

6. OCCUPIED BANDWIDTH

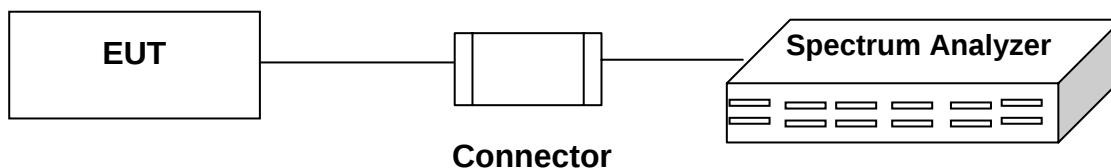
TEST EQUIPMENT

The following test equipments are used during the radiated emission tests:

Item	Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
1	Spectrum Analyzer	RS	FSL6	100517	2012.07.28

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

BLOCK DIAGRAM OF TEST SETUP



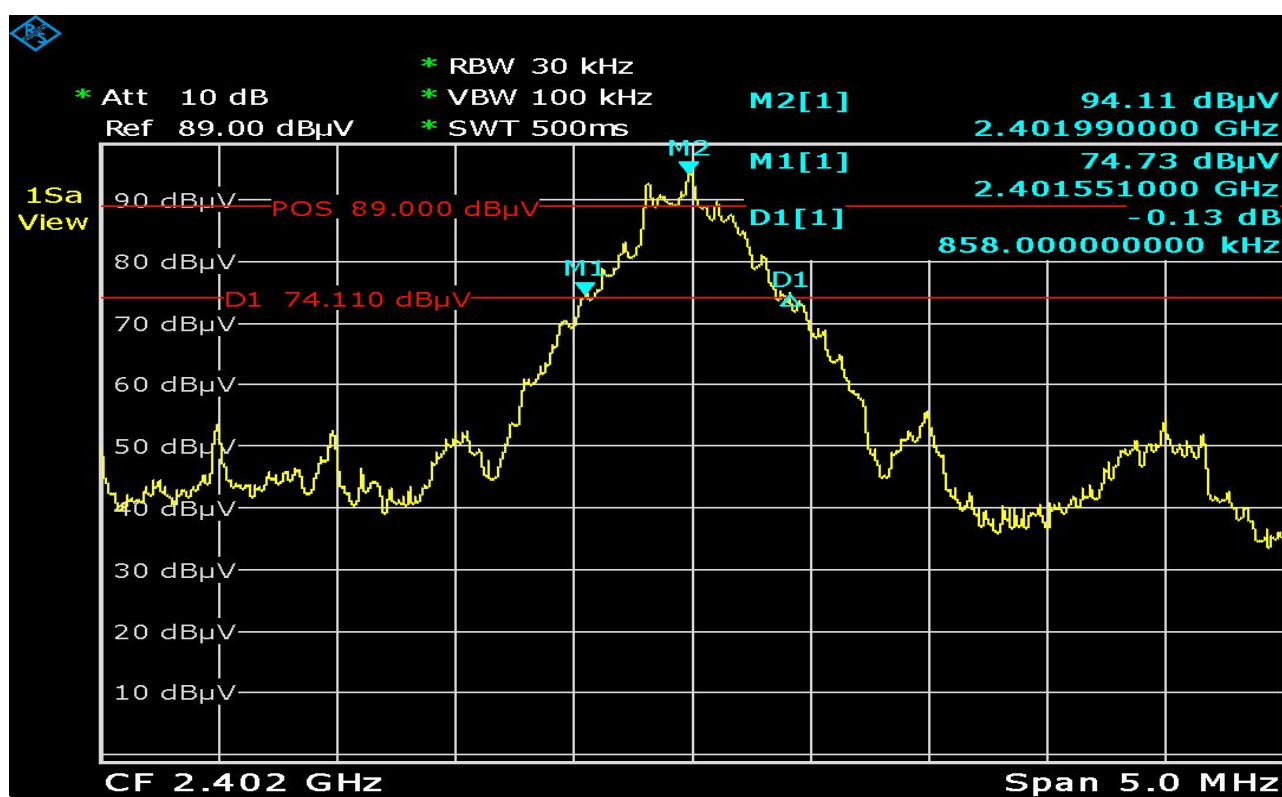
LIMIT

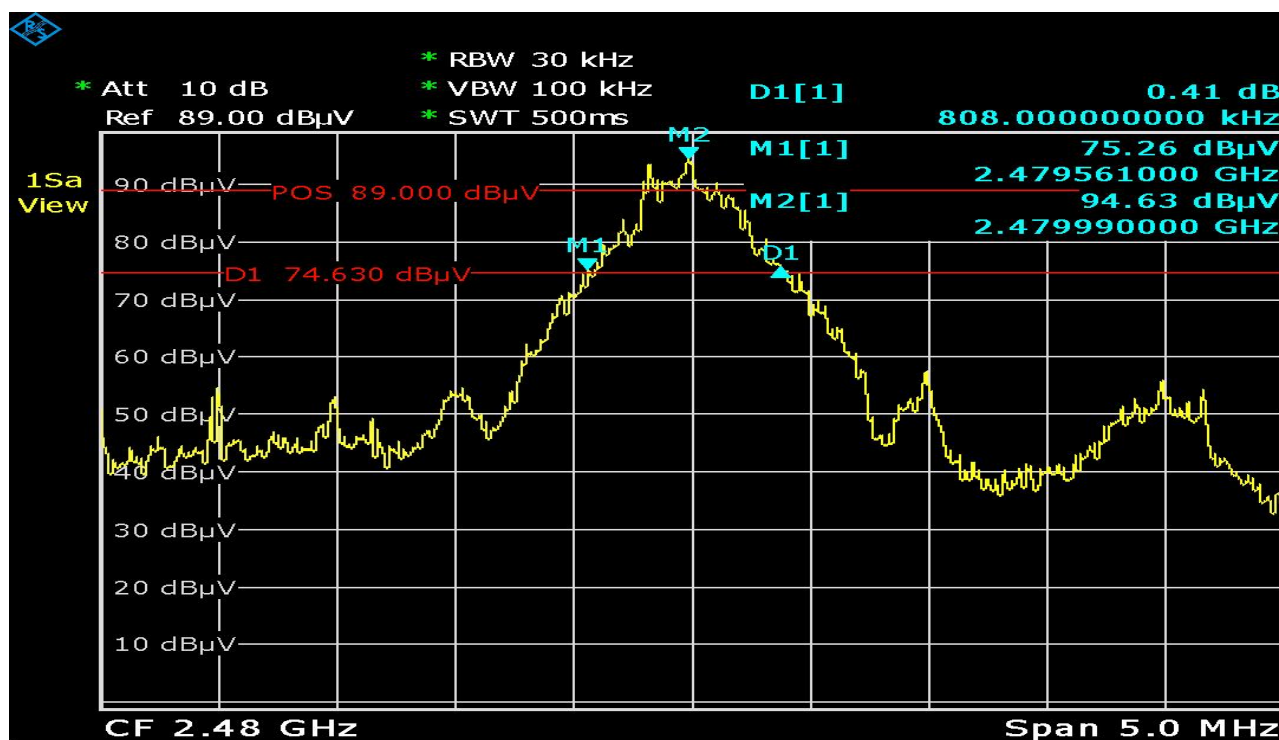
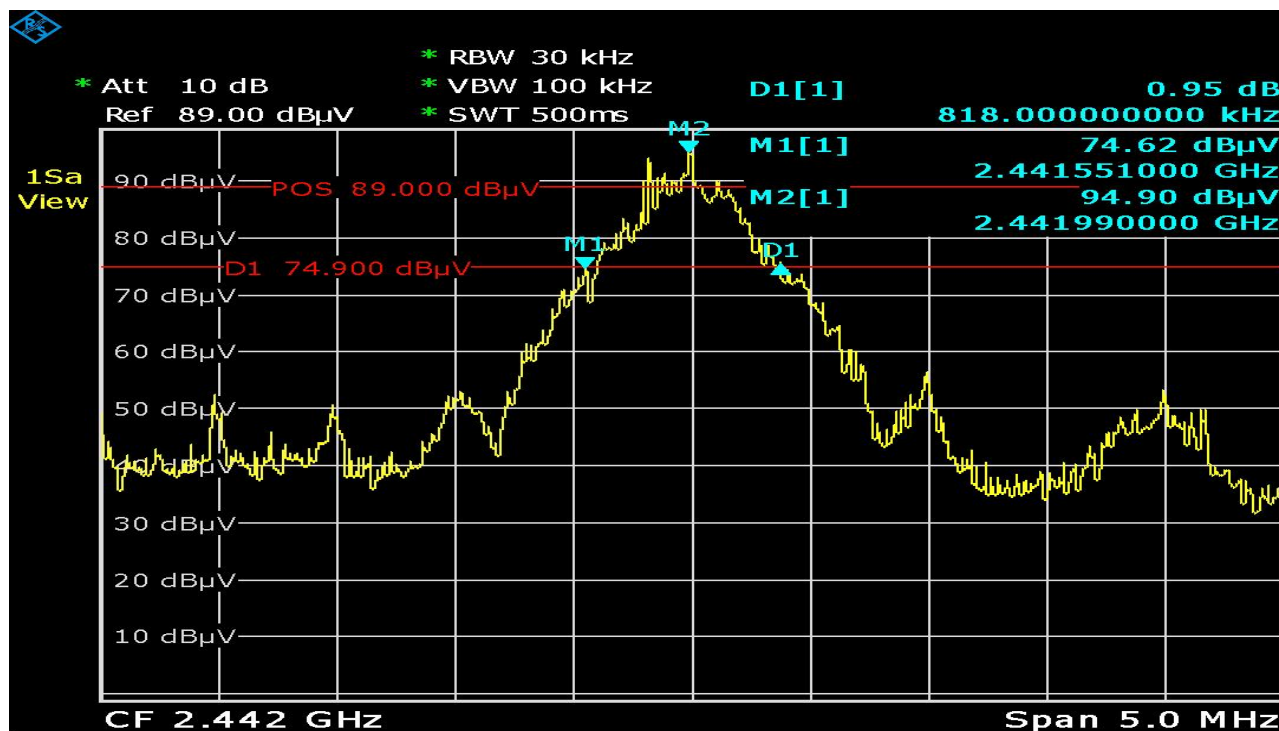
The maximum 20 dB bandwidth shall be measurement.

TEST RESULT

Date of Test	September 26, 2011	Temperature	25.9 deg/C
EUT	Bluetooth UART module	Humidity	66 %RH
Working Cond.	Mode 1		

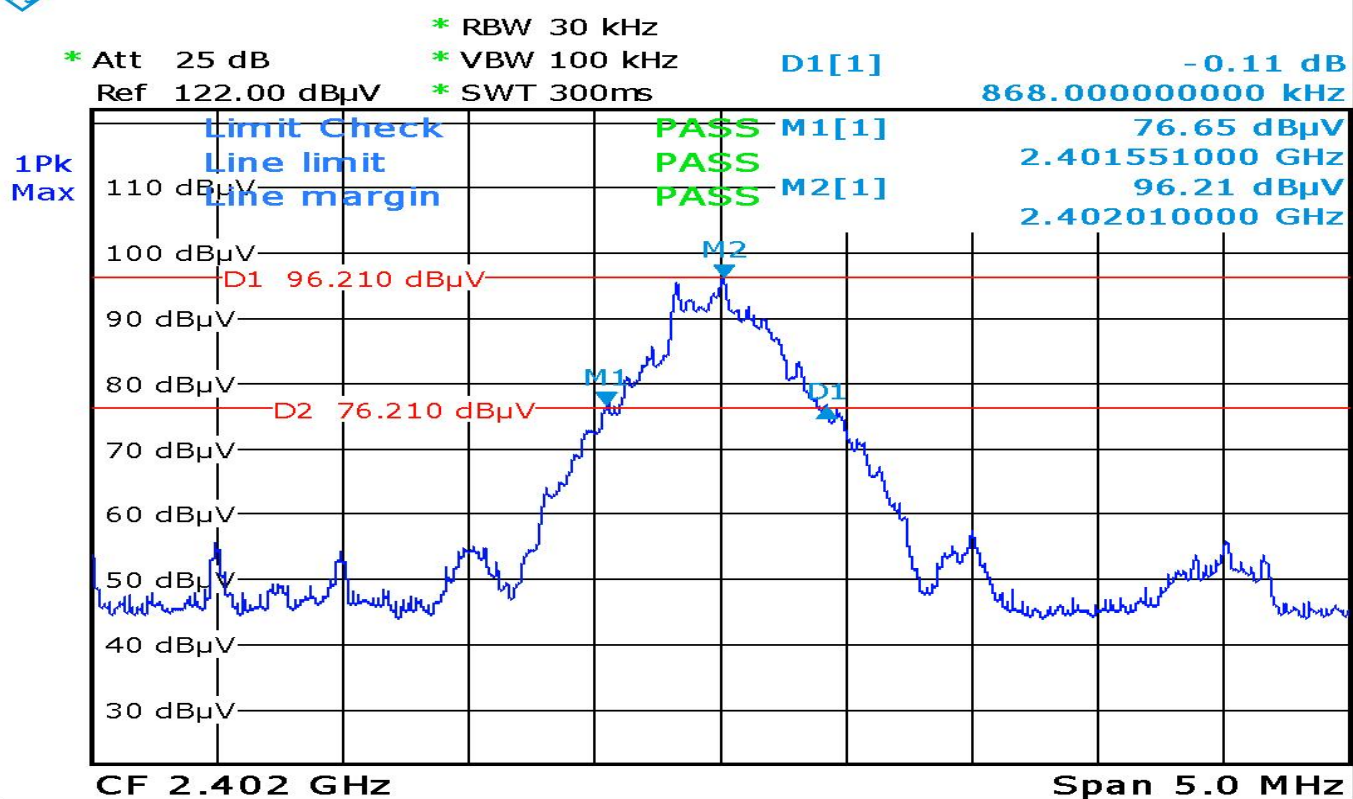
Channel No.	Frequency (MHz)	20dB Bandwidth (MHz)
0	2401.99	0.858
40	2441.99	0.818
78	2479.99	0.808

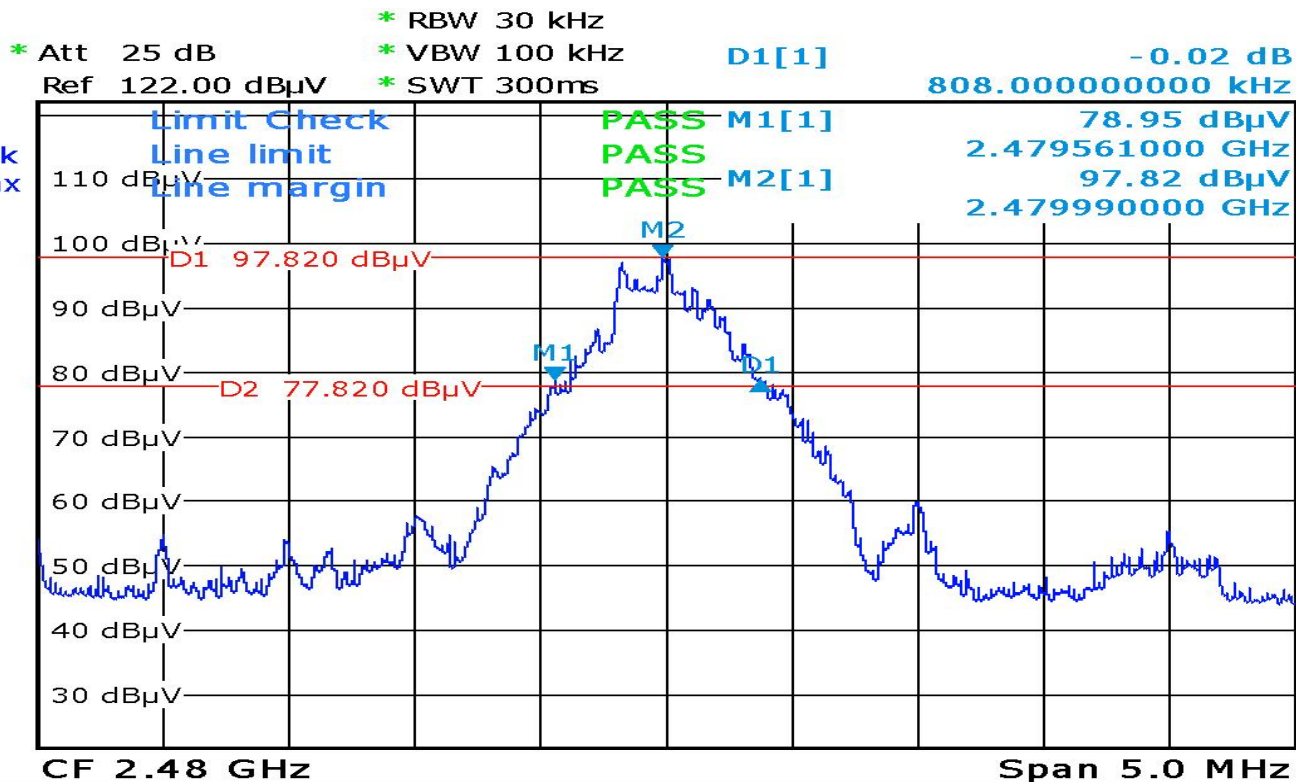
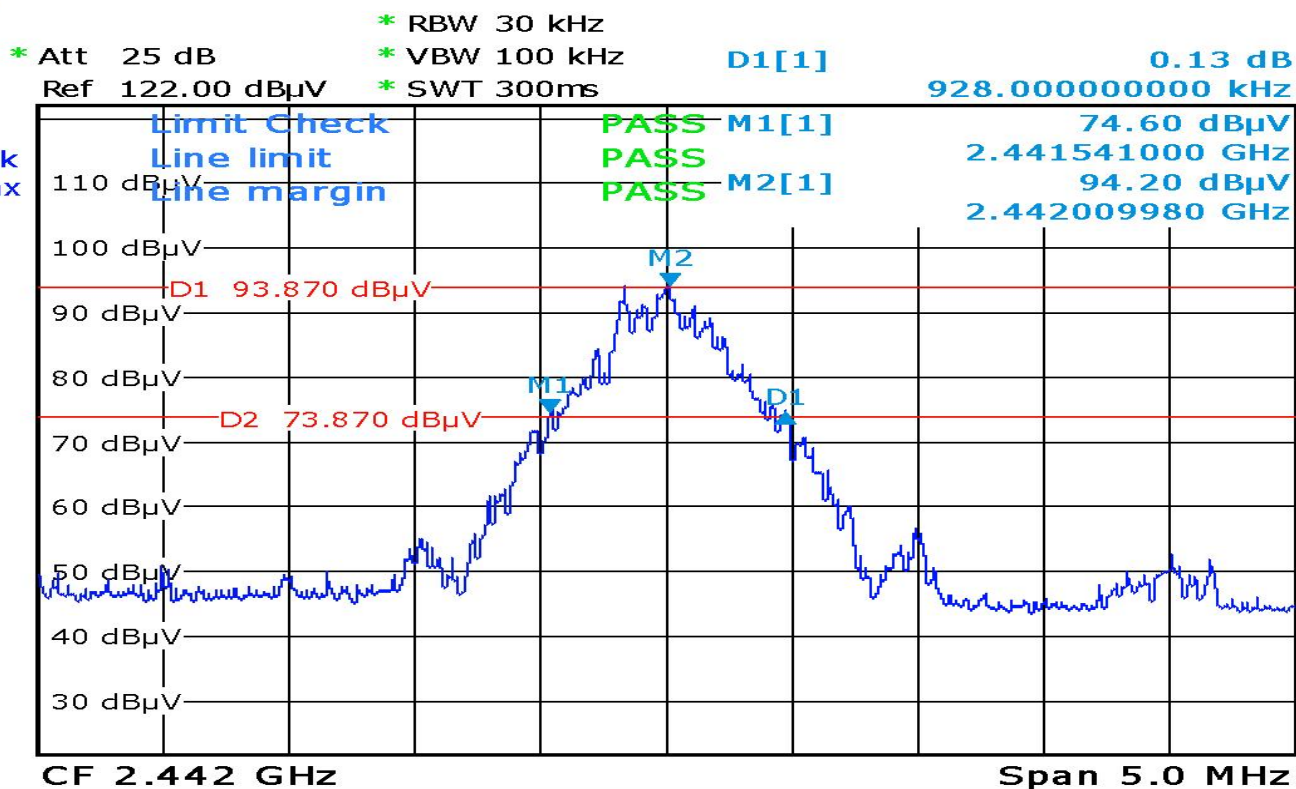




Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 2		

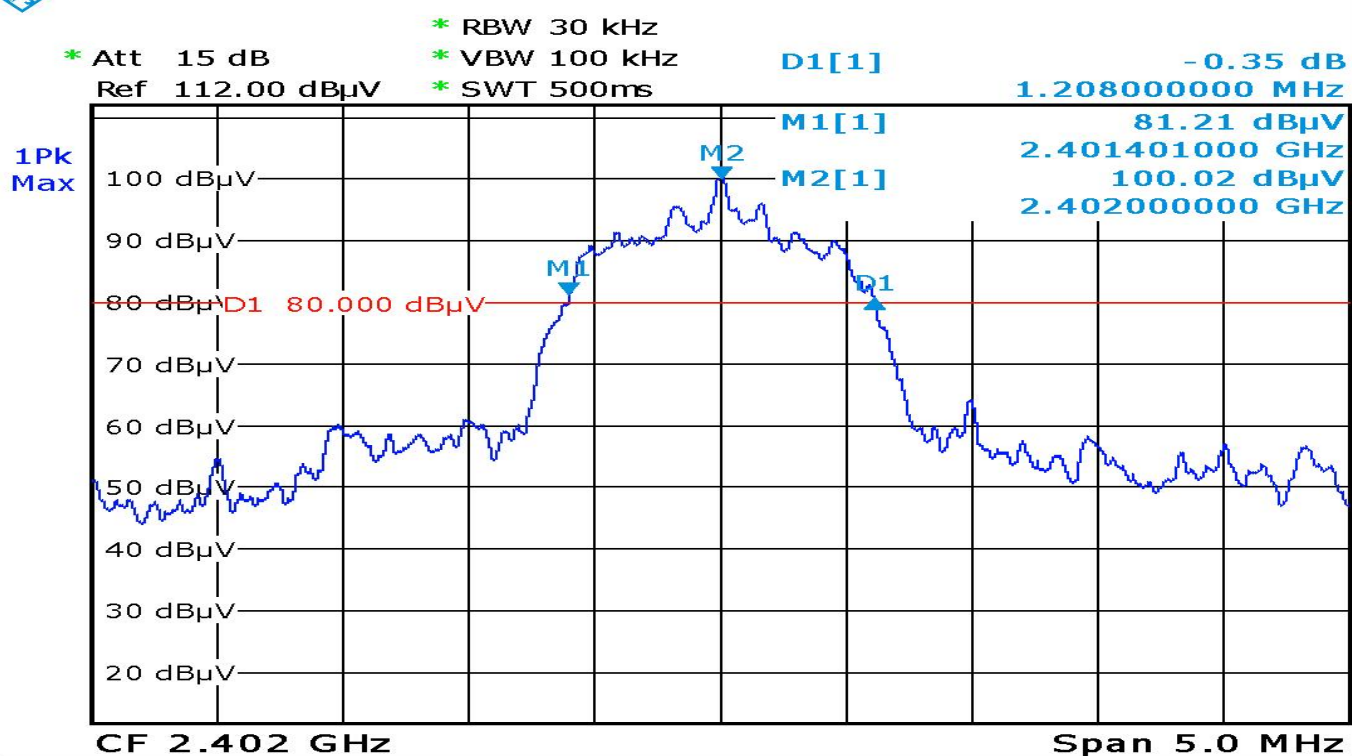
Channel No.	Frequency (MHz)	20dB Bandwidth (MHz)
0	2402.01000	0.868
40	2442.00998	0.928
78	2479.99000	0.808

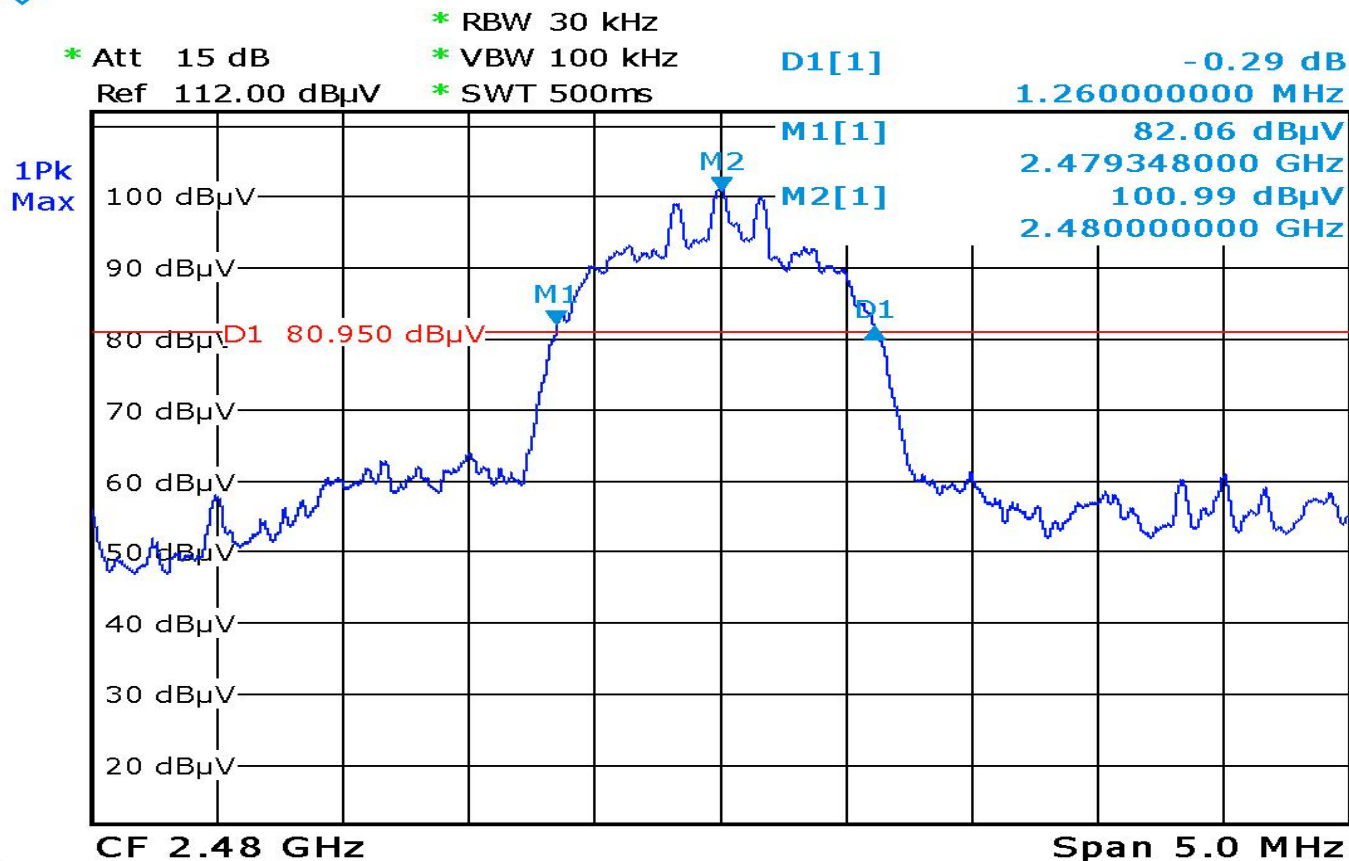
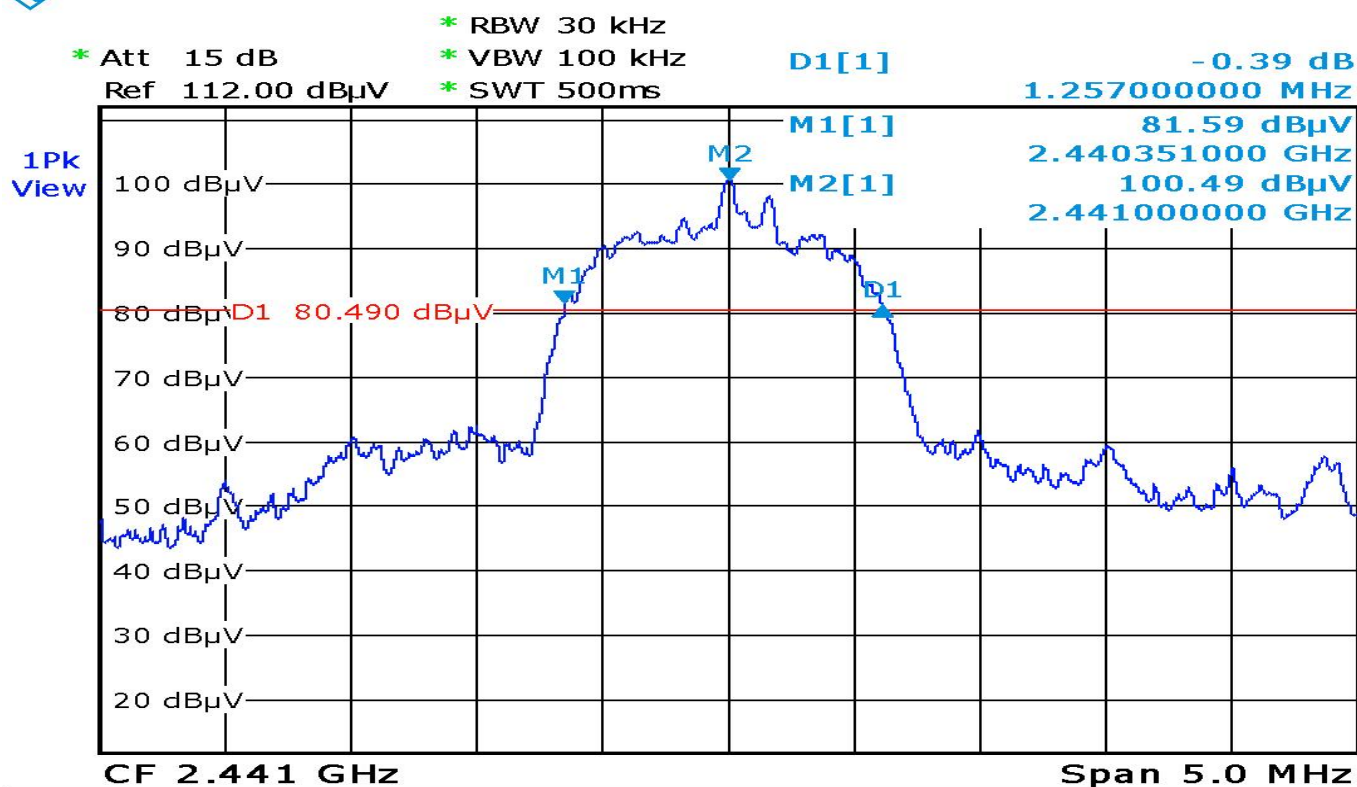




Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3		

Channel No.	Frequency (MHz)	20dB Bandwidth (MHz)
0	2402.00	1.208
40	2441.00	1.257
78	2480.00	1.260





7. CHANNEL SEPARATION

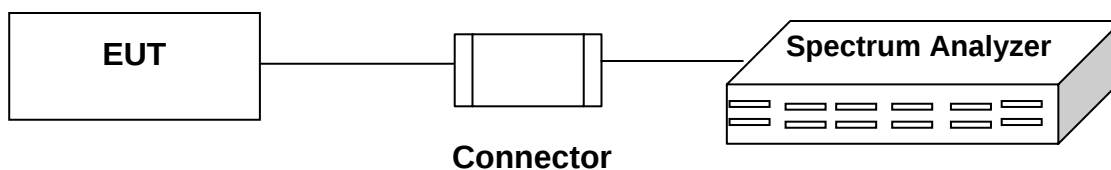
TEST EQUIPMENT

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1	Spectrum Analyzer	RS	FSL6	100517	2012.07.28

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

BLOCK DIAGRAM OF TEST SETUP



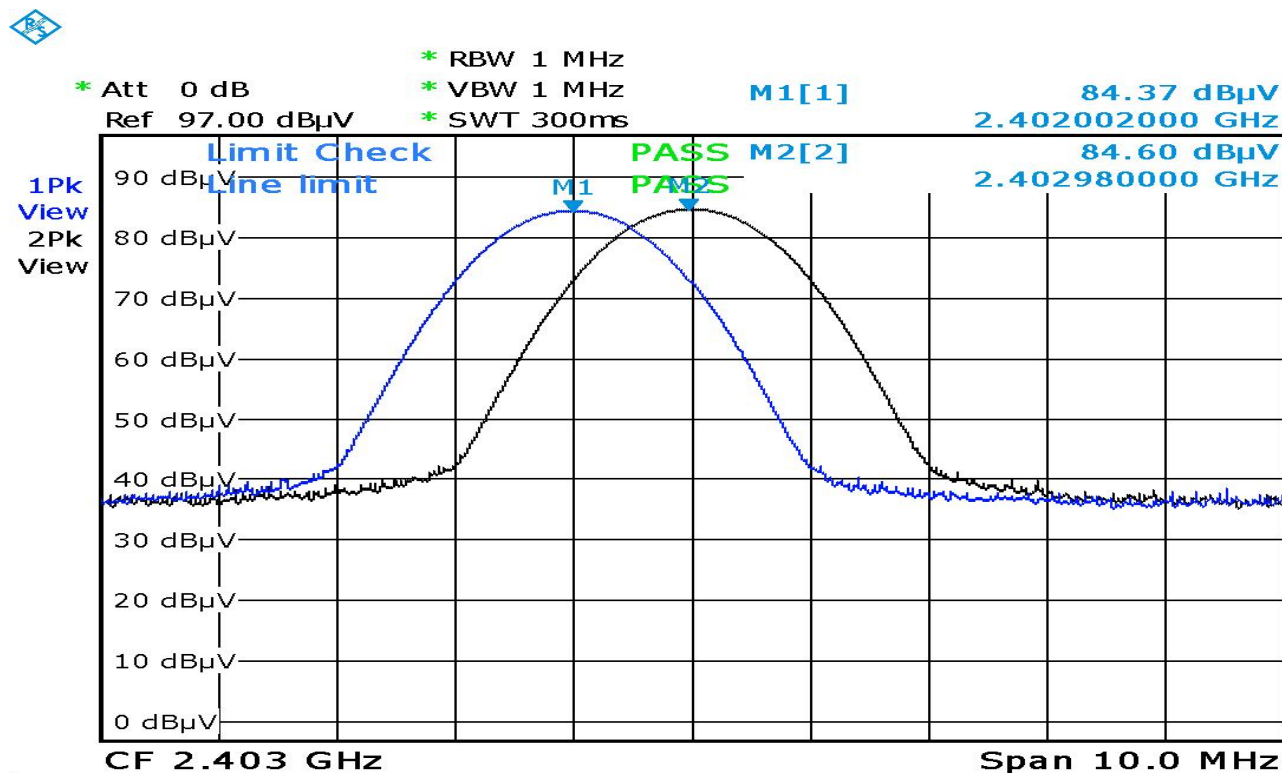
LIMIT

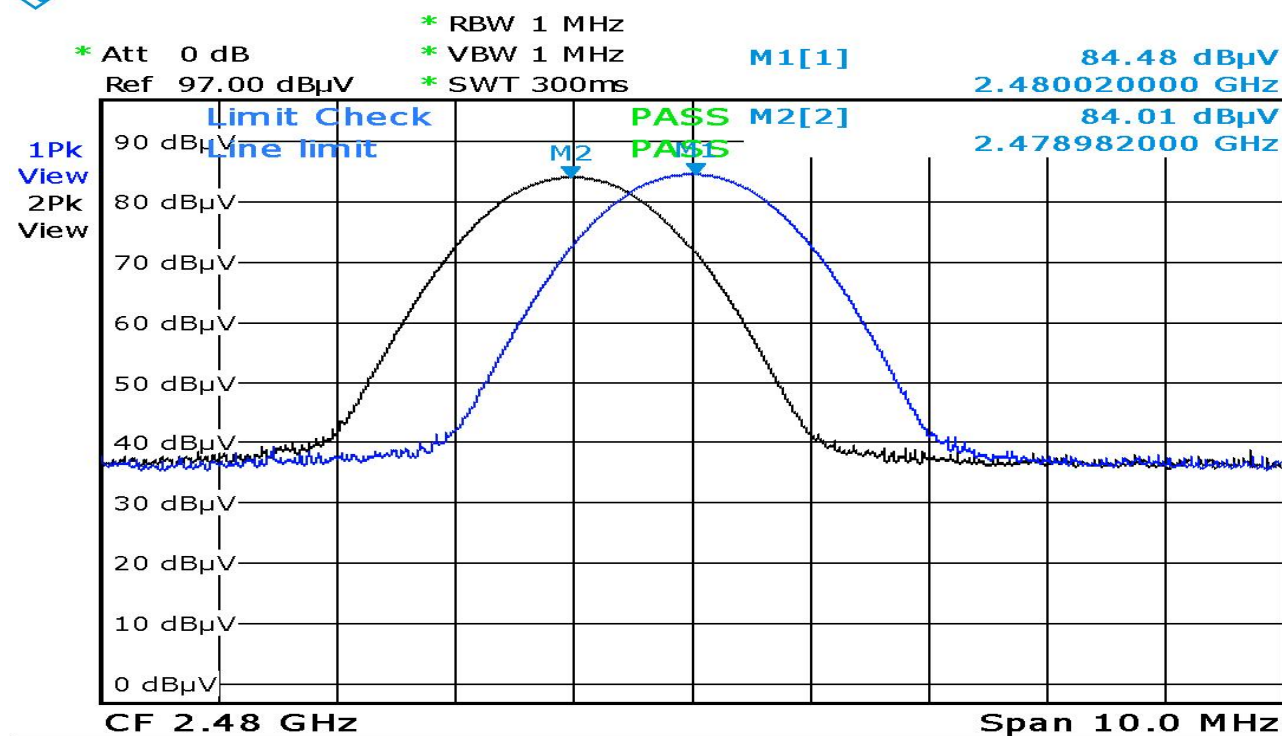
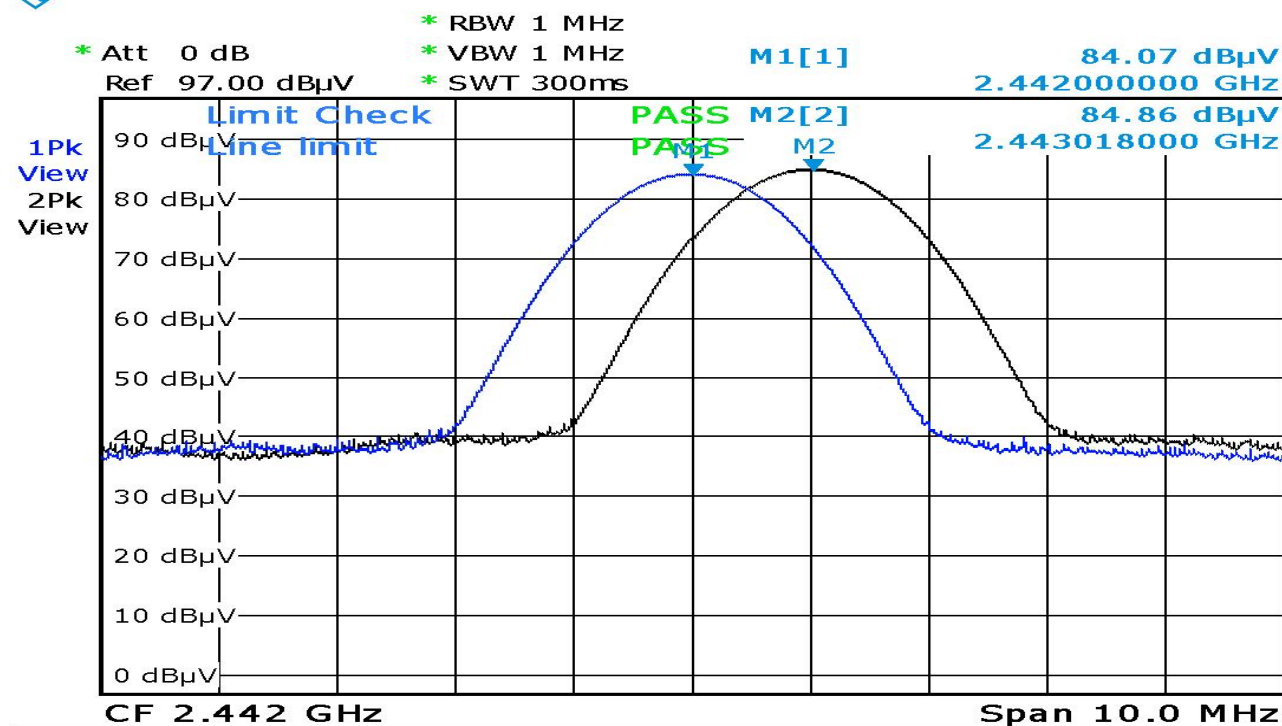
Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is grester.

TEST RESULT

Date of Test	September 26, 2011	Temperature	25.9 deg/C
EUT	Bluetooth UART module	Humidity	66 %RH
Working Cond.	Mode 1		

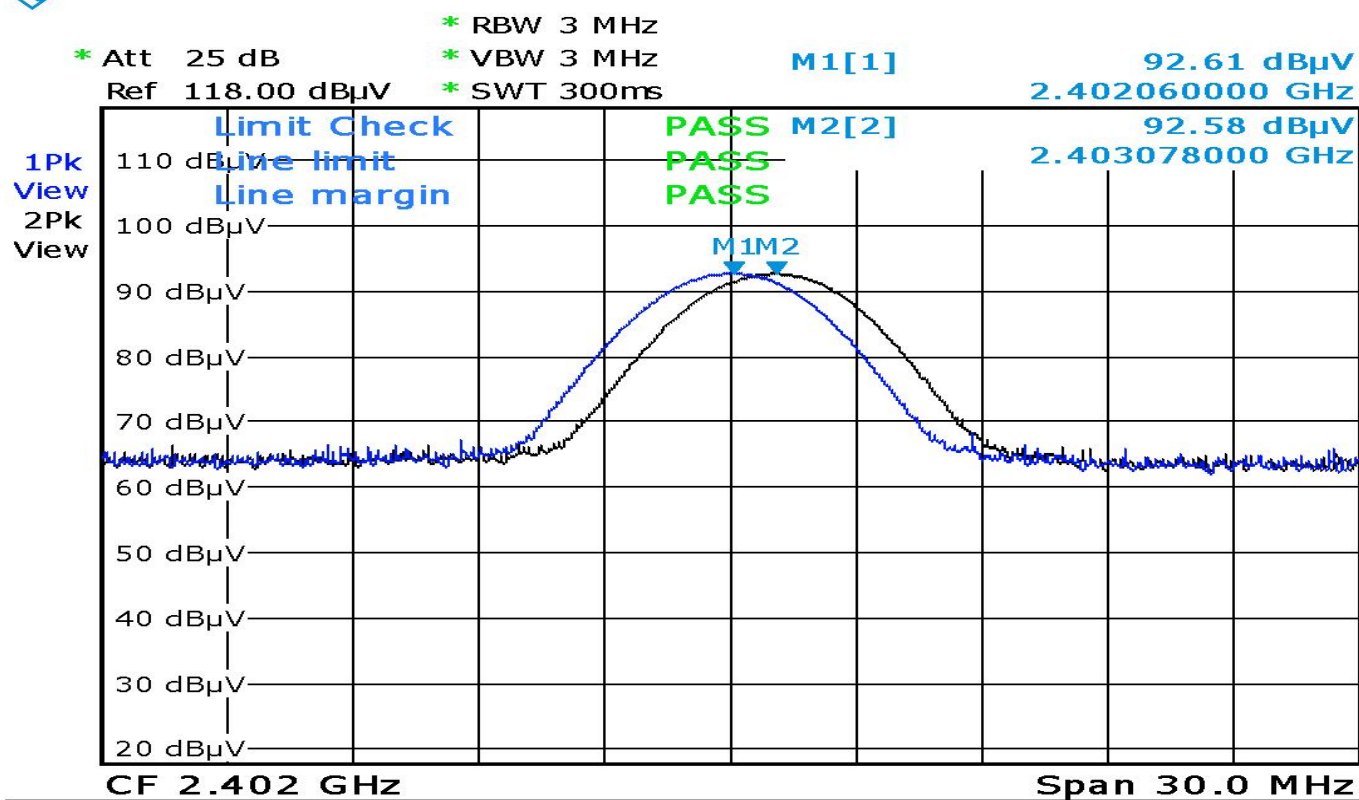
Test Channel No.	Channel Separated (kHz)	Limit (kHz)	Limit of 20dB Bandwidth (kHz)	Result
00	978	>25	>858	Pass
40	1018	>25	>818	Pass
78	1038	>25	>808	Pass

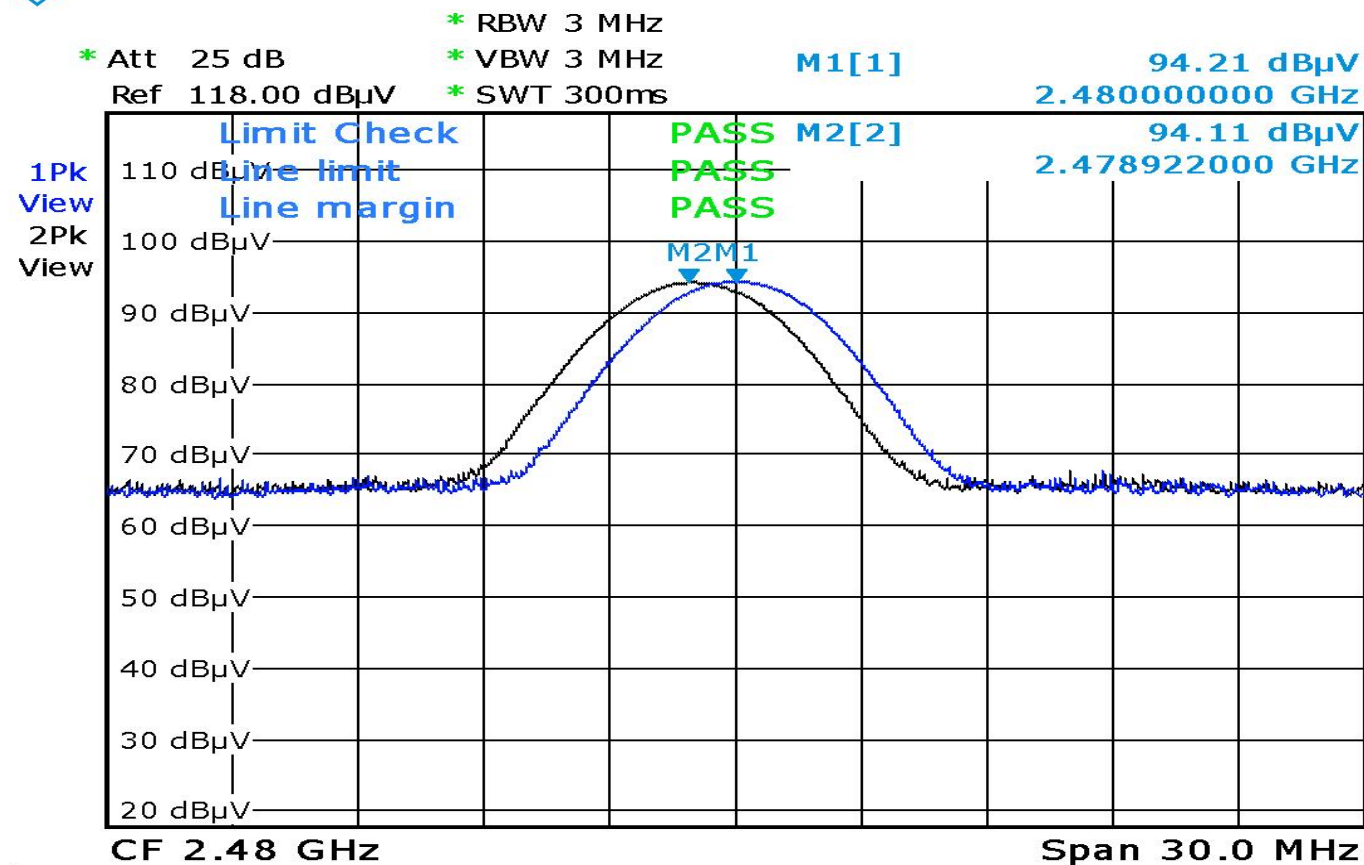
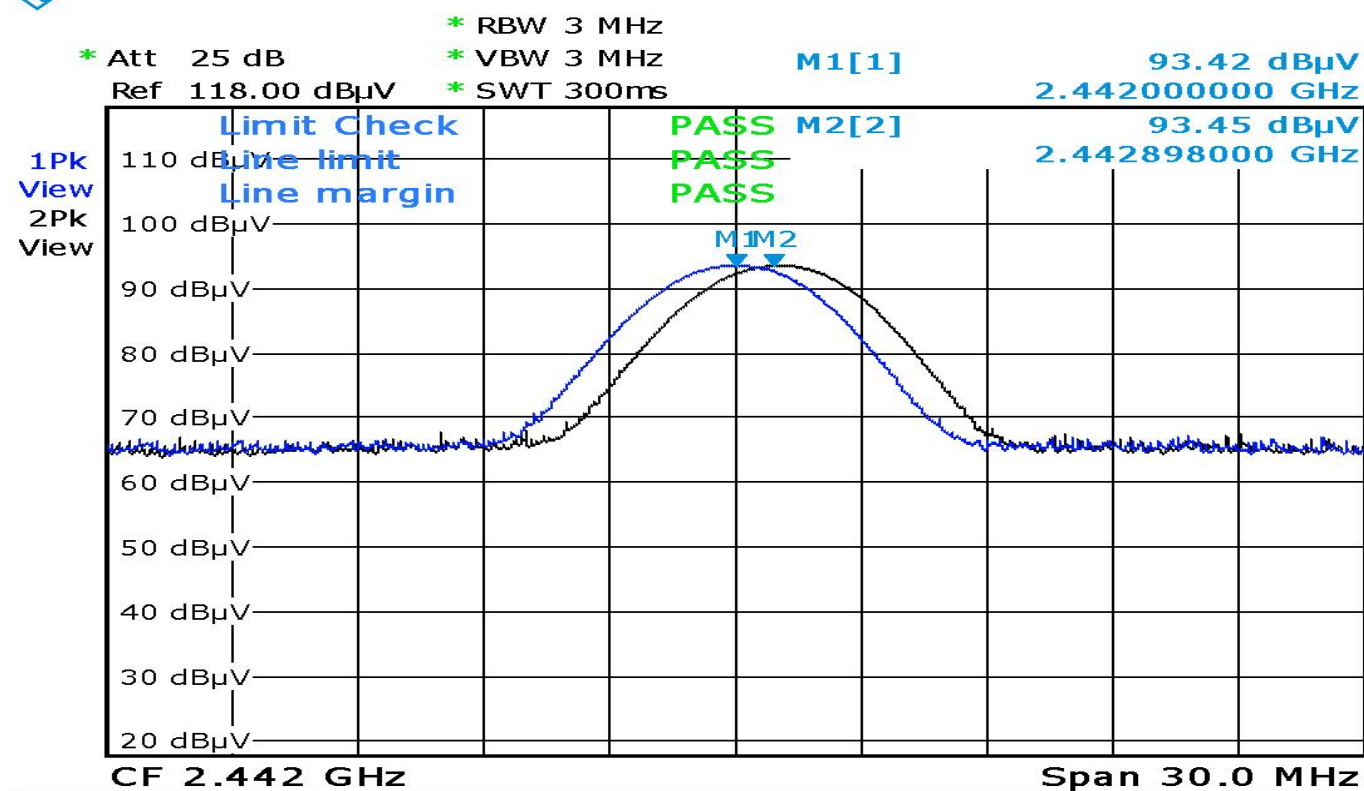




Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 2		

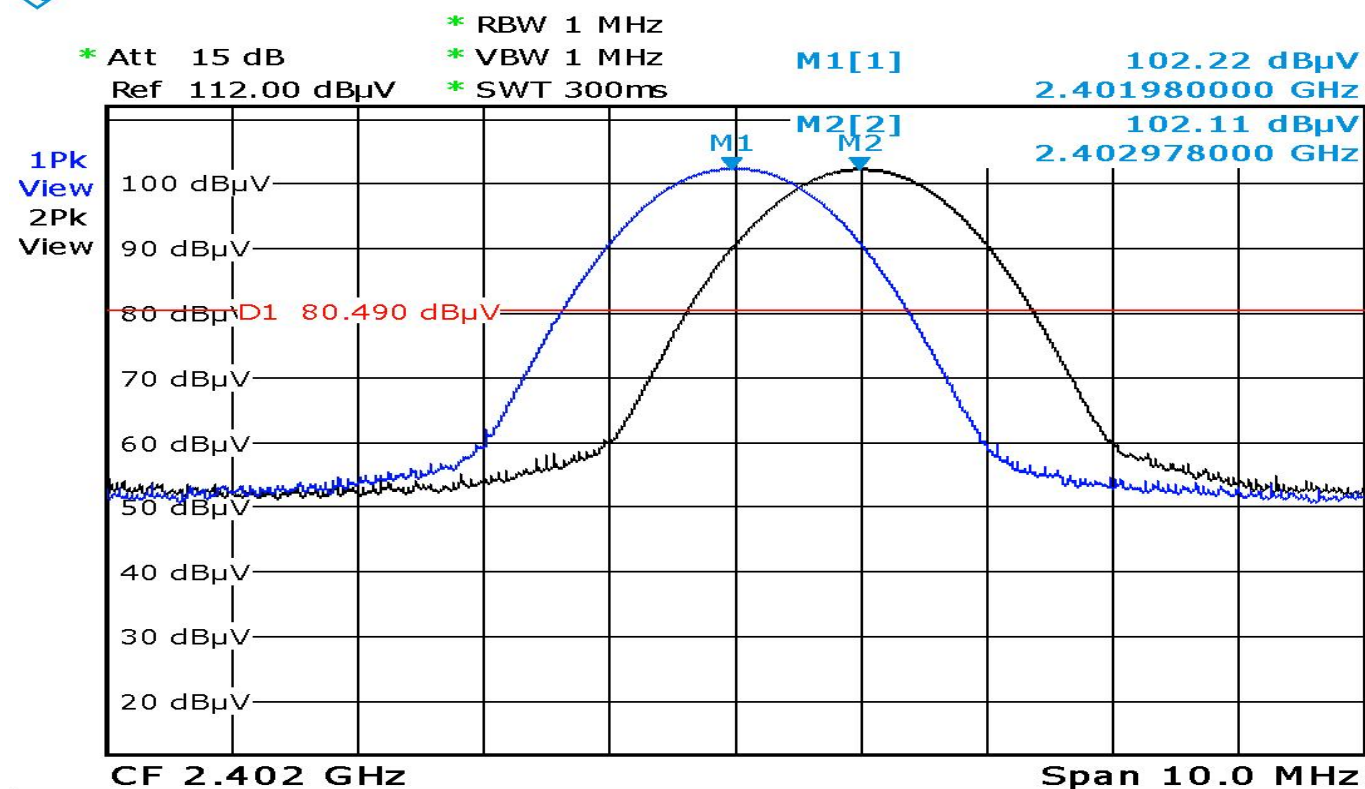
Test Channel No.	Channel Separated (kHz)	Limit (kHz)	Limit of 20dB Bandwidth (kHz)	Result
00	1018	>25	868	Pass
40	898	>25	928	Pass
78	1078	>25	808	Pass

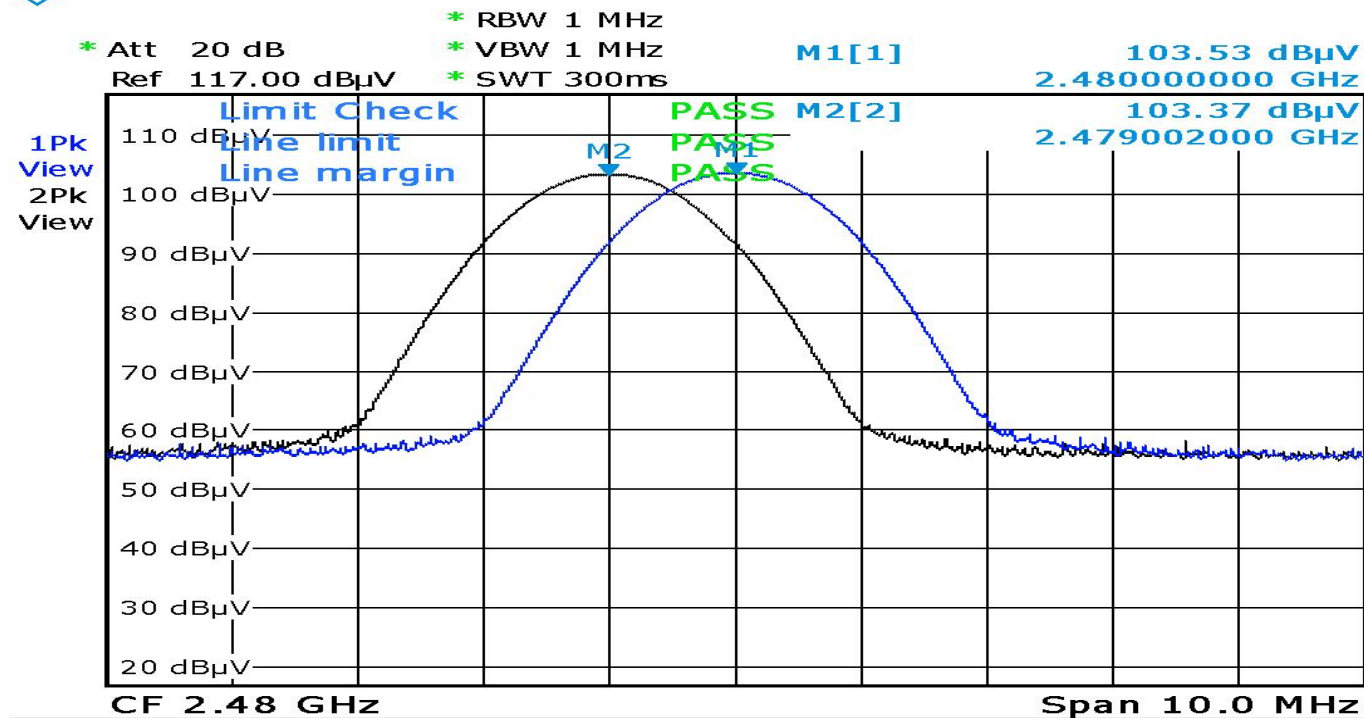
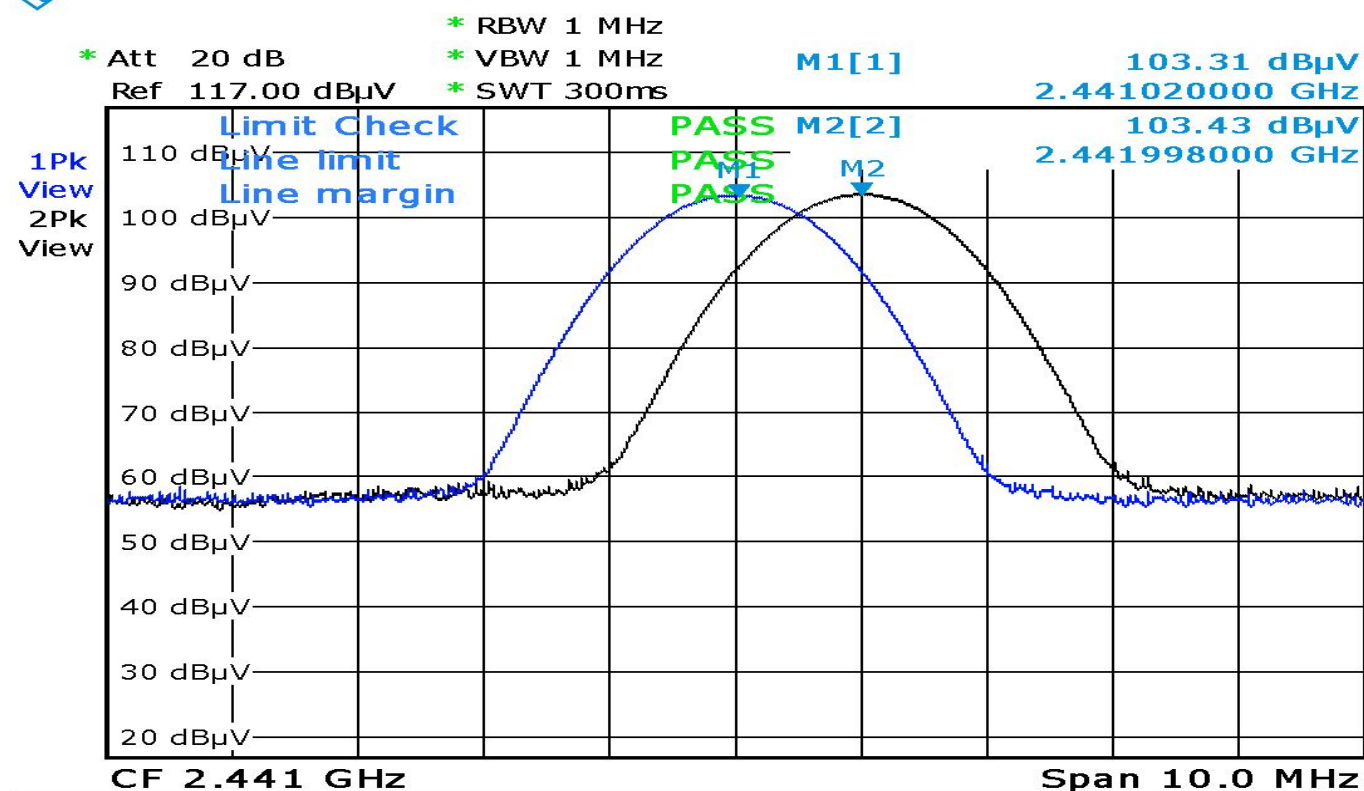




Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3		

Test Channel No.	Channel Separated (kHz)	Limit (kHz)	Limit of 20dB Bandwidth (kHz)	Result
00	998	>25	>1208	Pass
40	978	>25	>1257	Pass
78	998	>25	>1260	Pass





8. DWELL TIME

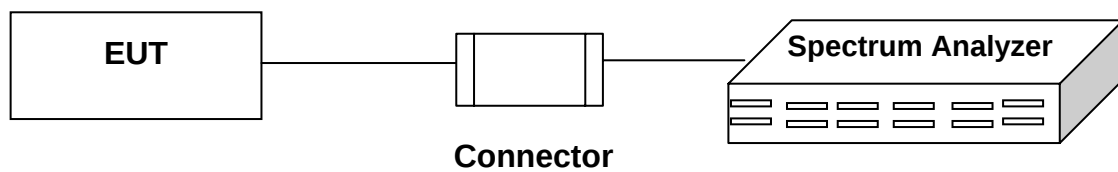
TEST EQUIPMENT

The following test equipments are used during the radiated emission tests:

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1	Spectrum Analyzer	RS	FSL6	100517	2012.07.28

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

BLOCK DIAGRAM OF TEST SETUP



LIMIT

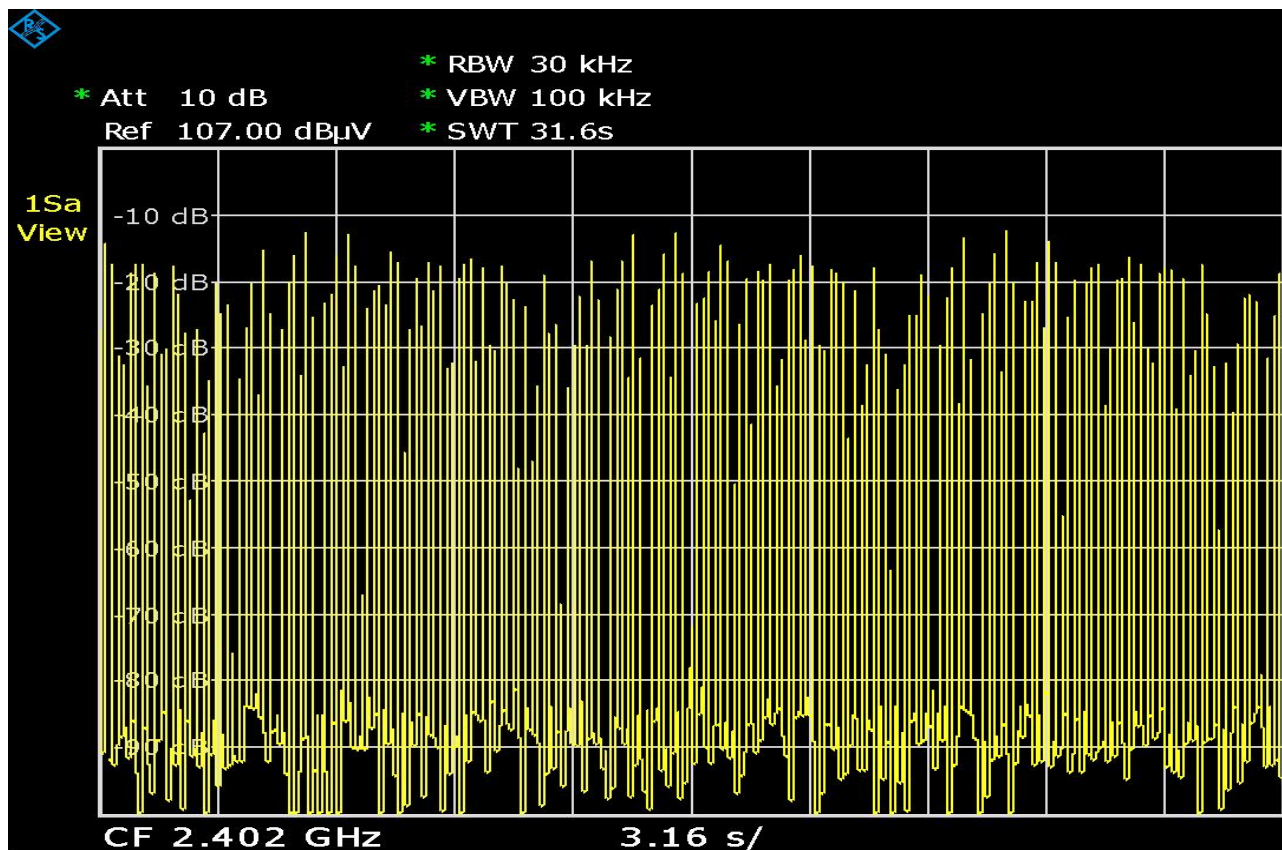
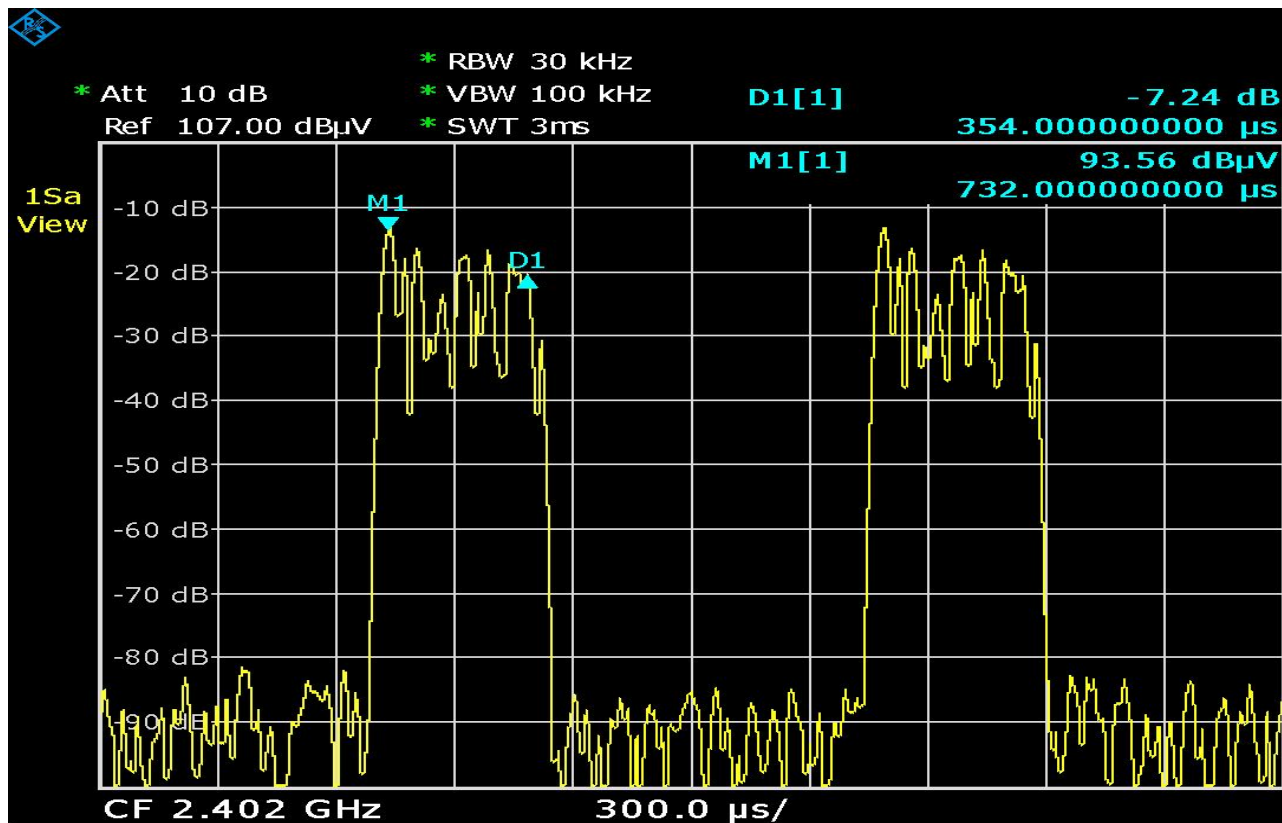
The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

TEST RESULT

Date of Test	September 27, 2011	Temperature	25.9 deg/C
EUT	Bluetooth UART module	Humidity	66 %RH
Working Cond.	Mode 1-CH 00 (2402MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = 0.4 (sec) * 79 (number of channel) = 31.6 (sec) Hop rate = 98 / 31.6 (s) = 3.101 / sec Time slot length = 354 (μs) = 0.000354 (sec)	< 0.4	Pass
※ Dwell Time = 0.000354 (sec) × (3.101 / 79) × 31.6 = 0.0004391016 (sec)		

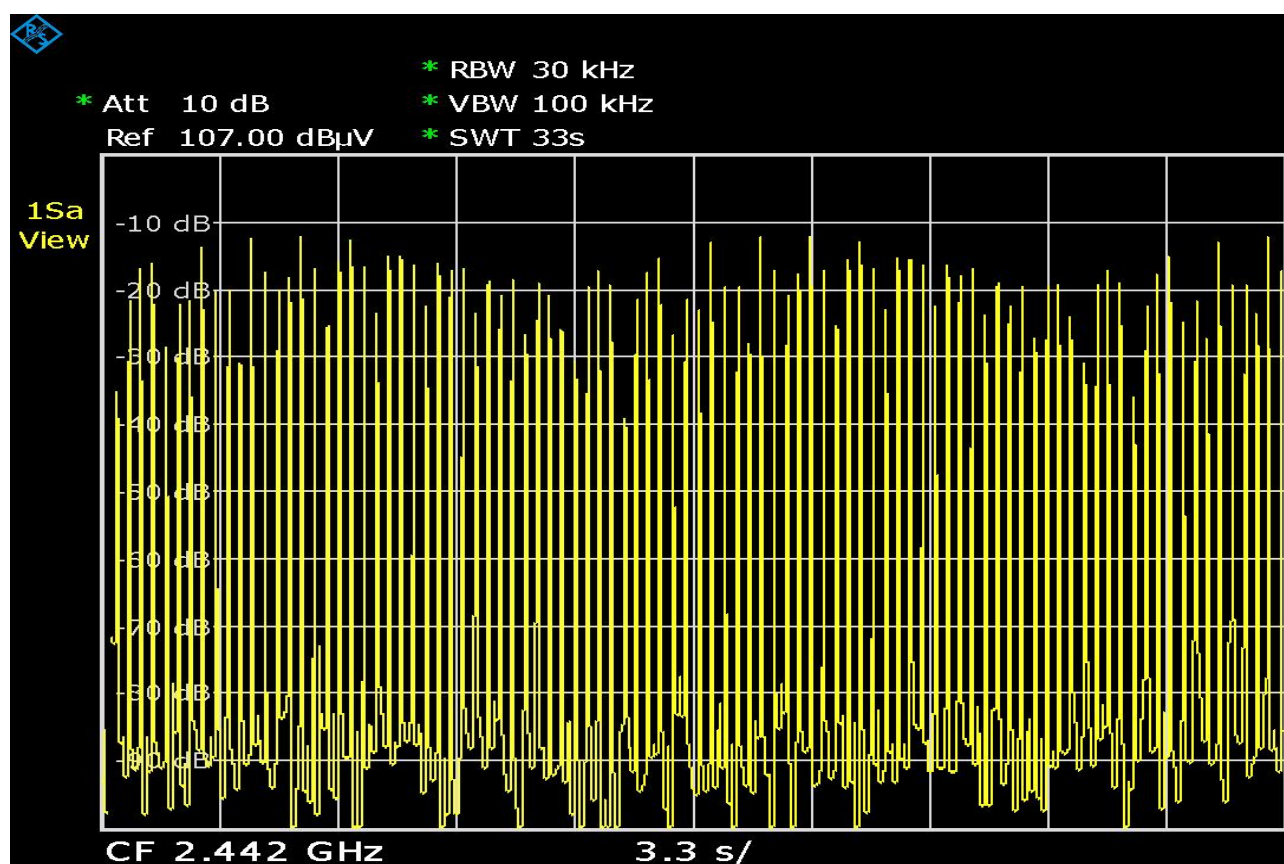
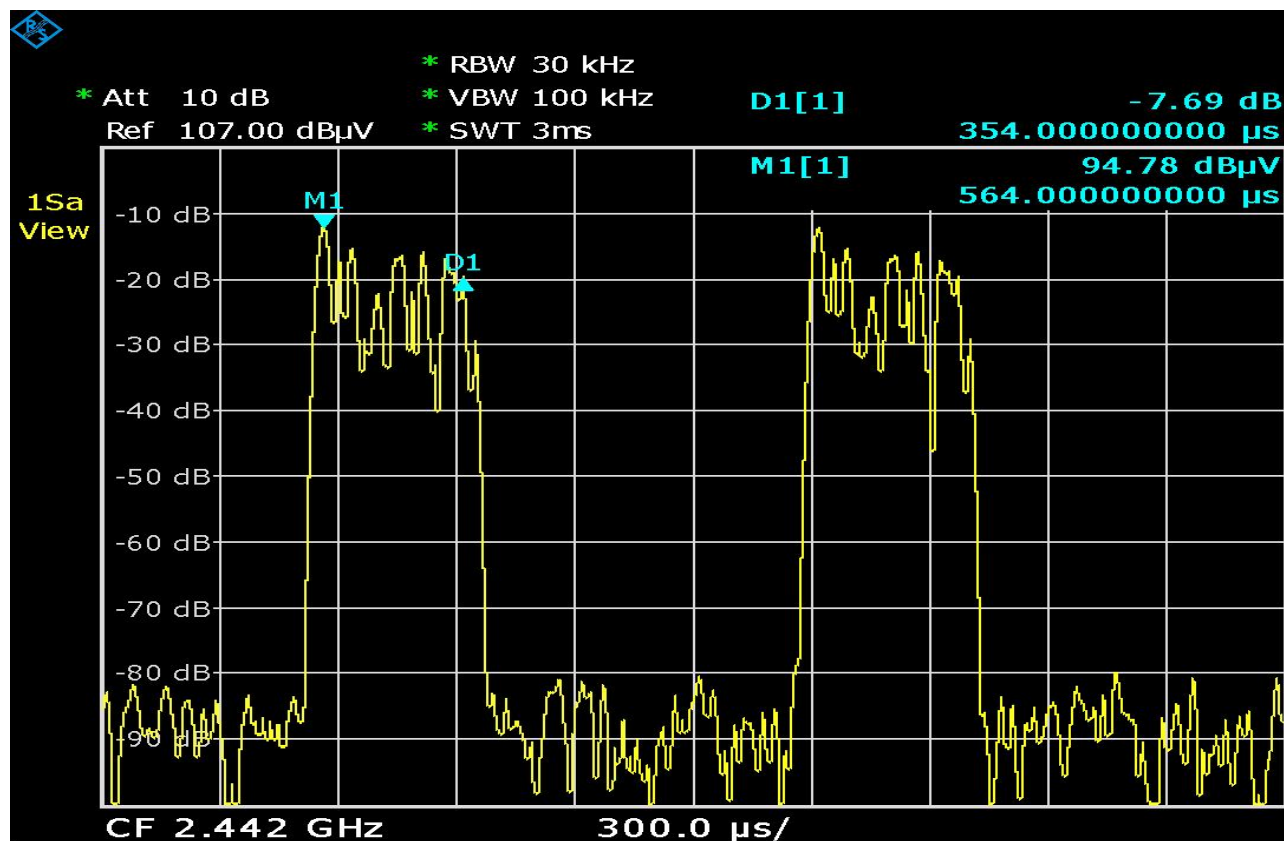
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	September 27, 2011	Temperature	25.9 deg/C
EUT	Bluetooth UART module	Humidity	66%RH
Working Cond.	Mode 1-CH 40 (2442MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $100 / 33 \text{ (s)} = 3.03 / \text{sec}$ Time slot length = $354 \text{ (}\mu\text{s)} = 0.000354 \text{ (sec)}$	< 0.4	Pass
※ Dwell Time = $0.000354 \text{ (sec)} \times (3.03 / 79) \times 31.6$ = 0.000429048 (sec)		

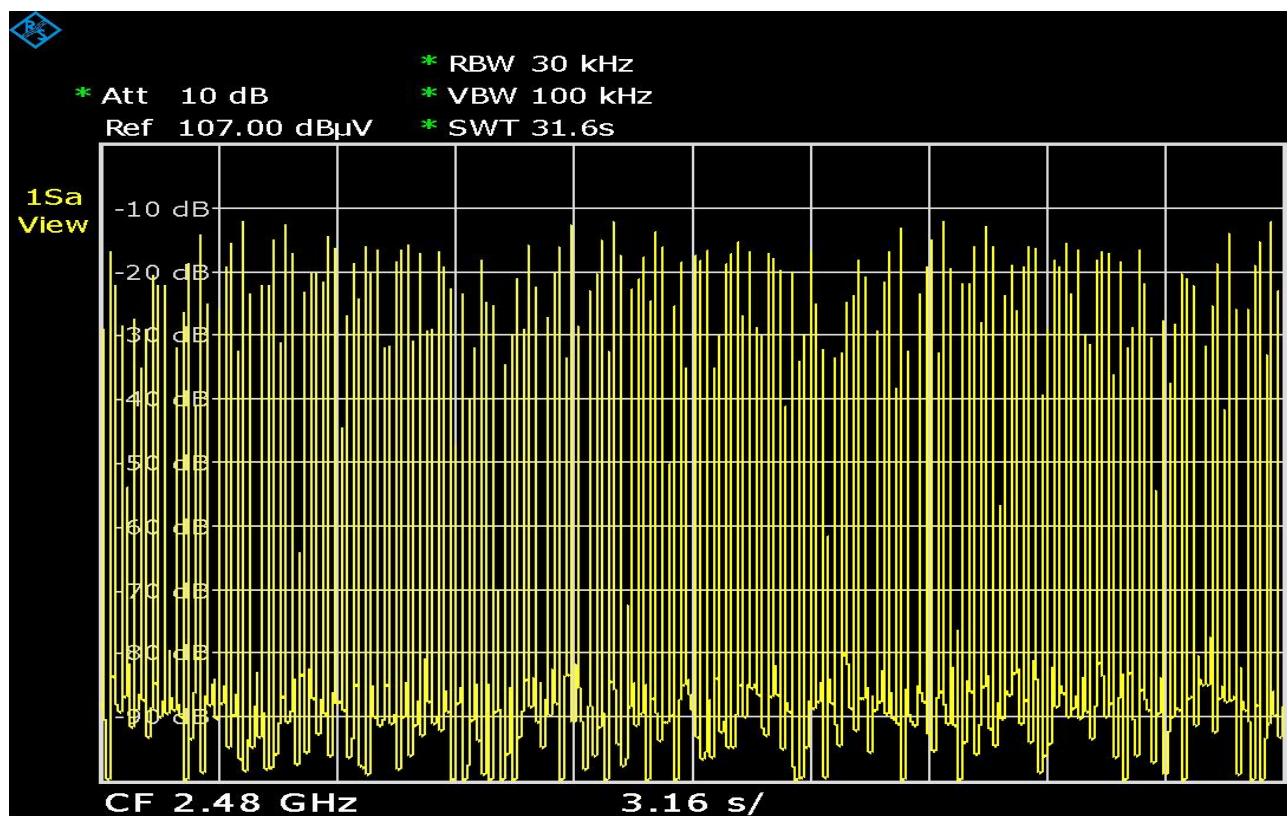
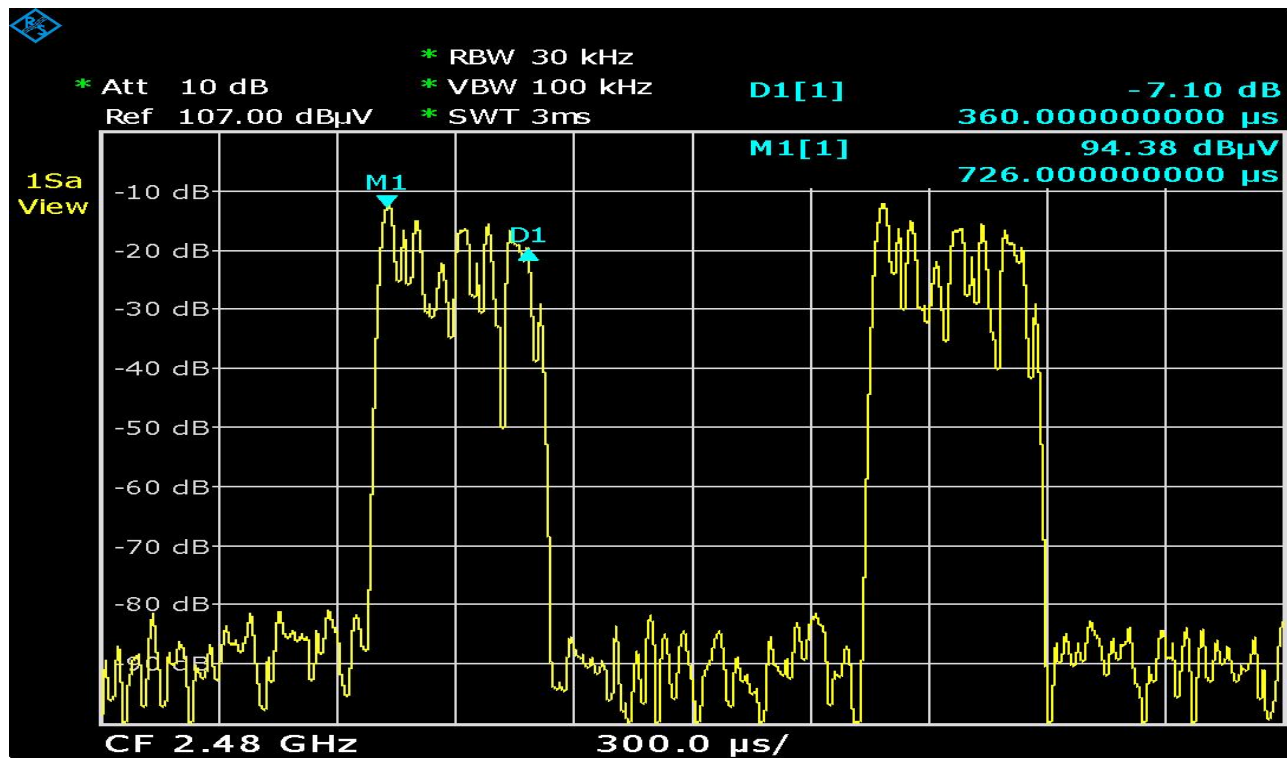
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	September 27, 2011	Temperature	25.9 deg/C
EUT	Bluetooth UART module	Humidity	66 %RH
Working Cond.	Mode 1-CH 78 (2480MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $101 / 31.6 \text{ (s)} = 3.196 / \text{sec}$ Time slot length = $360 \text{ (}\mu\text{s)} = 0.00036 \text{ (sec)}$	< 0.4	Pass
※ Dwell Time = $0.00036 \text{ (sec)} \times (3.196 / 79) \times 31.6$ = 0.000460224(sec)		

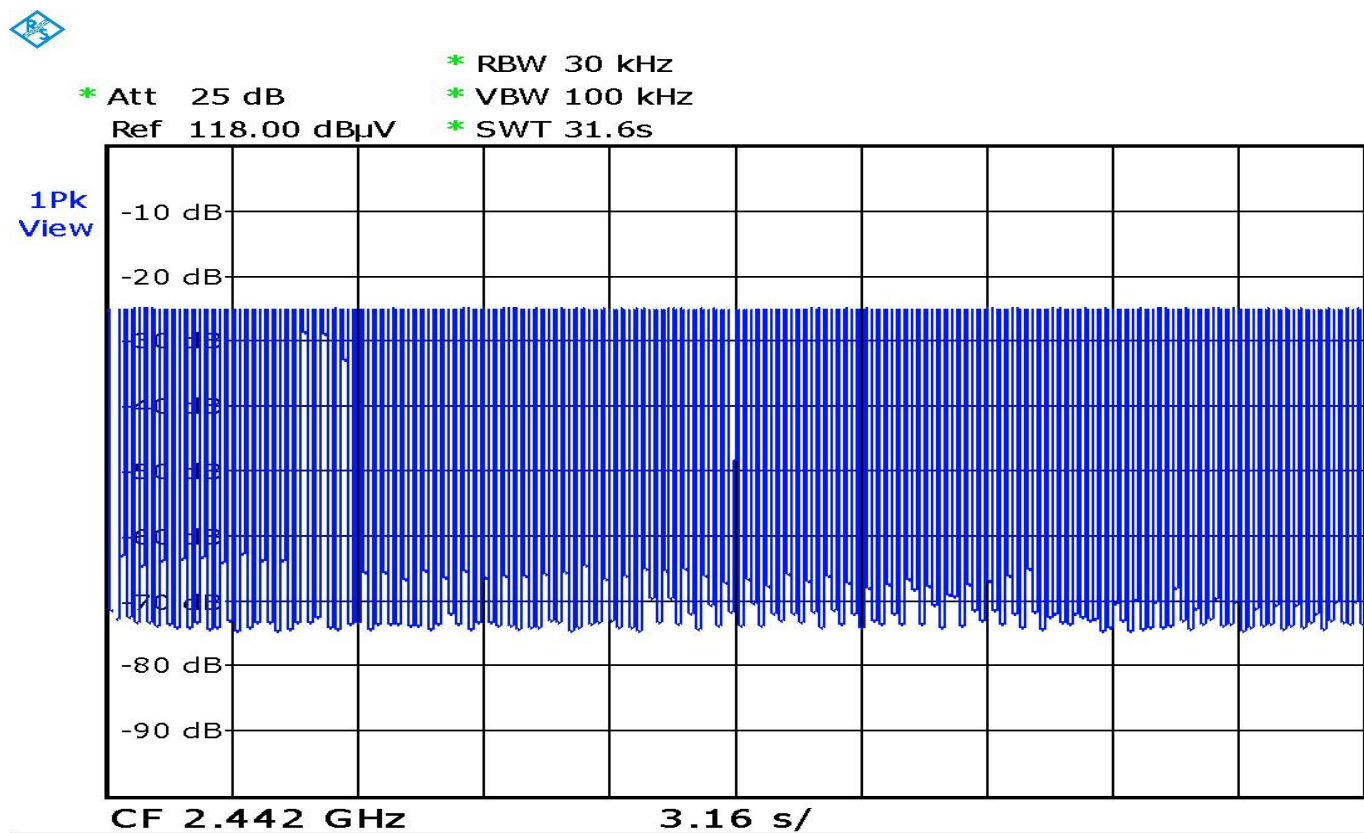
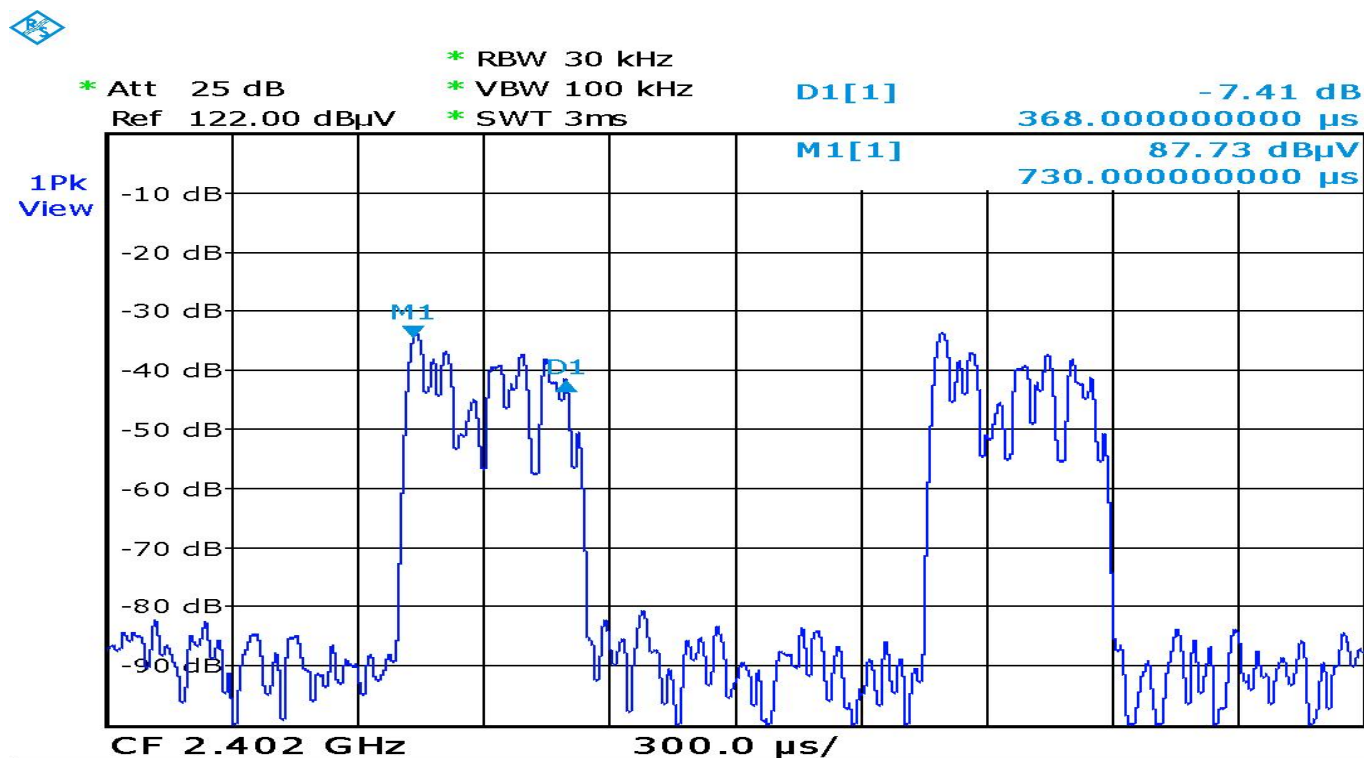
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 1-CH 00 (2402MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = 0.4 (sec) * 79 (number of channel) = 31.6 (sec) Hop rate = 337 / 31.6 (s) = 10.665 / sec Time slot length = 368 (μs) = 0.000368 (sec)	< 0.4	Pass
※ Dwell Time = 0.000368 (sec) × (10.665 / 79) × 31.6 = 0.001569888 (sec)		

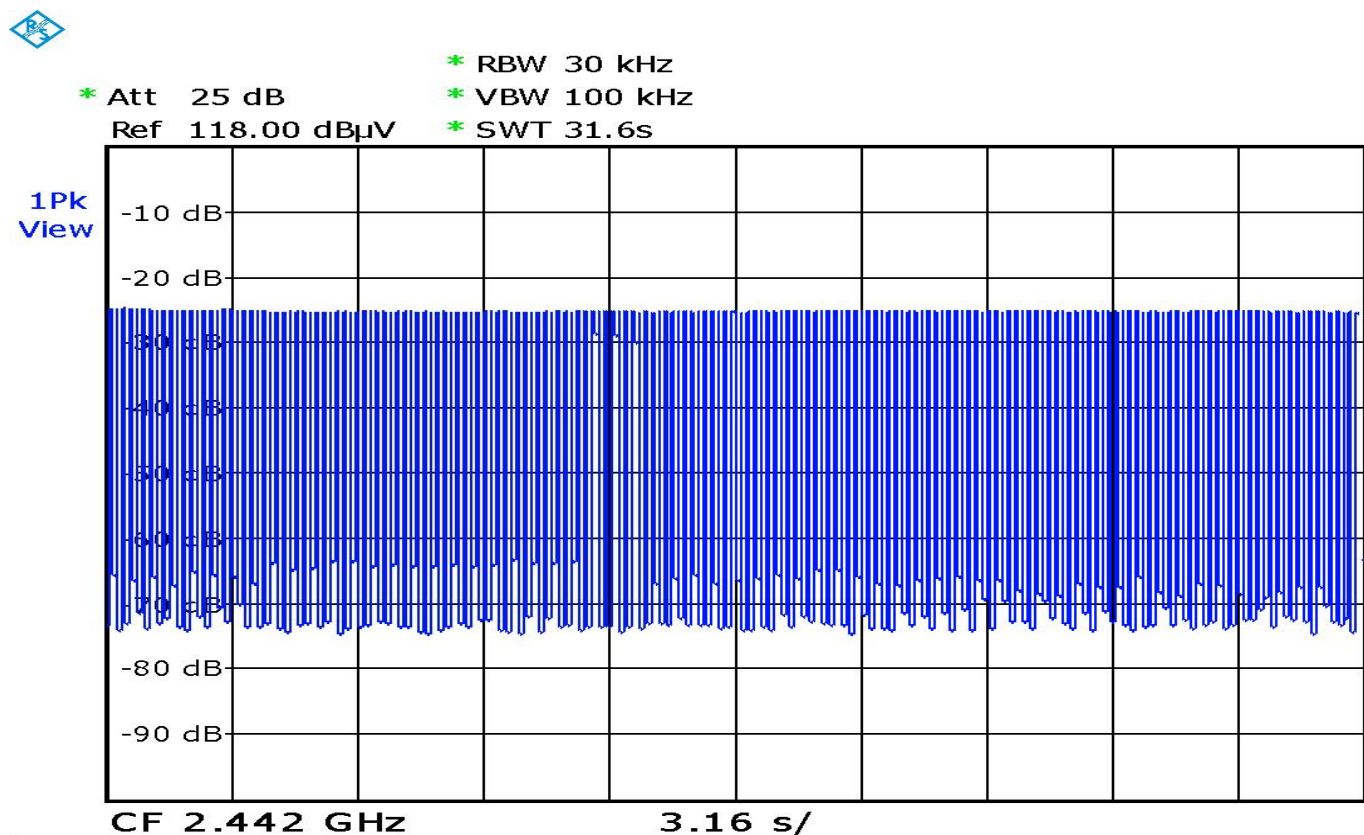
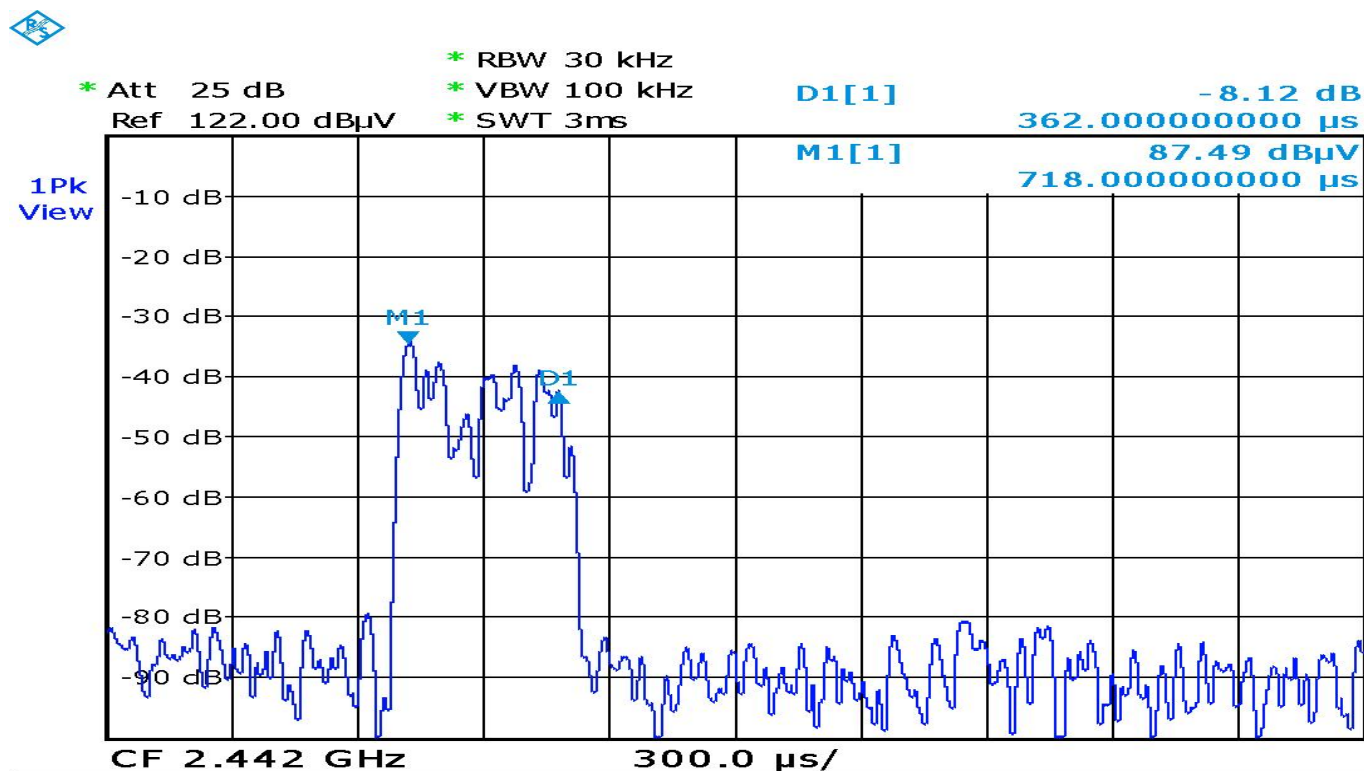
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 1-CH 40 (2442MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $341 / 31.6 \text{ (s)} = 10.791 / \text{sec}$ Time slot length = $362 \text{ (}\mu\text{s)} = 0.000362 \text{ (sec)}$	< 0.4	Pass
※ Dwell Time = $0.000362 \text{ (sec)} \times (10.791 / 79) \times 31.6$ = 0.00156253657 (sec)		

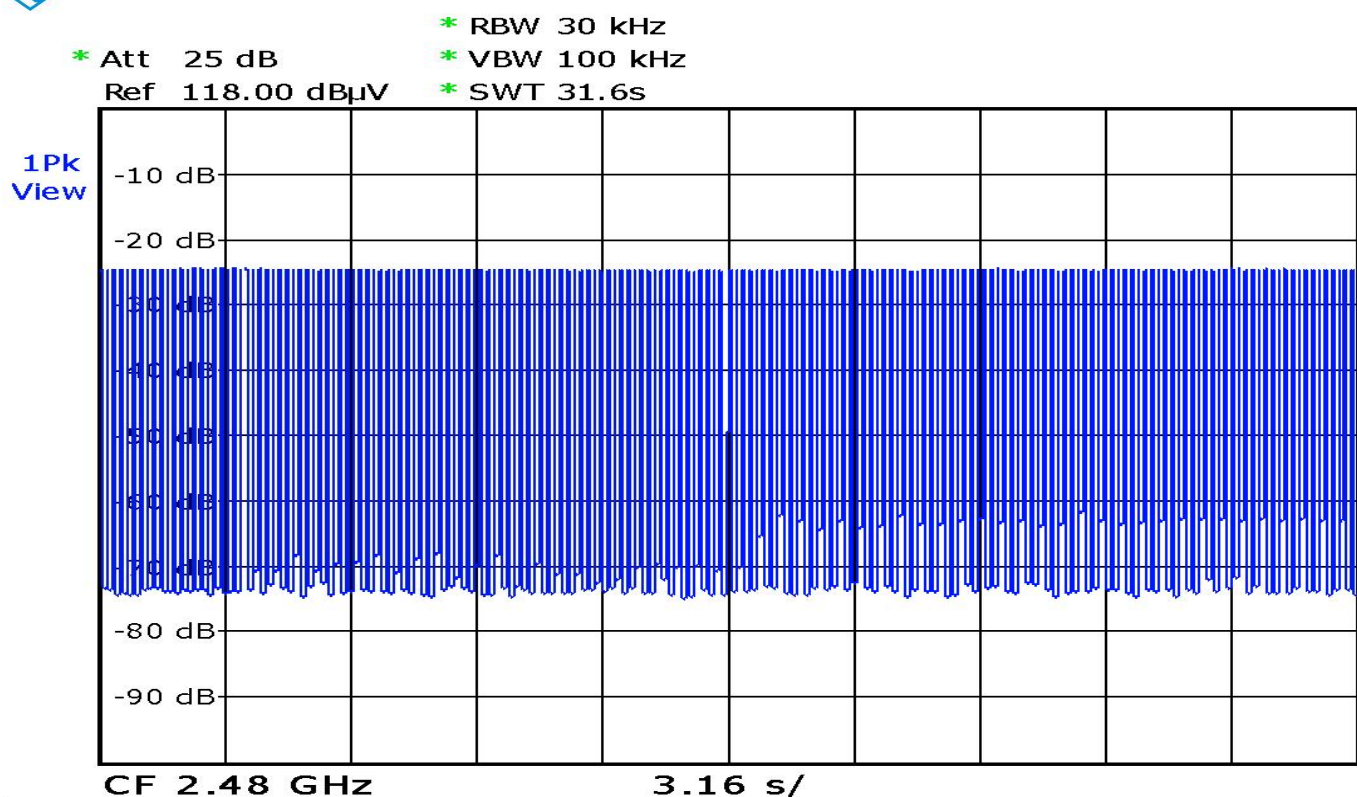
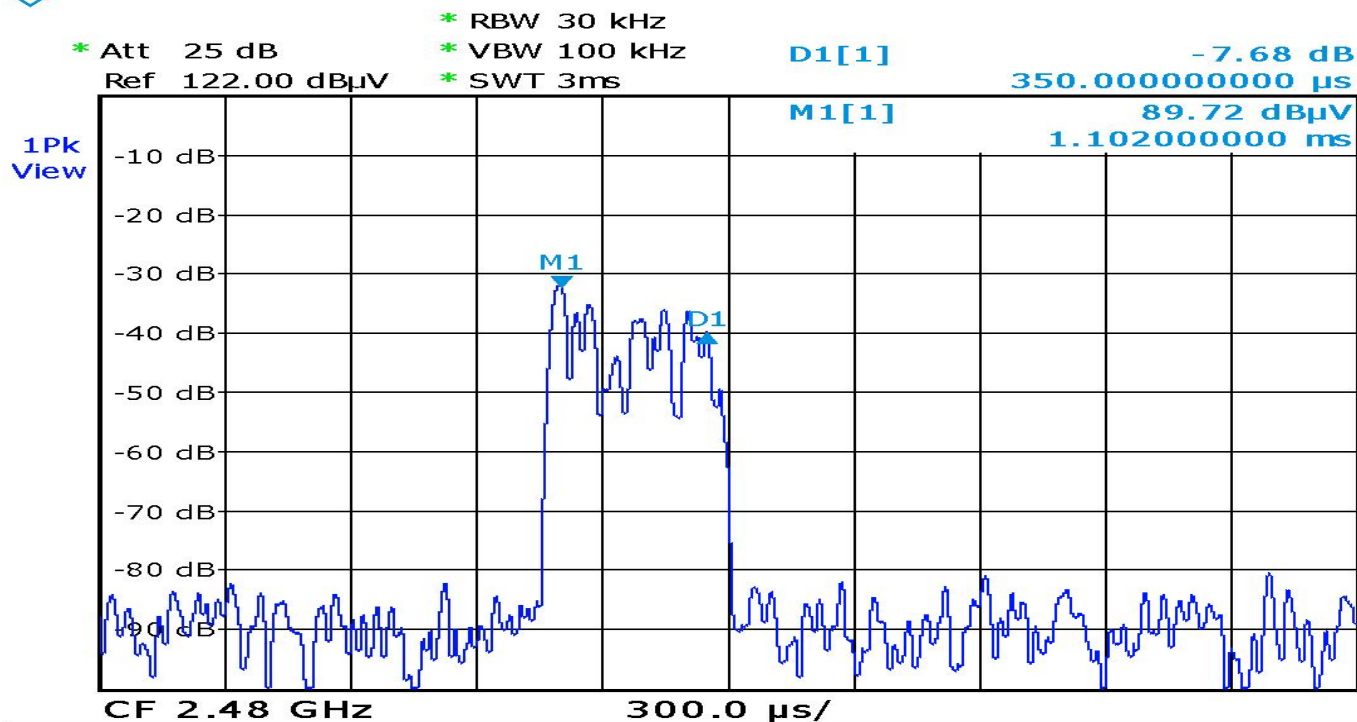
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 1-CH 78 (2480MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $353 / 31.6 \text{ (s)} = 11.171 / \text{sec}$ Time slot length = $350 \text{ (}\mu\text{s)} = 0.00035 \text{ (sec)}$	< 0.4	Pass
※ Dwell Time = $0.00035 \text{ (sec)} \times (11.171 / 79) \times 31.6$ = 0.00156393993(sec)		

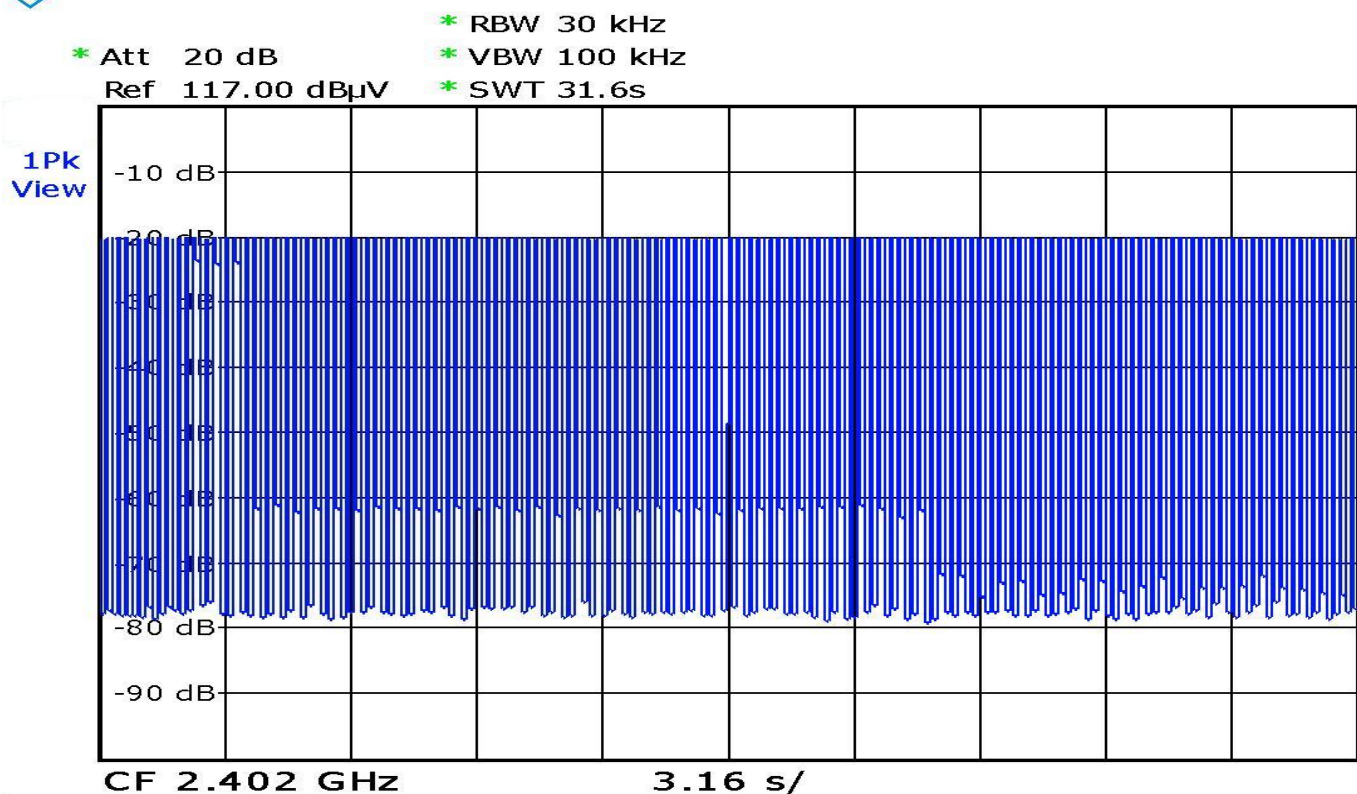
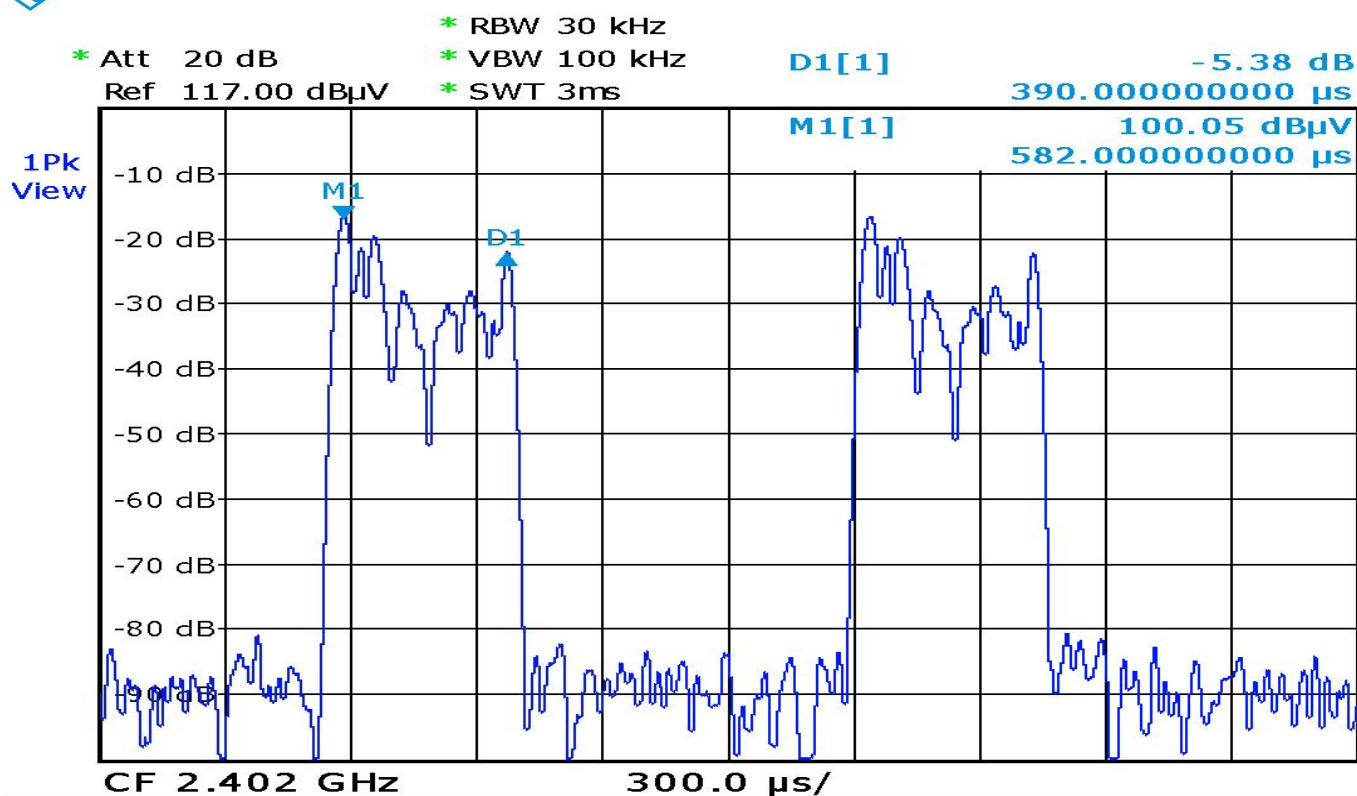
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3-CH 00 (2402MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = 0.4 (sec) * 79 (number of channel) = 31.6 (sec) Hop rate = 134 / 31.6 (s) = 4.241 / sec Time slot length = 390 (μs) = 0.00039 (sec)	< 0.4	Pass
※ Dwell Time = 0.00039 (sec) × (4.241/ 79) × 31.6 = 0.000661596 (sec)		

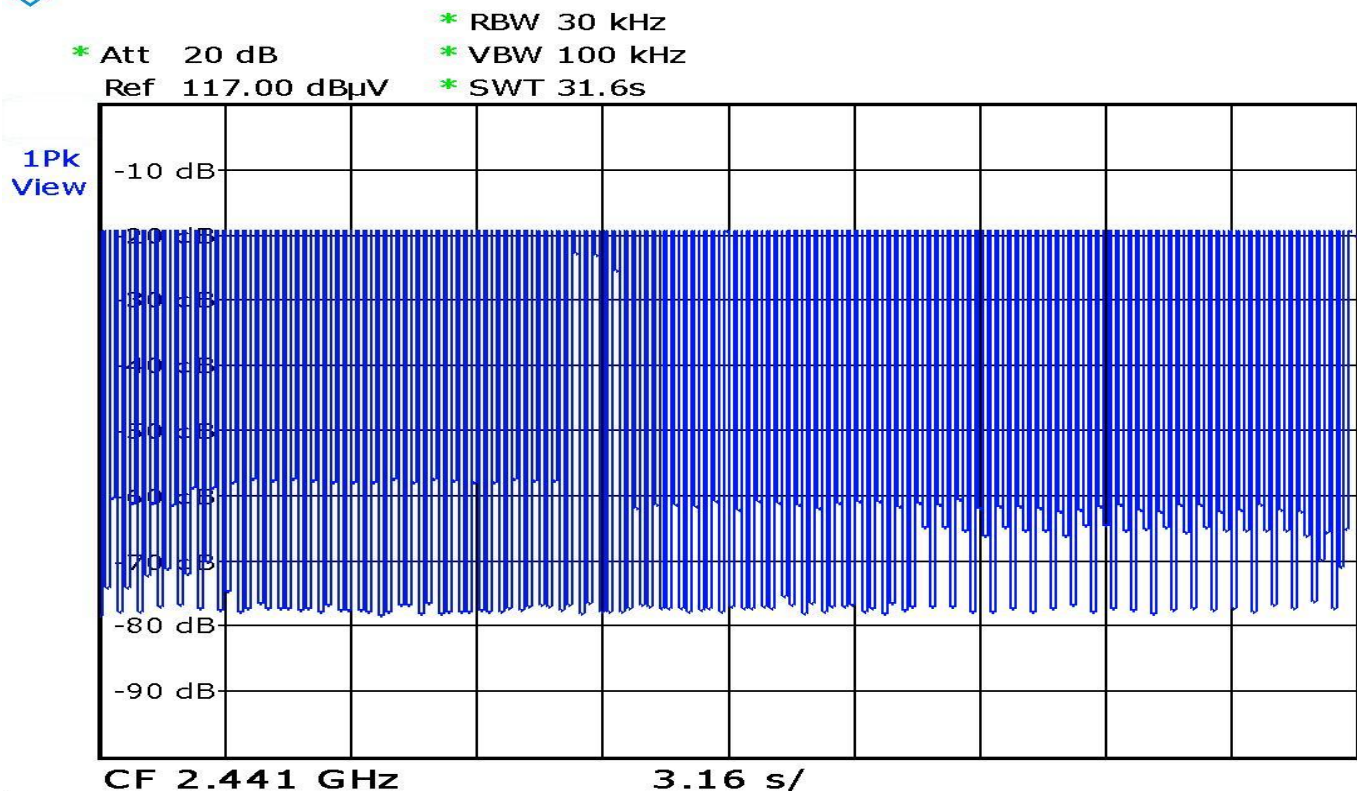
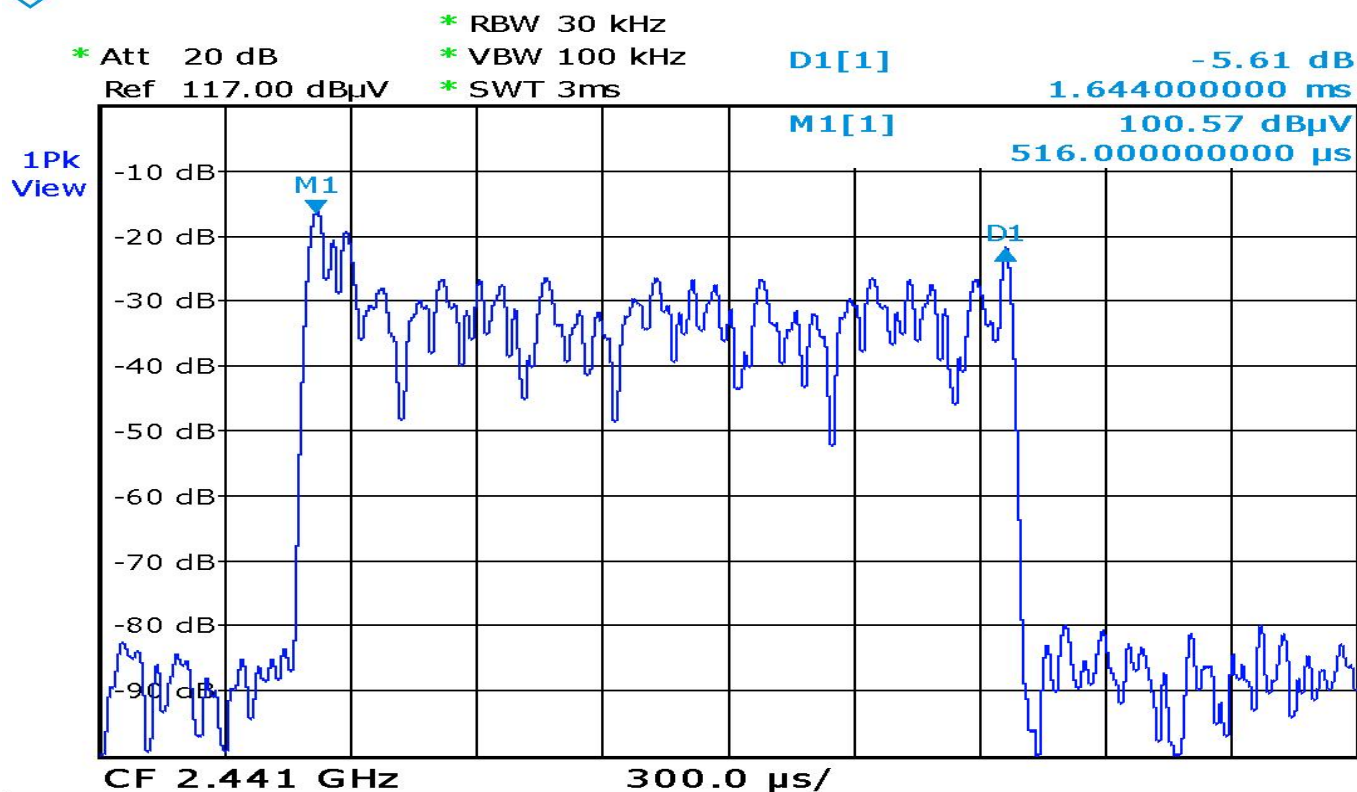
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3-CH 40 (2442MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $130 / 31.6 \text{ (s)} = 4.114 / \text{sec}$ Time slot length = 1.644 (ms) = 0.001644 (sec)	< 0.4	Pass
※ Dwell Time = $0.001644 \text{ (sec)} \times (4.114 / 79) \times 31.6$ = 0.0027053664 (sec)		

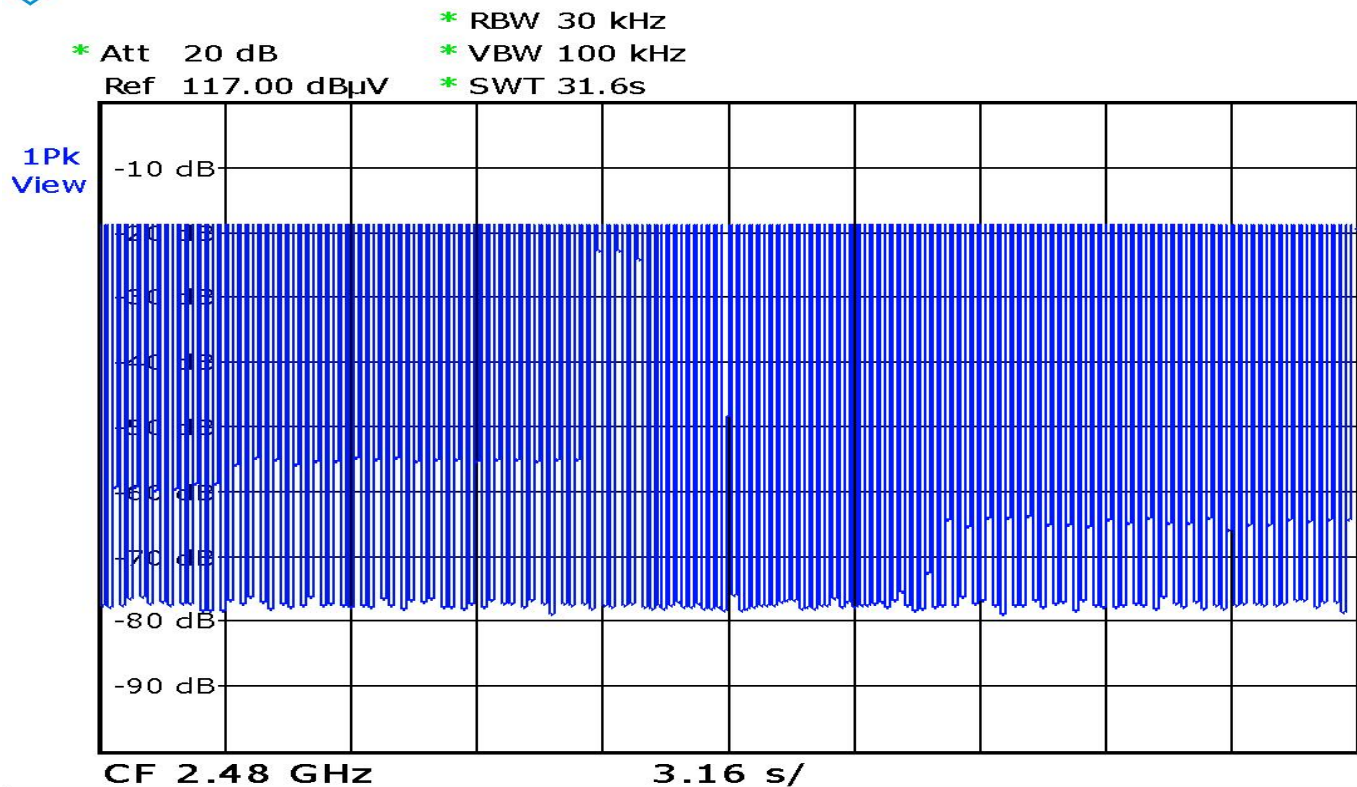
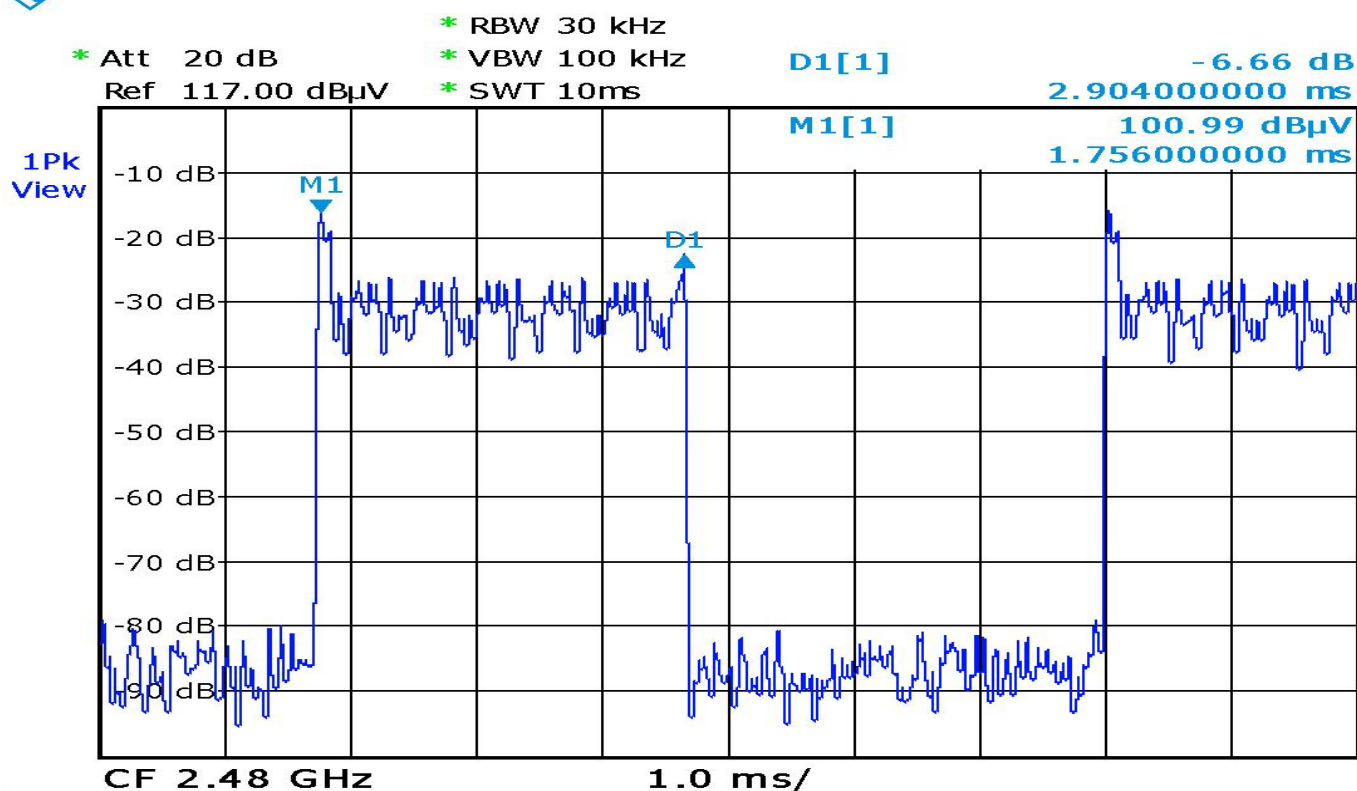
Note: Dwell time = time slot length * hop rate / number of hopping channels * period



Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3-CH 78 (2480MHz)		

Measurement Level (sec)	Required Limit (sec)	Result
Period = $0.4 \text{ (sec)} \times 79 \text{ (number of channel)}$ = 31.6 (sec) Hop rate = $132 / 31.6 \text{ (s)} = 4.177 / \text{sec}$ Time slot length = 2.904 (ms) = 0.002904 (sec)	< 0.4	Pass
※ Dwell Time = $0.002904 \text{ (sec)} \times (4.177 / 79) \times 31.6$ = 0.0048520032(sec)		

Note: Dwell time = time slot length * hop rate / number of hopping channels * period



9. HOPPING CHANNEL

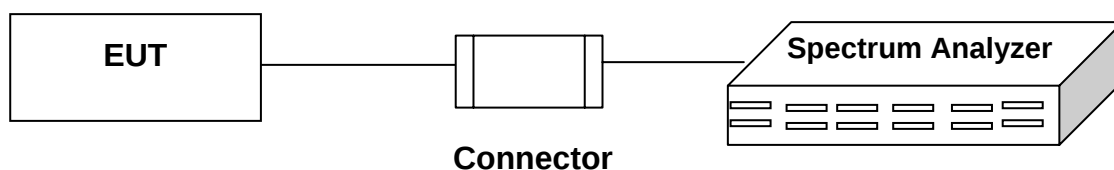
TEST EQUIPMENT

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1	Spectrum Analyzer	RS	FSL6	100517	2012.07.28

Note: All measurement critical items of test instrumentation were within their calibration period of 1 year.

BLOCK DIAGRAM OF TEST SETUP



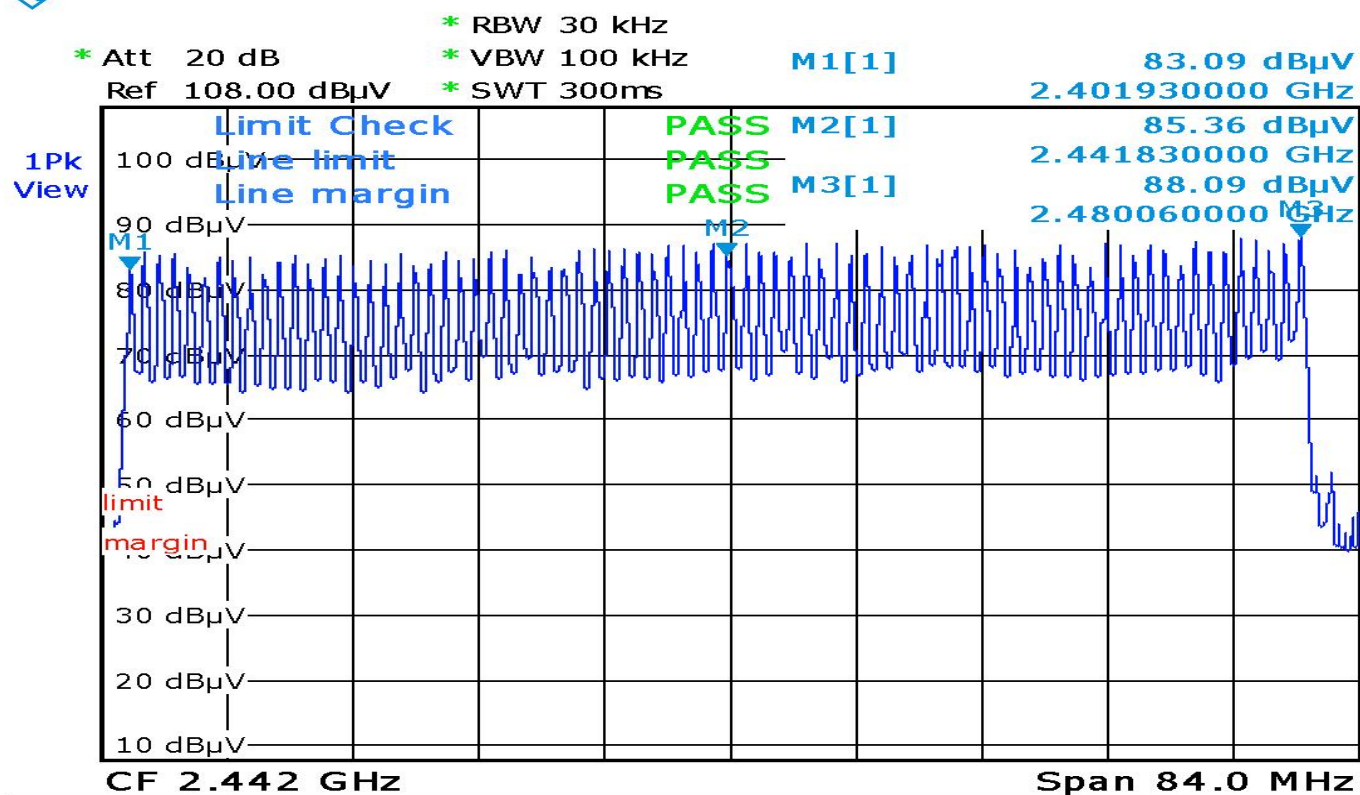
LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 non-overlapping hopping channels.

TEST RESULT

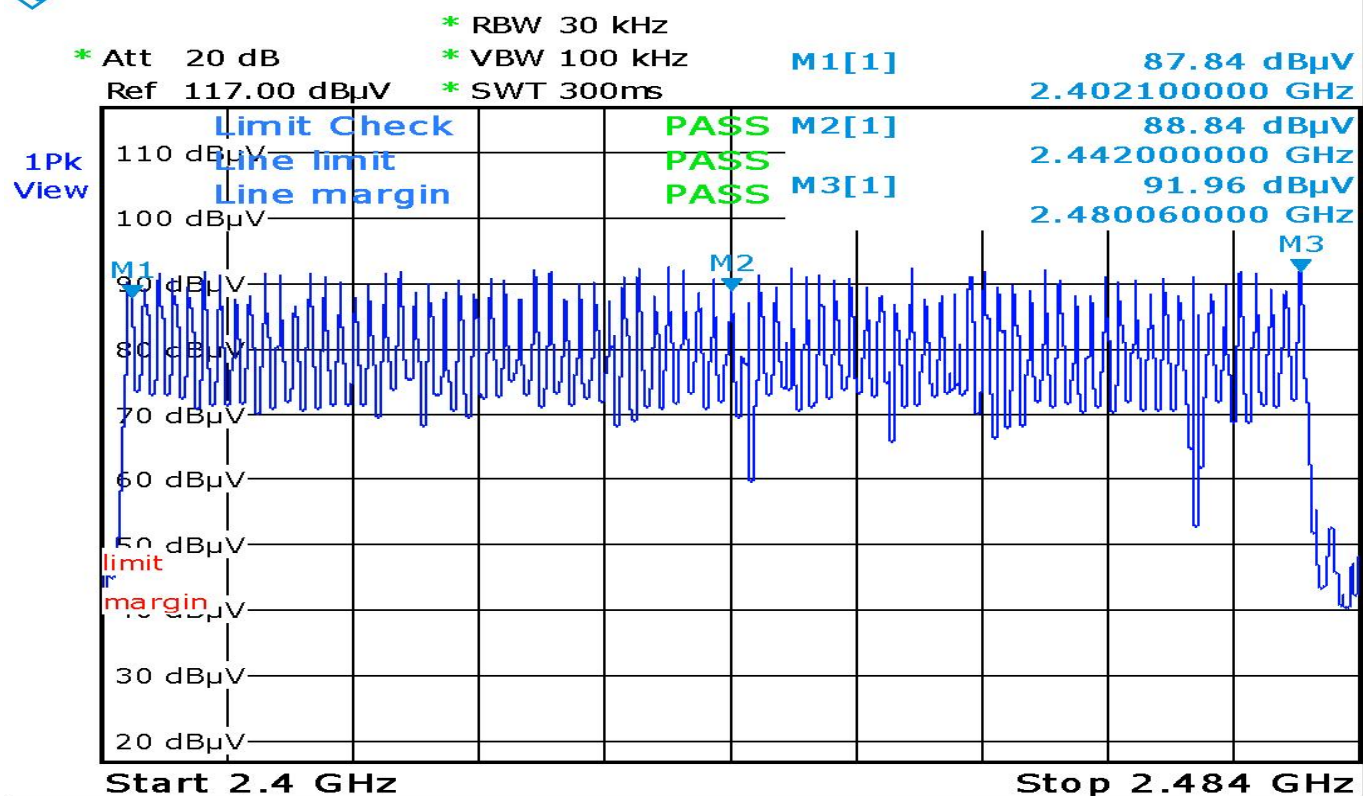
Date of Test	September 27, 2011	Temperature	26 deg/C
EUT	Bluetooth UART module	Humidity	60 %RH
Working Cond.	Mode 1		

Frequency Range (MHz)	Measurement (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79 Channel	>75 Channel	Pass



Date of Test	March 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 2		

Frequency Range (MHz)	Measurement (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79 Channel	>75 Channel	Pass



Date of Test	February 20, 2012	Temperature	19.2 deg/C
EUT	Bluetooth UART module	Humidity	61 %RH
Working Cond.	Mode 3		

Frequency Range (MHz)	Measurement (Hopping Channel)	Limit (Hopping Channel)	Result
2402 ~ 2480	79 Channel	>75 Channel	Pass

