



# SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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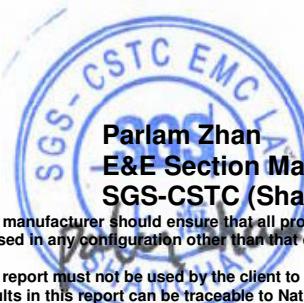
Report No.: SHEM141200318001  
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## 1 Cover Page

# FCC Part 15E TEST REPORT

Application No.:	SHEM1412003180RF
Applicant:	Shanghai Xunzhao Communication Technology Co., Ltd
FCC ID:	2ADY6WC18R2211
<b>Equipment Under Test (EUT):</b>	
<b>NOTE:</b> The following sample(s) was/were submitted and identified by the client as	
Product Name:	WiFi Modular
Model No.(EUT):	WC18R2211
Standards:	FCC PART 15 Subpart E: 2014
Date of Receipt:	December 11, 2014
Date of Test:	December 23, 2014 to May 17, 2015
Date of Issue:	May 26, 2015
Test Result:	Pass*

\*In the configuration tested, the EUT detailed in this report complied with the standards specified above.



Parlam Zhan  
E&E Section Manager  
SGS-CSTC (Shanghai) Co., Ltd.

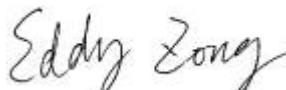
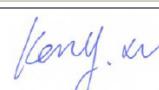
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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## 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	May 26, 2015	/	Original

Authorized for issue by:				
Engineer		Eddy Zong		
		Print Name		
Clerk		Susie Liu		
		Print Name		
Reviewer		Keny Xu		
		Print Name		

### 3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	15.203 & 15.407 a(1)&(3)	-	PASS
AC Power Line Conducted Emission	15.407 b(6)	ANSI C63.10 (2009) Clause 6.2	N/A
26 dB Emission bandwidth	15.403 i		PASS
Minimum 6 dB bandwidth (5.725-5.85 GHz band )	15.407 (e)		PASS
Maximum Conducted output power	15.407 a(1)&(3)		PASS
Transmitter Power Control	15.407 (h)(1)	KDB 789033 D02 v01 KDB 644545 v01r02 KDB662911 D01 v02r01	N/A <sup>1</sup>
Peak Power spectrum density	15.407 a(1)&(3)		PASS
Radiated Spurious emissions and Band-edge	15.209 & 15.407		PASS
Transmission in the Absence of Data	15.407 (c)		PASS
Frequency Stability	15.407 (g)		PASS
Dynamic Frequency Selection	15.407 (h)(2)	KDB 905462 D02 KDB 905462 D03	PASS <sup>2</sup>

Notes: 1. Transmit Power Control was not tested as the maximum EIRP is less than 500mW(27dBm)

2. The test result of DFS please reference test report SHEM141200318003

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## 5 General Information

### 5.1 Client Information

Applicant: Shanghai Xunzhao Communication Technology Co., Ltd  
Address of Applicant: 1759 Jinshajiang road putuo district of Shanghai  
Manufacturer: Shanghai Xunzhao Communication Technology Co., Ltd  
Address of Manufacturer: 1759 Jinshajiang road putuo district of Shanghai  
Factory: Shanghai Xunzhao Communication Technology Co., Ltd  
Address of Factory: 1759 Jinshajiang road putuo district of Shanghai

### 5.2 General Description of E.U.T.

Product Description: 802.11 a/b/g/n/ac 2T/2R Dual Band USB Module  
Brand Name: EBD  
Power Supply: DC 5V from USB Interface

### 5.3 Technical Specifications

Operation Frequency: 802.11a/n(HT20)/ac(VHT20):U-NII 1:5180-5240MHz, U-NII 2A:5260-5320MHz,  
U-NII-2C:5500-5720MHz, U-NII-3:5745-5825MHz  
802.11n(HT40)/ac(VHT40): U-NII 1:5190-5230MHz, U-NII 2A:5270-5310MHz,  
U-NII 2C:5500-5720MHz, U-NII 3:5755-5795MHz  
802.11ac(VHT80): U-NII 1:5210 MHz, U-NII 2A:5290 MHz,  
U-NII 2C:5530-5690MHz, U-NII 3:5775 MHz

Modulation Technique: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)  
Remark: 256QAM for 802.11 ac only

Data Rate:  
802.11a: 6/9/12/18/24/36/48/54Mbps  
802.11n(HT20)/n(HT40): MCS0-7 up to 300Mbps  
802.11ac(VHT20)/ac(VHT40)/ac(VHT80): MCS0-7 up to 866.3Mbps

DFS mode: Client without radar detection

Support TPC: Yes No

Antenna Type: Monopole Antenna  
2\*2 MIMO without 802.11 beam forming function  
2.4G and 5G technology cannot transmit at the same time.

Antenna Gain: 3dBi

Number of Channel:  
802.11 a/n(HT20)/ac(HT20): 25 Channel: 36,40,44,48,52,56,60,64,100,104,  
108,112,116,120,124,128,132,136,140,144,149,  
153, 157,161,165  
802.11 n(HT40)/ac(HT40): 12 Channel: 38,46,54,62,102,110,118,126, 134,  
142, 151,159  
802.11 ac(HT80): 6 Channel 42,58,106,122,138,155

**a. Operation Frequency of Each Channel:**

Channel NO.	Freq (MHz)										
36	5180	52	5260	100	5500	116	5580	132	5660	149	5745
<b>38</b>	<b>5190</b>	<b>54</b>	<b>5270</b>	<b>102</b>	<b>5510</b>	<b>118</b>	<b>5590</b>	<b>134</b>	<b>5670</b>	<b>151</b>	<b>5755</b>
40	5200	56	5280	104	5520	120	5600	136	5680	153	5765
<b>42</b>	<b>5210</b>	<b>58</b>	<b>5290</b>	<b>106</b>	<b>5530</b>	<b>122</b>	<b>5610</b>	<b>138</b>	<b>5690</b>	<b>155</b>	<b>5775</b>
44	5220	60	5300	108	5540	124	5620	140	5700	157	5785
<b>46</b>	<b>5230</b>	<b>62</b>	<b>5310</b>	<b>110</b>	<b>5550</b>	<b>126</b>	<b>5630</b>	<b>142</b>	<b>5710</b>	<b>159</b>	<b>5795</b>
48	5240	64	5320	112	5560	128	5640	144	5720	161	5805
										165	5825

Note: The above Frequency and Channel in boldface were 40MHz bandwidth; in boldface and Italic were 80MHz bandwidth.

**b. The device employs MIMO technology. Below are the possible configurations.**

Antenna Configurations		Single Input Single Output		Spatial Diversity Multiplexing-MIMO function	
		Antenna A	Antenna B	Antenna A	Antenna B
5GHz	11a	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11n(HT20)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11n(HT40)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11ac(VHT20)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11ac(VHT40)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	11ac(VHT80)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Remark:  =Support;  NOT Support

#### 5.4 Test Mode

Test Mode	Description of Test Mode
Engineering mode	Using test software to control EUT working in continuous transmitting, and select channel and modulation type.

#### 5.5 Test Channel

Preliminary tests were performed in all tests in different data rates and antenna configurations at lowest channel, the data rates of worse case as below were chosen for final test.

Band	802.11a			802.11 n(HT20)			802.11n(HT40)		
	Channel	Freq	Rate	Chan	Freq	Rate	Channel	Freq	Rate
U-NII 1	36	5180	6Mbps	36	5180	MCS0	38	5190	MCS0
	44	5200	6Mbps	44	5200	MCS0	-	-	-
	48	5240	6Mbps	48	5240	MCS0	46	5230	MCS0
U-NII 2A	52	5260	6Mbps	52	5260	MCS0	54	5270	MCS0
	56	5280	6Mbps	56	5280	MCS0	-	-	-
	64	5320	6Mbps	64	5320	MCS0	62	5310	MCS0
U-NII 2C	100	5500	6Mbps	100	5500	MCS0	102	5510	MCS0
	120	5600	6Mbps	120	5600	MCS0	118	5590	MCS0
	140	5700	6Mbps	140	5700	MCS0	134	5670	MCS0
	144	5720	6Mbps	144	5720	MCS0	142	5710	MCS0
U-NII 3	149	5745	6Mbps	149	5745	MCS0	151	5755	MCS0
	157	5785	6Mbps	157	5785	MCS0	-	-	-
	165	5825	6Mbps	165	5825	MCS0	159	5795	MCS0

Band	802.11ac(HT20)			802.11 ac(HT40)			802.11ac(HT80)		
	Channel	Freq	Rate	Chan	Freq	Rate	Channel	Freq	Rate
U-NII 1	36	5180	MCS0	38	5190	MCS0	42	5210	MCS0
	44	5200	MCS0	-	-	-	-	-	-
	48	5240	MCS0	46	5230	MCS0			
U-NII 2A	52	5260	MCS0	54	5270	MCS0	58	5290	MCS0
	56	5280	MCS0	-	-	-	-	-	-
	64	5320	MCS0	62	5310	MCS0	-	-	-
U-NII 2C	100	5500	MCS0	102	5510	MCS0	106	5530	MCS0
	120	5600	MCS0	118	5590	MCS0	-	-	-
	140	5700	MCS0	134	5670	MCS0	122	5610	MCS0
	144	5720	MCS0	142	5710	MCS0	138	5690	MCS0
U-NII 3	149	5745	MCS0	151	5755	MCS0	155	5775	MCS0
	157	5785	MCS0	-	-	-	-	-	-
	165	5825	MCS0	159	5795		-	-	-

## 5.6 Description of Support Units

The EUT has been tested with support equipments as below.

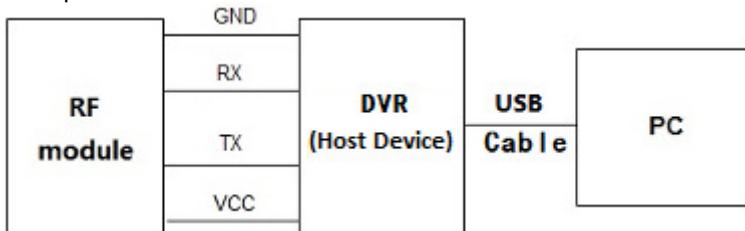
Description	Manufacturer	Model No.	Supplied By
Laptop	Lenovo	ThinkPad X100e	SGS
Digital Video Recorder (Host Device)	Hikvision	iDS-9004HMFI-N/IPC/GW	Client

Note: The DVR (Host device) can connect to the Wi-Fi networks via the WiFi modular and upload files

Software name	Manufacturer	Version	Supplied By
RTL8812A USB Software	Realtek	0.0059.20130716	Client

Cable Type	Length, m	Shield	Ferrite
USB	0.8	Yes	No

Description of connection:



## 5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

No.588 West Jindu Road, Songjiang District, Shanghai, China.201612.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

## 5.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2017-07-14.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2017-09-16.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1. Expiry Date: 2017-06-18.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2017-11-16.

## 5.9 Measurement Uncertainty

No.	Parameter	Measurement Uncertainty
1	Radio Frequency	< ±1 x 10 <sup>-5</sup>
2	Total RF power, conducted	< ±1.5 dB
3	RF power density, conducted	< ±3 dB
4	Spurious emissions, conducted	< ±3 dB
5	All emissions, radiated	< ±6 dB (30MHz – 1GHz) < ±6 dB (above 1GHz)
6	Temperature	< ±1°C
7	Humidity	< ±5 %
8	DC and low frequency voltages	< ±3 %

## 6 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2015-01-22	2016-01-21
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127490	2015-01-22	2016-01-21
3	Line impedance stabilization network	ETS	3816/2	00034161	2015-01-22	2016-01-21
4	Spectrum Analyzer	Rohde & Schwarz	FSP-30	2705121009	2015-01-22	2016-01-21
5	EMI test receiver	Rohde & Schwarz	ESR7	101391	2015-01-22	2016-01-21
6	EMI test receiver	Rohde & Schwarz	ESU40	100109	2015-02-13	2016-02-12
7	Active Loop Antenna (9kHz to 30MHz)	Schwarzbeck - Mess-Elektronik	FMZB 1519	1519-034	2015-02-07	2016-02-06
8	Broadband UHF-VHF ANTENNA (25MHz to 2GHz)	SCHWARZBECK	VULB9168	9168-313	2015-02-07	2016-02-06
9	Ultra broadband antenna (25MHz to 3GHz)	Rohde & Schwarz	HL562	100227	2014-08-30	2015-08-29
10	Horn Antenna (1GHz to 18GHz)	Rohde & Schwarz	HF906	100284	2015-02-07	2016-02-06
11	Horn Antenna (1GHz to 18GHz)	SCHWARZBECK	BBHA9120D	9120D-679	2015-02-07	2016-02-06
12	Horn Antenna (14GHz to 40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170373	2015-02-13	2016-02-12
13	Pre-amplifier (9KHz – 2GHz)	LNA6900	TESEQ	71033	2014-12-27	2015-12-27
14	Pre-amplifier (1GHz – 26.5GHz)	Rohde & Schwarz	SCU-F0118-G40-BZ4-CSS(F)	10001	2015-01-22	2016-01-21
15	Pre-amplifier (14GHz – 40GHz)	Rohde & Schwarz	SCU-F1840-G35-BZ3-CSS(F)	10001	2015-01-22	2016-01-21
16	Tunable Notch Filter	Wainwright instruments GmbH	WRCT800.0/880.0-0.2/40-5SSK	9170397	/	/
17	High pass Filter	FSCW	HP 12/2800-5AA2	19A45-02	/	/
18	High-low temperature cabinet	Suzhou Zhihe	TL-40	50110050	2014-09-11	2015-09-10
19	AC power stabilizer	WOCEN	6100	51122	2015-01-02	2016-01-01
20	DC power	QJE	QJ30003SII	611145	2015-01-02	2016-01-01
21	Splitter	Anritsu	MA1612A	M12265	/	/
22	Coupler	e-meca	803-S-1	900-M01	/	/

## 7 Test Results

### 7.1 E.U.T. Test Conditions

**Test Power:** DC 5V

**Requirements:** 15.31(e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

<b>Operating Environment:</b>	Temperature:	20.0 -25.0 °C
	Humidity:	35-75 % RH
	Atmospheric Pressure:	99.2 -102.0 kPa

**Test frequencies:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Pursuant to Part 15.31(c) For swept frequency equipment, measurements shall be made with the frequency sweep stopped at those frequencies chosen for the measurements to be reported

## 7.2 Antenna Requirement

### Standard requirement:

#### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

This requirement does not apply to carrier current devices. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

### EUT Antenna:

The antenna is Plug-in antenna with 3 meters wire length RG-174 cable. The gain is less than 3.0dBi.  
The intentional radiators that must be professionally installed.



### 7.3 Conducted Emissions on Mains Terminals

**Frequency Range:** 150 KHz to 30 MHz

**Class/Severity:** Class B

**Limit:**

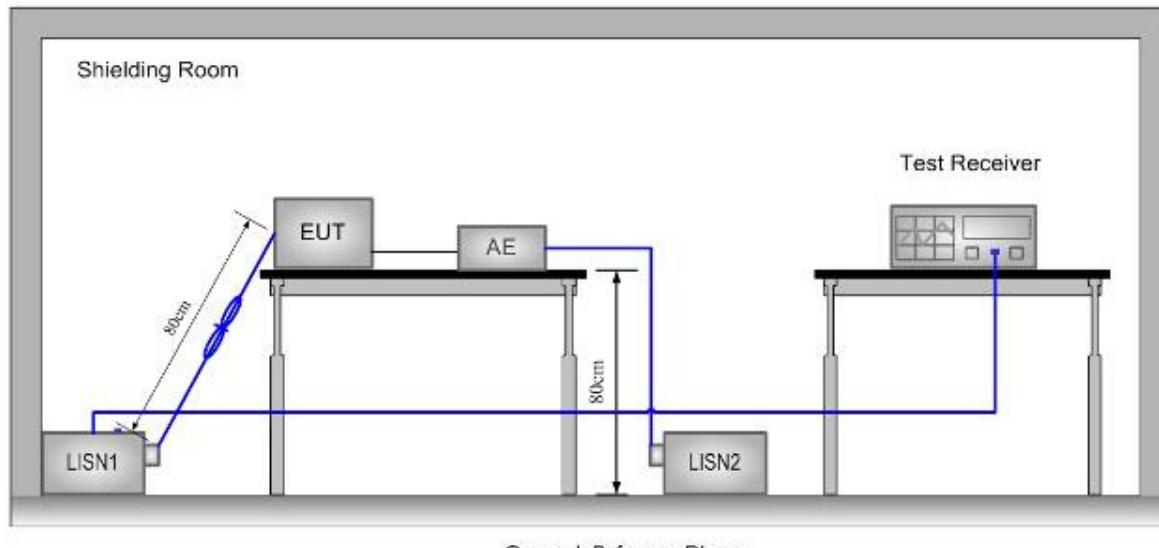
Frequency range MHz	Class B Limits: dB ( $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.  
Note2: The lower limit is applicable at the transition frequency.

**Test site/setup:**

Test instrumentation set-up:

Frequency Range	Detector	RBW	VBW
9KHz to 150Hz	Quasi-peak	200Hz	500Hz
150KHz to 30MHz	Quasi-peak	9kHz	30kHz



#### Test Procedure:

- The mains terminal disturbance voltage was measured with the EUT in a shielded room.
- The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides  $50\Omega/50\mu H + 5\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded
- The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to



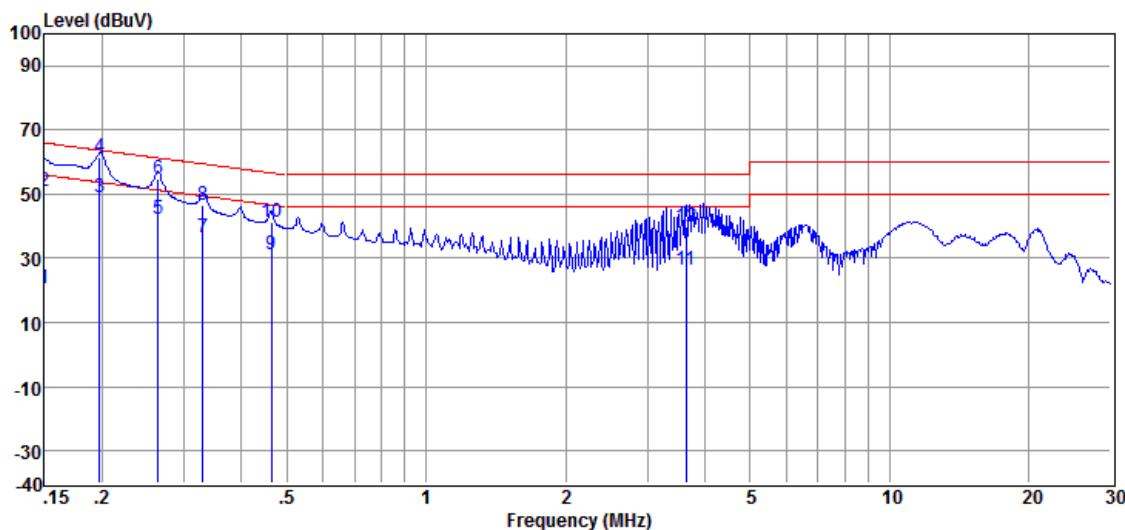
the horizontal ground reference plane. The LISN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment were at least 0.8 m from the LISN.

Remark: Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected. Pretest under all modes; choose the worst case mode (802.11a in Middle channel on band 1) record on the report. Please see the attached Quasi-peak and Average test results.

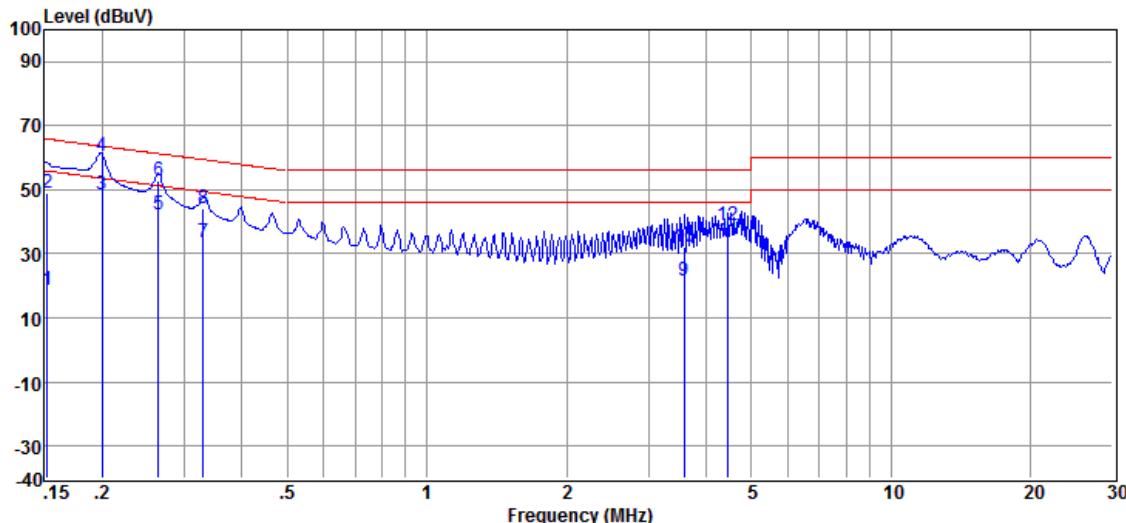
**Test Result:** Pass

**Test Data:**

<b>Test Mode:</b>	802.11a	<b>Test Channel:</b>	Channel 40
<b>Test Port:</b>	AC Live Line		



Item	Freq.	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dB $\mu$ V)	(dB)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	
1	0.150	20.27	0.33	0.10	20.70	56.00	-35.30	Average
2	0.150	50.61	0.33	0.10	51.04	66.00	-14.96	QP
3	0.198	48.40	0.26	0.10	48.76	53.71	-4.95	Average
4	0.198	60.95	0.26	0.10	61.31	63.71	-2.40	QP
5	0.264	41.82	0.26	0.10	42.18	51.29	-9.11	Average
6	0.264	54.35	0.26	0.10	54.71	61.29	-6.58	QP
7	0.330	36.14	0.25	0.10	36.49	49.44	-12.95	Average
8	0.330	46.26	0.25	0.10	46.61	59.44	-12.83	QP
9	0.464	31.06	0.25	0.10	31.41	46.63	-15.22	Average
10	0.464	40.99	0.25	0.10	41.34	56.63	-15.29	QP
11	3.642	26.08	0.38	0.17	26.63	46.00	-19.37	Average
12	3.642	39.27	0.38	0.17	39.82	56.00	-16.18	QP

**Test Port:** AC Neutral Line

Item	Freq. (MHz)	Read Level (dB $\mu$ V)	LISN Factor	Cable Loss (dB)	Level (dB $\mu$ V)	Limit Line (dB $\mu$ V)	Over Limit (dB)	Detector
(Mark)	(MHz)	(dB $\mu$ V)	(dB)	(dB)	(dB $\mu$ V)	(dB $\mu$ V)	(dB)	
1	0.152	18.38	0.34	0.10	18.82	55.87	-37.05	Average
2	0.152	48.71	0.34	0.10	49.15	65.87	-16.72	QP
3	0.200	48.20	0.29	0.10	48.59	53.62	-5.03	Average
4	0.200	59.95	0.29	0.10	60.34	63.62	-3.28	QP
5	0.264	41.77	0.29	0.10	42.16	51.29	-9.13	Average
6	0.264	52.46	0.29	0.10	52.85	61.29	-8.44	QP
7	0.330	33.38	0.30	0.10	33.78	49.44	-15.66	Average
8	0.330	43.87	0.30	0.10	44.27	59.44	-15.17	QP
9	3.584	20.95	0.63	0.16	21.74	46.00	-24.26	Average
10	3.584	31.60	0.63	0.16	32.39	56.00	-23.61	QP
11	4.454	33.37	0.49	0.19	34.05	46.00	-11.95	Average
12	4.454	38.33	0.49	0.19	39.01	56.00	-16.99	QP

Remark: Level = Read Level + LISN/ISN Factor + Cable Loss.

## 7.4 Duty Cycle

In order to assist with the determination of the average level of fundamental and spurious emissions field strength, measurements were made of duty cycle to determine the transmission duration and the silent period time of the transmitter. The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by using the following calculation:

$$\text{Duty cycle} = T_{\text{on time}} / \text{Period}$$

$$\text{Duty factor} = 10 * \log(1/\text{Duty cycle})$$

If duty cycle of test signal is > 98%, duty factor is not required.

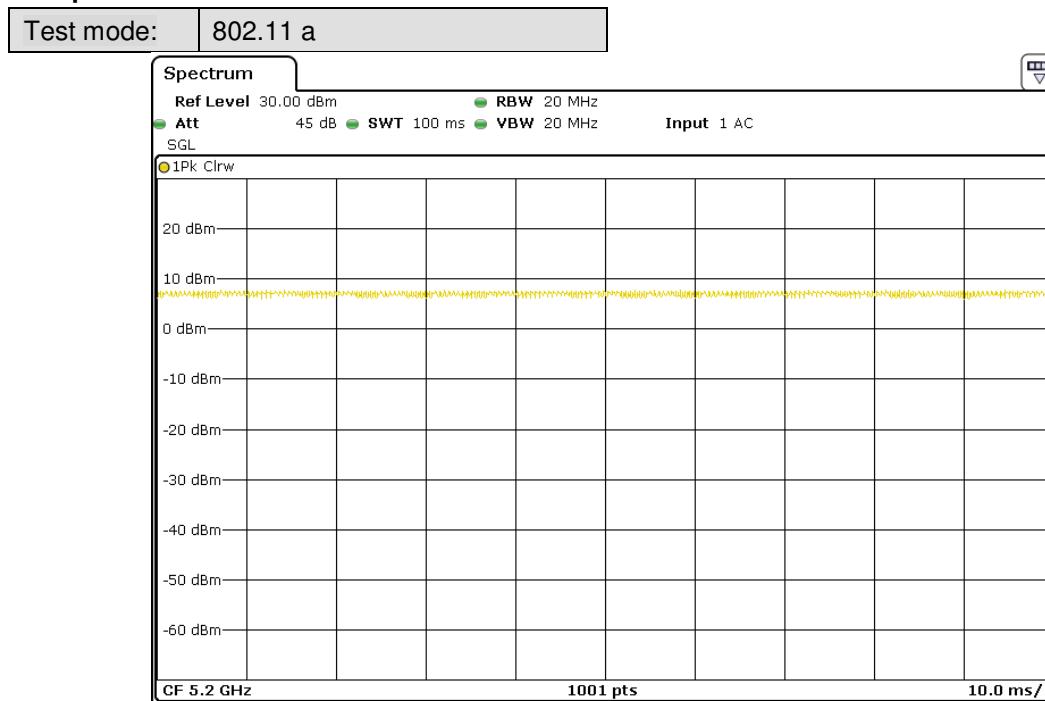
If duty cycle of test signal is < 98%, duty factor shall be considered.

### Test Data:

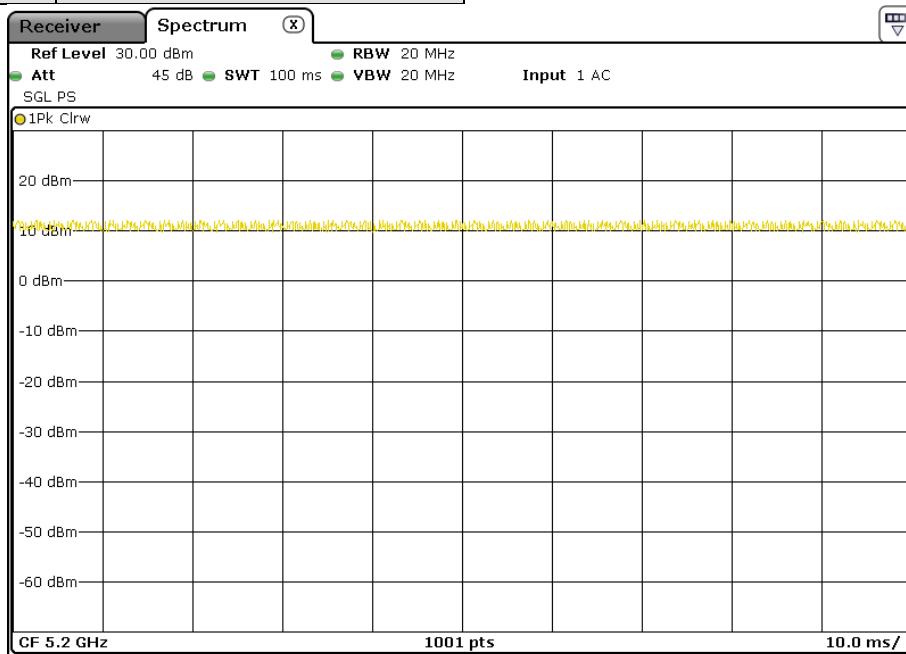
Test Mode	T on time(ms)	Period(ms)	Duty Cycle	Duty Factor
802.11a	10	10	100%	0
802.11n(HT20)	10	10	100%	0
802.11n(HT40)	10	10	100%	0
802.11ac(VHT20)	10	10	100%	0
802.11ac(VHT40)	10	10	100%	0
802.11ac(VHT80)	10	10	100%	0

**Test Result:** All measurements are to be performed with the EUT transmitting at 100 percent duty cycle at its maximum power control level. So duty factor is not required.

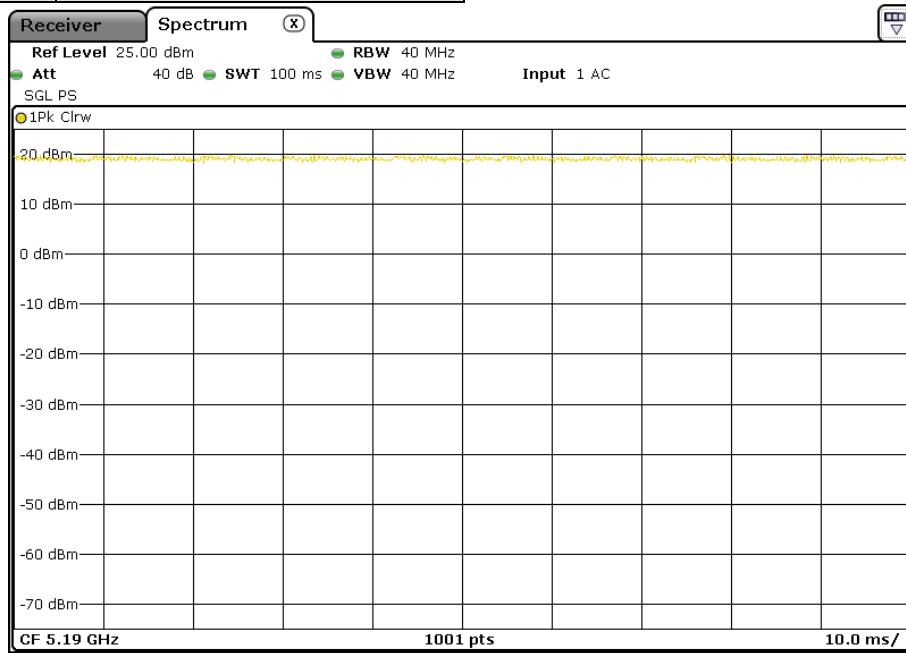
### Test plot as follows:



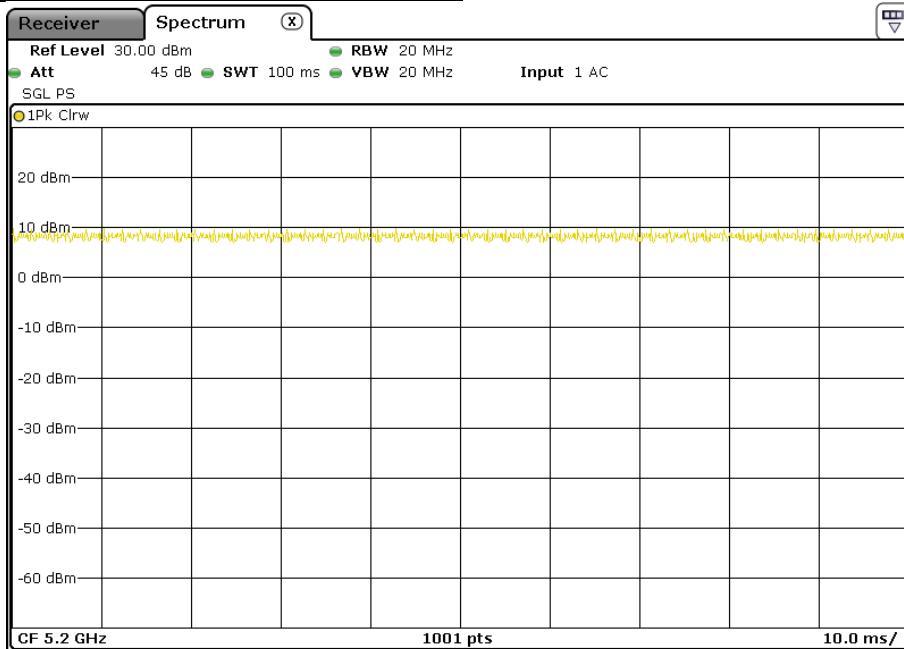
Test mode: 802.11 n(HT20)



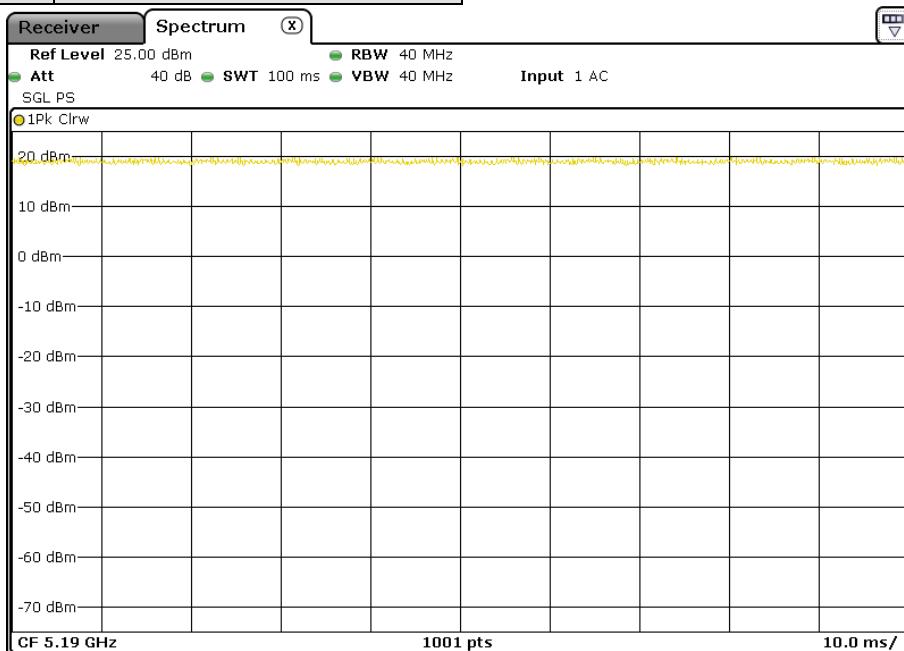
Test mode: 802.11 n(HT40)



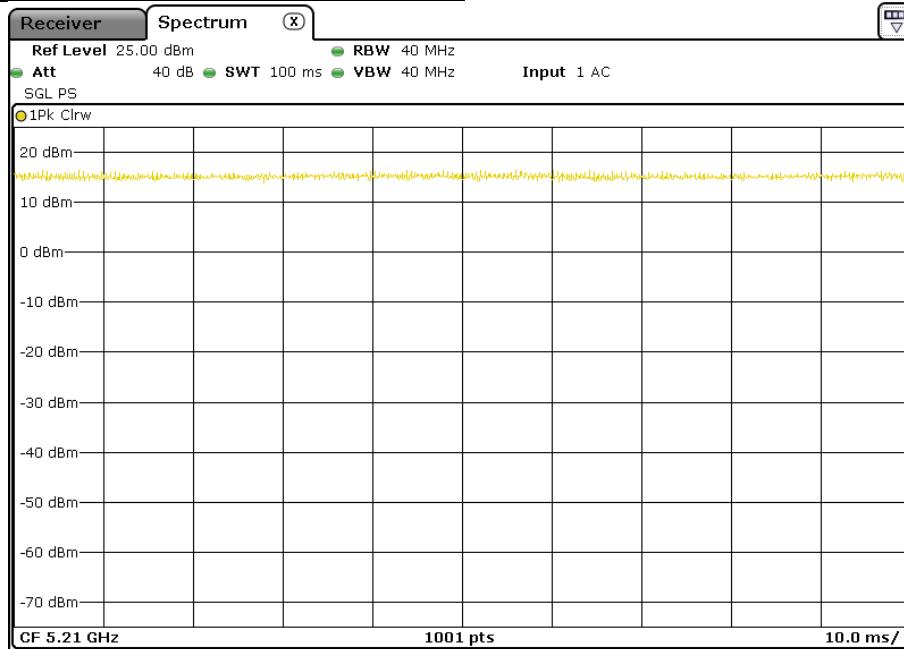
Test mode: 802.11 ac(VHT20)



Test mode: 802.11 ac(VHT40)



Test mode: 802.11 ac(VHT80)



## 7.5 26dB Emission Bandwidth

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

### Test Data:

#### For Antenna A:

Band	802.11a			802.11 n(HT20)			802.11n(HT40)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 1	36	5180	20.739	36	5180	21.778	38	5190	43.990
	44	5200	20.779	44	5200	22.138	--	--	--
	48	5240	20.859	48	5240	22.098	46	5230	43.990
U-NII 2A	52	5260	20.979	52	5260	21.898	54	5270	44.230
	56	5280	20.739	56	5280	22.298	--	--	--
	64	5320	20.819	64	5320	21.459	62	5310	43.636
U-NII 2C	100	5500	20.699	100	5500	21.419	102	5510	43.956
	120	5600	20.819	120	5600	21.538	118	5590	43.796
	140	5700	21.299	140	5700	21.818	134	5670	44.036
	144	5720	21.419	144	5720	23.097	142	5710	44.675
U-NII 3	149	5745	21.179	149	5745	22.058	151	5755	44.116
	157	5785	20.979	157	5785	21.698	--	--	--
	165	5825	20.979	165	5825	21.538	159	5795	44.116
Band	802.11ac(HT20)			802.11 ac(HT40)			802.11ac(HT80)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 1	36	5180	21.499	38	5190	43.956	42	5210	84.400
	44	5200	21.578	--	--	--	--	--	--
	48	5240	21.698	46	5230	43.796	--	--	--
U-NII 2A	52	5260	21.778	54	5270	43.796	58	5290	84.560
	56	5280	21.419	--	--	--	--	--	--
	64	5320	21.459	62	5310	44.196	--	--	--
U-NII 2C	100	5500	21.339	102	5510	44.196	106	5530	84.400
	120	5600	21.778	118	5590	43.876	--	--	--
	140	5700	22.617	134	5670	44.036	122	5610	84.240
	144	5720	22.218	142	5710	43.716	138	5690	84.400
U-NII 3	149	5745	22.258	151	5755	43.796	155	5775	84.560
	157	5785	22.098	--	--	--	--	--	--
	165	5825	21.898	159	5795	43.716	--	--	--

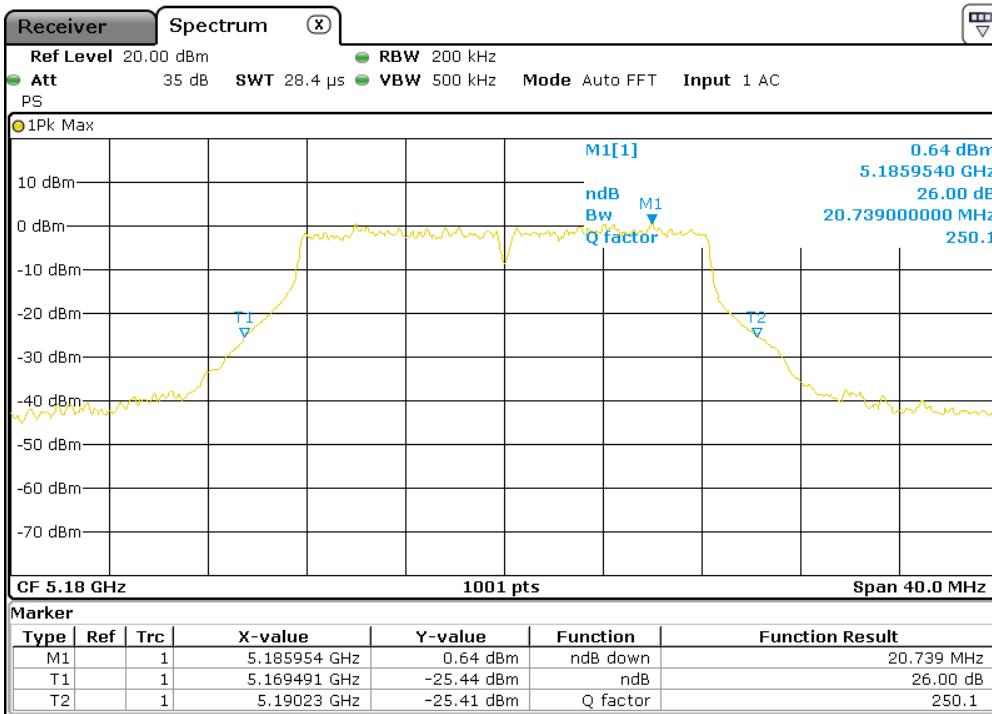


**For Antenna B:**

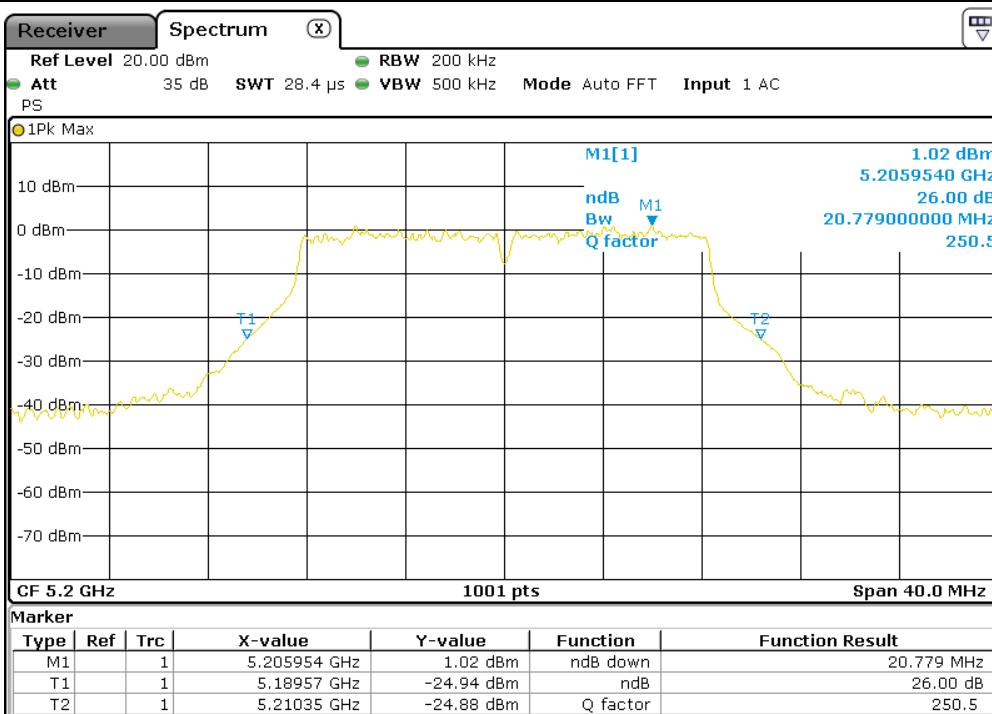
Band	802.11a			802.11 n(HT20)			802.11n(HT40)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 1	36	5180	21.379	36	5180	22.258	38	5190	44.276
	40	5200	21.658	40	5200	22.218	--	--	--
	48	5240	21.299	48	5240	22.298	46	5230	43.956
U-NII 2A	52	5260	21.459	52	5260	22.378	54	5270	44.036
	56	5280	21.259	56	5280	22.498	--	--	--
	64	5320	21.419	64	5320	22.258	62	5310	44.036
U-NII 2C	100	5500	21.139	100	5500	22.138	102	5510	43.876
	120	5600	21.299	120	5600	22.218	118	5590	44.036
	140	5700	21.499	140	5700	22.178	134	5670	43.876
	144	5720	21.419	144	5720	22.178	142	5710	43.796
U-NII 3	149	5745	21.419	149	5745	22.058	151	5755	44.036
	157	5785	21.379	157	5785	22.098	--	--	--
	165	5825	21.339	165	5825	22.058	159	5795	43.716
Band	802.11ac(HT20)			802.11 ac(HT40)			802.11ac(HT80)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 1	36	5180	22.098	38	5190	44.116	42	5210	84.720
	40	5200	22.258	--	--	--	--	--	--
	48	5240	22.058	46	5230	43.716	--	--	--
U-NII 2A	52	5260	22.218	54	5270	44.116	58	5290	84.560
	56	5280	22.018	--	--	--	--	--	--
	64	5320	22.218	62	5310	43.956	--	--	--
U-NII 2C	100	5500	21.938	102	5510	43.876	106	5530	84.720
	120	5600	22.138	118	5590	43.876	--	--	--
	140	5700	22.617	134	5670	43.956	122	5610	84.560
	144	5720	22.218	142	5710	43.876	138	5690	84.240
U-NII 3	149	5745	22.178	151	5755	44.036	155	5775	84.560
	157	5785	22.218	--	--	--	--	--	--
	165	5825	22.178	159	5795	43.636	--	--	--

Test plot as follows:

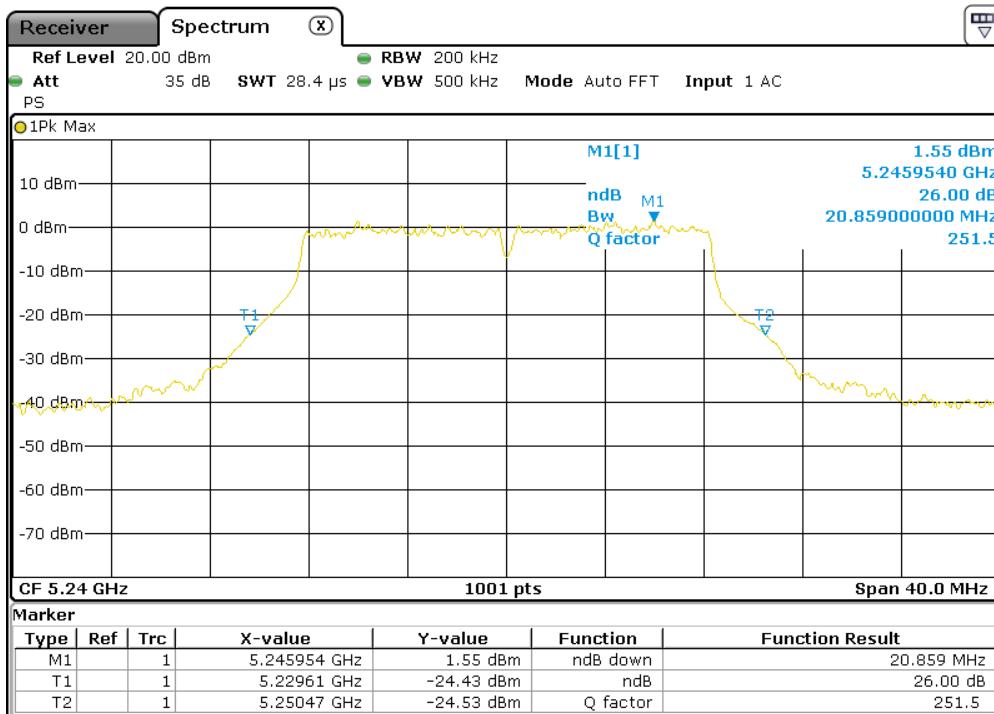
802.11 a	Antenna A	Channel 36
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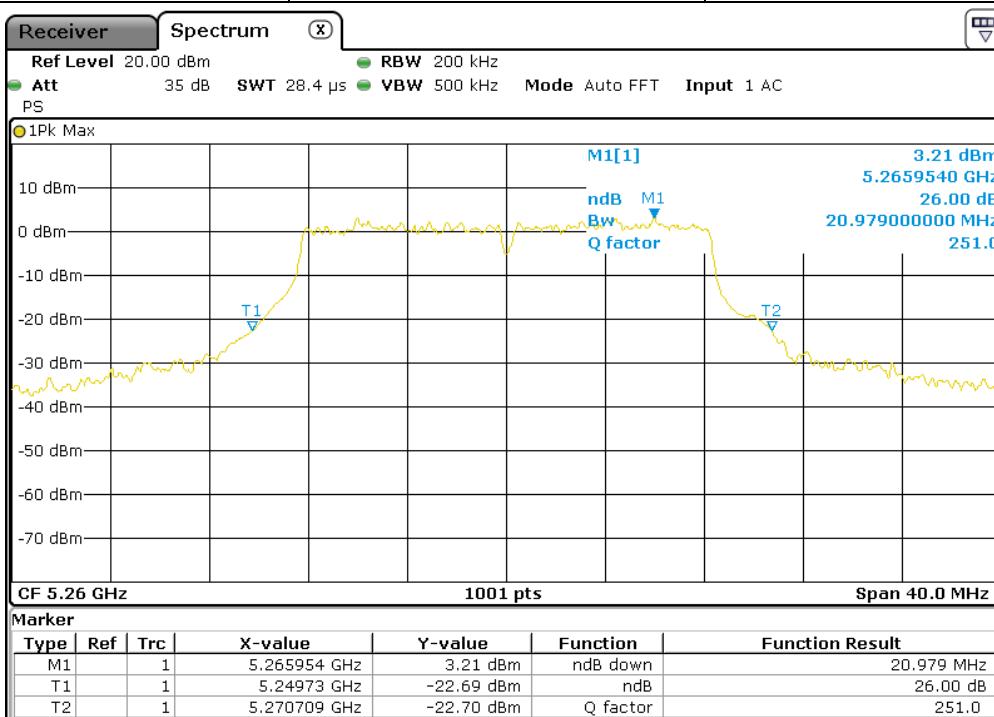
802.11 a	Antenna A	Channel 40
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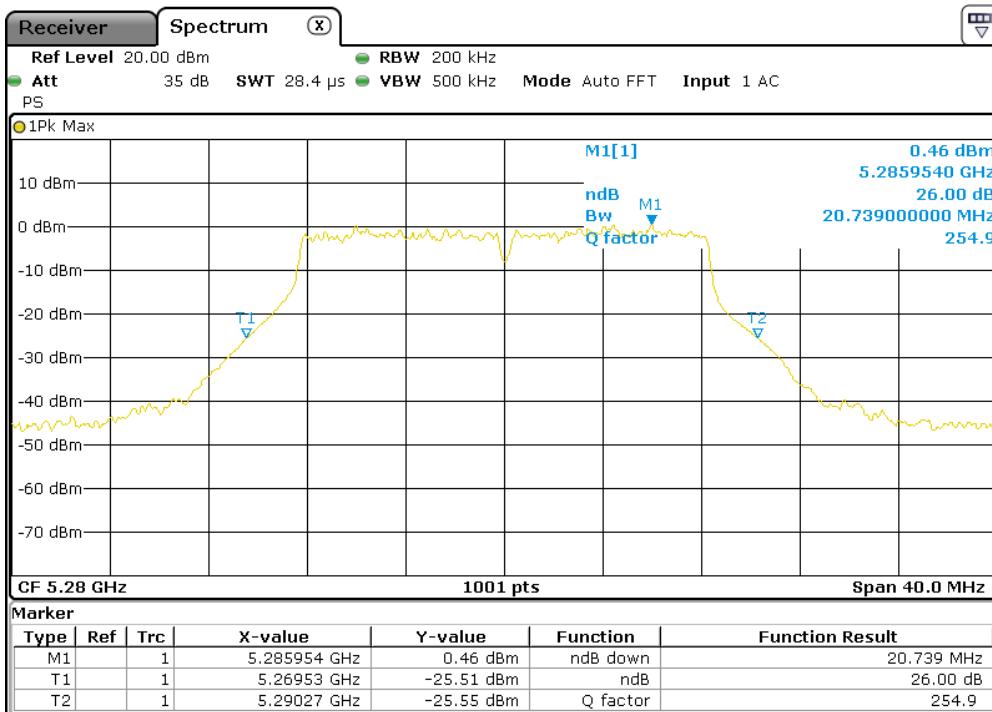
802.11 a	Antenna A	Channel 48
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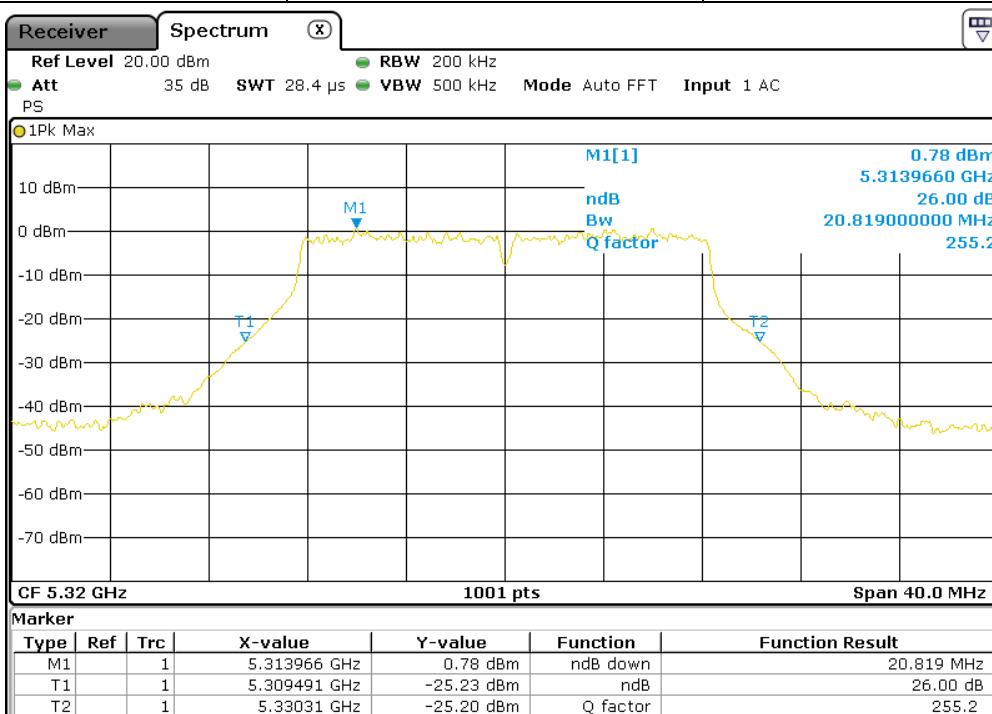
802.11 a	Antenna A	Channel 52
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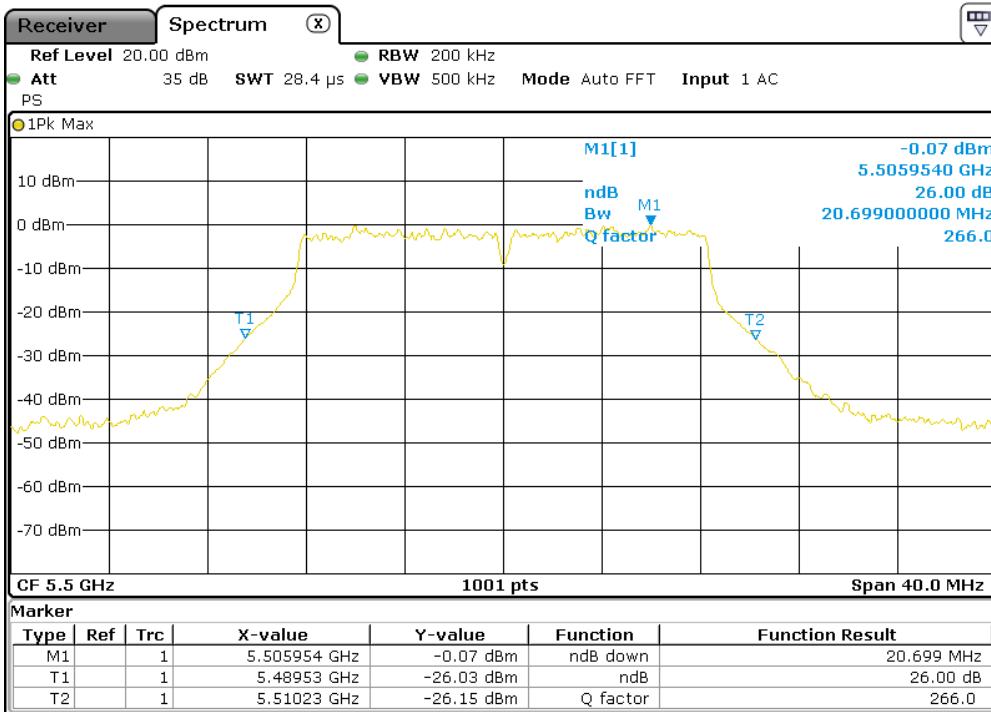
802.11 a	Antenna A	Channel 56
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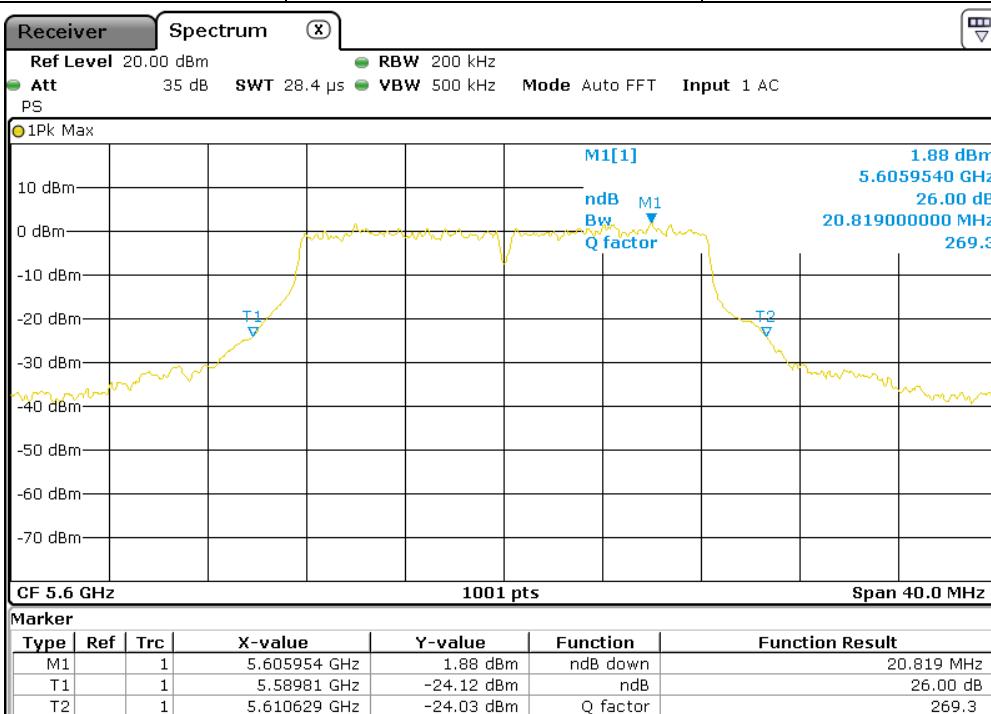
802.11 a	Antenna A	Channel 64
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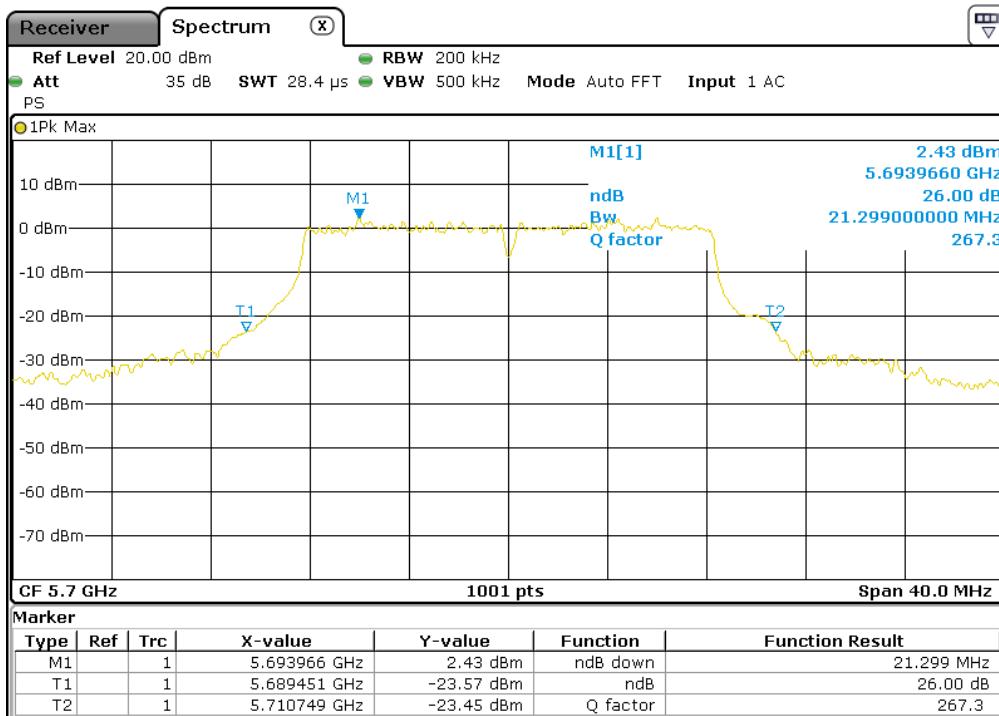
802.11 a	Antenna A	Channel 100
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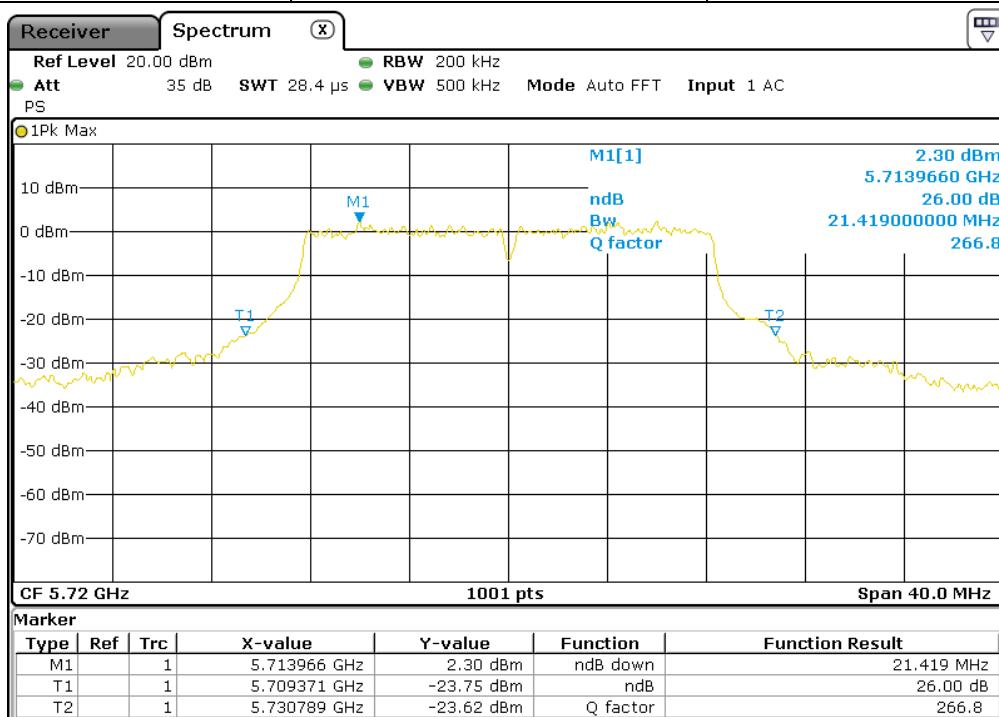
802.11 a	Antenna A	Channel 120
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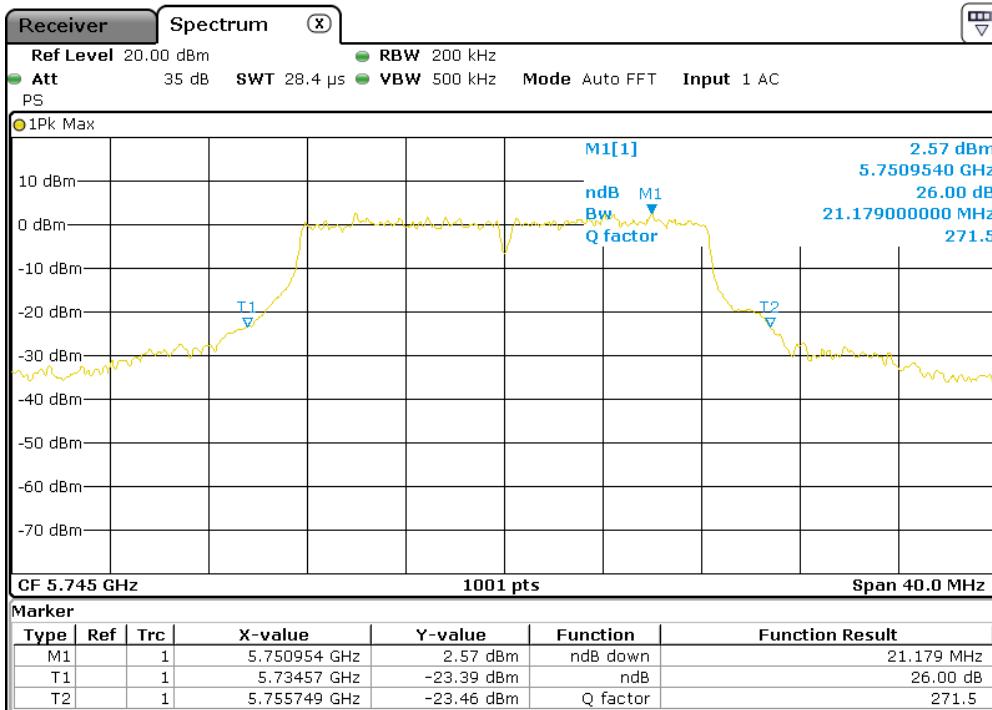
802.11 a	Antenna A	Channel 140
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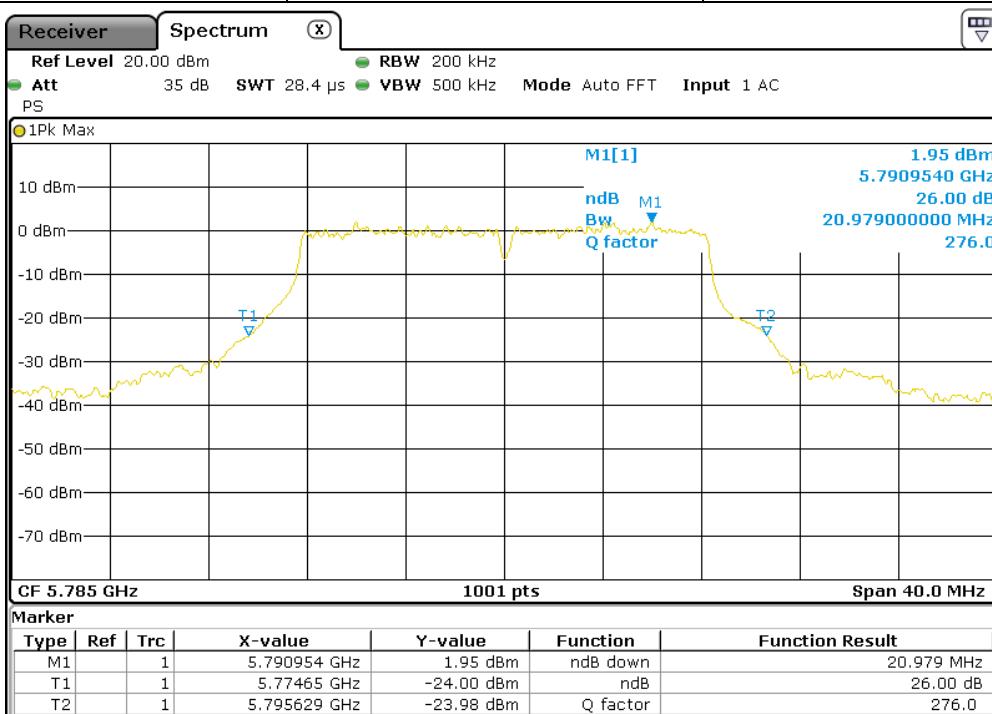
802.11 a	Antenna A	Channel 144
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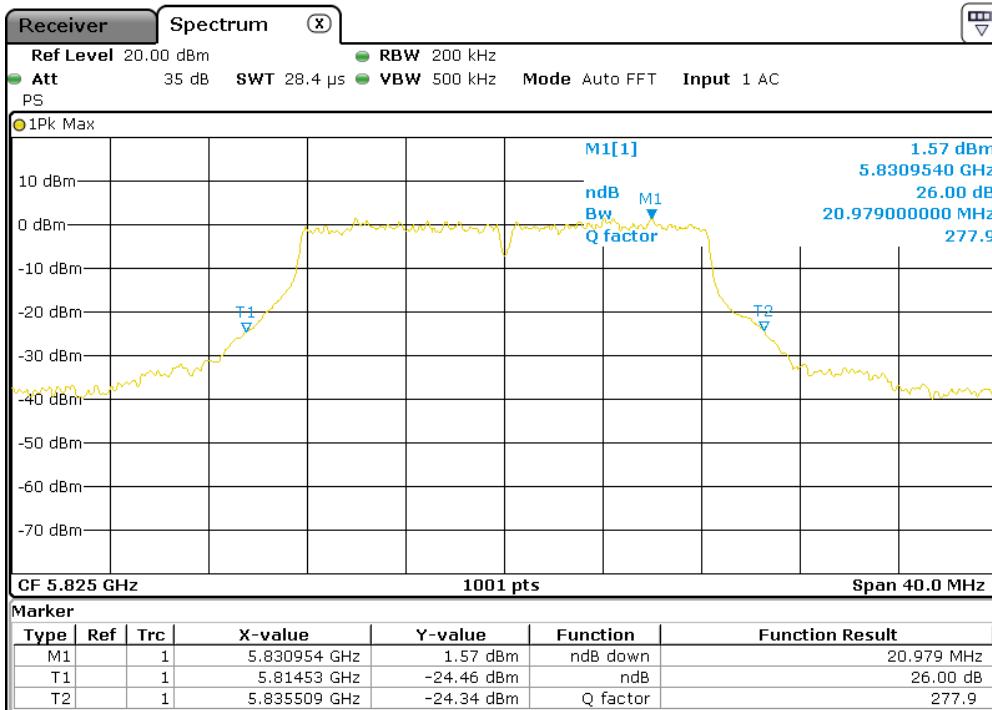
802.11 a	Antenna A	Channel 149
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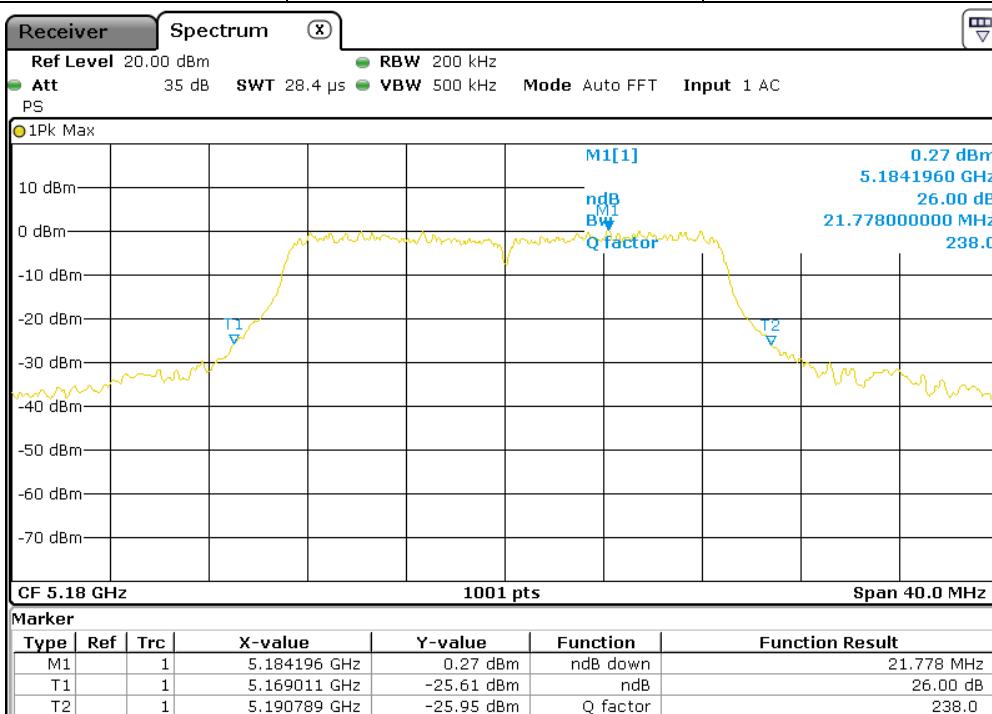
802.11 a	Antenna A	Channel 157
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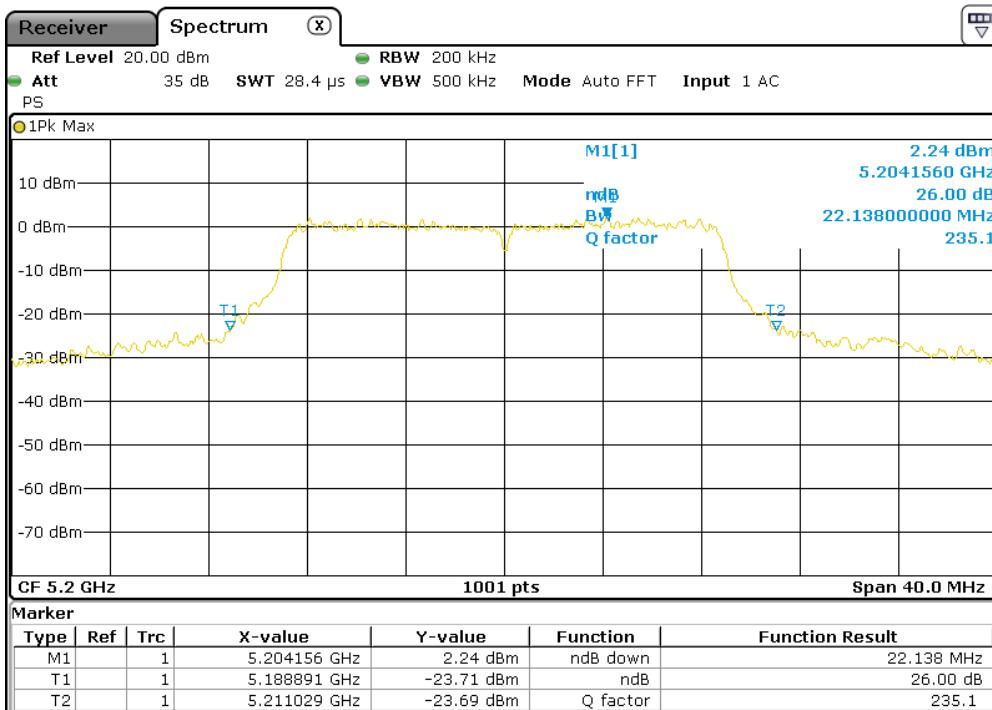
802.11 a	Antenna A	Channel 165
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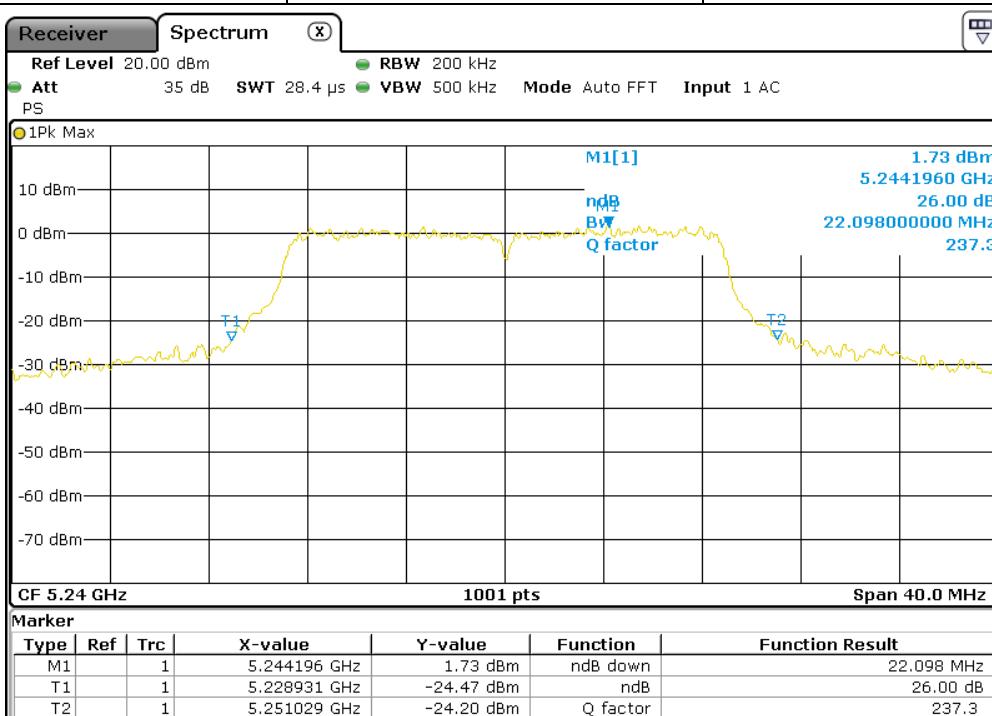
802.11 n(HT20)	Antenna A	Channel 36
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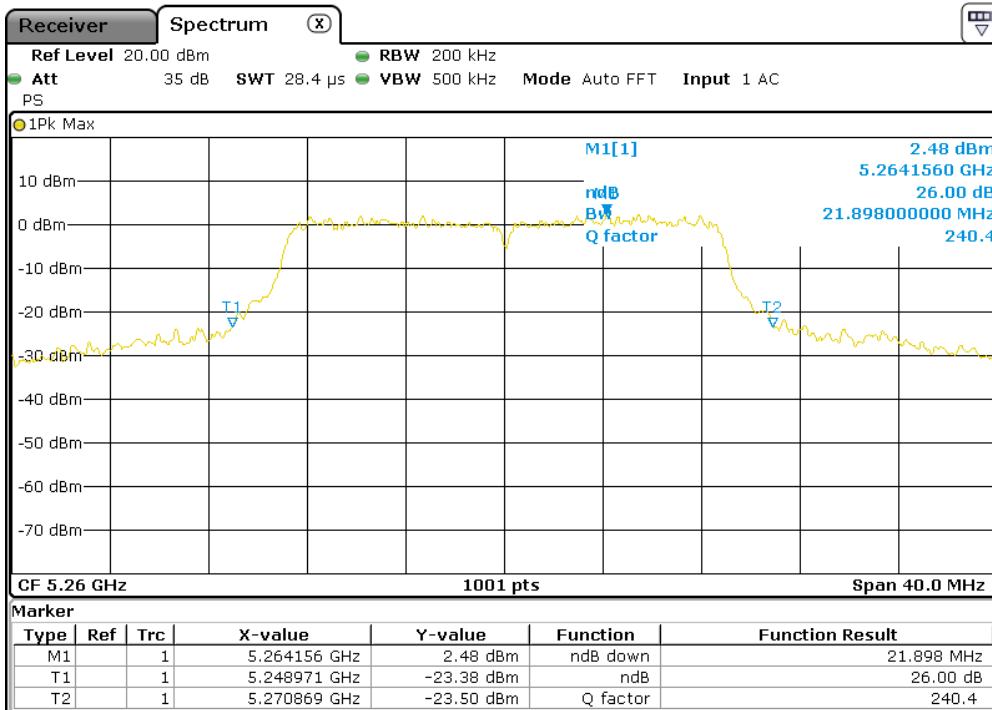
802.11 n(HT20)	Antenna A	Channel 40
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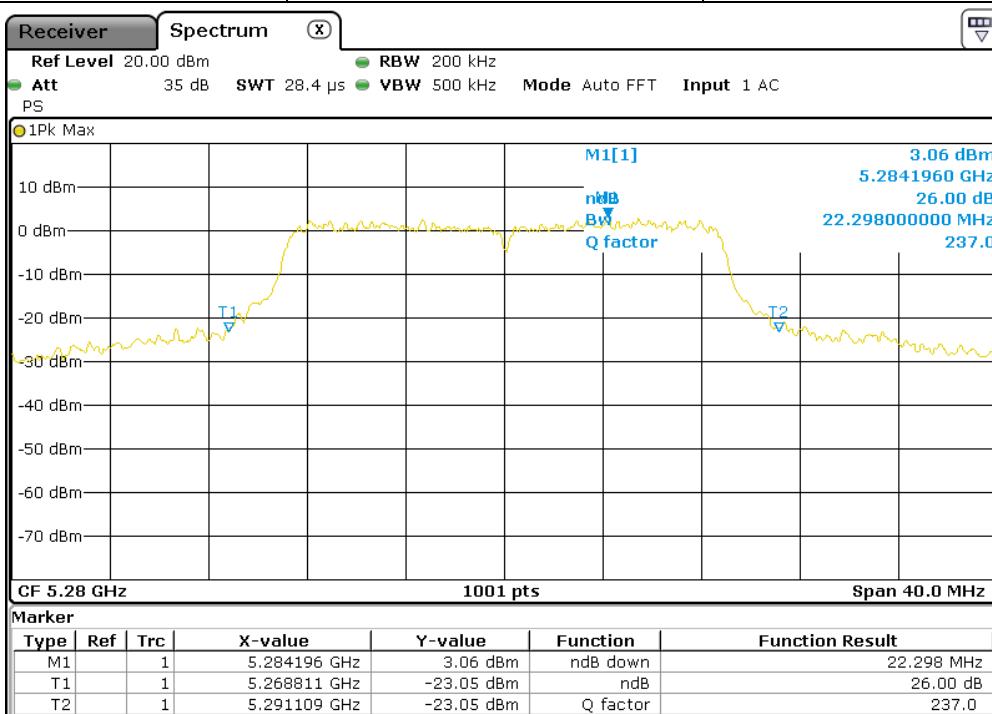
802.11 n(HT20)	Antenna A	Channel 48
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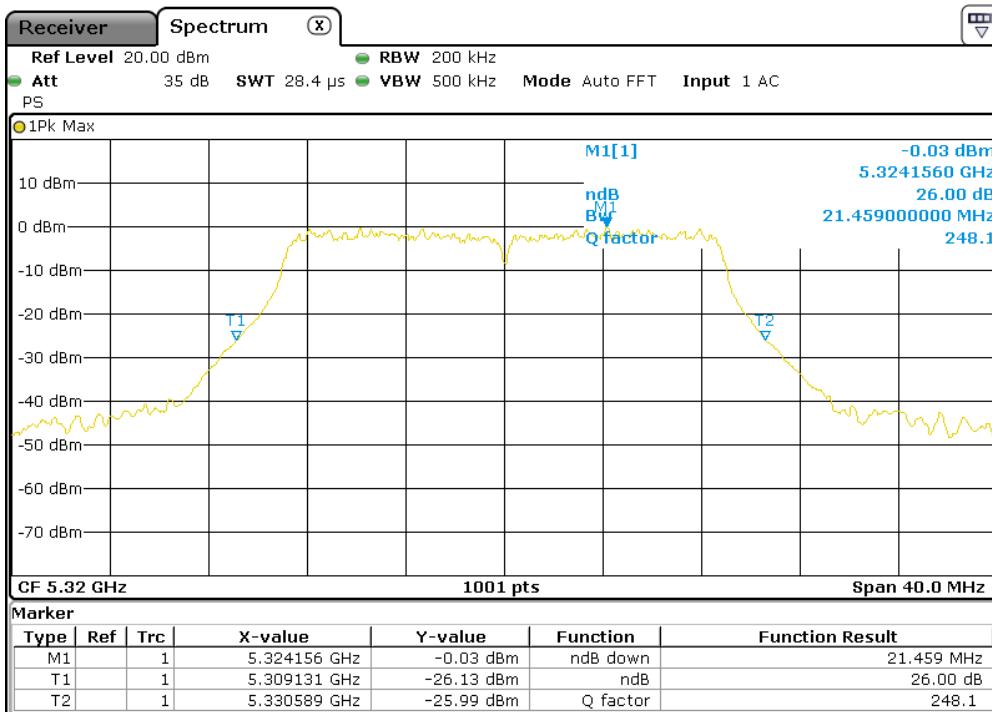
802.11 n(HT20)	Antenna A	Channel 52
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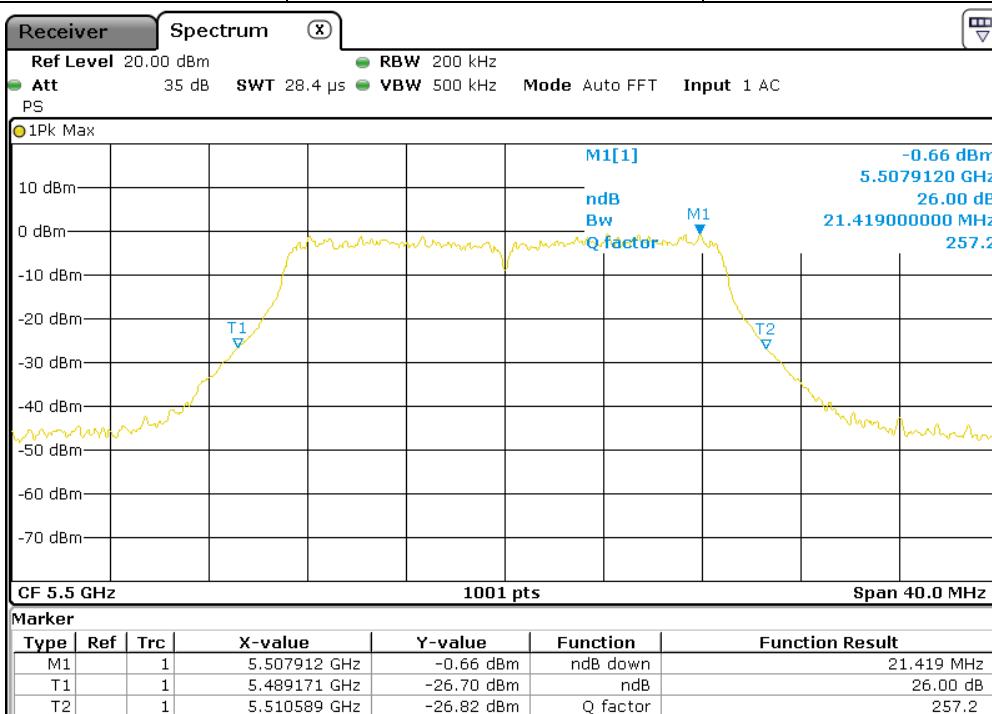
802.11 n(HT20)	Antenna A	Channel 56
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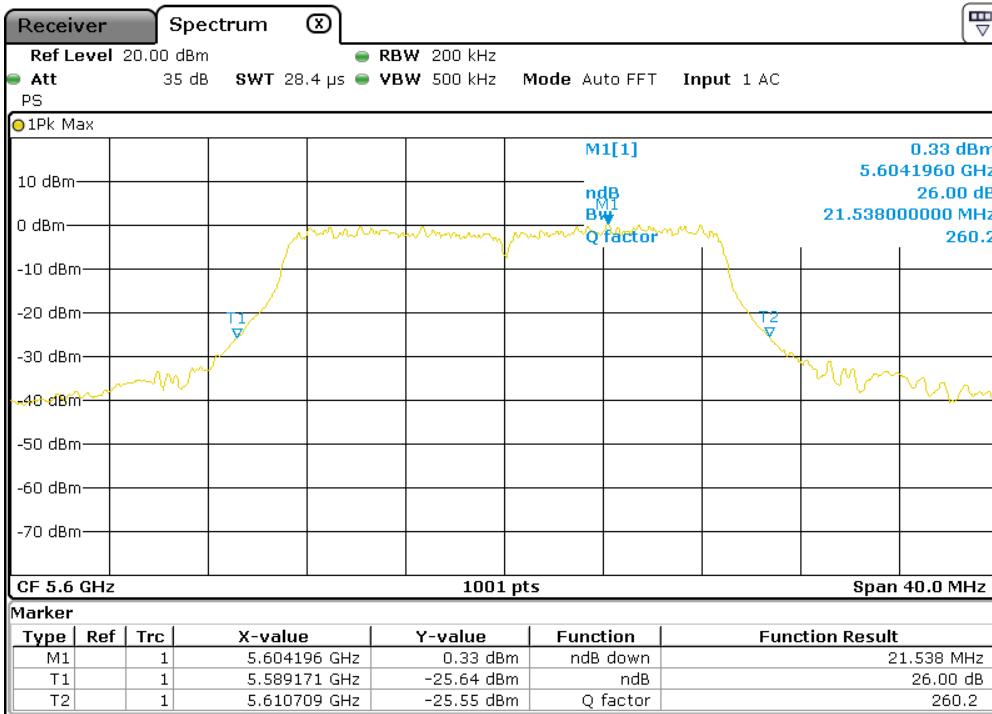
802.11 n(HT20)	Antenna A	Channel 64
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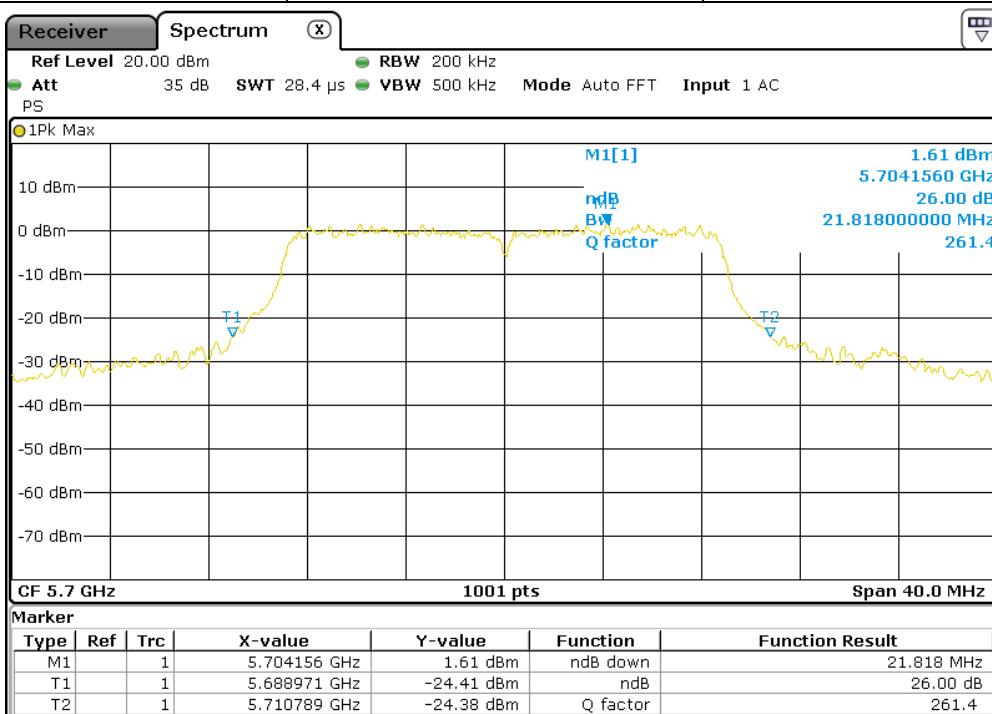
802.11 n(HT20)	Antenna A	Channel 100
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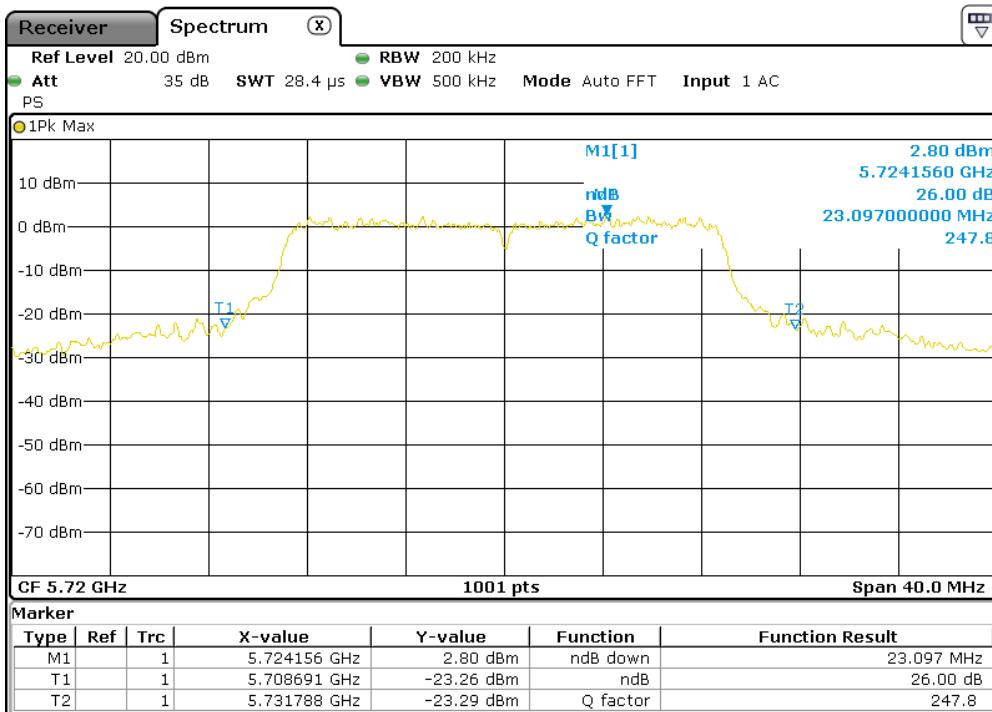
802.11 n(HT20)	Antenna A	Channel 120
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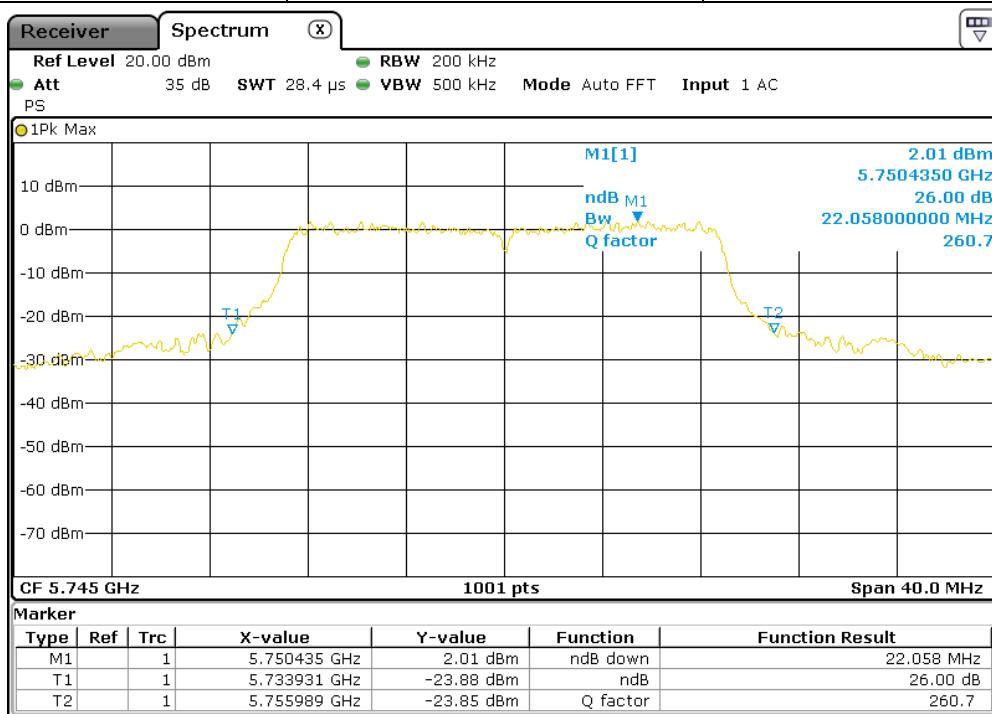
802.11 n(HT20)	Antenna A	Channel 140
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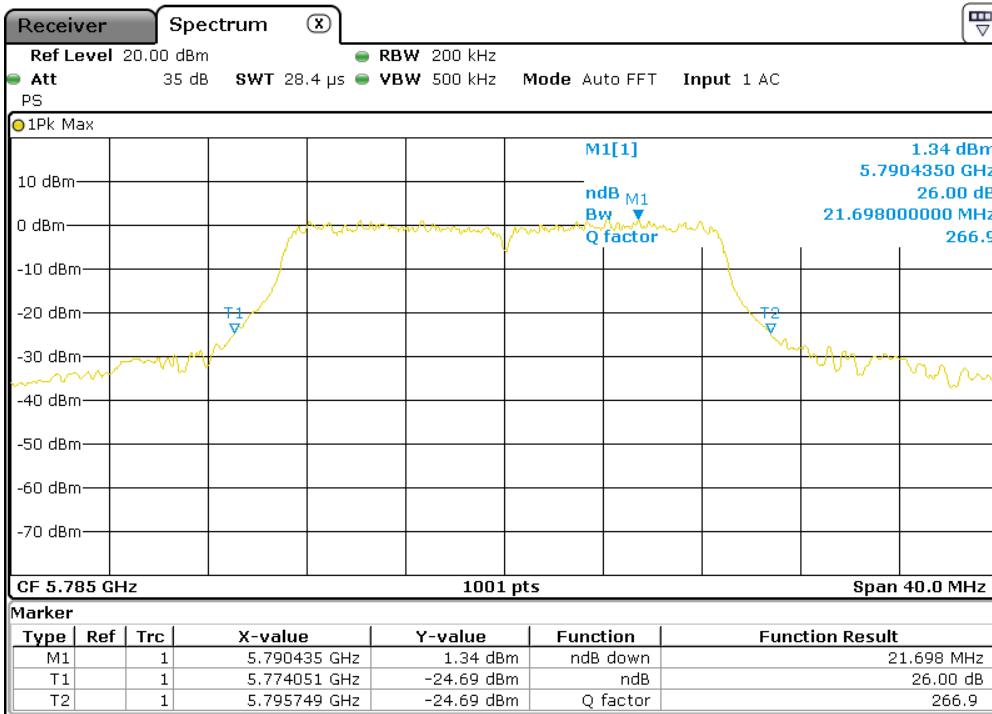
802.11 n(HT20)	Antenna A	Channel 144
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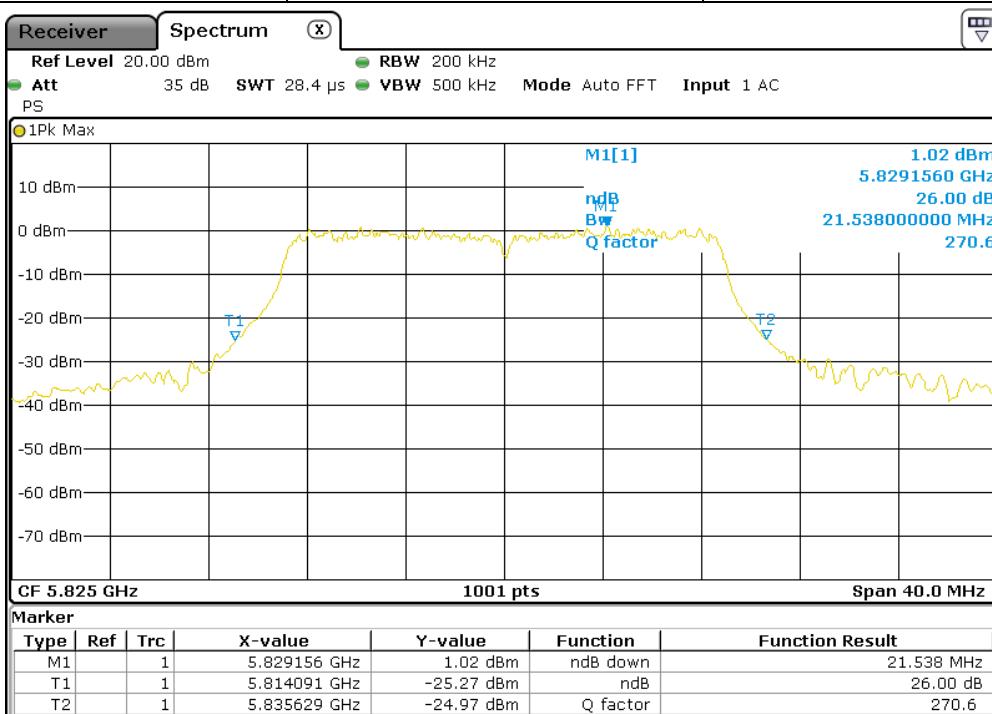
802.11 n(HT20)	Antenna A	Channel 149
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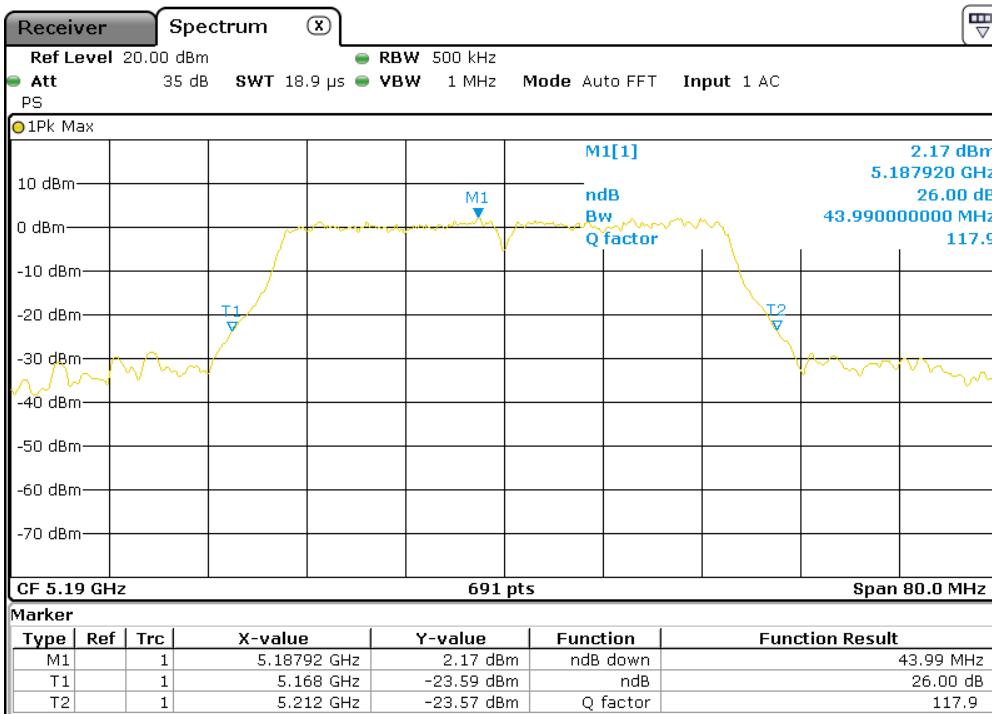
802.11 n(HT20)	Antenna A	Channel 157
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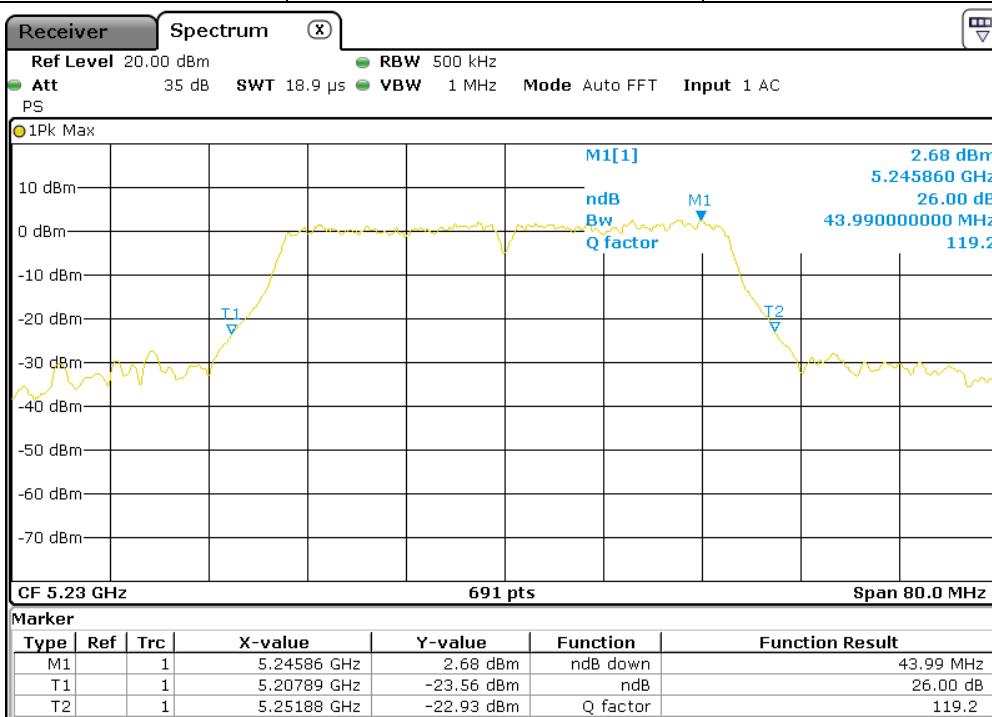
802.11 n(HT20)	Antenna A	Channel 165
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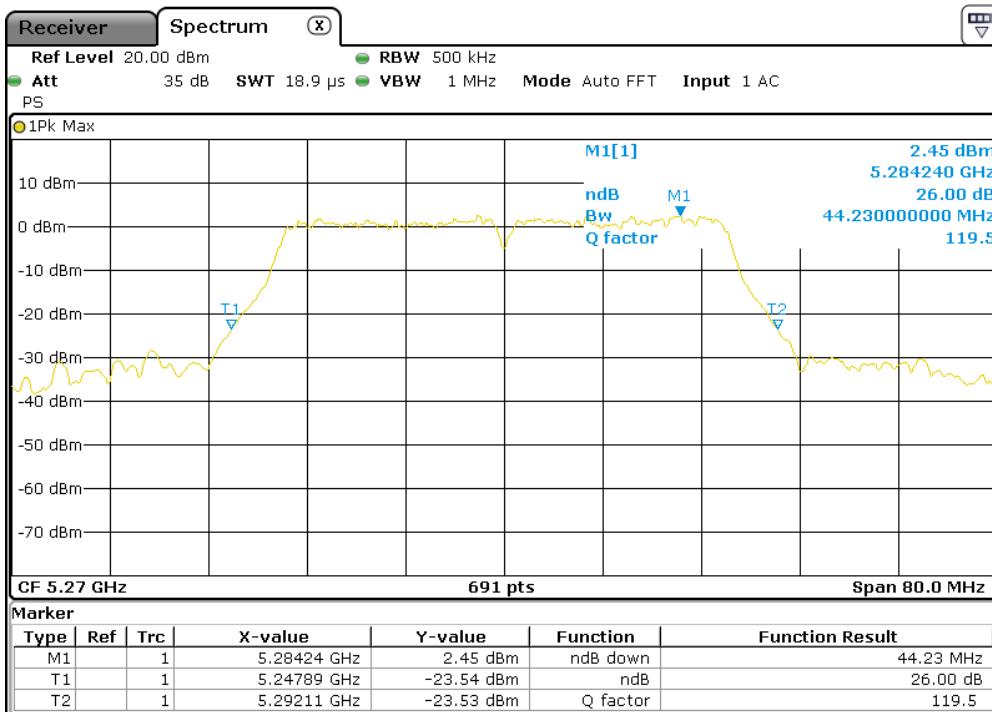
802.11 n(HT40)	Antenna A	Channel 38
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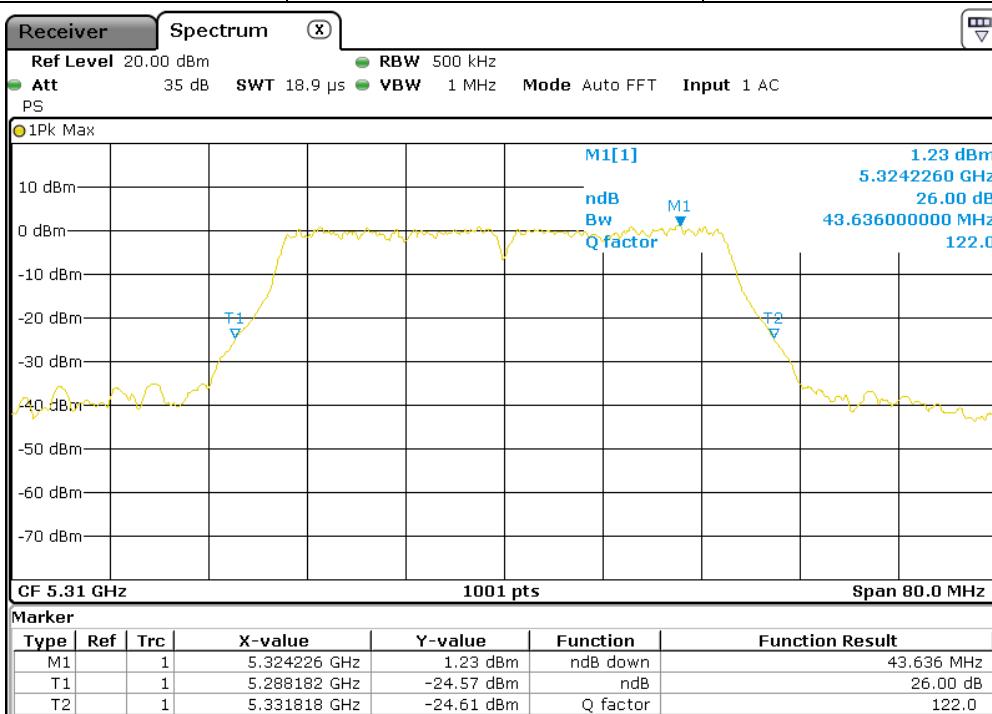
802.11 n(HT40)	Antenna A	Channel 46
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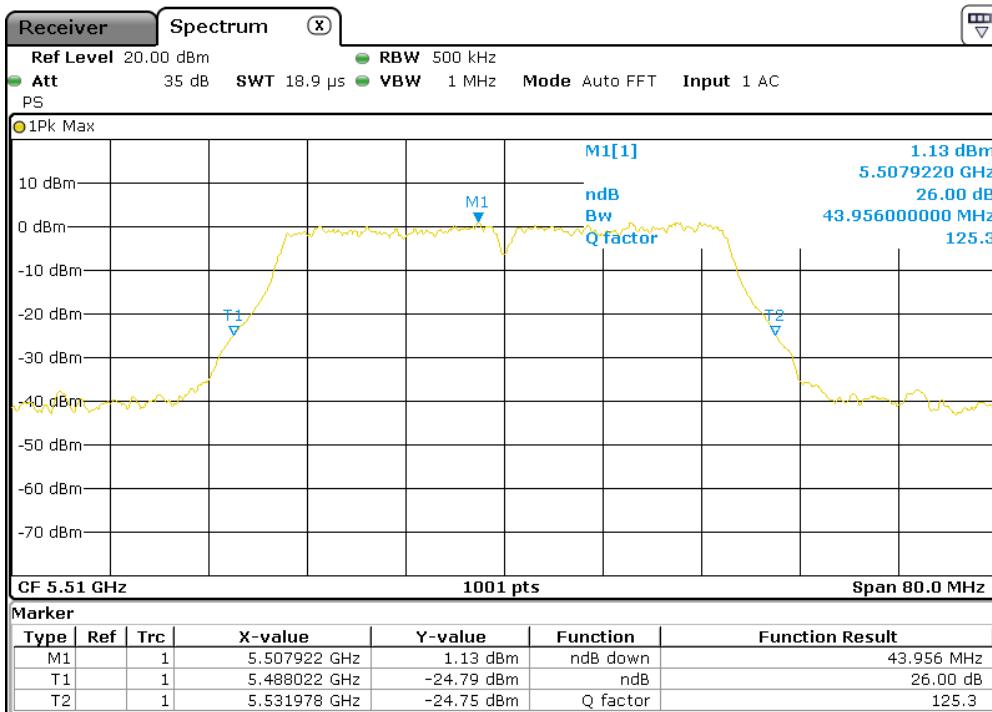
802.11 n(HT40)	Antenna A	Channel 54
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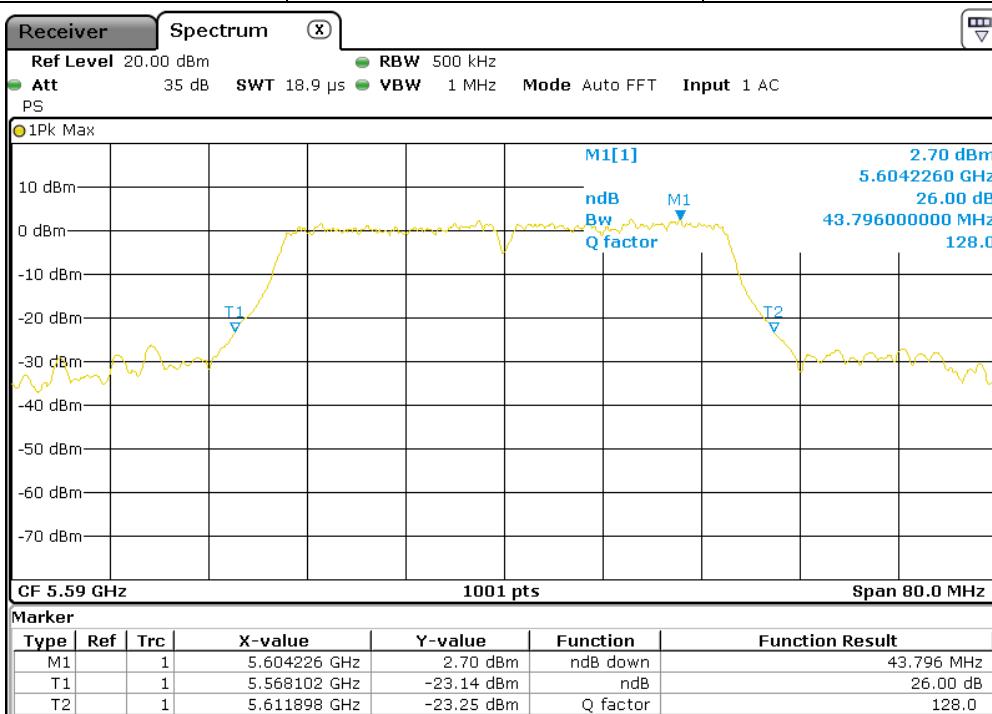
802.11 n(HT40)	Antenna A	Channel 62
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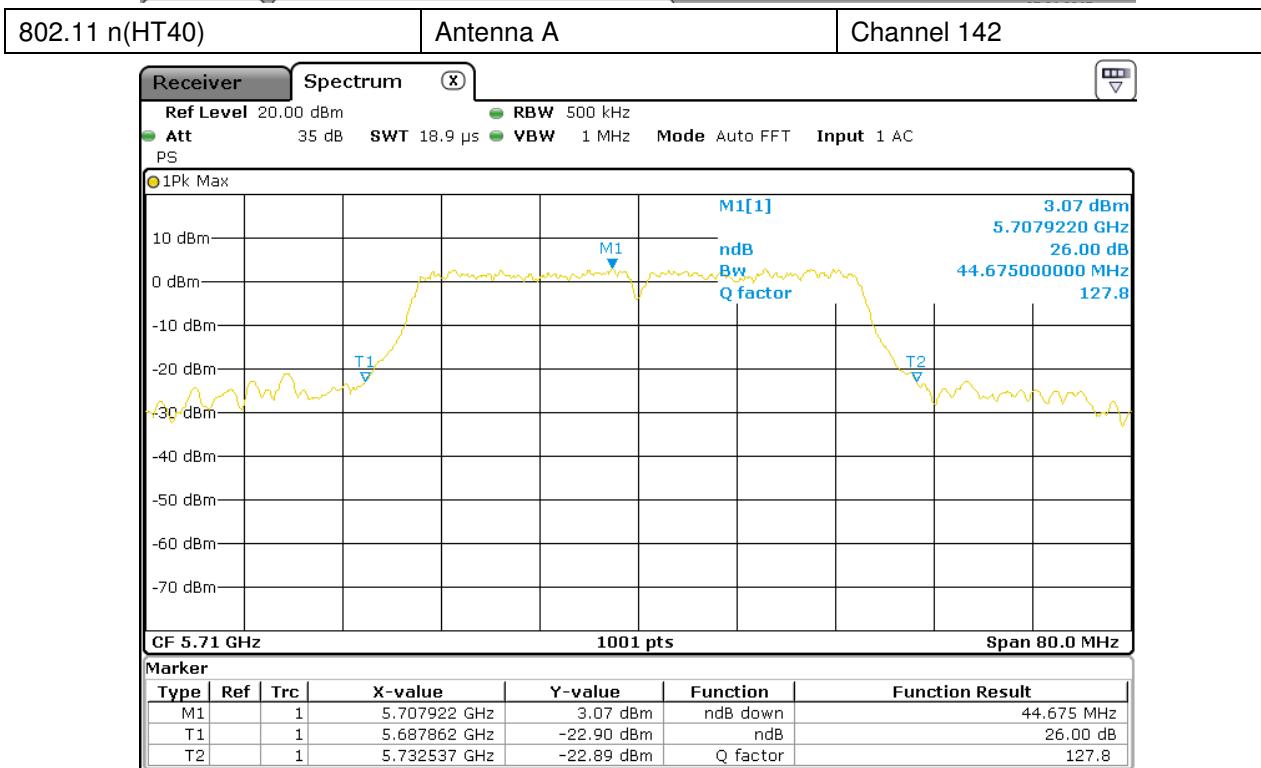
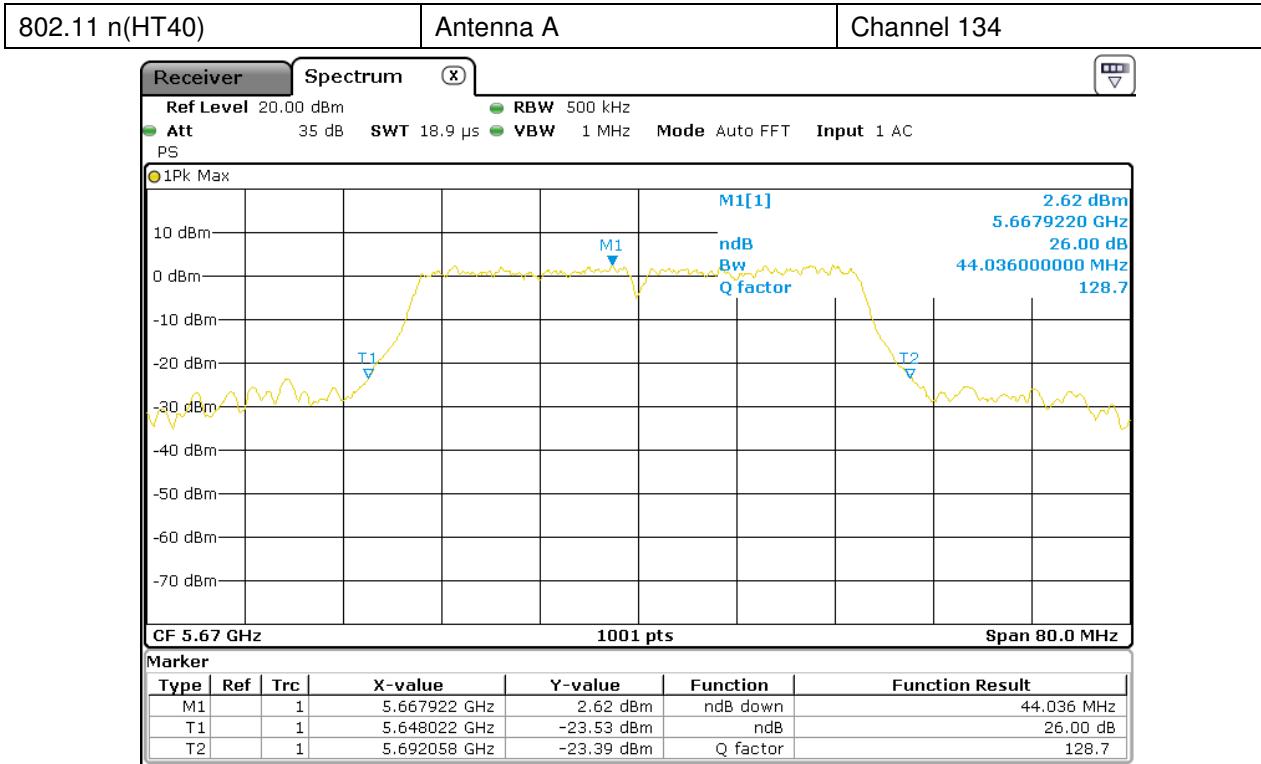


802.11 n(HT40)	Antenna A	Channel 102
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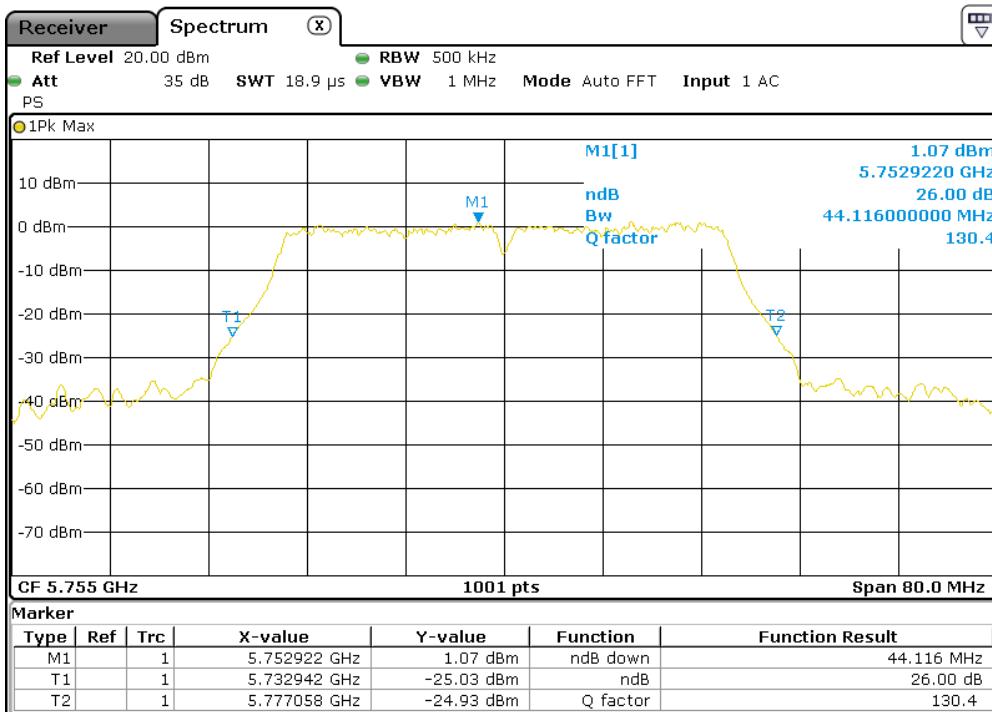


802.11 n(HT40)	Antenna A	Channel 118
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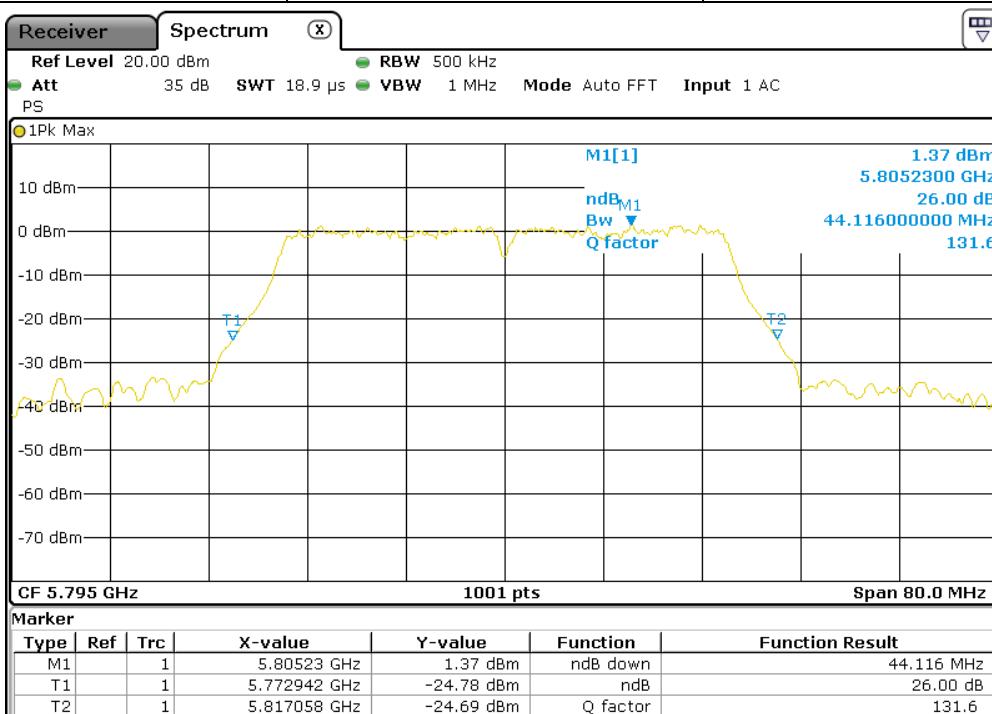




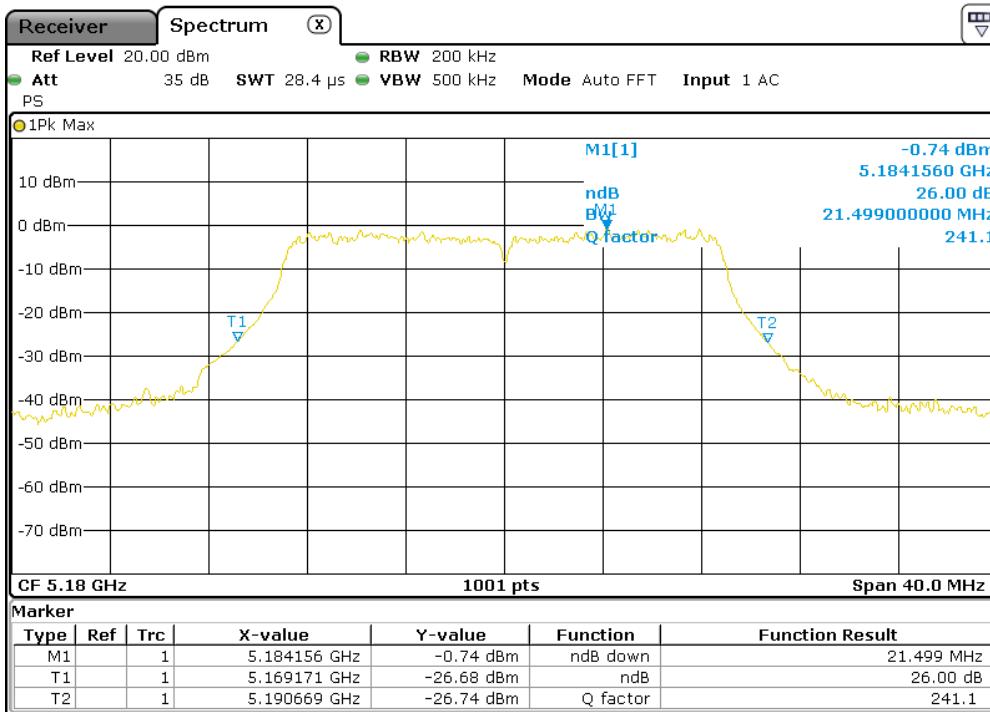
802.11 n(HT40)	Antenna A	Channel 151
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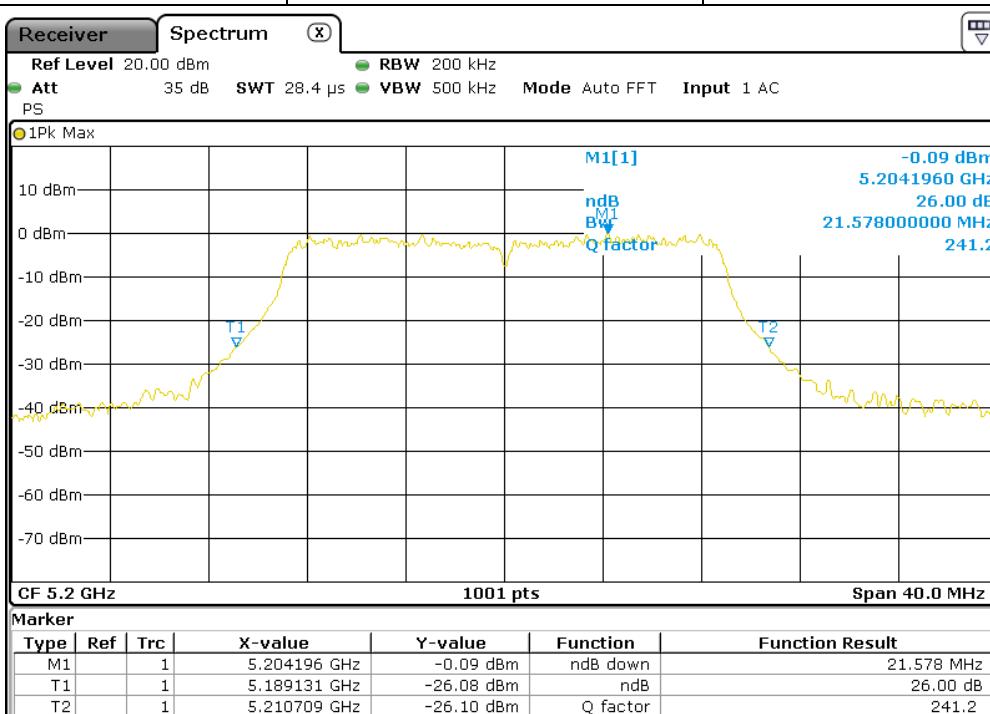
802.11 n(HT40)	Antenna A	Channel 159
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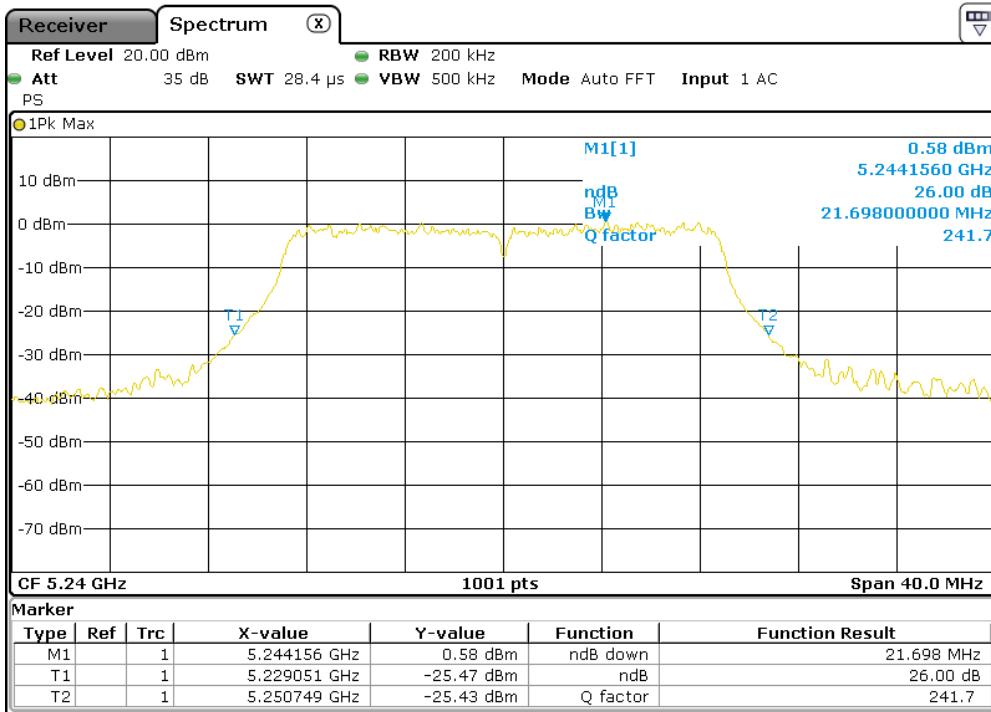
802.11 ac(VHT20)	Antenna A	Channel 36
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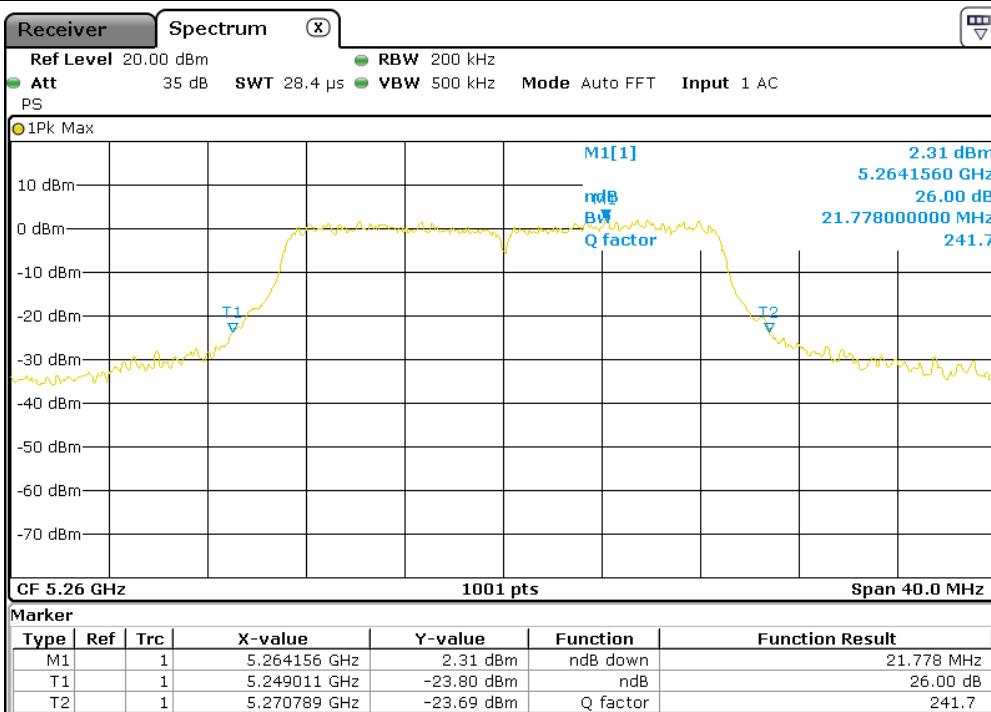
802.11 ac(VHT20)	Antenna A	Channel 40
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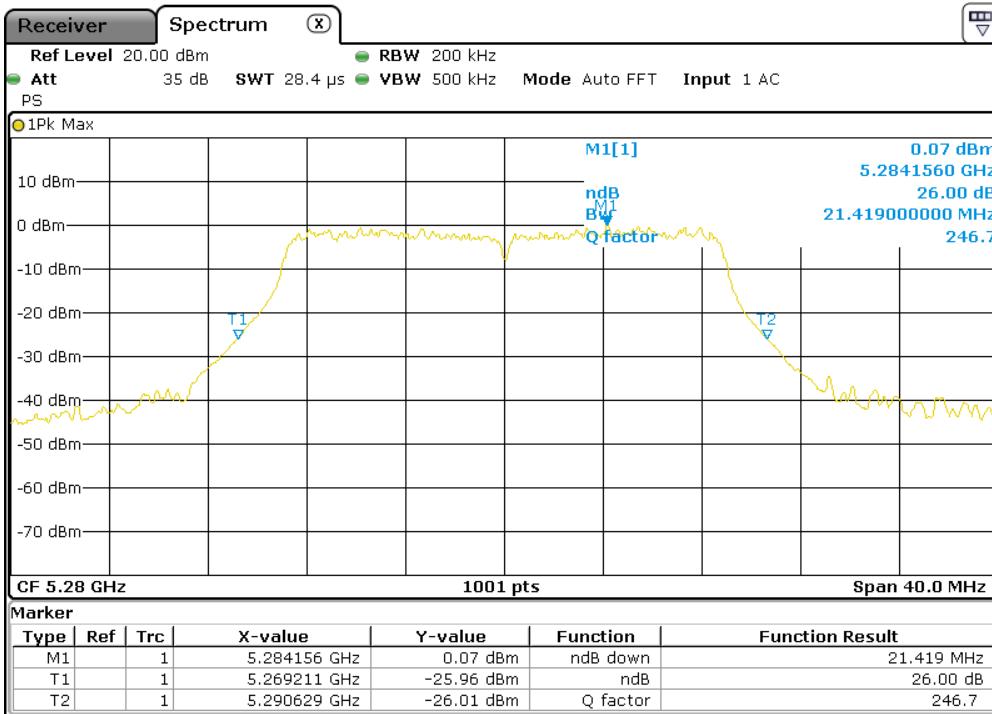
802.11 ac(VHT20)	Antenna A	Channel 48
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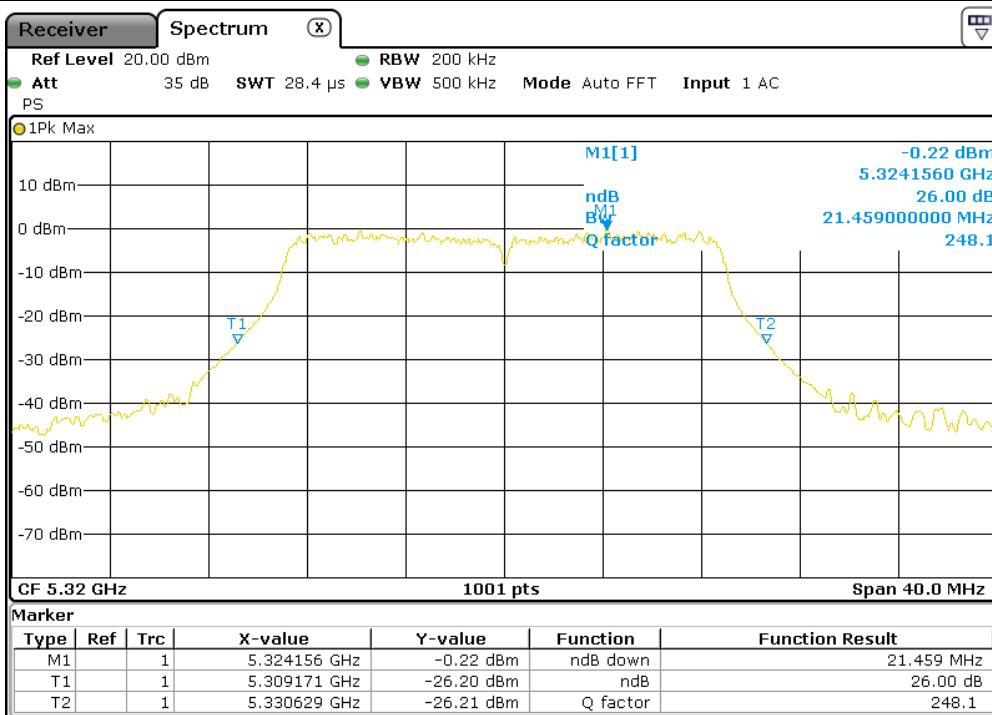
802.11 ac(VHT20)	Antenna A	Channel 52
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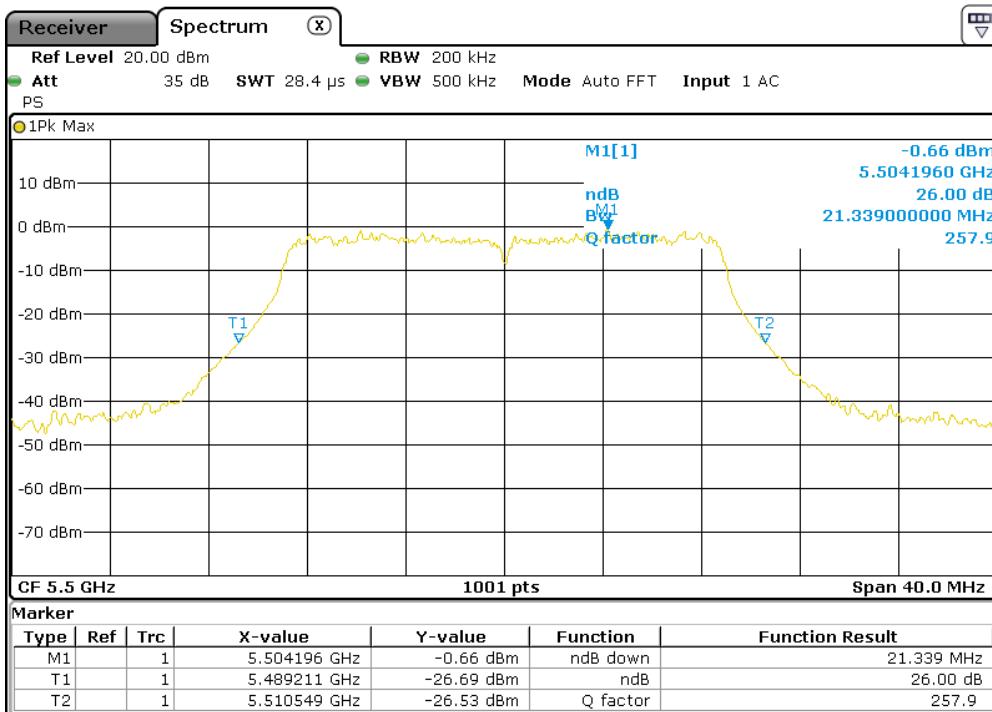
802.11 ac(VHT20)	Antenna A	Channel 56
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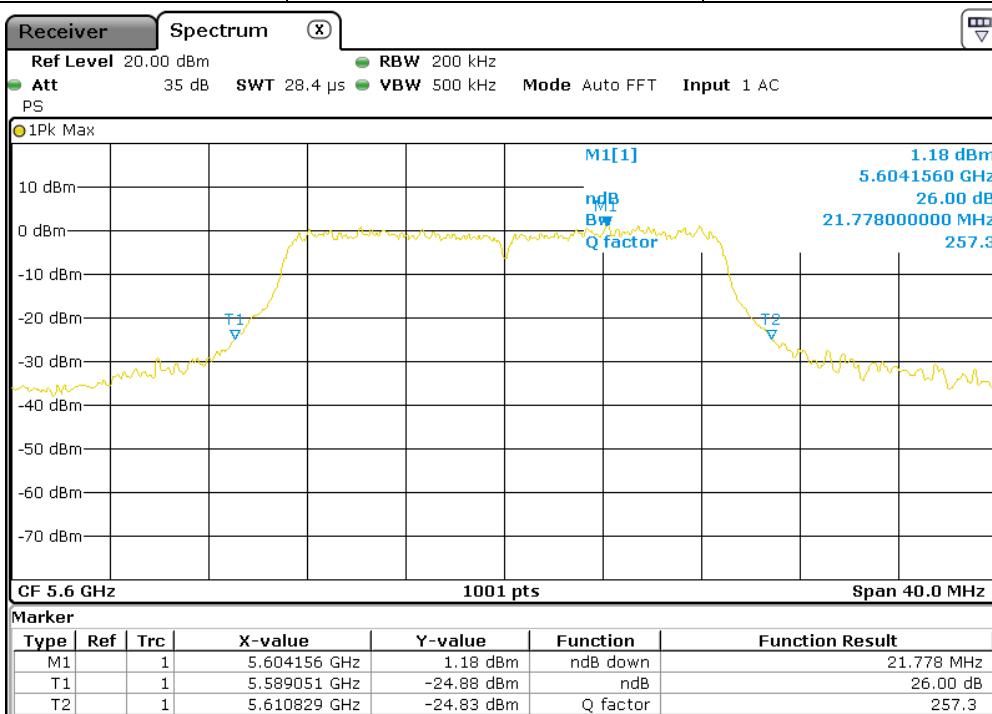
802.11 ac(VHT20)	Antenna A	Channel 64
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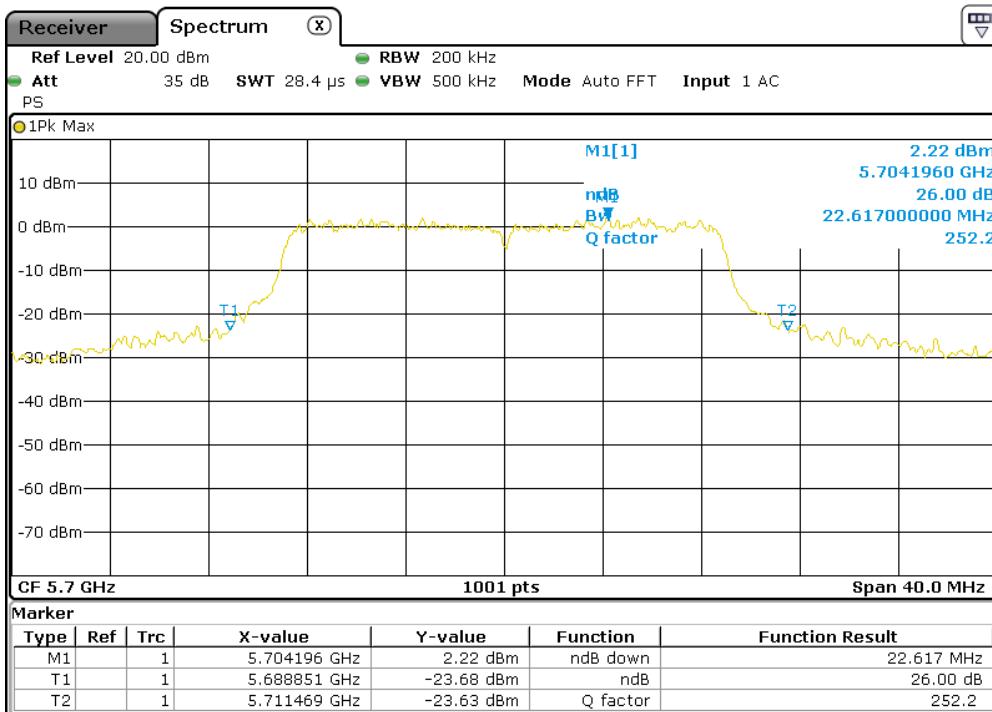
802.11 ac(VHT20)	Antenna A	Channel 100
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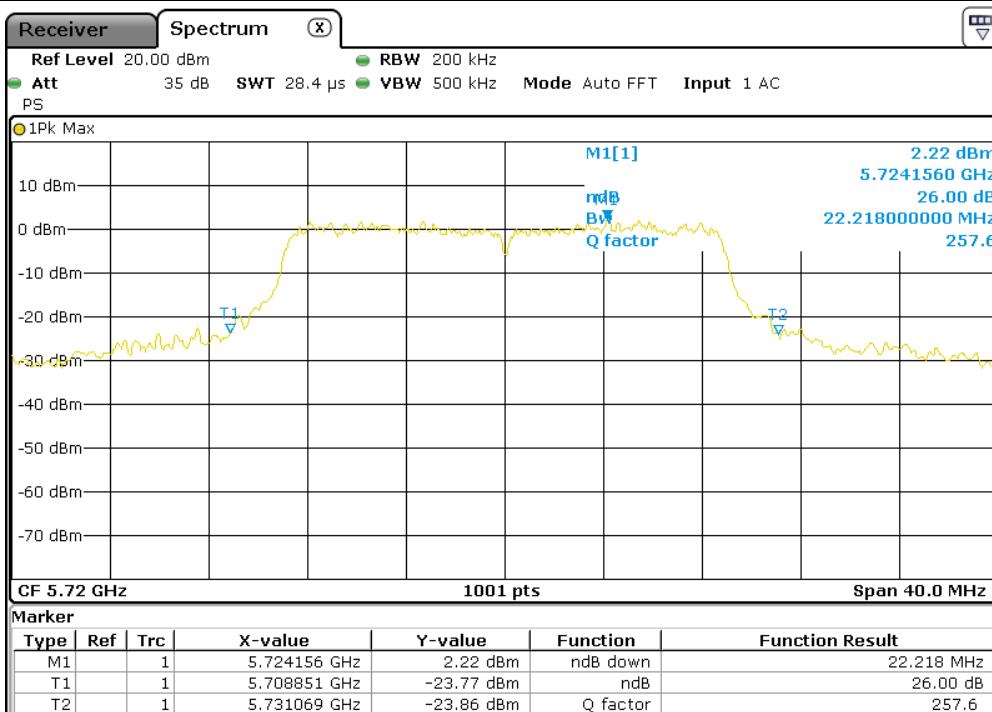
802.11 ac(VHT20)	Antenna A	Channel 120
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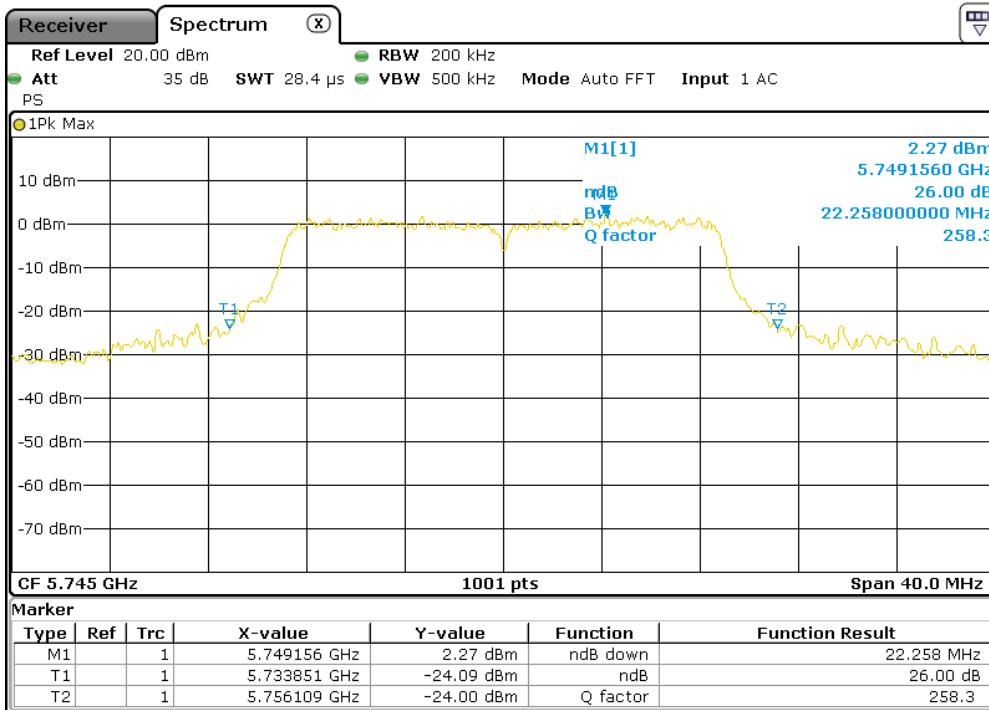
802.11 ac(VHT20) | Antenna A | Channel 140



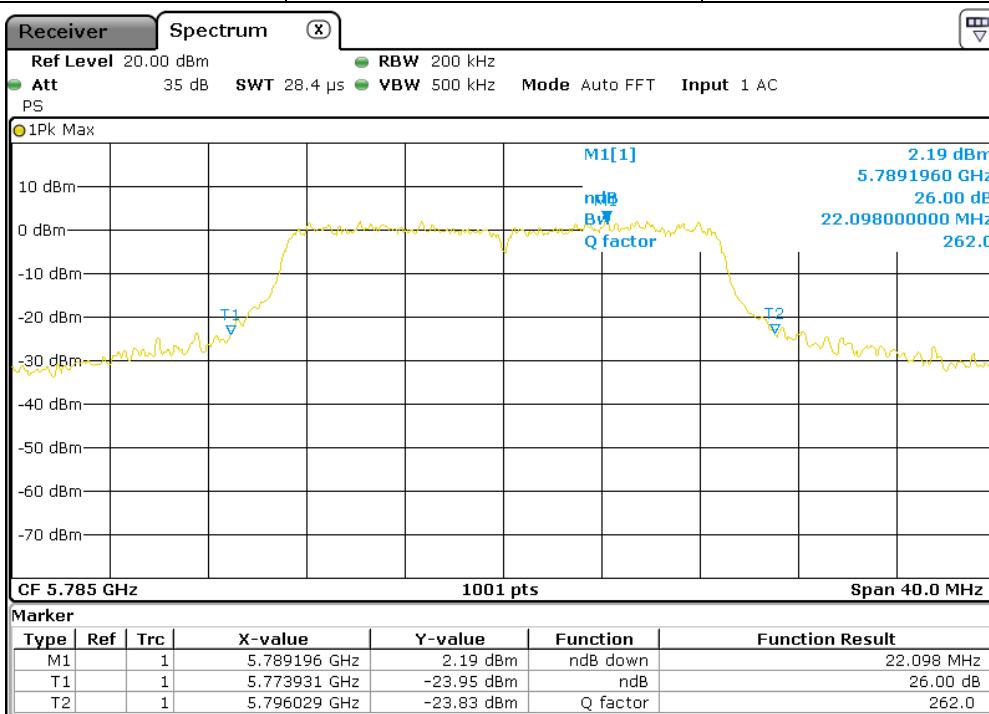
802.11 ac(VHT20) | Antenna A | Channel 144



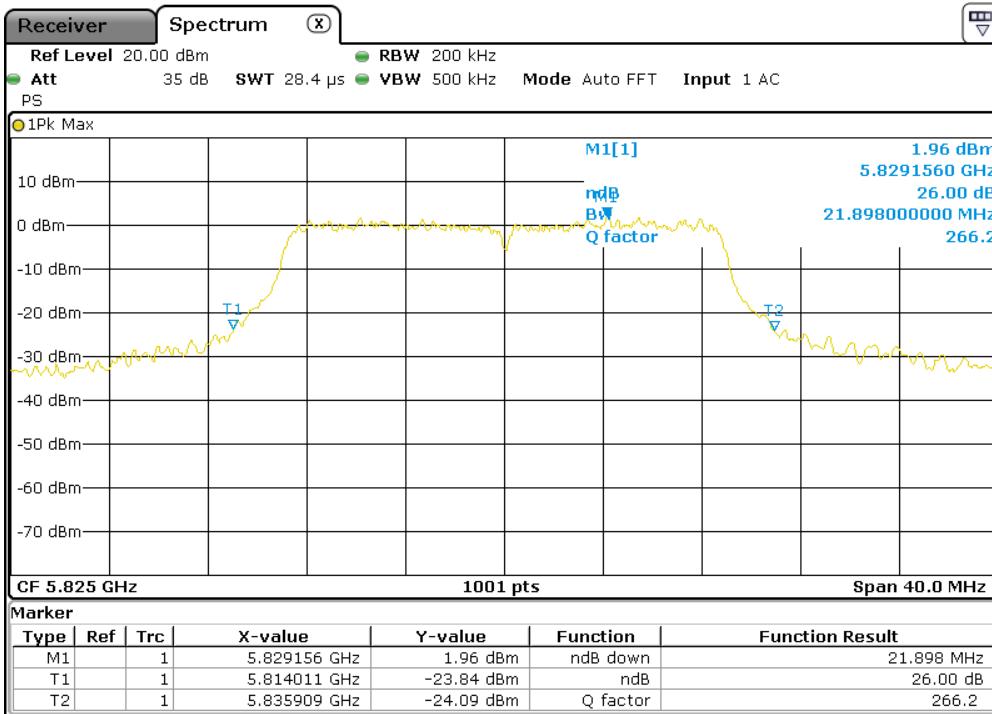
802.11 ac(VHT20)	Antenna A	Channel 149
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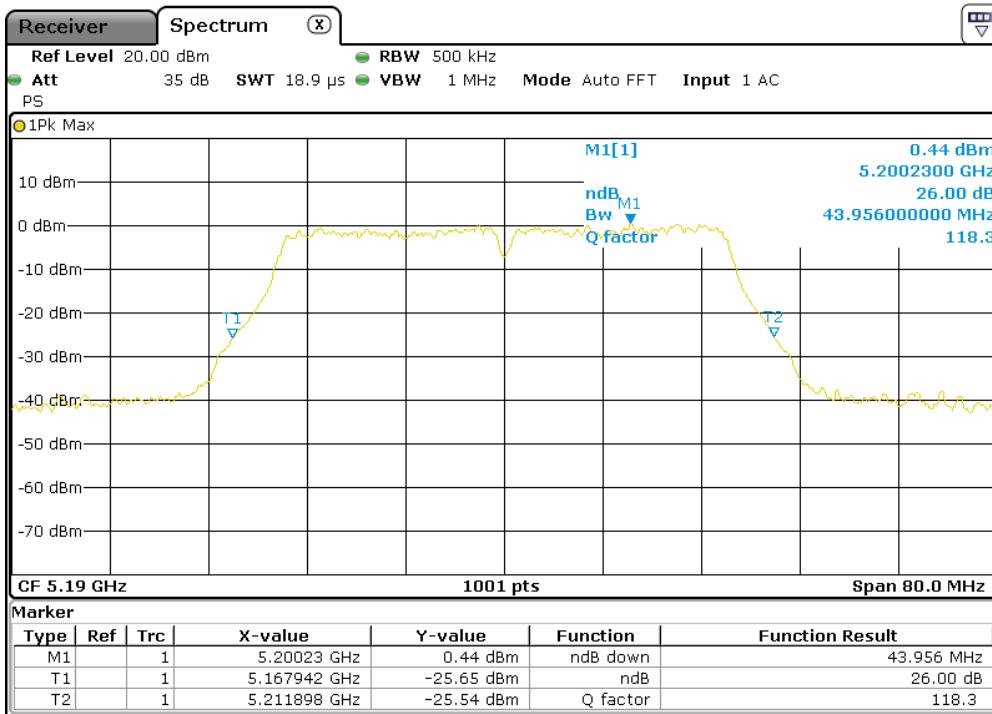
802.11 ac(VHT20)	Antenna A	Channel 157
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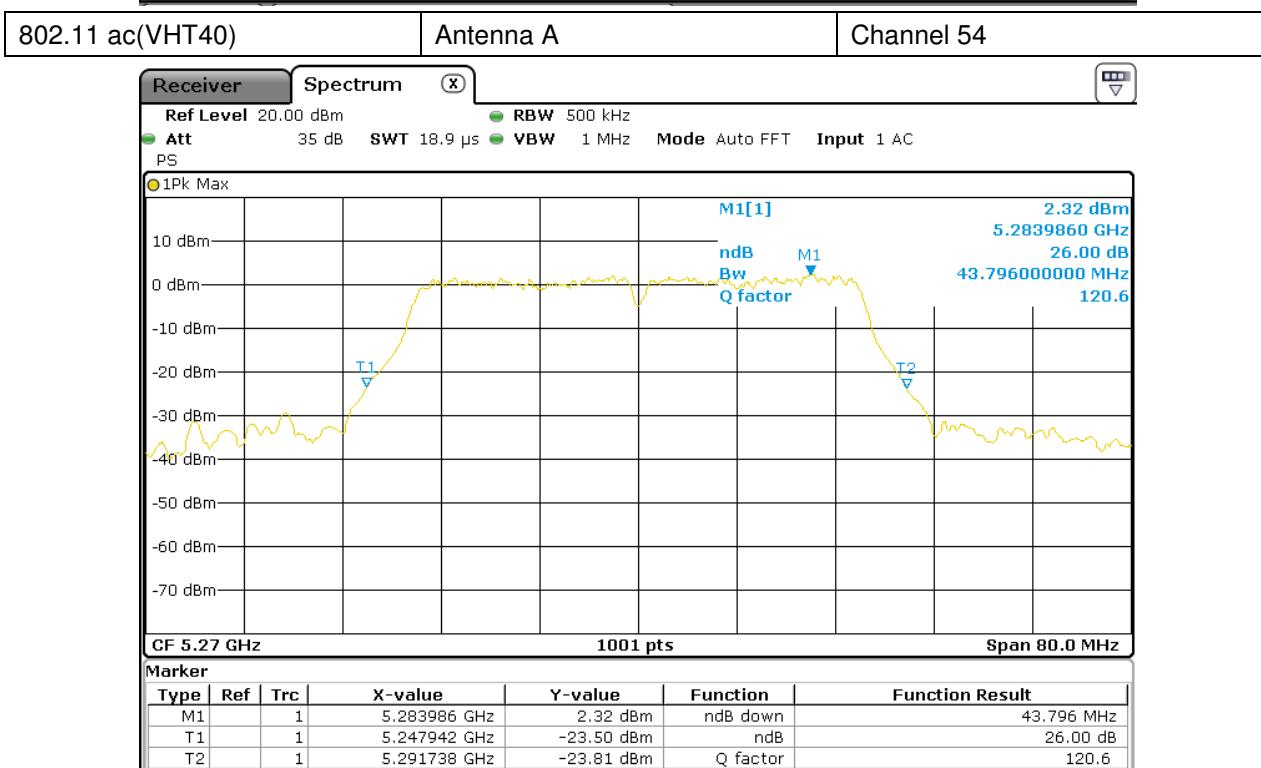
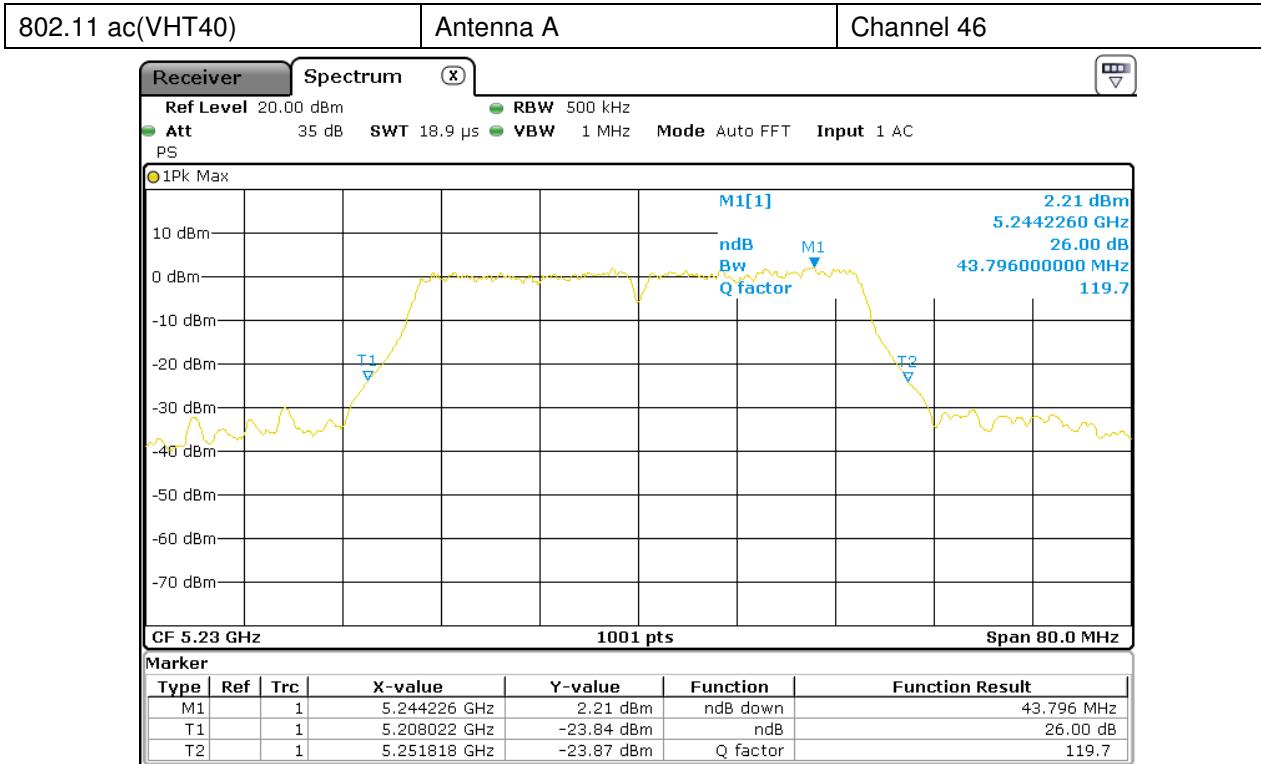


802.11 ac(VHT20)	Antenna A	Channel 165
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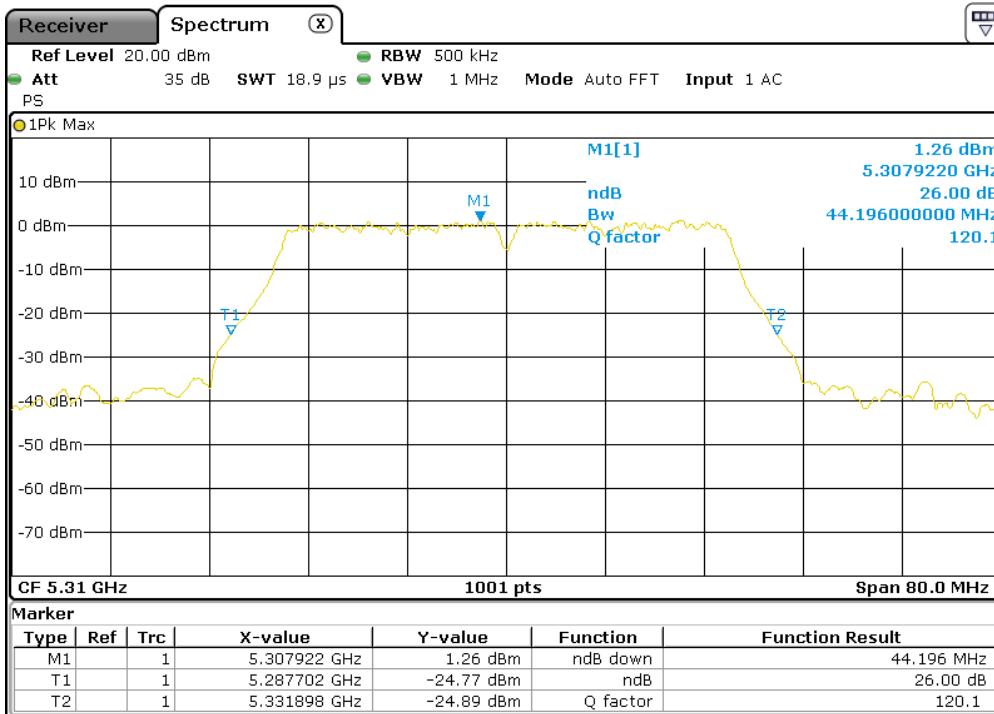


802.11 ac(VHT40)	Antenna A	Channel 38
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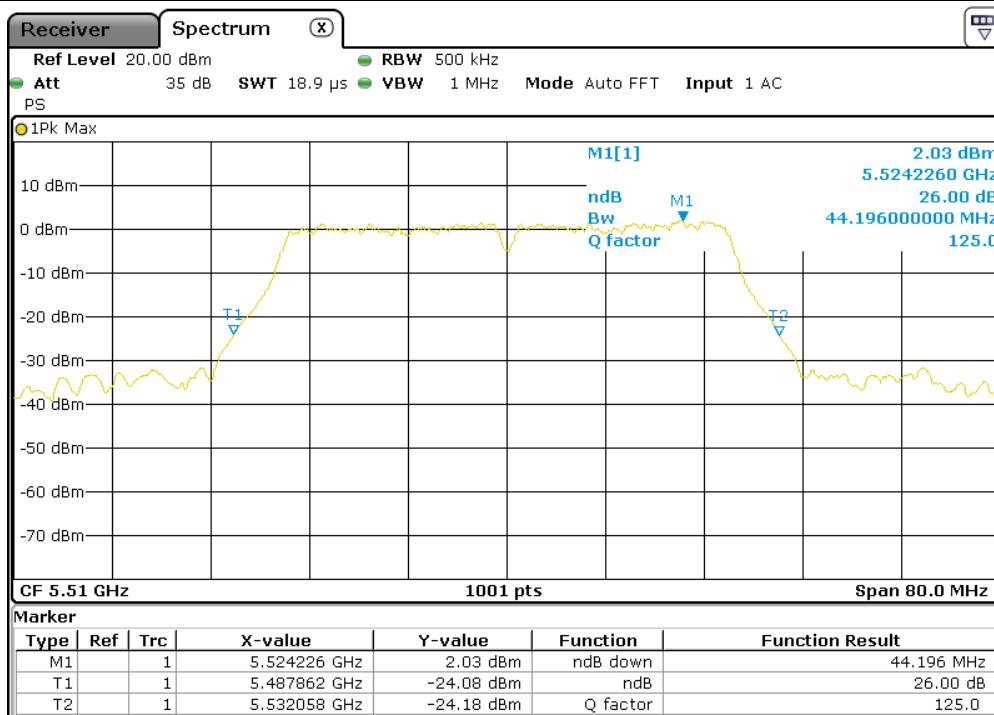




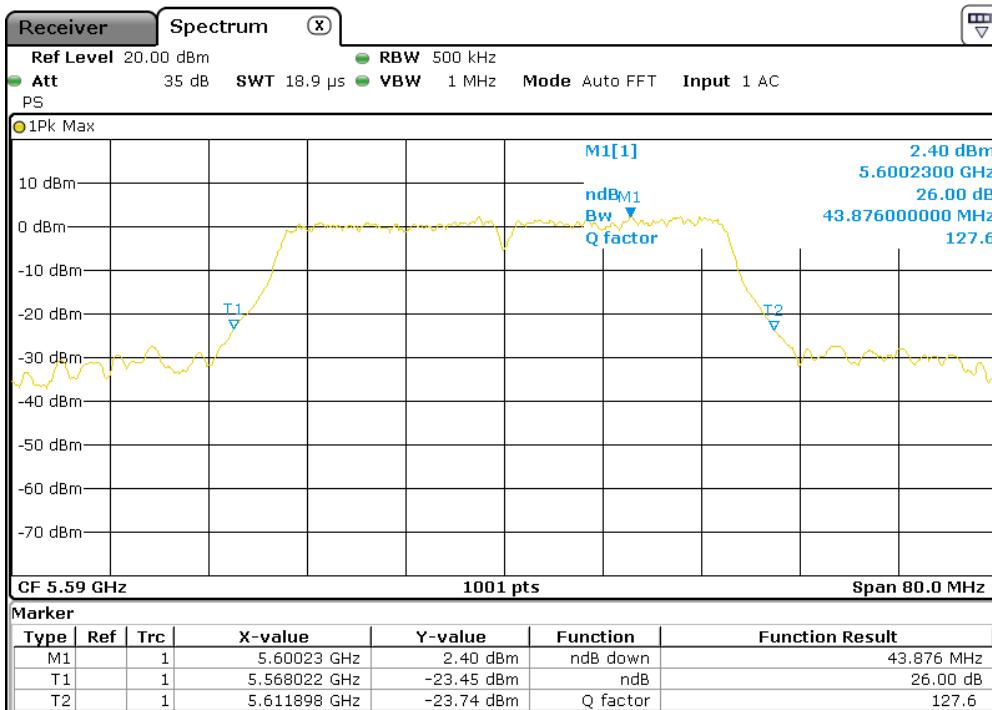
802.11 ac(VHT40)	Antenna A	Channel 62
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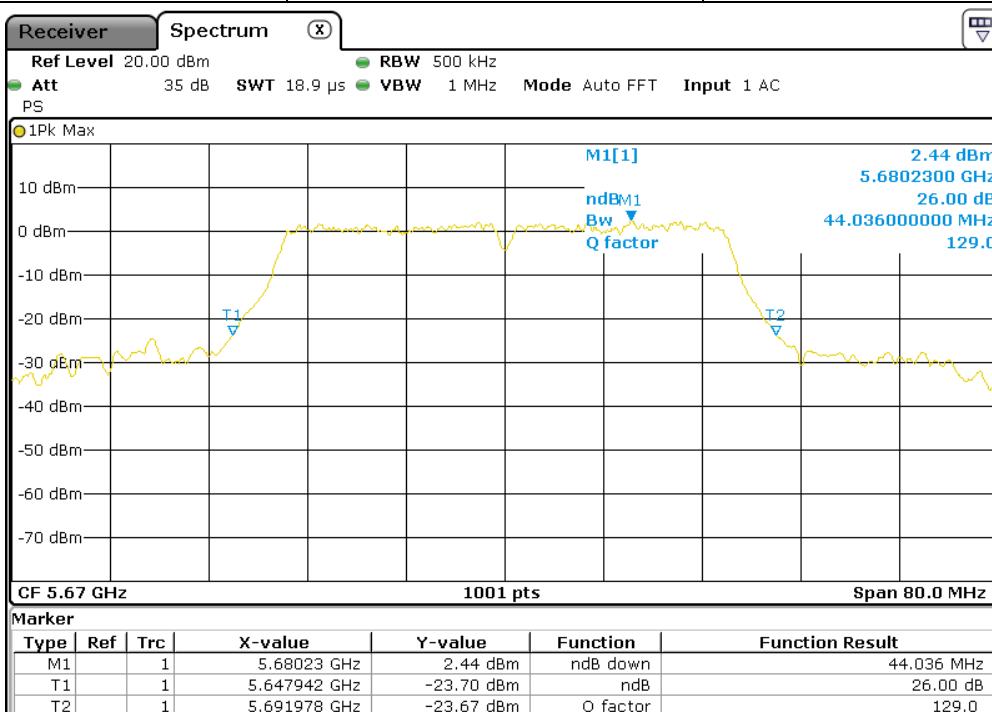
802.11 ac(VHT40)	Antenna A	Channel 102
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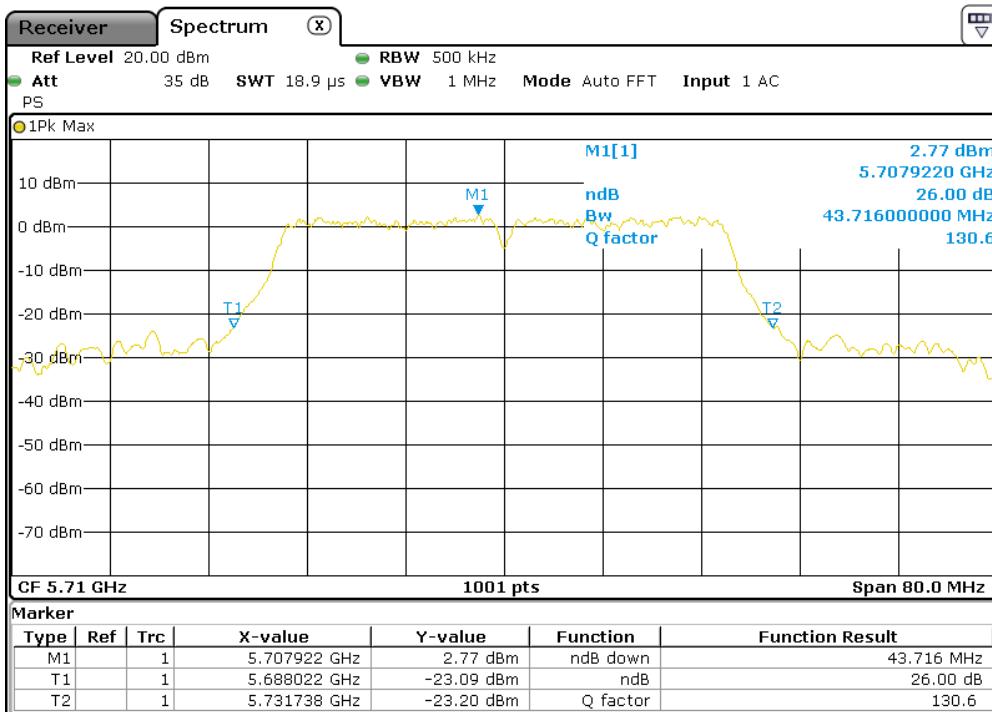
802.11 ac(VHT40)	Antenna A	Channel 118
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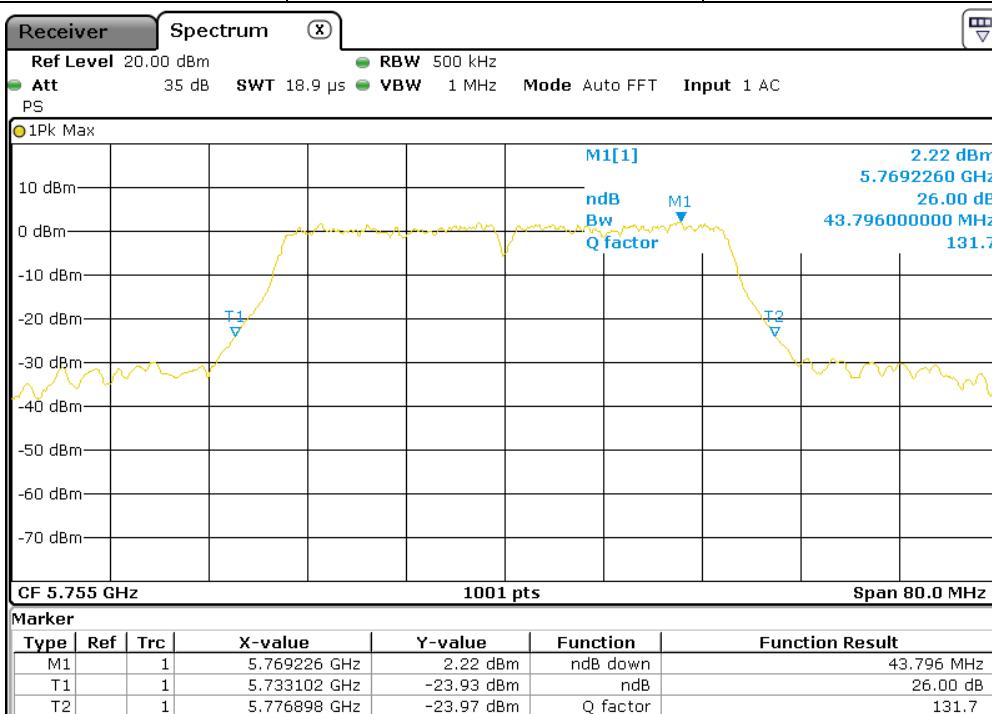
802.11 ac(VHT40)	Antenna A	Channel 134
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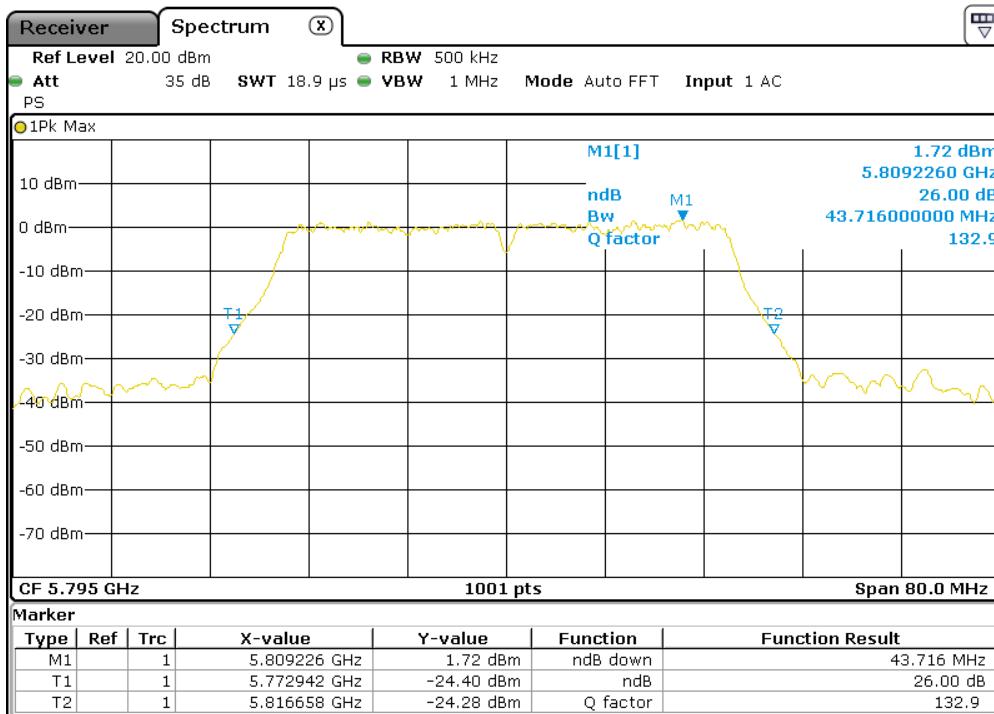
802.11 ac(VHT40)	Antenna A	Channel 142
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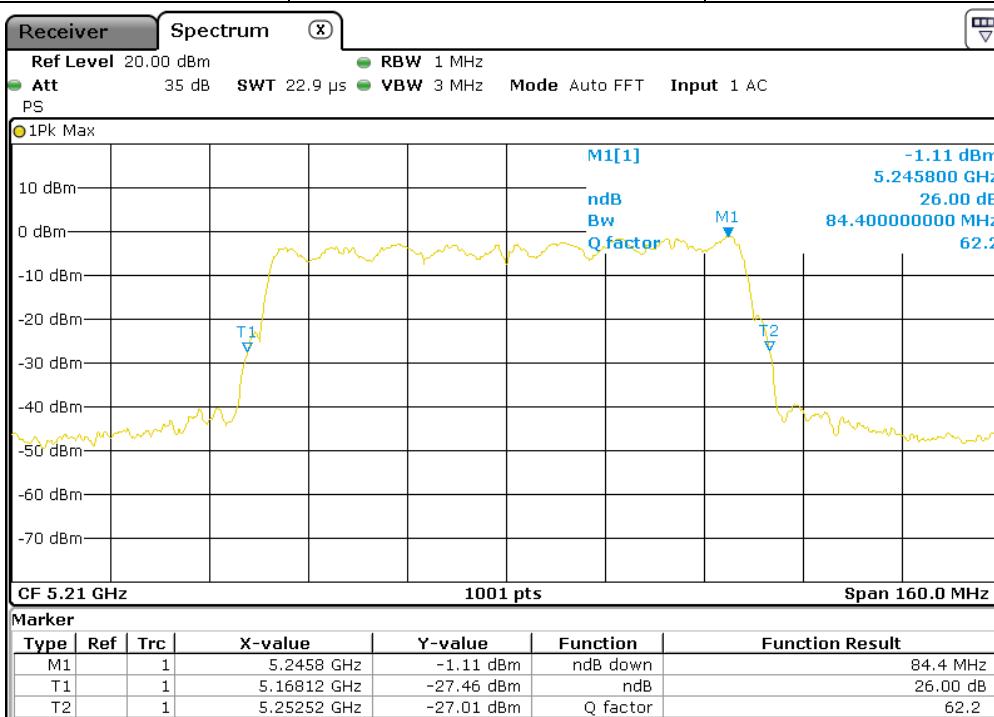
802.11 ac(VHT40)	Antenna A	Channel 151
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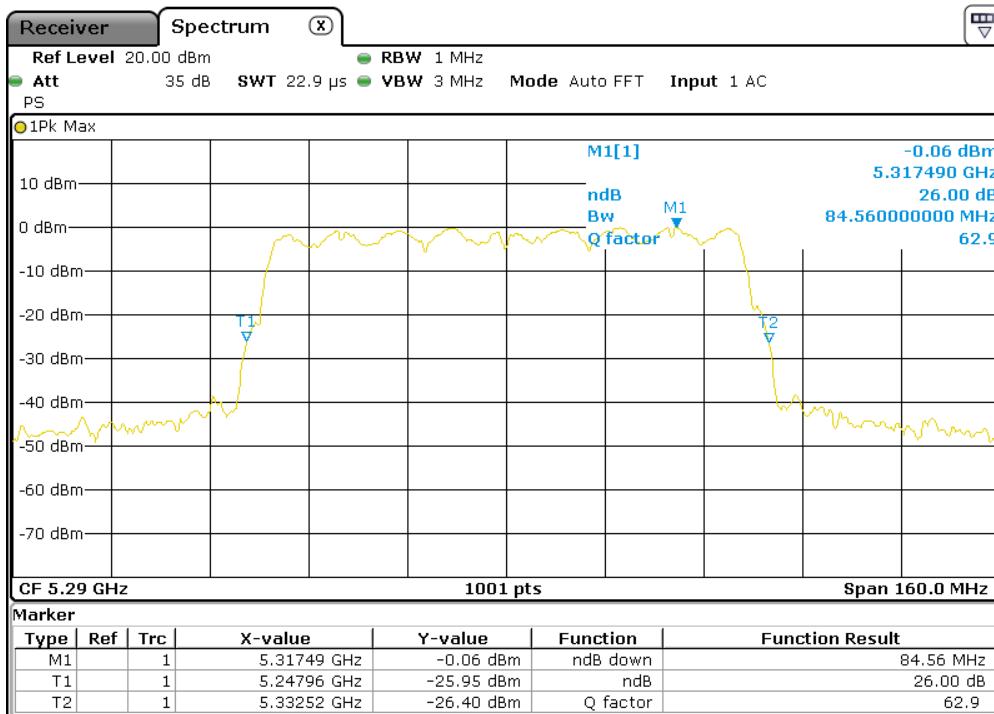
802.11 ac(VHT40)	Antenna A	Channel 159
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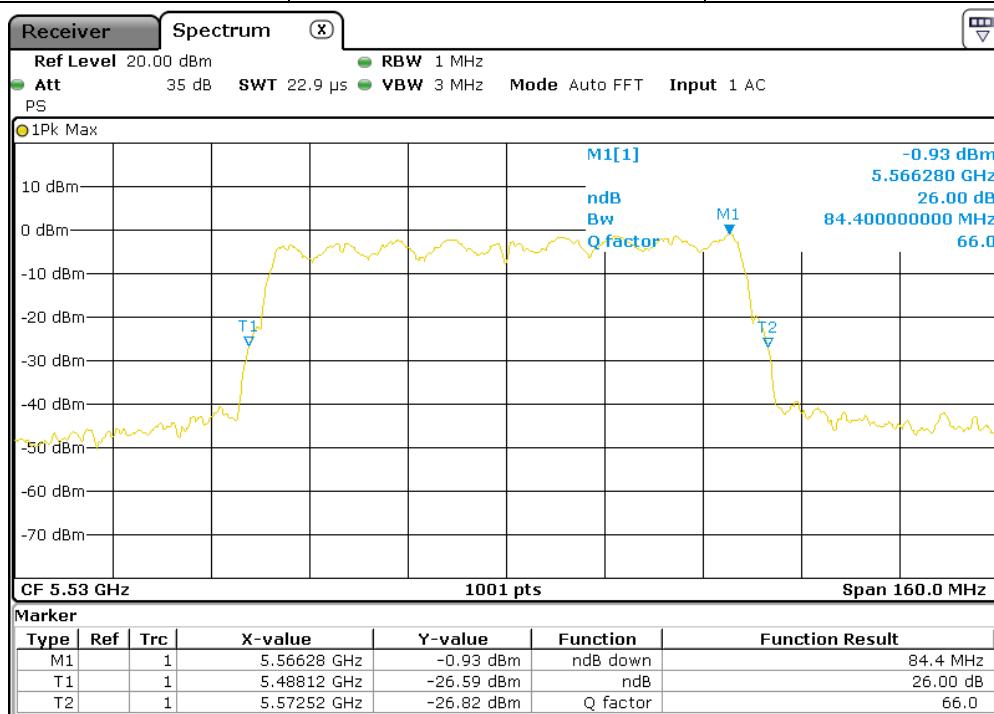
802.11 ac(VHT80)	Antenna A	Channel 42
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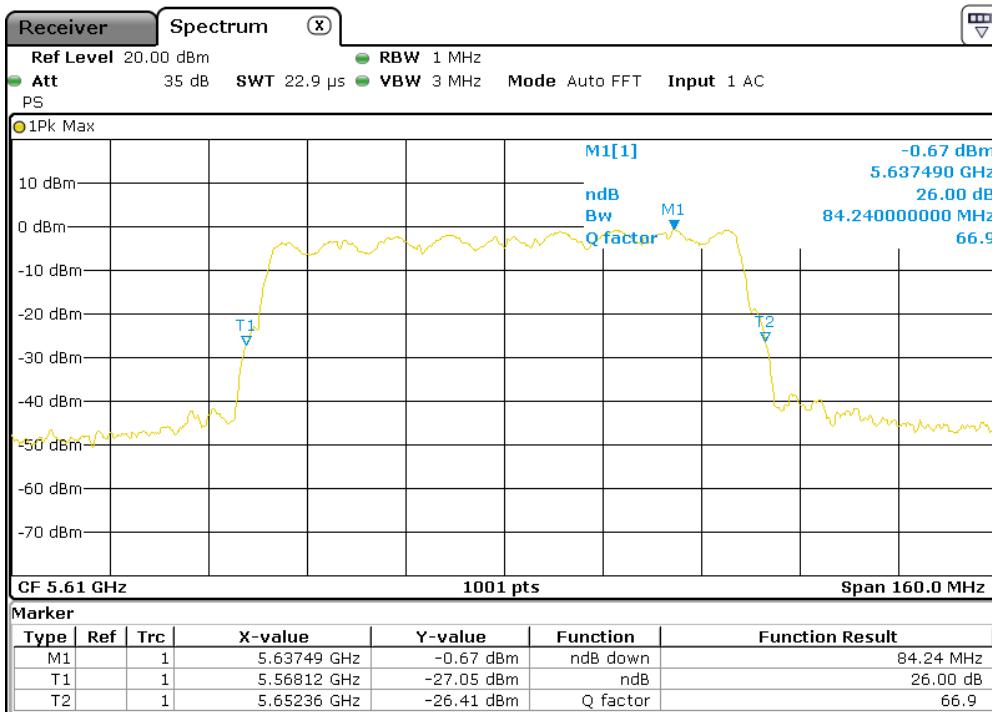
802.11 ac(VHT80)	Antenna A	Channel 58
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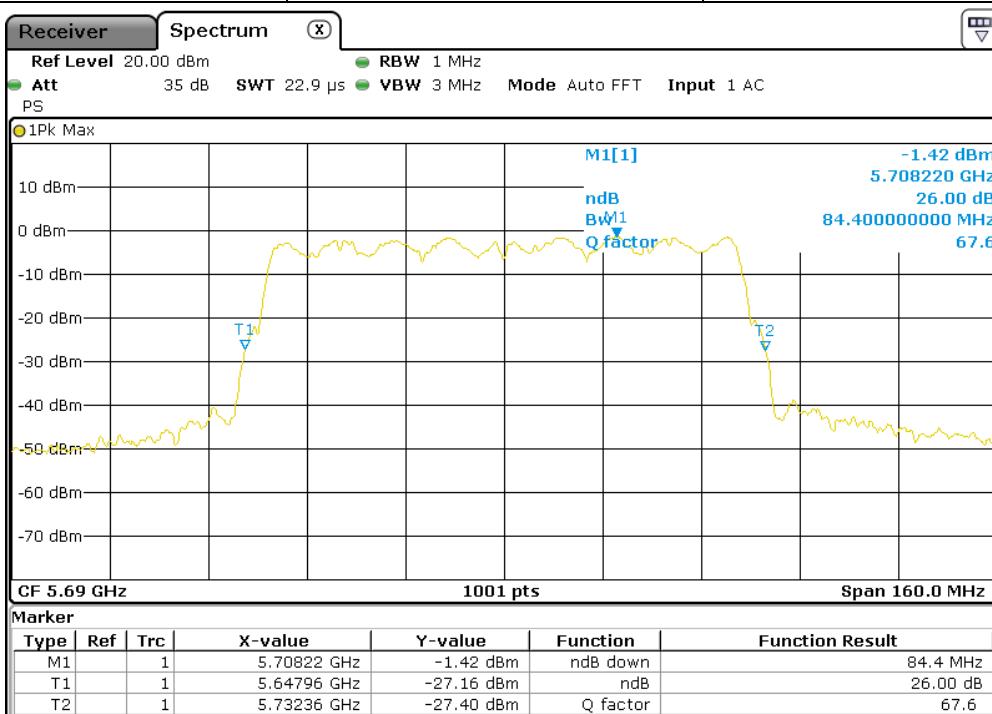
802.11 ac(VHT80)	Antenna A	Channel 106
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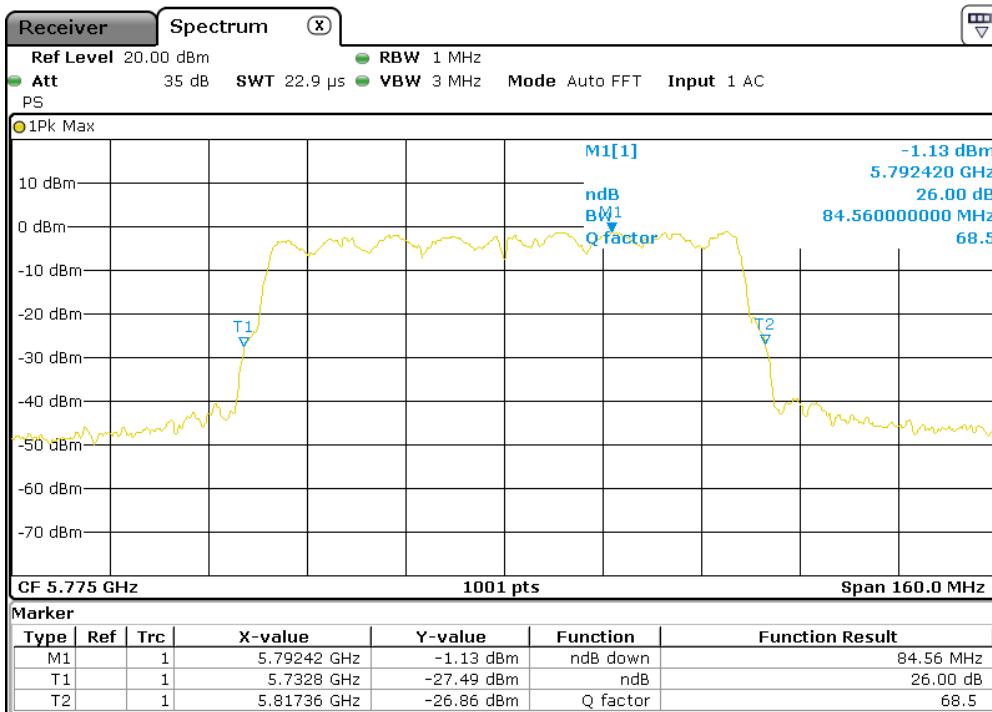
802.11 ac(VHT80)	Antenna A	Channel 122
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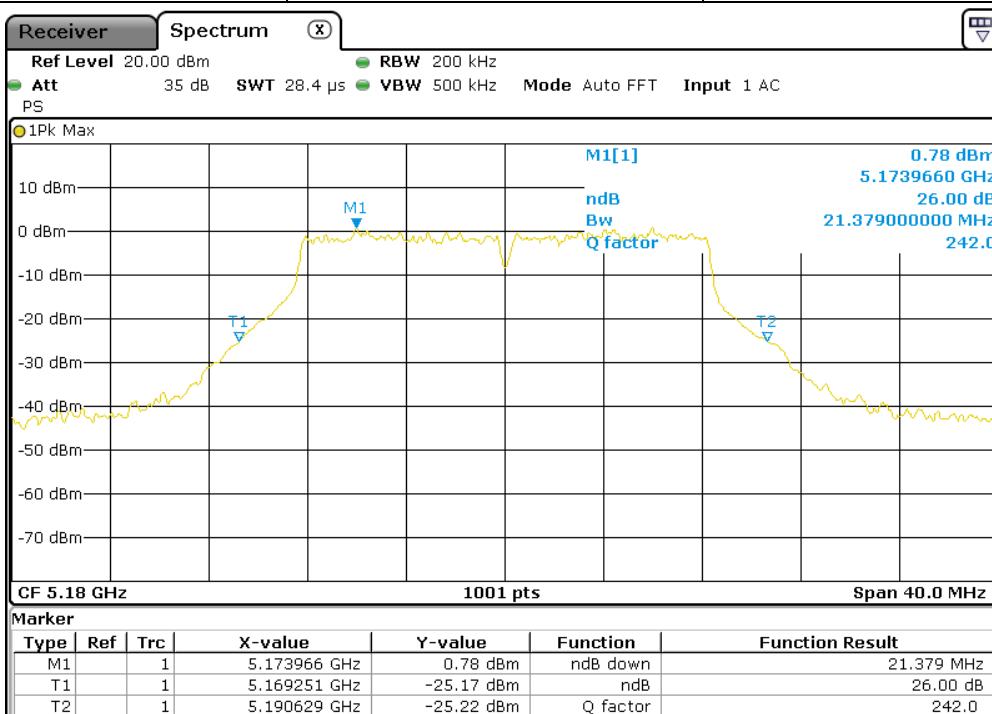
802.11 ac(VHT80)	Antenna A	Channel 138
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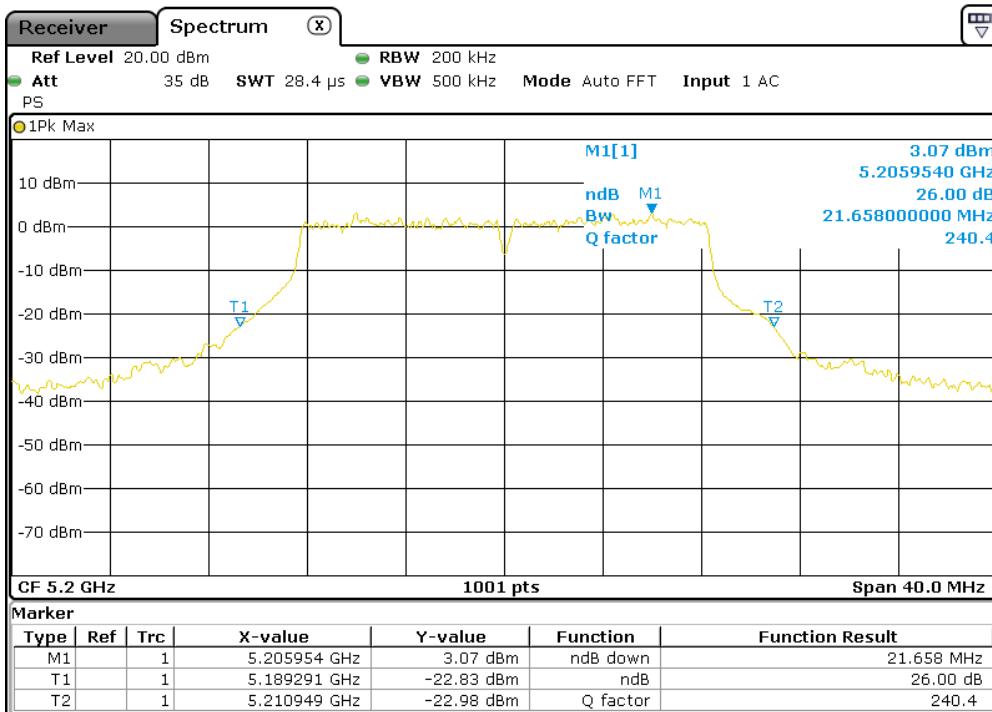
802.11 ac(VHT80)	Antenna A	Channel 155
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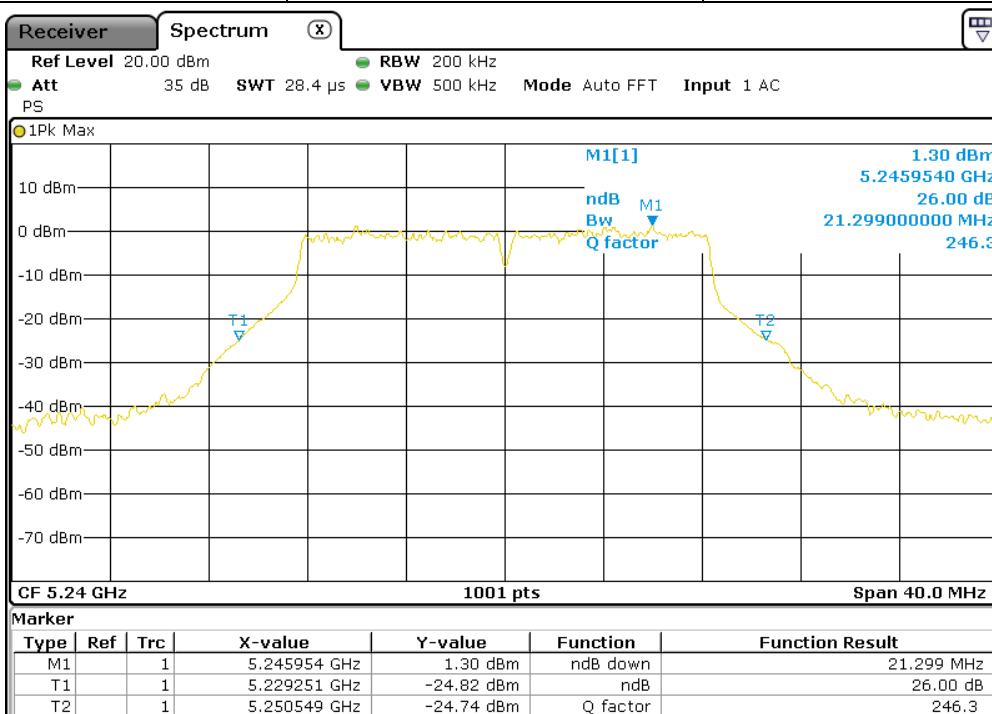
802.11 a	Antenna B	Channel 36
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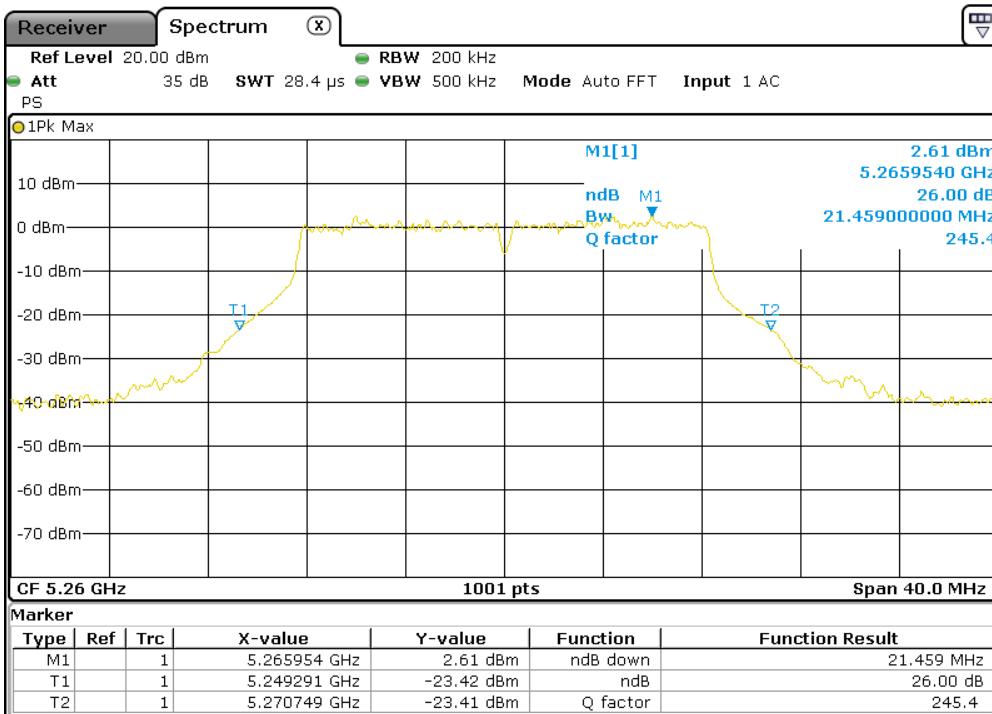
802.11 a	Antenna B	Channel 40
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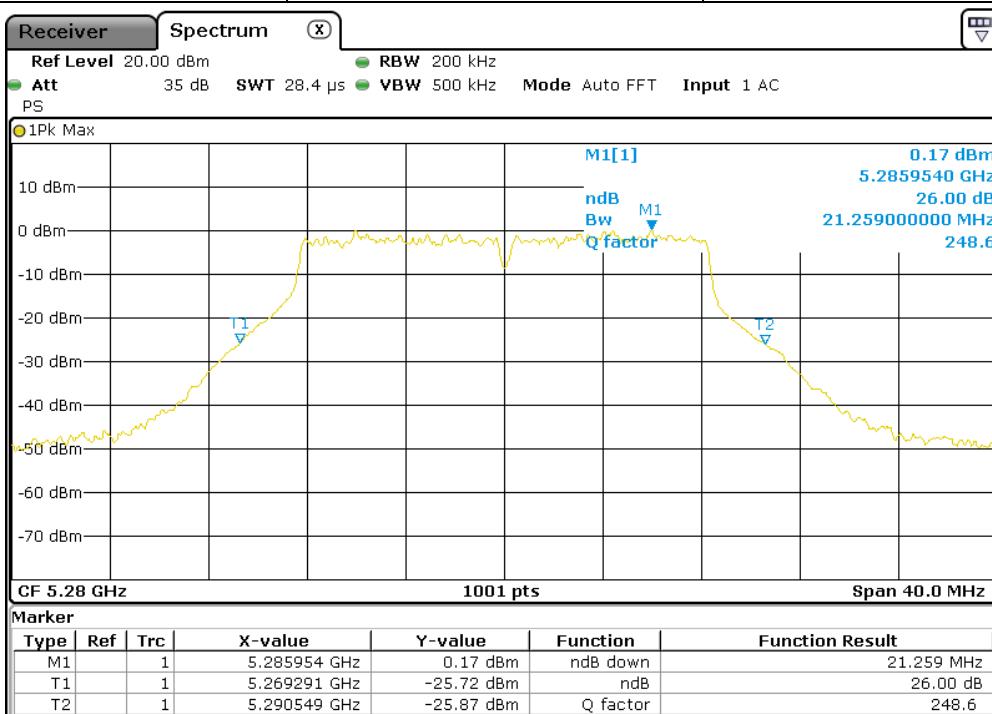
802.11 a	Antenna B	Channel 48
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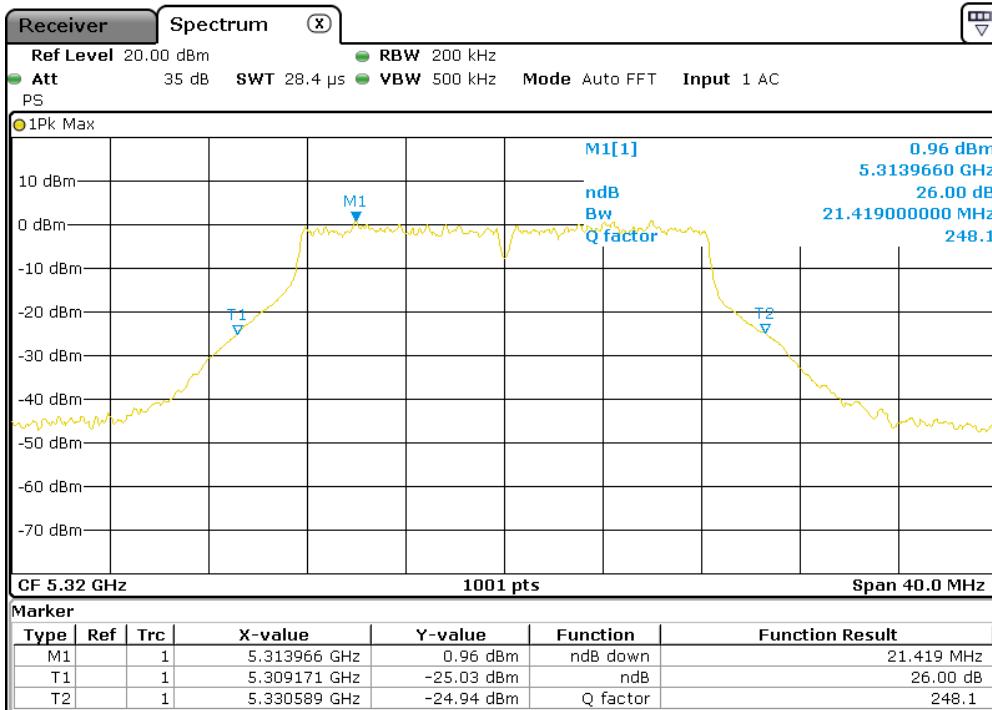
802.11 a	Antenna B	Channel 52
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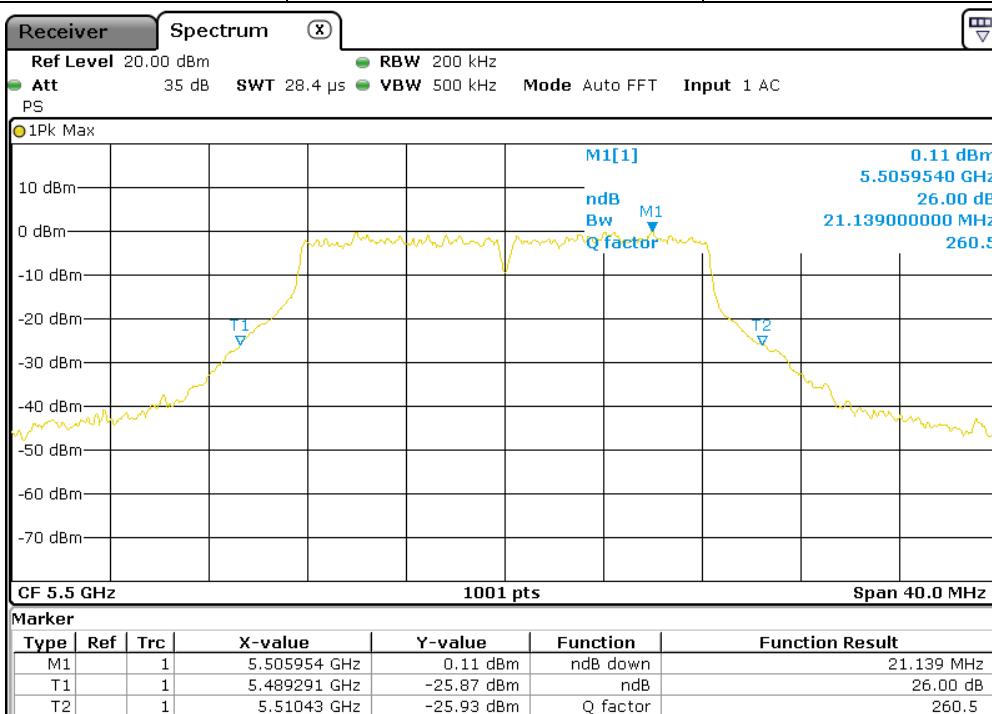
802.11 a	Antenna B	Channel 56
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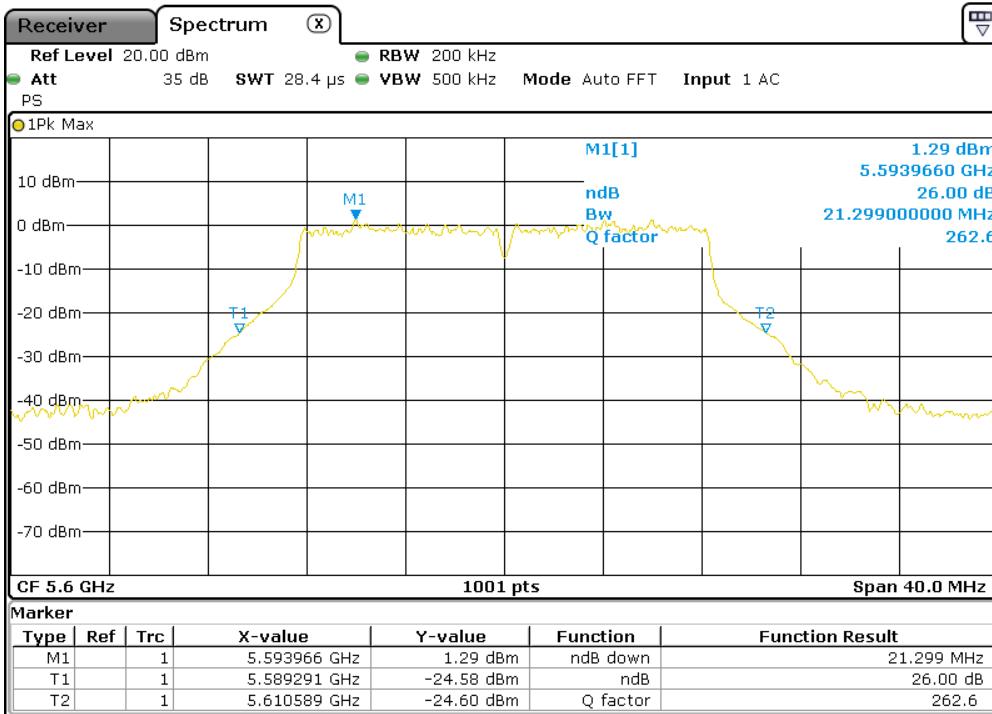
802.11 a	Antenna B	Channel 64
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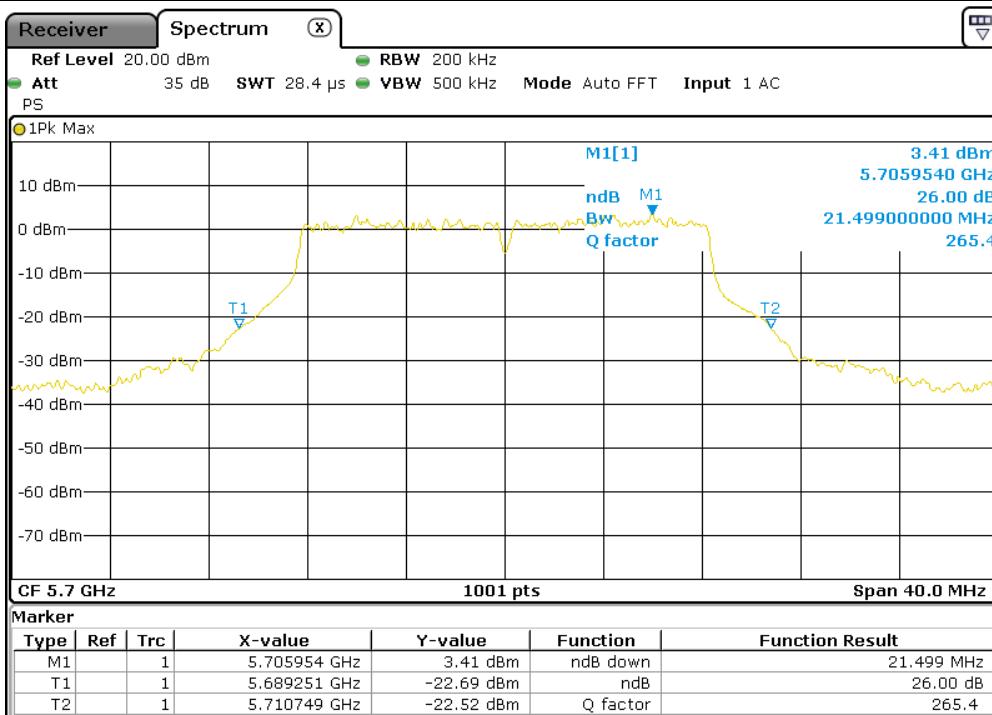
802.11 a	Antenna B	Channel 100
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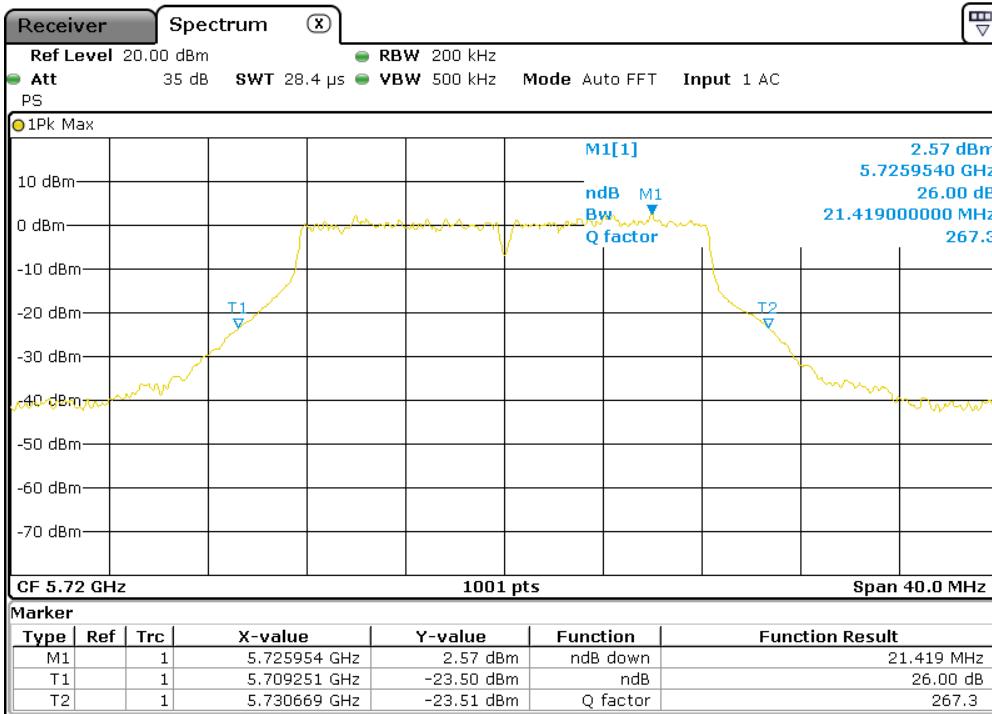
802.11 a	Antenna B	Channel 120
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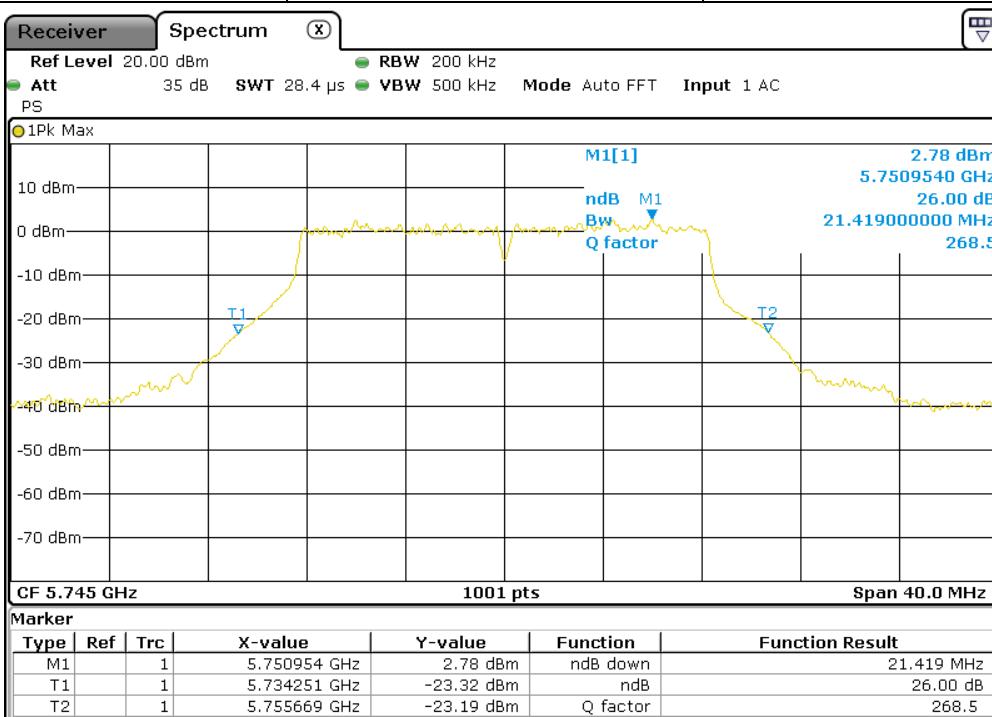
802.11 a	Antenna B	Channel 140
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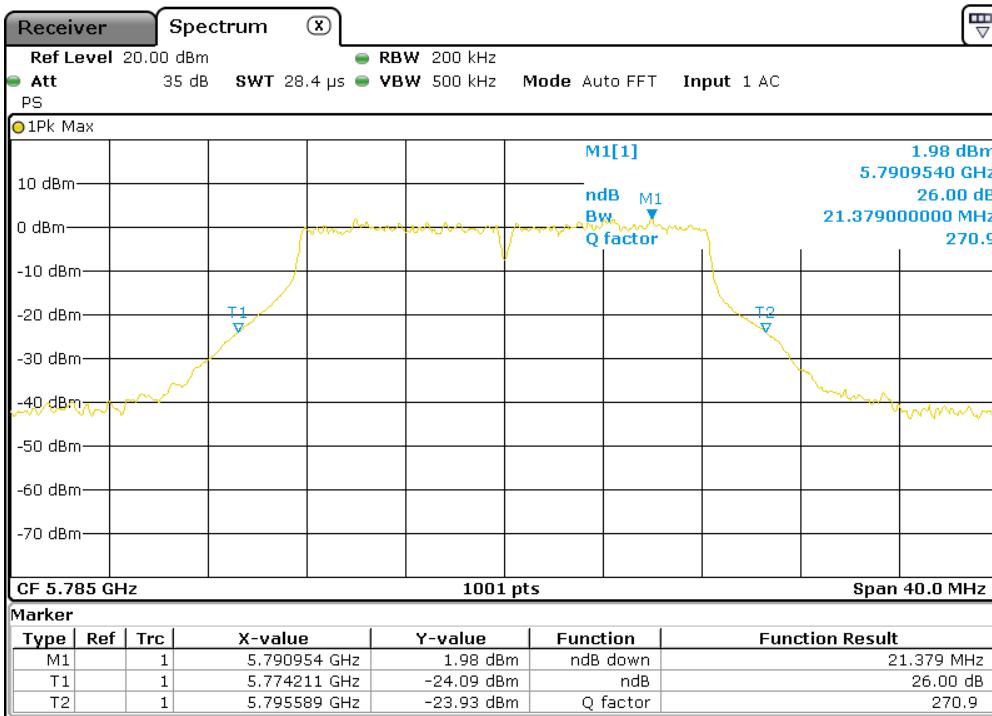
802.11 a	Antenna B	Channel 144
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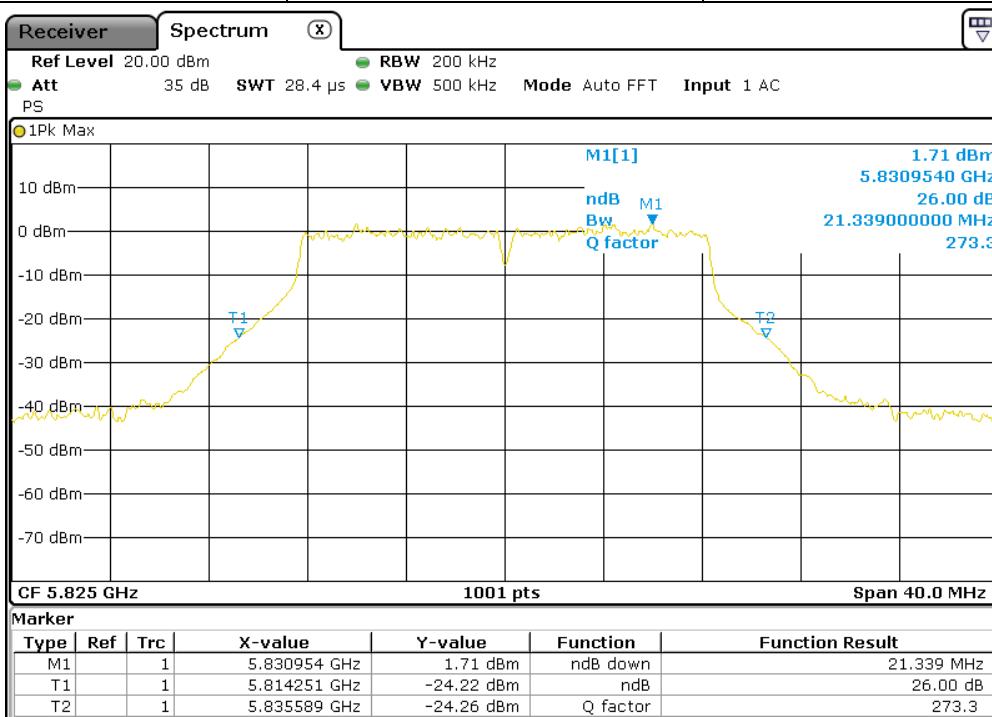
802.11 a	Antenna B	Channel 149
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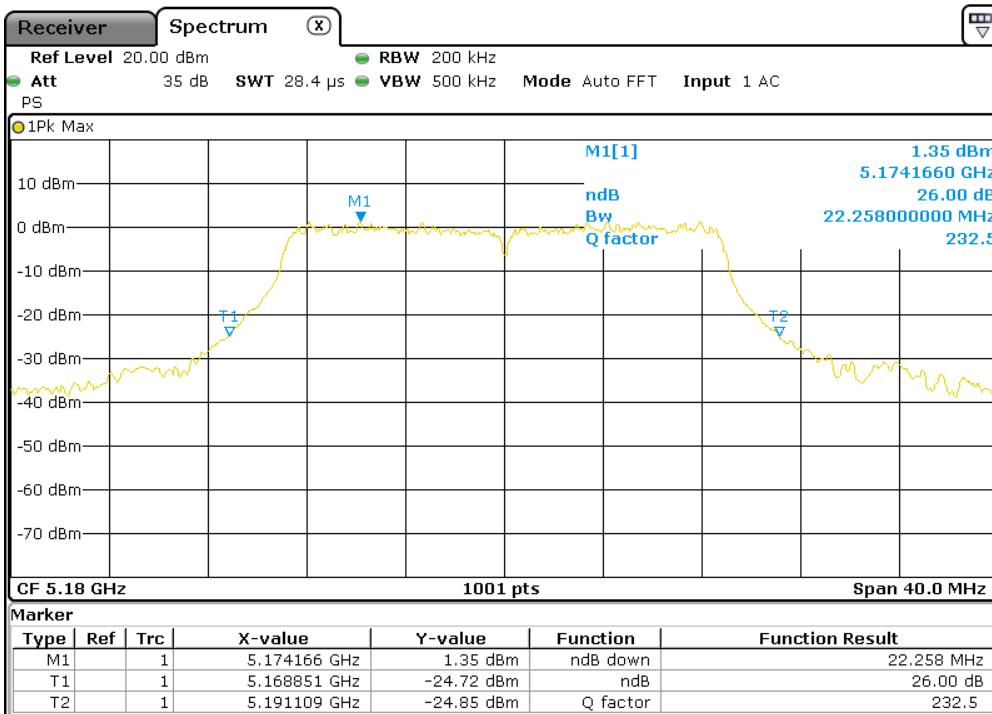
802.11 a	Antenna B	Channel 157
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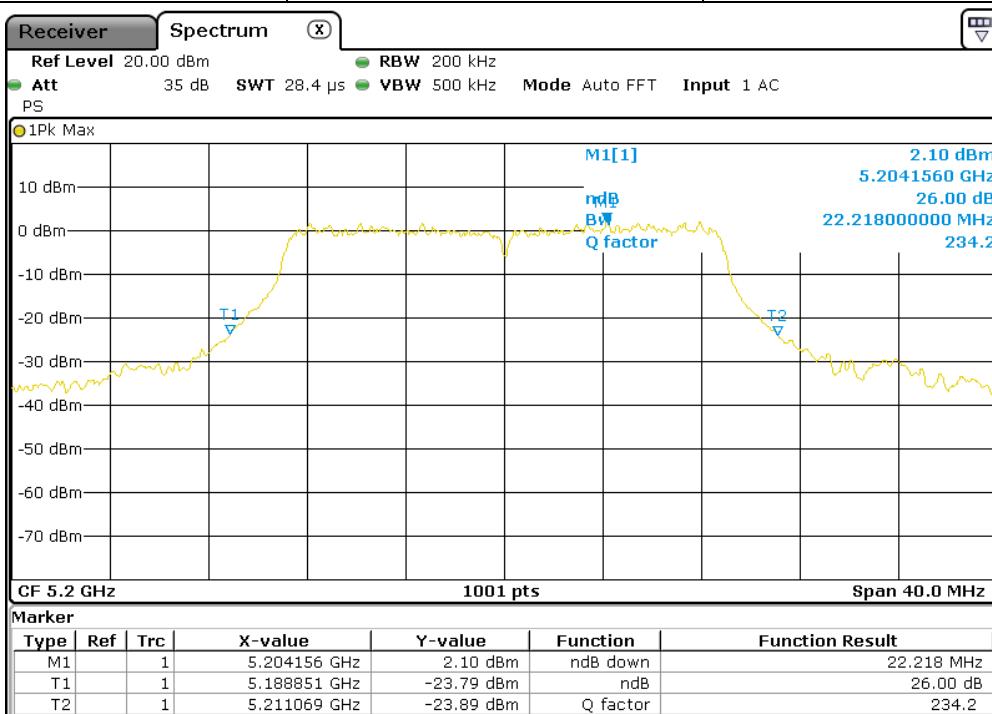
802.11 a	Antenna B	Channel 165
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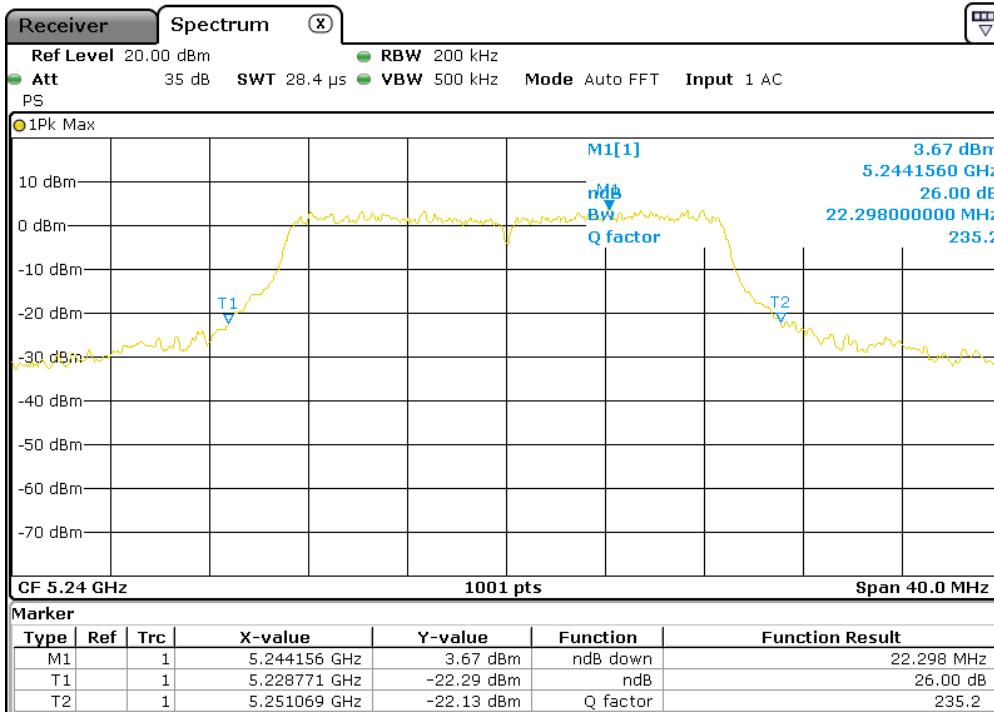
802.11 n(HT20)	Antenna B	Channel 36
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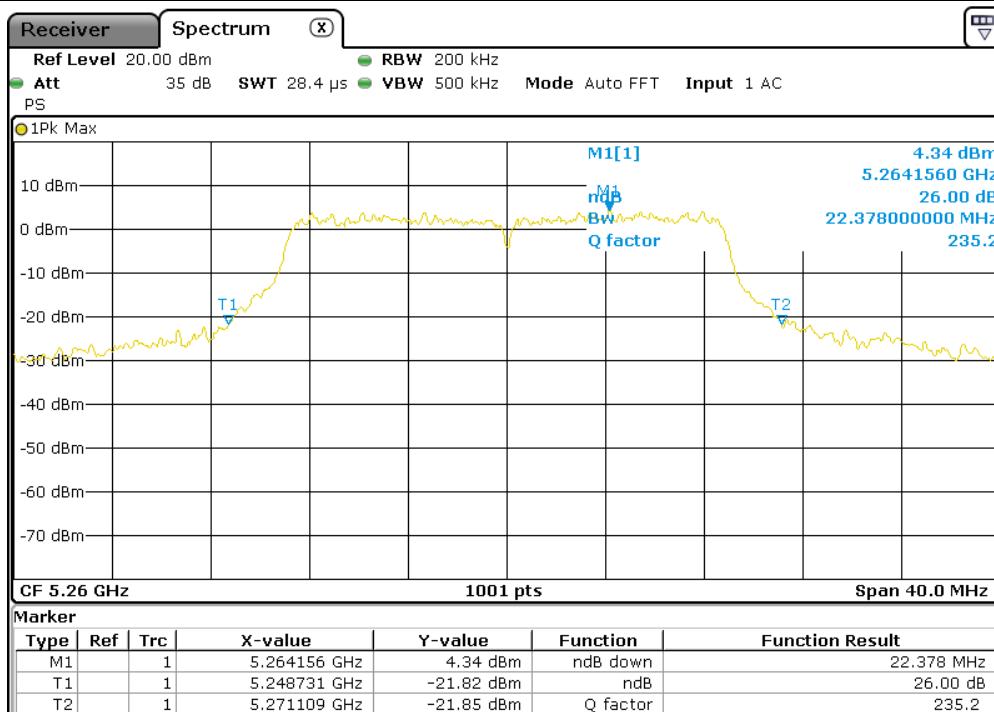
802.11 n(HT20)	Antenna B	Channel 40
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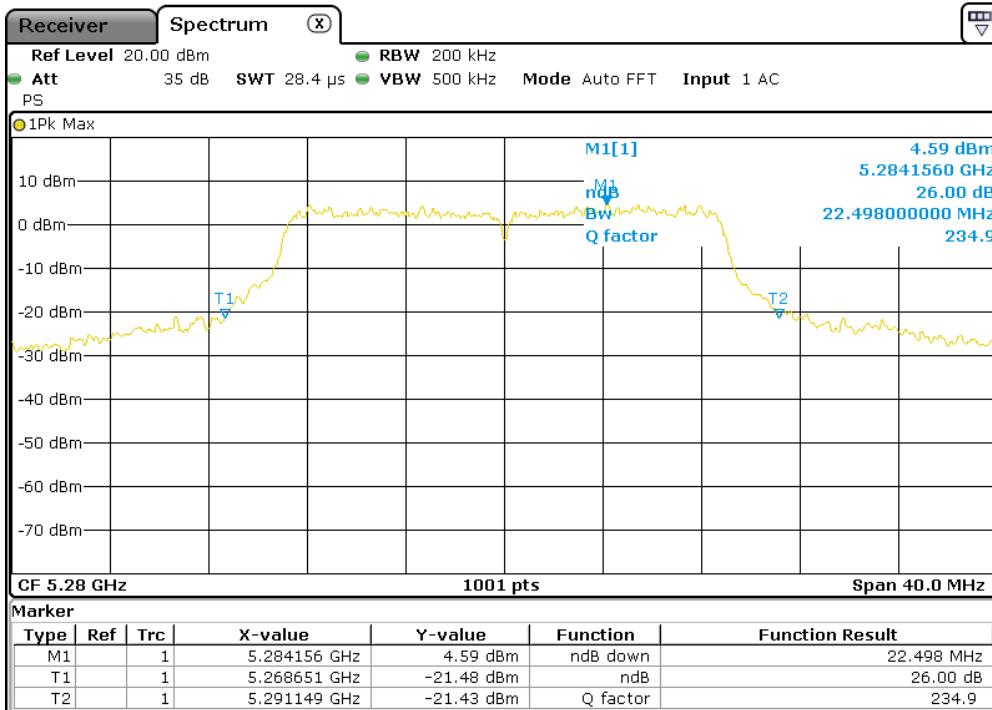
802.11 n(HT20)	Antenna B	Channel 48
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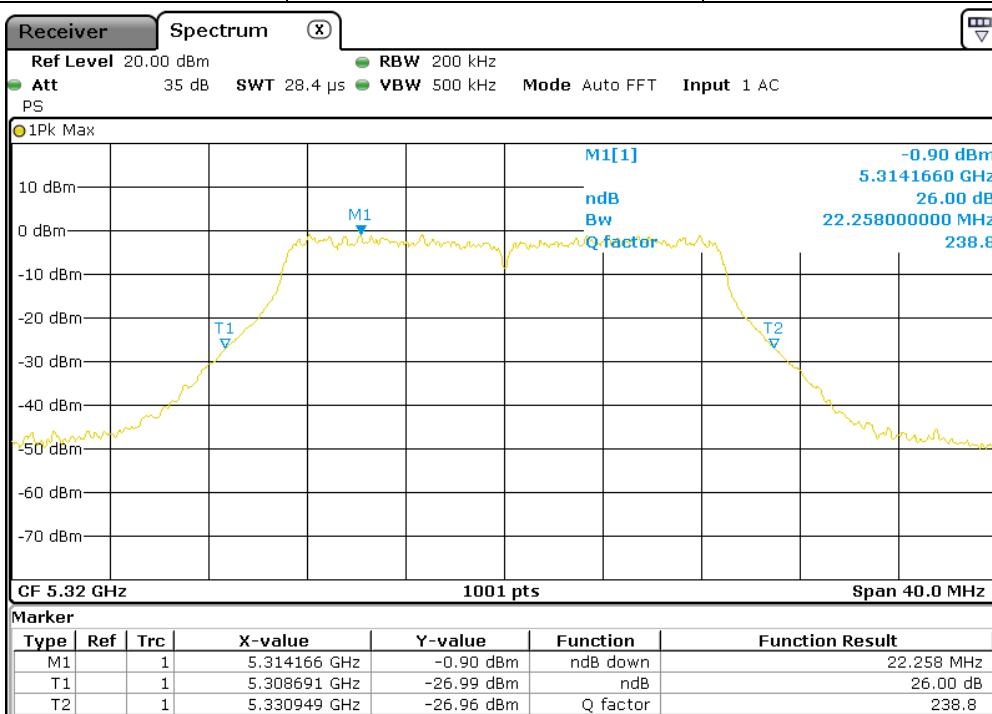
802.11 n(HT20)	Antenna B	Channel 52
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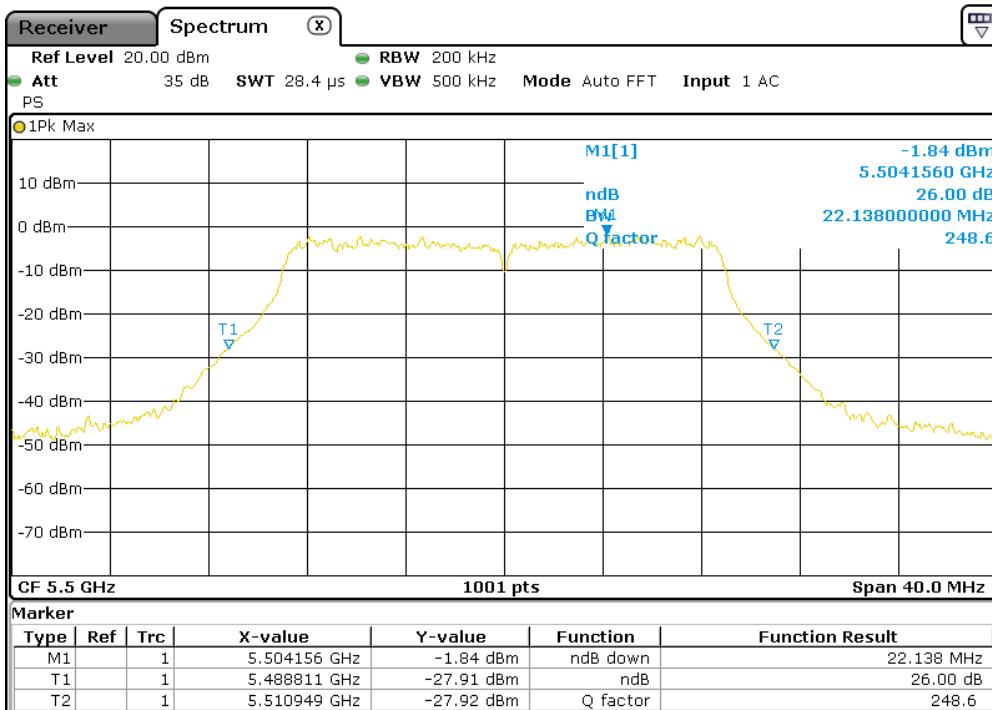
802.11 n(HT20)	Antenna B	Channel 56
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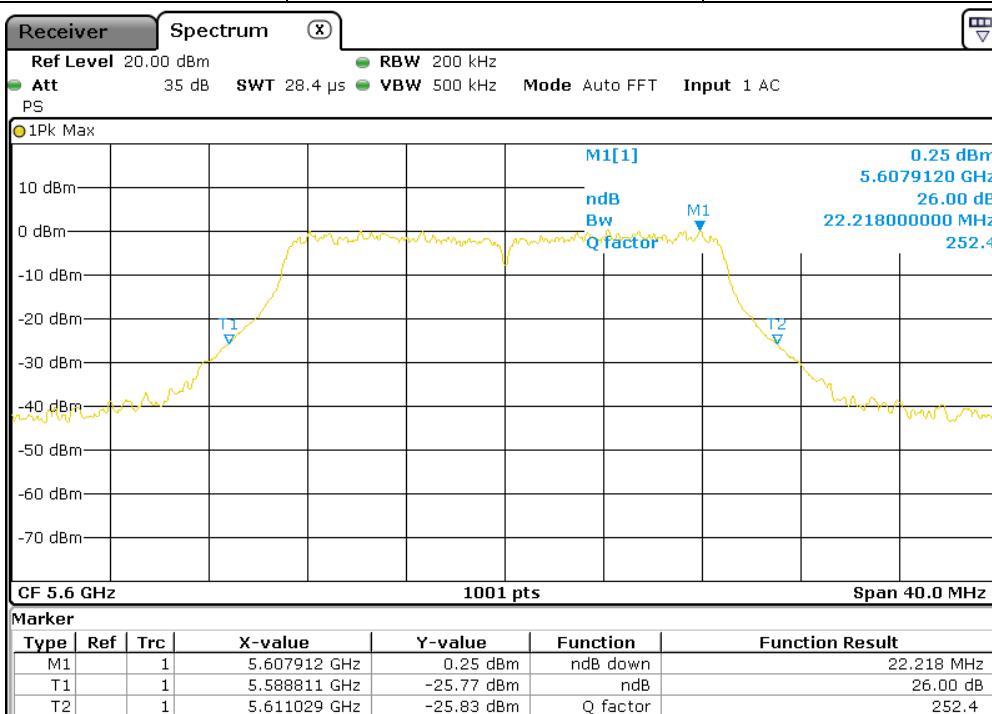
802.11 n(HT20)	Antenna B	Channel 64
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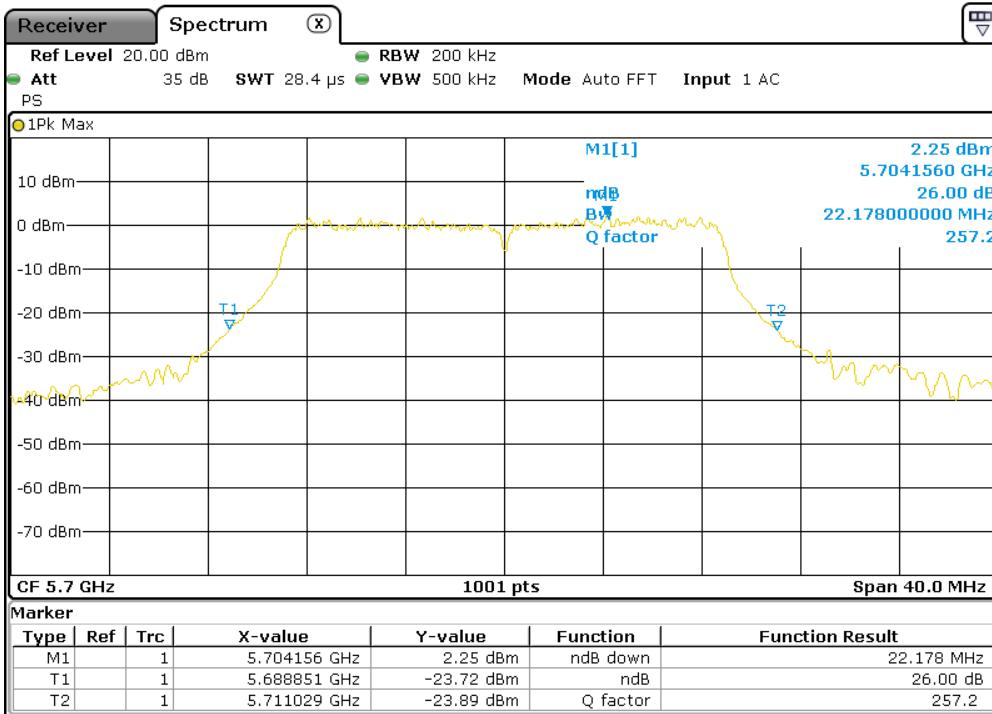
802.11 n(HT20)	Antenna B	Channel 100
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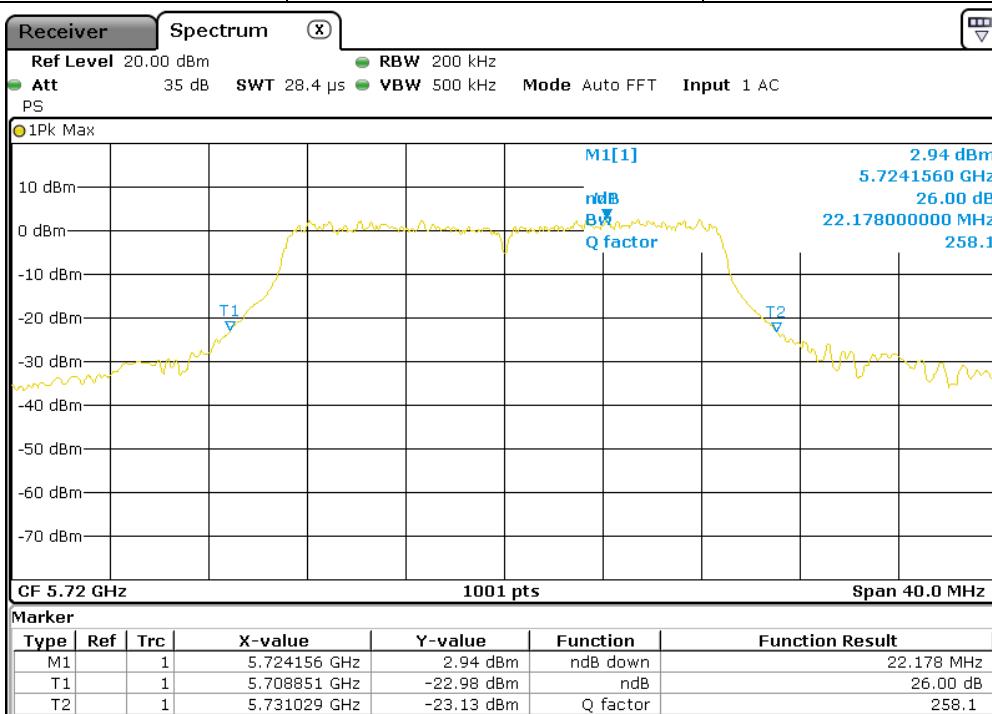
802.11 n(HT20)	Antenna B	Channel 120
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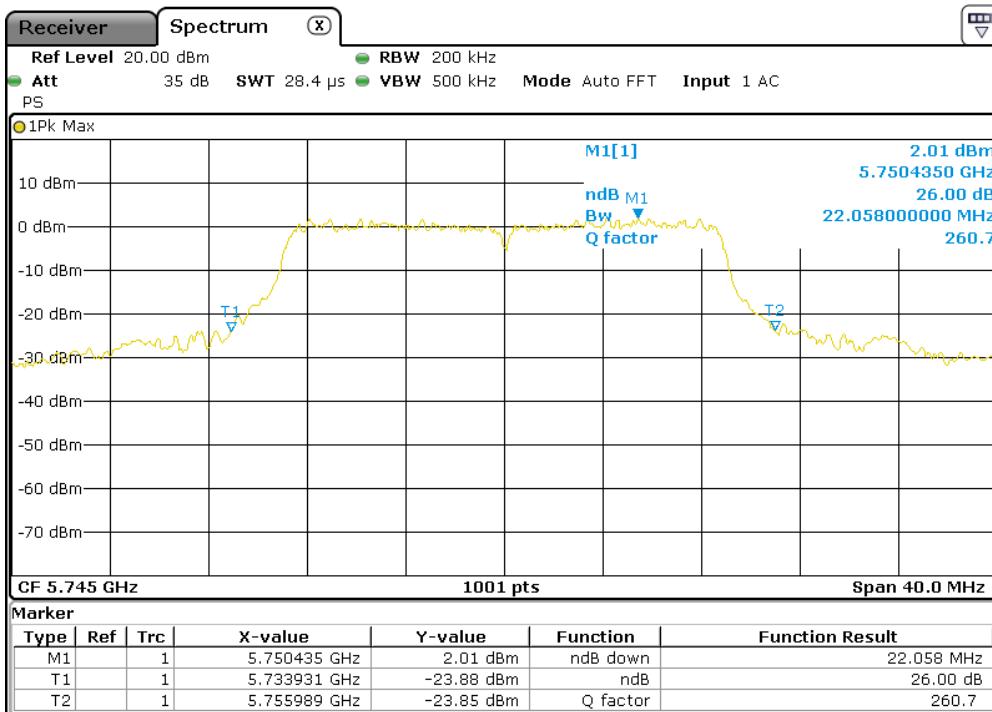
802.11 n(HT20)	Antenna B	Channel 140
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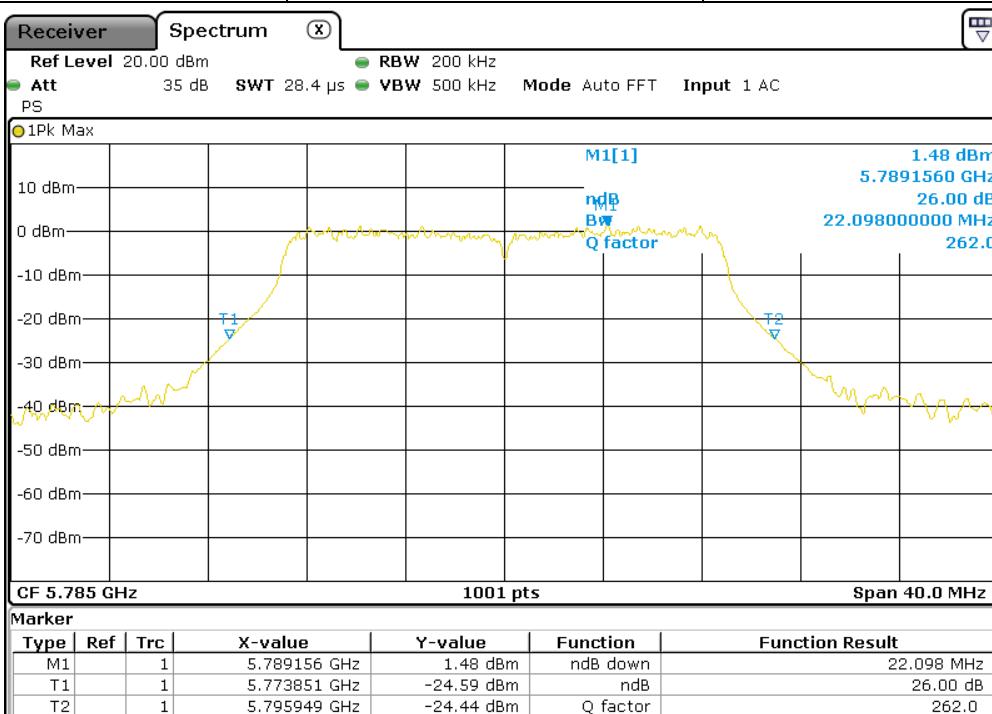
802.11 n(HT20)	Antenna B	Channel 144
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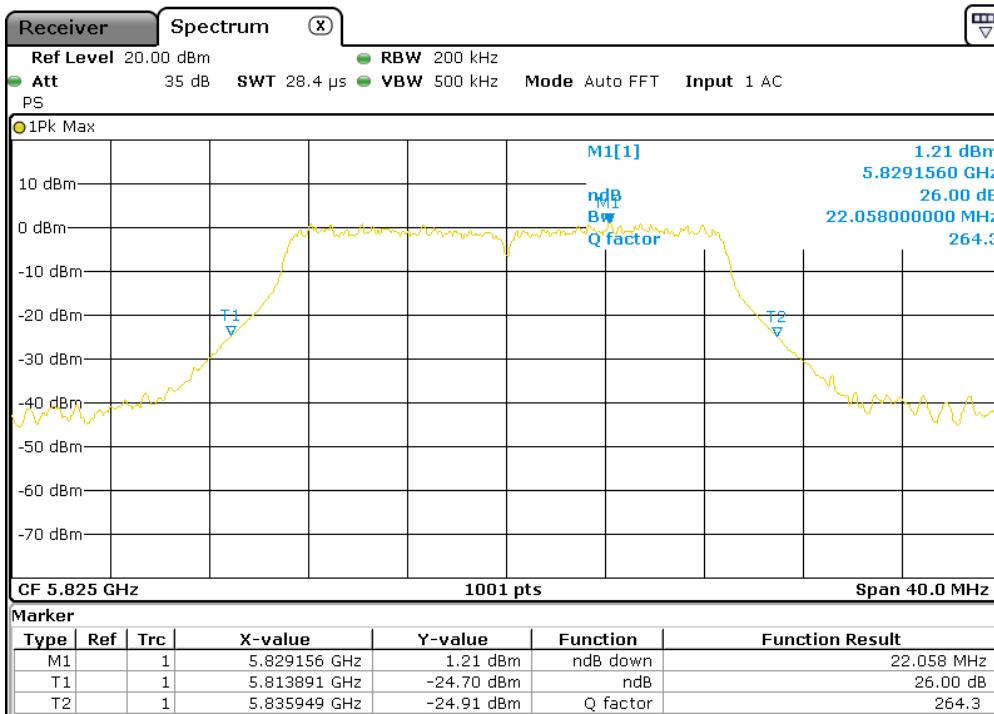
802.11 n(HT20)	Antenna B	Channel 149
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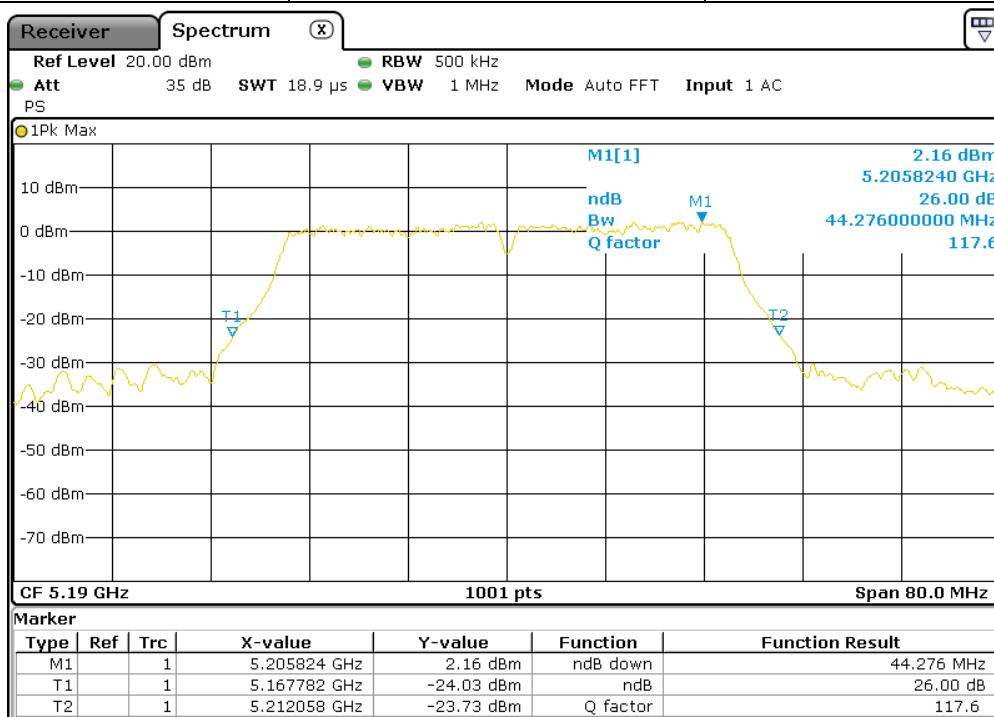
802.11 n(HT20)	Antenna B	Channel 157
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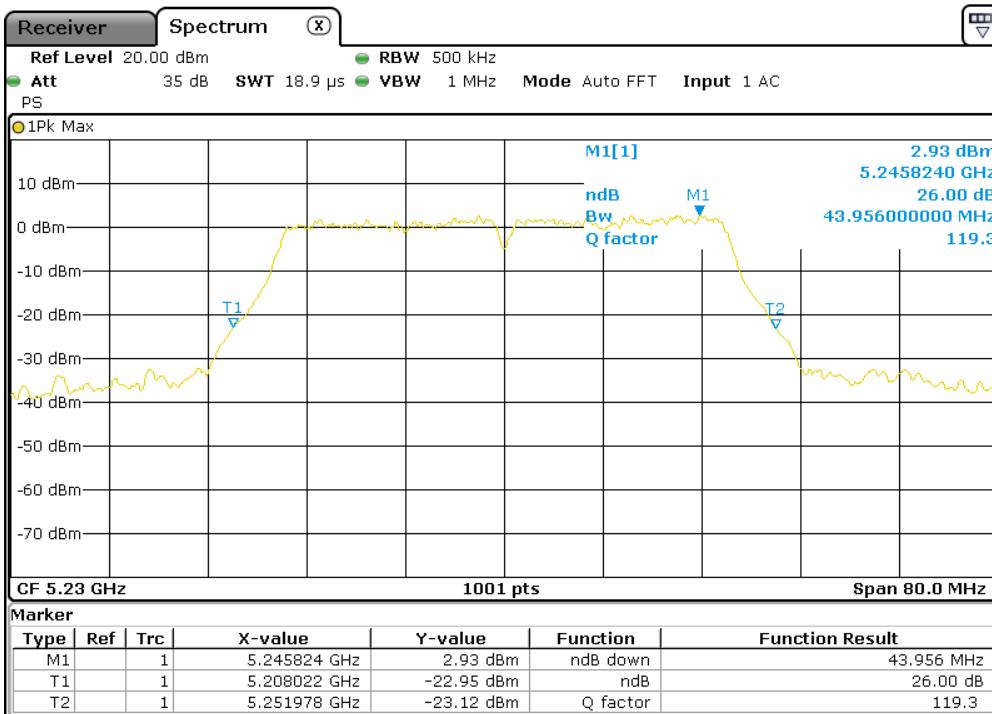
802.11 n(HT20)	Antenna B	Channel 165
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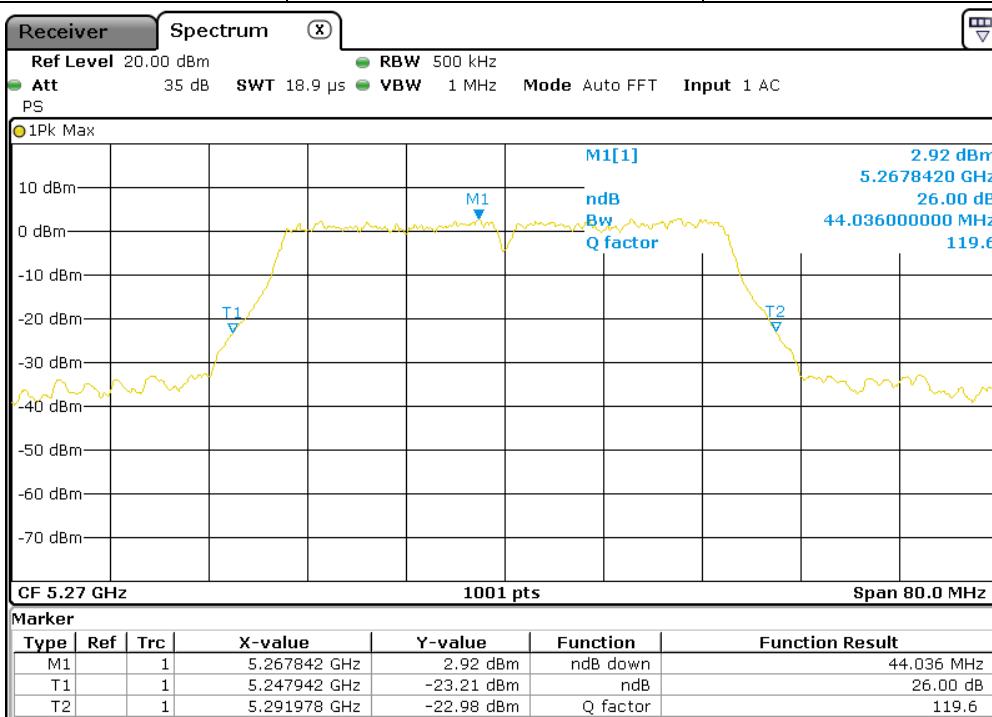
802.11 n(HT40)	Antenna B	Channel 38
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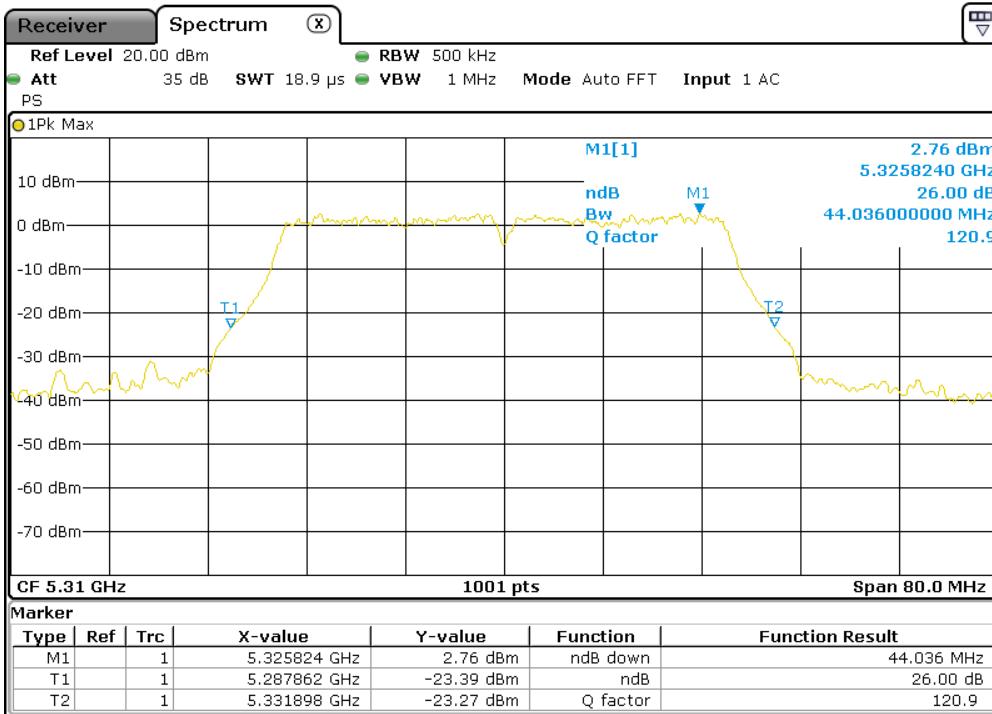
802.11 n(HT40)	Antenna B	Channel 46
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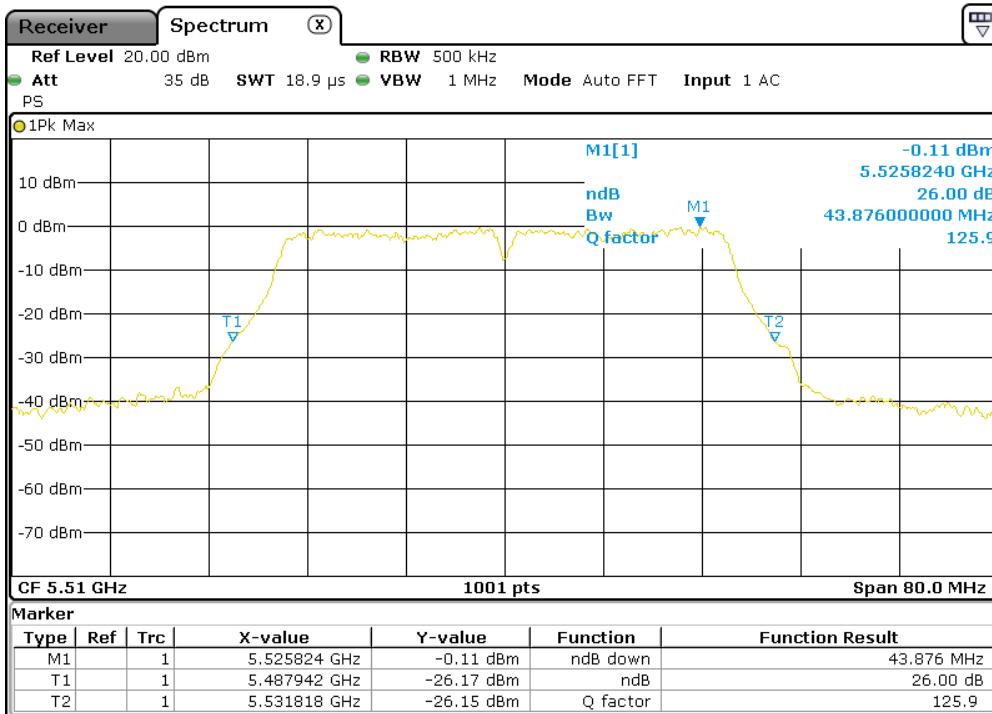
802.11 n(HT40)	Antenna B	Channel 54
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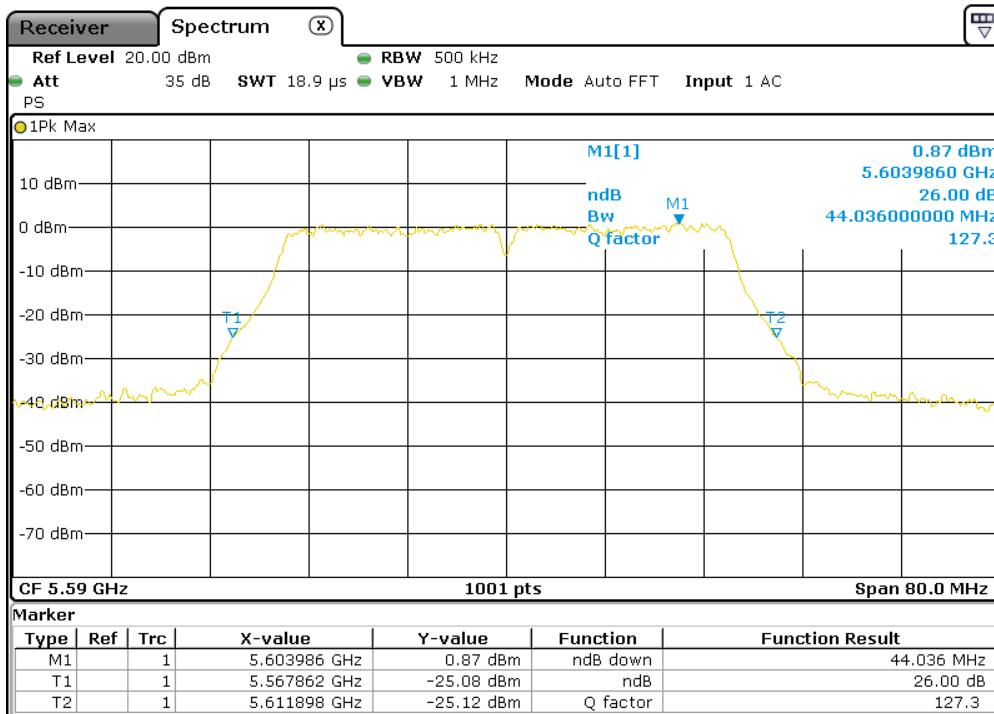
802.11 n(HT40)	Antenna B	Channel 62
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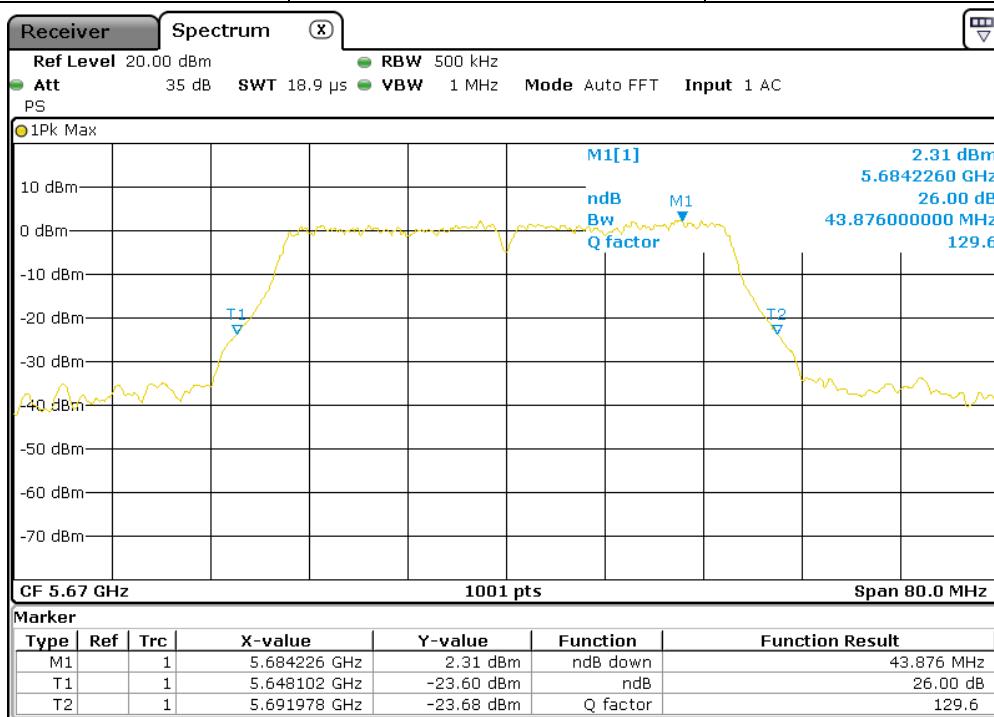
802.11 n(HT40)	Antenna B	Channel 102
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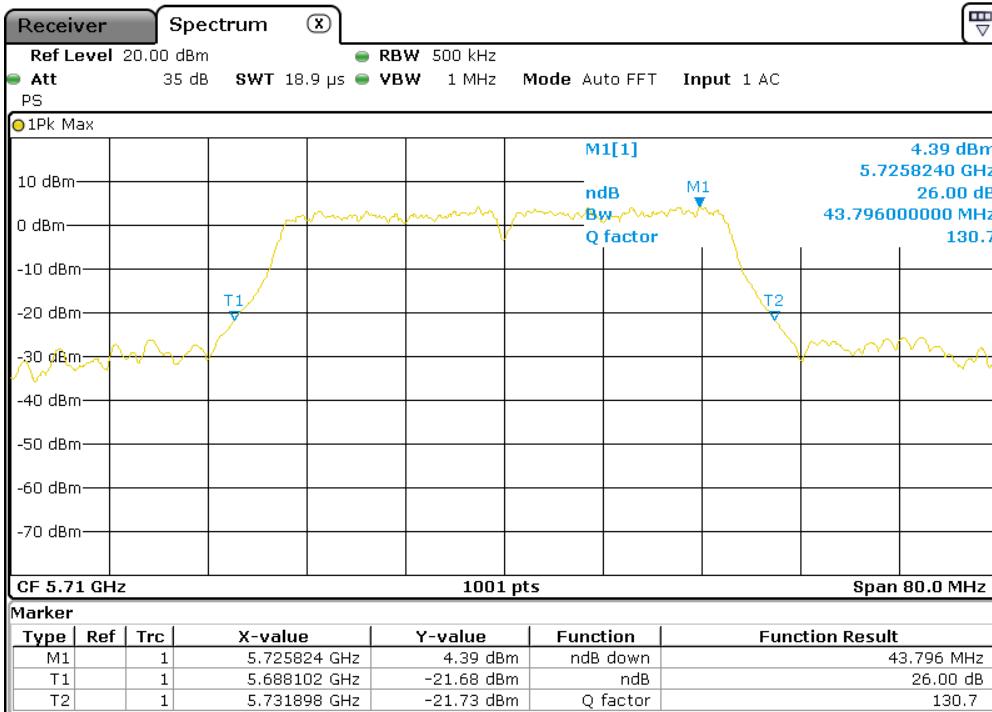
802.11 n(HT40)	Antenna B	Channel 118
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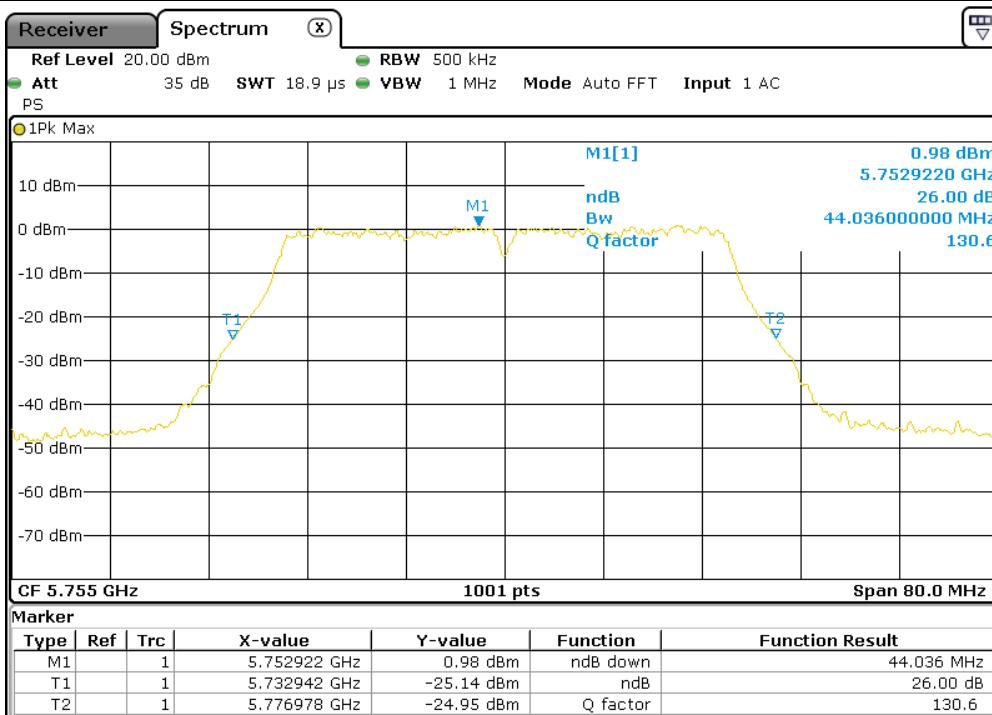
802.11 n(HT40)	Antenna B	Channel 134
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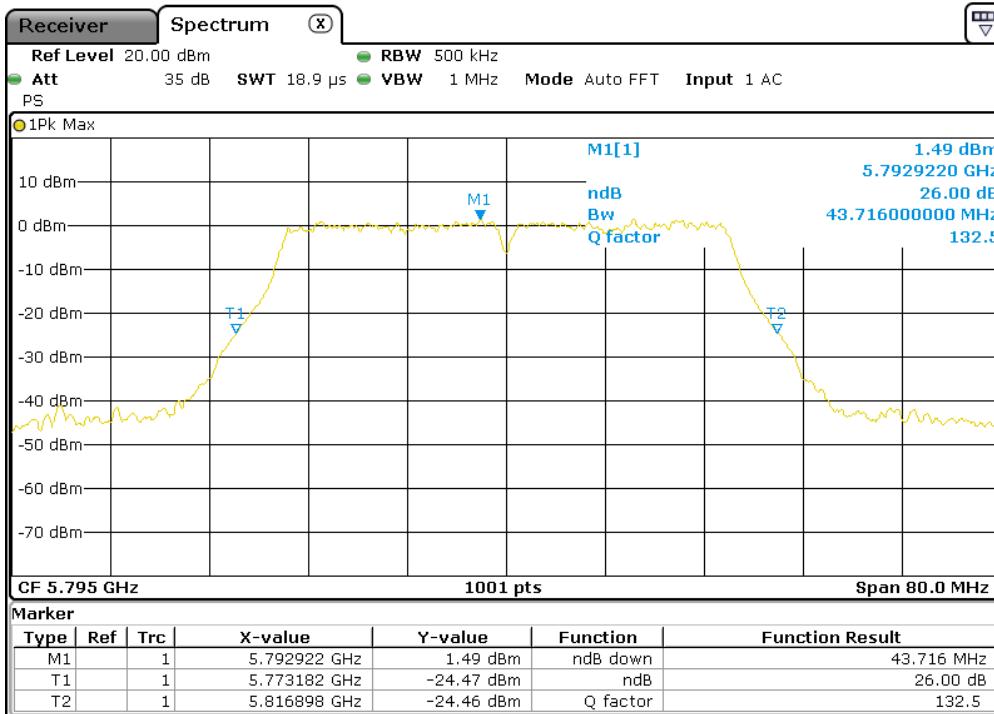
802.11 n(HT40)	Antenna B	Channel 142
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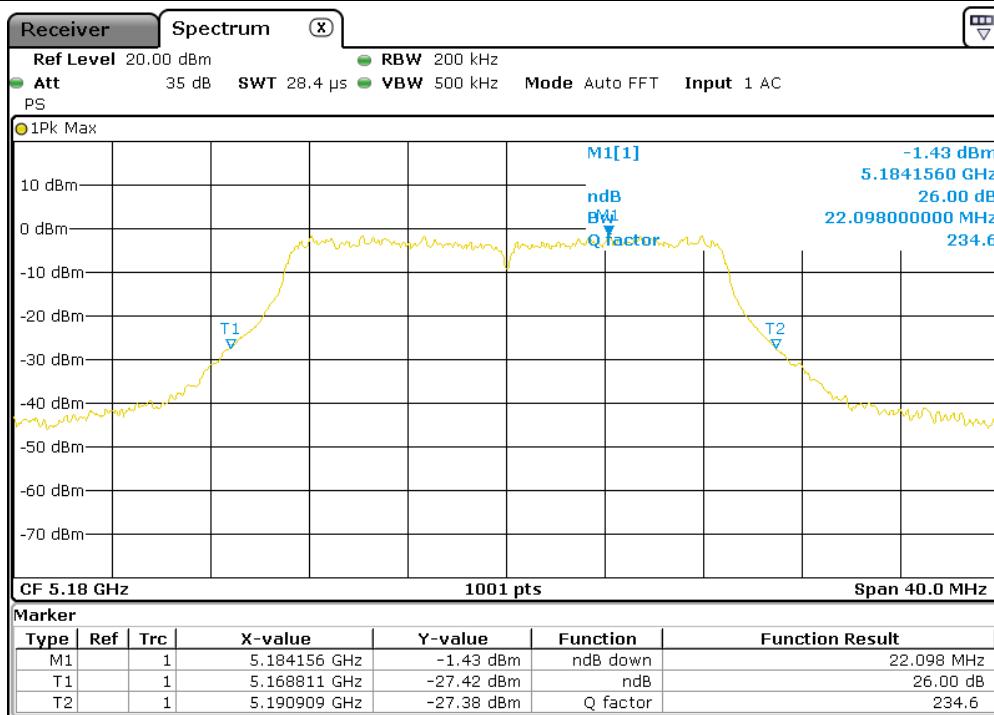
802.11 n(HT40)	Antenna B	Channel 151
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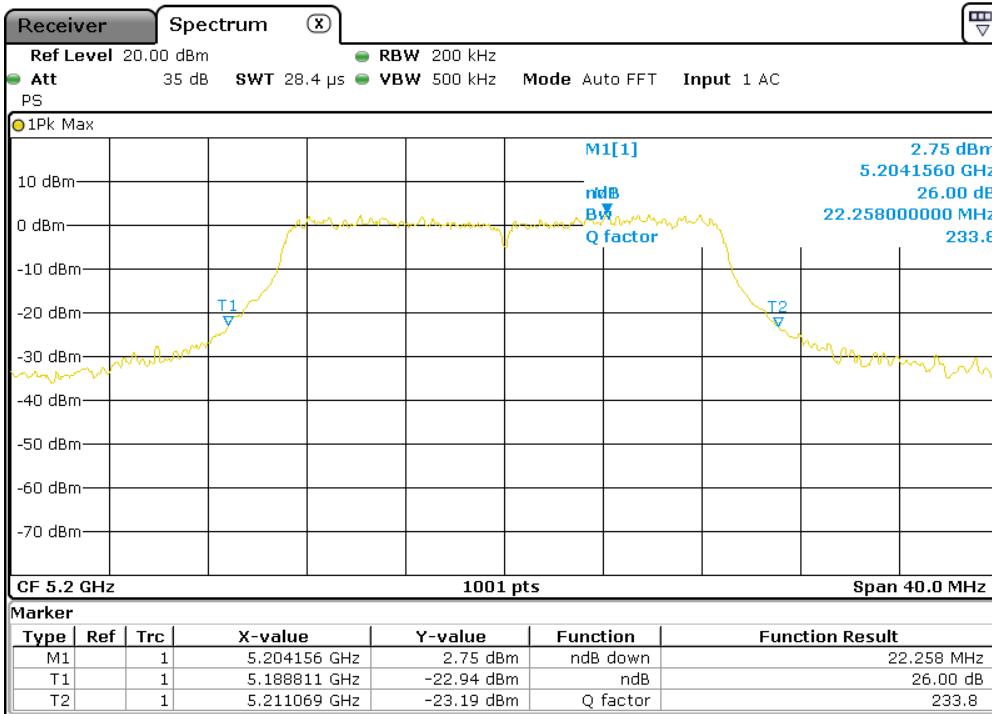
802.11 n(HT40)	Antenna B	Channel 159
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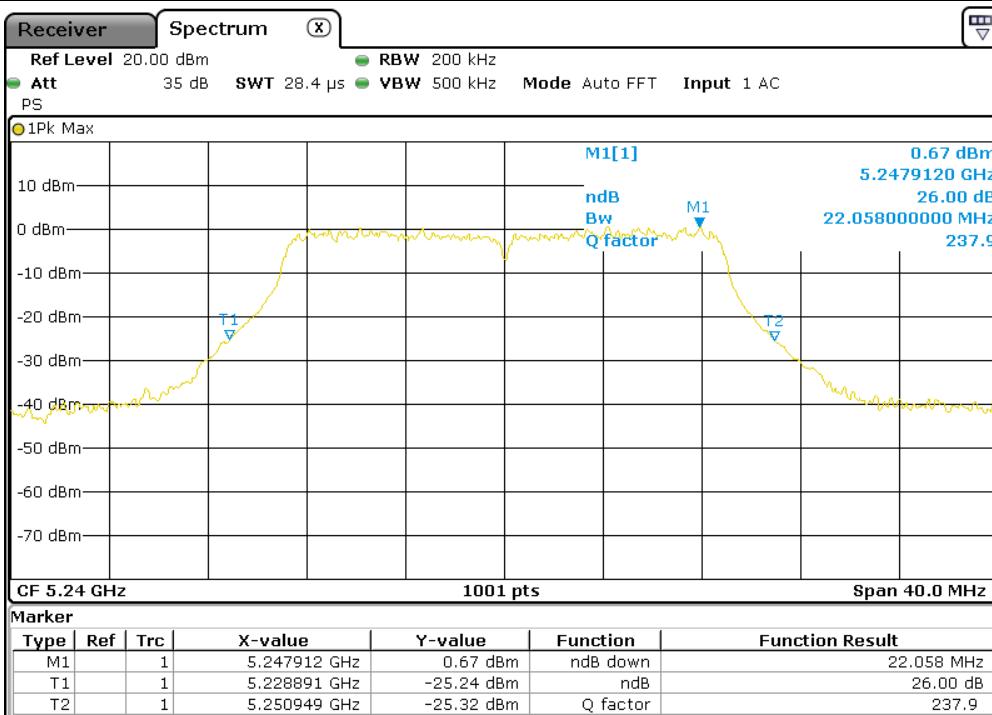
802.11 ac(VHT20)	Antenna B	Channel 36
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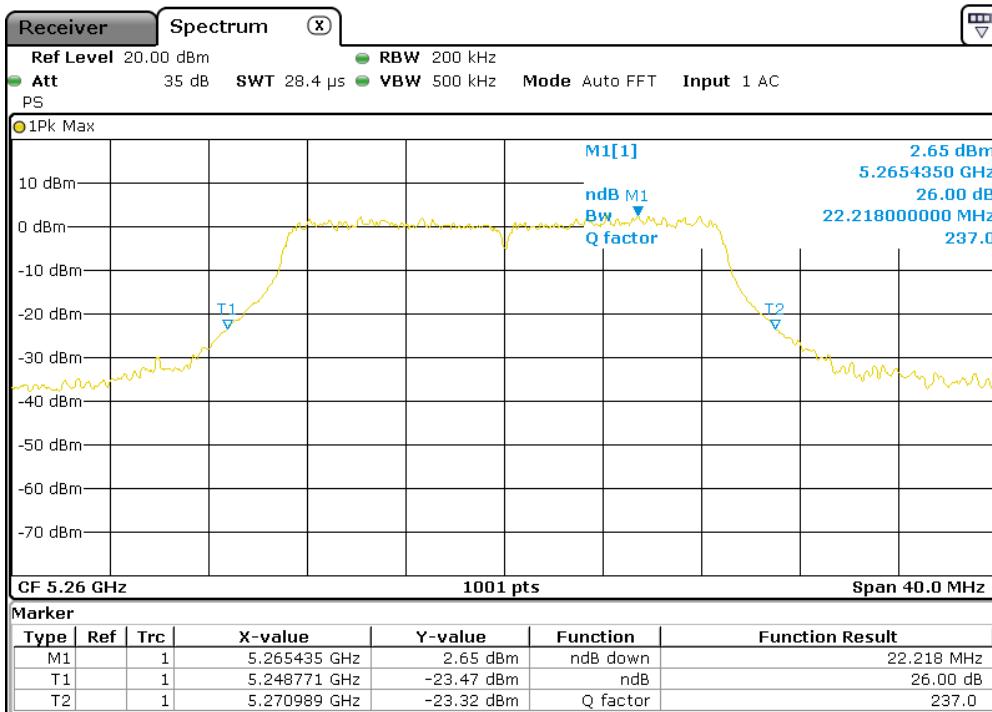
802.11 ac(VHT20)	Antenna B	Channel 40
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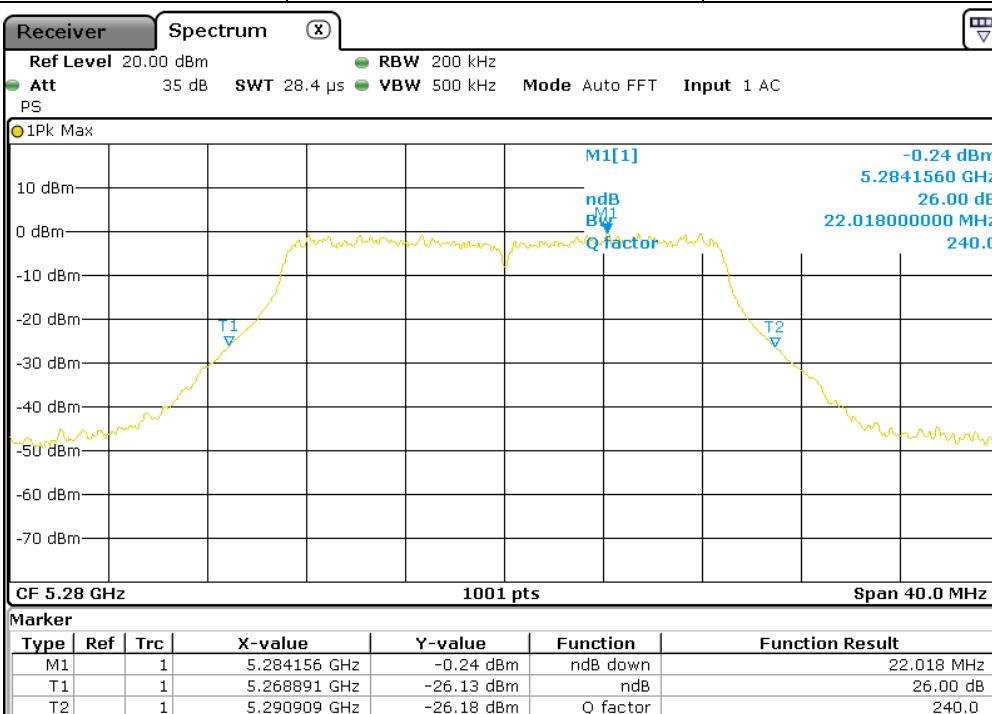
802.11 ac(VHT20)	Antenna B	Channel 48
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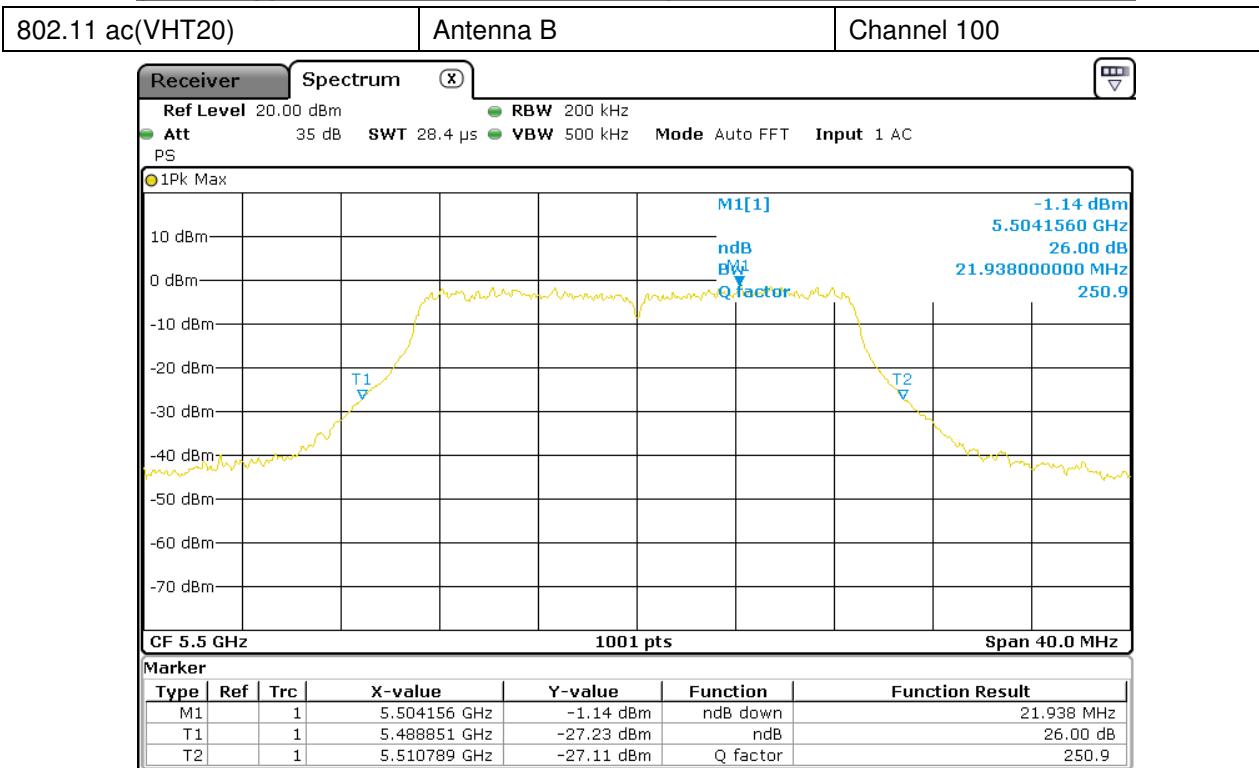
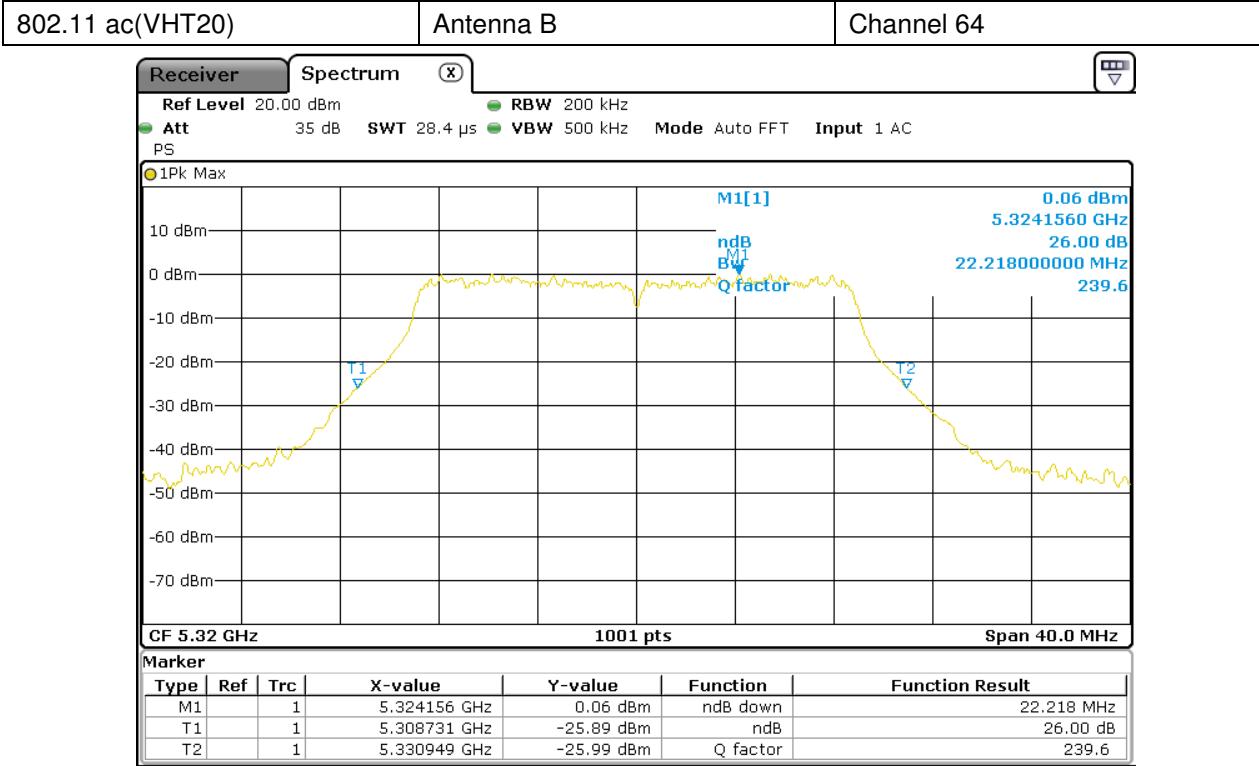


802.11 ac(VHT20)	Antenna B	Channel 52
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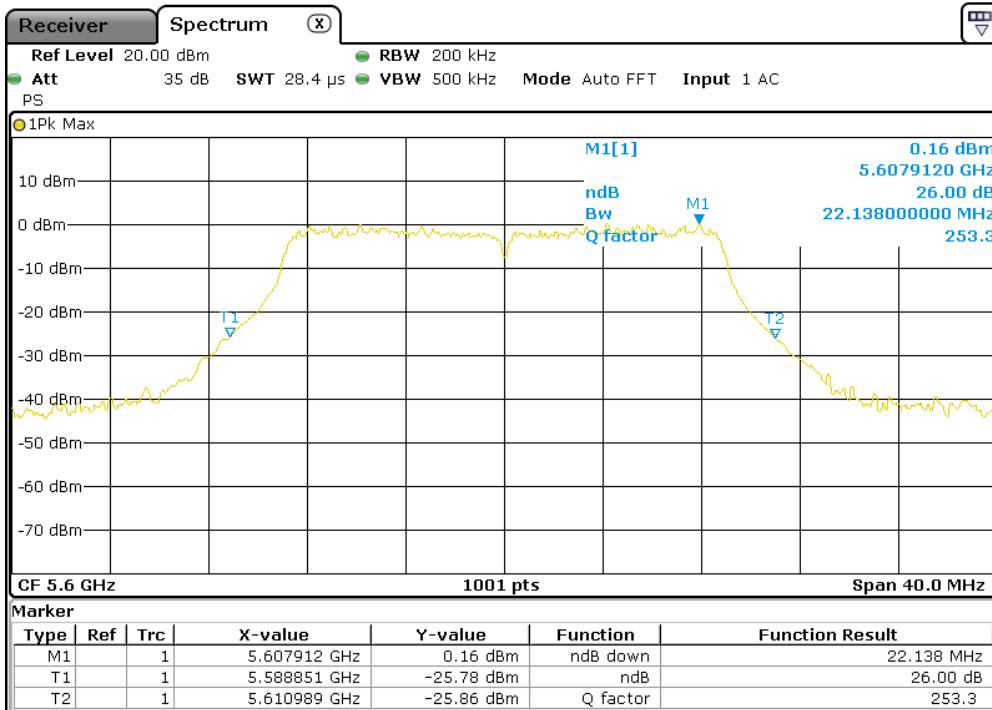


802.11 ac(VHT20)	Antenna B	Channel 56
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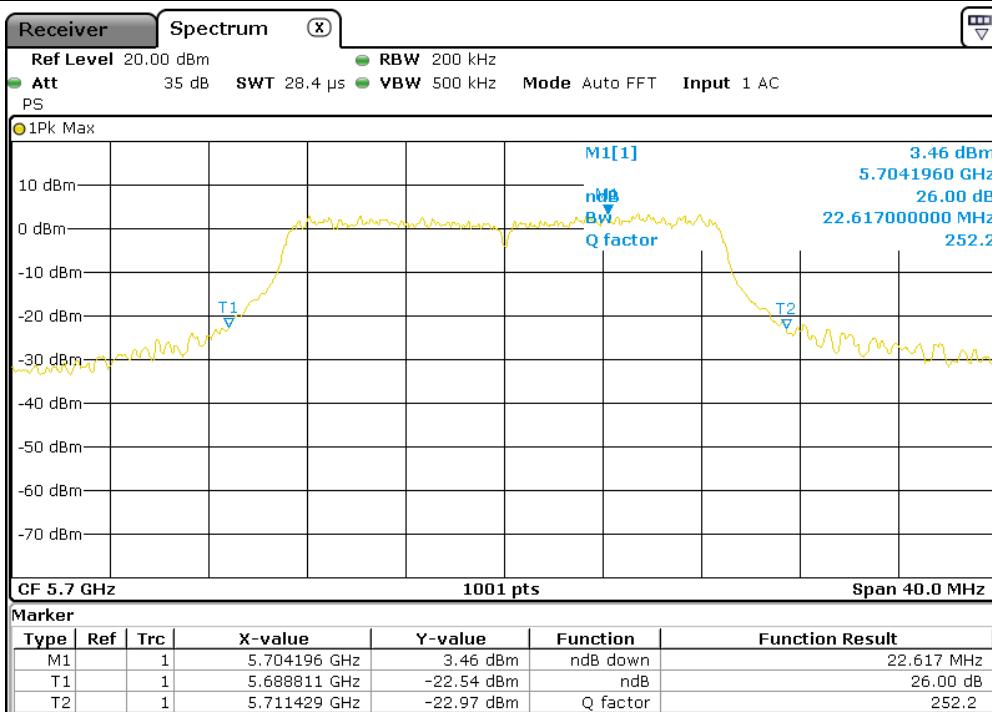




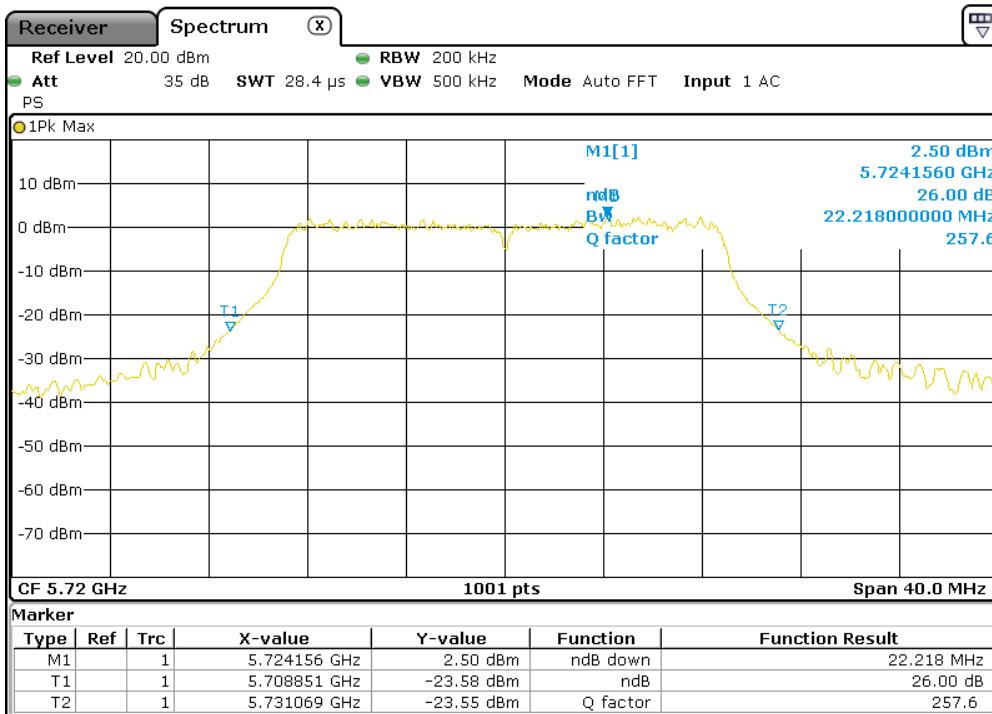
802.11 ac(VHT20)	Antenna B	Channel 120
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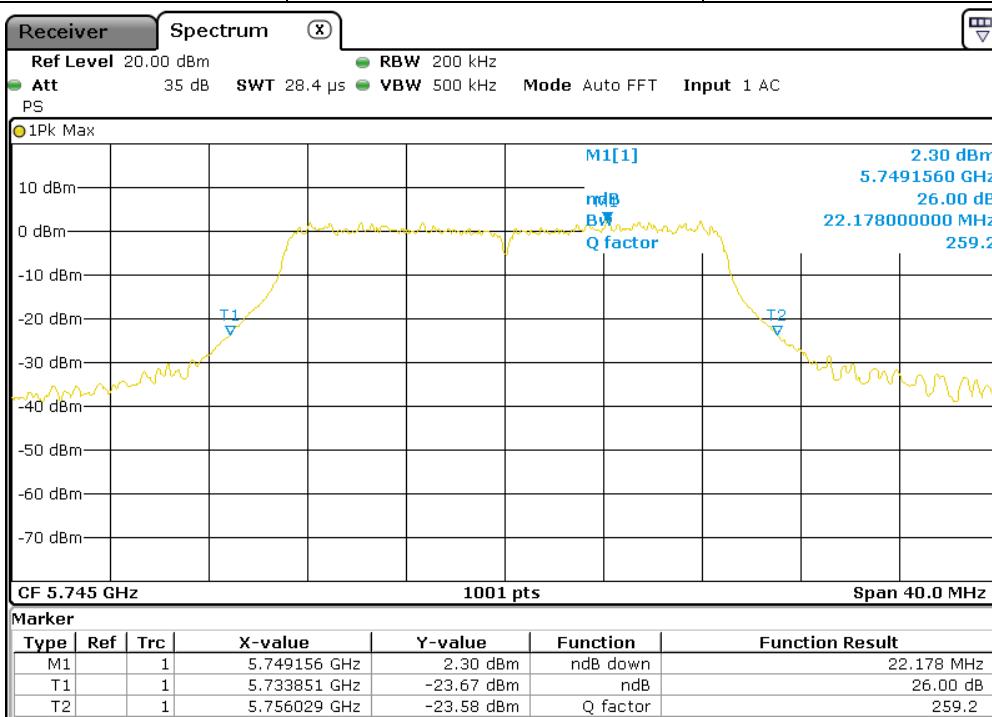
802.11 ac(VHT20)	Antenna B	Channel 140
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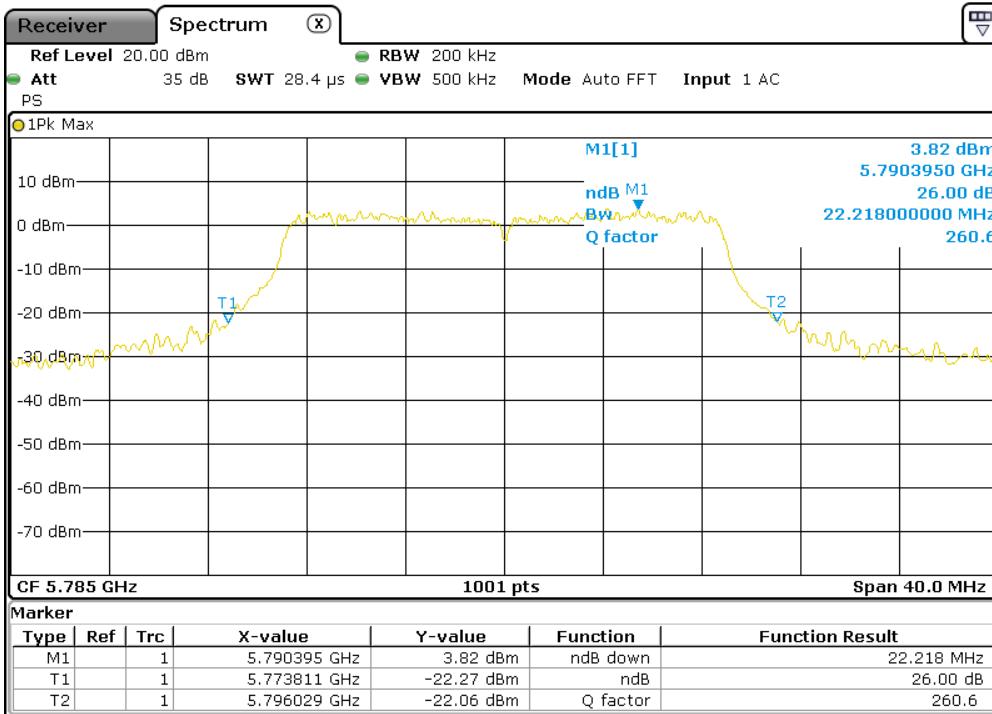
802.11 ac(VHT20)	Antenna B	Channel 144
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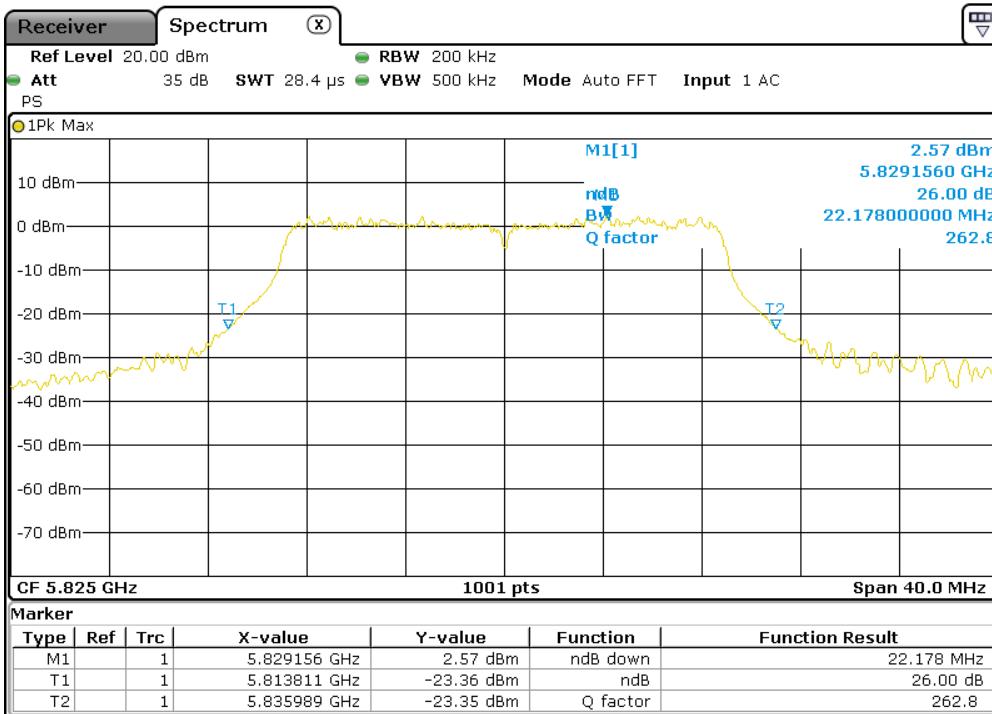
802.11 ac(VHT20)	Antenna B	Channel 149
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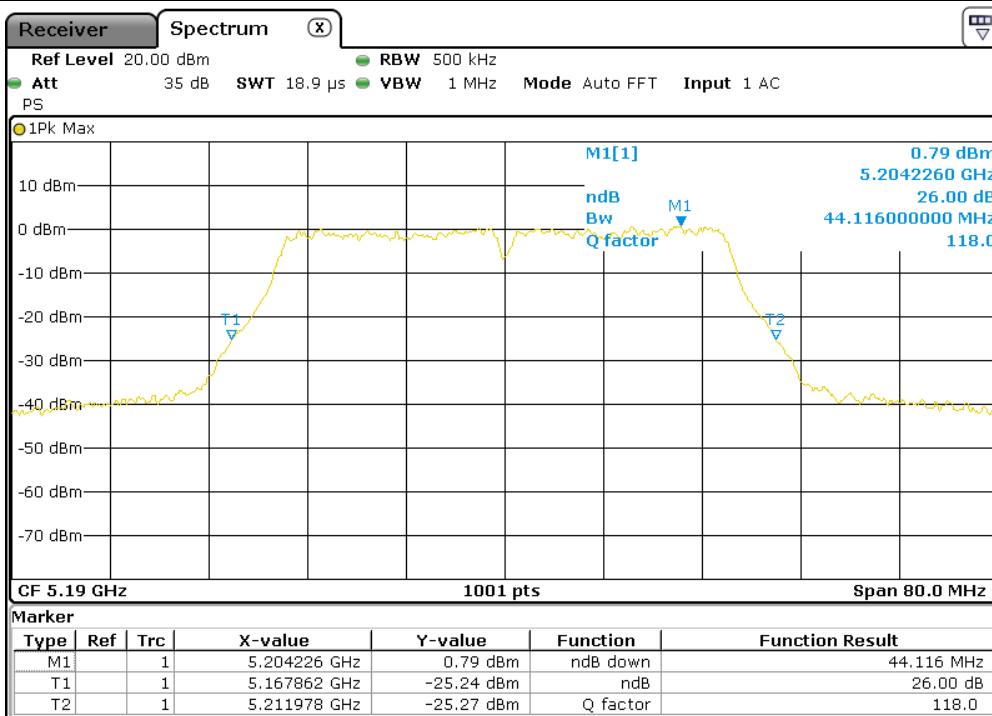
802.11 ac(VHT20)	Antenna B	Channel 157
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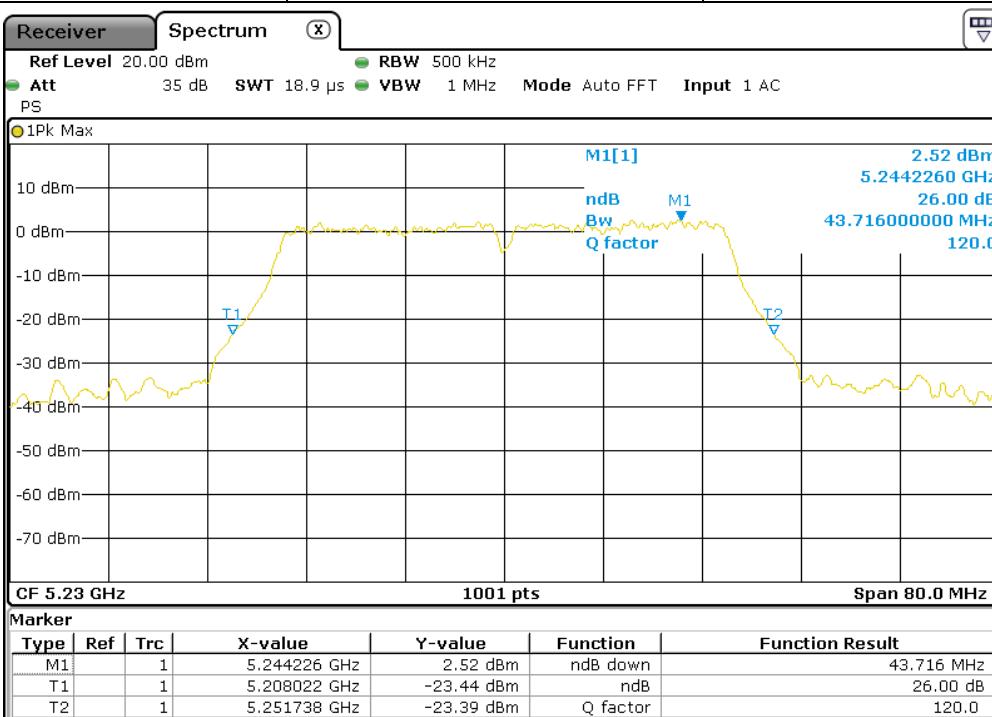
802.11 ac(VHT20)	Antenna B	Channel 165
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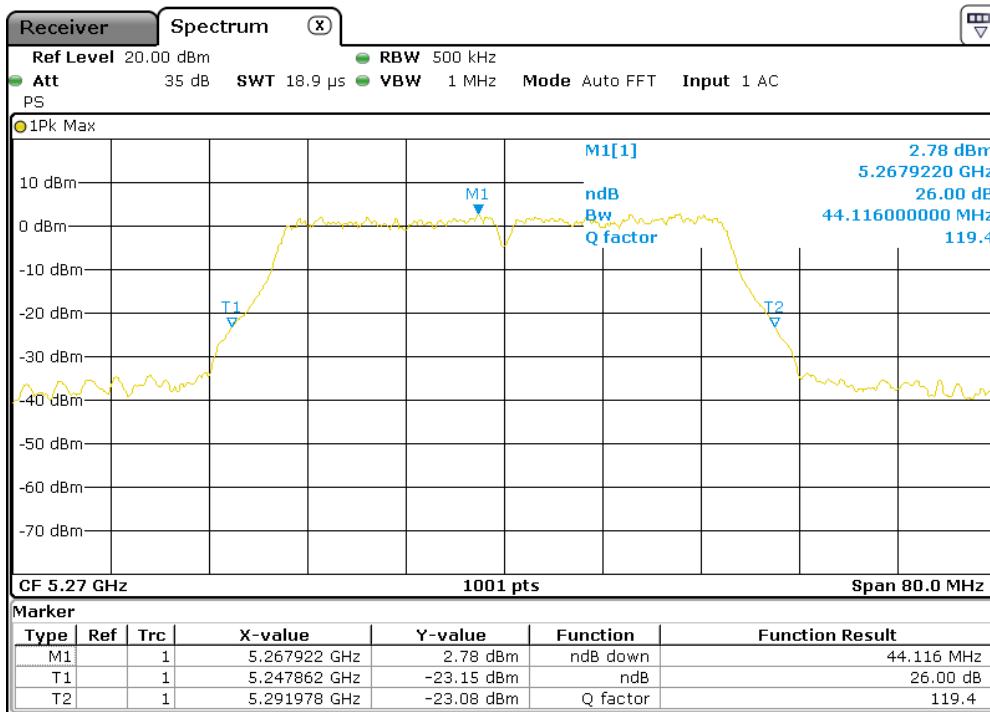
802.11 ac(VHT40)	Antenna B	Channel 38
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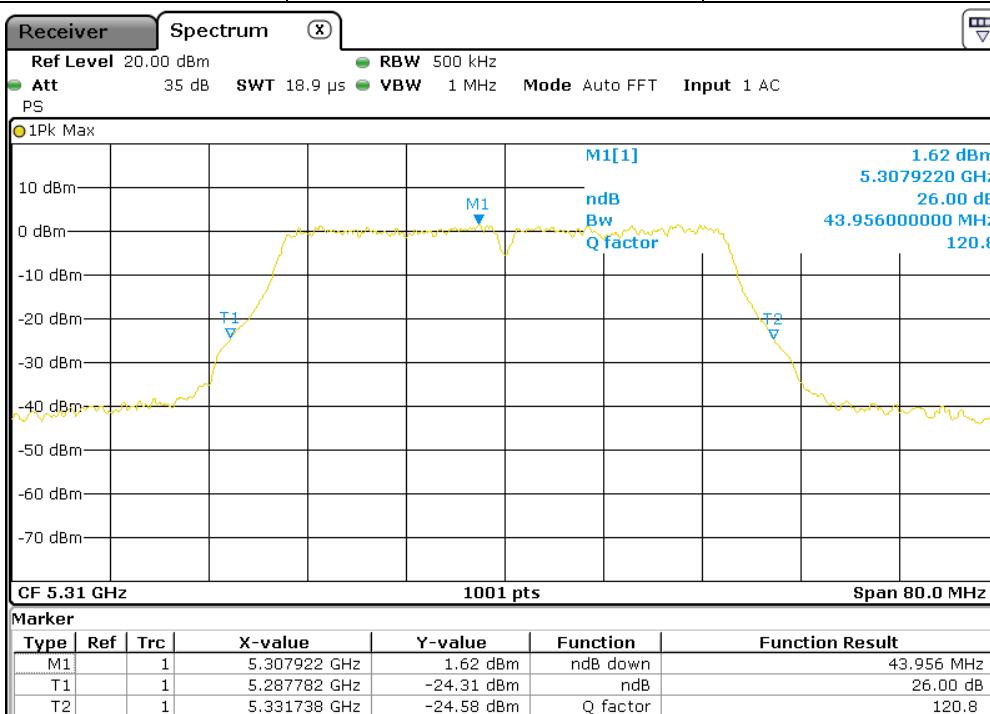
802.11 ac(VHT40)	Antenna B	Channel 46
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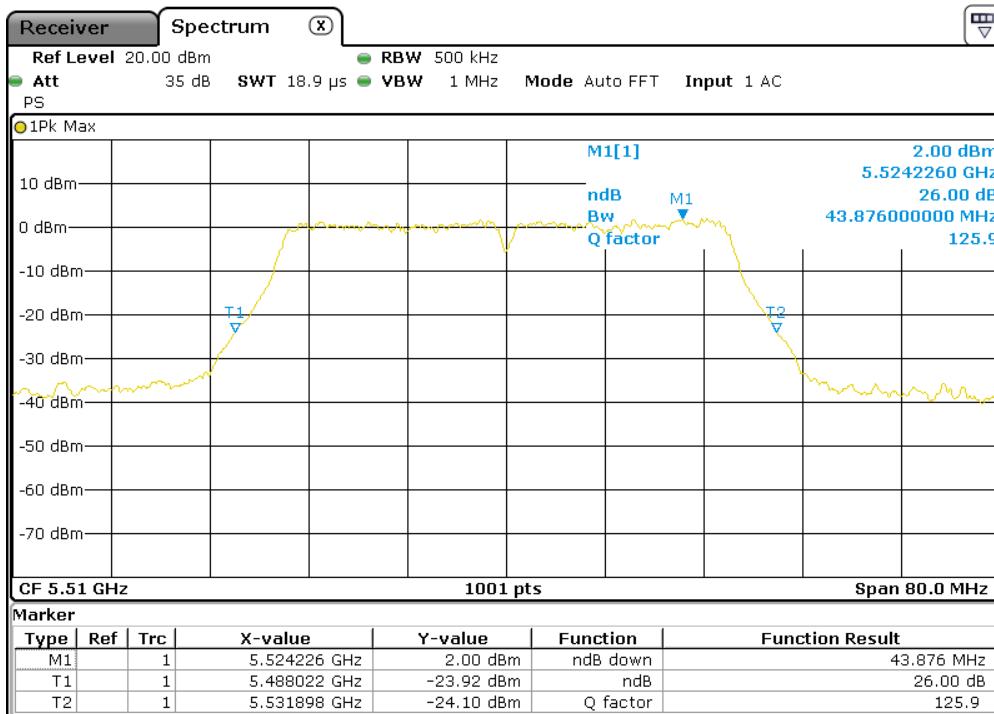
802.11 ac(VHT40)	Antenna B	Channel 54
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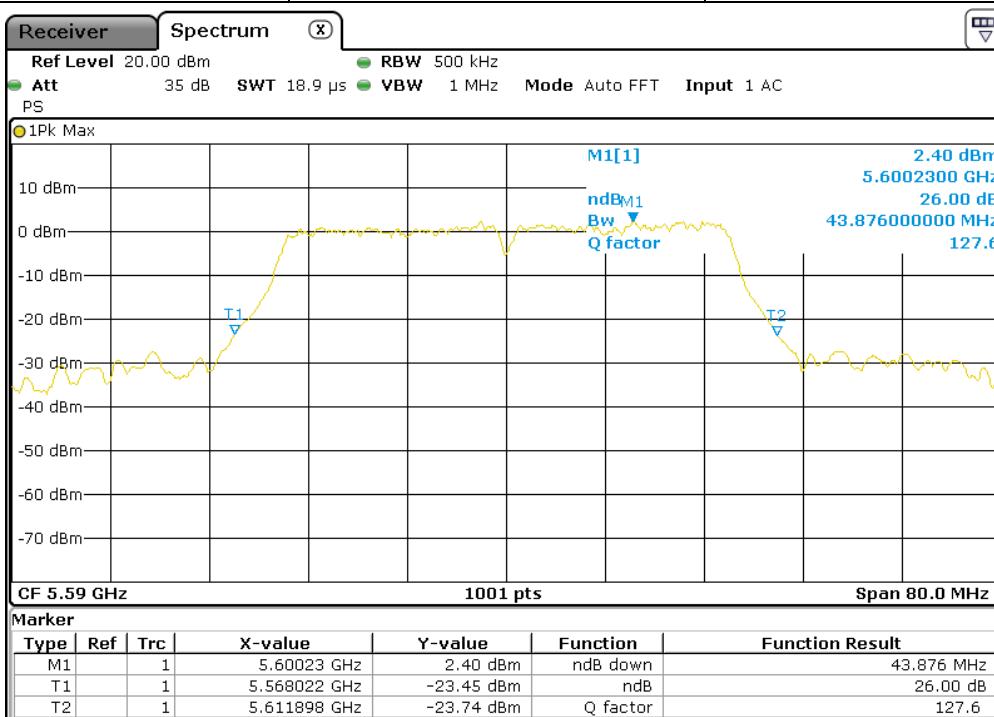
802.11 ac(VHT40)	Antenna B	Channel 62
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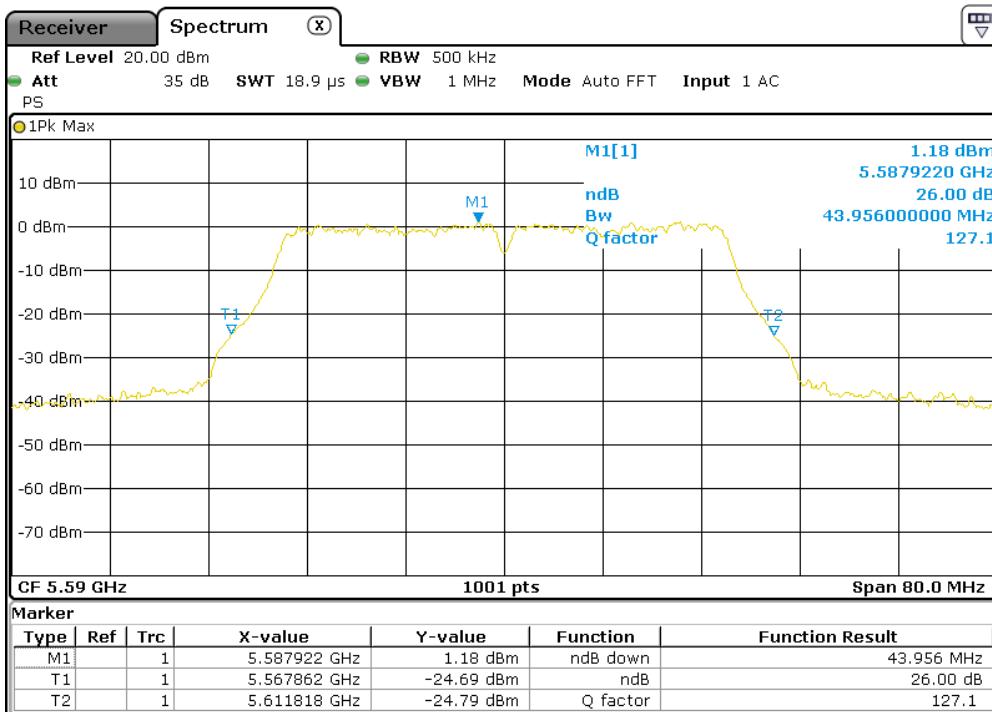
802.11 ac(VHT40)	Antenna B	Channel 102
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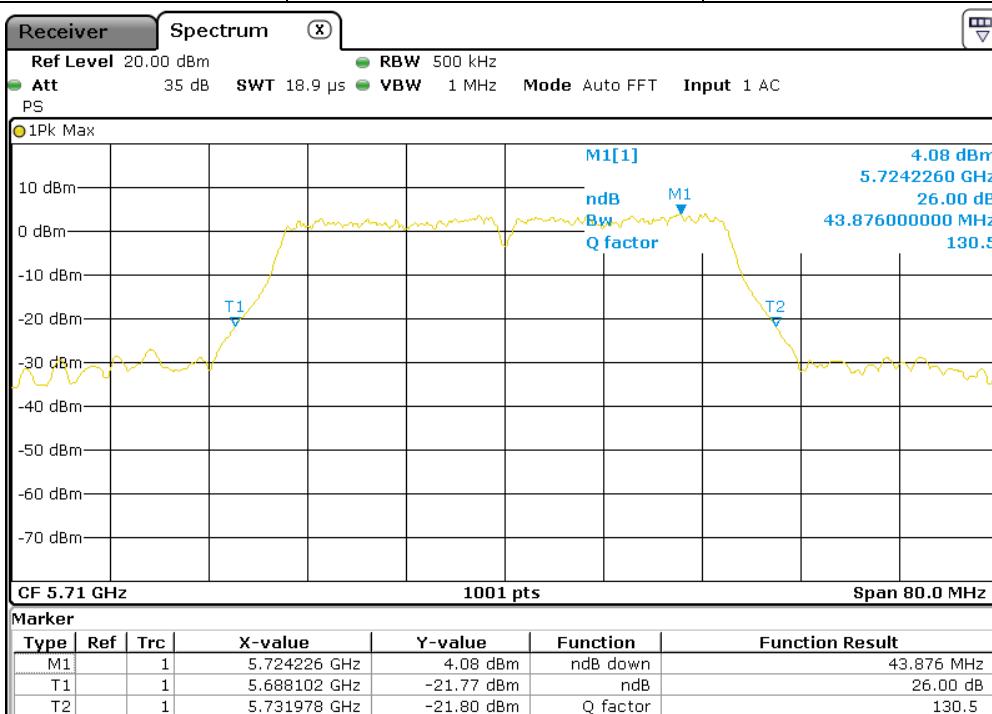
802.11 ac(VHT40)	Antenna B	Channel 118
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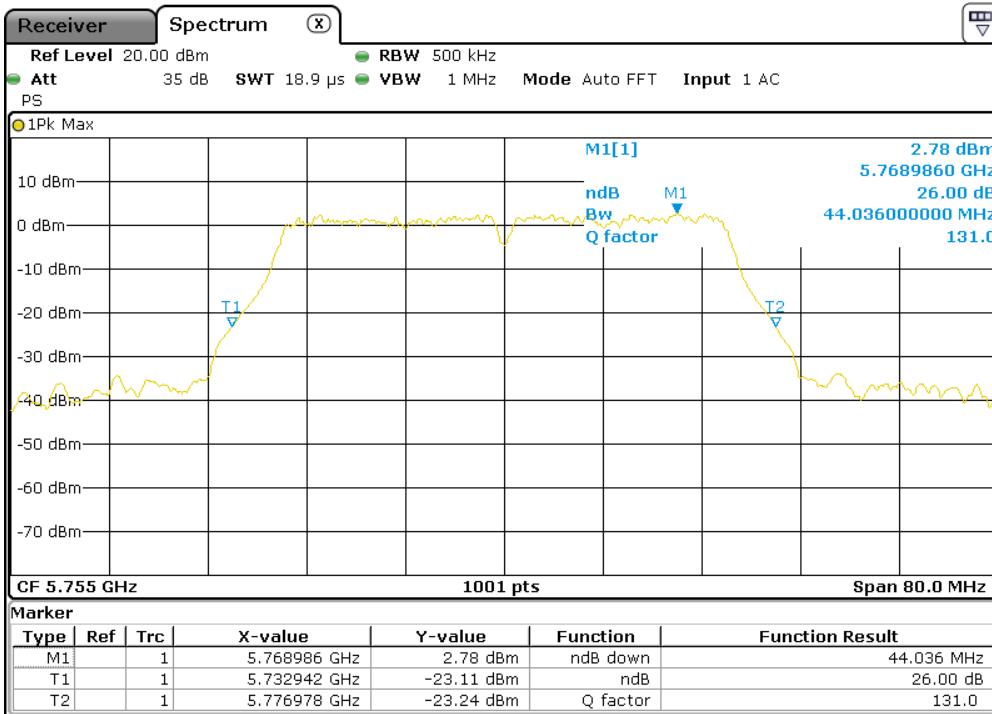
802.11 ac(VHT40)	Antenna B	Channel 134
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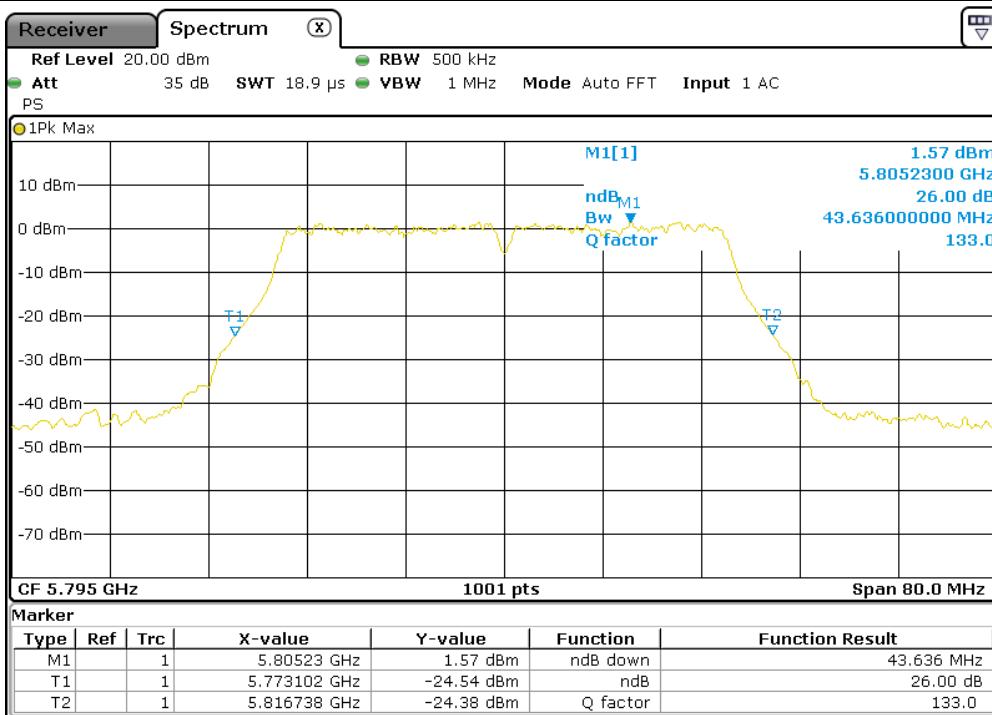
802.11 ac(VHT40)	Antenna B	Channel 142
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802.11 ac(VHT40)	Antenna B	Channel 151
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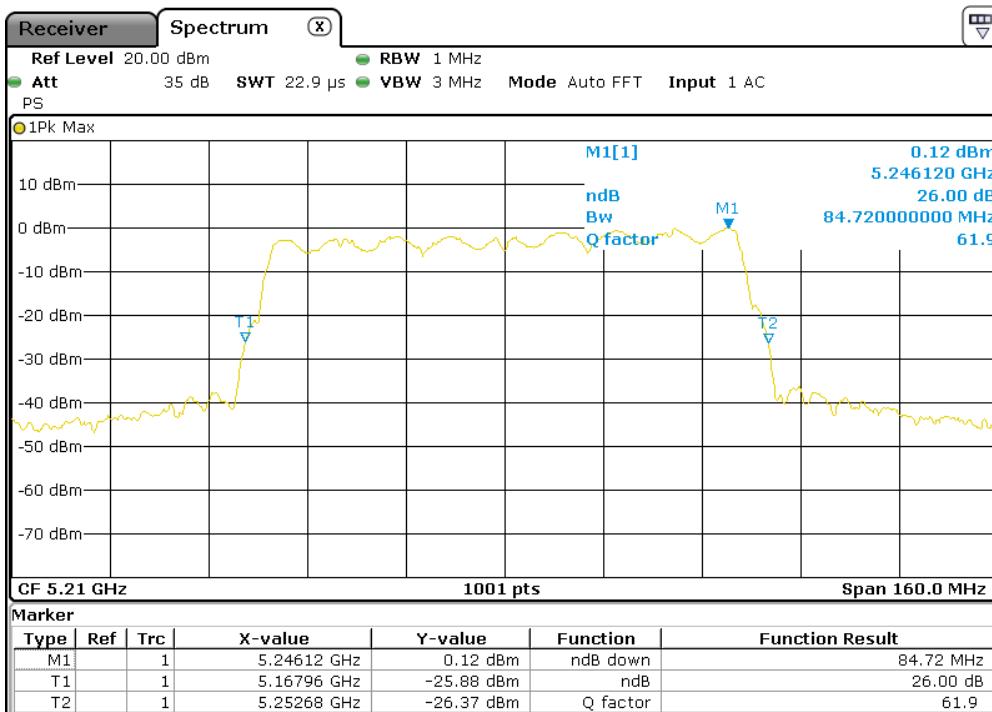
802.11 ac(VHT40)	Antenna B	Channel 159
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802.11 ac(VHT80)

Antenna B

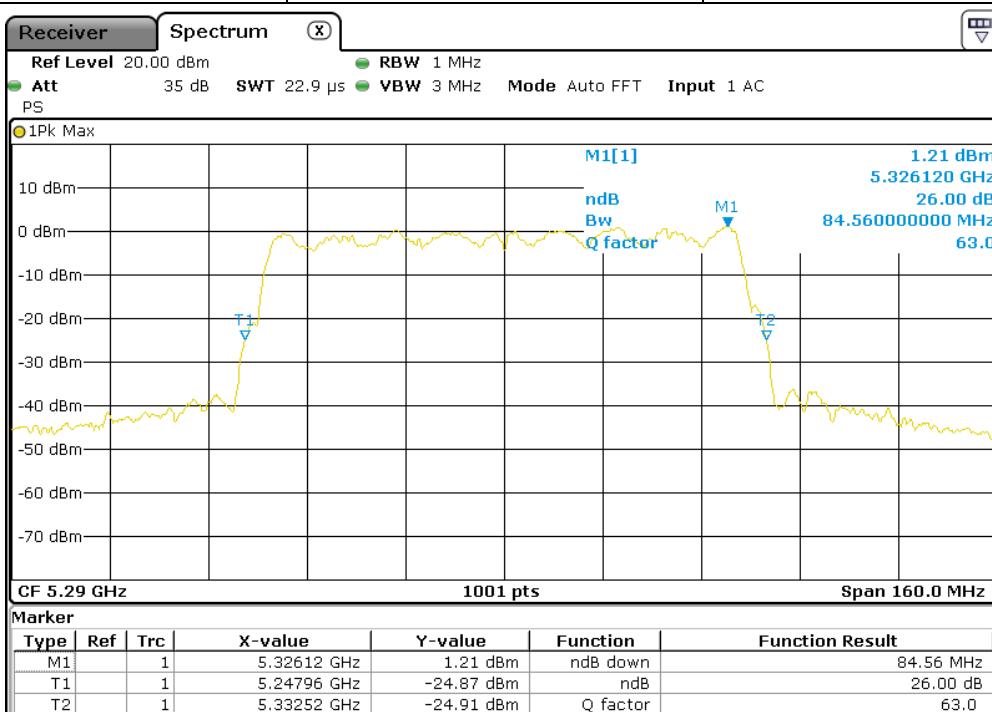
Channel 42



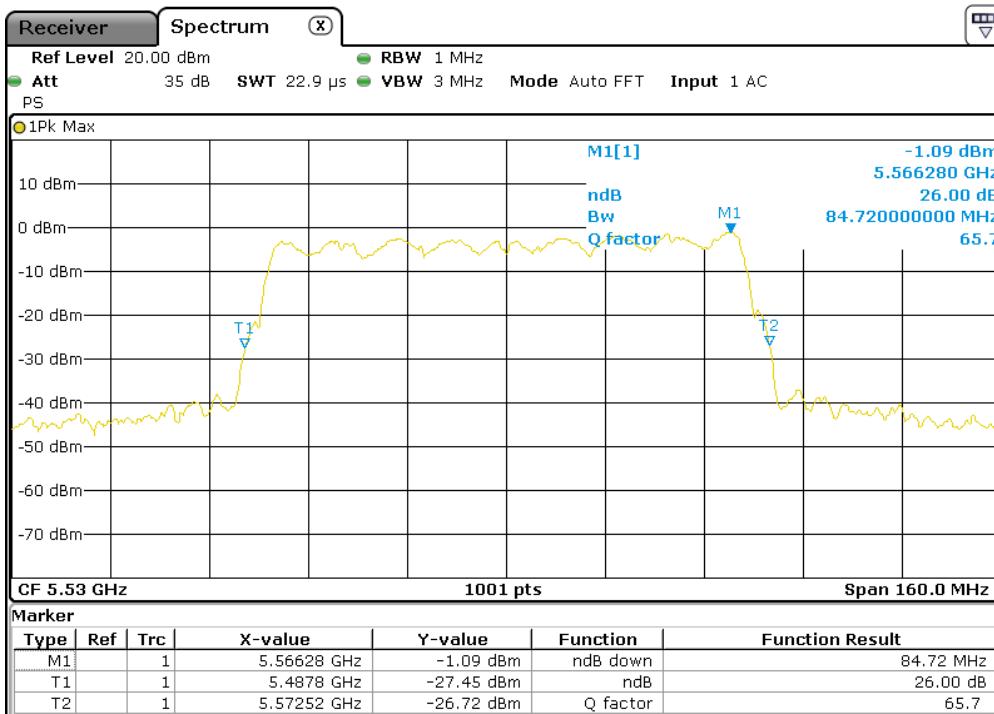
802.11 ac(VHT80)

Antenna B

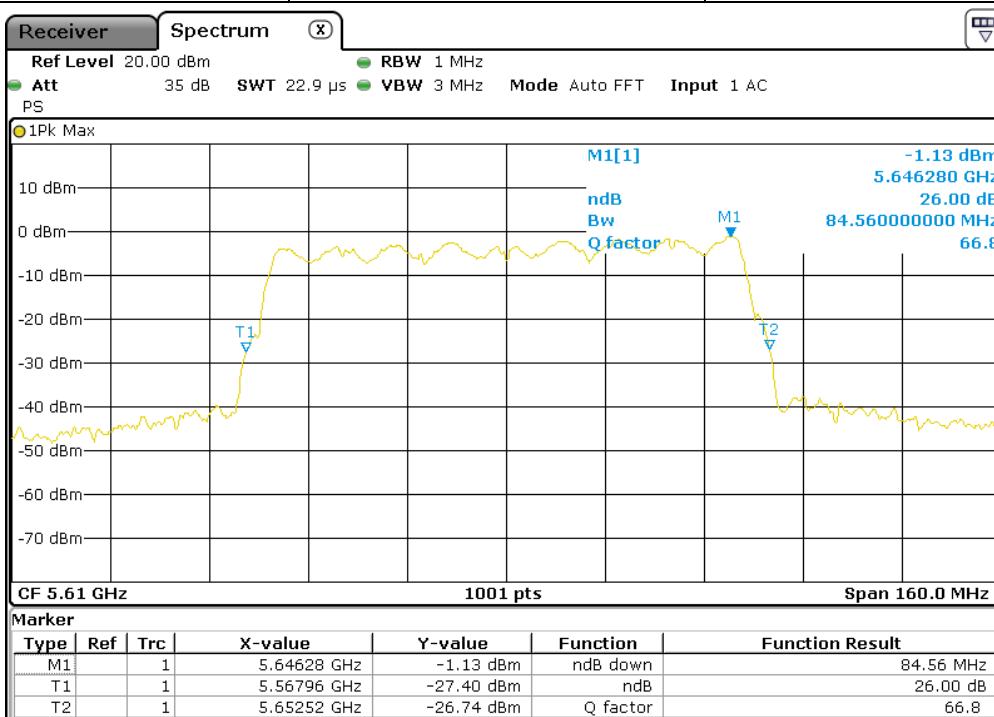
Channel 58



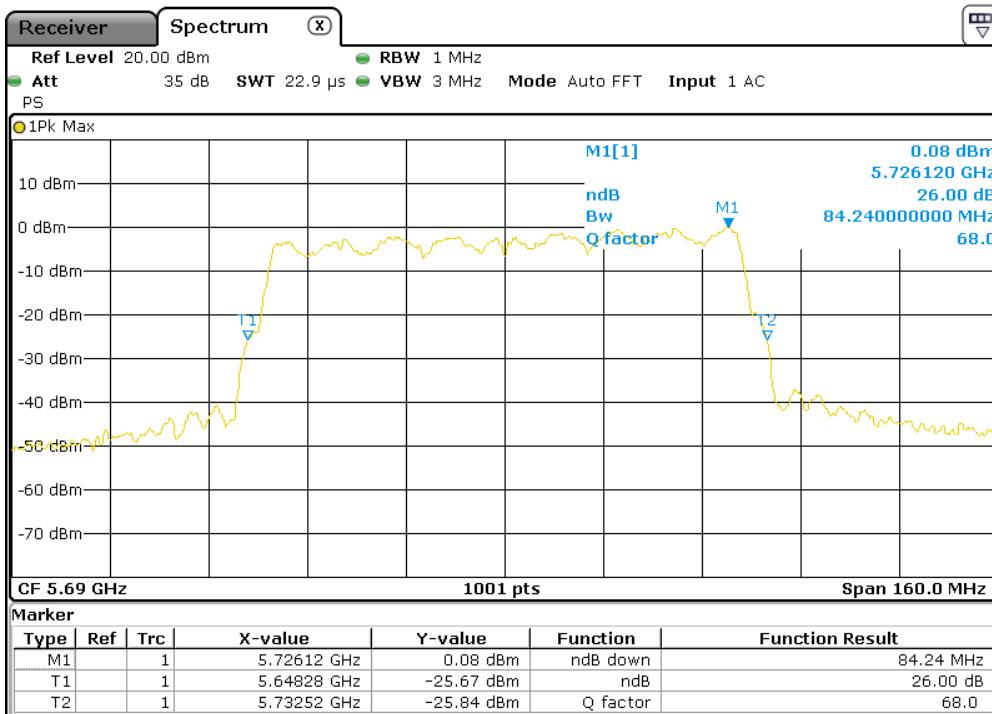
802.11 ac(VHT80)	Antenna B	Channel 106
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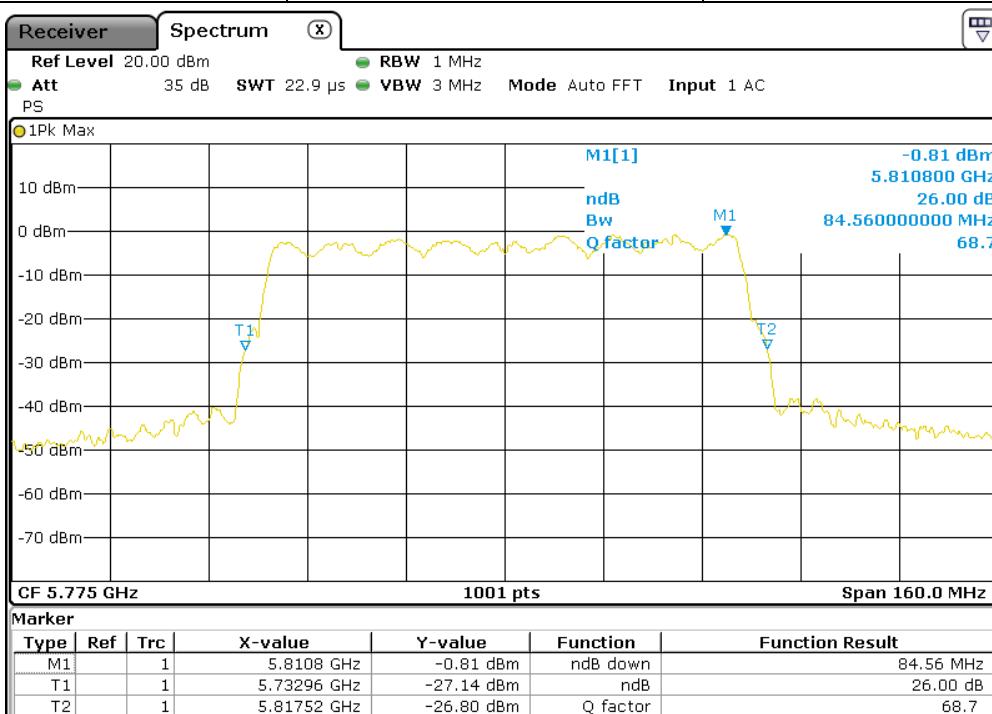
802.11 ac(VHT80)	Antenna B	Channel 122
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802.11 ac(VHT80)	Antenna B	Channel 138
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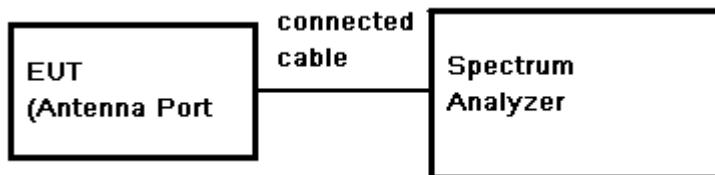


802.11 ac(VHT80)	Antenna B	Channel 155
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## 7.6 Minimum 6 dB bandwidth

**Test Configuration:**



**Test Procedure:**

- 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.
- Set the spectrum analyzer as RBW=100KHz, VBW $\geq$ 3\* RBW, Span=40/80/160MHz, Sweep=auto couple
- Mark the peak frequency and -6dB (upper and lower) frequency.
- Repeat above procedures until all frequency measured was complete.

**Limit:**

$\geq 500$  kHz (For 5.725-5.85 GHz band)

**Test Result:**

Pass

**Test Data:**

**For Antenna A:**

Band	802.11a			802.11 n(HT20)			802.11n(HT40)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 3	149	5745	16.543	149	5745	17.877	151	5755	36.603
	157	5785	16.543	157	5785	17.742	--	--	--
	165	5825	16.543	165	5825	17.822	159	5795	36.623
Band	802.11ac(HT20)			802.11 ac(HT40)			802.11ac(HT80)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 3	149	5745	17.862	151	5755	36.643	155	5775	76.720
	157	5785	17.902	--	--	--	--	--	--
	165	5825	17.822	159	5795	36.623	--	--	--

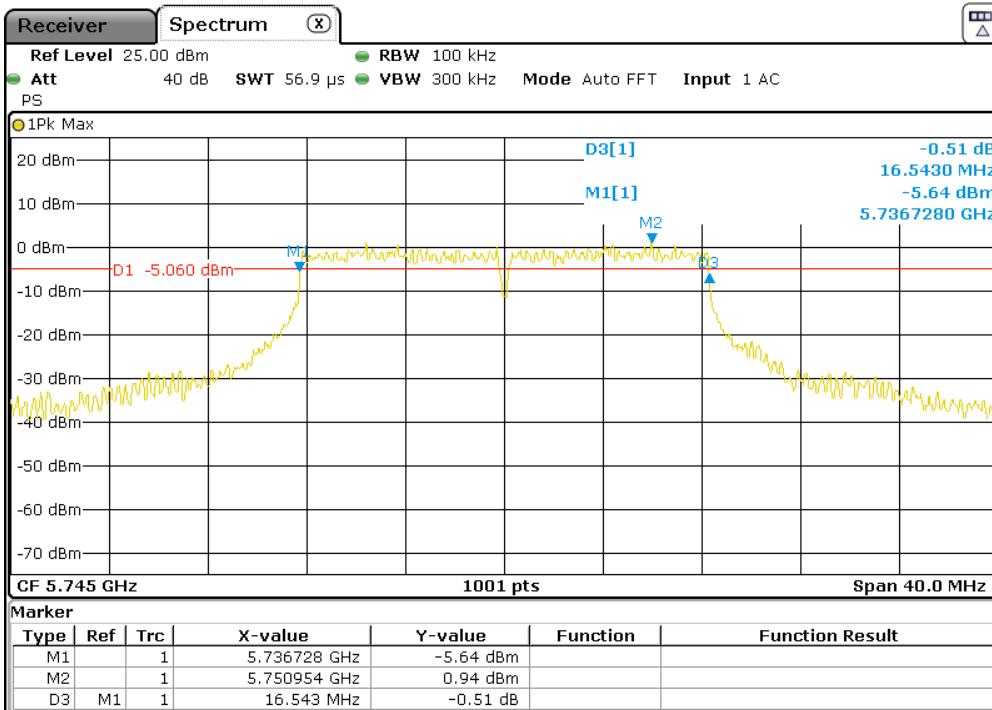
**For Antenna B:**

Band	802.11a			802.11 n(HT20)			802.11n(HT40)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 3	149	5745	16.558	149	5745	17.862	151	5755	36.563
	157	5785	16.543	157	5785	17.822	--	--	--
	165	5825	16.543	165	5825	17.822	159	5795	36.643
Band	802.11ac(HT20)			802.11 ac(HT40)			802.11ac(HT80)		
	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)	CH No.	Freq(MHz)	BW (MHz)
U-NII 3	149	5745	17.877	151	5755	36.563	155	5775	76.720
	157	5785	17.822	--	--	--	--	--	--
	165	5825	17.862	159	5795	36.643	--	--	--

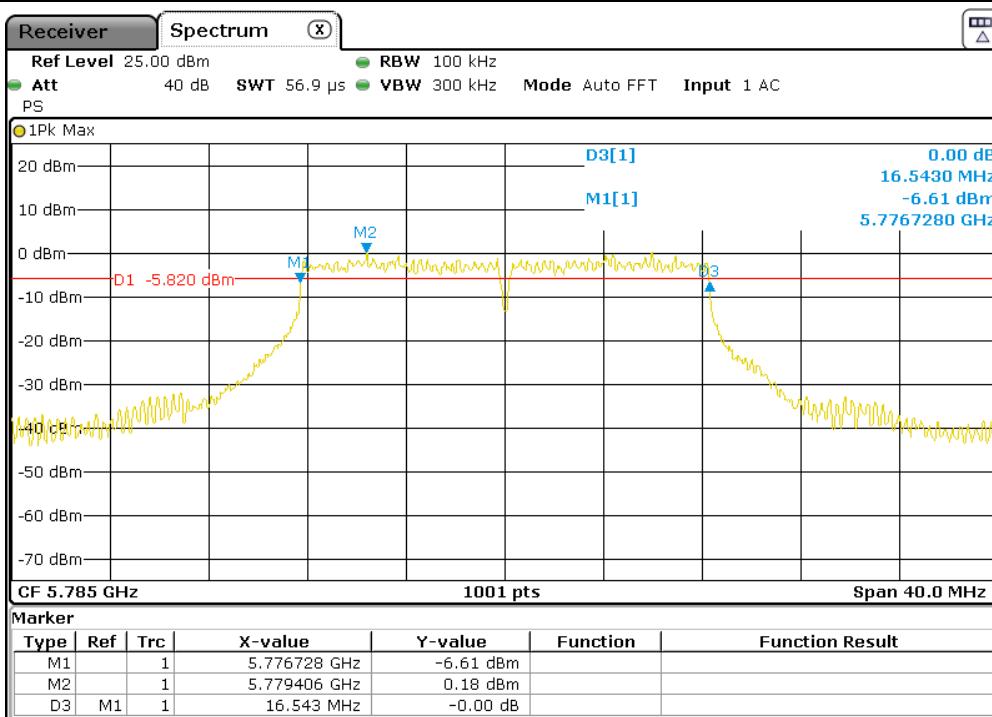
**TEST RESULTS:** The unit does meet the requirements.

Test plot as follows:

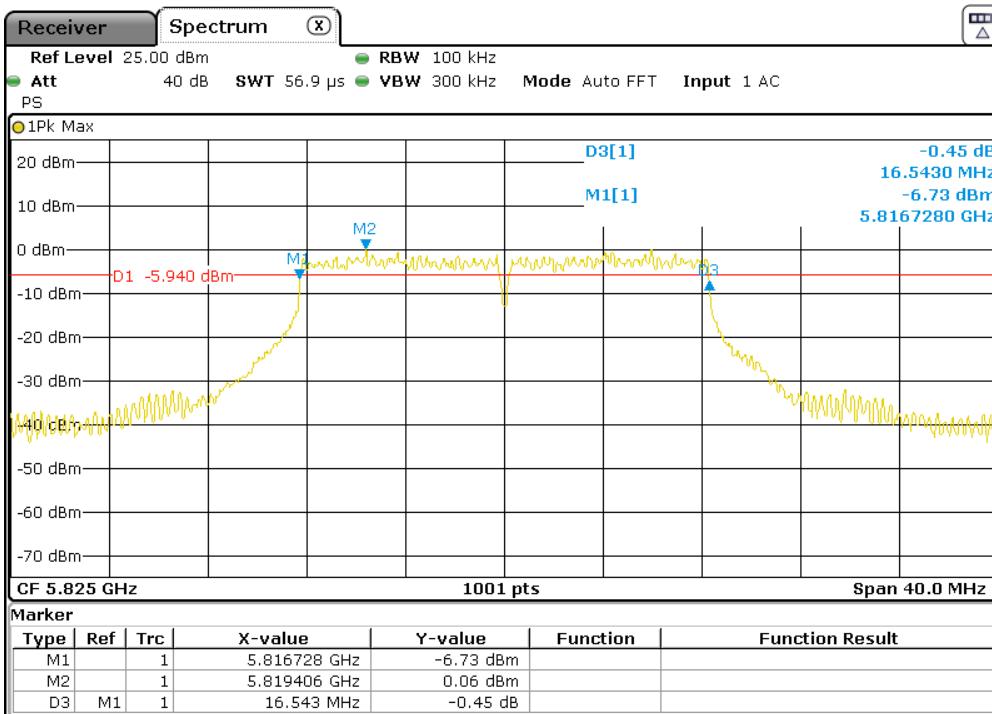
802.11 a	Antenna A	Channel 149
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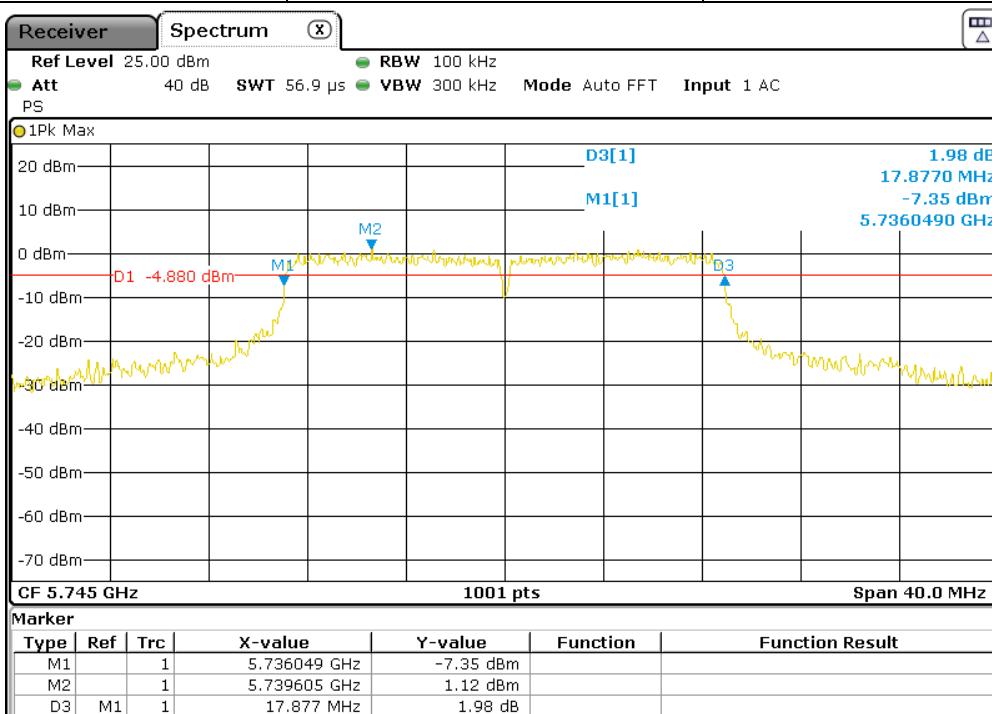
802.11 a	Antenna A	Channel 157
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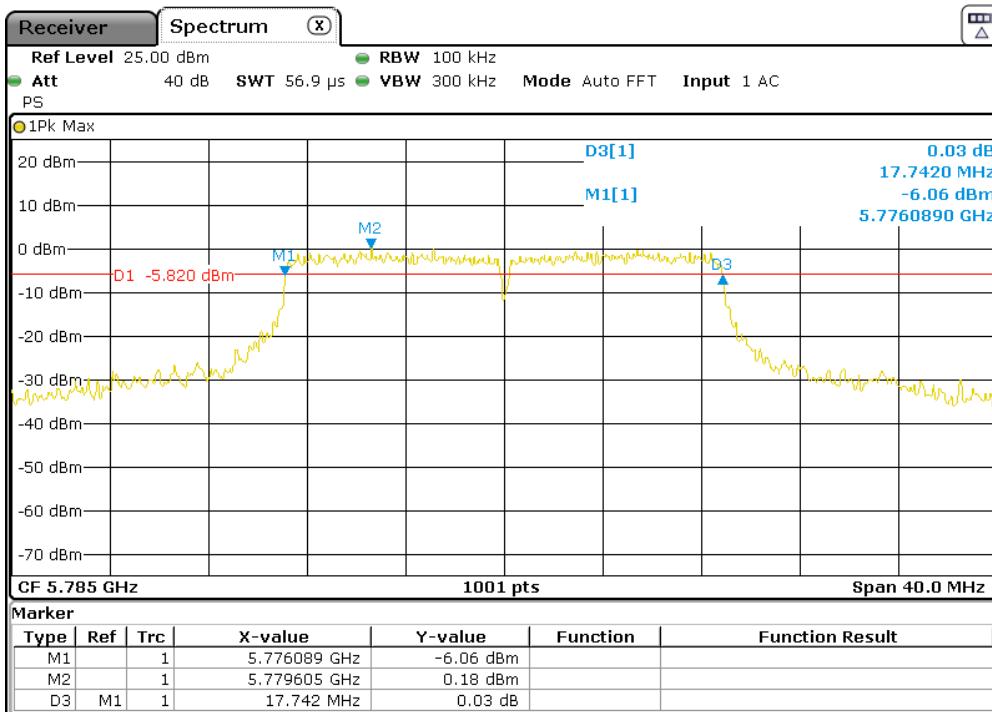
802.11 a	Antenna A	Channel 165
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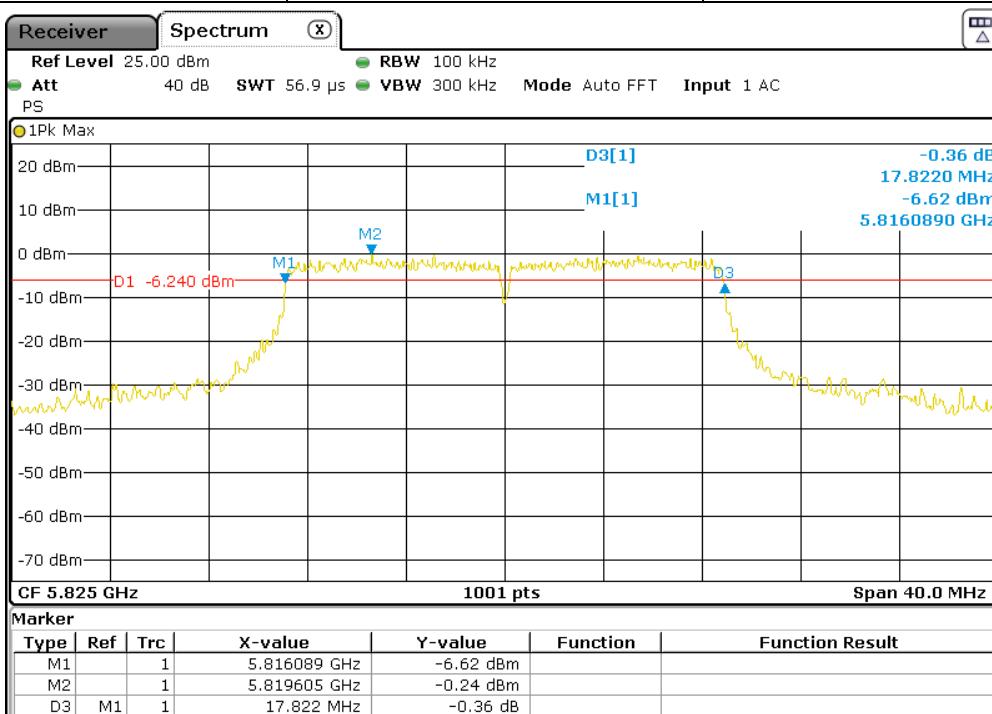
802.11 n(HT20)	Antenna A	Channel 149
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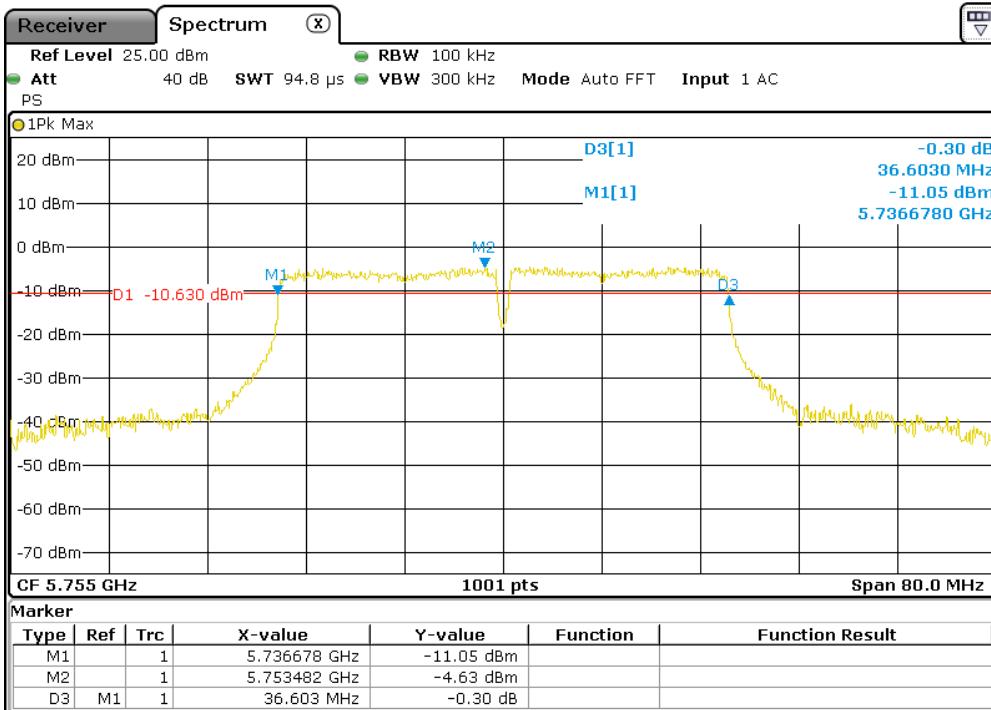
802.11 n(HT20)	Antenna A	Channel 157
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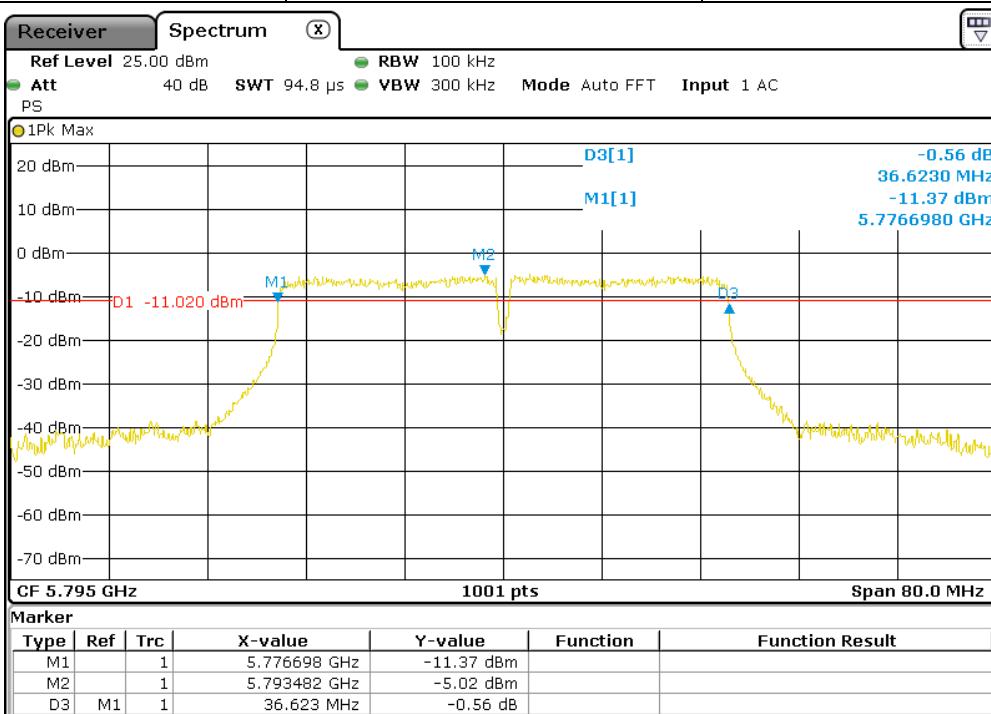
802.11 n(HT20)	Antenna A	Channel 165
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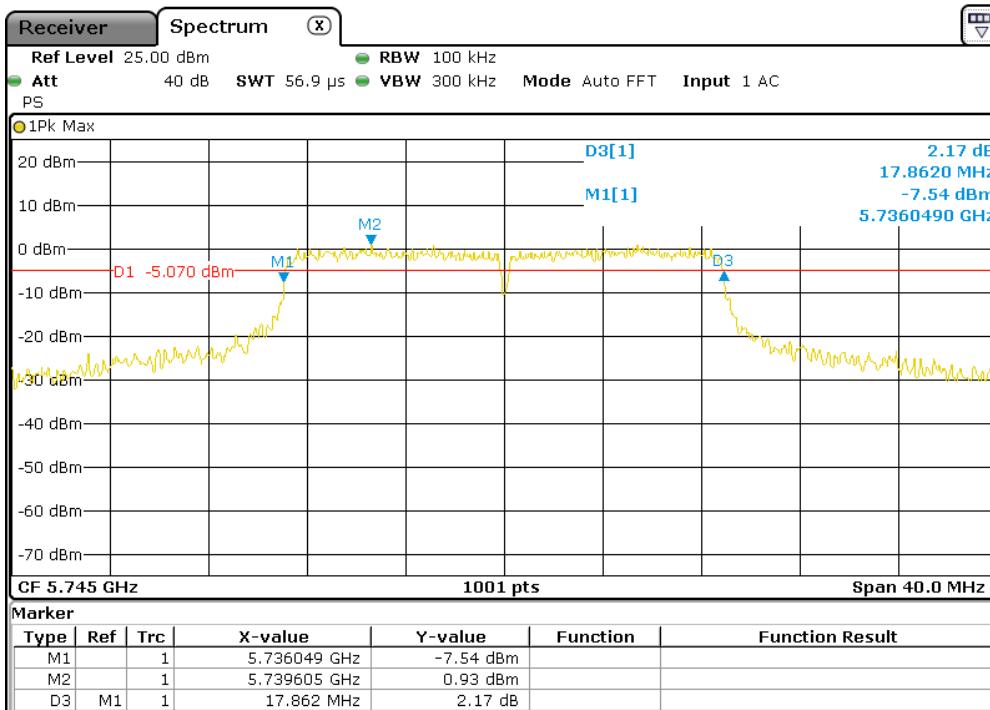
802.11 n(HT40)	Antenna A	Channel 151
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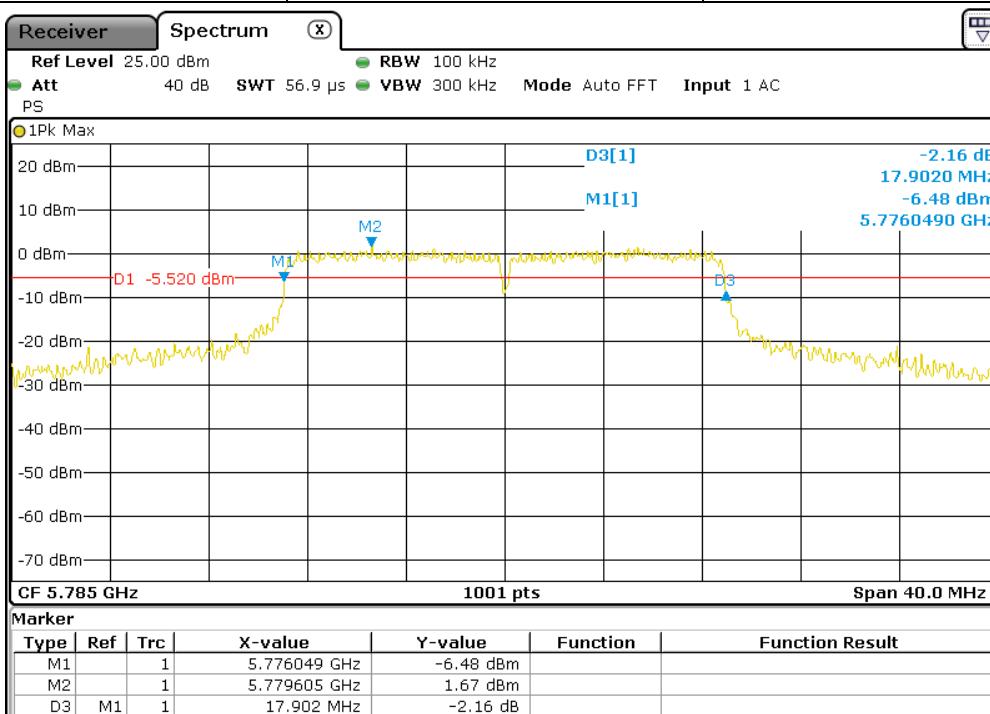
802.11 n(HT40)	Antenna A	Channel 159
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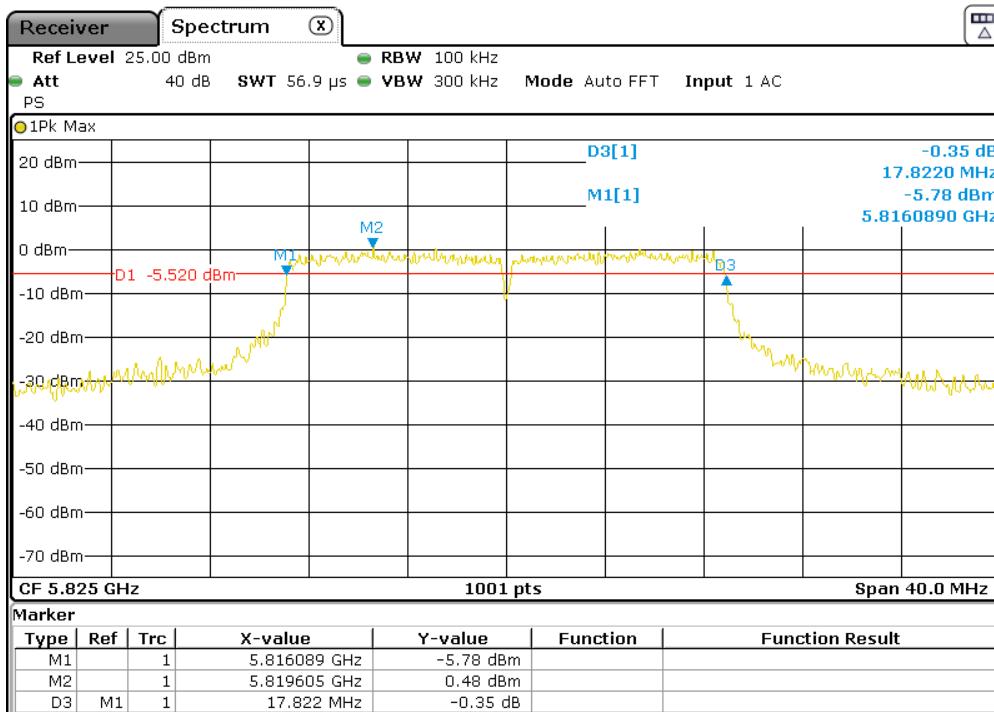
802.11 ac(VHT20)	Antenna A	Channel 149
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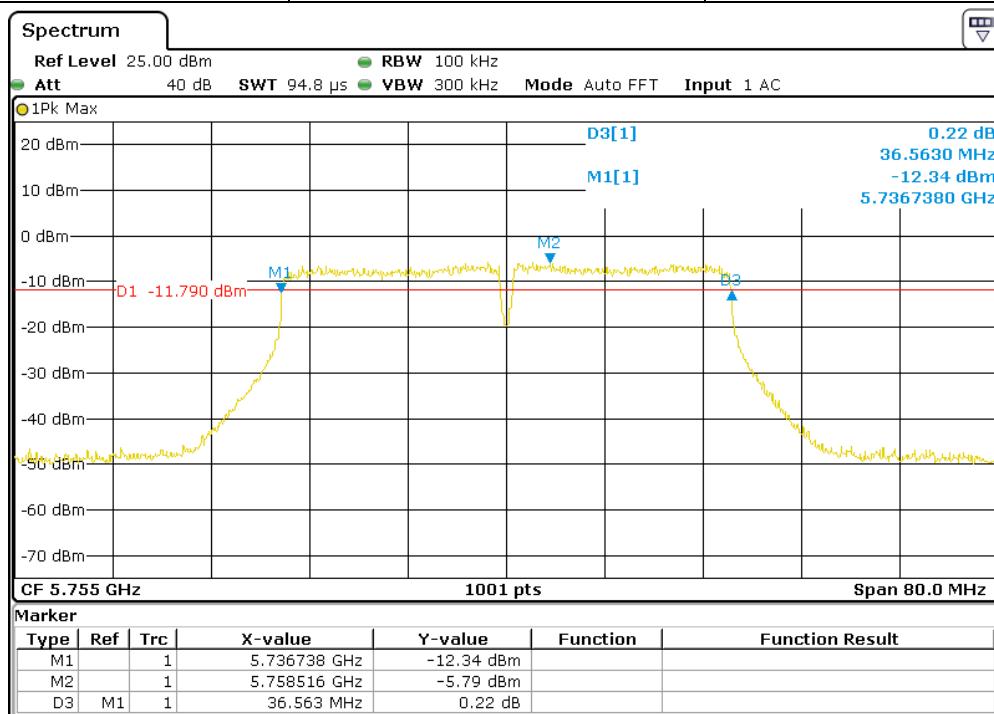
802.11 ac(VHT20)	Antenna A	Channel 157
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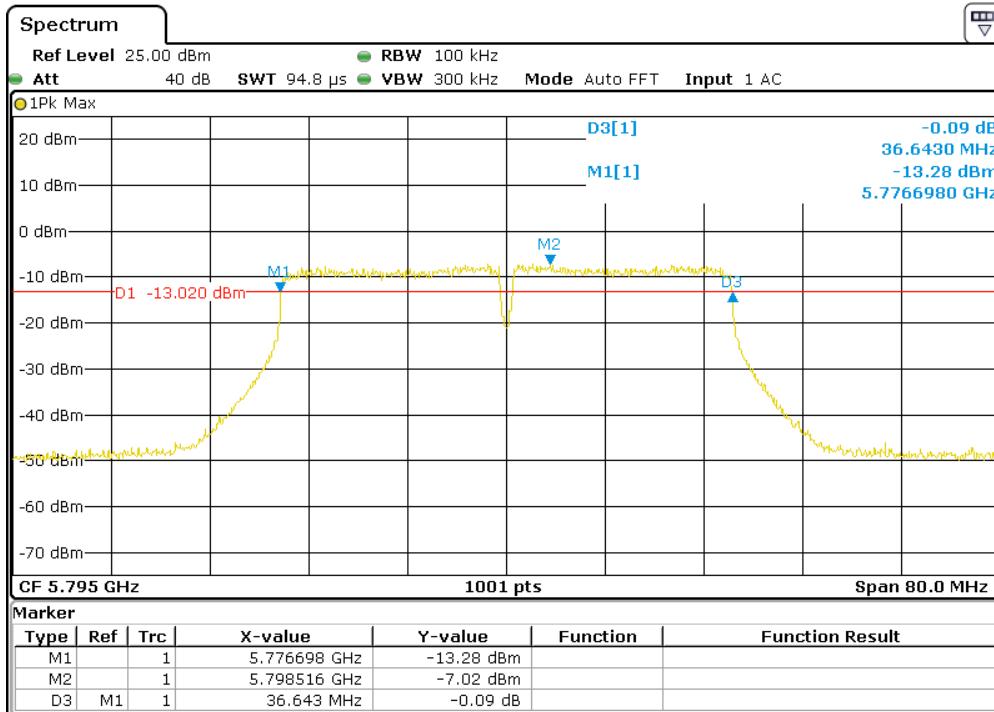
802.11 ac(VHT20)	Antenna A	Channel 165
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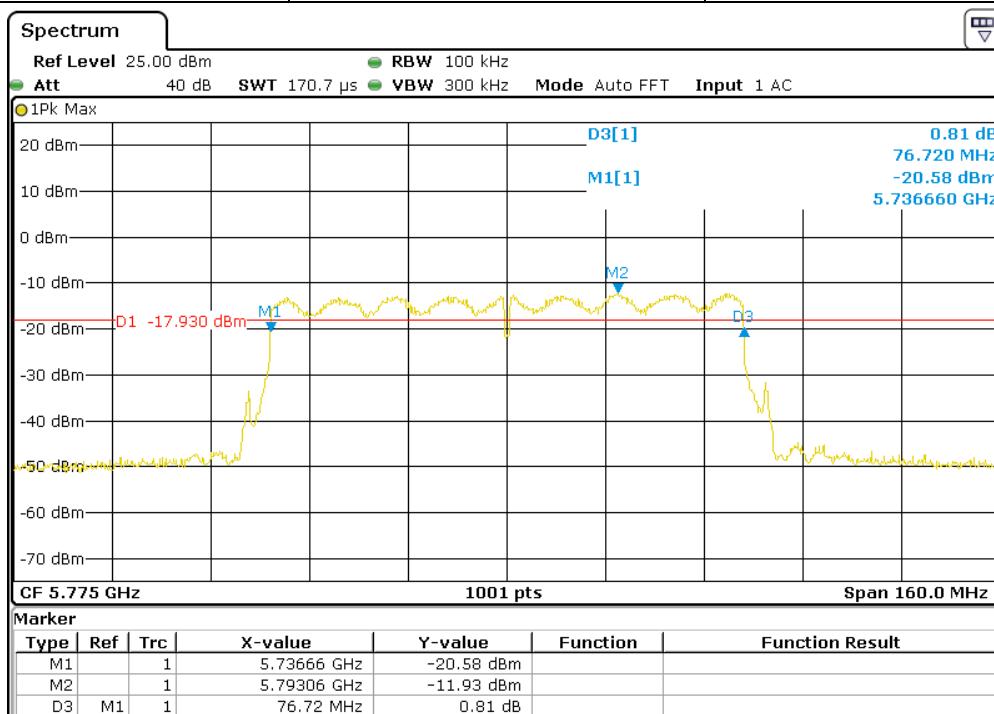
802.11 ac(VHT40)	Antenna A	Channel 151
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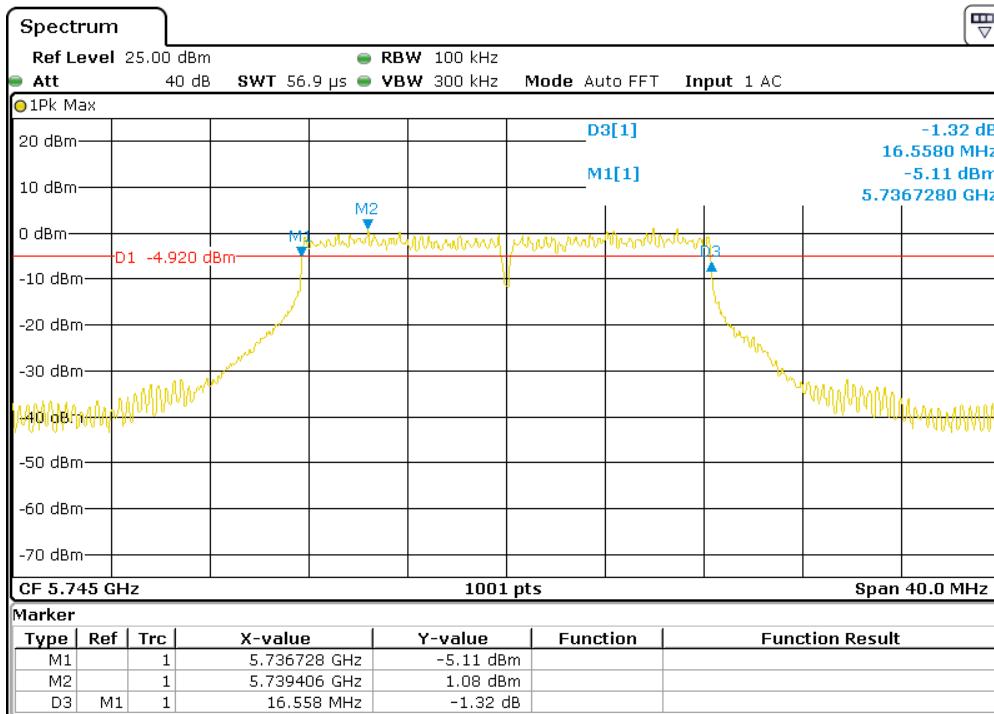
802.11 ac(VHT40)	Antenna A	Channel 159
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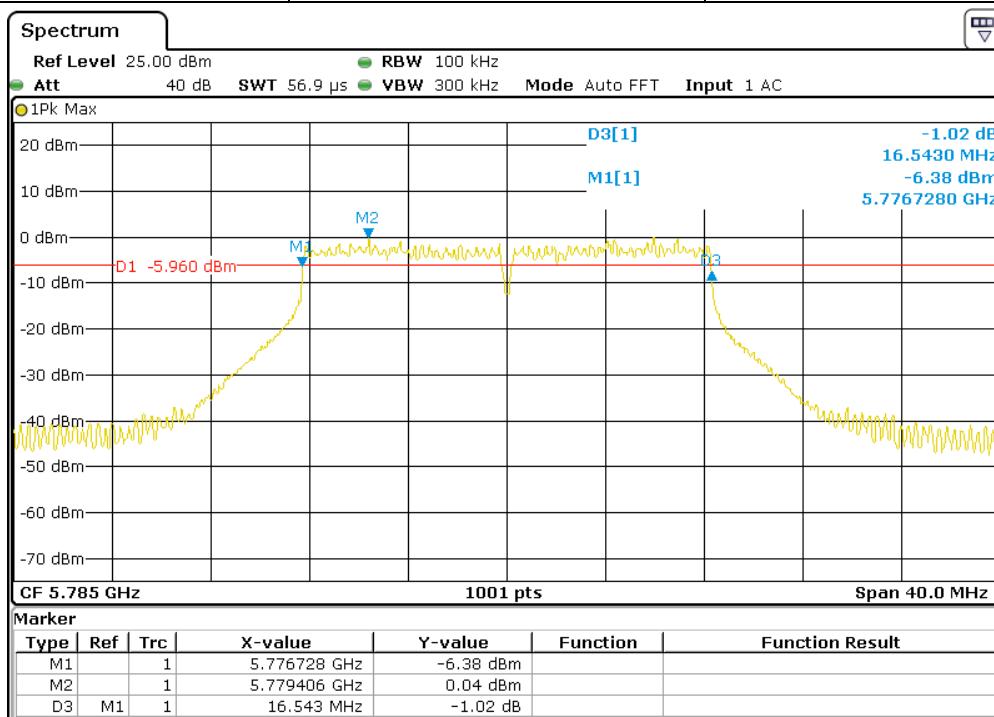
802.11 ac(VHT80)	Antenna A	Channel 155
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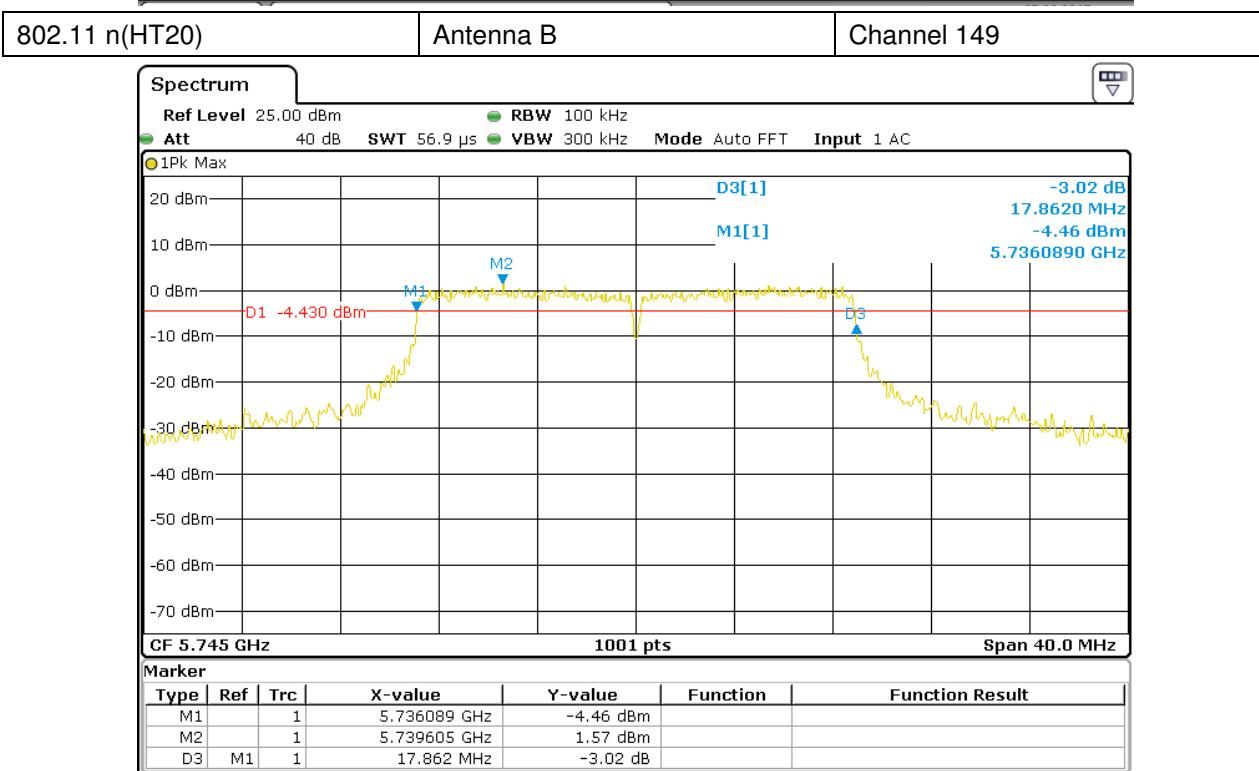
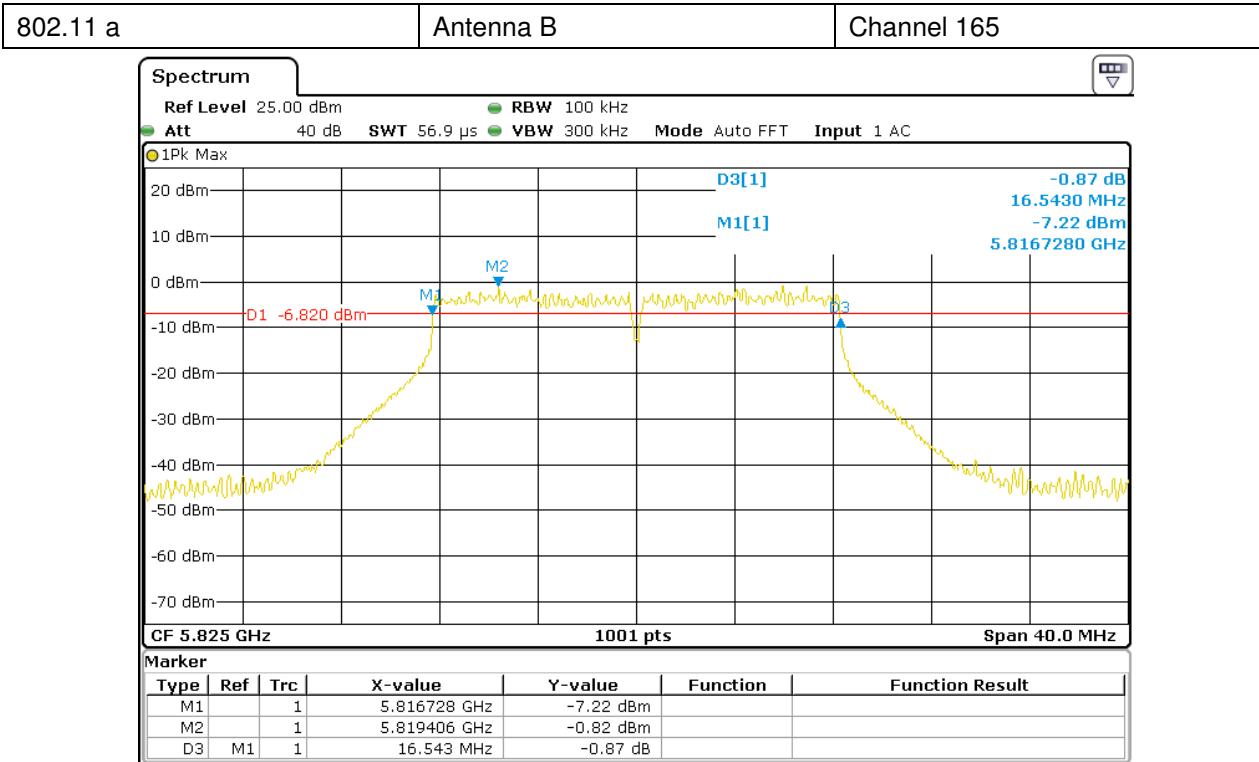


802.11 a	Antenna B	Channel 149
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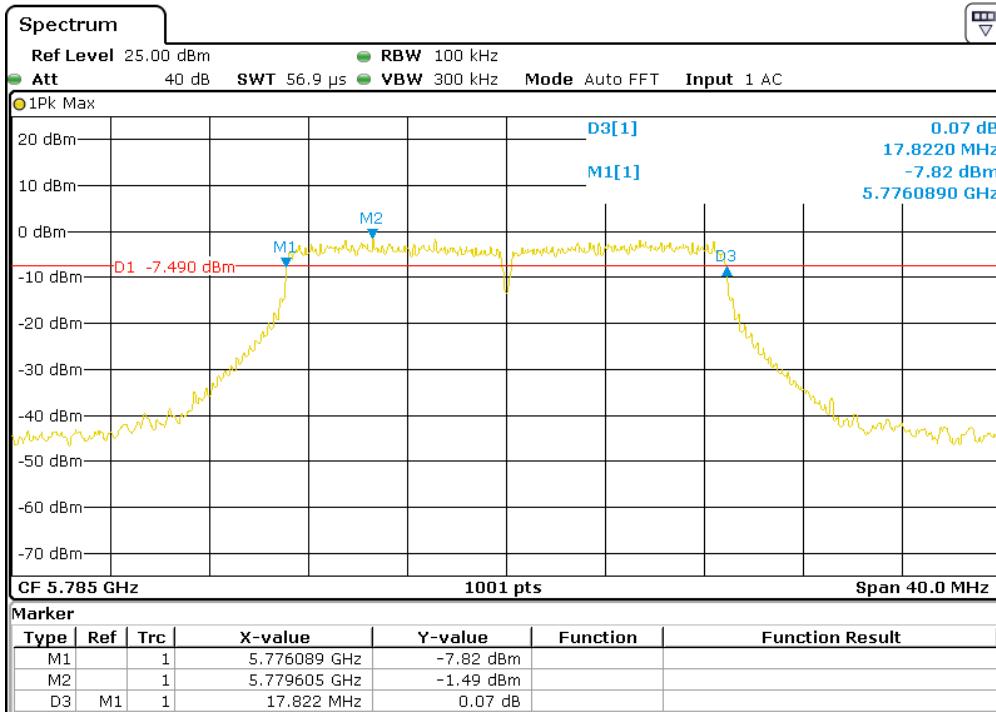


802.11 a	Antenna B	Channel 157
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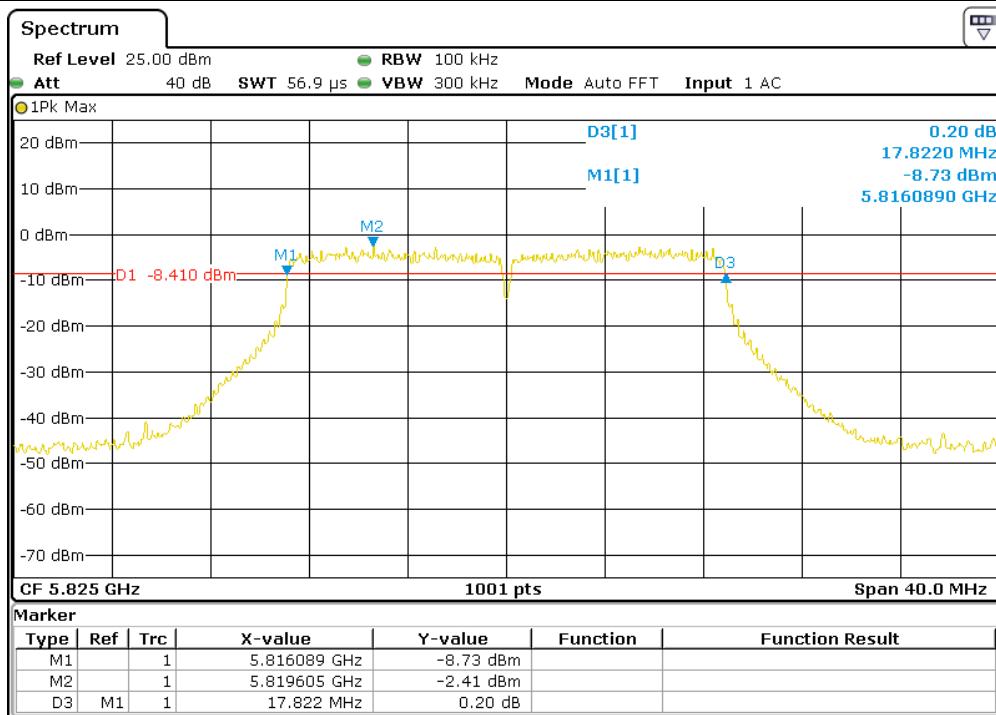




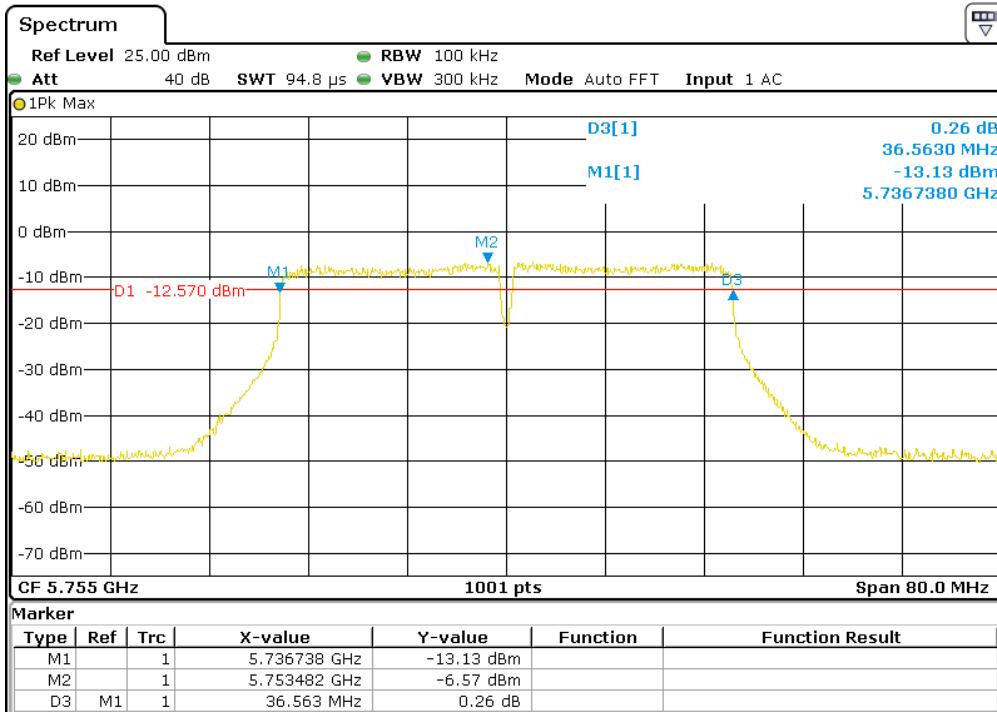
802.11 n(HT20)	Antenna B	Channel 157
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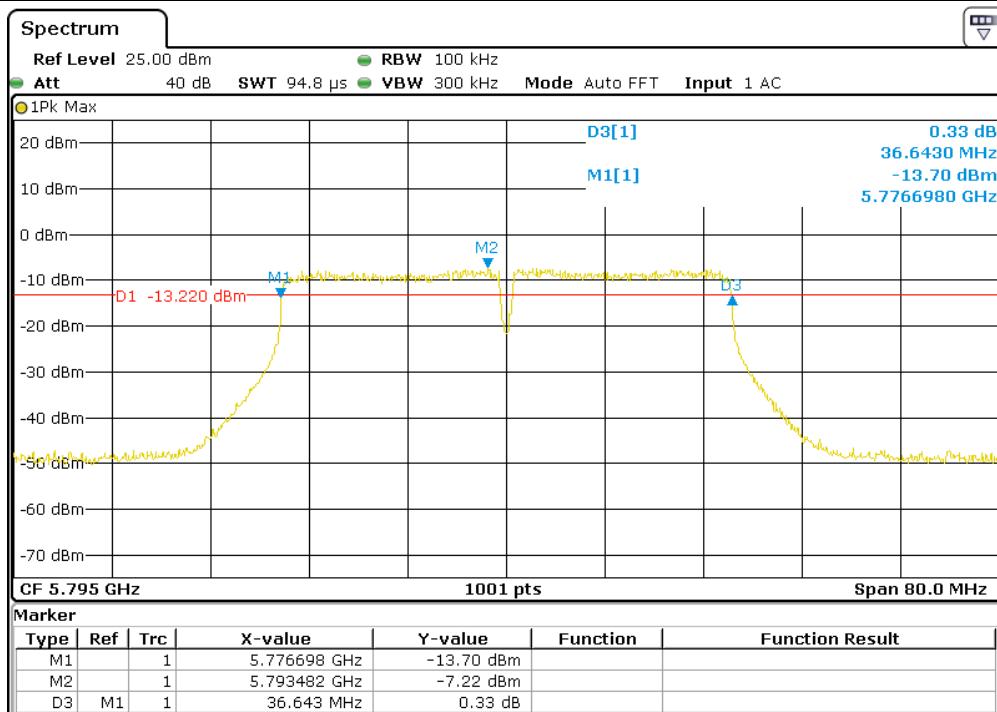
802.11 n(HT20)	Antenna B	Channel 165
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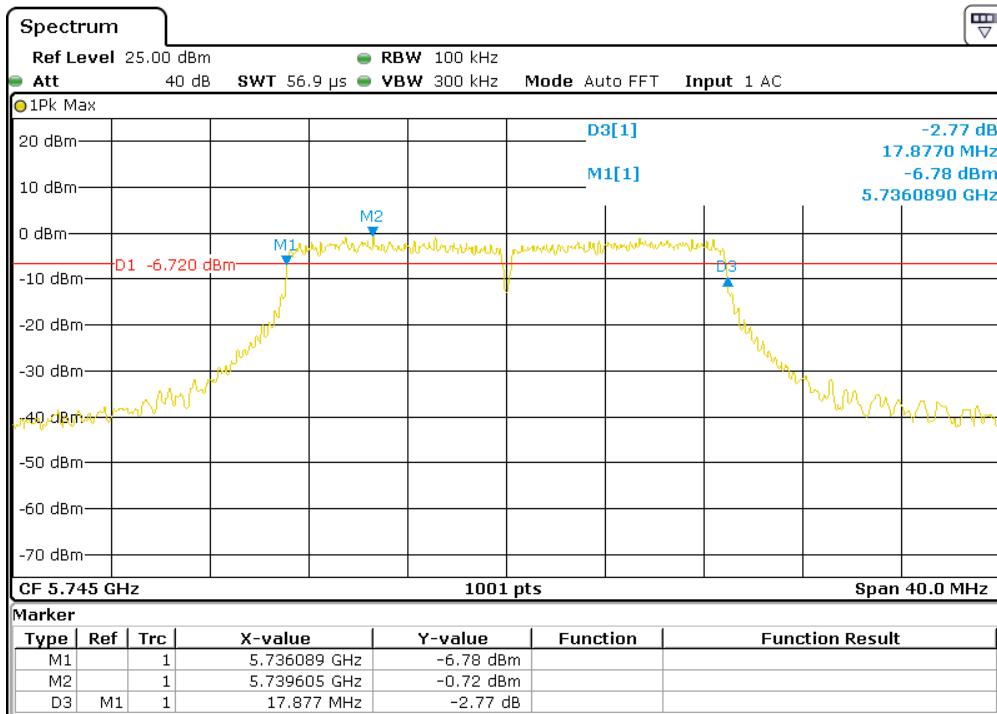
802.11 n(HT40)	Antenna B	Channel 151
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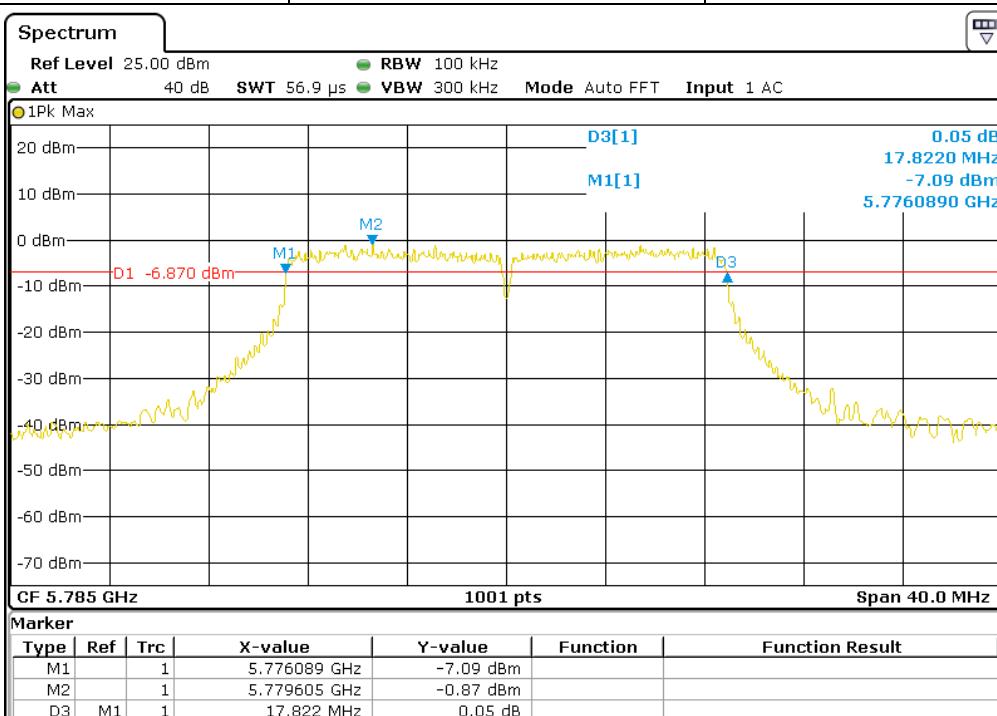
802.11 n(HT40)	Antenna B	Channel 159
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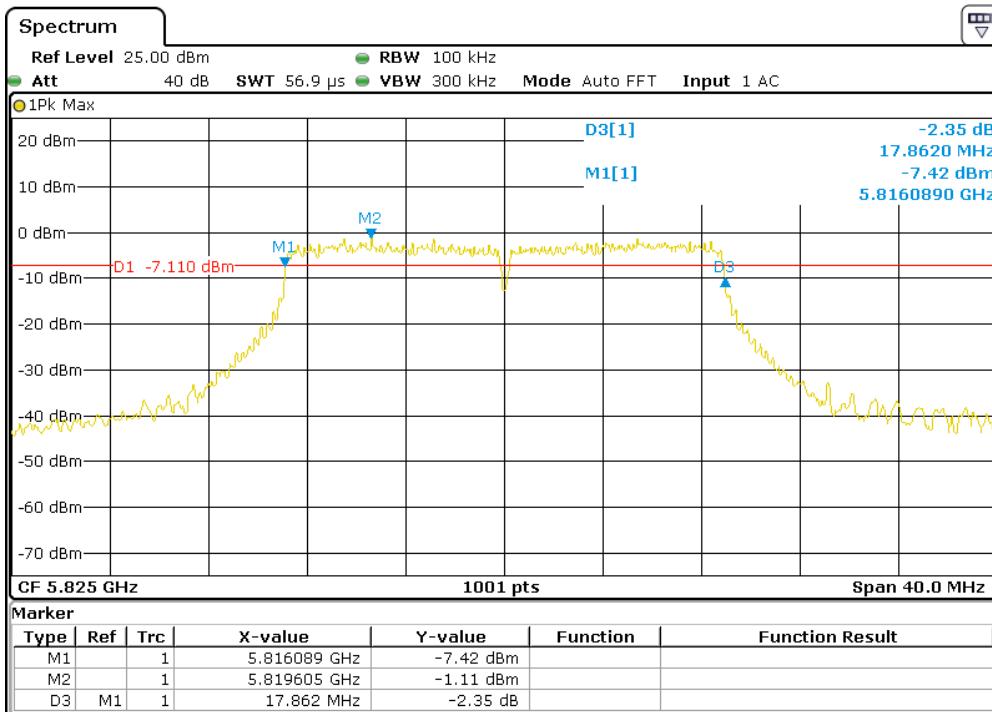
802.11 ac(VHT20)	Antenna B	Channel 149
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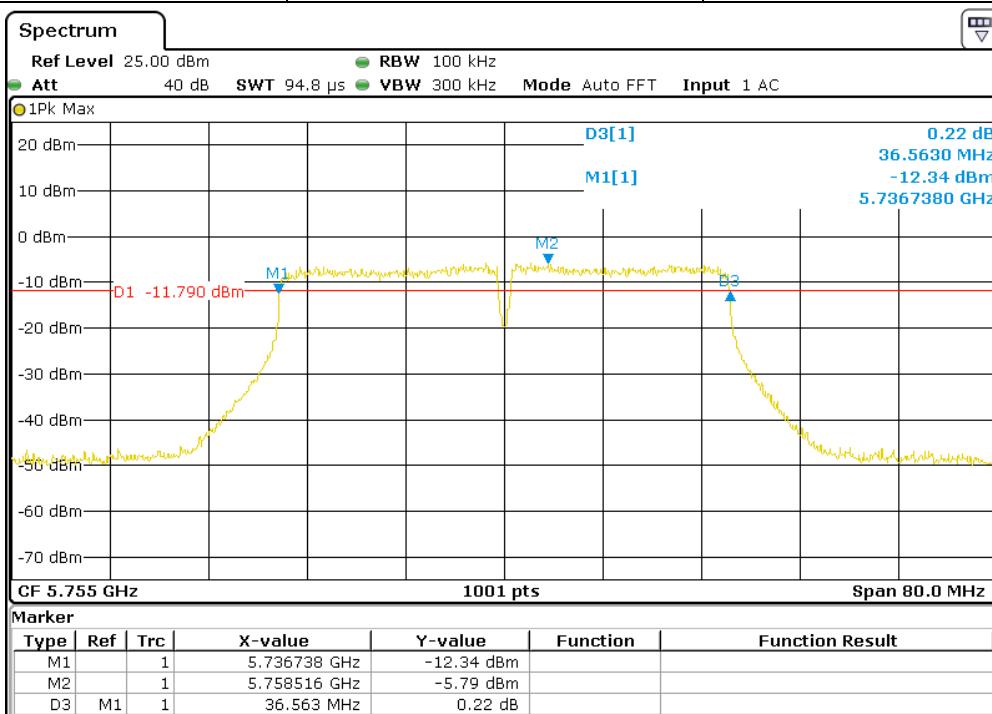
802.11 ac(VHT20)	Antenna B	Channel 157
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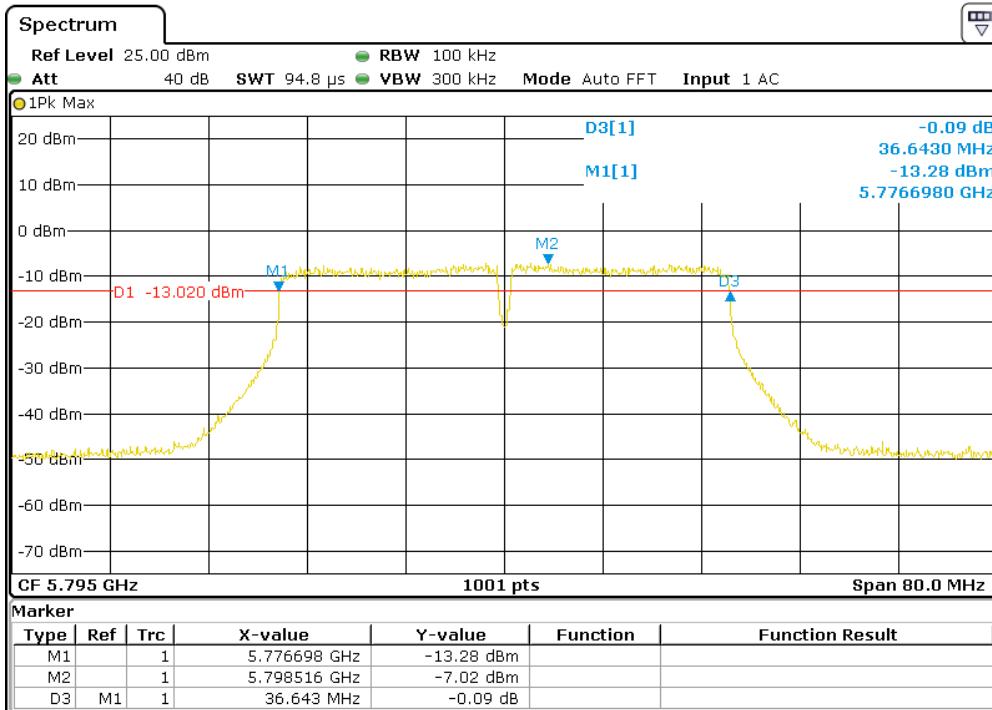
802.11 ac(VHT20)	Antenna B	Channel 165
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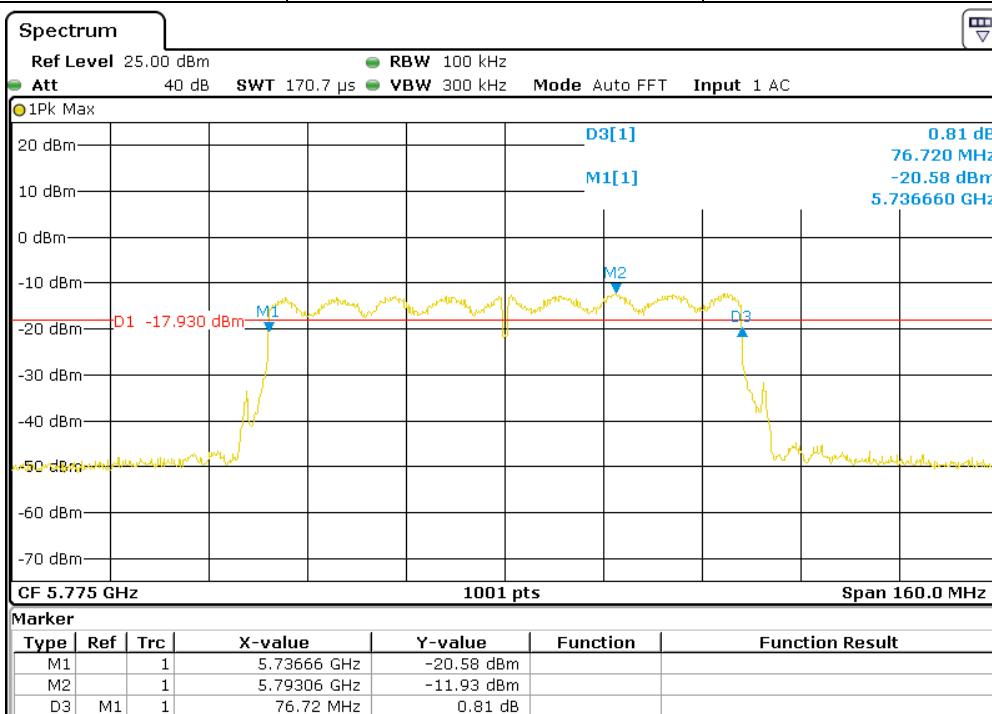
802.11 ac(VHT40)	Antenna B	Channel 151
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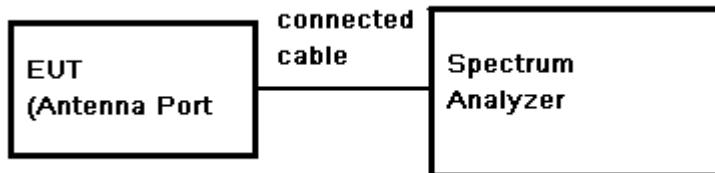
802.11 ac(VHT40)	Antenna B	Channel 159
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802.11 ac(VHT80)	Antenna B	Channel 155
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## 7.7 Maximum Conducted output power

**Test Setup:****Test Procedure:**

Follow KDB 789033 D02V01 Section E/2/b)

- a) Place the EUT on the table and set it in transmitting mode.
- b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum.
- c) Set the spectrum analyzer as RBW=1MHz, VBW $\geq$ 3\* RBW, Span=40/80MHz, Sweep=auto, Detector = RMS
- d) Set the occur band to the entire emission 26dB bandwidth of the signal.
- e) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- f) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 26dB occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges.
- g) Record the max. Power channel reading.
- h) Repeat above procedures until all the frequency measured were complete.

**Test Limit:**

Frequency Band	EUT Category	Limit
U-NII-1	<input type="checkbox"/> Outdoor Access Point	1W(30dBm) The maximum e.i.r.p $\leq$ 125 mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon.
	<input type="checkbox"/> Fixed Point-to-point Access Point	1W(30dBm)
	<input type="checkbox"/> Indoor Access Point	
	<input checked="" type="checkbox"/> Mobile and Portable client device	250mW (24dBm)
U-NII-2a	-	Lesser of 250mW (24dBm) or 11dBm + 10log B*
U-NII-2c		
U-NII-3		1W (30dBm)

**Note:** \*Where B is the 26dB emission bandwidth in MHz.**Test Result:**

Pass

**Test Data:**
**a. Single Input Single Output mode:**

Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		Conducted Power (dBm)		Limit (dBm)	Result
				Ant A	Ant B	Ant A	Ant B		
802.11a	U-NII 1	36	5180	10.07	11.72	10.57	12.22	24	Pass
		40	5200	10.67	9.43	11.17	9.93		Pass
		48	5240	8.83	10.51	9.33	11.01		Pass
	U-NII 2A	52	5260	9.84	11.24	10.34	11.74		Pass
		56	5280	7.88	8.87	8.38	9.37		Pass
		64	5320	8.53	9.79	9.03	10.29		Pass
	U-NII 2C	100	5500	7.72	8.60	8.22	9.10		Pass
		120	5600	9.79	10.36	10.29	10.86		Pass
		140	5700	10.90	13.13	11.40	13.63		Pass
		144	5720	11.26	11.69	11.76	12.19		Pass
	U-NII-3	149	5745	11.27	11.34	11.77	11.84	30	Pass
		157	5785	10.03	10.53	10.53	11.03		Pass
		165	5825	9.75	9.80	10.25	10.30		Pass
802.11n (HT20)	U-NII 1	36	5180	10.13	11.48	10.63	11.98	24	Pass
		40	5200	10.64	12.00	11.14	12.50		Pass
		48	5240	11.89	13.34	12.39	13.84		Pass
	U-NII 2A	52	5260	12.38	14.08	12.88	14.58		Pass
		56	5280	12.88	14.28	13.38	14.78		Pass
		64	5320	7.17	8.32	7.67	8.82		Pass
	U-NII 2C	100	5500	6.38	7.17	6.88	7.67		Pass
		120	5600	9.57	10.20	10.07	10.70		Pass
		140	5700	10.46	11.29	10.96	11.79		Pass
		144	5720	12.23	12.32	12.73	12.82		Pass
	U-NII-3	149	5745	11.30	11.13	11.80	11.63	30	Pass
		157	5785	10.38	10.75	10.88	11.25		Pass
		165	5825	11.00	9.91	11.50	10.41		Pass
802.11n (HT40)	U-NII-1	38	5190	13.09	10.36	13.59	10.86	24	Pass
		46	5230	12.41	9.74	12.91	10.24		Pass
	U-NII 2A	54	5270	11.10	11.97	11.60	12.47		Pass
		62	5310	8.94	10.49	9.44	10.99		Pass
	U-NII 2C	102	5510	8.37	9.04	8.87	9.54		Pass
		118	5590	9.83	10.46	10.33	10.96		Pass
		134	5670	10.70	11.18	11.20	11.68		Pass
		142	5710	11.50	12.45	12.00	12.95		Pass
	U-NII-3	151	5755	8.74	7.97	9.24	8.47	30	Pass
		159	5795	8.49	8.50	8.99	9.00		Pass



Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		Conducted Power (dBm)		Limit (dBm)	Result
				Ant A	Ant B	Ant A	Ant B		
802.11ac (VHT20)	U-NII 1	36	5180	9.69	8.83	10.19	8.47	24	Pass
		40	5200	9.26	10.28	9.76	9.00		Pass
		48	5240	9.69	10.90	10.19	10.41		Pass
	U-NII 2A	52	5260	11.52	11.91	12.02	12.41		Pass
		56	5280	8.86	9.21	9.36	9.71		Pass
		64	5320	9.12	9.00	9.62	9.50		Pass
	U-NII 2C	100	5500	8.01	7.88	8.51	8.38		Pass
		120	5600	9.70	10.23	10.20	10.73		Pass
		140	5700	12.08	12.75	12.58	13.25		Pass
		144	5720	12.16	12.05	12.66	12.55		Pass
	U-NII-3	149	5745	11.67	12.55	12.17	8.47	30	Pass
		157	5785	10.99	11.87	11.49	9.00		Pass
		165	5825	10.80	10.59	11.30	10.41		Pass
802.11ac (VHT40)	U-NII-1	38	5190	8.72	9.81	9.22	10.86	24	Pass
		46	5230	9.95	8.75	10.45	10.24		Pass
	U-NII 2A	54	5270	9.90	10.67	10.40	11.17		Pass
		62	5310	8.96	9.80	9.46	10.30		Pass
	U-NII 2C	102	5510	10.05	10.96	10.55	11.46		Pass
		118	5590	10.29	9.81	10.79	10.31		Pass
		134	5670	10.61	10.35	11.11	10.85		Pass
		142	5710	11.24	11.64	11.74	12.14		Pass
	U-NII-3	151	5755	10.95	10.27	11.45	8.47	30	Pass
		159	5795	10.11	9.10	10.61	9.00		Pass
802.11ac (VHT80)	U-NII-1	42	5210	6.21	7.50	6.71	10.41	24	Pass
	U-NII 2A	58	5290	7.04	8.05	7.54	8.55		Pass
	U-NII 2C	106	5530	5.50	5.70	6.00	6.20		Pass
		122	5610	5.64	5.21	6.14	5.71		Pass
		138	5690	5.47	5.75	5.97	6.25		Pass
	U-NII-3	155	5775	5.43	6.57	5.93	7.07	30	Pass

**b. Spatial Diversity Multiplexing-MIMO function mode:**

Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		Conducted Power (dBm)			Limit (dBm)	Result
				Ant A	Ant B	Ant A	Ant B	MIMO		
802.11n (HT20)	U-NII 1	36	5180	5.39	11.07	5.89	11.57	13.11	24	Pass
		40	5200	6.52	10.33	7.02	10.83	12.84		Pass
		48	5240	6.70	10.96	7.20	11.46	13.34		Pass
	U-NII 2A	52	5260	10.65	8.36	11.15	8.86	13.16		Pass
		56	5280	9.31	11.72	9.81	12.22	14.19		Pass
		64	5320	7.42	7.41	7.92	7.91	10.93		Pass
	U-NII 2C	100	5500	7.18	4.74	7.68	5.24	9.64		Pass
		120	5600	10.63	7.13	11.13	7.63	12.73		Pass
		140	5700	10.25	7.41	10.75	7.91	12.57		Pass
		144	5720	10.81	9.76	11.31	10.26	13.83		Pass
	U-NII-3	149	5745	8.40	7.84	8.90	8.34	12.14	30	Pass
		157	5785	8.36	6.75	8.86	7.25	11.64		Pass
		165	5825	7.58	5.83	8.08	6.33	10.80		Pass
802.11n (HT40)	U-NII-1	38	5190	5.77	8.96	6.27	9.46	11.66	24	Pass
		46	5230	5.72	9.91	6.22	10.41	12.31		Pass
	U-NII 2A	54	5270	6.12	7.05	6.62	7.55	10.12		Pass
		62	5310	5.27	6.47	5.77	6.97	9.42		Pass
	U-NII 2C	102	5510	6.54	6.99	7.04	7.49	10.28		Pass
		118	5590	7.24	6.90	7.74	7.40	10.58		Pass
		134	5670	7.75	10.27	8.25	10.77	12.70		Pass
		142	5710	8.02	8.44	8.52	8.94	11.75		Pass
	U-NII-3	151	5755	8.49	6.03	8.99	6.53	10.94	30	Pass
		159	5795	6.99	5.87	7.49	6.37	9.98		Pass

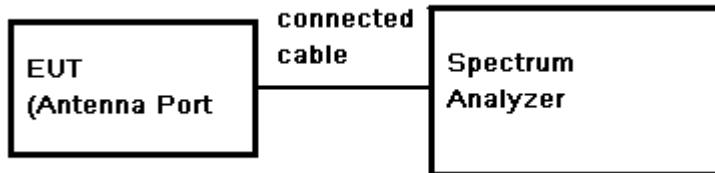
Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		Conducted Power (dBm)			Limit (dBm)	Result
				Ant A	Ant B	Ant A	Ant B	MIMO		
802.11ac (VHT20)	U-NII 1	36	5180	6.60	5.31	7.10	5.81	9.51	24	Pass
		40	5200	6.76	7.31	7.26	7.81	10.55		Pass
		48	5240	7.88	7.13	8.38	7.63	11.03		Pass
	U-NII 2A	52	5260	11.16	12.10	11.66	12.60	15.17		Pass
		56	5280	8.00	9.57	8.50	10.07	12.37		Pass
		64	5320	7.63	9.21	8.13	9.71	12.00		Pass
	U-NII 2C	100	5500	7.90	7.93	8.40	8.43	11.43		Pass
		120	5600	10.58	9.98	11.08	10.48	13.80		Pass
		140	5700	13.19	12.70	13.69	13.20	16.46		Pass
		144	5720	12.32	12.43	12.82	12.93	15.89		Pass
	U-NII-3	149	5745	7.60	9.22	8.10	9.72	12.00	30	Pass
		157	5785	6.26	8.88	6.76	9.38	11.27		Pass
		165	5825	5.41	8.27	5.91	8.77	10.58		Pass
802.11ac (VHT40)	U-NII-1	38	5190	5.68	7.33	6.18	7.83	10.09	24	Pass
		46	5230	8.18	7.11	8.68	7.61	11.19		Pass
	U-NII 2A	54	5270	10.30	8.14	10.80	8.64	12.86		Pass
		62	5310	8.59	6.76	9.09	7.26	11.28		Pass
	U-NII 2C	102	5510	10.19	5.52	10.69	6.02	11.96		Pass
		118	5590	10.95	6.49	11.45	6.99	12.78		Pass
		134	5670	11.77	7.82	12.27	8.32	13.74		Pass
		142	5710	11.77	9.04	12.27	9.54	14.13		Pass
	U-NII-3	151	5755	10.21	6.09	10.71	6.59	12.13	30	Pass
		159	5795	3.85	7.06	4.35	7.56	9.26		Pass
802.11ac (VHT80)	U-NII-1	42	5210	1.40	2.98	1.90	3.48	5.77	24	Pass
	U-NII 2A	58	5290	3.52	7.23	4.02	7.73	9.27		Pass
	U-NII 2C	106	5530	3.05	5.31	3.55	5.81	7.84		Pass
		122	5610	2.37	6.74	2.87	7.24	8.59		Pass
		138	5690	2.42	6.60	2.92	7.10	8.50		Pass
	U-NII-3	155	5775	4.56	3.13	5.06	3.63	7.41	30	Pass

Remark:

- 1) Output Peak Power = Reading Power + Cable loss+ Duty Cycle Correction Factor
- 2) Cable loss= 0.5dB. Duty cycle of test signal is > 98%, duty factor is not required, reference Section 7.4
- 3) Per KDB 662911, the conducted powers at Antenna A and Antenna B were first measured separately during MIMO transmission as shown in section above. The measured values were then summed in linear power units then converted back to dBm.

**Test plot refer to the < Appendix I >.**

## 7.8 Peak Power Spectral Density

**Test Setup:****Test Procedure:**

- Follow KDB 789033 D02V01 Section F
- Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
  - Set span 40/80/160MHz; RBW = 1 MHz; VBW  $\geq$  3 MHz.
  - Number of points in sweep  $\geq$  2 Span / RBW; Sweep time = auto.
  - Detector = RMS, Trigger = Free run Record the marker level for the particular mode.
  - Use the peak search function on the instrument to find the peak of the spectrum and record its value.
  - Repeat these steps for other channel and device modes.

**Test Limit:**

Frequency Band	EUT Category	Limit
U-NII-1	<input type="checkbox"/> Outdoor Access Point	17dBm/MHz
	<input type="checkbox"/> Fixed Point-to-point Access Point	11 dBm/MHz
	<input type="checkbox"/> Indoor Access Point	
	<input checked="" type="checkbox"/> Mobile and Portable client device	11 dBm/MHz
U-NII-2a	-	11 dBm/MHz
U-NII-2c		30 dBm/MHz
U-NII-3		

**Test Result:**

Pass

**Test Data:**
**a. Single Input Single Output mode:**

Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		PPSD (dBm)		Limit	Result
				Ant A	Ant B	Ant A	Ant B		
802.11a	U-NII 1	36	5180	-1.64	0.14	-1.14	0.64	11	Pass
		40	5200	-2.96	0.06	-2.46	0.56		Pass
		48	5240	-1.87	-0.03	-1.37	0.47		Pass
	U-NII 2A	52	5260	-0.03	-1.22	0.47	-0.72		Pass
		56	5280	-3.36	-4.14	-2.86	-3.64		Pass
		64	5320	-2.35	-3.00	-1.85	-2.50		Pass
	U-NII 2C	100	5500	-2.61	-2.82	-2.11	-2.32		Pass
		120	5600	-0.50	0.24	0.00	0.74		Pass
		140	5700	0.51	0.94	1.01	1.44		Pass
		144	5720	1.01	0.53	1.51	1.03		Pass
	U-NII-3	149	5745	-2.02	-1.42	-1.52	-0.92	30	Pass
		157	5785	-2.73	-3.19	-2.23	-2.69		Pass
		165	5825	-2.57	-3.98	-2.07	-3.48		Pass
802.11n (HT20)	U-NII 1	36	5180	0.58	0.88	1.08	1.38	11	Pass
		40	5200	0.70	1.28	1.20	1.78		Pass
		48	5240	1.51	2.50	2.01	3.00		Pass
	U-NII 2A	52	5260	-1.98	0.25	-1.48	0.75		Pass
		56	5280	-1.98	-0.65	-1.48	-0.15		Pass
		64	5320	-8.16	-6.62	-7.66	-6.12		Pass
	U-NII 2C	100	5500	-7.41	-6.60	-6.91	-6.10		Pass
		120	5600	-3.16	-4.33	-2.66	-3.83		Pass
		140	5700	-3.24	-4.05	-2.74	-3.55		Pass
		144	5720	-1.63	-1.75	-1.13	-1.25		Pass
	U-NII-3	149	5745	-1.22	-1.76	-0.72	-1.26	30	Pass
		157	5785	-1.87	-3.02	-1.37	-2.52		Pass
		165	5825	-3.19	-4.17	-2.69	-3.67		Pass
802.11n (HT40)	U-NII-1	38	5190	-3.22	-1.48	-2.72	-0.98	11	Pass
		46	5230	-2.99	-1.48	-2.49	-0.98		Pass
	U-NII 2A	54	5270	-7.04	-6.43	-6.54	-5.93		Pass
		62	5310	-8.83	-3.44	-8.33	-2.94		Pass
	U-NII 2C	102	5510	-8.16	-6.52	-7.66	-6.02		Pass
		118	5590	-5.35	-6.69	-4.85	-6.19		Pass
		134	5670	-5.98	-7.99	-5.48	-7.49		Pass
		142	5710	-5.76	-6.47	-5.26	-5.97		Pass
	U-NII-3	151	5755	-7.12	-7.84	-6.62	-7.34	30	Pass
		159	5795	-7.07	-8.10	-6.57	-7.60		Pass



Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		PPSD (dBm)		Limit	Result
				Ant A	Ant B	Ant A	Ant B		
802.11ac (VHT20)	U-NII 1	36	5180	-2.95	-2.33	-2.45	-1.83	11	Pass
		40	5200	-1.80	-1.10	-1.30	-0.60		Pass
		48	5240	-1.36	-0.07	-0.86	0.43		Pass
	U-NII 2A	52	5260	-3.89	-3.16	-3.39	-2.66		Pass
		56	5280	-6.57	-5.69	-6.07	-5.19		Pass
		64	5320	-7.37	-5.85	-6.87	-5.35		Pass
	U-NII 2C	100	5500	-6.82	-7.34	-6.32	-6.84		Pass
		120	5600	-4.01	-4.03	-3.51	-3.53		Pass
		140	5700	-1.67	-1.69	-1.17	-1.19		Pass
		144	5720	-2.01	-2.20	-1.51	-1.70		Pass
	U-NII-3	149	5745	-0.80	-1.55	-0.30	-1.05	30	Pass
		157	5785	-0.80	-2.48	-0.30	-1.98		Pass
		165	5825	-1.37	-2.72	-0.87	-2.22		Pass
802.11ac (VHT40)	U-NII-1	38	5190	-5.07	-4.86	-4.57	-4.36	11	Pass
		46	5230	-3.79	-3.13	-3.29	-2.63		Pass
	U-NII 2A	54	5270	-8.32	-7.31	-7.82	-6.81		Pass
		62	5310	-9.98	-7.59	-9.48	-7.09		Pass
	U-NII 2C	102	5510	-7.54	-8.91	-7.04	-8.41		Pass
		118	5590	-6.85	-6.98	-6.35	-6.48		Pass
		134	5670	-6.06	-5.58	-5.56	-5.08		Pass
		142	5710	-6.35	-3.81	-5.85	-3.31		Pass
	U-NII-3	151	5755	-5.49	-6.83	-4.99	-6.33	30	Pass
		159	5795	-6.33	-7.80	-5.83	-7.30		Pass
802.11ac (VHT80)	U-NII-1	42	5210	-9.23	-8.56	-8.73	-8.06	11	Pass
	U-NII 2A	58	5290	-13.55	-12.24	-13.05	-11.74		Pass
	U-NII 2C	106	5530	-13.57	-13.13	-13.07	-12.63		Pass
		122	5610	-12.83	-12.27	-12.33	-11.77		Pass
		138	5690	-10.28	-11.55	-9.78	-11.05		Pass
	U-NII-3	155	5775	-13.43	-13.94	-12.93	-13.44	30	Pass

**b. Spatial Diversity Multiplexing-MIMO function mode:**

Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		PPSD (dBm)			Limit	Result
				Ant A	Ant B	Ant A	Ant B	MIMO		
802.11n (HT20)	U-NII 1	36	5180	-5.35	-1.30	-4.85	-0.80	0.64	11	Pass
		40	5200	-4.27	-0.26	-3.77	0.24	1.69		Pass
		48	5240	-2.30	0.35	-1.80	0.85	2.73		Pass
	U-NII 2A	52	5260	-1.33	1.48	-0.83	1.98	3.81		Pass
		56	5280	-1.82	0.11	-1.32	0.61	2.76		Pass
		64	5320	-7.71	-6.30	-7.21	-5.80	-3.44		Pass
	U-NII 2C	100	5500	-7.47	-6.44	-6.97	-5.94	-3.41		Pass
		120	5600	-3.04	-4.27	-2.54	-3.77	-0.10		Pass
		140	5700	-3.01	-4.19	-2.51	-3.69	-0.05		Pass
		144	5720	-1.46	-1.56	-0.96	-1.06	2.00		Pass
	U-NII-3	149	5745	-5.77	-3.25	-5.27	-2.75	-0.82	30	Pass
		157	5785	-6.57	-5.80	-6.07	-5.30	-2.66		Pass
		165	5825	-8.01	-5.39	-7.51	-4.89	-3.00		Pass
802.11n (HT40)	U-NII-1	38	5190	-5.33	-3.30	-4.83	-2.80	-0.69	11	Pass
		46	5230	-7.36	-4.16	-6.86	-3.66	-1.96		Pass
	U-NII 2A	54	5270	-6.57	-5.57	-6.07	-5.07	-2.53		Pass
		62	5310	-8.33	-3.48	-7.83	-2.98	-1.75		Pass
	U-NII 2C	102	5510	-8.30	-5.71	-7.80	-5.21	-3.30		Pass
		118	5590	-5.28	-5.93	-4.78	-5.43	-2.08		Pass
		134	5670	-4.68	-6.91	-4.18	-6.41	-2.14		Pass
		142	5710	-5.51	-6.09	-5.01	-5.59	-2.28		Pass
	U-NII-3	151	5755	-11.63	-10.86	-11.13	-10.36	-7.72	30	Pass
		159	5795	-11.35	-11.79	-10.85	-11.29	-8.05		Pass



Test Mode	Band	CH No.	Freq (MHz)	Reading (dBm)		PPSD (dBm)			Limit	Result
				Ant A	Ant B	Ant A	Ant B	MIMO		
802.11ac (VHT20)	U-NII 1	36	5180	-7.03	-6.05	-6.53	-5.55	-3.00	11	Pass
		40	5200	-5.56	-3.74	-5.06	-3.24	-1.05		Pass
		48	5240	-5.11	-2.48	-4.61	-1.98	-0.09		Pass
	U-NII 2A	52	5260	-3.03	-2.77	-2.53	-2.27	0.61		Pass
		56	5280	-6.15	-5.25	-5.65	-4.75	-2.17		Pass
		64	5320	-6.63	-5.21	-6.13	-4.71	-2.35		Pass
	U-NII 2C	100	5500	-6.03	-5.76	-5.53	-5.26	-2.38		Pass
		120	5600	-3.43	-3.20	-2.93	-2.70	0.20		Pass
		140	5700	-0.90	-3.44	-0.40	-2.94	1.52		Pass
		144	5720	-0.51	0.31	-0.01	0.81	3.43		Pass
	U-NII-3	149	5745	-4.69	-3.05	-4.19	-2.55	-0.28	30	Pass
		157	5785	-6.34	-4.45	-5.84	-3.95	-1.78		Pass
		165	5825	-5.59	-5.44	-5.09	-4.94	-2.00		Pass
802.11ac (VHT40)	U-NII-1	38	5190	-10.58	-6.77	-10.08	-6.27	-4.76	11	Pass
		46	5230	-8.78	-5.52	-8.28	-5.02	-3.34		Pass
	U-NII 2A	54	5270	-8.41	-6.83	-7.91	-6.33	-4.04		Pass
		62	5310	-8.70	-6.93	-8.20	-6.43	-4.22		Pass
	U-NII 2C	102	5510	-7.38	-8.27	-6.88	-7.77	-4.29		Pass
		118	5590	-6.50	-6.81	-6.00	-6.31	-3.14		Pass
		134	5670	-5.54	-4.27	-5.04	-3.77	-1.35		Pass
		142	5710	-5.12	-2.99	-4.62	-2.49	-0.42		Pass
	U-NII-3	151	5755	-9.15	-9.79	-8.65	-9.29	-5.95	30	Pass
		159	5795	-10.69	-9.36	-10.19	-8.86	-6.46		Pass
802.11ac (VHT80)	U-NII-1	42	5210	-13.30	-10.24	-12.80	-9.74	-8.00	11	Pass
	U-NII 2A	58	5290	-13.11	-9.88	-12.61	-9.38	-7.69		Pass
	U-NII 2C	106	5530	-12.77	-13.61	-12.27	-13.11	-9.66		Pass
		122	5610	-11.89	-13.29	-11.39	-12.79	-9.02		Pass
	U-NII-3	138	5690	-12.51	-11.08	-12.01	-10.58	-8.23		Pass
	U-NII-3	155	5775	-12.70	-17.28	-12.20	-16.78	-10.90		Pass

Remark:

- 1) Peak Power Spectral Density = Reading + Cable loss+ Duty Cycle Correction Factor
- 2) Cable loss= 0.5dB. Duty cycle of test signal is > 98%, duty factor is not required, reference Section 7.4
- 3) Per KDB 662911, the conducted powers at Antenna A and Antenna B were first measured separately during MIMO transmission as shown in section above. The measured values were then summed in linear power units then converted back to dBm.
- 4) For operating in the bands U-NII-1, U-NII 2A, and U-NII 2A, the unit of PPSD is dBm/MHz. For operating in the bands U-NII-3, the unit of PPSD is dBm/500KHz.

**Test plot refer to the < Appendix II >.**

## 7.9 Radiated Spurious Emissions and Band-edge

**Test site/setup:** Measurement Distance: 3m (Semi-Anechoic Chamber)

Test instrumentation set-up:

Frequency Range(MHz)	Detector	RBW	VBW
0.009-0.090	Peak	10kHz	30kHz
0.009-0.090	Average	10kHz	30kHz
0.090-0.110	Quasi-peak	10kHz	30kHz
0.110-0.490MHz	Peak	10kHz	30kHz
0.110-0.490	Average	10kHz	30kHz
0.490 -30	Quasi-peak	10kHz	30kHz
30-1000	Quasi-peak	100kHz	300kHz
Above 1000	Peak	RBW=1MHz	VBW≥RBW
	Average		VBW=10Hz

Sweep=Auto

**15.209 Limit:**

Frequency(MHz)	Limit (dBuV/m)
0.009-0.490	128.5 ~ 93.8
0.490-1.705	73.8 ~63.0
1.705-30	69.5
30-88	40.0
88-216	43.5
216-960	46.0
960-1000	54.0
Above 1000	54.0

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

**15.407 Limit:**

Operation Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength (dB $\mu$ V/m)
5150-5250	-27	68.3
5250-5350		
5470-5725		
5725-5850	-27 <sup>*1</sup>	68.3 <sup>*1</sup>
	-17 <sup>*2</sup>	78.3 <sup>*2</sup>

Note: The following formula is used to convert the EIRP to field strength

$$E = \frac{10000000\sqrt{30P}}{3} \text{ uV/m, where P is the EIRP (Watts).}$$

Remark: <sup>\*1</sup> Without 10MHz of band edge; <sup>\*2</sup> Within 10MHz of band edge

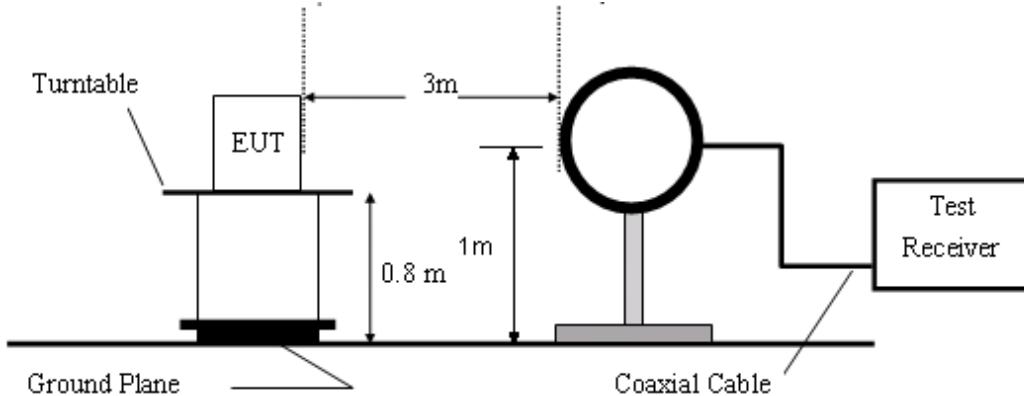
**Test Setup:**

Figure1. Below 30MHz radiated emissions test configuration

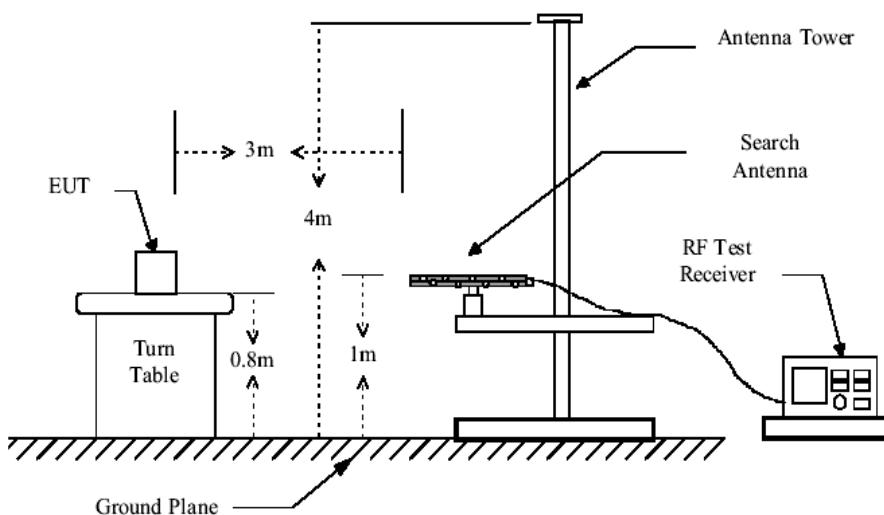


Figure2. 30MHz to 1GHz radiated emissions test configuration

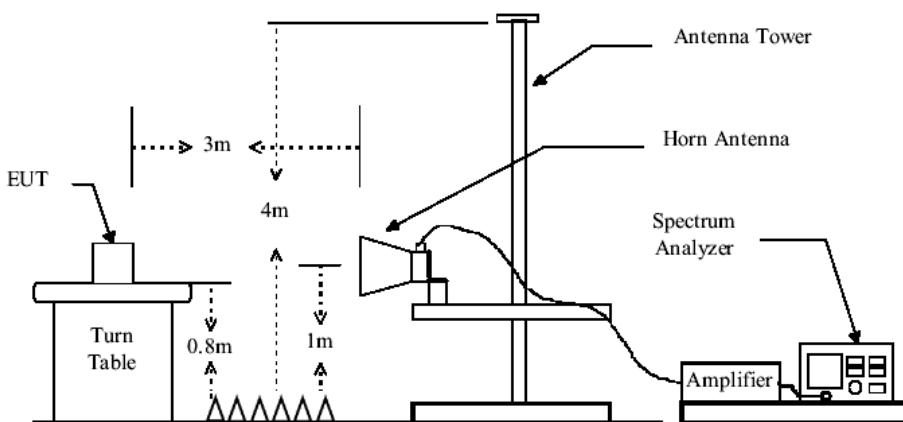


Figure3. Above 1GHz radiated emissions test configuration

- Test Procedure:**
- 1) The procedure used was ANSI Standard C63.10. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.
  - 2) Low noise amplifier was used below 1GHz, High pass Filter and amplifier was used above 3GHz. We did not use any amplifier or filter between 1G and 3GHz.
  - 3) Test were performed for their spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was submitted.
    - a) For this intentional radiator operates below 25 GHz. the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 5rd harmonic.
    - b) As shown in Section, for frequencies above 1000MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
  - 4) Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst emissions. Since the emissions produced from MIMO operation were found to be more than 20 dB below the limit, the MIMO emissions are not report.
  - 5) Pretest under all modes during 30MHz to 1GHz; choose the worst case mode (Middle channel of 802.11a on band 1) record on the report.
  - 6) No spurious emissions were detected within 20dB of limit below 30MHz.

**Test Result:** Pass

### 7.9.1 Radiated Spurious Emissions

30MHz-1GHz:

**802.11 a**

**Antenna A**

**Channel: 44**

Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dB $\mu$ V)	(dB/m)	(dB)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)		
1	145.35	39.01	12.04	23.64	1.16	28.57	43.50	-14.93	QP	Horizontal
2	201.39	45.29	9.28	23.62	1.40	32.35	43.50	-11.15	QP	Horizontal
3	237.48	47.51	9.94	23.64	1.52	35.33	46.00	-10.67	QP	Horizontal
4	399.03	33.57	14.29	23.70	2.18	26.34	46.00	-19.66	QP	Horizontal
5	640.61	26.05	19.53	23.84	2.82	24.56	46.00	-21.44	QP	Horizontal
6	729.36	26.72	20.90	23.89	3.04	26.77	46.00	-19.23	QP	Horizontal
1	145.35	39.01	12.04	23.64	1.16	28.57	43.50	-14.93	QP	Vertical
2	40.70	29.34	13.10	23.70	0.27	19.01	40.00	-20.99	QP	Vertical
3	87.73	29.44	8.45	23.67	0.79	15.01	40.00	-24.99	QP	Vertical
4	207.12	31.74	9.15	23.62	1.43	18.70	43.50	-24.80	QP	Vertical
5	244.23	34.18	10.18	23.64	1.54	22.26	46.00	-23.74	QP	Vertical
6	390.72	28.76	14.23	23.70	2.14	21.43	46.00	-24.57	QP	Vertical

**802.11 a**

**Antenna B**

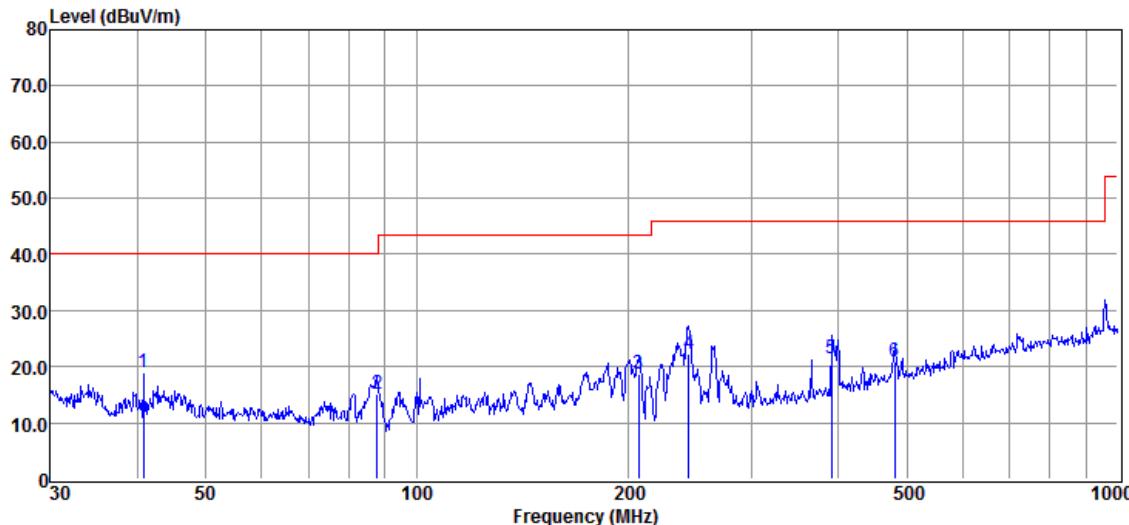
**Channel: 44**

Item	Freq.	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Result Level	Limit Line	Over Limit	Detector	Polarization
(Mark)	(MHz)	(dB $\mu$ V)	(dB/m)	(dB)	(dB)	(dB $\mu$ V/m)	(dB $\mu$ V/m)	(dB)		
1	132.221	39.01	11.23	23.64	1.09	27.69	43.50	-15.81	QP	Horizontal
2	200.688	40.14	9.28	23.62	1.40	27.20	43.50	-16.30	QP	Horizontal
3	264.746	40.64	10.79	23.65	1.66	29.44	46.00	-16.56	QP	Horizontal
4	519.065	39.31	16.88	23.75	2.48	34.92	46.00	-11.08	QP	Horizontal
5	543.274	26.47	17.25	23.77	2.56	22.51	46.00	-23.49	QP	Horizontal
6	663.473	26.05	19.88	23.85	2.87	24.95	46.00	-21.05	QP	Horizontal
1	32.979	28.77	12.56	23.71	0.15	17.77	40.00	-22.23	QP	Vertical
2	264.746	40.20	10.79	23.65	1.66	29.00	46.00	-17.00	QP	Vertical
3	519.065	34.76	16.88	23.75	2.48	30.37	46.00	-15.63	QP	Vertical
4	543.274	34.49	17.25	23.77	2.56	30.53	46.00	-15.47	QP	Vertical
5	687.151	24.74	20.21	23.86	2.92	24.01	46.00	-21.99	QP	Vertical
6	711.673	22.35	20.55	23.88	2.99	22.01	46.00	-23.99	QP	Vertical

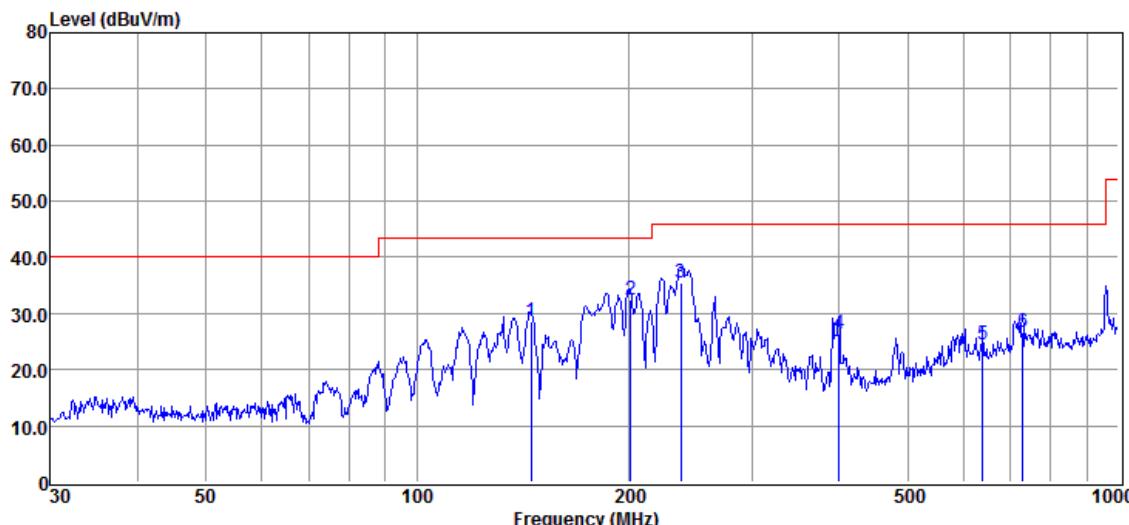
Remark: 1. Result Level = Read Level + Antenna Factor + Cable loss - Preamp Factor

Below is the plot of worst case on antenna A:

Vertical:



Horizontal:





Above 1GHz

**802.11a**

**Antenna A**

**Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6892	38.79	9.35	48.14	54	-5.86	peak	Horizontal
2	9244	36.55	14.16	50.71	54	-3.29	peak	Horizontal
3	10360	36.16	14.28	50.44	54	-3.56	peak	Horizontal
4	8152	39.28	11.68	50.96	54	-3.04	peak	Vertical
5	9100	36.48	13.91	50.39	54	-3.61	peak	Vertical
6	10360	37.10	14.28	51.38	54	-2.62	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6748	39.52	8.85	48.37	54	-5.63	peak	Horizontal
2	8524	39.28	12.23	51.51	54	-2.49	peak	Horizontal
3	10400	35.98	14.22	50.20	54	-3.80	peak	Horizontal
4	8872	37.32	13.32	50.64	54	-3.36	peak	Vertical
5	9364	36.95	14.36	51.31	54	-2.69	peak	Vertical
6	10400	36.01	14.22	50.23	54	-3.77	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7180	38.14	10.52	48.66	54	-5.34	peak	Horizontal
2	9244	36.55	14.16	50.71	54	-3.29	peak	Horizontal
3	10480	36.65	14.08	50.73	54	-3.27	peak	Horizontal
4	8872	37.32	13.32	50.64	54	-3.36	peak	Vertical
5	10480	36.25	14.08	50.33	54	-3.67	peak	Vertical
6	11200	37.65	14.25	51.90	54	-2.10	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6892	38.79	9.35	48.14	54	-5.86	peak	Horizontal
2	8128	39.46	11.73	51.19	54	-2.81	peak	Horizontal
3	10520	36.90	14.04	50.94	54	-3.06	peak	Horizontal
4	9616	37.32	14.38	51.70	54	-2.30	peak	Vertical
5	10520	36.41	14.04	50.45	54	-3.55	peak	Vertical
6	11200	37.65	14.25	51.90	54	-2.10	peak	Vertical



**802.11a**

**Antenna A**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7180	38.14	10.52	48.66	54	-5.34	peak	Horizontal
2	8812	37.94	13.10	51.04	54	-2.96	peak	Horizontal
3	10560	36.84	14.05	50.89	54	-3.11	peak	Horizontal
4	8368	38.63	11.91	50.54	54	-3.46	peak	Vertical
5	9100	36.48	13.91	50.39	54	-3.61	peak	Vertical
6	10560	35.26	14.05	49.31	54	-4.69	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7180	38.14	10.52	48.66	54	-5.34	peak	Horizontal
2	8260	39.52	11.70	51.22	54	-2.78	peak	Horizontal
3	10640	37.14	14.13	51.27	54	-2.73	peak	Horizontal
4	8800	36.21	13.07	49.28	54	-4.72	peak	Vertical
5	9340	35.44	14.31	49.75	54	-4.25	peak	Vertical
6	10640	34.91	14.13	49.04	54	-4.96	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6784	38.94	8.98	47.92	54	-6.08	peak	Horizontal
2	8656	38.44	12.63	51.07	54	-2.93	peak	Horizontal
3	11000	36.27	14.54	50.81	54	-3.19	peak	Horizontal
4	9172	35.23	14.03	49.26	54	-4.74	peak	Vertical
5	9940	37.24	14.41	51.65	54	-2.35	peak	Vertical
6	11000	35.55	14.54	50.09	54	-3.91	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7180	38.14	10.52	48.66	54	-5.34	peak	Horizontal
2	9112	36.97	13.93	50.90	54	-3.10	peak	Horizontal
3	11200	39.41	14.25	53.66	74	-20.34	peak	Horizontal
4	8932	35.83	13.52	49.35	54	-4.65	peak	Vertical
5	10708	36.13	14.25	50.38	54	-3.62	peak	Vertical
6	11200	35.58	14.25	49.83	54	-4.17	peak	Vertical



**802.11a**

**Antenna A**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8260	39.52	11.7	51.22	54	-2.78	peak	Horizontal
2	8812	37.94	13.1	51.04	54	-2.96	peak	Horizontal
3	11400	38.1	14.37	52.47	54	-1.53	peak	Horizontal
4	10708	36.13	14.25	50.38	54	-3.62	peak	Vertical
5	11400	34.59	14.37	48.96	54	-5.04	peak	Vertical
6	12136	36.89	13.71	50.6	54	-3.4	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7180	38.14	10.52	48.66	54	-5.34	peak	Horizontal
2	8656	38.44	12.63	51.07	54	-2.93	peak	Horizontal
3	11490	36.82	14.41	51.23	54	-2.77	peak	Horizontal
4	8380	38.78	11.93	50.71	54	-3.29	peak	Vertical
5	9172	36.64	14.03	50.67	54	-3.33	peak	Vertical
6	11490	37.09	14.41	51.50	54	-2.50	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8656	38.44	12.63	51.07	54	-2.93	peak	Horizontal
2	9112	36.97	13.93	50.90	54	-3.10	peak	Horizontal
3	11570	39.35	14.25	53.60	54	-0.40	peak	Horizontal
4	9280	37.32	14.21	51.53	54	-2.47	peak	Vertical
5	10288	37.09	14.38	51.47	54	-2.53	peak	Vertical
6	11570	38.16	14.25	52.41	54	-1.59	peak	Vertical

**802.11a**

**Antenna A**

**Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8656	38.44	12.63	51.07	54	-2.93	peak	Horizontal
2	9256	37.18	14.17	51.35	54	-2.65	peak	Horizontal
3	11650	38.42	14.06	52.48	54	-1.52	peak	Horizontal
4	7192	39.22	10.56	49.78	54	-4.22	peak	Vertical
5	8800	38.55	13.07	51.62	54	-2.38	peak	Vertical
6	11650	40.19	14.06	54.25	54	0.25	peak	Vertical

**802.11 n(HT20)****Antenna A****Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7072	38.83	10.05	48.88	54	-5.12	peak	Horizontal
2	9124	36.41	13.95	50.36	54	-3.64	peak	Horizontal
3	10360	36.51	14.28	50.79	54	-3.21	peak	Horizontal
4	8932	38.93	13.52	52.45	54	-1.55	peak	Vertical
5	10360	37.12	14.28	51.40	54	-2.60	peak	Vertical
6	11200	38.78	14.25	53.03	54	-0.97	peak	Vertical

**802.11 n(HT20)****Antenna A****Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8320	38.88	11.81	50.69	54	-3.31	peak	Horizontal
2	9124	36.41	13.95	50.36	54	-3.64	peak	Horizontal
3	10400	35.77	14.22	49.99	54	-4.01	peak	Horizontal
4	6988	40.13	9.68	49.81	54	-4.19	peak	Vertical
5	8416	39.83	12.00	51.83	54	-2.17	peak	Vertical
6	10400	37.80	14.22	52.02	54	-1.98	peak	Vertical

**802.11 n(HT20)****Antenna A****Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7168	38.18	10.46	48.64	54	-5.36	peak	Horizontal
2	9040	36.82	13.81	50.63	54	-3.37	peak	Horizontal
3	10480	36.74	14.08	50.82	54	-3.18	peak	Horizontal
4	8416	39.83	12.00	51.83	54	-2.17	peak	Vertical
5	10480	38.15	14.08	52.23	54	-1.77	peak	Vertical
6	10792	38.47	14.41	52.88	54	-1.12	peak	Vertical

**802.11 n(HT20)****Antenna A****Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7072	38.83	10.05	48.88	54	-5.12	peak	Horizontal
2	9040	36.82	13.81	50.63	54	-3.37	peak	Horizontal
3	10520	37.48	14.04	51.52	54	-2.48	peak	Horizontal
4	8932	38.93	13.52	52.45	54	-1.55	peak	Vertical
5	10520	37.94	14.04	51.98	54	-2.02	peak	Vertical
6	12220	39.23	13.87	53.10	54	-0.90	peak	Vertical



**802.11 n(HT20)**

**Antenna A**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8320	38.88	11.81	50.69	54	-3.31	peak	Horizontal
2	9040	36.82	13.81	50.63	54	-3.37	peak	Horizontal
3	10560	35.79	14.05	49.84	54	-4.16	peak	Horizontal
4	8452	38.58	12.06	50.64	54	-3.36	peak	Vertical
5	8944	37.57	13.55	51.12	54	-2.88	peak	Vertical
6	10560	36.09	14.05	50.14	54	-3.86	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8464	38.93	12.09	51.02	54	-2.98	peak	Horizontal
2	9184	36.52	14.06	50.58	54	-3.42	peak	Horizontal
3	10640	36.36	14.13	50.49	54	-3.51	peak	Horizontal
4	8692	37.42	12.74	50.16	54	-3.84	peak	Vertical
5	9988	36.70	14.42	51.12	54	-2.88	peak	Vertical
6	10640	35.80	14.13	49.93	54	-4.07	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8668	37.86	12.66	50.52	54	-3.48	peak	Horizontal
2	9184	36.52	14.06	50.58	54	-3.42	peak	Horizontal
3	11000	36.97	14.54	51.51	54	-2.49	peak	Horizontal
4	8452	38.58	12.06	50.64	54	-3.36	peak	Vertical
5	9220	35.57	14.12	49.69	54	-4.31	peak	Vertical
6	11000	36.52	14.54	51.06	54	-2.94	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8464	38.93	12.09	51.02	54	-2.98	peak	Horizontal
2	9124	36.41	13.95	50.36	54	-3.64	peak	Horizontal
3	11200	37.36	14.25	51.61	54	-2.39	peak	Horizontal
4	8692	37.42	12.74	50.16	54	-3.84	peak	Vertical
5	9988	36.70	14.42	51.12	54	-2.88	peak	Vertical
6	11200	37.52	14.25	51.77	54	-2.23	peak	Vertical



**802.11 n(HT20)**

**Antenna A**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7072	38.83	10.05	48.88	54	-5.12	peak	Horizontal
2	8944	37.55	13.55	51.10	54	-2.90	peak	Horizontal
3	11400	37.88	14.37	52.25	54	-1.75	peak	Horizontal
4	7312	38.26	11.09	49.35	54	-4.65	peak	Vertical
5	8692	37.42	12.74	50.16	54	-3.84	peak	Vertical
6	11400	36.35	14.37	50.72	54	-3.28	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8944	37.55	13.55	51.10	54	-2.90	peak	Horizontal
2	10420	37.06	14.17	51.23	54	-2.77	peak	Horizontal
3	11490	37.29	14.41	51.70	54	-2.30	peak	Horizontal
4	8932	36.00	13.52	49.52	54	-4.48	peak	Vertical
5	9892	37.46	14.39	51.85	54	-2.15	peak	Vertical
6	11490	36.87	14.41	51.28	54	-2.72	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8428	38.85	12.03	50.88	54	-3.12	peak	Horizontal
2	9040	36.82	13.81	50.63	54	-3.37	peak	Horizontal
3	11570	37.52	14.25	51.77	54	-2.23	peak	Horizontal
4	9100	35.35	13.91	49.26	54	-4.74	peak	Vertical
5	10372	35.96	14.26	50.22	54	-3.78	peak	Vertical
6	11570	35.77	14.25	50.02	54	-3.98	peak	Vertical

**802.11 n(HT20)**

**Antenna A**

**Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9040	36.82	13.81	50.63	54	-3.37	peak	Horizontal
2	9976	37.02	14.42	51.44	54	-2.56	peak	Horizontal
3	11650	37.36	14.06	51.42	74	-22.58	peak	Horizontal
4	8236	38.41	11.65	50.06	54	-3.94	peak	Vertical
5	8932	36.00	13.52	49.52	54	-4.48	peak	Vertical
6	11650	36.87	14.06	50.93	54	-3.07	peak	Vertical



**802.11 n(HT40)**

**Antenna A**

**Channel: 38**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8656	37.28	12.63	49.91	54	-4.09	peak	Horizontal
2	9232	37.39	14.14	51.53	54	-2.47	peak	Horizontal
3	10380	36.27	14.25	50.52	54	-3.48	peak	Horizontal
4	6357	42.99	7.90	50.89	54	-3.11	peak	Vertical
5	8689	37.70	12.74	50.44	54	-3.56	peak	Vertical
6	10380	35.91	14.25	50.16	54	-3.84	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 46**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8740	37.28	12.89	50.17	54	-3.83	peak	Horizontal
2	9160	36.54	14.02	50.56	54	-3.44	peak	Horizontal
3	10460	36.96	14.11	51.07	54	-2.93	peak	Horizontal
4	6412	42.41	8.11	50.52	54	-3.48	peak	Vertical
5	8502	38.43	12.16	50.59	54	-3.41	peak	Vertical
6	10460	35.24	14.11	49.35	54	-4.65	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 54**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8584	37.15	12.42	49.57	54	-4.43	peak	Horizontal
2	9064	36.93	13.86	50.79	54	-3.21	peak	Horizontal
3	10540	36.96	14.05	51.01	54	-2.99	peak	Horizontal
4	6423	42.66	8.16	50.82	54	-3.18	peak	Vertical
5	9008	36.78	13.76	50.54	54	-3.46	peak	Vertical
6	10540	36.34	14.05	50.39	54	-3.61	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 62**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8584	37.15	12.42	49.57	54	-4.43	peak	Horizontal
2	9160	36.54	14.02	50.56	54	-3.44	peak	Horizontal
3	10620	36.91	14.08	50.99	54	-3.01	peak	Horizontal
4	6335	42.70	7.82	50.52	54	-3.48	peak	Vertical
5	9349	37.57	14.33	51.90	54	-2.10	peak	Vertical
6	10620	36.08	14.08	50.16	54	-3.84	peak	Vertical



**802.11 n(HT40)**

**Antenna A**

**Channel: 102**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8284	39.92	11.74	51.66	54	-2.34	peak	Horizontal
2	8932	37.29	13.52	50.81	54	-3.19	peak	Horizontal
3	11020	36.17	14.52	50.69	54	-3.31	peak	Horizontal
4	6412	43.15	8.11	51.26	54	-2.74	peak	Vertical
5	8865	38.56	13.29	51.85	54	-2.15	peak	Vertical
6	11020	35.82	14.52	50.34	54	-3.66	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 118**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8932	37.29	13.52	50.81	54	-3.19	peak	Horizontal
2	10108	37.50	14.41	51.91	54	-2.09	peak	Horizontal
3	11180	38.16	14.29	52.45	54	-1.55	peak	Horizontal
4	6401	43.69	8.08	51.77	54	-2.23	peak	Vertical
5	8920	38.54	13.48	52.02	54	-1.98	peak	Vertical
6	11180	37.87	14.29	52.16	54	-1.84	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 134**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8932	37.29	13.52	50.81	54	-3.19	peak	Horizontal
2	10528	38.12	14.05	52.17	54	-1.83	peak	Horizontal
3	11340	36.81	14.33	51.14	54	-2.86	peak	Horizontal
4	8865	37.83	13.29	51.12	54	-2.88	peak	Vertical
5	10504	37.99	14.05	52.04	54	-1.96	peak	Vertical
6	11340	36.17	14.33	50.50	54	-3.50	peak	Vertical

**802.11 n(HT40)**

**Antenna A**

**Channel: 151**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8284	39.92	11.74	51.66	54	-2.34	peak	Horizontal
2	8932	37.29	13.52	50.81	54	-3.19	peak	Horizontal
3	11510	38.09	14.4	52.49	54	-1.51	peak	Horizontal
4	7512	38.78	11.92	50.70	54	-3.30	peak	Vertical
5	8755	36.87	12.94	49.81	54	-4.19	peak	Vertical
6	11510	35.19	14.40	49.59	54	-4.41	peak	Vertical



**802.11 n(HT40)**

**Antenna A**

**Channel: 159**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8536	39.11	12.27	51.38	54	-2.62	peak	Horizontal
2	10384	38.36	14.23	52.59	54	-1.41	peak	Horizontal
3	11590	38.12	14.2	52.32	54	-1.68	peak	Horizontal
4	8755	36.87	12.94	49.81	54	-4.19	peak	Vertical
5	10152	36.75	14.40	51.15	54	-2.85	peak	Vertical
6	11590	36.31	14.20	50.51	54	-3.49	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8680	36.85	12.71	49.56	54	-4.44	peak	Horizontal
2	9088	36.2	13.89	50.09	54	-3.91	peak	Horizontal
3	10360	35.91	14.28	50.19	54	-3.81	peak	Horizontal
4	9016	35.82	13.77	49.59	54	-4.41	peak	Vertical
5	10360	35.06	14.28	49.34	54	-4.66	peak	Vertical
6	10660	37.68	14.17	51.85	54	-2.15	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8680	36.85	12.71	49.56	54	-4.44	peak	Horizontal
2	9160	36.56	14.02	50.58	54	-3.42	peak	Horizontal
3	10400	37.63	14.22	51.85	54	-2.15	peak	Horizontal
4	8368	38.01	11.91	49.92	54	-4.08	peak	Vertical
5	9124	36.45	13.95	50.40	54	-3.60	peak	Vertical
6	10400	35.51	14.22	49.73	54	-4.27	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7168	38.12	10.46	48.58	54	-5.42	peak	Horizontal
2	8236	38.51	11.65	50.16	54	-3.84	peak	Horizontal
3	10480	36.82	14.08	50.90	54	-3.10	peak	Horizontal
4	8812	37.72	13.10	50.82	54	-3.18	peak	Vertical
5	10024	37.19	14.41	51.60	54	-2.40	peak	Vertical
6	10480	36.51	14.08	50.59	54	-3.41	peak	Vertical



**802.11 ac(VHT20)**

**Antenna A**

**Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6880	37.65	9.31	46.96	54	-7.04	peak	Horizontal
2	8680	36.85	12.71	49.56	54	-4.44	peak	Horizontal
3	10520	36.92	14.04	50.96	54	-3.04	peak	Horizontal
4	7072	38.41	10.05	48.46	54	-5.54	peak	Vertical
5	9892	36.91	14.39	51.30	54	-2.70	peak	Vertical
6	10480	36.39	14.08	50.47	54	-3.53	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8416	39.01	12.00	51.01	54	-2.99	peak	Horizontal
2	8944	37.23	13.55	50.78	54	-3.22	peak	Horizontal
3	10560	35.82	14.05	49.87	54	-4.13	peak	Horizontal
4	8368	38.01	11.91	49.92	54	-4.08	peak	Vertical
5	9124	36.45	13.95	50.40	54	-3.60	peak	Vertical
6	10560	35.68	14.05	49.73	54	-4.27	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9160	36.56	14.02	50.58	54	-3.42	peak	Horizontal
2	9796	36.97	14.37	51.34	54	-2.66	peak	Horizontal
3	10640	37.79	14.13	51.92	54	-2.08	peak	Horizontal
4	9592	37.81	14.38	52.19	54	-1.81	peak	Vertical
5	10204	37.37	14.39	51.76	54	-2.24	peak	Vertical
6	10640	37.22	14.13	51.35	54	-2.65	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7060	37.96	9.99	47.95	54	-6.05	peak	Horizontal
2	9088	36.20	13.89	50.09	54	-3.91	peak	Horizontal
3	11000	36.25	14.54	50.79	54	-3.21	peak	Horizontal
4	9136	37.14	13.97	51.11	54	-2.89	peak	Vertical
5	10336	37.43	14.32	51.75	54	-2.25	peak	Vertical
6	11000	37.21	14.54	51.75	54	-2.25	peak	Vertical



**802.11 ac(VHT20)**

**Antenna A**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9160	36.56	14.02	50.58	54	-3.42	peak	Horizontal
2	9964	37.22	14.41	51.63	54	-2.37	peak	Horizontal
3	11200	37.99	14.25	52.24	54	-1.76	peak	Horizontal
4	9268	36.71	14.19	50.90	54	-3.10	peak	Vertical
5	10336	37.43	14.32	51.75	54	-2.25	peak	Vertical
6	11200	37.77	14.25	52.02	54	-1.98	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7060	37.96	9.99	47.95	54	-6.05	peak	Horizontal
2	8680	36.85	12.71	49.56	54	-4.44	peak	Horizontal
3	11400	36.56	14.37	50.93	54	-3.07	peak	Horizontal
4	9268	36.71	14.19	50.90	54	-3.10	peak	Vertical
5	10336	37.43	14.32	51.75	54	-2.25	peak	Vertical
6	11400	38.03	14.37	52.40	54	-1.60	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8236	38.51	11.65	50.16	54	-3.84	peak	Horizontal
2	9088	36.20	13.89	50.09	54	-3.91	peak	Horizontal
3	11490	37.21	14.41	51.62	54	-2.38	peak	Horizontal
4	10216	37.12	14.40	51.52	54	-2.48	peak	Vertical
5	11490	38.65	14.41	53.06	54	-0.94	peak	Vertical
6	12340	38.36	14.08	52.44	54	-1.56	peak	Vertical

**802.11 ac(VHT20)**

**Antenna A**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9160	36.56	14.02	50.58	54	-3.42	peak	Horizontal
2	10036	37.89	14.42	52.31	54	-1.69	peak	Horizontal
3	11570	36.55	14.25	50.80	54	-3.20	peak	Horizontal
4	9364	37.83	14.36	52.19	54	-1.81	peak	Vertical
5	10144	37.84	14.40	52.24	54	-1.76	peak	Vertical
6	11570	38.19	14.25	52.44	54	-1.56	peak	Vertical

**802.11 ac(VHT20)****Antenna A****Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8752	36.88	12.92	49.80	54	-4.20	peak	Horizontal
2	9220	37.08	14.12	51.20	54	-2.80	peak	Horizontal
3	11650	38.09	14.06	52.15	54	-1.85	peak	Horizontal
4	8752	37.99	12.92	50.91	54	-3.09	peak	Vertical
5	9136	37.14	13.97	51.11	54	-2.89	peak	Vertical
6	11650	37.59	14.06	51.65	54	-2.35	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 38**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	5896	38.20	6.61	44.81	54	-9.19	peak	Horizontal
2	8536	38.03	12.27	50.30	54	-3.70	peak	Horizontal
3	10380	35.92	14.25	50.17	54	-3.83	peak	Horizontal
4	7380	40.32	11.38	51.70	54	-2.30	peak	Vertical
5	8953	36.39	13.58	49.97	54	-4.03	peak	Vertical
6	10380	35.41	14.25	49.66	54	-4.34	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 46**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8116	38.63	11.75	50.38	54	-3.62	peak	Horizontal
2	8944	37.71	13.55	51.26	54	-2.74	peak	Horizontal
3	10460	37.01	14.11	51.12	54	-2.88	peak	Horizontal
4	6401	43.27	8.08	51.35	54	-2.65	peak	Vertical
5	8645	38.59	12.60	51.19	54	-2.81	peak	Vertical
6	10460	36.49	14.11	50.60	54	-3.40	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 54**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8500	38.79	12.16	50.95	54	-3.05	peak	Horizontal
2	8932	38.25	13.52	51.77	54	-2.23	peak	Horizontal
3	10540	36.99	14.05	51.04	54	-2.96	peak	Horizontal
4	6412	44.39	8.11	52.50	54	-1.50	peak	Vertical
5	8689	39.36	12.74	52.10	54	-1.90	peak	Vertical
6	10540	37.33	14.05	51.38	54	-2.62	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 62**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8116	38.63	11.75	50.38	54	-3.62	peak	Horizontal
2	8944	37.71	13.55	51.26	54	-2.74	peak	Horizontal
3	10620	35.68	14.08	49.76	54	49.76	peak	Horizontal
4	6434	42.84	8.19	51.03	54	-2.97	peak	Vertical
5	8689	38.48	12.74	51.22	54	-2.78	peak	Vertical
6	10620	37.58	14.08	51.66	54	-2.34	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 102**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8536	38.03	12.27	50.3	54	-3.70	peak	Horizontal
2	9100	36.13	13.91	50.04	54	-3.96	peak	Horizontal
3	11020	36.52	14.52	51.04	54	-2.96	peak	Horizontal
4	6346	44.13	7.86	51.99	54	-2.01	peak	Vertical
5	8887	38.13	13.36	51.49	54	-2.51	peak	Vertical
6	11020	36.29	14.52	50.81	54	-3.19	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 118**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8944	37.71	13.55	51.26	54	-2.74	peak	Horizontal
2	10168	37.66	14.4	52.06	54	-1.94	peak	Horizontal
3	11180	38.35	14.29	52.64	54	-1.36	peak	Horizontal
4	9360	36.88	14.35	51.23	54	-2.77	peak	Vertical
5	10130	36.84	14.40	51.24	54	-2.76	peak	Vertical
6	11180	35.14	14.29	49.43	54	-4.57	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 134**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8536	38.03	12.27	50.30	54	-3.70	peak	Horizontal
2	9364	37.61	14.36	51.97	54	-2.03	peak	Horizontal
3	11340	35.74	14.33	50.07	54	-3.93	peak	Horizontal
4	8931	37.06	13.52	50.58	54	-3.42	peak	Vertical
5	10130	36.84	14.40	51.24	54	-2.76	peak	Vertical
6	11340	36.12	14.33	50.45	54	-3.55	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 151**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8116	39.76	11.75	51.51	54	-2.49	peak	Horizontal
2	9172	36.82	14.03	50.85	54	-3.15	peak	Horizontal
3	11510	37.43	14.40	51.83	54	-2.17	peak	Horizontal
4	7380	40.74	11.38	52.12	54	-1.88	peak	Vertical
5	8414	39.38	11.99	51.37	54	-2.63	peak	Vertical
6	11510	37.28	14.40	51.68	54	-2.32	peak	Vertical

**802.11 ac(VHT40)****Antenna A****Channel: 159**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8944	37.71	13.55	51.26	54	-2.74	peak	Horizontal
2	10168	37.66	14.40	52.06	54	-1.94	peak	Horizontal
3	11590	36.66	14.20	50.86	54	-3.14	peak	Horizontal
4	8843	38.22	13.22	51.44	54	-2.56	peak	Vertical
5	10515	37.35	14.04	51.39	54	-2.61	peak	Vertical
6	11590	35.84	14.20	50.04	54	-3.96	peak	Vertical

**802.11 ac(VHT80)****Antenna A****Channel: 42**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6976	40.26	9.65	49.91	54	-4.09	peak	Horizontal
2	8812	38.13	13.10	51.23	54	-2.77	peak	Horizontal
3	10420	36.97	14.17	51.14	54	-2.86	peak	Horizontal
4	8164	39.00	11.66	50.66	54	-3.34	peak	Vertical
5	8668	38.08	12.66	50.74	54	-3.26	peak	Vertical
6	10420	37.24	14.17	51.41	54	-2.59	peak	Vertical

**802.11 ac(VHT80)****Antenna A****Channel: 58**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6976	40.26	9.65	49.91	54	-4.09	peak	Horizontal
2	8800	38.13	13.07	51.20	54	-2.80	peak	Horizontal
3	10580	37.20	14.05	51.25	54	-2.75	peak	Horizontal
4	8668	38.08	12.66	50.74	54	-3.26	peak	Vertical
5	9316	37.14	14.27	51.41	54	-2.59	peak	Vertical
6	10580	37.05	14.05	51.10	54	-2.90	peak	Vertical



**802.11 ac(VHT80)**

**Antenna A**

**Channel: 106**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8140	39.78	11.70	51.48	54	-2.52	peak	Horizontal
2	8932	38.25	13.52	51.77	54	-2.23	peak	Horizontal
3	11060	36.77	14.46	51.23	54	-2.77	peak	Horizontal
4	9316	37.14	14.27	51.41	54	-2.59	peak	Vertical
5	10252	36.94	14.38	51.32	54	-2.68	peak	Vertical
6	11060	37.65	14.46	52.11	54	-1.89	peak	Vertical

**802.11 ac(VHT80)**

**Antenna A**

**Channel: 122**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8500	38.79	12.16	50.95	54	-3.05	peak	Horizontal
2	9256	37.10	14.17	51.27	54	-2.73	peak	Horizontal
3	11220	38.00	14.26	52.26	54	-1.74	peak	Horizontal
4	9172	36.95	14.03	50.98	54	-3.02	peak	Vertical
5	9964	36.99	14.41	51.40	54	-2.60	peak	Vertical
6	11220	36.88	14.26	51.14	54	-2.86	peak	Vertical

**802.11 ac(VHT80)**

**Antenna A**

**Channel: 155**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9172	36.82	14.03	50.85	54	-3.15	peak	Horizontal
2	10672	38.27	14.18	52.45	54	-1.55	peak	Horizontal
3	11550	37.05	14.30	51.35	54	-2.65	peak	Horizontal
4	8164	39.00	11.66	50.66	54	-3.34	peak	Vertical
5	11200	37.92	14.25	52.17	54	-1.83	peak	Vertical
6	11550	37.24	14.30	51.54	54	-2.46	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8416	37.22	12.00	49.22	54	-4.78	peak	Horizontal
2	9412	36.53	14.42	50.95	54	-3.05	peak	Horizontal
3	10360	34.00	14.28	48.28	54	-5.72	peak	Horizontal
4	8469	38.79	12.10	50.89	54	-3.11	peak	Vertical
5	9063	37.62	13.86	51.48	54	-2.52	peak	Vertical
6	10360	37.06	14.28	51.34	54	-2.66	peak	Vertical



**802.11a**

**Antenna B**

**Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8968	36.00	13.64	49.64	54	-4.36	peak	Horizontal
2	10400	34.72	14.22	48.94	54	-5.06	peak	Horizontal
3	11836	38.26	13.74	52.00	54	-2.00	peak	Horizontal
4	7842	40.21	12.34	52.55	54	-1.45	peak	Vertical
5	8843	38.33	13.22	51.55	54	-2.45	peak	Vertical
6	10400	36.77	14.22	50.99	54	-3.01	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6892	38.18	9.35	47.53	54	-6.47	peak	Horizontal
2	8764	36.12	12.96	49.08	54	-4.92	peak	Horizontal
3	10480	35.69	14.08	49.77	54	-4.23	peak	Horizontal
4	6973	40.59	9.64	50.23	54	-3.77	peak	Vertical
5	9789	38.74	14.36	53.10	54	-0.90	peak	Vertical
6	10480	37.87	14.08	51.95	54	-2.05	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9904	37.46	14.39	51.85	54	-2.15	peak	Horizontal
2	10520	35.62	14.04	49.66	54	-4.34	peak	Horizontal
3	11200	36.43	14.25	50.68	54	-3.32	peak	Horizontal
4	8535	37.51	12.27	49.78	54	-4.22	peak	Vertical
5	9129	36.85	13.96	50.81	54	-3.19	peak	Vertical
6	10520	36.51	14.04	50.55	54	-3.45	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9304	35.82	14.25	50.07	54	-3.93	peak	Horizontal
2	10560	33.82	14.05	47.87	54	-6.13	peak	Horizontal
3	11572	37.81	14.25	52.06	54	-1.94	peak	Horizontal
4	7545	40.31	11.94	52.25	54	-1.75	peak	Vertical
5	9580	38.00	14.39	52.39	54	-1.61	peak	Vertical
6	10560	35.59	14.05	49.64	54	-4.36	peak	Vertical



**802.11a**

**Antenna B**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8800	36.76	13.07	49.83	54	-4.17	peak	Horizontal
2	9868	37.09	14.39	51.48	54	-2.52	peak	Horizontal
3	10640	35.18	14.13	49.31	54	-4.69	peak	Horizontal
4	8535	37.51	12.27	49.78	54	-4.22	peak	Vertical
5	9767	38.26	14.36	52.62	54	-1.38	peak	Vertical
6	10640	36.18	14.13	50.31	54	-3.69	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8428	37.77	12.03	49.80	54	-4.20	peak	Horizontal
2	9892	37.01	14.39	51.40	54	-2.60	peak	Horizontal
3	11000	35.42	14.54	49.96	54	-4.04	peak	Horizontal
4	8942	36.74	13.55	50.29	54	-3.71	peak	Vertical
5	9965	36.50	14.41	50.91	54	-3.09	peak	Vertical
6	11000	35.38	14.54	49.92	54	-4.08	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9112	36.16	13.93	50.09	54	-3.91	peak	Horizontal
2	10732	37.02	14.30	51.32	54	-2.68	peak	Horizontal
3	11200	37.26	14.25	51.51	54	-2.49	peak	Horizontal
4	6401	42.20	8.08	50.28	54	-3.72	peak	Vertical
5	7479	39.54	11.82	51.36	54	-2.64	peak	Vertical
6	11200	34.75	14.25	49.00	54	-5.00	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8884	37.34	13.36	50.70	54	-3.30	peak	Horizontal
2	10444	37.75	14.13	51.88	54	-2.12	peak	Horizontal
3	11400	36.19	14.37	50.56	54	-3.44	peak	Horizontal
4	8425	37.28	12.01	49.29	54	-4.71	peak	Vertical
5	9888	36.49	14.39	50.88	54	-3.12	peak	Vertical
6	11400	36.43	14.37	50.80	54	-3.20	peak	Vertical



**802.11a**

**Antenna B**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8668	37.24	12.66	49.90	54	-4.10	peak	Horizontal
2	9652	37.77	14.35	52.12	54	-1.88	peak	Horizontal
3	11490	35.17	14.41	49.58	54	-4.42	peak	Horizontal
4	7479	40.10	11.82	51.92	54	-2.08	peak	Vertical
5	8854	37.06	13.25	50.31	54	-3.69	peak	Vertical
6	11490	35.87	14.41	50.28	54	-3.72	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9496	37.30	14.42	51.72	54	-2.28	peak	Horizontal
2	10048	37.62	14.42	52.04	54	-1.96	peak	Horizontal
3	11570	36.72	14.25	50.97	54	-3.03	peak	Horizontal
4	6962	38.77	9.60	48.37	54	-5.63	peak	Vertical
5	9096	35.06	13.91	48.97	54	-5.03	peak	Vertical
6	11570	37.48	14.25	51.73	54	-2.27	peak	Vertical

**802.11a**

**Antenna B**

**Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8032	38.71	11.93	50.64	54	-3.36	peak	Horizontal
2	9760	36.84	14.35	51.19	54	-2.81	peak	Horizontal
3	11650	36.55	14.06	50.61	54	-3.39	peak	Horizontal
4	8524	37.32	12.23	49.55	54	-4.45	peak	Vertical
5	10922	36.39	14.59	50.98	54	-3.02	peak	Vertical
6	11650	35.84	14.06	49.90	54	-4.10	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8764	37.7	12.96	50.66	54	-3.34	peak	Horizontal
2	10360	36.66	14.28	50.94	54	-3.06	peak	Horizontal
3	11200	38.15	14.25	52.40	54	-1.60	peak	Horizontal
4	8029	39.76	11.94	51.70	54	-2.30	peak	Vertical
5	8766	38.74	12.97	51.71	54	-2.29	peak	Vertical
6	10360	37.41	14.28	51.69	54	-2.31	peak	Vertical



**802.11 n(HT20)**

**Antenna B**

**Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8764	37.70	12.96	50.66	54	-3.34	peak	Horizontal
2	10132	37.58	14.40	51.98	54	-2.02	peak	Horizontal
3	10400	36.27	14.22	50.49	54	-3.51	peak	Horizontal
4	6401	43.84	8.08	51.92	54	-2.08	peak	Vertical
5	8535	38.99	12.27	51.26	54	-2.74	peak	Vertical
6	10400	36.92	14.22	51.14	54	51.14	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10480	37.43	14.08	51.51	54	-2.49	peak	Horizontal
2	10936	37.69	14.58	52.27	54	-1.73	peak	Horizontal
3	12472	38.50	13.98	52.48	54	-1.52	peak	Horizontal
4	7072	40.47	10.05	50.52	54	-3.48	peak	Vertical
5	8414	40.06	11.99	52.05	54	-1.95	peak	Vertical
6	10480	37.52	14.08	51.60	54	-2.40	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9100	37.18	13.91	51.09	54	-2.91	peak	Horizontal
2	9976	37.26	14.42	51.68	54	-2.32	peak	Horizontal
3	10520	36.50	14.04	50.54	54	-3.46	peak	Horizontal
4	7369	41.20	11.33	52.53	54	-1.47	peak	Vertical
5	8535	38.84	12.27	51.11	54	-2.89	peak	Vertical
6	10520	37.00	14.04	51.04	54	-2.96	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10168	37.01	14.4	51.41	54	-2.59	peak	Horizontal
2	10560	35.86	14.05	49.91	54	-4.09	peak	Horizontal
3	11092	37.18	14.41	51.59	54	-2.41	peak	Horizontal
4	9041	36.95	13.81	50.76	54	-3.24	peak	Vertical
5	10042	37.75	14.42	52.17	54	-1.83	peak	Vertical
6	10560	37.61	14.05	51.66	54	-2.34	peak	Vertical



**802.11 n(HT20)**

**Antenna B**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6808	38.66	9.07	47.73	54	-6.27	peak	Horizontal
2	9172	36.61	14.03	50.64	54	-3.36	peak	Horizontal
3	10640	36.28	14.13	50.41	54	-3.59	peak	Horizontal
4	8799	37.66	13.07	50.73	54	-3.27	peak	Vertical
5	9932	36.72	14.4	51.12	54	-2.88	peak	Vertical
6	10640	36.11	14.13	50.24	54	-3.76	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9100	37.18	13.91	51.09	54	-2.91	peak	Horizontal
2	10168	37.01	14.4	51.41	54	-2.59	peak	Horizontal
3	11000	35.51	14.54	50.05	54	-3.95	peak	Horizontal
4	6313	42.07	7.73	49.80	54	-4.20	peak	Vertical
5	8425	39.14	12.01	51.15	54	-2.85	peak	Vertical
6	11000	35.64	14.54	50.18	54	-3.82	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9172	36.61	14.03	50.64	54	-3.36	peak	Horizontal
2	10168	37.01	14.40	51.41	54	-2.59	peak	Horizontal
3	11200	36.93	14.25	51.18	54	-2.82	peak	Horizontal
4	6181	43.40	7.19	50.59	54	-3.41	peak	Vertical
5	8425	39.14	12.01	51.15	54	-2.85	peak	Vertical
6	11200	35.51	14.25	49.76	54	-4.24	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8260	38.29	11.70	49.99	54	-4.01	peak	Horizontal
2	9100	37.18	13.91	51.09	54	-2.91	peak	Horizontal
3	11400	37.99	14.37	52.36	54	-1.64	peak	Horizontal
4	8502	39.52	12.16	51.68	54	-2.32	peak	Vertical
5	10284	38.04	14.38	52.42	54	-1.58	peak	Vertical
6	11400	38.46	14.37	52.83	54	-1.17	peak	Vertical



**802.11 n(HT20)**

**Antenna B**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8092	37.83	11.81	49.64	54	-4.36	peak	Horizontal
2	8944	36.12	13.55	49.67	54	-4.33	peak	Horizontal
3	11490	35.22	14.41	49.63	54	-4.37	peak	Horizontal
4	6280	43.49	7.60	51.09	54	-2.91	peak	Vertical
5	8634	37.50	12.57	50.07	54	-3.93	peak	Vertical
6	11490	35.29	14.41	49.70	54	-4.30	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9784	37.40	14.35	51.75	54	-2.25	peak	Horizontal
2	10528	37.48	14.05	51.53	54	-2.47	peak	Horizontal
3	11570	37.10	14.25	51.35	54	-2.65	peak	Horizontal
4	8942	37.56	13.55	51.11	54	-2.89	peak	Vertical
5	10383	38.28	14.23	52.51	54	-1.49	peak	Vertical
6	11490	37.85	14.41	52.26	54	-1.74	peak	Vertical

**802.11 n(HT20)**

**Antenna B**

**Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9280	36.04	14.21	50.25	54	-3.75	peak	Horizontal
2	10708	37.56	14.25	51.81	54	-2.19	peak	Horizontal
3	11650	37.70	14.06	51.76	54	-2.24	peak	Horizontal
4	6973	40.12	9.64	49.76	54	-4.24	peak	Vertical
5	8777	37.41	13.00	50.41	54	-3.59	peak	Vertical
6	11650	37.93	14.06	51.99	54	-2.01	peak	Vertical

**802.11 n(HT40)**

**Antenna B**

**Channel: 38**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7072	38.06	10.05	48.11	54	-5.89	peak	Horizontal
2	8920	37.38	13.48	50.86	54	-3.14	peak	Horizontal
3	10380	36.65	14.25	50.90	54	-3.10	peak	Horizontal
4	6973	39.58	9.64	49.22	54	-4.78	peak	Vertical
5	8931	37.44	13.52	50.96	54	-3.04	peak	Vertical
6	10380	36.86	14.25	51.11	54	-2.89	peak	Vertical

**802.11 n(HT40)****Antenna B****Channel: 46**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7312	39.83	11.09	50.92	54	-3.08	peak	Horizontal
2	8800	38.40	13.07	51.47	54	-2.53	peak	Horizontal
3	10460	36.12	14.11	50.23	54	-3.77	peak	Horizontal
4	8436	37.05	12.04	49.09	54	-4.91	peak	Vertical
5	10141	36.30	14.40	50.70	54	-3.30	peak	Vertical
6	10460	33.96	14.11	48.07	54	-5.93	peak	Vertical

**802.11 n(HT40)****Antenna B****Channel: 54**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7540	39.54	11.93	51.47	54	-2.53	peak	Horizontal
2	9352	37.06	14.34	51.40	54	-2.60	peak	Horizontal
3	10540	36.69	14.05	50.74	54	-3.26	peak	Horizontal
4	6995	37.57	9.72	47.29	54	-6.71	peak	Vertical
5	8986	35.23	13.70	48.93	54	-5.07	peak	Vertical
6	10540	34.07	14.05	48.12	54	-5.88	peak	Vertical

**802.11 n(HT40)****Antenna B****Channel: 62**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7924	39.61	12.33	51.94	54	-2.06	peak	Horizontal
2	9136	36.45	13.97	50.42	54	-3.58	peak	Horizontal
3	10620	37.68	14.08	51.76	54	-2.24	peak	Horizontal
4	8029	37.14	11.94	49.08	54	-4.92	peak	Vertical
5	8964	36.56	13.63	50.19	54	-3.81	peak	Vertical
6	10620	33.64	14.08	47.72	54	-6.28	peak	Vertical

**802.11 n(HT40)****Antenna B****Channel: 102**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7300	39.22	11.04	50.26	54	-3.74	peak	Horizontal
2	9136	36.45	13.97	50.42	54	-3.58	peak	Horizontal
3	11020	36.03	14.52	50.55	54	-3.45	peak	Horizontal
4	9184	35.19	14.06	49.25	54	-4.75	peak	Vertical
5	10449	35.93	14.13	50.06	54	-3.94	peak	Vertical
6	11020	33.72	14.52	48.24	54	-5.76	peak	Vertical



**802.11 n(HT40)**

**Antenna B**

**Channel: 118**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9136	36.45	13.97	50.42	54	-3.58	peak	Horizontal
2	9796	37.80	14.37	52.17	54	-1.83	peak	Horizontal
3	11180	38.27	14.29	52.56	54	-1.44	peak	Horizontal
4	6423	41.05	8.16	49.21	54	-4.79	peak	Vertical
5	7314	37.89	11.10	48.99	54	-5.01	peak	Vertical
6	11180	35.13	14.29	49.42	54	-4.58	peak	Vertical

**802.11 n(HT40)**

**Antenna B**

**Channel: 134**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7300	39.22	11.04	50.26	54	-3.74	peak	Horizontal
2	9892	37.27	14.39	51.66	54	-2.34	peak	Horizontal
3	11340	35.66	14.33	49.99	54	-4.01	peak	Horizontal
4	8755	35.80	12.94	48.74	54	-5.26	peak	Vertical
5	10130	36.30	14.40	50.70	54	-3.30	peak	Vertical
6	11340	34.14	14.33	48.47	54	-5.53	peak	Vertical
7	11340	34.14	14.33	48.47	54	-5.53	peak	Vertical

**802.11 n(HT40)**

**Antenna B**

**Channel: 151**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10180	37.39	14.40	51.79	54	-2.21	peak	Horizontal
2	10936	37.27	14.58	51.85	54	-2.15	peak	Horizontal
3	11510	36.65	14.40	51.05	54	-2.95	peak	Horizontal
4	8909	37.49	13.44	50.93	54	-3.07	peak	Vertical
5	10647	37.86	14.14	52.00	54	-2.00	peak	Vertical
6	11510	37.02	14.40	51.42	54	-2.58	peak	Vertical

**802.11 n(HT40)**

**Antenna B**

**Channel: 159**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7072	38.06	10.05	48.11	54	-5.89	peak	Horizontal
2	8236	38.39	11.65	50.04	54	-3.96	peak	Horizontal
3	11590	36.25	14.20	50.45	54	-3.55	peak	Horizontal
4	7050	39.70	9.95	49.65	54	-4.35	peak	Vertical
5	7622	39.73	12.01	51.74	54	-2.26	peak	Vertical
6	11590	37.83	14.20	52.03	54	-1.97	peak	Vertical



**802.11 ac(VHT20)**

**Antenna B**

**Channel: 36**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8392	38.58	11.95	50.53	54	-3.47	peak	Horizontal
2	10048	37.54	14.42	51.96	54	-2.04	peak	Horizontal
3	10360	35.87	14.28	50.15	54	-3.85	peak	Horizontal
4	7050	40.19	9.95	50.14	54	-3.86	peak	Vertical
5	8953	37.82	13.58	51.40	54	-2.60	peak	Vertical
6	10360	37.36	14.28	51.64	54	-2.36	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 40**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9736	38.00	14.35	52.35	54	-1.65	peak	Horizontal
2	10400	35.37	14.22	49.59	54	-4.41	peak	Horizontal
3	11500	37.25	14.42	51.67	54	-2.33	peak	Horizontal
4	7919	39.96	12.34	52.30	54	-1.70	peak	Vertical
5	8502	39.51	12.16	51.67	54	-2.33	peak	Vertical
6	10400	37.19	14.22	51.41	74	-22.59	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 48**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8392	38.58	11.95	50.53	54	-3.47	peak	Horizontal
2	9340	37.10	14.31	51.41	54	-2.59	peak	Horizontal
3	10480	35.75	14.08	49.83	54	-4.17	peak	Horizontal
4	8128	40.04	11.73	51.77	54	-2.23	peak	Vertical
5	9041	38.01	13.81	51.82	54	-2.18	peak	Vertical
6	10480	37.70	14.08	51.78	54	-2.22	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 52**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9340	37.10	14.31	51.41	54	-2.59	peak	Horizontal
2	10048	37.54	14.42	51.96	54	-2.04	peak	Horizontal
3	10520	36.64	14.04	50.68	54	-3.32	peak	Horizontal
4	8436	39.56	12.04	51.60	54	-2.40	peak	Vertical
5	9107	37.40	13.92	51.32	54	-2.68	peak	Vertical
6	10520	38.13	14.04	52.17	74	-21.83	peak	Vertical



**802.11 ac(VHT20)**

**Antenna B**

**Channel: 56**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9244	36.11	14.16	50.27	54	-3.73	peak	Horizontal
2	9796	37.37	14.37	51.74	54	-2.26	peak	Horizontal
3	10560	35.40	14.05	49.45	54	-4.55	peak	Horizontal
4	8029	38.82	11.94	50.76	54	-3.24	peak	Vertical
5	8942	37.68	13.55	51.23	54	-2.77	peak	Vertical
6	10560	36.18	14.05	50.23	54	-3.77	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 64**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8860	37.84	13.27	51.11	54	-2.89	peak	Horizontal
2	10640	36.28	14.13	50.41	54	-3.59	peak	Horizontal
3	11320	38.11	14.32	52.43	54	-1.57	peak	Horizontal
4	8700	37.20	12.77	49.97	54	-4.03	peak	Vertical
5	9855	37.28	14.38	51.66	54	-2.34	peak	Vertical
6	10640	36.51	14.13	50.64	54	-3.36	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 100**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8128	40.03	11.73	51.76	54	-2.24	peak	Horizontal
2	10468	37.09	14.10	51.19	54	-2.81	peak	Horizontal
3	11000	36.80	14.54	51.34	54	-2.66	peak	Horizontal
4	8128	38.62	11.73	50.35	54	-3.65	peak	Vertical
5	8766	37.17	12.97	50.14	54	-3.86	peak	Vertical
6	11000	35.12	14.54	49.66	54	-4.34	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 120**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8860	37.84	13.27	51.11	54	-2.89	peak	Horizontal
2	10468	37.09	14.10	51.19	54	-2.81	peak	Horizontal
3	11200	37.88	14.25	52.13	54	-1.87	peak	Horizontal
4	8326	39.06	11.83	50.89	54	-3.11	peak	Vertical
5	8898	37.84	13.40	51.24	54	-2.76	peak	Vertical
6	11200	38.23	14.25	52.48	54	-1.52	peak	Vertical



**802.11 ac(VHT20)**

**Antenna B**

**Channel: 140**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8860	37.84	13.27	51.11	54	-2.89	peak	Horizontal
2	10696	37.35	14.23	51.58	54	-2.42	peak	Horizontal
3	11400	36.66	14.37	51.03	54	-2.97	peak	Horizontal
4	6346	43.99	7.86	51.85	54	-2.15	peak	Vertical
5	8744	38.04	12.90	50.94	54	-3.06	peak	Vertical
6	11400	37.93	14.37	52.30	54	-1.70	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 149**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8428	38.79	12.03	50.82	54	-3.18	peak	Horizontal
2	9496	37.95	14.42	52.37	54	-1.63	peak	Horizontal
3	11490	36.46	14.41	50.87	54	-3.13	peak	Horizontal
4	8898	38.11	13.40	51.51	54	-2.49	peak	Vertical
5	10438	38.09	14.15	52.24	54	-1.76	peak	Vertical
6	11490	36.70	14.41	51.11	54	-2.89	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 157**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8800	38.24	13.07	51.31	54	-2.69	peak	Horizontal
2	10216	37.72	14.4	52.12	54	-1.88	peak	Horizontal
3	11570	37.84	14.25	52.09	54	-1.91	peak	Horizontal
4	8810	37.7	13.10	50.8	54	-3.20	peak	Vertical
5	10273	36.85	14.38	51.23	54	-2.77	peak	Vertical
6	11570	37.4	14.25	51.65	54	-2.35	peak	Vertical

**802.11 ac(VHT20)**

**Antenna B**

**Channel: 165**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8800	38.24	13.07	51.31	54	-2.69	peak	Horizontal
2	9580	38.77	14.39	53.16	54	-0.84	peak	Horizontal
3	11650	37.42	14.06	51.48	54	-2.52	peak	Horizontal
4	8315	39.03	11.81	50.84	54	-3.16	peak	Vertical
5	8964	37.21	13.63	50.84	54	-3.16	peak	Vertical
6	11650	38.86	14.06	52.92	54	-1.08	peak	Vertical

**802.11 ac(VHT40)****Antenna B****Channel: 38**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9268	36.39	14.19	50.58	54	-3.42	peak	Horizontal
2	9892	37.86	14.39	52.25	54	-1.75	peak	Horizontal
3	10380	35.90	14.25	50.15	54	-3.85	peak	Horizontal
4	8326	39.52	11.83	51.35	54	-2.65	peak	Vertical
5	8799	38.33	13.07	51.40	54	-2.60	peak	Vertical
6	10380	36.86	14.25	51.11	54	-2.89	peak	Vertical

**802.11 ac(VHT40)****Antenna B****Channel: 46**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10460	36.85	14.11	50.96	54	-3.04	peak	Horizontal
2	11164	37.41	14.31	51.72	54	-2.28	peak	Horizontal
3	12268	39.33	13.96	53.29	54	-0.71	peak	Horizontal
4	6478	42.67	8.35	51.02	54	-2.98	peak	Vertical
5	8799	38.33	13.07	51.40	54	-2.60	peak	Vertical
6	10460	38.13	14.11	52.24	54	-1.76	peak	Vertical

**802.11 ac(VHT40)****Antenna B****Channel: 54**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8128	39.47	11.73	51.20	54	-2.80	peak	Horizontal
2	9100	36.72	13.91	50.63	54	-3.37	peak	Horizontal
3	10540	36.00	14.05	50.05	54	-3.95	peak	Horizontal
4	8865	37.51	13.29	50.80	54	-3.20	peak	Vertical
5	9899	37.87	14.39	52.26	54	-1.74	peak	Vertical
6	10540	36.60	14.05	50.65	54	-3.35	peak	Vertical

**802.11 ac(VHT40)****Antenna B****Channel: 62**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	6976	38.91	9.65	48.56	54	-5.44	peak	Horizontal
2	8476	37.32	12.12	49.44	54	-4.56	peak	Horizontal
3	10620	36.23	14.08	50.31	54	-3.69	peak	Horizontal
4	8810	37.85	13.10	50.95	54	-3.05	peak	Vertical
5	10119	36.77	14.40	51.17	54	-2.83	peak	Vertical
6	10620	35.41	14.08	49.49	54	-4.51	peak	Vertical



**802.11 ac(VHT40)**

**Antenna B**

**Channel: 102**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10252	37.59	14.38	51.97	54	-2.03	peak	Horizontal
2	11020	36.90	14.52	51.42	54	-2.58	peak	Horizontal
3	11584	38.69	14.22	52.91	54	-1.09	peak	Horizontal
4	6401	42.65	8.08	50.73	54	-3.27	peak	Vertical
5	7754	38.58	12.21	50.79	54	-3.21	peak	Vertical
6	11020	35.61	14.52	50.13	54	-3.87	peak	Vertical

**802.11 ac(VHT40)**

**Antenna B**

**Channel: 118**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8320	38.94	11.81	50.75	54	-3.25	peak	Horizontal
2	9508	37.98	14.42	52.40	54	-1.60	peak	Horizontal
3	11180	36.51	14.29	50.80	54	-3.20	peak	Horizontal
4	8953	36.72	13.58	50.3	54	-3.70	peak	Vertical
5	10537	37.65	14.05	51.70	54	-2.30	peak	Vertical
6	11180	37.62	14.29	51.91	54	-2.09	peak	Vertical

**802.11 ac(VHT40)**

**Antenna B**

**Channel: 134**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9112	35.78	13.93	49.71	54	-4.29	peak	Horizontal
2	9928	36.65	14.40	51.05	54	-2.95	peak	Horizontal
3	11340	34.79	14.33	49.12	54	-4.88	peak	Horizontal
4	8469	38.76	12.10	50.86	54	-3.14	peak	Vertical
5	8953	36.72	13.58	50.30	54	-3.70	peak	Vertical
6	11340	35.88	14.33	50.21	54	-3.79	peak	Vertical

**802.11 ac(VHT40)**

**Antenna B**

**Channel: 151**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9112	35.78	13.93	49.71	54	-4.29	peak	Horizontal
2	9928	36.65	14.4	51.05	54	-2.95	peak	Horizontal
3	11510	36.26	14.4	50.66	54	-3.34	peak	Horizontal
4	7611	40.57	11.99	52.56	54	-1.44	peak	Vertical
5	8788	37.56	13.04	50.6	54	-3.40	peak	Vertical
6	11510	36.77	14.40	51.17	54	-2.83	peak	Vertical

**802.11 ac(VHT40)****Antenna B****Channel: 159**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	10408	36.90	14.20	51.10	54	-2.90	peak	Horizontal
2	11590	35.33	14.20	49.53	54	-4.47	peak	Horizontal
3	12460	37.80	14.00	51.80	54	-2.20	peak	Horizontal
4	7369	40.04	11.33	51.37	54	-2.63	peak	Vertical
5	10119	37.62	14.40	52.02	54	-1.98	peak	Vertical
6	11590	38.24	14.20	52.44	54	-1.56	peak	Vertical

**802.11 ac(VHT80)****Antenna B****Channel:42**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8116	38.49	11.75	50.24	54	-3.76	peak	Horizontal
2	9112	36.29	13.93	50.22	54	-3.78	peak	Horizontal
3	10420	35.83	14.17	50.00	54	-4.00	peak	Horizontal
4	8810	36.71	13.10	49.81	54	-4.19	peak	Vertical
5	10075	36.6	14.42	51.02	54	-2.98	peak	Vertical
6	10420	34.27	14.17	48.44	54	-5.56	peak	Vertical

**802.11 ac(VHT80)****Antenna B****Channel: 58**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	7192	38.65	10.56	49.21	54	-4.79	peak	Horizontal
2	8968	36.86	13.64	50.50	54	-3.50	peak	Horizontal
3	10580	35.78	14.05	49.83	54	-4.17	peak	Horizontal
4	6291	41.87	7.63	49.50	54	-4.50	peak	Vertical
5	7886	39.07	12.40	51.47	54	-2.53	peak	Vertical
6	10580	35.65	14.05	49.70	54	-4.30	peak	Vertical

**802.11 ac(VHT80)****Antenna B****Channel: 106**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8535	38.79	12.27	51.06	54	-2.94	peak	Horizontal
2	9107	36.34	13.92	50.26	54	-3.74	peak	Horizontal
3	11060	36.03	14.46	50.49	54	-3.51	peak	Horizontal
4	7457	39.27	11.72	50.99	54	-3.01	peak	Vertical
5	8887	36.82	13.36	50.18	54	-3.82	peak	Vertical
6	11060	35.84	14.46	50.30	54	-3.70	peak	Vertical

**802.11 ac(VHT80)****Antenna B****Channel: 122**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	9112	36.29	13.93	50.22	54	-3.78	peak	Horizontal
2	10156	37.39	14.40	51.79	54	-2.21	peak	Horizontal
3	11220	36.45	14.26	50.71	54	-3.29	peak	Horizontal
4	7512	39.48	11.92	51.40	54	-2.60	peak	Vertical
5	10526	37.16	14.05	51.21	54	-2.79	peak	Vertical
6	11220	37.19	14.26	51.45	54	-2.55	peak	Vertical

**802.11 ac(VHT80)****Antenna B****Channel: 155**

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	8236	38.10	11.65	49.75	54	-4.25	peak	Horizontal
2	9376	36.65	14.38	51.03	54	-2.97	peak	Horizontal
3	11550	36.66	14.30	50.96	54	-3.04	peak	Horizontal
4	9173	36.77	14.03	50.80	54	-3.20	peak	Vertical
5	10504	38.16	14.05	52.21	54	-1.79	peak	Vertical
6	11550	37.48	14.30	51.78	54	-2.22	peak	Vertical

Remark: 1. Test Level =Receiver Reading + Antenna Factor + Cable Loss -Preamplifier Factor.

2. No any other emissions level which are attenuated less than 20dB below the limit. According to 15.31(o), the amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.
3. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

## 7.9.2 Radiated Band-edge

**Test Result:** Pass, Test data refer to the < Appendix III >.

All frequencies within the “Restricted bands” have been evaluated to compliance. Section 15.205

Restricted bands of operation.

Only spurious emissions are permitted in any of the frequency bands listed below:

<b>MHz</b>	<b>MHz</b>	<b>MHz</b>	<b>GHz</b>
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 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	10.5 - 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 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

## **7.10 Transmission in the Absence of Data**

### **7.10.1 Standard Applicable**

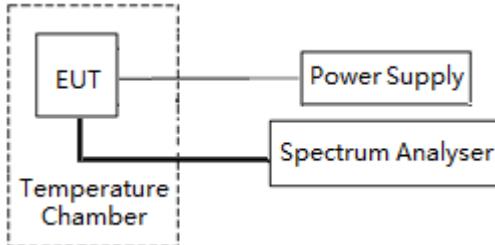
The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

### **7.10.2 Test Result**

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

## 7.11 Frequency stability

### Test setup:



### Test Procedure:

- The EUT was place in the temperature chamber, the DC leads and RF output cable exited the chamber though an opening made for that purpose.
- After operate the equipment in standby conditions for 15 minutes before proceeding. The temperature was varied from -20°C to +55°C at intervals of not more than 10°C. The frequency stability was read from the spectrum analyzer at 20°C the input voltage was varied from DC4.5V to DC 5.5V, the frequency stability and input voltage was record.

### Test Limit:

The frequency of carrier signal shall be maintained within the band of operation

### Test Data:

Band	Test Conditions		Operation Frequency(MHz)	Test Frequency (MHz)	Freq. Dev. (MHz)	Limit (GHz)	Result	
	Volt (V DC)	Temp (°C)						
Band U-NII 1	Normal(5.0)	Extreme(-20)	5180	5179.9771	0.0229	5.15-5.25	Pass	
		Extreme(-10)		5179.9752	0.0248		Pass	
		Extreme(0)		5179.9725	0.0275		Pass	
		Extreme(+10)		5179.9748	0.0252		Pass	
		Extreme(+20)		5179.9731	0.0269		Pass	
		Extreme(+30)		5179.9780	0.022		Pass	
		Extreme(+40)		5179.9752	0.0248		Pass	
		Extreme(+55)		5179.9733	0.0267		Pass	
	Extreme(4.5)	Norma(+20)		5179.9789	0.0211		Pass	
	Extreme(5.5)			5179.9971	0.0029		Pass	
Band U-NII 2A	Normal(12)	Extreme(-20)	5320	5319.9741	0.0259	5.25-5.35	Pass	
		Extreme(-10)		5319.9713	0.0287		Pass	
		Extreme(0)		5319.9755	0.0245		Pass	
		Extreme(+10)		5319.9761	0.0239		Pass	
		Extreme(+20)		5319.9778	0.0222		Pass	
		Extreme(+30)		5319.9789	0.0211		Pass	
		Extreme(+40)		5319.9732	0.0268		Pass	
		Extreme(+55)		5319.9735	0.0265		Pass	
	Extreme(4.5)	Norma(20)		5319.9778	0.0222		Pass	
	Extreme(5.5)			5319.9973	0.0027		Pass	



Band	Test Conditions		Operation Frequency(MHz)	Test Frequency (MHz)	Freq. Dev. (Hz)	Limit (GHz)	Result
	Volt (V DC)	Temp (°C)					
Band U-NII 2C	Normal(5.0)	Extreme(-20)	5550	5549.9771	0.0229	5.47-5.725	Pass
		Extreme(-10)		5549.9755	0.0245		Pass
		Extreme(0)		5549.9732	0.0268		Pass
		Extreme(+10)		5549.9748	0.0252		Pass
		Extreme(+20)		5549.9731	0.0269		Pass
		Extreme(+30)		5549.9780	0.0220		Pass
		Extreme(+40)		5549.9712	0.0288		Pass
		Extreme(+55)		5549.9783	0.0217		Pass
		Extreme(4.5)		5549.9789	0.0211		Pass
	Extreme(5.5)	Norma(+20)		5549.9971	0.0029		Pass
Band U-NII 3	Normal(12)	Extreme(-20)	5825	5824.9741	0.0259	5.725-5.85	Pass
		Extreme(-10)		5824.9752	0.0248		Pass
		Extreme(0)		5824.9772	0.0228		Pass
		Extreme(+10)		5824.9761	0.0239		Pass
		Extreme(+20)		5824.9778	0.0222		Pass
		Extreme(+30)		5824.9721	0.0279		Pass
		Extreme(+40)		5824.9756	0.0244		Pass
		Extreme(+55)		5824.9735	0.0265		Pass
		Extreme(4.5)		5824.9778	0.0222		Pass
	Extreme(5.5)	Norma(20)		5824.9973	0.0027		Pass

Remark: Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.



## **8 Test Setup Photographs**

Refer to the < WC18R2211 \_Test Setup photos-FCC>.

## **9 EUT Constructional Details**

Refer to the < WC18R2211 \_External Photos-FCC > & < WC18R2211 \_Internal Photos-FCC>.

## **10 Appendix I: Test Plot of Maximum Conducted Output Power**

## **11 Appendix II: Test Plot of Peak Power Spectral Density**

## **12 Appendix III: Test Data of Radiated Band-edge**

**--End of the Report--**