FCC Test Report

Equipment	:	**802.11ac/b/g/n 2x2 MIMO / USB 3.0 Module**
Brand Name	:	**Embedded Works**
Model No.	:	**EW5270UM**
FCC ID	:	**Z9E-EW5270UM**
Standard	:	**47 CFR FCC Part 15.247**
Operating Band	:	**2400 MHz – 2483.5 MHz**
Function	:	**☒ Point-to-multipoint; ☐ Point-to-point**
Applicant	:	**Embedded Works Corporation** **2855 Kifer Road Suite 101 Santa Clara, CA 95051 USA**
Manufacturer	:	**Abocom Systems, Inc.** **No.77, Yu-Yih Rd., Chu-Nan, Miao-Lih County 35059, Taiwan R.O.C.**

The product sample received on Oct. 06, 2016 and completely tested on Nov. 17, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Sam Chen
SPORTON INTERNATIONAL INC.

Testing Laboratory
1190

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Summary of Test Result

Conformance Test Specifications				
Report Clause	**Ref. Std. Clause**	**Description**	**Limit**	**Result**
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: > 30 dBc	Complied
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied

Note: The module is limited to install on Mobile products.

Revision History

Report No.	Version	Description	Issued Date
FR5D0919-02AA	Rev. 01	Initial issue of report	Nov. 23, 2016

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20)	2412-2462	1-11 [11]
2400-2483.5	n (HT40)	2422-2452	3-9 [7]

Band	Mode	BWch (MHz)	Nant
2.4G	11b	20	1
2.4G	11g	20	1
2.4G	HT20	20	2
2.4G	HT40	40	2

Note:
- 2.4G is the 2.4GHz Band (2.4-2.4835GHz).
- 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
- 11g, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

Ant.	Brand	Model Name (Part Number)	Antenna Type	Connector	Gain (dBi)		Cable loss	True Gain (dBi)	
					2.4GHz	5GHz		2.4GHz	5GHz
1	AIR802	ANRD245X05	Dipole Antenna	RP-SMA	5	5	0.4 (Black cable)	4.6	4.6
2	taoglas	GW.71.5153	Dipole Antenna	RP-SMA	3.8	5.5	0.4 (Rose gold cable)	3.4	5.1

Note: The Printed Antenna of the EUT wasn't used.
Chain 1 connect to Ant.1 or Ant. 2, Chain 2 connect to Ant.1 or Ant. 2.

<For 2.4GHz>

For IEEE 802.11b/g mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving antenna.

For IEEE 802.11n mode (2TX/2RX)

Chain 1 and Chain 2 can be used as transmitting/receiving antenna.

Chain 1 and Chain 2 could transmit/receive simultaneously.

<For 5GHz>

For IEEE 802.11a mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving antenna.

For IEEE 802.11n/ac mode (2TX/2RX)

Chain 1 and Chain 2 can be used as transmitting/receiving antenna.

Chain 1 and Chain 2 could transmit/receive simultaneously.

1.1.3 Mode Test Duty Cycle

Mode	DC	T(s)	VBW(Hz) ≥ 1/T
11b	1	n/a (DC>=0.98)	n/a (DC>=0.98)
11g	1	n/a (DC>=0.98)	n/a (DC>=0.98)
HT20	1	n/a (DC>=0.98)	n/a (DC>=0.98)
HT40	1	n/a (DC>=0.98)	n/a (DC>=0.98)

1.1.4 EUT Operational Condition

EUT Power Type	From host system			
Beamforming Function	☐	With beamforming	☒	Without beamforming

1.1.5 EUT's Interface Type

The EUT has two types which are identical to each other in all aspects except for the following table:

Model No.	EUT	Interface Type
EW5270UM	1	Module Type
	2	USB Type

Note: After evaluating, it was selected EUT 1 as worst case and recorded the test result in this report.

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 558074 D01 v03r05
- FCC KDB 662911 D01 v02r01

1.3 Testing Location Information

Testing Location			
☐	HWA YA	ADD :	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
		TEL :	886-3-327-3456 FAX : 886-3-318-0055
☒	JHUBEI	ADD :	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
		TEL :	886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Andy Weng	25°C / 65%	Oct. 26, 2016
Radiated	03CH01-CB	Zero Chen & Peter Wu	22°C / 54%	Oct. 19, 2016~ Nov. 17, 2016
AC Conduction	CO01-CB	GN Hou	22°C / 52%	Nov. 01, 2016~ Nov. 17, 2016

Test site Designation No. TW0006 with FCC.
Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
2.4G	11b	20	1	1(1)	2412	L	46
2.4G	11b	20	1	1(1)	2437	M	50
2.4G	11b	20	1	1(1)	2462	H	43
2.4G	11g	20	1	1(1)	2412	L	51
2.4G	11g	20	1	1(1)	2437	M	56
2.4G	11g	20	1	1(1)	2462	H	47
2.4G	HT20	20	2,(M8)	2	2412	L	47/47
2.4G	HT20	20	2,(M8)	2	2437	M	58/59
2.4G	HT20	20	2,(M8)	2	2462	H	44/44
2.4G	HT40	40	2,(M8)	2	2422	L	46/47
2.4G	HT40	40	2,(M8)	2	2437	M	48/48
2.4G	HT40	40	2,(M8)	2	2452	H	43/44

Note:
- Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch.) and C (Straddle Band Ch.).

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	EUT 1 + Ant. 1 + 2.4GHz function
2	EUT 1 + Ant. 2 + 5GHz function
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT 1 at Z-axis + Ant. 1 + 2.4GHz function
2	EUT 1 at Y-axis + Ant. 1 + 2.4GHz function
Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 1 at Z-axis + Ant. 2 + 5GHz function
For operating mode 3 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT 1 was performed at X axis, Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis. So the measurement will follow this same test configuration. The EUT 1 has two antennas, one is Ant. 1, the other one is Ant. 2. Ant. 1 has been evaluated to be the worst case after evaluating.	
1	EUT at Z-axis + Ant. 1 + 2.4GHz function

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E6430	DoC
2	Earphone	SHYARO CHI	MIC-04	DoC
3	Mouse	Logitech	M-U0026	DoC
4	Test Fixture	Abocom	WM5203T-X30	DoC
5	AP Router	Planex	GW-AP54SGX	KA220030603014-1

For Test Site No: 03CH01-CB (below 1GHz)

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	Earphone	SHYARO CHI	MIC-04	DoC
3	Mouse	HP	FM100	DoC
4	Test Fixture	Abocom	WM5203T-X30	DoC
5	WLAN AP	NETGEAR	WNDR3300v2	PY309300116

For Test Site No: 03CH01-CB (above 1GHz)

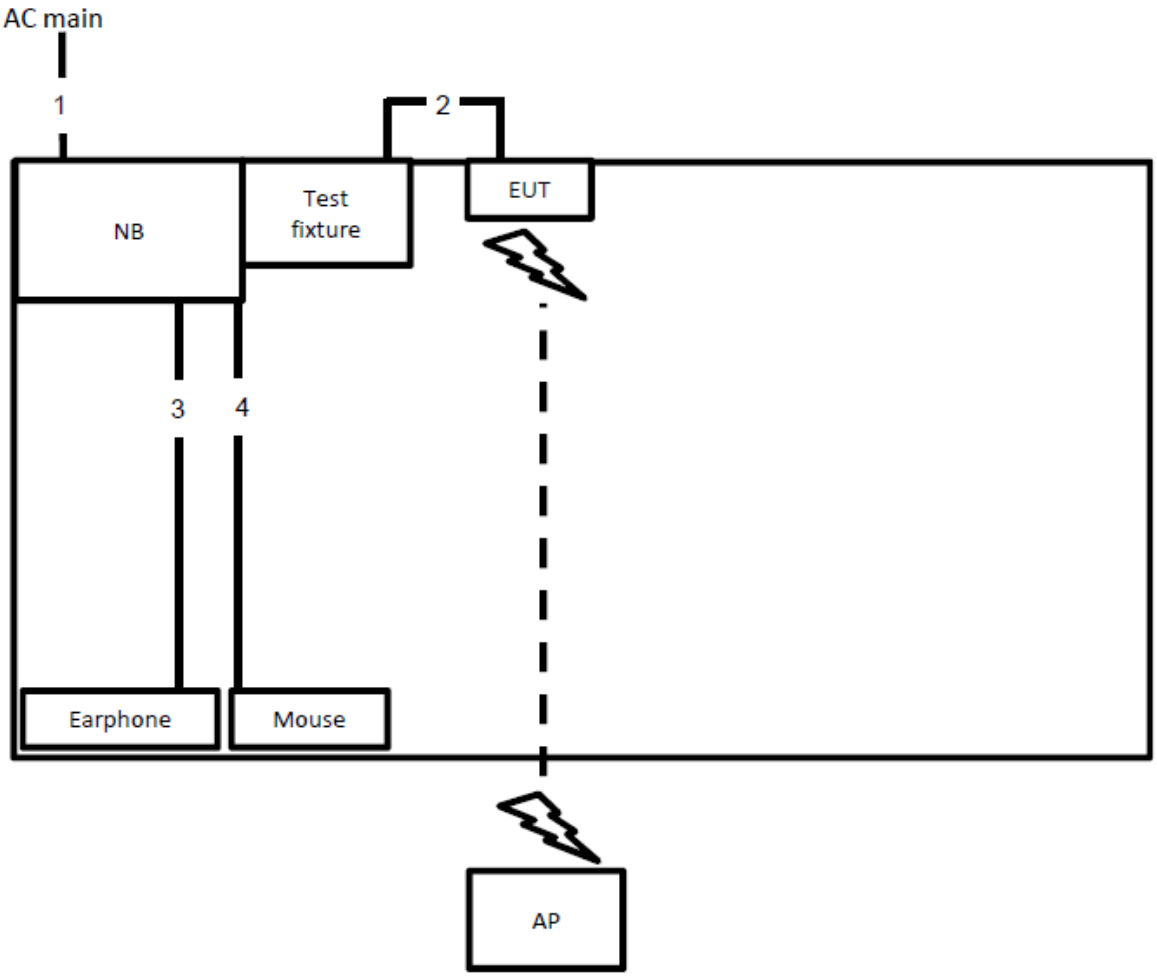
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	Test Fixture	Abocom	WM5203T-X30	DoC

For Test Site No: TH01-CB

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	NB	DELL	E4300	DoC
2	Test Fixture	Abocom	WM5203T-X30	DoC

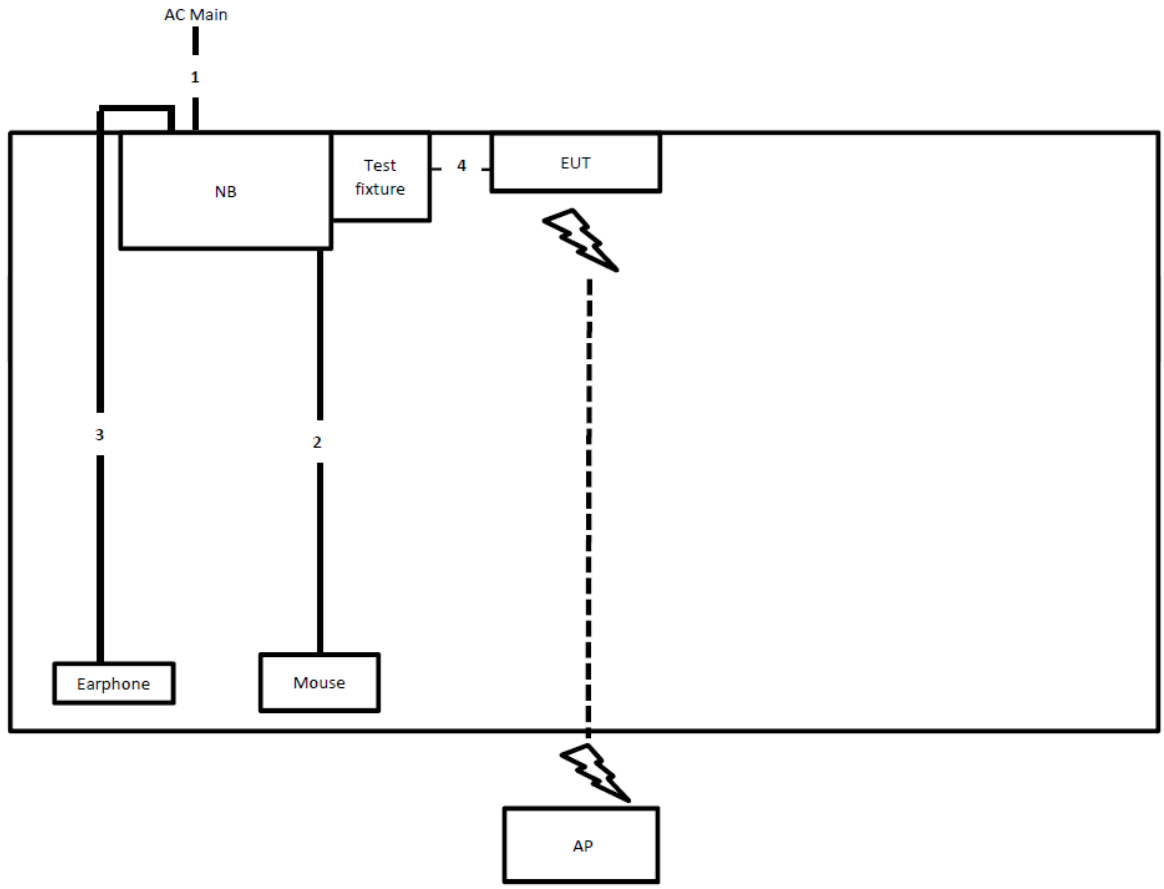
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



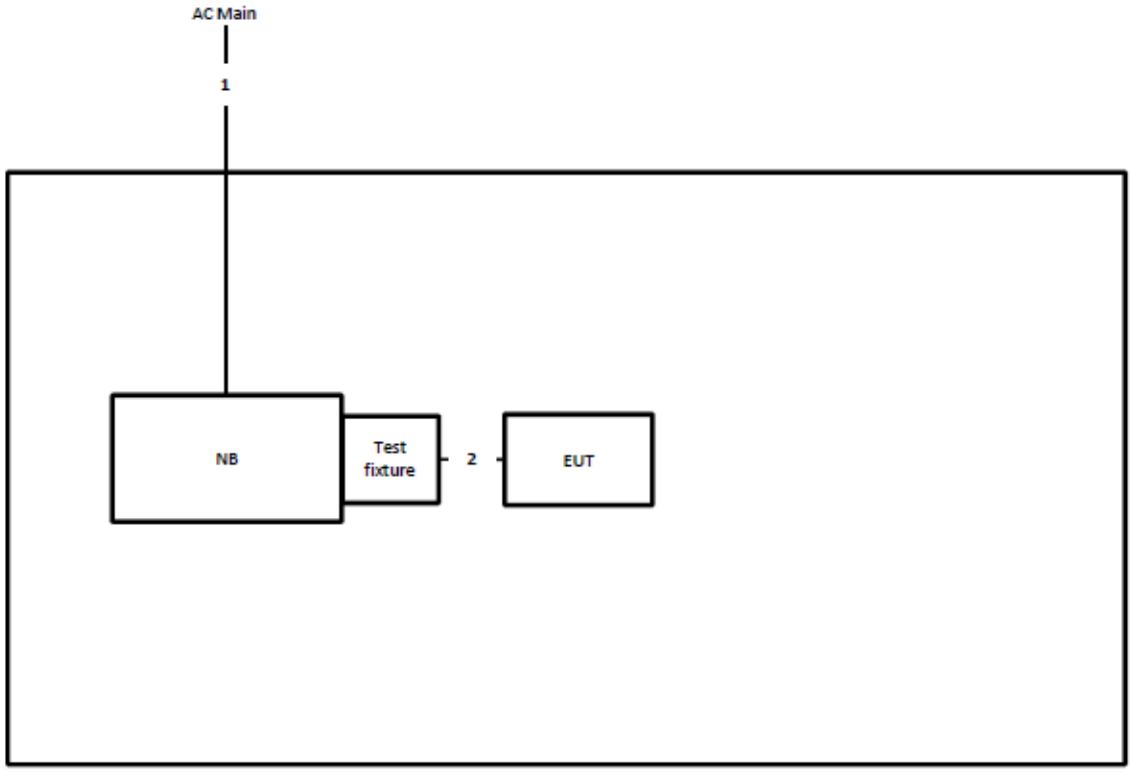
Item	Connection	Shielded	Length
1	Power cable	No	2.8m
2	Cable	No	0.3m
3	Audio cable	No	1.1m
4	USB cable	Yes	1.8m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	USB cable	Yes	1.8m
3	Audio cable	No	1.1m
4	Cable	No	0.3m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Cable	No	0.3m

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

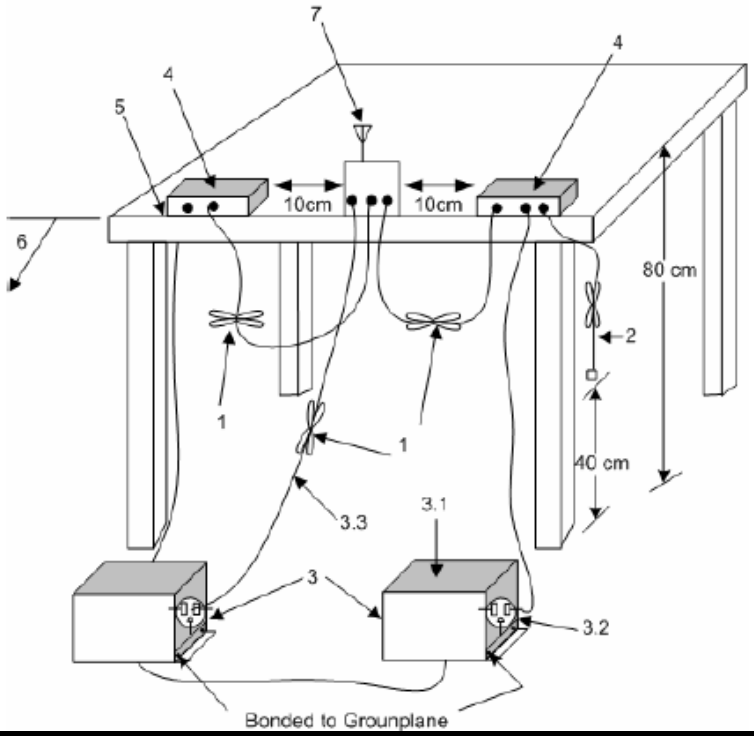
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

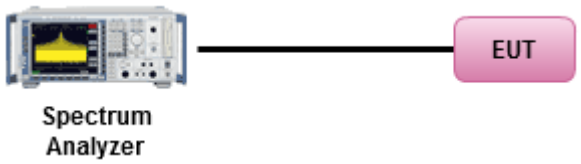
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
	☐ Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
	☐ Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit		
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)	
	▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)$ dBm	
	▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
	▪ Smart antenna system (SAS):	
		- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi.		

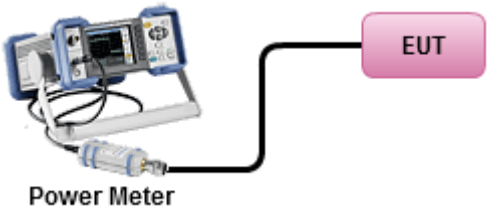
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
▪ Maximum Peak Conducted Output Power	
	☐ Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
	☐ Refer as FCC KDB 558074, clause 9.1.2 Option 2 (peak power meter for VBW ≥ DTS BW)
▪ Maximum Conducted Output Power	
	[duty cycle ≥ 98% or external video / power trigger]
	☐ Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
	☐ Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
	☐ Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
	☐ Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
	☒ Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM-G (using an RF average power meter).
	☐ Refer as FCC KDB 558074, clause 9.1.2 PKPM1 Peak power meter method.
▪ For conducted measurement.	
	▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

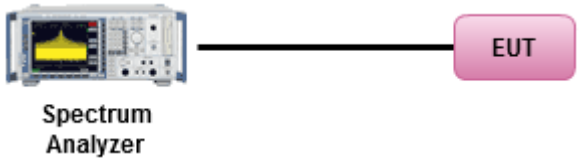
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method		
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).		
	☒ Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).	
	[duty cycle ≥ 98% or external video / power trigger]	
	☐ Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).	
	☐ Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)	
	duty cycle < 98% and average over on/off periods with duty factor	
	☐ Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).	
	☐ Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)	
▪ For conducted measurement.		
	▪ If The EUT supports multiple transmit chains using options given below:	
		☒ Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
		☐ Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
		☐ Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

3.4.4 Test Setup

Power Spectral Density
 Spectrum Analyzer

3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	**Limit (dB)**
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.
Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.5.2 Measuring Instruments

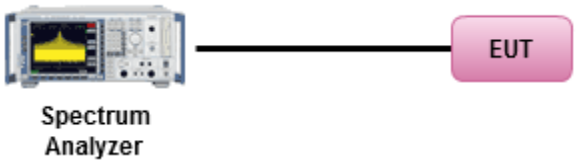
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

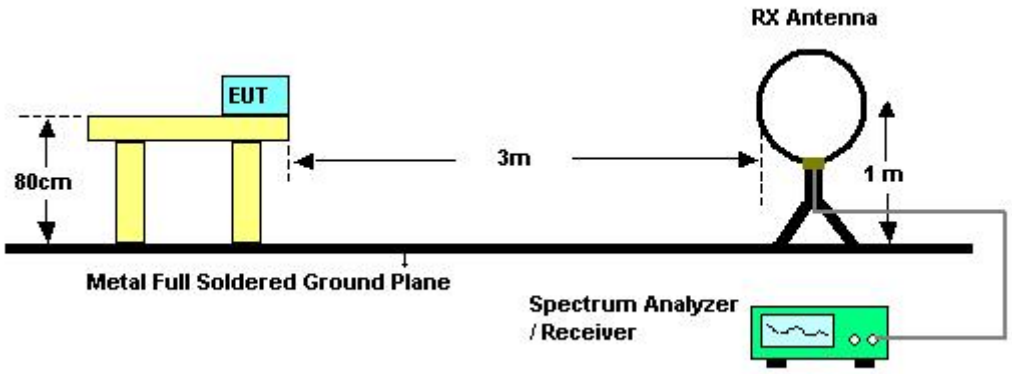
3.6.3 Test Procedures

Test Method		
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].		
▪ Refer as ANSI C63.10, clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.		
▪ For the transmitter unwanted emissions shall be measured using following options below:		
	▪ Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.	
		☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)
		☐ Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
		☒ Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).
		☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
		☐ Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
		☒ Refer as FCC KDB 558074, clause 12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:		
	▪ Refer as FCC KDB 558074 clause 13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.	
	▪ Refer as FCC KDB 558074, clause 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method for band-edge measurements.	
	▪ Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).	
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.		
	▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB	
	▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.	

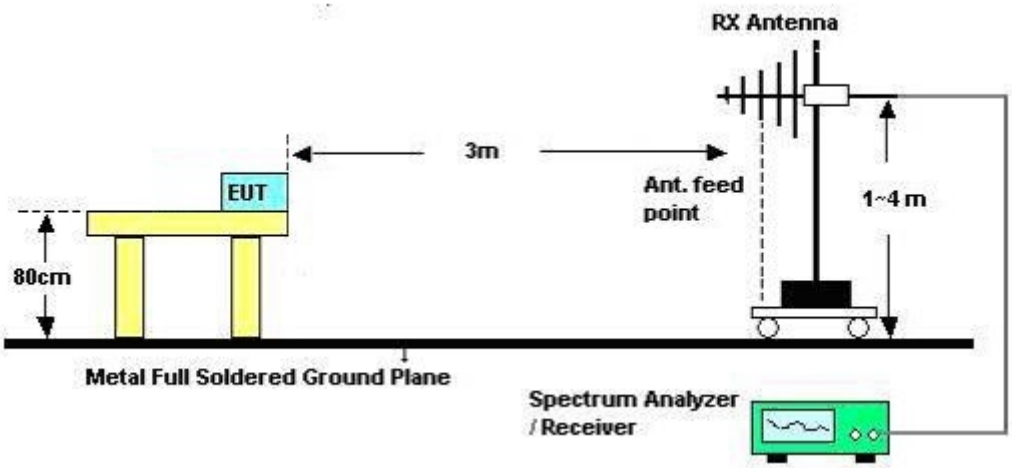
3.6.4 Test Setup

Transmitter Radiated Emissions

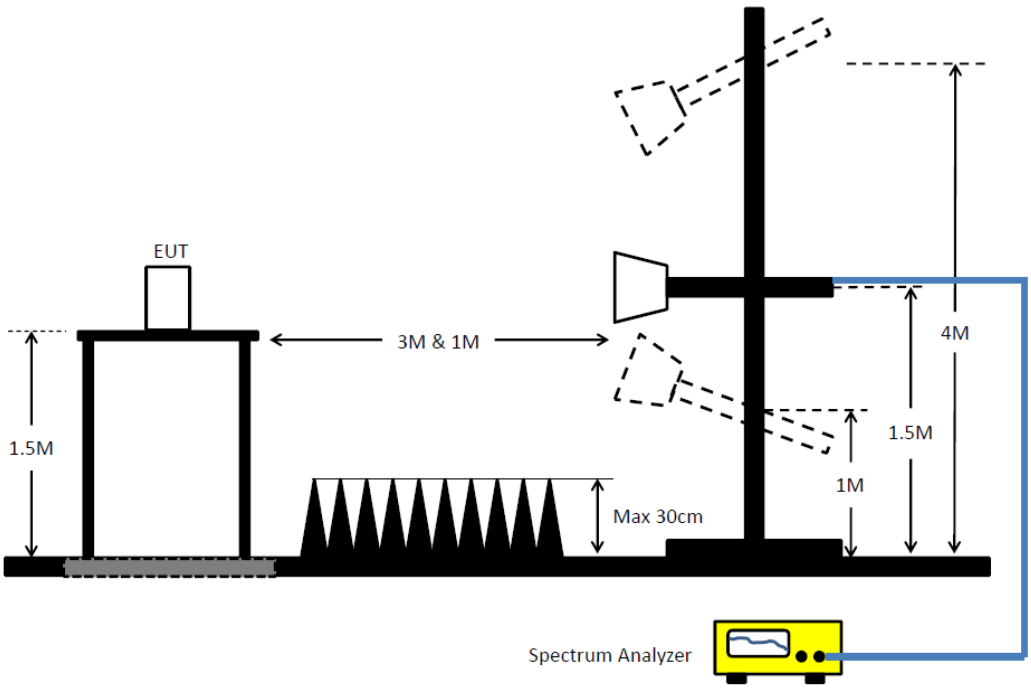
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Test Result of Transmitter Radiated Unwanted Emissions

Refer as Appendix F

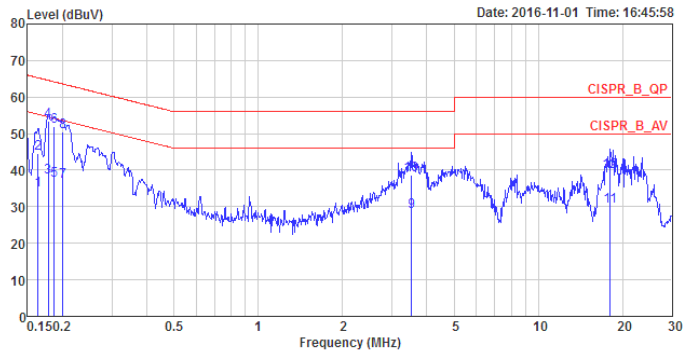
4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 2016	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP-40	100019	9kHz ~ 40GHz	Apr. 21, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-l0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Cable	Marvelous Microwave	n/a	Cable-REF-1	9k-1GHz	Oct. 21, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY54320014	50MHz~18GHz	Apr. 20, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY54320015	50MHz~18GHz	Apr. 20, 2016	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.
"*" Calibration Interval of instruments listed above is two years.
NCR means Non-Calibration required.

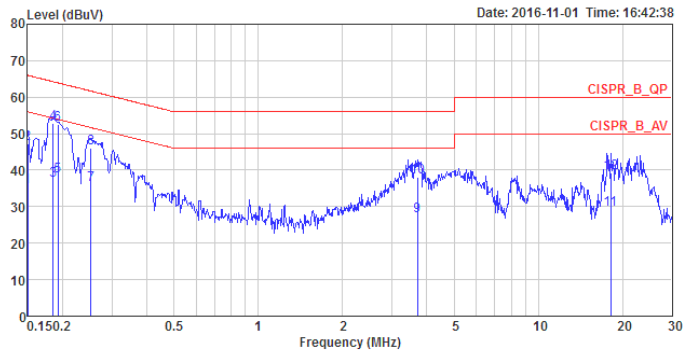
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1633	34.54	-20.76	55.30	24.35	10.02	0.17	NEUTRAL	Average
2	0.1633	44.66	-20.64	65.30	34.47	10.02	0.17	NEUTRAL	QP
3	0.1777	38.03	-16.56	54.59	27.93	9.92	0.18	NEUTRAL	Average
4	0.1777	53.32	-11.27	64.59	43.22	9.92	0.18	NEUTRAL	QP
5	0.1864	37.20	-17.00	54.20	27.10	9.92	0.18	NEUTRAL	Average
6	0.1864	51.82	-12.38	64.20	41.72	9.92	0.18	NEUTRAL	QP
7	0.2007	37.02	-16.56	53.58	26.91	9.92	0.19	NEUTRAL	Average
8	0.2007	50.48	-13.10	63.58	40.37	9.92	0.19	NEUTRAL	QP
9	3.5278	28.64	-17.36	46.00	18.58	9.98	0.08	NEUTRAL	Average
10	3.5278	38.81	-17.19	56.00	28.75	9.98	0.08	NEUTRAL	QP
11	18.0394	30.08	-19.92	50.00	19.57	10.28	0.23	NEUTRAL	Average
12	18.0394	39.69	-20.31	60.00	29.18	10.28	0.23	NEUTRAL	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1500	35.46	-20.54	56.00	25.28	10.02	0.16	LINE	Average
2	0.1500	47.14	-18.86	66.00	36.96	10.02	0.16	LINE	QP
3	0.1854	37.06	-17.18	54.24	26.96	9.92	0.18	LINE	Average
4	0.1854	52.75	-11.49	64.24	42.65	9.92	0.18	LINE	QP
5	0.1924	38.36	-15.57	53.93	28.25	9.92	0.19	LINE	Average
6	0.1924	52.56	-11.37	63.93	42.45	9.92	0.19	LINE	QP
7	0.2521	35.94	-15.75	51.69	25.89	9.92	0.13	LINE	Average
8	0.2521	46.02	-15.67	61.69	35.97	9.92	0.13	LINE	QP
9	3.7001	27.43	-18.57	46.00	17.35	9.99	0.09	LINE	Average
10	3.7001	38.09	-17.91	56.00	28.01	9.99	0.09	LINE	QP
11	18.1352	29.37	-20.63	50.00	18.86	10.28	0.23	LINE	Average
12	18.1352	39.23	-20.77	60.00	28.72	10.28	0.23	LINE	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

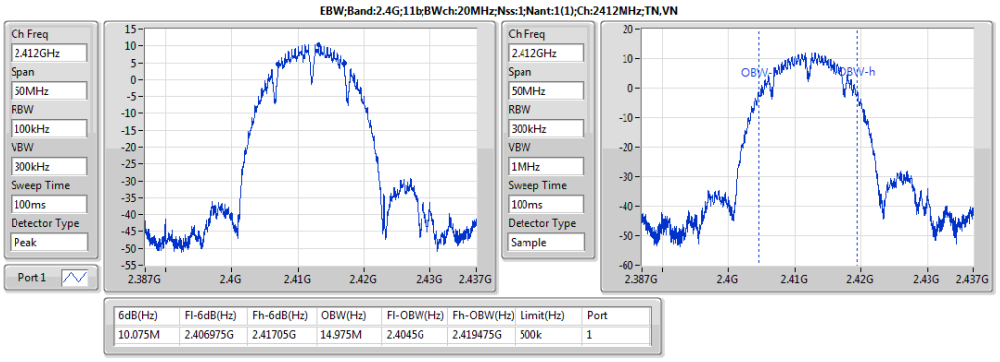
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4G;11b;Nss1;Ntx1(1)	10.1M	15.5M	15M5G1D	10.075M	14.975M
2.4G;11g;Nss1;Ntx1(1)	16.55M	16.9M	16M9D1D	16.525M	16.65M
2.4G;HT20;Nss2,(M8);Ntx2	17.775M	19.05M	19M0D1D	17.6M	17.75M
2.4G;HT40;Nss2,(M8);Ntx2	36.55M	36.7M	36M7D1D	36.35M	36.5M

Result

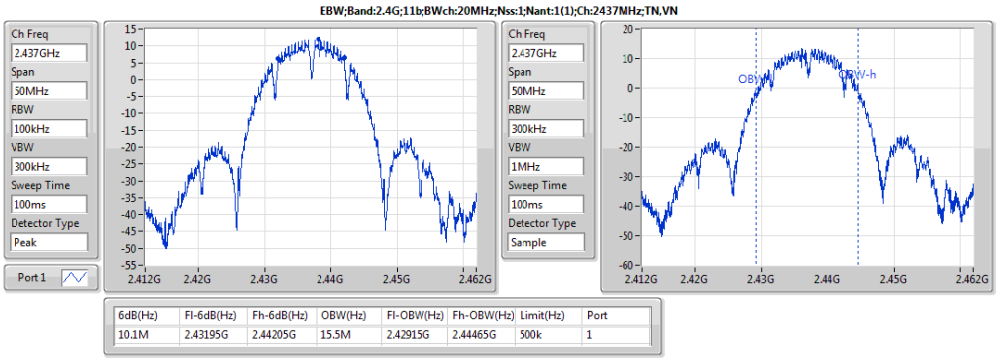
Mode	Result	Limit (Hz)	P1-N dB (Hz)	P1-OBW (Hz)	P2-N dB (Hz)	P2-OBW (Hz)
2.4G;11b;Nss1;Ntx1(1);2412	Pass	500k	10.075M	14.975M		
2.4G;11b;Nss1;Ntx1(1);2437	Pass	500k	10.1M	15.5M		
2.4G;11b;Nss1;Ntx1(1);2462	Pass	500k	10.075M	15.075M		
2.4G;11g;Nss1;Ntx1(1);2412	Pass	500k	16.525M	16.65M		
2.4G;11g;Nss1;Ntx1(1);2437	Pass	500k	16.525M	16.9M		
2.4G;11g;Nss1;Ntx1(1);2462	Pass	500k	16.55M	16.725M		
2.4G;HT20;Nss2,(M8);Ntx2;2412	Pass	500k	17.775M	17.775M	17.6M	17.8M
2.4G;HT20;Nss2,(M8);Ntx2;2437	Pass	500k	17.775M	18.15M	17.65M	19.05M
2.4G;HT20;Nss2,(M8);Ntx2;2462	Pass	500k	17.775M	17.75M	17.625M	17.775M
2.4G;HT40;Nss2,(M8);Ntx2;2422	Pass	500k	36.45M	36.5M	36.35M	36.65M
2.4G;HT40;Nss2,(M8);Ntx2;2437	Pass	500k	36.55M	36.6M	36.35M	36.7M
2.4G;HT40;Nss2,(M8);Ntx2;2452	Pass	500k	36.4M	36.55M	36.35M	36.55M

EBW;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



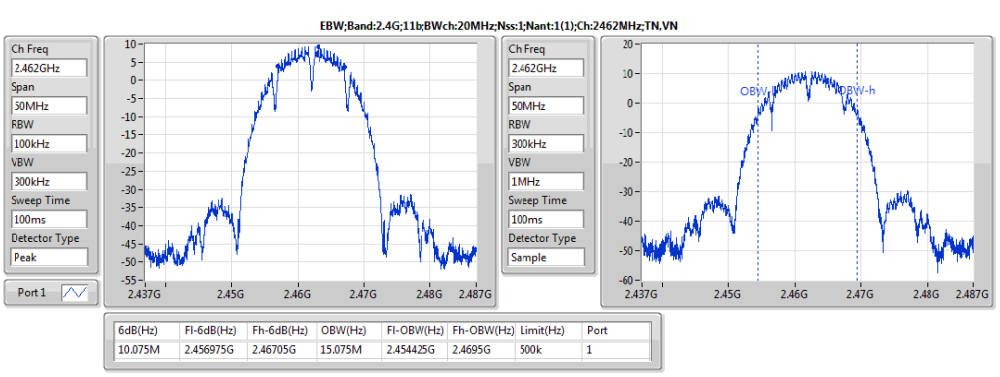
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
10.075M	2.406975G	2.41705G	14.975M	2.4045G	2.419475G	500k	1

EBW;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



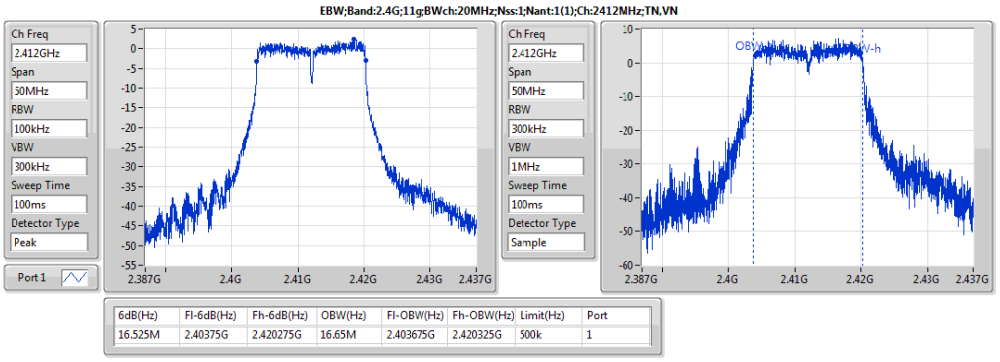
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
10.1M	2.43195G	2.44205G	15.5M	2.42915G	2.44465G	500k	1

EBW;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



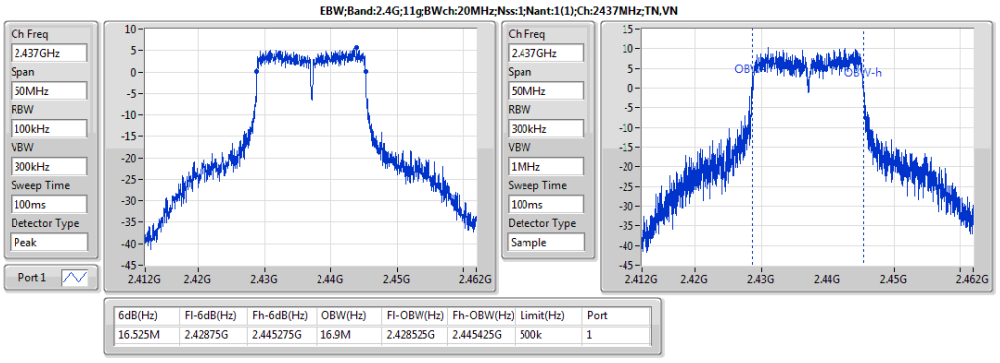
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
10.075M	2.456975G	2.46705G	15.075M	2.454425G	2.4695G	500k	1

EBW;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



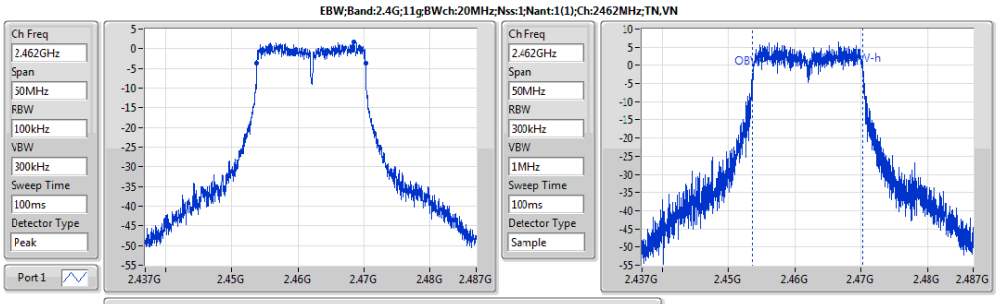
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.525M	2.40375G	2.420275G	16.65M	2.403675G	2.420325G	500k	1

EBW;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



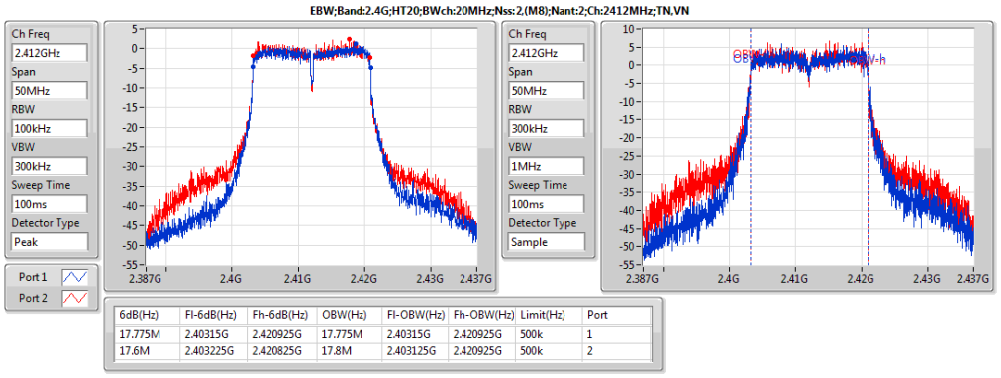
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.525M	2.42875G	2.445275G	16.9M	2.428525G	2.445425G	500k	1

EBW;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



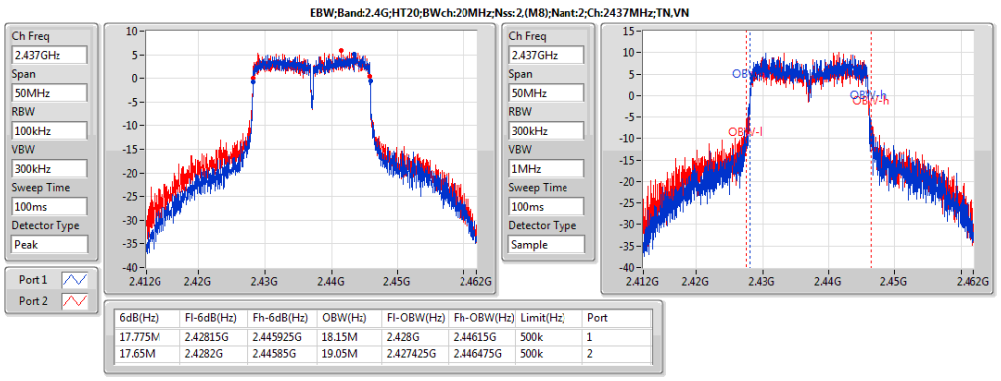
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.55M	2.453725G	2.470275G	16.725M	2.453625G	2.47035G	500k	1

EBW;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2412MHz;TN,VN



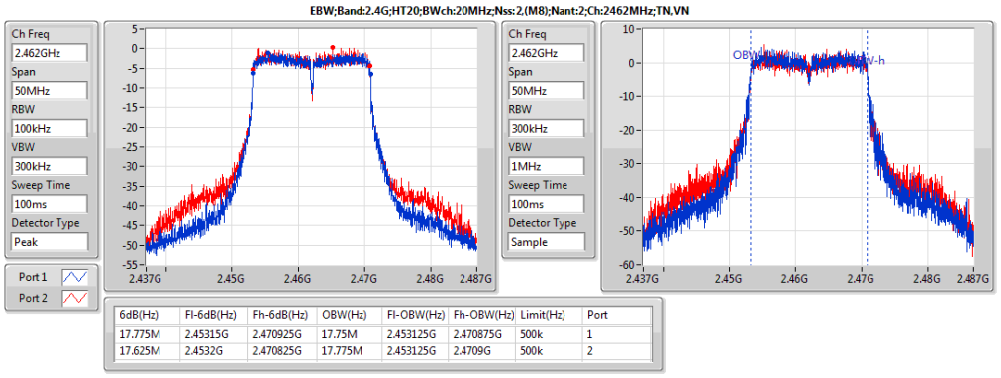
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.775M	2.40315G	2.420925G	17.775M	2.40315G	2.420925G	500k	1
17.6M	2.403225G	2.420825G	17.8M	2.403125G	2.420925G	500k	2

EBW;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



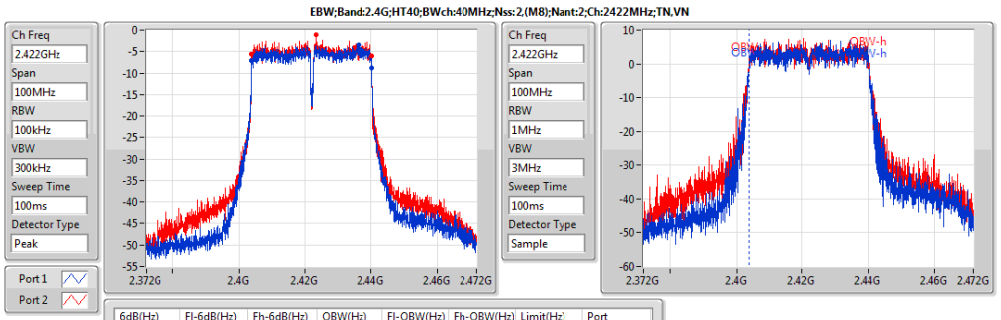
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.775M	2.42815G	2.445925G	18.15M	2.428G	2.44615G	500k	1
17.65M	2.4282G	2.44585G	19.05M	2.427425G	2.446475G	500k	2

EBW;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2462MHz;TN,VN



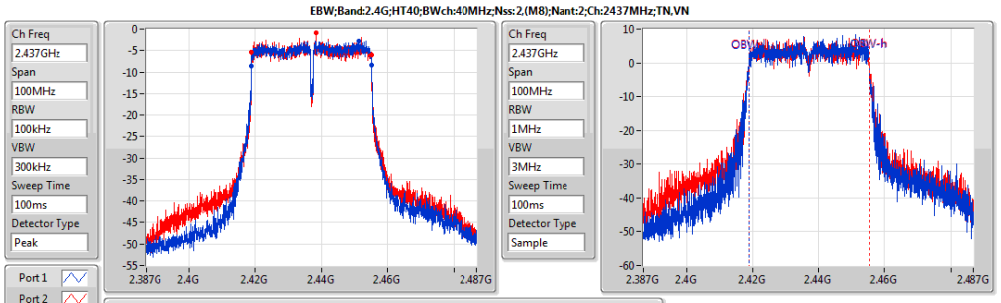
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
17.775M	2.45315G	2.470925G	17.75M	2.453125G	2.470875G	500k	1
17.625M	2.4532G	2.470825G	17.775M	2.453125G	2.4709G	500k	2

EBW;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2422MHz;TN,VN



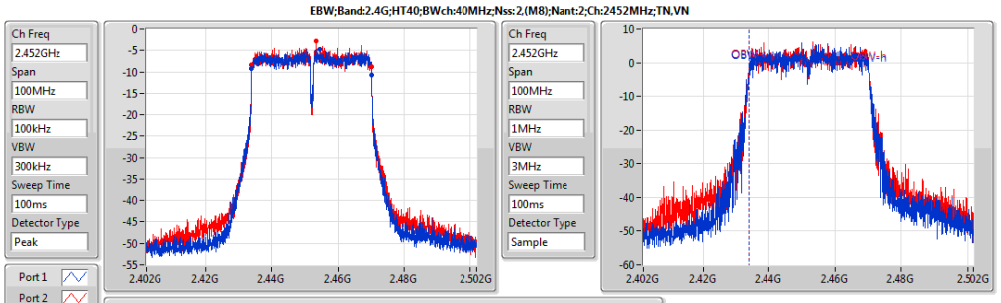
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.45M	2.40385G	2.4403G	36.5M	2.4038G	2.4403G	500k	1
36.35M	2.40385G	2.4402G	36.65M	2.4037G	2.44035G	500k	2

EBW;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.55M	2.41875G	2.4553G	36.6M	2.4187G	2.4553G	500k	1
36.35M	2.41885G	2.4552G	36.7M	2.4187G	2.4554G	500k	2

EBW;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2452MHz;TN,VN



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
36.4M	2.43385G	2.47025G	36.55M	2.43375G	2.4703G	500k	1
36.35M	2.43385G	2.4702G	36.55M	2.43375G	2.4703G	500k	2

Summary

Mode	Sum (dBm)	Sum (W)
2.4G;11b;Nss1;Ntx1(1)	23.05	0.20184
2.4G;11g;Nss1;Ntx1(1)	20.16	0.10375
2.4G;HT20;Nss2,(M8);Ntx2	23.06	0.2023
2.4G;HT40;Nss2,(M8);Ntx2	18.70	0.07413

Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	P1 (dBm)	P2 (dBm)
2.4G;11b;Nss1;Ntx1(1);2412	Pass	4.60	21.90	30.00	21.90	
2.4G;11b;Nss1;Ntx1(1);2437	Pass	4.60	23.05	30.00	23.05	
2.4G;11b;Nss1;Ntx1(1);2462	Pass	4.60	20.48	30.00	20.48	
2.4G;11g;Nss1;Ntx1(1);2412	Pass	4.60	17.93	30.00	17.93	
2.4G;11g;Nss1;Ntx1(1);2437	Pass	4.60	20.16	30.00	20.16	
2.4G;11g;Nss1;Ntx1(1);2462	Pass	4.60	16.72	30.00	16.72	
2.4G;HT20;Nss2,(M8);Ntx2;2412	Pass	4.60	18.47	30.00	15.43	15.49
2.4G;HT20;Nss2,(M8);Ntx2;2437	Pass	4.60	23.06	30.00	20.03	20.07
2.4G;HT20;Nss2,(M8);Ntx2;2462	Pass	4.60	17.37	30.00	14.27	14.44
2.4G;HT40;Nss2,(M8);Ntx2;2422	Pass	4.60	17.69	30.00	14.38	14.96
2.4G;HT40;Nss2,(M8);Ntx2;2437	Pass	4.60	18.70	30.00	15.69	15.69
2.4G;HT40;Nss2,(M8);Ntx2;2452	Pass	4.60	16.48	30.00	13.37	13.56

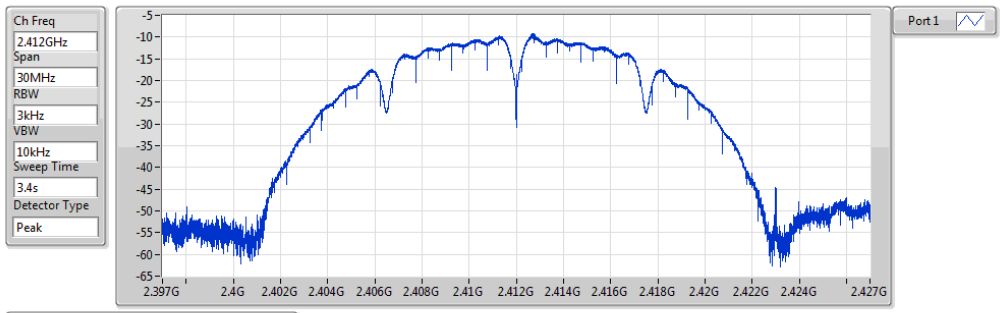
Summary

Mode	PD (dBm/RBW)
2.4G;11b;Nss1;Ntx1(1)	-8.29
2.4G;11g;Nss1;Ntx1(1)	-8.63
2.4G;HT20;Nss2,(M8);Ntx2	-5.05
2.4G;HT40;Nss2,(M8);Ntx2	-13.07

Result

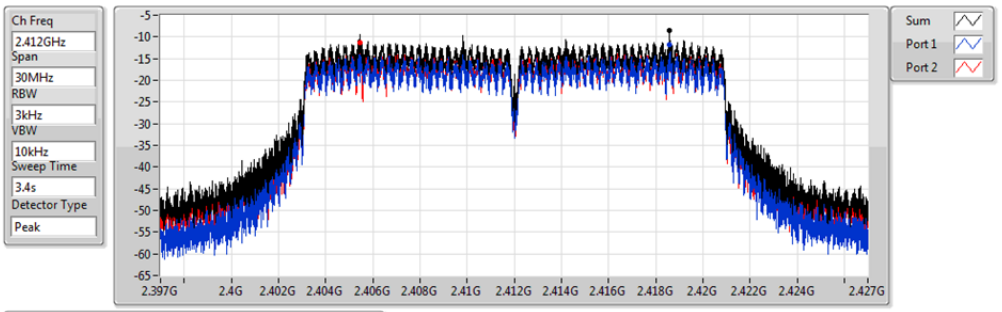
Mode	Result	DG (dBi)	PD (dBm/RBW)	PD.Limit (dBm/RBW)	P1 (dBm/RBW)	P2 (dBm/RBW)
2.4G;11b;Nss1;Ntx1(1);2412	Pass	4.60	-9.70	8.00	-9.70	
2.4G;11b;Nss1;Ntx1(1);2437	Pass	4.60	-8.29	8.00	-8.29	
2.4G;11b;Nss1;Ntx1(1);2462	Pass	4.60	-10.85	8.00	-10.85	
2.4G;11g;Nss1;Ntx1(1);2412	Pass	4.60	-10.74	8.00	-10.74	
2.4G;11g;Nss1;Ntx1(1);2437	Pass	4.60	-8.63	8.00	-8.63	
2.4G;11g;Nss1;Ntx1(1);2462	Pass	4.60	-12.99	8.00	-12.99	
2.4G;HT20;Nss2,(M8);Ntx2;2412	Pass	7.61	-8.58	6.39	-11.78	-11.38
2.4G;HT20;Nss2,(M8);Ntx2;2437	Pass	7.61	-5.05	6.39	-7.80	-8.02
2.4G;HT20;Nss2,(M8);Ntx2;2462	Pass	7.61	-11.21	6.39	-13.33	-13.37
2.4G;HT40;Nss2,(M8);Ntx2;2422	Pass	7.61	-13.65	6.39	-16.11	-16.22
2.4G;HT40;Nss2,(M8);Ntx2;2437	Pass	7.61	-13.07	6.39	-15.17	-15.68
2.4G;HT40;Nss2,(M8);Ntx2;2452	Pass	7.61	-14.77	6.39	-16.57	-17.38

PSD;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



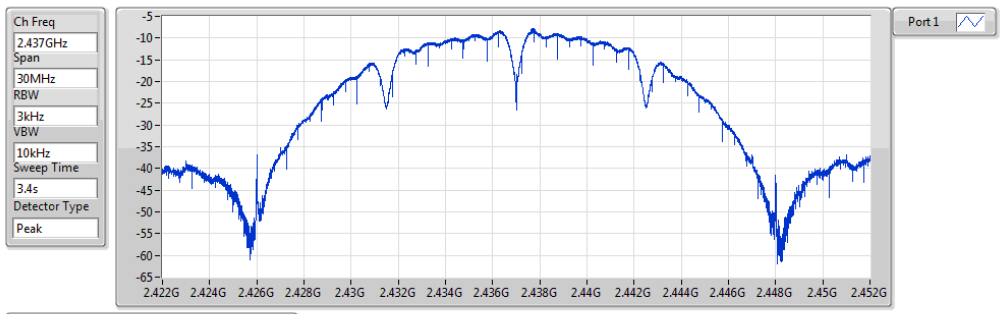
Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.70	-9.70	-9.70

PSD;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2412MHz;TN,VN



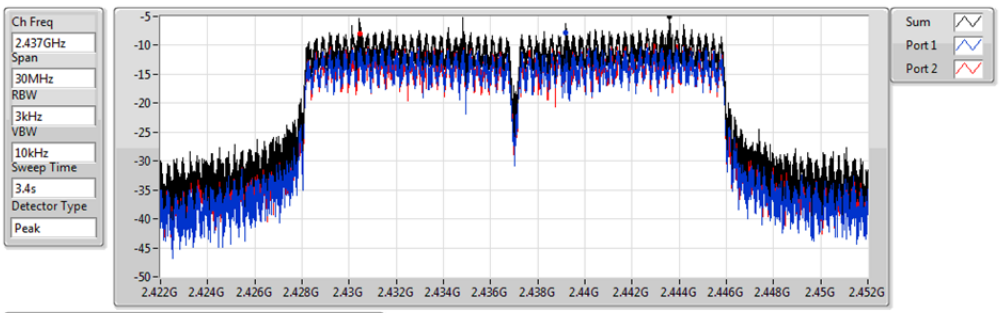
Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.58	-8.58	-11.78	-11.38

PSD;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



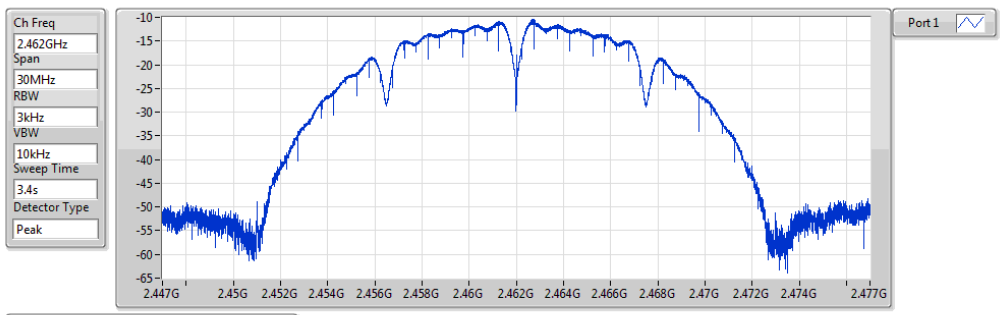
Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.29	-8.29	-8.29

PSD;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



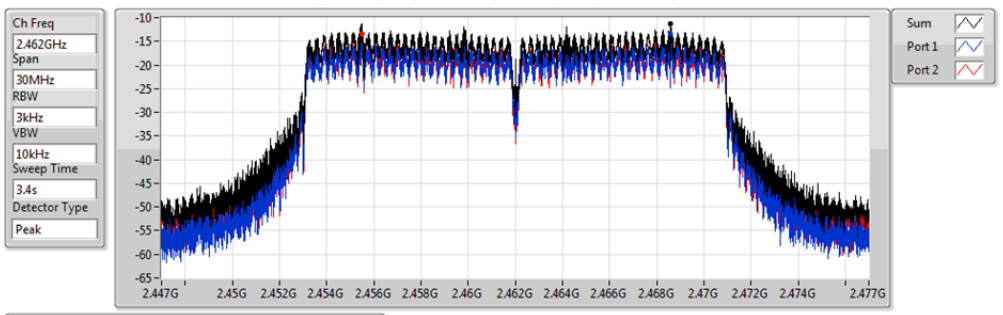
Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.05	-5.05	-7.80	-8.02

PSD;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



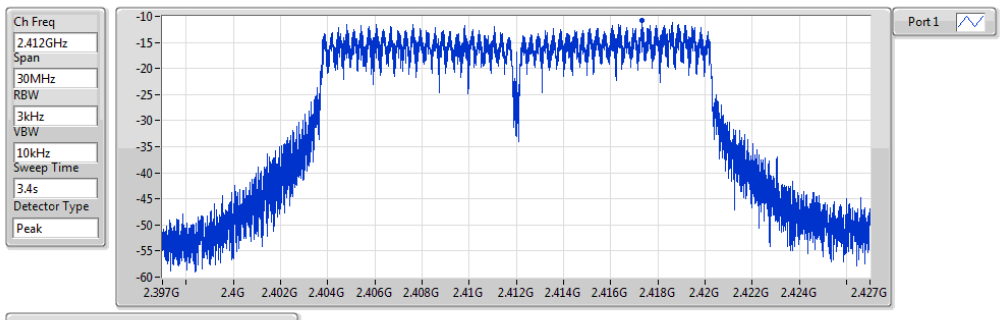
Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.85	-10.85	-10.85

PSD;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2462MHz;TN,VN



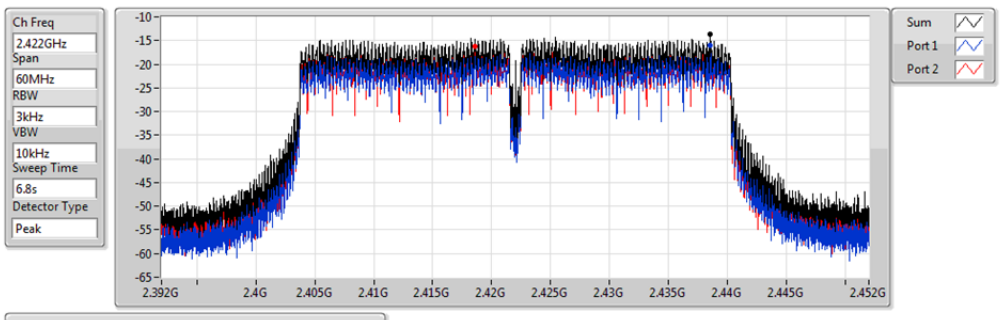
Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.21	-11.21	-13.33	-13.37

PSD;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



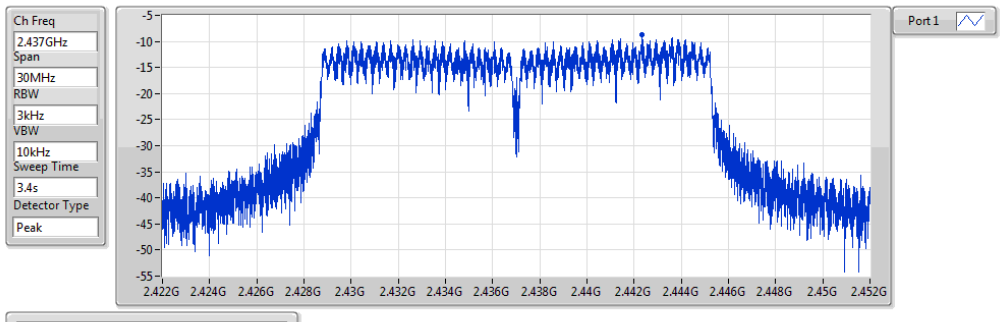
Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.74	-10.74	-10.74

PSD;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2422MHz;TN,VN



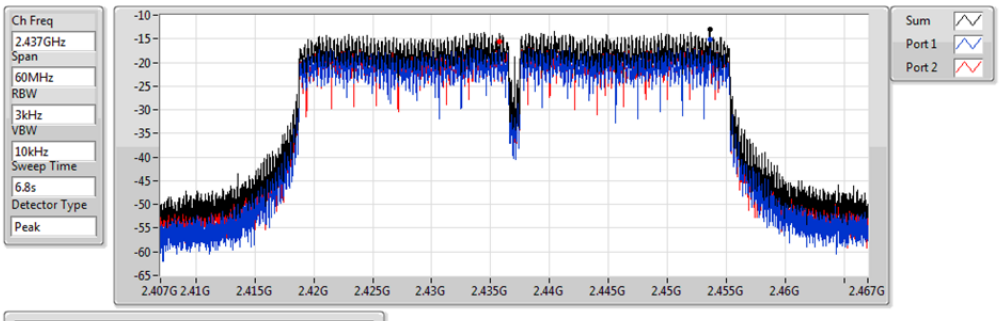
Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.65	-13.65	-16.11	-16.22

PSD;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



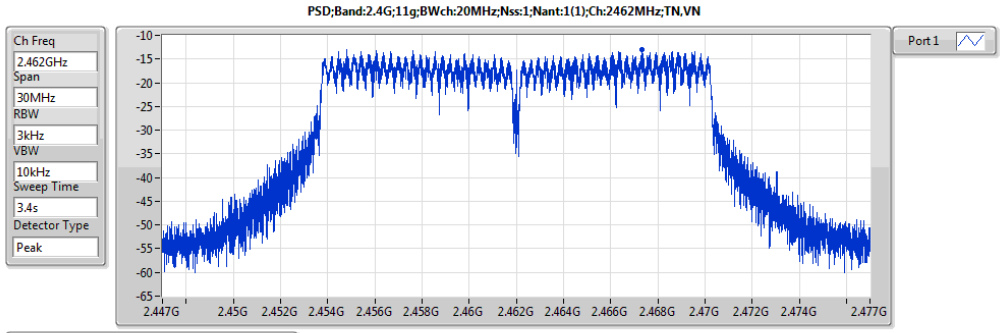
Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.63	-8.63	-8.63

PSD;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



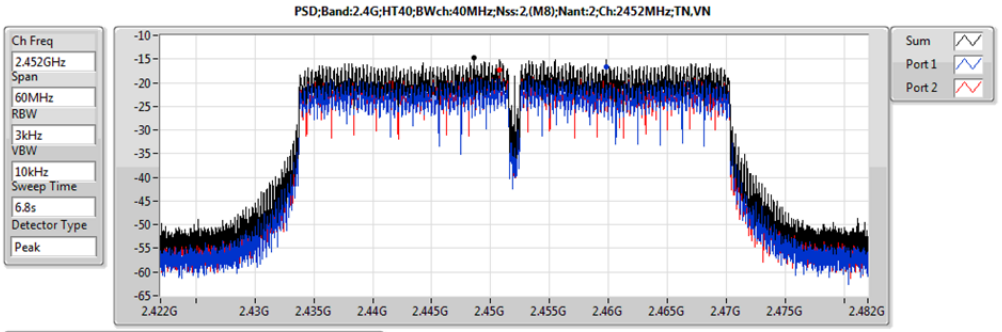
Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.07	-13.07	-15.17	-15.68

PSD;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



Sum.Max	PD	P1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.99	-12.99	-12.99

PSD;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2452MHz;TN,VN



Sum.Max	PD	P1	P2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.77	-14.77	-16.57	-17.38

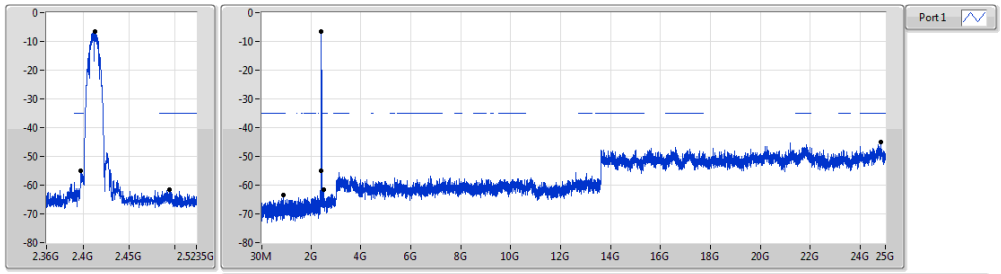
Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4G;11g;20;1;1(1);2462;H;TN,VN	Pass	2.466466G	-15.30	-41.20	1.990695G	-63.97	2.39848G	-63.73	2.4839G	-57.56	21.872957G	-43.72	1

Result

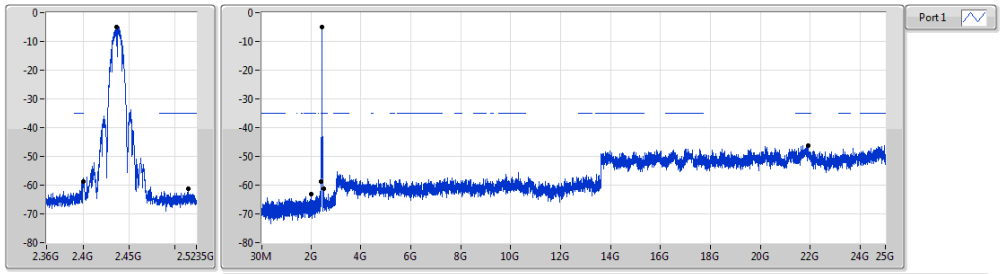
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4G;11b;20;1;1(1);2412;L;TN,VN	Pass	2.412525G	-6.50	-34.94	900.255M	-63.53	2.39712G	-54.86	2.49398G	-61.55	24.837045G	-45.09	1
2.4G;11b;20;1;1(1);2437;M;TN,VN	Pass	2.436406G	-4.94	-34.94	2.01516G	-63.14	2.39992G	-58.65	2.51494G	-61.16	21.926339G	-46.15	1
2.4G;11b;20;1;1(1);2462;H;TN,VN	Pass	2.462625G	-7.40	-34.94	1.771675G	-63.59	2.3976G	-63.87	2.48782G	-61.57	21.85048G	-44.43	1
2.4G;11g;20;1;1(1);2412;L;TN,VN	Pass	2.418871G	-14.05	-41.20	1.84973G	-63.88	2.3996G	-44.51	2.51198G	-61.75	24.761187G	-45.37	1
2.4G;11g;20;1;1(1);2437;M;TN,VN	Pass	2.443587G	-11.20	-41.20	624.15M	-63.91	2.39896G	-56.80	2.48438G	-57.42	24.842665G	-45.91	1
2.4G;11g;20;1;1(1);2462;H;TN,VN	Pass	2.466466G	-15.30	-41.20	1.990695G	-63.97	2.39848G	-63.73	2.4839G	-57.56	21.872957G	-43.72	1
2.4G;HT20;20;1,(M0);2;2412;L;TN,VN	Pass	2.405344G	-16.19	-39.98	1.83109G	-63.81	2.3992G	-51.74	2.5047G	-62.80	21.752146G	-45.67	1
2.4G;HT20;20;1,(M0);2;2412;L;TN,VN	Pass	2.418871G	-15.23	-39.98	2.19923G	-62.31	2.39992G	-45.46	2.52326G	-62.16	24.674091G	-45.62	2
2.4G;HT20;20;1,(M0);2;2437;M;TN,VN	Pass	2.442418G	-11.63	-39.98	2.132825G	-63.50	2.39832G	-59.91	2.4871G	-59.57	24.800521G	-45.64	1
2.4G;HT20;20;1,(M0);2;2437;M;TN,VN	Pass	2.443921G	-9.98	-39.98	1.652845G	-63.71	2.3992G	-57.72	2.48366G	-59.72	24.387515G	-45.54	2
2.4G;HT20;20;1,(M0);2;2462;H;TN,VN	Pass	2.457114G	-17.51	-39.98	2.300585G	-62.91	2.39128G	-63.23	2.48438G	-61.15	21.811147G	-45.17	1
2.4G;HT20;20;1,(M0);2;2462;H;TN,VN	Pass	2.468971G	-16.88	-39.98	2.15496G	-63.60	2.3988G	-64.06	2.48382G	-58.66	21.729669G	-45.43	2
2.4G;HT40;40;1,(M0);2;2422;L;TN,VN	Pass	2.42672G	-10.38	-38.87	2.305115G	-63.87	2.39984G	-43.05	2.48926G	-61.21	24.68028G	-45.41	1
2.4G;HT40;40;1,(M0);2;2422;L;TN,VN	Pass	2.42004G	-9.31	-38.87	2.179165G	-63.44	2.39984G	-41.80	2.49342G	-60.94	24.744785G	-45.36	2
2.4G;HT40;40;1,(M0);2;2437;M;TN,VN	Pass	2.453106G	-8.87	-38.87	2.11848G	-61.89	2.39968G	-54.71	2.4843G	-54.01	21.802799G	-44.89	1
2.4G;HT40;40;1,(M0);2;2437;M;TN,VN	Pass	2.448263G	-8.90	-38.87	1.796735G	-63.39	2.39952G	-46.29	2.48446G	-52.34	24.84014G	-45.26	2
2.4G;HT40;40;1,(M0);2;2452;H;TN,VN	Pass	2.447261G	-11.69	-38.87	2.14367G	-63.90	2.39056G	-62.89	2.48526G	-54.14	21.780362G	-45.84	1
2.4G;HT40;40;1,(M0);2;2452;H;TN,VN	Pass	2.453607G	-10.44	-38.87	615.095M	-63.22	2.3992G	-60.17	2.48382G	-48.61	21.682203G	-45.32	2

CSE in non-restricted band;PK;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



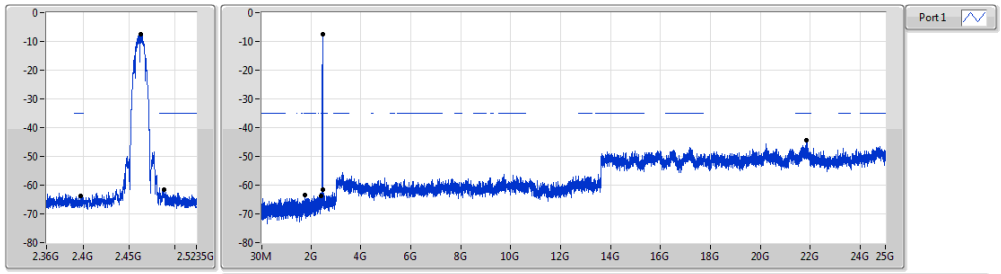
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.412525G	-6.50	-34.94	900.255M	-63.53	2.39712G	-54.86	2.49398G	-61.55	24.837045G	-45.09	1

CSE in non-restricted band;PK;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



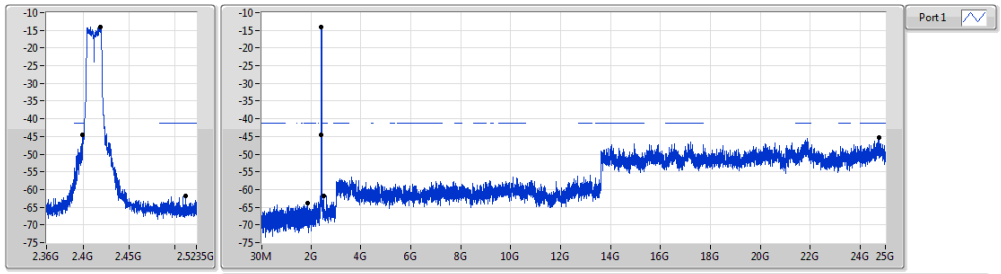
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.436406G	-4.94	-34.94	2.01516G	-63.14	2.39992G	-58.65	2.51494G	-61.16	21.926339G	-46.15	1

CSE in non-restricted band;PK;Band:2.4G;11b;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



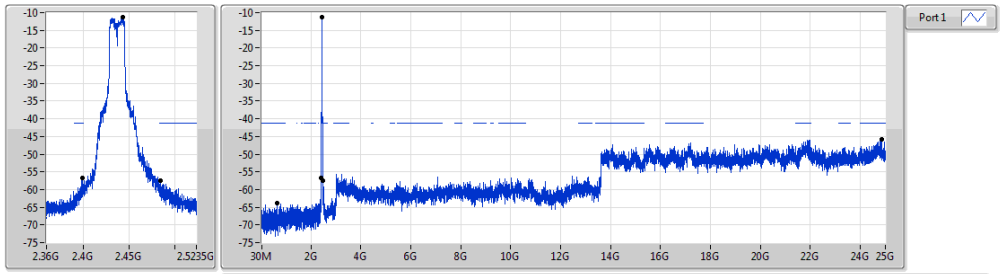
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.462625G	-7.40	-34.94	1.771675G	-63.59	2.3976G	-63.87	2.48782G	-61.57	21.85048G	-44.43	1

CSE in non-restricted band;PK;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2412MHz;TN,VN



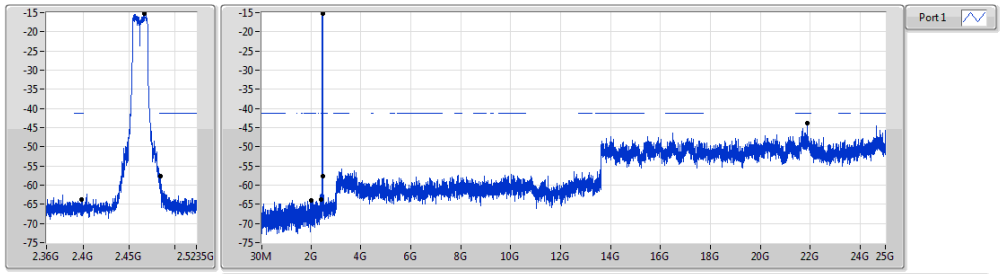
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.418871G	-14.05	-41.20	1.84973G	-63.88	2.3996G	-44.51	2.51198G	-61.75	24.761187G	-45.37	1

CSE in non-restricted band;PK;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2437MHz;TN,VN



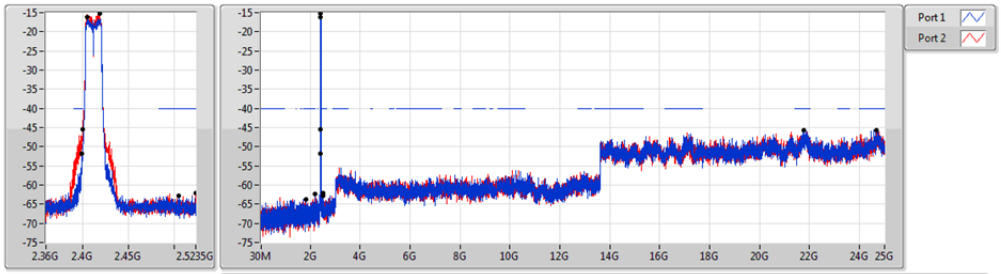
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.443587G	-11.20	-41.20	624.15M	-63.91	2.39896G	-56.80	2.48438G	-57.42	24.842665G	-45.91	1

CSE in non-restricted band;PK;Band:2.4G;11g;BWch:20MHz;Nss:1;Nant:1(1);Ch:2462MHz;TN,VN



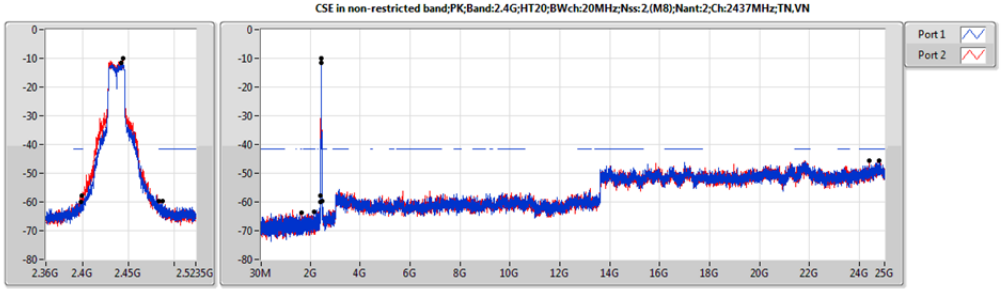
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.466466G	-15.30	-41.20	1.990695G	-63.97	2.39848G	-63.73	2.4839G	-57.56	21.872957G	-43.72	1

CSE in non-restricted band;PK;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2412MHz;TN,VN



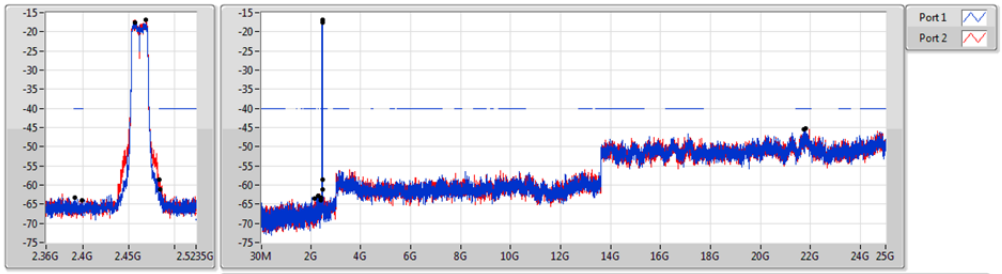
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.405344G	-16.19	-39.98	1.83109G	-63.81	2.3992G	-51.74	2.5047G	-62.80	21.752146G	-45.67	1
2.418871G	-15.23	-39.98	2.19923G	-62.31	2.39992G	-45.46	2.52326G	-62.16	24.674091G	-45.62	2

CSE in non-restricted band;PK;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



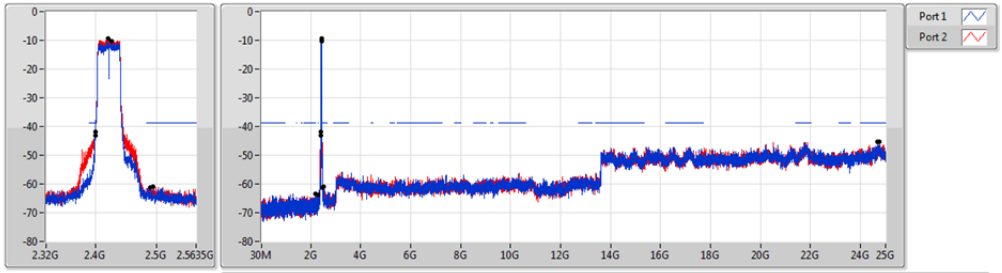
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.442418G	-11.63	-39.98	2.132825G	-63.50	2.39832G	-59.91	2.4871G	-59.57	24.800521G	-45.64	1
2.443921G	-9.98	-39.98	1.652845G	-63.71	2.3992G	-57.72	2.48366G	-59.72	24.387515G	-45.54	2

CSE in non-restricted band;PK;Band:2.4G;HT20;BWch:20MHz;Nss:2,(M8);Nant:2;Ch:2462MHz;TN,VN



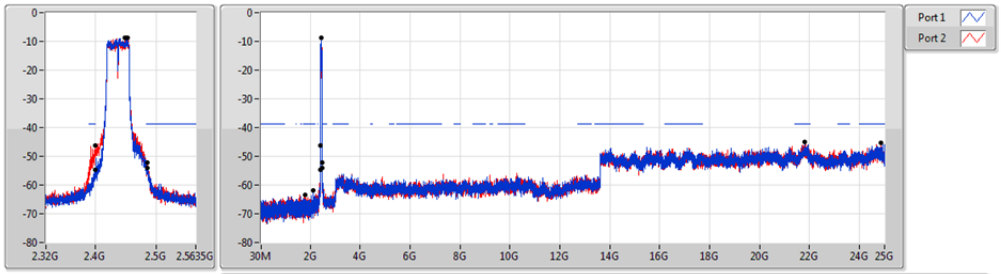
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.457114G	-17.51	-39.98	2.300585G	-62.91	2.39128G	-63.23	2.48438G	-61.15	21.811147G	-45.17	1
2.468971G	-16.88	-39.98	2.15496G	-63.60	2.3988G	-64.06	2.48382G	-58.66	21.729669G	-45.43	2

CSE in non-restricted band;PK;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2422MHz;TN,VN



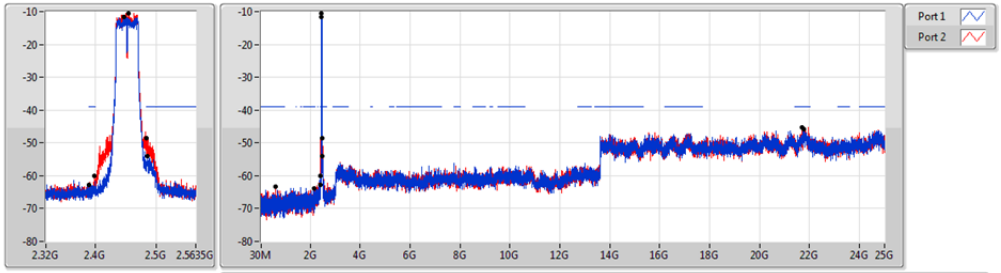
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.42672G	-10.38	-38.87	2.305115G	-63.87	2.39984G	-43.05	2.48926G	-61.21	24.68028G	-45.41	1
2.42004G	-9.31	-38.87	2.179165G	-63.44	2.39984G	-41.80	2.49342G	-60.94	24.744785G	-45.36	2

CSE in non-restricted band;PK;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2437MHz;TN,VN



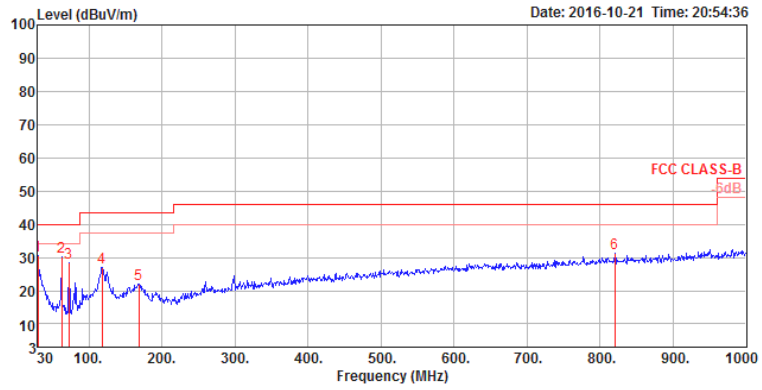
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.453106G	-8.87	-38.87	2.11848G	-61.89	2.39968G	-54.71	2.4843G	-54.01	21.802799G	-44.89	1
2.448263G	-8.90	-38.87	1.796735G	-63.39	2.39952G	-46.29	2.48446G	-52.34	24.84014G	-45.26	2

CSE in non-restricted band;PK;Band:2.4G;HT40;BWch:40MHz;Nss:2,(M8);Nant:2;Ch:2452MHz;TN,VN



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.447261G	-11.69	-38.87	2.14367G	-63.90	2.39056G	-62.89	2.48526G	-54.14	21.780362G	-45.84	1
2.453607G	-10.44	-38.87	615.095M	-63.22	2.3992G	-60.17	2.48382G	-48.61	21.682203G	-45.32	2

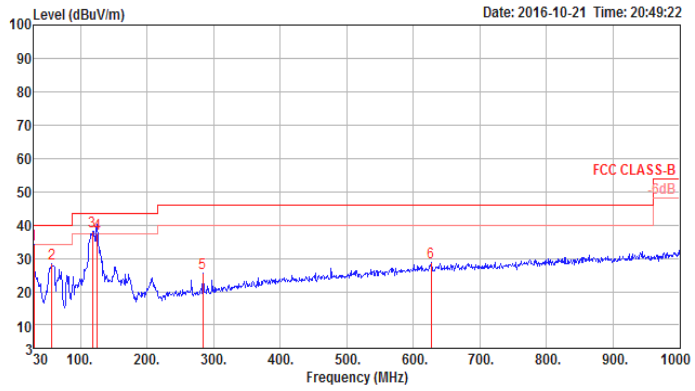
RSE below 1GHz Result			
Operating Mode	3	**Polarization**	Horizontal
Operating Function	Normal Link		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	30.50	40.00	-9.50	37.42	0.50	25.60	33.02	100	170	Peak	HORIZONTAL
2	62.98	30.03	40.00	-9.97	48.21	0.76	13.46	32.40	150	273	Peak	HORIZONTAL
3	72.68	28.52	40.00	-11.48	47.05	0.81	13.08	32.42	100	298	Peak	HORIZONTAL
4	118.27	26.98	43.50	-16.52	39.30	1.05	19.05	32.42	150	68	Peak	HORIZONTAL
5	168.71	22.05	43.50	-21.45	36.53	1.25	16.63	32.36	150	249	Peak	HORIZONTAL
6	820.55	31.31	46.00	-14.69	33.36	2.96	27.07	32.08	100	24	Peak	HORIZONTAL

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

RSE below 1GHz Result			
Operating Mode	3	**Power Phase**	Vertical
Operating Function	Normal Link		



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	34.02	40.00	-5.98	40.94	0.50	25.60	33.02	100	345	Peak	VERTICAL
2	57.16	28.55	40.00	-11.45	46.18	0.74	14.02	32.39	100	1	Peak	VERTICAL
3	118.27	38.15	43.50	-5.35	50.47	1.05	19.05	32.42	150	220	Peak	VERTICAL
4	125.06	37.51	43.50	-5.99	49.91	1.07	18.94	32.41	100	160	QP	VERTICAL
5	284.14	25.68	46.00	-20.32	36.66	1.61	19.74	32.33	100	62	Peak	VERTICAL
6	626.55	28.78	46.00	-17.22	32.94	2.44	25.80	32.40	150	209	Peak	VERTICAL

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

Radiated Emissions (1GHz~10th Harmonic)

Configurations	IEEE 802.11b CH 1 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4824.03	39.31	54.00	-14.69	32.14	7.79	31.12	31.74	122	268	Average	HORIZONTAL
2	4824.16	49.12	74.00	-24.88	41.95	7.79	31.12	31.74	122	268	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.88	52.34	74.00	-21.66	45.17	7.79	31.12	31.74	100	81	Peak	VERTICAL
2	4824.00	46.92	54.00	-7.08	39.75	7.79	31.12	31.74	100	81	Average	VERTICAL

Configurations	IEEE 802.11b CH 6 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.95	50.67	74.00	-23.33	43.32	7.86	31.21	31.72	171	268	Peak	HORIZONTAL
2	4874.01	44.14	54.00	-9.86	36.79	7.86	31.21	31.72	171	268	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.01	50.82	74.00	-3.18	43.47	7.86	31.21	31.72	106	76	Average	VERTICAL
2	4874.05	54.28	74.00	-19.72	46.93	7.86	31.21	31.72	106	76	Peak	VERTICAL

Configurations	IEEE 802.11b CH 11 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.96	37.56	54.00	-16.44	30.04	7.93	31.29	31.70	113	34	Average	HORIZONTAL
2	4924.03	48.66	74.00	-25.34	41.14	7.93	31.29	31.70	113	34	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.90	50.83	74.00	-23.17	43.31	7.93	31.29	31.70	100	70	Peak	VERTICAL
2	4924.03	43.58	54.00	-10.42	36.06	7.93	31.29	31.70	100	70	Average	VERTICAL

Configurations	IEEE 802.11g CH 1 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4825.06	47.29	74.00	-26.71	40.10	7.79	31.14	31.74	193	193	Peak	HORIZONTAL
2	4825.31	34.19	54.00	-19.81	27.00	7.79	31.14	31.74	193	193	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4822.79	34.25	54.00	-19.75	27.08	7.79	31.12	31.74	228	121	Average	VERTICAL
2	4825.70	47.29	74.00	-26.71	40.10	7.79	31.14	31.74	228	121	Peak	VERTICAL

Configurations	IEEE 802.11g CH 6 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4872.10	34.96	54.00	-19.04	27.61	7.86	31.21	31.72	250	85	Average	HORIZONTAL
2	4873.22	48.05	74.00	-25.95	40.70	7.86	31.21	31.72	250	85	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4877.16	48.20	74.00	-25.80	40.85	7.86	31.21	31.72	125	129	Peak	VERTICAL
2	4877.52	34.90	54.00	-19.10	27.55	7.86	31.21	31.72	125	129	Average	VERTICAL

Configurations	IEEE 802.11g CH 11 / Chain 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4918.20	47.90	74.00	-26.10	40.43	7.90	31.27	31.70	178	109	Peak	HORIZONTAL
2	4930.44	35.02	54.00	-18.98	27.49	7.93	31.29	31.69	178	109	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4922.34	48.41	74.00	-25.59	40.91	7.93	31.27	31.70	222	226	Peak	VERTICAL
2	4923.84	35.28	54.00	-18.72	27.76	7.93	31.29	31.70	222	226	Average	VERTICAL

Configurations	IEEE 802.11n MCS8 HT20 CH 1 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4818.24	34.76	54.00	-19.24	27.59	7.79	31.12	31.74	187	132	Average	HORIZONTAL
2	4826.40	47.18	74.00	-26.82	39.99	7.79	31.14	31.74	187	132	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4815.40	34.34	54.00	-19.66	27.19	7.77	31.12	31.74	210	170	Average	VERTICAL
2	4822.52	47.70	74.00	-26.30	40.53	7.79	31.12	31.74	210	170	Peak	VERTICAL

Configurations	IEEE 802.11n MCS8 HT20 CH 6 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.92	47.58	74.00	-26.42	40.23	7.86	31.21	31.72	283	254	Peak	HORIZONTAL
2	4878.88	34.87	54.00	-19.13	27.52	7.86	31.21	31.72	283	254	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4868.72	47.73	74.00	-26.27	40.38	7.86	31.21	31.72	201	264	Peak	VERTICAL
2	4874.00	35.41	54.00	-18.59	28.06	7.86	31.21	31.72	201	264	Average	VERTICAL

Configurations	IEEE 802.11n MCS8 HT20 CH 11 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4916.52	47.31	74.00	-26.69	39.84	7.90	31.27	31.70	269	104	Peak	HORIZONTAL
2	4918.40	34.33	54.00	-19.67	26.86	7.90	31.27	31.70	269	104	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4917.76	47.76	74.00	-26.24	40.29	7.90	31.27	31.70	271	124	Peak	VERTICAL
2	4943.04	35.03	54.00	-18.97	27.46	7.95	31.31	31.69	271	124	Average	VERTICAL

Configurations	IEEE 802.11n MCS8 HT40 CH 3 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4830.00	34.73	54.00	-19.27	27.54	7.79	31.14	31.74	232	175	Average	HORIZONTAL
2	4862.48	47.49	74.00	-26.51	40.20	7.84	31.18	31.73	232	175	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4833.28	34.83	54.00	-19.17	27.63	7.79	31.14	31.73	267	113	Average	VERTICAL
2	4842.00	47.68	74.00	-26.32	40.43	7.82	31.16	31.73	267	113	Peak	VERTICAL

Configurations	IEEE 802.11n MCS8 HT40 CH 6 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4862.08	47.37	74.00	-26.63	40.08	7.84	31.18	31.73	203	168	Peak	HORIZONTAL
2	4884.24	34.80	54.00	-19.20	27.43	7.86	31.23	31.72	203	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4860.72	48.07	74.00	-25.93	40.78	7.84	31.18	31.73	175	203	Peak	VERTICAL
2	4885.68	35.07	54.00	-18.93	27.68	7.88	31.23	31.72	175	203	Average	VERTICAL

Configurations	IEEE 802.11n MCS8 HT40 CH 9 / Chain 1 + Chain 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4898.48	35.11	54.00	-18.89	27.69	7.88	31.25	31.71	143	291	Average	HORIZONTAL
2	4916.96	47.79	74.00	-26.21	40.32	7.90	31.27	31.70	143	291	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.71	47.90	74.00	-26.10	40.46	7.90	31.25	31.71	175	249	Peak	VERTICAL
2	4904.30	35.06	54.00	-18.94	27.62	7.90	31.25	31.71	175	249	Average	VERTICAL

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

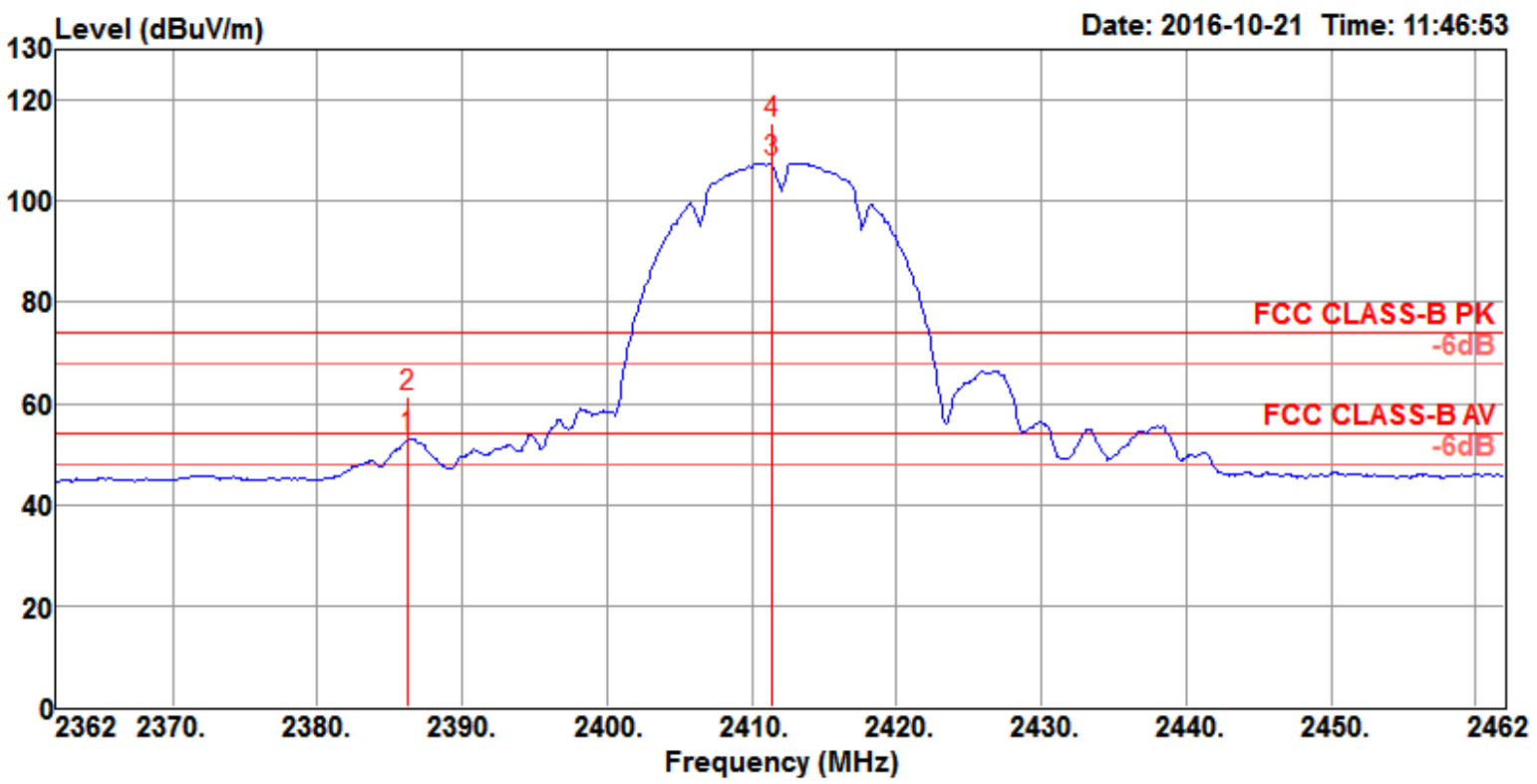
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Band Edge Emissions

Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1

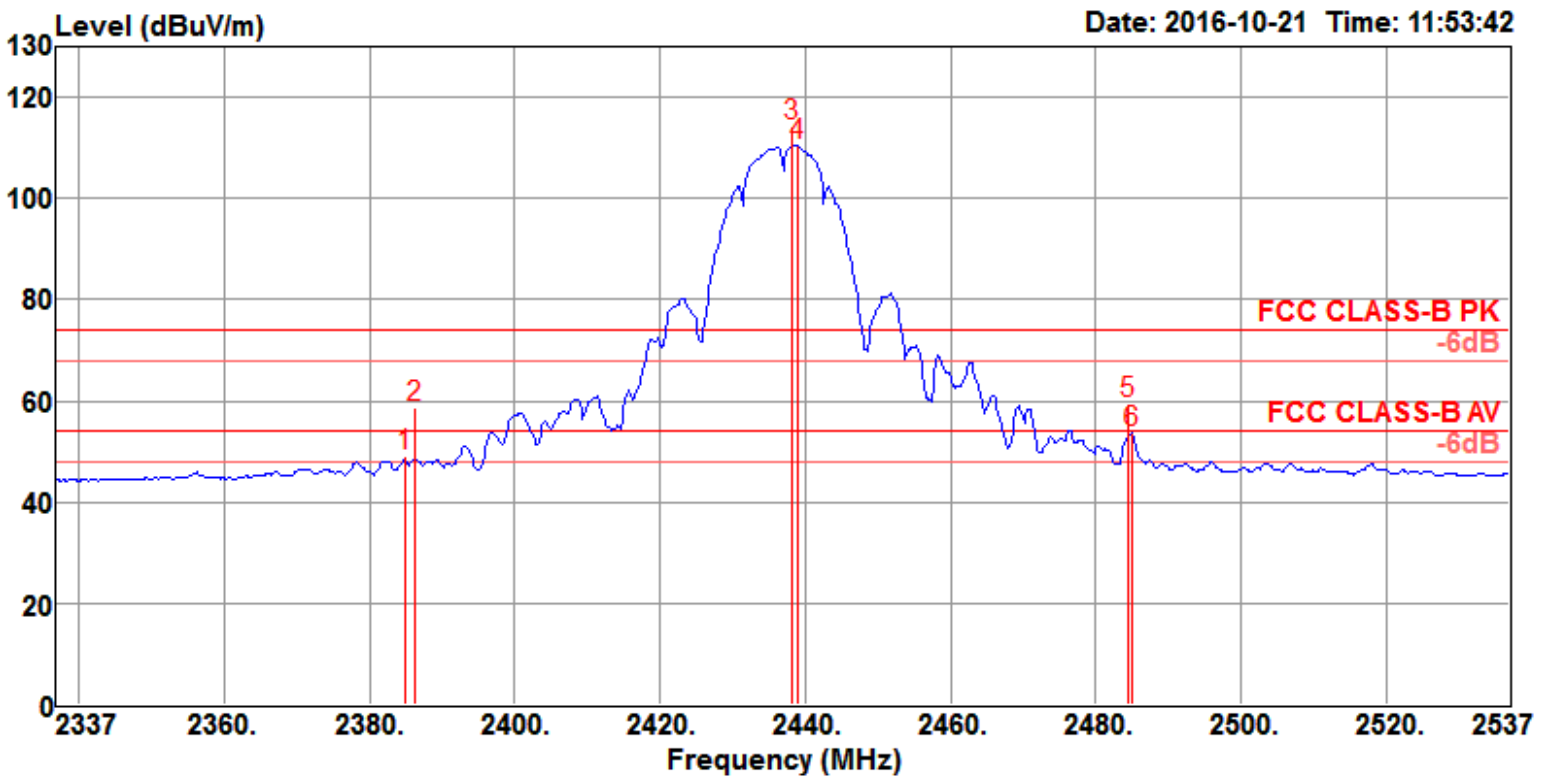
Channel 1



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2386.20	53.44	54.00	-0.56	21.50	4.89	27.05	0.00	110	58	Average	VERTICAL
2	2386.20	61.29	74.00	-12.71	29.35	4.89	27.05	0.00	110	58	Peak	VERTICAL
3 @	2411.40	107.74			75.72	4.91	27.11	0.00	110	58	Average	VERTICAL
4 @	2411.40	115.58			83.56	4.91	27.11	0.00	110	58	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

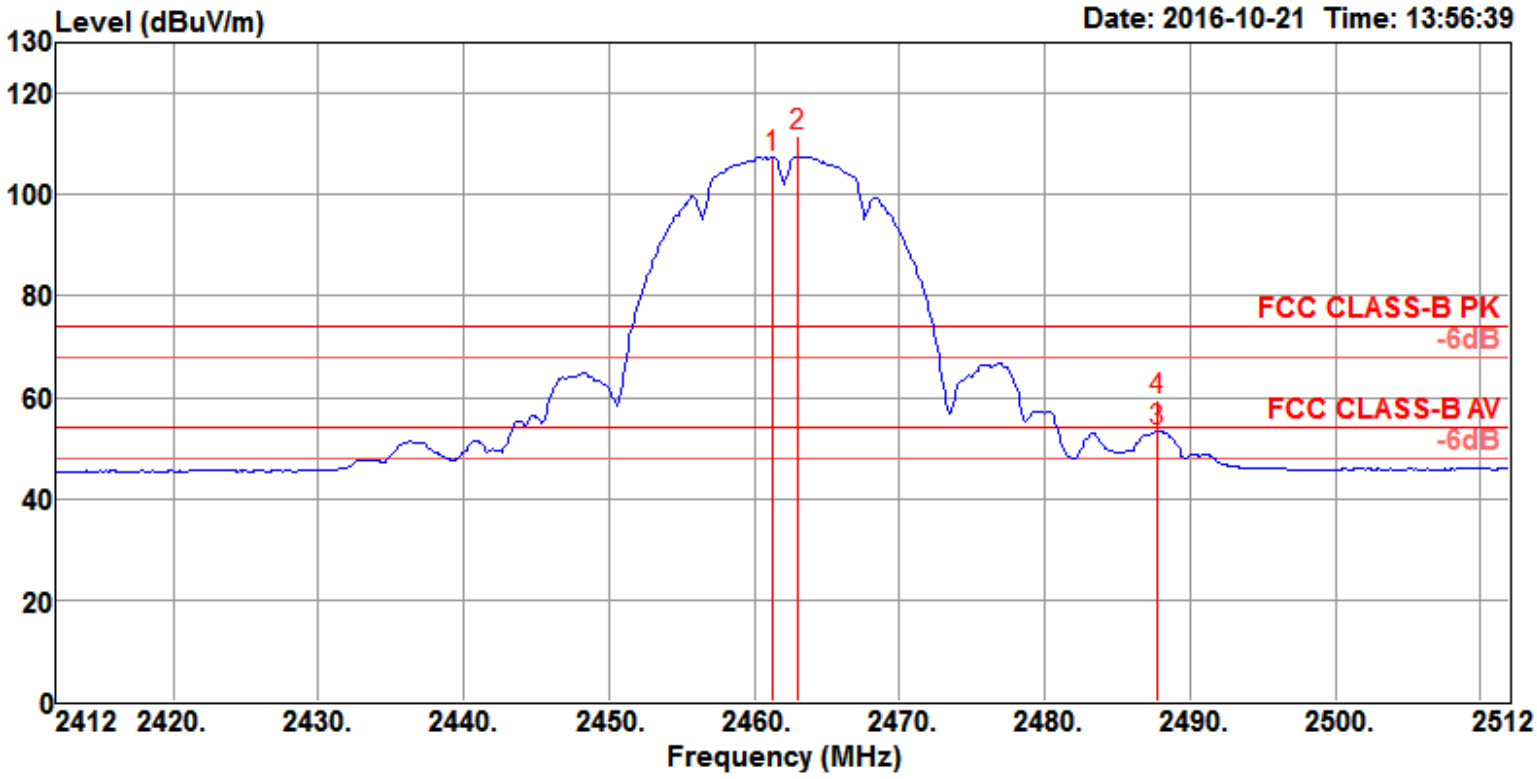
Channel 6



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2385.00	48.94	54.00	-5.06	17.02	4.87	27.05	0.00	169	61	Average	VERTICAL
2	2386.20	58.77	74.00	-15.23	26.83	4.89	27.05	0.00	169	61	Peak	VERTICAL
3 @	2438.20	114.20			82.09	4.95	27.16	0.00	169	61	Peak	VERTICAL
4 @	2439.00	110.44			78.33	4.95	27.16	0.00	169	61	Average	VERTICAL
5	2484.60	59.36	74.00	-14.64	27.11	4.98	27.27	0.00	169	61	Peak	VERTICAL
6	2485.00	53.52	54.00	-0.48	21.27	4.98	27.27	0.00	169	61	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

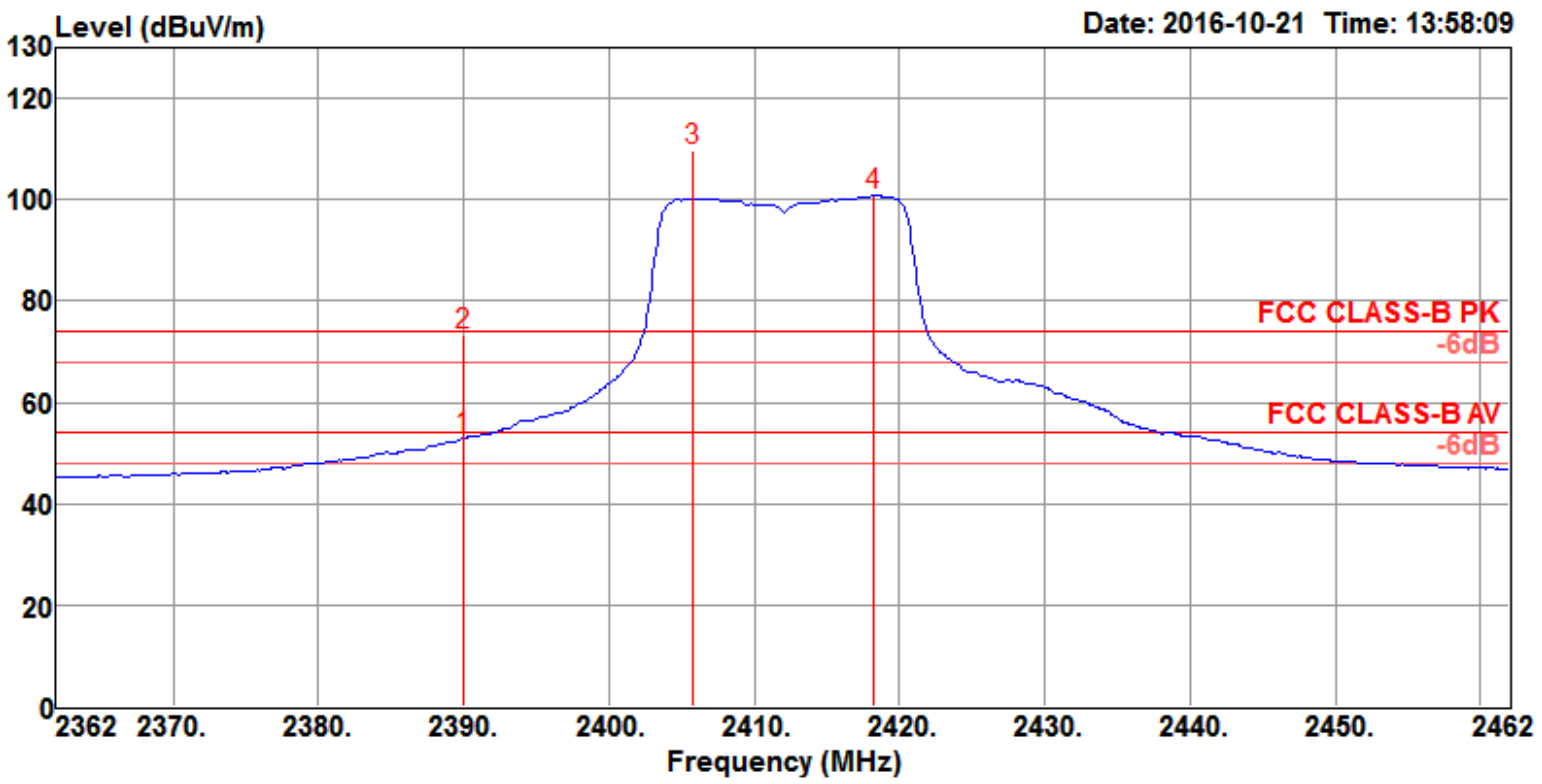


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 @	2461.20	107.57			75.38	4.97	27.22	0.00	150	122	Average	VERTICAL
2 @	2463.00	111.44			79.25	4.97	27.22	0.00	150	122	Peak	VERTICAL
3	2487.80	53.49	54.00	-0.51	21.22	5.00	27.27	0.00	150	122	Average	VERTICAL
4	2487.80	59.49	74.00	-14.51	27.22	5.00	27.27	0.00	150	122	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1

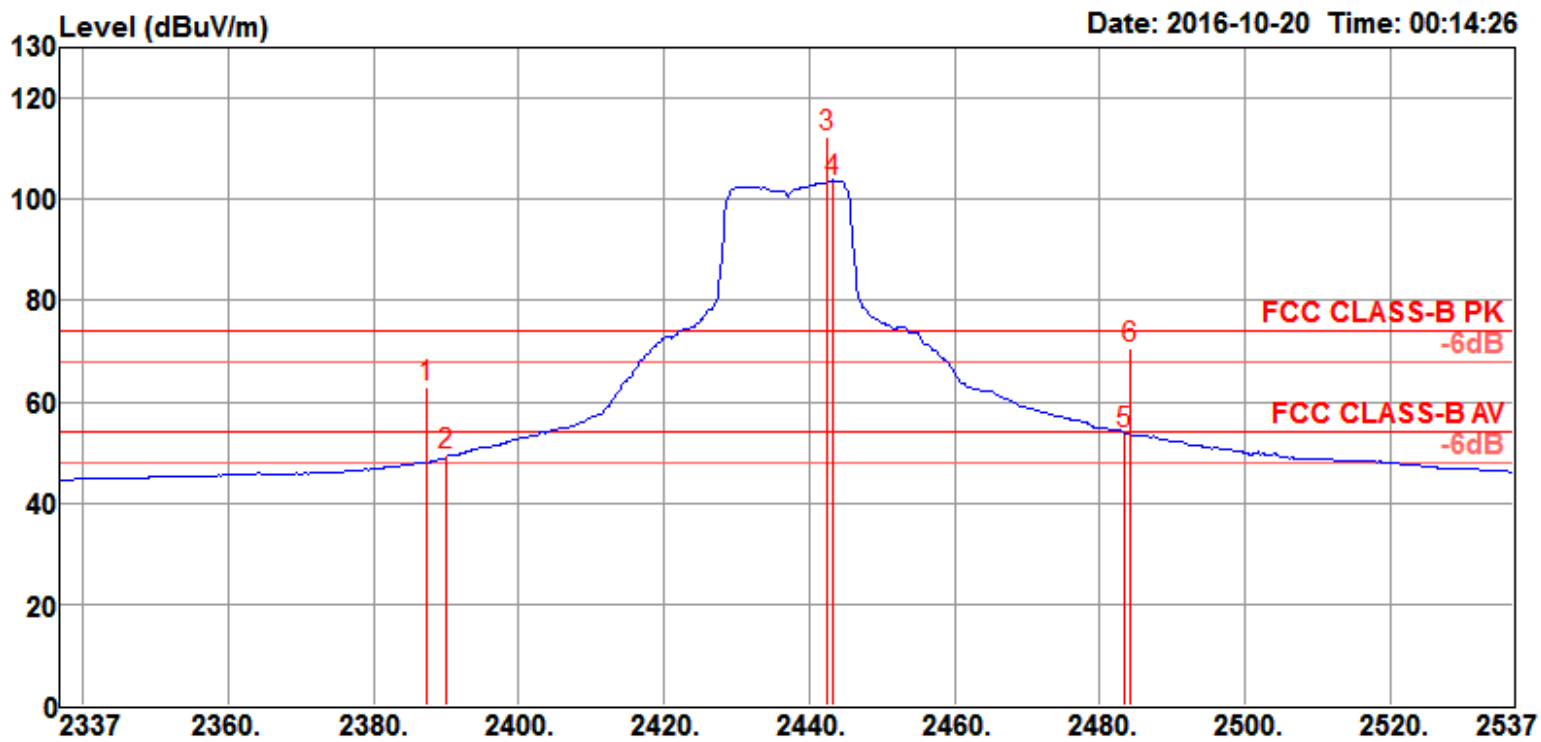
Channel 1



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	52.86	54.00	-1.14	20.92	4.89	27.05	0.00	150	126	Average	VERTICAL
2	2390.00	73.43	74.00	-0.57	41.49	4.89	27.05	0.00	150	126	Peak	VERTICAL
3 @	2405.80	109.68			77.67	4.91	27.10	0.00	150	126	Peak	VERTICAL
4 @	2418.20	100.80			68.76	4.91	27.13	0.00	150	126	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

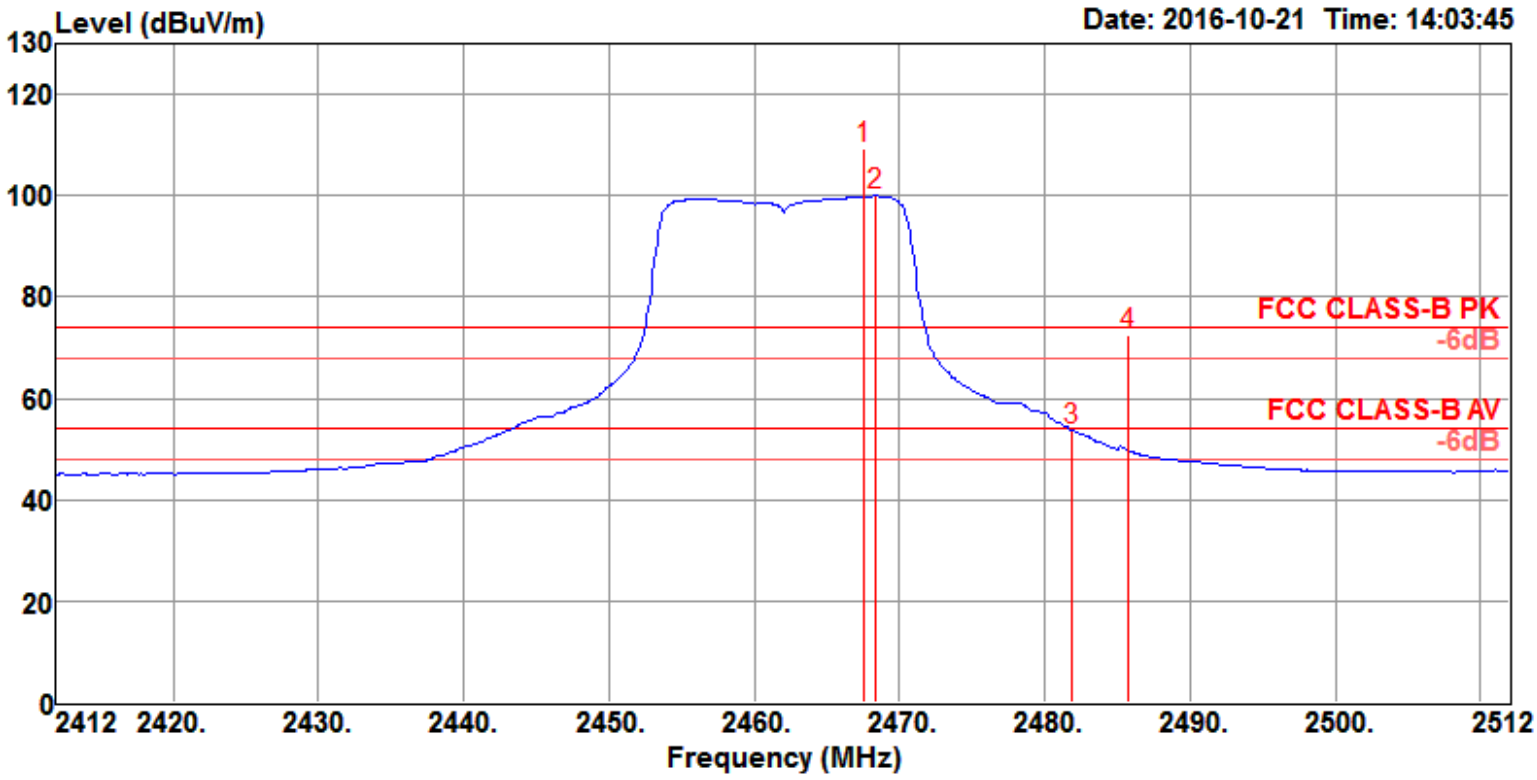
Channel 6



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.40	62.89	74.00	-11.11	30.95	4.89	27.05	0.00	150	64	Peak	VERTICAL
2	2390.00	49.43	54.00	-4.57	17.49	4.89	27.05	0.00	150	64	Average	VERTICAL
3 @	2442.60	112.54			80.41	4.95	27.18	0.00	150	64	Peak	VERTICAL
4 @	2443.40	103.74			71.61	4.95	27.18	0.00	150	64	Average	VERTICAL
5	2483.50	53.79	54.00	-0.21	21.54	4.98	27.27	0.00	150	64	Average	VERTICAL
6	2484.20	70.77	74.00	-3.23	38.52	4.98	27.27	0.00	150	64	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

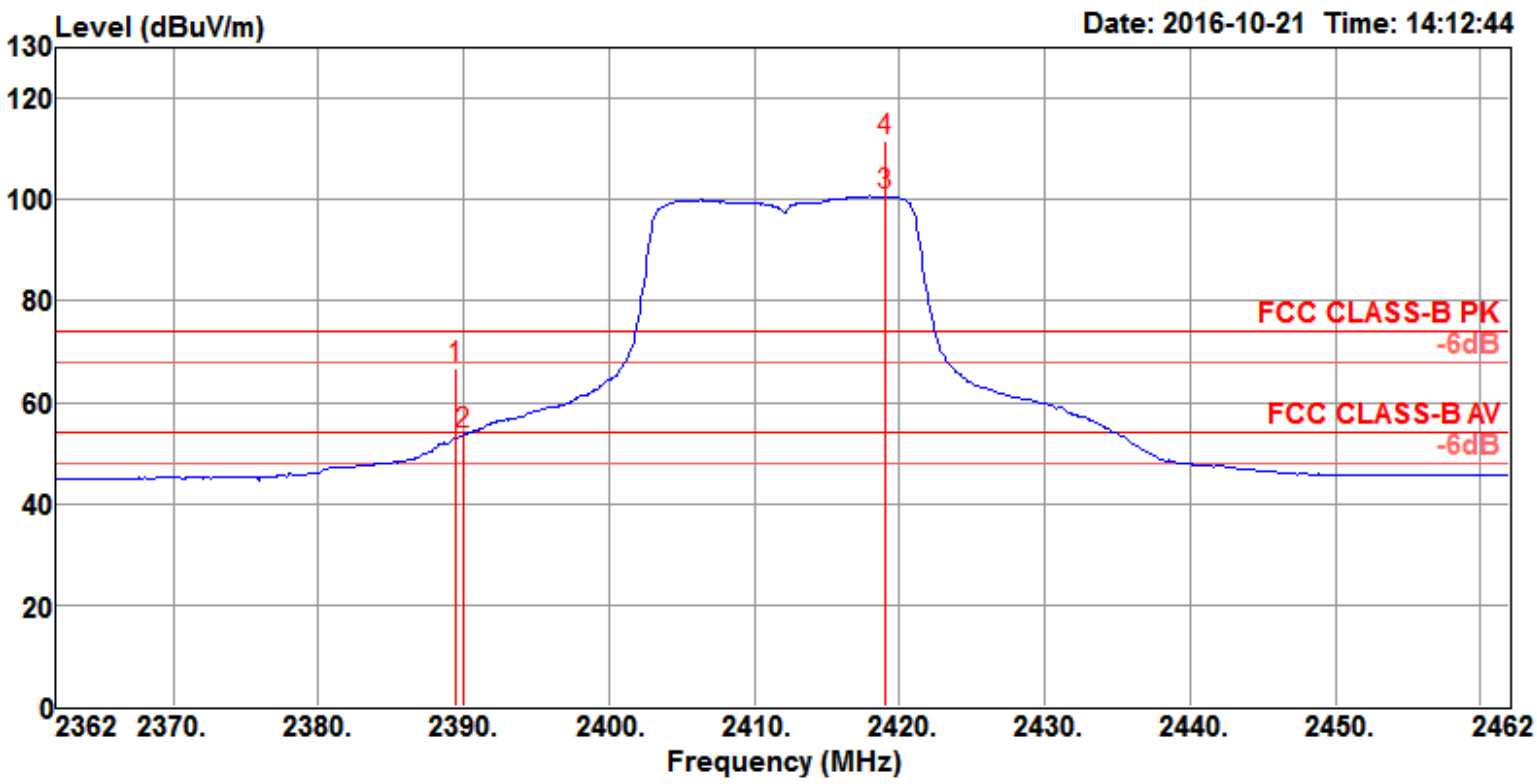


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 @	2467.60	109.29			77.08	4.97	27.24	0.00	141	126	Peak	VERTICAL
2 @	2468.40	99.98			67.77	4.97	27.24	0.00	141	126	Average	VERTICAL
3	2481.80	53.56	54.00	-0.44	21.33	4.98	27.25	0.00	141	126	Average	VERTICAL
4	2485.80	72.66	74.00	-1.34	40.41	4.98	27.27	0.00	141	126	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Configurations	IEEE 802.11n MCS8 HT20 CH 1, 6, 11 / Chain 1 + Chain 2

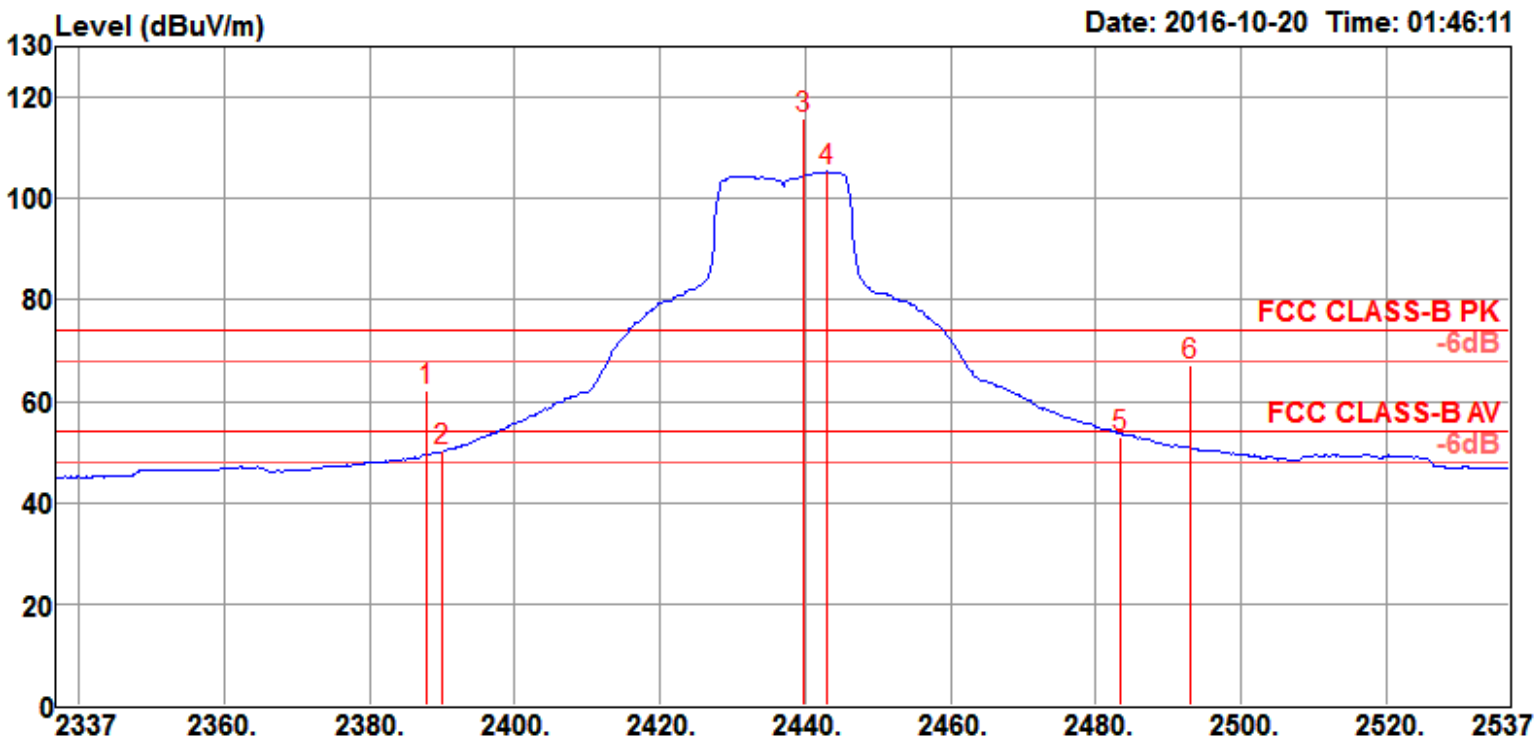
Channel 1



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	66.74	74.00	-7.26	34.80	4.89	27.05	0.00	155	303	Peak	VERTICAL
2	2390.00	53.57	54.00	-0.43	21.63	4.89	27.05	0.00	155	303	Average	VERTICAL
3 @	2419.00	100.70			68.66	4.91	27.13	0.00	155	303	Average	VERTICAL
4 @	2419.00	111.51			79.47	4.91	27.13	0.00	155	303	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

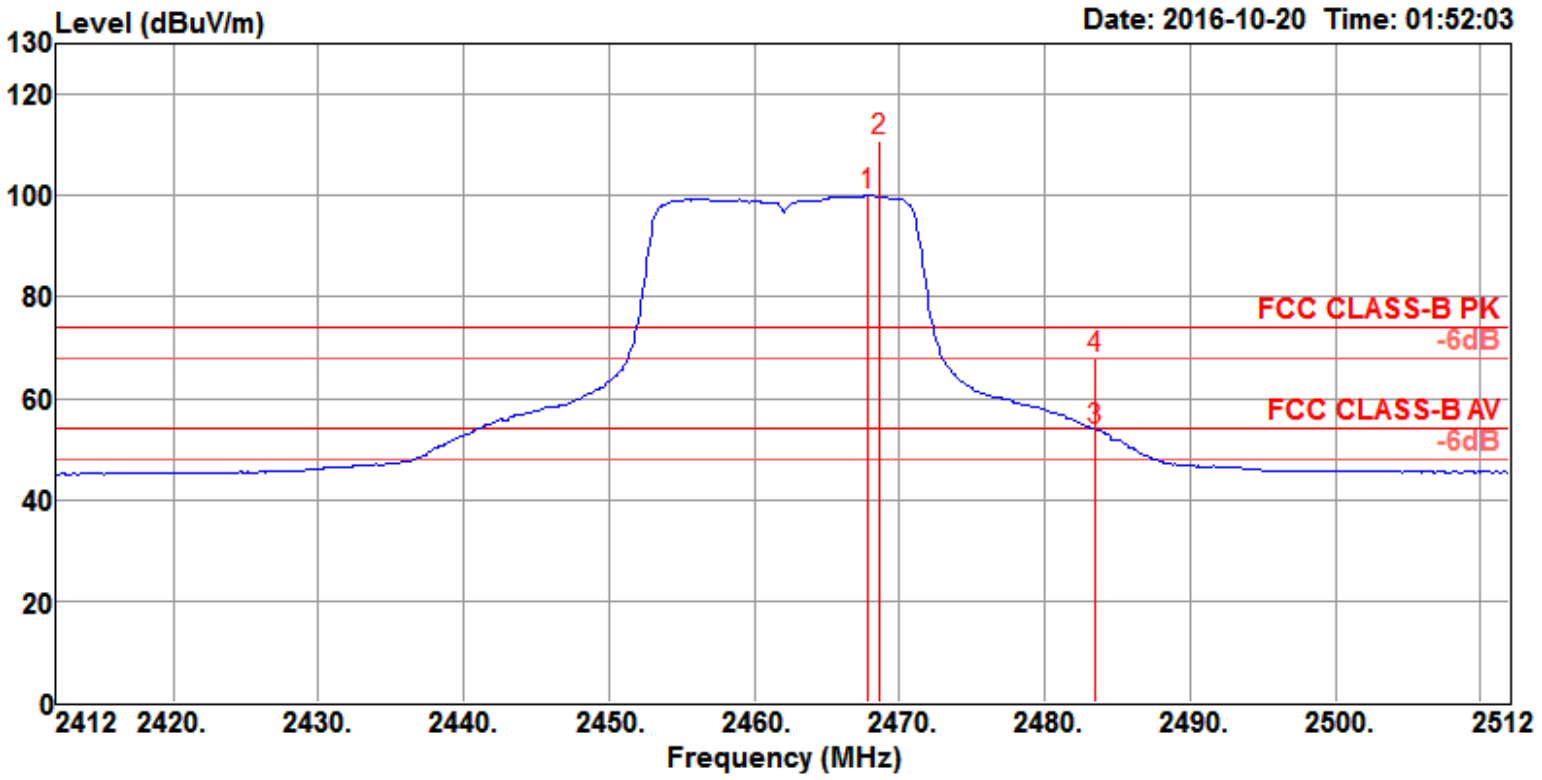
Channel 6



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.80	62.14	74.00	-11.86	30.20	4.89	27.05	0.00	150	228	Peak	VERTICAL
2	2390.00	50.21	54.00	-3.79	18.27	4.89	27.05	0.00	150	228	Average	VERTICAL
3 @	2439.80	115.89			83.76	4.95	27.18	0.00	150	228	Peak	VERTICAL
4 @	2443.00	105.31			73.18	4.95	27.18	0.00	150	228	Average	VERTICAL
5	2483.50	53.01	54.00	-0.99	20.76	4.98	27.27	0.00	150	228	Average	VERTICAL
6	2493.00	67.11	74.00	-6.89	34.83	5.00	27.28	0.00	150	228	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

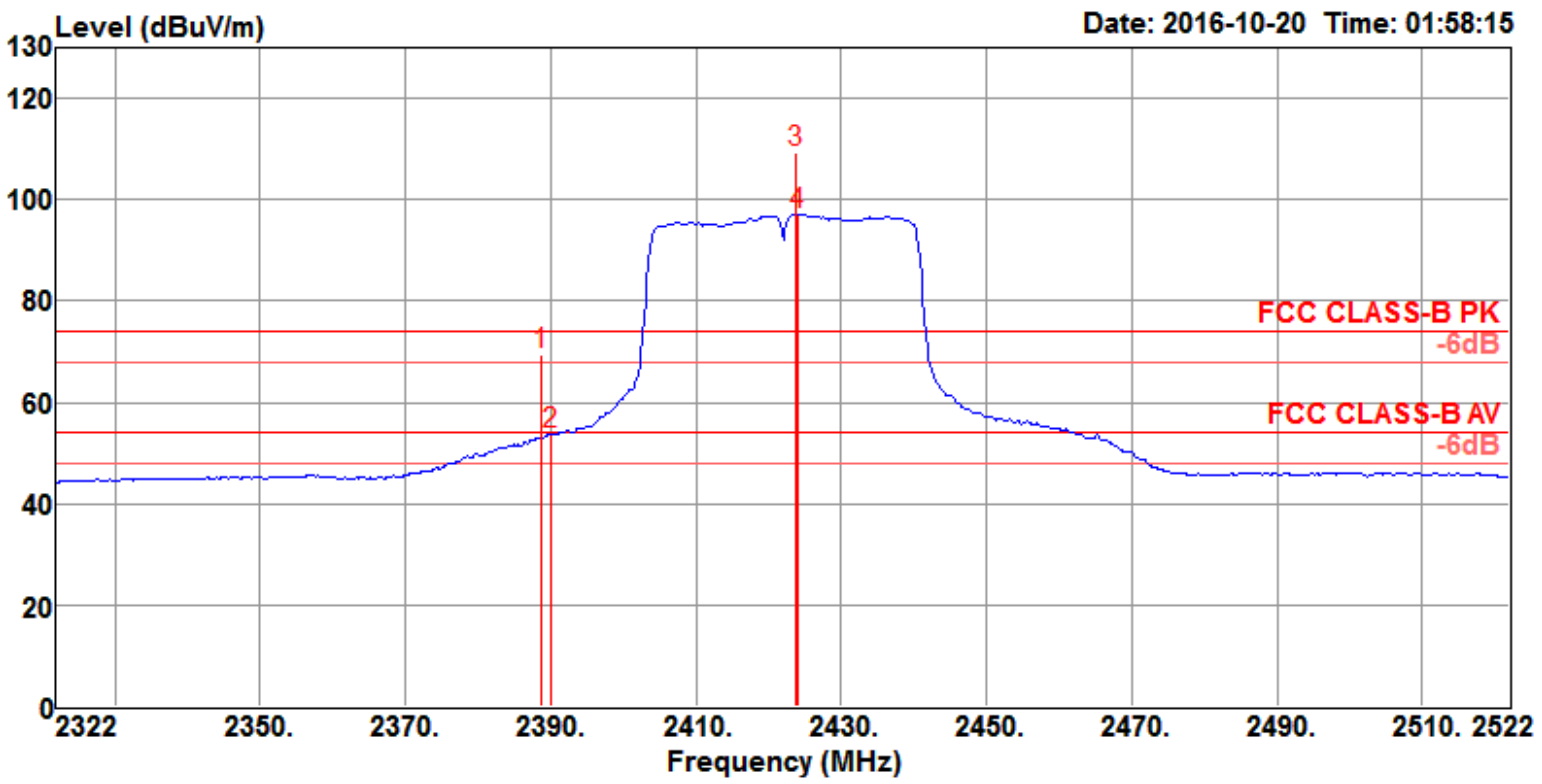


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 @	2467.80	100.00			67.79	4.97	27.24	0.00	141	50	Average	VERTICAL
2 @	2468.60	110.71			78.50	4.97	27.24	0.00	141	50	Peak	VERTICAL
3	2483.50	53.81	54.00	-0.19	21.56	4.98	27.27	0.00	141	50	Average	VERTICAL
4	2483.50	68.06	74.00	-5.94	35.81	4.98	27.27	0.00	141	50	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Configurations	IEEE 802.11n MCS8 HT40 CH 3, 6, 9 / Chain 1 + Chain 2

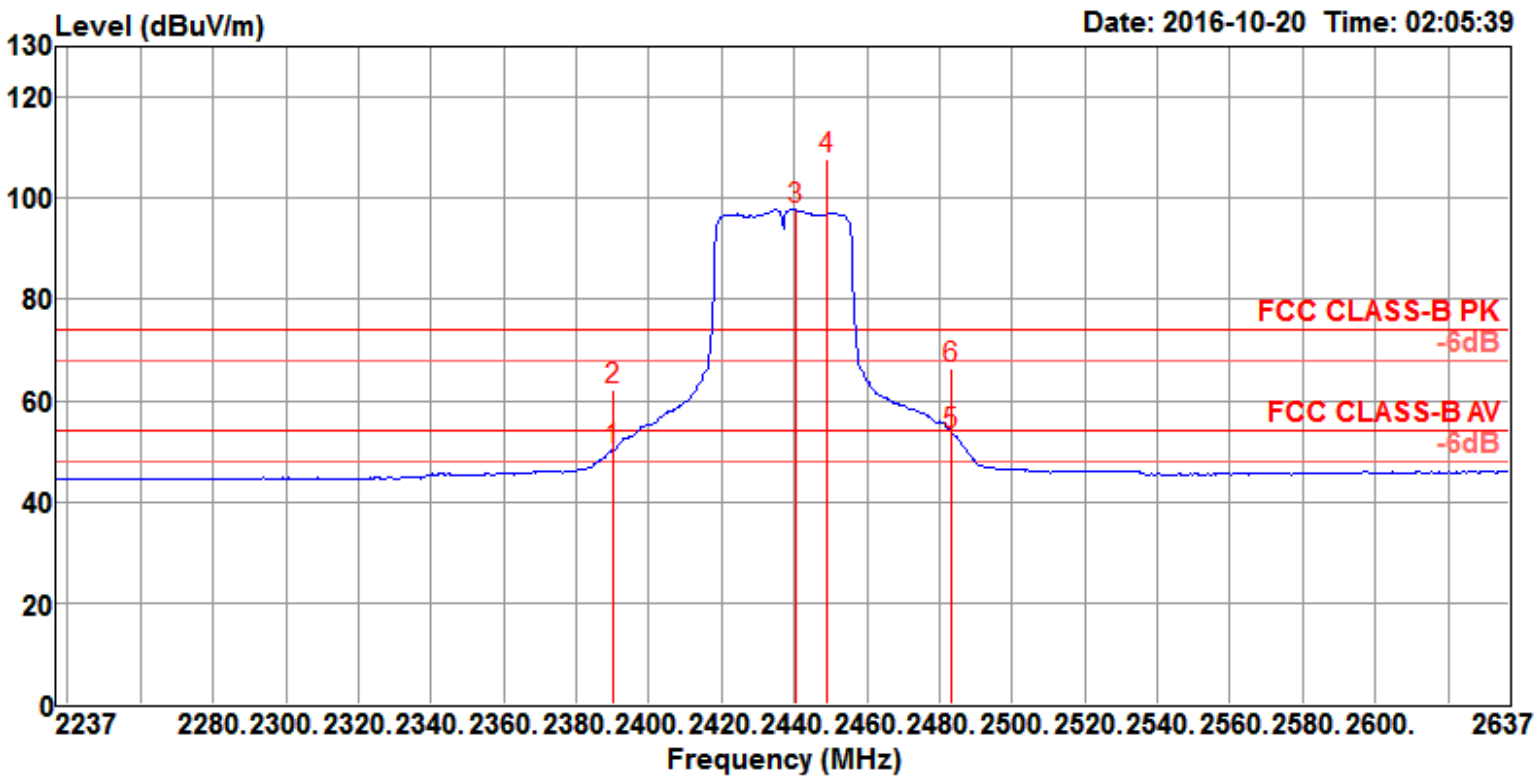
Channel 3



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.80	69.39	74.00	-4.61	37.45	4.89	27.05	0.00	144	302	Peak	VERTICAL
2	2390.00	53.70	54.00	-0.30	21.76	4.89	27.05	0.00	144	302	Average	VERTICAL
3 @	2423.60	109.44			77.38	4.93	27.13	0.00	144	302	Peak	VERTICAL
4 @	2424.00	97.13			65.07	4.93	27.13	0.00	144	302	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

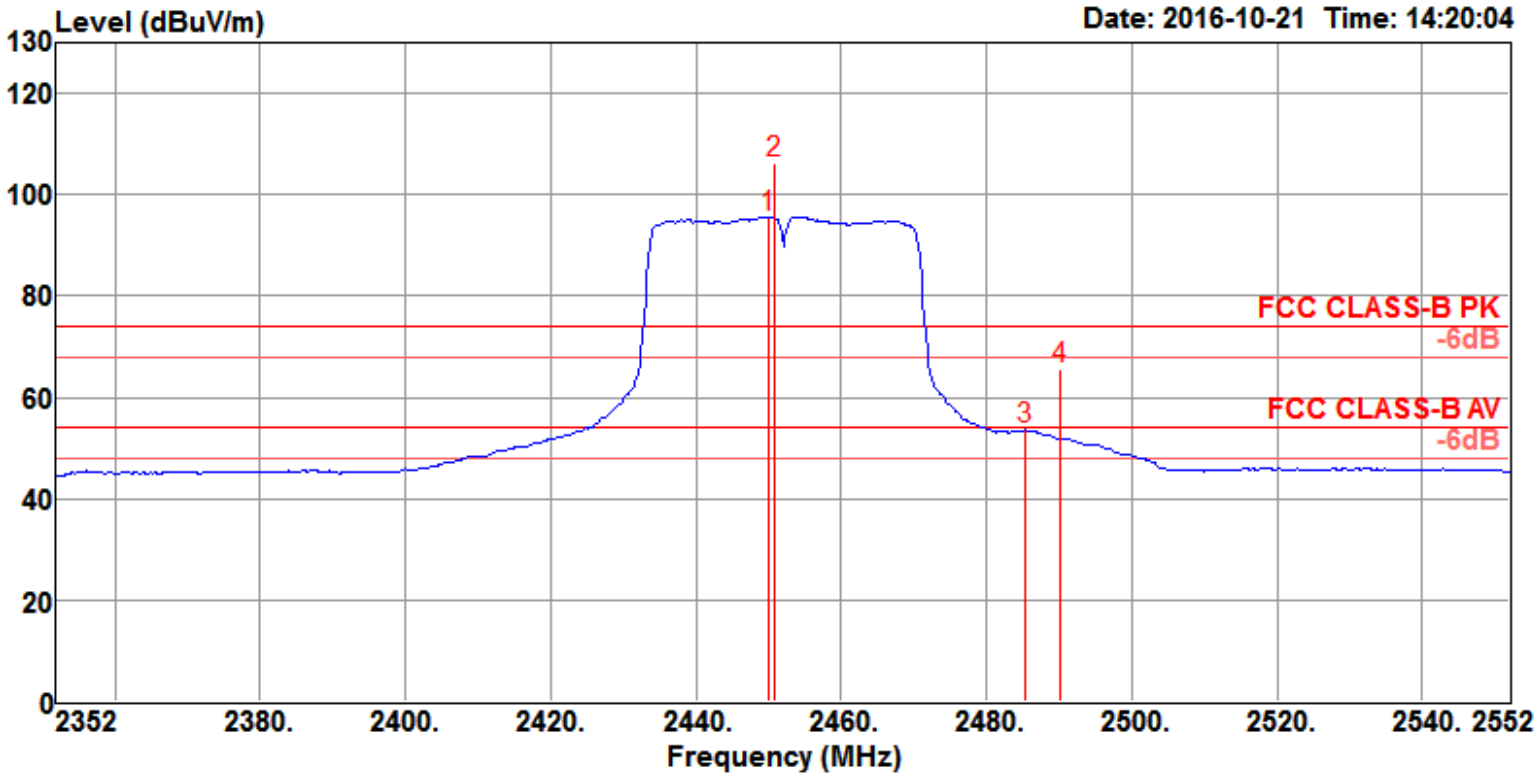
Channel 6



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	50.10	54.00	-3.90	18.16	4.89	27.05	0.00	150	352	Average	VERTICAL
2	2390.00	62.29	74.00	-11.71	30.35	4.89	27.05	0.00	150	352	Peak	VERTICAL
3 @	2440.20	97.86			65.73	4.95	27.18	0.00	150	352	Average	VERTICAL
4 @	2449.00	107.74			75.60	4.95	27.19	0.00	150	352	Peak	VERTICAL
5	2483.50	53.42	54.00	-0.58	21.17	4.98	27.27	0.00	150	352	Average	VERTICAL
6	2483.50	66.22	74.00	-7.78	33.97	4.98	27.27	0.00	150	352	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 9



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 @	2450.00	95.57			63.43	4.95	27.19	0.00	150	280	Average	VERTICAL
2 @	2450.80	106.21			74.07	4.95	27.19	0.00	150	280	Peak	VERTICAL
3	2485.20	53.54	54.00	-0.46	21.29	4.98	27.27	0.00	150	280	Average	VERTICAL
4	2490.00	65.74	74.00	-8.26	33.46	5.00	27.28	0.00	150	280	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.