FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Enterprise Access Point

Model: EAP717

Trade Name: 4ipnet

Issued to

4IPNET, INC.
3F-3, No. 369, Fusing N. Rd., Taipei 105, Taiwan,R.O.C

Issued by

Compliance Certification Services Inc.
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
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Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		October 17, 2013		Initial Issue	All	Landy Huang

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1 TEST RESULT CERTIFICATION

Applicant:	**4IPNET, INC.** 3F-3, No. 369, Fusing N. Rd., Taipei 105, Taiwan,R.O.C
Manufacturer:	**4IPNET, INC.** 3F-3, No. 369, Fusing N. Rd., Taipei 105, Taiwan,R.O.C
Equipment Under Test:	Enterprise Access Point
Trade Name:	4ipnet
Model:	EAP717
Date of Test:	August 28 ~ September 26, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	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:

Stan Lin
Section Manager

Reviewed by:

Angel Hu
Section Manager

2 EUT DESCRIPTION

Product	Enterprise Access Point		
Trade Name	4ipnet		
Model Number	EAP717		
Model Discrepancy	N/A		
EUT Power Rating	5VDC, 2A		
Received Date	August 19, 2013		
Power Adapter Manufacturer	JFEC	**Model**	JF015WR-0500200UH
Power Adapter Power Rating	I/P: 100-240VAC, 50/60Hz, 0.5A O/P: 5VDC, 2A		
RF Module Manufacturer	Ralink	**Model**	RT5592N
Frequency Range	IEEE 802.11a/ IEEE 802.11n HT20: 5745 ~ 5825MHz IEEE 802.11n HT40: 5755 ~ 5815MHz IEEE 802.11b/g/ IEEE 802.11n HT20: 2412~2462MHz IEEE 802.11n HT40: 2422~2452MHz		
Transmit Power	IEEE 802.11a mode: 20.72 dBm (0.1180W) IEEE 802.11n HT20 mode: 21.72 dBm (0.1486W) IEEE 802.11n HT40 mode: 21.59 dBm (0.1441W) IEEE 802.11b mode: 20.17 dBm (0.1040W) IEEE 802.11g mode: 25.76 dBm (0.3767W) IEEE 802.11n HT20 mode: 27.82 dBm (0.6048W) IEEE 802.11n HT40 mode: 23.62 dBm (0.2300W)		
Modulation Technique & Transmit Data Rate	IEEE 802.11a: OFDM (54, 48, 36, 24, 18, 12, 9, 6 Mbps) IEEE 802.11n HT20 mode: OFDM (130, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6.5 Mbps) IEEE 802.11n HT40 mode: OFDM (270, 243, 216, 162, 135, 121.5, 108, 81, 54, 40.5, 27,13.5 Mbps) IEEE 802.11b mode: DSSS (11, 5.5, 2, 1 Mbps) IEEE 802.11g mode: OFDM (54, 48, 36, 24, 18, 12, 11 , 9, 6 Mbps) IEEE 802.11n HT20 mode: OFDM (130, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6.5 Mbps) IEEE 802.11n HT40 mode: OFDM (270, 243, 216, 162, 135, 121.5, 108, 81, 54, 40.5, 27, 13.5 Mbps)		
Number of Channels	IEEE 802.11a mode: 5 Channels IEEE 802.11n HT20 mode: 5 Channels IEEE 802.11n HT40 mode: 4 Channels IEEE 802.11b/g mode: 11 Channels IEEE 802.11n HT20 mode: 11 Channels IEEE 802.11n HT40 mode: 7 Channels		
Antenna Specification	Chain 0: PIFA Antenna / Gain: 3.0 dBi (For IEEE 802.11 a/b/g) Chain 1: PIFA Antenna / Gain: 3.0 dBi (For IEEE 802.11 a/b/g) (MIMO: 3.0+10log(2)=6.01) (For IEEE 802.11 n)		

Remark:

1. The sample selected for test was production product and was provided by manufacturer.

*2. This submittal(s) (test report) is intended for FCC ID: **VZ9130003** 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 DA00-705.

3.1 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.

3.2 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.

3.3 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..

3.4 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.

3.5 DESCRIPTION OF TEST MODES

The EUT is a 2Tx2R MIMO transmitter.
The EUT (model: EAP717) had been tested under operating condition.

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

The worst case data rate is determined as the data rate with highest output power.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in Data link mode only.

For the power line conducted emissions test, the EUT has two modes, (PoE mode and power adapter mode), after the preliminary test, the PoE mode was found to the worst case and chosen for testing.

IEEE 802.11b mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 1Mbps data rate were chosen for full testing.

IEEE 802.11g mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 mode:
Channel Low (2412MHz), Channel Mid (2437MHz) and Channel High (2462MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 mode:
Channel Low (2422MHz), Channel Mid (2437MHz) 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 HT20 mode:
Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 mode:
Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps 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

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY48250064	01/13/2014
Spectrum Analyzer	Agilent	N9010A	MY52220817	02/22/2014
Power meter	Anritsu	ML2495A	1033009	09/29/2014
Power Sensor	Anritsu	MA2411B	0917221	09/29/2014

3M Semi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY48250064	01/13/2014
Pre-Amplifier	HP	8447D	2944A06530	04/23/2014
Pre-Amplifier	EMEC	EM01M26G	060570	07/25/2014
Pre-Amplifier	MITEQ	AMF-6F-26040 0-40-8P	985646	08/08/2014
Pre-Amplifier	Agilent	8449B	3008A01738	04/23/2014
EMI Test Receiver	SCHAFFNER	SCR 3501	430	03/24/2014
Loop Antenna	EMCO	6502	2356	06/12/2014
Bilog Antenna	TESEQ	CBL 6112D	35378	09/11/2014
Horn Antenna	EMCO	3115	00022250	08/04/2014
Horn Antenna	EMCO	3116	00026370	01/07/2014
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Testv S/W	EZ-EMC			

NOTE: *1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

Conducted Emission Room # 3				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	101300	09/06/2014
LISN	R&S	ENV216	100069	06/16/2014
LISN	FCC	FCC-LISN-50/250-16-2-07	06013	12/04/2013
ISN	TESEQ	ISN-T8	30842	08/09/2014
Current Probe	FCC	F-35	506	07/19/2014
ISN	FCC	FCC-TLISN-T4-02	20396	06/28/2014
Test S/W	EZ-EMC			

NOTE: *1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

4.3 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Powerline Conducted Emission	±0.9898
3M Semi Anechoic Chamber / 30MHz ~ 200MHz	±3.5921
3M Semi Anechoic Chamber / 200MHz ~ 1GHz	±3.5657
3M Semi Anechoic Chamber / 1 ~ 8GHz	±2.5873
3M Semi Anechoic Chamber / 8 ~ 18GHz	±2.6646
3M Semi Anechoic Chamber / 18 ~ 26GHz	±2.9617
3M Semi Anechoic Chamber / 26 ~ 40GHz	±3.4250

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. 163-1, Jhongsheng Rd., Sindien District, Taipei City 23151, Taiwan
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☐ No 11, Wugong 6th Rd, Wugu District, New Taipei City 24891, 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
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	A2LA	CFR 47, FCC Part15/18, CISPR 22, EN 55022, ICES-003, AS/NZS CISPR 22, VCCI V-3, EN 55011, CISPR 11, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 61000-6-1/2/3/4, EN 55024, CISPR 24, AS/NZS CISPR 24, AS/NZS 61000.6.2, EN 55014-1/-2, ETSI EN 300 386 v1.3.2/v1.3.3, IEC/EN 61000-3-2, AS/NZS 61000.3.2, IEC/EN 61000-3-3, AS/NZS 61000.3.3	ACCREDITED TESTING CERT #0824.01
USA	FCC MRA	3 meter Open Area Test Sites to perform FCC Part 15/18 measurements	TW1026
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-2882/2541/2798/725/1868 C-402/747/912 T-1930/1646
Taiwan	TAF	EN 55014-1, CISPR 14, CNS 13781-1, EN 55013, CISPR 13, CNS 13439, EN 55011, CISPR 11, CNS 13803, PLMN09, IS2045-0, LP0002 FCC Part 27/90, Part 15B/C/D/E, RSS-192/193/210/310 ETSI EN 300 328/ 300 220-1/ 300 220-2/ 301 893/ 301 489-01/ 301 489-03/ 301 489-07 / 301 489-17/ 300 440-1/ 300 440-2 AS/NZS 4268, AS/NZS 4771 CISPR 22, EN 55022, CNS 13438, AS/NZS CISPR 22, VCCI, IEC/EN 61000-4-2/3/4/5/6/8/11, CNS 14676-2/3/4/5/6/8, CNS 14934-2/3, CNS 13783-1, CNS 13439, CNS 13803	ilac-MRA TAF Testing Laboratory 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS-Gen Issue 3	Canada IC 2324C-5

** 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

For Radiated (Below 1GHz) and Powerline Conducted (PoE mode) Emission							
No.	**Device Type**	**Model**	**Series No.**	**FCC ID**	**Brand**	**Data Cable**	**Power Cord**
1	Telephone	HT-B603WL	994754763	N/A	SAMPO	Line Cable: Unshielded, 1.8m	N/A
2	Modem (Remote)	DM-1414	304012266	IFAXDM1414	ACEEX	Unshielded, 1.8m	Unshielded, 1.8m
3	Telephone (Remote)	HT-B604WL	994754309	N/A	SAMPO	Unshielded, 1.8m	N/A
4	PC (Remote)	PRO 2000	SGH008RRNY	FCC DoC	HP	LAN Cable: Unshielded, 10m	Unshielded, 1.8m
5	Gigabit PoE Injector	POE30G	N/A	N/A	4ipnet	N/A	LAN Cable: Unshielded, 1.8m

For Powerline Conducted (Adapter mode) Emission							
No.	**Device Type**	**Model**	**Series No.**	**FCC ID**	**Brand**	**Data Cable**	**Power Cord**
1	Telephone	HT-B603WL	994754763	N/A	SAMPO	Line Cable: Unshielded, 1.8m	N/A
2	Modem (Remote)	DM-1414	304012266	IFAXDM1414	ACEEX	Unshielded, 1.8m	Unshielded, 1.8m
3	Telephone (Remote)	HT-B604WL	994754309	N/A	SAMPO	Unshielded, 1.8m	N/A
4	PC (Remote)	PRO 2000	SGH008RRNY	FCC DoC	HP	LAN Cable: Unshielded, 10m	Unshielded, 1.8m

For Radiated (Above 1GHz) and Conducted Emission							
No.	**Device Type**	**Model**	**Series No.**	**FCC ID**	**Brand**	**Data Cable**	**Power Cord**
1	Notebook PC	D400	0932RY	E2K24GBRL	DELL	LAN Cable: Unshielded, 1.8m LAN to Serial Cable: Shielded, 1.8m Serial to USB Cable: Shielded, 0.3m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2	Gigabit PoE Injector (Remote)	POE30G	N/A	N/A	4ipnet	N/A	LAN Cable: Unshielded, 10m

Remark: *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

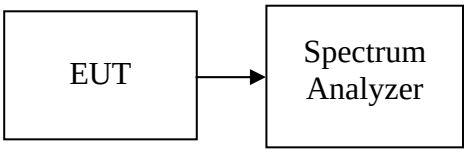
7 FCC PART 15 REQUIREMENTS

7.1 6DB BANDWIDTH

LIMIT

According to §15.247(a)(2), 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 = 100kHz, VBW = 300kHz, Sweep = auto, Span = 30MHz (IEEE 802.11b, IEEE 802.11g, IEEE 802.11n HT20) or Span = 50MHz (IEEE 802.11n HT40).
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)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	12.05	>500	PASS
Mid	2437	12.05		PASS
High	2462	12.05		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.35	>500	PASS
Mid	2437	16.35		PASS
High	2462	16.35		PASS

Test mode: IEEE 802.11n HT20 mode (Chain 0)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.85	>500	PASS
Mid	2437	16.85		PASS
High	2462	16.85		PASS

Test mode: IEEE 802.11n HT20 mode (Chain 1)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.85	>500	PASS
Mid	2437	16.85		PASS
High	2462	16.85		PASS

Test mode: IEEE 802.11n HT40 mode (Chain 0)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.75	>500	PASS
Mid	2437	35.83		PASS
High	2452	35.75		PASS

Test mode: IEEE 802.11n HT40 mode (Chain 1)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	2422	35.92	>500	PASS
Mid	2437	35.92		PASS
High	2452	35.83		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.55	>500	PASS
Mid	5785	16.55		PASS
High	5825	16.55		PASS

Test mode: IEEE 802.11n HT20 mode (Chain 0)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.65	>500	PASS
Mid	5785	17.65		PASS
High	5825	17.65		PASS

Test mode: IEEE 802.11n HT20 mode (Chain 1)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.60	>500	PASS
Mid	5785	17.60		PASS
High	5825	17.65		PASS

Test mode: IEEE 802.11n HT40 mode (Chain 0)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.33	>500	PASS
High	5795	36.33		PASS

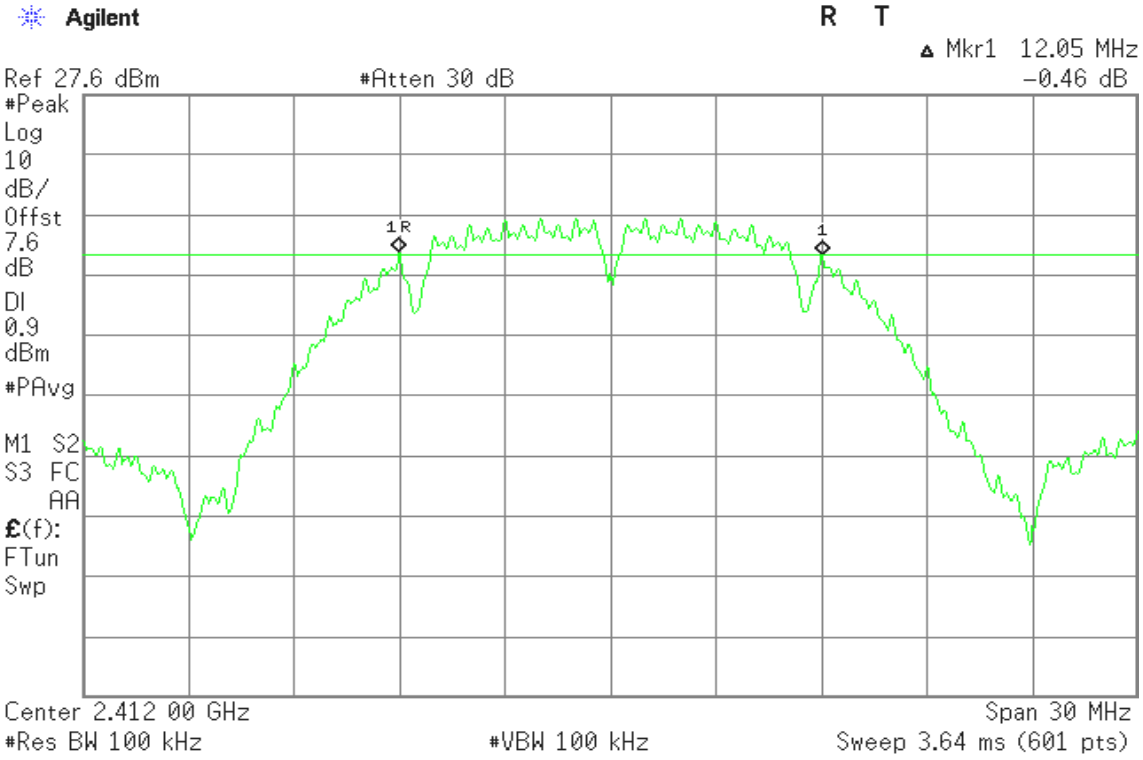
Test mode: IEEE 802.11n HT40 mode (Chain 1)

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.33	>500	PASS
High	5795	36.33		PASS

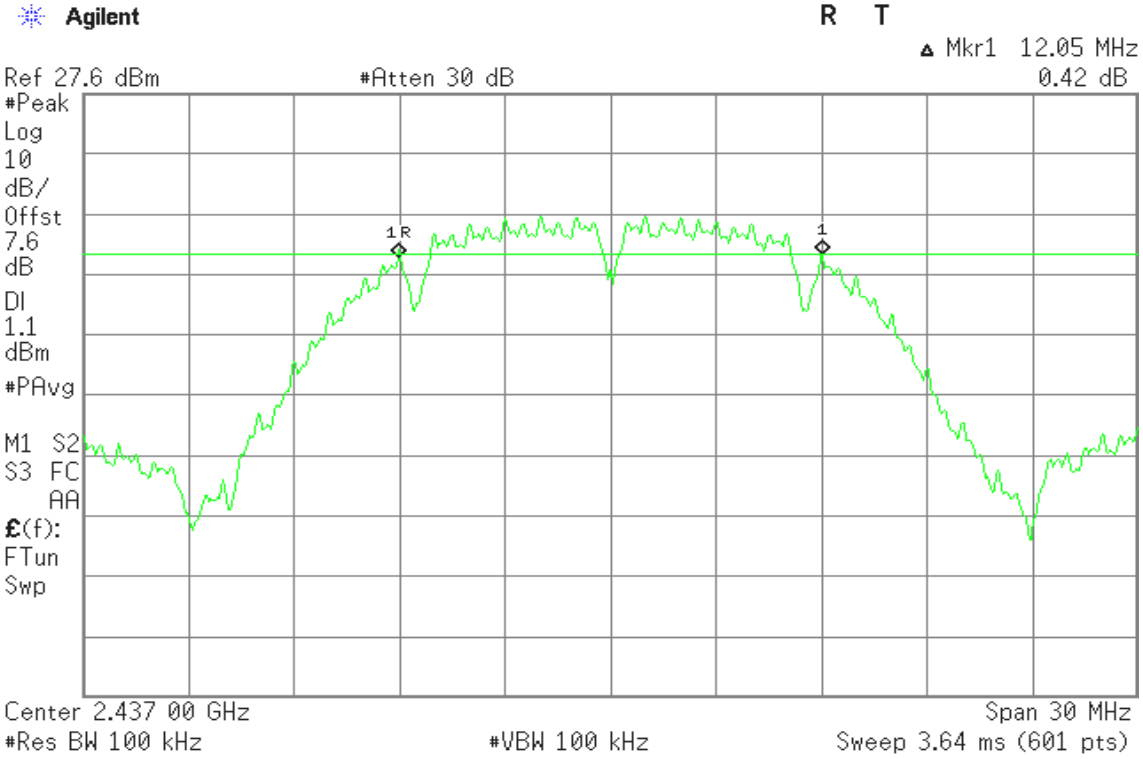
Test Plot

IEEE 802.11b mode

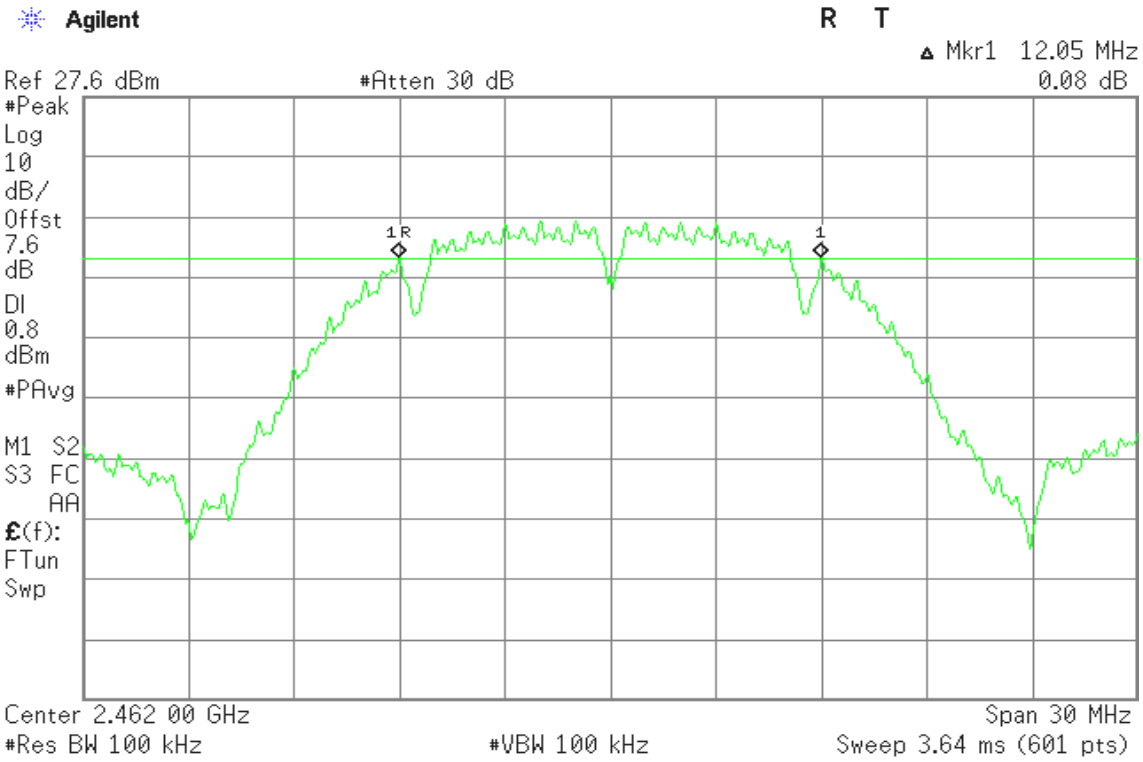
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

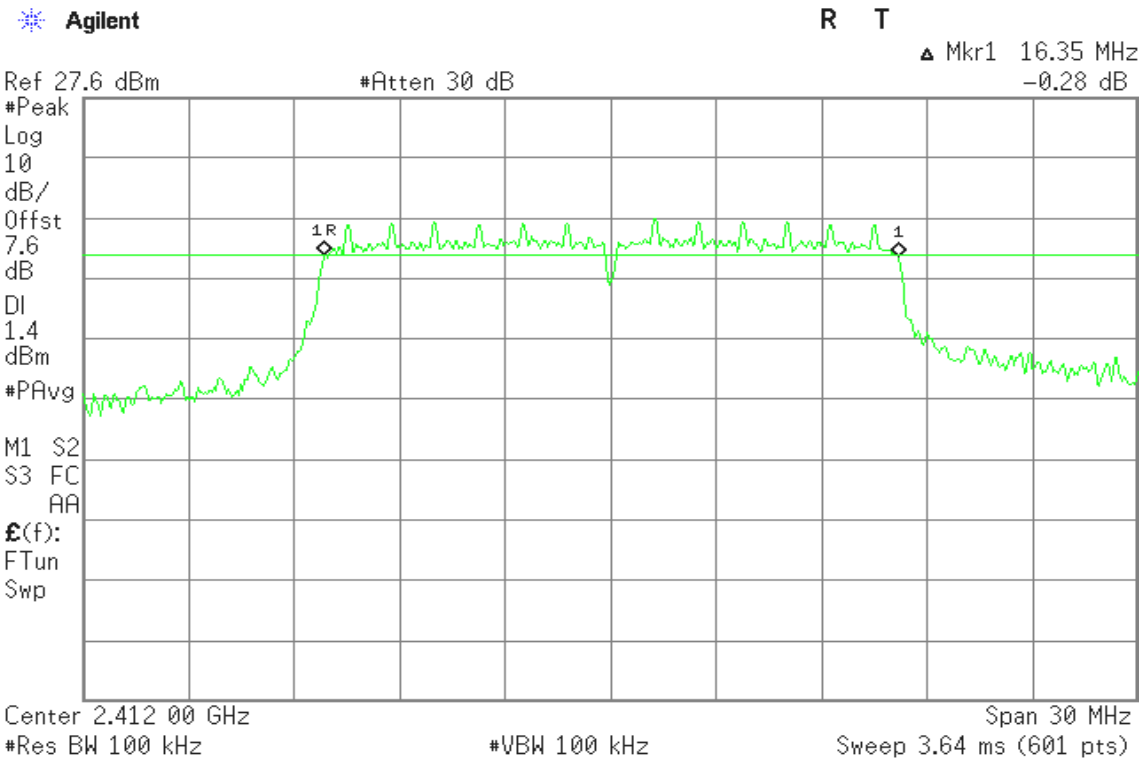


6dB Bandwidth (CH High)

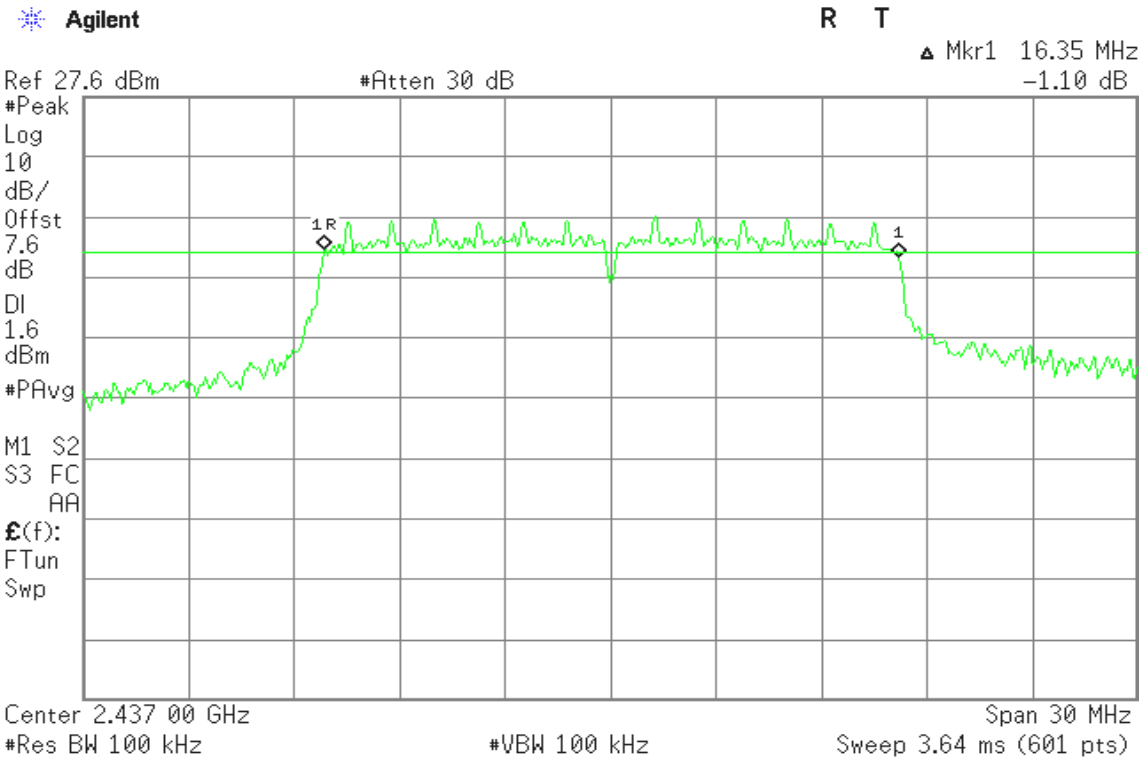


IEEE 802.11g mode

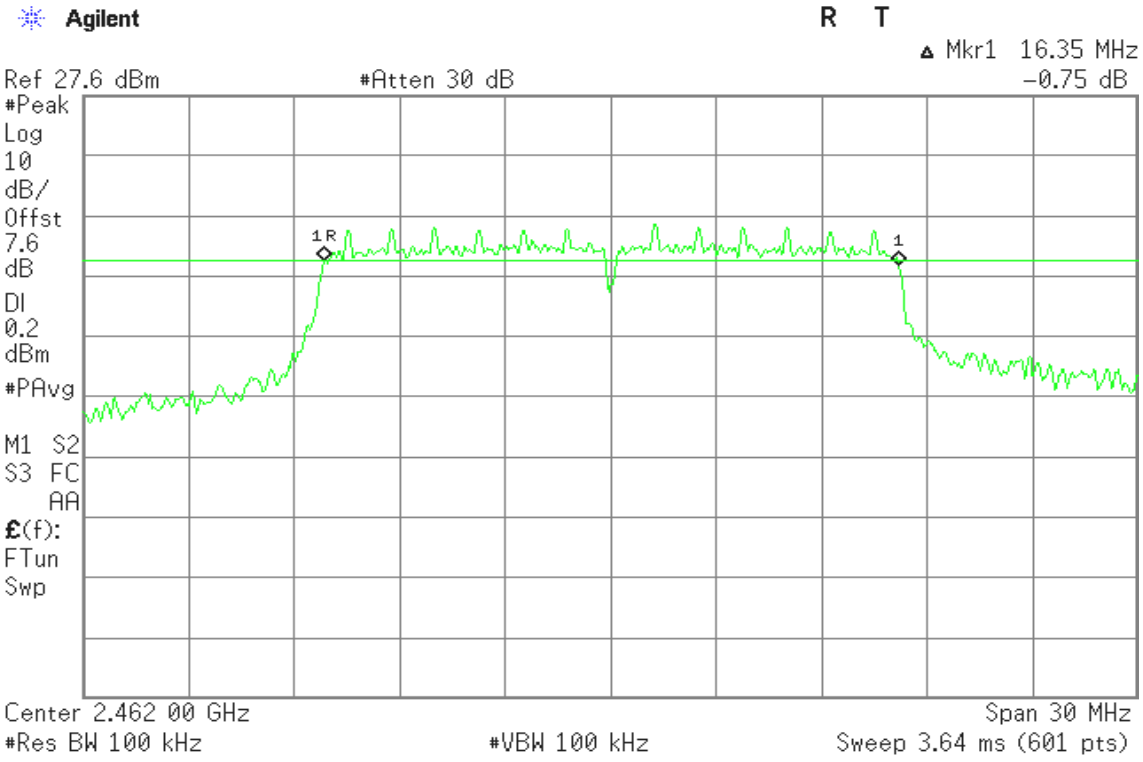
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

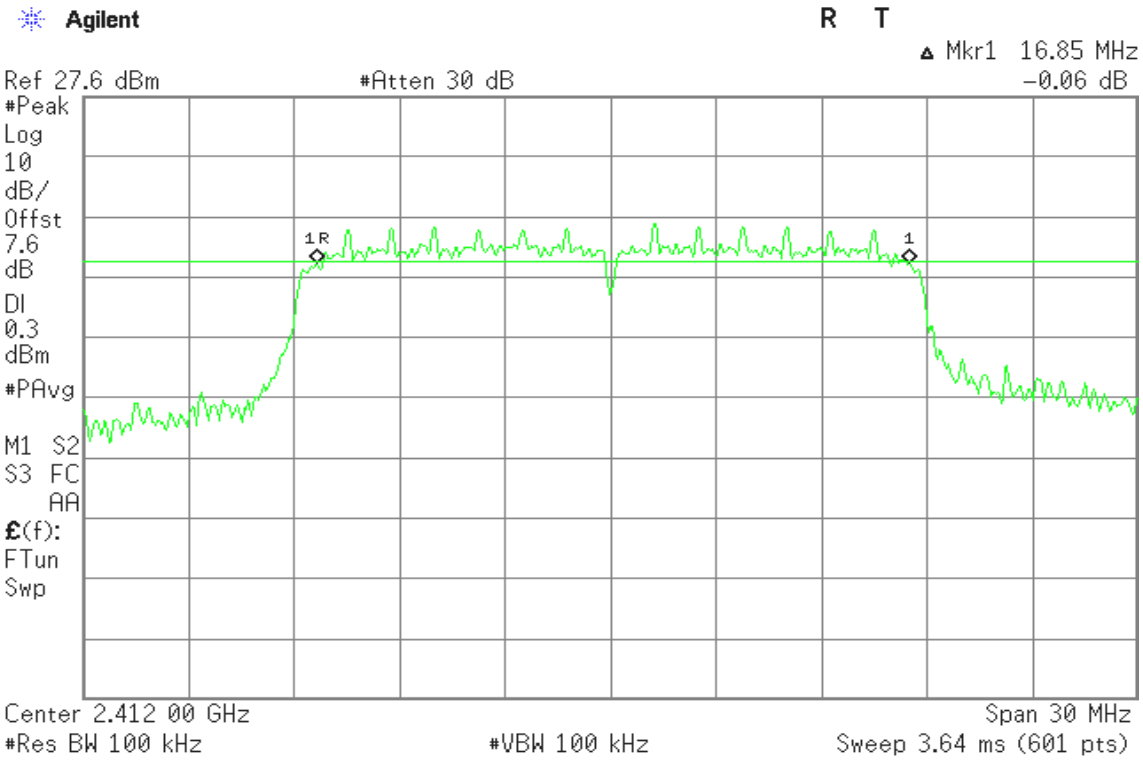


6dB 6dB Bandwidth (CH High)

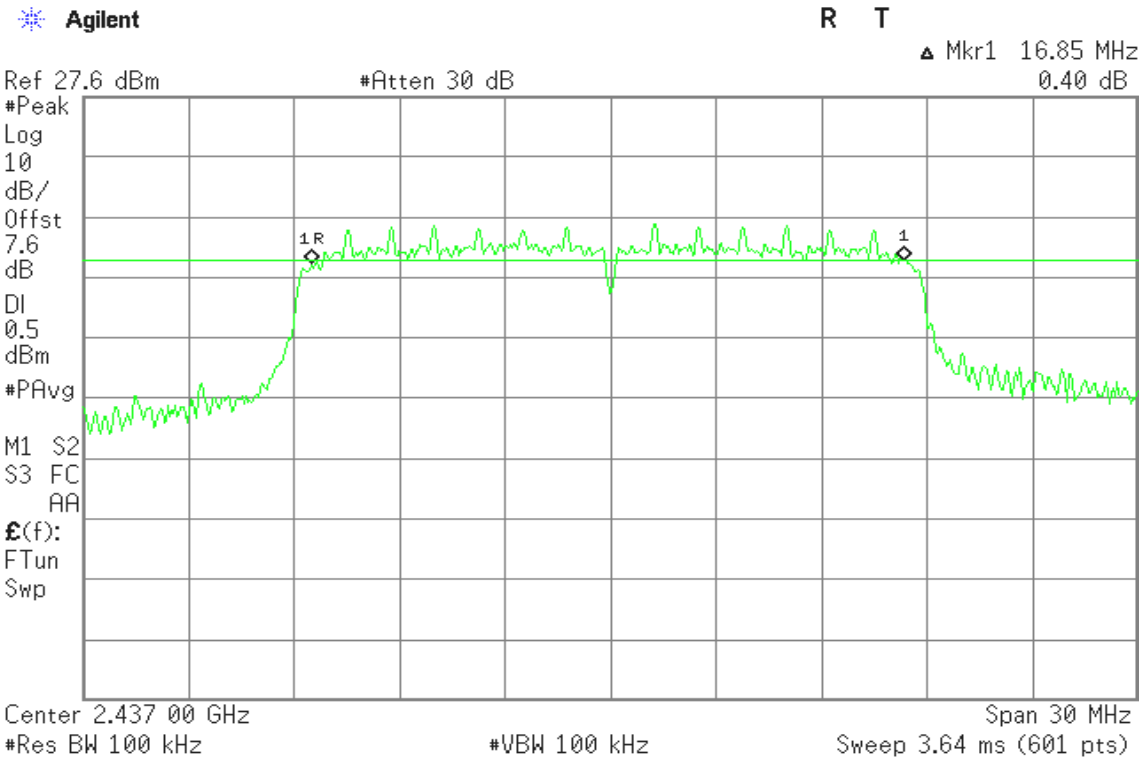


IEEE 802.11n HT20 mode (Chain 0)

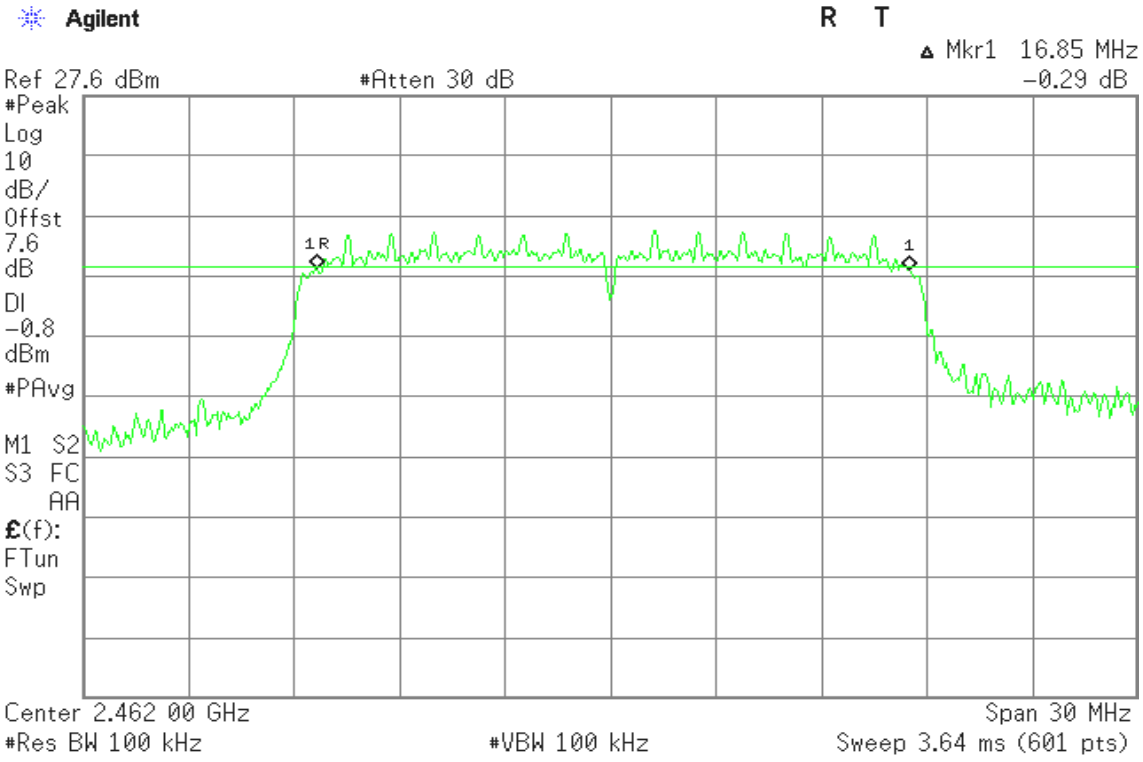
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

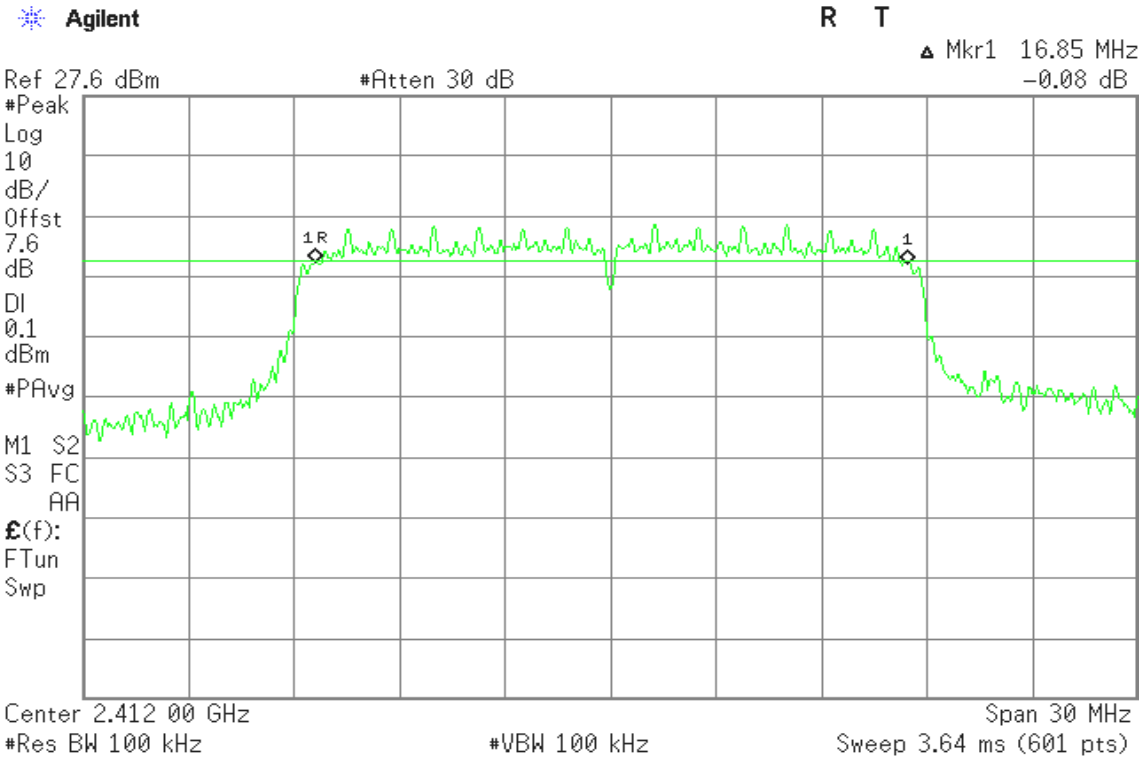


6dB Bandwidth (CH High)

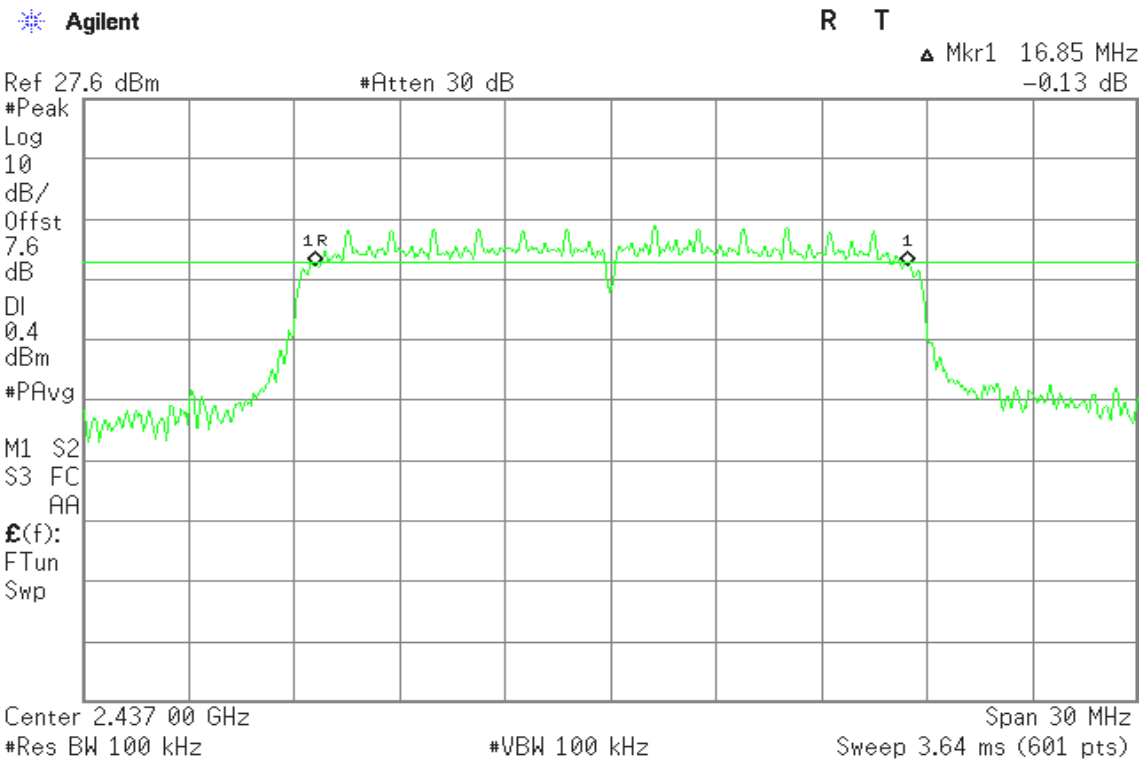


IEEE 802.11n HT20 mode (Chain 1)

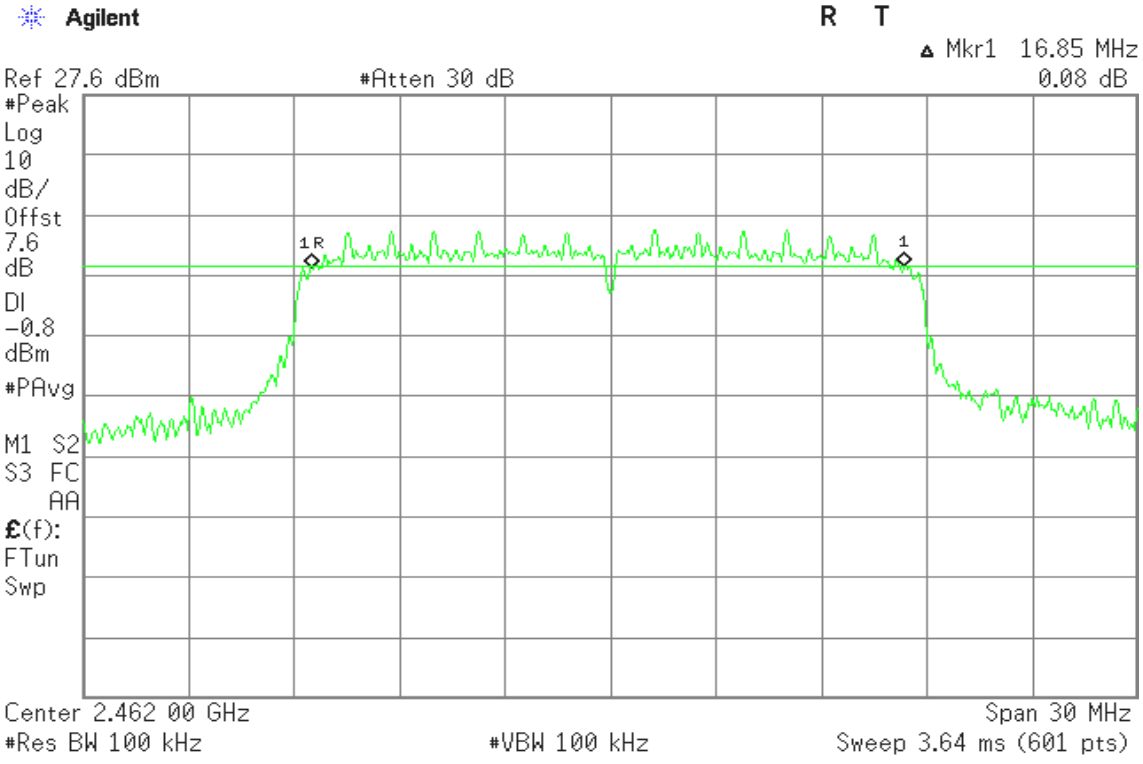
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

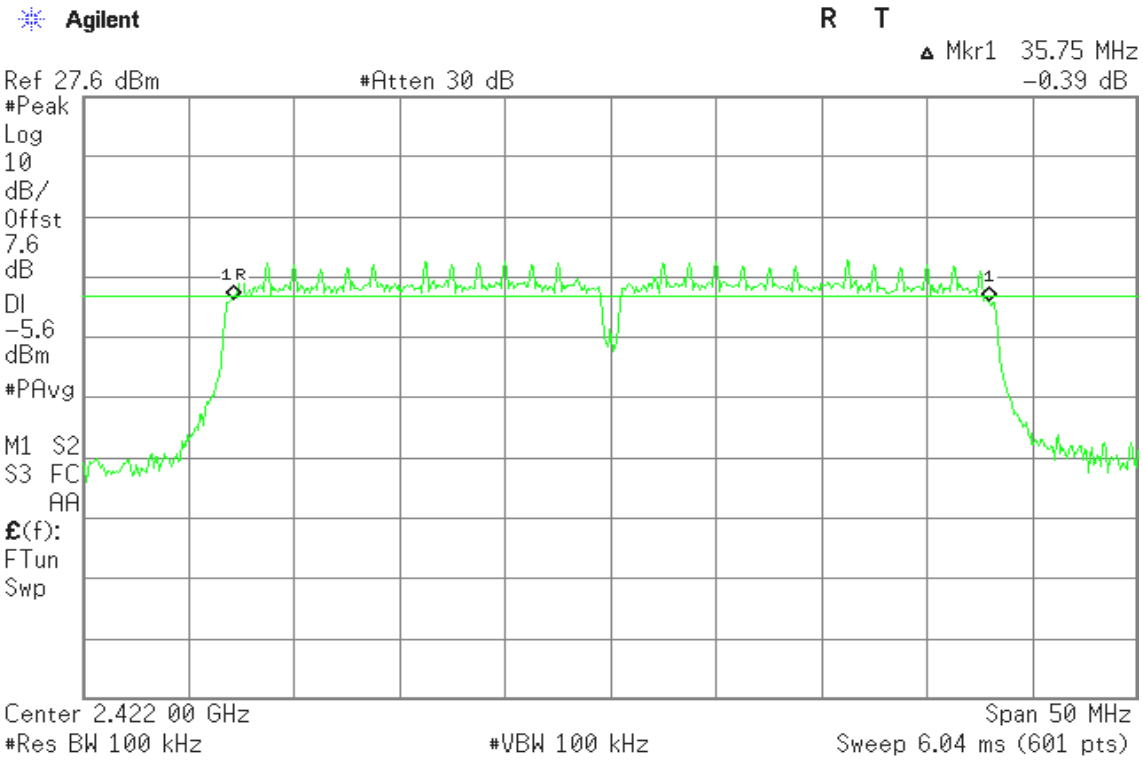


6dB Bandwidth (CH High)

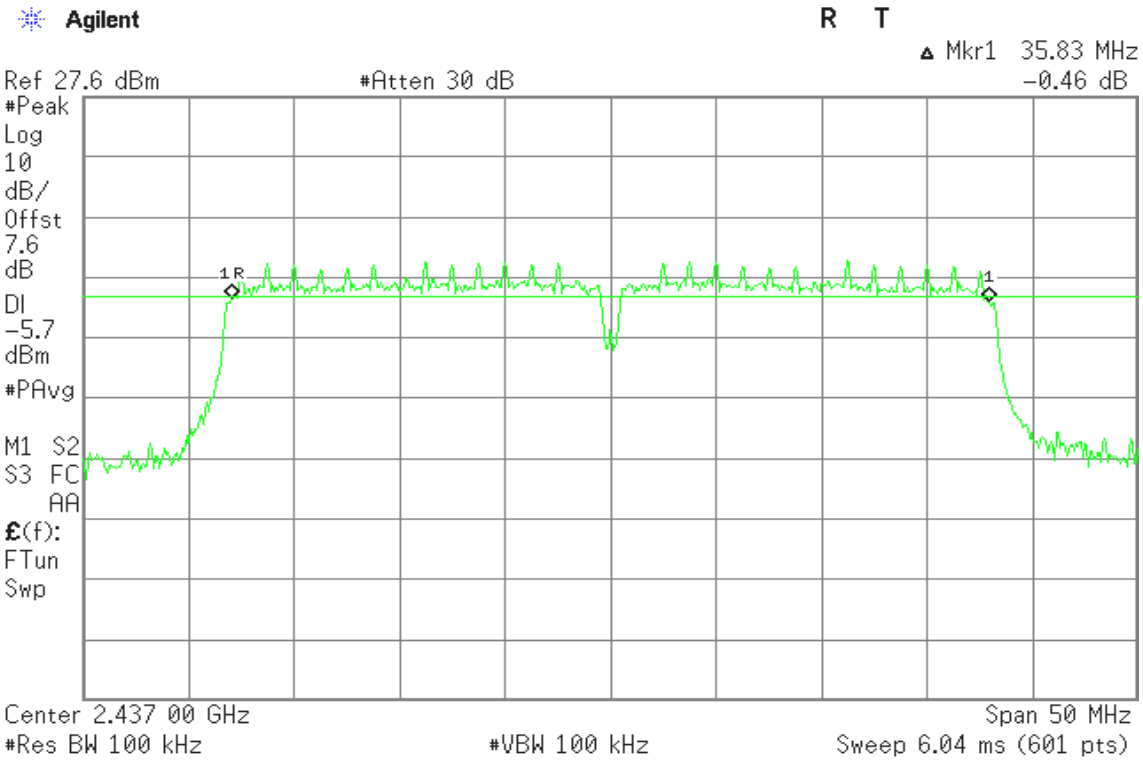


IEEE 802.11n HT40 mode (Chain 0)

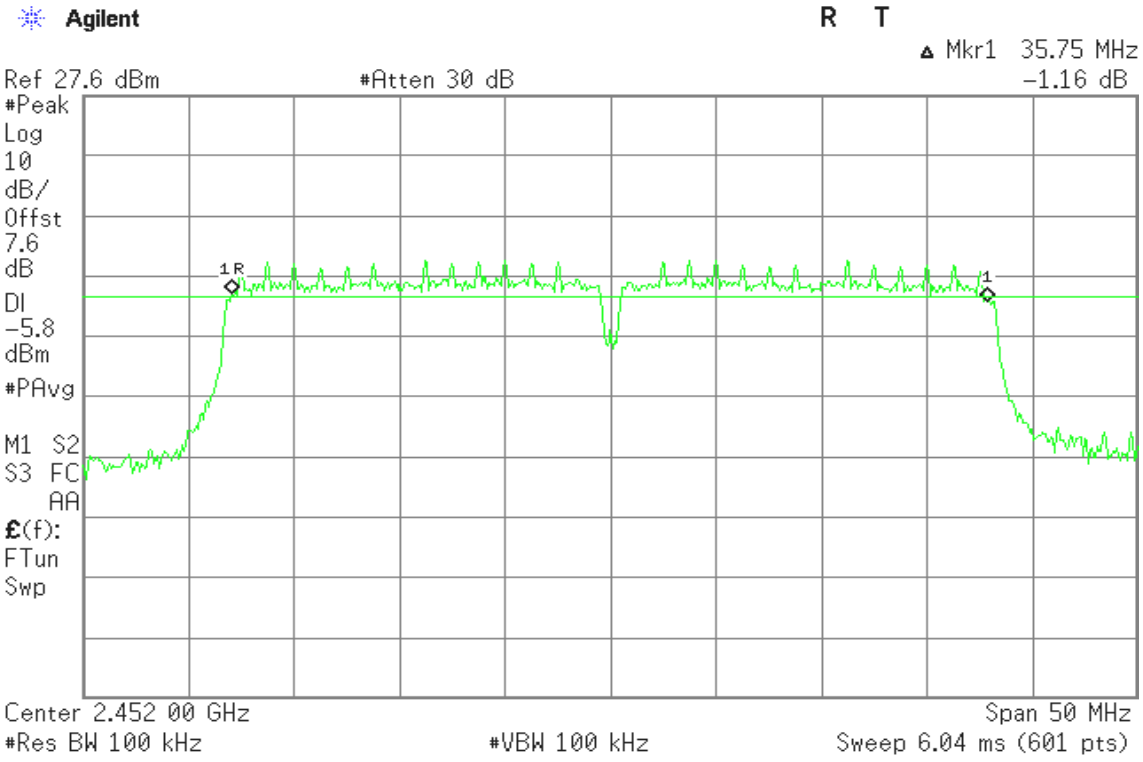
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

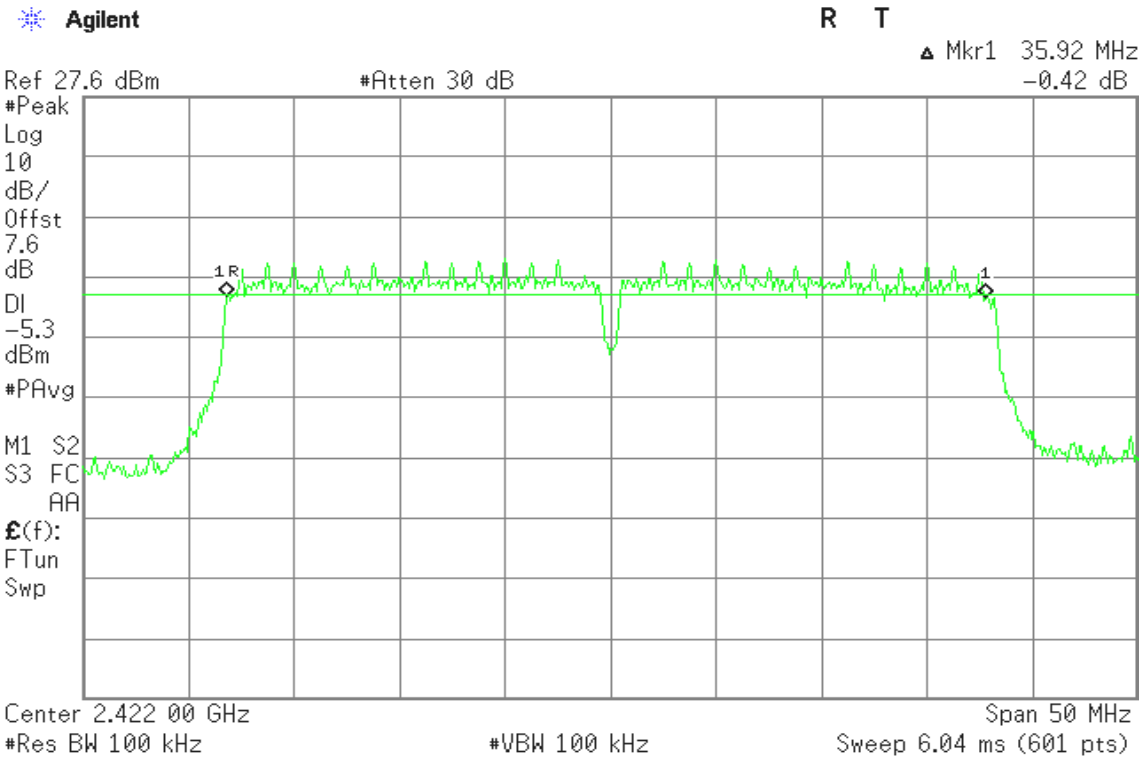


6dB Bandwidth (CH High)

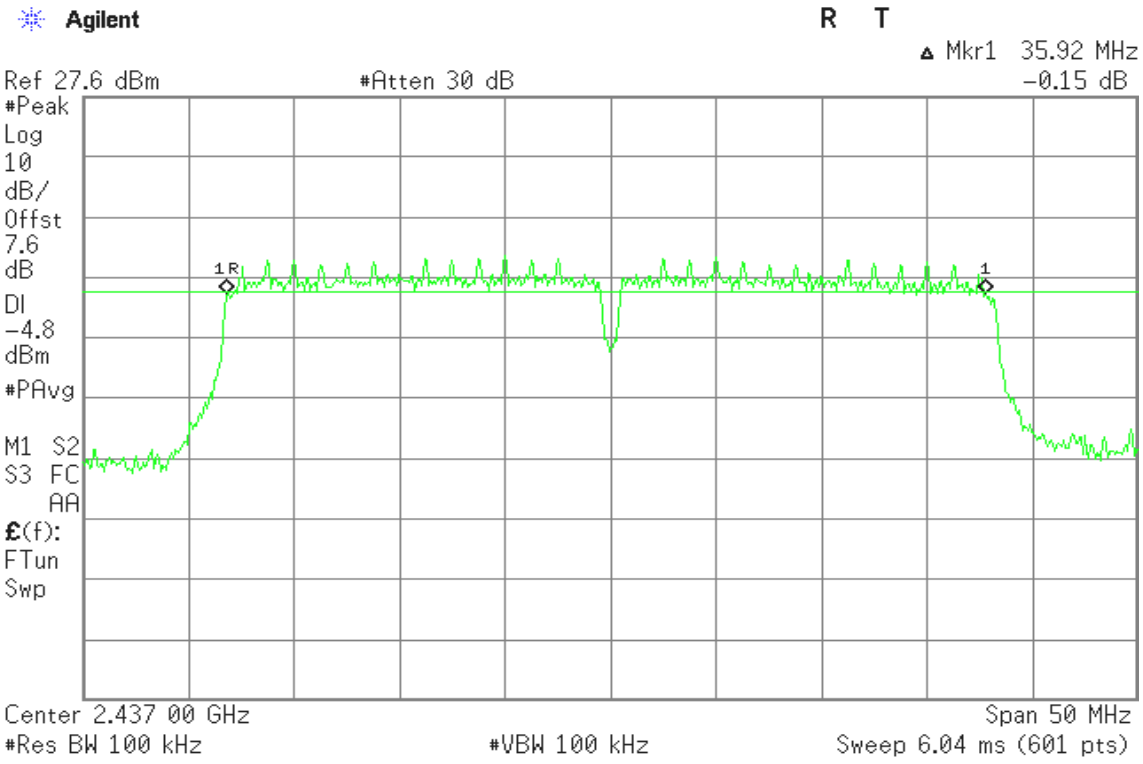


IEEE 802.11n HT40 mode (Chain 1)

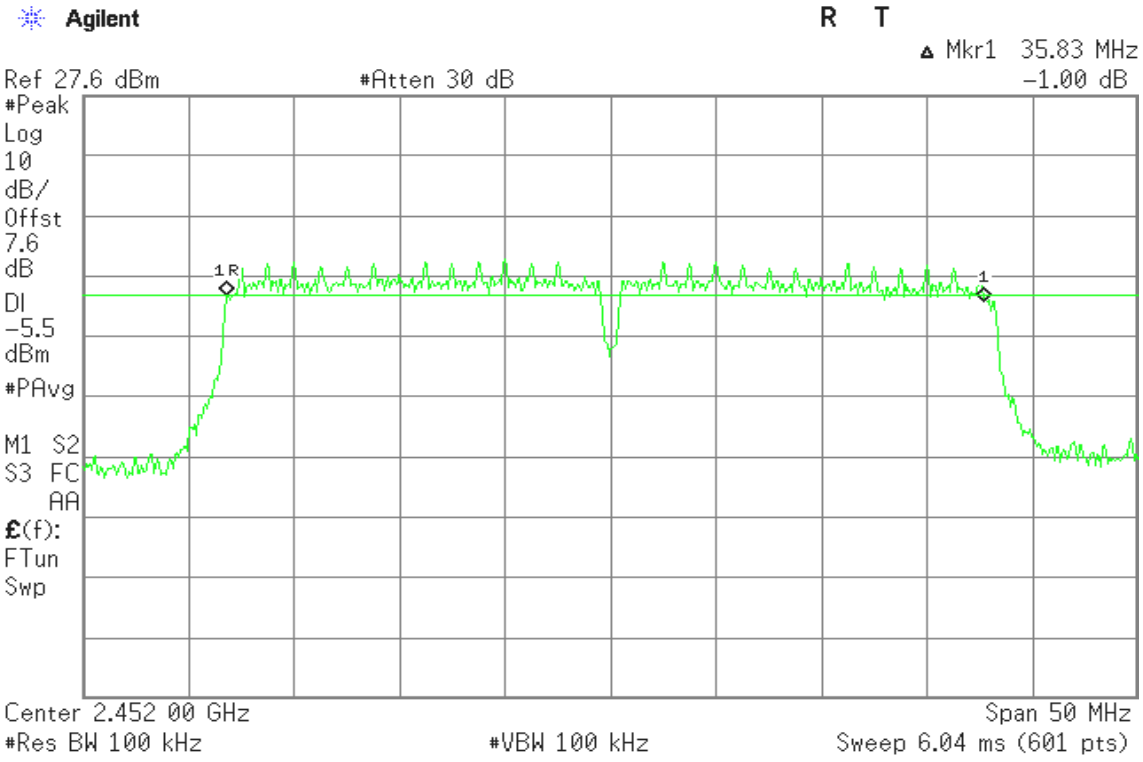
6dB Bandwidth (CH Low)



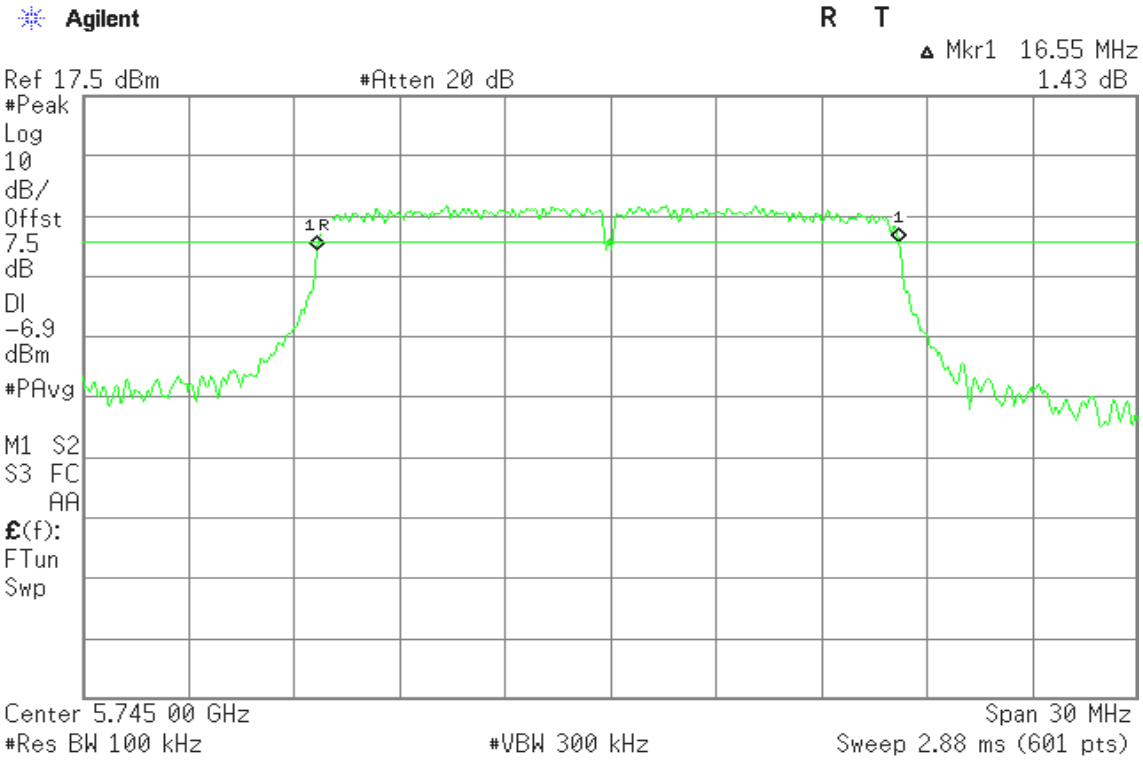
6dB Bandwidth (CH Mid)



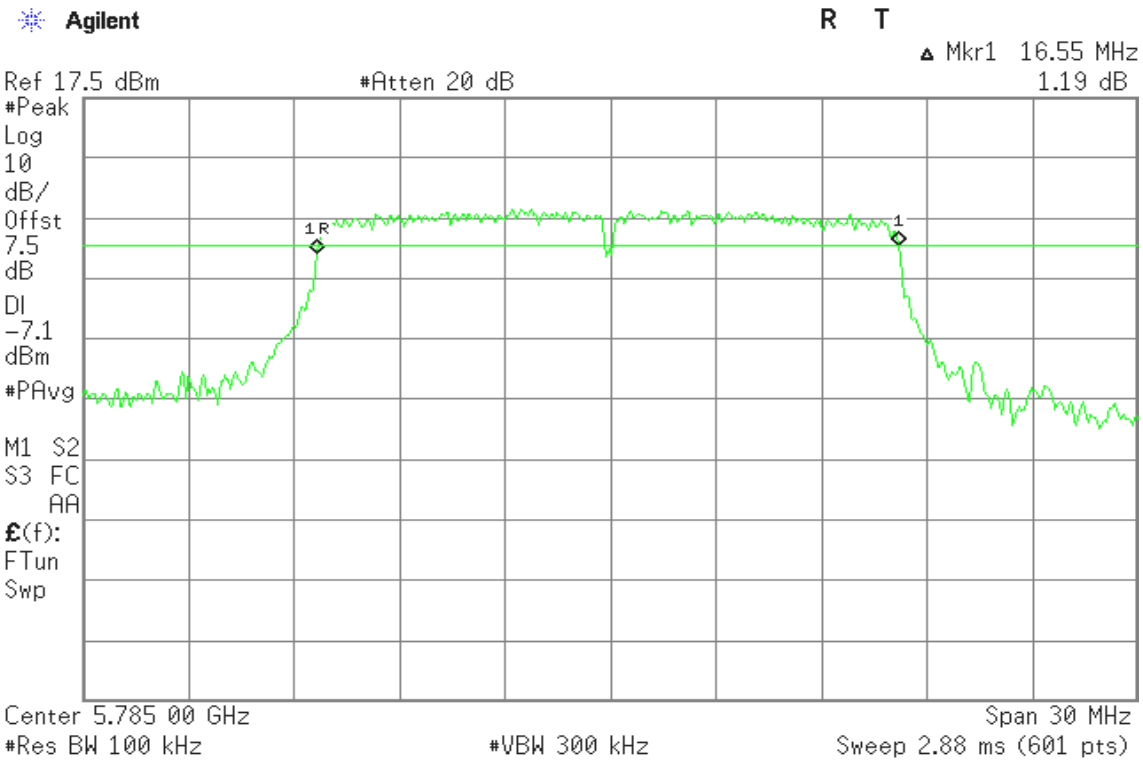
6dB Bandwidth (CH High)



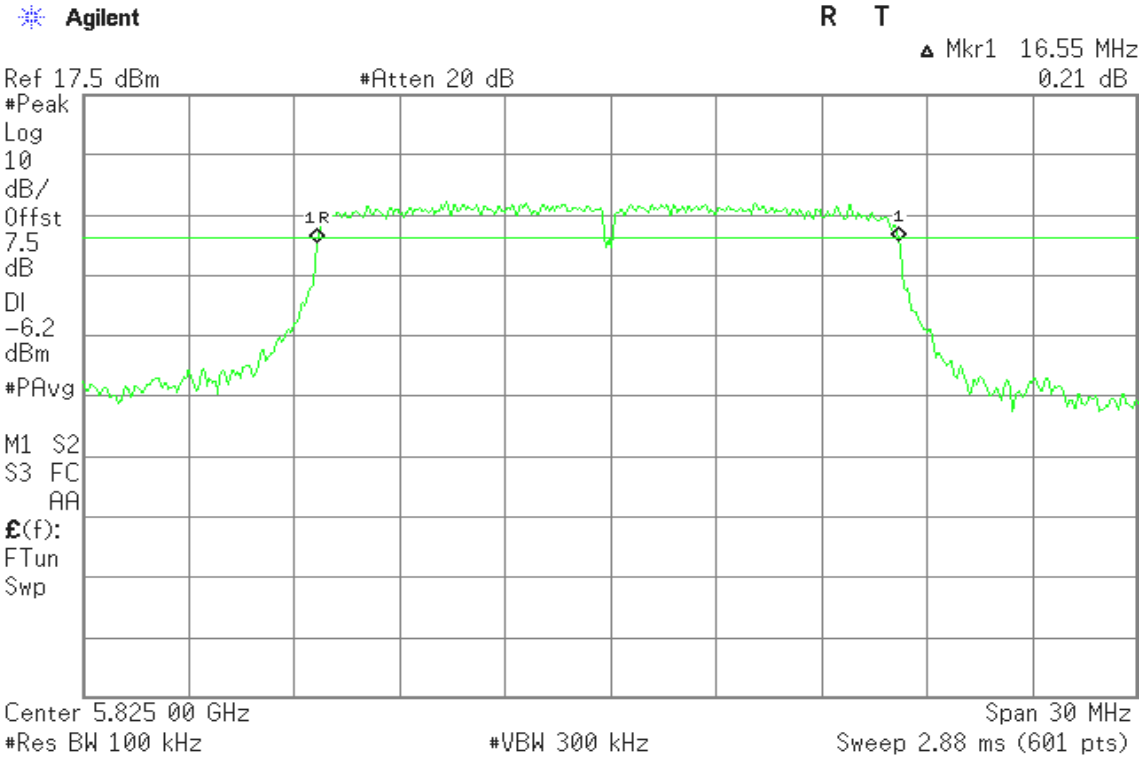
IEEE 802.11a mode
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

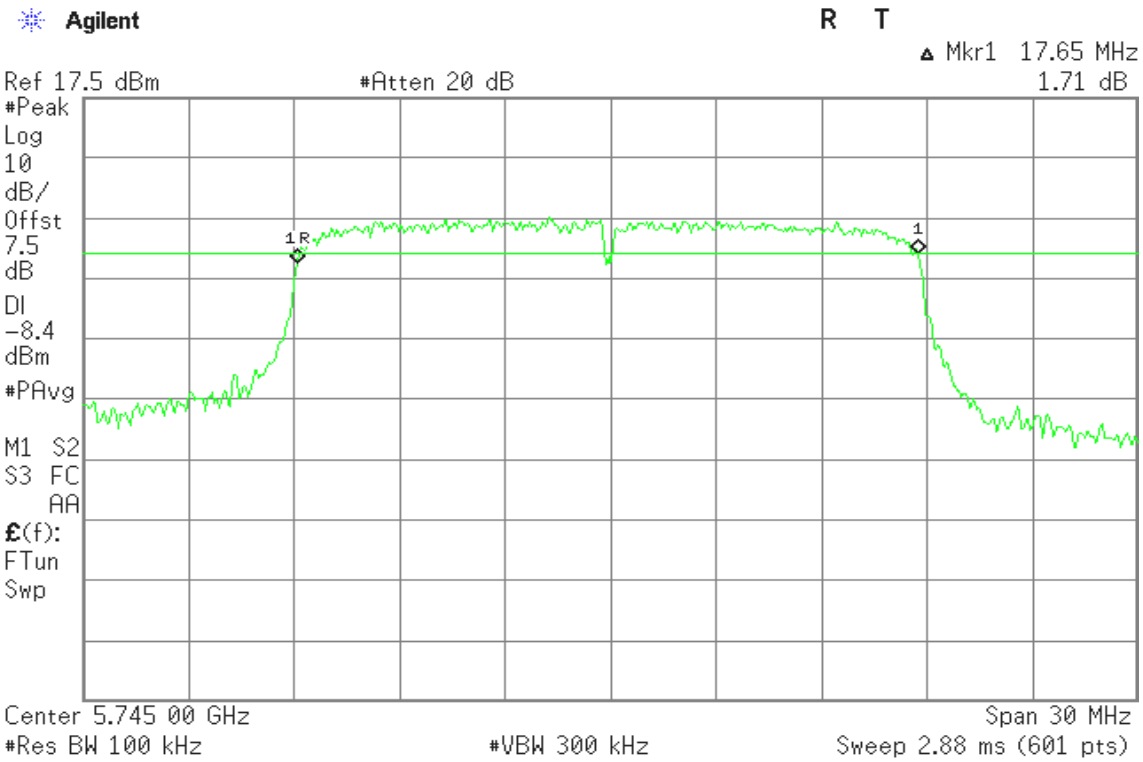


6dB Bandwidth (CH High)

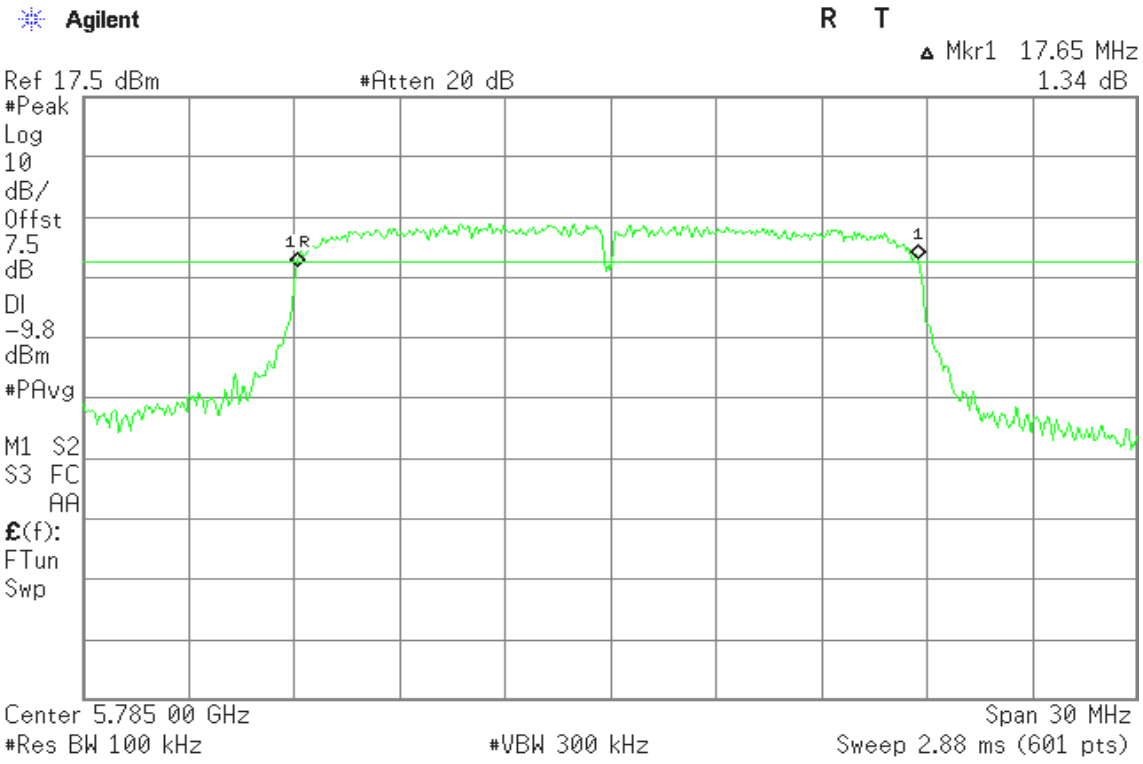


IEEE 802.11n HT20 mode (Chain 0)

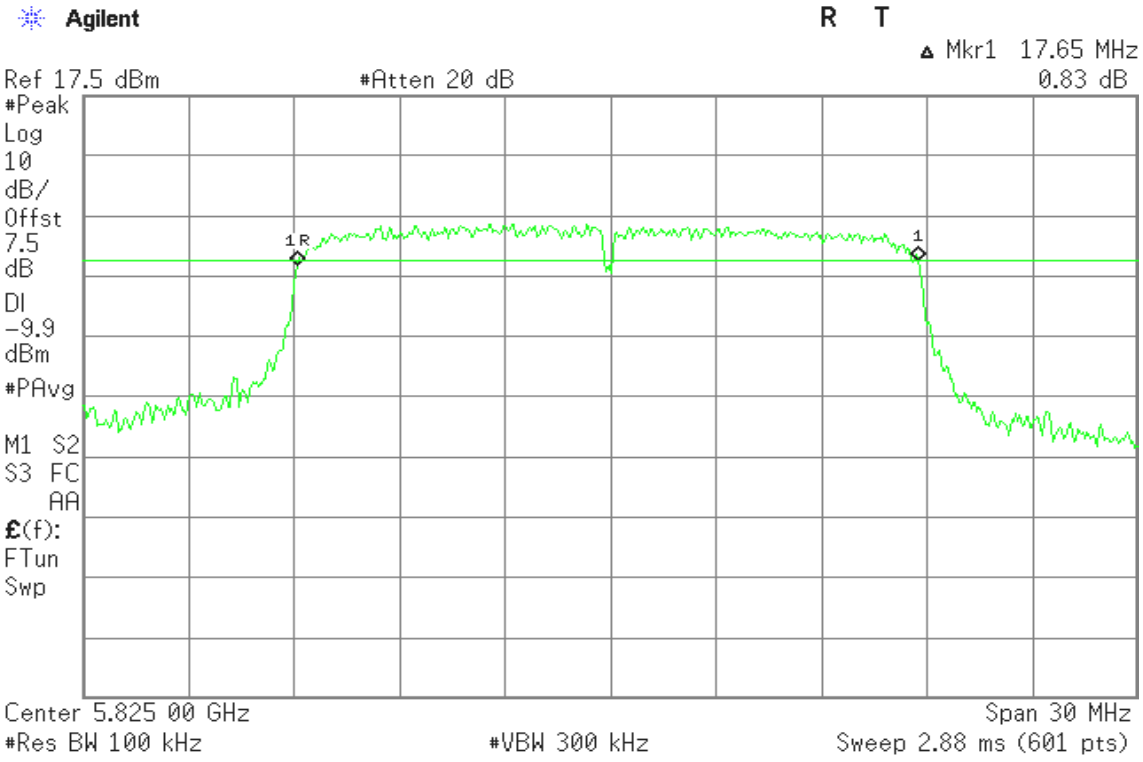
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

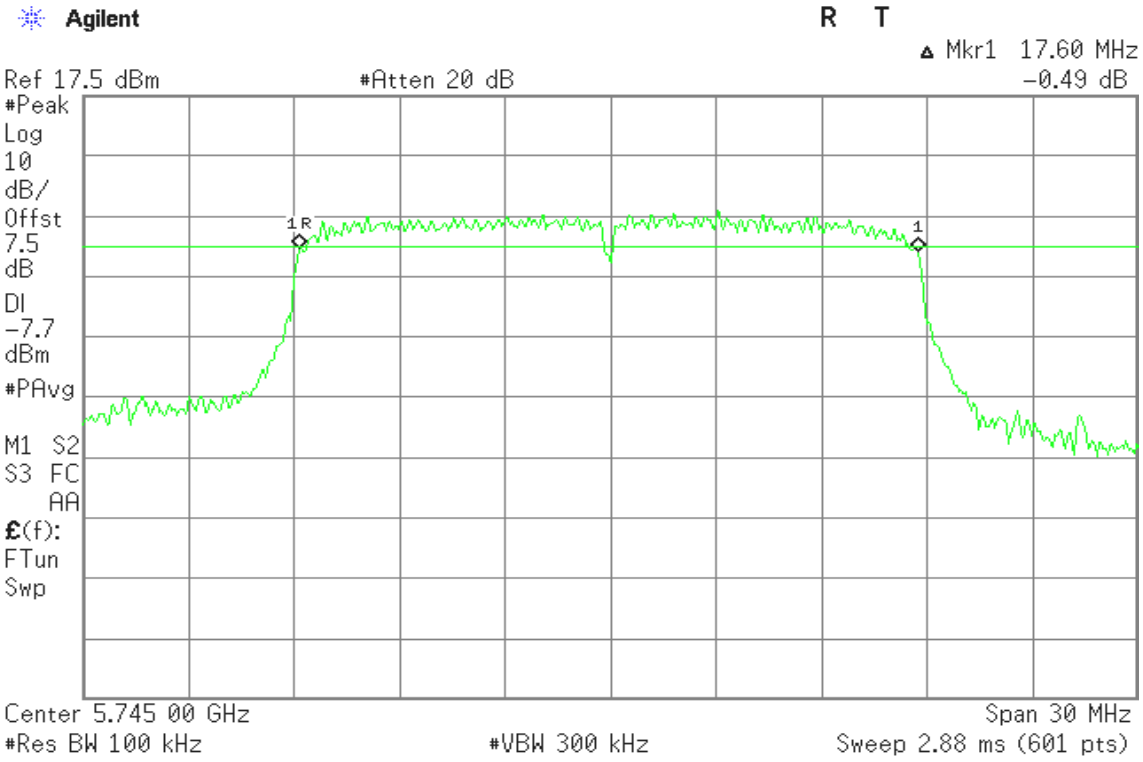


6dB Bandwidth (CH High)

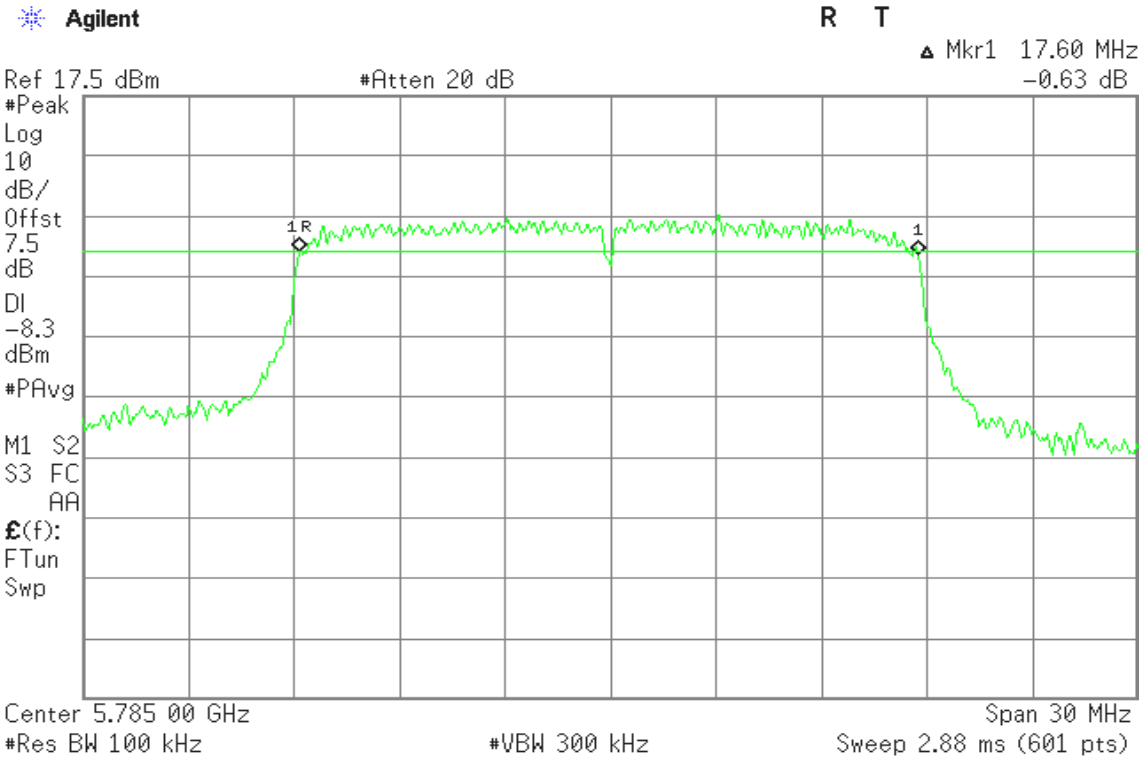


IEEE 802.11n HT20 mode (Chain 1)

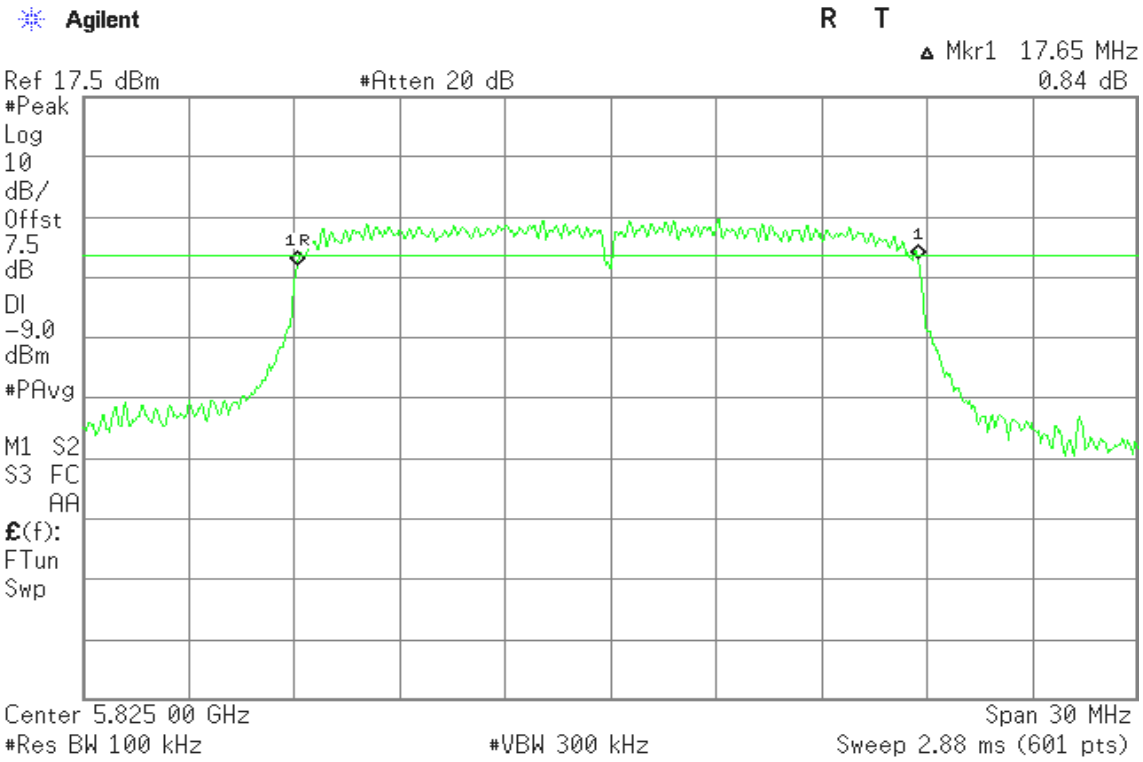
6dB Bandwidth (CH Low)



6dB Bandwidth (CH Mid)

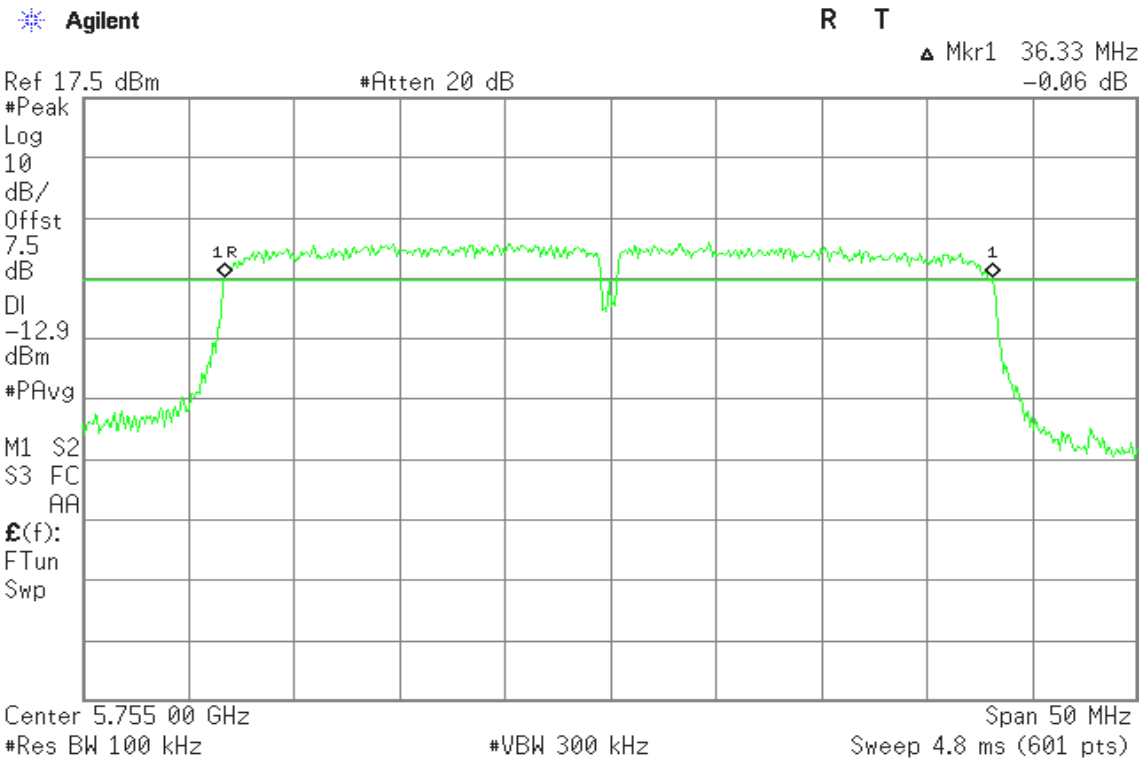


6dB Bandwidth (CH High)

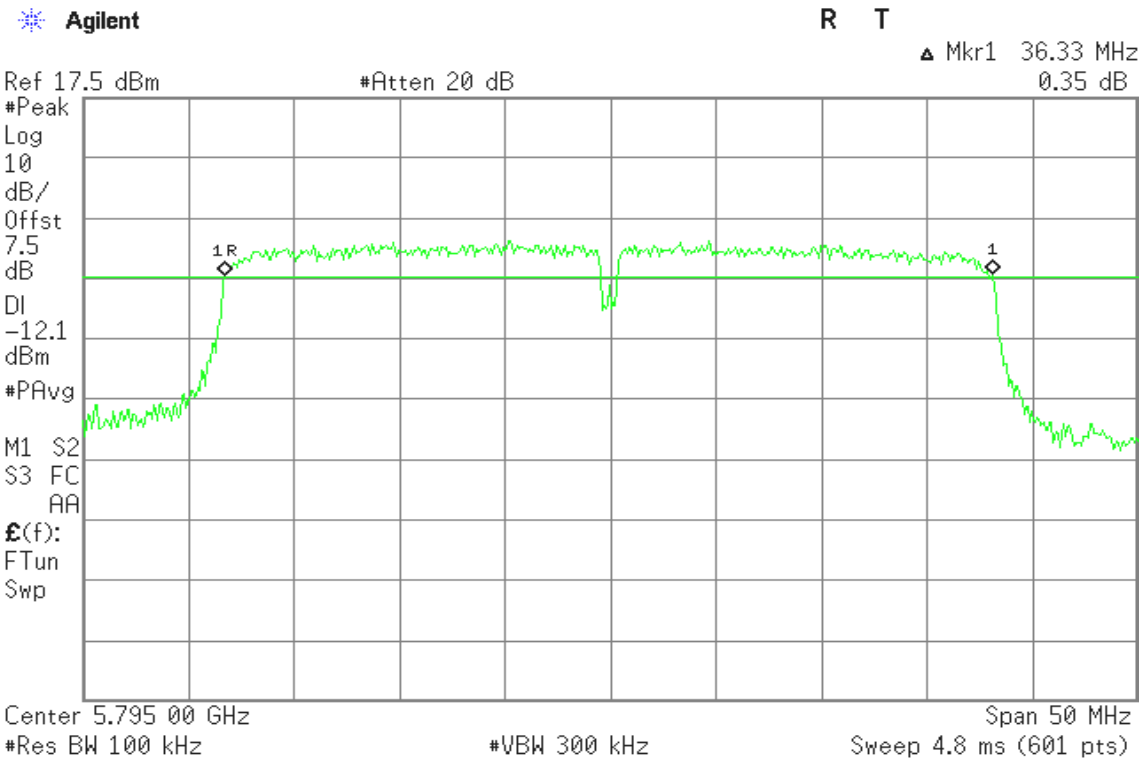


IEEE 802.11n HT40 mode (Chain 0)

6dB Bandwidth (CH Low)

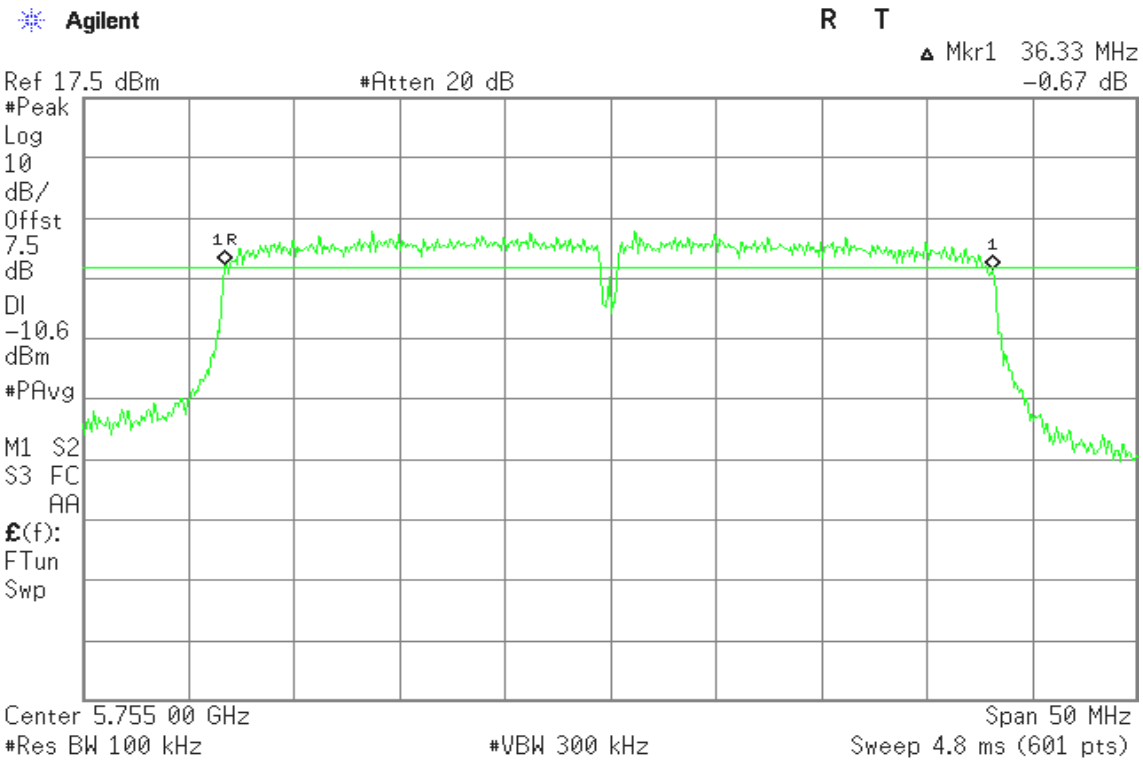


6dB Bandwidth (CH High)

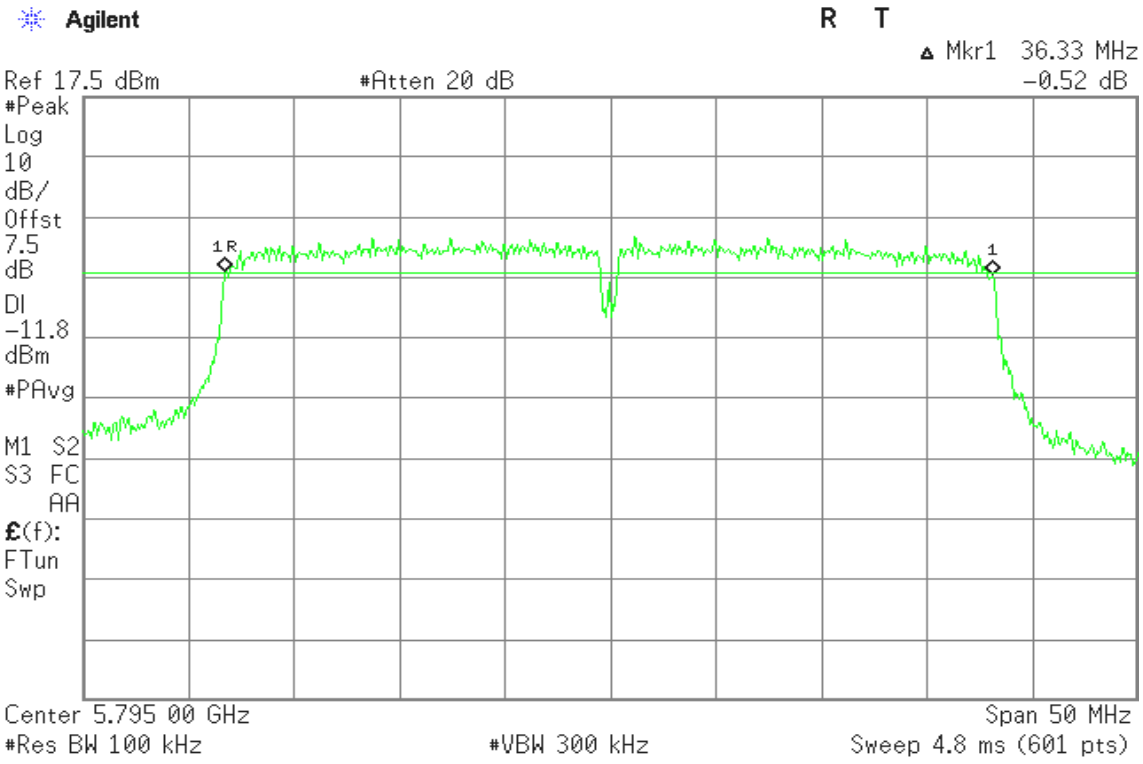


IEEE 802.11n HT40 mode (Chain 1)

6dB Bandwidth (CH Low)



6dB Bandwidth (CH High)



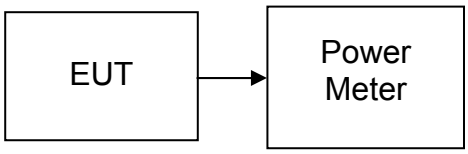
7.2 PEAK POWER

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.

Test Configuration



TEST PROCEDURE

Per KDB 558074 V02

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	20.04	0.1009	1.00	PASS
Mid	2437	20.17	0.1040		PASS
High	2462	19.85	0.0966		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	25.57	0.3606	1.00	PASS
Mid	2437	25.76	0.3767		PASS
High	2462	24.34	0.2716		PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)	Limit (W)	Result
Low	2412	24.33	24.51	27.43	0.2710	0.2825	0.5535	1.00	PASS
Mid	2437	24.36	25.21	27.82	0.2729	0.3319	0.6048		PASS
High	2462	24.77	23.64	27.25	0.2999	0.2312	0.5311		PASS

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)	Limit (W)	Result
Low	2422	20.05	21.10	23.62	0.1012	0.1288	0.2300	1.00	PASS
Mid	2437	19.85	20.82	23.37	0.0966	0.1208	0.2174		PASS
High	2452	20.11	20.92	23.54	0.1026	0.1236	0.2262		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	20.72	0.1180	1.00	PASS
Mid	5785	20.12	0.1028		PASS
High	5825	20.71	0.1178		PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)	Limit (W)	Result
Low	5745	18.61	18.81	21.72	0.0726	0.0760	0.1486	1.00	PASS
Mid	5785	18.8	18.1	21.47	0.0759	0.0646	0.1404		PASS
High	5825	18.3	18.22	21.27	0.0676	0.0664	0.1340		PASS

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)	Limit (W)	Result
Low	5755	17.92	18.19	21.07	0.0619	0.0659	0.1279	1.00	PASS
High	5795	18.17	18.95	21.59	0.0656	0.0785	0.1441		PASS

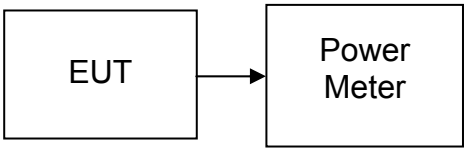
Remark: *Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000))*

7.3 AVERAGE POWER

LIMIT

None; for reporting purposes only.

Test Configuration



TEST PROCEDURE

Per KDB 558074 V02

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	16.87	0.0486
Mid	2437	17.13	0.0516
High	2462	16.78	0.0476

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	2412	17.75	0.0596
Mid	2437	17.81	0.0604
High	2462	16.74	0.0472

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)
Low	2412	16.12	16.05	19.10	0.0409	0.0403	0.0812
Mid	2437	16.15	16.84	19.52	0.0412	0.0483	0.0895
High	2462	15.41	15.11	18.27	0.0348	0.0324	0.0672

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)
Low	2422	12.34	12.93	15.66	0.0171	0.0196	0.0368
Mid	2437	12.23	12.83	15.55	0.0167	0.0192	0.0359
High	2452	12.34	12.59	15.48	0.0171	0.0182	0.0353

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	12.81	0.0191
Mid	5785	12.44	0.0175
High	5825	12.91	0.0195

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)
Low	5745	10.41	10.84	13.64	0.0110	0.0121	0.0231
Mid	5785	10.72	10.32	13.53	0.0118	0.0108	0.0226
High	5825	10.75	10.13	13.46	0.0119	0.0103	0.0222

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Output Power (dBm)	Chain 0 Output Power (W)	Chain 1 Output Power (W)	Total Output Power (W)
Low	5755	9.67	10.19	12.95	0.0093	0.0104	0.0197
High	5795	9.57	9.65	12.62	0.0091	0.0092	0.0183

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

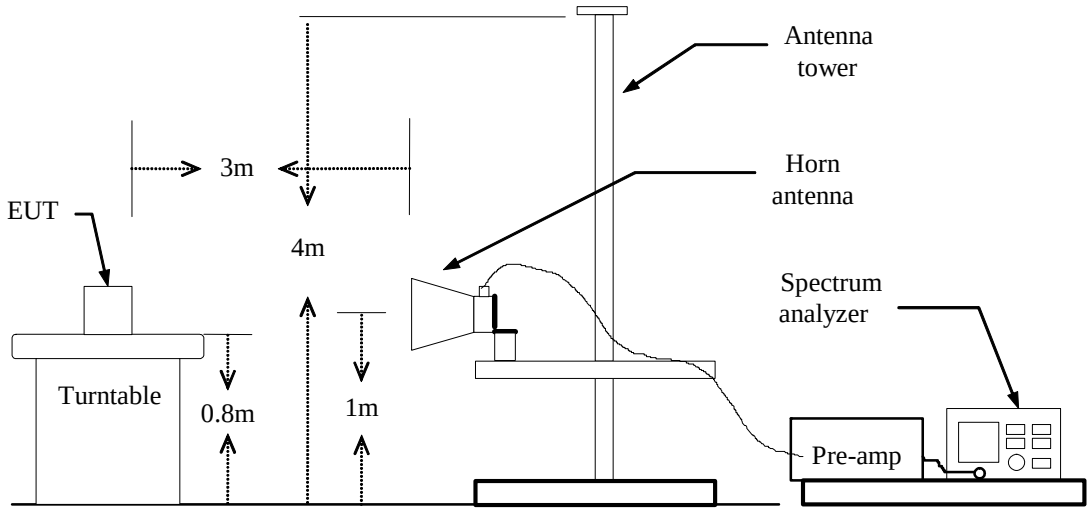
7.4 BAND EDGES MEASUREMENT

LIMIT

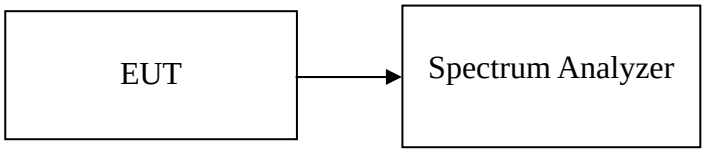
According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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=10Hz / 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.

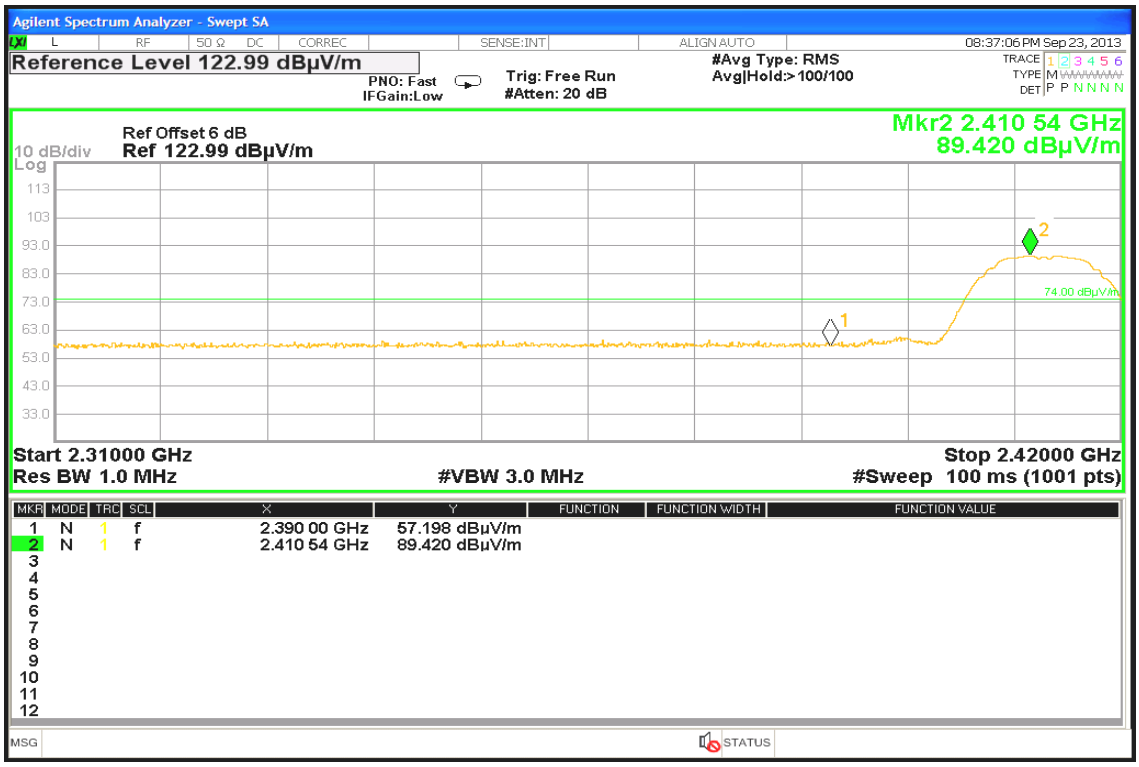
802.11a Mode

1. Operating Frequency: 5725-5875MHz
2. CH Low: 5745MHz, CH High: 5825MHz
3. 6dB bandwidth: CH Low: 16.55MHz, CH High: 16.55MHz

Because the mentioned conditions, the test is not applicable.

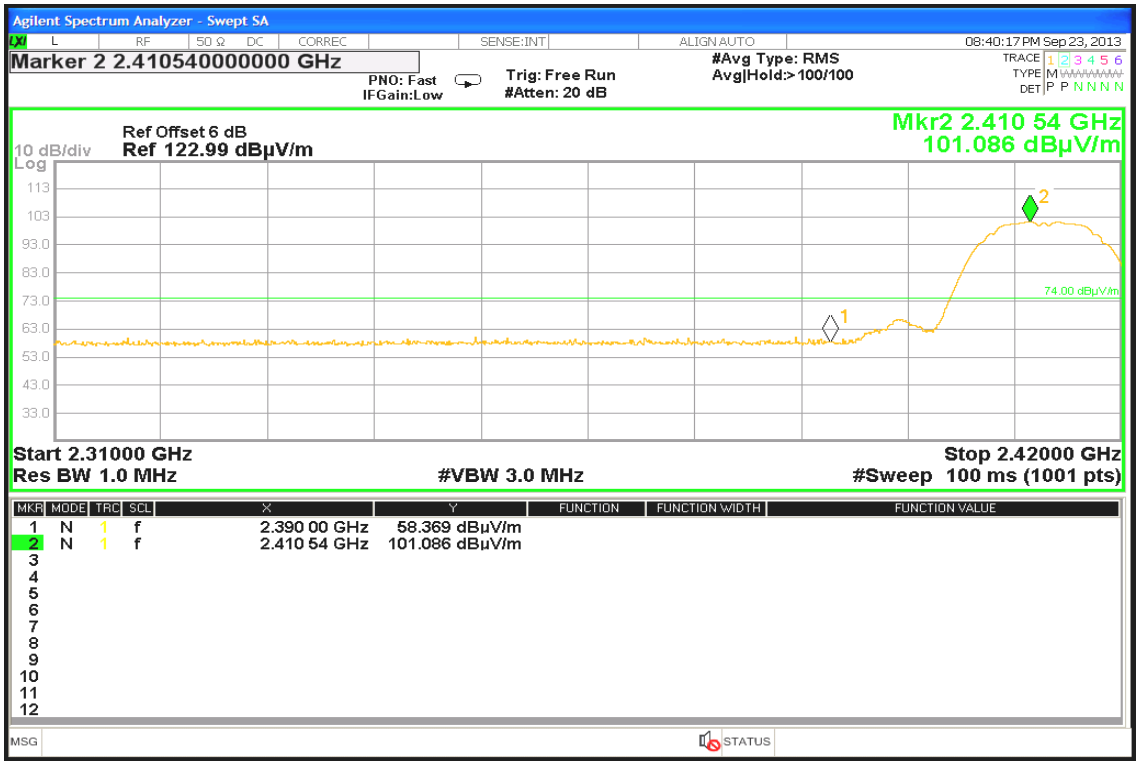
Band Edges (IEEE 802.11b mode / CH Low)

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

Detector mode: Peak Polarity: Horizontal

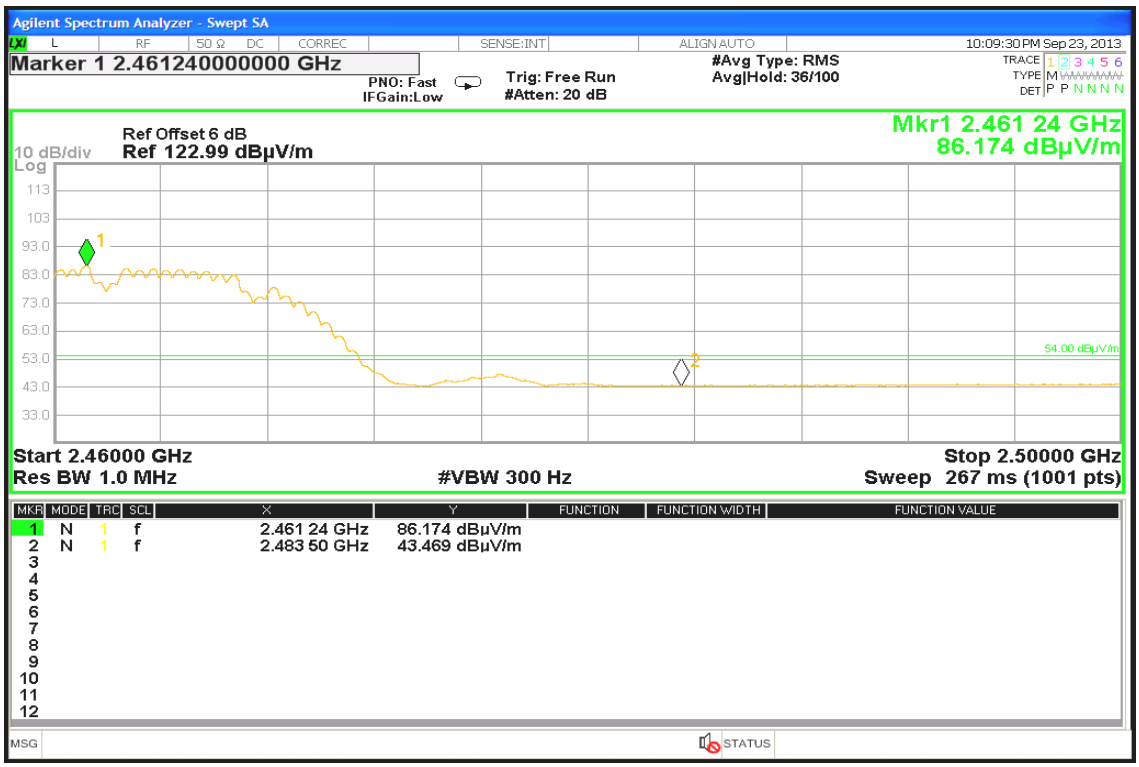


Detector mode: Average Polarity: Horizontal

Band Edges (IEEE 802.11b mode / CH High)

Detector mode: Peak Polarity: Vertical

Detector mode: Average Polarity: Vertical

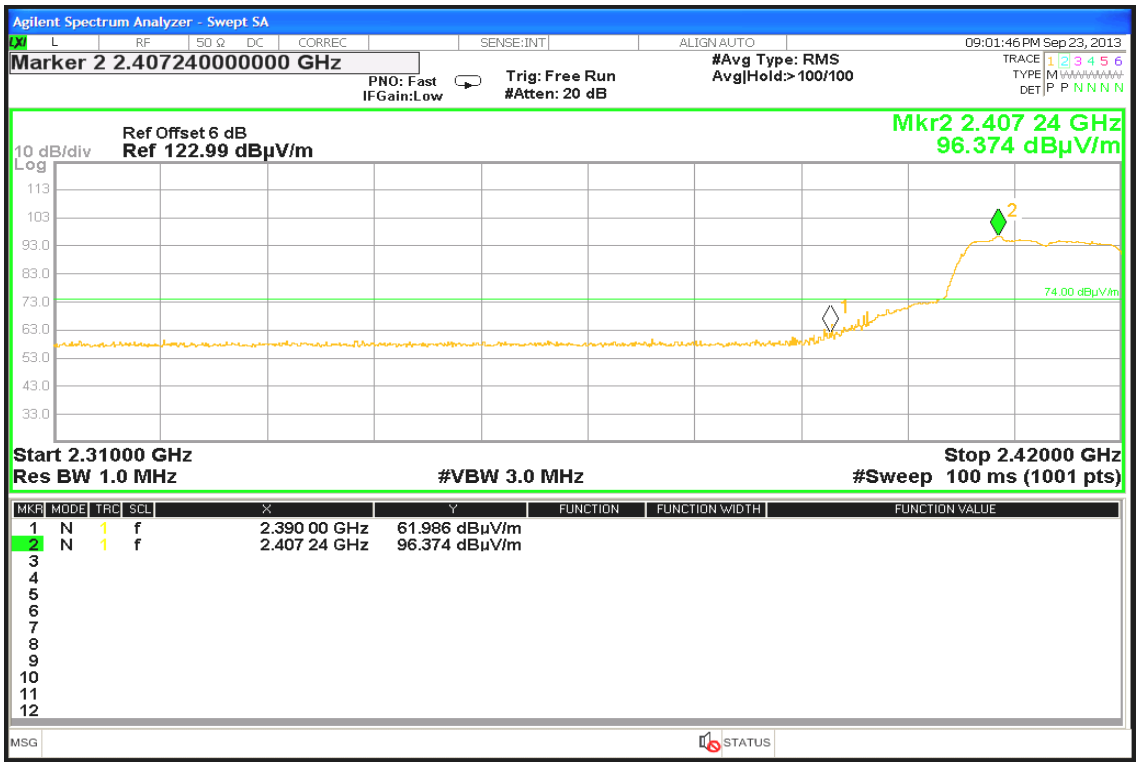


Detector mode: Peak Polarity: Horizontal

Detector mode: Average Polarity: Horizontal

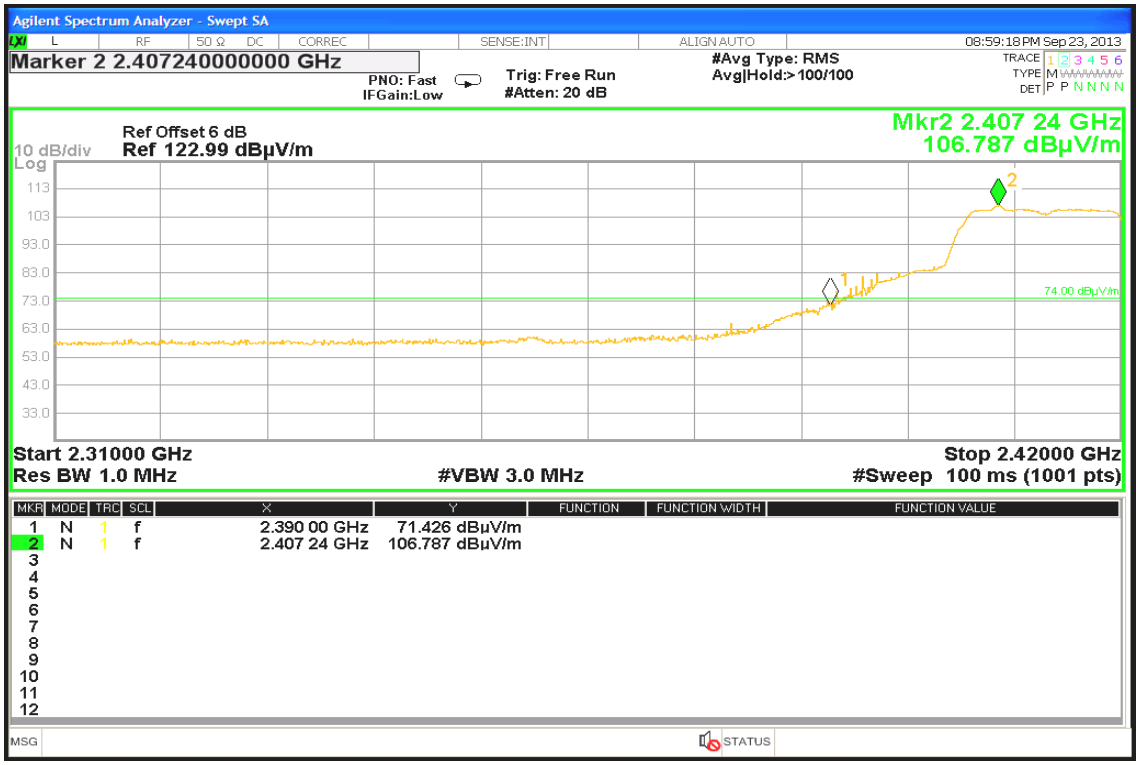
Band Edges (IEEE 802.11g mode / CH Low)

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

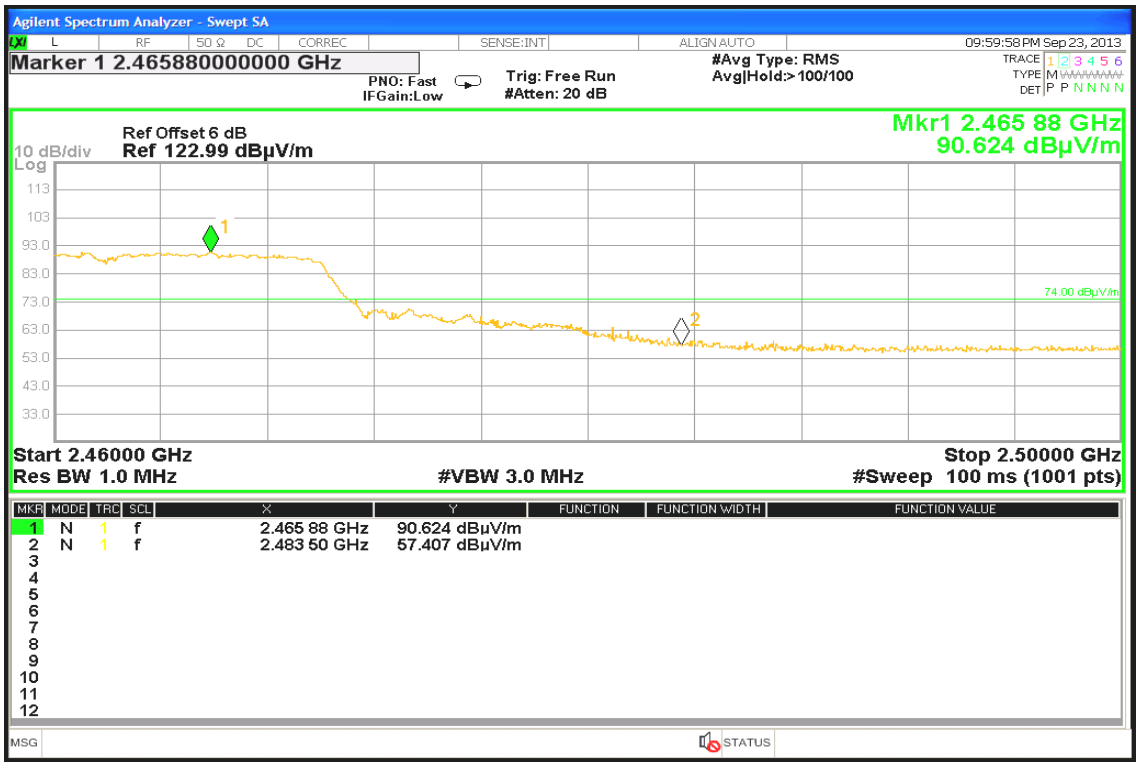
Detector mode: Peak Polarity: Horizontal



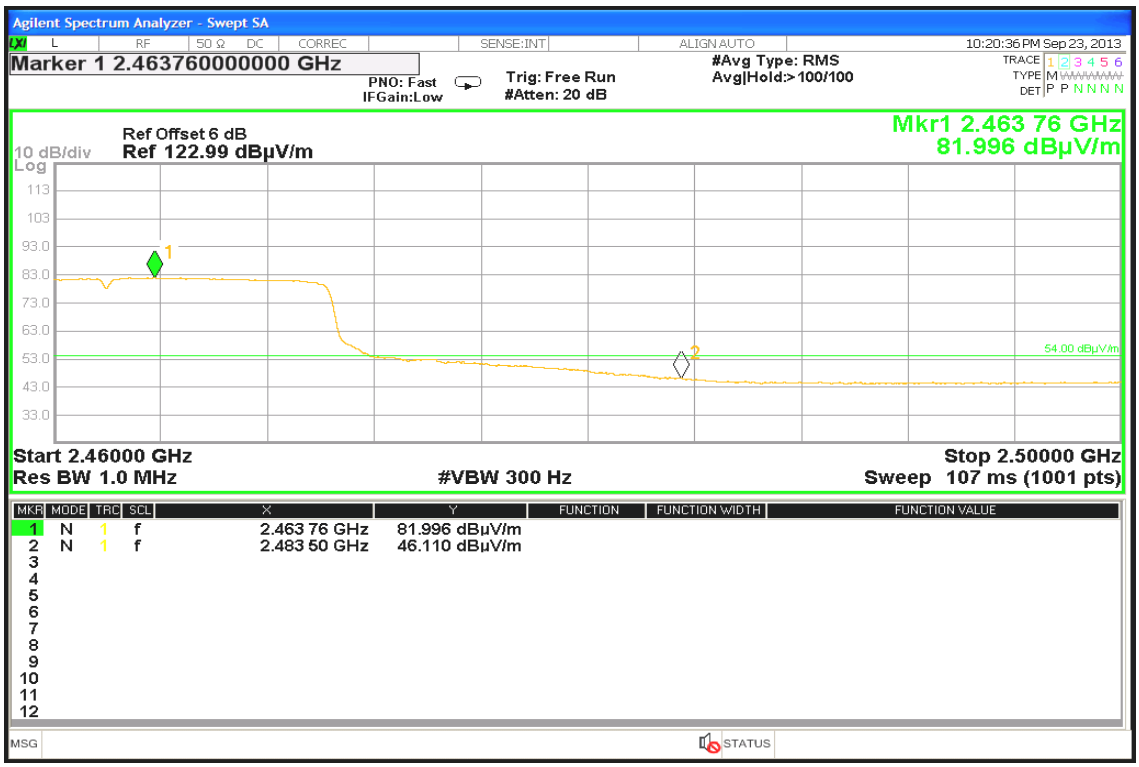
Detector mode: Average Polarity: Horizontal

Band Edges (IEEE 802.11g mode / CH High)

Detector mode: Peak Polarity: Vertical

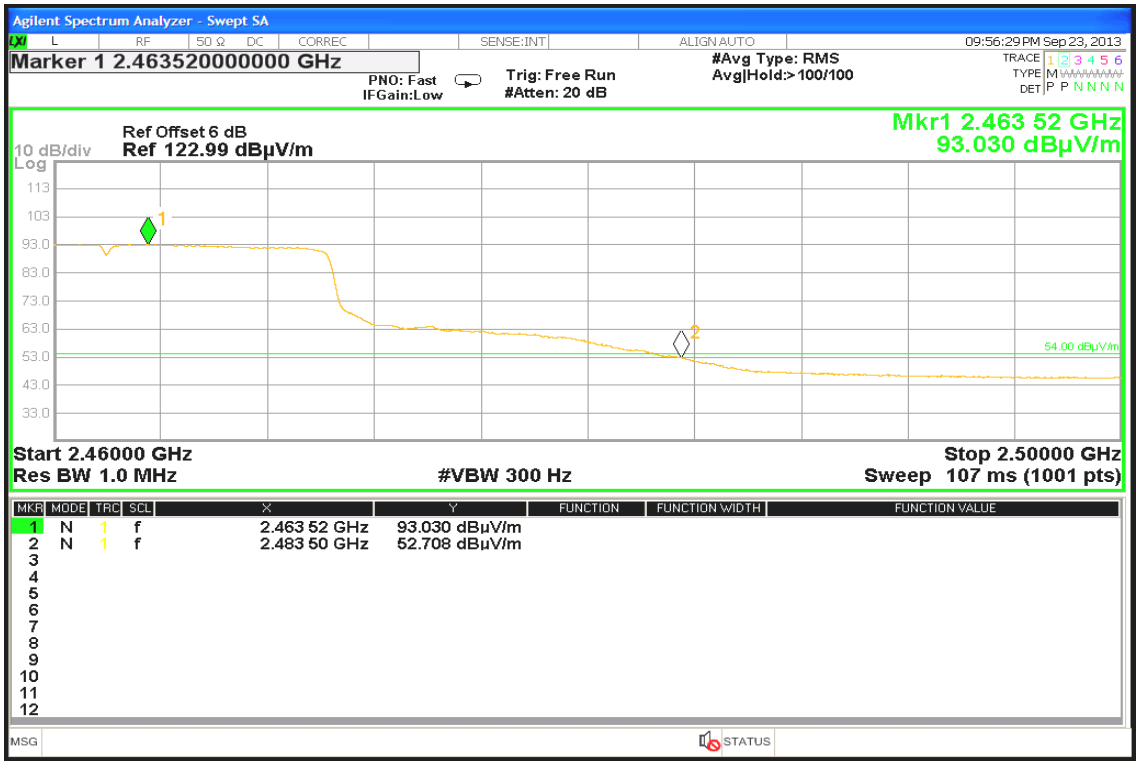


Detector mode: Average Polarity: Vertical



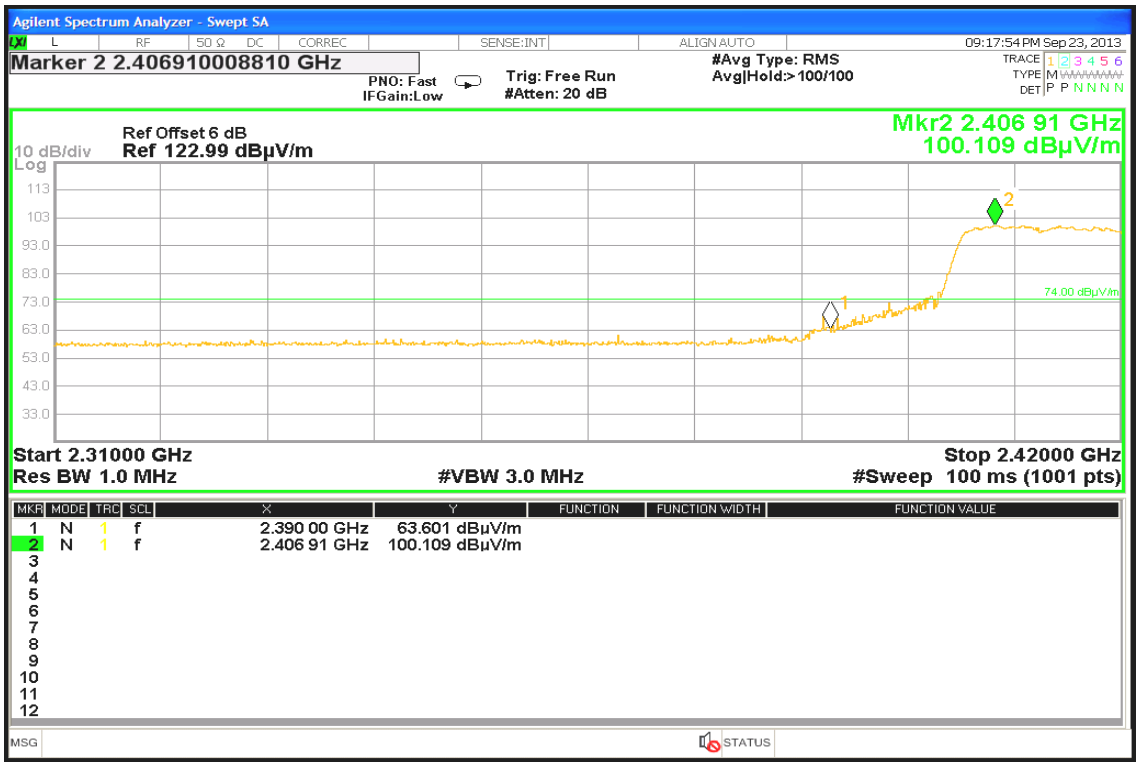
Detector mode: Peak Polarity: Horizontal

Detector mode: Average Polarity: Horizontal



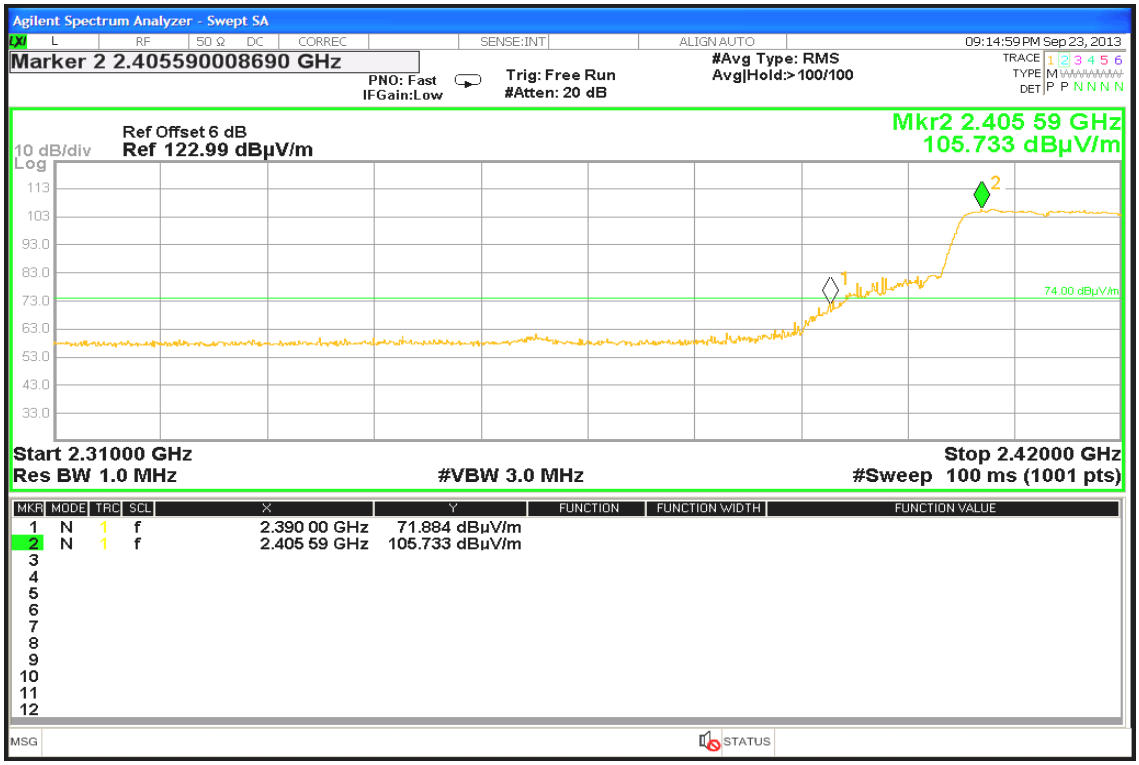
Band Edges (IEEE 802.11n HT20 mode / CH Low)

Detector mode: Peak Polarity: Vertical

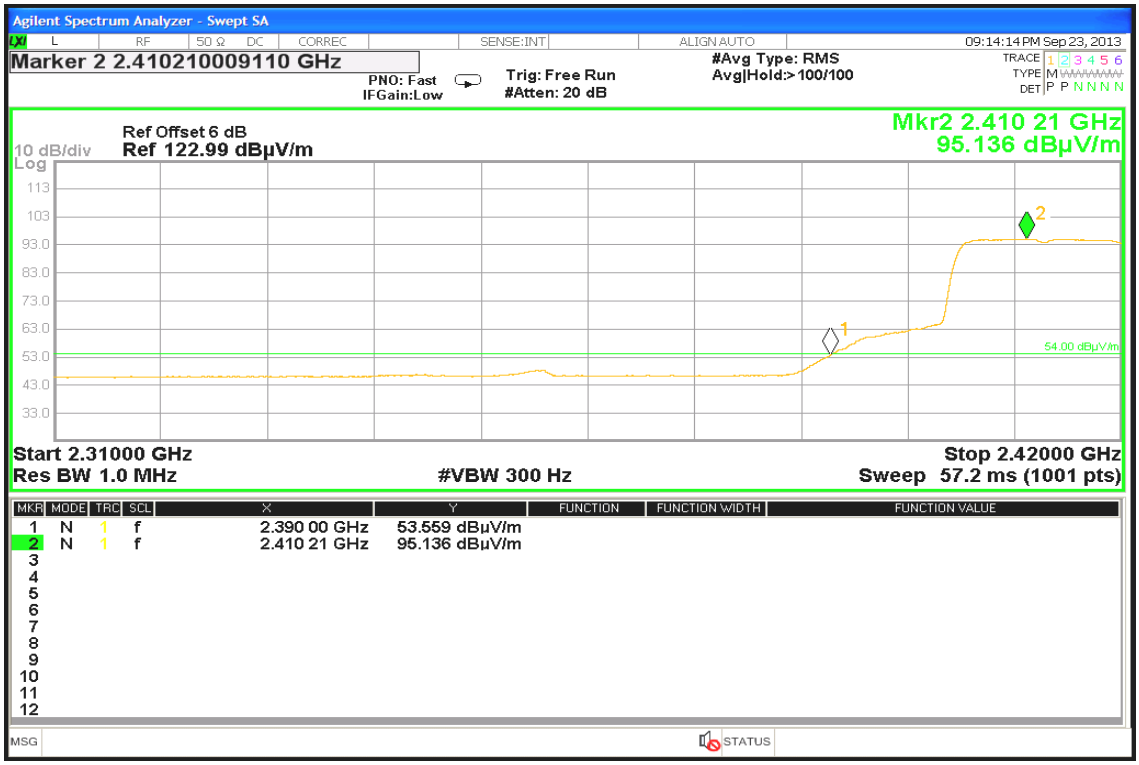


Detector mode: Average Polarity: Vertical

Detector mode: Peak Polarity: Horizontal



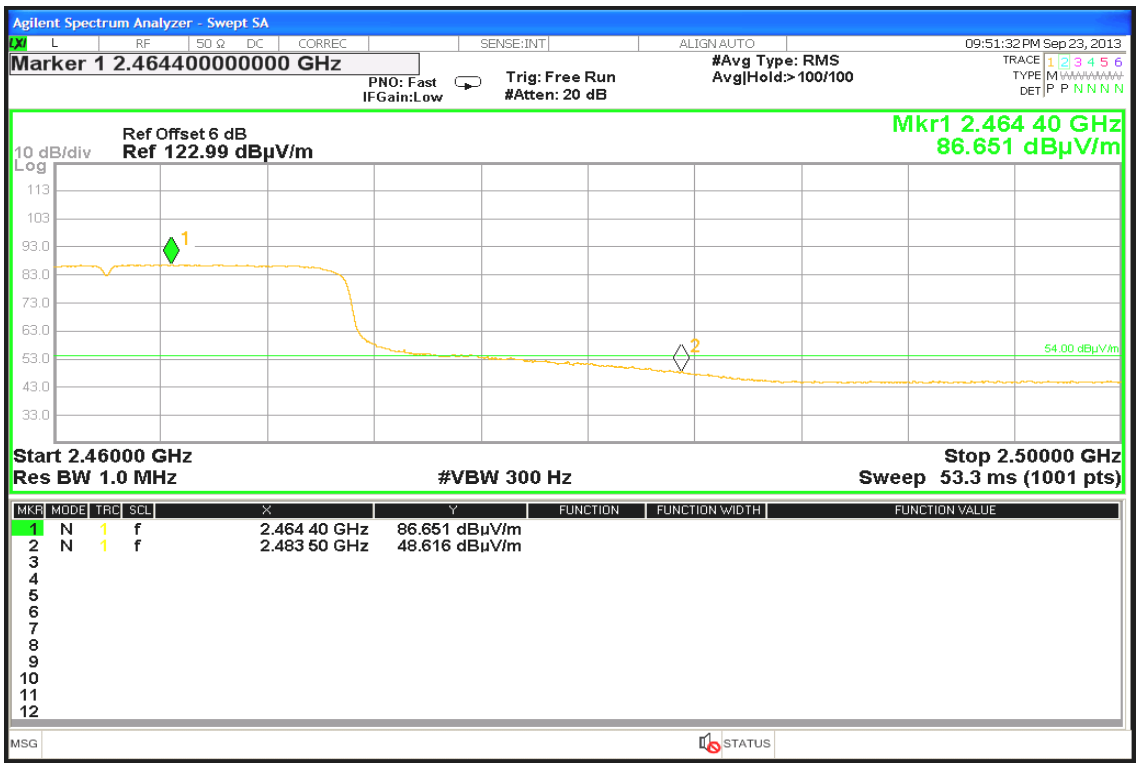
Detector mode: Average Polarity: Horizontal



Band Edges (IEEE 802.11n HT20 mode / CH High)

Detector mode: Peak Polarity: Vertical

Detector mode: Average Polarity: Vertical

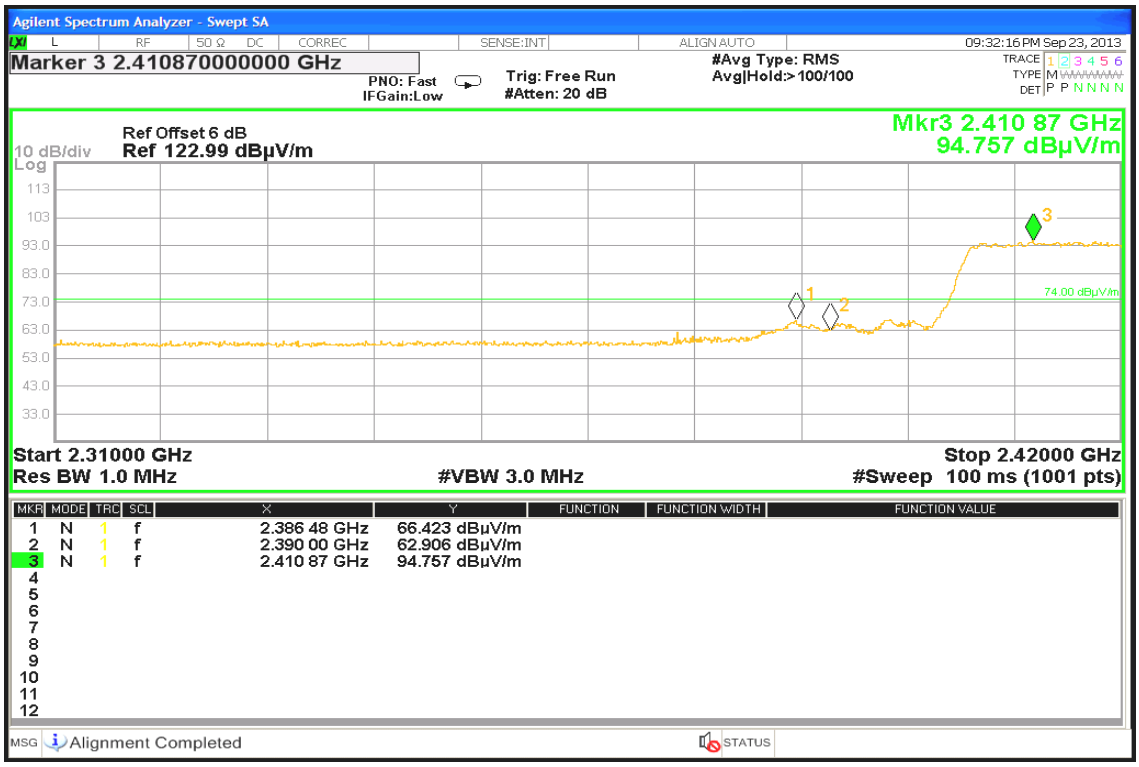


Detector mode: Peak Polarity: Horizontal

Detector mode: Average Polarity: Horizontal

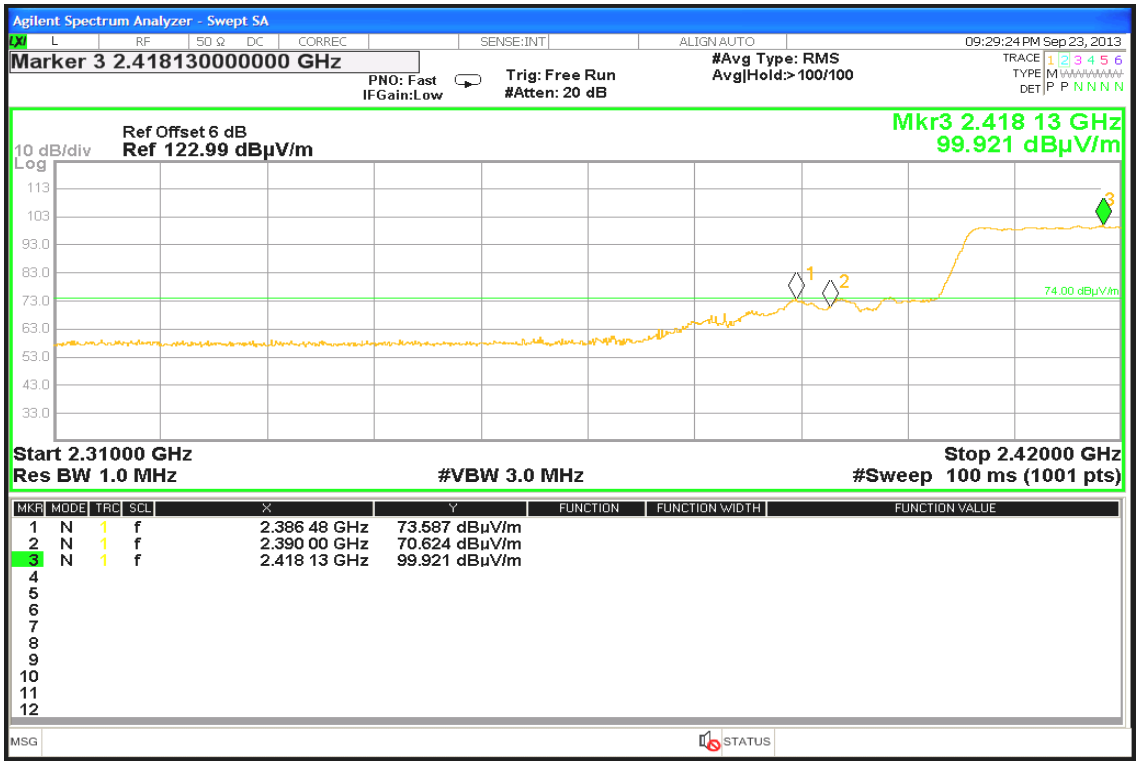
Band Edges (IEEE 802.11n HT40 mode / CH Low)

Detector mode: Peak Polarity: Vertical

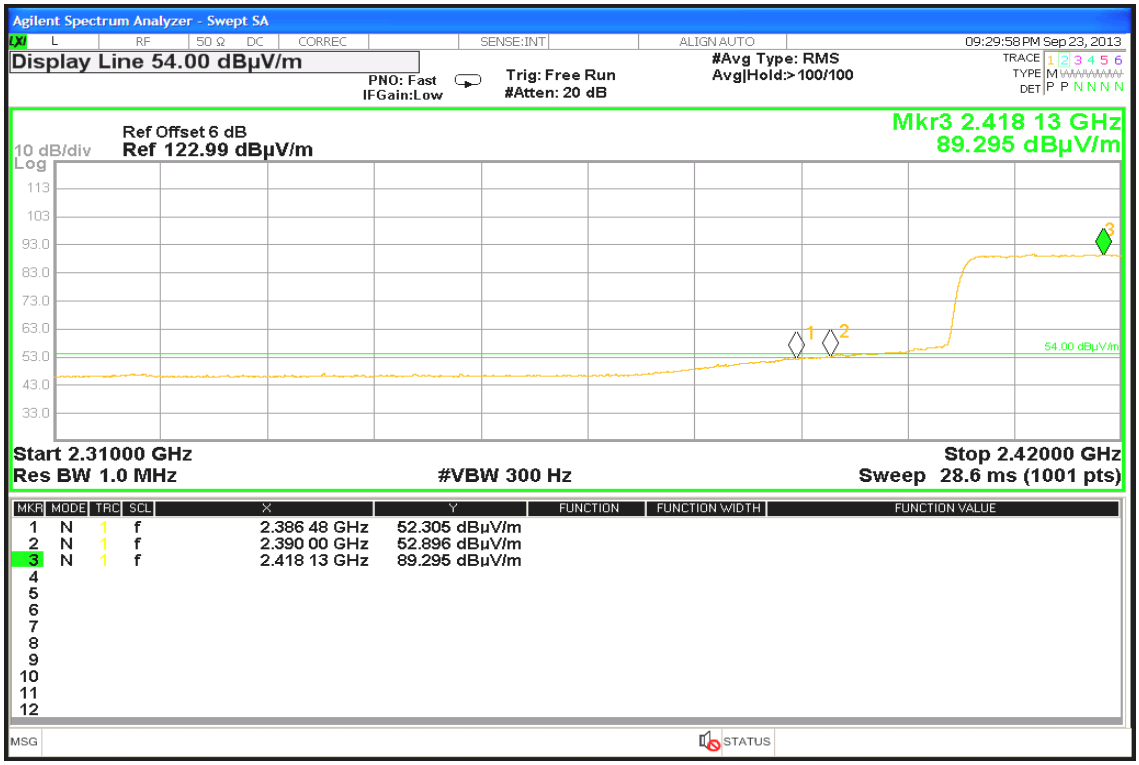


Detector mode: Average Polarity: Vertical

Detector mode: Peak Polarity: Horizontal



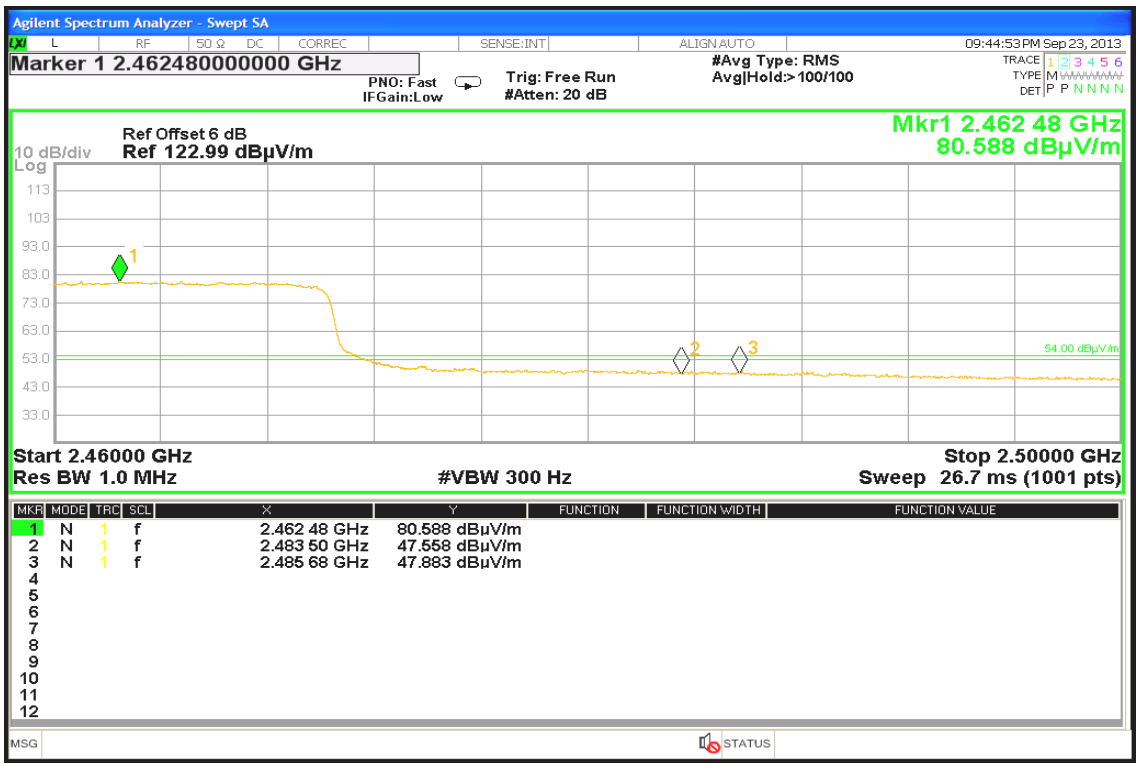
Detector mode: Average Polarity: Horizontal



Band Edges (IEEE 802.11n HT40 mode / CH High)

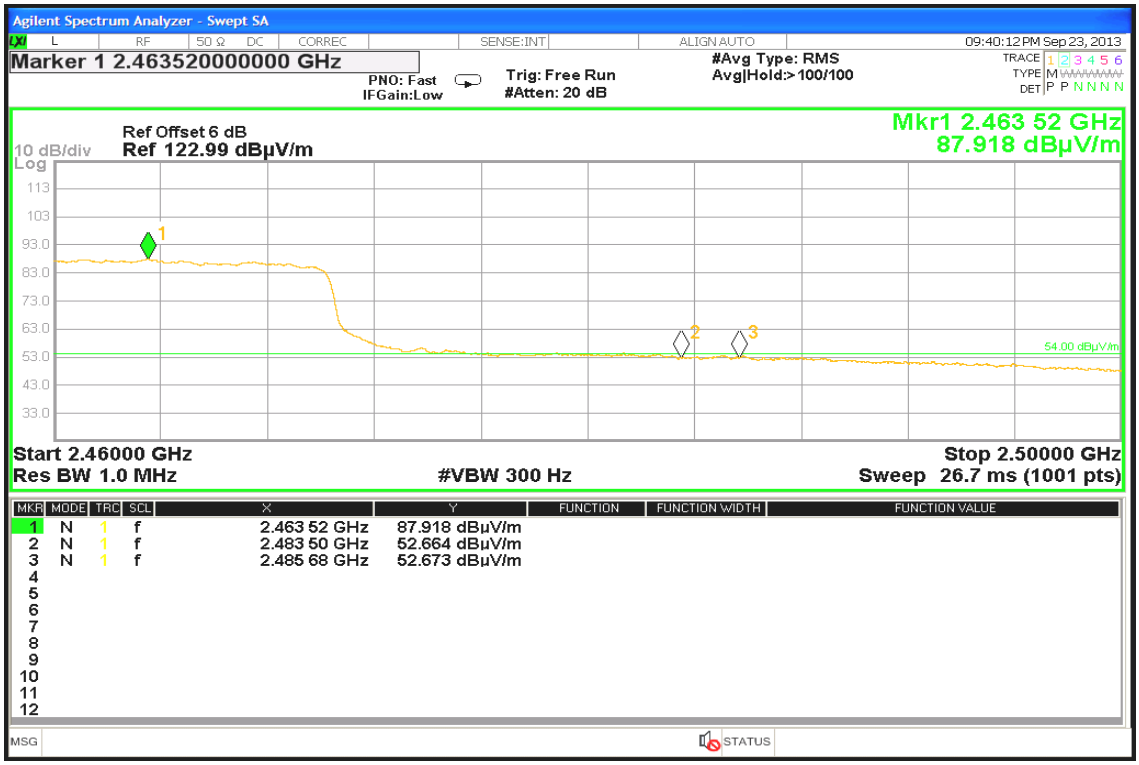
Detector mode: Peak Polarity: Vertical

Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**

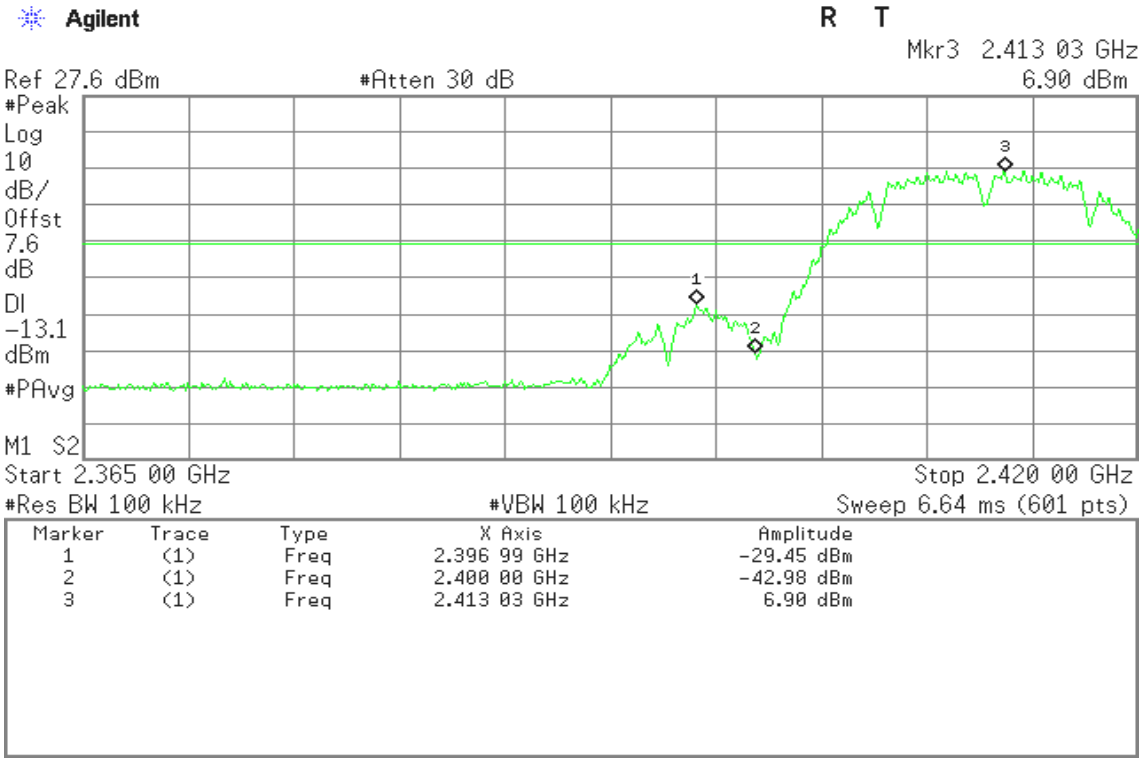
Detector mode: Average **Polarity: Horizontal**



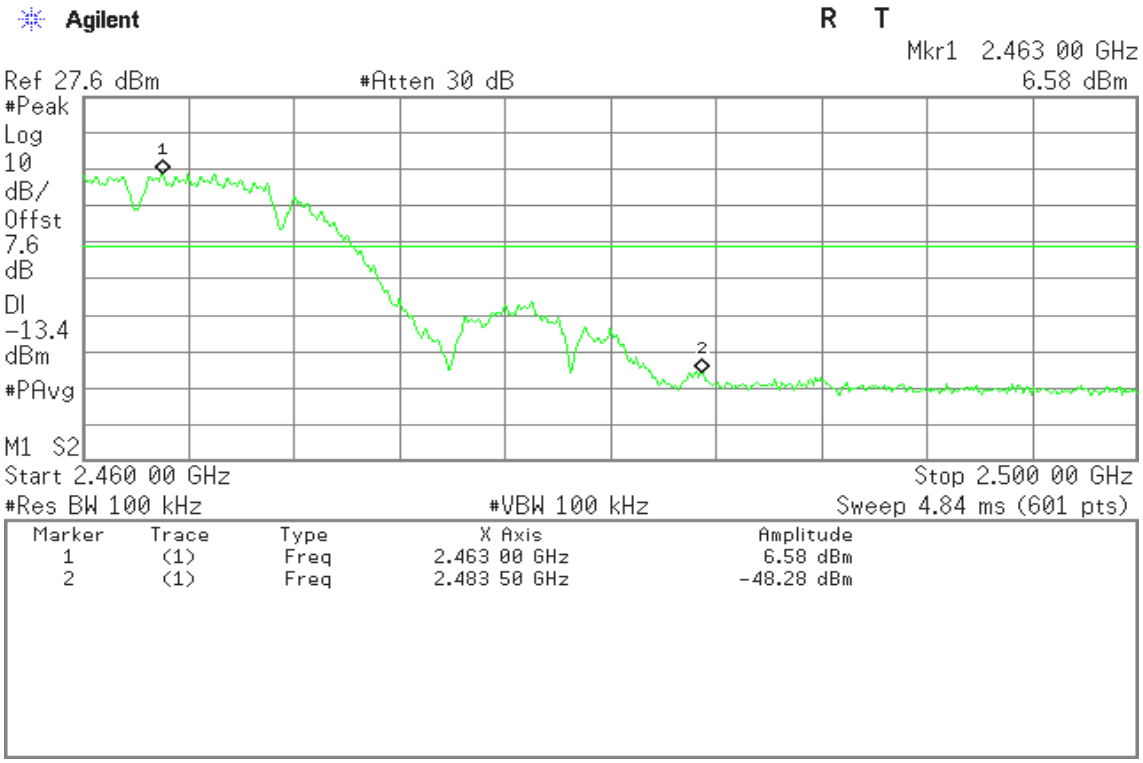
Conducted Band Edges

Test Plot

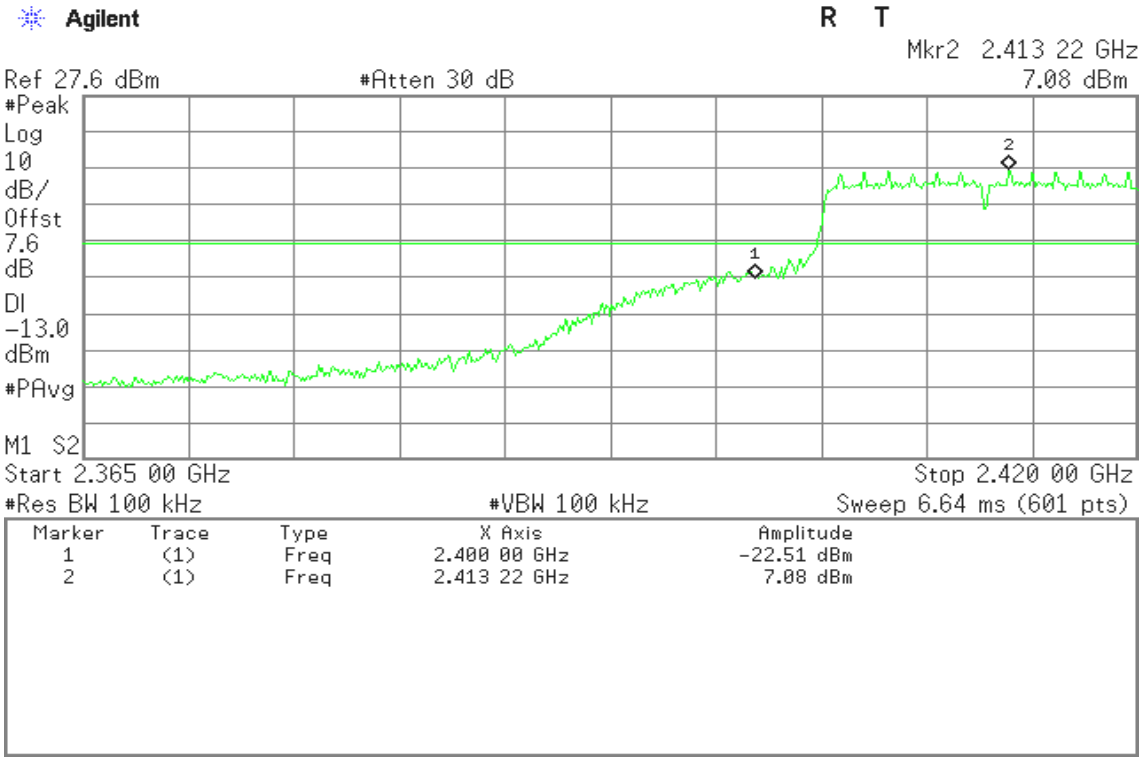
Conducted Band Edges (IEEE 802.11b mode / CH Low)



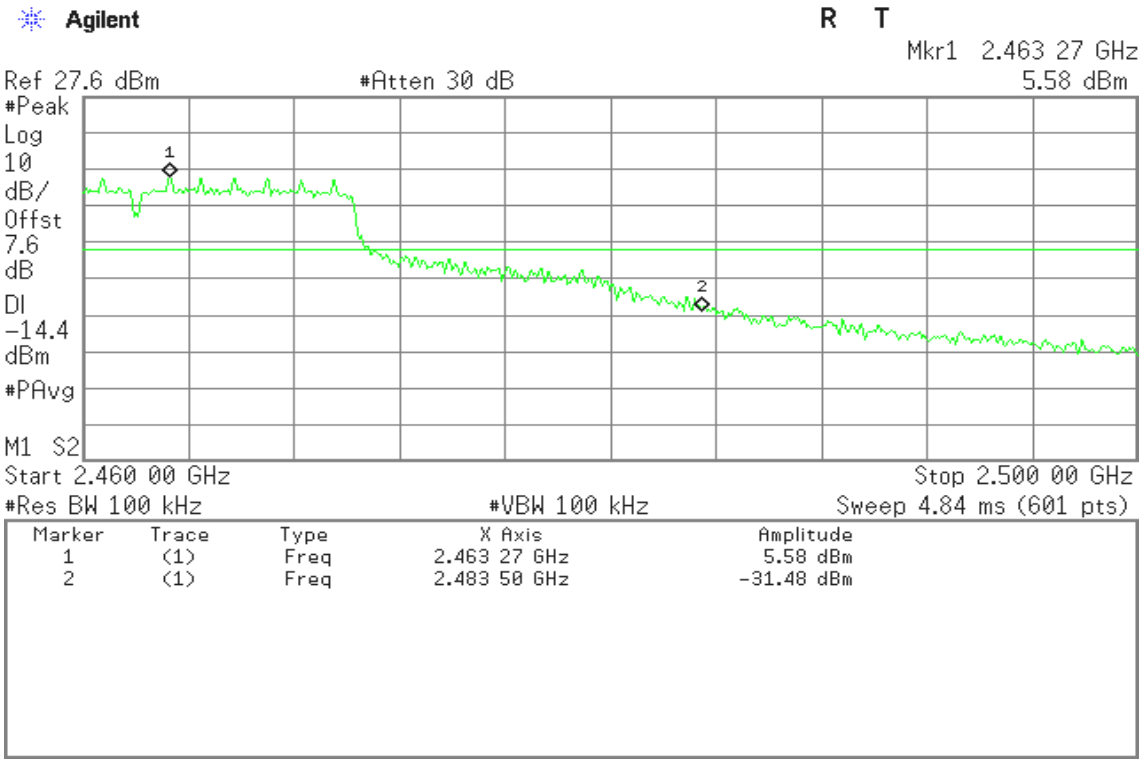
Conducted Band Edges (IEEE 802.11b mode / CH High)



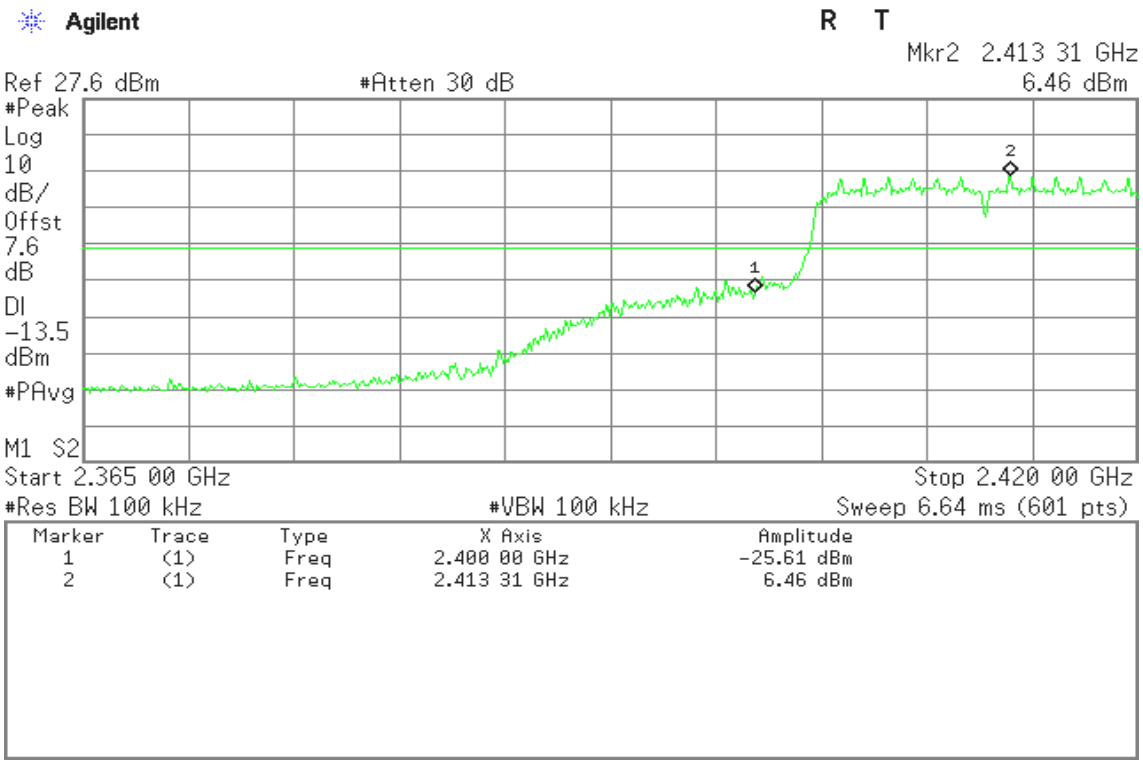
Conducted Band Edges (IEEE 802.11g mode / CH Low)



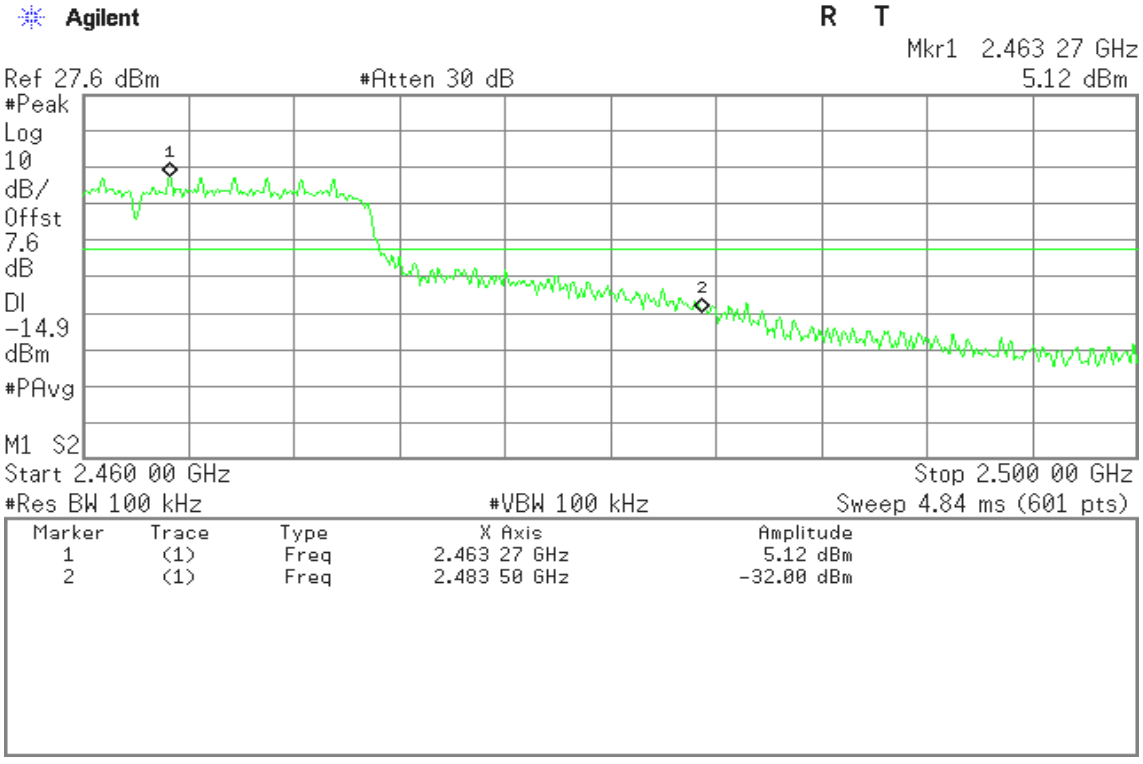
Conducted Band Edges (IEEE 802.11g mode / CH High)



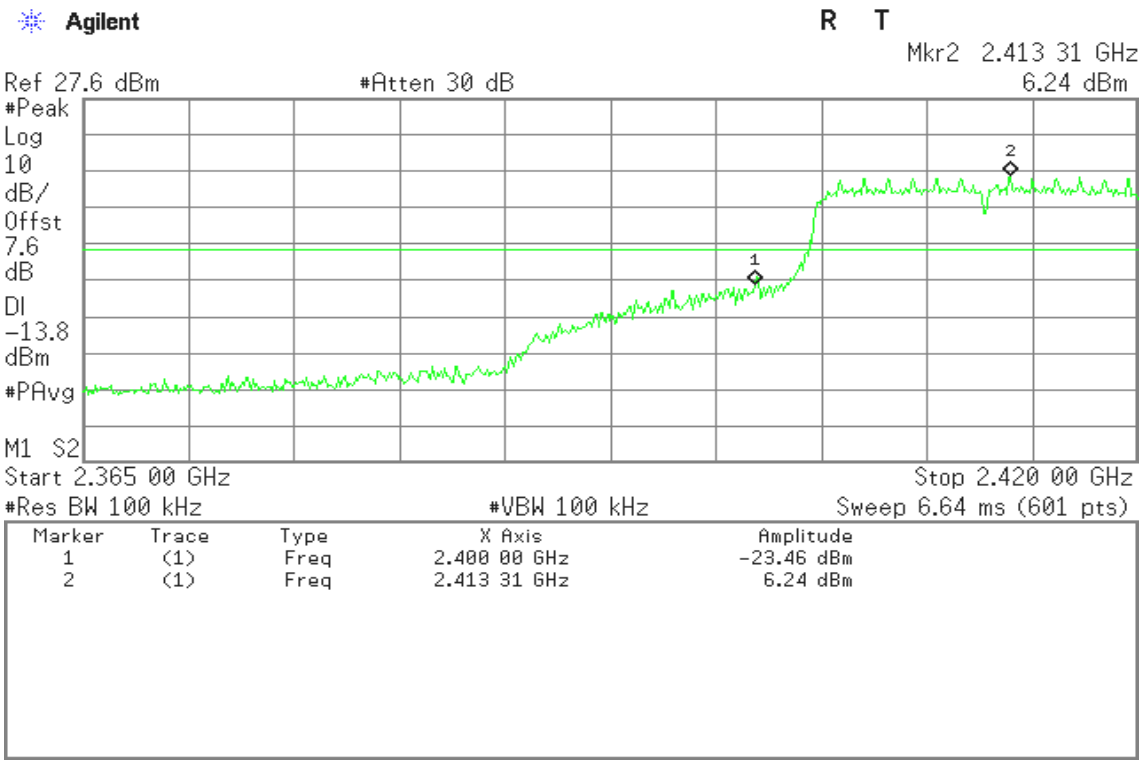
Conducted Band Edges (IEEE 802.11n HT20 mode / Chain 0 / CH Low)



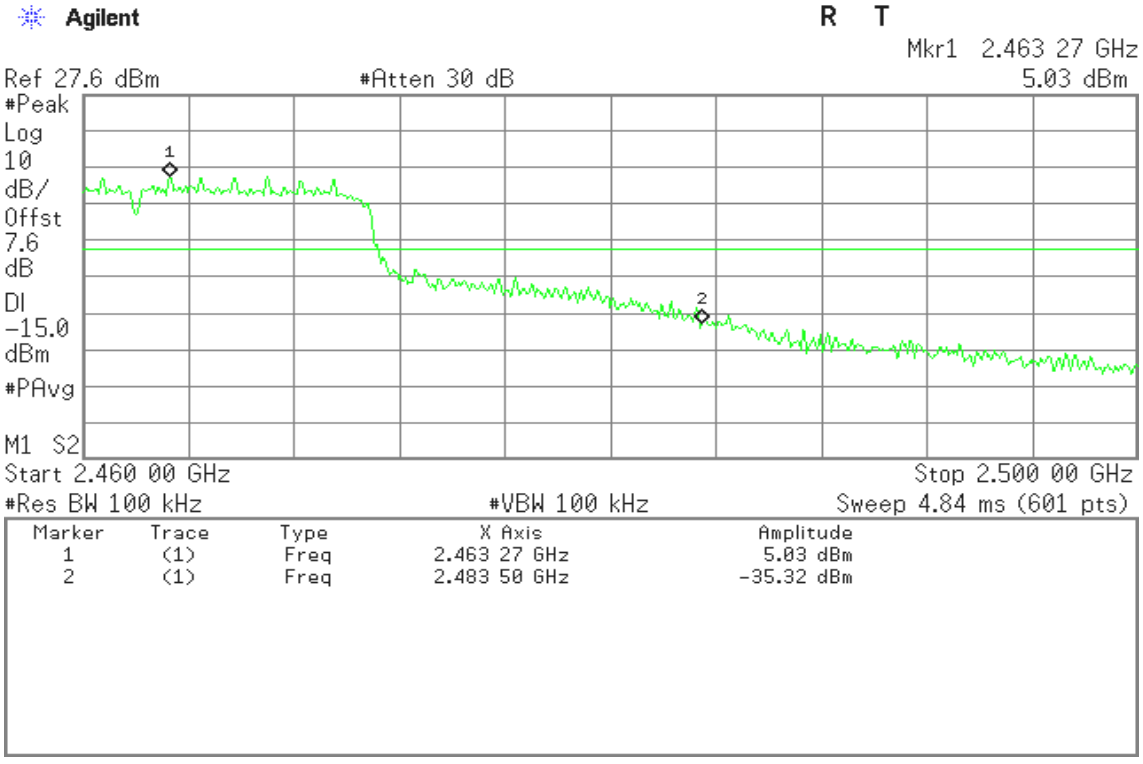
Conducted Band Edges (IEEE 802.11n HT20 mode / Chain 0 / CH High)



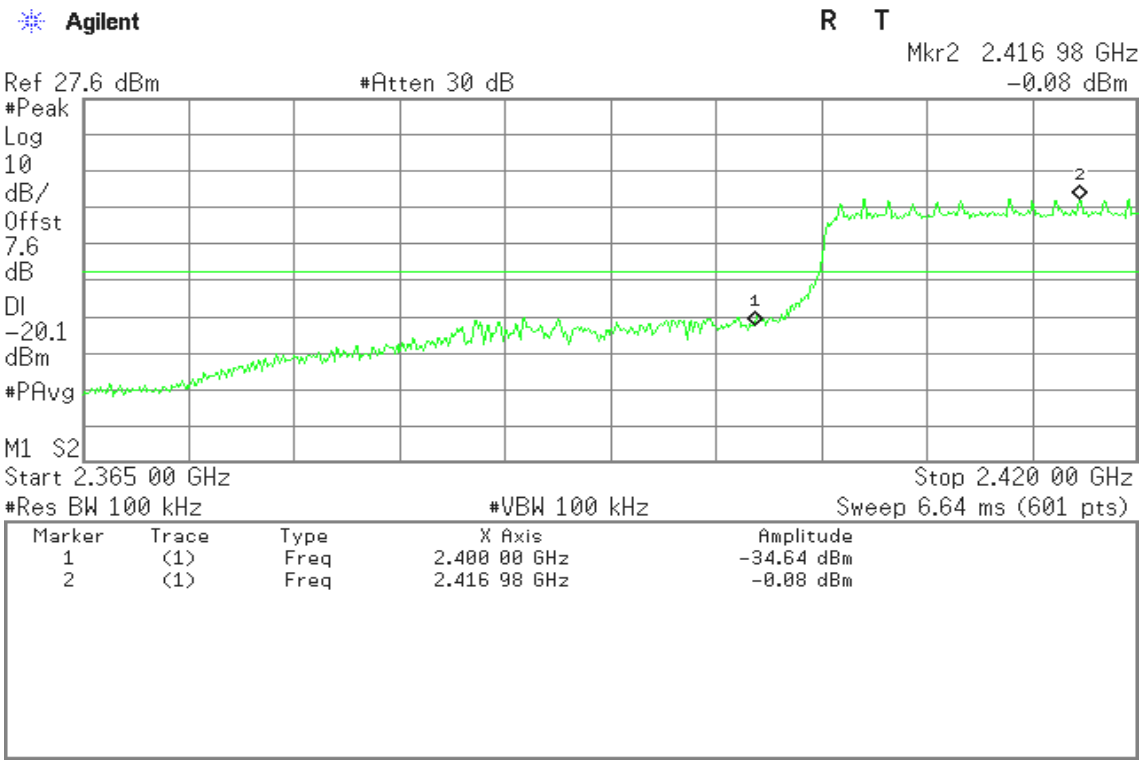
Conducted Band Edges (IEEE 802.11n HT20 mode / Chain 1 / CH Low)



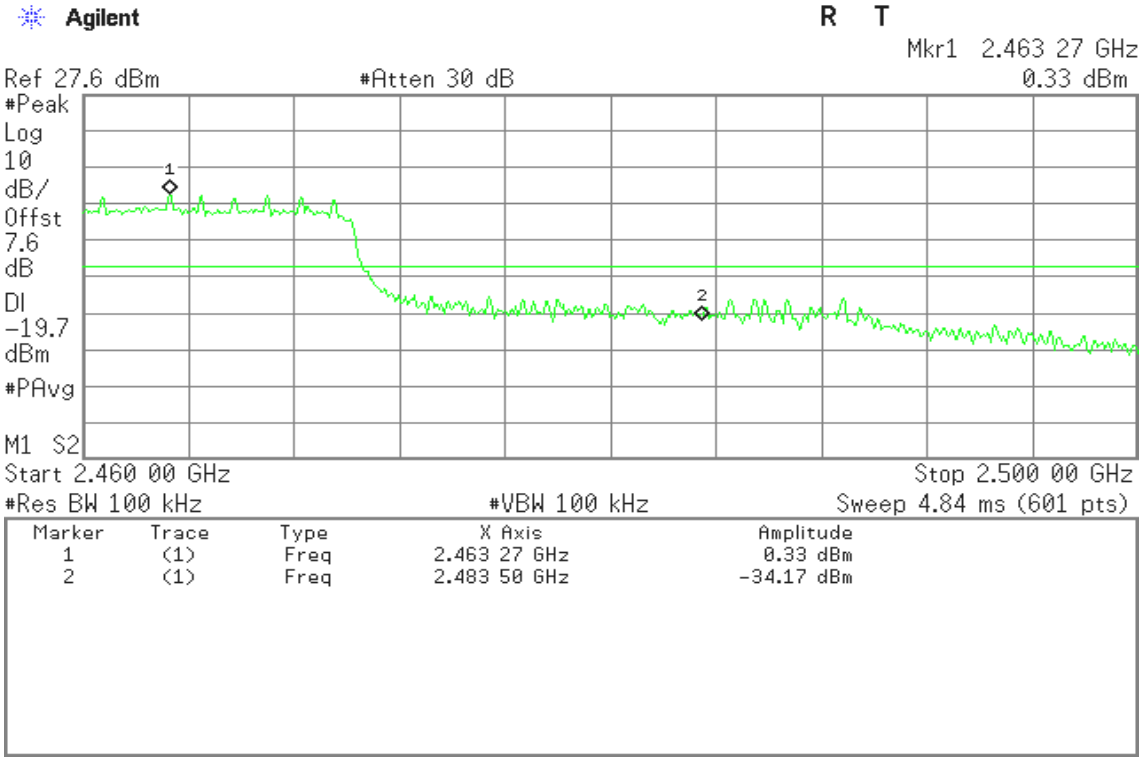
Conducted Band Edges (IEEE 802.11n HT20 mode / Chain 1 / CH High)



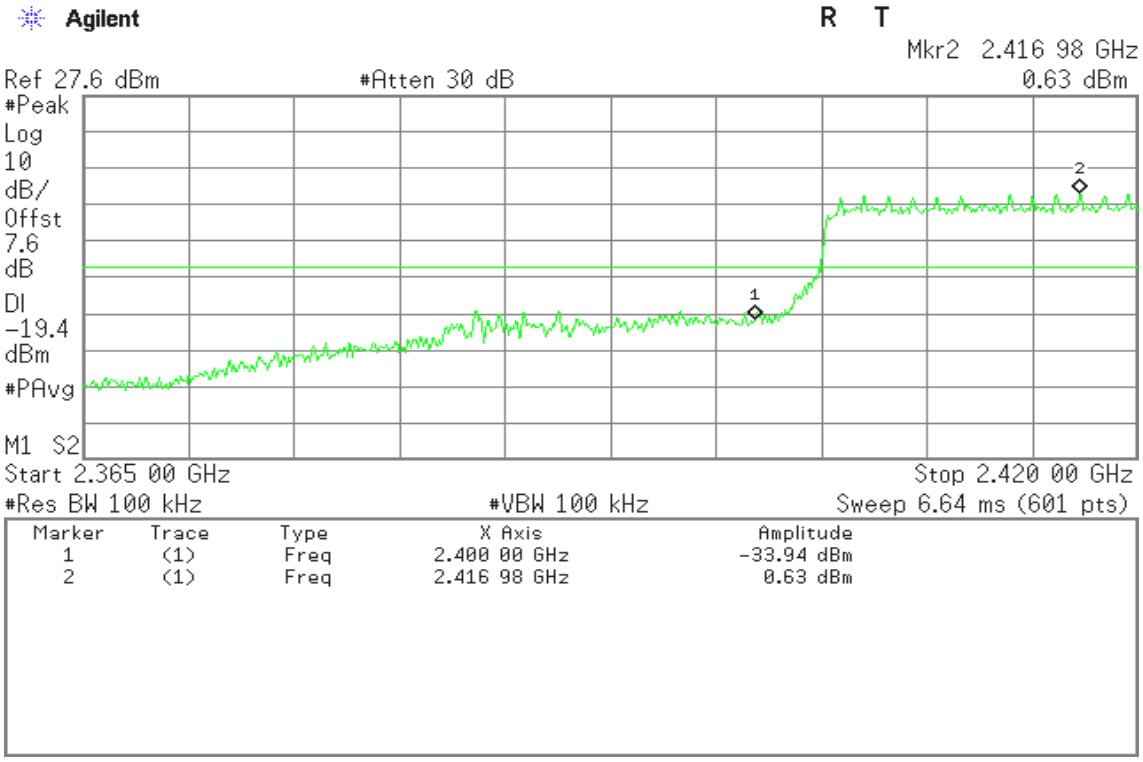
Conducted Band Edges (IEEE 802.11n HT40 mode / Chain 0 / CH Low)



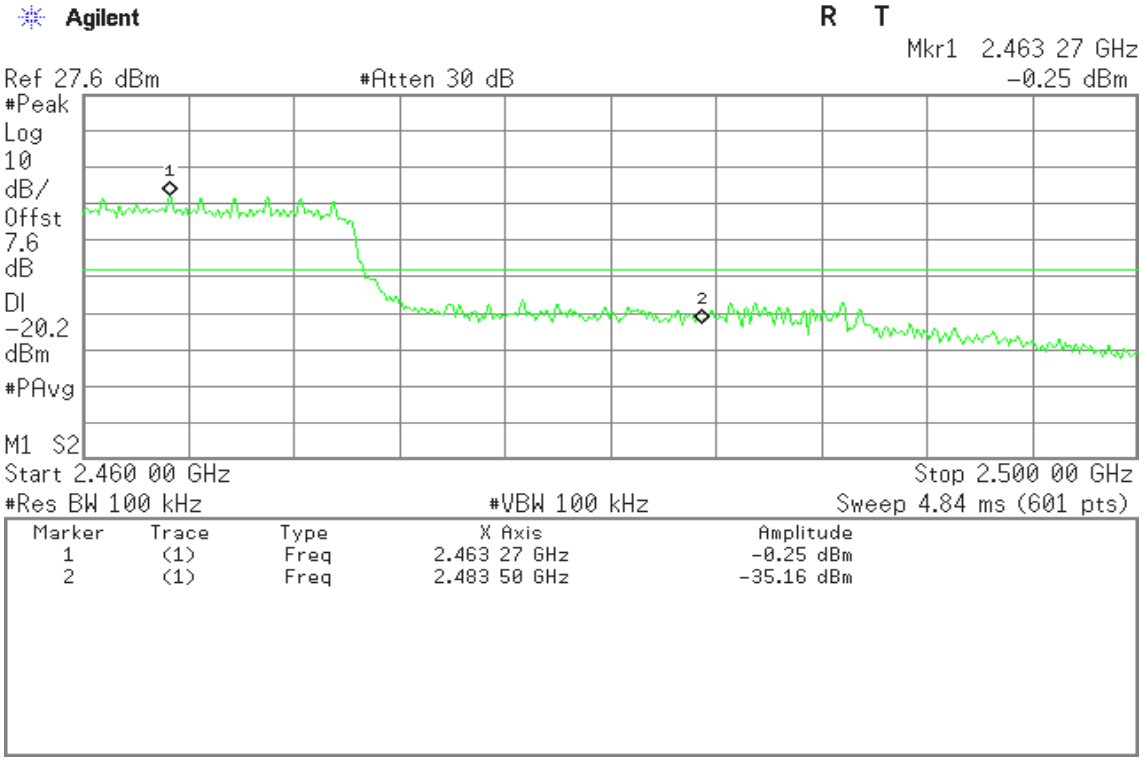
Conducted Band Edges (IEEE 802.11n HT40 mode / Chain 0 / CH High)



Conducted Band Edges (IEEE 802.11n HT40 mode / Chain 1 / CH Low)



Conducted Band Edges (IEEE 802.11n HT40 mode / Chain 1 / CH High)

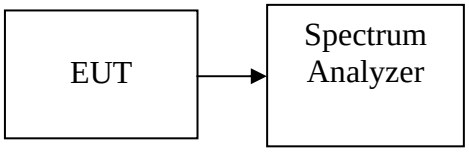


7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to §15.247(f) the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

Test Configuration



TEST PROCEDURE

Per KDB 558074 D01 DTS Meas Guidance v02

This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-7.99	8.00	PASS
Mid	2437	-9.18		PASS
High	2462	-8.80		PASS

Test mode: IEEE 802.11g mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	2412	-8.59	8.00	PASS
Mid	2437	-7.04		PASS
High	2462	-9.28		PASS

Test mode: IEEE 802.11n HT20 mode

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Total		
Low	2412	-9.11	-9.30	-6.19	8.00	PASS
Mid	2437	-8.78	-8.31	-5.53		PASS
High	2462	-10.99	-9.61	-7.24		PASS

Test mode: IEEE 802.11n HT40 mode

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Total		
Low	2422	-15.49	-14.73	-12.08	8.00	PASS
Mid	2437	-15.49	-14.76	-12.10		PASS
High	2452	-15.55	-14.93	-12.22		PASS

Test mode: IEEE 802.11a mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	-14.66	8.00	PASS
Mid	5785	-15.53		PASS
High	5825	-14.21		PASS

Test mode: IEEE 802.11n HT20 mode

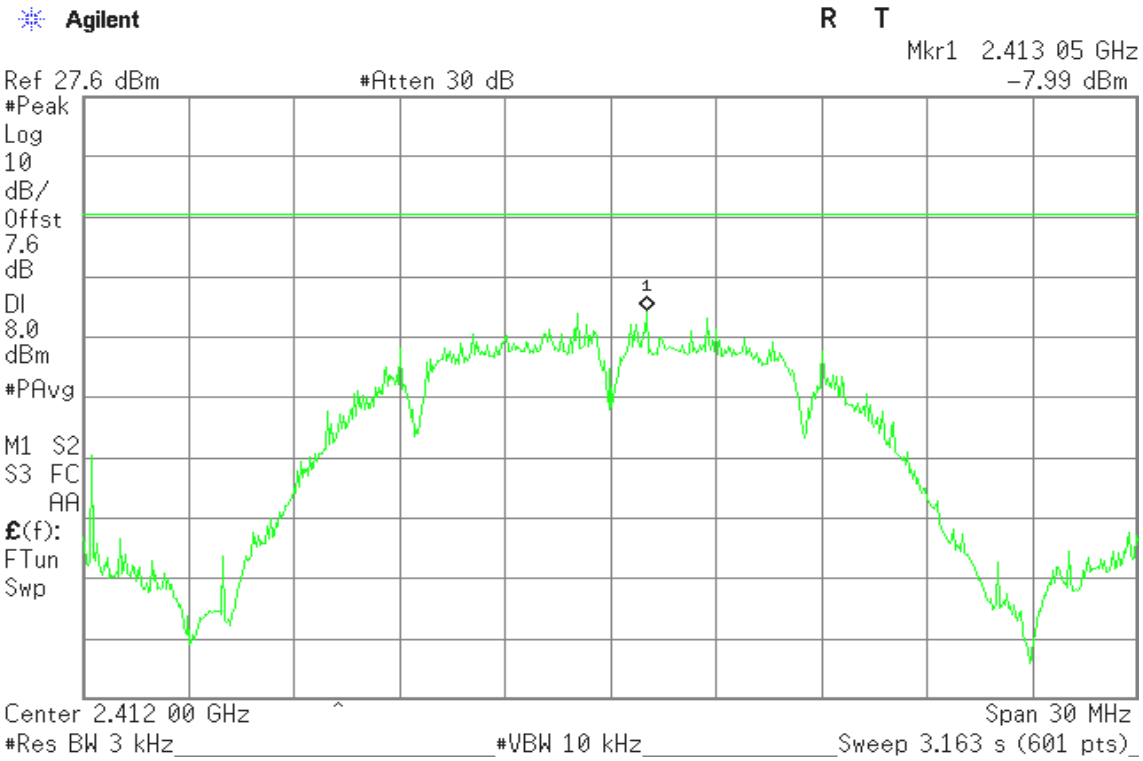
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Total		
Low	5745	-16.19	-15.20	-12.66	8.00	PASS
Mid	5785	-16.58	-16.30	-13.43		PASS
High	5825	-17.91	-16.95	-14.39		PASS

Test mode: IEEE 802.11n HT40 mode

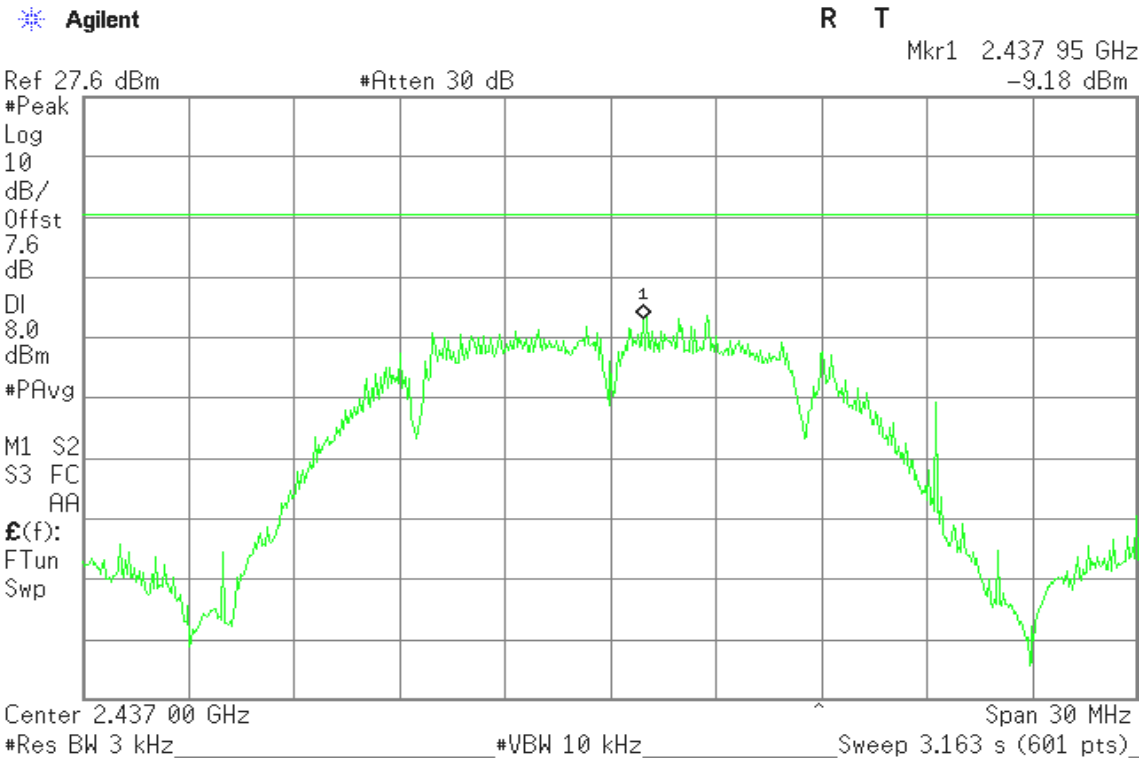
Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Result
		Chain 0	Chain 1	Total		
Low	5755	-16.85	-16.34	-13.58	8.00	PASS
High	5795	-18.05	-17.07	-14.52		PASS

Test Plot

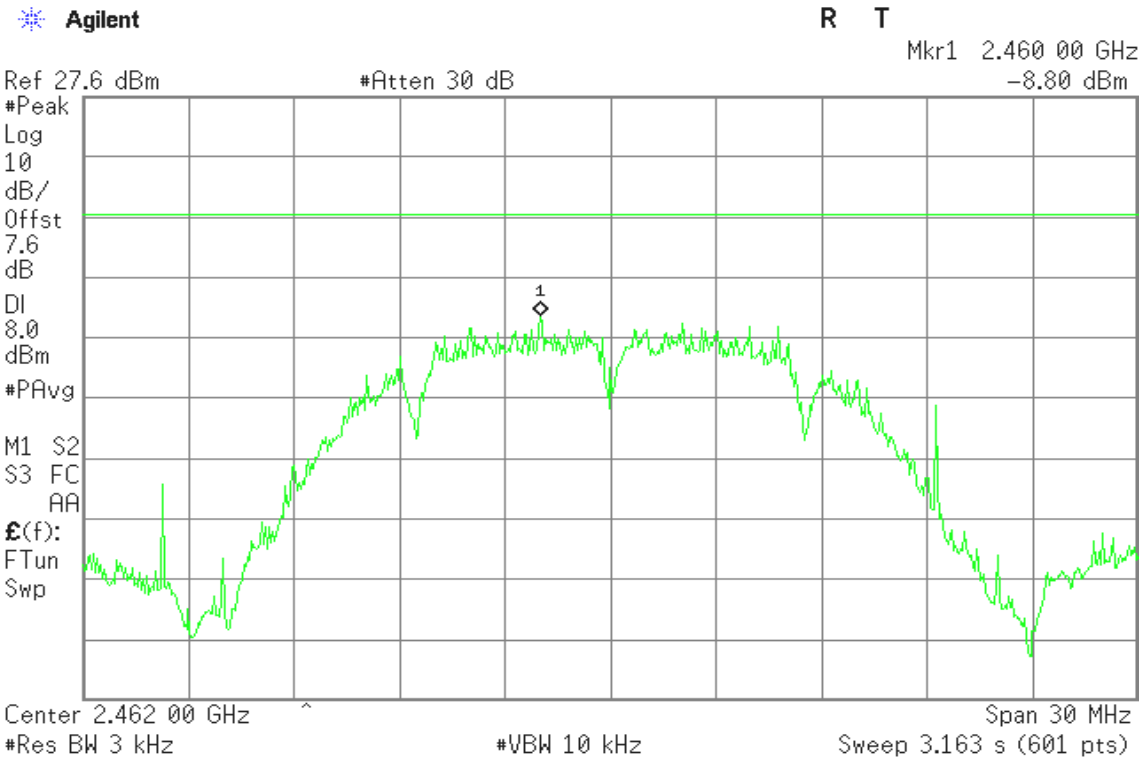
IEEE 802.11b mode
PPSD (CH Low)



PPSD (CH Mid)

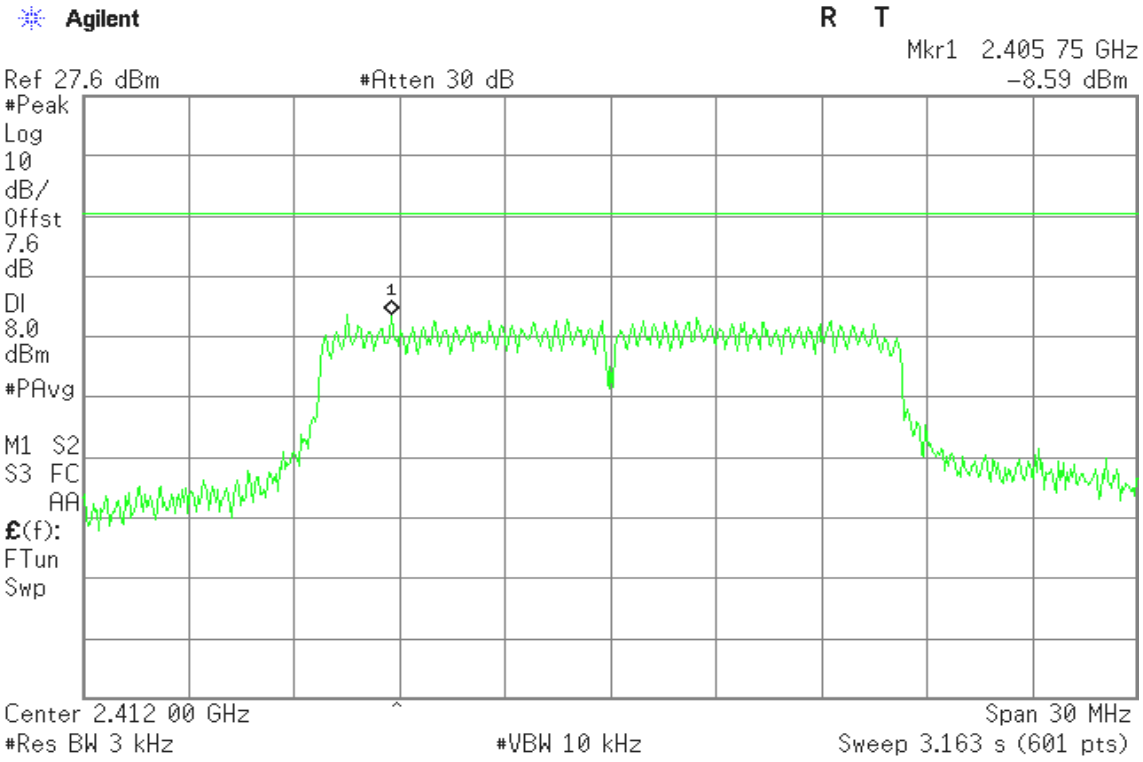


PPSD (CH High)

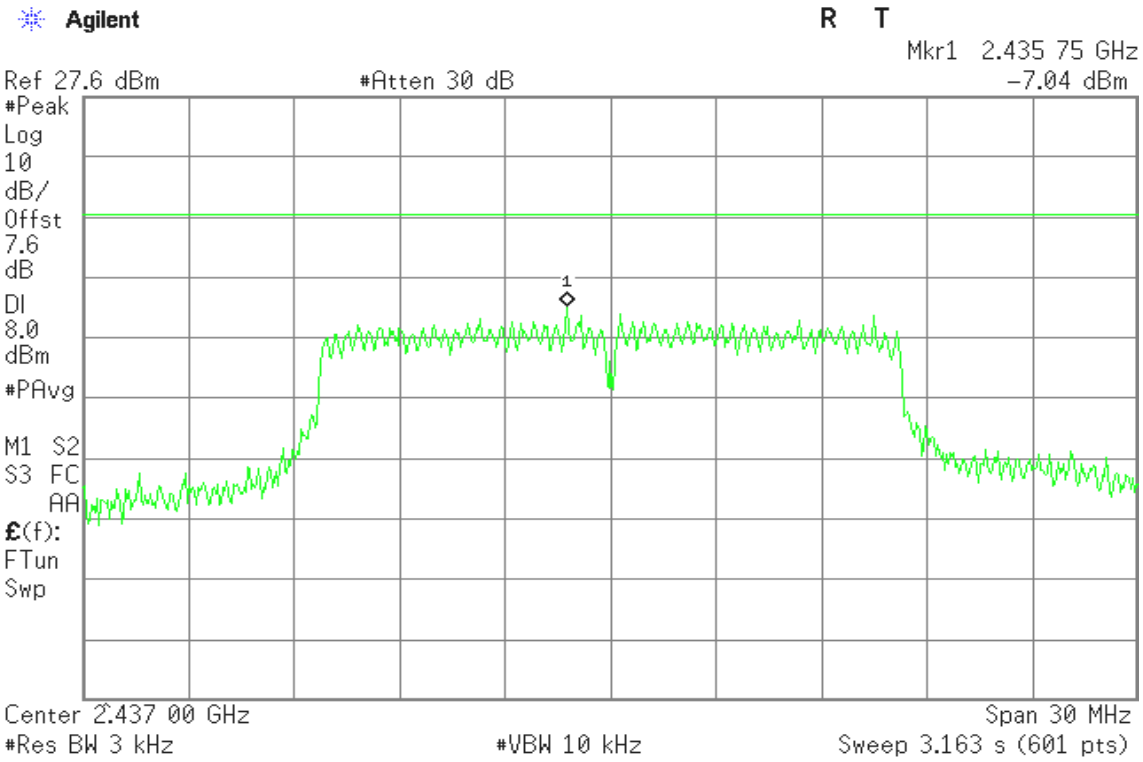


IEEE 802.11g mode

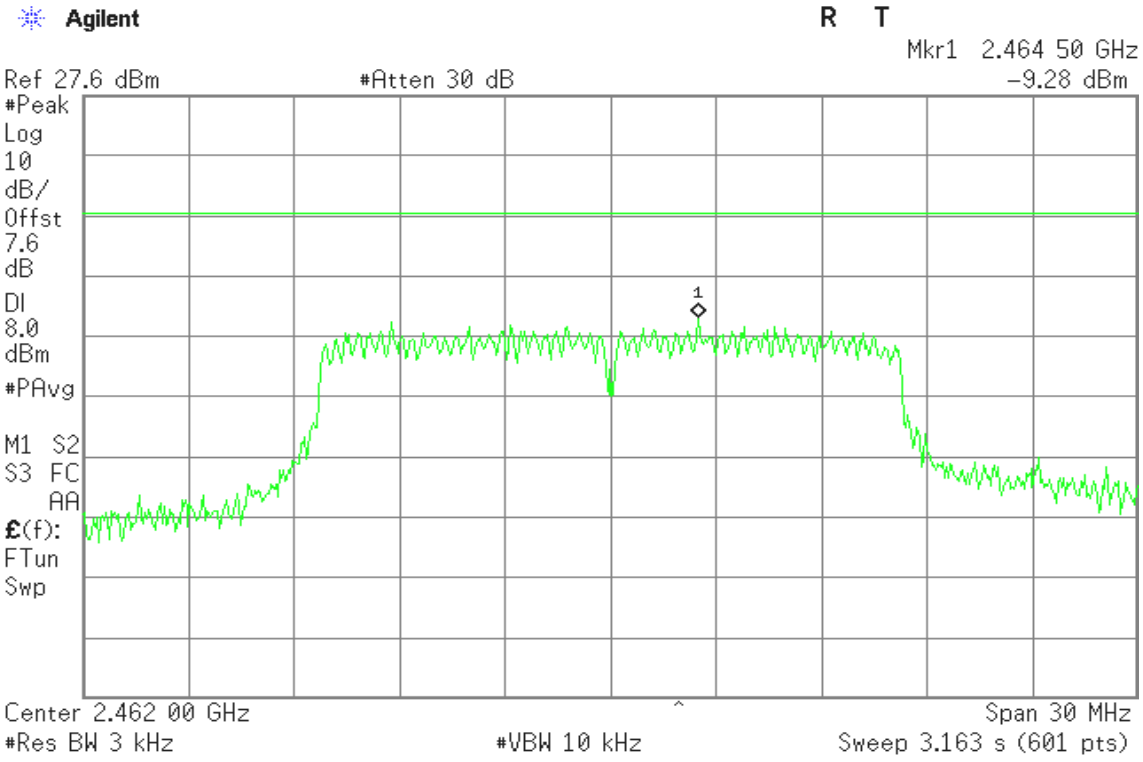
PPSD (CH Low)



PPSD (CH Mid)

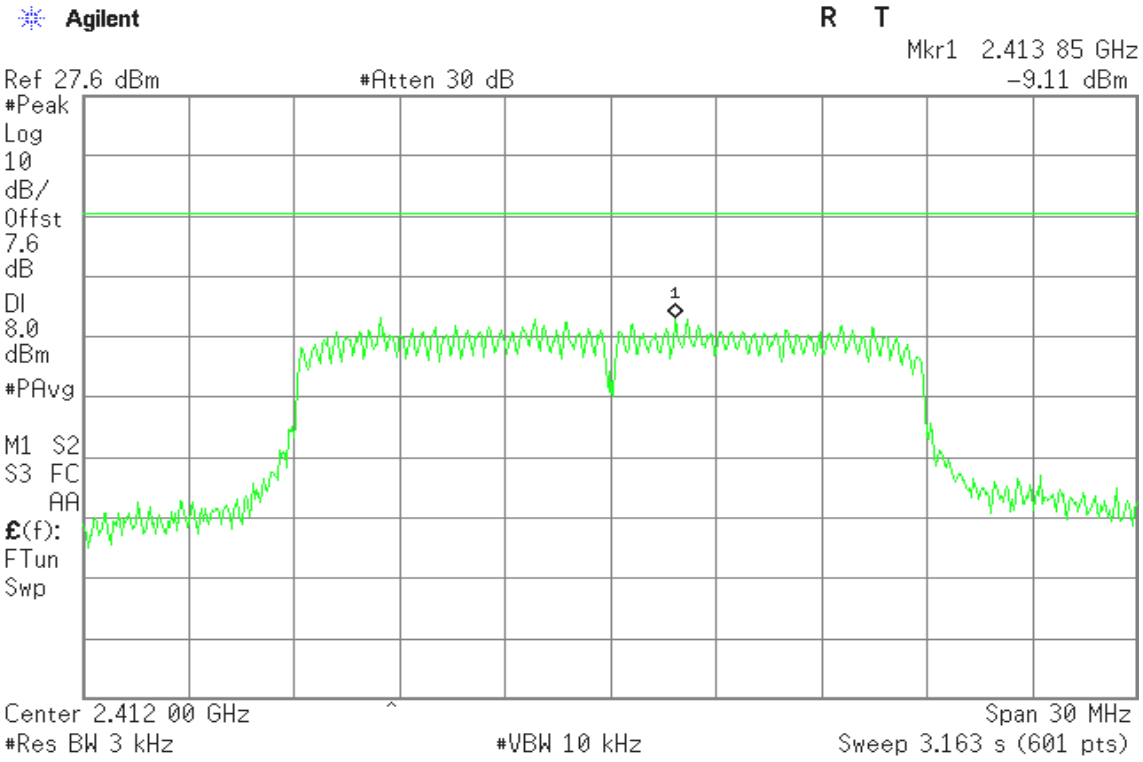


PPSD (CH High)

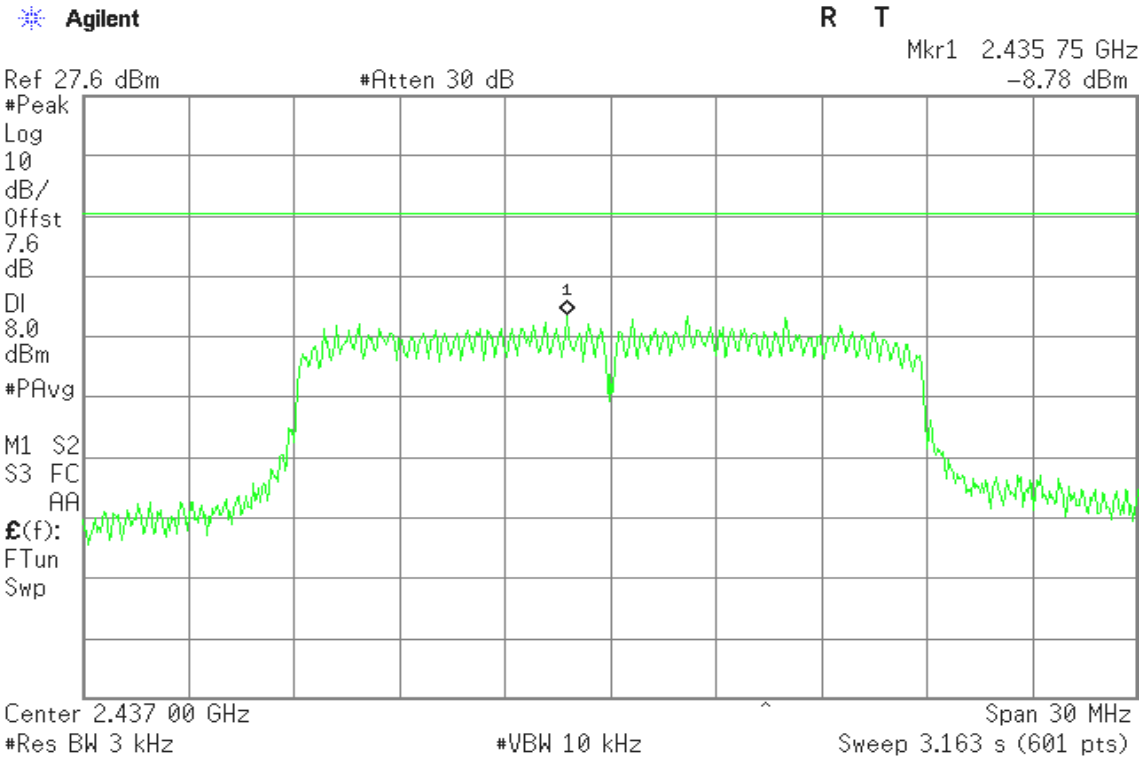


IEEE 802.11n HT20 mode (Chain 0)

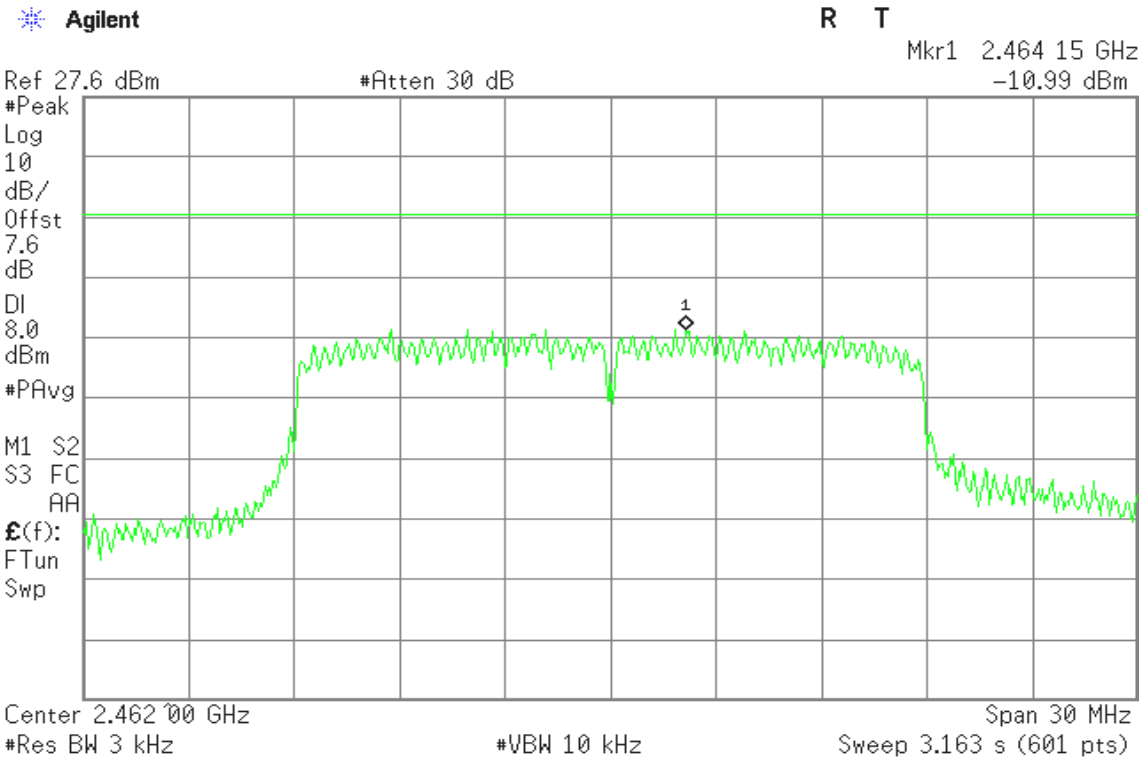
PPSD (CH Low)



PPSD (CH Mid)

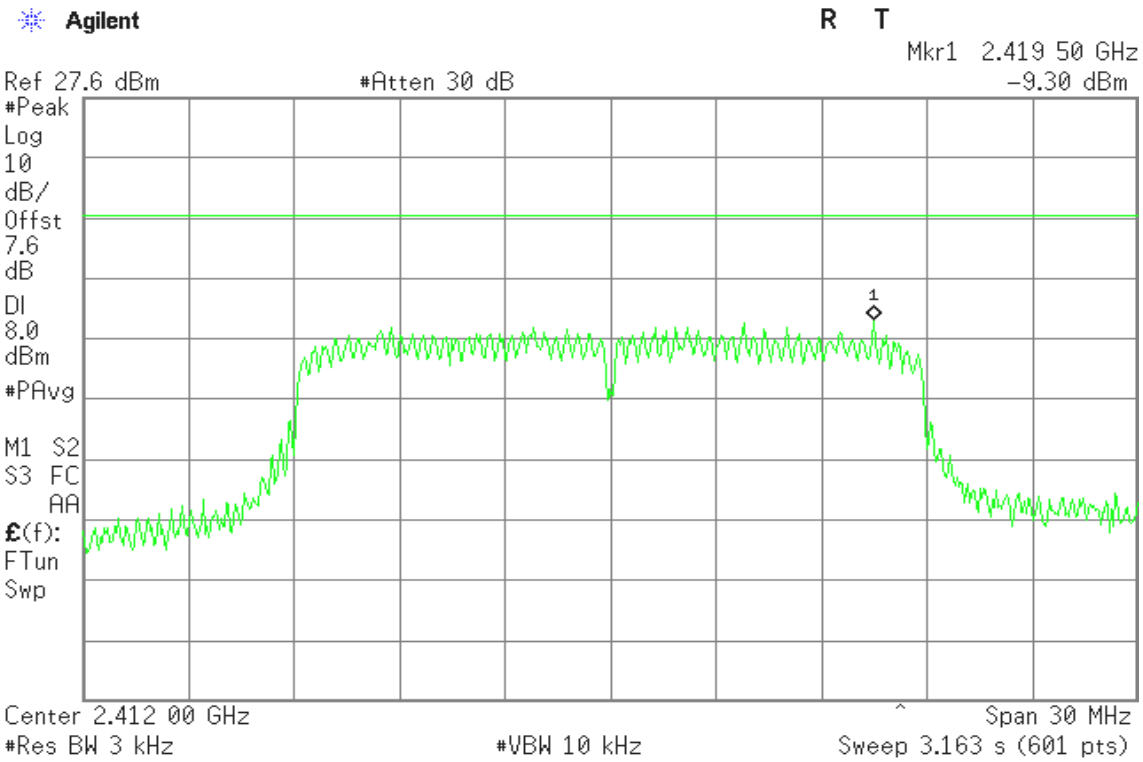


PPSD (CH High)

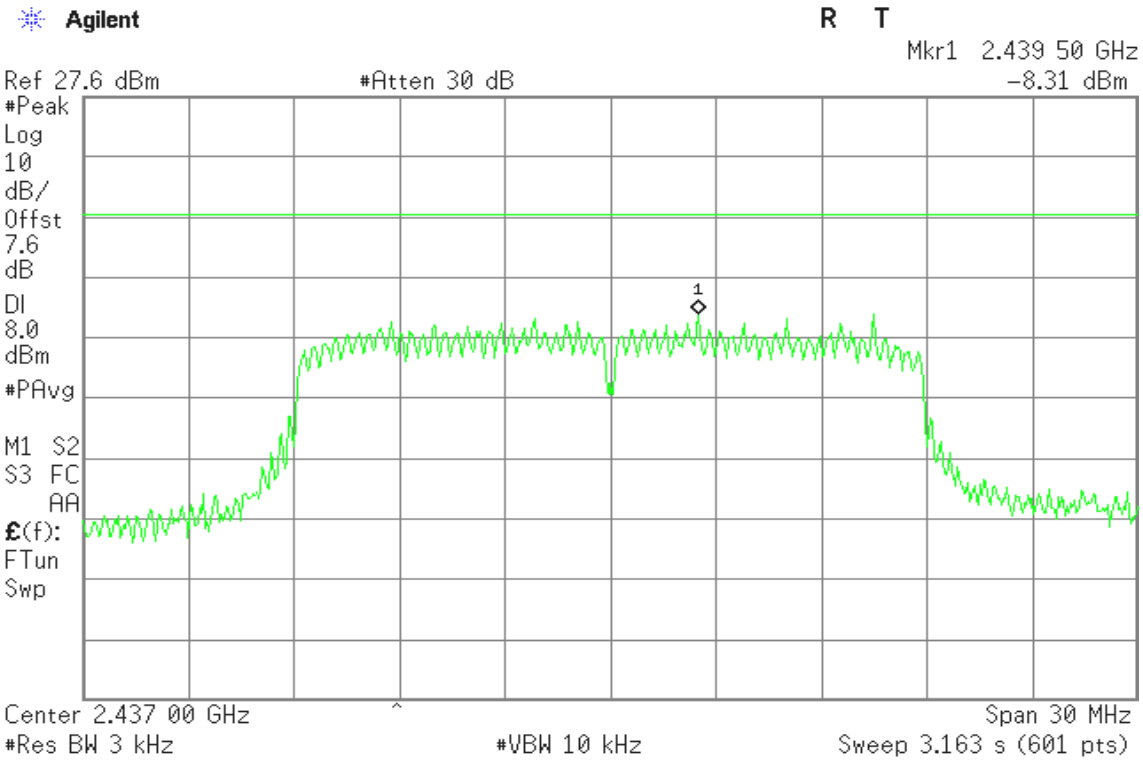


IEEE 802.11n HT20 mode (Chain 1)

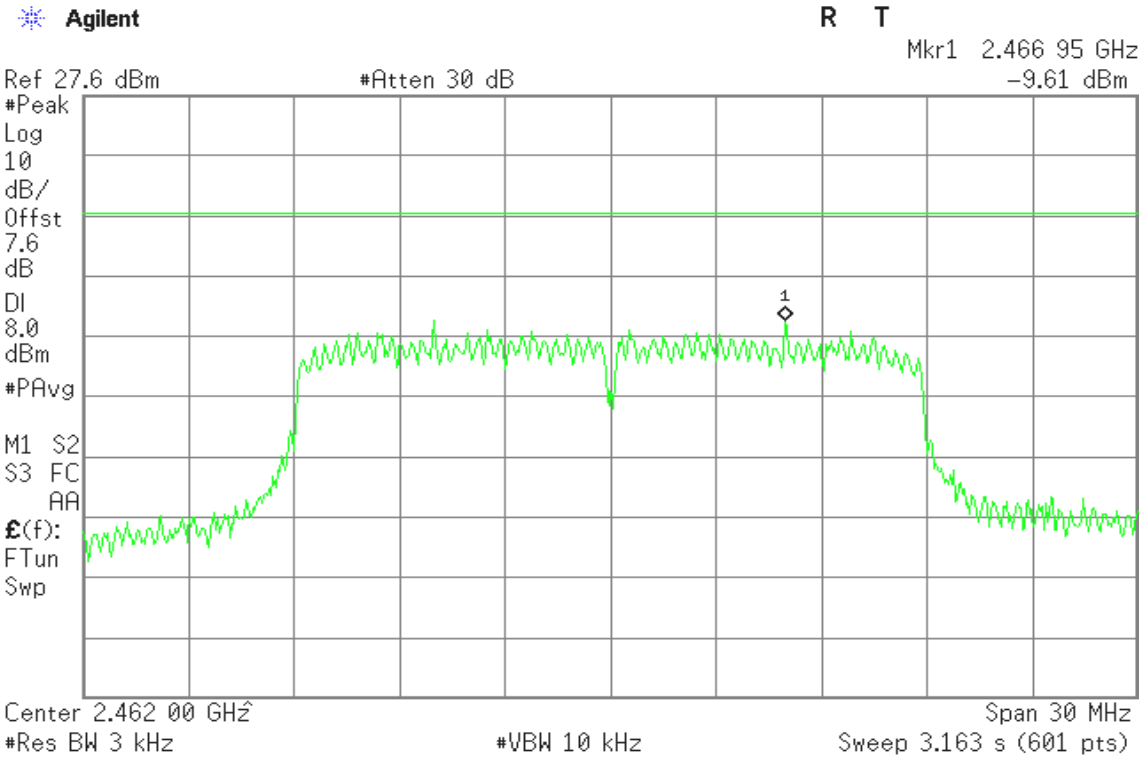
PPSD (CH Low)



PPSD (CH Mid)

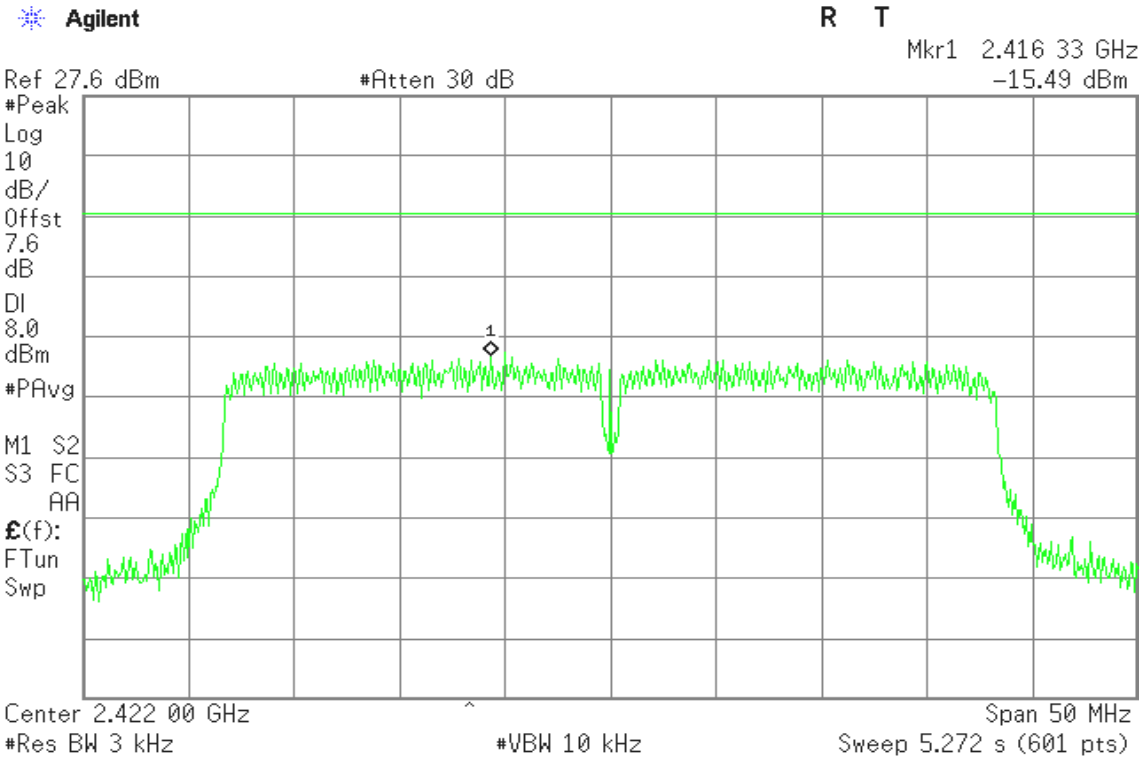


PPSD (CH High)

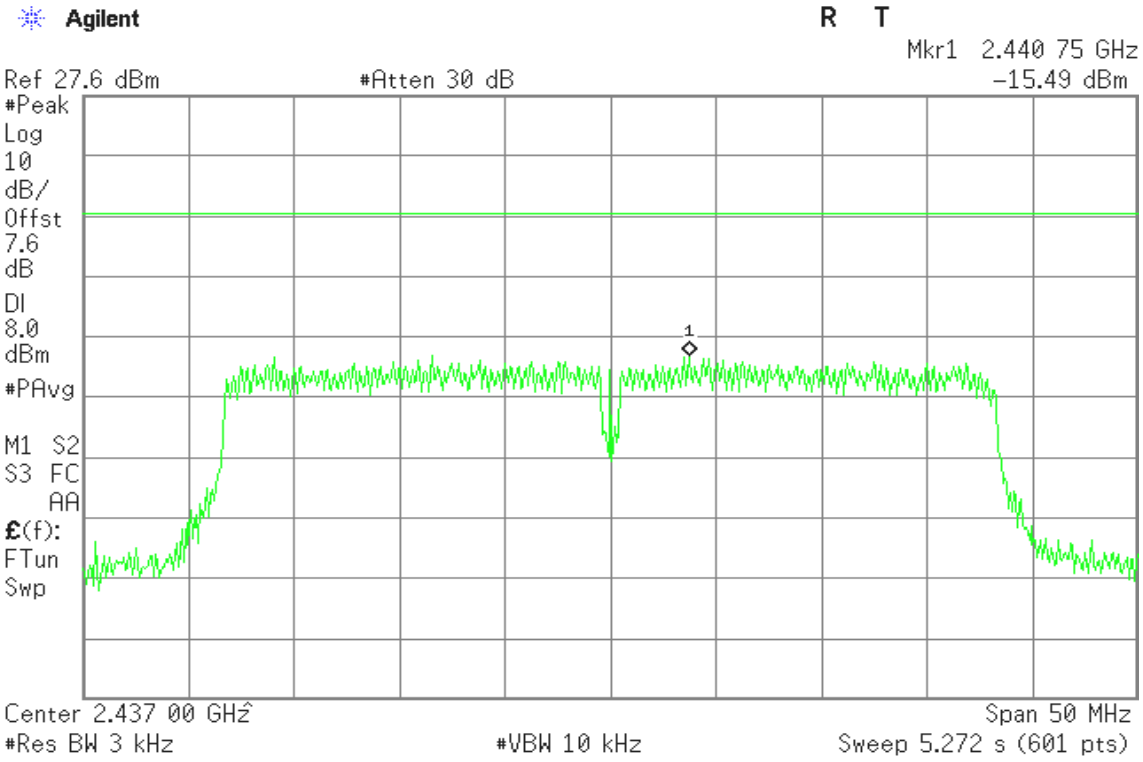


IEEE 802.11n HT40 mode (Chain 0)

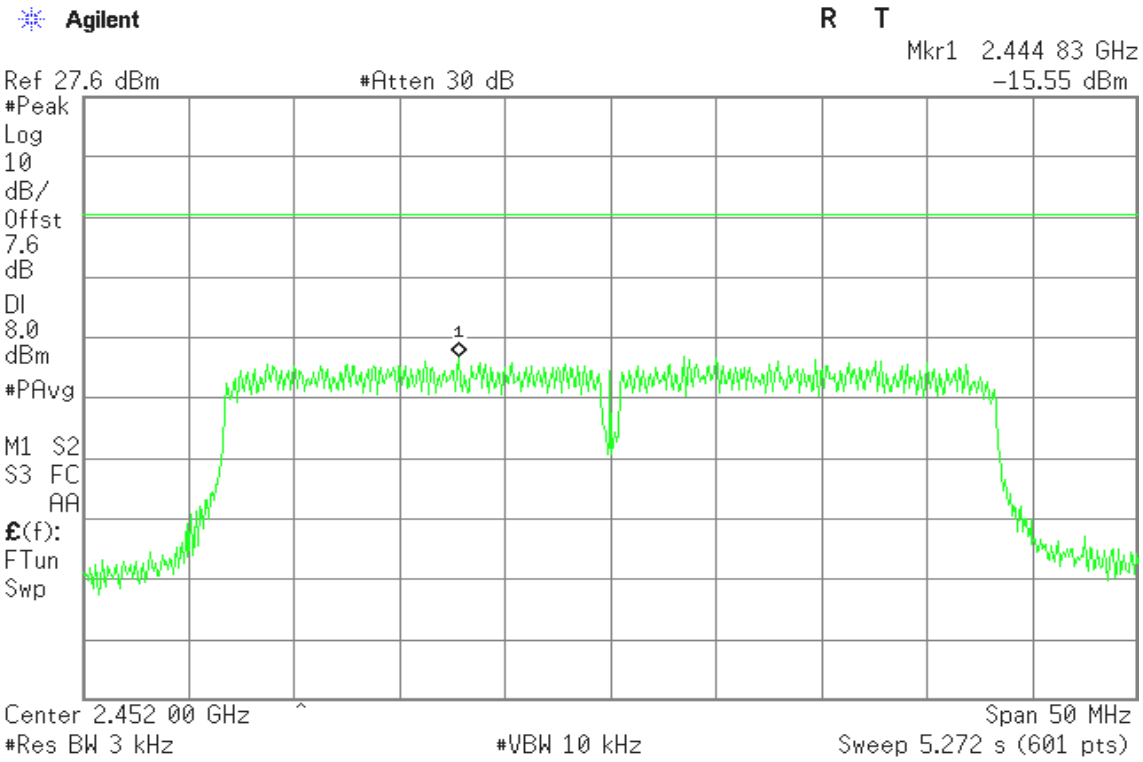
PPSD (CH Low)



PPSD (CH Mid)

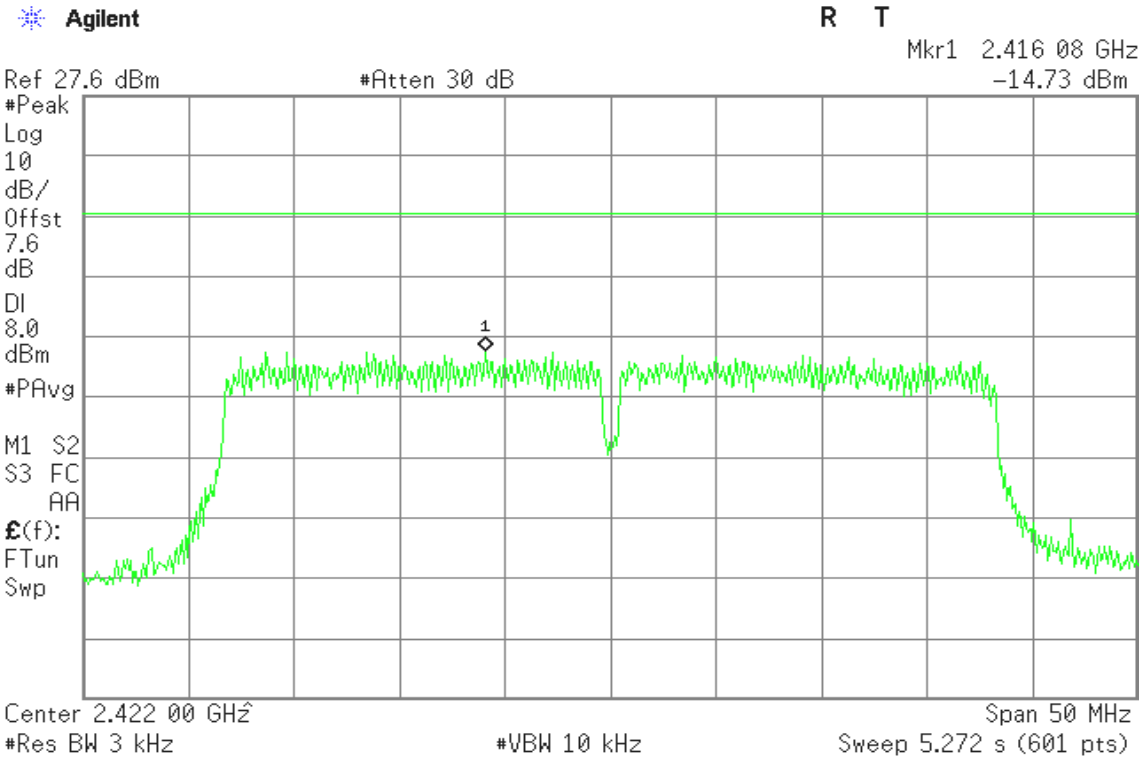


PPSD (CH High)

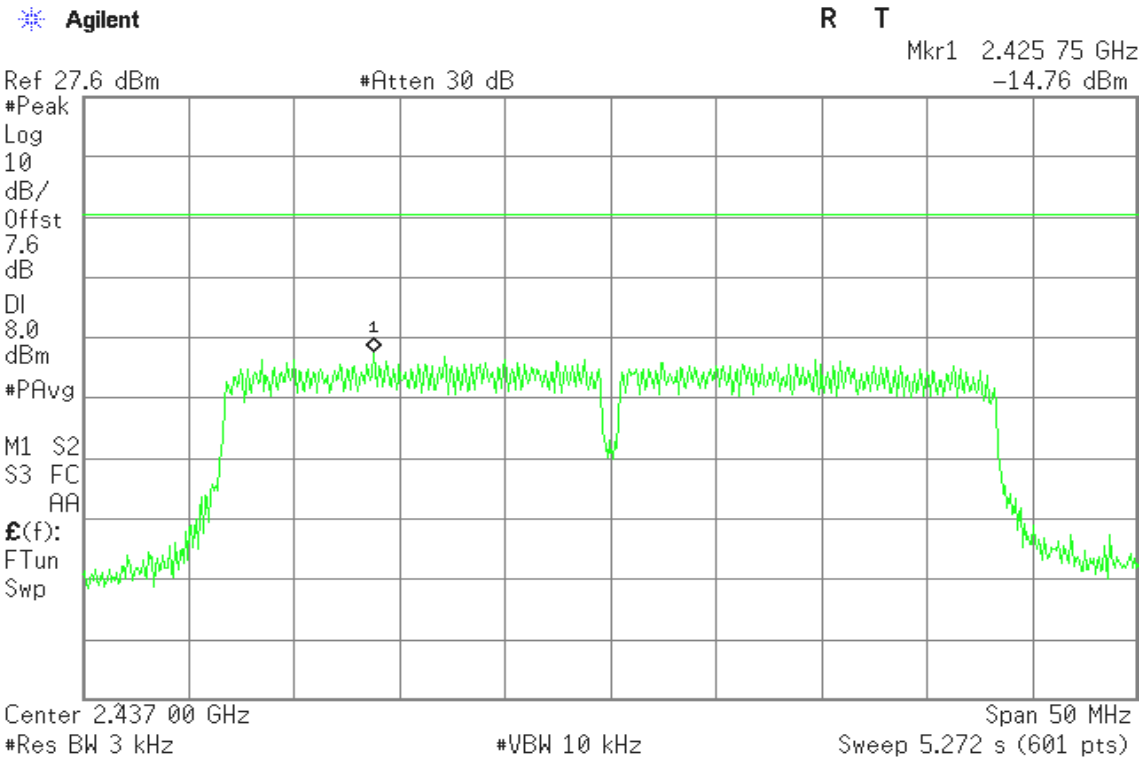


IEEE 802.11n HT40 mode (Chain 1)

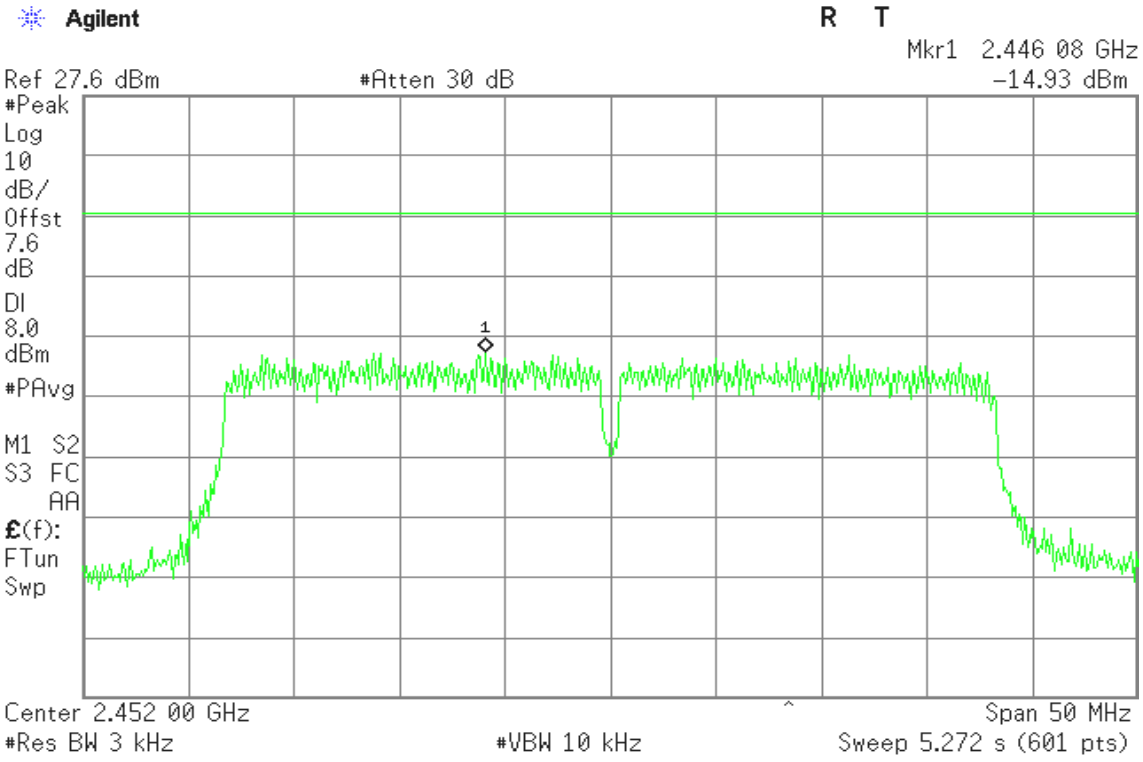
PPSD (CH Low)



PPSD (CH Mid)

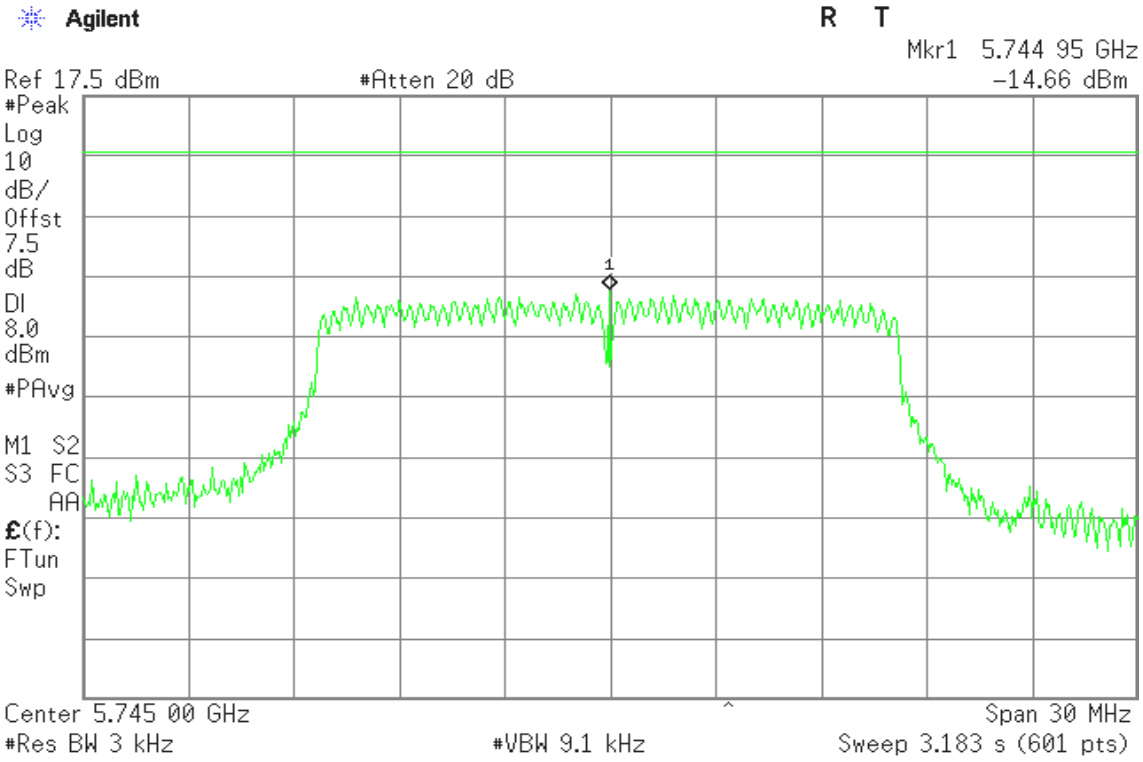


PPSD (CH High)

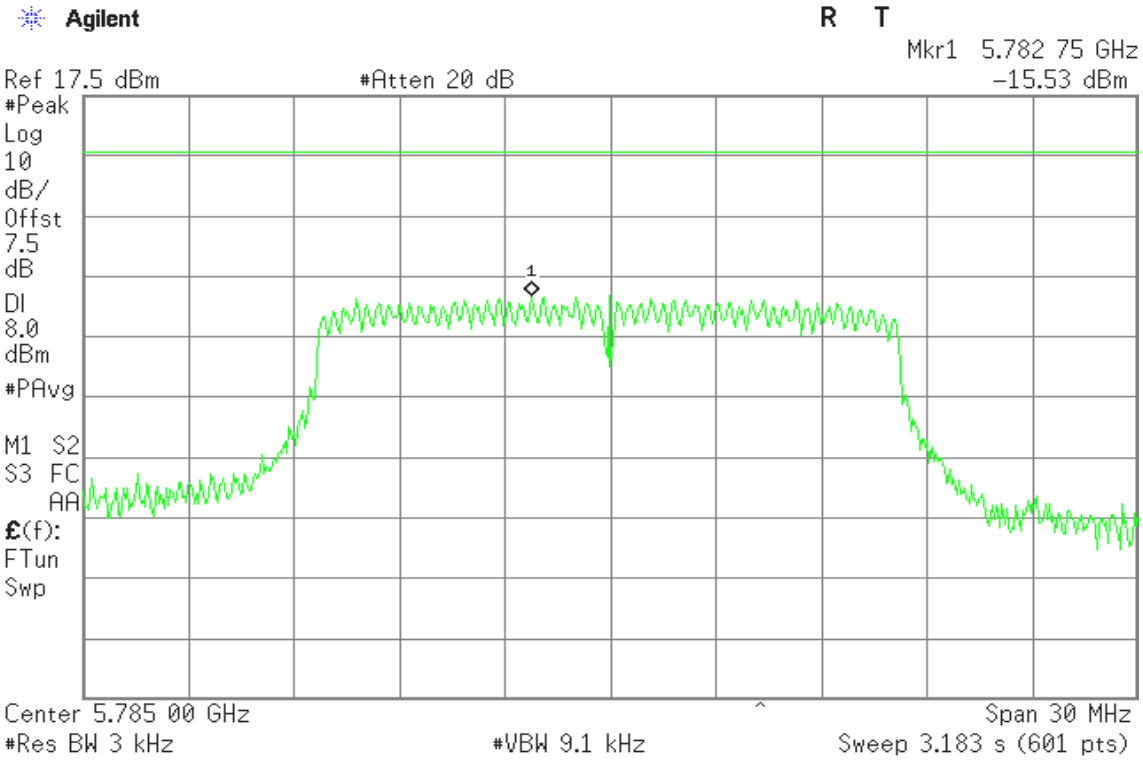


IEEE 802.11a mode

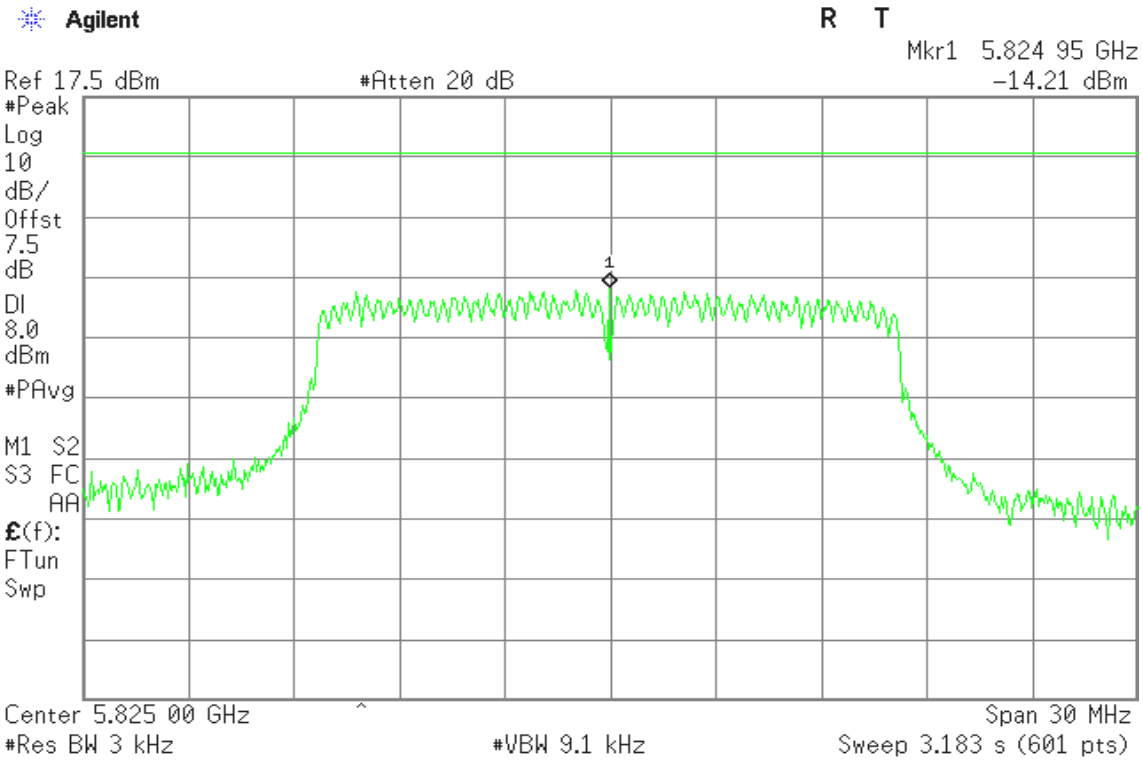
PPSD (CH Low)



PPSD (CH Mid)

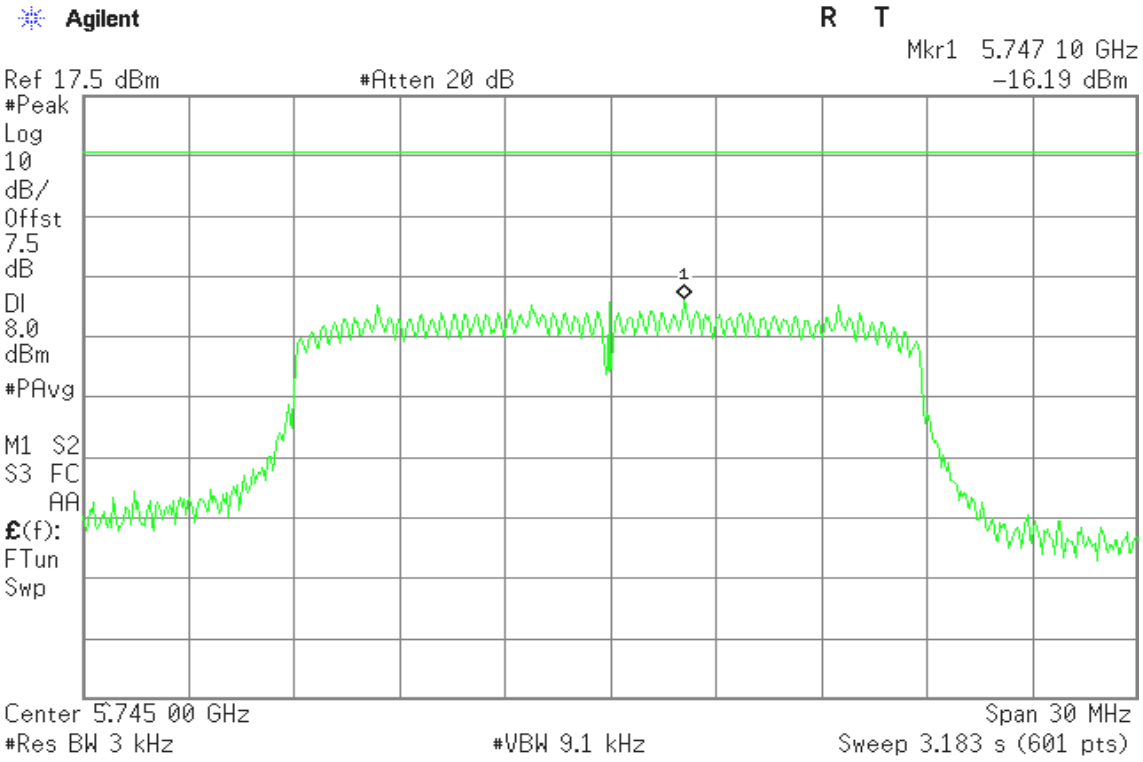


PPSD (CH High)

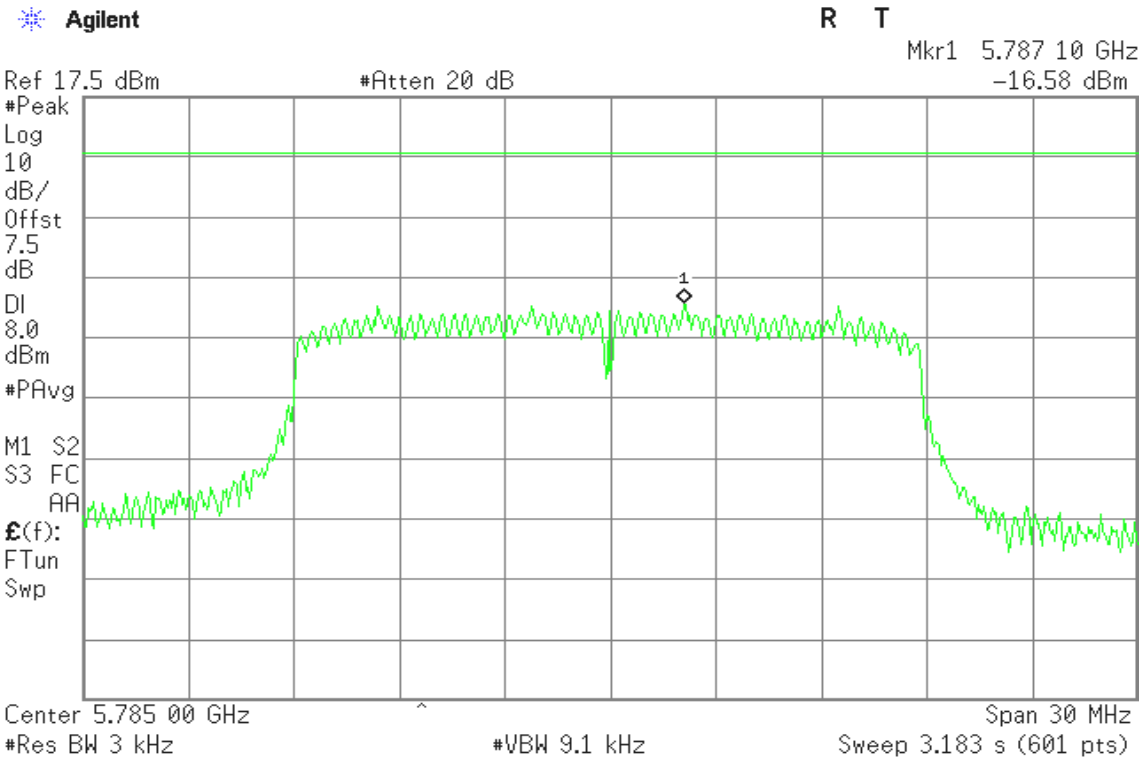


IEEE 802.11n HT20 mode (Chain 0)

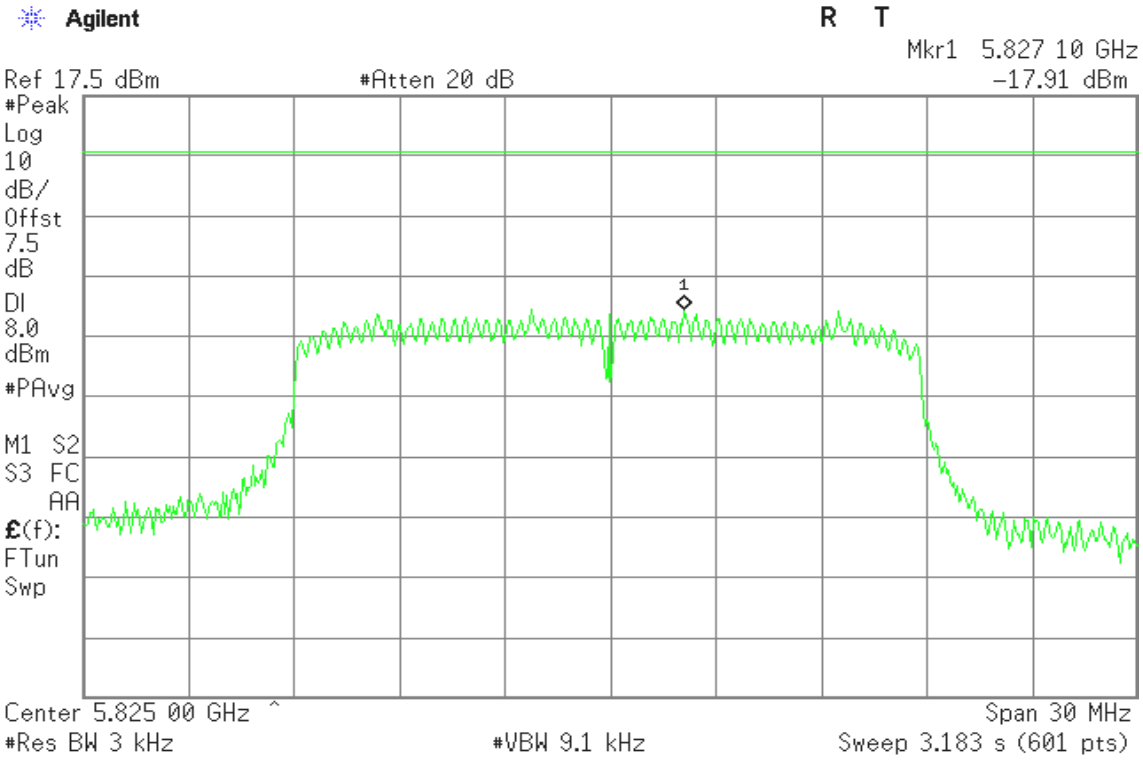
PPSD (CH Low)



PPSD (CH Mid)

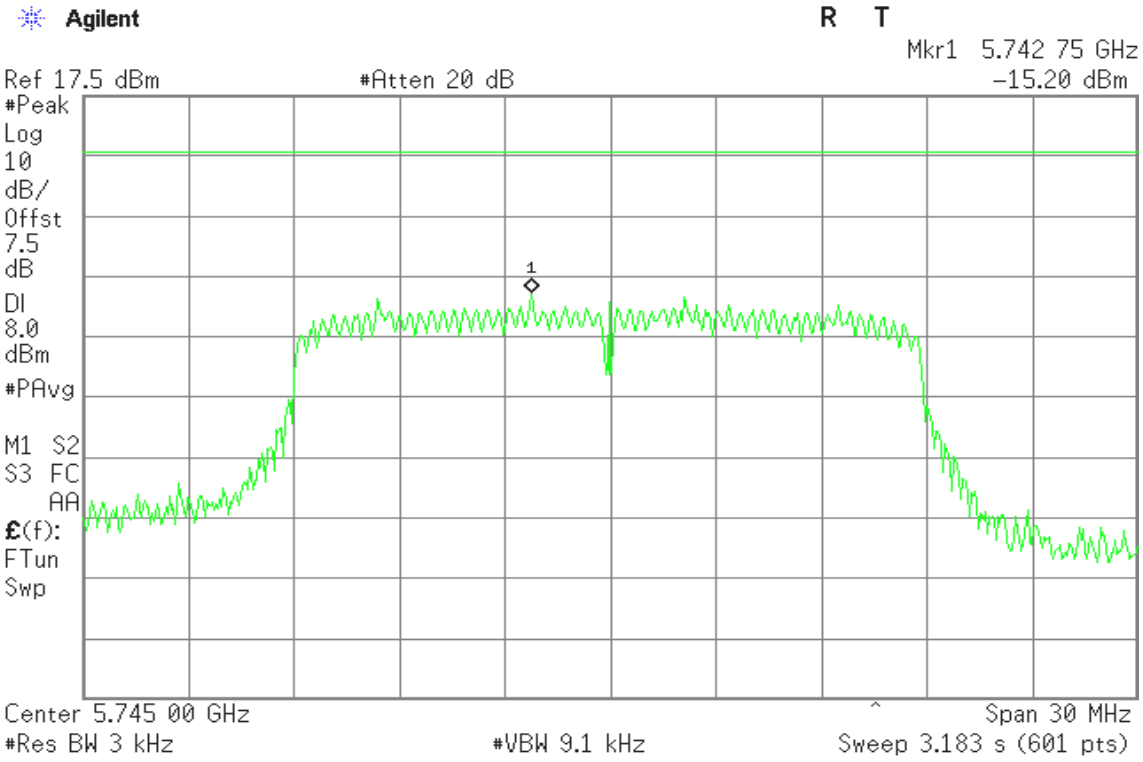


PPSD (CH High)

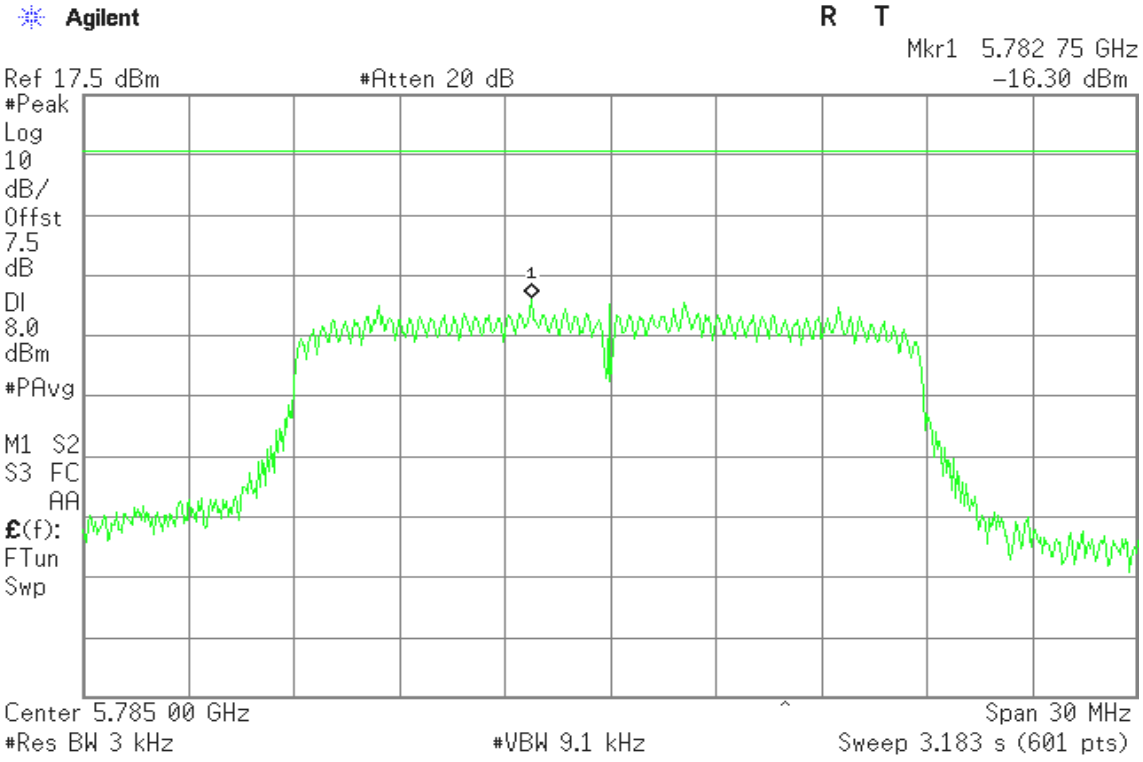


IEEE 802.11n HT20 mode (Chain 0)

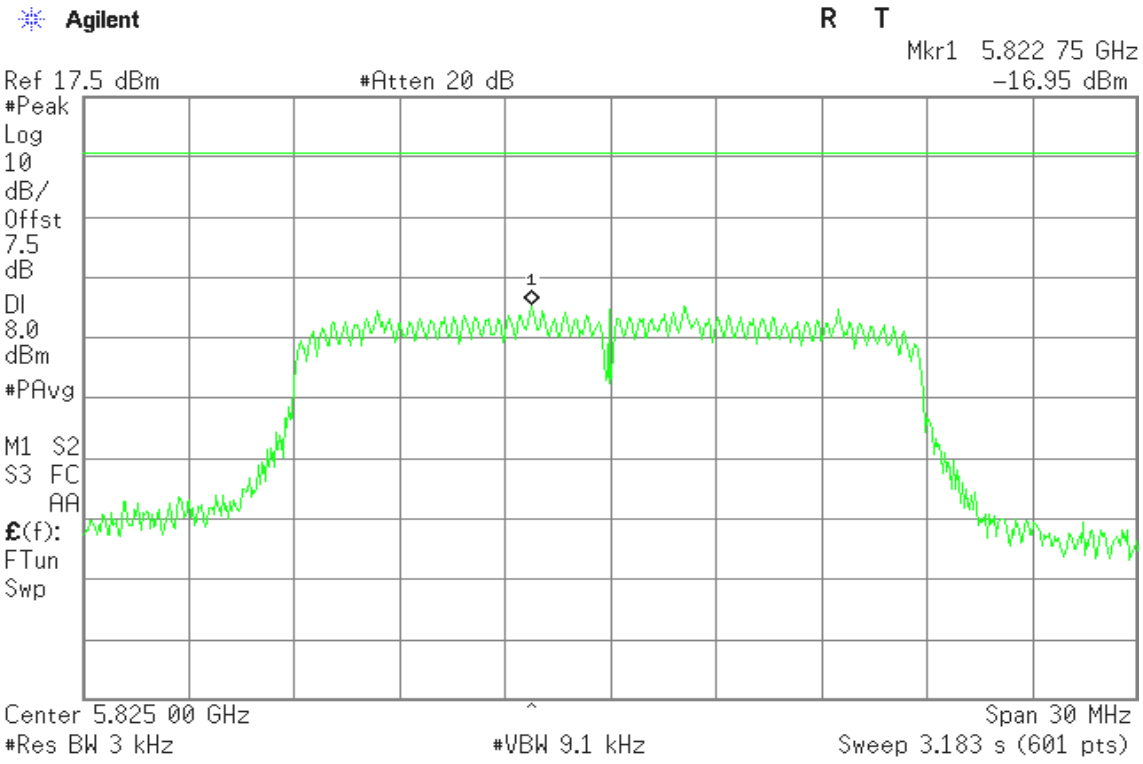
PPSD (CH Low)



PPSD (CH Mid)

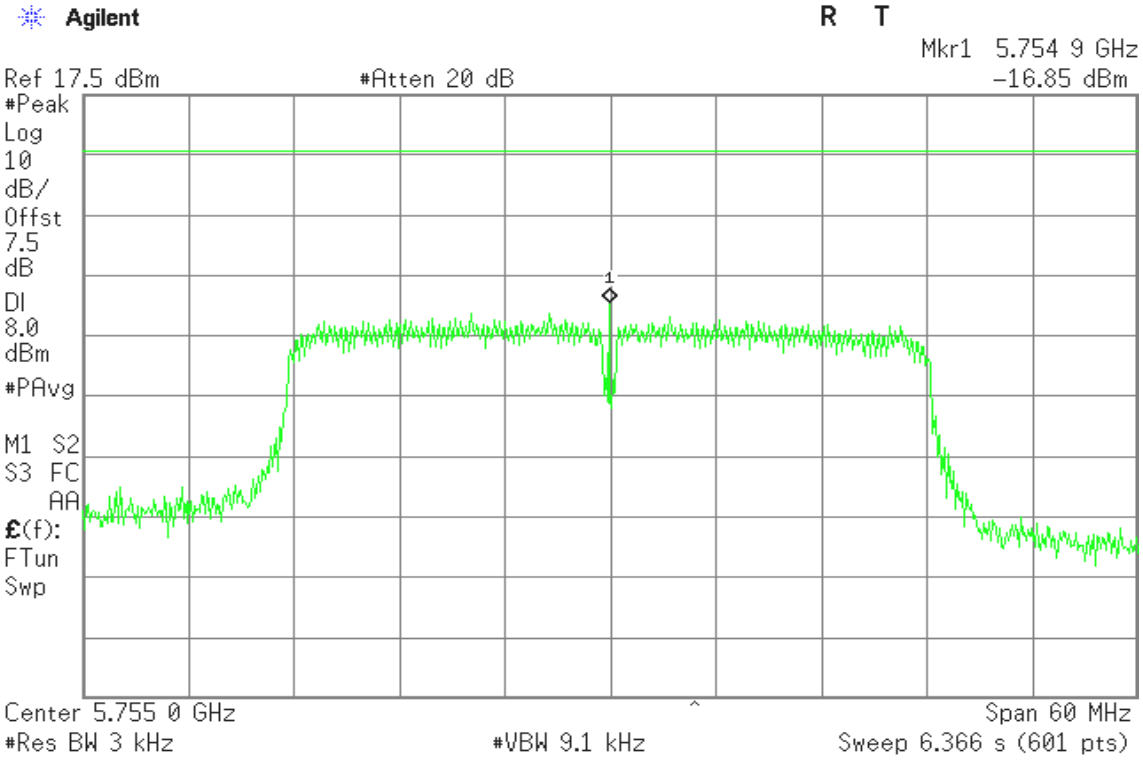


PPSD (CH High)

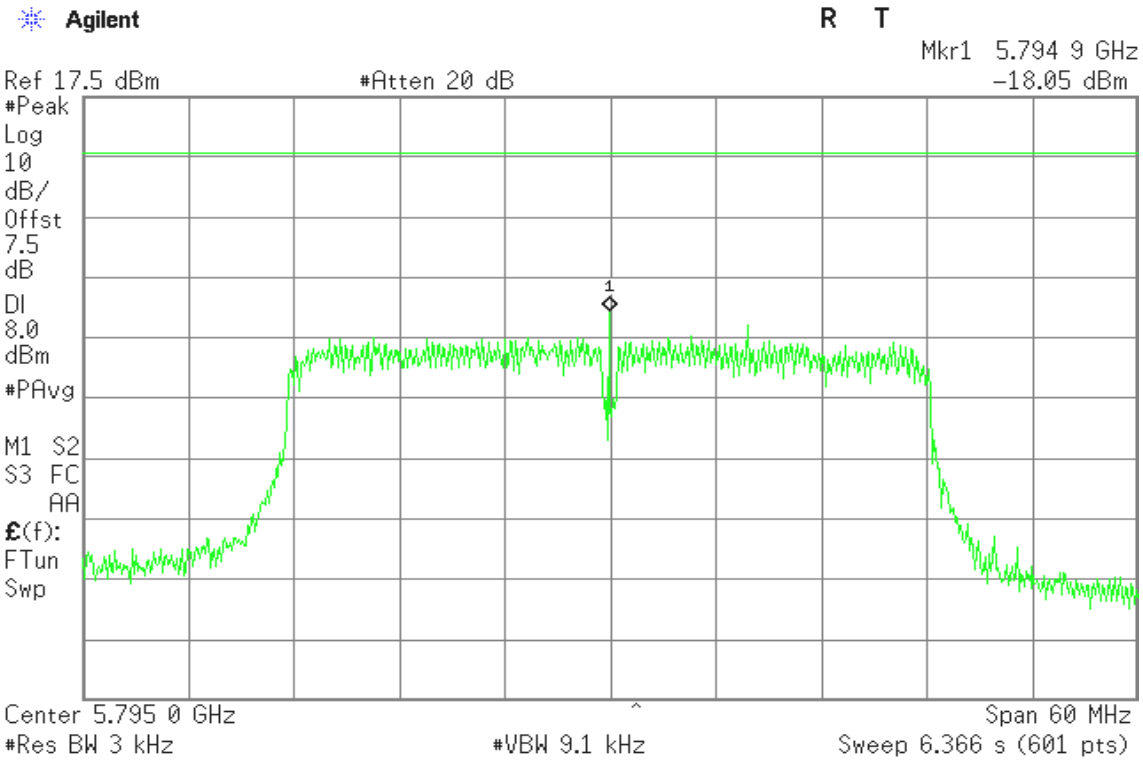


IEEE 802.11n HT40 mode (Chain 0)

PPSD (CH Low)

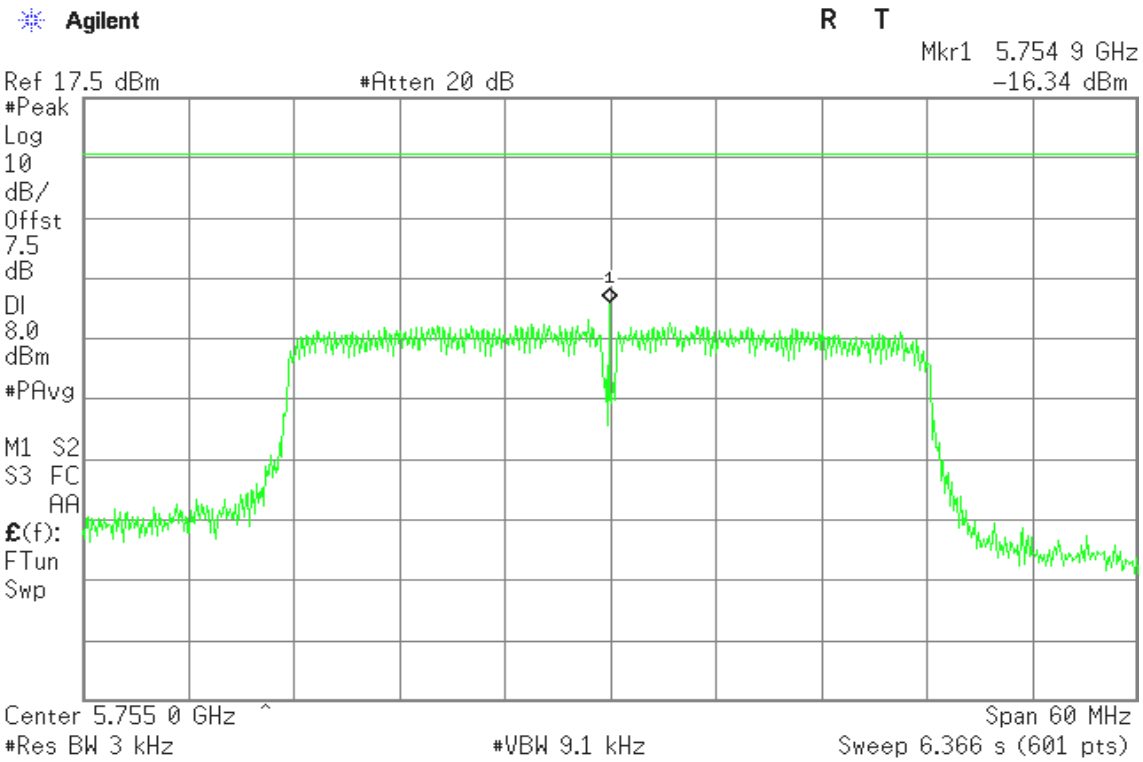


PPSD (CH High)

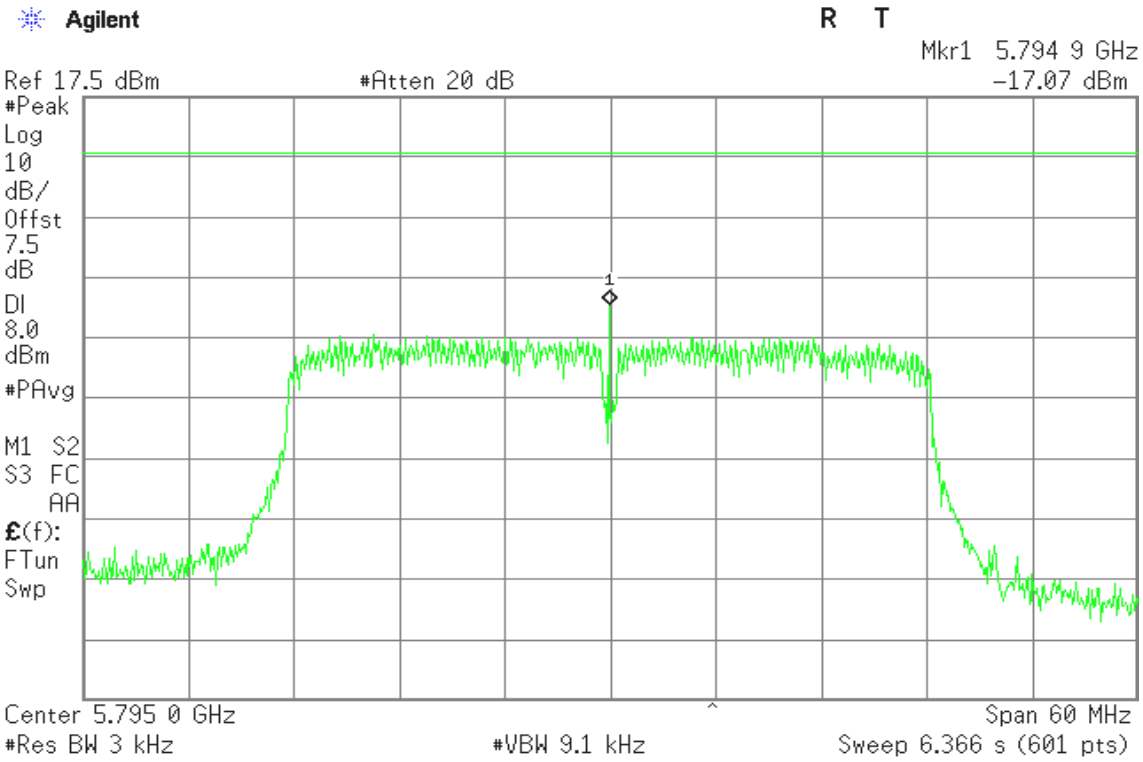


IEEE 802.11n HT40 mode (Chain 1)

PPSD (CH Low)



PPSD (CH High)


Agilent
R T
Mkr1 5.794 9 GHz
Ref 17.5 dBm
#Atten 20 dB
-17.07 dBm
#Peak
Log
10
dB/
Offst
7.5
dB
Dl
8.0
dBm
#PAvg
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Center 5.795 0 GHz
Span 60 MHz
#Res BW 3 kHz
#VBW 9.1 kHz
Sweep 6.366 s (601 pts)

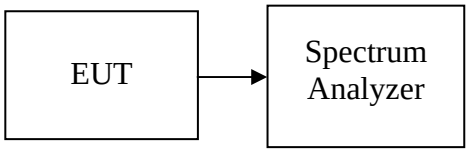
7.6 SPURIOUS EMISSIONS

7.6.1 Conducted Measurement

LIMIT

According to §15.247(d), 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



TEST PROCEDURE

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 300 kHz.

Measurements are made over the 30MHz to 26GHz range for IEEE 802.11b/g, 30MHz to 40GHz range for IEEE 802.11a with the transmitter set to the lowest, middle, and highest channels.

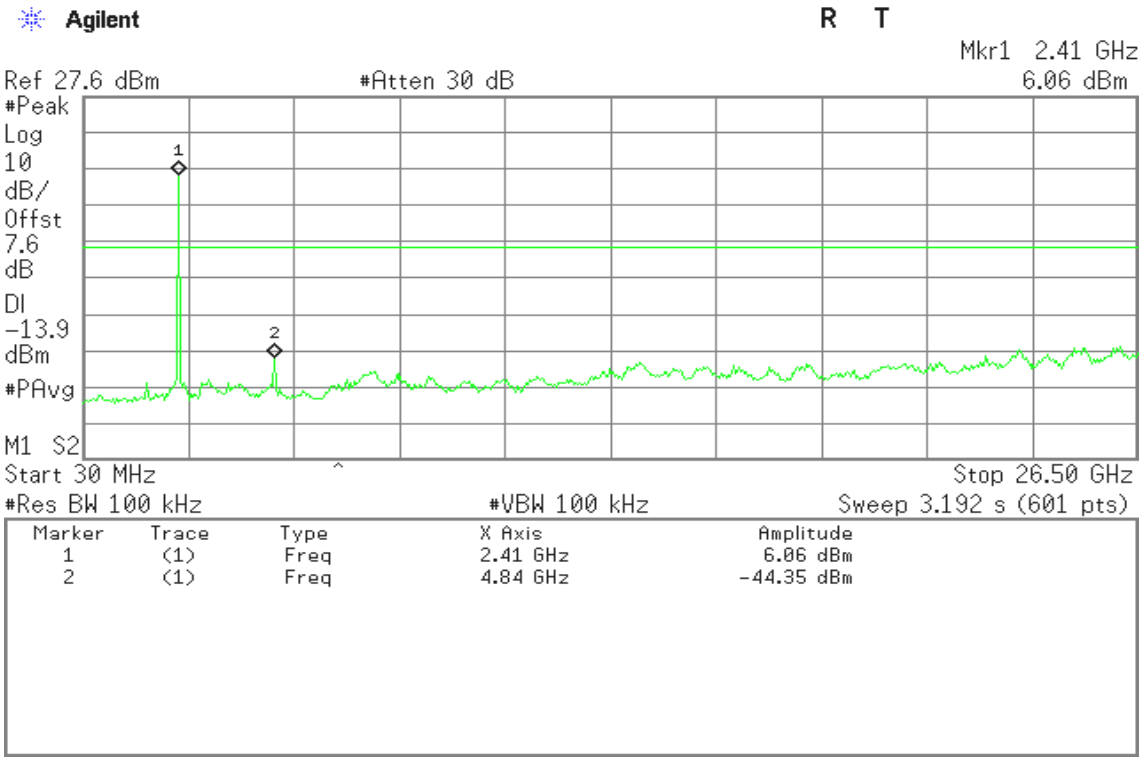
TEST RESULTS

No non-compliance noted

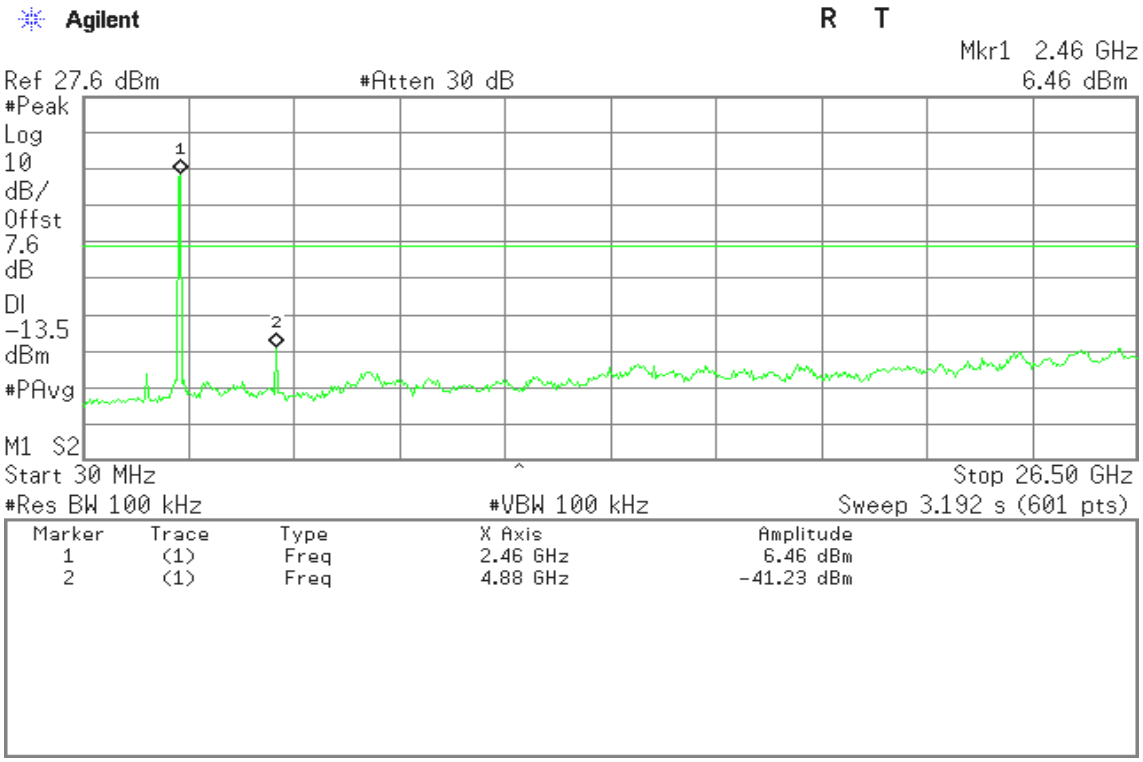
Test Plot

IEEE 802.11b mode

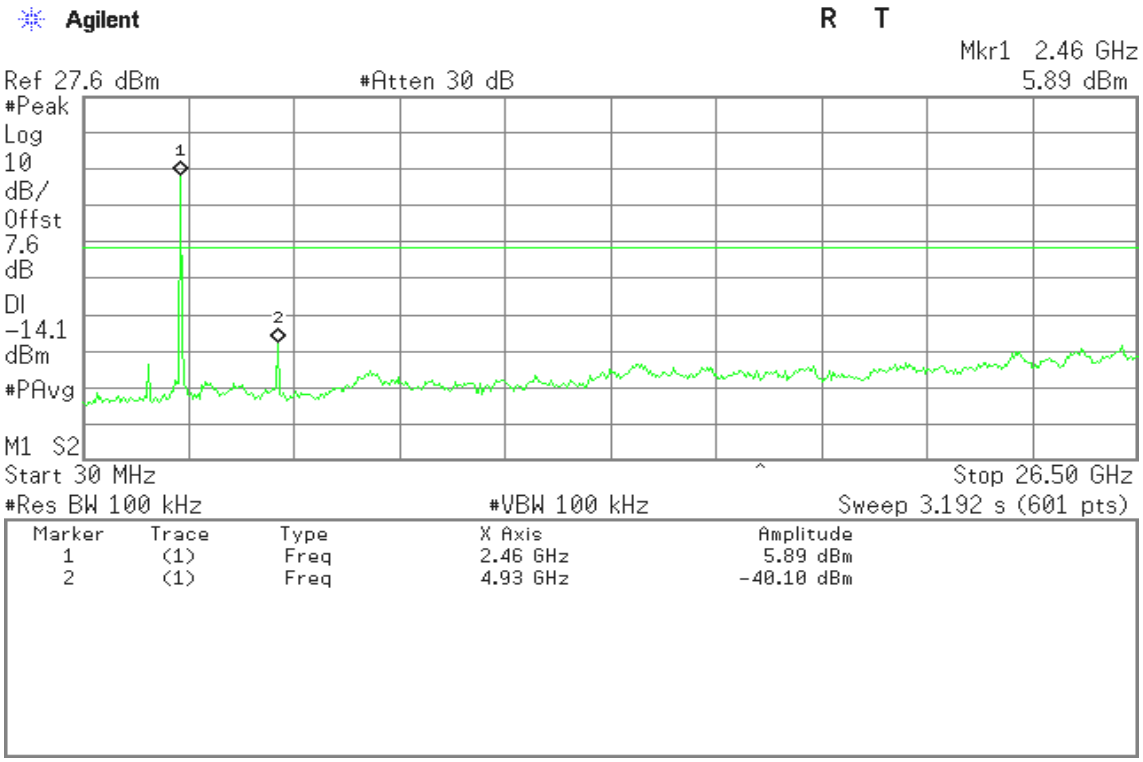
CH Low



CH Mid

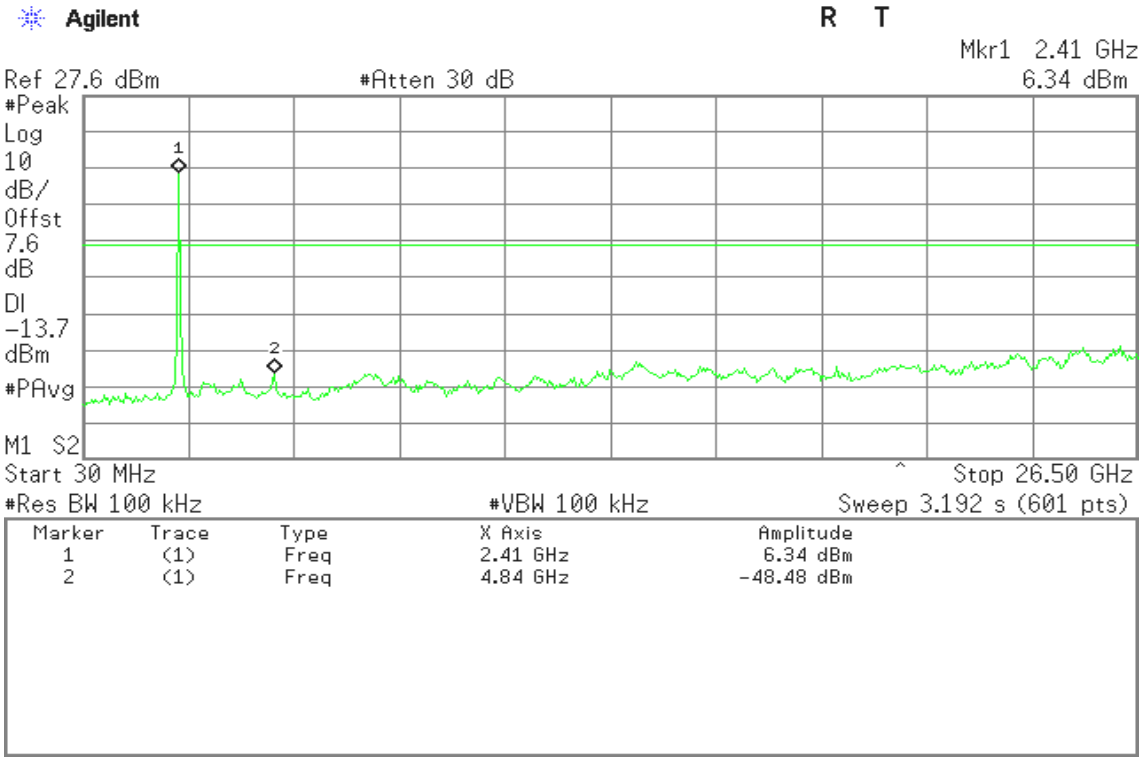


CH High

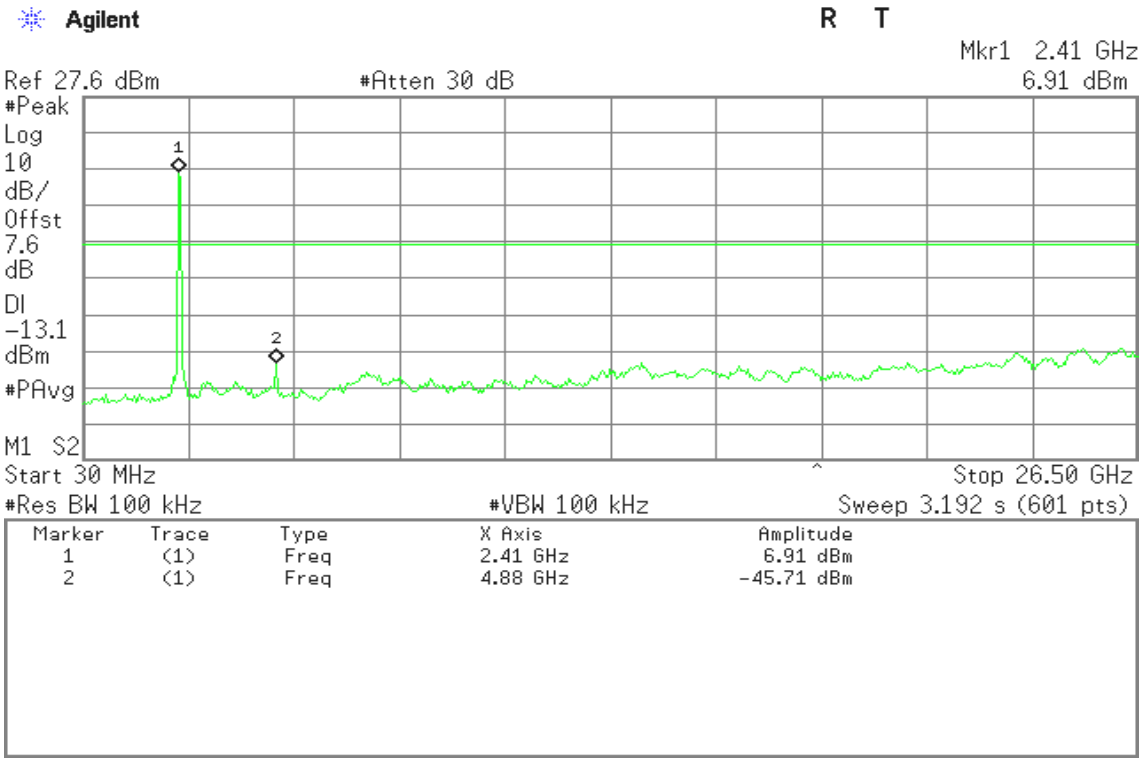


IEEE 802.11g mode

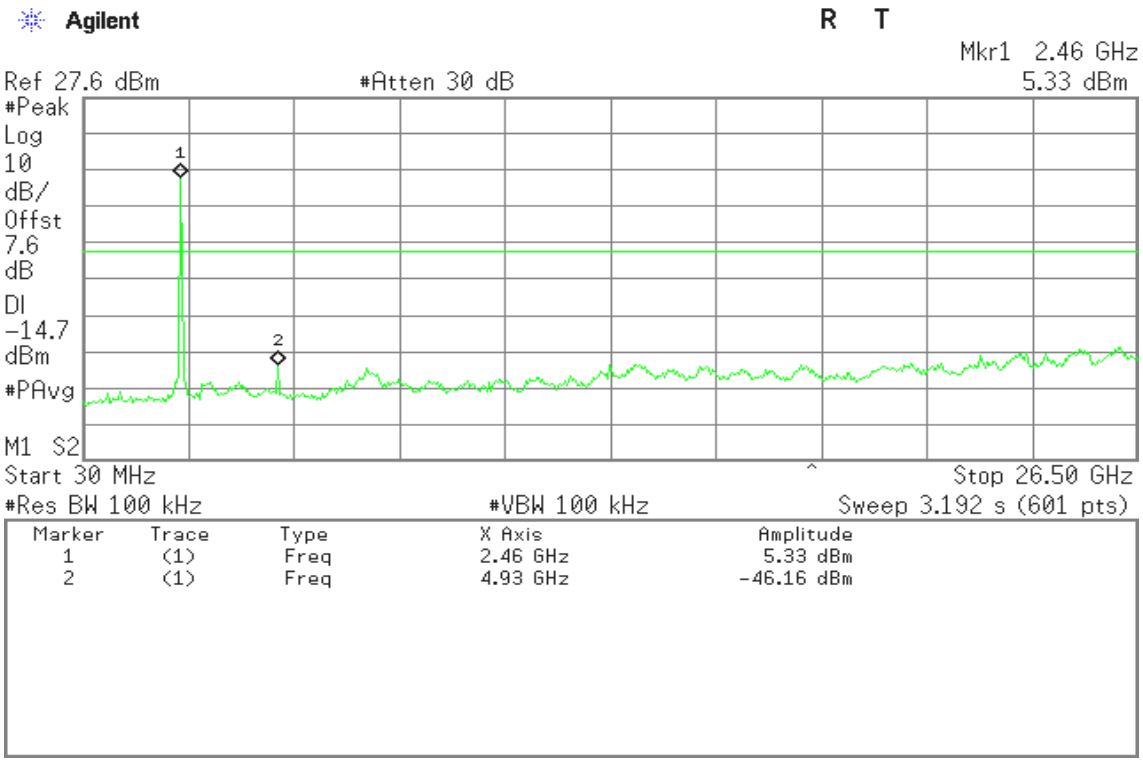
CH Low



CH Mid

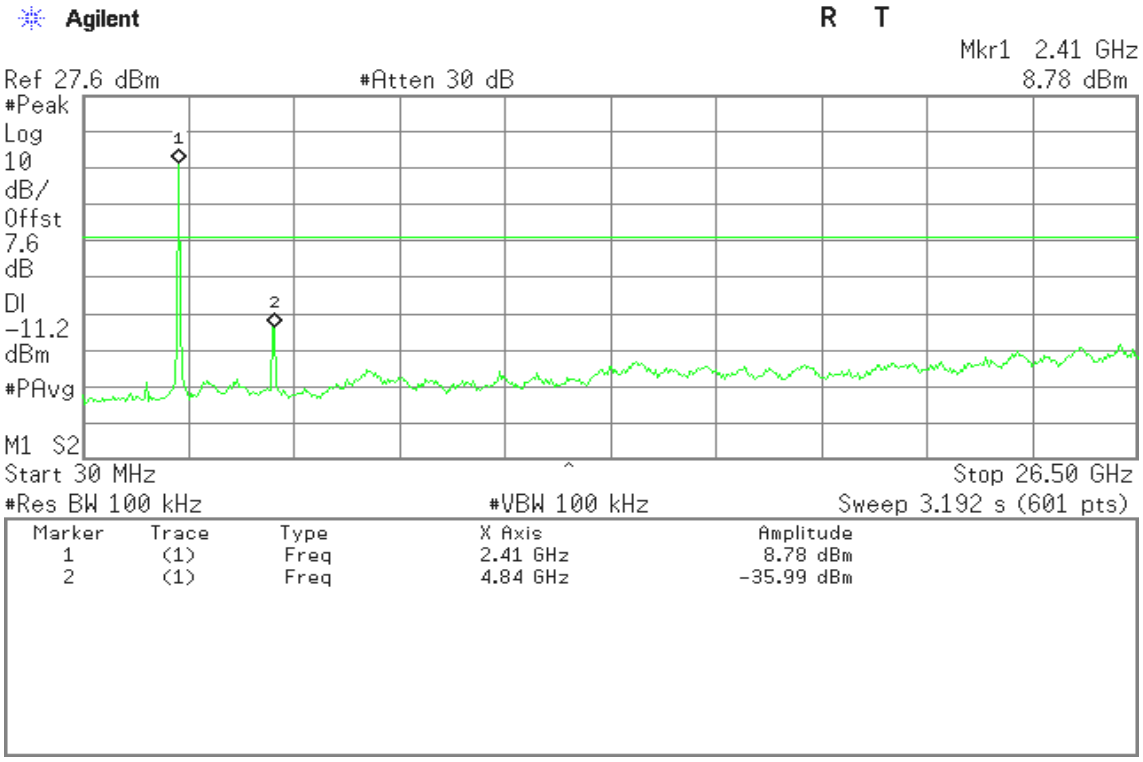


CH High

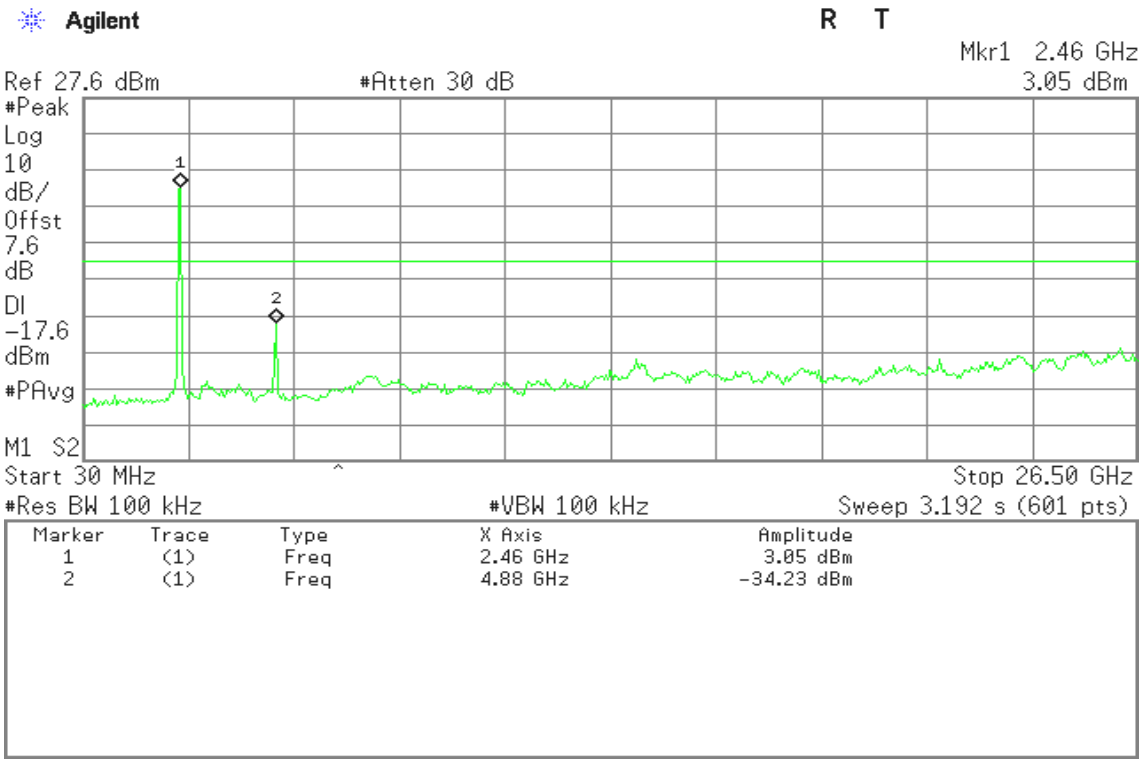


IEEE 802.11n HT20 mode (Chian 0)

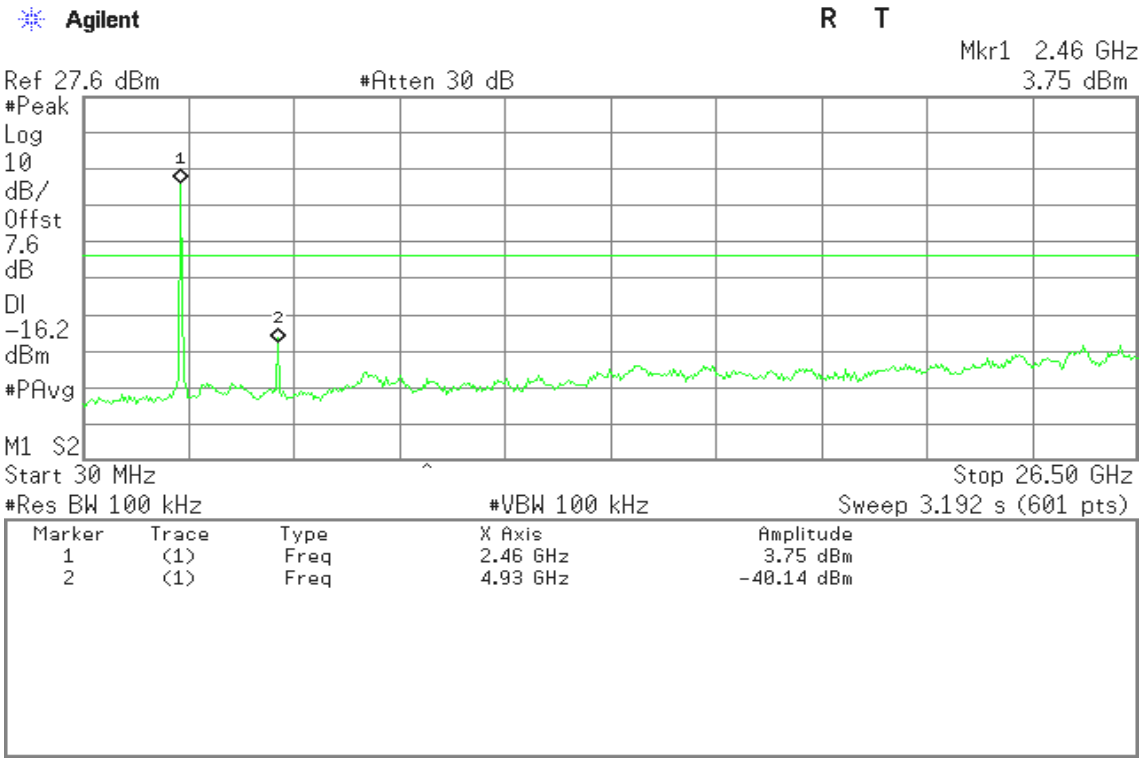
CH Low



CH Mid

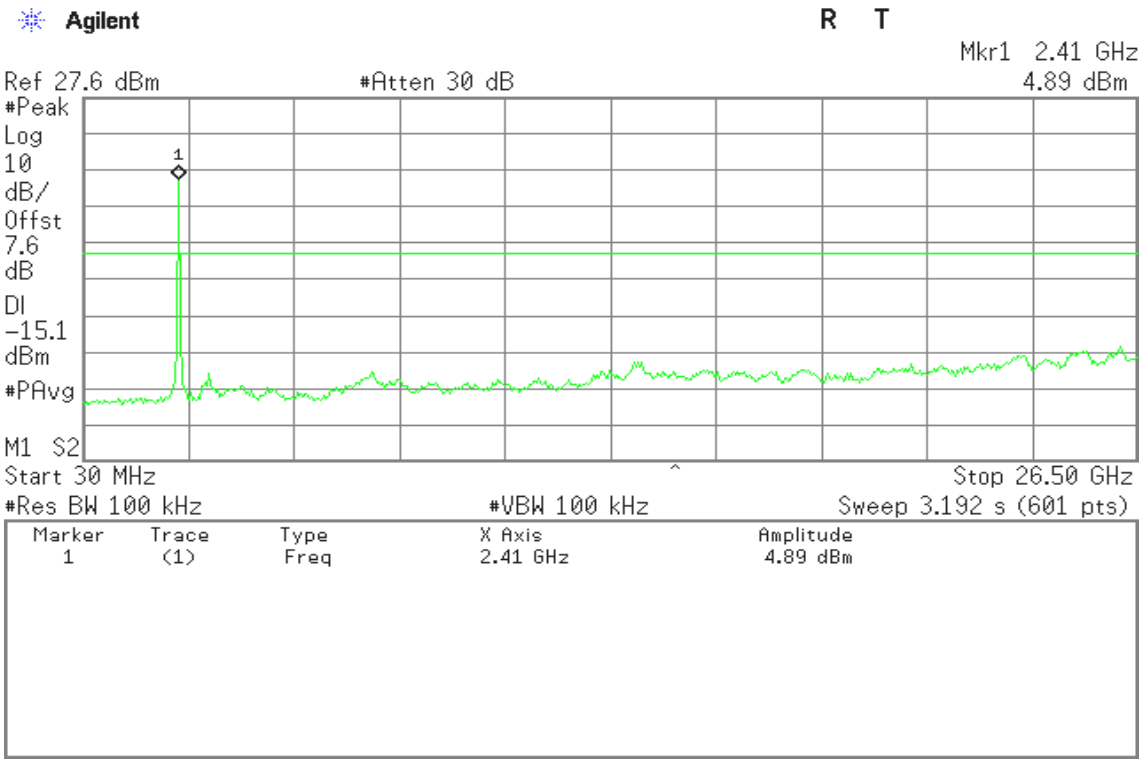


CH High

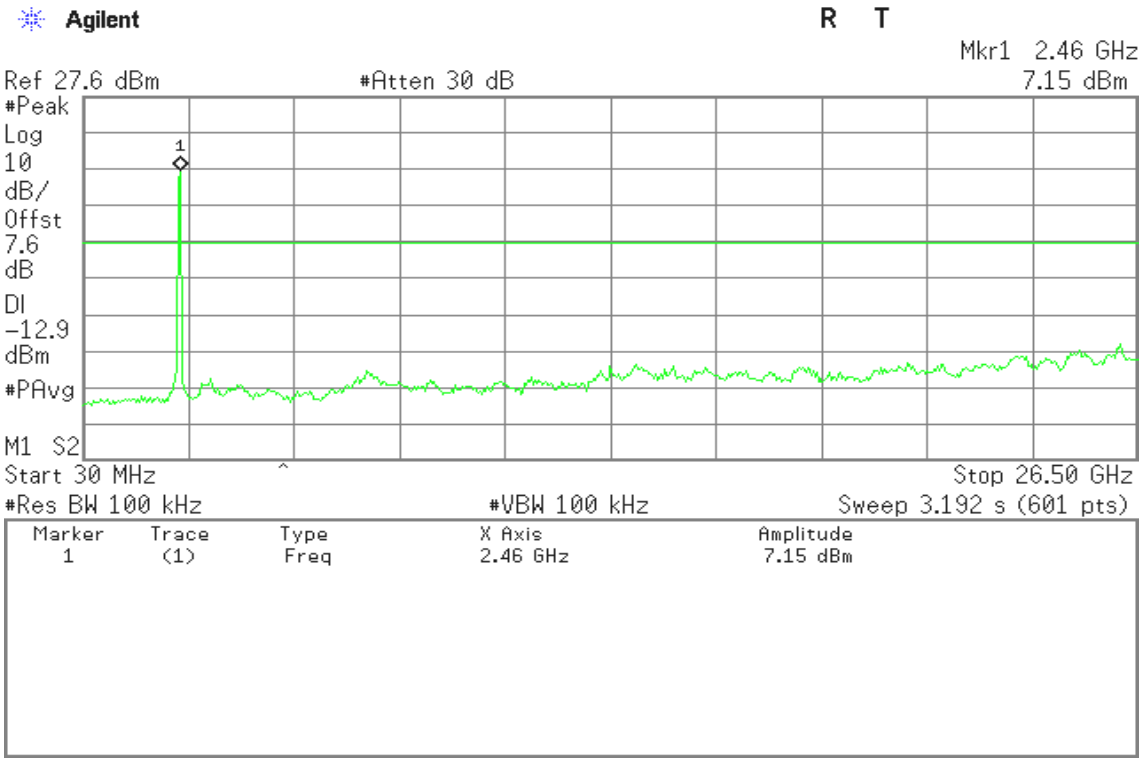


IEEE 802.11n HT20 mode (Chian 1)

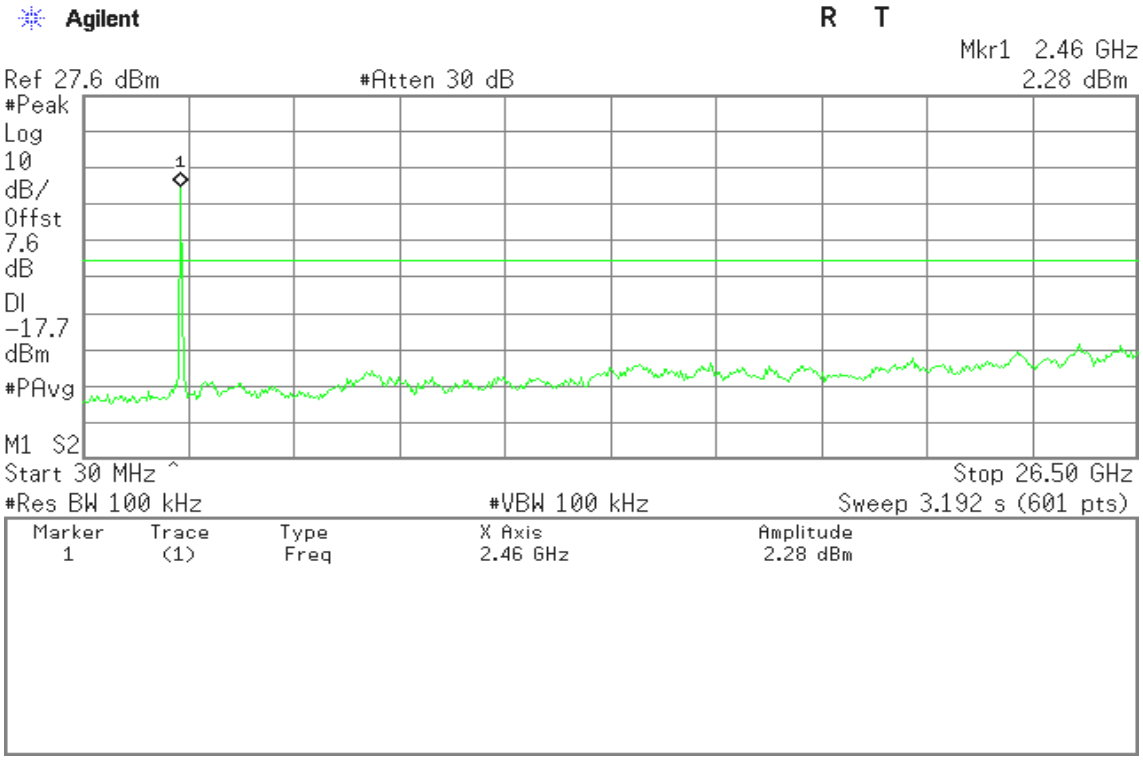
CH Low



CH Mid

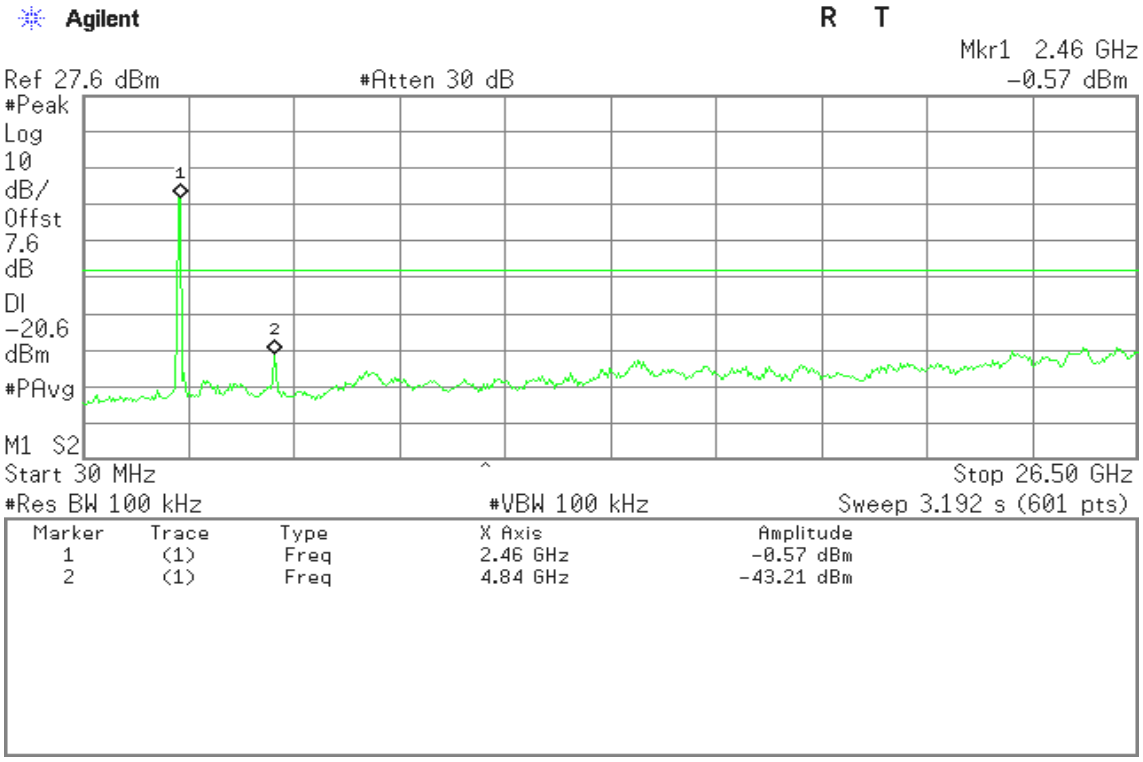


CH High

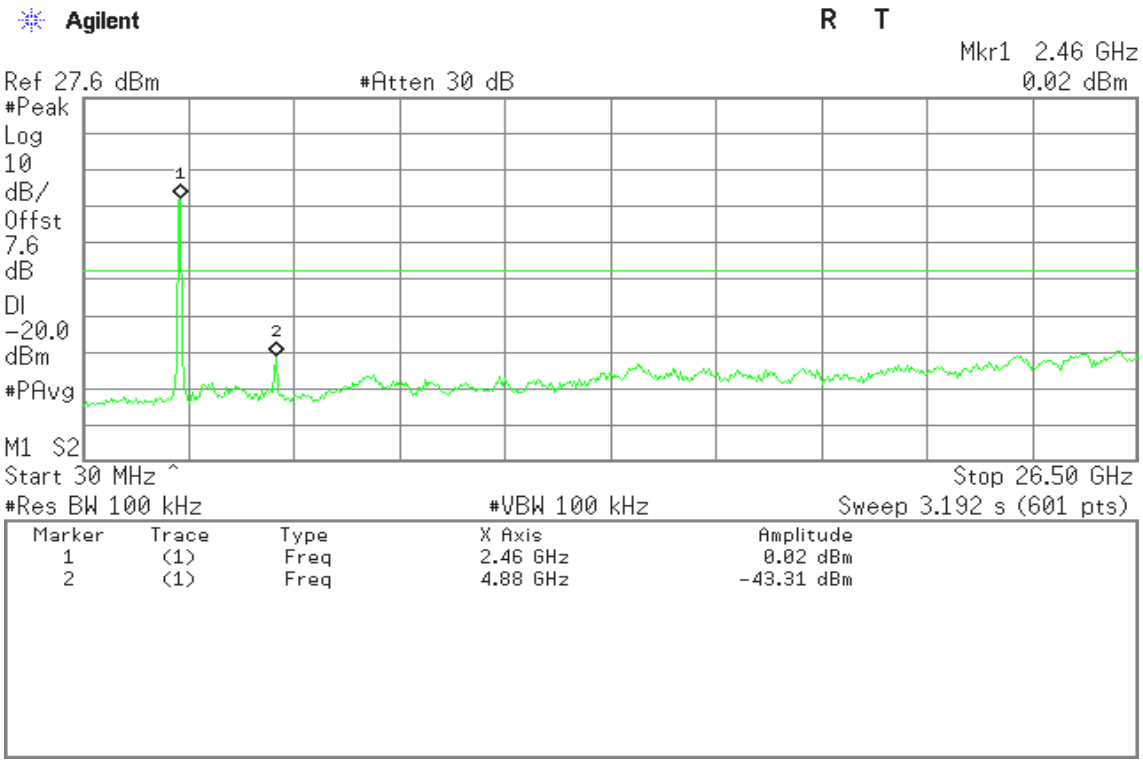


IEEE 802.11n HT40 mode (Chian 0)

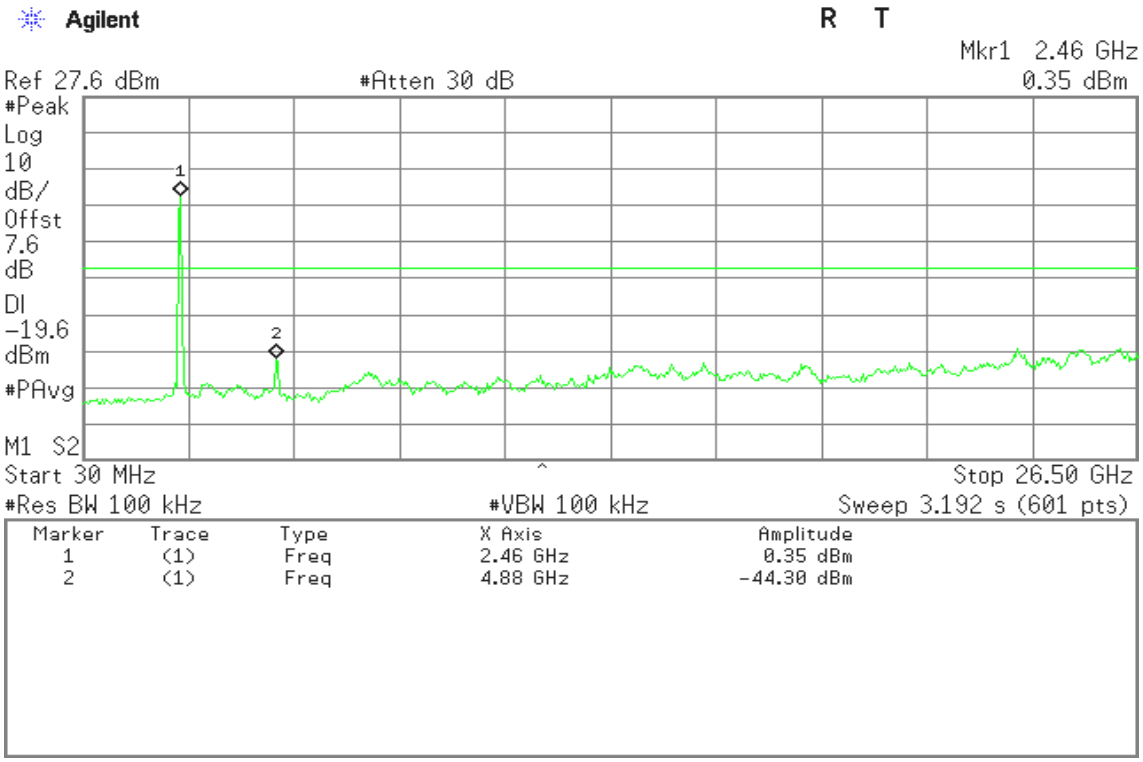
CH Low



CH Mid

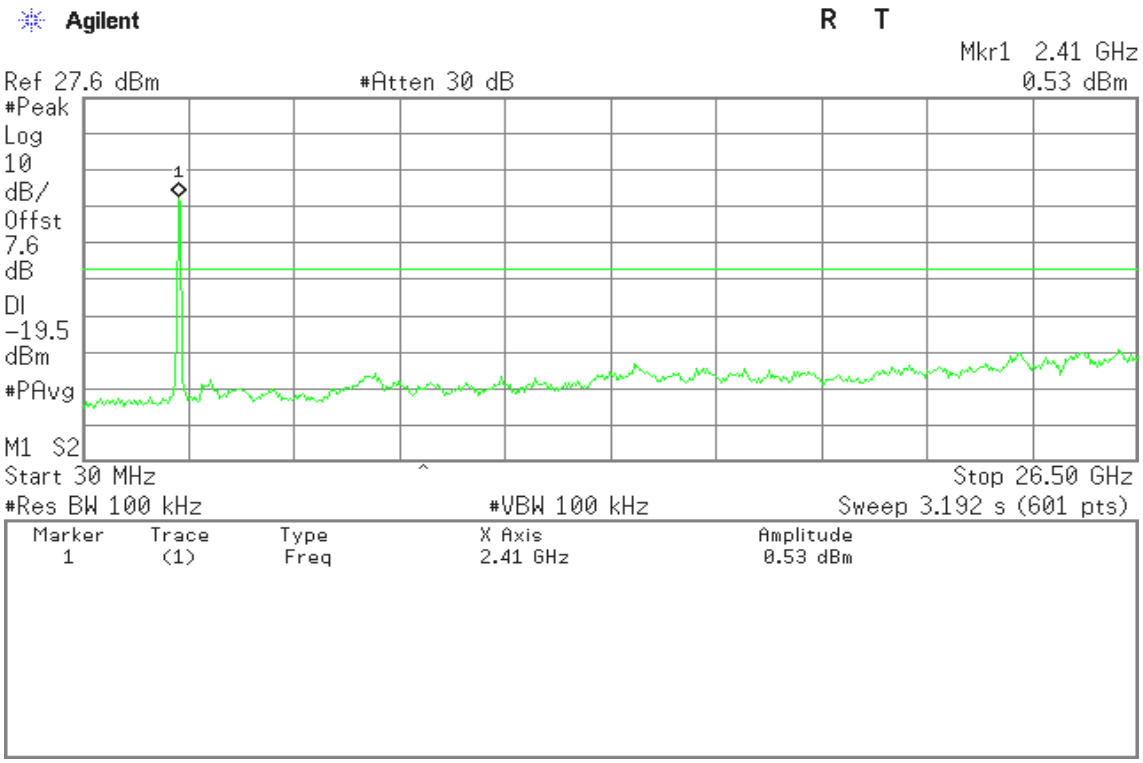


CH High

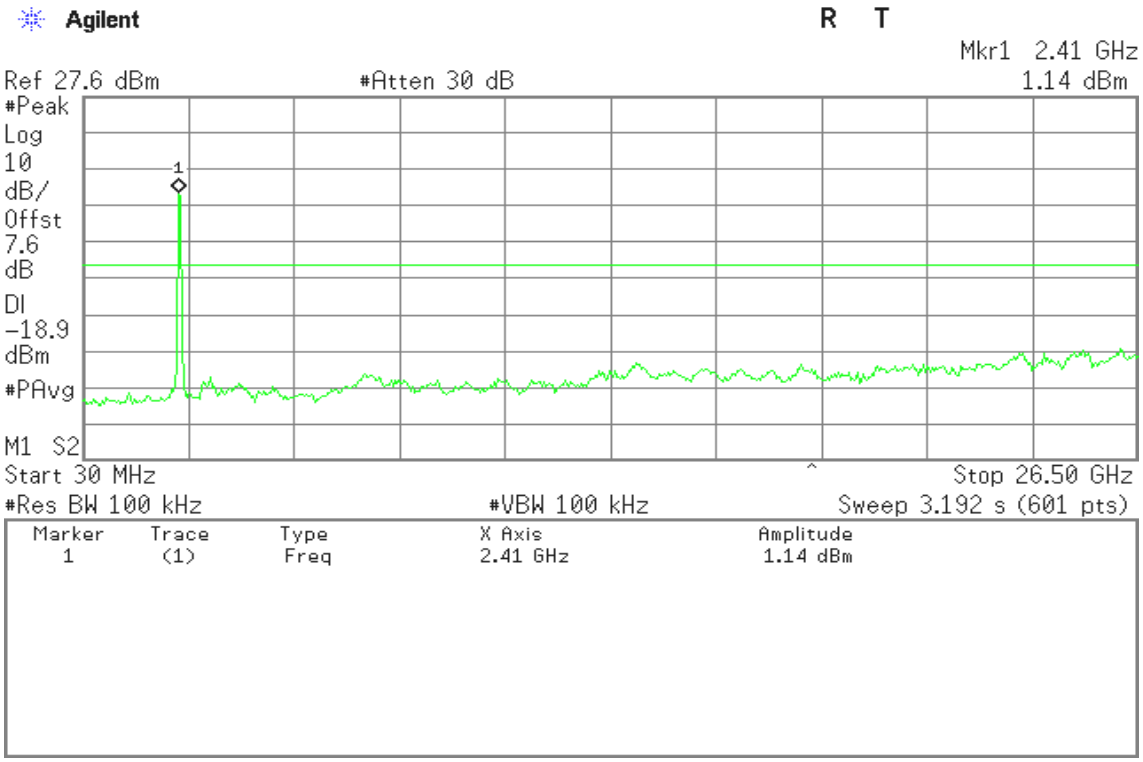


IEEE 802.11n HT40 mode (Chian 1)

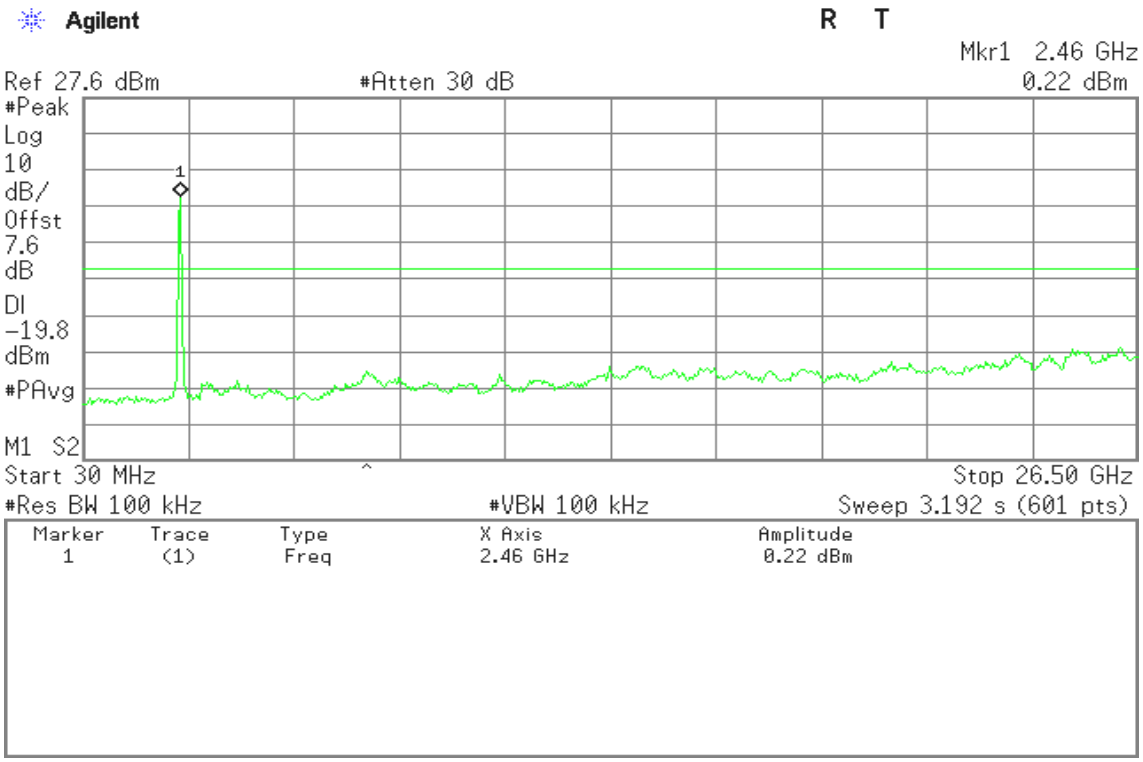
CH Low



CH Mid

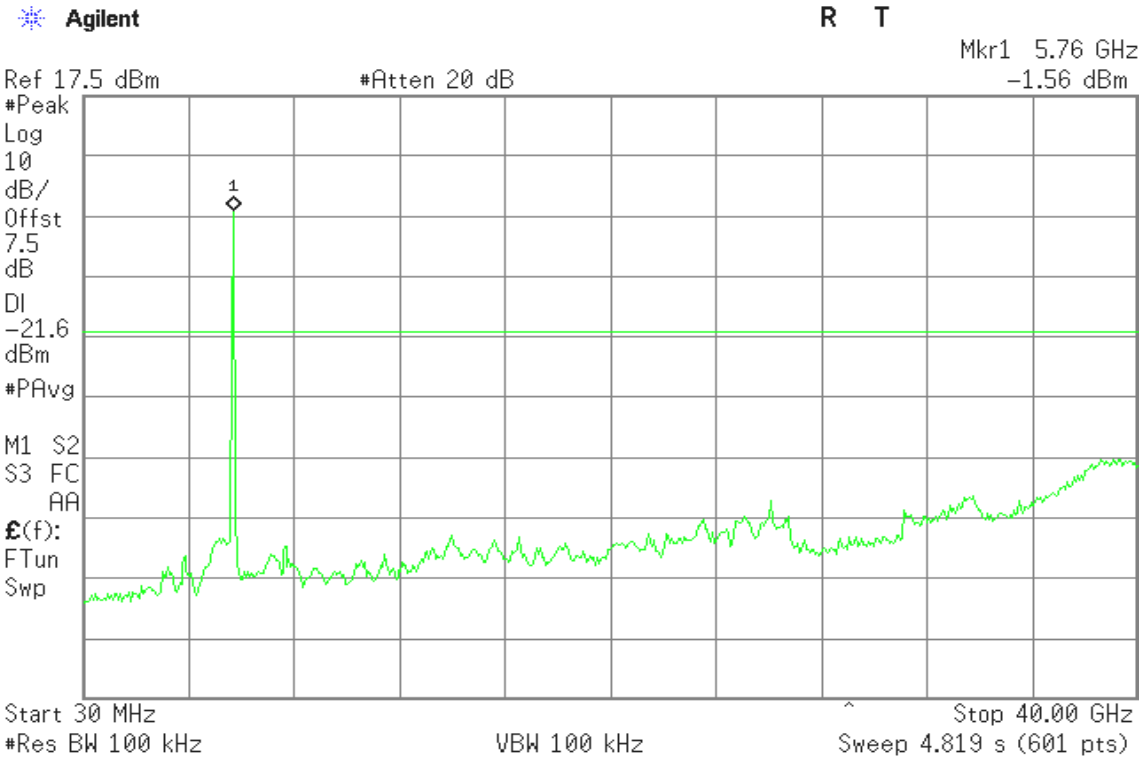


CH High

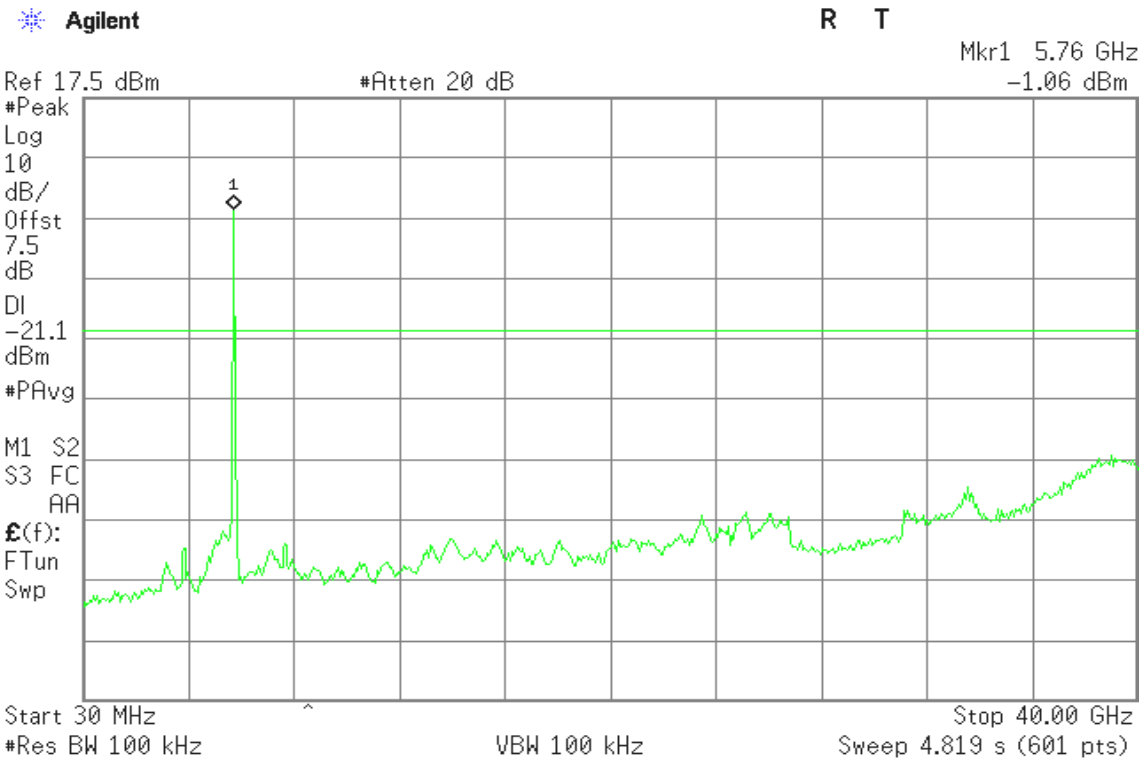


IEEE 802.11a mode

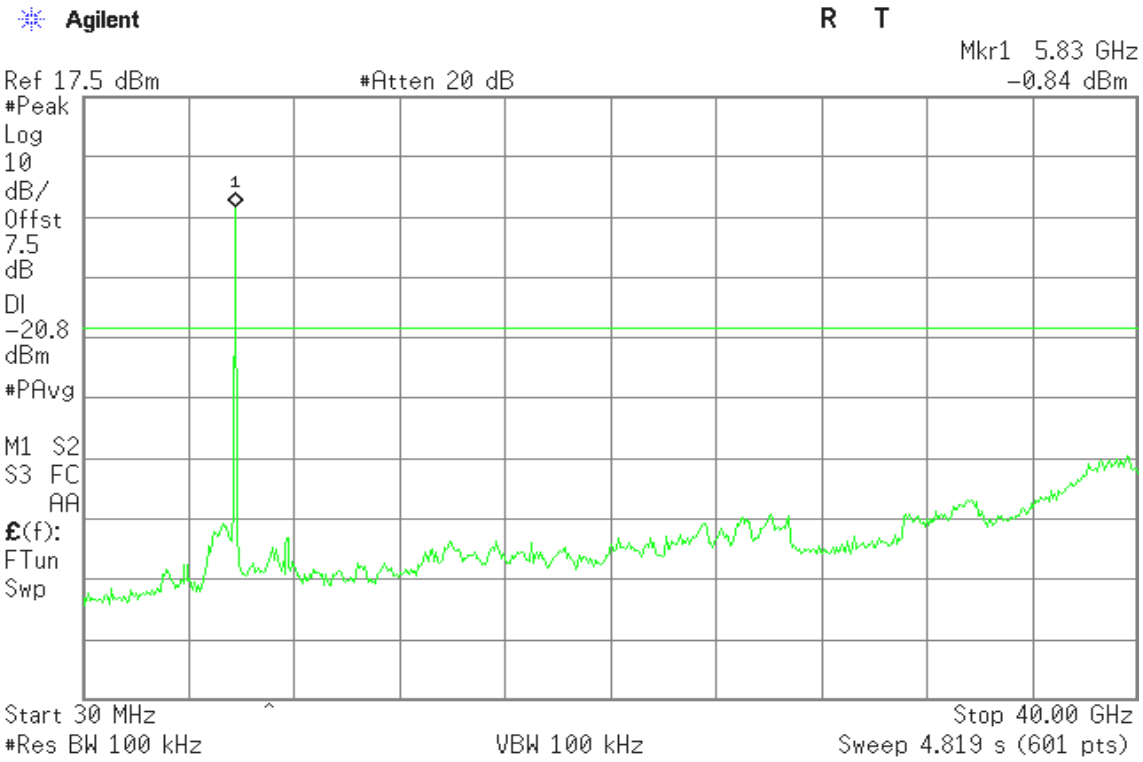
CH Low



CH Mid

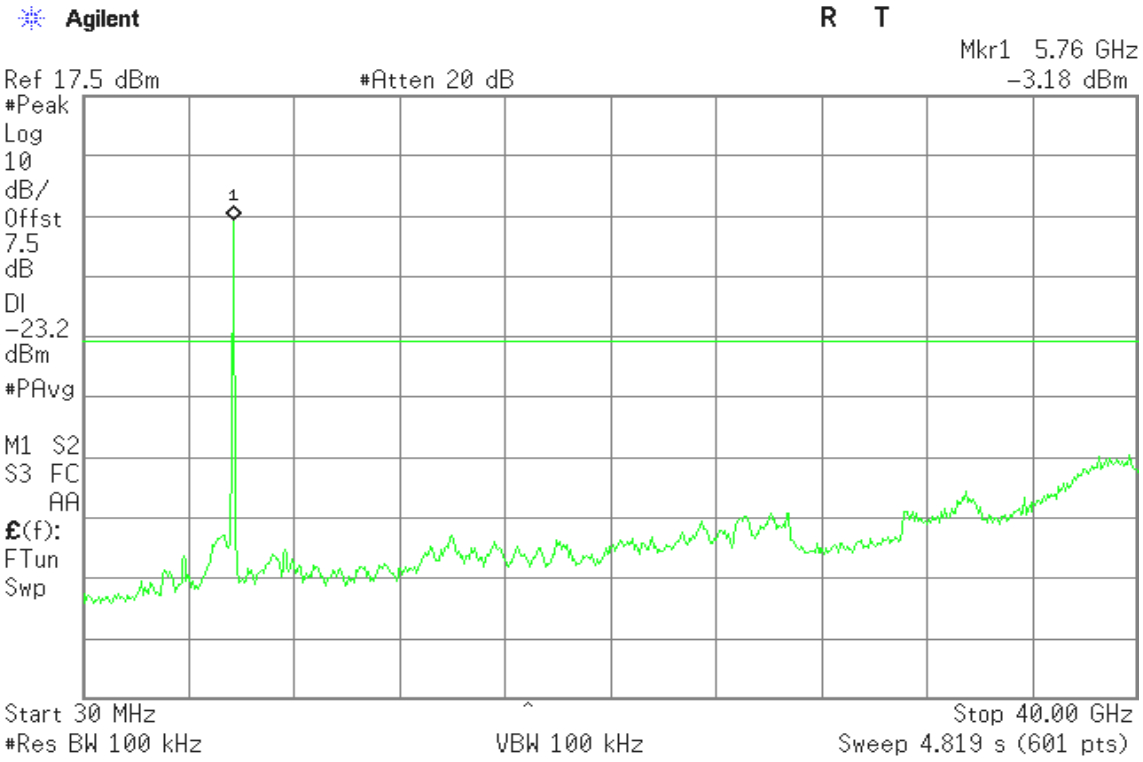


CH High

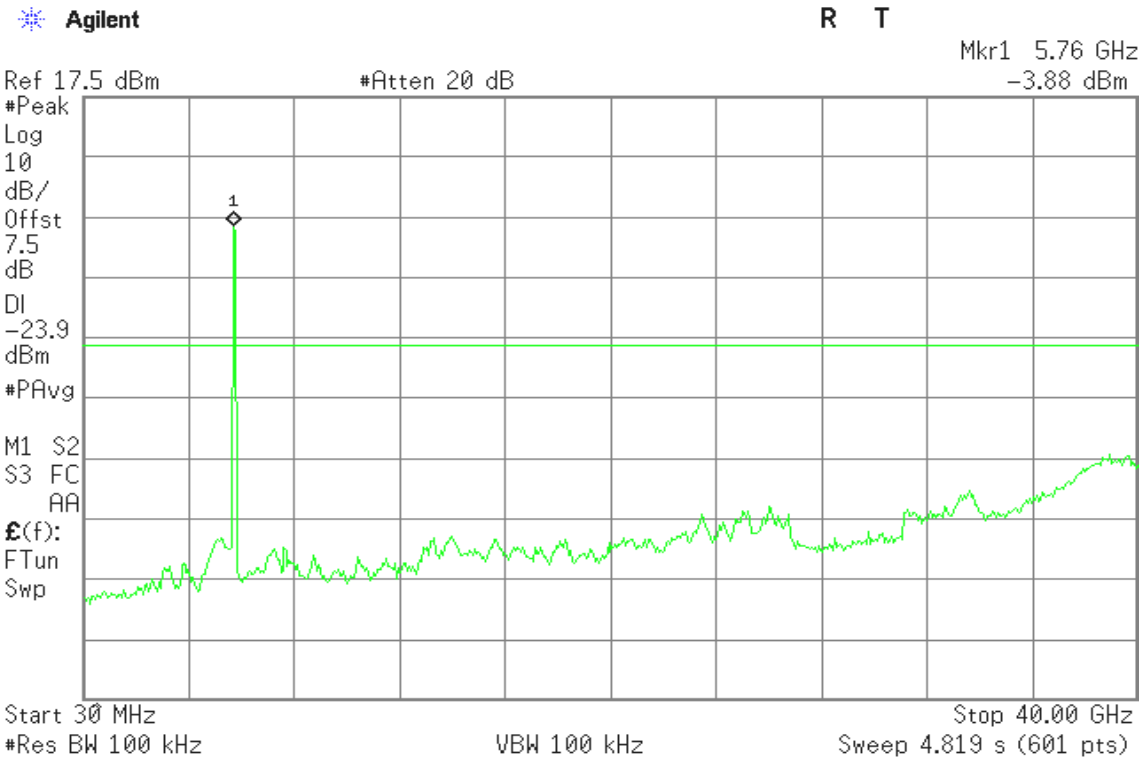


IEEE 802.11n HT20 mode (Chain 0)

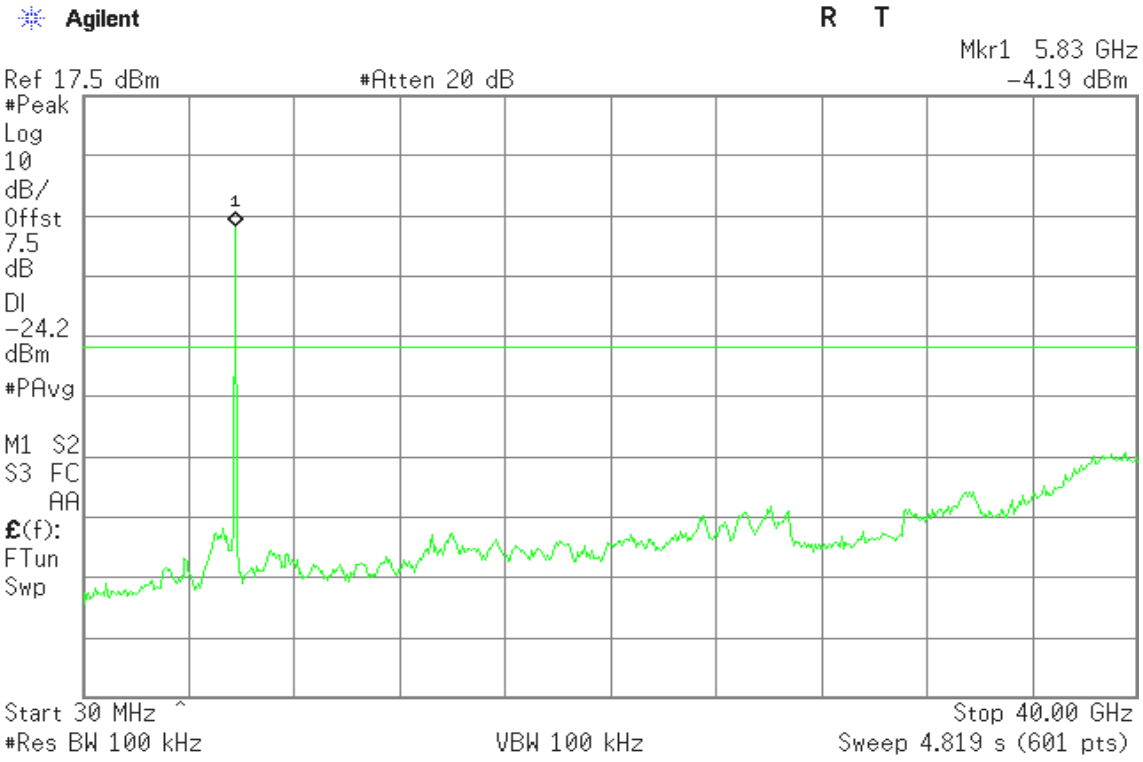
CH Low



CH Mid

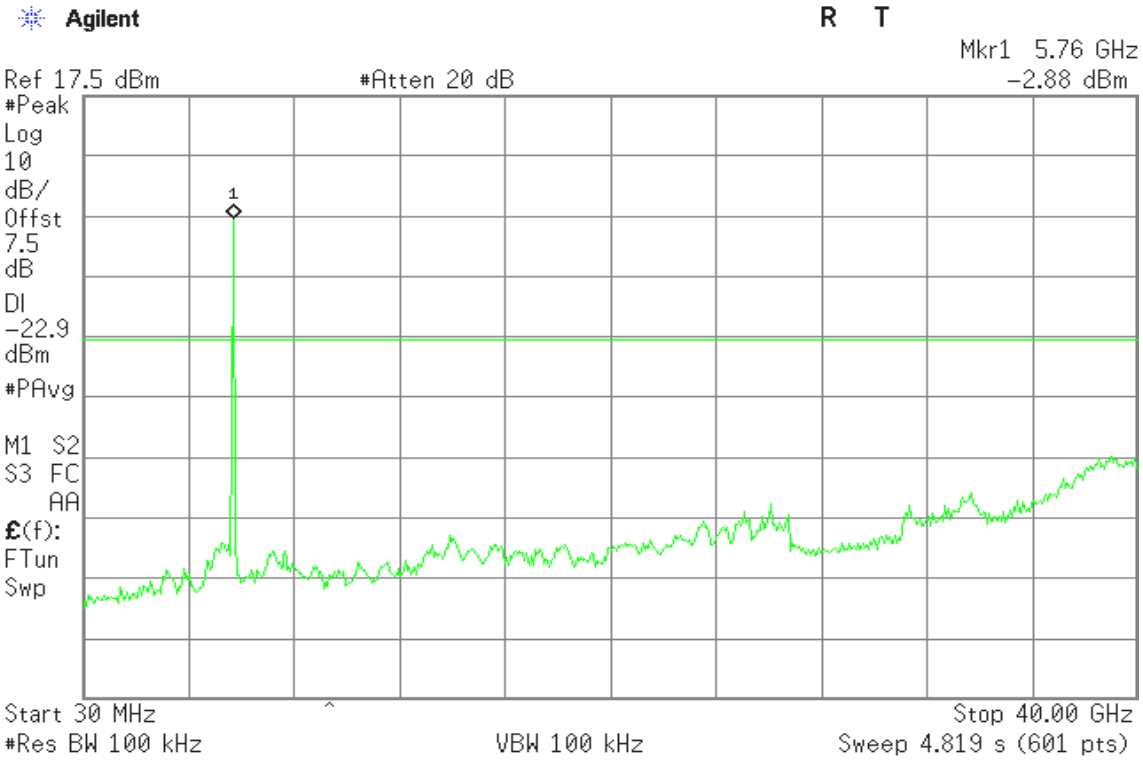


CH High

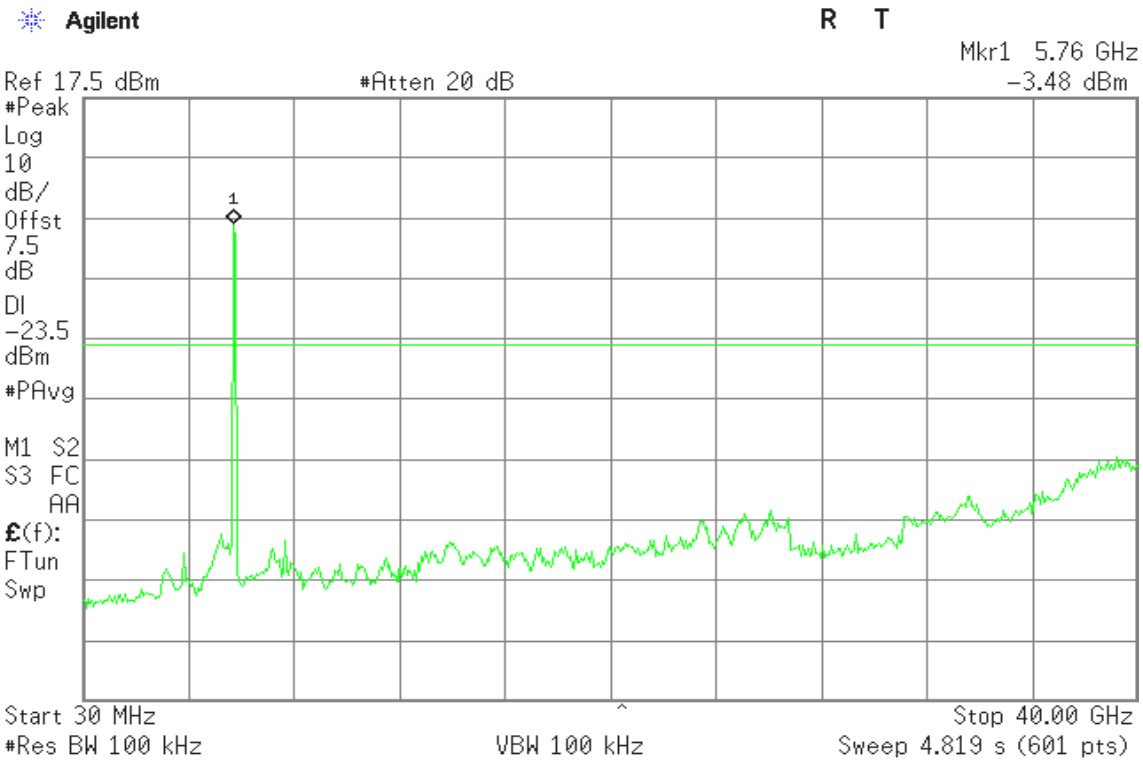


IEEE 802.11n HT20 mode (Chain 0)

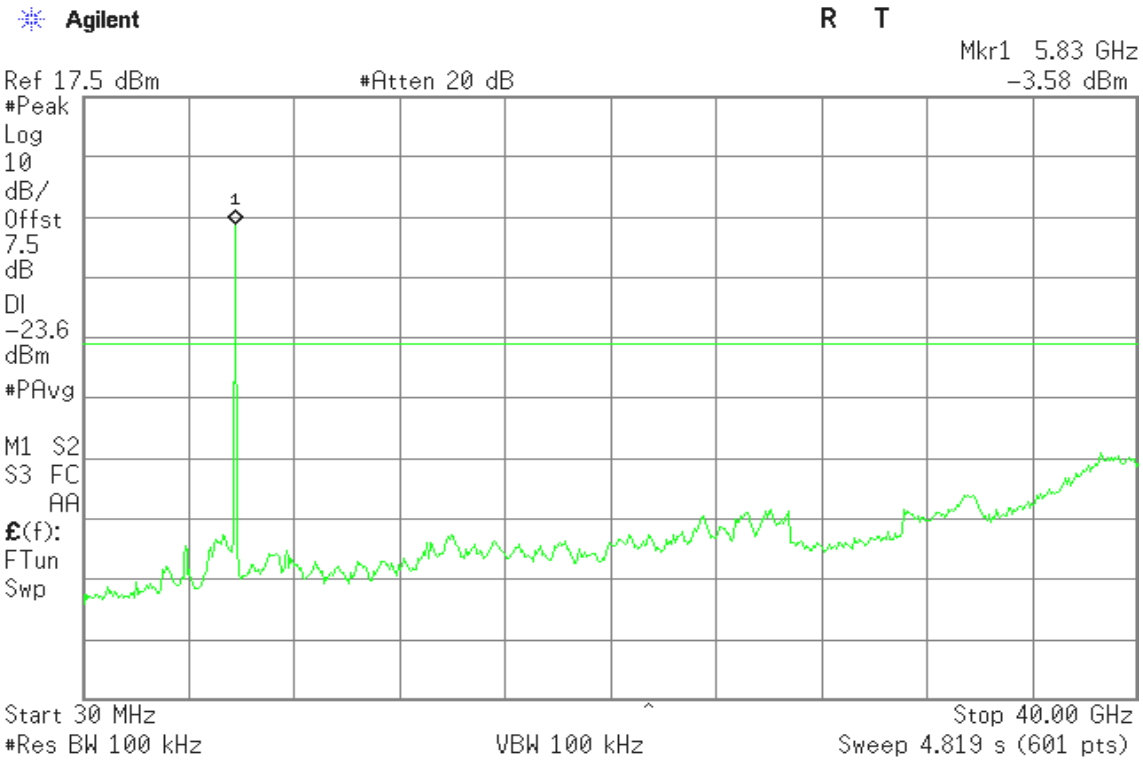
CH Low



CH Mid

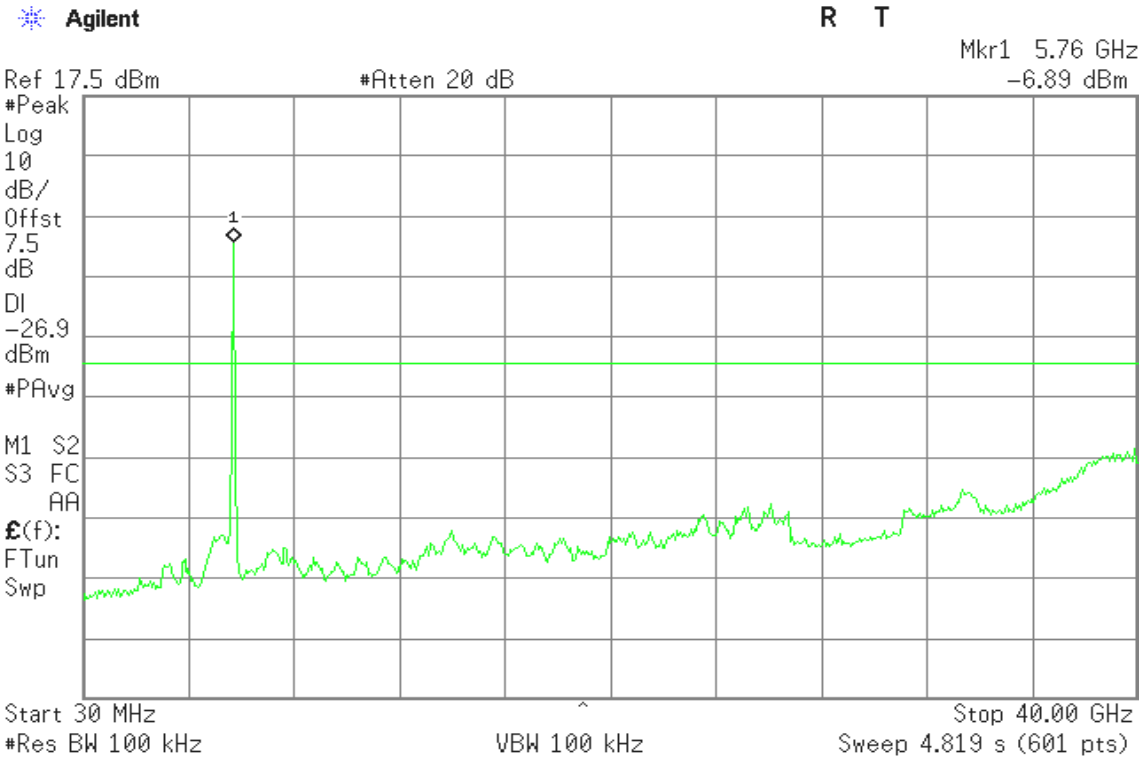


CH High

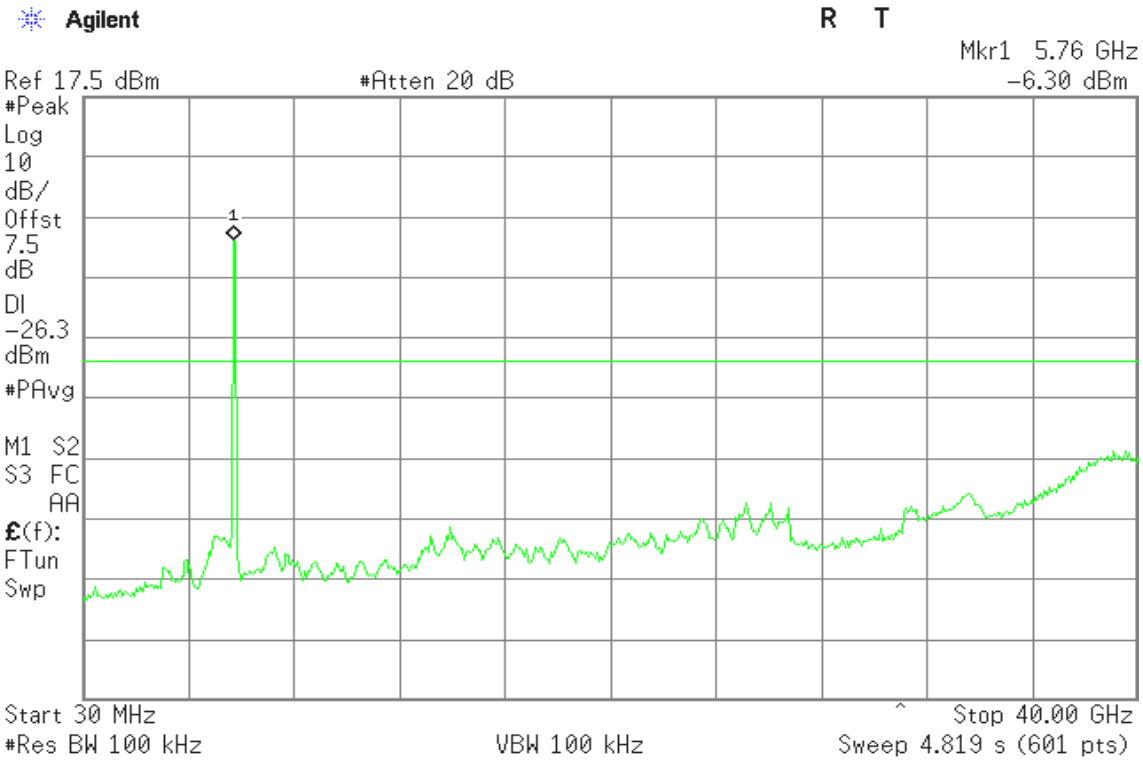


IEEE 802.11n HT40 mode (Chain 0)

CH Low

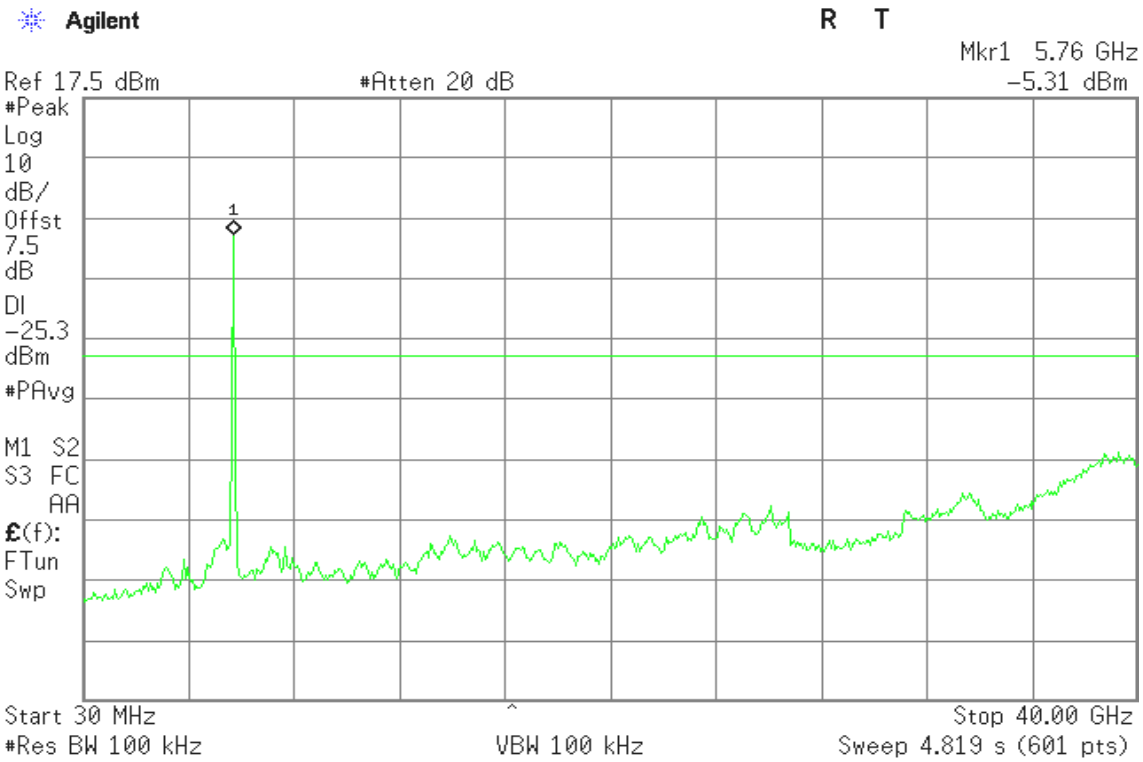


CH High

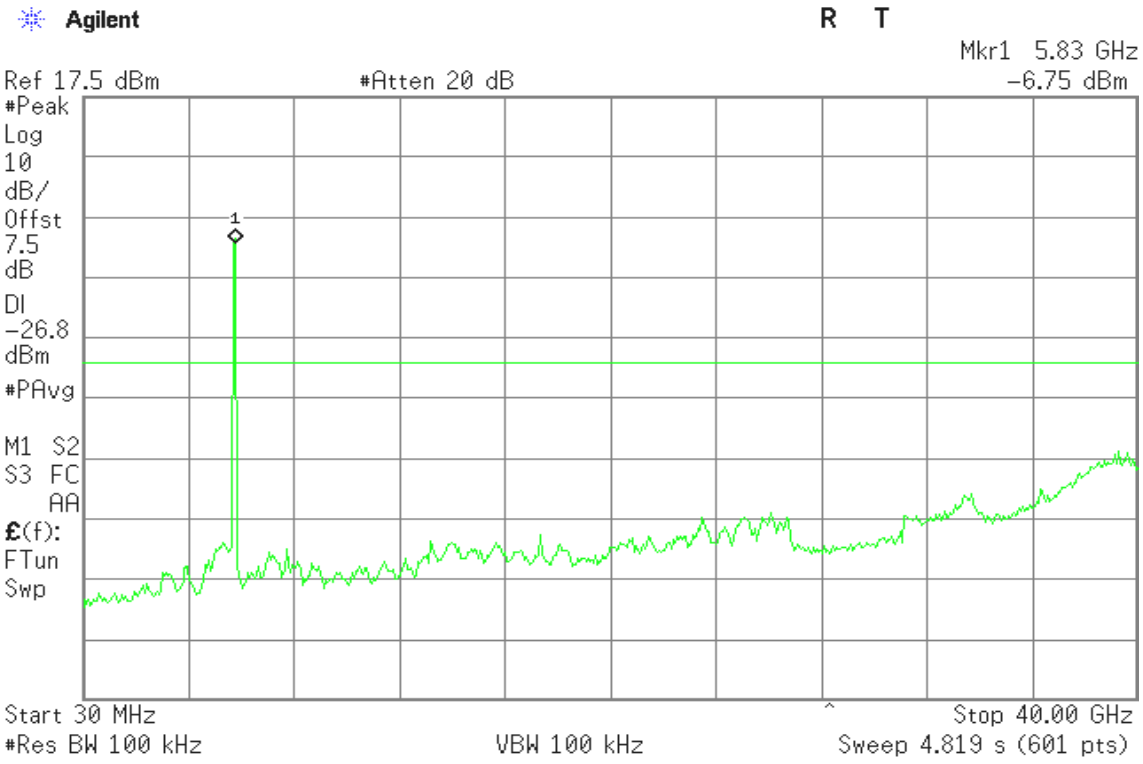


IEEE 802.11n HT40 mode (Chain 1)

CH Low



CH High


Agilent
R T
Mkr1 5.83 GHz
Ref 17.5 dBm
#Atten 20 dB
-6.75 dBm
#Peak
Log
10
dB/
Offst
7.5
dB
Dl
-26.8
dBm
#PAvg
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Start 30 MHz
Stop 40.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Sweep 4.819 s (601 pts)

7.6.2 Radiated Emissions

LIMIT

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

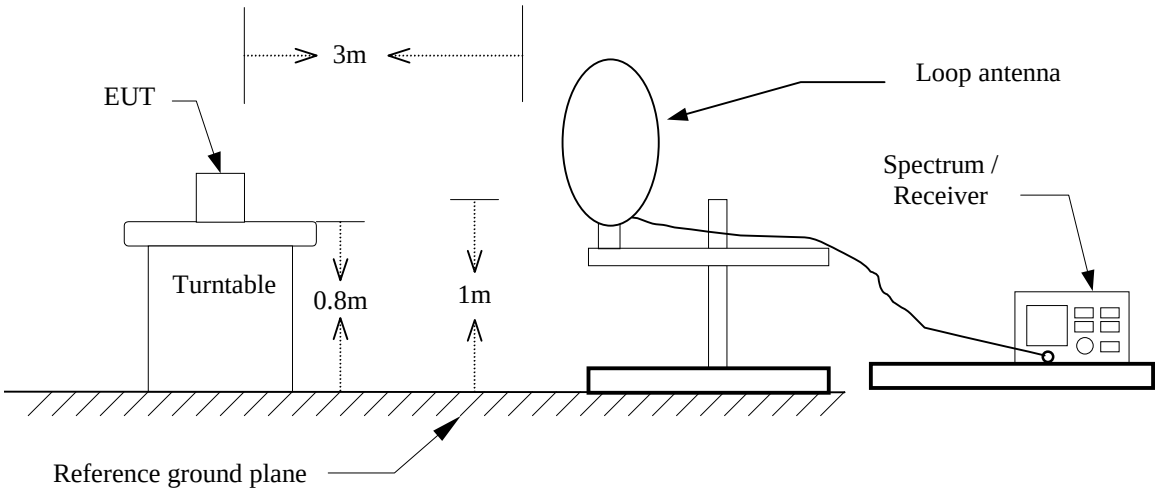
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the emission table above, the tighter limit applies at the band edges.

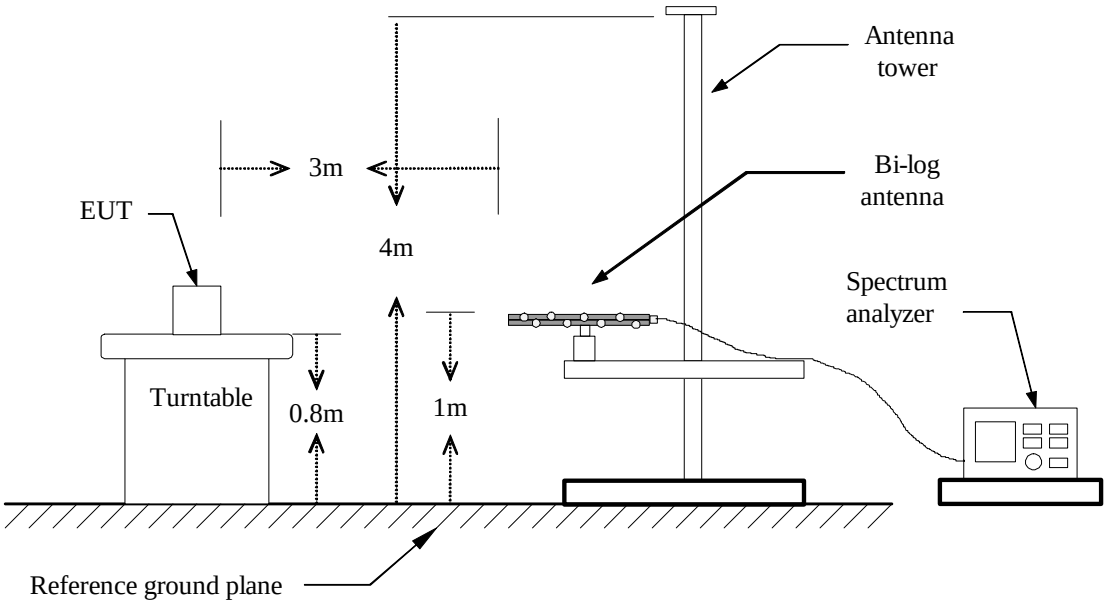
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

TEST CONFIGURATION

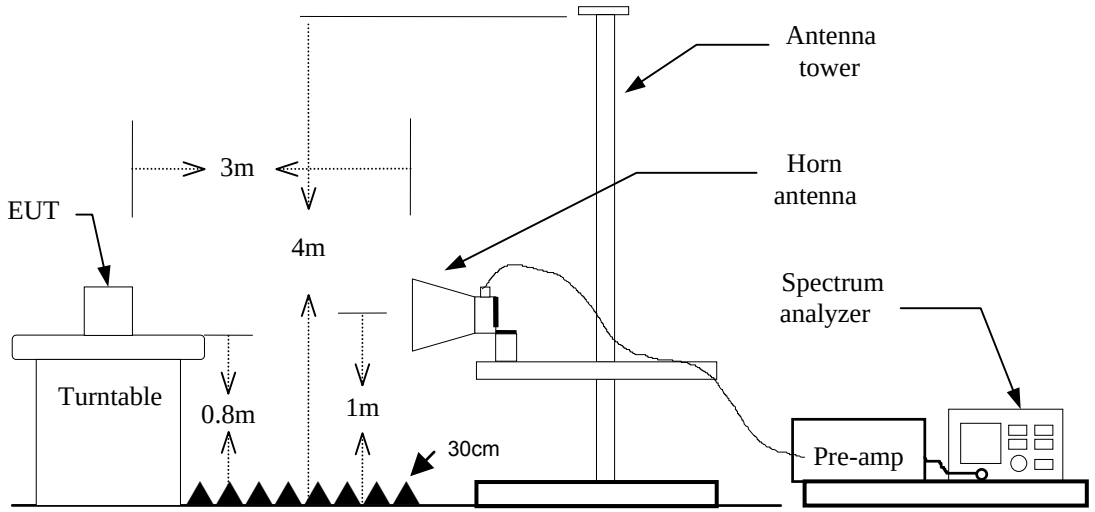
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz



test procedure

1. The EUT is placed on a turntable, which is 0.8m above 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 emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 30MHz

   RBW=10kHz / VBW=30kHz / Sweep=AUTO

   30 ~ 1000MHz:

   RBW=100kHz / VBW=300KHz / Sweep=AUTO

   Above 1GHz:

   a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

   b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

test results

No non-compliance noted.

Below 1 GHz

Operation Mode:	Data Link	**Test Date:**	2013/9/25
Temperature:	26°C	**Tested by:**	Louis Shen
Humidity:	56% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol. (H/V)	Remark
60.0450	50.90	-20.96	29.94	40.00	-10.06	V	QP
101.8700	54.40	-16.15	38.25	43.50	-5.25	V	QP
144.5325	56.70	-15.49	41.21	43.50	-2.29	V	QP
199.1900	53.60	-16.65	36.95	43.50	-6.55	V	QP
699.9990	48.30	-6.72	41.58	46.00	-4.42	V	QP
750.0000	42.90	-5.79	37.11	46.00	-8.89	V	QP
874.9990	46.30	-3.94	42.36	46.00	-3.64	V	QP
914.6400	44.20	-3.31	40.89	46.00	-5.11	V	QP
143.0800	51.60	-15.39	36.21	43.50	-7.29	H	QP
207.5400	52.40	-16.08	36.32	43.50	-7.18	H	QP
500.0011	48.70	-8.89	39.81	46.00	-6.19	H	QP
700.0010	47.10	-6.72	40.38	46.00	-5.62	H	QP
750.0040	45.20	-5.79	39.41	46.00	-6.59	H	QP
875.0036	40.10	-3.94	36.16	46.00	-9.84	H	QP

Remark:

1. *No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).*
2. *Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.*
3. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
5. *Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).*

Above 1 GHz

Operation Mode: TX / IEEE 802.11b mode / CH Low **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1332.000	58.94	-7.98	50.96	74.00	-23.04	V	peak
1332.000	40.64	-7.98	32.66	54.00	-21.34	V	AVG
1996.000	56.95	-1.36	55.59	74.00	-18.41	V	peak
1996.000	40.72	-1.36	39.36	54.00	-14.64	V	AVG
2772.000	54.07	-1.92	52.15	74.00	-21.85	V	peak
2772.000	40.10	-1.92	38.18	54.00	-15.82	V	AVG
3365.000	36.65	1.14	37.79	74.00	-36.21	V	peak
5875.000	31.07	5.98	37.05	74.00	-36.95	V	peak
7560.000	31.27	11.76	43.03	74.00	-30.97	V	peak
1402.000	52.95	-6.94	46.01	74.00	-27.99	H	peak
2134.000	55.00	-3.71	51.29	74.00	-22.71	H	peak
2580.000	54.66	-3.45	51.21	74.00	-22.79	H	peak
3845.000	33.39	5.15	38.54	74.00	-35.46	H	peak
4825.000	33.29	5.88	39.17	74.00	-34.83	H	peak
7320.000	31.69	11.72	43.41	74.00	-30.59	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11b mode / CH Mid **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1594.000	53.48	-4.82	48.66	74.00	-25.34	V	peak
1992.000	56.88	-1.43	55.45	74.00	-18.55	V	peak
1992.000	40.35	-1.43	38.92	54.00	-15.08	V	AVG
2646.000	54.88	-1.85	53.03	74.00	-20.97	V	peak
2646.000	40.81	-1.85	38.96	54.00	-15.04	V	AVG
3325.000	36.03	0.98	37.01	74.00	-36.99	V	peak
5955.000	31.58	5.68	37.26	74.00	-36.74	V	peak
7655.000	32.70	11.28	43.98	74.00	-30.02	V	peak
1376.000	54.04	-7.52	46.52	74.00	-27.48	H	peak
2140.000	53.72	-3.69	50.03	74.00	-23.97	H	peak
2502.000	57.73	-3.80	53.93	74.00	-20.07	H	peak
2502.000	43.40	-3.80	39.60	54.00	-14.40	H	AVG
3800.000	34.20	5.10	39.30	74.00	-34.70	H	peak
4875.000	34.29	6.73	41.02	74.00	-32.98	H	peak
7415.000	32.47	11.25	43.72	74.00	-30.28	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11b mode / CH High **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1612.000	53.58	-4.89	48.69	74.00	-25.31	V	peak
1996.000	53.29	-1.36	51.93	74.00	-22.07	V	peak
2628.000	55.00	-1.97	53.03	74.00	-20.97	V	peak
2628.000	40.95	-1.97	38.98	54.00	-15.02	V	AVG
3790.000	33.89	3.57	37.46	74.00	-36.54	V	peak
6745.000	31.88	7.41	39.29	74.00	-34.71	V	peak
7585.000	31.75	11.85	43.60	74.00	-30.40	V	peak
1348.000	54.67	-8.24	46.43	74.00	-27.57	H	peak
2134.000	54.73	-3.71	51.02	74.00	-22.98	H	peak
2610.000	55.10	-3.36	51.74	74.00	-22.26	H	peak
3770.000	34.09	4.70	38.79	74.00	-35.21	H	peak
4925.000	34.73	7.26	41.99	74.00	-32.01	H	peak
7340.000	31.92	11.62	43.54	74.00	-30.46	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g mode / CH Low **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1500.000	54.21	-5.26	48.95	74.00	-25.05	V	peak
1992.000	55.77	-1.43	54.34	74.00	-19.66	V	peak
1992.000	40.30	-1.43	38.87	54.00	-15.13	V	AVG
2616.000	54.83	-2.06	52.77	74.00	-21.23	V	peak
2616.000	40.92	-2.06	38.86	54.00	-15.14	V	AVG
3800.000	33.77	3.69	37.46	74.00	-36.54	V	peak
6355.000	31.59	6.75	38.34	74.00	-35.66	V	peak
7625.000	31.19	11.62	42.81	74.00	-31.19	V	peak
1352.000	53.72	-8.13	45.59	74.00	-28.41	H	peak
2094.000	55.44	-3.94	51.50	74.00	-22.50	H	peak
2646.000	54.94	-3.36	51.58	74.00	-22.42	H	peak
3860.000	34.12	5.17	39.29	74.00	-34.71	H	peak
4830.000	33.81	5.96	39.77	74.00	-34.23	H	peak
7310.000	31.31	11.77	43.08	74.00	-30.92	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g mode / CH Mid **Test Date:** 2013/9/23
Temperature: 26℃ **Tested by:** Francis Lee
Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1996.000	56.82	-1.36	55.46	74.00	-18.54	V	peak
1996.000	40.55	-1.36	39.19	54.00	-14.81	V	AVG
2242.000	54.91	-1.42	53.49	74.00	-20.51	V	peak
2242.000	40.62	-1.42	39.20	54.00	-14.80	V	AVG
2734.000	54.89	-1.68	53.21	74.00	-20.79	V	peak
2734.000	40.12	-1.68	38.44	54.00	-15.56	V	AVG
3370.000	35.83	1.16	36.99	74.00	-37.01	V	peak
4980.000	32.08	5.13	37.21	74.00	-36.79	V	peak
7550.000	31.18	11.72	42.90	74.00	-31.10	V	peak
1738.000	57.80	-7.29	50.51	74.00	-23.49	H	peak
2146.000	54.22	-3.68	50.54	74.00	-23.46	H	peak
2616.000	55.20	-3.36	51.84	74.00	-22.16	H	peak
3320.000	37.25	1.21	38.46	74.00	-35.54	H	peak
4975.000	35.31	7.48	42.79	74.00	-31.21	H	peak
7315.000	31.23	11.74	42.97	74.00	-31.03	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11g mode / CH High **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1994.000	56.27	-1.39	54.88	74.00	-19.12	V	peak
1994.000	40.31	-1.39	38.92	54.00	-15.08	V	AVG
2250.000	55.06	-1.44	53.62	74.00	-20.38	V	peak
2250.000	40.70	-1.44	39.26	54.00	-14.74	V	AVG
2660.000	54.94	-1.75	53.19	74.00	-20.81	V	peak
2660.000	40.36	-1.75	38.61	54.00	-15.39	V	AVG
3370.000	35.78	1.16	36.94	74.00	-37.06	V	peak
4925.000	34.40	4.61	39.01	74.00	-34.99	V	peak
7625.000	31.39	11.62	43.01	74.00	-30.99	V	peak
1298.000	55.41	-9.50	45.91	74.00	-28.09	H	peak
2198.000	53.76	-3.56	50.20	74.00	-23.80	H	peak
2738.000	54.20	-3.03	51.17	74.00	-22.83	H	peak
3365.000	37.10	1.07	38.17	74.00	-35.83	H	peak
4920.000	37.93	7.24	45.17	74.00	-28.83	H	peak
7310.000	31.30	11.77	43.07	74.00	-30.93	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1500.000	53.35	-5.26	48.09	74.00	-25.91	V	peak
2004.000	53.31	-1.39	51.92	74.00	-22.08	V	peak
2642.000	54.11	-1.88	52.23	74.00	-21.77	V	peak
2642.000	40.59	-1.88	38.71	54.00	-15.29	V	AVG
3535.000	34.34	2.48	36.82	74.00	-37.18	V	peak
5035.000	32.13	4.99	37.12	74.00	-36.88	V	peak
7575.000	31.87	11.82	43.69	74.00	-30.31	V	peak
1876.000	54.18	-6.03	48.15	74.00	-25.85	H	peak
2124.000	53.93	-3.73	50.20	74.00	-23.80	H	peak
2694.000	54.34	-3.37	50.97	74.00	-23.03	H	peak
3845.000	33.85	5.15	39.00	74.00	-35.00	H	peak
5005.000	31.37	7.53	38.90	74.00	-35.10	H	peak
7310.000	31.71	11.77	43.48	74.00	-30.52	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / CH Mid	**Test Date:**	2013/9/23
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1336.000	55.34	-7.90	47.44	74.00	-26.56	V	peak
1992.000	53.52	-1.43	52.09	74.00	-21.91	V	peak
2618.000	54.57	-2.04	52.53	74.00	-21.47	V	peak
2618.000	40.79	-2.04	38.75	54.00	-15.25	V	AVG
3340.000	36.51	1.04	37.55	74.00	-36.45	V	peak
5360.000	31.17	5.93	37.10	74.00	-36.90	V	peak
7585.000	32.81	11.85	44.66	74.00	-29.34	V	peak
1364.000	54.29	-7.83	46.46	74.00	-27.54	H	peak
2164.000	53.74	-3.64	50.10	74.00	-23.90	H	peak
2644.000	54.72	-3.36	51.36	74.00	-22.64	H	peak
3805.000	33.15	5.11	38.26	74.00	-35.74	H	peak
4870.000	35.02	6.64	41.66	74.00	-32.34	H	peak
7365.000	31.37	11.49	42.86	74.00	-31.14	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / CH High	**Test Date:**	2013/9/23
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1490.000	53.34	-5.40	47.94	74.00	-26.06	V	peak
2234.000	54.37	-1.40	52.97	74.00	-21.03	V	peak
2234.000	40.46	-1.40	39.06	54.00	-14.94	V	AVG
2626.000	54.30	-1.99	52.31	74.00	-21.69	V	peak
2626.000	40.75	-1.99	38.76	54.00	-15.24	V	AVG
3365.000	35.95	1.14	37.09	74.00	-36.91	V	peak
5520.000	31.80	6.17	37.97	74.00	-36.03	V	peak
7665.000	32.50	11.16	43.66	74.00	-30.34	V	peak
1400.000	53.40	-6.90	46.50	74.00	-27.50	H	peak
2144.000	53.91	-3.68	50.23	74.00	-23.77	H	peak
2846.000	53.11	-2.13	50.98	74.00	-23.02	H	peak
3845.000	33.39	5.15	38.54	74.00	-35.46	H	peak
4925.000	36.13	7.26	43.39	74.00	-30.61	H	peak
7210.000	32.18	10.62	42.80	74.00	-31.20	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Low **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1478.000	53.65	-5.56	48.09	74.00	-25.91	V	peak
2274.000	54.97	-1.49	53.48	74.00	-20.52	V	peak
2274.000	40.73	-1.49	39.24	54.00	-14.76	V	AVG
2668.000	54.46	-1.69	52.77	74.00	-21.23	V	peak
2668.000	40.06	-1.69	38.37	54.00	-15.63	V	AVG
3555.000	35.32	2.62	37.94	74.00	-36.06	V	peak
5915.000	32.55	6.10	38.65	74.00	-35.35	V	peak
7615.000	31.14	11.74	42.88	74.00	-31.12	V	peak
1482.000	54.39	-8.62	45.77	74.00	-28.23	H	peak
2132.000	53.78	-3.71	50.07	74.00	-23.93	H	peak
2786.000	53.53	-2.60	50.93	74.00	-23.07	H	peak
3875.000	32.94	5.19	38.13	74.00	-35.87	H	peak
5580.000	30.70	9.13	39.83	74.00	-34.17	H	peak
7300.000	31.57	11.82	43.39	74.00	-30.61	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Mid **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2006.000	53.47	-1.44	52.03	74.00	-21.97	V	peak
2006.000	39.87	-1.44	38.43	54.00	-15.57	V	AVG
2274.000	54.65	-1.49	53.16	74.00	-20.84	V	peak
2274.000	40.68	-1.49	39.19	54.00	-14.81	V	AVG
2644.000	54.41	-1.86	52.55	74.00	-21.45	V	peak
2644.000	40.59	-1.86	38.73	54.00	-15.27	V	AVG
3370.000	37.84	1.16	39.00	74.00	-35.00	V	peak
5155.000	33.22	5.01	38.23	74.00	-35.77	V	peak
7675.000	32.27	11.05	43.32	74.00	-30.68	V	peak
1456.000	53.00	-8.08	44.92	74.00	-29.08	H	peak
2170.000	53.30	-3.63	49.67	74.00	-24.33	H	peak
2894.000	53.20	-1.77	51.43	74.00	-22.57	H	peak
4345.000	31.88	7.33	39.21	74.00	-34.79	H	peak
4890.000	33.28	6.98	40.26	74.00	-33.74	H	peak
7295.000	31.93	11.75	43.68	74.00	-30.32	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT40 mode / CH High **Test Date:** 2013/9/23

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1500.000	53.83	-5.26	48.57	74.00	-25.43	V	peak
2008.000	53.69	-1.48	52.21	74.00	-21.79	V	peak
2008.000	39.94	-1.48	38.46	54.00	-15.54	V	AVG
2278.000	55.12	-1.50	53.62	74.00	-20.38	V	peak
2278.000	40.65	-1.50	39.15	54.00	-14.85	V	AVG
2628.000	54.43	-1.97	52.46	74.00	-21.54	V	peak
2628.000	40.85	-1.97	38.88	54.00	-15.12	V	AVG
3375.000	36.28	1.18	37.46	74.00	-36.54	V	peak
5120.000	32.69	4.60	37.29	74.00	-36.71	V	peak
7620.000	31.45	11.68	43.13	74.00	-30.87	V	peak
1362.000	53.25	-7.88	45.37	74.00	-28.63	H	peak
2220.000	54.43	-4.12	50.31	74.00	-23.69	H	peak
2860.000	53.51	-2.03	51.48	74.00	-22.52	H	peak
3555.000	34.89	3.14	38.03	74.00	-35.97	H	peak
4895.000	32.32	7.07	39.39	74.00	-34.61	H	peak
7315.000	30.94	11.74	42.68	74.00	-31.32	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11a mode / CH Low **Test Date:** 2013/9/25

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	50.65	-2.90	47.75	74.00	-26.25	V	peak
3830.000	40.92	3.02	43.94	74.00	-30.06	V	peak
5365.000	37.87	5.99	43.86	74.00	-30.14	V	peak
N/A							
2130.000	47.71	-3.71	44.00	74.00	-30.00	H	peak
4275.000	38.04	7.24	45.28	74.00	-28.72	H	peak
5350.000	39.83	7.76	47.59	74.00	-26.41	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11a mode / CH Mid **Test Date:** 2013/9/25

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	50.41	-2.90	47.51	74.00	-26.49	V	peak
3815.000	39.96	3.36	43.32	74.00	-30.68	V	peak
5620.000	38.50	5.92	44.42	74.00	-29.58	V	peak
N/A							
2135.000	50.05	-3.70	46.35	74.00	-27.65	H	peak
4400.000	38.49	6.92	45.41	74.00	-28.59	H	peak
5300.000	42.77	7.12	49.89	74.00	-24.11	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11a mode / CH High **Test Date:** 2013/9/25

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1740.000	49.42	-5.47	43.95	74.00	-30.05	V	peak
2505.000	45.94	-0.99	44.95	74.00	-29.05	V	peak
5440.000	38.25	6.33	44.58	74.00	-29.42	V	peak
N/A							
2135.000	47.73	-3.70	44.03	74.00	-29.97	H	peak
3375.000	42.57	1.04	43.61	74.00	-30.39	H	peak
5320.000	43.06	7.37	50.43	74.00	-23.57	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / CH Low	**Test Date:**	2013/9/25
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2490.000	44.67	-1.00	43.67	74.00	-30.33	V	peak
3365.000	42.34	1.14	43.48	74.00	-30.52	V	peak
5020.000	38.23	5.13	43.36	74.00	-30.64	V	peak
N/A							
2130.000	48.54	-3.71	44.83	74.00	-29.17	H	peak
3355.000	42.79	1.10	43.89	74.00	-30.11	H	peak
5355.000	41.02	7.82	48.84	74.00	-25.16	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / CH Mid	**Test Date:**	2013/9/25
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	48.59	-2.90	45.69	74.00	-28.31	V	peak
3340.000	43.17	1.04	44.21	74.00	-29.79	V	peak
5250.000	39.41	5.39	44.80	74.00	-29.20	V	peak
N/A							
2130.000	48.73	-3.71	45.02	74.00	-28.98	H	peak
3885.000	40.30	5.20	45.50	74.00	-28.50	H	peak
5295.000	42.66	7.12	49.78	74.00	-24.22	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / CH High	**Test Date:**	2013/9/25
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	50.30	-2.90	47.40	74.00	-26.60	V	peak
3530.000	42.22	2.44	44.66	74.00	-29.34	V	peak
5630.000	39.81	5.92	45.73	74.00	-28.27	V	peak
N/A							
2130.000	50.47	-3.71	46.76	74.00	-27.24	H	peak
3860.000	40.61	5.17	45.78	74.00	-28.22	H	peak
5320.000	42.52	7.37	49.89	74.00	-24.11	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT40 mode / CH Low **Test Date:** 2013/9/25

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	50.30	-2.90	47.40	74.00	-26.60	V	peak
3800.000	40.04	3.69	43.73	74.00	-30.27	V	peak
5285.000	39.17	5.29	44.46	74.00	-29.54	V	peak
N/A							
2130.000	47.98	-3.71	44.27	74.00	-29.73	H	peak
4255.000	38.97	6.90	45.87	74.00	-28.13	H	peak
5400.000	40.10	8.39	48.49	74.00	-25.51	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11n HT40 mode / CH High **Test Date:** 2013/9/25

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2130.000	50.38	-2.90	47.48	74.00	-26.52	V	peak
3370.000	42.58	1.16	43.74	74.00	-30.26	V	peak
5235.000	39.39	5.44	44.83	74.00	-29.17	V	peak
N/A							
2135.000	50.57	-3.70	46.87	74.00	-27.13	H	peak
3895.000	39.87	5.21	45.08	74.00	-28.92	H	peak
5385.000	40.55	8.20	48.75	74.00	-25.25	H	peak
N/A							

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

7.7 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a) & RSS-Gen §7.2.4, except when the requirements applicable to a given device state otherwise, for any licence-exempt radiocommunication device equipped to operate from the public utility AC power supply, either directly or indirectly, the radio frequency voltage that is 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 Table 2. The tighter limit applies at the frequency range boundaries.
The conducted emissions shall be measured with a 50 ohm/50 microhenry line impedance stabilization network.

RSS-Gen Table 2 – AC Power Lines 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*

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Operation Mode:	PoE mode	**Test Date:**	2013/8/28
Temperature:	25℃	**Tested by:**	James Ho
Humidity:	57% RH		

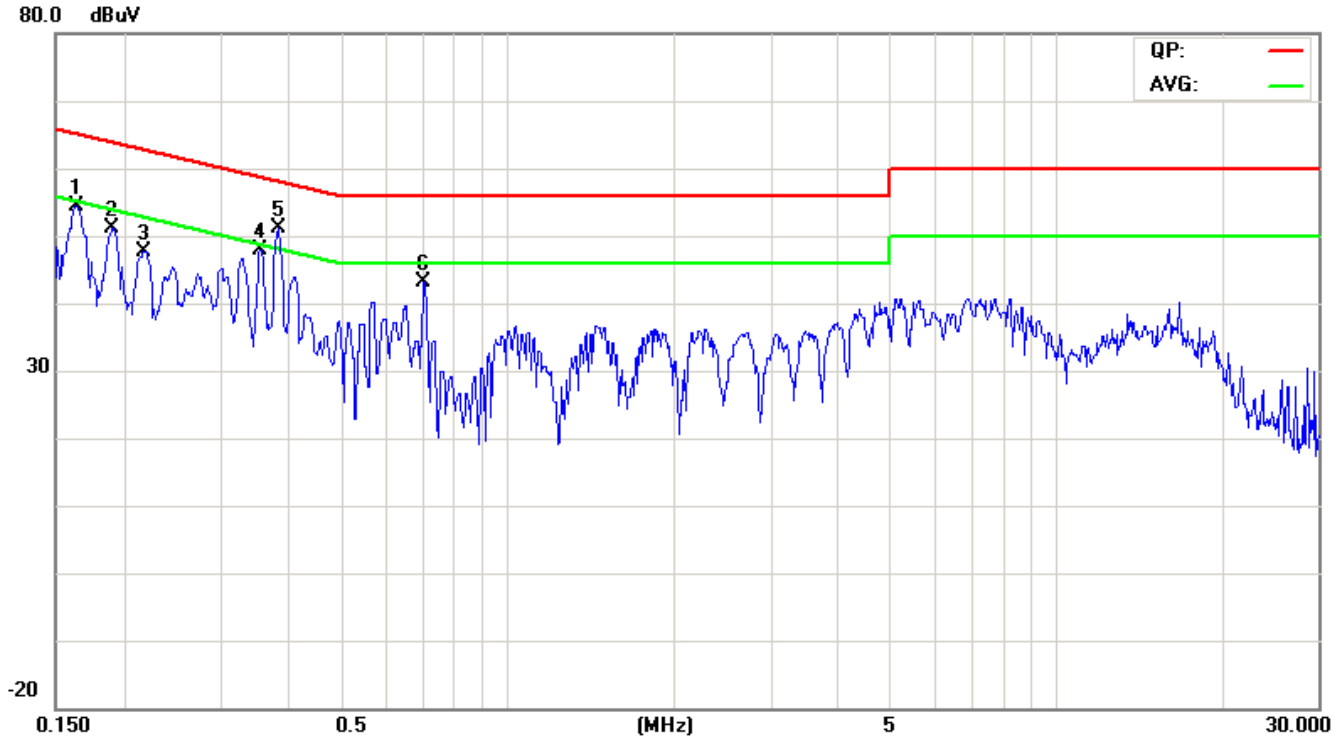
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.1643	43.31	34.23	9.68	52.99	43.91	65.24	55.24	-12.25	-11.33	L1
0.1904	40.15	31.86	9.66	49.81	41.52	64.01	54.02	-14.20	-12.50	L1
0.2173	36.29	27.96	9.66	45.95	37.62	62.92	52.92	-16.97	-15.30	L1
0.3547	36.67	32.59	9.68	46.35	42.27	58.85	48.85	-12.50	-6.58	L1
0.3817	39.40	33.84	9.68	49.08	43.52	58.24	48.24	-9.16	-4.72	L1
0.7075	32.44	28.62	9.70	42.14	38.32	56.00	46.00	-13.86	-7.68	L1
0.1629	44.34	34.69	9.66	54.00	44.35	65.31	55.31	-11.31	-10.96	L2
0.1903	41.39	32.86	9.65	51.04	42.51	64.02	54.02	-12.98	-11.51	L2
0.2176	37.20	28.91	9.65	46.85	38.56	62.91	52.91	-16.06	-14.35	L2
0.3547	37.16	33.93	9.66	46.82	43.59	58.85	48.85	-12.03	-5.26	L2
0.3806	39.87	35.29	9.66	49.53	44.95	58.27	48.27	-8.74	-3.32	L2
0.6818	33.65	27.63	9.68	43.33	37.31	56.00	46.00	-12.67	-8.69	L2

Remark:

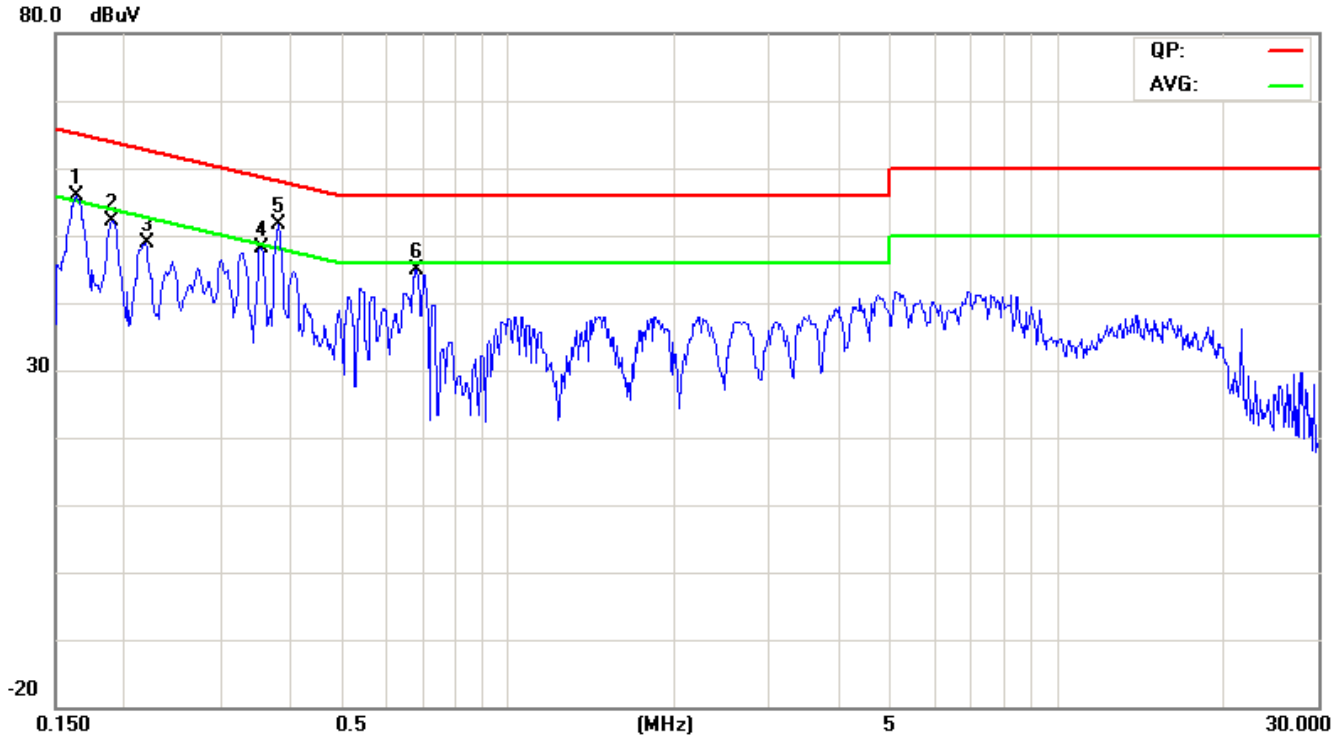
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)



Operation Mode:	power adapter mode	**Test Date:**	2013/8/28
Temperature:	25℃	**Tested by:**	James Ho
Humidity:	57% RH		

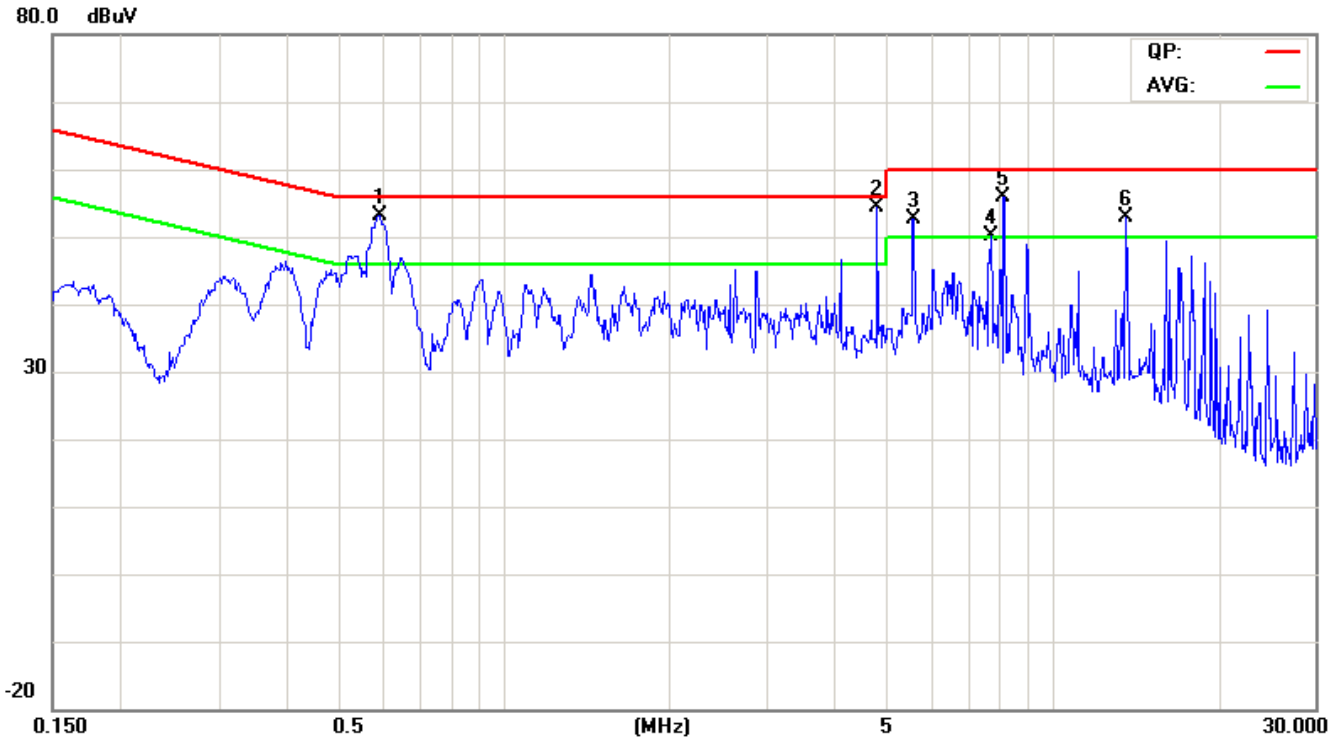
Freq. (MHz)	QP Reading	AV Reading	Corr. factor	QP Result	AV Result	QP Limit	AV Limit	QP Margin	AV Margin	Note
0.5910	42.06	34.13	9.70	51.76	43.83	56.00	46.00	-4.24	-2.17	L1
4.7639	34.87	15.36	9.81	44.68	25.17	56.00	46.00	-11.32	-20.83	L1
5.5575	33.70	14.87	9.83	43.53	24.70	60.00	50.00	-16.47	-25.30	L1
7.6943	34.49	12.28	9.88	44.37	22.16	60.00	50.00	-15.63	-27.84	L1
8.1204	40.45	14.76	9.89	50.34	24.65	60.00	50.00	-9.66	-25.35	L1
13.5561	35.06	11.83	9.97	45.03	21.80	60.00	50.00	-14.97	-28.20	L1
0.5906	37.08	26.56	9.68	46.76	36.24	56.00	46.00	-9.24	-9.76	L2
0.5988	36.34	25.55	9.68	46.02	35.23	56.00	46.00	-9.98	-10.77	L2
4.6411	25.77	11.12	9.79	35.56	20.91	56.00	46.00	-20.44	-25.09	L2
7.6948	27.80	8.60	9.87	37.67	18.47	60.00	50.00	-22.33	-31.53	L2
16.9748	37.31	9.68	10.05	47.36	19.73	60.00	50.00	-12.64	-30.27	L2
19.6058	27.32	3.47	10.11	37.43	13.58	60.00	50.00	-22.57	-36.42	L2

Remark:

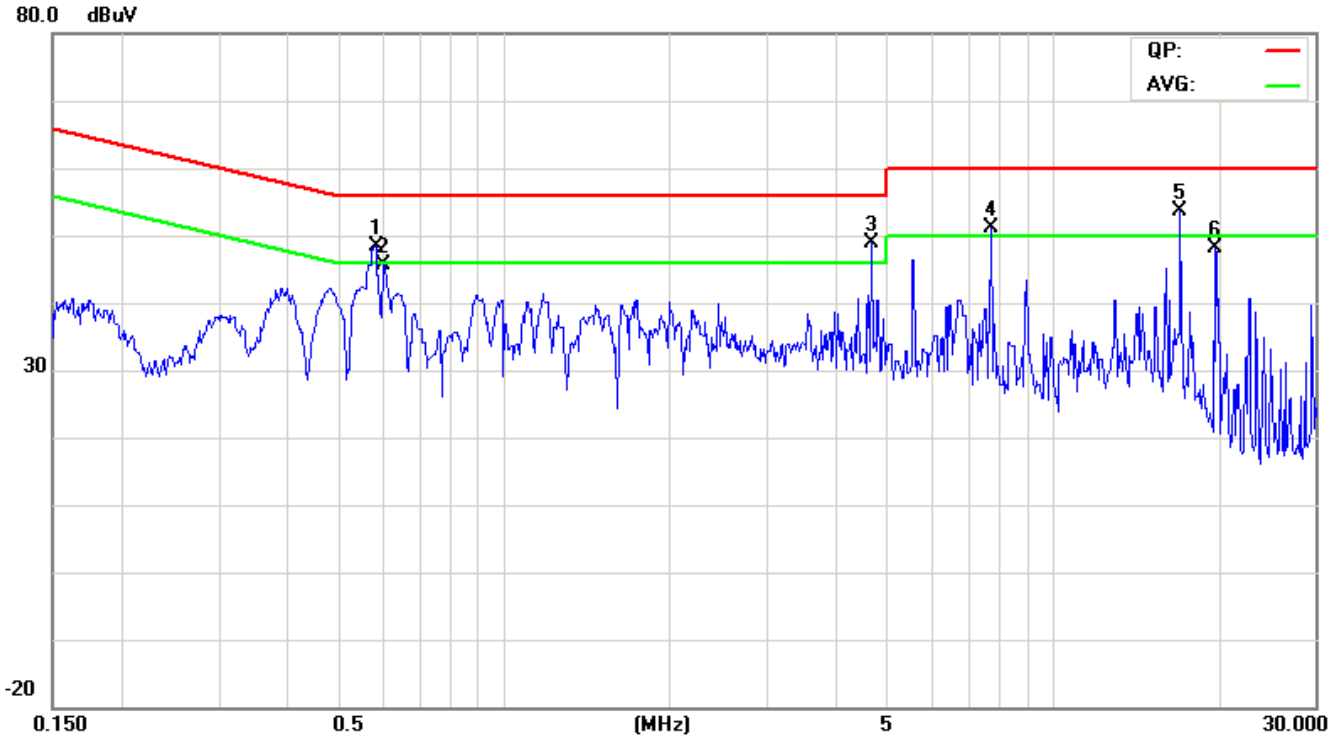
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz to 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz to 30MHz was 9kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)

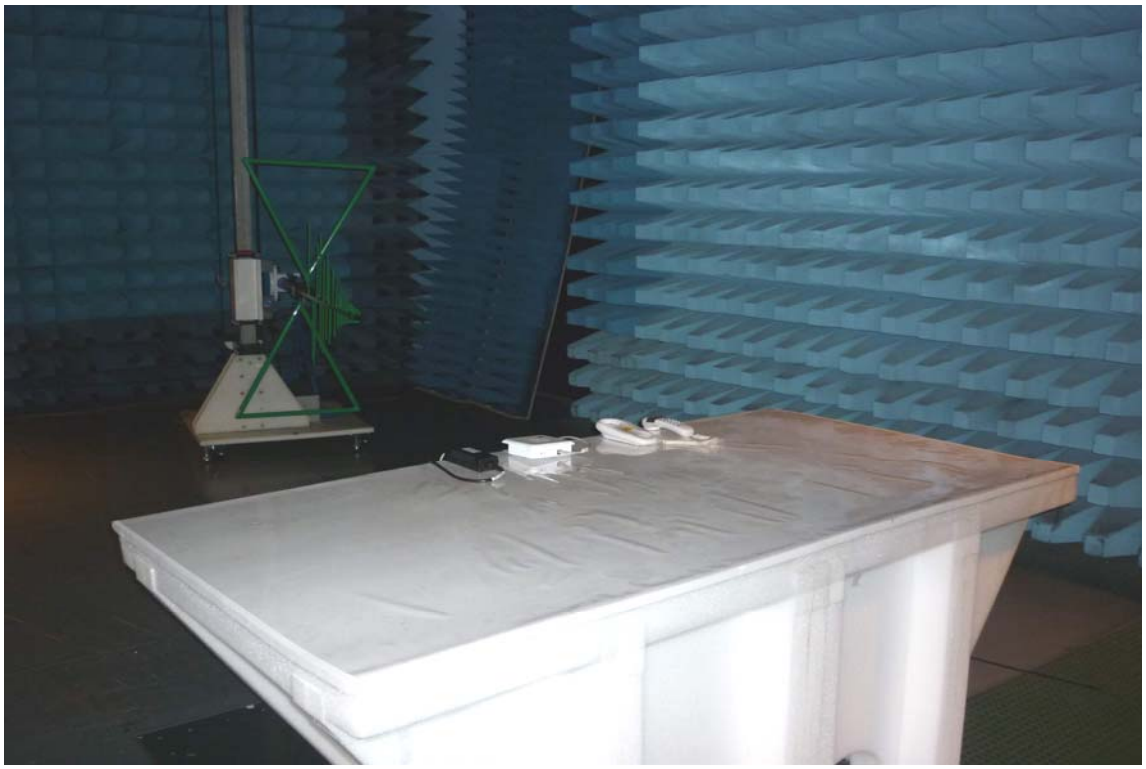


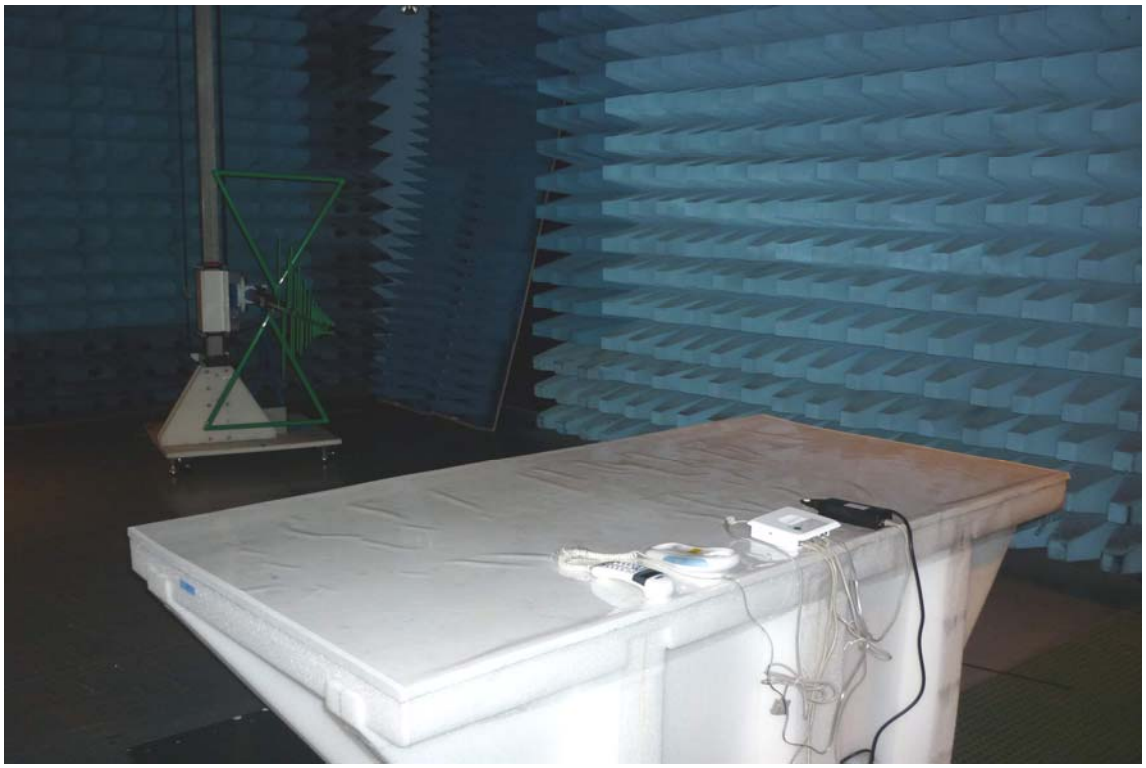
Conducted emissions (Line 2)



8 APPENDIX I
PHOTOGRAPHS OF TEST SETUP

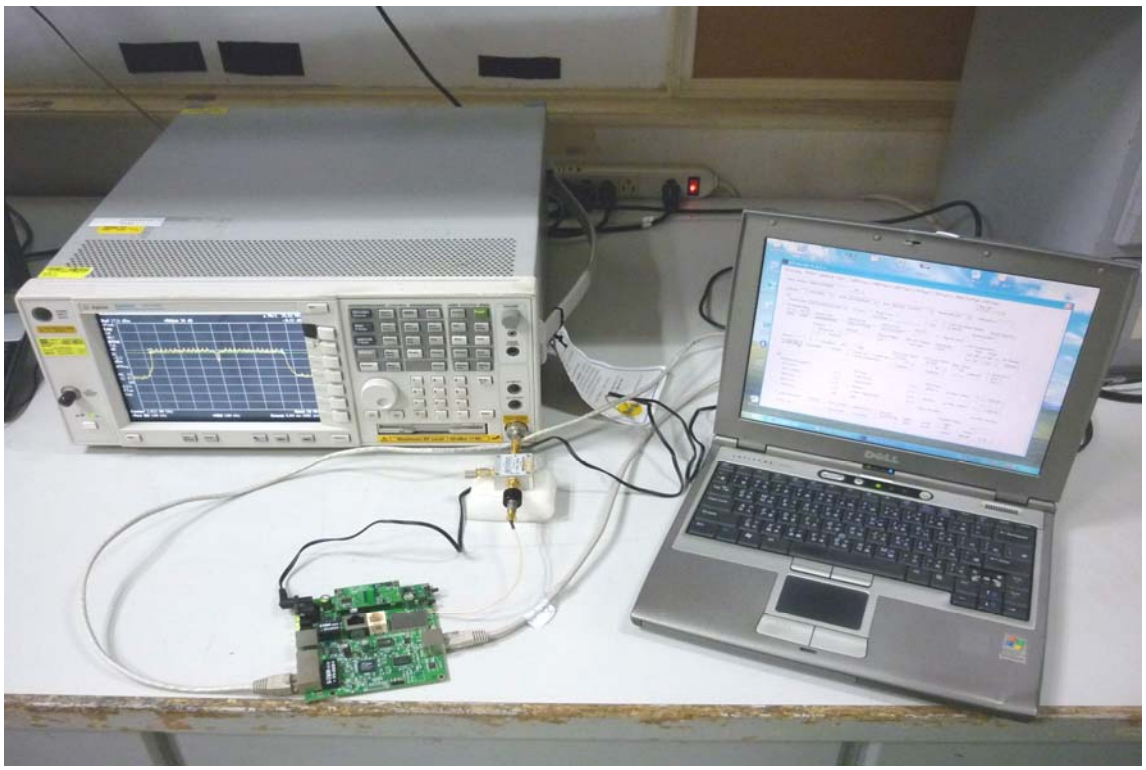
Radiated Emissions Setup Photos
Below 1GHz





Above 1GHz

Conducted Emissions Setup Photo



Powerline Conducted Emissions Setup Photos (PoE Mode)

Powerline Conducted Emissions Setup Photos (Adapter Mode)

9 APPENDIX II: PHOTOGRAPHS OF EUT

Refer to T130819L01 External Photographs.