




CE Radio Test Report

Project No. : 1511C190
Equipment : 150Mbps WiFi Module
Model Name : GWF-7M02
Applicant : Shenzhen Ogemray Tech CO.,LTD
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 China

Date of Receipt : Nov. 13, 2015
Date of Test : Nov. 13, 2015 ~ Dec. 22, 2015
Issued Date : Dec. 23, 2015
Tested by : BTL Inc.

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Declaration

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-ETSP-1-1511C190	Original Issue	Dec. 23, 2015

1. CERTIFICATION

Equipment : 150Mbps WiFi Module
Brand Name : N/A
Model Name : GWF-7M02
Applicant : Shenzhen Ogemray Tech CO.,LTD
Manufacturer: Shenzhen Ogemray Tech CO.,LTD
Address : 3/F~4/F,NO.5 Bldg, Dongwu Industrial Park, Donghuan 1st Road, Longhua Town, Shenzhen, China
Factory : Shenzhen Ogemray Tech CO.,LTD
Address : 3/F~4/F,NO.5 Bldg, Dongwu Industrial Park, Donghuan 1st Road, Longhua Town, Shenzhen, China
Date of Test : Nov. 13, 2015 ~ Dec. 22, 2015
Test Sample : Engineering Sample
Standard(s) : EN 300 328 V1.9.1 (2015-02)

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-ETSP-1-1511C190) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. RF EMISSIONS MEASUREMENT

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-CB12/OVEN** at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{CISPR} requirement.

Parameter	Uncertainty
Output Power	$\pm 0.95\text{dB}$
Occupied Channel Bandwidth	$\pm 3.8\%$
Temperature	$\pm 0.08^{\circ}\text{C}$
Humidity	$\pm 1.5\%$
Power Spectral Density	$\pm 0.86\text{ dB}$
Radiated Emissions (3m), ($f \leq 1\text{GHz}$)	$\pm 3.38\text{dB}$
Radiated Emissions (1.5m), ($1\text{ GHz} < f \leq 26.5\text{GHz}$)	$\pm 3.06\text{dB}$

2.3 TEST CHANNEL

IEEE 802.11b/g/n(20 MHz)		
Test Channel	EUT Channel	Test Frequency (MHz)
low	CH01	2412
middle	CH07	2442
high	CH13	2472

IEEE 802.11n(40 MHz)		
Test Channel	EUT Channel	Test Frequency (MHz)
low	CH03	2422
middle	CH07	2442
high	CH11	2462

Note:

- (1) The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be stated by the supplier.

2.4 TEST METHODOLOGY AND RESULTS

ETSI EN 300 328 V1.9.1							
Essential Requirement			Requirement Conditionality		Test Specification		
No	Description	Reference: Clause No	U/C	Condition	E/O	Reference: Clause No	Observations
1	RF Output Power	4.3.1.2 or 4.3.2.2	U		E	5.3.2	PASS
2	Power Spectral Density	4.3.2.3	C	Only for modulations other than FHSS	E	5.3.3	PASS
3	Duty cycle, Tx-Sequence, Tx-gap	4.3.1.3 or 4.3.2.4	C	Only for non-adaptive equipment and RF Output Power>10dBm	E	5.3.2	N/A
4	Dwell time, Minimum Frequency Occupation & Hopping Sequence	4.3.1.4	C	Only for FHSS	E	5.3.4	N/A
5	Hopping Frequency Separation	4.3.1.5	C	Only for FHSS	E	5.3.5	N/A
6	Medium Utilisation	4.3.1.6 or 4.3.2.5	C	Only for non-adaptive equipment and RF Output Power>10dBm	E	5.3.2	N/A
7	Adaptivity	4.3.1.7 or 4.3.2.6	C	Only for adaptive equipment and RF Output Power>10dBm	E	5.3.7	PASS
8	Occupied Channel Bandwidth	4.3.1.8 or 4.3.2.7	U	---	E	5.3.8	PASS
9	Transmitter unwanted emissions in the OOB domain	4.3.1.9 or 4.3.2.8	U	---	E	5.3.9	PASS
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10 or 4.3.2.9	U	---	E	5.3.10	PASS
11	Receiver spurious emissions	4.3.1.11 or 4.3.2.10	U	---	E	5.3.11	PASS
12	Receiver Blocking	4.3.1.12 or 4.3.2.11	C	Only for adaptive equipment and RF Output Power>10dBm	E	5.3.7	PASS
13	Geo-location capability	4.3.1.13 or 4.3.2.12	C	If implemented	X	-	-

NOTE:

- (1) "U/C": indicates whether the requirement is to be **unconditionally** applicable (**U**) or is **conditional** upon the manufacturers claimed functionality of the equipment (**C**).
 "E/O": indicates whether the test specification forms part of the Essential Radio Test Suite (**E**) or whether it is one of the Other Test Suite (**O**).
 "X": indicates there is no test specified corresponding to the requirement.
 "N/A": indicates test is not applicable to this device.
- (2) The emission of the transmitter on standby mode is equal to that of receiving mode.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	150Mbps WiFi Module	
Brand Name	N/A	
Model Name	GWF-7M02	
Model Difference	N/A	
Power Source	Supplied from host system.	
Power Rating	EUT I/P: DC 5V	
Product Description	Operation Frequency	2412~2472MHz
	Modulation Type	802.11b: DSSS 802.11g: OFDM 802.11n: OFDM
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n: up to 150 Mbps
	EIRP Power (Max.)	802.11b: 18.90 dBm 802.11g: 16.99 dBm 802.11n (20MHz): 14.87 dBm 802.11n (40MHz): 14.87 dBm

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

CH01 - CH13 for 802.11b, 802.11g, 802.11n(20MHz) CH03 - CH11 for 802.11n(40MHz)					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	06	2437	11	2462
02	2417	07	2442	12	2467
03	2422	08	2447	13	2472
04	2427	09	2452		
05	2432	10	2457		

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Printed	N/A	2	TX/RX

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

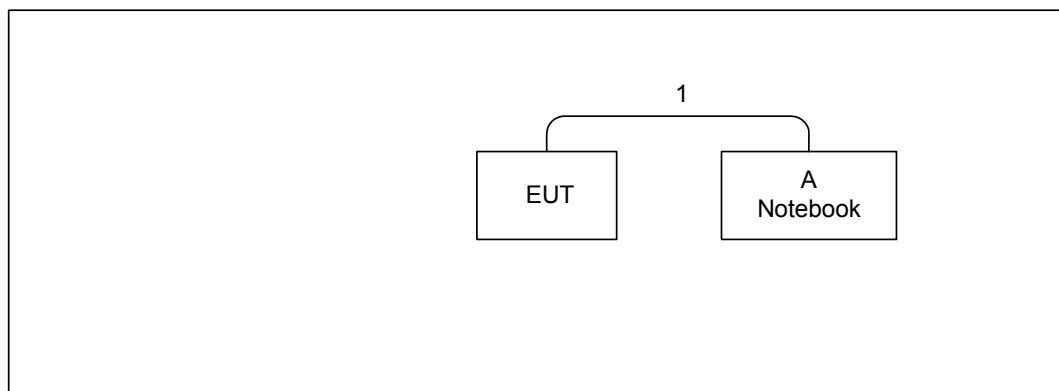
Test Items	Mode	Data Rate	Channel
RF Output Power	IEEE 802.11b/CCK	1 Mbps	01/07/13
	IEEE 802.11g/BPSK	6 Mbps	01/07/13
Power Spectral Density	IEEE 802.11n(20MHz)/BPSK	MCS 0	01/07/13
	IEEE 802.11n(40MHz)/BPSK	MCS 0	03/07/11
Adaptivity	IEEE 802.11b/CCK	1 Mbps	01/13
	IEEE 802.11g/BPSK	6 Mbps	01/13
Receiver Blocking	IEEE 802.11n(20MHz)/BPSK	MCS 0	01/13
Occupied Channel Bandwidth	IEEE 802.11n(40MHz)/BPSK	MCS 0	03/11
Transmitter unwanted emissions in the OOB domain	IEEE 802.11b/CCK	1 Mbps	01/13
	IEEE 802.11g/BPSK	6 Mbps	01/13
	IEEE 802.11n(20MHz)/BPSK	MCS 0	01/13
Transmitter unwanted emissions in the spurious domain	IEEE 802.11n(40MHz)/BPSK	MCS 0	03/11
Receiver spurious emissions			

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Software Version	RT3x7xQA		
Frequency (MHz)	2412	2442	2472
IEEE 802.11b	3	5	7
IEEE 802.11g	0	1	2
IEEE 802.11n20	10	0	1
Frequency (MHz)	2422	2442	2462
IEEE 802.11n40	1	2	3

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	NOTEBOOK	DELL	INSPIRON 1420	DOC	JX193A01SDC2

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.8m	Fixture Cable

Note:

- (1) For detachable type I/O cable should be specified the length in m in 『Length』 column.

4. RF OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

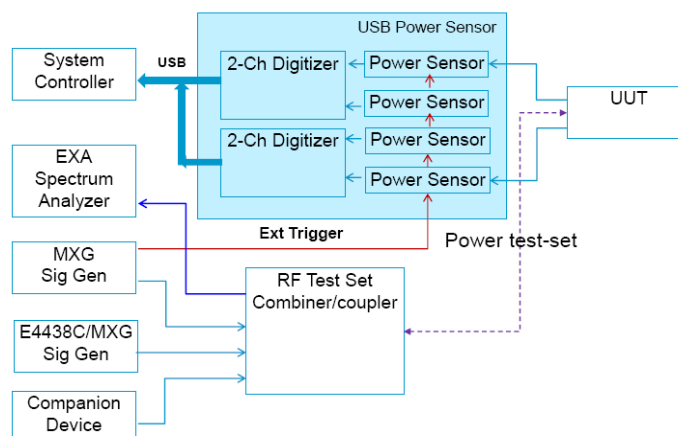
Clause	4.3.2.2
Test Item	RF output power
Limit	For adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be 20 dBm. The maximum RF output power for non-adaptive equipment shall be declared by the supplier and shall not exceed 20 dBm. See clause 5.3.1 m). For non-adaptive equipment using wide band modulations other than FHSS, the maximum RF output power shall be equal to or less than the value declared by the supplier.

4.2 TEST PROCEDURES

Please refer to chapter 5.3.2 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input checked="" type="checkbox"/> Lowest, Middle and highest Channel	<input type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input type="checkbox"/> Normal	<input checked="" type="checkbox"/> Normal and Extreme

4.3 TEST SETUP LAYOUT



4.4 TEST DEVIATION

There is no deviation with the original standard.

4.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

4.6 TEST RESULTS

Please refer to the Attachment A.

5. POWER SPECTRAL DENSITY

5.1 APPLIED PROCEDURES / LIMIT

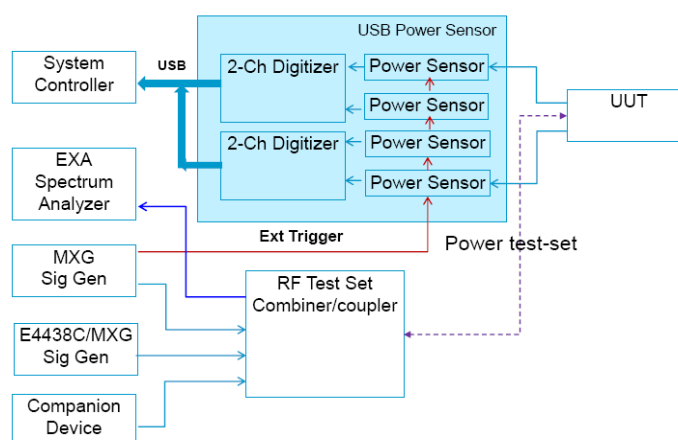
Clause	4.3.2.3
Test Item	Power Spectral Density
Limit	For equipment using wide band modulations other than FHSS, the maximum Power Spectral Density is limited to 10 dBm per MHz.

5.2 TEST PROCEDURES

Please refer to chapter 5.3.3 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input checked="" type="checkbox"/> Lowest, Middle and highest Channel	<input type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

5.3 TEST SETUP LAYOUT



5.4 TEST DEVIATION

There is no deviation with the original standard.

5.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

5.6 TEST RESULTS

Please refer to the Attachment B.

6. DUTY CYCLE, TX-SEQUENCE, TX-GAP

6.1 APPLIED PROCEDURES / LIMIT

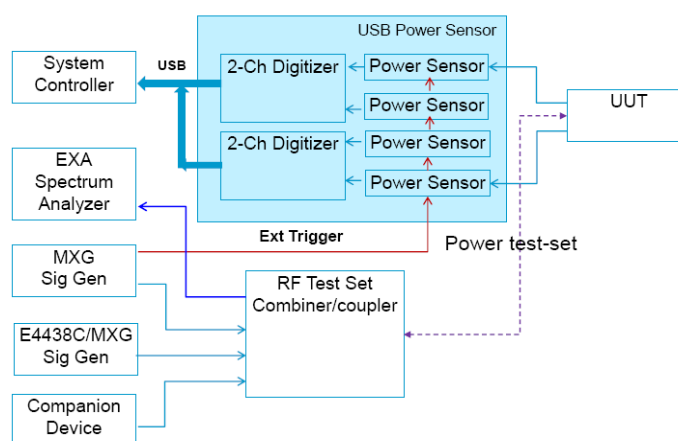
Clause	4.3.2.4
Test Item	Duty Cycle, Tx-sequence, Tx-gap
Limit	The Duty Cycle shall be equal to or less than the maximum value declared by the supplier. The Tx-sequence time shall be equal to or less than 10 ms. The minimum Tx-gap time following a Tx-sequence shall be equal to the duration of that proceeding Tx-sequence with a minimum of 3,5 ms.

6.2 TEST PROCEDURES

Please refer to chapter 5.3.2 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input checked="" type="checkbox"/> Lowest, Middle and highest Channel	<input type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

6.3 TEST SETUP LAYOUT



6.4 TEST DEVIATION

There is no deviation with the original standard.

6.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

6.6 TEST RESULTS

Please refer to the Attachment C.

7. MEDIUM UTILISATION (MU) FACTOR

7.1 APPLIED PROCEDURES / LIMIT

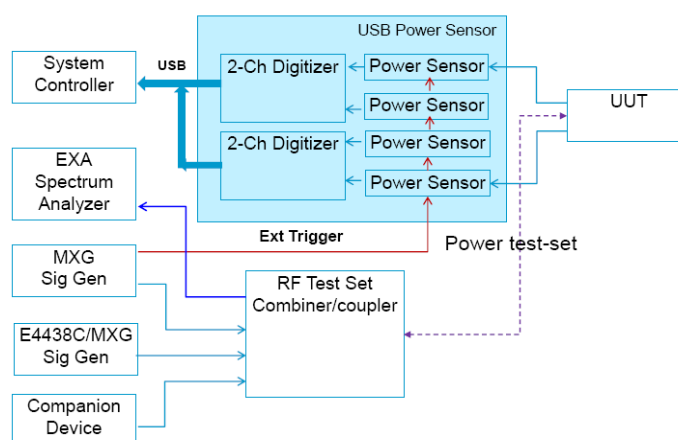
Clause	4.3.2.5
Test Item	Medium Utilisation (MU) factor
Limit	For non-adaptive equipment using wide band modulations other than FHSS, the maximum Medium Utilisation factor shall be 10 %.

7.2 TEST PROCEDURES

Please refer to chapter 5.3.2 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input checked="" type="checkbox"/> Lowest, Middle and highest Channel	<input type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

7.3 TEST SETUP LAYOUT



7.4 TEST DEVIATION

There is no deviation with the original standard.

7.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

7.6 TEST RESULTS

Please refer to the Attachment D.

8. ADAPTIVITY (ADAPTIVE EQUIPMENT USING MODULATIONS OTHER THAN FHSS)

8.1 APPLIED PROCEDURES / LIMIT

Clause	4.3.2.6
Test Item	Adaptivity (adaptive equipment using modulations other than FHSS)
Limit	<p><u>Non-LBT based Detect and Avoid</u></p> <p>Equipment using a modulation other than FHSS and using the non-LBT based Detect and Avoid mechanism, shall comply with the following minimum set of requirements:</p> <ol style="list-style-type: none"> 1) During normal operation, the equipment shall evaluate the presence of a signal on its current operating channel. If it is determined that a signal is present with a level above the detection threshold defined in step 5), the channel shall be marked as 'unavailable'. 2) The channel shall remain unavailable for a minimum time equal to 1 s after which the channel may be considered again as an 'available' channel. 3) The total time during which an equipment has transmissions on a given channel without re-evaluating the availability of that channel, is defined as the Channel Occupancy Time. 4) The Channel Occupancy Time shall be less than 40 ms. Each such transmission sequence shall be followed by an Idle Period (no transmissions) of minimum 5 % of the Channel Occupancy Time with a minimum of 100 μs. After this, the procedure as in step 1) needs to be repeated. 5) The detection threshold shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p. transmitter the detection threshold level (TL) shall be equal or less than -70 dBm/MHz at the input to the receiver (assuming a 0 dBi receive antenna). For power levels below 20 dBm e.i.r.p., the detection threshold level may be relaxed to $TL = -70 \text{ dBm/MHz} + (20\text{dBm} - P_{\text{out e.i.r.p}})/1 \text{ MHz}$. ($P_{\text{out}}$ in dBm).

Limit	<p><u>LBT based Detect and Avoid</u></p> <p>The present document defines 2 types of adaptive equipment using wide band modulations other than FHSS and that uses an LBT based Detect and Avoid mechanism: Frame Based Equipment and Load Based Equipment. Adaptive equipment which is capable of operating as either Load Based Equipment or as Frame Based Equipment is allowed to switch dynamically between these types of operation.</p> <p><u>a. Frame Based Equipment</u></p> <p>Frame Based Equipment shall comply with the following requirements:</p> <ol style="list-style-type: none"> 1) Before transmission, the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 μs. The channel shall be considered occupied if the energy level in the channel exceeds the threshold given in step 5) below. If the equipment finds the channel to be clear, it may transmit immediately. 2) If the equipment finds the channel occupied, it shall not transmit on this channel during the next Fixed Frame Period. NOTE 1: The equipment is allowed to switch to a non-adaptive mode and to continue transmissions on this channel providing it complies with the requirements applicable to non-adaptive equipment. See clause 4.3.2.6. Alternatively, the equipment is also allowed to continue Short Control Signaling Transmissions on this channel providing it complies with the requirements 4.3.2.6.4. 3) The total time during which an equipment has transmissions on a given channel without re-evaluating the availability of that channel, is defined as the Channel Occupancy Time. The Channel Occupancy Time shall be in the range 1 ms to 10 ms followed by an Idle Period of at least 5 % of the Channel Occupancy Time used in the equipment for the current Fixed Frame Period. 4) An equipment, upon correct reception of a packet which was intended for this equipment can skip CCA and immediately (see note 2) proceed with the transmission of management and control frames (e.g. ACK and Block ACK frames are allowed but data frames are not allowed). A consecutive sequence of such transmissions by the equipment without a new CCA shall not exceed the maximum Channel Occupancy Time. NOTE 2: For the purpose of multi-cast, the ACK transmissions (associated with the same data packet) of the individual devices are allowed to take place in a sequence. 5) The energy detection threshold for the CCA shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p. transmitter the CCA threshold level (TL) shall be equal or lower than -70 dBm/MHz at the input to the receiver (assuming a 0 dBi receive antenna). For power levels below 20 dBm e.i.r.p. the CCA threshold level may be relaxed to $TL = -70 \text{ dBm/MHz} + (20\text{dBm} - P_{out} \text{ e.i.r.p.})/1 \text{ MHz}$. ($P_{out}$ in dBm).
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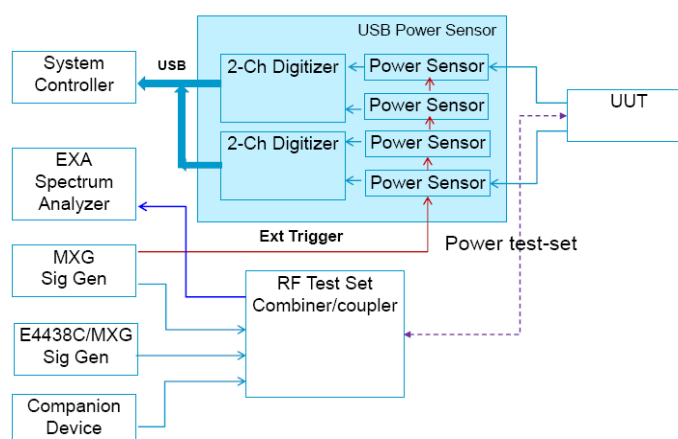
Limit	<p><u>b. Load Based Equipment</u></p> <p>Load Based Equipment not using any of the mechanisms referenced above shall comply with the following minimum set of requirements:</p> <ol style="list-style-type: none"> 1) Before a transmission or a burst of transmissions, the equipment shall perform a Clear Channel Assessment (CCA) check using energy detect. The equipment shall observe the operating channel for the duration of the CCA observation time which shall be not less than 18 μs. The channel shall be considered occupied if the energy level in the channel exceeds the threshold given in step 5) below. If the equipment finds the channel to be clear, it may transmit immediately. 2) If the equipment finds the channel occupied, it shall not transmit on this channel (see note 2). The equipment shall perform an Extended CCA check in which the channel is observed for a random duration in the range between 18 μs and at least 160 μs. If the extended CCA check has determined the channel to be no longer occupied, the equipment may resume transmissions on this channel. If the Extended CCA time has determined the channel still to be occupied, it shall perform new Extended CCA checks until the channel is no longer occupied. NOTE 1: The Idle Period in between transmissions is considered to be the CCA or the Extended CCA check as there are no transmissions during this period. NOTE 2: The equipment is allowed to switch to a non-adaptive mode and to continue transmissions on this channel providing it complies with the requirements applicable to non-adaptive equipment. Alternatively, the equipment is also allowed to continue Short Control Signaling Transmissions on this channel providing it complies with the requirements given in clause 4.3.2.6.4. 3) The total time that an equipment makes use of a RF channel is defined as the Channel Occupancy Time shall be less than 13 ms, after which the device shall perform a new CCA described in 1) above. 4) The equipment, upon correct reception of a packet which was intended for this equipment can skip CCA and immediately (see note 3) proceed with the transmission of management and control frames (e.g. ACK and Block ACK frames are allowed but data frames are not allowed). A consecutive sequence of transmissions by the equipment without a new CCA shall not exceed the maximum channel occupancy time as defined in 3) above. NOTE 3: For the purpose of multi-cast, the ACK transmissions (associated with the same data packet) of the individual devices are allowed to take place in a sequence. 5) The energy detection threshold for the CCA shall be proportional to the transmit power of the transmitter: for a 20 dBm e.i.r.p. transmitter the CCA threshold level (TL) shall be equal or lower than -70 dBm/MHz at the input to the receiver (assuming a 0 dBi receive antenna). For power levels below 20 dBm e.i.r.p., the CCA threshold level may be relaxed to $TL = -70 \text{ dBm/MHz} + (20\text{dBm} - P_{\text{out}} \text{ e.i.r.p.})/1 \text{ MHz. (Pout in dBm).}$ <p><u>Short Control Signalling Transmissions</u></p> <p>If implemented, Short Control Signalling Transmissions of adaptive equipment using wide band modulations other than FHSS shall have a maximum TxOn / (TxOn + TxOff) ratio of 10 % within an observation period of 50 ms.</p>
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8.2 TEST PROCEDURES

Please refer to chapter 5.3.7 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

8.3 TEST SETUP LAYOUT



8.4 TEST DEVIATION

There is no deviation with the original standard.

8.5 EUT OPERATION DURING TEST

The measurements shall be performed during normal operation.

8.6 TEST RESULTS

Please refer to the Attachment E.

9. OCCUPIED CHANNEL BANDWIDTH

9.1 APPLIED PROCEDURES / LIMIT

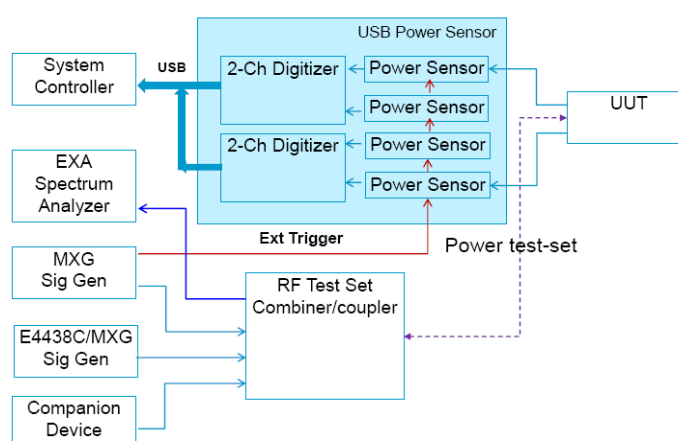
Clause	4.3.2.7
Test Item	Occupied Channel Bandwidth
Limit	The Occupied Channel Bandwidth shall fall completely within the band given in clause 1. In addition, for non-adaptive systems using wide band modulations other than FHSS and with e.i.r.p greater than 10 dBm, the occupied channel bandwidth shall be less than 20 MHz.

9.2 TEST PROCEDURES

Please refer to chapter 5.3.8 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

9.3 TEST SETUP LAYOUT



9.4 TEST DEVIATION

There is no deviation with the original standard.

9.5 EUT OPERATION DURING TEST

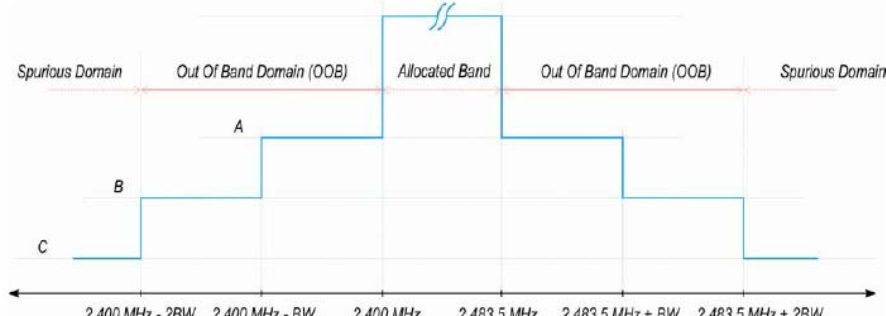
The measurements shall be performed during continuously transmitting.

9.6 TEST RESULTS

Please refer to the Attachment F.

10. TRANSMITTER UNWANTED EMISSIONS IN THE OUT-OF-BAND DOMAIN

10.1 APPLIED PROCEDURES / LIMIT

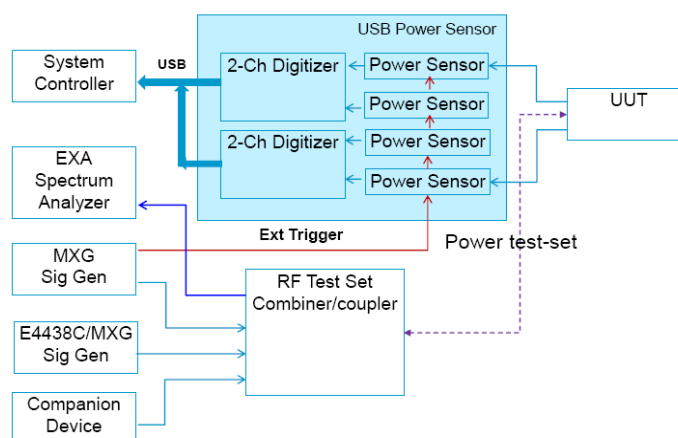
Clause	4.3.2.8
Test Item	Transmitter unwanted emissions in the out-of-band domain
Limit	<p>The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in below figure.</p>  <p>A: -10 dBm/MHz e.i.r.p. B: -20 dBm/MHz e.i.r.p. C: Spurious Domain limits</p> <p>BW = Occupied Channel Bandwidth in MHz or 1 MHz whichever is greater</p>

10.2 TEST PROCEDURES

Please refer to chapter 5.3.9 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> Normal and Extreme

10.3 TEST SETUP LAYOUT



10.4 TEST DEVIATION

There is no deviation with the original standard.

10.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

10.6 TEST RESULTS

Please refer to the Attachment G.

11. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

11.1 APPLIED PROCEDURES / LIMIT

Clause	4.3.2.9		
Test Item	Transmitter unwanted emissions in the spurious domain		
Limit	The transmitter unwanted emissions in the spurious domain shall not exceed the values given in below table.		
	Frequency range	Maximum power	Bandwidth
	30 MHz to 47 MHz	-36 dBm	100 kHz
	47 MHz to 74 MHz	-54 dBm	100 kHz
	74 MHz to 87,5 MHz	-36 dBm	100 kHz
	87,5 MHz to 118 MHz	-54 dBm	100 kHz
	118 MHz to 174 MHz	-36 dBm	100 kHz
	174 MHz to 230 MHz	-54 dBm	100 kHz
	230 MHz to 470 MHz	-36 dBm	100 kHz
	470 MHz to 862 MHz	-54 dBm	100 kHz
	862 MHz to 1 GHz	-36 dBm	100 kHz
	1 GHz to 12,75 GHz	-30 dBm	1 MHz

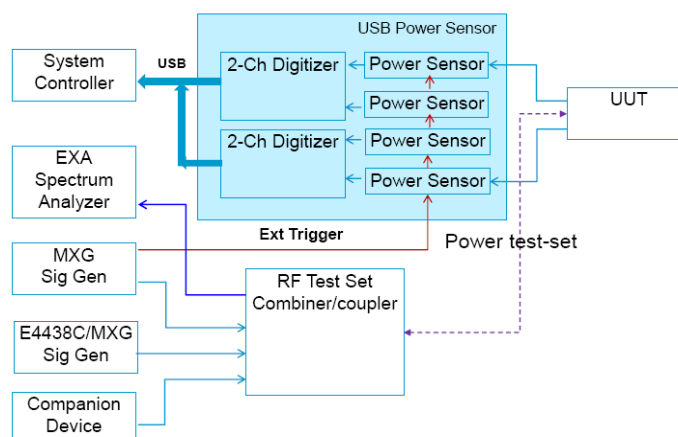
11.2 TEST PROCEDURES

Please refer to chapter 5.3.10 of ETSI EN 300 328 V1.9.1.

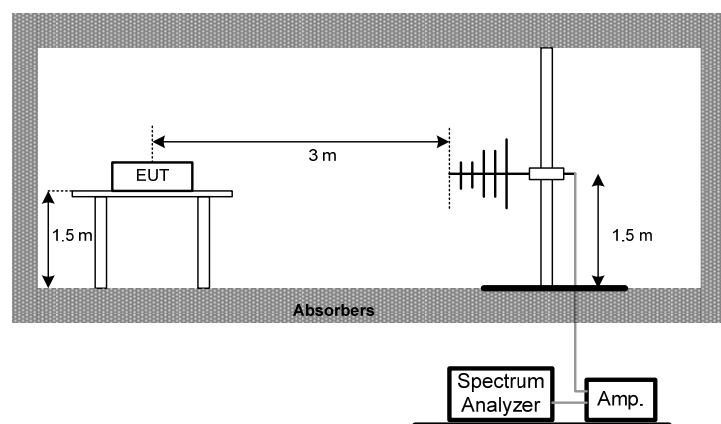
Test Method	
<input type="checkbox"/> Conducted Measurement	<input checked="" type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

11.3 TEST SETUP LAYOUT

Conducted Measurement



Radiated Measurement



11.4 TEST DEVIATION

There is no deviation with the original standard.

11.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

11.6 TEST RESULTS

Please refer to the Attachment H

12. RECEIVER SPURIOUS EMISSIONS

12.1 APPLIED PROCEDURES / LIMIT

Clause	4.3.2.10		
Test Item	Receiver spurious emissions		
Limit	The spurious emissions of the receiver shall not exceed the values given in below table.		
	Frequency range	Maximum power	Measurement bandwidth
	30 MHz to 1 GHz	-57 dBm	100 kHz
	1 GHz to 12,75 GHz	-47 dBm	1 MHz

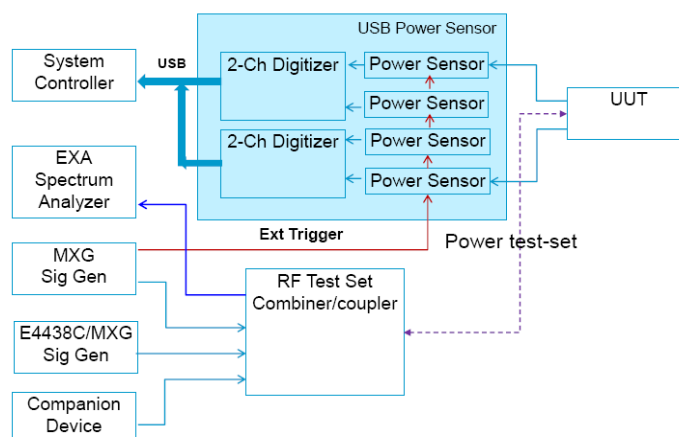
12.2 TEST PROCEDURES

Please refer to chapter 5.3.11 of ETSI EN 300 328 V1.9.1.

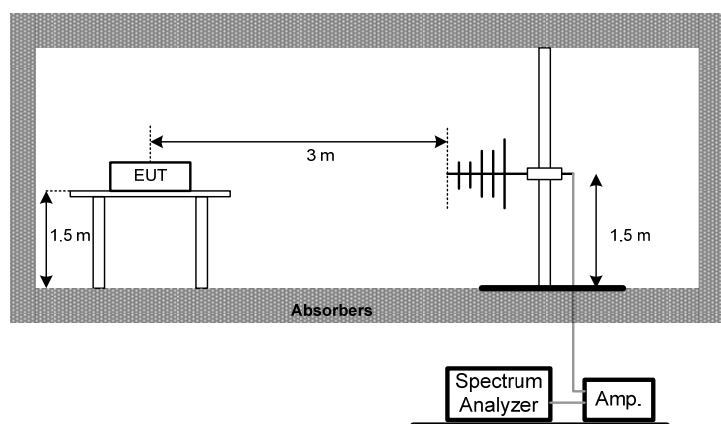
Test Method	
<input type="checkbox"/> Conducted Measurement	<input checked="" type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

12.3 TEST SETUP LAYOUT

Conducted Measurement



Radiated Measurement



12.4 TEST DEVIATION

There is no deviation with the original standard.

12.5 EUT OPERATION DURING TEST

The measurements shall be performed during continuously transmitting.

12.6 TEST RESULTS

Please refer to the Attachment I.

13. RECEIVER BLOCKING

13.1 APPLIED PROCEDURES / LIMIT

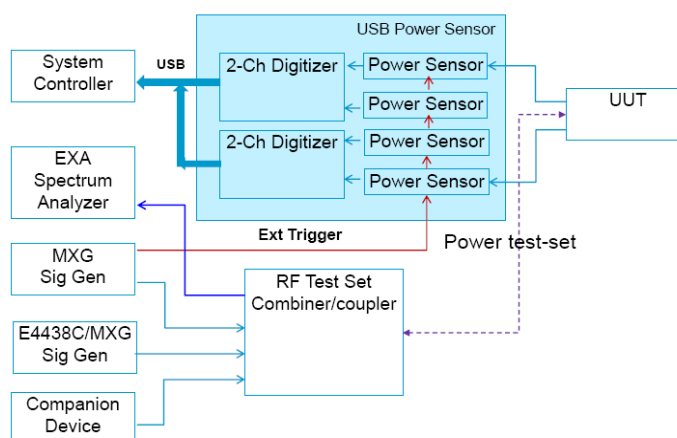
Clause	4.3.2.11				
Test Item	Receiver Blocking				
Limit	Adaptive equipment using wide band modulations other than FHSS, shall comply with the requirements defined in clauses 4.3.2.6.2 (non-LBT based DAA) or 4.3.2.6.3 (LBT based DAA) in the presence of a blocking signal with characteristics as provided in below table 6.				
	Equipment Type (LBT / non- LBT)	Wanted signal mean power from companion device	Blocking signal frequency [MHz]	Blocking signal power [dBm]	Type of interfering signal
	LBT	sufficient to maintain the link (see note 2)	2 395 or 2 488,5 (see note 1)	-35	CW
	Non-LBT	-30 dBm			
	NOTE 1: The highest blocking frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest blocking frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. See clause 5.3.7.1.				
NOTE 2: A typical value which can be used in most cases is -50 dBm/MHz.					

13.2 TEST PROCEDURES

Please refer to chapter 5.3.7 of ETSI EN 300 328 V1.9.1.

Test Method	
<input checked="" type="checkbox"/> Conducted Measurement	<input type="checkbox"/> Radiated Measurement
Test Channels	
<input type="checkbox"/> Lowest, Middle and highest Channel	<input checked="" type="checkbox"/> Lowest and highest Channel
<input type="checkbox"/> Two Adjacent Hopping Channel	<input type="checkbox"/> Two Hopping Channel
Environmental conditions	
<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> Normal and Extreme

13.3 TEST SETUP LAYOUT



13.4 TEST DEVIATION

There is no deviation with the original standard.

13.5 EUT OPERATION DURING TEST

The measurements shall be performed during normal operation.

13.6 TEST RESULTS

Please refer to the Attachment E

14. INFORMATION AS REQUIRED BY EN 300 328 V1.9.1, CLAUSE 5.3.1

In accordance with EN 300 328, clause 5.3.1, the following information is provided by the supplier.

14.1 The type of modulation used by the equipment:

- ☐ FHSS
☒ other forms of modulation

14.2 In case of FHSS modulation:

(1) In case of non-Adaptive Frequency Hopping equipment:

The number of Hopping Frequencies: N/A

(2) In case of Adaptive Frequency Hopping Equipment:

The maximum number of Hopping Frequencies: N/A

The minimum number of Hopping Frequencies: N/A

(3) The (average) Dwell Time: N/A

14.3 Adaptive / non-adaptive equipment:

- ☐ non-adaptive Equipment
☒ adaptive Equipment without the possibility to switch to a non-adaptive mode
☐ adaptive Equipment which can also operate in a non-adaptive mode

14.4 In case of adaptive equipment:

The Channel Occupancy Time implemented by the equipment: 1.18 ms

☒ The equipment has implemented an LBT based DAA mechanism

* In case of equipment using modulation different from FHSS:

- ☐ The equipment is Frame Based equipment
☒ The equipment is Load Based equipment
☐ The equipment can switch dynamically between Frame Based and Load Based

equipment

The CCA time implemented by the equipment: Not less 18 μ s

- ☐ The equipment has implemented a non-LBT based DAA mechanism
☐ The equipment can operate in more than one adaptive mode

14.5 The worst case operational mode for each of the following tests:

- (1) RF Output Power: 18.90 dBm
- (2) Power Spectral Density: 9.87 dBm
- (3) Duty cycle, Tx-Sequence, Tx-gap: N/A
- (4) Accumulated Transmit time, Frequency Occupation & Hopping Sequence (only for FHSS equipment): N/A
- (5) Hopping Frequency Separation (only for FHSS equipment) : N/A
- (6) Medium Utilisation: N/A
- (7) Adaptivity & Receiver Blocking: PASS
- (8) Nominal Channel Bandwidth: 36.489 MHz
- (9) Transmitter unwanted emissions in the OOB domain: -24.97 dBm
- (10) Transmitter unwanted emissions in the spurious domain: -60.83 dBm
- (11) Receiver spurious emissions: -61.51 dBm

14.6 The different transmit operating modes (tick all that apply):

- ☒ Operating mode 1: Single Antenna Equipment
 - ☒ Equipment with only 1 antenna
 - ☐ Equipment with 2 diversity antennas but only 1 antenna active at any moment in time
 - ☐ Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)
- ☐ Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming
 - ☐ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.
- ☐ Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming
 - ☐ Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

14.7 In case of Smart Antenna Systems:

(1) The number of Receive chains: N/A

(2) The number of Transmit chains: N/A

☐ symmetrical power distribution

☐ asymmetrical power distribution

In case of beam forming, the maximum (additional) beam forming gain: N/A dB

NOTE: The additional beam forming gain does not include the basic gain of a single antenna.

14.8 Operating Frequency Range(s) of the equipment:

(1) Operating Frequency Range 1: 2412 MHz to 2472 MHz

NOTE: Add more lines if more Frequency Ranges are supported.

14.9 Nominal Channel Bandwidth(s):

(1) Nominal Channel Bandwidth 1: 36.489 MHz

NOTE: Add more lines if more channel bandwidths are supported.

14.10 Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

☐ Stand-alone

☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☒ Plug-in radio device (Equipment intended for a variety of host systems)

☐ Other _____

14.11 The extreme operating conditions that apply to the equipment:

Operating temperature range: -20 ° C to 70 ° C

Details provided are for the: ☐ stand-alone equipment

☒ combined (or host) equipment

☐ test jig

14.12 The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:

Details provided are for the: ☐ stand-alone equipment
☒ combined (or host) equipment
☐ test jig

Supply voltage ☐ AC Mains State AC voltage _____ V
☒ DC State DC voltage 5 V

In case of DC, indicate the type of power source

- ☐ Internal Power Supply
- ☐ External Power Supply or AC/DC adapter
- ☐ Battery
- ☒ Other: Supplied from host system.

14.13 Describe the test modes available which can facilitate testing:

The measurements shall be performed during continuously transmitting and normal operation.

14.14 The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], IEEE 802.15.4™ [i.4], proprietary, etc.):

IEEE 802.11™ [i.3]

15. MEASUREMENT INSTRUMENTS LIST

RF Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Sensor	Agilent	U2021XA	MY53020007	Jul. 31, 2016
2	Power Sensor	Agilent	U2021XA	MY53130004	Jul. 31, 2016
3	Power Sensor	Agilent	U2021XA	MY53260025	Jul. 31, 2016
4	Power Sensor	Agilent	U2021XA	MY53180019	Jul. 31, 2016
5	Usb Digitizer	Agilent	U2531A	5258020007	Jul. 31, 2016
6	Test Cable	emci	EMC104-SM-S M-9000(0.01G Hz – 26.5GHz)	C-100	N/A
7	Test Cable	emci	EMC80-NM-N M-12000(9KHz -1GHz)	C-65	N/A
8	Const Temp. & Hu midity Chamber	Giant Force	ITH-225-20-S	IAB0309-001	Dec. 11, 2016

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	Test Cable	emci	EMC104-SM-S M-9000(0.01G Hz – 26.5GHz)	C-100	N/A

Adaptivity & Receiver Blocking					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	MXG Vector Signal Generator	Agilent	N5172B	MY51350711	Mar. 28, 2016
3	Microflex Cable	NA	NA	1m	Jan. 17, 2016
4	POWER SPLITTER	Mimi-Circuits	ZFRSC-183-S +	SF601301339 -1	Mar. 10, 2016
5	POWER SPLITTER	Mimi-Circuits	ZFRSC-183-S +	SF601301339 -2	Mar. 17, 2016
6	COUPLER	Mimi-Circuits	ZADC-10-63-S +	SF631801334	Mar. 10, 2016

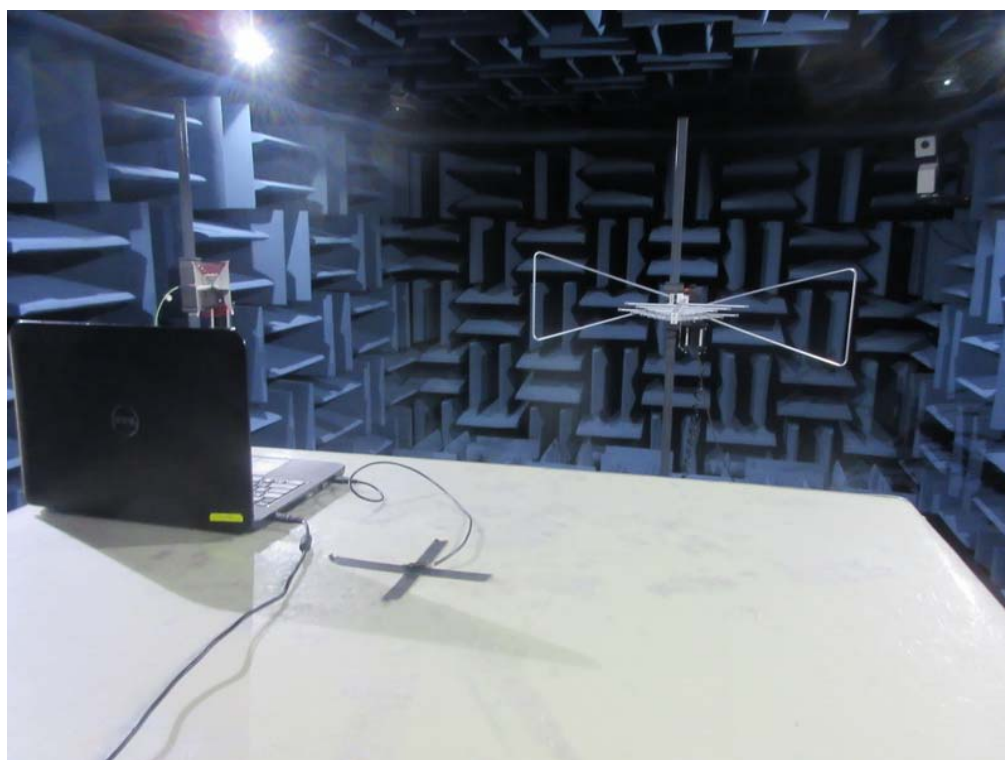
Occupied Channel Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	Test Cable	emci	EMC104-SM-S M-9000(0.01G Hz – 26.5GHz)	C-100	N/A

Transmitter Unwanted Out Of Band Domain					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	Test Cable	emci	EMC104-SM-S M-9000(0.01G Hz – 26.5GHz)	C-100	N/A
3	Const Temp. & Humidity Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec. 11, 2016

Transmitter and Receiver Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC012645B	980221	Dec. 04, 2016
3	Amplifier	Agilent	8449B	3008A02274	Nov. 01, 2016
4	Double Ridged Guide Antenna	ETS·LINDGREN	3115	00075846	Mar. 28, 2016
5	Antenna	SCHWARZBECK	VULB 9160	9160-3231	Mar. 28, 2016
6	Test Cable	emci	EMC104-SM-S M-9000(0.01G Hz – 26.5GHz)	C-100	N/A
7	Test Cable	emci	EMC80-NM-N M-12000(9KHz -1GHz)	C-65	N/A
8	Controller	CT	SC100	N/A	N/A

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

16. EUT TEST PHOTO



ATTACHMENT A - RF OUTPUT POWER

Test Mode:	TX Mode_ 802.11b Mode
Date of Test:	Nov. 29, 2015

Test Conditions		EIRP Power (dBm)			Number Of Bursts		
		CH01	CH07	CH13	CH01	CH07	CH13
T nom (°C)	25	18.81	18.75	18.90	11.00	12.00	11.00
T min (°C)	-20	18.79	18.73	18.88	11.00	12.00	11.00
T max (°C)	70	18.80	18.74	18.89	11.00	12.00	11.00
Max EIRP Power		18.90			11.00		
Limits		20dBm (-10dBW)			≥10		
Result		Complies			Complies		

Test Mode:	TX Mode_ 802.11g Mode
Date of Test:	Nov. 29, 2015

Test Conditions		EIRP Power (dBm)			Number Of Bursts		
		CH01	CH07	CH13	CH01	CH07	CH13
T nom (°C)	25	16.99	16.86	16.54	11.00	11.00	13.00
T min (°C)	-20	16.97	16.84	16.52	11.00	11.00	13.00
T max (°C)	70	16.96	16.83	16.51	11.00	11.00	13.00
Max EIRP Power		16.99			11.00		
Limits		20dBm (-10dBW)			≥10		
Result		Complies			Complies		

Test Mode:	TX Mode_ 802.11n 20M Mode
Date of Test:	Nov. 29, 2015

Test Conditions		EIRP Power (dBm)			Number Of Bursts		
		CH01	CH07	CH13	CH01	CH07	CH13
T nom (°C)	25	14.78	14.87	14.56	12.00	13.00	11.00
T min (°C)	-20	14.76	14.85	14.54	12.00	13.00	11.00
T max (°C)	70	14.75	14.84	14.53	12.00	13.00	11.00
Max EIRP Power		14.87			11.00		
Limits		20dBm (-10dBW)			≥10		
Result		Complies			Complies		

Test Mode:	TX Mode_ 802.11n 40M Mode
Date of Test:	Nov. 29, 2015

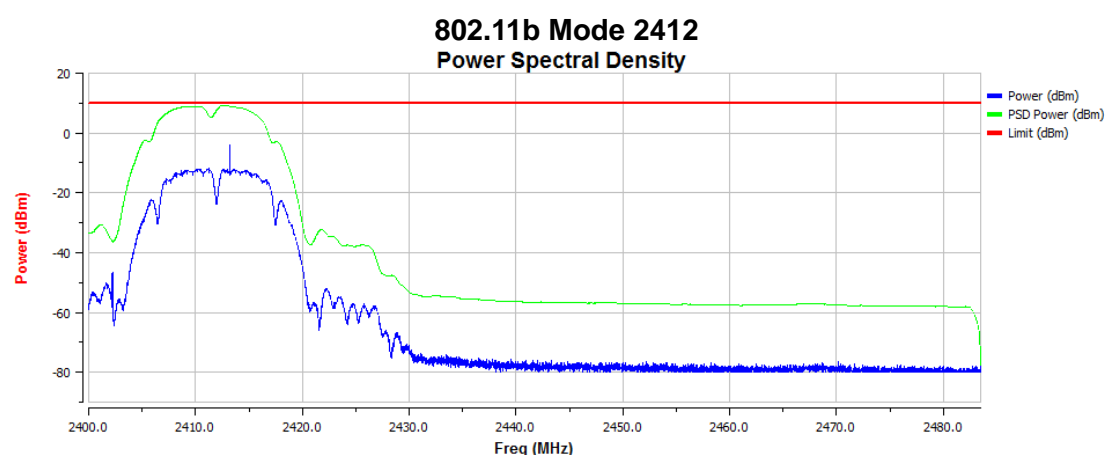
Test Conditions		EIRP Power (dBm)			Number Of Bursts		
		CH03	CH07	CH11	CH03	CH07	CH11
T nom (°C)	25	14.87	14.84	14.85	13.00	11.00	11.00
T min (°C)	-20	14.85	14.82	14.83	13.00	11.00	11.00
T max (°C)	70	14.84	14.81	14.82	13.00	11.00	11.00
Max EIRP Power		14.87			11.00		
Limits		20dBm (-10dBW)			≥10		
Result		Complies			Complies		

Note: EIRP Power = output power conducted + G ant

ATTACHMENT B - POWER SPECTRAL DENSITY

Test Mode:	TX Mode_ 802.11b Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
2412	9.10	10.00	Pass
2442	9.53	10.00	Pass
2472	9.87	10.00	Pass



PSD Calculate

Refresh

Test Memo

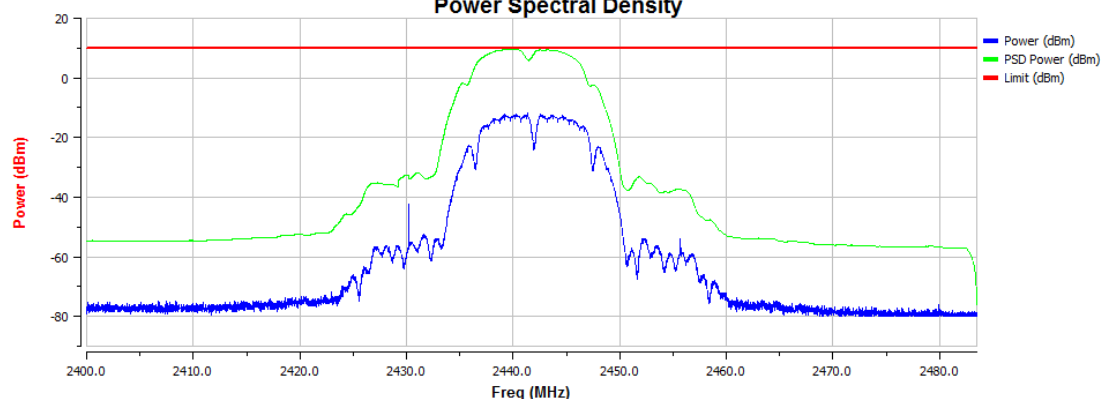
Power Spectral Deseity

Max PSD Level (dBm / MHz) : 9.10

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11b Mode 2442 Power Spectral Density



PSD Calculate

Refresh

Test Memo

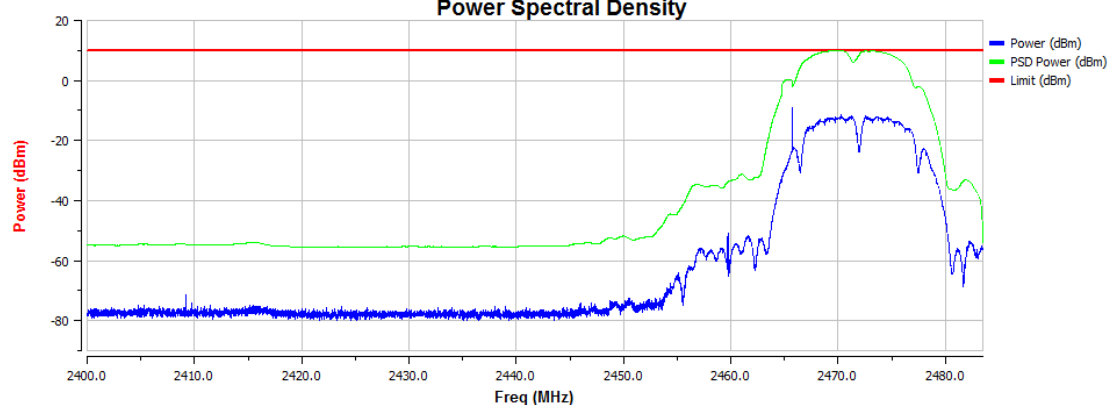
Power Spectral Deseity

Max PSD Level (dBm / MHz) : 9.53

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11b Mode 2472 Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

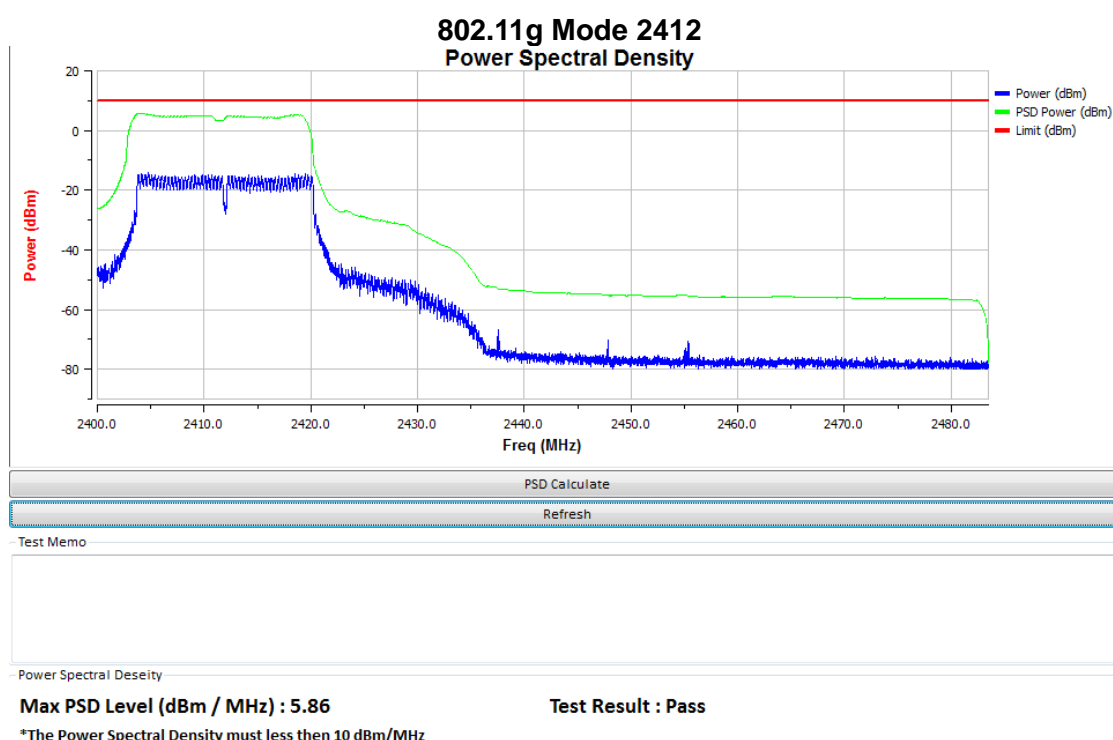
Max PSD Level (dBm / MHz) : 9.87

Test Result : Pass

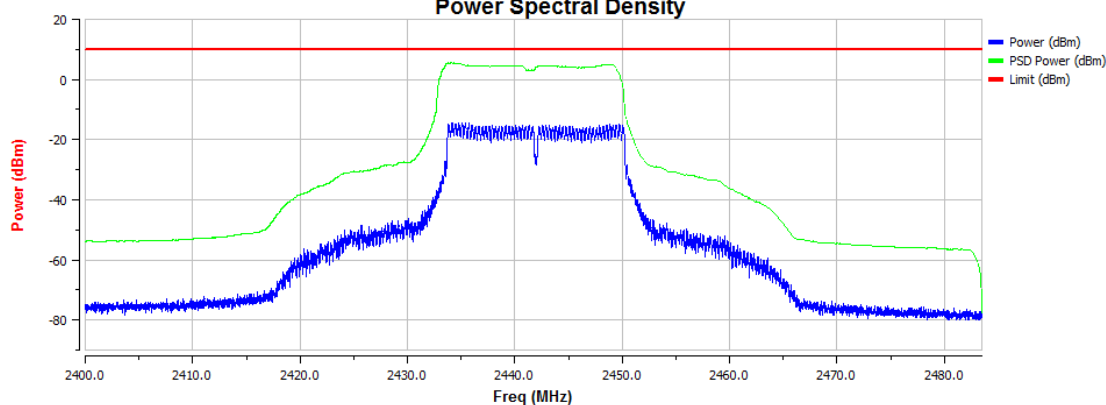
*The Power Spectral Density must less then 10 dBm/MHz

Test Mode:	TX Mode_ 802.11g Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
2412	5.86	10.00	Pass
2442	5.58	10.00	Pass
2472	5.58	10.00	Pass



802.11g Mode 2442 Power Spectral Density



PSD Calculate

Refresh

Test Memo

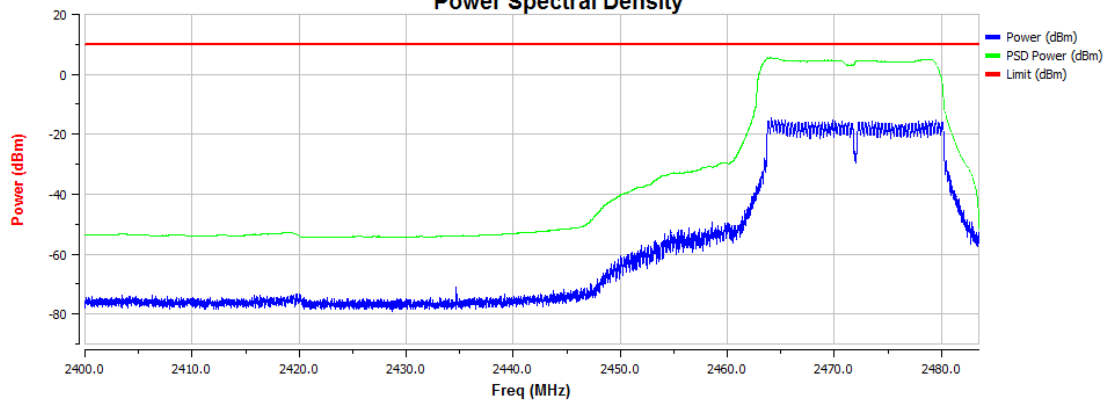
Power Spectral Deseity

Max PSD Level (dBm / MHz) : 5.58

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11g Mode 2472 Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

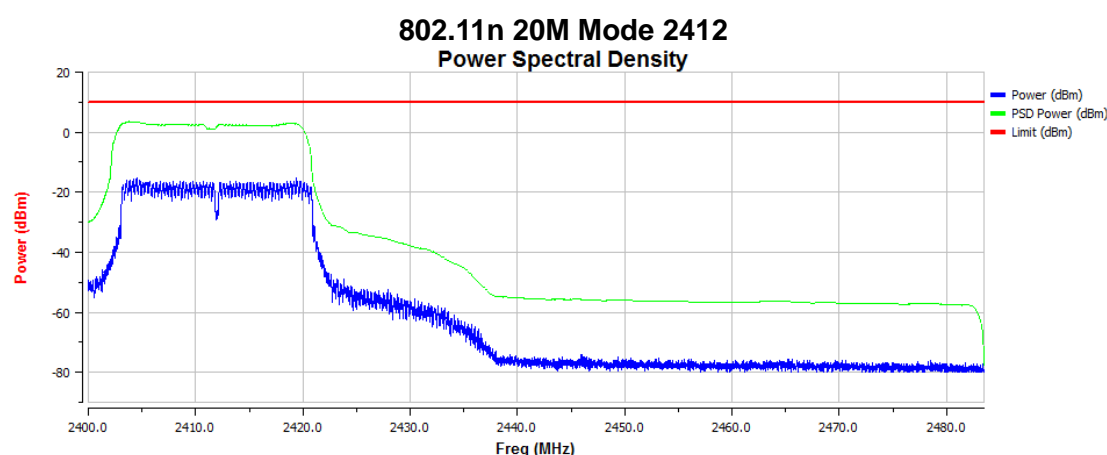
Max PSD Level (dBm / MHz) : 5.58

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

Test Mode:	TX Mode_ 802.11n 20M Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
2412	3.56	10.00	Pass
2442	3.46	10.00	Pass
2472	3.23	10.00	Pass



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

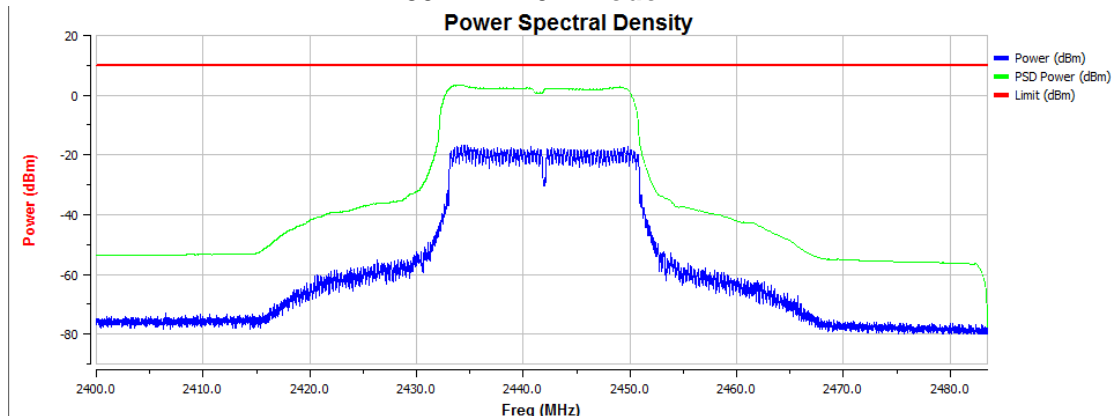
Max PSD Level (dBm / MHz) : 3.56

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11n 20M Mode 2442

Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

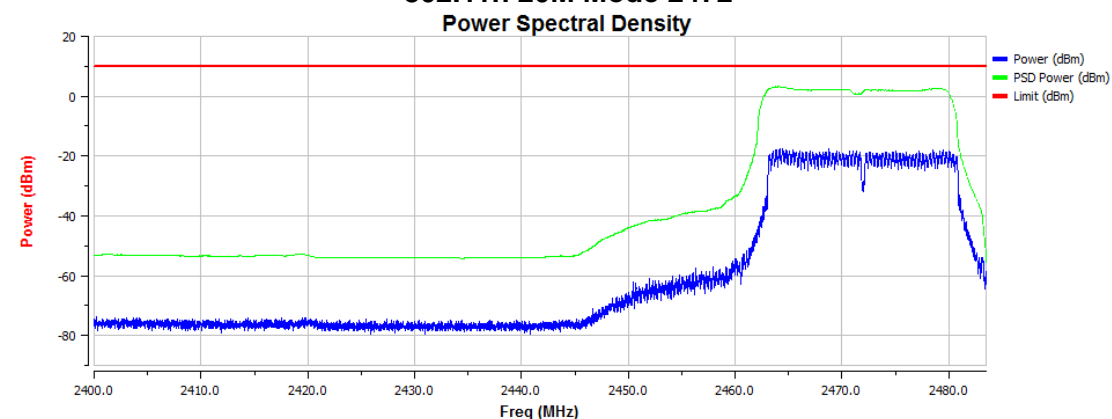
Max PSD Level (dBm / MHz) : 3.46

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11n 20M Mode 2472

Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

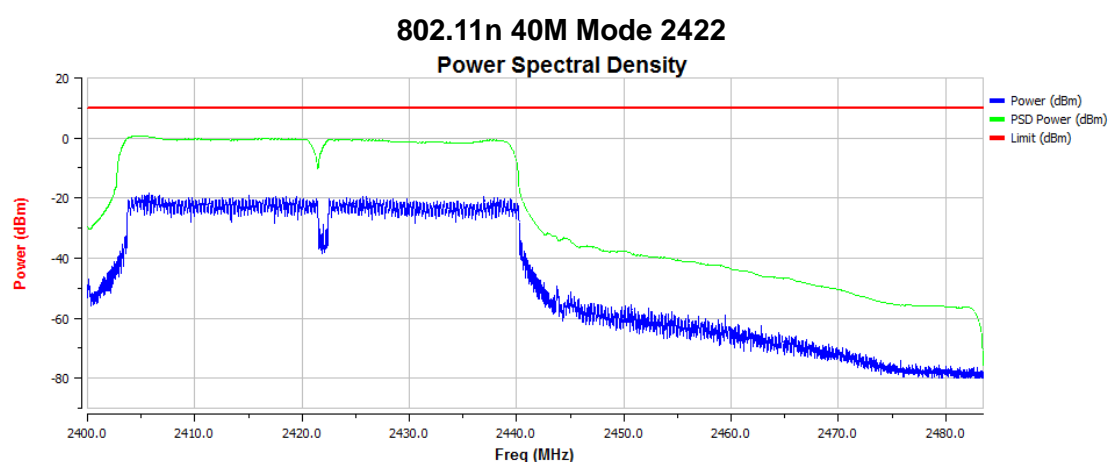
Max PSD Level (dBm / MHz) : 3.23

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

Test Mode:	TX Mode_ 802.11n 40M Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
2422	0.85	10.00	Pass
2442	0.55	10.00	Pass
2462	0.81	10.00	Pass



PSD Calculate

Refresh

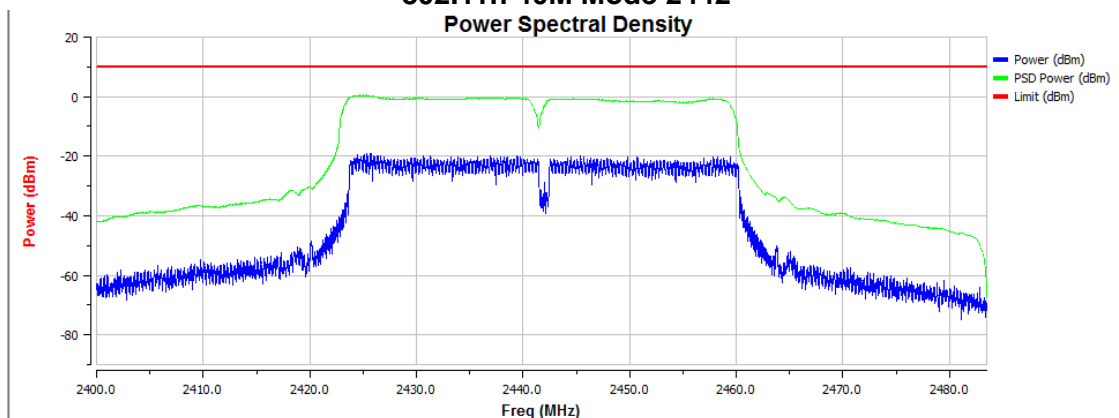
Power Spectral Density

Max PSD Level (dBm / MHz) : 0.85 **Test Result : Pass**

*The Power Spectral Density must less then 10 dBm/MHz

802.11n 40M Mode 2442

Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

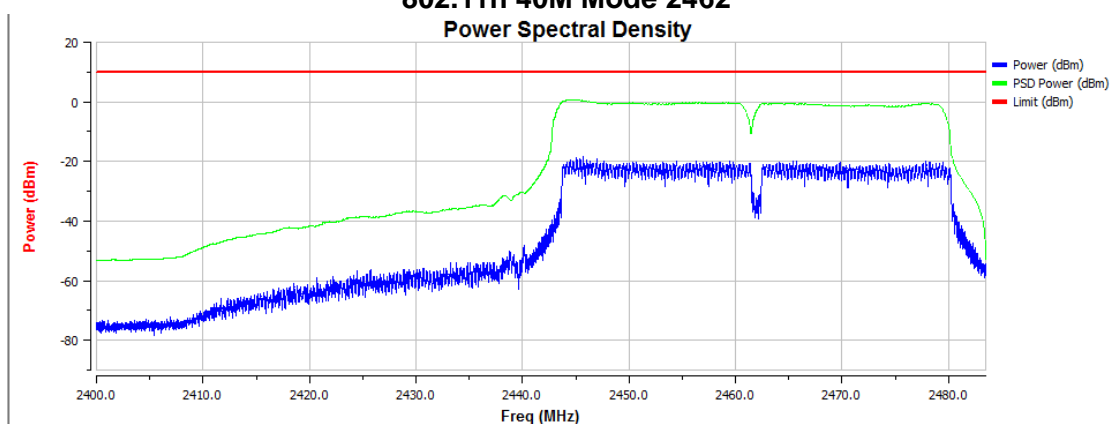
Max PSD Level (dBm / MHz) : 0.55

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

802.11n 40M Mode 2462

Power Spectral Density



PSD Calculate

Refresh

Test Memo

Power Spectral Deseity

Max PSD Level (dBm / MHz) : 0.81

Test Result : Pass

*The Power Spectral Density must less then 10 dBm/MHz

ATTACHMENT C - DUTY CYCLE, TX-SEQUENCE, TX-GAP

Test Mode: N/A

Note: "N/A" denotes test is not applicable to this device.

ATTACHMENT D - MEDIUM UTILISATION (MU) FACTOR

Test Mode: N/A

Note: "N/A" denotes test is not applicable to this device.

ATTACHMENT E - ADAPTIVITY AND RECEIVER BLOCKING

1. List of measurements

UUT Operational Mode	Frame Based Equipment	
	Load Based Equipment (CCA using 'energy detect')	√
	Load Based Equipment (CCA not using any of the mechanisms referenced)	

Clause	Test Parameter	Remarks	Pass / Fail
4.3.2.6.3.2.2	Adaptive (Frame Based Equipment)	Not Applicable	N/A
4.3.2.6.3.2.3	Adaptive (Load Based Equipment)	Applicable	Pass
4.3.2.6.4	Short Control Signaling Transmissions	Applicable	Pass
4.3.2.11	Receiver Blocking	Applicable	Pass

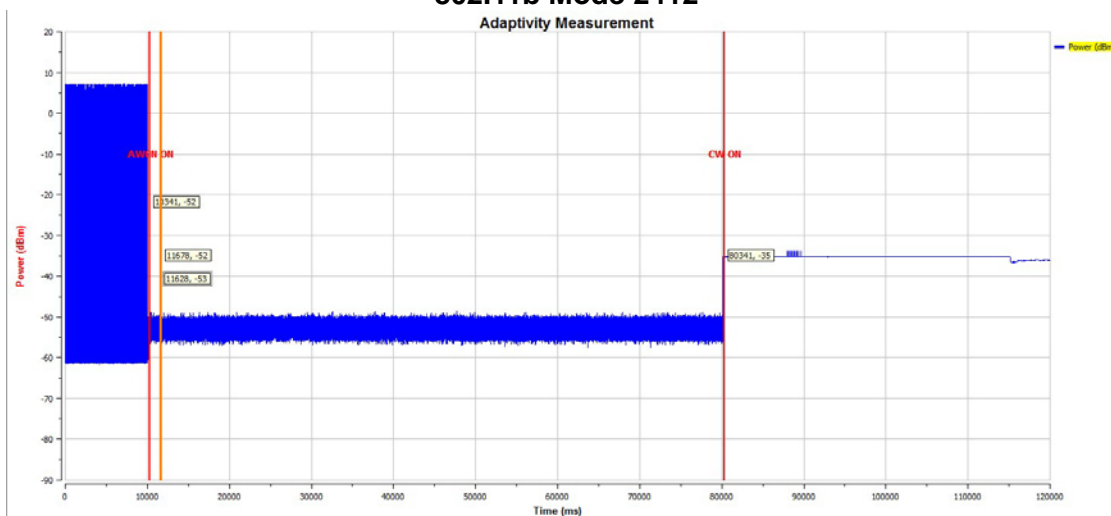
Test Mode:	TX Mode_ 802.11b Mode
Date of Test:	Dec. 19, 2015

Channel Occupancy Time and Idle Periodic Time Measured Results		
Freq.(MHz)	Channel Occupancy Time (ms)	Idle Periodic Time (us)
2412	0.20	18
2472	0.30	18
Note: Channel Occupancy Time and Idle Periodic Time follow as IEEE Std. 802.11-2007 and IEEE 802.11n-2009 Specification without restriction.		

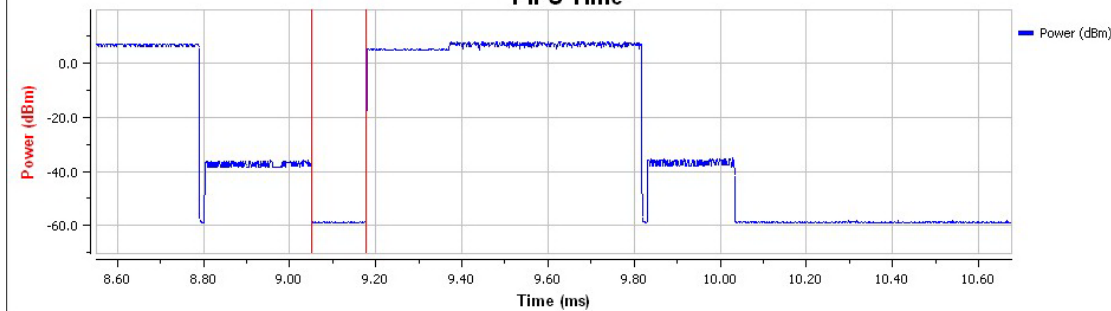
Adaptivity & Receiver Blocking			
Adaptivity Detection Threshold Level	2412 MHz	-68.81 dBm/MHz	
	2472 MHz	-68.90 dBm/MHz	
Receiver Blocking Signal Level	-35 dBm		
Freq.(MHz)	Adaptivity	Receiver Blocking test Status	Short Control Signalling Transmissions (ms)
2412	Pass	Pass	1.100
2472	Pass	Pass	0
Limit	N/A	N/A	5
Result	Pass		
Note: Threshold Level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p)/1 MHz (Pout in dBm). Short Control Signalling Transmissions = 50 (ms) * Duty cycle (%)			

802.11b Mode 2412

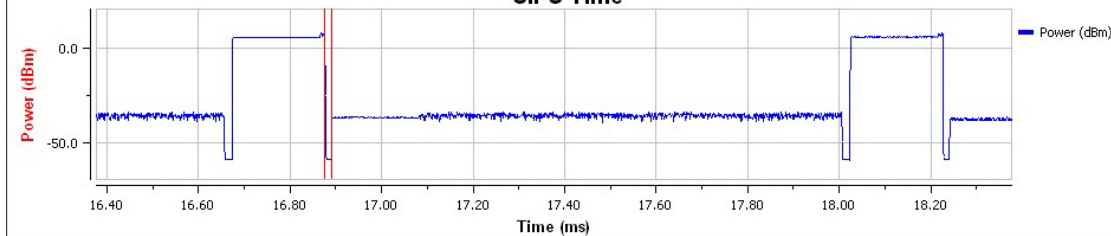
Adaptivity Measurement



PIFS Time



SIFS Time



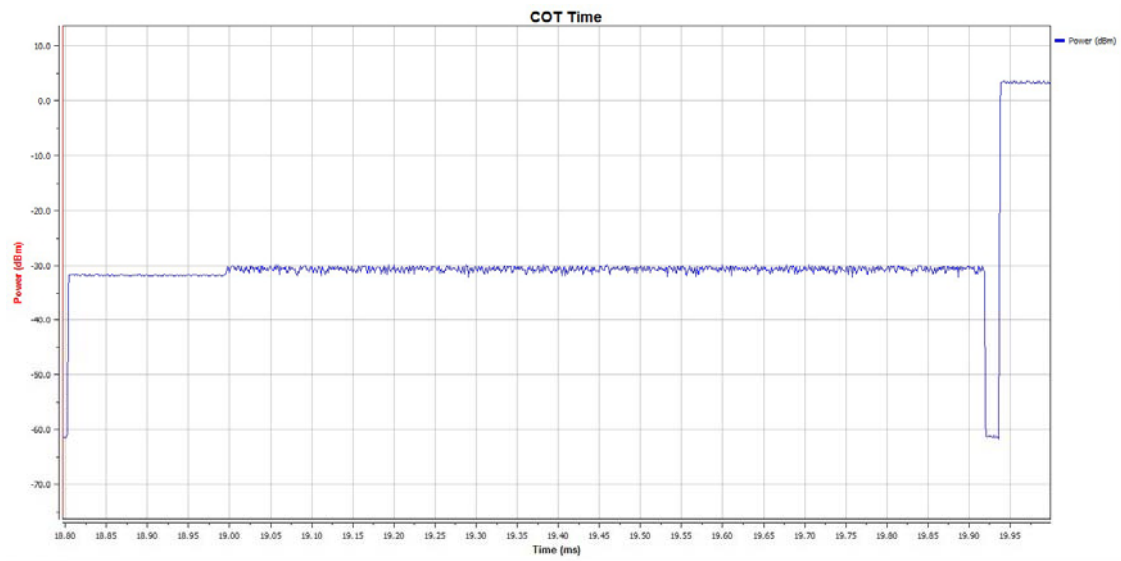
CCA Time Info

Maximum CCA time could between 18us ~ 160us

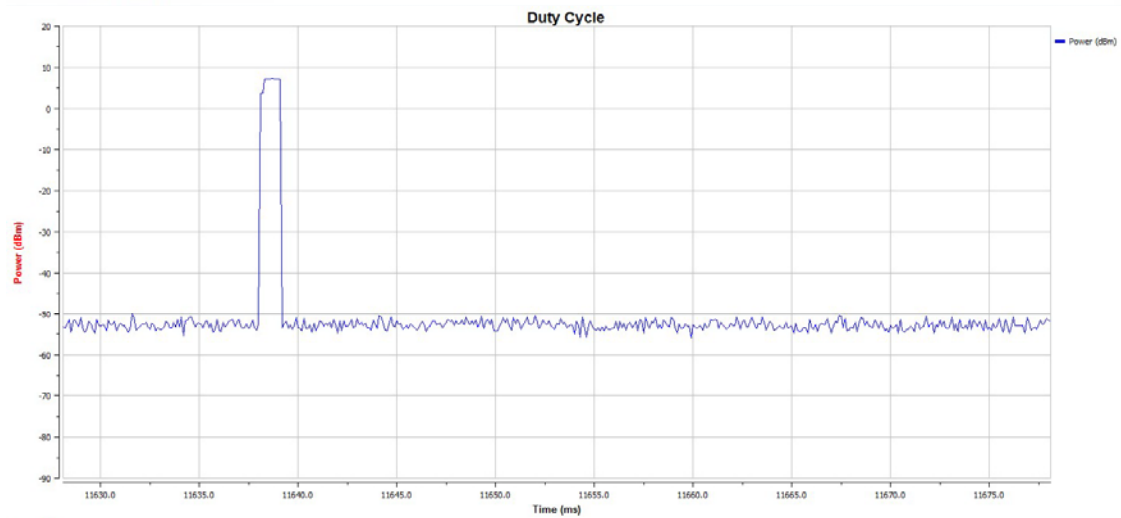
PIFS (us) : 126.00

SIFS (us) : 13.00

Measured CCA (us) : 102.01



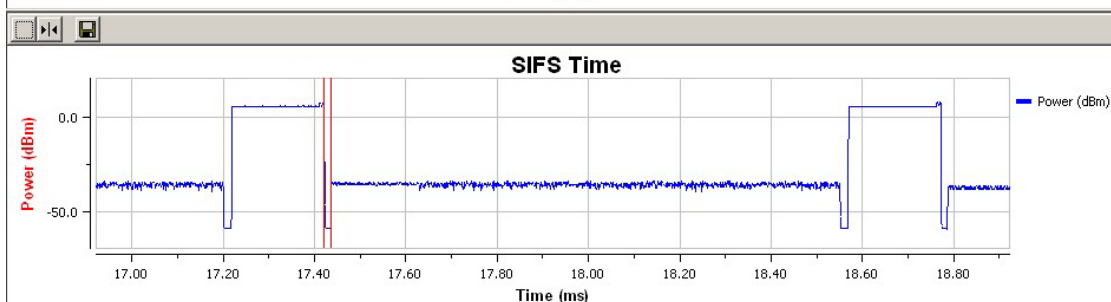
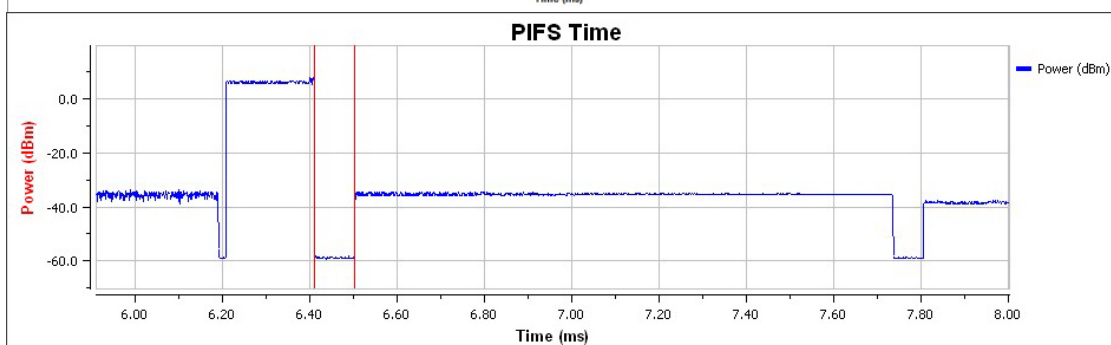
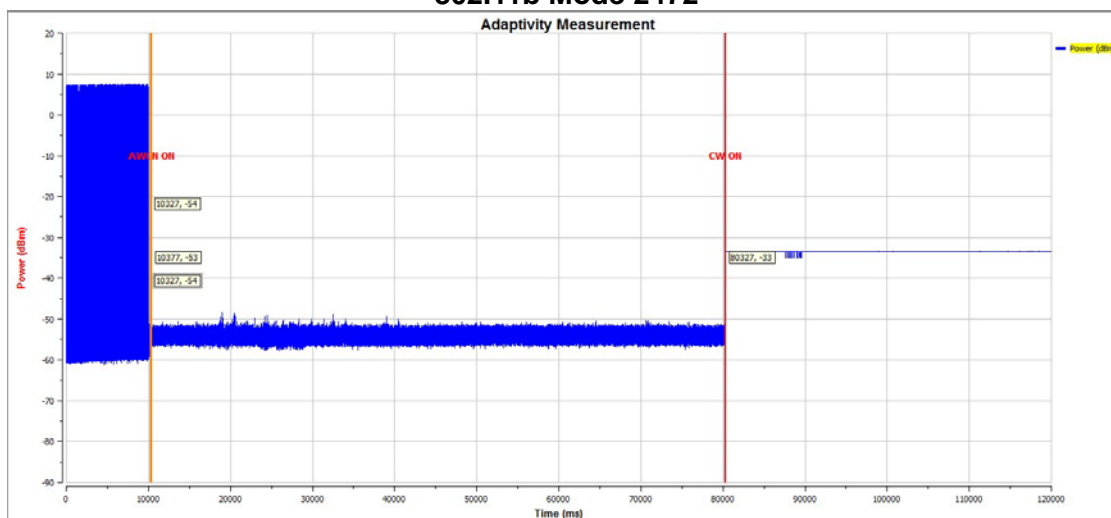
COT Time Info
Max Channel Occupancy Time (ms) : 0.20



Duty Cycle Info
Test Result : Pass
 T2 (ms) : 11678.10 **Duty Cycle (%) : 2.20**

*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

802.11b Mode 2472



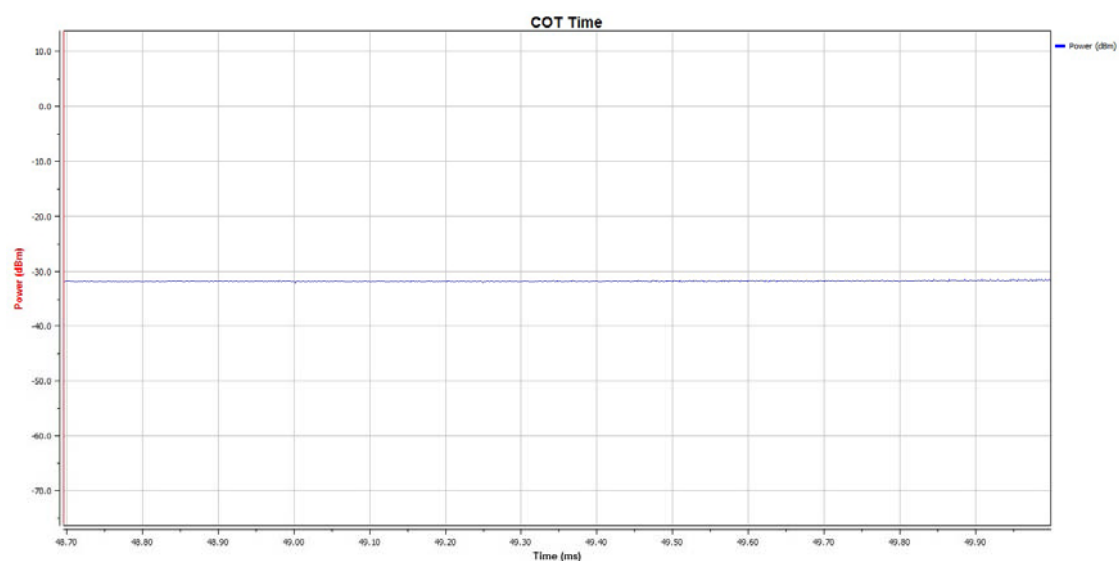
CCA Time Info

Maximum CCA time could between 18us ~ 160us

PIFS (us) : 92.00

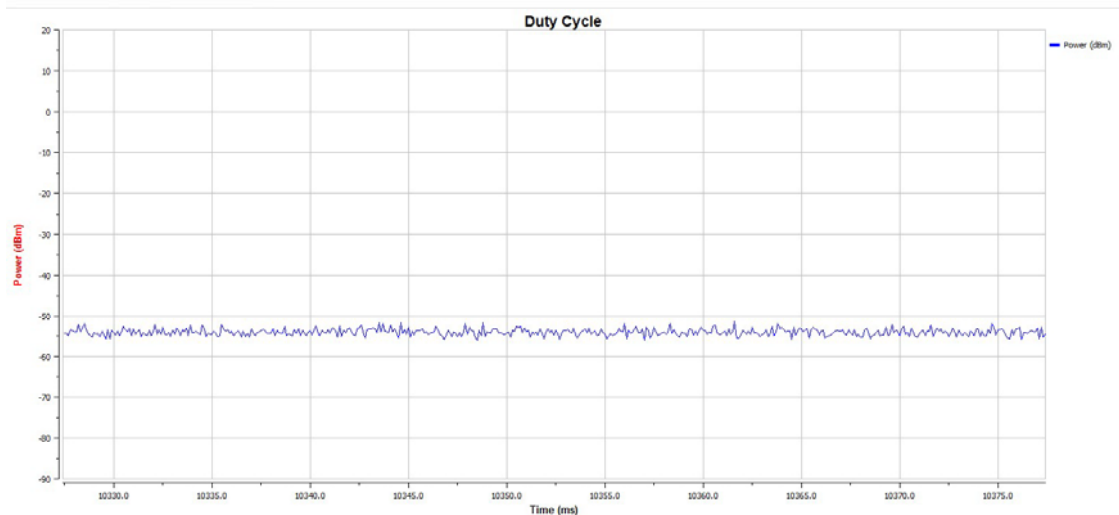
SIFS (us) : 13.00

Measured CCA (us) : 66.00



COT Time Info

Max Channel Occupancy Time (ms) : 0.30



Duty Cycle Info

Test Result : Pass

T2 (ms) : 10377.41

Duty Cycle (%) : 0.00

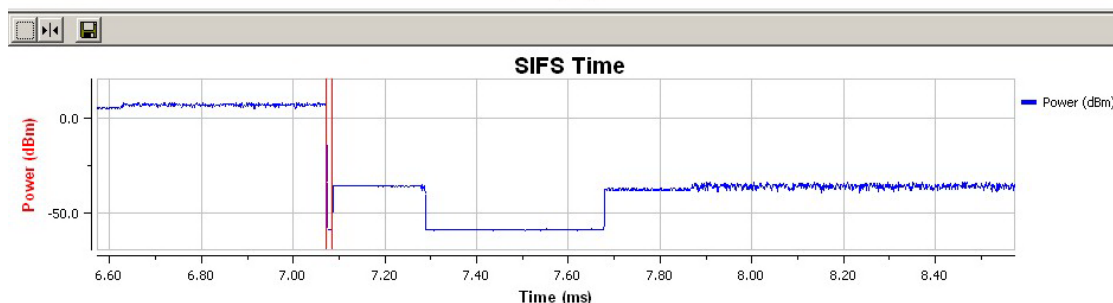
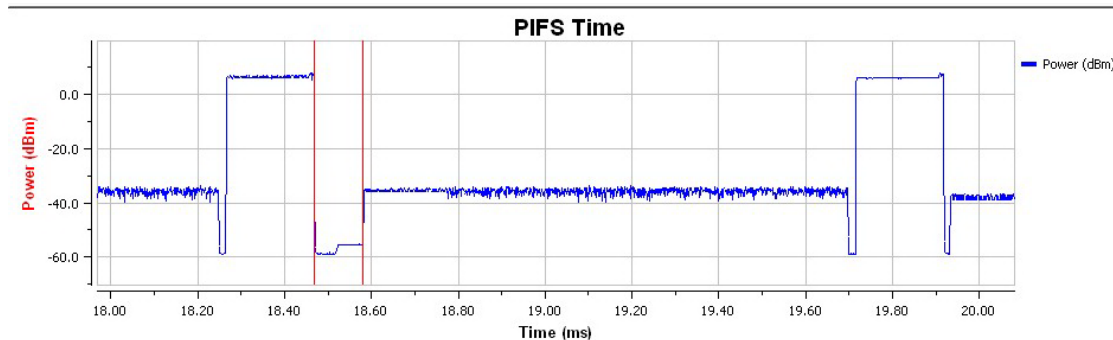
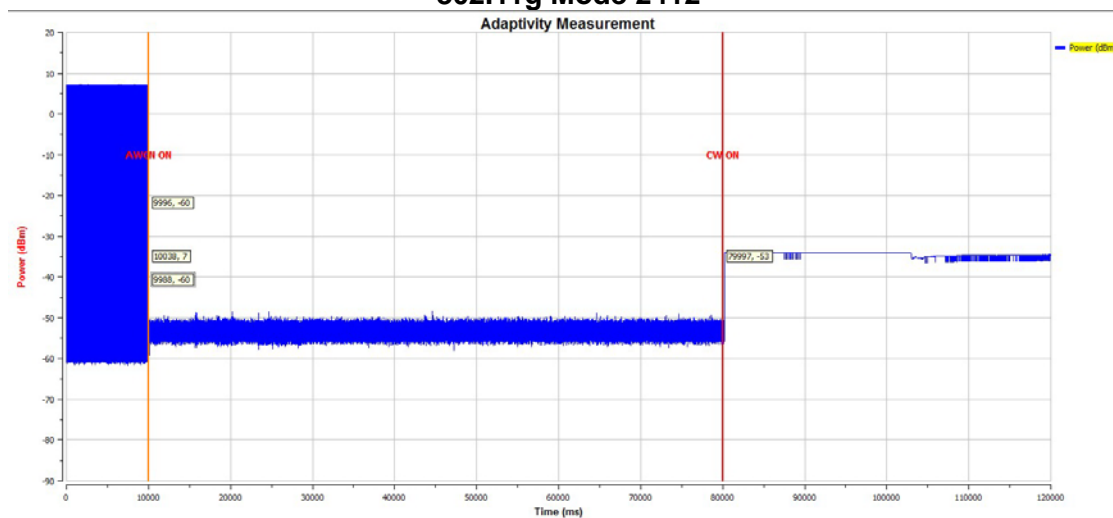
*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

Test Mode:	TX Mode_ 802.11g Mode
Date of Test:	Dec. 19, 2015

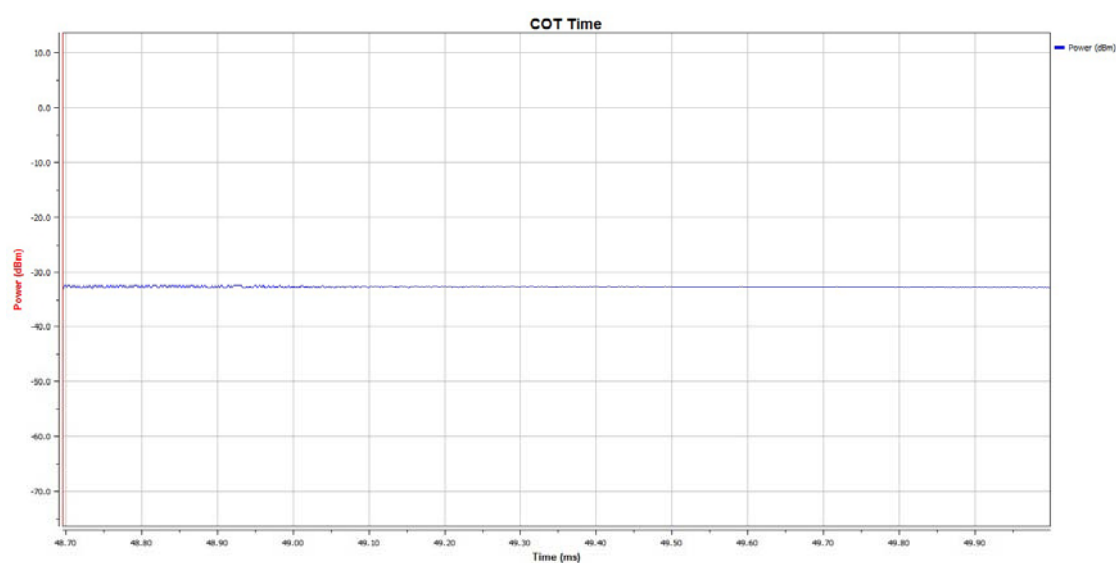
Channel Occupancy Time and Idle Periodic Time Measured Results		
Freq.(MHz)	Channel Occupancy Time (ms)	Idle Periodic Time (us)
2412	0.30	18
2472	0.25	18
Note: Channel Occupancy Time and Idle Periodic Time follow as IEEE Std. 802.11-2007 and IEEE 802.11n-2009 Specification without restriction.		

Adaptivity & Receiver Blocking			
Adaptivity Detection Threshold Level	2412 MHz	-66.99 dBm/MHz	
	2472 MHz	-66.54 dBm/MHz	
Receiver Blocking Signal Level	-35 dBm		
Freq.(MHz)	Adaptivity	Receiver Blocking test Status	Short Control Signalling Transmissions (ms)
2412	Pass	Pass	0
2472	Pass	Pass	0
Limit	N/A	N/A	5
Result	Pass		
Note: Threshold Level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p)/1 MHz (Pout in dBm). Short Control Signalling Transmissions = 50 (ms) * Duty cycle (%)			

802.11g Mode 2412

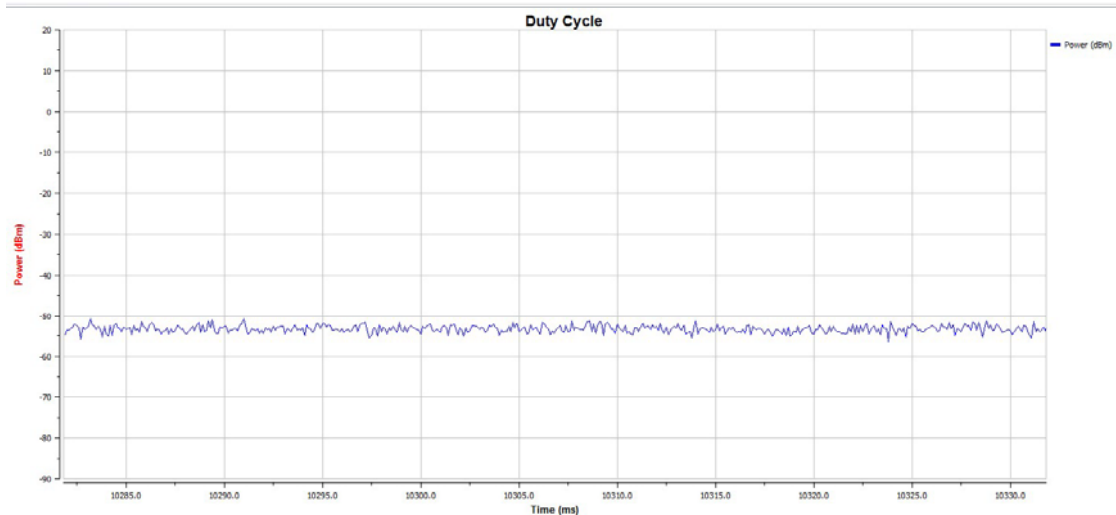


CCA Time Info		
Maximum CCA time could between 15us ~ 160us	PIFS (us) : 112.00	SIFS (us) : 12.00
Measured CCA (us) : 88.00		



COT Time Info

Max Channel Occupancy Time (ms) : 0.30



Duty Cycle Info

Test Result : Pass

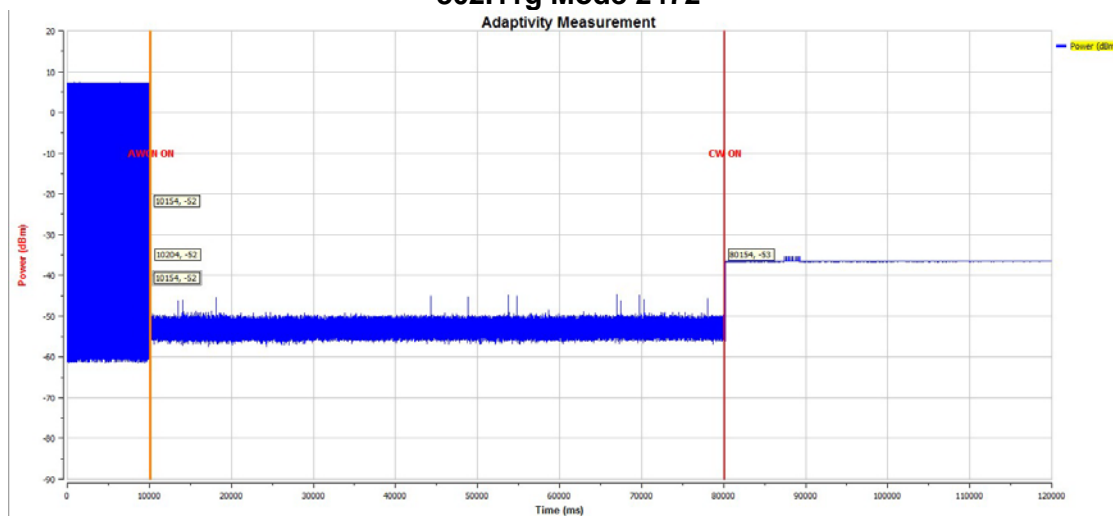
T2 (ms) : 10331.83

Duty Cycle (%) : 0.00

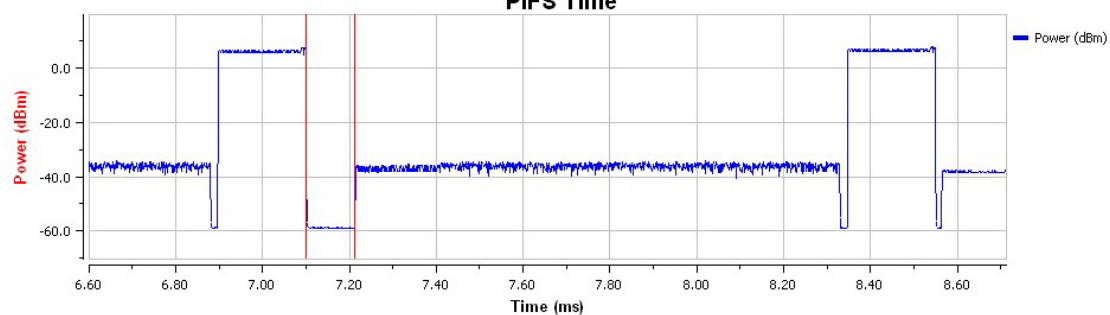
*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

802.11g Mode 2472

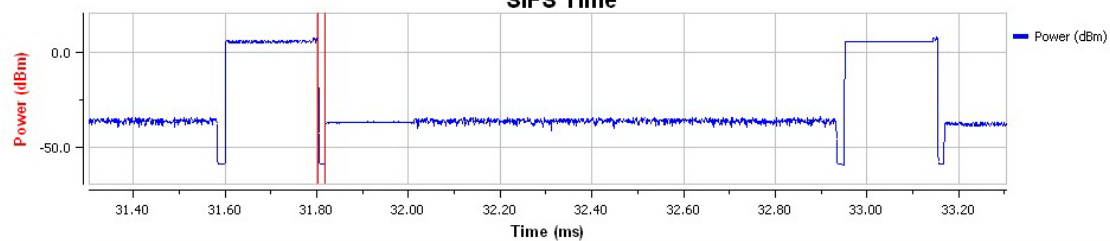
Adaptivity Measurement



PIFS Time



SIFS Time



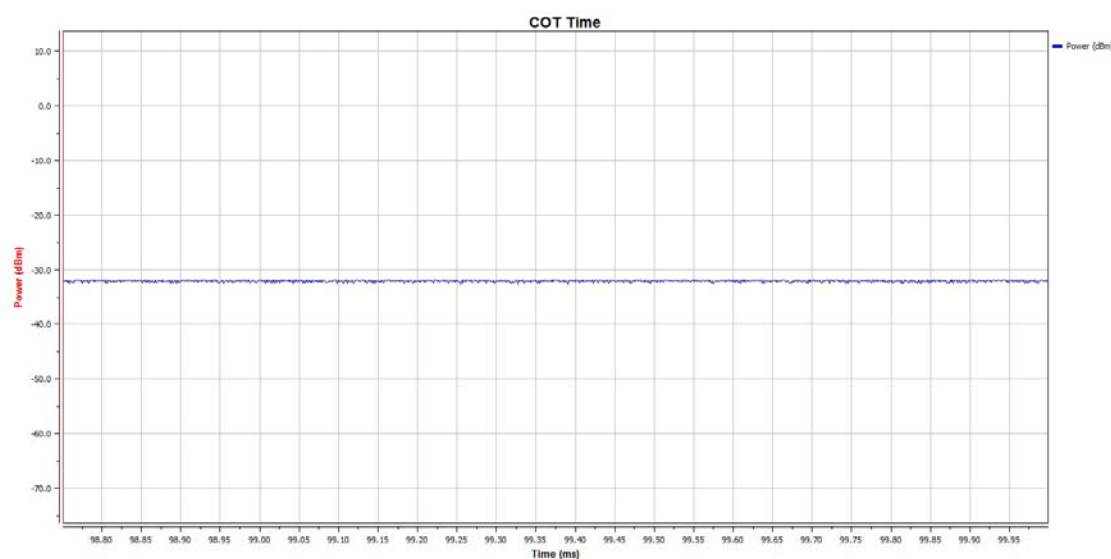
CCA Time Info

Maximum CCA time could between 18us ~ 160us

PIFS (us) : 112.00

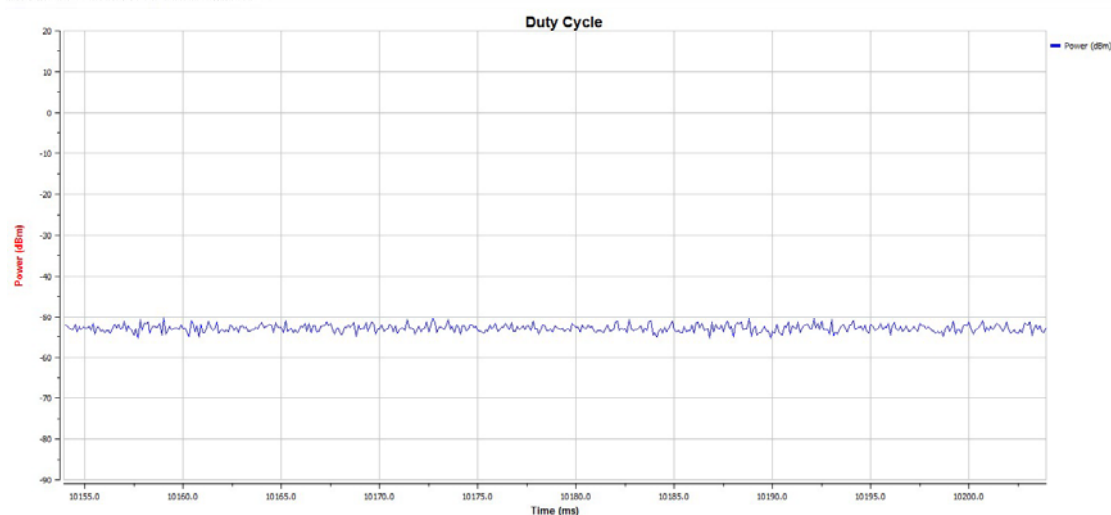
SIFS (us) : 13.00

Measured CCA (us) : 86.00



COT Time Info

Max Channel Occupancy Time (ms) : 0.25



Duty Cycle Info

Test Result : Pass

T2 (ms) : 10209.92

Duty Cycle (%) : 0.00

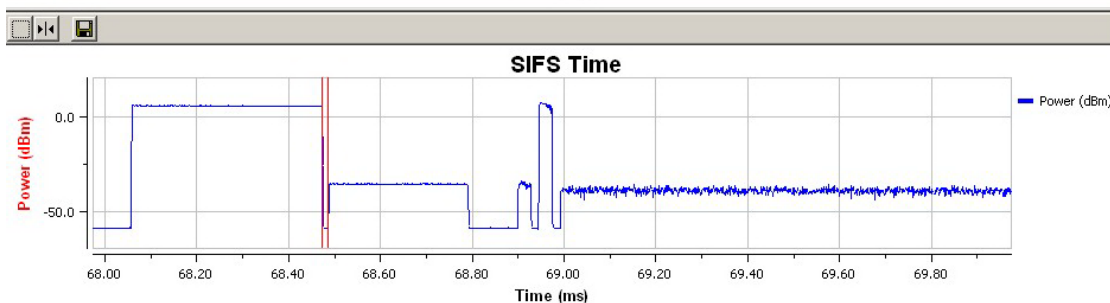
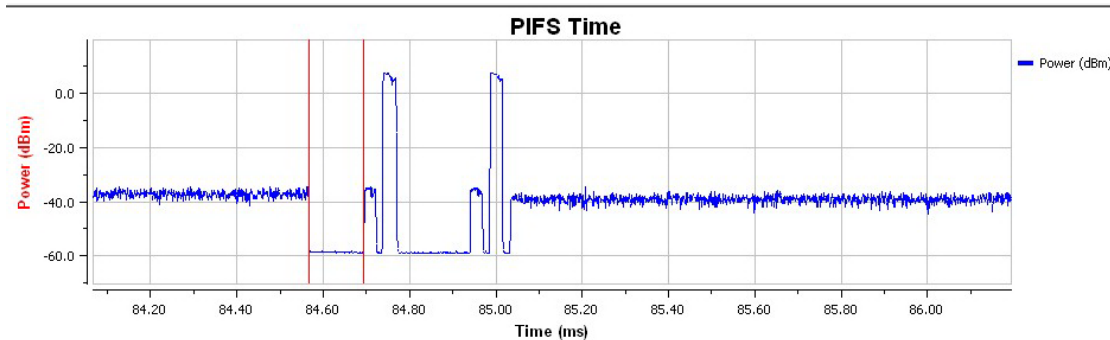
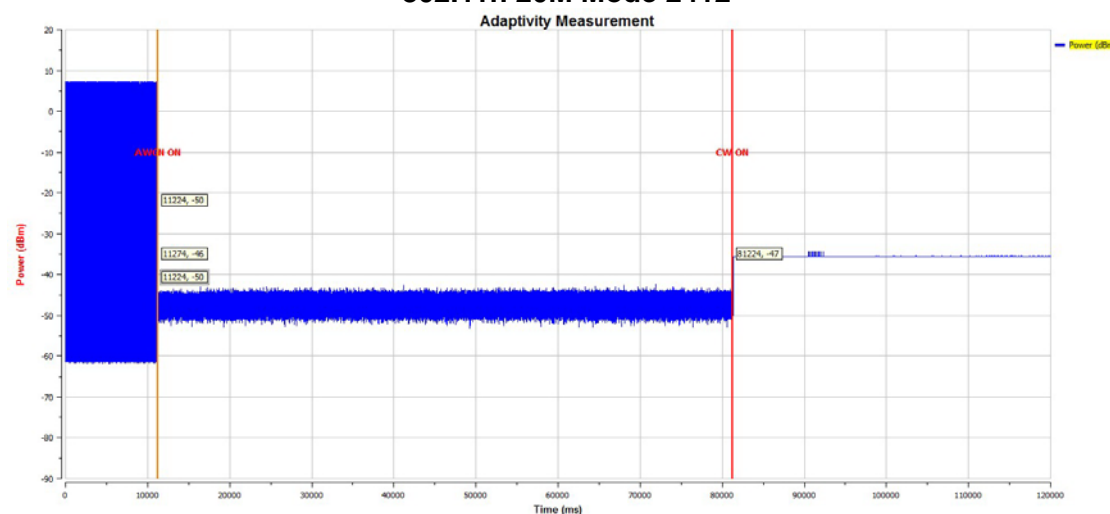
*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

Test Mode:	TX Mode_ 802.11n 20M Mode
Date of Test:	Dec. 19, 2015

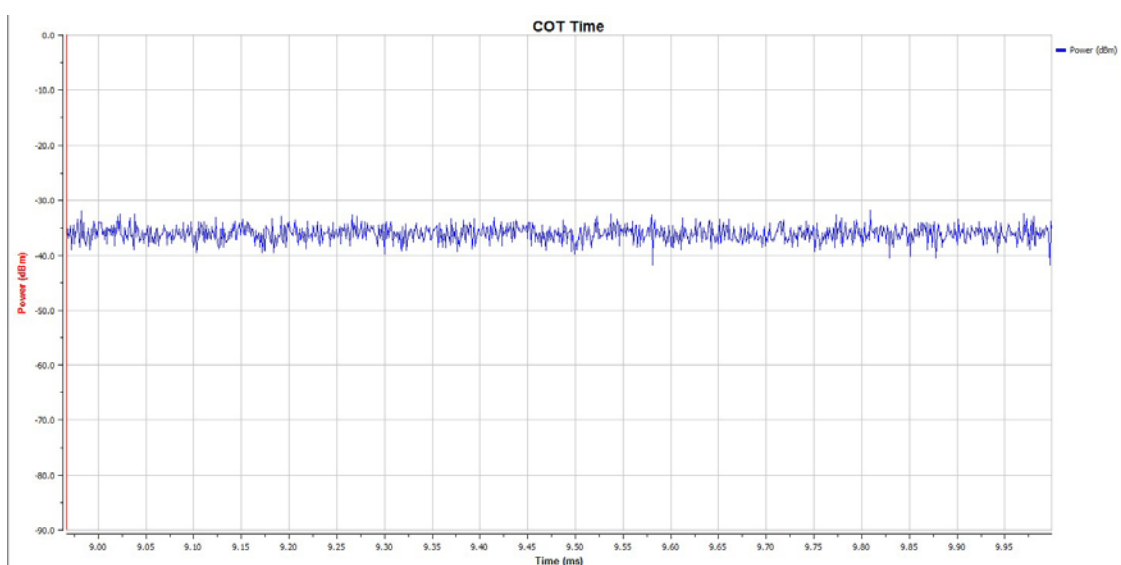
Channel Occupancy Time and Idle Periodic Time Measured Results		
Freq.(MHz)	Channel Occupancy Time (ms)	Idle Periodic Time (us)
2412	0.03	18
2472	1.18	18
Note: Channel Occupancy Time and Idle Periodic Time follow as IEEE Std. 802.11-2007 and IEEE 802.11n-2009 Specification without restriction.		

Adaptivity & Receiver Blocking			
Adaptivity Detection Threshold Level	2412 MHz	-64.78 dBm/MHz	
	2472 MHz	-64.56 dBm/MHz	
Receiver Blocking Signal Level	-35 dBm		
Freq.(MHz)	Adaptivity	Receiver Blocking test Status	Short Control Signalling Transmissions (ms)
2412	Pass	Pass	0
2472	Pass	Pass	0
Limit	N/A	N/A	5
Result	Pass		
Note: Threshold Level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p)/1 MHz (Pout in dBm). Short Control Signalling Transmissions = 50 (ms) * Duty cycle (%)			

802.11n 20M Mode 2412

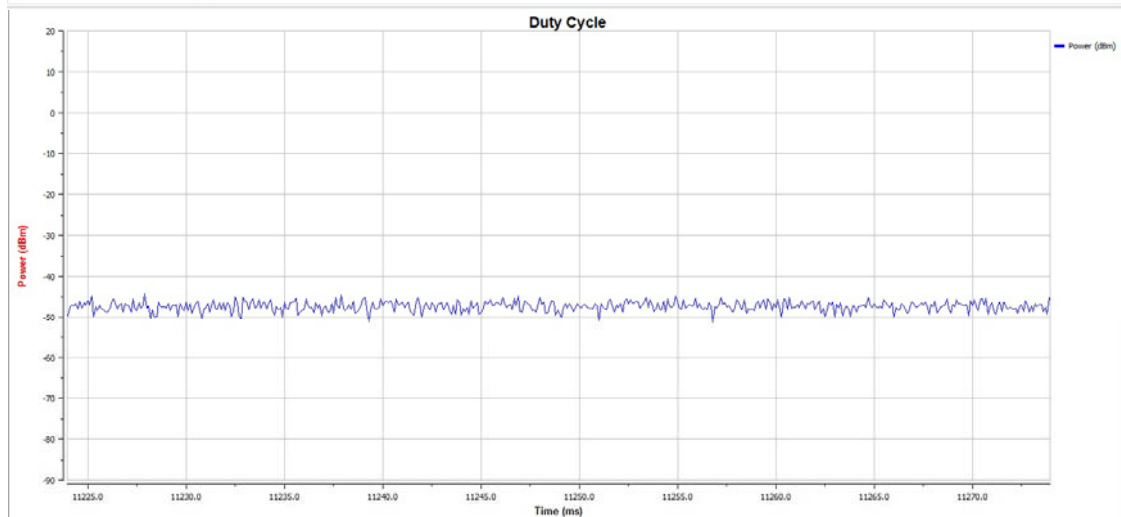


CCA Time Info		
Maximum CCA time could between 18us ~ 160us	PIFS (us) : 127.00	SIFS (us) : 12.00
Measured CCA (us) : 103.00		



COT Time Info

Max Channel Occupancy Time (ms) : 0.03



Duty Cycle Info

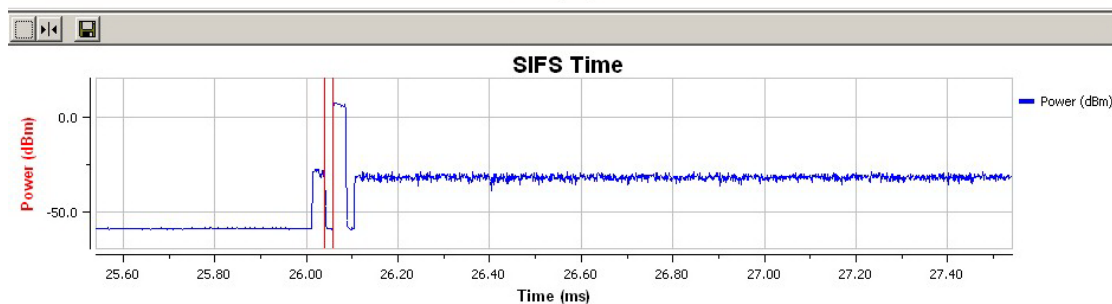
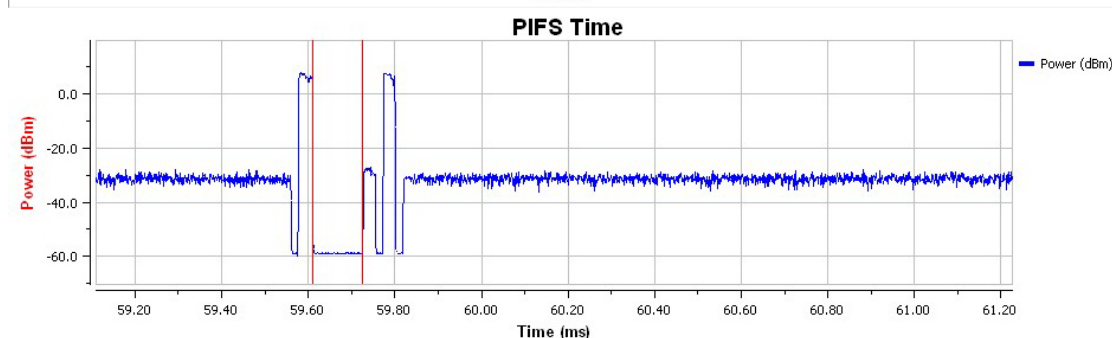
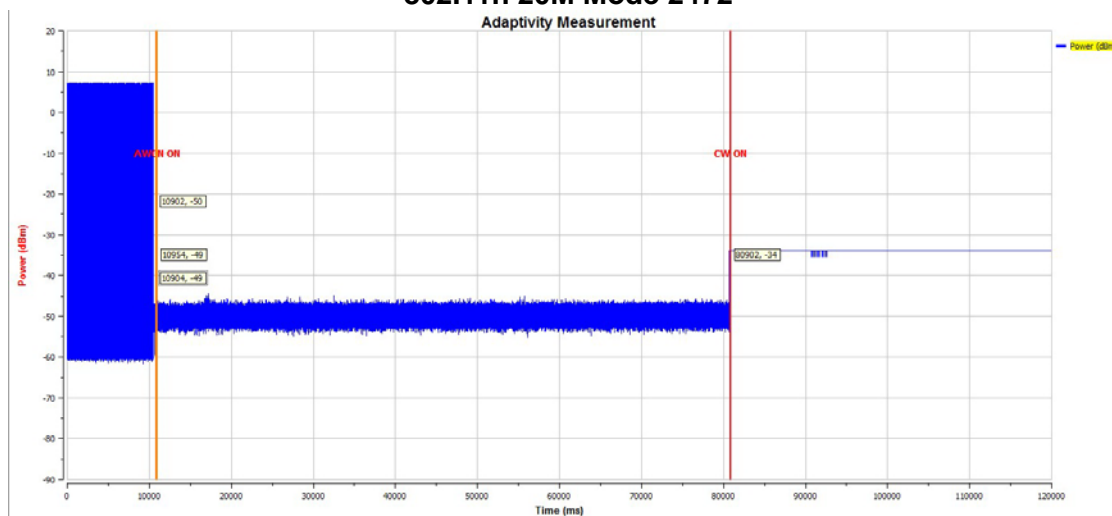
Test Result : Pass

T2 (ms) : 11273.95

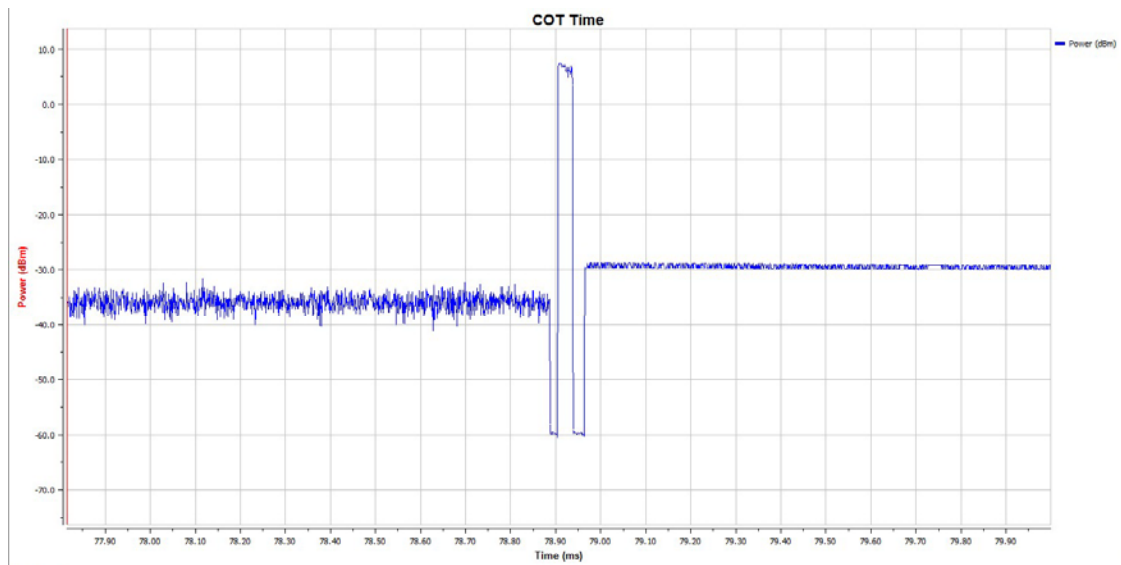
Duty Cycle (%) : 0.00

*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

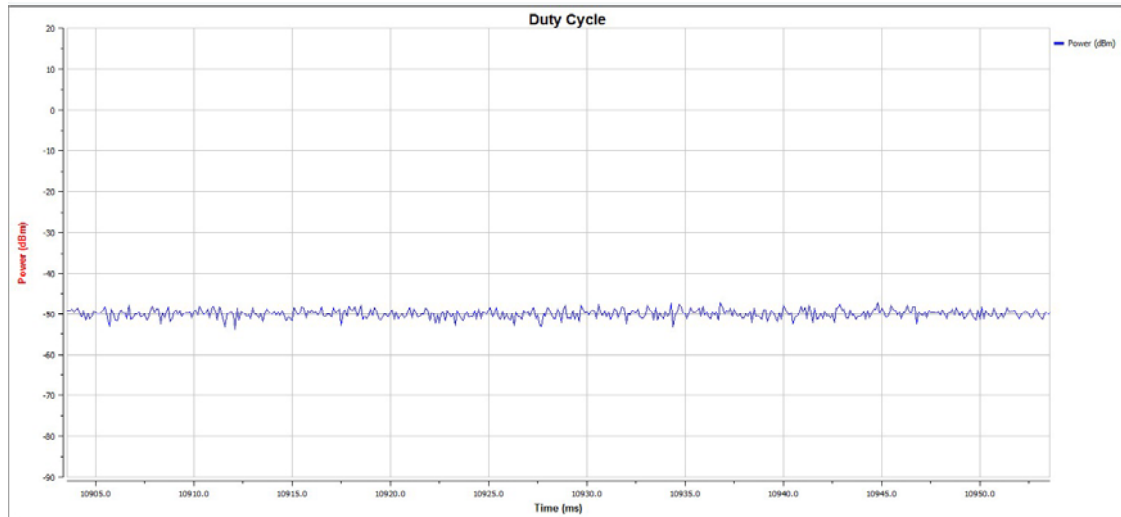
802.11n 20M Mode 2472



CCA Time Info		
Maximum CCA time could between 18us ~ 160us	PIFS (us) : 116.00	SIFS (us) : 16.00
Measured CCA (us) : 84.00		



Max Channel Occupancy Time (ms) : 1.18



Test Result : Pass

T2 (ms) : 10953.55

Duty Cycle (%) : 0.00

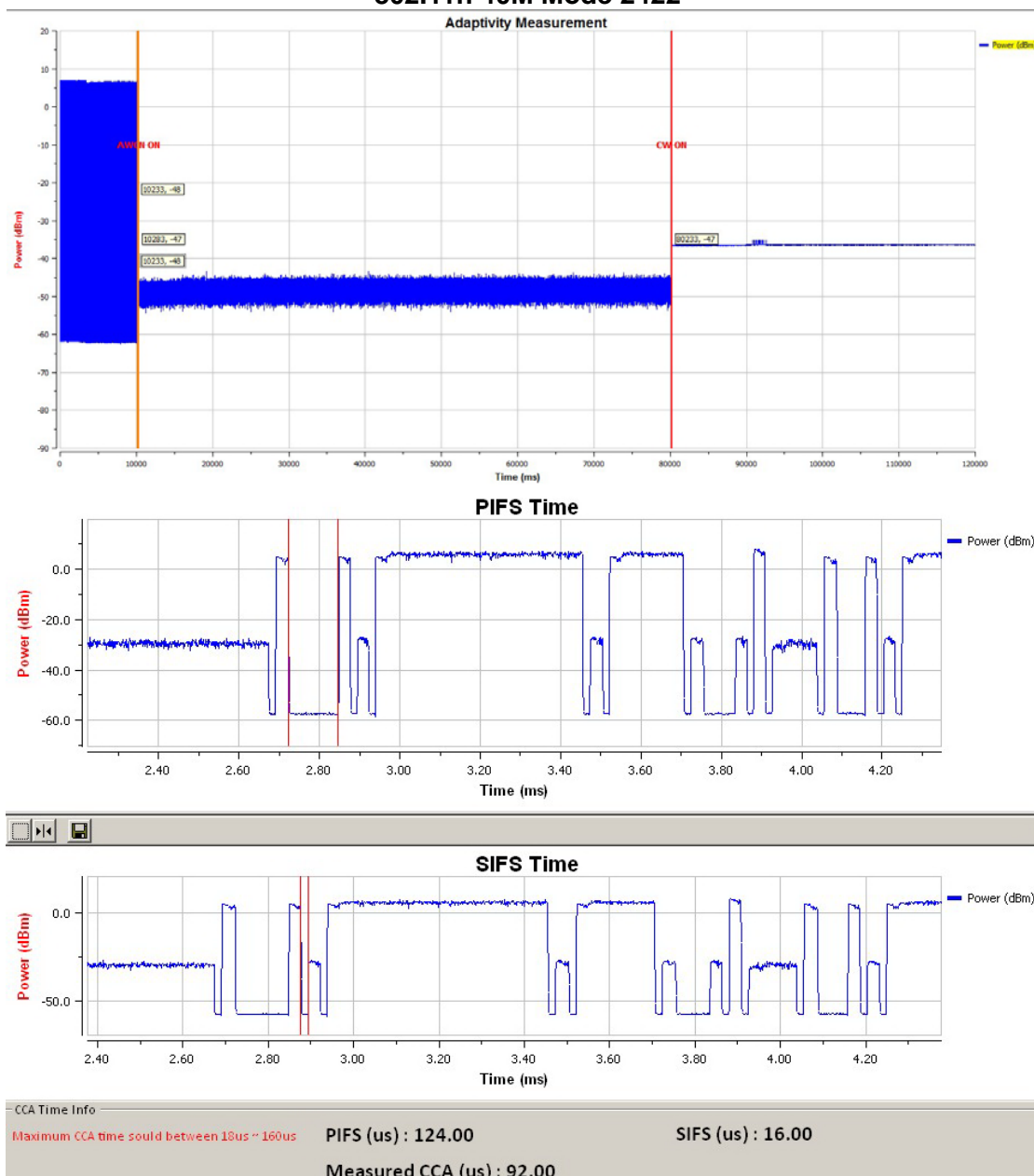
*The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

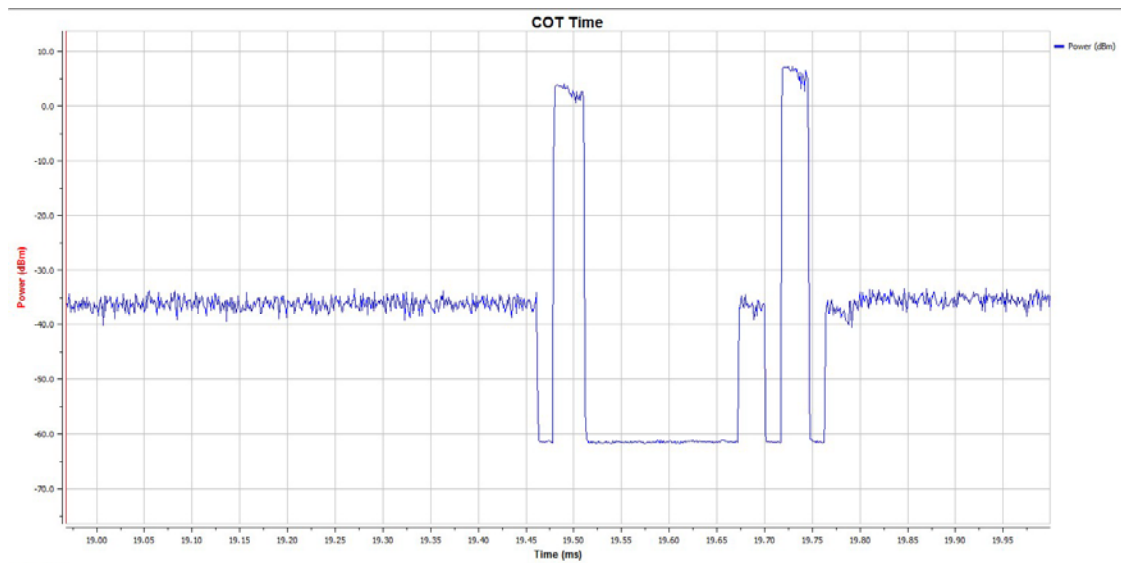
Test Mode:	TX Mode_ 802.11n 40M Mode
Date of Test:	Dec. 19, 2015

Channel Occupancy Time and Idle Periodic Time Measured Results		
Freq.(MHz)	Channel Occupancy Time (ms)	Idle Periodic Time (us)
2422	0.03	18
2462	0.03	18
Note: Channel Occupancy Time and Idle Periodic Time follow as IEEE Std. 802.11-2007 and IEEE 802.11n-2009 Specification without restriction.		

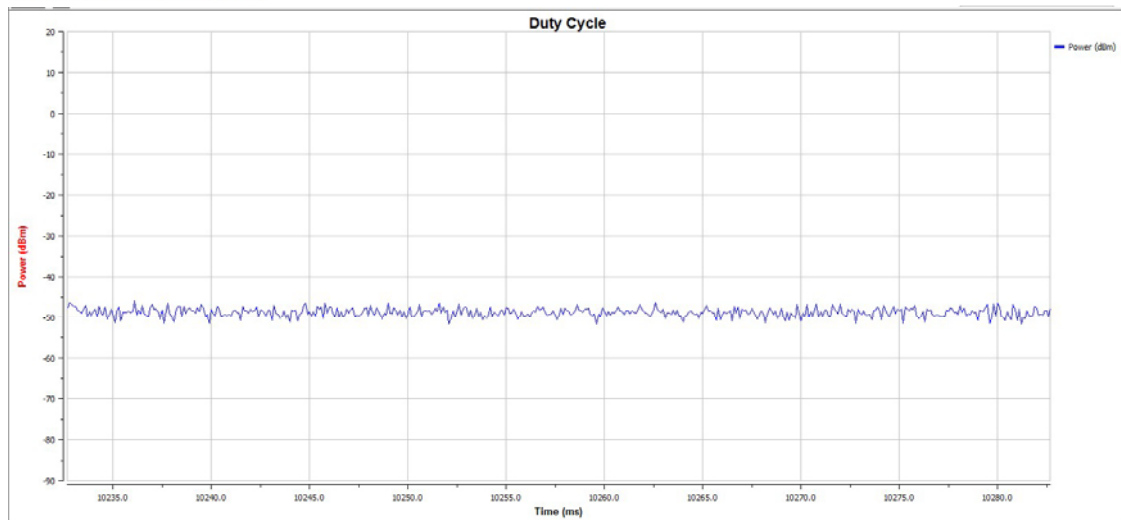
Adaptivity & Receiver Blocking			
Adaptivity Detection Threshold Level	2422 MHz	-64.87 dBm/MHz	
	2462 MHz	-64.85 dBm/MHz	
Receiver Blocking Signal Level	-35 dBm		
Freq.(MHz)	Adaptivity	Receiver Blocking test Status	Short Control Signalling Transmissions (ms)
2422	Pass	Pass	0
2462	Pass	Pass	0
Limit	N/A	N/A	5
Result	Pass		
Note: Threshold Level = -70 dBm/MHz + (20 dBm - Pout e.i.r.p)/1 MHz (Pout in dBm). Short Control Signalling Transmissions = 50 (ms) * Duty cycle (%)			

802.11n 40M Mode 2422



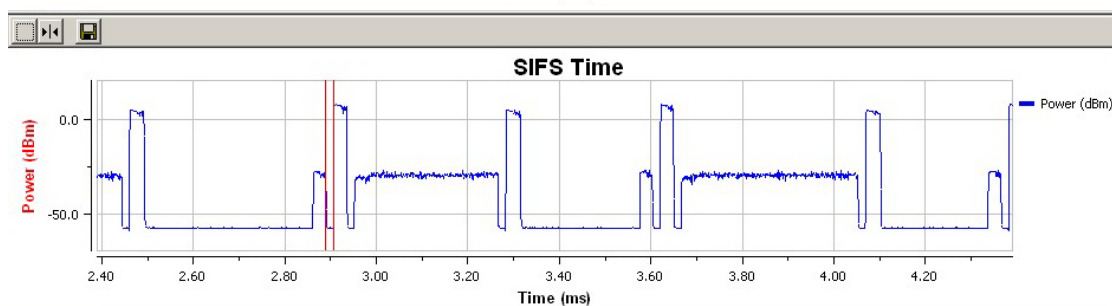
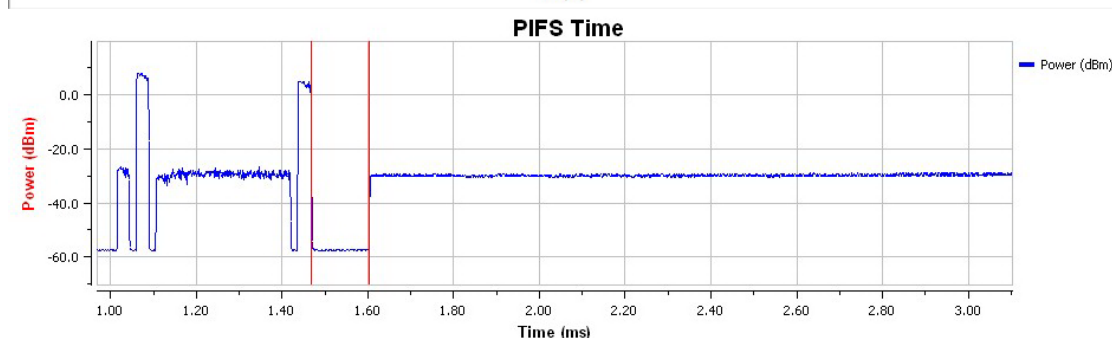
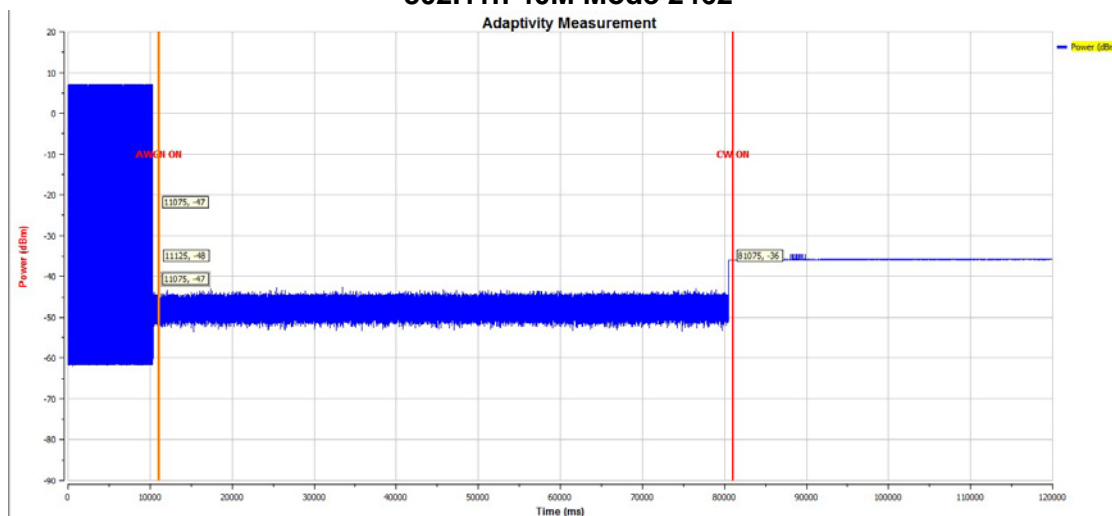


COT Time Info
Max Channel Occupancy Time (ms) : 0.03

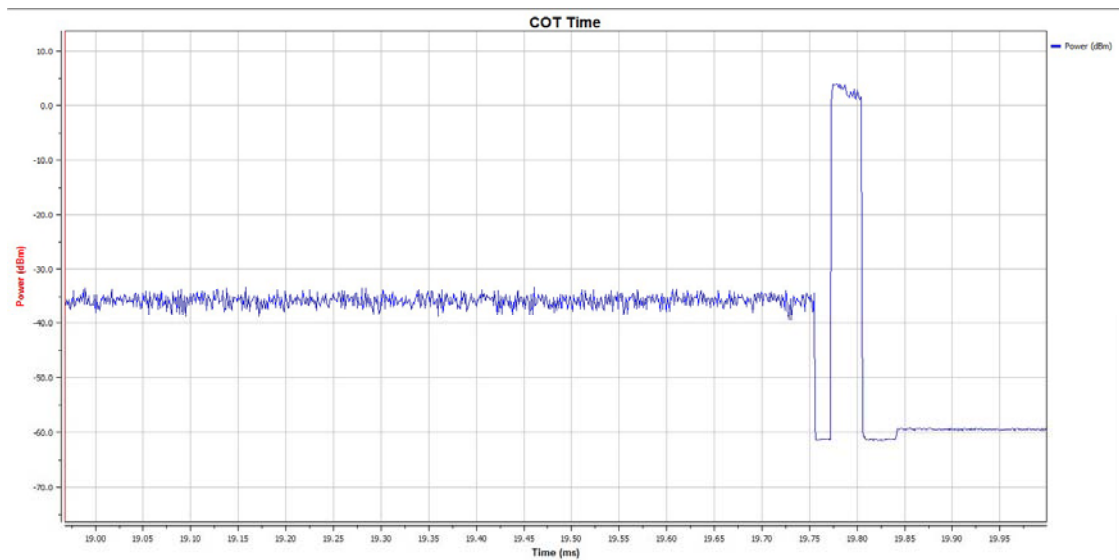


Duty Cycle Info
Test Result : Pass
 T2 (ms) : 10282.67 **Duty Cycle (%) : 0.00**
 *The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

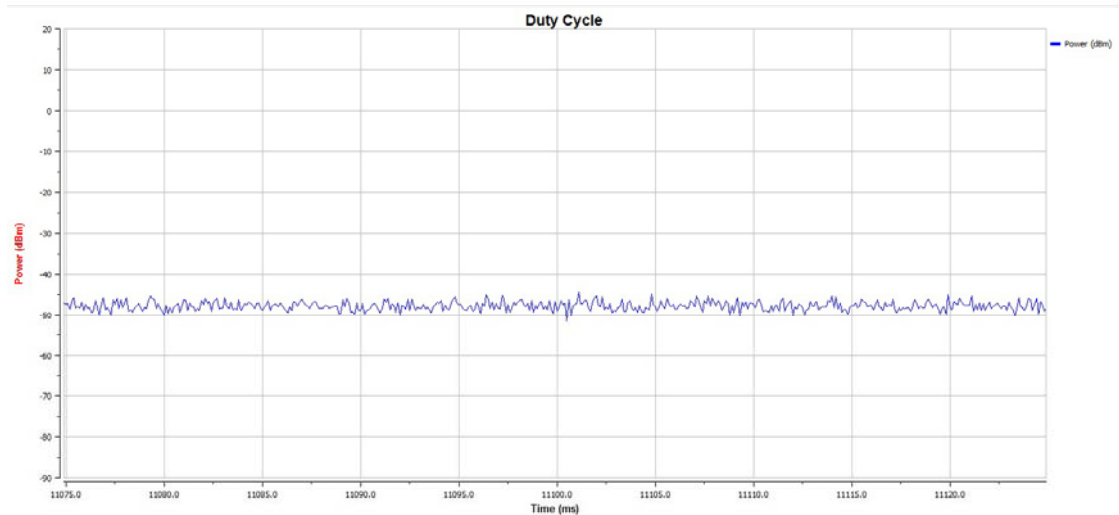
802.11n 40M Mode 2462



CCA Time Info		
Maximum CCA time could between 18us ~ 160us	PIFS (us) : 134.00	SIFS (us) : 16.00
Measured CCA (us) : 102.00		



COT Time Info
Max Channel Occupancy Time (ms) : 0.03



Duty Cycle Info
Test Result : Pass
 T2 (ms) : 11124.89 **Duty Cycle (%) : 0.00**
 *The Duty Cycle must less than 10% in every 50ms after AWGN signal was on.

2. Test results of Receiver Blocking

802.11b Mode

Frequency	Wanted signal mean power from companion device (dBm/MHz)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Pass/Fail
2412	-50	2488.5	-35	Pass
2472	-50	2395	-35	Pass

802.11g Mode

Frequency	Wanted signal mean power from companion device (dBm/MHz)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Pass/Fail
2412	-50	2488.5	-35	Pass
2472	-50	2395	-35	Pass

802.11n 20M Mode

Frequency	Wanted signal mean power from companion device (dBm/MHz)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Pass/Fail
2412	-50	2488.5	-35	Pass
2472	-50	2395	-35	Pass

802.11n 40M Mode

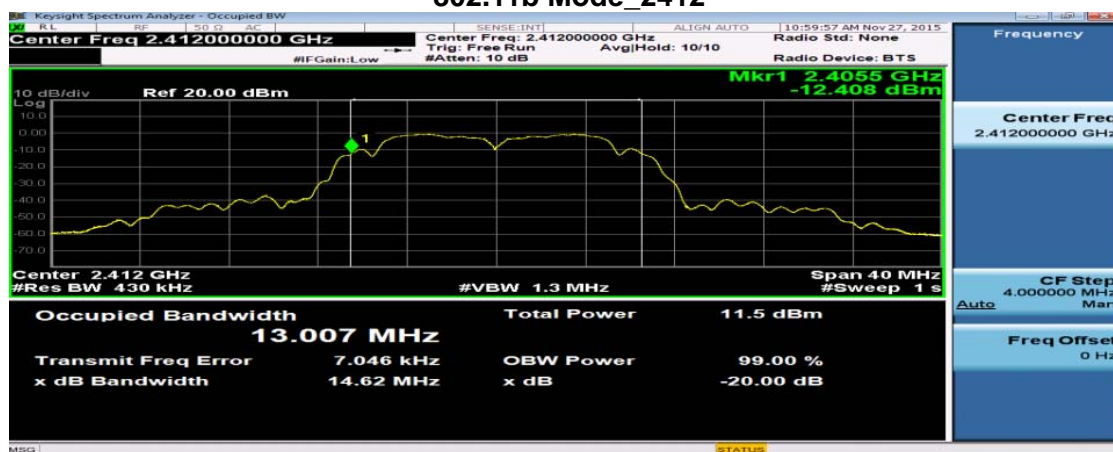
Frequency	Wanted signal mean power from companion device (dBm/MHz)	Blocking signal frequency (MHz)	Blocking signal power (dBm)	Pass/Fail
2422	-50	2488.5	-35	Pass
2462	-50	2395	-35	Pass

ATTACHMENT F - OCCUPIED CHANNEL BANDWIDTH

Test Mode:	TX Mode_ 802.11b Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Occupied Channel Bandwidth (MHz)	F _L at 99% BW (MHz)	F _H at 99% BW (MHz)	Result
2412	13.007	2405.50	-	Pass
2472	12.981	-	2478.48	
N/A		F _L >2400	F _H <2483.5	

802.11b Mode_2412



Occupied Bandwidth Test Info

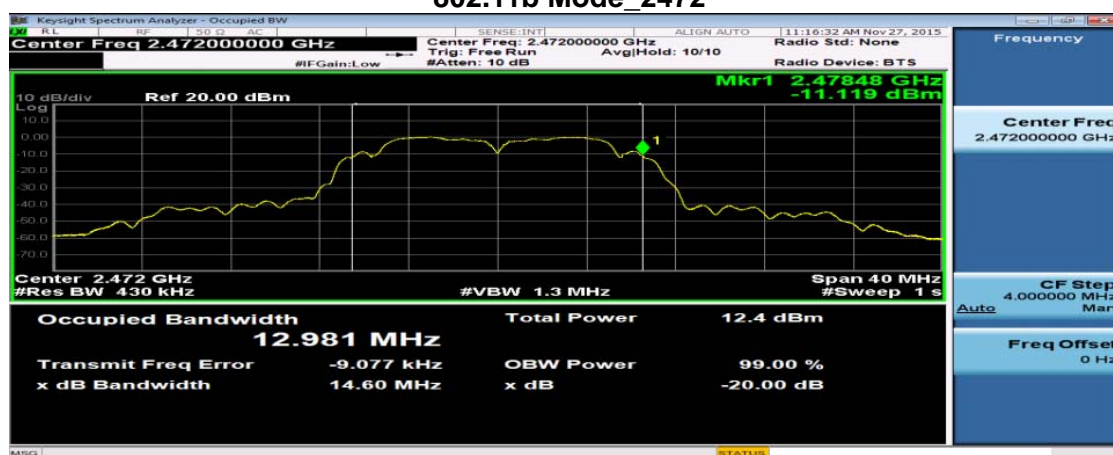
Occupied Bandwidth (MHz) : 13.007

Frequency (MHz) : 2405.50

Limit : > 2400 MHz

Test Result : Pass

802.11b Mode_2472



Occupied Bandwidth Test Info

Occupied Bandwidth (MHz) : 12.981

Frequency (MHz) : 2478.48

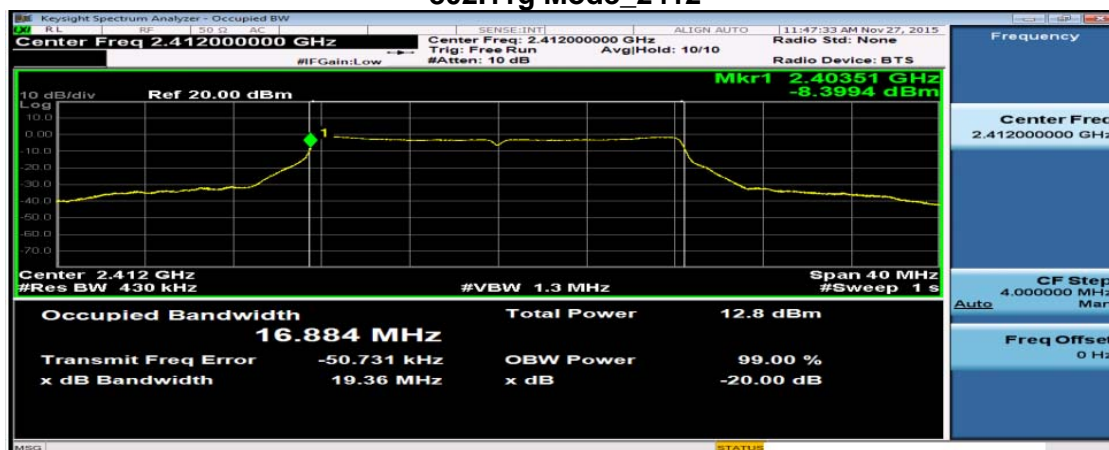
Limit : < 2483.5 MHz

Test Result : Pass

Test Mode:	TX Mode_ 802.11g Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Occupied Channel Bandwidth (MHz)	F _L at 99% BW (MHz)	F _H at 99% BW (MHz)	Result
2412	16.884	2403.51	-	Pass
2472	16.793	-	2480.35	
N/A		F _L >2400	F _H <2483.5	

802.11g Mode_2412



Occupied Bandwidth Test Info

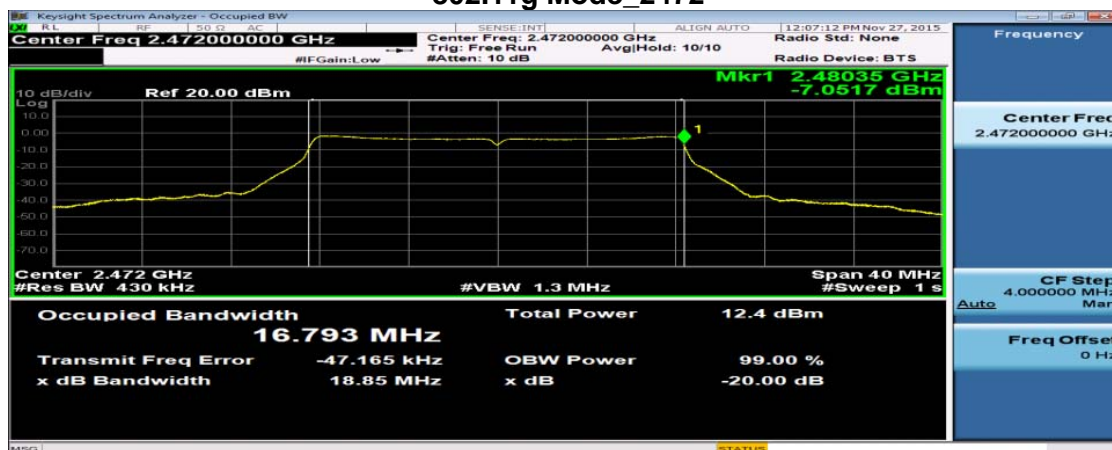
Occupied Bandwidth (MHz) : 16.884

Frequency (MHz) : 2403.51

Limit : > 2400 MHz

Test Result : Pass

802.11g Mode_2472



Occupied Bandwidth Test Info

Occupied Bandwidth (MHz) : 16.793

Frequency (MHz) : 2480.35

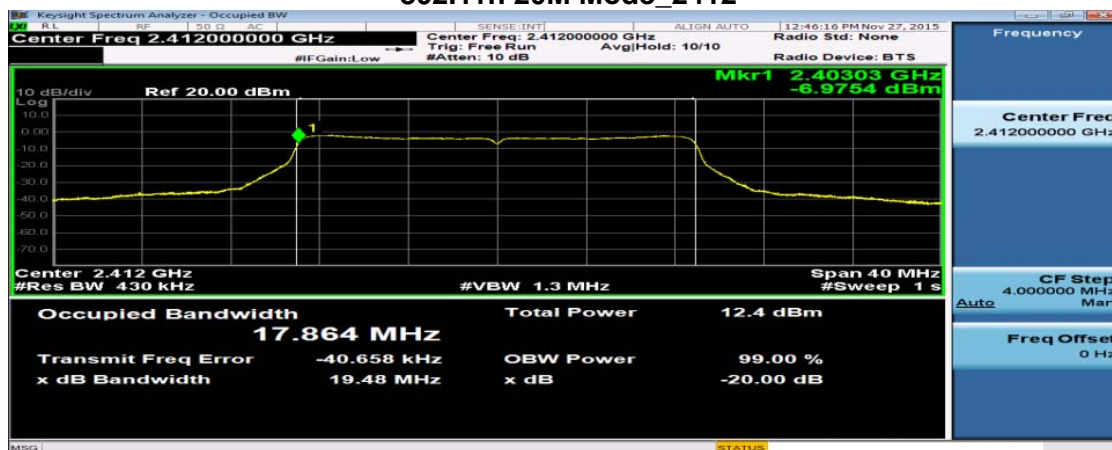
Limit : < 2483.5 MHz

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 20M Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Occupied Channel Bandwidth (MHz)	F _L at 99% BW (MHz)	F _H at 99% BW (MHz)	Result
2412	17.864	2403.03	-	Pass
2472	17.784	-	2480.85	
N/A		F _L >2400	F _H <2483.5	

802.11n 20M Mode_2412



Occupied Bandwidth Test Info

Occupied Bandwidth (MHz) : 17.864

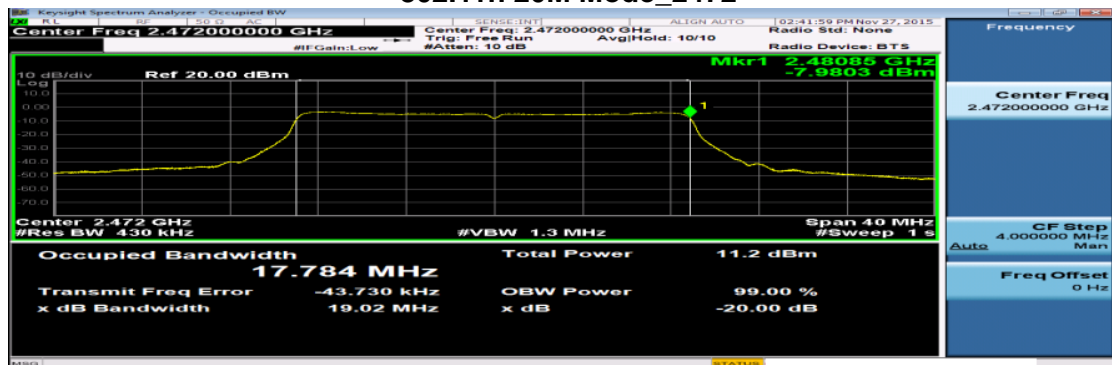
Frequency (MHz) : 2403.03

Limit : > 2400 MHz

Test Result : Pass

Memo

802.11n 20M Mode_2472



Occupied Bandwidth Test Info

Occupied Bandwidth (MHz) : 17.784

Frequency (MHz) : 2480.85

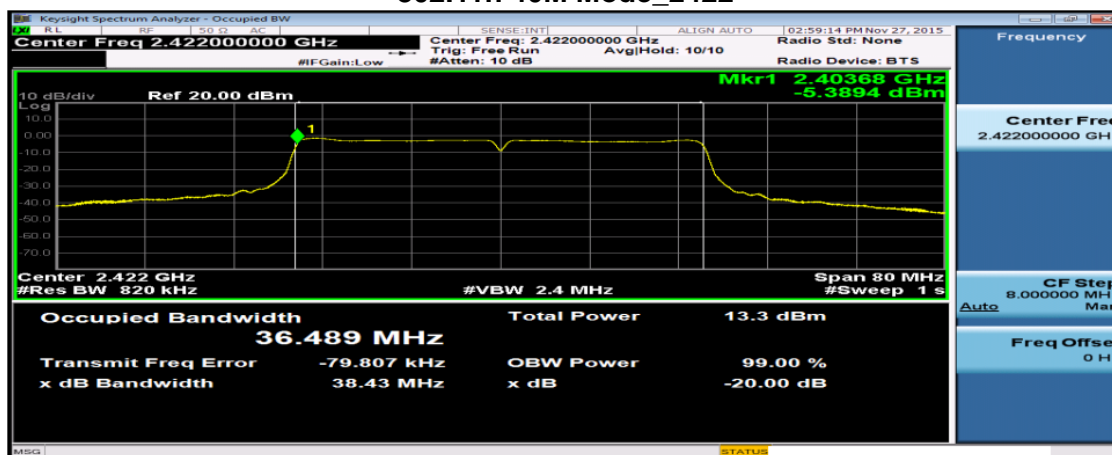
Limit : < 2483.5 MHz

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 40M Mode
Date of Test:	Nov. 27, 2015

Frequency (MHz)	Occupied Channel Bandwidth (MHz)	F _L at 99% BW (MHz)	F _H at 99% BW (MHz)	Result
2422	36.489	2403.68	-	Pass
2462	36.486	-	2480.16	
N/A		F _L >2400	F _H <2483.5	

802.11n 40M Mode_2422



Occupied Bandwidth Test Info

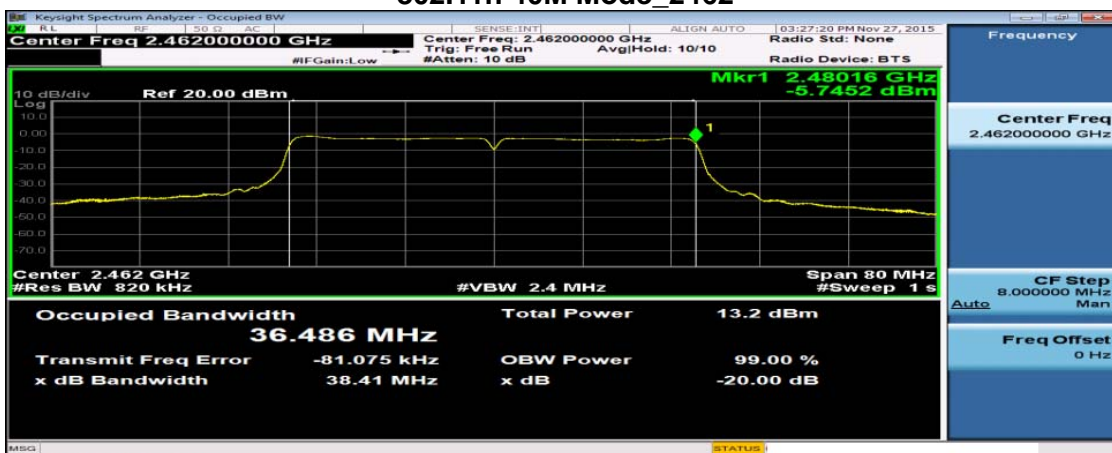
Occupied Bandwidth (MHz) : 36.489

Frequency (MHz) : 2403.68

Limit : > 2400 MHz

Test Result : Pass

802.11n 40M Mode_2462



Occupied Bandwidth Test Info

Occupied Bandwidth (MHz) : 36.486

Frequency (MHz) : 2480.16

Limit : < 2483.5 MHz

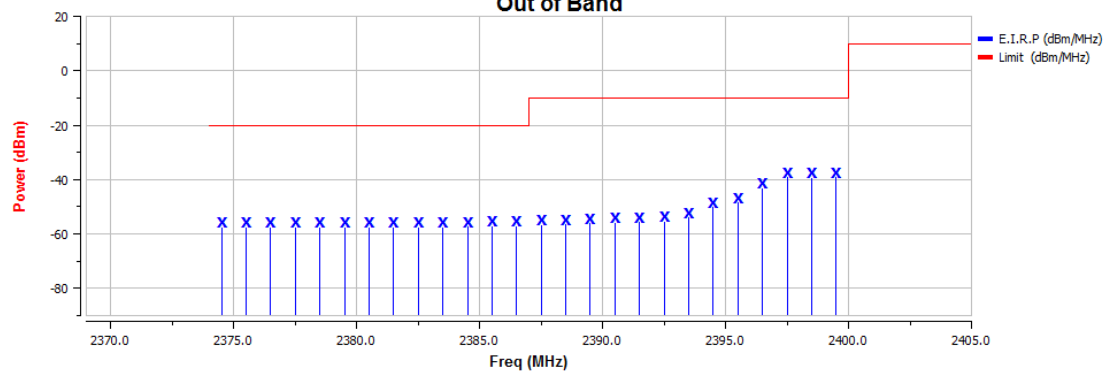
Test Result : Pass

ATTACHMENT G - TRANSMITTER UNWANTED EMISSIONS IN THE OOB DOMAIN

Test Mode:	TX Mode_ 802.11b Mode_ Normal Temperature
Date of Test:	Nov. 27, 2015

802.11b Mode_2412

Out of Band



OOB Calculate

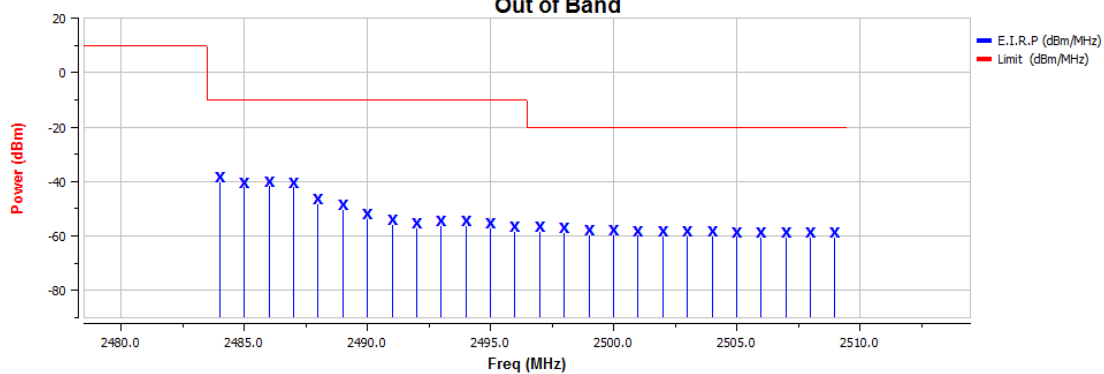
Memo

Out of Band Test Info

Test Result : Pass

802.11b Mode_2472

Out of Band



OOB Calculate

Memo

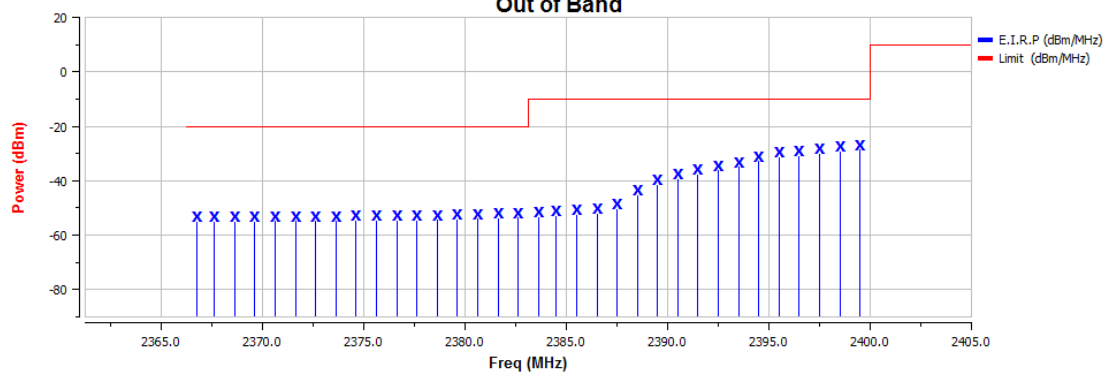
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11g Mode_ Normal Temperature
Date of Test:	Nov. 27, 2015

802.11g Mode_2412

Out of Band



OOB Calculate

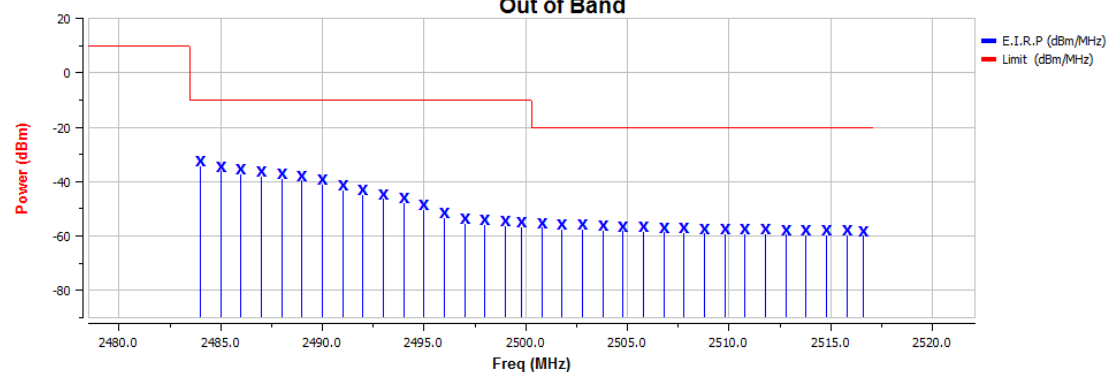
Memo

Out of Band Test Info

Test Result : Pass

802.11g Mode_2472

Out of Band



OOB Calculate

Memo

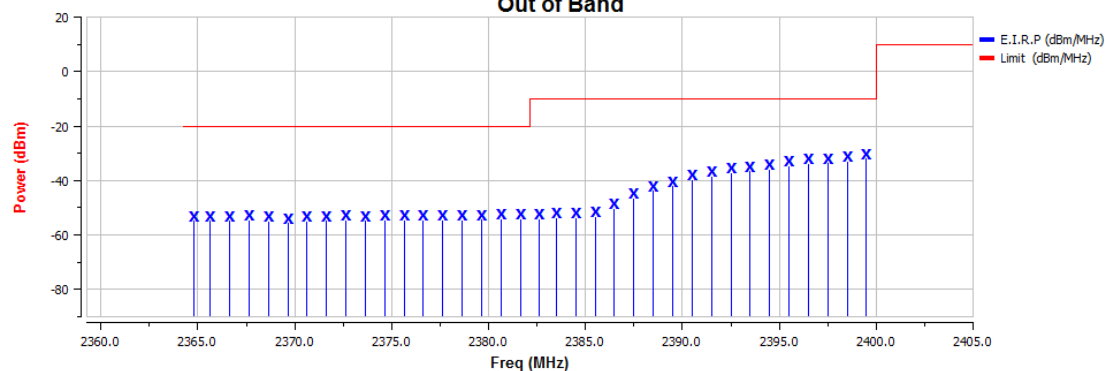
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 20M Mode_ Normal Temperature
Date of Test:	Nov. 27, 2015

802.11n 20M Mode_2412

Out of Band



OOB Calculate

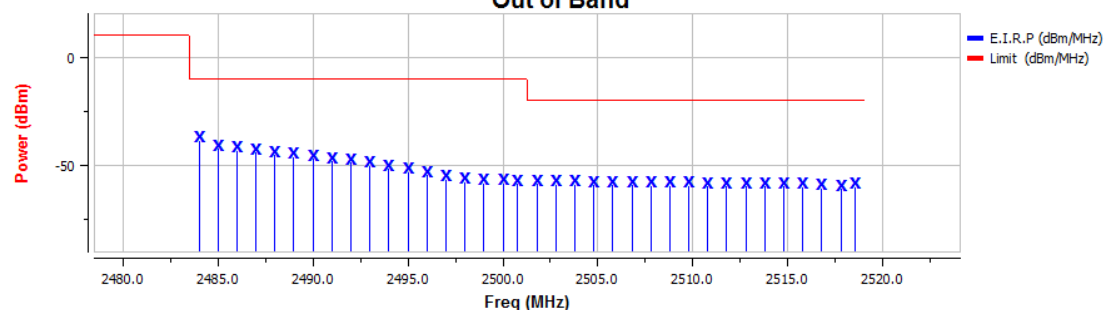
Memo

Out of Band Test Info

Test Result : Pass

802.11n 20M Mode_2472

Out of Band



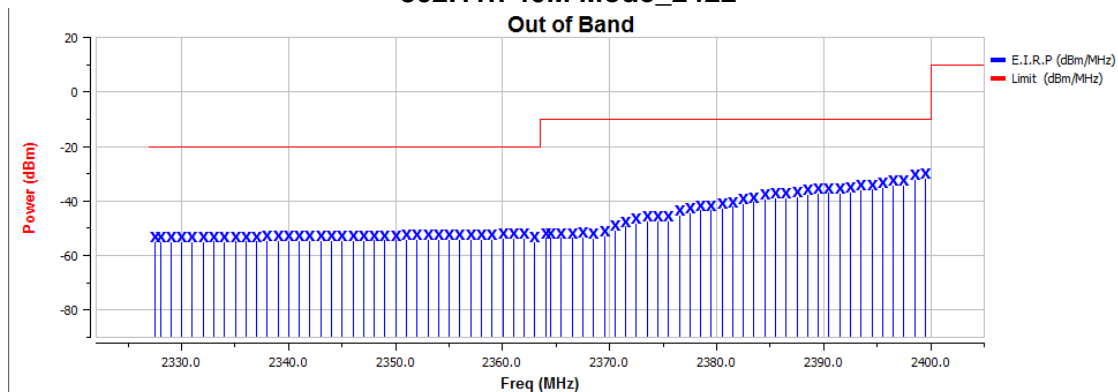
OOB Calculate

Memo

Out of Band Test Info

Test Mode:	TX Mode_ 802.11n 40M Mode_ Normal Temperature
Date of Test:	Nov. 27, 2015

802.11n 40M Mode_2422



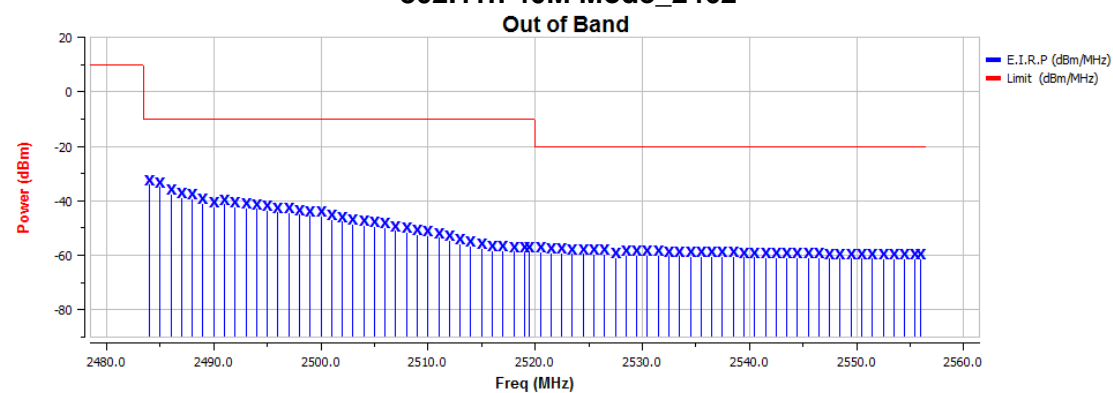
OOB Calculate

Memo

Out of Band Test Info

Test Result : Pass

802.11n 40M Mode_2462



OOB Calculate

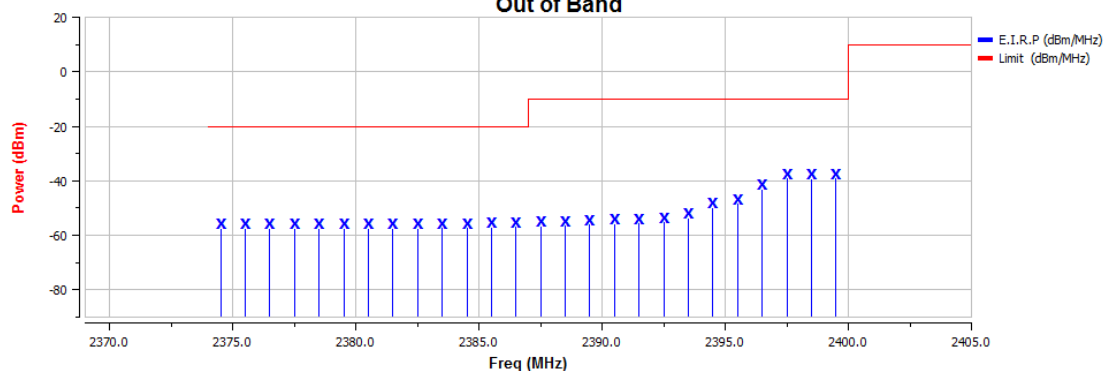
Memo

Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11b Mode_ High Temperature
Date of Test:	Nov. 27, 2015

802.11b Mode_2412 Out of Band



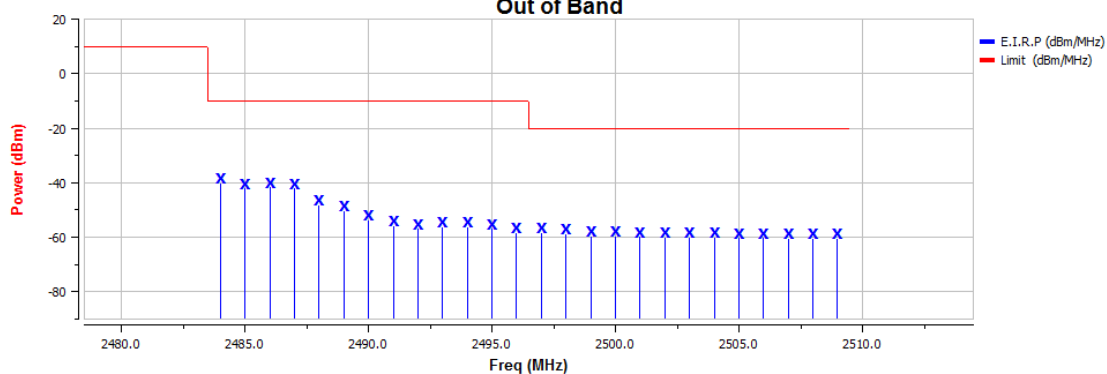
OOB Calculate

Memo

Out of Band Test Info

Test Result : Pass

802.11b Mode_2472 Out of Band



OOB Calculate

Memo

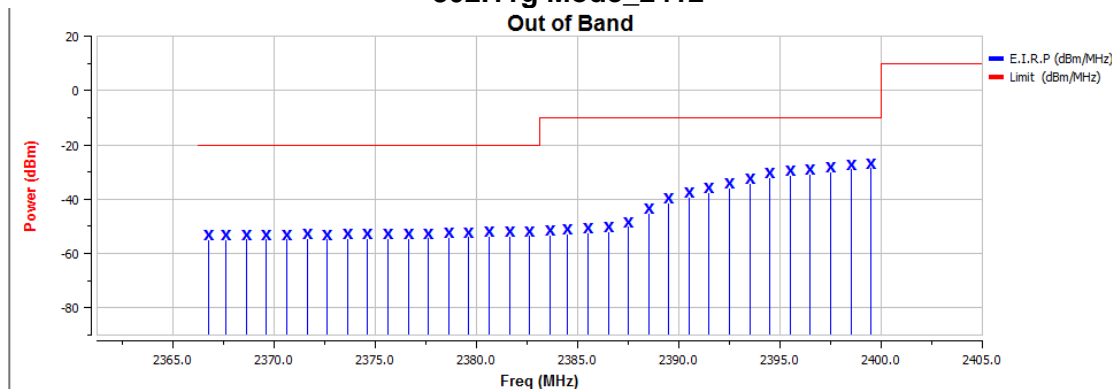
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11g Mode_ High Temperature
Date of Test:	Nov. 27, 2015

802.11g Mode_2412

Out of Band



OOB Calculate

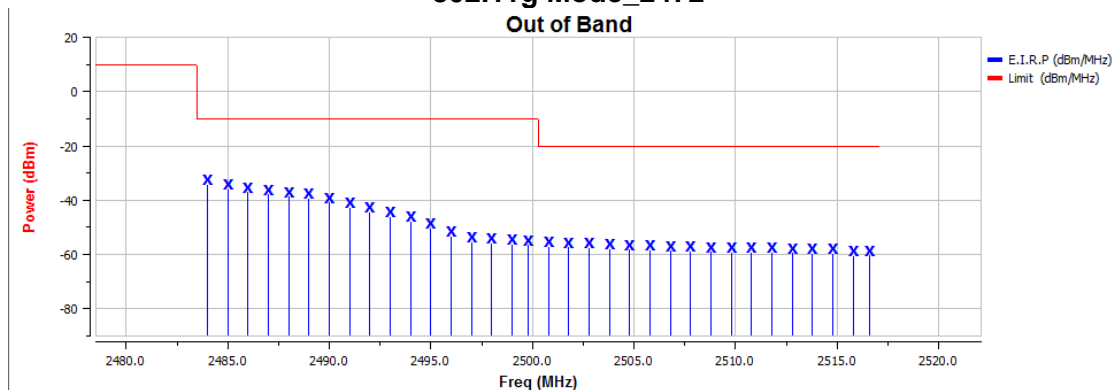
Memo

Out of Band Test Info

Test Result : Pass

802.11g Mode_2472

Out of Band



OOB Calculate

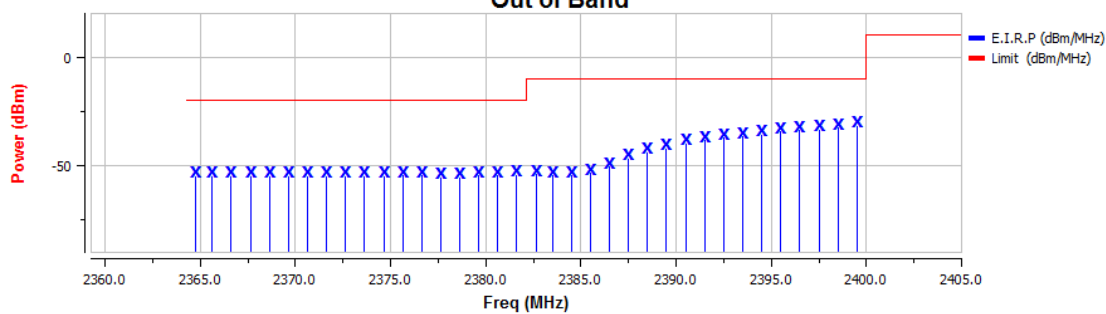
Memo

Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 20M Mode_ High Temperature
Date of Test:	Nov. 27, 2015

802.11n 20M Mode_2412 Out of Band



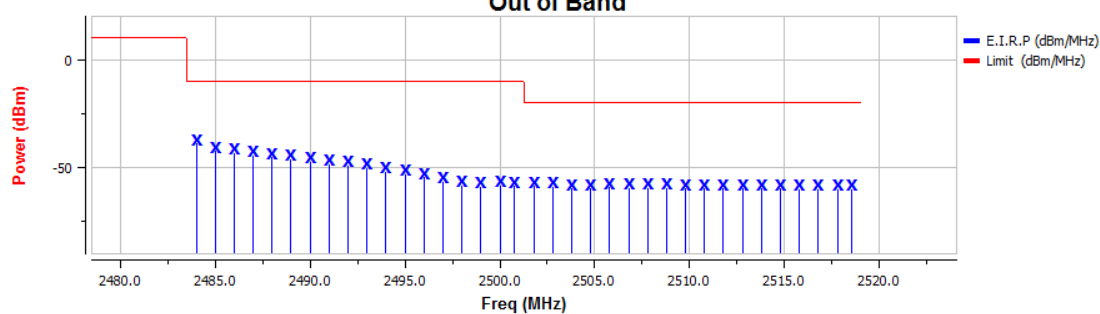
OOB Calculate

Memo

Out of Band Test Info

Test Result : Pass

802.11n 20M Mode_2472 Out of Band



OOB Calculate

Memo

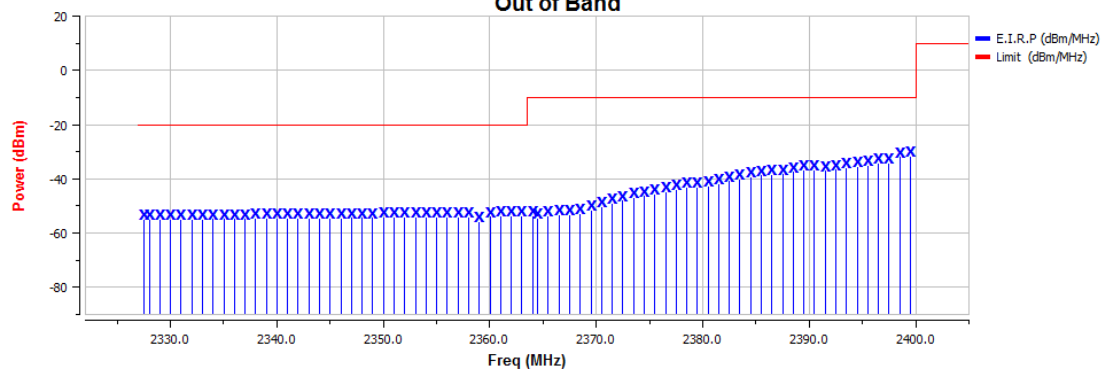
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 40M Mode_ High Temperature
Date of Test:	Nov. 27, 2015

802.11n 40M Mode_2422

Out of Band



OOB Calculate

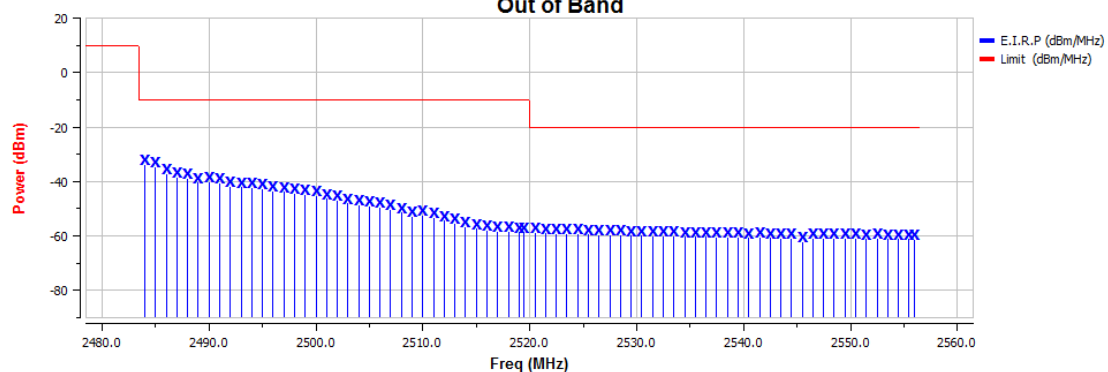
Memo

Out of Band Test Info

Test Result : Pass

802.11n 40M Mode_2462

Out of Band



OOB Calculate

Memo

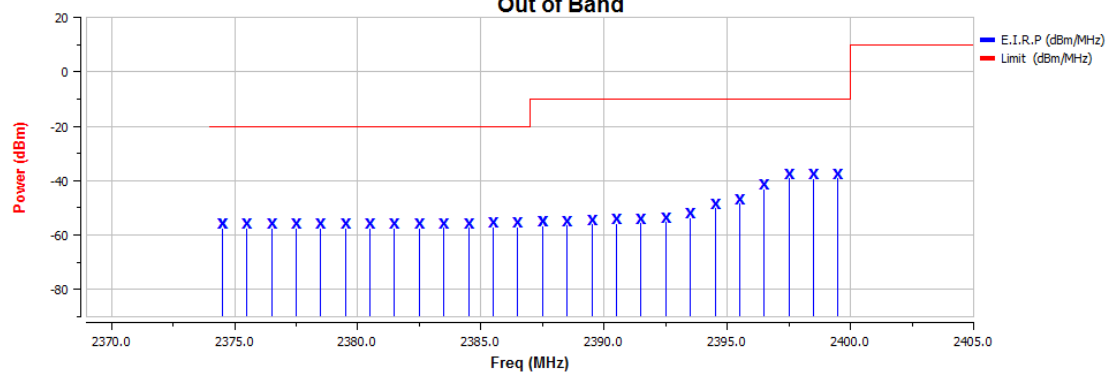
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11b Mode_ Low Temperature
Date of Test:	Nov. 27, 2015

802.11b Mode_2412

Out of Band



OOB Calculate

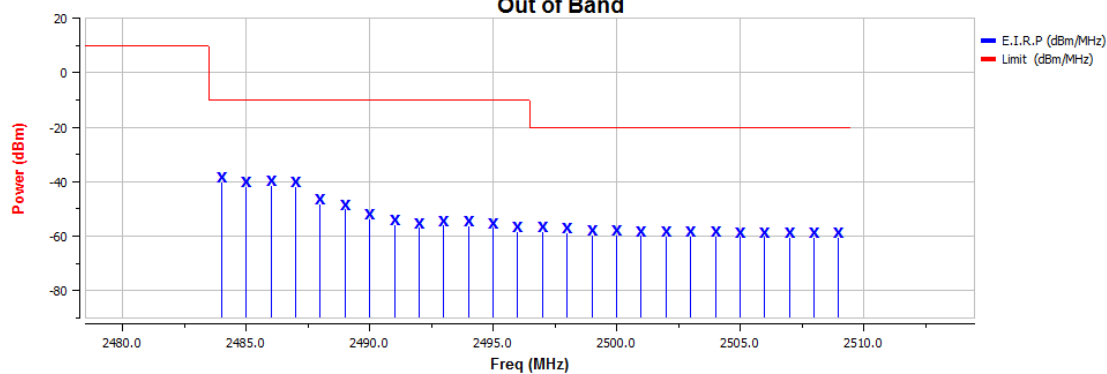
Memo

Out of Band Test Info

Test Result : Pass

802.11b Mode_2472

Out of Band



OOB Calculate

Memo

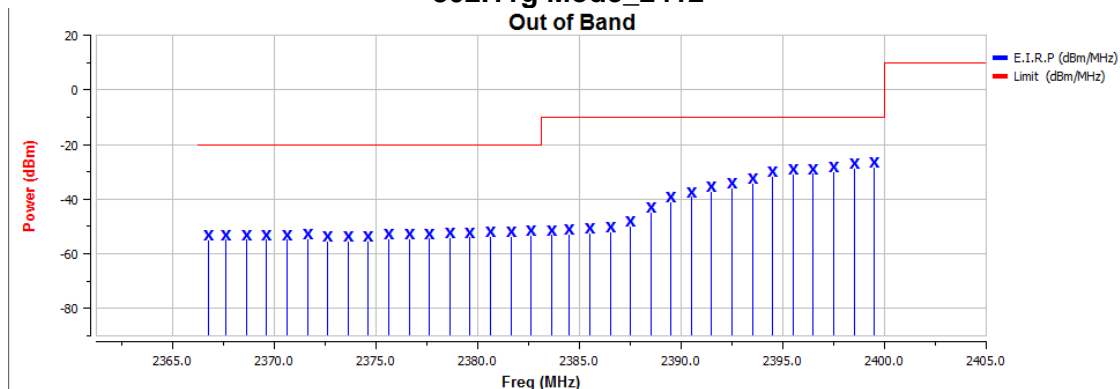
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11g Mode_ Low Temperature
Date of Test:	Nov. 27, 2015

802.11g Mode_2412

Out of Band



OOB Calculate

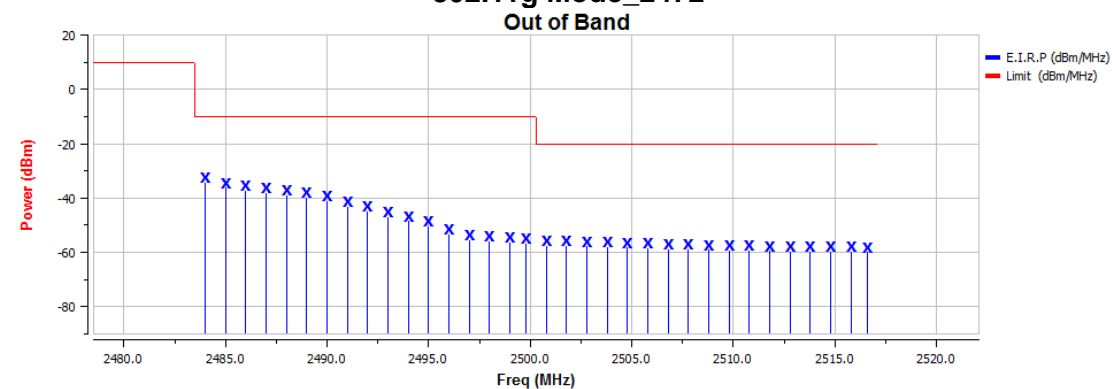
Memo

Out of Band Test Info

Test Result : Pass

802.11g Mode_2472

Out of Band



OOB Calculate

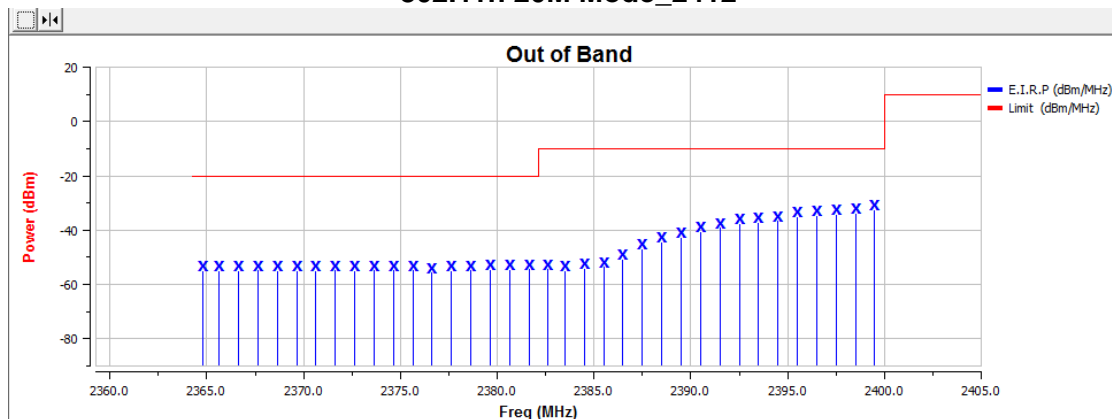
Memo

Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 20M Mode_ Low Temperature
Date of Test:	Nov. 27, 2015

802.11n 20M Mode_2412



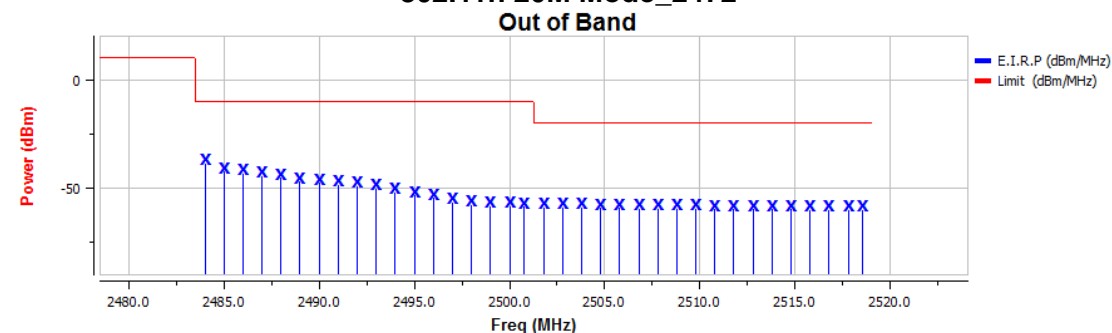
OOB Calculate

Memo

Out of Band Test Info

Test Result : Pass

802.11n 20M Mode_2472



OOB Calculate

Memo

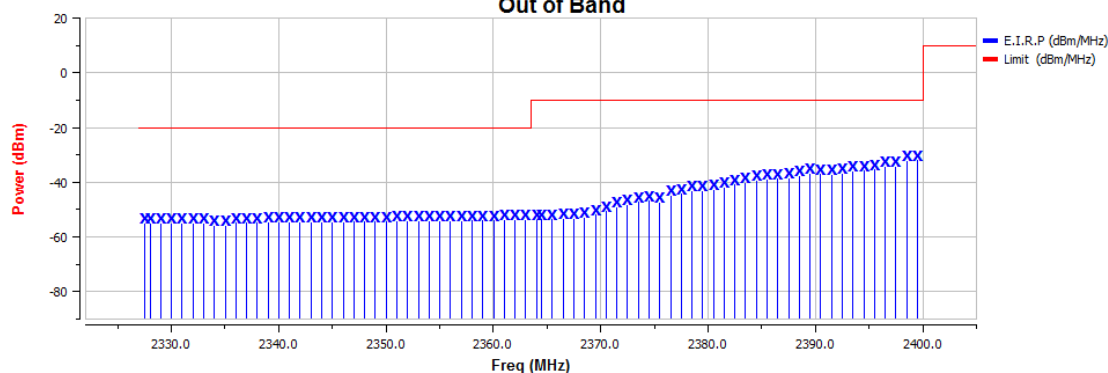
Out of Band Test Info

Test Result : Pass

Test Mode:	TX Mode_ 802.11n 40M Mode_ Low Temperature
Date of Test:	Nov. 27, 2015

802.11n 40M Mode_2422

Out of Band



OOB Calculate

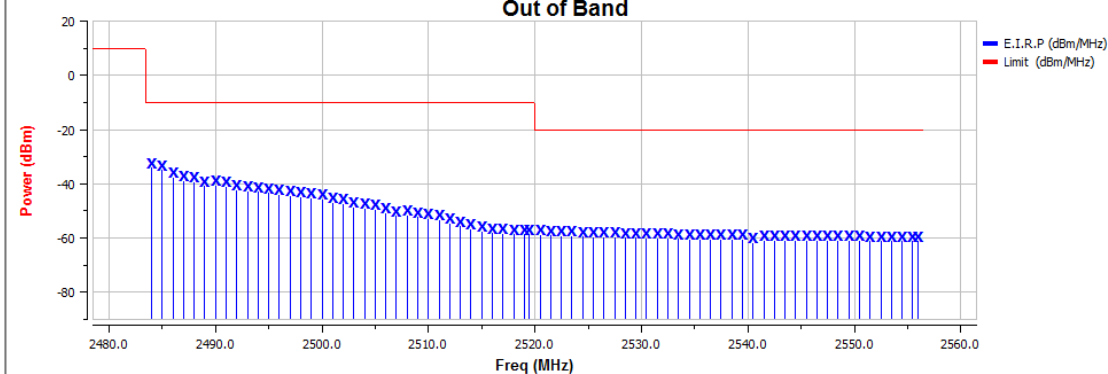
Memo

Out of Band Test Info

Test Result : Pass

802.11n 40M Mode_2462

Out of Band



OOB Calculate

Memo

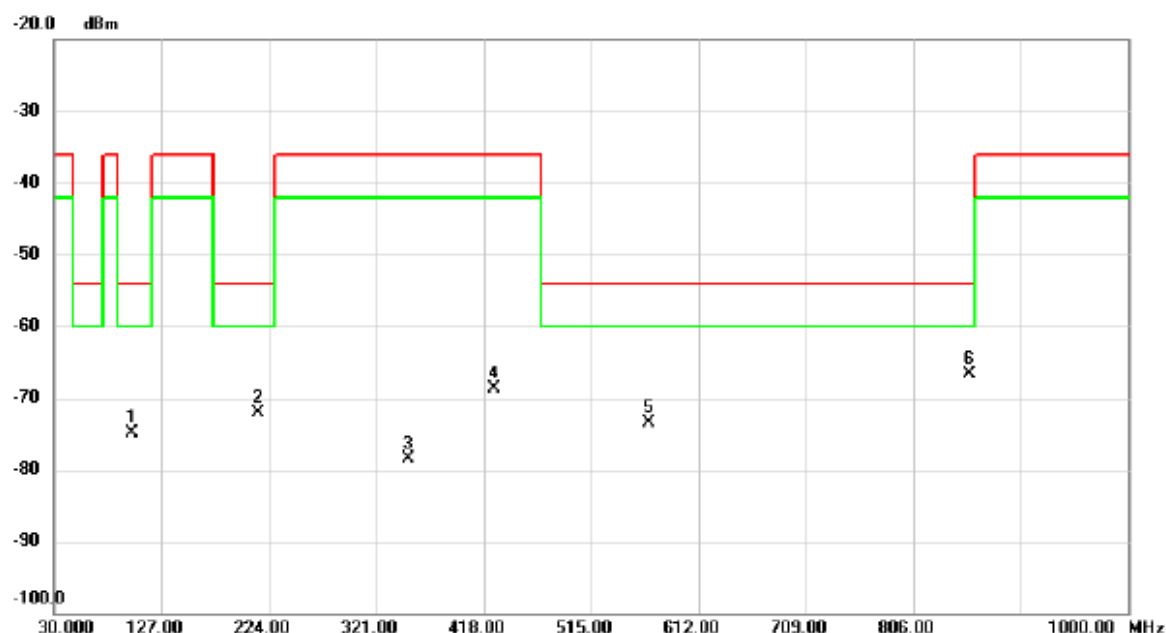
Out of Band Test Info

Test Result : Pass

ATTACHMENT H - TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

Test Mode:	TX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

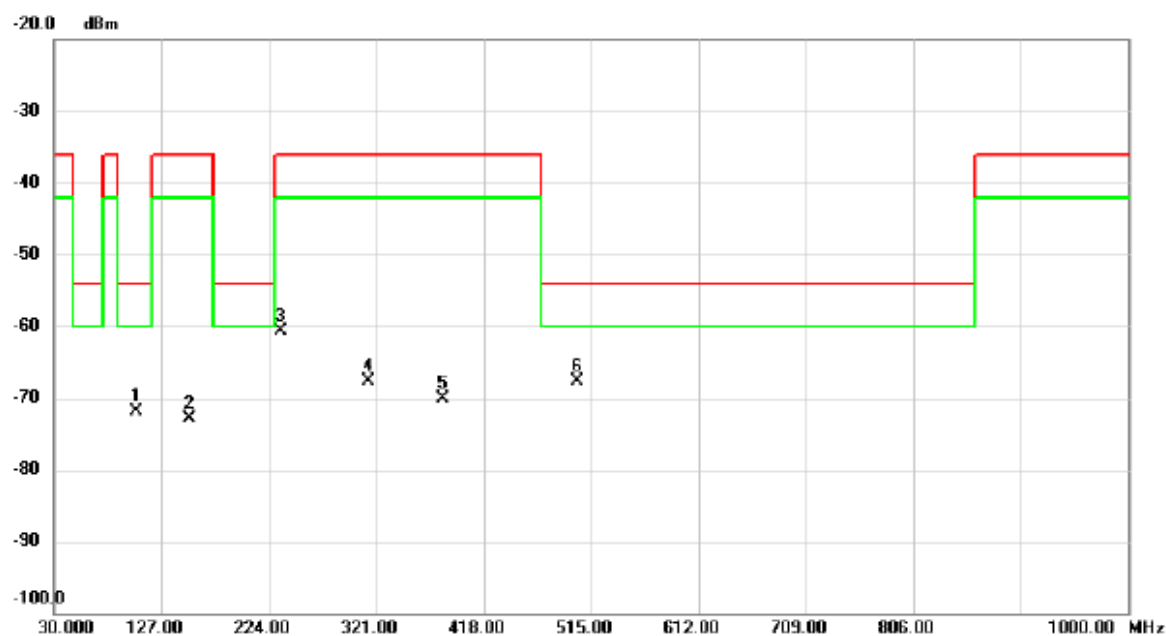
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		100.8100	-68.99	-5.83	-74.82	-54.00	-20.82	peak	
2		214.3000	-68.99	-3.02	-72.01	-54.00	-18.01	peak	
3		350.1000	-79.55	0.98	-78.57	-36.00	-42.57	peak	
4		428.1850	-72.56	3.81	-68.75	-36.00	-32.75	peak	
5		566.8950	-79.85	6.30	-73.55	-54.00	-19.55	peak	
6	*	856.9250	-76.58	9.84	-66.74	-54.00	-12.74	peak	

Test Mode:	TX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

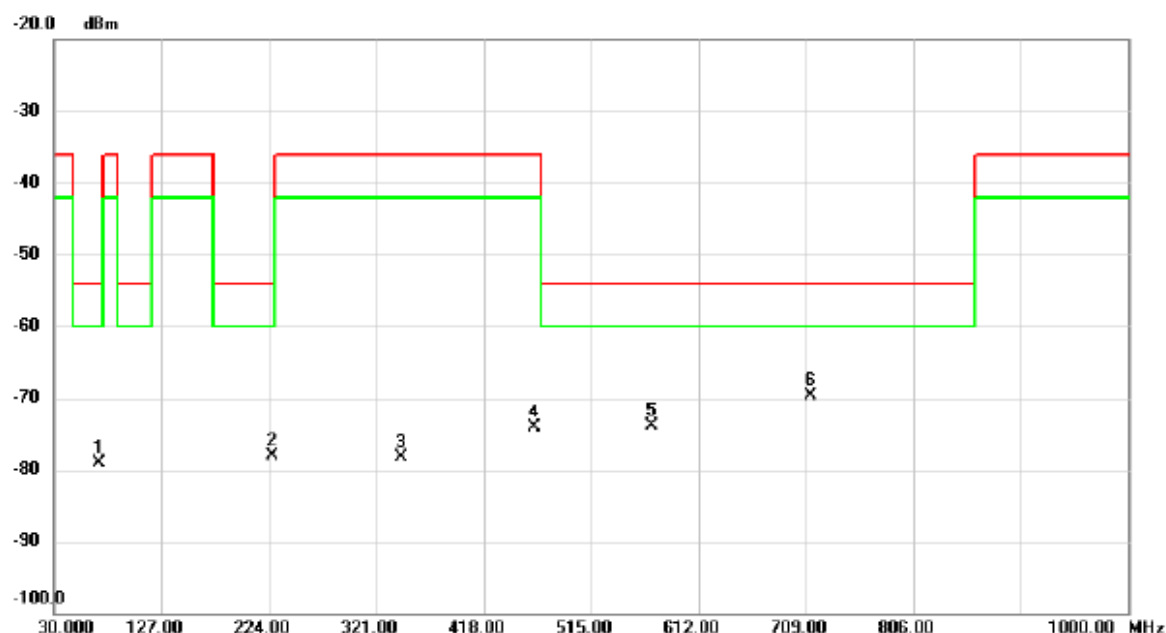
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		104.6900	-66.46	-5.36	-71.82	-54.00	-17.82	peak	
2		151.7350	-74.68	1.83	-72.85	-36.00	-36.85	peak	
3		235.1550	-61.29	0.66	-60.63	-36.00	-24.63	peak	
4		314.2100	-67.31	-0.37	-67.68	-36.00	-31.68	peak	
5		381.1400	-73.99	3.94	-70.05	-36.00	-34.05	peak	
6	*	502.3900	-73.57	5.91	-67.66	-54.00	-13.66	peak	

Test Mode:	TX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

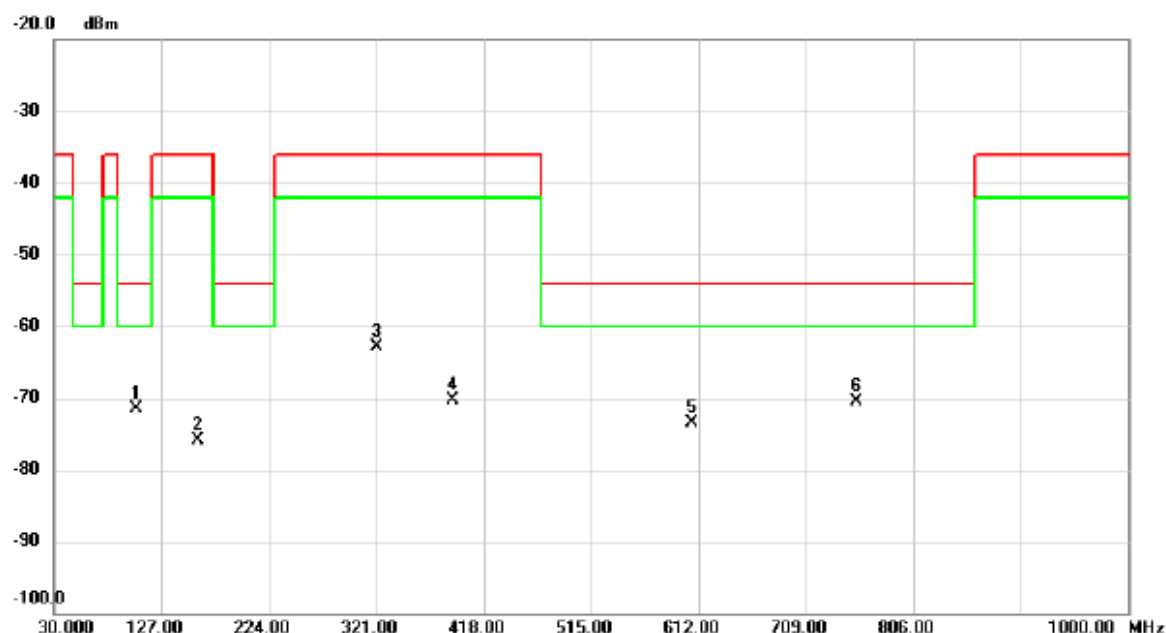
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		71.2250	-72.17	-6.86	-79.03	-54.00	-25.03	peak	
2		226.9100	-78.26	0.26	-78.00	-54.00	-24.00	peak	
3		343.3100	-78.82	0.58	-78.24	-36.00	-42.24	peak	
4		463.5900	-77.87	3.71	-74.16	-36.00	-38.16	peak	
5		569.3200	-80.24	6.35	-73.89	-54.00	-19.89	peak	
6	*	713.8500	-81.17	11.49	-69.68	-54.00	-15.68	peak	

Test Mode:	TX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

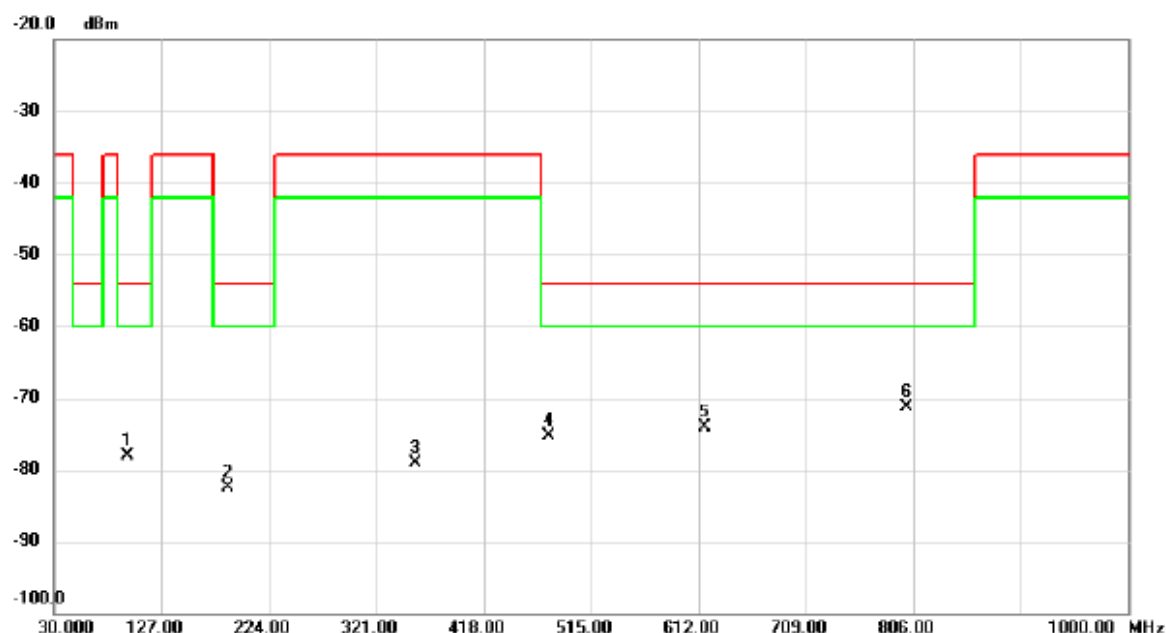
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		104.2050	-66.02	-5.42	-71.44	-54.00	-17.44	peak	
2		160.4650	-76.38	0.41	-75.97	-36.00	-39.97	peak	
3		321.4850	-63.07	0.16	-62.91	-36.00	-26.91	peak	
4		390.3550	-74.19	3.84	-70.35	-36.00	-34.35	peak	
5		606.6650	-80.71	7.17	-73.54	-54.00	-19.54	peak	
6	*	755.0750	-80.96	10.55	-70.41	-54.00	-16.41	peak	

Test Mode:	TX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

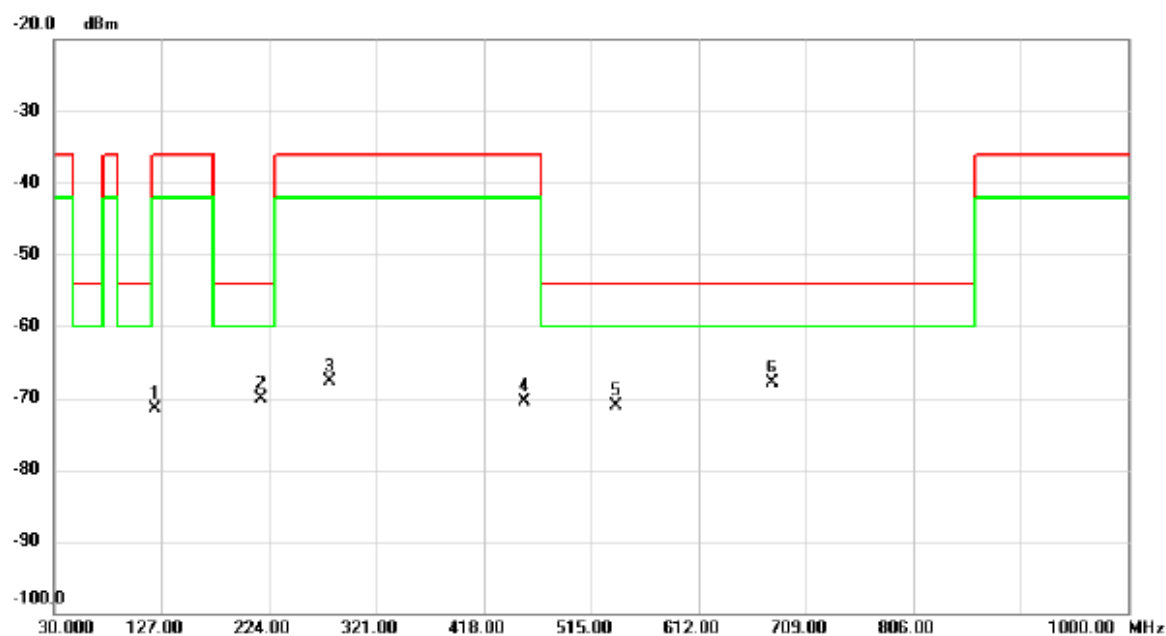
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		95.9600	-72.83	-5.29	-78.12	-54.00	-24.12	peak	
2		187.1400	-79.35	-3.21	-82.56	-54.00	-28.56	peak	
3		356.8900	-79.52	0.49	-79.03	-36.00	-43.03	peak	
4		477.1700	-79.50	4.16	-75.34	-54.00	-21.34	peak	
5		617.8200	-81.15	7.06	-74.09	-54.00	-20.09	peak	
6	*	799.6950	-80.96	9.73	-71.23	-54.00	-17.23	peak	

Test Mode:	TX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

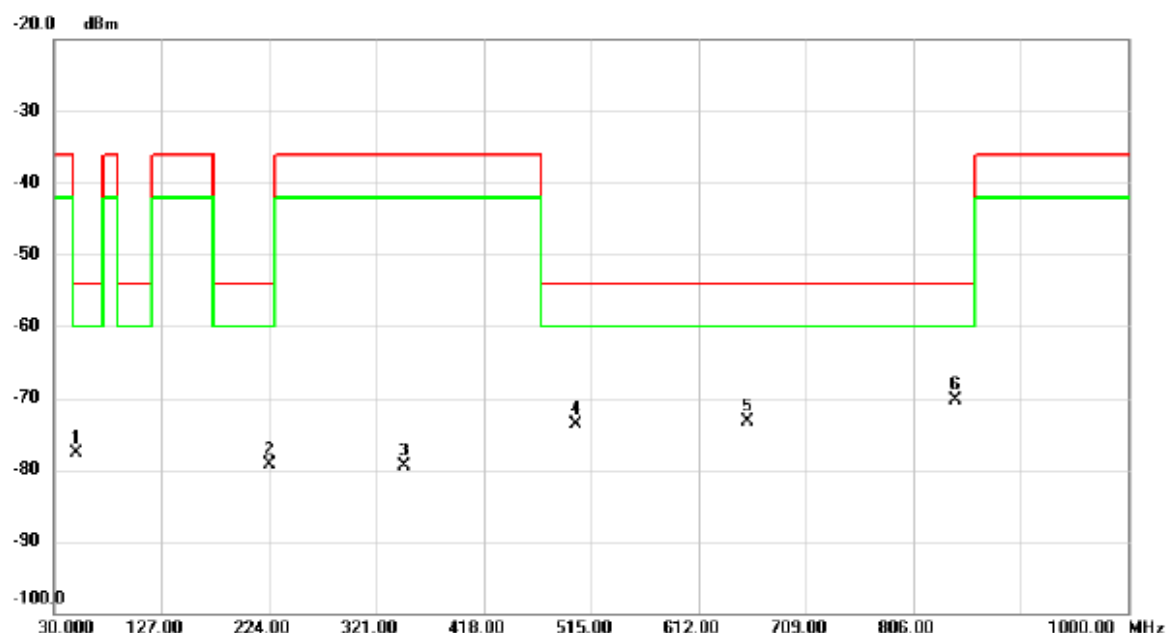
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		120.6950	-66.23	-5.32	-71.55	-36.00	-35.55	peak	
2		216.2400	-67.56	-2.54	-70.10	-54.00	-16.10	peak	
3		279.2900	-68.03	0.39	-67.64	-36.00	-31.64	peak	
4		454.8600	-73.73	3.27	-70.46	-36.00	-34.46	peak	
5		537.3100	-77.05	5.94	-71.11	-54.00	-17.11	peak	
6	*	678.4450	-78.33	10.36	-67.97	-54.00	-13.97	peak	

Test Mode:	TX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

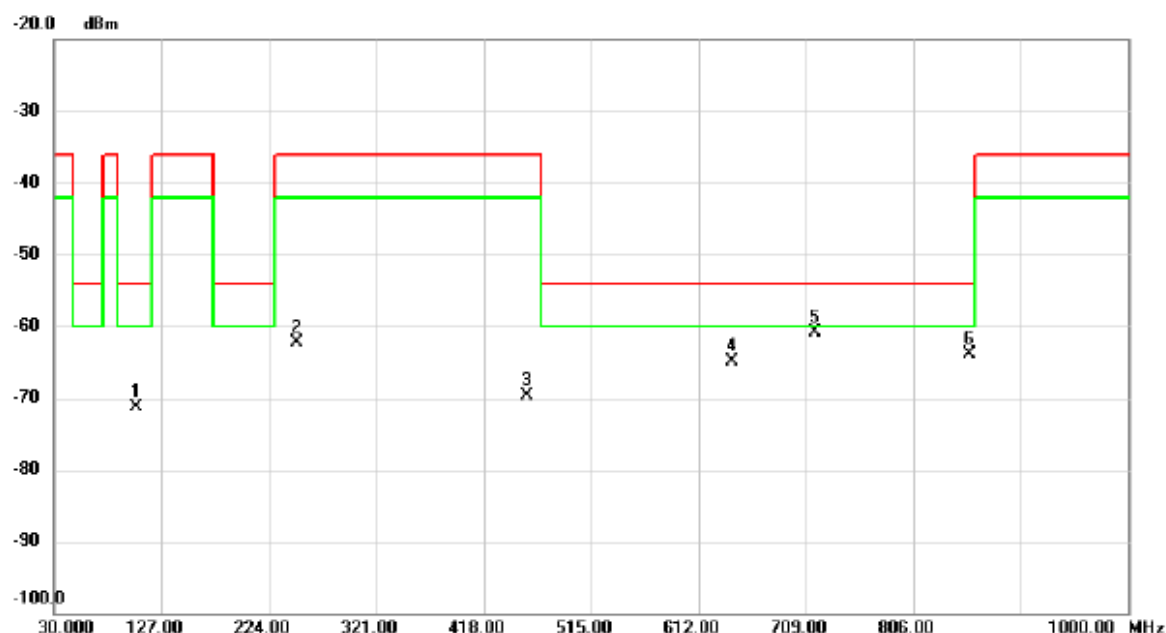
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		50.3700	-76.34	-1.38	-77.72	-54.00	-23.72	peak	
2		224.9700	-76.73	-2.61	-79.34	-54.00	-25.34	peak	
3		346.7050	-79.36	-0.09	-79.45	-36.00	-43.45	peak	
4		500.9350	-79.04	5.40	-73.64	-54.00	-19.64	peak	
5		656.6200	-81.28	8.02	-73.26	-54.00	-19.26	peak	
6	*	844.3150	-82.25	12.03	-70.22	-54.00	-16.22	peak	

Test Mode:	TX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

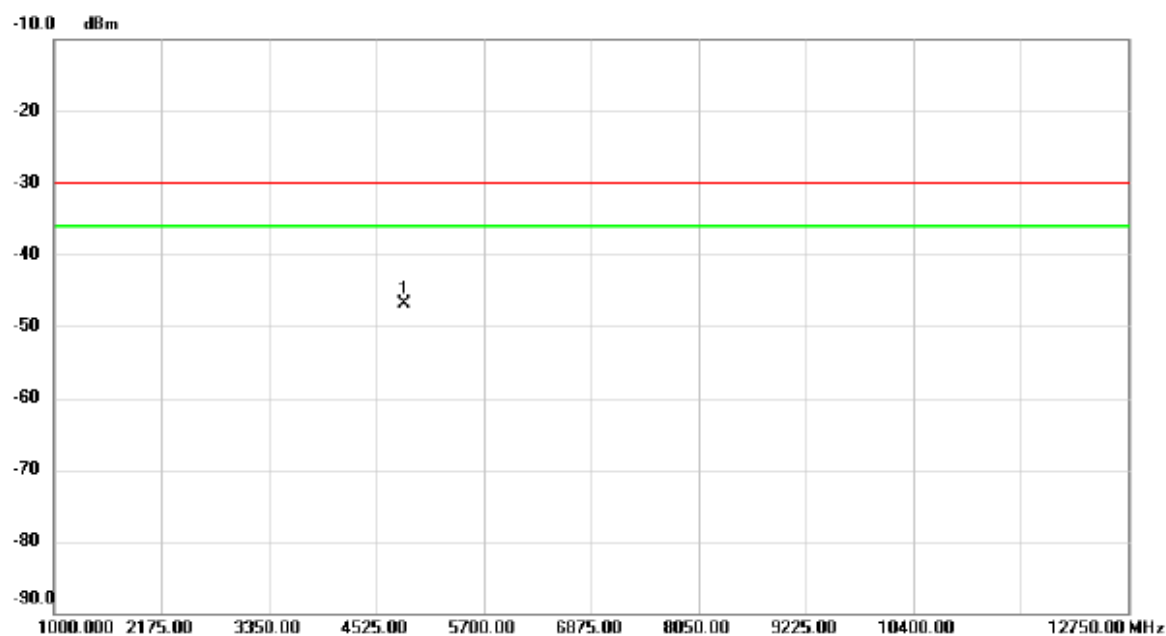
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		104.6900	-65.86	-5.36	-71.22	-54.00	-17.22	peak	
2		249.2200	-62.07	-0.24	-62.31	-36.00	-26.31	peak	
3		457.7700	-73.06	3.42	-69.64	-36.00	-33.64	peak	
4		642.5550	-73.14	8.21	-64.93	-54.00	-10.93	peak	
5	*	716.7600	-72.25	11.42	-60.83	-54.00	-6.83	peak	
6		856.9250	-73.83	9.84	-63.99	-54.00	-9.99	peak	

Test Mode:	TX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

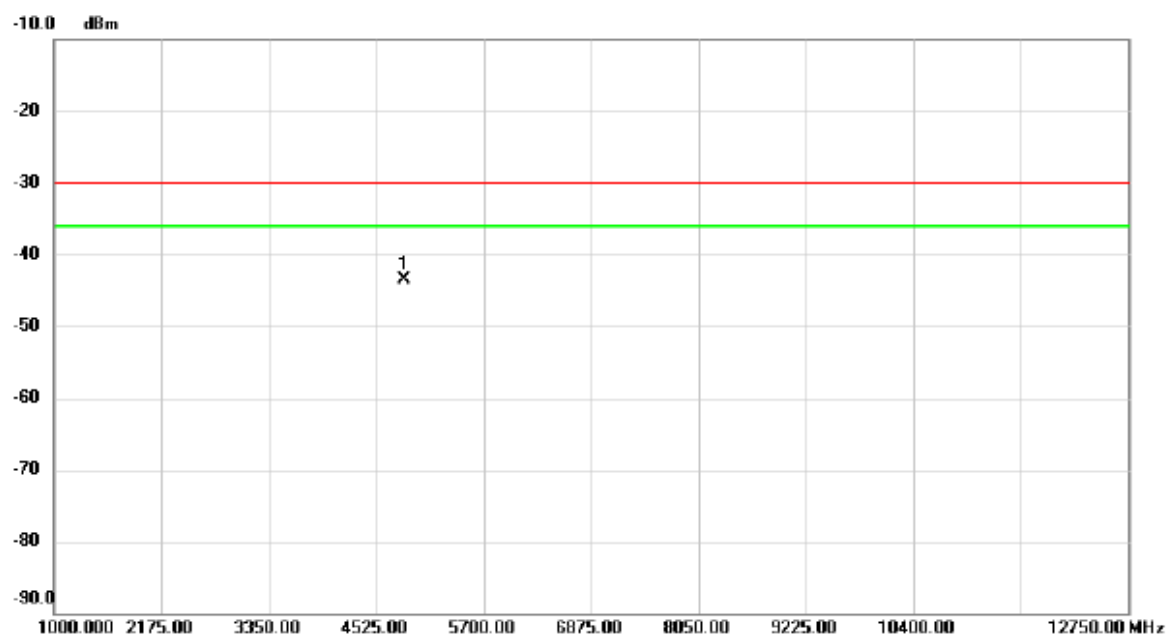
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4824.050	-58.34	11.54	-46.80	-30.00	-16.80	peak	

Test Mode:	TX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

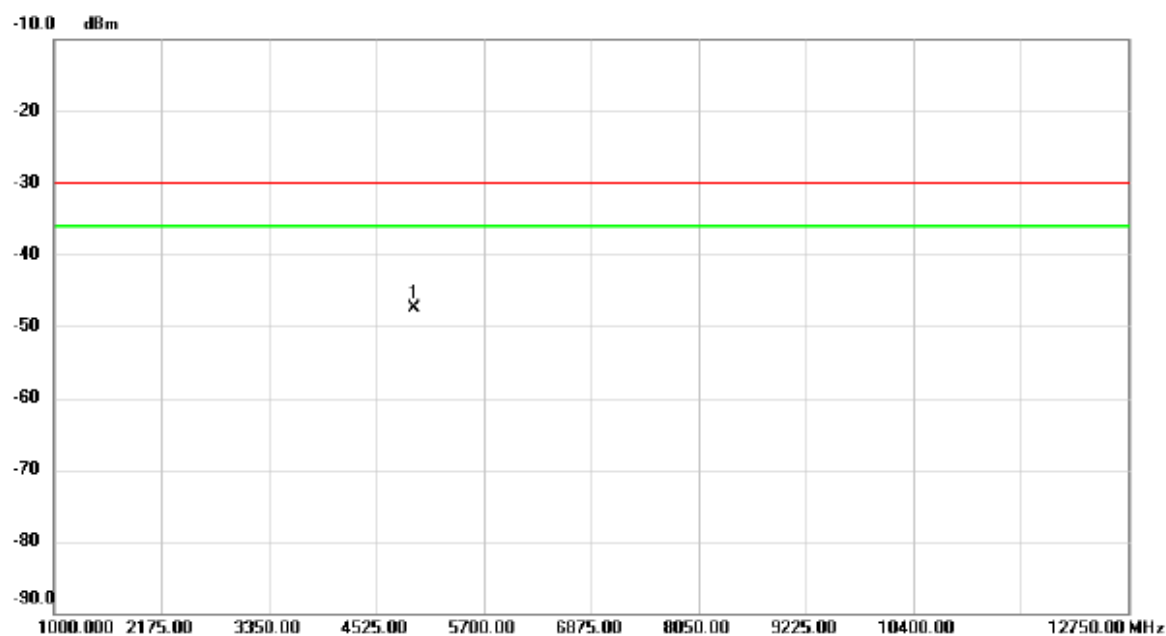
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4823.910	-53.83	10.36	-43.47	-30.00	-13.47	peak	

Test Mode:	TX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

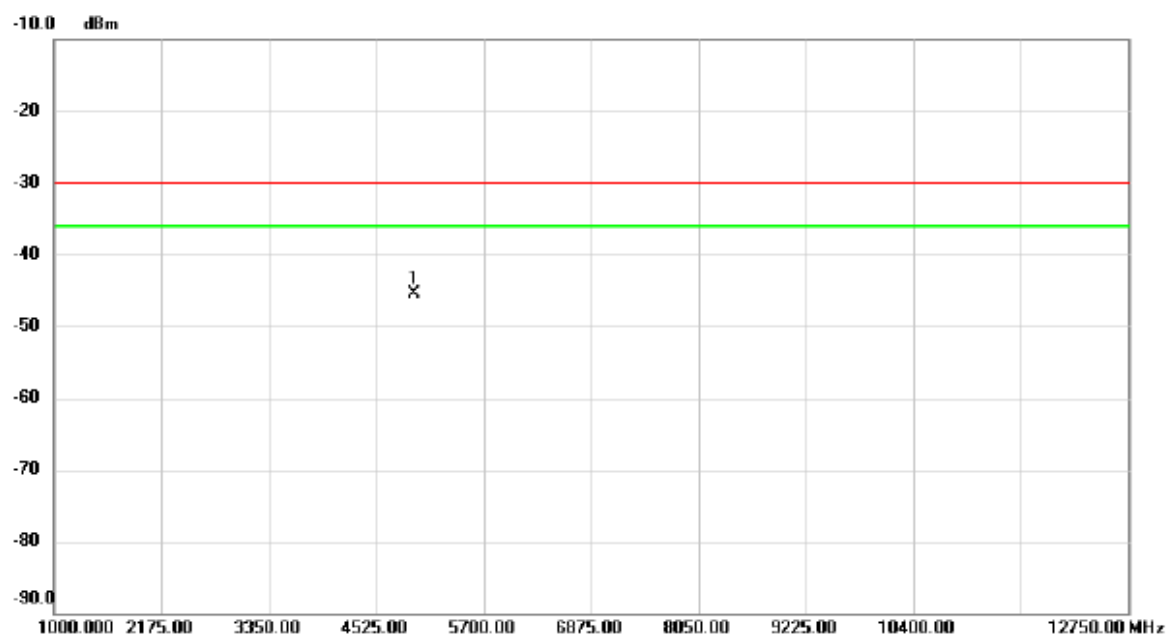
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4944.050	-59.22	11.70	-47.52	-30.00	-17.52	peak	

Test Mode:	TX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

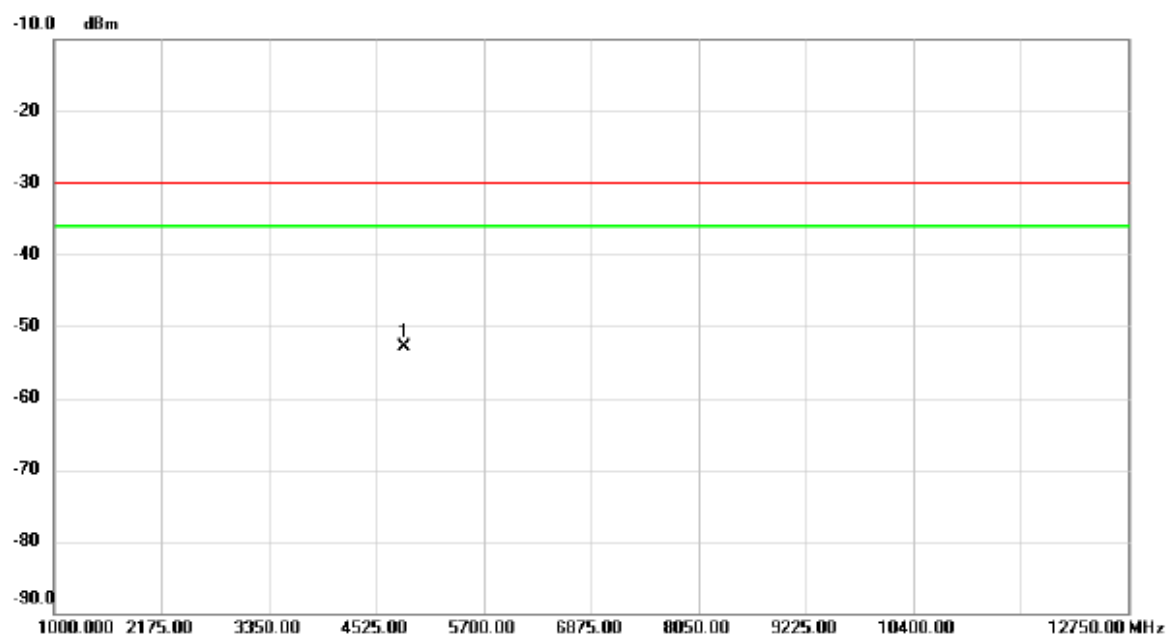
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4943.140	-56.04	10.58	-45.46	-30.00	-15.46	peak	

Test Mode:	TX Mode 2412 MHz (11g)
Date of Test:	Dec. 03, 2015

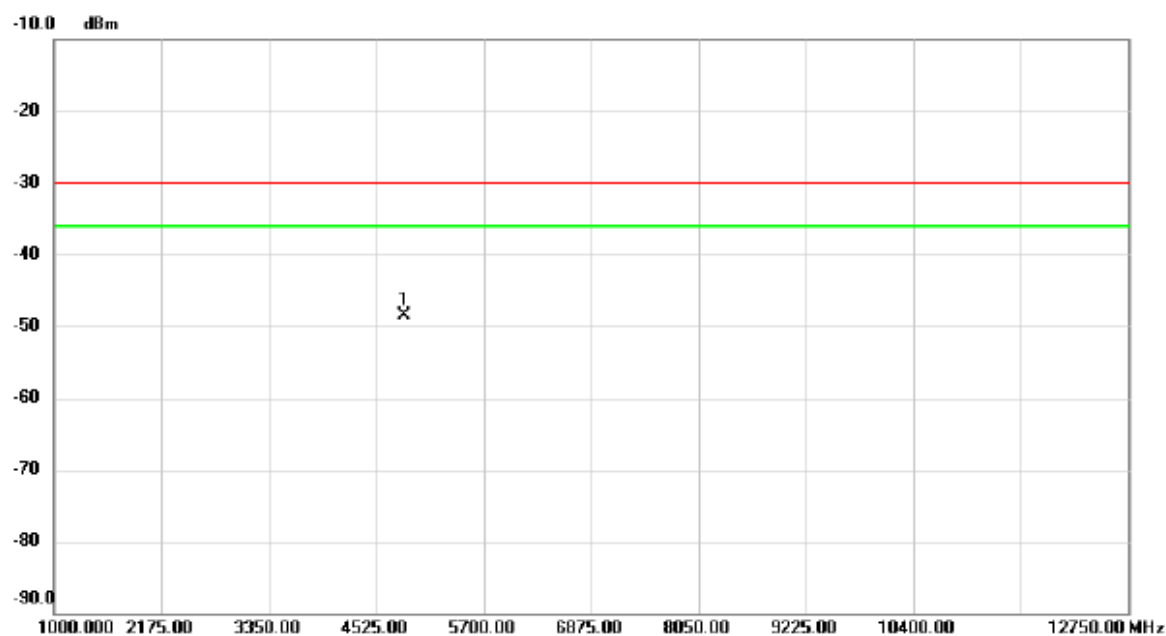
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	4824.180	-64.38	11.54	-52.84	-30.00	-22.84	peak	

Test Mode:	TX Mode 2412 MHz (11g)
Date of Test:	Dec. 03, 2015

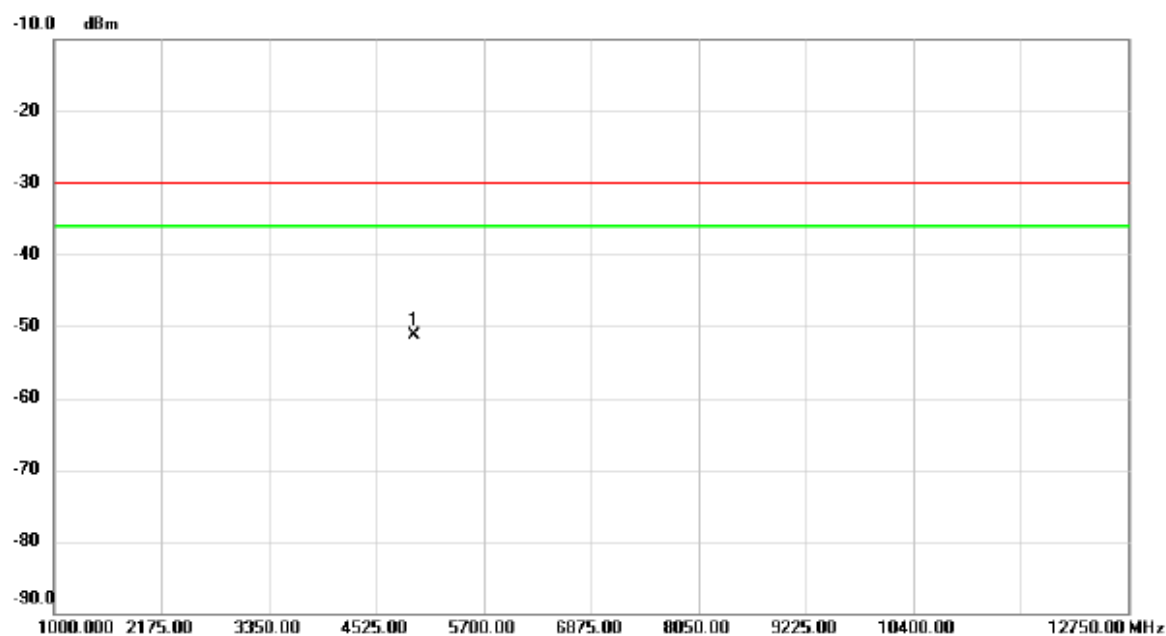
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4823.720	-58.88	10.36	-48.52	-30.00	-18.52	peak	

Test Mode:	TX Mode 2472 MHz (11g)
Date of Test:	Dec. 03, 2015

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4944.110	-63.01	11.70	-51.31	-30.00	-21.31	peak	

Test Mode:	TX Mode 2472 MHz (11g)
Date of Test:	Dec. 03, 2015

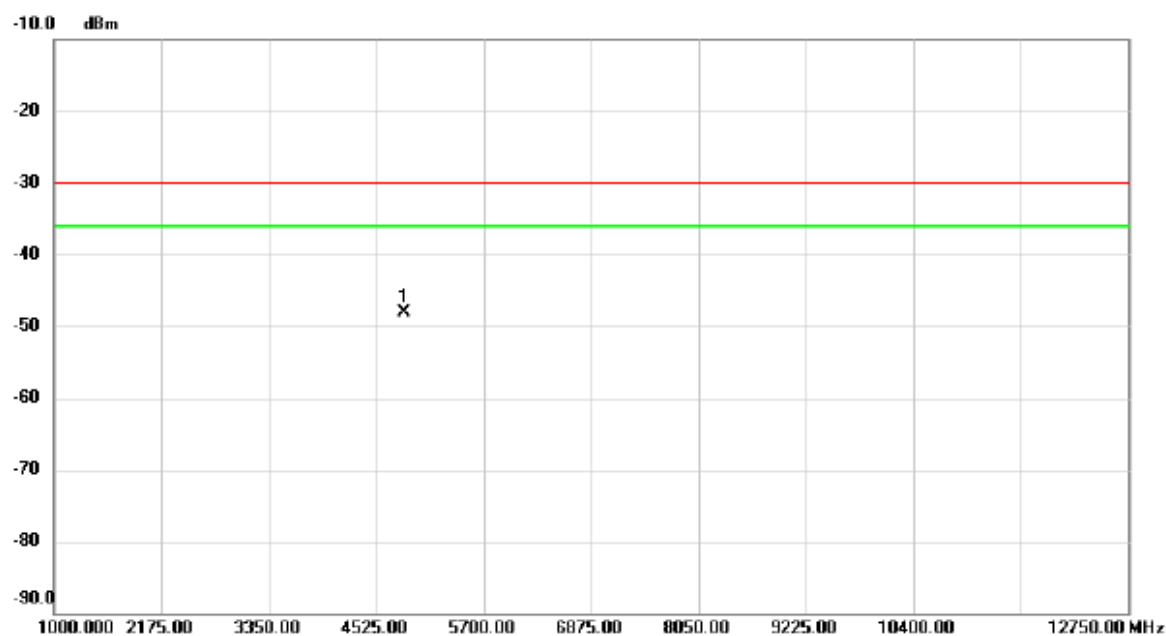
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4943.170	-65.21	10.58	-54.63	-30.00	-24.63	peak	

Test Mode:	TX Mode 2412 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

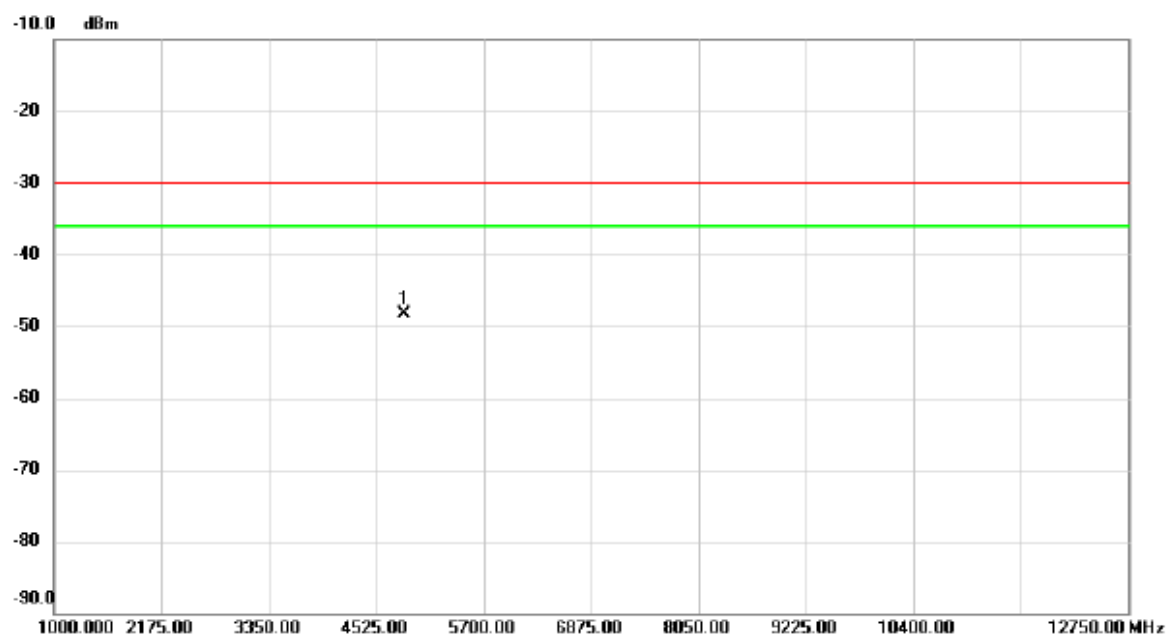
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4824.360	-59.56	11.54	-48.02	-30.00	-18.02	peak	

Test Mode:	TX Mode 2412 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

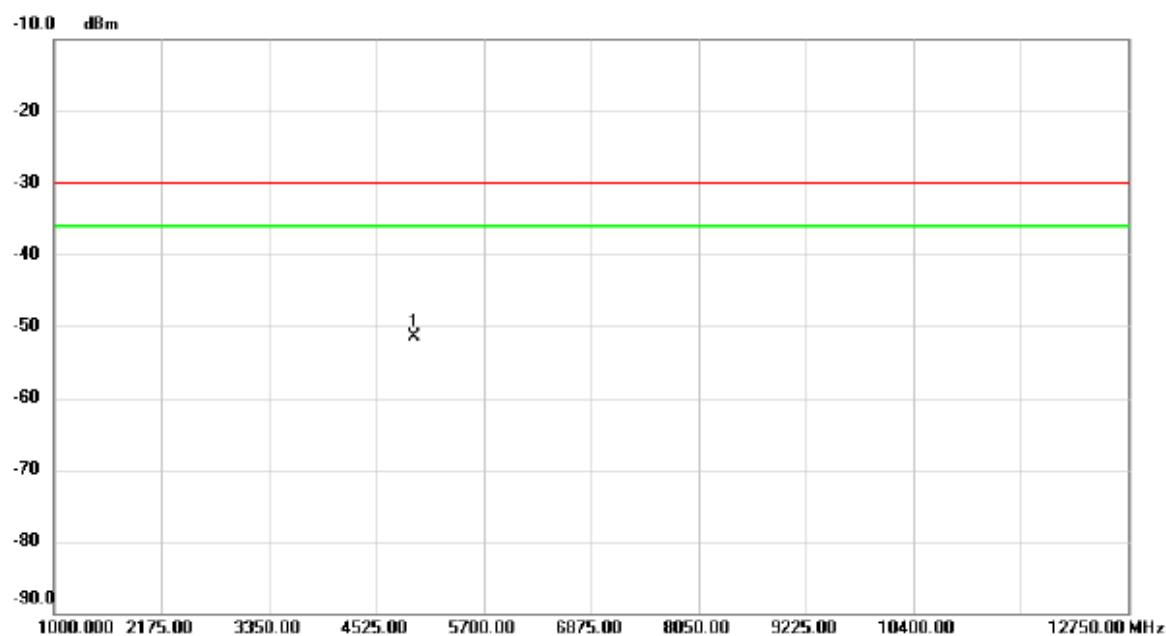
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4824.160	-58.57	10.36	-48.21	-30.00	-18.21	peak	

Test Mode:	TX Mode 2472 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

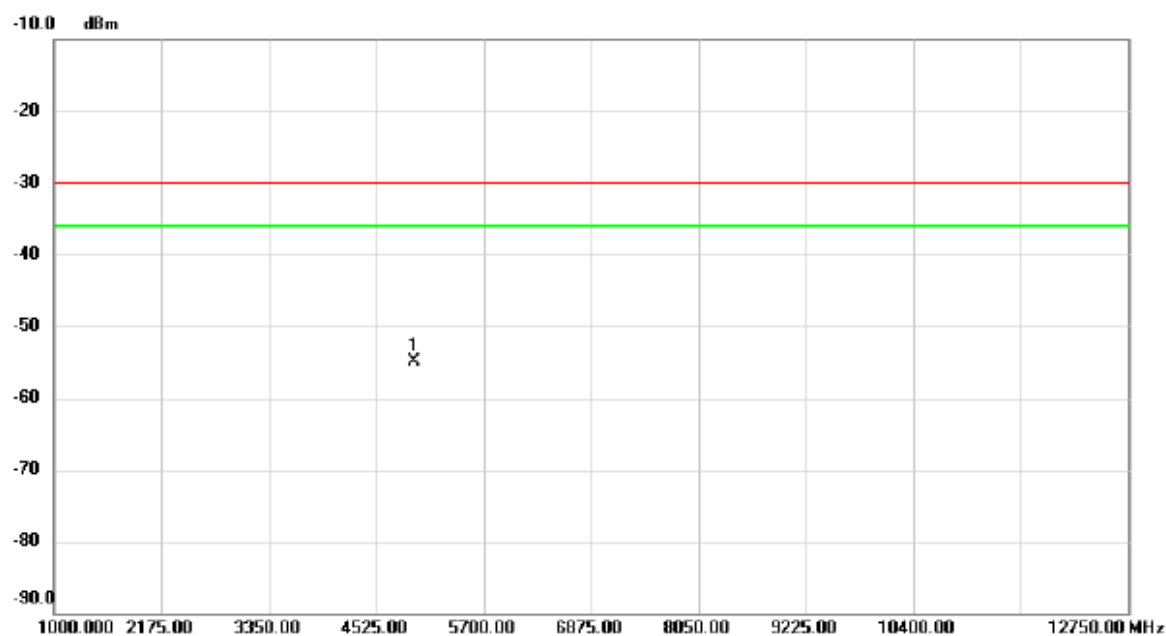
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4943.150	-63.10	11.70	-51.40	-30.00	-21.40	peak	

Test Mode:	TX Mode 2472 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

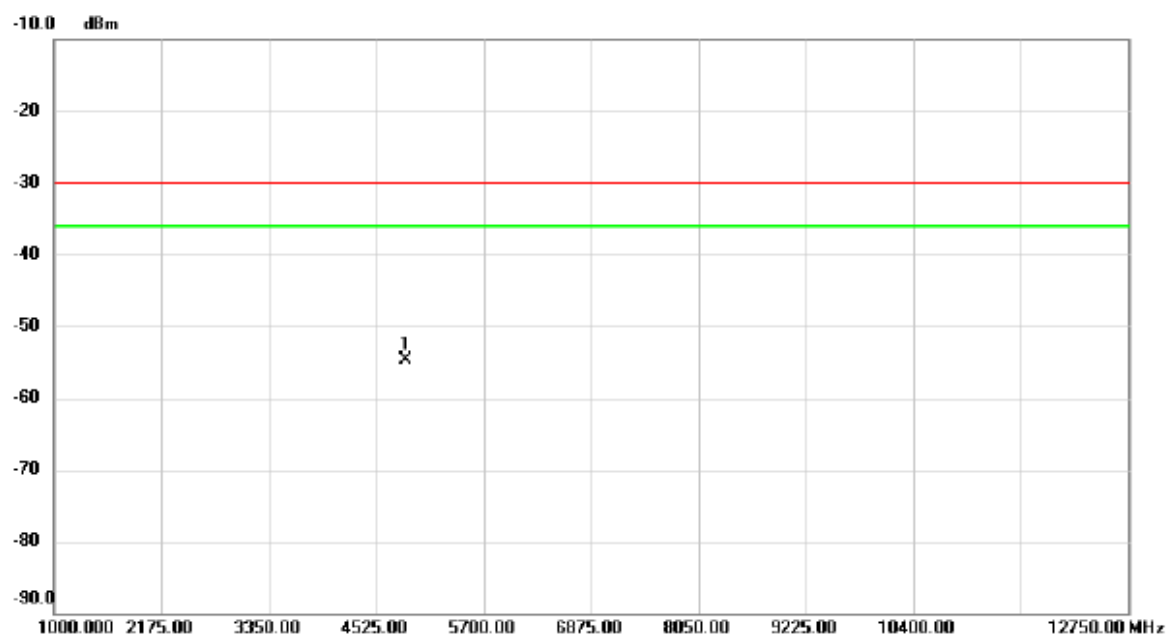
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4943.470	-65.49	10.58	-54.91	-30.00	-24.91	peak	

Test Mode:	TX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

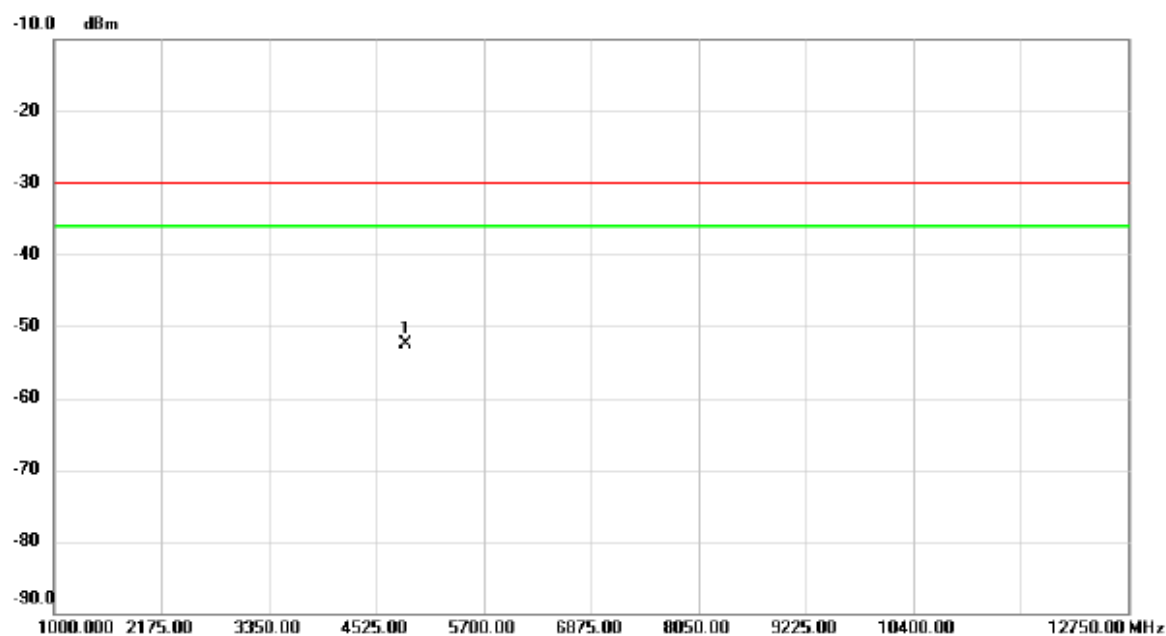
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4843.260	-66.19	11.56	-54.63	-30.00	-24.63	peak	

Test Mode:	TX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

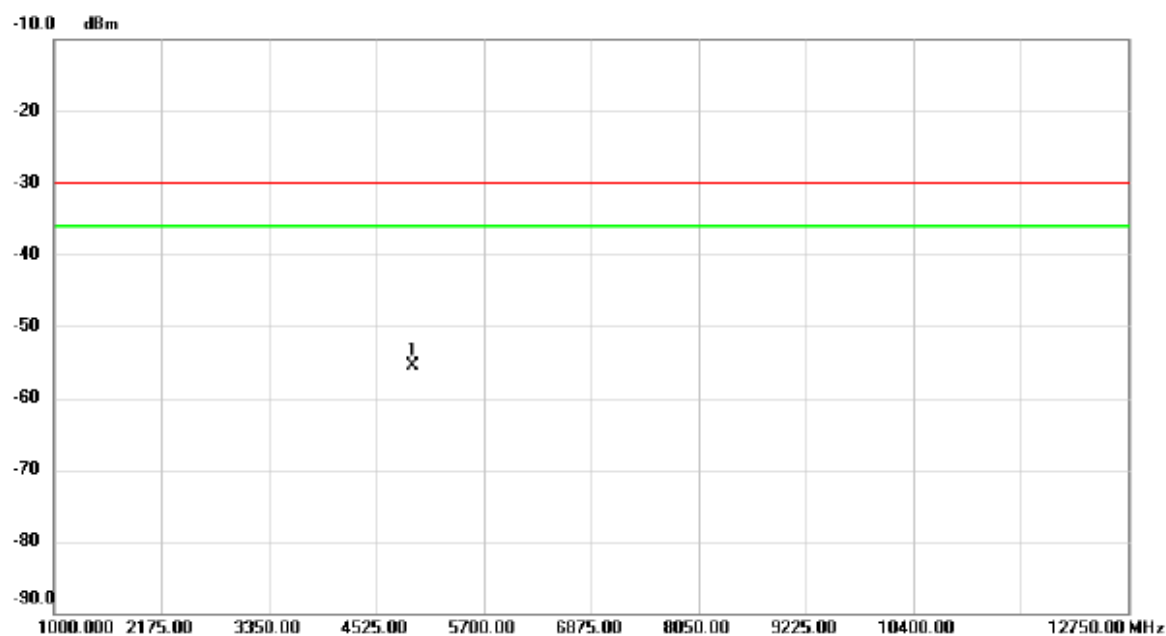
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4844.040	-62.83	10.40	-52.43	-30.00	-22.43	peak	

Test Mode:	TX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

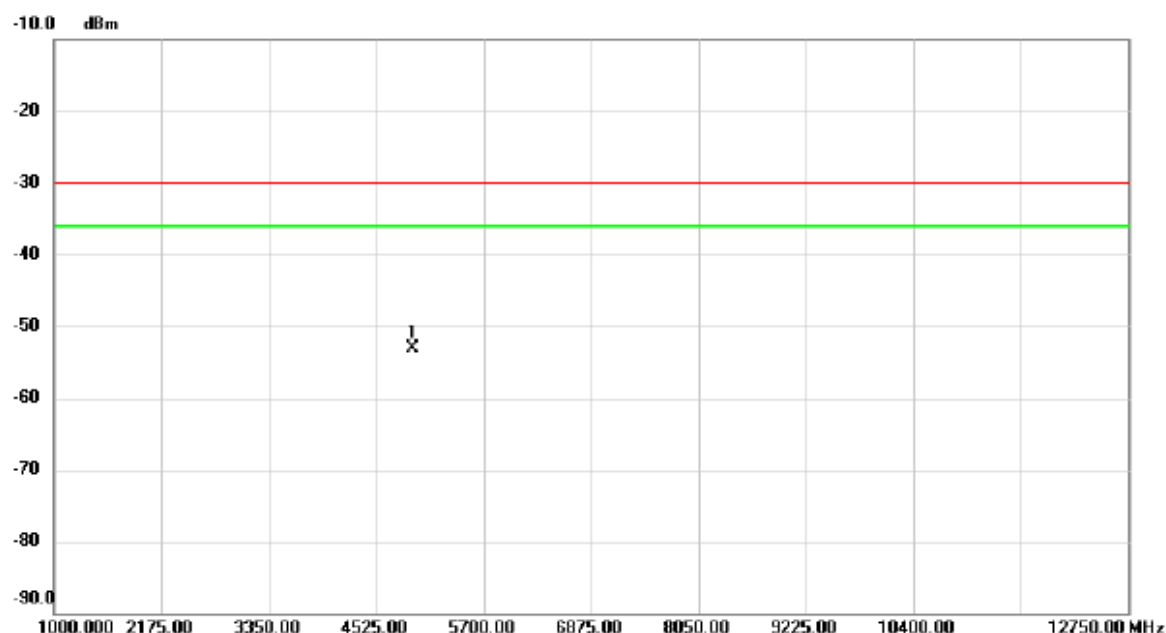
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4924.170	-67.17	11.68	-55.49	-30.00	-25.49	peak	

Test Mode:	TX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

Horizontal

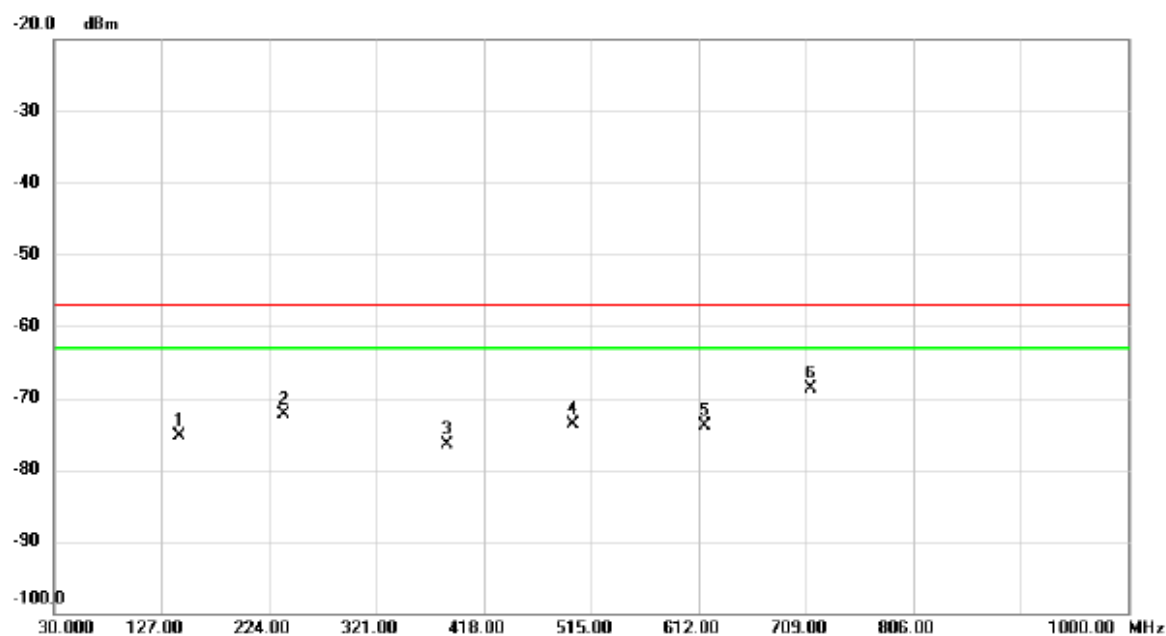


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4924.050	-64.73	11.68	-53.05	-30.00	-23.05	peak	

ATTACHMENT I - RECEIVER SPURIOUS EMISSIONS

Test Mode:	RX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

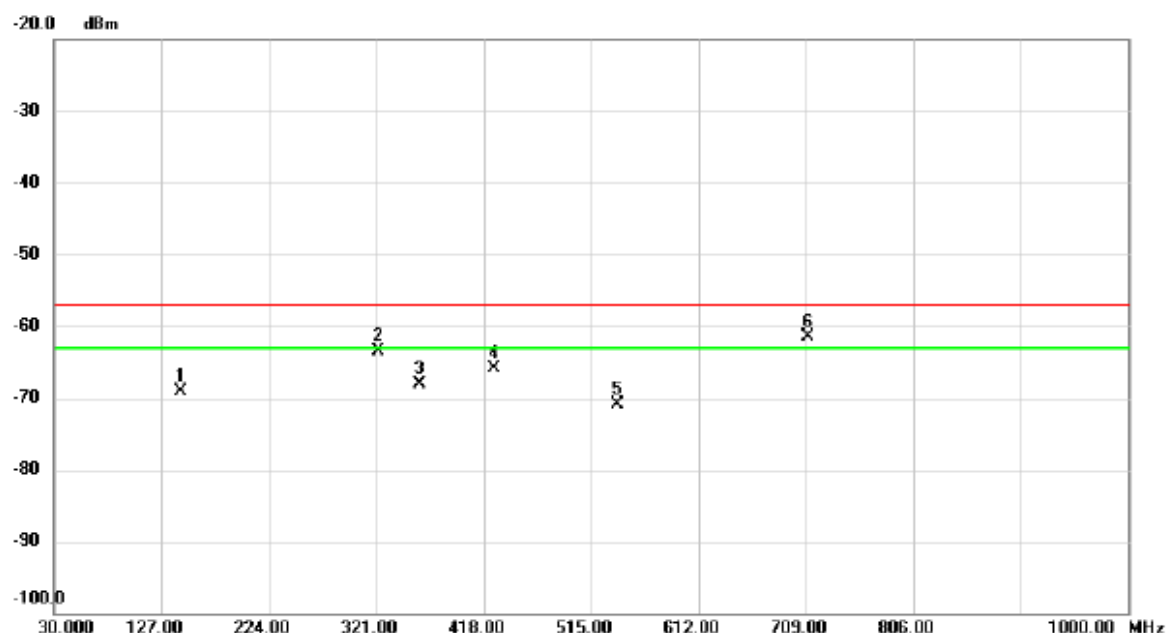
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		143.0050	-76.69	1.31	-75.38	-57.00	-18.38	peak	
2		237.5800	-72.69	0.46	-72.23	-57.00	-15.23	peak	
3		384.5350	-80.39	3.90	-76.49	-57.00	-19.49	peak	
4		498.5100	-79.42	5.80	-73.62	-57.00	-16.62	peak	
5		617.8200	-81.29	7.49	-73.80	-57.00	-16.80	peak	
6	*	713.8500	-80.10	11.49	-68.61	-57.00	-11.61	peak	

Test Mode:	RX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

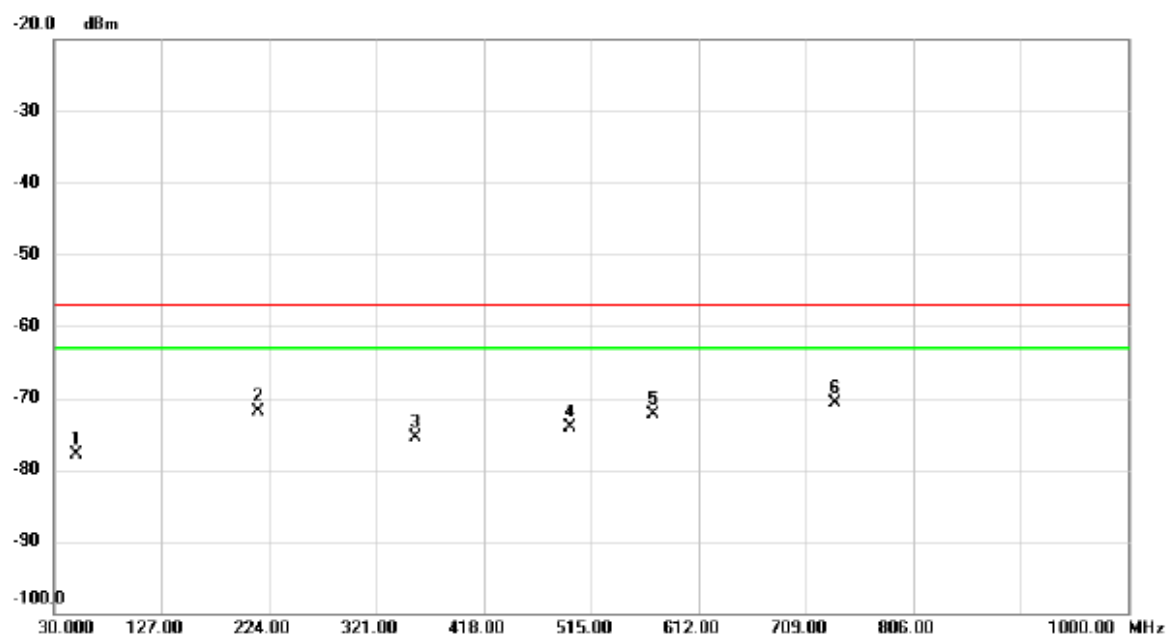
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		144.4600	-70.64	1.48	-69.16	-57.00	-12.16	peak	
2		322.9400	-63.66	0.18	-63.48	-57.00	-6.48	peak	
3		360.7700	-69.72	1.66	-68.06	-57.00	-11.06	peak	
4		428.1850	-69.63	3.81	-65.82	-57.00	-8.82	peak	
5		539.2500	-76.91	5.94	-70.97	-57.00	-13.97	peak	
6	*	710.9400	-73.08	11.57	-61.51	-57.00	-4.51	peak	

Test Mode:	RX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

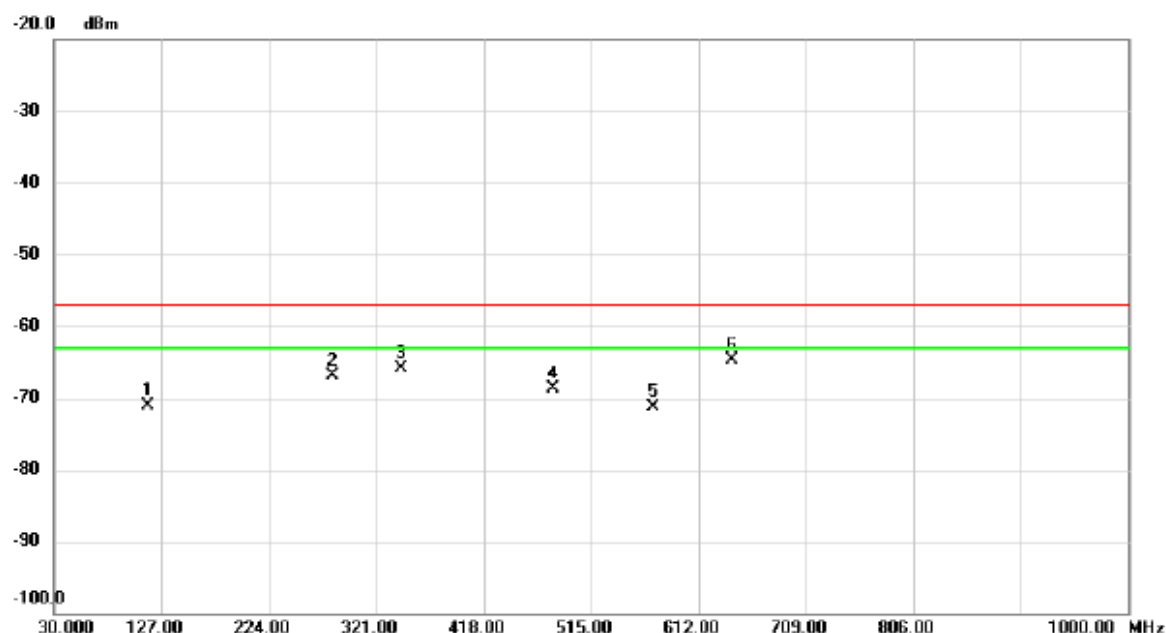
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		50.3700	-77.10	-0.78	-77.88	-57.00	-20.88	peak	
2		214.3000	-68.84	-3.02	-71.86	-57.00	-14.86	peak	
3		356.8900	-76.97	1.38	-75.59	-57.00	-18.59	peak	
4		496.0850	-79.63	5.63	-74.00	-57.00	-17.00	peak	
5		570.7750	-78.73	6.38	-72.35	-57.00	-15.35	peak	
6	*	735.6750	-81.74	10.97	-70.77	-57.00	-13.77	peak	

Test Mode:	RX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

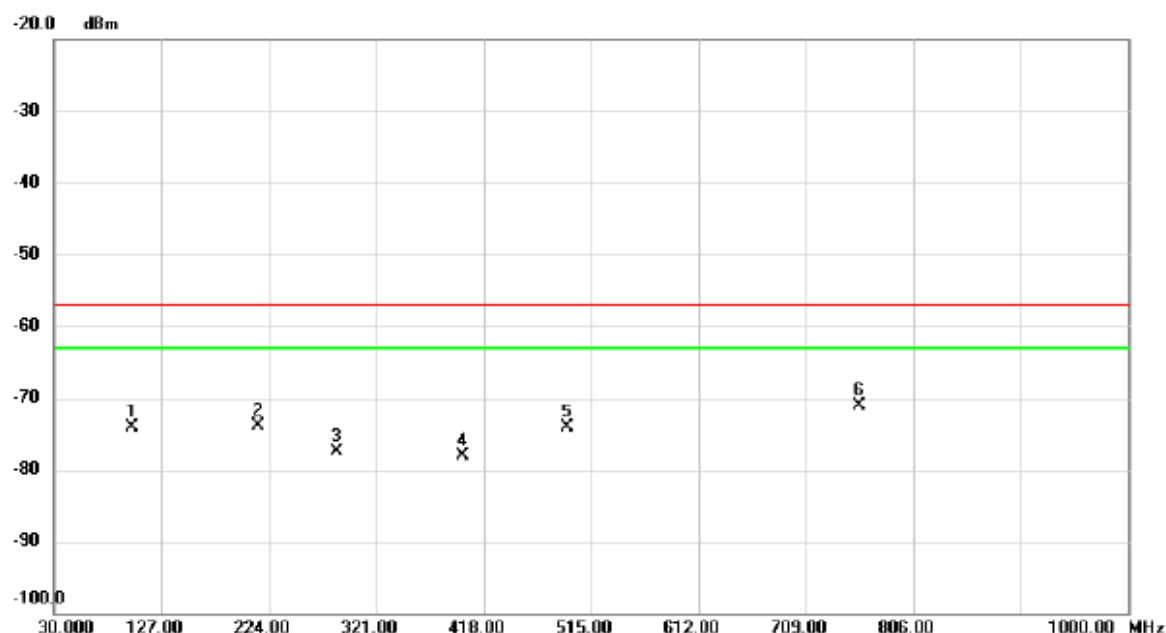
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		114.3900	-65.97	-5.06	-71.03	-57.00	-14.03	peak	
2		281.2300	-67.14	0.24	-66.90	-57.00	-9.90	peak	
3		343.3100	-66.56	0.58	-65.98	-57.00	-8.98	peak	
4		480.0800	-73.15	4.48	-68.67	-57.00	-11.67	peak	
5		571.2600	-77.69	6.39	-71.30	-57.00	-14.30	peak	
6	*	642.5550	-72.92	8.21	-64.71	-57.00	-7.71	peak	

Test Mode:	RX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

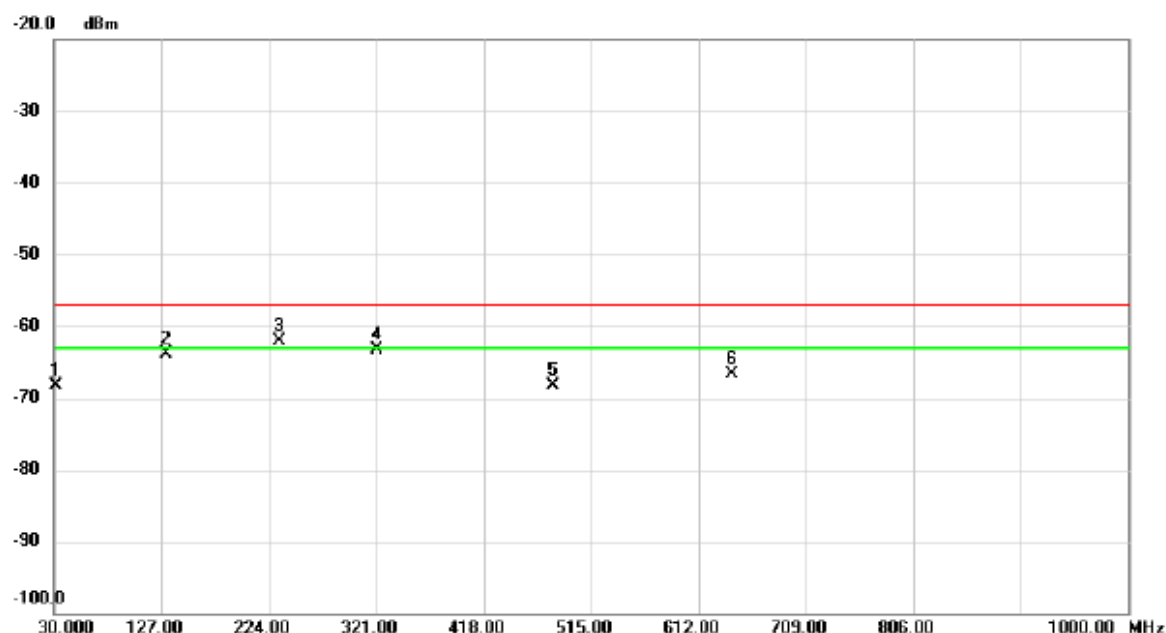
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		100.8100	-70.55	-3.50	-74.05	-57.00	-17.05	peak	
2		214.3000	-69.75	-4.17	-73.92	-57.00	-16.92	peak	
3		285.5950	-77.75	0.26	-77.49	-57.00	-20.49	peak	
4		399.5700	-80.02	1.95	-78.07	-57.00	-21.07	peak	
5		494.1450	-79.17	5.06	-74.11	-57.00	-17.11	peak	
6	*	757.9850	-81.29	10.23	-71.06	-57.00	-14.06	peak	

Test Mode:	RX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

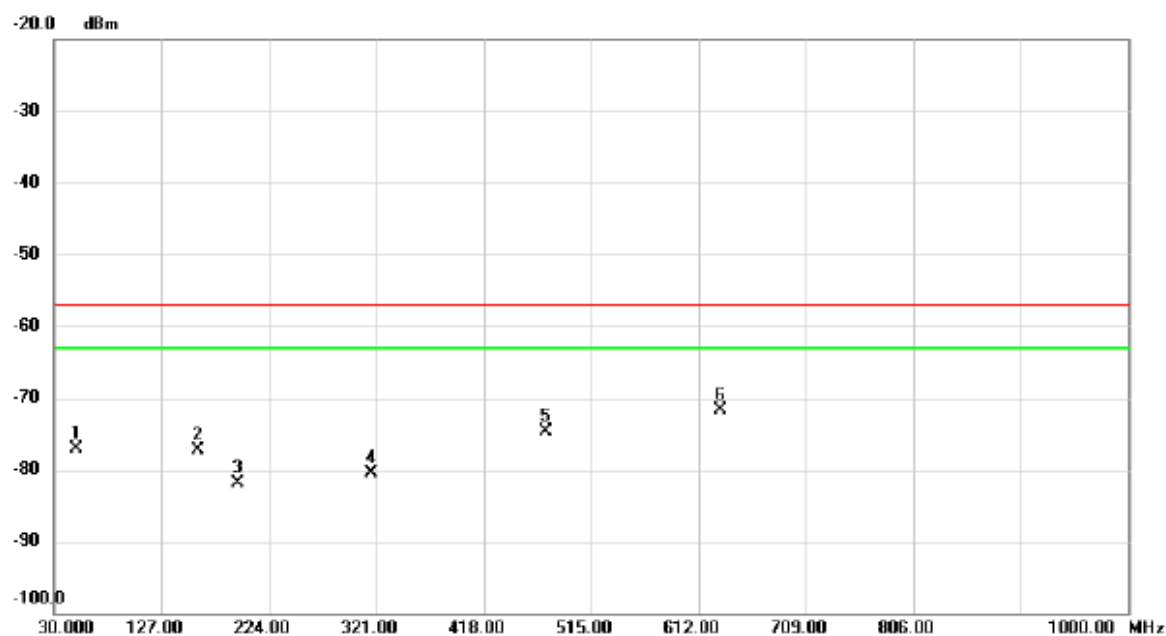
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		31.9400	-67.36	-0.88	-68.24	-57.00	-11.24	peak	
2		130.8800	-61.32	-2.49	-63.81	-57.00	-6.81	peak	
3	*	233.7000	-62.94	0.79	-62.15	-57.00	-5.15	peak	
4		321.0000	-63.38	0.15	-63.23	-57.00	-6.23	peak	
5		480.5650	-72.72	4.51	-68.21	-57.00	-11.21	peak	
6		642.5550	-74.92	8.21	-66.71	-57.00	-9.71	peak	

Test Mode:	RX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

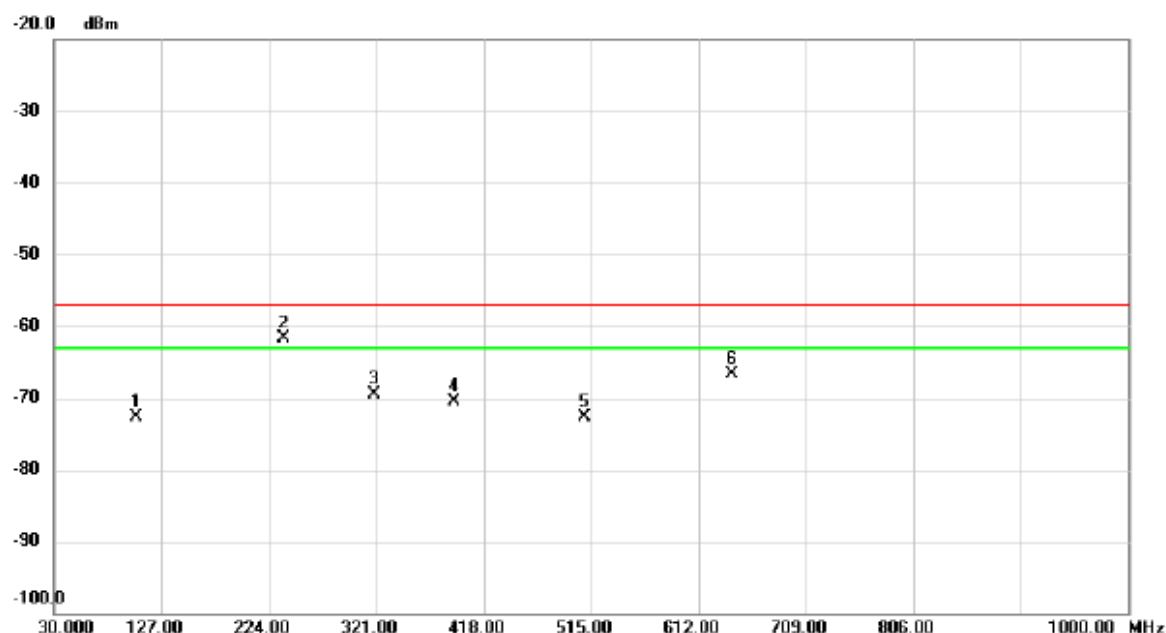
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		50.3700	-75.64	-1.38	-77.02	-57.00	-20.02	peak	
2		160.4650	-78.20	0.88	-77.32	-57.00	-20.32	peak	
3		196.3550	-77.71	-4.27	-81.98	-57.00	-24.98	peak	
4		316.1500	-78.93	-1.57	-80.50	-57.00	-23.50	peak	
5		474.7450	-78.74	4.09	-74.65	-57.00	-17.65	peak	
6	*	632.3700	-79.09	7.47	-71.62	-57.00	-14.62	peak	

Test Mode:	RX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

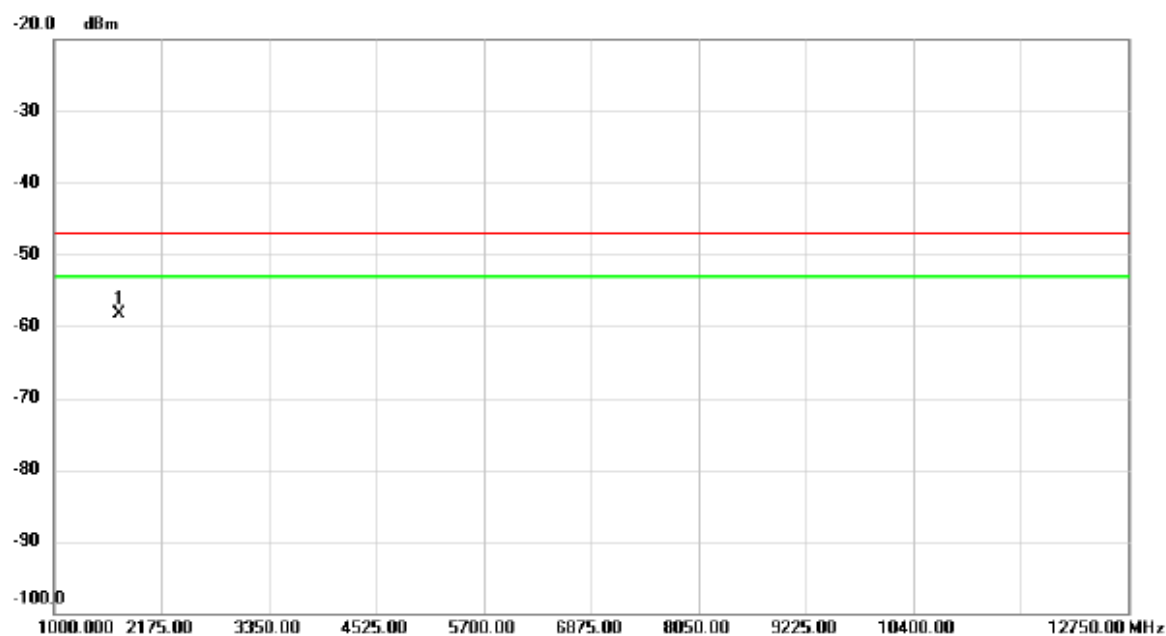
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		104.2050	-67.37	-5.42	-72.79	-57.00	-15.79	peak	
2	*	237.0950	-62.16	0.50	-61.66	-57.00	-4.66	peak	
3		319.5450	-69.63	0.10	-69.53	-57.00	-12.53	peak	
4		391.3250	-74.42	3.83	-70.59	-57.00	-13.59	peak	
5		509.6650	-78.67	5.92	-72.75	-57.00	-15.75	peak	
6		642.5550	-74.90	8.21	-66.69	-57.00	-9.69	peak	

Test Mode:	RX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

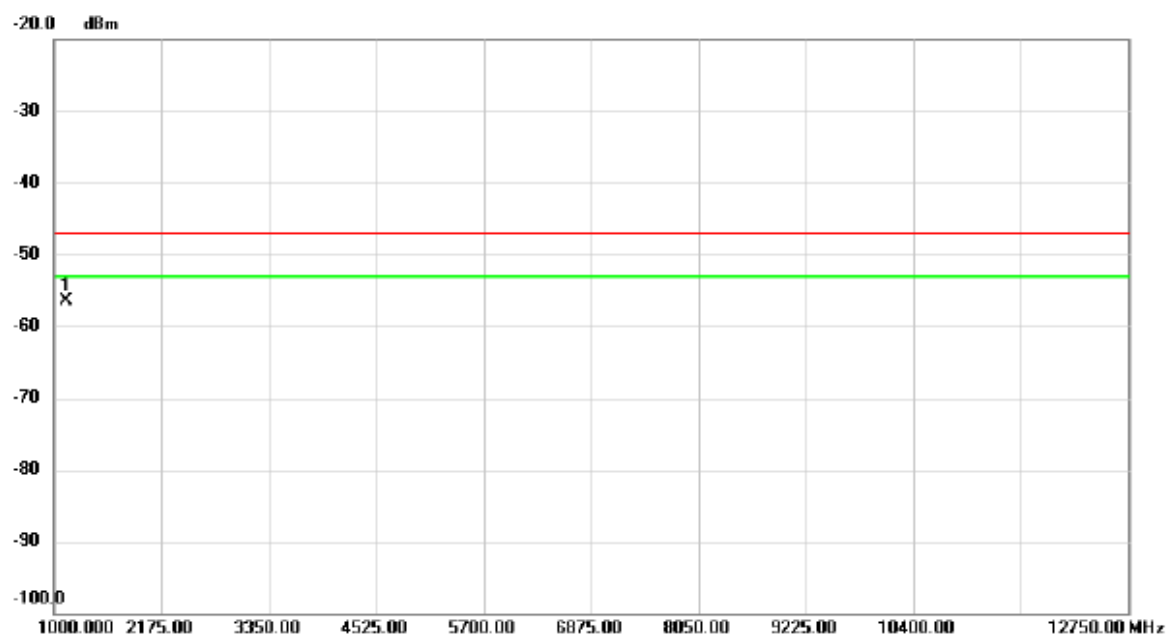
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1706.340	-63.81	5.61	-58.20	-47.00	-11.20	peak	

Test Mode:	RX Mode 2412 MHz (11b)
Date of Test:	Dec. 03, 2015

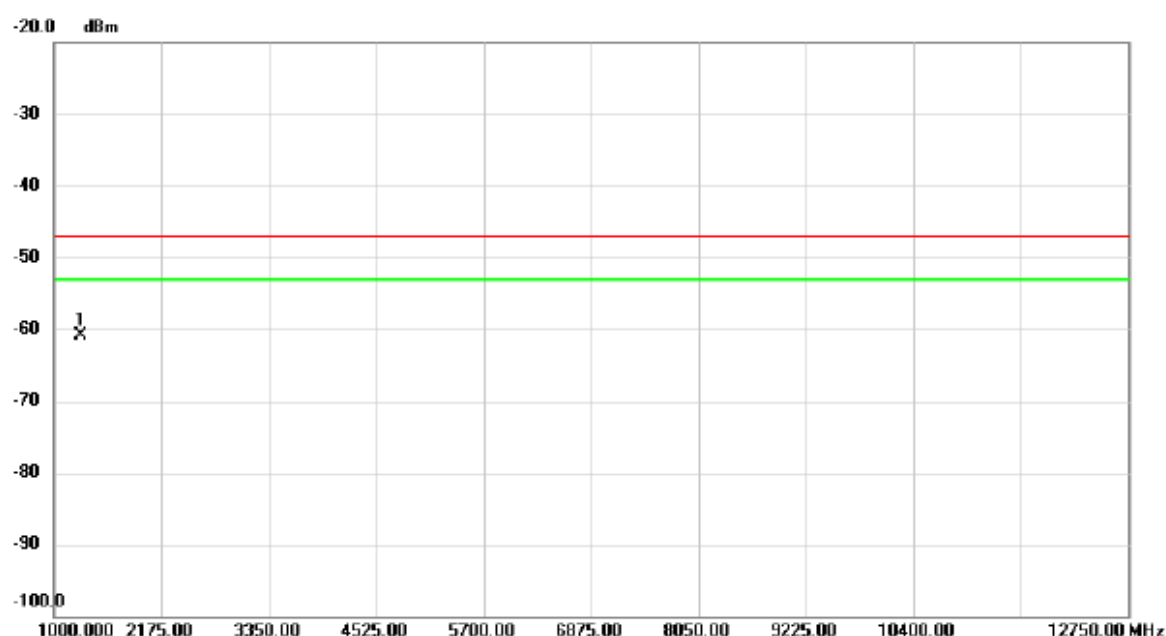
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1136.210	-57.47	0.98	-56.49	-47.00	-9.49	peak	

Test Mode:	RX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

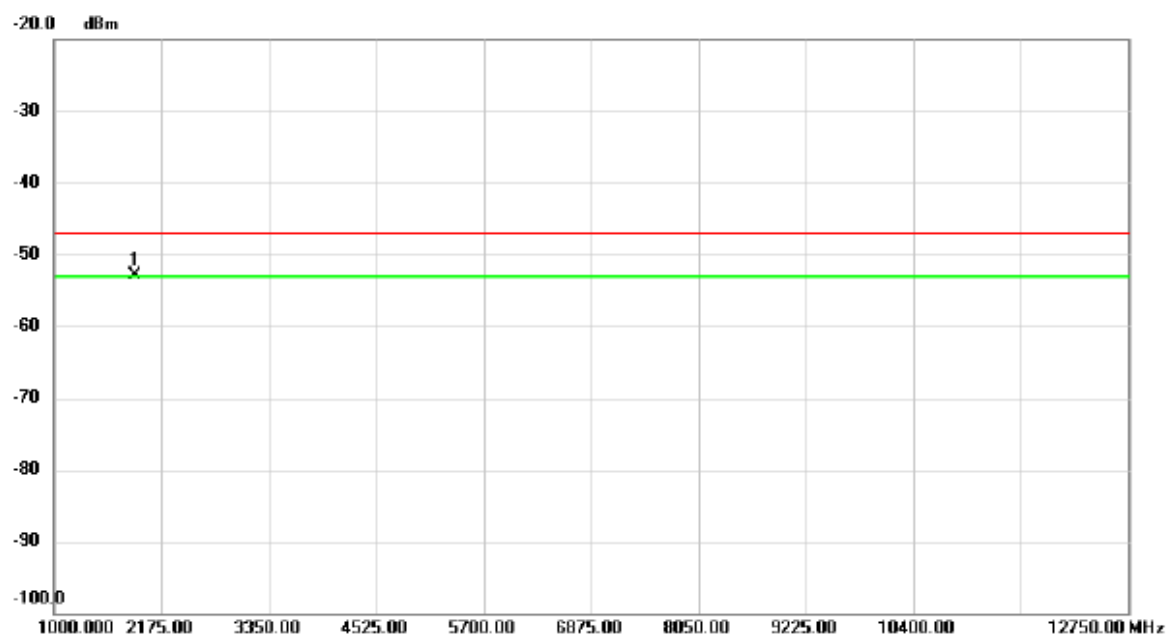
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1285.400	-62.03	1.20	-60.83	-47.00	-13.83	peak	

Test Mode:	RX Mode 2472 MHz (11b)
Date of Test:	Dec. 03, 2015

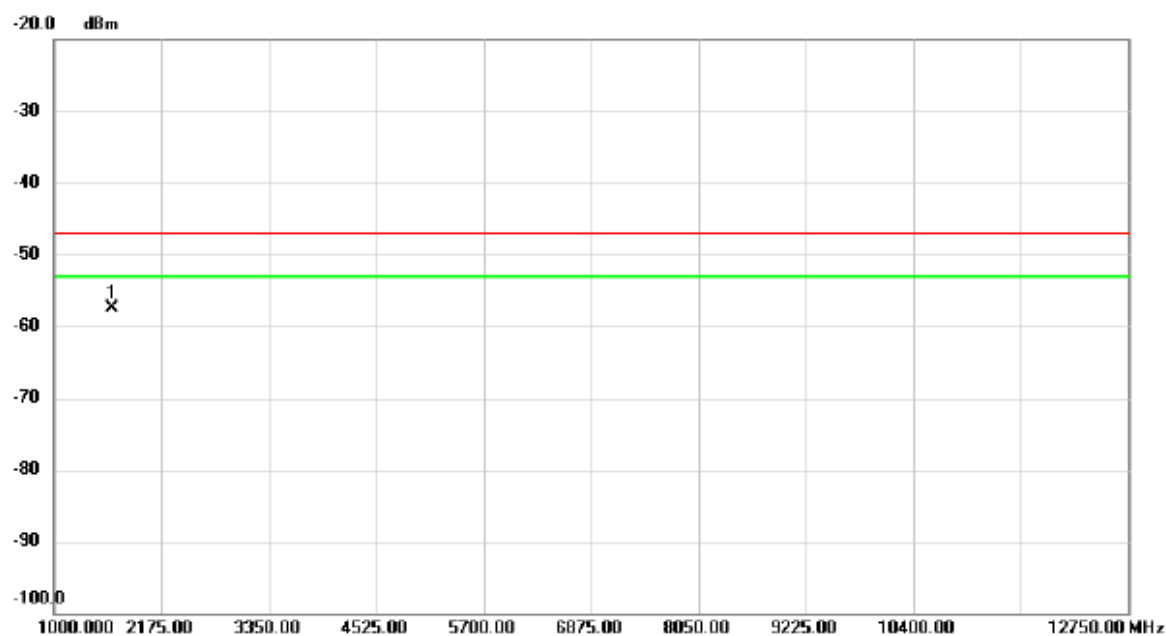
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1888.140	-60.49	7.55	-52.94	-47.00	-5.94	peak	

Test Mode:	RX Mode 2412 MHz (11g)
Date of Test:	Dec. 03, 2015

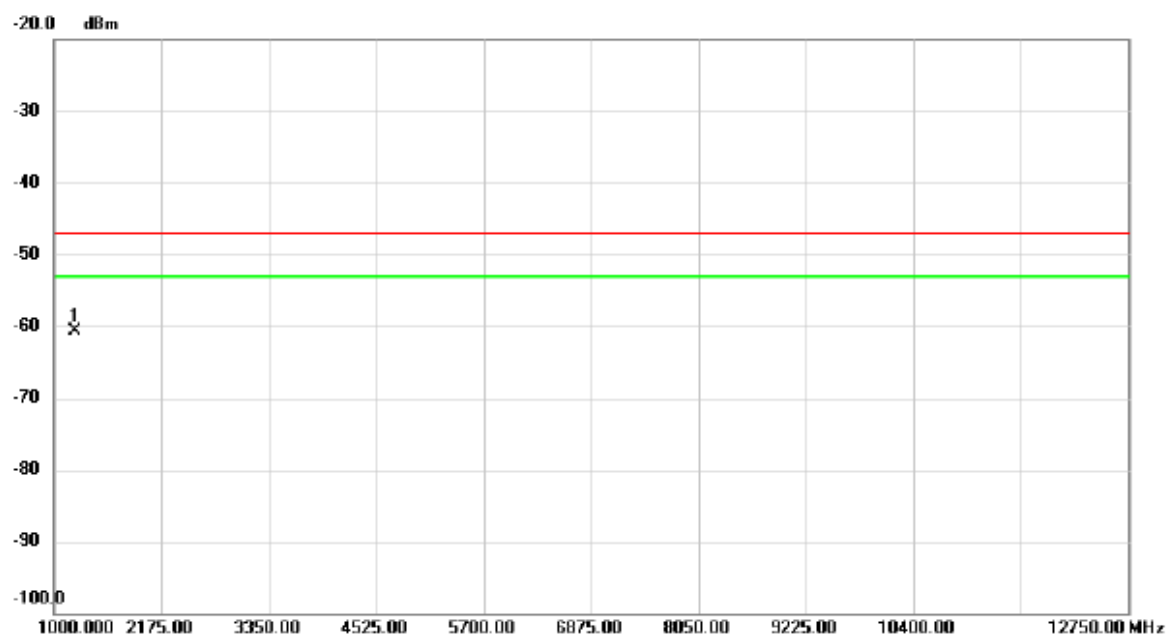
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1628.300	-62.23	4.77	-57.46	-47.00	-10.46	peak	

Test Mode:	RX Mode 2412 MHz (11g)
Date of Test:	Dec. 03, 2015

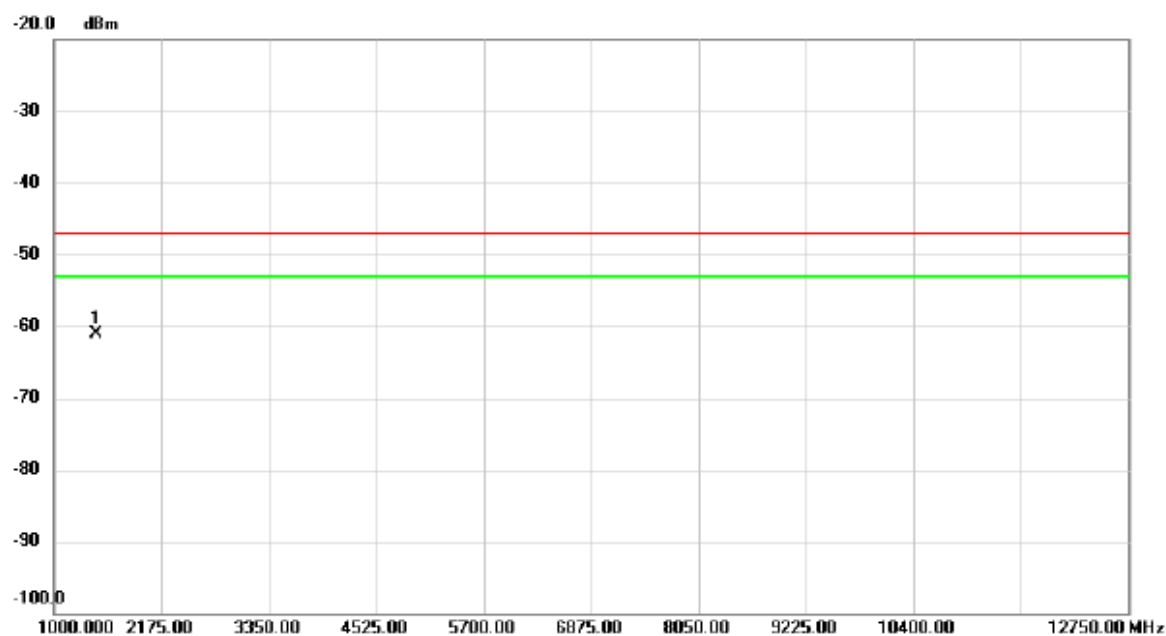
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1234.620	-62.34	1.63	-60.71	-47.00	-13.71	peak	

Test Mode:	RX Mode 2472 MHz (11g)
Date of Test:	Dec. 03, 2015

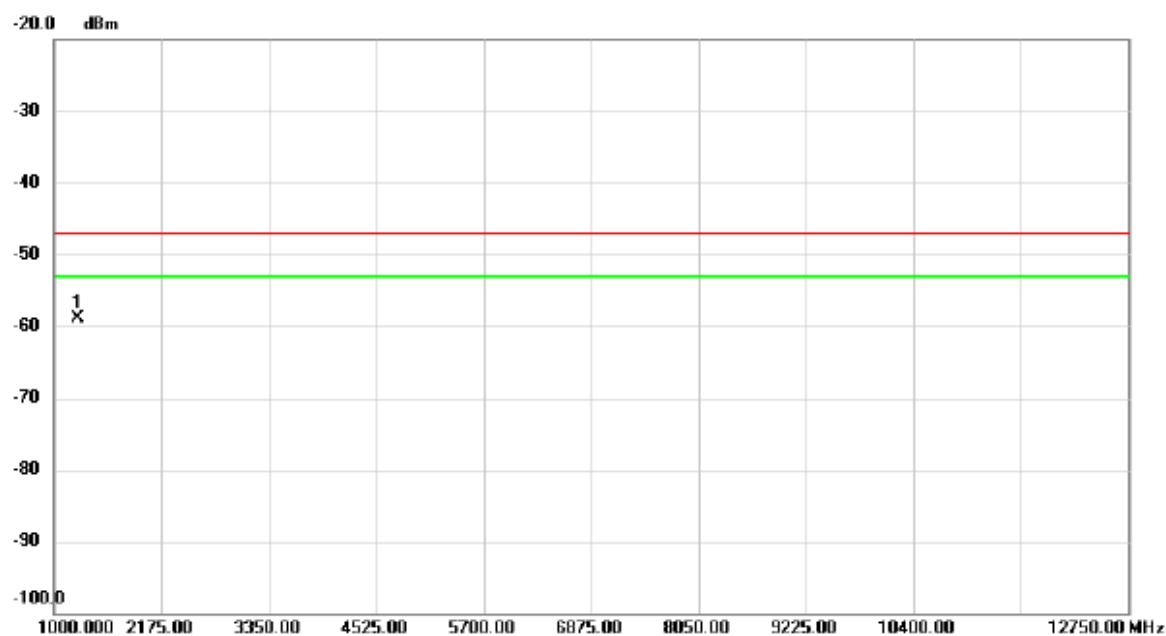
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1464.200	-63.28	2.21	-61.07	-47.00	-14.07	peak	

Test Mode:	RX Mode 2472 MHz (11g)
Date of Test:	Dec. 03, 2015

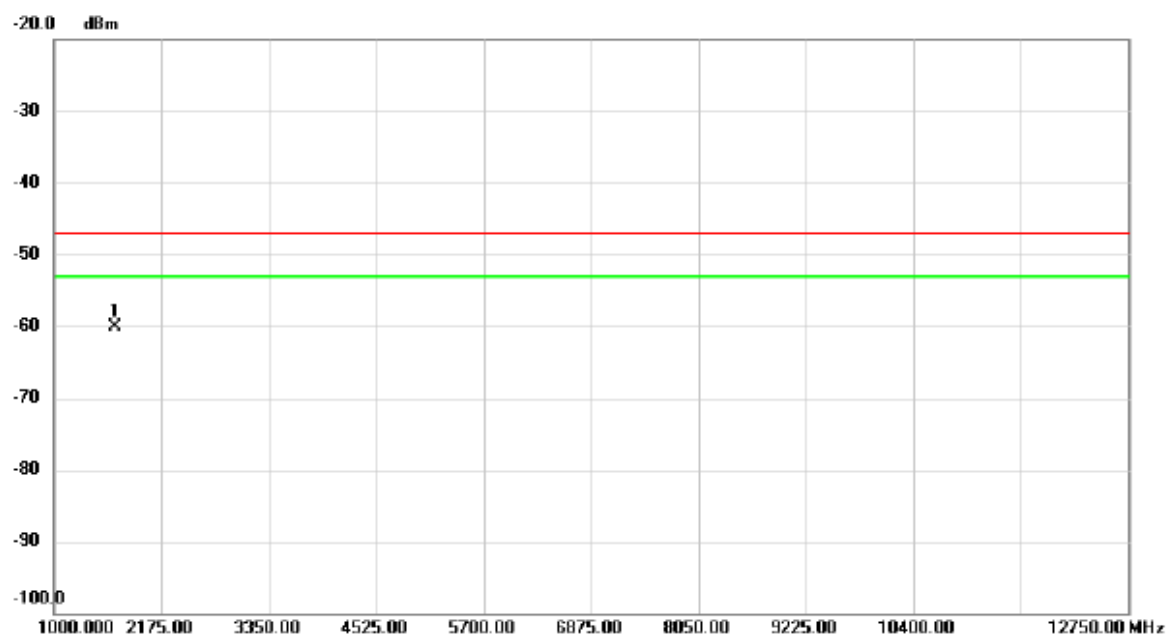
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1254.600	-60.63	1.77	-58.86	-47.00	-11.86	peak	

Test Mode:	RX Mode 2412 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

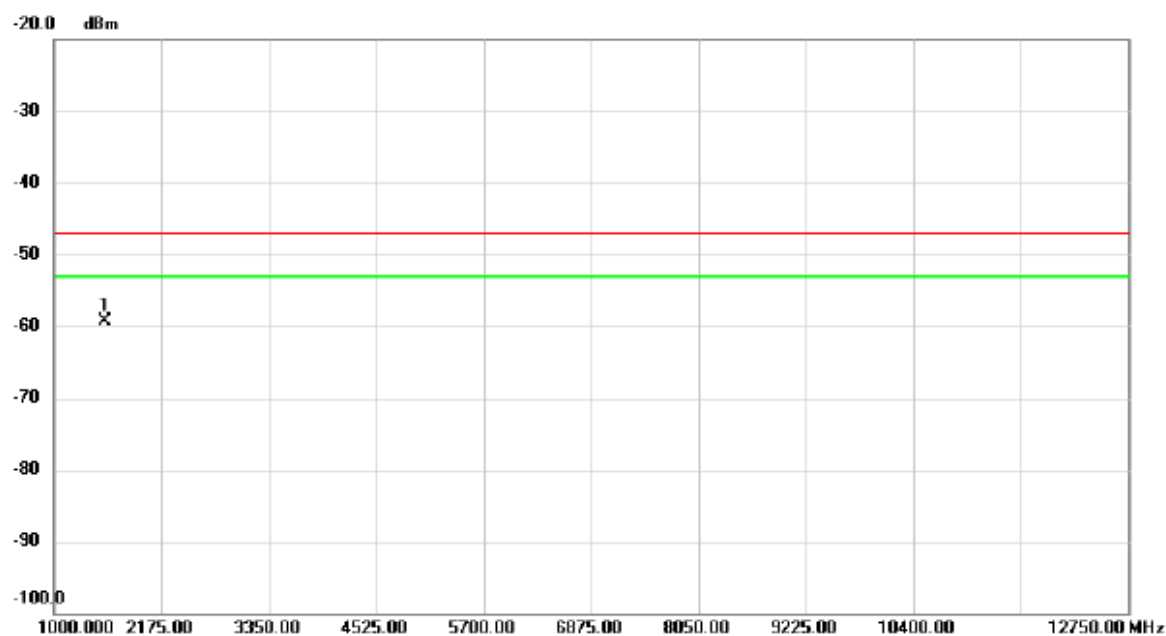
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1666.200	-63.73	3.63	-60.10	-47.00	-13.10	peak	

Test Mode:	RX Mode 2412 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

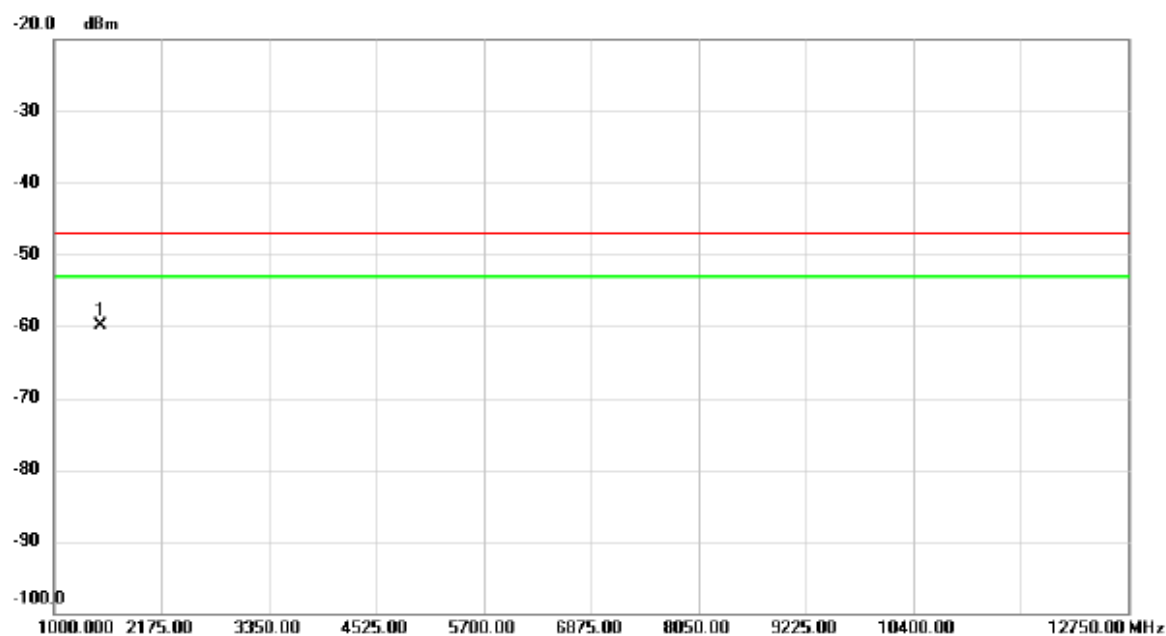
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1552.610	-63.30	3.96	-59.34	-47.00	-12.34	peak	

Test Mode:	RX Mode 2472 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

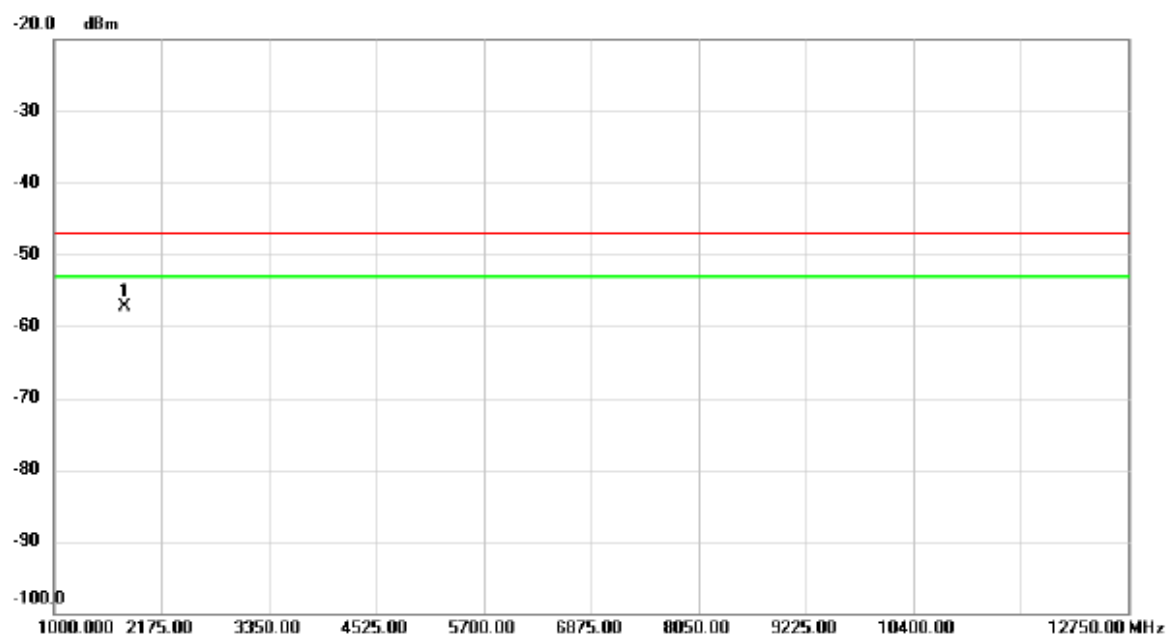
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1512.040	-62.42	2.50	-59.92	-47.00	-12.92	peak	

Test Mode:	RX Mode 2472 MHz (11n 20M)
Date of Test:	Dec. 03, 2015

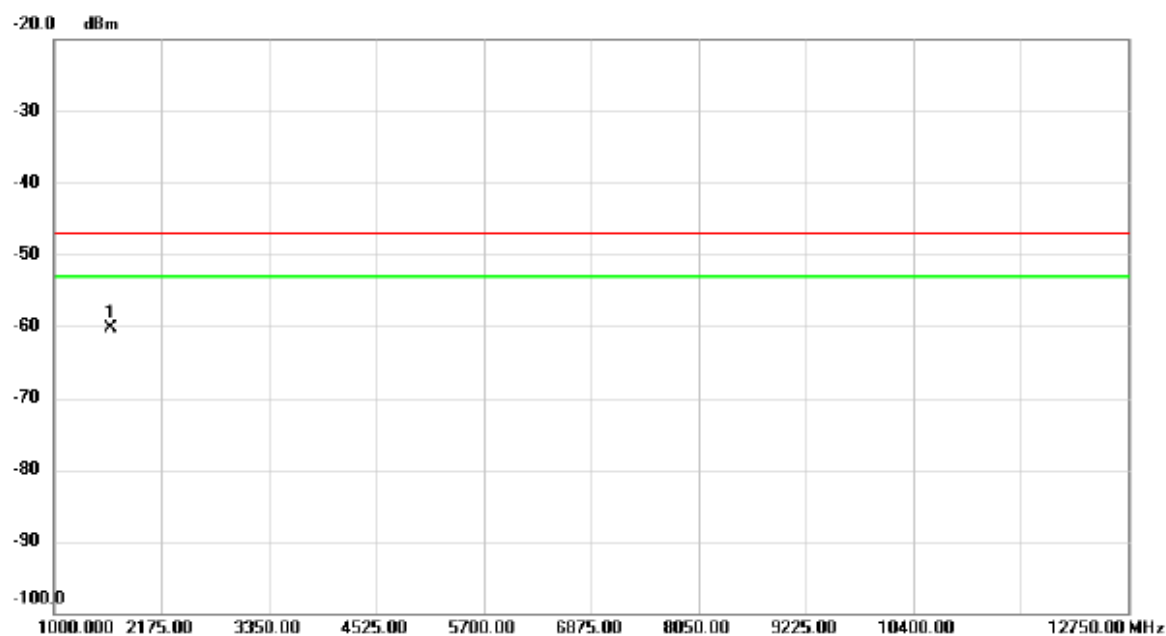
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1776.240	-63.61	6.36	-57.25	-47.00	-10.25	peak	

Test Mode:	RX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

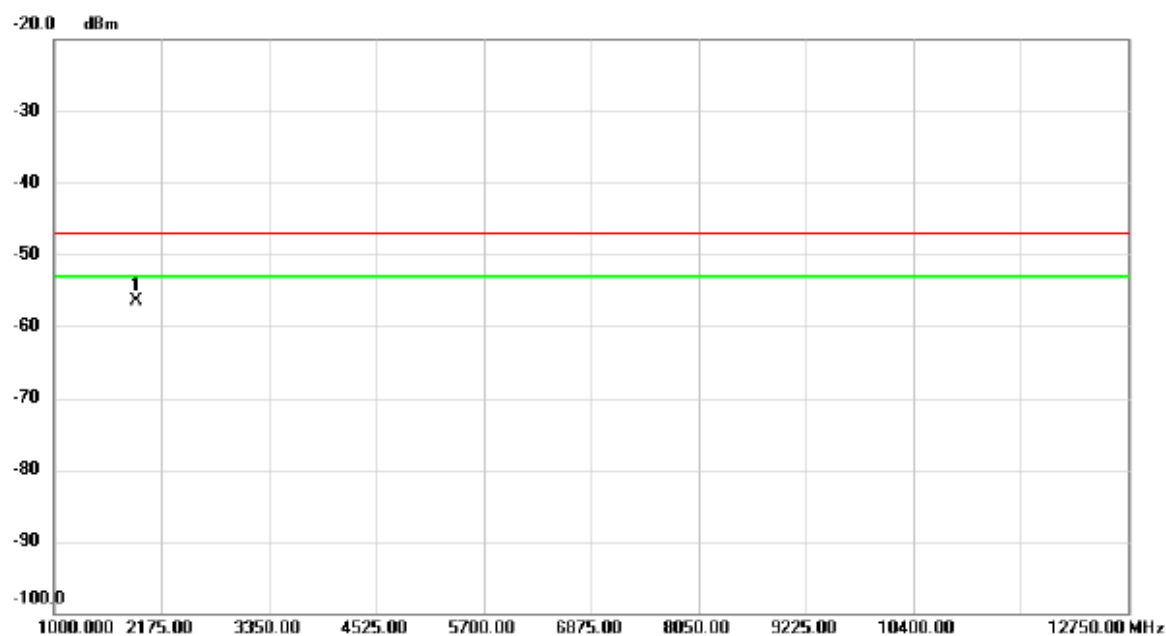
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1624.590	-63.65	3.32	-60.33	-47.00	-13.33	peak	

Test Mode:	RX Mode 2422 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

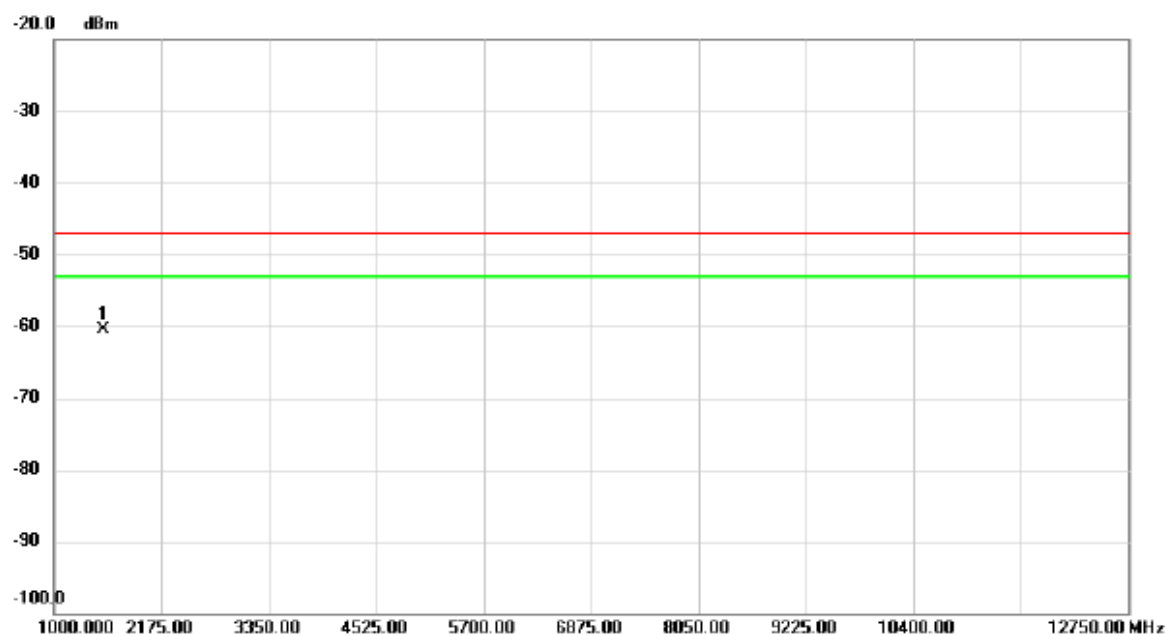
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	1898.230	-64.19	7.66	-56.53	-47.00	-9.53	peak	

Test Mode:	RX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

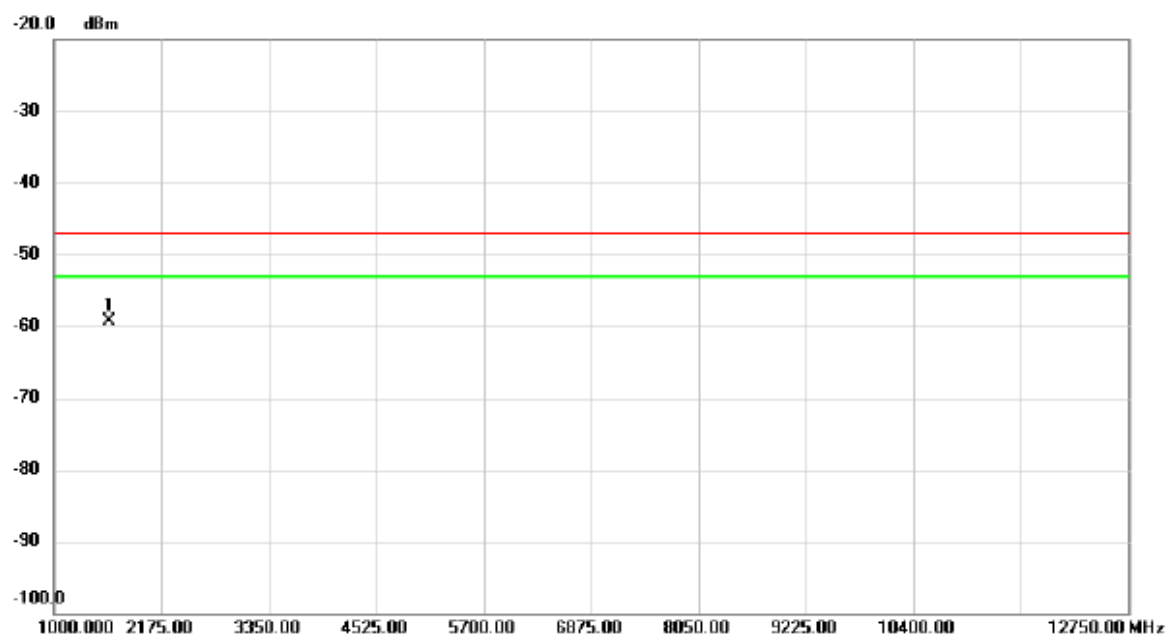
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1539.500	-63.23	2.70	-60.53	-47.00	-13.53	peak	

Test Mode:	RX Mode 2462 MHz (11n 40M)
Date of Test:	Dec. 03, 2015

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1	*	1602.100	-63.87	4.49	-59.38	-47.00	-12.38	peak	