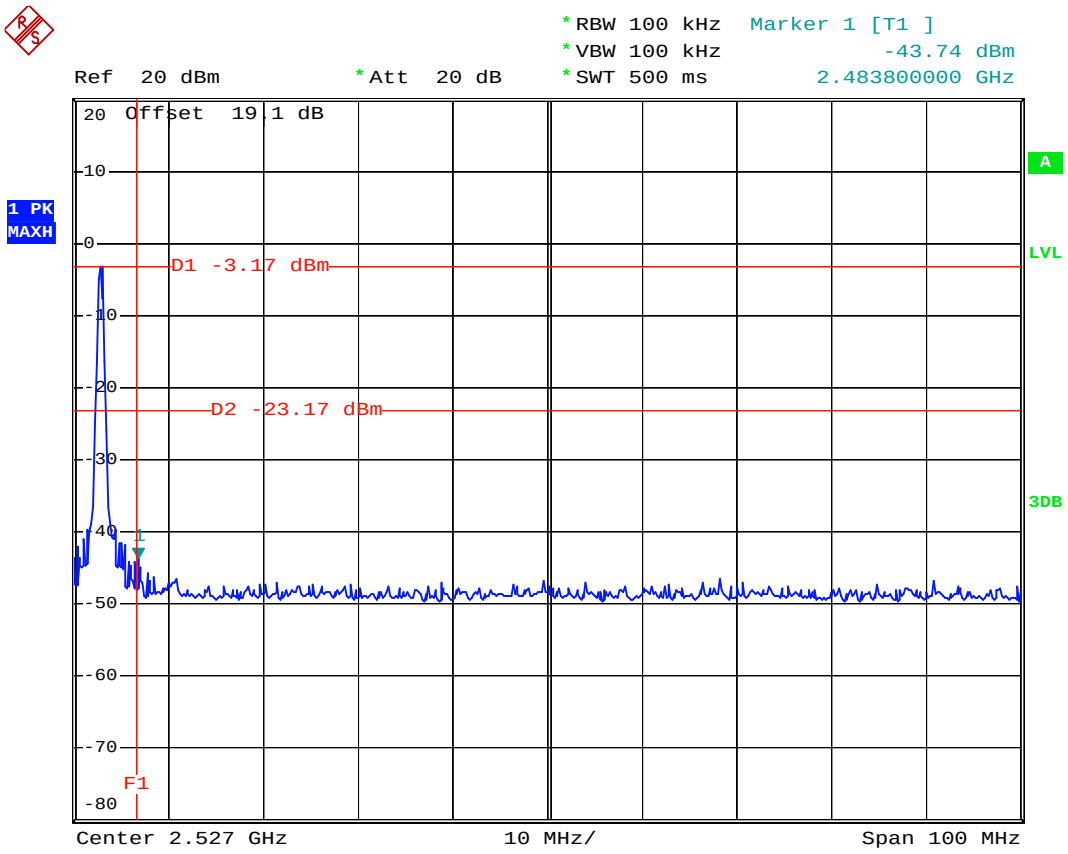
CH00



Date: 24.JAN.2008 20:34:28

BT

CH78



Date: 24.JAN.2008 20:32:37

5.3 Hopping Channel Separation

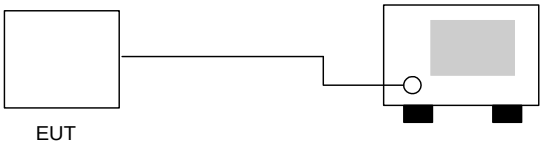
5.3.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.3.2 Test Procedure：

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

5.3.3 Test Setup Layout：



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

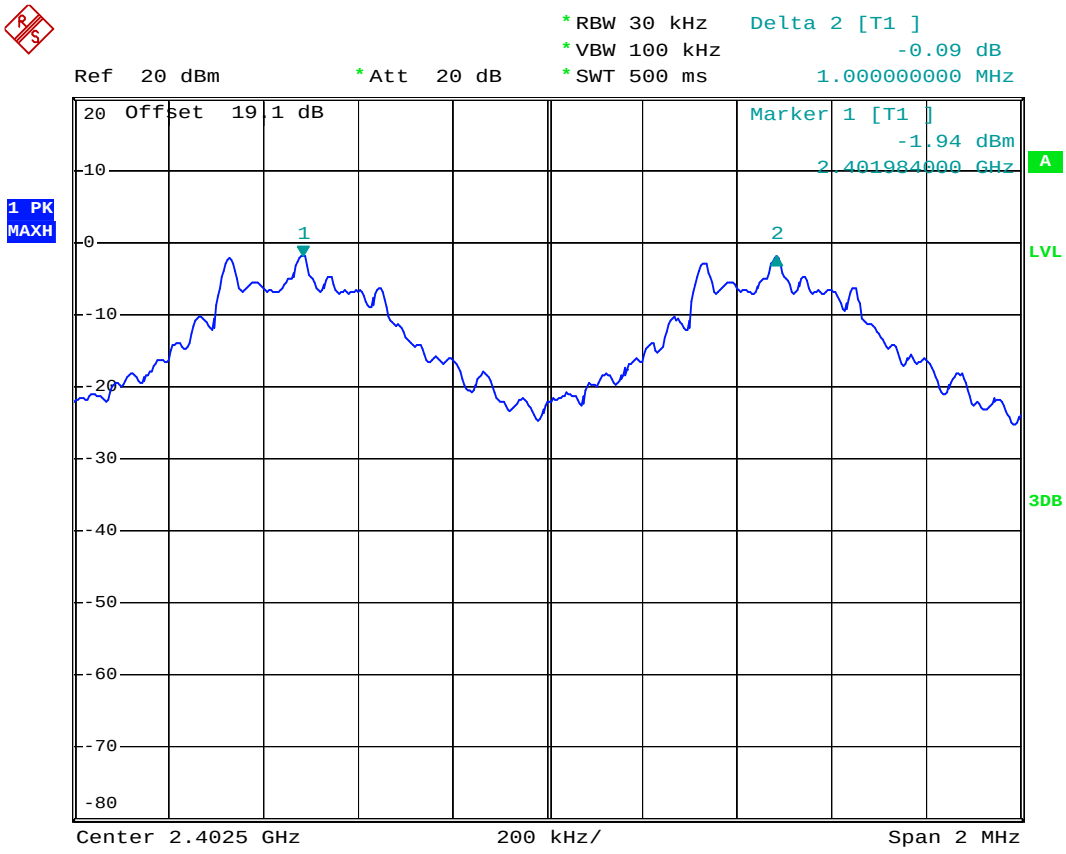
- Application Type : BT
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Enginner : Sun

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.584	Mode 1
39	2441	1.000	0.586	Mode 2
78	2480	1.000	0.584	Mode 3

Note: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth. Refer the result of 20dB bandwidth to section 5.7.

5.3.5 Hopping Channel Seperation

Mode 1



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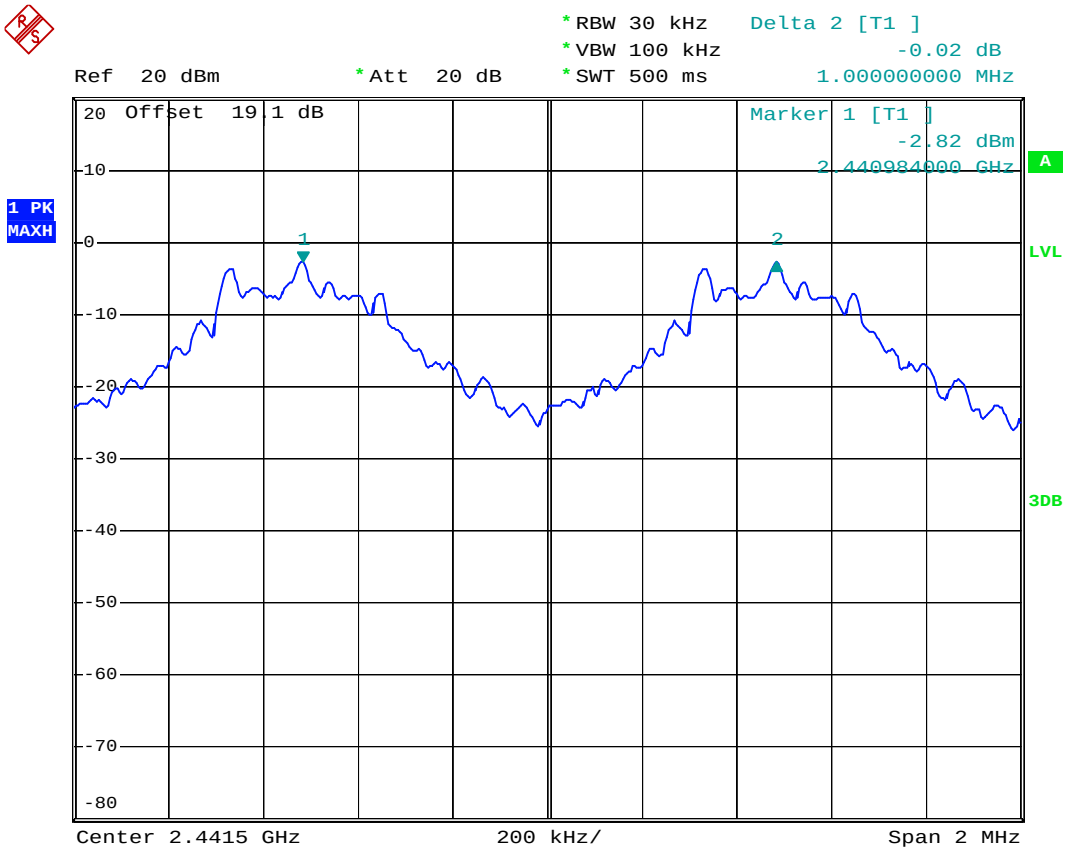
Mode 2



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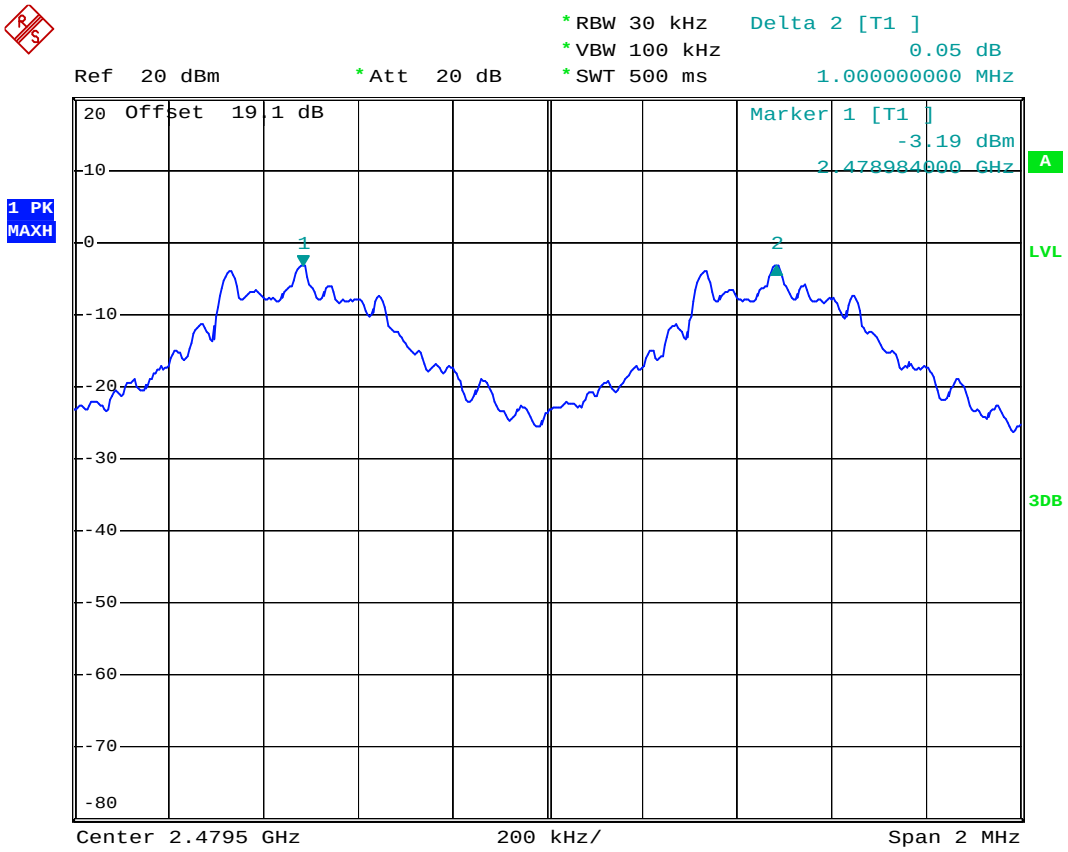
Mode 3



Date: 24.JAN.2008 20:38:10

5.4 Number of Hopping Frequency

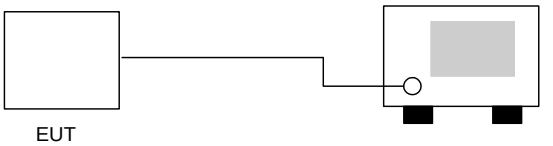
5.4.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.4.2 Test Procedure：

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

5.4.3 Test Setup Layout：



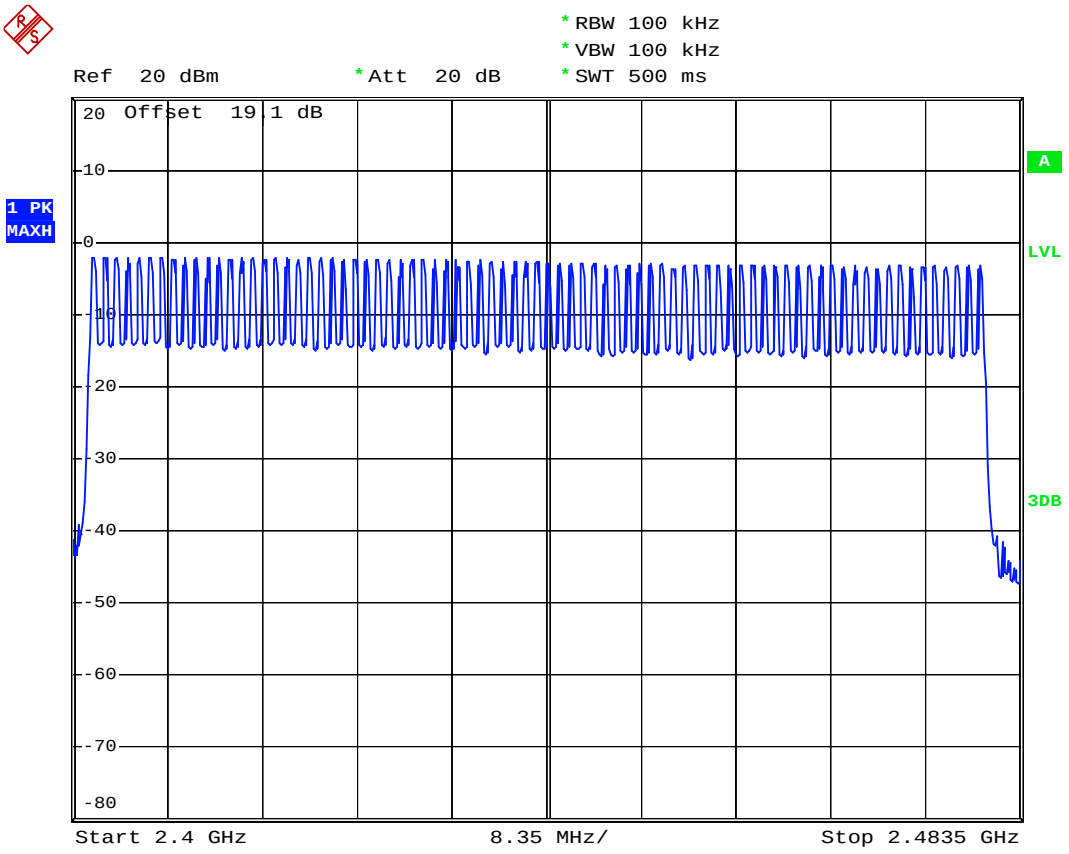
5.4.4 Test Result：See spectrum analyzer plots below

- Application Type : BT(1Mbps)
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Enginner : Sun

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

5.4.5 Number of Hopping Frequency

BT



Date: 24.JAN.2008 20:57:36

5.5 Hopping Channel Bandwidth

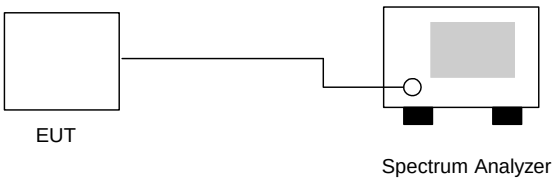
5.5.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.5.2 Test Procedure：

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

5.5.3 Test Setup Layout：



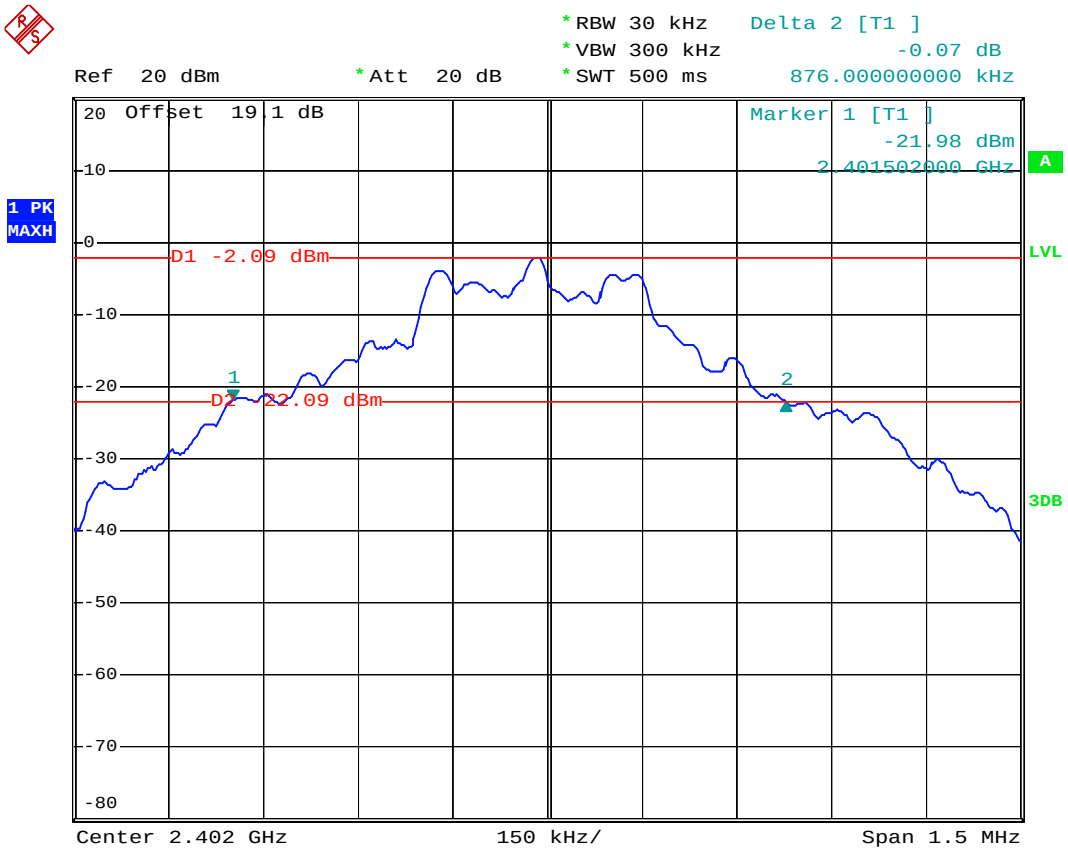
5.5.4 Test Result：See spectrum analyzer plots below

- Application Type : BT
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Enginner : Sun

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	0.876	Mode 1
39	2441	0.879	Mode 2
78	2480	0.876	Mode 3

5.5.5 Hopping Channel Bandwidth

Mode 1



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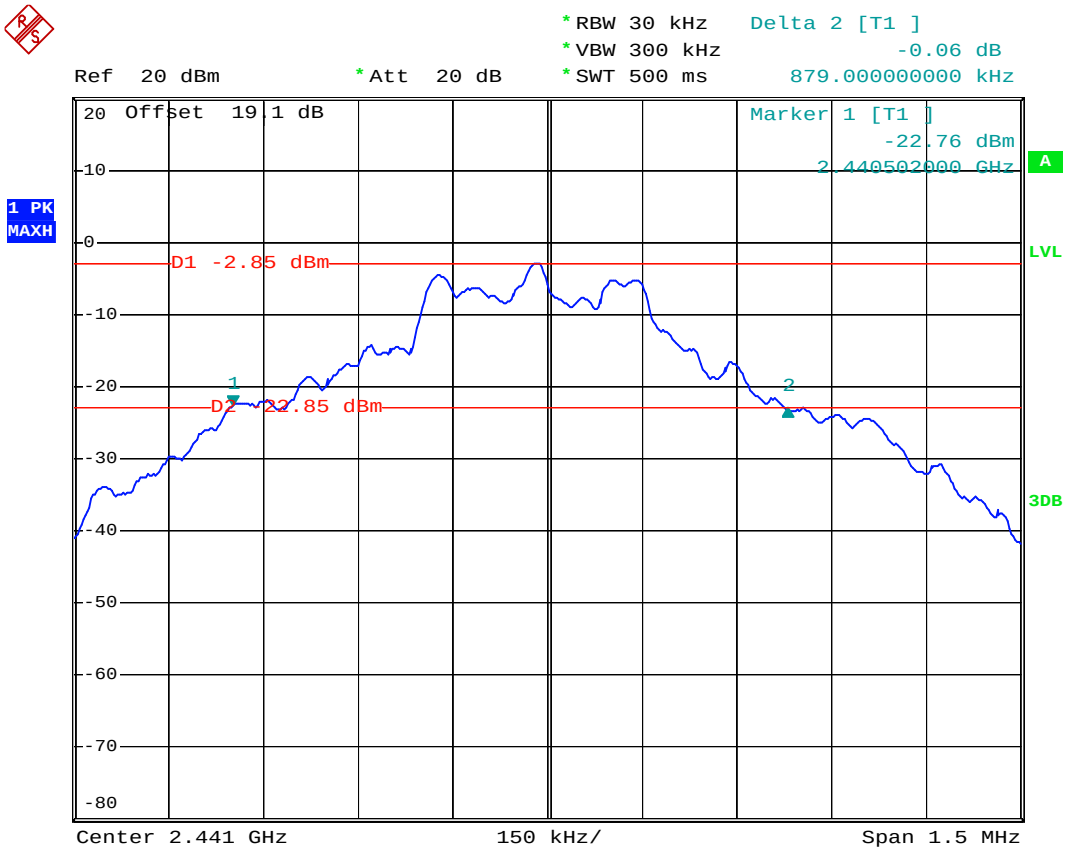
Mode 2



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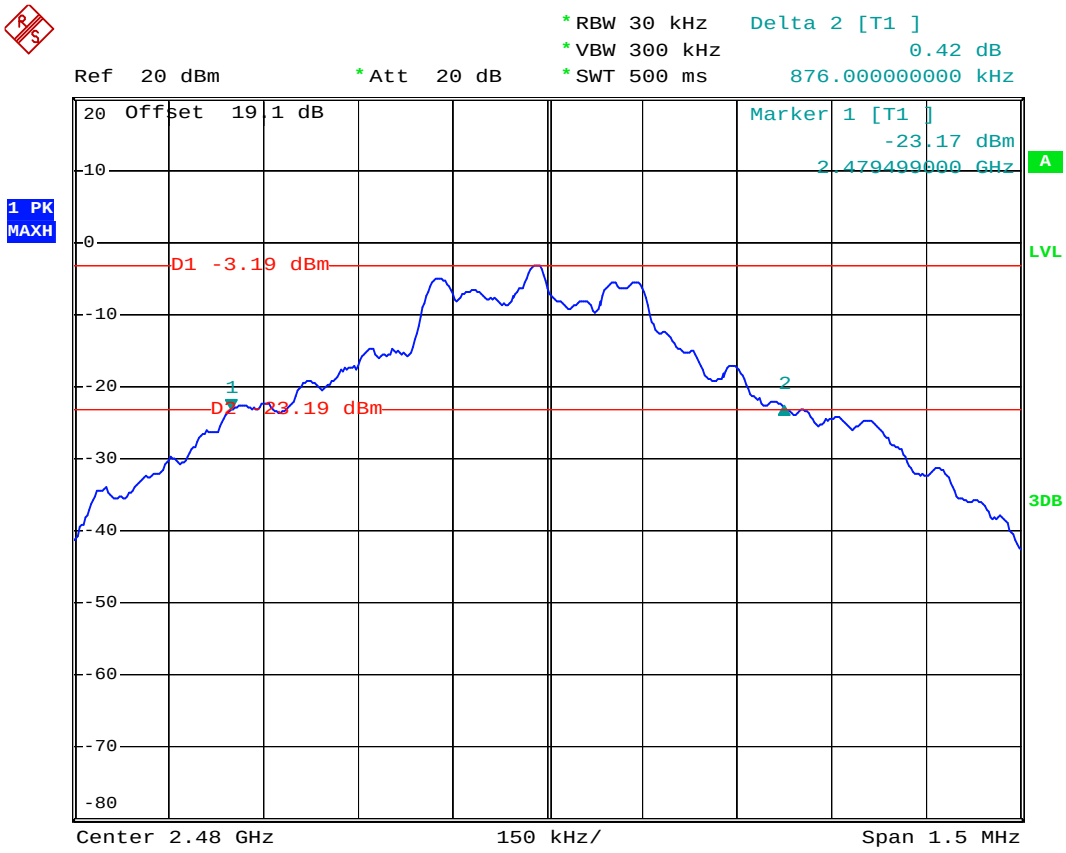
Mode 3



Date: 24.JAN.2008 20:29:55

5.6 Dwell Time of Each Frequency

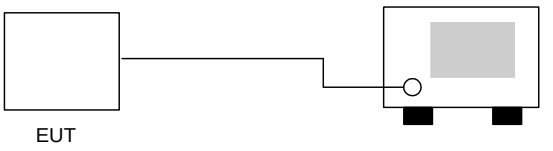
5.6.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.6.2 Test Procedure：

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

5.6.3 Test Setup Layout：



5.6.4 Test Result：See spectrum analyzer plots below

- Application Type : BT
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Enginner : Sun

CH39

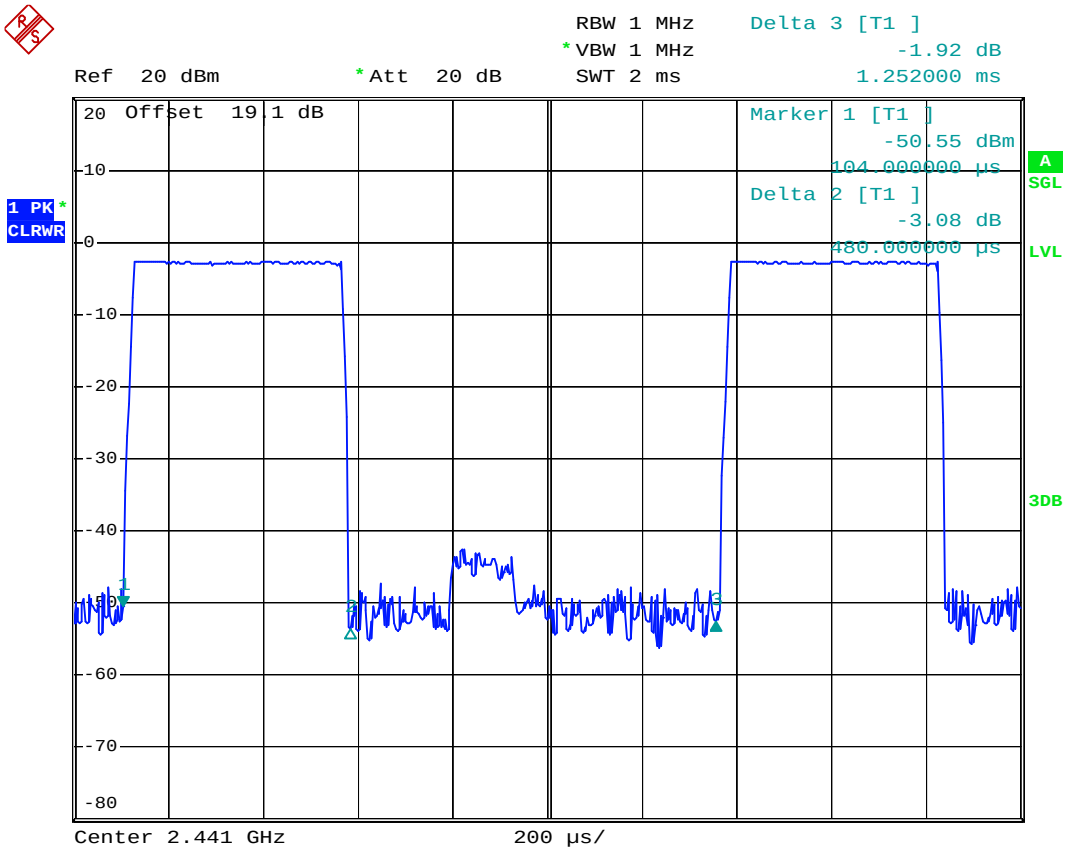
Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.6	480	0.130	0.4
DH3	4.8	1760	0.267	0.4
DH5	3.1	3020	0.296	0.4

※ Remark:

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

5.6.5 Dwell Time

BT_DH1 (CH39)



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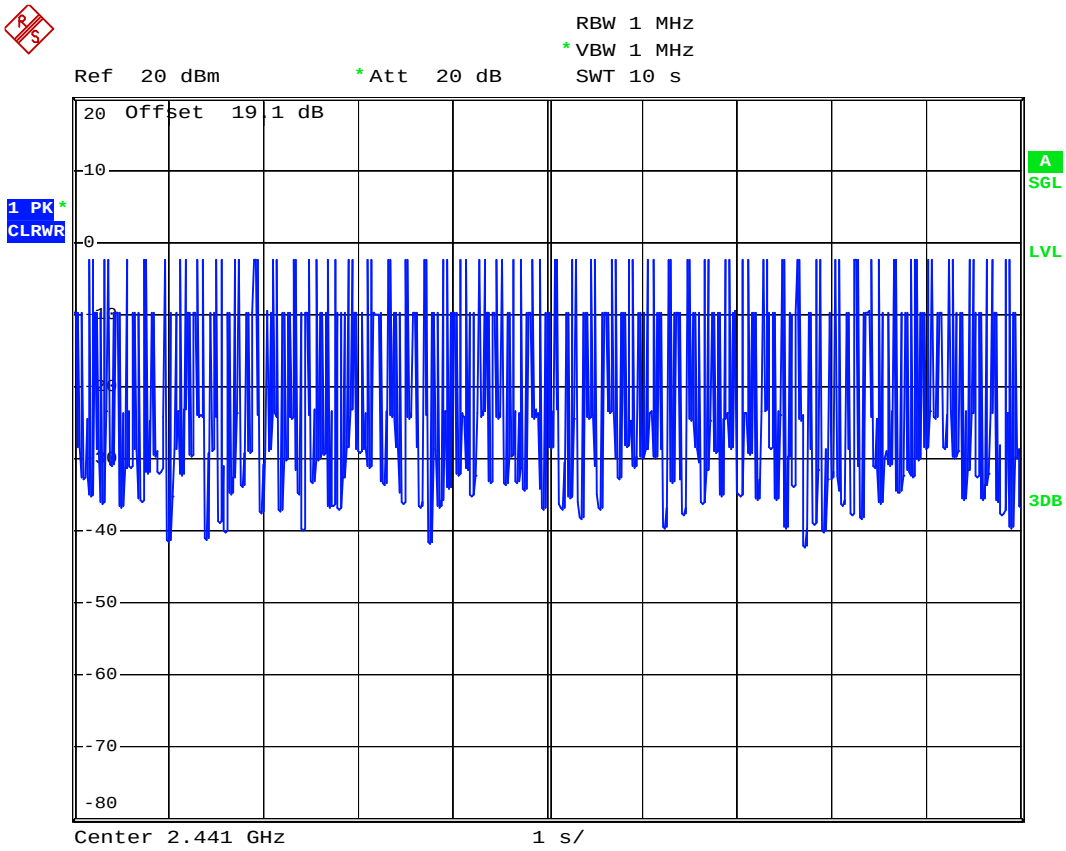

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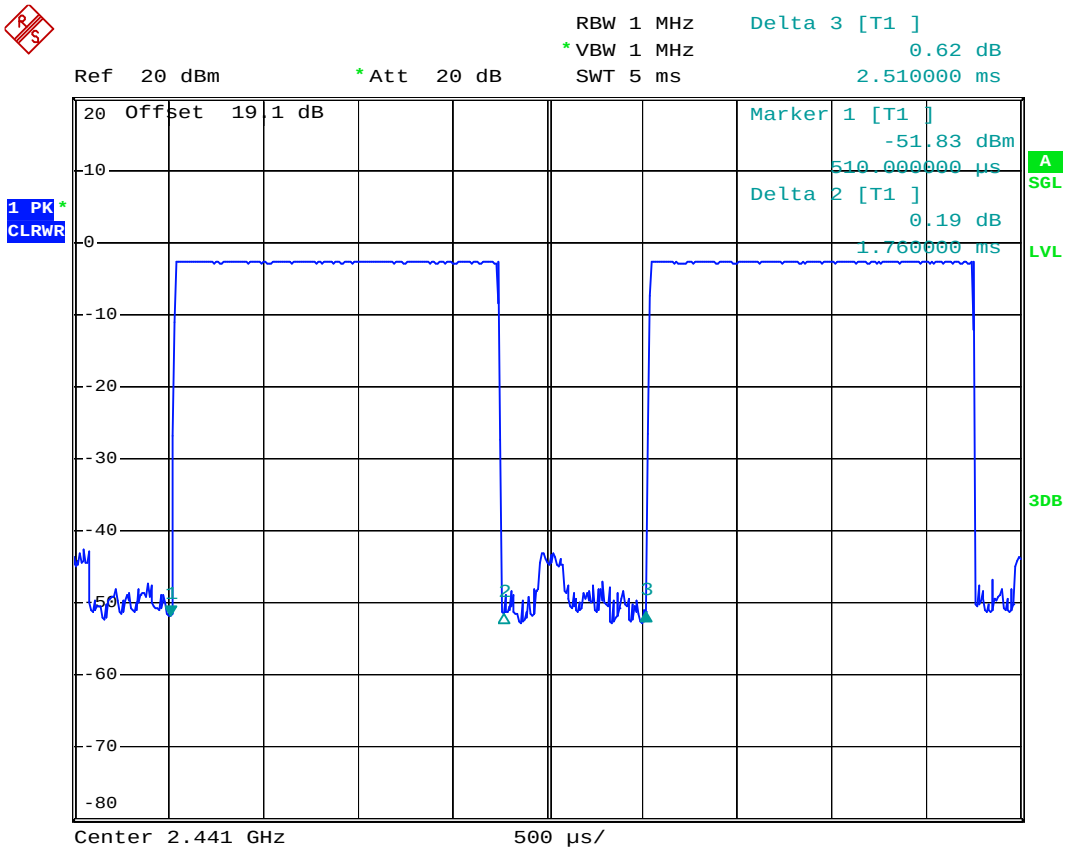
BT_DH3 (CH39)



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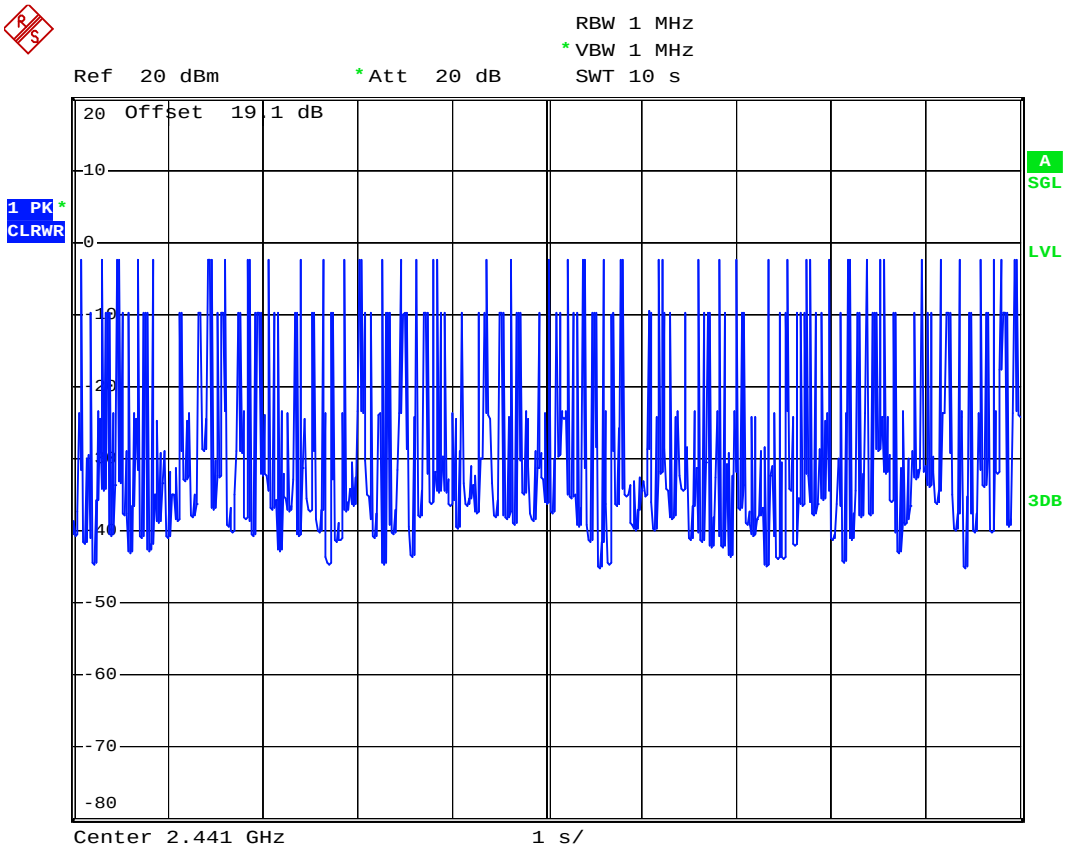
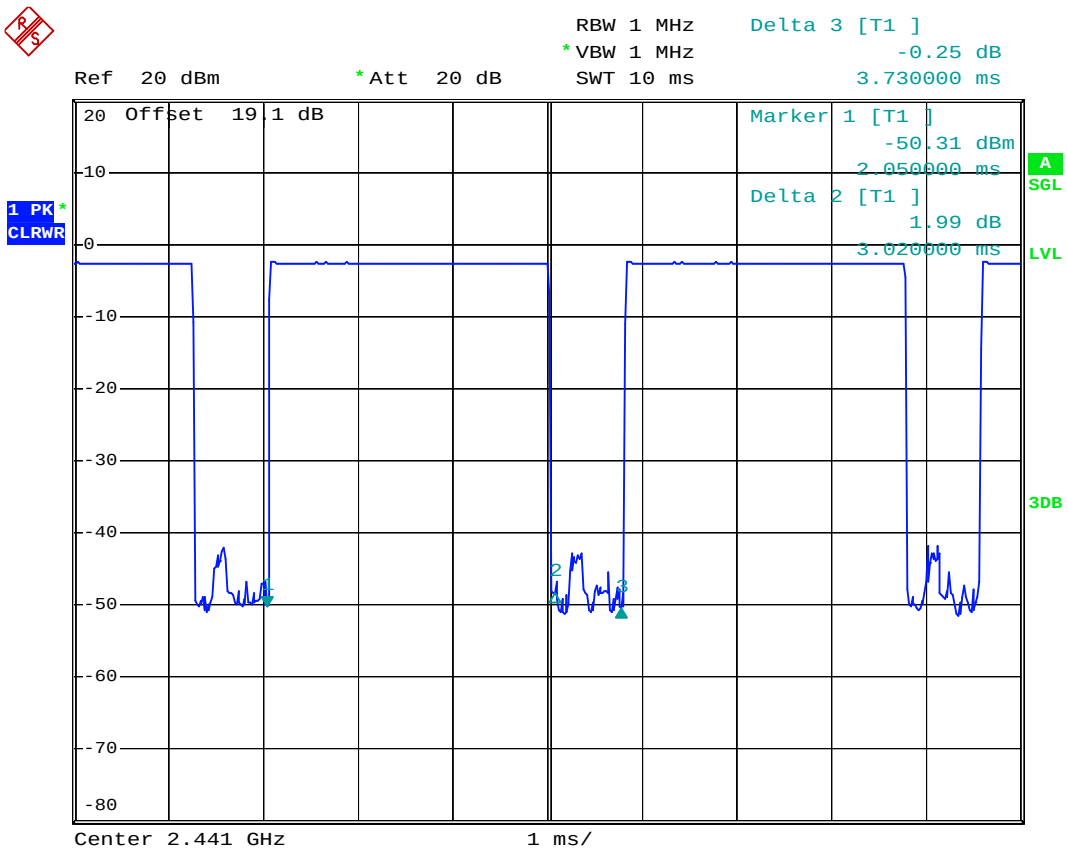


Date: 24.JAN.2008 20:48:19

BT_DH5 (CH39)



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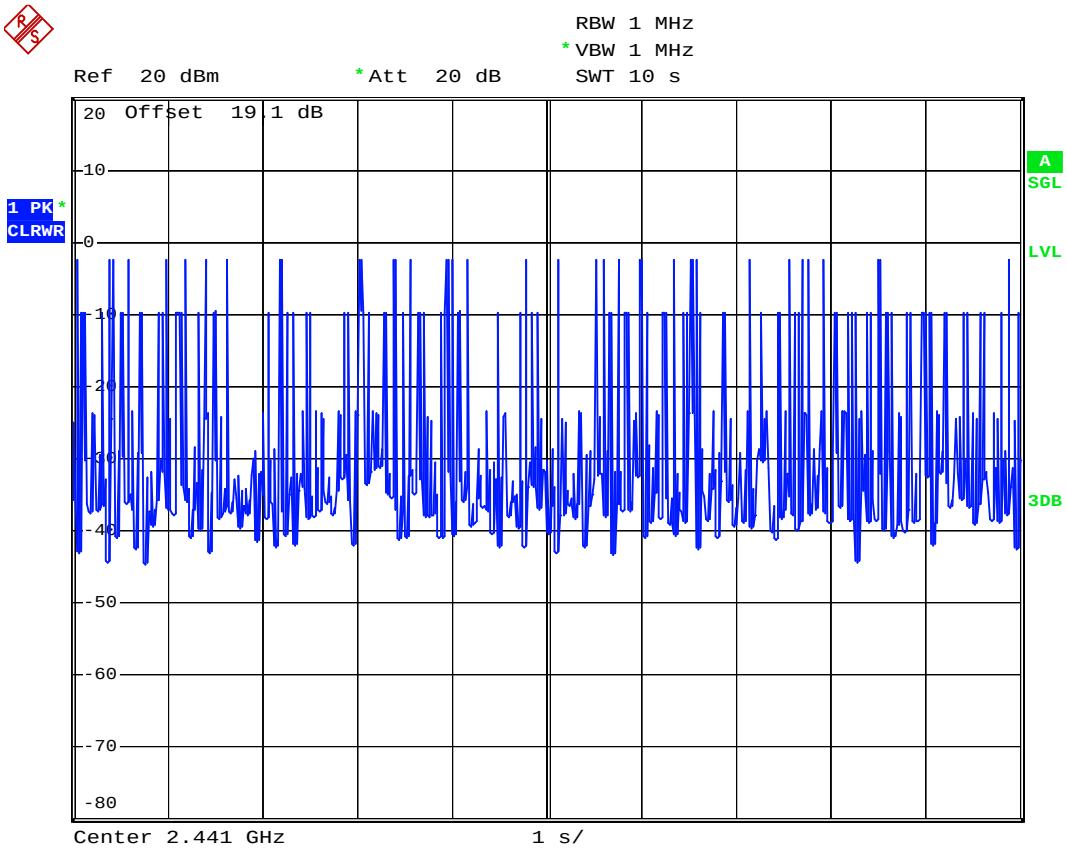


Date: 24.JAN.2008 20:46:37

5.7 Peak Output Power Measurement

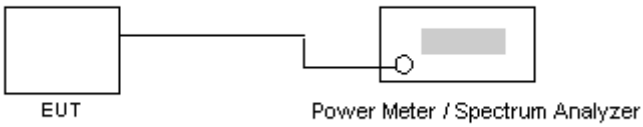
5.7.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.7.2 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.

5.7.3 Test Setup Layout：



5.7.4 Test Result：

- Application Type : BT
- Temperature : 21~24℃
- Relative Humidity : 49~52%
- Test Enginner : Sun

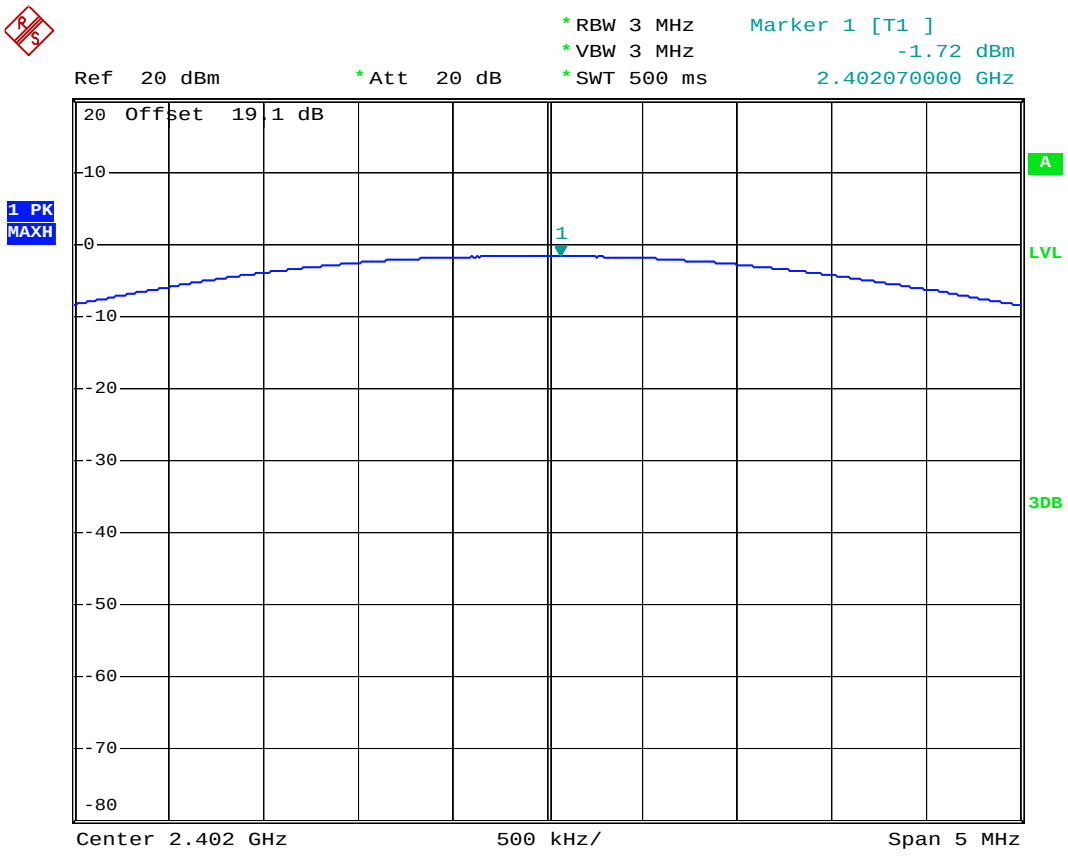
BT

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-1.72	1W / 30dBm
39	2441	-2.45	1W / 30dBm
78	2480	-2.76	1W / 30dBm

5.7.5 Output Power

BT

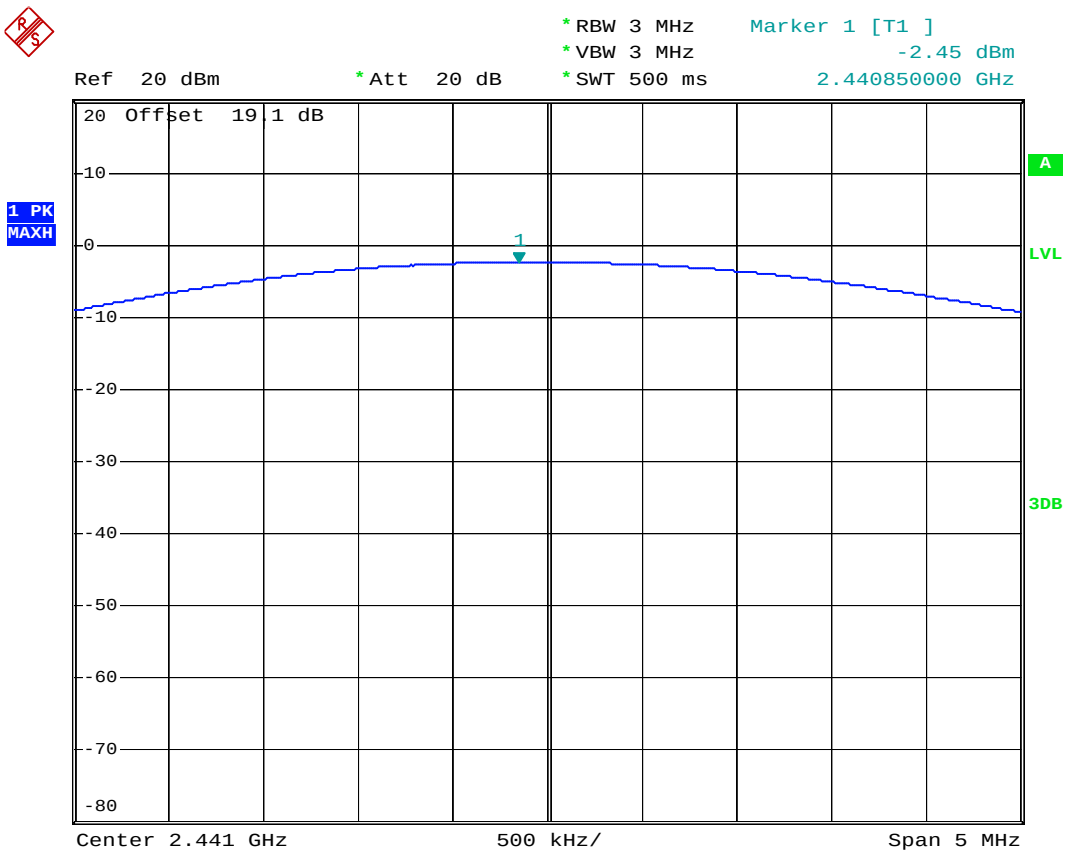
Mode : CH00 (2402MHz)



Date: 24.JAN.2008 10:48:45

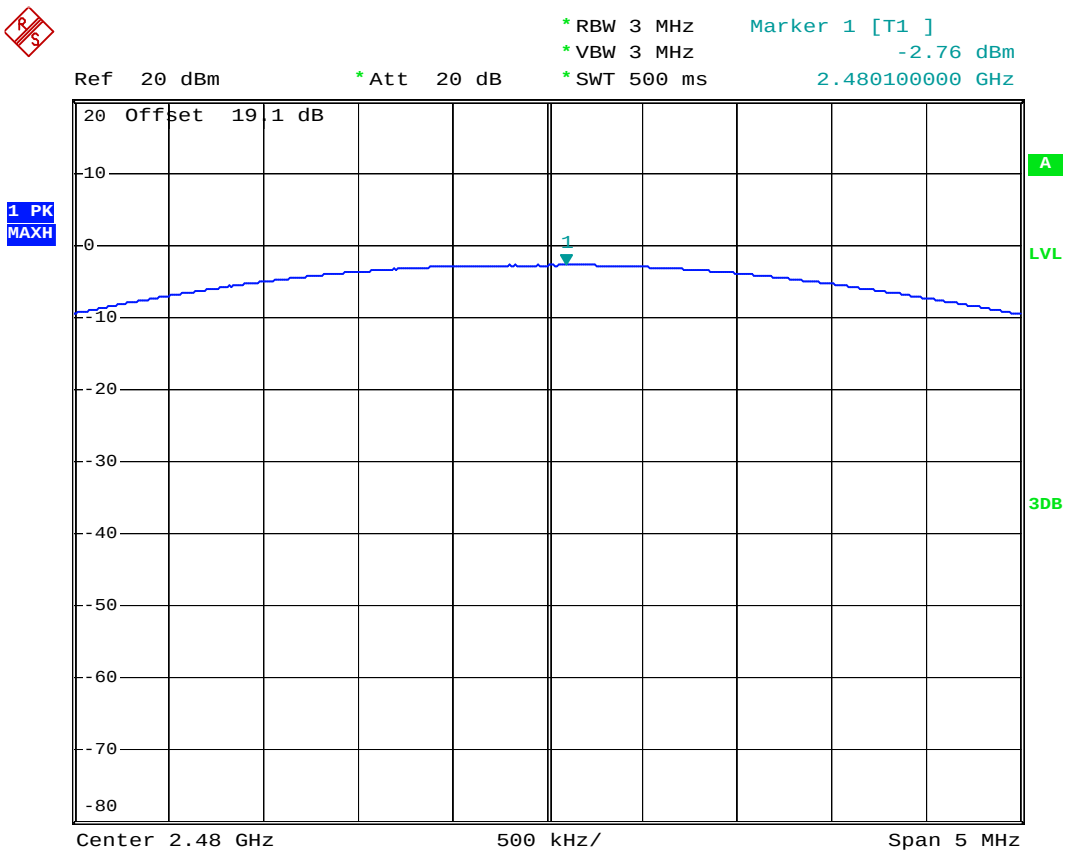
BT

Mode : CH39 (2441MHz)



BT

Mode : CH78 (2480MHz)



Date: 24.JAN.2008 10:47:14

5.8 Conducted Emission

5.8.1 Measuring Instruments

As describ ed in chapter 6 of this test Report.

The receiver setting :

150 KHz ~ 30 MHz	Detector : Quasi – Peak and Average Bandwidth : 9 KHz

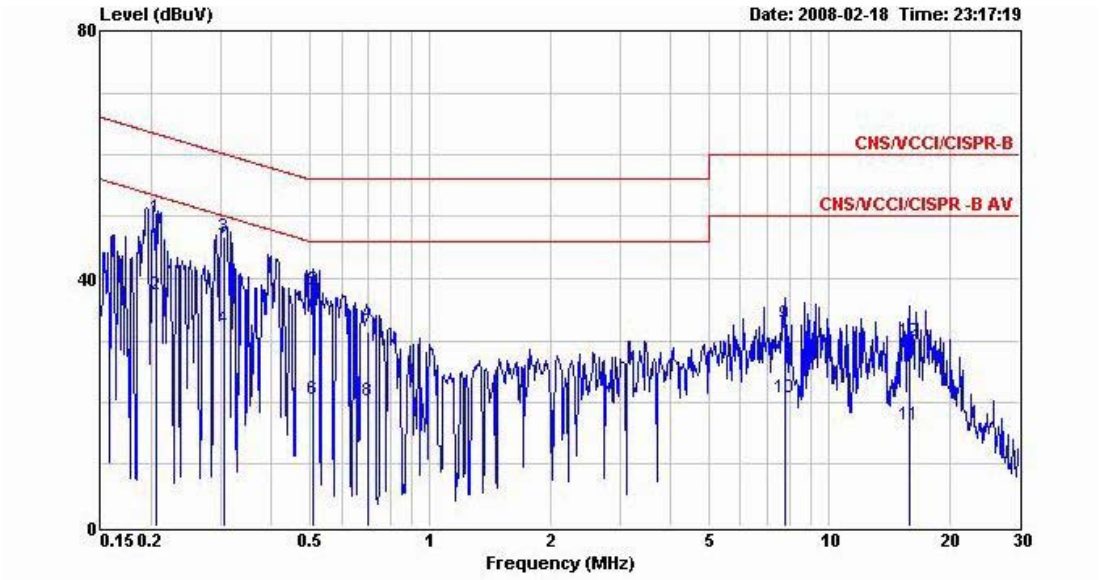
5.8.2 Test Procedures：

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

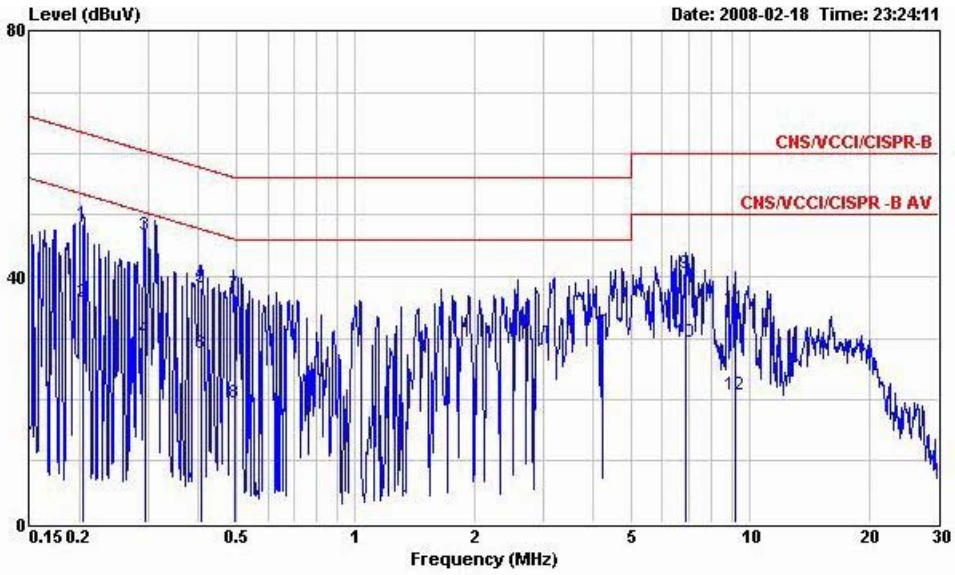
- T emperature : 22~23℃
- Relative Humidity : 59~60%
- Test Enginner : Happy
- Test Mode : Mode 1

■ 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 : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : PCS1900 Idle + BT Link + Camera
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.205	49.86	-13.54	63.40	49.68	0.10	0.08	QP
2	0.205	37.34	-16.06	53.40	37.16	0.10	0.08	Average
3	0.304	46.62	-13.50	60.12	46.42	0.10	0.10	QP
4	0.304	31.87	-18.25	50.12	31.67	0.10	0.10	Average
5	0.508	38.15	-17.85	56.00	37.92	0.10	0.13	QP
6	0.508	20.51	-25.49	46.00	20.28	0.10	0.13	Average
7	0.696	31.51	-24.49	56.00	31.26	0.10	0.15	QP
8	0.696	20.24	-25.76	46.00	19.99	0.10	0.15	Average
9	7.730	32.71	-27.29	60.00	32.15	0.27	0.29	QP
10	7.730	20.88	-29.12	50.00	20.32	0.27	0.29	Average
11	15.890	16.35	-33.65	50.00	15.57	0.32	0.46	Average
12	15.890	29.84	-30.16	60.00	29.06	0.32	0.46	QP

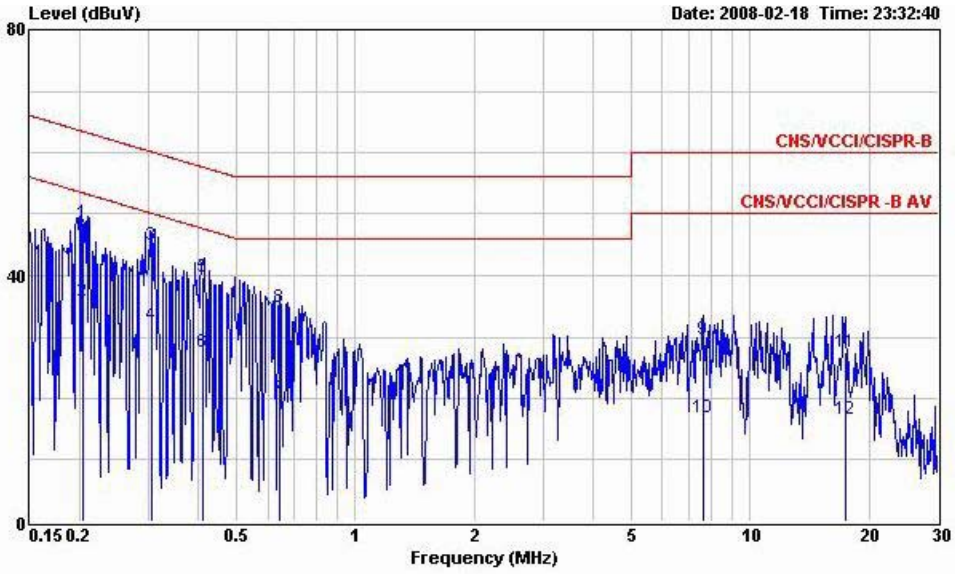


Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : PCS1900 Idle + BT Link + Camera
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.205	48.60	-14.81	63.41	48.42	0.10	0.08	QP
2	0.205	35.89	-17.52	53.41	35.71	0.10	0.08	Average
3	0.293	46.73	-13.70	60.43	46.53	0.10	0.10	QP
4	0.293	29.79	-20.64	50.43	29.59	0.10	0.10	Average
5	0.405	38.10	-19.65	57.75	37.88	0.10	0.12	QP
6	0.405	27.60	-20.15	47.75	27.38	0.10	0.12	Average
7	0.495	37.24	-18.85	56.09	37.01	0.10	0.13	QP
8	0.495	19.56	-26.53	46.09	19.33	0.10	0.13	Average
9	6.840	40.63	-19.37	60.00	40.17	0.16	0.30	QP
10	6.840	29.36	-20.64	50.00	28.90	0.16	0.30	Average
11	9.200	34.90	-25.10	60.00	34.43	0.19	0.28	QP
12	9.200	20.82	-29.18	50.00	20.35	0.19	0.28	Average

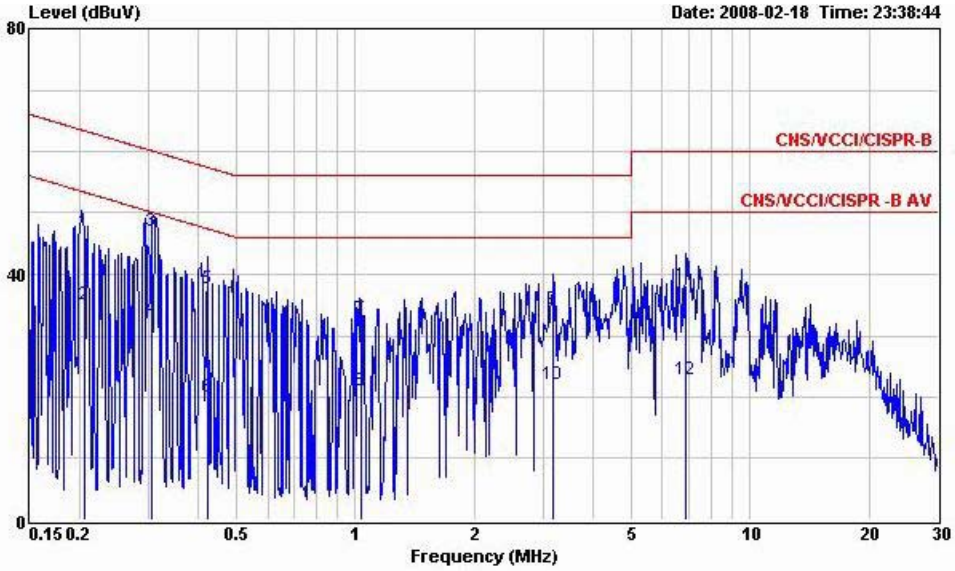
- Temperature : 22~23℃
- Relative Humidity : 59~60%
- Test Enginner : Happy
- Test Mode : Mode 2

■ 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 : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : PCS1900 Idle + BT Link + MPEG4
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.205	48.68	-14.74	63.42	48.50	0.10	0.08	QP
2	0.205	35.75	-17.67	53.42	35.57	0.10	0.08	Average
3	0.305	44.90	-15.20	60.10	44.70	0.10	0.10	QP
4	0.305	32.06	-18.04	50.10	31.86	0.10	0.10	Average
5	0.410	39.82	-17.84	57.66	39.60	0.10	0.12	QP
6	0.410	27.45	-20.21	47.66	27.23	0.10	0.12	Average
7	0.644	19.92	-26.08	46.00	19.67	0.10	0.15	Average
8	0.644	34.91	-21.09	56.00	34.66	0.10	0.15	QP
9	7.610	29.67	-30.33	60.00	29.11	0.27	0.29	QP
10	7.610	17.00	-33.00	50.00	16.44	0.27	0.29	Average
11	17.470	27.40	-32.60	60.00	26.63	0.35	0.42	QP
12	17.470	16.63	-33.37	50.00	15.86	0.35	0.42	Average

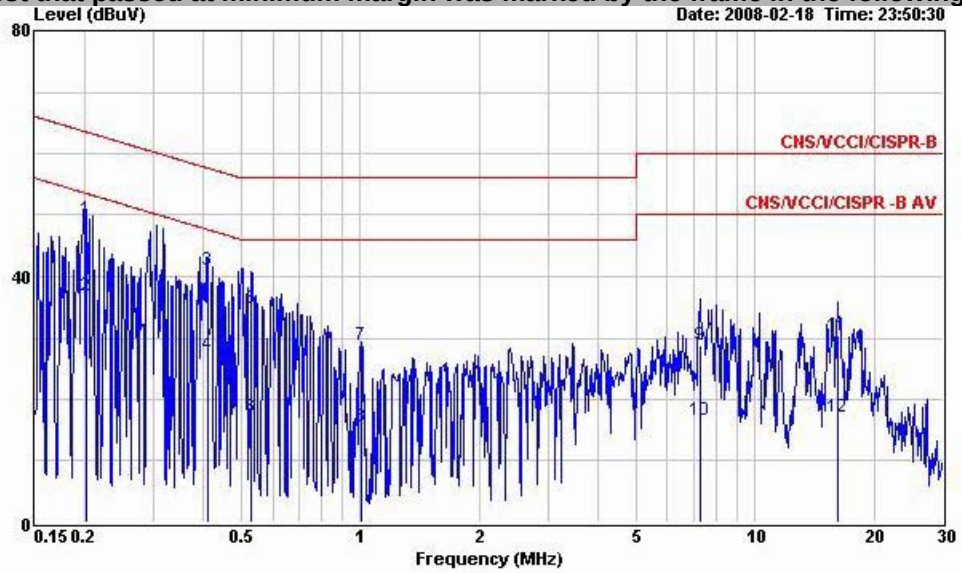


Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : PCS1900 Idle + BT Link + MPEG4
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.206	46.98	-16.41	63.39	46.80	0.10	0.08	QP
2	0.206	34.95	-18.44	53.39	34.77	0.10	0.08	Average
3	0.304	47.08	-13.06	60.14	46.88	0.10	0.10	QP
4	0.304	32.83	-17.31	50.14	32.63	0.10	0.10	Average
5	0.422	37.58	-19.83	57.41	37.36	0.10	0.12	QP
6	0.422	20.03	-27.38	47.41	19.81	0.10	0.12	Average
7	1.030	32.68	-23.32	56.00	32.41	0.10	0.17	QP
8	1.030	21.11	-24.89	46.00	20.84	0.10	0.17	Average
9	3.170	34.39	-21.61	56.00	34.02	0.10	0.27	QP
10	3.170	22.01	-23.99	46.00	21.64	0.10	0.27	Average
11	6.840	38.09	-21.91	60.00	37.63	0.16	0.30	QP
12	6.840	22.84	-27.16	50.00	22.38	0.16	0.30	Average

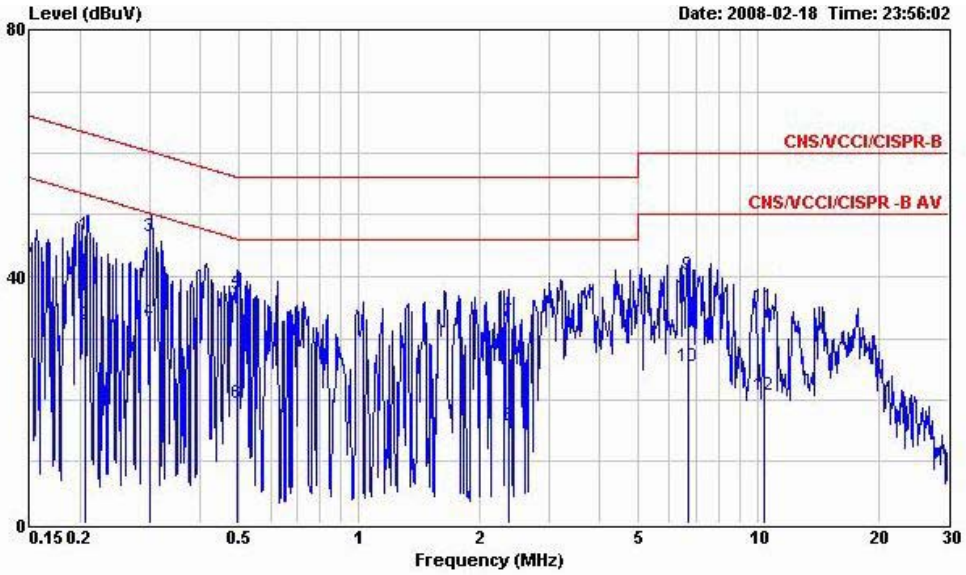
- Temperature : 22~23℃
- Relative Humidity : 59~60%
- Test Enginner : Happy
- Test Mode : Mode 3

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



Site : CO01-HV
Condition : CNS/VCCI/CISPR-B 2001/004 200604 LINE
EUT : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : WLAN Link+ BT Link + MPEG4
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.202	49.42	-14.12	63.54	49.24	0.10	0.08	QP
2	0.202	36.94	-16.60	53.54	36.76	0.10	0.08	Average
3	0.410	40.96	-16.68	57.64	40.74	0.10	0.12	QP
4	0.410	27.15	-20.49	47.64	26.93	0.10	0.12	Average
5	0.528	34.90	-21.10	56.00	34.66	0.10	0.14	QP
6	0.528	17.21	-28.79	46.00	16.97	0.10	0.14	Average
7	1.003	28.81	-27.19	56.00	28.54	0.10	0.17	QP
8	1.003	15.55	-30.45	46.00	15.28	0.10	0.17	Average
9	7.250	28.76	-31.24	60.00	28.21	0.26	0.29	QP
10	7.250	16.55	-33.45	50.00	16.00	0.26	0.29	Average
11	16.230	30.26	-29.74	60.00	29.48	0.33	0.45	QP
12	16.230	17.06	-32.94	50.00	16.28	0.33	0.45	Average

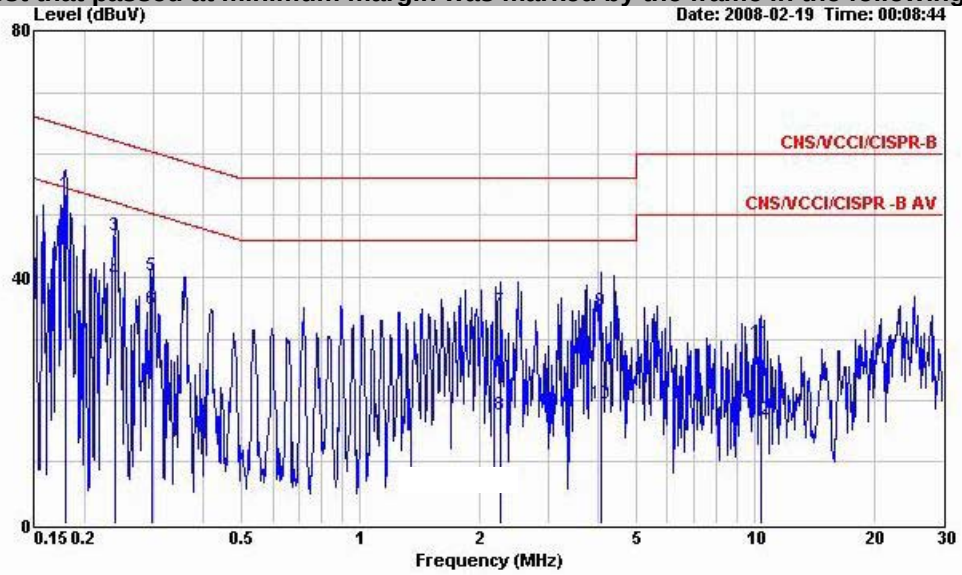


Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Mobile Phone(GSM900/DCS1800)
Power : 120V/60Hz
Model : FR 812117
Memo : WLAN Link+ BT Link + MPEG4
: + Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.207	46.76	-16.57	63.33	46.58	0.10	0.08	QP
2	0.207	32.32	-21.01	53.33	32.14	0.10	0.08	Average
3	0.300	46.43	-13.82	60.25	46.23	0.10	0.10	QP
4	0.300	32.67	-17.58	50.25	32.47	0.10	0.10	Average
5	0.497	37.16	-18.90	56.06	36.93	0.10	0.13	QP
6	0.497	19.52	-26.54	46.06	19.29	0.10	0.13	Average
7	2.380	32.71	-23.29	56.00	32.43	0.10	0.18	QP
8	2.380	15.79	-30.21	46.00	15.51	0.10	0.18	Average
9	6.660	40.31	-19.69	60.00	39.85	0.16	0.30	QP
10	6.660	25.50	-24.50	50.00	25.04	0.16	0.30	Average
11	10.340	35.15	-24.85	60.00	34.65	0.21	0.29	QP
12	10.340	20.87	-29.13	50.00	20.37	0.21	0.29	Average

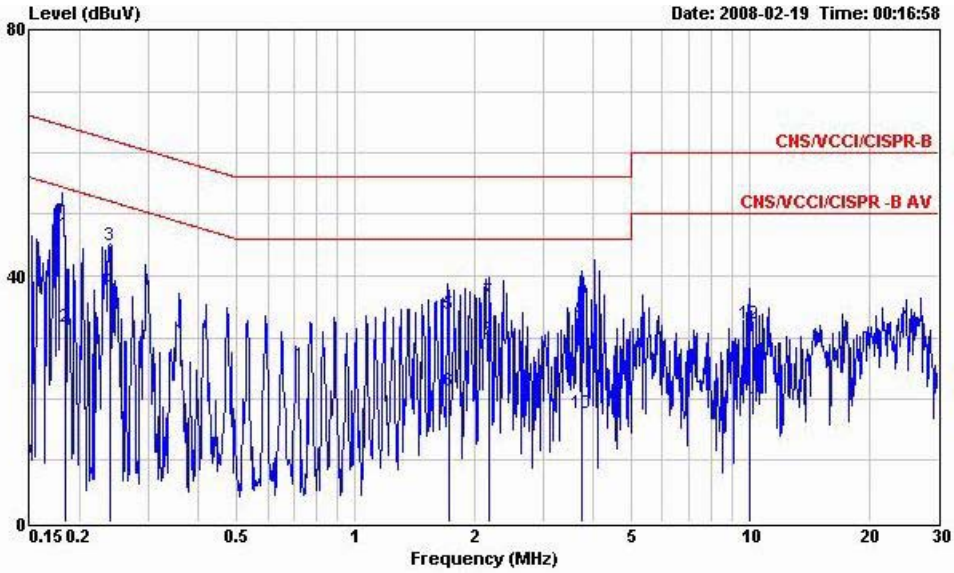
- Temperature : 22~23℃
- Relative Humidity : 59~60%
- Test Enginner : Happy
- Test Mode : Mode 4

■ **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 : Mobile Phone(GSM900/DCS1800)
Power : From System
Model : FR 812117
Memo : PCS1900 Idle + BT Link + MPEG4
: + USB Link

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.179	53.49	-11.04	64.53	53.30	0.10	0.09	QP
2	0.179	44.33	-20.20	64.53	44.14	0.10	0.09	Average
3	0.238	46.63	-15.53	62.16	46.44	0.10	0.09	QP
4	0.238	39.48	-22.68	62.16	39.29	0.10	0.09	Average
5	0.297	40.16	-20.17	60.33	39.96	0.10	0.10	QP
6	0.297	34.85	-25.48	60.33	34.65	0.10	0.10	Average
7	2.270	34.66	-21.34	56.00	34.37	0.12	0.17	QP
8	2.270	17.72	-38.28	56.00	17.43	0.12	0.17	Average
9	4.070	34.64	-21.36	56.00	34.10	0.20	0.34	QP
10	4.070	19.49	-36.51	56.00	18.95	0.20	0.34	Average
11	10.400	29.40	-30.60	60.00	28.81	0.30	0.29	QP
12	10.400	16.79	-43.21	60.00	16.20	0.30	0.29	Average



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B 2001/004 200604 NEUTRAL
EUT : Mobile Phone(GSM900/DCS1800)
Power : From System
Model : FR 812117
Memo : PCS1900 Idle +BT Link +MPEG4
: +USB Link

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.184	46.82	-17.50	64.32	46.64	0.10	0.08	QP
2	0.184	31.61	-22.71	54.32	31.43	0.10	0.08	Average
3	0.238	44.88	-17.27	62.15	44.69	0.10	0.09	QP
4	0.238	37.61	-14.54	52.15	37.42	0.10	0.09	Average
5	1.720	33.71	-22.29	56.00	33.47	0.10	0.14	QP
6	1.720	21.20	-24.80	46.00	20.96	0.10	0.14	Average
7	2.190	35.75	-20.25	56.00	35.49	0.10	0.16	QP
8	2.190	29.54	-16.46	46.00	29.28	0.10	0.16	Average
9	3.740	32.94	-23.06	56.00	32.52	0.10	0.32	QP
10	3.740	17.66	-28.34	46.00	17.24	0.10	0.32	Average
11	10.020	18.32	-31.68	50.00	17.85	0.20	0.27	Average
12	10.020	32.29	-27.71	60.00	31.82	0.20	0.27	QP

5.9 Radiated Emission Measurement

5.9.1 Measuring Instruments

As described in chapter 6 of this Report.

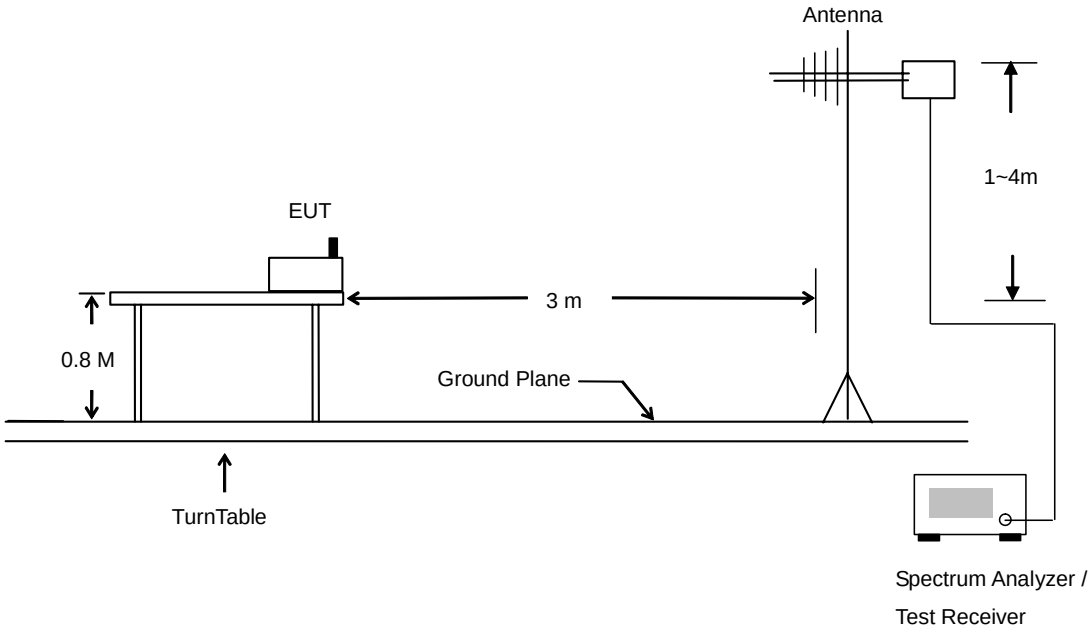
The spectrum analyzer setting :

30 ~ 1000 MHz	Detector : Quasi – Peak Bandwidth : 120 KHz
1 ~ 25 GHz	Detector : Peak and Average Bandwidth : 1 MHz

5.9.2 Test Procedures

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

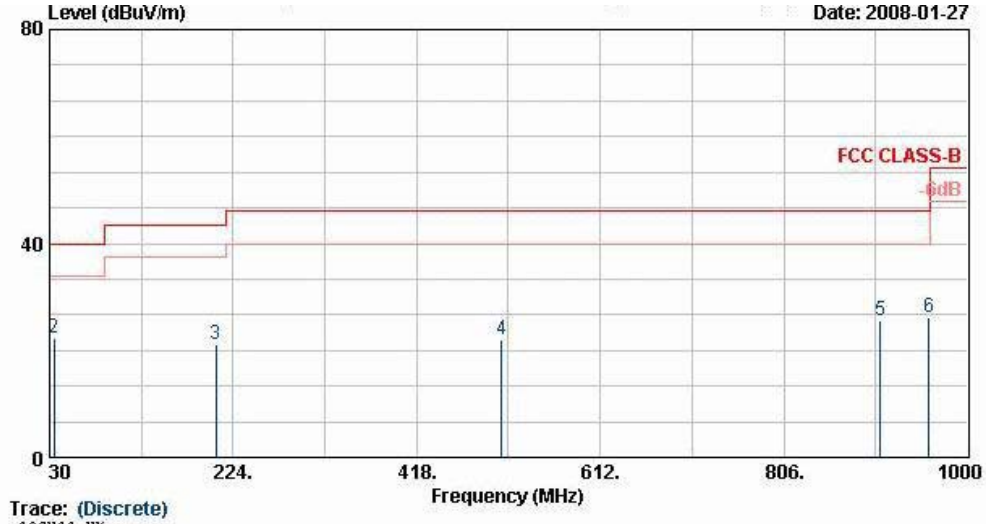
5.9.3 Typical Test Setup Layout of Radiated Emission



5.9.4 Test Data

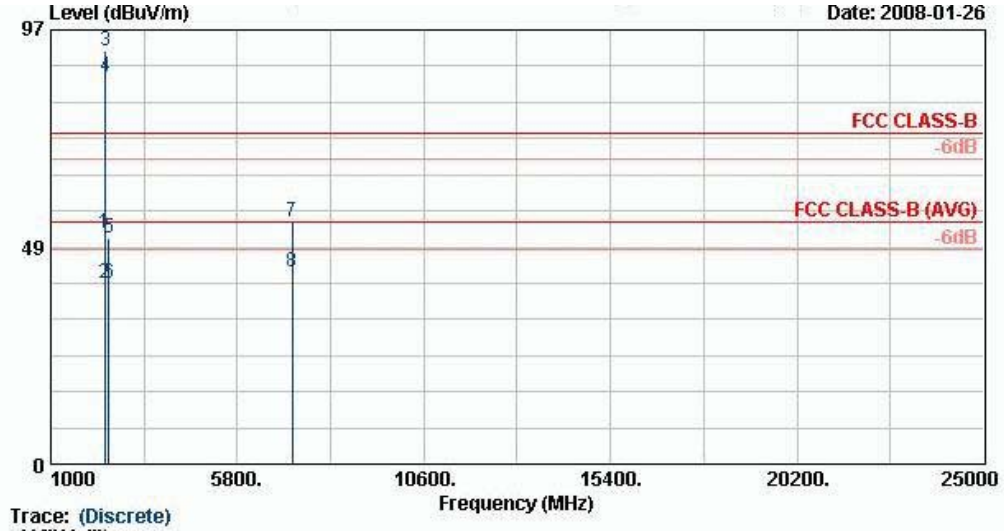
- Temperature : 21~24℃
- Relating Humidity : 49~52%
- Test Enginner : Sun
- Test Mode : Mode 1
- Polarization : Horizontal

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



Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(95112I) HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH00 ; 2402MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	21.20	-18.80	40.00	30.04	19.66	0.30	28.80	---	---	Peak
2	35.13	22.19	-17.81	40.00	34.60	16.13	0.30	28.84	100	143	Peak
3	206.04	21.13	-22.37	43.50	39.22	9.64	0.60	28.33	---	---	Peak
4	507.90	22.10	-23.90	46.00	33.12	17.51	1.00	29.53	---	---	Peak
5	908.30	25.53	-20.47	46.00	32.68	20.59	1.30	29.04	---	---	Peak
6	959.40	26.09	-19.91	46.00	32.71	20.95	1.29	28.86	---	---	Peak



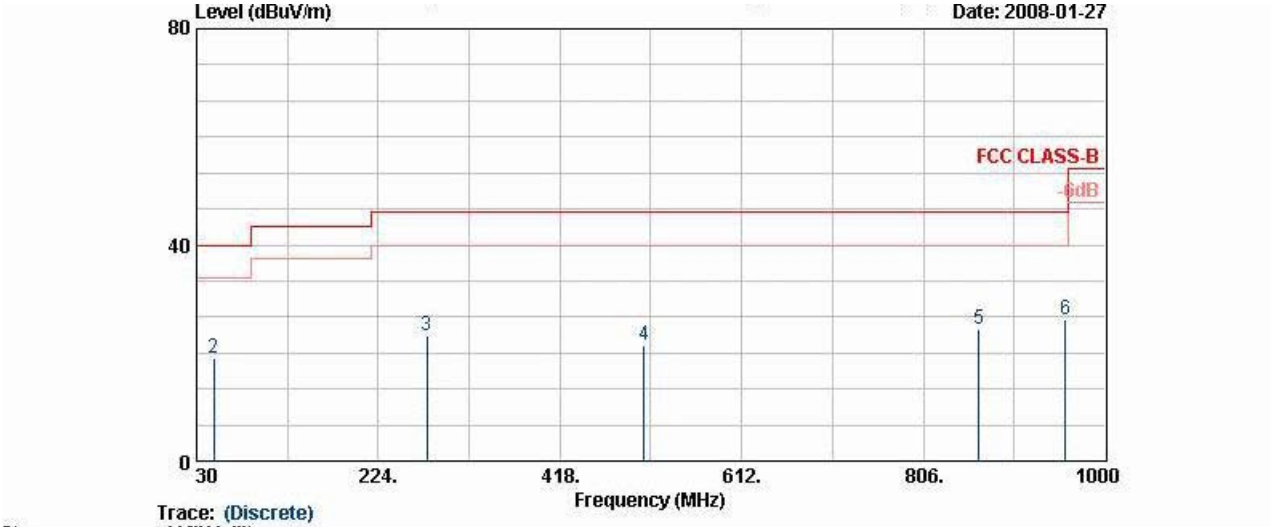
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH00 ; 2402MHz + Adaptor
Plane : H
Data Rate : DH5

	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	2384.48	51.48	-22.52	74.00	51.40	31.83	3.92	35.68	100	0	Peak
2	2384.48	40.29	-13.71	54.00	40.21	31.83	3.92	35.68	100	166	Average
3 X	2402.00	92.37			92.28	31.86	3.92	35.68	100	0	Peak
4 X	2402.00	86.51			86.41	31.86	3.92	35.68	100	166	Average
5	2498.00	50.61	-23.39	74.00	50.26	32.00	4.05	35.70	100	0	Peak
6	2498.00	40.30	-13.70	54.00	39.95	32.00	4.05	35.70	100	166	Average
7	7212.00	54.21	-19.79	74.00	47.42	35.72	7.17	36.09	100	0	Peak
8	7212.00	42.91	-11.09	54.00	36.12	35.72	7.17	36.09	100	306	Average

Remark: #3 and #4 Fundamental Signal

- Polarization : Vertical

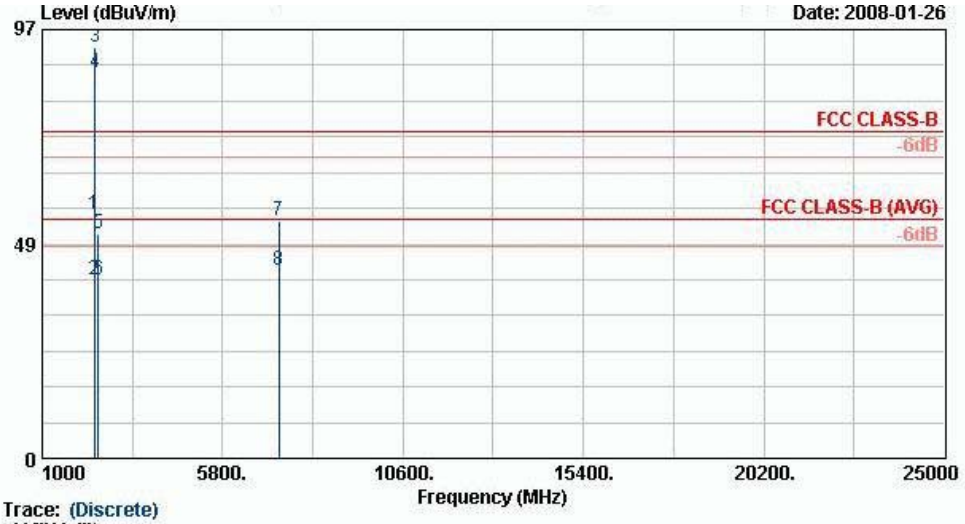
■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH00 ; 2402MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	21.50	-18.50	40.00	30.34	19.66	0.30	28.80	100	153	Peak
2	48.09	18.93	-21.07	40.00	38.05	9.06	0.30	28.48	---	---	Peak
3	276.24	23.11	-22.89	46.00	37.70	12.77	0.70	28.05	---	---	Peak
4	507.90	21.55	-24.45	46.00	32.56	17.51	1.00	29.53	---	---	Peak
5	864.90	24.32	-21.68	46.00	31.96	20.28	1.25	29.18	---	---	Peak
6	957.30	26.30	-19.70	46.00	32.96	20.94	1.27	28.87	---	---	Peak



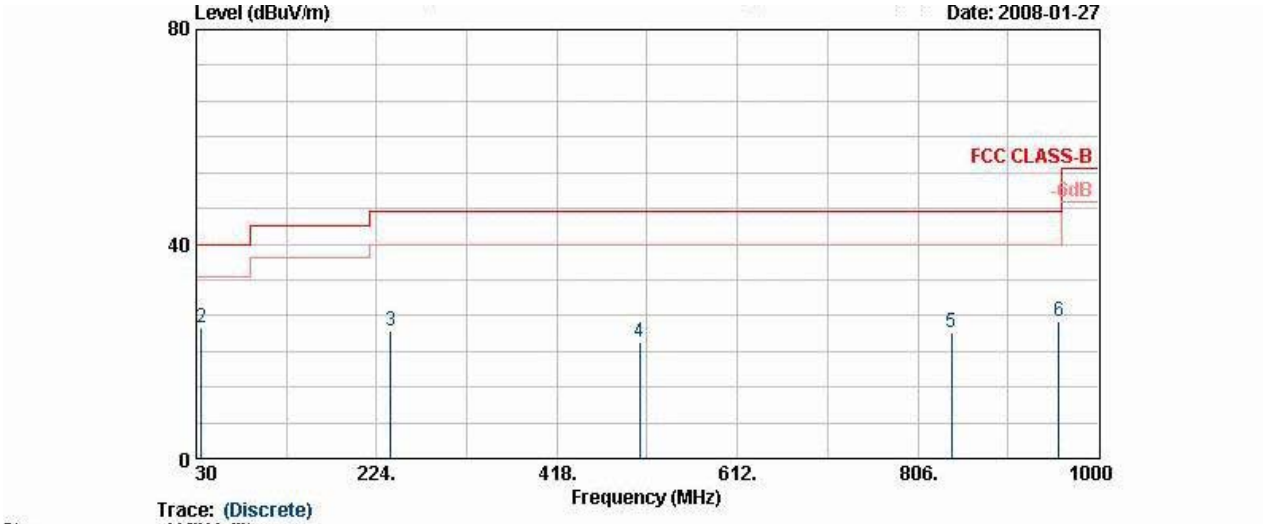
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH00 ; 2402MHz + Adaptor
Plane : H
Data Rate : DH5

	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	2386.76	55.06	-18.94	74.00	54.96	31.86	3.92	35.68	100	0	Peak
2	2386.76	40.33	-13.67	54.00	40.23	31.86	3.92	35.68	100	258	Average
3 X	2402.00	92.94			92.83	31.88	3.92	35.68	100	0	Peak
4 @	2402.00	87.13			87.03	31.86	3.92	35.68	100	258	Average
5	2484.00	50.95	-23.05	74.00	50.62	31.98	4.05	35.70	100	0	Peak
6	2484.00	40.30	-13.70	54.00	39.97	31.98	4.05	35.70	100	258	Average
7	7296.00	53.59	-20.41	74.00	46.83	35.68	7.19	36.12	100	0	Peak
8	7296.00	42.38	-11.62	54.00	35.62	35.68	7.19	36.12	100	163	Average

Remark: #3 and #4 Fundamental Signal

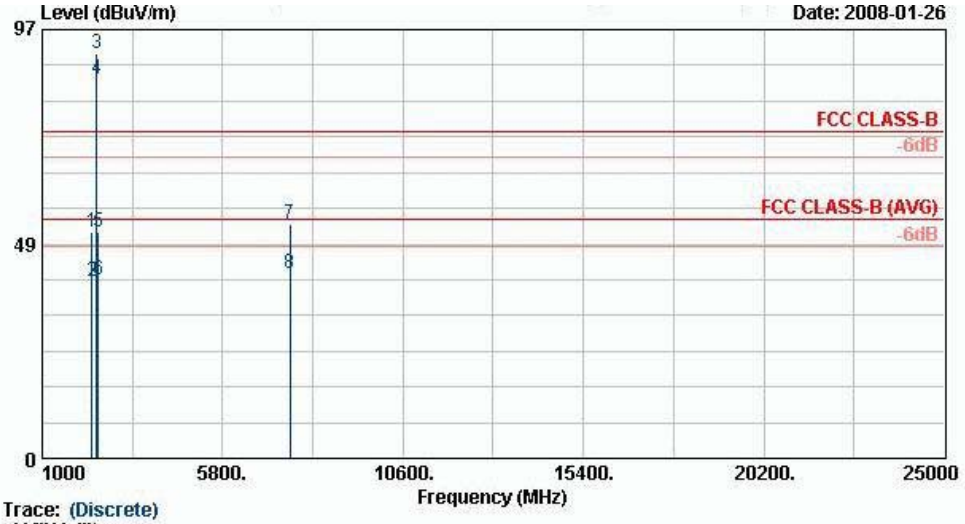
- Test Mode : Mode 2
- Polarization : Horizontal

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



Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH39 ; 2441MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	20.94	-19.06	40.00	29.78	19.66	0.30	28.80	---	---	Peak
2	35.94	24.34	-15.66	40.00	37.22	15.61	0.30	28.79	100	116	Peak
3	238.98	23.92	-22.08	46.00	39.84	11.58	0.70	28.20	---	---	Peak
4	507.20	21.74	-24.26	46.00	32.76	17.50	1.00	29.52	---	---	Peak
5	841.80	23.45	-22.55	46.00	31.38	20.12	1.20	29.25	---	---	Peak
6	957.30	25.61	-20.39	46.00	32.27	20.94	1.27	28.87	---	---	Peak



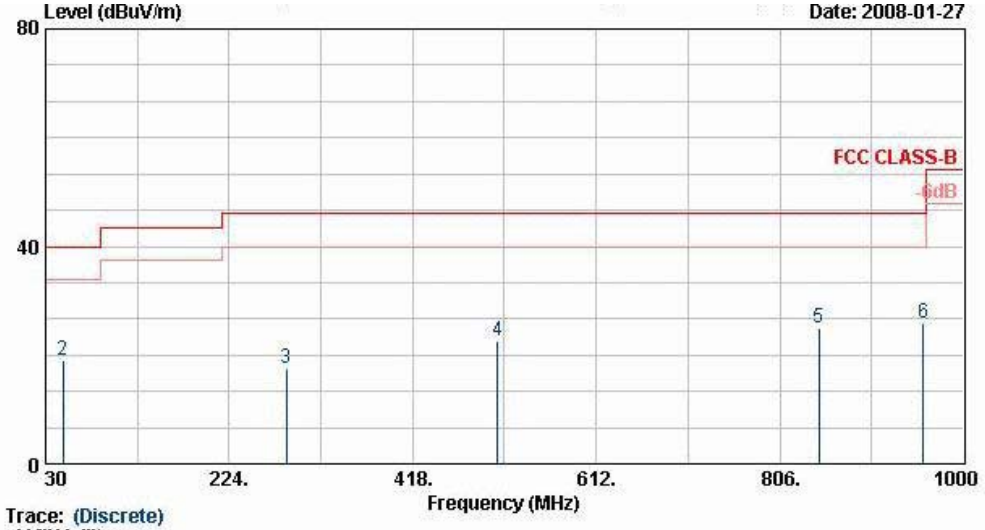
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH39 ; 2441MHz + Adaptor
Plane : H
Data Rate : DH5

	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	2314.00	51.07	-22.93	74.00	51.18	31.73	3.82	35.67	100	0	Peak
2	2314.00	40.09	-13.91	54.00	40.20	31.73	3.82	35.67	195	1	Average
3 X	2441.00	91.60			91.37	31.93	3.99	35.69	100	0	Peak
4 X	2441.00	85.88			85.66	31.93	3.99	35.69	195	1	Average
5	2484.00	51.27	-22.73	74.00	50.94	31.98	4.05	35.70	100	0	Peak
6	2484.00	40.28	-13.72	54.00	39.95	31.98	4.05	35.70	195	1	Average
7	7596.00	53.16	-20.84	74.00	46.44	35.62	7.32	36.22	100	0	Peak
8	7596.00	41.78	-12.22	54.00	35.06	35.62	7.32	36.22	100	156	Average

Remark: #3 and #4 Fundamental Signal

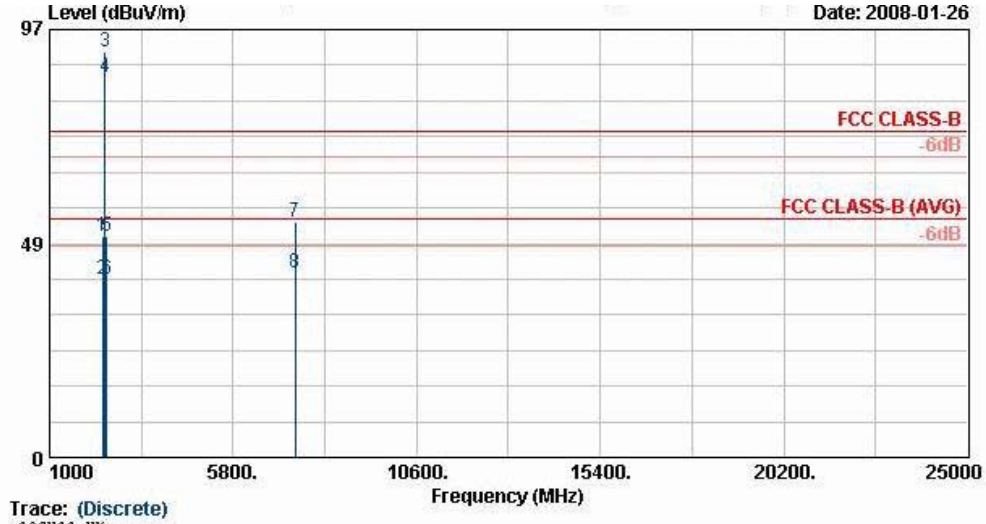
- Polarization : Vertical

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



Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH39 ; 2441MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	21.07	-18.93	40.00	29.91	19.66	0.30	28.80	100	238	Peak
2	48.63	19.05	-20.95	40.00	38.17	9.06	0.30	28.48	---	---	Peak
3	284.88	17.57	-28.43	46.00	31.96	12.93	0.70	28.02	---	---	Peak
4	507.90	22.65	-23.35	46.00	33.66	17.51	1.00	29.53	---	---	Peak
5	847.40	24.89	-21.11	46.00	32.76	20.16	1.20	29.23	---	---	Peak
6	957.30	25.77	-20.23	46.00	32.42	20.94	1.27	28.87	---	---	Peak



Trace: (Discrete)

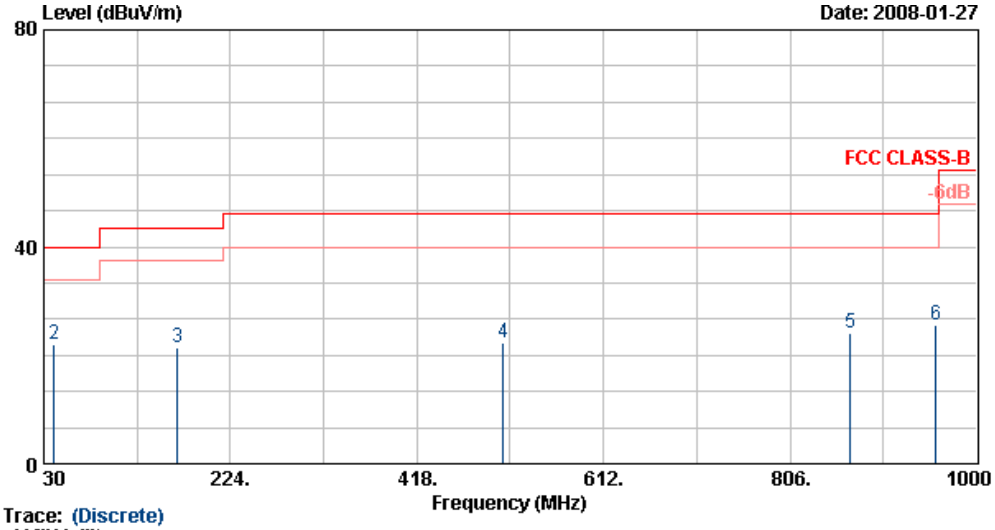
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH39 ; 2441MHz + Adaptor
Plane : H
Data Rate : DH5

	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	2384.00	50.21	-23.79	74.00	50.14	31.83	3.92	35.68	100	0	Peak
2	2384.00	40.29	-13.71	54.00	40.21	31.83	3.92	35.68	100	259	Average
3 X	2441.00	91.95			91.72	31.93	3.99	35.69	100	0	Peak
4 @	2441.00	86.24			86.02	31.93	3.99	35.69	100	259	Average
5	2484.00	49.97	-24.03	74.00	49.64	31.98	4.05	35.70	100	0	Peak
6	2484.00	40.29	-13.71	54.00	39.96	31.98	4.05	35.70	100	259	Average
7	7431.00	53.25	-20.75	74.00	46.55	35.63	7.24	36.17	100	0	Peak
8	7431.00	41.83	-12.17	54.00	35.13	35.63	7.24	36.17	100	259	Average

Remark: #3 and #4 Fundamental Signal

- Test Mode : Mode 3
- Polarization : Horizontal

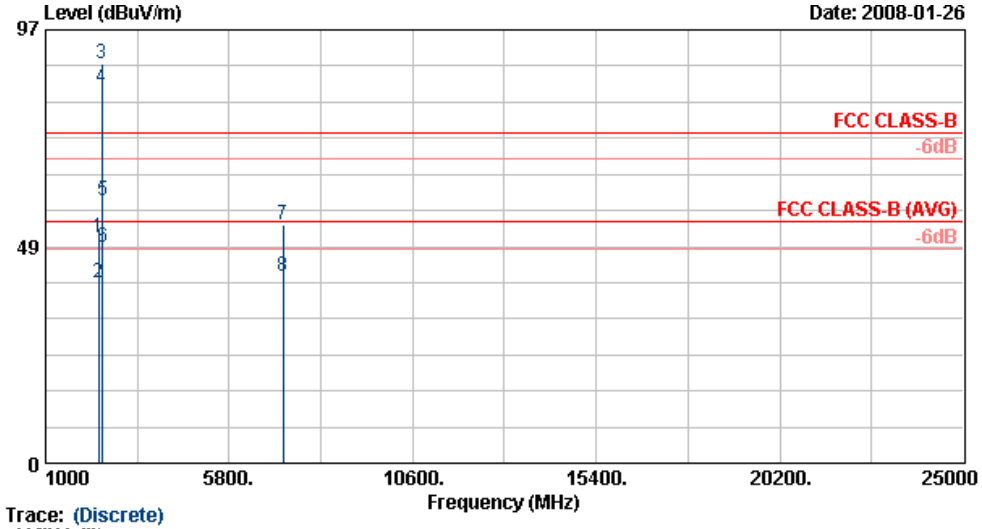
■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH78 ; 2480MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	22.74	-17.26	40.00	31.59	19.66	0.30	28.80	100	215	Peak
2	40.53	22.08	-17.92	40.00	37.34	13.01	0.30	28.57	---	---	Peak
3	168.78	21.53	-21.97	43.50	39.30	9.94	0.60	28.30	---	---	Peak
4	507.90	22.32	-23.68	46.00	33.34	17.51	1.00	29.53	---	---	Peak
5	868.40	24.21	-21.79	46.00	31.80	20.30	1.28	29.17	---	---	Peak
6	957.30	25.69	-20.31	46.00	32.34	20.94	1.27	28.87	---	---	Peak



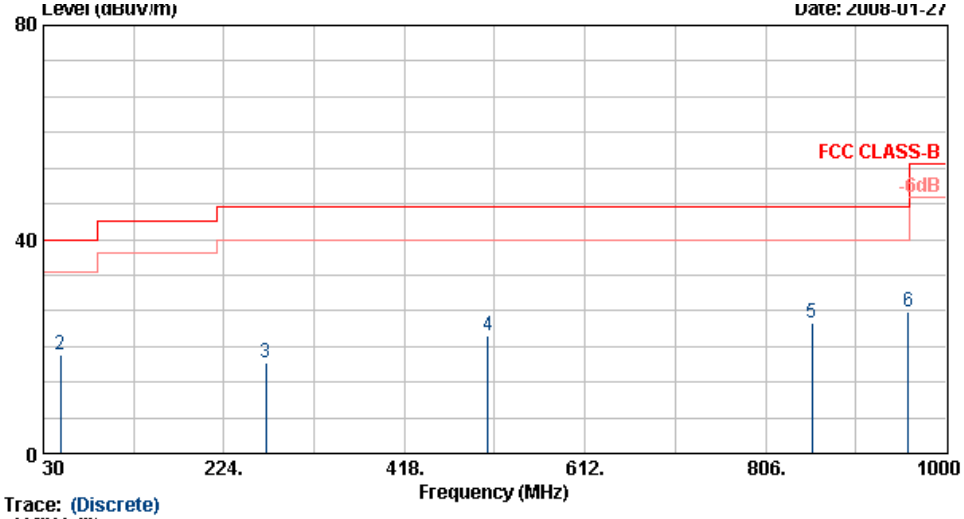
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH78 ; 2480MHz + Adaptor
Plane : H
Data Rate : DH5

		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		2378.00	50.38	-23.62	74.00	50.33	31.83	3.89	35.68	100	0	Peak
2		2378.00	40.23	-13.77	54.00	40.19	31.83	3.89	35.68	191	152	Average
3	X	2480.00	89.40			89.07	31.98	4.05	35.70	100	0	Peak
4	X	2480.00	83.90			83.57	31.98	4.05	35.70	191	152	Average
5		2483.47	58.72	-15.28	74.00	58.39	31.98	4.05	35.70	100	0	Peak
6	!	2483.47	48.30	-5.70	54.00	47.97	31.98	4.05	35.70	191	152	Average
7		7212.00	53.33	-20.67	74.00	46.53	35.72	7.17	36.09	100	0	Peak
8		7212.00	41.96	-12.04	54.00	35.17	35.72	7.17	36.09	100	109	Average

Remark: #3 and #4 Fundamental Signal

- Polarization : Vertical

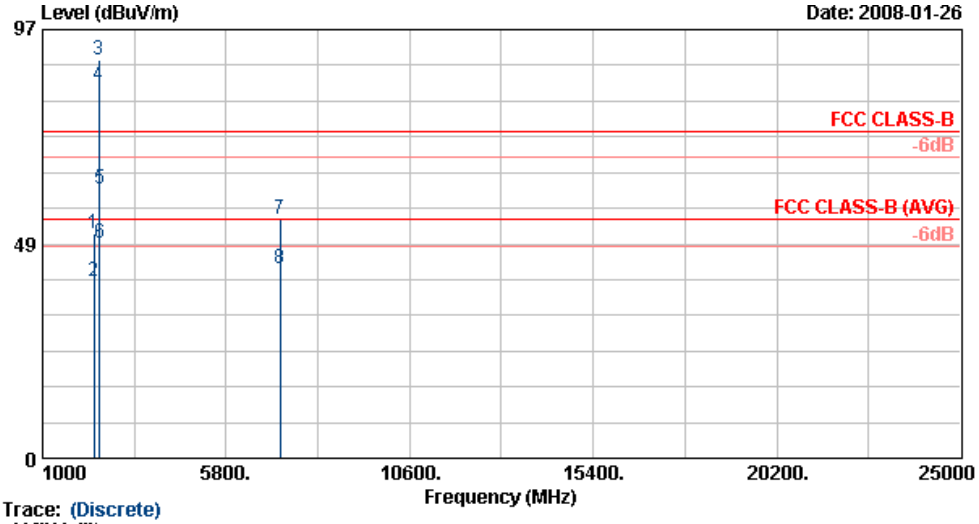
■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH78 ; 2480MHz + Adaptor
Plane : H
Data Rate : DH5

	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	30.00	21.15	-18.85	40.00	29.99	19.66	0.30	28.80	100	139	Peak
2	48.09	18.34	-21.66	40.00	37.46	9.06	0.30	28.48	---	---	Peak
3	268.68	17.04	-28.96	46.00	31.81	12.62	0.70	28.08	---	---	Peak
4	507.90	21.90	-24.10	46.00	32.92	17.51	1.00	29.53	---	---	Peak
5	855.80	24.48	-21.52	46.00	32.27	20.21	1.20	29.21	---	---	Peak
6	959.40	26.40	-19.60	46.00	33.02	20.95	1.29	28.86	---	---	Peak



Trace: (Discrete)

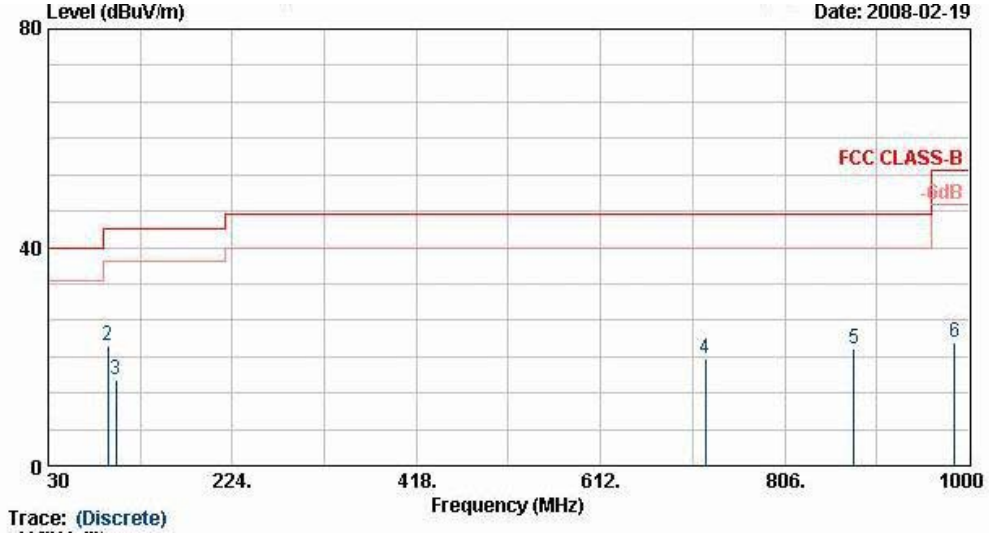
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812117
Memo : BT Tx_CH78 ; 2480MHz + Adaptor
Plane : H
Data Rate : DH5

	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	2338.00	51.01	-22.99	74.00	51.04	31.78	3.86	35.67	100	0	Peak
2	2338.00	40.15	-13.85	54.00	40.18	31.78	3.86	35.67	100	277	Average
3 X	2480.00	90.11			89.78	31.98	4.05	35.70	100	0	Peak
4 @	2480.00	84.51			84.18	31.98	4.05	35.70	100	277	Average
5	2483.47	60.83	-13.17	74.00	60.50	31.98	4.05	35.70	100	0	Peak
6 !	2483.47	48.84	-5.16	54.00	48.51	31.98	4.05	35.70	100	277	Average
7	7221.00	54.06	-19.94	74.00	47.27	35.71	7.17	36.09	100	0	Peak
8	7221.00	42.80	-11.20	54.00	36.01	35.71	7.17	36.09	100	239	Average

Remark: #3 and #4 Fundamental Signal

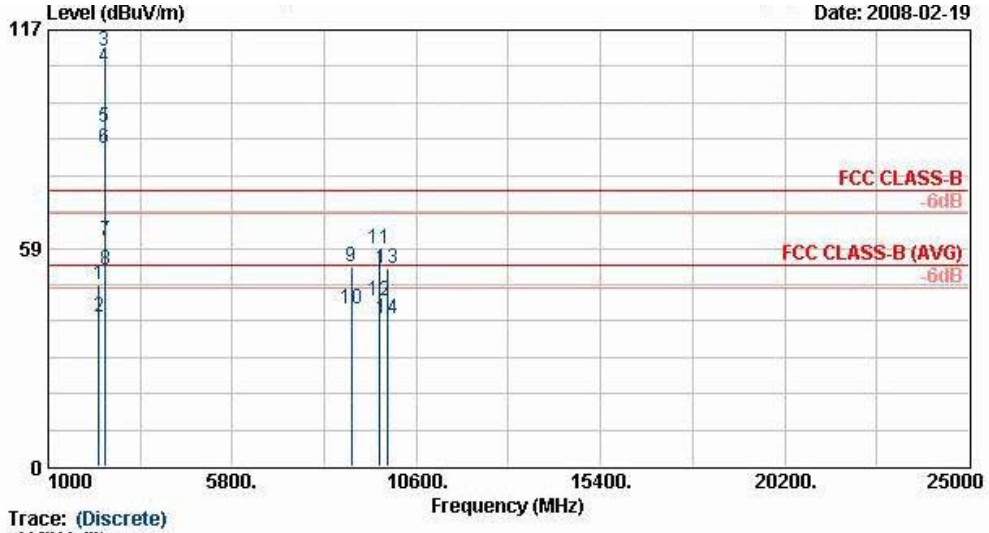
- Test Mode : Mode 4
- Polarization : Horizontal

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



Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812602
Memo : BT Tx_Ch78;2480 + 11b Tx_Ch11; 2462MHz
: + Adaptor
Data Rate : BT:DH5 WLAN:2
Plane : H
TMET : 355348010013112

	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	30.00	21.41	-18.59	40.00	34.95	19.66	0.30	33.50	100	126	Peak
2	92.64	21.88	-21.62	43.50	45.10	9.62	0.50	33.33	---	---	Peak
3	101.28	15.81	-27.69	43.50	37.51	11.07	0.50	33.27	---	---	Peak
4	722.80	19.70	-26.30	46.00	32.46	19.10	1.17	33.03	---	---	Peak
5	878.90	21.48	-24.52	46.00	32.55	20.38	1.30	32.75	---	---	Peak
6	985.30	22.71	-31.29	54.00	32.45	21.14	1.30	32.18	---	---	Peak



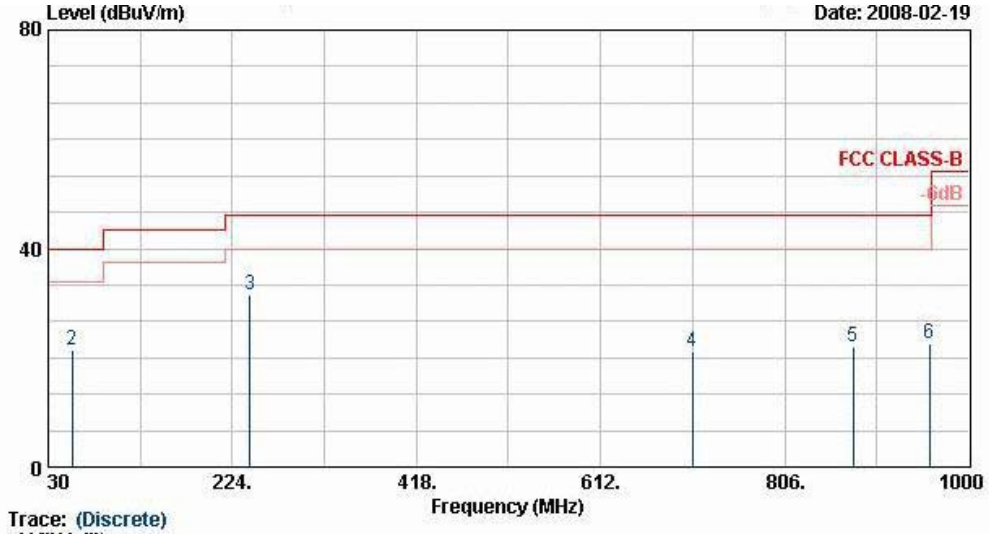
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812802
Memo : BT Tx_Ch78;2480 + 11b Tx_Ch11; 2462MHz
+ Adaptor
Data Rate : BT:DH5 WLAN:2
Plane : H
TMET : 355348010013112

		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		2318.00	48.73	-25.27	74.00	48.82	31.76	3.82	35.67	100	0	Peak
2		2318.00	39.85	-14.15	54.00	39.93	31.76	3.82	35.67	100	355	Average
3	X	2462.00	111.46			111.18	31.95	4.02	35.69	100	0	Peak
4	@	2462.00	107.11			106.83	31.95	4.02	35.69	100	355	Average
5	X	2480.00	90.85			90.52	31.98	4.05	35.70	100	0	Peak
6	X	2480.00	85.26			84.93	31.98	4.05	35.70	100	344	Average
7		2483.47	60.54	-13.46	74.00	60.21	31.98	4.05	35.70	100	0	Peak
8	!	2483.47	52.74	-1.26	54.00	52.41	31.98	4.05	35.70	100	344	Average
9		8907.00	53.38	-20.62	74.00	45.88	36.36	7.68	36.54	100	0	Peak
10		8907.00	42.12	-11.88	54.00	34.62	36.36	7.68	36.54	100	153	Average
11		9642.00	58.22	-15.78	74.00	97.10	-10.09	7.94	36.73	100	0	Peak
12		9642.00	44.56	-9.44	54.00	83.44	-10.09	7.94	36.73	100	246	Average
13		9846.00	52.94	-21.06	74.00	91.30	-9.63	8.04	36.77	100	0	Peak
14		9846.00	39.62	-14.38	54.00	77.98	-9.63	8.04	36.77	100	116	Average

Remark: #3, #4, #5, and #6 Fundamental Signal

- Polarization : Vertical

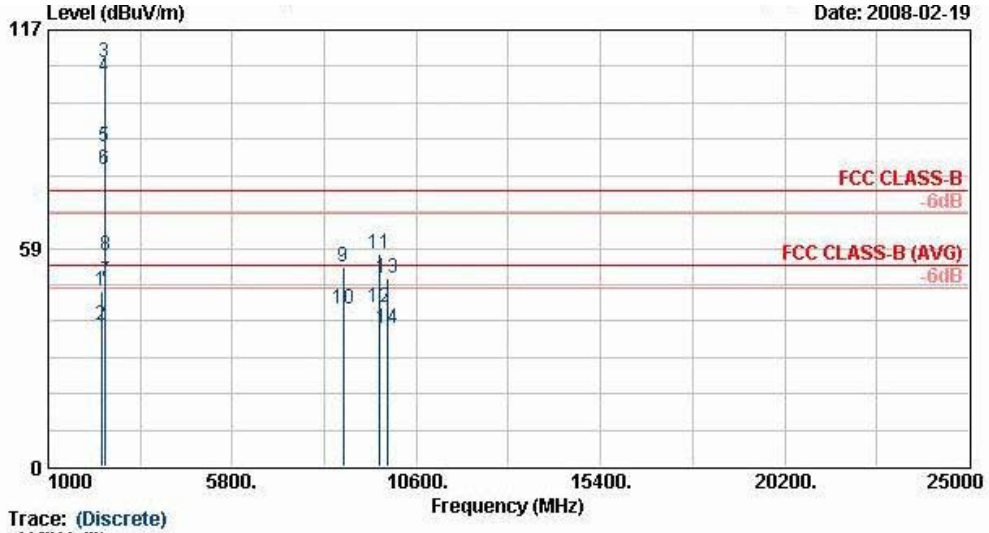
■ The test that passed at minimum margin was marked by the frame in the following table.



Trace: (Discrete)

```
Site          :  03CH06-HY
Condition     :  FCC CLASS-B 3m LF-ANT(95112I) VERTICAL
EUT           :  Mobile Phone
Power         :  120Vac/60Hz
Model         :  FR 812802
Memo          :  BT Tx_Ch78;2480 + 11b Tx_Ch11; 2462MHz
              :   + Adaptor
Data Rate     :  BT:DH5     WLAN:2
Plane         :  H
TMET          :  3553480100131I2
```

	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	30.00	21.18	-18.82	40.00	34.72	19.66	0.30	33.50	---	---	Peak
2	55.38	21.33	-18.67	40.00	46.95	7.35	0.40	33.37	---	---	Peak
3	242.49	31.39	-14.61	46.00	52.33	11.81	0.70	33.45	100	326	Peak
4	708.80	21.03	-24.97	46.00	33.98	18.97	1.19	33.12	---	---	Peak
5	878.20	21.90	-24.10	46.00	32.97	20.37	1.30	32.75	---	---	Peak
6	958.70	22.60	-23.40	46.00	32.75	20.94	1.28	32.37	---	---	Peak



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : Mobile Phone
Power : 120Vac/60Hz
Model : FR 812802
Memo : BT Tx_Ch78;2480 + 11b Tx_Ch11; 2462MHz
: + Adaptor
Data Rate : BT:DH5 WLAN:2
Plane : H
TMET : 355348010013112

		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		2380.00	47.16	-26.84	74.00	47.09	31.83	3.92	35.68	100	0	Peak
2		2380.00	37.94	-16.06	54.00	37.86	31.83	3.92	35.68	160	124	Average
3	X	2462.00	108.31			108.03	31.95	4.02	35.69	100	0	Peak
4	@	2462.00	104.24			103.96	31.95	4.02	35.69	160	124	Average
5	X	2480.00	85.71			85.38	31.98	4.05	35.70	100	0	Peak
6	X	2480.00	79.69			79.36	31.98	4.05	35.70	100	126	Average
7	!	2483.47	49.65	-4.35	54.00	49.32	31.98	4.05	35.70	160	124	Average
8		2483.47	56.73	-17.27	74.00	56.40	31.98	4.05	35.70	100	0	Peak
9		8697.00	53.65	-20.35	74.00	46.54	36.08	7.45	36.42	100	0	Peak
10		8697.00	42.24	-11.76	54.00	35.13	36.08	7.45	36.42	100	265	Average
11		9642.00	56.79	-17.21	74.00	95.67	-10.09	7.94	36.73	100	0	Peak
12		9642.00	42.59	-11.41	54.00	81.47	-10.09	7.94	36.73	100	114	Average
13		9846.00	50.31	-23.69	74.00	88.68	-9.63	8.04	36.77	100	0	Peak
14		9846.00	36.91	-17.09	54.00	75.27	-9.63	8.04	36.77	100	297	Average

Remark: #3, #4, #5, and #6 Fundamental Signal

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 antennas used in this product are Chip antenna for BT without connector. It is considered to meet antenna requirement of FCC.

5.10.3 Antenna Gain

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

6. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz – 2.75GHz	Jul. 14, 2007	Jul. 13, 2008	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Mar. 29, 2007	Mar. 28, 2008	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 30, 2007	Mar. 29, 2008	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. 03, 2007	Dec. 02, 2008	Conduction (CO01-HY)
Isolation Transformer	Erika Fiedler OHG	D-65396 Walluf	58	45MHz-2.15GHz	N/A	N/A	Conduction (CO01-HY)
Impedance Stabilization Network	SCHAFFNER	T400	21653	150kHz – 230MHz	Mar. 28, 2007	Mar. 27, 2008	Conduction (CO01-HY)
Impedance Stabilization Network	SCHAFFNER	T400	23342	150kHz – 230MHz	Mar. 05, 2007	Mar. 04, 2008	Conduction (CO01-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Com-Power	AH118	071025	1G~18G	Jun. 04, 2007	Jun. 03, 2008	Radiation (03CH06-HY)
SHF-EHF Horn	SCHWARZBECK	BBHA 9170	9170-251	14G - 40G	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G - 26.5G	Nov. 22, 2007	Nov. 21, 2008	Radiation (03CH06-HY)
PreAmplifier	EMEC	PA303	PA303-SMA-0	100K~3GHz	Nov. 26, 2007	Nov. 25, 2008	Radiation (03CH06-HY)
Base Station Simulator	R & S	CMU200	103937	Third-Band	Oct. 19, 2007	Oct. 18, 2008	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	0.11	Normal(k=2)	0.06
Antenna factor calibration	0.91	Normal(k=2)	0.46
Cable loss calibration	0.12	Normal(k=2)	0.06
Pre Amplifier Gain calibration	0.15	Normal(k=2)	0.08
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.52	Rectangular	0.88
Mismatch	+0.45/-0.48	U-shaped	0.33
Combined standard uncertainty Uc(y)	**1.30**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.60**		

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**				

The measured result is ：y dBuV ± U dB

for a level of confidence of approximately 95%，(k= 2)