CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart C
and
Canada RSS-210

Report No.: 11-05-MAS-068-01

Client:	(1) Agilent Technologies Microwave Products (Malaysia) Sdn Bhd. (USA) (2) Agilent Technologies Canada Inc. (Canada)
Product:	IR-to-Bluetooth Adaptor
Model:	U1177A
FCC ID:	ZKMAGILENT-U1177A
IC ID:	6310A-U1177A
Manufacturer/supplier:	Agilent Technologies Microwave Products (Malaysia) Sdn Bhd.

Date test item received:	2011/05/10
Date test campaign completed:	2011/05/13
Date of issue:	2011/06/07

Total number of pages of this test report: 65 pages
Total number of pages of photos: External photos 1 pages
Internal photos 3 pages
Setup photos 2 pages

Test Engineer	Checked By	Approved By
John Li	James Cheng	Joe Hsieh

ELECTRONICS TESTING CENTER, TAIWAN
NO.8, LANE 29, WENMING RD.,
LESHAN TSUEN, GUISHAN SHIANG,
TAOYUAN COUNTY, TAIWAN 33383,
R.O.C.TAIWAN, R.O.C.

TEL: (03) 3276170~4
INT: +886-3-3276170~4
FAX: (03) 3276188
INT: +886-3-3276188

(1)

Client	: Agilent Technologies Microwave Products (Malaysia) Sdn Bhd.
Address	: Bayan Lepas Free Industrial Zone 11900 Penang, Malaysia

(2)

Client	: Agilent Technologies Canada Inc.
Address	: 6705, Millcreek Dr., Unit 5, Mississauga, Ontario, Canada, L5N 5M4
Manufacturer	: Agilent Technologies Microwave Products (Malaysia) Sdn Bhd.
Address	: Bayan Lepas Free Industrial Zone 11900 Penang, Malaysia
EUT	: IR-to-Bluetooth Adaptor
Trade name	: Agilent
Model No.	: U1177A
Power Source	: 3Vdc (Battery)
Regulations applied	: FCC 47 CFR, Part 15 Subpart C Canada RSS-210 Issue 8 / RSS-Gen Issue 3 / RSS-102 Issue 4

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

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⑤ FCC Registration Number: 90588, 91094, 91095
⑥ Industry Canada Site Regisitation number: IC 2949A

NVLAP Lab Code 200133-0

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : IR-to-Bluetooth Adaptor
b) Trade Name : Agilent
c) Model No. : U1177A
d) FCC ID : ZKMAGILENT-U1177A
e) IC ID : 6310A-U1177A

1.2 Characteristics of Device

The EUT is a IR-to-Bluetooth Adaptor based on the Bluetooth technology. Bluetooth is a short-range radio link intended to be a cable replacement between portable or fixed electronic devices. Bluetooth operates in the unlicensed ISM Band at 2.4GHz. In this band, 79 RF channels spaced 1MHz apart are defined. The rated output power is 5.59 dBm (3.622 mW).

1.3 Test Methodology

All testing were performed according to the procedures in ANSI C63.4 (2009) and FCC CFR 47 Part 2 and Part 15 and DA 00-705.

1.4 Modifiction List of EUT

N/A

1.5 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.
This site has been accreditation as a FCC filing site.

1.6 Test Summary

Requirement	FCC Paragraph #	IC Paragraph #	Test Pass
Radiated Emission	15.247 (c)	RSS-210_2.2	☒
Conducted Emission	15.207	RSS-Gen_7.2.4	N/A
Antenna Requirement	15.203	RSS-210_A8.4(2)	☒
20dB Emission Bandwidth	15.247 (a)(1)	RSS-210_A8.1(b)	☒
Output Power	15.247 (b)(1)	RSS-210_A8.4(2)	☒
OUT-OF-BAND RF Conducted Spurious Emission	15.247 (c)	RSS-210_A8.5	☒
Number of Hopping Channels	15.247 (b)(1)	RSS-210_A8.4(2)	☒
Hopping Channel Carrier Frequency Seperated	15.247 (a)(1)	RSS-210_A8.1(b)	☒
Dwell Time	15.247 (a)(1)(iii)	RSS-210_A8.1(d)	☒
Maximum Permissible Exposure	15.247 (b)(5)	RSS-102_4	☒

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For intentional device, according to RSS-Gen 7.2.4 Line Conducted Emission Limits is as following:

Frequency MHz	Quasi Peak dB μV	Average dB μV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

*Decreases with the logarithm of the frequency.

(2) Radiated Emission Requirement

For intentional device, according to RSS-210 2.2, category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted frequency bands are listed in RSS-Gen.

(3) Antenna Requirement

For intentional device, according to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

(4) 20dB Bandwidth Requirement

For frequency hopping systems, according to RSS-210 A8.1(b), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the -20dB bandwidth of the hopping channel, whichever is greater. Althernatively, frequency hopping systems operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the -20dB bandwidth of the hopping channel, whichever is greater, provided that the systems operate with an output power no greater than 0.125 W. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(5) Output Power Requirement

For frequency hopping systems, according to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

(6) 100 kHz Bandwidth of Frequency Band Edges Requirement

According to RSS-210 A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

(7) Number of Hopping Channels

According to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

(8) Hopping Channel Carrier Frequencies Seperation

According to RSS-210 A8.1(b), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the -20dB bandwidth of the hopping channel, whichever is greater. Althernatively, frequency hopping systems operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the -20dB bandwidth of the hopping channel, whichever is greater, provided that the systems operate with an output power no greater than 0.125 W. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

(9) Dwell Time

According to RSS-210 A8.1(d), frequency hopping systems operating in the 2400-2483.5MHz shall use at least 15 hopping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds, multiplied by the number of hopping channels employed. Transmissions on particular hopping frequencies may be avoided or suppressed provided that a minimum of 15 hopping channels are used.

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	12.57675-12.57725	960-1427	9.0-9.2
2.1735 - 2.1905	13.36-13.41	1435-1626.5	9.3-9.5
3.020 - 3.026	16.42-16.423	1645.5-1646.5	10.6-12.7
4.125 – 4.128	16.69475-16.69525	1660-1710	13.25-13.4
4.17725 - 4.17775	16.80425-16.80475	1718.8-1722.2	14.47-14.5
4.20725 - 4.20775	25.5-25.67	2200-2300	15.35-16.2
5.677 - 5.683	37.5-38.25	2310-2390	17.7-21.4
6.215 - 6.218	73-74.6	2655-2900	22.01-23.12
6.26775 - 6.26825	74.8-75.2	3260-3267	23.6-24.0
6.31175 - 6.31225	108-138	3332-3339	31.2-31.8
8.291 - 8.294	156.52475-156.52525	3345.8-3358	36.43-36.5
8.362 - 8.366	156.7-156.9	3500-4400	Above 38.6
8.37625 - 8.38675	240-285	4500-5150	
8.41425 - 8.41475	322-335.4	5350-5460	
12.29 - 12.293	399.9-410	7250-7750	
12.51975 - 12.52025	608-614	8025-8500	

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For the purposes of this test report ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT during the test. Notebook PC was used to control the RF channel under the hightest, middle and lowest frequency and transmit the maximun RF power. Customer would not use it. But never the less ancillary equipment can influence the test results..

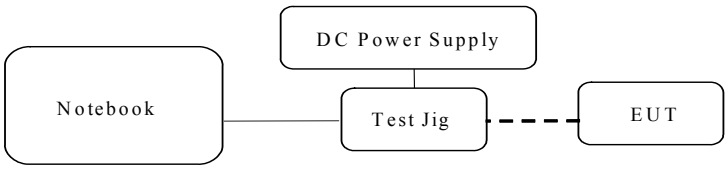
3.2 Devices for Tested System

3.2.1

Device	Manufacture	Model	Cable Description
* IR-to-Bluetooth Adaptor	Agilent Technologies Microwave Products (Malaysia) Sdn Bhd	U1177A	----
Notebook	HP	nx6320	2.5m*1, Unshielded Power Line/Adapter 1.0m*1 Unshielded Signal Line(Printer cable)
Test Jig	N/A	N/A	1.2m*1, Unshielded Power Line 0.02m*1 Unshielded Signal Line
DC Power Supply	GW	GPC3030D	1.7m*1, Unshielded Power Line

Remark

1. "*" means equipment under test.



Note: A HP notebook performs the control test mode. The notebook removes away after the control command is ready.

2.

Software:	Bluetest3.exe.
Power Setting:	Power (Ext， Int) = (0，63) for GFSK Power (Ext， Int) = (0，105) for 8DPSK and π/4-DQPSK

3.2.2 Test Mode Description

3.2.2.1 Modulation Type

Test Mode	Modulation
A	GFSK
B	π/4-DQPSK
C	8-DPSK

Test Channel	Frequency (MHz)
Channel Low (L)	2402
Channel Mid (M)	2441
Channel High (H)	2480

3.2.2.2 Test Mode and Worse Case Determination

Item	Test Item	Test Mode	Test Frequency (MHz)
1.	Output Power	A	L, M, H
		B	L, M, H
		C	L, M, H
	Worse Case	Mode A (note 1)	
2.	20dB Emission Bandwidth	A	L, M, H
3.	Conducted Emission	-	-
4.	Out of Band Conducted Emission	A	L, M, H
5.1	Number of Channel	A	2402~2480 (note 2)
5.2	Channel Seperation	A	M (note 2)
5.3	Dwell Time	A	L, M, H
6.1	Radiated Emission (below 1GHz)	A	M (Worse Case)
6.2	Radiated Emission (above 1GHz)	A	L, M, H

note:

1. The worse case is determined as the modulation with highest output power.
2. Pretest result is no difference in three test modes by channl low, middle and high. Choose mode A, channel middle for final testing and record the result.

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For intentional device, according to RSS-210 2.2, category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted frequency bands are listed in RSS-Gen.

4.2 Measurement Procedure

A.Preliminary Measurement For Portable Devices.

For portable devices, the following procedure was performed to determine the maximum emission axis of EUT (X 、Y and Z axis):

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antennna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. The axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.
4. The position in which the maximum noise occurred was “Z axis”. (Please see the test setup photos)

B. Final Measurement

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, it is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions. For emission frequencies measured above 1 GHz, a pre-scan be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
   Note : A filter was used to avoid pre-amplifier saturated when measure TX operation mode.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the datarate, placement of ANT. cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

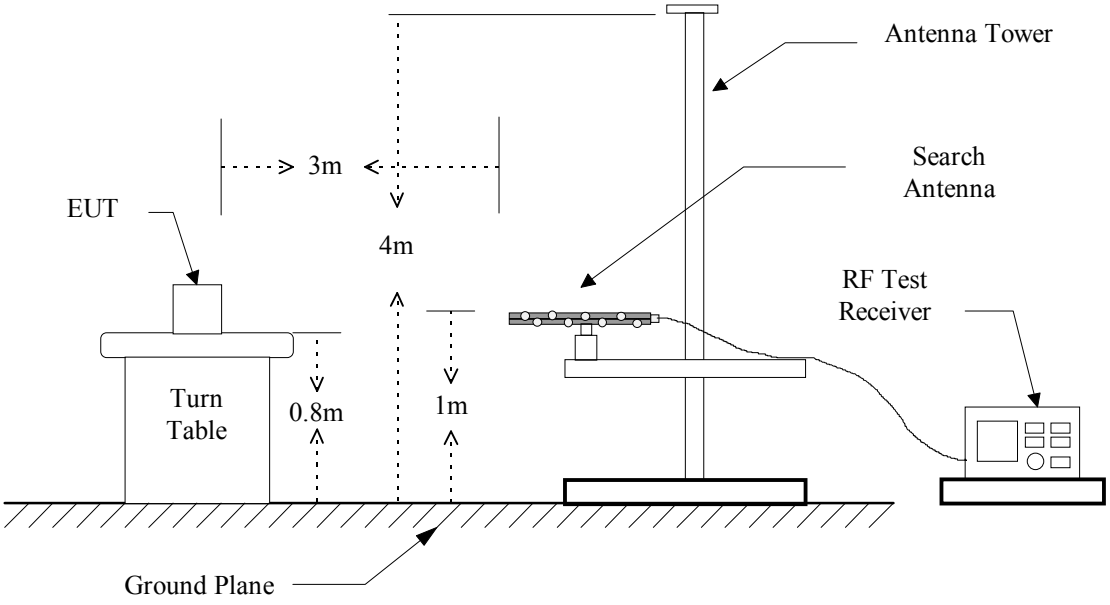
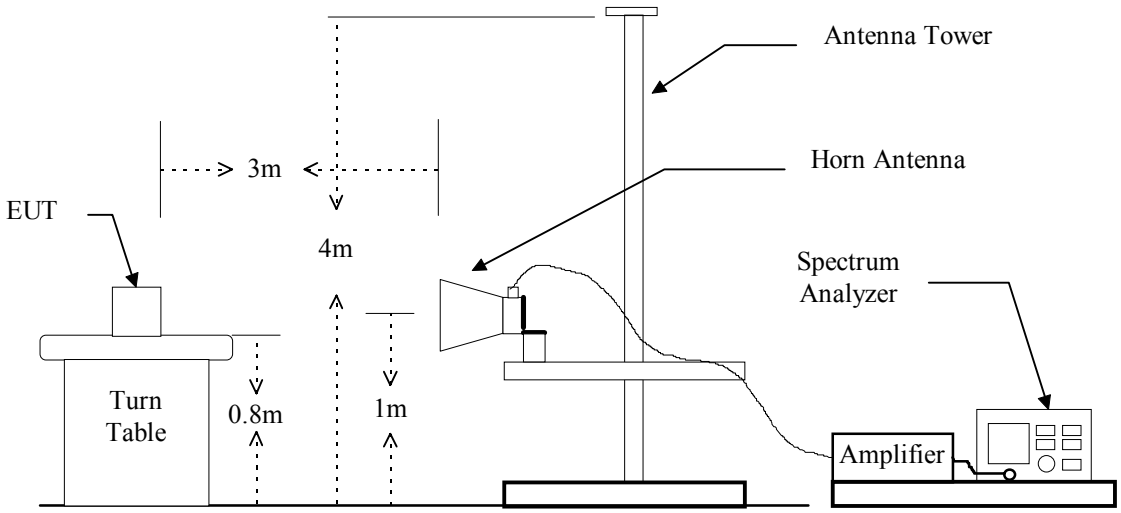


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	R&S	ESIB7	07/19/2011
Spectrum Analyzer	Rohde & Schwarz	FSU46	11/25/2011
Horn Antenna	EMCO	3115	07/18/2011
BiLog Antenna	Schaffner	CBL 6112B	08/22/2011
Horn Antenna	EMCO	3116	07/16/2011
Preamplifier	Hewlett-Packard	8449B	10/25/2011

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
	RF Test Receiver	Peak	120 kHz	300 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

4.4 Radiated Emission Data

4.4.1 RF Portion

a) Channel 0

Operation Mode : Tx
Fundamental Frequency : 2402 MHz
Test Date : May. 12, 2011 Temperature : 26℃ Humidity : 56%

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
4804.000	66.0	41.2	70.8	42.7	-2.53	68.3	40.2	74.0	54.0
7206.000	---	---	---	---	0.35	---	---	74.0	54.0
9608.000	---	---	---	---	2.26	---	---	74.0	54.0

b) Channel 39

Fundamental Frequency : 2441 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
4882.000	58.3	36.6	68.9	41.8	-2.36	66.5	39.4	74.0	54.0
7323.000	---	---	---	---	0.61	---	---	74.0	54.0
9764.000	---	---	---	---	2.36	---	---	74.0	54.0

c) Channel 78

Fundamental Frequency : 2480 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
4960.000	63.4	41.8	60.0	39.2	-2.19	61.2	39.6	74.0	54.0
7440.000	---	---	---	---	0.87	---	---	74.0	54.0
9920.000	---	---	---	---	2.45	---	---	74.0	54.0
14880.000	---	---	---	---	7.15	---	---	74.0	54.0
17360.000	---	---	---	---	9.45	---	---	74.0	54.0

Note :

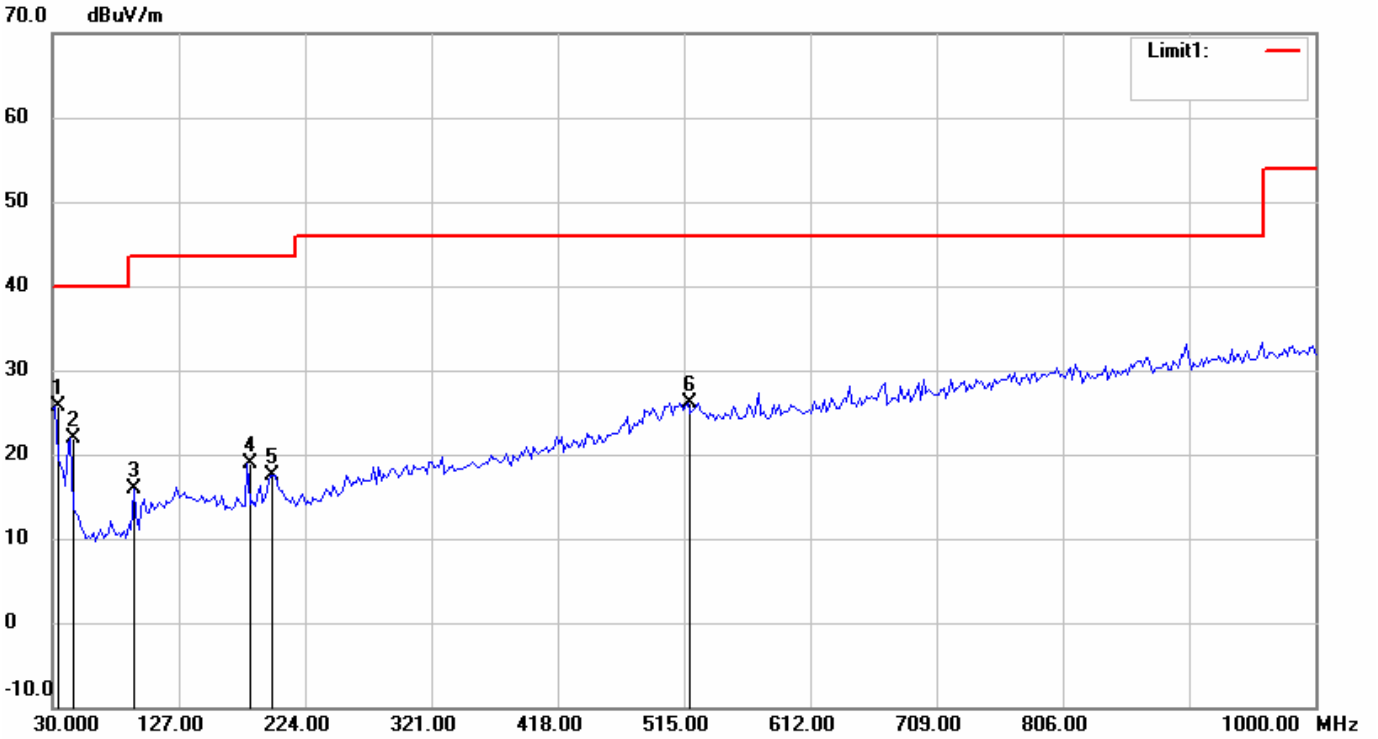
1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.
4. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

4.4.2 Other Emission

4.4.2.1 Operation Mode : Tx & Rx

4.4.2.1.1 below 1GHz

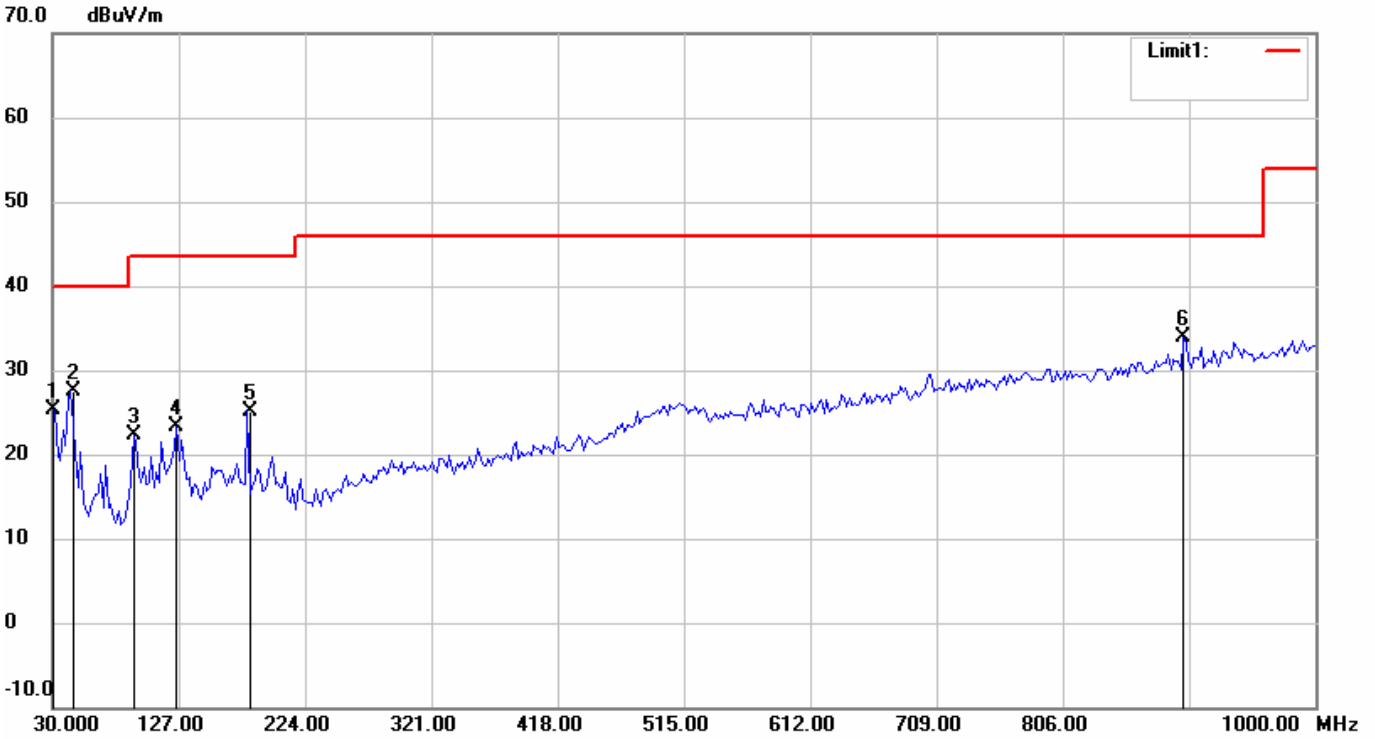
File: 1177-0518 **Data:** #312 **Date:** 2011/5/12 **Time:** PM 12:04:38 **Temperature:** 26 ℃ **Humidity:** 56 %



Condition: FCC Part15 RE-Class B **Polarization:** Horizontal
EUT: EUTZ **Distance:** 3m
Model: U1177A
Test Mode: GFSK

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	31.9440	6.78	peak	18.90	25.68	40.00	-14.32
2	43.6072	9.24	peak	12.66	21.90	40.00	-18.10
3	92.2044	6.27	peak	9.55	15.82	43.50	-27.68
4	179.6794	6.82	peak	12.12	18.94	43.50	-24.56
5	199.1182	1.87	peak	15.64	17.51	43.50	-25.99
6	517.9158	2.27	peak	23.88	26.15	46.00	-19.85

File: **U1177A-0518** **Data:** **#310** **Date:** **2011/5/12** **Temperature:** **26 ℃**
Time: **PM 12:01:50** **Humidity:** **56 %**



Condition: **FCC Part15 RE-Class B** **Polarization:** **Vertical**
EUT: **EUTZ** **Distance:** **3m**
Model: **U1177A**
Test Mode: **GFSK**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	30.0000	5.29	peak	19.97	25.26	40.00	-14.74
2	43.6072	14.84	peak	12.66	27.50	40.00	-12.50
3	92.2044	12.80	peak	9.55	22.35	43.50	-21.15
4	125.2505	9.76	peak	13.52	23.28	43.50	-20.22
5	179.6794	13.06	peak	12.12	25.18	43.50	-18.32
6	898.9178	4.97	peak	28.84	33.81	46.00	-12.19

4.4.2.1.2 above 1GHz

4.4.2.1.2.1 Fundamental Frequency : 2402 MHz

Frequency	Ant Pol	Reading (dBuV) @3m			Factor	Result (dBuV) @3m			Limit (dBuV/m) @3m		
(MHz)	H/V	Peak	QP	AVG	(dB/m)	Peak	QP	AVG	Peak	QP	AVG
1601.2821	H	66.4	----	57.3	-11.60	54.8	----	45.7	74.0	----	54.0
1601.2821	V	66.7	----	55.6	-11.60	55.1	----	44.0	74.0	----	54.0

4.4.2.1.2.2 Fundamental Frequency : 2441 MHz

Frequency	Ant Pol	Reading (dBuV) @3m			Factor	Result (dBuV) @3m			Limit (dBuV/m) @3m		
(MHz)	H/V	Peak	QP	AVG	(dB/m)	Peak	QP	AVG	Peak	QP	AVG
1628.2050	H	70.5	----	62.1	-11.46	59.0	----	50.6	74.0	----	54.0
1628.2050	V	62.2	----	51.9	-11.46	50.7	----	40.4	74.0	----	54.0

4.4.2.1.2.3 Fundamental Frequency : 2480 MHz

Frequency	Ant Pol	Reading (dBuV) @3m			Factor	Result (dBuV) @3m			Limit (dBuV/m) @3m		
(MHz)	H/V	Peak	QP	AVG	(dB/m)	Peak	QP	AVG	Peak	QP	AVG
1655.1282	H	60.7	----	52.5	-11.33	49.4	----	41.2	74.0	----	54.0
1655.1282	V	58.0	----	50.2	-11.33	46.7	----	38.9	74.0	----	54.0

Note:
1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

4 Remark “---” means that the emissions level is too low to be measured.

4.4.3 Radiated Measurement at Bandedge with Fundamental Frequencies

(A)

Channel 0

Operation Mode : Transmitting

Fundamental Frequency : 2402 MHz

Test Date : May. 12, 2011 Temperature : 26℃ Humidity : 56%

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
2390.000	26.7	14.2	27.1	14.7	29.8	56.9	44.5	74.0	54.0

Note:

1. The result is the highest value of radiated emission from restrict band of 2310 ~2390 MHz.
2. Remark "---" means that the emissions level is too low to be measured.

(B)

Channel 78

Operation Mode : Transmitting

Fundamental Frequency : 2480 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
2483.500	26.7	15.5	29.9	17.7	29.8	59.7	47.5	74.0	54.0

Note:

1. The result is the highest value of radiated emission from restrict band of 2483.5 ~2500 MHz.
2. Remark "---" means that the emissions level is too low to be measured.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

5 CONDUCTED EMISSION MEASUREMENT

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to RSS-Gen 7.2.4, measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

6 ANTENNA REQUIREMENT

6.1 Standard Applicable

For intentional device, according to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

6.2 Antenna Construction and Directional Gain

The antennas is a Bluetooth chip antenna.

Antenna Type	Meander Line PCB
Peak Antenna Gain	0 dBi

The directional gain of antenna doesn't greater than 6 dBi, the power won't be reduced.

7 20dB EMISSION BANDWIDTH MEASUREMENT

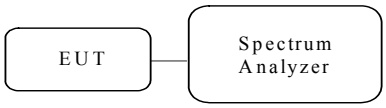
7.1 Standard Applicable

For frequency hopping systems, according to RSS-210 A8.1(b), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the -20dB bandwidth of the hopping channel, whichever is greater. Althernatively, frequency hopping systems operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the -20dB bandwidth of the hopping channel, whichever is greater, provided that the systems operate with an output power no greater than 0.125 W. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3. Turn on the EUT and connect it to measurement instrument. Then set it to any convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Figure 3: Emission bandwidth measurement configuration.



7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

7.4 Measurement Data

Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

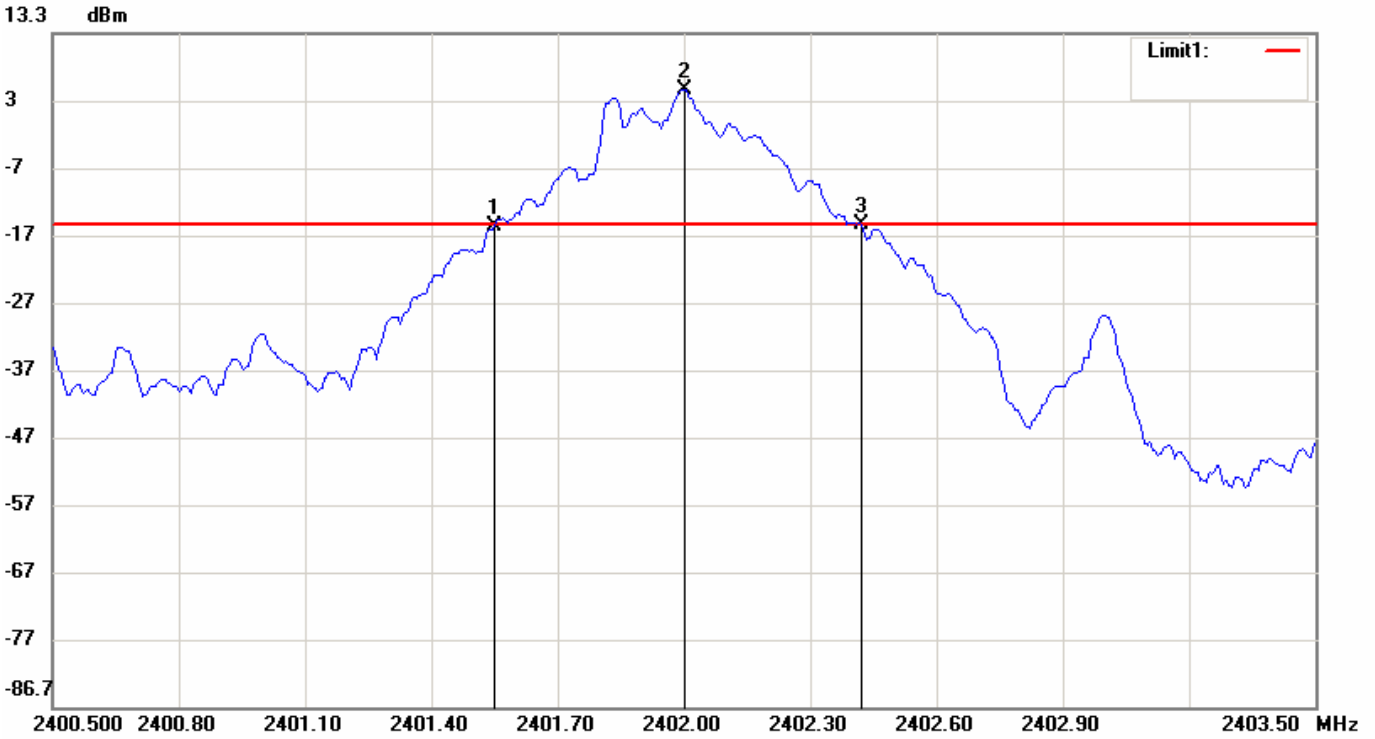
7.4.1 Operation Mode: GFSK

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Chart
0	2402	0.870	Page 24
39	2441	0.875	Page 25
78	2480	0.850	Page 26

Note: 1. Please refer to page 24 to page 26 for chart.

2. 99% Bandwidth Please refer to page 27 to page 29 for chart.

File: U1177A-FCC **Data: #15** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:15:02 **Humidity: 54 %**

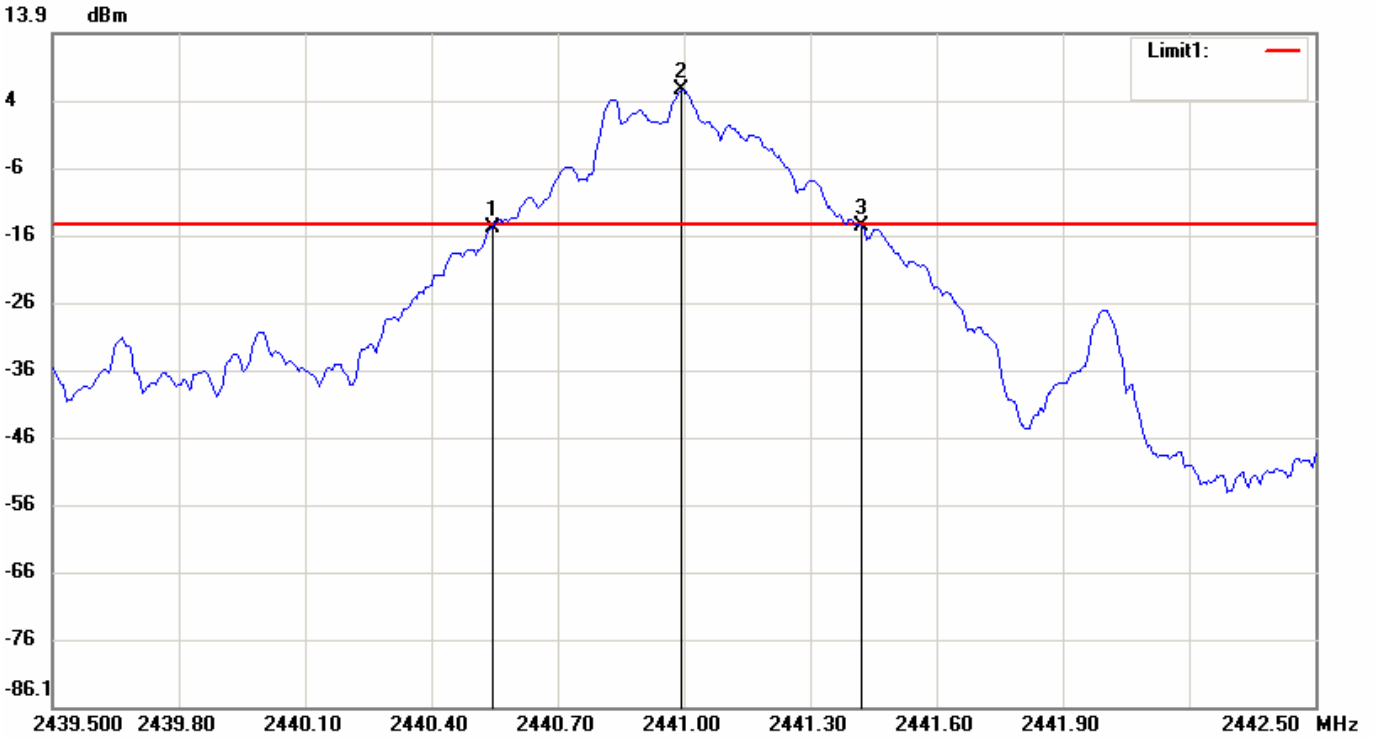


Condition: **-15dBm** **Horizontal**
EUT: **Sweep Time: 3.2ms** **Att.: 20dB**
Model: **U1177A** **RBW: 30 KHz** **VBW: 100 KHz**
Test Mode:
Note: **FCC-Bluetooth Channel 00-20dB EBW**

No.	Frequency(MHz)	Level(dBm)
1	2401.55000	-15.40
2	2402.00000	5.00
3	2402.42000	-15.06

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.87	0.34

File: U1177A-FCC **Data: #21** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:21:18 **Humidity: 54 %**

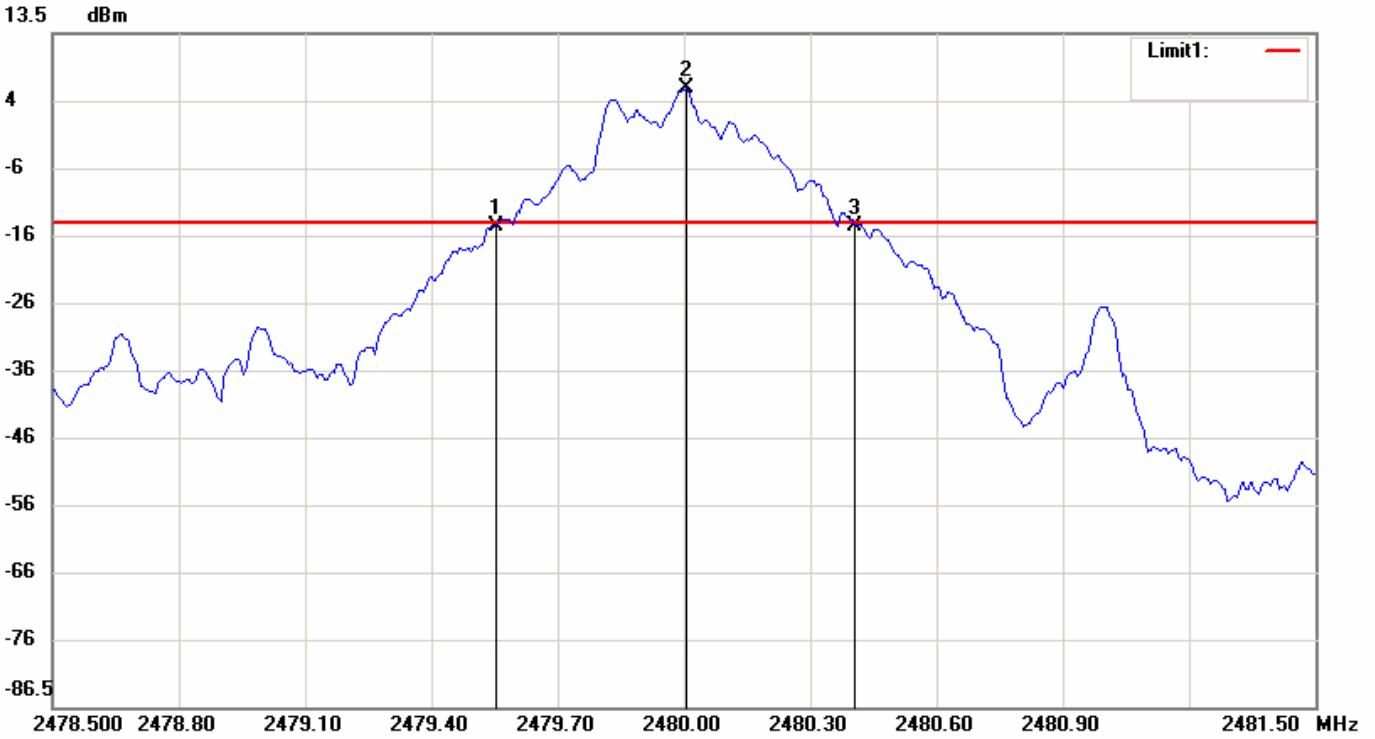


Condition: **-14.41dBm** **Horizontal**
EUT: **Sweep Time: 3.2ms** **Att.: 20dB**
Model: **U1177A** **RBW: 30 KHz** **VBW: 100 KHz**
Test Mode:
Note: **FCC-Bluetooth Channel 39-20dB EBW**

No.	Frequency(MHz)	Level(dBm)
1	2440.54500	-15.05
2	2440.99500	5.59
3	2441.42000	-14.66

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.875	0.39

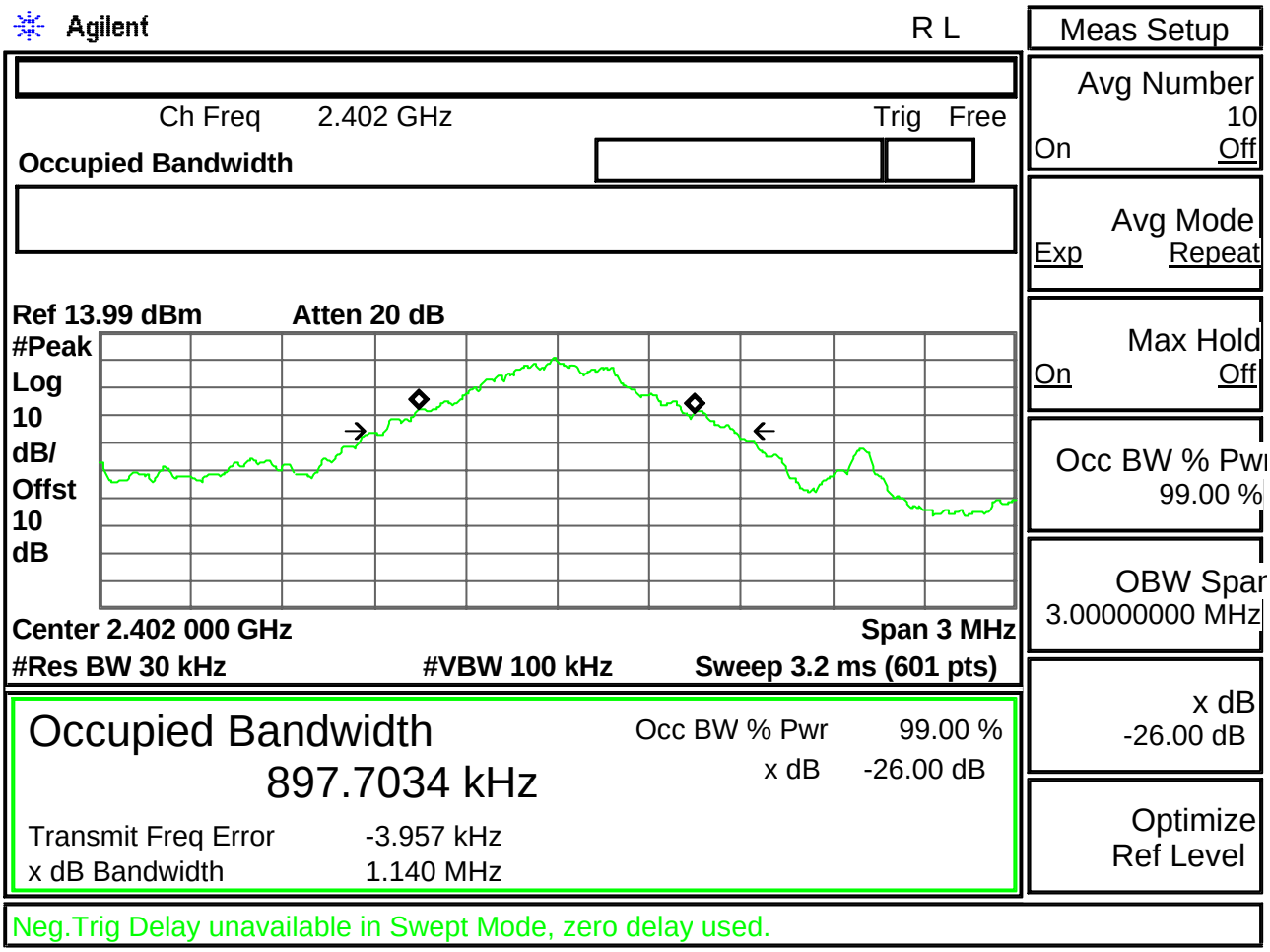
File: U1177A-FCC Data: #18 Date: 2011/5/13 Temperature: 24 ℃
Time: PM 03:18:37 Humidity: 54 %

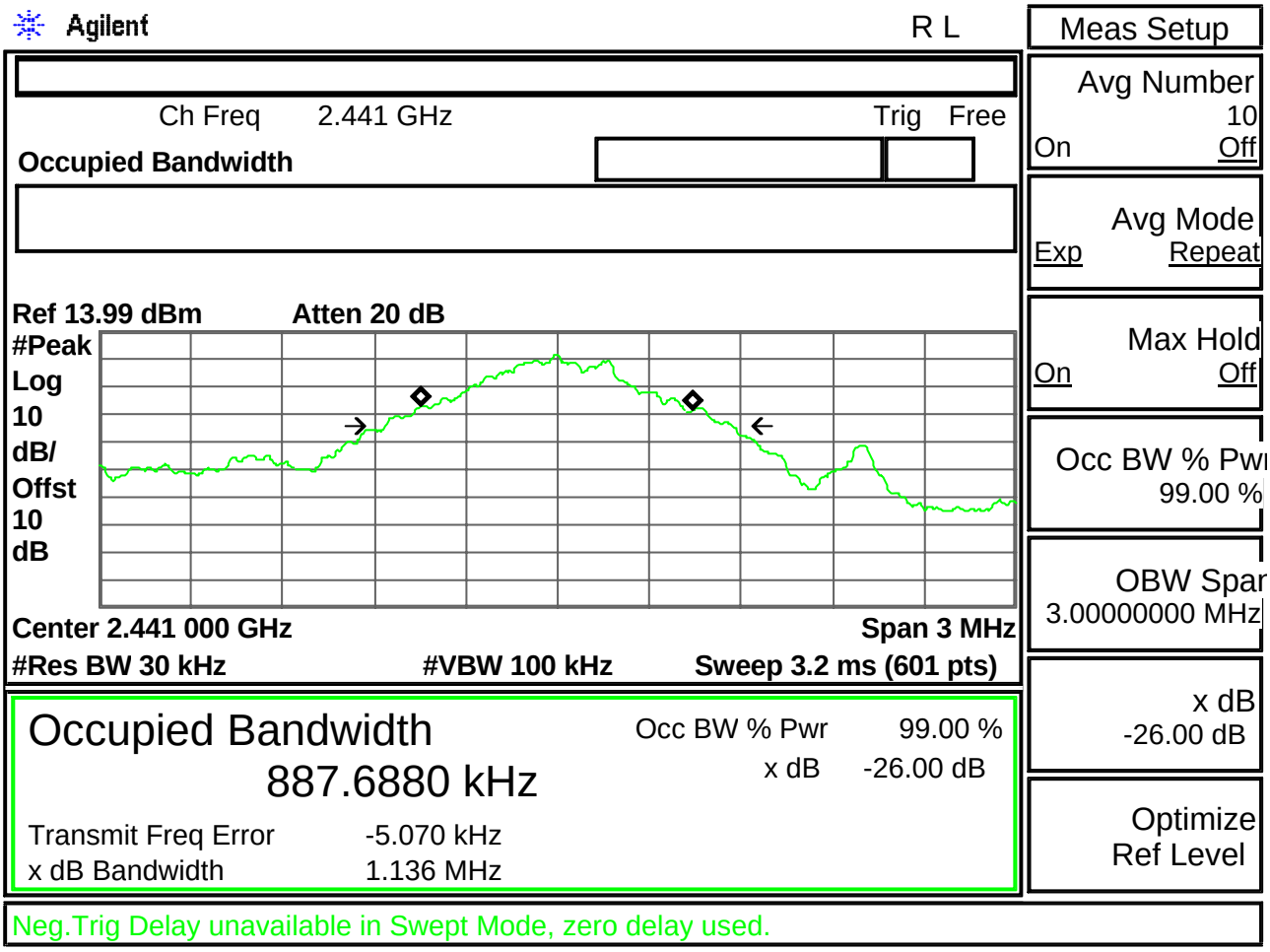


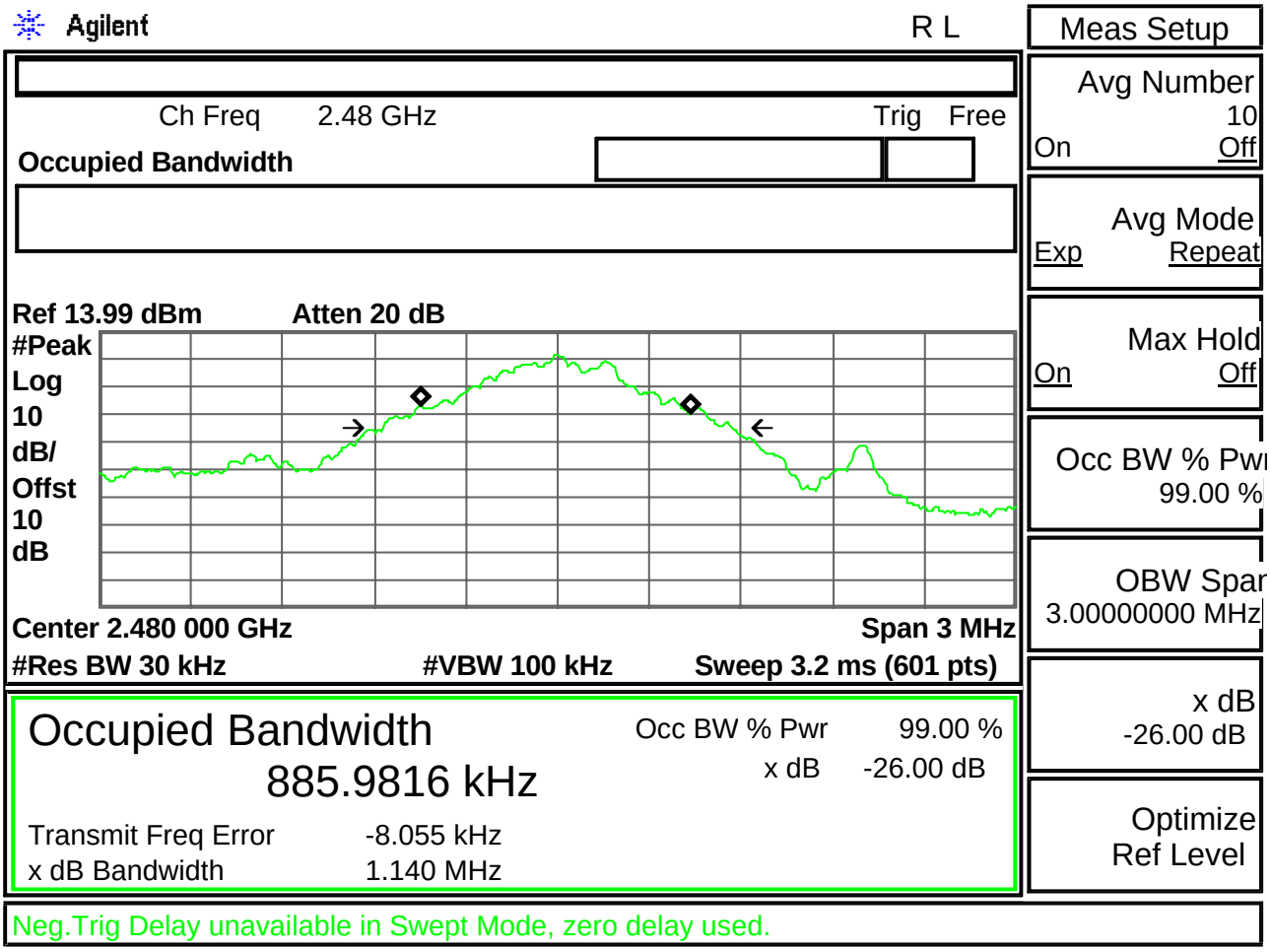
Condition: **-14.72dBm** **Horizontal**
EUT: **Sweep Time: 3.2ms** **Att.: 20dB**
Model: **U1177A** **RBW: 30 KHz** **VBW: 100 KHz**
Test Mode:
Note: **FCC-Bluetooth Channel 78-20dB EBW**

No.	Frequency(MHz)	Level(dBm)
1	2479.55500	-15.00
2	2480.00500	5.28
3	2480.40500	-15.11

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.85	-0.11


Agilent
R L
Meas Setup
Ch Freq 2.402 GHz
Trig Free
Occupied Bandwidth
Avg Number
10
On Off
Avg Mode
Exp Repeat
Ref 13.99 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10
dB
Max Hold
On Off
Occ BW % Pwr
99.00 %
OBW Span
3.00000000 MHz
Center 2.402 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 3.2 ms (601 pts)
x dB
-26.00 dB
Occupied Bandwidth
897.7034 kHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Optimize
Ref Level
Transmit Freq Error -3.957 kHz
x dB Bandwidth 1.140 MHz
Neg.Trig Delay unavailable in Swept Mode, zero delay used.


Agilent
R L
Meas Setup
Ch Freq 2.441 GHz
Trig Free
Occupied Bandwidth
Avg Number
10
On Off
Avg Mode
Exp Repeat
Ref 13.99 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10
dB
Max Hold
On Off
Occ BW % Pwr
99.00 %
Center 2.441 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 3.2 ms (601 pts)
OBW Span
3.00000000 MHz
Occupied Bandwidth
887.6880 kHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
x dB
-26.00 dB
Transmit Freq Error -5.070 kHz
x dB Bandwidth 1.136 MHz
Optimize
Ref Level
Neg.Trig Delay unavailable in Swept Mode, zero delay used.


Agilent
R L
Meas Setup
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Avg Number
10
On Off
Avg Mode
Exp Repeat
Ref 13.99 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
10
dB
Max Hold
On Off
Occ BW % Pwr
99.00 %
Center 2.480 000 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 3.2 ms (601 pts)
OBW Span
3.00000000 MHz
Occupied Bandwidth
885.9816 kHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
x dB
-26.00 dB
Transmit Freq Error -8.055 kHz
x dB Bandwidth 1.140 MHz
Optimize
Ref Level
Neg.Trig Delay unavailable in Swept Mode, zero delay used.

8 OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

For frequency hopping systems, according to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Add cable loss factor to measurement instrument to get maximum peak output power. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 2 MHz and VBW to 2 MHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

8.4 Measurement Data

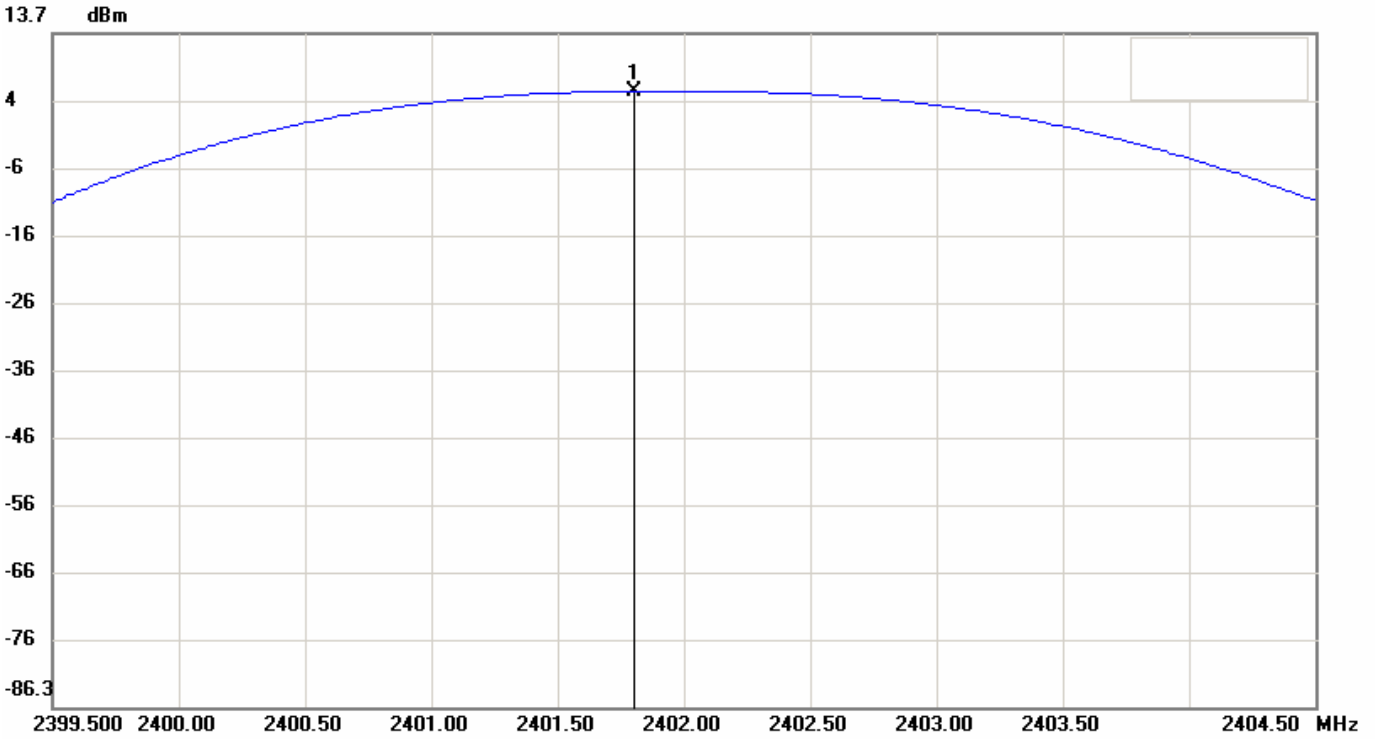
8.4.1 Operation Mode: GFSK

Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Channel	Frequency (MHz)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
0	2402	5.06	3.206	1000	Page 32
39	2441	5.59	3.622	1000	Page 33
78	2480	5.33	3.412	1000	Page 34

Note: Please refer to page 32 to page 34 for chart.

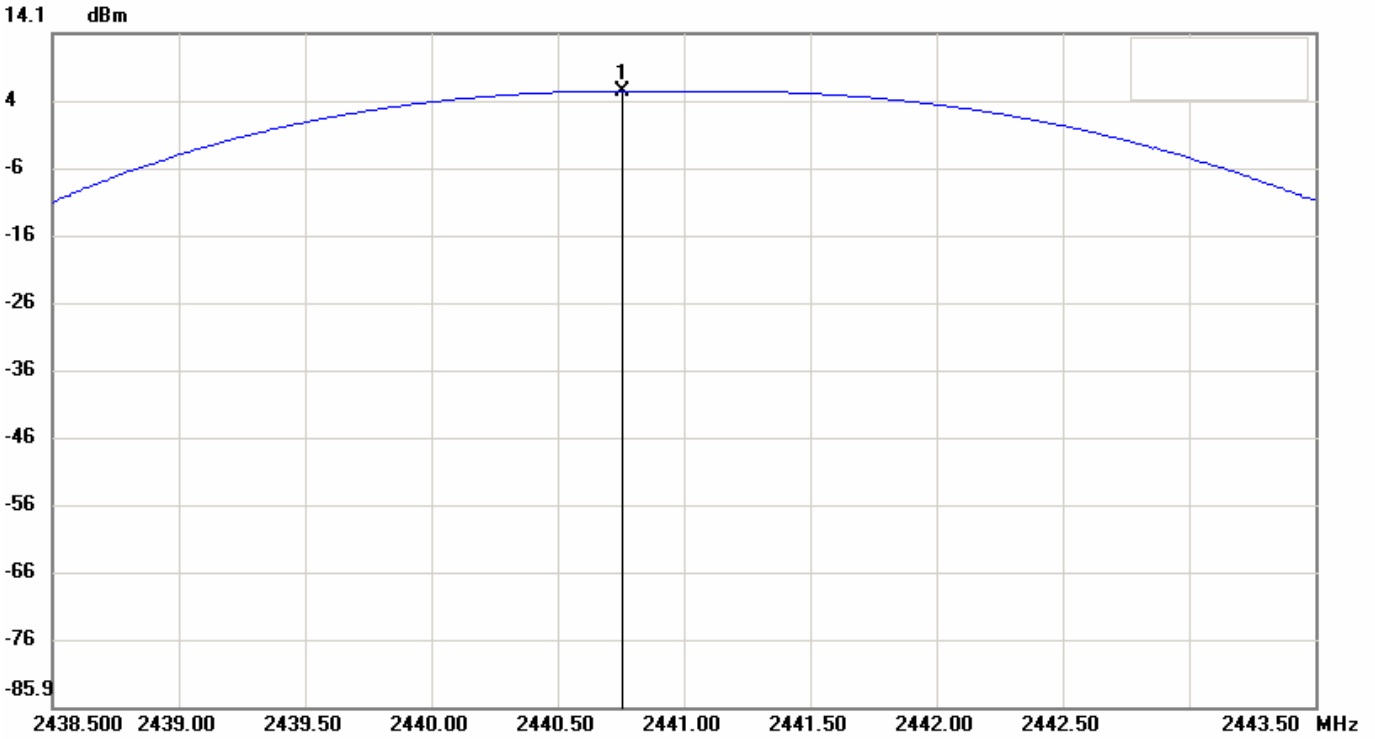
File: U1177A-FCC **Data: #14** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:21:27 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH00 Output Power (GFSK)**

No.	Frequency(MHz)	Level(dBm)
1	2401.80000	5.06

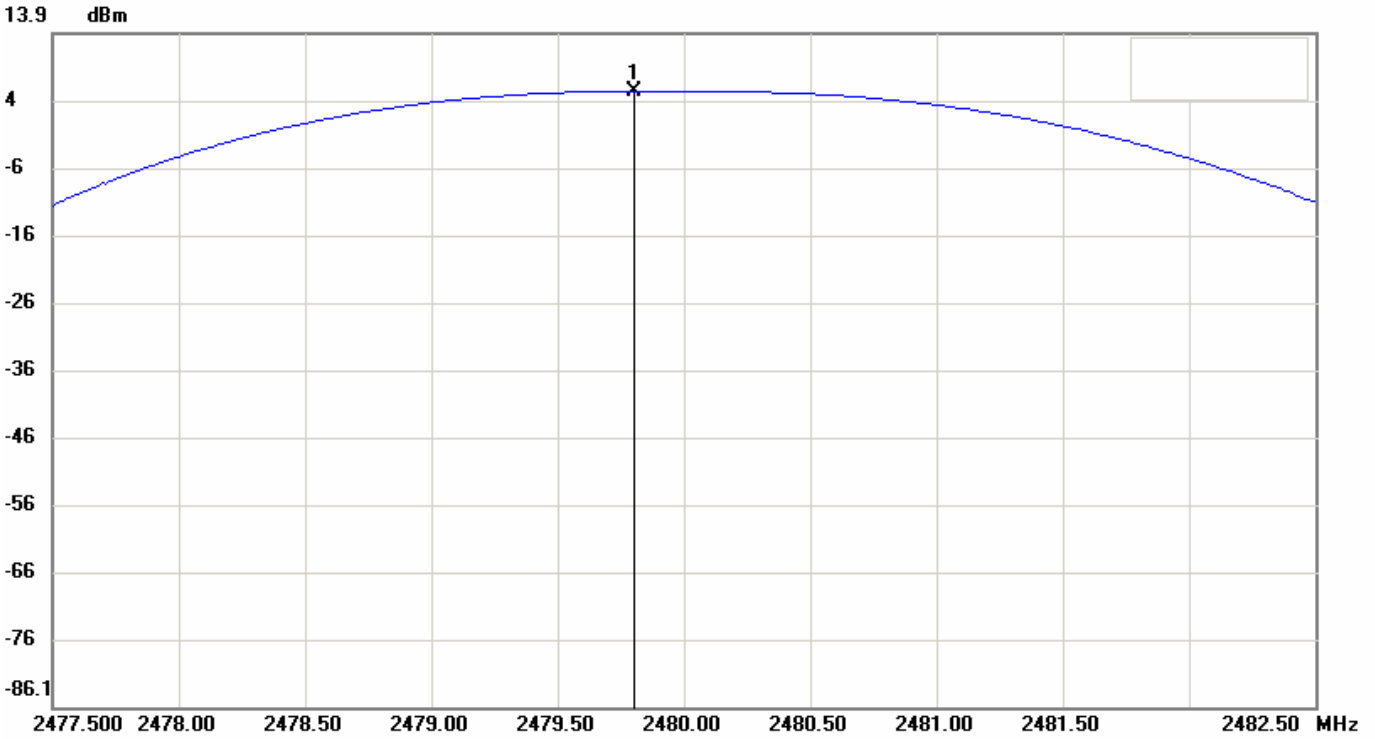
File: U1177A-FCC **Data: #12** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:18:37 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH39 Output Power (GFSK)**

No.	Frequency(MHz)	Level(dBm)
1	2440.75830	5.59

File: U1177A-FCC **Data: #13** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:19:55 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH78 Output Power (GFSK)**

No.	Frequency(MHz)	Level(dBm)
1	2479.80000	5.33

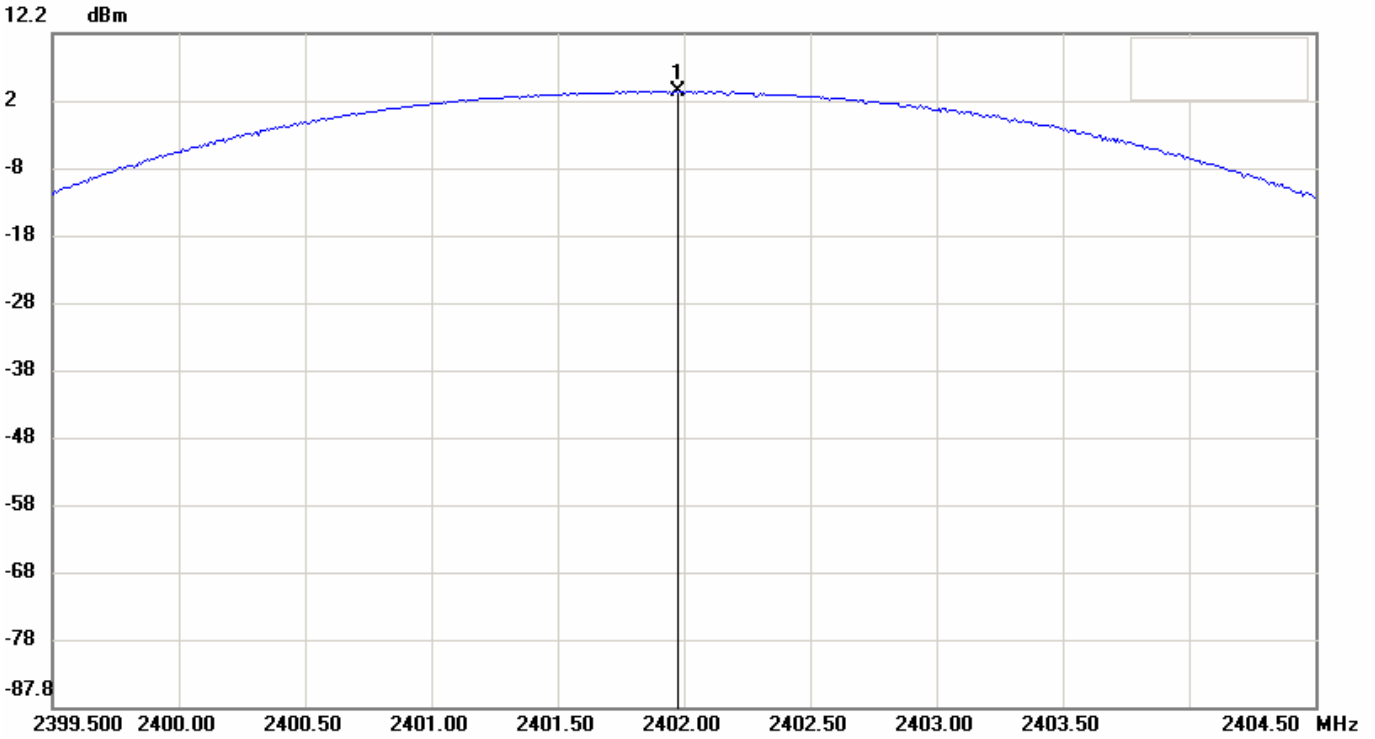
8.4.2 Operation Mode: 8-DPSK

Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Channel	Frequency (MHz)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
0	2402	3.59	2.286	1000	Page 36
39	2441	3.97	2.495	1000	Page 37
78	2480	3.53	2.254	1000	Page 38

Note: Please refer to page 36 to page 38 for chart.

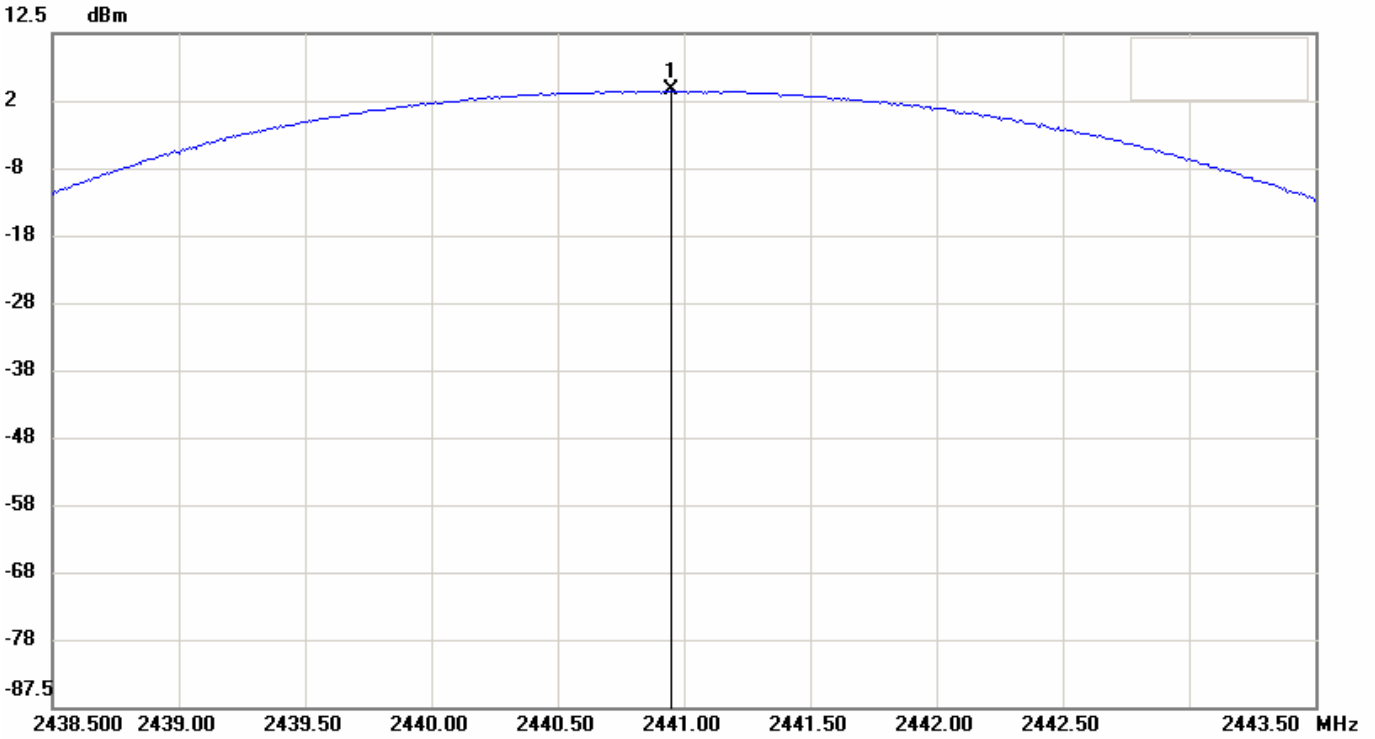
File: U1177A-FCC Data: #6 **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:02:05 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH00 Output Power(8DPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2401.96670	3.59

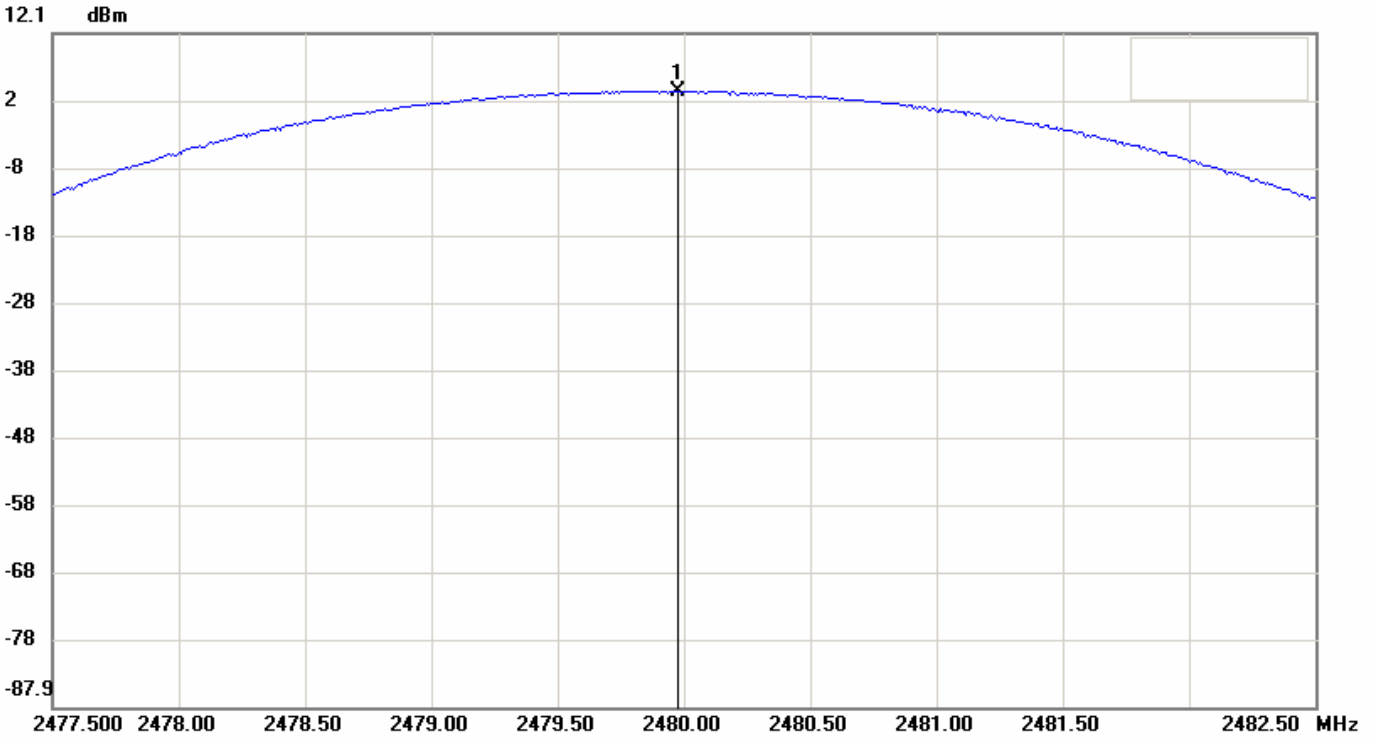
File: U1177A-FCC Data: #7 **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:07:57 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH39 Output Power(8DPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2440.95000	3.97

File: U1177A-FCC Data: #8 **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:09:23 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH78 Output Power(8DPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2479.96670	3.53

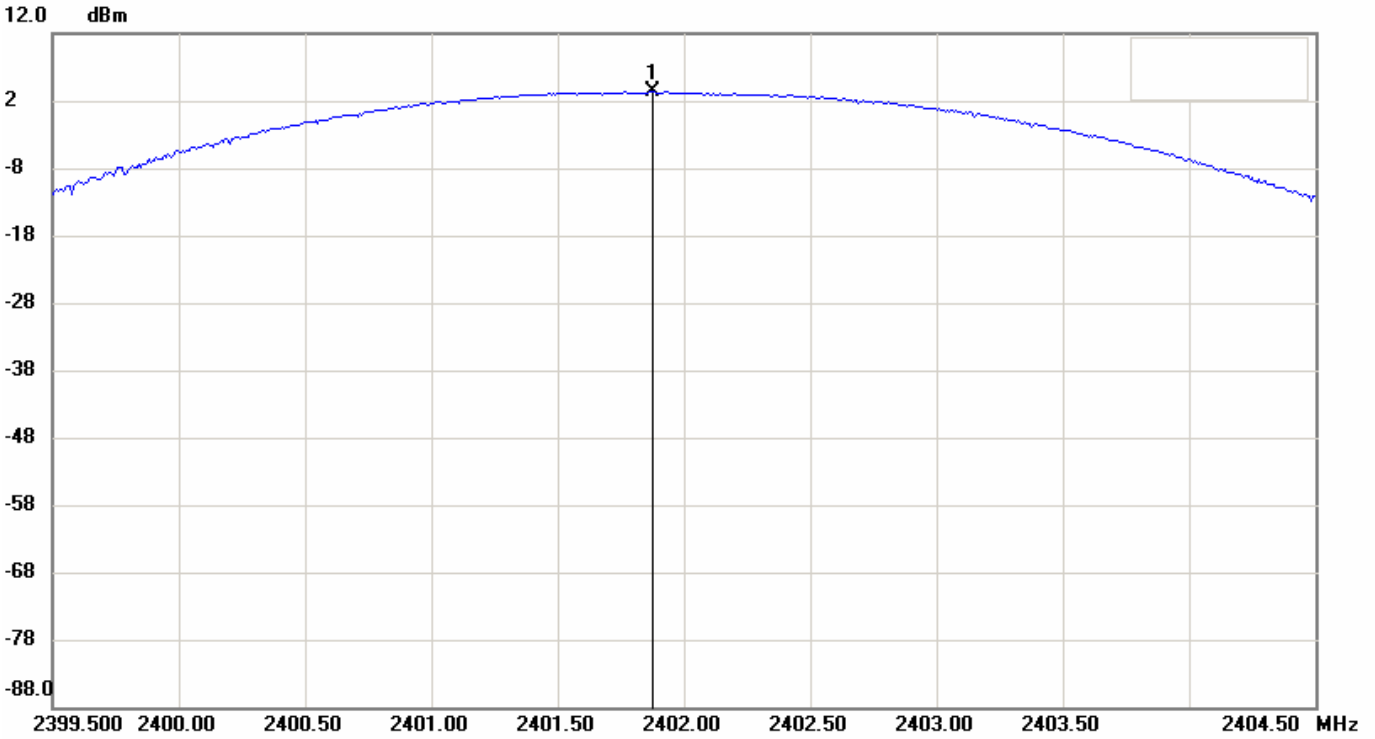
8.4.3 Operation Mode: π/4-DQPSK

Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Channel	Frequency (MHz)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
0	2402	3.30	2.138	1000	Page 40
39	2441	3.73	2.360	1000	Page 41
78	2480	3.23	2.104	1000	Page 42

Note: Please refer to page 40 to page 42 for chart.

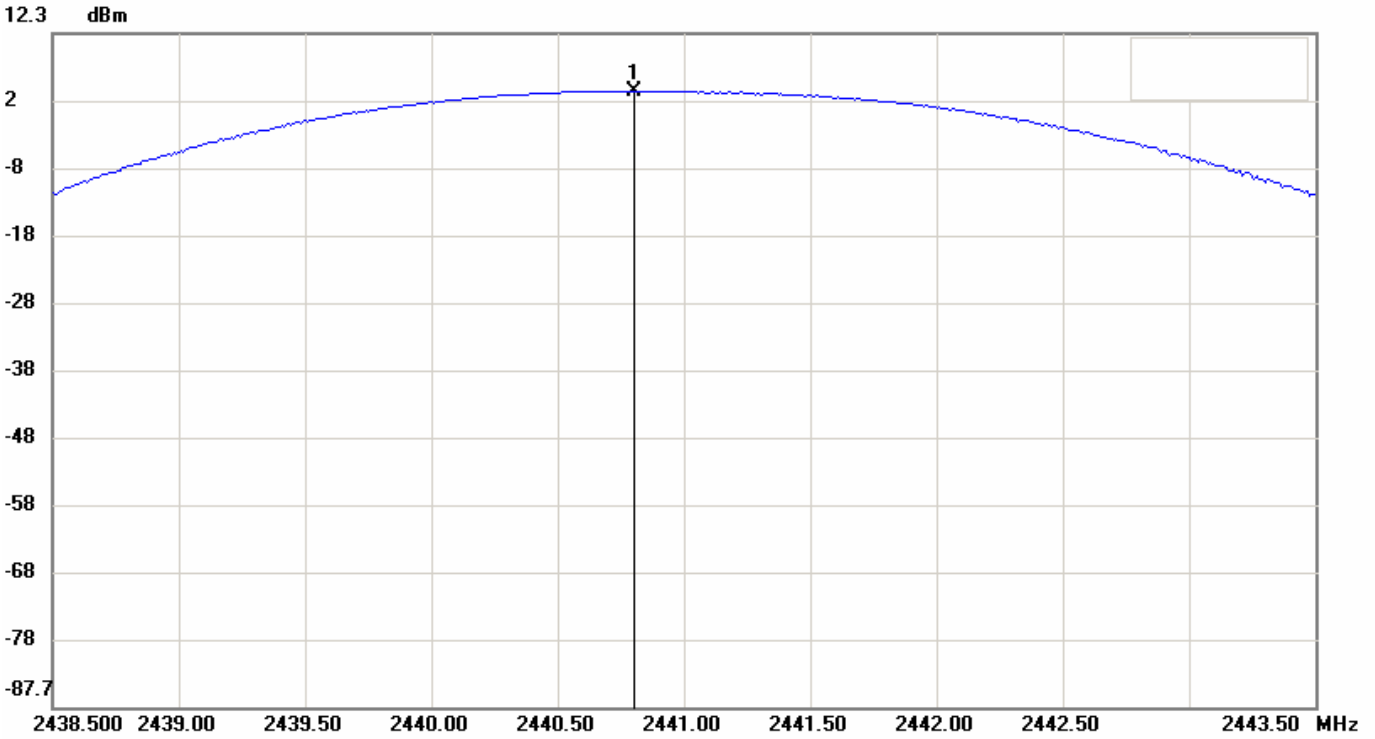
File: U1177A-FCC **Data: #5** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 01:59:03 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH00 Output Power (QPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2401.86670	3.30

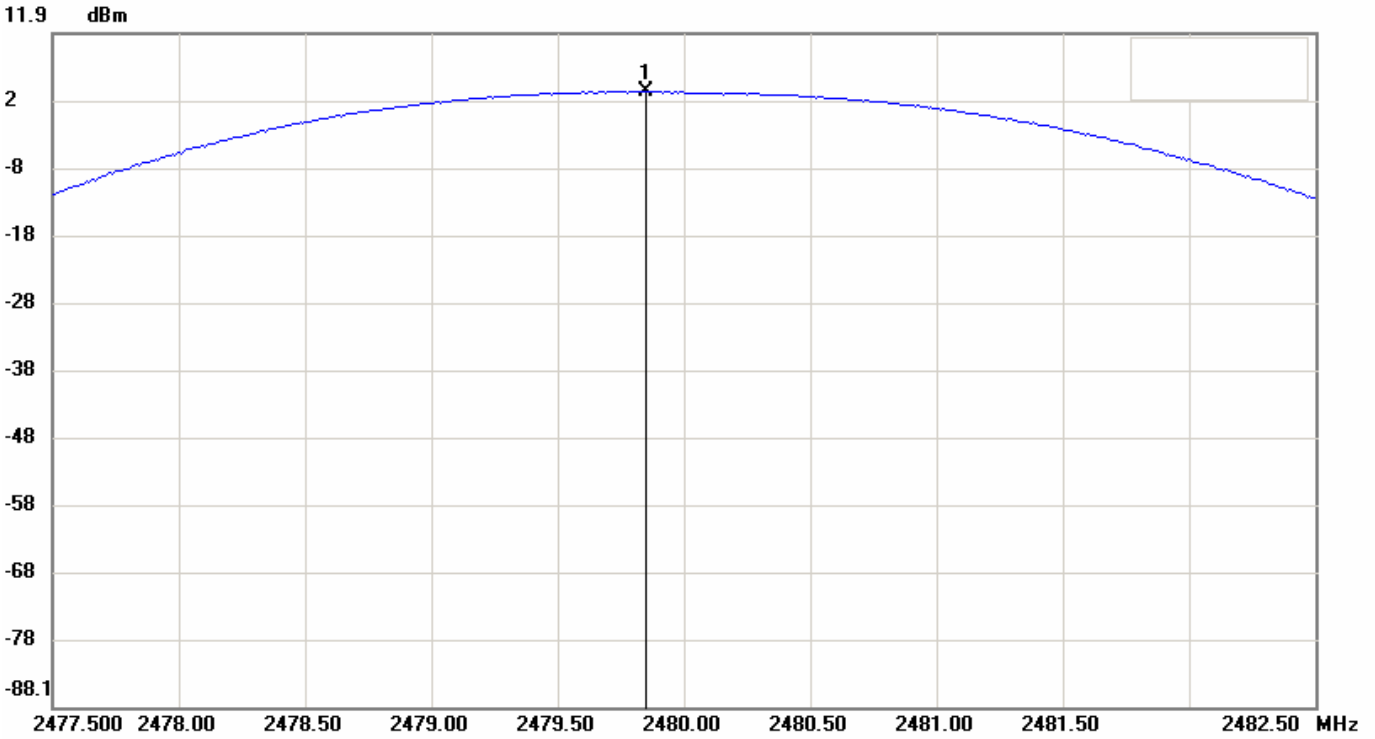
File: U1177A-FCC **Data: #11** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:14:47 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH39 Output Power (QPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2440.80000	3.73

File: U1177A-FCC **Data: #10** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 02:13:21 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 2000 KHz** **VBW: 2000 KHz**
Test Mode:
Note: **FCC Bluetooth CH78 Output Power (QPSK)**

No.	Frequency(MHz)	Level(dBm)
1	2479.85000	3.23

9 OUT-OF-BAND RF CONDUCTED SPURIOUS EMISSION MEASUREMENT

9.1 Standard Applicable

According to RSS-210 A8.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-210 is not required.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

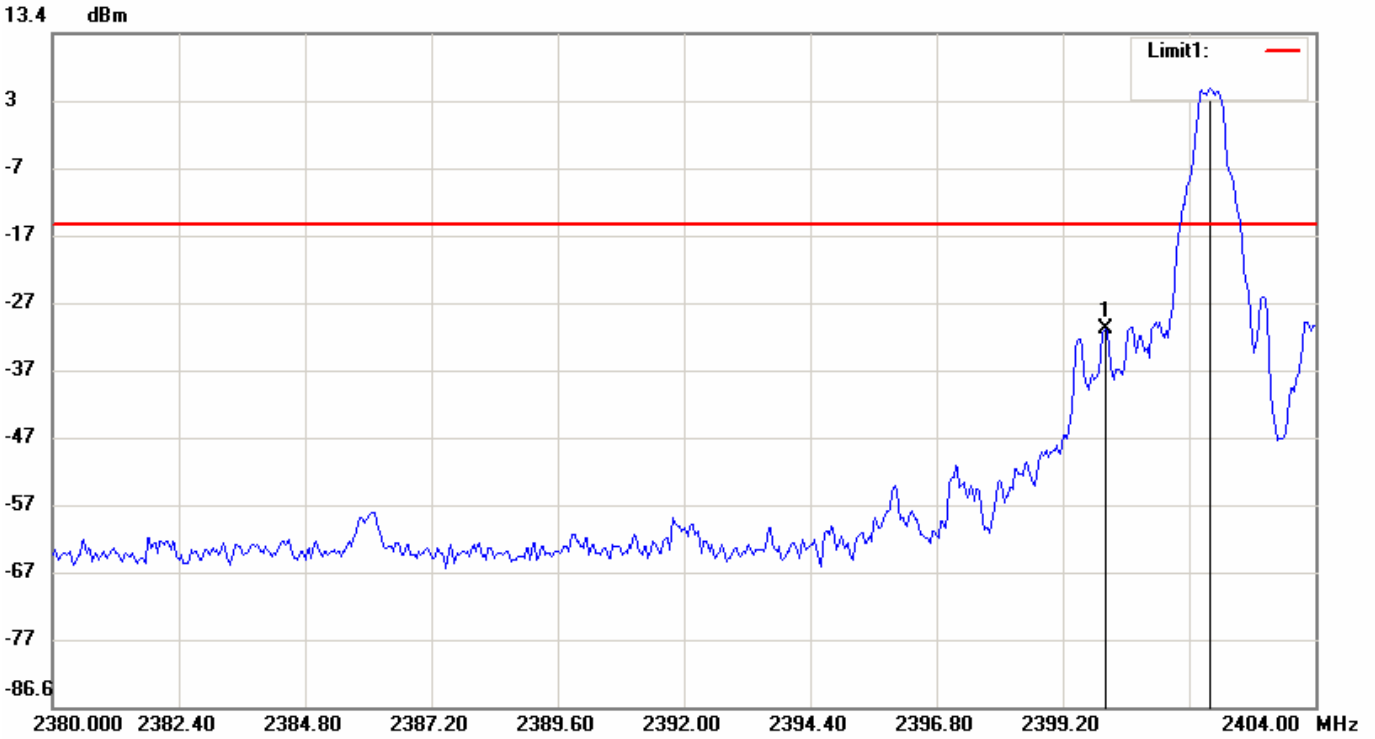
9.4 Measurement Data

Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Channel	Test Frequency Range	Note	Chart
0	2350 MHz - 2450 MHz	Lower Band Edge	Page 45
78	2433.5 MHz - 2533.5 MHz	Upper Band Edge	Page 46
0	30 MHz - 25 GHz		Page 47
39	30 MHz - 25 GHz		Page 48
78	30 MHz - 25 GHz		Page 49

Note: Please refer to page 45 to page 49 for chart.

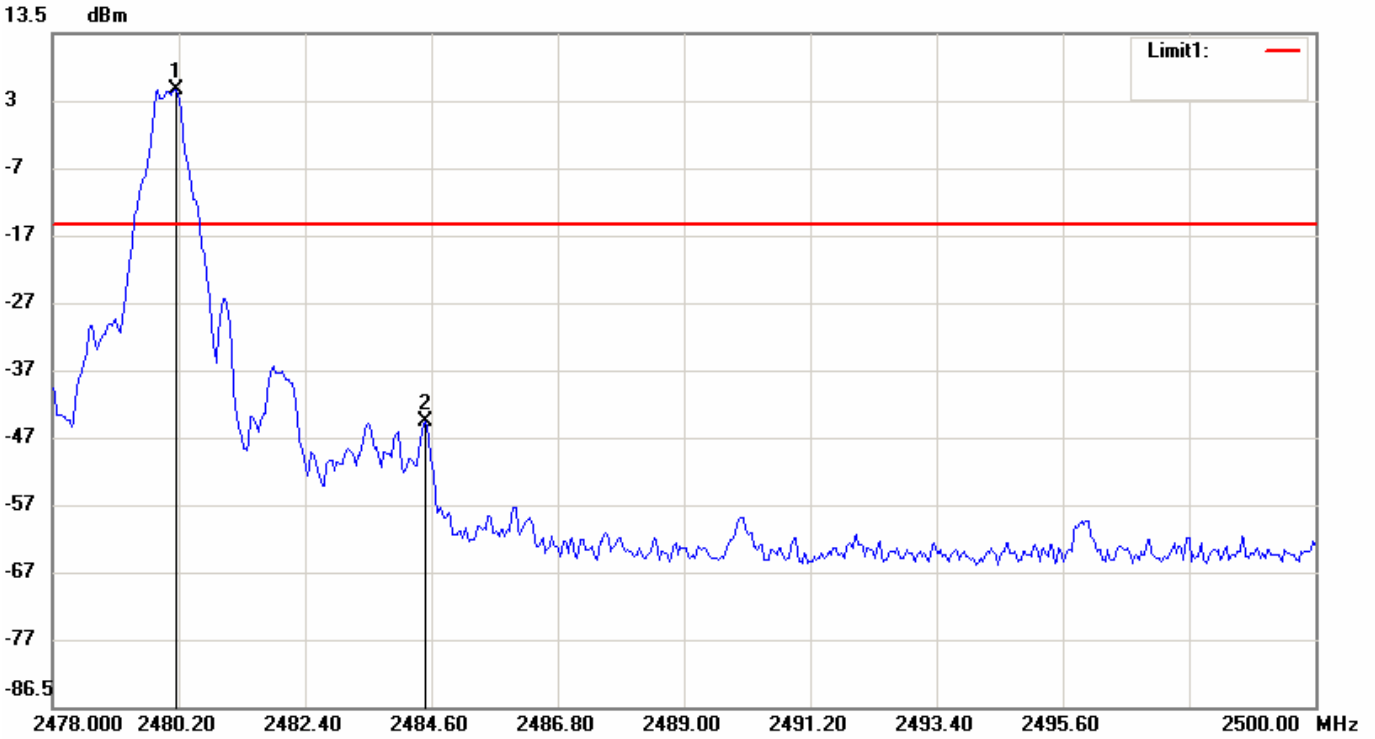
File: **U1177A-FCC** **Data:** **#17** **Date:** **2011/5/13** **Temperature:** **24 ℃**
Time: **PM 03:17:53** **Humidity:** **54 %**



Condition: **-14.89dBm** **Horizontal**
EUT: **Sweep Time: 2.32ms** **Att.: 20dB**
Model: **U1177A** **RBW: 100 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-Bluetooth Channel 00-Bandedge (Fixed)**

No.	Frequency(MHz)	Level(dBm)
1	2400.00000	-30.48
2	2402.00000	5.11

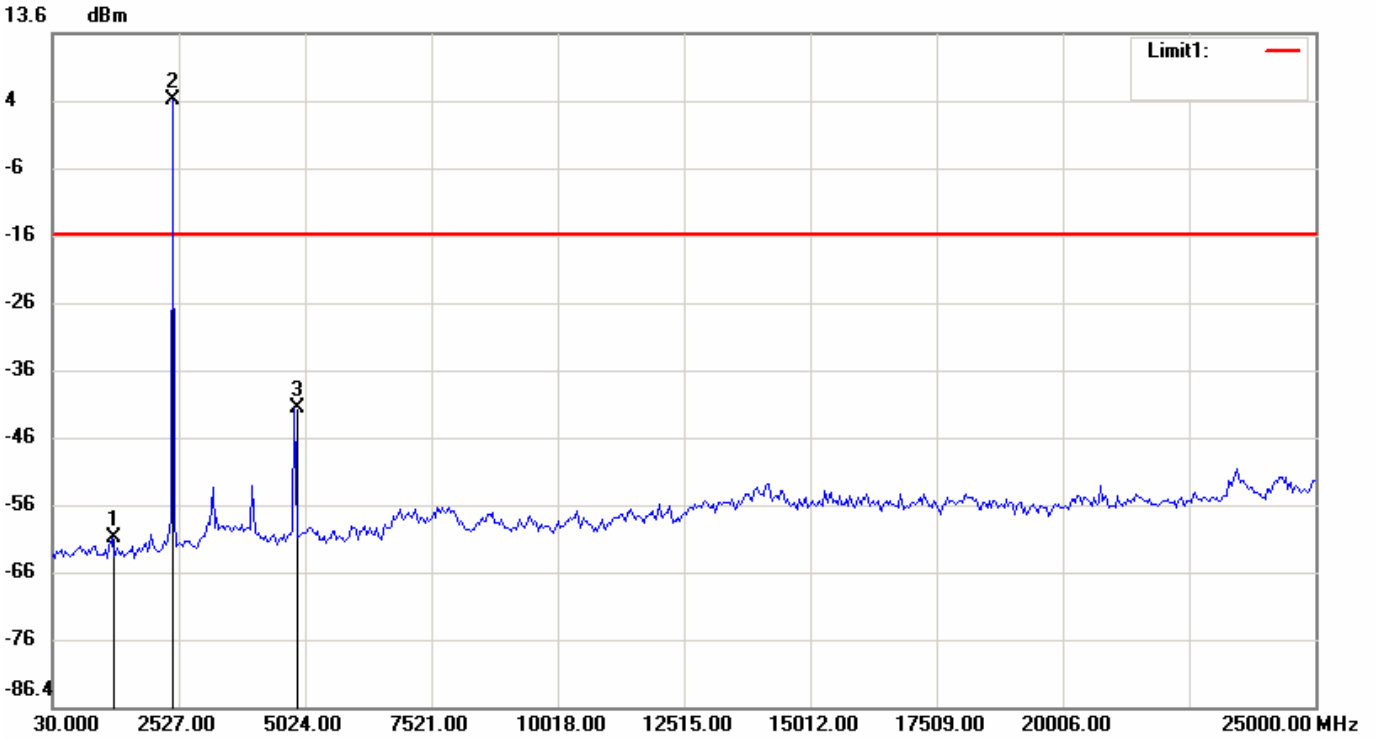
File: **U1177A-FCC** **Data:** **#20** **Date:** **2011/5/13** **Temperature:** **24 ℃**
Time: **PM 03:20:20** **Humidity:** **54 %**



Condition: **-14.94dBm** **Horizontal**
EUT: **Sweep Time: 2.12ms** **Att.: 20dB**
Model: **U1177A** **RBW: 100 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-Bluetooth Channel 78-Bandedge (Fixed)**

No.	Frequency(MHz)	Level(dBm)
1	2480.16330	5.06
2	2484.49000	-44.25

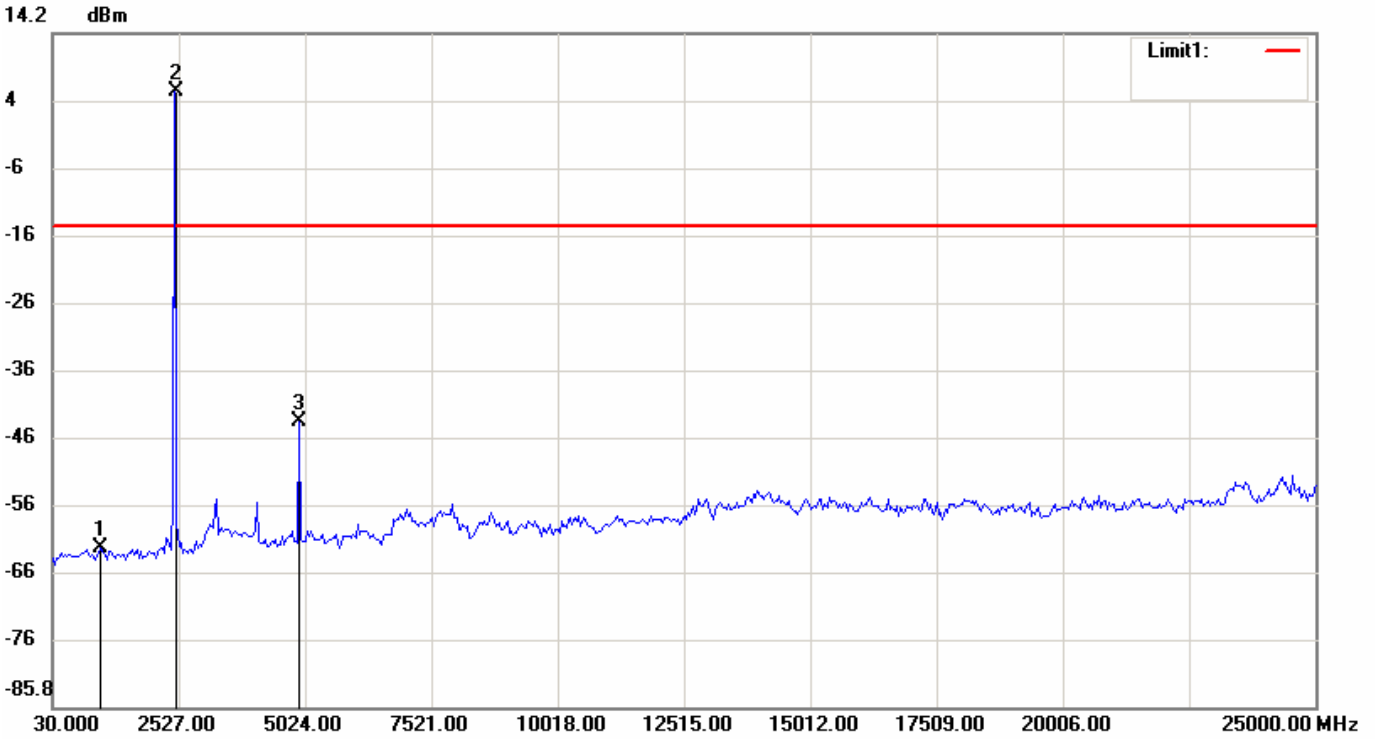
File: U1177A-FCC **Data: #16** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:16:18 **Humidity: 54 %**



Condition: **-16.13dBm** **Horizontal**
EUT: **Sweep Time: 2386.4ms** **Att.: 20dB**
Model: **U1177A** **RBW: 100 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-BT Channel 00-Conducted Spurious**

No.	Frequency(MHz)	Level(dBm)
1	1195.26670	-61.34
2	2402.15000	3.87
3	4815.91670	-42.04

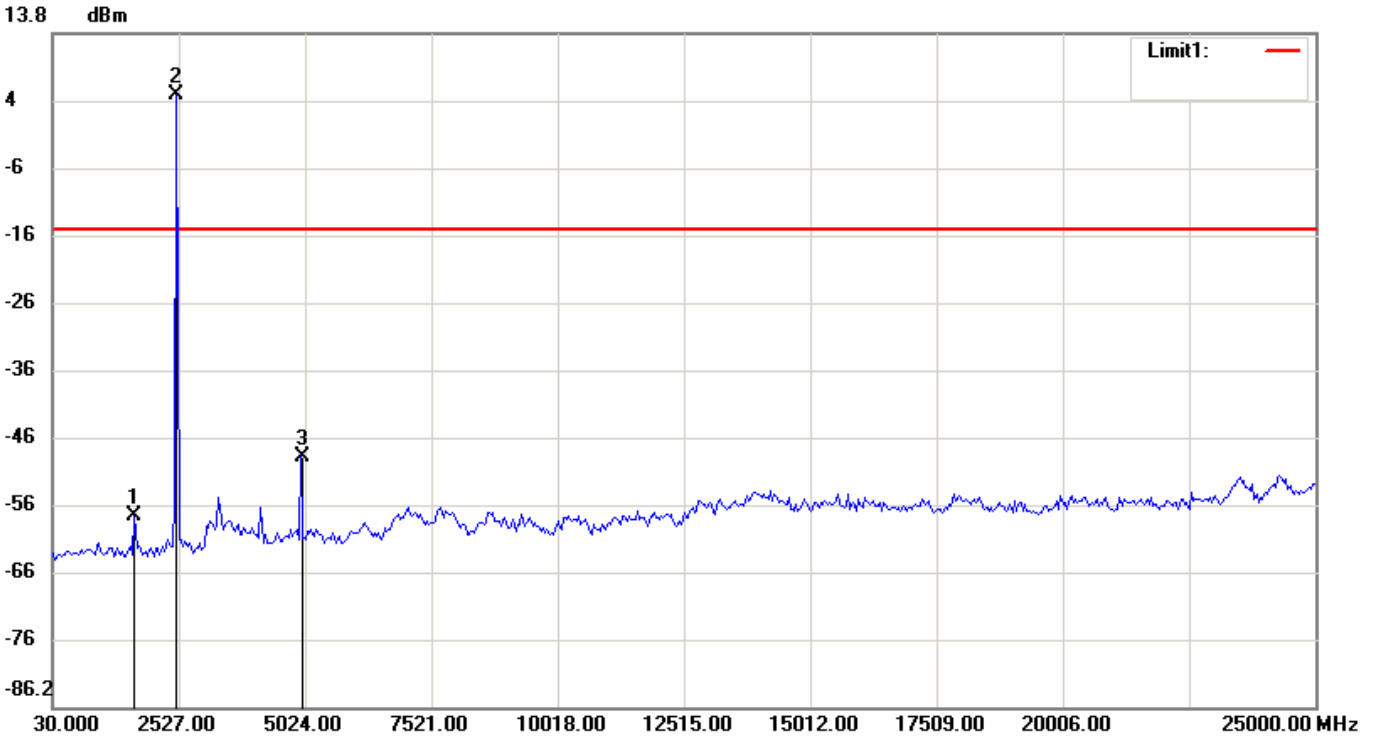
File: **U1177A-FCC** **Data:** **#22** **Date:** **2011/5/13** **Temperature:** **24 ℃**
Time: **PM 03:22:33** **Humidity:** **54 %**



Condition: **-14.46dBm** **Horizontal**
EUT: **Sweep Time: 2386.4ms** **Att.: 20dB**
Model: **U1177A** **RBW: 100 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-BT Channel 39-Conducted Spurious**

No.	Frequency(MHz)	Level(dBm)
1	987.1833	-62.10
2	2443.76670	5.54
3	4899.15000	-43.42

File: U1177A-FCC **Data: #19** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:19:53 **Humidity: 54 %**



Condition: **-15.17dBm** **Horizontal**
EUT: **Sweep Time: 2386.4ms** **Att.: 20dB**
Model: **U1177A** **RBW: 100 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-BT Channel 78-Conducted Spurious**

No.	Frequency(MHz)	Level(dBm)
1	1653.05000	-57.88
2	2485.38330	4.83
3	4940.76670	-48.91

10 NUMBER of HOPPING CHANNELS

10.1 Standard Applicable

According to RSS-210 A8.4(2), for frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4W.

10.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set EUT to hopping operating mode and set spectrum analyzer miximum to measure the number of hopping channels.

10.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

10.4 Measurement Data

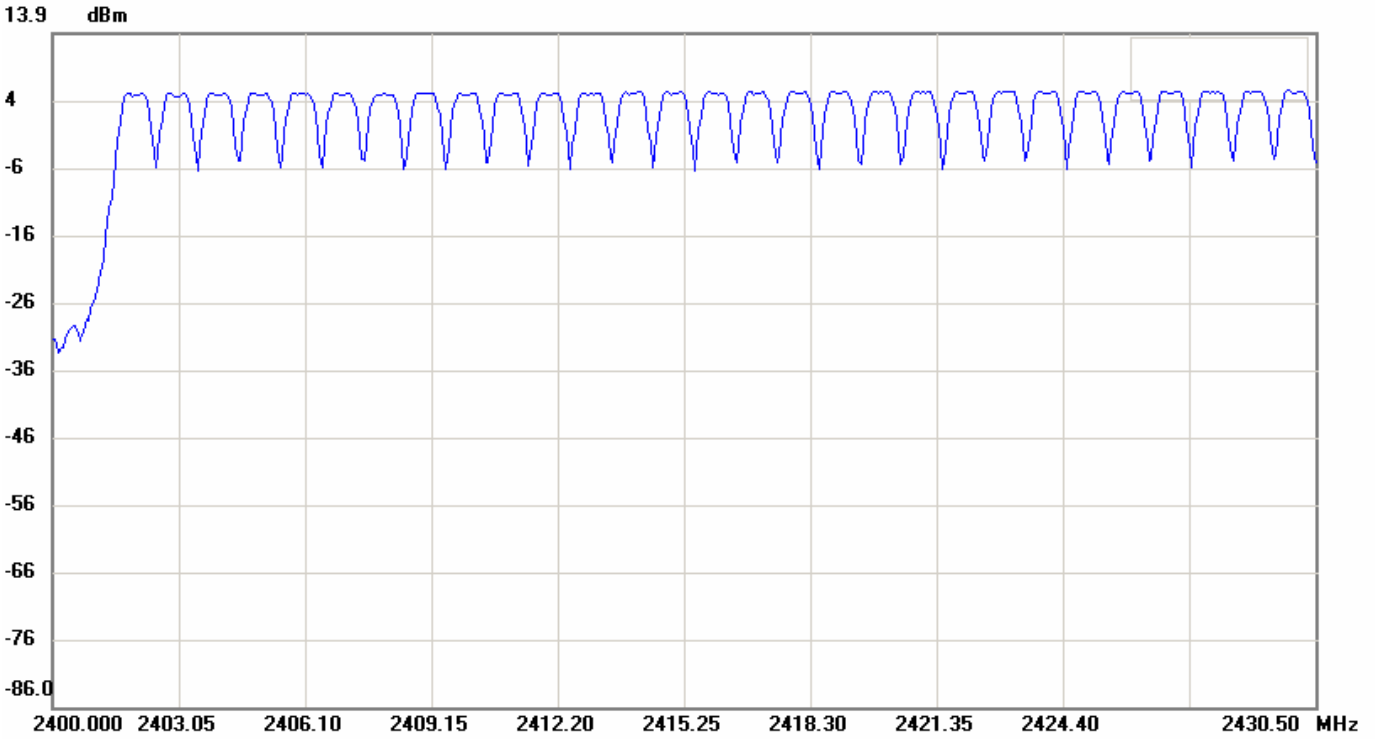
Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Number of hopping channels = 79 channels

Note: Please refer to page 51 to page 53 for chart.

File: U1177A-FCC Data: #30 Date: 2011/5/13 Temperature: 24 ℃

Time: PM 03:31:11 Humidity: 54 %



Condition: **Horizontal**

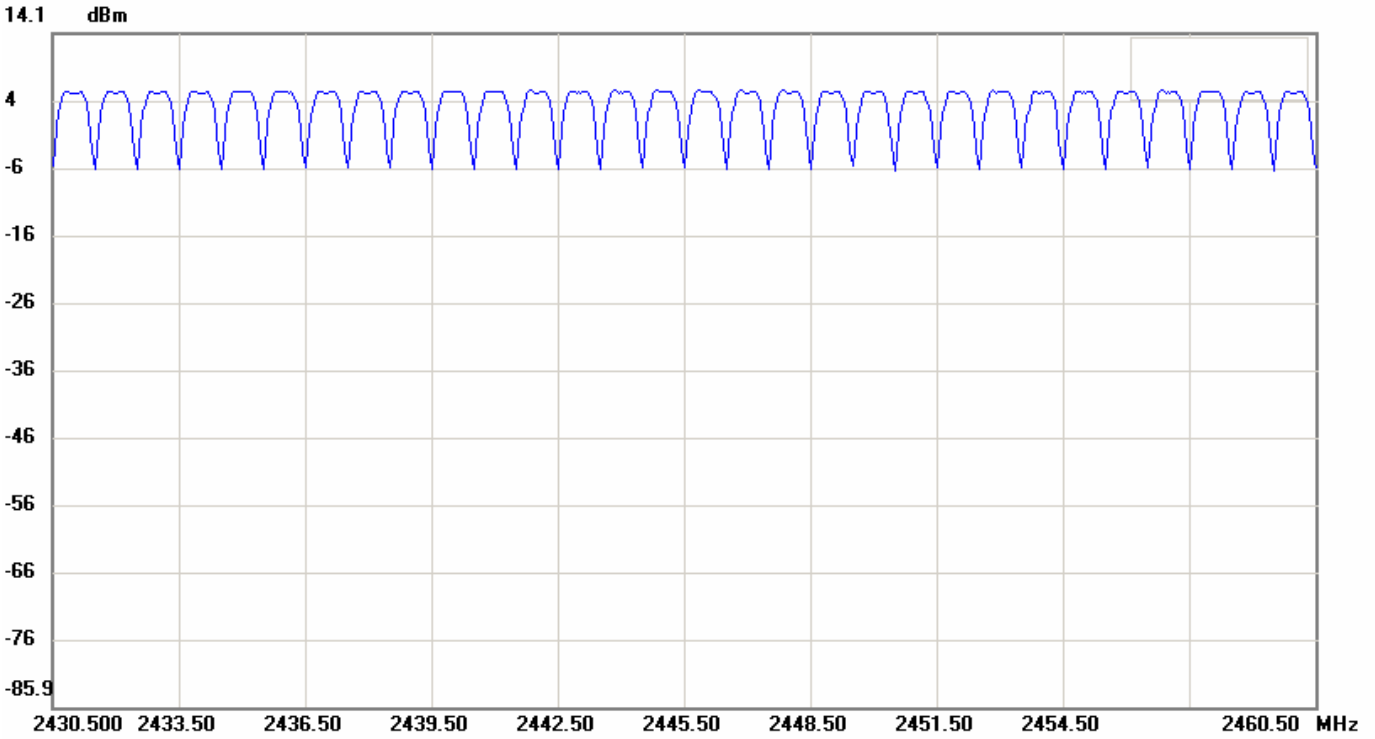
EUT: **Sweep Time: 1ms Att.: 20dB**

Model: U1177A **RBW: 300 KHz VBW: 300 KHz**

Test Mode:

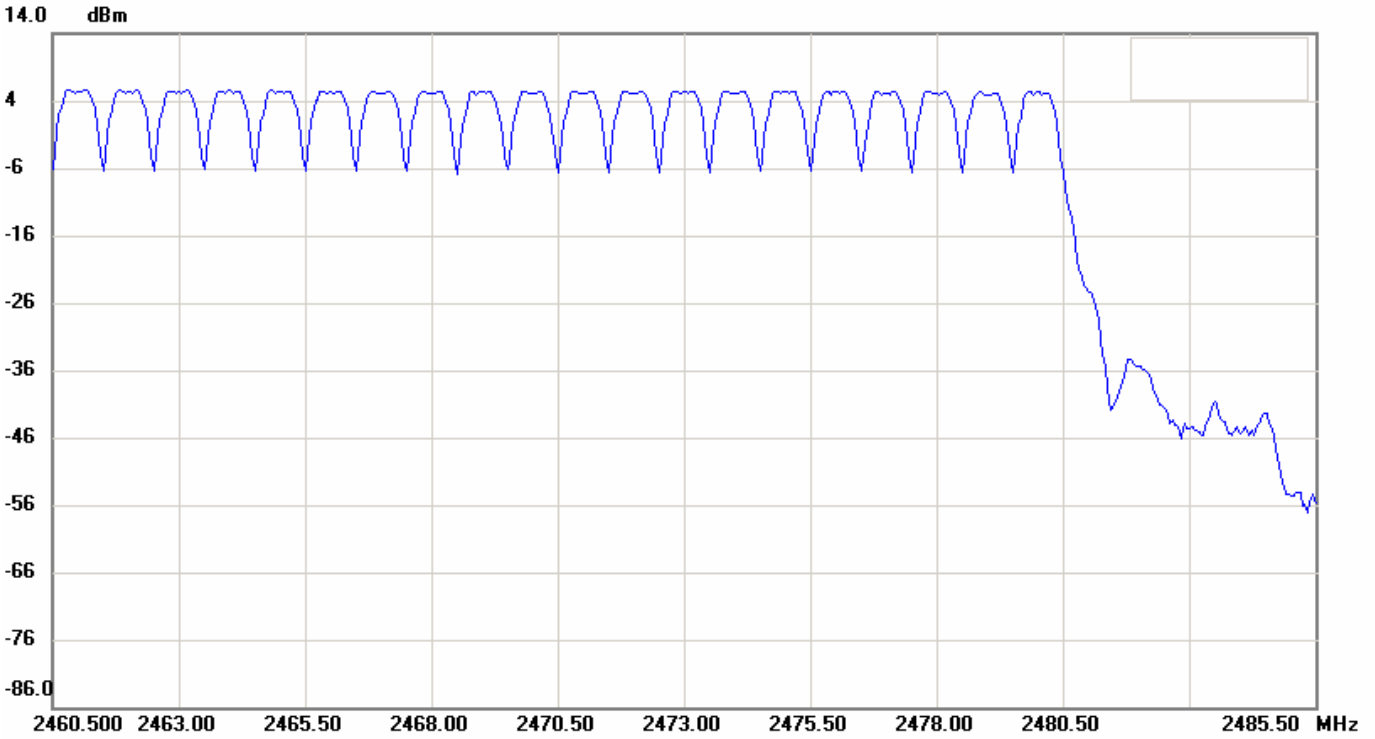
Note: FCC-Bluetooth Number of Hopping Channels -Part1

File: U1177A-FCC **Data: #31** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:32:58 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: U1177A **RBW: 300 KHz** **VBW: 300 KHz**
Test Mode:
Note: FCC-Bluetooth Number of Hopping Channels -Part2

File: U1177A-FCC **Data: #32** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:34:45 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 300 KHz** **VBW: 300 KHz**
Test Mode:
Note: **FCC-Bluetooth Number of Hopping Channels -Part3**

11 HOPPING CHANNEL CARRIER FREQUENCY SEPARATED

11.1 Standard Applicable

According to 15.247(a)(1), the frequency hopping system shall have hopping channel carrier frequencies seperated by minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400 – 2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

11.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measurement frequency within its operating ragne and make sure the instrument is operated in its linear range.
3. Set spectrum analyzer maximum hold to measure channel carrier frequency , then adjust channel carrier frequency to adjacent channel.
4. Repeat above procedure until all measured frequencies were complete.

11.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

11.4 Measurement Data

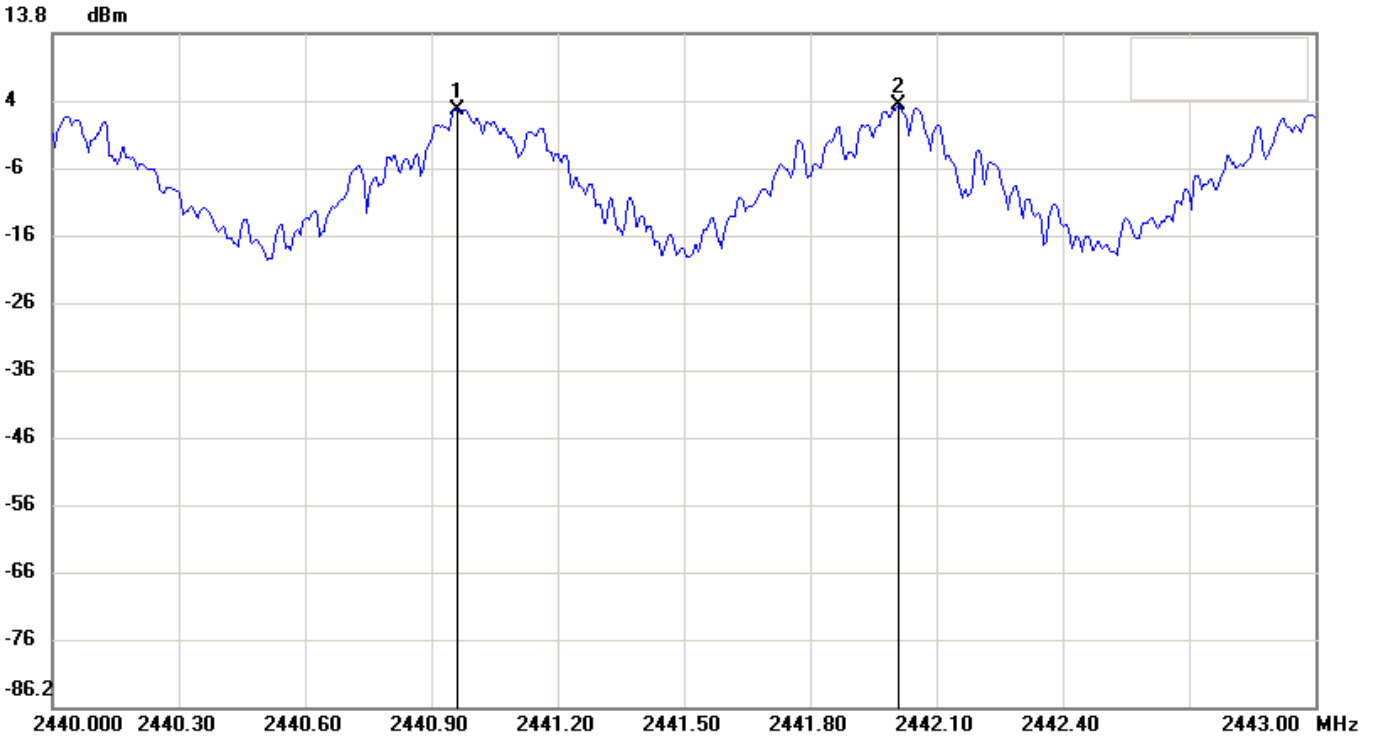
Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

Channel	Frequency (MHz)	Hopping Channel Carrier Frequency Separated (MHz)	Chart
39	2441	1.050	Page 56

Note: 1. Please refer to page 56 for chart.

2. CH Low, CH Mid and CH High have the same test result. Only CH Mid test result showed in the test report.

File: U1177A-FCC Data: #29 **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:29:21 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 3.2ms** **Att.: 20dB**
Model: **U1177A** **RBW: 30 KHz** **VBW: 100 KHz**
Test Mode:
Note: **FCC-Bluetooth Carrier Frequency Separation**

No.	Frequency(MHz)	Level(dBm)
1	2440.96000	2.46
2	2442.01000	3.10

No.		△Frequency(MHz)	△Level(dB)
1	mk2-mk1	1.05	0.64

12 Dwell Time

12.1 Standard Applicable

According to 15.247(a)(1)(iii), frequency hopping system in the 2400-2483.5MHz band employing at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 second multiplied by the number of hopping channels employed.

12.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 3.

12.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/26/2011

12.4 Measurement Data

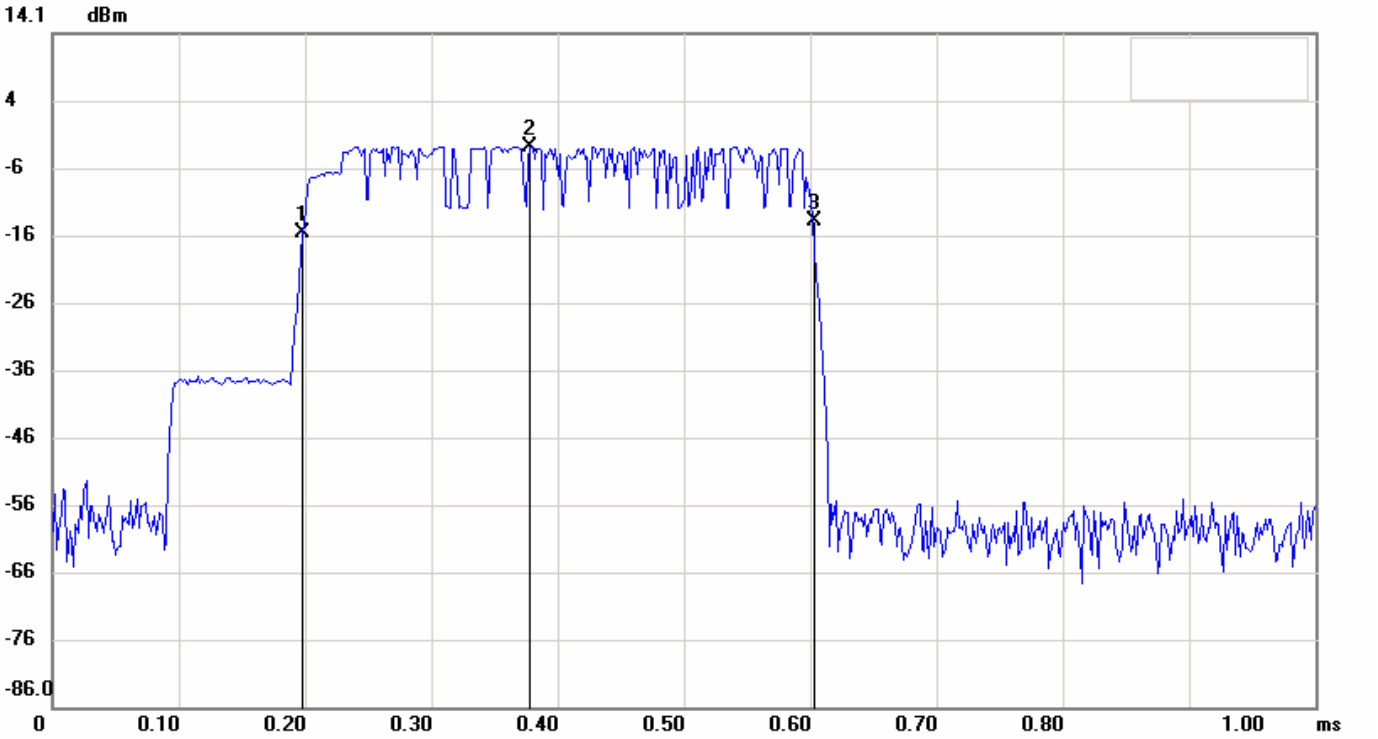
Test Date : May. 13, 2011 Temperature : 24℃ Humidity : 54%

12.4.1 DH1

Test period=0.4(second/channel)× 79 channel=31.6sec
2402MHz dwell time= 403.4 us× 340 = 137.2 ms

Note: Please refer to page 58 to page 59 for chart.

File: U1177A-FCC **Data: #24** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:23:56 **Humidity: 54 %**

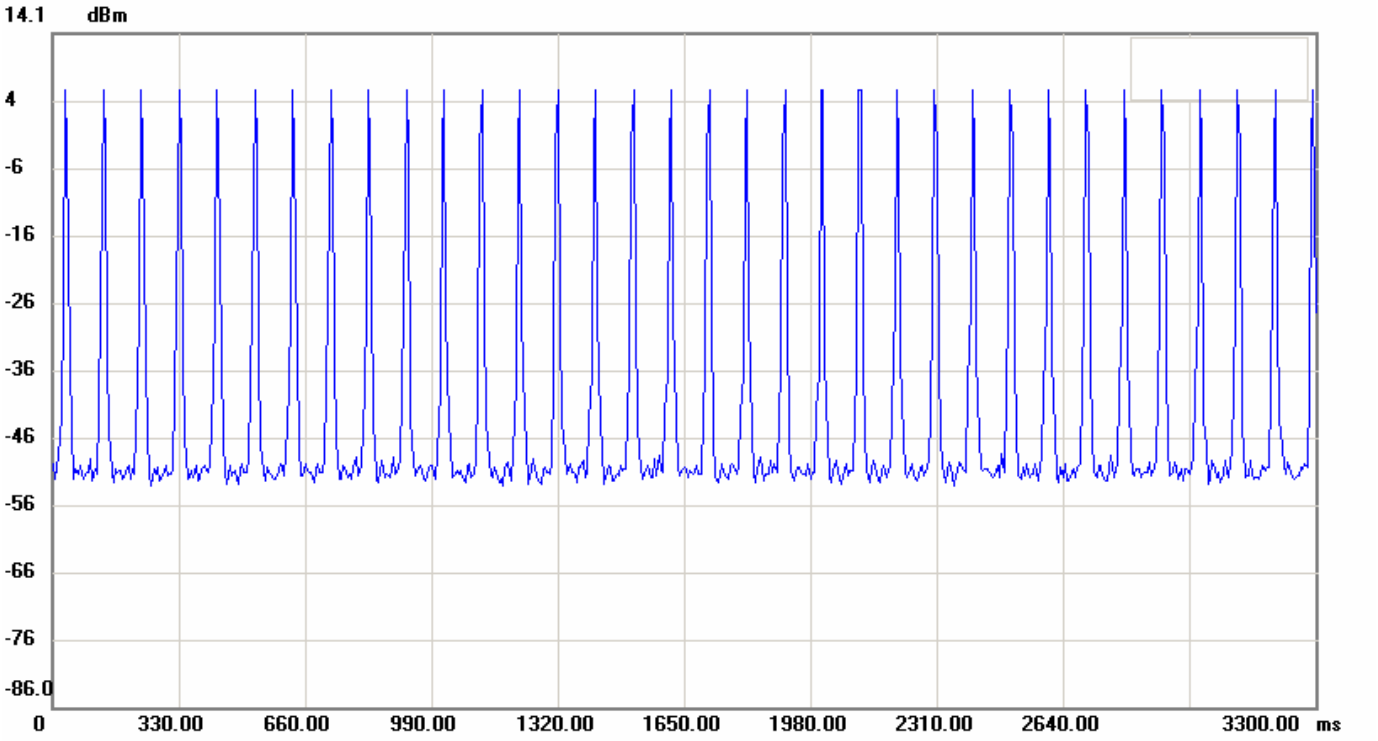


Condition: **-12.73dBm** **Horizontal**
EUT: **Sweep Time: 1ms** **Att.: 20dB**
Model: **U1177A** **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **DH1 pulse width**

No.	Sweep time(ms)	Level(dBm)
1	0.1983	-15.61
2	0.3783	-2.73
3	0.6017	-13.81

No.		△Time(ms)	△Level(dB)
1	mk3-mk1	0.4034	1.8

File: U1177A-FCC **Data: #23** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:23:44 **Humidity: 54 %**



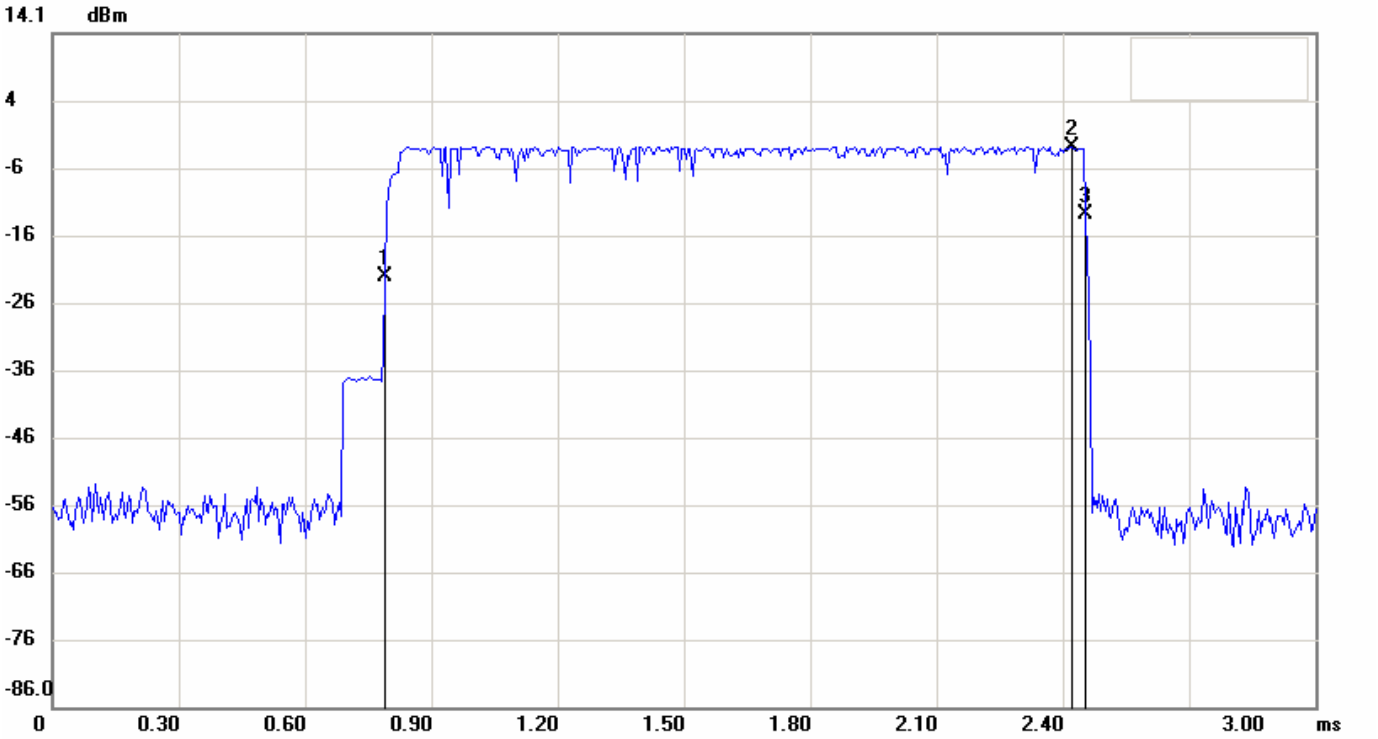
Condition: **Horizontal**
EUT: **Sweep Time: 3300ms** **Att.: 20dB**
Model: **U1177A** **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **DH1 Hops per 3.16 seconds**

12.4.2 DH3

Test period=0.4(second/channel)$\times$79 channel=31.6sec
2441MHz dwell time= 1.665 ms$\times$170 = 283.1 ms

Note: Please refer to page 61 to page 62 for chart.

File: U1177A-FCC **Data: #26** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:25:51 **Humidity: 54 %**

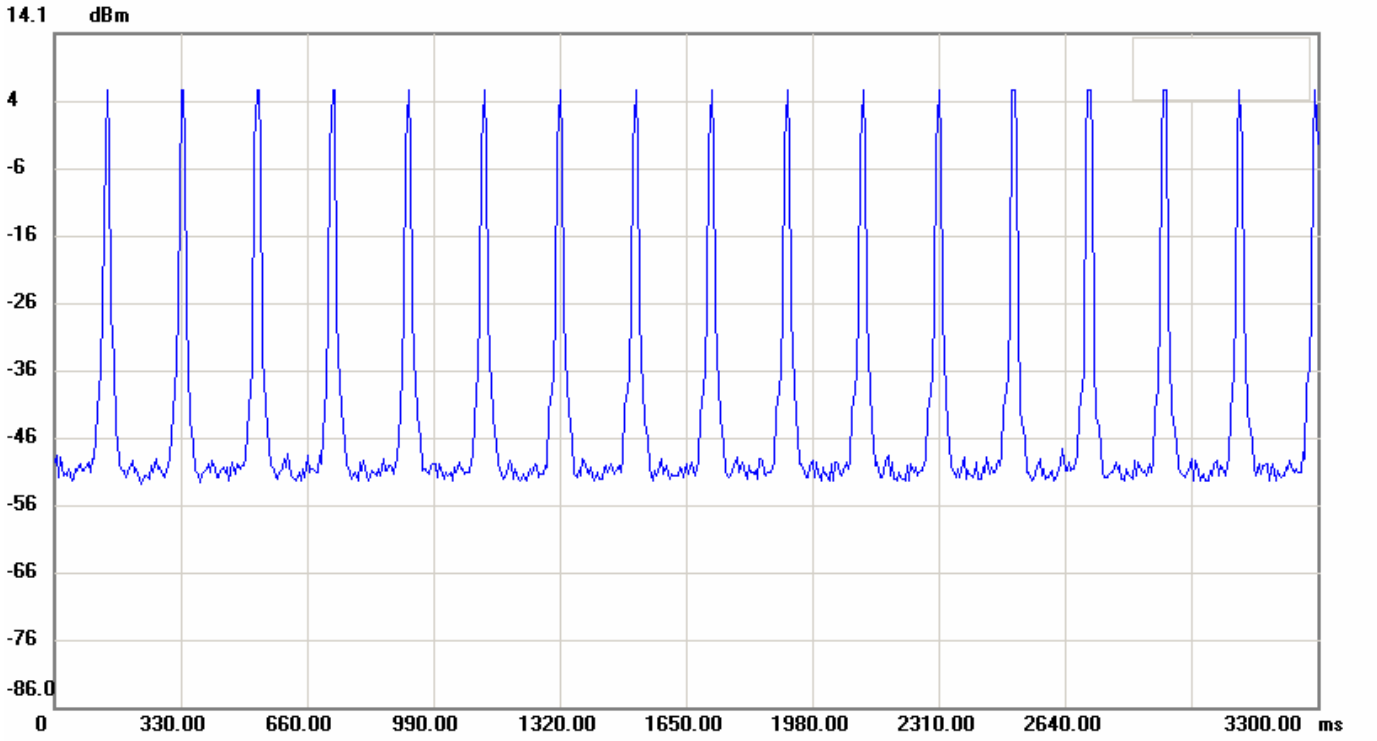


Condition: **-12.76dBm** **Horizontal**
EUT: **Sweep Time: 3ms** **Att.: 20dB**
Model: **U1177A** **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **DH3 pusle width**

No.	Sweep time(ms)	Level(dBm)
1	0.7900	-22.10
2	2.4200	-2.76
3	2.4550	-12.77

No.		△Time(ms)	△Level(dB)
1	mk3-mk1	1.665	9.33

File: U1177A-FCC **Data: #25** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:25:38 **Humidity: 54 %**



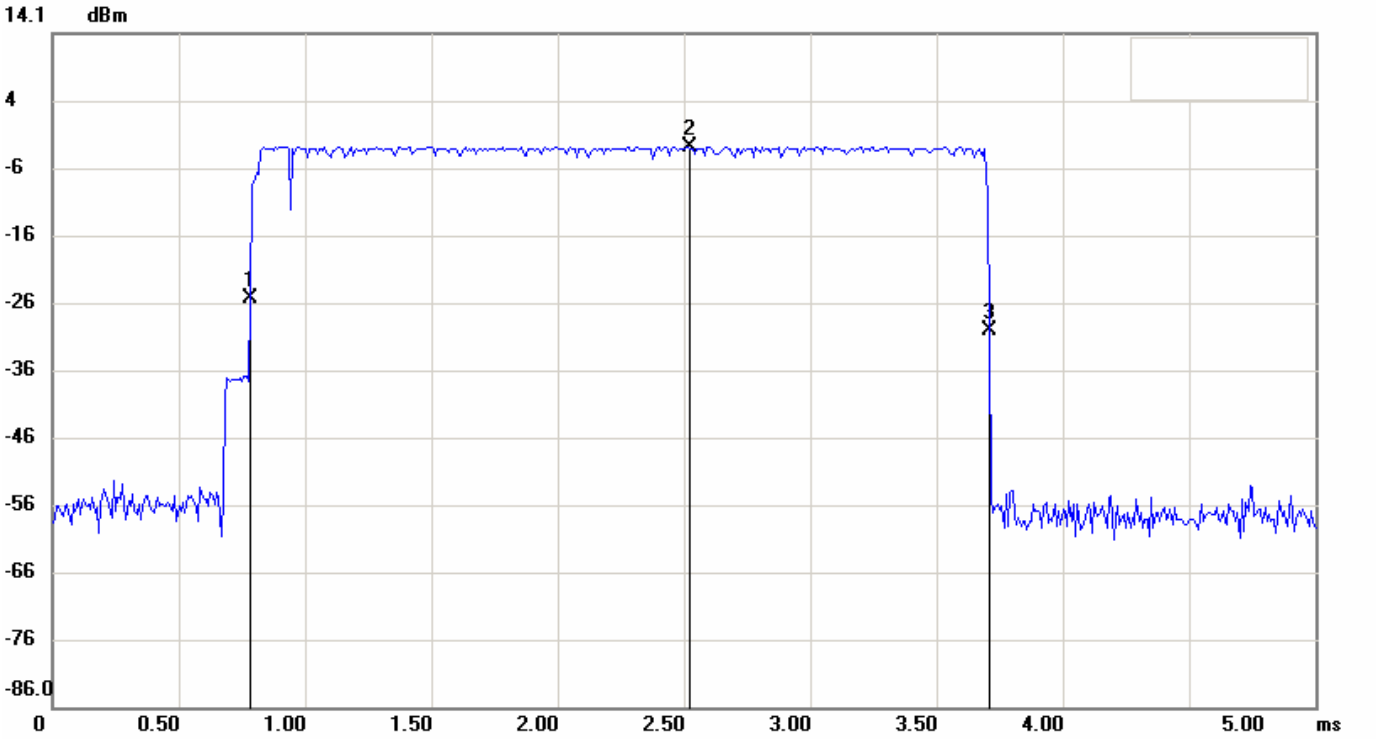
Condition: **Horizontal**
EUT: **Sweep Time: 3300ms** **Att.: 20dB**
Model: U1177A **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: DH3 Hops per 3.16 seconds

12.4.3 DH5

Test period=0.4(second/channel)$\times$79 channel=31.6sec
2480MHz dwell time= 2.925 ms$\times$110 = 321.8 ms

Note: Please refer to page 64 to page 65 for chart.

File: U1177A-FCC **Data: #28** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:28:25 **Humidity: 54 %**

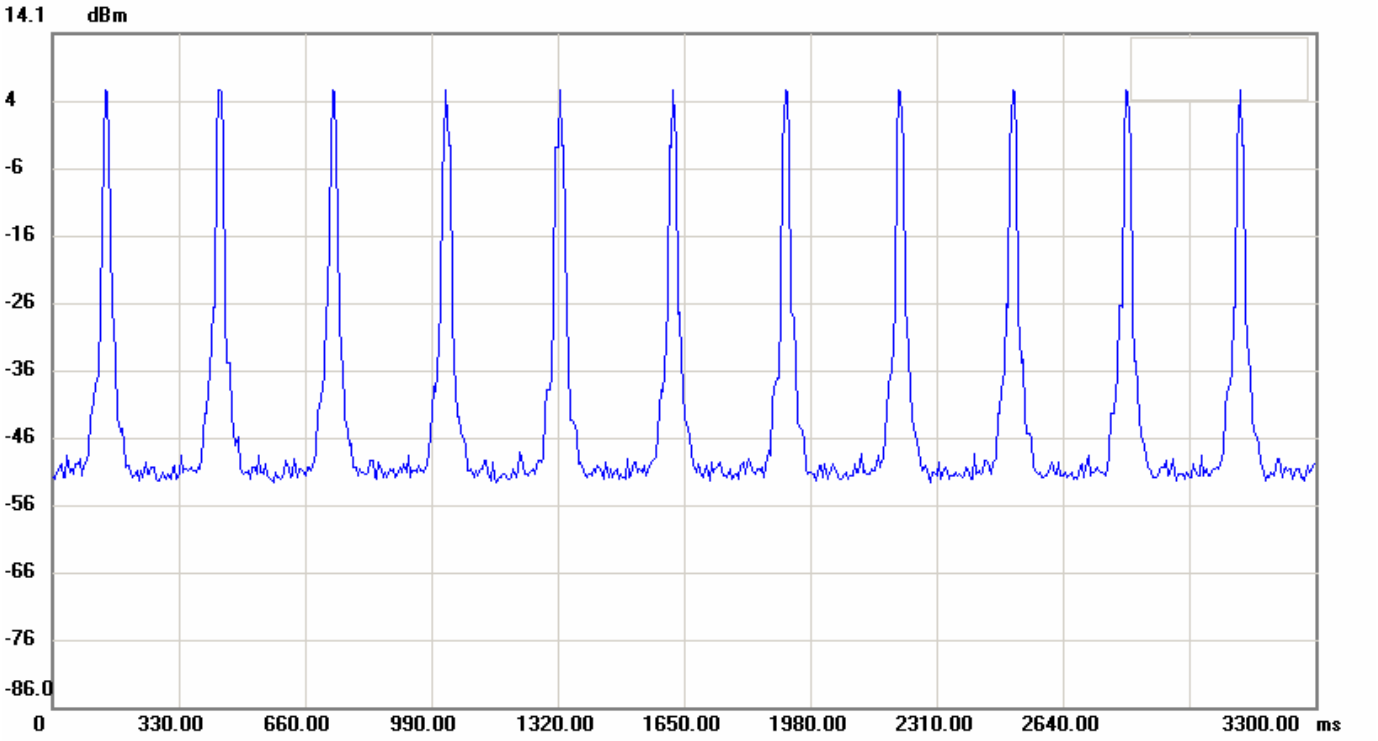


Condition: **-12.75dBm** **Horizontal**
EUT: **Sweep Time: 5ms** **Att.: 20dB**
Model: **U1177A** **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **DH5 pulse width**

No.	Sweep time(ms)	Level(dBm)
1	0.7833	-25.36
2	2.5167	-2.75
3	3.7083	-30.01

No.		△Time(ms)	△Level(dB)
1	mk3-mk1	2.925	-4.65

File: U1177A-FCC **Data: #27** **Date: 2011/5/13** **Temperature: 24 ℃**
Time: PM 03:28:11 **Humidity: 54 %**



Condition: **Horizontal**
EUT: **Sweep Time: 3300ms** **Att.: 20dB**
Model: U1177A **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: DH5 Hops per 3.16 seconds