Testing Laboratory
1190

Variant FCC Test Report

According to

47 CFR Part 15 Subpart C

Equipment	:	**PDA Phone**
Trade Name	:	**Opticon**
Model No.	:	**H-19A, H-19B**
FCC ID	:	**UFOBC0164AAA390**
Filing Type	:	**Certification**
Applicant	:	**OPTOELECTRONICS CO., LTD.** 12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

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- The data shown in this test report were carried out on Apr. 26, 2008 at **Sporton International Inc. LAB.**
- Report No.: FR840402, Report Version: Rev. 02.

Roy Wu
Manager

SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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History of This Test Report

Report Issue Date: Aug. 12, 2008

Report No.	Description
FR840402	Update Sporton Report No. FR762206 by retesting Conducted Emission and Radiated Emission for HW version, SW version, Bluetooth antenna, GSM Antenna, layout and chipset of main board, connector of SIM cards, and SDRAM change. SDRAM changes from 64 MB to 128 MB.

1. General Description of Equipment under Test

1.1. Applicant

OPTOELECTRONICS CO., LTD.

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.2. Manufacturer

OPTOELECTRONICS CO., LTD.

12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.3. Basic Description of Equipment under Test

Equipment		PDA Phone
Trade Name		Opticon
Model Name		H-19A, H-19B
FCC ID		UFOBC0164AAA390
AC Adapter 1	**Brand Name**	PI Electronics Ltd.
	Model Name	AD7112B 03LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 5Vdc, 1A
	AC Power Cord Type	1.6 meter shielded cable with ferrite core
AC Adapter 2 (for Cradle)	**Brand Name**	PI
	Model Name	AD7010-2LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.6A; O/P: 5Vdc, 3.6A
	AC Power Cord Type	1.6 meter shielded cable without ferrite core
Battery	**Brand Name**	Opticon
	Model Name	H-19
	Power Rating	4.2Vdc, 1440mA
	Type	Li-ion
Earphone	**Brand Name**	TECHWIN Communication Co. Ltd
	Model Name	EE-624B-7EN
	Signal Line Type	1.2 meter non-shielded cable without ferrite core
USB Cable for PDA Phone	**Brand Name**	WIESON
	Model Name	G9904HT0220-002
	Signal Line Type	0.9 meter shielded cable without ferrite core
USB Cable for Cradle	**Brand Name**	WANSHIH
	Model Name	WA1Z3614B
	Signal line Type	1 meter shielded cable without ferrite core
Holster	**Brand Name**	Opticon
	Model Name	CRD-19
Scanner 1	**Brand Name**	OPTOELECTRONICS
	Model Name	MDL-2000
Scanner 2	**Brand Name**	OPTOELECTRONICS
	Model Name	MDI-1000

Remark:

1. Scanner 1 was used for H-19A, and scanner 2 was used for H-19B.
2. 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 :	PDA Phone			
Trade Name :	Opticon			
Model Name :	H-19A, H-19B			
FCC ID :	UFOBC0164AAA390			
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 :	2.51 dBm			
Antenna Type :	PIFA Antenna			
Antenna Gain :	2.27 dBi			
HW Version :	PEONY_PLUS2_MB_P3_V4.4			
SW Version :	WM6: CE OS 5.2.1620 (Build 18125.0.4.2) ROM: 0.0.1.1(SVN=16)			
Type of Modulation :	GFSK			
Function Type :	Transmitter		Transceiver	V
DUT Stage :	Production Unit			

2. Test Configuration of Equipment under Test

2.1. Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
b. For spurious emission below 1 GHz, only one channel of each application was tested because it is not related to channel selection.
c. The EUT is programmed to transmit signal continuously for all tests.
d. Frequency range investigated: conduction 150 KHz to 30 MHz, radiation 30 MHz to 25000 MHz.

2.2. Test Mode

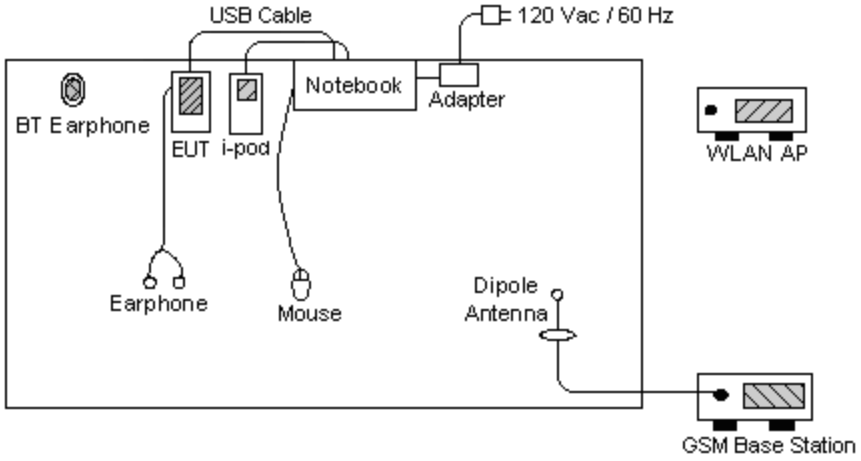
Application	Bluetooth
Radiated Emission	Mode 1: Tx_CH00_2402 MHz Mode 2: Tx_CH39_2441 MHz Mode 3: Tx_CH78_2480 MHz
Conducted Emission	Mode 1 : GSM850 Idle + BT Link + WLAN Link + Earphone + Scanner 2 + USB Link + MPEG4

2.3. Ancillary Equipment List

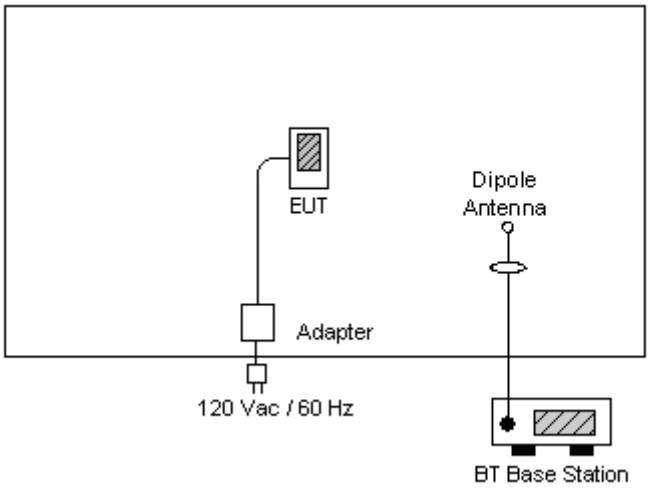
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GSM Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	BT Base Station	Anritus	8852A	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	SMC	SMC-100	HEDWG4005ACC	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	D400	E2K24GBRL	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Engotech	ET-BH111	PQY471087	N/A	N/A
6.	RS-232 Mouse	State	MS-303	DoC	Unshielded, 1.2 m	N/A
7.	i-pod	Apple	A1199	N/A	Shielded, 1.2 m	N/A

2.4. Connection Diagram of Test System

<Conducted Emission>



<Radiated Emission>



3. RF Utility

The EUT is in BT Link mode with Bluetooth earphone for conducted emission or in BT continuous Tx Mode controlled by BT base station simulator for radiation emission.

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	:	CO0-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 25000MHz

4.5. Test Distance

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

5. Report of Measurements and Examinations

5.1 List of Measurements and Examinations

The Emission Mode: Bluetooth

FCC Rule	Description of Test	Result
15.207	Conducted Emission	Pass
15.209(a) 15.247(d)	Radiated Emission	Pass
15.203 15.247(b)(4)	Antenna Requirement	Pass

Remark : The compliance is based on this report and the original report shown in appendix c.

5.2 Conducted Emission

5.2.1 Measuring Instruments

As described in chapter 6 of this test Report.

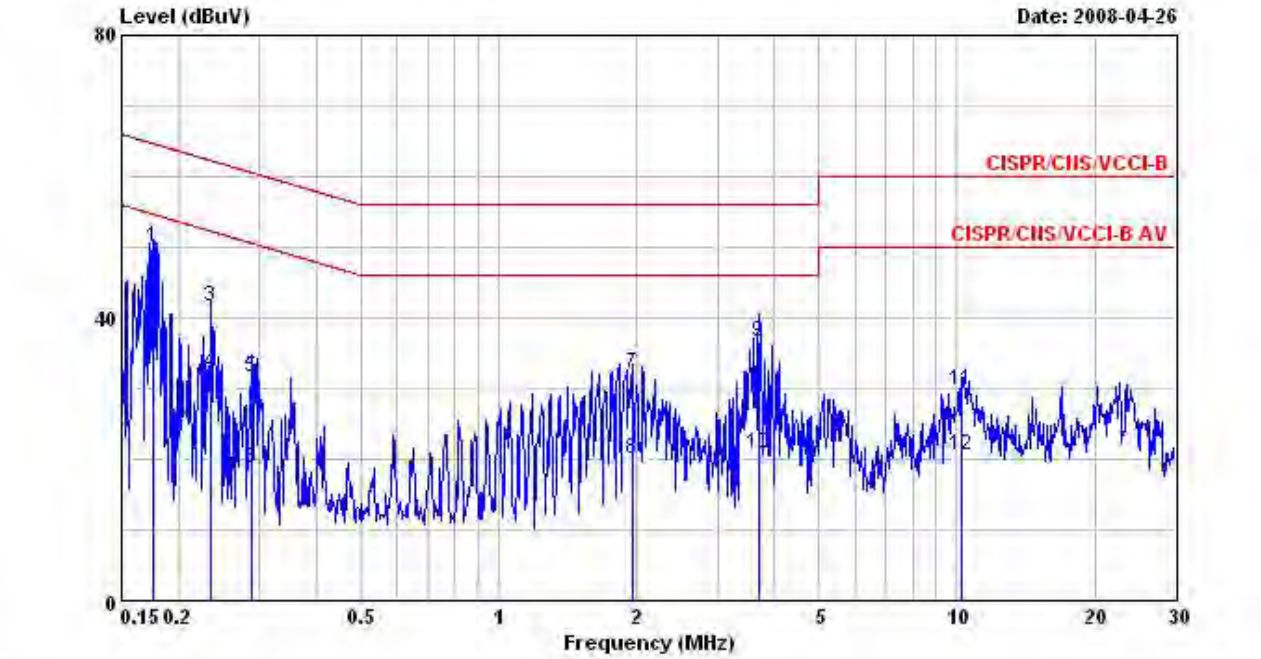
5.2.2 Test Procedures

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.

5.2.3 Test Data

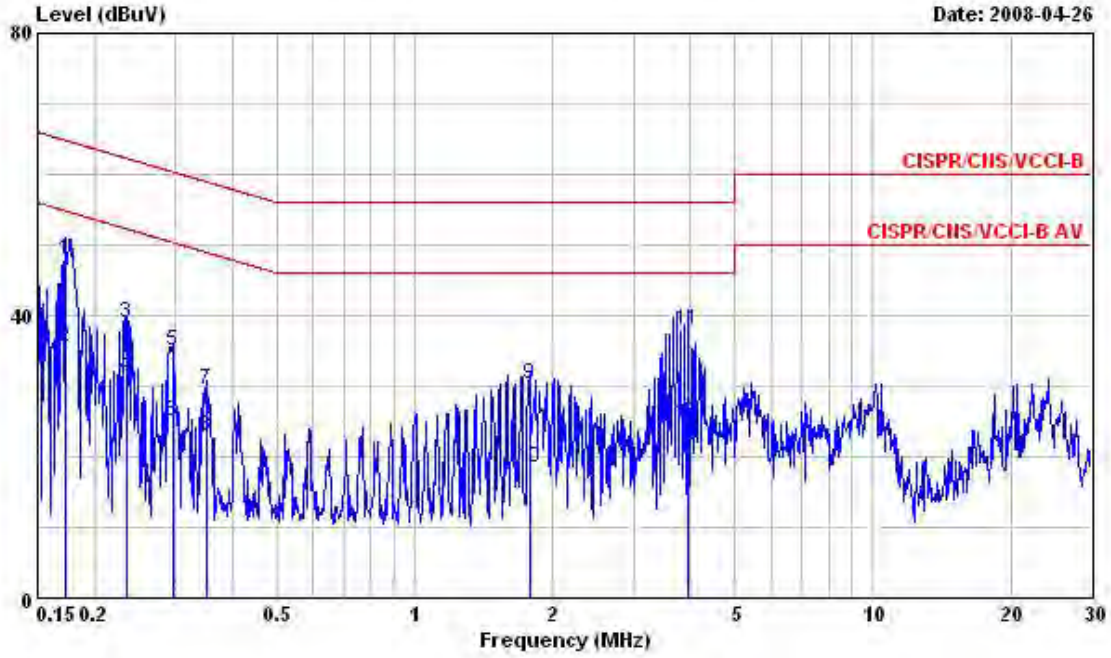
- Test Mode: Mode 1
- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 21~28℃
- Relative Humidity: 32~33%
- Test Engineer: Darren
- All emissions not reported here are more than 10 dB below the prescribed limit.

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: Form Notebook
Model : FR840402
Memo : GSM850 Idle+BT Link+WLAN Link+Earphone
: +Scanner2+USB Link+MPEG4
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1758420	50.00	-14.68	64.68	49.77	0.09	0.14	QP
2	@0.1758420	39.34	-15.34	54.68	39.11	0.09	0.14	Average
3	0.2353310	41.54	-20.72	62.26	41.17	0.09	0.28	QP
4	0.2353310	32.06	-20.20	52.26	31.69	0.09	0.28	Average
5	0.2878180	31.51	-29.08	60.59	30.96	0.10	0.45	QP
6	0.2878180	18.69	-31.90	50.59	18.14	0.10	0.45	Average
7	1.960	32.04	-23.96	56.00	31.48	0.13	0.43	QP
8	1.960	20.07	-25.93	46.00	19.51	0.13	0.43	Average
9	3.700	36.46	-19.54	56.00	35.96	0.17	0.33	QP
10	3.700	20.78	-25.22	46.00	20.28	0.17	0.33	Average
11	10.230	29.66	-30.34	60.00	29.16	0.28	0.22	QP
12	10.230	20.40	-29.60	50.00	19.90	0.28	0.22	Average



Site : CO04-HY
Condition : CISPR/CNS/VCCI-B LISN 2008 0416 99041 NEUTRAL
EUT : PDA Phone
POWER: Form Notebook
Model : FR840402
Memo : GSM850 Idle+BT Link+WLAN Link+Earphone
: +Scanner2+USB Link+MPEG4
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1721540	47.89	-16.97	64.86	47.67	0.08	0.14	QP
2	0.1721540	35.44	-19.42	54.86	35.22	0.08	0.14	Average
3	0.2353310	38.82	-23.44	62.26	38.46	0.08	0.28	QP
4	0.2353310	31.20	-21.06	52.26	30.84	0.08	0.28	Average
5	0.2955450	35.07	-25.30	60.37	34.51	0.09	0.47	QP
6	0.2955450	25.12	-25.25	50.37	24.56	0.09	0.47	Average
7	0.3520120	29.40	-29.51	58.91	28.69	0.09	0.62	QP
8	0.3520120	22.81	-26.10	48.91	22.10	0.09	0.62	Average
9	1.780	30.23	-25.77	56.00	29.68	0.12	0.43	QP
10	1.780	18.38	-27.62	46.00	17.83	0.12	0.43	Average
11	3.940	37.79	-18.21	56.00	37.32	0.15	0.32	QP
12	3.940	24.79	-21.21	46.00	24.32	0.15	0.32	Average

5.3 Radiated Emission Measurement

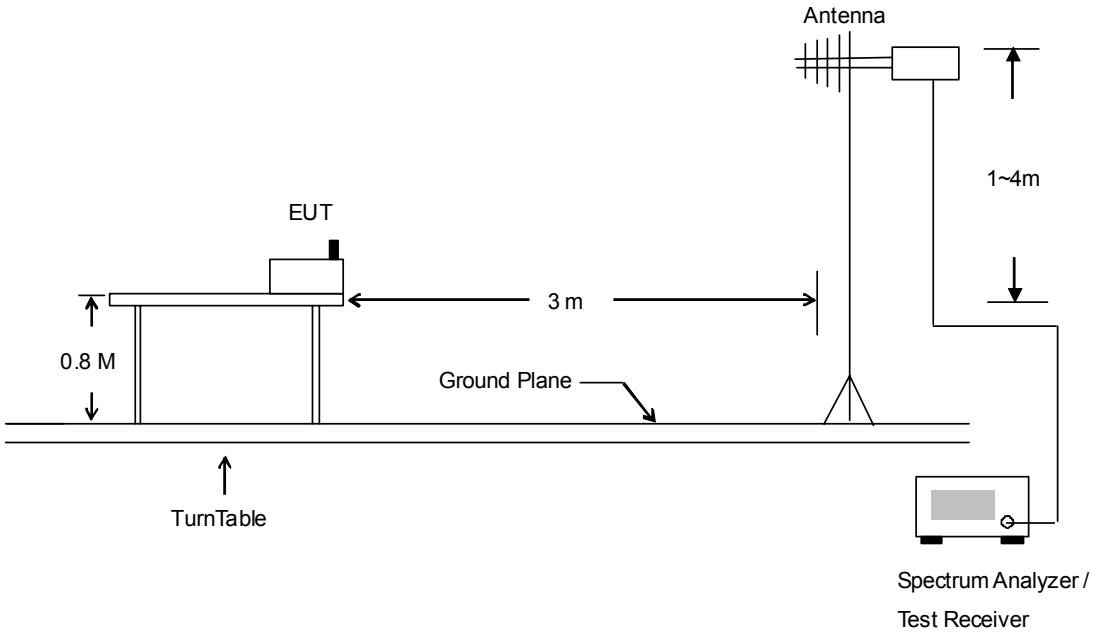
5.3.1 Measuring Instruments

As described in chapter 6 of this Report.

5.3.2 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.

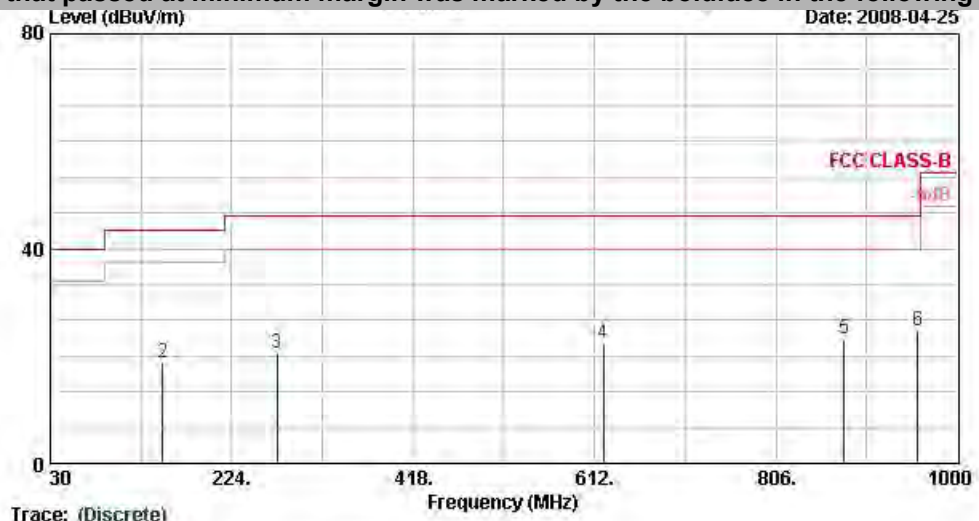
5.3.3 Typical Test Setup Layout of Radiated Emission



5.3.4 Test Data

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

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



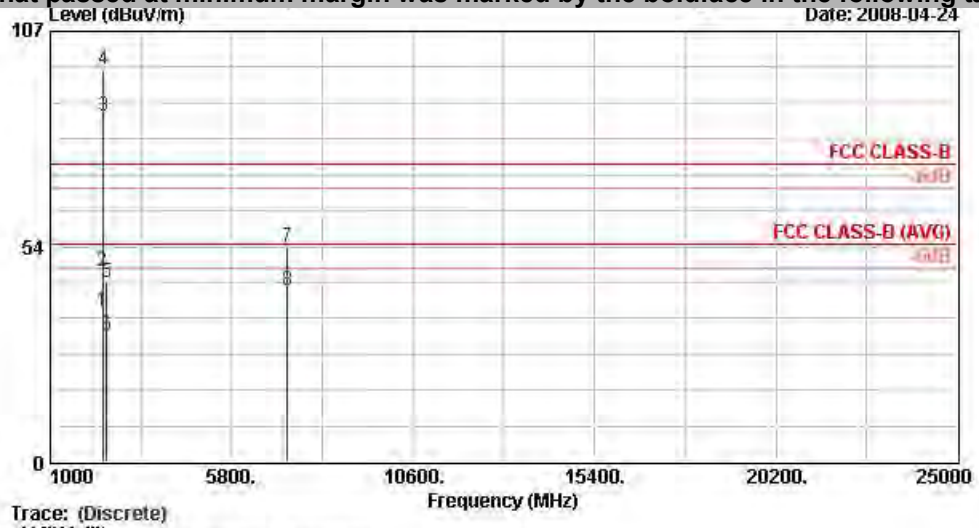
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH00 ; 2402MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355834003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	30.00	25.56	-14.44	40.00	39.10	19.66	0.30	33.50	100	106	Peak
2	149.88	18.83	-24.67	43.50	41.39	10.40	0.60	33.56	---	---	Peak
3	272.19	20.40	-25.60	46.00	40.40	12.69	0.70	33.39	---	---	Peak
4	621.30	22.44	-23.56	46.00	35.72	18.56	1.08	32.93	---	---	Peak
5	878.90	23.32	-22.68	46.00	34.39	20.38	1.30	32.75	---	---	Peak
6	957.30	24.57	-21.43	46.00	34.74	20.94	1.27	32.38	---	---	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-HV
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mome : BT Tx_CH00 ; 2402MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2385.81	37.22	-16.78	54.00	37.12	31.86	3.92	35.68	131	357	Average
2	2385.81	47.42	-26.58	74.00	47.32	31.86	3.92	35.68	100	0	Peak
3 @	2402.00	85.75			85.65	31.86	3.92	35.68	131	357	Average
4 @	2402.00	97.62			97.53	31.86	3.92	35.68	100	0	Peak
5	2500.00	44.70	-29.30	74.00	44.35	32.00	4.05	35.70	100	0	Peak
6	2500.00	31.25	-22.75	54.00	30.90	32.00	4.05	35.70	131	357	Average
7	7266.00	53.47	-20.53	74.00	46.70	35.69	7.18	36.11	100	0	Peak
8 @	7266.00	42.40	-11.60	54.00	35.64	35.69	7.18	36.11	100	218	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.

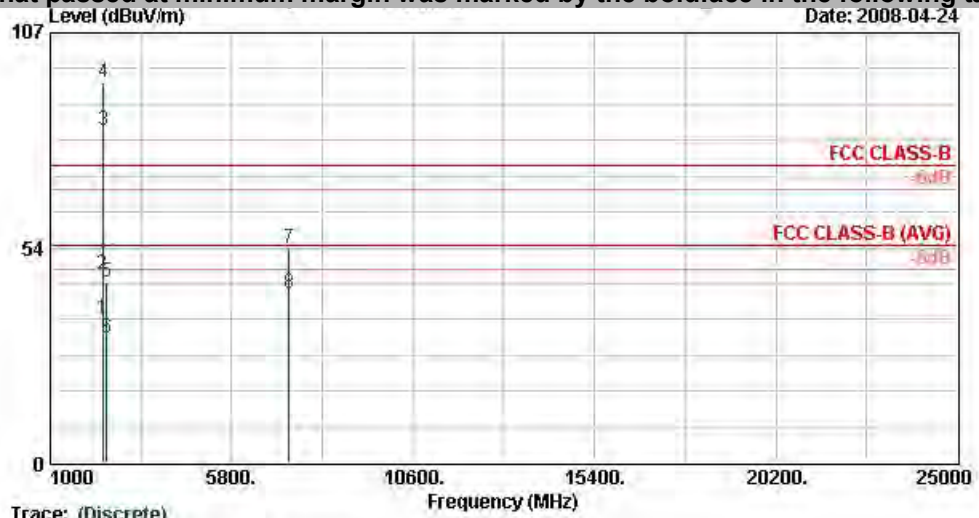
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(9511121) VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mome : BT Tx_CH00 ; 2402MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	30.00	26.95	-13.05	40.00	40.49	19.66	0.30	33.50	100	215	Peak
2	66.18	24.91	-15.09	40.00	51.27	6.78	0.40	33.54	---	---	Peak
3	91.29	23.58	-19.92	43.50	47.15	9.23	0.50	33.30	---	---	Peak
4	616.40	23.23	-22.77	46.00	36.53	18.54	1.07	32.91	---	---	Peak
5	801.90	25.24	-20.76	46.00	36.78	19.83	1.20	32.56	---	---	Peak
6	957.30	24.52	-21.48	46.00	34.69	20.94	1.27	32.38	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

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



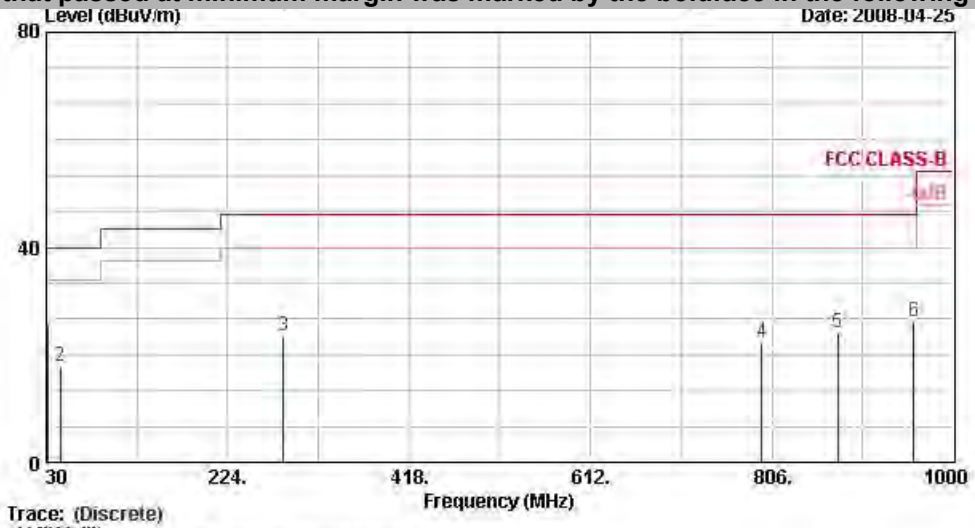
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH00 ; 2402MHz + Adaptor
Data Rate : DH5
Plane : H
TMET : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2386.38	35.73	-18.27	54.00	35.63	31.86	3.92	35.68	161	230	Average
2	2386.38	47.06	-26.94	74.00	46.96	31.86	3.92	35.68	100	0	Peak
3 @	2402.00	82.87			82.77	31.86	3.92	35.68	161	230	Average
4 @	2402.00	94.63			94.53	31.86	3.92	35.68	100	0	Peak
5	2484.00	44.86	-29.14	74.00	44.53	31.98	4.05	35.70	100	0	Peak
6	2484.00	31.16	-22.84	54.00	30.83	31.98	4.05	35.70	161	230	Average
7	7326.00	53.28	-20.72	74.00	46.54	35.67	7.21	36.13	100	0	Peak
8 @	7326.00	42.17	-11.83	54.00	35.42	35.67	7.21	36.13	100	245	Average

Remark: #3 and #4 are Fundamental Signals.

- Test Mode : Mode 2
- Polarization : Horizontal (30MHz-1GHz)

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



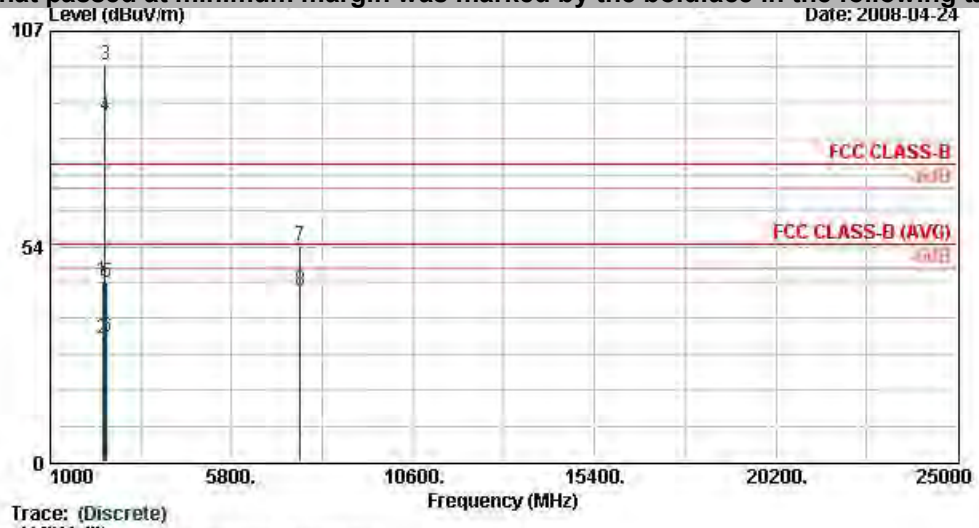
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(05||21) HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH39 ; 2441MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.08	25.51	-14.49	40.00	39.72	18.95	0.30	33.46	100	233	Peak
2	44.58	17.95	-22.05	40.00	39.74	11.02	0.30	33.11	---	---	Peak
3	283.53	23.39	-22.61	46.00	43.16	12.90	0.70	33.37	---	---	Peak
4	794.90	22.43	-23.57	46.00	34.04	19.77	1.20	32.59	---	---	Peak
5	876.80	24.07	-21.93	46.00	35.15	20.36	1.30	32.74	---	---	Peak
6	957.30	26.14	-19.86	46.00	36.31	20.94	1.27	32.38	---	---	Peak

- Polarization : Horizontal (1GHz-25GHz)

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



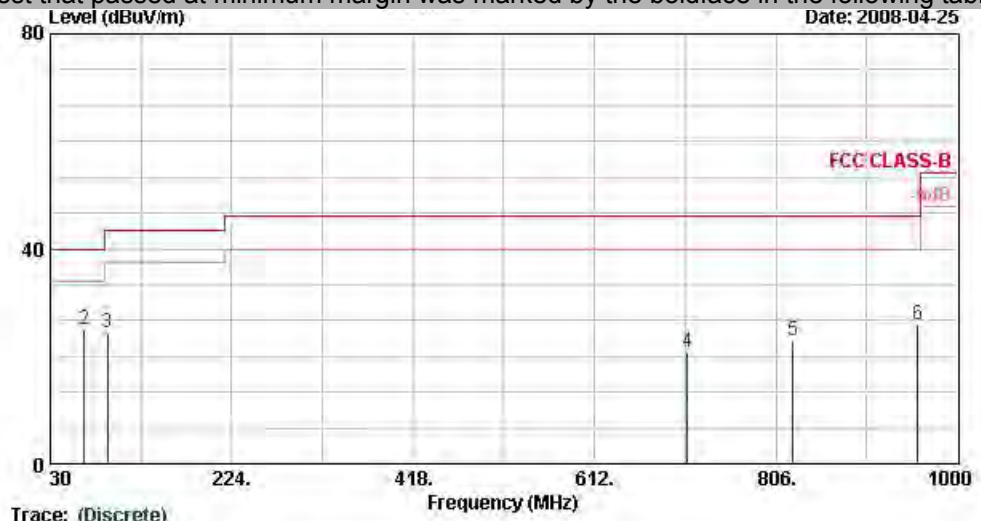
Trace: (Discrete)

Site : 03CH06-HV
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH39 ; 2441MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2382.00	44.89	-29.11	74.00	44.81	31.83	3.92	35.68	100	0	Peak
2	2382.00	30.77	-23.23	54.00	30.69	31.83	3.92	35.68	129	12	Average
3 X	2441.00	98.53			98.31	31.93	3.99	35.69	100	0	Peak
4 @	2441.00	85.77			85.55	31.93	3.99	35.69	129	12	Average
5	2494.00	44.55	-29.45	74.00	44.20	32.00	4.05	35.70	100	0	Peak
6	2494.00	31.03	-22.97	54.00	30.68	32.00	4.05	35.70	129	12	Average
7	7617.00	53.55	-20.45	74.00	46.82	35.62	7.33	36.22	100	0	Peak
8	7617.00	42.47	-11.53	54.00	35.74	35.62	7.33	36.22	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.



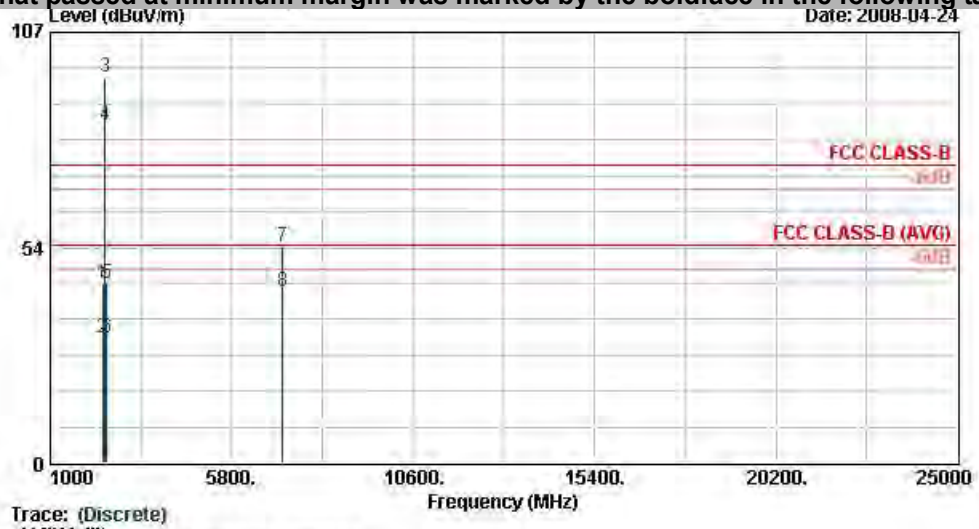
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(951121) VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mome : BT Tx_CH39 ; 2441MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	26.26	-13.74	40.00	39.80	19.66	0.30	33.50	100	197	Peak
2	66.18	25.10	-14.90	40.00	51.46	6.78	0.40	33.54	---	---	Peak
3	91.29	24.31	-19.19	43.50	47.89	9.23	0.50	33.30	---	---	Peak
4	710.90	20.82	-25.18	46.00	33.73	18.99	1.20	33.10	---	---	Peak
5	824.30	22.83	-23.17	46.00	34.25	19.99	1.20	32.62	---	---	Peak
6	957.30	25.85	-20.15	46.00	36.02	20.94	1.27	32.38	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

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



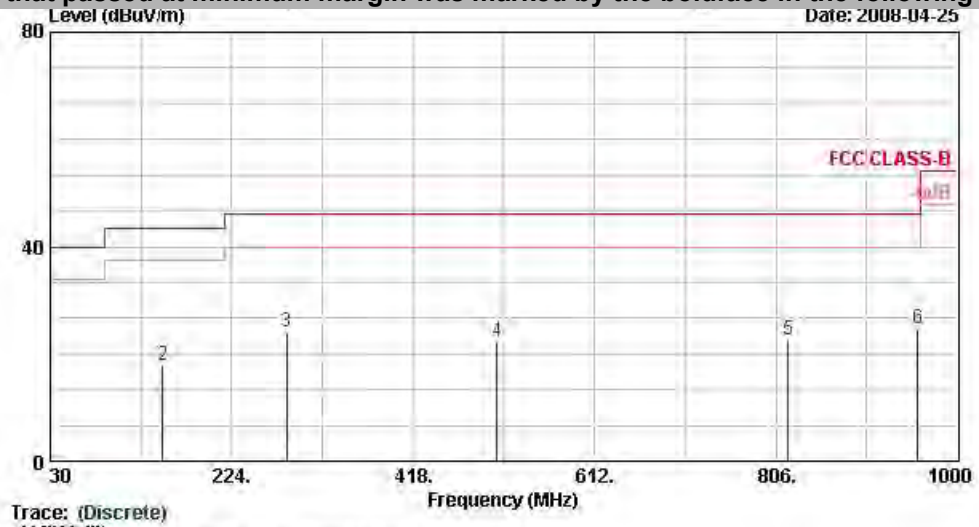
Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH39 ; 2441MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	44.38	-29.62	74.00	44.28	31.86	3.92	35.68	100	0	Peak
2	2390.00	31.04	-22.96	54.00	30.94	31.86	3.92	35.68	105	234	Average
3 X	2441.00	95.83			95.60	31.93	3.99	35.69	100	0	Peak
4 @	2441.00	83.95			83.73	31.93	3.99	35.69	105	234	Average
5	2484.00	44.54	-29.46	74.00	44.21	31.98	4.05	35.70	100	0	Peak
6	2484.00	31.01	-22.99	54.00	30.68	31.98	4.05	35.70	105	234	Average
7	7146.00	53.61	-20.39	74.00	46.79	35.74	7.14	36.06	100	0	Peak
8	7146.00	42.38	-11.62	54.00	35.56	35.74	7.14	36.06	100	301	Average

Remark: #3 and #4 are Fundamental Signals.

- Test Mode : Mode 3
- Polarization : Horizontal (30MHz-1GHz)

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



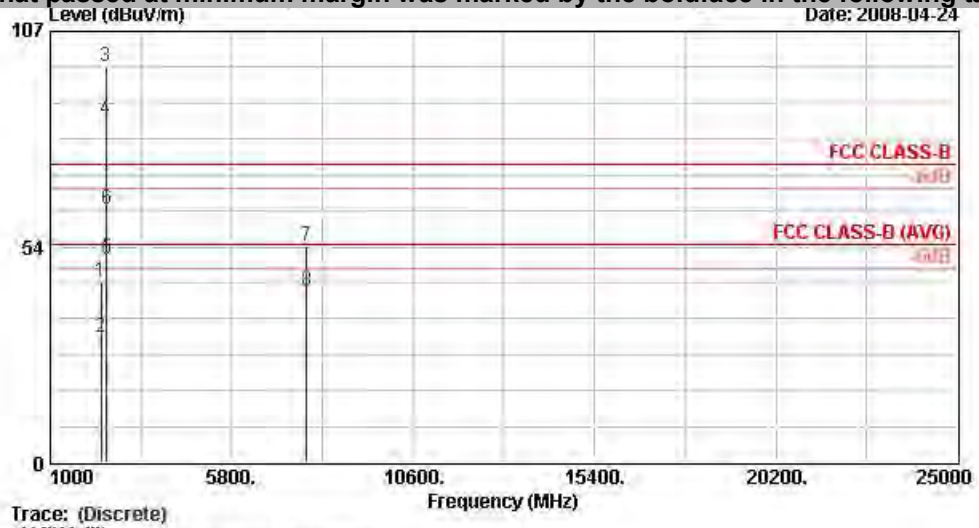
Trace: (Discrete)

Site	:	03CH06-HY
Condition	:	FCC CLASS-B 3m LF-ANT(851[21) HORIZONTAL
EUT	:	PDA Phone
Power	:	120Vac/60Hz
Model	:	FR 840402
Mome	:	BT Tx_CH78 ; 2480MHz + Adaptor
Data Rate	:	DH5
Plane	:	H
IMEI	:	355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	25.31	-14.69	40.00	38.85	19.66	0.30	33.50	100	244	Peak
2	149.88	17.97	-25.53	43.50	40.53	10.40	0.60	33.56	---	---	Peak
3	282.99	24.18	-21.82	46.00	43.96	12.90	0.70	33.37	---	---	Peak
4	507.90	22.21	-23.79	46.00	37.01	17.51	1.00	33.31	---	---	Peak
5	819.40	22.68	-23.32	46.00	34.13	19.96	1.20	32.61	---	---	Peak
6	957.30	24.81	-21.19	46.00	34.98	20.94	1.27	32.38	---	---	Peak

- Polarization : Horizontal (1GHz-25GHz)

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



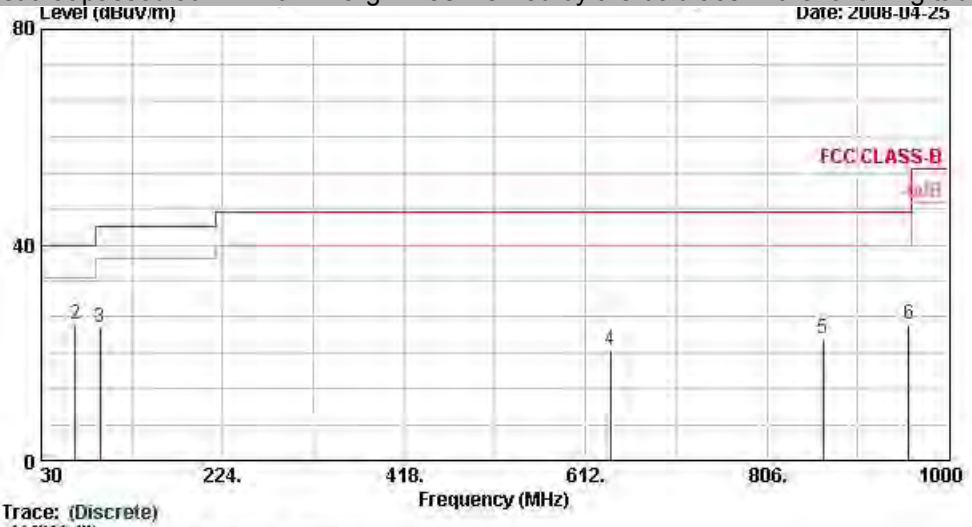
Trace: (Discrete)

Site : 03CH06-HV
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH78 ; 2480MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2350.00	45.04	-28.96	74.00	45.07	31.78	3.86	35.67	100	0	Peak
2	2350.00	31.06	-22.94	54.00	31.09	31.78	3.86	35.67	102	17	Average
3 @	2480.00	98.16			97.83	31.98	4.05	35.70	100	0	Peak
4 @	2480.00	85.32			84.99	31.98	4.05	35.70	102	17	Average
5 @	2483.50	50.51	-3.49	54.00	50.18	31.98	4.05	35.70	102	17	Average
6	2483.50	62.89	-11.11	74.00	62.56	31.98	4.05	35.70	100	0	Peak
7	7782.00	53.52	-20.48	74.00	46.71	35.66	7.41	36.26	100	0	Peak
8	7782.00	42.41	-11.59	54.00	35.60	35.66	7.41	36.26	100	215	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.



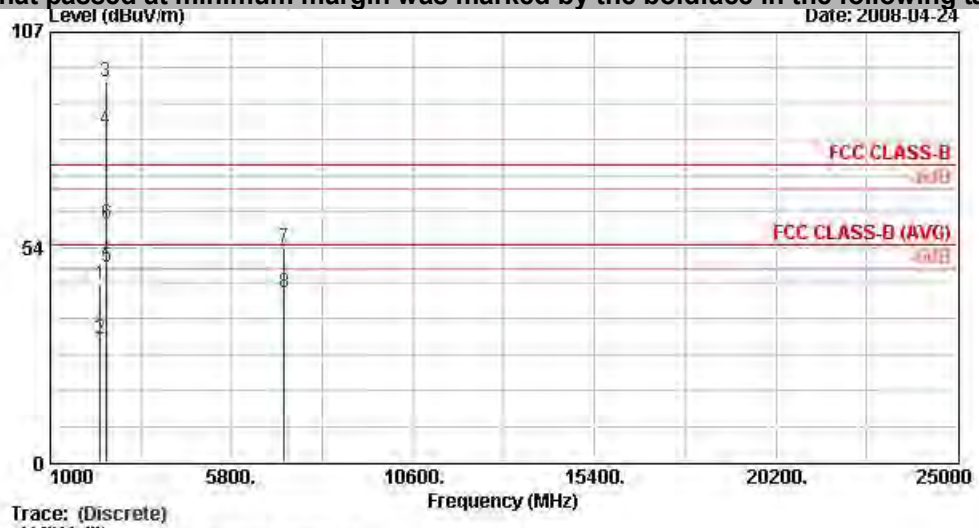
Trace: (Discrete)

Site : 03CH06-HY
Condition : FCC CLASS-B 3m LF-ANT(05||2|) VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mome : BT Tx_CH78 ; 2480MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	26.98	-13.02	40.00	40.52	19.66	0.30	33.50	100	184	Peak
2	66.18	25.34	-14.66	40.00	51.70	6.78	0.40	33.54	---	---	Peak
3	92.64	24.57	-18.93	43.50	47.78	9.62	0.50	33.33	---	---	Peak
4	638.80	20.65	-25.35	46.00	33.91	18.63	1.09	32.98	---	---	Peak
5	866.30	22.54	-23.46	46.00	33.71	20.29	1.26	32.72	---	---	Peak
6	957.30	25.41	-20.59	46.00	35.58	20.94	1.27	32.38	---	---	Peak

- Polarization : Vertical (1GHz-25GHz)

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



Site : 03CH06-HV
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL
EUT : PDA Phone
Power : 120Vac/60Hz
Model : FR 840402
Mode : BT Tx_CH78 ; 2480MHz + Adaptor
Data Rate : DH5
Plane : H
IMEI : 355634003909808

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2324.00	44.08	-29.92	74.00	44.17	31.76	3.82	35.67	100	0	Peak
2	2324.00	30.52	-23.48	54.00	30.60	31.76	3.82	35.67	194	231	Average
3 @	2480.00	94.84			94.51	31.98	4.05	35.70	100	0	Peak
4 @	2480.00	82.81			82.48	31.98	4.05	35.70	194	231	Average
5 !	2483.50	48.53	-5.47	54.00	48.20	31.98	4.05	35.70	194	231	Average
6	2483.50	59.14	-14.86	74.00	58.81	31.98	4.05	35.70	100	0	Peak
7	7197.00	53.25	-20.75	74.00	46.45	35.72	7.16	36.08	100	0	Peak
8	7197.00	42.11	-11.89	54.00	35.31	35.72	7.16	36.08	100	183	Average

Remark: #3 and #4 are Fundamental Signals.

5.4 Antenna Requirements

5.4.1 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.

5.4.2 Antenna Connected Construction

The antenna used in this product is PIFA Antenna for Bluetooth without connecter and it is considered to meet antenna requirement of FCC.

5.4.3 Antenna Gain

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

6 List of Measuring Equipments

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	ESCS30	100356	9KHz-2.75GHz	Jul. 26, 2007	Jul. 25, 2008	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Dec. 01, 2007	Nov. 30, 2008	Radiation (03CH06-HY)
Double Ridge Horn Antenna	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		$u(x_i)$	Ci	$Ci*u(x_i)$
	dB	Probability Distribution			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1= 0.197 Antenna VSWR Γ2= 0.194 Uncertainty=20log(1-Γ1*Γ2*Γ3)	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	**2.36**				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**4.72**				

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

Appendix A. Photographs of EUT

Please refer to Sporton report number EP840402 as below.

Appendix B. Setup Photographs

Please refer to Appendix B as below.

Appendix C. Original Report

Please refer to Sporton report number FR762206 as below.

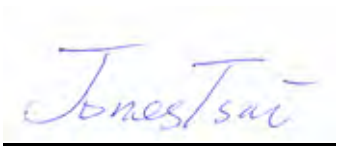
FCC TEST REPORT

for

47 CFR Part 15 Subpart C

Equipment	**:**	**PDA Phone**
Trade Name	**:**	**Opticon**
Model No.	**:**	**H-19A, H-19B**
FCC ID	**:**	**UFOBC0164AAA390**
Filing Type	**:**	**Certification**
Applicant	**:**	**OPTOELECTRONICS CO., LTD.** 12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

- The test result refers exclusively to the test presented test model / sample.
- Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
- **Certificate or Test Report must not be used by the applicant to claim the product in this test report endorsement by NVLAP or any agency of U.S. government.**
- The data shown in this test report were carried out on Jul. 10, 2007 at **Sporton International Inc. LAB.**
- Report No.: FR762206-B, Report Version: Rev. 01.



Jones Tsai
Manager

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

Table of Contents

History of this test report

Report Issue Date: Jul. 17, 2007

Report No.	Description

1. General Description of Equipment under Test

1.1. Applicant

OPTOELECTRONICS CO., LTD.
12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.2. Manufacturer

OPTOELECTRONICS CO., LTD.
12-17, Tsukagoshi 4-chome, Warabi-shi, Saitama, 335-0002, Japan

1.3. Basic Description of Equipment under Test

Equipment		PDA Phone
Trade Name		Opticon
Model Name		H-19A, H-19B
AC Adapter 1	**Brand Name**	PI Electronics
	Model Name	AD7112B 03LF
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.25A; O/P: 5Vdc, 1A
	AC Power Cord Type	1.6 meter shielded cable with ferrite core
AC Adapter 2	**Brand Name**	HP
	Model Name	HSTNN-P05A
	Power Rating	I/P:100-240Vac, 50-60Hz, 0.6A; O/P: 5Vdc, 3.6A
	AC Power Cord Type	1.6 meter shielded cable without ferrite core
Battery	**Brand Name**	Opticon
	Model Name	H-19
	Rating	4.2Vdc, 1440mA
	Type	Li-ion
Earphone	**Brand Name**	TECHWIN Communication Co. Ltd
	Model Name	EE-624A-8EN
	Signal line Type	1.2 meter non-shielded cable without ferrite core
USB Cable for Phone	**Brand Name**	WIESON
	Model Name	160035
	Signal line Type	0.9 meter shielded cable without ferrite core
USB Cable for Cradle	**Brand Name**	WIESON
	Model Name	160035
	Signal line Type	1 meter shielded cable without ferrite core
Cradle	**Brand Name**	Opticon
	Model Name	CRD-19
Scanner 1	**Brand Name**	OPTOELECTRONICS
	Model Name	MDL-2000
Scanner 2	**Brand Name**	OPTOELECTRONICS
	Model Name	MDI-1000

Remark : Scanner 1 was used for H-19A, and scanner 2 was used for H-19B.

1.4. Feature of Equipment under Test

Product Feature & Specification				
1. Modulation Type/Data Rate	GFSK			
2. Frequency Range.	2400 MHz ~ 2483.5 MHz			
3. Number of Channels	79			
4. Carrier Frequency of each channel	2402+ n*1 MHz, n= 0~78			
5. Channel Spacing	1 MHz			
6. Maximum Output Power to Antenna (Normal condition)	2.51 dBm			
7. Type of Antenna Connector	N/A			
8. Antenna Type	Chip Antenna			
9. Antenna Gain	-3 dBi			
10. Function Type	Transmitter		Transceiver	V

2. Test Configuration of Equipment under Test

2.1. Test Manner

a. The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.
b. For spurious emission below 1GHz, only one channel of each application was tested because it is not related to channel selection.
c. The EUT is programmed to transmit signal continuously for all testings.
d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 25000MHz.
e. Radiated spurious emission was tested with scanner 2.

2.2. Test Mode

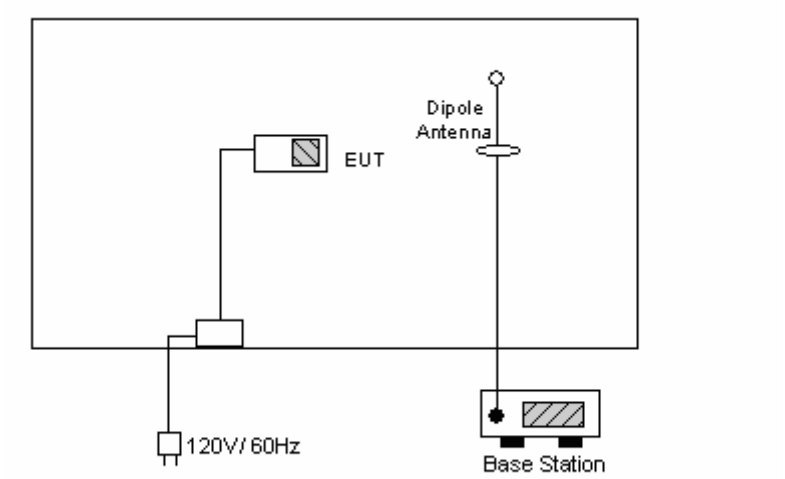
Application	Bluetooth
Radiated Emission, RF Conducted	Mode 1 : Tx_CH00_2402 MHz Mode 2 : Tx_CH39_2441 MHz Mode 3 : Tx_CH78_2480 MHz
Conducted Emission	Mode 1 : GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 1 + Adapter 1+ MPEG4 Mode 2 : GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + Adapter 1+ MPEG4 Mode 3 : GSM 850 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + USB Link + MPEG4 Mode 4 : GSM 850 Idle Mode + USB Link + BT Link + WLAN Link + Scanner 2 + Adapter 2 + MPEG4 + Cradle Mode 5 : PCS 1900 Idle Mode + Earphone + BT Link + WLAN Link + Scanner 2 + USB Link + MPEG4

2.3. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Power Cord / Cable
1.	Base Station	R&S	CMU200	N/A	N/A
2.	Notebook	DELL	D400	E2K24GBRL	1.2m
3.	Bluetooth Device	Engotech	ET-BD201	PQY471087	N/A
4.	WLAN AP	SMC	SMC-100	HEDWG4005ACC	1.8m
5.	RS-232 Mouse	State	MS-303	DoC	N/A

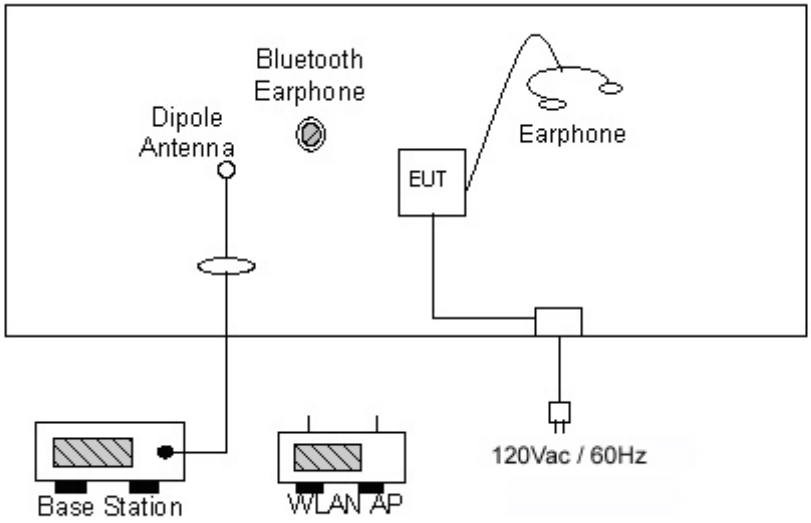
2.4. Connection Diagram of Test System

<Radiated Emission >

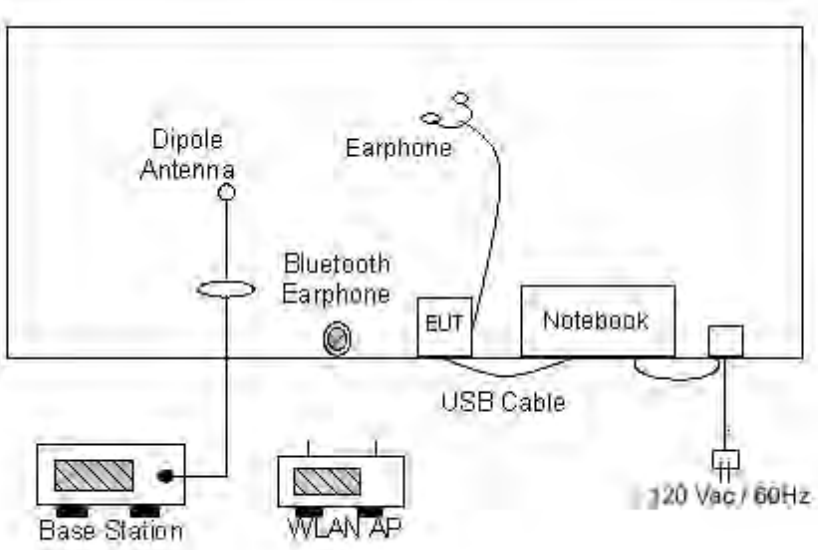


<Conducted Emission>

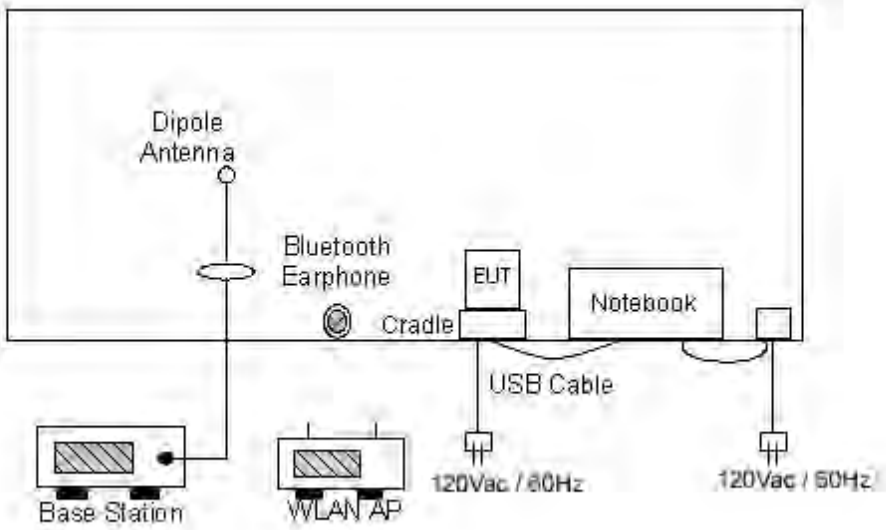
EUT + Earphone + Adapter



EUT + Adapter + USB Link



EUT + Adapter + USB Link + Cradle



3. RF Utility

The EUT is in BT Link mode with mobile phone for conducted emission or in BT continuous Tx Mode controlled by base station simulator for radiation emission.

4. General Information of Test

Test Site Location	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
Test Site No	:	CO01-HY, 03CH06-HY

4.1. Test Voltage

AC 120V / 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

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

4.5. Test Distance

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

5. Report of Measurements and Examinations

5.1. List of Measurements and Examinations

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

5.2. Hopping Channel Separation

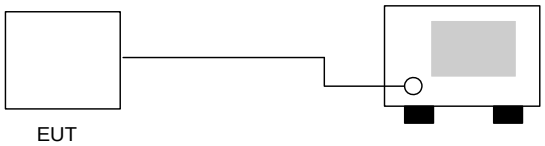
5.2.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.2.2. Test Procedure：

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

5.2.3. Test Setup Layout：



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

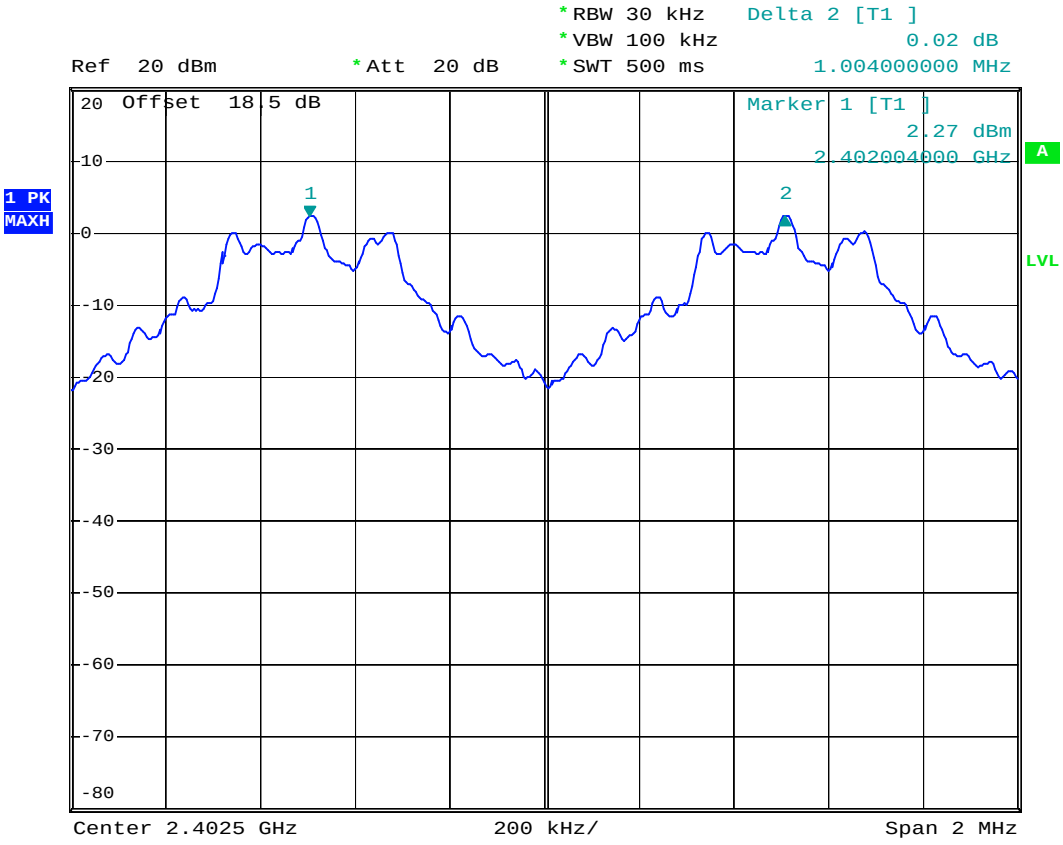
- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

Channel	Frequency (MHz)	Hopping Channel Separation (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	1.004	0.824	Mode 1
39	2441	1.004	0.826	Mode 2
78	2480	1.000	0.826	Mode 3

Note: Hopping Channel Separation shall be greater 2/3 of 20dB bandwidth. Refer the result of 20dB bandwidth to section 5.4.

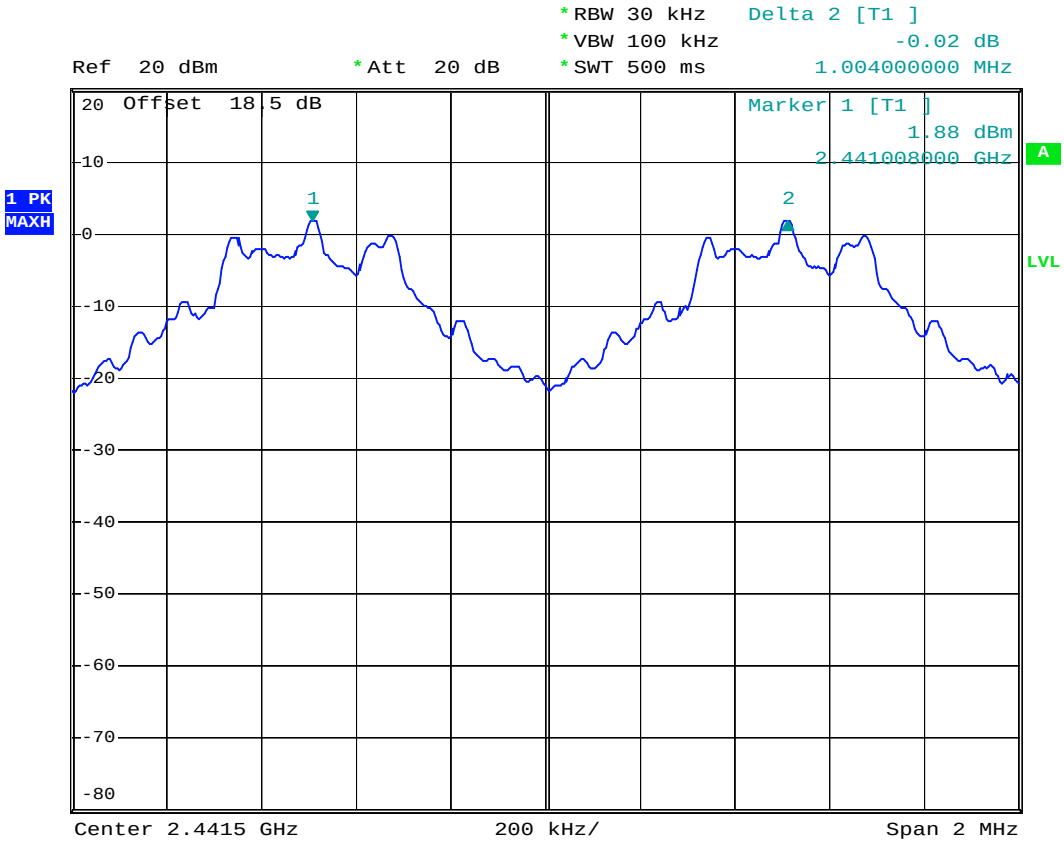
5.2.5 Hopping Channel Separation

Mode 1: CH00 (2402MHz)



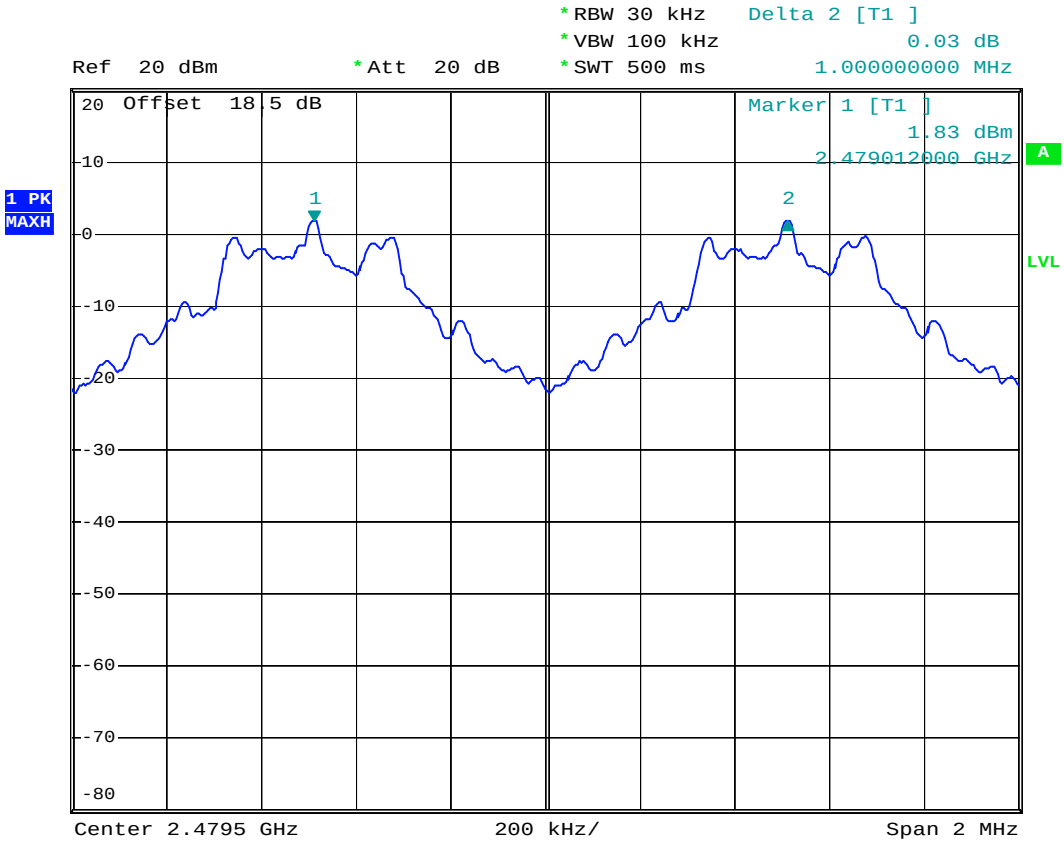
Date: 11.JUL.2007 22:09:40

Mode 2: CH39 (2441MHz)



Date: 11.JUL.2007 22:10:11

Mode 3: CH78 (2480MHz)



Date: 11.JUL.2007 22:10:49

5.3. Number of Hopping Frequency

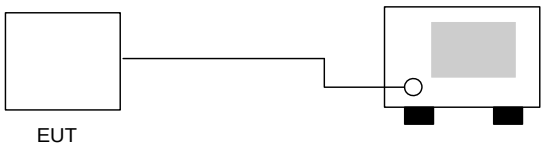
5.3.1. Measuring Instruments：

As described in chapter 6 of this test report.

5.3.2. Test Procedure：

1. The transmitter output was connected to the spectrum analyzer directly.
2. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
3. The number of hopping frequency used is defined as the device has the numbers of total channel.

5.3.3. Test Setup Layout：

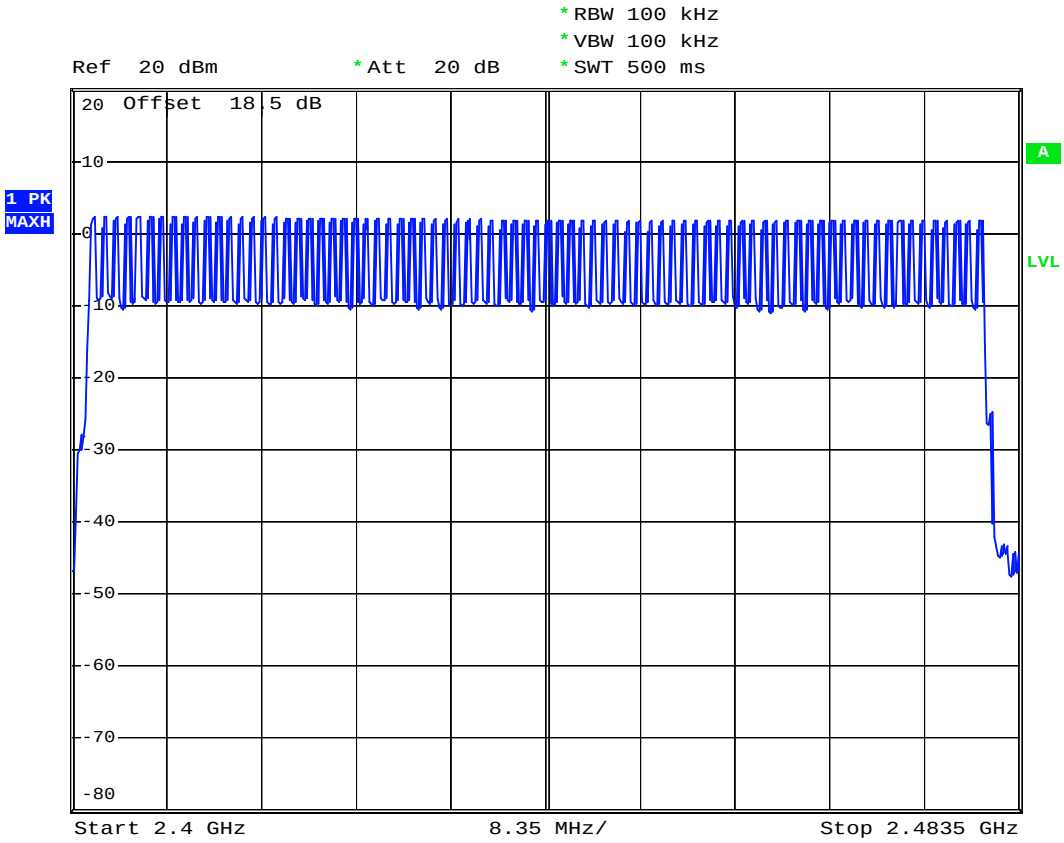


5.3.4. Test Result：See spectrum analyzer plots below

- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

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

5.3.5 Number of Hopping Frequency



Date: 11.JUL.2007 22:47:37

5.4 Hopping Channel Bandwidth

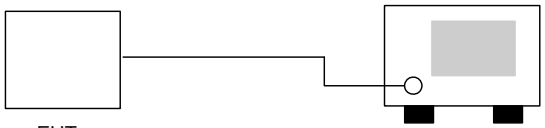
5.4.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.4.2 Test Procedure：

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

5.4.3 Test Setup Layout：



5.4.4 Test Result：See spectrum analyzer plots below

- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

Channel	Frequency (MHz)	Hopping Channel Bandwidth (MHz)	Limits (MHz)	Plot Ref. No.
00	2402	0.824	1.0	Mode 1
39	2441	0.826	1.0	Mode 2
78	2480	0.826	1.0	Mode 3

5.4.5 Hopping Channel Bandwidth

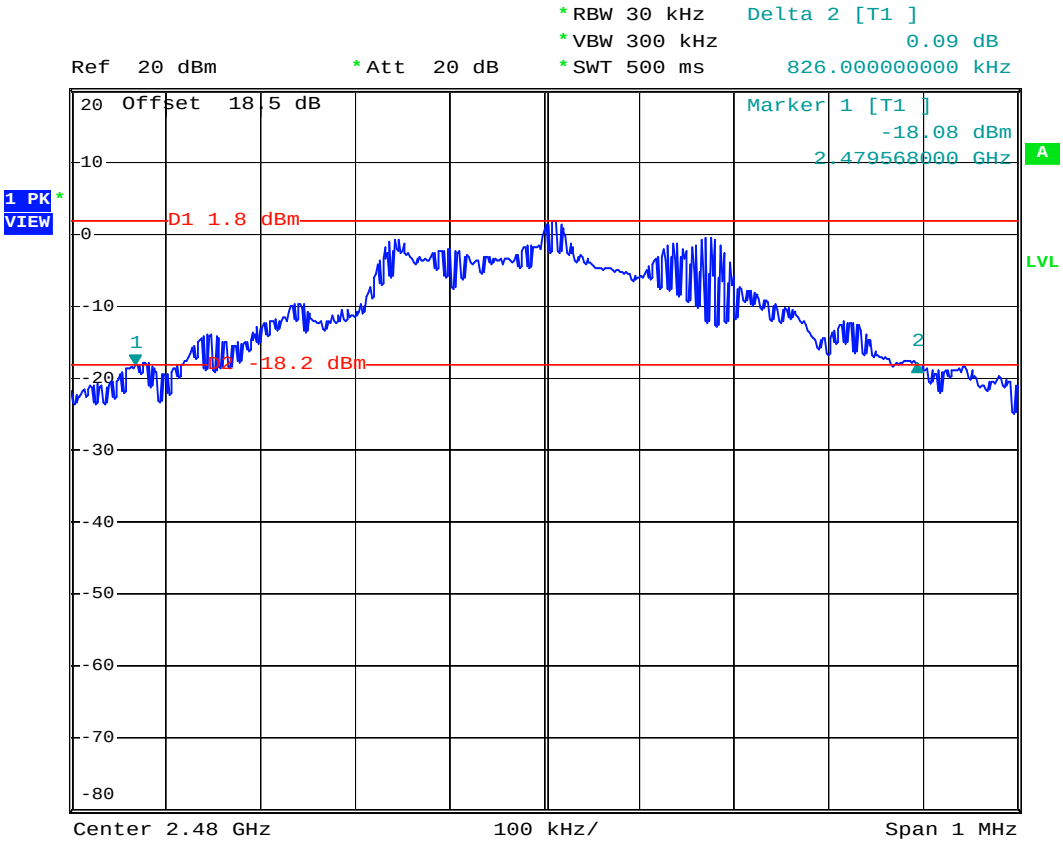
Mode 1: CH00 (2402MHz)

Date: 11.JUL.2007 22:01:13

Mode 2: CH39 (2441MHz)

Date: 11.JUL.2007 22:02:00

Mode 3: CH78 (2480MHz)



Date: 11.JUL.2007 22:03:22

5.5 Dwell Time of Each Frequency

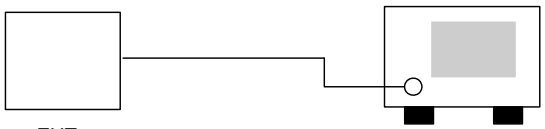
5.5.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.5.2 Test Procedure：

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

5.5.3 Test Setup Layout：



5.5.4 Test Result：See spectrum analyzer plots below

- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

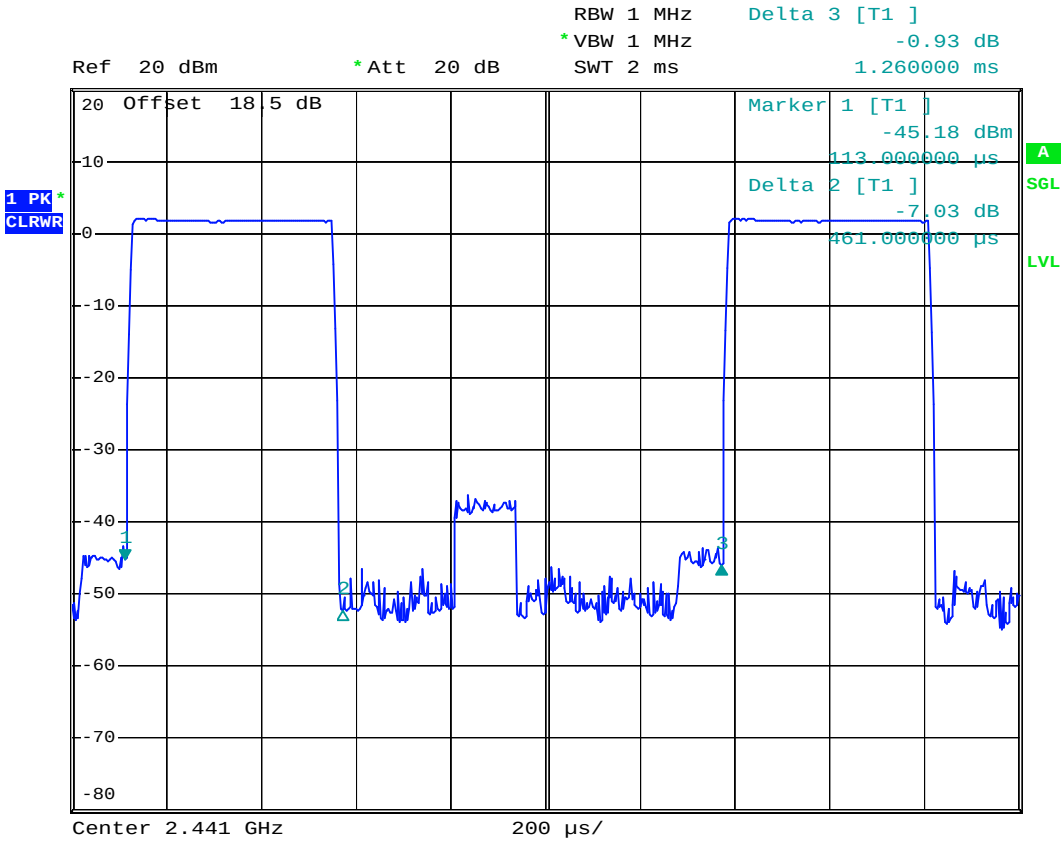
CH39

Package Mode	Average Hopping Channel	Package Transfer Time (us)	Dwell Time (s)	Limit (s)
DH1	9.5	461.00	0.138	0.4
DH3	5.4	1771.00	0.302	0.4
DH5	3.4	3011.00	0.324	0.4

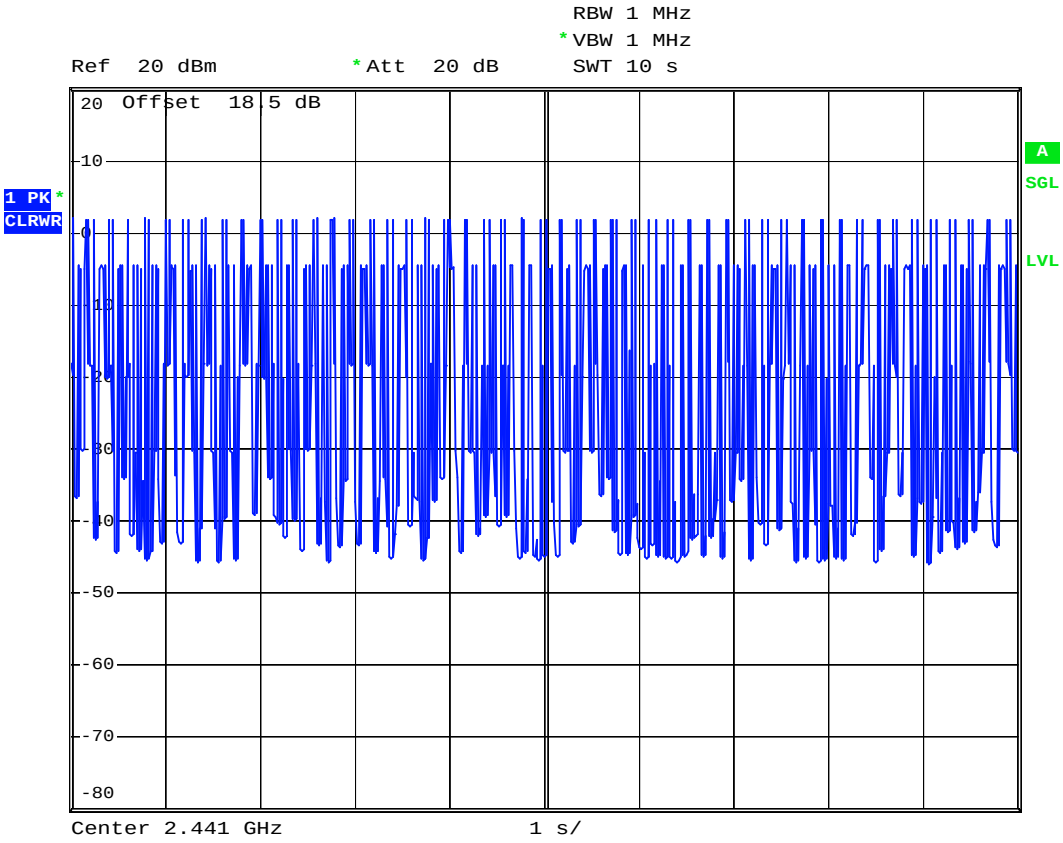
※ Remark:
1. Dwell Time=79(channels) x 0.4(s) x average hopping channel x package transfer time
2. 79channels come from the Hopping Channel number.
3. Average Hopping Channel = hops/sweep time
4. t: Package Transfer Time(us)

5.5.5 Dwell Time

DH1 (CH39)

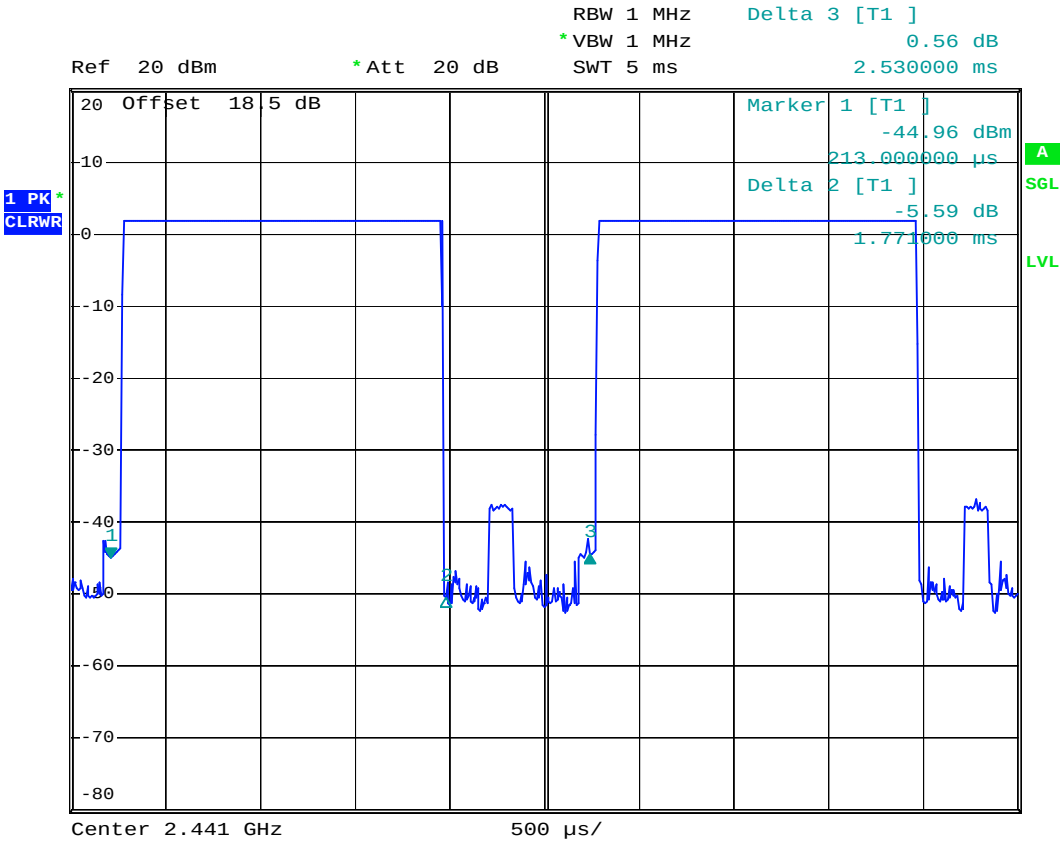


Date: 11.JUL.2007 22:12:24

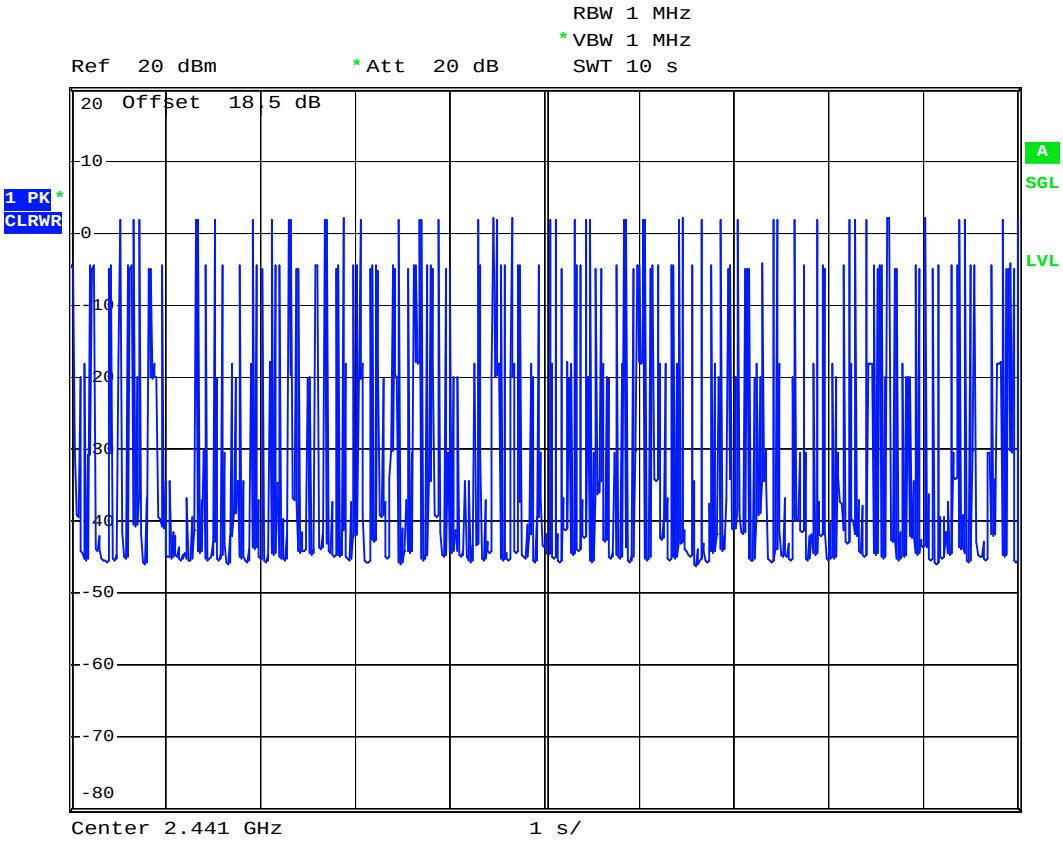


Date: 11.JUL.2007 22:15:03

DH3 (CH39)

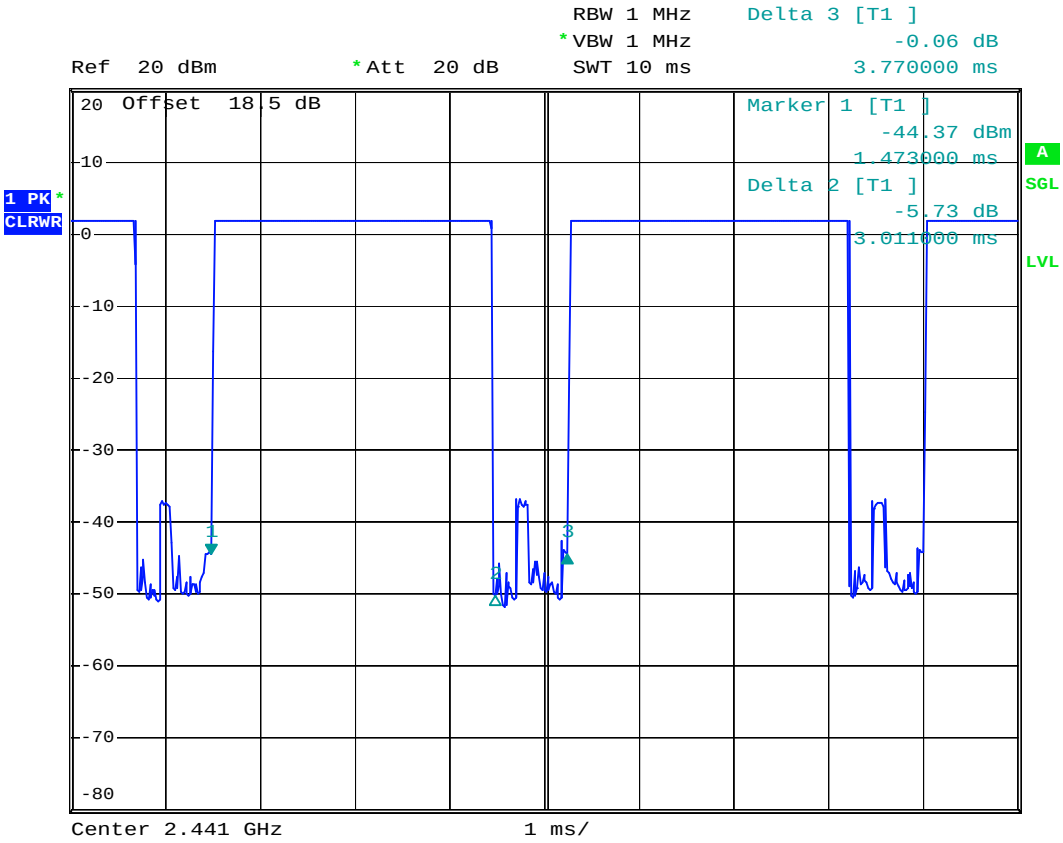


Date: 11.JUL.2007 22:13:34

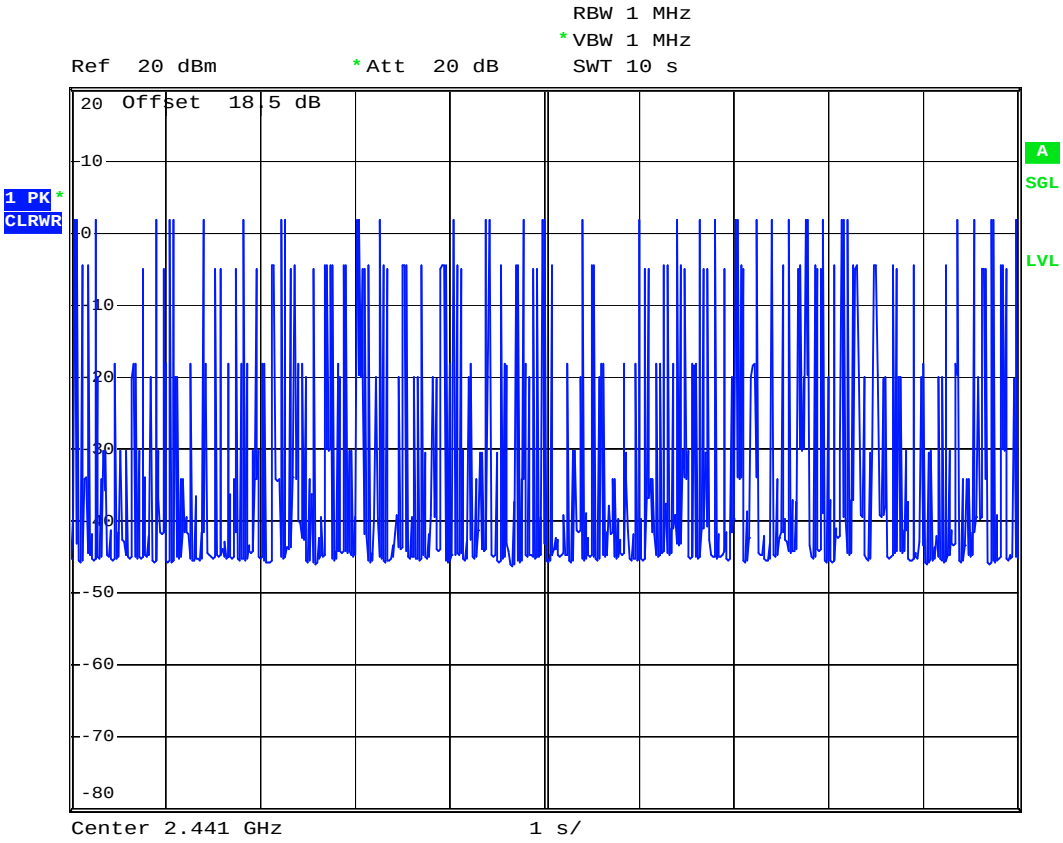


Date: 11.JUL.2007 22:24:49

DH5 (CH39)



Date: 11.JUL.2007 22:14:13



Date: 11.JUL.2007 22:25:13

5.6 Output Power

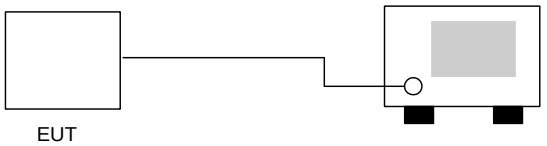
5.6.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.6.2 Test Procedure：

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

5.6.3 Test Setup Layout：



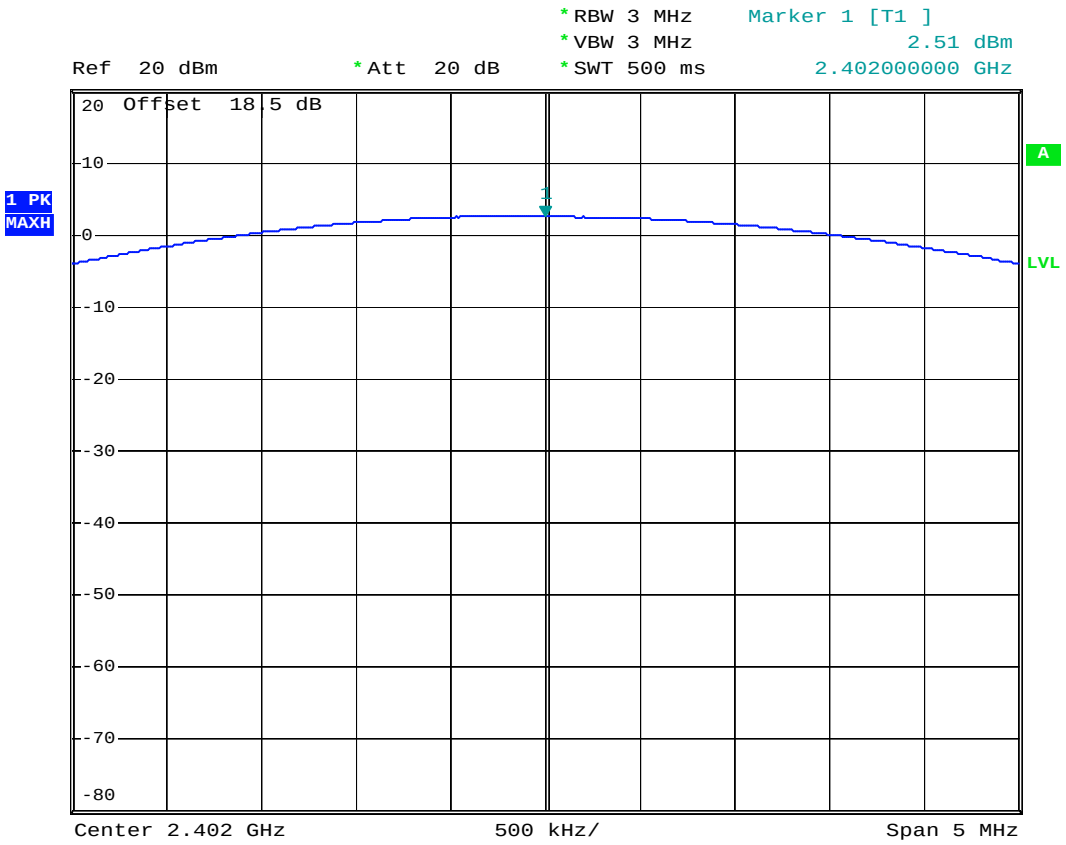
5.6.4 Test Result：See spectrum analyzer plots below

- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

Channel	Frequency (MHz)	Measured Output Power (dBm)	Limits (Watt/dBm)	Plot Ref. No.
00	2402	2.51	1W/30 dBm	Mode 1
39	2441	2.07	1W/30 dBm	Mode 2
78	2480	1.99	1W/30 dBm	Mode 3

5.6.5 Output Power

Mode 1: CH00 (2402MHz)



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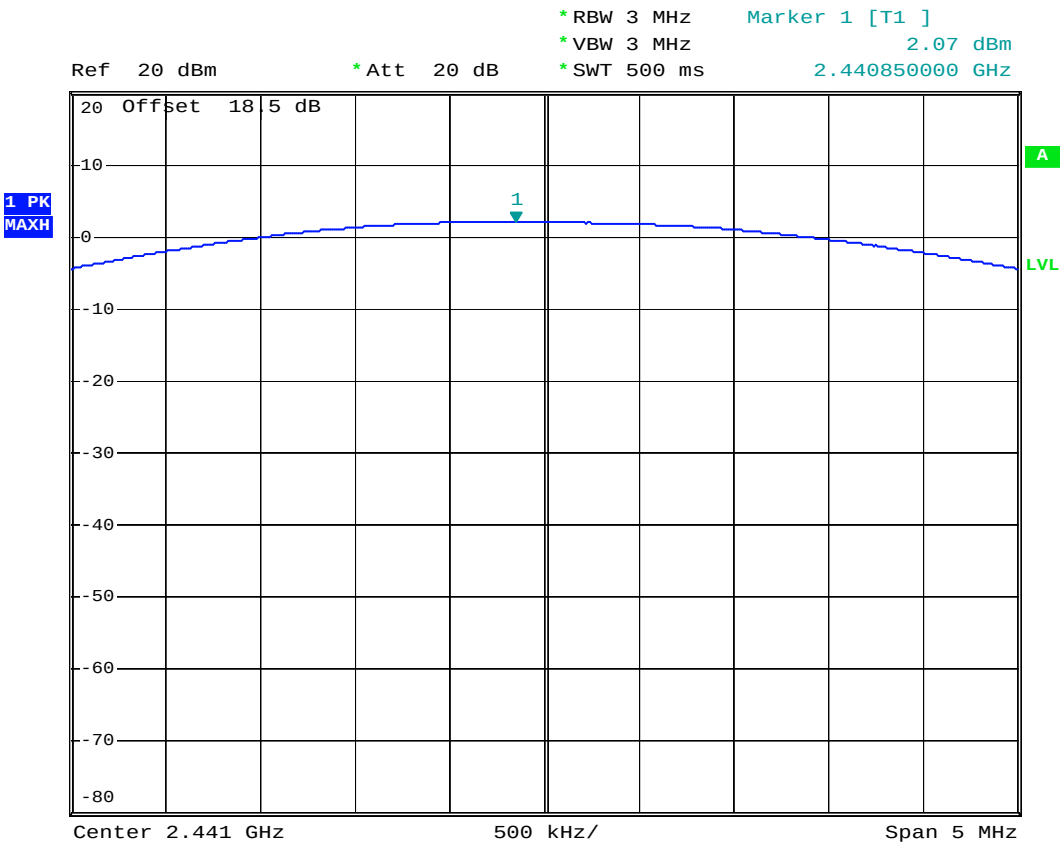
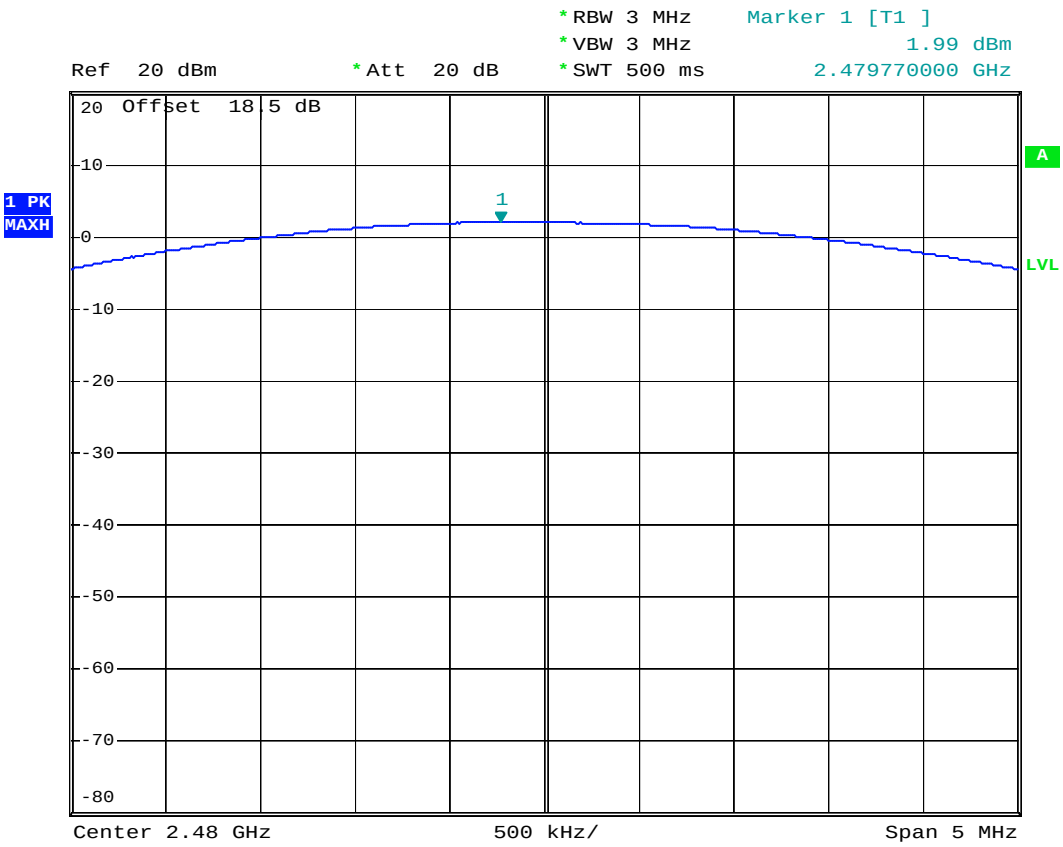
Mode 2: CH39 (2441MHz)



Date: 11.JUL.2007 22:00:05

Mode 3: CH78 (2480MHz)



Date: 11.JUL.2007 22:00:18

5.7 100kHz Bandwidth of Frequency Band Edges

5.7.1 Measuring Instruments：

As described in chapter 6 of this test report.

5.7.2 Test Procedure：

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

5.7.3 Test Result：

- Temperature: 24~25°C
- Relative Humidity: 51~53%
- Test Engineer : Louis

Test Result in lower band (Channel 00)： PASS

Test Result in higher band(Channel 78)： PASS

5.7.4 Note on Band Edge Emission

CH00 (Horizontal)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2341.92	48.24	-25.76	74.00	49.69	30.26	3.75	35.46	100	0	Peak
2341.92	37.89	-16.11	54.00	39.37	30.24	3.71	35.42	100	339	Average

CH00 (Vertical)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2387.36	49.24	-24.76	74.00	50.72	30.24	3.71	35.42	100	0	Peak
2387.36	38.88	-15.12	54.00	40.31	30.26	3.75	35.44	100	278	Average

CH78 (Horizontal)

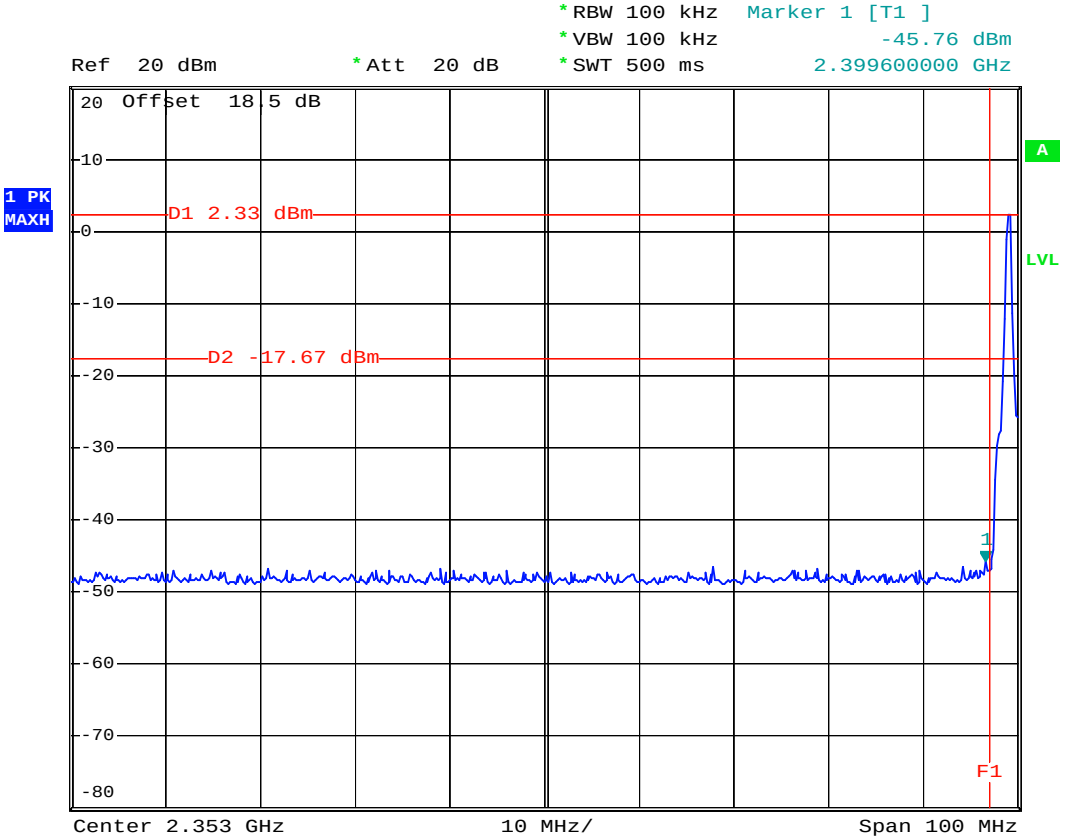
Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2483.50	58.21	-15.79	74.00	59.57	30.29	3.86	35.51	100	0	Peak
2483.50	51.06	-2.94	54.00	52.42	30.29	3.86	35.51	100	6	Average

CH78 (Vertical)

Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Detect
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB)	(cm)	(deg)	Mode
2483.50	60.06	-13.94	74.00	61.42	30.29	3.86	35.51	100	0	Peak
2483.50	50.68	-3.32	54.00	52.04	30.29	3.86	35.51	100	280	Average

5.7.5 Frequency Band Edge

CH00 (2402 MHz)



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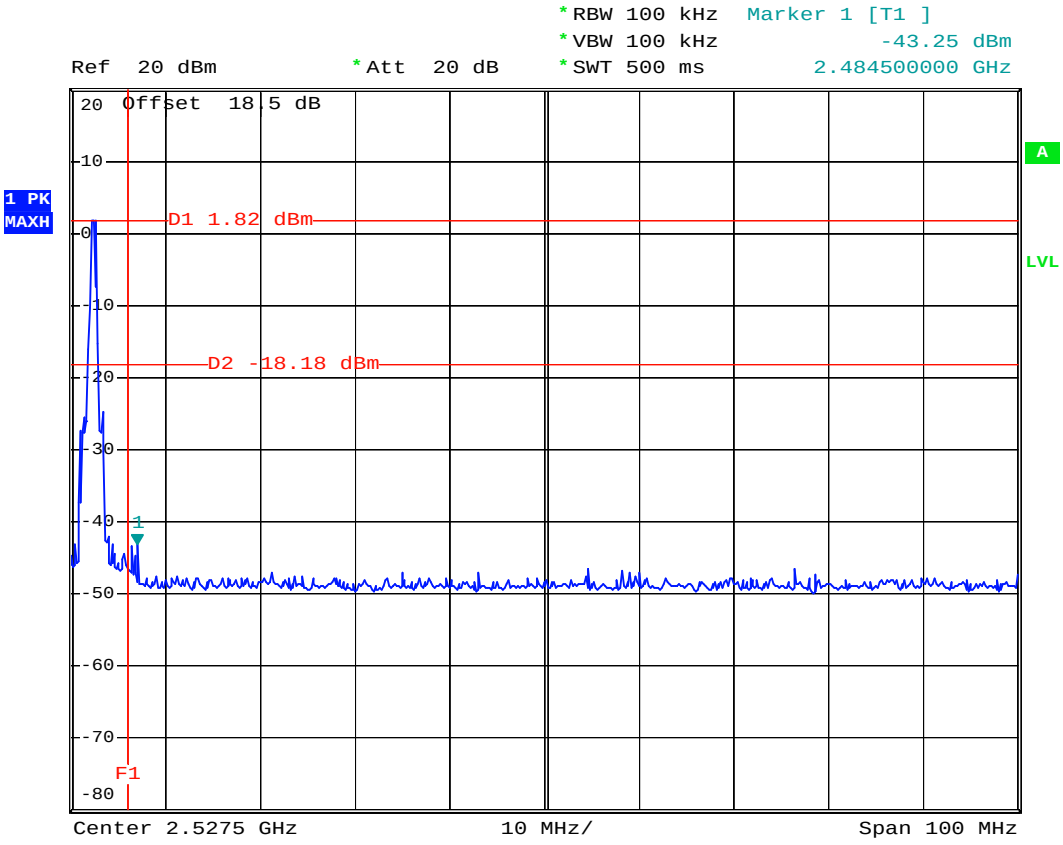
CH78 (2480 MHz)



Date: 11.JUL.2007 22:04:13