



Registration  
No. 788871

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# TEST REPORT FOR WLAN TESTING

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Report No: SRTC2017-9004(F)-17083001(G)-3

Product Name: Joy Album

Product Model: K13

Applicant: Joy Home, Inc.

Manufacturer: Joy Home, Inc.

Specification: FCC Part 15, Subpart C (2017)

RSS-247 (February, 2017 edition)

FCC ID: 2AMPA-GC125542

IC ID: 23004-GC125542

The State Radio\_monitoring\_center Testing Center (SRTC)

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## **1. GENERAL INFORMATION**

### **1.1 Notes of the test report**

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The test results relate only to individual items of the samples which have been tested.

### **1.2 Information about the testing laboratory**

Company:	The State Radio monitoring center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
Contacted person:	Liu Jia
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Email:	liujiaf@srtc.org.cn

### **1.3 Applicant's details**

Company:	Joy Home, Inc.
Address:	1788 Sutter St. #312, San Francisco
City:	San Francisco
Country or Region:	USA
Grantee Code:	2AMPA
Contacted person:	Alan Chan
Tel:	646.784.1430
Fax:	---
Email:	Alan@joy.co

### **1.4 Manufacturer's details**

Company:	Joy Home, Inc.
Address:	1788 Sutter St. #312, San Francisco
City:	San Francisco
Country or Region:	USA
Contacted person:	Alan Chan
Tel:	646.784.1430
Fax:	---
Email:	Alan@joy.co

## 1.5 Test Environment

Date of Receipt of test sample at SRTC:	2017-09-05	
Testing Start Date:	2017-09-05	
Testing End Date:	2017-11-11	

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	38
Maximum Extreme	45	---
Minimum Extreme	0	---

Normal Supply Voltage (V d.c.):	3.80
Maximum Extreme Supply Voltage (V d.c.):	4.20
Minimum Extreme Supply Voltage (V d.c.):	3.50

## **2 DESCRIPTION OF THE DEVICE UNDER TEST**

### **2.1 Final Equipment Build Status**

Frequency Range	5150MHz~5350MHz 5470MHz~5850MHz
Modulation Type	BPSK/QPSK/16QAM/64QAM
Duplex Mode	TDD
Data Rate	6Mbps/9Mbps/12Mbps /18Mbps/24Mbps/36Mbps/48Mbps/54Mbps/6.5Mbps /13.0Mbps/13.5Mbps/19.5Mbps/26.0Mbps/27.0Mbps /39.0Mbps/40.5Mbps/52.0Mbps/58.5Mbps/65Mbps /81.0Mbps/108.0Mbps/121.5Mbps/135.0Mbps
Power Supply	Battery or Charger
Rated Power Supply Voltage	3.8V
HW Version	5A
SW Version	V1.0
Serial Number	JT1-E1-061
Manufacturers Note	<p>Note1: The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure.</p> <p>Note2: Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.</p>

## 2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

Equipment	Charger
Manufacturer	Inventec Appliances (Jiangning) Corporation
Model Number	S13
Serial Number	---

Equipment	Battery
Manufacturer	DONGGUAN YONGWEI TECHNOLOGY CO.,LTD
Model Number	K13
Serial Number	---

### 3 REFERENCE SPECIFICATION

Specification	Version	Title
15.35	Mar. 6, 2014	Measurement detector functions and bandwidths.
15.209	Oct. 30, 1997	Radiated emission limits; general requirements.
15.407	Dec. 23, 2014	General technical requirements
ANSI C63.10	2013	Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-247	February,2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
KDB 644545 D03	August 14, 2014	GUIDANCE FOR IEEE Std 802.11ac TM DEVICES EMISSION TESTING
KDB789033 D02	May 2, 2017	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES (PART 15, SUBPART E)
KDB 905462 D03	August 22, 2016	Client without DFS New Rules v01r02
KDB 905462 D02	April 8, 2016	COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION

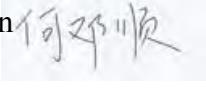
## **4 KEY TO NOTES AND RESULT CODES**

The following are the definition of the test result.

Code	Meaning
PASS	Test result shows that the requirements of the relevant specification have been met.
FAIL	Test result shows that the requirements of the relevant specification have not been met.
N/T	Test case is not tested.
NTC	Nominal voltage, Normal Temperature
HV	High voltage, Normal Temperature
LV	Low voltage, Normal Temperature
HTHV	high voltage, High Temperature
LTHV	High voltage, Low Temperature
HTLV	Low voltage, High Temperature
LTLV	Low voltage, Low Temperature

## 5 RESULT SUMMARY

No.	Test case	FCC reference	Verdict
1.	Peak Power Output	15.407(a)(1) 15.407(a)(2) 15.407(a)(3) / RSS-247	Pass
2.	Occupied Bandwidth	---	Pass
3.	Emission Bandwidth	---	Pass
4.	6dB Bandwidth	15.407(e) / RSS-247	Pass
5.	Transmitter Power Spectral Density	15.407(a)(1) 15.407(a)(2) 15.407(a)(3) / RSS-247	Pass
6.	Unwanted Conducted Emission Measurement	15.407(b) / RSS-247	Pass
7.	Unwanted Radiated Emission Measurement	15.205 15.209 15.35(b) / RSS-247	Pass
8.	AC Power line Conducted Emission	15.207(a) / RSS-247	Pass
9.	DFS	15.407(h) / RSS-247	Pass

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Ms. Liu Jia 
Tested by: Mr. He Dengshun 	Issued date: 20171111

## **6 TEST RESULT**

### **6.1 Peak Power Output**

#### **6.1.1 Ambient condition**

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

#### **6.1.2 Test Description**

A transmitter antenna terminal of EUT is connected to the power meter. Measurement is made using a broadband power meter capable of making peak and average measurements while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies.

#### **6.1.3 Test limit**

FCC Part15.407(a)(1) , RSS-247

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4.0 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4.0 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC Part15.407(a)(2) , RSS-247

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11.0 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11.0 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC Part15.407(a)(3) , RSS-247

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30.0 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **6.1.4 Test Procedure Used**

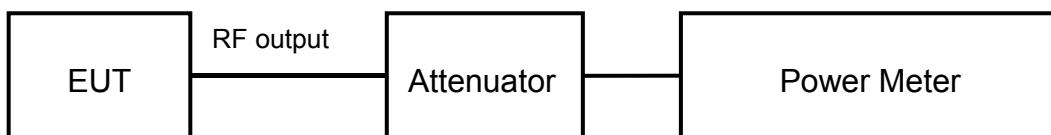
KDB 789033 D02 v01r04, Section E.3.a (Method PM).

### 6.1.5 Test Settings

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

### 6.1.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



### 6.1.7 Test result

The test results are shown in Appendix A.

## 6.2 Occupied Bandwidth

### 6.2.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

### 6.2.2 Test Description

A transmitter antenna terminal of EUT is connected to the Spectrum Analyzer. Which connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

### 6.2.3 Test limit

None.

### 6.2.4 Test Procedure Used

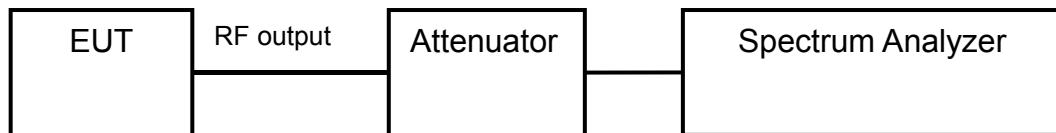
KDB 789033 D01 v01r03, Section D.

### 6.2.5 Test Settings

- a) Set RBW = 1 % to 5 % of the OBW
- b) Set VBW  $\geq 3 \cdot$  RBW
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Use the 99 % power bandwidth function of the instrument

### 6.2.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



### 6.2.7 Test result

The test results are shown in Appendix A .

## 6.3 Emission Bandwidth

### 6.3.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

### 6.3.2 Test Description

A transmitter antenna terminal of EUT is connected to the Spectrum Analyzer. Which connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

### 6.3.3 Test limit

None.

### 6.3.4 Test Procedure Used

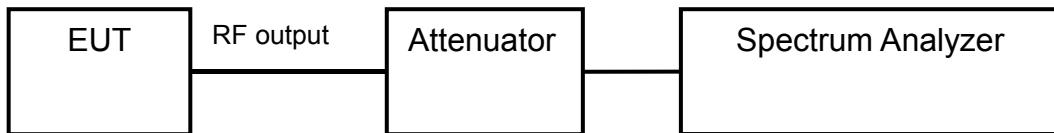
KDB 789033 D02 v01r04, Section C.

### 6.3.5 Test Settings

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

### 6.3.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



### 6.3.7 Test result

The test results are shown in Appendix A .

## 6.4 6dB Bandwidth

### 6.4.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	40%	101.5kPa

### 6.4.2 Test Description

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer and Bluetooth test set via a power splitter with a known loss. Which connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

### 6.4.3 Test limit

FCC Part15.247(e) , RSS-247

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

### 6.4.4 Test Procedure Used

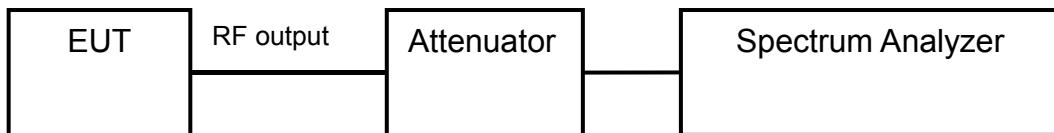
KDB 789033 D02 v01r04, Section C.

### 6.4.5 Test Settings

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 6.4.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



#### 6.4.7 Test result

The test results are shown in Appendix A.

### 6.5 Transmitter Power Spectral Density

#### 6.5.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

#### 6.5.2 Test Description

The peak power density is measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated and the worst case configuration results are reported in this section.

#### 6.5.3 Test limit

FCC Part15.407(a)(1) , RSS-247

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or  $4.0 \text{ dBm} + 10 \log B$ , where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4.0 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC Part15.407(a)(2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11.0 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### FCC Part15.407(a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30.0 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 6.5.4 Test Procedure Used

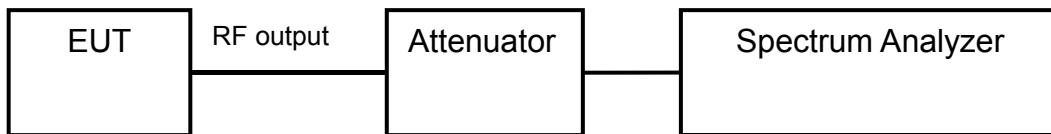
KDB 789033 D02 v01r04, Section F.

#### 6.5.5 Test Settings

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to: 1MHz(5.15-5.7GHz) 500kHz(5.725-5.85GHz)
- d) Set the VBW  $\geq$  3 x RBW.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak search function on the instrument to find the peak of the spectrum and record its value.

#### 6.5.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



#### 6.5.7 Test result

The test results are shown in Appendix A.

## 6.6 Unwanted Conducted Emission Measurement

### 6.6.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	40%	101.5kPa

### 6.6.2 Test Description

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle (>98%), at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration.

### 6.6.3 Test limit

FCC Part 15.407(b) , RSS-247

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

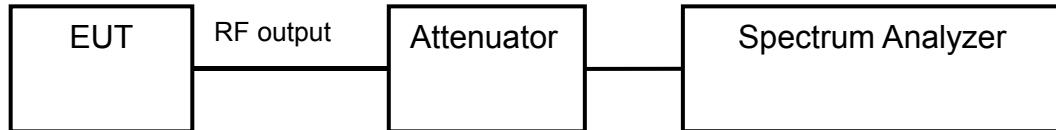
### 6.6.4 Test Procedure Used

KDB 789033 D02 v01r04, Section G.

### 6.6.5 Test Settings

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 1 MHz.
- c) Set the VBW  $\geq$  3 MHz.
- d) Detector = peak.
- e) Set span to encompass the spectrum to be examined
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level.

### 6.6.6 Test Setup



### 6.6.7 Test result

The test results are shown in Appendix A.

## 6.7 Unwanted Radiated Emission Measurement

### 6.7.1 Ambient condition

Temperature	Relative humidity	Pressure
20.8°C	36.5%	100.9kPa

### 6.7.2 Test Description

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

### 6.7.3 Test limit

FCC Part15.205, 15.209, RSS-247;

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)). All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in below Table per Section 15.209.

Frequency [MHz]	Field strength [ μV/m ]	Measured Distance [meters]
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### Radiated Limits

FCC Part15.35(b):

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit

**Used conversion factor: Limit (dBμV/m) = 20 log (Limit (μV/m)/1μV/m)**

Frequency [MHz]	Detector	Unit (dBμV/m)
30~88	Quasi-peak	40.0
88~216	Quasi-peak	43.5
216~960	Quasi-peak	46.0
960~1000	Quasi-peak	54.0
1000~5th harmonic of the highest frequency or 40GHz, whichever is lower	Average	54.0
	Peak	74.0

### Conversion Radiated limits

#### 6.7.4 Test Procedure Used

KDB 789033 D02 v01r04, Sections G.3, G.4, G.5, and G.6.

#### 6.7.5 Test Settings

Average Field Strength Measurements

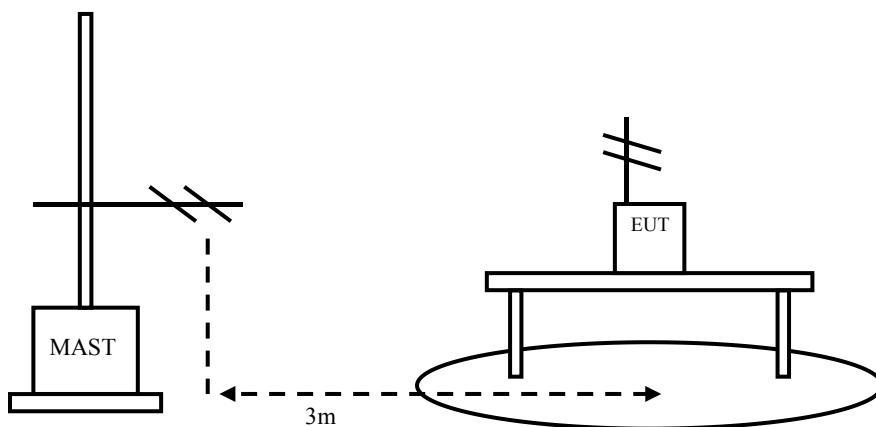
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be  $> 2 \times \text{span}/\text{RBW}$ )
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

#### 6.7.6 Test Setup

The EUT and measurement equipment were set up as shown in the diagram below



The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration. Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz or above, using receive log period antenna HL562 or Ridge horn antenna HF906.

During the test, the antenna height and EUT azimuth were varied in order to identify the maximum level of emission from the EUT. The height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees. The measurements shall be repeated with orthogonal polarization of the test antenna. The results shall be showed the worst case of the three orthogonal axes.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

#### 6.7.7 Test result

The test results are shown in Appendix B.

## 6.8 AC Power line Conducted Emission

### 6.8.1 Ambient condition

Temperature	Relative humidity	Pressure
20.8°C	36.5%	100.9kPa

### 6.8.2 Test limit

FCC Part 15.207(a) , RSS-247

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
0.15-0.5	Quasi-peak	Average
	66 to 56 *	56 to 46 *
	56	46
	60	50

\* Decreases with the logarithm of the frequency.

The measurement is made according to ANSI C63.4-2014

### 6.8.3 Test result

The test results are shown in Appendix B.

## 6.9 Dynamic Frequency Selection

### 6.9.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

### 6.9.2 Test limit

FCC Part 15.407(h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

### 6.9.3 DFS Overview

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

<b>Requirement</b>	<b>Operational Mode</b>		
	<b>Master</b>	<b>Client Without Radar Detection</b>	<b>Client With Radar Detection</b>
<i>Non-Occupancy Period</i>	Yes	Not required	Yes
<i>DFS Detection Threshold</i>	Yes	Not required	Yes
<i>Channel Availability Check Time</i>	Yes	Not required	Not required
<i>U-NII Detection Bandwidth</i>	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>DFS Detection Threshold</i>	Yes	Not required
<i>Channel Closing Transmission Time</i>	Yes	Yes
<i>Channel Move Time</i>	Yes	Yes
<i>U-NII Detection Bandwidth</i>	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required

**Note:** Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

**Note 1:** This is the level at the input of the receiver assuming a 0 dBi receive antenna.  
**Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.  
**Note 3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

Table 4: DFS Response Requirement Values

Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

**Note 1:** *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

**Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel move* (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

**Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\lceil \left( \frac{1}{360} \right) \cdot \left( \frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\rceil$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
<b>Note 1:</b> Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

Table 6 – Long Pulse Radar Test Waveform

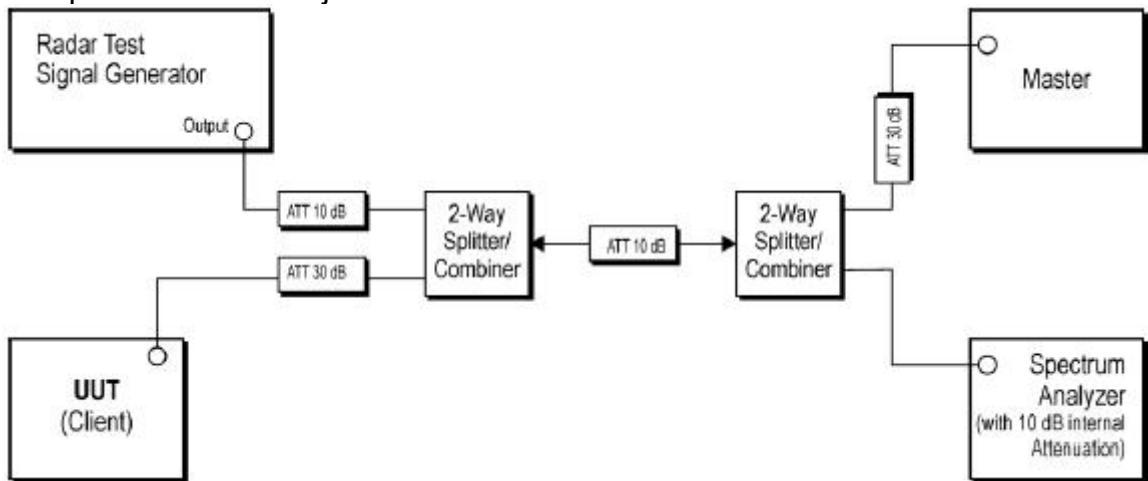
Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Waveform

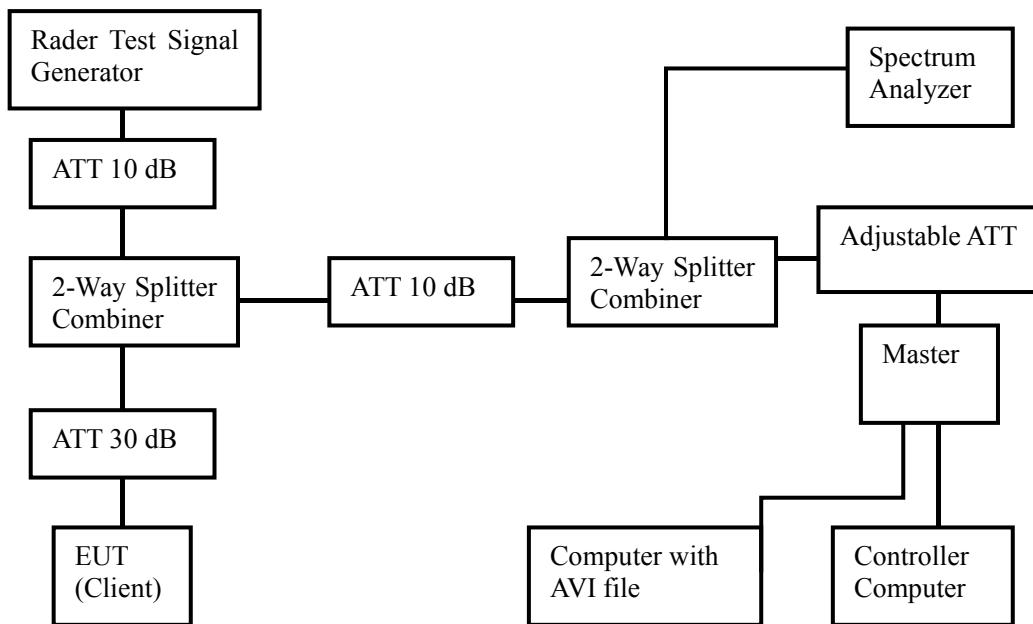
Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

#### 6.9.4 TEST AND MEASUREMENT SYSTEM

Setup for Client with injection at the Master



Setup of EUT  
CLIENT MODE:



Test Setup Operation

System testing was performed with the designated MPEG-4 (1080P, WEBRip, DD5.1.x264-btbta) test file that streams full motion video from the Access Point to the Client in full motion video mode using the media player with the V2.61 Codec package.

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This file is used by IP and Frame based systems for loading the test channel during the In-service compliance testing of the device.

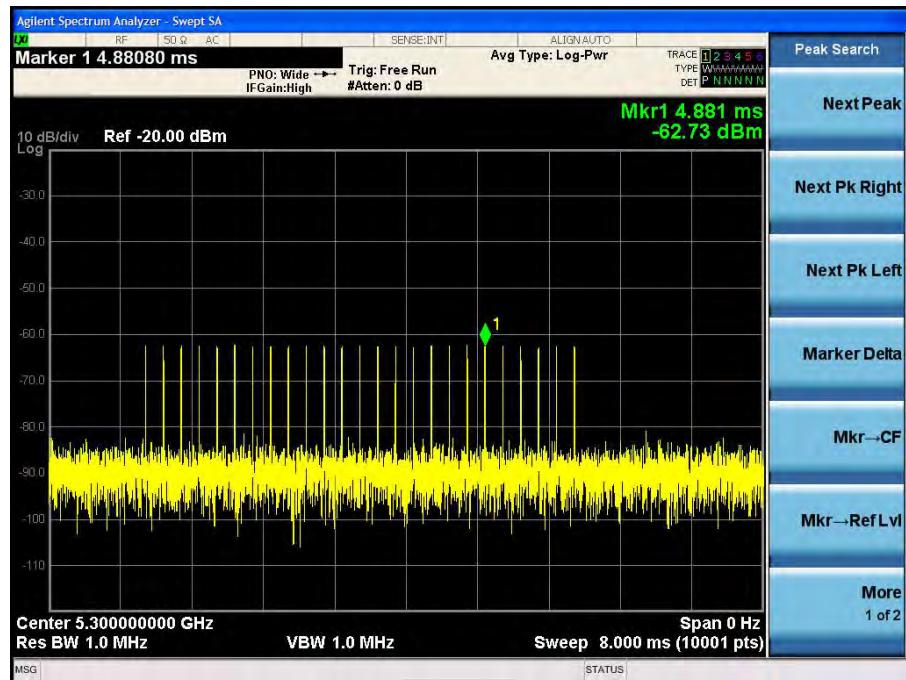
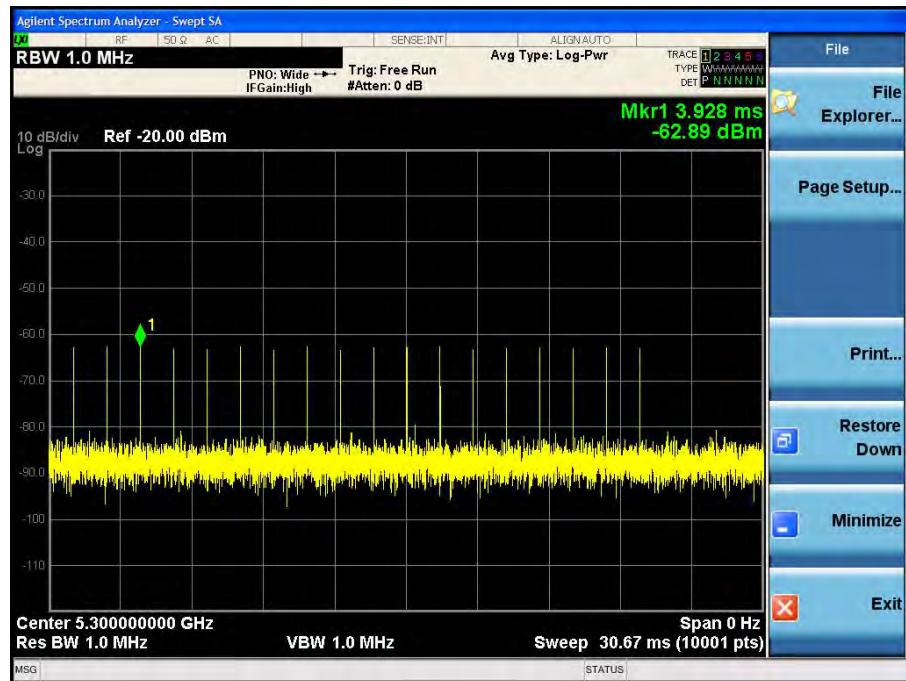
The waveform parameters from within the bounds of the signal type are selected randomly using uniform distribution.

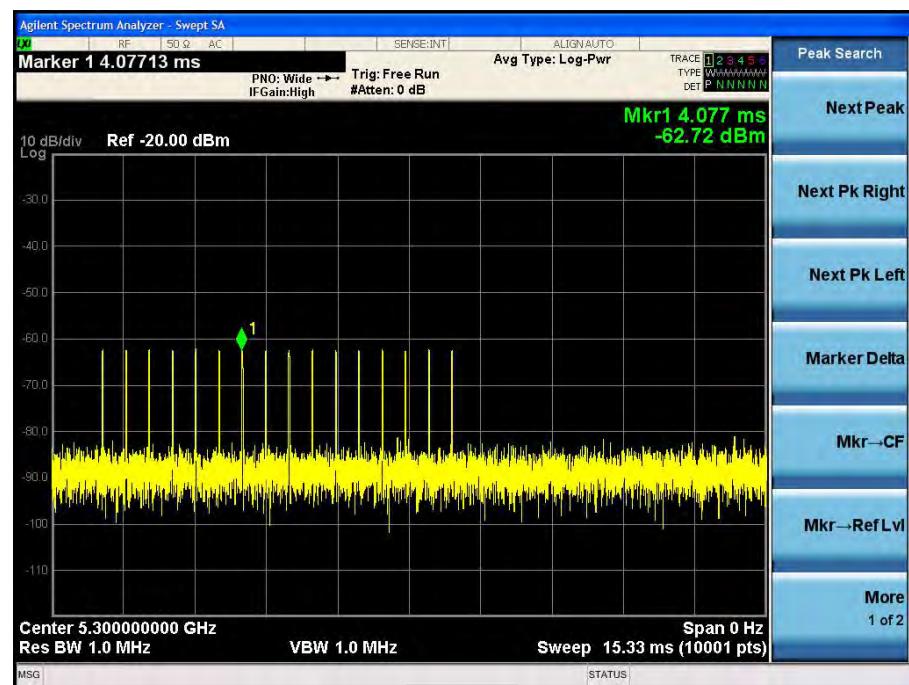
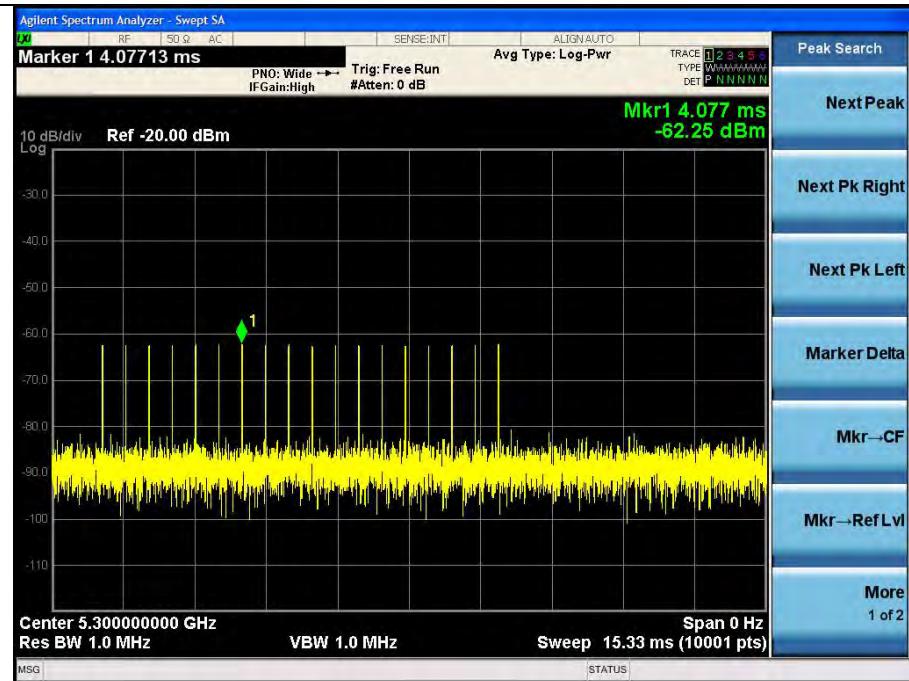
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel move. It is also used to monitor EUT transmissions during the Channel Availability Check Time.

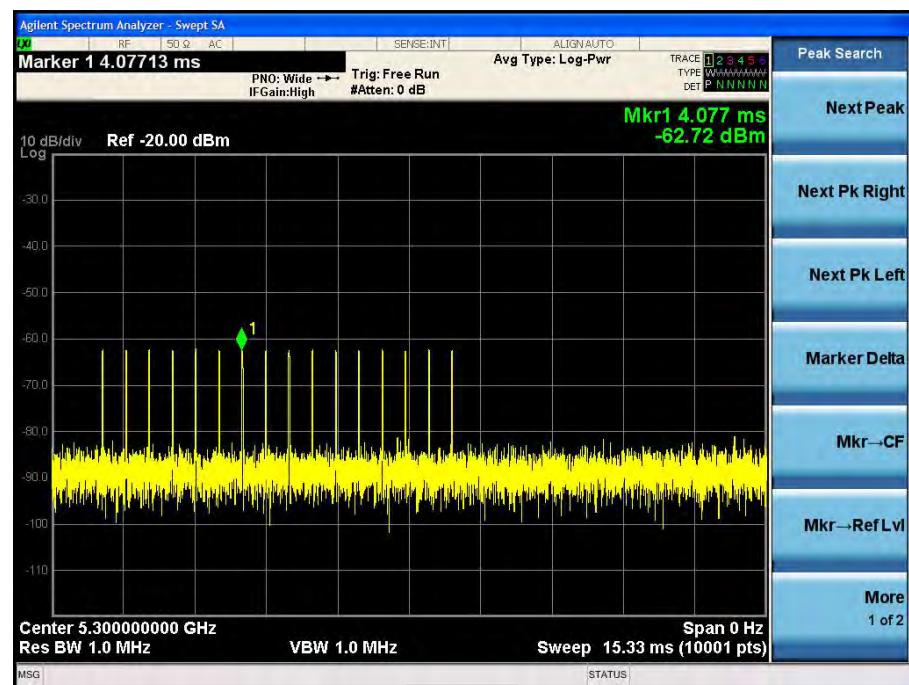
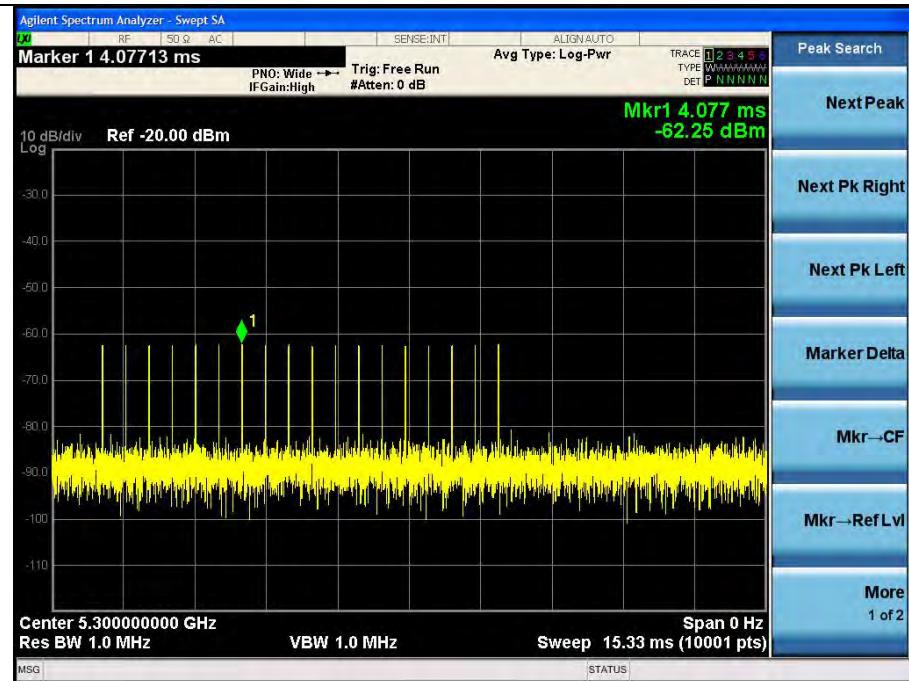
#### **6.9.5 Test Procedure Used**

- (i) Operational Modes. The DFS requirement applies to the following operational modes:
  - (A) The requirement for channel availability check time applies in the master operational mode.
  - (B) The requirement for channel move time applies in both the master and slave operational modes.
- (ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.
- (iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.
- (iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

## 6.9.6 RADAR WAVEFORM







### 6.9.7 Test result

The test results are shown in Appendix A.

## 7 MEASUREMENT UNCERTAINTIES

Items	Uncertainty	
Occupied Bandwidth	3kHz	
Peak power output	0.67dB	
Band edge compliance	1.20dB	
Transmitter Power Spectral Density	0.75dB	
Spurious emissions	30MHz~1GHz	2.83dB
	1GHz~12.75GHz	2.50dB
	12.75GHz~40GHz	2.75dB

## 8 TEST EQUIPMENTS

No.	Equipment Name	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
1.	Spectrum Analyzer	Agilent	N9020A	MY48010771	2017.02.28	2018.02.27
2.	Spectrum Analyzer	RS	FSV 40	101065	2017.08.20	2018.08.19
3.	Signal Generator	KEYSIGHT	N5182B	MY53051650	2017.08.18	2018.08.17
4.	Power Meter	Agilent	E4416A	MY52370013	2017.02.28	2018.02.27
5.	Peak Power Sensor	Agilent	E9327A	MY52420006	2017.02.28	2018.02.27
6.	Notebook PC (Controller)	DELL	E6440	GYZDJ12	NA	NA
7.	Notebook PC (Server)	DELL	E6420	34978758445	NA	NA
8.	RF Cable	NA	NA	9268-4EA	2017.03.01	2018.03.01
9.	RF Cable	NA	NA	9269-4EA	2017.03.01	2018.03.01
10.	RF Cable	NA	NA	9272-4EA	2017.08.18	2018.08.17
11.	RF Cable	NA	NA	9266-4EA	2017.08.18	2018.08.17
12.	Adjustable ATT	AMC	ATT-1021 N	12033107	2017.03.01	2018.03.01
13.	ATT	Aeroflex	2	BV7544	2017.03.01	2018.03.01
14.	ATT	Aeroflex	2	BV7545	2017.03.01	2018.03.01
15.	ATT	Aeroflex	2	BV7546	2017.03.01	2018.03.01
16.	Power Splitter	HP	11667A	19632	2017.08.22	2018.08.21
17.	Power Splitter	NA	SHX-GF2 -2-18G	16021807	2017.03.01	2018.03.01
18.	Wireless Access Point (Master Device)	Aerohive	AP-150W	015017051900 39	NA	NA
19.	12.65m×8.03m×7.50m Fully-Anechoic Chamber	FRANKONIA	---	---	---	---
20.	23.18m×16.88m×9.60m	FRANKONIA	---	---	---	---

	Semi-Anechoic Chamber					
21.	Turn table Diameter:1m	HD	---	---	---	---
22.	Turn table Diameter:5m	HD	---	---	---	---
23.	Antenna master	MATURO	FAC(MA4.0)	---	---	---
24.	Antenna master	MATURO	SAC(MA4.0)	---	---	---
25.	9.080m×5.255m×3.525m Shielding room	FRANKONIA	---	---	---	---
26.	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	---	100030	2017.08.20	2018.08.19
27.	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	---	100029	2017.08.20	2018.08.19
28.	HL562 Ultra log antenna	R&S	---	100016	2017.08.20	2018.08.19
29.	3160-09 Receive antenna	SCHWARZ-BECK	---	002058-002	2017.08.20	2018.08.19
30.	ESI 40 EMI test receiver	R&S	---	100015	2017.08.20	2018.08.19
31.	Radio tester	CMU 200	---	114667	2017.08.20	2018.08.19
32.	ESCS30 EMI test receiver	R&S	---	100029	2017.08.20	2018.08.19
33.	HL562 Receive antenna	R&S	---	100167	2017.08.20	2018.08.19
34.	ESH3-Z5 LISN	R&S	---	100020	2017.08.20	2018.08.19

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## **APPENDIX A – TEST DATA OF CONDUCTED EMISSION**

Please refer to the attachment.

## **APPENDIX B – TEST DATA OF RADIATED EMISSION**

Please refer to the attachment.

## **APPENDIX C – TEST SETUP**

Please refer to the attachment.

## APPENDIX A – TEST DATA OF CONDUCTED EMISSION

### Power Output test result

5150MHz~5250MHz

Test Mode	Data Rate (Mbps)	RMS Average power output		
		5180 MHz	5200 MHz	5240MHz
802.11a	6	<b>12.19</b>	<b>12.23</b>	<b>12.14</b>
	9	11.78	11.56	11.63
	12	11.23	11.12	11.12
	18	10.65	10.82	10.72
	24	10.21	10.32	10.31
	36	9.56	9.72	9.78
	48	9.23	9.45	9.41
	54	8.93	9.02	9.11
802.11n (HT20)	6.5	<b>10.37</b>	<b>10.42</b>	<b>10.36</b>
	13	9.78	10.12	10.12
	19.5	9.45	9.67	9.45
	26	8.67	9.32	9.12
	39	8.34	9.12	8.78
	52	8.12	8.76	8.23
	58.5	7.65	8.23	7.45
	65	7.13	7.65	7.24
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5190 MHz	5230 MHz	
802.11n (HT40)	13.5	<b>11.13</b>	<b>11.05</b>	
	27	10.87	10.82	
	40.5	10.56	10.45	
	54	9.45	9.37	
	81	9.23	9.12	
	108	8.45	8.48	
	121.5	8.21	8.13	
	135	7.38	7.41	

RMS Average power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5180 MHz	5200 MHz	5240MHz
802.11ac (HT20)	6.5	10.35	10.54	10.37
	13	9.48	10.12	9.89
	19.5	9.21	9.56	9.64
	26	8.67	9.21	8.72
	39	8.52	8.72	8.36
	52	7.45	8.24	7.35
	58.5	7.21	7.48	7.21
	65	7.11	7.13	6.99
	78	6.74	6.82	6.81
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5190 MHz	5230 MHz	
802.11ac (HT40)	13.5	11.12	11.04	
	27	10.78	10.88	
	40.5	10.52	10.34	
	54	10.41	9.73	
	81	9.89	9.42	
	108	9.52	8.65	
	121.5	8.72	8.27	
	135	8.34	8.12	
	162	7.53	7.53	
	180	7.23	7.34	
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5210 MHz		
802.11ac (HT80)	29.3	9.85		
	58.5	9.45		
	87.8	9.12		
	117	8.34		
	175.5	8.12		
	234	7.76		
	263.3	7.52		
	292.5	6.43		
	351	6.11		
	390	5.68		

5150MHz~5250MHz

Test Mode	Data Rate (Mbps)	Peak power output		
		5180 MHz	5200 MHz	5240MHz
802.11a	6	<b>21.88</b>	<b>21.93</b>	<b>21.87</b>
	9	21.65	21.78	21.62
	12	21.34	21.65	21.45
	18	21.21	21.42	21.37
	24	21.14	21.38	21.28
	36	20.89	21.22	21.12
	48	20.83	20.82	20.99
	54	20.73	20.64	20.82
802.11n (HT20)	6.5	<b>20.10</b>	<b>20.32</b>	<b>20.27</b>
	13	19.92	20.13	20.11
	19.5	19.78	19.88	19.92
	26	19.45	19.73	19.63
	39	19.32	19.45	19.45
	52	19.12	19.23	19.27
	58.5	18.78	18.89	18.76
	65	18.56	18.72	18.37
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5190 MHz	5230 MHz	
802.11n (HT40)	13.5	<b>20.43</b>	<b>20.31</b>	
	27	20.21	20.14	
	40.5	20.13	20.08	
	54	19.87	19.88	
	81	19.52	19.72	
	108	19.48	19.65	
	121.5	19.39	19.51	
	135	19.34	19.41	

		Peak power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5180 MHz	5200 MHz	5240MHz		
802.11ac (HT20)	6.5	<b>19.95</b>	<b>19.78</b>	<b>19.73</b>		
	13	19.87	19.65	19.62		
	19.5	19.72	19.45	19.53		
	26	19.63	19.32	19.43		
	39	19.45	19.21	19.37		
	52	19.32	19.11	19.26		
	58.5	19.24	18.93	19.18		
	65	18.99	18.75	18.67		
	78	18.77	18.65	18.49		
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5190 MHz	5230 MHz			
802.11ac (HT40)	13.5	<b>20.14</b>	<b>20.21</b>			
	27	20.03	20.18			
	40.5	19.91	20.15			
	54	19.80	20.11			
	81	19.68	20.08			
	108	19.57	20.05			
	121.5	19.46	20.02			
	135	19.34	19.99			
	162	19.23	19.95			
	180	19.00	19.89			
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5210 MHz				
802.11ac (HT80)	29.3	<b>19.43</b>				
	58.5	19.33				
	87.8	19.22				
	117	19.12				
	175.5	19.01				
	234	18.91				
	263.3	18.81				
	292.5	18.70				
	351	18.60				
	390	18.39				

\* The data rate 6Mbps, 6.5Mbps, 13.5Mbps, 29.3 Mbps are selected as worse condition, and the following cases are performed with this condition.

5250MHz~5350MHz

Test Mode	Data Rate (Mbps)	RMS Average power output		
		5260 MHz	5280 MHz	5320MHz
802.11a	6	12.36	12.42	12.37
	9	11.90	11.96	11.90
	12	11.36	11.50	11.43
	18	10.82	11.04	10.96
	24	10.28	10.58	10.49
	36	9.74	10.12	10.02
	48	9.20	9.66	9.55
	54	9.12	9.23	9.11
	6.5	10.78	10.64	10.76
802.11n (HT20)	13	10.34	10.23	10.36
	19.5	9.89	9.82	9.97
	26	9.45	9.40	9.57
	39	9.01	8.99	9.17
	52	8.56	8.58	8.77
	58.5	8.12	8.17	8.38
	65	7.23	7.34	7.58
	13.5	11.02	11.11	
	27	10.66	10.75	
802.11n (HT40)	40.5	10.30	10.40	
	54	9.93	10.04	
	81	9.57	9.68	
	108	9.21	9.32	
	121.5	8.85	8.97	
	135	8.12	8.25	

RMS Average power output						
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5260 MHz	5280 MHz	5320MHz		
802.11ac (HT20)	6.5	<b>10.68</b>	<b>10.71</b>	<b>10.59</b>		
	13	10.28	10.32	10.22		
	19.5	9.89	9.93	9.84		
	26	9.49	9.54	9.47		
	39	9.10	9.15	9.10		
	52	8.70	8.77	8.72		
	58.5	8.31	8.38	8.35		
	65	7.91	7.99	7.98		
	78	7.12	7.21	7.23		
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5270 MHz	5310 MHz			
802.11ac (HT40)	13.5	<b>10.45</b>	<b>10.23</b>			
	27	10.14	9.97			
	40.5	9.83	9.71			
	54	9.52	9.46			
	81	9.21	9.20			
	108	8.90	8.94			
	121.5	8.58	8.68			
	135	8.27	8.42			
	162	7.96	8.17			
	180	7.34	7.65			
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5290 MHz				
802.11ac (HT80)	29.3	<b>10.12</b>				
	58.5	9.72				
	87.8	9.32				
	117	8.92				
	175.5	8.52				
	234	8.12				
	263.3	7.72				
	292.5	7.32				
	351	6.92				
	390	6.12				

## 5250MHz~5350MHz

Test Mode	Data Rate (Mbps)	Peak power output		
		5260 MHz	5280 MHz	5320MHz
802.11a	6	<b>21.34</b>	<b>21.46</b>	<b>21.27</b>
	9	21.19	21.30	21.14
	12	21.04	21.13	21.01
	18	20.88	20.97	20.88
	24	20.73	20.80	20.75
	36	20.58	20.64	20.62
	48	20.43	20.47	20.49
	54	20.12	20.14	20.23
802.11n (HT20)	6.5	<b>20.45</b>	<b>20.62</b>	<b>20.41</b>
	13	20.30	20.46	20.27
	19.5	20.14	20.30	20.13
	26	19.99	20.13	19.98
	39	19.83	19.97	19.84
	52	19.68	19.81	19.70
	58.5	19.52	19.65	19.56
	65	19.21	19.32	19.27
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5270 MHz	5310 MHz	
802.11n (HT40)	13.5	<b>19.89</b>	<b>19.97</b>	
	27	19.31	19.33	
	40.5	19.17	19.17	
	54	19.03	19.01	
	81	18.88	18.85	
	108	18.74	18.69	
	121.5	18.59	18.53	
	135	18.45	18.37	

		Peak power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5260 MHz	5280 MHz	5320MHz		
802.11ac (HT20)	6.5	20.30	20.13	20.25		
	13	19.96	19.86	19.94		
	19.5	19.79	19.73	19.78		
	26	19.62	19.60	19.63		
	39	19.46	19.46	19.47		
	52	19.29	19.33	19.32		
	58.5	19.12	19.20	19.16		
	65	18.95	19.06	19.01		
	78	18.78	18.93	18.85		
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5270 MHz	5310 MHz			
802.11ac (HT40)	13.5	20.04	20.12			
	27	19.94	19.99			
	40.5	19.84	19.86			
	54	19.73	19.72			
	81	19.63	19.59			
	108	19.53	19.46			
	121.5	19.43	19.33			
	135	19.32	19.19			
	162	19.22	19.06			
	180	19.12	18.93			
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5290 MHz				
802.11ac (HT80)	29.3	19.96				
	58.5	19.82				
	87.8	19.68				
	117	19.55				
	175.5	19.41				
	234	19.27				
	263.3	19.13				
	292.5	19.00				
	351	18.86				
	390	18.72				

\* The data rate 6Mbps, 6.5Mbps, 13.5Mbps, 29.3 Mbps are selected as worse condition, and the following cases are performed with this condition.

5470MHz~5725MHz

Test Mode	Data Rate (Mbps)	RMS Average power output		
		5500 MHz	5580 MHz	5700MHz
802.11a	6	<b>12.45</b>	<b>12.53</b>	<b>12.57</b>
	9	12.43	12.34	12.41
	12	12.21	12.16	12.15
	18	11.99	11.97	11.89
	24	11.78	11.79	11.83
	36	11.56	11.60	11.67
	48	11.34	11.42	11.41
	54	11.12	11.23	11.25
	6.5	<b>10.88</b>	<b>10.76</b>	<b>10.62</b>
802.11n (HT20)	13	10.39	10.27	10.07
	19.5	9.90	9.79	9.67
	26	9.41	9.30	9.47
	39	8.92	8.81	8.71
	52	8.43	8.32	8.46
	58.5	7.94	7.84	7.81
	65	7.45	7.35	7.66
	6.5	<b>10.88</b>	<b>10.76</b>	<b>10.62</b>
	13	10.39	10.27	10.07
802.11n (HT40)	13.5	<b>11.12</b>	<b>11.23</b>	<b>11.16</b>
	27	10.71	10.81	10.77
	40.5	10.30	10.40	10.28
	54	9.89	9.98	9.99
	81	9.48	9.56	9.49
	108	9.07	9.14	9.20
	121.5	8.66	8.73	8.91
	135	8.25	8.31	8.62
	13.5	<b>11.12</b>	<b>11.23</b>	<b>11.16</b>

RMS Average power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5500 MHz	5580 MHz	5720MHz
802.11ac (HT20)	6.5	10.34	10.42	10.38
	13	9.90	9.97	9.89
	19.5	9.45	9.52	9.40
	26	9.01	9.07	8.91
	39	8.56	8.62	8.42
	52	8.12	8.16	7.93
	58.5	7.67	7.71	7.44
	65	7.23	7.26	6.95
	78	6.78	6.81	6.46
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5510 MHz	5550MHz	5710 MHz
802.11ac (HT40)	13.5	11.02	11.12	11.13
	27	10.65	10.75	10.73
	40.5	10.28	10.39	10.32
	54	9.91	10.02	9.92
	81	9.54	9.65	9.51
	108	9.16	9.29	9.11
	121.5	8.79	8.92	8.70
	135	8.42	8.55	8.30
	162	8.05	8.19	7.89
	180	7.68	7.82	7.49
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5530 MHz	5690	
802.11ac (HT80)	29.3	10.67	10.73	
	58.5	10.25	10.31	
	87.8	9.83	9.90	
	117	9.41	9.48	
	175.5	8.99	9.06	
	234	8.57	8.65	
	263.3	8.15	8.23	
	292.5	7.73	7.81	
	351	7.31	7.40	
	390	6.89	6.98	

5470MHz~5725MHz

Test Mode	Data Rate (Mbps)	Peak power output		
		5550 MHz	5580 MHz	5700MHz
802.11a	6	<b>21.34</b>	<b>21.46</b>	<b>21.78</b>
	9	21.17	21.28	21.58
	12	20.99	21.11	21.37
	18	20.82	20.93	21.27
	24	20.64	20.76	20.97
	36	20.47	20.58	20.87
	48	20.29	20.41	20.56
	54	20.12	20.23	20.36
802.11n (HT20)	6.5	<b>20.45</b>	<b>20.52</b>	<b>20.58</b>
	13	20.26	20.34	20.49
	19.5	20.07	20.15	20.29
	26	19.88	19.97	20.20
	39	19.69	19.79	19.90
	52	19.50	19.61	19.81
	58.5	19.31	19.42	19.71
	65	19.12	19.24	19.38
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5510 MHz	5550MHz	5670 MHz
802.11n (HT40)	13.5	20.11	20.32	<b>20.36</b>
	27	20.00	20.16	20.20
	40.5	19.89	20.01	20.05
	54	19.78	19.85	19.89
	81	19.67	19.70	19.79
	108	19.56	19.54	19.52
	121.5	19.45	19.39	19.45
	135	19.34	19.23	19.29

		Peak power output		
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5550 MHz	5580 MHz	5720MHz
802.11ac (HT20)	6.5	<b>20.34</b>	<b>20.41</b>	<b>20.37</b>
	13	20.24	20.31	20.26
	19.5	20.15	20.21	20.14
	26	20.05	20.11	20.03
	39	19.95	20.01	19.91
	52	19.86	19.92	19.80
	58.5	19.76	19.82	19.68
	65	19.66	19.72	19.57
	78	19.47	19.52	19.34
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5510 MHz	5550MHz	5710 MHz
802.11ac (HT40)	13.5	<b>19.98</b>	<b>19.78</b>	<b>19.93</b>
	27	19.79	19.63	19.76
	40.5	19.59	19.48	19.58
	54	19.40	19.34	19.41
	81	19.20	19.19	19.23
	108	19.01	19.04	19.06
	121.5	18.81	18.89	18.88
	135	18.62	18.75	18.71
	162	18.42	18.60	18.53
	180	18.23	18.45	18.36
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5530 MHz	5690MHz	
802.11ac (HT80)	29.3	<b>20.01</b>	<b>19.99</b>	
	58.5	19.99	19.96	
	87.8	19.97	19.93	
	117	19.95	19.90	
	175.5	19.93	19.87	
	234	19.91	19.84	
	263.3	19.89	19.81	
	292.5	19.87	19.78	
	351	19.85	19.75	
	390	19.83	19.72	

\* The data rate 6Mbps, 6.5Mbps, 13.5Mbps, 29.3 Mbps are selected as worse condition, and the following cases are performed with this condition.

5725MHz~5850MHz

Test Mode	Data Rate (Mbps)	RMS Average power output		
		5745 MHz	5785 MHz	5825MHz
802.11a	6	12.18	12.24	12.12
	9	12.04	12.00	11.98
	12	11.91	11.86	11.85
	18	11.77	11.72	11.71
	24	11.64	11.57	11.57
	36	11.50	11.43	11.43
	48	11.37	11.29	11.30
	54	11.23	11.15	11.16
	6.5	11.08	10.85	10.67
802.11n (HT20)	13	10.59	10.40	10.22
	19.5	10.11	9.96	9.76
	26	9.62	9.51	9.31
	39	9.13	9.07	8.85
	52	8.64	8.62	8.40
	58.5	8.16	8.18	7.94
	65	7.67	7.73	7.49
	13.5	10.76	10.89	
	27	10.42	10.53	
802.11n (HT40)	40.5	10.08	10.18	
	54	9.75	9.82	
	81	9.41	9.47	
	108	9.07	9.11	
	121.5	8.73	8.76	
	135	7.72	7.69	
	13.5	10.76	10.89	
	27	10.42	10.53	
	40.5	10.08	10.18	

		RMS Average power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5745 MHz	5785 MHz	5825MHz		
802.11ac (HT20)	6.5	<b>10.78</b>	<b>10.82</b>	<b>10.65</b>		
	13	10.32	10.37	10.21		
	19.5	9.87	9.92	9.78		
	26	9.41	9.47	9.34		
	39	8.95	9.03	8.90		
	52	8.49	8.58	8.46		
	58.5	8.04	8.13	8.03		
	65	7.58	7.68	7.59		
	78	7.12	7.23	7.15		
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5755 MHz	5795 MHz			
802.11ac (HT40)	13.5	<b>10.89</b>	<b>10.45</b>			
	27	10.47	10.13			
	40.5	10.05	9.81			
	54	9.64	9.49			
	81	9.22	9.17			
	108	8.80	8.84			
	121.5	8.38	8.52			
	135	7.97	8.20			
	162	7.55	7.88			
	180	7.13	7.56			
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5775 MHz				
802.11ac (HT80)	29.3	<b>10.64</b>				
	58.5	10.26				
	87.8	9.88				
	117	9.50				
	175.5	9.12				
	234	8.75				
	263.3	8.37				
	292.5	7.99				
	351	7.61				
	390	7.23				

5725MHz~5850MHz

Test Mode	Data Rate (Mbps)	Peak power output		
		5745 MHz	5785 MHz	5825MHz
802.11a	6	<b>21.36</b>	<b>21.57</b>	<b>21.76</b>
	9	21.21	21.35	21.53
	12	21.07	21.13	21.29
	18	20.92	20.91	21.06
	24	20.78	20.69	20.82
	36	20.63	20.47	20.59
	48	20.49	20.25	20.35
	54	20.34	20.03	20.12
802.11n (HT20)	6.5	<b>20.37</b>	<b>20.46</b>	<b>20.68</b>
	13	20.21	20.27	20.48
	19.5	20.04	20.08	20.28
	26	19.88	19.89	20.08
	39	19.72	19.71	19.87
	52	19.56	19.52	19.67
	58.5	19.39	19.33	19.47
	65	19.23	19.14	19.27
Test Mode	Data Rate (Mbps)	Test Result (dBm)		
		5755 MHz	5795 MHz	
802.11n (HT40)	13.5	<b>20.02</b>	<b>20.13</b>	
	27	19.87	19.93	
	40.5	19.72	19.74	
	54	19.57	19.54	
	81	19.43	19.35	
	108	19.28	19.15	
	121.5	19.13	18.96	
	135	18.98	18.76	

		Peak power output				
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5745 MHz	5785 MHz	5825MHz		
802.11ac (HT20)	6.5	20.37	20.46	20.28		
	13	20.22	20.31	20.14		
	19.5	20.07	20.16	20.00		
	26	19.91	20.01	19.86		
	39	19.76	19.86	19.73		
	52	19.61	19.71	19.59		
	58.5	19.46	19.56	19.45		
	65	19.30	19.41	19.31		
	78	19.15	19.26	19.17		
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5755 MHz	5795 MHz			
802.11ac (HT40)	13.5	20.38	20.61			
	27	20.16	20.36			
	40.5	19.94	20.11			
	54	19.71	19.85			
	81	19.49	19.60			
	108	19.27	19.35			
	121.5	19.05	19.10			
	135	18.82	18.84			
	162	18.60	18.59			
	180	18.38	18.34			
Test Mode	Data Rate (Mbps)	Test Result (dBm)				
		5775 MHz				
802.11ac (HT80)	29.3	20.12				
	58.5	19.97				
	87.8	19.82				
	117	19.67				
	175.5	19.52				
	234	19.38				
	263.3	19.23				
	292.5	19.08				
	351	18.93				
	390	18.78				

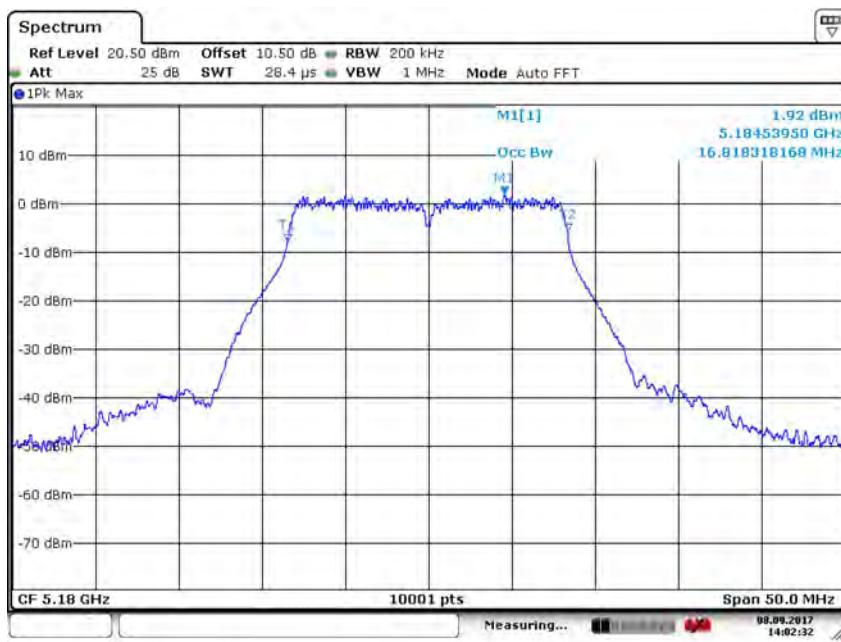
\* The data rate 6Mbps, 6.5Mbps, 13.5Mbps, 29.3 Mbps are selected as worse condition, and the following cases are performed with this condition.

### Occupied Bandwidth

Offset 10.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 0.3dB  
5150MHz~5250MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5180	16.81
5200	16.67
5240	16.68



Carrier frequency (MHz): 5180  
Test Mode: 802.11a



Carrier frequency (MHz): 5200  
 Test Mode: 802.11a



Carrier frequency (MHz): 5240  
 Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5180	17.86
5200	17.88
5240	17.91



Carrier frequency (MHz): 5180  
 Test Mode: 802.11n (HT20)



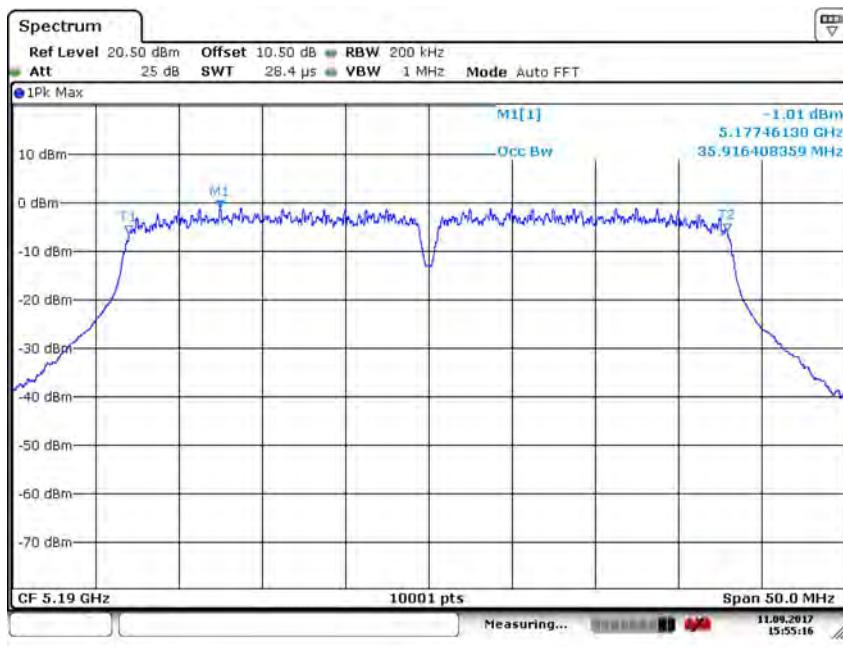
Carrier frequency (MHz): 5200  
Test Mode: 802.11n (HT20)



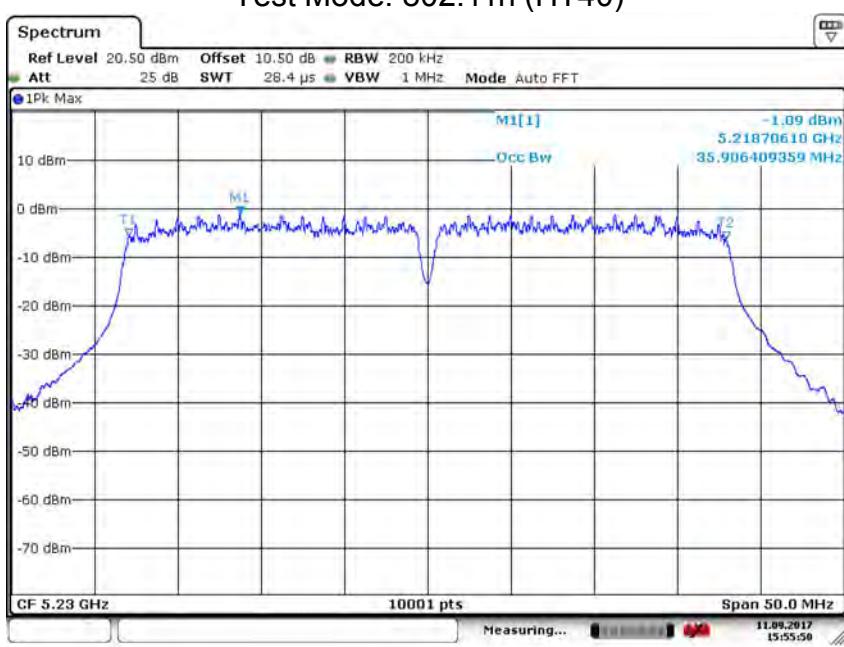
Carrier frequency (MHz): 5240  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5190	35.91
5230	35.90



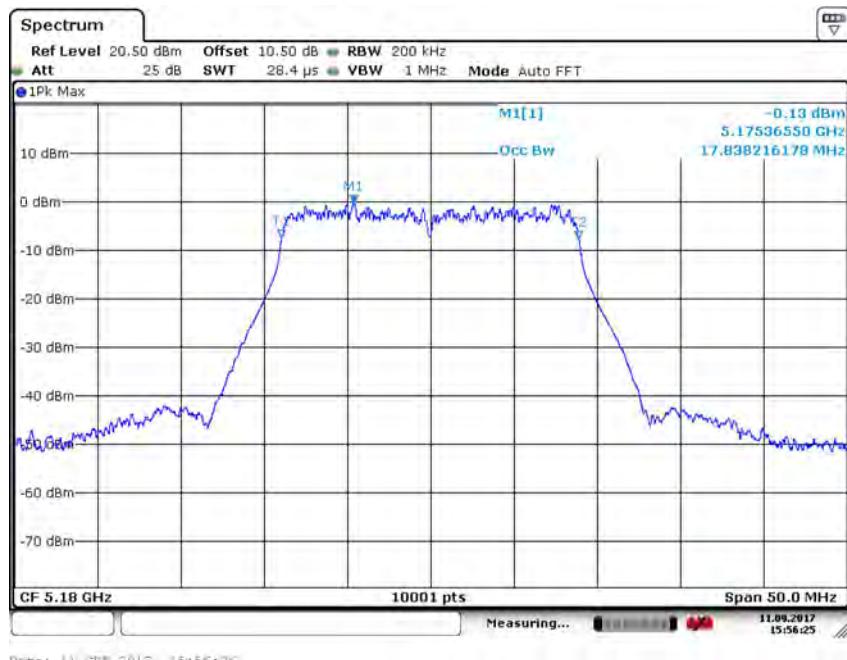
Carrier frequency (MHz): 5190  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5230  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5180	17.83
5200	17.73
5240	17.78



Carrier frequency (MHz): 5180  
Test Mode: 802.11ac (HT20)



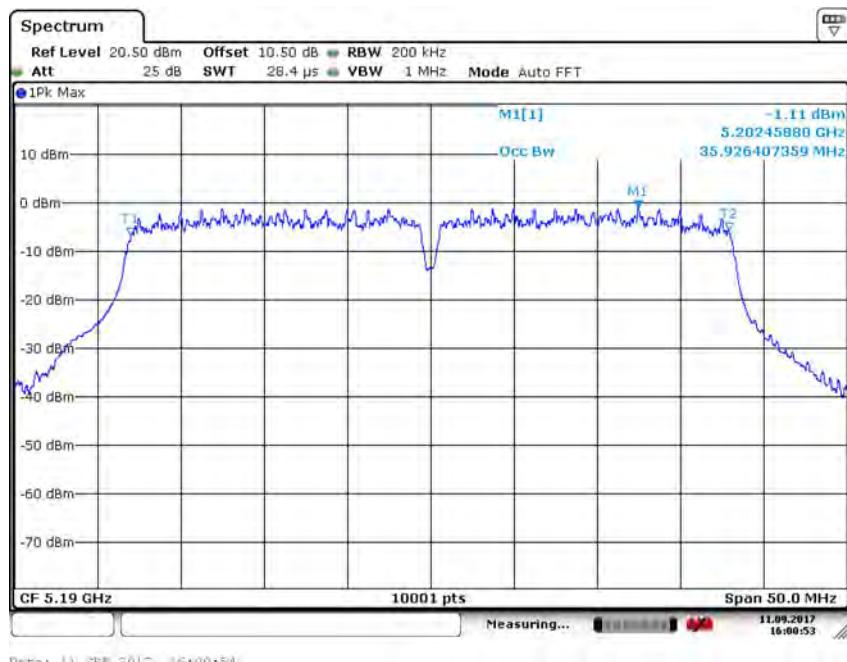
Carrier frequency (MHz): 5200  
 Test Mode: 802.11ac (HT20)



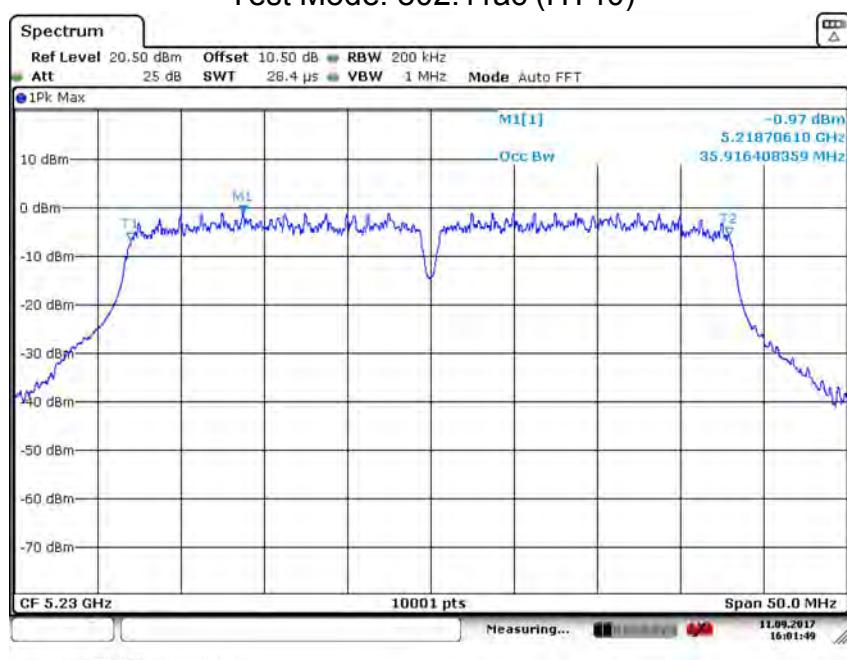
Carrier frequency (MHz): 5240  
 Test Mode: 802.11ac (HT20)

Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5190	35.92
5230	35.91



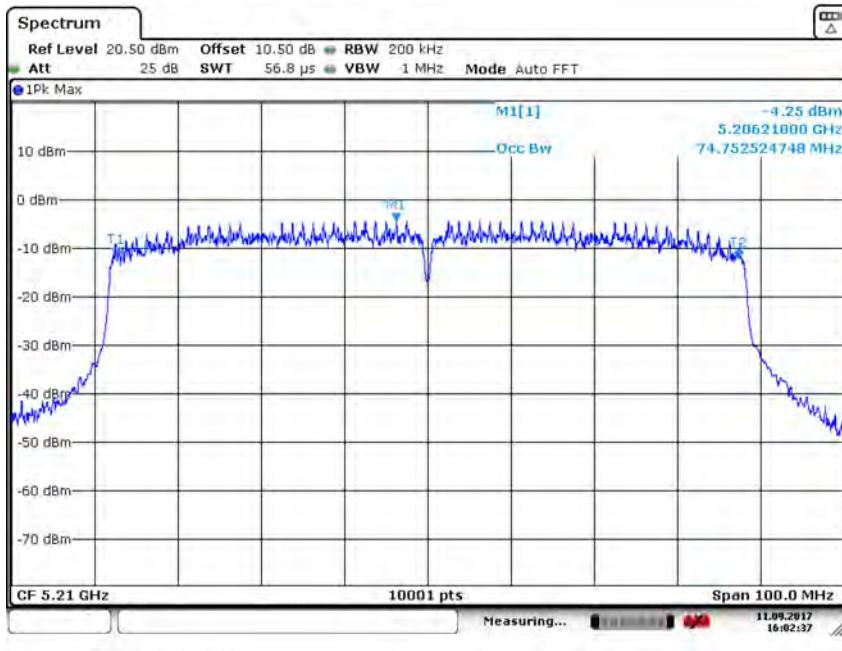
Carrier frequency (MHz): 5190  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5230  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5210	74.75

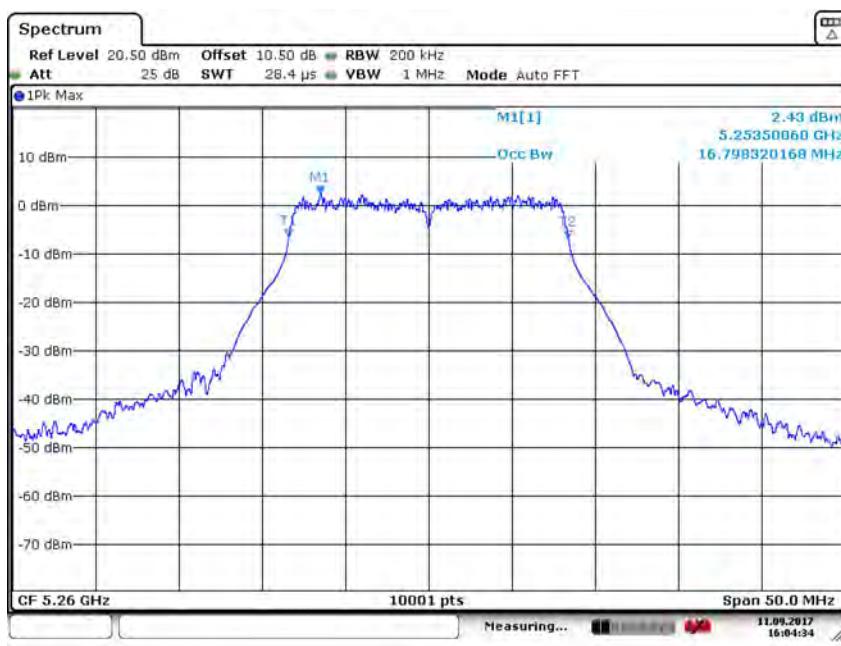


Carrier frequency (MHz): 5210  
Test Mode: 802.11ac (HT80)

5250MHz~5350MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5260	16.79
5280	16.71
5320	16.75



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Carrier frequency (MHz): 5260  
Test Mode: 802.11a



Carrier frequency (MHz): 5280  
Test Mode: 802.11a



Carrier frequency (MHz): 5320  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

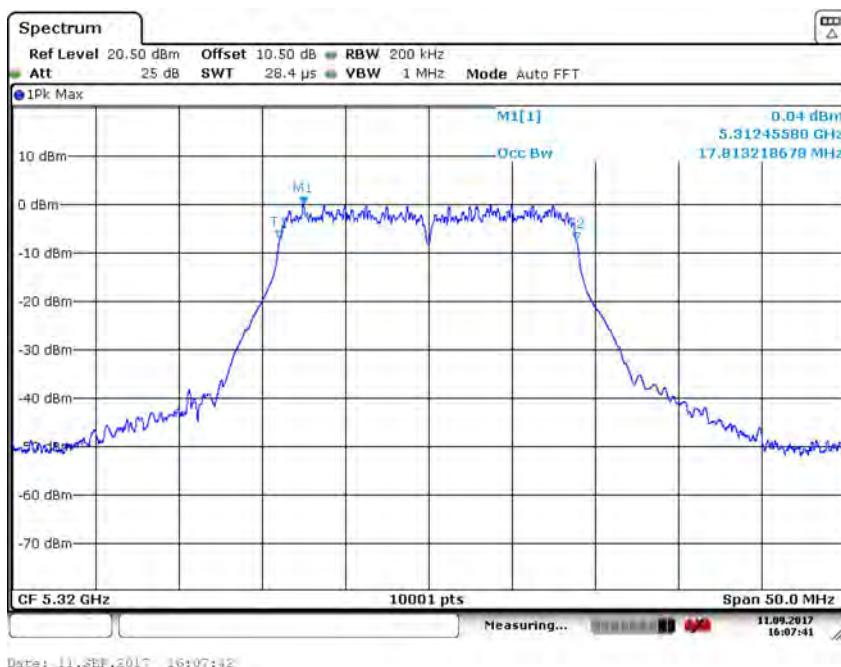
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5260	17.82
5280	17.87
5320	17.81



Carrier frequency (MHz): 5260  
 Test Mode: 802.11n (HT20)



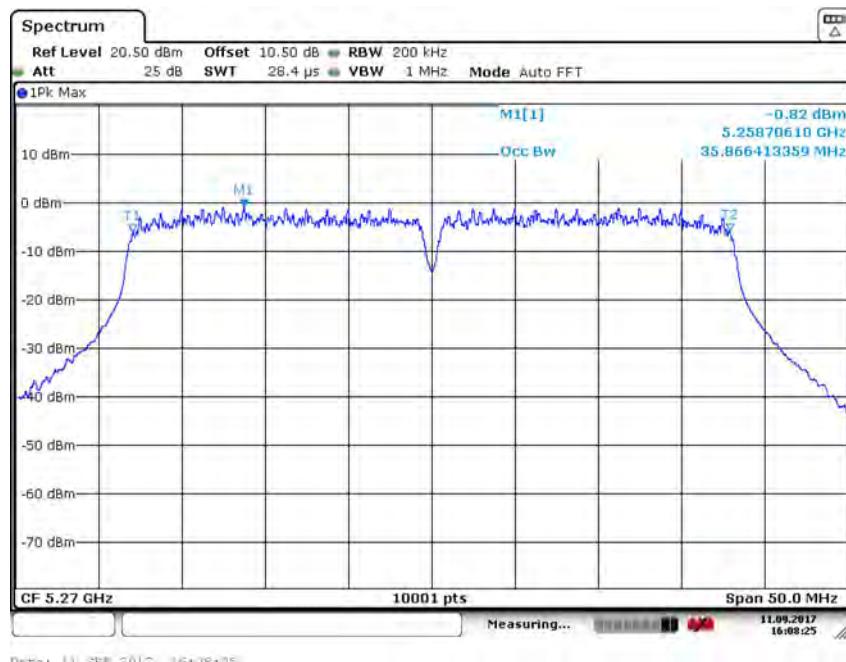
Carrier frequency (MHz): 5280  
Test Mode: 802.11n (HT20)



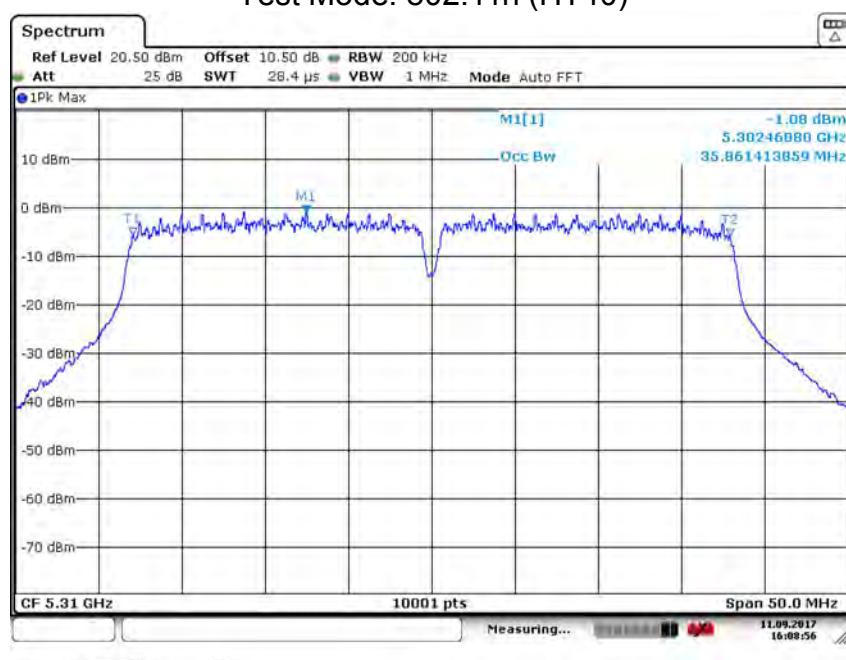
Carrier frequency (MHz): 5320  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5270	35.86
5310	35.86



Carrier frequency (MHz): 5270  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5310  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

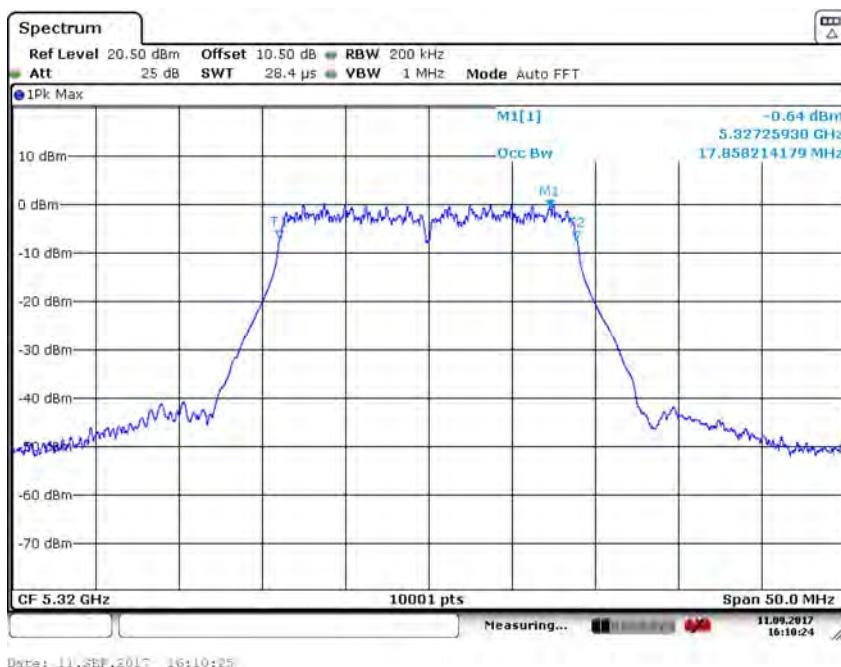
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5260	17.73
5280	17.82
5320	17.85



Carrier frequency (MHz): 5260  
Test Mode: 802.11ac (HT20)



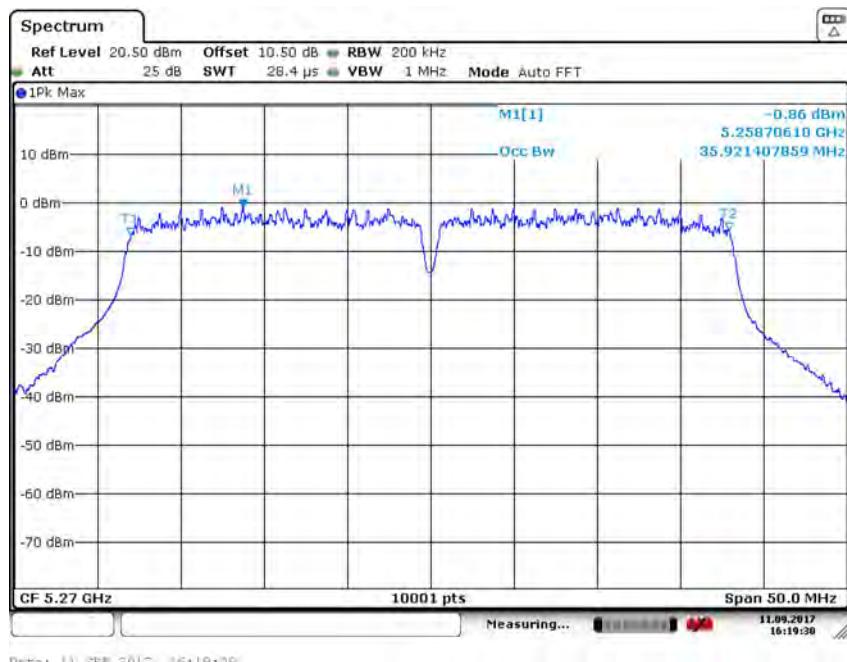
Carrier frequency (MHz): 5280  
Test Mode: 802.11ac (HT20)



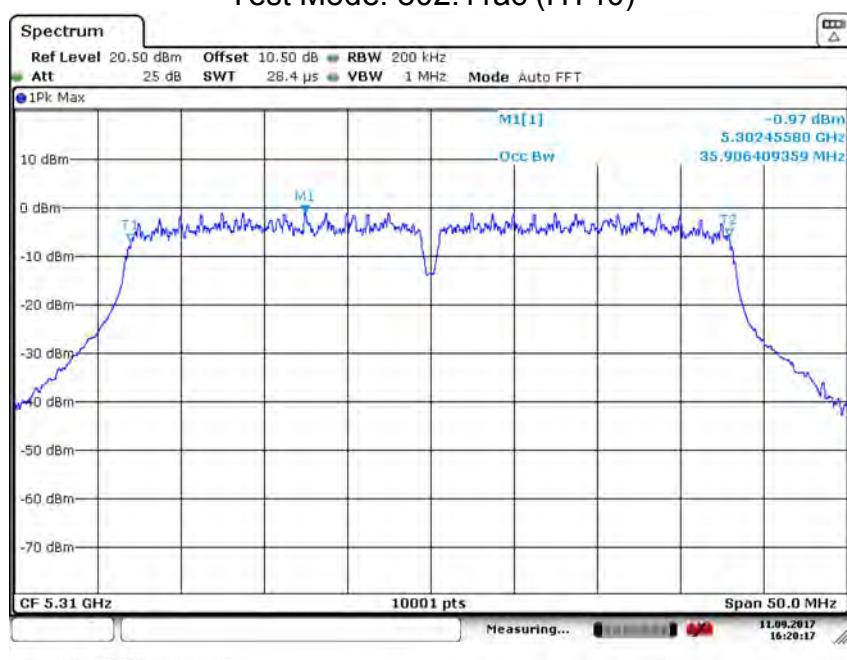
Carrier frequency (MHz): 5320  
Test Mode: 802.11ac (HT20)

Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5270	35.92
5310	35.90



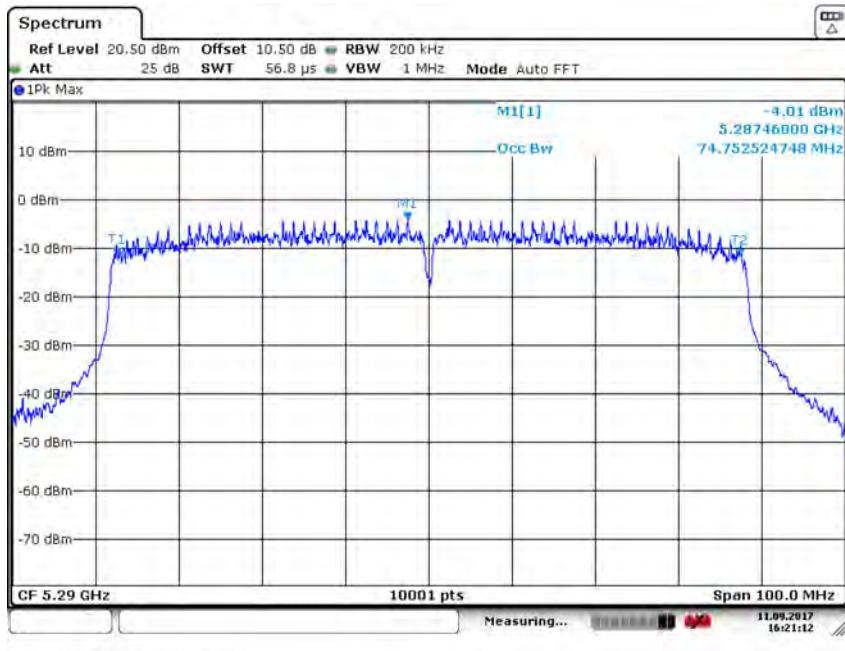
Carrier frequency (MHz): 5270  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5310  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5290	74.75

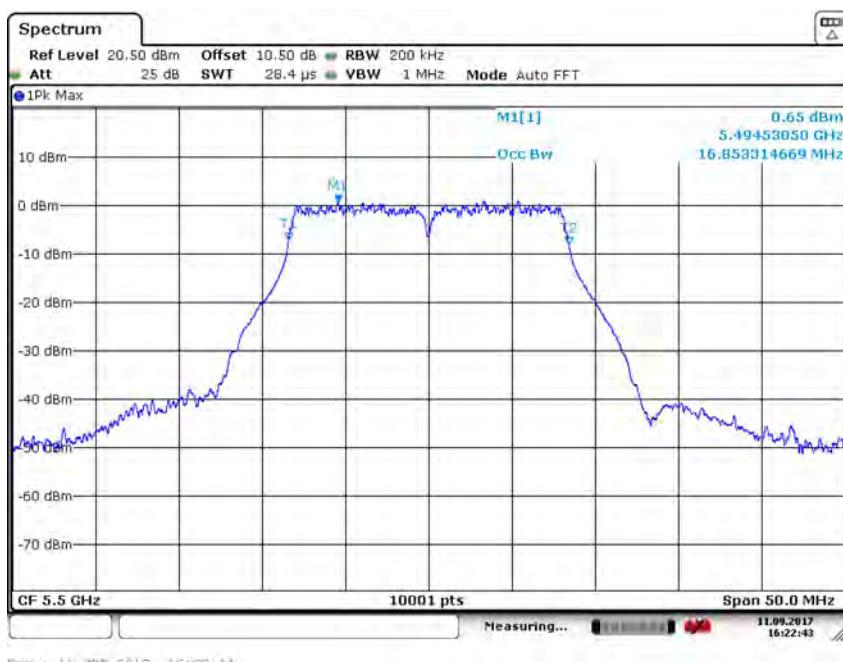


Carrier frequency (MHz): 5290  
Test Mode: 802.11ac (HT80)

5470MHz~5725MHz

Test Mode: 802.11a

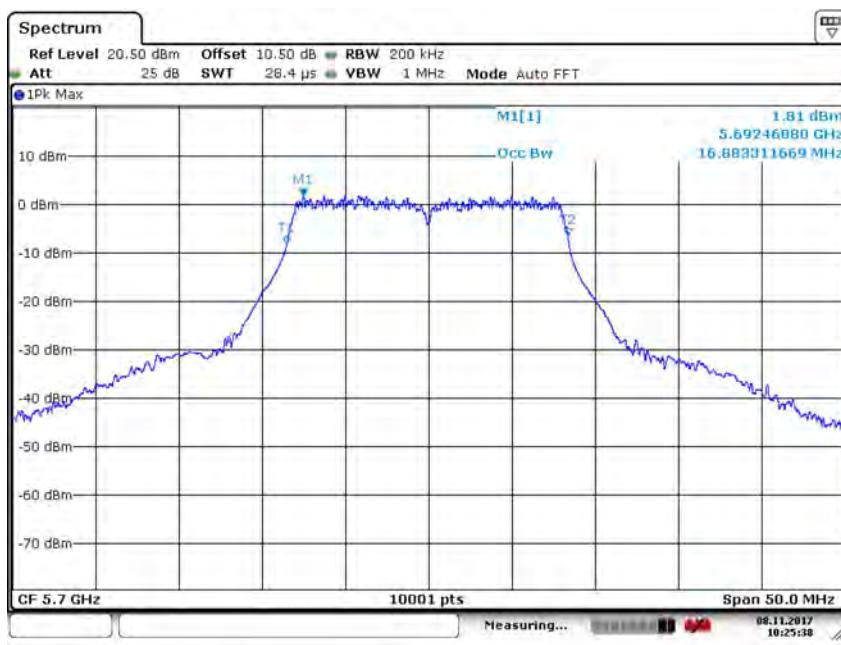
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5500	16.85
5580	16.70
5700	16.88



Carrier frequency (MHz): 5500  
Test Mode: 802.11a



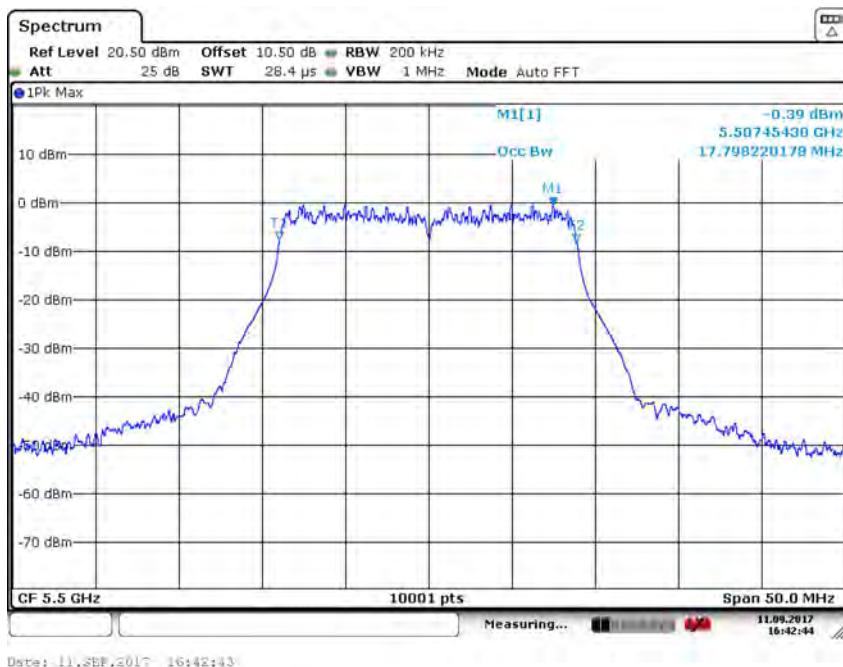
Carrier frequency (MHz): 5580  
Test Mode: 802.11a



Carrier frequency (MHz): 5700  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

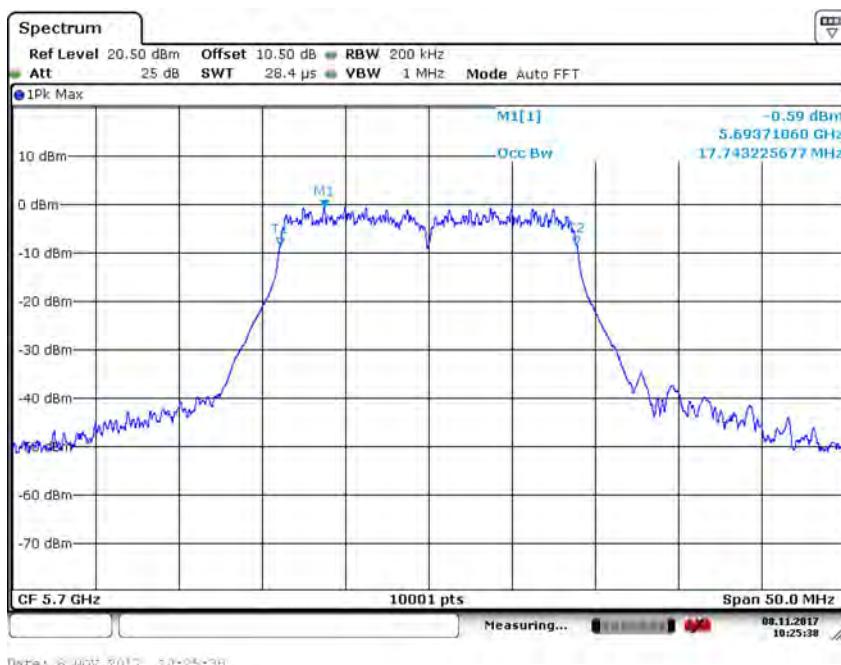
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5500	17.79
5580	17.87
5700	17.74



Carrier frequency (MHz): 5500  
 Test Mode: 802.11n (HT20)



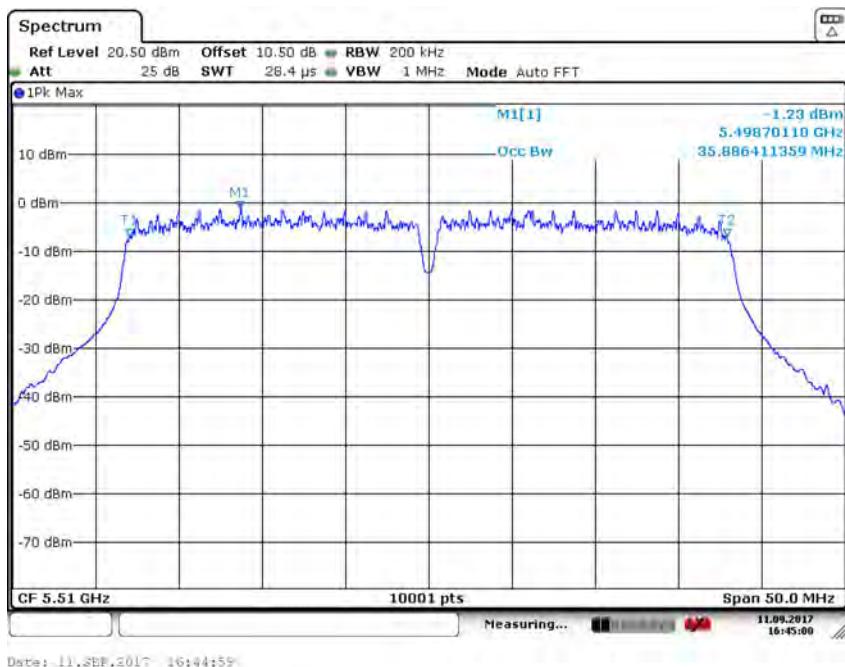
Carrier frequency (MHz): 5580  
Test Mode: 802.11n (HT20)



Carrier frequency (MHz): 5700  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5510	35.88
5550	35.94
5670	35.83

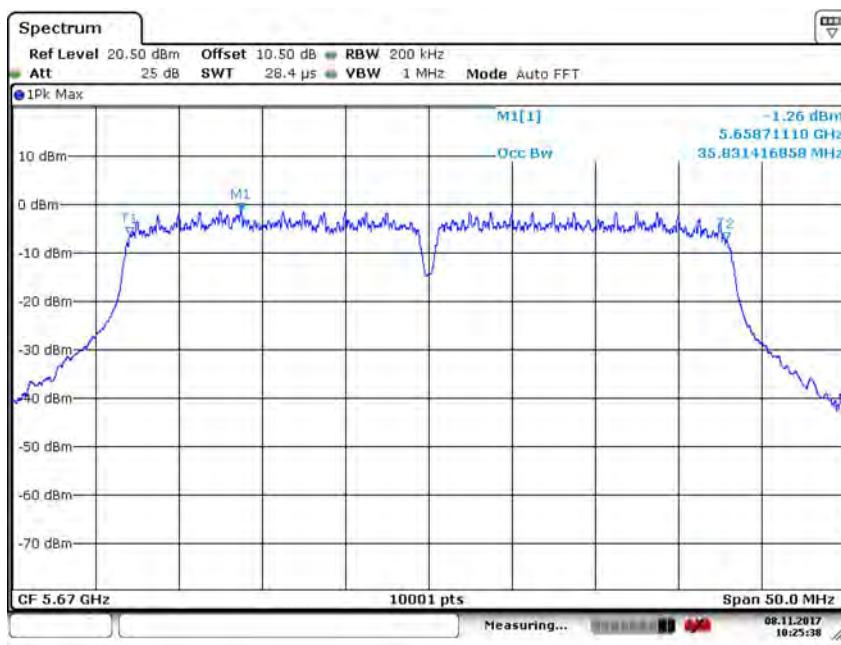


Carrier frequency (MHz): 5510  
 Test Mode: 802.11n (HT40)



Date: 11.SEP.2017 16:45:41

**Carrier frequency (MHz): 5550**  
**Test Mode: 802.11n (HT40)**



Date: 08.OCT.2017 19:25:38

**Carrier frequency (MHz): 5670**  
**Test Mode: 802.11n (HT40)**

Test Mode: 802.11ac (HT20)

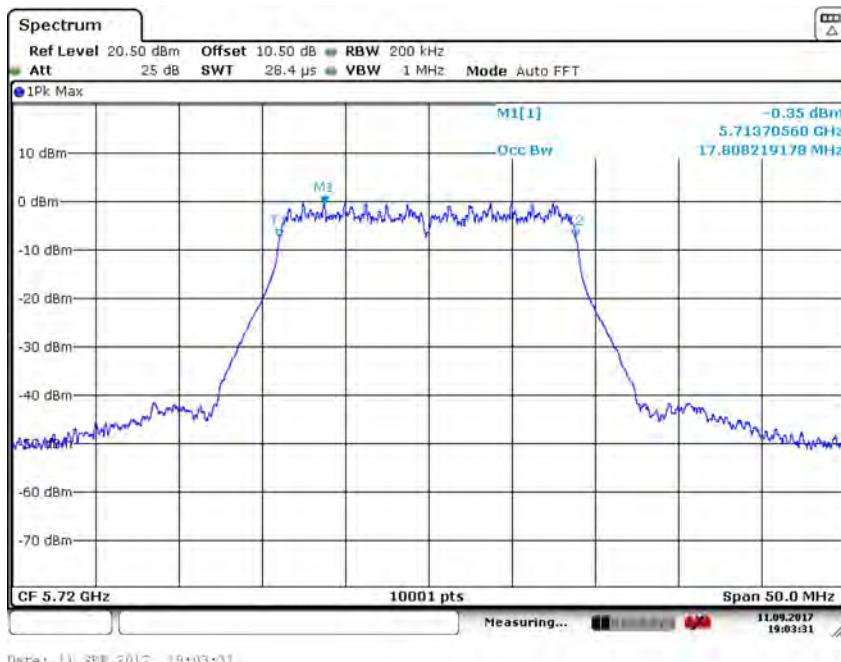
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5500	17.81
5580	17.85
5720	17.80



Carrier frequency (MHz): 5500  
Test Mode: 802.11ac (HT20)



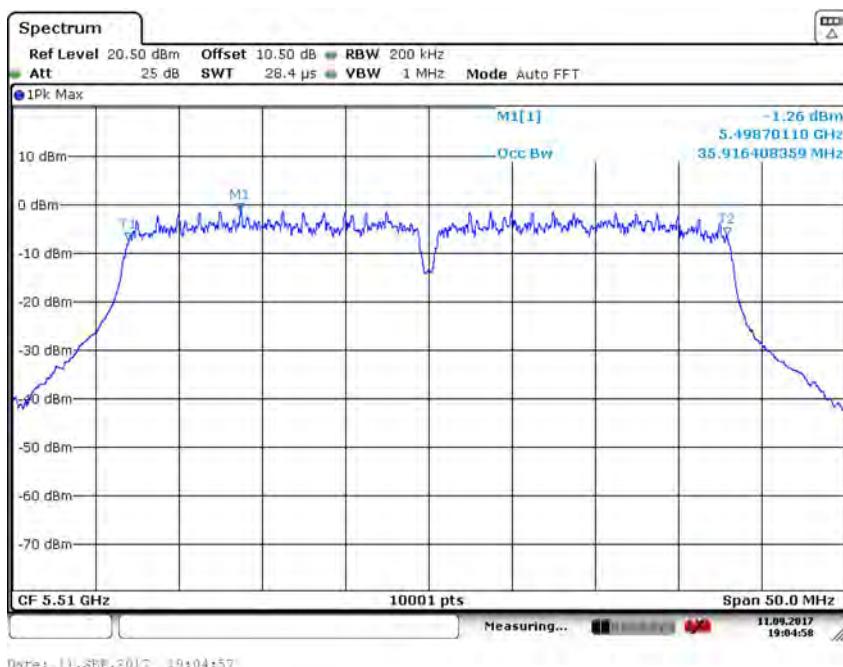
Carrier frequency (MHz): 5580  
Test Mode: 802.11ac (HT20)



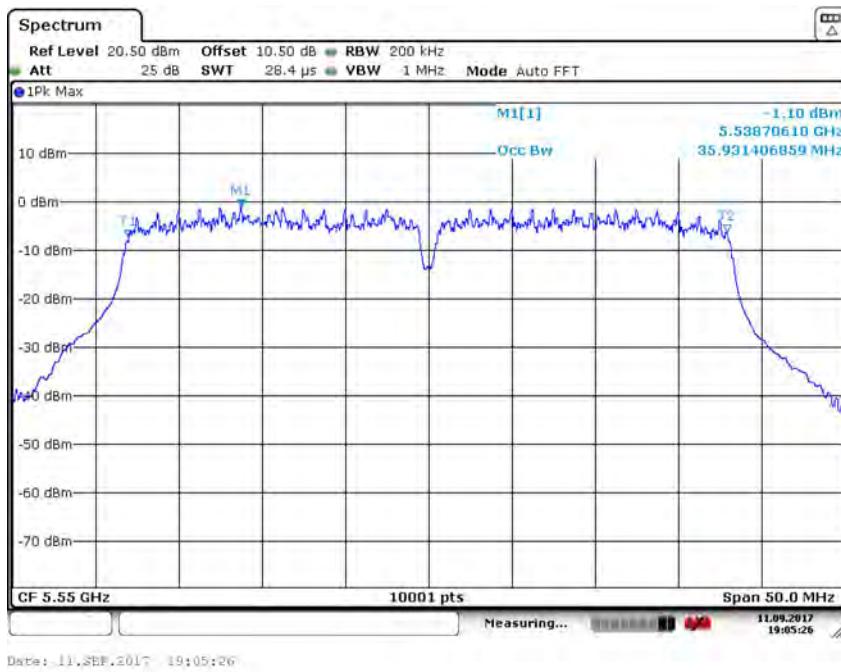
Carrier frequency (MHz): 5720  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

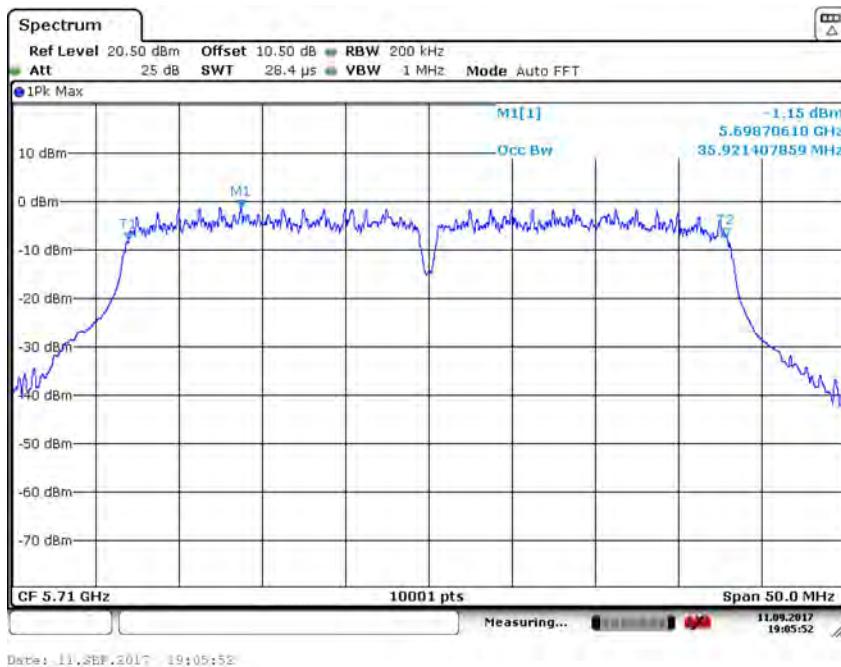
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5510	35.91
5550	35.93
5710	35.92



Carrier frequency (MHz): 5510  
 Test Mode: 802.11ac (HT40)



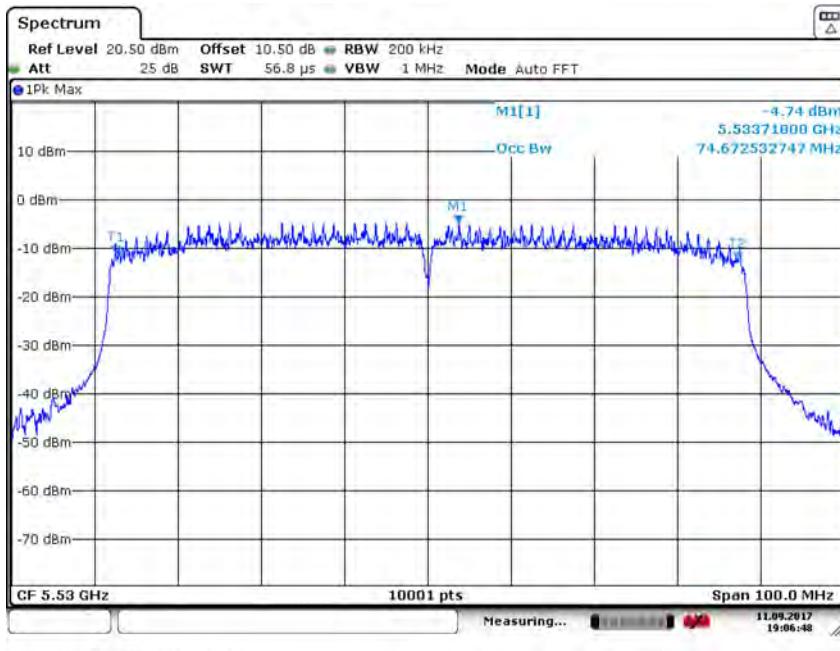
Carrier frequency (MHz): 5550  
Test Mode: 802.11ac (HT40)



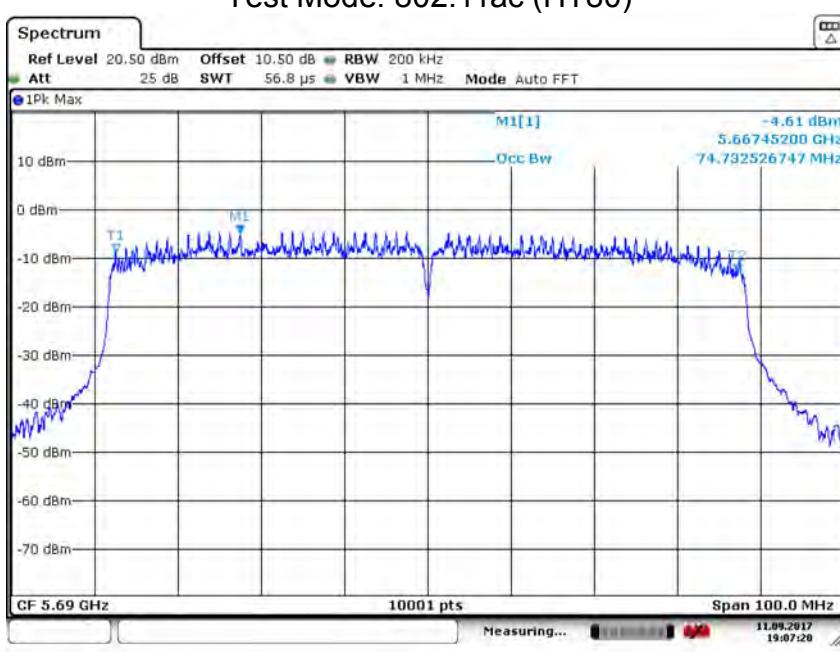
Carrier frequency (MHz): 5710  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5530	74.67
5690	74.73



Carrier frequency (MHz): 5530  
Test Mode: 802.11ac (HT80)

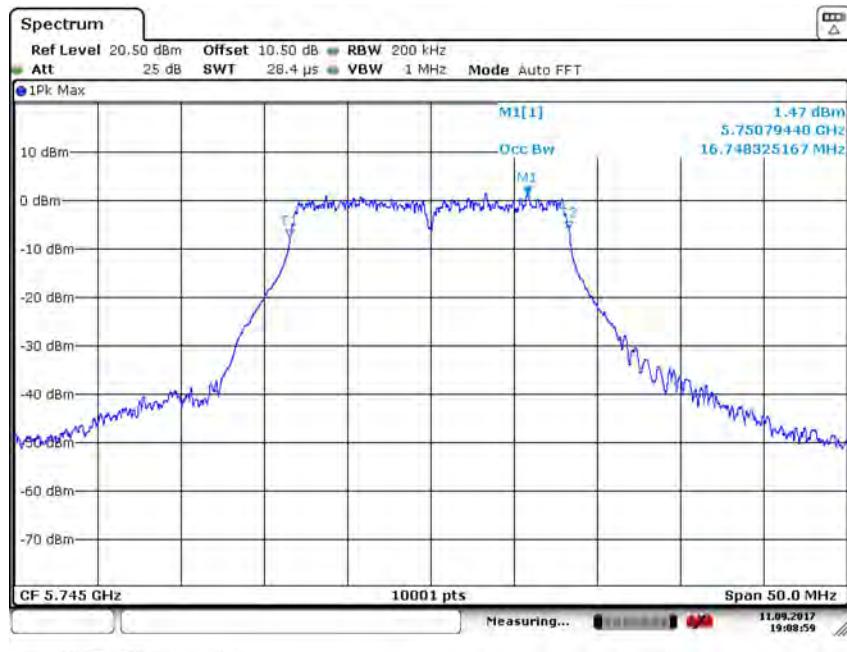


Carrier frequency (MHz): 5690  
Test Mode: 802.11ac (HT80)

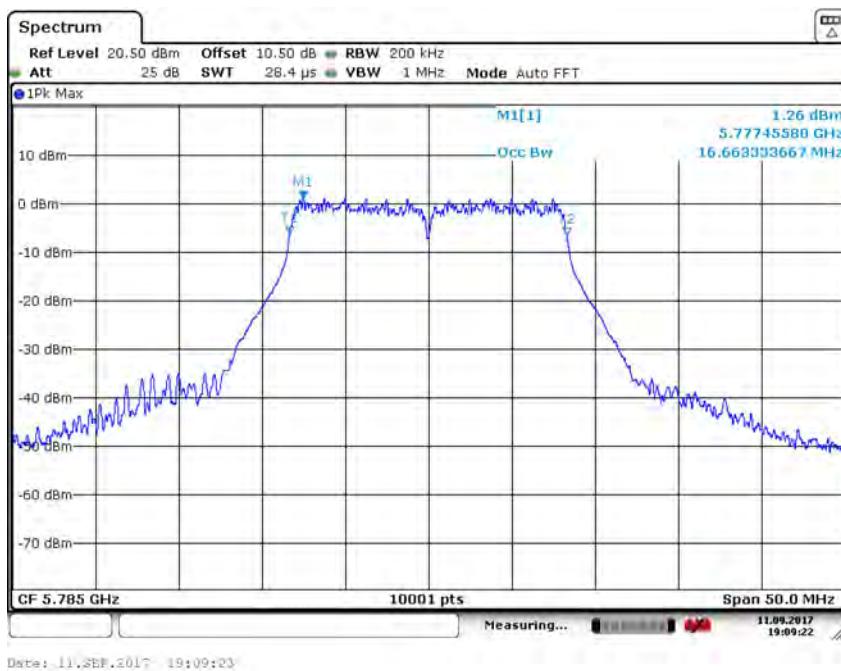
5725MHz~5825MHz

Test Mode: 802.11a

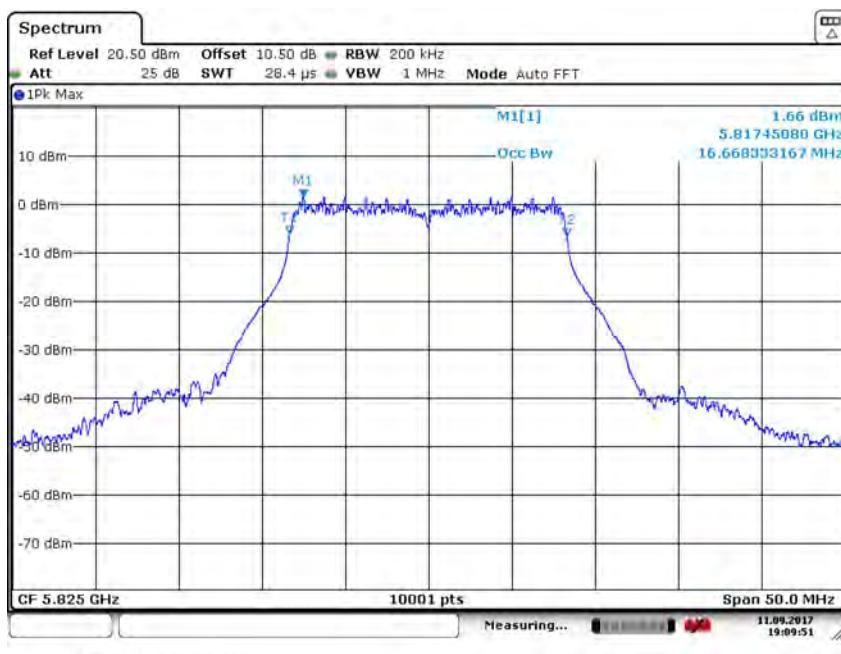
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	16.74
5785	16.66
5825	16.67



Carrier frequency (MHz): 5745  
Test Mode: 802.11a



Carrier frequency (MHz): 5785  
Test Mode: 802.11a



Carrier frequency (MHz): 5825  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

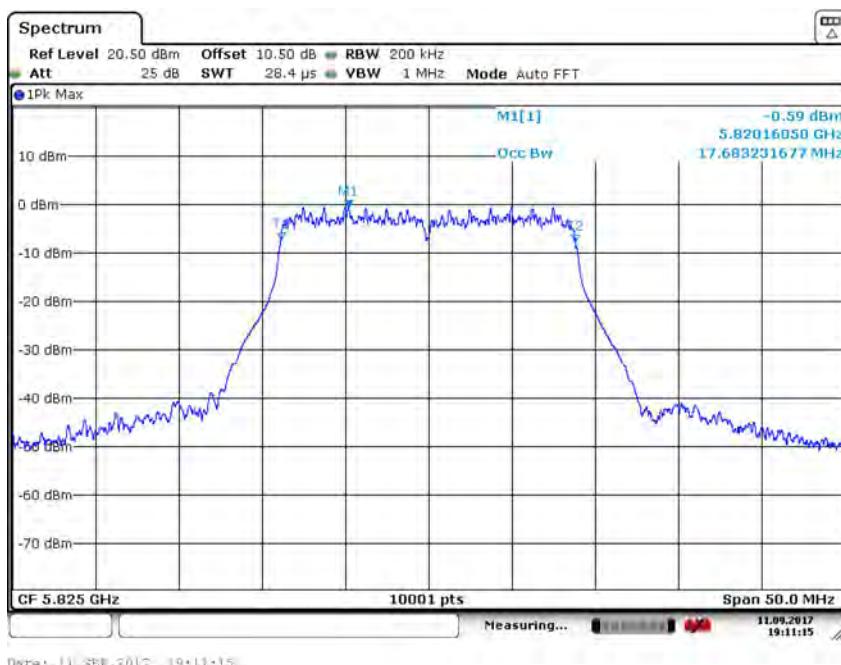
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	17.88
5785	17.79
5825	17.68



Carrier frequency (MHz): 5745  
 Test Mode: 802.11n (HT20)



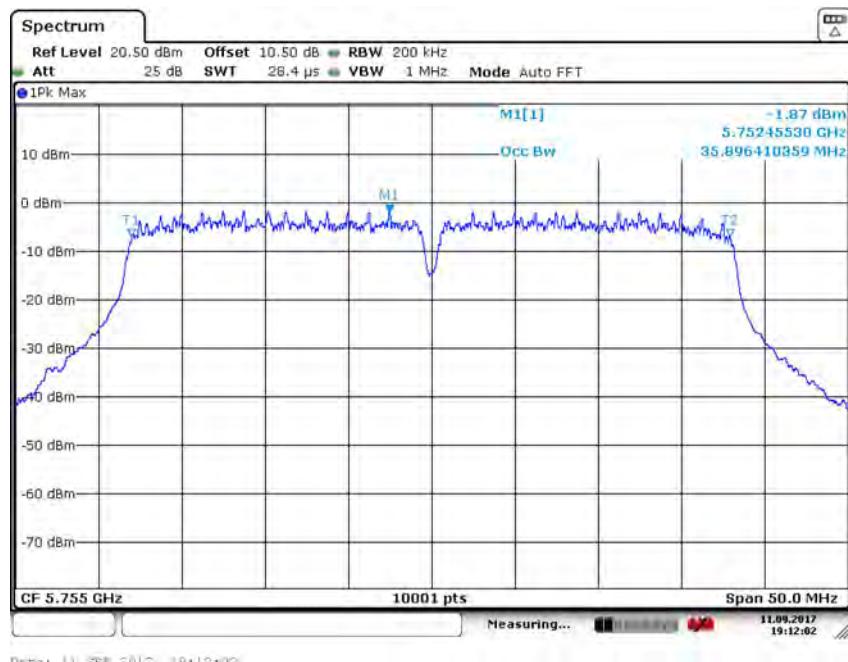
Carrier frequency (MHz): 5785  
Test Mode: 802.11n (HT20)



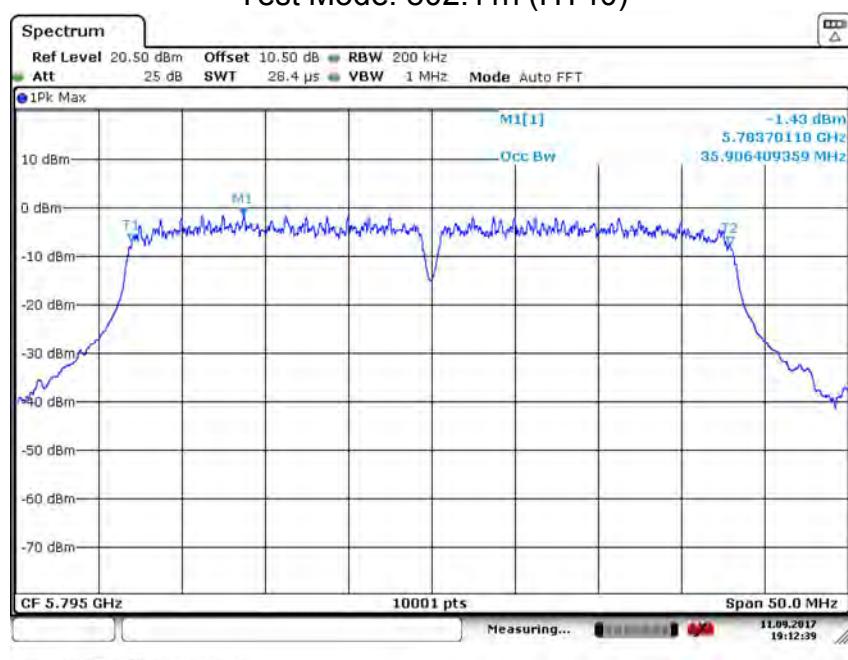
Carrier frequency (MHz): 5825  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5755	35.89
5795	35.90



Carrier frequency (MHz): 5755  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5795  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

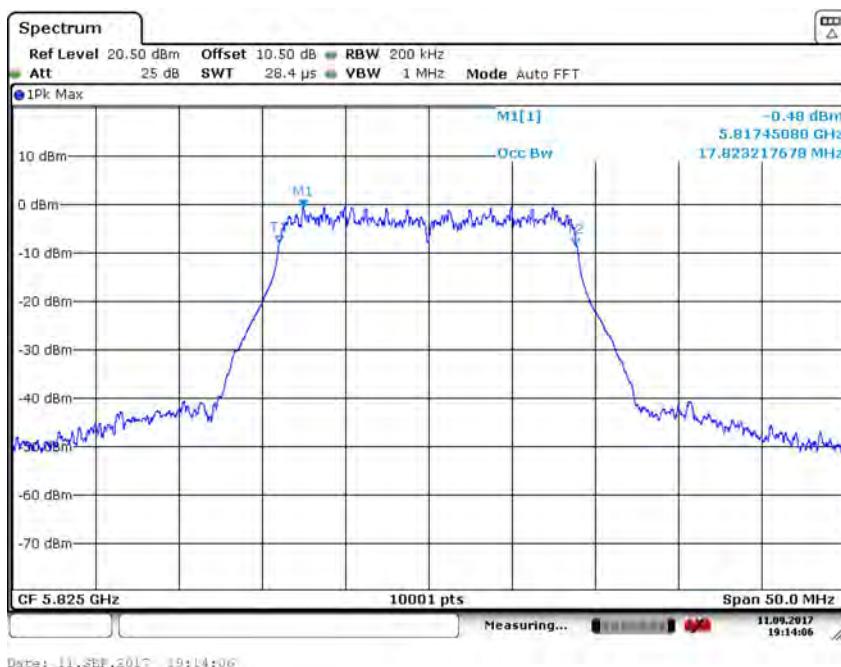
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	17.83
5785	17.84
5825	17.82



Carrier frequency (MHz): 5745  
Test Mode: 802.11ac (HT20)



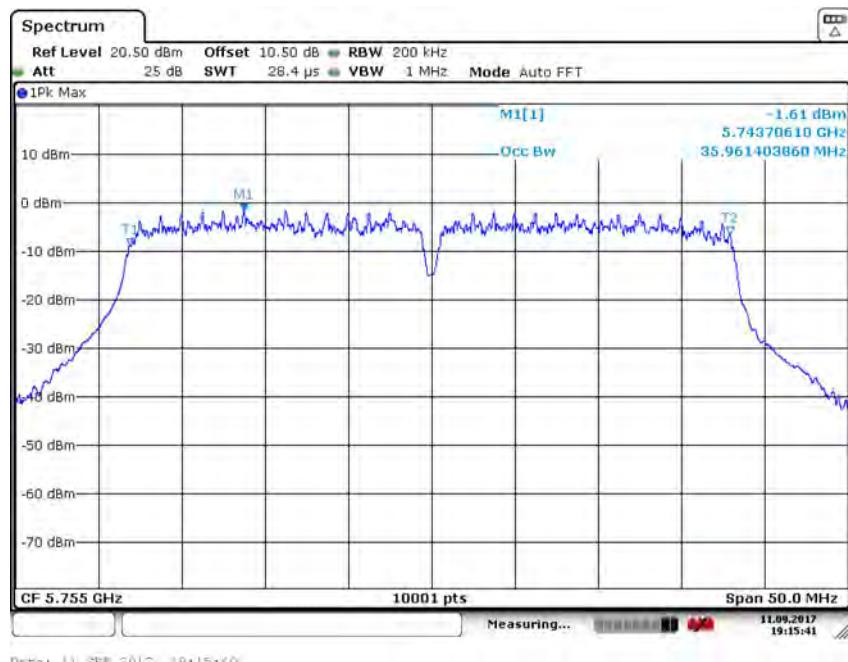
Carrier frequency (MHz): 5785  
Test Mode: 802.11ac (HT20)



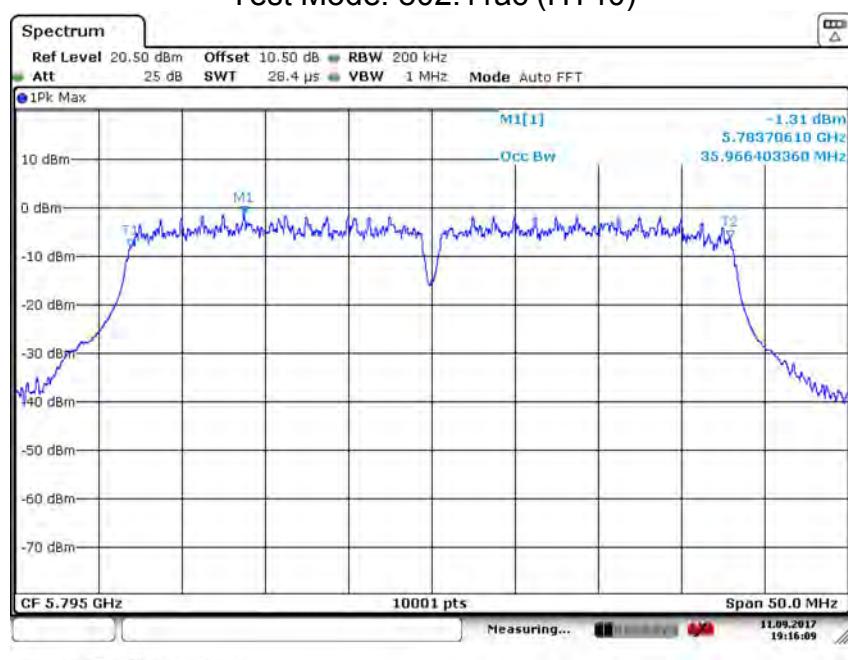
Carrier frequency (MHz): 5825  
Test Mode: 802.11ac (HT20)

Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5755	36.96
5795	36.96



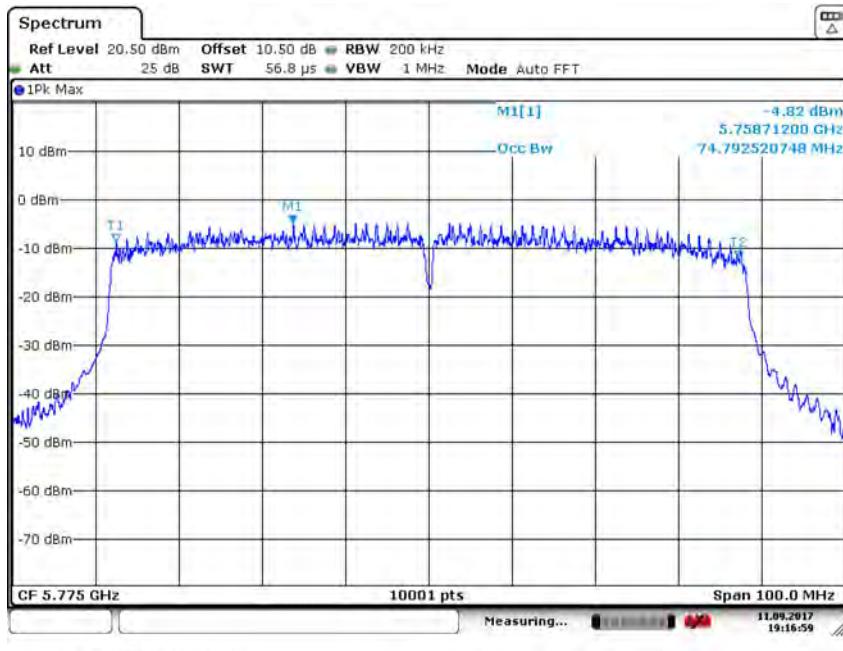
Carrier frequency (MHz): 5755  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5795  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5775	74.79



Carrier frequency (MHz): 5775  
Test Mode: 802.11ac (HT80)

## Emission Bandwidth

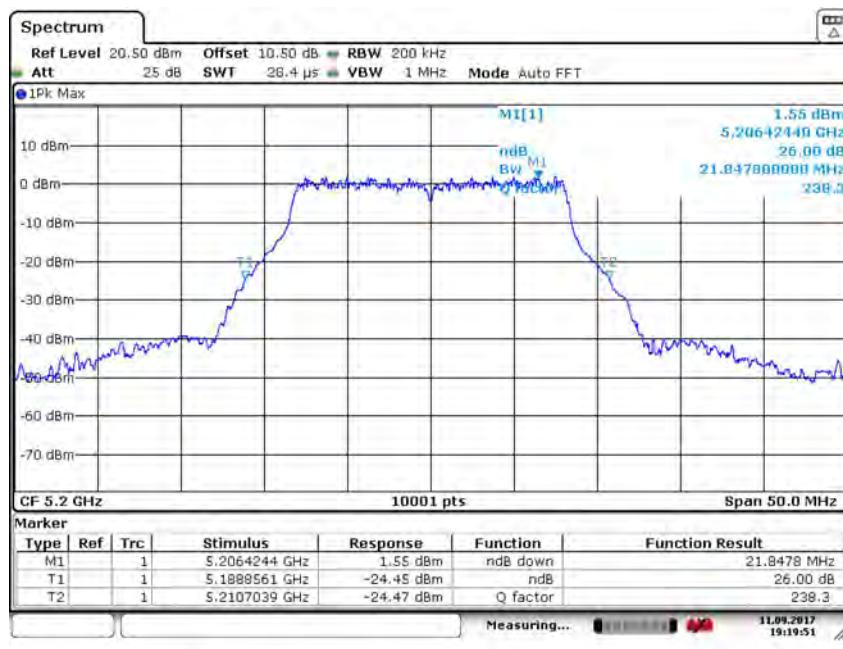
5150MHz~5250MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Emission Bandwidth(MHz)
5180	22.19
5200	21.84
5240	21.28



Carrier frequency (MHz): 5180  
Test Mode: 802.11a



Carrier frequency (MHz): 5200  
 Test Mode: 802.11a



Carrier frequency (MHz): 5240  
 Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5180	21.84
5200	21.50
5240	21.62



Carrier frequency (MHz): 5180  
 Test Mode: 802.11n (HT20)



Date: 11.SEP.2017 19:21:42

Carrier frequency (MHz): 5200  
Test Mode: 802.11n (HT20)

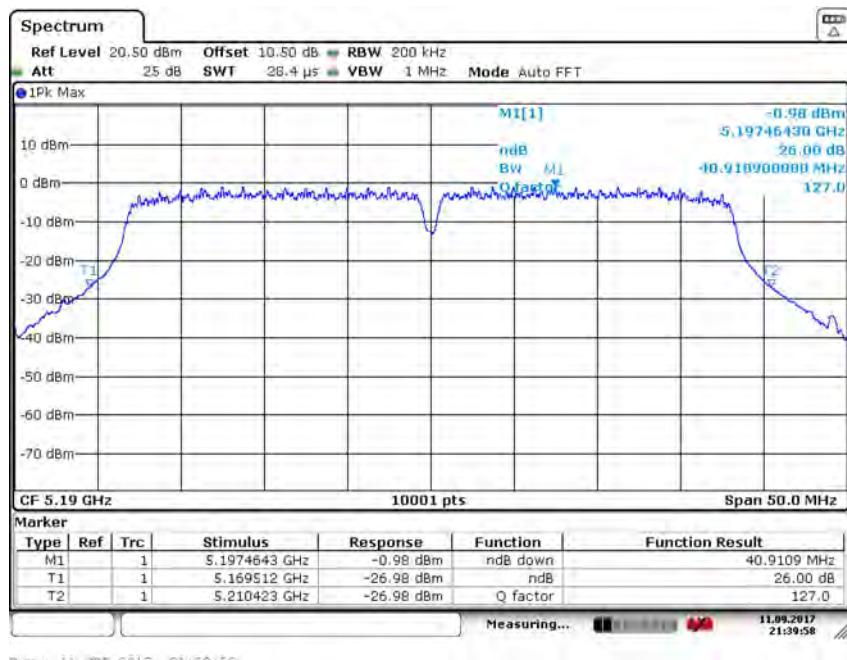


Date: 11.SEP.2017 19:22:07

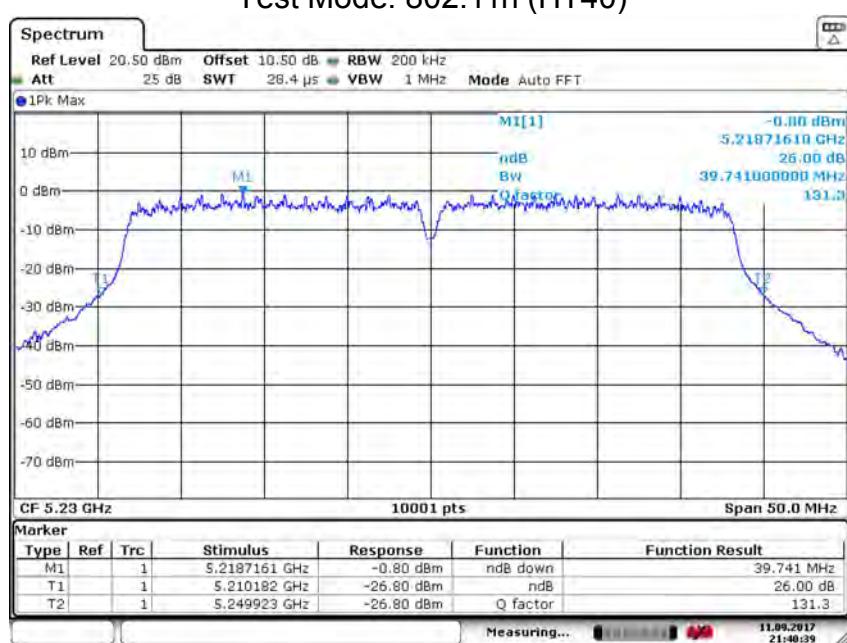
Carrier frequency (MHz): 5240  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5190	40.91
5230	39.74



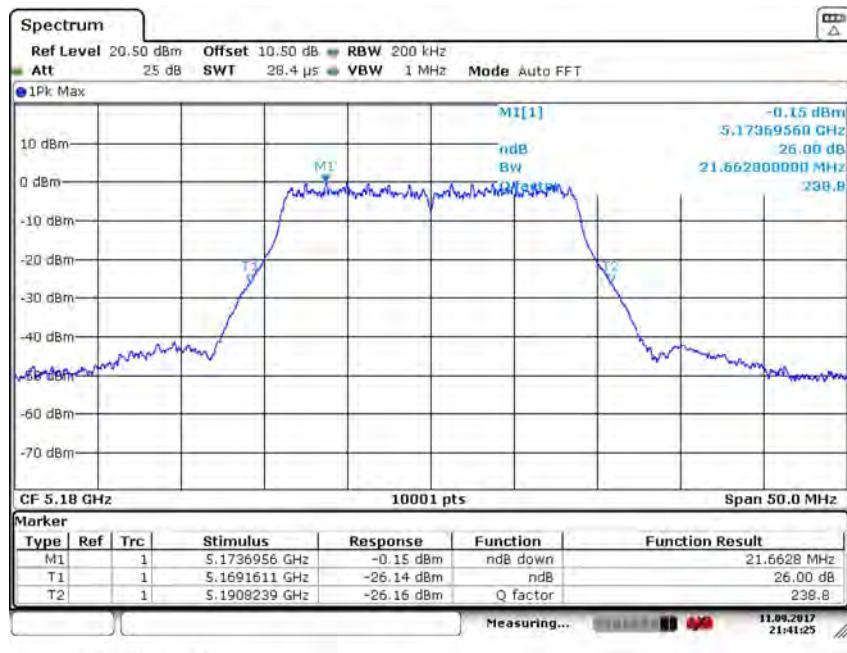
Carrier frequency (MHz): 5190  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5230  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

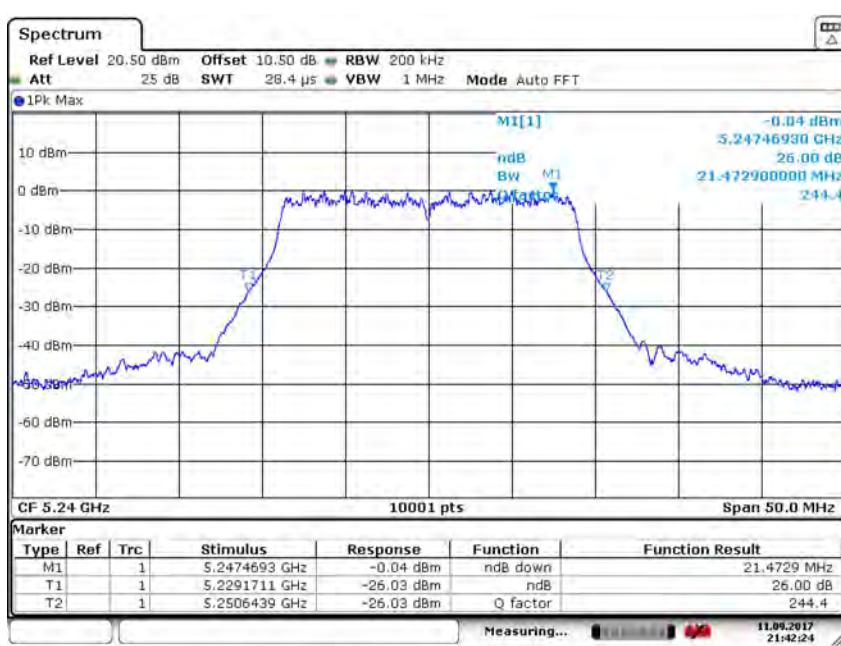
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5180	21.66
5200	21.50
5240	21.47



Carrier frequency (MHz): 5180  
Test Mode: 802.11ac (HT20)



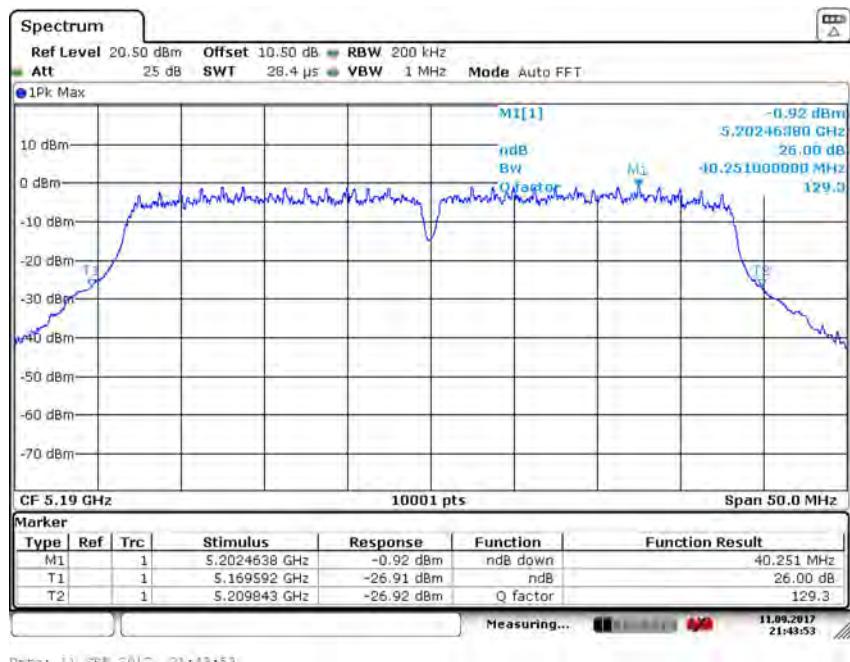
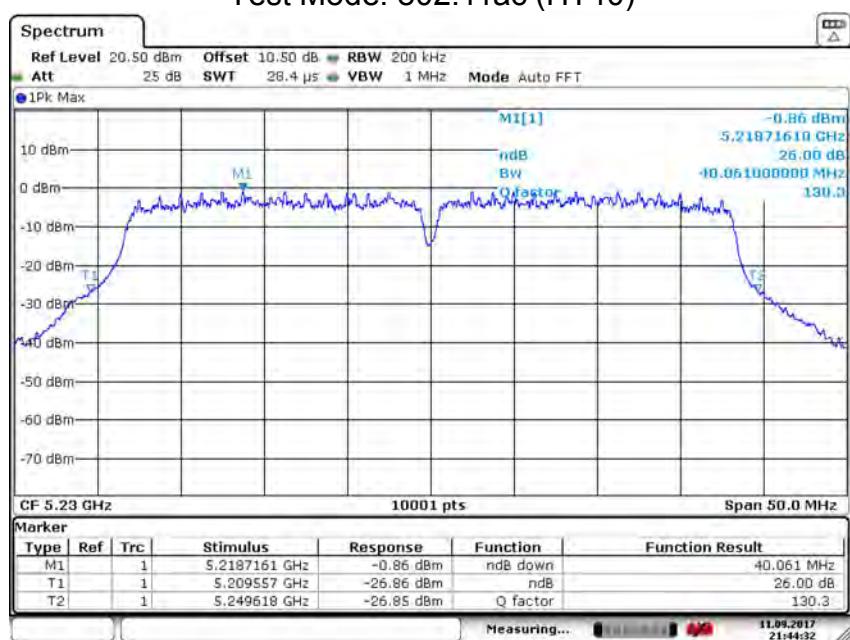
Carrier frequency (MHz): 5200  
Test Mode: 802.11ac (HT20)



Carrier frequency (MHz): 5240  
Test Mode: 802.11ac (HT20)

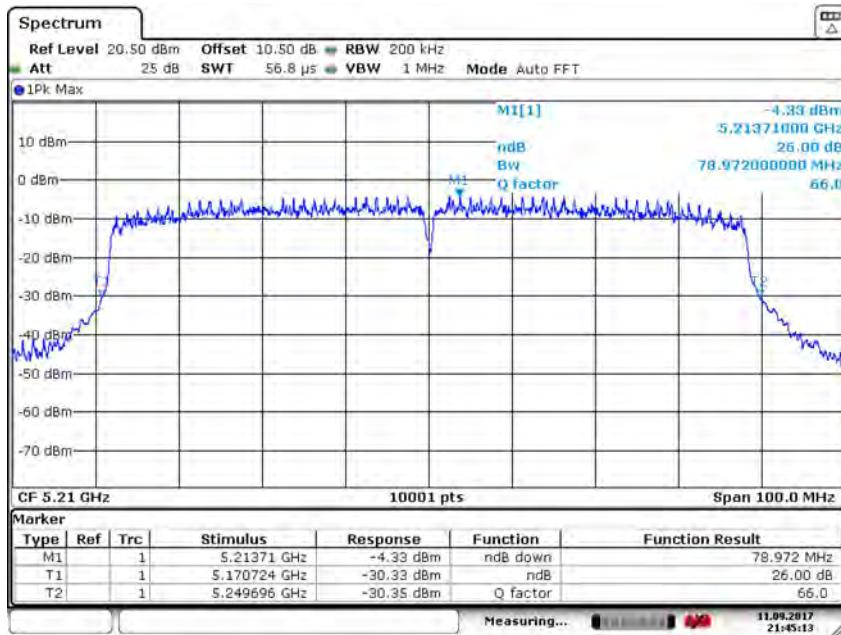
## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5190	40.25
5230	40.06


 Carrier frequency (MHz): 5190  
 Test Mode: 802.11ac (HT40)

 Carrier frequency (MHz): 5230  
 Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5210	78.97



Date: 11.SEP.2017 21:45:13

Carrier frequency (MHz): 5210  
Test Mode: 802.11ac (HT80)

5250MHz~5350MHz

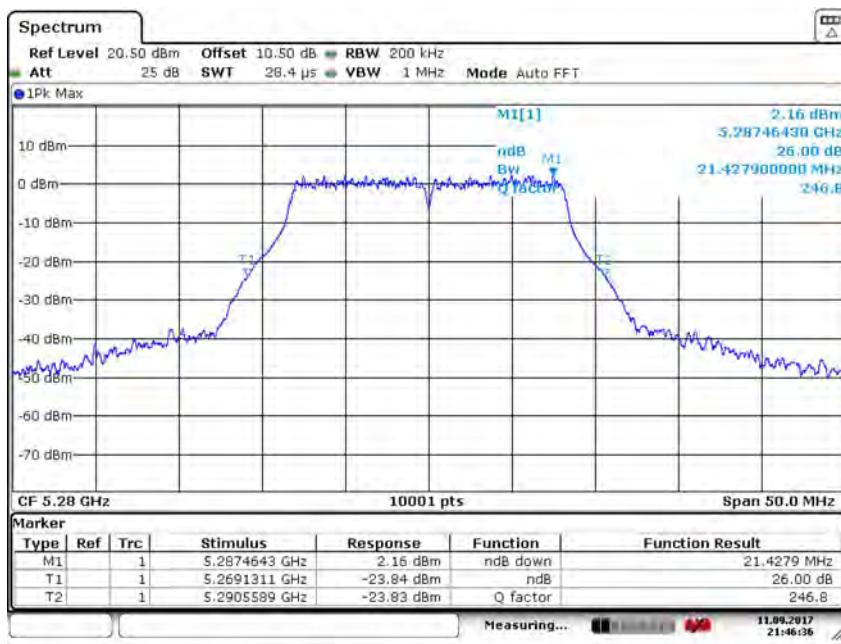
Test Mode: 802.11a

Carrier frequency (MHz)	Emission Bandwidth(MHz)
5260	21.48
5280	21.42
5320	21.67



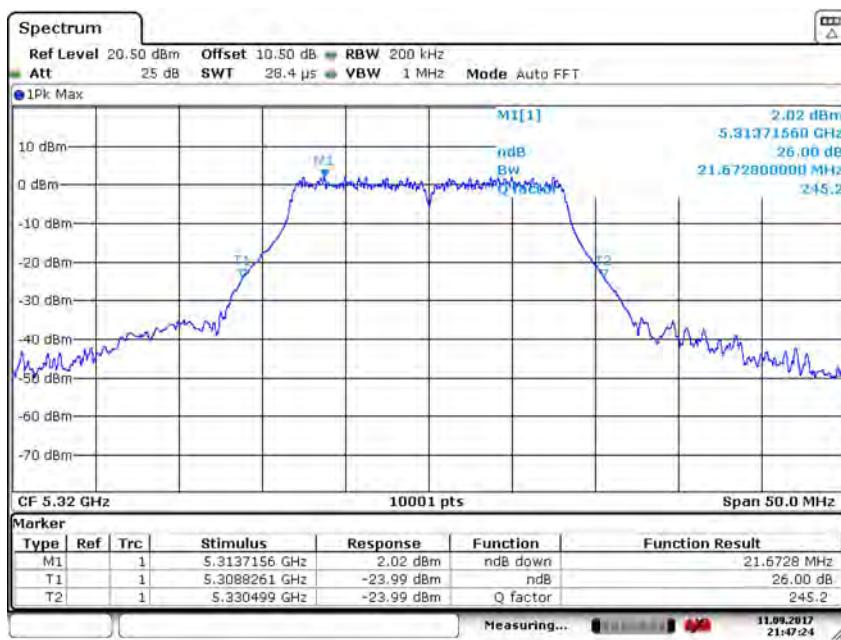
Date: 11.SEP.2017 21:46:01

Carrier frequency (MHz): 5260  
Test Mode: 802.11a



Date: 11.SEP.2017 21:46:35

Carrier frequency (MHz): 5280  
Test Mode: 802.11a

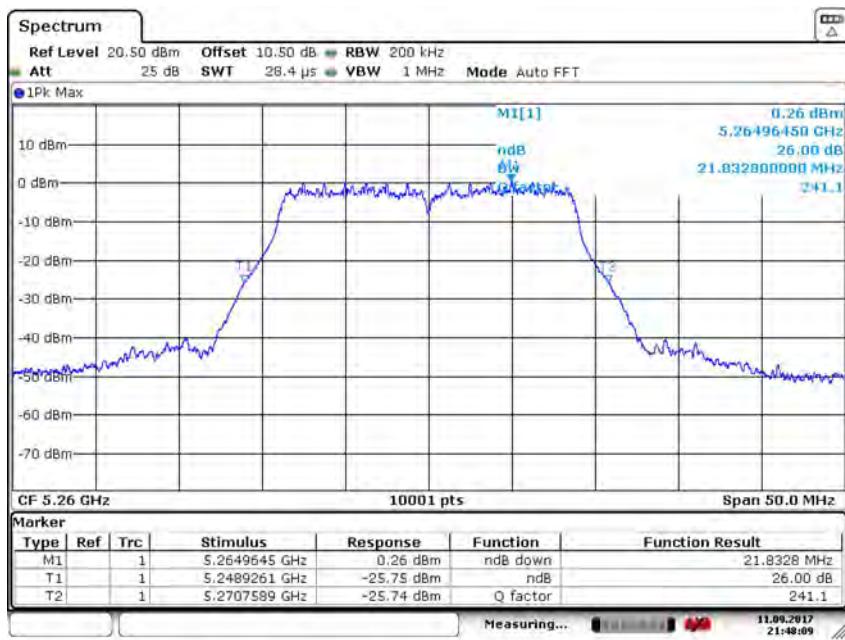


Date: 11.SEP.2017 21:47:23

Carrier frequency (MHz): 5320  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

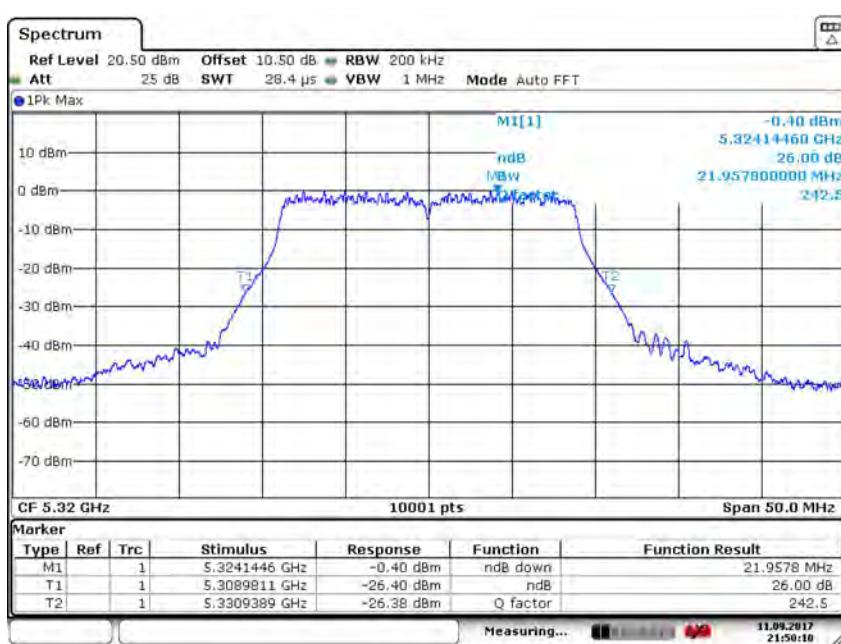
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5260	21.83
5280	22.06
5320	21.95



Carrier frequency (MHz): 5260  
 Test Mode: 802.11n (HT20)



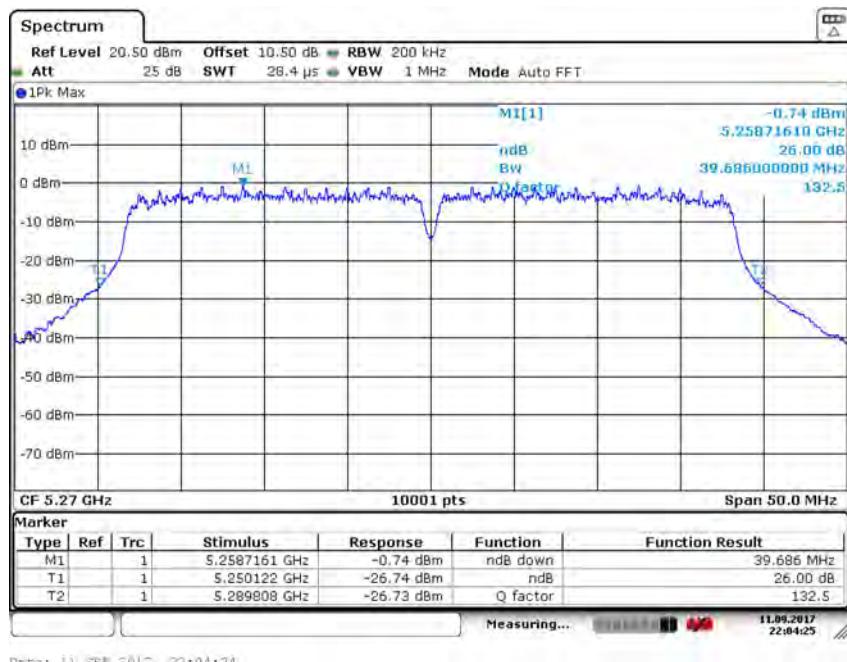
Carrier frequency (MHz): 5280  
Test Mode: 802.11n (HT20)



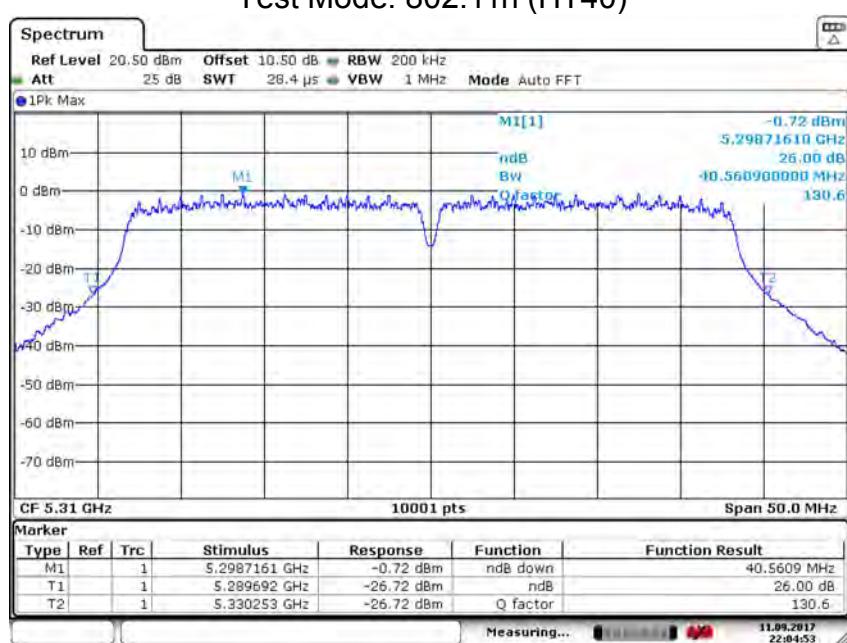
Carrier frequency (MHz): 5320  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5270	39.68
5310	40.56



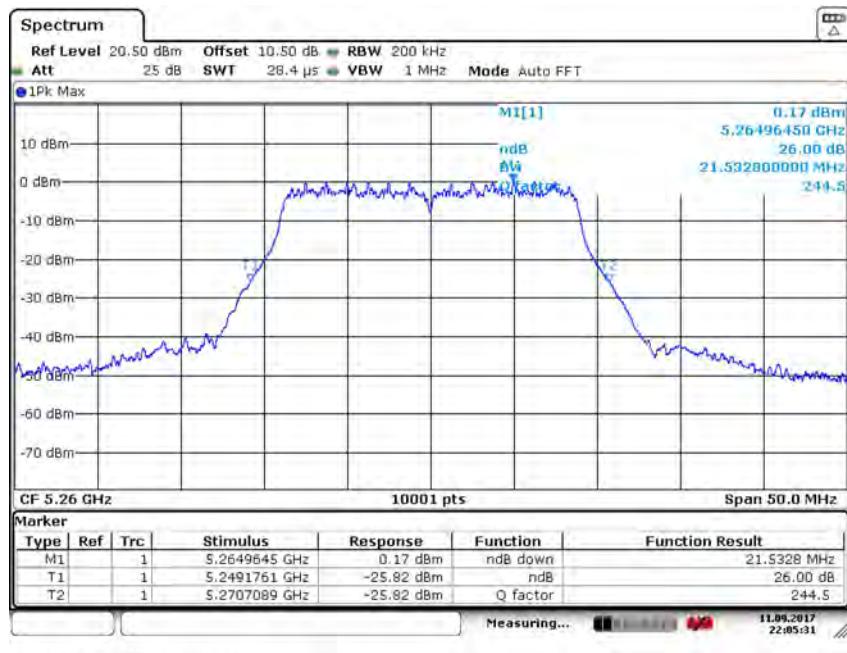
Carrier frequency (MHz): 5270  
Test Mode: 802.11n (HT40)



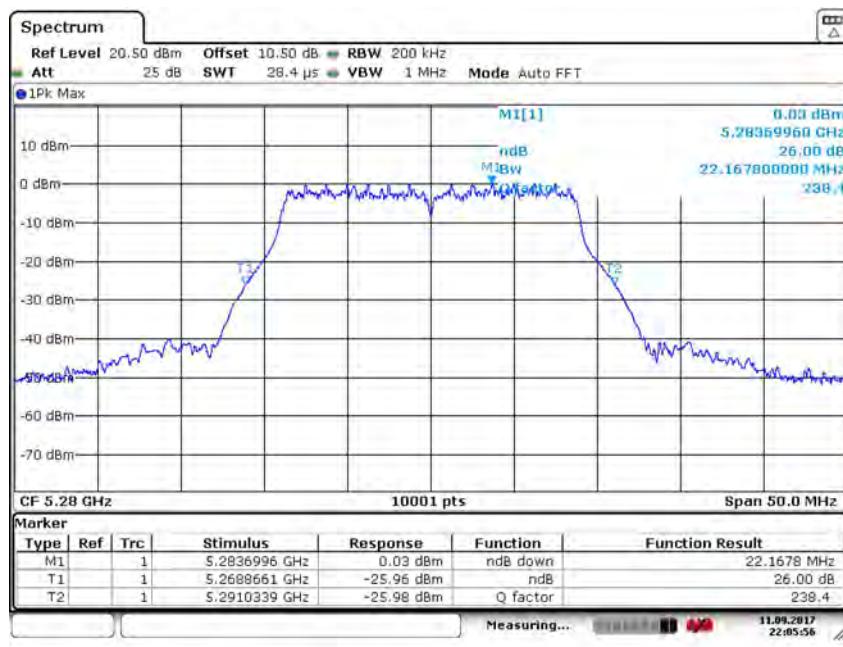
Carrier frequency (MHz): 5310  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5260	21.53
5280	22.16
5320	21.58



Carrier frequency (MHz): 5260  
Test Mode: 802.11ac (HT20)



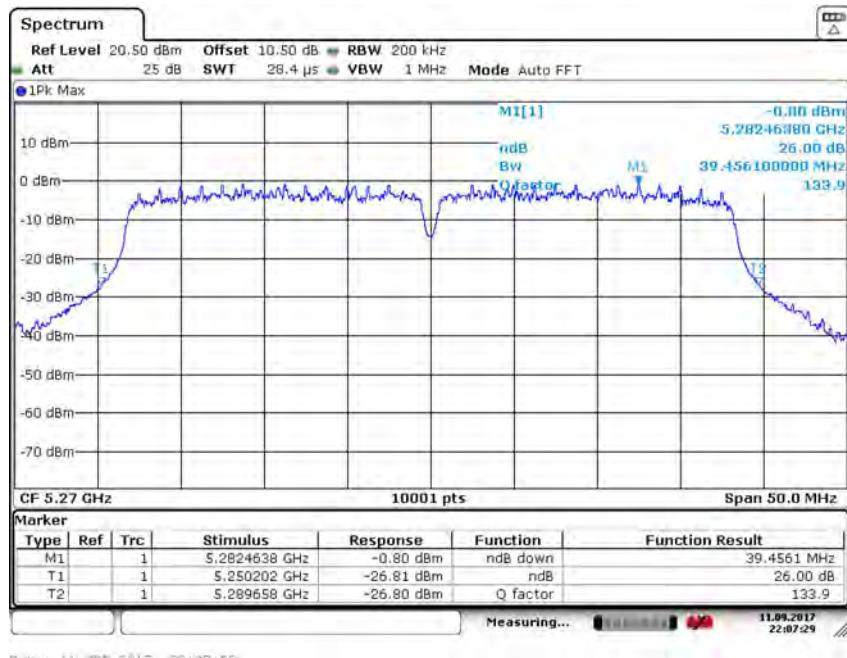
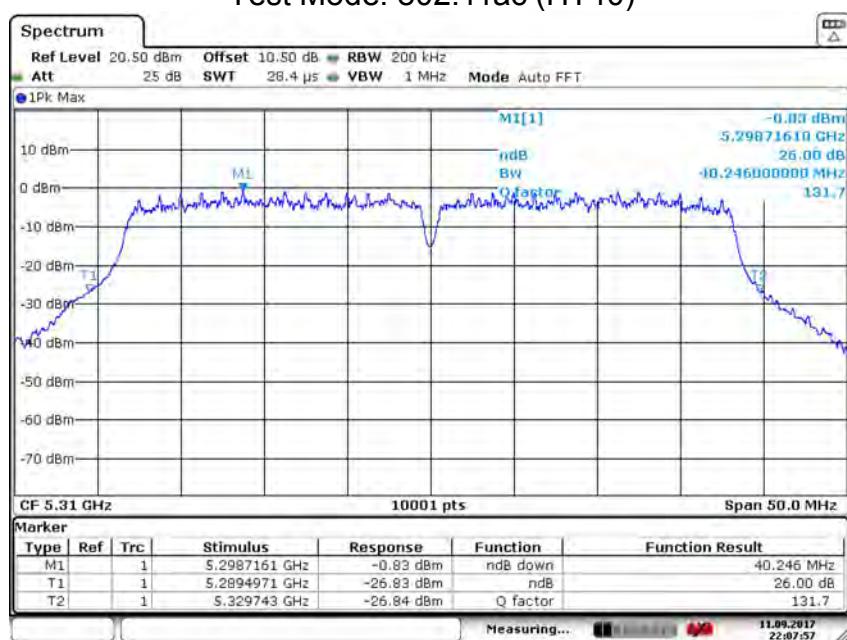
Carrier frequency (MHz): 5280  
Test Mode: 802.11ac (HT20)



Carrier frequency (MHz): 5320  
Test Mode: 802.11ac (HT20)

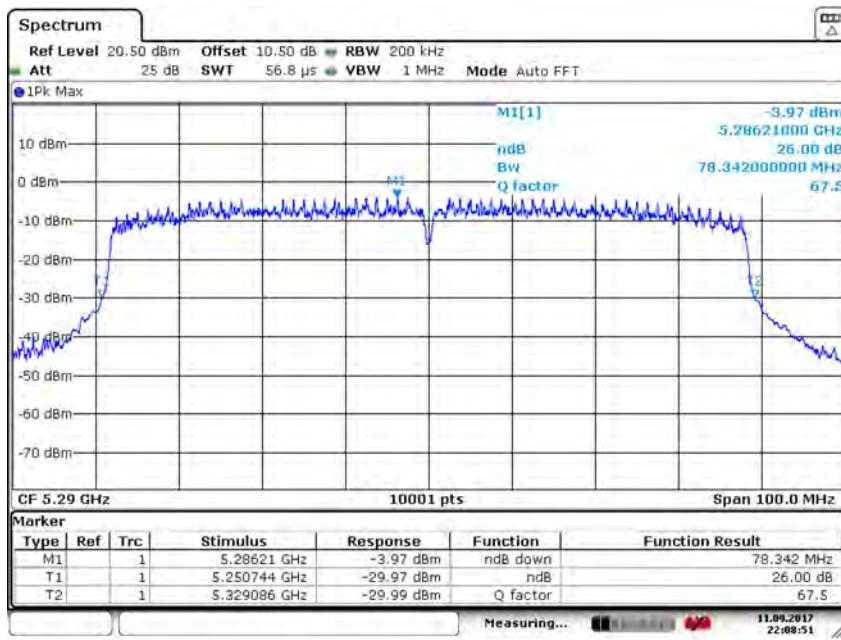
## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5270	39.45
5310	40.24


 Carrier frequency (MHz): 5270  
 Test Mode: 802.11ac (HT40)

 Carrier frequency (MHz): 5310  
 Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5290	78.34

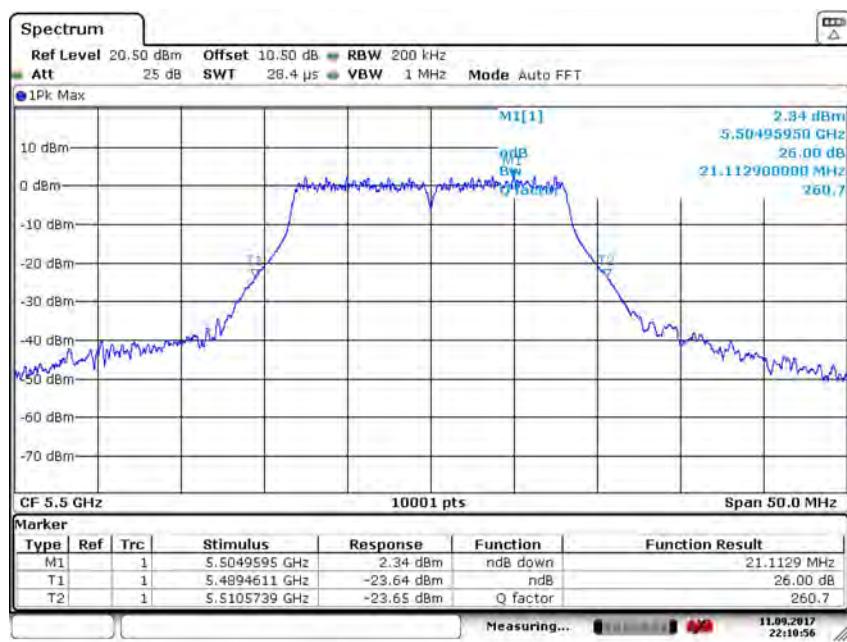


Carrier frequency (MHz): 5290  
Test Mode: 802.11ac (HT80)

5470MHz~5725MHz

Test Mode: 802.11a

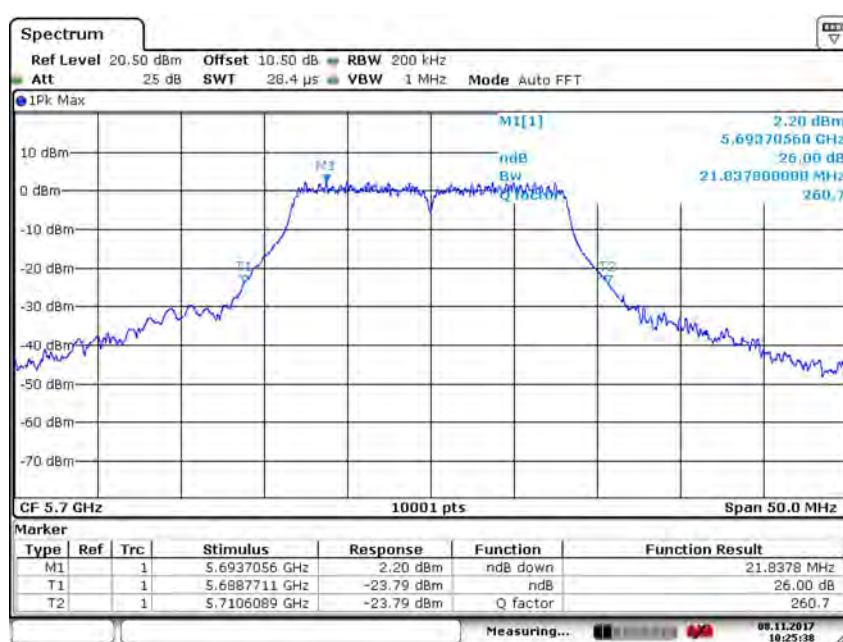
Carrier frequency (MHz)	Emission Bandwidth(MHz)
5500	21.11
5580	21.42
5700	21.04



Carrier frequency (MHz): 5500  
Test Mode: 802.11a



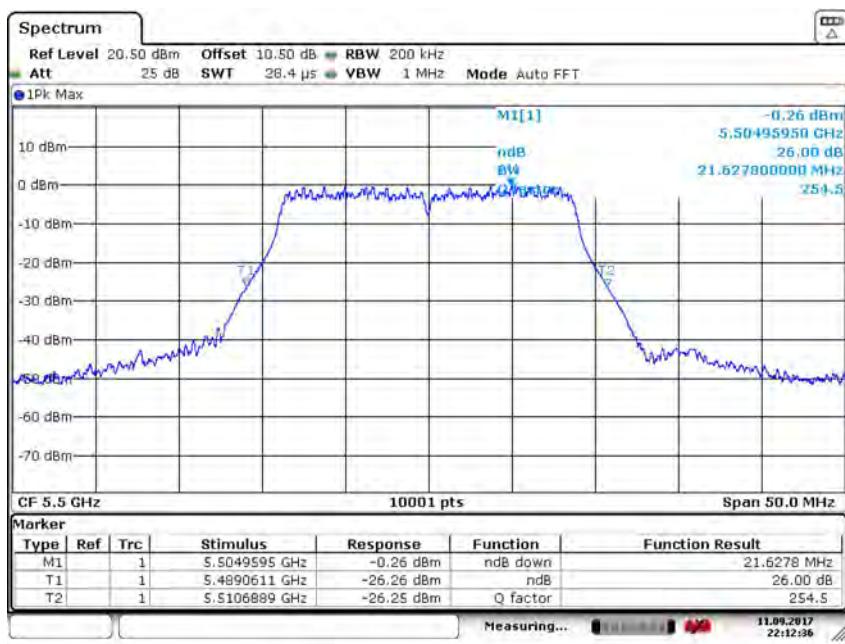
Carrier frequency (MHz): 5580  
Test Mode: 802.11a



Carrier frequency (MHz): 5700  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

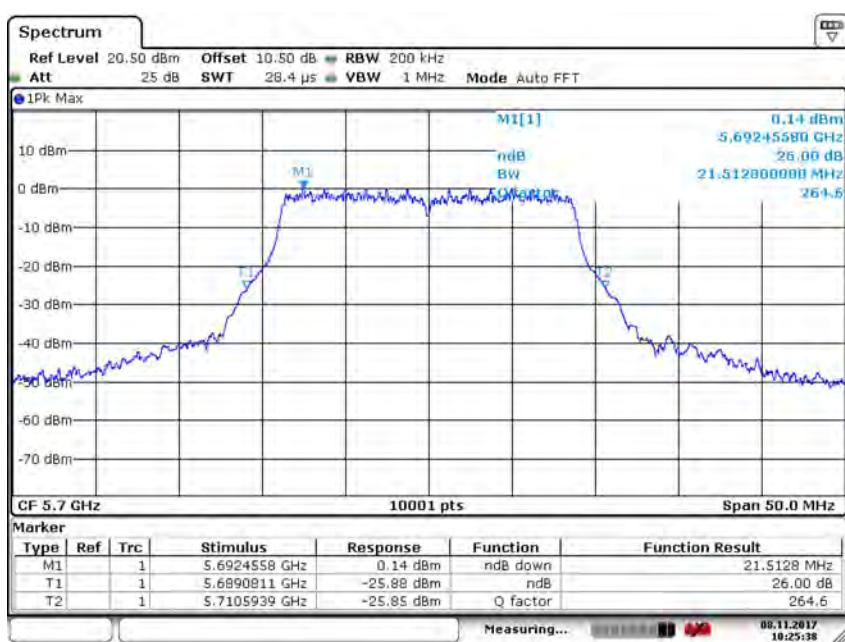
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5500	21.62
5580	21.76
5700	21.51



Carrier frequency (MHz): 5500  
 Test Mode: 802.11n (HT20)



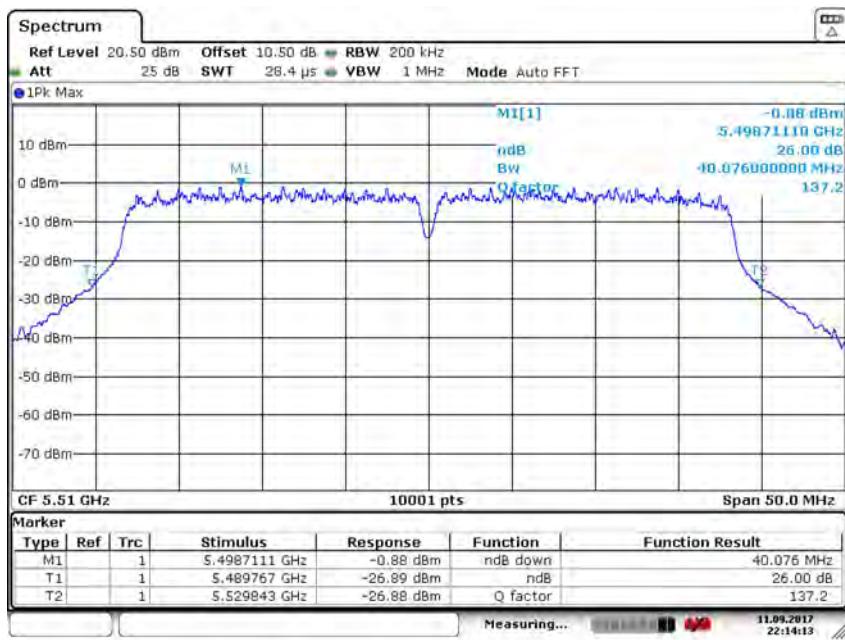
Carrier frequency (MHz): 5580  
Test Mode: 802.11n (HT20)



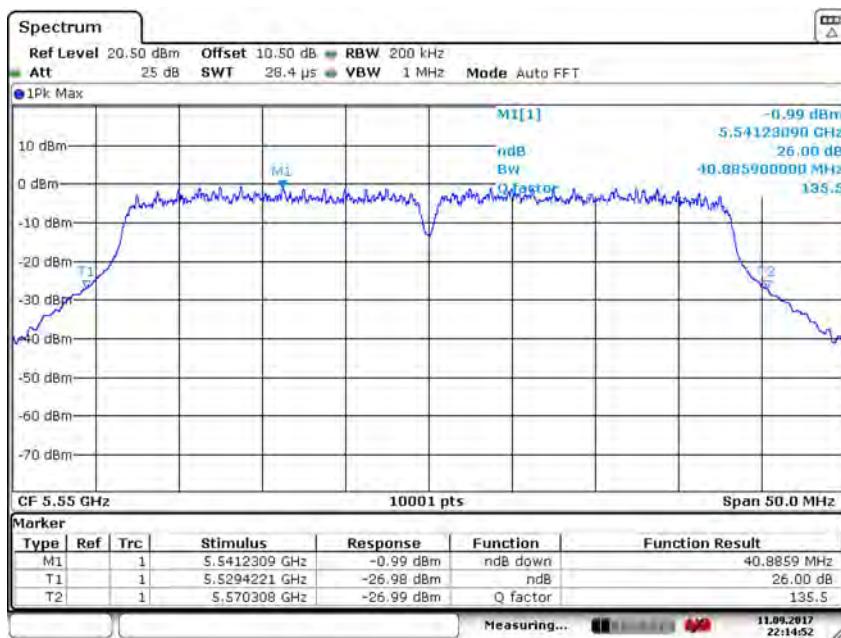
Carrier frequency (MHz): 5700  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

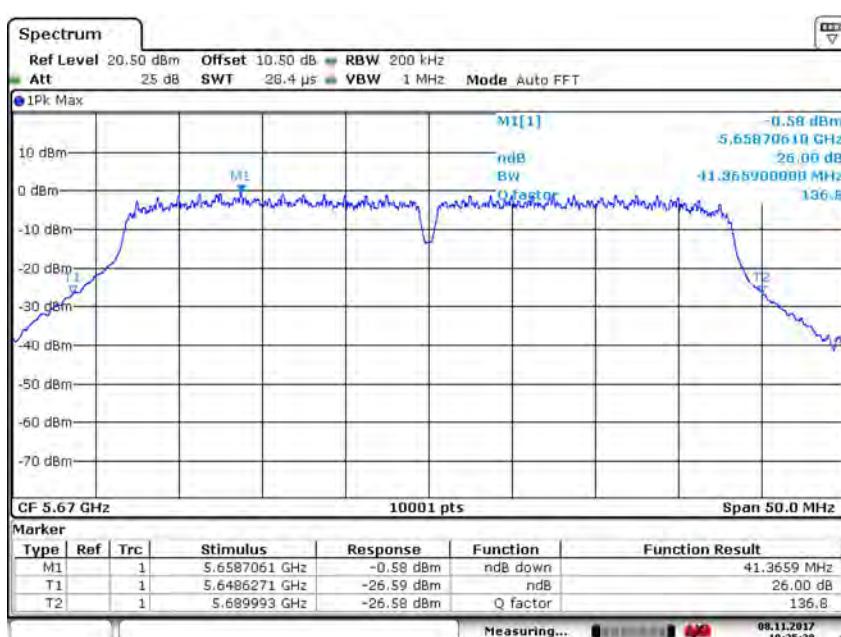
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5510	40.07
5550	40.88
5670	41.37



Carrier frequency (MHz): 5510  
 Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5550  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5670  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

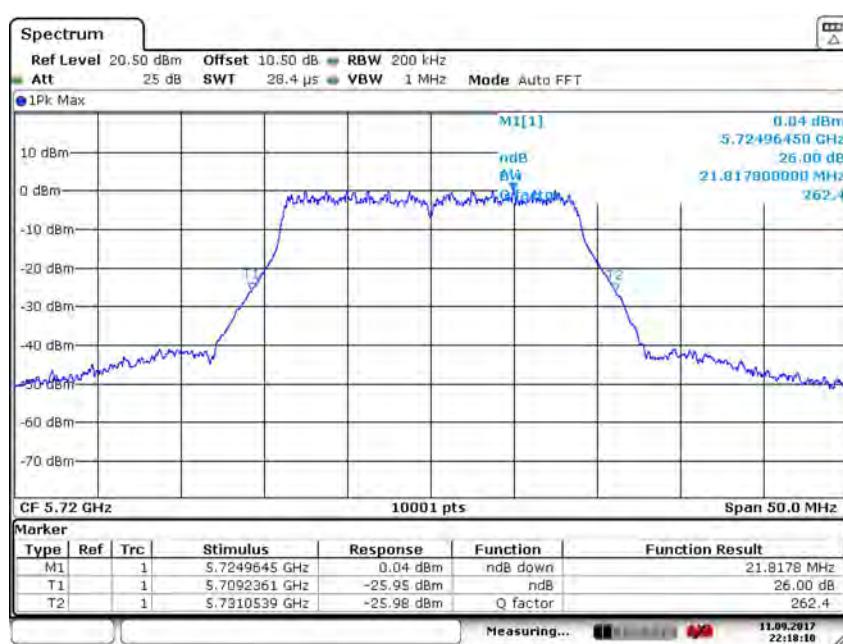
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5500	21.54
5580	21.55
5720	21.81



Carrier frequency (MHz): 5500  
Test Mode: 802.11ac (HT20)



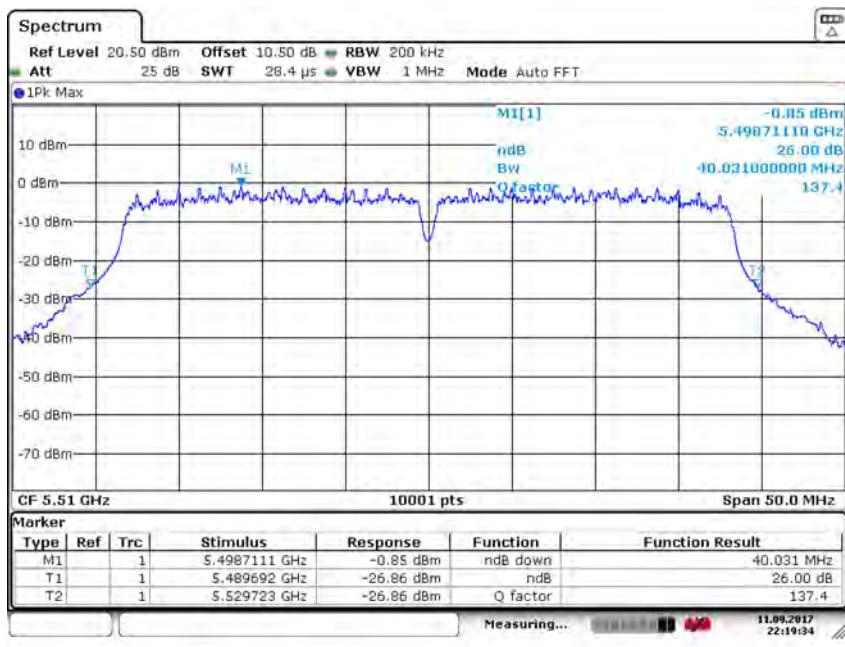
Carrier frequency (MHz): 5580  
Test Mode: 802.11ac (HT20)



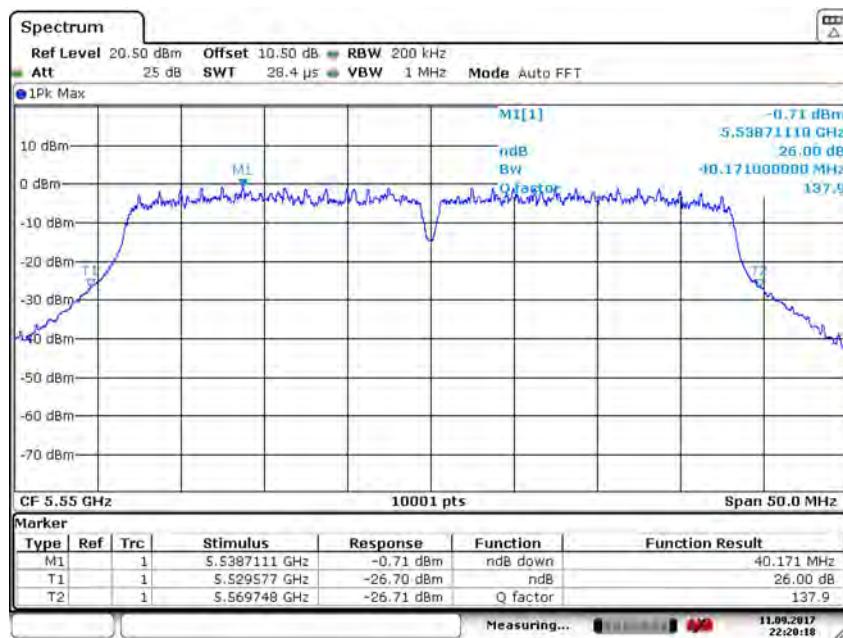
Carrier frequency (MHz): 5720  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5510	40.03
5550	40.17
5710	40.05

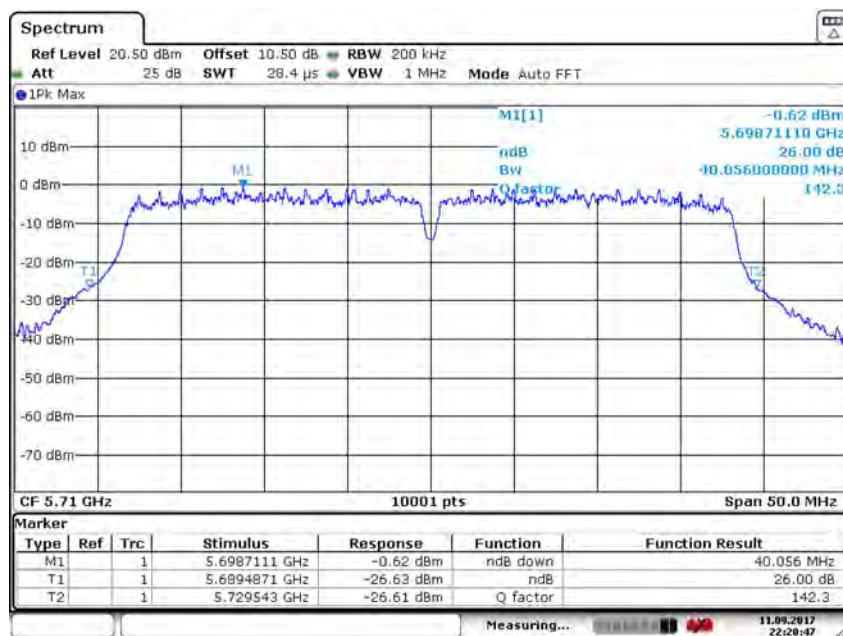


Carrier frequency (MHz): 5510  
 Test Mode: 802.11ac (HT40)



Date: 11.SEP.2017 22:20:17

Carrier frequency (MHz): 5550  
 Test Mode: 802.11ac (HT40)

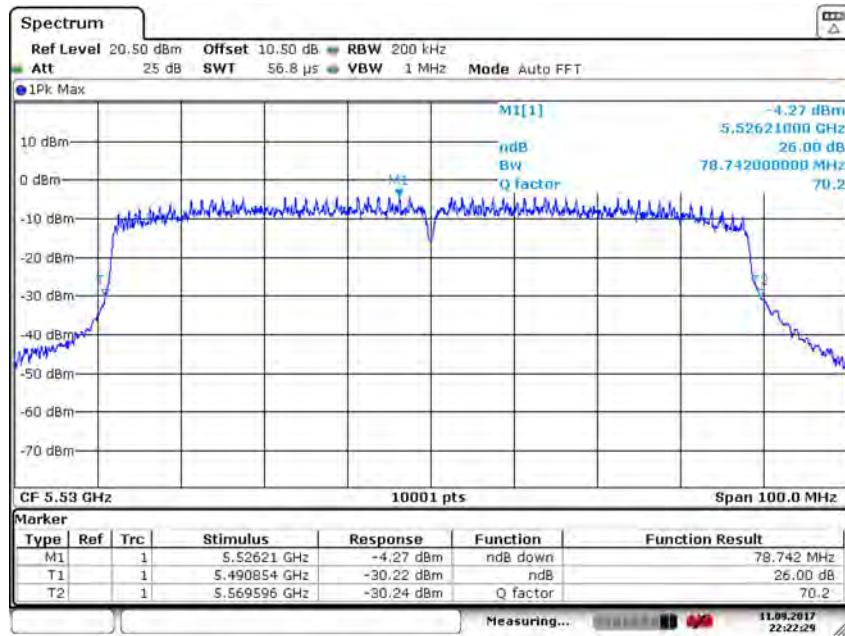


Date: 11.SEP.2017 22:20:47

Carrier frequency (MHz): 57100  
 Test Mode: 802.11ac (HT40)

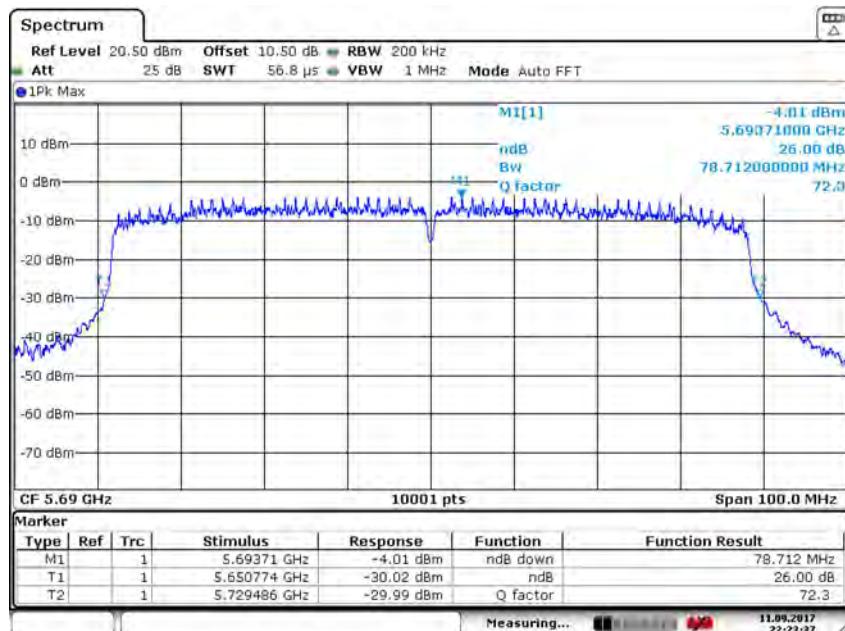
Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5530	78.74
5690	78.71



Date: 11.SEP.2017 22:22:29

Carrier frequency (MHz): 55300  
Test Mode: 802.11ac (HT80)



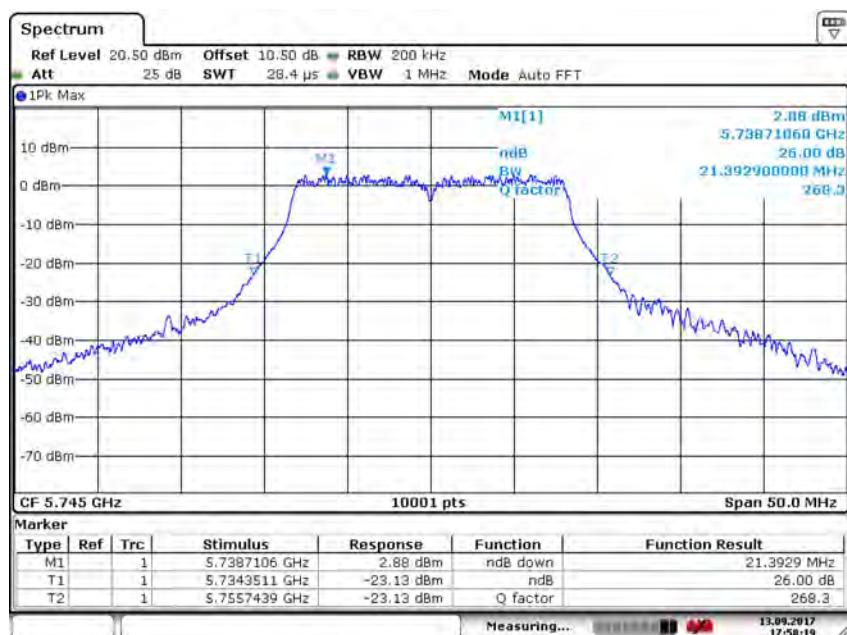
Date: 11.SEP.2017 22:23:36

Carrier frequency (MHz): 55300  
Test Mode: 802.11ac (HT80)

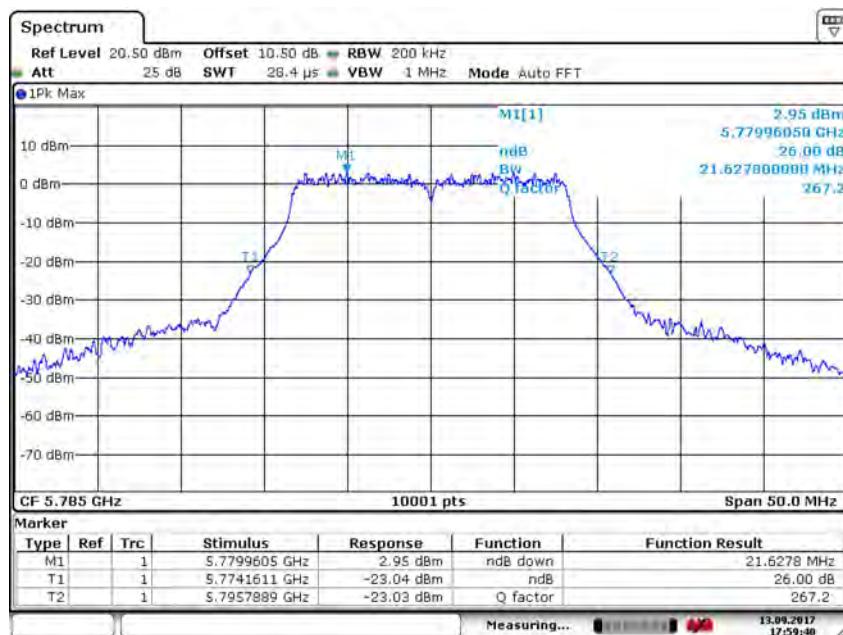
5725MHz~5825MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	21.39
5785	21.62
5825	21.65

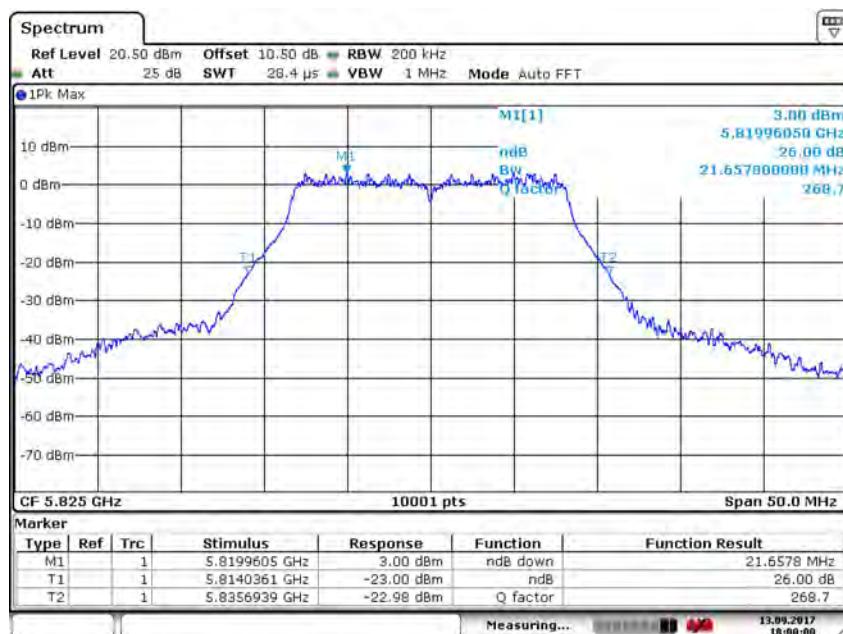


Carrier frequency (MHz): 5745  
Test Mode: 802.11a



Date: 13.SEP.2017 17:59:40

Carrier frequency (MHz): 5785  
 Test Mode: 802.11a

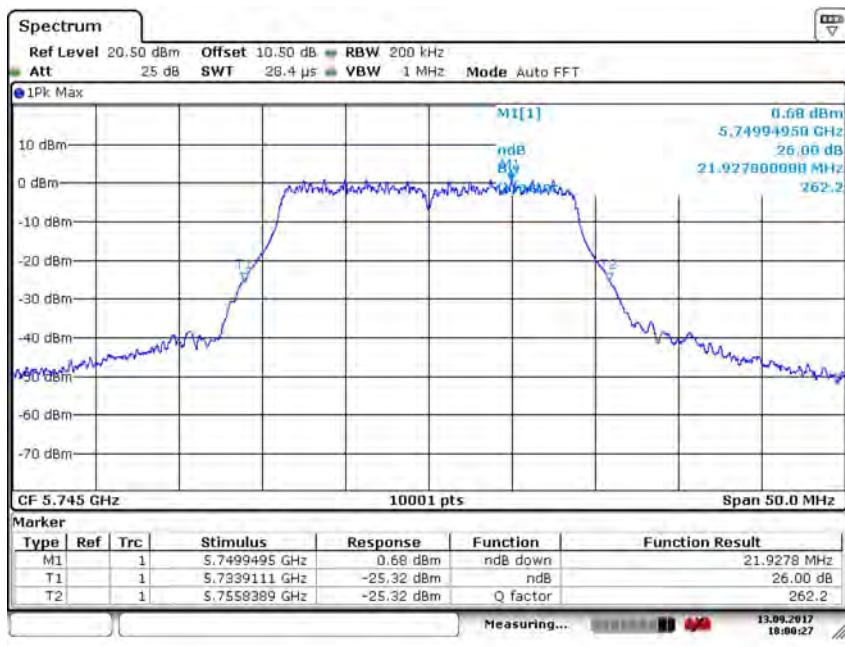


Date: 13.SEP.2017 18:00:00

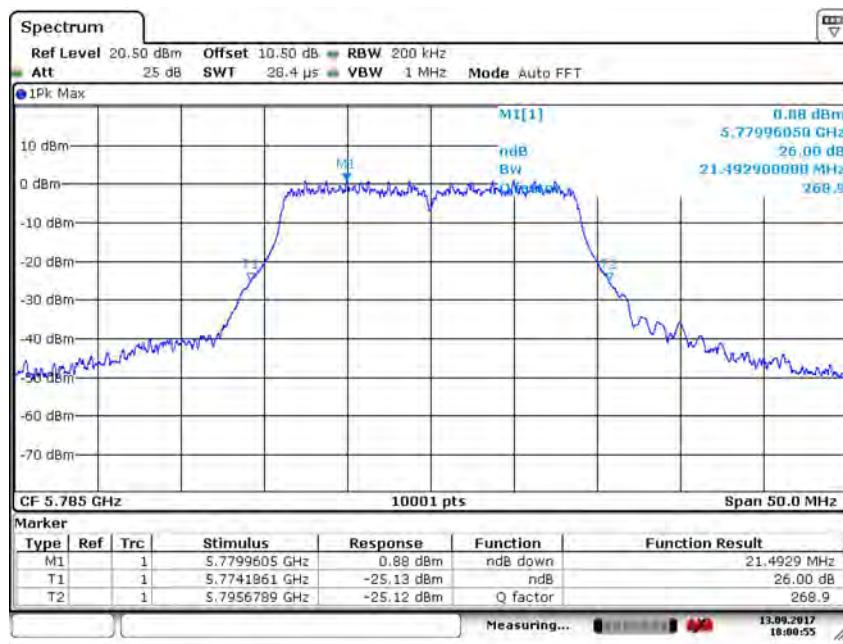
Carrier frequency (MHz): 5825  
 Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	21.92
5785	21.49
5825	22.12

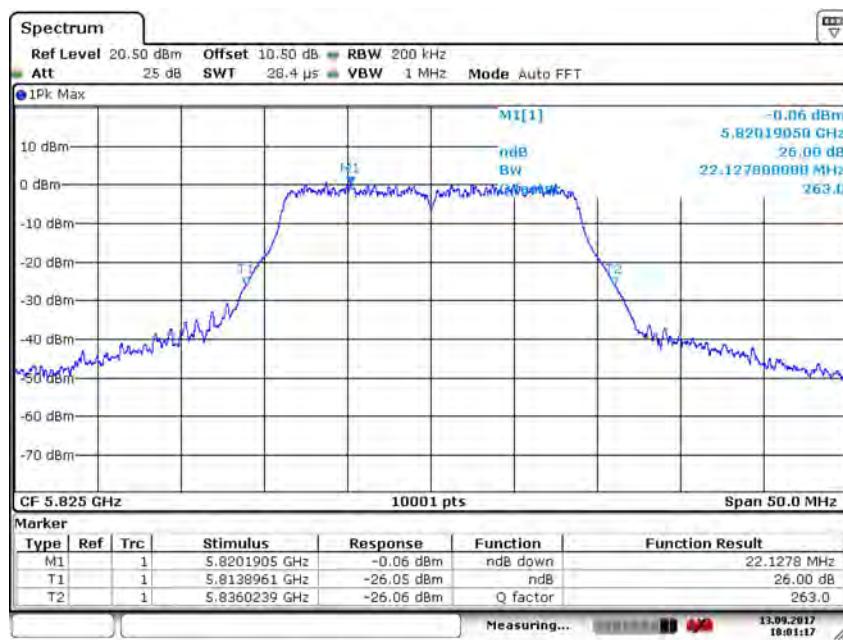


Carrier frequency (MHz): 5745  
 Test Mode: 802.11n (HT20)



Date: 13.SEP.2017 18:00:55

Carrier frequency (MHz): 5785  
Test Mode: 802.11n (HT20)

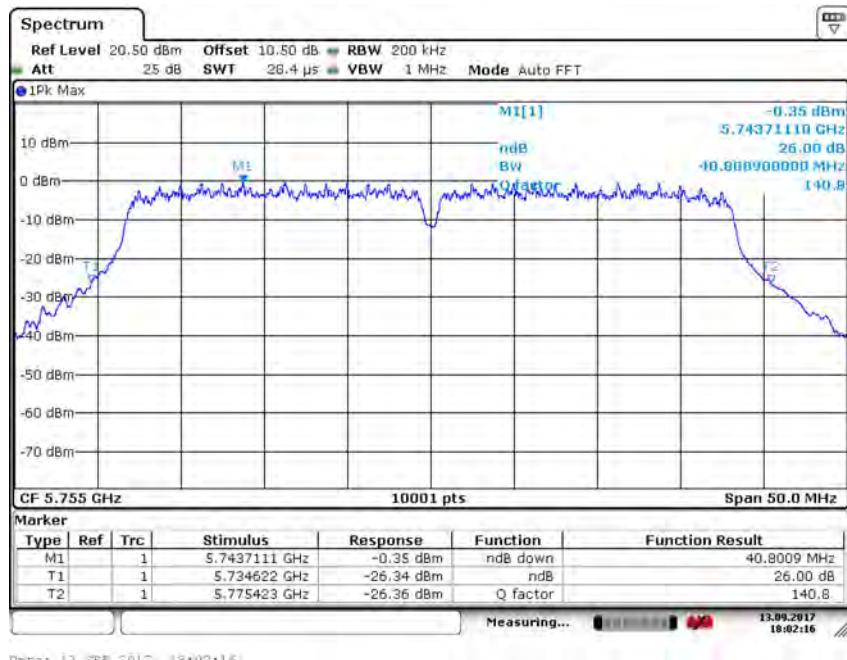


Date: 13.SEP.2017 18:01:17

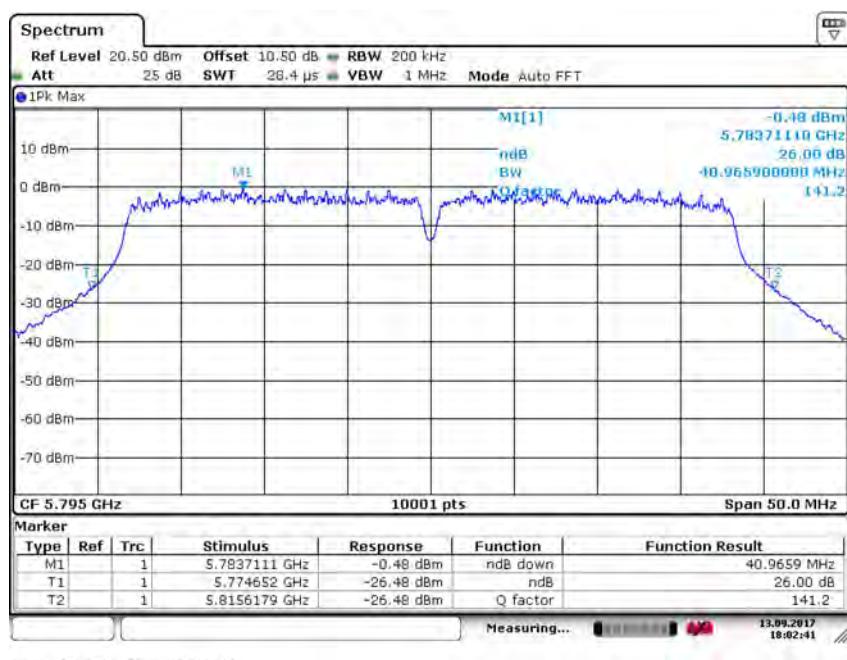
Carrier frequency (MHz): 5825  
Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5755	40.80
5795	40.96



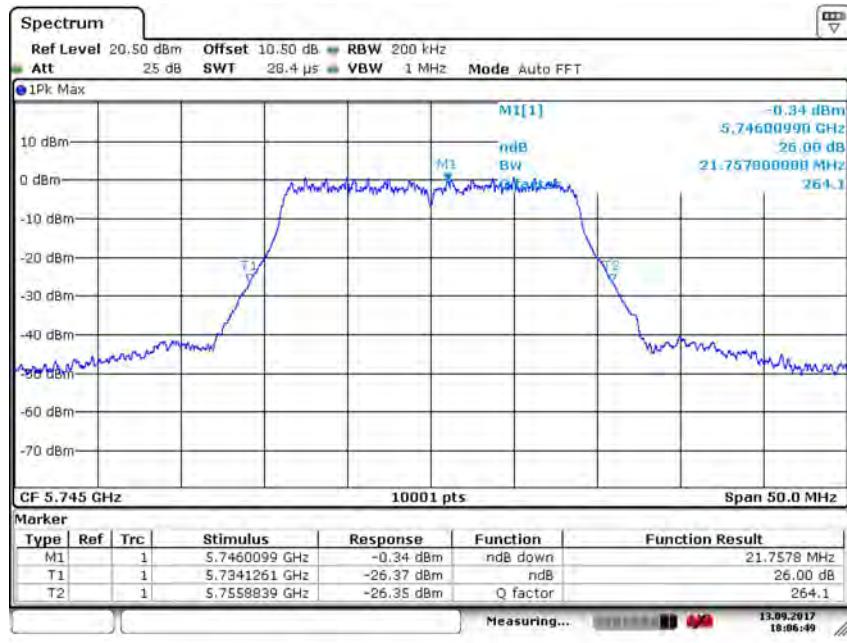
Carrier frequency (MHz): 5755  
Test Mode: 802.11n (HT40)



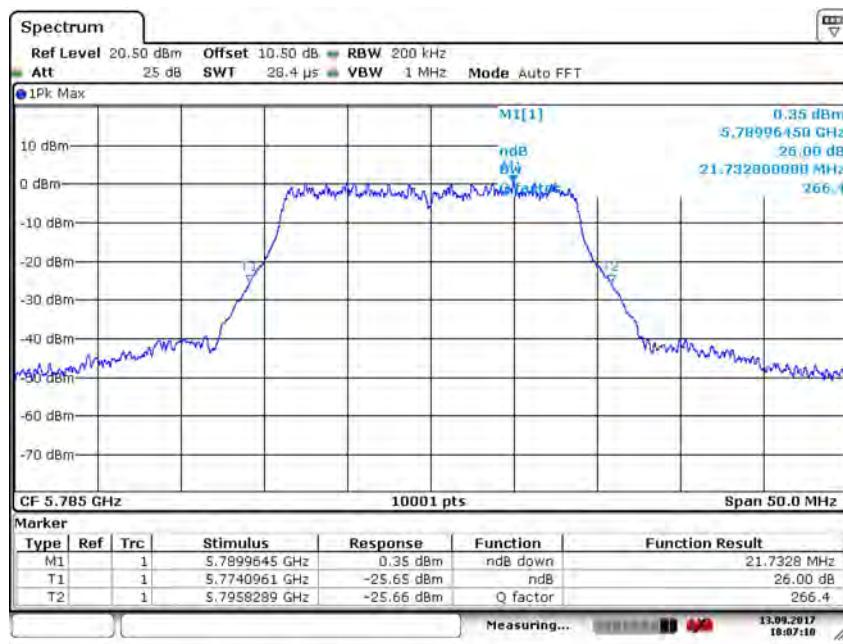
Carrier frequency (MHz): 5795  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

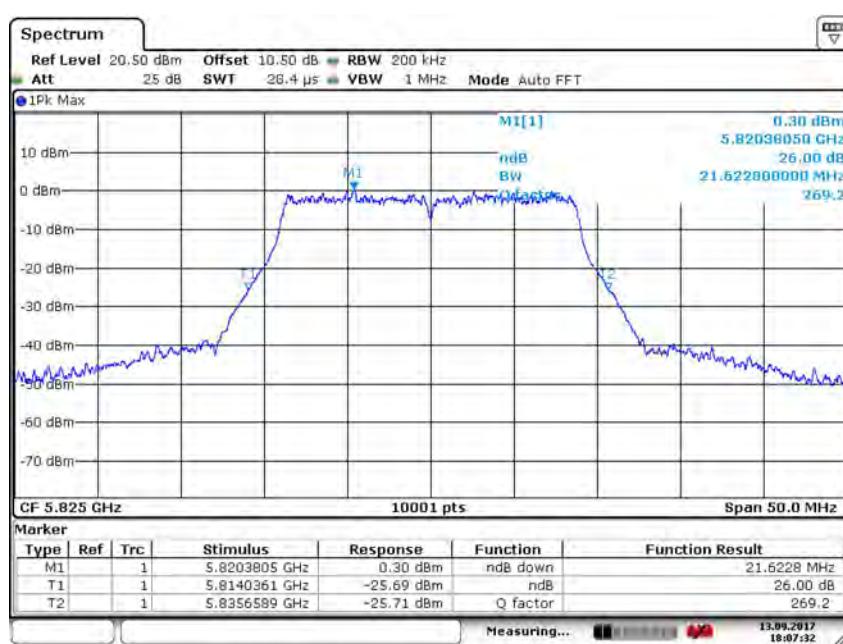
Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5745	21.75
5785	21.73
5825	21.62



Carrier frequency (MHz): 5745  
Test Mode: 802.11ac (HT20)



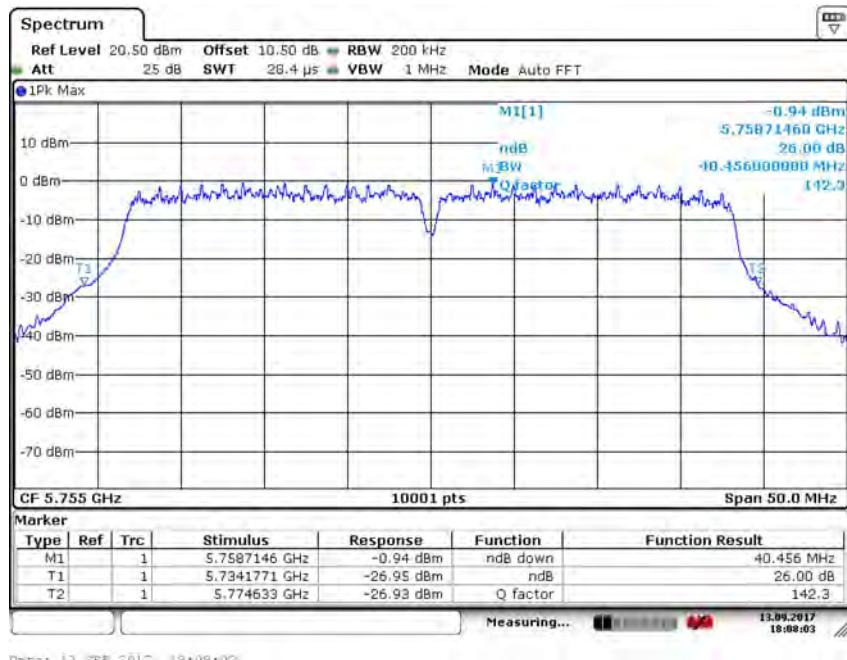
Carrier frequency (MHz): 5785  
 Test Mode: 802.11ac (HT20)



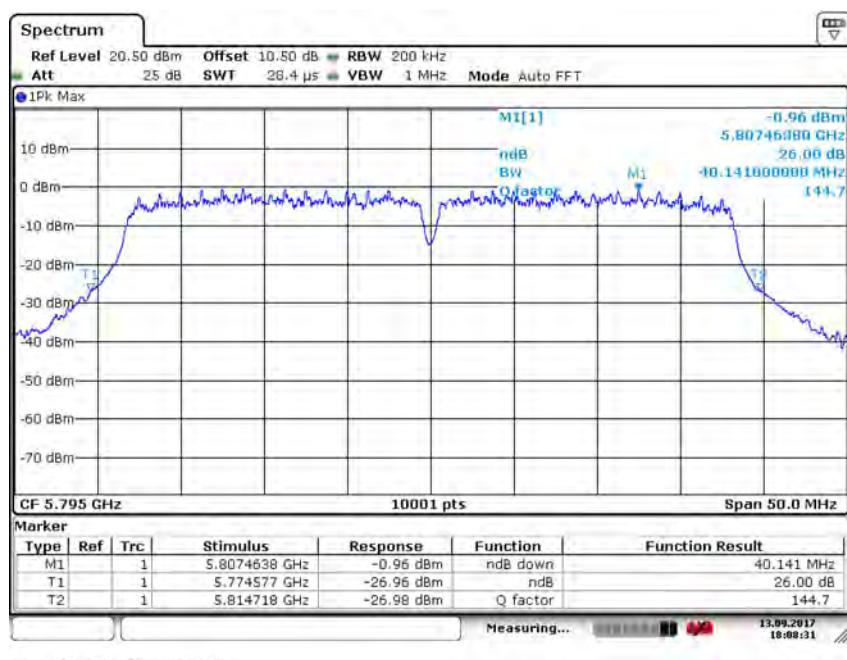
Carrier frequency (MHz): 5825  
 Test Mode: 802.11ac (HT20)

Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5755	40.45
5795	40.14



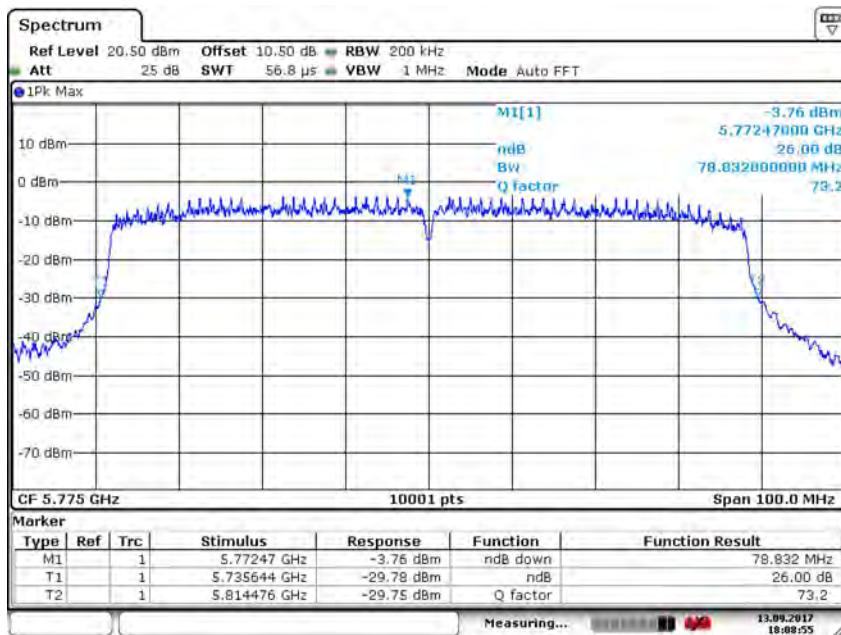
Carrier frequency (MHz): 5755  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5795  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Occupied Bandwidth(MHz)
5775	78.83



Date: 13.SEP.2017 18:08:55

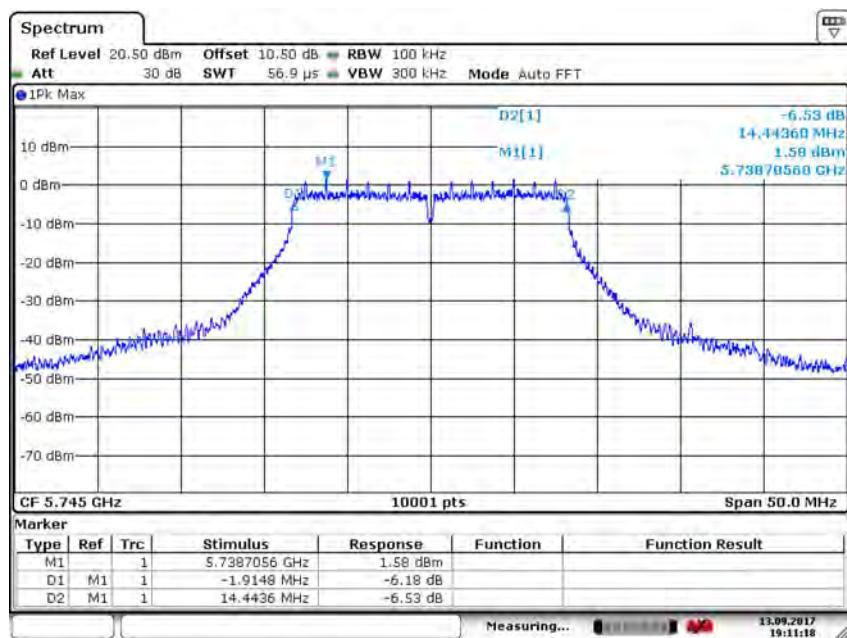
Carrier frequency (MHz): 5775  
Test Mode: 802.11ac (HT80)

## 6dB Bandwidth

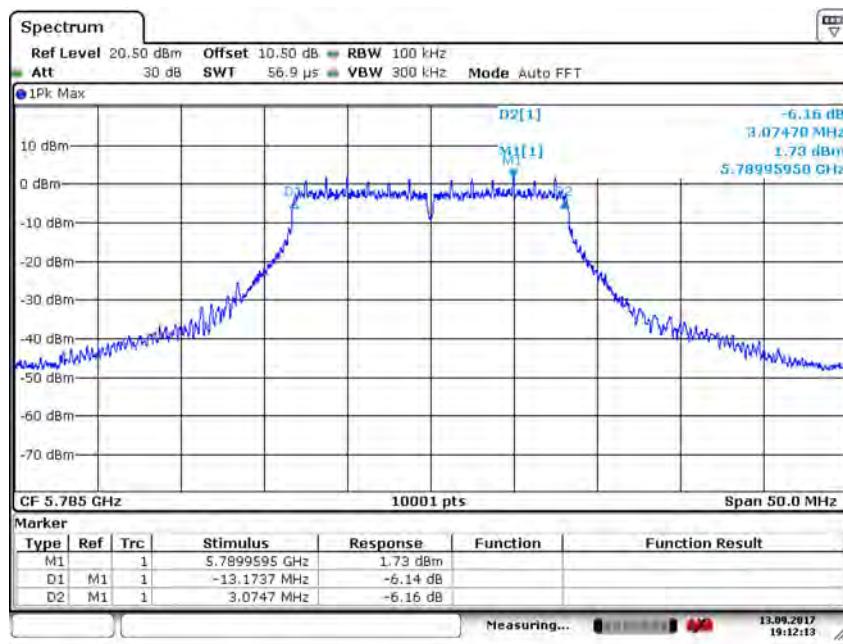
5725MHz~5825MHz

Test Mode: 802.11a

Carrier frequency (MHz)	6dB Bandwidth(MHz)
5745	14.44
5785	3.07
5825	14.44

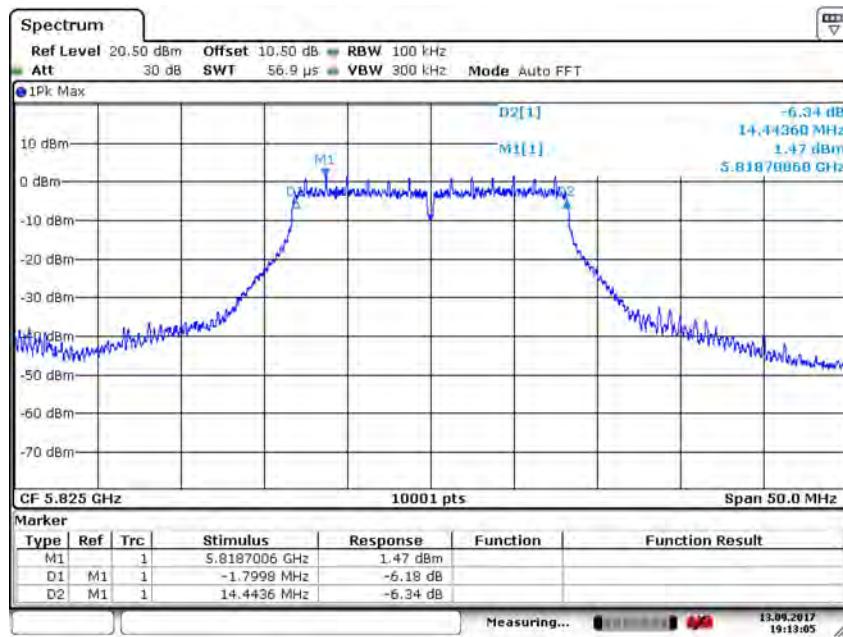


Carrier frequency (MHz): 5745  
Test Mode: 802.11a



Date: 13.SEP.2017 19:12:12

**Carrier frequency (MHz): 5785**  
**Test Mode: 802.11a**

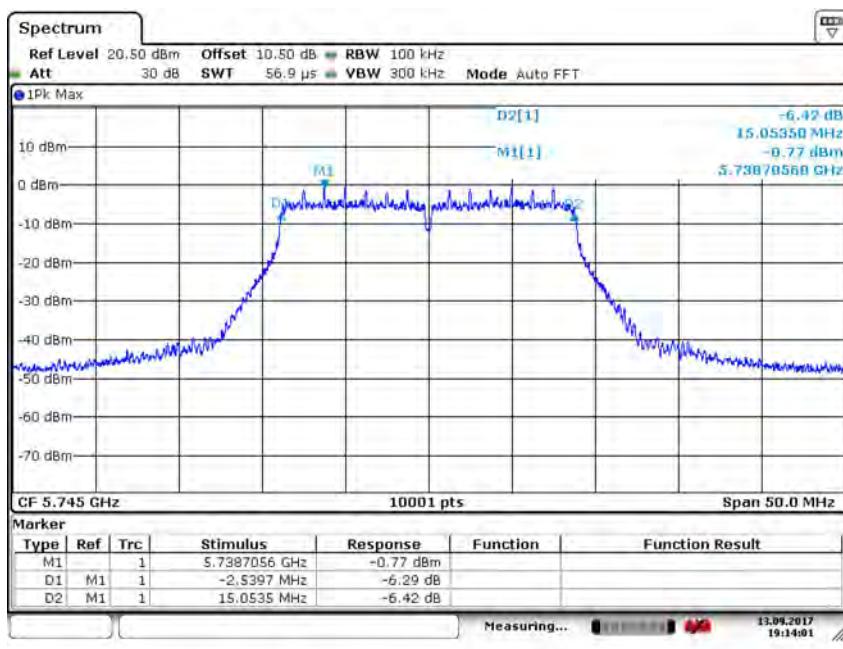


Date: 13.SEP.2017 19:13:04

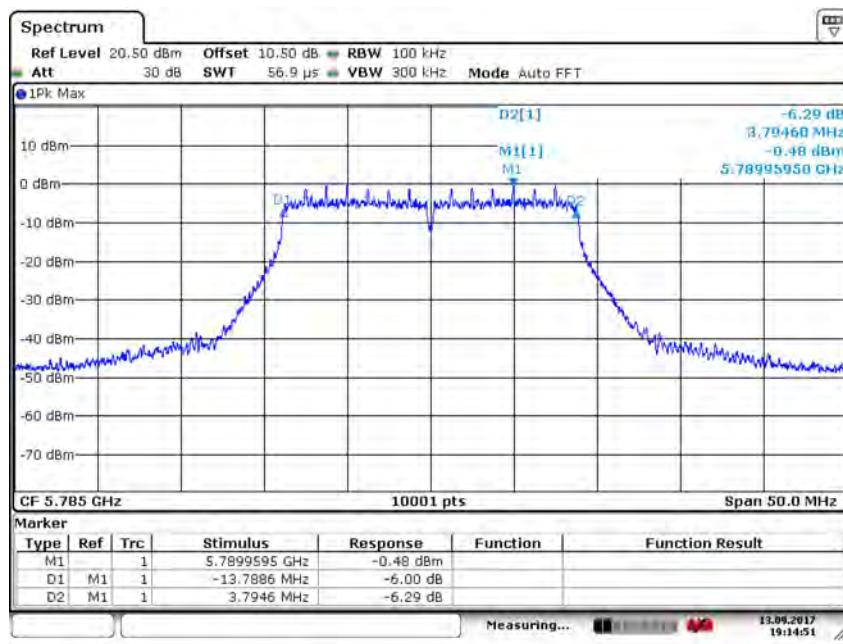
**Carrier frequency (MHz): 5825**  
**Test Mode: 802.11a**

Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	6dB Bandwidth(MHz)
5745	15.05
5785	3.79
5825	15.05

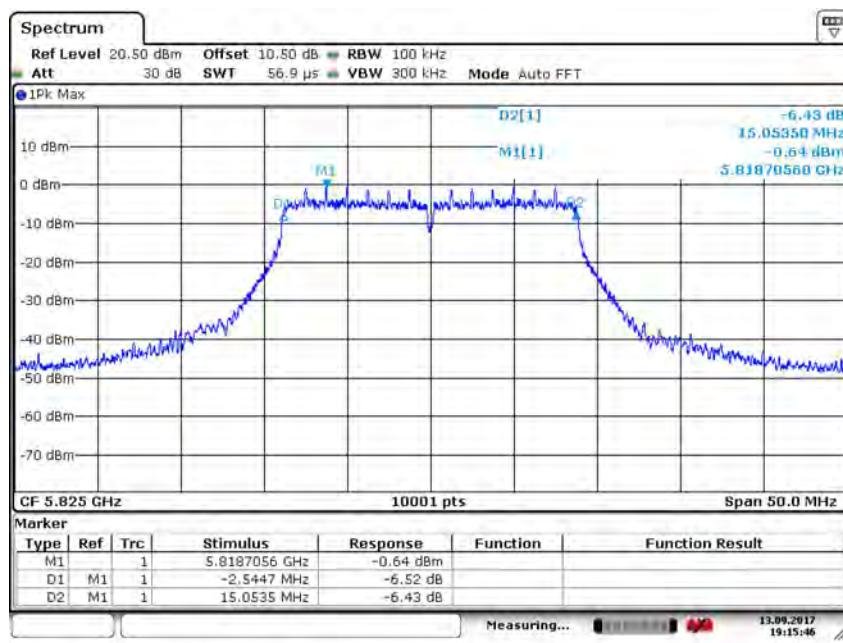


Carrier frequency (MHz): 5745  
Test Mode: 802.11n (HT20)



Date: 13.SEP.2017 19:14:51

**Carrier frequency (MHz): 5785**  
**Test Mode: 802.11n (HT20)**

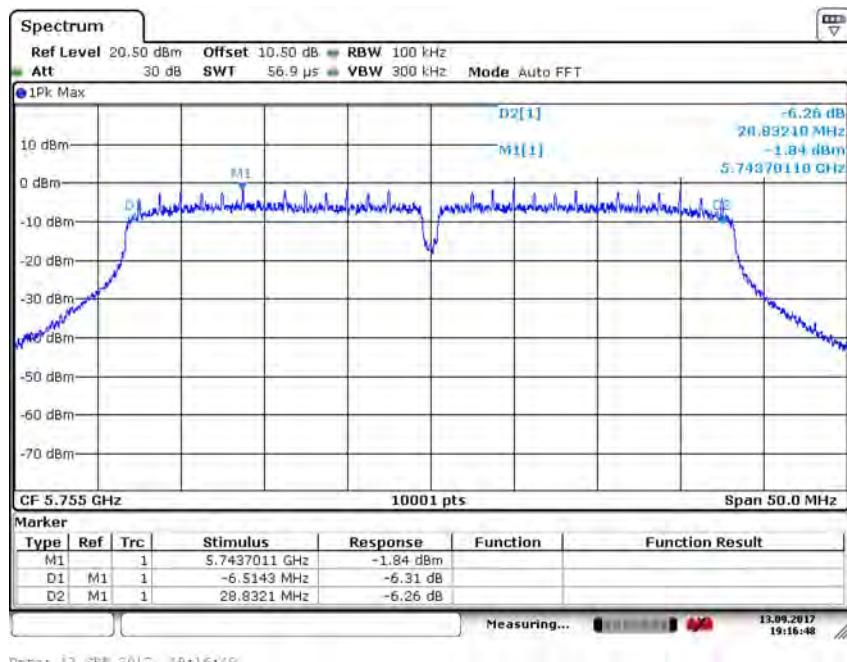


Date: 13.SEP.2017 19:15:45

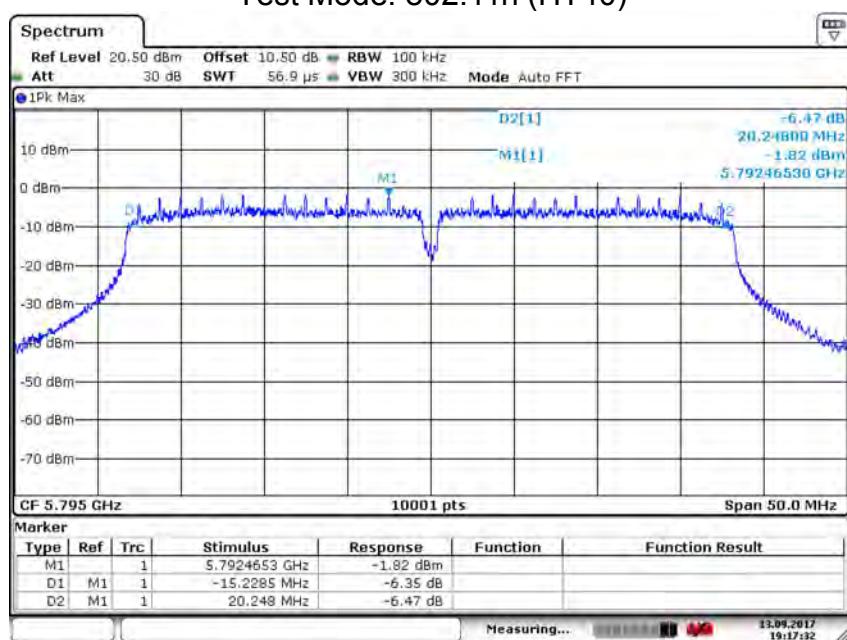
**Carrier frequency (MHz): 5825**  
**Test Mode: 802.11n (HT20)**

Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	6dB Bandwidth(MHz)
5755	28.83
5795	20.24



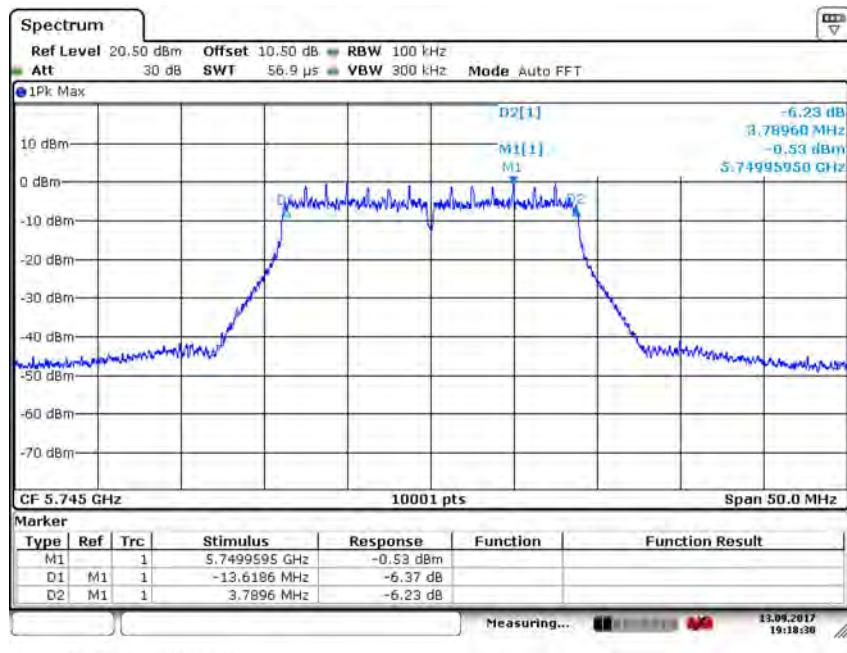
Carrier frequency (MHz): 5755  
Test Mode: 802.11n (HT40)



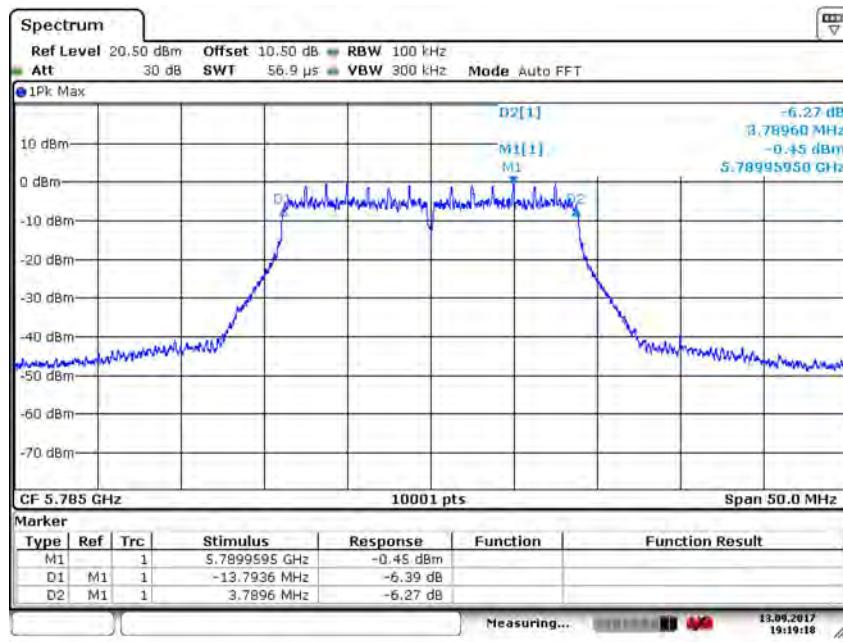
Carrier frequency (MHz): 5795  
Test Mode: 802.11n (HT40)

Test Mode: 802.11ac (HT20)

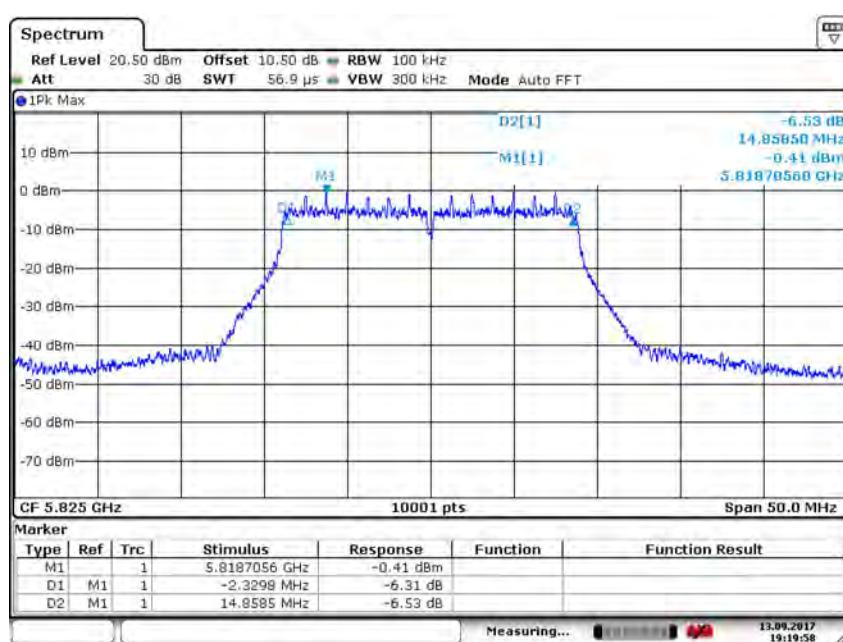
Carrier frequency (MHz)	6dB Bandwidth(MHz)
5745	3.78
5785	3.78
5825	14.85



Carrier frequency (MHz): 5745  
Test Mode: 802.11ac (HT20)



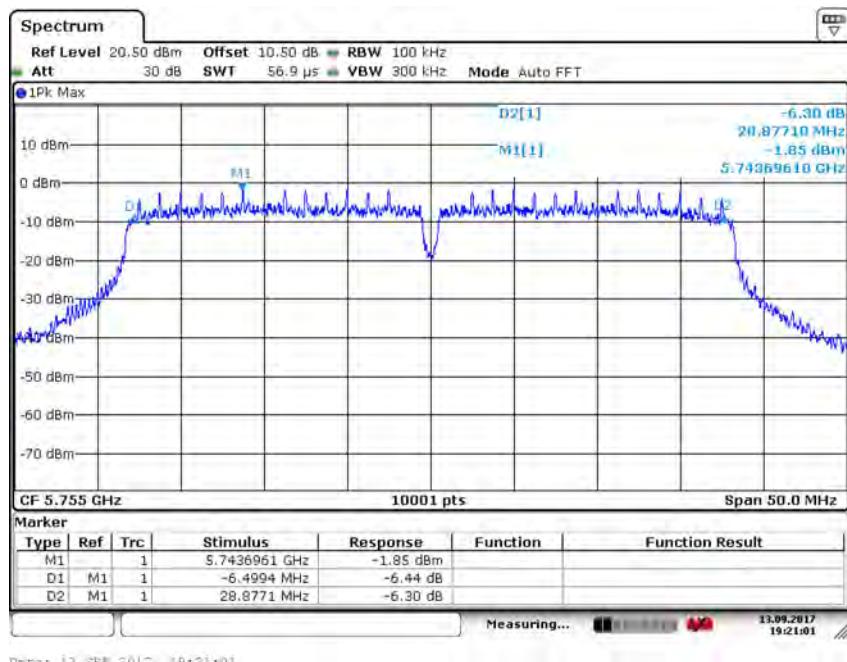
Carrier frequency (MHz): 5785  
 Test Mode: 802.11ac (HT20)



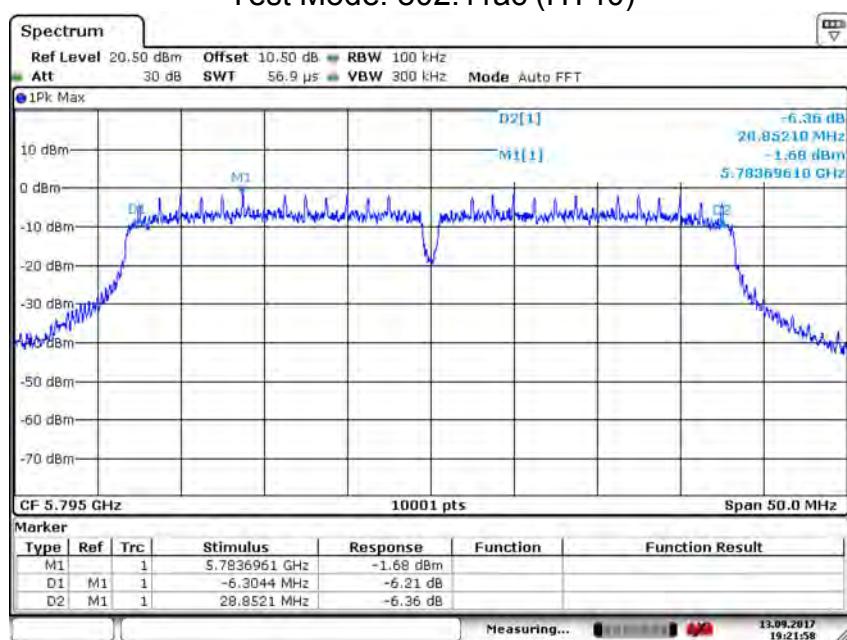
Carrier frequency (MHz): 5825  
 Test Mode: 802.11ac (HT20)

Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	6dB Bandwidth(MHz)
5755	28.87
5795	28.85



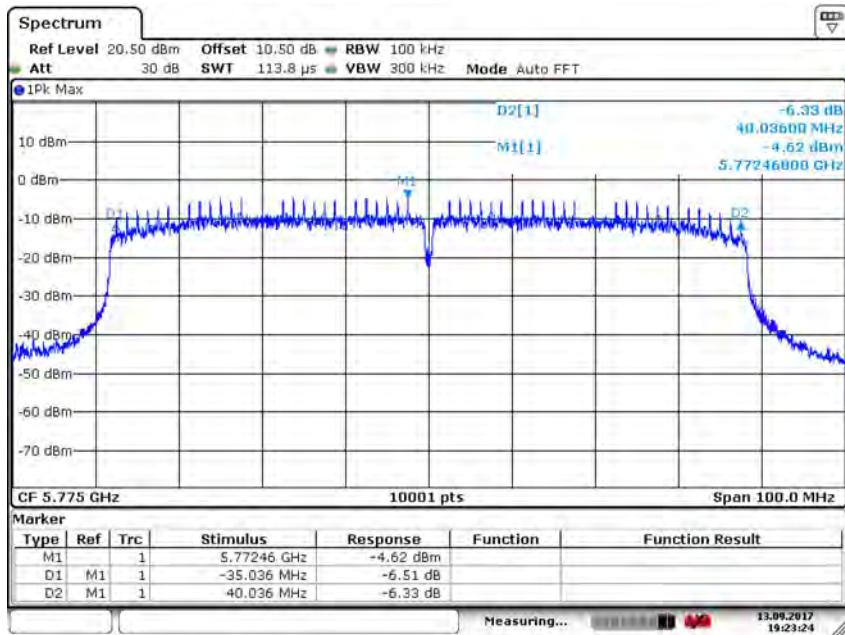
Carrier frequency (MHz): 5755  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5795  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	6dB Bandwidth(MHz)
5775	40.03



Carrier frequency (MHz): 5775  
Test Mode: 802.11ac (HT80)

## Transmitter Power Spectral Density

5150MHz~5250MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Power Density (dBm)
5180	8.85
5200	8.68
5240	8.86



Carrier frequency (MHz): 5180  
Test Mode: 802.11a



Carrier frequency (MHz): 5200  
Test Mode: 802.11a



Carrier frequency (MHz): 5240  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

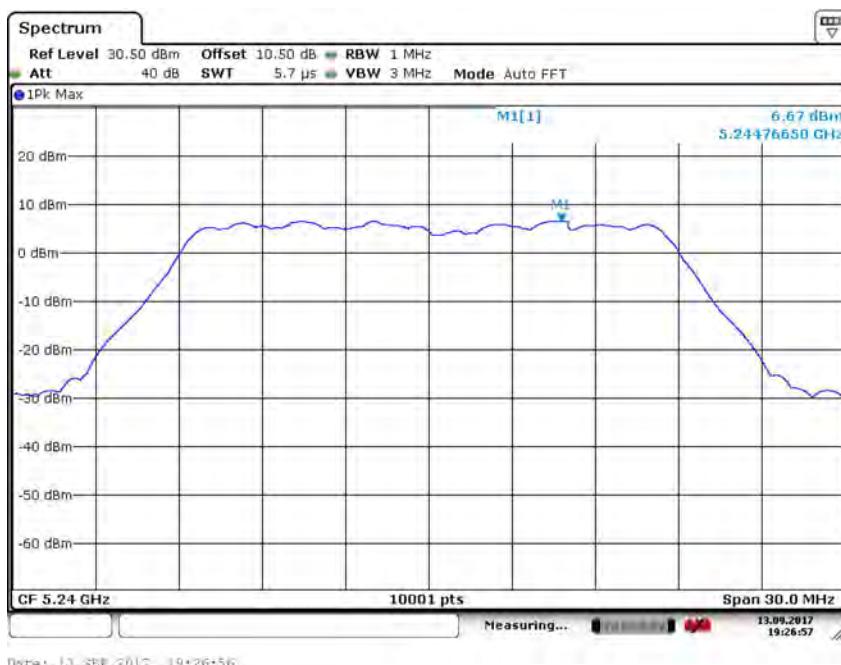
Carrier frequency (MHz)	Power Density (dBm)
5180	6.47
5200	6.39
5240	6.67



Carrier frequency (MHz): 5180  
 Test Mode: 802.11n (HT20)



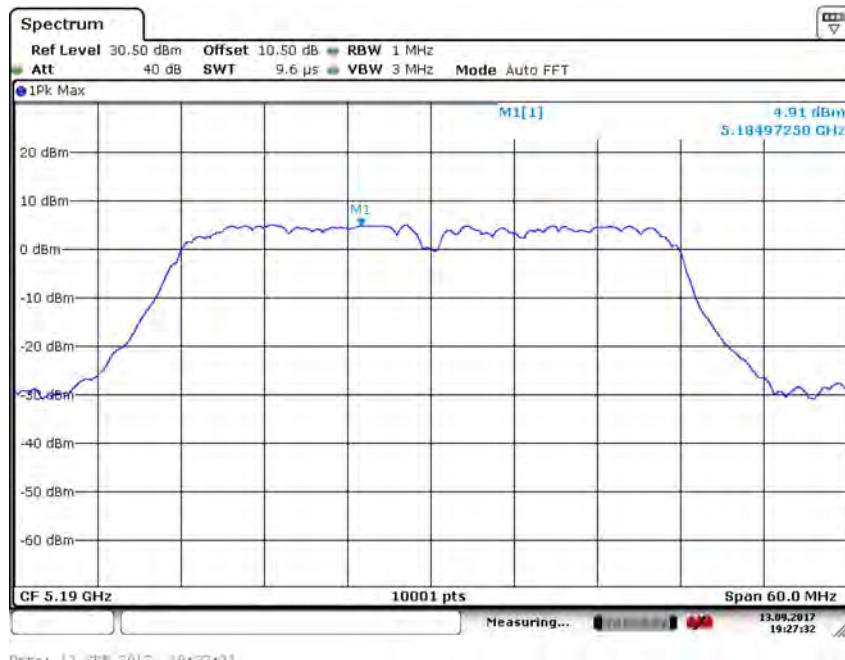
Carrier frequency (MHz): 5200  
Test Mode: 802.11n (HT20)



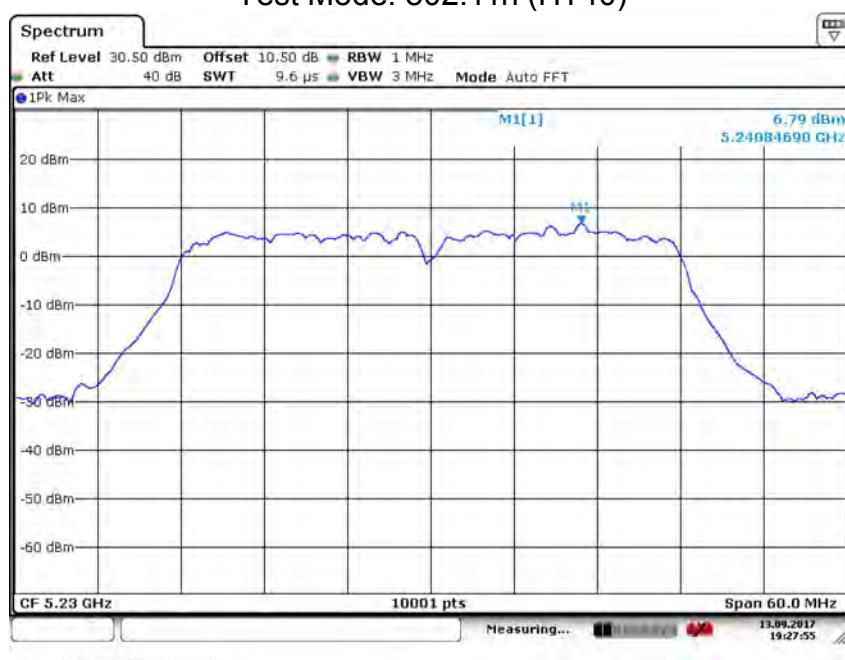
Carrier frequency (MHz): 5240  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5190	4.91
5230	6.79



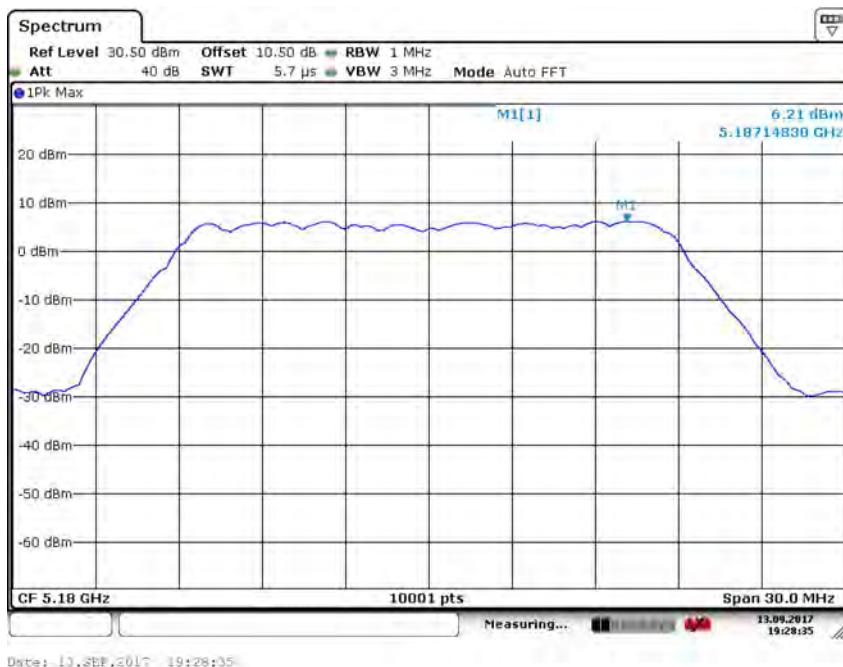
Carrier frequency (MHz): 5190  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5230  
Test Mode: 802.11n (HT40)

## Test Mode: 802.11ac (HT20)

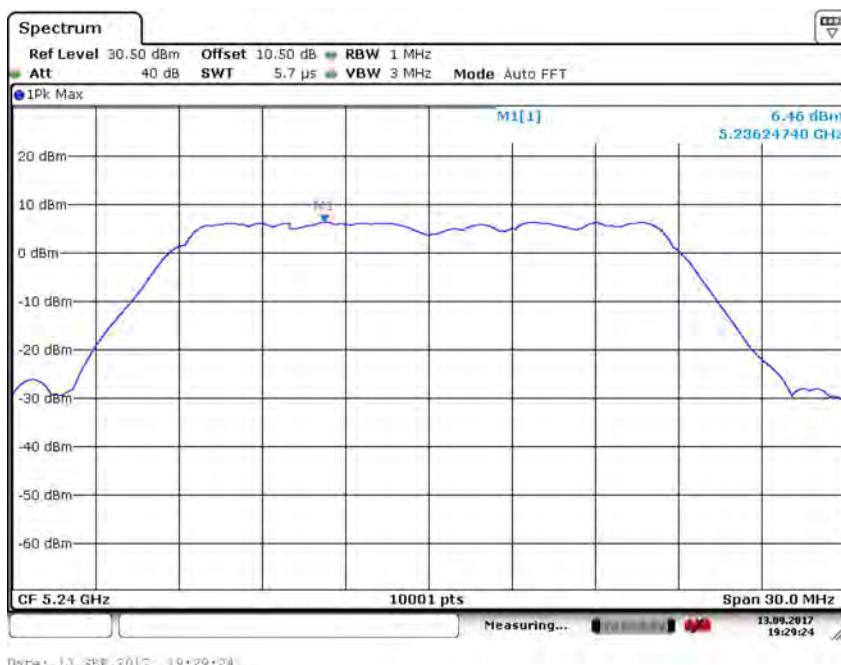
Carrier frequency (MHz)	Power Density (dBm)
5180	6.21
5200	6.27
5240	6.46



Carrier frequency (MHz): 5180  
 Test Mode: 802.11ac (HT20)



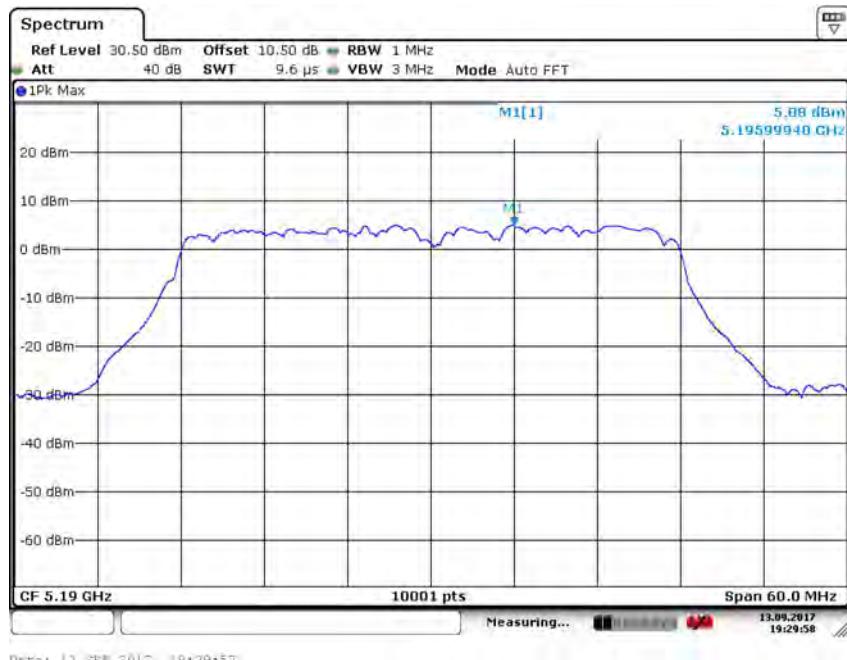
Carrier frequency (MHz): 5200  
Test Mode: 802.11ac (HT20)



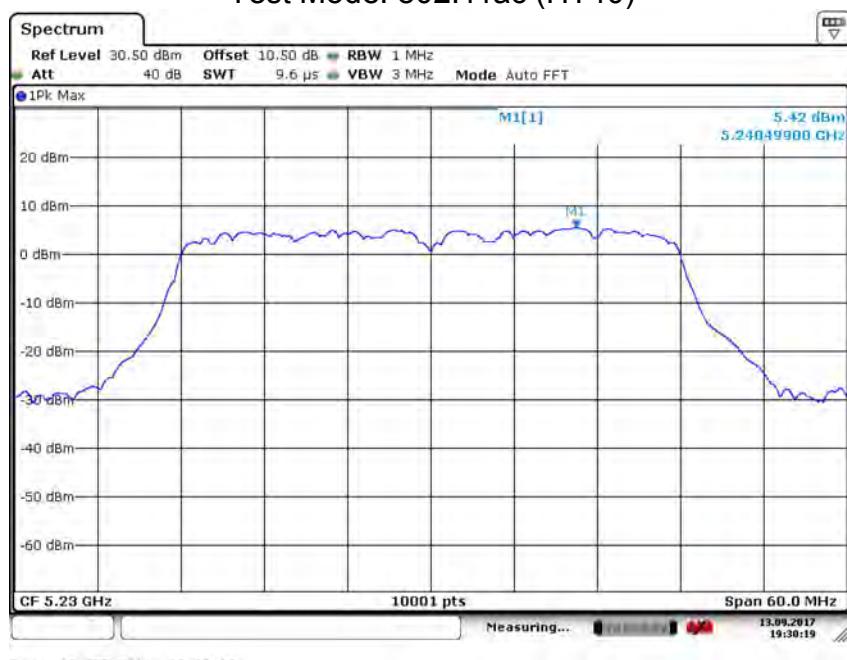
Carrier frequency (MHz): 5240  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5190	5.08
5230	5.42



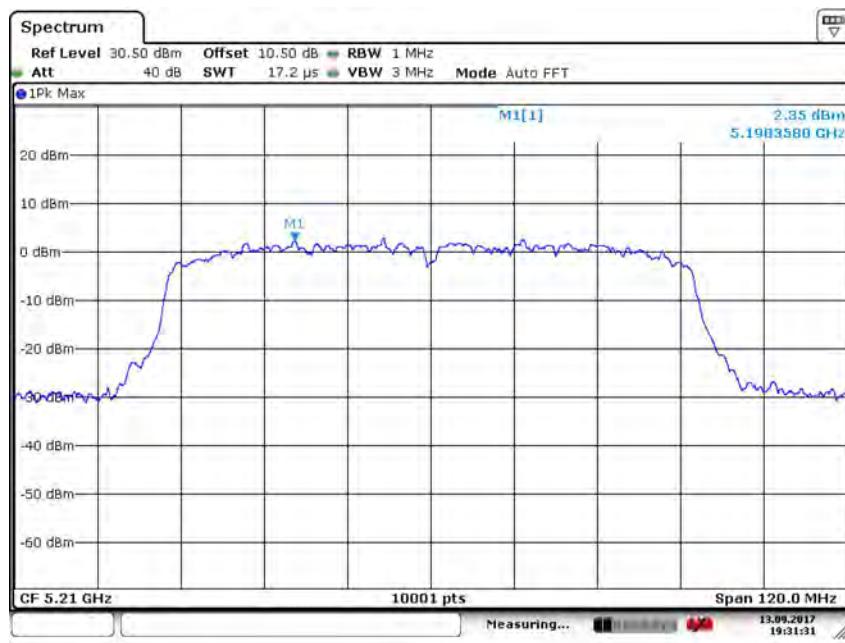
Carrier frequency (MHz): 5190  
 Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5230  
 Test Mode: 802.11ac (HT40)

## Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Power Density (dBm)
5210	2.35

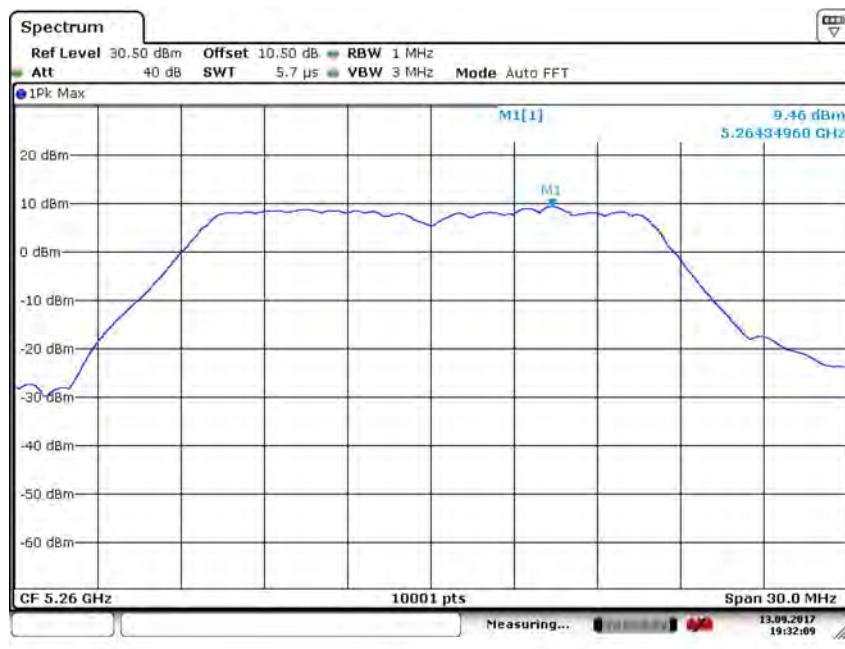


Carrier frequency (MHz): 5210  
Test Mode: 802.11ac (HT80)

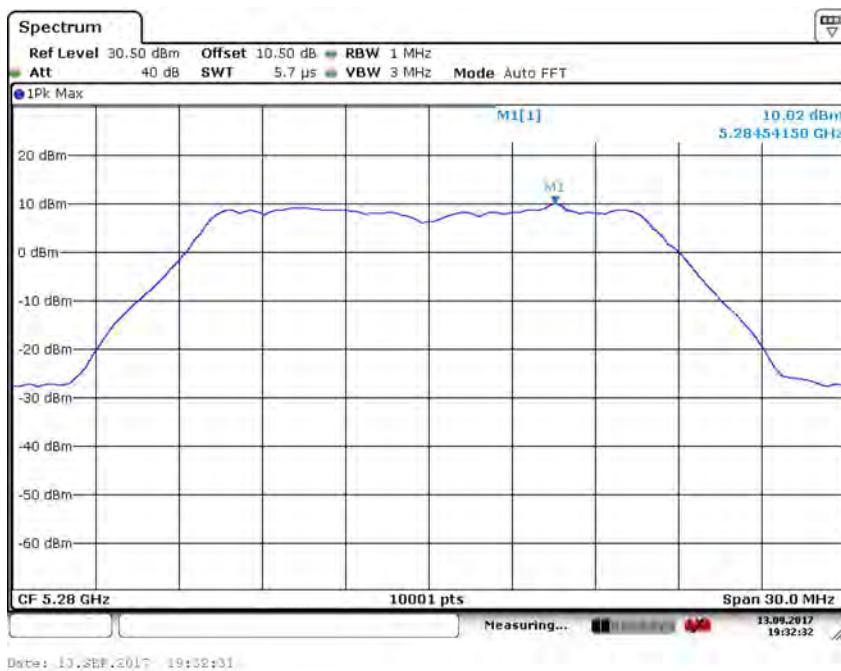
5250MHz~5350MHz

Test Mode: 802.11a

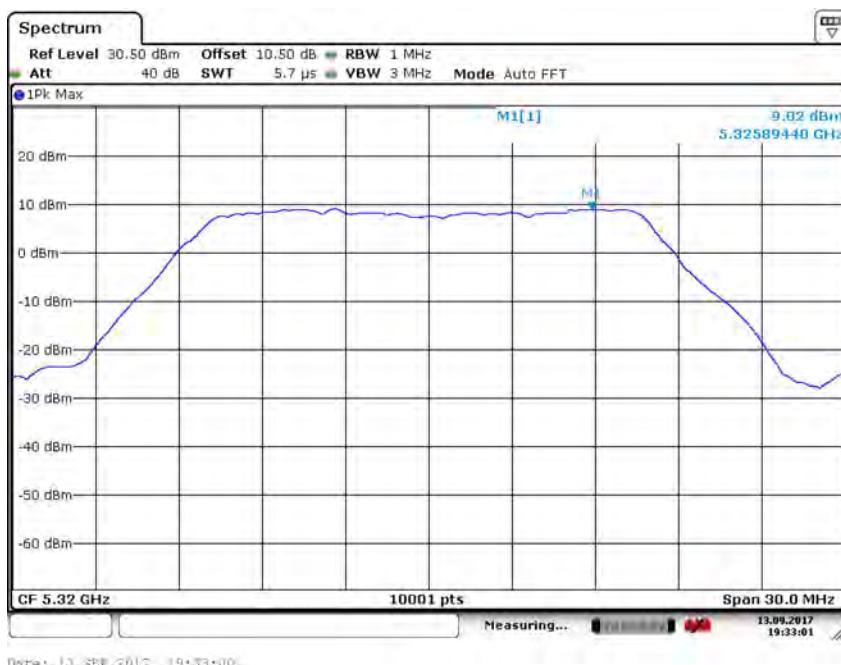
Carrier frequency (MHz)	Power Density (dBm)
5260	9.46
5280	10.02
5320	9.02



Carrier frequency (MHz): 5260  
Test Mode: 802.11a



Carrier frequency (MHz): 5280  
Test Mode: 802.11a



Carrier frequency (MHz): 5320  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

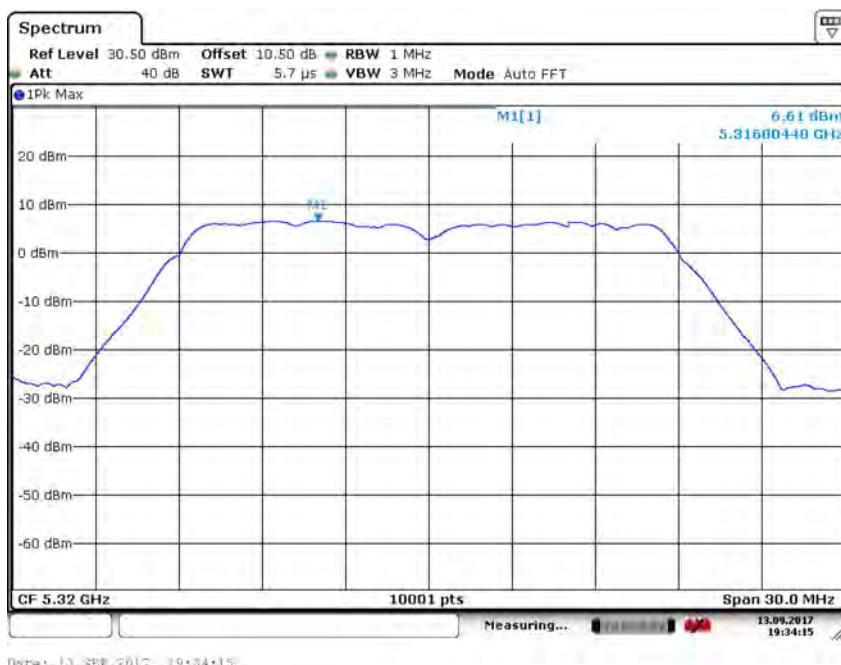
Carrier frequency (MHz)	Power Density (dBm)
5260	6.50
5280	6.33
5320	6.61



Carrier frequency (MHz): 5260  
Test Mode: 802.11n (HT20)



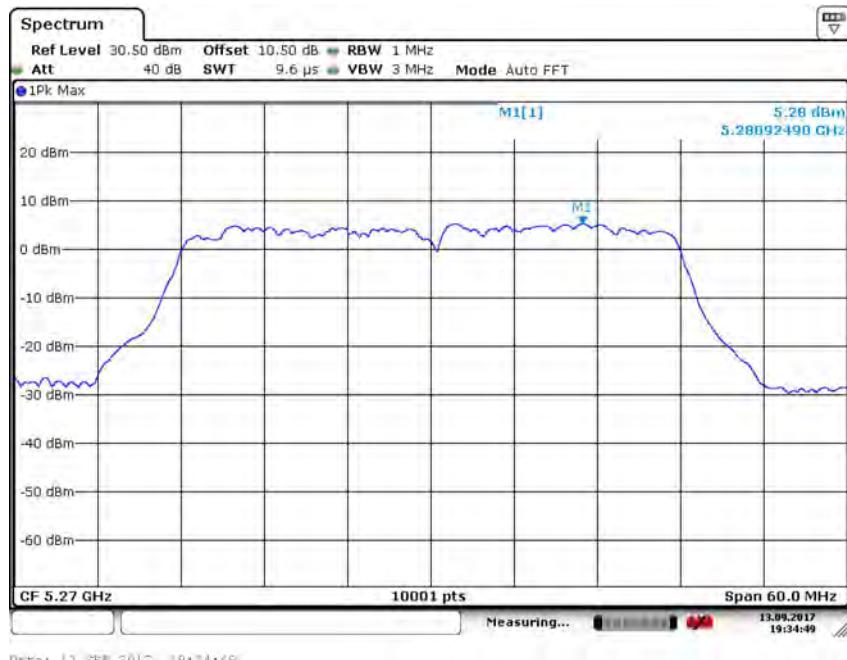
Carrier frequency (MHz): 5280  
Test Mode: 802.11n (HT20)



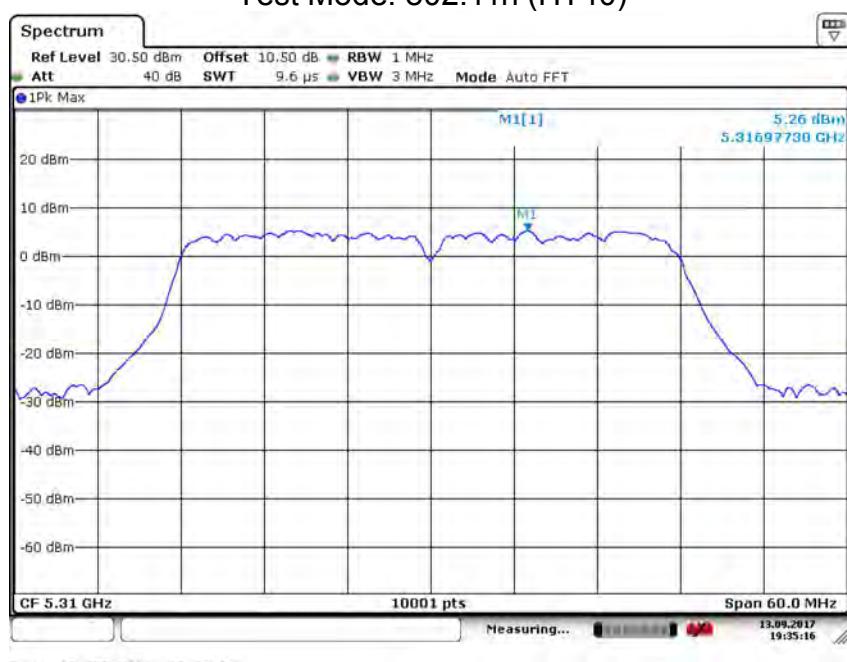
Carrier frequency (MHz): 5320  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5270	5.28
5310	5.26



Carrier frequency (MHz): 5270  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5310  
Test Mode: 802.11n (HT40)

## Test Mode: 802.11ac (HT20)

Carrier frequency (MHz)	Power Density (dBm)
5260	6.23
5280	6.35
5320	6.20



Carrier frequency (MHz): 5260  
Test Mode: 802.11ac (HT20)



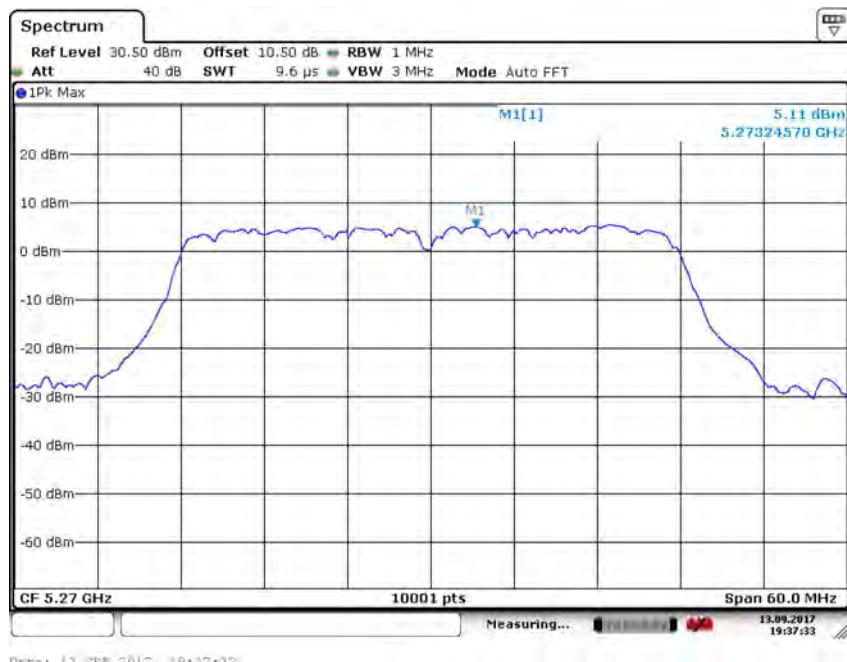
Carrier frequency (MHz): 5280  
Test Mode: 802.11ac (HT20)



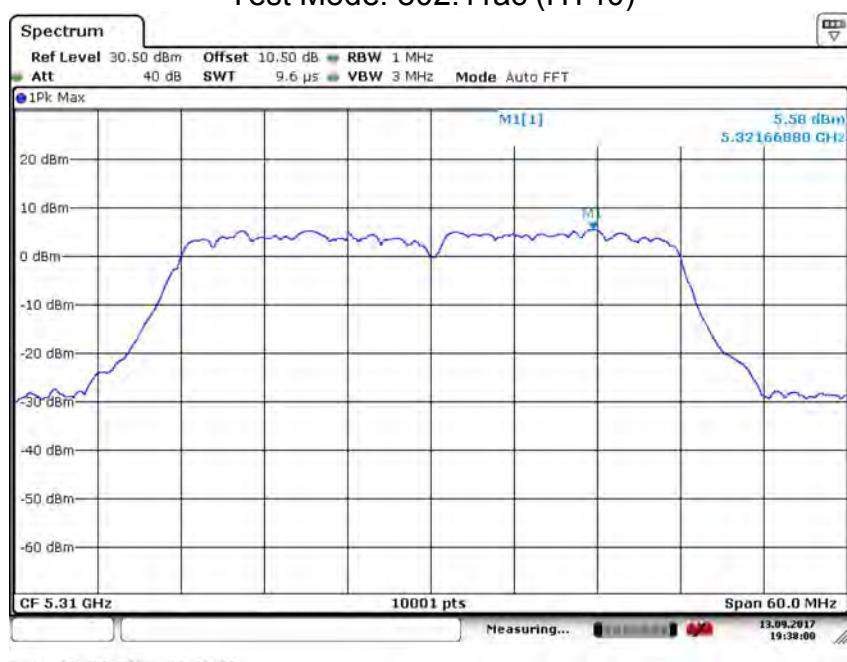
Carrier frequency (MHz): 5320  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5270	5.11
5310	5.58



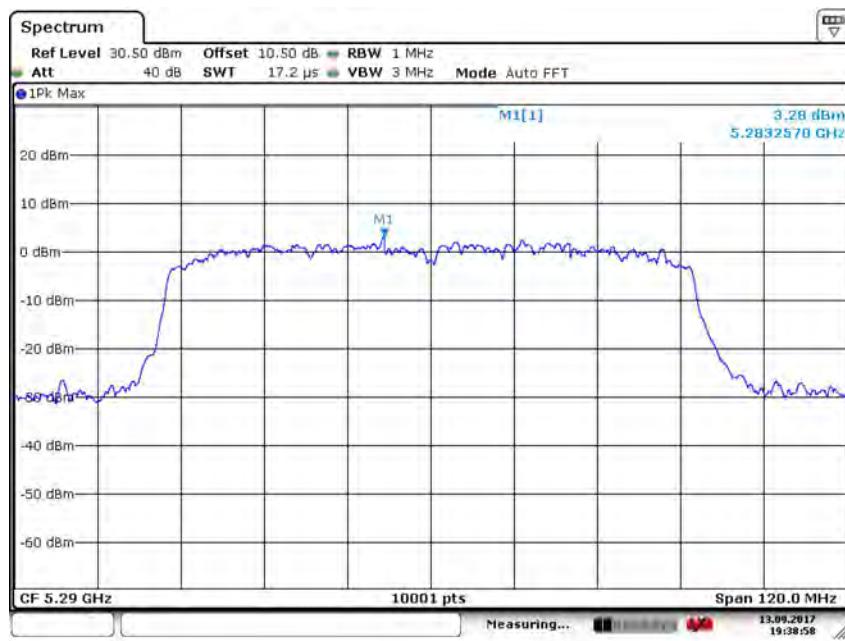
Carrier frequency (MHz): 5270  
 Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5310  
 Test Mode: 802.11ac (HT40)

## Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Power Density (dBm)
5290	3.28

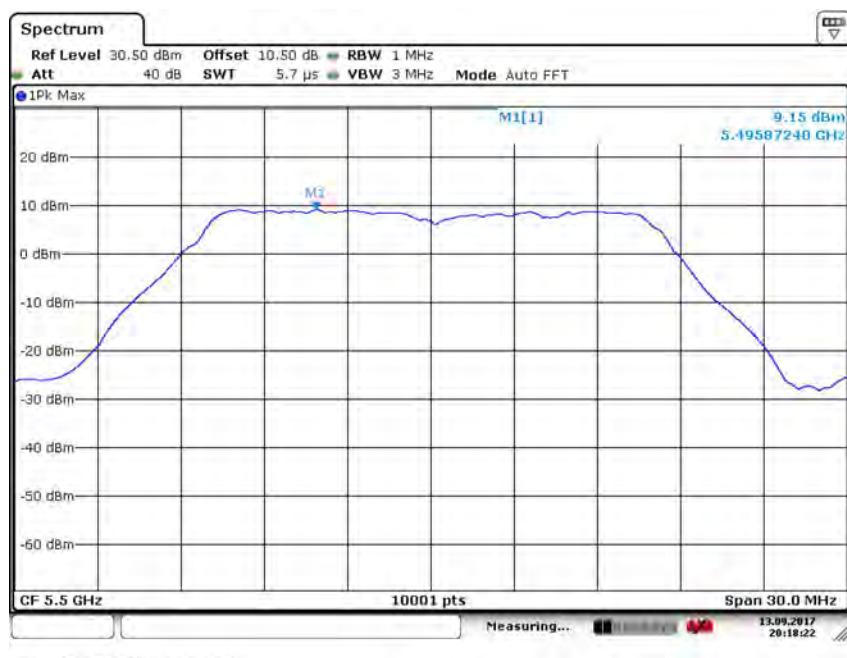


Carrier frequency (MHz): 5290  
Test Mode: 802.11ac (HT80)

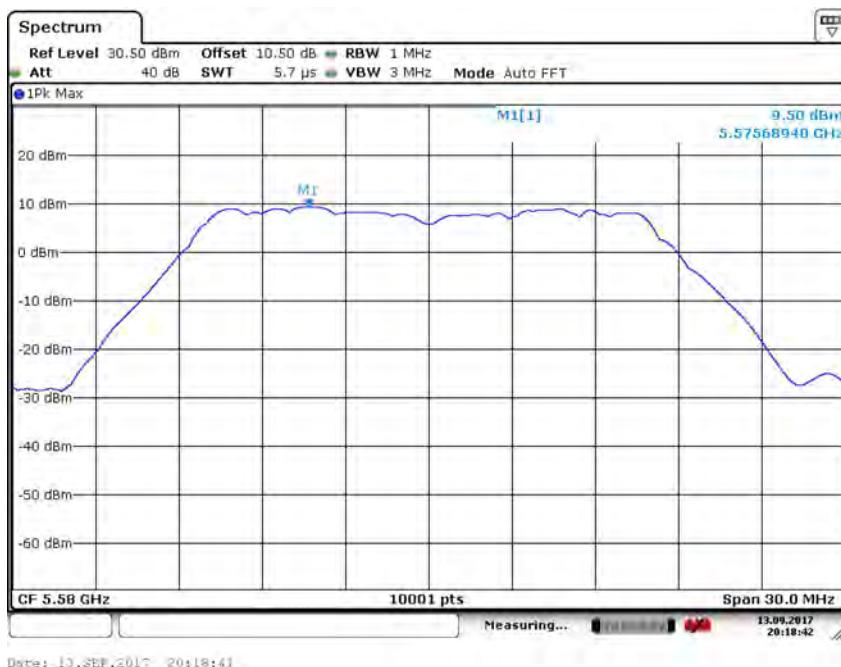
5470MHz~5725MHz

Test Mode: 802.11a

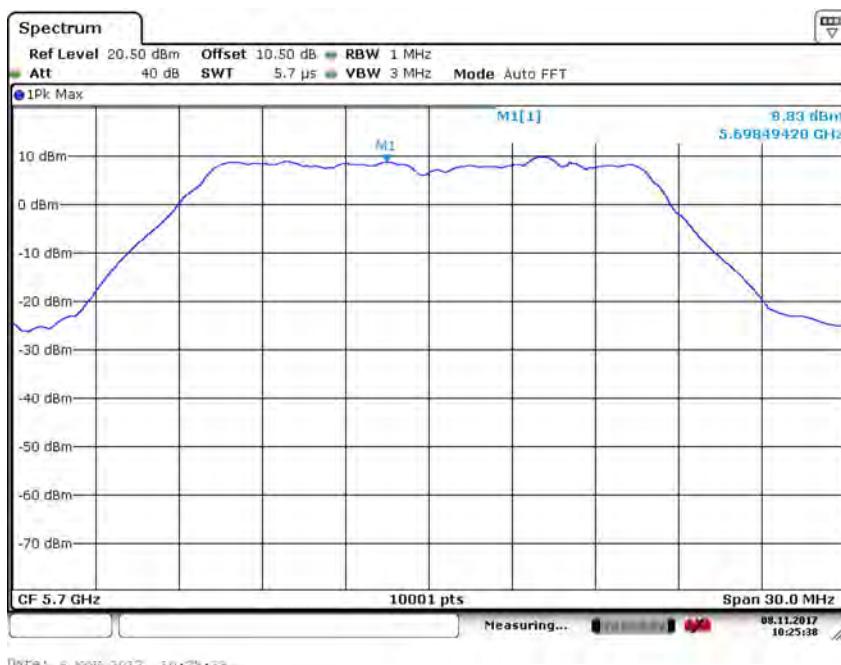
Carrier frequency (MHz)	Power Density (dBm)
5500	9.15
5580	9.50
5700	8.83



Carrier frequency (MHz): 5500  
Test Mode: 802.11a



Carrier frequency (MHz): 5580  
Test Mode: 802.11a



Carrier frequency (MHz): 5700  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	Power Density (dBm)
5500	6.59
5580	7.01
5700	6.43

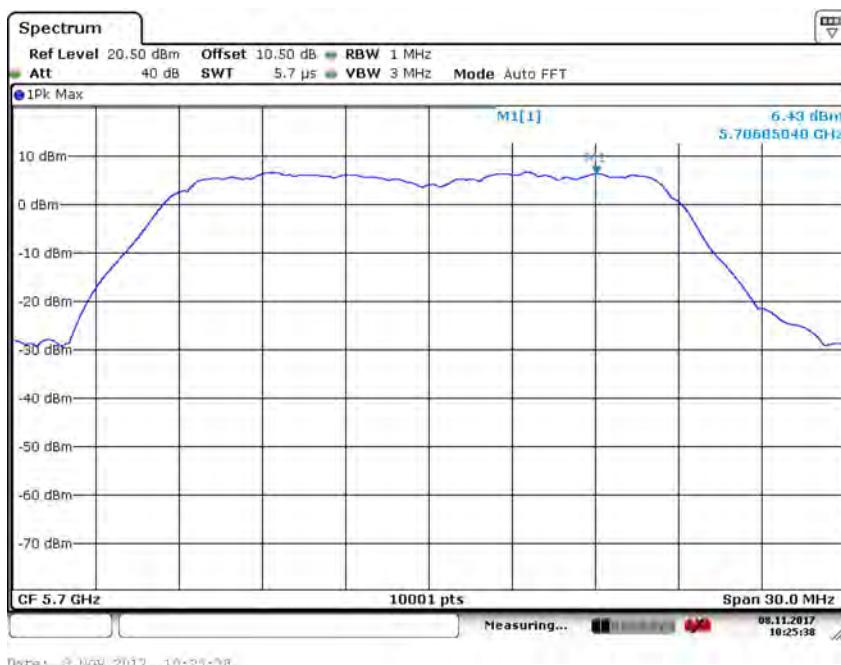


Carrier frequency (MHz): 5500  
Test Mode: 802.11n (HT20)



Date: 13.SEP.2017 20:19:50

Carrier frequency (MHz): 5580  
Test Mode: 802.11n (HT20)

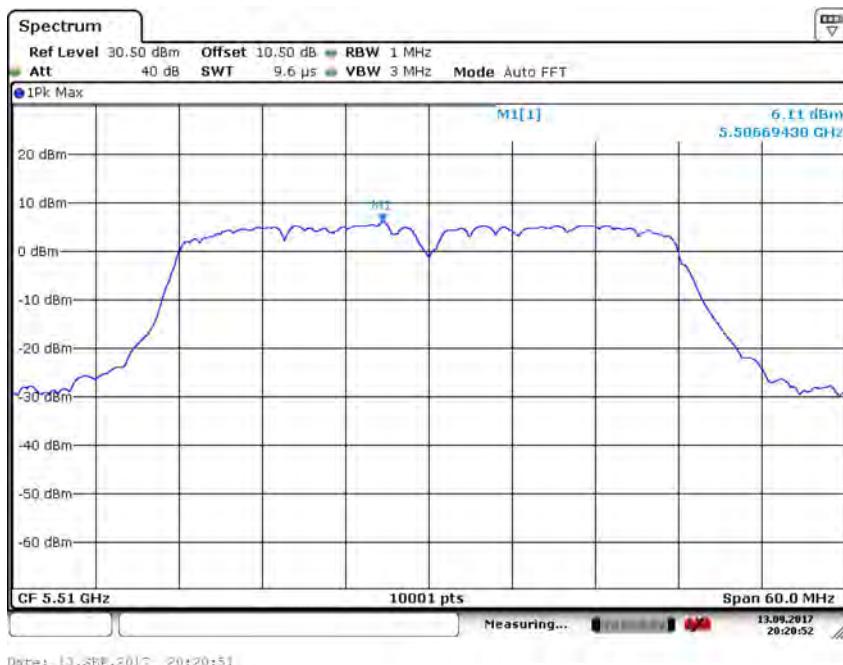


Date: 08.NOV.2017 10:25:38

Carrier frequency (MHz): 5700  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

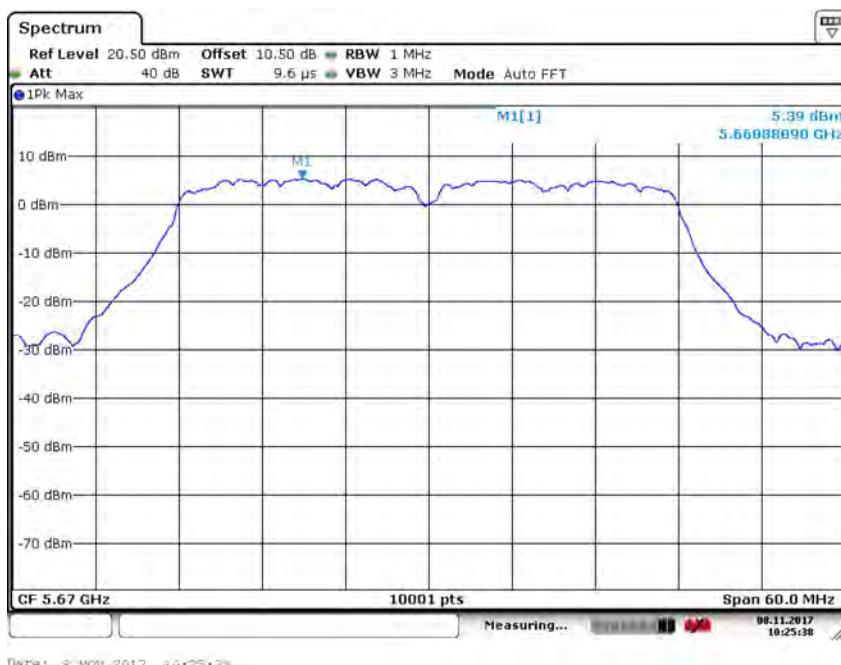
Carrier frequency (MHz)	Power Density (dBm)
5510	6.11
5550	5.43
5670	5.39



Carrier frequency (MHz): 5510  
 Test Mode: 802.11n (HT40)



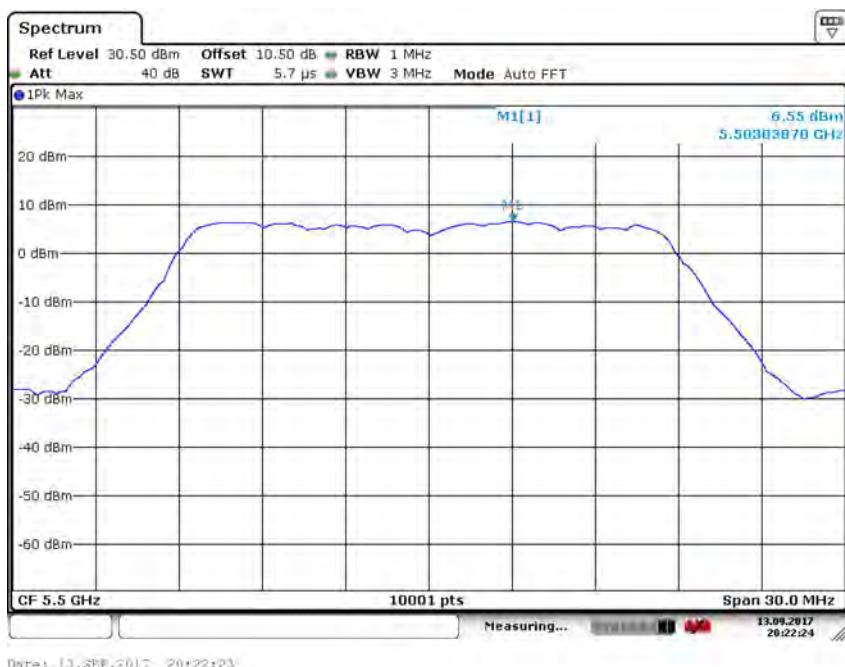
Carrier frequency (MHz): 5550  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5670  
Test Mode: 802.11n (HT40)

## Test Mode: 802.11ac (HT20)

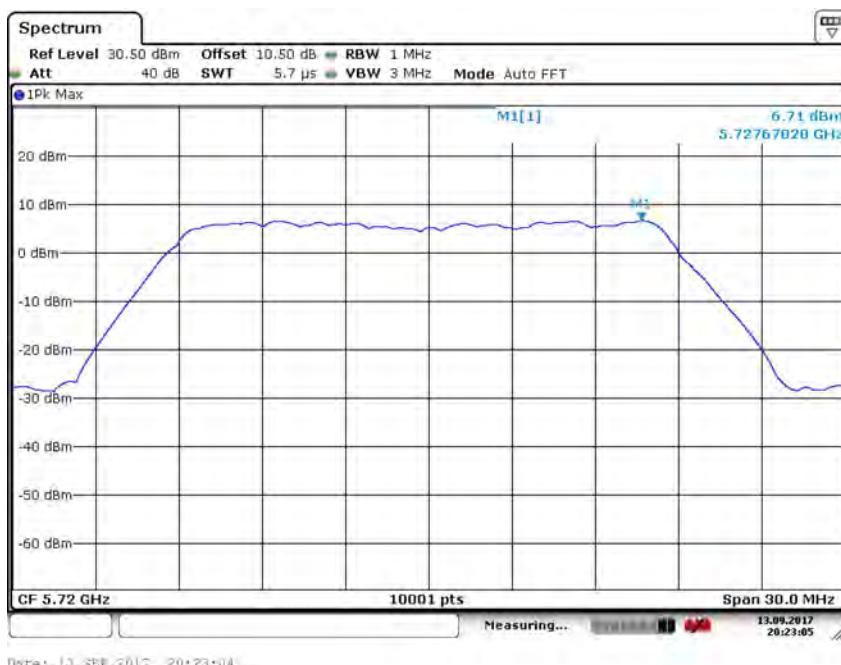
Carrier frequency (MHz)	Power Density (dBm)
5500	6.55
5580	6.32
5720	6.71



Carrier frequency (MHz): 5500  
 Test Mode: 802.11ac (HT20)



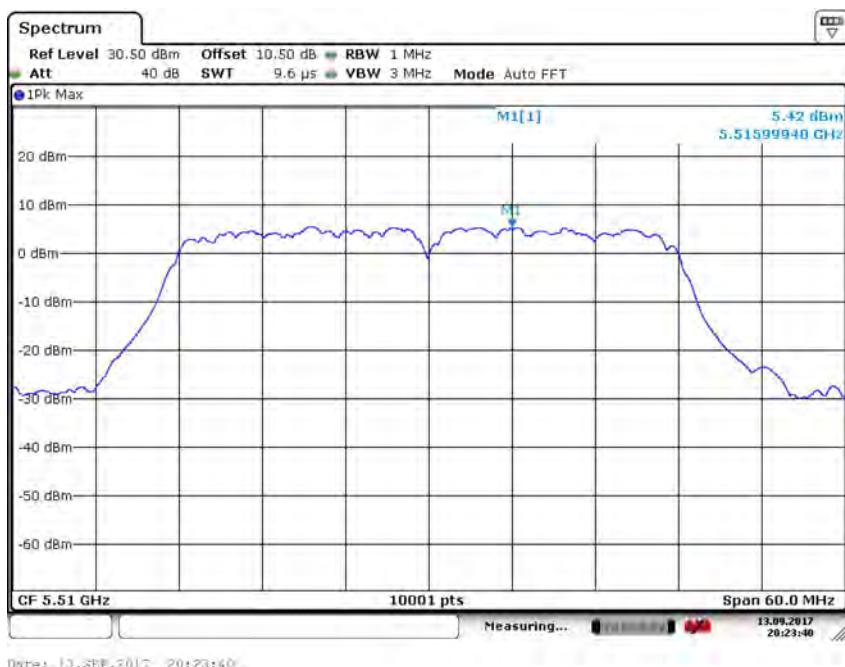
Carrier frequency (MHz): 5580  
Test Mode: 802.11ac (HT20)



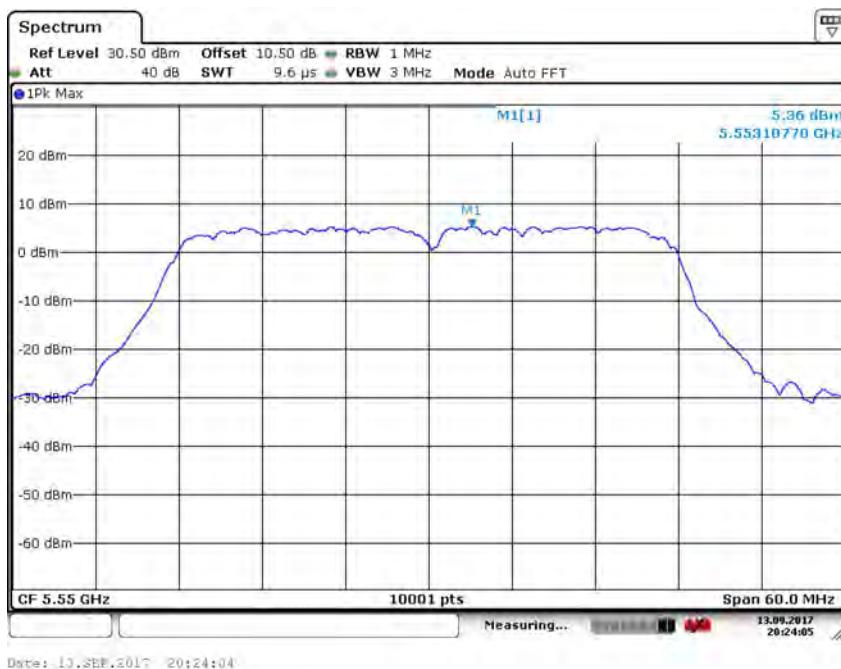
Carrier frequency (MHz): 5720  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

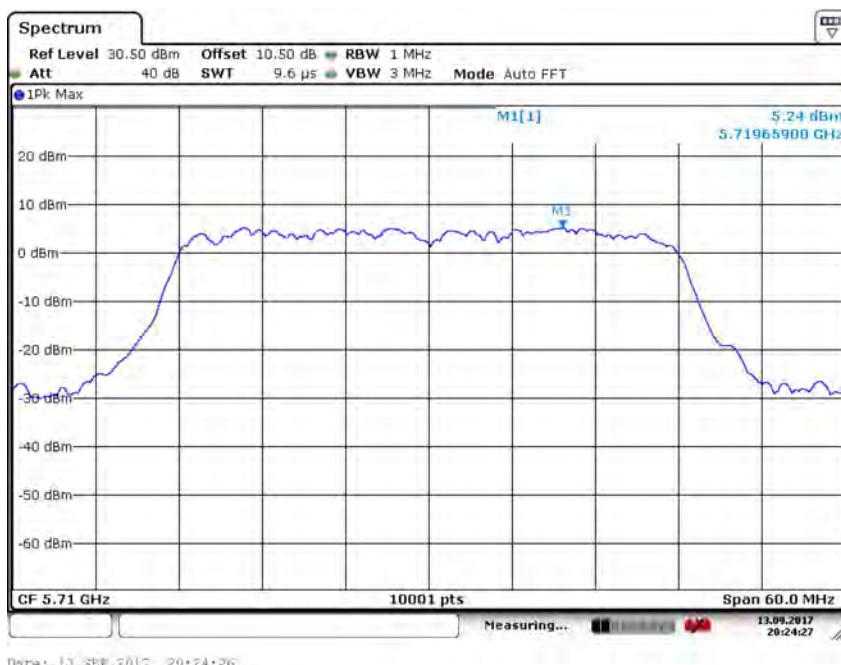
Carrier frequency (MHz)	Power Density (dBm)
5510	5.42
5550	5.36
5710	5.24



Carrier frequency (MHz): 5510  
 Test Mode: 802.11ac (HT40)



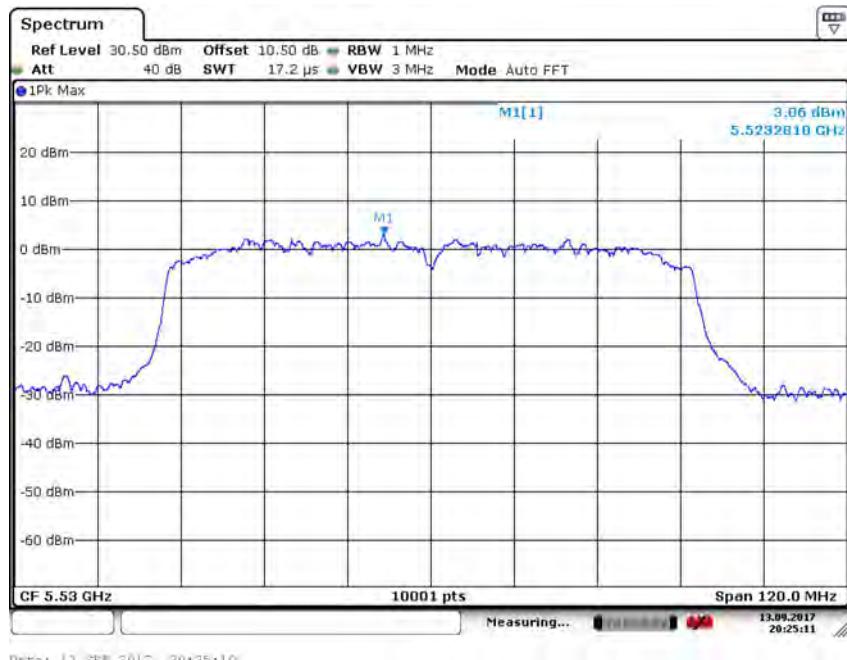
Carrier frequency (MHz): 5550  
Test Mode: 802.11ac (HT40)



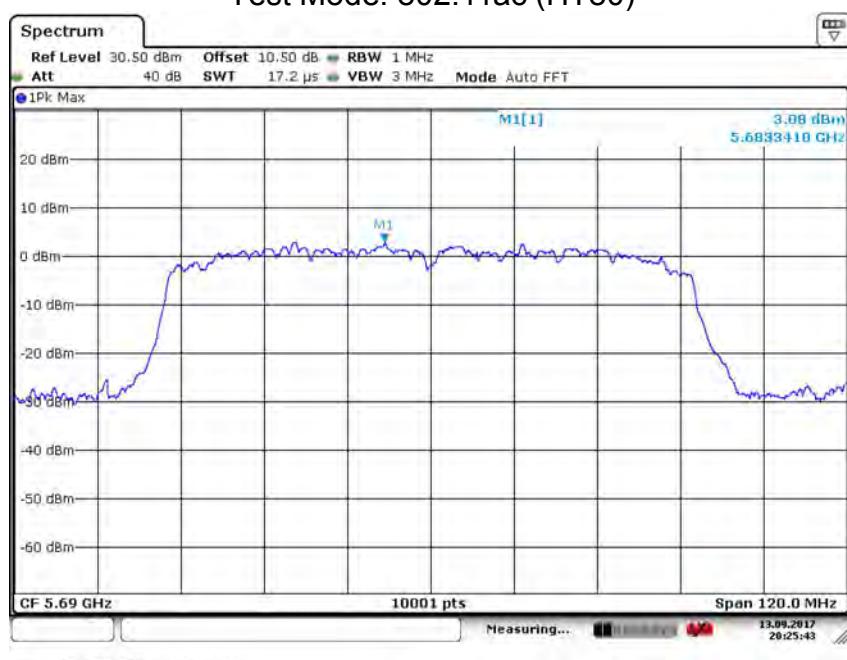
Carrier frequency (MHz): 5710  
Test Mode: 802.11ac (HT40)

## Test Mode: 802.11ac (HT80)

Carrier frequency (MHz)	Power Density (dBm)
5530	3.06
5690	3.08



Carrier frequency (MHz): 5530  
Test Mode: 802.11ac (HT80)

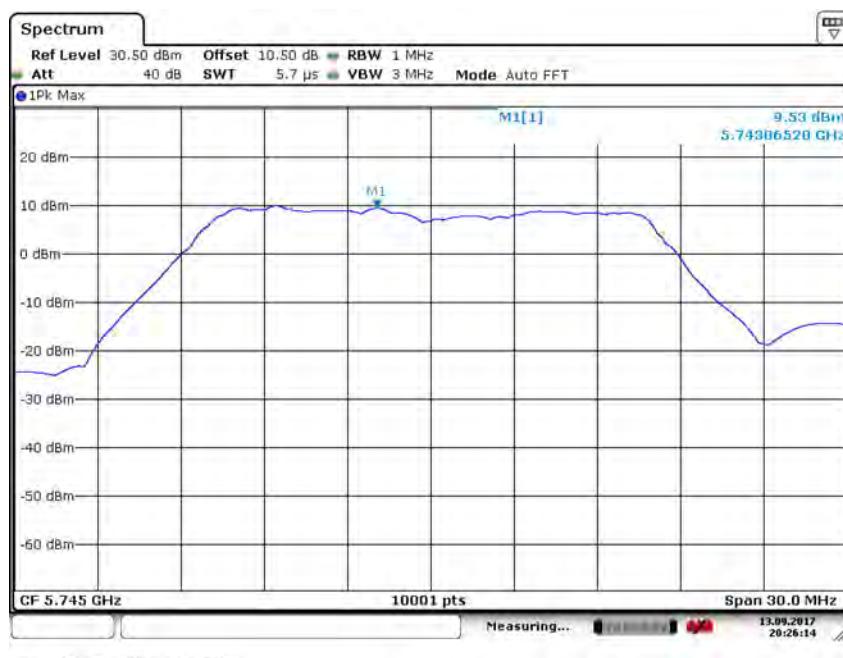


Carrier frequency (MHz): 5690  
Test Mode: 802.11ac (HT80)

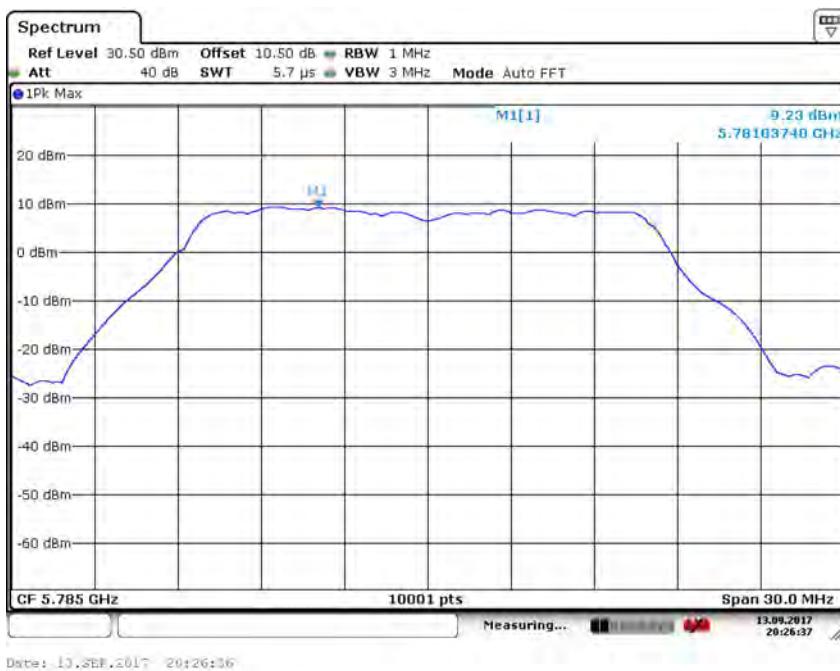
5725MHz~5825MHz

Test Mode: 802.11a

Carrier frequency (MHz)	Power Density (dBm)
5745	9.53
5785	9.23
5825	9.56



Carrier frequency (MHz): 5745  
Test Mode: 802.11a



Carrier frequency (MHz): 5785  
Test Mode: 802.11a



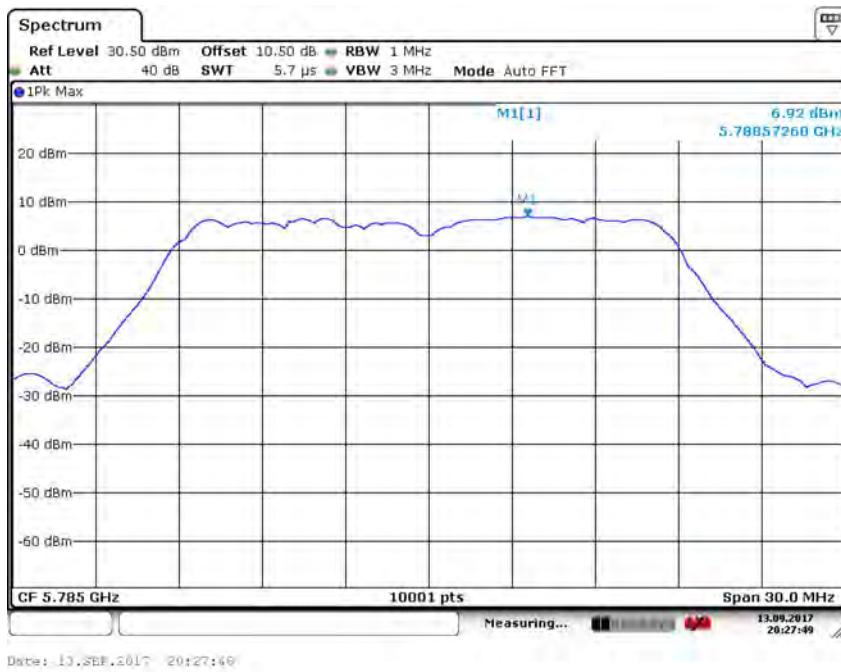
Carrier frequency (MHz): 5825  
Test Mode: 802.11a

## Test Mode: 802.11n (HT20)

Carrier frequency (MHz)	Power Density (dBm)
5745	6.60
5785	6.92
5825	6.59



Carrier frequency (MHz): 5745  
Test Mode: 802.11n (HT20)



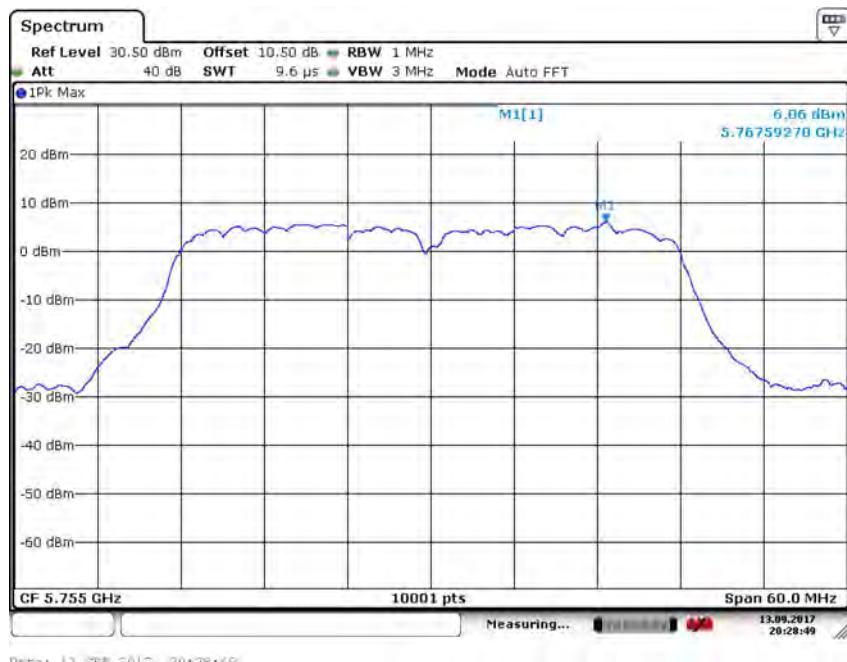
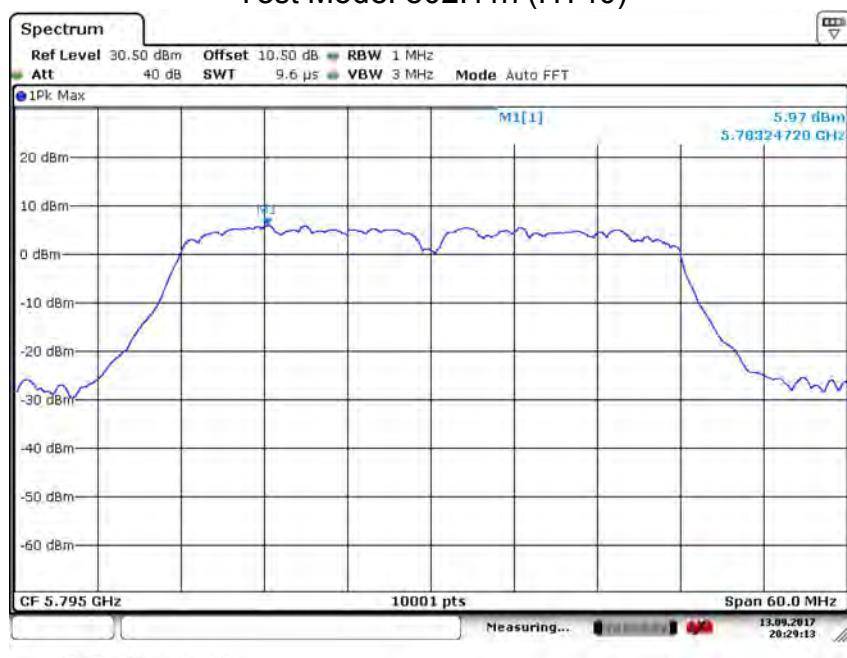
Carrier frequency (MHz): 5785  
Test Mode: 802.11n (HT20)



Carrier frequency (MHz): 5825  
Test Mode: 802.11n (HT20)

## Test Mode: 802.11n (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5755	6.06
5795	5.97


 Carrier frequency (MHz): 5755  
 Test Mode: 802.11n (HT40)

 Carrier frequency (MHz): 5795  
 Test Mode: 802.11n (HT40)

## Test Mode: 802.11ac (HT20)

Carrier frequency (MHz)	Power Density (dBm)
5745	6.54
5785	6.74
5825	7.00



Carrier frequency (MHz): 5745  
Test Mode: 802.11ac (HT20)



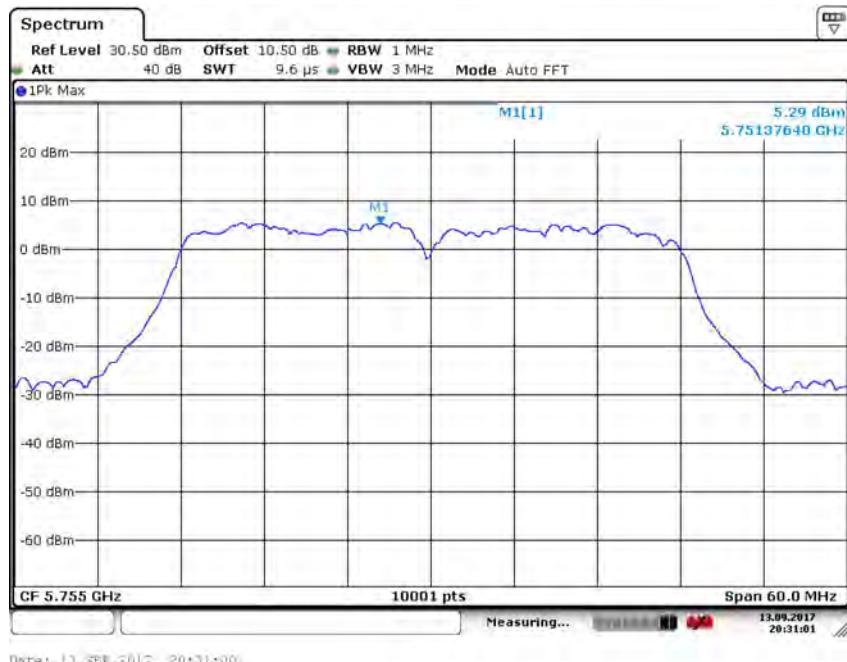
Carrier frequency (MHz): 5785  
Test Mode: 802.11ac (HT20)



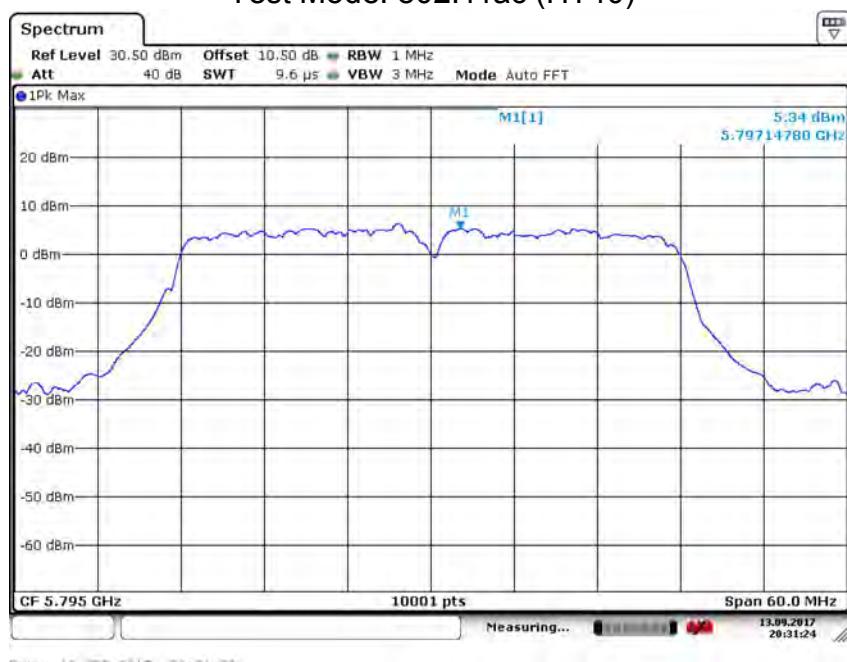
Carrier frequency (MHz): 5825  
Test Mode: 802.11ac (HT20)

## Test Mode: 802.11ac (HT40)

Carrier frequency (MHz)	Power Density (dBm)
5755	5.29
5795	5.34



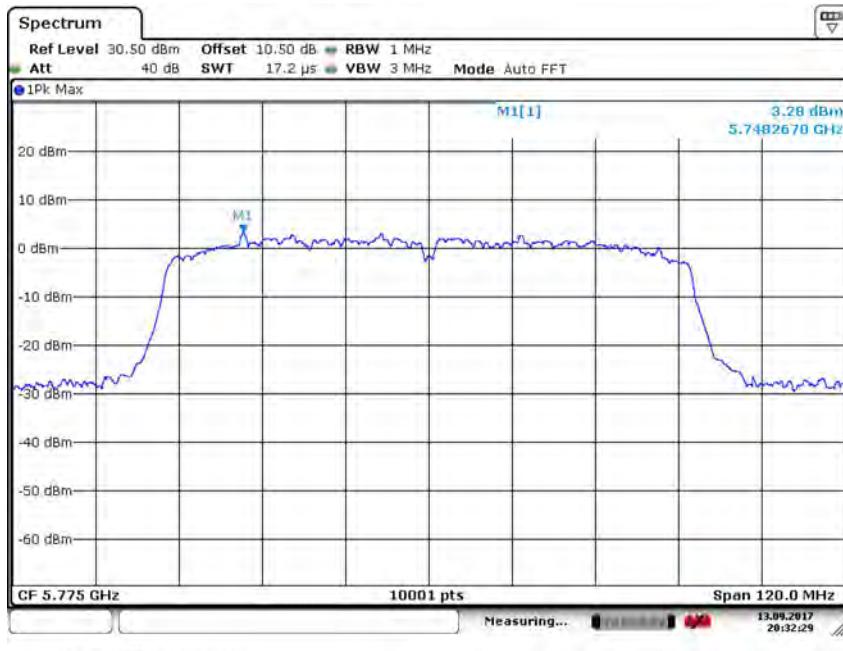
Carrier frequency (MHz): 5755  
Test Mode: 802.11ac (HT40)



Carrier frequency (MHz): 5795  
Test Mode: 802.11ac (HT40)

Test Mode: 802.11ac (HT80)

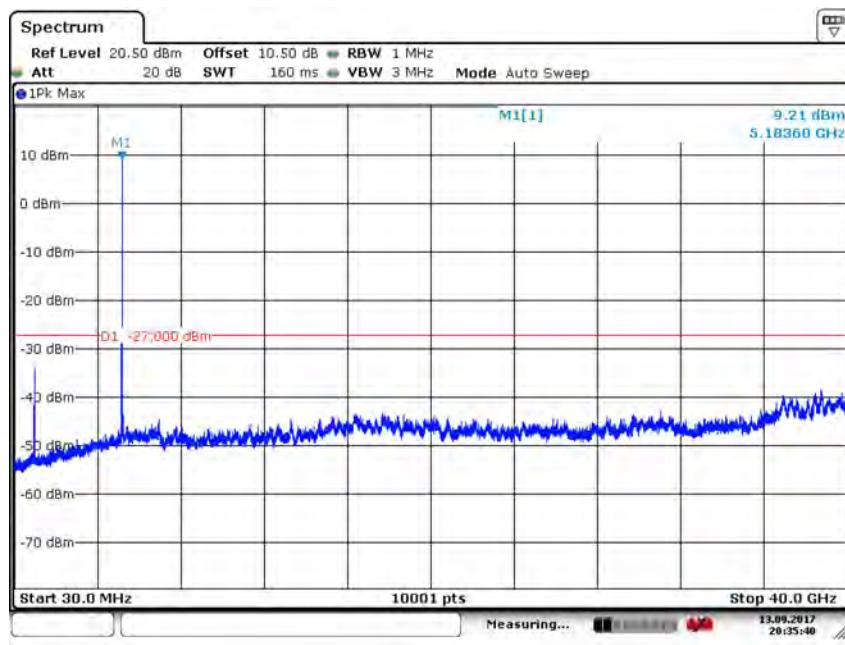
Carrier frequency (MHz)	Power Density (dBm)
5775	3.28



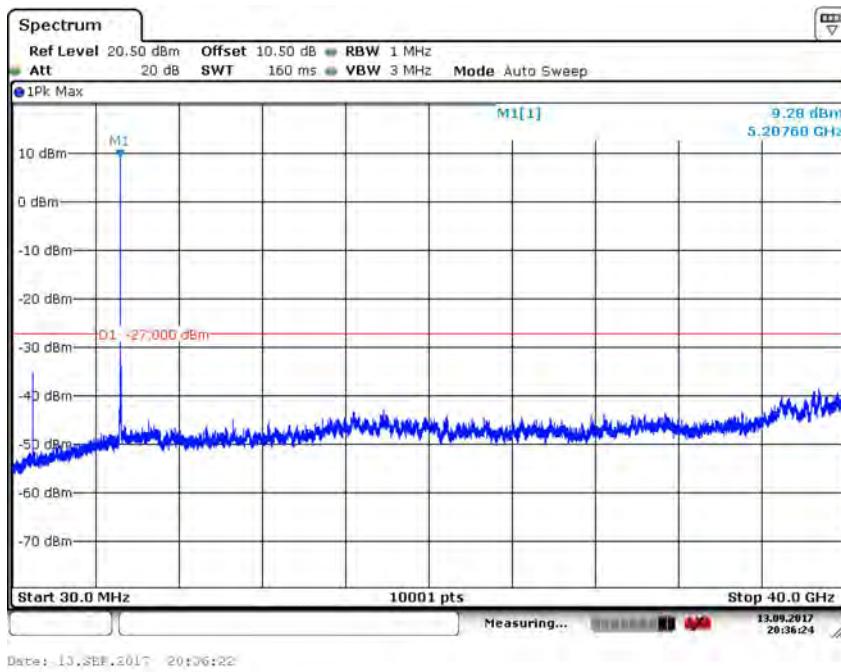
Carrier frequency (MHz): 5775  
Test Mode: 802.11ac (HT80)

**Unwanted Conducted Emission Measurement**  
5150MHz~5250MHz

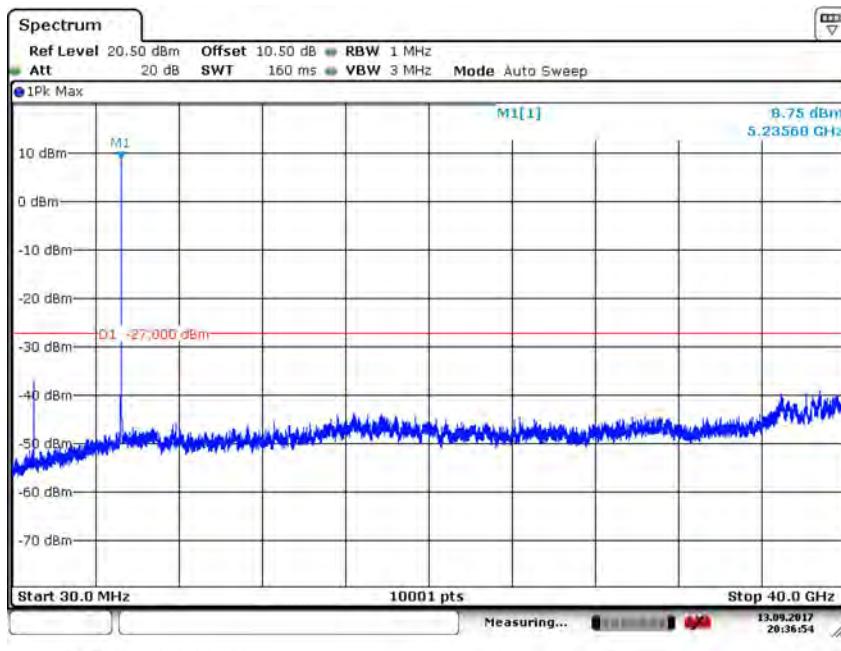
Test Mode: 802.11a



Carrier frequency (MHz): 5180  
Test Mode: 802.11a

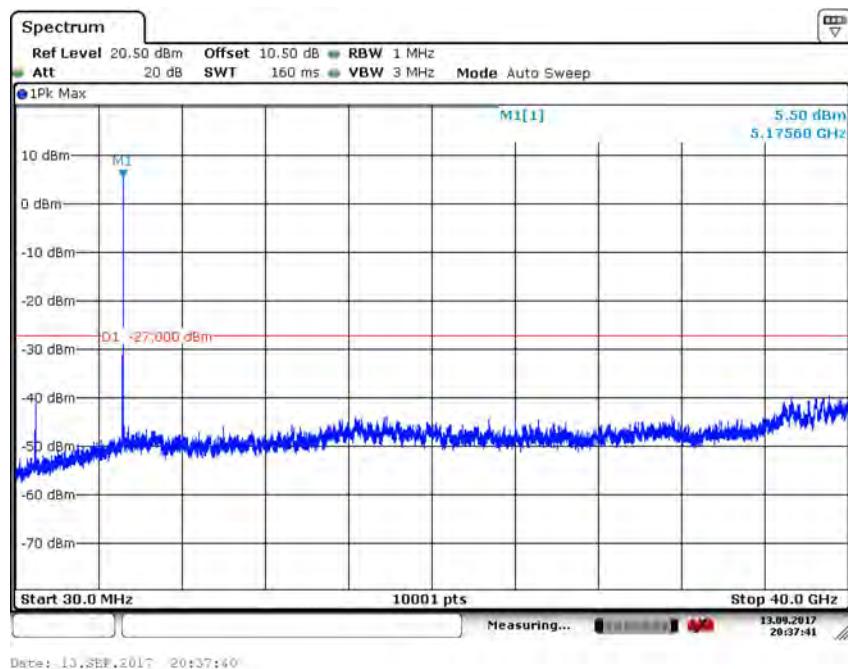


Carrier frequency (MHz): 5200  
Test Mode: 802.11a

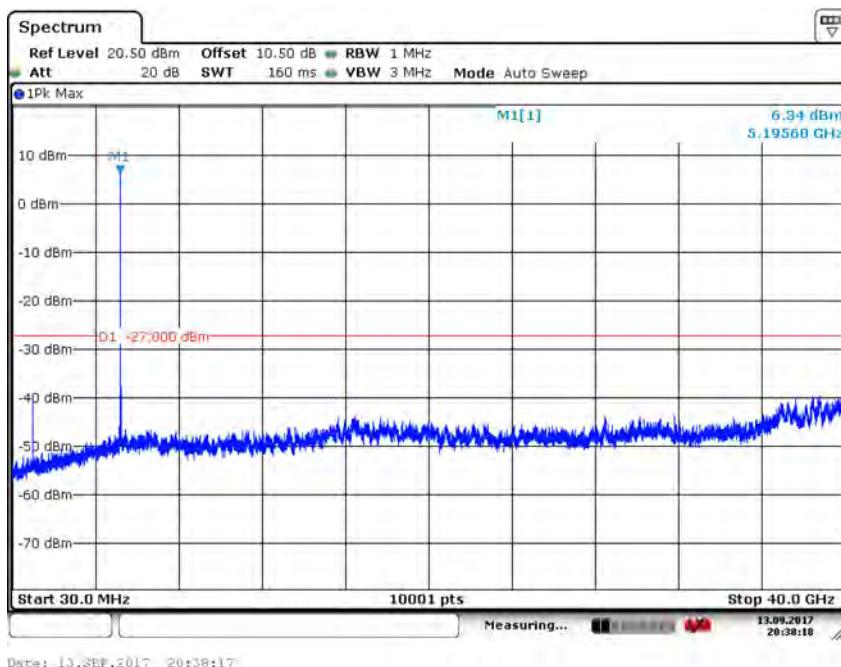


Carrier frequency (MHz): 5240  
Test Mode: 802.11a

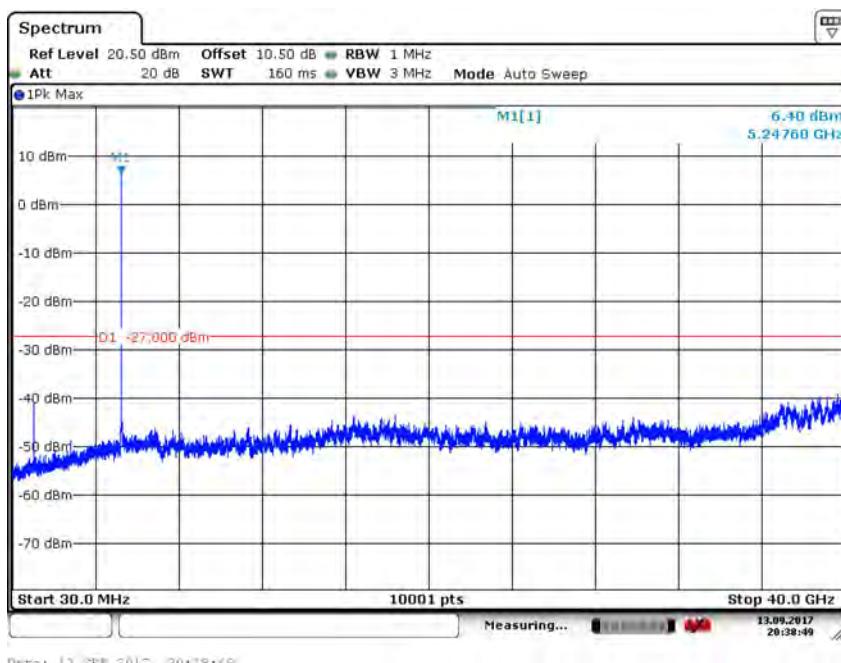
Test Mode: 802.11n (HT20)



Carrier frequency (MHz): 5180  
Test Mode: 802.11n (HT20)

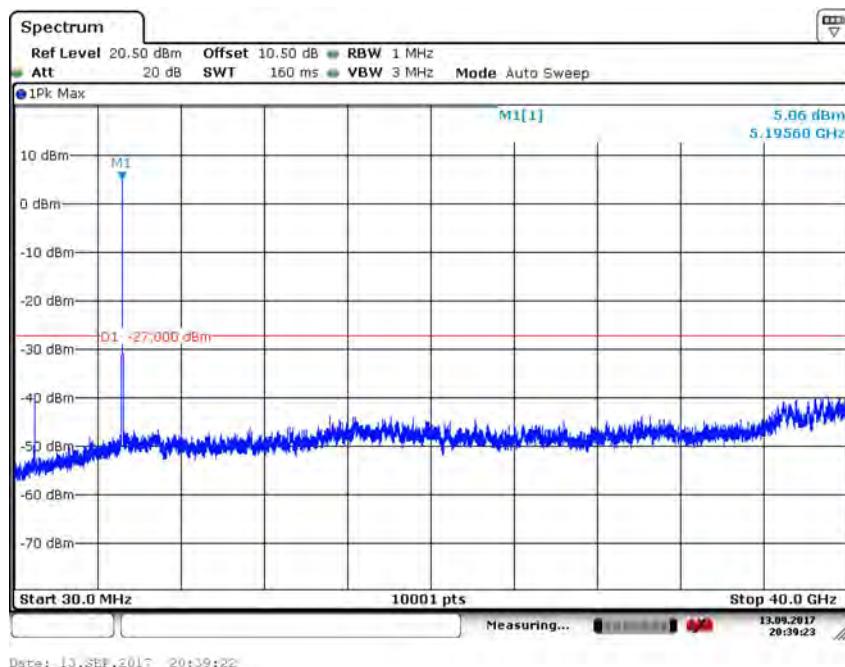


Carrier frequency (MHz): 5200  
 Test Mode: 802.11n (HT20)

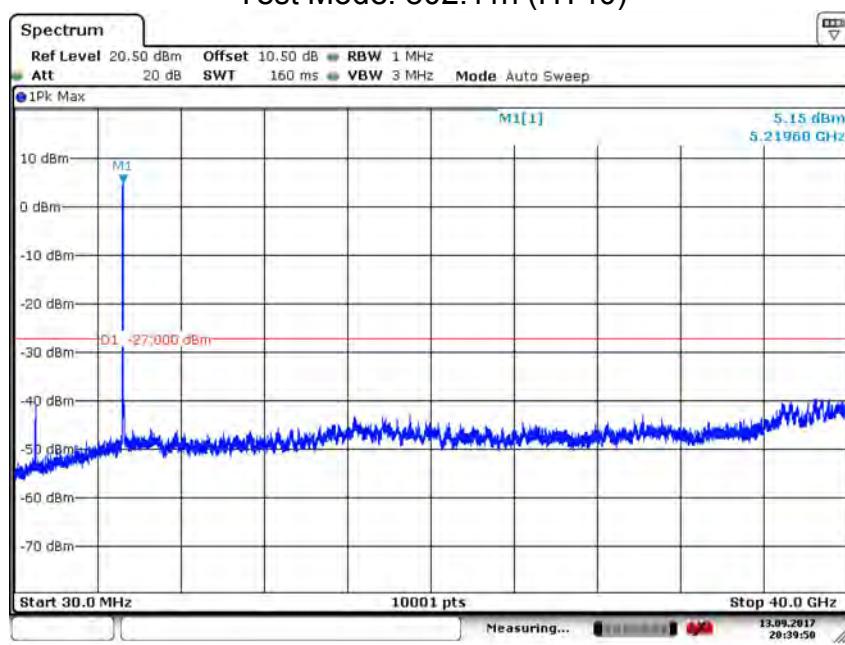


Carrier frequency (MHz): 5240  
 Test Mode: 802.11n (HT20)

Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5190  
Test Mode: 802.11n (HT40)



Carrier frequency (MHz): 5230  
Test Mode: 802.11n (HT40)