



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

TEST REPORT

For

802.11n, Dual Band 2T2R Wireless LAN USB Module

Model: WN4516R

Trade Name: LITE-ON

Issued to

Lite-On Technology Corp.

4F, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)**

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Issued Date: February 13, 2015



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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		February 13, 2015		Initial Issue	ALL	Doris Chu



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1. TEST RESULT CERTIFICATION

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

Manufacturer: LITE-ON TECHNOLOGY (Changzhou) CO., LTD
9 Building, No. 88 Yanghu Road, Wujin Hi-Tech Industrial
Development Zone, Changzhou City,
Jiangsu Province 213100 China

Equipment Under Test: 802.11n, Dual Band 2T2R Wireless LAN USB Module

Trade Name: LITE-ON

Model: WN4516R

Date of Test: January 19 ~ February 5, 2015

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

We hereby certify that:

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

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

Approved by

Reviewed by

Miller Lee
Section Manager
Compliance Certification Services Inc.

Angel Cheng
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	802.11n, Dual Band 2T2R Wireless LAN USB Module
Trade Name	LITE-ON
Model Number	WN4516R
Model Discrepancy	N/A
Power Supply	Powered from host device
Received Date	January 13, 2015
Frequency Range	IEEE 802.11a/ IEEE 802.11n HT 20 MHz: 5725~5850 MHz IEEE 802.11n HT 40 MHz: 5755~5795 MHz
Transmit Power	IEEE 802.11a mode: 15.08 dBm IEEE 802.11n HT 20 MHz mode: 18.07 dBm IEEE 802.11n HT 40 MHz mode: 18.06 dBm
Modulation Technique & Transmit Data Rate	IEEE 802.11a: OFDM (54, 48, 36, 24, 18, 12, 9, 6 Mbps) IEEE 802.11n HT 20 MHz mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 MHz mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps)
Number of Channels	IEEE 802.11a mode: 5 Channels IEEE 802.11n HT 20 MHz mode: 5 Channels IEEE 802.11n HT 40 MHz mode: 2 Channels
Antenna Specification	PIFA Antenna / Gain: 4.6 dBi



3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2009 Radiated testing was performed at an antenna to EUT distance 3 meters.

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47 Part 15.207, 15.209 and 15.407, RSS-GEN Issue 2, and RSS-210 Issue 8.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. 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 (model: WN4516R) had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in double TX chains and double RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and 1).

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

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 normal link mode only.

IEEE 802.11a mode:

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

IEEE 802.11n HT 20 MHz mode:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz mode:

Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z mode), lie-down position (X, Y mode). The worst emission was found in lie-down position (X axis) and the worst case was recorded.



4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	11/23/2015
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/07/2015
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	06/03/2015
Power Sensor	Anritsu	MA2411A	0917072	06/03/2015
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/09/2015

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	09/18/2015
EMI Test Receiver	R&S	ESCI	100064	05/30/2015
Bilog Antenna	Sunol Sciences	JB3	A030105	08/19/2015
Horn Antenna	EMCO	3117	00055165	02/04/2015
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Test S/W	EZ-EMC (CCS-3A1RE)			

4.3 MEASUREMENT UNCERTAINTY

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

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



5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

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




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

5.2 LABORATORY ACCREDITATIONS AND LISTING

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



5.3 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

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



6 SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	TOSHIBA	Satellite M840	N/A	PPD-AR5B225	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2	Notebook PC	HP	dv6-1332TX	CNF9491GPS	PD9112BNHU	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
3	Notebook PC	IBM	7663 (T61)	L3E9812	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

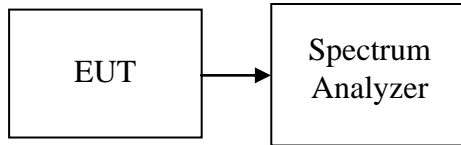
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



7 RSS 210 REQUIREMENTS

7.1 99%BANDWIDTH

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted.

**Test Data****Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	16.9271
Mid	5785	16.9424
High	5825	16.9835

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.8064
Mid	5785	17.8883
High	5825	17.8813

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.7685
Mid	5785	17.7983
High	5825	17.7982

Test mode: 802.11n Standard-40 MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.4582
High	5795	36.6798

Test mode: 802.11n Standard-40 MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.3401
High	5795	36.3160



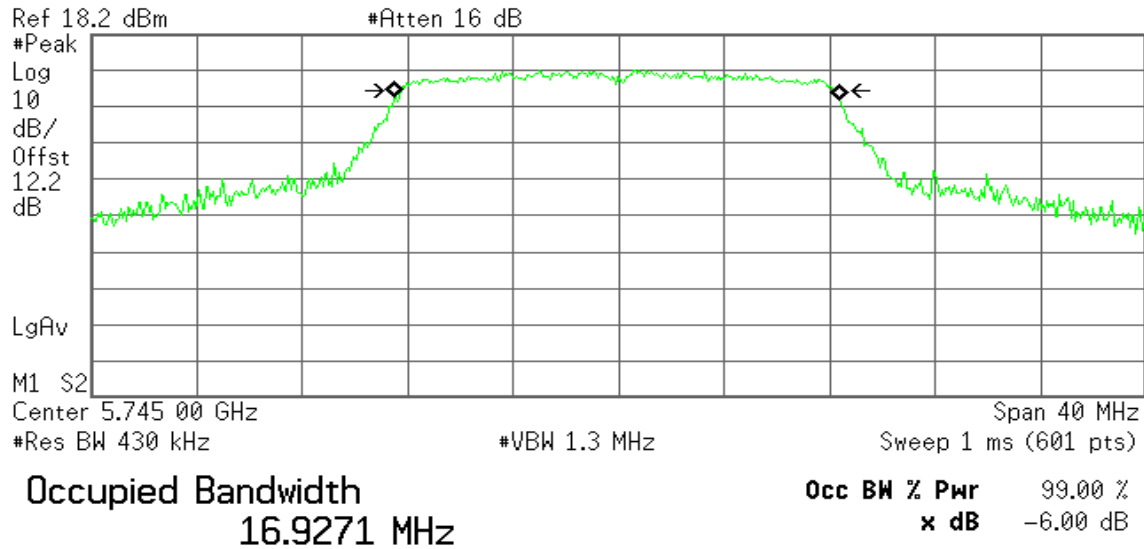
Test Plot

IEEE 802.11a mode

99% Bandwidth (CH Low)

Agilent

R T

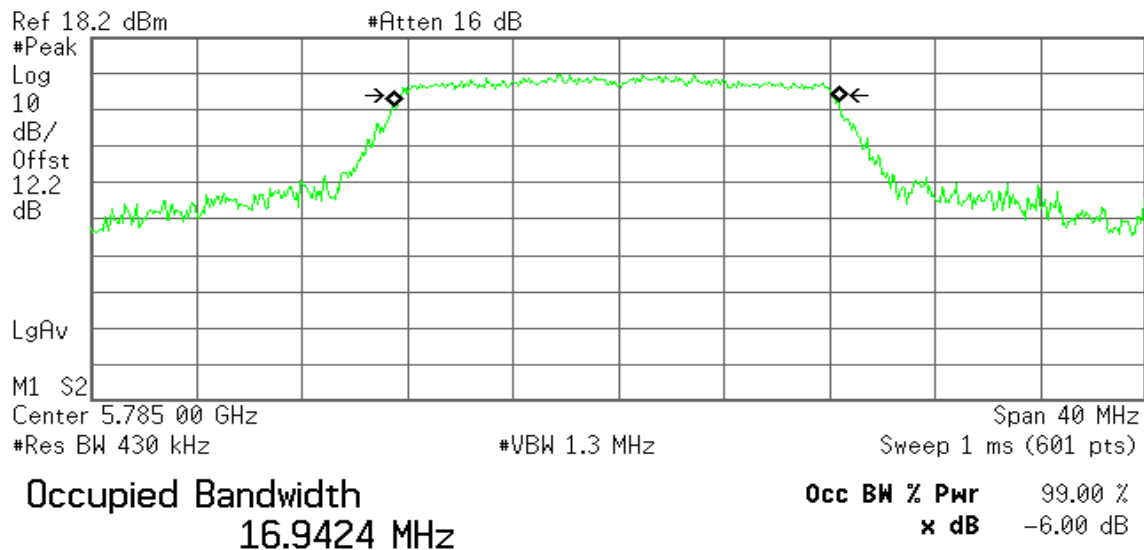


Transmit Freq Error -71.350 kHz
x dB Bandwidth 16.498 MHz

99% Bandwidth (CH Mid)

Agilent

R T



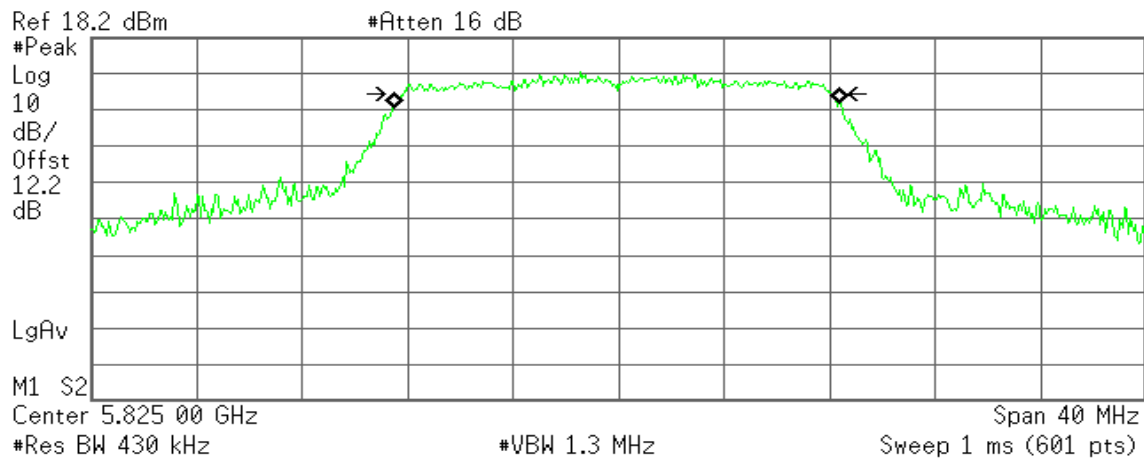
Transmit Freq Error -80.626 kHz
x dB Bandwidth 16.392 MHz



99% Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth
16.9835 MHz

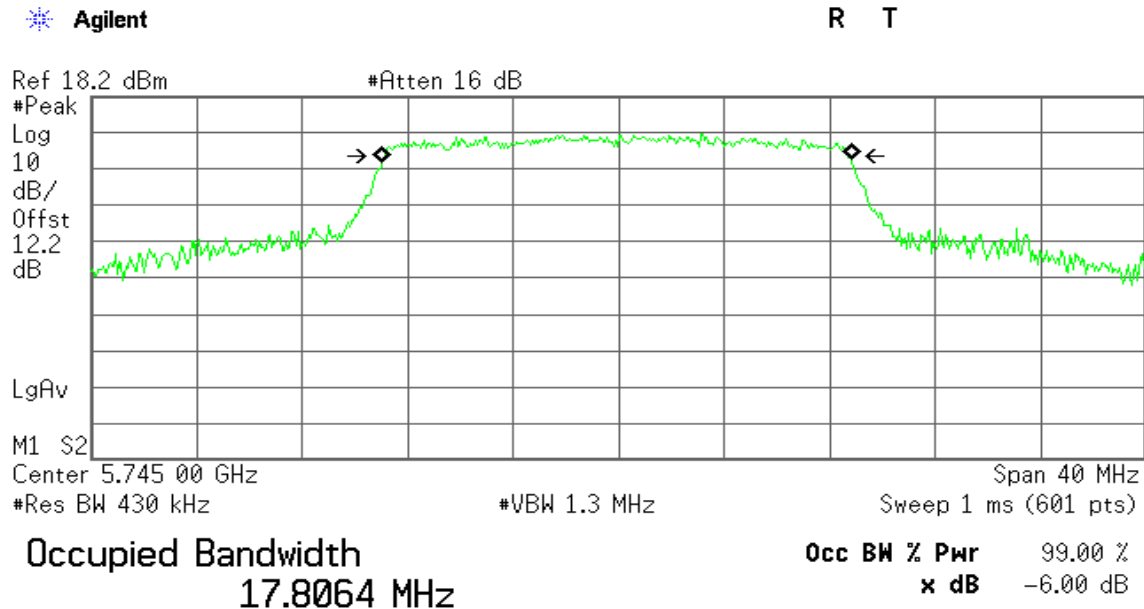
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -64.895 kHz
x dB Bandwidth 16.276 MHz



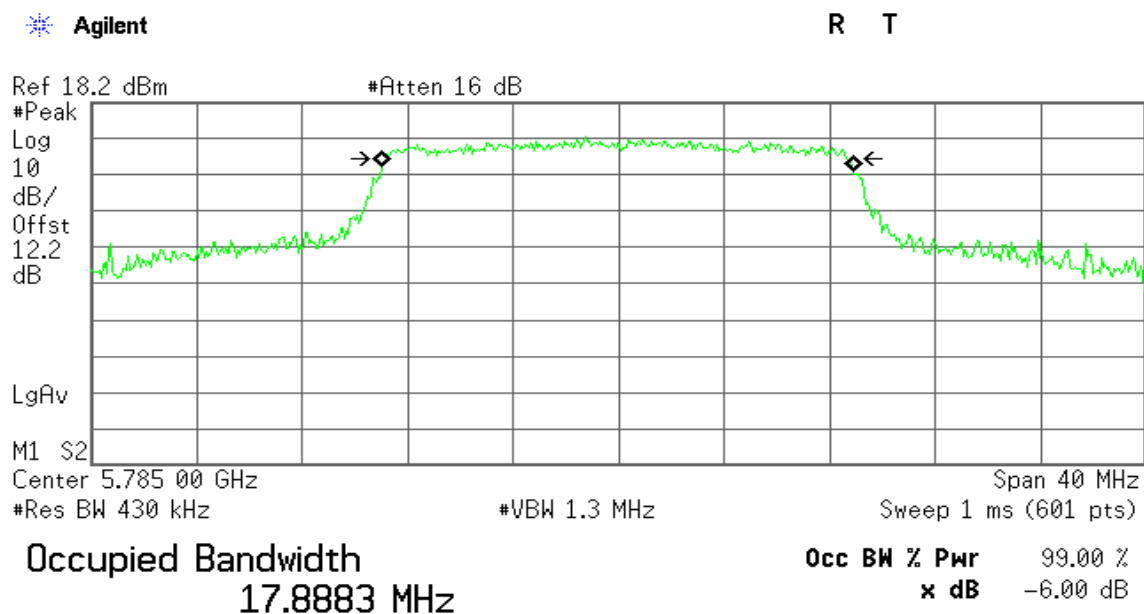
IEEE 802.11n HT 20 MHz mode / Chain 0

99% Bandwidth (CH Low)



Transmit Freq Error -69.564 kHz
x dB Bandwidth 17.633 MHz

99% Bandwidth (CH Mid)



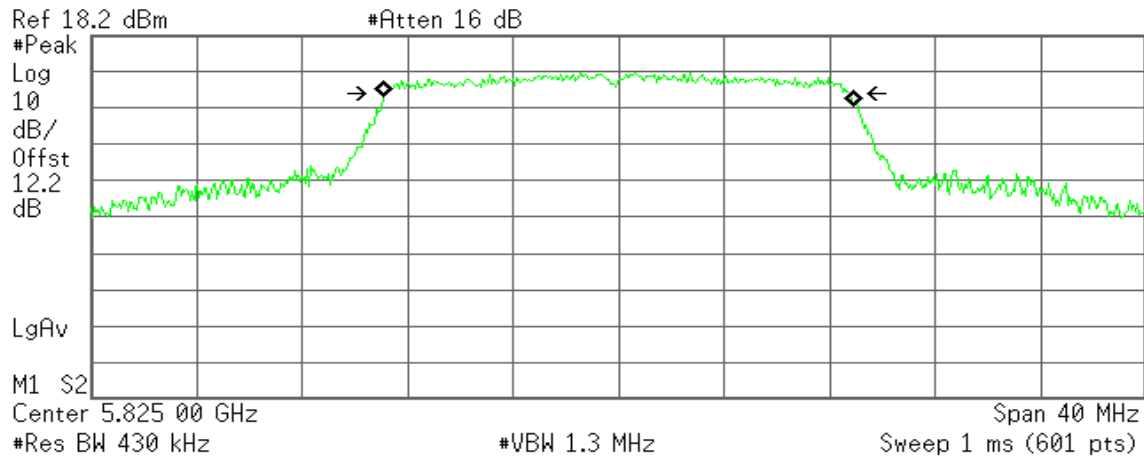
Transmit Freq Error -39.982 kHz
x dB Bandwidth 17.479 MHz



99% Bandwidth (CH High)

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Occupied Bandwidth
17.8813 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 4.977 kHz
x dB Bandwidth 17.705 MHz

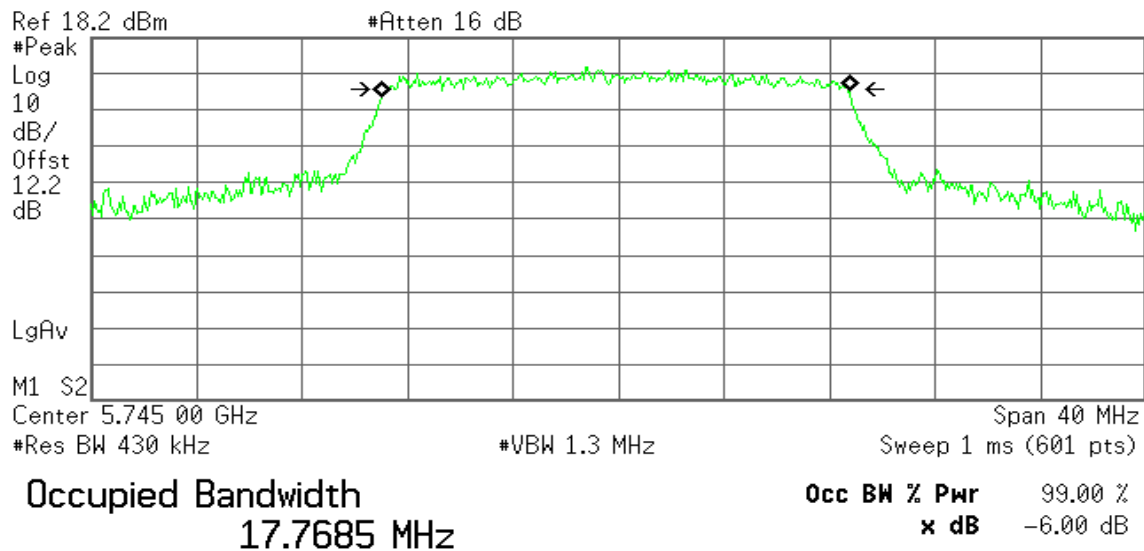


IEEE 802.11n HT 20 MHz mode / Chain 1

99% Bandwidth (CH Low)

Agilent

R T

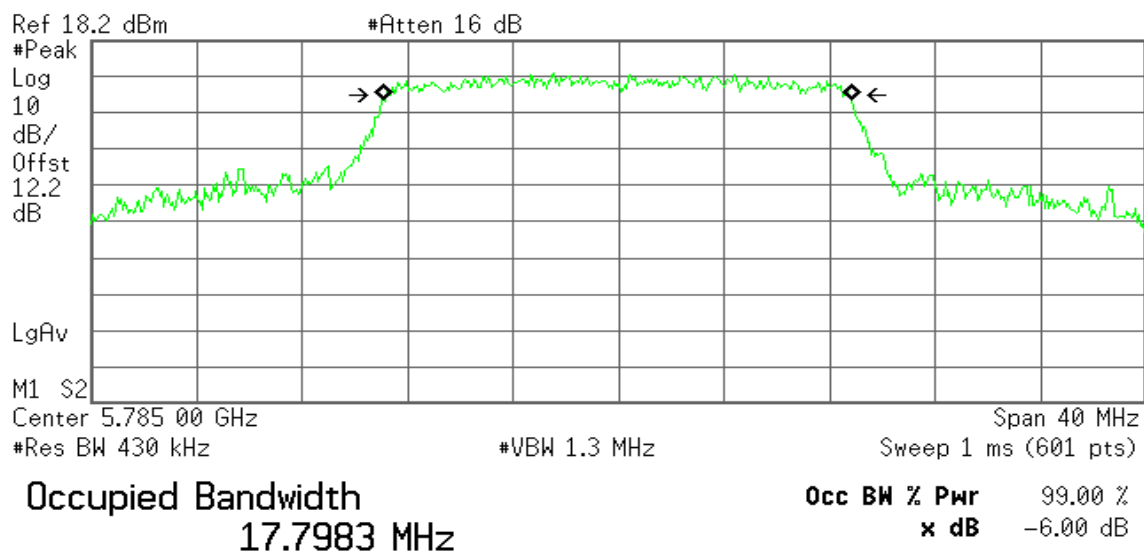


Transmit Freq Error -91.622 kHz
x dB Bandwidth 17.535 MHz

99% Bandwidth (CH Mid)

Agilent

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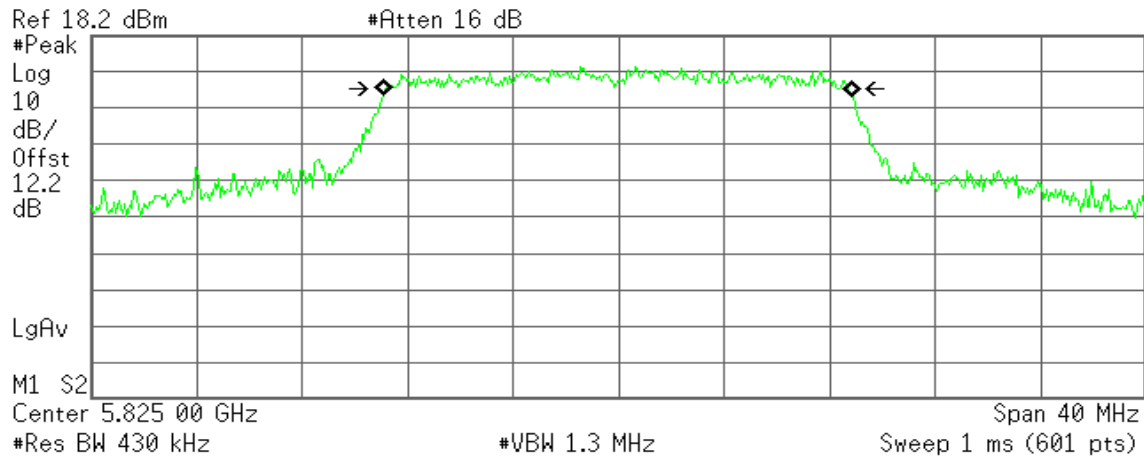
Transmit Freq Error -63.363 kHz
x dB Bandwidth 17.616 MHz



99% Bandwidth (CH High)

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Transmit Freq Error -50.202 kHz
x dB Bandwidth 17.577 MHz

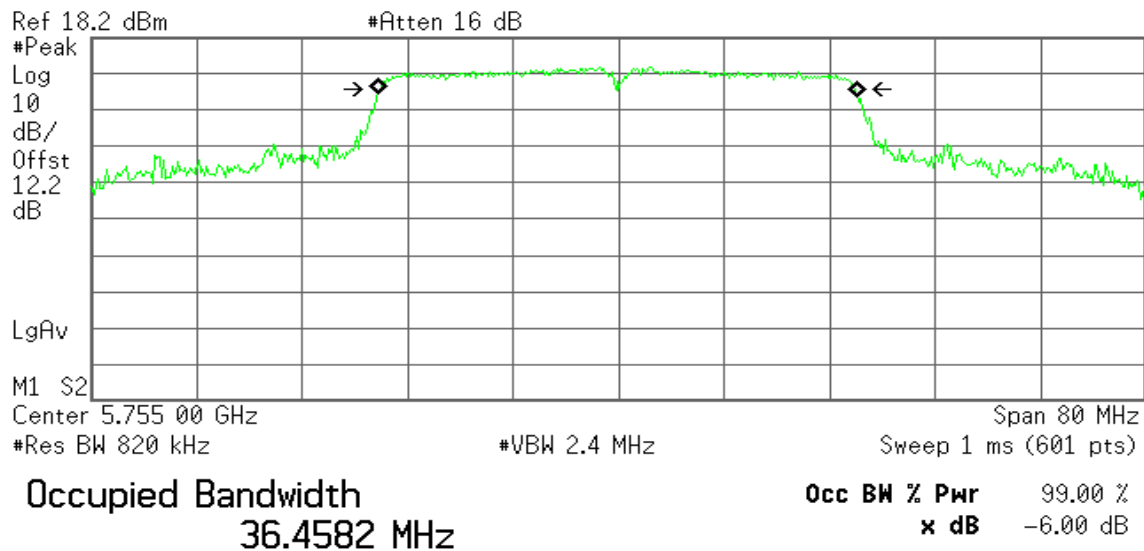


802.11n Standard-40 MHz / Chain 0

99% Bandwidth (CH Low)

Agilent

R T

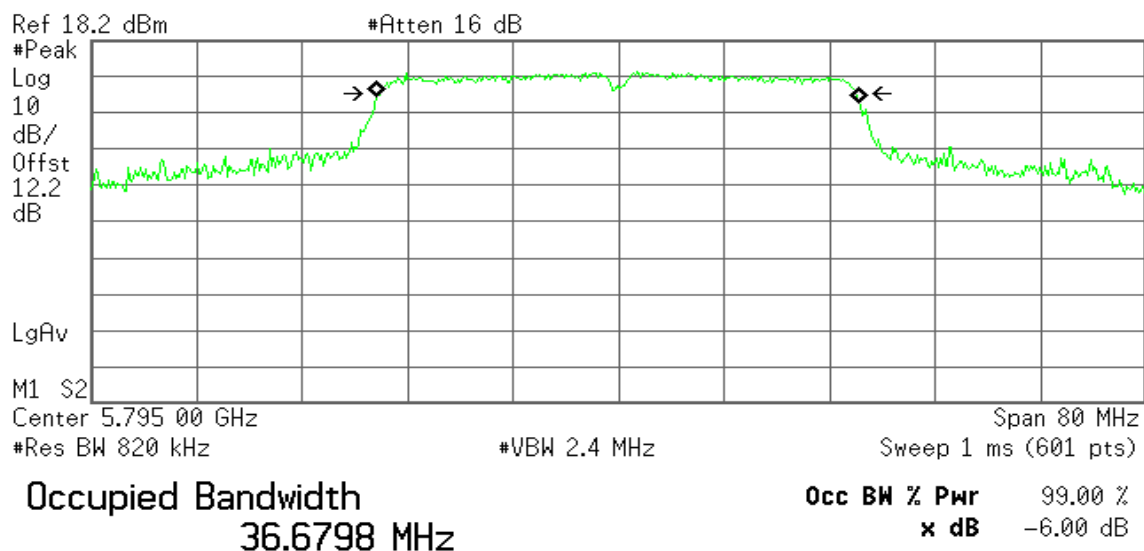


Transmit Freq Error -59.421 kHz
x dB Bandwidth 36.051 MHz

99% Bandwidth (CH High)

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Transmit Freq Error -77.288 kHz
x dB Bandwidth 36.136 MHz

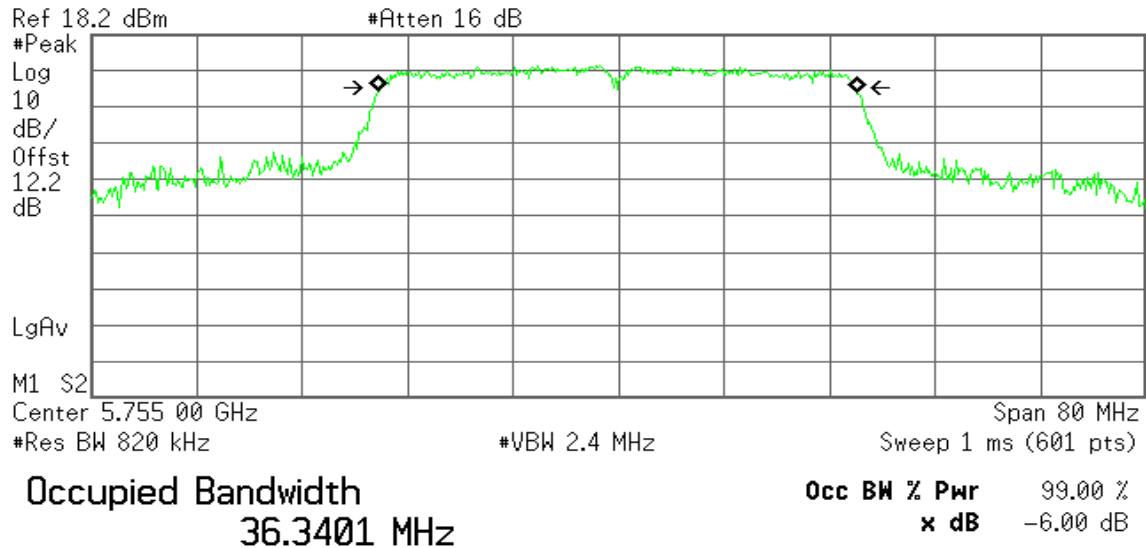


802.11n Standard-40 MHz / Chain1

99% Bandwidth (CH Low)

Agilent

R T

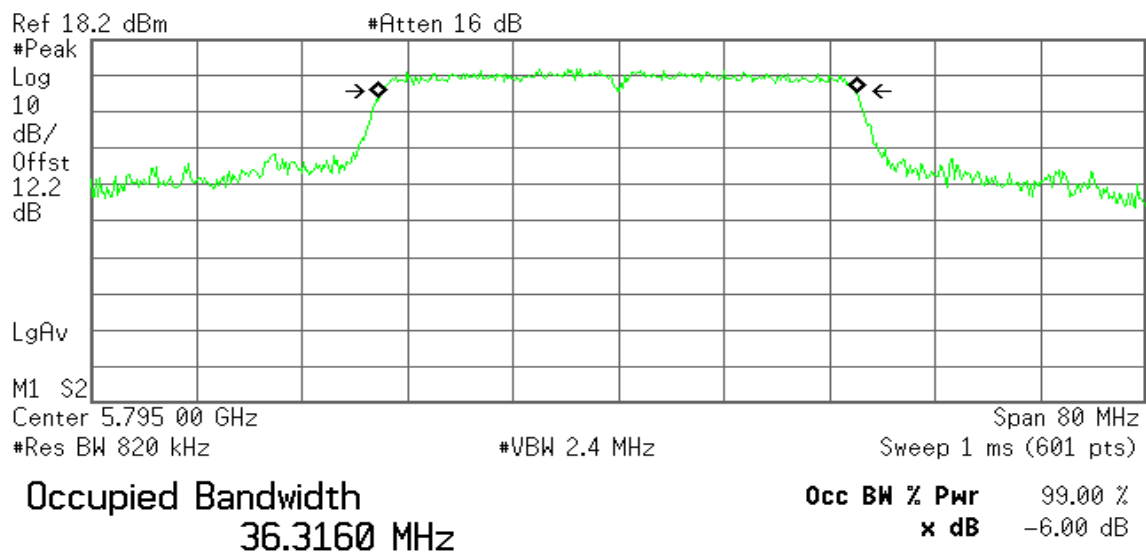


Transmit Freq Error -64.863 kHz
x dB Bandwidth 35.944 MHz

99% Bandwidth (CH High)

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Transmit Freq Error -52.247 kHz
x dB Bandwidth 35.963 MHz

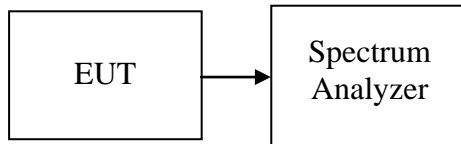


7.2 6DB BANDWIDTH

LIMIT

According to §15.407 & RSS-210 §, systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted

**Test Data****Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low	5745	16.498	>500	PASS
Mid	5785	16.392		PASS
High	5825	16.276		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.633	>500	PASS
Mid	5785	17.479		PASS
High	5825	17.705		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.535	>500	PASS
Mid	5785	17.616		PASS
High	5825	17.577		PASS

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

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.051	>500	PASS
High	5795	36.136		PASS

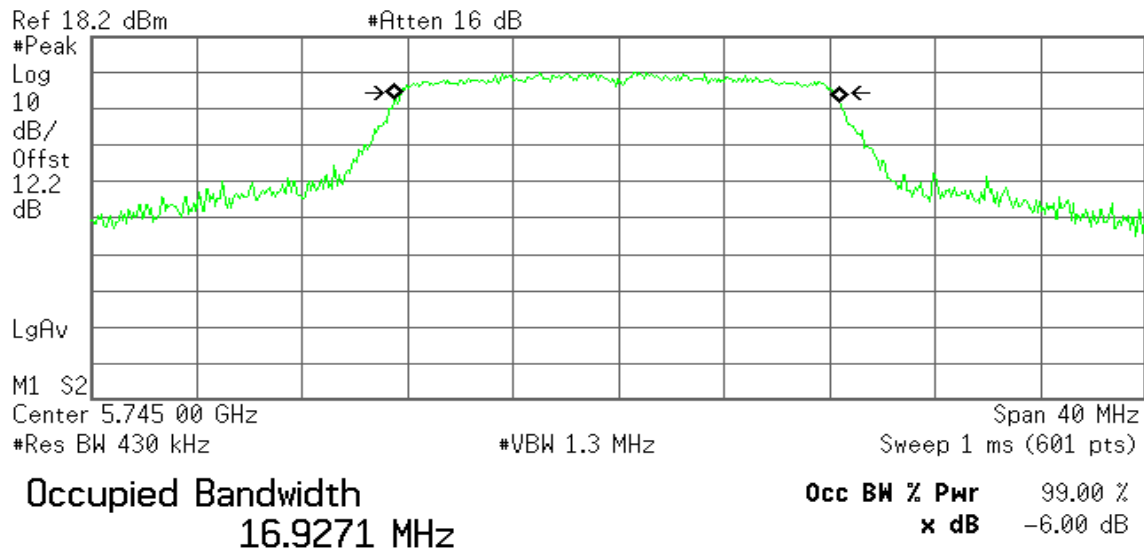
Test mode: IEEE 802.11n HT 40 MHz mode / Chain 1

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	35.944	>500	PASS
High	5795	35.963		PASS

**Test Plot****IEEE 802.11a mode****6dB Bandwidth (CH Low)**

* Agilent

R T

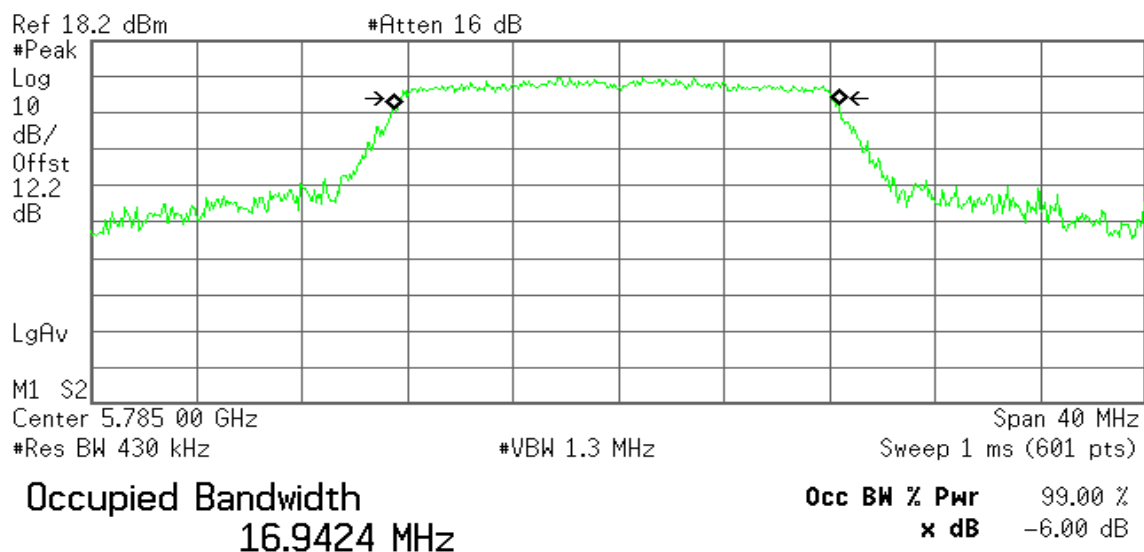


Transmit Freq Error -71.350 kHz
x dB Bandwidth 16.498 MHz

6dB Bandwidth (CH Mid)

* Agilent

R T



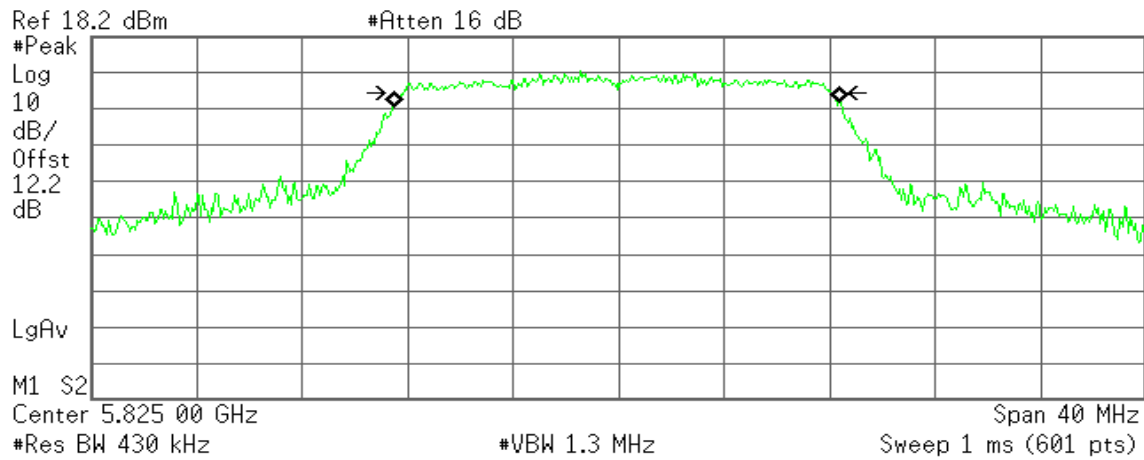
Transmit Freq Error -80.626 kHz
x dB Bandwidth 16.392 MHz



6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth

16.9835 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -64.895 kHz
x dB Bandwidth 16.276 MHz

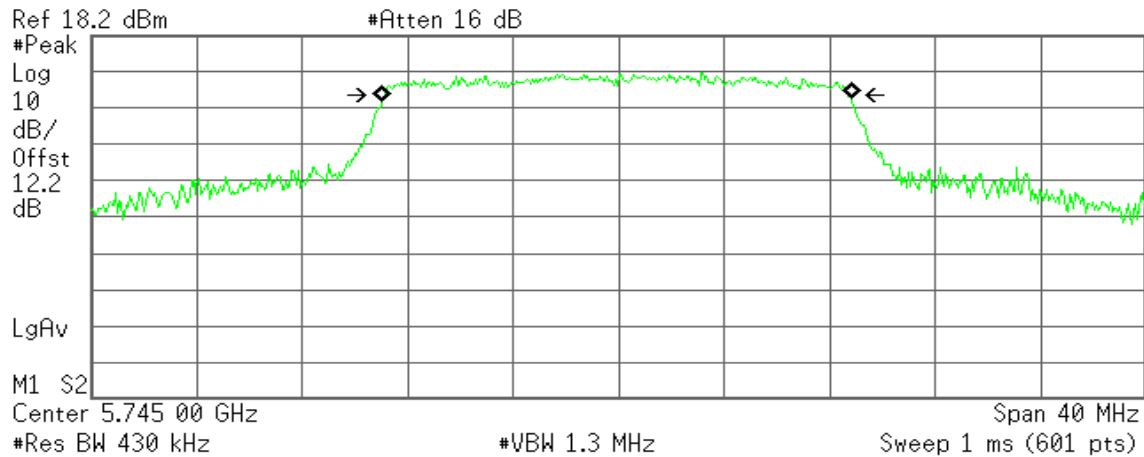


IEEE 802.11n HT 20 MHz mode / Chain 0

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth

17.8064 MHz

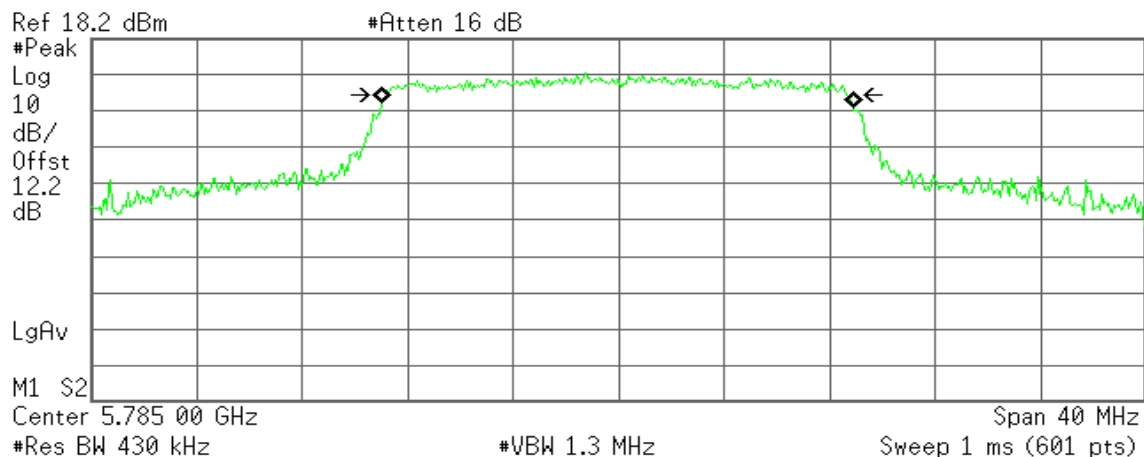
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -69.564 kHz
x dB Bandwidth 17.633 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



Occupied Bandwidth

17.8883 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

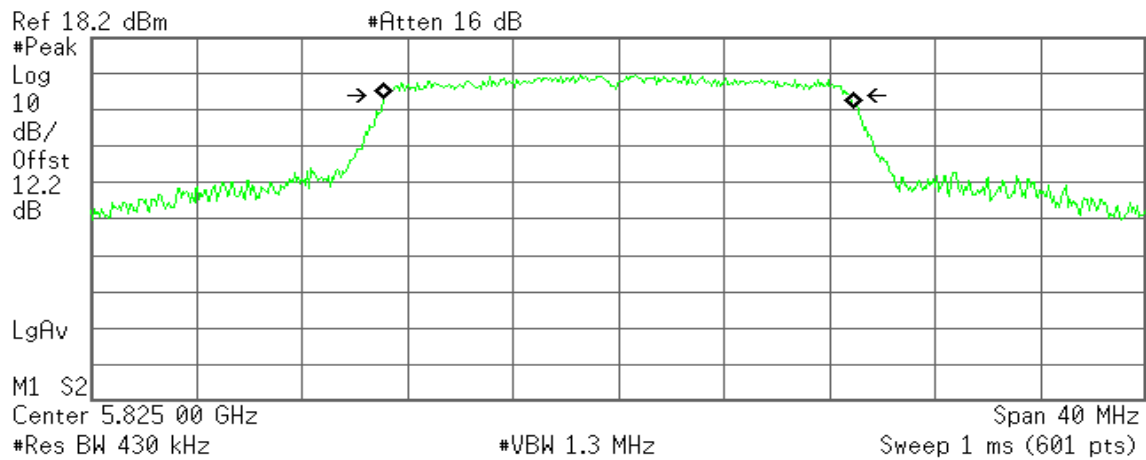
Transmit Freq Error -39.982 kHz
x dB Bandwidth 17.479 MHz



6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth

17.8813 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error 4.977 kHz
x dB Bandwidth 17.705 MHz

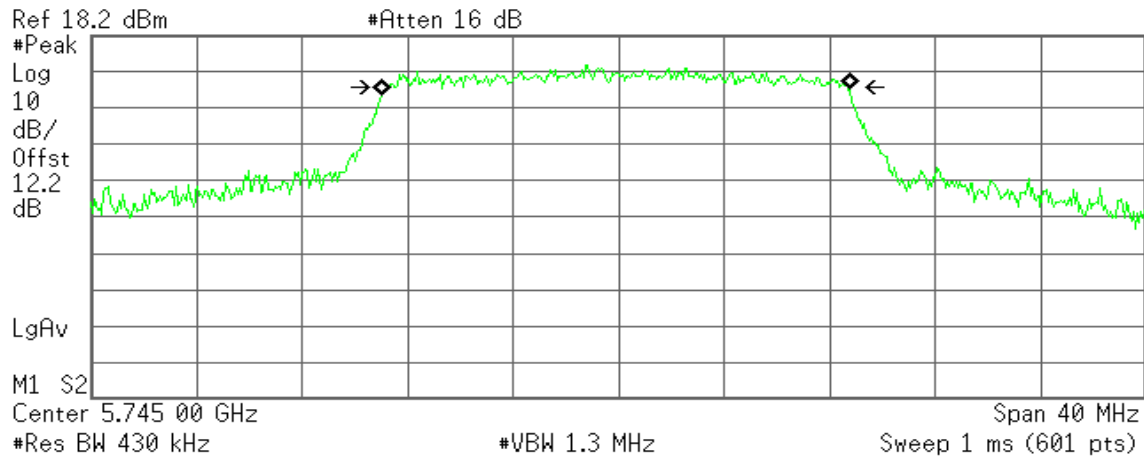


IEEE 802.11n HT 20 MHz mode / Chain 1

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth
17.7685 MHz

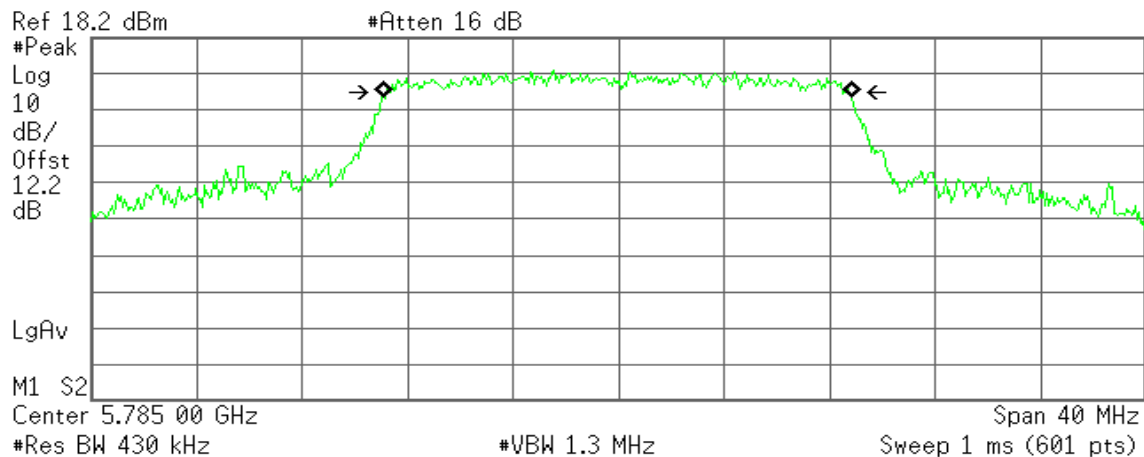
Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -91.622 kHz
x dB Bandwidth 17.535 MHz

6dB Bandwidth (CH Mid)

Agilent

R T



Occupied Bandwidth
17.7983 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

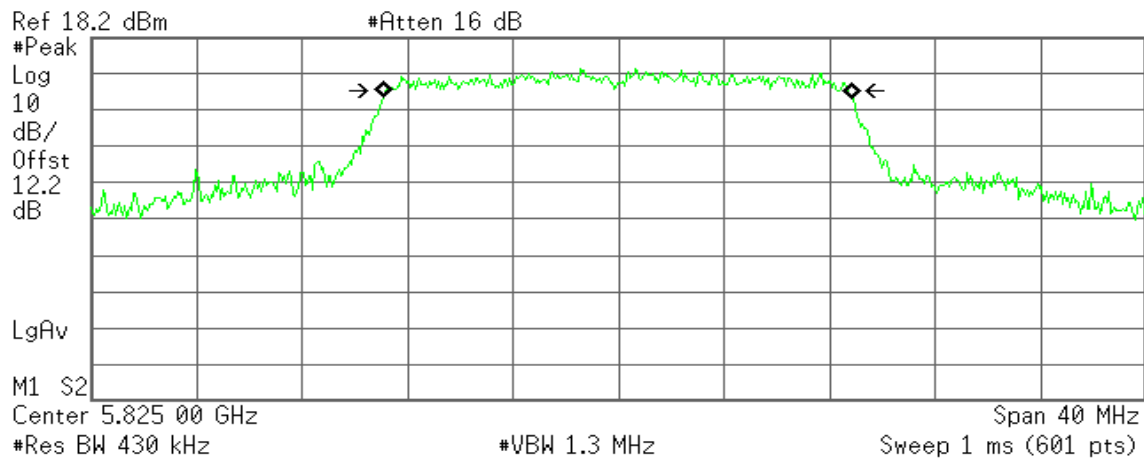
Transmit Freq Error -63.363 kHz
x dB Bandwidth 17.616 MHz



6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth
17.7982 MHz

Occ BW % Pwr 99.00 %
x dB -6.00 dB

Transmit Freq Error -50.202 kHz
x dB Bandwidth 17.577 MHz

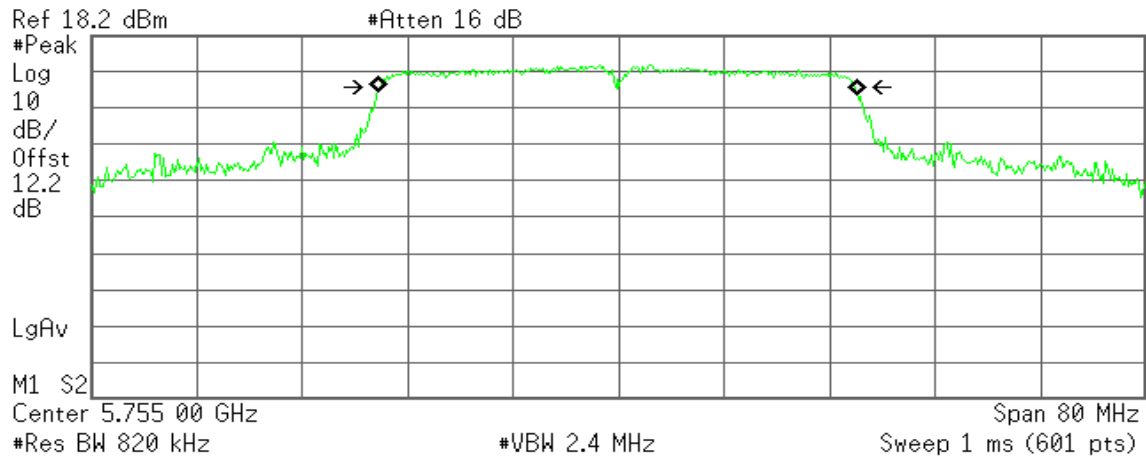


IEEE 802.11n HT 40 MHz mode / Chain 0

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth

36.4582 MHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

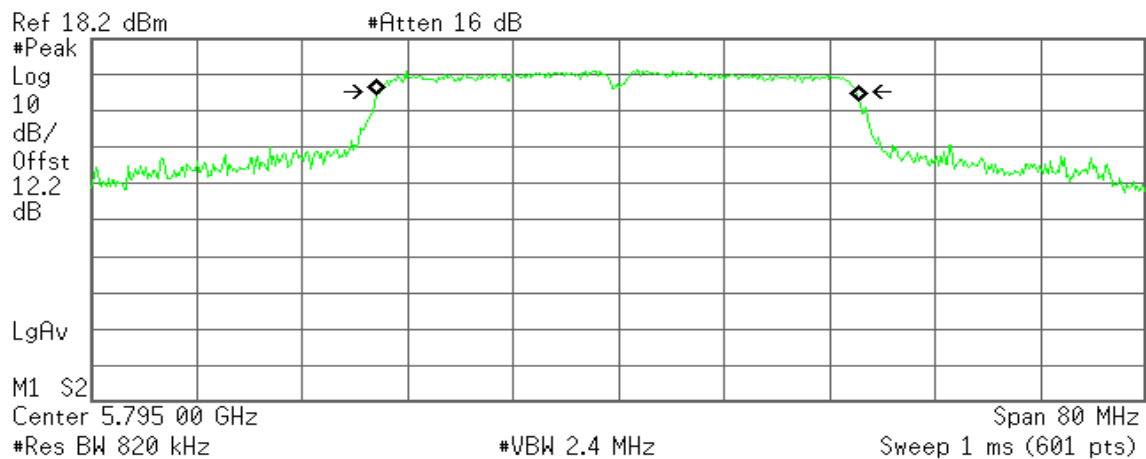
Transmit Freq Error -59.421 kHz

x dB Bandwidth 36.051 MHz

6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth

36.6798 MHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

Transmit Freq Error -77.288 kHz

x dB Bandwidth 36.136 MHz

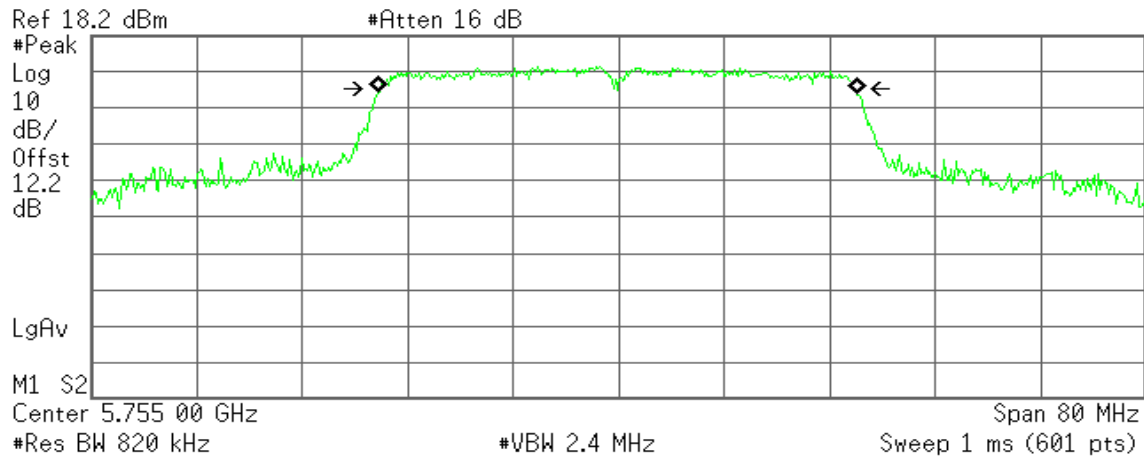


IEEE 802.11n HT 40 MHz mode / Chain 1

6dB Bandwidth (CH Low)

Agilent

R T



Occupied Bandwidth

36.3401 MHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

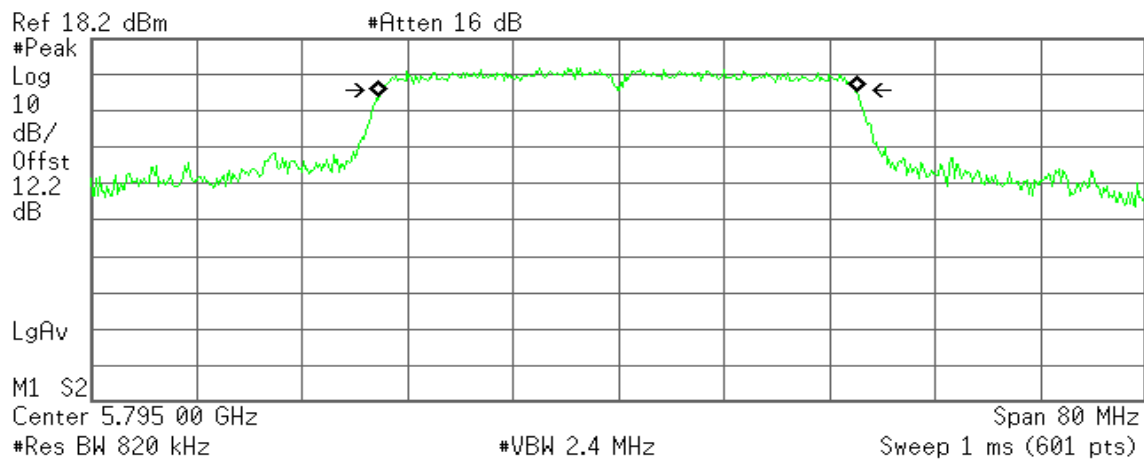
Transmit Freq Error -64.863 kHz

x dB Bandwidth 35.944 MHz

6dB Bandwidth (CH High)

Agilent

R T



Occupied Bandwidth

36.3160 MHz

Occ BW % Pwr 99.00 %

x dB -6.00 dB

Transmit Freq Error -52.247 kHz

x dB Bandwidth 35.963 MHz



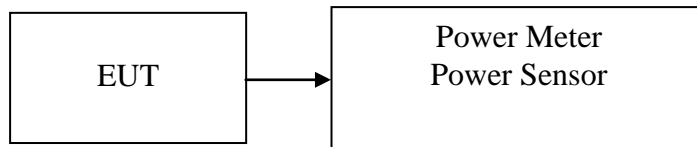
7.3 MAXIMUM CONDUCTED OUTPUT POWER

LIMIT

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

1. According to §15.407, 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 RSS-210 §, for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

Test Configuration



TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted

**Test Data****Test mode: IEEE 802.11a mode**

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)
Low	5745	14.87	0.03069
Mid	5785	14.88	0.03076
High	5825	*15.08	0.03221

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	5745	14.88	15.18	18.04	0.06368
Mid	5785	15.11	14.74	17.94	0.06223
High	5825	15.09	15.02	*18.07	0.06412

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Output Power (dBm)	Output Power (W)
Low	5755	15.18	14.83	18.02	0.06339
High	5795	15.24	14.85	*18.06	0.06397

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

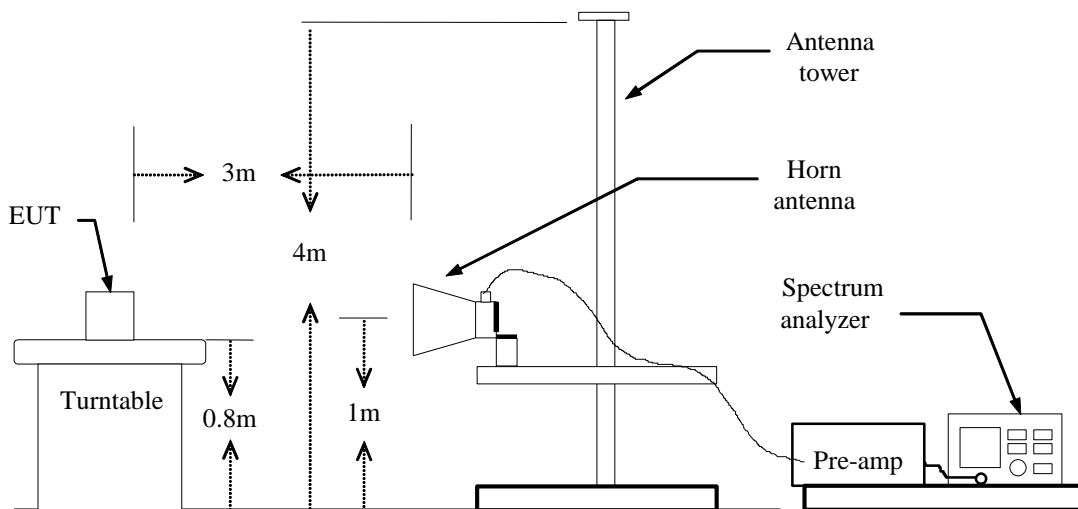


7.4BAND EDGES MEASUREMENT

LIMIT

According to §15.407 & RSS-210 §, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, 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

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=10MHz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

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: 16.498MHz, CH High: 16.276MHz

Because the mentioned conditions, the test is not applicable.

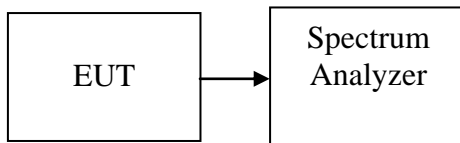


7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

1. According to §15.407 & RSS-210 §, for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 30 dBm in any 500 kHz band during any time interval of continuous transmission.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed.

TEST RESULTS

No non-compliance noted

**Test Data****Test mode: IEEE 802.11a mode**

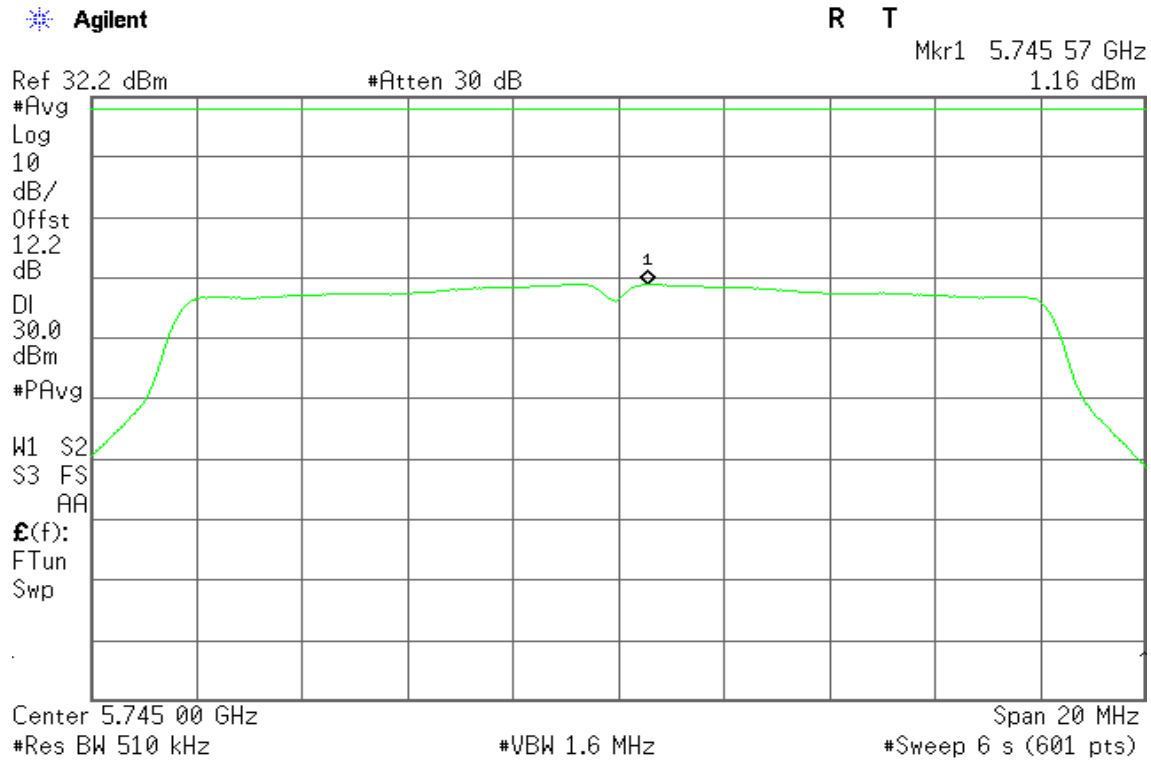
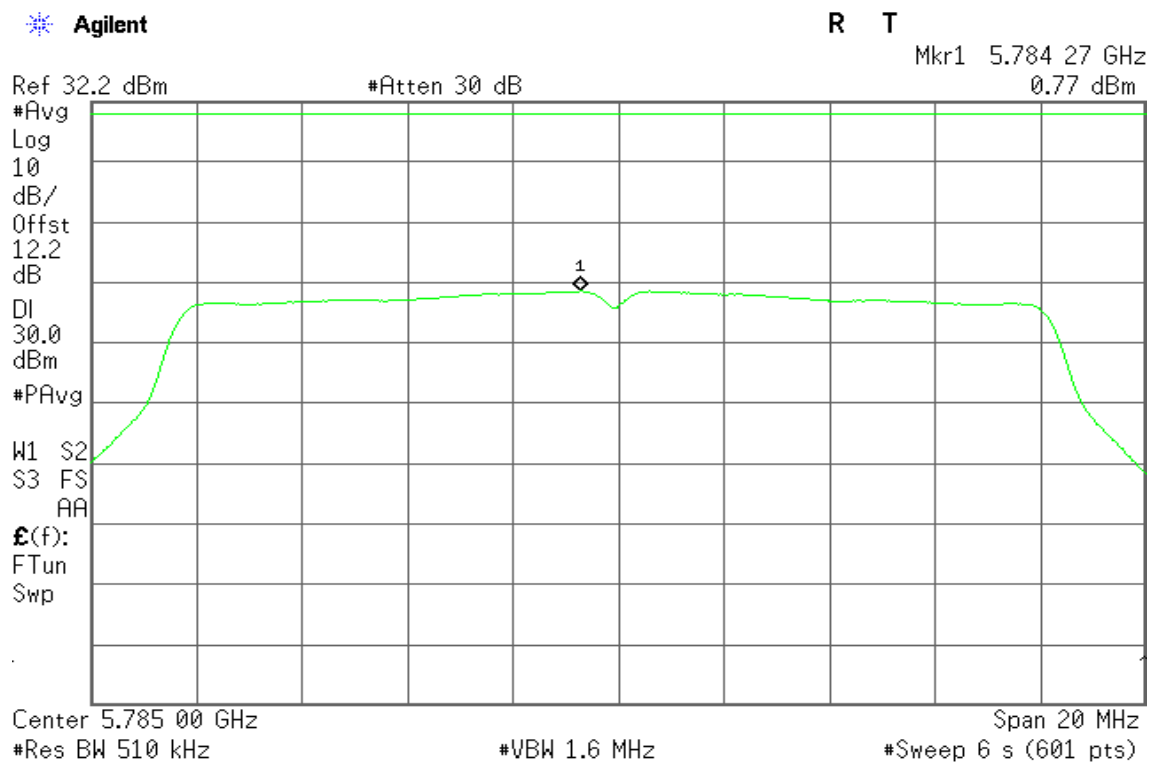
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	1.16	30.00	PASS
Mid	5785	0.77		PASS
High	5825	0.87		PASS

Test mode: IEEE 802.11n HT 20 MHz mode

Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Chain 1 PSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5745	0.83	0.88	3.87	30.00	PASS
Mid	5785	0.31	0.49	3.41		PASS
High	5825	0.69	0.77	3.74		PASS

Test mode: IEEE 802.11n HT 40 MHz mode

Channel	Frequency (MHz)	Chain 0 PSD (dBm)	Chain 1 PSD (dBm)	PPSD (dBm)	Limit (dBm)	Result
Low	5755	-1.57	-2.36	1.06	30.00	PASS
High	5795	-1.85	-2.48	0.86		PASS

**Test Plot****IEEE 802.11a mode****PPSD (CH Low)****PPSD (CH Mid)**



PPSD (CH High)

Agilent

R T

Mkr1 5.824 27 GHz

0.87 dBm

Ref 32.2 dBm

#Atten 30 dB

#Avg

Log

10

dB/

Offst

12.2

dB

DI

30.0

dBm

#PAvg

W1 S2

S3 FS

AA

£(f):

FTun

Swp

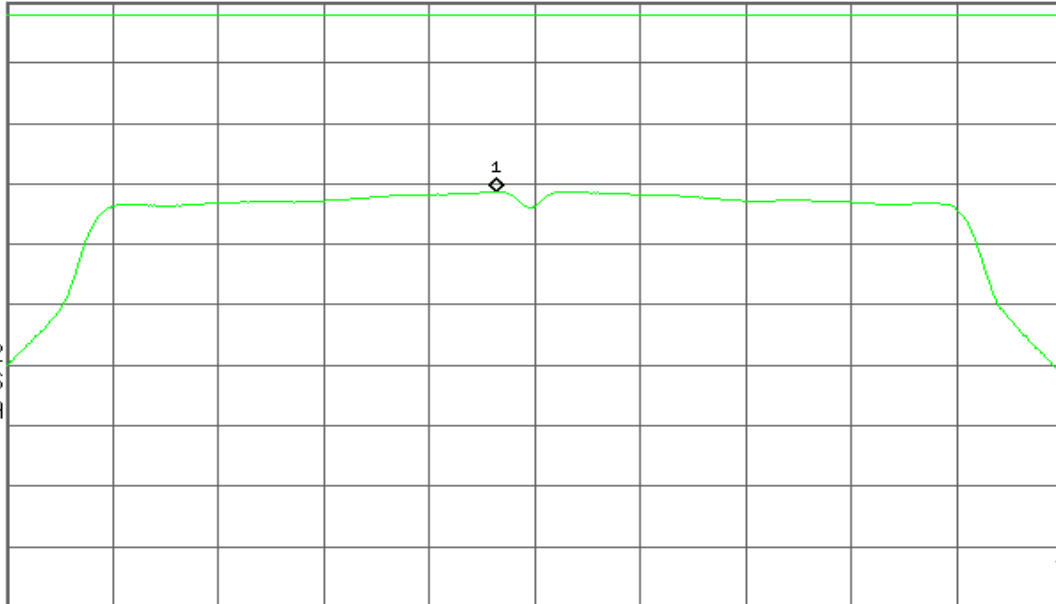
Center 5.825 00 GHz

#Res BW 510 kHz

#VBW 1.6 MHz

Span 20 MHz

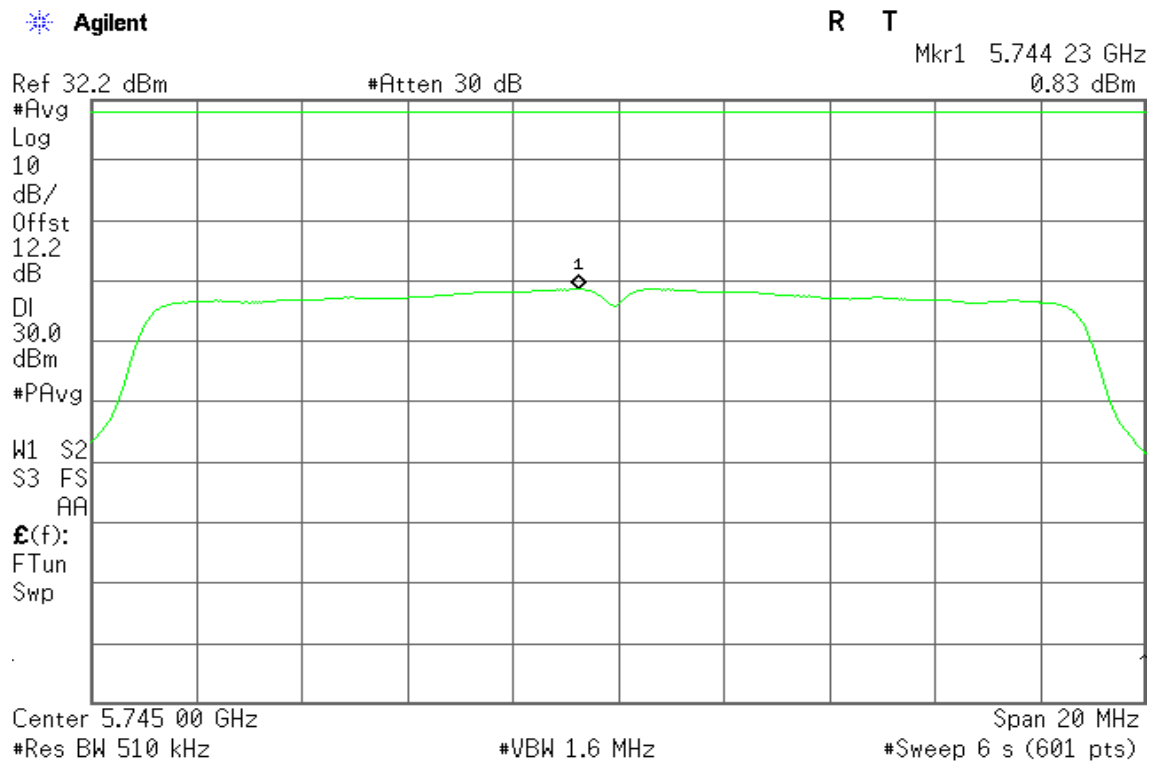
#Sweep 6 s (601 pts)



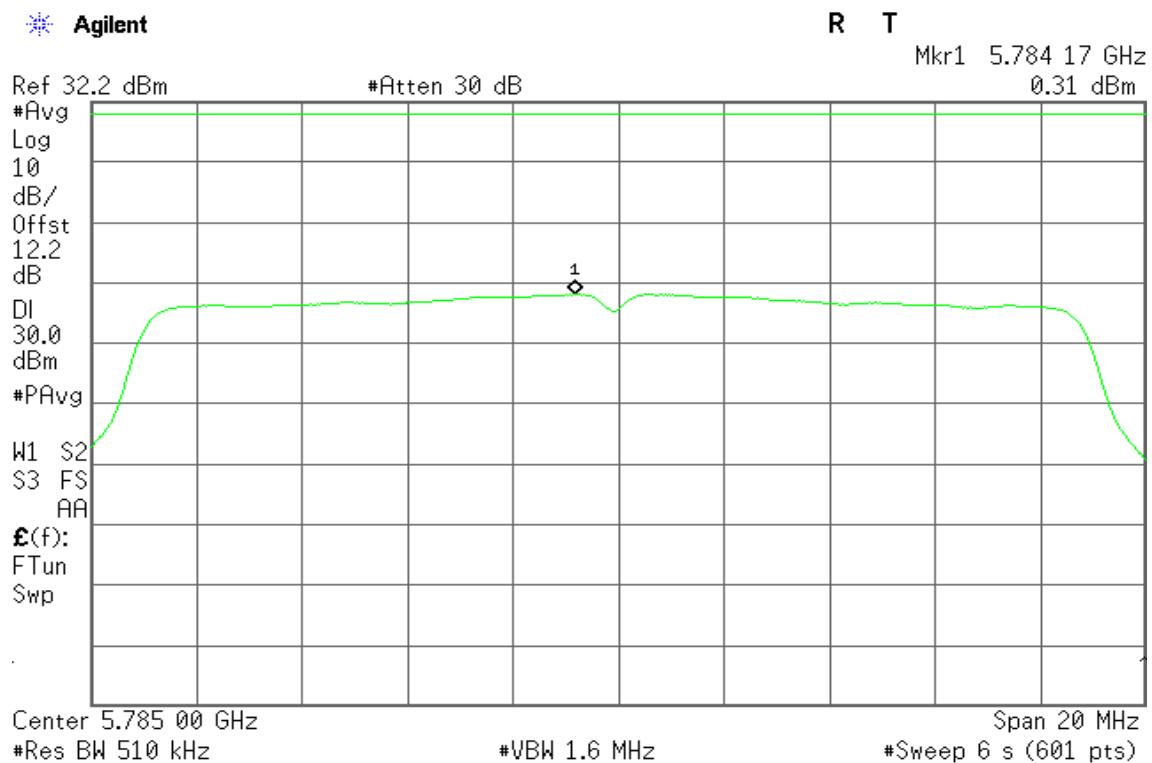


IEEE 802.11n HT 20 MHz mode / Chain 0

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent

R T

Mkr1 5.825 63 GHz
0.69 dBm

Ref 32.2 dBm

#Atten 30 dB

#Avg

Log

10

dB/

Offst

12.2

dB

DI

30.0

dBm

#PAvg

W1 S2

S3 FS

AA

£(f):

FTun

Swp

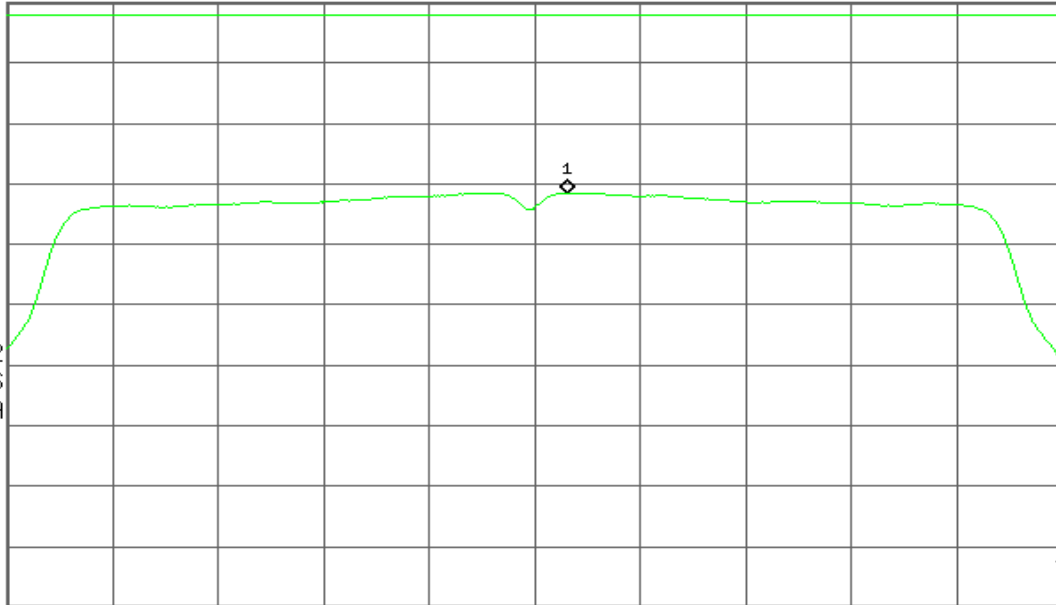
Center 5.825 00 GHz

#Res BW 510 kHz

#VBW 1.6 MHz

Span 20 MHz

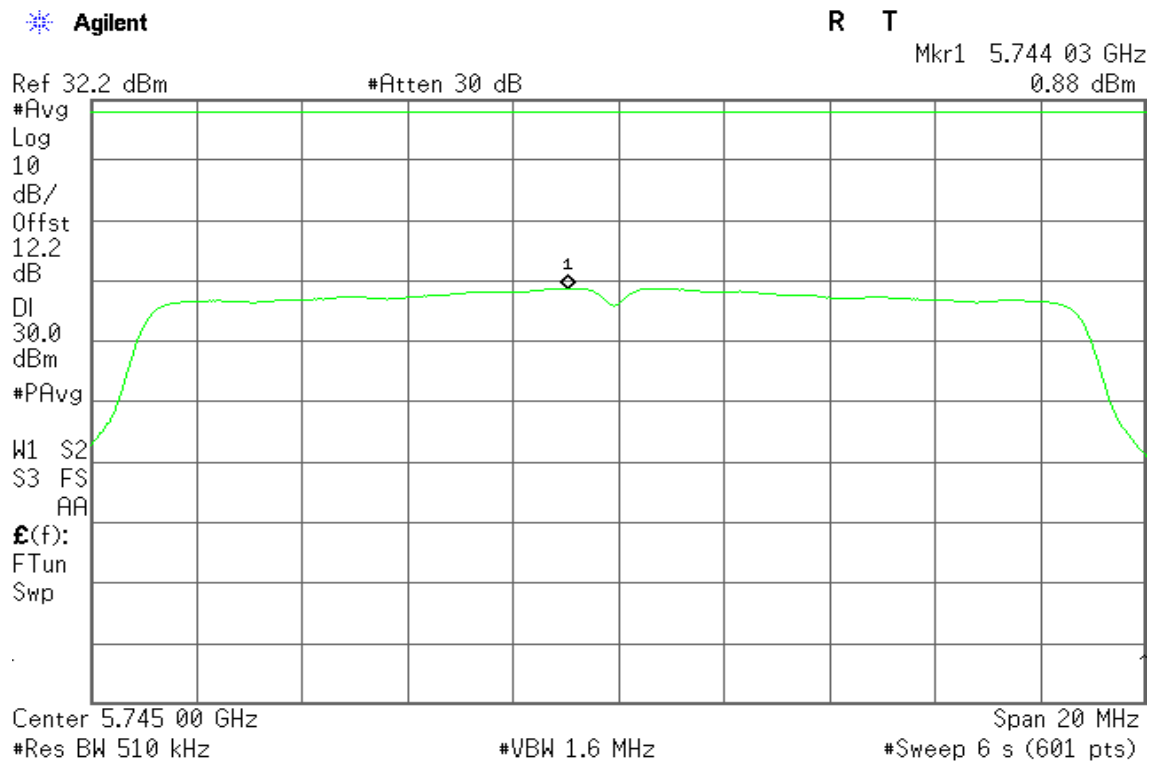
#Sweep 6 s (601 pts)



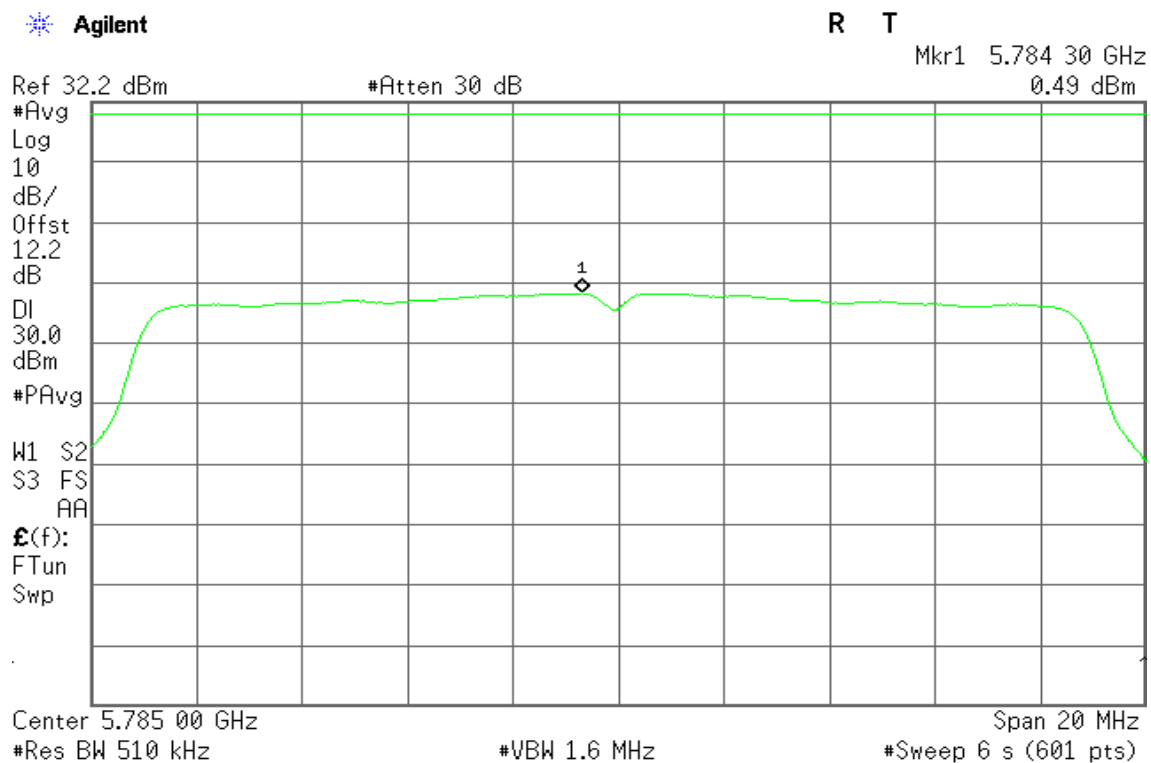


IEEE 802.11n HT 20 MHz mode / Chain 1

PPSD (CH Low)



PPSD (CH Mid)





PPSD (CH High)

Agilent

R T

Mkr1 5.824 23 GHz

0.77 dBm

Ref 32.2 dBm

#Atten 30 dB

#Avg

Log

10

dB/

Offst

12.2

dB

DI

30.0

dBm

#PAvg

W1 S2

S3 FS

AA

£(f):

FTun

Swp

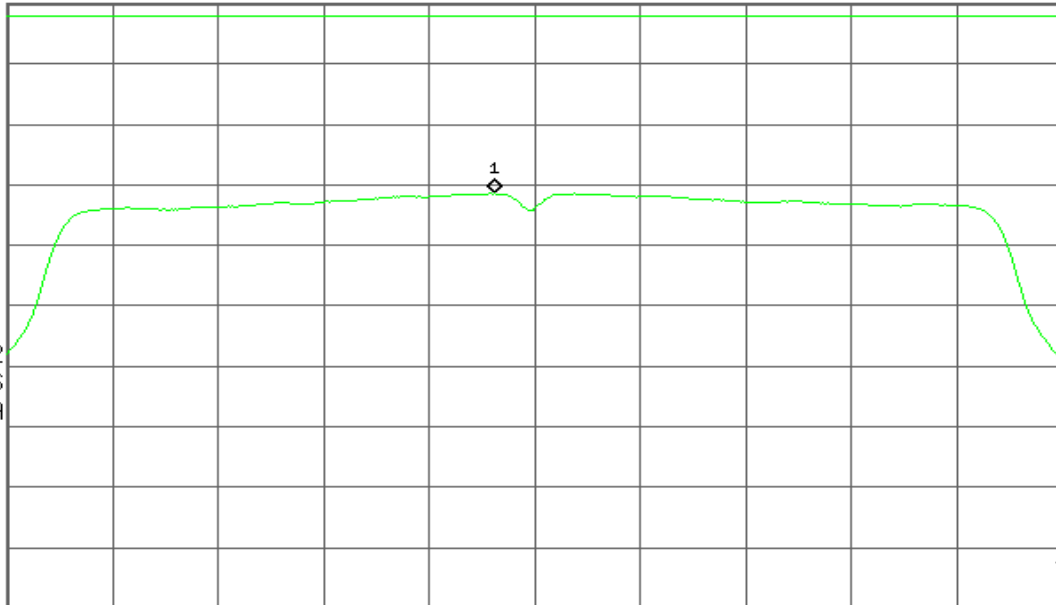
Center 5.825 00 GHz

#Res BW 510 kHz

#VBW 1.6 MHz

Span 20 MHz

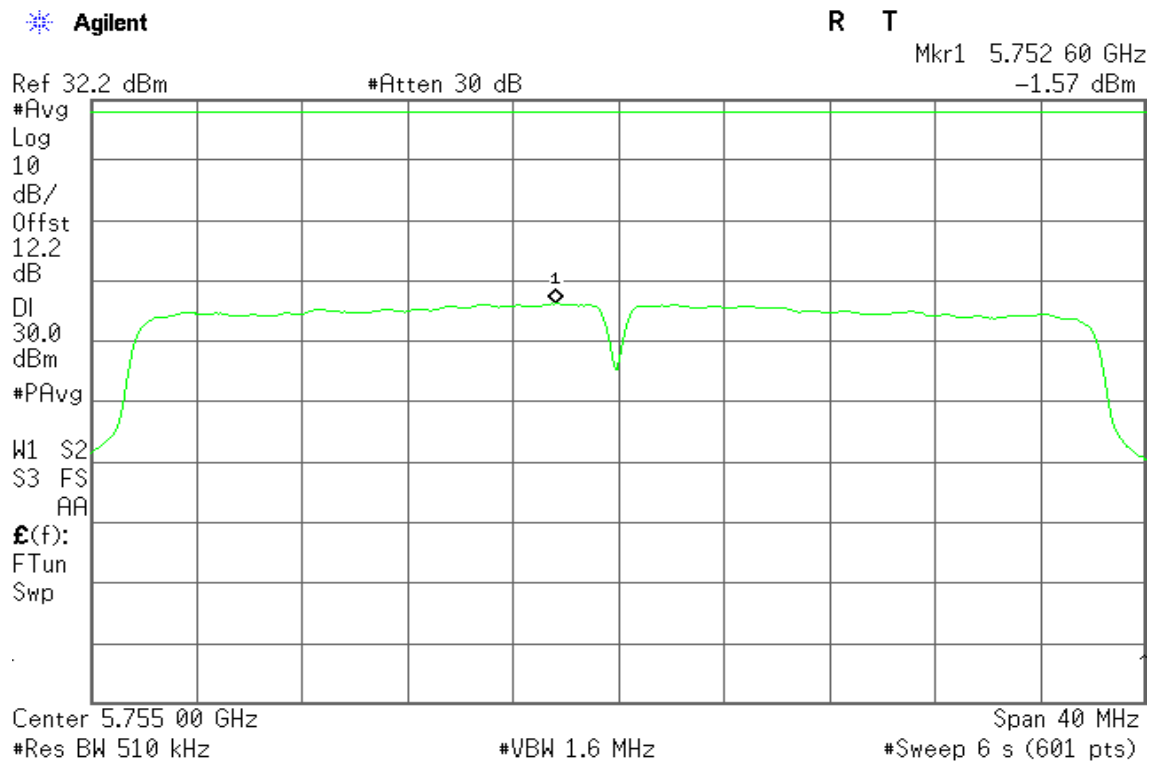
#Sweep 6 s (601 pts)



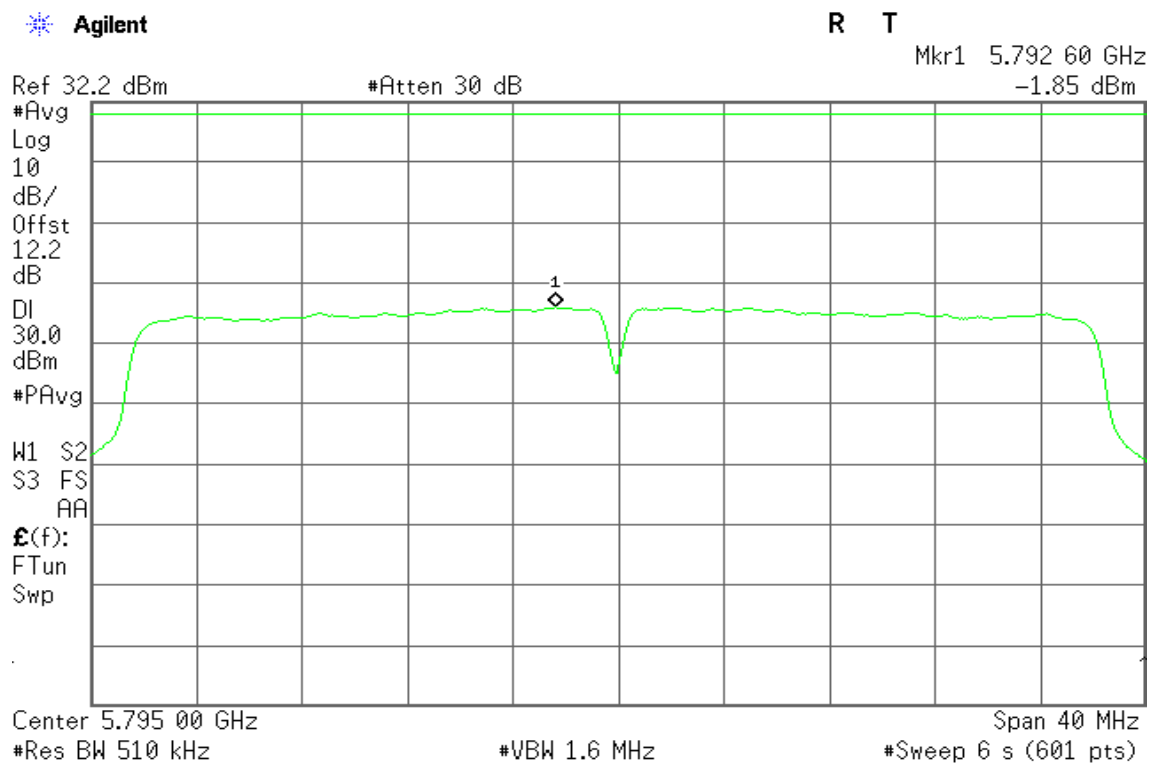


IEEE 802.11n HT 40 MHz mode / Chain 0

PPSD (CH Low)



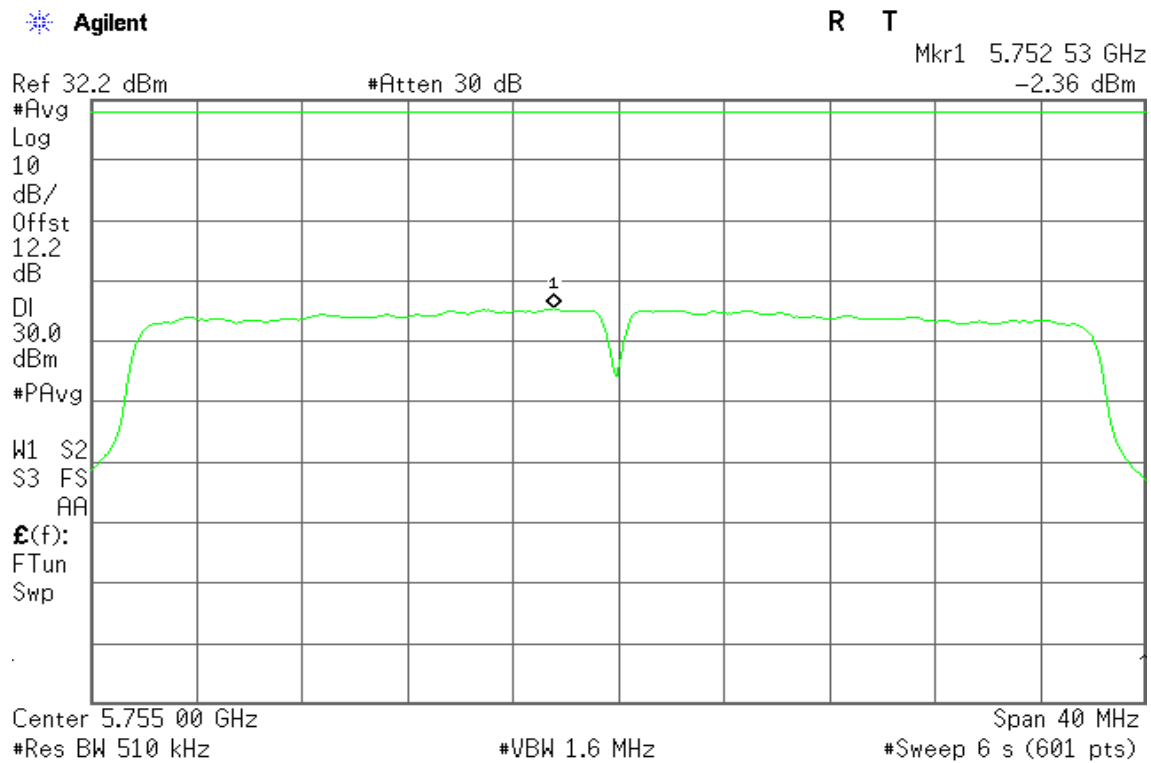
PPSD (CH High)



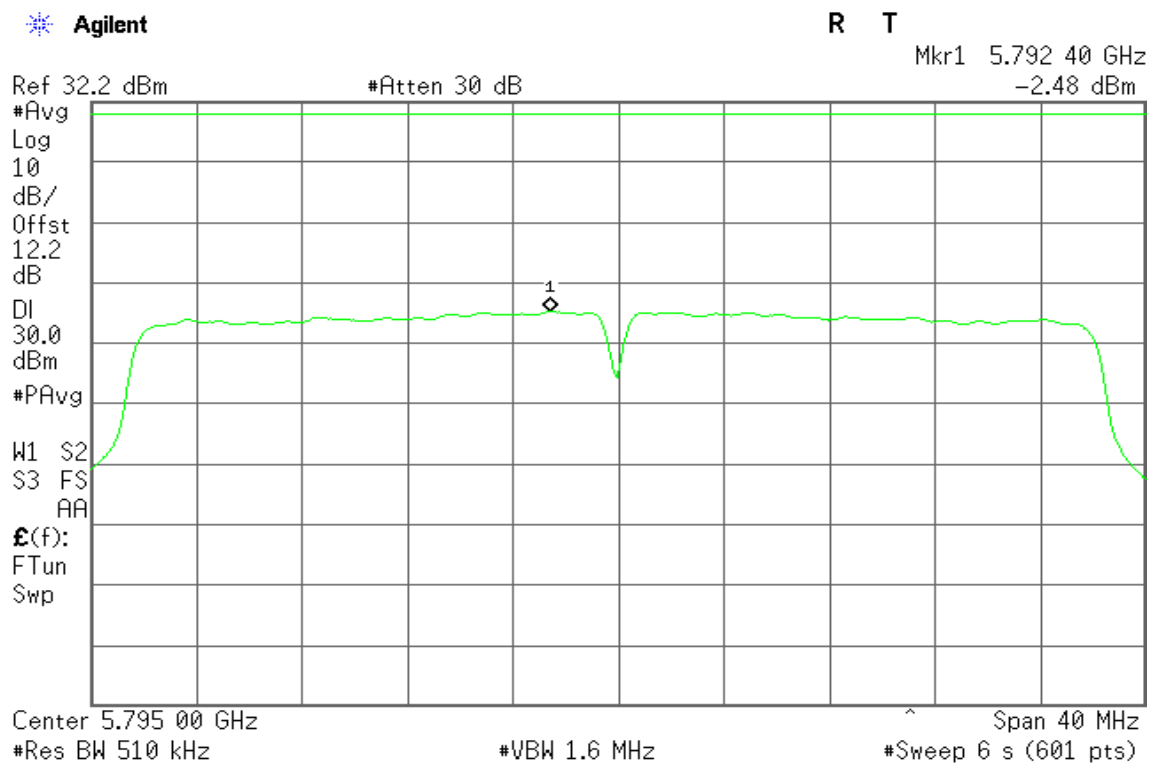


IEEE 802.11n HT 40 MHz mode / Chain 1

PPSD (CH Low)



PPSD (CH High)





7.6 RADIATED EMISSIONS

LIMIT

All spurious emissions shall comply with the limits of §15.209(a) and RSS-Gen Table 2 & Table 5.

RSS-Gen Table 2 & Table 5: General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz ^(Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

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

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

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

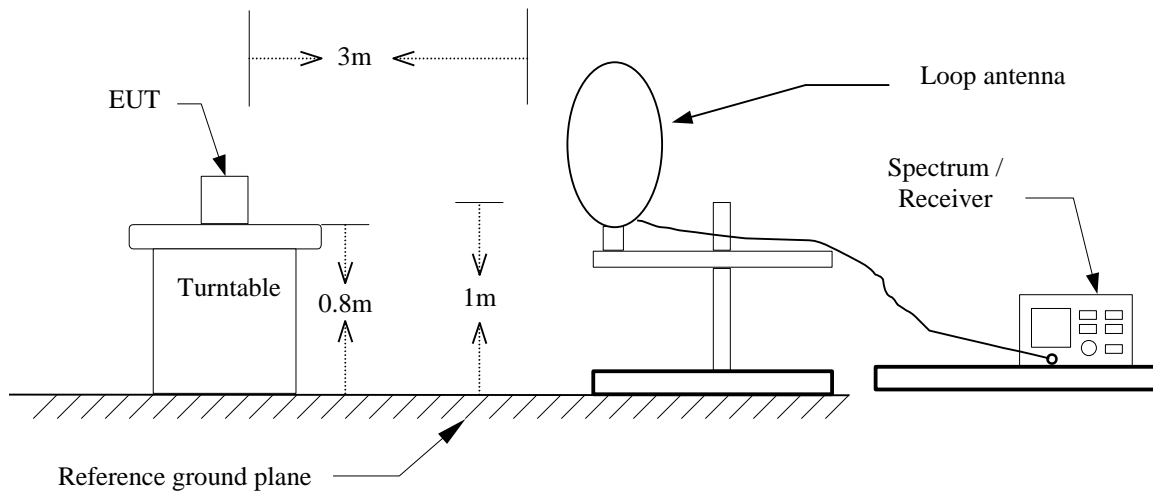
Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/377F (F in kHz)	3000
490-1,705 kHz	24,000/F (F in kHz)	24,000/377F (F in kHz)	30
1.705-30 MHz	30	N/A	30

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

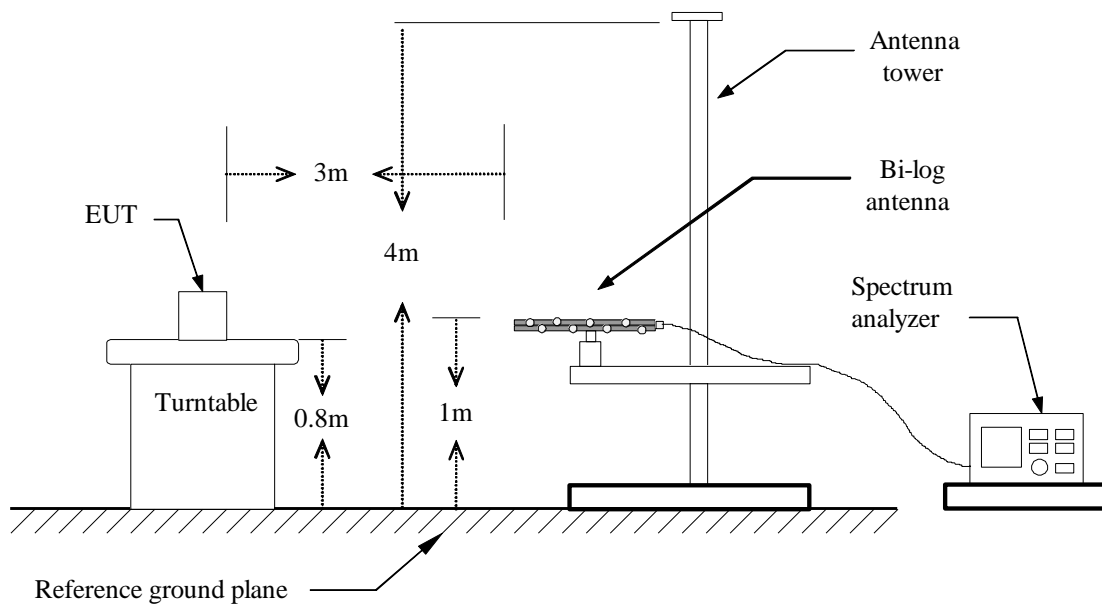


Test Configuration

9kHz ~ 30MHz

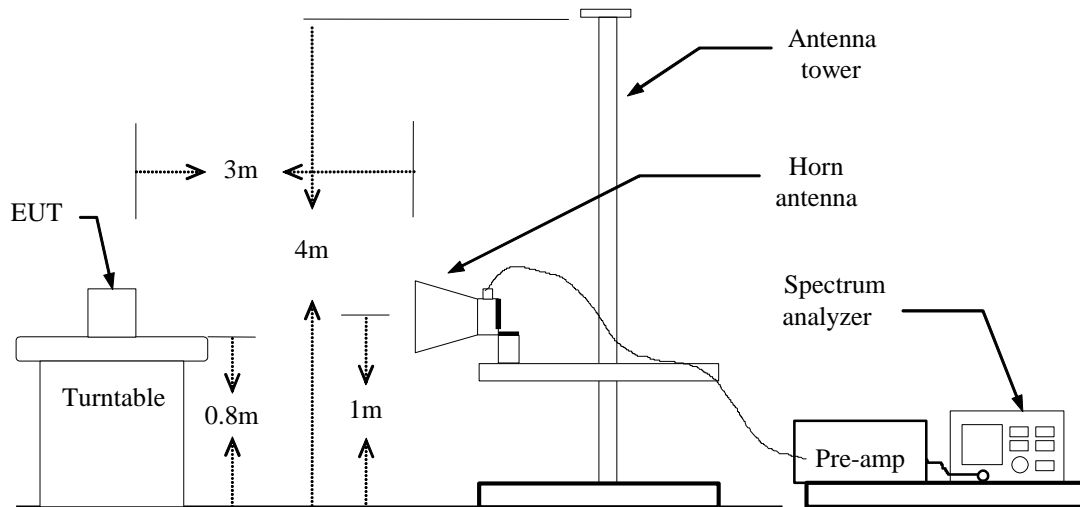


30MHz ~ 1GHz





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 1GHz:
RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz:
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=300Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

**Below 1 GHz****Operation Mode:** Normal Link**Test Date:** January 20, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
94.0200	47.26	-22.37	24.89	43.50	-18.61	Peak	V
253.1000	43.53	-18.18	25.35	46.00	-20.65	Peak	V
376.2900	43.53	-14.57	28.96	46.00	-17.04	Peak	V
478.1400	44.05	-12.19	31.86	46.00	-14.14	Peak	V
600.3600	44.44	-10.50	33.94	46.00	-12.06	Peak	V
900.0900	34.92	-6.16	28.76	46.00	-17.24	Peak	V
30.0000	47.82	-9.87	37.95	40.00	-2.05	Peak	H
40.6700	53.90	-17.58	36.32	40.00	-3.68	Peak	H
376.2900	54.43	-14.57	39.86	46.00	-6.14	Peak	H
478.1400	53.41	-12.19	41.22	46.00	-4.78	Peak	H
749.7400	34.02	-7.88	26.14	46.00	-19.86	Peak	H
900.0900	42.01	-6.16	35.85	46.00	-10.15	Peak	H

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 802.11a mode / CH Low**Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
2491.000	55.01	-3.20	51.81	74.00	-22.19	peak	V
8540.000	35.81	13.66	49.47	74.00	-24.53	peak	V
11490.000	38.34	16.78	55.12	74.00	-18.88	peak	V
11490.000	27.41	16.78	44.19	54.00	-9.81	AVG	V
N/A							
2400.000	53.99	-3.69	50.30	74.00	-23.70	peak	H
9260.000	35.79	13.91	49.70	74.00	-24.30	peak	H
11920.000	33.20	17.15	50.35	74.00	-23.65	peak	H
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** TX / IEEE 802.11a mode / CH Mid**Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
1924.000	54.62	-5.28	49.34	74.00	-24.66	peak	V
N/A							
3296.000	51.91	-1.40	50.51	74.00	-23.49	peak	H
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** TX / IEEE 802.11a mode / CH High**Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4185.000	50.54	1.93	52.47	74.00	-21.53	peak	V
N/A							
2400.000	53.62	-3.69	49.93	74.00	-24.07	peak	H
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Low **Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
1924.000	53.79	-5.28	48.51	74.00	-25.49	peak	V
9270.000	35.49	13.91	49.40	74.00	-24.60	peak	V
11490.000	34.99	16.78	51.77	74.00	-22.23	peak	V
N/A							
3219.000	51.91	-1.58	50.33	74.00	-23.67	peak	H
10000.000	34.43	14.89	49.32	74.00	-24.68	peak	H
16270.000	32.97	20.49	53.46	74.00	-20.54	peak	H
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 or as required by the applicant.
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH Mid **Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
1749.000	56.46	-6.21	50.25	74.00	-23.75	peak	V
N/A							
1924.000	55.27	-5.28	49.99	74.00	-24.01	peak	H
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 or as required by the applicant.
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.

**Operation Mode:** TX / IEEE 802.11n HT 20 MHz mode / CH High **Test Date:** February 5, 2015**Temperature:** 27°C**Tested by:** Owen Wu**Humidity:** 53% RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
3394.000	51.95	-1.16	50.79	74.00	-23.21	peak	V
N/A							
1735.000	54.25	-6.28	47.97	74.00	-26.03	peak	H
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 or as required by the applicant.
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. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Average limit (dBuV/m)}$.



Operation Mode: TX / IEEE 802.11n HT 40 MHz mode
/ CH Low

Test Date: February 5, 2015

Temperature: 27°C

Tested by: Owen Wu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4122.000	49.64	1.69	51.33	74.00	-22.67	peak	V
11510.000	33.87	16.79	50.66	74.00	-23.34	peak	V
15840.000	33.06	19.30	52.36	74.00	-21.64	peak	V
N/A							
3317.000	51.41	-1.35	50.06	74.00	-23.94	peak	H
10830.000	31.97	16.88	48.85	74.00	-25.15	peak	H
15840.000	33.61	19.30	52.91	74.00	-21.09	peak	H
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 or as required by the applicant.
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 HT 40 MHz mode
/ CH High

Test Date: February 5, 2015

Temperature: 27°C

Tested by: Owen Wu

Humidity: 53% RH

Polarity: Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Pol. (H/V)
4066.000	51.00	1.48	52.48	74.00	-21.52	peak	V
N/A							
3261.000	52.30	-1.48	50.82	74.00	-23.18	peak	H
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 or as required by the applicant.
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

Not applicable, because EUT not connect to AC Main Source direct.