



FCC Test Report

for

47 CFR Part 15 Subpart C

Equipment : Notebook PC

Trade Name : MTC; GETAC

Model No. : B300

FCC ID : MAU302

Filing Type : Certification

Applicant : MiTAC Technology Corp.

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

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- The data shown in this test report were carried out on Nov. 22, 2007 at **Sporton International Inc. LAB.**
- Report No.: FR7O1819-01-C, Report Version: Rev.01

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History of this test report

Report Issue Date: Dec. 27, 2007

Report No.	Description



1. General Description of Equipment under Test

1.1 Applicant

MiTAC Technology Corp.

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

1.2 Manufacturer

GeTAC Technology(Kunshan) LTD.

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

1.3 Basic Description of Equipment under Test

Equipment		Notebook PC
Trade Name		MTC; GETAC
Model Name		B300
FCC ID		MAU302
AC Adapter	Brand Name	Delta
	Model Name	ADP-90SB BB
	Power Rating	I/P : 100-240Vac, 1.5A, 50-60Hz; O/P : 19Vdc, 4.74A
	AC Power Cord Type	1.73 meter shielded with ferrite core
Battery	Brand Name	SAYNO
	Model Name	BP3S3P2550(P)
	Power Rating	10.8V, 7.65Ah
	Type	Li-ion

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				
1.	Type of Modulation	WLAN : DSSS / OFDM Bluetooth : GFSK		
2.	Freq. Range/Carrier Freqs.	802.11a : 8 (Band I and II) / 5 Channels (Band III) 802.11b/g : 11 Channels Bluetooth : 79 Channels		
3.	Number of Channels	802.11a : 5150 ~ 5350MHz (Band I,II) / 5725MHz ~ 5850MHz (Band III) 802.11b/g : 2400MHz ~ 2483.5MHz Bluetooth : 2400MHz ~ 2483.5MHz		
4.	Carrier Frequency of each channel	802.11a Band I : 5000+n*5 MHz, n=36, 40, 44, 48 802.11a Band II : 5000+n*5 MHz, n=52, 56, 60, 64 802.11a Band III : 5000+n*5 MHz, n=149, 153, 157, 161, 165 802.11b/g : 2412MHz+(n-1)*5MHz, n=1~11 Bluetooth : 2402MHz+n*1MHz, n=0~78		
5.	Channel Spacing	802.11a : 5 MHz 802.11b/g : 5 MHz Bluetooth : 1 MHz		
6.	Maximum Output Power to Antenna (Normal Condition)	802.11a : 16.61 dBm (Band I) / 19.51 dBm (Band II) / 17.06 dBm (Band III) 802.11b : 14.86 dBm 802.11g : 15.40 dBm Bluetooth : -0.21 dBm		
7.	Type of Antenna Connector	N/A		
8.	Antenna Type	Bluetooth : PIFA Antenna WLAN : PIFA Antenna		
9.	Antenna Gain	Bluetooth : -1.09 dBi WLAN : 1.55 dBi		
10.	Function Type	Transmitter		Transceiver V



1.5 Specification of Notebook

	Mode 1 (E100)	Mode 2 (E100N)
LCD	L5S30348P01, 13.1" XGA, ESPON	Sanyo Panel + Sunlight readable L5S30348P01, 13.3", EPSON,
CPU	L7300	L7500
ODD	SUPER MULIT DVD R9 DEVICE;UJ850UPK-AG,CS F/W:1.6,W/O BEZEL,KME	
HDD	MHY2080BH,2.5",80GB,5400RPM,S ATA,FUJITSU	MHY2120BH,2.5",120GB,5400RPM,SA TA,FUJITSU
Memory	1GB,HYS64T128021EDL-3S-B2,QI MONDA	HYMP512S64CP8-Y5,DDR2 667 1G,HYNIX (x 2)
Battery	BP3S3P2550(P) LI-ION,10.8V/7.65AH,BQ20z90,PAN,9CELLS,3S3P	
ADP	Delta ADP-90SB BB	
MDC	RD02-D330,AZALIA,BILLIONTON	
WLAN	Intel wireless 3945 802.11a/b/g (MOW1)	Intel wireless 3945 802.11a/b/g (MOW2)
Bluetooth	Billionton GUBTCR42M	
GPS	ET313,GPS ENGINE BOARD,GLOBALSAT,GPI	

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.

2.2 Test Mode

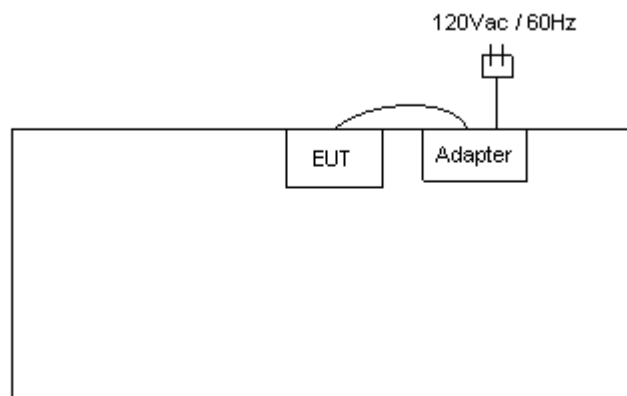
Application			
Radiated Emission / RF Conducted	BT		
	Mode 1:CH00_2402MHz		
	Mode 2:CH39_2441MHz		
	Mode 3:CH78_2480MHz		
	Mode 4: 802.11a_CH157_5785 MHz + BT_CH78_2480MHz		
Conducted Emission	Mode 1: BT Link + WLAN Link + Adpater		

2.3 Ancillary Equipment List

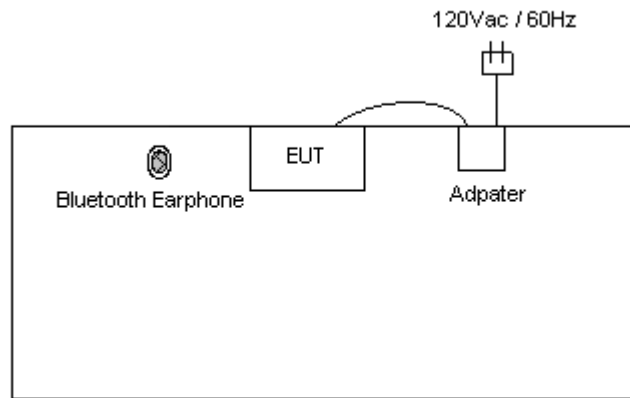
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable / Power Cord
1.	Bluetooth Eerpgone	Engotech	ET-BH111	PQY471087	N/A

2.4 Connection Diagram of Test System

<Radiated Emission>



<Conducted Emission>





3. RF Utility

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 testing.



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 : CO04-HY, 03CH04-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)	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)	Output Power	Pass
15.247(c)	100kHz Bandwidth of Frequency Band Edges	Pass
15.209(a)	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 : 25~26°C
Relative Humidity : 57~55%
Test Enginner : Ken

Test Result in BT lower band : PASS

Test Result in BT higher band : PASS



5.2.4 Note on Band Edge Emission

> BT

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
2390.000	44.31	-29.69	74.00	41.81	32.54	3.74	33.78	100	0	Peak
2390.000	33.50	-20.50	54.00	31.00	32.54	3.74	33.78	100	312	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
2390.000	44.74	-29.26	74.00	42.24	32.54	3.74	33.78	100	0	Peak
2390.000	33.08	-20.92	54.00	30.58	32.54	3.74	33.78	131	247	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
2483.500	57.51	-16.49	74.00	54.88	32.59	3.84	33.80	100	0	Peak
2483.500	48.29	-5.71	54.00	45.66	32.59	3.84	33.80	144	196	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
2483.500	59.88	-14.12	74.00	57.25	32.59	3.84	33.80	100	0	Peak
2483.500	50.14	-3.86	54.00	47.51	32.59	3.84	33.80	144	150	Average



5.2.5 20dB Band Edge

BT

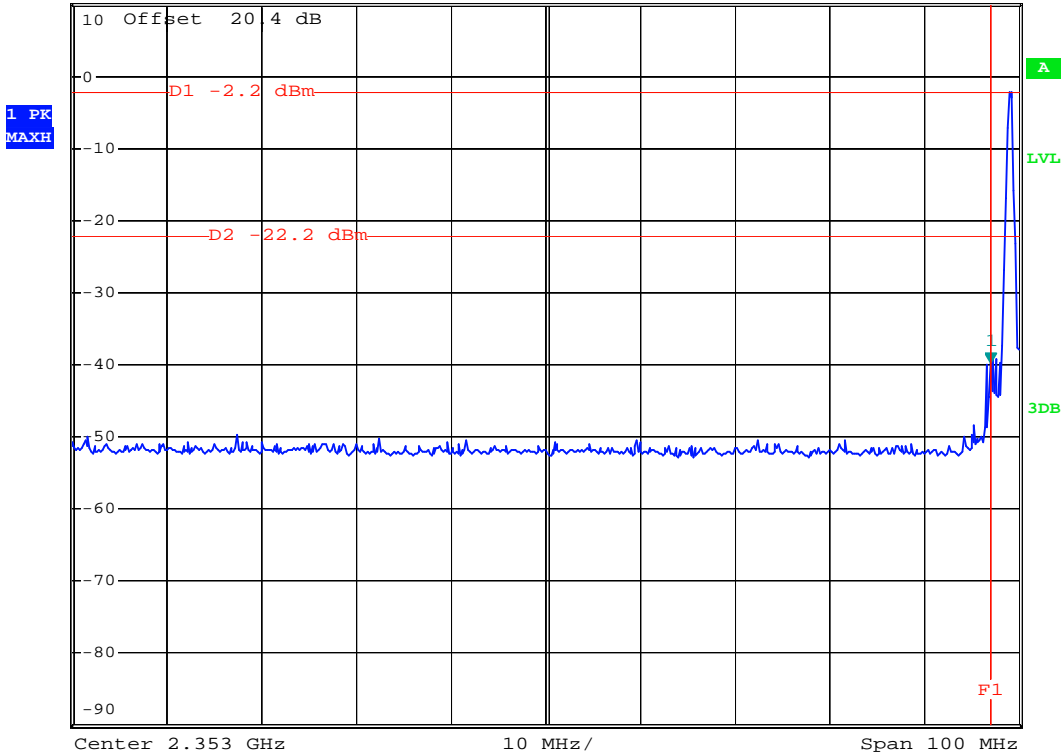
CH00



*RBW 100 kHz Marker 1 [T1]
*VBW 100 kHz -39.86 dBm
*SWT 500 ms 2.400000000 GHz

Ref 10 dBm

*Att 20 dB



Date: 9.NOV.2007 17:48:24

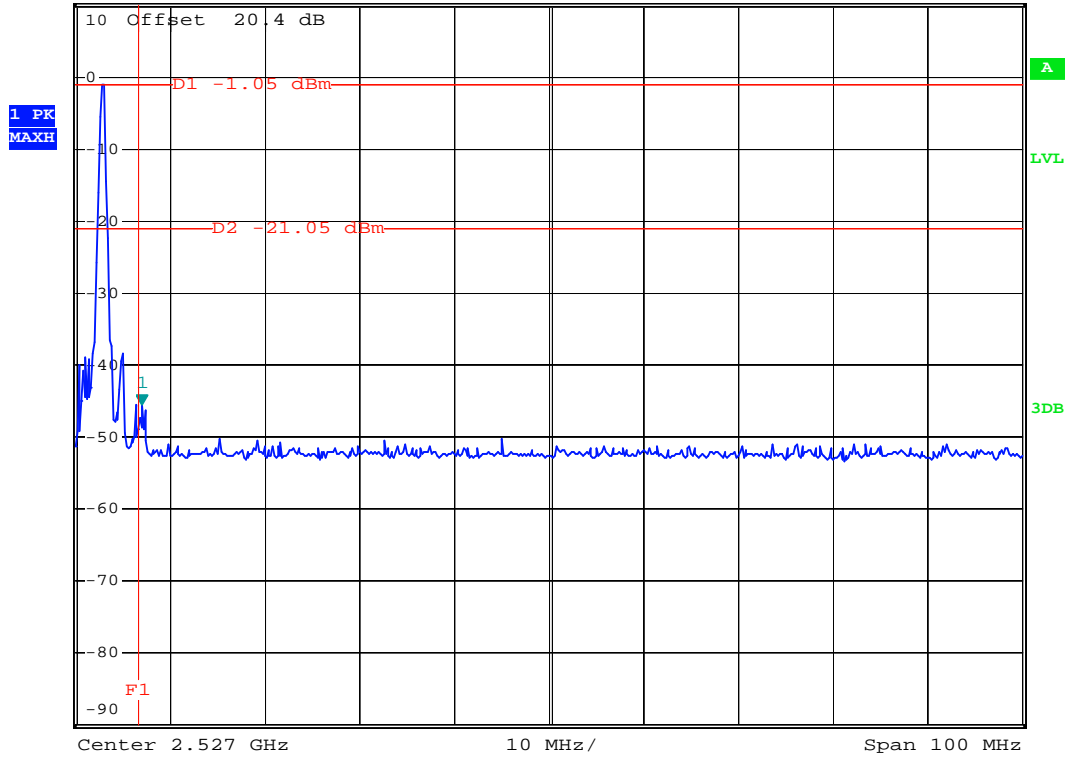


BT

CH78



Ref 10 dBm *Att 20 dB *RBW 100 kHz Marker 1 [T1]
*VBW 100 kHz -45.45 dBm
*SWT 500 ms 2.484000000 GHz



Date: 9.NOV.2007 17:51:56

5.3 Hopping Channel Separation

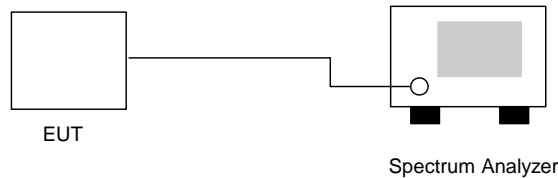
5.3.1 Measuring Instruments :

As described in chapter 9 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 $\geq 1\%$ of the span and VBW \geq 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 : 25~26°C
 Relative Humidity : 57~55%
 Test Engineer : Ken

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.546	Mode 1
39	2441	1.004	0.548	Mode 2
78	2480	1.004	0.556	Mode 3

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

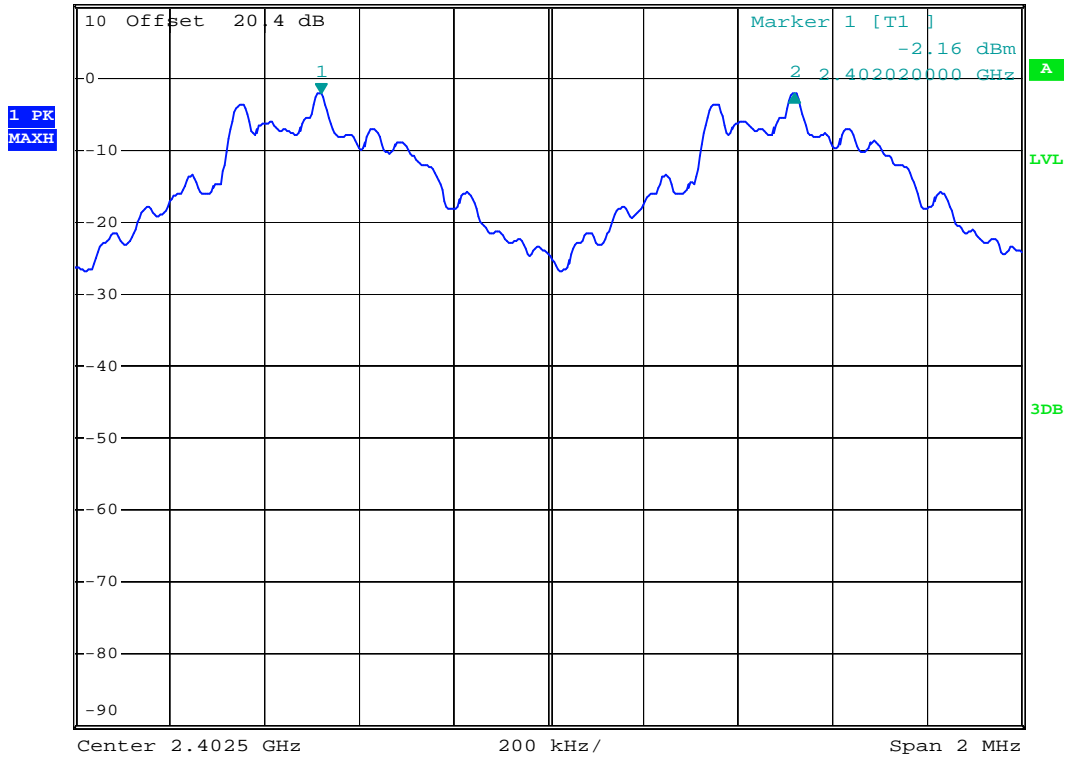


5.3.5 Hopping Channel Separation

Mode 1



Ref 10 dBm *Att 20 dB *RBW 30 kHz Delta 2 [T1] *VBW 100 kHz 0.07 dB *SWT 500 ms 1.000000000 MHz



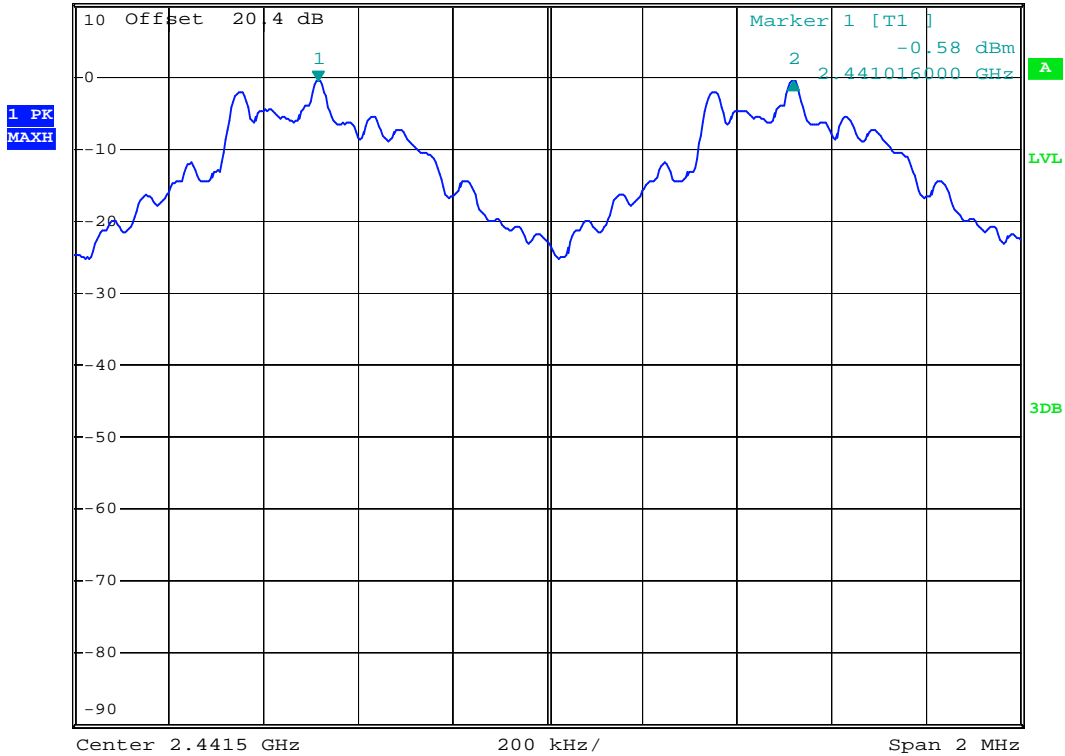
Date: 9.NOV.2007 17:55:07



Mode 2



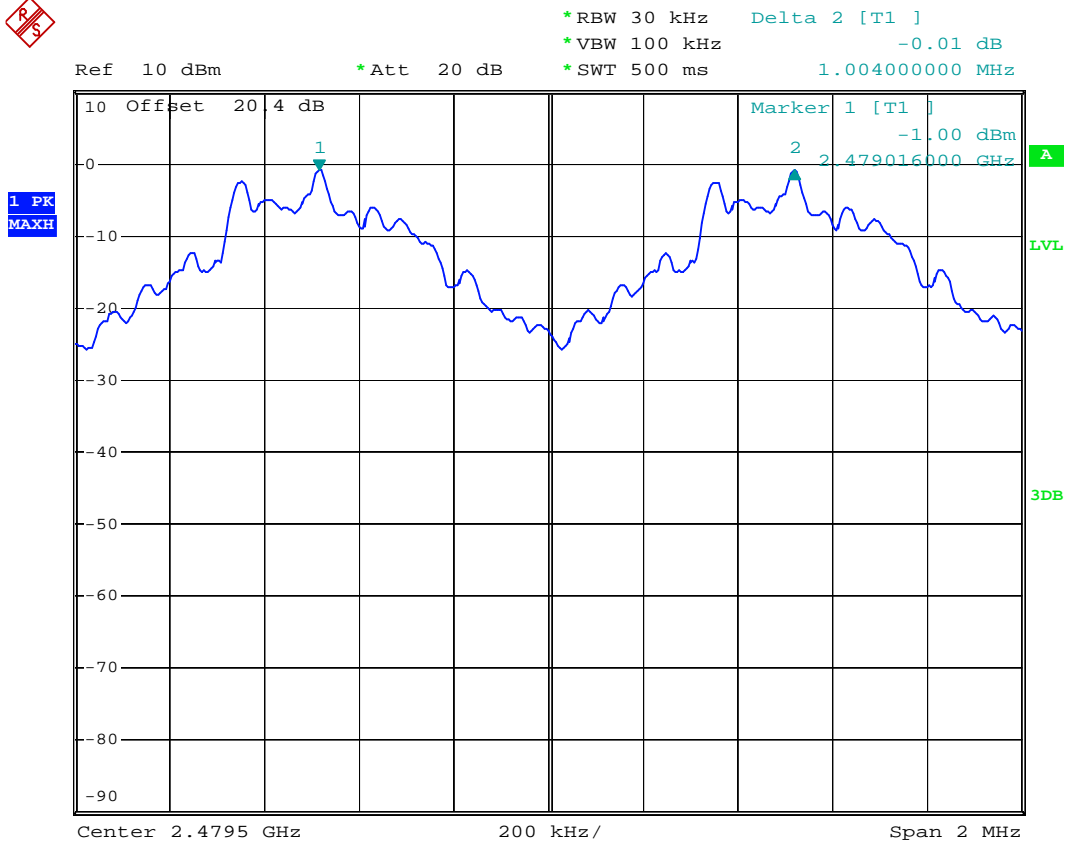
Ref 10 dBm *Att 20 dB *RBW 30 kHz Delta 2 [T1]
 *VBW 100 kHz -0.04 dB
 *SWT 500 ms 1.004000000 MHz



Date: 9.NOV.2007 17:56:39



Mode 3



Date: 9.NOV.2007 17:58:33

5.4 Number of Hopping Frequency

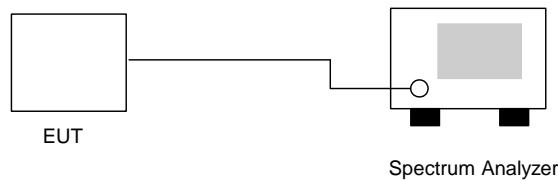
5.4.1 Measuring Instruments :

As described in chapter 9 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

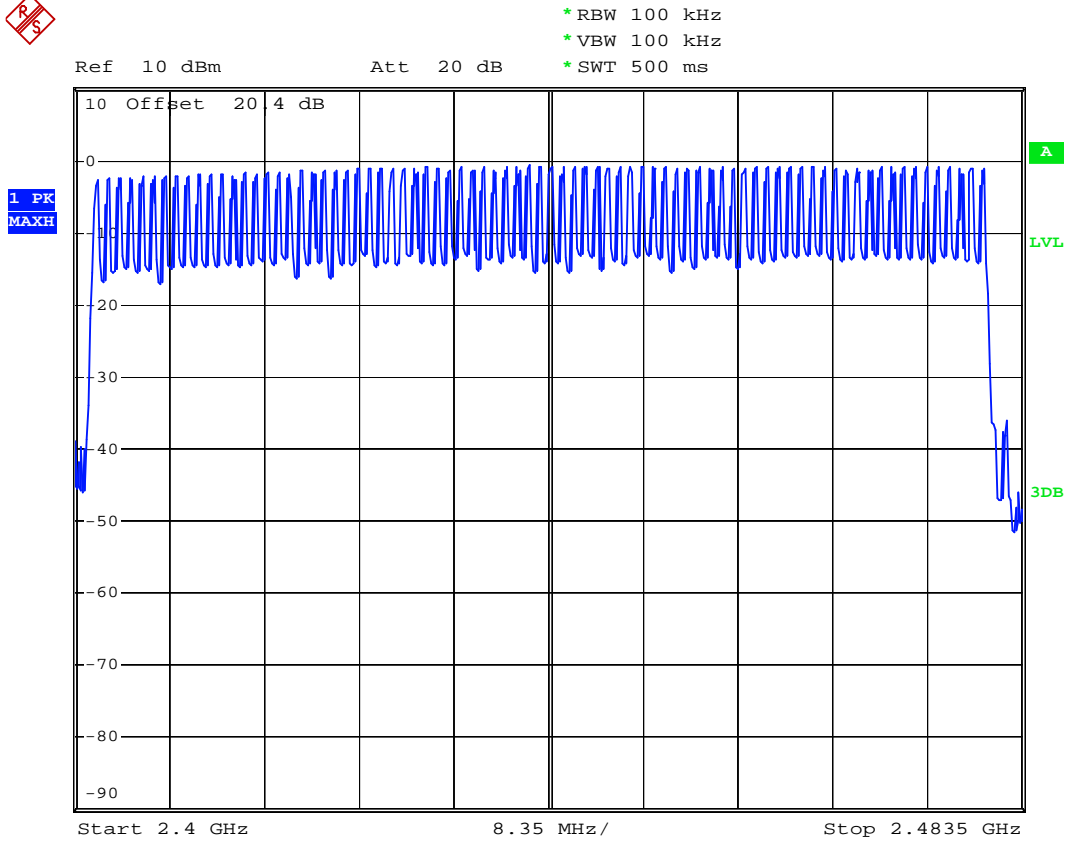
Application Type : BT
 Temperature : 25~26°C
 Relative Humidity : 57~55%
 Test Engineer : Ken

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



5.4.5 Number of Hopping Frequency

BT



Date: 9.NOV.2007 19:58:08

5.5 Hopping Channel Bandwidth

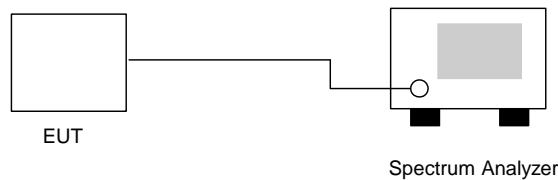
5.5.1 Measuring Instruments :

As described in chapter 9 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 : 25~26°C
 Relative Humidity : 57~55%
 Test Engineer : Ken

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	0.819	Mode 1
39	2441	0.822	Mode 2
78	2480	0.834	Mode 3



5.5.5 Hopping Channel Bandwidth

Mode 1



*RBW 30 kHz Delta 2 [T1]
*VBW 300 kHz 0.26 dB
*SWT 500 ms 819.00000000 kHz

Ref 10 dBm

*Att 20 dB



Center 2.402 GHz 150 kHz/ Span 1.5 MHz

Date: 9.NOV.2007 17:41:14



Mode 2



*RBW 30 kHz Delta 2 [T1]
 *VBW 300 kHz -0.11 dB
 *SWT 500 ms 822.00000000 kHz

Ref 10 dBm

*Att 20 dB

1 PK*
VIEW



Center 2.441 GHz

150 kHz/

Span 1.5 MHz

Date: 9.NOV.2007 17:38:19



Mode 3

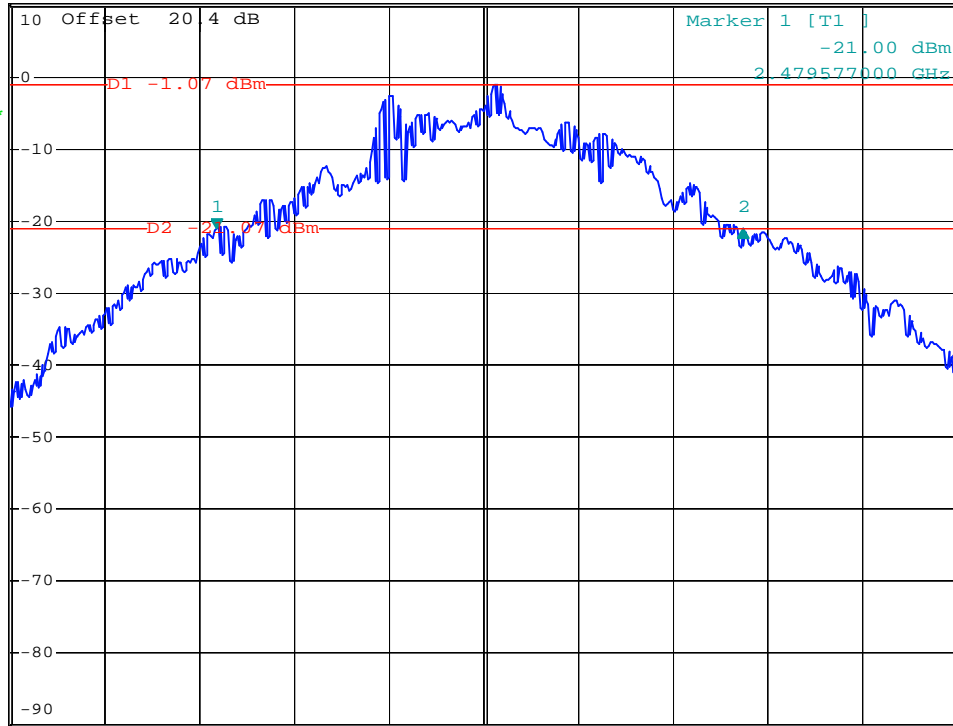


*RBW 30 kHz Delta 2 [T1]
 *VBW 300 kHz -0.07 dB
 *SWT 500 ms 834.00000000 kHz

Ref 10 dBm

Att 20 dB

1 PK*
VIEW



Center 2.48 GHz

150 kHz/

Span 1.5 MHz

Date: 9.NOV.2007 20:01:12

5.6 Dwell Time of Each Frequency

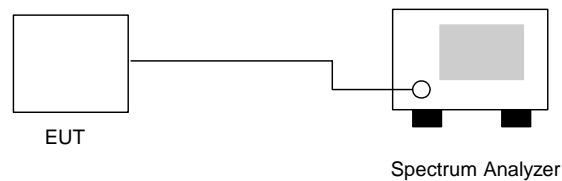
5.6.1 Measuring Instruments :

As described in chapter 9 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 : 25~26°C
Relative Humidity : 57~55%
Test Engineer : Ken

CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	10	464	0.147	0.4
DH3	5	1730	0.273	0.4
DH5	3.4	3020	0.324	0.4

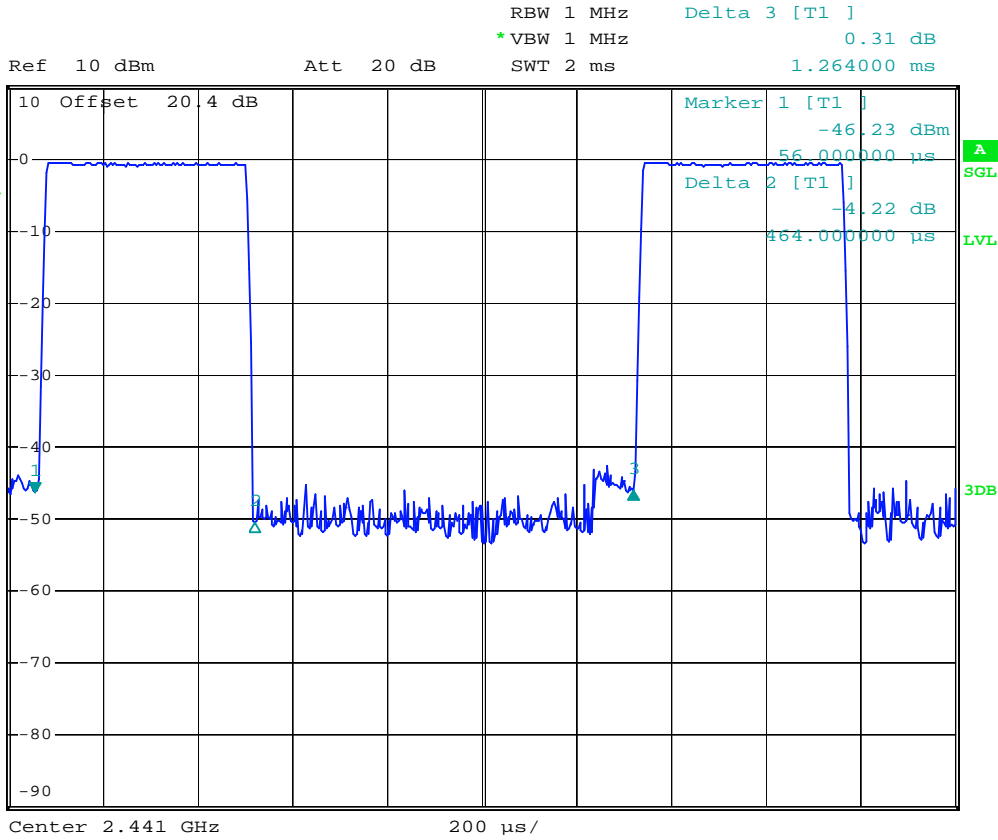
※ Remark:

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

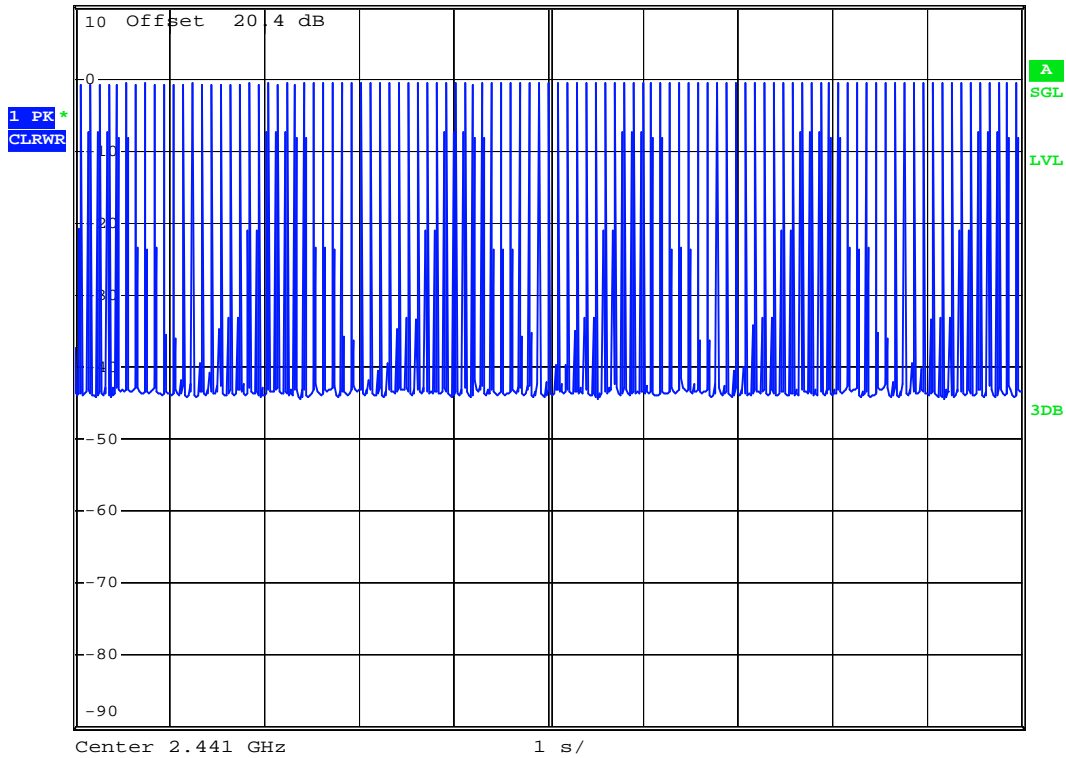
BT_DH1 (CH39)



Date: 9.NOV.2007 20:11:54



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



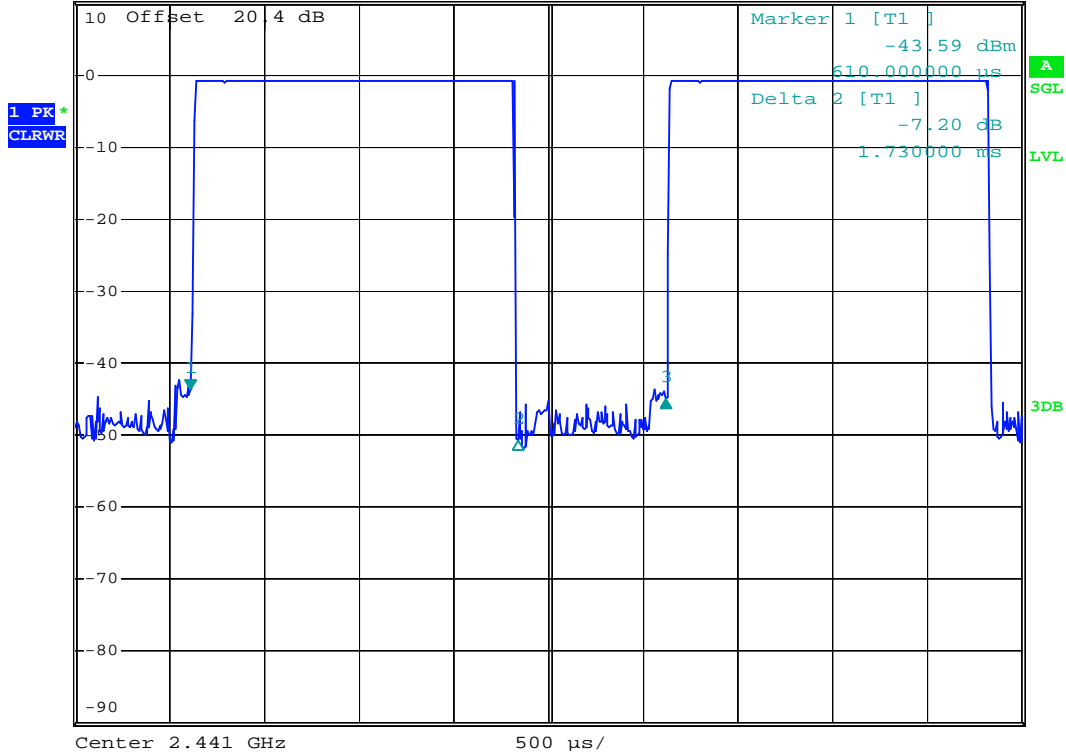
Date: 9.NOV.2007 19:51:55



BT_DH3 (CH39)



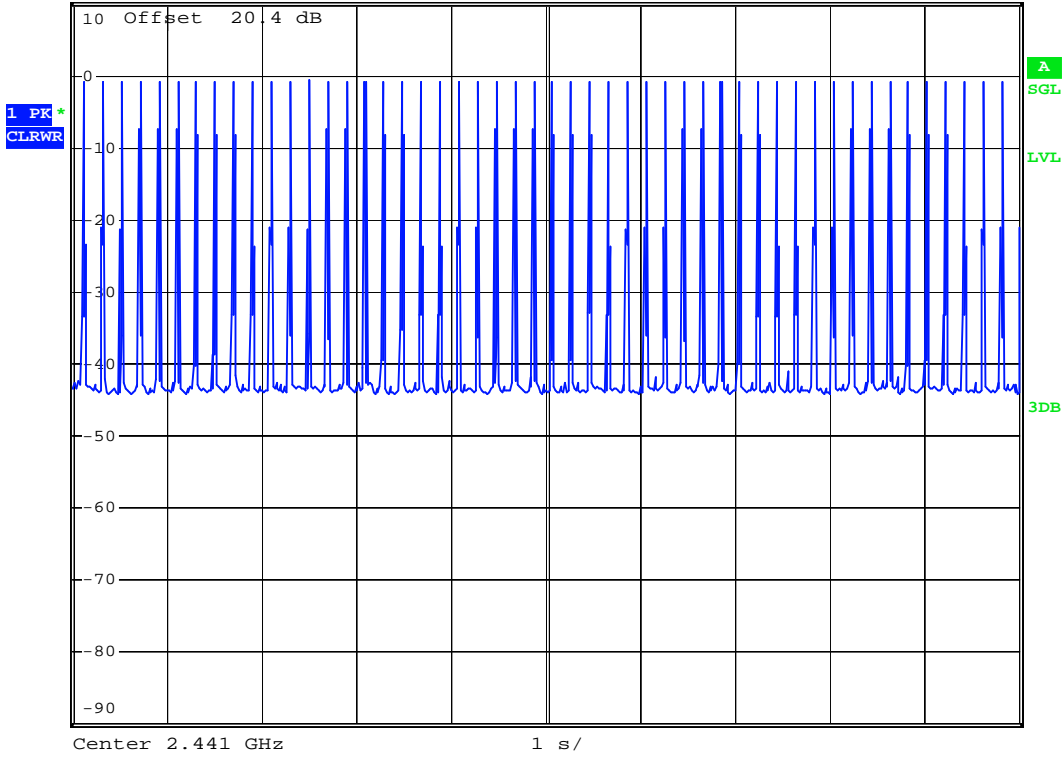
Ref 10 dBm Att 20 dB RBW 1 MHz Delta 3 [T1]
*VBW 1 MHz -1.35 dB
SWT 5 ms 2.510000 ms



Date: 9.NOV.2007 19:46:11



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



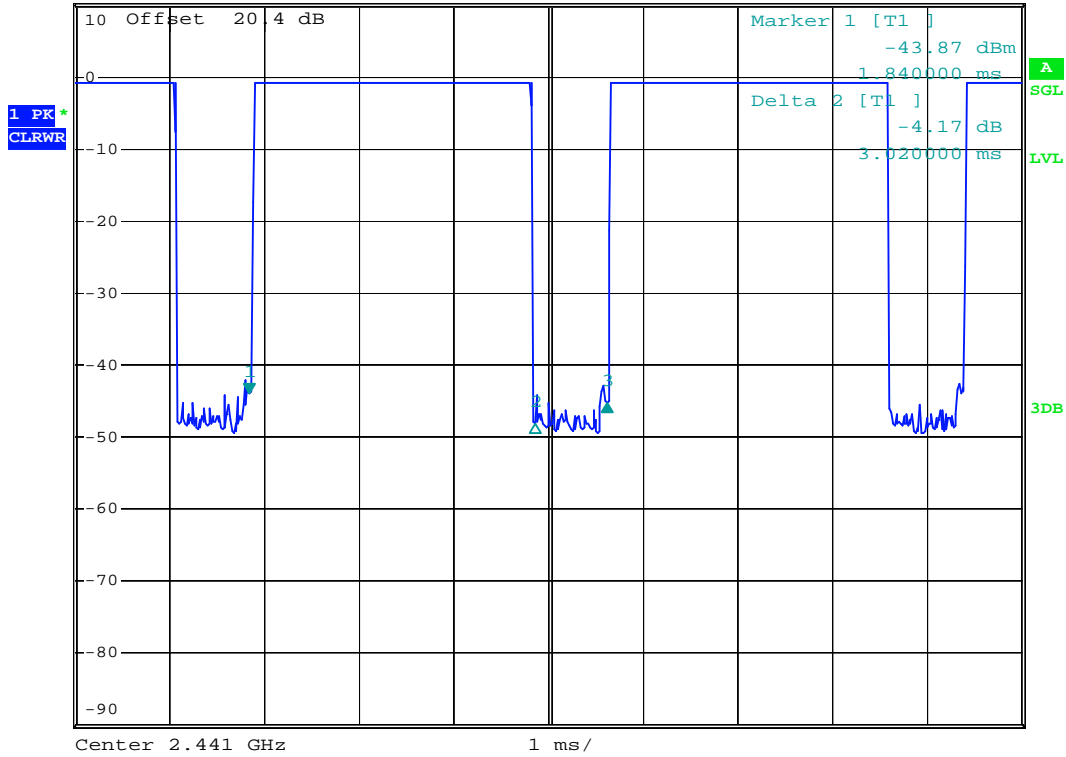
Date: 9.NOV.2007 19:50:47



BT_DH5 (CH39)



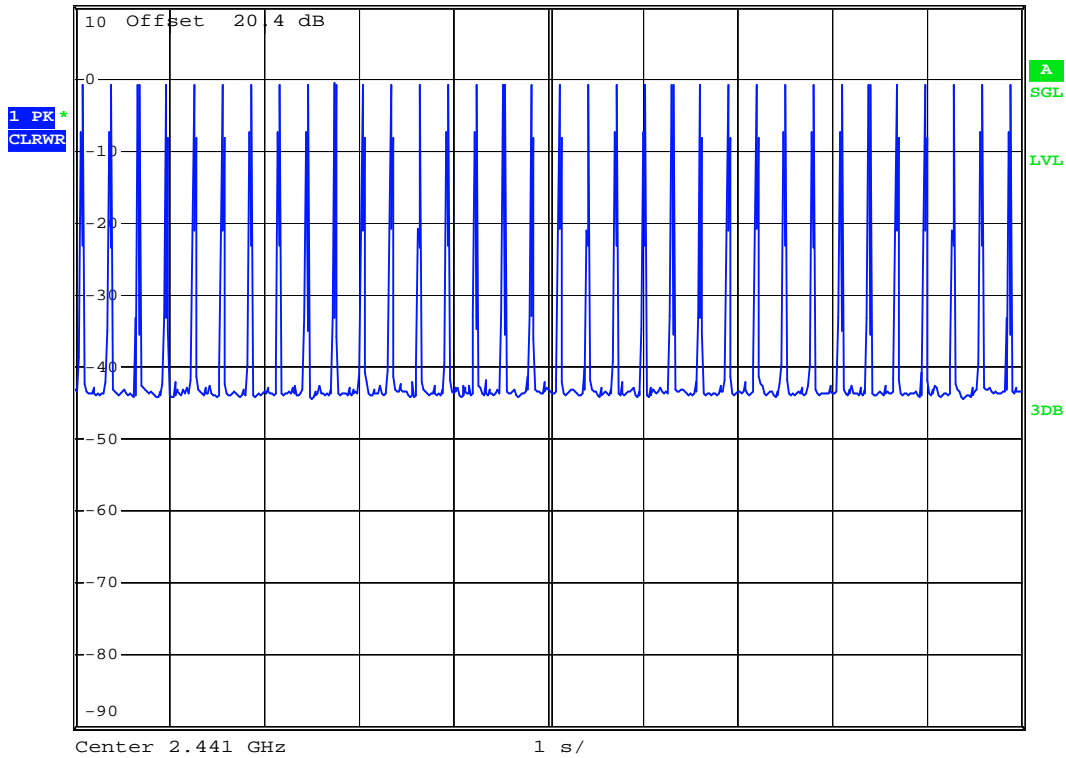
RBW 1 MHz Delta 3 [T1]
 *VBW 1 MHz -1.51 dB
 Ref 10 dBm Att 20 dB SWT 10 ms 3.780000 ms



Date: 9.NOV.2007 19:48:50



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



Date: 9.NOV.2007 19:49:48

5.7 Peak Output Power Measurement

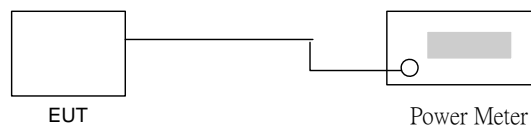
5.7.1 Measuring Instruments

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. RBW and VBW are set to 3MHz. The cable loss has been offset before testing.

5.7.3 Test Setup Layout





5.7.4 Test Result

Application Type : BT
Temperature : 25~26°C
Relative Humidity : 57~55%
Test Enginner : Ken

BT

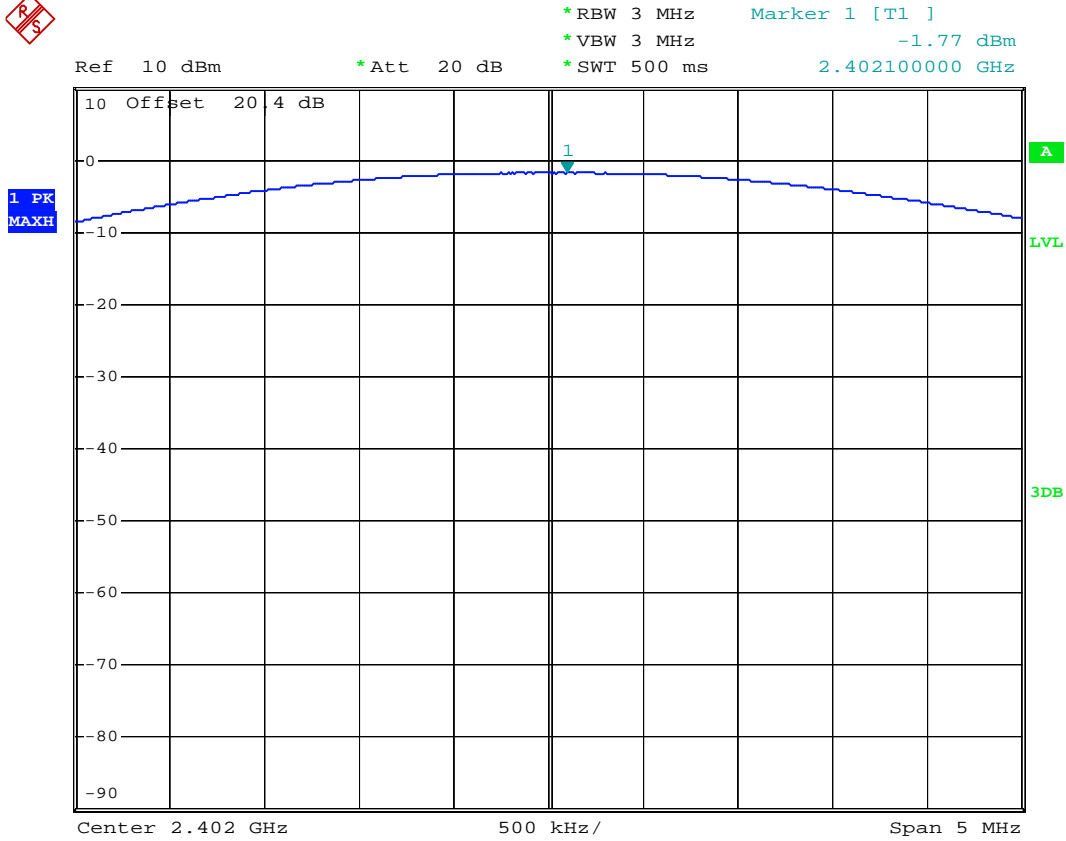
Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-1.77	1W/30 dBm
39	2441	-0.21	1W/30 dBm
78	2480	-0.69	1W/30 dBm



5.7.5 Output Power

BT

Mode : CH00 (2402MHz)



Date: 9.NOV.2007 17:31:47

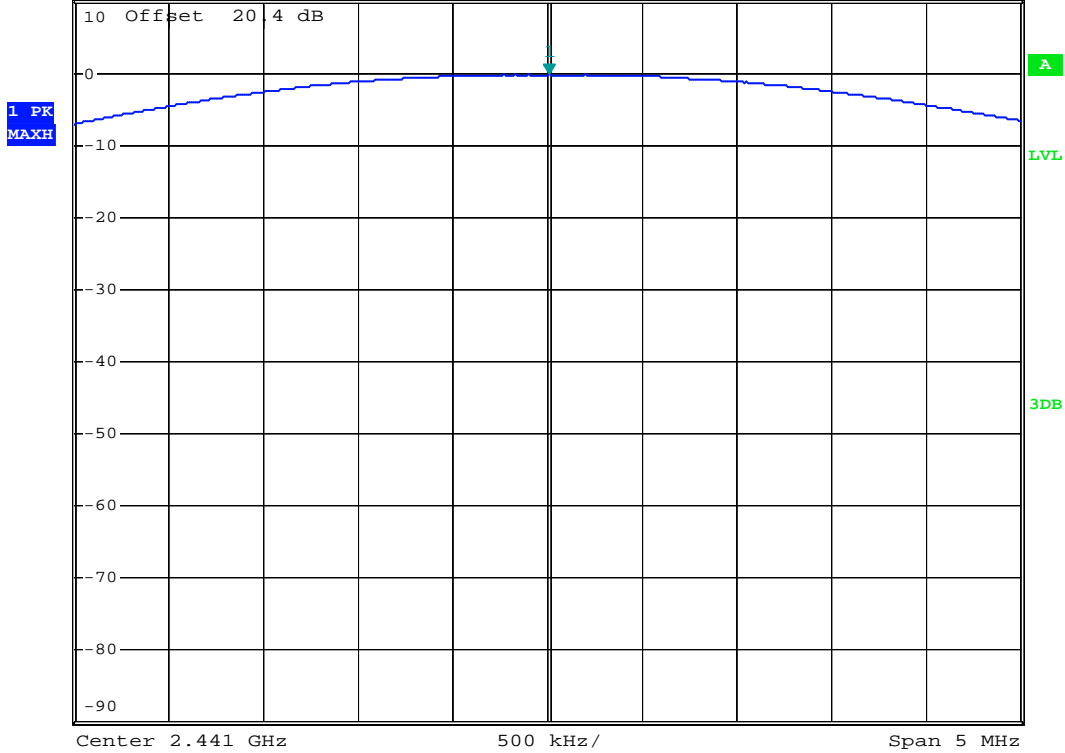


BT

Mode : CH39 (2441MHz)



*RBW 3 MHz Marker 1 [T1]
 *VBW 3 MHz -0.21 dBm
 *Att 20 dB *SWT 500 ms 2.441010000 GHz
 Ref 10 dBm Offset 20.4 dB



Date: 9.NOV.2007 17:30:10

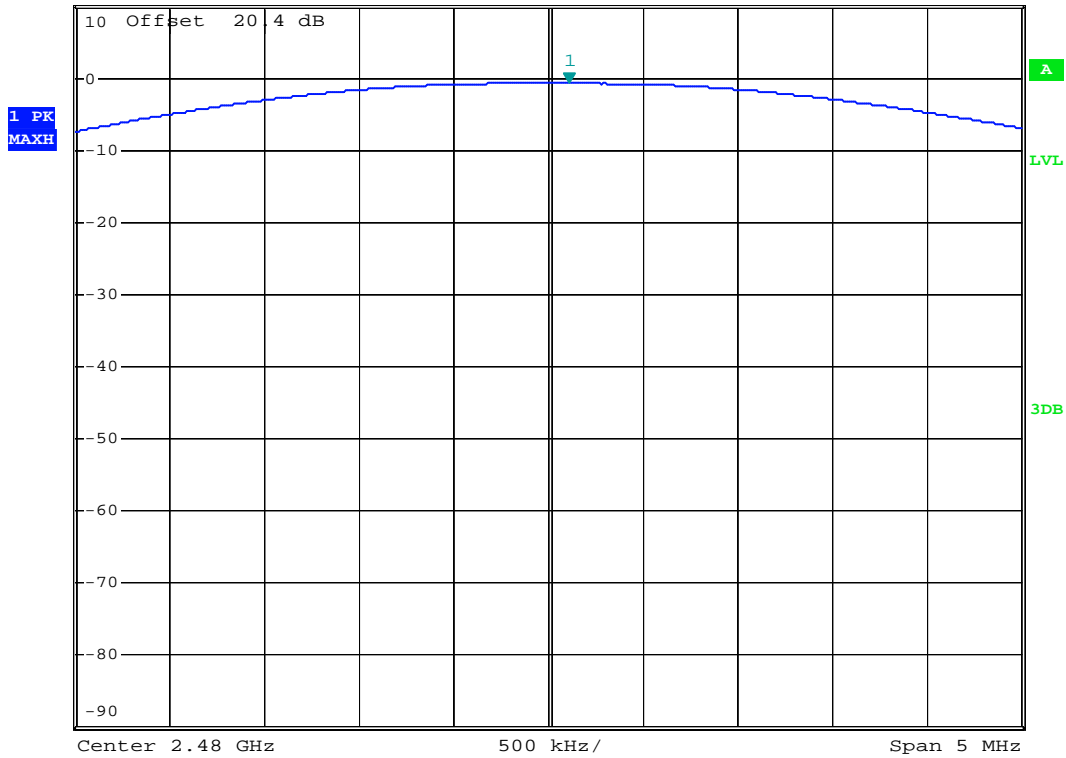


BT

Mode : CH78 (2480MHz)



Ref 10 dBm *Att 20 dB *RBW 3 MHz Marker 1 [T1]
 *VBW 3 MHz -0.69 dBm
 *SWT 500 ms 2.480110000 GHz



Date: 9.NOV.2007 17:32:45



5.8 Conducted Emission

5.8.1 Measuring Instruments

As described 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 :

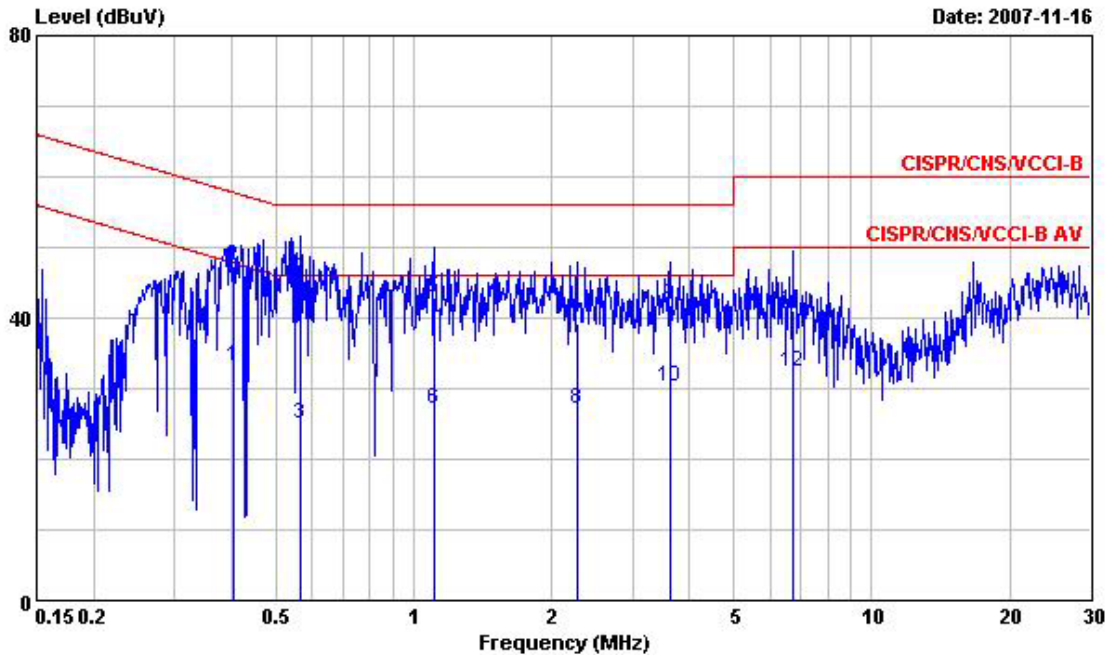
- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power port of a line impedance stabilization network (LISN).
- c. All the support units are connected to the other LISN.
- 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

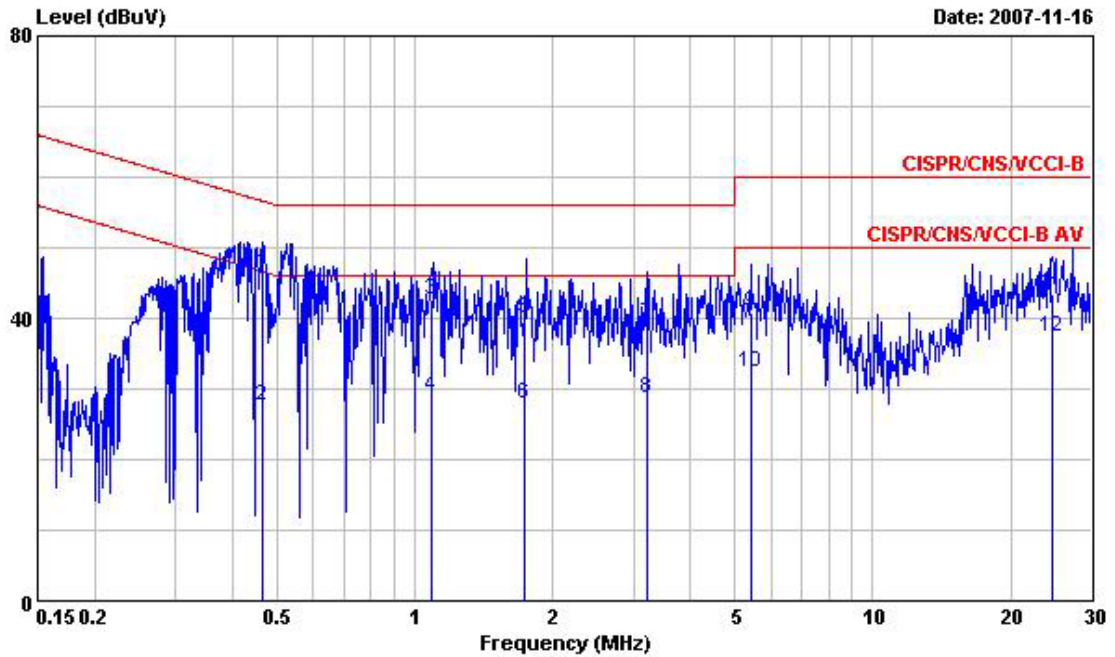
Temperature : 25~26°C
Relative Humidity : 57~55%
Test Enginner : James
Test Mode : Mode 1

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



Site : CO04-HY
Condition : CISPR/CNS/VCCI-B LISN 200704 99041 LINE
EUT : N/B
POWER: 120V/60Hz
Model : FR7O1819-01
Memo : WLAN Link+BT Link+Adaptor

Table with 8 columns: Freq, Level, Over Limit, Limit Line, Read Level, LISN Factor, Cable Loss, Remark. It lists 12 test points with their respective frequency, level, and margin.



Site : CO04-HY
 Condition : CISPR/CNS/VCCI-B LISN 200704 99041 NEUTRAL
 EUT : N/B
 POWER: 120V/60Hz
 Model : FR701819-01
 Memo : WLAN Link+BT Link+Adaptor

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.4661350	46.20	-10.38	56.58	45.42	0.10	0.68	QP
2	0.4661350	27.61	-18.97	46.58	26.83	0.10	0.68	Average
3	1.090	42.59	-13.41	56.00	42.05	0.10	0.44	QP
4	1.090	29.02	-16.98	46.00	28.48	0.10	0.44	Average
5	1.740	39.89	-16.11	56.00	39.36	0.10	0.43	QP
6	1.740	27.87	-18.13	46.00	27.34	0.10	0.43	Average
7	3.220	39.11	-16.89	56.00	38.59	0.17	0.35	QP
8	3.220	28.75	-17.25	46.00	28.23	0.17	0.35	Average
9	5.420	40.66	-19.34	60.00	40.14	0.23	0.29	QP
10	5.420	32.26	-17.74	50.00	31.74	0.23	0.29	Average
11	24.660	43.35	-16.65	60.00	43.05	0.30	0.00	QP
12	24.660	37.40	-12.60	50.00	37.10	0.30	0.00	Average



5.9 Radiated Emission Measurement

5.9.1 Measuring Instruments

As described in chapter 6 of this Report.

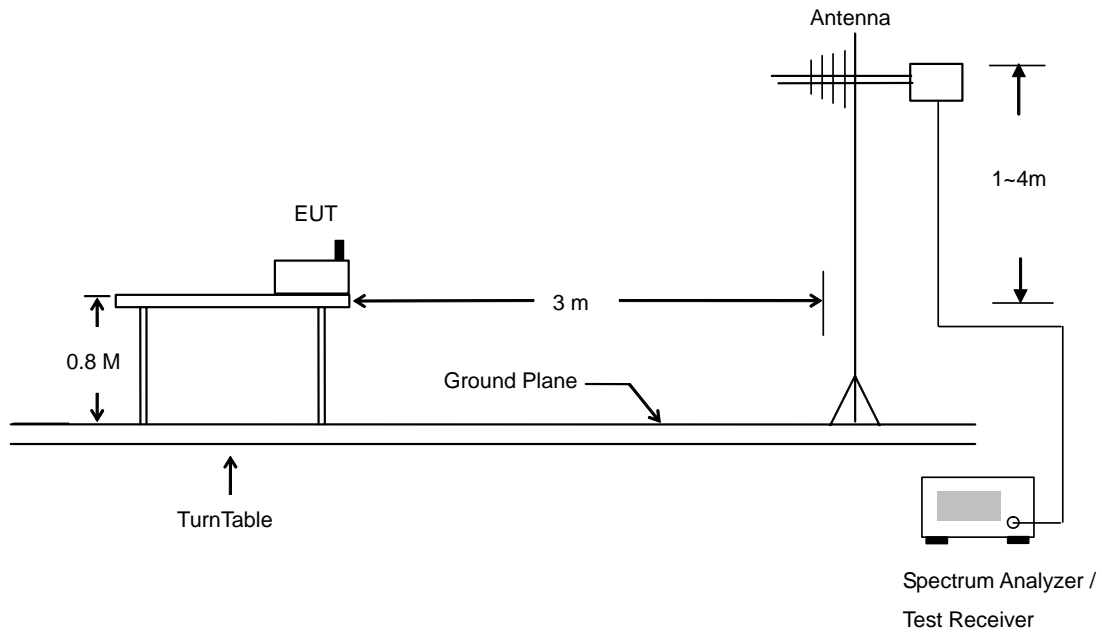
The spectrum analyzer setting :

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

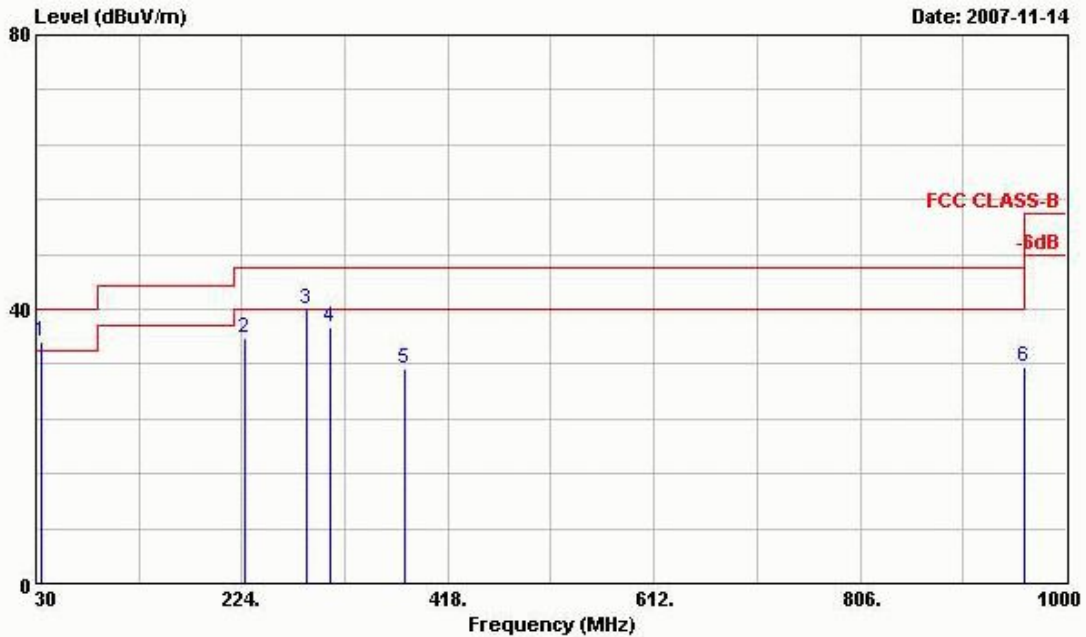




5.9.4 Test Data

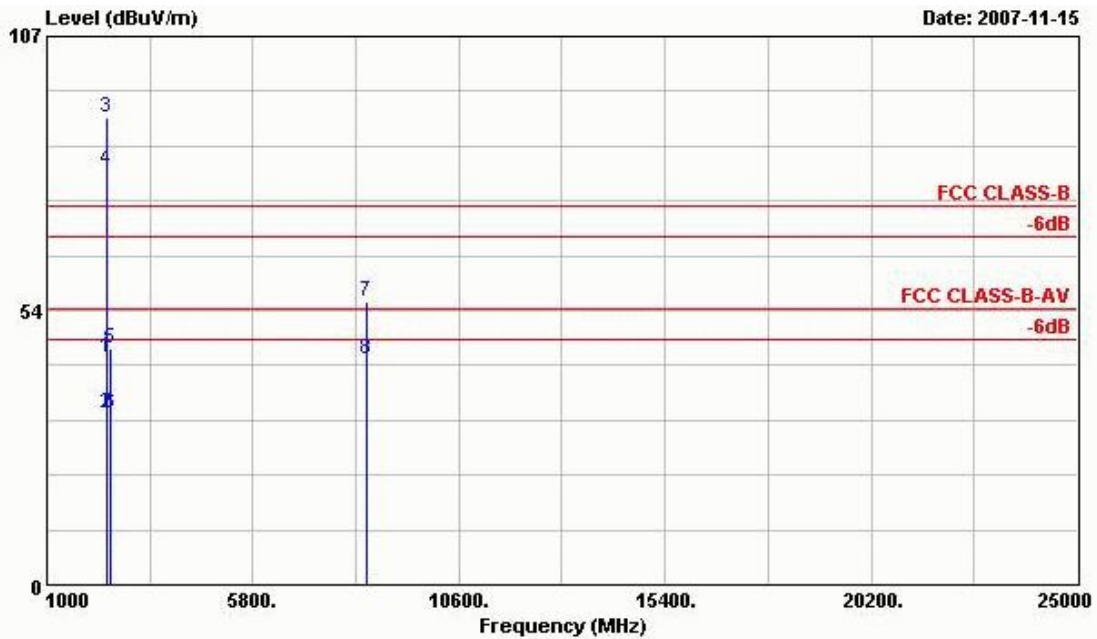
Temperature : 24~25°C
Relating Humidity : 53~55%
Test Enginner : Andrew
Test Mode : Mode 1
Polarization : Horizontal

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



Site : 03CH04-HY
Condition: FCC CLASS-B 3m ANT2724 HORIZONTAL
EUT : N/B
POWER : 120Vac/60Hz
MODEL : FR 701819
MEMO : Bluetooth Tx_Ch00;2402MHz
Data Rate: DH5

Table with 11 columns: Freq, Level, Over Limit, Limit Line, ReadAntenna Level, Antenna Factor, Cable Loss, Preamp Factor, Ant Pos, Table Pos, Remark. Contains 6 rows of test data.



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 HORIZONTAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch00;2402MHz
 Data Rate:DH5

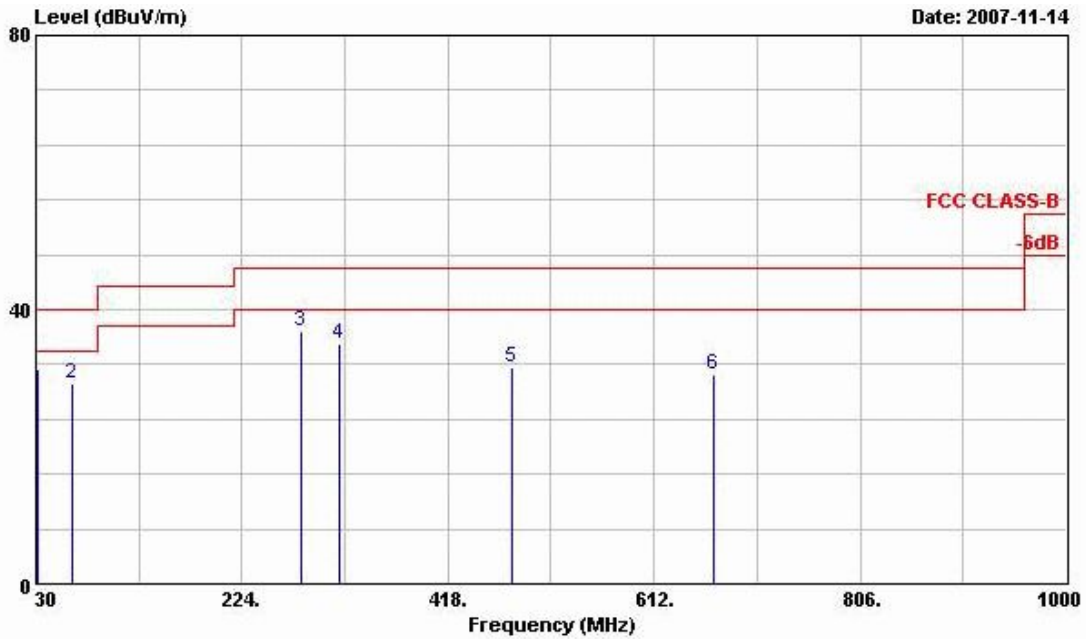
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	
					dB/m	dB	dB	cm	deg	
1	2390.000	44.31	-29.69	74.00	41.81	32.54	3.74	33.78	100	0 Peak
2	2390.000	33.50	-20.50	54.00	31.00	32.54	3.74	33.78	100	312 Average
3 X	2402.000	91.23			88.73	32.54	3.74	33.78	100	0 Peak
4 X	2402.000	81.11			78.61	32.54	3.74	33.78	100	312 Average
5	2500.000	46.20	-27.80	74.00	43.56	32.60	3.84	33.80	100	0 Peak
6	2500.000	33.30	-20.70	54.00	30.66	32.60	3.84	33.80	100	312 Average
7	8469.000	55.38	-18.62	74.00	45.29	37.45	7.00	34.36	100	0 Peak
8	8469.000	44.10	-9.90	54.00	34.01	37.45	7.00	34.36	100	252 Average

Remark: #3 and #4 Fundamental Signal



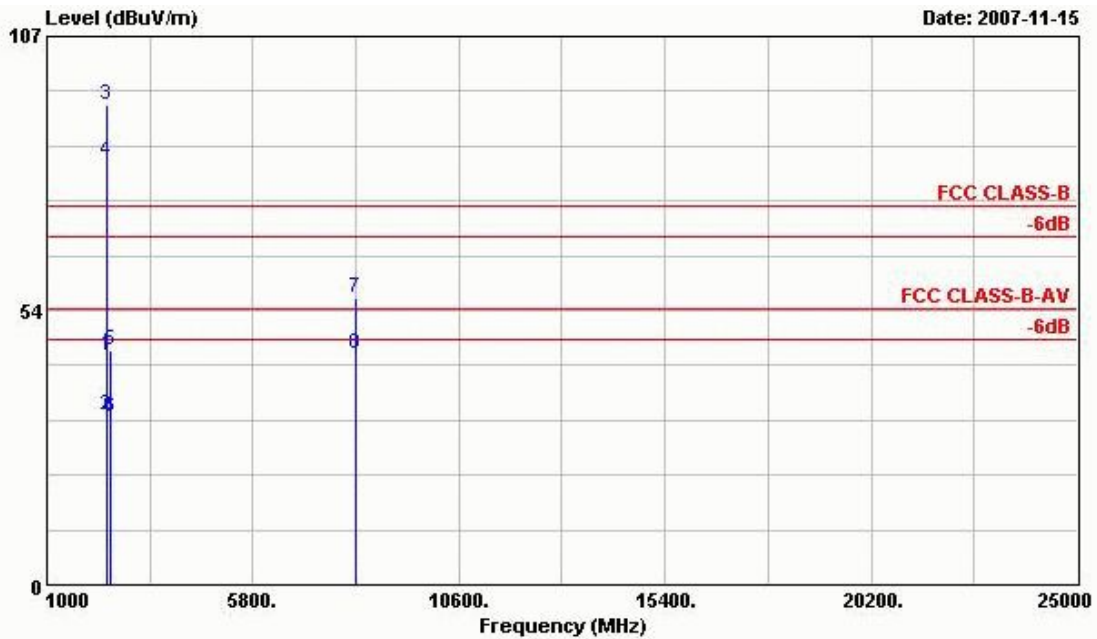
Polarization : Vertical

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m ANT2724 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch00;2402MHz
 Data Rate: DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	31.080	31.26	-8.74	40.00	42.27	16.36	0.88	28.25	100	58	Peak
2	64.020	29.21	-10.79	40.00	52.05	4.29	1.14	28.27	---	---	Peak
3	280.020	36.87	-9.13	46.00	49.93	12.41	2.17	27.64	---	---	Peak
4	315.400	34.97	-11.03	46.00	47.54	12.84	2.29	27.70	---	---	Peak
5	478.500	31.61	-14.39	46.00	41.03	16.65	2.77	28.85	---	---	Peak
6	668.200	30.63	-15.37	46.00	36.22	20.06	3.45	29.10	---	---	Peak



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch00;2402MHz
 Data Rate:DH5

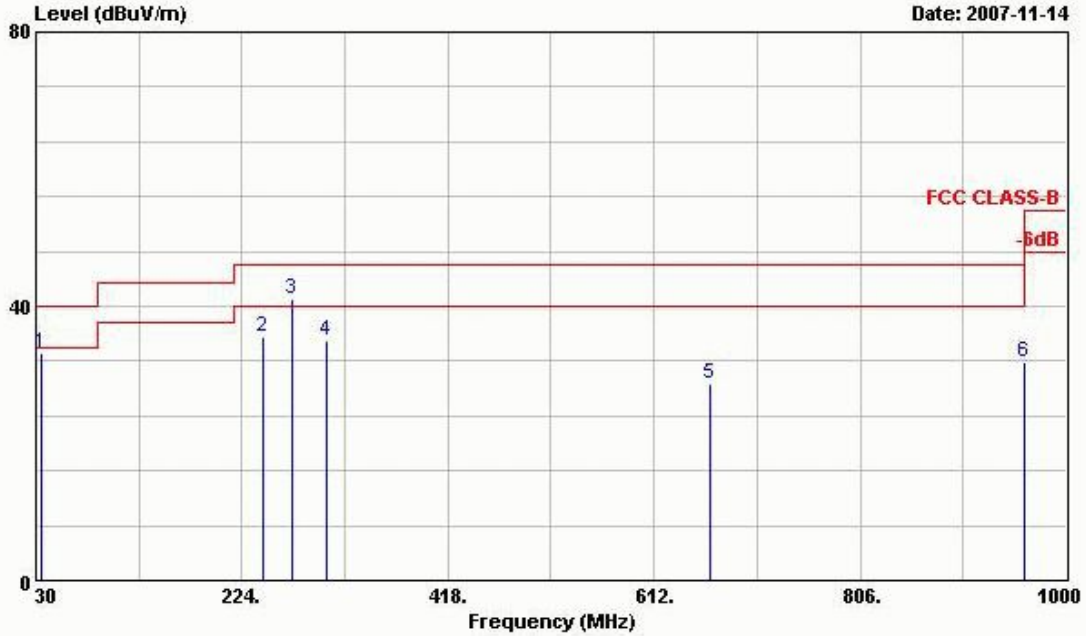
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	
					dB/m	dB	dB	cm	deg	
1	2390.000	44.74	-29.26	74.00	42.24	32.54	3.74	33.78	100	0 Peak
2	2390.000	33.08	-20.92	54.00	30.58	32.54	3.74	33.78	131	247 Average
3 X	2402.000	93.47			90.97	32.54	3.74	33.78	100	0 Peak
4 @	2402.000	82.86			80.36	32.54	3.74	33.78	131	247 Average
5	2486.000	45.77	-28.23	74.00	43.13	32.60	3.84	33.80	100	0 Peak
6	2486.000	32.75	-21.25	54.00	30.11	32.60	3.84	33.80	131	247 Average
7	8214.000	55.93	-18.07	74.00	45.91	37.09	6.87	33.94	100	0 Peak
8	8214.000	45.12	-8.88	54.00	35.10	37.09	6.87	33.94	100	110 Average

Remark: #3 and #4 Fundamental Signal



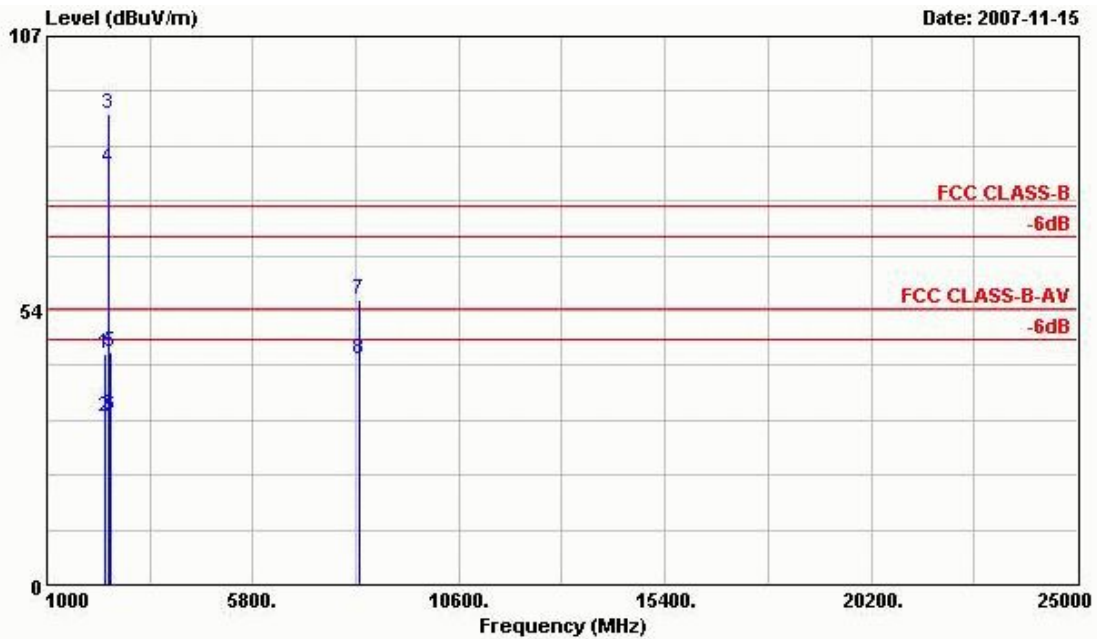
Test Mode : Mode 2
Polarization : Horizontal

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m ANT2724 HORIZONTAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch39;2441MHz
 Data Rate: DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	35.940	33.28	-6.72	40.00	45.22	15.40	0.93	28.27	---	---	Peak
2	243.300	35.54	-10.46	46.00	49.17	12.05	2.03	27.71	---	---	Peak
3	271.650	40.93	-5.07	46.00	53.99	12.46	2.13	27.66	100	254	Peak
4	304.200	35.01	-10.99	46.00	47.91	12.48	2.25	27.63	---	---	Peak
5	665.400	28.77	-17.23	46.00	34.37	20.06	3.45	29.10	---	---	Peak
6	960.100	31.90	-22.10	54.00	31.56	25.04	3.99	28.68	---	---	Peak



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 HORIZONTAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch39;2441MHz
 Data Rate:DH5

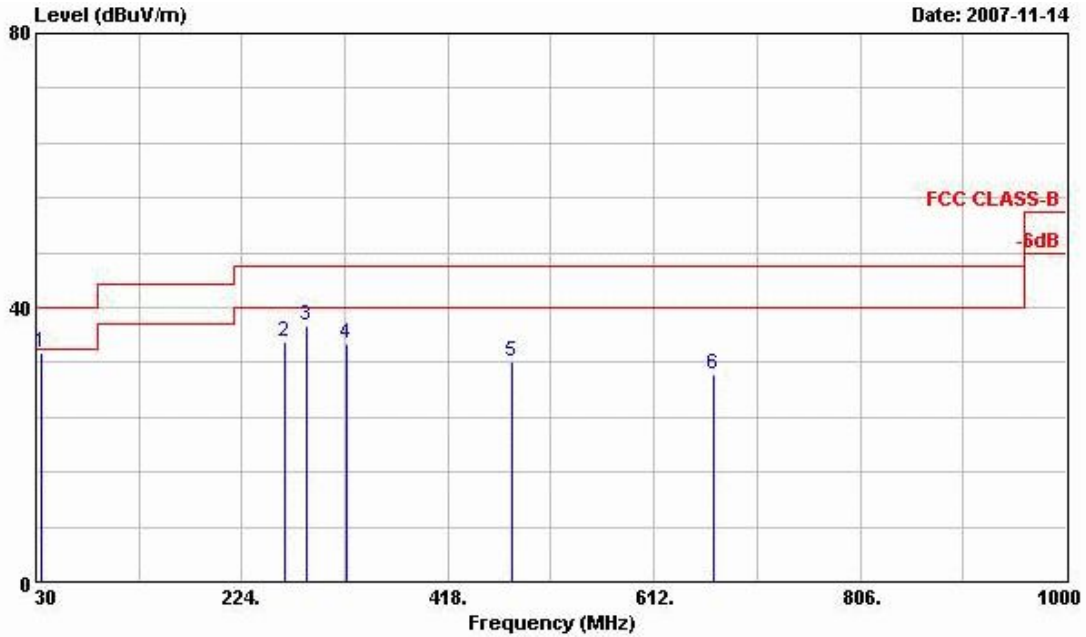
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2364.000	44.94	-29.06	74.00	42.48	32.52	3.71	33.77	100	0 Peak
2	2364.000	32.83	-21.17	54.00	30.37	32.52	3.71	33.77	100	180 Average
3 X	2441.000	91.83			89.26	32.57	3.79	33.79	100	0 Peak
4 X	2441.000	81.42			78.85	32.57	3.79	33.79	100	180 Average
5	2486.000	45.28	-28.72	74.00	42.65	32.59	3.84	33.80	100	0 Peak
6	2486.000	33.01	-20.99	54.00	30.38	32.59	3.84	33.80	100	180 Average
7	8298.000	55.66	-18.34	74.00	45.60	37.21	6.91	34.06	100	0 Peak
8	8298.000	44.12	-9.88	54.00	34.06	37.21	6.91	34.06	100	48 Average

Remark: #3 and #4 Fundamental Signal



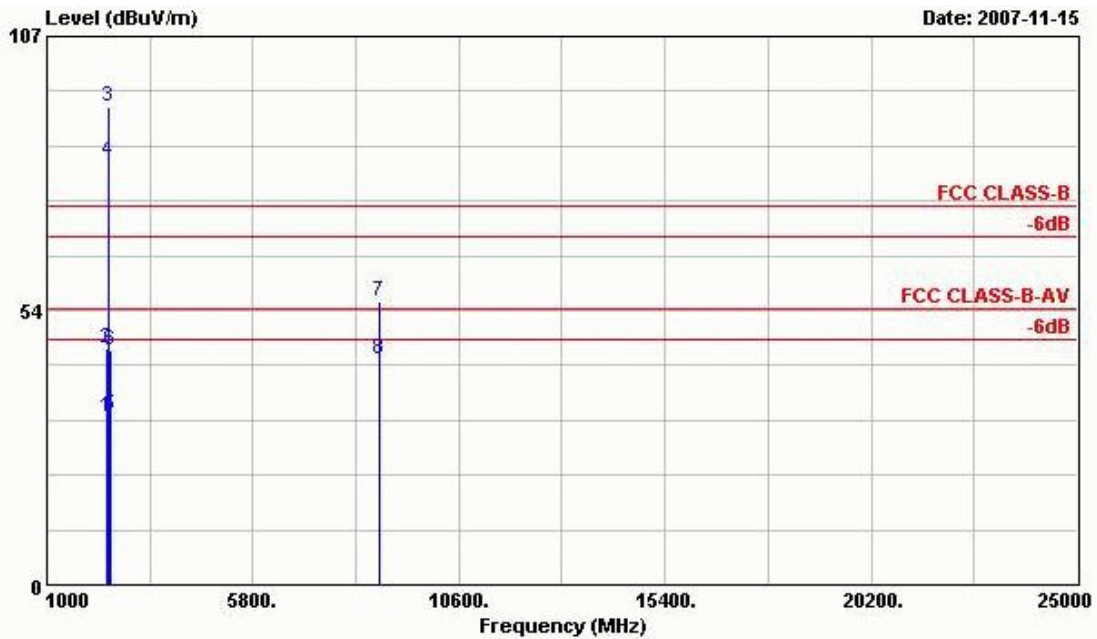
Polarization : Vertical

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m ANT2724 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch39;2441MHz
 Data Rate: DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	35.130	33.35	-6.65	40.00	44.41	16.29	0.91	28.26	100	46	Peak
2	263.820	35.07	-10.93	46.00	48.14	12.50	2.10	27.67	---	---	Peak
3	285.420	37.35	-8.65	46.00	50.41	12.39	2.19	27.63	---	---	Peak
4	321.700	34.64	-11.36	46.00	47.00	13.08	2.31	27.75	---	---	Peak
5	478.500	32.17	-13.83	46.00	41.59	16.65	2.77	28.85	---	---	Peak
6	668.200	30.21	-15.79	46.00	35.80	20.06	3.45	29.10	---	---	Peak



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch39;2441MHz
 Data Rate: DH5

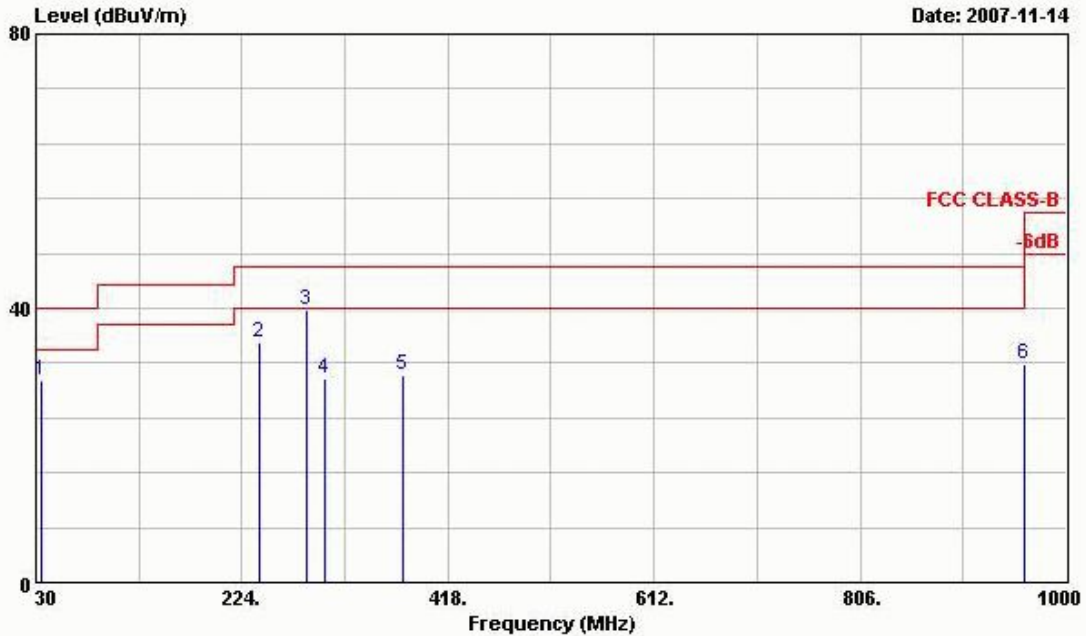
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	
					dB/m	dB	dB	cm	deg	
1	2390.000	32.87	-21.13	54.00	30.37	32.54	3.74	33.78	102	94 Average
2	2390.000	46.23	-27.77	74.00	43.73	32.54	3.74	33.78	100	0 Peak
3 X	2441.000	93.41			90.84	32.57	3.79	33.79	100	0 Peak
4 @	2441.000	82.58			80.01	32.57	3.79	33.79	102	94 Average
5	2492.000	32.95	-21.05	54.00	30.31	32.60	3.84	33.80	102	94 Average
6	2492.000	45.93	-28.07	74.00	43.29	32.60	3.84	33.80	100	0 Peak
7	8754.000	55.37	-18.63	74.00	45.02	37.80	7.15	34.60	100	0 Peak
8	8754.000	43.84	-10.16	54.00	33.49	37.80	7.15	34.60	100	247 Average

Remark: #3 and #4 Fundamental Signal



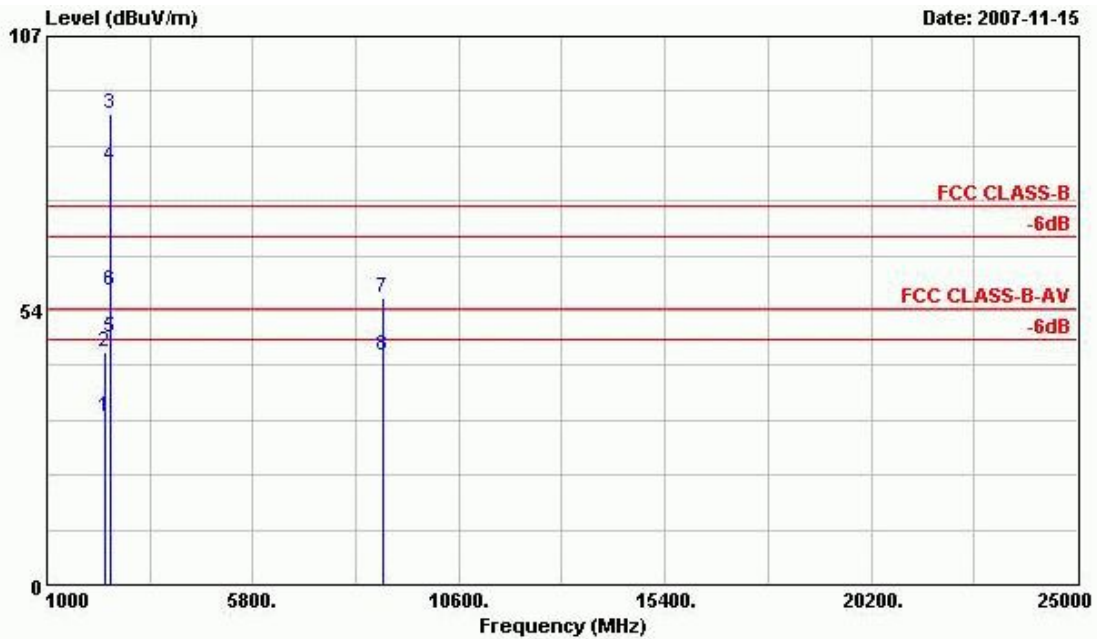
Test Mode : Mode 3
Polarization : Horizontal

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



Site : 03CH04-HY
Condition: FCC CLASS-B 3m ANT2724 HORIZONTAL
EUT : N/B
POWER : 120Vac/60Hz
MODEL : FR 701819
MEMO : Bluetooth Tx_Ch78;2480MHz
Data Rate: DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	35.940	29.57	-10.43	40.00	41.51	15.40	0.93	28.27	---	---	Peak
2	240.330	34.95	-11.05	46.00	48.82	11.83	2.02	27.72	---	---	Peak
3 @	285.690	39.66	-6.34	46.00	52.72	12.38	2.19	27.63	100	121	Peak
4	302.100	29.78	-16.22	46.00	42.74	12.41	2.25	27.61	---	---	Peak
5	374.900	30.31	-15.69	46.00	41.03	14.92	2.49	28.13	---	---	Peak
6	960.100	31.91	-22.09	54.00	31.57	25.04	3.99	28.68	---	---	Peak



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 HORIZONTAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch78;2480MHz
 Data Rate:DH5

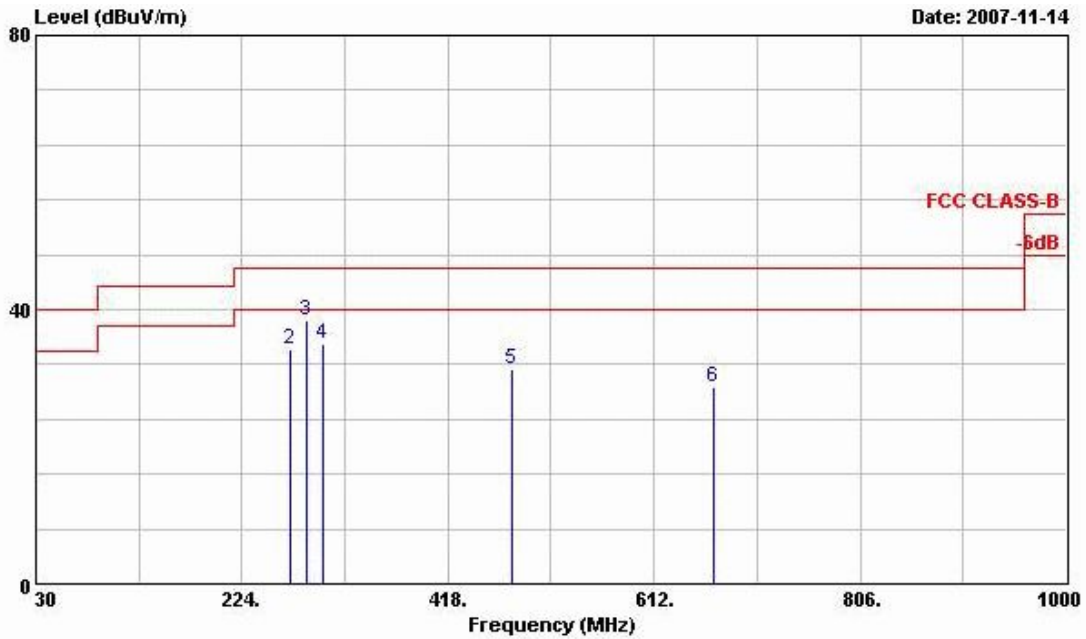
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2358.000	32.81	-21.19	54.00	30.35	32.52	3.71	33.77	144	186 Average
2	2358.000	45.33	-28.67	74.00	42.87	32.52	3.71	33.77	100	0 Peak
3 @	2480.000	91.87			89.24	32.59	3.84	33.80	100	0 Peak
4 @	2480.000	81.54			78.91	32.59	3.84	33.80	144	186 Average
5 @	2483.500	48.29	-5.71	54.00	45.66	32.59	3.84	33.80	144	186 Average
6	2483.500	57.51	-16.49	74.00	54.88	32.59	3.84	33.80	100	0 Peak
7	8817.000	55.99	-18.01	74.00	45.59	37.88	7.18	34.66	100	0 Peak
8	8817.000	44.58	-9.42	54.00	34.18	37.88	7.18	34.66	100	178 Average

Remark: #3 and #4 Fundamental Signal



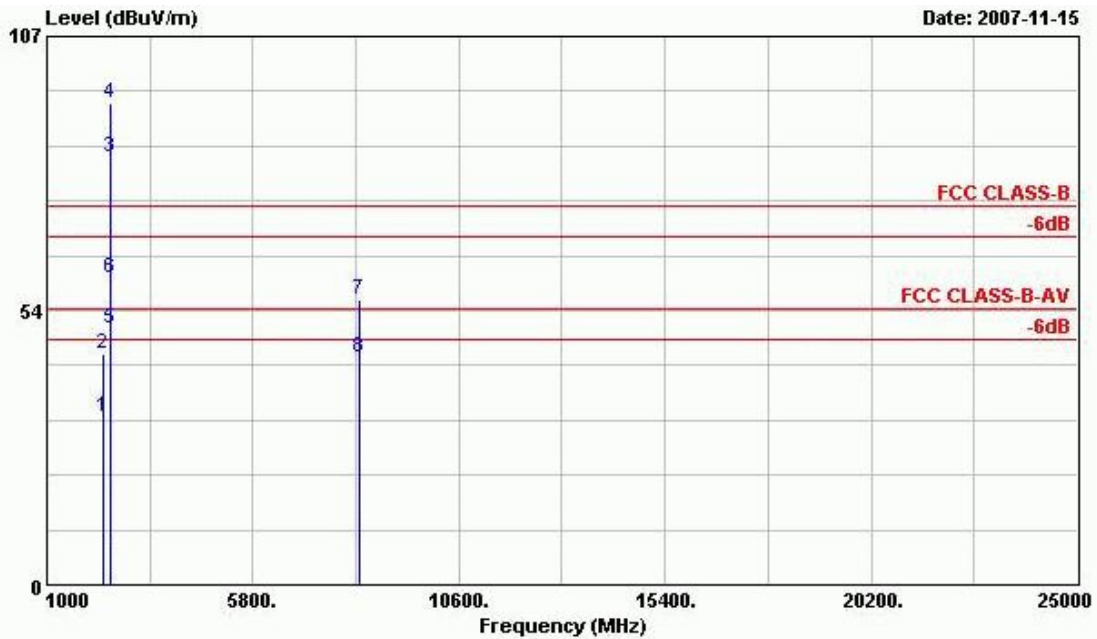
Polarization : Vertical

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m ANT2724 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch78;2480MHz
 Data Rate: DH5

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	30.540	32.43	-7.57	40.00	43.45	16.36	0.87	28.25	100	174 Peak
2	269.490	34.33	-11.67	46.00	47.40	12.47	2.13	27.66	---	---
3	284.610	38.31	-7.69	46.00	51.37	12.39	2.18	27.63	---	---
4	300.000	35.02	-10.98	46.00	48.07	12.31	2.24	27.60	---	---
5	478.500	31.27	-14.73	46.00	40.69	16.65	2.77	28.85	---	---
6	668.200	28.60	-17.40	46.00	34.19	20.06	3.45	29.10	---	---



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 VERTICAL
 EUT : N/B
 POWER : 120Vac/60Hz
 MODEL : FR 701819
 MEMO : Bluetooth Tx_Ch78;2480MHz
 Data Rate:DH5

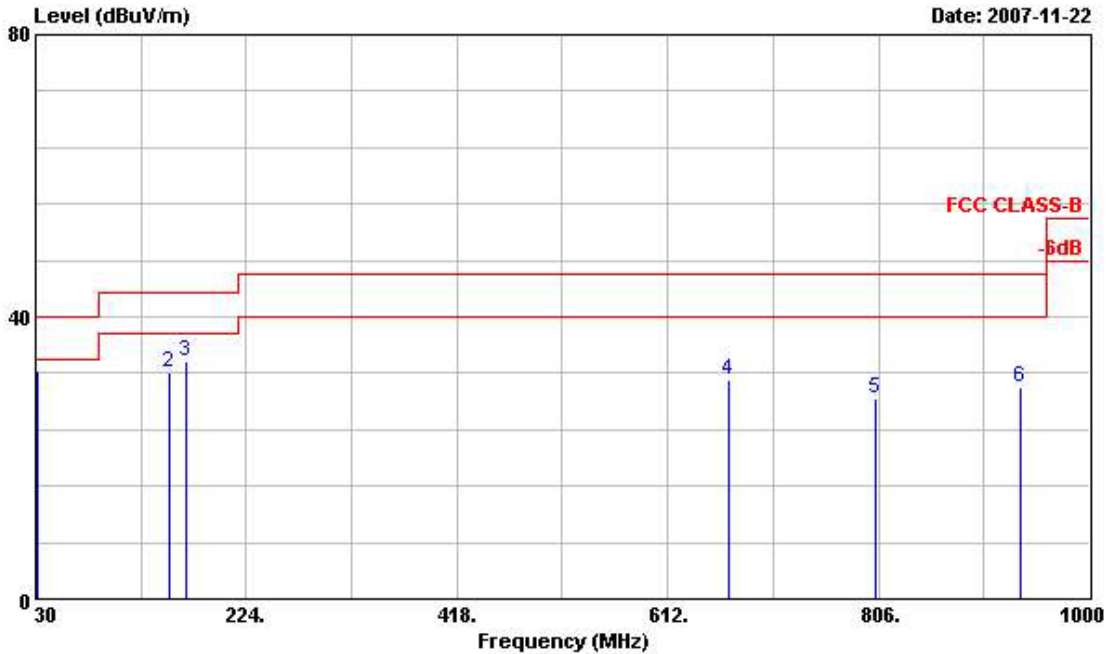
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	Loss	Factor	Pos	Pos	
					dB/m	dB	dB	cm	deg	
1	2326.000	32.80	-21.20	54.00	30.41	32.50	3.66	33.77	114	150 Average
2	2326.000	45.22	-28.78	74.00	42.83	32.50	3.66	33.77	100	0 Peak
3 @	2480.000	83.27			80.64	32.59	3.84	33.80	114	150 Average
4 @	2480.000	94.08			91.45	32.59	3.84	33.80	100	0 Peak
5 @	2483.500	50.14	-3.86	54.00	47.51	32.59	3.84	33.80	114	150 Average
6	2483.500	59.88	-14.12	74.00	57.25	32.59	3.84	33.80	100	0 Peak
7	8265.000	55.50	-18.50	74.00	45.46	37.16	6.90	34.02	100	0 Peak
8	8265.000	44.46	-9.54	54.00	34.42	37.16	6.90	34.02	100	154 Average

Remark: #3 and #4 Fundamental Signal



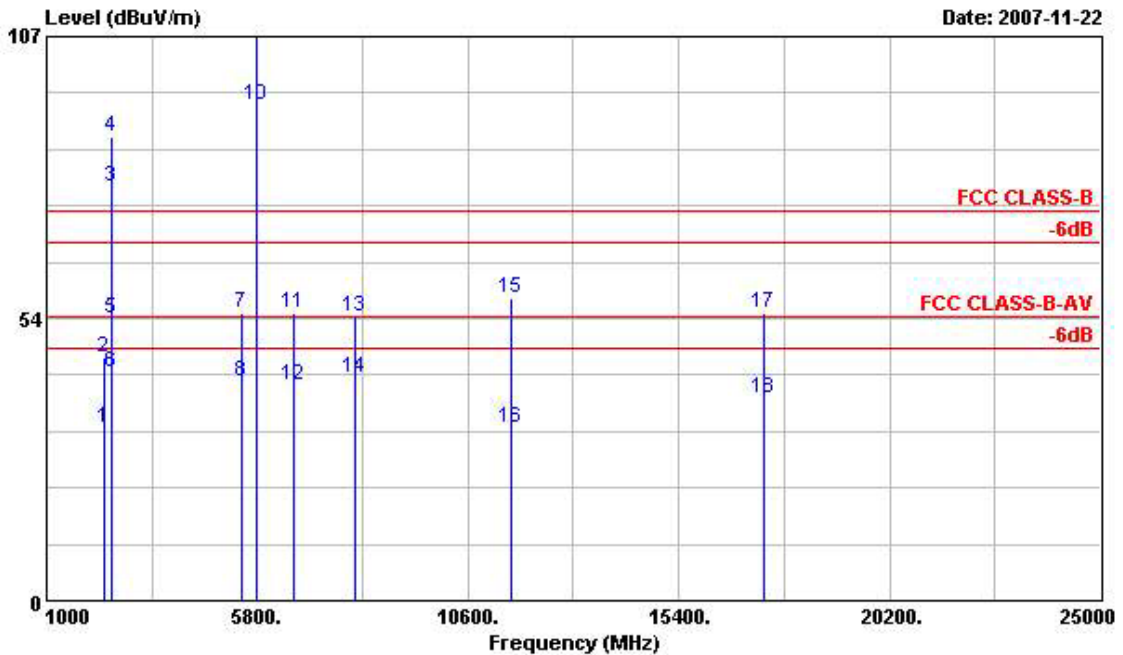
Test Mode : Mode 4
Polarization : Horizontal

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



Site : 03CH04-HY
Condition: FCC CLASS-B 3m ANT2724 HORIZONTAL
EUT : NB
POWER : 120Vac/60Hz
MODEL : FR 701819-01
MEMO : 11a Tx_Ch157+BT Tx_Ch78+ Adaptor
Data Rate: WLAN: 6 BT: DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	31.620	32.34	-7.66	40.00	43.38	16.34	0.88	28.26	100	147 Peak
2	152.580	32.00	-11.50	43.50	47.87	10.46	1.66	27.99	---	---
3	167.970	33.79	-9.71	43.50	51.24	8.76	1.72	27.93	---	---
4	668.200	31.12	-14.88	46.00	36.71	20.06	3.45	29.10	---	---
5	802.600	28.36	-17.64	46.00	33.77	19.92	3.56	28.90	---	---
6	937.000	29.98	-16.02	46.00	30.28	24.45	3.98	28.73	---	---



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 HORIZONTAL
 EUT : MB
 POWER : 120Vac/60Hz
 MODEL : FR 701819-01
 MEMO : 11a Tx_Ch157+BT Tx_Ch78+ Adaptor
 Data Rate: WLAN:6 BT:DH5

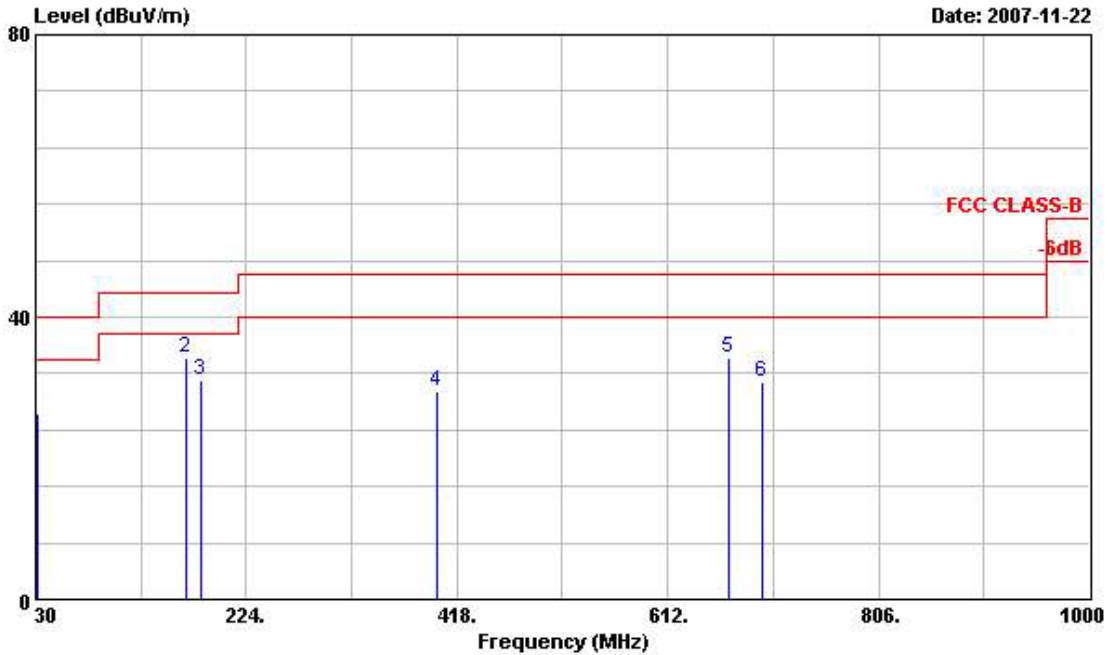
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2318.000	32.82	-21.18	54.00	30.43	32.50	3.66	33.77	100	157 Average
2	2318.000	45.96	-28.04	74.00	43.57	32.50	3.66	33.77	100	0 Peak
3 X	2480.000	78.52			75.89	32.59	3.84	33.80	100	157 Average
4 X	2480.000	88.00			85.37	32.59	3.84	33.80	100	0 Peak
5	2483.500	53.67	-20.33	74.00	51.04	32.59	3.84	33.80	100	0 Peak
6	2483.500	43.23	-10.77	54.00	40.60	32.59	3.84	33.80	100	157 Average
7	5428.000	54.70	-19.30	74.00	47.76	35.05	6.01	34.12	100	0 Peak
8	5428.000	41.52	-12.48	54.00	34.58	35.05	6.01	34.12	143	193 Average
9 X	5785.000	107.96			100.49	35.49	6.02	34.04	100	0 Peak
10 @	5785.000	94.06			86.59	35.49	6.02	34.04	143	193 Average
11	6622.000	54.38	-19.62	74.00	44.96	36.00	6.23	32.82	100	0 Peak
12	6622.000	40.74	-13.26	54.00	31.32	36.00	6.23	32.82	143	193 Average
13	8012.000	53.74	-20.26	74.00	44.38	36.20	6.76	33.60	100	0 Peak
14	8012.000	42.15	-11.85	54.00	32.79	36.20	6.76	33.60	100	187 Average
15	11565.000	57.45	-16.55	74.00	95.46	-11.54	7.85	34.32	100	0 Peak
16	11565.000	32.84	-21.16	54.00	70.85	-11.54	7.85	34.32	100	155 Average
17	17349.000	54.67	-19.33	74.00	90.48	-11.57	9.52	33.76	100	0 Peak
18	17349.000	38.54	-15.46	54.00	74.35	-11.57	9.52	33.76	100	105 Average

Remark: #3, #4, #9, and #10 are Fundamental Signal



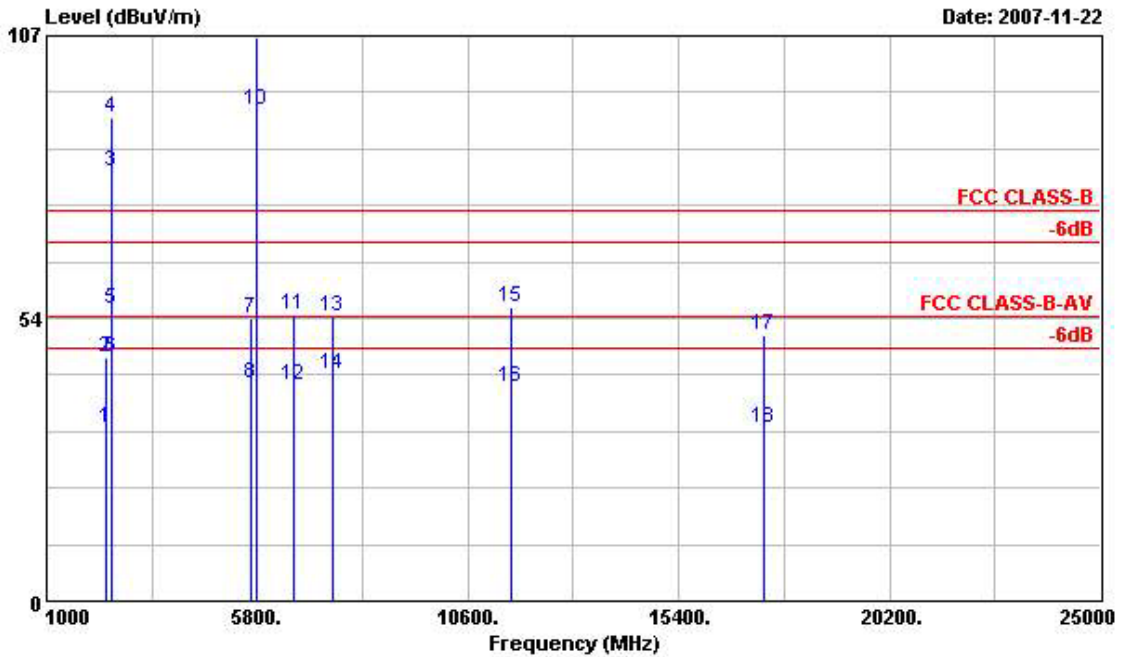
Polarization : Vertical

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



Site : 03CH04-HY
 Condition: FCC CLASS-B 3m ANT2724 VERTICAL
 EUT : NB
 POWER : 120Vac/60Hz
 MODEL : FR 701819-01
 MEMO : 11a Tx_Ch157+BT Tx_Ch78+ Adaptor
 Data Rate: WLAN:6 BT:DH5

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	31.890	26.30	-13.70	40.00	37.33	16.34	0.89	28.26	---	---	Peak
2	167.970	34.24	-9.26	43.50	51.69	8.76	1.72	27.93	100	58	Peak
3	183.090	31.16	-12.34	43.50	48.21	9.03	1.80	27.87	---	---	Peak
4	399.400	29.45	-16.55	46.00	39.42	15.75	2.57	28.29	---	---	Peak
5	668.200	34.12	-11.88	46.00	39.71	20.06	3.45	29.10	---	---	Peak
6	699.000	30.75	-15.25	46.00	36.22	20.14	3.50	29.10	---	---	Peak



Date: 2007-11-22

Site : 03CH04-HY
 Condition: FCC CLASS-B 3m HF-ANT-3117 VERTICAL
 EUT : NB
 POWER : 120Vac/60Hz
 MODEL : FR 701819-01
 MEMO : 11a Tx_Ch157+BT Tx_Ch78+ Adaptor
 Data Rate: WLAN:6 BT:DH5

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2350.000	32.86	-21.14	54.00	30.43	32.51	3.69	33.77	117	212 Average
2	2350.000	46.04	-27.96	74.00	43.61	32.51	3.69	33.77	100	0 Peak
3 X	2480.000	81.46			78.83	32.59	3.84	33.80	117	212 Average
4 X	2480.000	91.40			88.77	32.59	3.84	33.80	100	0 Peak
5	2483.500	55.18	-18.82	74.00	52.55	32.59	3.84	33.80	100	0 Peak
6	2483.500	46.00	-8.00	54.00	43.37	32.59	3.84	33.80	117	212 Average
7	5670.000	53.44	-20.56	74.00	46.15	35.34	6.02	34.07	100	0 Peak
8	5670.000	41.18	-12.82	54.00	33.89	35.34	6.02	34.07	100	39 Average
9 X	5785.000	106.72			99.25	35.49	6.02	34.04	100	0 Peak
10 @	5785.000	92.84			85.37	35.49	6.02	34.04	100	39 Average
11	6614.000	54.36	-19.64	74.00	44.94	36.00	6.23	32.82	100	0 Peak
12	6614.000	40.88	-13.12	54.00	31.46	36.00	6.23	32.82	100	39 Average
13	7532.000	53.95	-20.05	74.00	45.16	36.01	6.57	33.79	100	0 Peak
14	7532.000	42.84	-11.16	54.00	34.05	36.01	6.57	33.79	100	135 Average
15	11574.000	55.77	-18.23	74.00	93.74	-11.49	7.85	34.33	100	0 Peak
16	11574.000	40.52	-13.48	54.00	78.49	-11.49	7.85	34.33	100	35 Average
17	17349.000	50.19	-23.81	74.00	86.00	-11.57	9.52	33.76	100	0 Peak
18	17349.000	32.68	-21.32	54.00	68.49	-11.57	9.52	33.76	100	287 Average

Remark: #3, #4, #9, and #10 are 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 PIFA Antenna for both WLAN and BT 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 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



6. List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMC Receiver	R&S	ESCS 30	100359	9kHz – 2.75GHz	Mar. 01, 2007	Feb. 29, 2008	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2007	Mar. 30, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2007	Mar. 21, 2008	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2007	Apr. 19, 2008	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Mar. 09, 2007	Mar. 08, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	N/A	Conduction (CO04-HY)
Isolation Transformer	Erika Fiedler OHG	D-65396 Walluf	58	45MHz-2.15GHz	N/A	N/A	Conduction (CO04-HY)
3m Semi Anechoic	TDK	SAC-3M	03CH04-HY	30 MHz - 1 GHz 3m	Oct. 29, 2007	Oct. 28, 2008	Radiation (03CH04-HY)
Amplifier	HP	87405A	3950M00135	10MHz - 3 GHz	Mar. 02, 2007	Mar. 01, 2008	Radiation (03CH04-HY)
Spectrum Analyzer	R&S	FSP30	100792	9 kHz – 30GHz	Dec. 13, 2006	Dec. 12, 2007	Radiation (03CH04-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2724	30 MHz - 1 GHz	Aug. 13, 2007	Aug. 12 2008	Radiation (03CH04-HY)
Turn Table	HD	Deis HD 2000	420/610	0 - 360 degree	N/A	N/A	Radiation (03CH04-HY)
Antenna Mast	Chaintek	3000	N/A	1 m - 4 m	N/A	N/A	Radiation (03CH04-HY)
RF Cable-R03m	Suhner Switzerland +	RG223/U +RG8/U	CB024	30 MHz - 1 GHz	Sep. 20, 2007	Sep. 19, 2008	Radiation (03CH04-HY)
Isolation Transformer	Erika FiedLer OHG	D-65396 Walluf	N/A	45 MHz – 2.15 GHz	N/A	N/A	Radiation (03CH04-HY)



7. Uncertainty Evaluation

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

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

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

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



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

Contribution	Uncertainty of x_i		$u(x_i)$	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
Combined standard uncertainty $U_c(y)$	2.36				
Measuring uncertainty for a level of confidence of 95% $U = 2U_e(y)$	4.72				

The measured result is : y dBuV \pm U dB
for a level of confidence of approximately 95% , ($k = 2$)