FCC 47 CFR PART 15 SUBPART C & INDUSTRY CANADA RSS-210

TEST REPORT

For

802.11a/b/g/n/ac, 2T2R Wireless LAN USB2.0 Module

Model: WN4510L

Trade Name: LITE-ON

Issued to

Lite-On Technology Corp.
4F, 90, Chien 1 Road, Chung Ho,
New Taipei City 23585, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: May 12, 2014

Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		May 12, 2014		Initial Issue	ALL	Kelly Cheng

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1. TEST RESULT CERTIFICATION

Applicant:	Lite-On Technology Corp. 4F, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C.
Manufacturer:	LITE-ON TECHNOLOGY (Changzhou) CO., LTD A9 Building,No.88 Yanghu Road, Wujin Hi-Tech Industrial Development Zone ,Changzhou City, Jiangsu Province 213100 China
Equipment Under Test:	802.11a/b/g/n/ac, 2T2R Wireless LAN USB2.0 Module
Trade Name:	LITE-ON
Model:	WN4510L
Date of Test:	April 22, 2014 ~ May 9, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C & Industry Canada RSS-210 Issue 8 December, 2010	No non-compliance noted

We hereby certify that:

Compliance Certification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The test results of this report relate only to the tested sample identified in this report.

Approved by

Miller Lee
Section Manager
Compliance Certification Services Inc.

Reviewed by

Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	802.11a/b/g/n/ac, 2T2R Wireless LAN USB2.0 Module
Trade Name	LITE-ON
Model Number	WN4510L
Model Discrepancy	N/A
Power Supply	Powered from host device
Received Date	April 16, 2014
Frequency Range	IEEE 802.11a/ IEEE 802.11n HT 20 MHz: 5.725~5.850 GHz IEEE 802.11n HT 40 mode: 5.755~5.795GHz IEEE 802.11n HT 80 mode: 5.735~5.835GHz IEEE 802.11b/g/ IEEE 802.11n HT 20 MHz: 2.412~2.462 GHz IEEE 802.11n HT 40 MHz: 2.422~2.452GHz
Transmit Power	IEEE 802.11a mode: 23.90 dBm IEEE 802.11n HT 20 MHz mode: 25.01 dBm IEEE 802.11n HT 40 MHz mode: 25.02 dBm IEEE 802.11n HT 80 MHz mode: 25.40 dBm IEEE 802.11b mode: 19.90 dBm IEEE 802.11g mode: 25.50 dBm IEEE 802.11n HT 20 MHz mode: 22.60 dBm IEEE 802.11n HT 40 MHz mode: 22.60 dBm
Modulation Technique	IEEE 802.11a: OFDM (54, 48, 36, 24, 18, 12, 9, 6 Mbps) IEEE 802.11n HT 20 mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps) IEEE 802.11n HT 80 mode: OFDM (29.3, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390, 468, 526.5, 585, 702, 780 Mbps) IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) IEEE 802.11n HT 20 mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 MHz mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)
Number of Channels	IEEE 802.11a mode: 5 Channels IEEE 802.11n HT 20 mode: 5 Channels IEEE 802.11n HT 40 mode: 2 Channels IEEE 802.11n HT 80 mode: 1 Channel IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT 20 mode: 11 Channels IEEE 802.11n HT 40 MHz mode: 7 Channels

Antenna Specification	LITE-ON / 3010000271ID For 2.4G Integral Antenna / Gain: 3.36 dBi For 5G Integral Antenna / Gain: 1.59 dBi

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: **PPQ-WN4510**, IC: **4491A-WN4510L** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47 Part 15.207, 15.209, 15.247 and KDB558074

The tests documented in this report were performed in accordance with IC RSS-210, IC RSS-Gen, IC RSS-102, and ANSI C63.4.

This submittal(s) (test report) is intended for IC Certification with Industry Canada RSS-210.

4.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

The tests documented in this report were performed in accordance with IC RSS-210, IC RSS-Gen, IC RSS-102, and ANSI C63.4.

4.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

4.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4.5 DESCRIPTION OF TEST MODES

The EUT (model: WN4510L) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode was programmed.

After verification, all tests carried out are with the worst-case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode and receiving radiated spurious emission above 1GHz, which worst case was in CH Mid mode only.

IEEE 802.11b mode:
Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE 802.11g mode:
Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz mode:
Channel Low (2412MHz), Channel Mid (2442MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz mode:
Channel Low (2422MHz), Channel Mid (2442MHz) and Channel High (2452MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11a mode:
Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz mode:
Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz mode:
Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 80 mode:
Channel Low(5775MHz) with 29.3Mbps data rate were chosen for full testing.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/19/2015
Power Meter	Anritsu	ML2495A	1012009	06/04/2014
Power Sensor	Anritsu	MA2411B	0917072	06/04/2014

Wugu 966 Chamber A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510268	11/05/2014
EMI Test Receiver	R&S	ESCI	100064	02/27/2015
Pre-Amplifier	Mini-Circults	ZFL-1000LN	SF350700823	01/11/2015
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1415367	11/18/2014
Bilog Antenna	Sunol Sciences	JB3	A030105	10/01/2014
Horn Antenna	EMCO	3117	00055165	02/12/2015
Horn Antenna	EMCO	3116	00026370	10/09/2014
Loop Antenna	EMCO	6502	8905/2356	06/09/2014
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Site NSA	CCS	N/A	N/A	12/21/2014
Test S/W	EZ-EMC (CCS-3A1RE)			

Conducted Emission room # A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESI	101203	09/12/2014
LISN	R&S	ESH3-Z5	848773/014	12/05/2014
Coaxial Cable	Commate	CFD300-NL	NA	12/05/2014
Test S/W	CCS-3A1-CE			

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2159
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

***Remark**: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wu-Gong 6th Rd., Wugu Industrial Park, New Taipei City 248, Taiwan (R.O.C.)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.2 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, IC 2324G-2 for 3M Semi Anechoic Chamber B.

5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	TAF Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada IC 2324G-1 IC 2324G-2

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6 SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	IBM	7663 (T61)	L3E9812	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2	Notebook PC	DELL	PP19L	7B3ZP1S	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

7 APPLICABLE RULES

RSS-210 §2 General Certification Requirements and Specifications

RSS-210 §2.1 RSS-Gen Compliance

In addition to RSS-210, the requirements in RSS-Gen, *General Requirements and Information for the Certification of Radio Apparatus*, must be met.

RSS-210 §2.2 Emissions Falling Within Restricted Frequency Bands

Category I licence-exempt equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands. These restricted frequency bands are listed in RSS-Gen.

RSS-210 §2.3 Receivers

Category I equipment receivers for use with transmitters subject to RSS-210 must comply with the applicable requirements set out in RSS-Gen and be certified under RSS-210. Category II equipment receivers for use with transmitters subject to RSS-210 are exempt from certification, but are subject to compliance with RSS-Gen and RSS-310.

RSS-210 §2.5 General Field Strength Limits

RSS-Gen includes the general field strength limits of unwanted emissions, where applicable, for transmitters and receivers operating in accordance with the provisions specified in this standard. Unwanted emissions of transmitters and receivers are permitted to fall within the restricted bands listed in RSS-Gen, and including the TV bands, but fundamental emissions are prohibited in the restricted bands.

RSS-210 §2.5.1 Transmitters with Wanted Emissions that are Within the General Field Strength Limits

Whether or not their operation is addressed by published RSS standards, transmitters whose wanted and unwanted emissions are within the general field strength limits shown in RSS-Gen, they may operate in any of the frequency bands, other than the restricted bands listed in RSS-Gen and including the TV bands, and shall be certified under RSS-210. Under no conditions may the level of any unwanted emissions exceed the level of the fundamental emission.

Note: Devices operating below 490 kHz in which all emissions are at least 40 dB below the limit listed in RSS-Gen (*General Field Strength Limits for Transmitters at Frequencies below 30 MHz*) are Category II devices and are subject to RSS-310.

RSS-210 §2.7 Tables

RSS-210 §Annex A2.9: Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands

This section applies to systems that employ frequency hopping (FH) and digital modulation technology in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. Systems in these bands may employ frequency hopping, digital modulation and or a combination (hybrid) of both techniques.
A frequency hopping system that synchronizes with another or several other systems (to avoid frequency collision among them) via off-air sensing or via connecting cables is not hopping randomly and therefore is not in compliance with RSS-210.

RSS-210 §A8.1 Frequency Hopping Systems

Frequency hopping systems are spread spectrum systems in which the carrier is modulated with coded information in a conventional manner causing a conventional spreading of the RF energy about the carrier frequency. The frequency of the carrier is not fixed but changes at fixed intervals under the direction of a coded sequence.
Frequency hopping systems are not required to employ all available hopping frequencies during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream.
Incorporation of intelligence into a frequency hopping system that enables it to recognize other users of the band and to avoid occupied frequencies is permitted, provided that the frequency hopping system does it individually, and independently chooses or adapts its hopset. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.
The following applies to frequency hopping systems in each of the three bands.
(a) The bandwidth of a frequency hopping channel is the 20 dB emission bandwidth, measured with the hopping stopped. The system RF bandwidth is equal to the channel bandwidth multiplied by the number of channels in the hopset. The hopset shall be such that the near term distribution of frequencies appears random, with sequential hops randomly distributed in both direction and magnitude of change in the hopset while the long term distribution appears evenly distributed.

(b) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125 W. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.
(d) Frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Transmissions on particular hopping frequencies may be avoided or suppressed provided that a minimum of 15 hopping channels are used.

RSS-210 §A8.2 Digital Modulation Systems

These include systems employing digital modulation techniques resulting in spectral characteristics similar to direct sequence systems. The following applies to all three bands.

RSS-210 §A8.4 Transmitter Output Power and e.i.r.p. Requirements

(4) For systems employing digital modulation techniques operating in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands, the maximum peak conducted power shall not exceed 1 W. Except as provided in Section A8.4(5), the e.i.r.p. shall not exceed 4 W.
As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power (see RSS-Gen)
(5) Point-to-point systems in the bands 2400-2483.5 MHz and 5725-5850 MHz are permitted to have an e.i.r.p. higher than 4 W, provided that the higher e.i.r.p. is achieved by employing higher gain directional antennas and not higher transmitter output powers. Point-to-multipoint systems, omni-directional applications and multiple co-located transmitters transmitting the same information are prohibited from exceeding 4 W e.i.r.p. However, remote stations of point-to-multipoint systems shall be allowed to operate at greater than 4 W e.i.r.p, under the same conditions as for point-to- point systems.
Note: "Fixed, point-to-point operation", excludes point-to-multipoint systems, omnidirectional applications and multiple co-located transmitters transmitting the same information.

RSS-210 §A8.5 Out-of-band Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required.

RSS-Gen §2 General Information

RSS-Gen §2.1.2 Category II Equipment

Category II equipment comprises radio devices where a standard has been prescribed but for which a TAC is not required, that is, equipment certification by Industry Canada or a Certification Body (CB) is not required (certification exempt), pursuant to subsection 4(3) of the Radiocommunication Act. The manufacturer or importer shall nevertheless ensure that the standards are complied with. A test report shall be available on request and the device shall be properly labelled.

RSS-Gen §2.2 Receivers

Receivers that are used for radiocommunication other than broadcasting are defined as Category I equipment or Category II equipment, subject to compliance with applicable Industry Canada standards.
Receivers shall be capable of operation only with transmitters for which RSSs are published. Receivers are classified as described in sections 2.2.1 and 2.2.2.

RSS-Gen §2.2.1 Category I Equipment Receivers

A receiver is classified as Category I equipment if it meets one of the following conditions:
(a) a stand-alone receiver (see Note 1, below), which operates on any frequency in the band 30-960 MHz, and is used for the reception of signals in that frequency band from a transmitter classified as Category I equipment;
(b) a Citizen's Band (CB) receiver (26.96-27.410 MHz);
(c) a scanner receiver.
Note 1: A *stand-alone receiver* is defined as any receiver that is not permanently combined together with a transmitter in a single case (transceiver), in which it functions as the receiver component of the transceiver.
Receivers classified as Category I equipment shall comply with the limits for receiver spurious emissions set out in RSS-Gen; however, equipment certification is granted under the applicable RSS standard along with the associated transmitter classified as Category I equipment. Scanner receivers are covered under their own specific RSS.

RSS-Gen §2.2.2 Category II Equipment Receivers

A receiver is classified as Category II equipment if it does not meet any of the conditions of Section 2.2.1.
Category II receivers shall comply with the applicable testing, labelling and user manual requirements in RSS-310.

RSS-Gen §5.6 Exposure of Humans to RF Fields

Category I and Category II equipment shall comply with the applicable requirements of RSS-102.

RSS-Gen §6 Receiver Spurious Emission Standard

Receivers shall comply with the limits of spurious emissions set out in this section, measured over the frequency range determined in accordance with Section 4.10.

RSS-Gen §6.1 Radiated Limits

Radiated spurious emission measurements shall be performed with the receiver antenna connected to the receiver antenna terminals.

Spurious emissions from receivers shall not exceed the radiated limits shown in the table below:

RSS-Gen Table 2 - Spurious Emission Limits for Receivers

Frequency (MHz)	Field Strength microvolts/m at 3 metres
30-88	100
88-216	150
216-960	200
Above 960	500

*Measurements for compliance with limits in the above table may be performed at distances other than 3 metres, in accordance with Section 7.2.7.

RSS- Gen Table 3: Restricted Frequency Bands (Note)

MHz	MHz	MHz	MHz	GHz
0.090-0.110	8.37625-8.38675	--	1718.8-1722.2	9.0-9.2
--	8.41425-8.41475	156.52475-156.52525	2200-2300	9.3-9.5
2.1735-2.1905	12.29-12.293	156.7-156.9	2310-2390	10.6-12.7
3.020-3.026	12.51975-12.52025	--	--	13.25-13.4
4.125-4.128	12.57675-12.57725	--	2655-2900	14.47-14.5
4.17725-4.17775	13.36-13.41	240-285	3260-3267	15.35-16.2
4.20725-4.20775	16.42-16.423	322-335.4	3332-3339	17.7-21.4
5.677-5.683	16.69475-16.69525	399.9-410	3345.8-3358	22.01-23.12
6.215-6.218	16.80425-16.80475	608-614	3500-4400	23.6-24.0
6.26775-6.26825	25.5-25.67	960-1427	4500-5150	31.2-31.8
6.31175-6.31225	37.5-38.25	1435-1626.5	5350-5460	36.43-36.5
8.291-8.294	73-74.6; 74.8-75.2	1645.5-1646.5	7250-7750	Above 38.6
8.362-8.366	108-138	1660-1710	8025-8500	

Note: *Certain frequency bands listed in Table 2 and above 38.6 GHz are designated for low-power licence-exempt applications. These frequency bands and the requirements that apply to the devices are set out in this Standard as well as RSS-310.*

RSS- Gen Table 5: General Field Strength Limits for Transmitters at Frequencies Above 30 MHz

Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

Note: *Transmitting devices are not permitted in Table 1 bands or, unless stated otherwise, in TV bands(54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-806 MHz).*

RSS- Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency (fundamental or spurious)	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/377F (F in Hz)	300
490-1.705 kHz	24,000/F (F in kHz)	24,000/377F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Note: *The emission limits for the bands 9-90 kHz and 110-490 kHz are based on measurements employing an average detector.*

RSS-Gen §7.1.2 Transmitter Antenna

A transmitter can only be sold or operated with antennas with which it was approved. Transmitter may be approved with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest gain antenna of each combination of transmitter and antenna type for which approval is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type having equal or lesser gain as an antenna that had been successfully tested with the transmitter, will also be considered approved with the transmitter, and may be used and marketed with the transmitter. For Category I transmitters, the manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer.
For transmitters of RF output power of 10 milliwatts or less, only the portion of the antenna gain that is in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power to demonstrate compliance with the radiated power limits specified in the applicable standard. For transmitters of output power greater than 10 milliwatts, the total antenna gain shall be added to the measured RF output power to demonstrate compliance to the specified radiated power limits.User manuals for transmitters shall display the following notice in a conspicuous location:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

The above notice may be affixed to the device instead of displayed in the user manual.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi) and required impedance for each.

RSS-Gen §7.2.4 Transmitter and Receiver AC Power Lines Conducted Emission Limits

Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below. The more stringent limit applies at the frequency range boundaries.
The conducted emissions shall be measured with a 50 ohm/50 microhenry line impedance stabilization network (LISN).

RSS-Gen Table 4 – AC Power Line Conducted Emission Limits

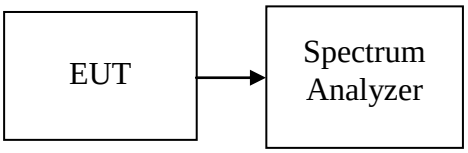
Frequency Range (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

**Decreases with the logarithm of the frequency.*

8 RSS 210 REQUIREMENTS

8.1 99%BANDWIDTH

Test Configuration



TEST PROCEDURE

The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold.

TEST RESULTS

No non-compliance noted.

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	15.0504
Mid	2442	15.0559
High	2462	15.0506

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	2412	17.0103
Mid	2442	17.0193
High	2462	17.0185

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.9912
Mid	2442	17.9720
High	2462	18.0082

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.7972
Mid	2442	17.7845
High	2462	17.8039

Test mode: IEEE 802.11n HT 40 MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2422	36.2612
Mid	2442	36.2309
High	2452	36.2988

Test mode: IEEE 802.11n HT 40 MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2422	36.1386
Mid	2442	36.1356
High	2452	36.1308

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	16.7960
Mid	5785	16.8416
High	5825	16.9752

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.8089
Mid	5785	17.8225
High	5825	17.8067

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.7212
Mid	5785	17.7570
High	5825	17.7638

Test mode: IEEE 802.11n HT 40 MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.2624
High	5795	36.4000

Test mode: IEEE 802.11n HT 40 MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.1996
High	5795	36.2880

Test mode: IEEE 802.11n HT 80 MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5755	79.9081

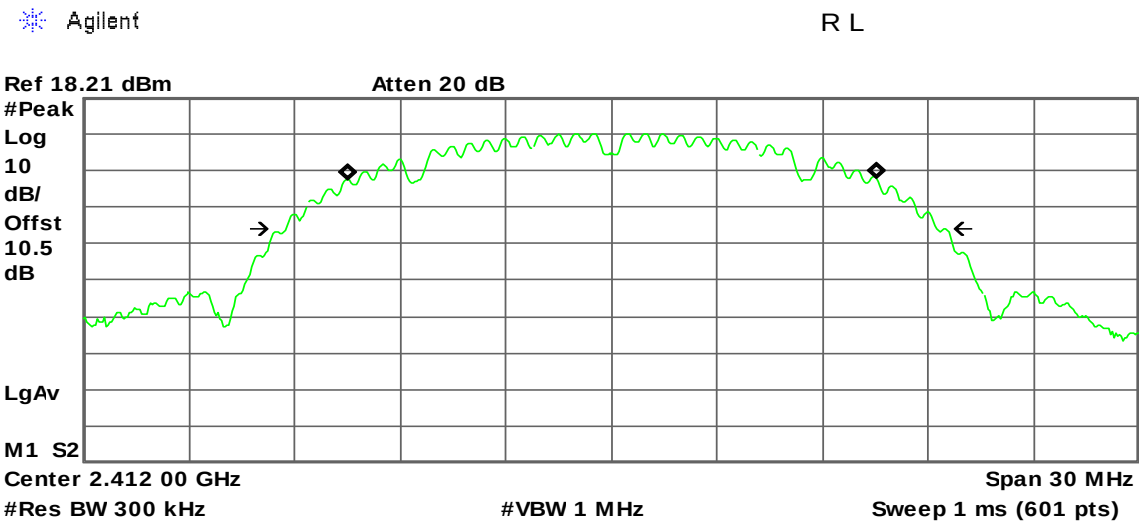
Test mode: IEEE 802.11n HT 80 MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5755	75.8067

Test Plot

IEEE 802.11b mode

99% Bandwidth (CH Low)

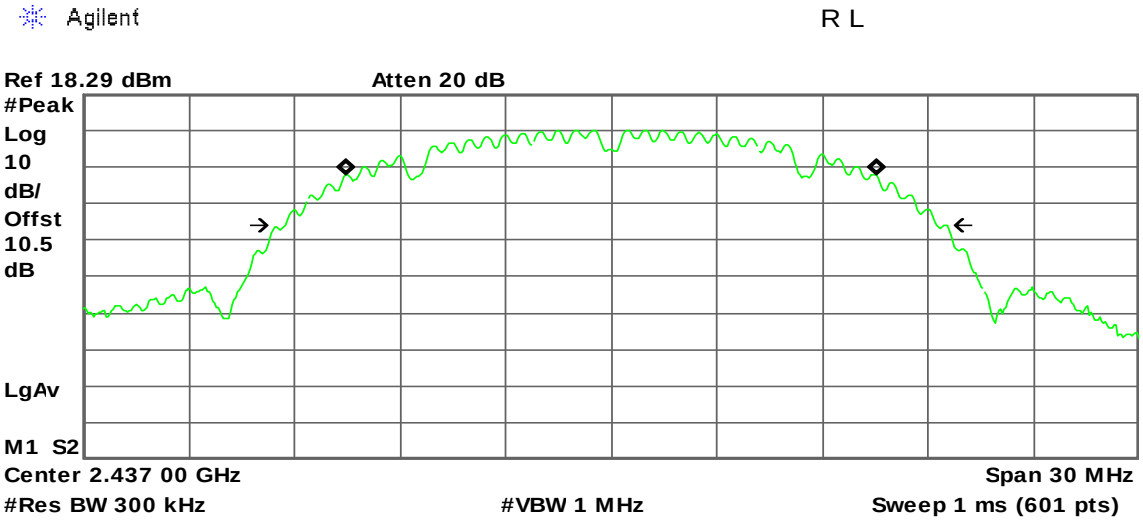


Occupied Bandwidth
15.0504 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 20.562 kHz
x dB Bandwidth 18.479 MHz

99% Bandwidth (CH Mid)

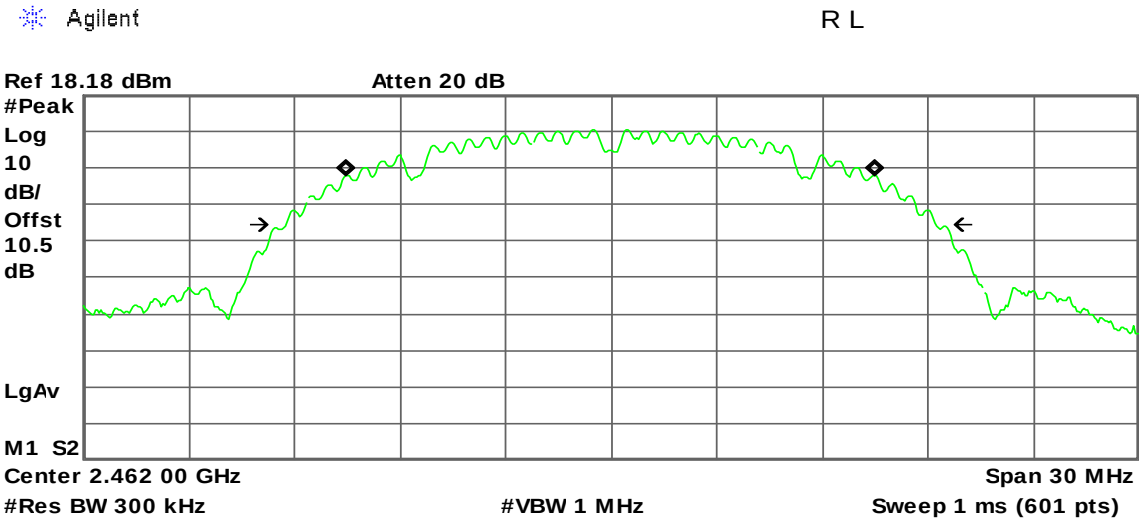


Occupied Bandwidth
15.0559 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.534 kHz
x dB Bandwidth 18.478 MHz

99% Bandwidth (CH High)



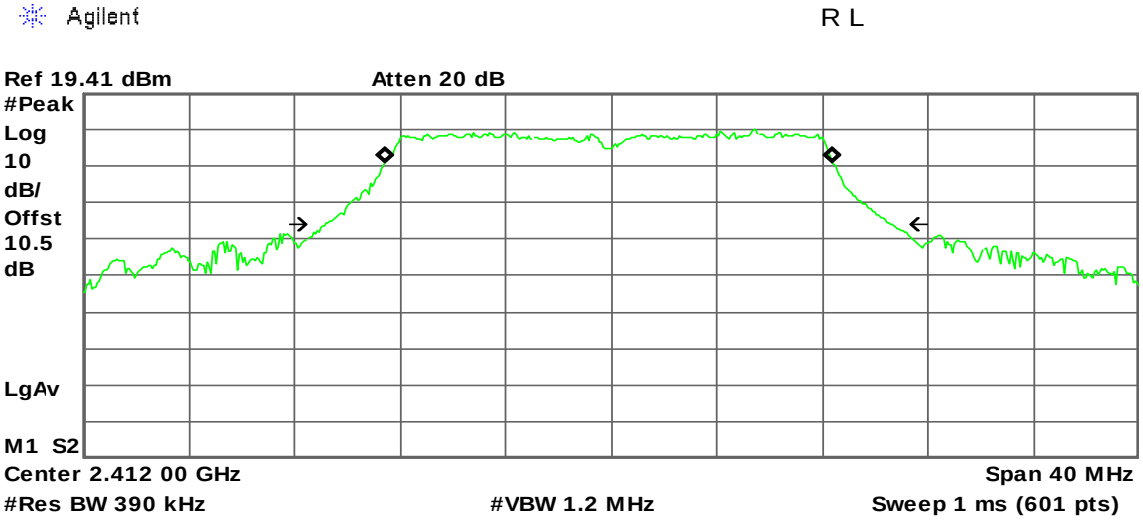
Occupied Bandwidth
15.0506 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-13.967 kHz
x dB Bandwidth	18.473 MHz

IEEE 802.11g mode

99% Bandwidth (CH Low)

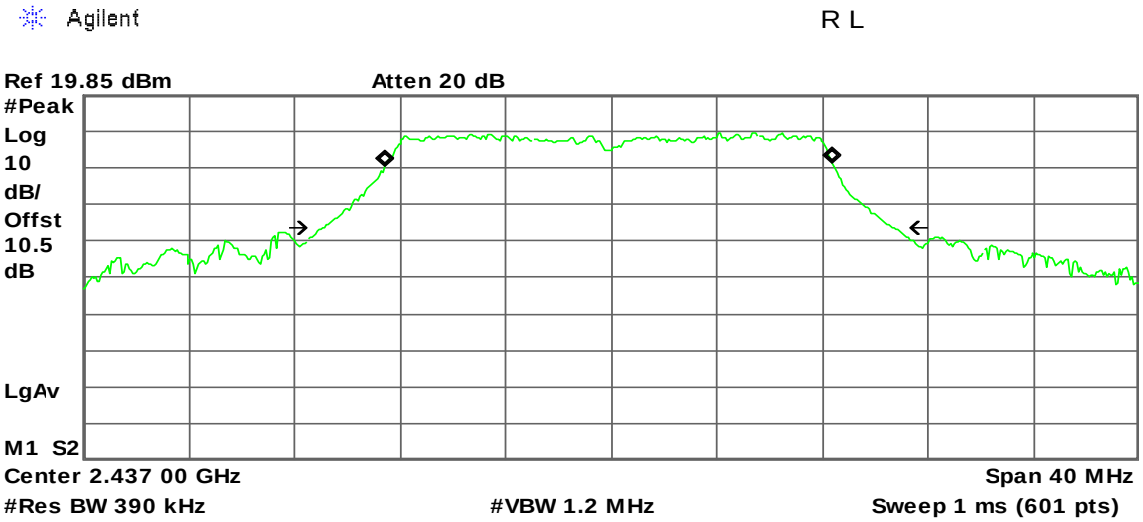


Occupied Bandwidth
17.0103 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-86.728 kHz
x dB Bandwidth	21.550 MHz

99% Bandwidth (CH Mid)

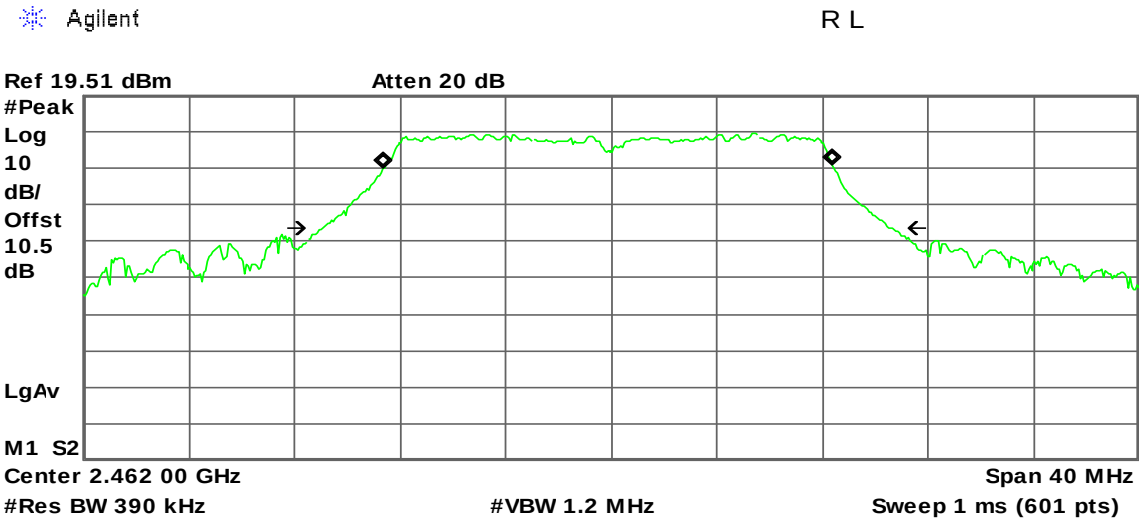


Occupied Bandwidth
17.0193 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-99.018 kHz
x dB Bandwidth	21.535 MHz

99% Bandwidth (CH High)



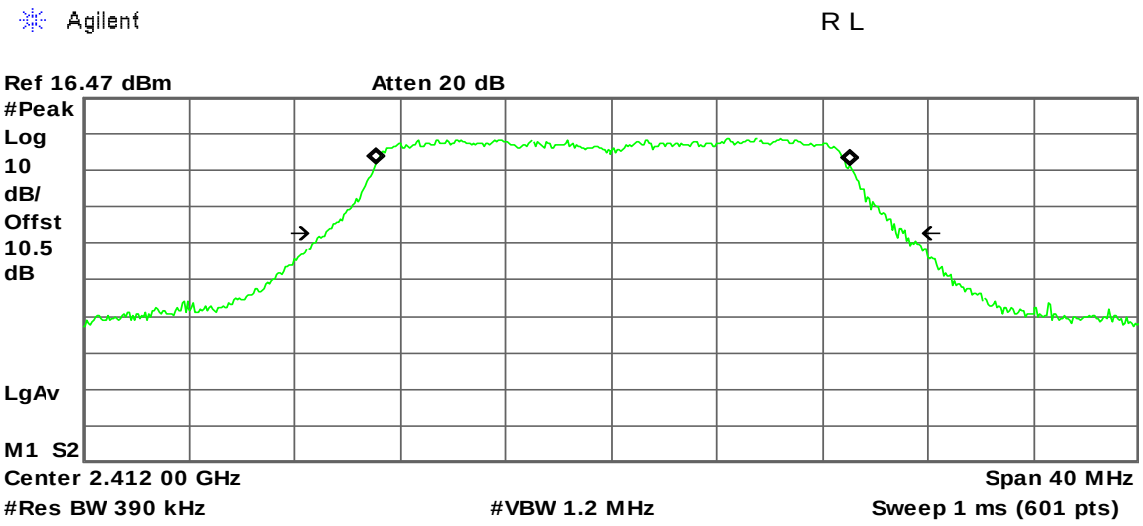
Occupied Bandwidth
17.0185 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-125.537 kHz
x dB Bandwidth	21.572 MHz

IEEE 802.11n HT 20 MHz mode / Chain 0

99% Bandwidth (CH Low)

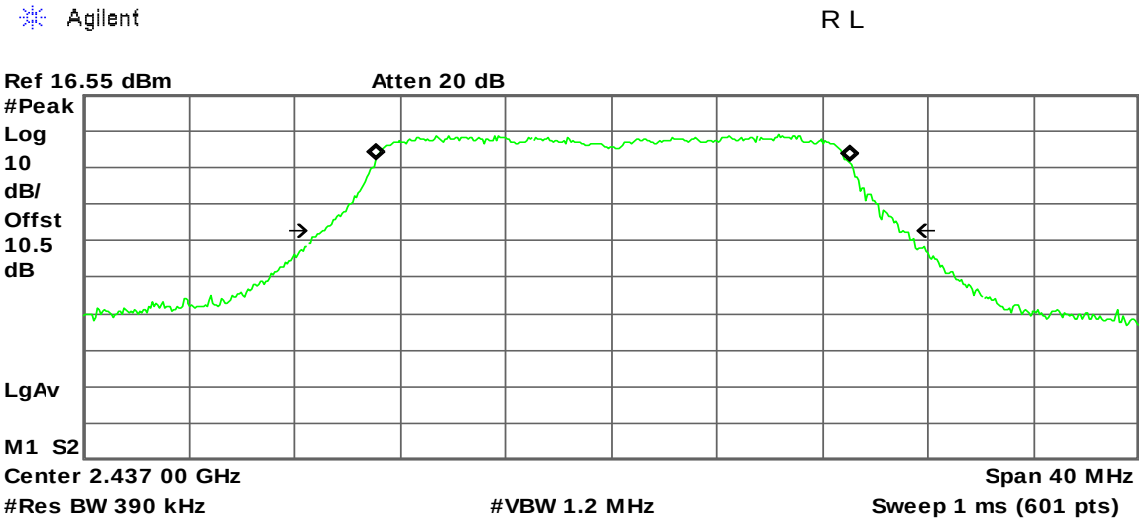


Occupied Bandwidth
17.9912 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	69.938 kHz
x dB Bandwidth	21.973 MHz

99% Bandwidth (CH Mid)

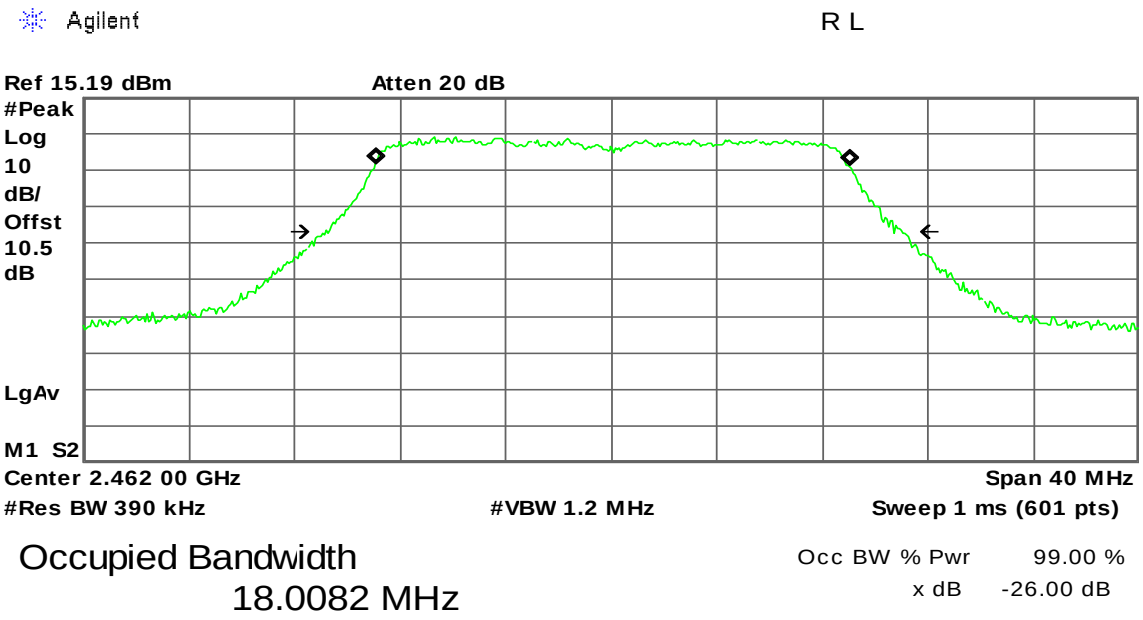


Occupied Bandwidth
17.9720 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	48.093 kHz
x dB Bandwidth	21.772 MHz

99% Bandwidth (CH High)



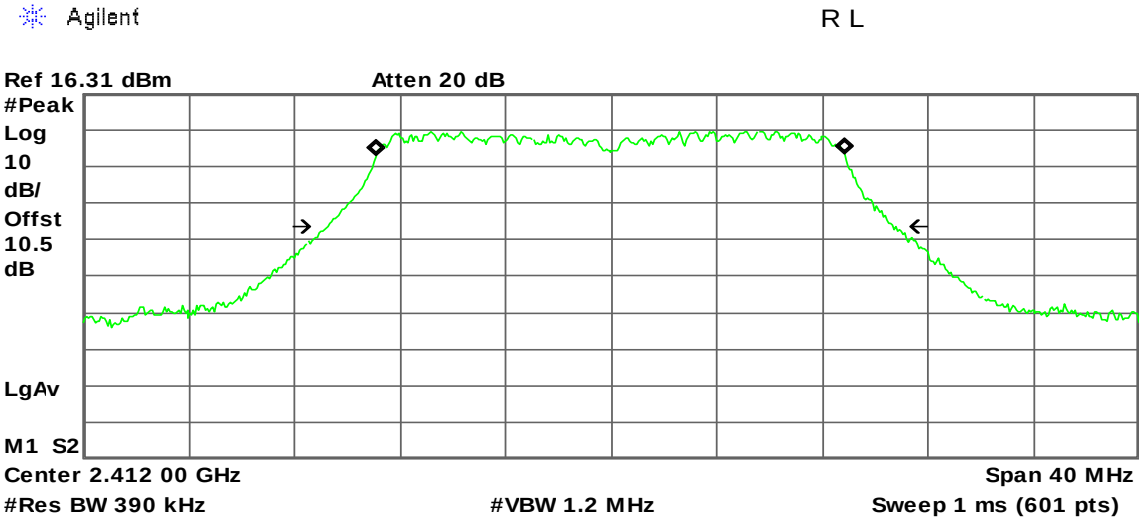
Occupied Bandwidth
18.0082 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 41.041 kHz
x dB Bandwidth 21.876 MHz

IEEE 802.11n HT 20 MHz mode / Chain 1

99% Bandwidth (CH Low)

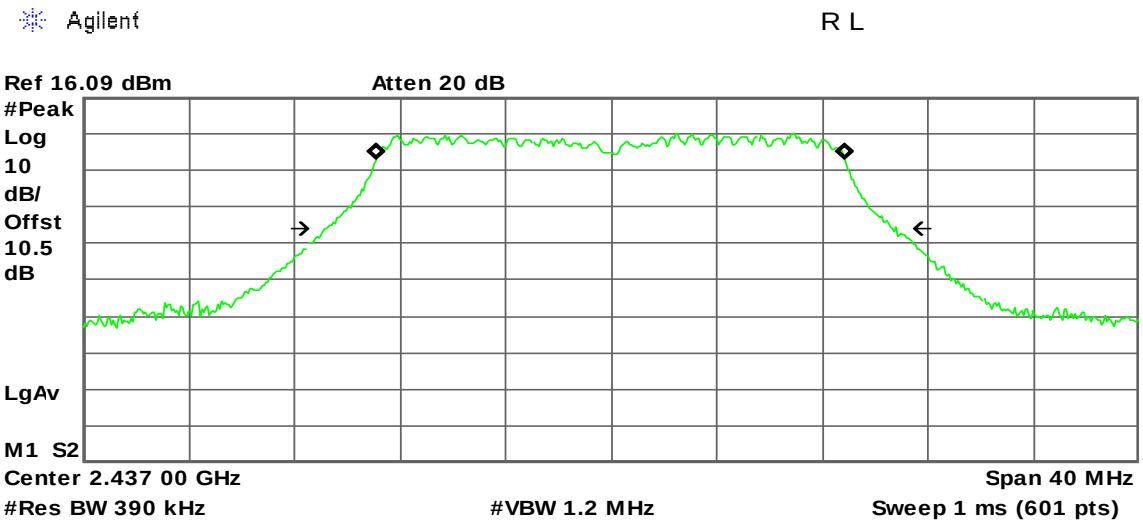


Occupied Bandwidth
17.7972 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -17.384 kHz
x dB Bandwidth 21.396 MHz

99% Bandwidth (CH Mid)

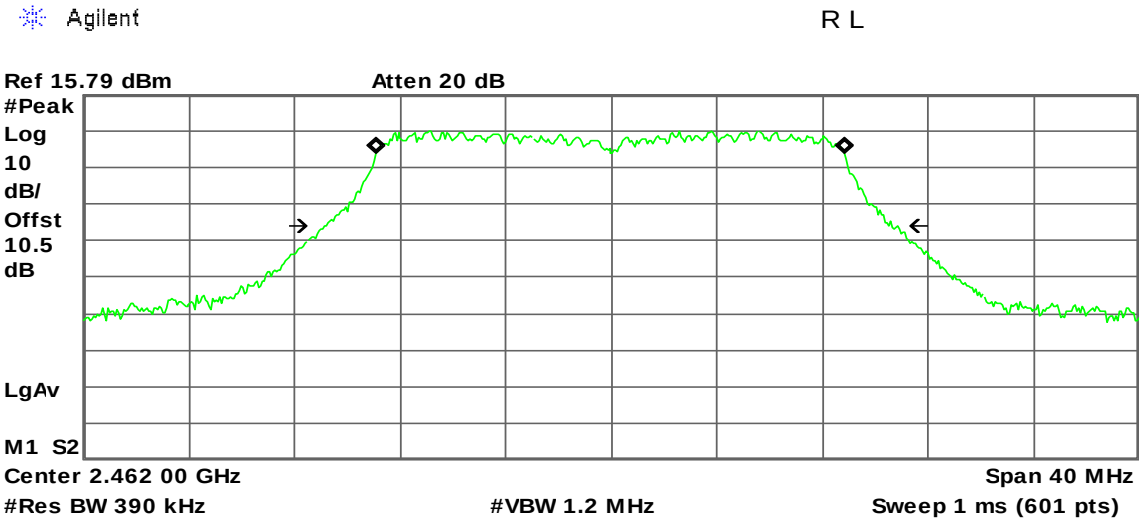


Occupied Bandwidth
17.7845 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -31.902 kHz
x dB Bandwidth 21.593 MHz

99% Bandwidth (CH High)



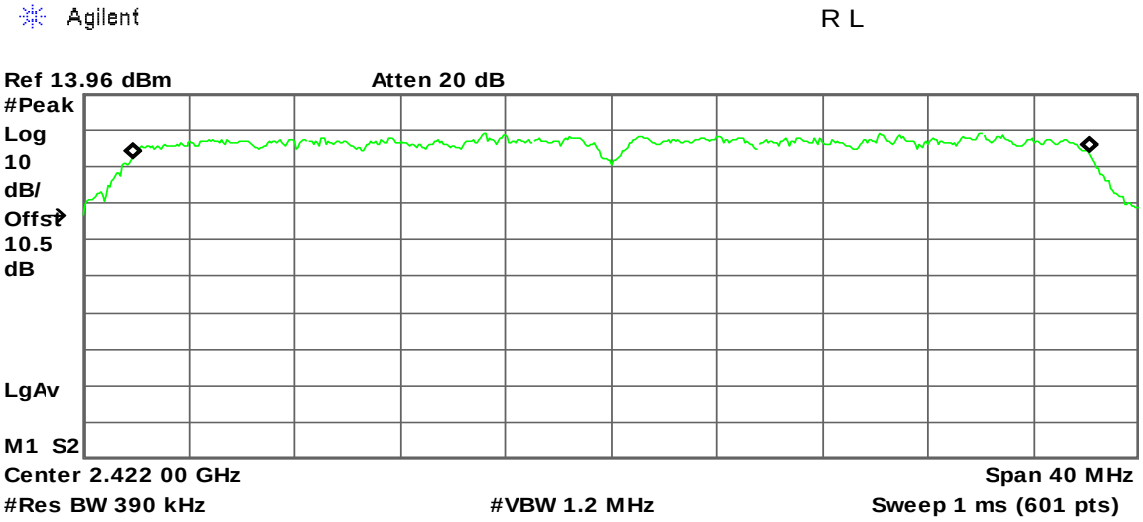
Occupied Bandwidth
17.8039 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -33.676 kHz
x dB Bandwidth 21.532 MHz

IEEE 802.11n HT 40 MHz / Chain 0

99% Bandwidth (CH Low)

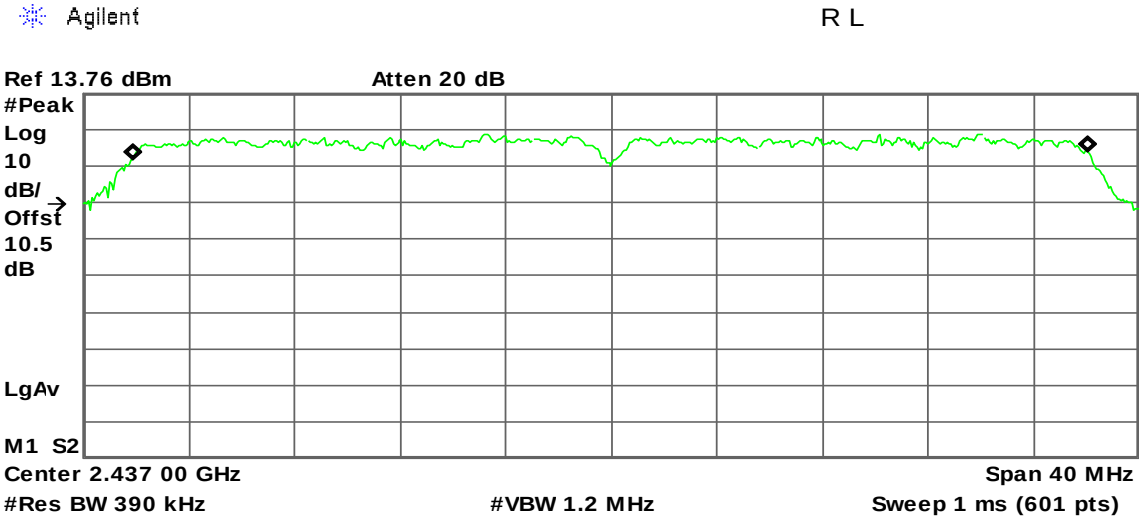


Occupied Bandwidth
36.2612 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -26.387 kHz
x dB Bandwidth 40.000 MHz

99% Bandwidth (CH Mid)

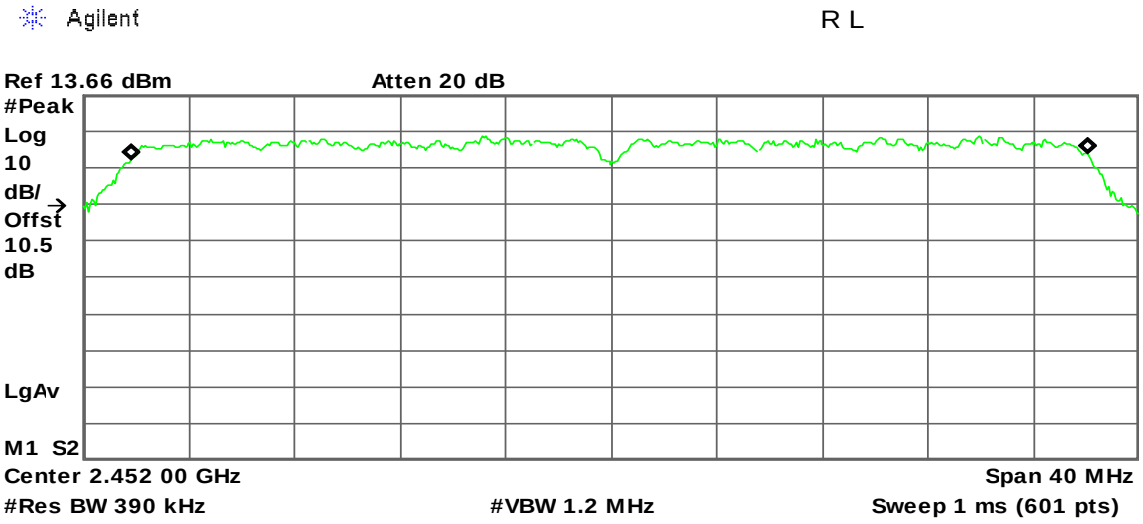


Occupied Bandwidth
36.2309 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -24.017 kHz
x dB Bandwidth 40.000 MHz

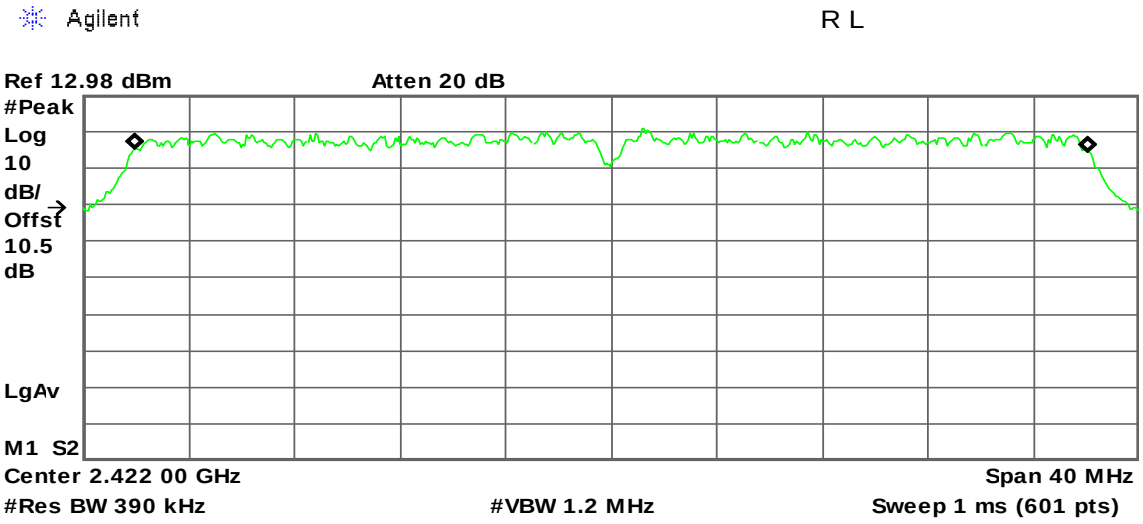
99% Bandwidth (CH High)



Transmit Freq Error	-70.008 kHz
x dB Bandwidth	40.000 MHz

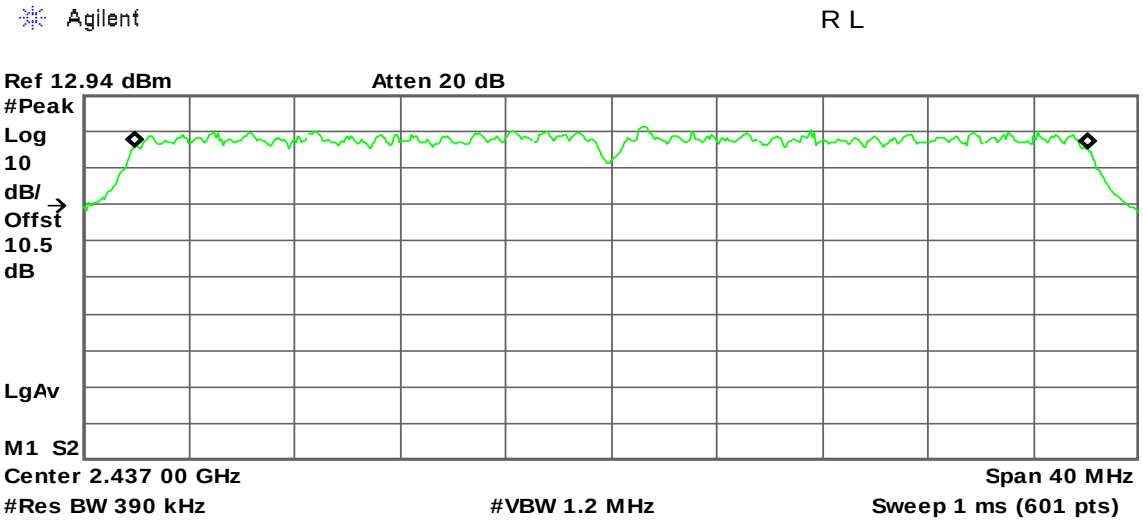
IEEE 802.11n HT 40 MHz / Chain1

99% Bandwidth (CH Low)



Transmit Freq Error	-6.244 kHz
x dB Bandwidth	40.000 MHz

99% Bandwidth (CH Mid)

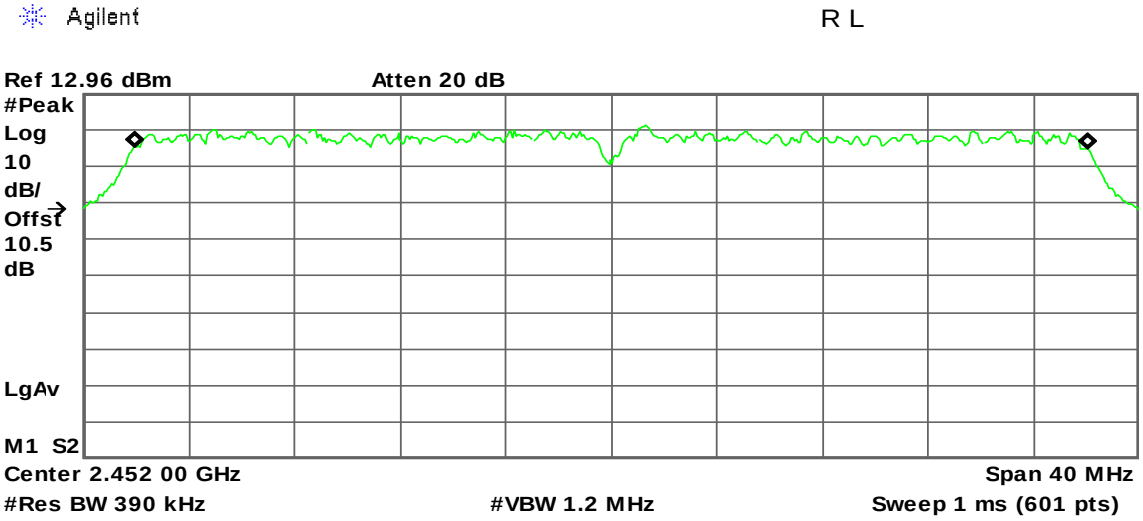


Occupied Bandwidth
36.1356 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -16.564 kHz
x dB Bandwidth 40.000 MHz

99% Bandwidth (CH High)



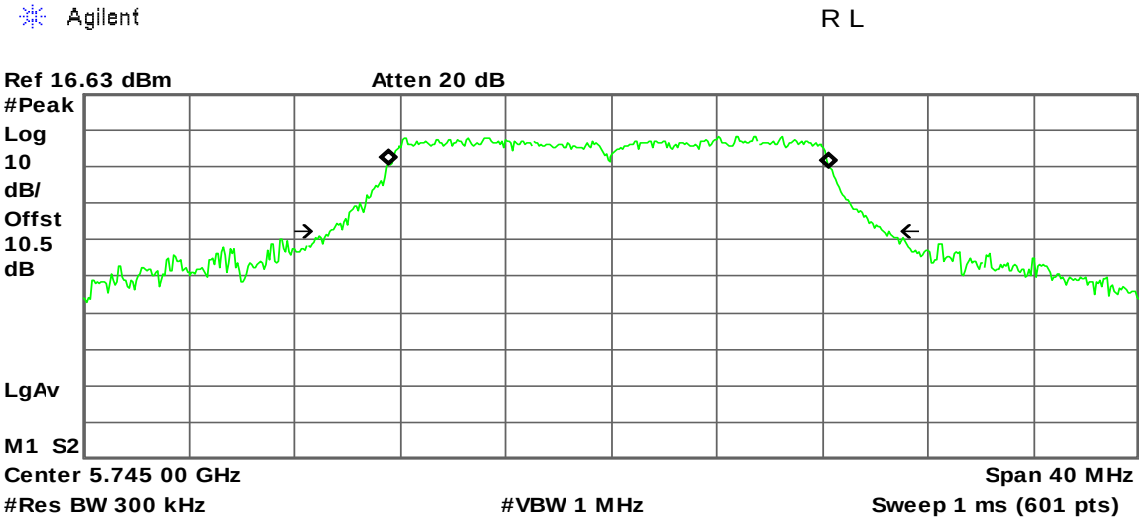
Occupied Bandwidth
36.1308 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -31.778 kHz
x dB Bandwidth 40.000 MHz

IEEE 802.11a mode

99% Bandwidth (CH Low)

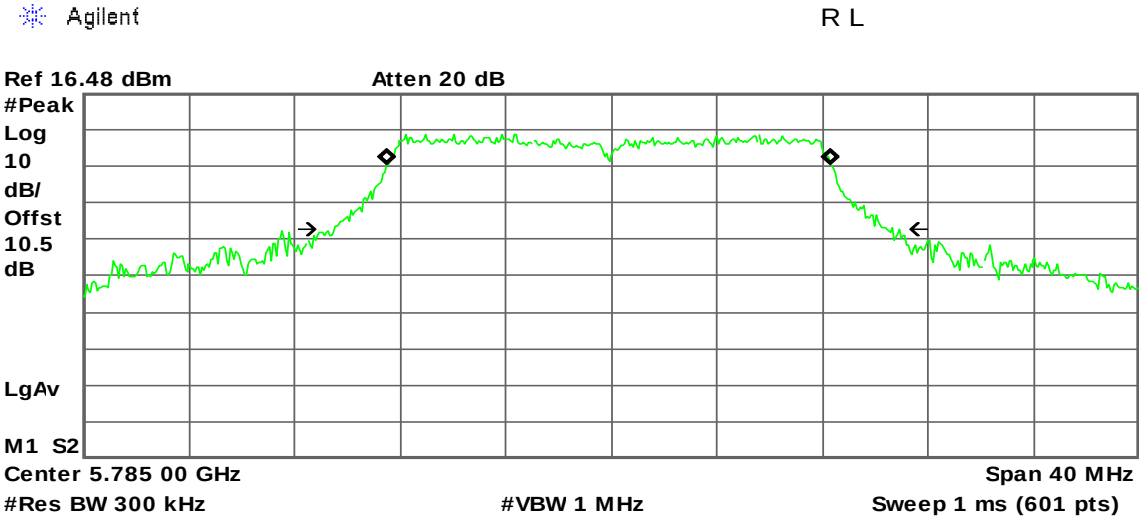


Occupied Bandwidth
16.7960 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -101.554 kHz
x dB Bandwidth 20.976 MHz

99% Bandwidth (CH Mid)

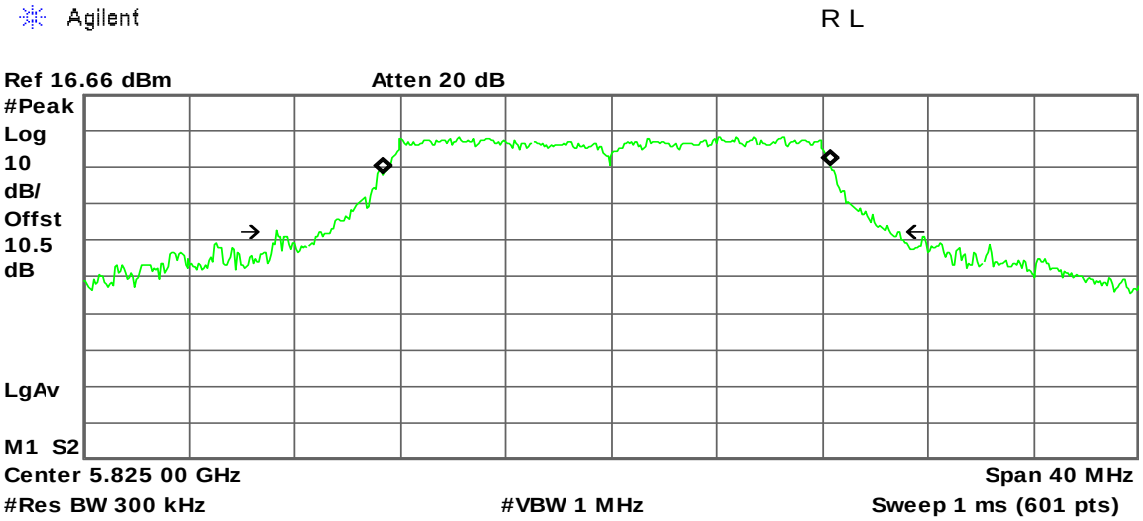


Occupied Bandwidth
16.8416 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -80.813 kHz
x dB Bandwidth 21.183 MHz

99% Bandwidth (CH High)



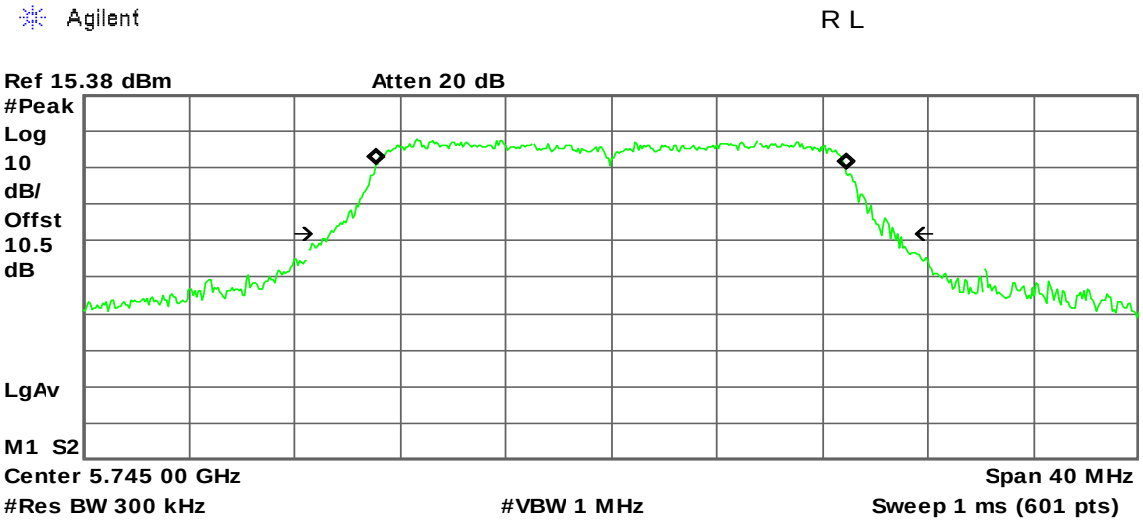
Occupied Bandwidth
16.9752 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-153.118 kHz
x dB Bandwidth	23.230 MHz

IEEE 802.11n HT 20 MHz mode / Chain 0

99% Bandwidth (CH Low)

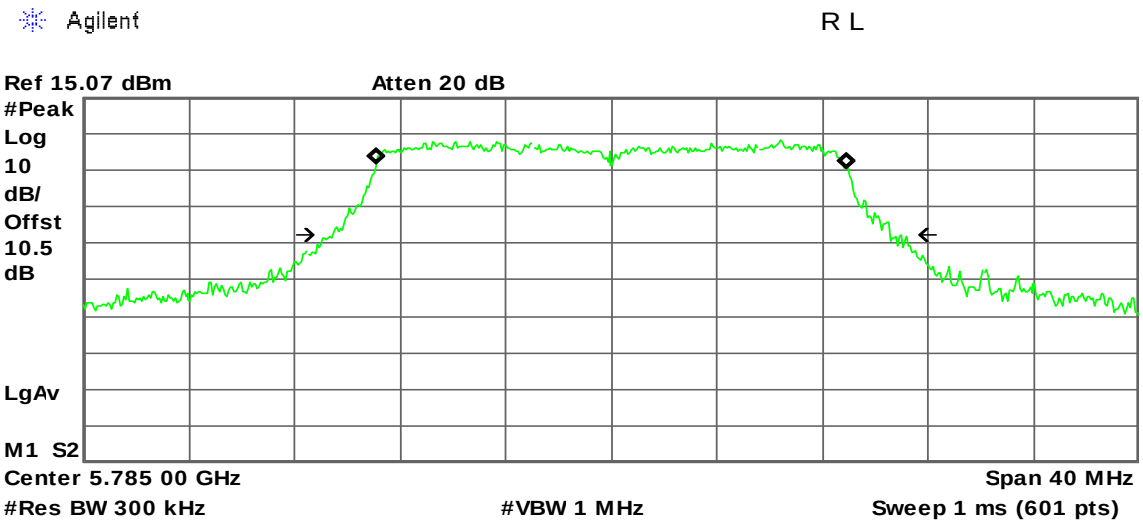


Occupied Bandwidth
17.8089 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-2.715 kHz
x dB Bandwidth	21.552 MHz

99% Bandwidth (CH Mid)

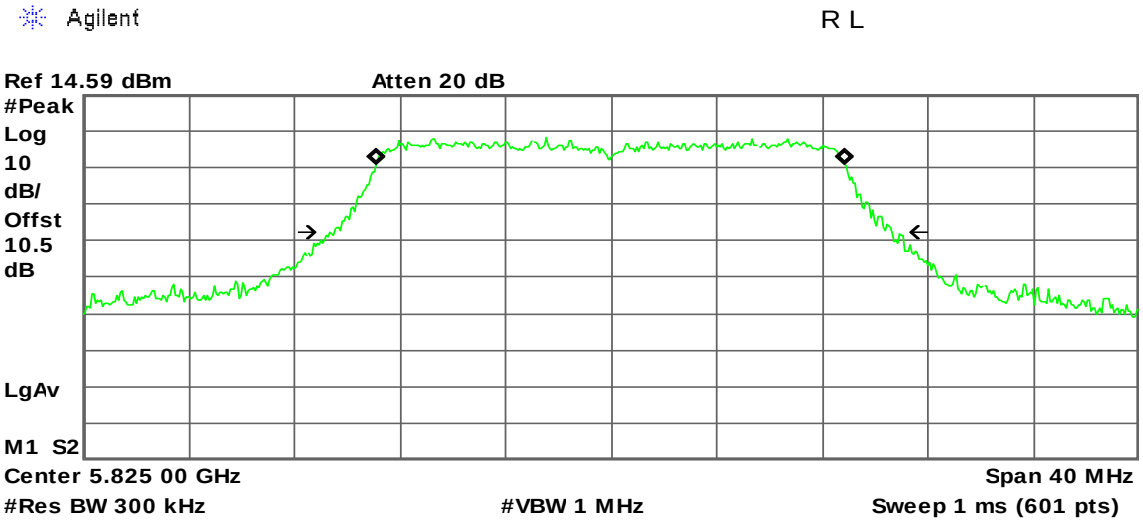


Occupied Bandwidth
17.8225 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-4.305 kHz
x dB Bandwidth	21.571 MHz

99% Bandwidth (CH High)



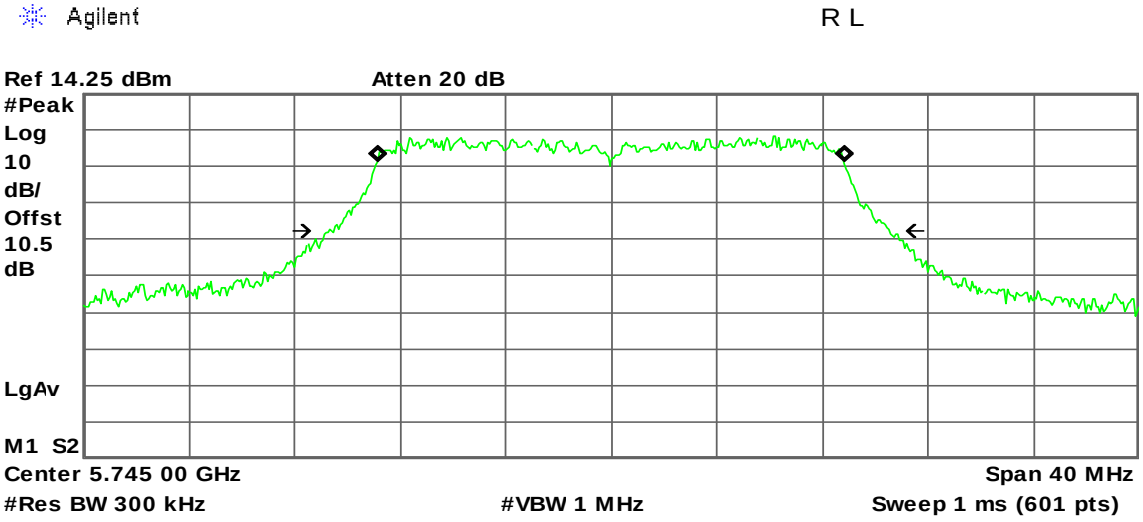
Occupied Bandwidth
17.8067 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error	-14.502 kHz
x dB Bandwidth	21.167 MHz

IEEE 802.11n HT 20 MHz mode / Chain 1

99% Bandwidth (CH Low)

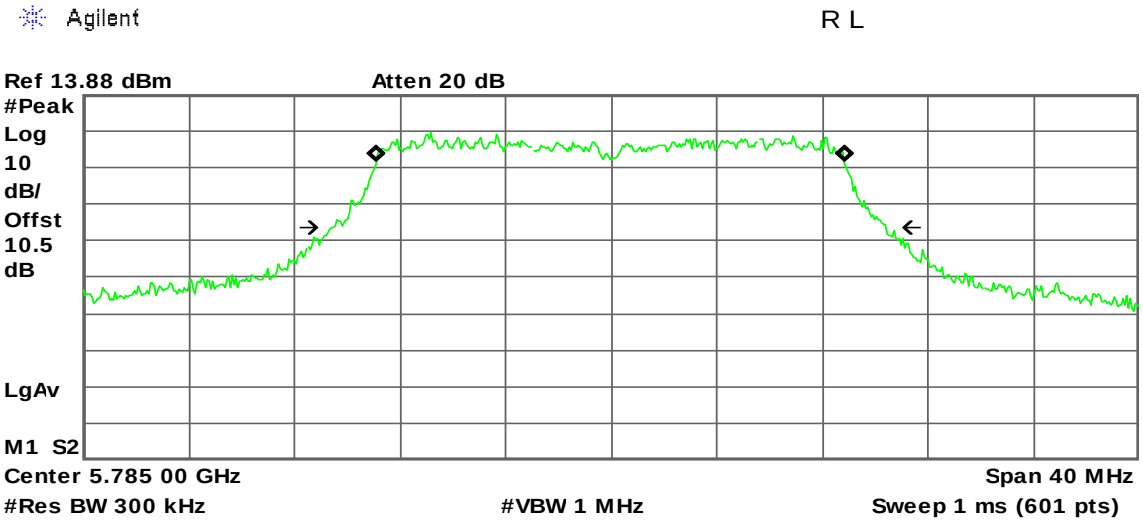


Occupied Bandwidth
17.7212 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -24.211 kHz
x dB Bandwidth 21.261 MHz

99% Bandwidth (CH Mid)

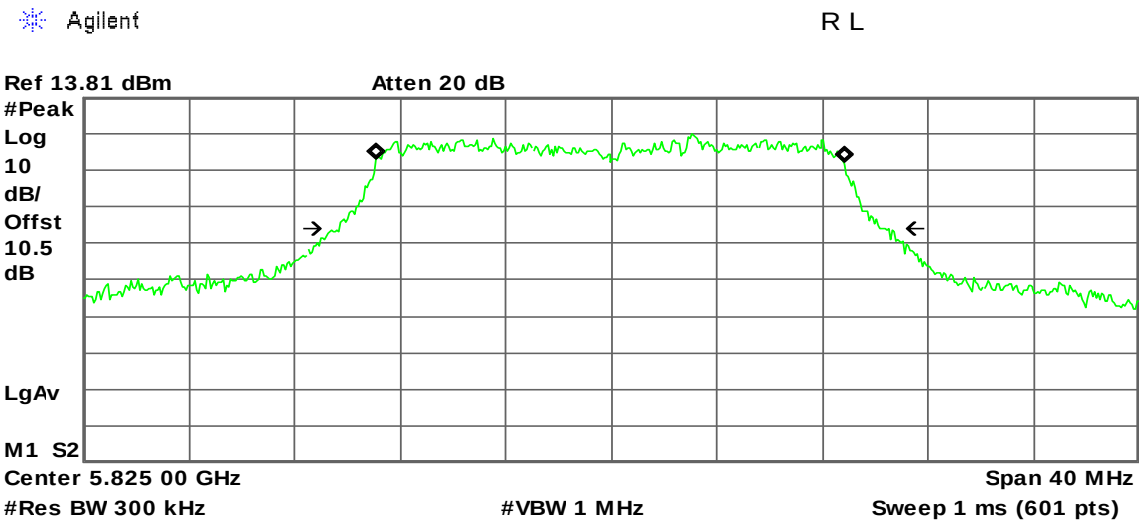


Occupied Bandwidth
17.7570 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -30.235 kHz
x dB Bandwidth 20.910 MHz

99% Bandwidth (CH High)



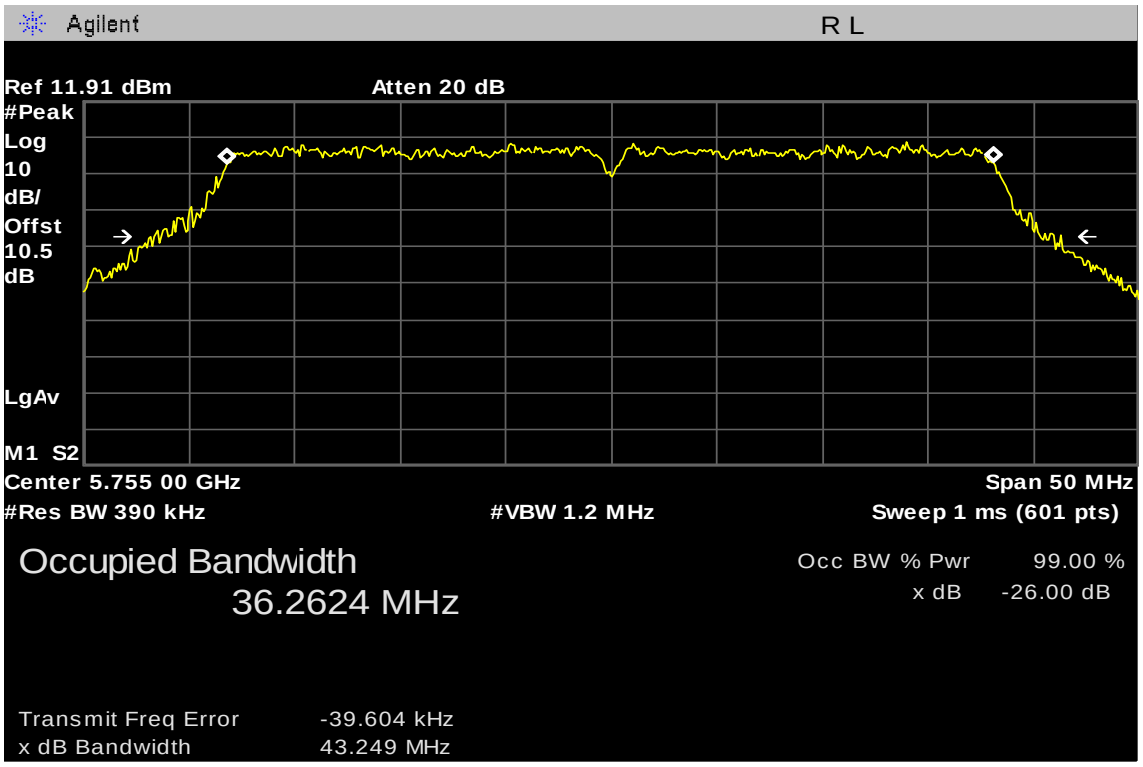
Occupied Bandwidth
17.7638 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

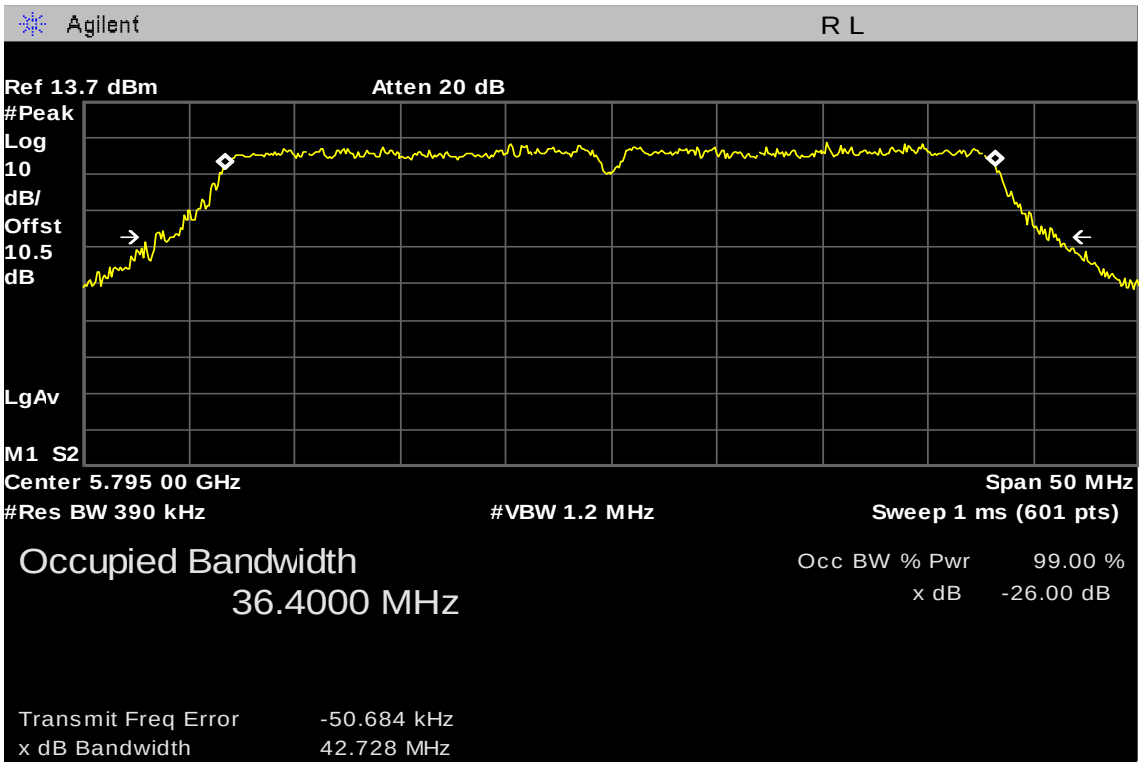
Transmit Freq Error	-40.780 kHz
x dB Bandwidth	20.857 MHz

IEEE 802.11n HT 40 MHz / Chain 0

99% Bandwidth (CH Low)

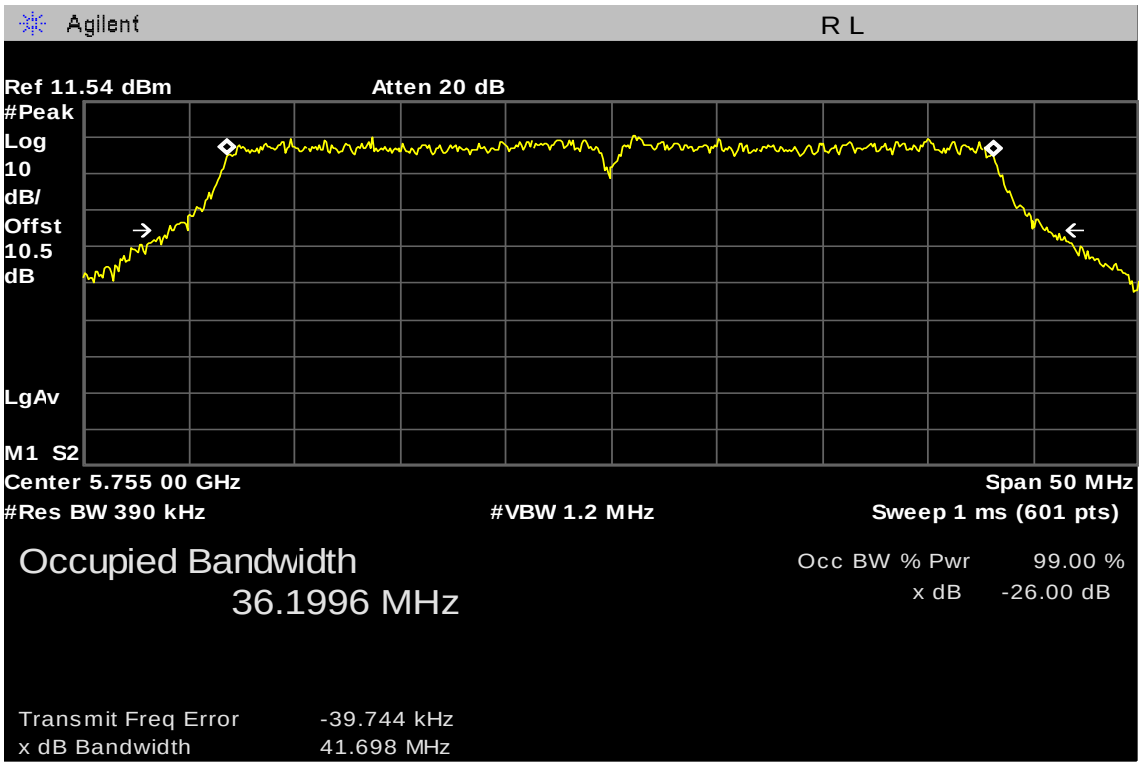


99% Bandwidth (CH High)

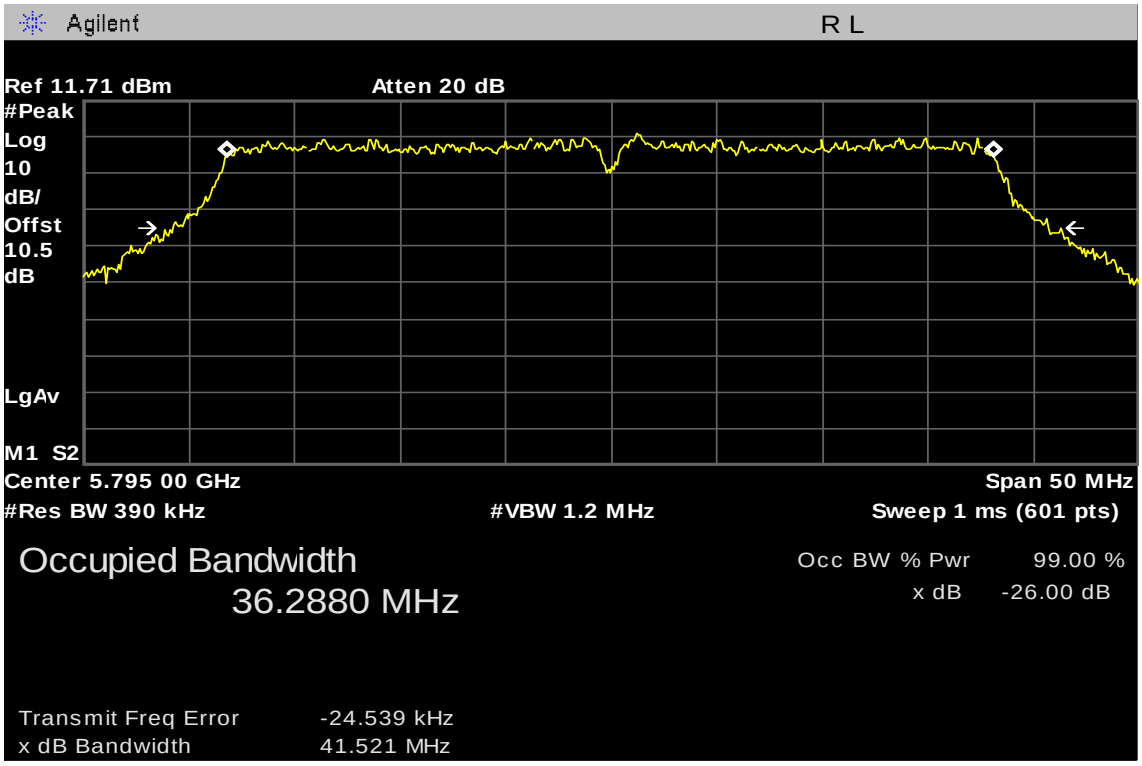


IEEE 802.11n HT 40 MHz / Chain1

99% Bandwidth (CH Low)

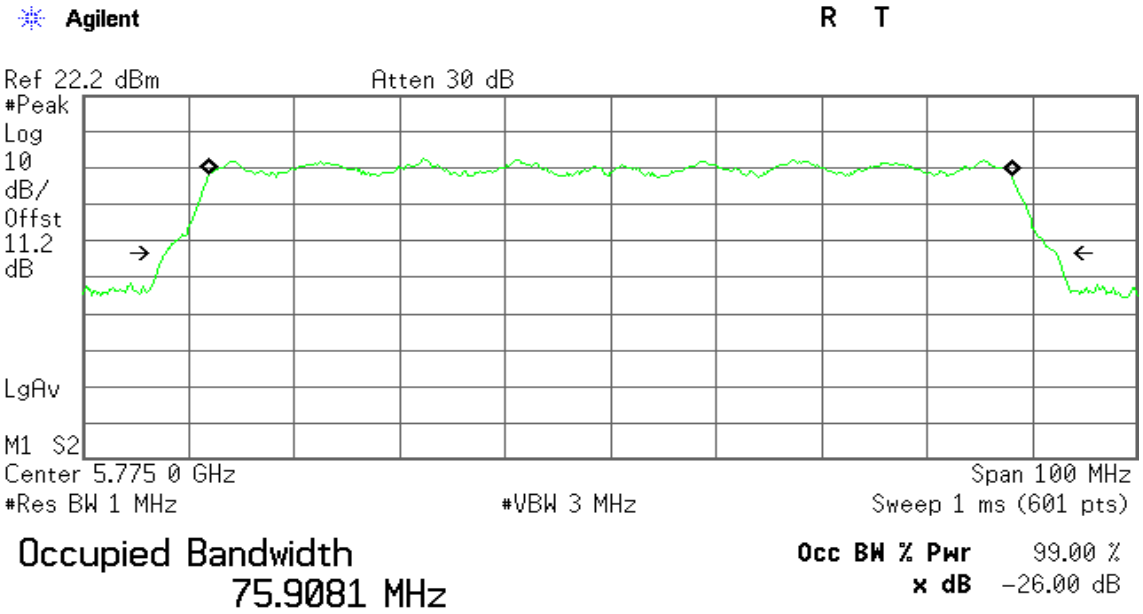


99% Bandwidth (CH High)



IEEE 802.11n HT 80 MHz / Chain 0

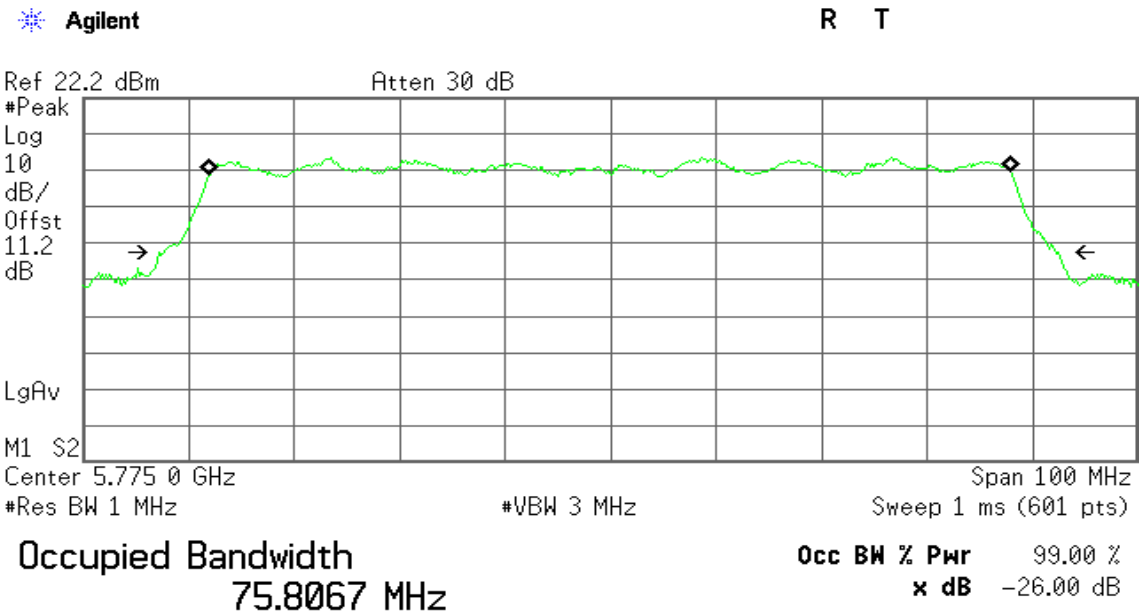
99% Bandwidth (CH Mid)



Transmit Freq Error -12.593 kHz
x dB Bandwidth 84.590 MHz

IEEE 802.11n HT 80 MHz / Chain1

99% Bandwidth (CH Mid)



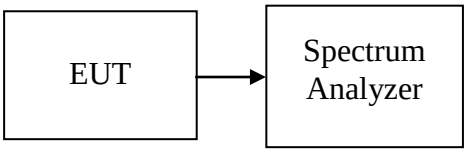
Transmit Freq Error -16.654 kHz
x dB Bandwidth 84.902 MHz

8.2 6DB BANDWIDTH

LIMIT

According to §15.247(a)(2) & RSS-210 §A8.2(a), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = VBW = 100kHz, Span = 50MHz, Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.3334	>500	PASS
Mid	2442	10.4167		PASS
High	2462	10.4167		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.6666	>500	PASS
Mid	2442	16.6666		PASS
High	2462	16.6666		PASS

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.8334	>500	PASS
Mid	2442	17.8334		PASS
High	2462	17.75		PASS

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.8334	>500	PASS
Mid	2442	17.8334		PASS
High	2462	17.9167		PASS

Test mode: IEEE 802.11n HT 40 MHz mode / Chain 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.4167	>500	PASS
Mid	2442	36.4167		PASS
High	2452	36.4167		PASS

Test mode: IEEE 802.11n HT 40 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	36.0833	>500	PASS
Mid	2442	36.0833		PASS
High	2452	36.1667		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.5833	>500	PASS
Mid	5785	16.5833		PASS
High	5825	16.5833		PASS

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.75	>500	PASS
Mid	5785	17.75		PASS
High	5825	17.8333		PASS

Test mode: IEEE 802.11n HT 20 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.8333	>500	PASS
Mid	5785	17.8333		PASS
High	5825	17.8333		PASS

Test mode: IEEE 802.11n HT 40 MHz mode / Chain 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.4	>500	PASS
High	5795	36.5		PASS

Test mode: IEEE 802.11n HT 40 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.1	>500	PASS
High	5795	36.2		PASS

Test mode: IEEE 802.11n HT 80 MHz mode / Chain 0

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Mid	5755	76.7	>500	PASS

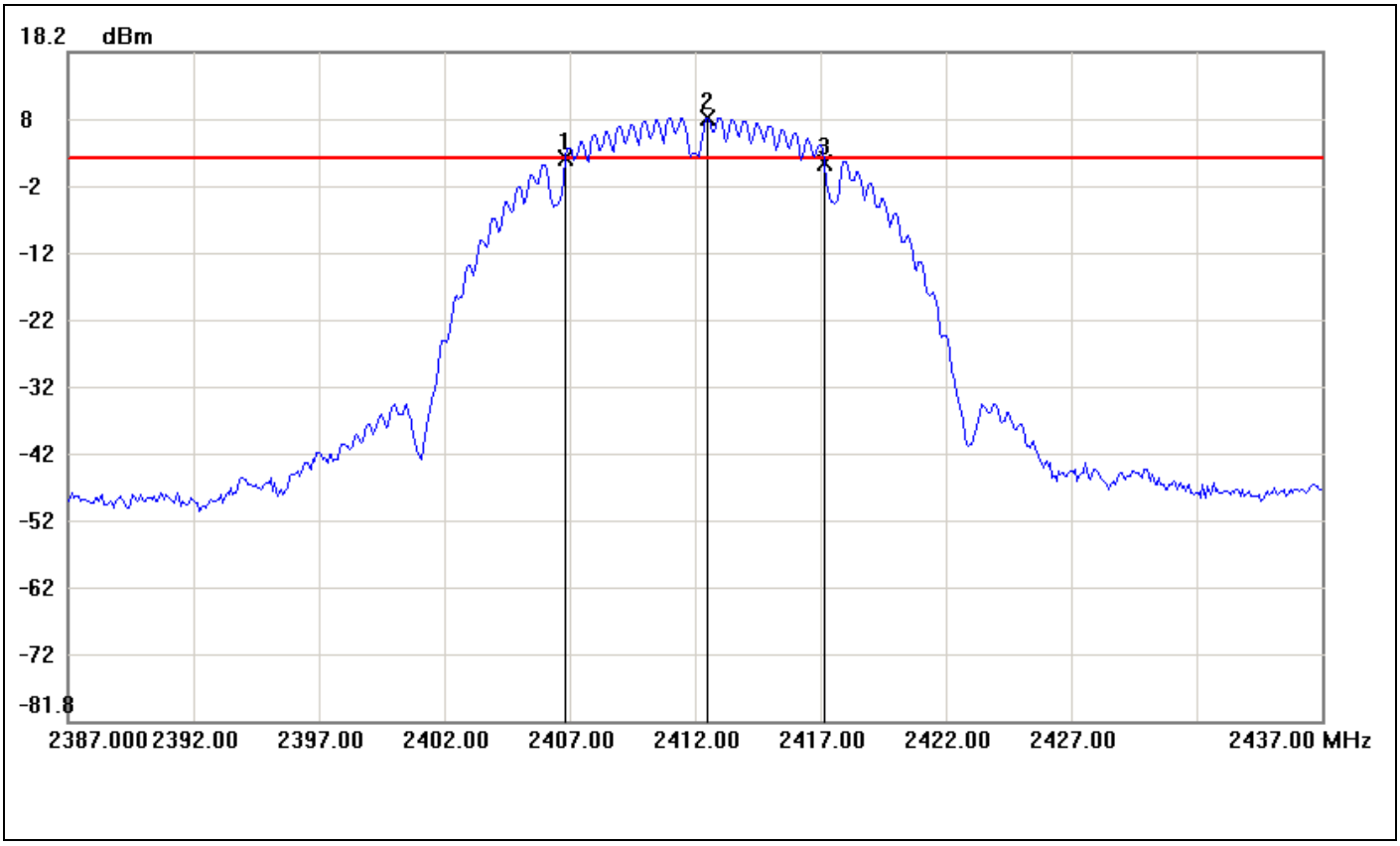
Test mode: IEEE 802.11n HT 80 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Mid	5755	76.7	>500	PASS

Test Plot

IEEE 802.11b mode

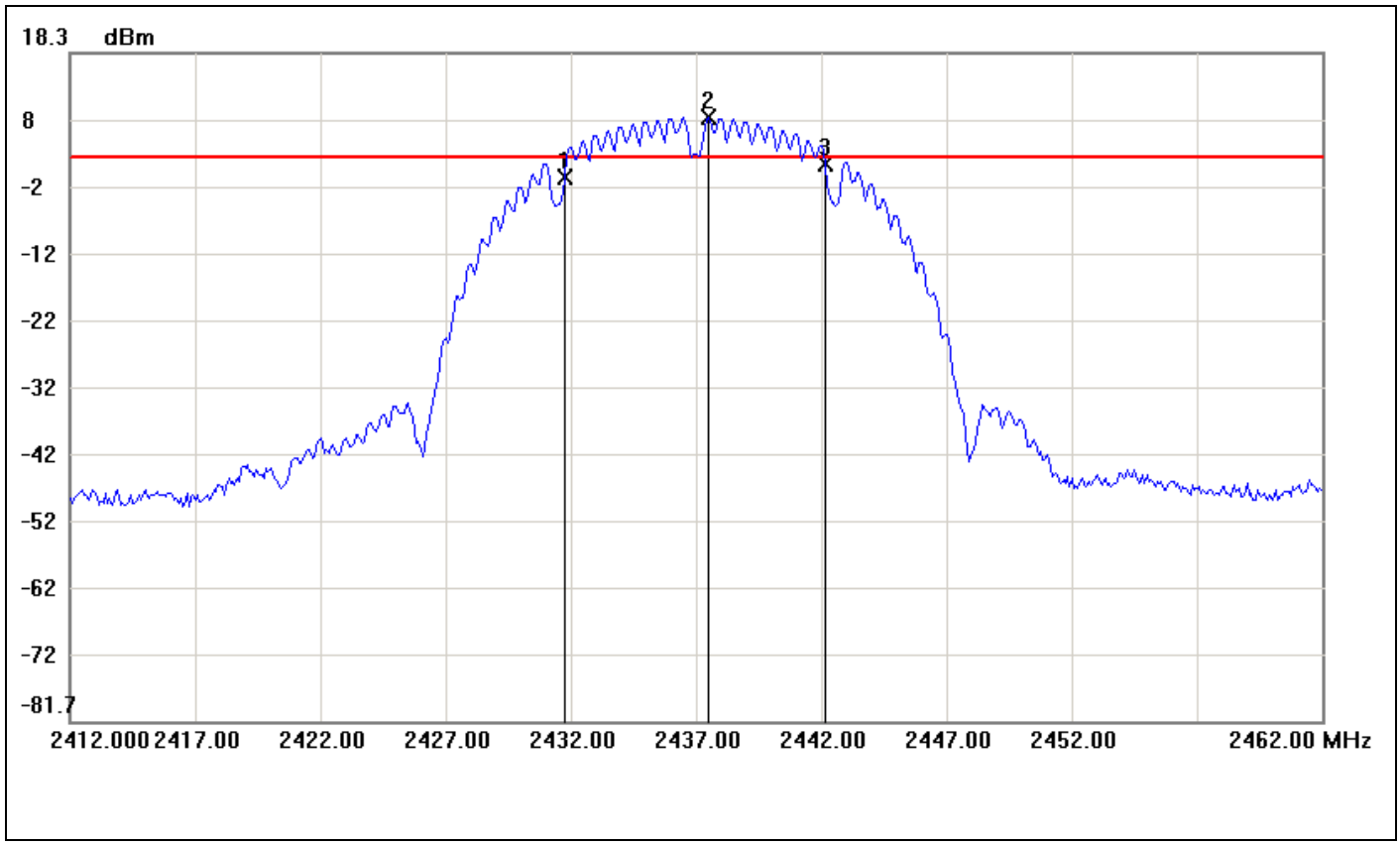
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2406.8333	2.34	2.43	-0.09
2	2412.5000	8.43	2.43	6.00
3	2417.1667	1.58	2.43	-0.85

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.3334	-0.76

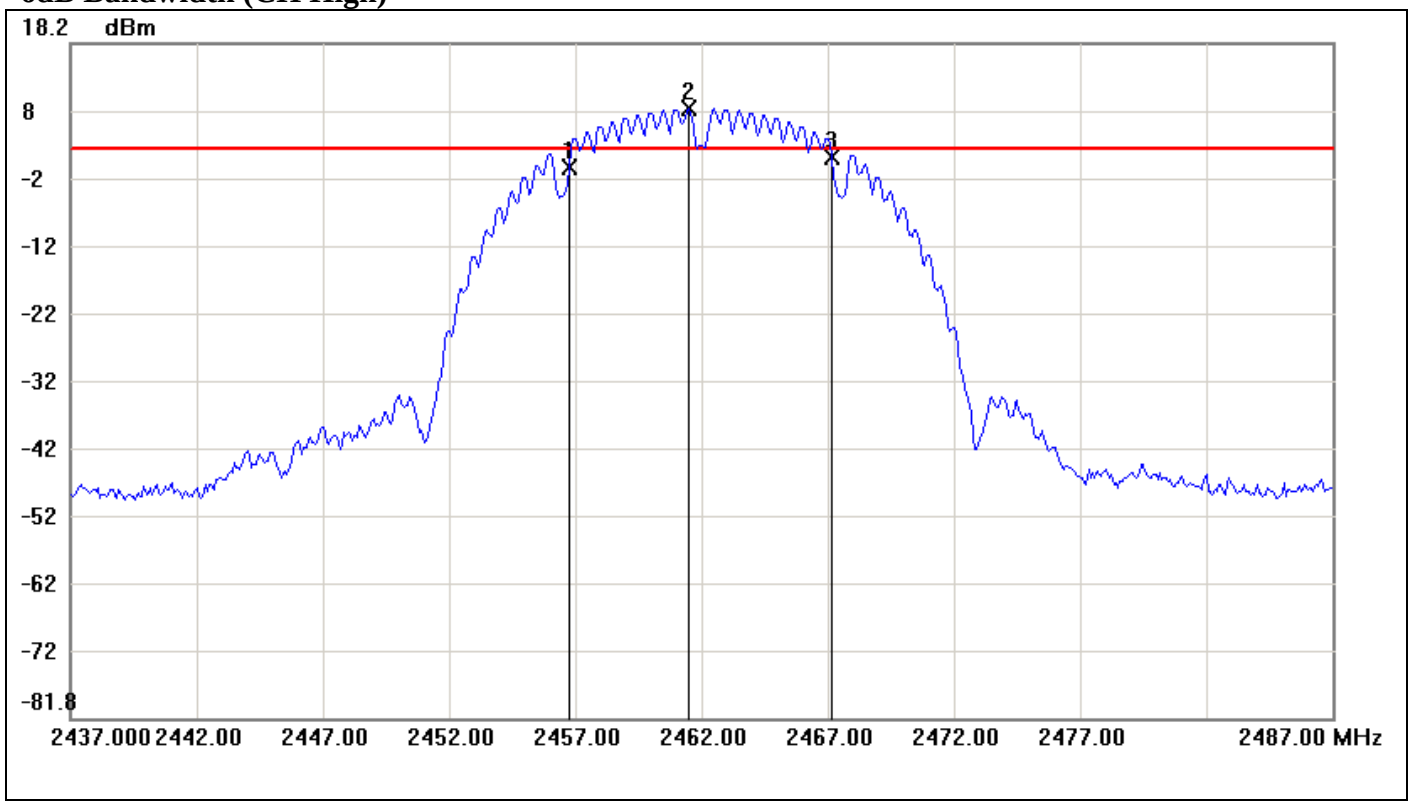
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2431.7500	-0.28	2.57	-2.85
2	2437.5000	8.57	2.57	6.00
3	2442.1667	1.58	2.57	-0.99

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.4167	1.86

6dB Bandwidth (CH High)

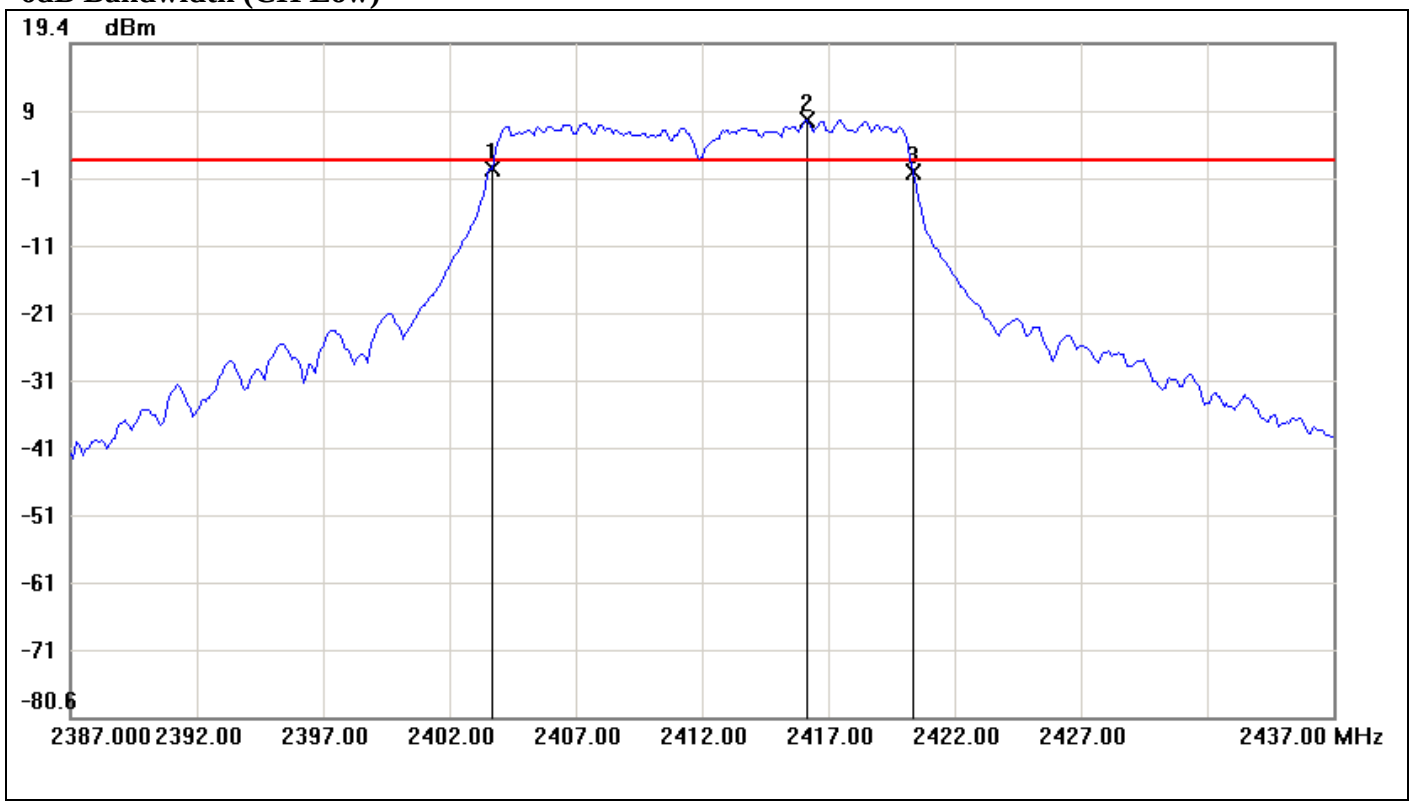


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2456.7500	-0.26	2.49	-2.75
2	2461.5000	8.49	2.49	6.00
3	2467.1667	1.38	2.49	-1.11

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	10.4167	1.64

IEEE 802.11g mode

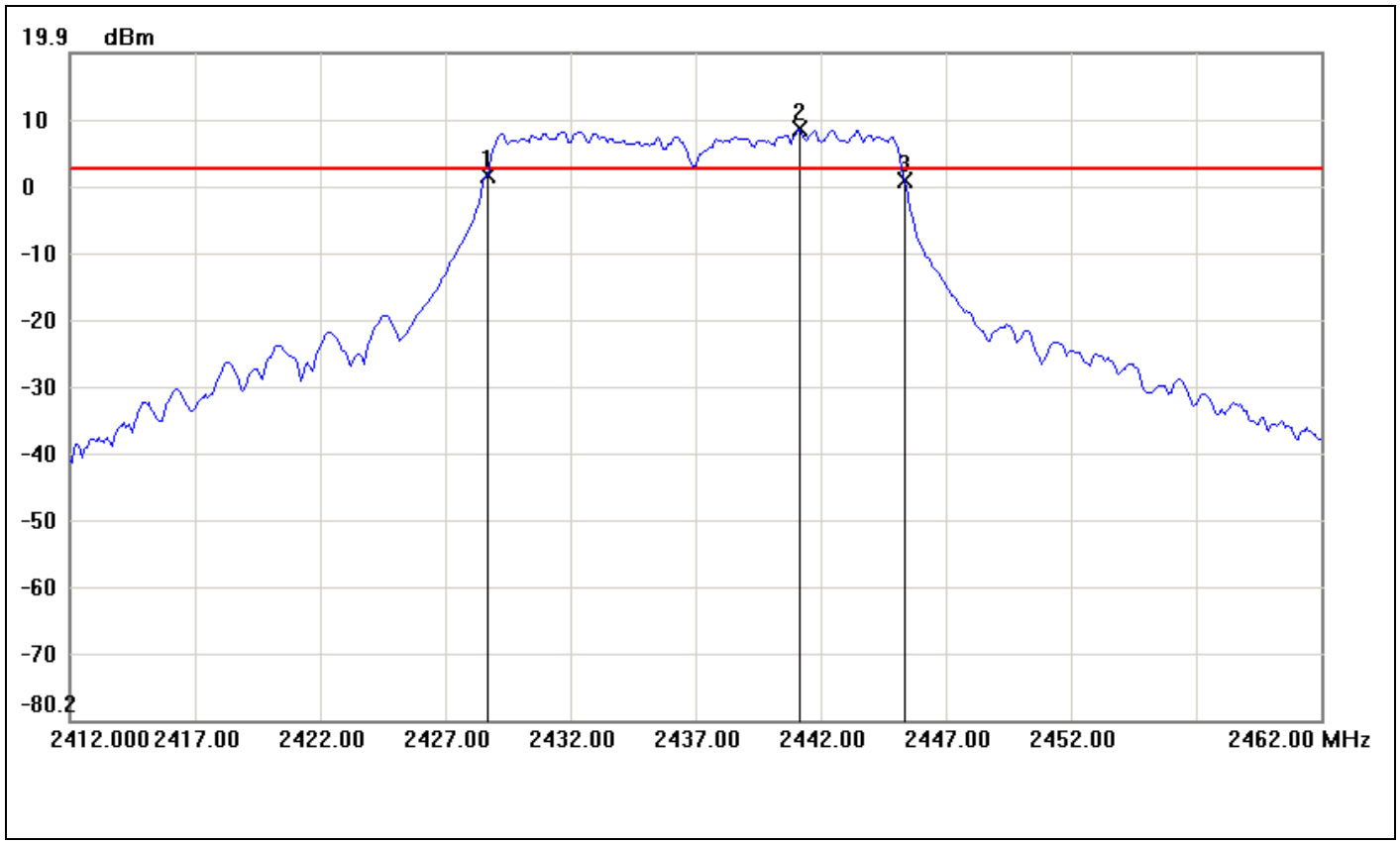
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.6667	0.91	2.05	-1.14
2	2416.1667	8.05	2.05	6.00
3	2420.3333	0.35	2.05	-1.70

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.6666	-0.56

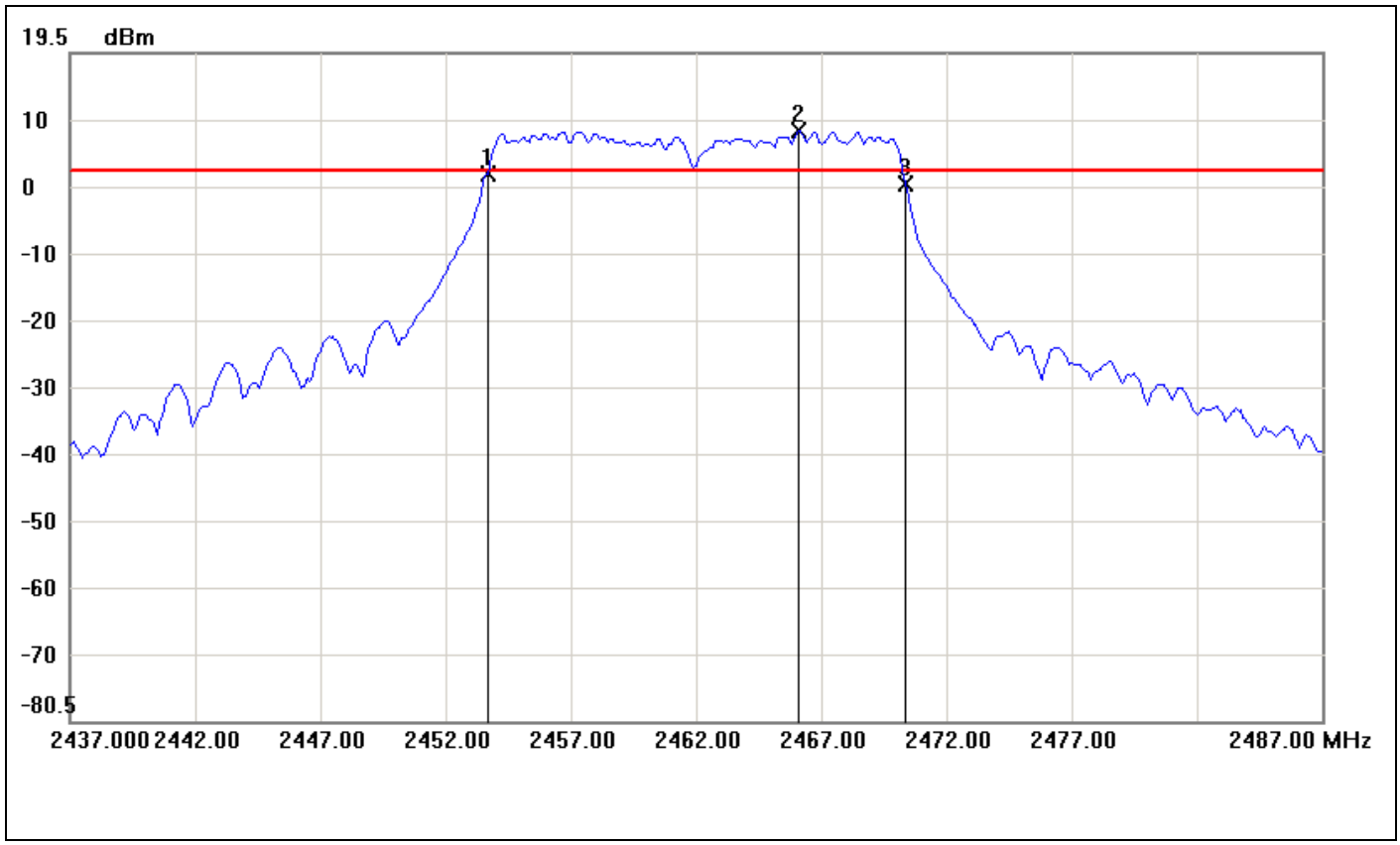
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.6667	1.48	2.38	-0.90
2	2441.1667	8.38	2.38	6.00
3	2445.3333	0.64	2.38	-1.74

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.6666	-0.84

6dB 6dB Bandwidth (CH High)

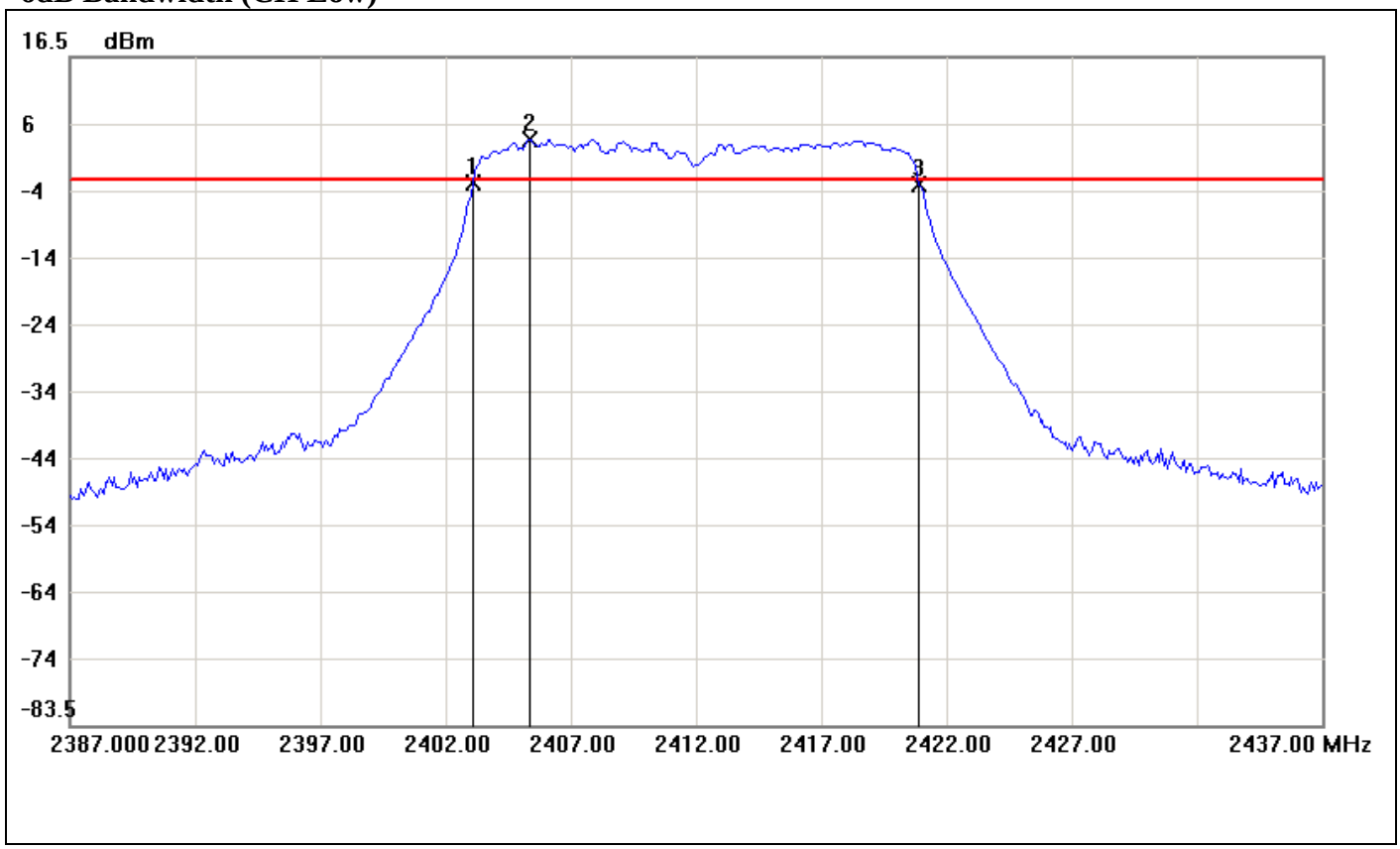


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.6667	1.29	1.92	-0.63
2	2466.0833	7.92	1.92	6.00
3	2470.3333	-0.10	1.92	-2.02

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.6666	-1.39

IEEE 802.11n HT 20 MHz mode / Chain 0

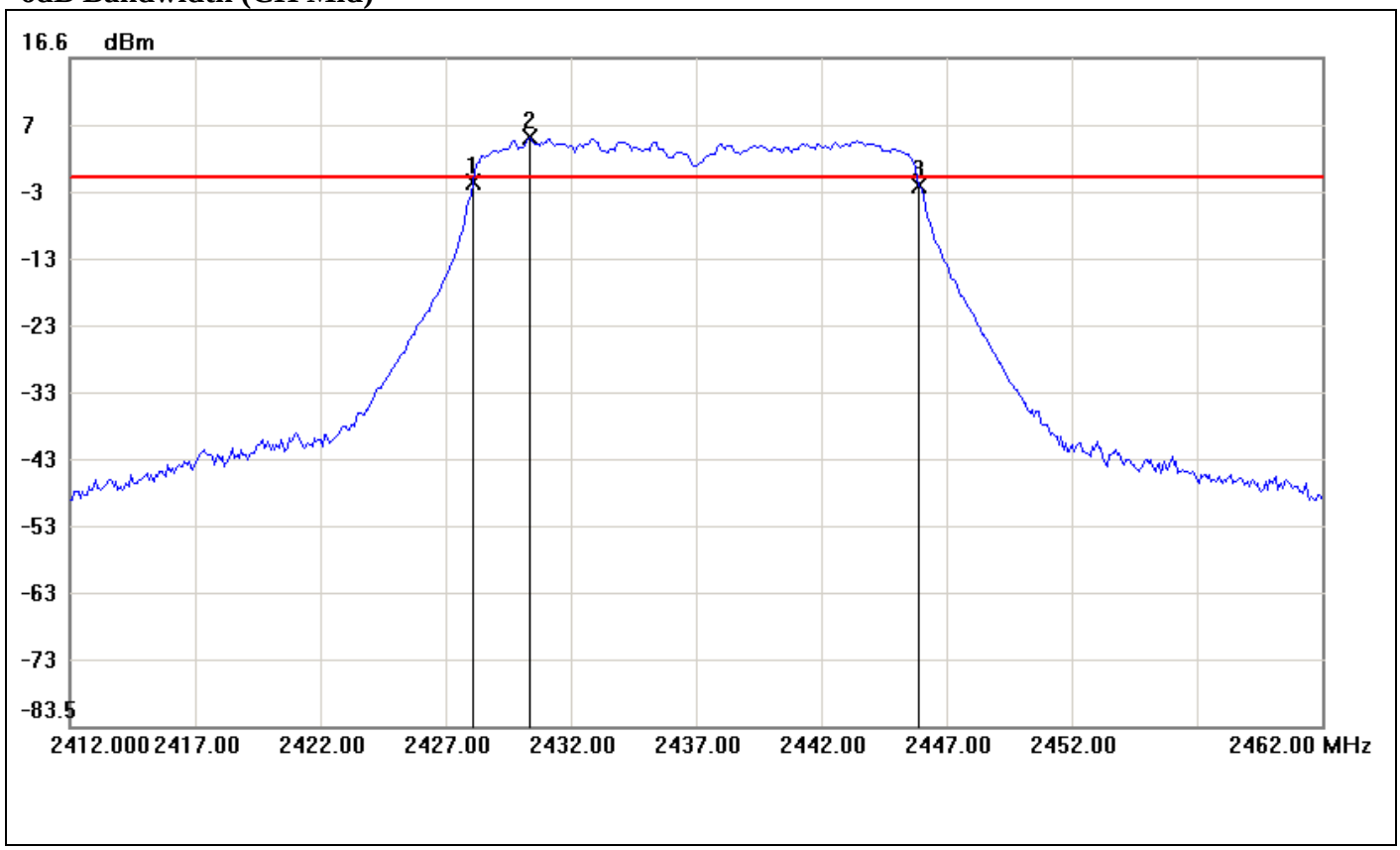
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-2.45	-1.81	-0.64
2	2405.3333	4.19	-1.81	6.00
3	2420.9167	-2.77	-1.81	-0.96

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	-0.32

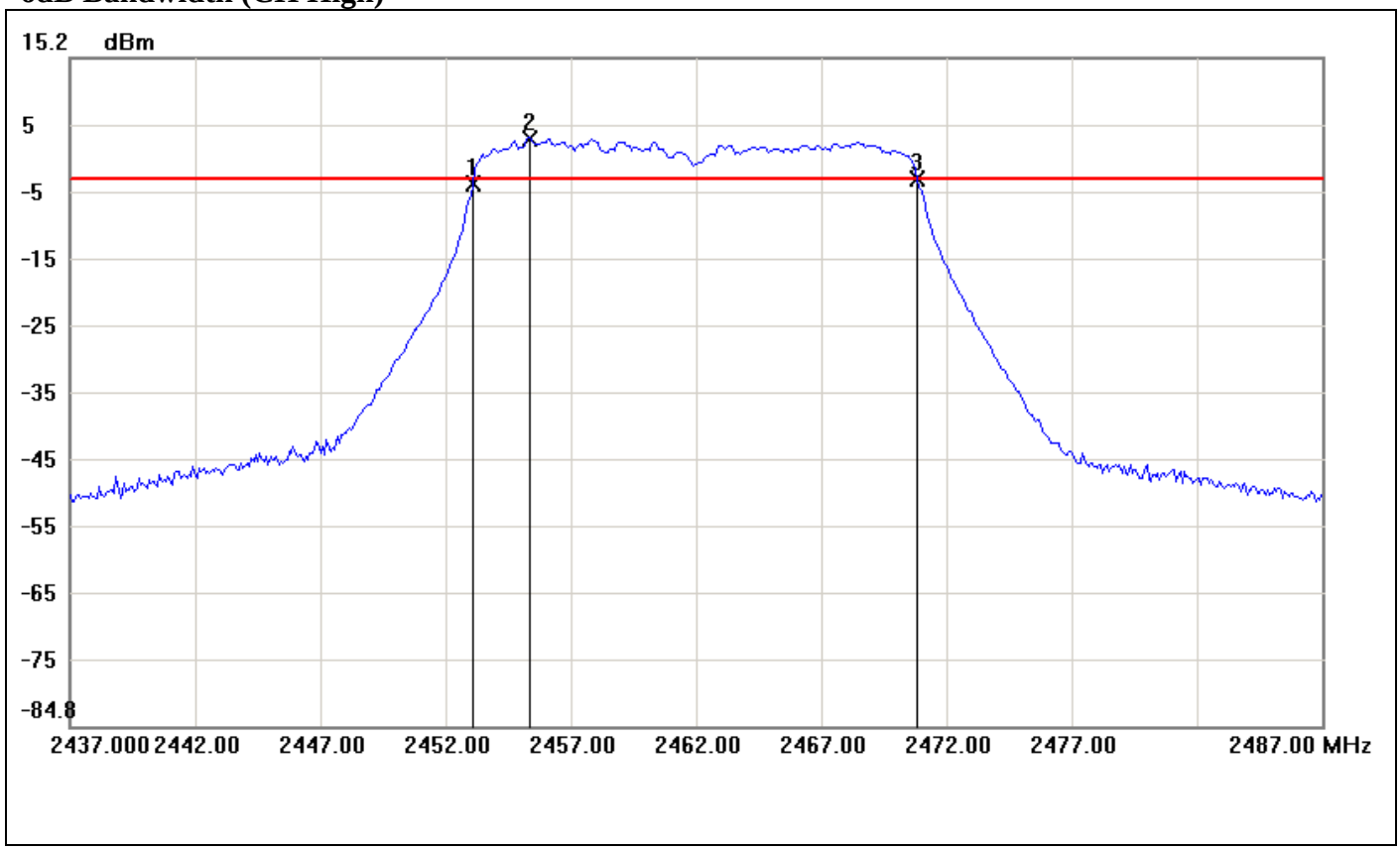
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0833	-2.06	-1.42	-0.64
2	2430.3333	4.58	-1.42	6.00
3	2445.9167	-2.62	-1.42	-1.20

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	-0.56

6dB Bandwidth (CH High)

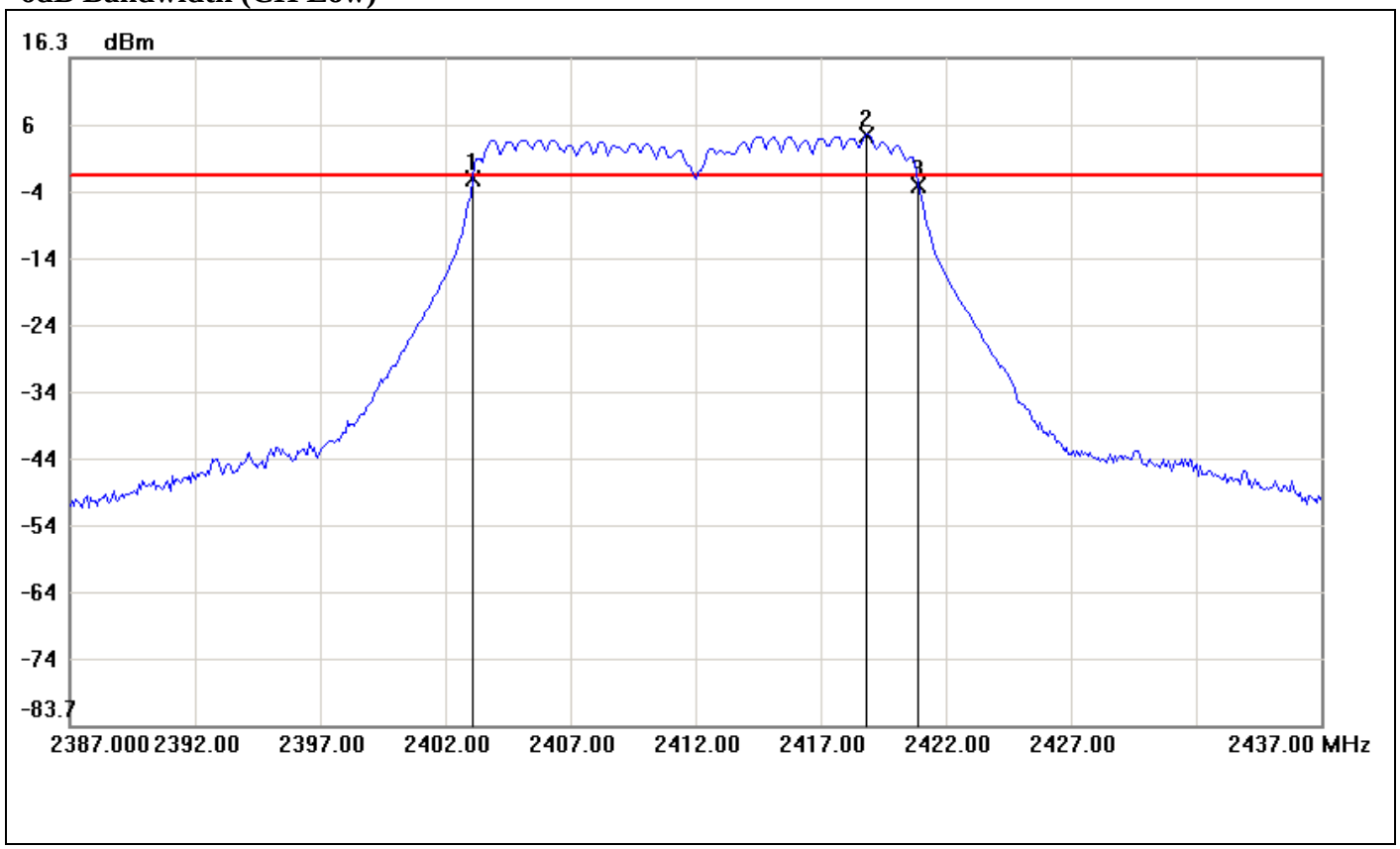


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0833	-3.74	-2.81	-0.93
2	2455.3333	3.19	-2.81	6.00
3	2470.8333	-2.89	-2.81	-0.08

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.75	0.85

IEEE 802.11n HT 20 MHz mode / Chain 1

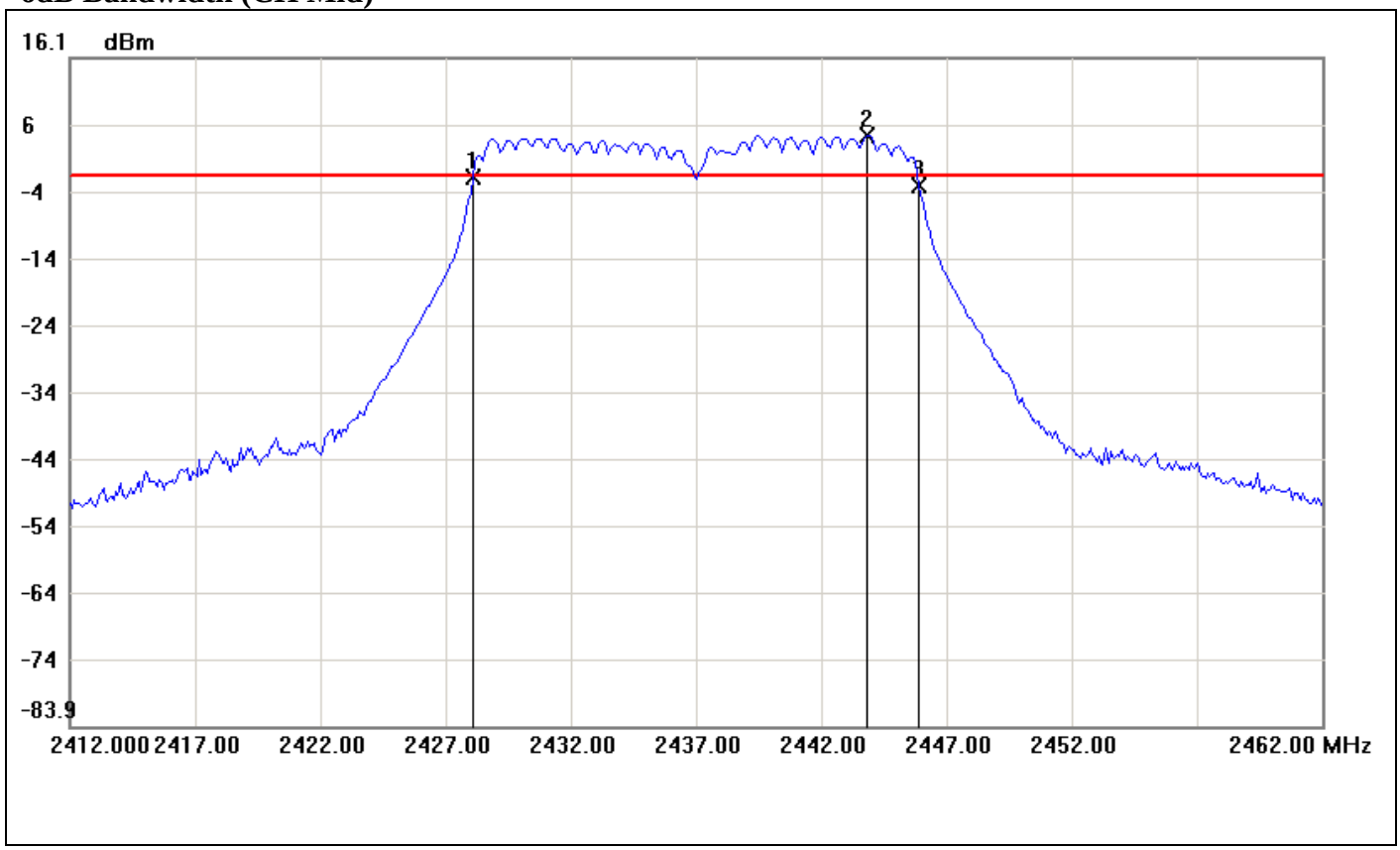
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.0833	-1.69	-1.19	-0.50
2	2418.8333	4.81	-1.19	6.00
3	2420.9167	-2.80	-1.19	-1.61

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	-1.11

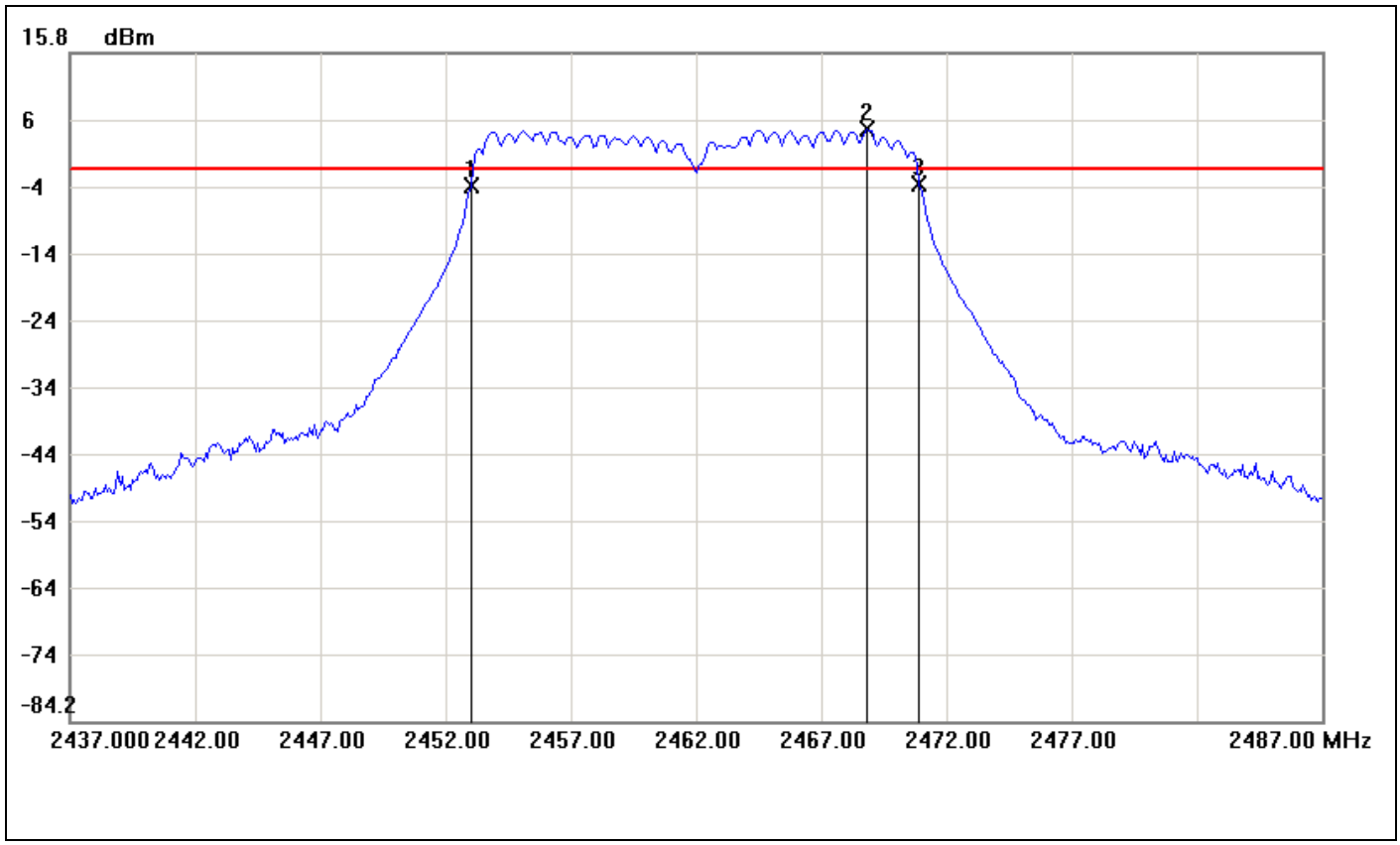
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2428.0833	-1.66	-1.44	-0.22
2	2443.8333	4.56	-1.44	6.00
3	2445.9167	-3.13	-1.44	-1.69

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8334	-1.47

6dB Bandwidth (CH High)

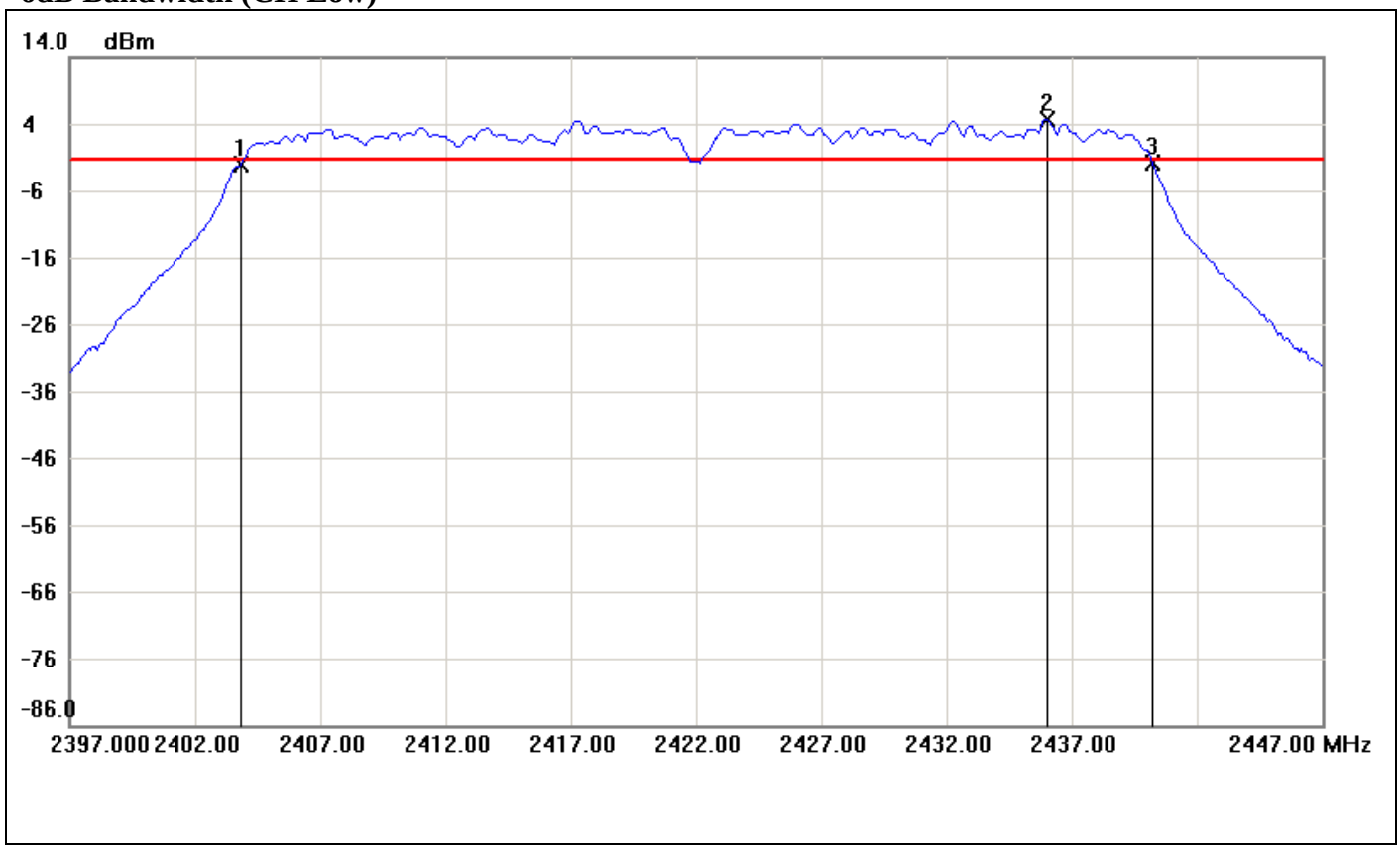


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.0000	-4.19	-1.70	-2.49
2	2468.8333	4.30	-1.70	6.00
3	2470.9167	-3.72	-1.70	-2.02

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.9167	0.47

IEEE 802.11n HT 40 MHz mode / Chain 0

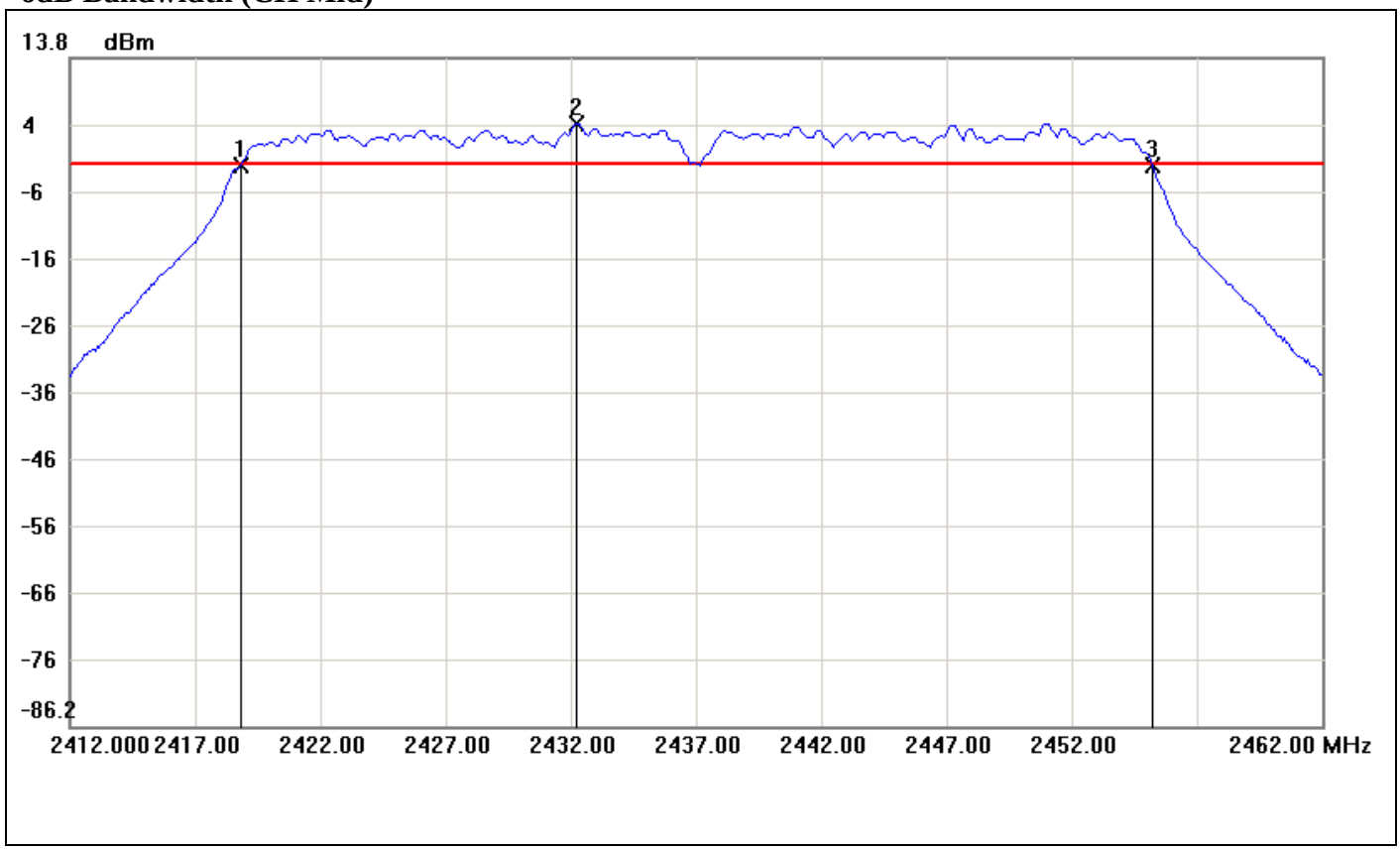
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2403.8333	-2.07	-1.49	-0.58
2	2436.0000	4.51	-1.49	6.00
3	2440.2500	-1.79	-1.49	-0.30

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	0.28

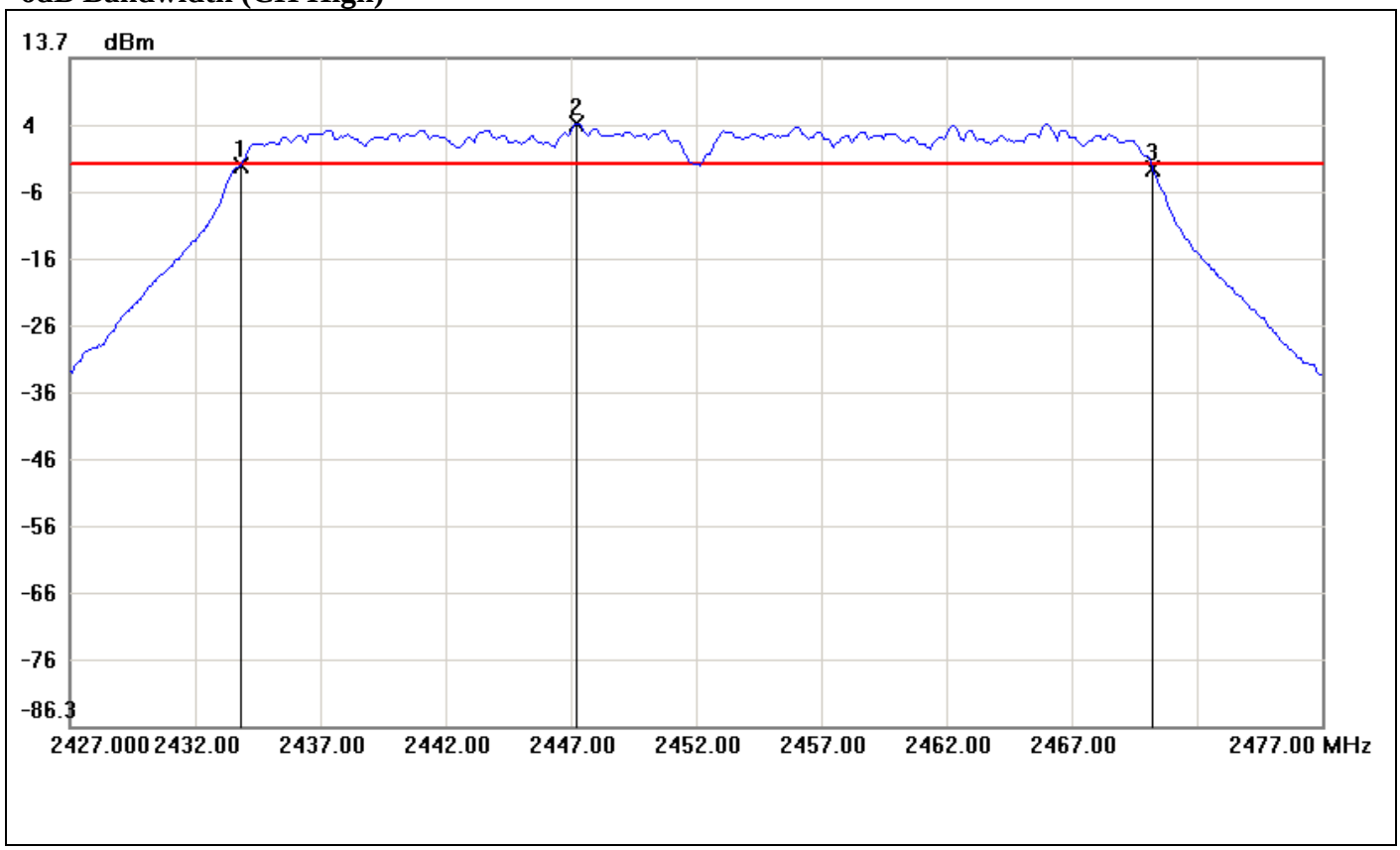
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.8333	-2.38	-2.05	-0.33
2	2432.2500	3.95	-2.05	6.00
3	2455.2500	-2.37	-2.05	-0.32

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	0.01

6dB Bandwidth (CH High)

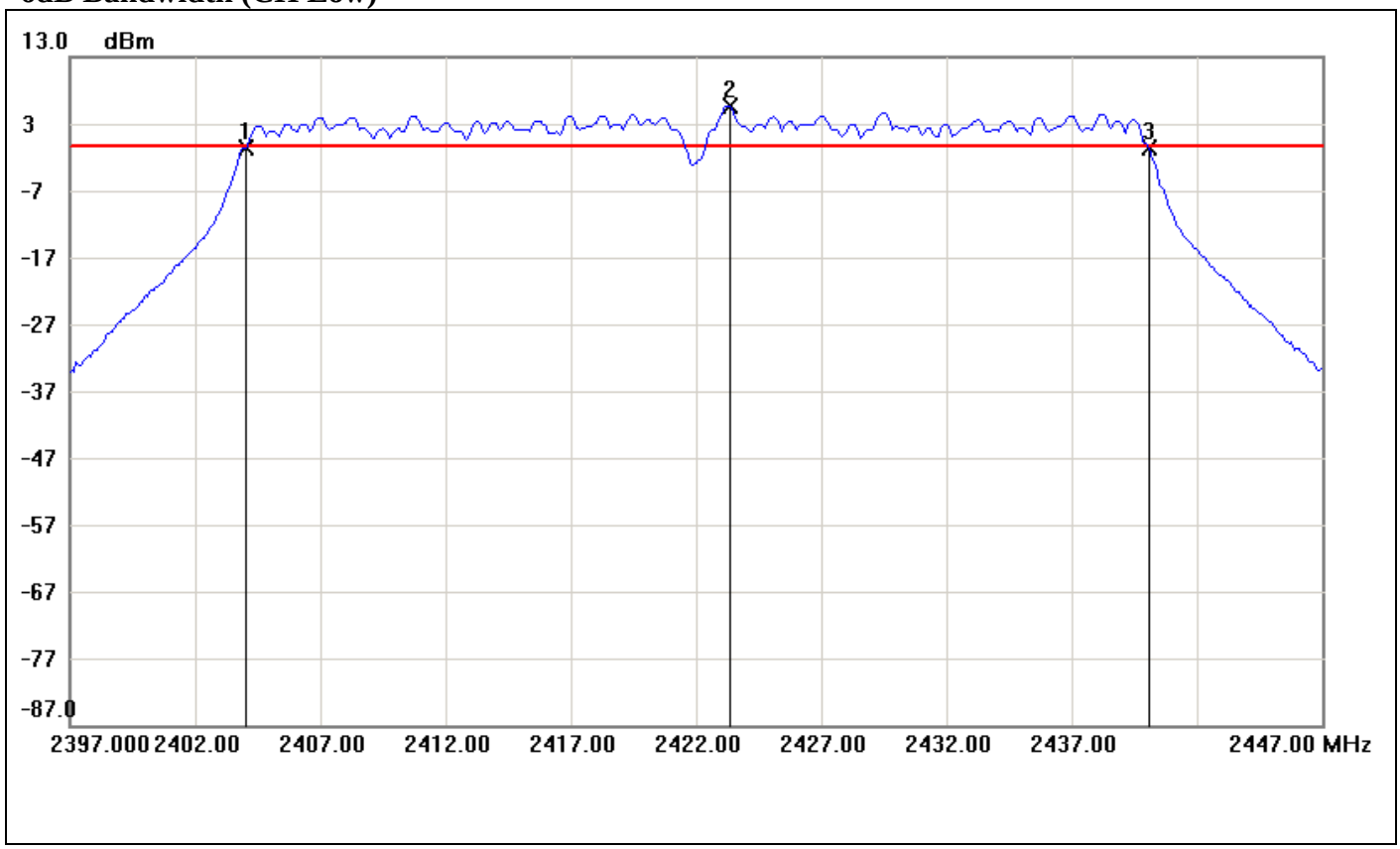


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.8333	-2.36	-2.16	-0.20
2	2447.2500	3.84	-2.16	6.00
3	2470.2500	-2.91	-2.16	-0.75

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4167	-0.55

IEEE 802.11n HT 40 MHz mode / Chain 1

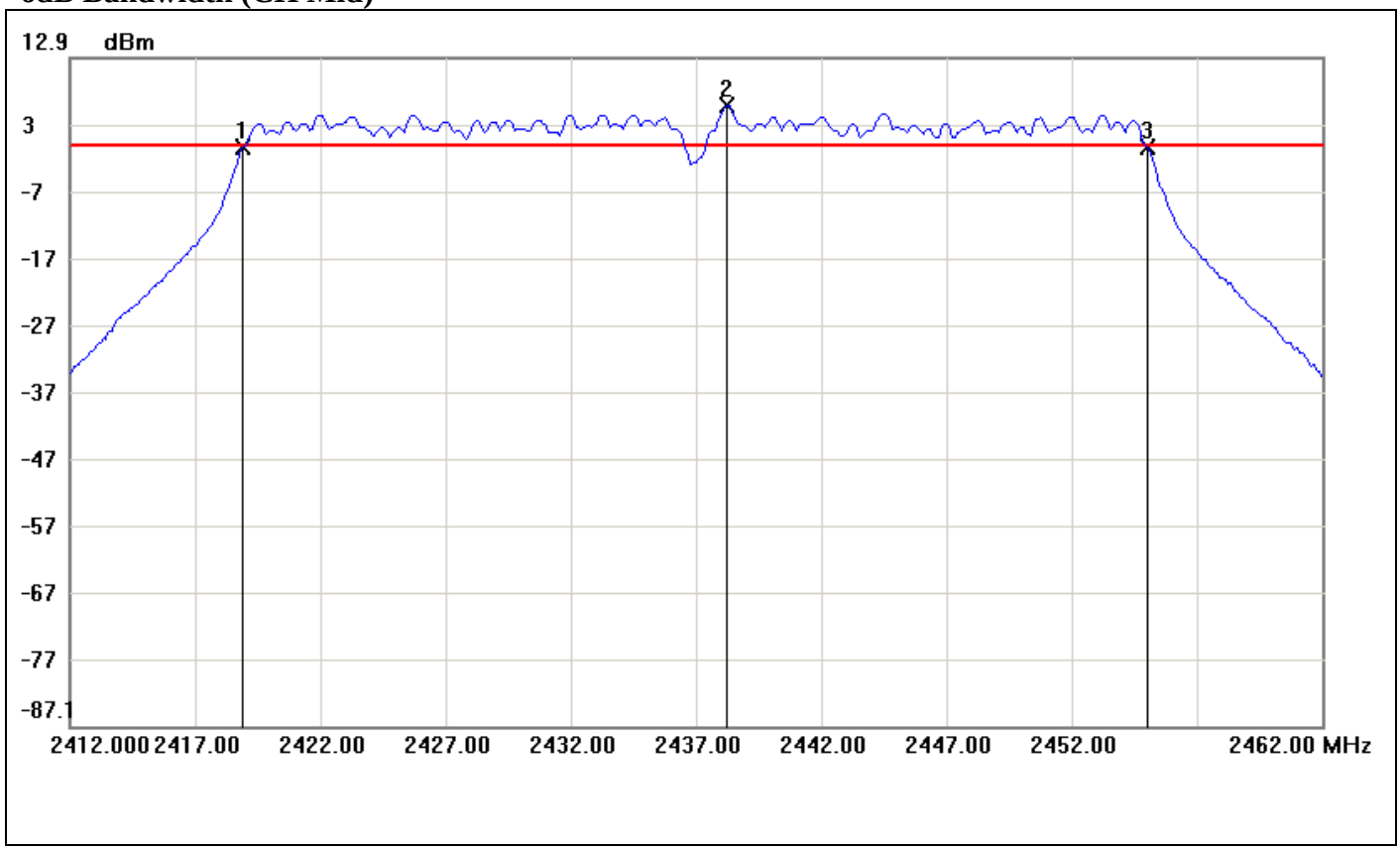
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2404.0000	-0.64	-0.31	-0.33
2	2423.3333	5.69	-0.31	6.00
3	2440.0833	-0.60	-0.31	-0.29

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.0833	0.04

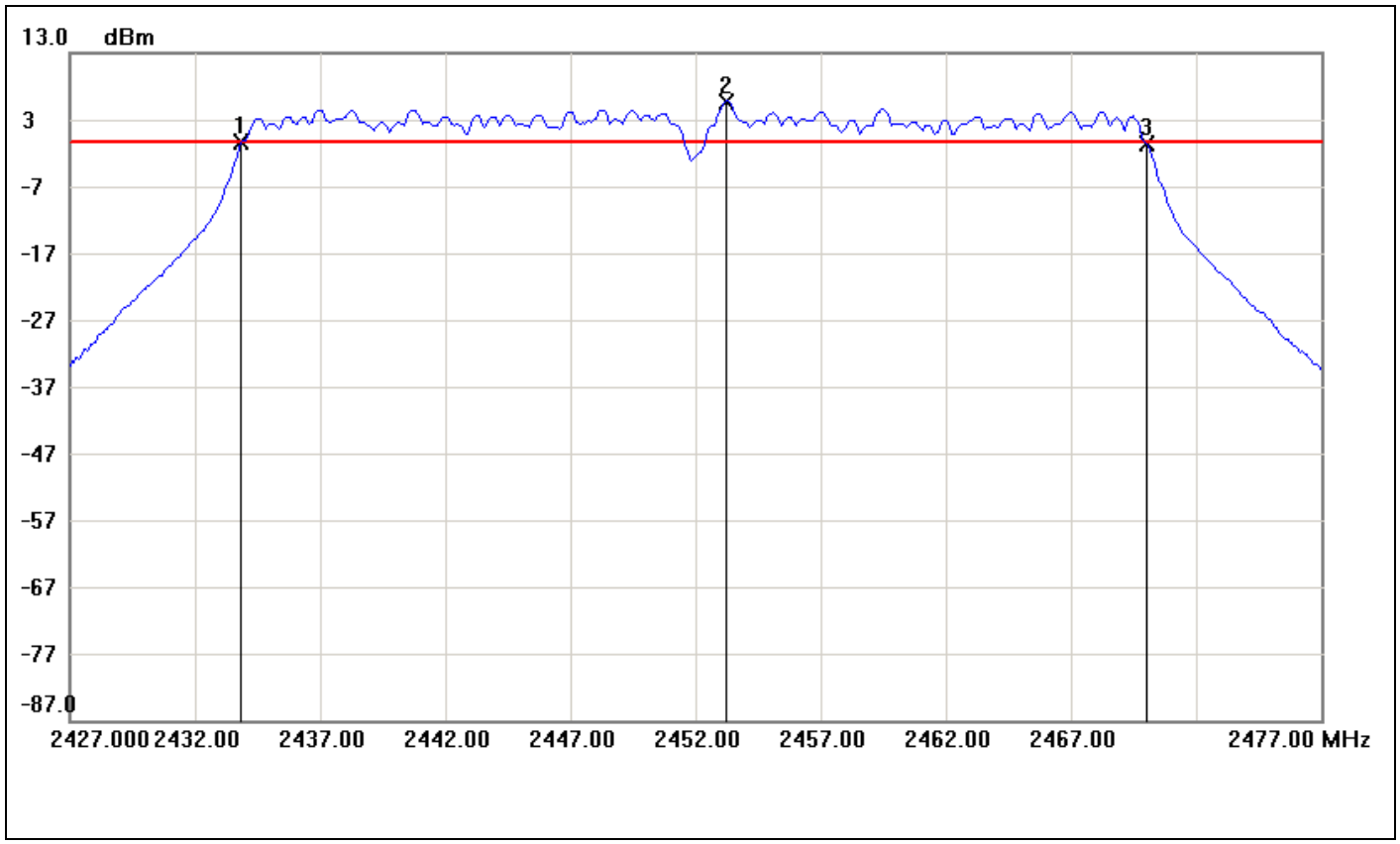
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2418.9167	-0.34	-0.24	-0.10
2	2438.2500	5.76	-0.24	6.00
3	2455.0000	-0.44	-0.24	-0.20

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.0833	-0.1

6dB Bandwidth (CH High)

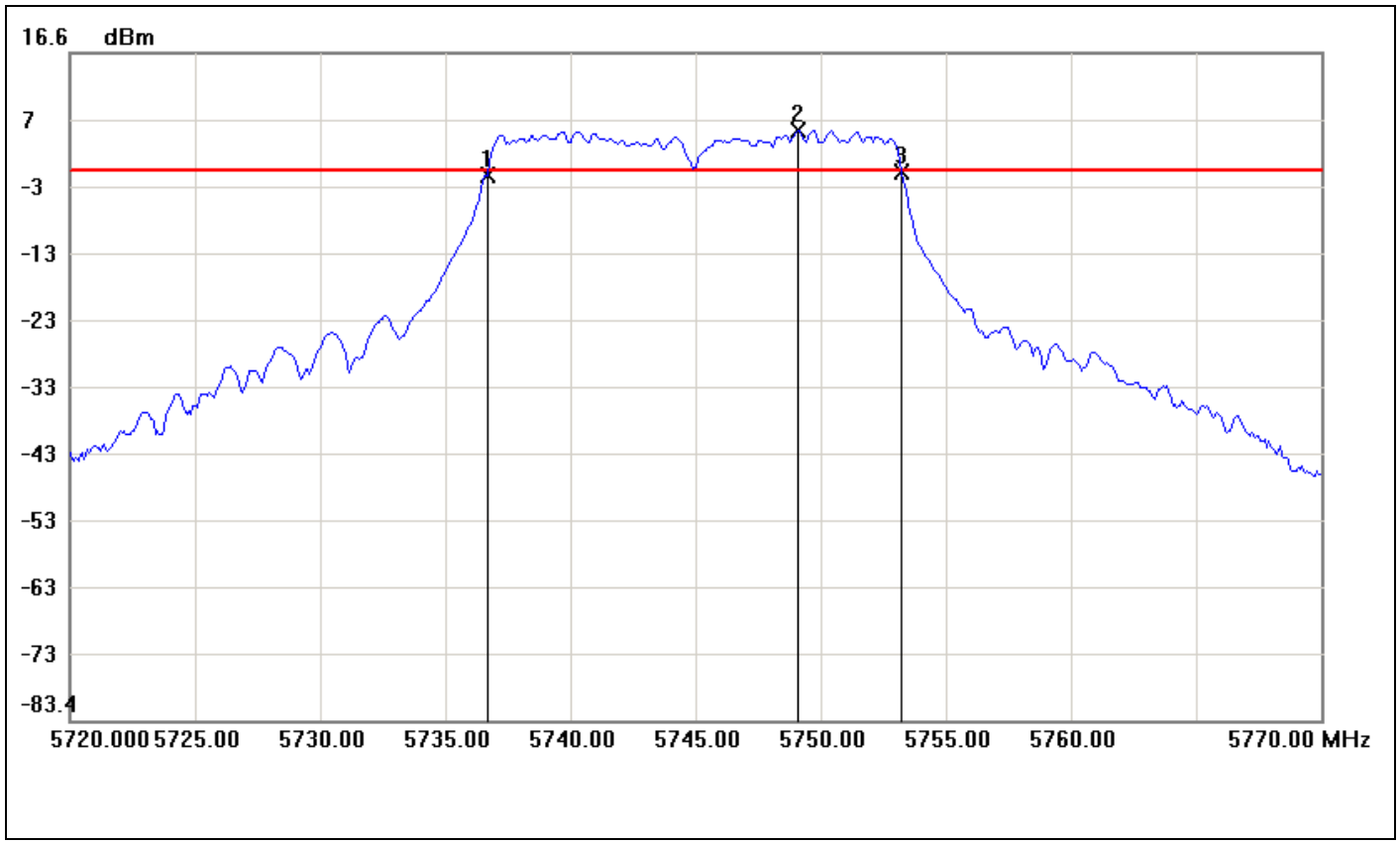


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2433.8333	-0.52	-0.29	-0.23
2	2453.2500	5.71	-0.29	6.00
3	2470.0000	-0.58	-0.29	-0.29

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.1667	-0.06

IEEE 802.11a mode

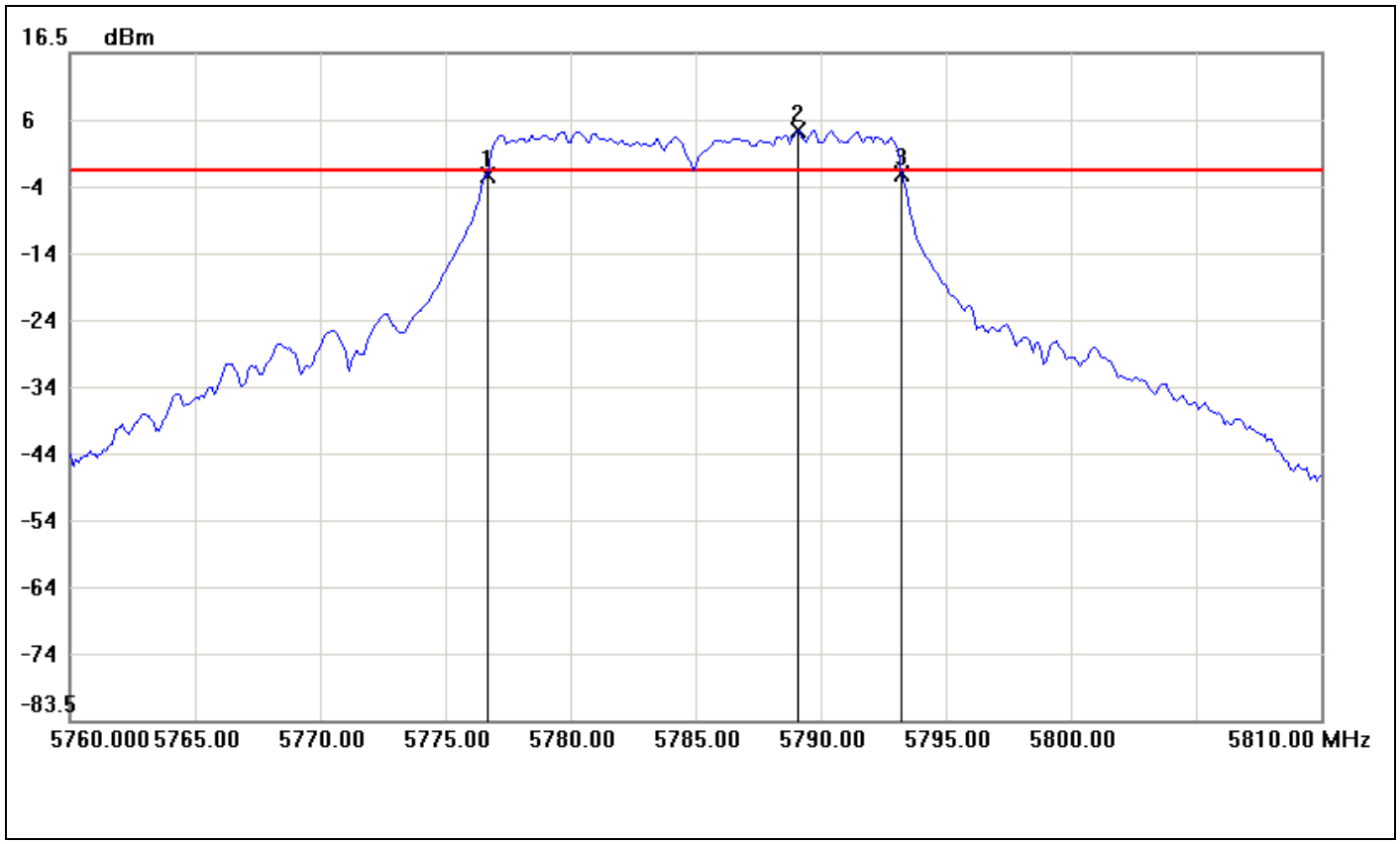
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5736.6667	-1.71	-0.98	-0.73
2	5749.0833	5.02	-0.98	6.00
3	5753.2500	-1.25	-0.98	-0.27

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.5833	0.46

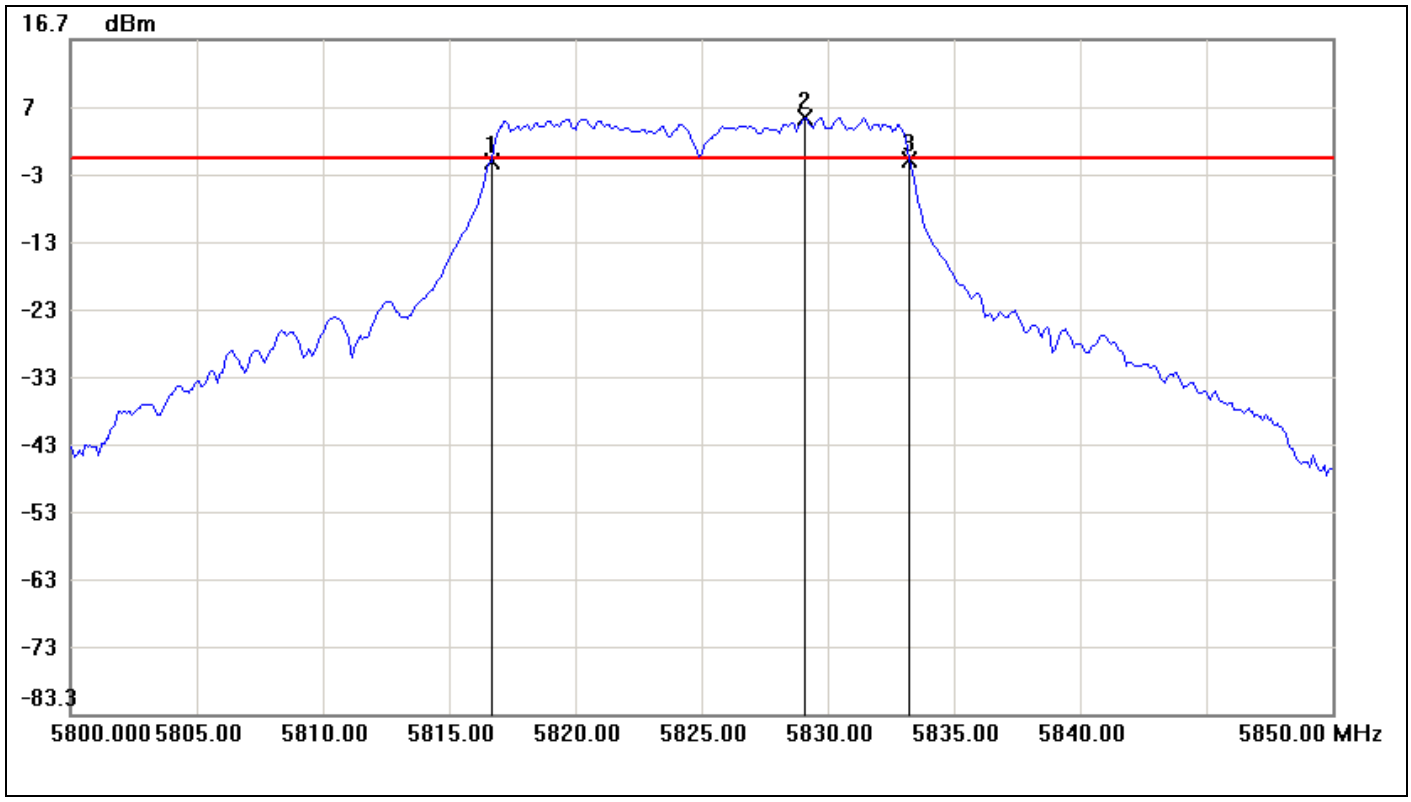
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5776.6667	-1.84	-1.17	-0.67
2	5789.0833	4.83	-1.17	6.00
3	5793.2500	-1.53	-1.17	-0.36

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.5833	0.31

6dB Bandwidth (CH High)

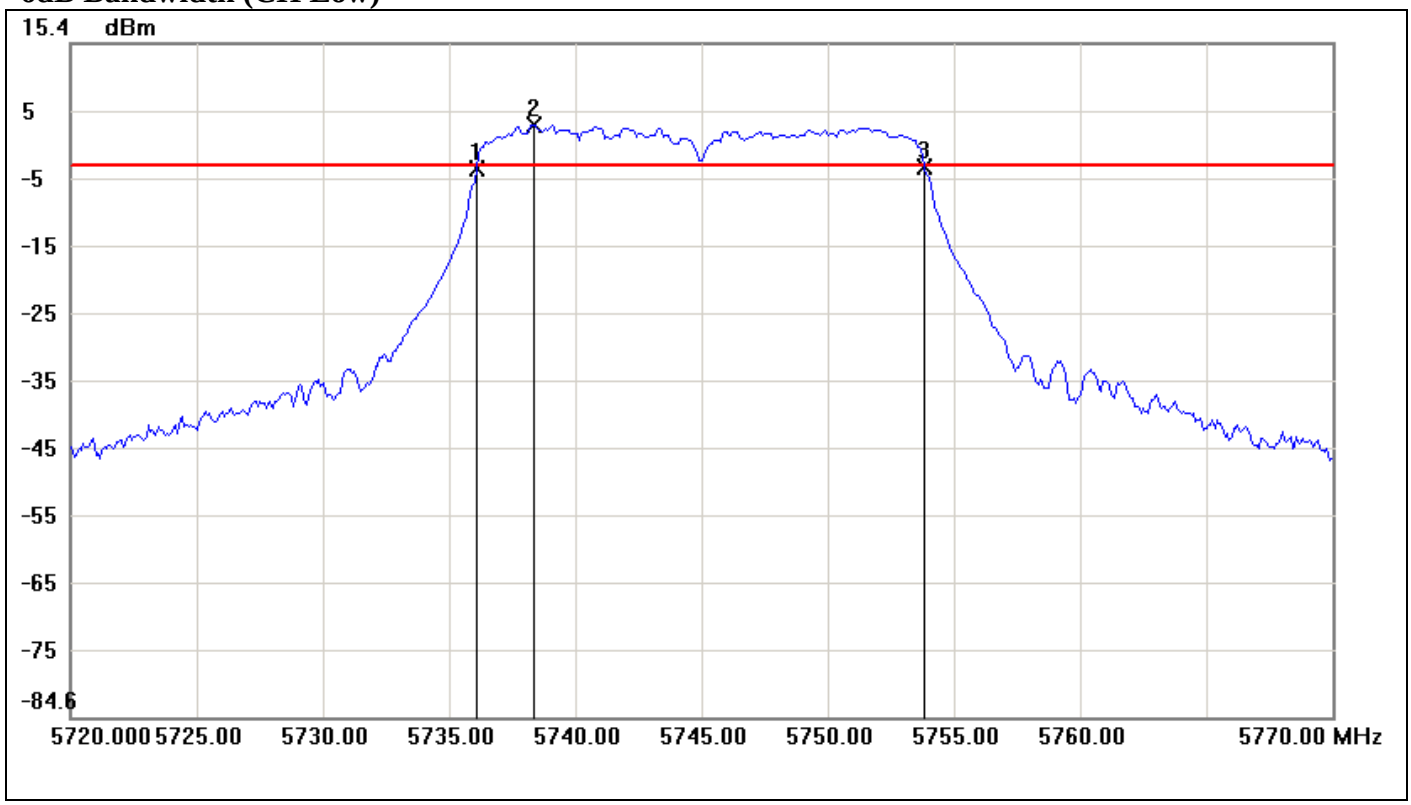


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5816.6667	-1.56	-0.94	-0.62
2	5829.0833	5.06	-0.94	6.00
3	5833.2500	-1.18	-0.94	-0.24

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	16.5833	0.38

IEEE 802.11n HT 20 MHz mode / Chain 0

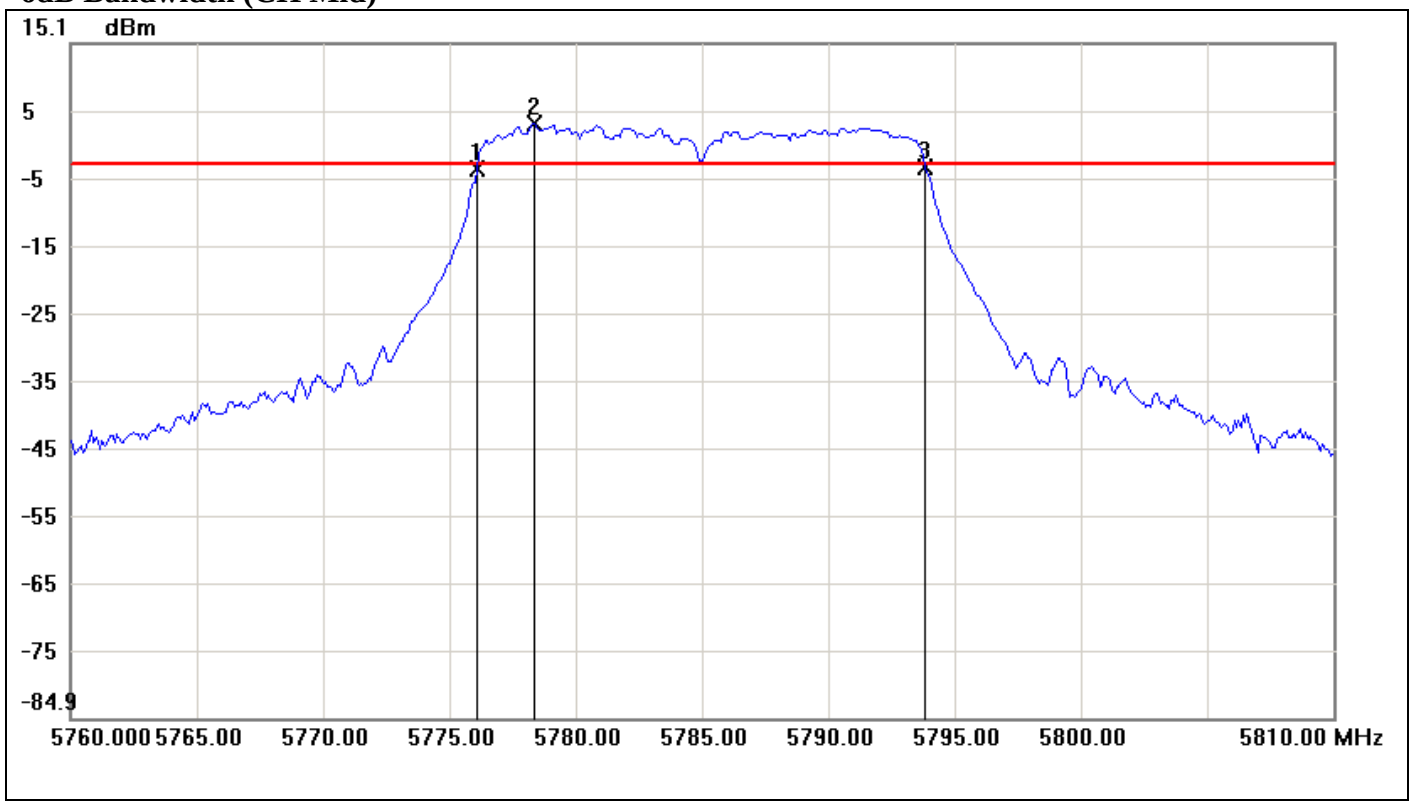
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5736.0833	-3.15	-2.64	-0.51
2	5738.3333	3.36	-2.64	6.00
3	5753.8333	-2.88	-2.64	-0.24

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.75	0.27

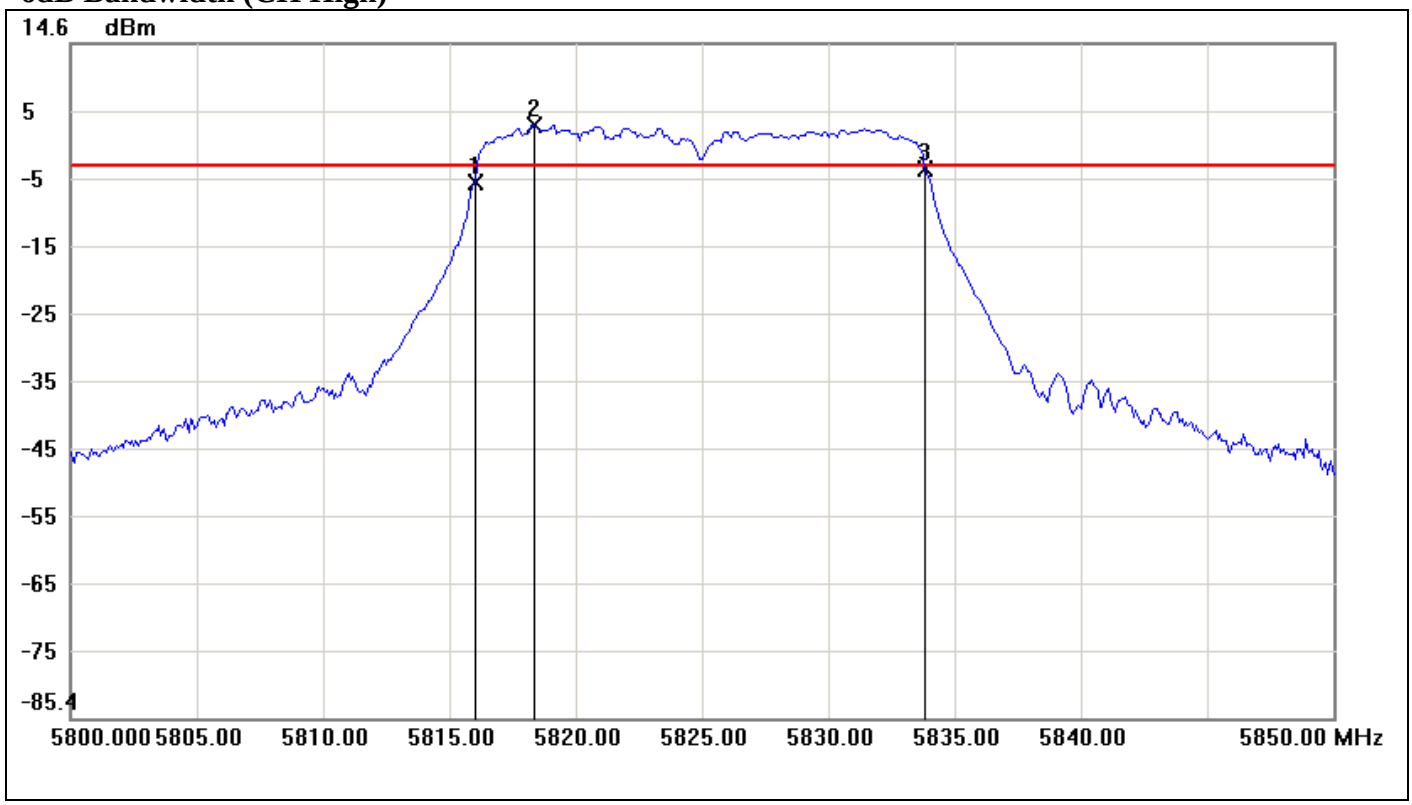
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5776.0833	-3.51	-2.91	-0.60
2	5778.3333	3.09	-2.91	6.00
3	5793.8333	-3.30	-2.91	-0.39

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.75	0.21

6dB Bandwidth (CH High)

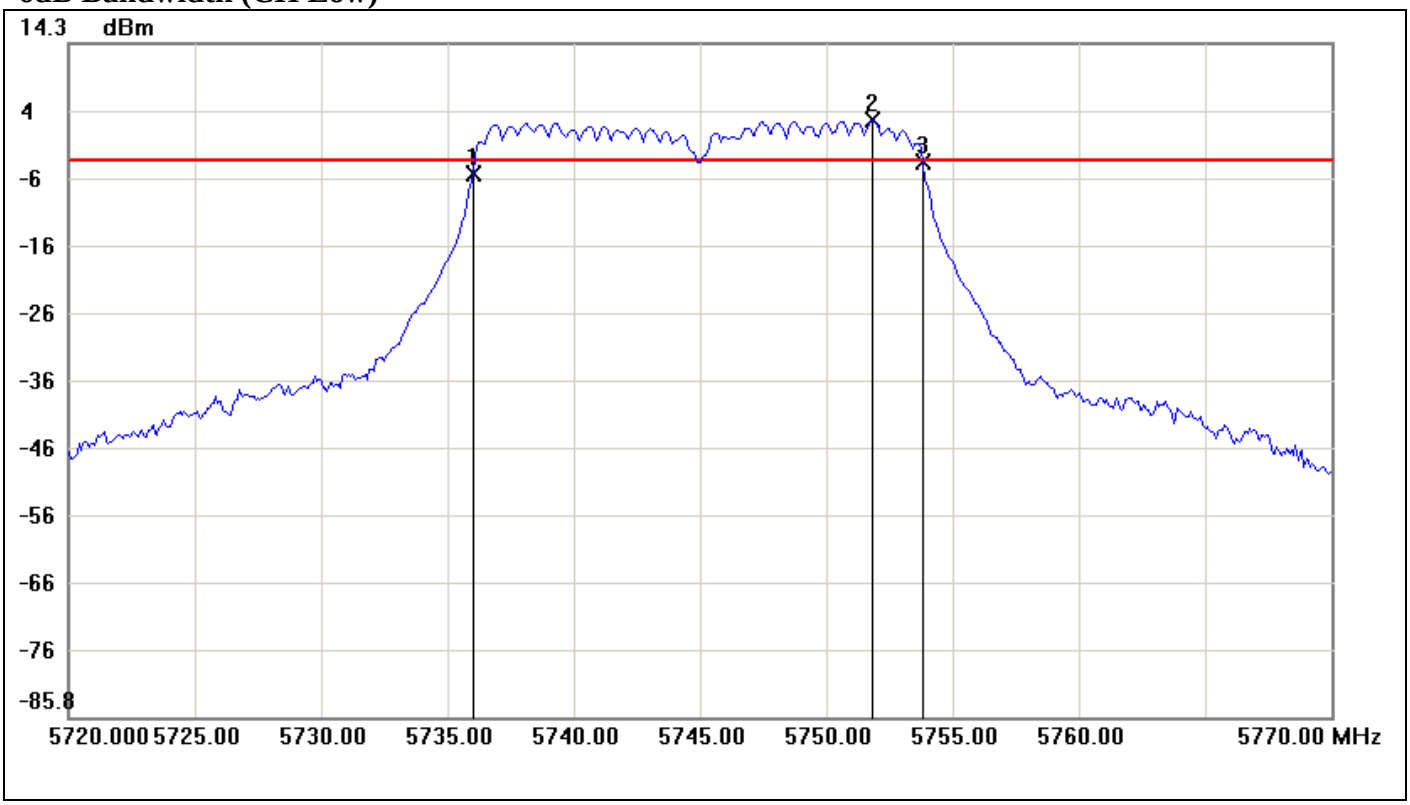


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5816.0000	-5.98	-3.50	-2.48
2	5818.3333	2.50	-3.50	6.00
3	5833.8333	-3.91	-3.50	-0.41

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8333	2.07

IEEE 802.11n HT 20 MHz mode / Chain 1

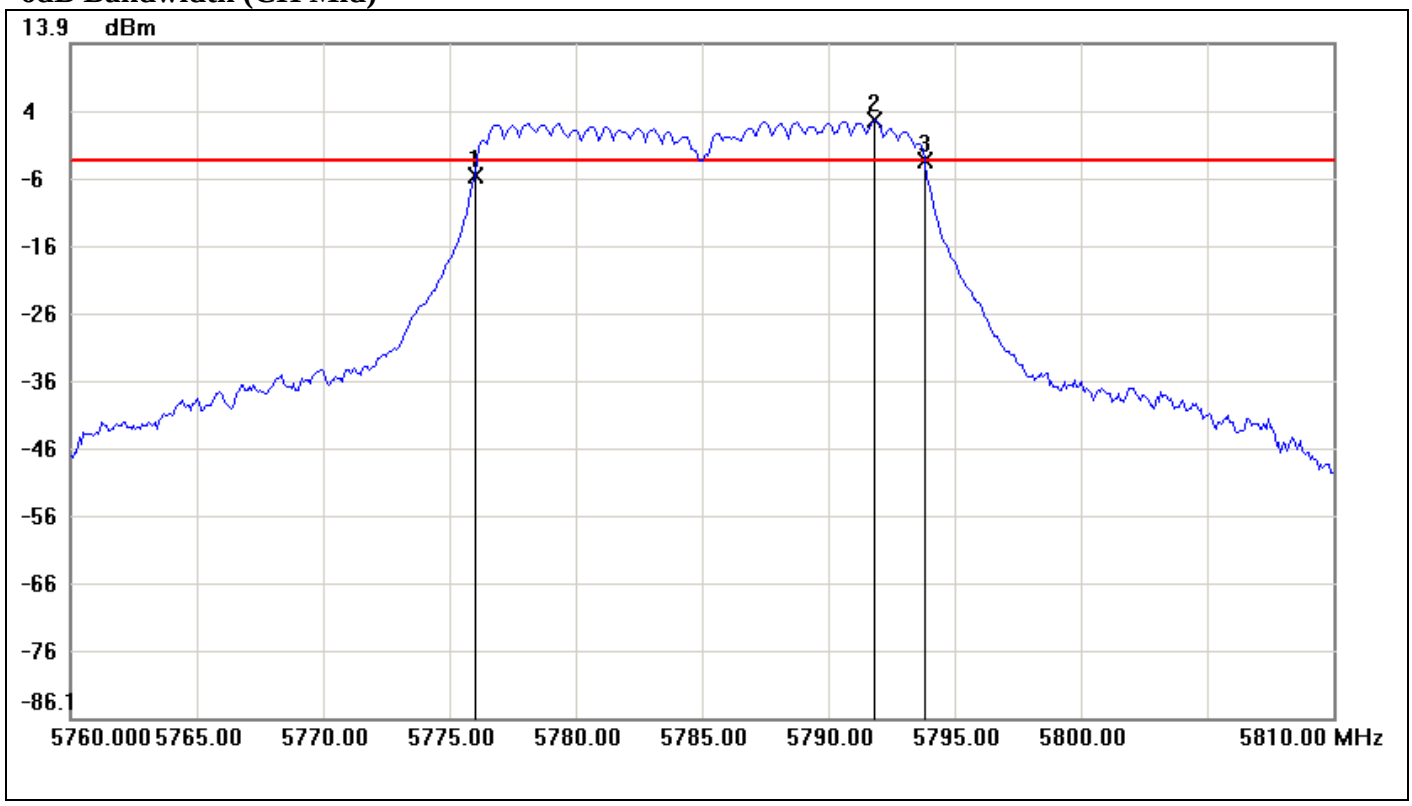
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5736.0000	-5.10	-3.14	-1.96
2	5751.8333	2.86	-3.14	6.00
3	5753.8333	-3.43	-3.14	-0.29

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8333	1.67

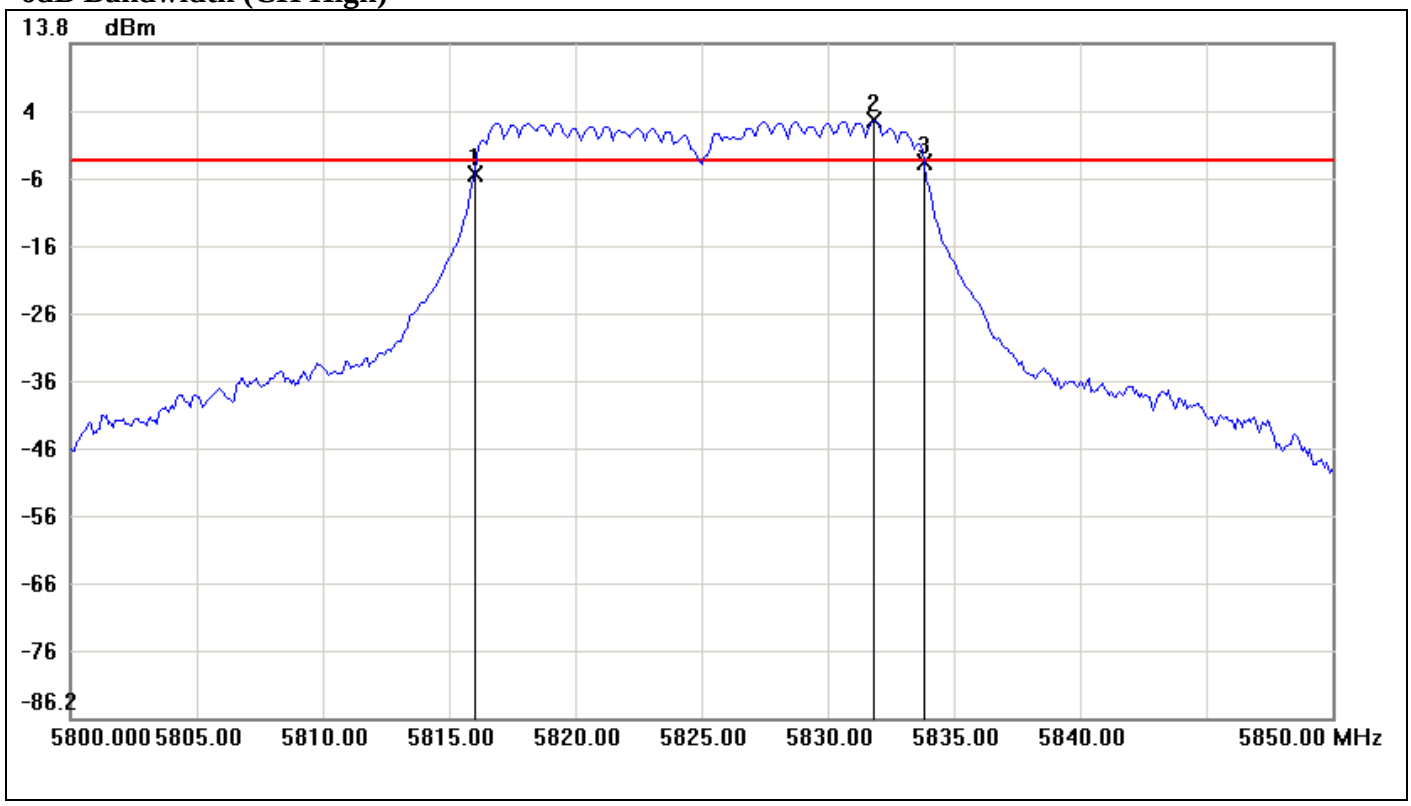
6dB Bandwidth (CH Mid)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5776.0000	-5.63	-3.53	-2.10
2	5791.8333	2.47	-3.53	6.00
3	5793.8333	-3.58	-3.53	-0.05

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8333	2.05

6dB Bandwidth (CH High)

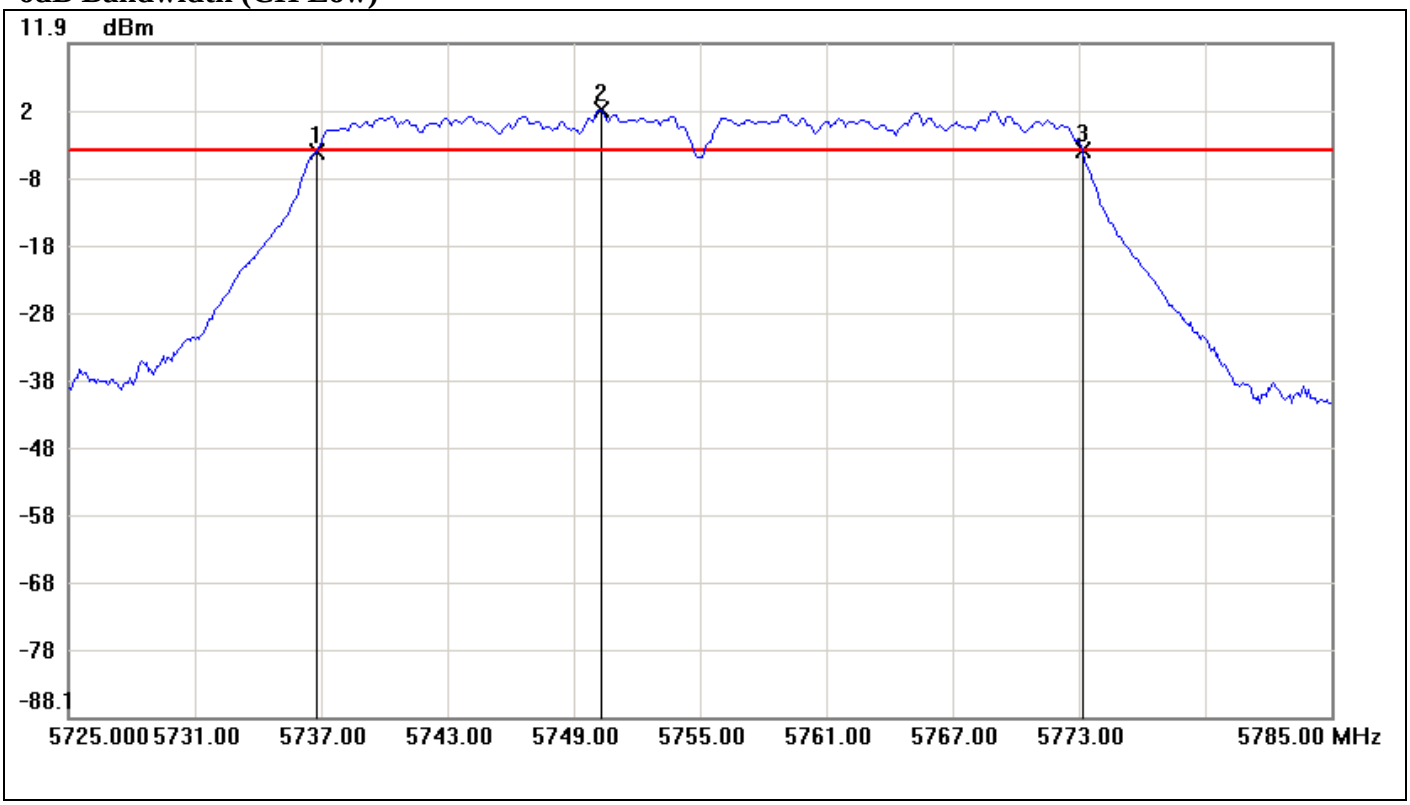


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5816.0000	-5.52	-3.60	-1.92
2	5831.8333	2.40	-3.60	6.00
3	5833.8333	-3.88	-3.60	-0.28

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	17.8333	1.64

IEEE 802.11n HT 40 MHz mode / Chain 0

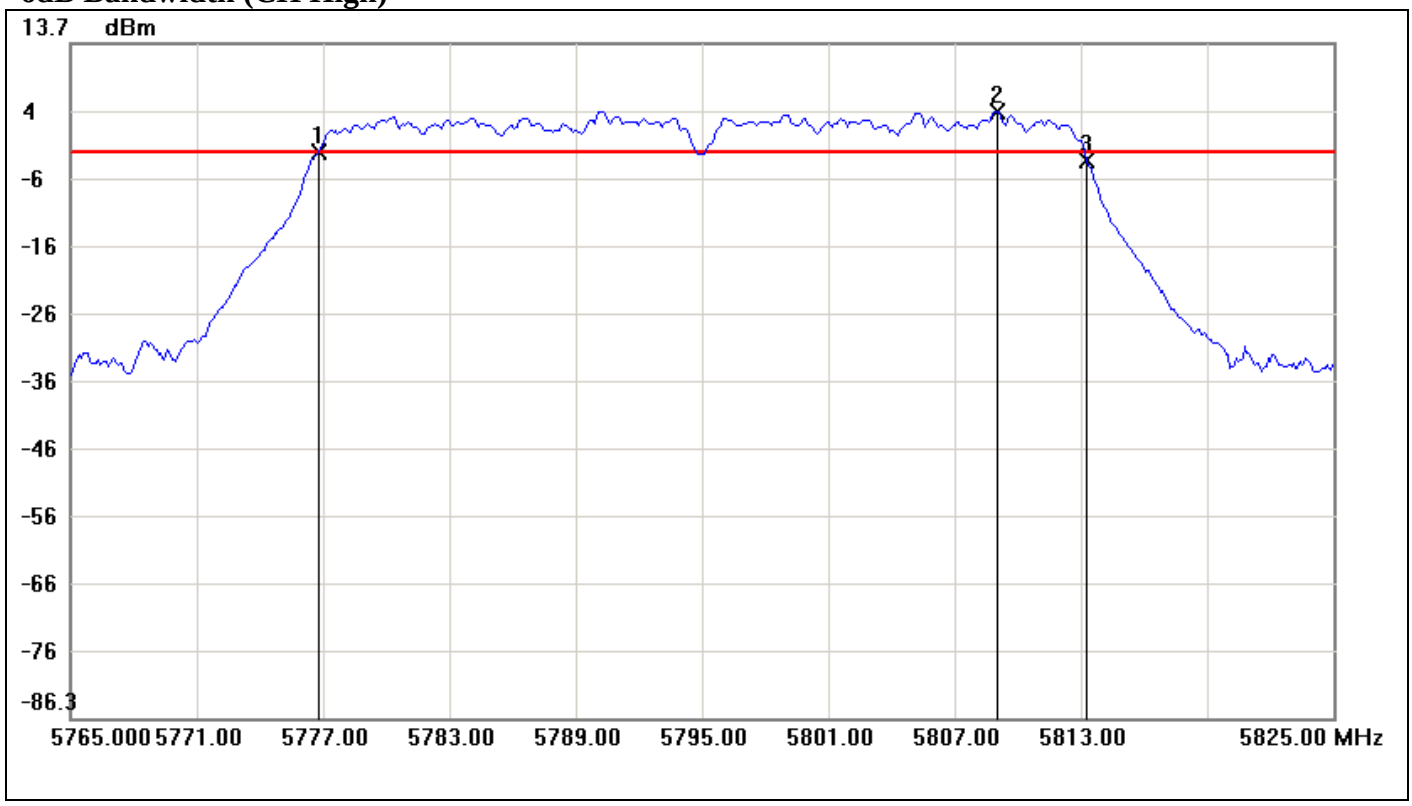
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5736.8000	-4.24	-3.89	-0.35
2	5750.3000	2.11	-3.89	6.00
3	5773.2000	-3.99	-3.89	-0.10

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.4	0.25

6dB Bandwidth (CH High)

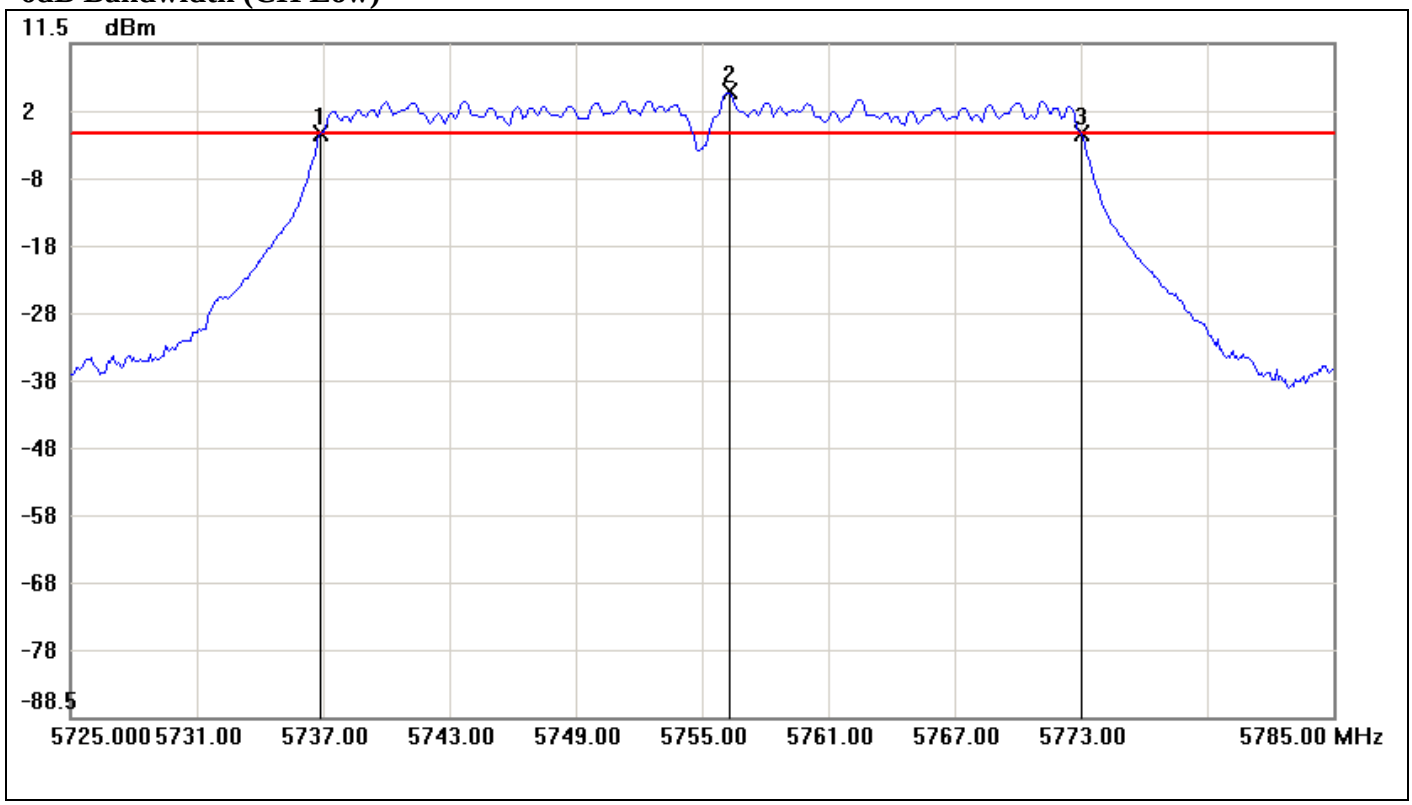


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5776.8000	-2.38	-2.31	-0.07
2	5809.0000	3.69	-2.31	6.00
3	5813.3000	-3.63	-2.31	-1.32

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.5	-1.25

IEEE 802.11n HT 40 MHz mode / Chain 1

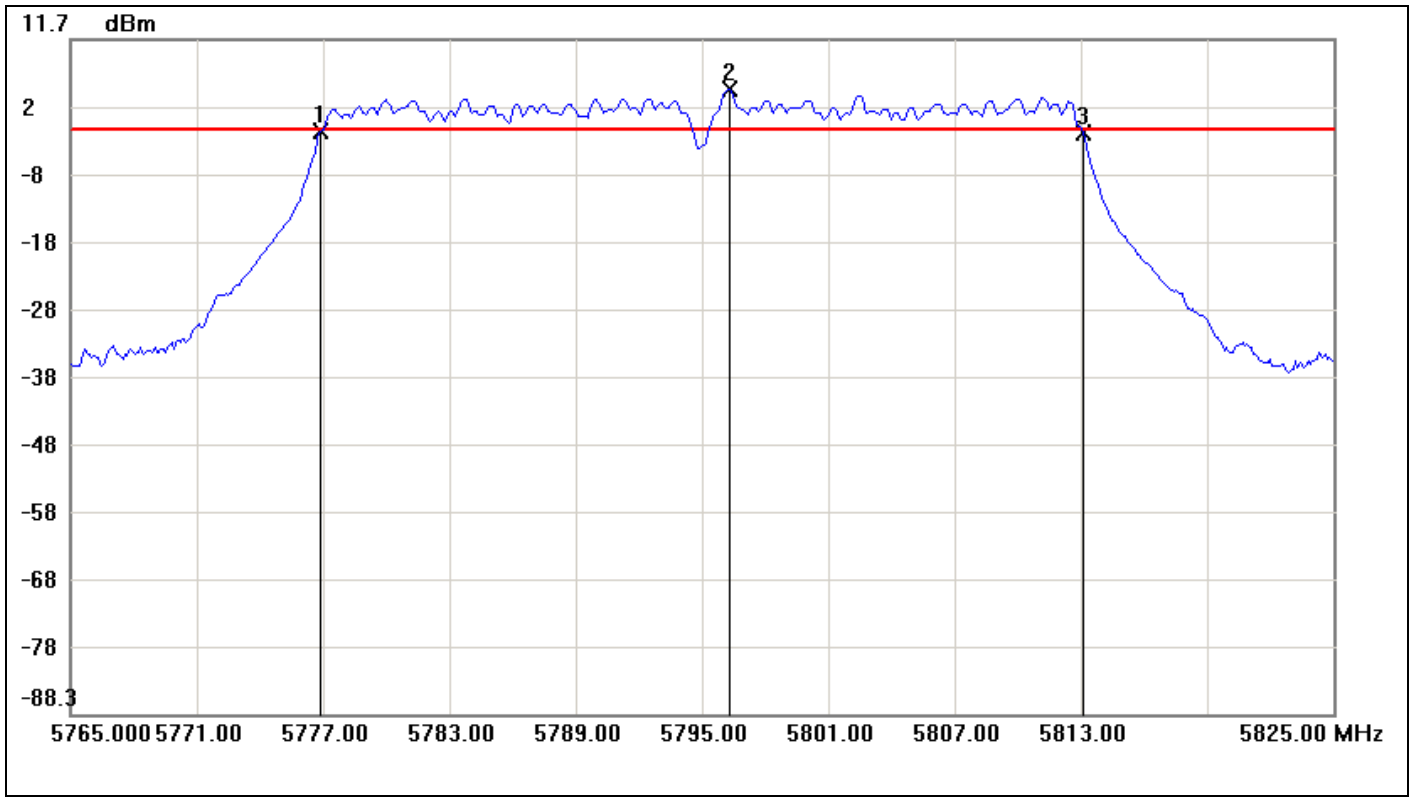
6dB Bandwidth (CH Low)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5736.9000	-1.90	-1.71	-0.19
2	5756.3000	4.29	-1.71	6.00
3	5773.0000	-1.76	-1.71	-0.05

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.1	0.14

6dB Bandwidth (CH High)

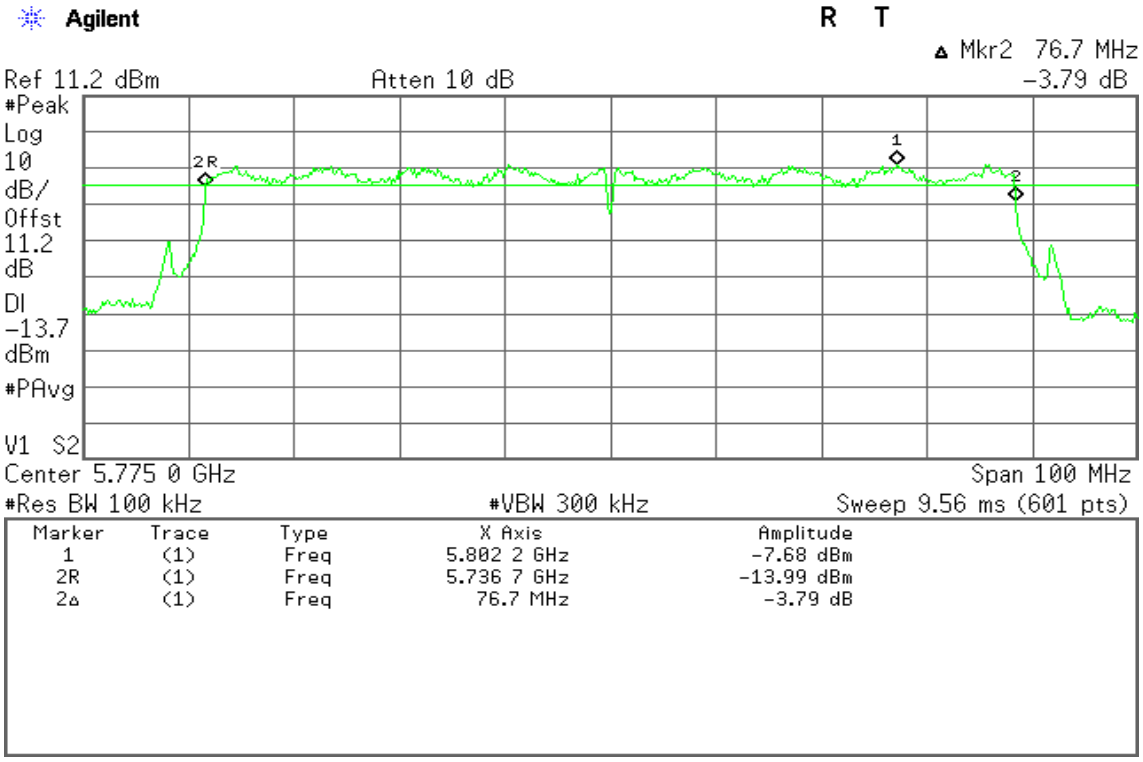


No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	5776.9000	-1.86	-1.72	-0.14
2	5796.3000	4.28	-1.72	6.00
3	5813.1000	-2.09	-1.72	-0.37

No.		ΔFrequency(MHz)	ΔLevel(dB)
1	mk3-mk1	36.2	-0.23

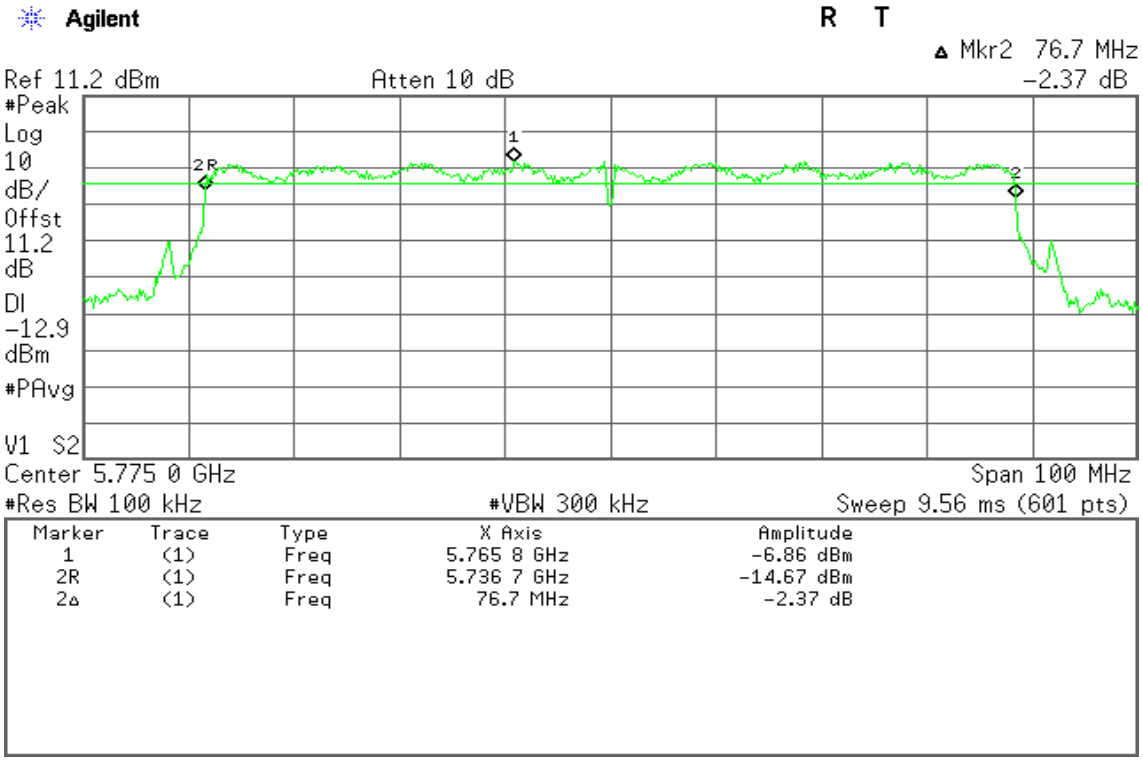
IEEE 802.11n HT 80 MHz mode / Chain 0

6dB Bandwidth



IEEE 802.11n HT 80 MHz mode / Chain 1

6dB Bandwidth



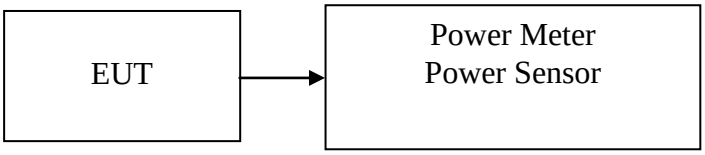
8.3 PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. According to RSS-210 §A8.4(4), for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power Meter. The Power Meter is set to the peak power detection.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.50	0.0891	1.00	PASS
Mid	2442	***19.90**	0.0977		PASS
High	2462	19.40	0.0871		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	25.20	0.3311	1.00	PASS
Mid	2442	***25.50**	0.3548		PASS
High	2462	25.00	0.3162		PASS

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	23.00	22.20	25.63	0.3656	1.00	PASS
Mid	2442	22.90	22.60	***25.76**	0.3767		PASS
High	2462	22.30	22.00	25.16	0.3281		PASS

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2422	23.00	22.60	***25.81**	0.3811	1.00	PASS
Mid	2442	22.40	22.40	25.41	0.3475		PASS
High	2452	22.90	22.60	25.76	0.3767		PASS

Remark: *Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000)+ Chain 1 (10^(Output Power /10)/1000)*

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	***23.90**	0.2455	1.00	PASS
Mid	5785	23.90	0.2455		PASS
High	5825	23.70	0.2344		PASS

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5745	21.90	22.00	24.96	0.3133	1.00	PASS
Mid	5785	22.10	21.90	***25.01**	0.3170		PASS
High	5825	21.80	21.70	24.76	0.2992		PASS

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	5755	22.30	21.70	***25.02**	0.3177	1.00	PASS
High	5795	22.40	21.30	24.90	0.3090		PASS

Test mode: IEEE 802.11n HT 80 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)	Limit (W)	Result
Mid	5755	21.80	22.90	***25.40**	0.3467	1.00	PASS

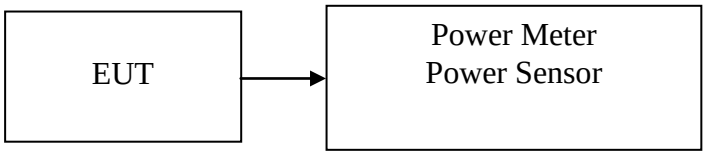
Remark: *Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000)+ Chain 1 (10^(Output Power /10)/1000)*

8.4 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power Meter. The Power Meter is set to the peak power detection.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.20	0.0525
Mid	2442	17.60	0.0575
High	2462	17.00	0.0501

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.20	0.0525
Mid	2442	17.70	0.0589
High	2462	16.90	0.0490

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	2412	14.00	13.47	16.75	0.0473
Mid	2442	13.70	13.90	16.81	0.0480
High	2462	13.20	13.40	16.31	0.0428

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	2422	14.00	13.90	16.96	0.0497
Mid	2442	13.30	13.60	16.46	0.0443
High	2452	14.10	14.15	17.14	0.0518

Remark: *Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000)+ Chain 1 (10^(Output Power /10)/1000)*

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	18.30	0.0676
Mid	5785	18.60	0.0724
High	5825	18.70	0.0741

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	5745	13.50	14.10	16.82	0.0481
Mid	5785	13.90	14.30	17.11	0.0514
High	5825	13.40	14.10	16.77	0.0475

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Low	5755	14.20	13.50	16.87	0.0486
High	5795	14.20	13.40	16.83	0.0482

Test mode: IEEE 802.11n HT 80 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Output Power (W)
Mid	5755	13.20	14.50	16.91	0.0491

Remark: *Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000)+ Chain 1 (10^(Output Power /10)/1000)*

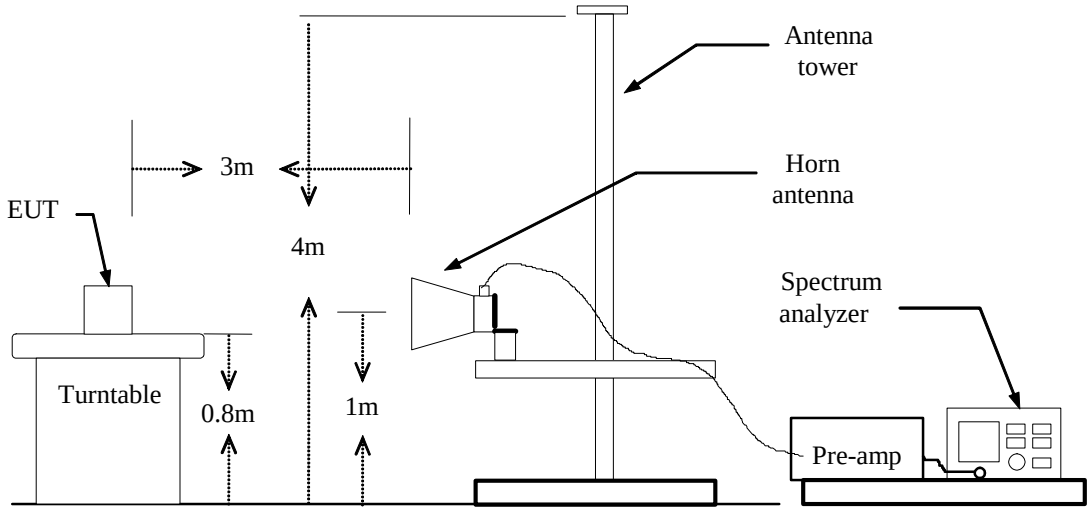
8.5 BAND EDGES MEASUREMENT

LIMIT

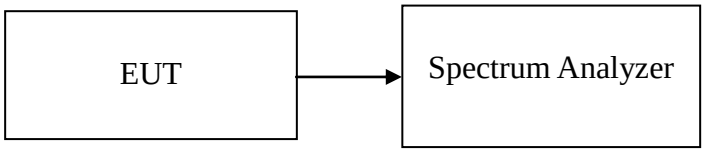
According to §15.247(d) & RSS-210 §A8.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration

For Radiated



For Conducted



TEST PROCEDURE

For Radiated

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=300Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

For Conducted

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

TEST RESULTS

Refer to attach spectrum analyzer data chart.

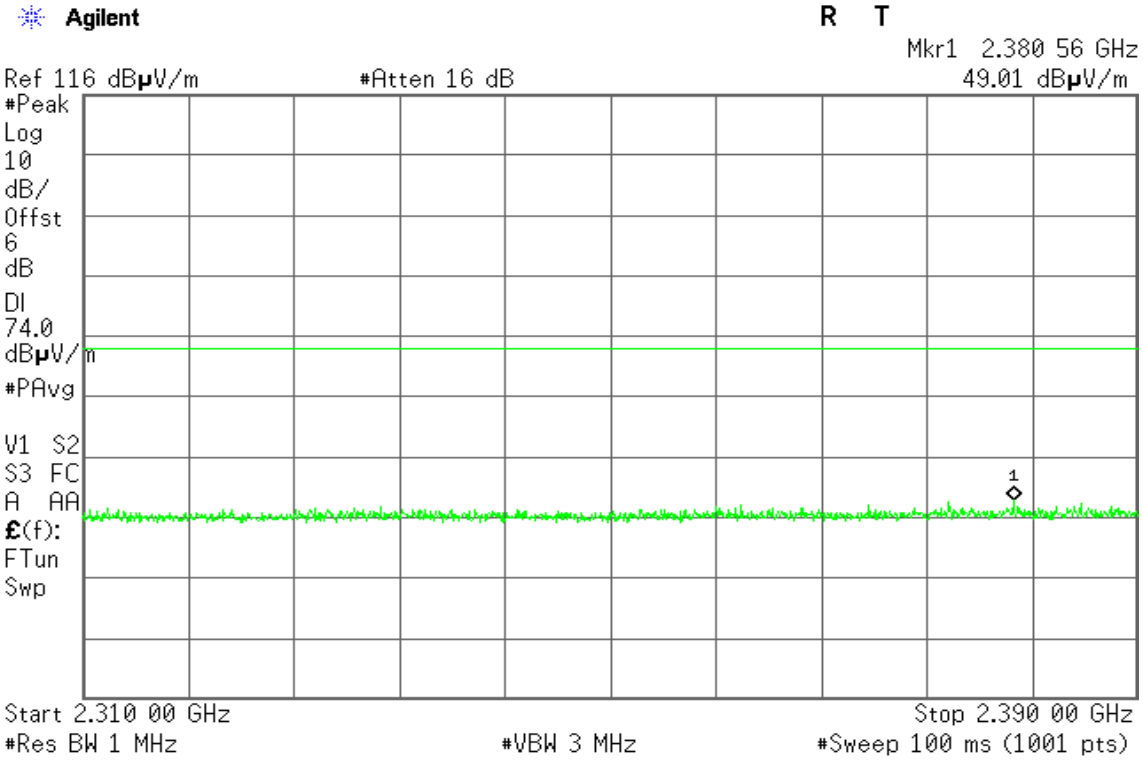
802.11a Mode

1. Operating Frequency: 5725-5875MHz
2. CH Low: 5745MHz, CH High: 5825MHz
3. 6dB bandwidth: CH Low: 16.58MHz, CH High: 16.58MHz

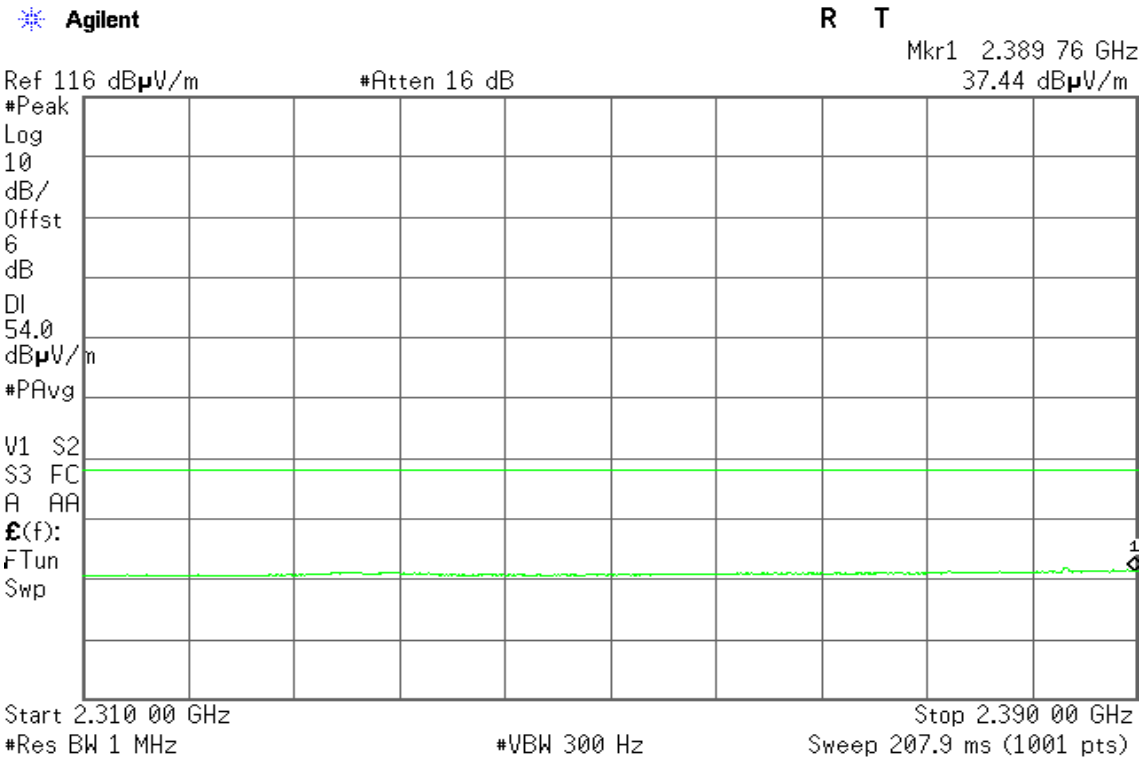
Because the mentioned conditions, the test is not applicable.

Band Edges (IEEE 802.11b mode / CH Low)

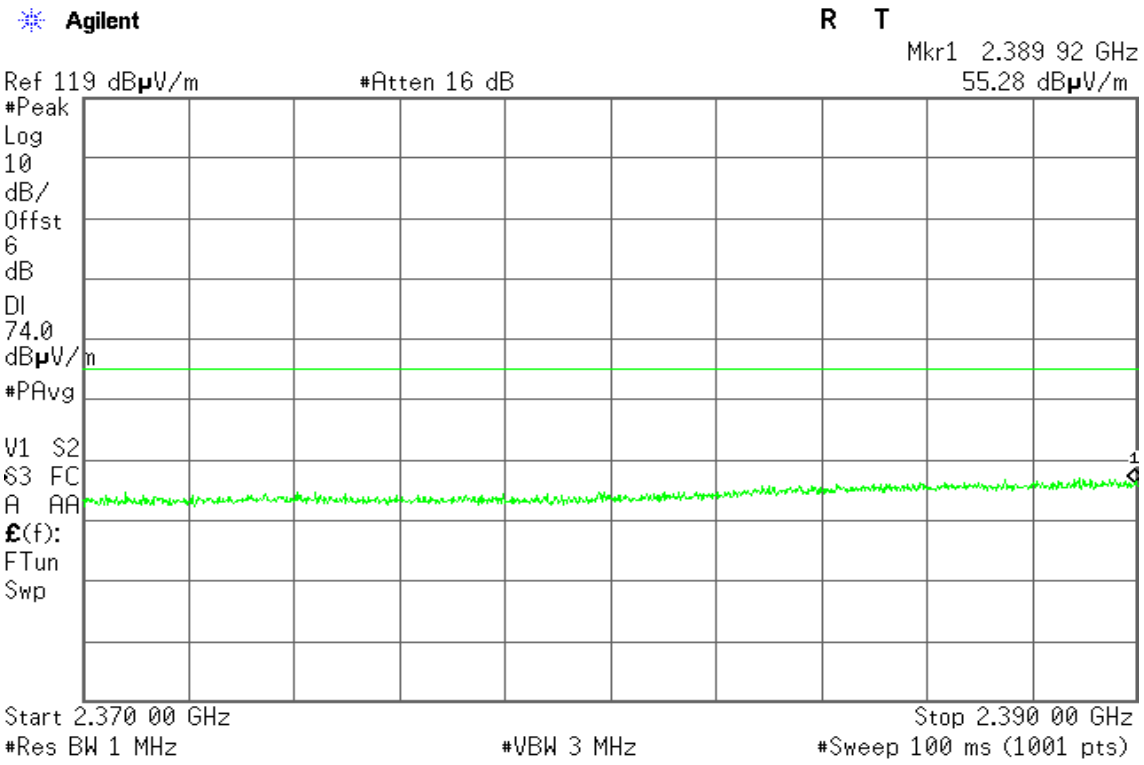
Detector mode: Peak **Polarity: Vertical**



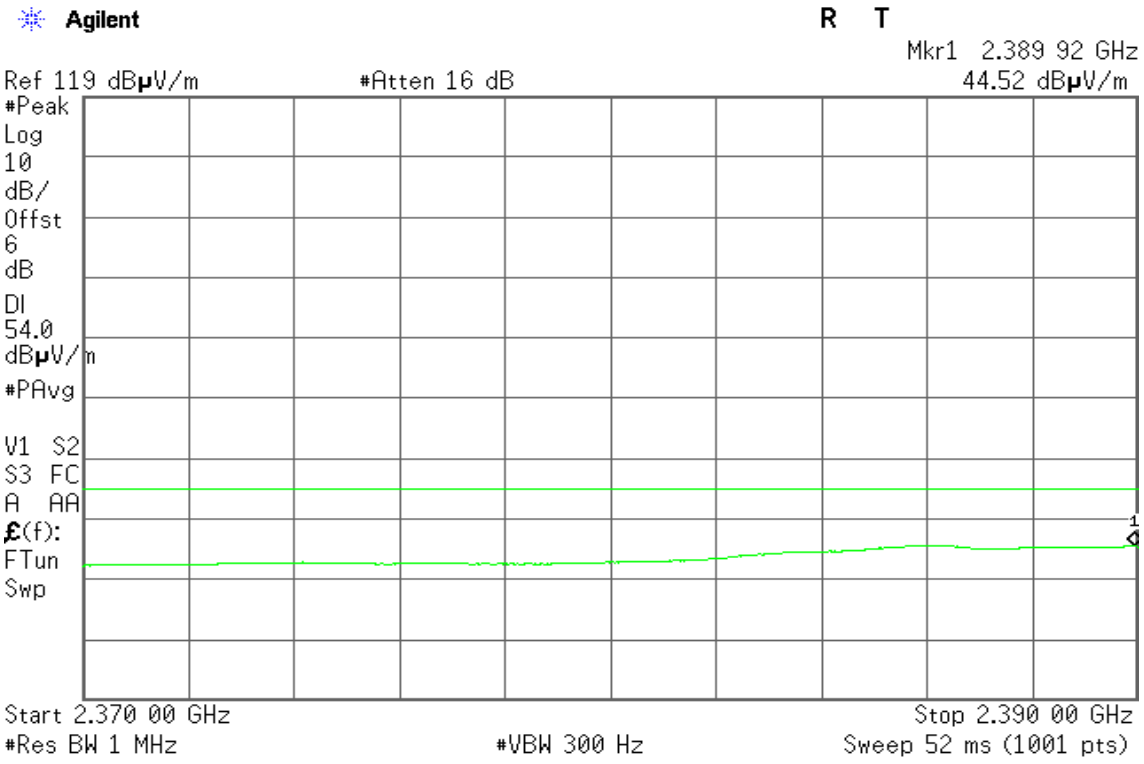
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

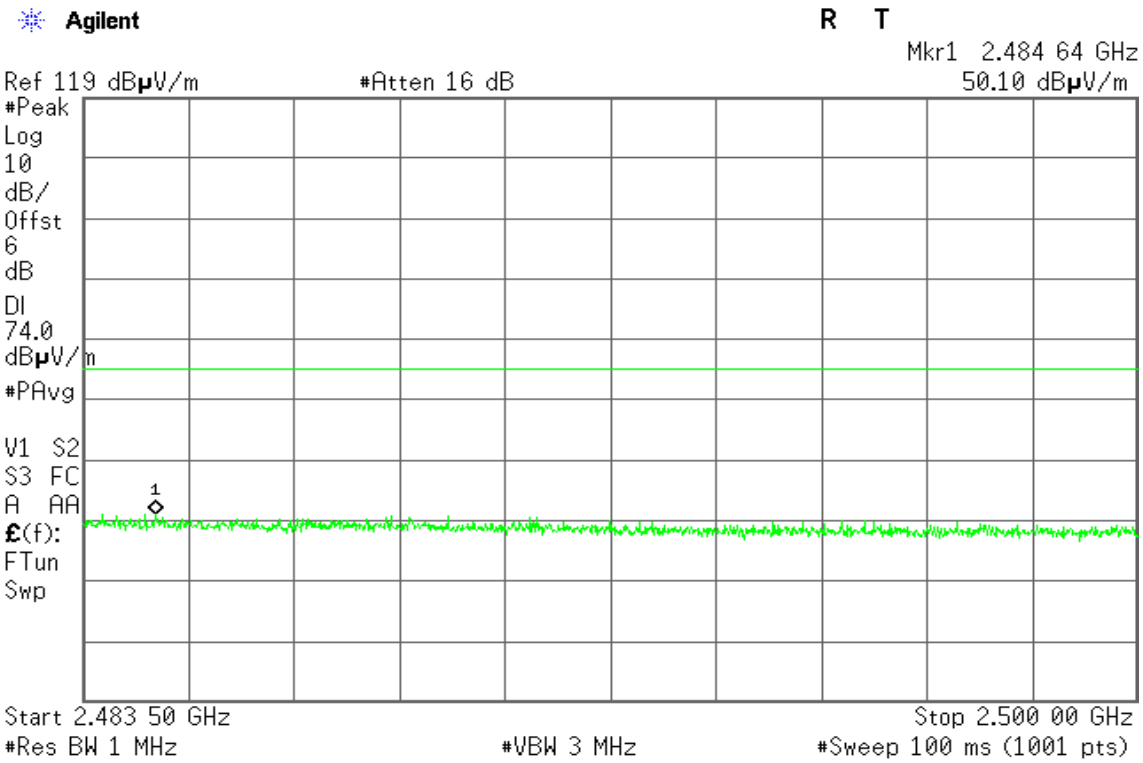


Detector mode: Average **Polarity: Horizontal**

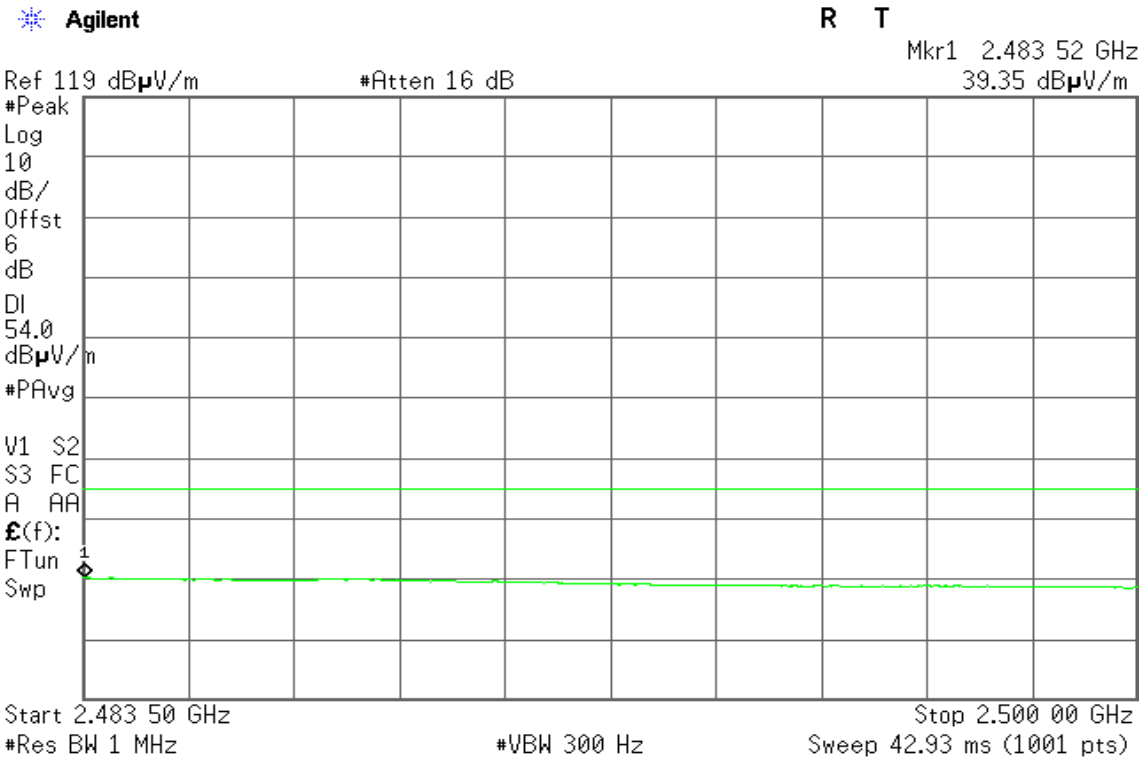


Band Edges (IEEE 802.11b mode / CH High)

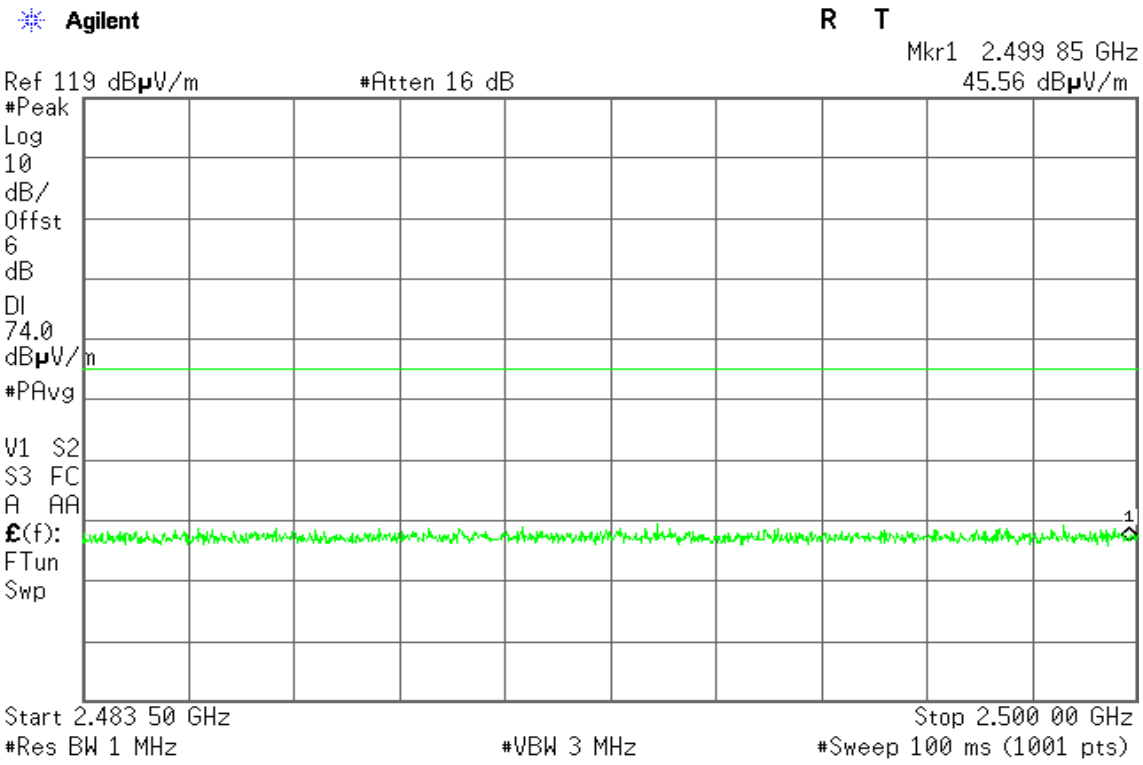
Detector mode: Peak **Polarity: Vertical**



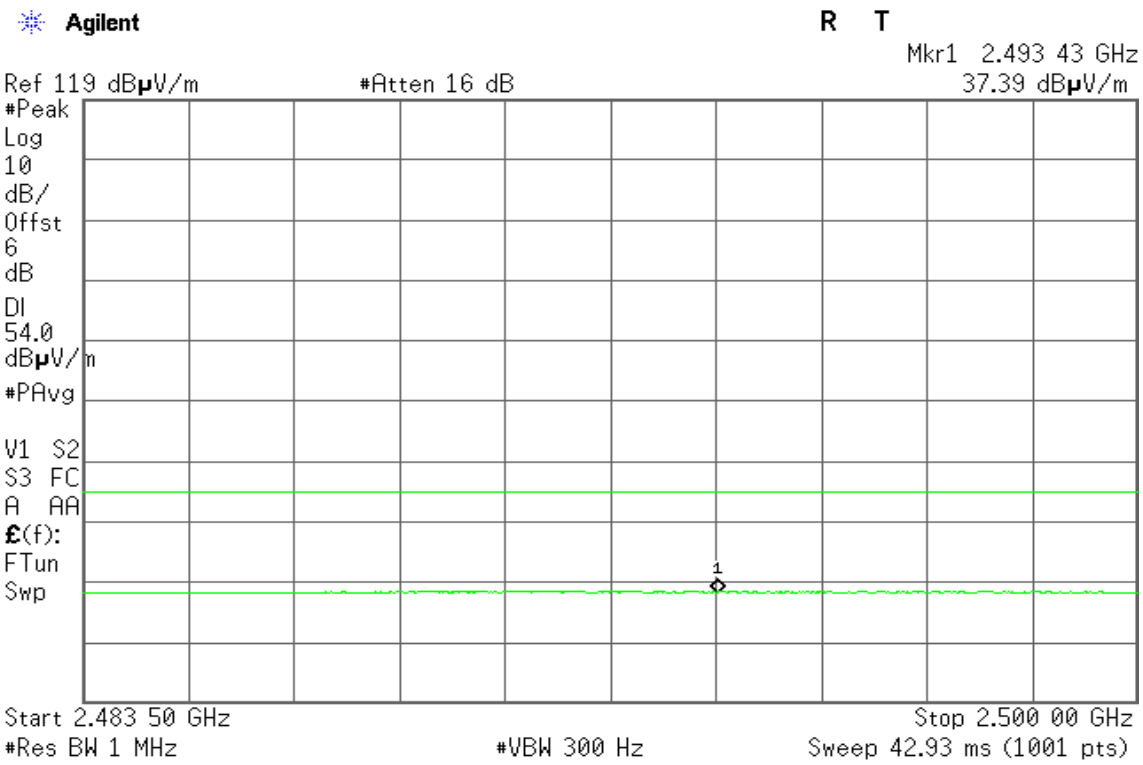
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

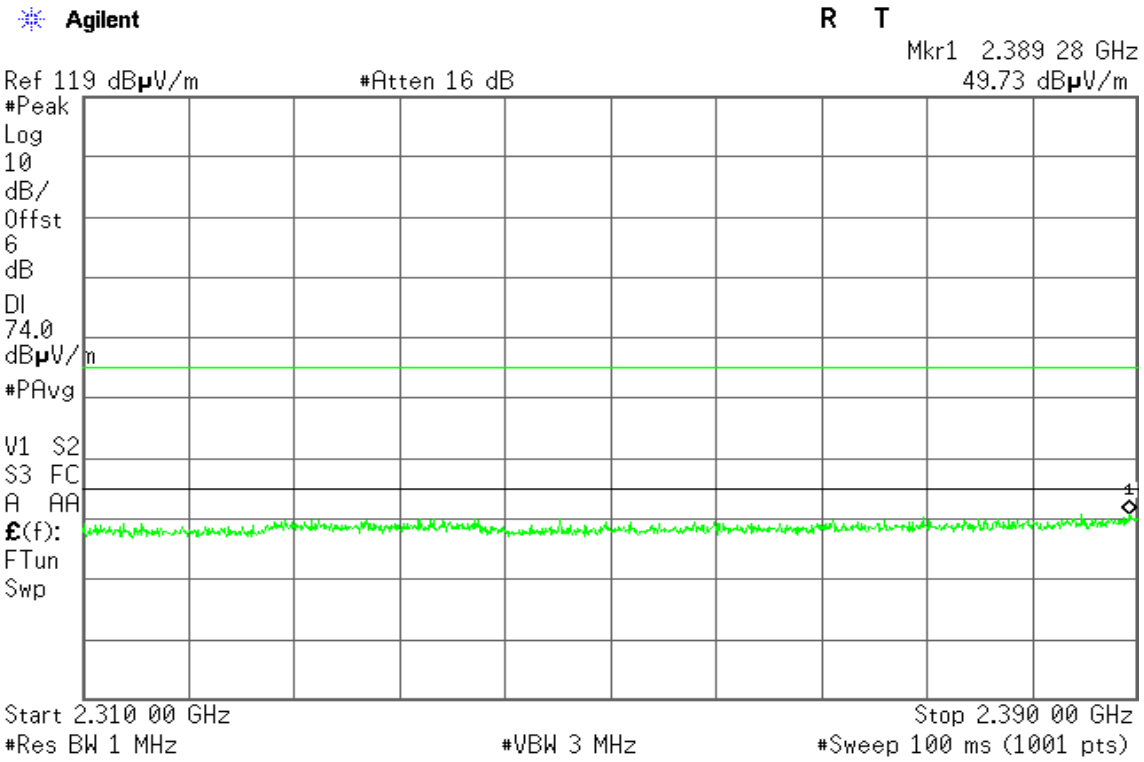


Detector mode: Average **Polarity: Horizontal**

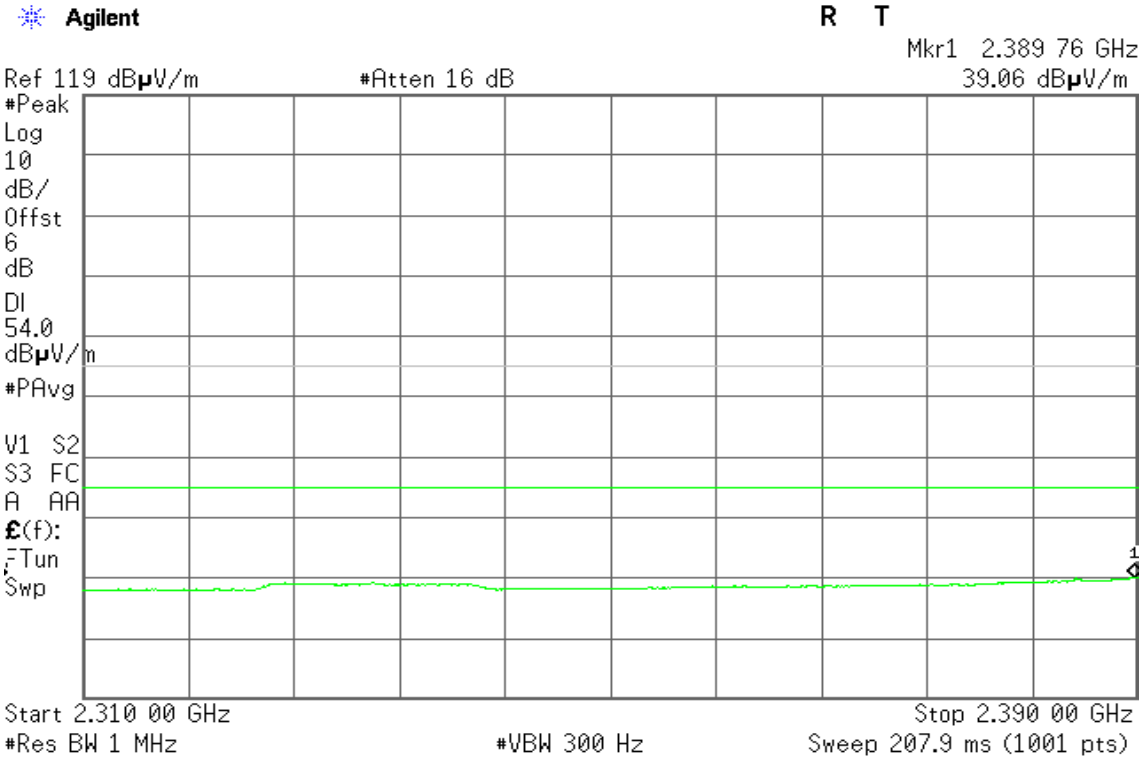


Band Edges (IEEE 802.11g mode / CH Low)

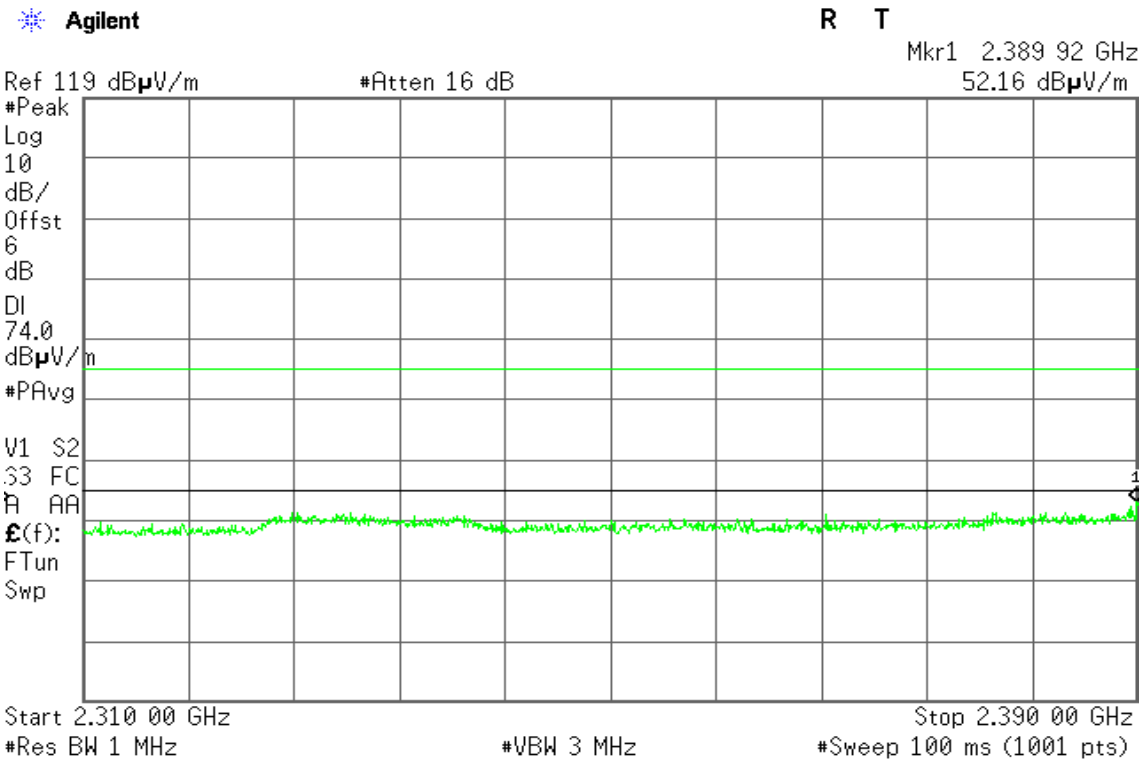
Detector mode: Peak **Polarity: Vertical**



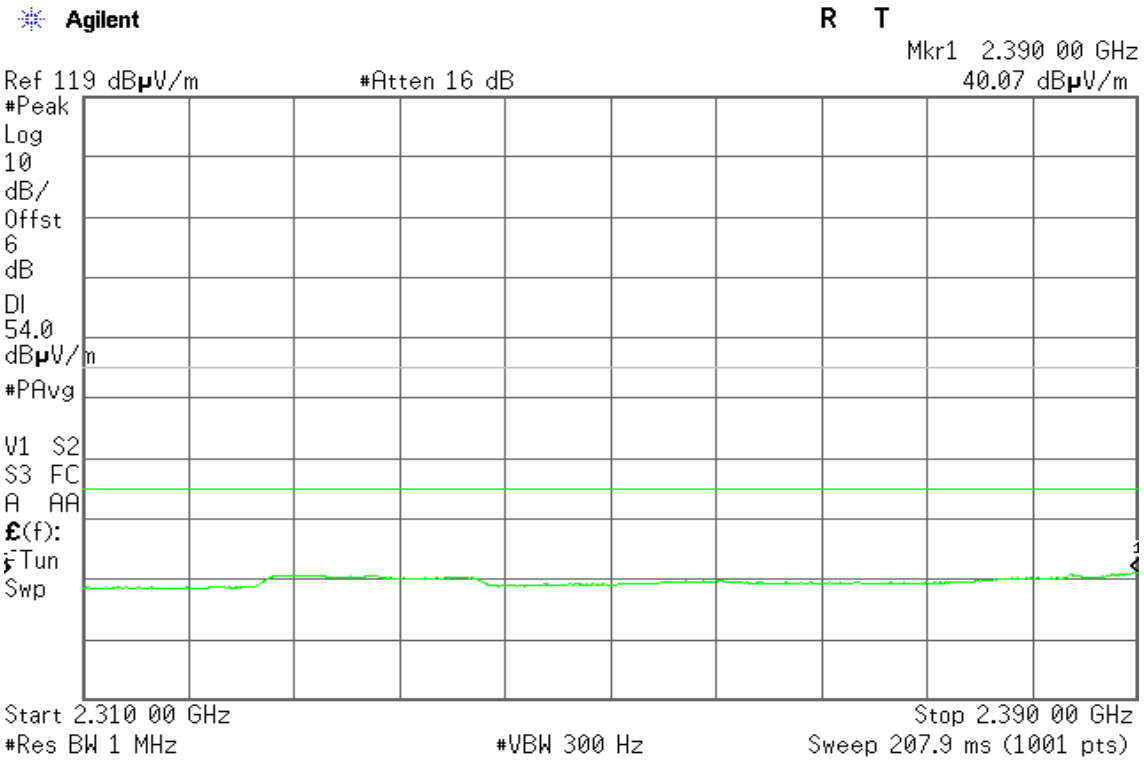
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

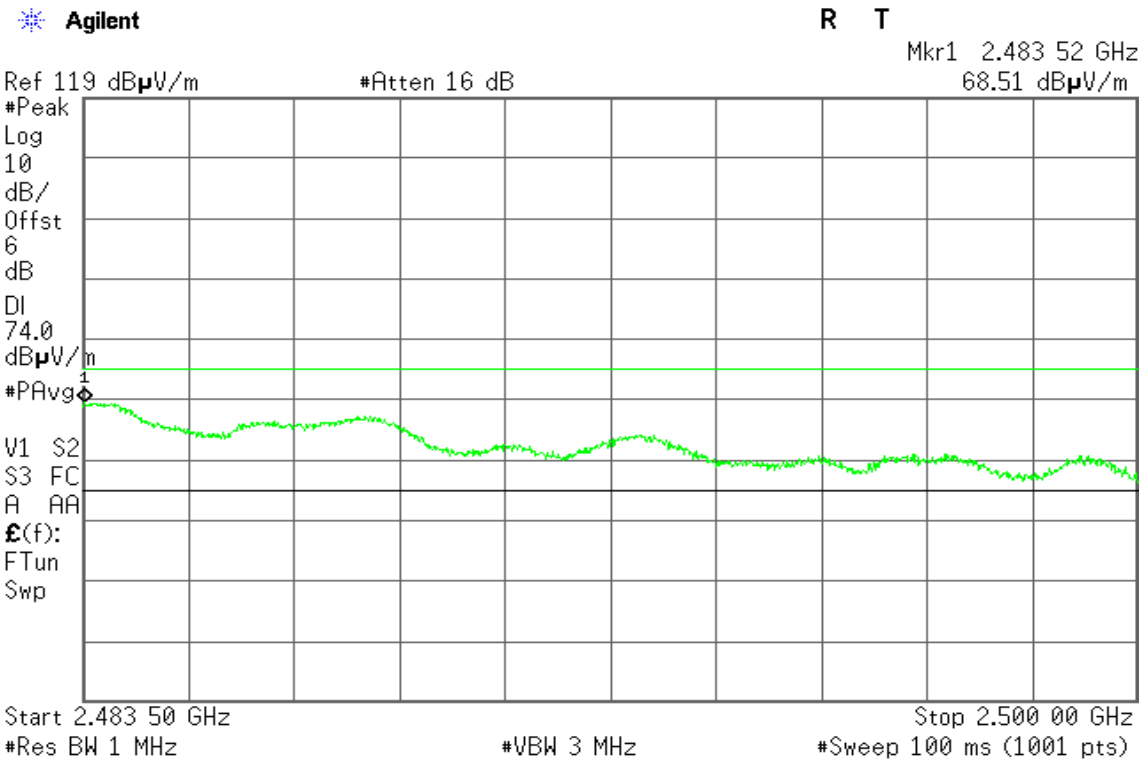


Detector mode: Average **Polarity: Horizontal**

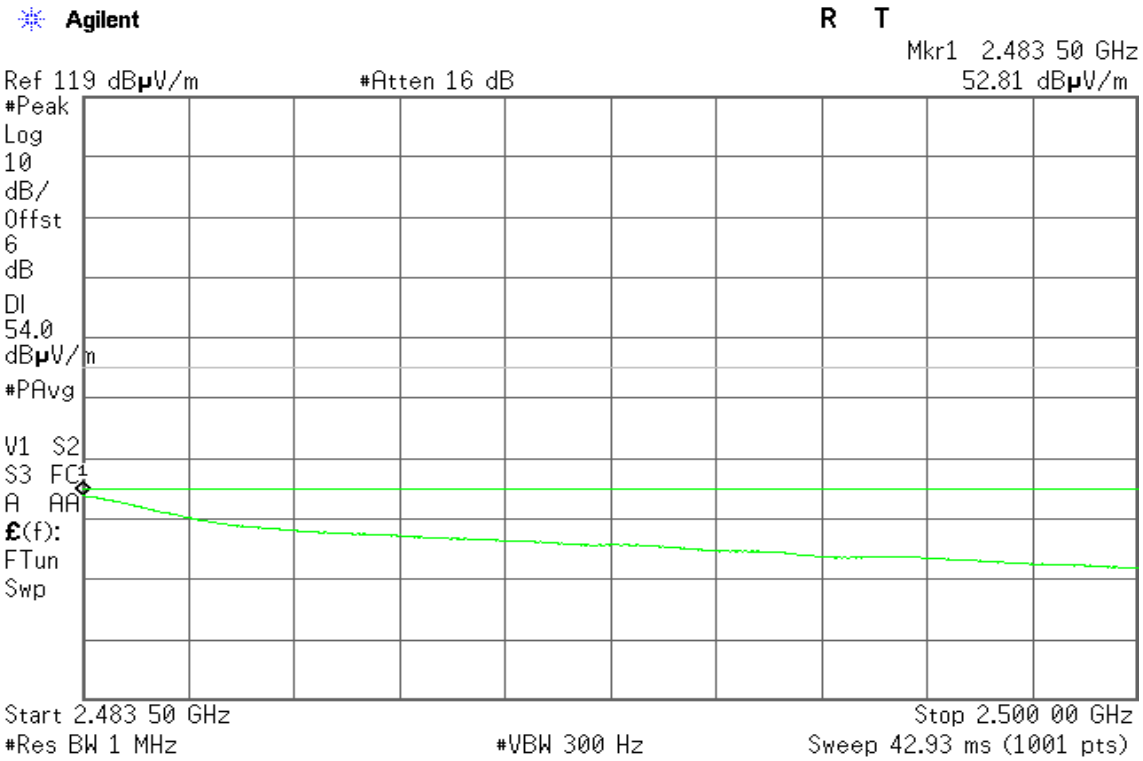


Band Edges (IEEE 802.11g mode / CH High)

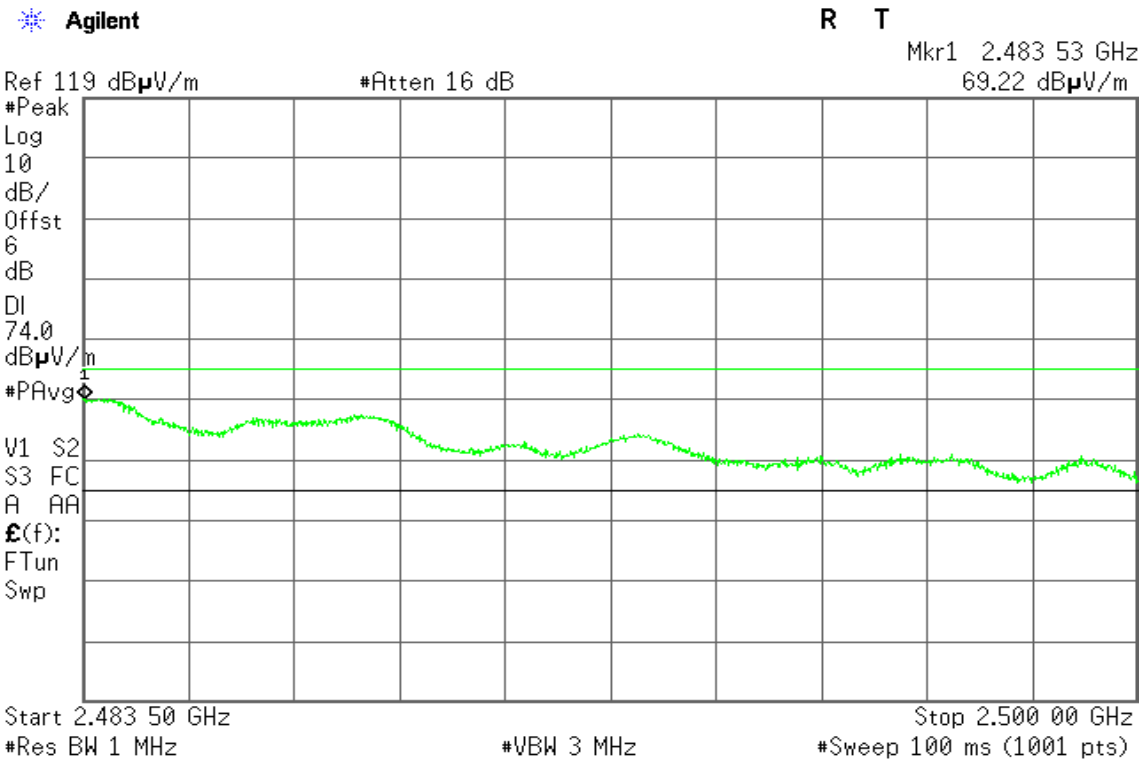
Detector mode: Peak **Polarity: Vertical**



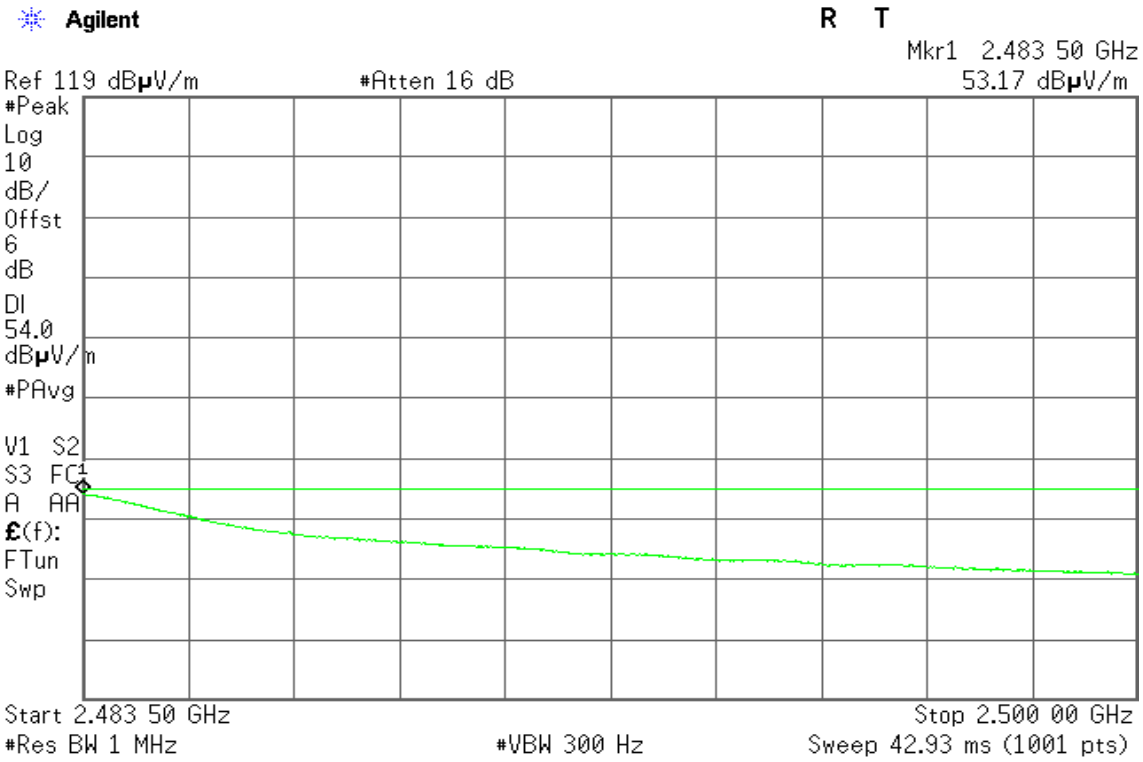
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

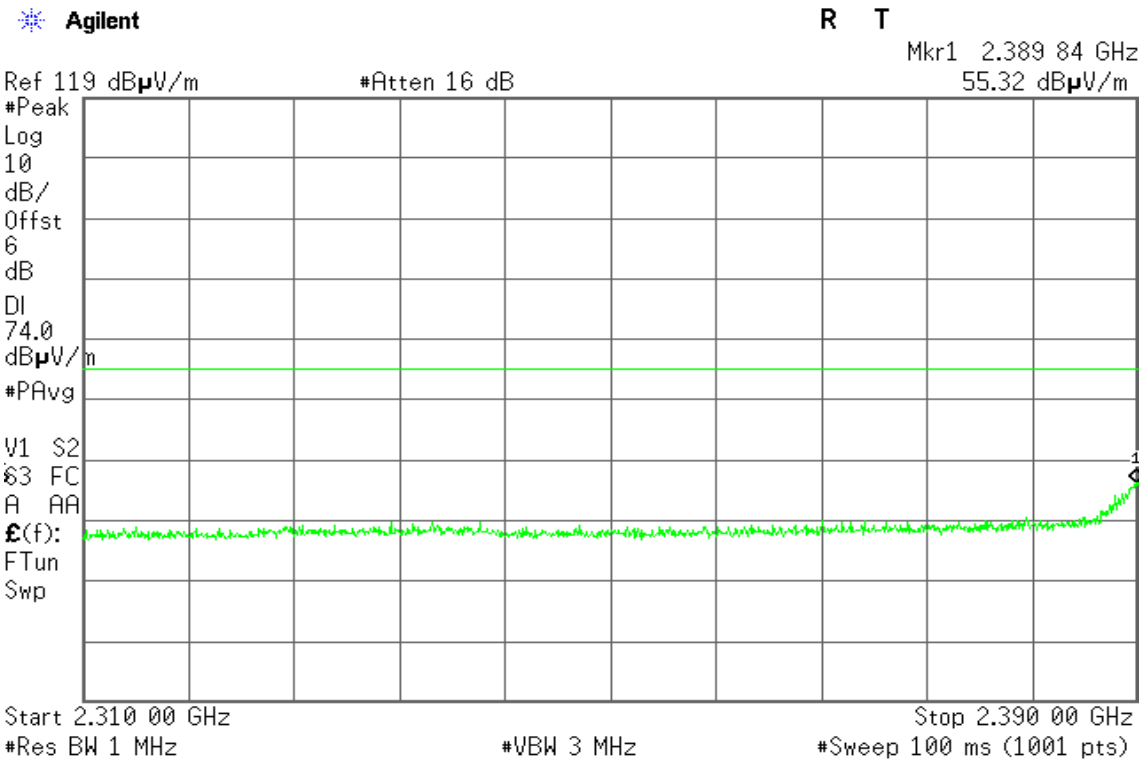


Detector mode: Average **Polarity: Horizontal**

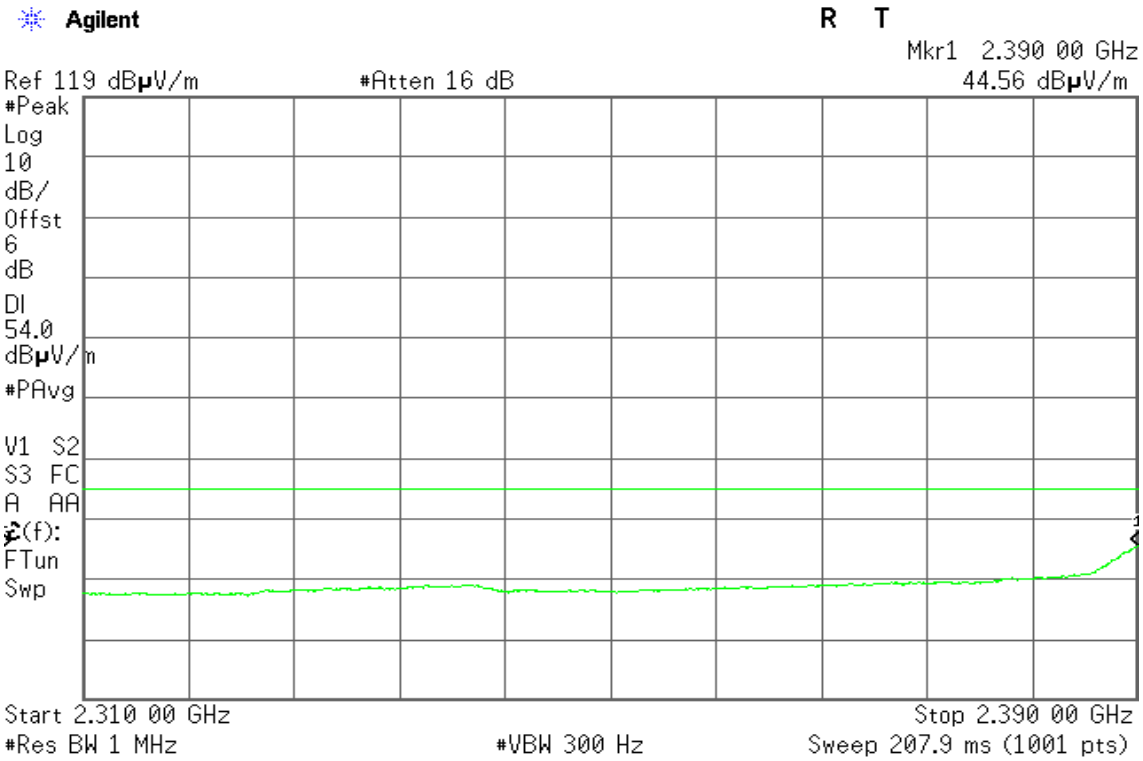


Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low)

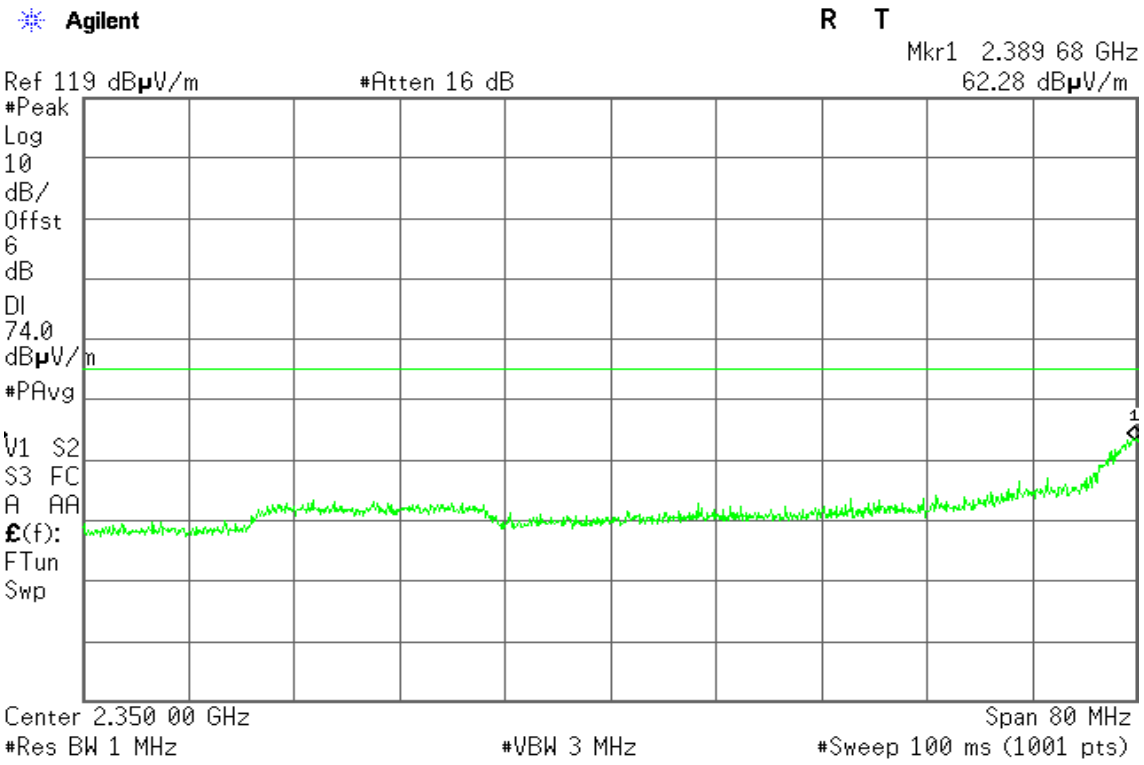
Detector mode: Peak **Polarity: Vertical**



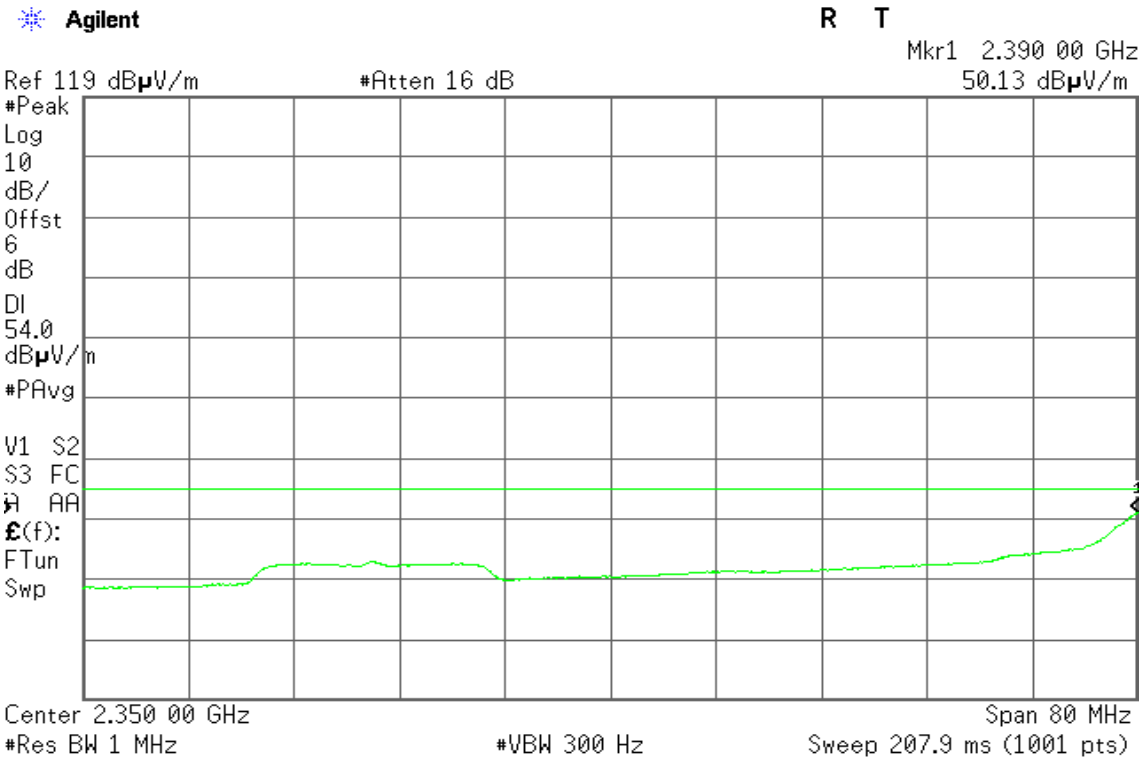
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

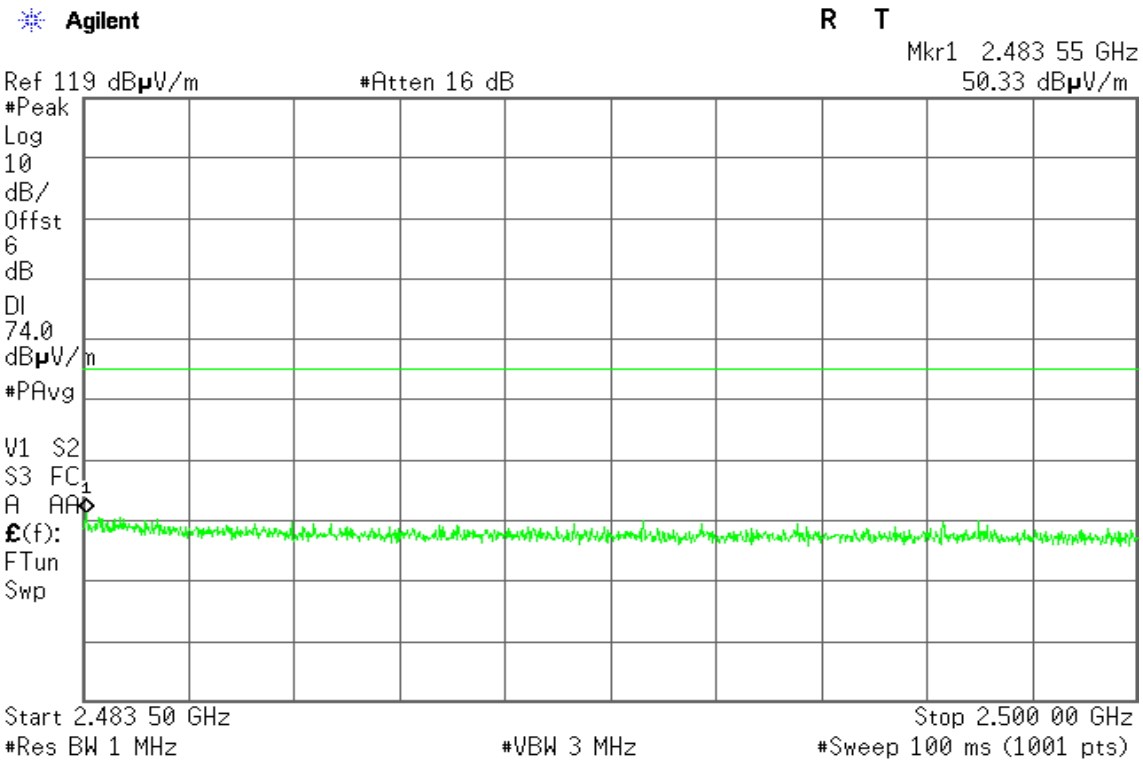


Detector mode: Average **Polarity: Horizontal**

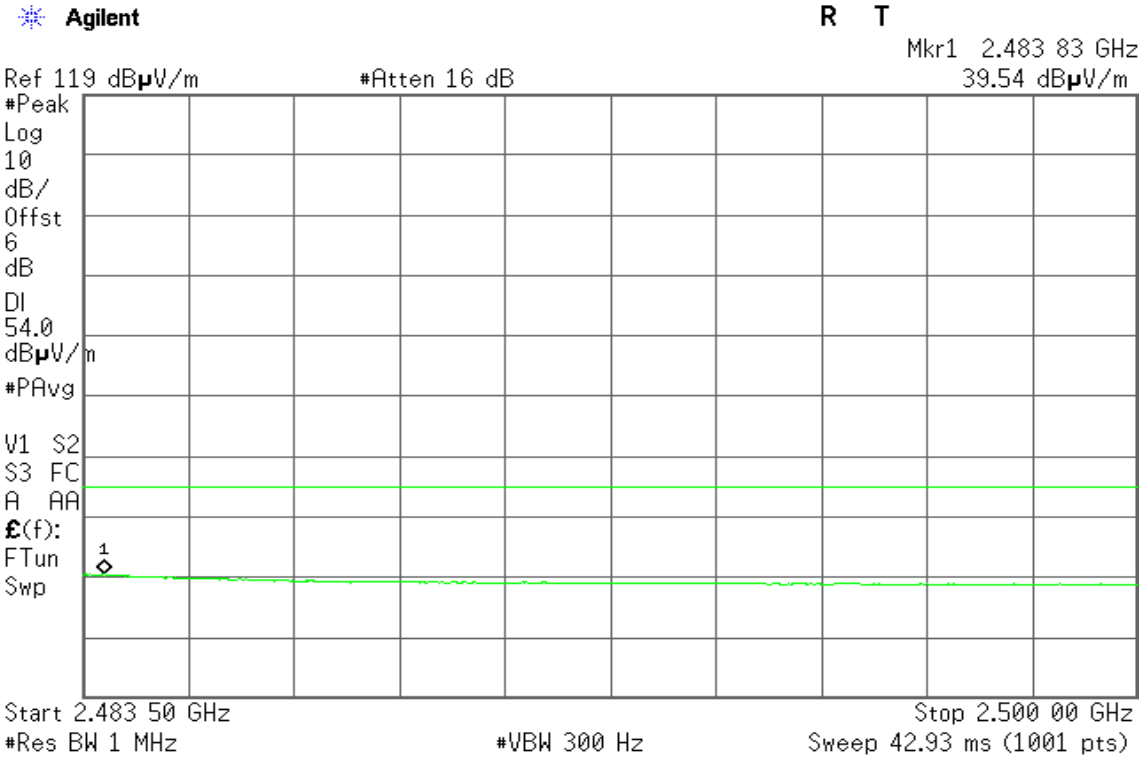


Band Edges (IEEE 802.11n HT 20 MHz mode / CH High)

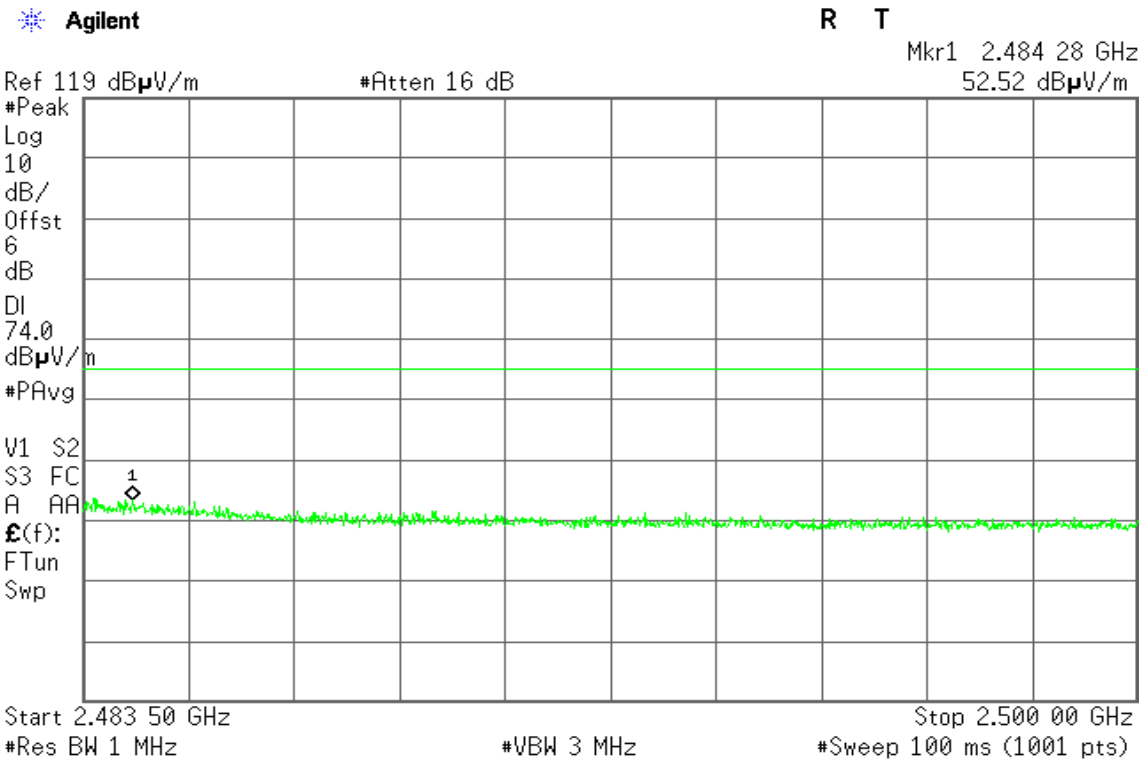
Detector mode: Peak **Polarity: Vertical**



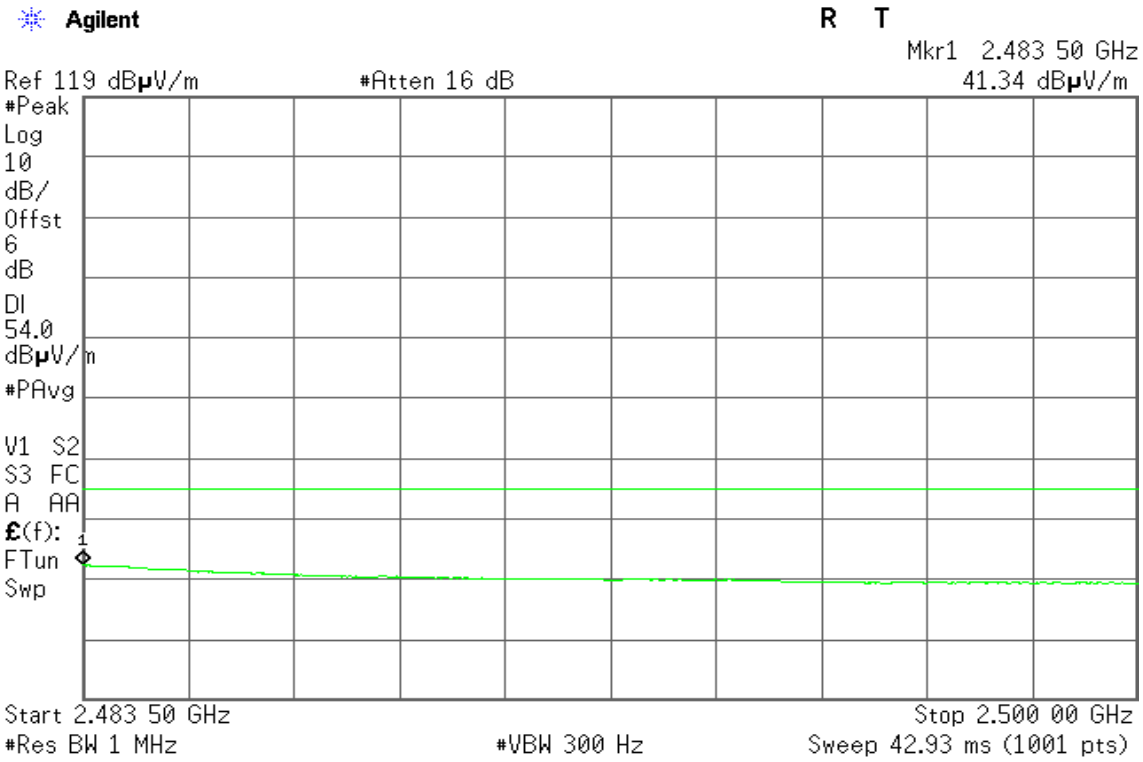
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

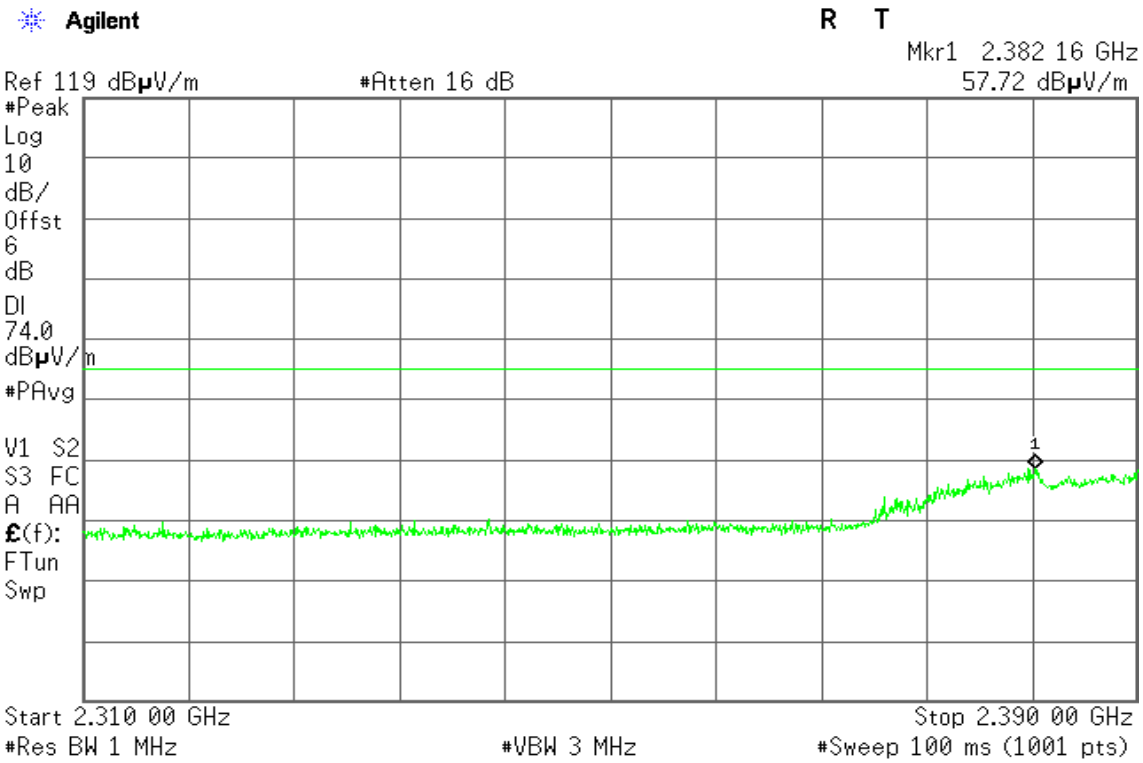


Detector mode: Average **Polarity: Horizontal**

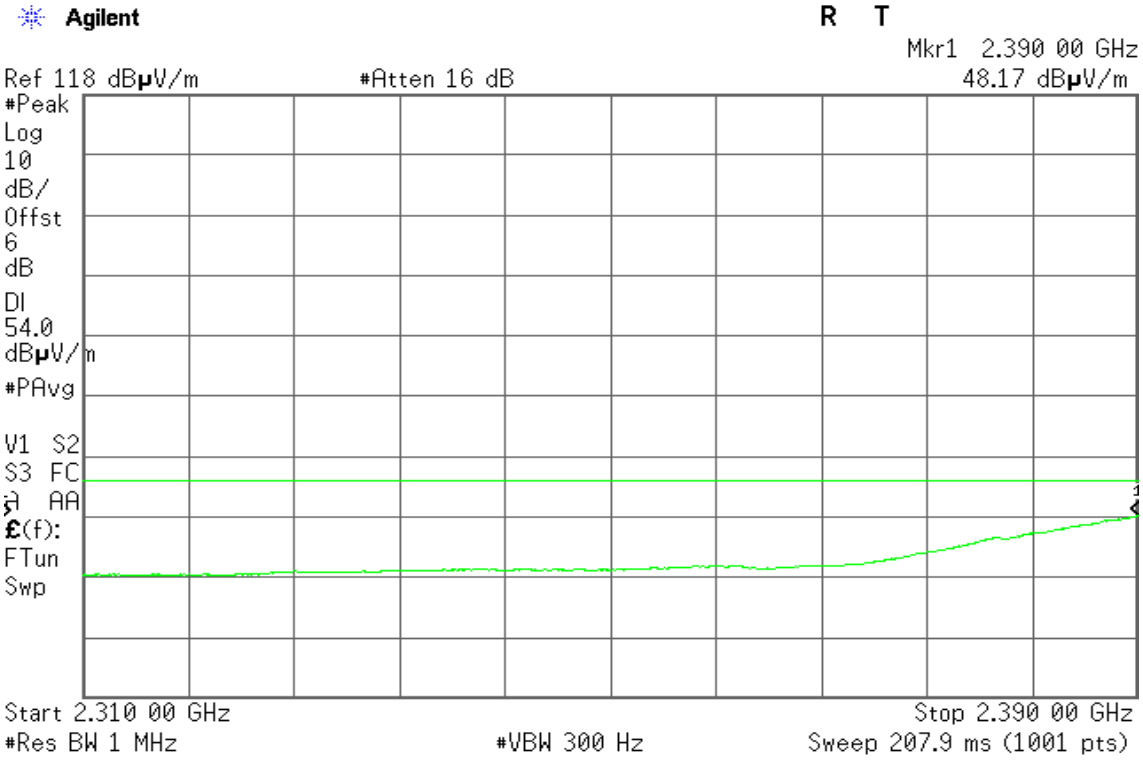


Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low)

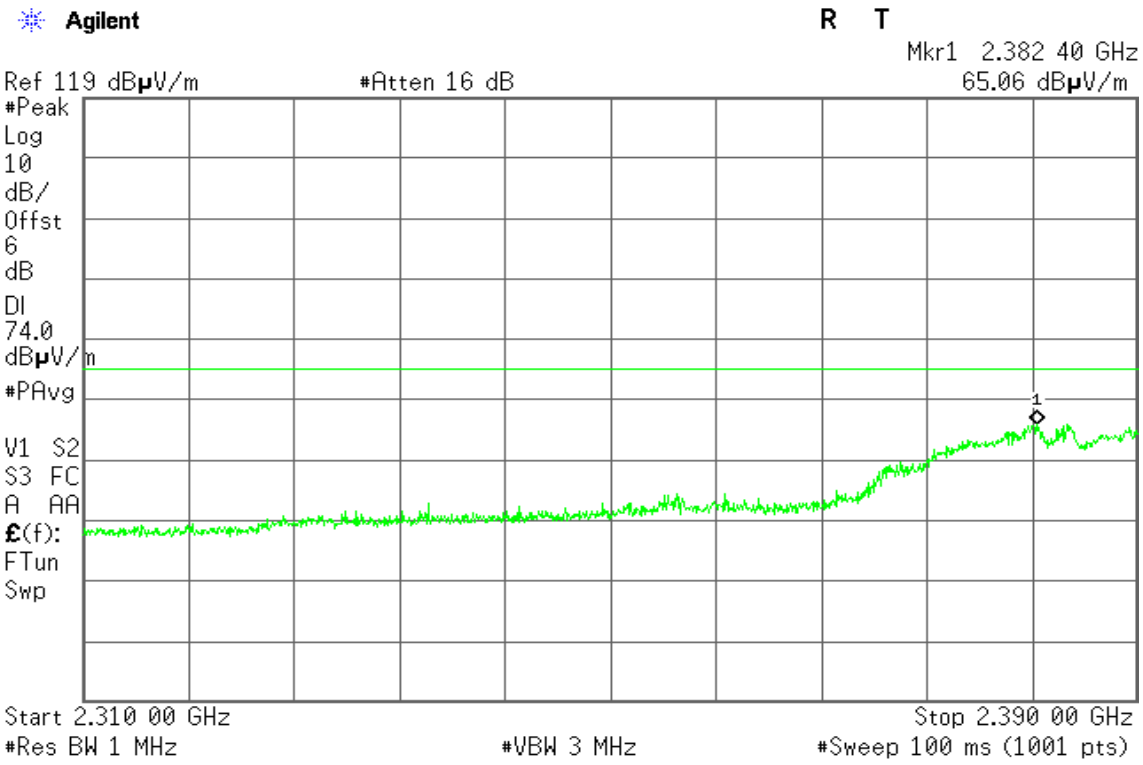
Detector mode: Peak **Polarity: Vertical**



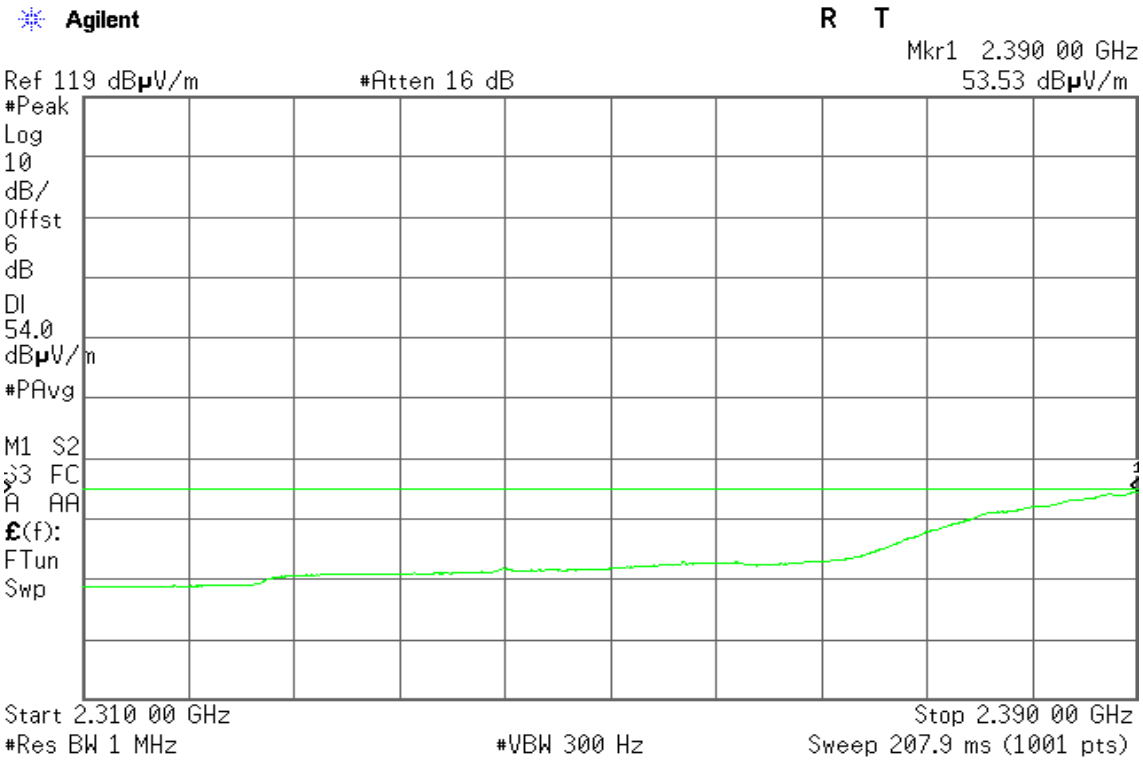
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

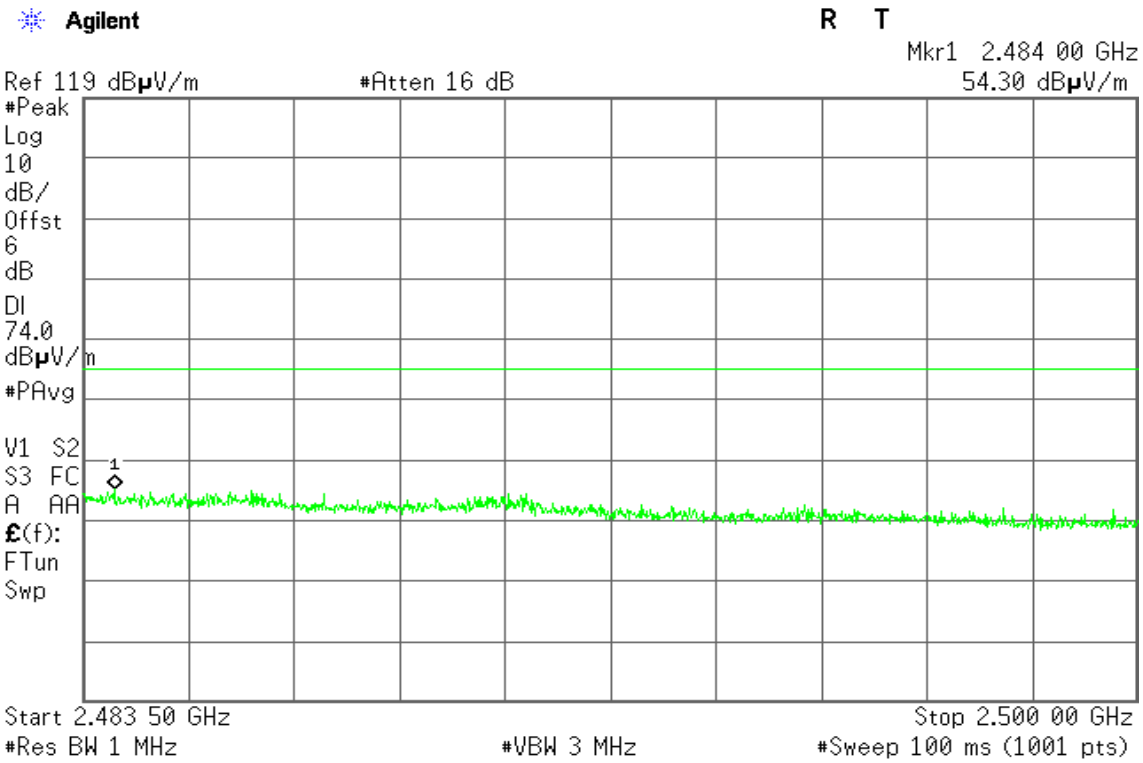


Detector mode: Average **Polarity: Horizontal**

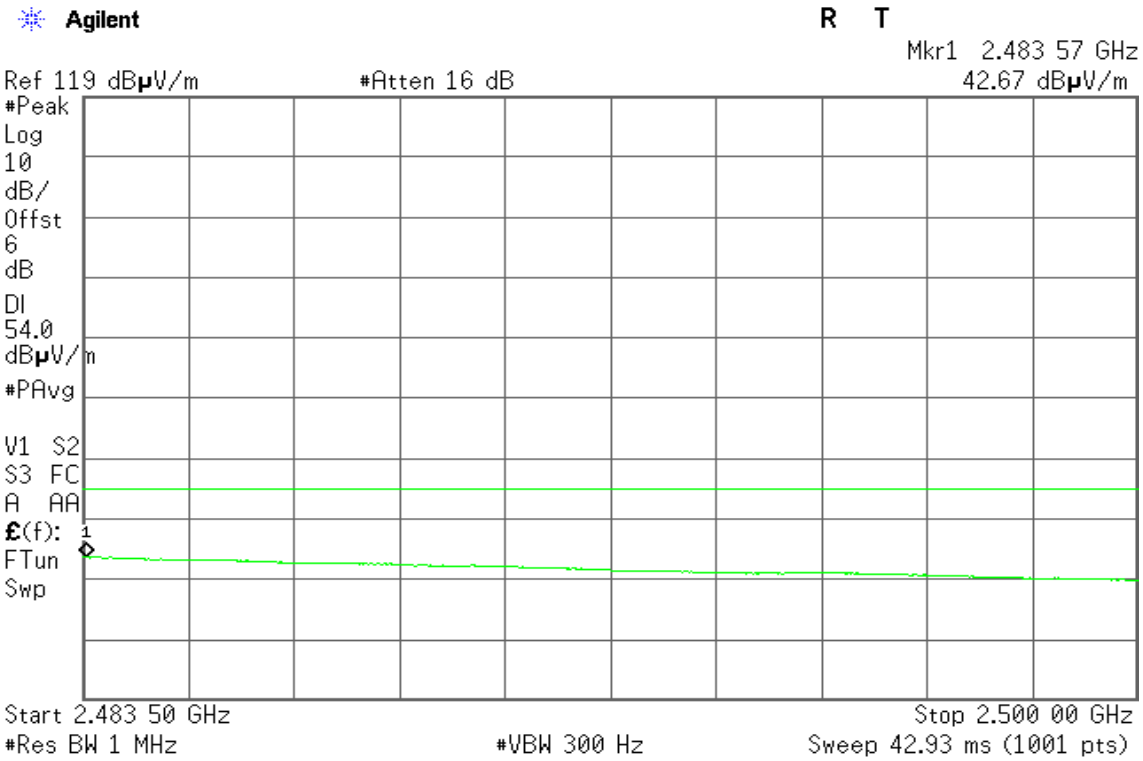


Band Edges (IEEE 802.11n HT 40 MHz mode / CH High)

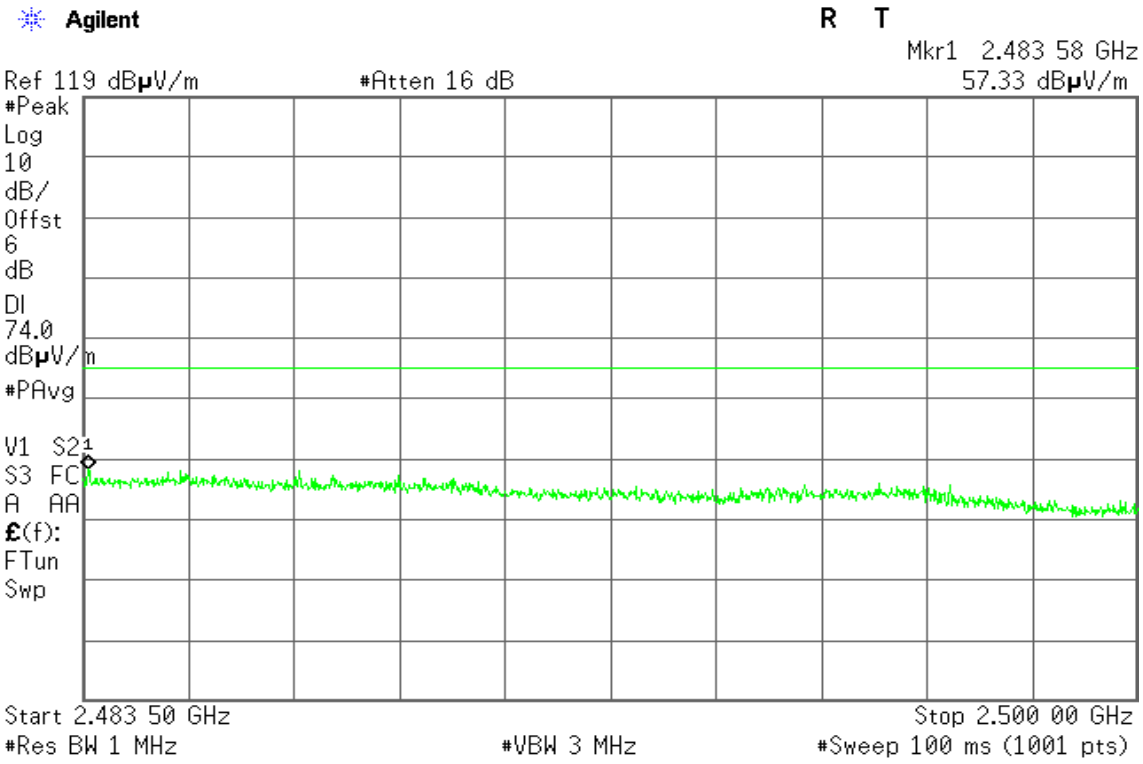
Detector mode: Peak **Polarity: Vertical**



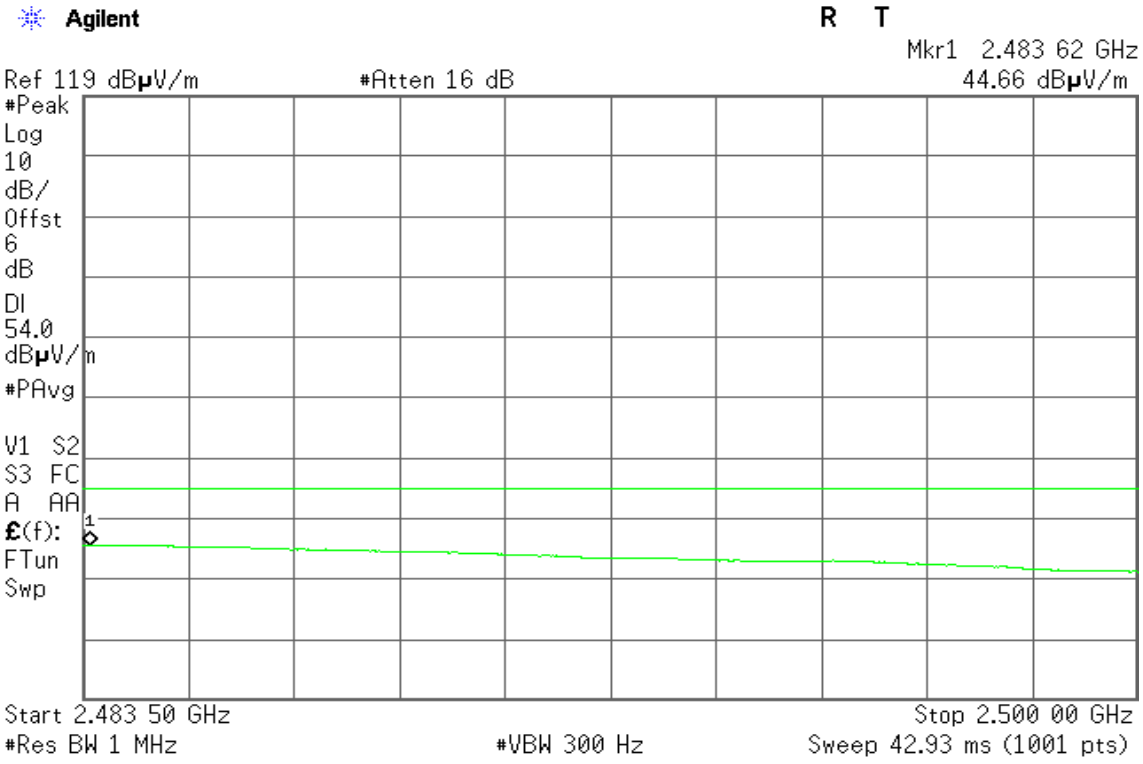
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

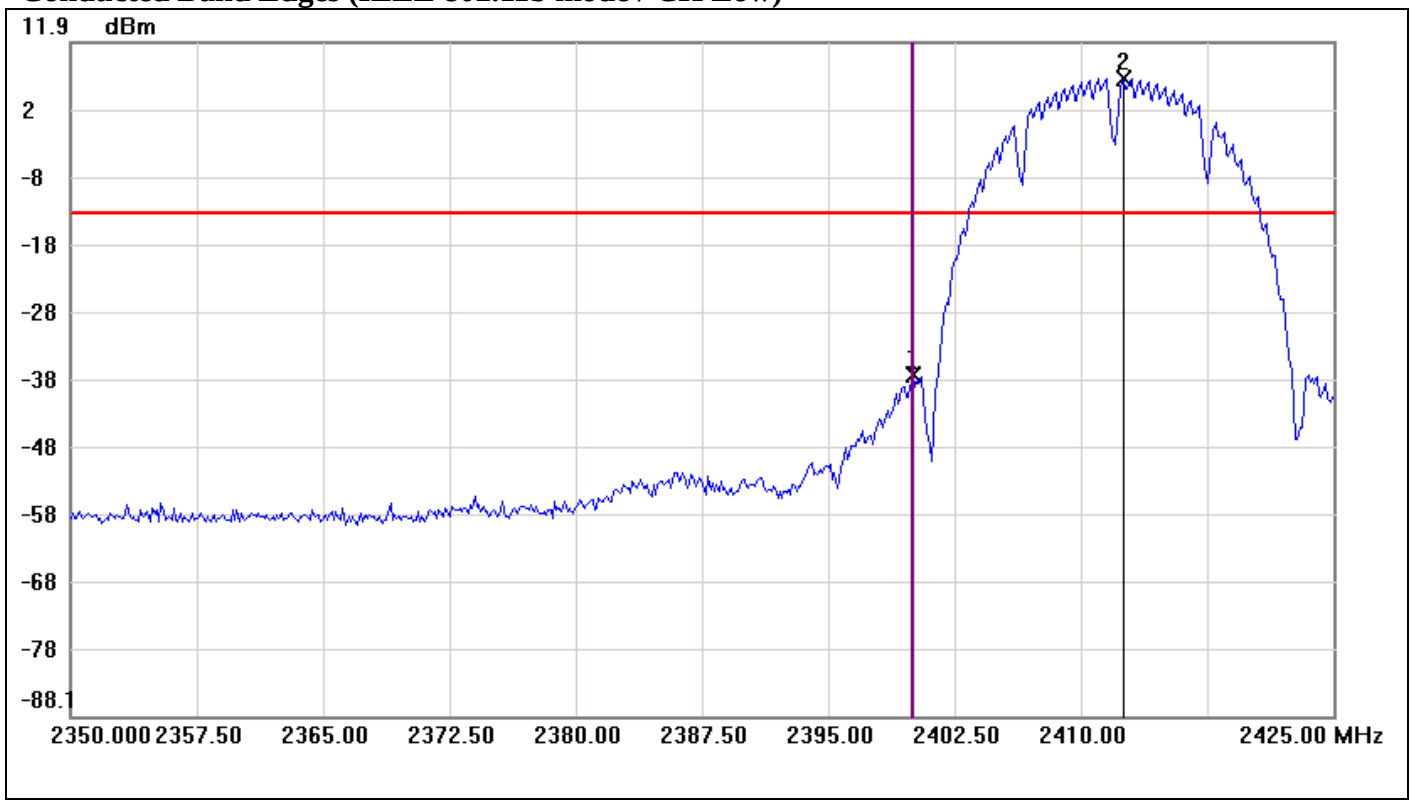


Detector mode: Average **Polarity: Horizontal**



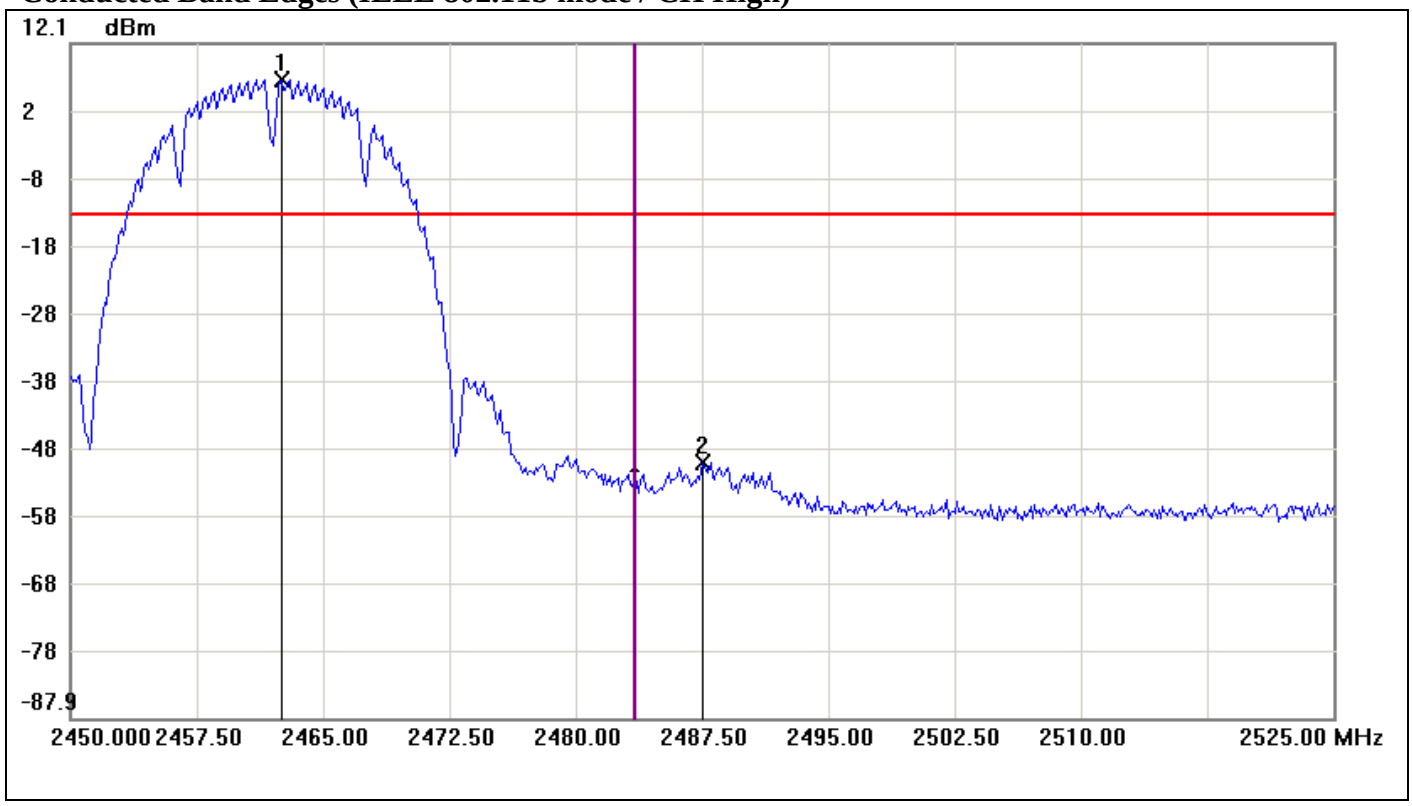
Test Plot

Conducted Band Edges (IEEE 802.11b mode / CH Low)



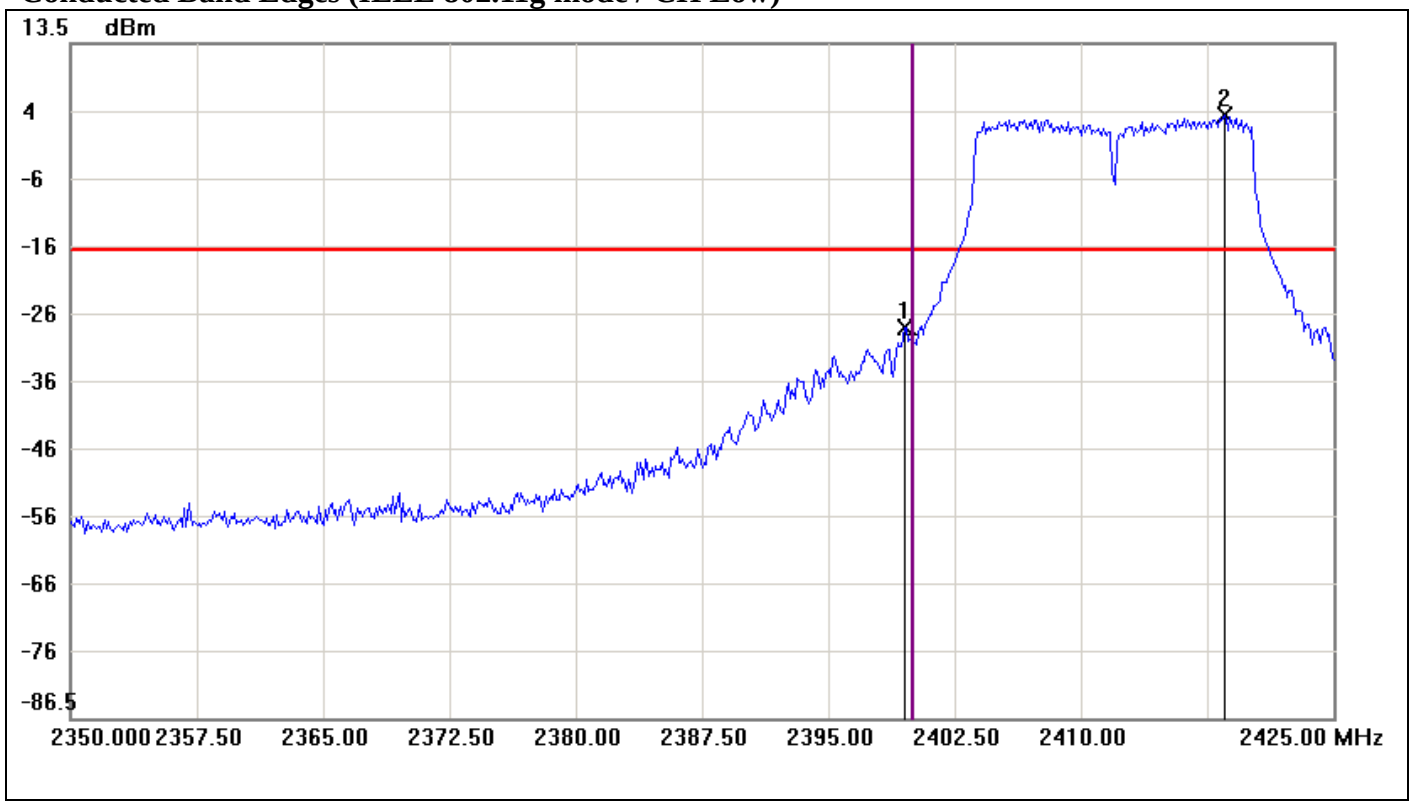
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-37.51	-13.45	-24.06
2	2412.5000	6.55	-13.45	20.00

Conducted Band Edges (IEEE 802.11b mode / CH High)



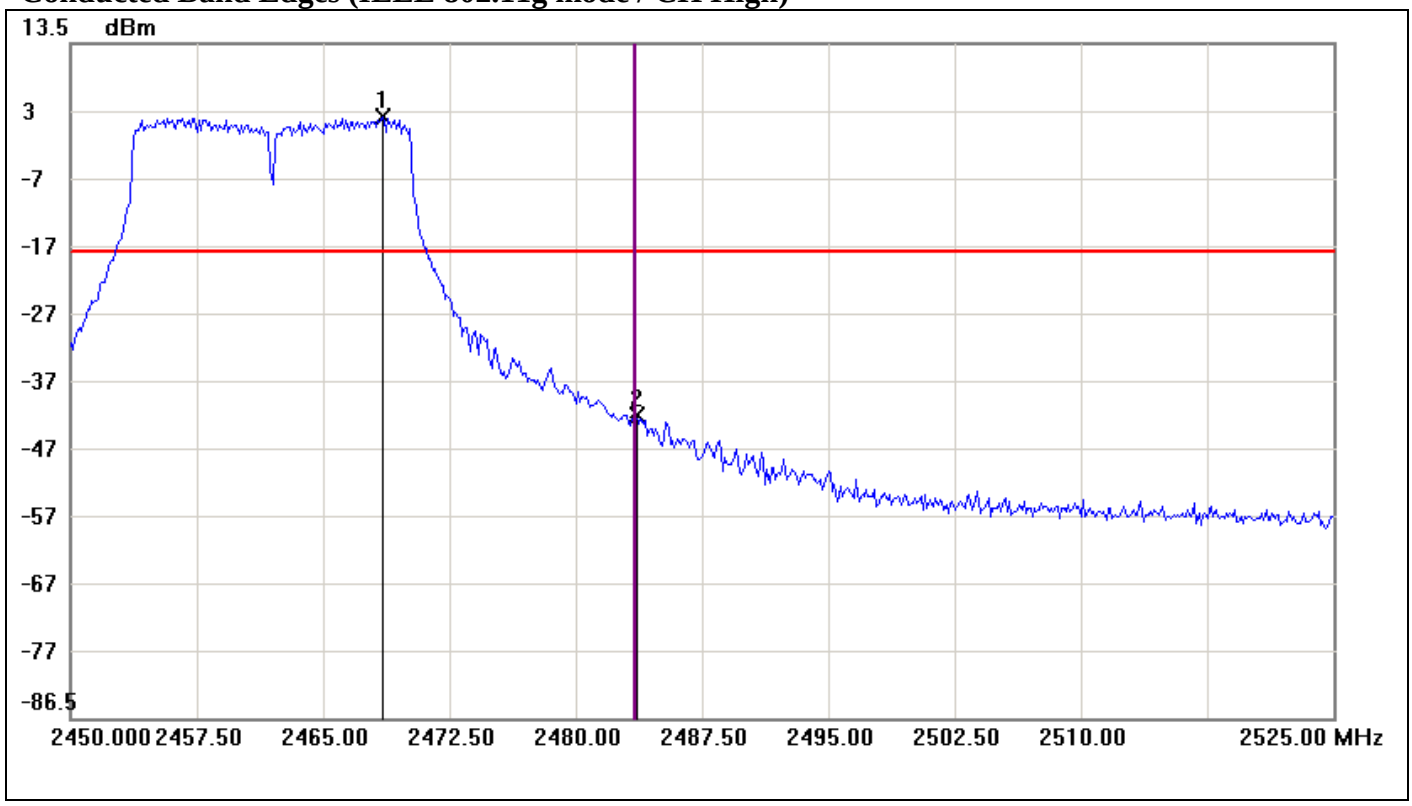
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2462.5000	6.83	-13.17	20.00
2	2487.5000	-50.09	-13.17	-36.92

Conducted Band Edges (IEEE 802.11g mode / CH Low)



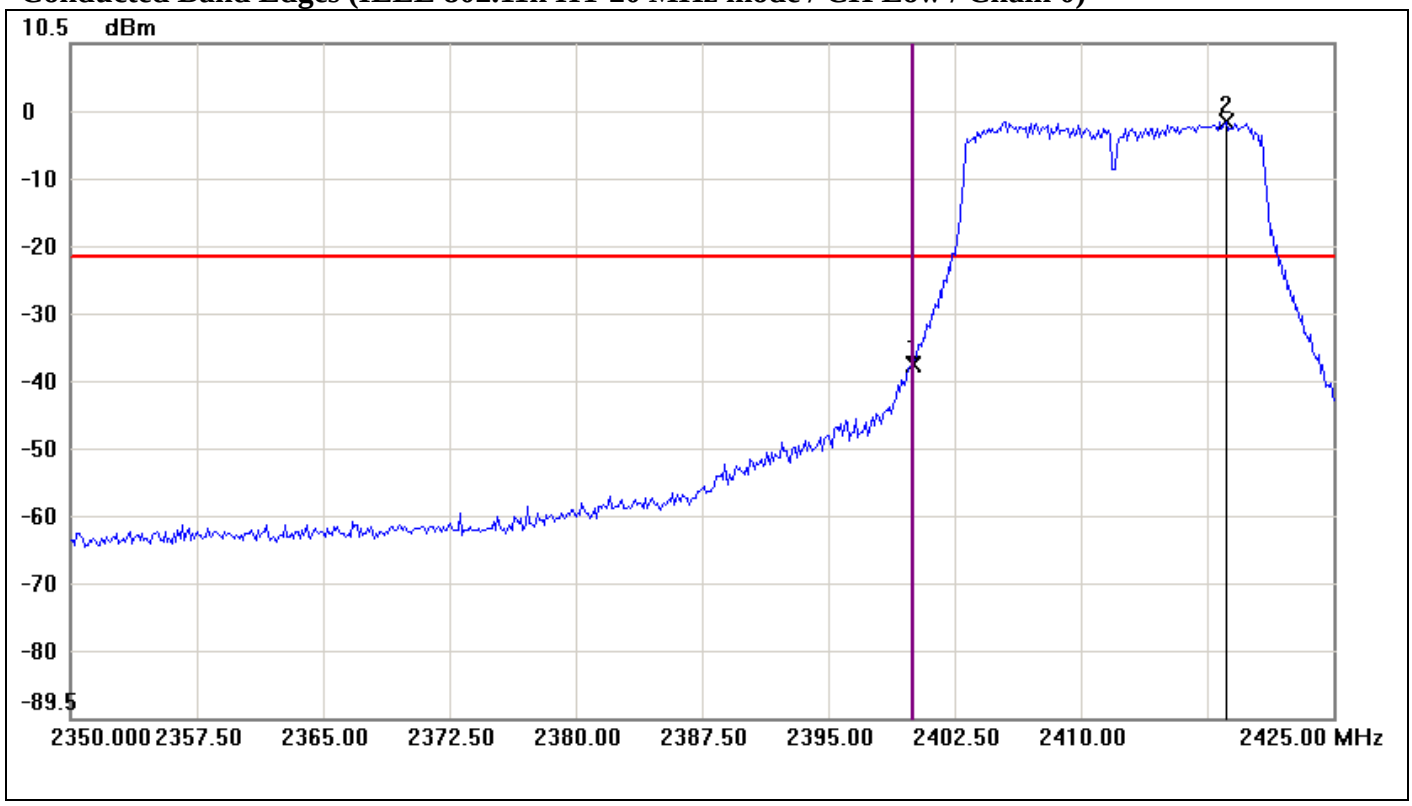
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2399.5000	-28.71	-17.21	-11.50
2	2418.5000	2.79	-17.21	20.00

Conducted Band Edges (IEEE 802.11g mode / CH High)



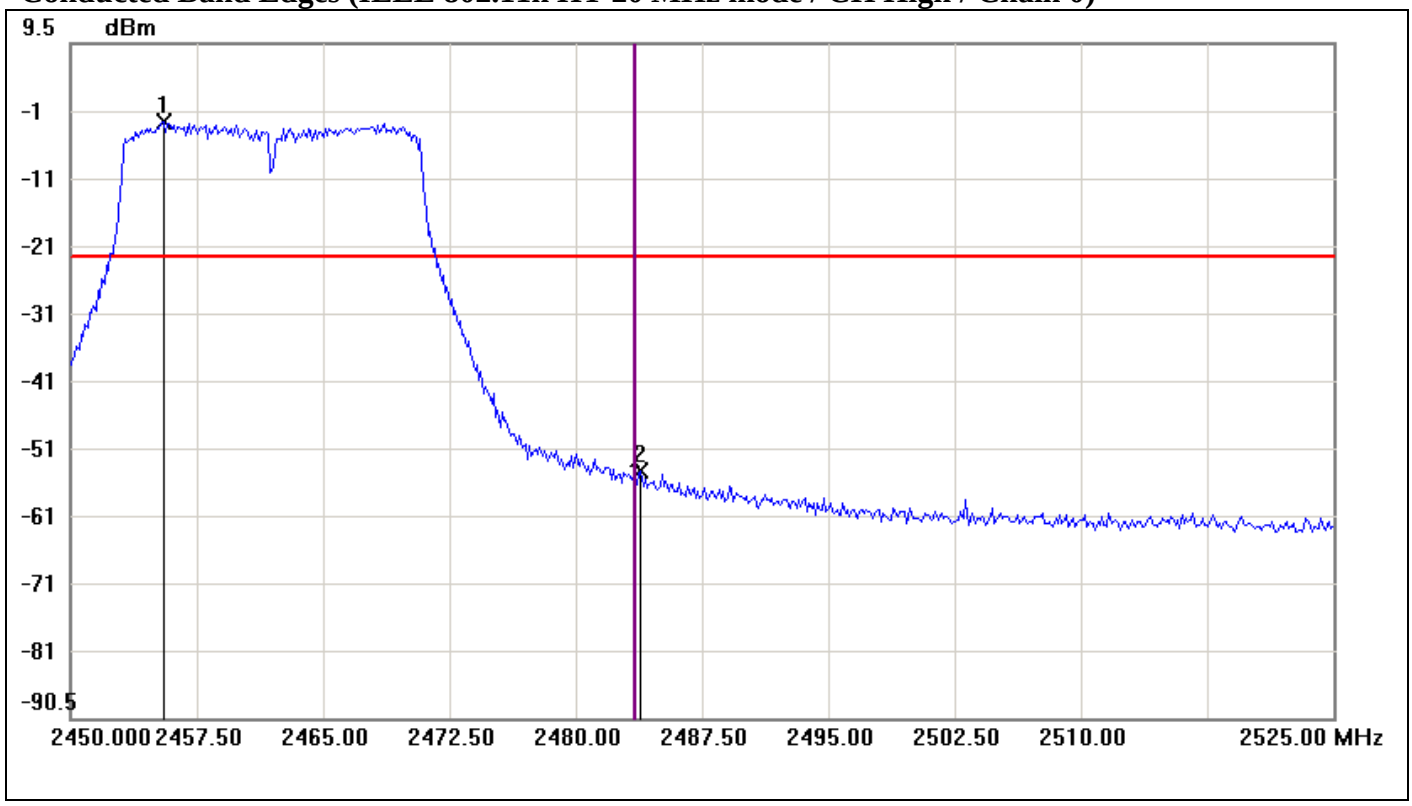
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2468.5000	2.56	-17.44	20.00
2	2483.6250	-41.74	-17.44	-24.30

Conducted Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low / Chain 0)



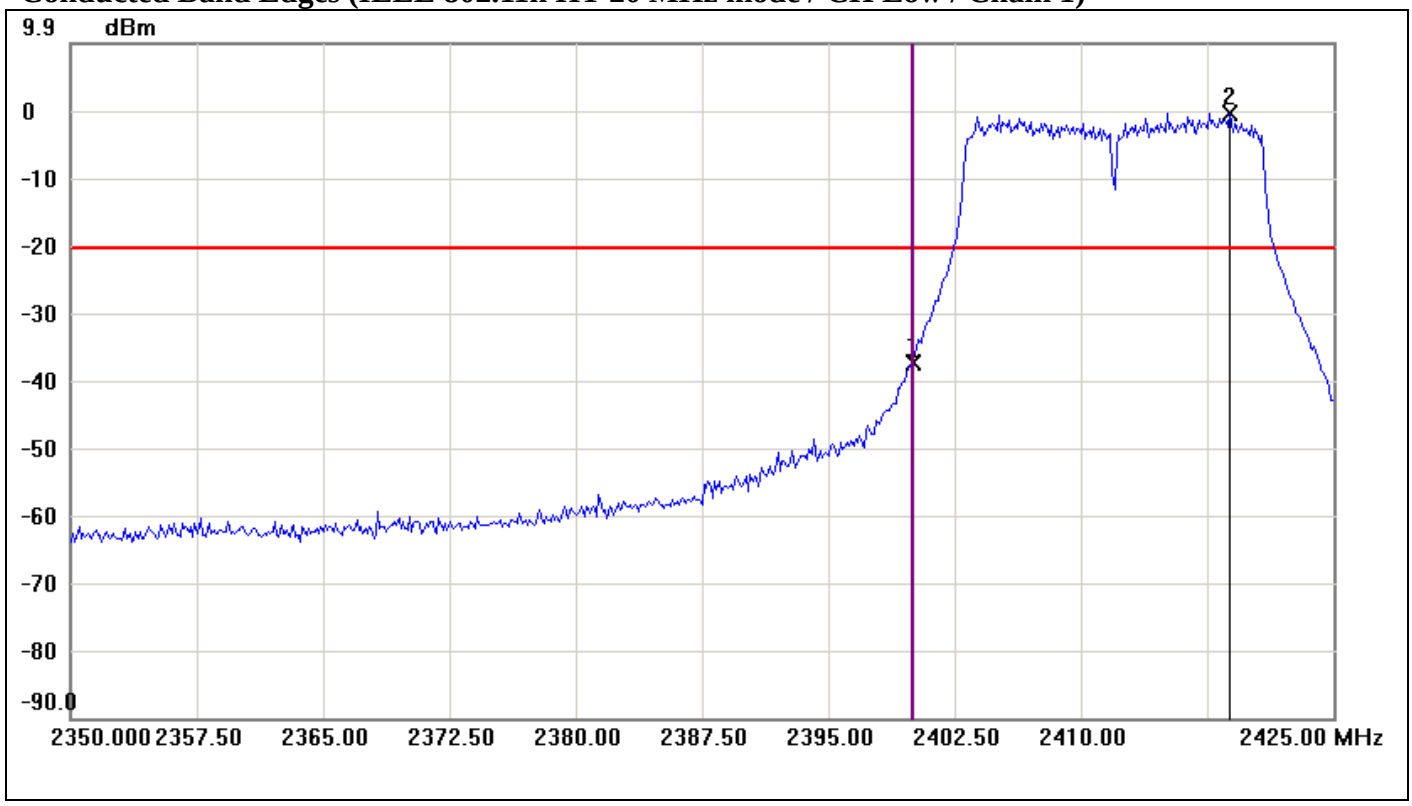
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-37.23	-21.02	-16.21
2	2418.6250	-1.02	-21.02	20.00

Conducted Band Edges (IEEE 802.11n HT 20 MHz mode / CH High / Chain 0)



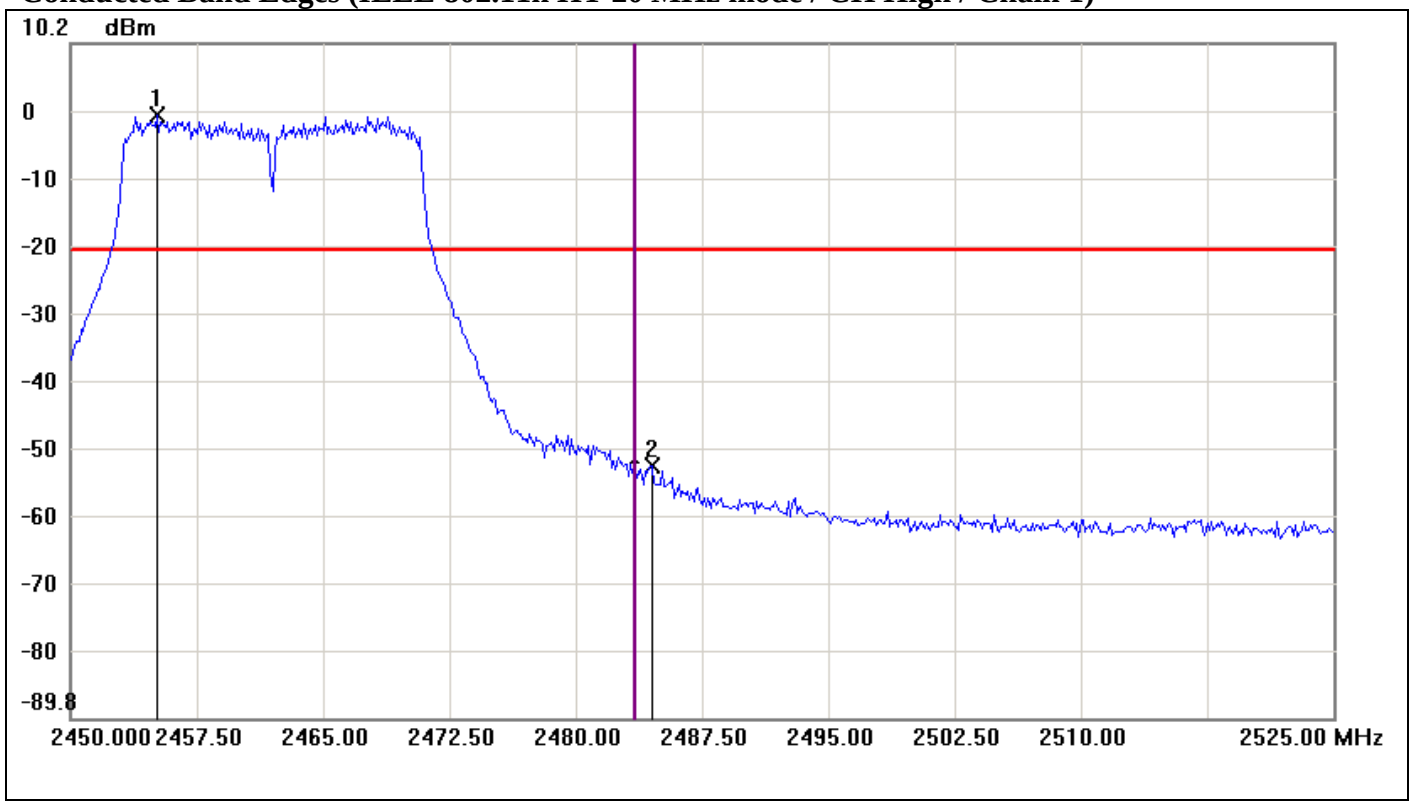
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2455.5000	-2.10	-22.10	20.00
2	2483.8750	-53.94	-22.10	-31.84

Conducted Band Edges (IEEE 802.11n HT 20 MHz mode / CH Low / Chain 1)



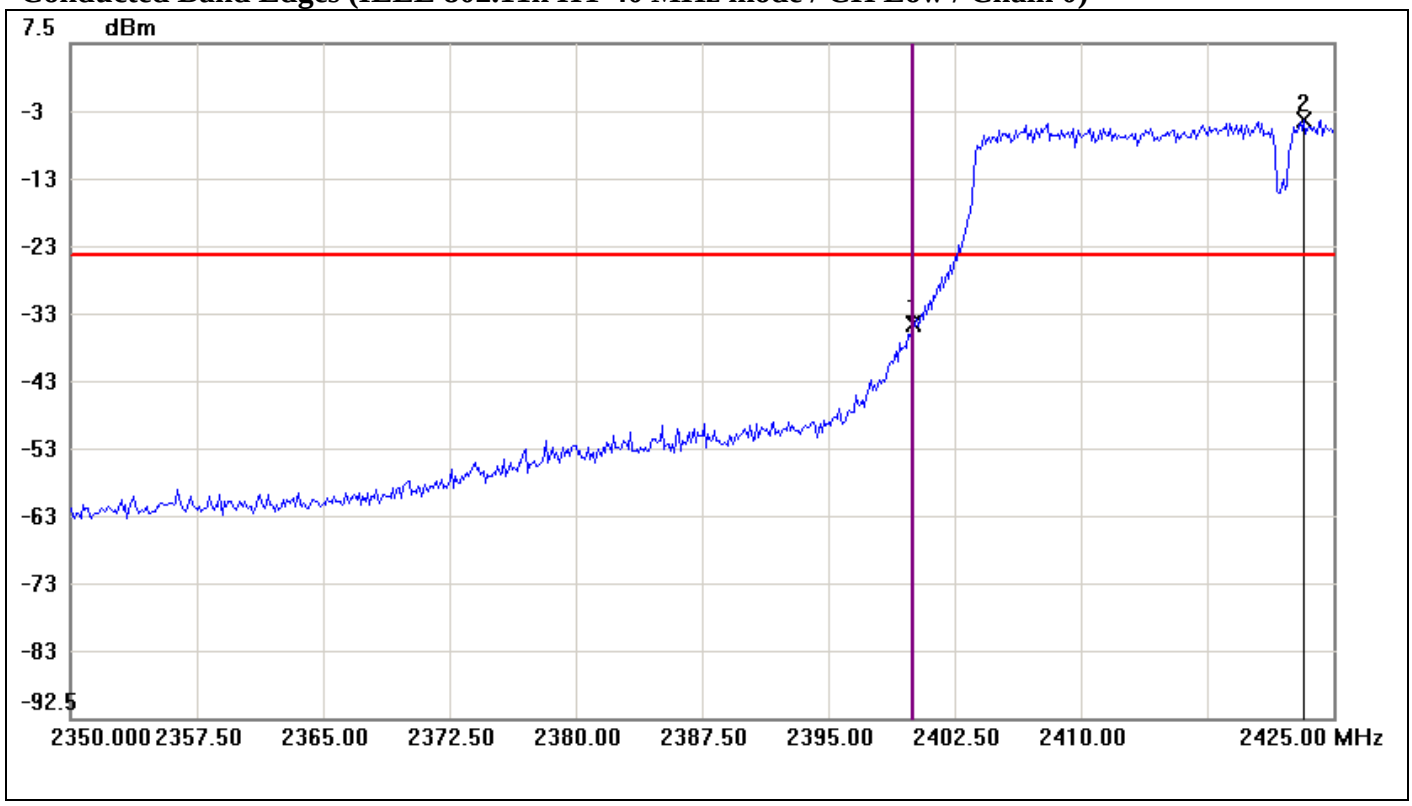
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-37.52	-20.36	-17.16
2	2418.8750	-0.36	-20.36	20.00

Conducted Band Edges (IEEE 802.11n HT 20 MHz mode / CH High / Chain 1)



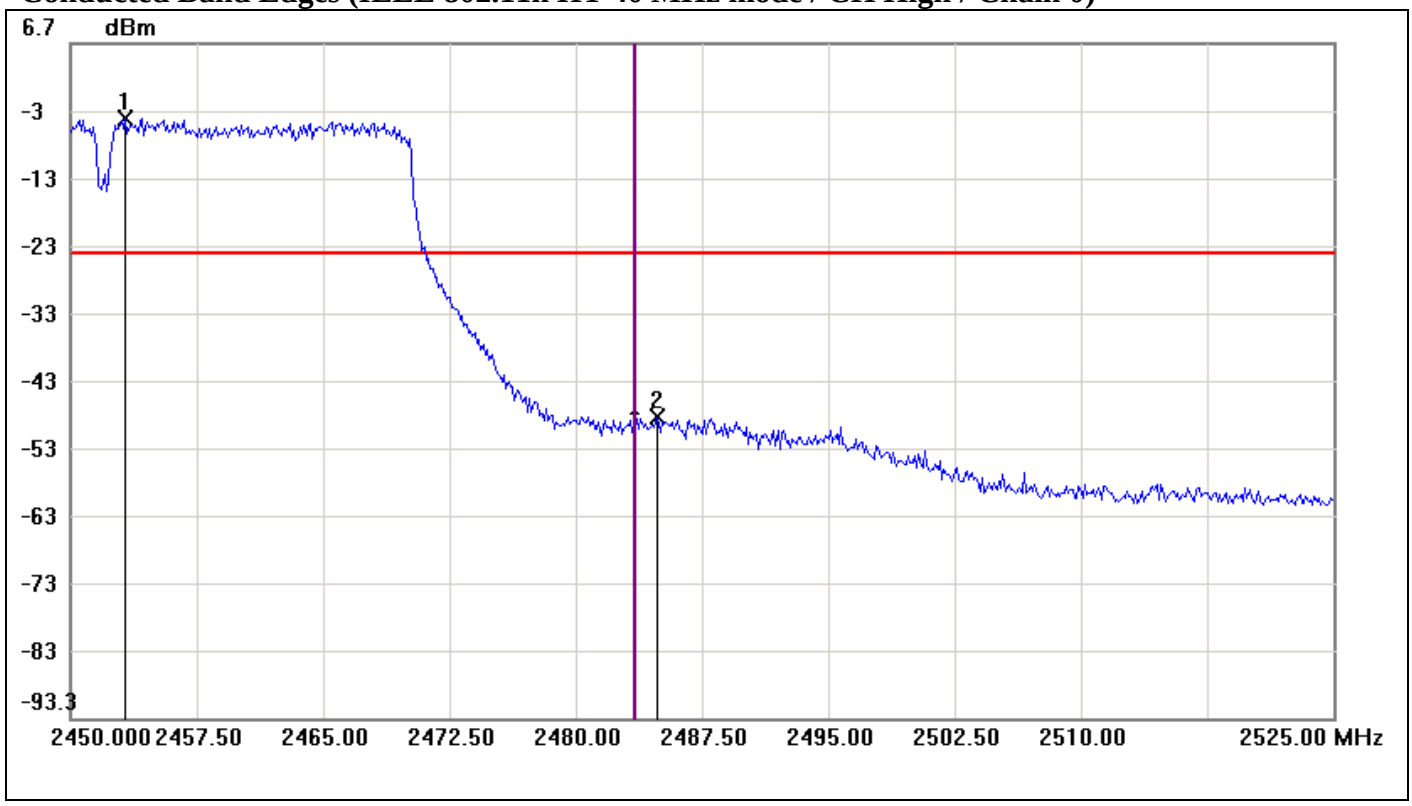
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2455.1250	-0.43	-20.43	20.00
2	2484.5000	-52.51	-20.43	-32.08

Conducted Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low / Chain 0)



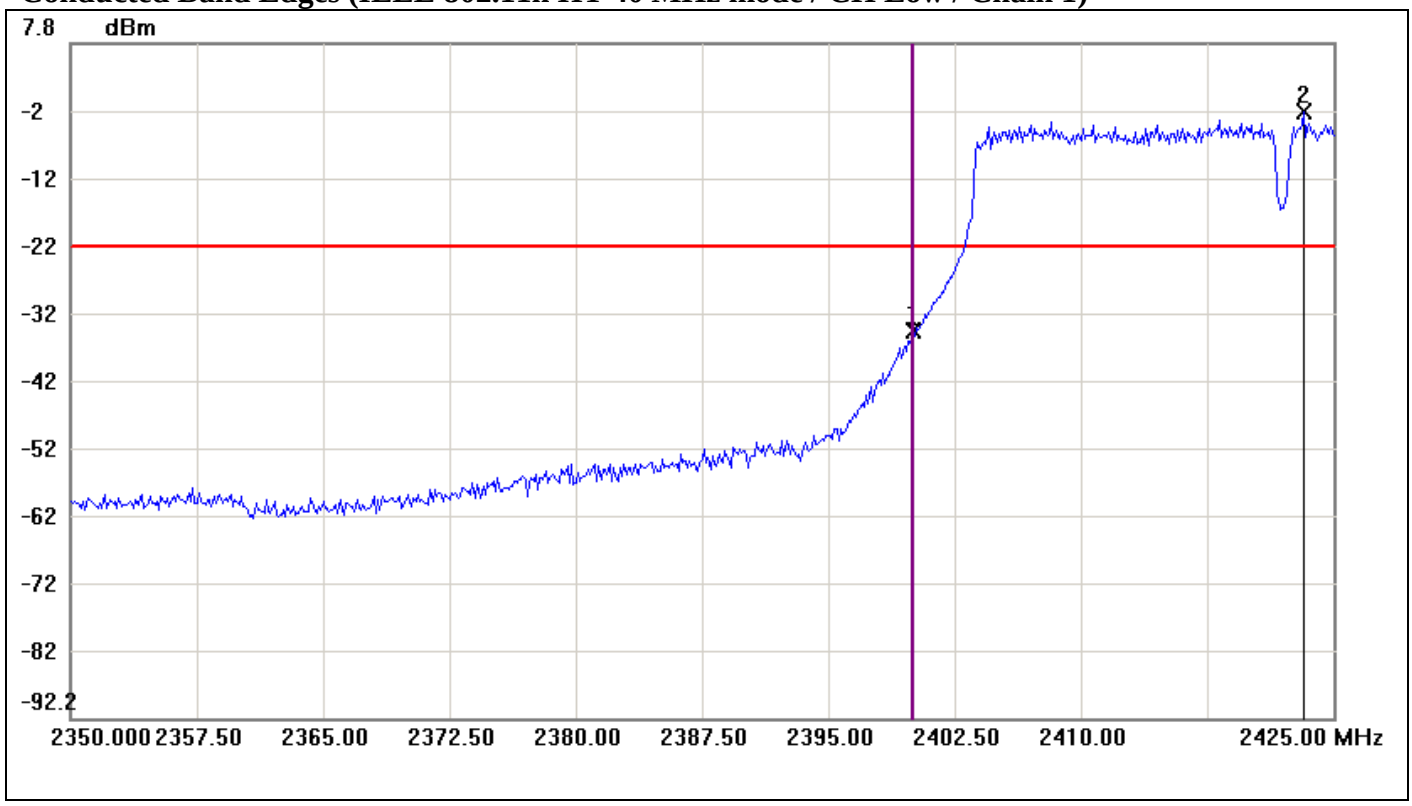
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-34.24	-23.94	-10.30
2	2423.2500	-3.94	-23.94	20.00

Conducted Band Edges (IEEE 802.11n HT 40 MHz mode / CH High / Chain 0)



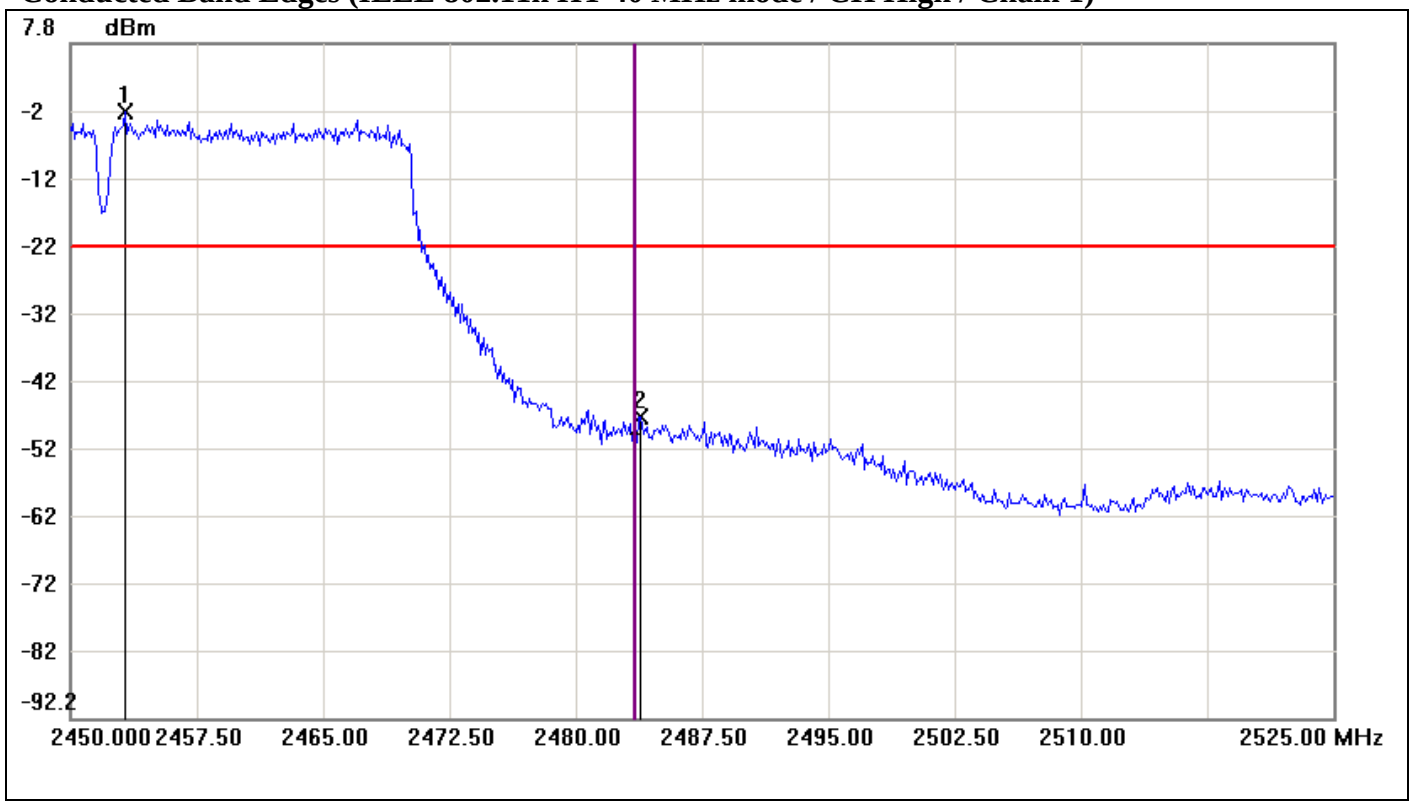
No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.2500	-4.42	-24.42	20.00
2	2484.8750	-48.82	-24.42	-24.40

Conducted Band Edges (IEEE 802.11n HT 40 MHz mode / CH Low / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2400.0000	-34.88	-22.40	-12.48
2	2423.2500	-2.40	-22.40	20.00

Conducted Band Edges (IEEE 802.11n HT 40 MHz mode / CH High / Chain 1)



No.	Frequency(MHz)	Result(dBm)	Limit(dBm)	Margin(dBm)
1	2453.2500	-2.34	-22.34	20.00
2	2483.8750	-47.48	-22.34	-25.14