



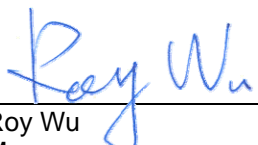
FCC Test Report

According to

47 CFR Part 15 Subpart C

Equipment : GPS Phone
Trade Name : Mio
Model Name : N169
FCC ID : P4Q-N169
Filing Type : Certification
Applicant : MiTAC International Corp.
6th Fl., No.187, Tiding Blvd., Sec. 2, Taipei, Taiwan, R.O.C.

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- The data shown in this test report had been finished on Aug. 01, 2008 at **Sporton International Inc. LAB.**
- Report No.: FR821504-03, Report Version: Rev.01



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Report Version: Rev.01

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1. General Description of Equipment under Test

1.1 Applicant

MiTAC International Corp.

6th Fl., No.187, Tiding Blvd., Sec. 2, Taipei, Taiwan, R.O.C.

1.2 Manufacturer

MiTAC Computer (KunShan) Co., Ltd.

No. 269, 2nd Road, Export Processing Zone, Changjiang South Road, KunShan, JiangSu Prov., China

1.3 Basic Description of Equipment under Test

AC Adapter 1	Trade Name	PHIHONG
	Model Name	PSAA05R-050
	Power Rating	I/P: 100-240V, 50-60Hz, 0.3A O/P: +5Vdc, 1A Max.
	AC Power Cord Type	1.9m shielded cable without ferrite core
AC Adapter 2	Trade Name	TPT
	Model Name	MII050100
	Power Rating	I/P: 100-240V, 50-60Hz, 0.5A
	AC Power Cord Type	1.5m shielded cable without ferrite core
Battery 1	Trade Name	Welldone
	Model Name	E4MT261K1002
	Rating	3.7V, 1100mAh
	Type	Li-ion
Battery 2	Trade Name	Welldone
	Model Name	E4MT261K1002
	Rating	3.7V, 1150mAh
	Type	Li-ion
Earphone 1	Trade Name	PETER
	Model Name	A1-CS-127
	Signal line Type	1.2m non-shielded cable without ferrite core
Earphone 2	Trade Name	PETER
	Model Name	D-AS-107-070917A
	Signal line Type	2.4m non-shielded cable without ferrite core
USB Cable	Trade Name	MPT
	Model Name	422145700005
	Signal line Type	1.2m non-shielded cable without ferrite core
LCD Panel	Trade Name	TPO
	Model Name	TD028THED1
Camera	Trade Name	Casio
	Model Name	CM-33AVW-02A
Console Cable	Trade Name	BIMOS
	Model Name	781001010002

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 :	GPS Phone		
Trade Name :	Mio		
Model Name :	N169		
FCC ID :	P4Q-N169		
Tx Frequency :	2400 MHz ~ 2483.5 MHz		
Rx Frequency :	2400 MHz ~ 2483.5 MHz		
Number of Channels :	79		
Carrier Frequency of Each Channel :	2402+n*1 MHz; n=0~78		
Channel Spacing :	1 MHz		
Maximum Output Power to Antenna :	Bluetooth: -1.16 dBm (1Mbps) Bluetooth EDR: -3.06dBm (2Mbps) / -2.78dBm (3Mbps)		
Type of Antenna Connector :	N/A		
Antenna Type :	Monopole Antenna		
Antenna Gain :	2 dBi		
HW Version :	R05		
SW Version :	R33		
Type of Modulation :	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK		
Function Type :	Transmitter		Transceiver V
DUT Stage :	Identical Prototype		

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 data rate, 1Mbps, was chosen to being tested, due to the highest RF output power.

Channel	Frequency	Data Rate / Modulation		
		GFSK	$\pi/4$ -DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2400MHz	-1.21 dBm	-3.06 dBm	-2.78 dBm
Ch39	2441MHz	-1.16 dBm	-3.15 dBm	-2.94 dBm
Ch78	2480MHz	-1.64 dBm	-3.79 dBm	-3.50 dBm

Bluetooth uses frequency hopping spread spectrum (FHSS) operation which also facilitates Bluetooth multiple access and coexistence among other types of wireless systems. The basic frequency-hopping pattern is a pseudo-random ordering of 79 channel frequencies in the ISM band and the hopping rate is nominally 1600 hops per second. The EDR modulation format uses one of two types of DPSK ($\pi/4$ -DQPSK or 8-DPSK) in the payload section of the packet. As shown in figure, the EDR packet begins using GFSK modulation during the access code and header portions of the packet but changes to DPSK modulation after the guard time. Changing to a DPSK format allows increased data rates of 2 Mb/s or 3 Mb/s.

- c. The EUT is programmed to transmit signal continuously for all testings.
- d. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 25000 MHz.

2.2 Test Mode

Test Item	Test Mode		
Radiated Emission / RF Conducted	Bluetooth Tx	Bluetooth Tx(EDR 2Mbps)	Bluetooth Tx(EDR 3Mbps)
	Mode 1: CH00_2402 MHz	Mode 4: CH00_2402 MHz	Mode 7: CH00_2402 MHz
	Mode 2: CH39_2441 MHz	Mode 5: CH39_2441 MHz	Mode 8: CH39_2441 MHz
	Mode 3: CH78_2480 MHz	Mode 6: CH78_2480 MHz	Mode 9: CH78_2480 MHz
Conducted Emission	Mode 1: BT Link + WLAN Link + Adapter 1		
	Mode 2: BT Link + WLAN Link + Adapter 2		

Remark : The worst cases of each mode are bold word of above, only the test data of worst case were reported.

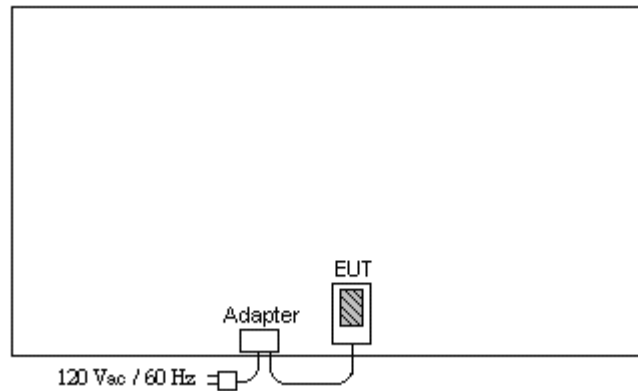
2.3 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	BT Station	Anritus	8852A	N/A	N/A	Unshielded, 1.8m
3.	Bluetooth Earphone	Engotech	ET-BH111	PQY471087	N/A	N/A
4.	WLAN AP	SMC	SMC-100	HEDWG4005ACC	N/A	Unshielded, 1.8m

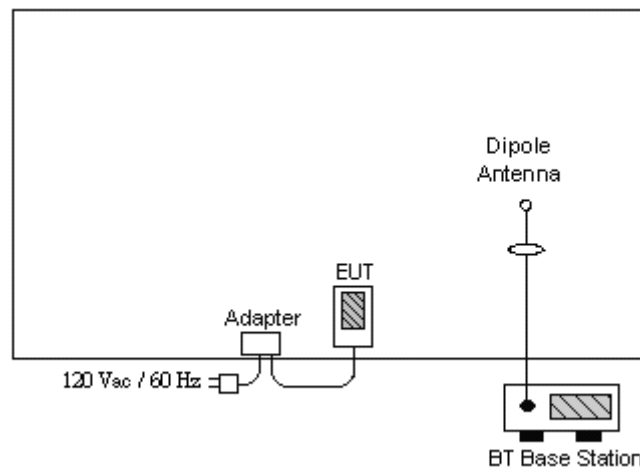
2.4 Connection Diagram of Test System

<Radiation>

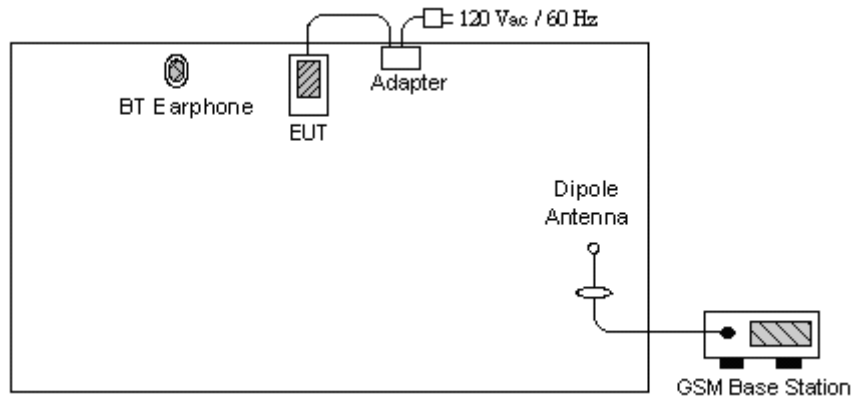
WLAN



Bluetooth



<Conduction>





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 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 : CO04-HY, 03CH06-HY

FCC Designation No : TW1022

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	Pass
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
15.247(b)(1)	Output Power	Pass
15.247(d)	100 KHz 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 100 KHz 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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

Test Result in Bluetooth lower band	:	PASS
Test Result in Bluetooth higher band	:	PASS
Test Result in Bluetooth EDR(2Mbps) lower band	:	PASS
Test Result in Bluetooth EDR(2Mbps) higher band	:	PASS
Test Result in Bluetooth EDR(3Mbps) lower band	:	PASS
Test Result in Bluetooth EDR(3Mbps) higher band	:	PASS

5.2.4 Note on Band Edge Emission

► Bluetooth(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
2381.25	44.57	-29.43	74.00	44.47	31.86	3.92	35.68	100	0	Peak
2381.25	31.50	-22.50	54.00	31.42	31.83	3.92	35.68	174	329	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
2311.14	45.16	-28.84	74.00	45.08	31.83	3.92	35.68	100	0	Peak
2311.14	31.85	-22.15	54.00	31.95	31.73	3.82	35.66	100	9	Average

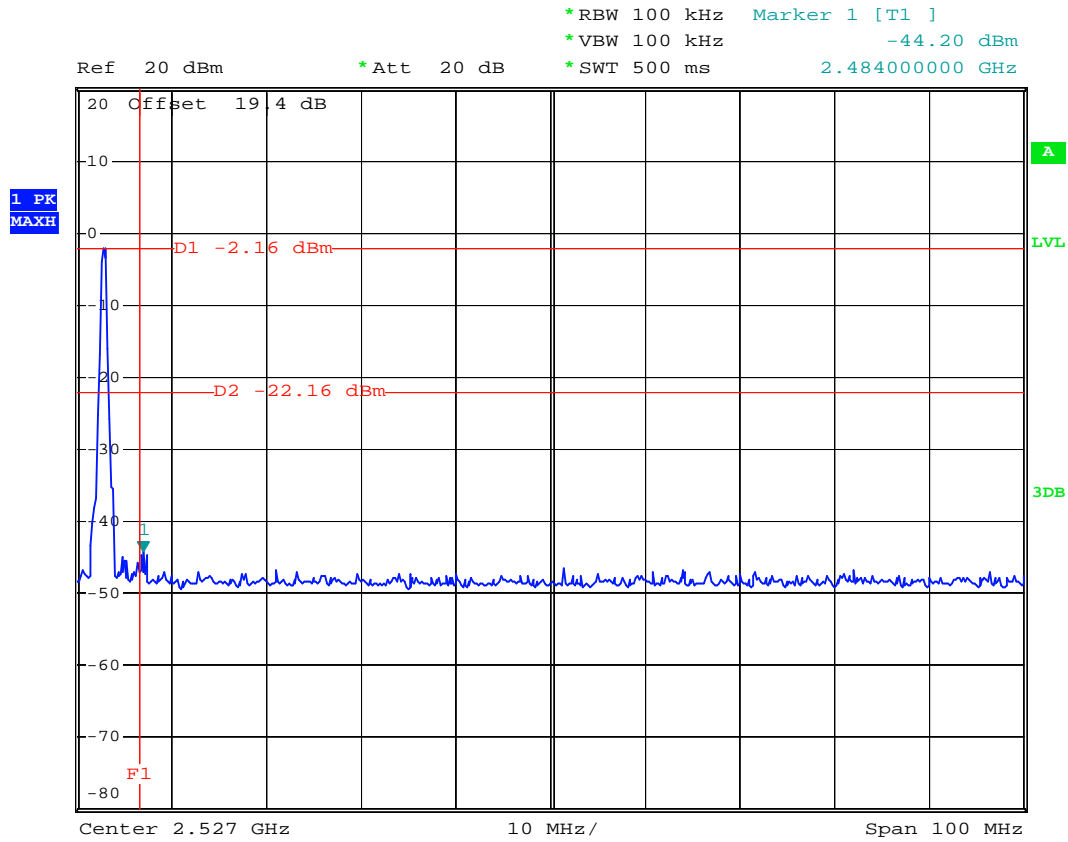
CH78 (Horizontal)

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	56.45	-17.55	74.00	56.12	31.98	4.05	35.740	100	0	Peak
2483.47	46.42	-7.58	54.00	46.09	31.98	4.05	35.70	107	334	Average

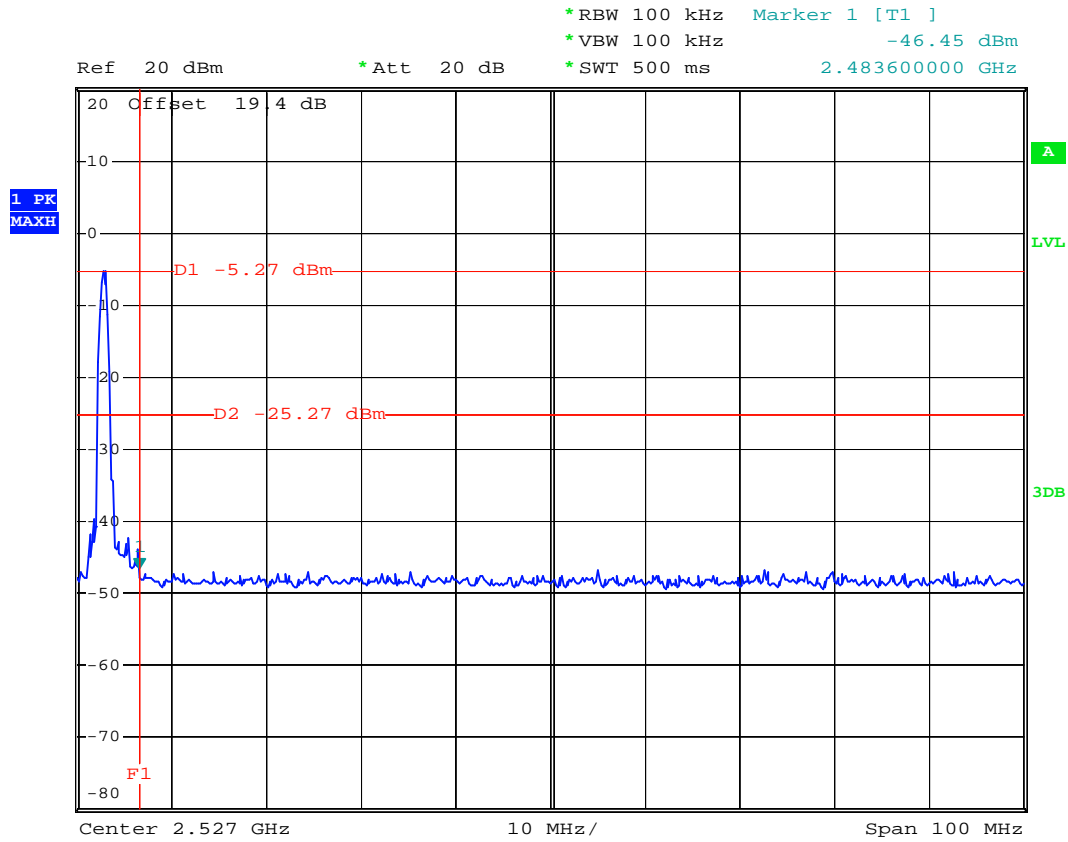
CH78 (Vertical)

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	56.87	-17.13	74.00	56.54	31.98	4.05	35.70	100	0	Peak
2483.47	46.57	-7.43	54.00	46.24	31.98	4.05	35.70	180	0	Average

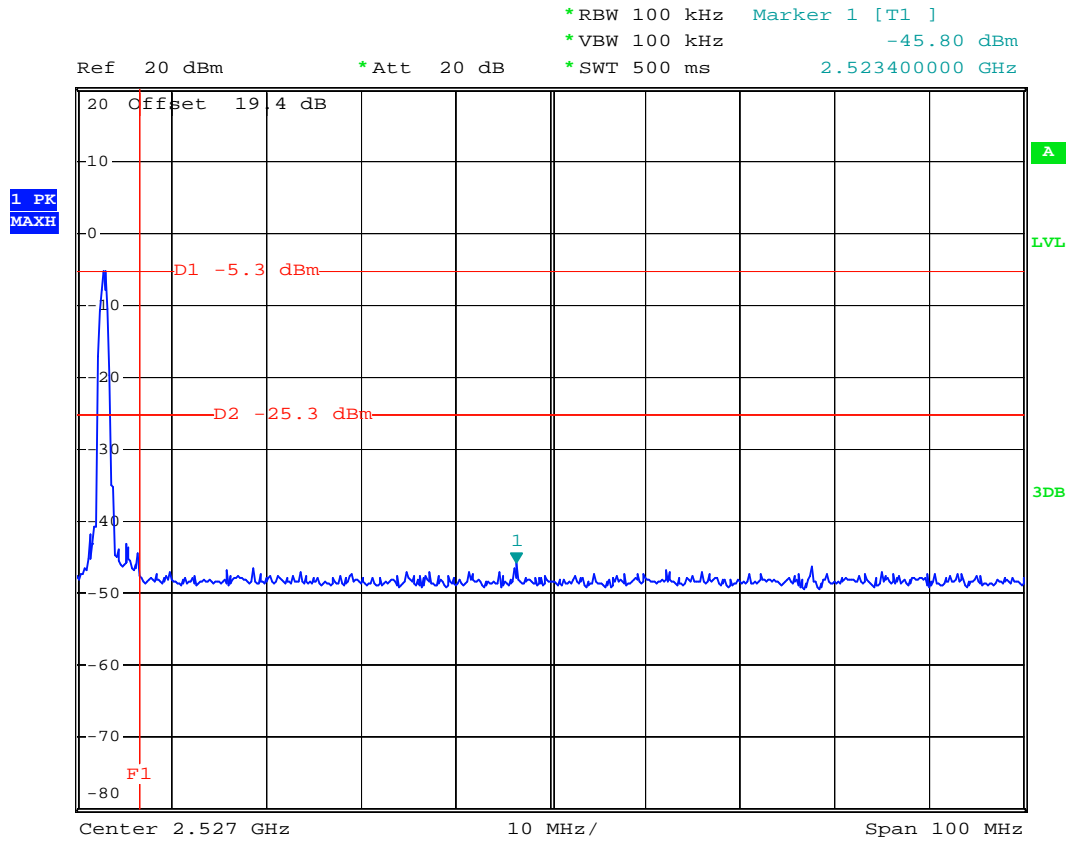
CH78



CH78



CH78



5.3 Hopping Channel Separation

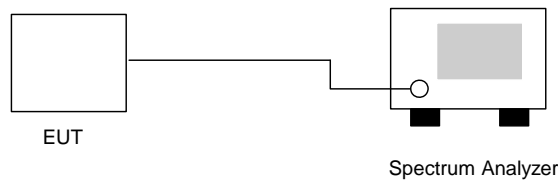
5.3.1 Measuring Instruments

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 30 KHz and VBW to 100 KHz.
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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.578	Mode 1
39	2441	1.004	0.580	Mode 2
78	2480	1.004	0.576	Mode 3

Remark: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth.

- Application Type : Bluetooth EDR(2Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.821	Mode 4
39	2441	1.000	0.819	Mode 5
78	2480	1.000	0.813	Mode 6

Remark: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth.

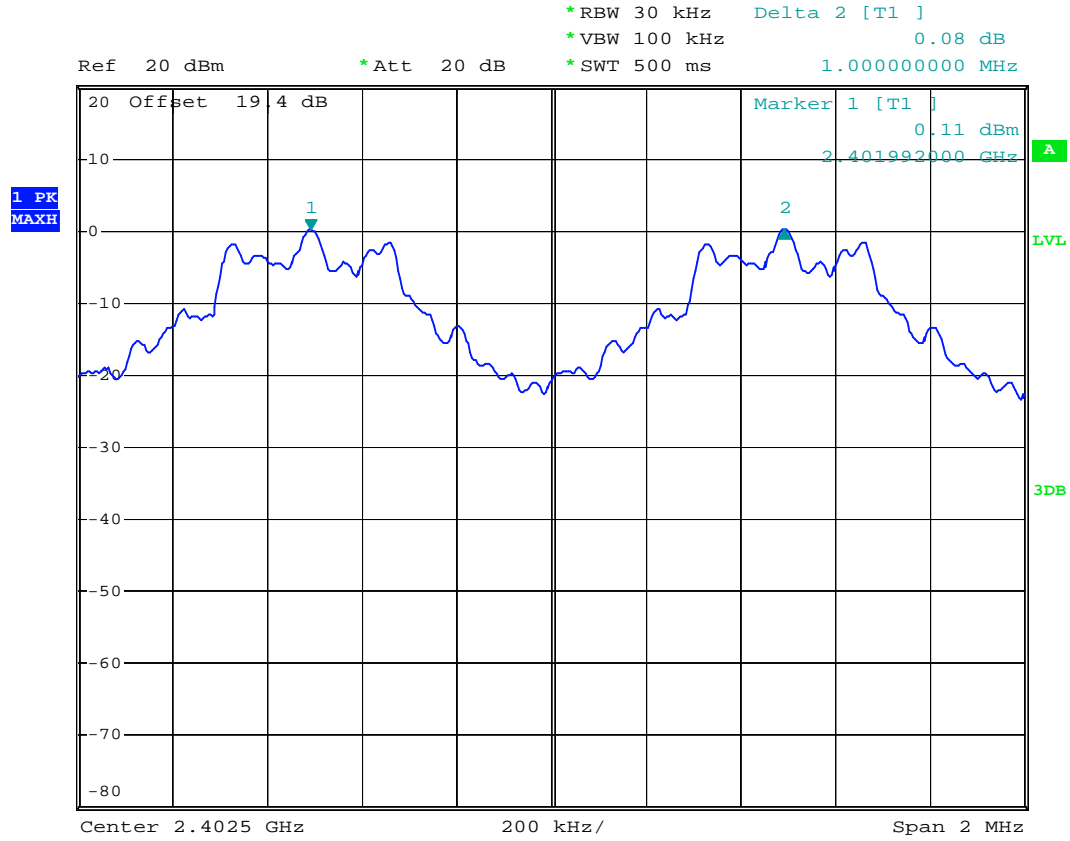
- Application Type : Bluetooth EDR(3Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

Channel	Frequency (MHz)	Carrier Frequency Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.000	0.837	Mode 7
39	2441	1.000	0.835	Mode 8
78	2480	1.000	0.835	Mode 9

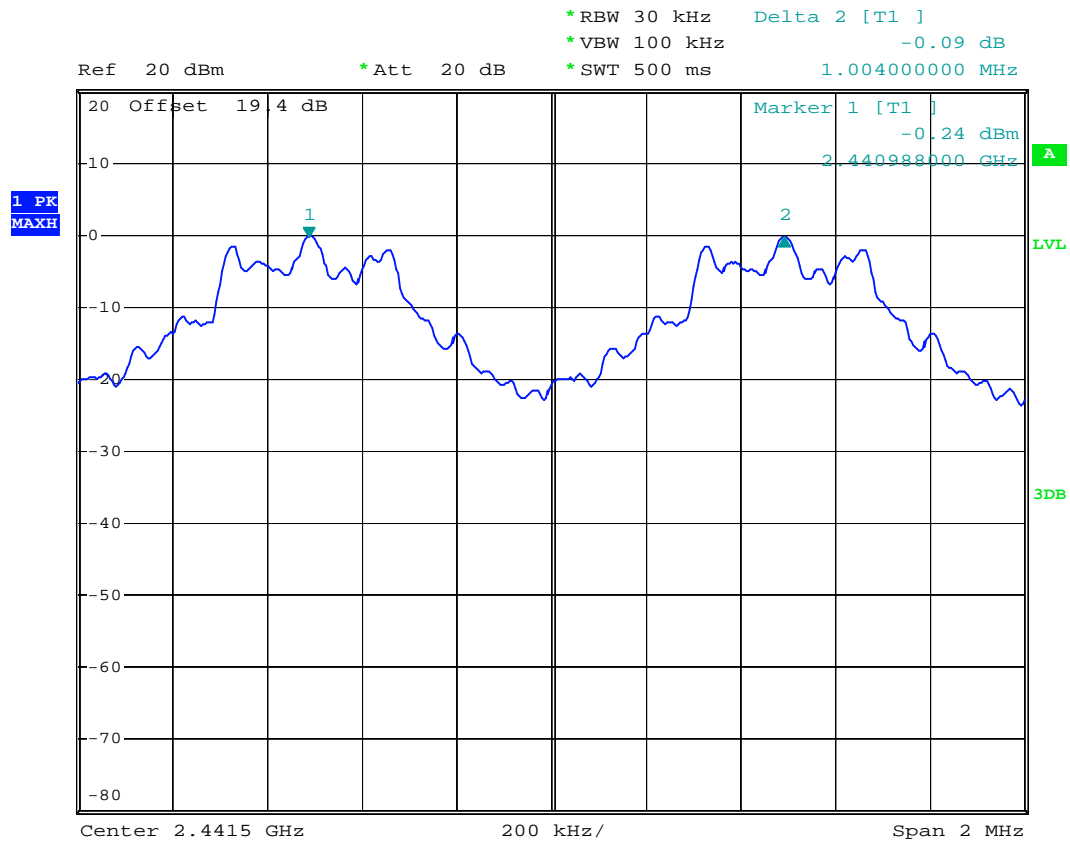
Remark: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth.

5.3.5 Hopping Channel Separation

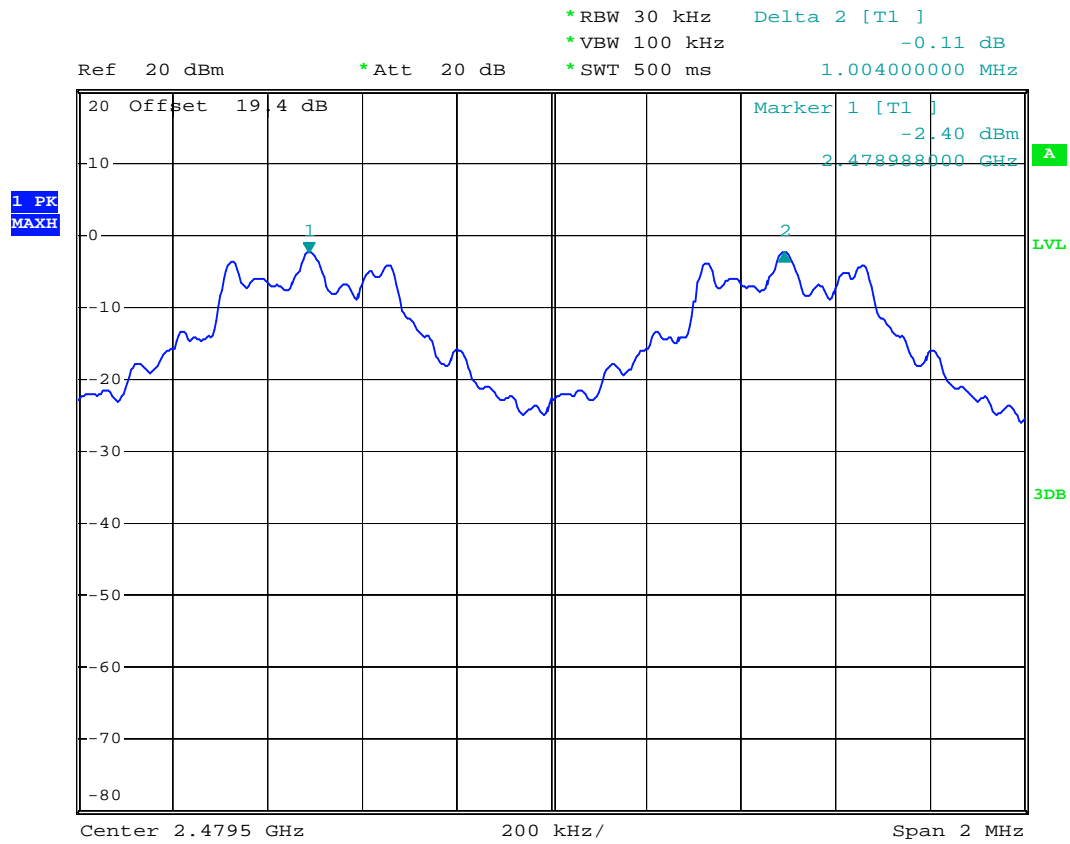
Mode 1



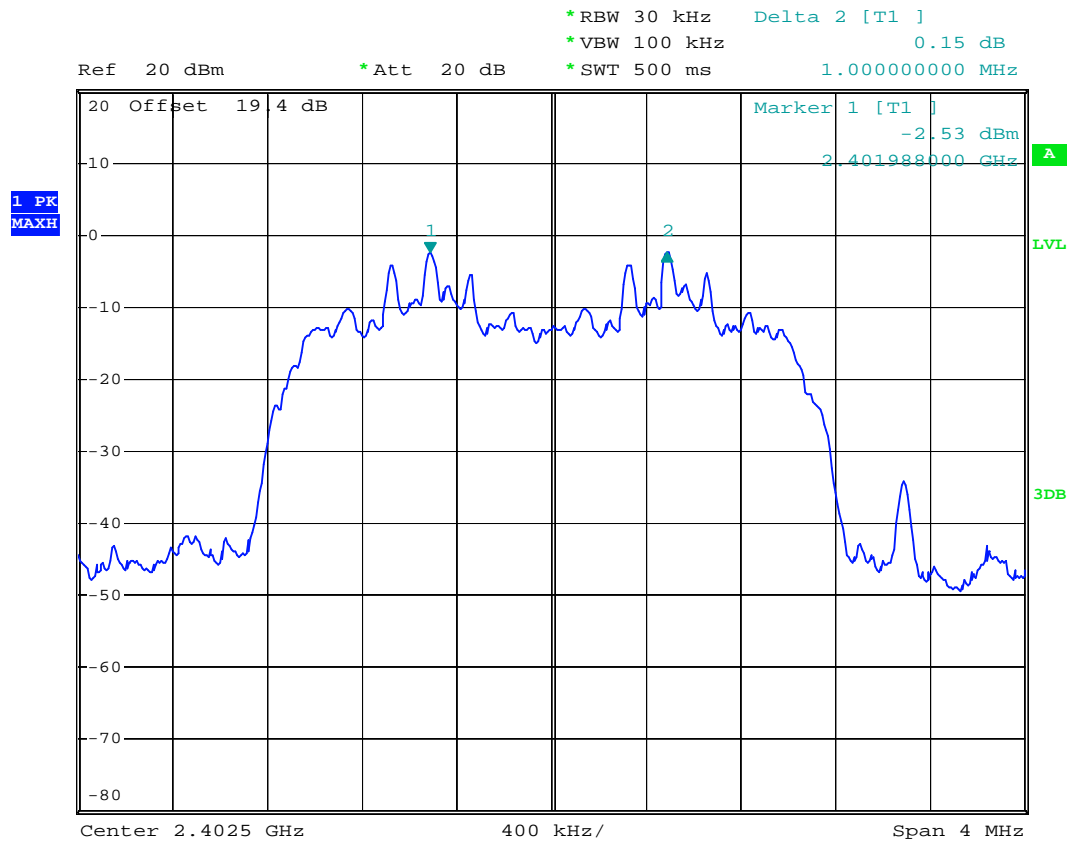
Mode 2



Mode 3

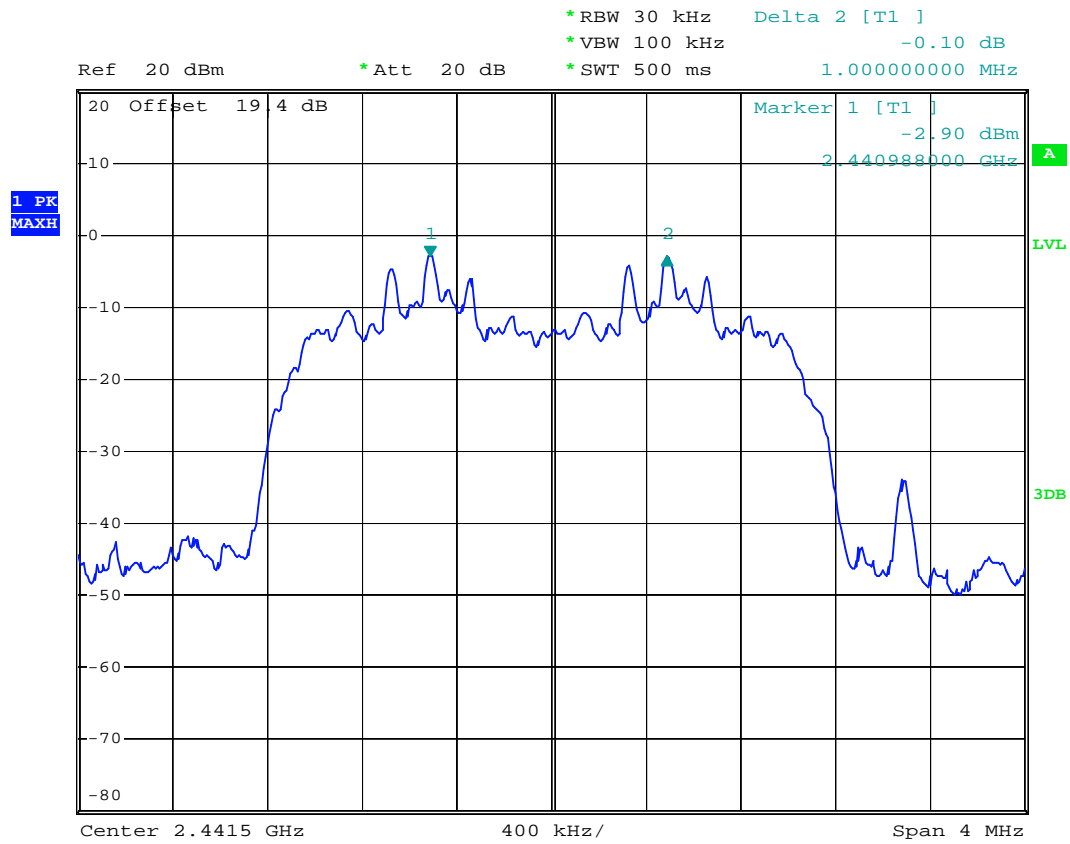


Mode 4

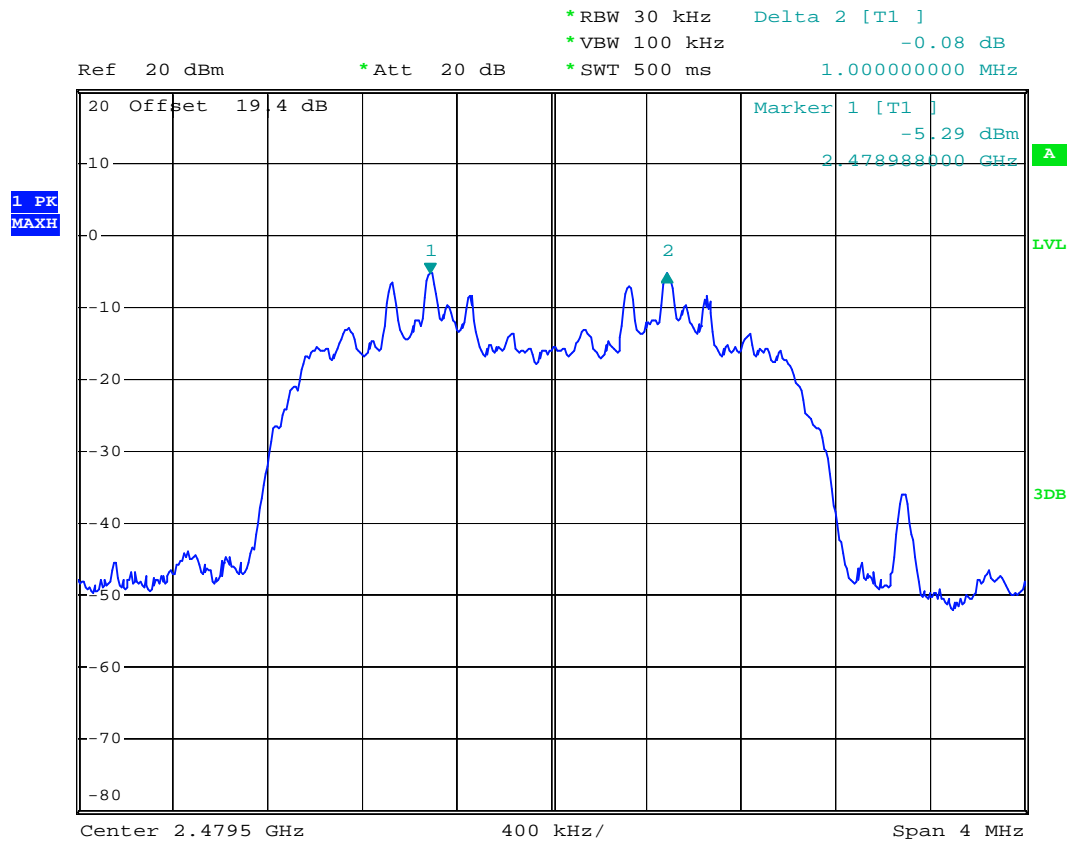




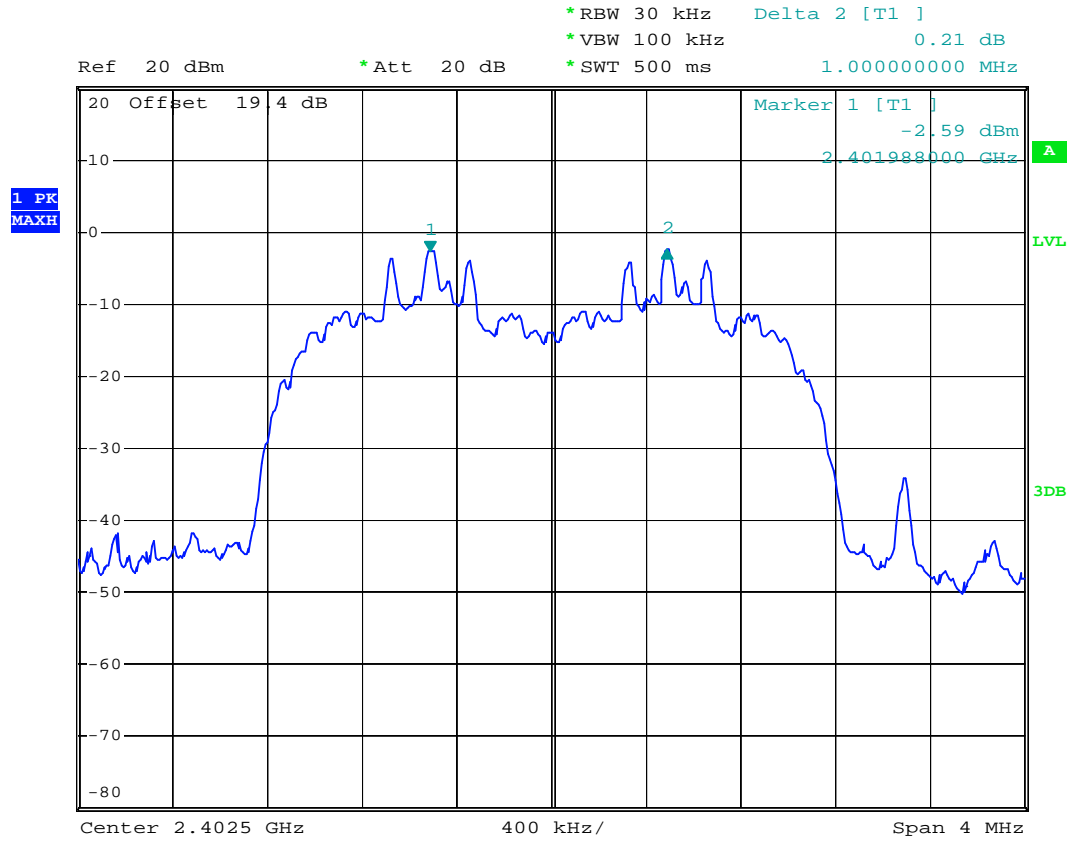
Mode 5



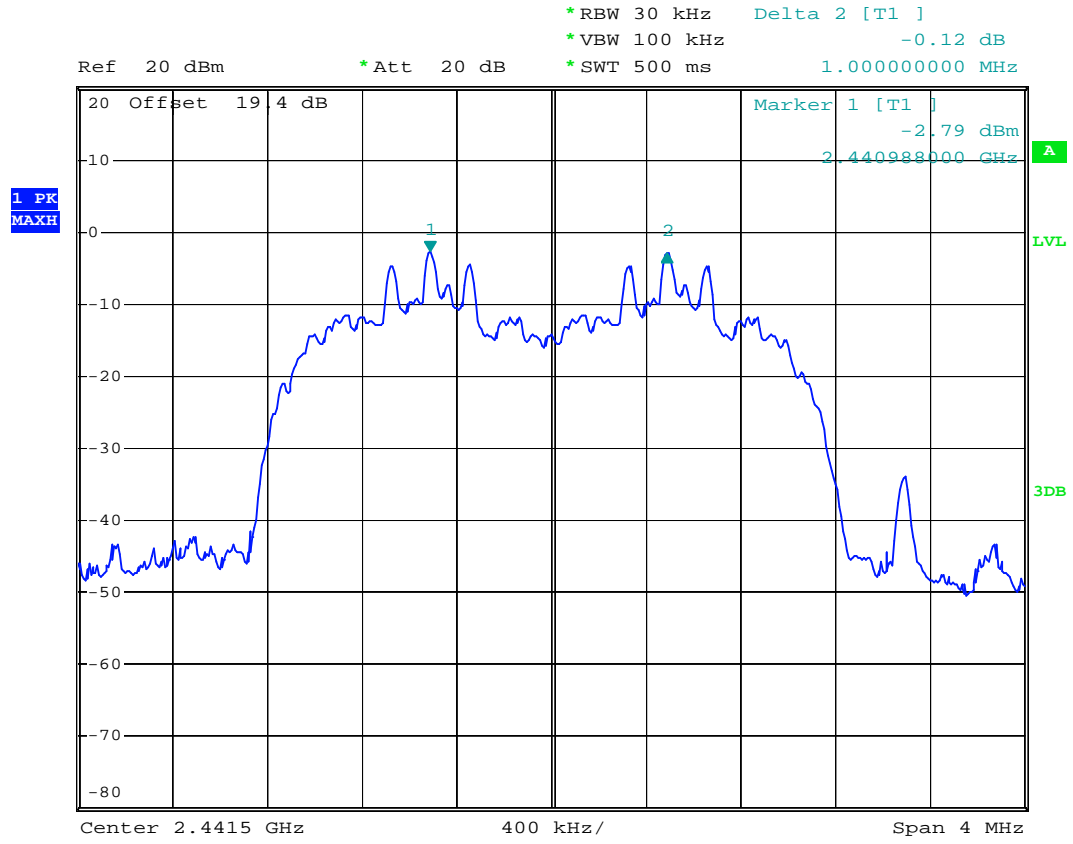
Mode 6



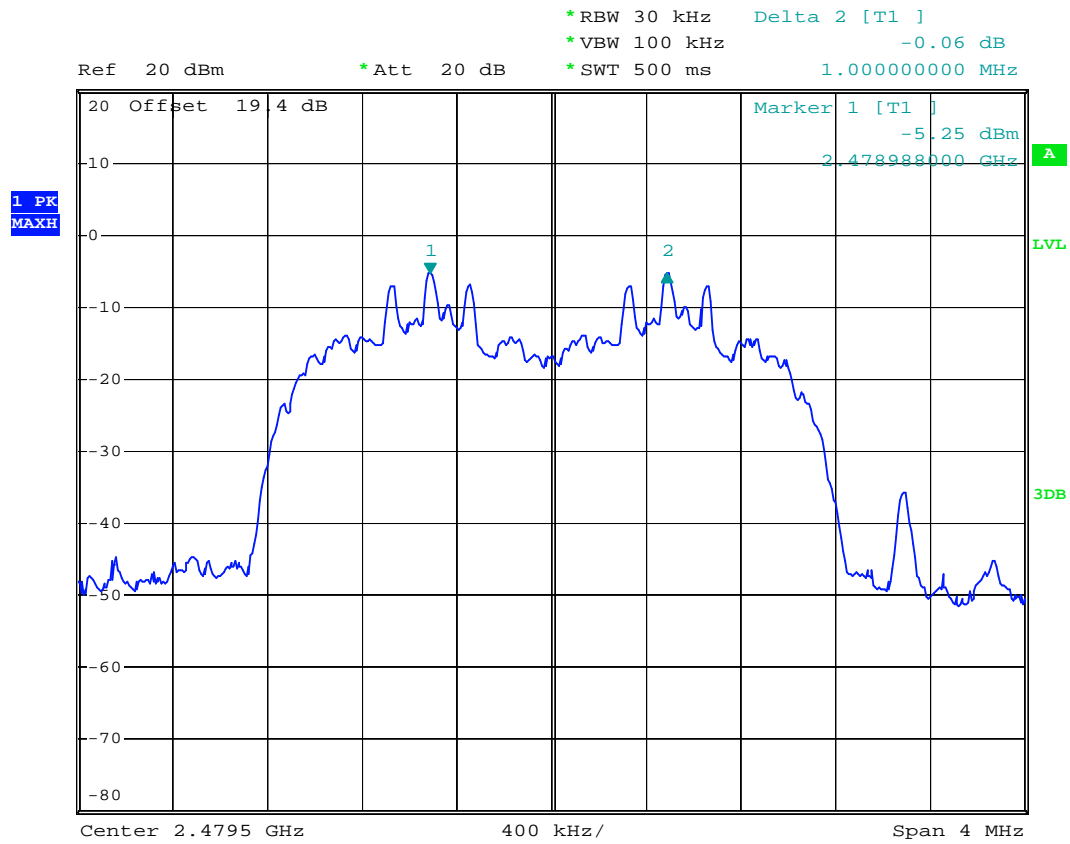
Mode 7



Mode 8



Mode 9



5.4 Number of Hopping Frequency

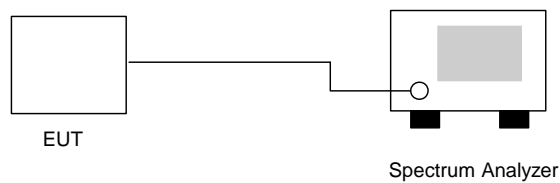
5.4.1 Measuring Instruments

As described in chapter 9 of this test report.

5.4.2 Test Procedure

- a. The output of EUT was connected to the spectrum analyzer by a low loss cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
- c. 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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

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

- Application Type : Bluetooth EDR(2Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

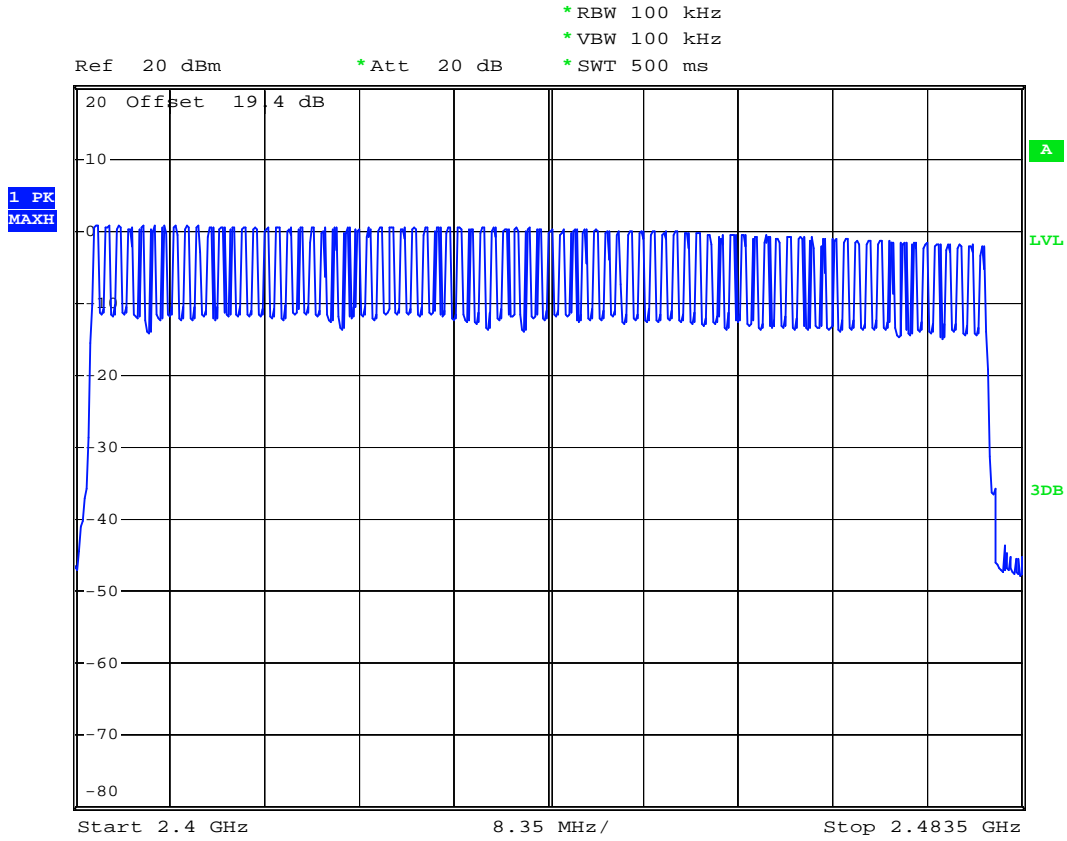
Number of Hopping Frequency (Channel)	Limits (Channel)
79	15

- Application Type : Bluetooth EDR(3Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

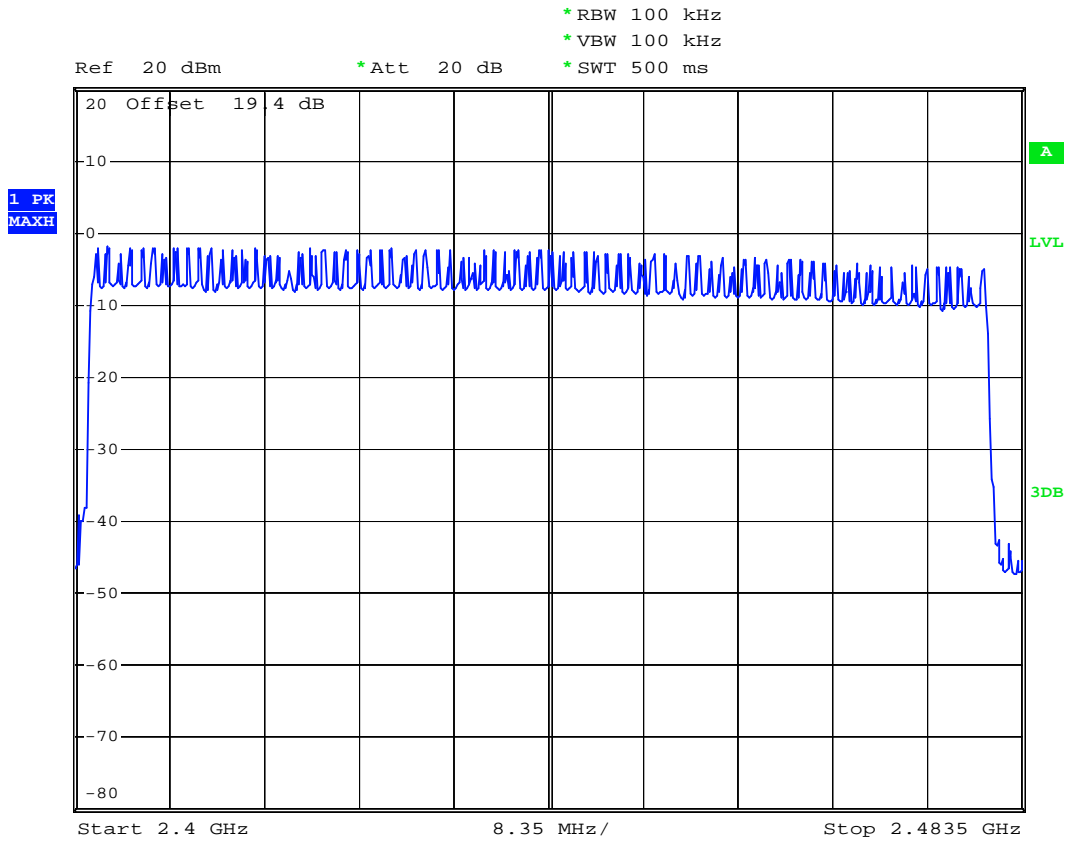
Number of Hopping Frequency (Channel)	Limits (Channel)
79	15

5.4.5 Number of Hopping Frequency

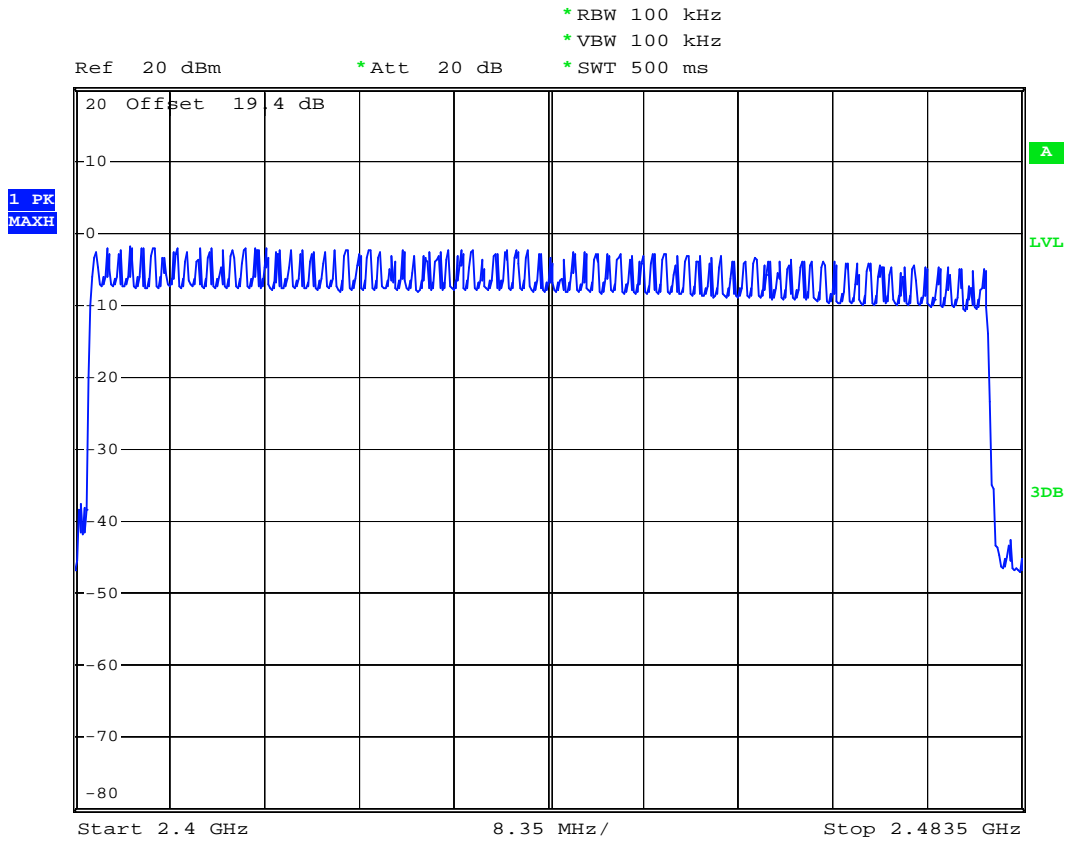
Bluetooth



Bluetooth EDR(2Mbps)



Bluetooth EDR(3Mbps)



5.5 Hopping Channel Bandwidth

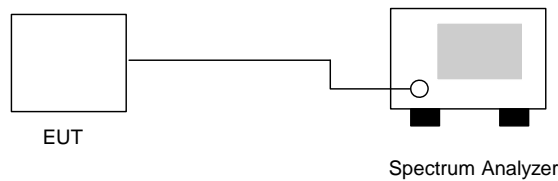
5.5.1 Measuring Instruments

As described in chapter 9 of this test report.

5.5.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer by a low loss cable.
- b. Set RBW of spectrum analyzer to 30 KHz and VBW to 300 KHz.
- c. 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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	0.867	Mode 1
39	2441	0.870	Mode 2
78	2480	0.864	Mode 3

- Application Type : Bluetooth EDR(2Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

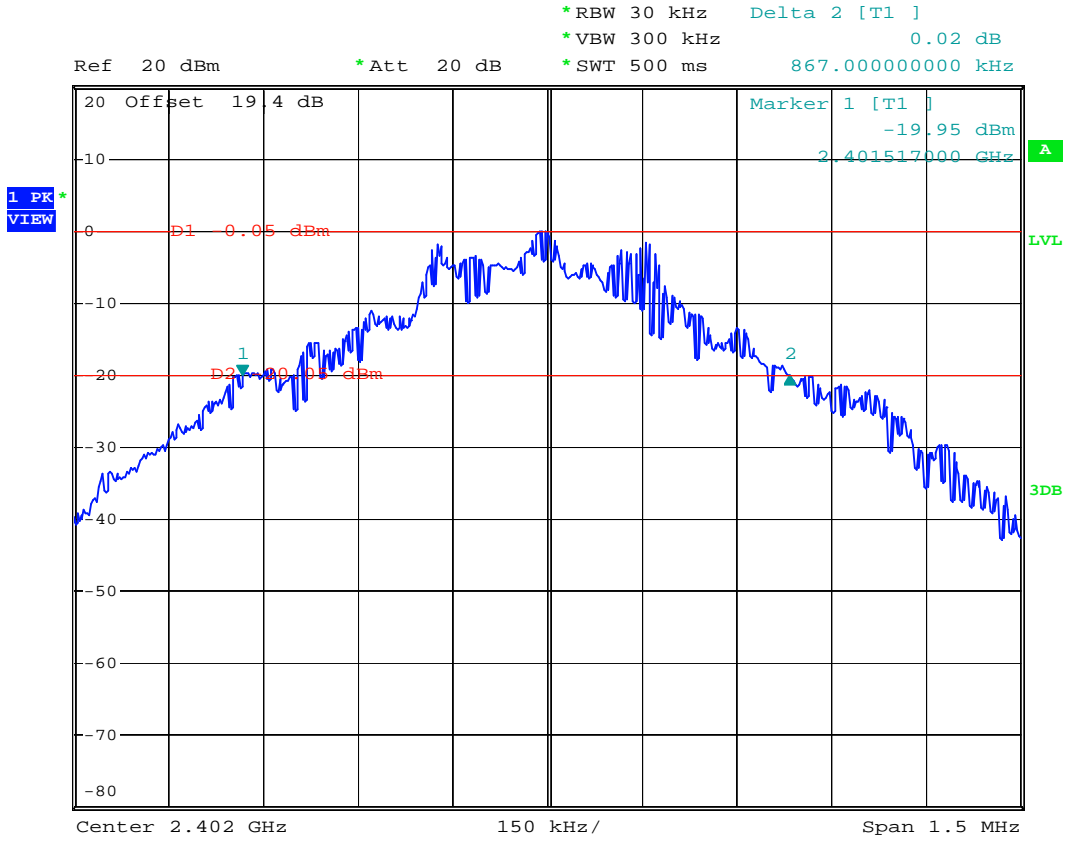
Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	1.232	Mode 4
39	2441	1.228	Mode 5
78	2480	1.220	Mode 6

- Application Type : Bluetooth EDR(3Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

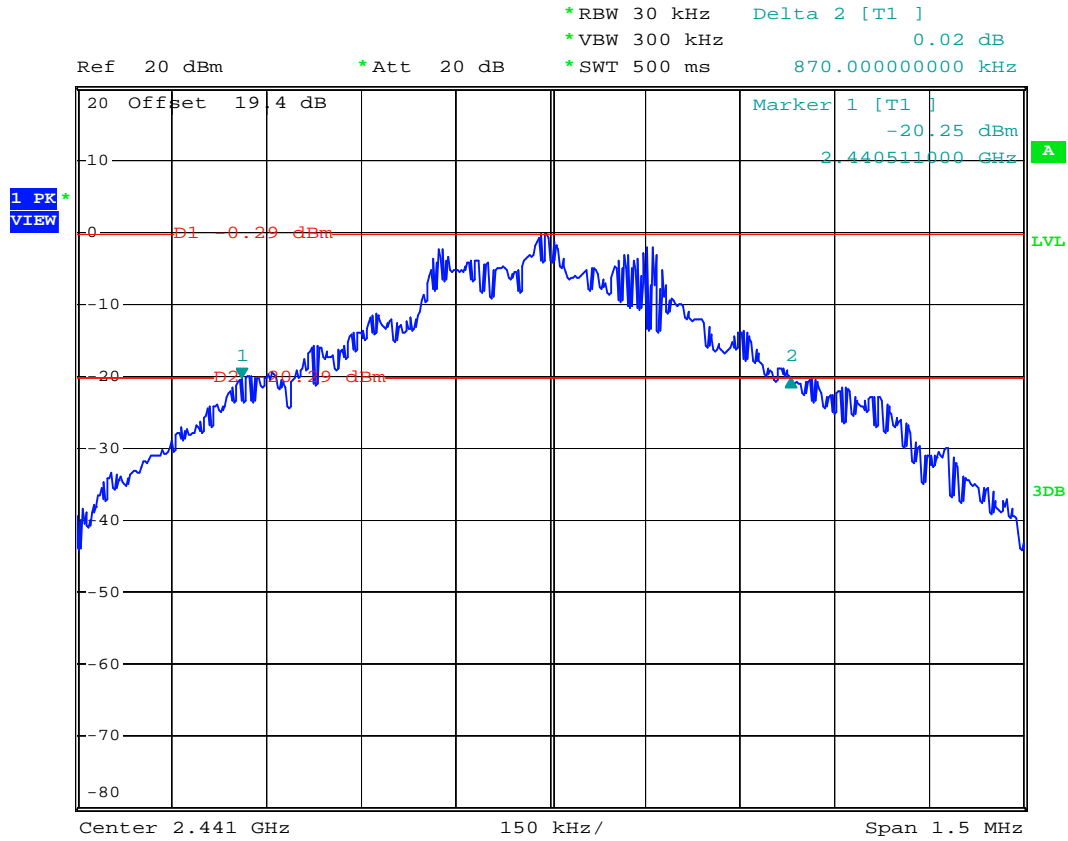
Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Plot Ref. No.
00	2402	1.256	Mode 7
39	2441	1.252	Mode 8
78	2480	1.252	Mode 9

5.5.5 Hopping Channel Bandwidth

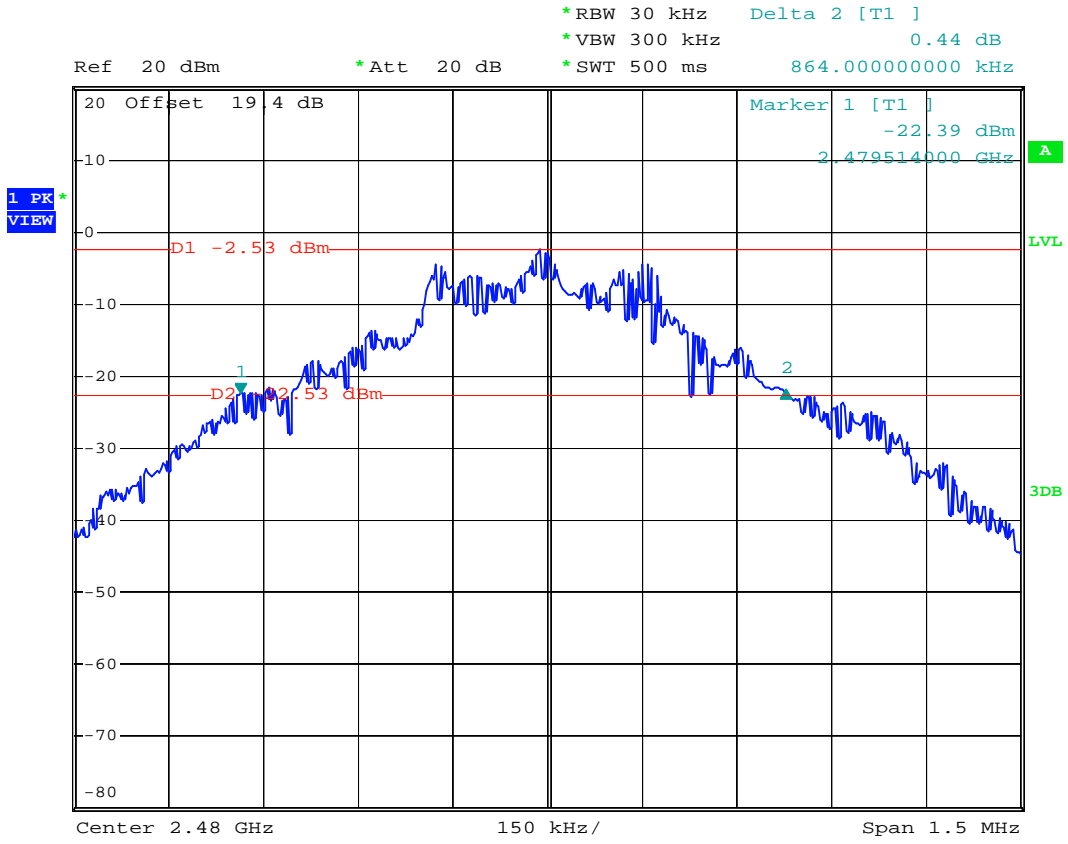
Mode 1



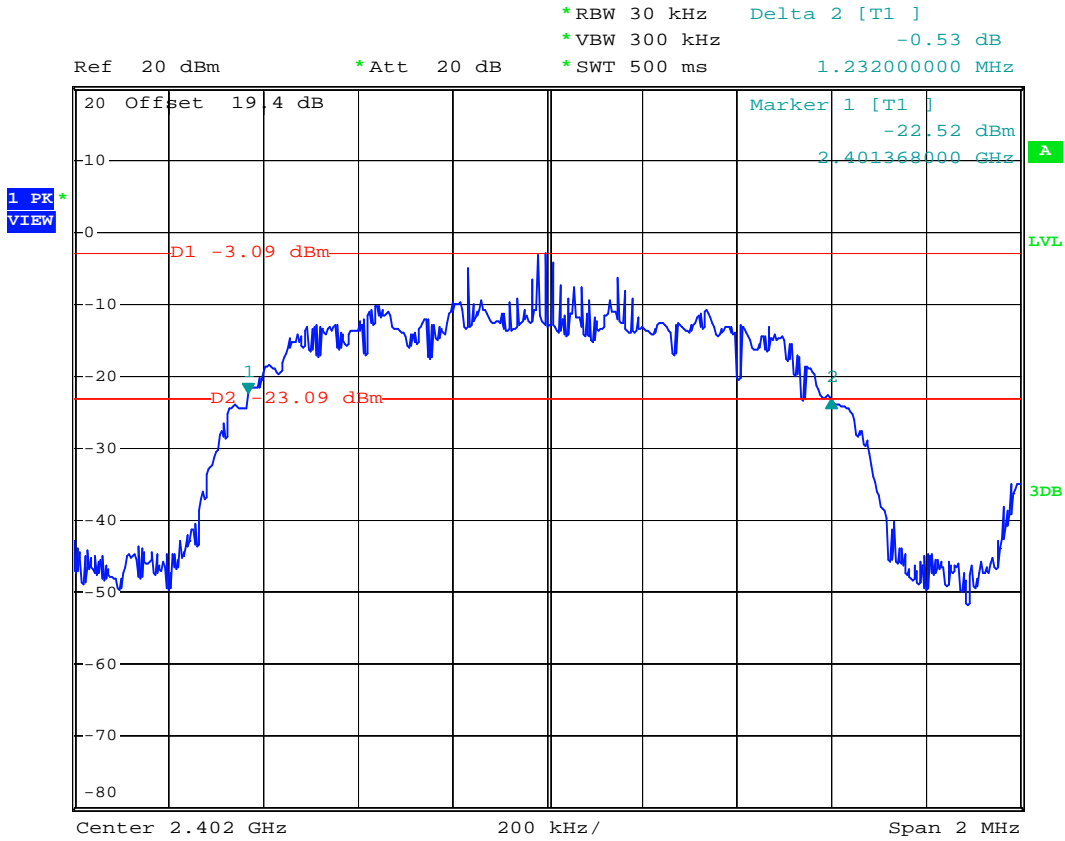
Mode 2



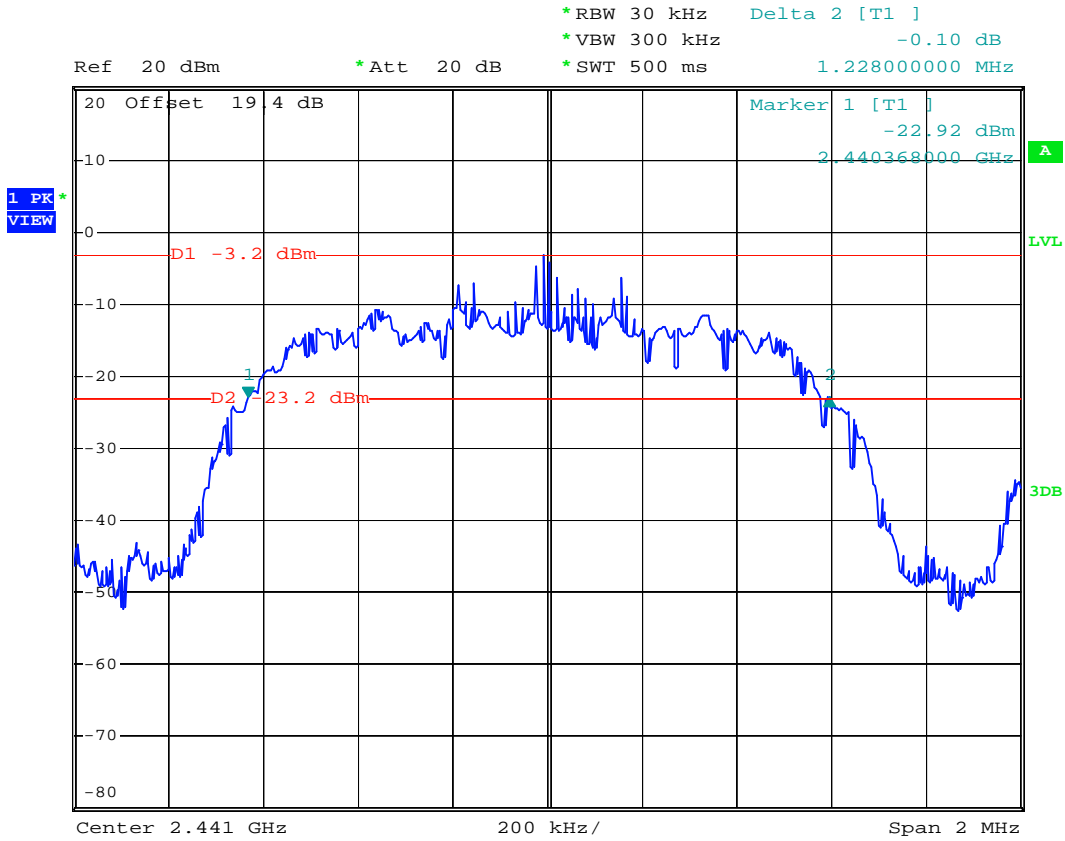
Mode 3



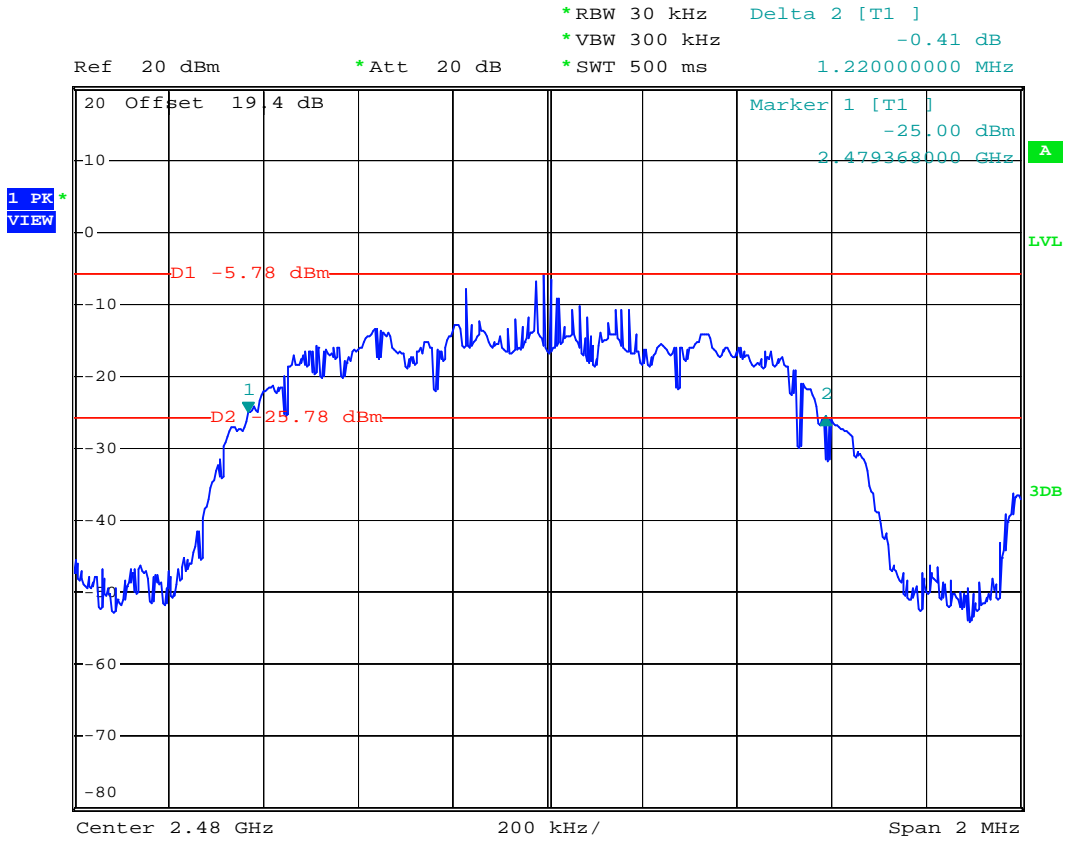
Mode 4



Mode 5



Mode 6



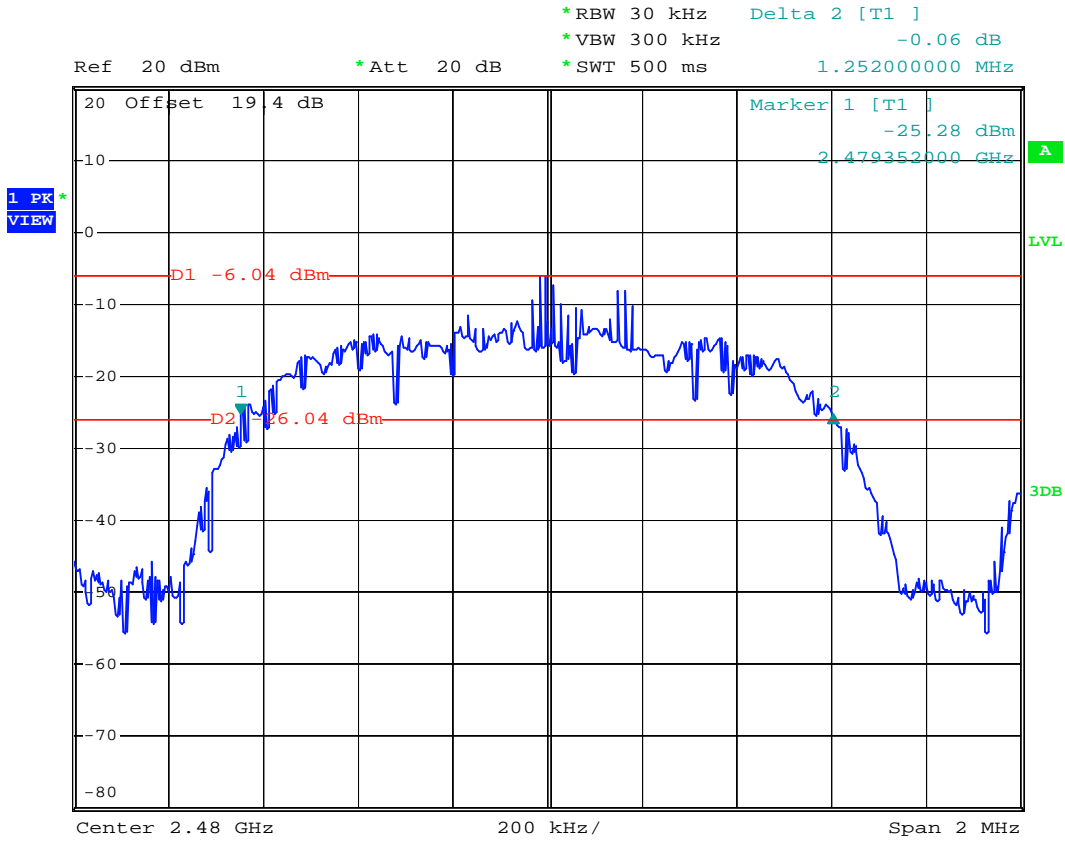
Mode 7



Mode 8



Mode 9



5.6 Dwell Time of Each Frequency

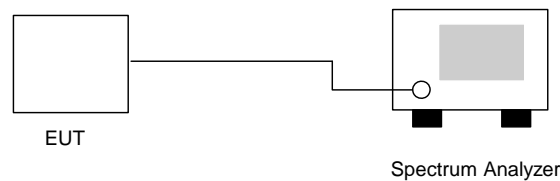
5.6.1 Measuring Instruments

As described in chapter 9 of this test report.

5.6.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer by a low loss cable.
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- c. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- d. The calculate $= 79 * 0.4 * (1600/79) * t$ (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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.2	440	0.114	0.4
DH3	3.9	1700	0.210	0.4
DH5	2.9	2980	0.273	0.4

- Application Type : Bluetooth EDR(2Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	8.4	456	0.121	0.4
DH3	4.0	1720	0.217	0.4
DH5	2.6	3040	0.250	0.4

- Application Type : Bluetooth EDR(3Mbps)
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

CH39

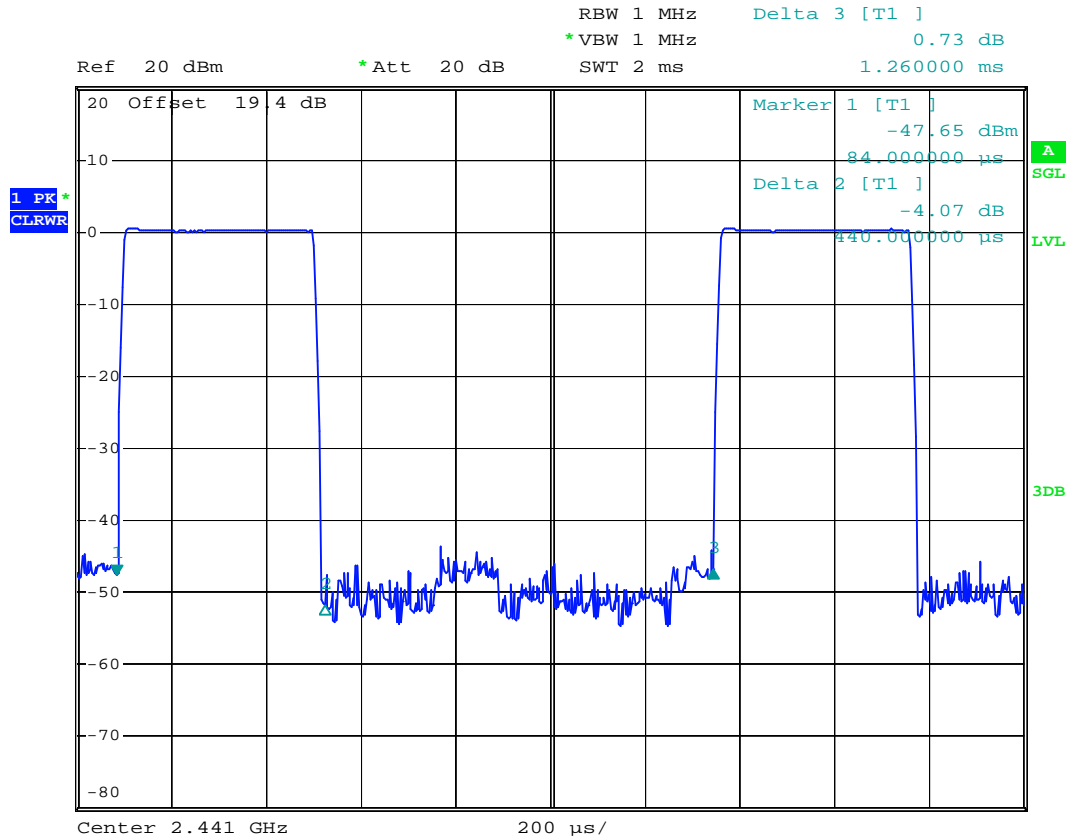
Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	7.8	452	0.111	0.4
DH3	4.7	1726	0.256	0.4
DH5	3.3	2980	0.311	0.4

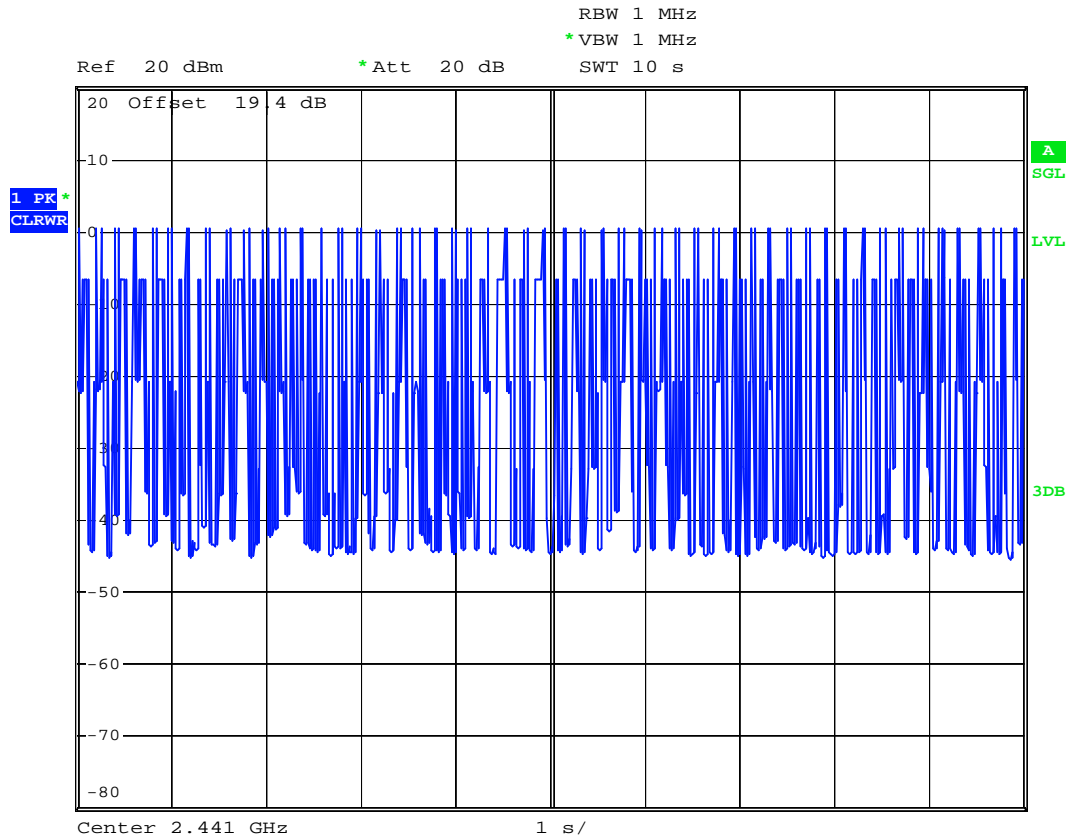
※ Remark:

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)

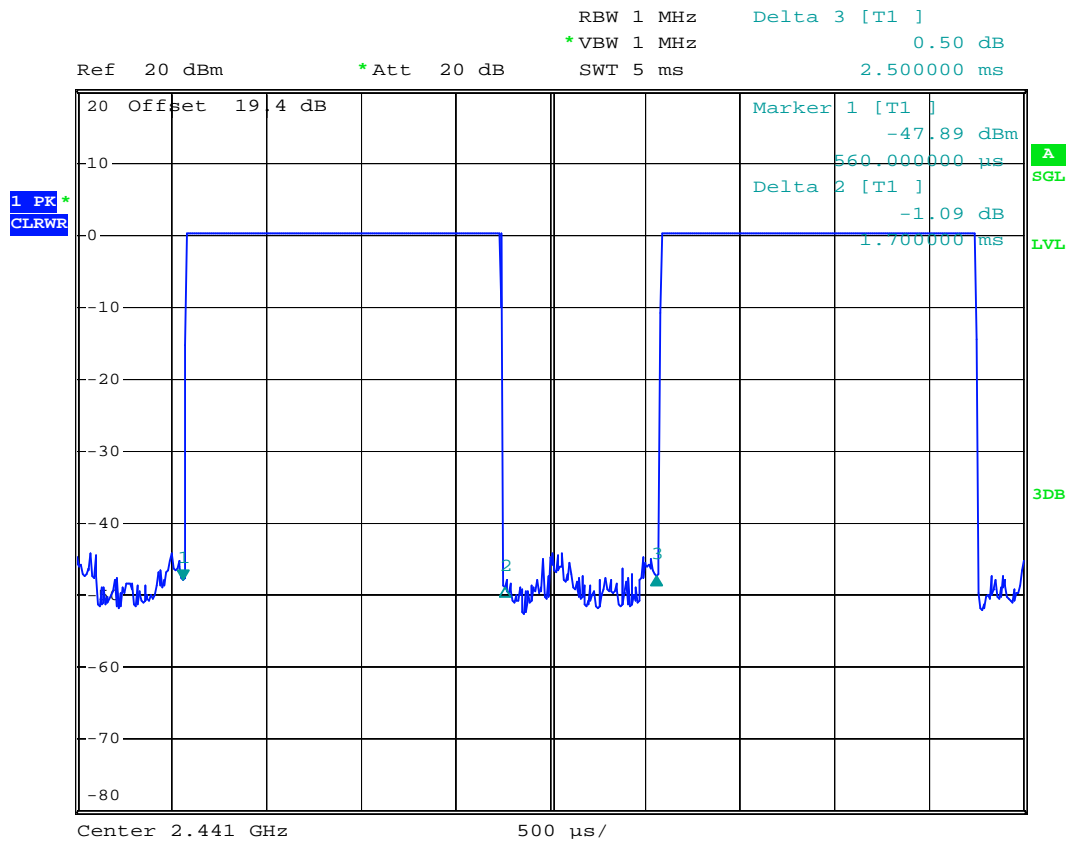
5.6.5 Dwell Time

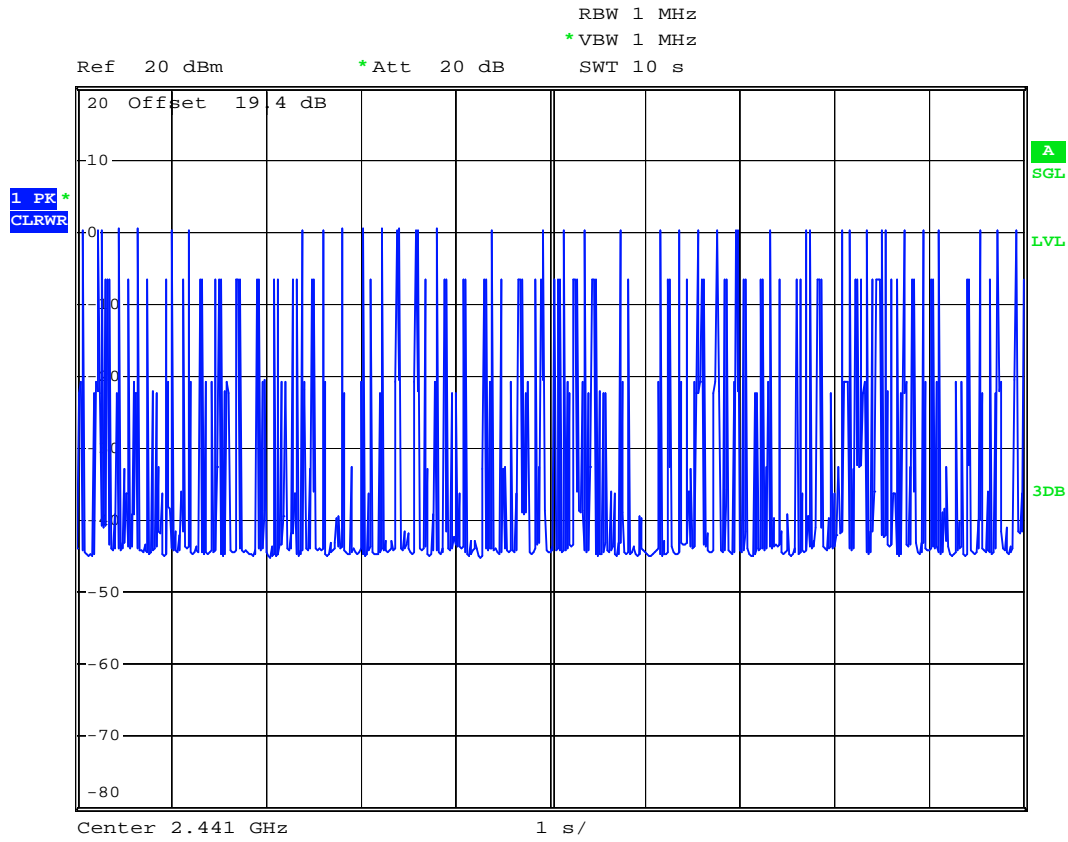
DH1 (CH39)



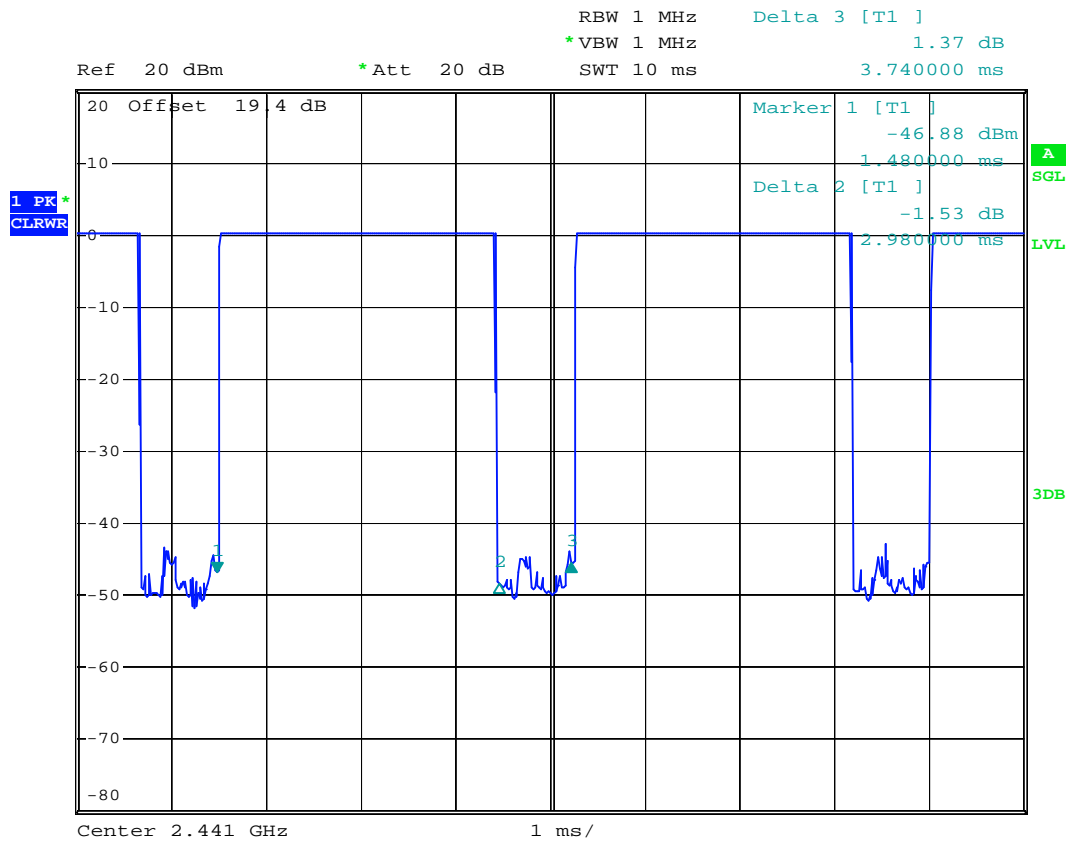


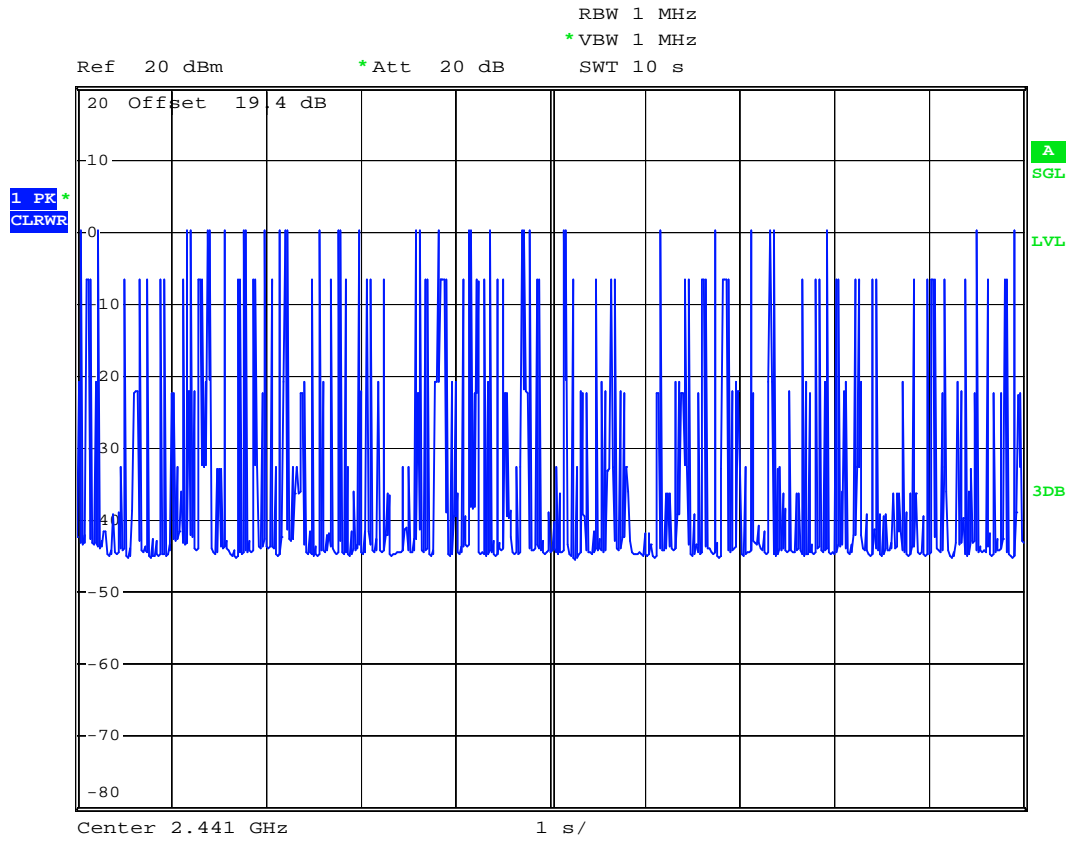
DH3 (CH39)



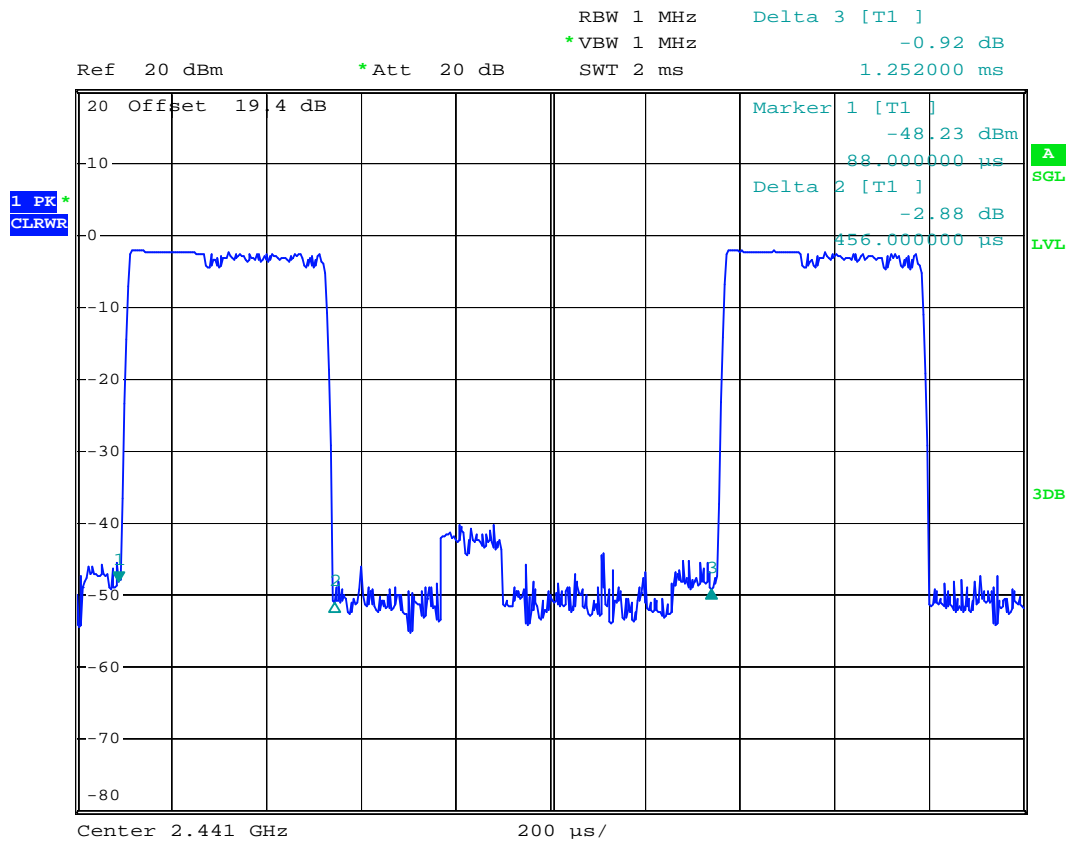


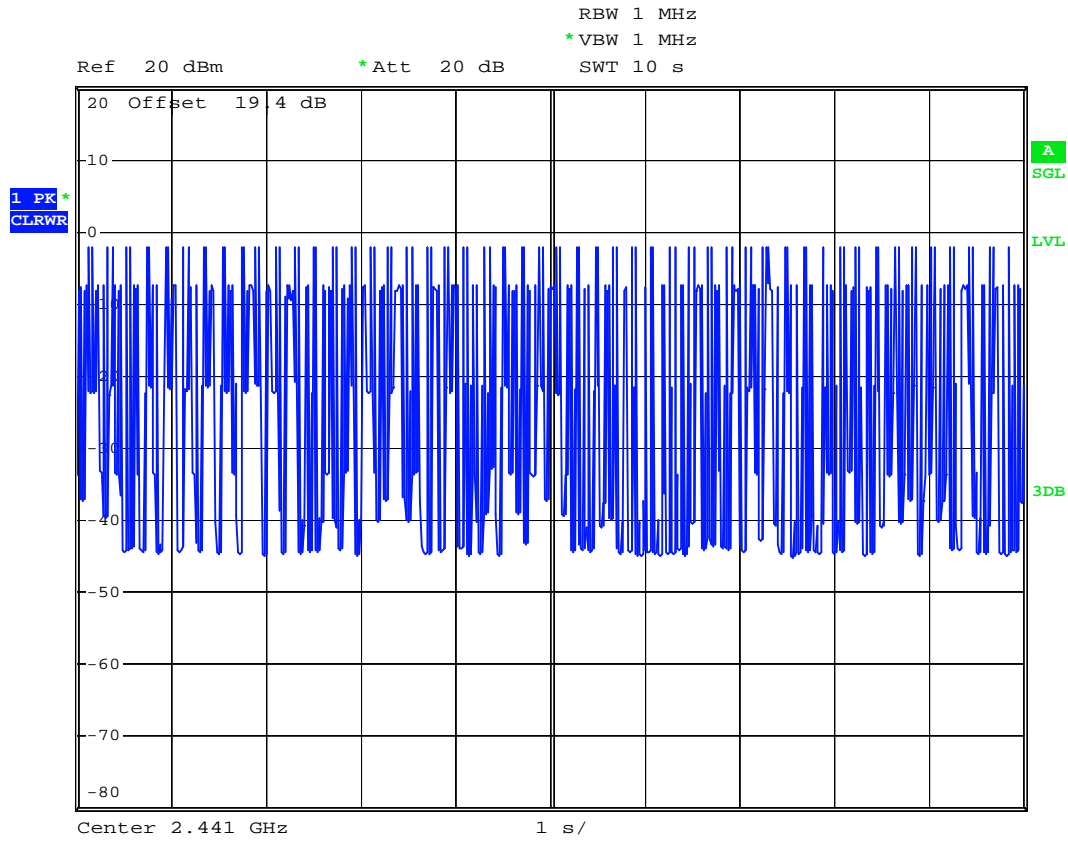
DH5 (CH39)



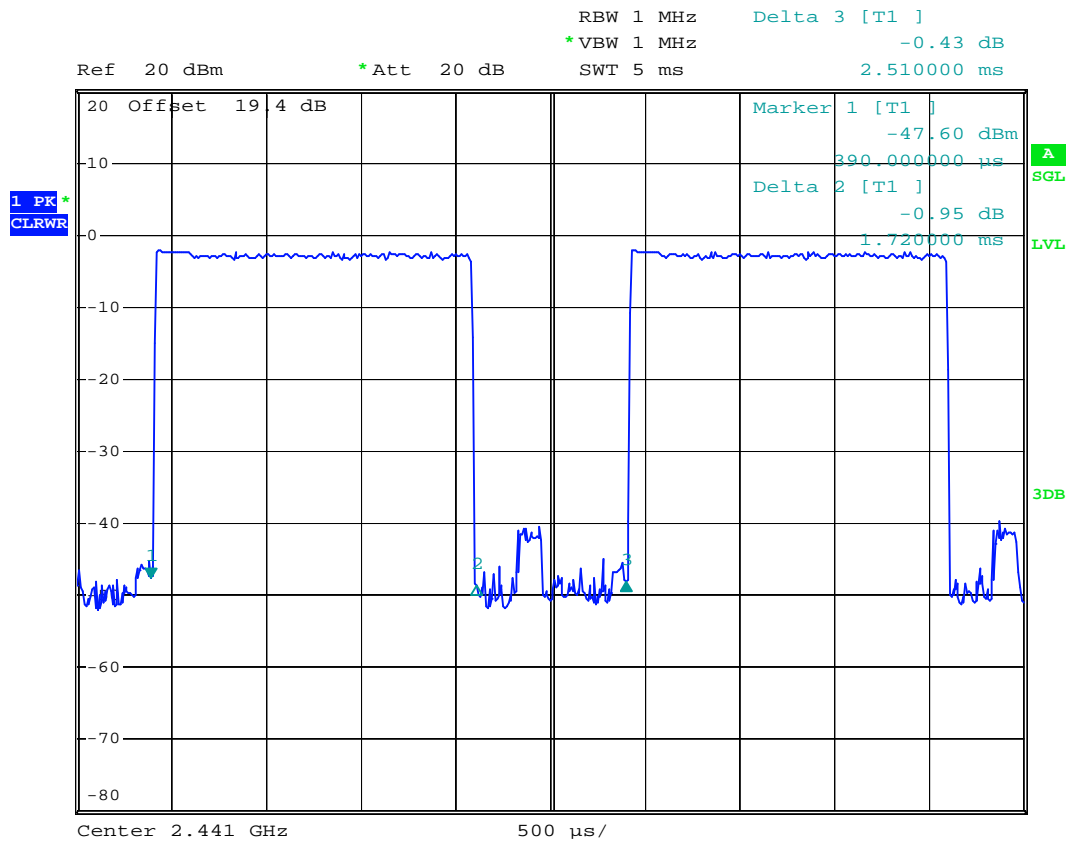


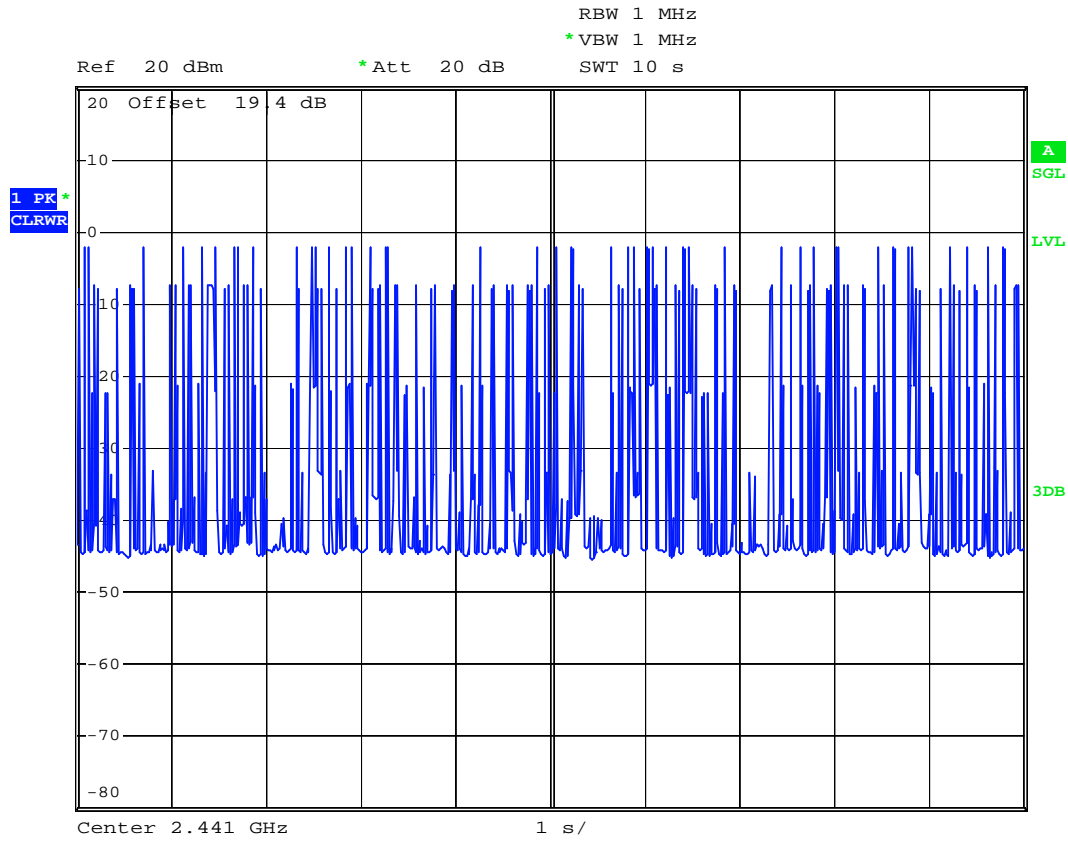
2DH1 (CH39)



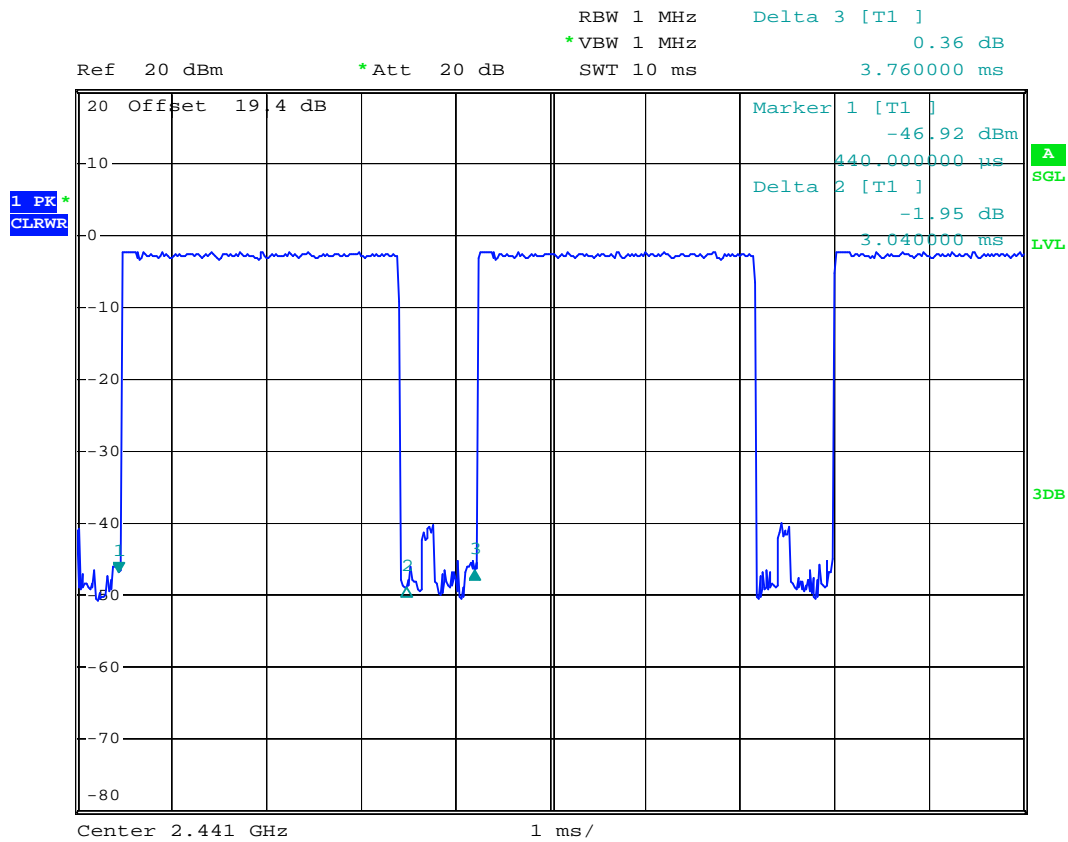


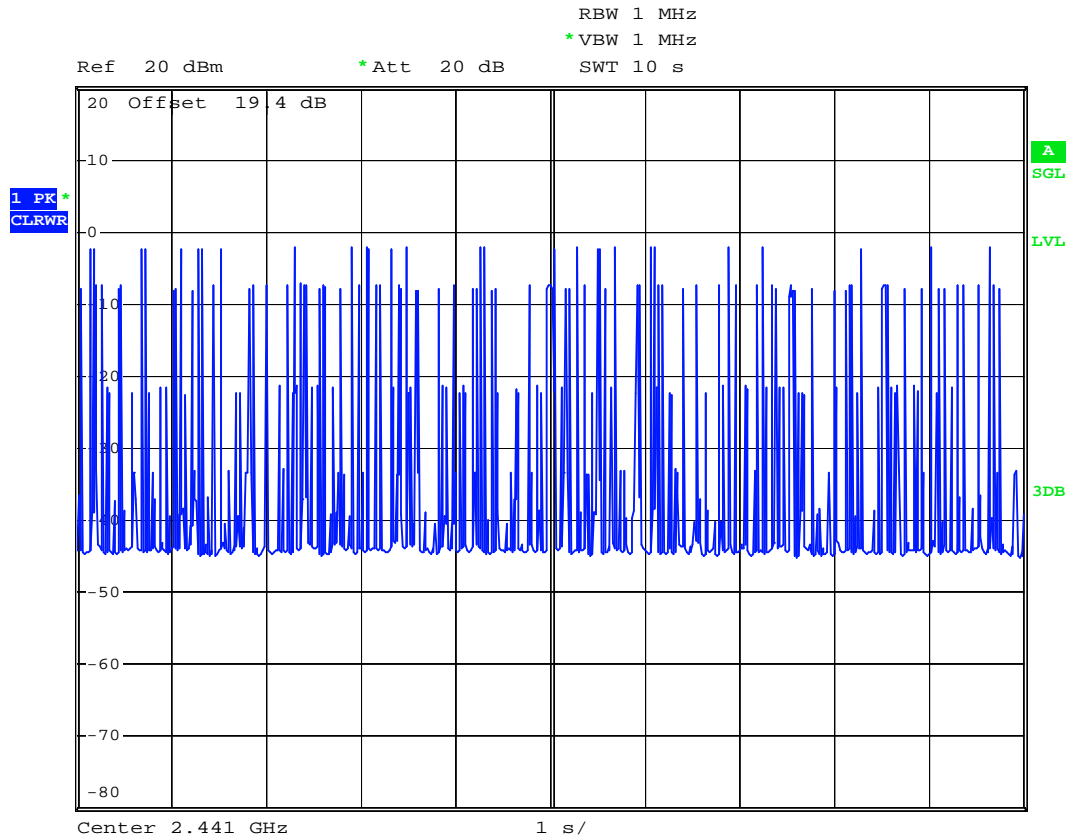
2 DH3 (CH39)



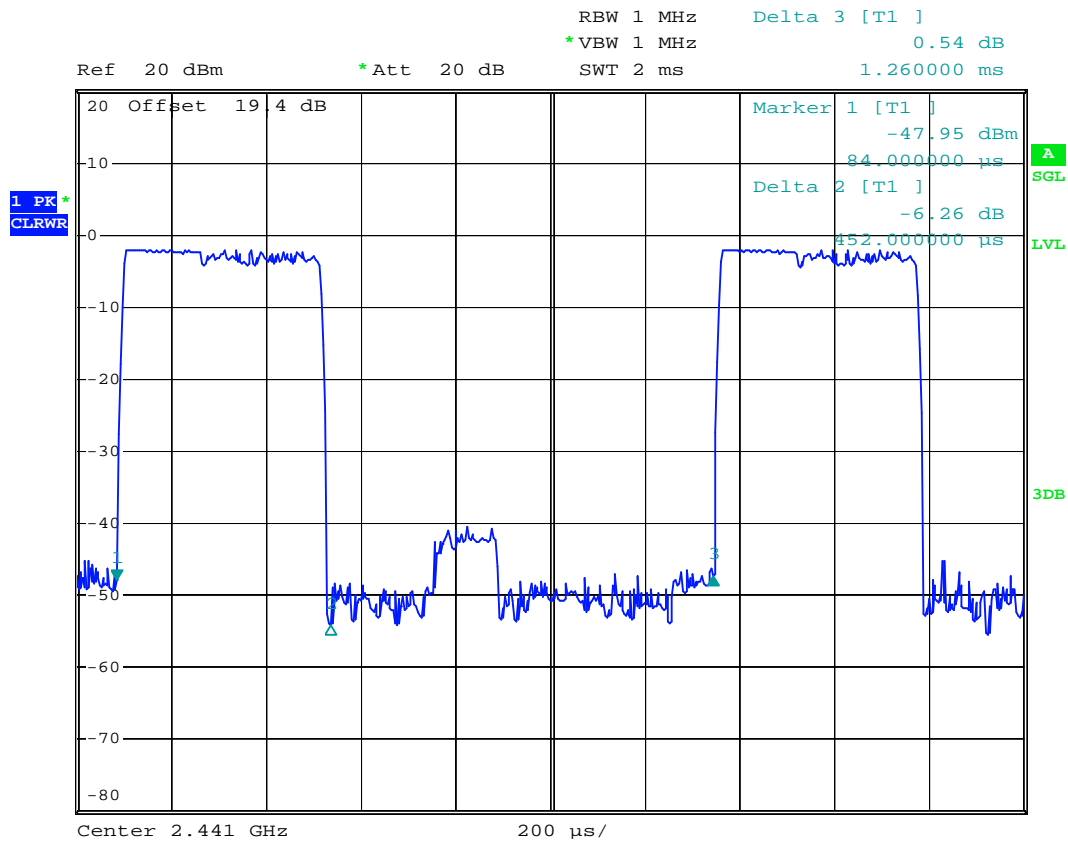


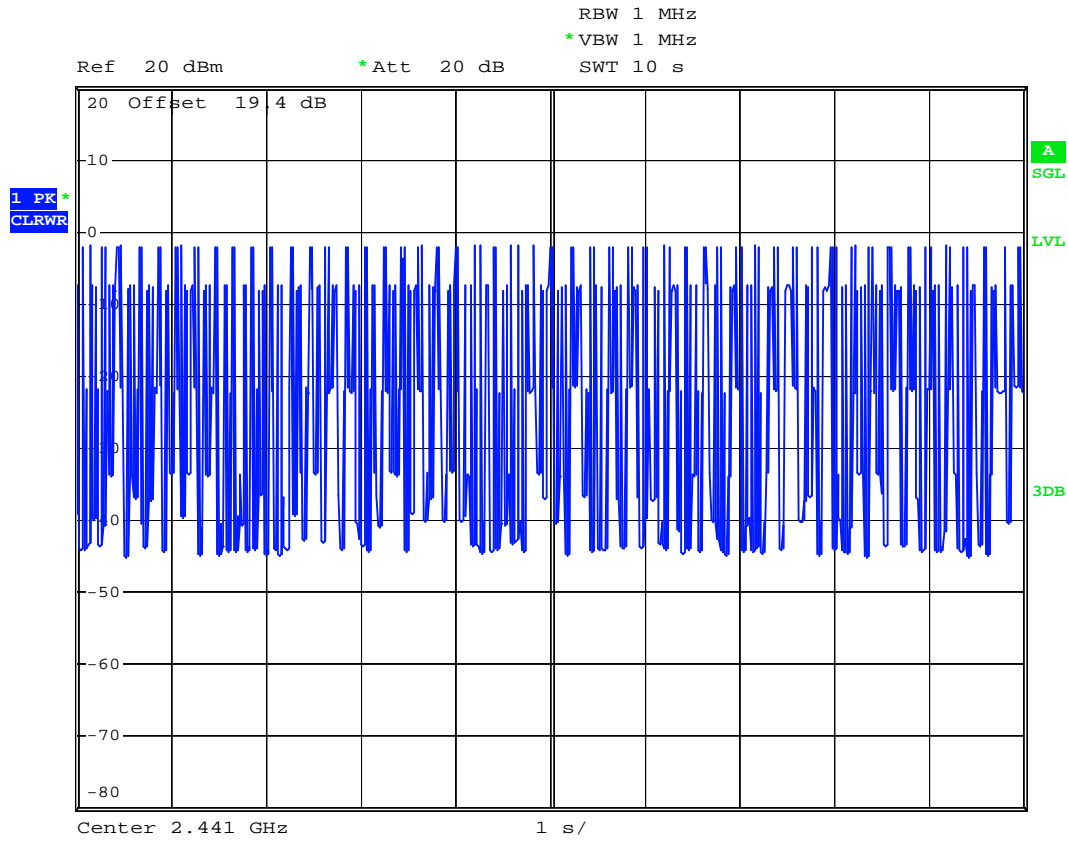
2 DH5 (CH39)



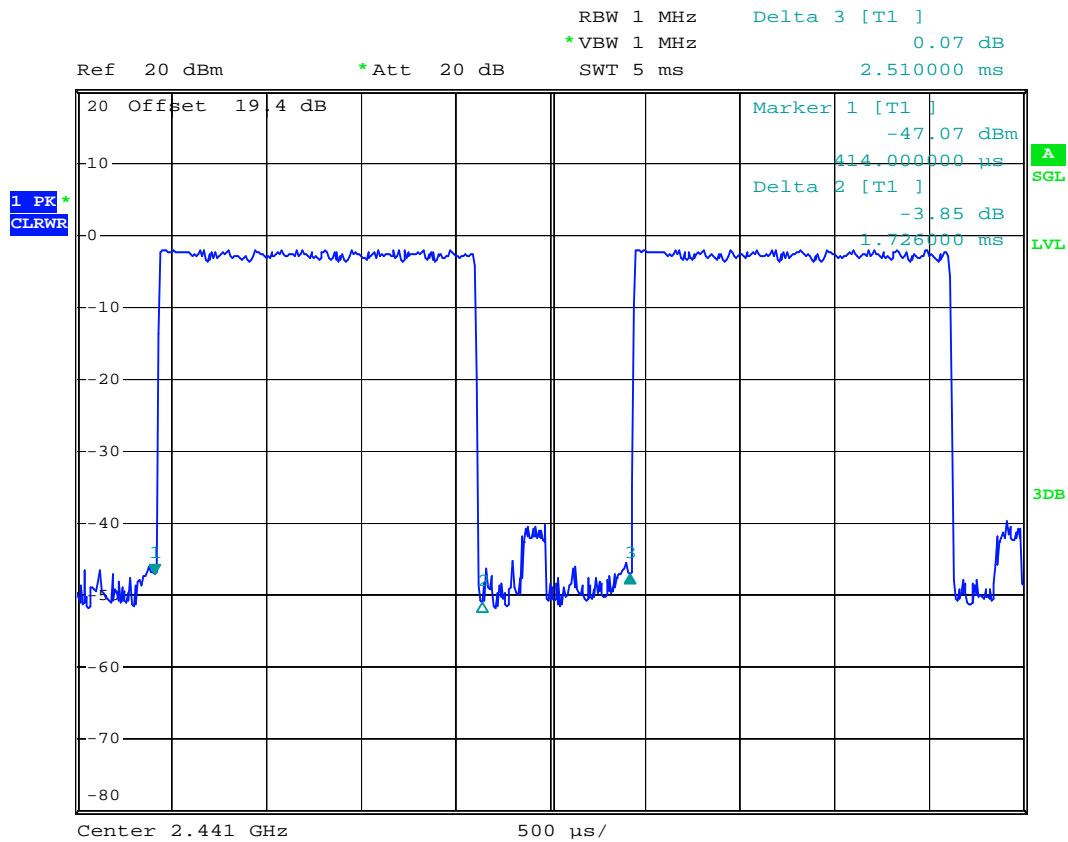


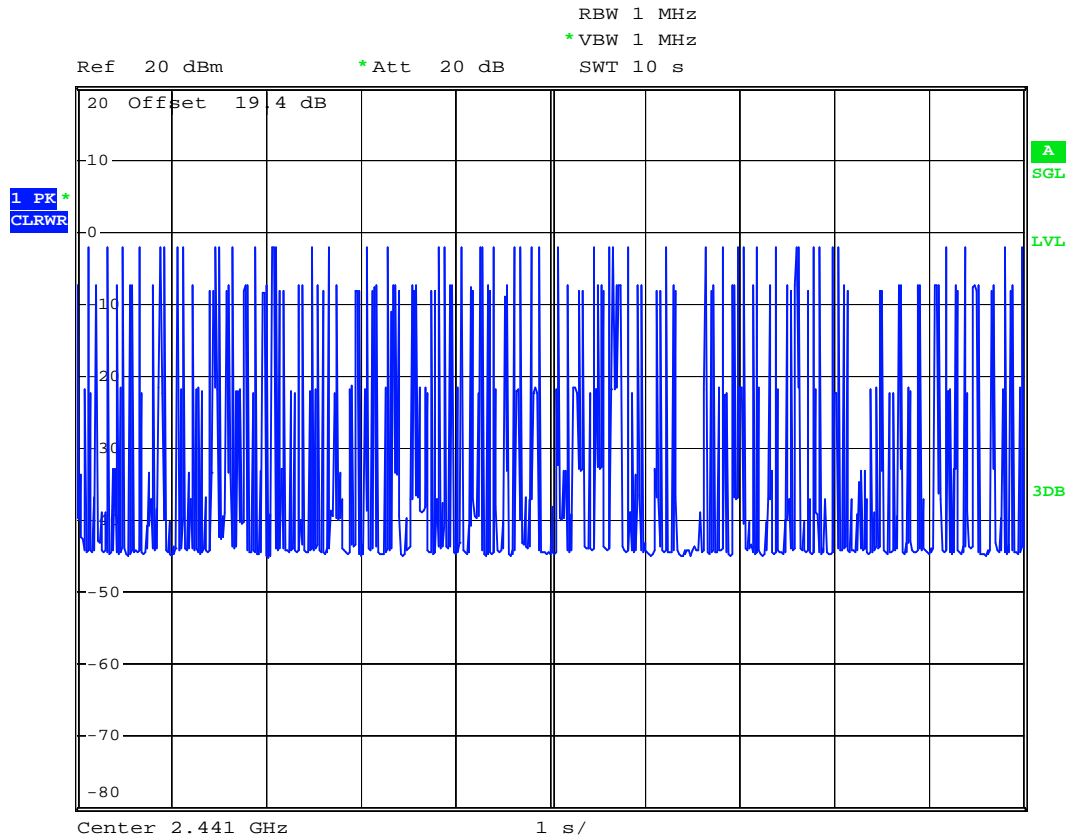
3DH1 (CH39)



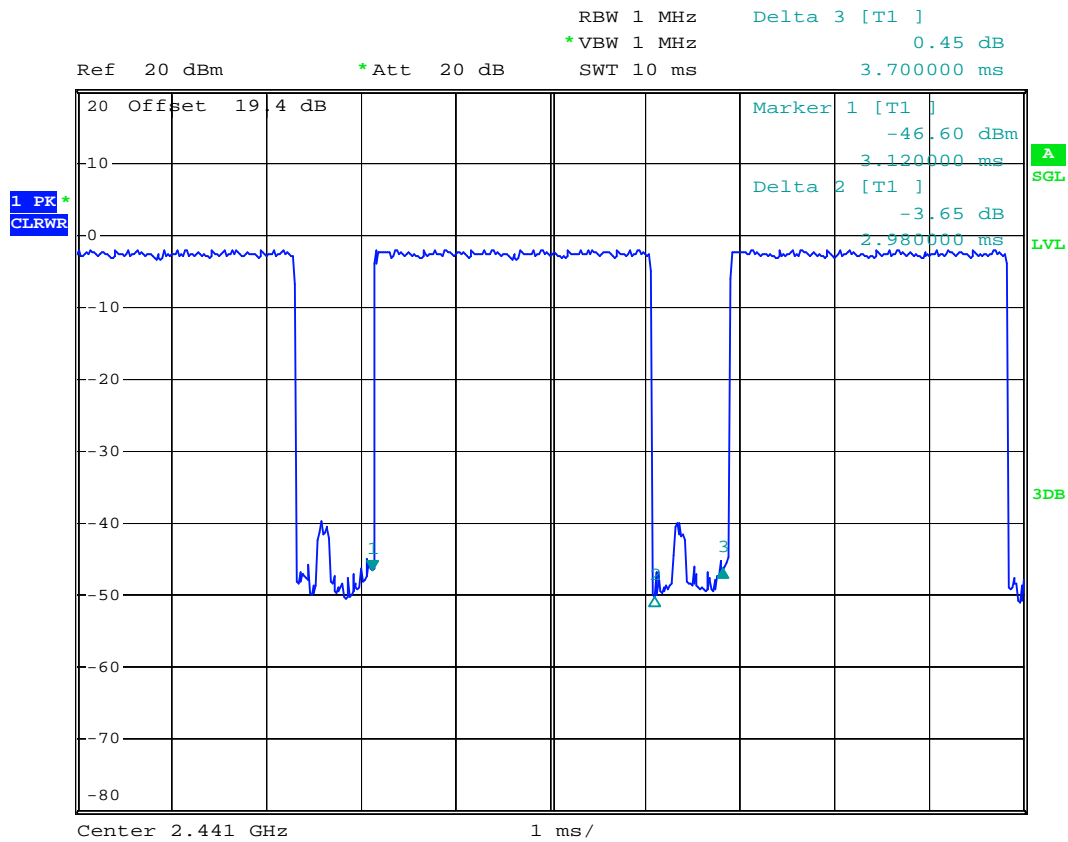


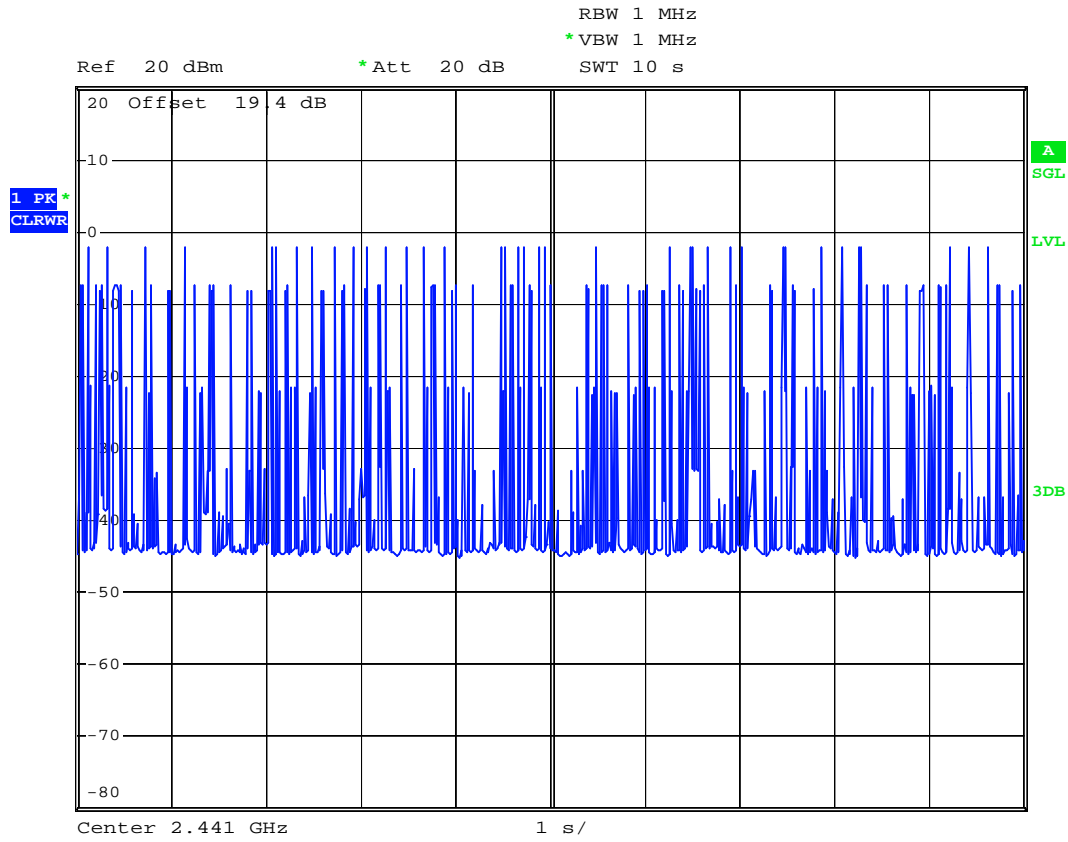
3DH3 (CH39)





3DH5 (CH39)





5.7

Peak Output Power Measurement

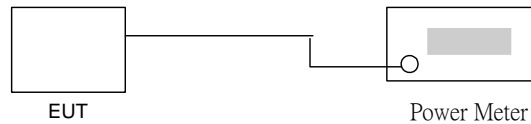
5.7.1 Measuring Instruments

As described in chapter 6 of this test report.

5.7.2 Test Procedure

The antenna port (RF output) of the EUT was connected to the input (RF input) of a spectrum analyzer for Bluetooth 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 : Bluetooth
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer : Ken

▪ Bluetooth(1Mbps)

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-1.21	1W/30 dBm
39	2441	-1.16	1W/30 dBm
78	2480	-4.64	1W/30 dBm

▪ Bluetooth EDR(2Mbps)

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-3.06	1W/30 dBm
39	2441	-3.15	1W/30 dBm
78	2480	-3.79	1W/30 dBm

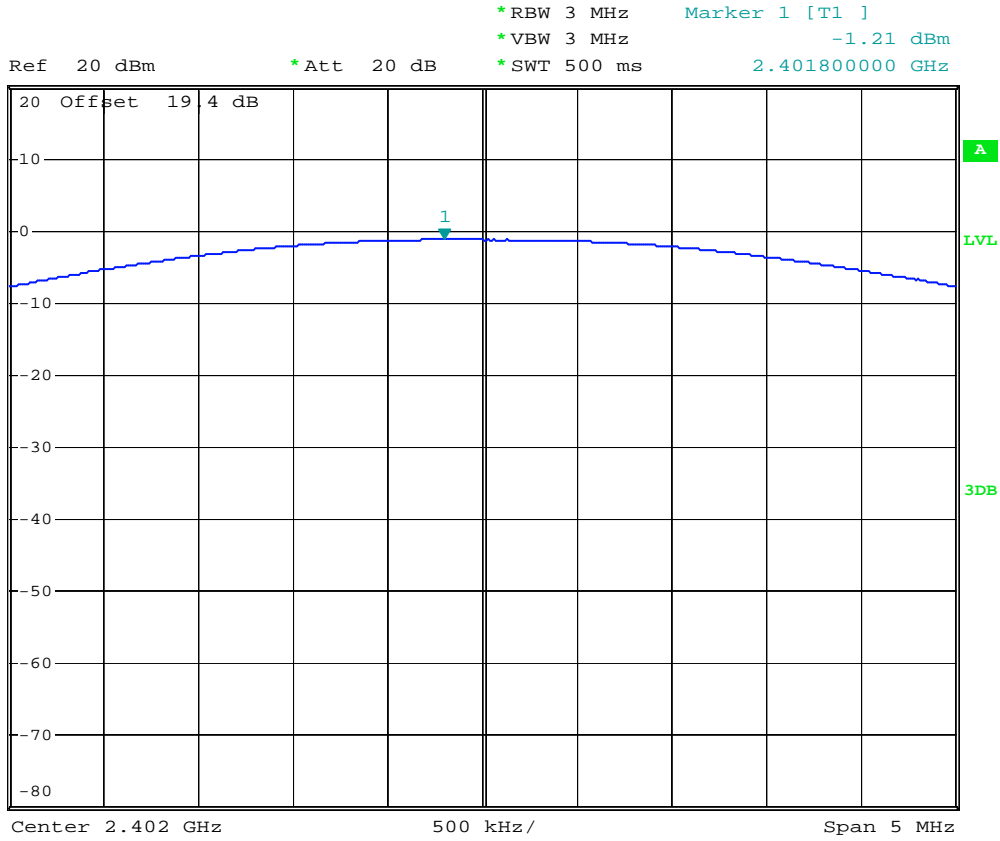
▪ Bluetooth EDR(3Mbps)

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)
00	2402	-2.78	1W/30 dBm
39	2441	-2.94	1W/30 dBm
78	2480	-3.5	1W/30 dBm

5.7.5 Output Power

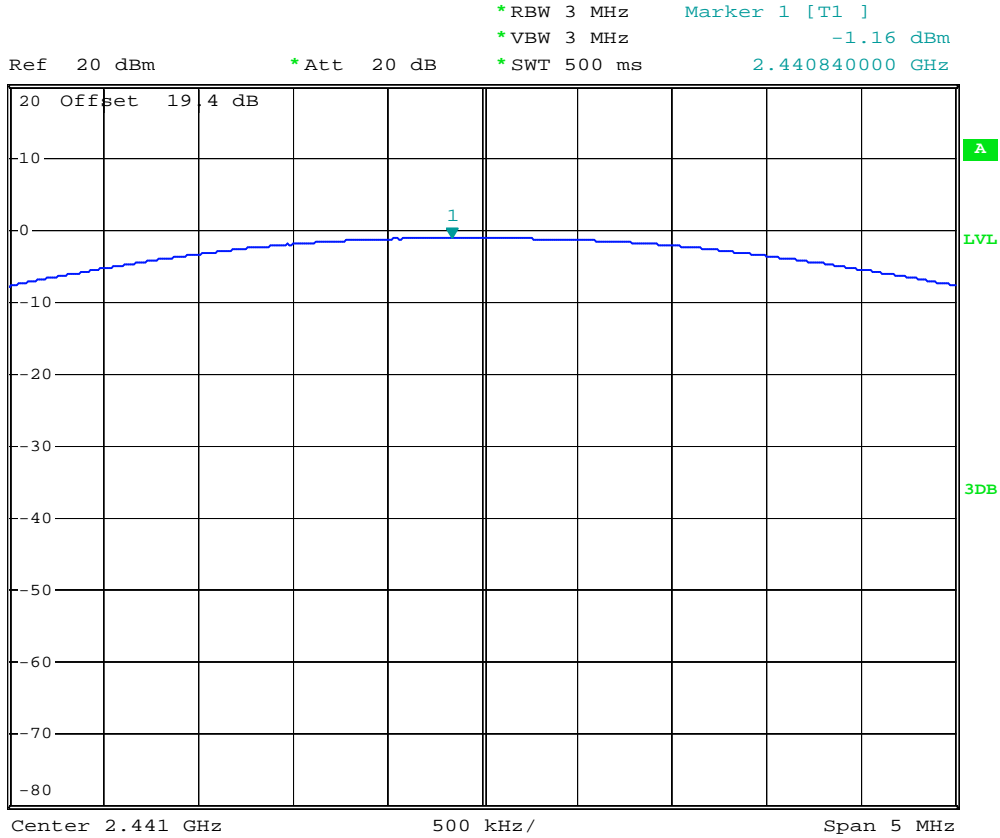
Bluetooth(1Mbps)

Mode : CH00 (2402MHz)



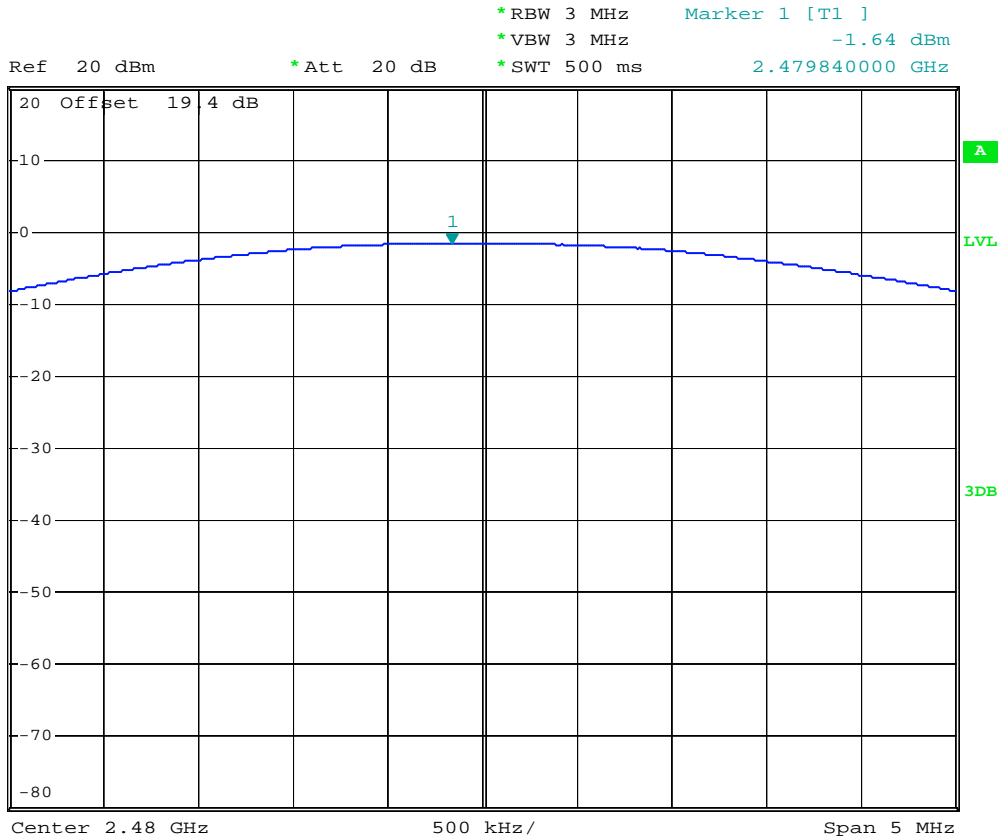
Bluetooth(1Mbps)

Mode : CH39 (2441MHz)



Bluetooth(1Mbps)

Mode : CH78 (2480MHz)

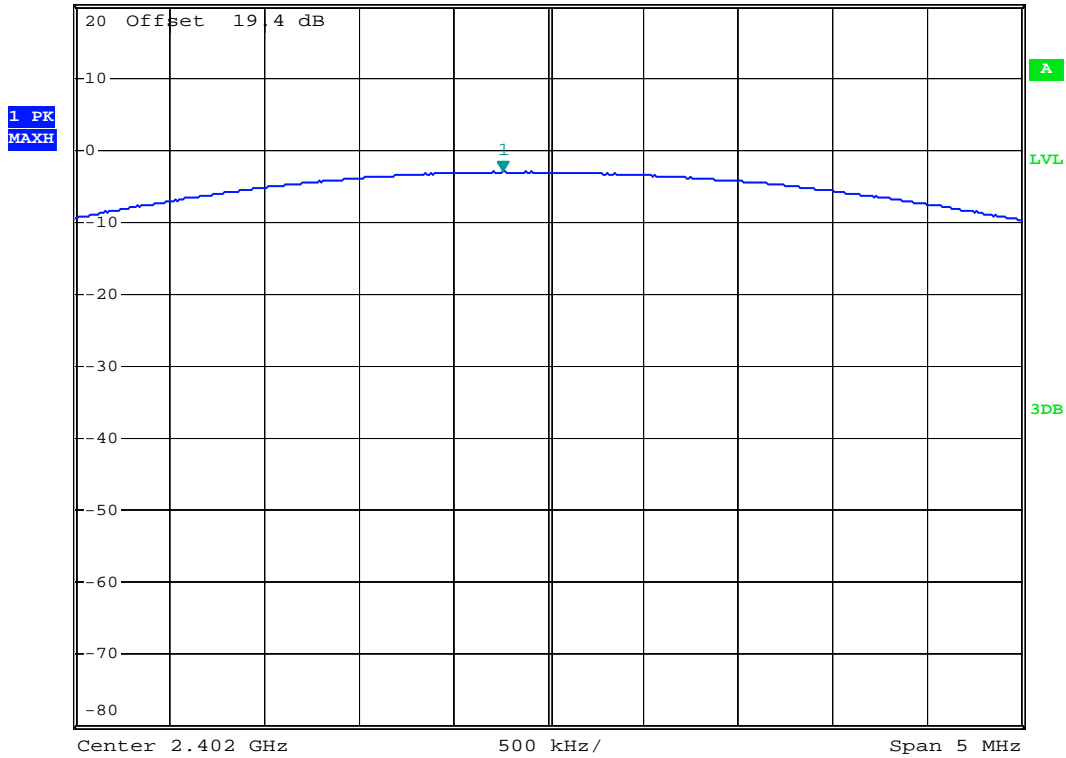


Bluetooth(2Mbps)

Mode : CH00 (2402MHz)



Ref 20 dBm *Att 20 dB *RBW 3 MHz Marker 1 [T1]
 *VBW 3 MHz -3.06 dBm
 *SWT 500 ms 2.401760000 GHz

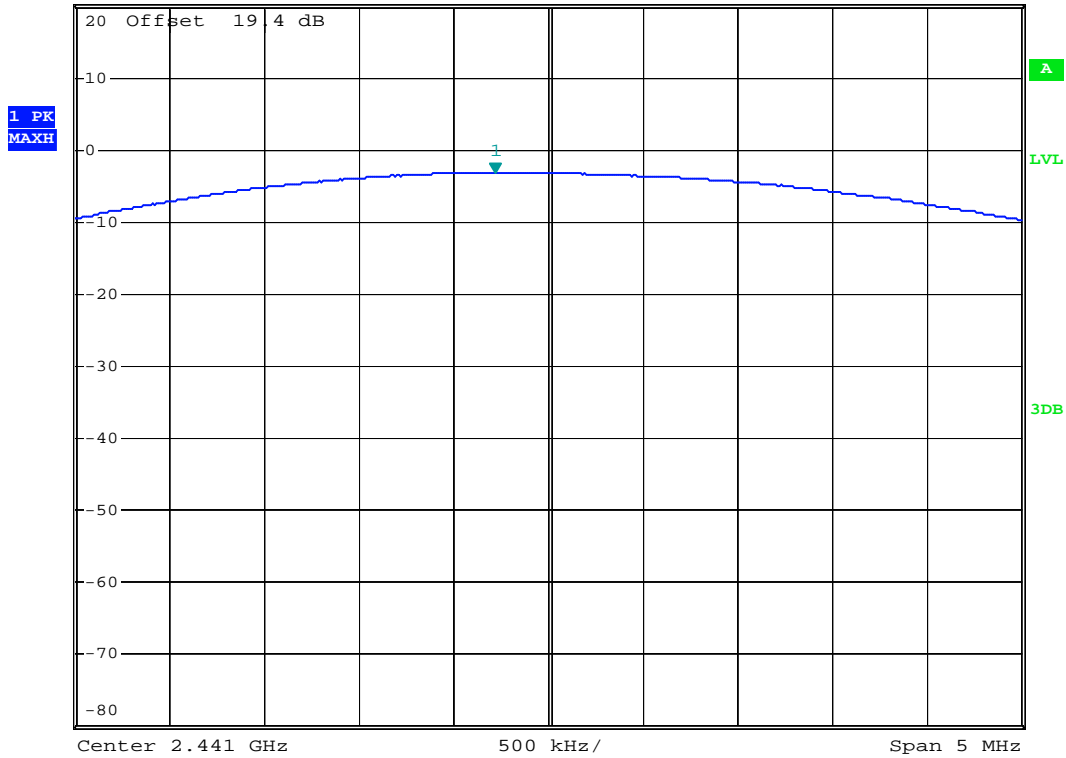


Bluetooth(2Mbps)

Mode : CH39 (2441MHz)



Ref 20 dBm *Att 20 dB *RBW 3 MHz Marker 1 [T1]
 *VBW 3 MHz -3.15 dBm
 *SWT 500 ms 2.440720000 GHz

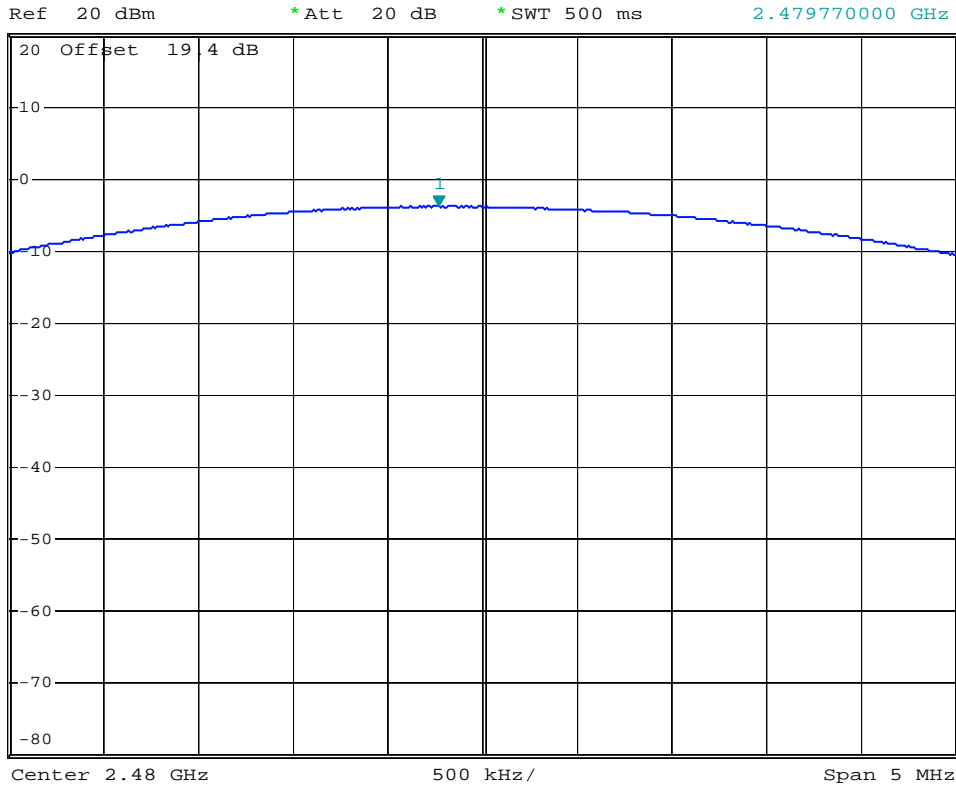


Bluetooth(2Mbps)

Mode : CH78 (2480MHz)

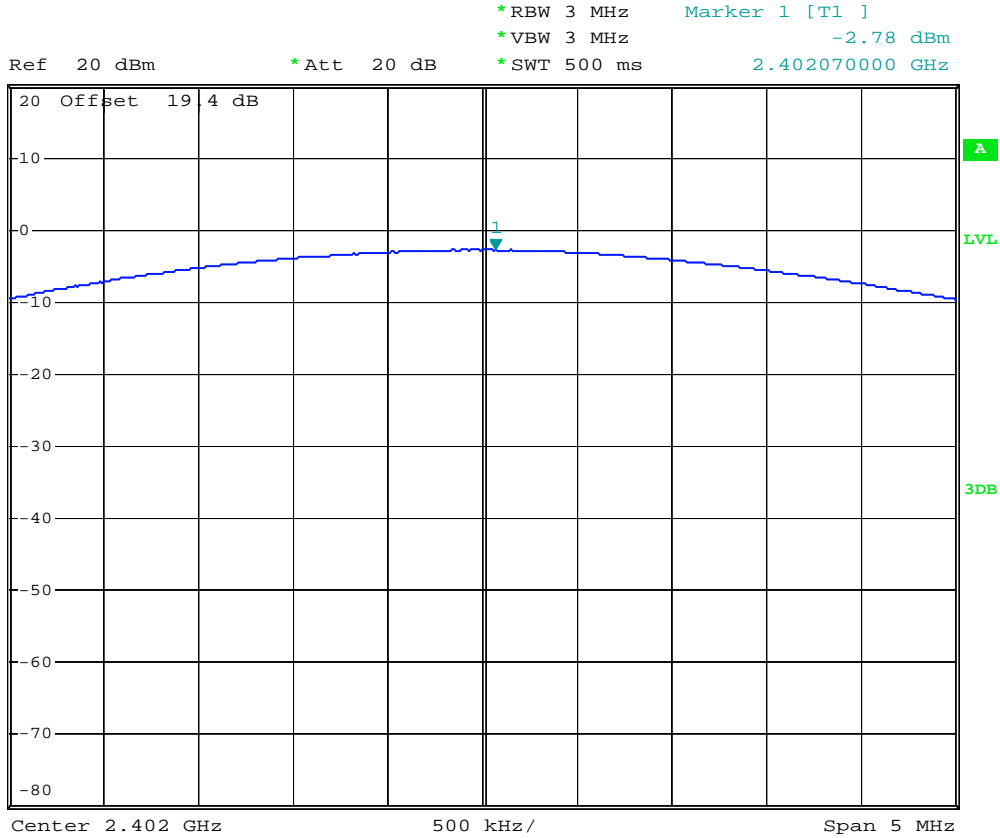


*RBW 3 MHz Marker 1 [T1]
 *VBW 3 MHz -3.79 dBm
 *SWT 500 ms 2.479770000 GHz



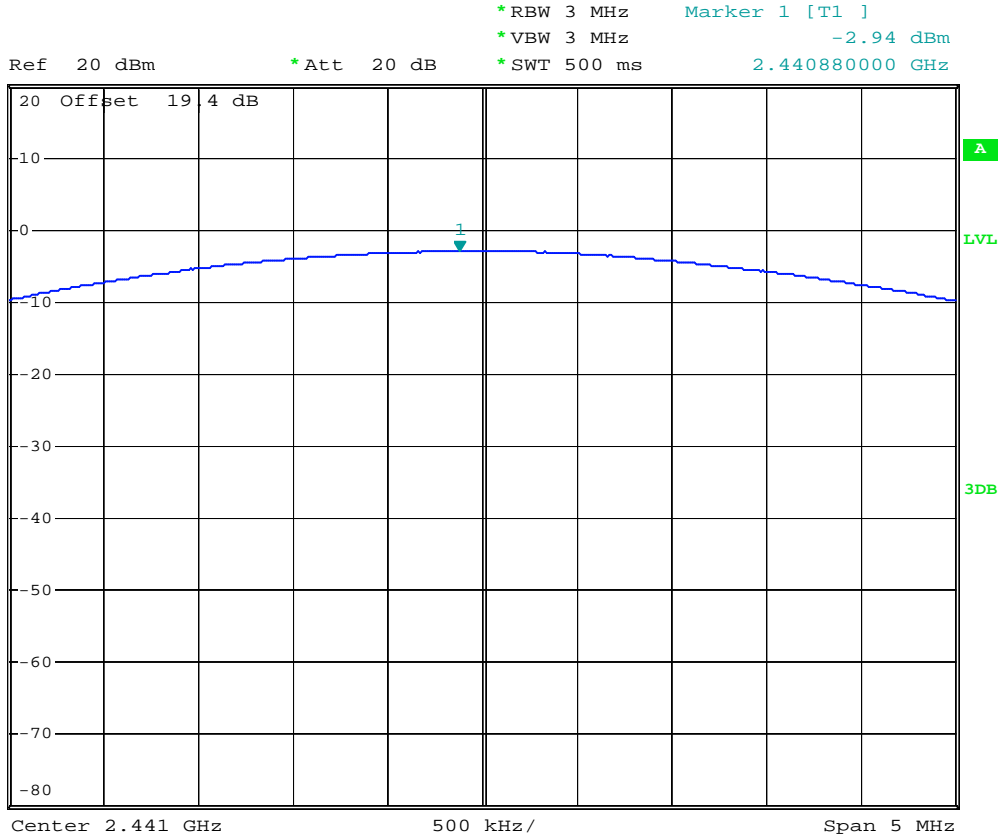
Bluetooth(3Mbps)

Mode : CH00 (2402MHz)



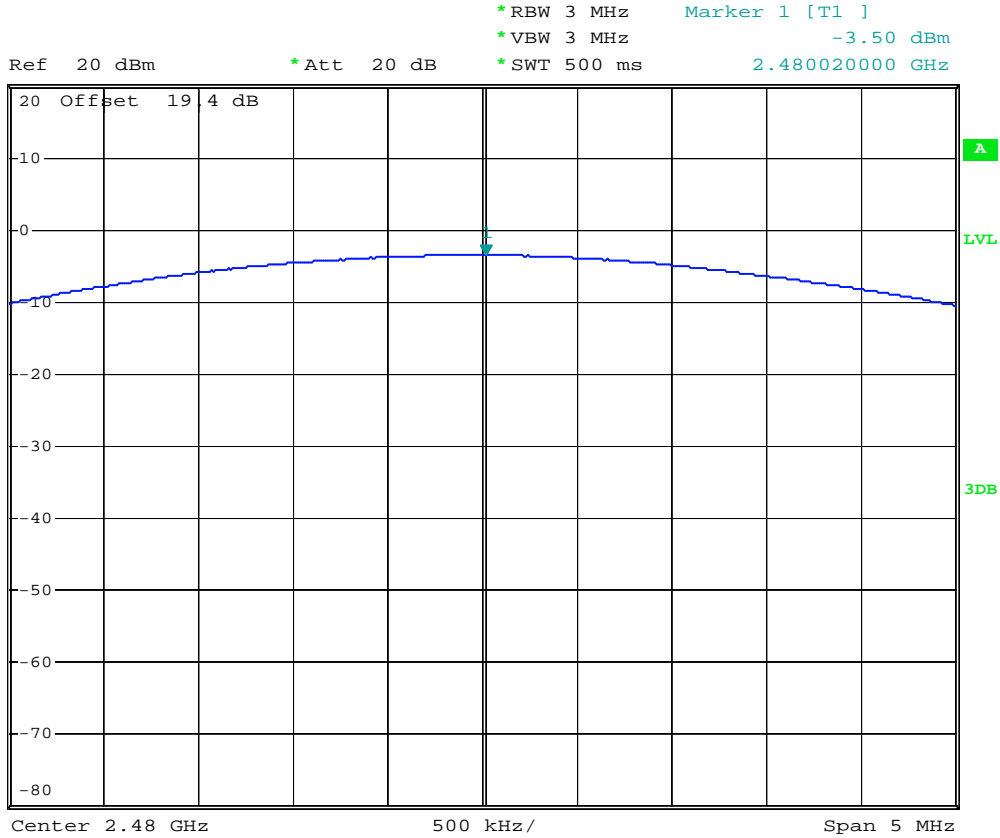
Bluetooth(3Mbps)

Mode : CH39 (2441MHz)



Bluetooth(3Mbps)

Mode : CH78 (2480MHz)



5.8 Conducted Emission

5.8.1 Measuring Instruments

As described in chapter 6 of this test Report.

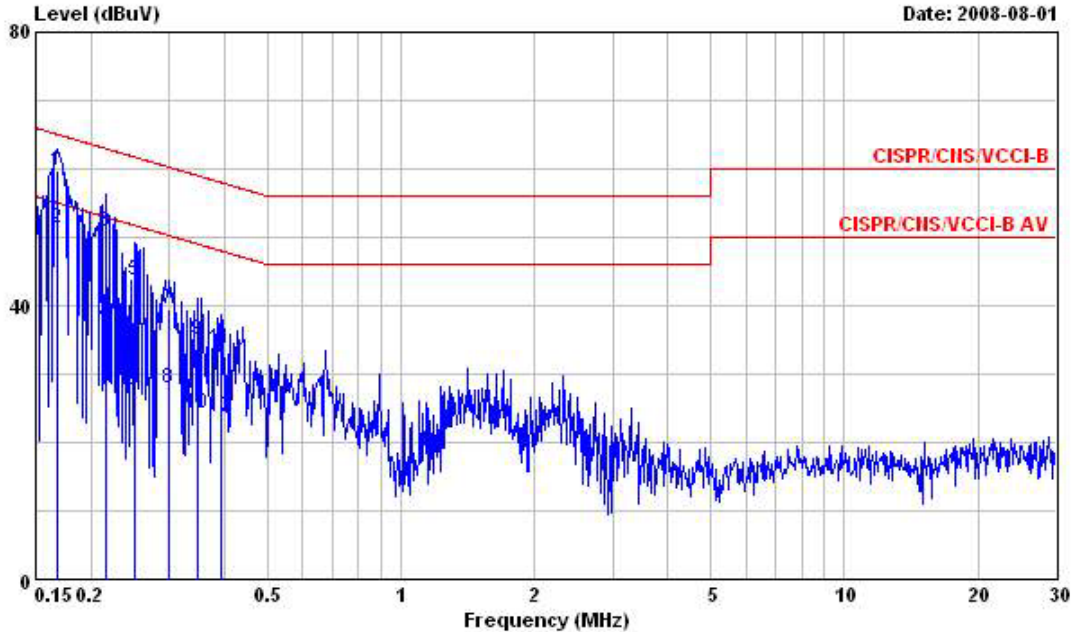
5.8.2 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power port of a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 KHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

5.8.3 Test Data

- Test Mode : Mode 1
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Engineer: Happyer
- Test Condition : Line

■ The test that passed at the minimum margin was marked by a frame in the following data

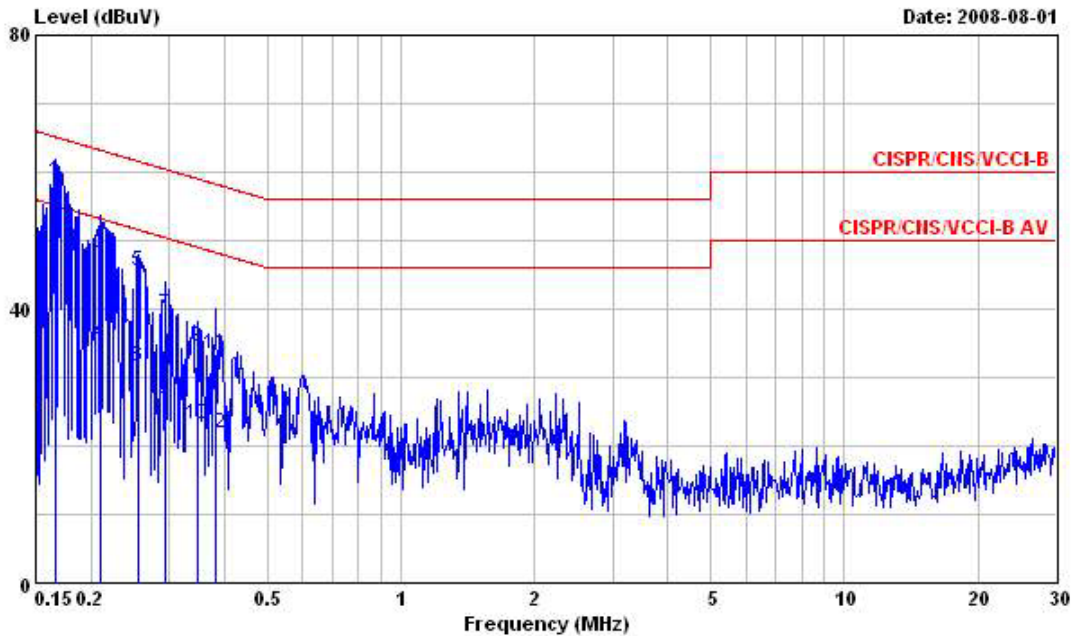


Site : CO04-HY
 Condition : CISPR/CIS/VCCI-B LISN 2008 0416 99041 NEUTRAL
 EUT : PDA Phone
 POWER: 120V/60Hz
 Model : FR 821504-03
 Memo : MODE 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	@0.1685440	59.82	-5.21	65.03	59.68	0.08	0.06	QP
2	@0.1685440	51.40	-3.63	55.03	51.26	0.08	0.06	Average
3	@0.2162030	50.90	-12.06	62.96	50.76	0.08	0.06	QP
4	0.2162030	37.34	-15.62	52.96	37.20	0.08	0.06	Average
5	0.2507790	43.69	-18.04	61.73	43.56	0.08	0.05	QP
6	0.2507790	27.76	-23.97	51.73	27.63	0.08	0.05	Average
7	0.3002800	39.56	-20.68	60.24	39.42	0.09	0.05	QP
8	0.3002800	27.84	-22.40	50.24	27.70	0.09	0.05	Average
9	0.3464610	35.02	-24.03	59.05	34.89	0.09	0.04	QP
10	0.3464610	24.31	-24.74	49.05	24.18	0.09	0.04	Average
11	0.3934400	33.81	-24.18	57.99	33.68	0.09	0.04	QP
12	0.3934400	23.72	-24.27	47.99	23.59	0.09	0.04	Average

• Test Condition: Neutral

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

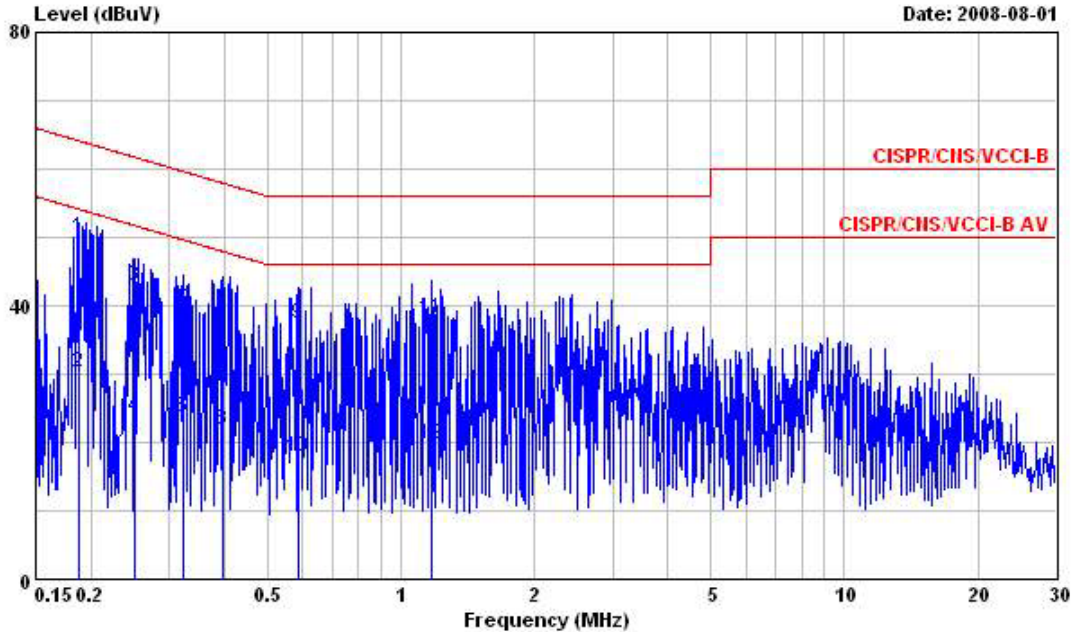


Site : CO04-HY
 Condition : CISPR/CNS/VCCI-B LISN 2008 0416 99041 LINE
 EUT : PDA Phone
 POWER: 120V/60Hz
 Model : FR 821504-03
 Memo : MODE 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	@0.1667680	58.80	-6.32	65.12	58.66	0.09	0.05	QP
2	@0.1667680	45.87	-9.25	55.12	45.73	0.09	0.05	Average
3	0.2094380	48.11	-15.12	63.23	47.96	0.09	0.06	QP
4	0.2094380	35.04	-18.19	53.23	34.89	0.09	0.06	Average
5	0.2547970	45.50	-16.10	61.60	45.36	0.09	0.05	QP
6	0.2547970	31.64	-19.96	51.60	31.50	0.09	0.05	Average
7	0.2939830	39.18	-21.23	60.41	39.03	0.10	0.05	QP
8	0.2939830	26.78	-23.63	50.41	26.63	0.10	0.05	Average
9	0.3464610	34.37	-24.68	59.05	34.23	0.10	0.04	QP
10	0.3464610	23.28	-25.77	49.05	23.14	0.10	0.04	Average
11	0.3811300	33.46	-24.79	58.25	33.32	0.10	0.04	QP
12	0.3811300	21.78	-26.47	48.25	21.64	0.10	0.04	Average

- Test Mode : Mode 2
- Temperature : 29~30°C
- Relative Humidity : 39~40%
- Test Condition : Line
- Test Engineer: Happyer

■ The test that passed at the minimum margin was marked by a frame in the following data

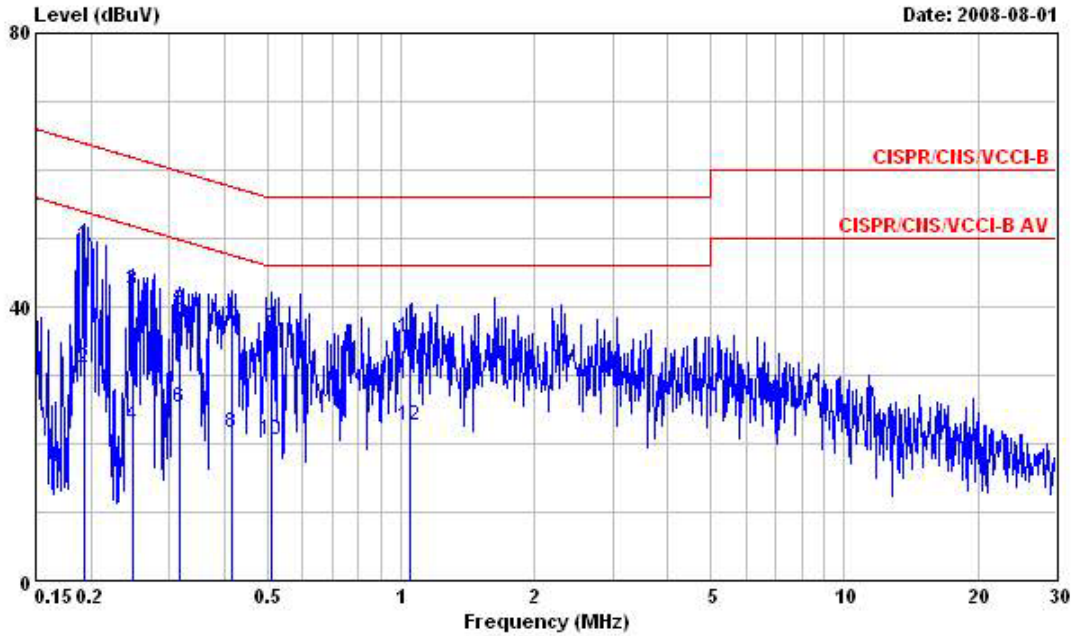


Site : CO04-HY
 Condition : CISPR/CNS/VCCI-B LISN 2008 0416 99041 LINE
 EUT : PDA Phone
 POWER: 120V/60Hz
 Model : FR 821504-03
 Memo : MODE 2

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1873850	49.93	-14.22	64.15	49.78	0.09	0.06	QP
2	0.1873850	30.23	-23.92	54.15	30.08	0.09	0.06	Average
3	0.2507790	42.89	-18.84	61.73	42.75	0.09	0.05	QP
4	0.2507790	23.69	-28.04	51.73	23.55	0.09	0.05	Average
5	0.3216920	39.50	-20.16	59.66	39.35	0.10	0.05	QP
6	0.3216920	23.55	-26.11	49.66	23.40	0.10	0.05	Average
7	0.3955300	39.58	-18.37	57.95	39.44	0.10	0.04	QP
8	0.3955300	21.89	-26.06	47.95	21.75	0.10	0.04	Average
9	0.5854040	37.25	-18.75	56.00	36.94	0.10	0.21	QP
10	0.5854040	17.89	-28.11	46.00	17.58	0.10	0.21	Average
11	1.170	38.06	-17.94	56.00	37.45	0.11	0.50	QP
12	1.170	19.63	-26.37	46.00	19.02	0.11	0.50	Average

• Test Condition: Neutral

■ 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 2008 0416 99041 NEUTRAL
 EUT : PDA Phone
 POWER: 120V/60Hz
 Model : FR 821504-03
 Memo : MODE 2

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.1934380	48.83	-15.06	63.89	48.69	0.08	0.06	QP
2	0.1934380	31.08	-22.81	53.89	30.94	0.08	0.06	Average
3	0.2494540	42.29	-19.49	61.78	42.16	0.08	0.05	QP
4	0.2494540	22.75	-29.03	51.78	22.62	0.08	0.05	Average
5	0.3166190	39.43	-20.37	59.80	39.29	0.09	0.05	QP
6	0.3166190	25.20	-24.60	49.80	25.06	0.09	0.05	Average
7	0.4148480	36.98	-20.57	57.55	36.83	0.09	0.06	QP
8	0.4148480	21.46	-26.09	47.55	21.31	0.09	0.06	Average
9	0.5100690	36.74	-19.26	56.00	36.49	0.10	0.15	QP
10	0.5100690	20.59	-25.41	46.00	20.34	0.10	0.15	Average
11	1.050	35.54	-20.46	56.00	34.96	0.11	0.47	QP
12	1.050	22.74	-23.26	46.00	22.16	0.11	0.47	Average

5.9 Radiated Emission Measurement

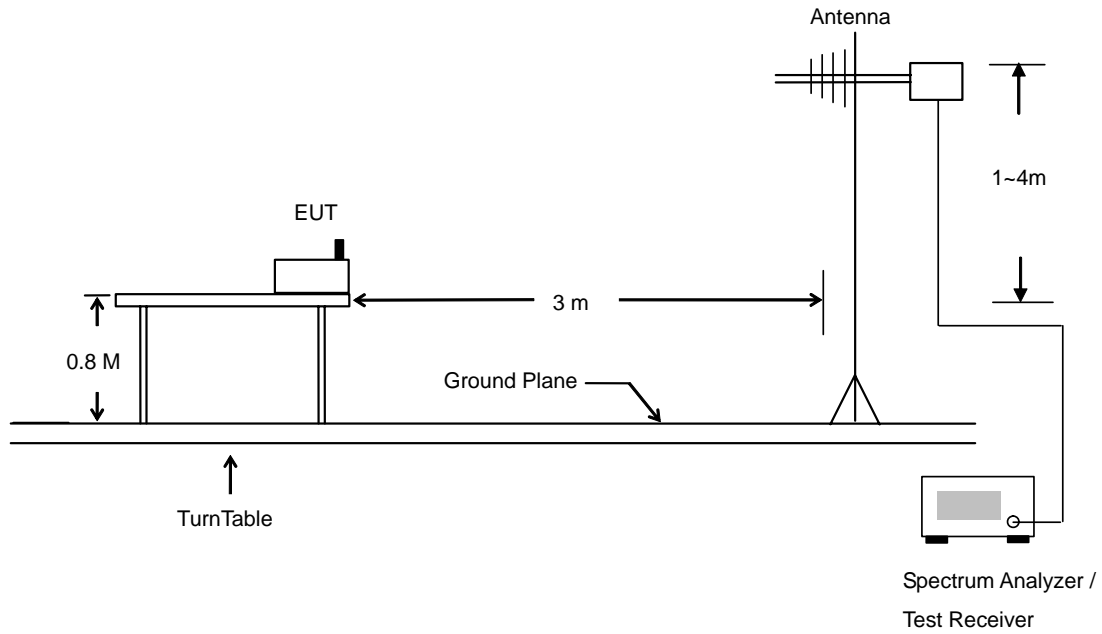
5.9.1 Measuring Instruments

As described in chapter 6 of this Report.

5.9.2 Test Procedures

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

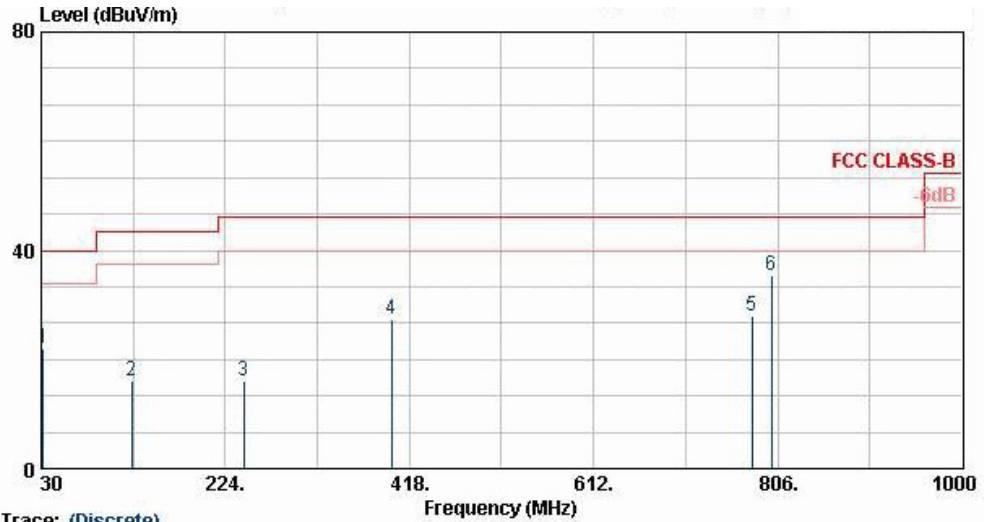
5.9.3 Typical Test Setup Layout of Radiated Emission



5.9.4 Test Data

- Test Mode : Mode 1
- Temperature : 21~26°C
- Relating Humidity : 49~55%
- Test Engineer : Sun
- Polarization : Horizontal (30MHz-1GHz)

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

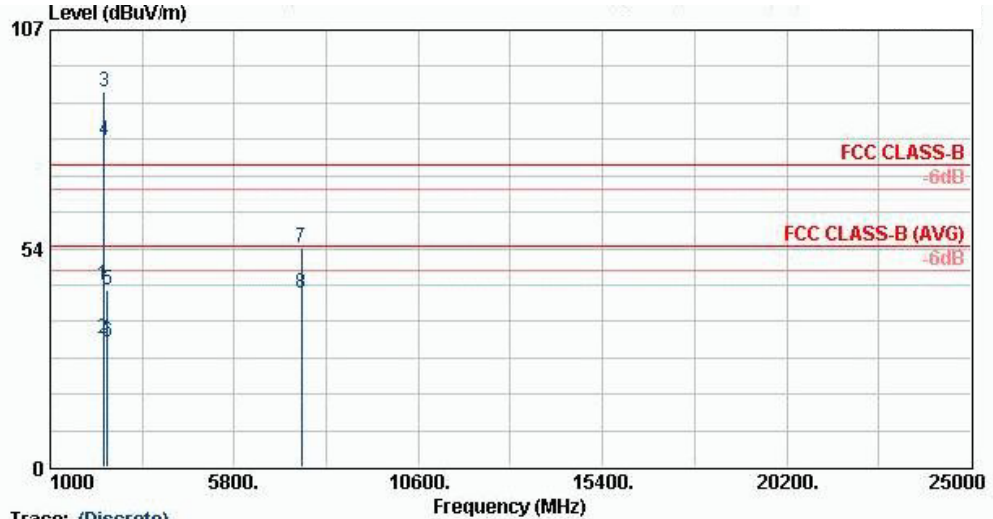


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH00 ; 2402MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TIME : 135790246811222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	32.43	21.92	-18.08	40.00	37.45	17.54	0.30	33.38	---	---	Peak
2	125.04	16.15	-27.35	43.50	36.31	12.66	0.50	33.33	---	---	Peak
3	243.03	16.20	-29.80	46.00	37.08	11.87	0.70	33.45	---	---	Peak
4	399.40	27.37	-18.63	46.00	43.76	15.76	0.90	33.05	---	---	Peak
5	778.80	27.91	-18.09	46.00	39.79	19.62	1.19	32.69	---	---	Peak
6	799.80	35.53	-10.47	46.00	47.07	19.82	1.20	32.56	100	104	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



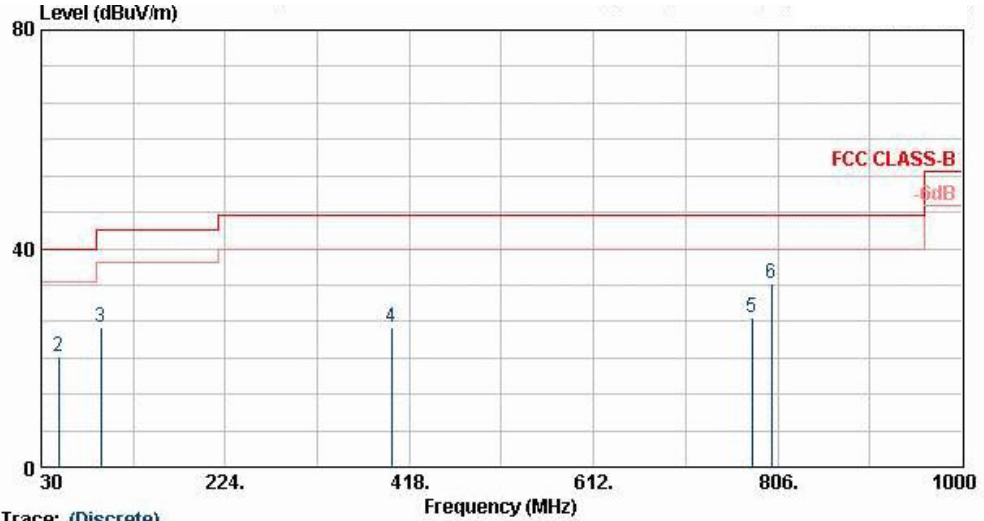
Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH00 ; 2402MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TMET : 135790246811222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2381.25	44.57	-29.43	74.00	44.47	31.86	3.92	35.68	100	0	Peak
2	2381.25	31.50	-22.50	54.00	31.42	31.83	3.92	35.68	174	329	Average
3 X	2402.00	91.80			91.68	31.88	3.92	35.68	100	0	Peak
4 X	2402.00	79.98			79.88	31.86	3.92	35.68	174	329	Average
5	2492.00	43.29	-30.71	74.00	42.94	32.00	4.05	35.70	100	0	Peak
6	2492.00	30.63	-23.37	54.00	30.28	32.00	4.05	35.70	174	329	Average
7	7551.00	53.63	-20.37	74.00	46.94	35.61	7.29	36.21	100	0	Peak
8	7551.00	42.53	-11.47	54.00	35.84	35.61	7.29	36.21	100	186	Average

Remark: #3 and #4 are Fundamental Signals

• Polarization : Vertical (30MHz-1GHz)

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

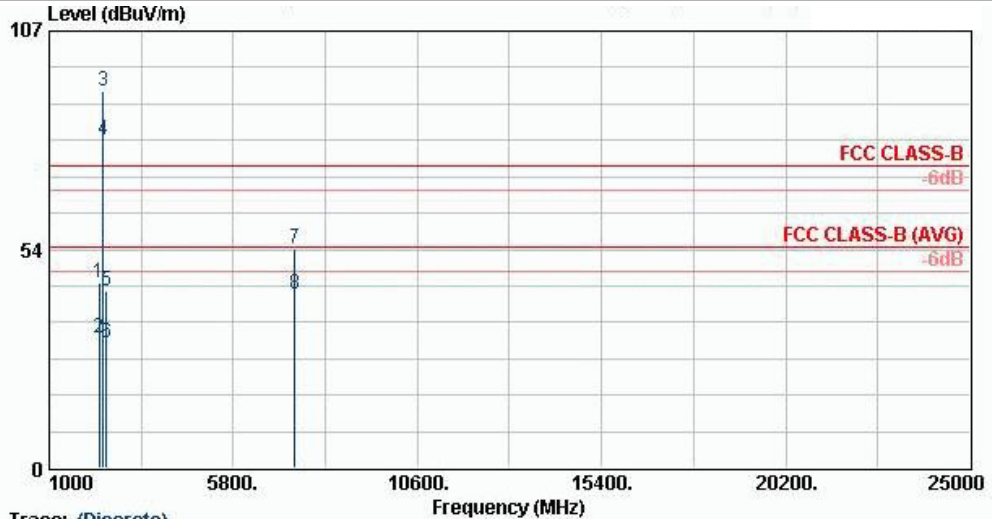


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH00 ; 2402MHz + Adaptor
 Data Rate : DH5
 Plane : H
 TMET : 135790246611222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	30.00	21.74	-18.26	40.00	35.28	19.66	0.30	33.50	---	---	Peak
2	48.09	20.25	-19.75	40.00	44.03	9.06	0.30	33.14	---	---	Peak
3	92.64	25.69	-17.81	43.50	48.91	9.62	0.50	33.33	---	---	Peak
4	399.40	25.52	-20.48	46.00	41.91	15.76	0.90	33.05	---	---	Peak
5	778.80	27.42	-18.58	46.00	39.30	19.62	1.19	32.69	---	---	Peak
6	799.80	33.66	-12.34	46.00	45.20	19.82	1.20	32.56	100	299	Peak

• Polarization : Vertical (1GHz-25GHz)

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



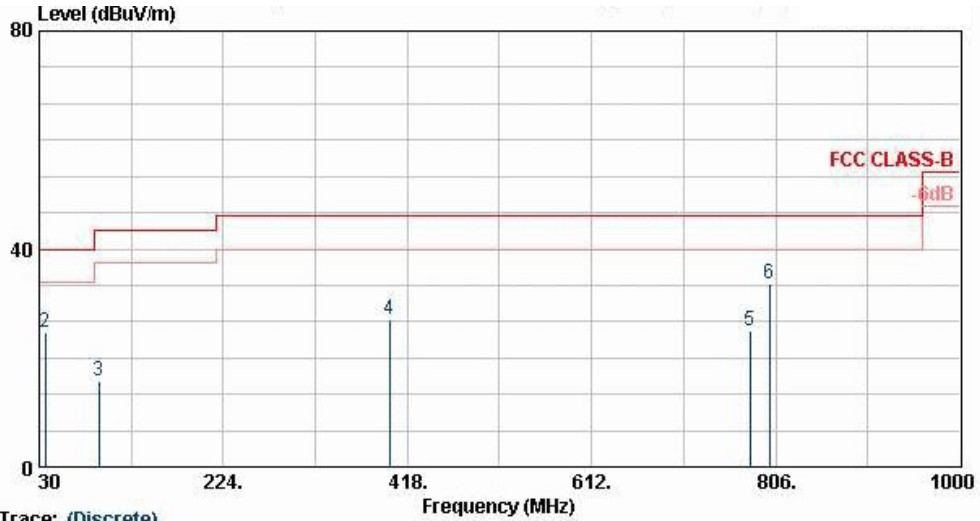
Trace: (Discrete)
 Site : D3CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH00 ; 2402MHz + Adaptor
 Data Rate : DH5
 Plane : H
 TMEI : 135790246811222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2311.14	45.16	-28.84	74.00	45.08	31.83	3.92	35.68	100	0	Peak
2	2311.14	31.85	-22.15	54.00	31.95	31.73	3.82	35.66	100	9	Average
3 X	2402.00	92.35			92.23	31.88	3.92	35.68	100	0	Peak
4 @	2402.00	80.40			80.30	31.86	3.92	35.68	100	9	Average
5	2494.00	43.53	-30.47	74.00	43.18	32.00	4.05	35.70	100	0	Peak
6	2494.00	30.61	-23.39	54.00	30.26	32.00	4.05	35.70	100	9	Average
7	7392.00	53.70	-20.30	74.00	46.99	35.64	7.23	36.16	100	0	Peak
8	7392.00	42.55	-11.45	54.00	35.84	35.64	7.23	36.16	100	228	Average

Remark: #3 and #4 are Fundamental Signals

- Test Mode : Mode 2
- Temperature : 21~26°C
- Relative Humidity : 49~55%
- Test Engineer: Sun
- Polarization : Horizontal (30MHz-1GHz)

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

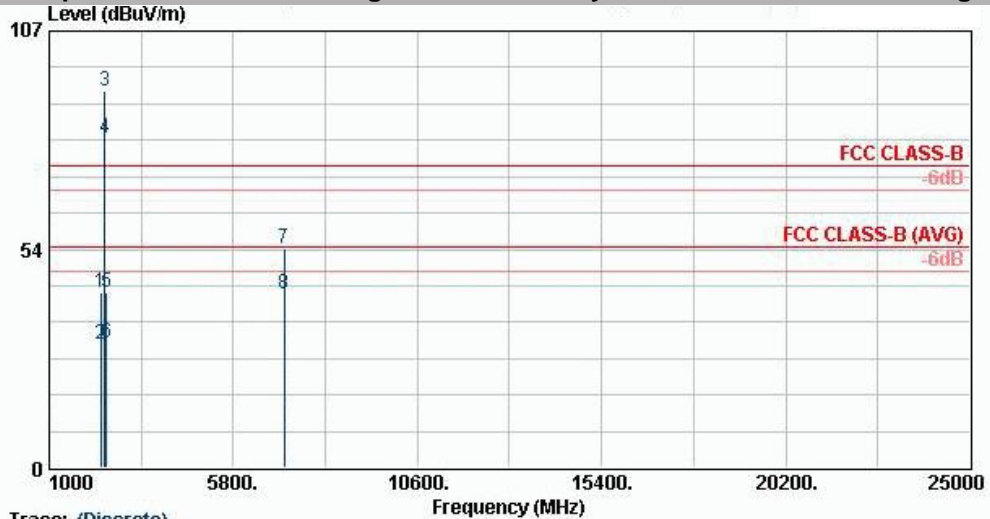


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH30 ; 2441MHz + Adaptor
 Data Rate : DHS
 Plane : H
 IMEI : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	30.00	21.21	-18.79	40.00	34.75	19.66	0.30	33.50	---	Peak
2	36.48	24.80	-15.20	40.00	42.68	15.08	0.30	33.26	---	Peak
3	92.64	15.64	-27.86	43.50	38.86	9.62	0.50	33.33	---	Peak
4	399.40	27.09	-18.91	46.00	43.48	15.76	0.90	33.05	---	Peak
5	778.80	25.02	-20.98	46.00	36.89	19.62	1.19	32.69	---	Peak
6 @	799.80	33.71	-12.29	46.00	45.25	19.82	1.20	32.56	100	111 Peak

• Polarization : Horizontal (1GHz-25GHz)

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



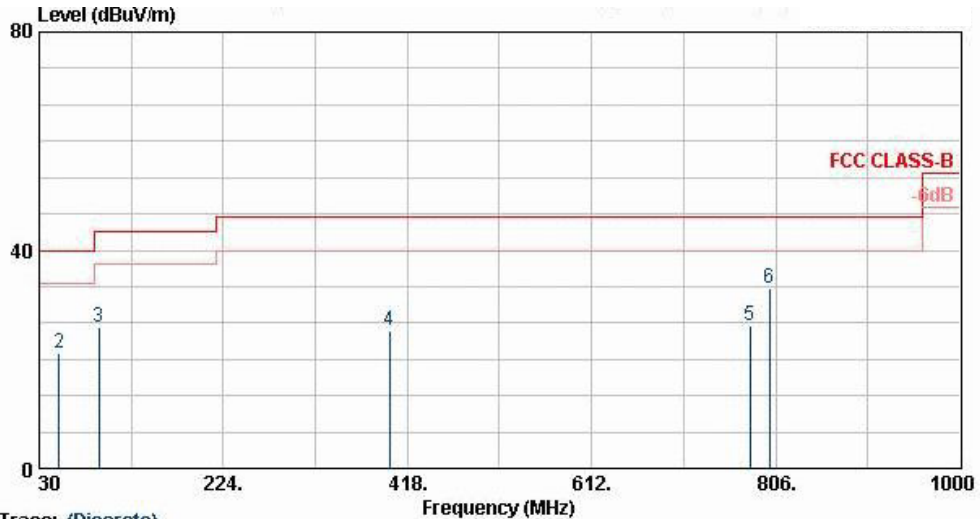
Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH39 ; 2441MHz + Adaptor
 Data Rate : DH5
 Plane : H
 TMEI : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2348.00	42.94	-31.06	74.00	42.97	31.78	3.86	35.67	100	0 Peak
2	2348.00	30.41	-23.59	54.00	30.44	31.78	3.86	35.67	166	327 Average
3 @	2441.00	92.40			92.17	31.93	3.99	35.69	100	0 Peak
4 @	2441.00	80.68			80.46	31.93	3.99	35.69	166	327 Average
5	2484.00	42.85	-31.15	74.00	42.52	31.98	4.05	35.70	100	0 Peak
6	2484.00	30.52	-23.48	54.00	30.19	31.98	4.05	35.70	166	327 Average
7	7131.00	53.78	-20.22	74.00	46.95	35.74	7.13	36.05	100	0 Peak
8 @	7131.00	42.67	-11.33	54.00	35.84	35.74	7.13	36.05	100	113 Average

Remark: #3 and #4 are Fundamental Signals

• Polarization : Vertical (30MHz-1GHz)

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

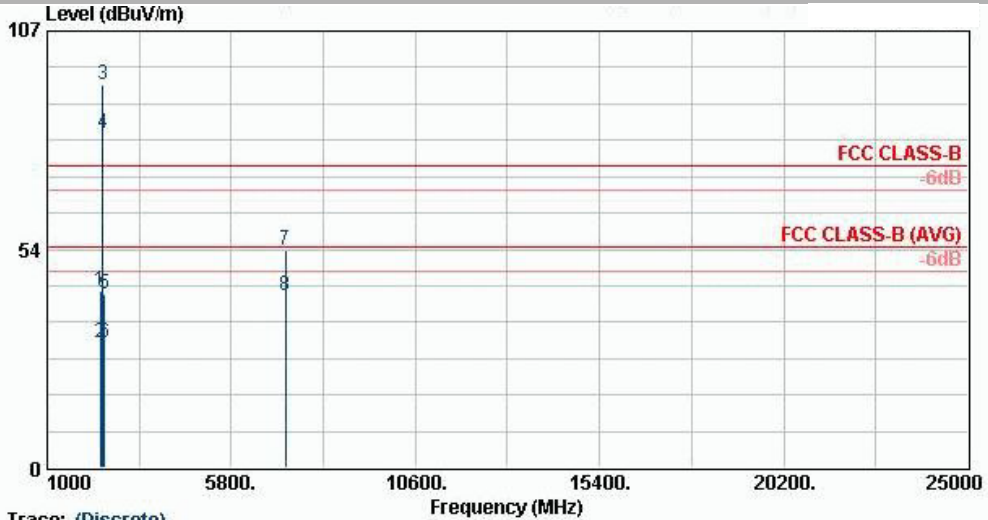


Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(051121) VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH39 ; 2441MHz + Adaptor
 Data Rate : DH5
 Plane : H
 TMEI : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	Loss	Factor	Pos	Pos	
						dB	dB	cm	deg	
1	30.00	21.85	-18.15	40.00	35.39	19.66	0.30	33.50	---	Peak
2	50.79	21.22	-18.78	40.00	45.99	8.08	0.30	33.15	---	Peak
3	92.64	25.77	-17.73	43.50	48.99	9.62	0.50	33.33	---	Peak
4	399.40	25.19	-20.81	46.00	41.58	15.76	0.90	33.05	---	Peak
5	778.80	26.14	-19.86	46.00	38.02	19.62	1.19	32.69	---	Peak
6	799.80	32.93	-13.07	46.00	44.47	19.82	1.20	32.56	100	204 Peak

• Polarization : Vertical (1GHz-25GHz)

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



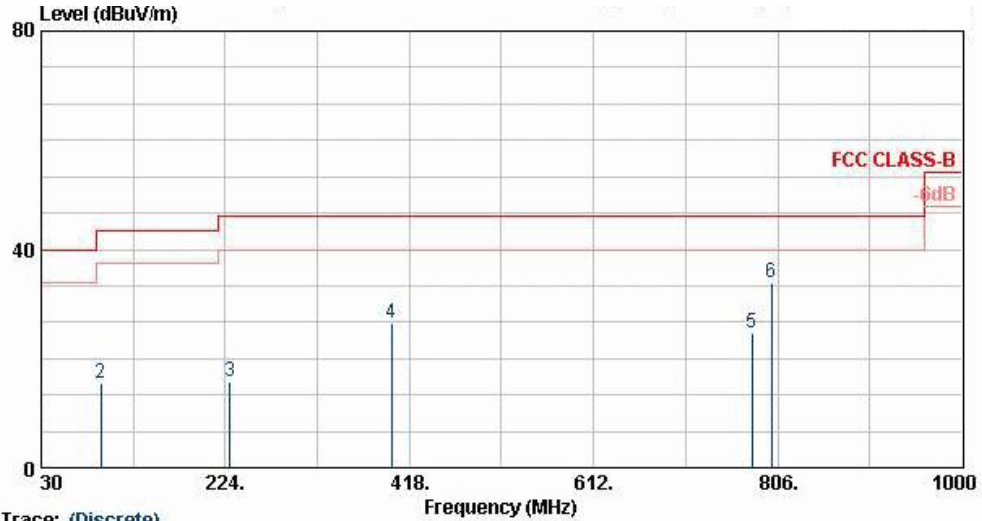
Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH39 ; 2441MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TMEI : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2388.00	43.18	-30.82	74.00	43.08	31.86	3.92	35.68	100	0 Peak
2	2388.00	30.54	-23.46	54.00	30.44	31.86	3.92	35.68	124	12 Average
3 @	2441.00	93.89			93.66	31.93	3.99	35.69	100	0 Peak
4 @	2441.00	81.99			81.77	31.93	3.99	35.69	124	12 Average
5	2494.00	42.71	-31.29	74.00	42.36	32.00	4.05	35.70	100	0 Peak
6	2494.00	30.52	-23.48	54.00	30.17	32.00	4.05	35.70	124	12 Average
7	7206.00	53.42	-20.58	74.00	46.62	35.72	7.17	36.08	100	0 Peak
8 @	7206.00	42.34	-11.66	54.00	35.54	35.72	7.17	36.08	100	313 Average

Remark: #3 and #4 are Fundamental Signals

- Test Mode : Mode 3
- Temperature : 21~26°C
- Relative Humidity : 49~55%
- Test Engineer: Sun
- Polarization : Horizontal (30MHz-1GHz)

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

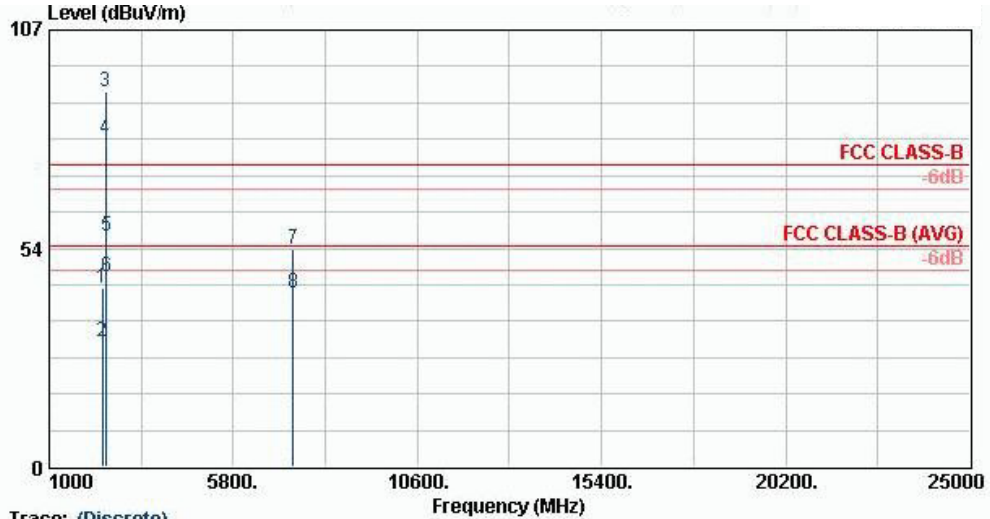


Trace: (Discrete)
 Site : D3CH06-HY
 Condition : FCC CLASS-B 3m LF-ANT(051121) HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH78 ; 2480MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TMET : 135790246811222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	21.39	-18.61	40.00	34.93	19.66	0.30	33.50	---	---	Peak
2	92.64	15.58	-27.92	43.50	38.79	9.62	0.50	33.33	---	---	Peak
3	228.99	15.62	-30.38	46.00	37.38	11.01	0.70	33.47	---	---	Peak
4	399.40	26.34	-19.66	46.00	42.73	15.76	0.90	33.05	---	---	Peak
5	778.80	24.63	-21.37	46.00	36.50	19.62	1.19	32.69	---	---	Peak
6	799.80	33.96	-12.04	46.00	45.50	19.82	1.20	32.56	100	155	Peak

• Polarization : Horizontal (1GHz-25GHz)

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



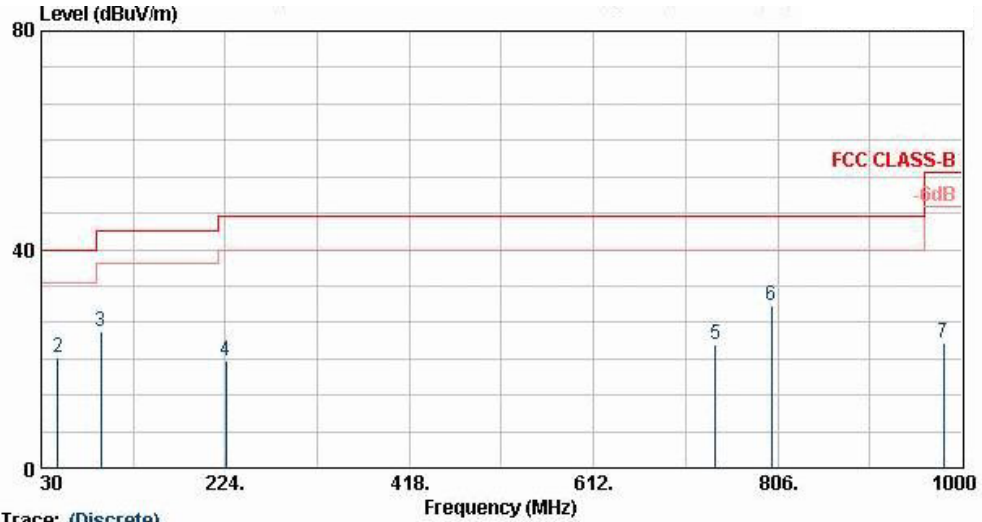
Trace: (Discrete)
 Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH78 ; 2480MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TMET : 135790246811222

	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBUV/m	dB	dBUV/m	dBUV	dB/m	dB	dB	cm	deg	
1	2382.00	43.58	-30.42	74.00	43.51	31.83	3.92	35.68	100	0	Peak
2	2382.00	30.61	-23.39	54.00	30.53	31.83	3.92	35.68	107	334	Average
3 X	2480.00	92.07			91.74	31.98	4.05	35.70	100	0	Peak
4 X	2480.00	80.46			80.13	31.98	4.05	35.70	107	334	Average
5	2483.47	56.45	-17.55	74.00	56.12	31.98	4.05	35.70	100	0	Peak
6	2483.47	46.42	-7.58	54.00	46.09	31.98	4.05	35.70	107	334	Average
7	7362.00	53.46	-20.54	74.00	46.72	35.66	7.22	36.14	100	0	Peak
8	7362.00	42.37	-11.63	54.00	35.64	35.66	7.22	36.14	100	119	Average

Remark: #3 and #4 are Fundamental Signals

• Polarization : Vertical (30MHz-1GHz)

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



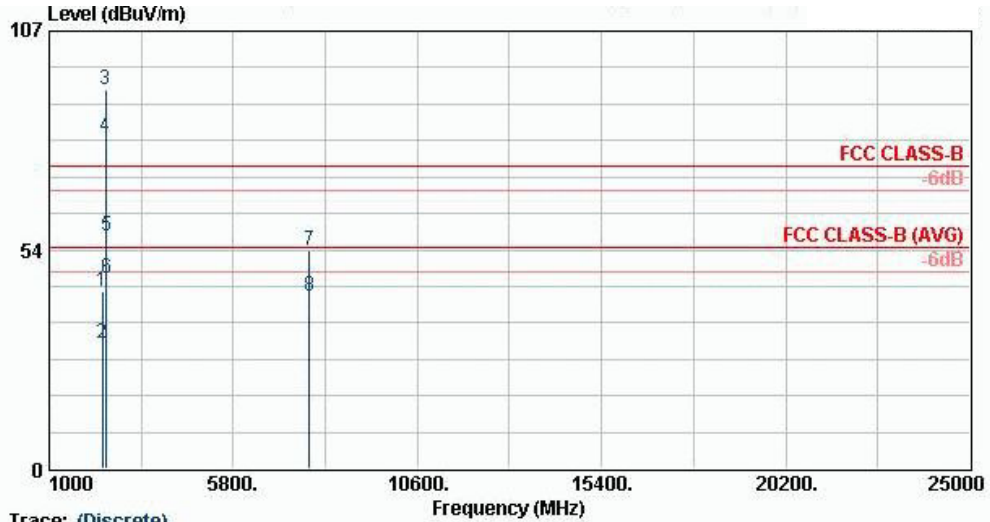
Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m LP-ANT(051121) VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH78 ; 2480MHz + Adaptor
 Data Rate : DH5
 Plane : H
 TMET : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	21.75	-18.25	40.00	35.29	19.66	0.30	33.50	---	---	Peak
2	47.28	20.22	-19.78	40.00	43.50	9.55	0.30	33.13	---	---	Peak
3	92.64	25.12	-18.38	43.50	48.34	9.62	0.50	33.33	---	---	Peak
4	224.94	19.56	-26.44	46.00	41.56	10.79	0.70	33.48	---	---	Peak
5	740.30	22.58	-23.42	46.00	35.15	19.26	1.10	32.93	---	---	Peak
6	799.80	29.86	-16.14	46.00	41.40	19.82	1.20	32.56	---	---	Peak
7	980.40	22.91	-31.09	54.00	32.72	21.10	1.30	32.21	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

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



Trace: (Discrete)

Site : 03CH06-HY
 Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
 EUT : PDA Phone
 Power : 120Vac/60Hz
 Model : FR 703121
 Memo : Bluetooth Tx_CH78 ; 2480MHz + Adaptor
 Data Rate : DHS
 Plane : H
 TMET : 135790246811222

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2388.00	43.47	-30.53	74.00	43.37	31.86	3.92	35.68	100	0 Peak
2	2388.00	30.65	-23.35	54.00	30.55	31.86	3.92	35.68	180	0 Average
3 X	2480.00	92.87			92.54	31.98	4.05	35.70	100	0 Peak
4 @	2480.00	81.25			80.92	31.98	4.05	35.70	180	0 Average
5	2483.47	56.87	-17.13	74.00	56.54	31.98	4.05	35.70	100	0 Peak
6	2483.47	46.57	-7.43	54.00	46.24	31.98	4.05	35.70	180	0 Average
7	7776.00	53.39	-20.61	74.00	46.59	35.66	7.40	36.26	100	0 Peak
8	7776.00	42.21	-11.79	54.00	35.41	35.66	7.40	36.26	100	192 Average

Remark: #3 and #4 are Fundamental Signals

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 is Monopole Antenna for Bluetooth 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. 03, 2008	Mar. 02, 2009	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2008	Mar. 29, 2009	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2008	Mar. 21, 2009	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2008	Apr. 19, 2009	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Mar. 27, 2008	Mar. 26, 2009	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	N/A	Conduction (CO04-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211028	9KHz-26.5GHz	Oct. 17, 2007	Oct. 16, 2008	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20...1000MHz	Apr. 24, 2008	Apr. 23, 2009	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00075962	1G~18G	Aug. 29, 2007	Aug. 28, 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)
Pre Amplifier	EMEC	PA303	PA303-SMA-059	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 (150 KHz ~ 30 MHz)

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 (30 MHz ~ 1000 MHz)

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 (1 GHz ~ 40 GHz)

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% $U = 2U_c(y)$	4.72				

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



Appendix A. Photographs of EUT

Please refer to Sporton report number EP821504-03 as below.