9.   Dwell Time

9.1.   Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

9.2.   Test Setup
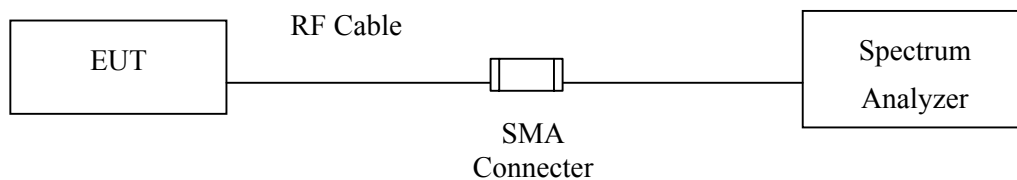
9.3.   Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4.   Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

9.5.   Uncertainty

± 25msec

9.6. Test Result of Dwell Time
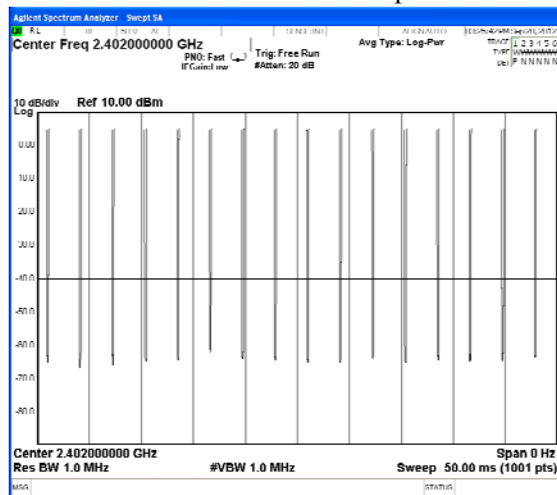
Product   :   Notebook PC
Test Item   :   Dwell Time
Test Site   :   No.3 OATS
Test Mode   :   Mode 1: Transmit - 1Mbps (GFSK) (Channel 00,39,78 –DH5)

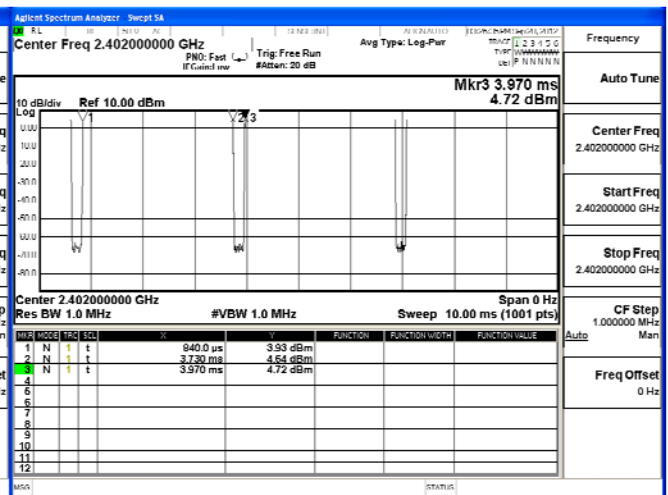| Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.890	16	50	0.92	0.370	0.4	Pass
2441	2.880	16	50	0.92	0.369	0.4	Pass
2480	2.880	16	50	0.92	0.369	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time =   (Duty cycle /79) * (79*0.4)
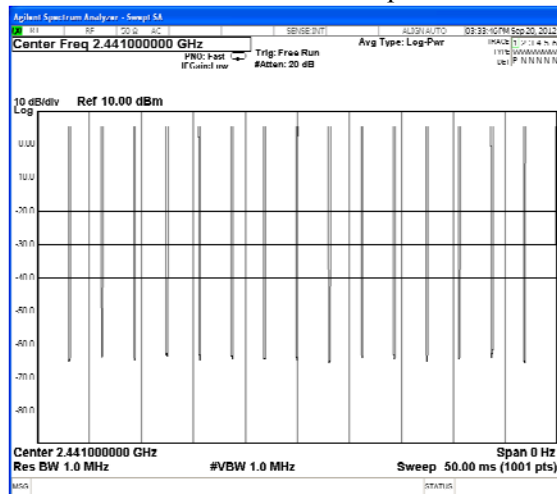
CH 00 Time Interval between hops   CH 00 Transmission Time
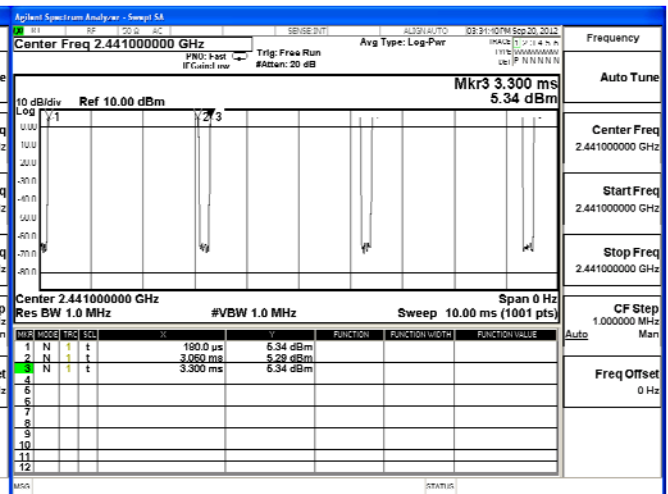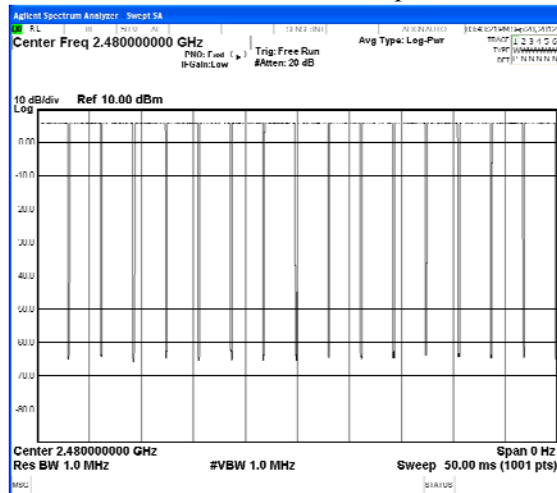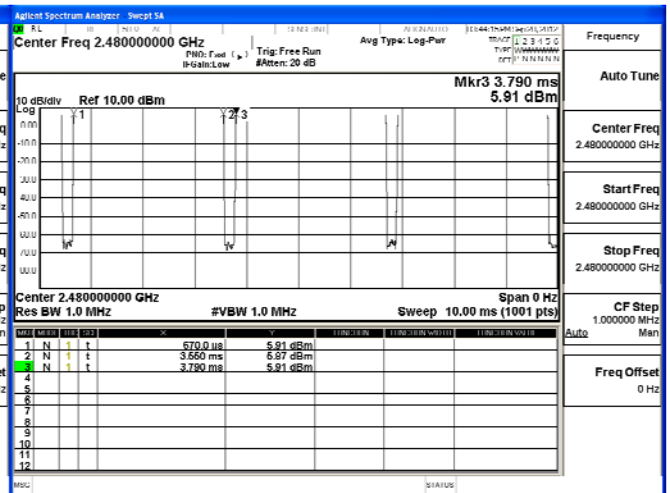

CH39 Time Interval between hops   CH 39Transmission Time

CH 78 Time Interval between hops

CH 78 Transmission Time

Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

Product : Notebook PC
Test Item : Dwell Time
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (Channel 00,39,78 –DH5)

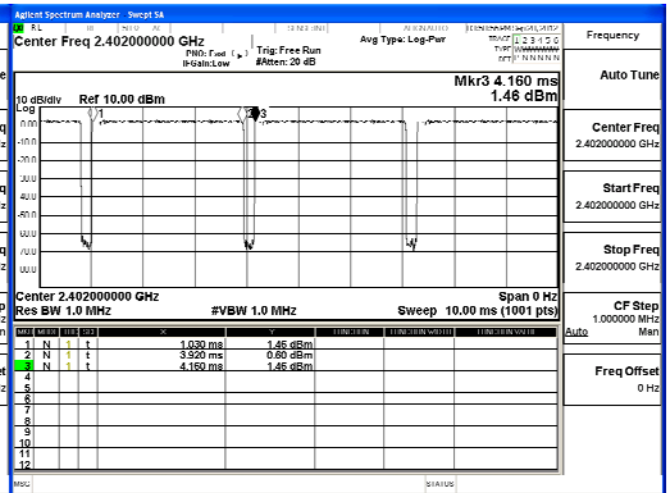| Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.890	16	50	0.92	0.370	0.4	Pass
2441	2.890	16	50	0.92	0.370	0.4	Pass
2480	2.880	16	50	0.92	0.369	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time =   (Duty cycle /79) * (79*0.4)

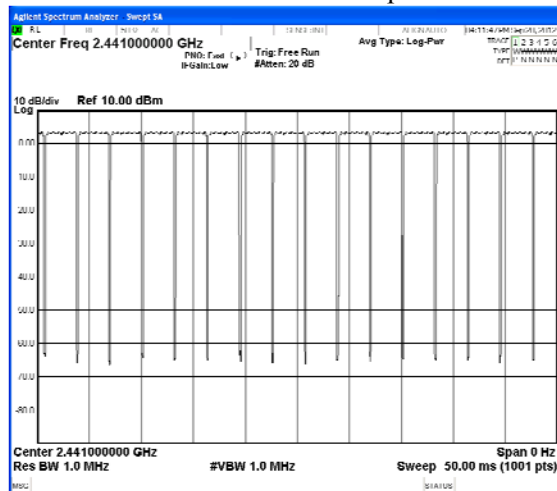CH 00 Time Interval between hops   CH 00 Transmission Time
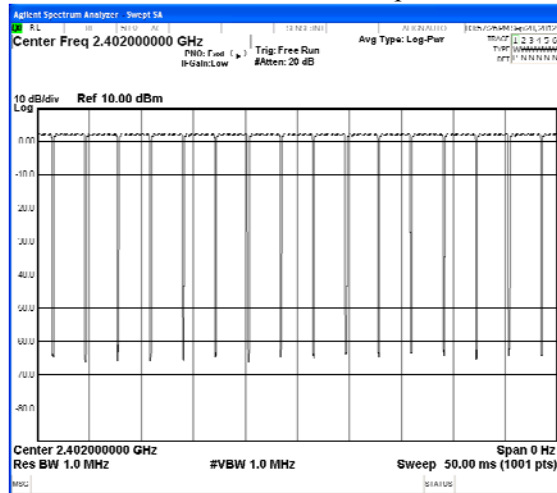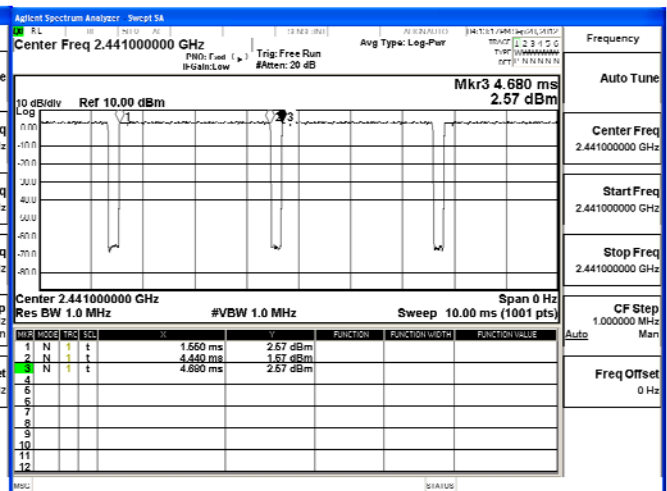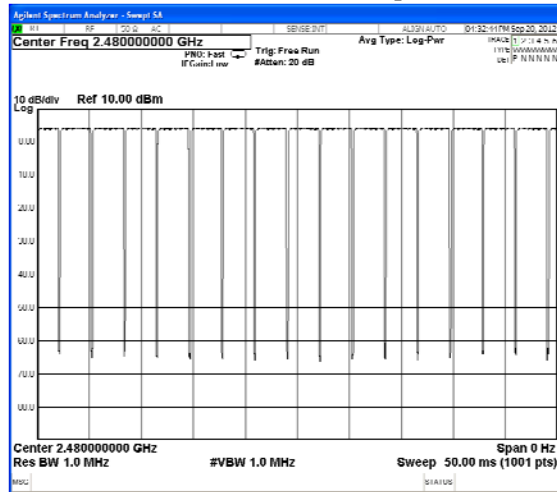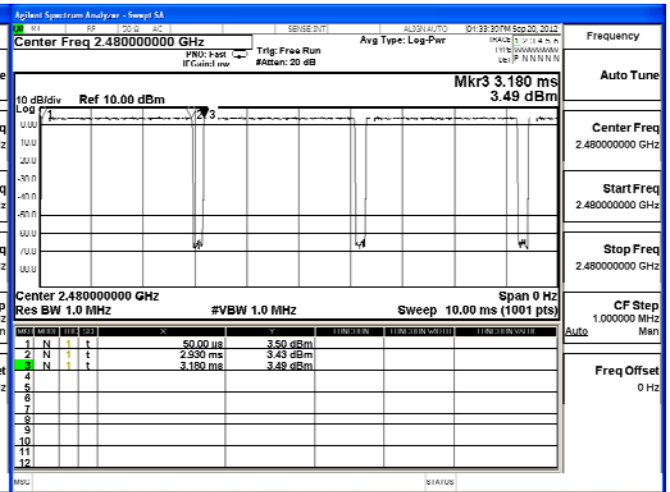

CH39 Time Interval between hops   CH 39Transmission Time

CH 78 Time Interval between hops   CH 78 Transmission Time

Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.
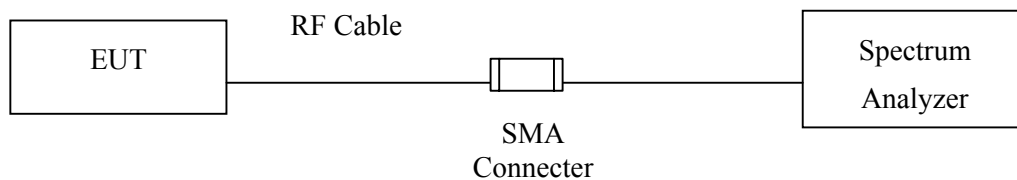
10.   Occupied Bandwidth (20dB BW)

10.1.   Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

10.2.   Test Setup

10.3.   Limits

N/A

10.4.   Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

10.5.   Uncertainty
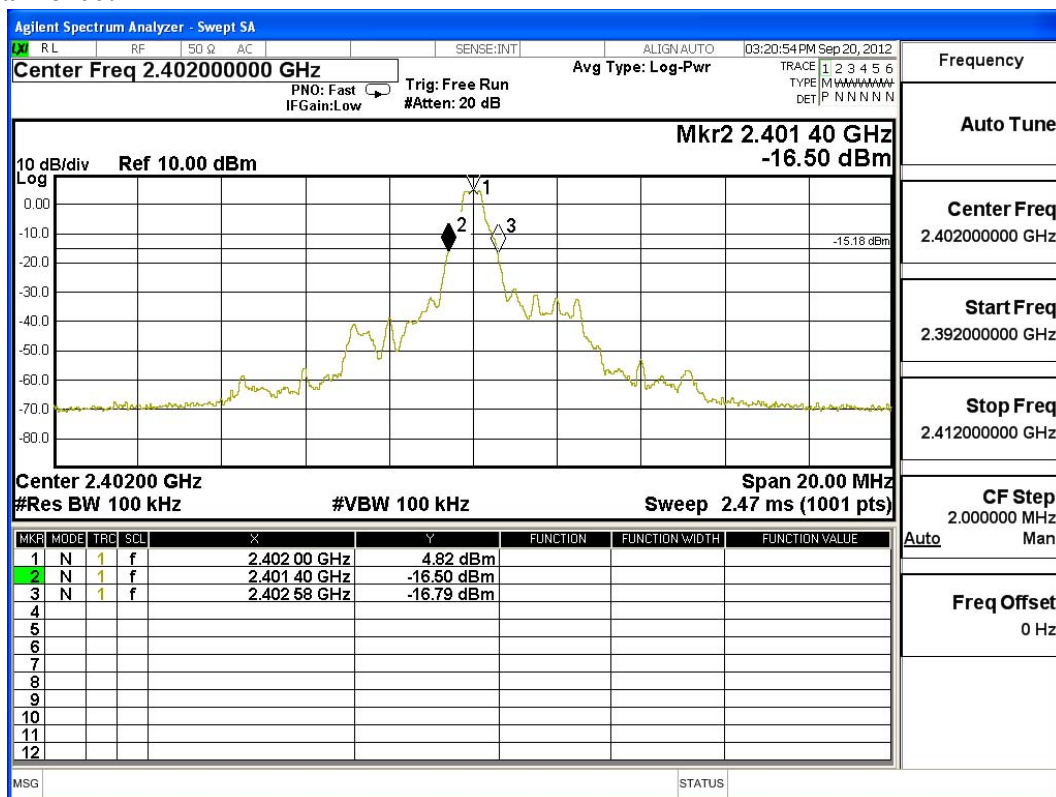
± 150Hz

10.6. Test Result of Occupied Bandwidth

Product   :   Notebook PC
Test Item   :   Occupied Bandwidth Data
Test Site   :   No.3 OATS
Test Mode   :   Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1180	--	NA

Figure Channel 00:

Product : Notebook PC
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2441MHz)

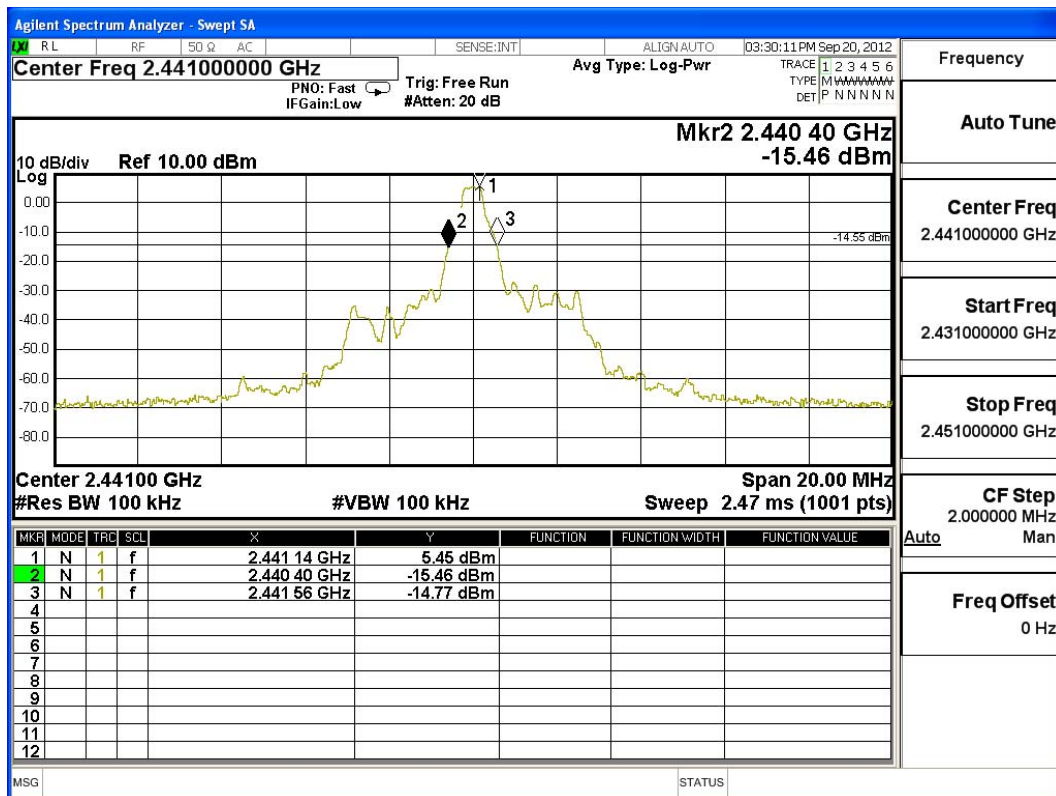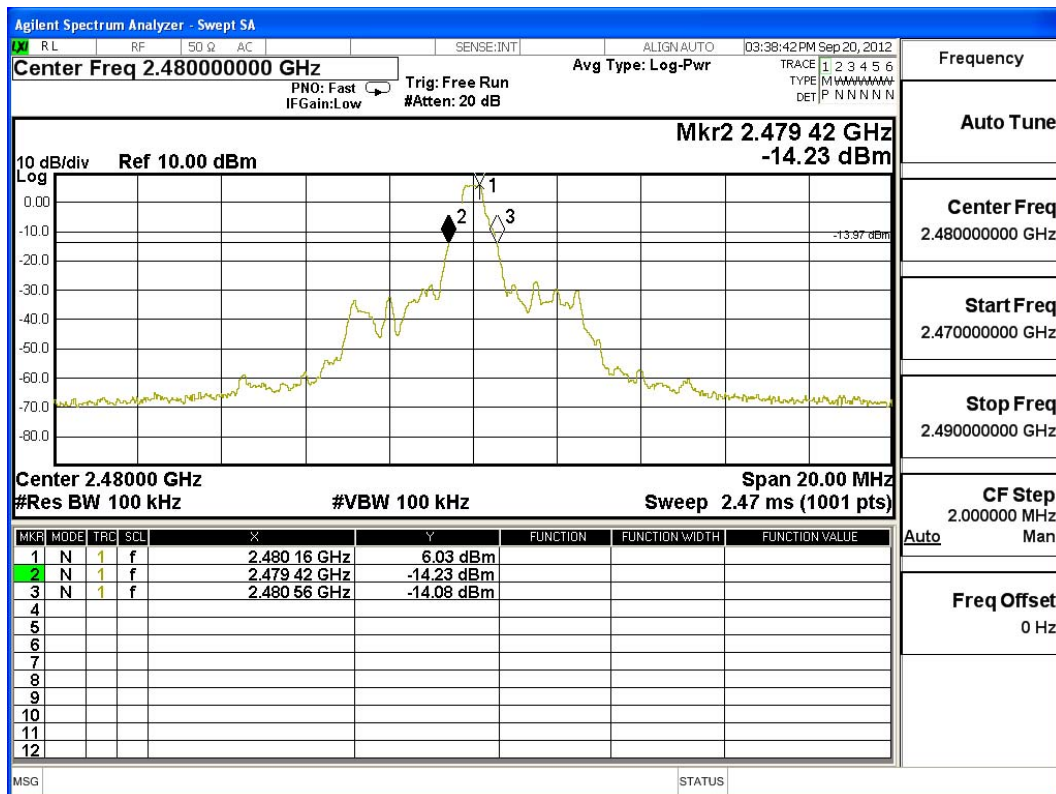| Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2441	1160	--	NA

Figure Channel 39:

Product : Notebook PC
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 1Mbps (GFSK)(2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1140	--	NA

Figure Channel 78:

Product : Notebook PC
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1420	--	NA

Figure Channel 00:

Product : Notebook PC

Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

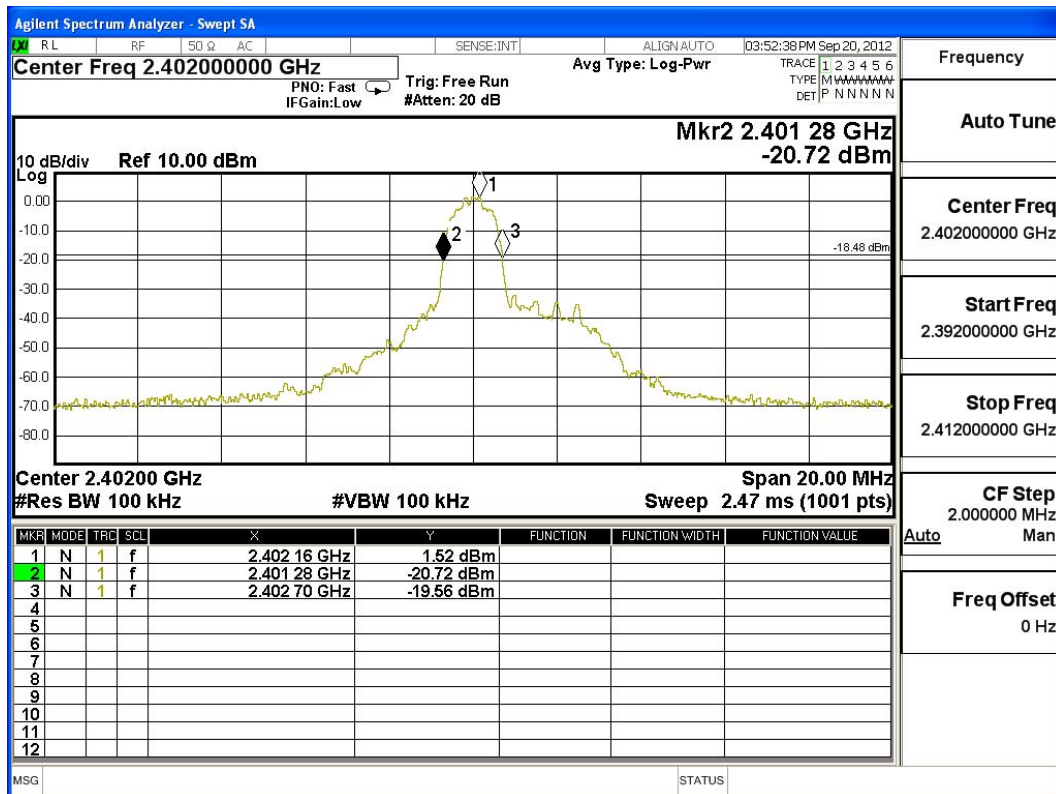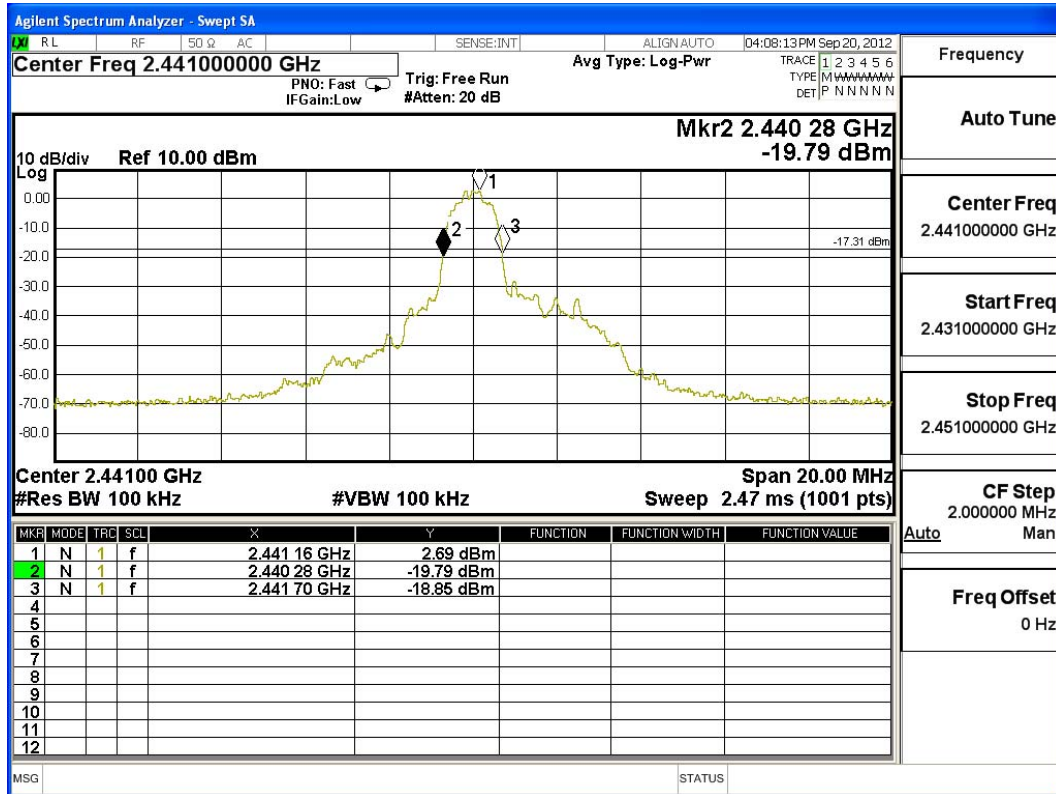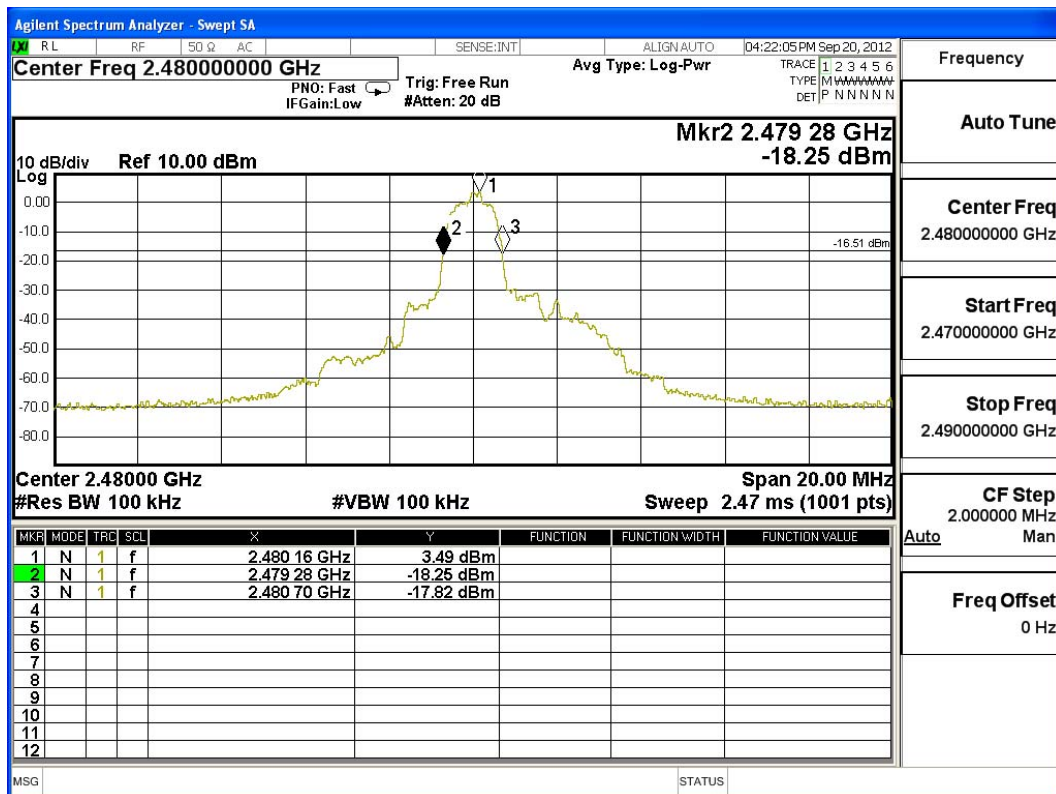| Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2442	1420	--	NA

Figure Channel 39:

Product   :   Notebook PC
Test Item   :   Occupied Bandwidth Data
Test Site   :   No.3 OATS
Test Mode   :   Mode 2: Transmit - 3Mbps (8DPSK)(2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
78	2480	1420	--	NA

Figure Channel 78:

11. Occupied Bandwidth (6dB BW)

11.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

11.2. Test Setup
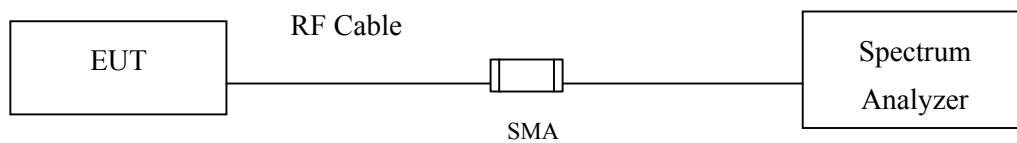
11.3. Limits

The minimum bandwidth shall be at least 500 kHz.

11.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

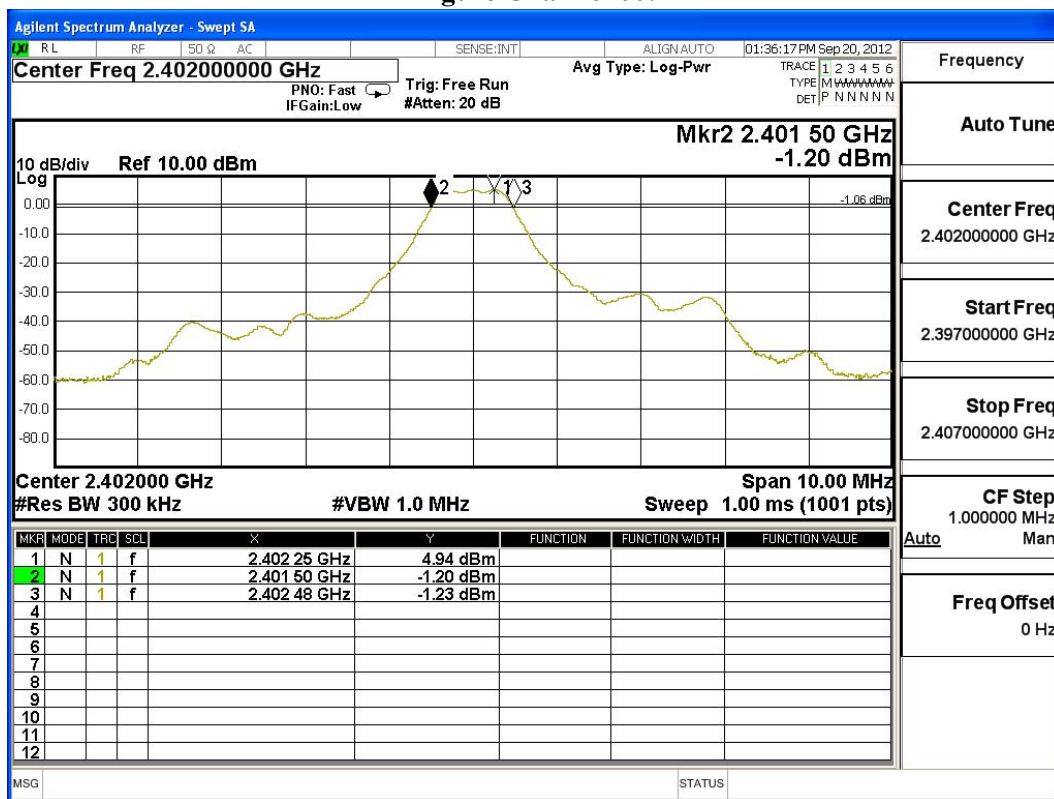Set RBW = 1-5% of the emission bandwidth, VBW≥3*RBW

11.5. Uncertainty

± 150Hz

11.6. Test Result of Occupied Bandwidth

Product : Notebook PC

Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - BLE (GFSK) (2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	980	>500	Pass

Figure Channel 00:

Product   :   Notebook PC
Test Item   :   Occupied Bandwidth Data
Test Site   :   No.3 OATS
Test Mode   :   Mode 3: Transmit - BLE (GFSK) (2440MHz)

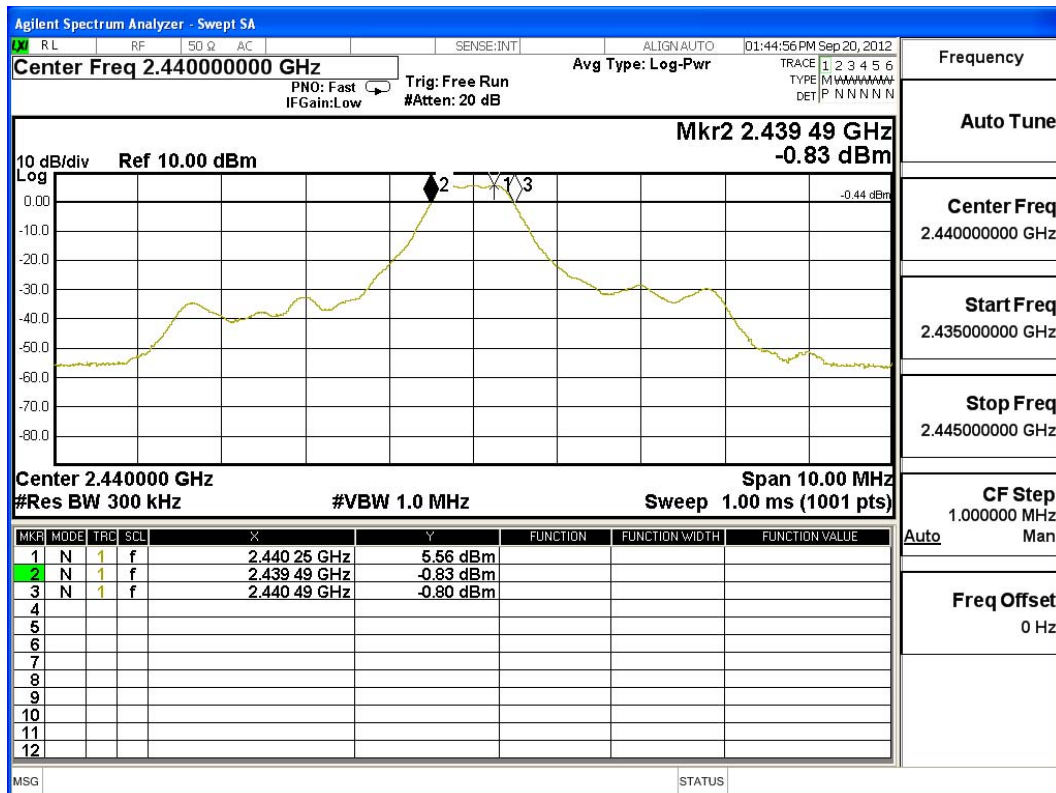| Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	1000	>500	Pass

Figure Channel 19:

Product : Notebook PC

Test Item : Occupied Bandwidth Data

Test Site : No.3 OATS

Test Mode : Mode 3: Transmit - BLE (GFSK) (2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	1010	>500	Pass

Figure Channel 39:

12. Power Density

12.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2012
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2012
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

12.2. Test Setup
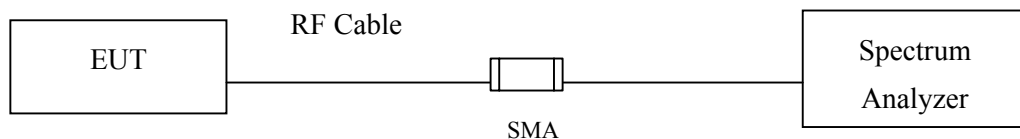
12.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

12.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW= 100 kHz, VBW≥300KHz, SPAN to 5-30 % greater than the EBW,
Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100 kHz = -15.2 dB).

12.5. Uncertainty
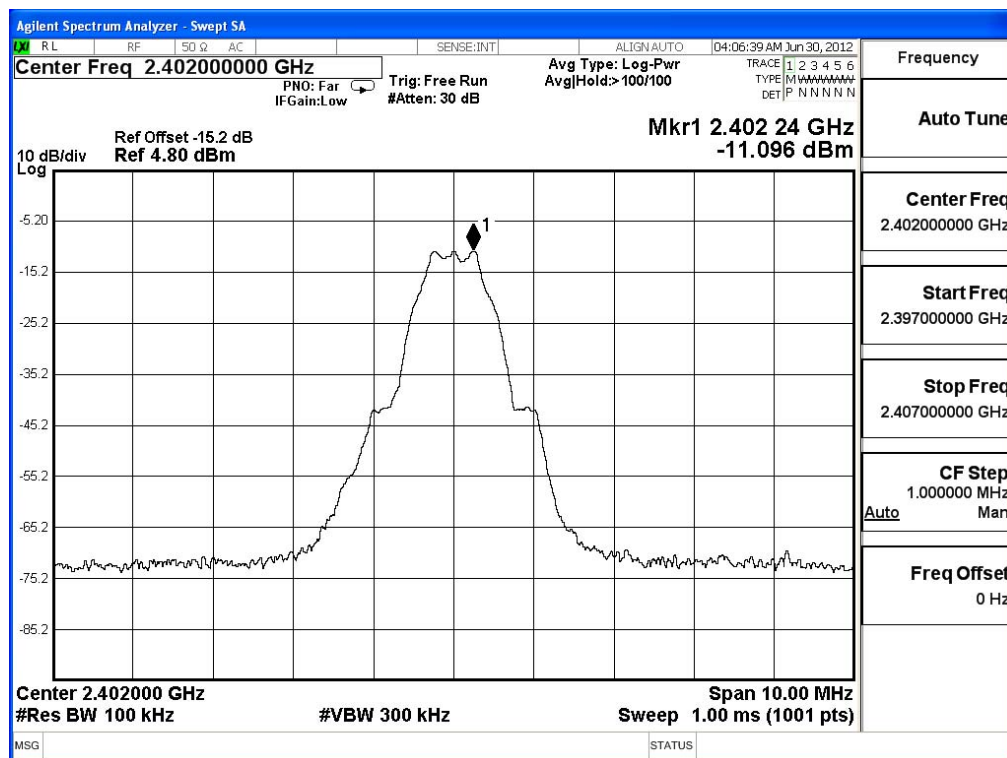
± 1.27 dB

12.6. Test Result of Power Density

Product   :   Notebook PC

Test Item   :   Power Density Data

Test Site   :   No.3 OATS

Test Mode   :   Mode 3: Transmit - BLE (GFSK) (2402MHz)

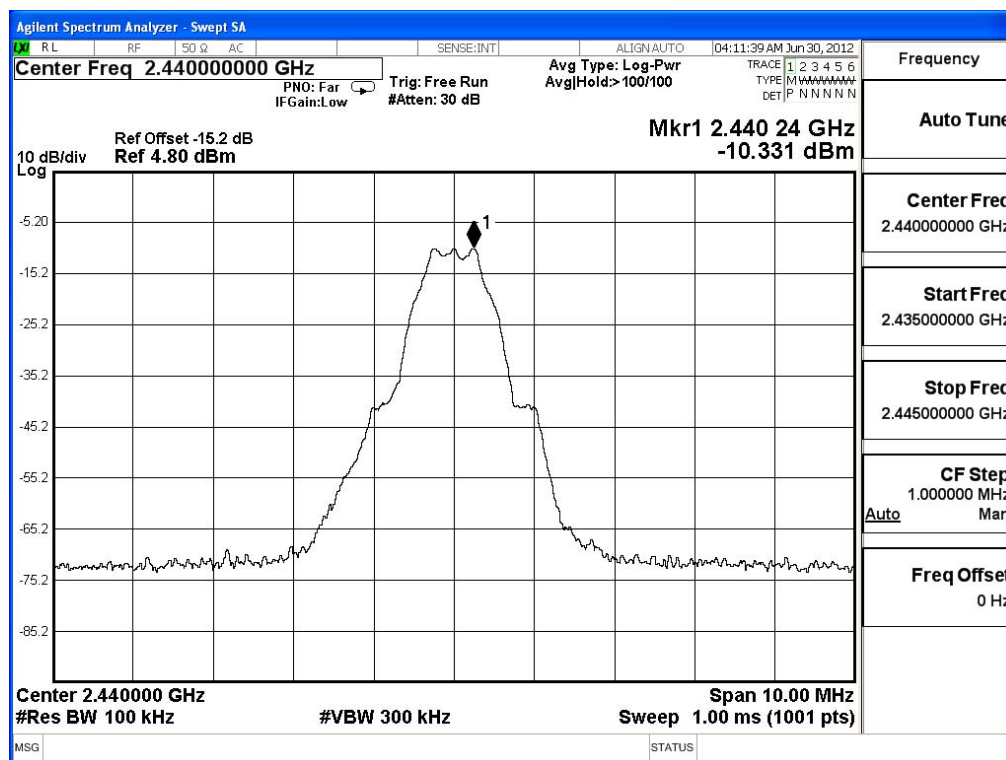| Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	-11.096	< 8dBm	Pass

Figure Channel 00:

Product : Notebook PC
Test Item : Power Density Data
Test Site : No.3OATS
Test Mode : Mode 3: Transmit - BLE (GFSK) (2440MHz)

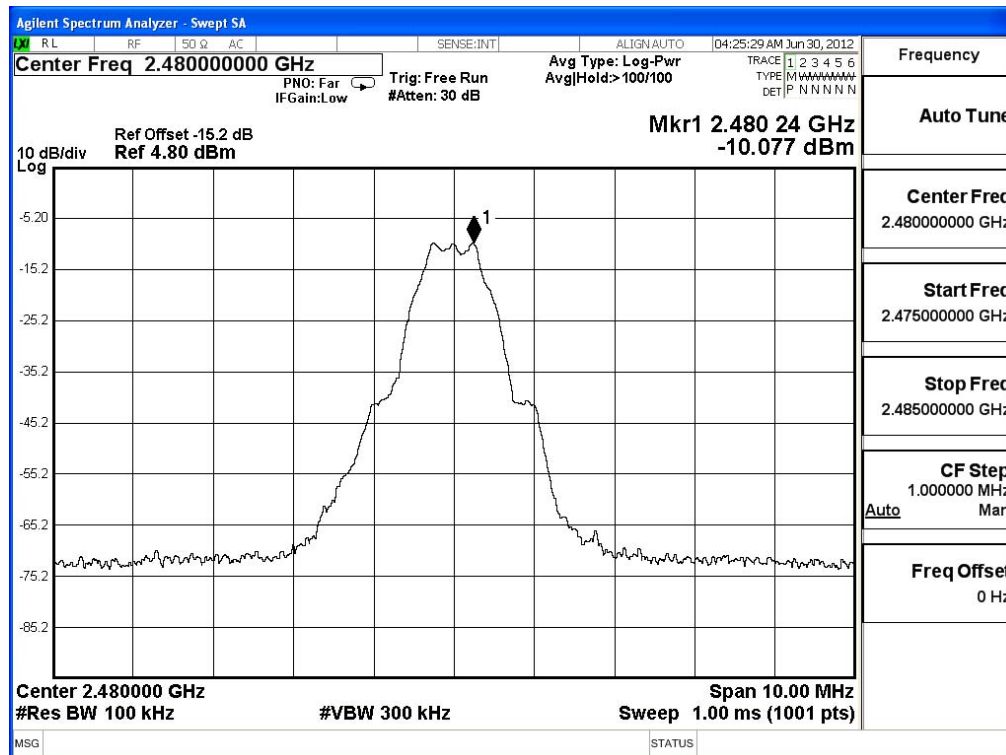| Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
19	2440	-10.331	< 8dBm	Pass

Figure Channel 19:

Product : Notebook PC
Test Item : Power Density Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - BLE (GFSK) (2480MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2480	-10.077	< 8dBm	Pass

Figure Channel 39:

13. **EMI Reduction Method During Compliance Testing**

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs