FCC Test Report

Product Name	M2M Router
Model No	ER2000T-NA-CAT1
FCC ID.	2AMRIER2000TNAC1

Applicant	Connected IO Inc
Address	573 University Ave. Los Gatos, CA 95032

Date of Receipt	June 21, 2017
Issue Date	Aug. 09, 2017
Report No.	1770133R-RFUSP26V00
Report Version	V1.0

Testing Laboratory
3023

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.
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Test Report

Issue Date: Aug. 09, 2017
Report No.: 1770133R-RFUSP26V00

Product Name	M2M Router
Applicant	Connected IO Inc
Address	573 University Ave. Los Gatos, CA 95032
Manufacturer	LINKHIGH INTERNATIONAL LIMITED.
Model No.	ER2000T-NA-CAT1
FCC ID.	2AMRIER2000TNAC1
EUT Rated Voltage	DC 12V, 2A
EUT Test Voltage	AC 120V/60Hz
Trade Name	Connected IO Inc
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By : Genie Chang

(Senior Adm. Specialist / Genie Chang)

Tested By : Bill Lin

(Engineer / Bill Lin)

Approved By :

(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	M2M Router
Trade Name	Connected IO Inc
Model No.	ER2000T-NA-CAT1
FCC ID.	2AMRIER2000TNAC1
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	Dipole Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter	MFR: Sunny, M/N: SYS1531-2412-W2 Input: AC 100-240V~1.0A MAX, 50-60Hz, Output: 12V⎓2.0A Cable Out: Non-shielded, 1.0m, with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Grand-Tek	OA-LTE-01-01-GTT	Dipole Antenna	3.1dBi for 2.4 GHz

Note:

1. The antenna of EUT conforms to FCC 15.203.

2. Only the higher gain antenna was tested and recorded in this report

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is a M2M Router with a built-in WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 14.4Mbps and 802.11n(40M-BW) is 30Mbps)
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

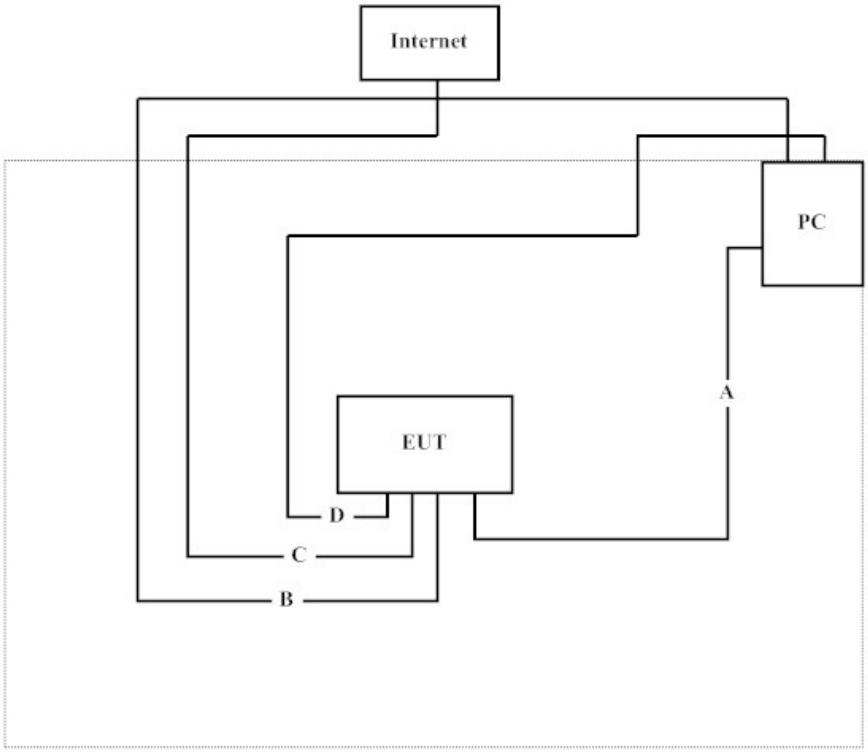
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	P62G	CY9FJC2	N/A

Signal Cable Type		Signal cable Description
A	USB Cable	Shielded, 1.8m
B	RS-232 to USB Cable	Non-shielded, 1.0m
C	LAN Cable	Non-shielded, 1.8m
D	LAN Cable	Non-shielded, 1.8m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “MT7620 V1.0.5.0 AP” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

Site Description: Accredited by TAF
Accredited Number: 3023

Site Name: DEKRA Testing and Certification Co., Ltd.
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New Taipei City 24457, Taiwan.
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E-Mail : info.tw@dekra.com

FCC Accreditation Number: TW1014

1.7. List of Test Item and Equipment

For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	161601	2017.01.06	2018.01.05
X	Two-Line V-Network	R&S	ENV216	101306	2017.02.16	2018.02.15
X	Two-Line V-Network	R&S	ENV216	101307	2017.03.17	2018.03.16
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2017.05.24	2018.05.23

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

For Conducted measurements /ASR4

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2017.01.09	2018.01.08
X	Power Meter	Anritsu	ML2496A	1548003	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531024	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531025	2016.12.15	2017.12.14
	Bluetooth Tester	R&S	CBT	101238	2017.01.03	2018.01.02

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek Conduction Test System V8.0.110

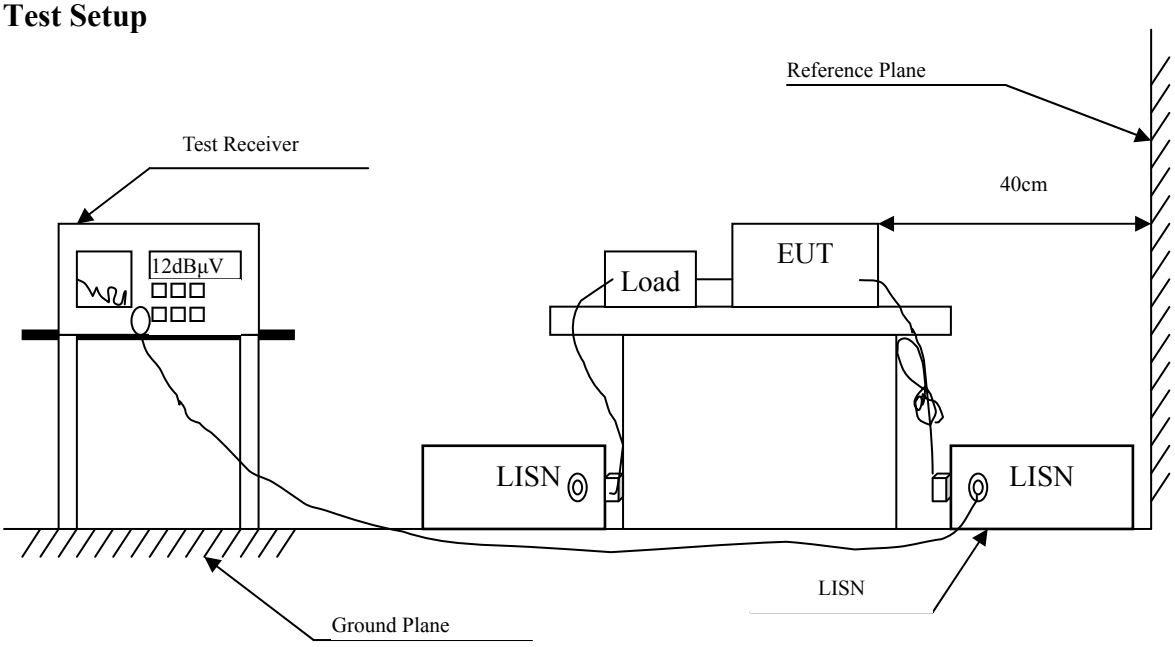
For Radiated measurements /ACB1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	TESEQ	HLA6121	37133	2016.03.18	2018.03.17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2017.02.09	2018.02.08
X	Horn Antenna	ETS-Lindgren	3117	00203800	2016.10.13	2017.10.12
X	Horn Antenna	Com-Power	AH-840	101087	2017.05.24	2018.05.23
X	Pre-Amplifier	EMCI	EMC001330	980316	2017.05.14	2018.05.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2017.05.17	2018.05.16
X	Filter	MICRO TRONICS	BRM50702	G251	2016.08.11	2017.08.10
	Filter	MICRO TRONICS	BRM50716	G188	2016.08.11	2017.08.10
X	EMI Test Receiver	R&S	ESR7	101602	2016.12.15	2017.12.14
X	Spectrum Analyzer	R&S	FSV40	101149	2017.01.24	2018.01.23
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2017.05.25	2018.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2016.08.11	2017.08.10

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.35 dB

2.5. Test Result of Conducted Emission

Product : M2M Router
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)
Test Date : 2017/08/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 1					
Quasi-Peak					
0.153	9.561	34.849	44.409	-21.505	65.914
0.188	9.560	28.936	38.496	-26.418	64.914
0.410	9.574	27.230	36.804	-21.767	58.571
14.580	9.677	16.185	25.862	-34.138	60.000
16.480	9.695	42.209	51.904	-8.096	60.000
18.550	9.695	38.635	48.330	-11.670	60.000
Average					
0.153	9.561	19.654	29.215	-26.699	55.914
0.188	9.560	14.872	24.432	-30.482	54.914
0.410	9.574	19.965	29.539	-19.032	48.571
14.580	9.677	10.450	20.127	-29.873	50.000
16.480	9.695	35.501	45.196	-4.804	50.000
18.550	9.695	32.950	42.645	-7.355	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : M2M Router
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)
Test Date : 2017/08/02

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
Line 2					
Quasi-Peak					
0.153	9.552	41.185	50.737	-15.177	65.914
0.188	9.558	30.971	40.529	-24.385	64.914
0.425	9.568	27.783	37.351	-20.792	58.143
14.410	9.678	20.481	30.159	-29.841	60.000
16.490	9.703	42.606	52.309	-7.691	60.000
18.550	9.710	39.637	49.347	-10.653	60.000
Average					
0.153	9.552	25.253	34.805	-21.109	55.914
0.188	9.558	19.014	28.571	-26.343	54.914
0.425	9.568	24.049	33.617	-14.526	48.143
14.410	9.678	14.429	24.107	-25.893	50.000
16.490	9.703	37.290	46.993	-3.007	50.000
18.550	9.710	34.809	44.519	-5.481	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup

3.2. Limits

The maximum peak power shall be less 1 Watt.

3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

3.4. Uncertainty

±0.86 dB

3.5. Test Result of Peak Power Output

Product : M2M Router
Test Item : Peak Power Output Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/07/26

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	16.99	--	--	--	20.53	<30dBm	Pass
06	2437	15.81	15.65	15.51	15.42	19.37	<30dBm	Pass
11	2462	16.5	--	--	--	20.08	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11	1		
		Measurement Level (dBm)						
01	2412	16.55	--	--	--	20.09	<30dBm	Pass
06	2437	15.71	15.62	15.51	15.4	19.34	<30dBm	Pass
11	2462	16.43	--	--	--	19.94	<30dBm	Pass

Product : M2M Router
Test Item : Peak Power Output Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)
Test Date : 2017/07/26

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	16.47	--	--	--	--	--	--	--	24.66	<30dBm	Pass
06	2437	17.35	17.22	17.03	16.89	16.75	16.64	16.51	16.42	24.65	<30dBm	Pass
11	2462	15.83	--	--	--	--	--	--	--	24.33	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54	6		
		Measurement Level (dBm)										
01	2412	15.69	--	--	--	--	--	--	--	23.83	<30dBm	Pass
06	2437	16.57	16.43	16.31	16.22	16.14	16.05	15.88	15.76	24.49	<30dBm	Pass
11	2462	14.12	--	--	--	--	--	--	--	22.93	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : M2M Router
Test Item : Peak Power Output Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date : 2017/07/26

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	HT8		
		Measurement Level (dBm)										
01	2412	14.33	--	--	--	--	--	--	--	23.04	<30dBm	Pass
06	2437	15.9	15.76	15.61	15.52	15.43	15.34	15.22	15.06	23.65	<30dBm	Pass
11	2462	12.79	--	--	--	--	--	--	--	21.93	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	HT8		
		Measurement Level (dBm)										
01	2412	14.03	--	--	--	--	--	--	--	22.27	<30dBm	Pass
06	2437	15.32	15.24	15.05	14.87	14.73	14.61	14.52	14.41	23.08	<30dBm	Pass
11	2462	12.87	--	--	--	--	--	--	--	21.28	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain A+B

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
01	2412	14.4	23.04	22.27	25.68	<30dBm	Pass
06	2437	14.4	23.65	23.08	26.38	<30dBm	Pass
11	2462	14.4	21.93	21.28	24.63	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

Product : M2M Router
Test Item : Peak Power Output Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date : 2017/07/26

Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	HT8		
		Measurement Level (dBm)										
03	2422	12.96	--	--	--	--	--	--	--	21.63	<30dBm	Pass
06	2437	15.78	15.62	15.51	15.43	15.32	15.21	15.11	15.04	23.54	<30dBm	Pass
09	2452	11.17	--	--	--	--	--	--	--	20.32	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		HT8	HT9	HT10	HT11	HT12	HT13	HT14	HT15	HT8		
		Measurement Level (dBm)										
03	2422	12.42	--	--	--	--	--	--	--	20.92	<30dBm	Pass
06	2437	15.15	15.03	14.88	14.72	14.61	14.5	14.42	14.31	22.75	<30dBm	Pass
09	2452	11.33	--	--	--	--	--	--	--	19.74	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Chain A+B

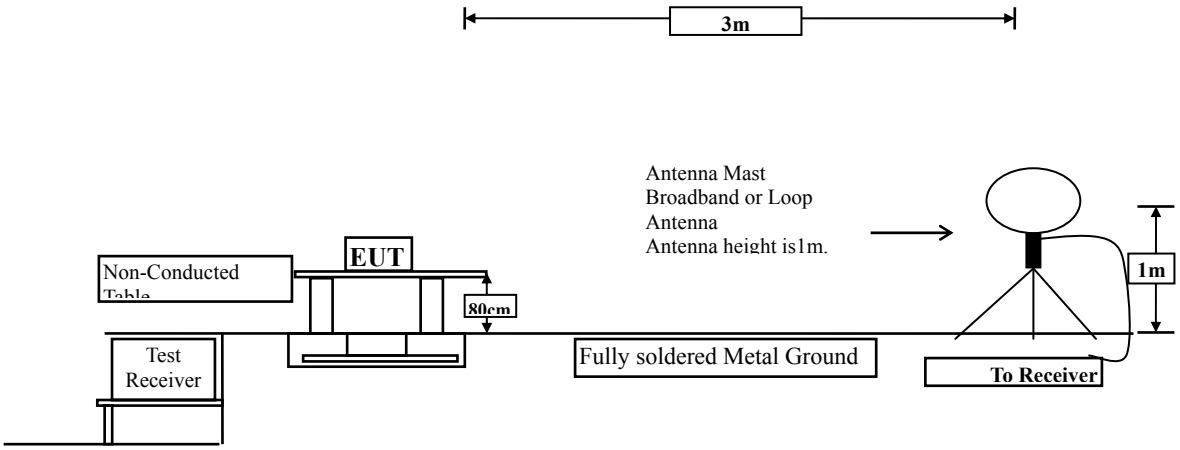
Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
03	2422	30	21.63	20.92	24.30	<30dBm	Pass
06	2437	30	23.54	22.75	26.17	<30dBm	Pass
09	2452	30	20.32	19.74	23.05	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10*LOG (Chain A (mW)+ Chain B (mW))

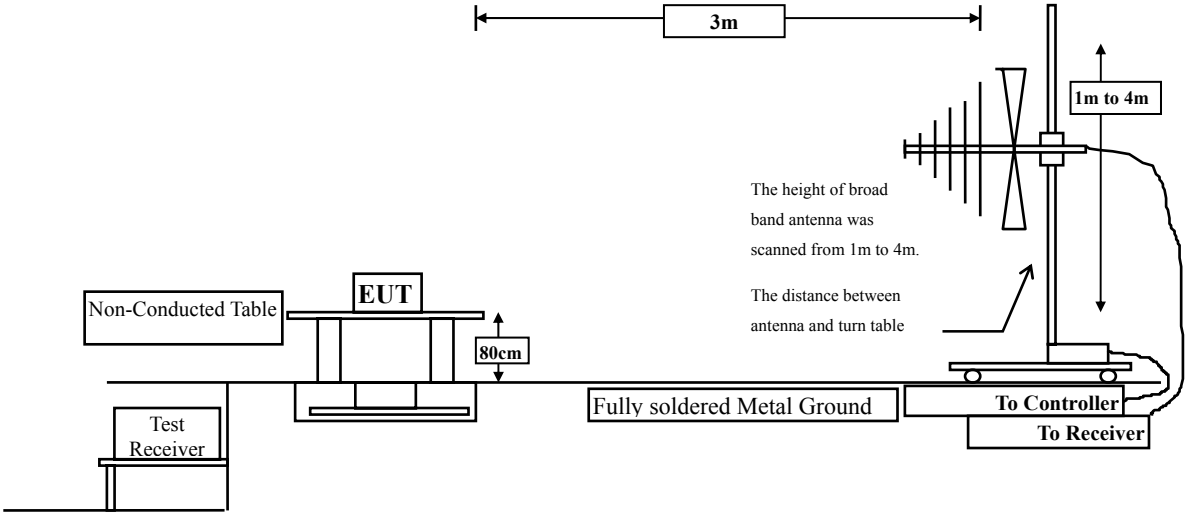
4. Radiated Emission

4.1. Test Setup

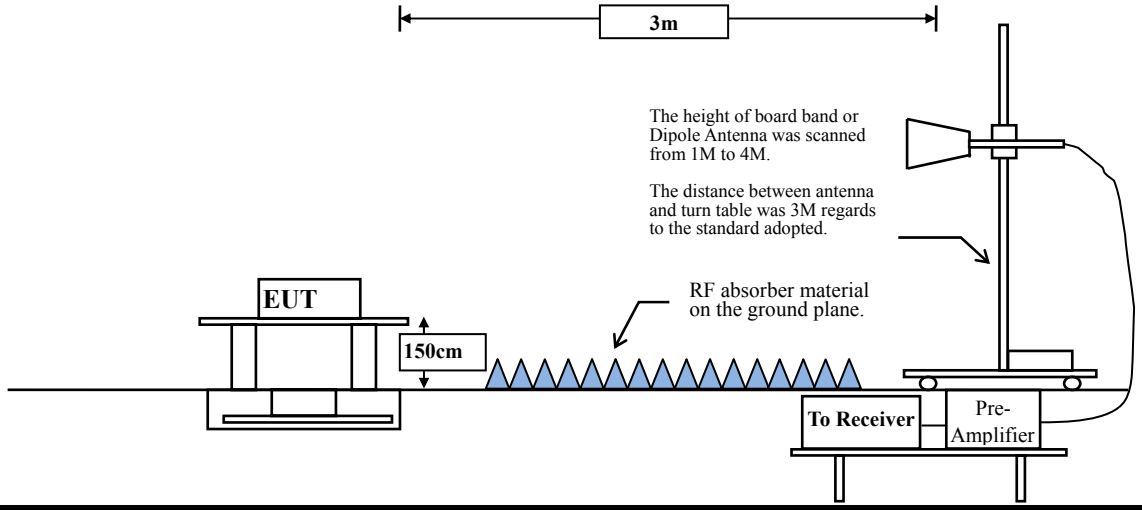
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.2. Limits

➢ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.
The turn table is rotated 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.
The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.
Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Uncertainty

Horizontal：
30-300MHz: ±4.08dB；300M-1GHz: ±3.86dB；1-18GHz: ±3.77dB；18-40GHz: ±3.98dB。
Vertical：
30-300MHz: ±4.81dB；300M-1GHz: ±3.87dB；1-18GHz: ±3.83dB；18-40GHz: ±3.98dB。

4.5. Test Result of Radiated Emission

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	50.570	46.786	-27.214	74.000
7236.000	-0.753	53.710	52.956	-21.044	74.000
9648.000	1.186	43.500	44.686	-29.314	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	54.250	50.466	-23.534	74.000
7236.000	-0.753	59.210	58.456	-15.544	74.000
9648.000	1.186	43.020	44.206	-29.794	74.000
Average Detector:					
7236.000	-0.753	54.280	53.526	-0.474	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	49.910	46.140	-27.860	74.000
7311.000	-0.719	53.520	52.802	-21.198	74.000
9748.000	1.331	43.920	45.251	-28.749	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	53.050	49.280	-24.720	74.000
7311.000	-0.719	58.710	57.992	-16.008	74.000
9748.000	1.331	43.920	45.251	-28.749	74.000
Average Detector:					
7311.000	-0.719	53.690	52.972	-1.028	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	52.040	48.297	-25.703	74.000
7386.000	-0.683	52.710	52.027	-21.973	74.000
9848.000	1.571	43.210	44.781	-29.219	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	53.430	49.687	-24.313	74.000
7386.000	-0.683	59.110	58.427	-15.573	74.000
9848.000	1.571	43.240	44.811	-29.189	74.000
Average Detector:					
7386.000	-0.683	53.930	53.247	-0.753	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	48.430	44.646	-29.354	74.000
7236.000	-0.753	57.950	57.196	-16.804	74.000
9648.000	1.186	42.810	43.996	-30.004	74.000
Average Detector:					
7236.000	-0.753	42.370	41.616	-12.384	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	51.730	47.946	-26.054	74.000
7236.000	-0.753	64.490	63.736	-10.264	74.000
9648.000	1.186	43.180	44.366	-29.634	74.000
Average Detector:					
7236.000	-0.753	49.400	48.646	-5.354	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	47.640	43.870	-30.130	74.000
7311.000	-0.719	61.040	60.322	-13.678	74.000
9748.000	1.331	43.560	44.891	-29.109	74.000
Average Detector:					
7311.000	-0.719	46.200	45.482	-8.518	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	49.840	46.070	-27.930	74.000
7311.000	-0.719	65.720	65.002	-8.998	74.000
9748.000	1.331	44.310	45.641	-28.359	74.000
Average Detector:					
7311.000	-0.719	51.200	50.482	-3.518	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	49.020	45.277	-28.723	74.000
7386.000	-0.683	56.810	56.127	-17.873	74.000
9848.000	1.571	43.360	44.931	-29.069	74.000
Average Detector:					
7386.000	-0.683	40.130	39.447	-14.553	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	50.020	46.277	-27.723	74.000
7386.000	-0.683	63.510	62.827	-11.173	74.000
9848.000	1.571	43.360	44.931	-29.069	74.000
Average Detector:					
7386.000	-0.683	47.400	46.717	-7.283	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)(2412MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4824.000	-3.785	46.980	43.196	-30.804	74.000
7236.000	-0.753	52.380	51.626	-22.374	74.000
9648.000	1.186	43.290	44.476	-29.524	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4824.000	-3.785	49.790	46.006	-27.994	74.000
7236.000	-0.753	57.410	56.656	-17.344	74.000
9648.000	1.186	43.660	44.846	-29.154	74.000
Average Detector:					
7236.000	-0.753	39.480	38.726	-15.274	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	48.900	45.130	-28.870	74.000
7311.000	-0.719	58.400	57.682	-16.318	74.000
9748.000	1.331	44.080	45.411	-28.589	74.000
Average Detector:					
7311.000	-0.719	41.290	40.572	-13.428	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	53.100	49.330	-24.670	74.000
7311.000	-0.719	63.410	62.692	-11.308	74.000
9748.000	1.331	44.860	46.191	-27.809	74.000
Average Detector:					
7311.000	-0.719	45.990	45.272	-8.728	54.000

Note:
1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4924.000	-3.743	46.560	42.817	-31.183	74.000
7386.000	-0.683	48.120	47.437	-26.563	74.000
9848.000	1.571	42.830	44.401	-29.599	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4924.000	-3.743	47.770	44.027	-29.973	74.000
7386.000	-0.683	54.710	54.027	-19.973	74.000
9848.000	1.571	43.010	44.581	-29.419	74.000
Average Detector:					
7386.000	-0.683	38.480	37.797	-16.203	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2422MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4844.000	-3.778	49.660	45.881	-28.119	74.000
7266.000	-0.732	55.040	54.308	-19.692	74.000
9688.000	1.249	43.740	44.990	-29.010	74.000
Average Detector:					
7266.000	-0.732	38.510	37.778	-16.222	54.000
Vertical					
Peak Detector:					
4844.000	-3.778	48.230	44.451	-29.549	74.000
7266.000	-0.732	58.790	58.058	-15.942	74.000
9688.000	1.249	43.760	45.010	-28.990	74.000
Average Detector:					
7266.000	-0.732	44.030	43.298	-10.702	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4874.000	-3.770	47.770	44.000	-30.000	74.000
7311.000	-0.719	60.250	59.532	-14.468	74.000
9748.000	1.331	44.630	45.961	-28.039	74.000
Average Detector:					
7311.000	-0.719	45.460	44.742	-9.258	54.000
Vertical					
Peak Detector:					
4874.000	-3.770	52.470	48.700	-25.300	74.000
7311.000	-0.719	64.230	63.512	-10.488	74.000
9748.000	1.331	44.420	45.751	-28.249	74.000
Average Detector:					
7311.000	-0.719	49.080	48.362	-5.638	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : Harmonic Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2452 MHz)
Test Date : 2017/07/25

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
4904.000	-3.766	46.860	43.094	-30.906	74.000
7356.000	-0.693	50.630	49.937	-24.063	74.000
9808.000	1.467	43.410	44.876	-29.124	74.000
Average Detector:					
--	--	--	--	--	54.000
Vertical					
Peak Detector:					
4904.000	-3.766	47.360	43.594	-30.406	74.000
7356.000	-0.693	54.820	54.127	-19.873	74.000
9808.000	1.467	43.560	45.026	-28.974	74.000
Average Detector:					
7356.000	-0.693	39.220	38.527	-15.473	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : M2M Router
Test Item : General Radiated Emission Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)
Test Date : 2017/07/27

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
156.489	-10.634	52.030	41.397	-2.103	43.500
208.677	-13.284	54.684	41.400	-2.100	43.500
308.228	-9.896	52.433	42.537	-3.463	46.000
382.771	-8.061	42.668	34.607	-11.393	46.000
773.529	-0.967	39.011	38.044	-7.956	46.000
807.334	-0.575	39.113	38.537	-7.463	46.000
Vertical					
32.758	-11.951	44.215	32.263	-7.737	40.000
155.314	-10.652	50.229	39.577	-3.923	43.500
207.006	-13.356	53.191	39.836	-3.664	43.500
305.478	-9.956	44.168	34.213	-11.787	46.000
579.514	-3.820	38.006	34.186	-11.814	46.000
805.889	-0.592	37.131	36.538	-9.462	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : M2M Router
Test Item : General Radiated Emission Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)
Test Date : 2017/07/27

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
155.298	-10.652	51.786	41.134	-2.366	43.500
208.442	-13.293	54.239	40.945	-2.555	43.500
308.247	-9.895	52.315	42.420	-3.580	46.000
382.462	-8.070	42.275	34.205	-11.795	46.000
773.277	-0.970	38.694	37.724	-8.276	46.000
808.311	-0.563	38.997	38.434	-7.566	46.000
Vertical					
33.112	-11.922	45.001	33.079	-6.921	40.000
154.866	-10.659	50.111	39.452	-4.048	43.500
207.008	-13.356	53.240	39.885	-3.615	43.500
305.329	-9.959	44.891	34.933	-11.067	46.000
579.557	-3.819	38.284	34.465	-11.535	46.000
806.228	-0.589	37.224	36.635	-9.365	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : M2M Router
Test Item : General Radiated Emission Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)(2437 MHz)
Test Date : 2017/07/27

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV/m	dB	dBµV/m
Horizontal					
157.625	-10.616	52.243	41.627	-1.873	43.500
207.967	-13.314	53.996	40.681	-2.819	43.500
307.428	-9.913	52.447	42.534	-3.466	46.000
383.114	-8.051	41.886	33.835	-12.165	46.000
772.562	-0.978	39.233	38.255	-7.745	46.000
807.108	-0.578	39.156	38.578	-7.422	46.000
Vertical					
33.263	-11.909	45.471	33.562	-6.438	40.000
154.222	-10.669	51.012	40.343	-3.157	43.500
206.854	-13.362	53.339	39.977	-3.523	43.500
305.442	-9.956	43.187	33.231	-12.769	46.000
578.655	-3.841	38.434	34.593	-11.407	46.000
806.221	-0.589	37.432	36.843	-9.157	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : M2M Router
Test Item : General Radiated Emission Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2437 MHz)
Test Date : 2017/07/27

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
156.738	-10.629	52.663	42.034	-1.466	43.500
208.438	-13.294	54.289	40.995	-2.505	43.500
307.885	-9.904	51.496	41.593	-4.407	46.000
384.277	-8.018	43.006	34.988	-11.012	46.000
773.454	-0.968	39.889	38.921	-7.079	46.000
807.522	-0.573	39.115	38.542	-7.458	46.000
Vertical					
33.552	-11.885	44.289	32.404	-7.596	40.000
156.347	-10.635	50.648	40.013	-3.487	43.500
208.332	-13.300	53.423	40.124	-3.376	43.500
305.196	-9.961	45.247	35.286	-10.714	46.000
578.796	-3.838	39.112	35.275	-10.725	46.000
806.438	-0.586	37.129	36.543	-9.457	46.000

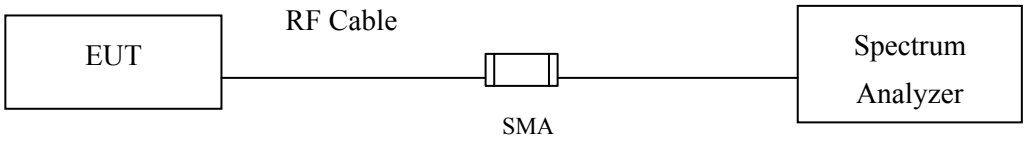
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF antenna conducted test

5.1. Test Setup

RF antenna Conducted Measurement:



5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

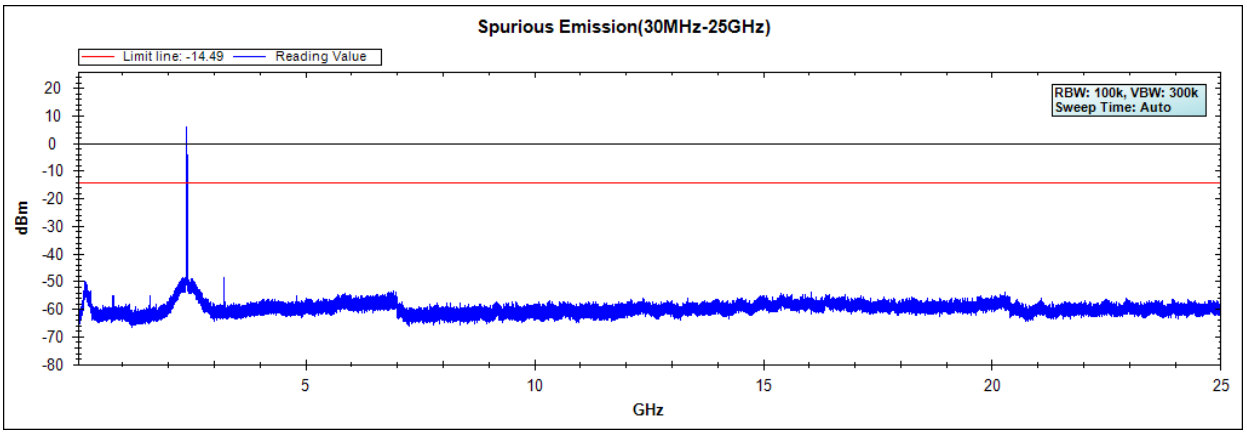
5.4. Uncertainty

±1.23dB

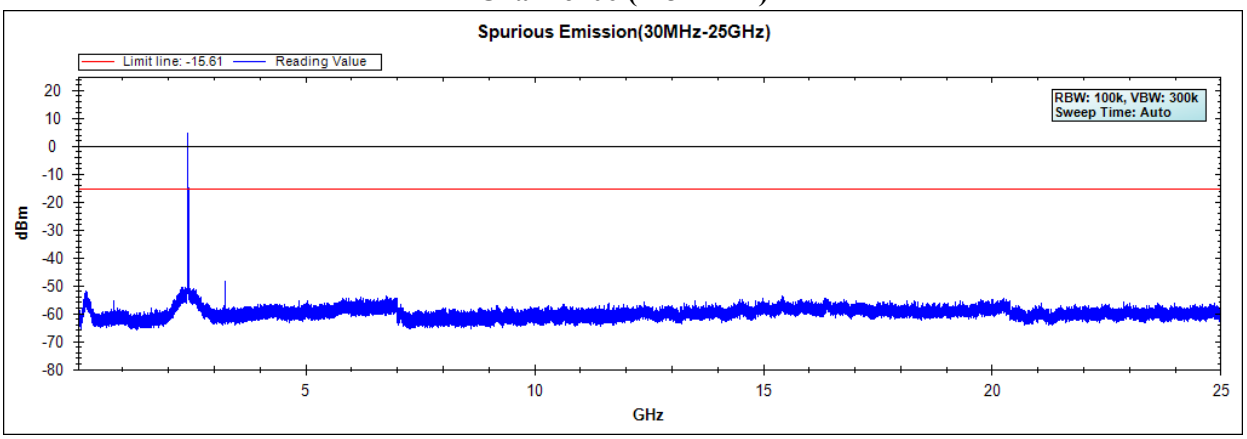
5.5. Test Result of RF antenna conducted test

Product : M2M Router
Test Item : RF antenna conducted test
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/07/26

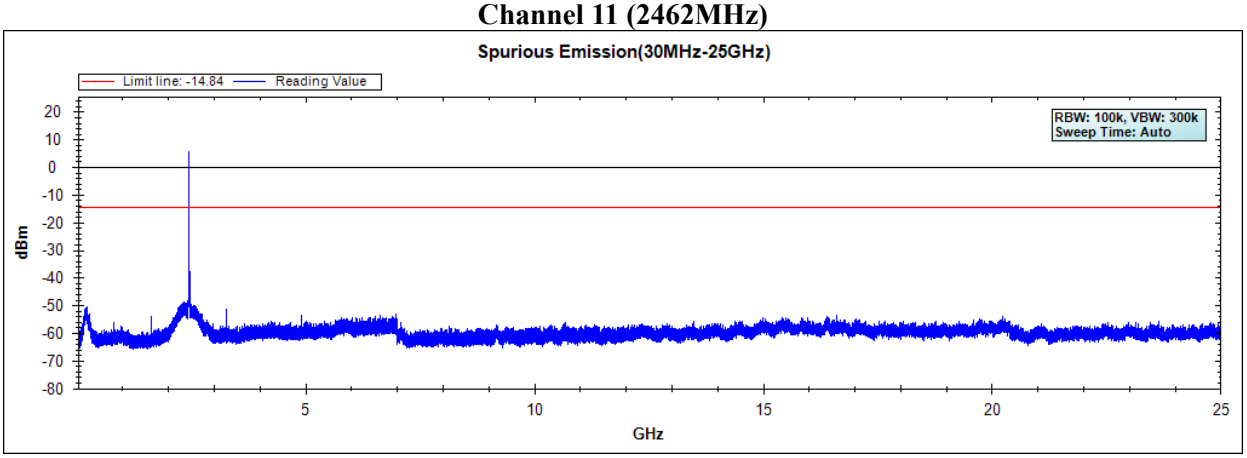
Channel 01 (2412MHz)



Channel 06 (2437MHz)



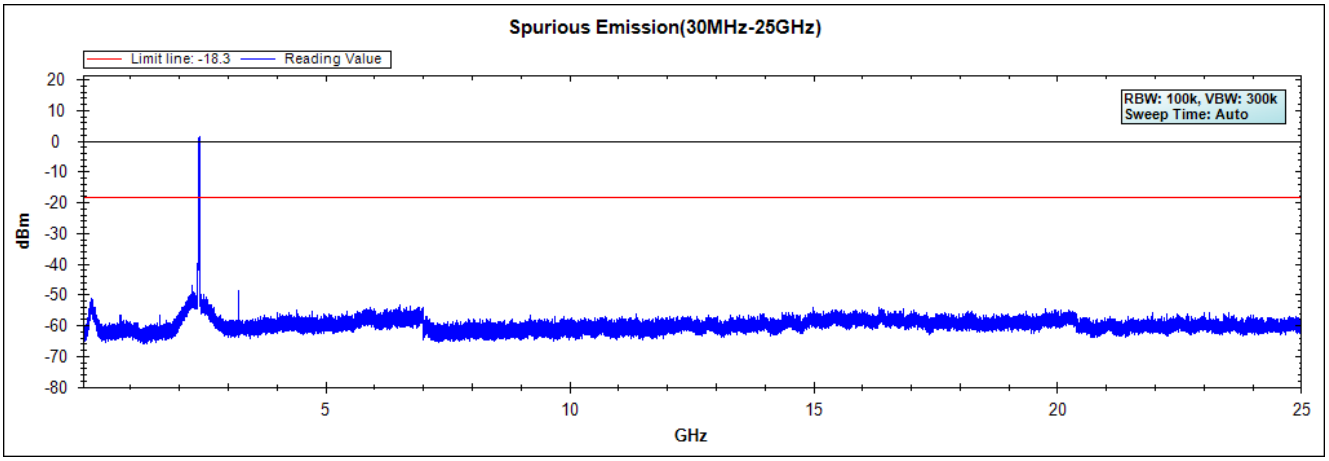
Channel 11 (2462MHz)



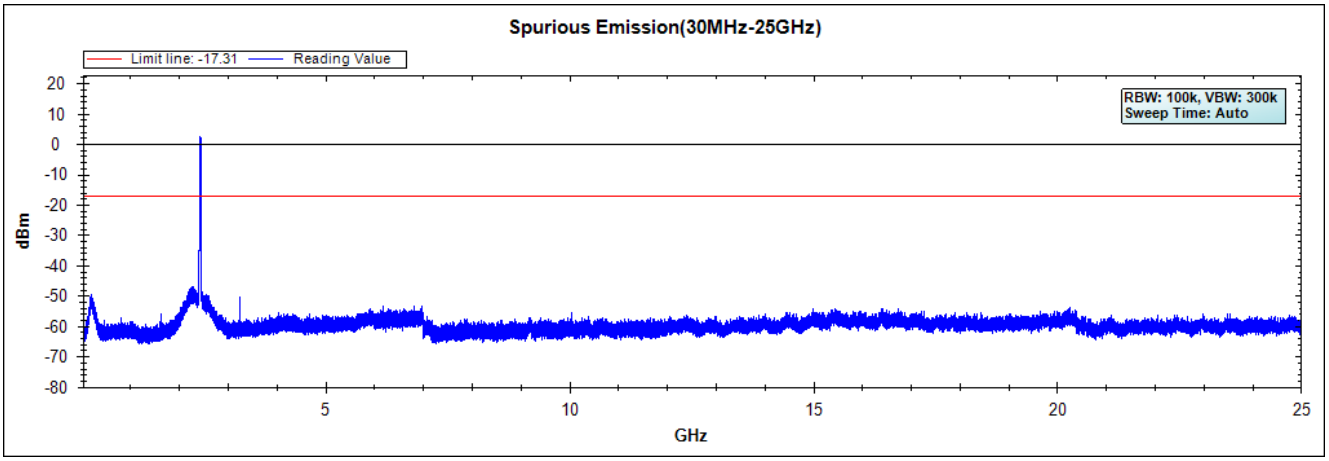
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	M2M Router
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 2: Transmit (802.11g 6Mbps)
Test Date	:	2017/07/26

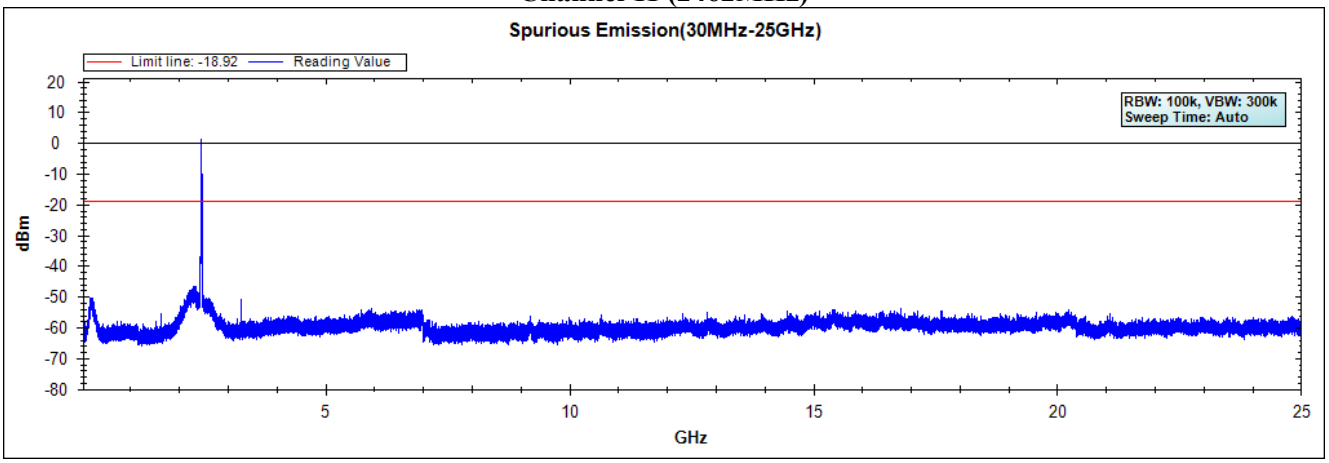
Channel 01 (2412MHz)



Channel 06 (2437MHz)



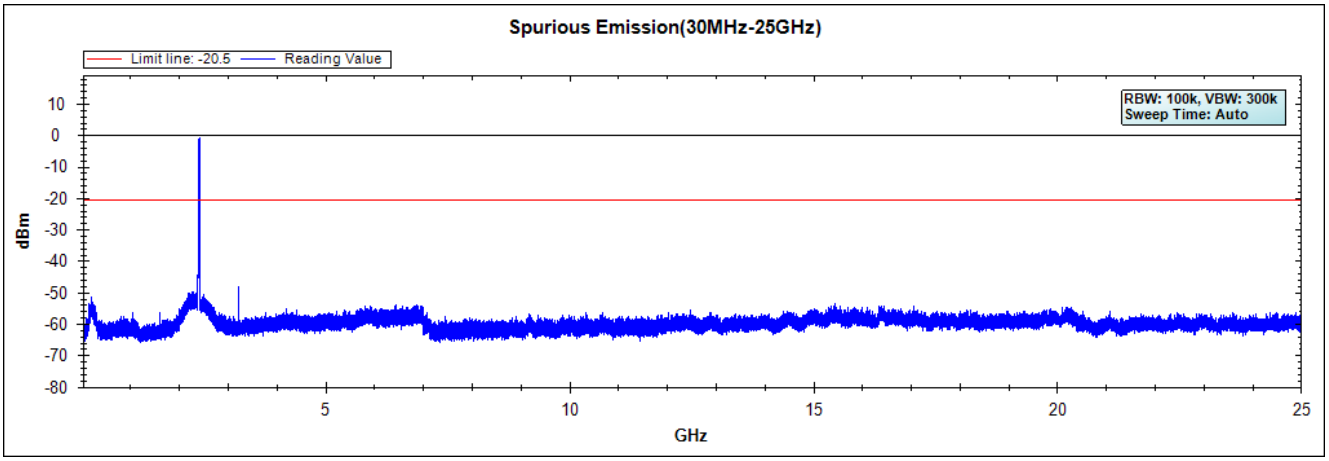
Channel 11 (2462MHz)



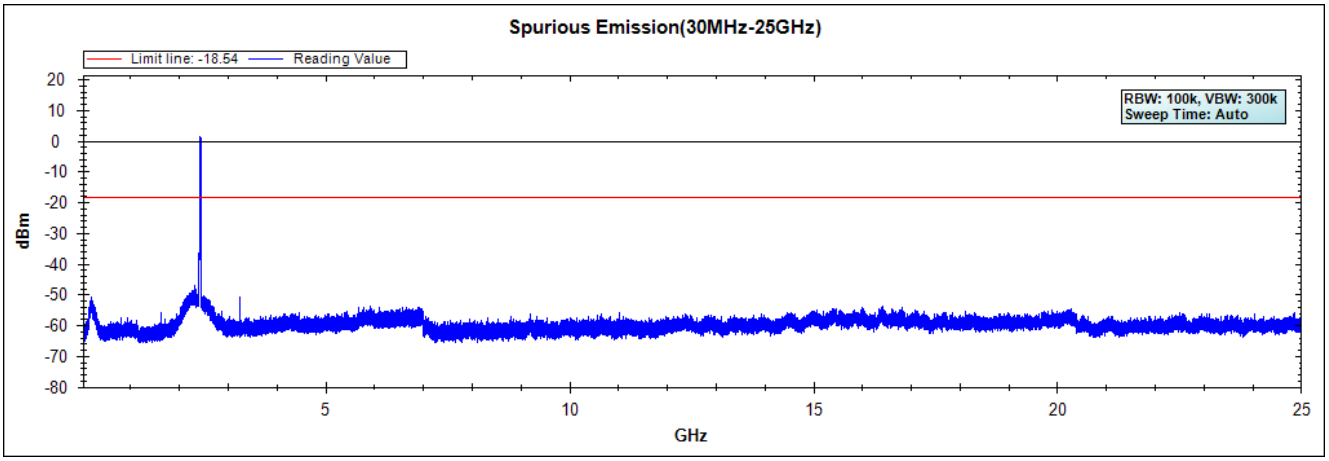
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	M2M Router
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date	:	2017/07/26

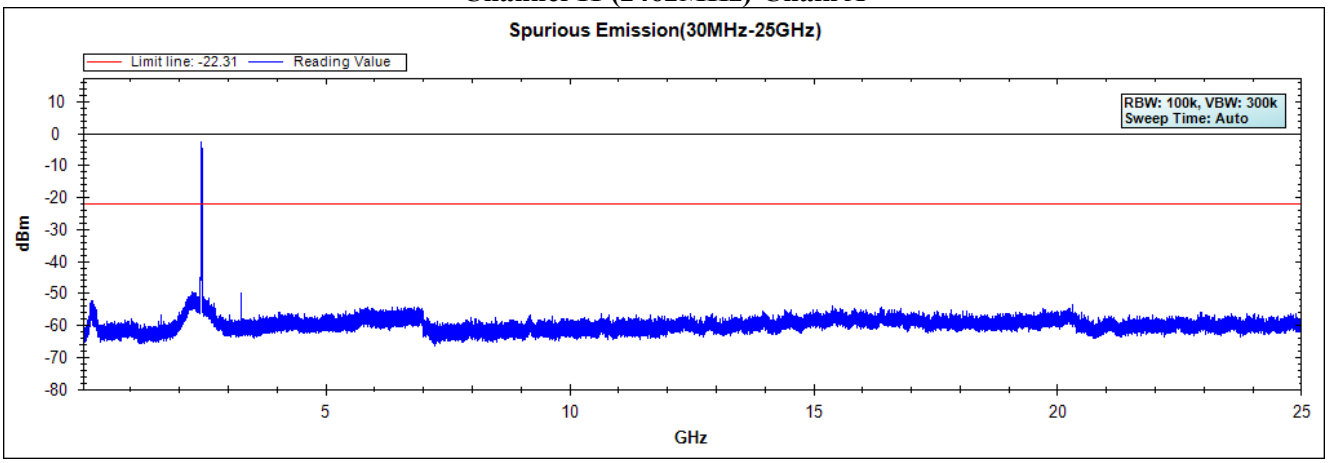
Channel 01 (2412MHz)-Chain A



Channel 06 (2437MHz)-Chain A



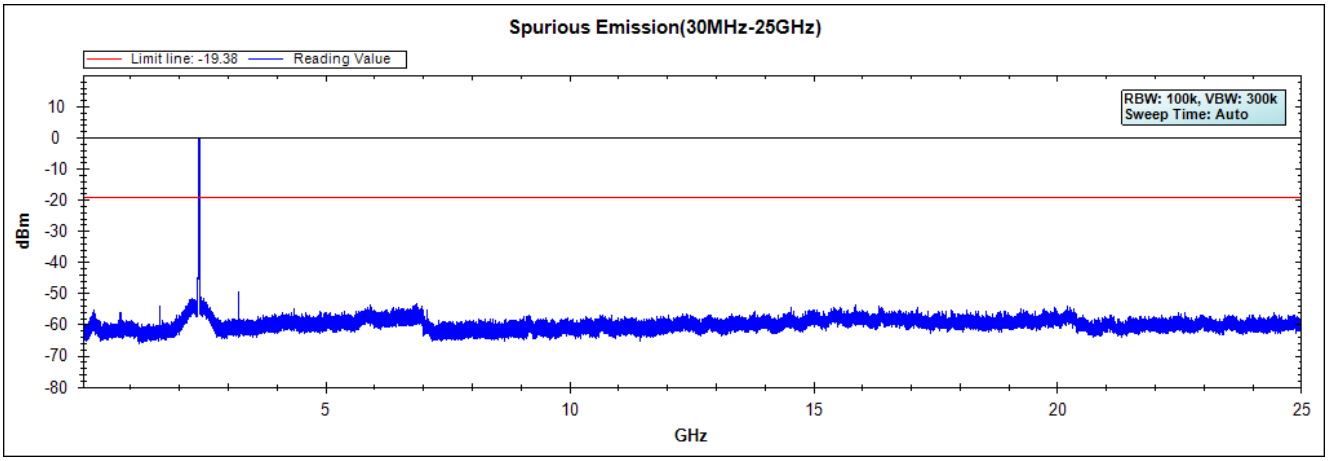
Channel 11 (2462MHz)-Chain A



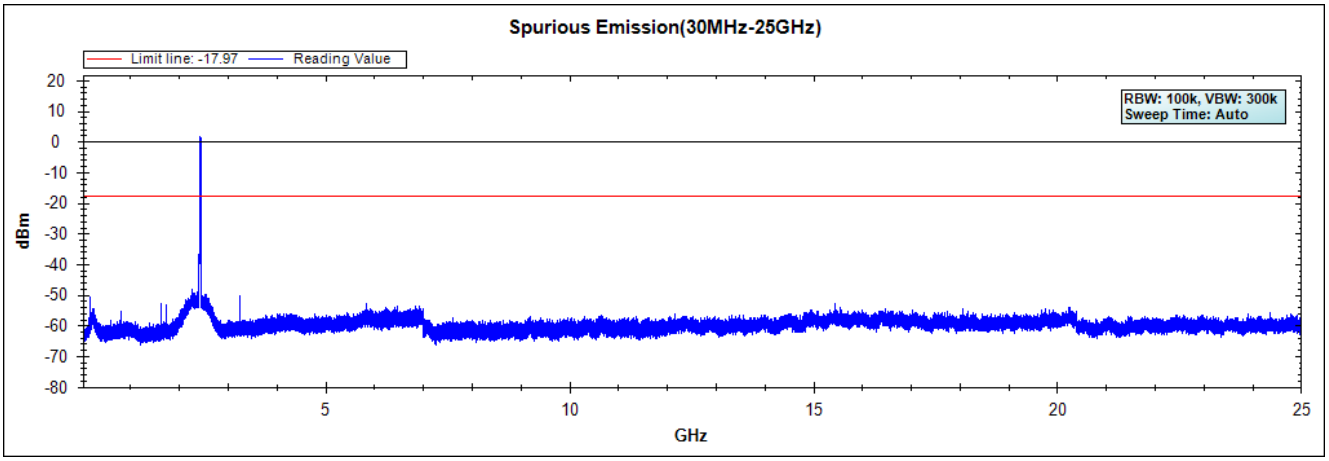
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	M2M Router
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date	:	2017/07/26

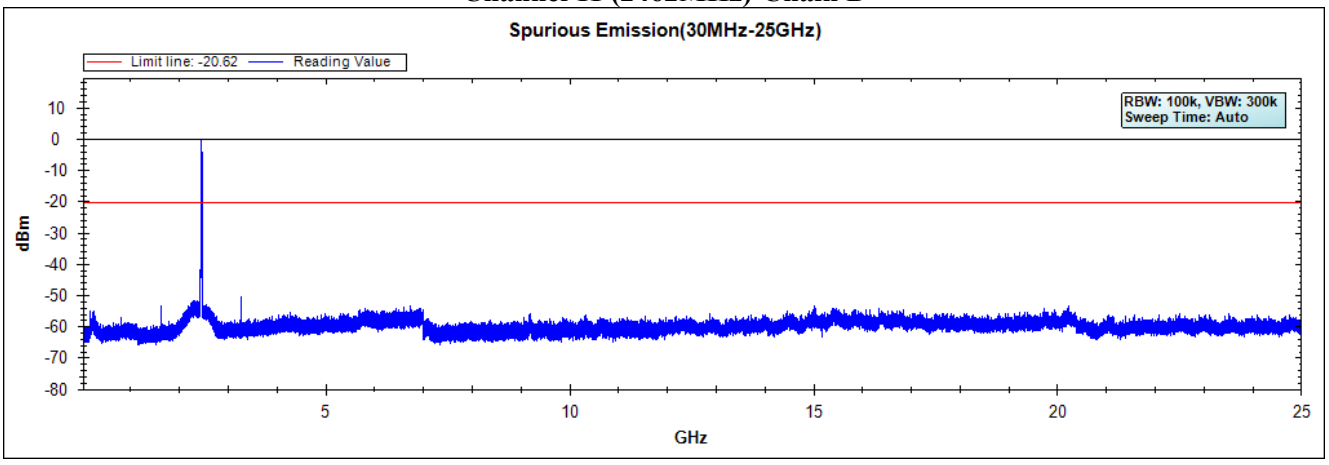
Channel 01 (2412MHz)-Chain B



Channel 06 (2437MHz)-Chain B



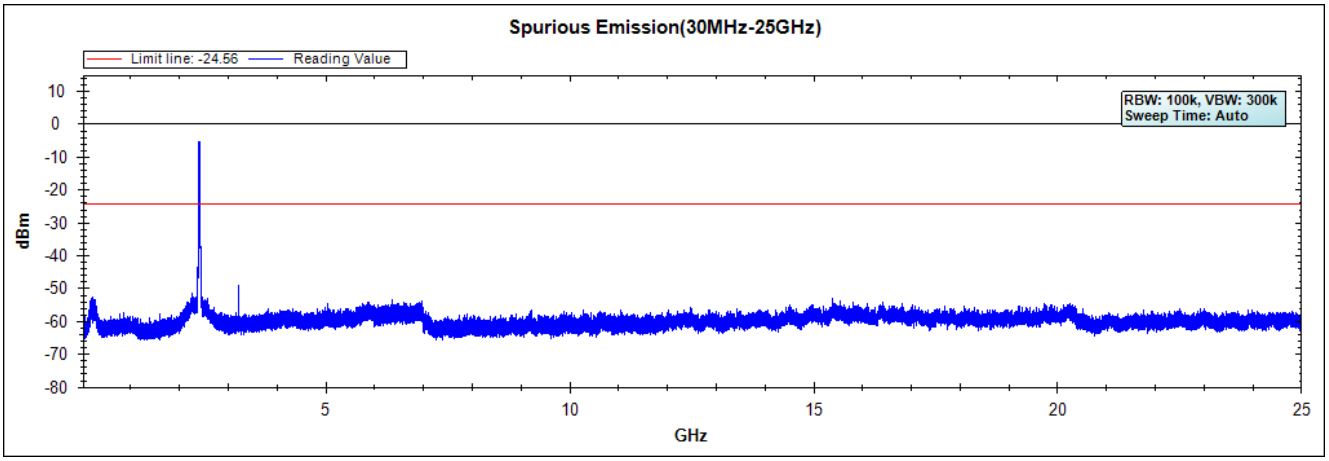
Channel 11 (2462MHz)-Chain B



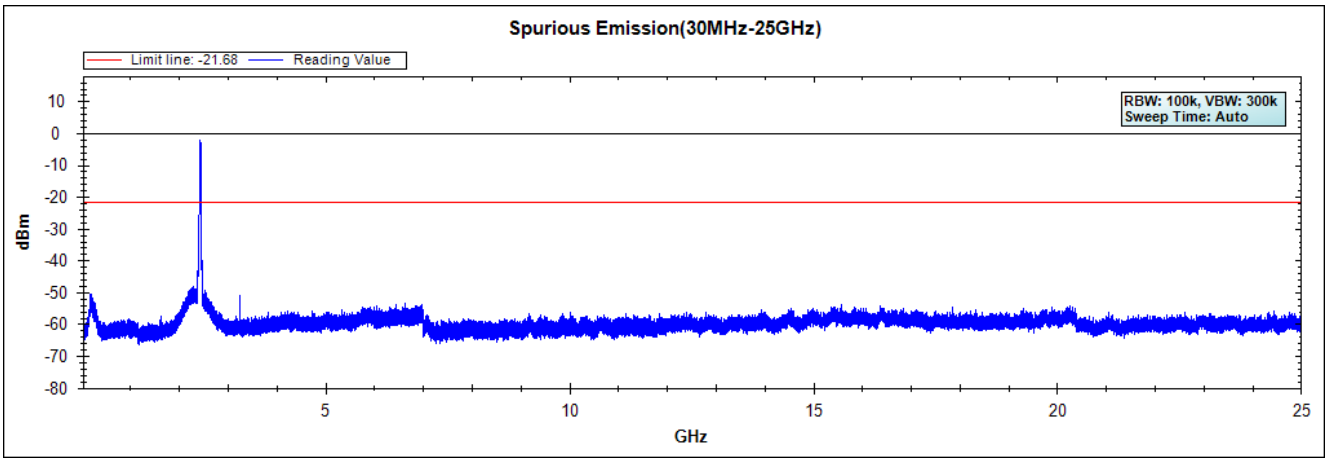
Note: The above test pattern is synthesized by multiple of the frequency range.

Product	:	M2M Router
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date	:	2017/07/26

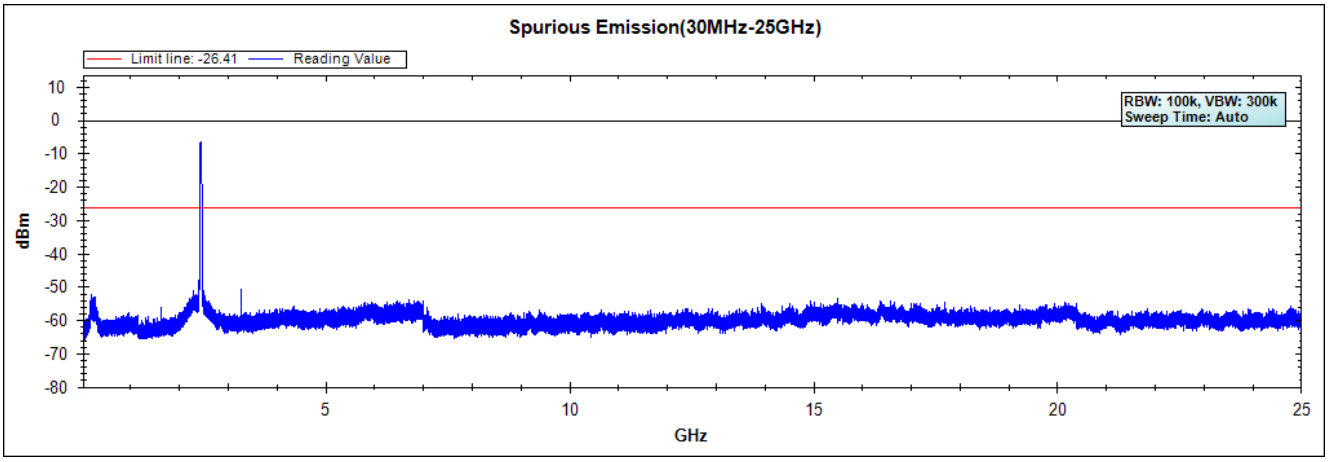
Channel 01 (2422MHz)-Chain A



Channel 04 (2437MHz)-Chain A



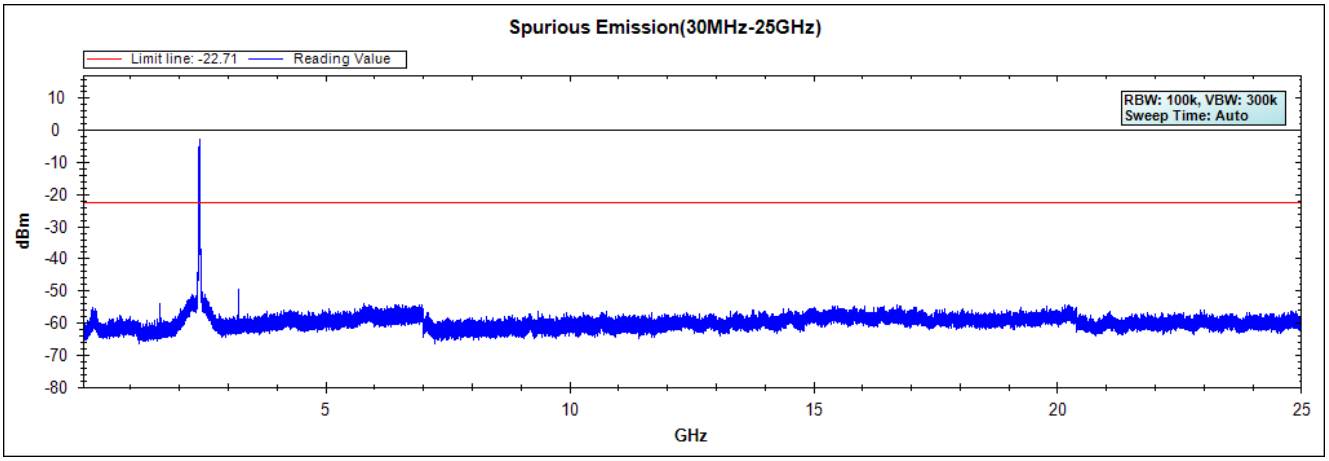
Channel 07 (2452MHz)-Chain A



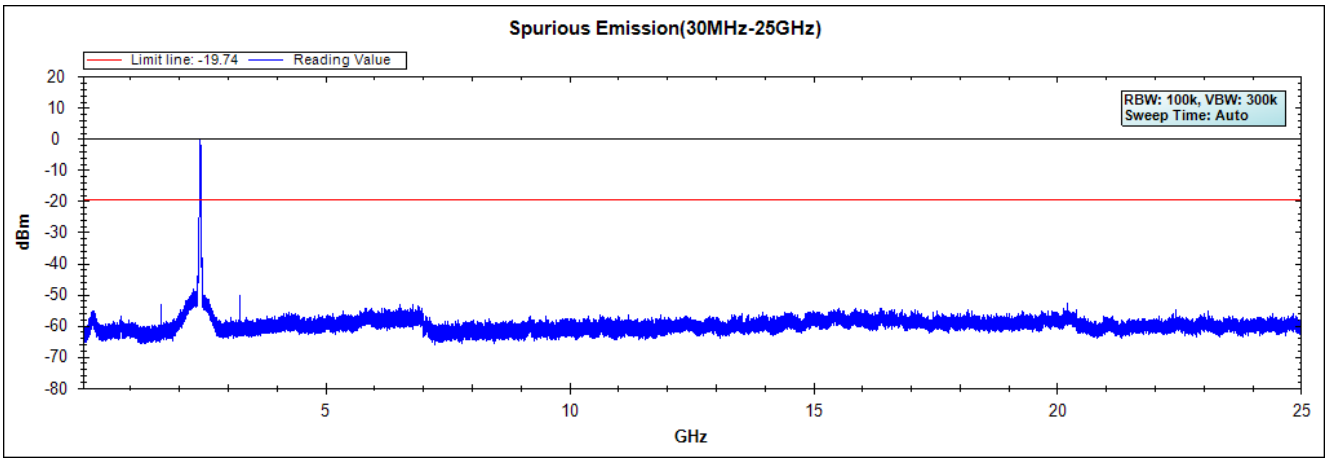
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : M2M Router
Test Item : RF Antenna Conducted Spurious
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date : 2017/07/26

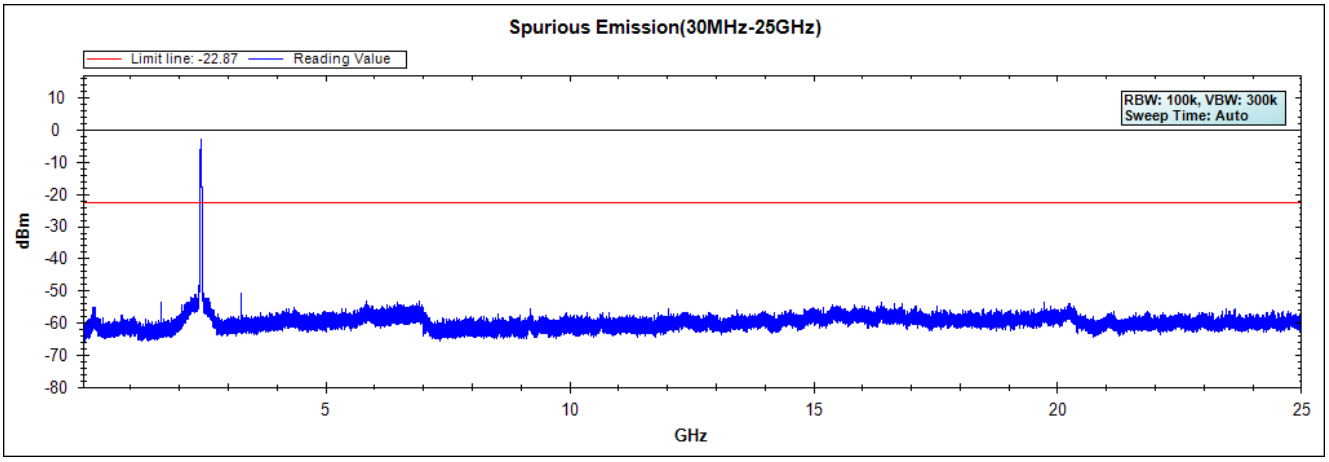
Channel 01 (2422MHz)-Chain B



Channel 04 (2437MHz)-Chain B



Channel 07 (2452MHz)-Chain B

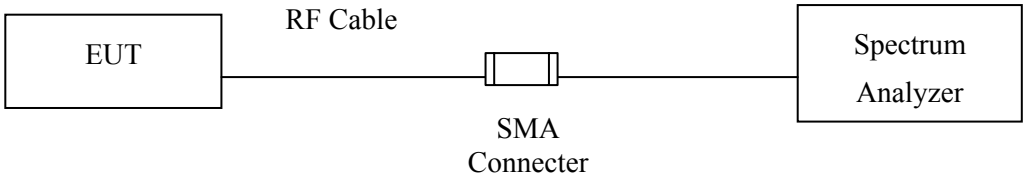


Note: The above test pattern is synthesized by multiple of the frequency range.

6. Band Edge

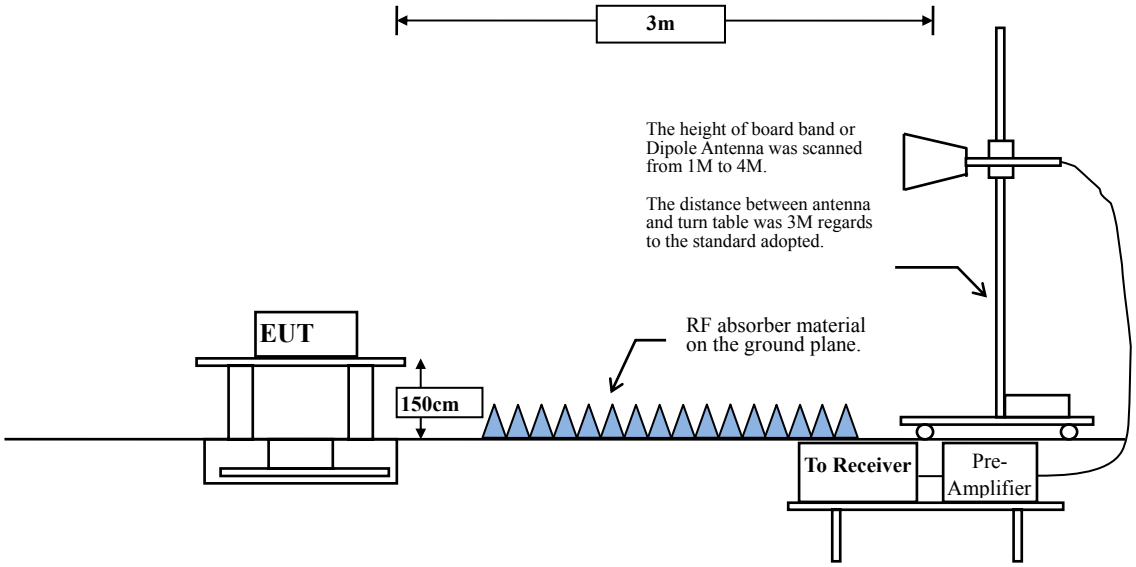
6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

6.4. Uncertainty

Conducted: ±1.23dB
Radiated:
Horizontal polarization：1-18GHz: ±3.77dB
Vertical polarization：1-18GHz : ±3.83dB

6.5. Test Result of Band Edge

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2387.971	11.550	43.088	54.639	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	42.909	54.465	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	52.364	63.943	--	--	--
01 (Peak)	2411.014	11.605	91.958	103.564	--	--	--
01 (Average)	2390.000	11.556	29.975	41.531	74.00	54.00	Pass
01 (Average)	2397.971	11.574	43.413	54.987	--	--	--
01 (Average)	2400.000	11.579	41.223	52.802	--	--	--
01 (Average)	2409.855	11.603	88.466	100.069	--	--	--

Figure Channel 01: Horizontal (Peak)

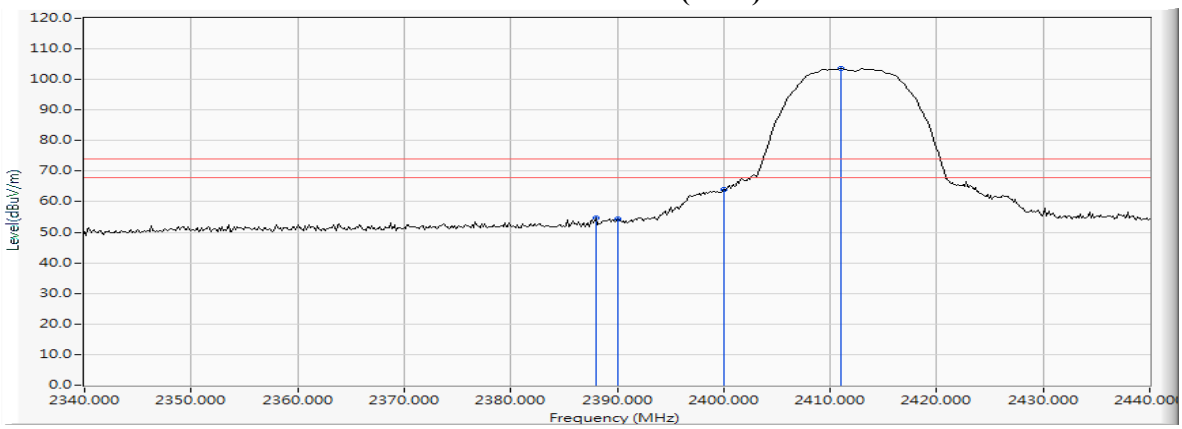
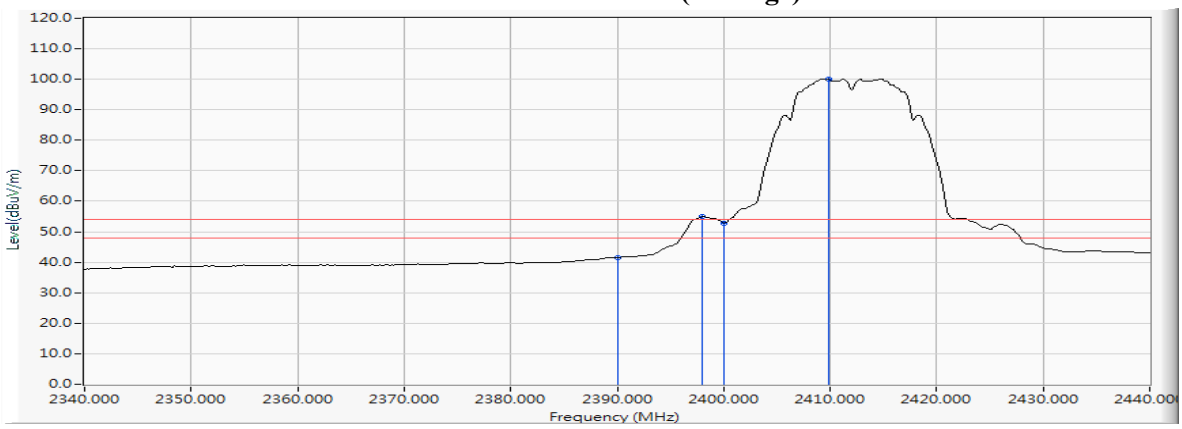


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
01 (Peak)	2390.000	11.556	47.582	59.138	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	58.339	69.918	--	--	--
01 (Peak)	2411.014	11.605	96.382	107.988	--	--	--
01 (Average)	2390.000	11.556	34.302	45.858	74.00	54.00	Pass
01 (Average)	2397.971	11.574	49.162	60.736	--	--	--
01 (Average)	2400.000	11.579	45.961	57.540	--	--	--
01 (Average)	2411.304	11.605	92.938	104.544	--	--	--

Figure Channel 01: VERTICAL (Peak)

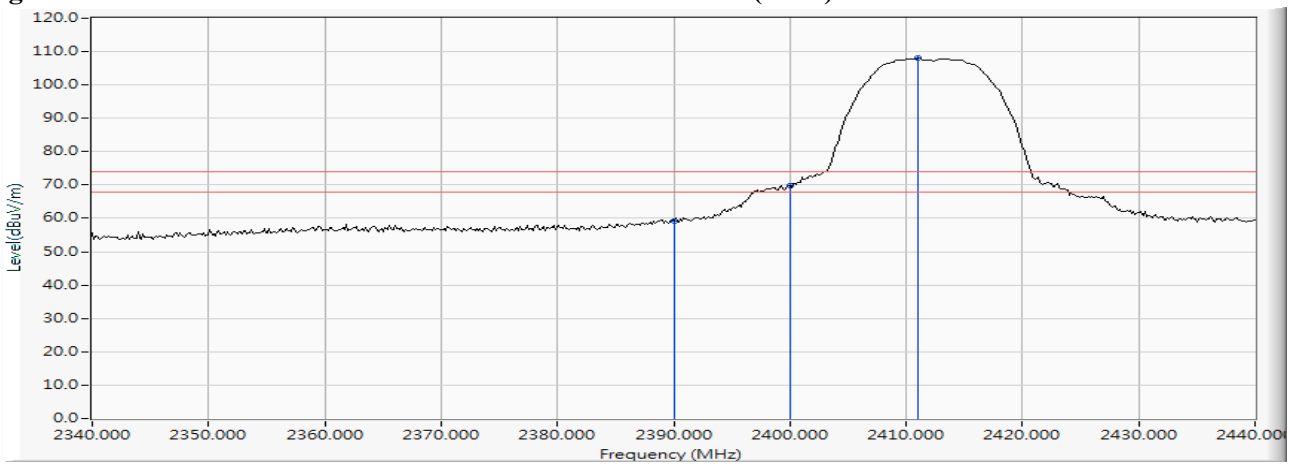
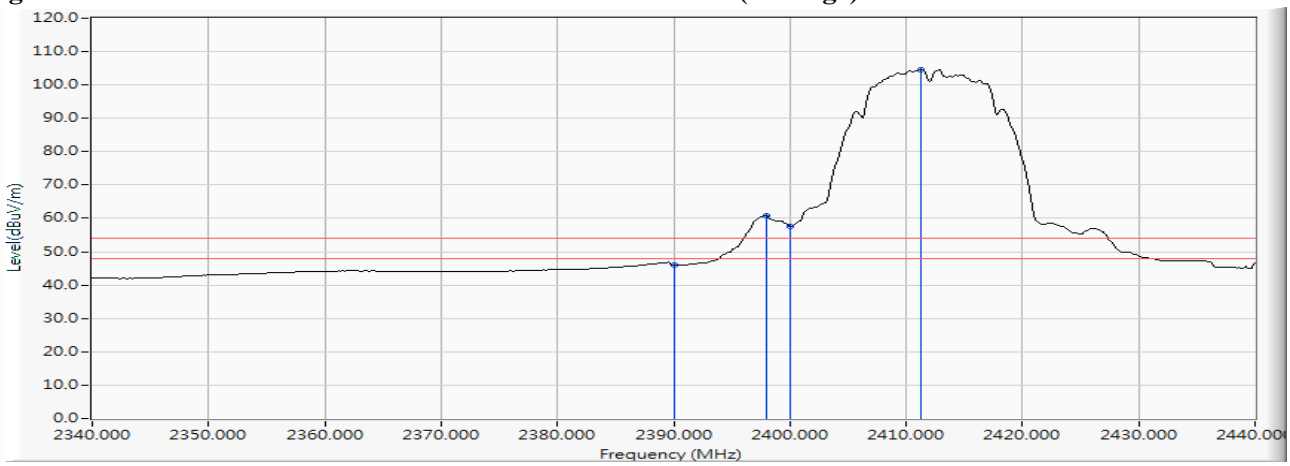


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2462.920	11.745	91.665	103.411	--	--	--
11 (Peak)	2483.500	11.800	42.005	53.805	74.00	54.00	Pass
11 (Peak)	2486.688	11.806	42.364	54.171	74.00	54.00	Pass
11 (Average)	2462.775	11.745	88.252	99.997	--	--	--
11 (Average)	2483.500	11.800	29.708	41.508	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

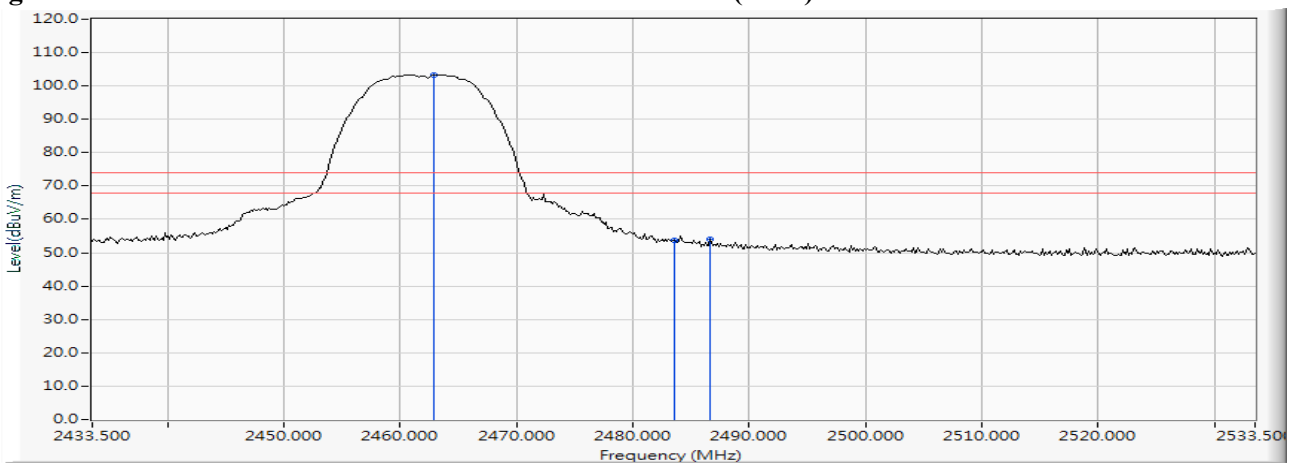
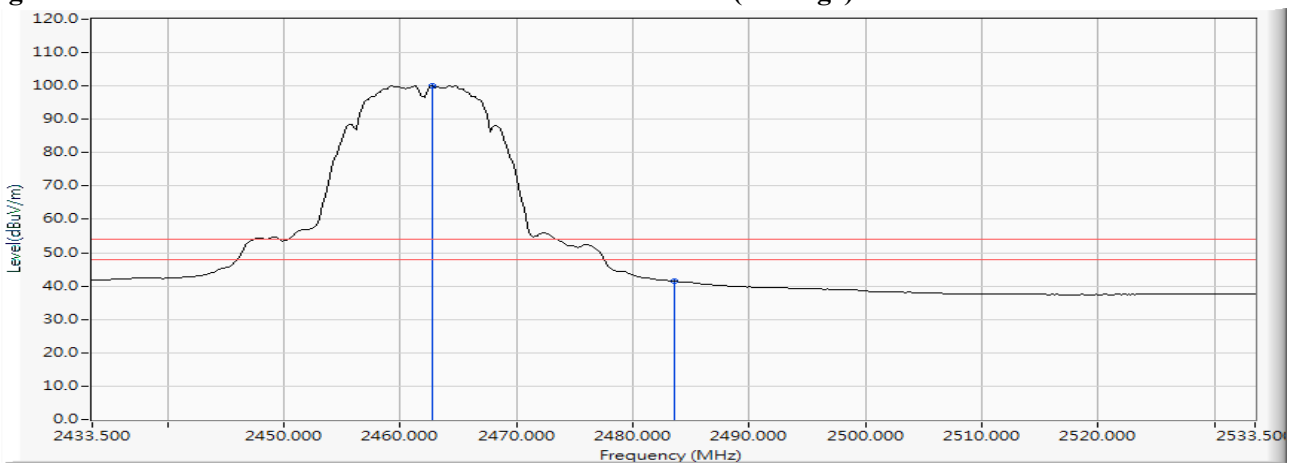


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2461.036	11.740	97.612	109.352	--	--	--
11 (Peak)	2483.500	11.800	46.769	58.569	74.00	54.00	Pass
11 (Peak)	2485.239	11.804	47.464	59.268	74.00	54.00	Pass
11 (Average)	2459.152	11.734	94.274	106.008	--	--	--
11 (Average)	2483.500	11.800	34.870	46.670	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

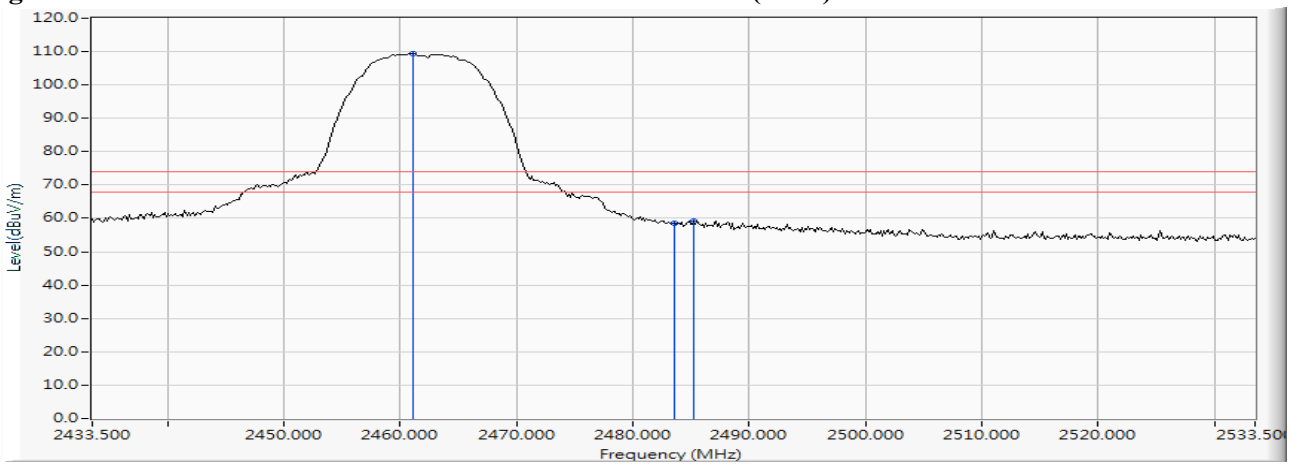
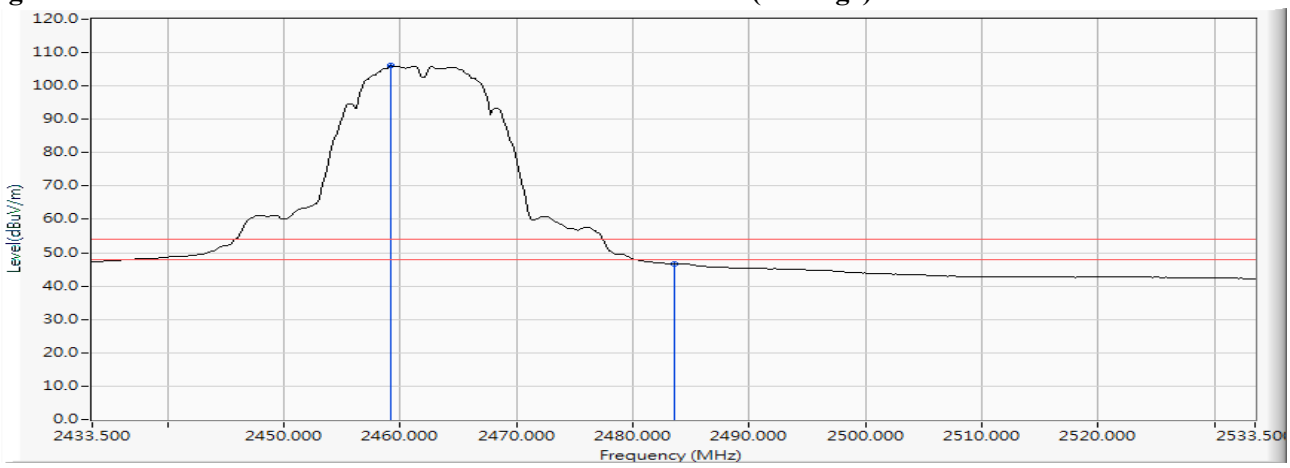


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	55.359	66.915	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	66.423	78.002	--	--	--
01 (Peak)	2418.551	11.624	93.058	104.681	--	--	--
01 (Average)	2390.000	11.556	35.840	47.396	74.00	54.00	Pass
01 (Average)	2400.000	11.579	47.773	59.352	--	--	--
01 (Average)	2419.275	11.625	83.803	95.428	--	--	--

Figure Channel 01: Horizontal (Peak)

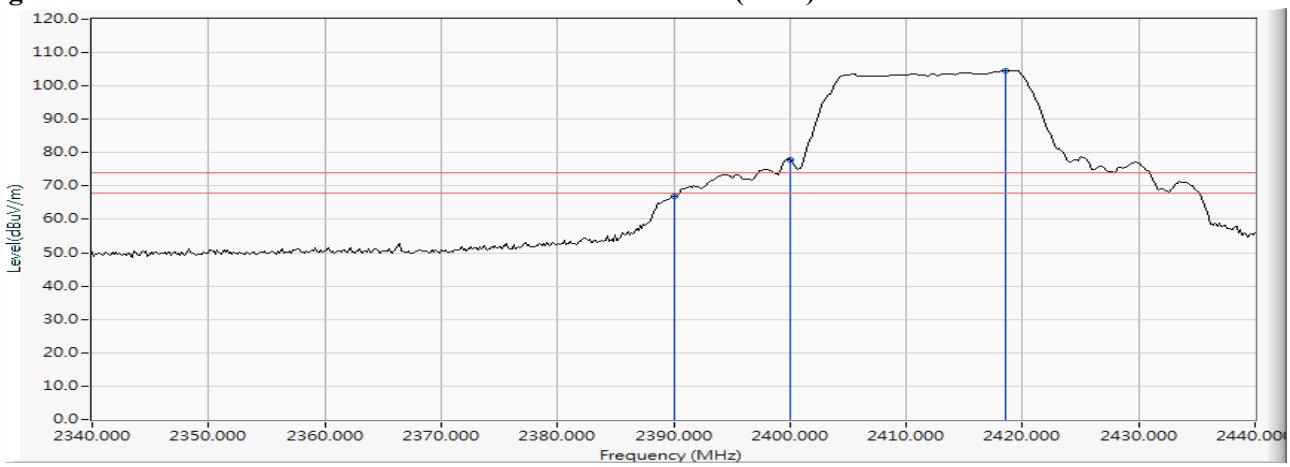
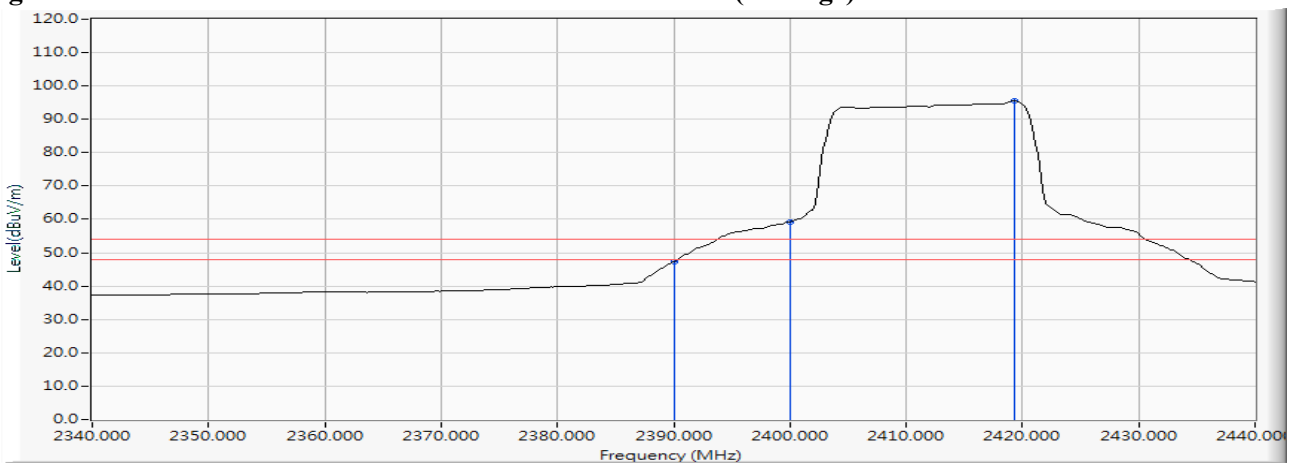


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	61.541	73.097	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	73.073	84.652	--	--	--
01 (Peak)	2405.362	11.591	98.355	109.947	--	--	--
01 (Average)	2390.000	11.556	41.660	53.216	74.00	54.00	Pass
01 (Average)	2400.000	11.579	54.711	66.290	--	--	--
01 (Average)	2404.928	11.591	88.711	100.302	--	--	--

Figure Channel 01: VERTICAL (Peak)

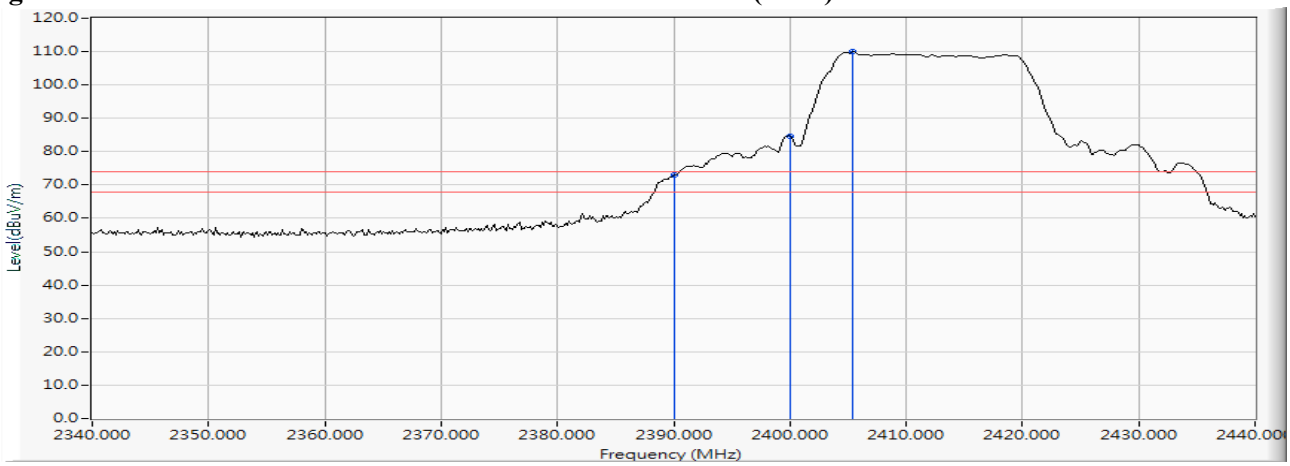
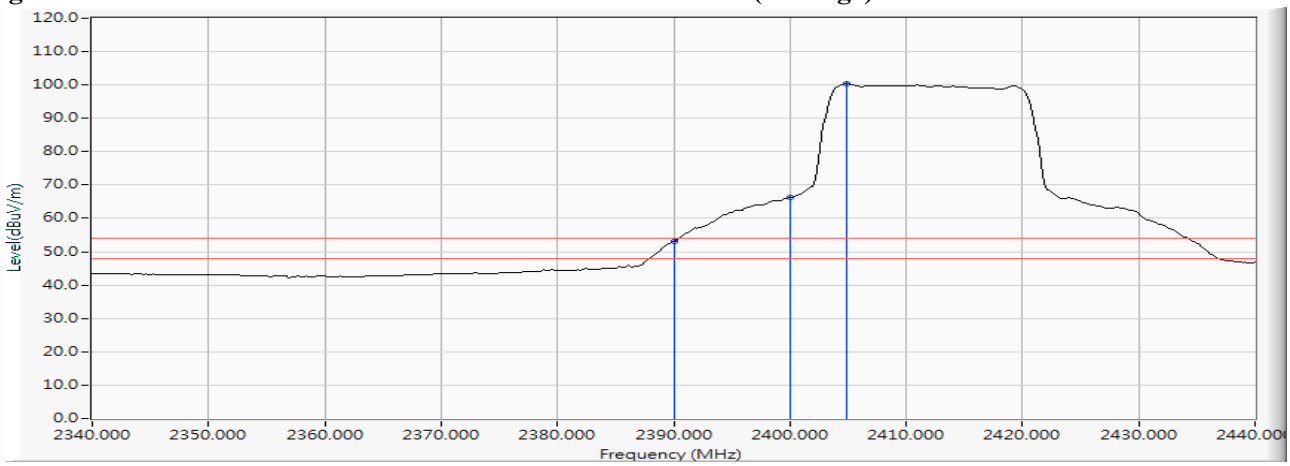


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
11 (Peak)	2454.949	11.722	93.345	105.066	--	--	--
11 (Peak)	2483.500	11.800	56.500	68.300	74.00	54.00	Pass
11 (Average)	2454.659	11.721	84.359	96.080	--	--	--
11 (Average)	2483.500	11.800	37.085	48.885	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

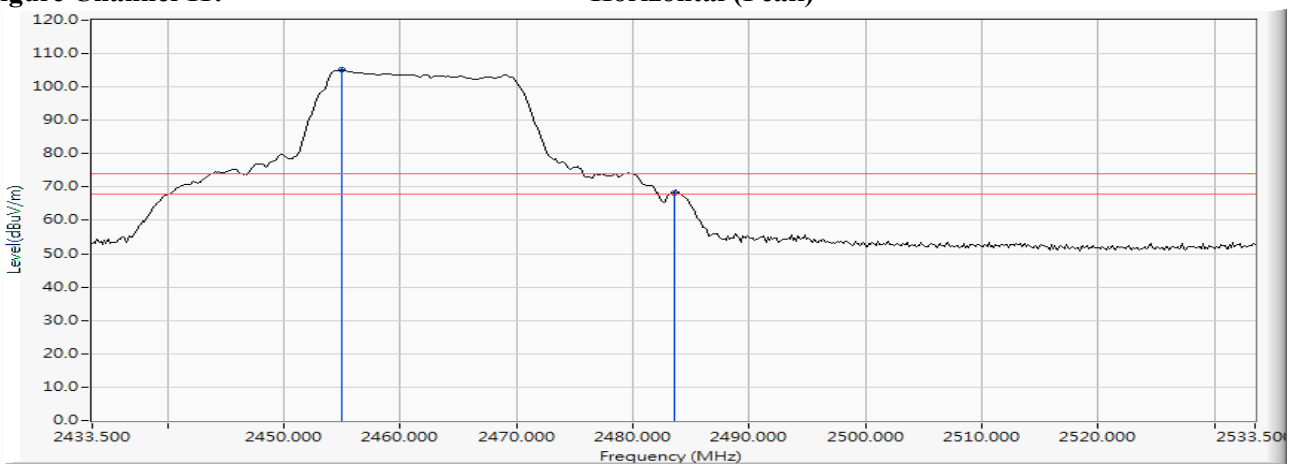
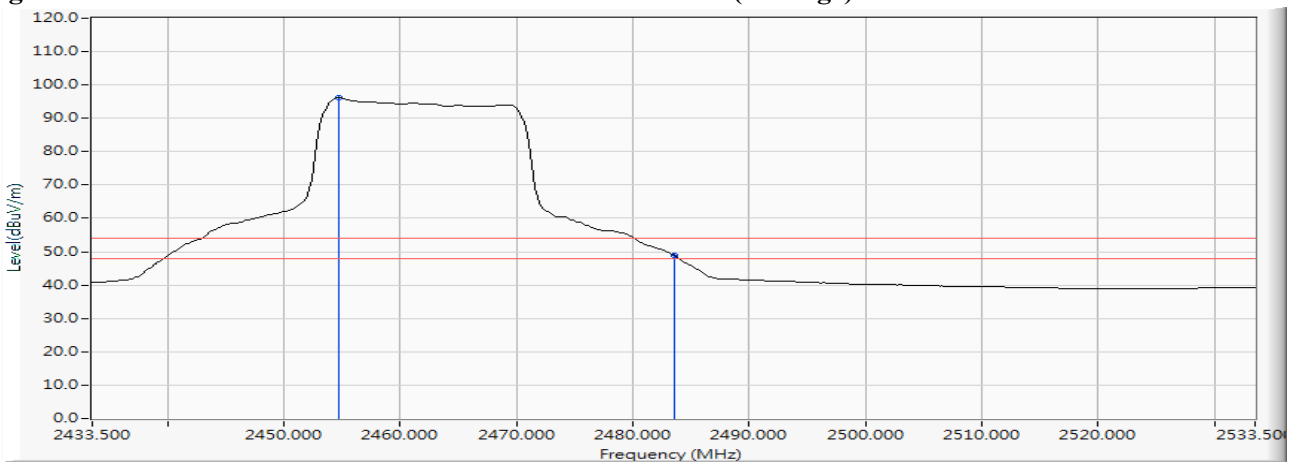


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2469.007	11.763	97.290	109.054	--	--	--
11 (Peak)	2483.500	11.800	61.029	72.829	74.00	54.00	Pass
11 (Average)	2469.297	11.765	88.083	99.847	--	--	--
11 (Average)	2483.500	11.800	41.709	53.509	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

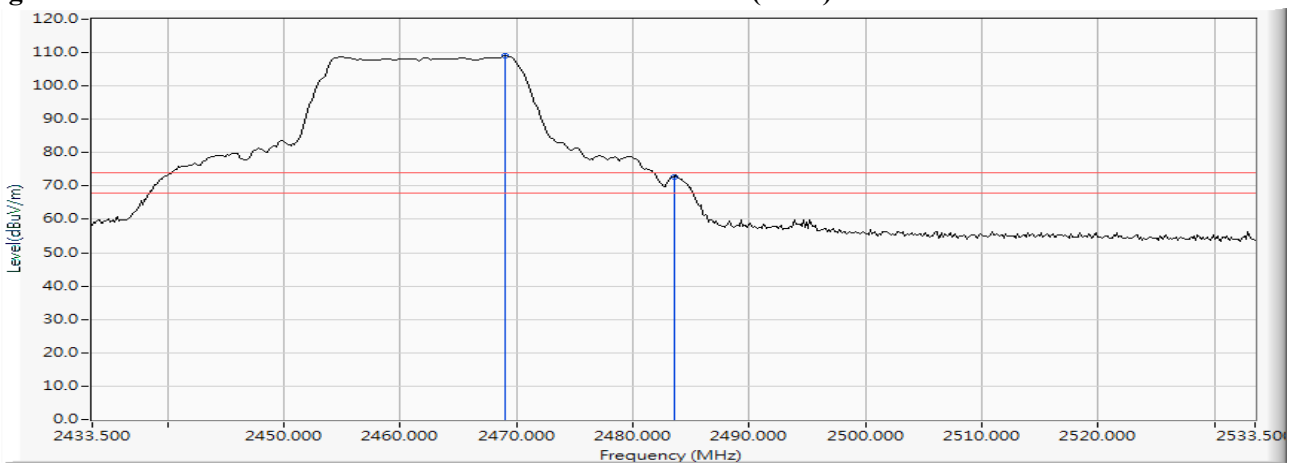
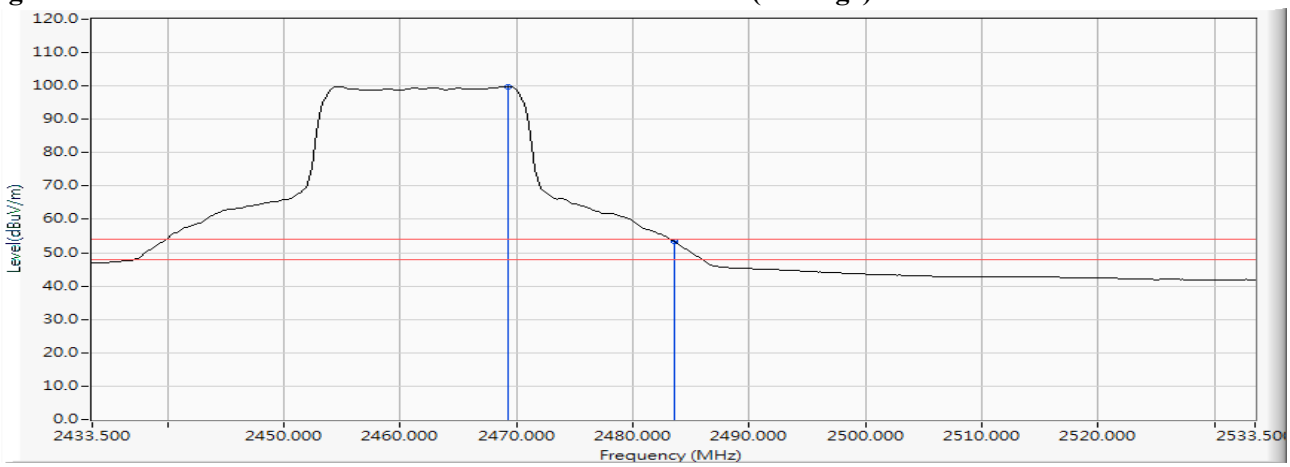


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.841	11.553	49.483	61.036	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	48.110	59.666	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	57.897	69.476	--	--	--
01 (Peak)	2417.971	11.622	92.346	103.968	--	--	--
01 (Average)	2390.000	11.556	33.724	45.280	74.00	54.00	Pass
01 (Average)	2400.000	11.579	43.332	54.911	--	--	--
01 (Average)	2419.565	11.626	82.034	93.660	--	--	--

Figure Channel 01: Horizontal (Peak)

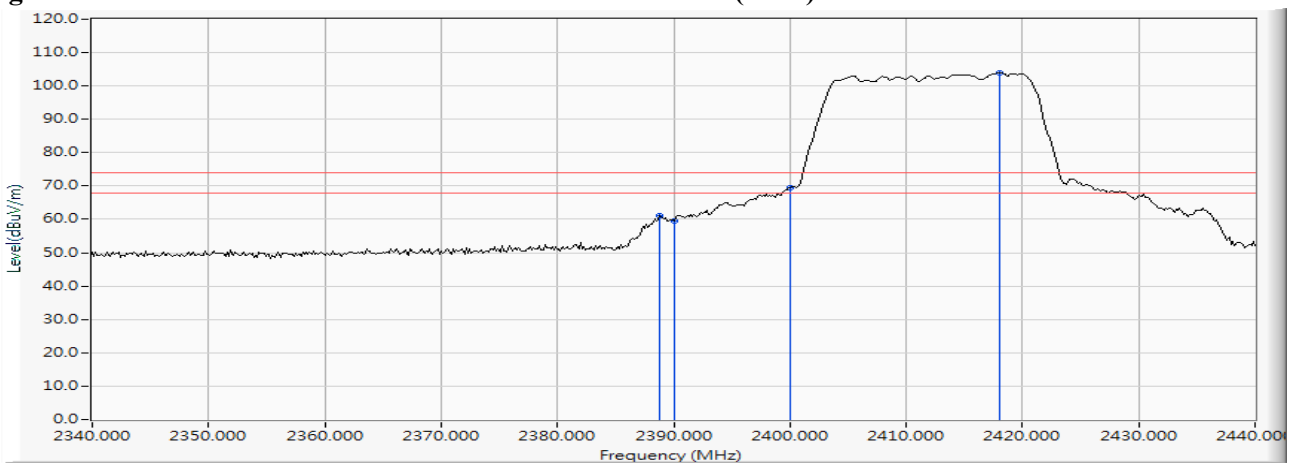
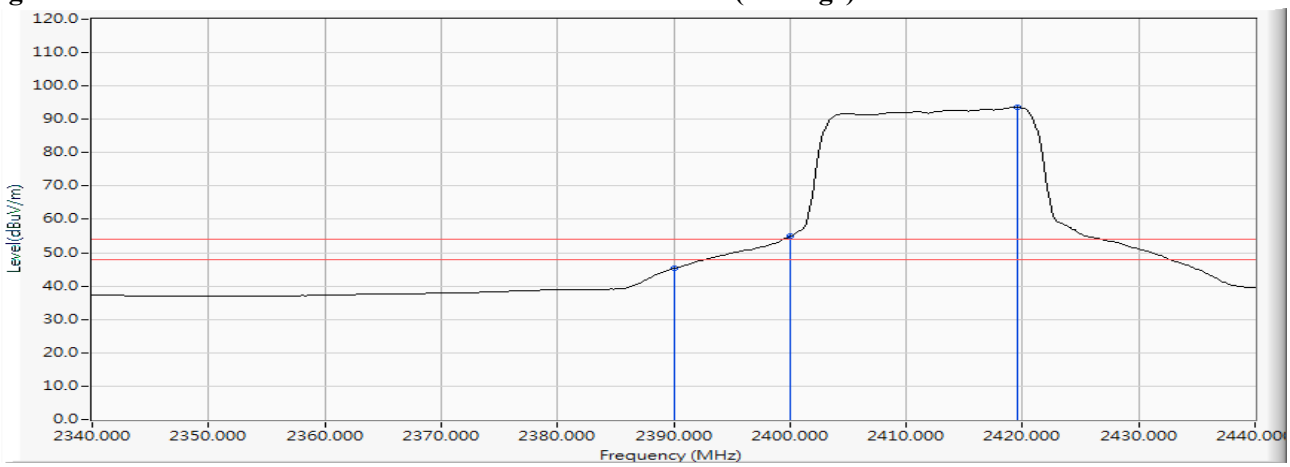


Figure Channel 01: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)
(M /N : WA-12M12FU)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2388.986	11.553	58.437	69.990	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	57.977	69.533	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	67.158	78.737	--	--	--
01 (Peak)	2405.362	11.591	99.235	110.827	--	--	--
01 (Average)	2390.000	11.556	42.031	53.587	74.00	54.00	Pass
01 (Average)	2400.000	11.579	52.672	64.251	--	--	--
01 (Average)	2404.783	11.590	88.270	99.860	--	--	--

Figure Channel 01: VERTICAL (Peak)

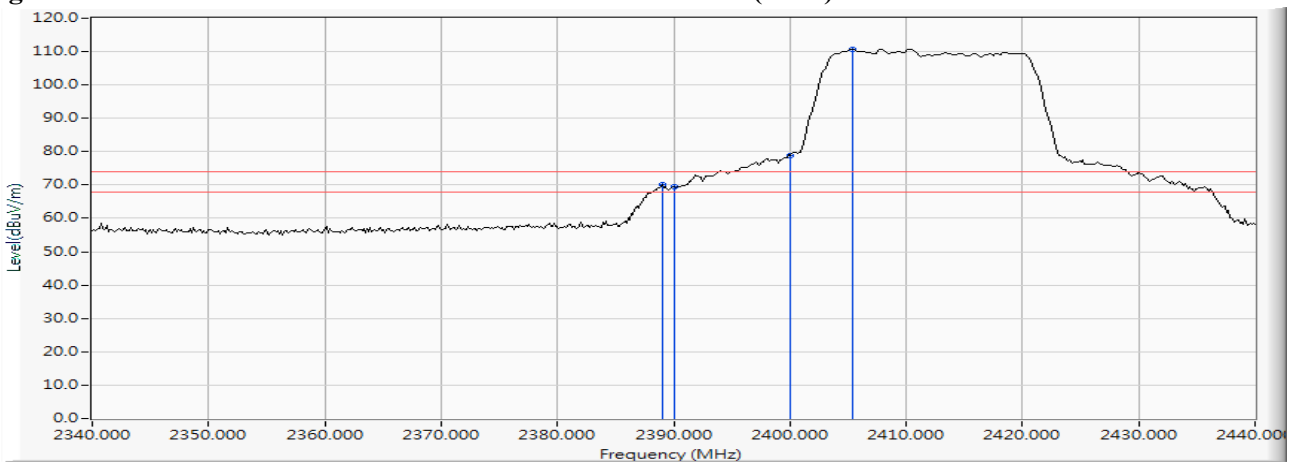
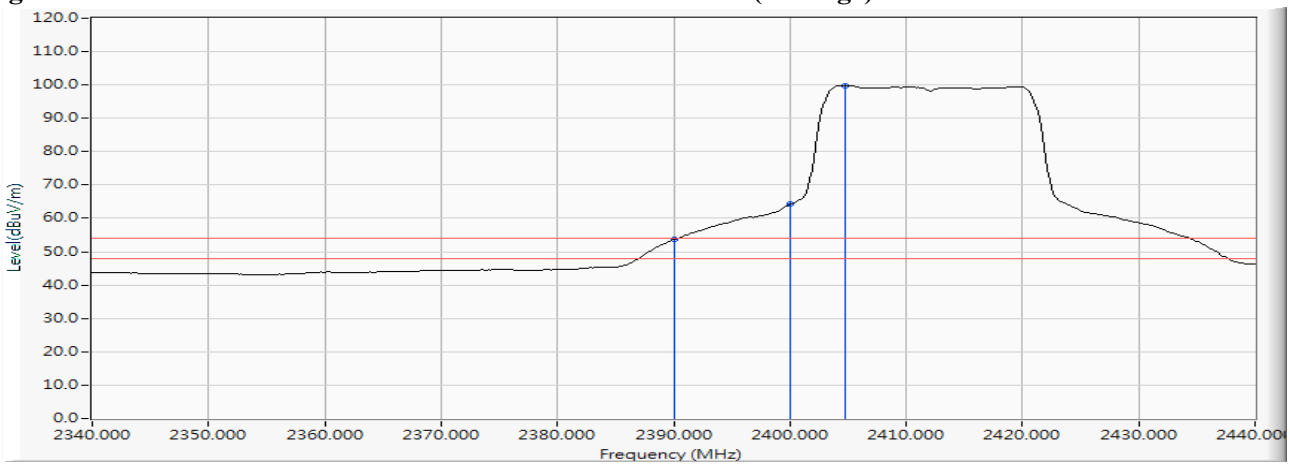


Figure Channel 01: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2469.007	11.763	91.600	103.364	--	--	--
11 (Peak)	2483.500	11.800	49.730	61.530	74.00	54.00	Pass
11 (Peak)	2484.370	11.801	50.210	62.012	74.00	54.00	Pass
11 (Average)	2469.732	11.766	80.460	92.226	--	--	--
11 (Average)	2483.500	11.800	34.834	46.634	74.00	54.00	Pass

Figure Channel 11: Horizontal (Peak)

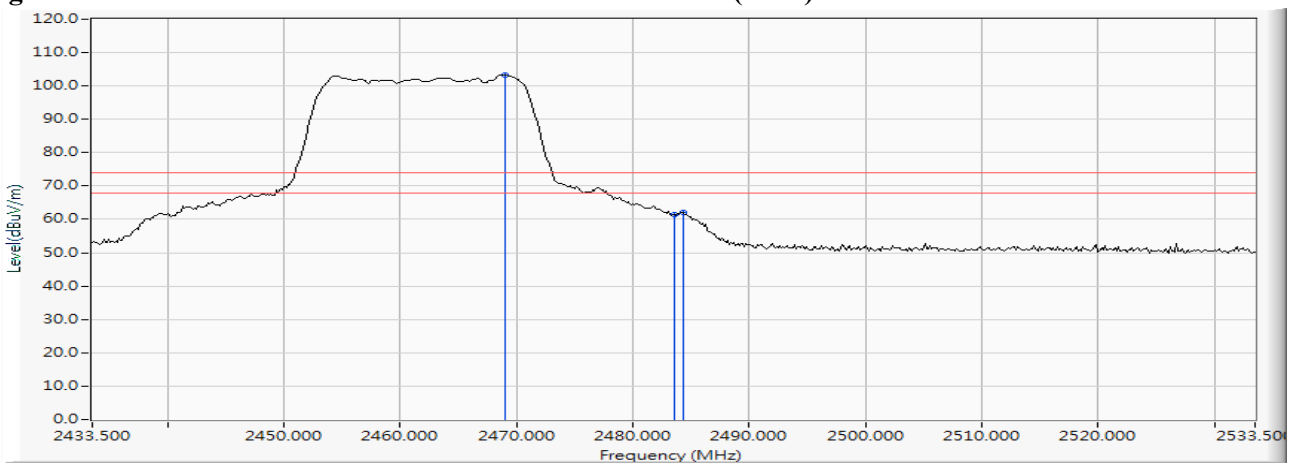
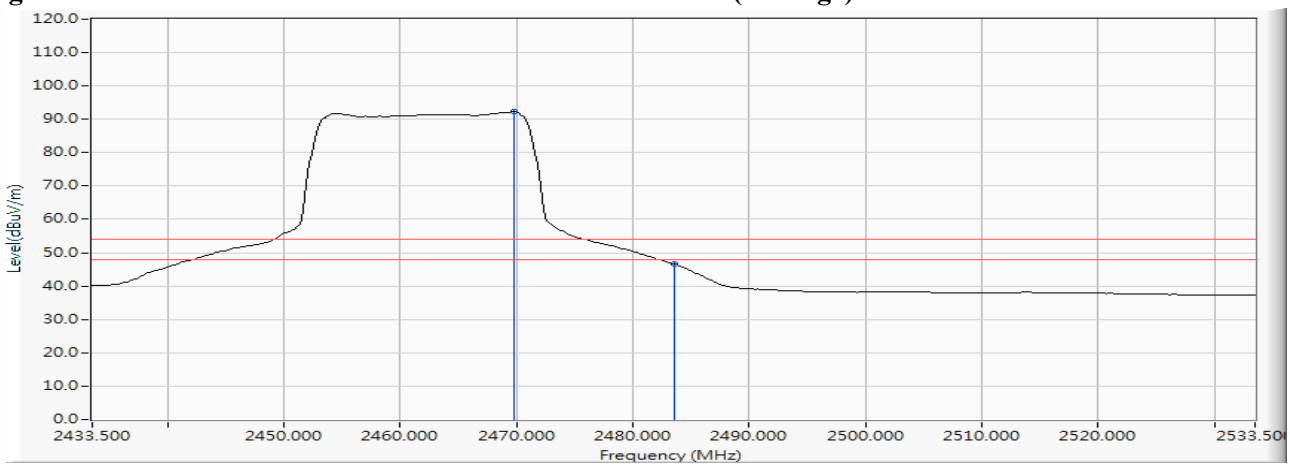


Figure Channel 11: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Peak Limit (dBµV/m)	Average Limit (dBµV/m)	Result
11 (Peak)	2454.370	11.720	99.412	111.132	--	--	--
11 (Peak)	2483.500	11.800	55.743	67.543	74.00	54.00	Pass
11 (Peak)	2484.514	11.801	56.234	68.036	74.00	54.00	Pass
11 (Average)	2454.370	11.720	88.652	100.372	--	--	--
11 (Average)	2483.500	11.800	41.333	53.133	74.00	54.00	Pass

Figure Channel 11: VERTICAL (Peak)

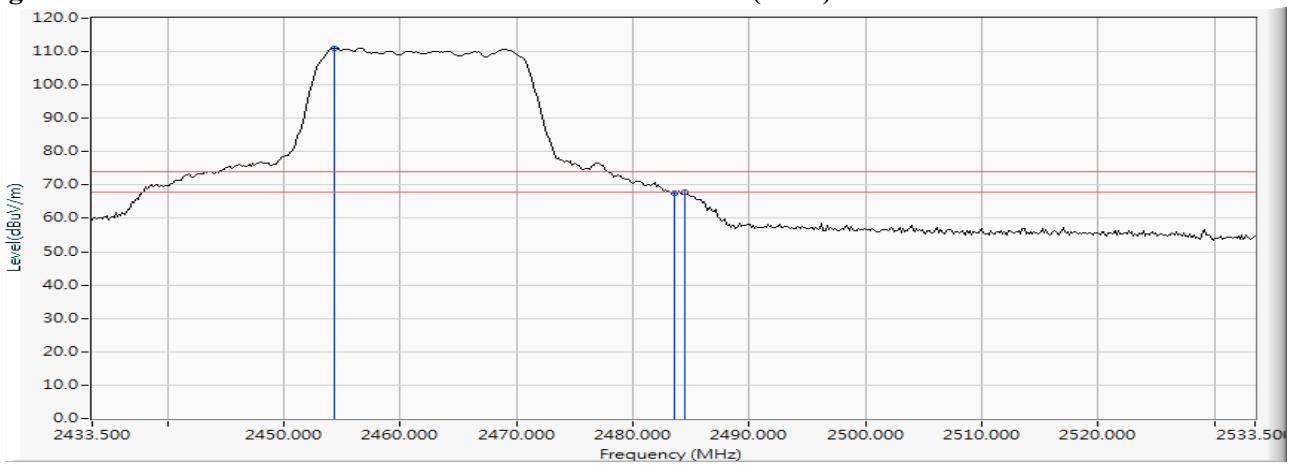
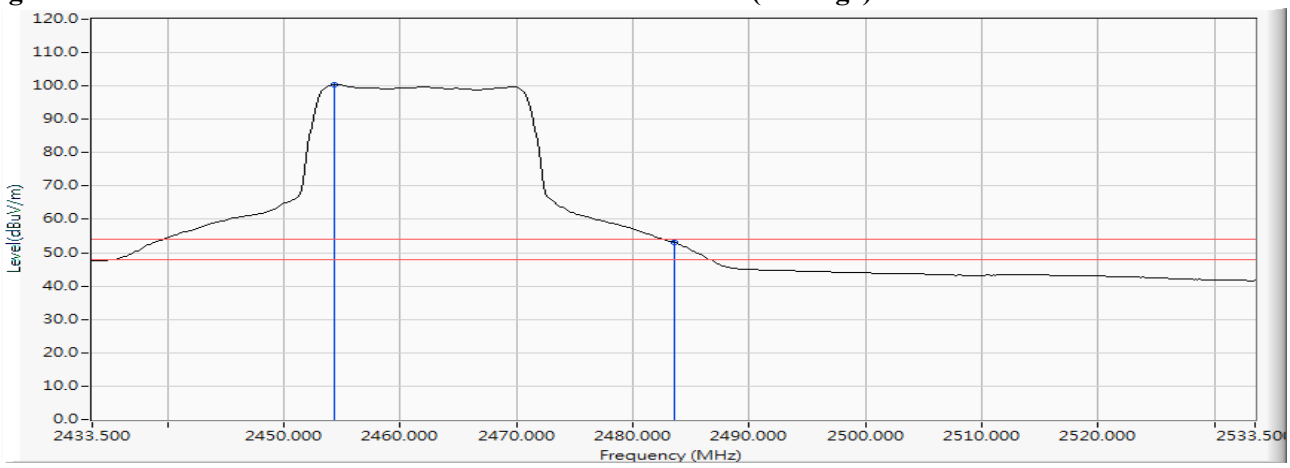


Figure Channel 11: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2384.783	11.543	49.963	61.506	74.00	54.00	Pass
03 (Peak)	2390.000	11.556	47.371	58.927	74.00	54.00	Pass
03 (Peak)	2400.000	11.579	55.273	66.852	--	--	--
03 (Peak)	2432.609	11.657	87.997	99.654	--	--	--
03 (Average)	2390.000	11.556	34.206	45.762	74.00	54.00	Pass
03 (Average)	2400.000	11.579	43.443	55.022	--	--	--
03 (Average)	2438.116	11.672	77.753	89.425	--	--	--

Figure Channel 03: Horizontal (Peak)

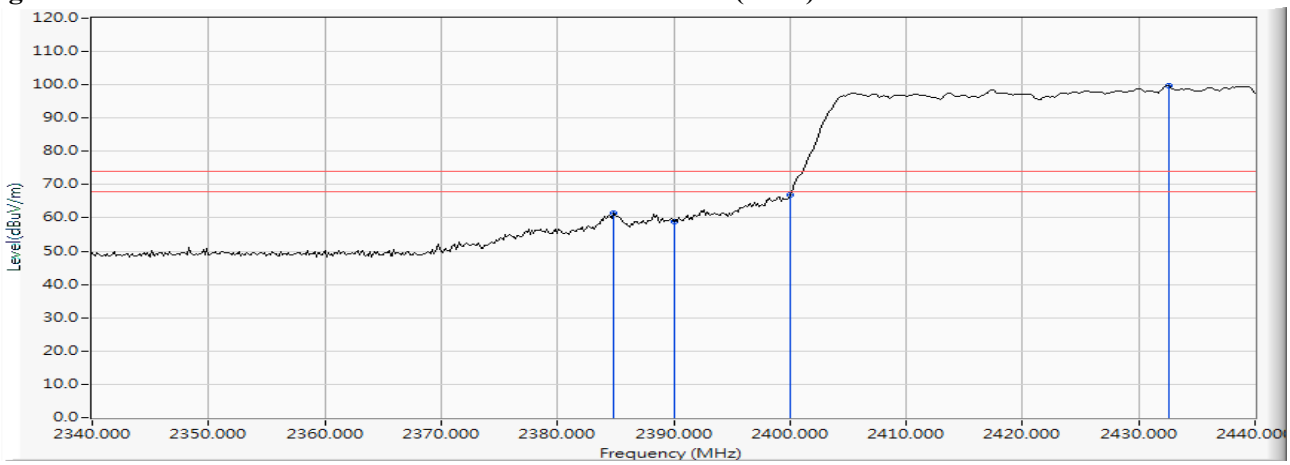
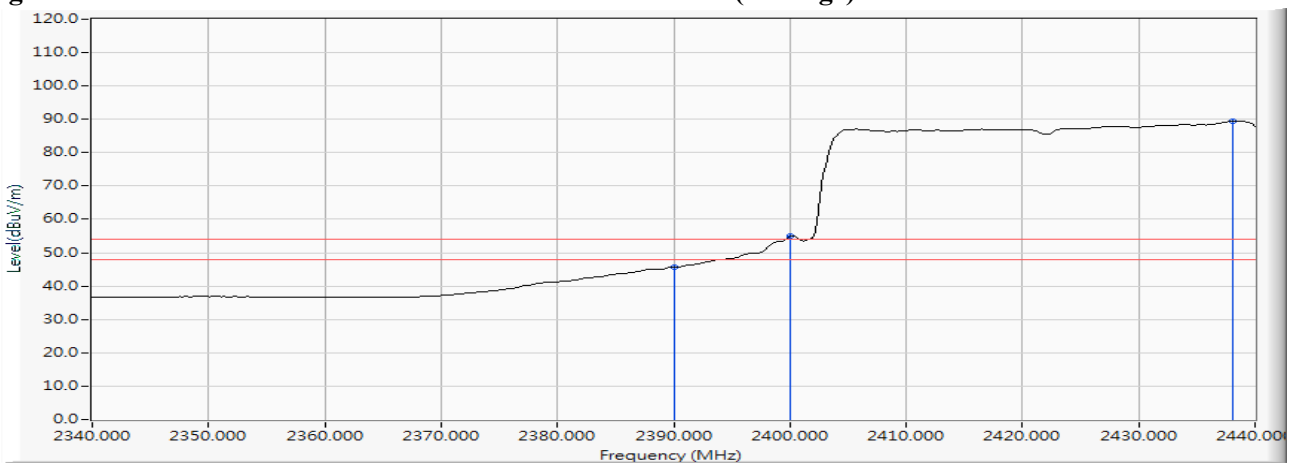


Figure Channel 03: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2390.000	11.556	55.741	67.297	74.00	54.00	Pass
03 (Peak)	2398.551	11.575	63.682	75.258	--	--	--
03 (Peak)	2400.000	11.579	63.594	75.173	--	--	--
03 (Peak)	2426.087	11.641	94.697	106.338	--	--	--
03 (Average)	2390.000	11.556	41.958	53.514	74.00	54.00	Pass
03 (Average)	2400.000	11.579	51.001	62.580	--	--	--
03 (Average)	2438.841	11.674	83.795	95.469	--	--	--

Figure Channel 03: VERTICAL (Peak)

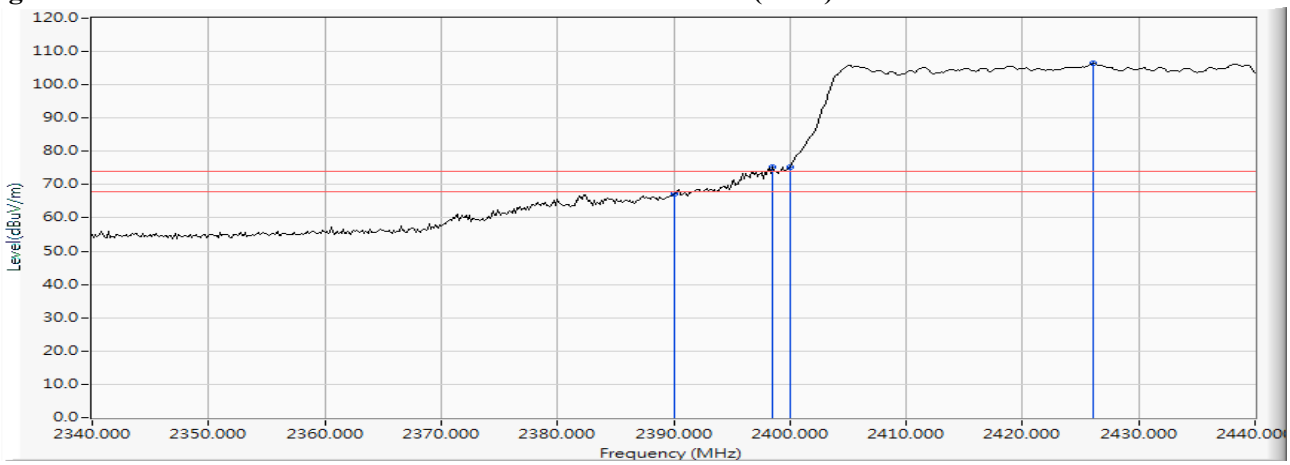
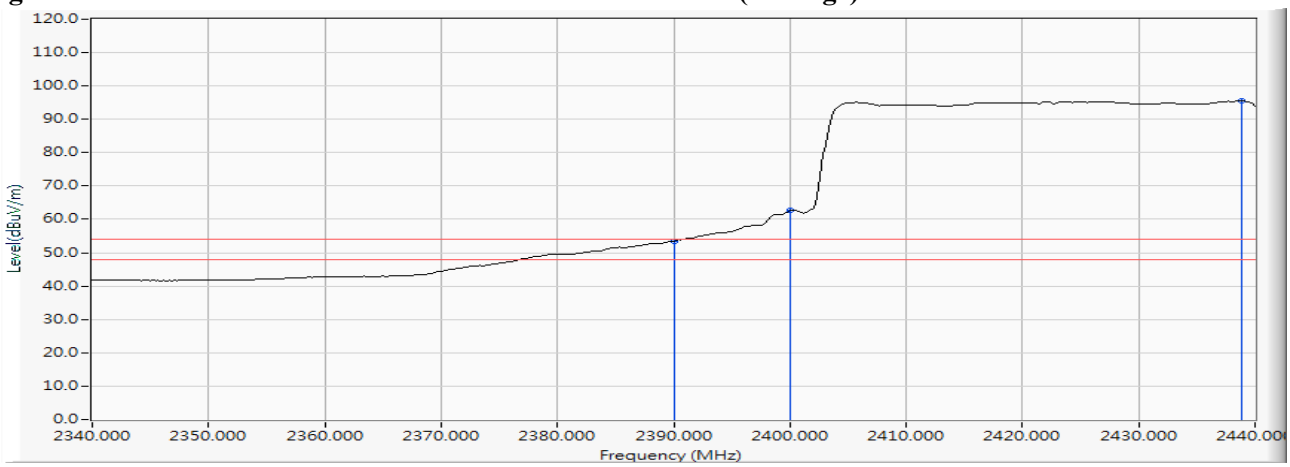


Figure Channel 03: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)
Test Date : 2017/07/25

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2435.529	11.664	87.022	98.686	--	--	--
09 (Peak)	2483.500	11.800	46.988	58.788	74.00	54.00	Pass
09 (Peak)	2485.819	11.805	47.074	58.879	74.00	54.00	Pass
09 (Average)	2446.978	11.699	76.629	88.327	--	--	--
09 (Average)	2483.500	11.800	34.086	45.886	74.00	54.00	Pass

Figure Channel 09: Horizontal (Peak)

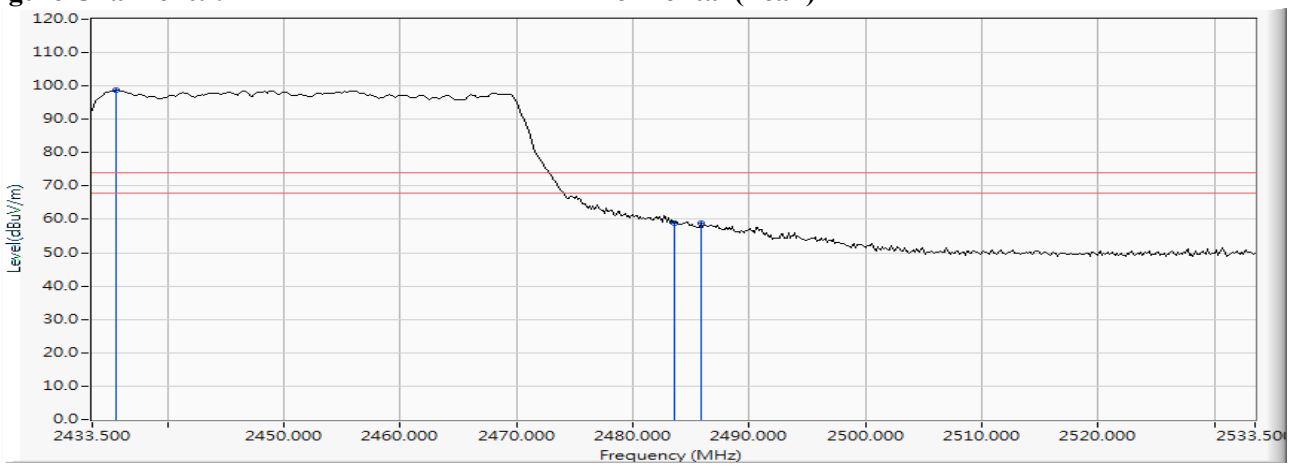
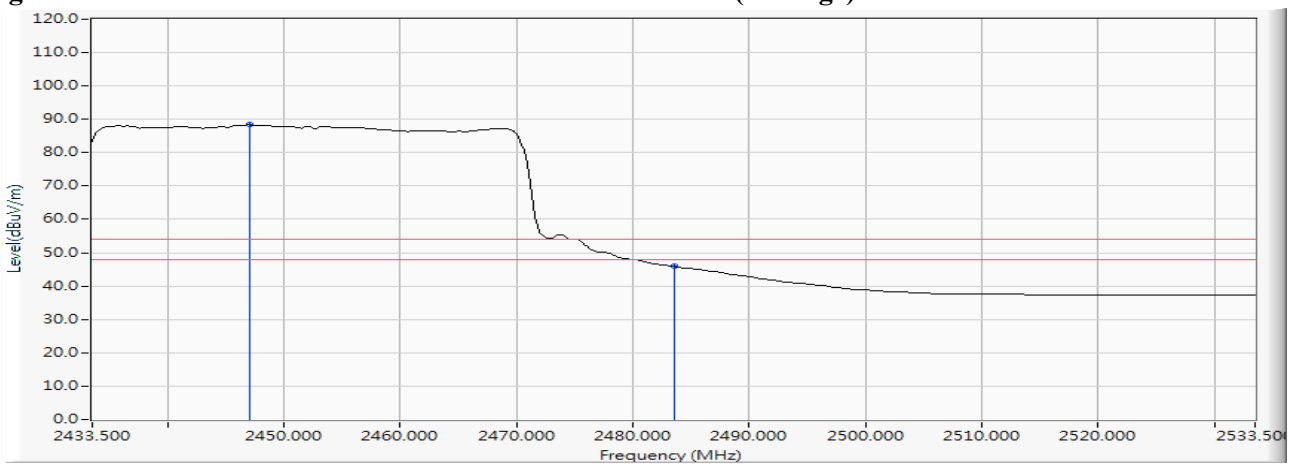


Figure Channel 09: Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : M2M Router
Test Item : Band Edge Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)
Test Date : 2017/07/25

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2455.819	11.724	94.180	105.904	--	--	--
09 (Peak)	2483.500	11.800	54.807	66.607	74.00	54.00	Pass
09 (Average)	2435.819	11.664	83.484	95.149	--	--	--
09 (Average)	2483.500	11.800	41.173	52.973	74.00	54.00	Pass

Figure Channel 09: VERTICAL (Peak)

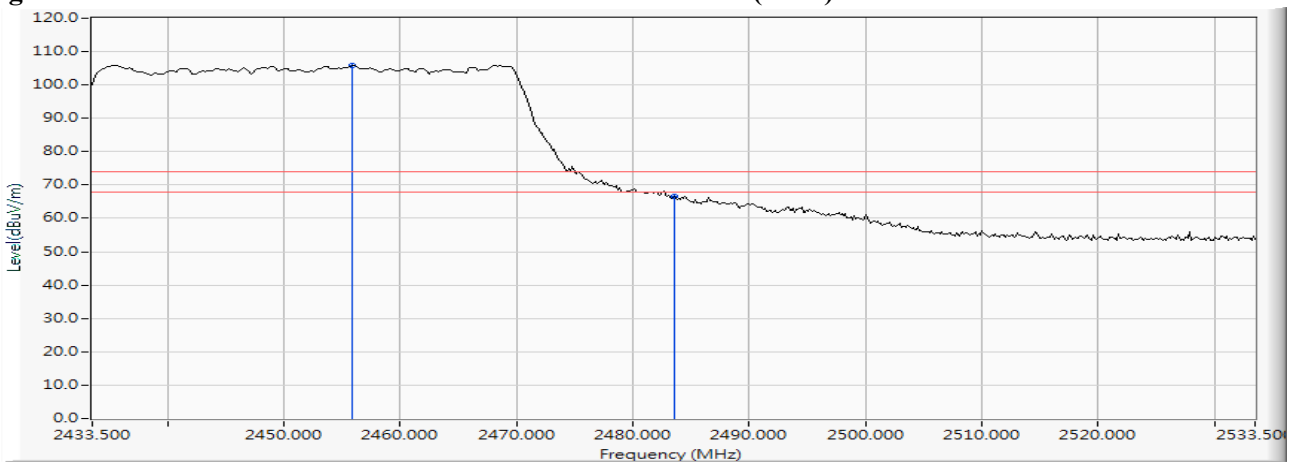
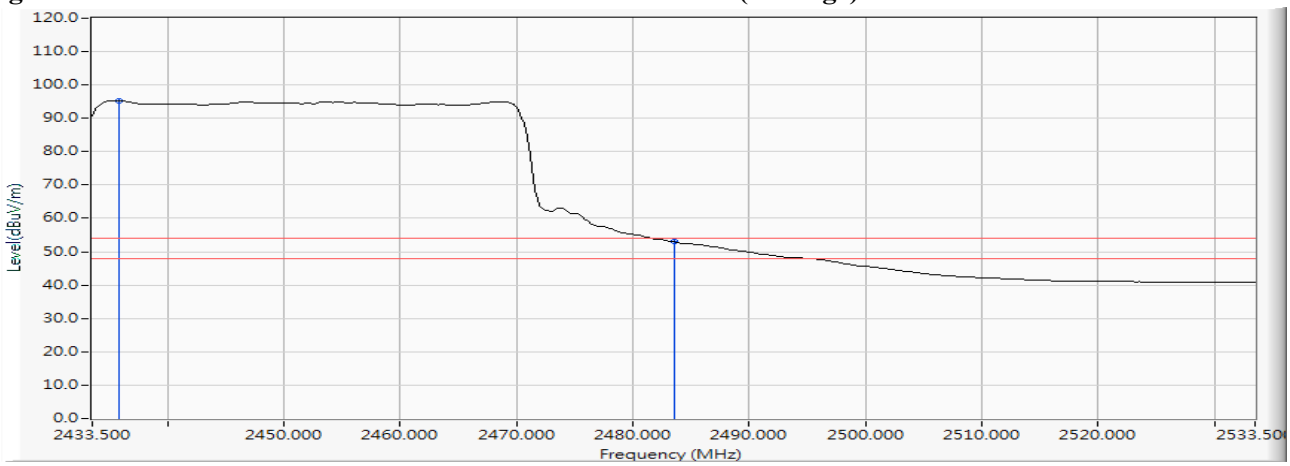


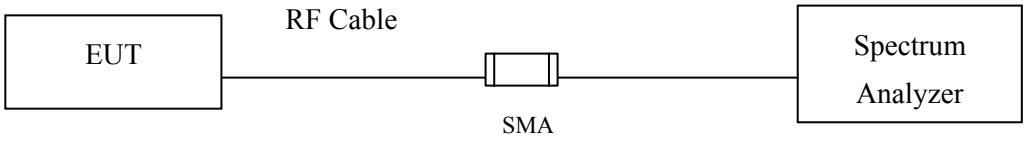
Figure Channel 09: VERTICAL (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

± 279.2Hz

7.5. Test Result of 6dB Bandwidth

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	10150	>500	Pass
06	2437	10150	>500	Pass
11	2462	10150	>500	Pass

Figure Channel 01:

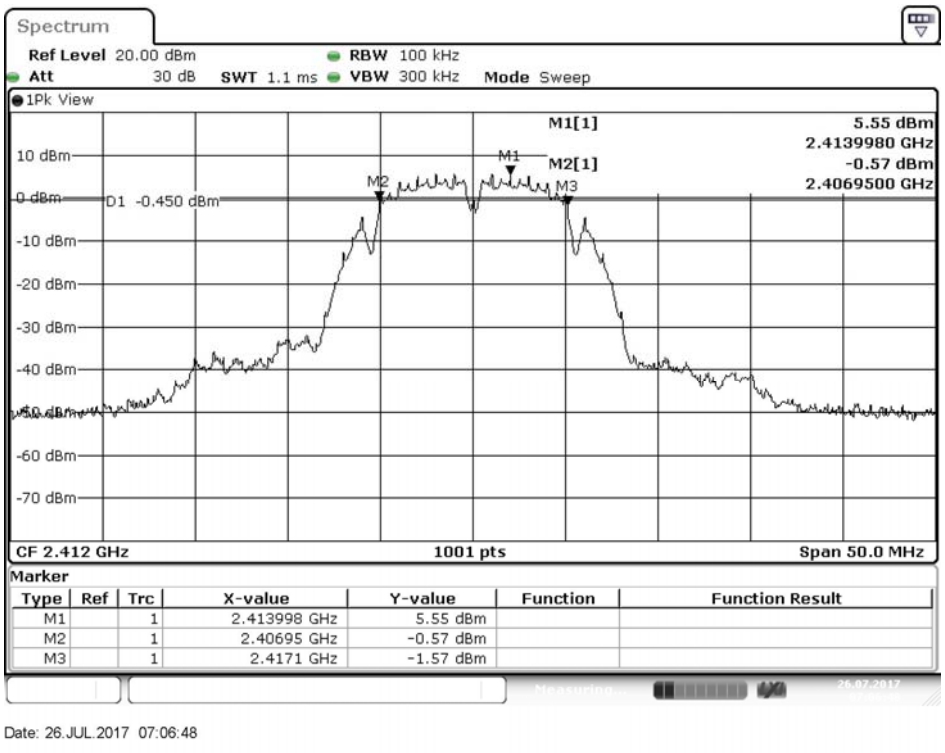
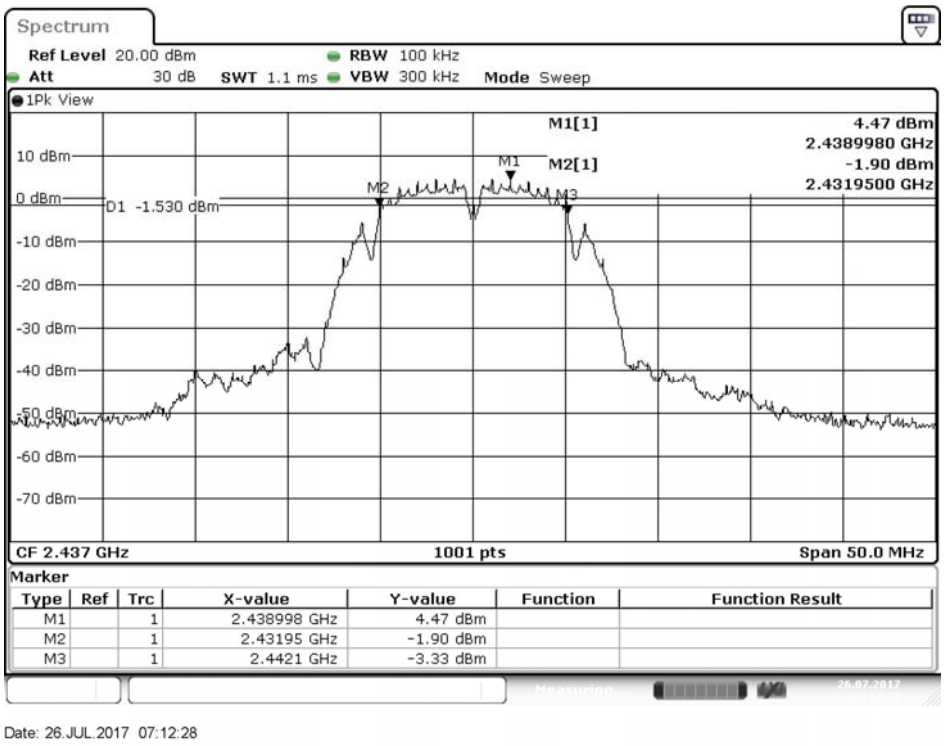
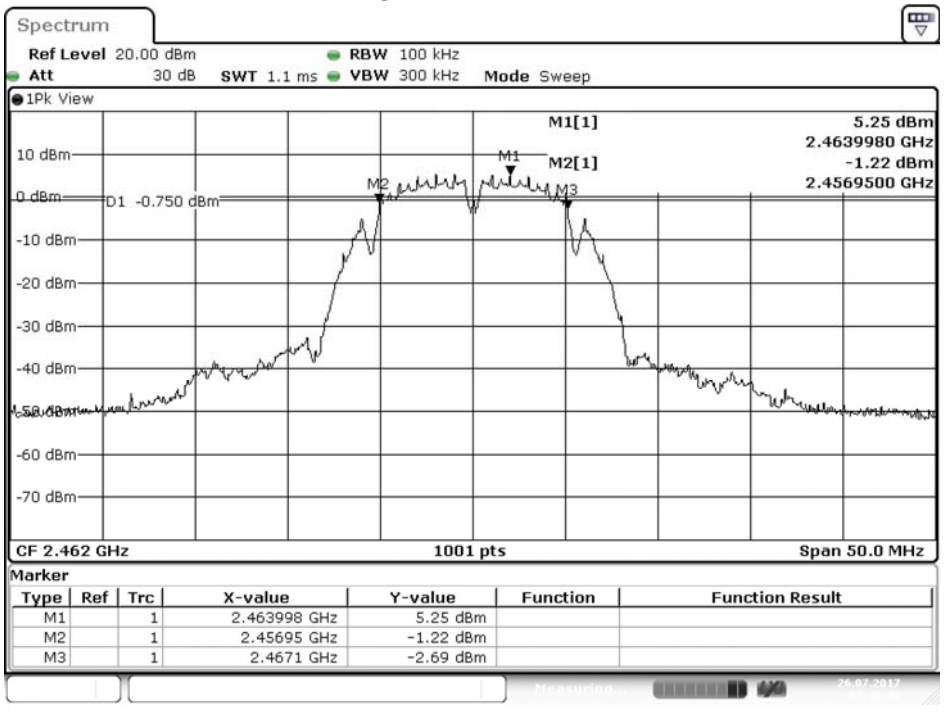


Figure Channel 06:



Date: 26.JUL.2017 07:12:28

Figure Channel 11:



Date: 26.JUL.2017 07:16:50

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16700	>500	Pass
06	2437	16700	>500	Pass
11	2462	16700	>500	Pass

Figure Channel 01:

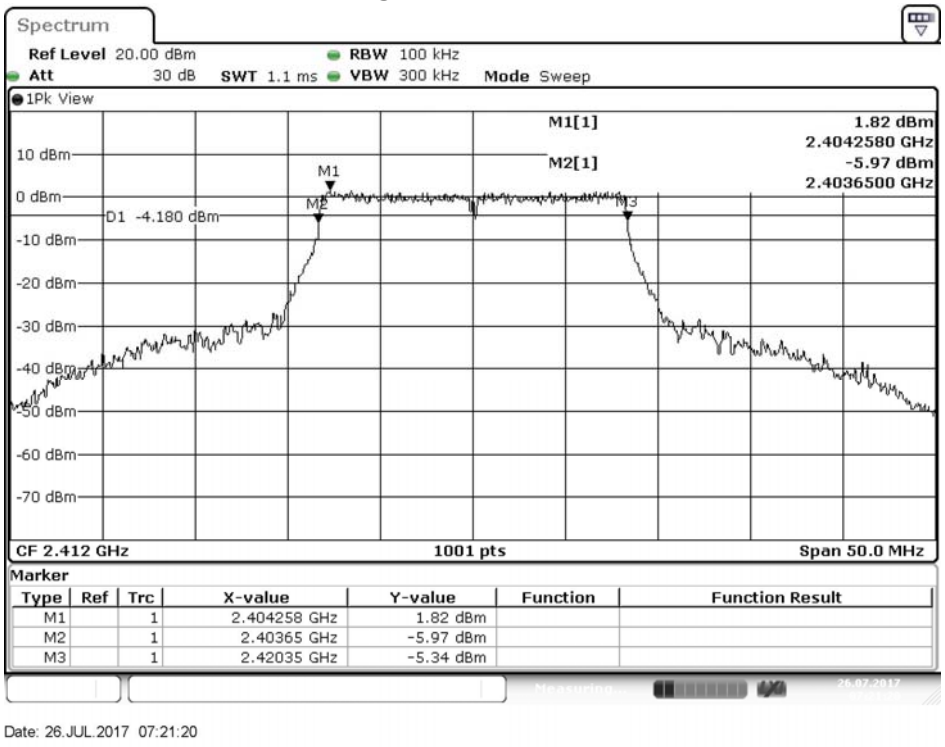
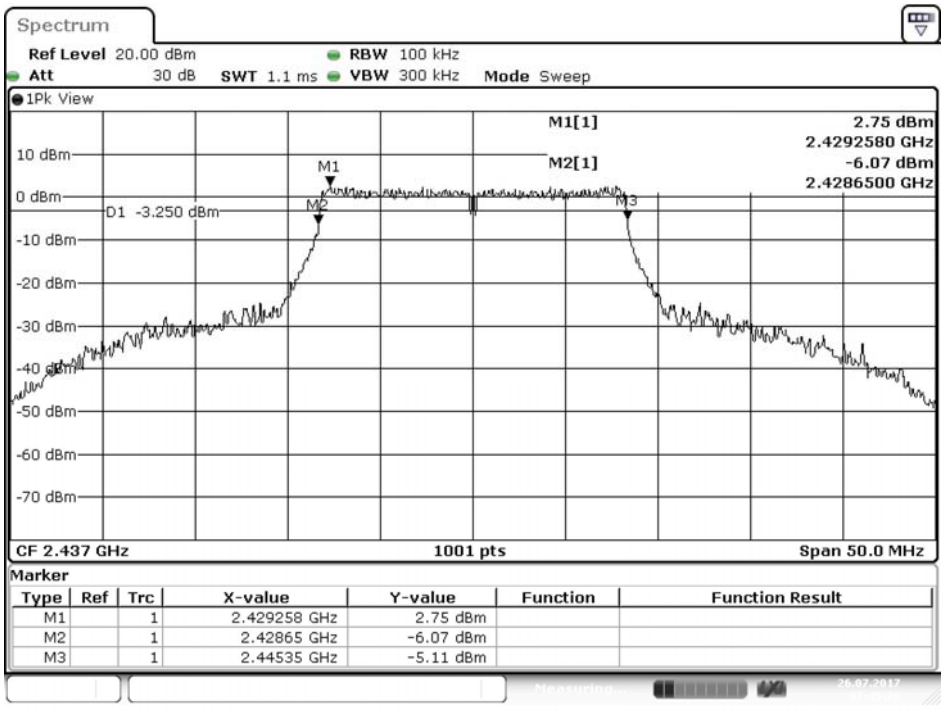
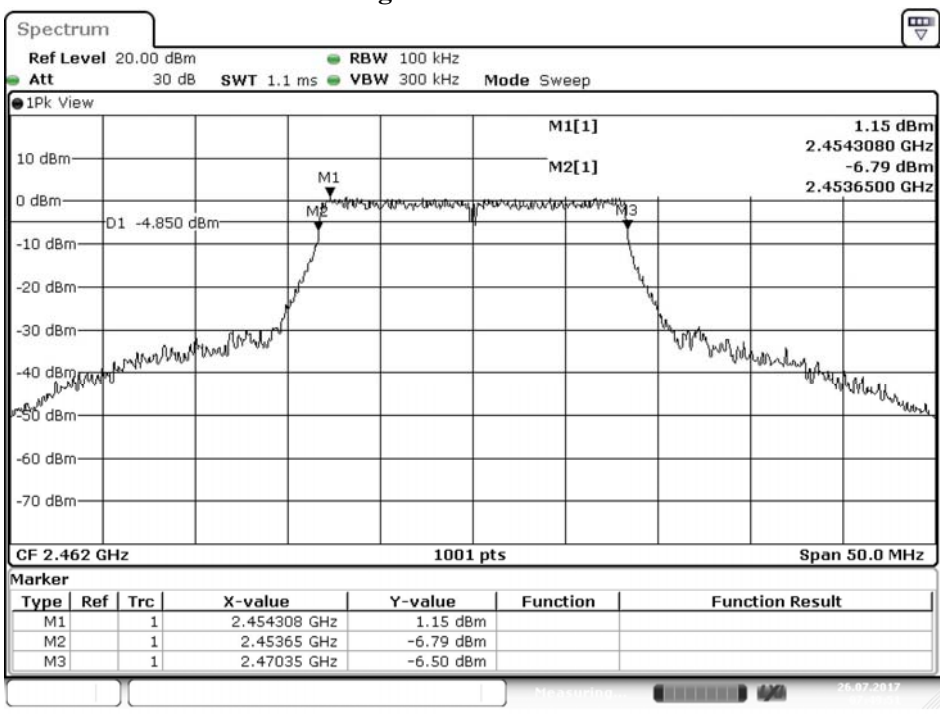


Figure Channel 06:



Date: 26.JUL.2017 07:45:29

Figure Channel 11:



Date: 26.JUL.2017 07:49:52

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date : 2017/07/26

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17800	>500	Pass
06	2437	17800	>500	Pass
11	2462	17800	>500	Pass

Figure Channel 01: (Chain A)

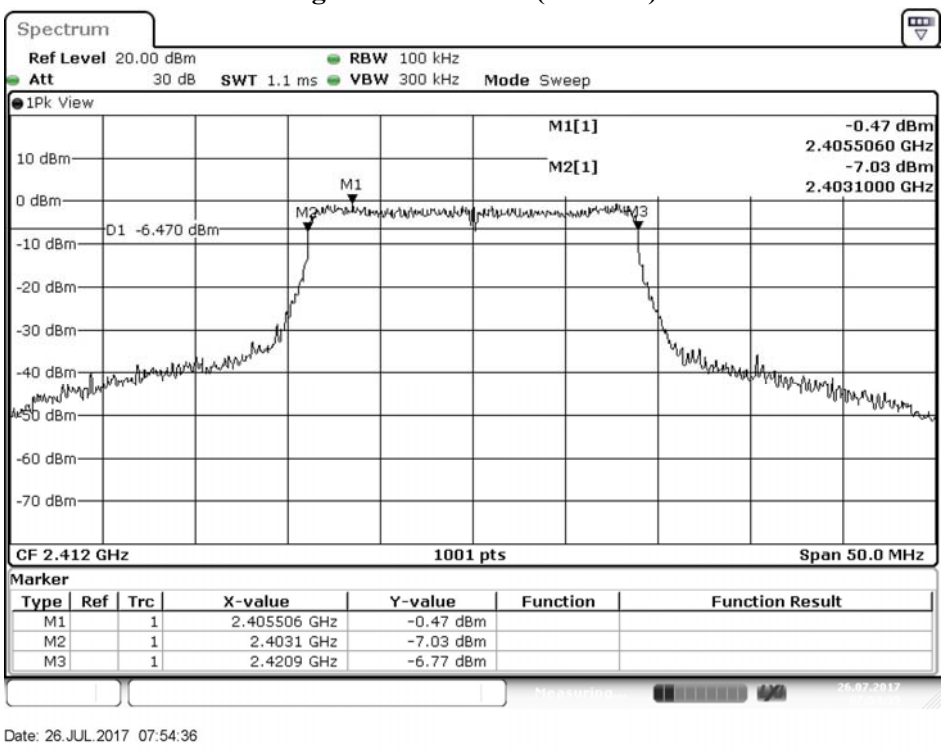
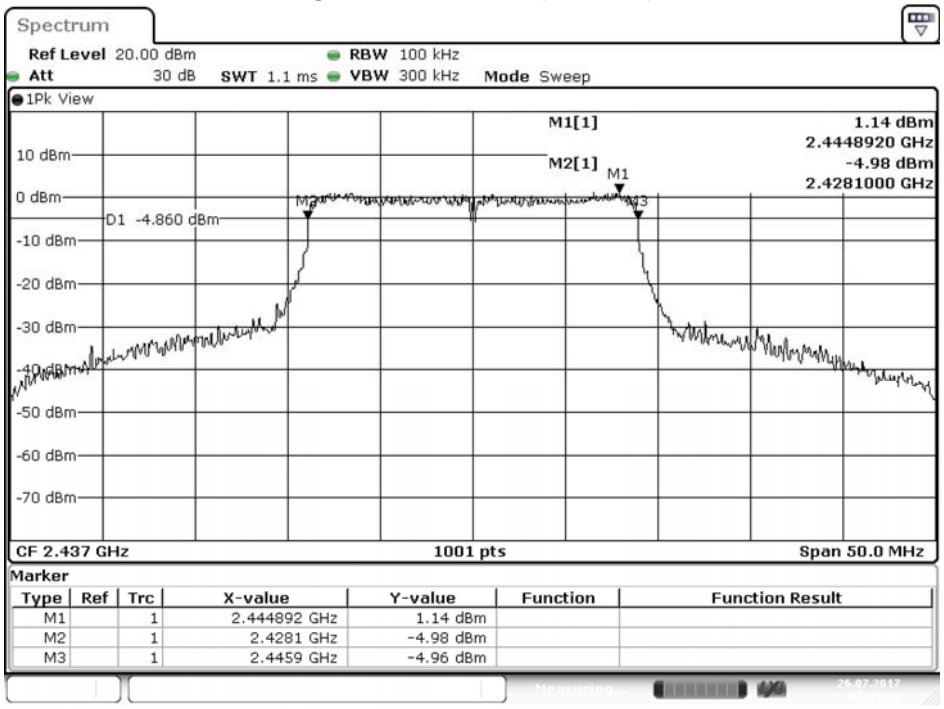
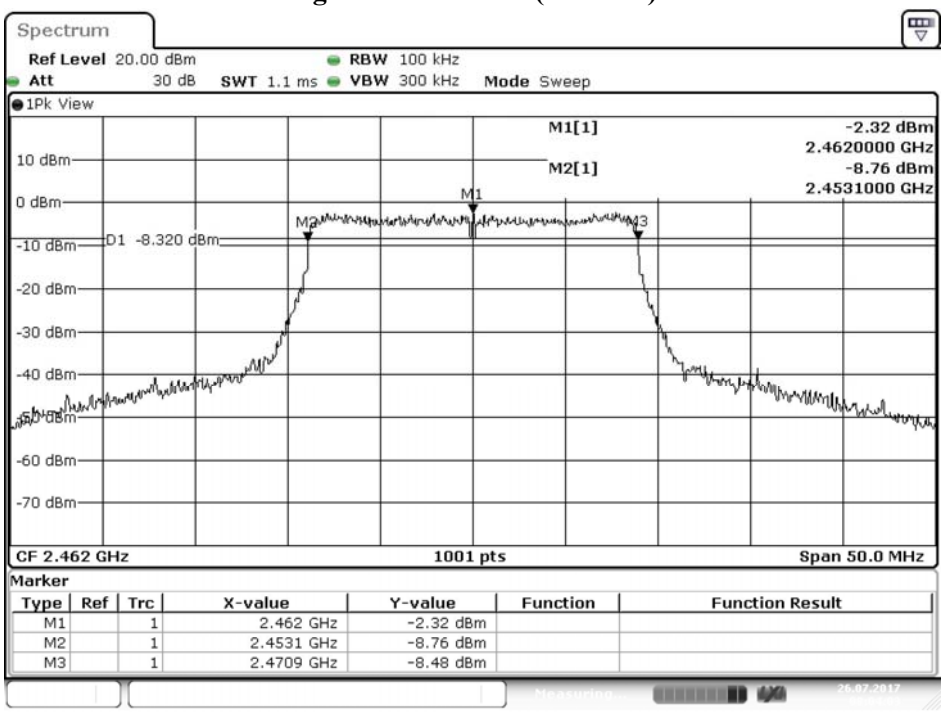


Figure Channel 06: (Chain A)



Date: 26.JUL.2017 07:59:32

Figure Channel 11: (Chain A)



Date: 26.JUL.2017 08:04:03

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date : 2017/07/26

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17700	>500	Pass
06	2437	17700	>500	Pass
11	2462	17750	>500	Pass

Figure Channel 01: (Chain B)

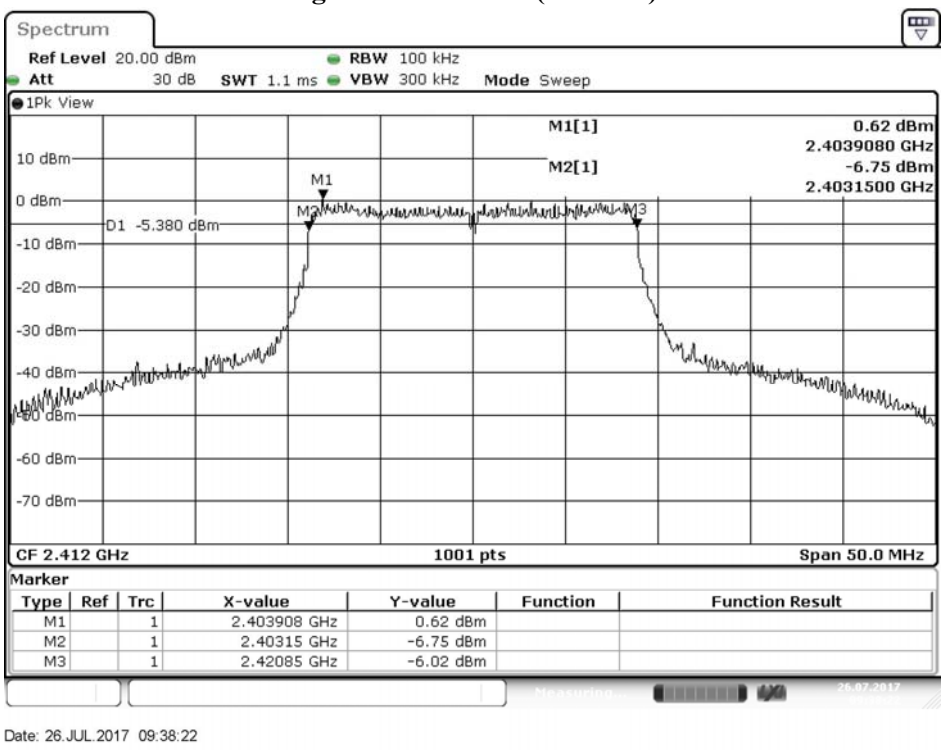
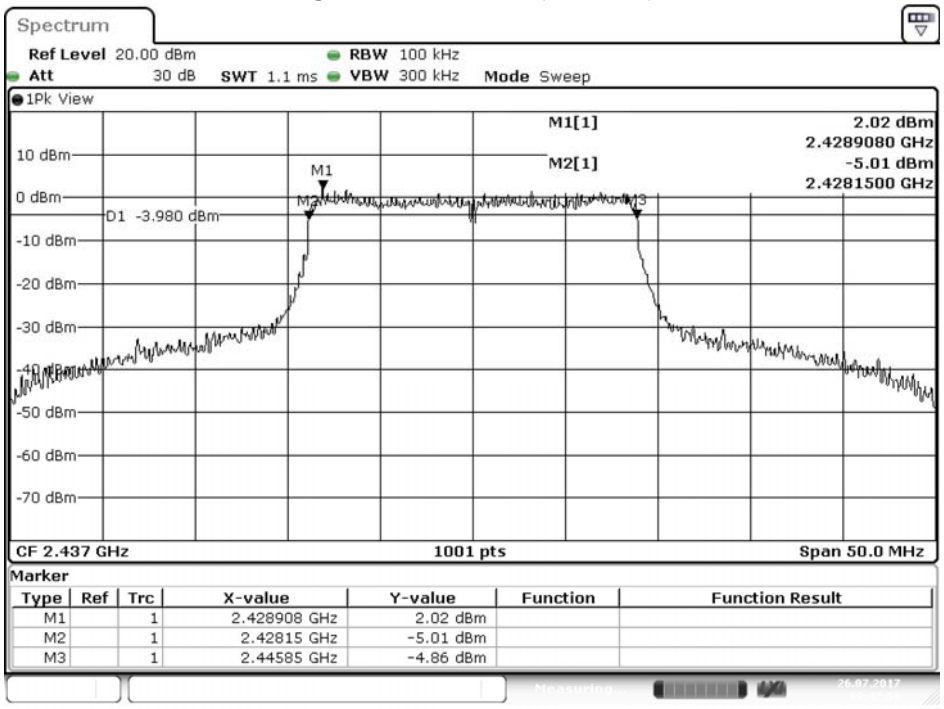
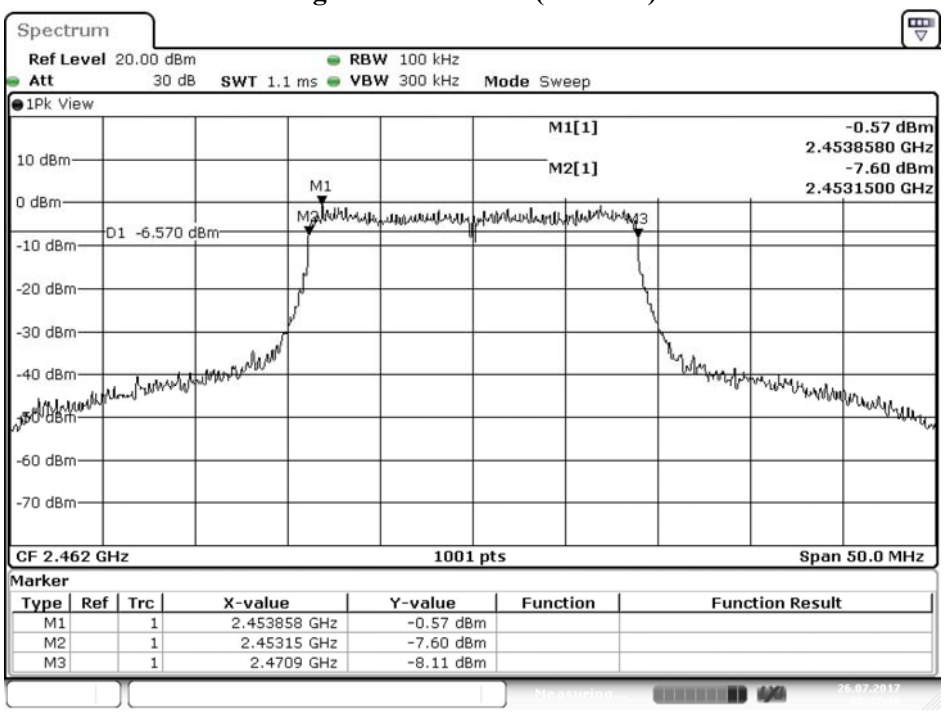


Figure Channel 06: (Chain B)



Date: 26.JUL.2017 09:42:56

Figure Channel 11: (Chain B)



Date: 26.JUL.2017 09:47:39

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date : 2017/07/26

Chain A

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36800	>500	Pass
06	2437	36800	>500	Pass
09	2452	36700	>500	Pass

Figure Channel 03: (Chain A)

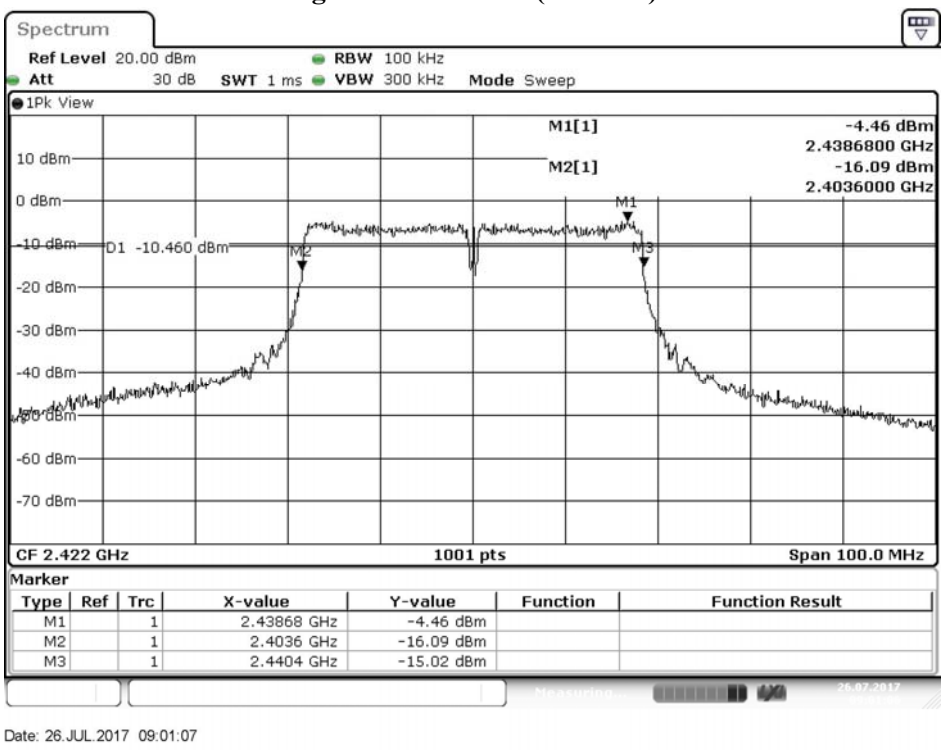
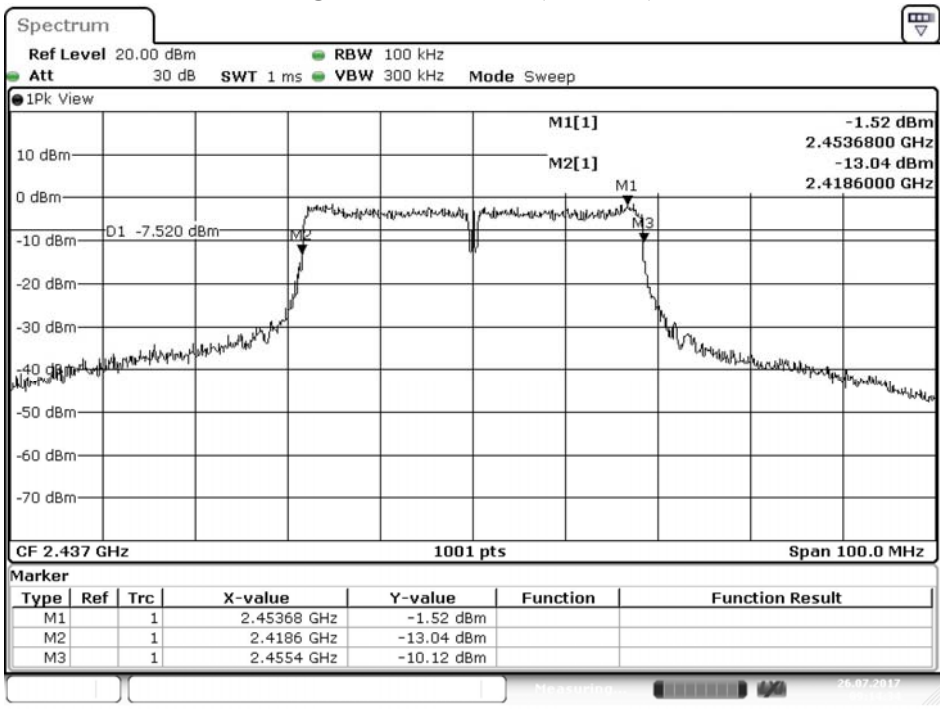
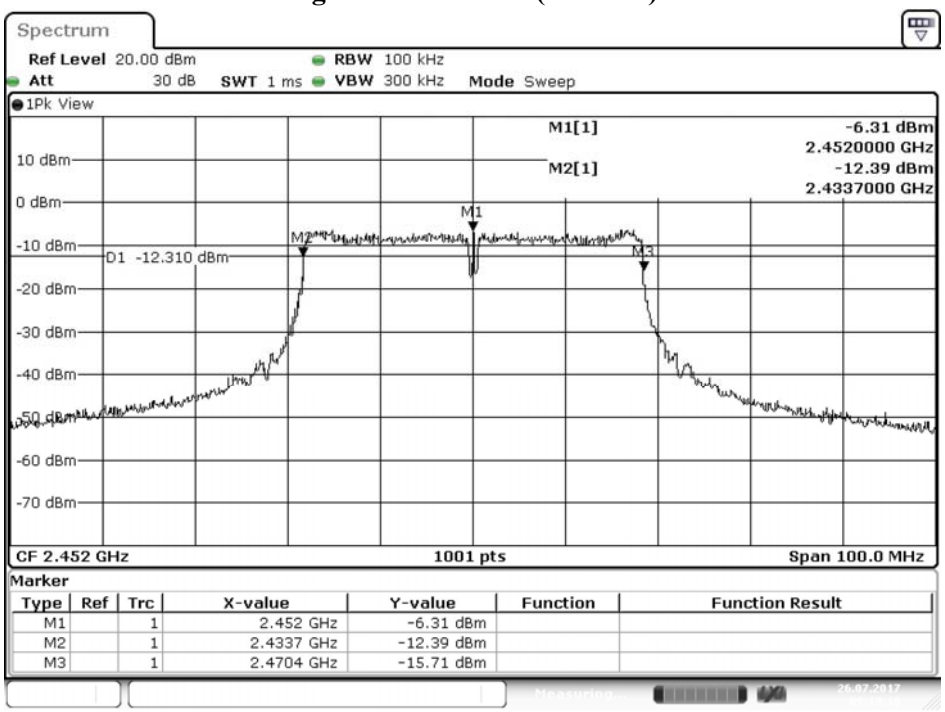


Figure Channel 06: (Chain A)



Date: 26.JUL.2017 09:14:34

Figure Channel 09: (Chain A)



Date: 26.JUL.2017 09:19:11

Product : M2M Router
Test Item : 6dB Bandwidth Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date : 2017/07/26

Chain B

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36500	>500	Pass
06	2437	36600	>500	Pass
09	2452	36500	>500	Pass

Figure Channel 03: (Chain B)

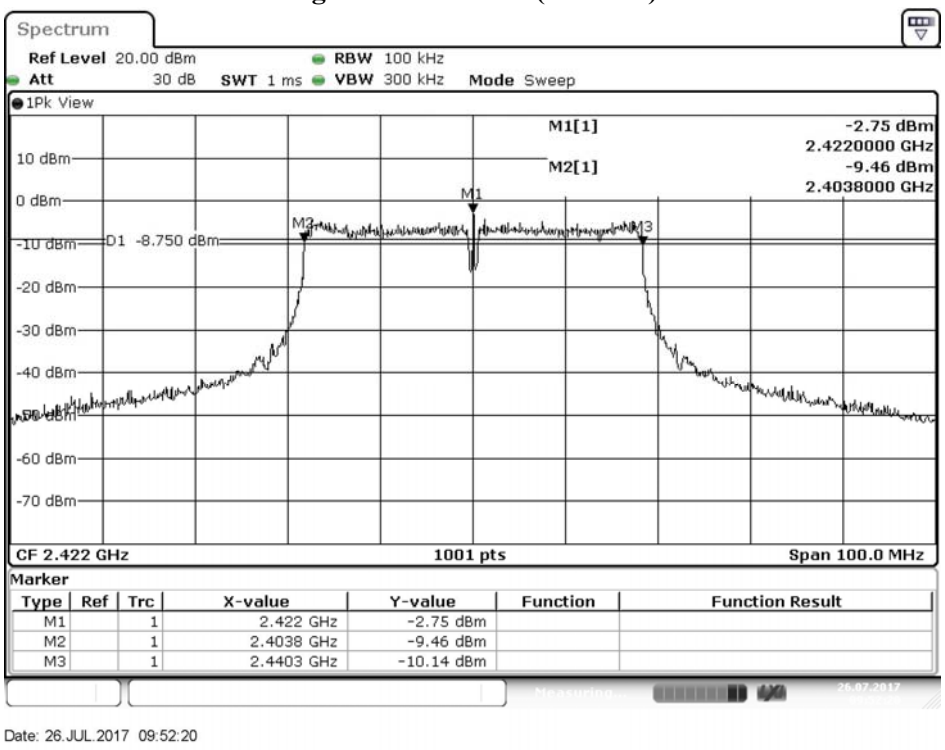
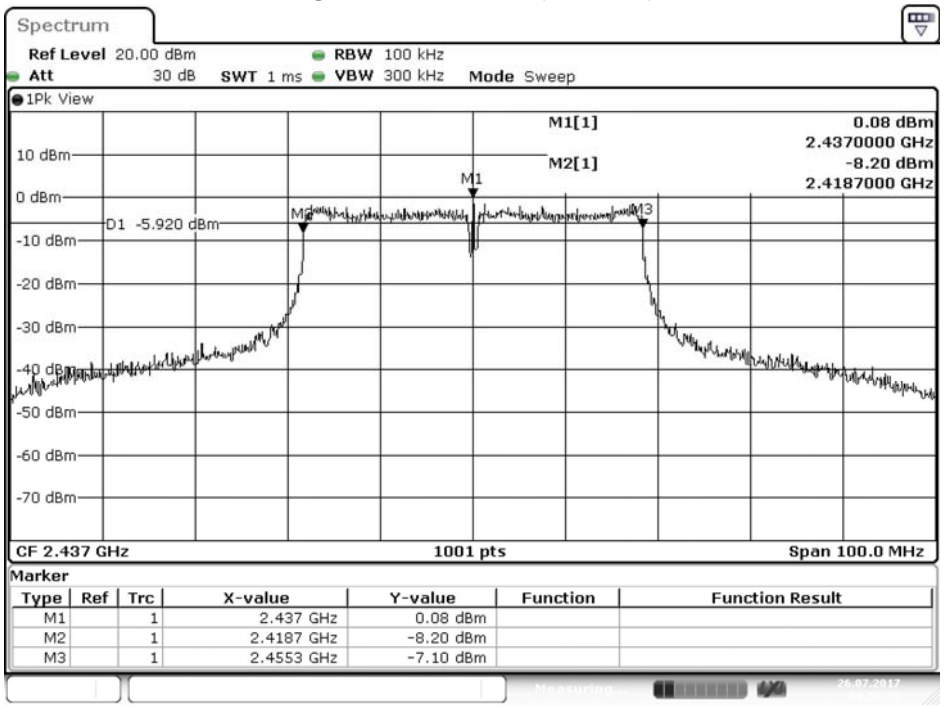
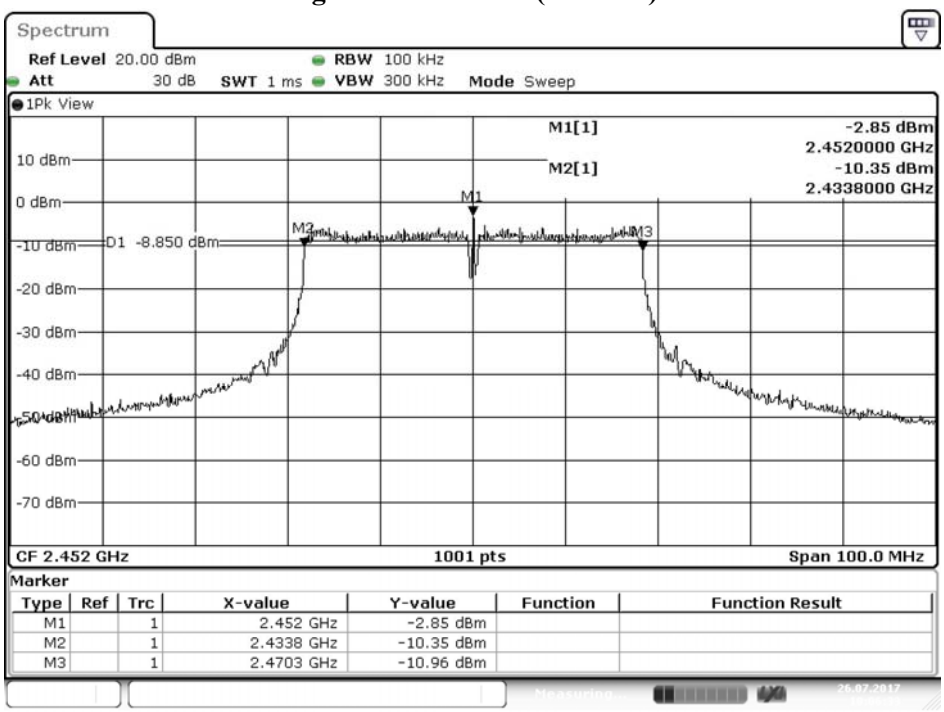


Figure Channel 06: (Chain B)



Date: 26.JUL.2017 09:57:29

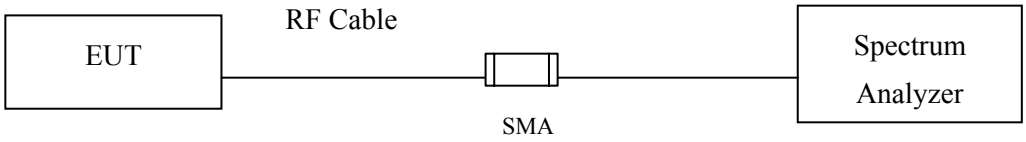
Figure Channel 09: (Chain B)



Date: 26.JUL.2017 10:06:34

8. Power Density

8.1. Test Setup



8.2. Limits

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

8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.
The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

8.4. Uncertainty

± 1.23 dB

8.5. Test Result of Power Density

Product : M2M Router
Test Item : Power Density Data
Test Mode : Mode 1: Transmit (802.11b 1Mbps)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	5.510	≦8dBm	Pass
06	2437	4.390	≦8dBm	Pass
11	2462	5.160	≦8dBm	Pass

Figure Channel 01:

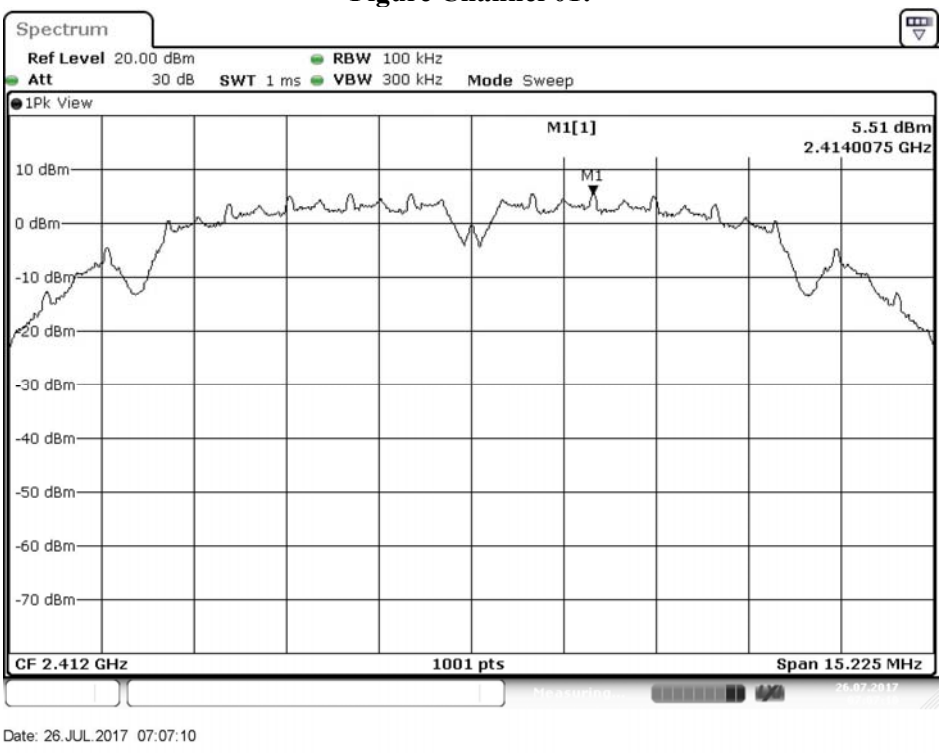
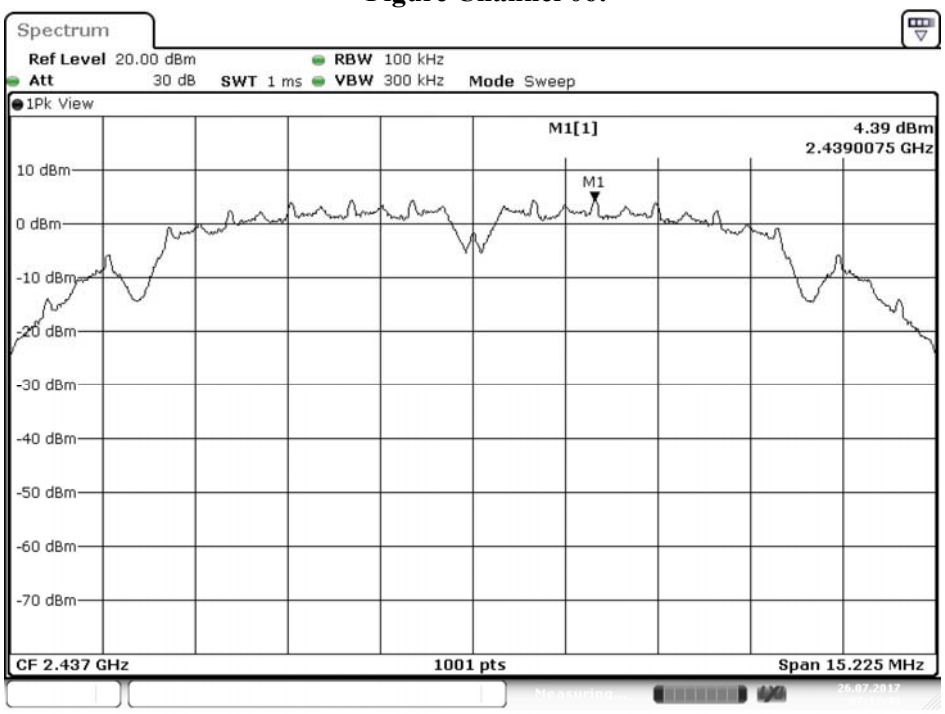
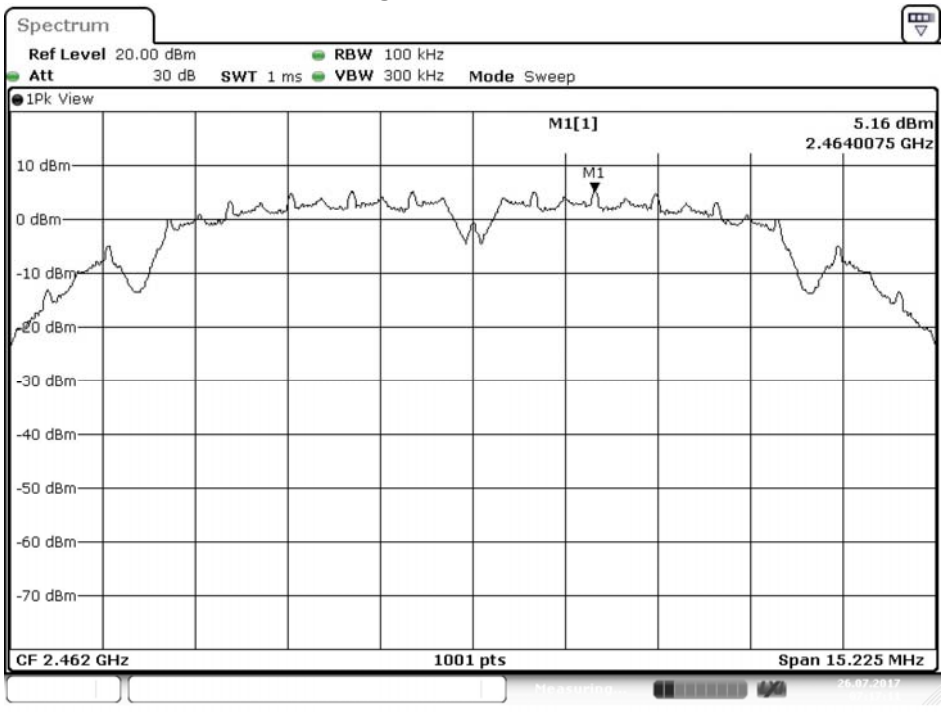


Figure Channel 06:



Date: 26.JUL.2017 07:12:50

Figure Channel 11:



Date: 26.JUL.2017 07:17:11

Product : M2M Router
Test Item : Power Density Data
Test Mode : Mode 2: Transmit (802.11g 6Mbps)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2412	1.700	≦8dBm	Pass
06	2437	2.690	≦8dBm	Pass
11	2462	1.080	≦8dBm	Pass

Figure Channel 01:

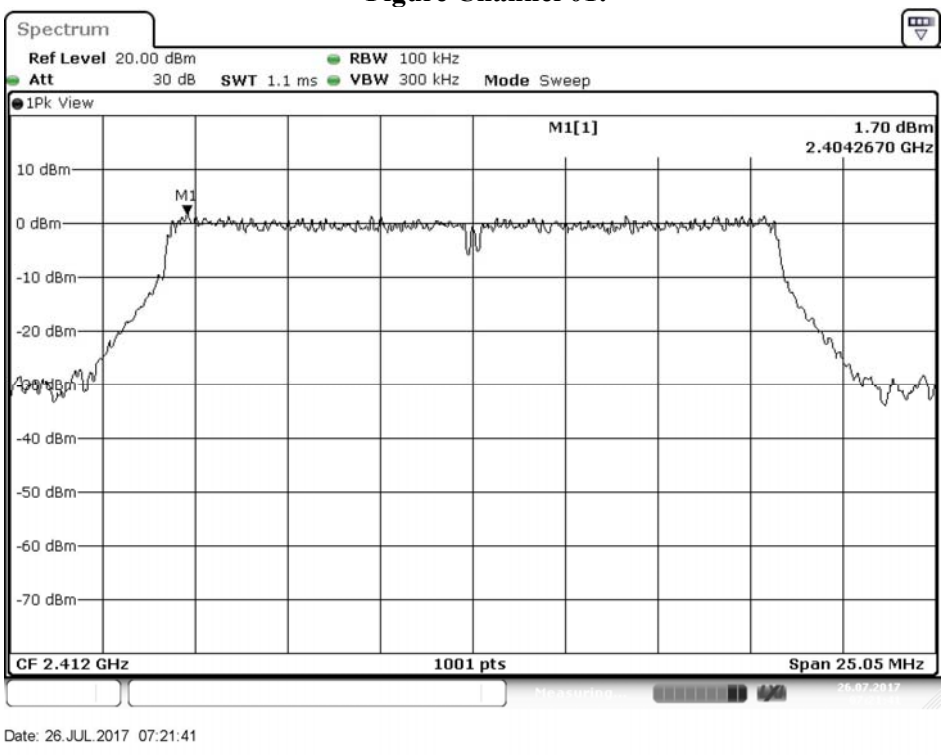
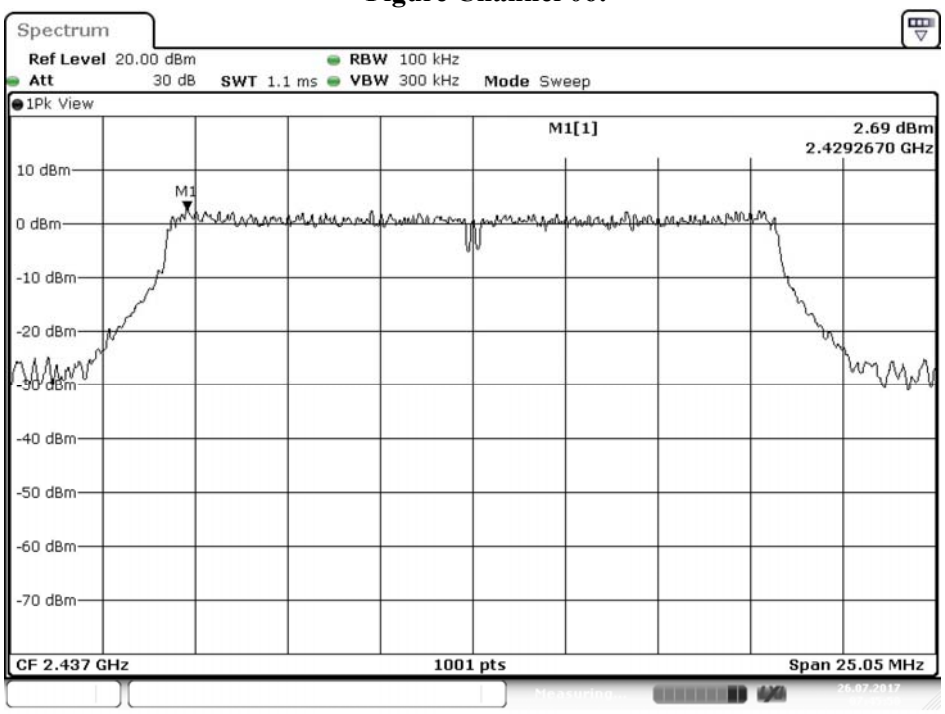
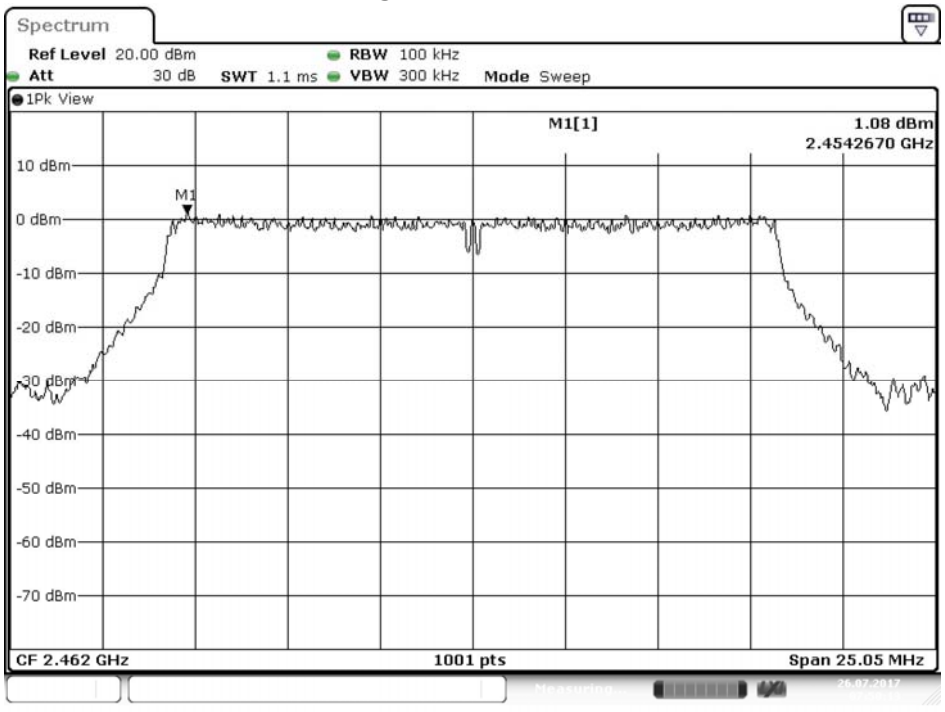


Figure Channel 06:



Date: 26.JUL.2017 07:45:51

Figure Channel 11:



Date: 26.JUL.2017 07:50:14

Product : M2M Router
Test Item : Power Density Data
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412.000	A	-0.500	2.510	≦8dBm	Pass
		B	0.620	3.630	≦8dBm	Pass
06	2437.000	A	1.460	4.470	≦8dBm	Pass
		B	2.030	5.040	≦8dBm	Pass
11	2462.000	A	-2.310	0.700	≦8dBm	Pass
		B	-0.620	2.390	≦8dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 1: (Chain A)

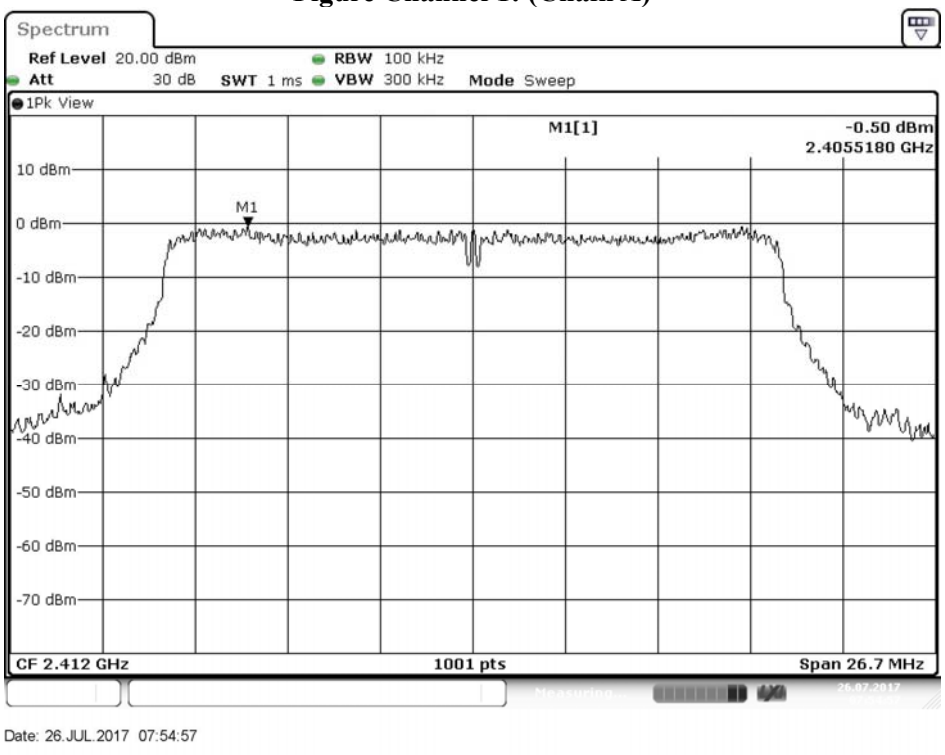


Figure Channel 6: (Chain A)

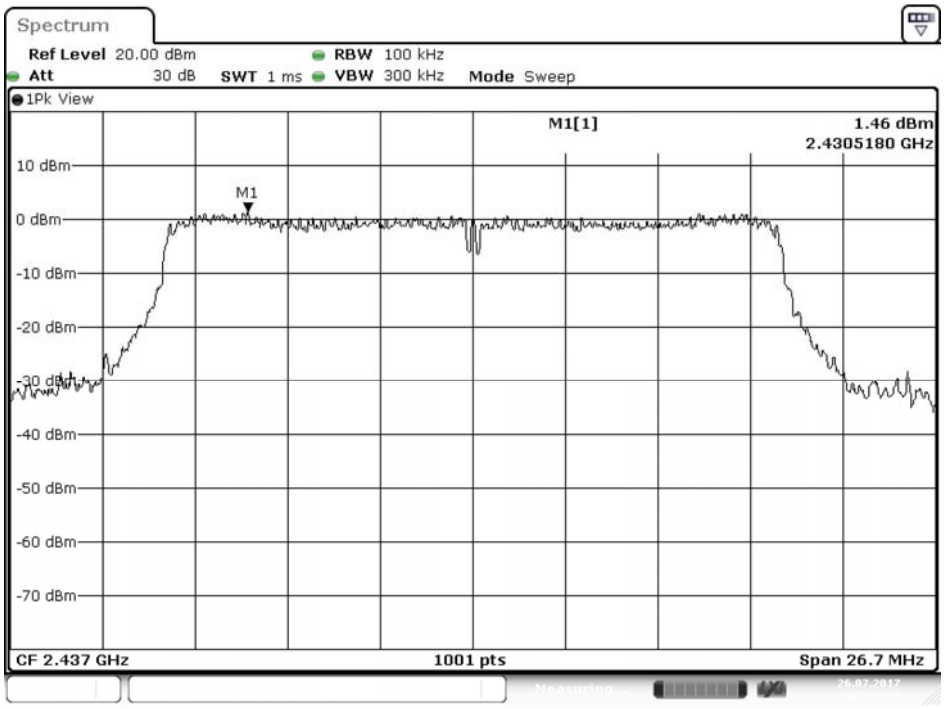


Figure Channel 11: (Chain A)

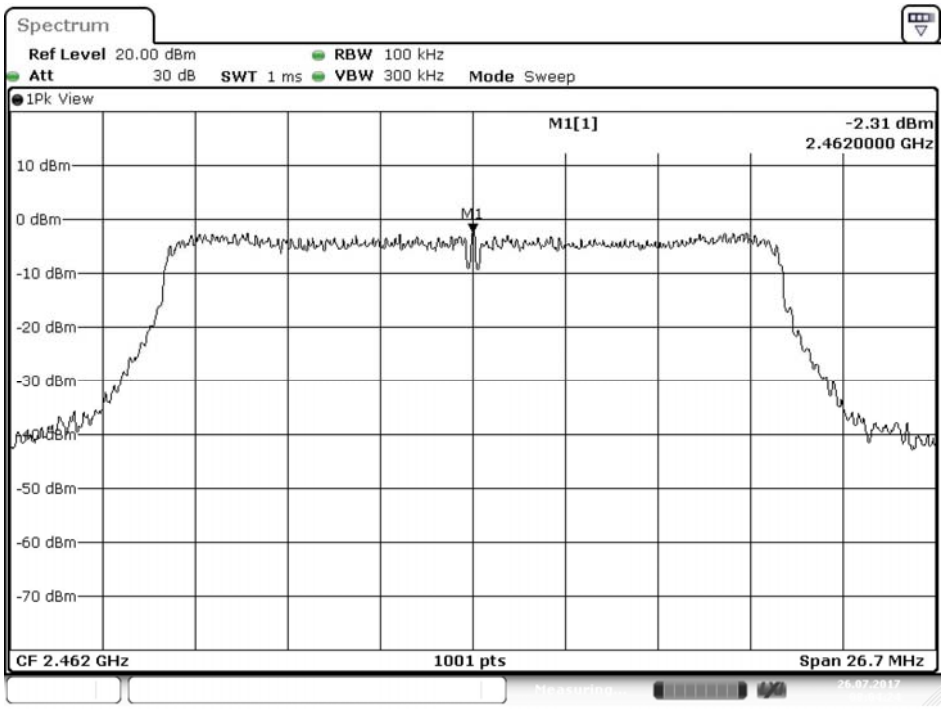


Figure Channel 1: (Chain B)

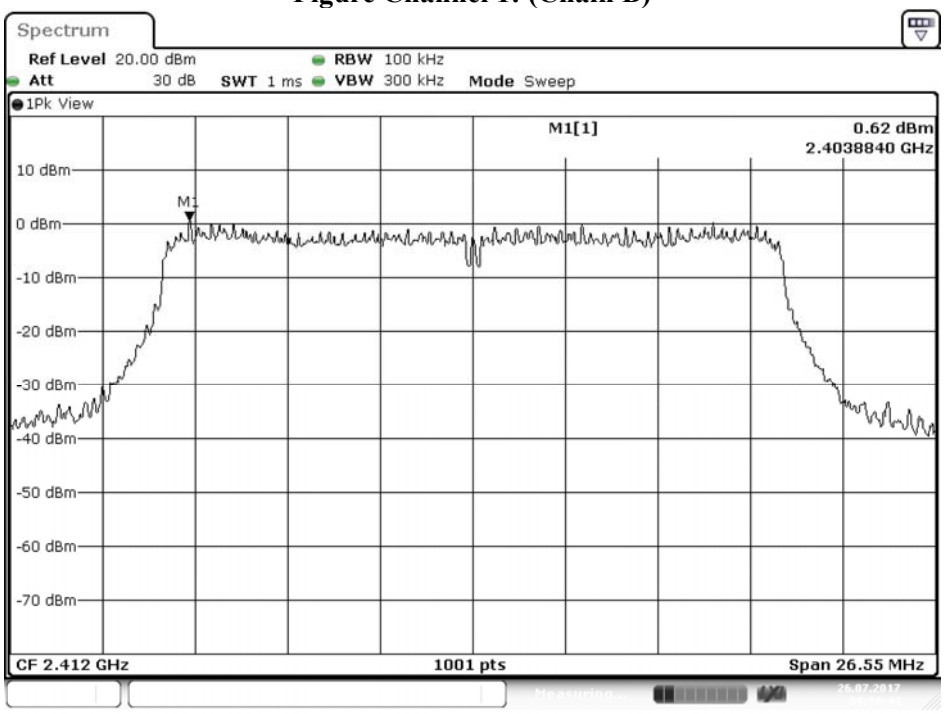


Figure Channel 6: (Chain B)

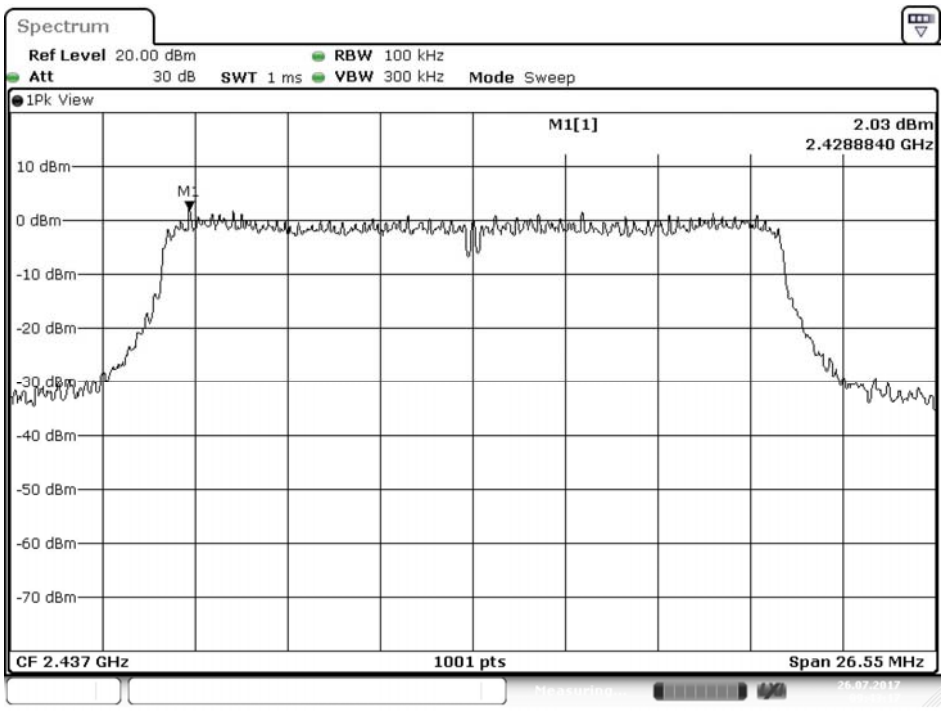
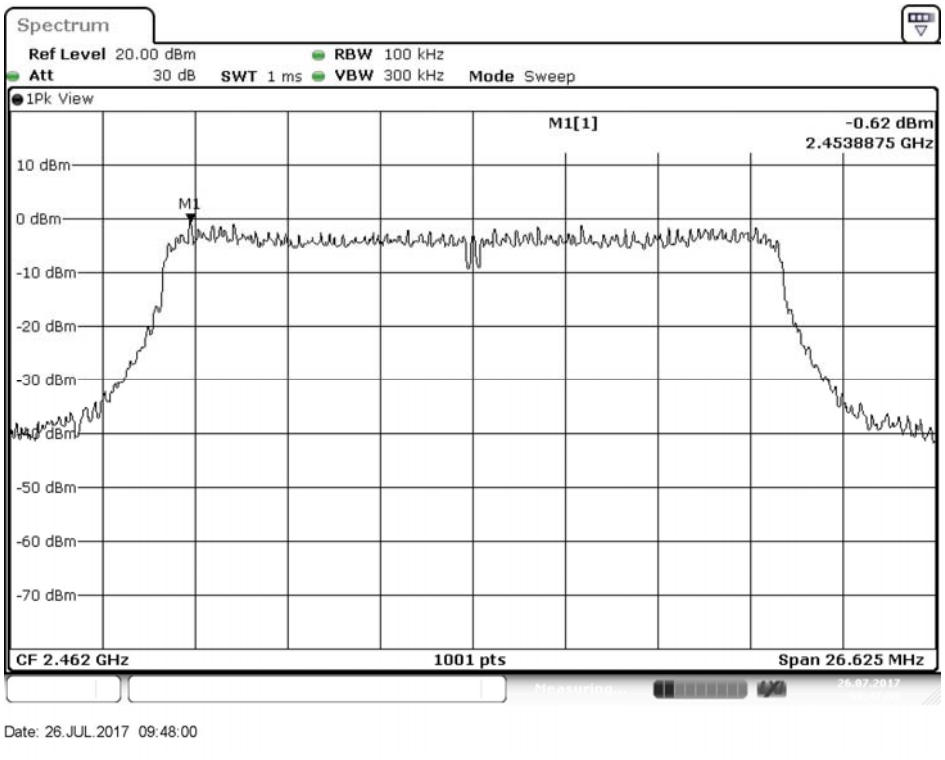


Figure Channel 11: (Chain B)



Product : M2M Router
Test Item : Power Density Data
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)
Test Date : 2017/07/26

Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
03	2422.000	A	-4.560	-1.550	≦8dBm	Pass
		B	-2.710	0.300	≦8dBm	Pass
06	2437.000	A	-1.680	1.330	≦8dBm	Pass
		B	0.260	3.270	≦8dBm	Pass
09	2452.000	A	-6.410	-3.400	≦8dBm	Pass
		B	-2.870	0.140	≦8dBm	Pass

Note 1: The quantity 10*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 3: (Chain A)

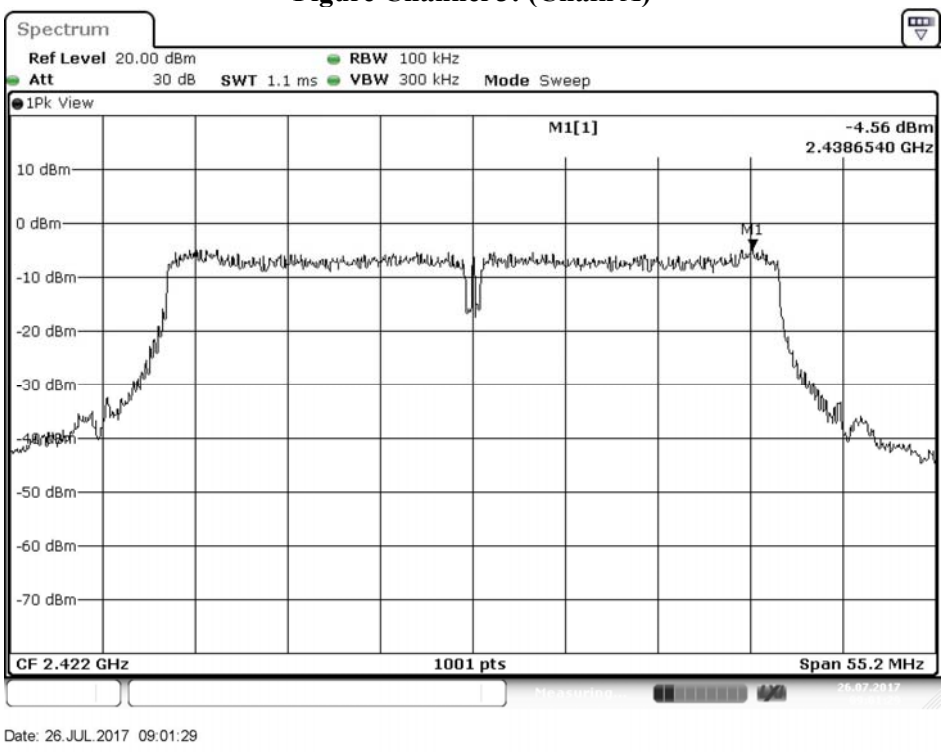
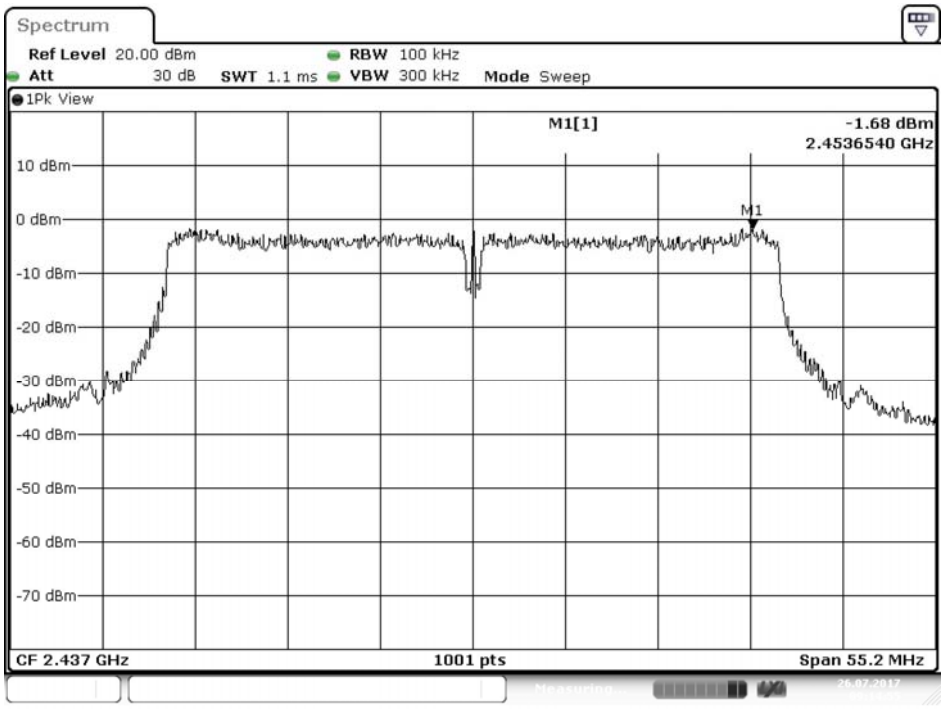
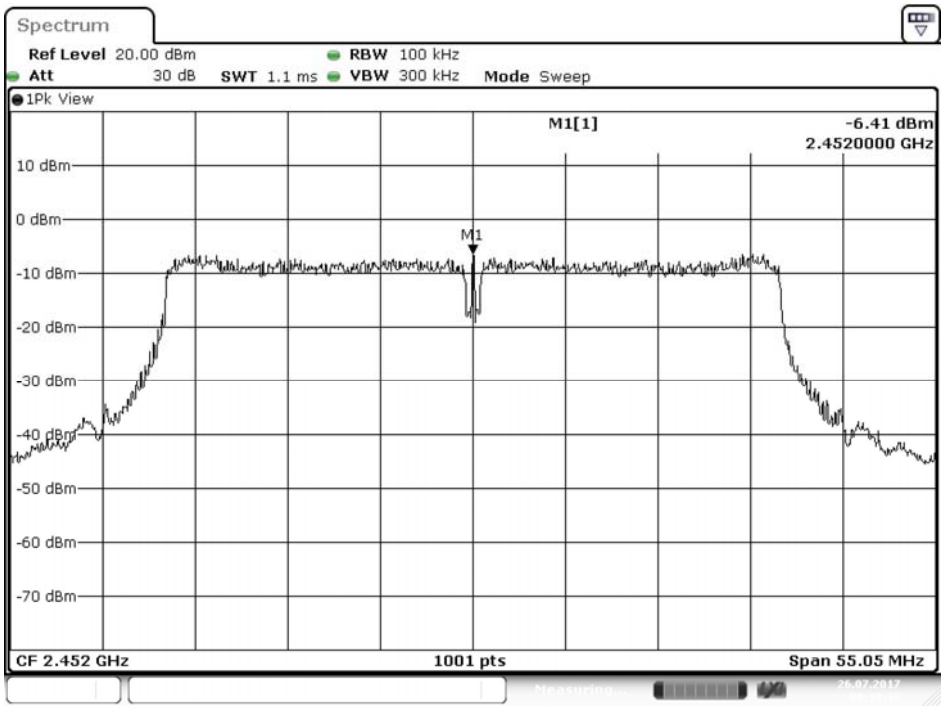


Figure Channel 6: (Chain A)



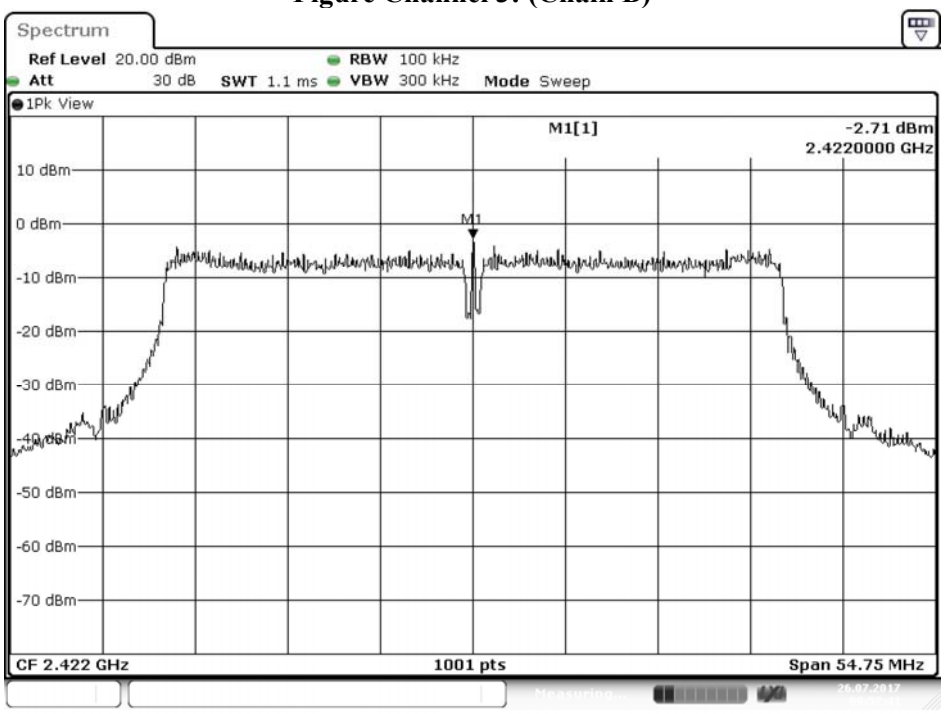
Date: 26.JUL.2017 09:14:55

Figure Channel 9: (Chain A)



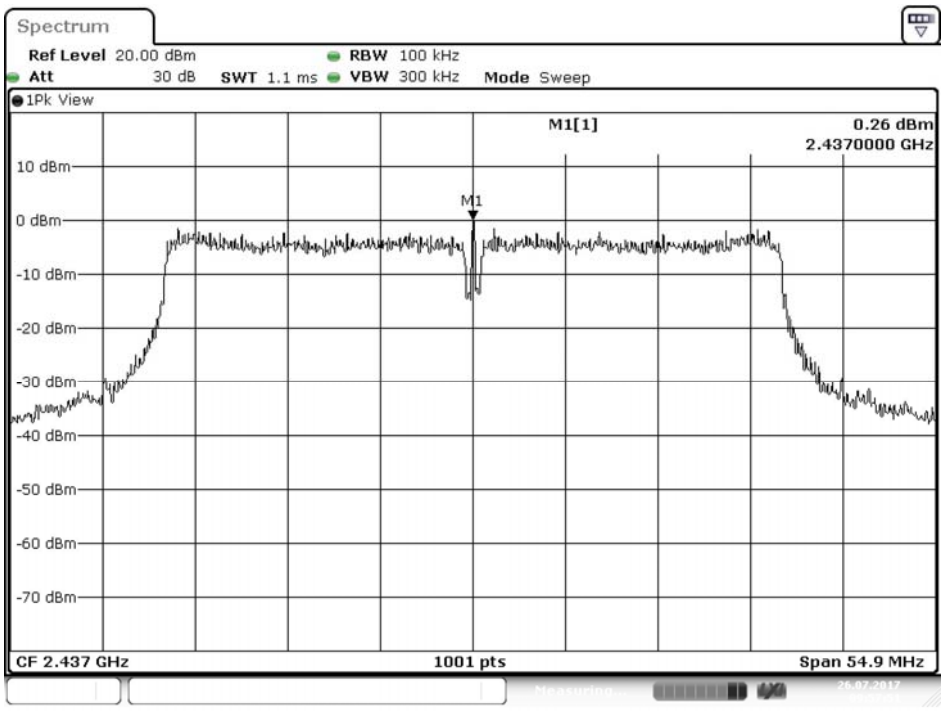
Date: 26.JUL.2017 09:19:33

Figure Channel 3: (Chain B)



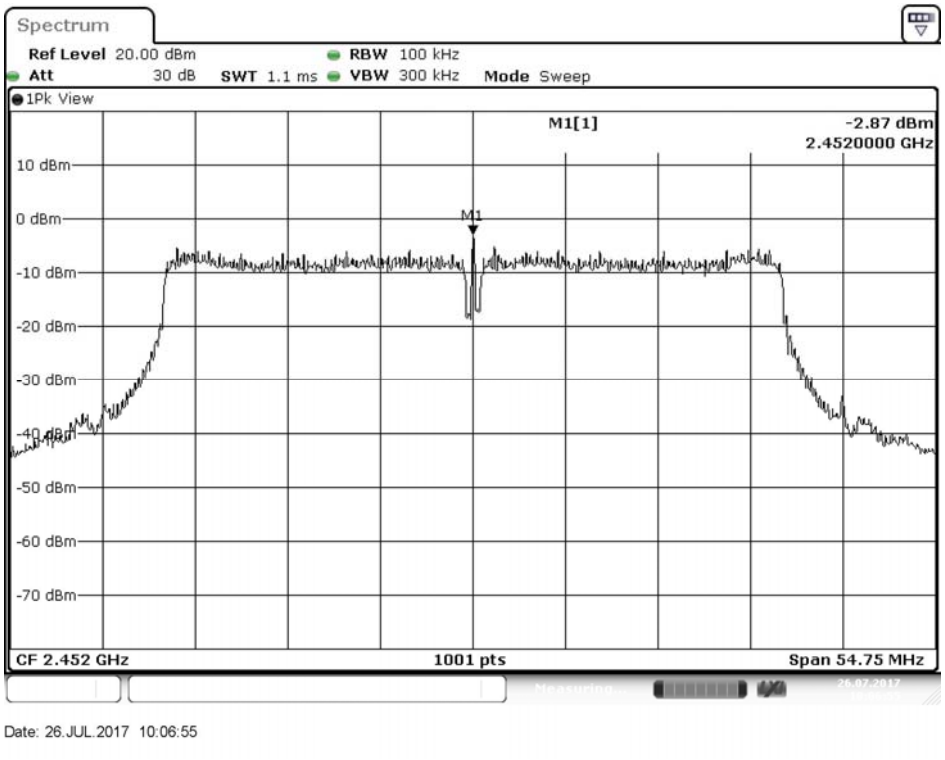
Date: 26.JUL.2017 09:52:42

Figure Channel 6: (Chain B)



Date: 26.JUL.2017 09:57:51

Figure Channel 9: (Chain B)



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs