TESTING (OR CALIBRATION)
NVLAP LAB CODE 600141-0

Registration
No.788871

TEST REPORT FOR WLAN TESTING

Report No: SRTC2019-9004(F)-19010203(G)

Product Name: LTE Ufi

Product Model: 802ZT

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part 15, Subpart E (2019)

FCC ID: SRQ-MF993

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30, Shixing Street, Shijingshan District,

Beijing, P.R.China

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1. GENERAL INFORMATION

1.1 Notes of the test report

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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
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1.3 Applicant's details

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Country or Region:	P.R.China
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1.4 Manufacturer's details

Company:	ZTE Corporation
Address:	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District,Guangdong
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Yang Zhao
Tel:	029-83600770
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Email:	zhao.yangxa@zte.com.cn

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2019-01-02
Testing Start Date:	2019-01-02
Testing End Date:	2019-02-18

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	22	30
Maximum Extreme	55	---
Minimum Extreme	-10	---

Normal Supply Voltage (V d.c.):	3.730
Maximum Extreme Supply Voltage (V d.c.):	4.103
Minimum Extreme Supply Voltage (V d.c.):	3.357

2. DESCRIPTION OF THE DEVICE UNDER TEST

2.1Final Equipment Build Status

Frequency Band(s)	U-NII-1:5150MHz-5250MHz
Modulation Type	802.11a/n (HT20/HT40) 802.11ac (HT20.HT40/HT80)
Antenna Type	Fixed Internal Antenna
Antenna Gain	Antenna 1: 2.93 dB Antenna 2: 2.41 dB
Power Supply	Battery/AC adapter
HW Version	MF993H01
SW Version	MF993S01
IMEI	863942040004235

2.2Wireless Technology and Frequency Range

Wireless Technology		Bandwidth	Channel	Frequency(MHz)
Wi-Fi	U-NII-1	20MHz	36	5180
			40	5200
			44	5220
			48	5240
		40MHz	38	5190
			46	5230
		80MHz	42	5210

Duty Cycle Result

Mode	Duty Cycle (%)	Correction Factor(dB)	Mode	Duty Cycle (%)	Correction Factor(dB)
11a	96.12%	0.170	11ac HT20	97.34%	0.120
11n HT20	98.92%	0.000	11ac HT40	96.27%	0.170
11n HT40	98.94%	0.000	11ac HT80	95.37%	0.210

Note

Mode	Frequency (MHz)	99%BW (MHz)	Max frequency edge(MHz)	Max frequency edge limit(MHz)
802.11a	5240	16.599	5248.30	5250
802.11n HT20	5240	17.902	5248.95	5250
802.11n HT40	5230	36.214	5248.11	5250
802.11ac VHT80	5210	75.720	5247.86	5250
Max frequency edge(MHz)= Frequency(MHz)+ 99%BW(MHz)/2 The last channel of UNII-1 does not cross UNII-2a and does not cross the DFS band.				

2.3 Support Equipment

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

Equipment	Battery
Manufacturer	Jiade Energy Technology(Zhuhai)Co.,Ltd.
Model Number	Li3730T43P4h794667
Serial Number	---

Equipment	USB cable
Manufacturer	King Power Electronics Co., Ltd.
Model Number	80410500042
Serial Number	---

2.4 Note

Automatically Discontinue Transmission	
Description	The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.
Result	While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

The antenna provide to the EUT, please refer to the following table:

Brand	Model	Antenna gain	Frequency Bands(GHz)	Antenna type	Connecter Type
N/A	N/A	Ant1:2.93dBi Ant2:2.41dBi	5150MHz-5250MHz	Fixed Internal Antenna	N/A
Manufacturers ensure that their designs will not be modified by the user or third parties arbitrary antenna parameters and performance.					

3 REFERENCE SPECIFICATION

Specification	Version	Title
15.35	2019	Measurement detector functions and bandwidths.
15.209	2019	Radiated emission limits; general requirements.
15.205	2019	Restricted bands of operation.
15.207	2019	Conducted limits.
15.407	2019	General technical requirements
ANSI C63.10	2013	Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB 644545 D03	August 14, 2014	GUIDANCE FOR IEEE Std 802.11ac™ DEVICES EMISSION TESTING
KDB 905462 D03	August 22, 2016	U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY
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
KDB 662911 D01	October 31, 2013	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
KDB 789033 D02	December 14, 2017	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E

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.

5. RESULT SUMMARY

No.	Test case	FCC reference	Verdict
1.	Average Conducted Output Power	15.407(a)	Pass
2.	Occupied Bandwidth	15.407(e)	Pass
3.	Transmitter Power Spectral Density	15.407(a)	Pass
4.	Unwanted Conducted Emission Measurement	15.407(b)	Pass
5.	Frequency Stability	15.407(g)	Pass
6.	Unwanted Radiated Emission Measurement	15.205 15.209 15.35(b)	Pass
7.	AC Power line Conducted Emission	15.207	Pass
8.	DFS	15.407(h)	N/T
9.	Automatically Discontinue Transmission	15.407(c)	Pass(See 2.4Note)
10.	Antenna Requirements	15.407(a) &15.203	Pass(See 2.4Note)

This Test Report Is Issued by: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. He Dengshun	Issued date: 20190220

6 TEST RESULT

6.1 Average Conducted Output Power

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) ,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

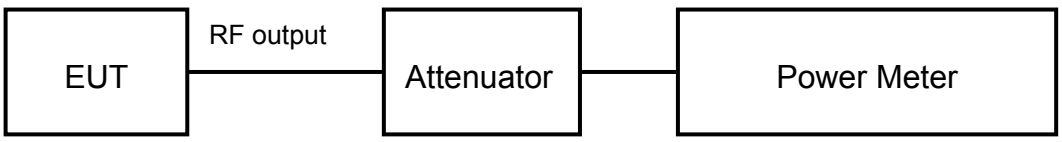
(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 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)(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 11.0 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) ,
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 v02r01, Section E.3.b (Method PM-G).

6.1.5 Test Settings
Measurements perform using a wideband gated RF power meter.

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. This connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies.

6.2.3 Test limit

Rule FCC Part §15.407(e)

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

6.2.4 Test Procedure Used

KDB 789033 D02 v02r01, Section D.

6.2.5 Test Settings

For U-NII-1, set RBW ≈1% OCB kHz, VBW≥3×RBW, 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 26 dB relative to the maximum level measured in the fundamental emission.

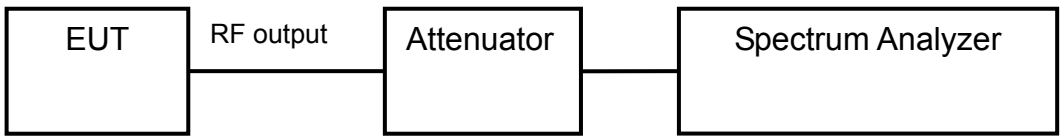
For U-NII-3, Set RBW =100 kHz, VBW≥3×RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

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 Transmitter Power Spectral Density

6.3.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

6.3.2 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.

6.3.3 Test limit

FCC Part15.407 (a)(1) ,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 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 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power

over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 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)(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 11.0 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)，

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.

6.3.4 Test Procedure Used

KDB 789033 D02 v02r01, Section F.

6.3.5 Test Settings

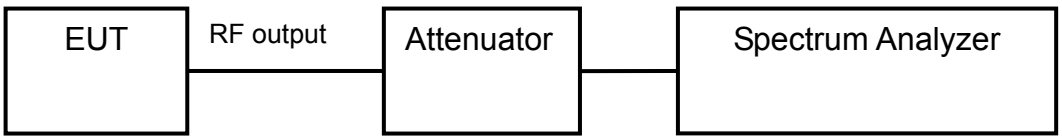
Set RBW = 500 kHz, VBW =1.5MHz for the band 5.725-5.85 GHz

Set RBW = 1 MHz, VBW =3MHz for the band 5.150-5.250 GHz，5.250-5.350 GHz and 5.470-5.725 GHz.

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

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 Unwanted Conducted Emission Measurement

6.4.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	40%	101.5kPa

6.4.2 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.

6.4.3 Test limit

FCC Part 15.407(b) ,
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.

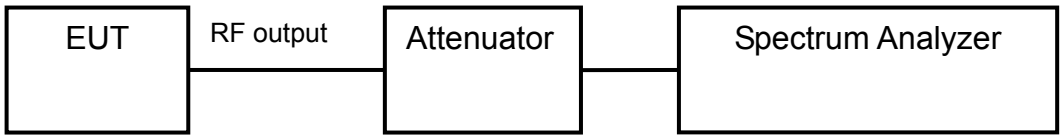
6.4.4 Test Procedure Used

KDB 789033 D02 v02r01, Section G.

6.4.5 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 ≥ 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.

6.4.6 Test Setup



6.4.7 Test result

The test results are shown in Appendix A.

6.5 Frequency Stability

6.5.1 Ambient condition

Temperature	Relative humidity	Pressure
20.8°C	36.5%	100.9kPa

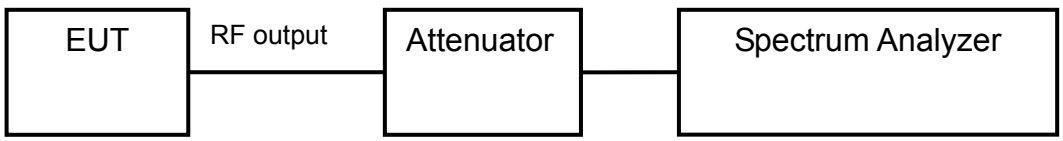
6.5.2 Test limit

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 user's manual.

6.5.3 Test Procedure Used

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

6.5.4 Test Setup



6.5.5 Test result

The test results are shown in Appendix A.

6.6 Unwanted Radiated Emission Measurement

6.6.1 Ambient condition

Temperature	Relative humidity	Pressure
20.8°C	36.5%	100.9kPa

6.6.2 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.

6.6.3 Test limit

FCC Part15.205, 15.209,;

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

6.6.4 Test Procedure Used

KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

6.6.5 Test Settings

Average Field Strength Measurements

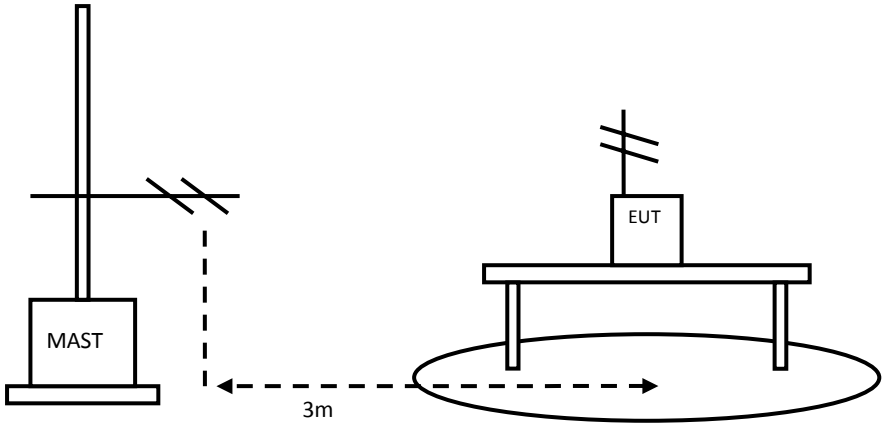
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be > 2 x span/RBW)
6. Sweep time = auto
7. Trace (RMS) averaging was performed 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

6.6.6 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.

6.6.7 Test result

The test results are shown in Appendix B.

6.7 AC Power line Conducted Emission

6.7.1 Ambient condition

Temperature	Relative humidity	Pressure
20.8°C	36.5%	100.9kPa

6.7.2 Test limit

FCC Part 15.207(a) ,

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

The measurement is made according to ANSI C63.10-2013

6.7.3 Test result

The test results are shown in Appendix B.

6.8 Dynamic Frequency Selection

6.8.1 Ambient condition

Temperature	Relative humidity	Pressure
22°C	30%	101.5kPa

6.8.2 Test limit

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

6.8.3 DFS Overview

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

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	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
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	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 ≥ 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. **Note3:** 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**
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	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 $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	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
Note 1: 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

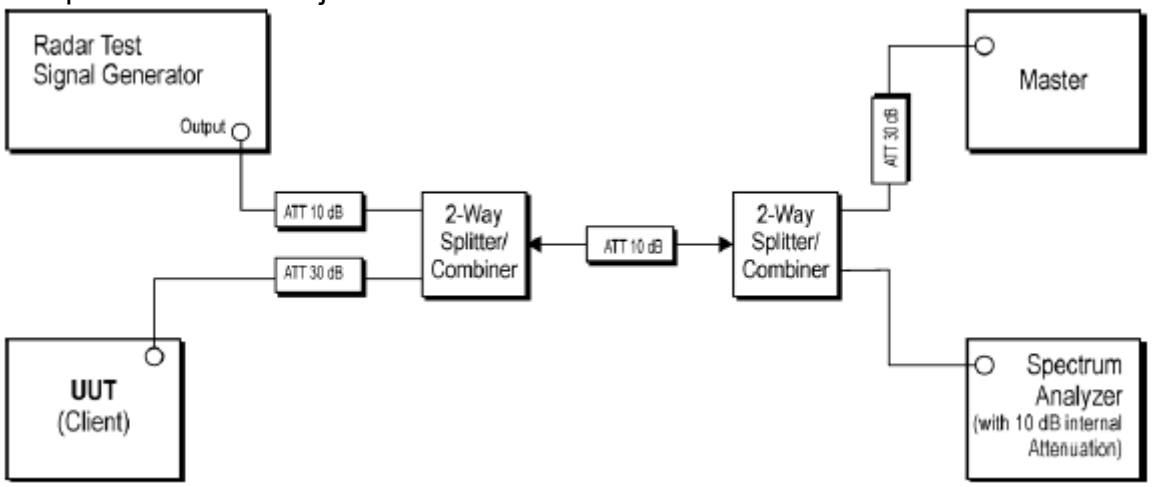
Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per *Burst*	Number of *Bursts*	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Waveform

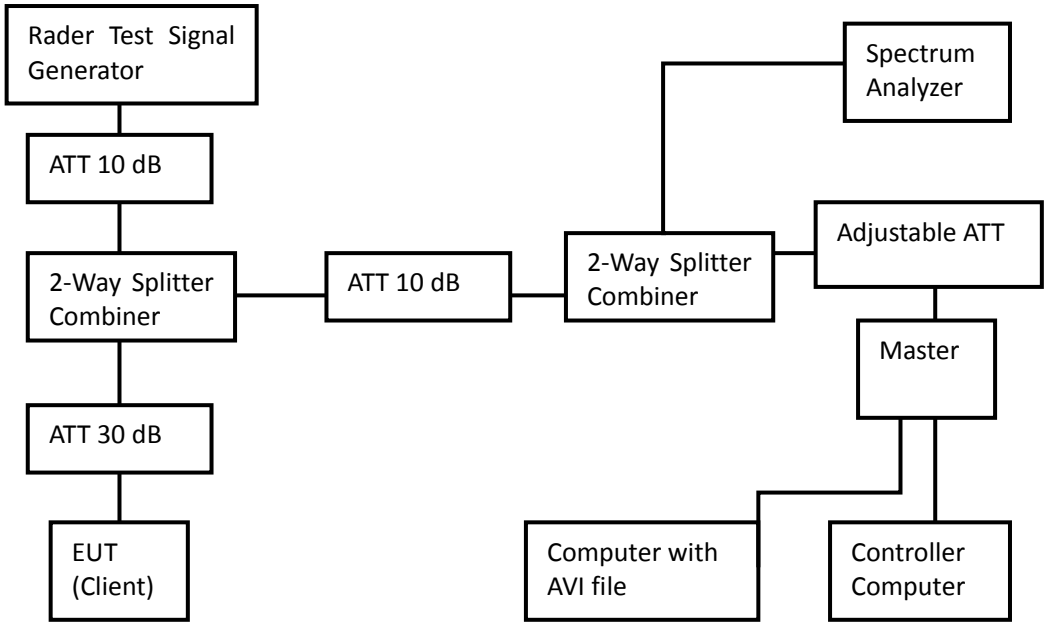
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

6.8.4 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.

This file is used by IP and Frame based systems for loading the test channel during the

In-service compliance testing of the device.

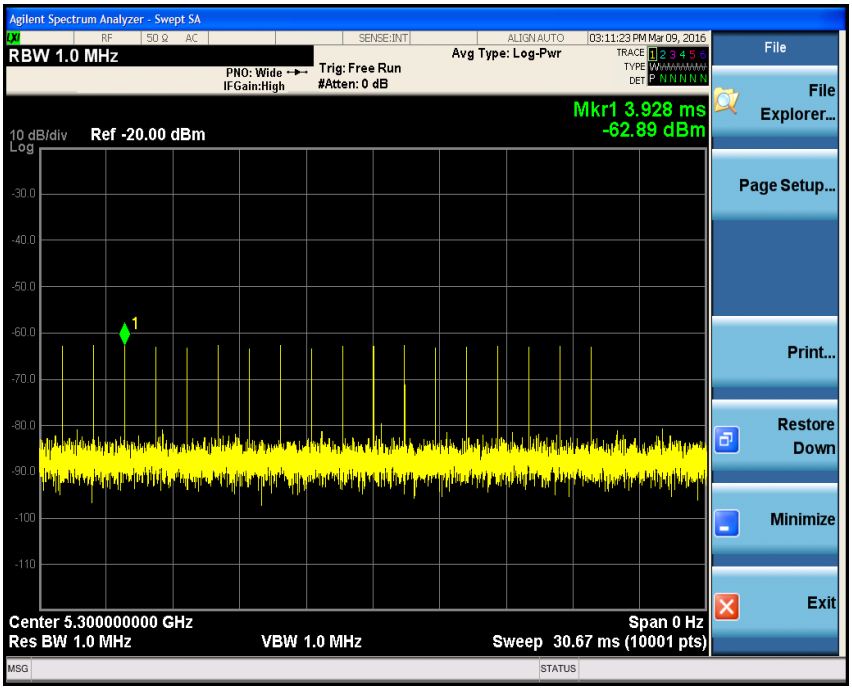
The waveform parameters from within the bounds of the signal type are selected randomly using uniform distribution.

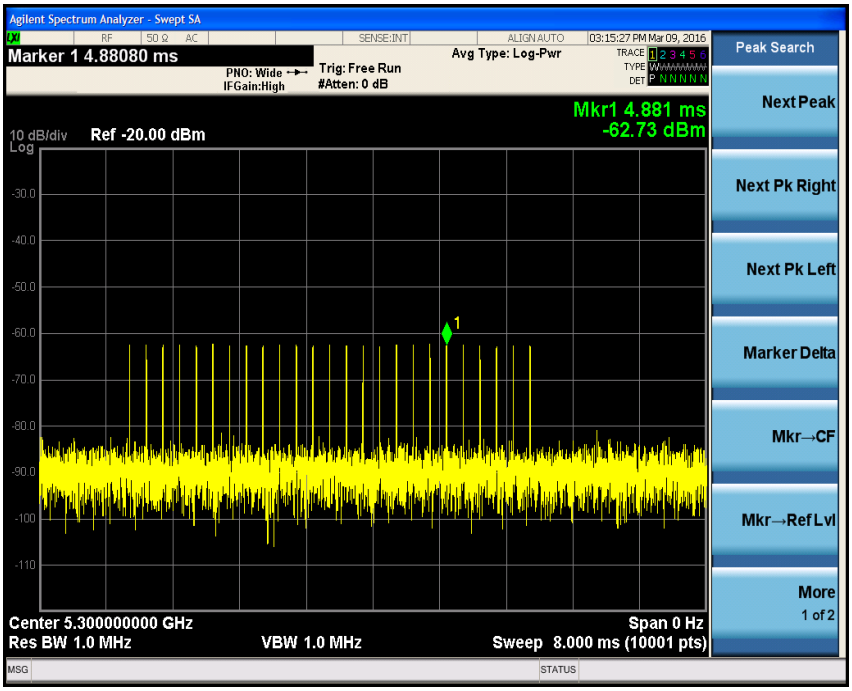
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel move. It is also used to monitor EUT transmissions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

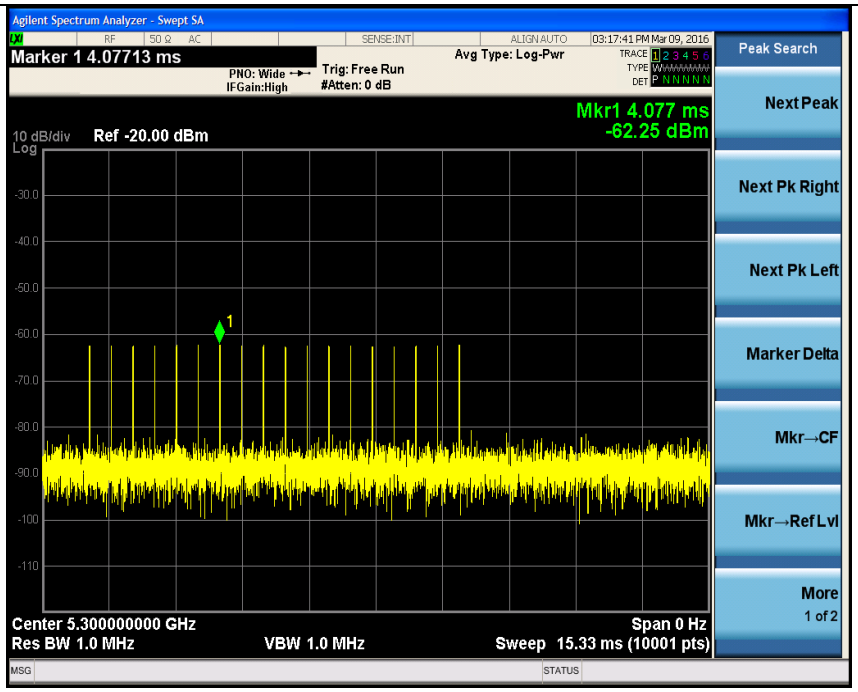
6.8.5 Test Procedure Used

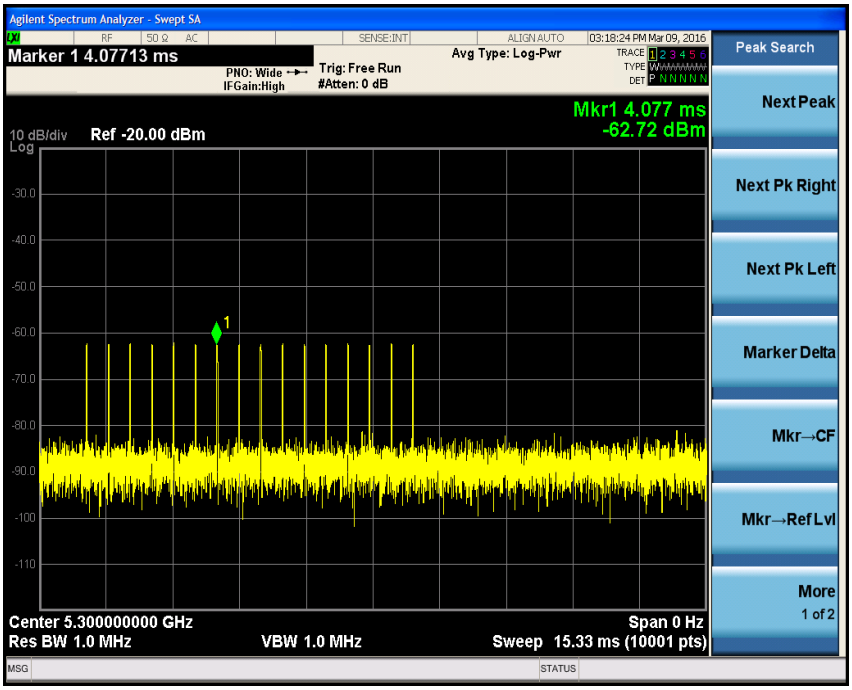
(i) Operational Modes. The DFS requirement applies to the following operational modes:
(A) The requirement for channel availability check time applies in the master operational mode.
(B) The requirement for channel move time applies in both the master and slave operational modes.
(ii) Channel Availability 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.

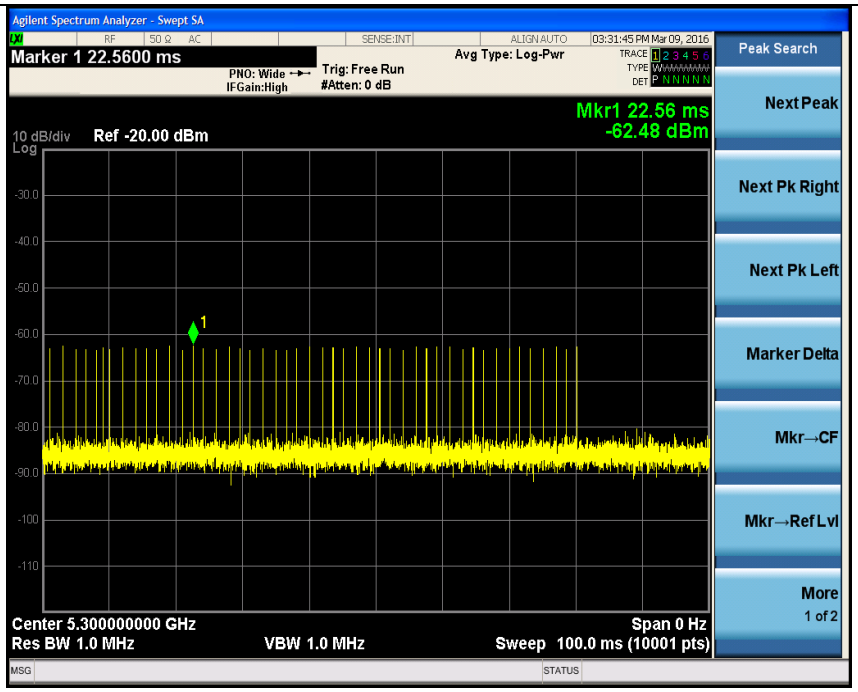
6.8.6 RADAR WAVEFORM

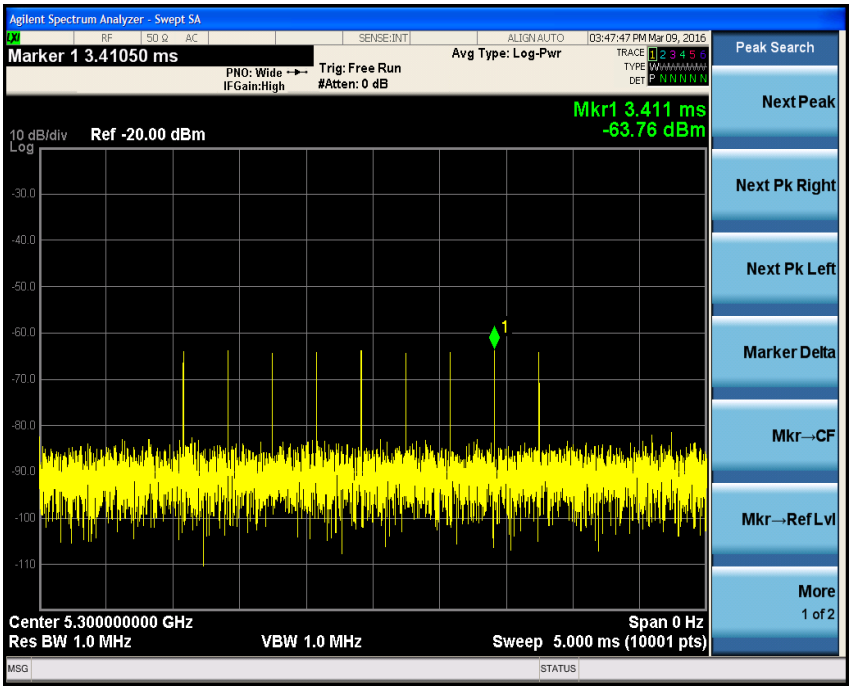





Agilent Spectrum Analyzer - Swept SA
Marker 1 4.07713 ms
PNO: Wide
IFGain:High
Trig: Free Run
#Atten: 0 dB
Avg Type: Log-Pwr
03:17:41 PM Mar 09, 2016
Mkr1 4.077 ms
-62.25 dBm
10 dB/div
Log
Ref -20.00 dBm
Center 5.300000000 GHz
Res BW 1.0 MHz
VBW 1.0 MHz
Span 0 Hz
Sweep 15.33 ms (10001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 4.07713 ms
PNO: Wide
IFGain:High
Trig: Free Run
#Atten: 0 dB
Avg Type: Log-Pwr
03:18:24 PM Mar 09, 2016
Mkr1 4.077 ms
-62.72 dBm
10 dB/div
Log
Ref -20.00 dBm
Center 5.300000000 GHz
Res BW 1.0 MHz
VBW 1.0 MHz
Span 0 Hz
Sweep 15.33 ms (10001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2





6.8.7 Test result

The test results are shown in Appendix A.

Note：The EUT only operates in the 5150-5250MHz and 5725-5850MHz frequency bands and does not involve the DFS frequency band, so there is no test.

7 MEASUREMENT UNCERTAINTIES

Items	Uncertainty	
Occupied Bandwidth	3kHz	
Output Power	0.67dB	
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.	Name/ Model	Manufacturer	S/N	Cal date	Cal Due date
1.	Spectrum Analyzer FSV	ROHDE&SCHWARZ	101065	2018.08.20	2019.08.19
2.	Signal Analyzer N9020A	Agilent	MY48010771	2018.08.20	2019.08.19
3.	Chamber SH-241	ESPEC	92013758	2018.08.20	2019.08.19
4.	DC Power Apply E3645A	Agilent	MY40000741	2018.03.01	2019.02.28
5.	Power Meter E4416A	Agilent	MY52370013	2018.03.01	2019.02.28
6.	Power Sensor E9327A	Agilent	MY52420006	2018.03.01	2019.02.28
7.	12.65m×8.03m×7.50m Fully-Anechoic Chamber	FRANKONIA	-----	-----	-----
8.	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	---	-----	-----
9.	Turn table Diameter:1m	HD	-----	-----	-----
10.	Turn table Diameter:5m	HD	-----	-----	-----
11.	Antenna master FAC(MA4.0)	MATURO	-----	-----	-----
12.	Antenna master SAC(MA4.0)	MATURO	-----	-----	-----
13.	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	-----	-----
14.	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	2018.08.20	2019.08.19
15.	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	2018.08.20	2019.08.19
16.	HL562 Ultra log antenna	R&S	100016	2018.08.20	2019.08.19
17.	3160-09 Receive antenna	SCHWARZ-BECK	002058-002	2018.08.20	2019.08.19
18.	ESI 40 EMI test receiver	R&S	100015	2018.08.20	2019.08.19
19.	Radio tester	CMU 200	114667	2018.08.20	2019.08.19
20.	ESCS30 EMI test receiver	R&S	100029	2018.08.20	2019.08.19
21.	HL562 Receive antenna	R&S	100167	2018.08.20	2019.08.19
22.	ESH3-Z5 LISN	R&S	100020	2018.08.20	2019.08.19

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 A – TEST DATA OF CONDUCTED EMISSION

Output Power Result

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
802.11a	6Mbps
802.11n HT20	MCS0(6.5 Mbps)
802.11n HT40	MCS0(13.5 Mbps)
802.11ac HT20	MCS0(6.5 Mbps)
802.11ac HT40	MCS0(13.5 Mbps)
802.11ac HT80	MCS0(29.3 Mbps)

Directional Antenna Gain

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain1 Antenna Gain(dBi)	Chain2 Antenna Gain(dBi)	Correlated Chains Directional Gain(dBi)
2.93	2.41	5.69

Antenna Gain and Limits

Frequency (MHz)	Correlated Chains Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
5180	5.69	24.0	11.0
5200	5.69	24.0	11.0
5240	5.69	24.0	11.0
5190	5.69	24.0	11.0
5230	5.69	24.0	11.0
5210	5.69	24.0	11.0

Output Power

Test Mode	Ant	Average Power(dBm)			Limit(dBm)
		5180 MHz	5200 MHz	5240MHz	
802.11a	Ant1	14.46	14.54	14.38	24.0
802.11a	Ant2	14.82	14.86	14.78	24.0
802.11n HT20	Ant1	13.48	13.63	13.43	24.0
802.11n HT20	Ant2	14.03	13.97	13.85	24.0
802.11n HT20	MIMO	16.77	16.81	16.66	24.0
802.11ac VHT20	Ant1	11.75	11.82	11.62	24.0
802.11ac VHT20	Ant2	12.07	12.06	12.03	24.0
802.11ac VHT20	MIMO	14.92	14.95	14.84	24.0
Test Mode	Ant	Average Power(dBm)			Limit(dBm)
		5190 MHz	5230 MHz		
802.11n HT40	Ant1	13.86	13.85		24.0
802.11n HT40	Ant2	14.23	14.18		24.0
802.11n HT40	MIMO	17.06	17.03		24.0
802.11ac VHT40	Ant1	12.10	12.04		24.0
802.11ac VHT40	Ant2	12.29	12.32		24.0
802.11ac VHT40	MIMO	15.21	15.19		24.0
Test Mode	Ant	Average Power(dBm)			Limit(dBm)
		5210 MHz			
802.11ac VHT80	Ant1	11.37			24.0
802.11ac VHT80	Ant2	11.64			24.0
802.11ac VHT80	MIMO	14.52			24.0

We chose the Worst-modes are shown as following table:

Test Mode	Ant	Note
802.11a	SISO Ant2	---
802.11n HT20	SISO Ant2	Cover 802.11ac VHT20
802.11n HT40	SISO Ant2	Cover 802.11ac VHT40
802.11ac VHT80	SISO Ant2	---
802.11n HT20	MIMO Ant1+Ant2	Cover 802.11ac VHT20
802.11n HT40	MIMO Ant1+Ant2	Cover 802.11ac VHT40
802.11ac VHT80	MIMO Ant1+Ant2	---

Occupied Bandwidth

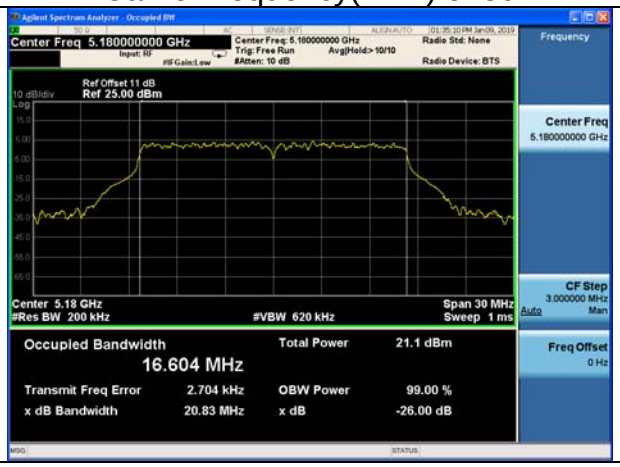
Offset 11dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 0.8dB

U-NII-1

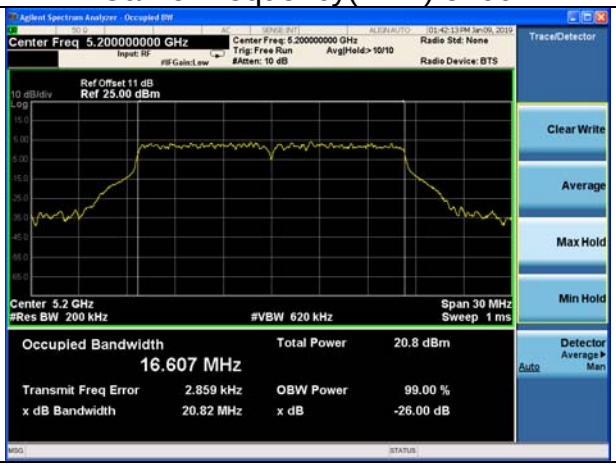
Test Mode: 802.11a (SISO Ant2)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	16.604	20.83	pass
5200	16.607	20.82	pass
5240	16.599	20.78	pass

802.11a
Carrier frequency(MHz):5180



802.11a
Carrier frequency(MHz):5200



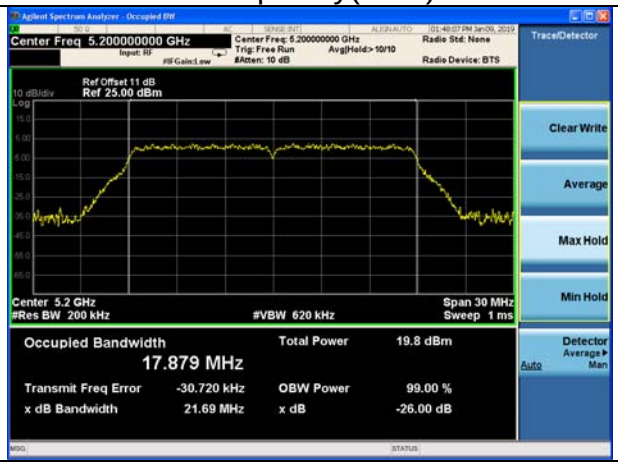
802.11a
Carrier frequency(MHz):5240

Test Mode: 802.11n HT20 (SISO Ant2)

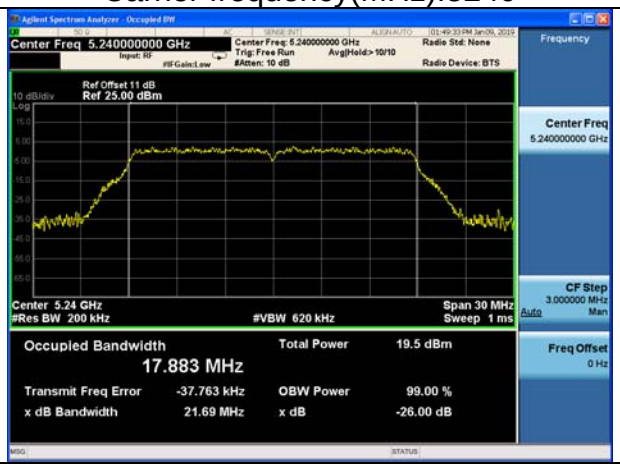
Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	17.894	21.61	pass
5200	17.879	21.69	pass
5240	17.883	21.69	pass

802.11n HT20
Carrier frequency(MHz):5180

802.11n HT20
Carrier frequency(MHz):5200

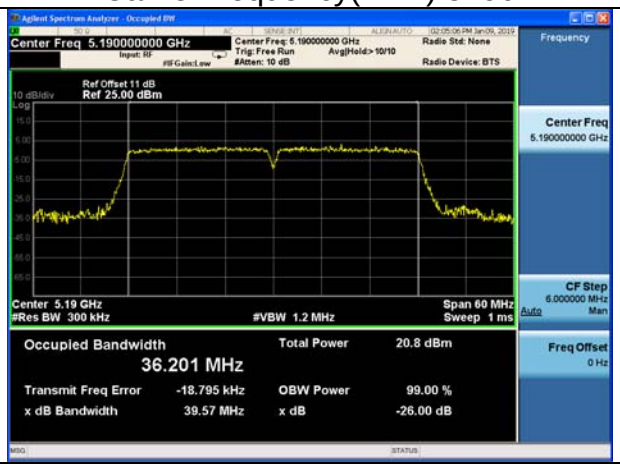
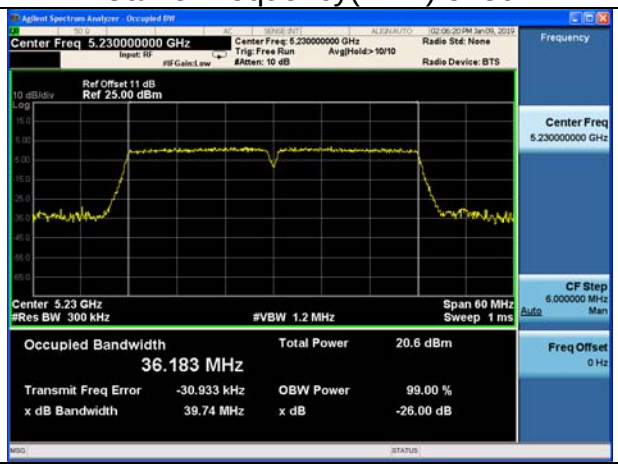


802.11n HT20
Carrier frequency(MHz):5240



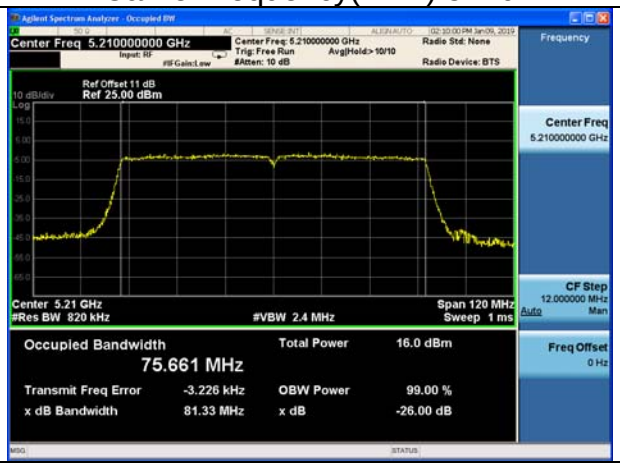
Test Mode: 802.11n HT40 (SISO Ant2)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5190	36.201	39.57	pass
5230	36.183	39.74	pass

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

Test Mode: 802.11ac HT80 (SISO Ant2)

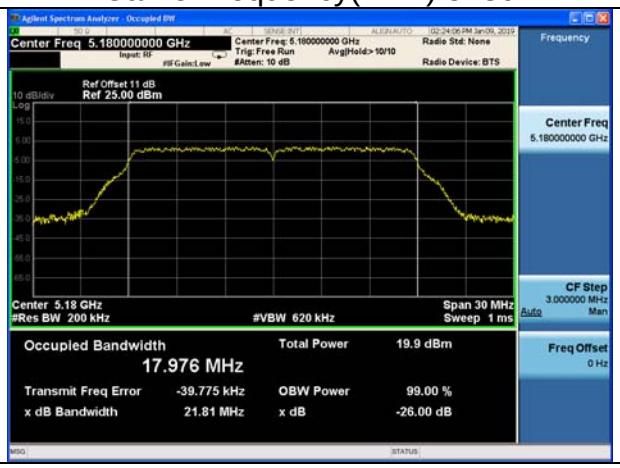
Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5210	75.661	81.33	pass

802.11ac HT80 Carrier frequency(MHz):5210	
	

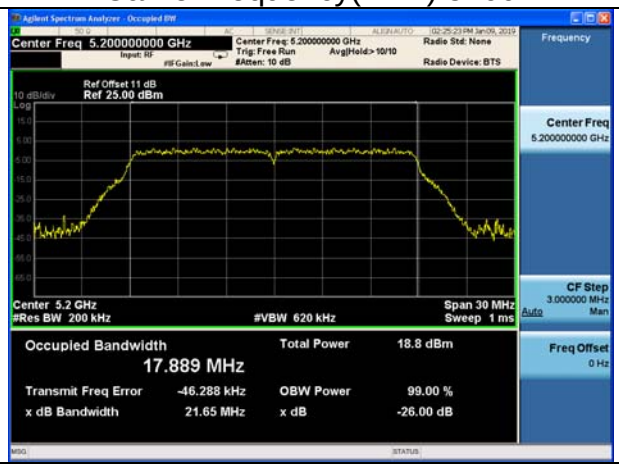
Test Mode: 802.11n HT20 (MIMO Ant1)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	17.976	21.81	pass
5200	17.889	21.65	pass
5240	17.892	21.82	pass

802.11n HT20
Carrier frequency(MHz):5180



802.11n HT20
Carrier frequency(MHz):5200

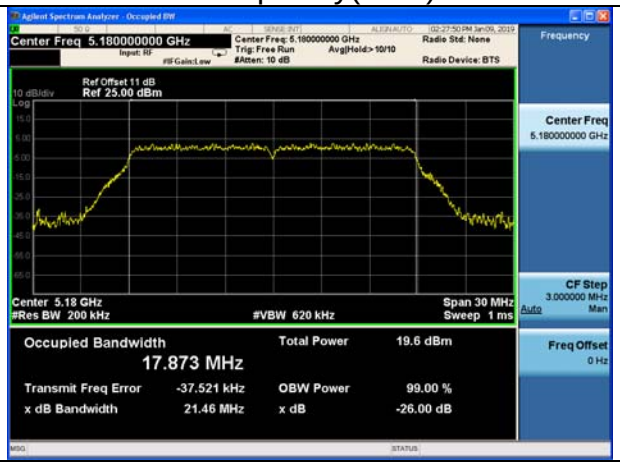


802.11n HT20
Carrier frequency(MHz):5240

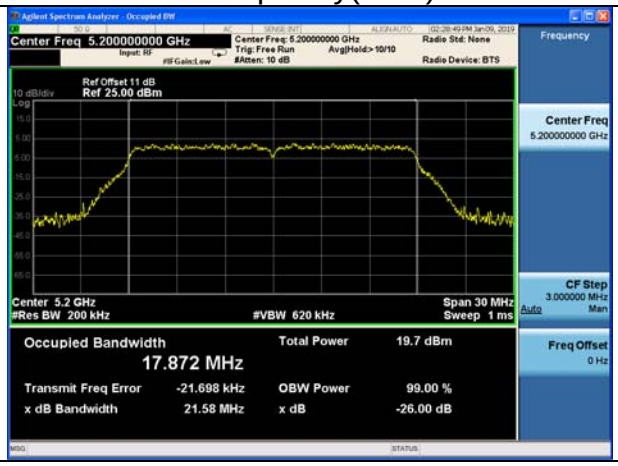
Test Mode: 802.11n HT20 (MIMO Ant2)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	17.873	21.46	pass
5200	17.872	21.58	pass
5240	17.902	21.73	pass

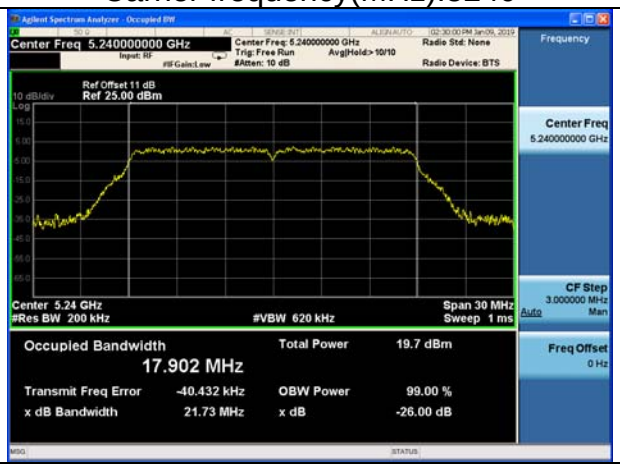
802.11n HT20
Carrier frequency(MHz):5180



802.11n HT20
Carrier frequency(MHz):5200

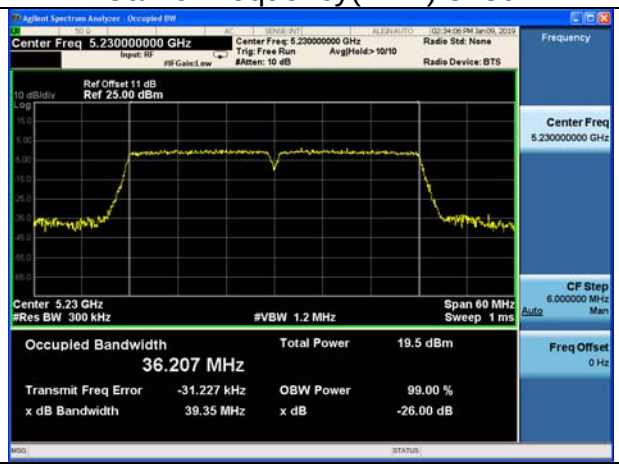


802.11n HT20
Carrier frequency(MHz):5240



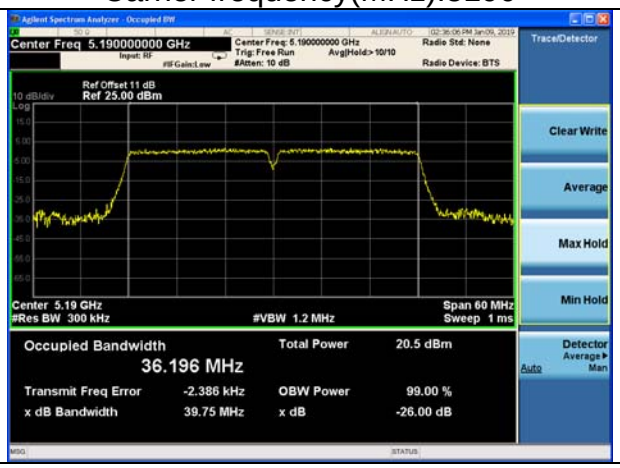
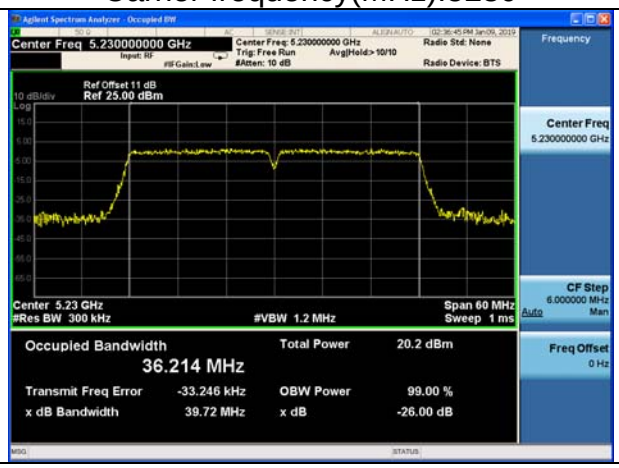
Test Mode: 802.11n HT40 (MIMO Ant1)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5190	36.184	39.55	pass
5230	36.207	39.35	pass

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

Test Mode: 802.11n HT40 (MIMO Ant2)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5190	39.196	39.75	pass
5230	36.214	39.72	pass

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

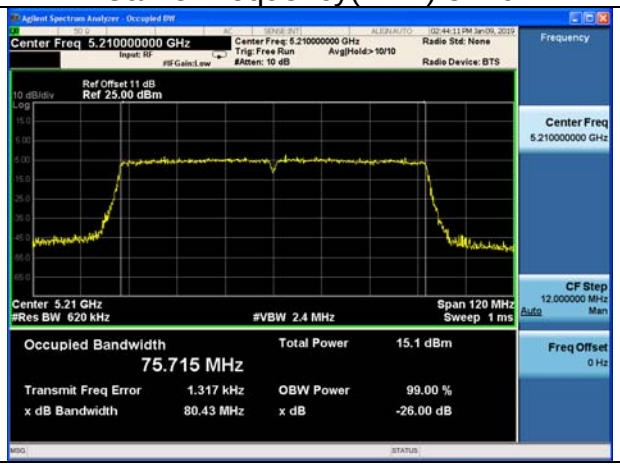
Test Mode: 802.11ac HT80 (MIMO Ant1)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5210	75.720	81.35	pass

802.11ac HT80 Carrier frequency(MHz):5210	
	

Test Mode: 802.11ac HT80 (MIMO Ant2)

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5210	75.715	80.43	pass

802.11ac HT80 Carrier frequency(MHz):5210	
	

Transmitter Power Spectral Density

Offset 11dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 0.8dB

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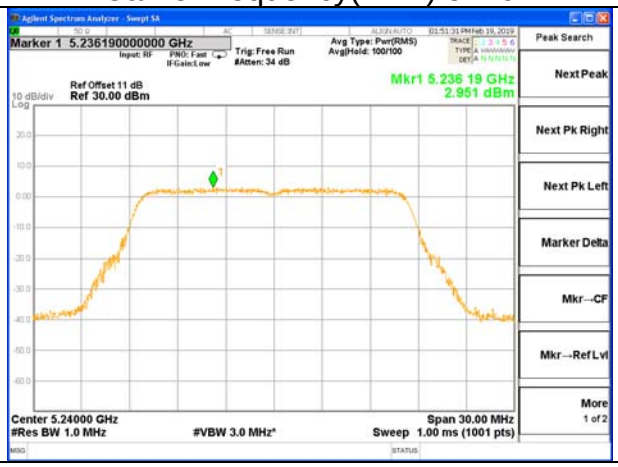
Test Mode: 802.11a (SISO Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5180	0.170	2.835	11.0	pass
5200	0.170	2.509	11.0	pass
5240	0.170	3.121	11.0	pass

802.11a
Carrier frequency(MHz):5180

802.11a
Carrier frequency(MHz):5200

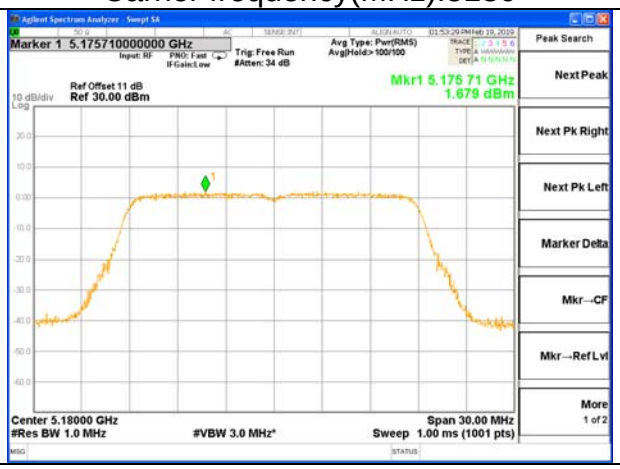
802.11a
Carrier frequency(MHz):5240



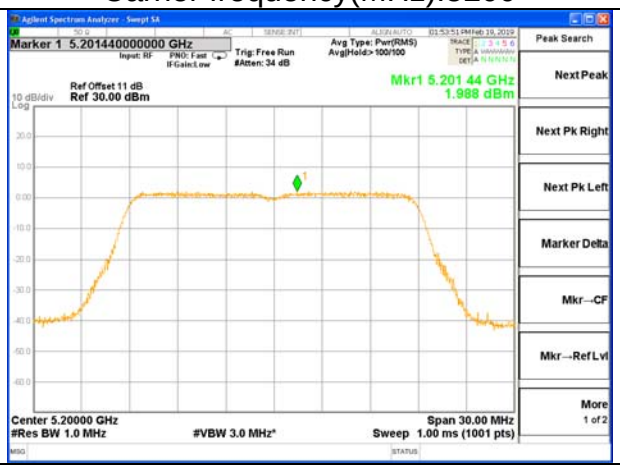
Test Mode: 802.11n HT20 (SISO Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5180	0.000	1.679	11.0	pass
5200	0.000	1.988	11.0	pass
5240	0.000	2.295	11.0	pass

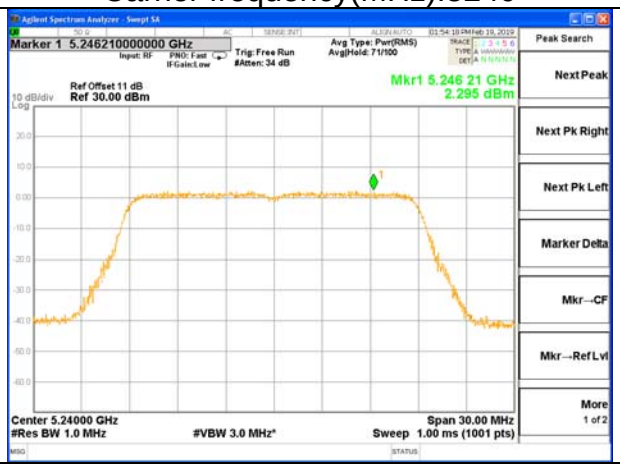
802.11n HT20
Carrier frequency(MHz):5180



802.11n HT20
Carrier frequency(MHz):5200

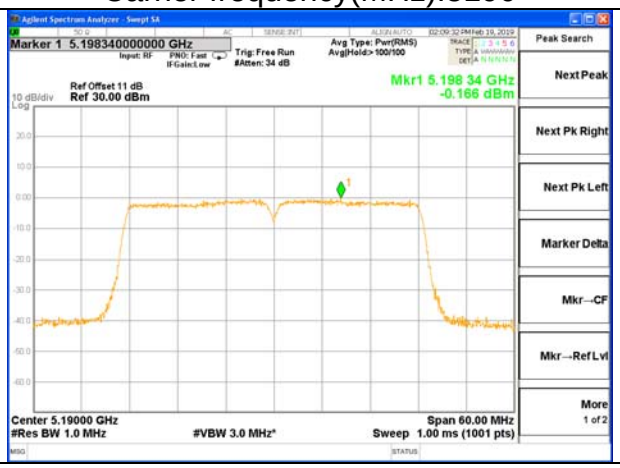
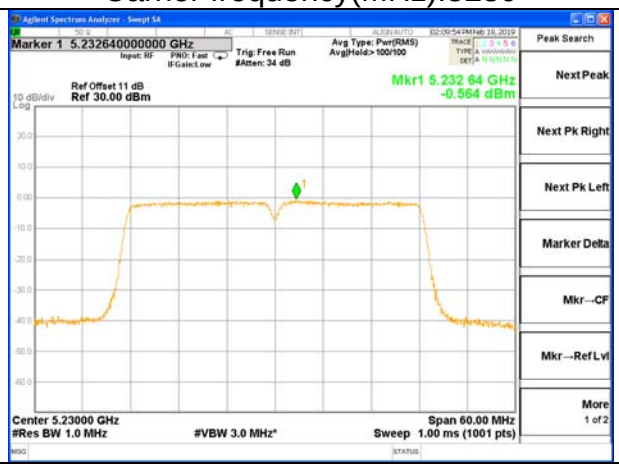


802.11n HT20
Carrier frequency(MHz):5240



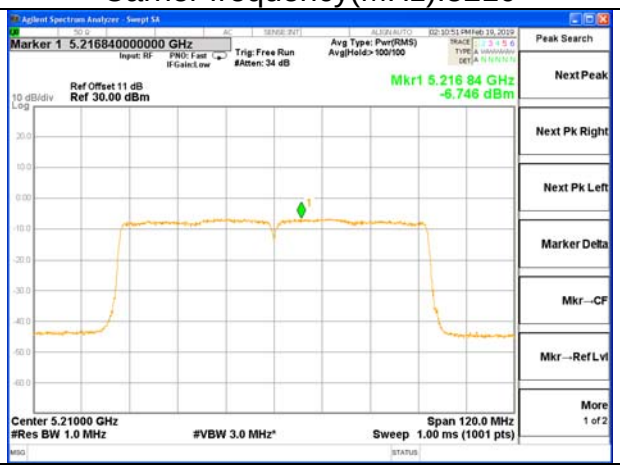
Test Mode: 802.11n HT40 (SISO Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5190	0.000	-0.166	11.0	pass
5230	0.000	-0.564	11.0	pass

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

Test Mode: 802.11ac HT80 (SISO Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5210	0.210	-6.536	11.0	pass

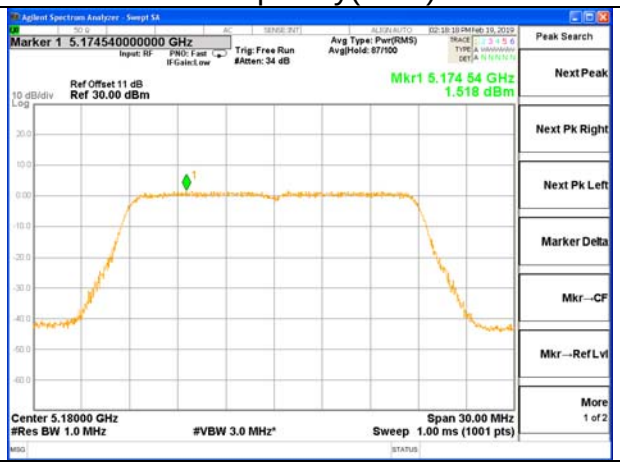
802.11ac HT80 Carrier frequency(MHz):5210	
	

Test Mode: 802.11n HT20 (MIMO Ant1+Ant2)

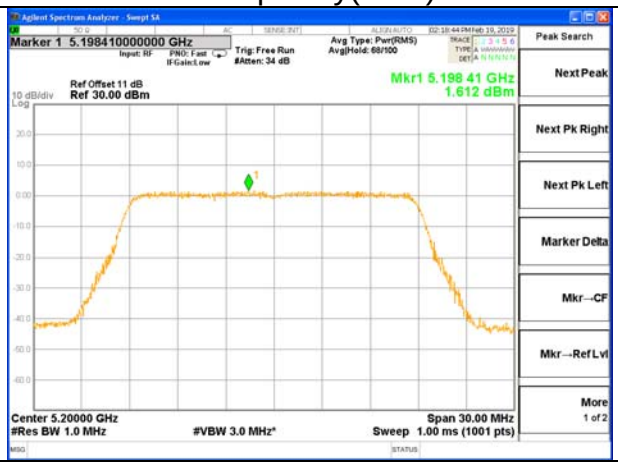
Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Ant1 Meas PSD (dBm/MHz)	Ant2 Meas PSD (dBm/MHz)	Total Corr'd PSD (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5180	0.000	1.518	2.176	4.870	11.0	pass
5200	0.000	1.612	1.925	4.782	11.0	pass
5240	0.000	1.631	2.266	4.970	11.0	pass

802.11n HT20 (MIMO Ant1)

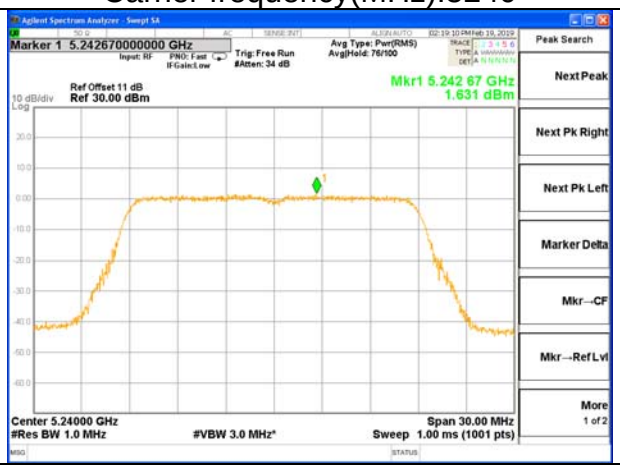
802.11n HT20
Carrier frequency(MHz):5180



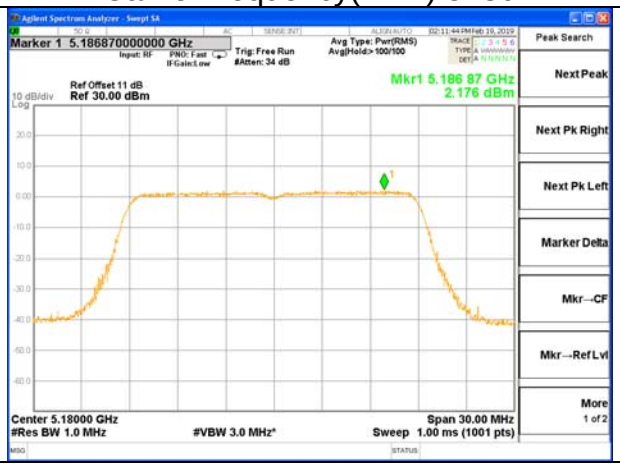
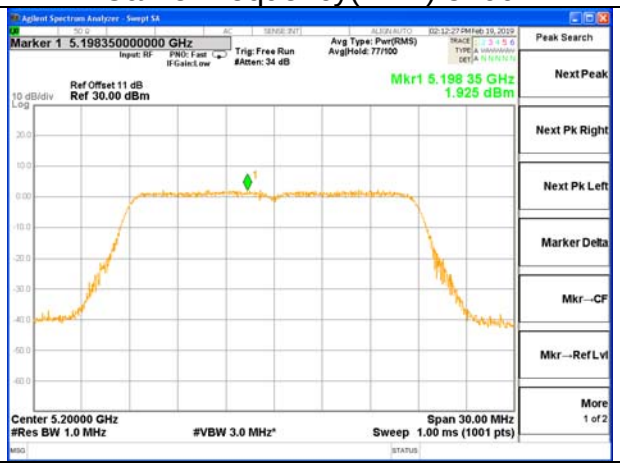
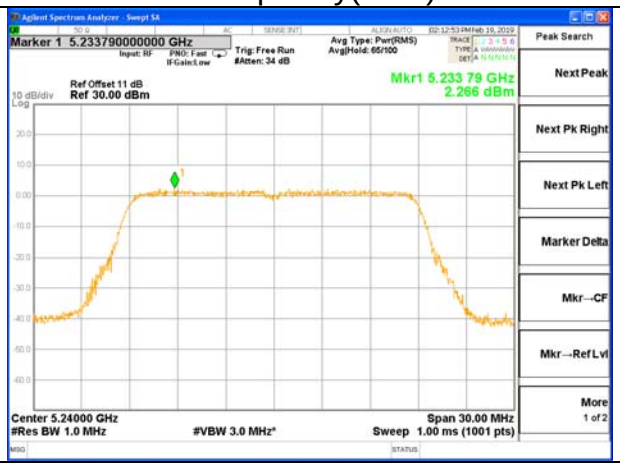
802.11n HT20
Carrier frequency(MHz):5200



802.11n HT20
Carrier frequency(MHz):5240



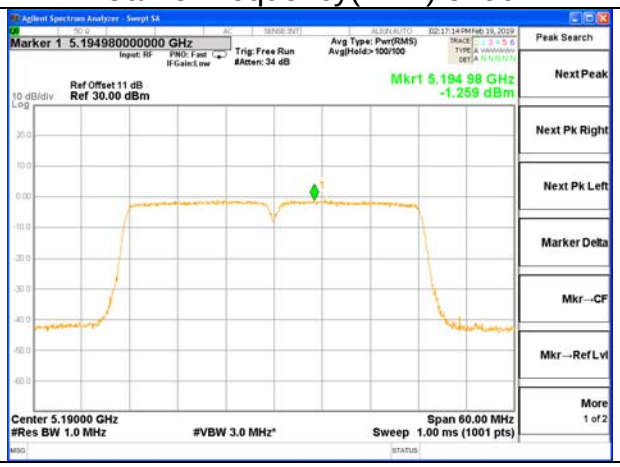
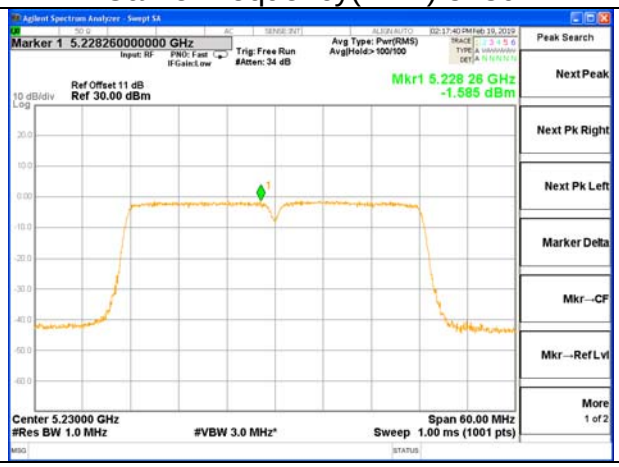
802.11n HT20 (MIMO Ant2)

802.11n HT20 Carrier frequency(MHz):5180	802.11n HT20 Carrier frequency(MHz):5200
	
802.11n HT20 Carrier frequency(MHz):5240	
	

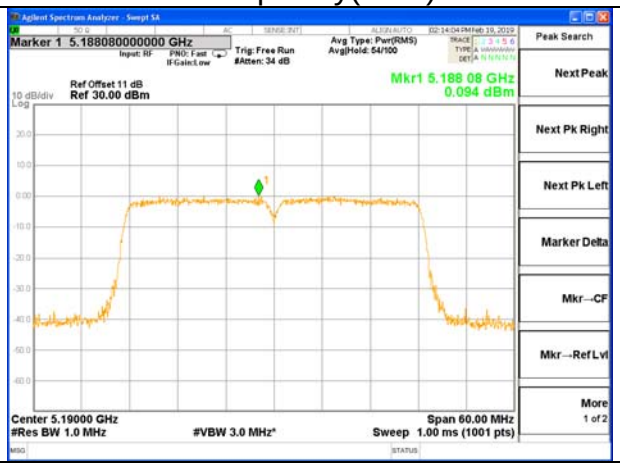
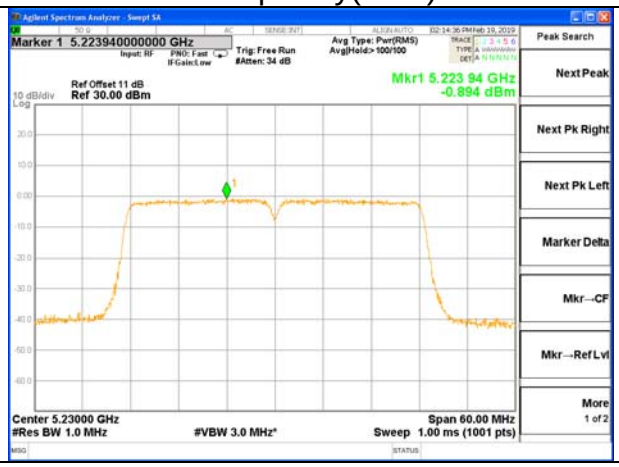
Test Mode: 802.11n HT40 (MIMO Ant1+Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Ant1 Meas PSD (dBm/MHz)	Ant2 Meas PSD (dBm/MHz)	Total Corr'd PSD (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5190	0.000	-1.259	0.094	2.480	11.0	pass
5230	0.000	-1.585	-0.894	1.785	11.0	pass

802.11n HT40 (MIMO Ant1)

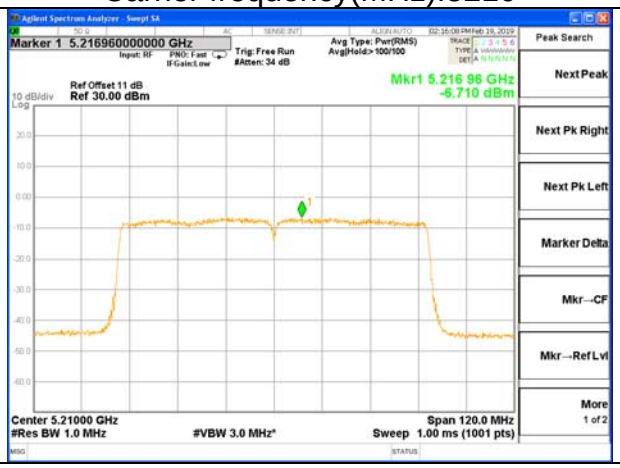
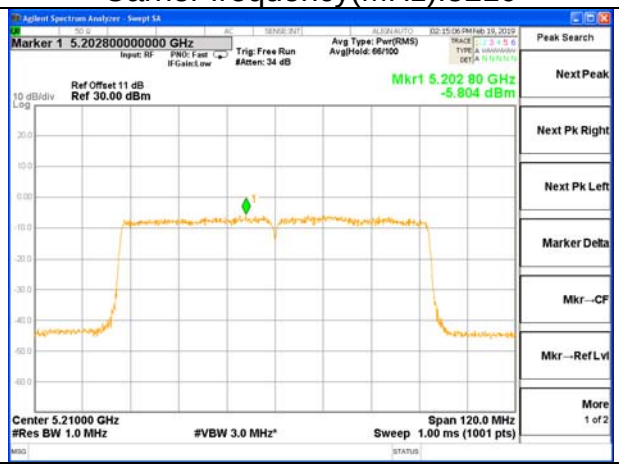
802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

802.11n HT40 (MIMO Ant2)

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	

Test Mode: 802.11ac HT80 (MIMO Ant1+Ant2)

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Ant1 Meas PSD (dBm/MHz)	Ant2 Meas PSD (dBm/MHz)	Total Corr'd PSD (dBm/MHz)	Limit (dBm/MHz)	Conclusion
5210	0.210	-6.710	-5.804	-3.013	11.0	pass

802.11ac HT80 (MIMO Ant1) Carrier frequency(MHz):5210	802.11ac HT80 (MIMO Ant2) Carrier frequency(MHz):5210
	

Unwanted Conducted Emission Measurement

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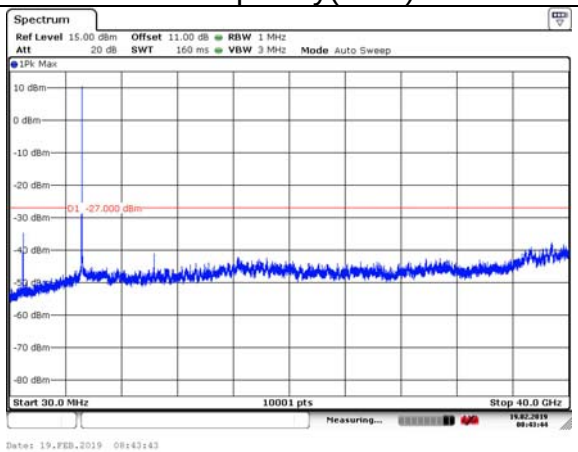
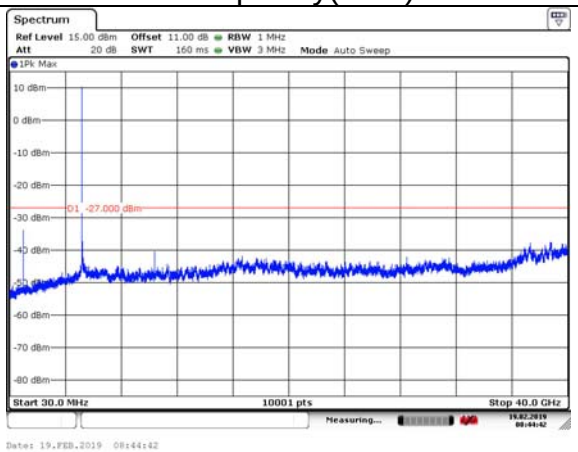
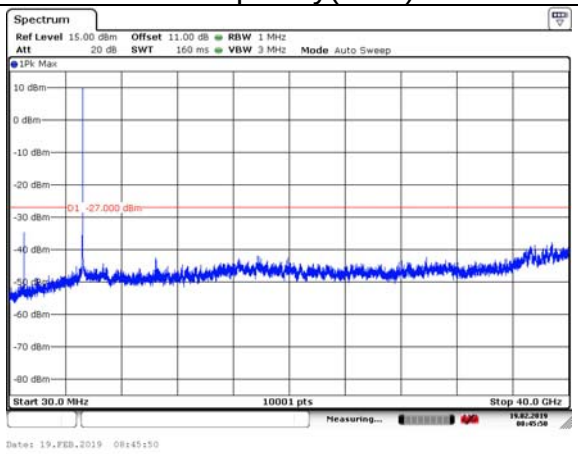
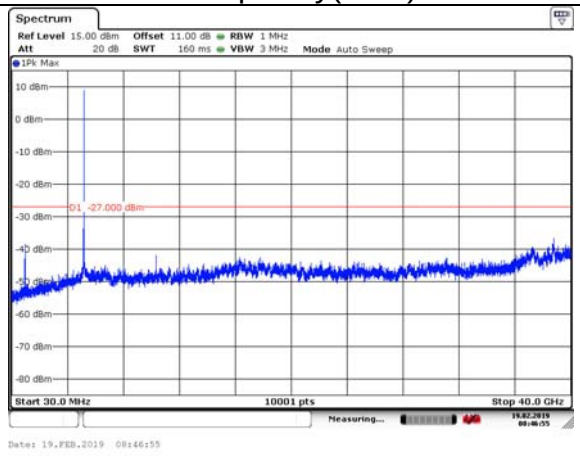
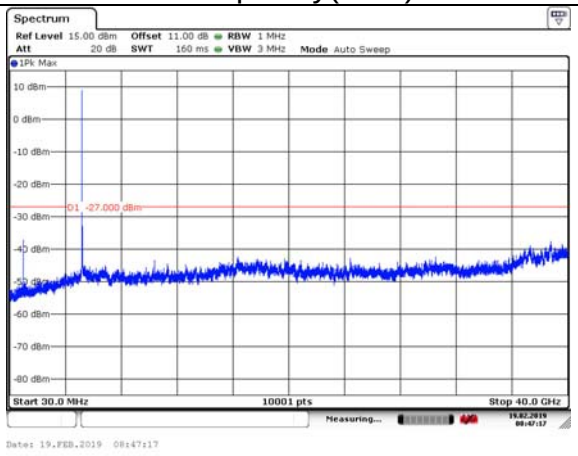
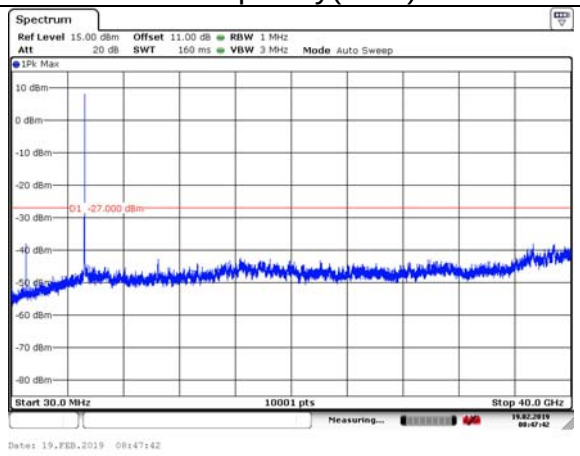
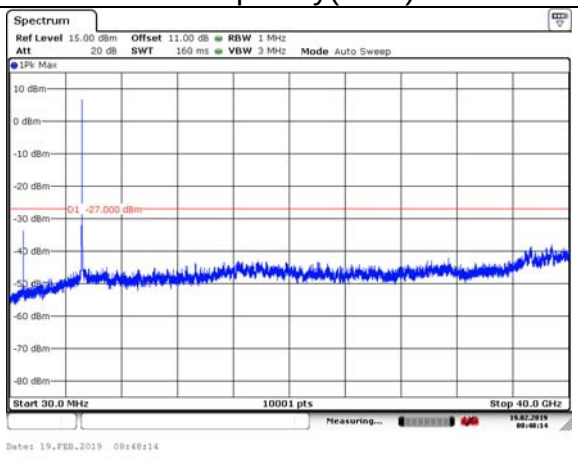
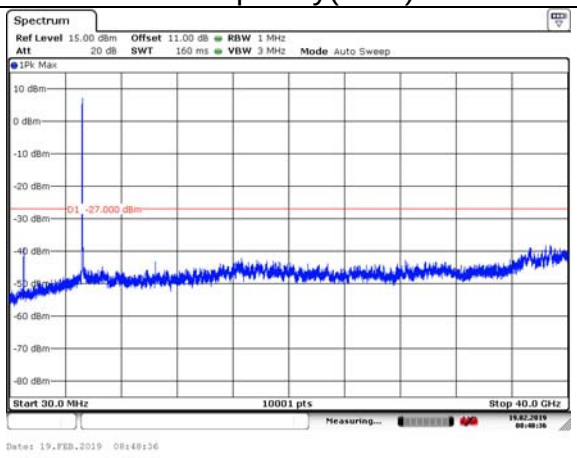
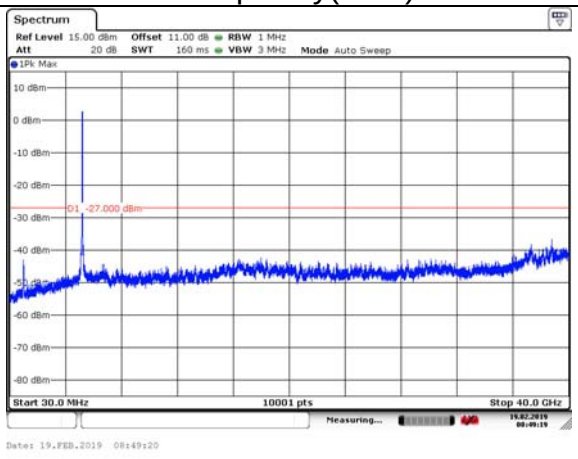
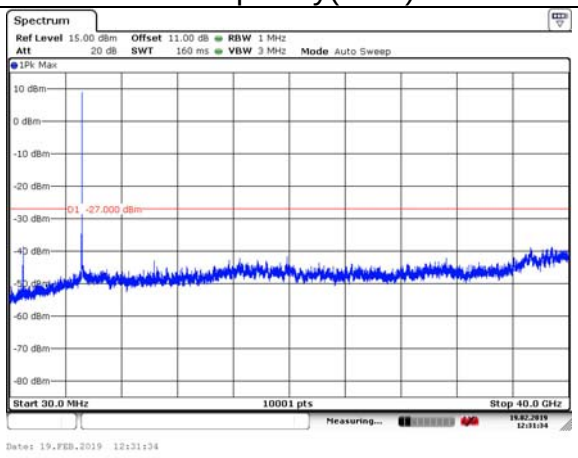
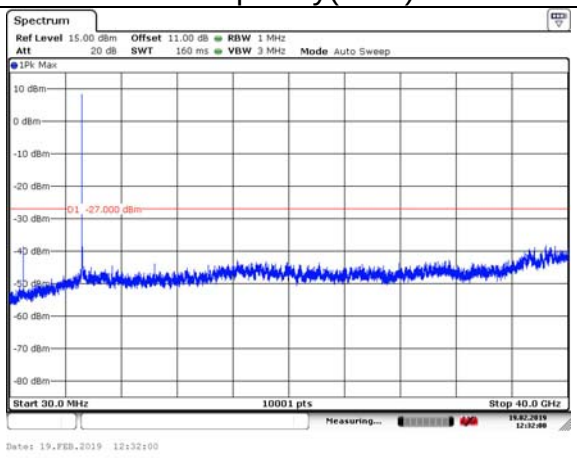
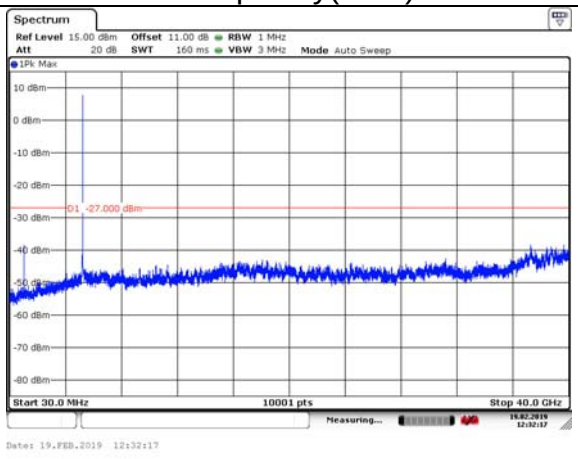
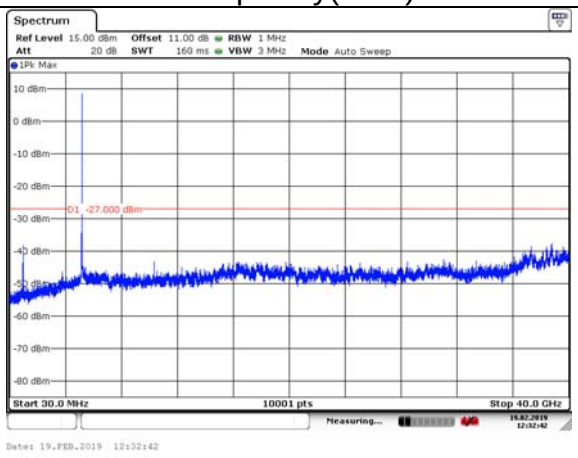
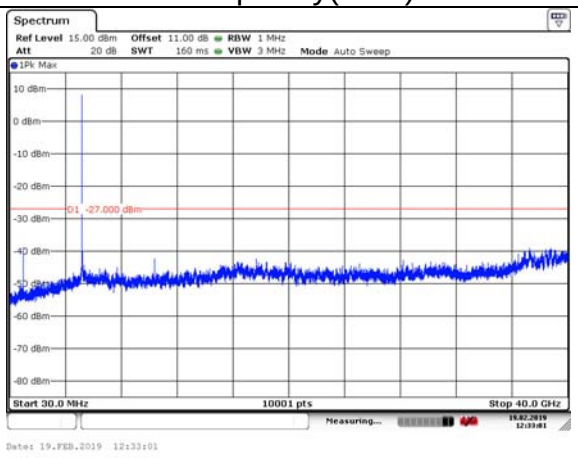
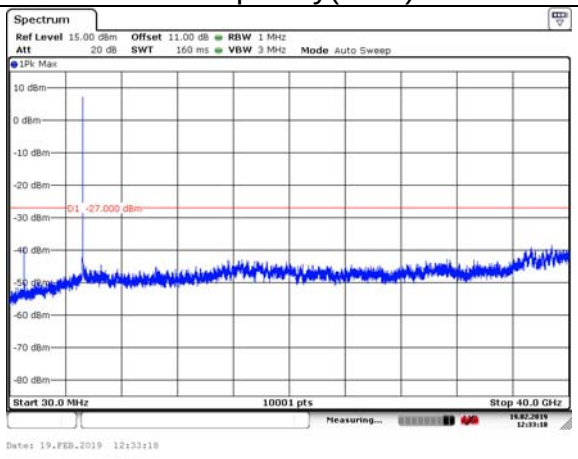
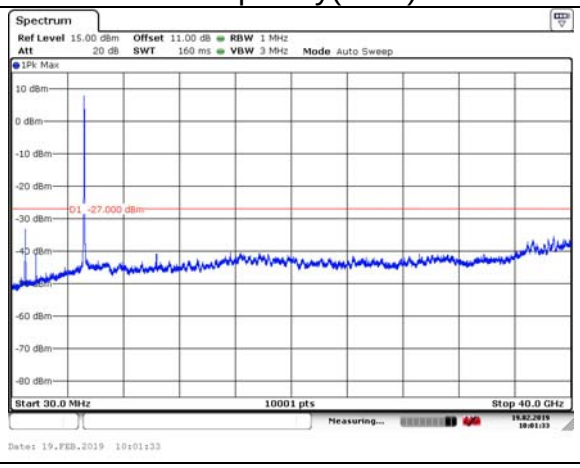
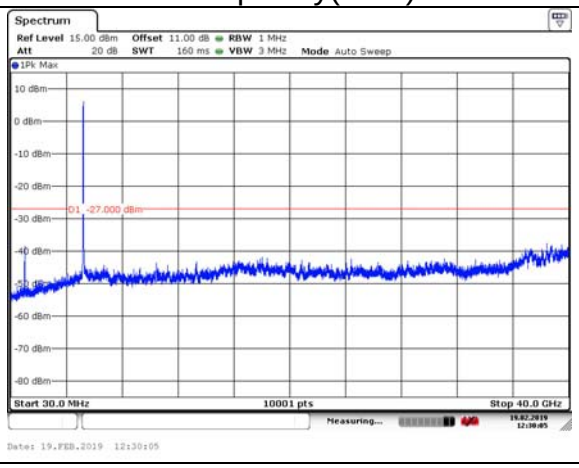
802.11a (SISO Ant2) Carrier frequency(MHz):5180	802.11a (SISO Ant2) Carrier frequency(MHz):5200
	
802.11a (SISO Ant2) Carrier frequency(MHz):5240	
	

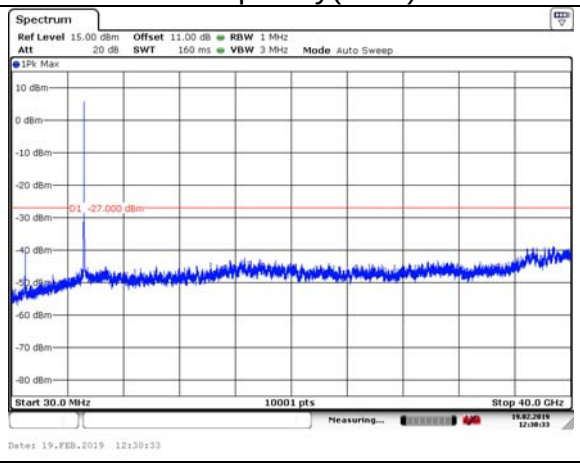
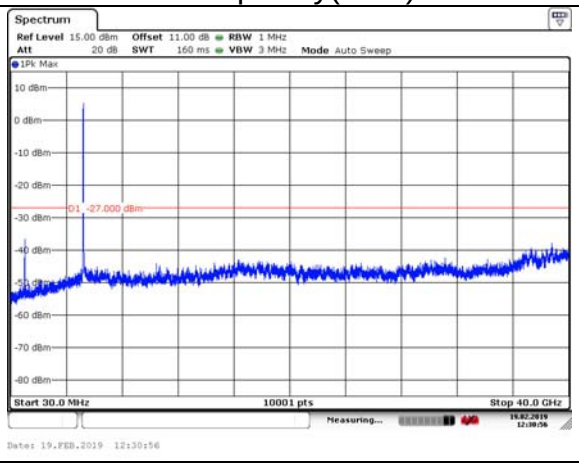
802.11n HT20 (SISO Ant2) Carrier frequency(MHz):5180	802.11n HT20 (SISO Ant2) Carrier frequency(MHz):5200
	
802.11n HT20 (SISO Ant2) Carrier frequency(MHz):5240	
	

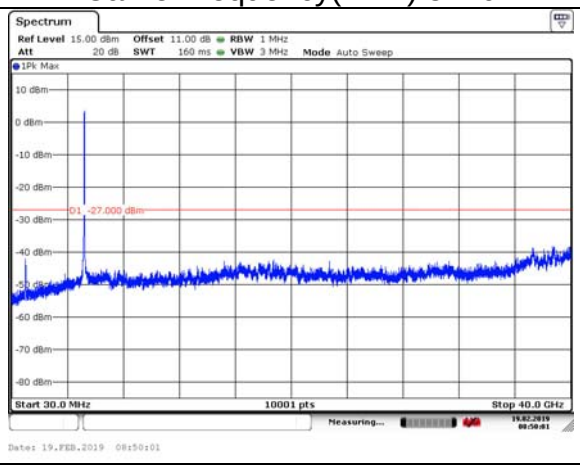
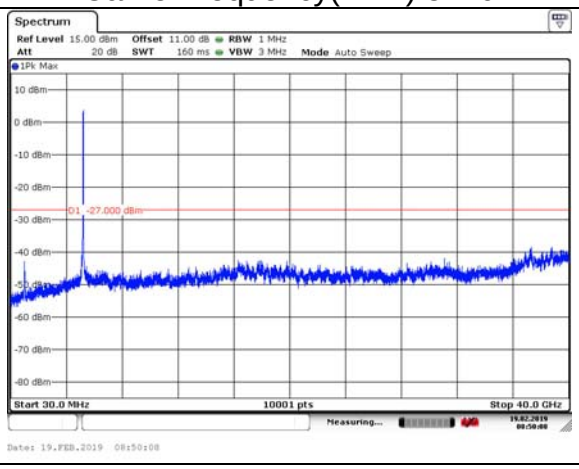
802.11n HT40 (SISO Ant2) Carrier frequency(MHz):5190	802.11n HT40 (SISO Ant2) Carrier frequency(MHz):5230
	
802.11ac HT80 (SISO Ant2) Carrier frequency(MHz):5210	
	

802.11n HT20 (MIMO Ant1) Carrier frequency(MHz):5180	802.11n HT20 (MIMO Ant1) Carrier frequency(MHz):5200
	
802.11n HT20 (MIMO Ant1) Carrier frequency(MHz):5240	
	

802.11n HT20 (MIMO Ant2) Carrier frequency(MHz):5180	802.11n HT20 (MIMO Ant2) Carrier frequency(MHz):5200
	
802.11n HT20 (MIMO Ant2) Carrier frequency(MHz):5240	
	

802.11n HT40 (MIMO Ant1) Carrier frequency(MHz):5190	802.11n HT40 (MIMO Ant1) Carrier frequency(MHz):5230
	

802.11n HT40 (MIMO Ant2) Carrier frequency(MHz):5190	802.11n HT40 (MIMO Ant2) Carrier frequency(MHz):5230
	

802.11ac HT80 (MIMO Ant1) Carrier frequency(MHz):5210	802.11ac HT80 (MIMO Ant2) Carrier frequency(MHz):5210
	

Frequency Stability

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Mod.	Data Rate	Ant	Frequency (MHz)	Frequency Stability(ppm)	Voltage(V)	Temperature(°C)
11a	6Mbps	1	5180	-2.12	NV	-10
11a	6Mbps	1	5180	1.24	NV	0
11a	6Mbps	1	5180	1.34	NV	+10
11a	6Mbps	1	5180	1.32	HV	+20
11a	6Mbps	1	5180	-1.25	LV	+20
11a	6Mbps	1	5180	3.23	NV	+20
11a	6Mbps	1	5180	3.45	NV	+30
11a	6Mbps	1	5180	1.36	NV	+40
11a	6Mbps	1	5180	1.27	NV	+50
11a	6Mbps	1	5180	3.02	NV	+55

APPENDIX B – TEST DATA OF RADIATED EMISSION

Radiated Emission Band Edge

The worst case attitude: The mobile lay down. MIMO Ant1+Ant2
Peak detector：RBW=1MHz,VBW=3MHz,sweep time=200ms；
Average detector：RBW=1MHz,VBW=3MHz,sweep time=auto；
Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11a(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	103.68	56.78	N/A	N/A	12.4	34.5
2	5150	53.83	6.93	-19.98	74	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11a(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	99.10	52.20	N/A	N/A	12.4	34.5
2	5150	54.41	7.51	-19.81	74	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11a(HT20)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	97.50	50.60	N/A	N/A	12.4	34.5
2	5150	40.70	-6.20	-12.86	54	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11a(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	92.86	45.96	N/A	N/A	12.4	34.5
2	5150	40.4	-6.55	13.20	54	12.4	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11a(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	103.83	56.73	N/A	N/A	12.6	34.5
2	5270	54.51	6.43	-19.49	74	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11a(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	99.53	52.43	N/A	N/A	12.6	34.5
2	5270	54.12	7.02	-19.88	74	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11a(HT20)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	95.56	48.46	N/A	N/A	12.6	34.5
2	5270	41.12	-5.75	-12.88	54	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11a(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	90.85	43.75	N/A	N/A	12.6	34.5
2	5270	41.33	-5.77	-12.67	54	12.6	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11a(HT40)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	103.47	56.57	N/A	N/A	12.4	34.5
2	5150	54.19	7.29	-19.98	74	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11a(HT40)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	99.44	52.54	N/A	N/A	12.4	34.5
2	5150	53.72	6.82	-19.81	74	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11a(HT40)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	97.96	51.06	97.96	N/A	12.4	34.5
2	5150	40.92	-5.98	40.92	54	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11a(HT40)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	93.29	46.39	N/A	N/A	12.4	34.5
2	5150	40.4	-6.53	13.63	54	12.4	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11a(HT40)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	103.79	56.69	N/A	N/A	12.6	34.5
2	5270	53.80	6.43	-20.20	74	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11a(HT40)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	99.41	52.31	N/A	N/A	12.6	34.5
2	5270	53.69	6.59	-20.31	74	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11a(HT40)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	95.48	48.38	N/A	N/A	12.6	34.5
2	5270	41.08	-5.75	-12.92	54	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11a(HT40)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	91.27	44.17	N/A	N/A	12.6	34.5
2	5270	40.68	-6.42	-13.32	54	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11a (HT80)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	103.90	56.80	N/A	N/A	12.6	34.5
2	5270	54.17	6.43	-19.83	74	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11a (HT80)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	99.76	52.66	N/A	N/A	12.6	34.5
2	5270	53.72	6.62	-20.28	74	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11a (HT80)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	95.85	48.75	N/A	N/A	12.6	34.5
2	5270	41.02	-5.75	-12.98	54	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11a (HT80)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	91.75	44.65	N/A	N/A	12.6	34.5
2	5270	40.52	-6.58	-13.48	54	12.6	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11ac MIMO(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	103.30	56.40	N/A	N/A	12.4	34.5
2	5150	53.87	6.97	-19.98	74	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11ac MIMO(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	98.97	52.07	N/A	98.97	12.4	34.5
2	5150	54.07	7.17	-19.81	54.07	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11ac MIMO(HT20)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	97.53	50.63	N/A	N/A	12.4	34.5
2	5150	40.18	-6.72	-13.82	54	12.4	34.5

Carrier frequency (MHz): 5180 MHz
Channel No.:36
Test Mode: 802.11ac MIMO(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5180	93.14	46.24	N/A	N/A	12.4	34.5
2	5150	39.7	-7.25	14.35	54	12.4	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11ac MIMO(HT20)
Polarity: Vertical
Detector: Peak

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	103.40	56.30	N/A	N/A	12.6	34.5
2	5270	53.97	6.43	-20.03	74	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11ac MIMO(HT20)
Polarity:Horizontal
Detector: Peak

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	98.89	51.79	N/A	N/A	12.6	34.5
2	5270	53.18	6.08	-20.82	74	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11ac MIMO(HT20)
Polarity: Vertical
Detector: Average

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	95.90	48.80	N/A	N/A	12.6	34.5
2	5270	40.84	-5.75	-13.16	54	12.6	34.5

Carrier frequency (MHz): 5240 MHz
Channel No.: 48
Test Mode: 802.11ac MIMO(HT20)
Polarity:Horizontal
Detector: Average

No	Frequency（MHz）	Measure Level（dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5240	91.30	44.20	N/A	N/A	12.6	34.5
2	5270	41.27	-5.83	-12.73	54	12.6	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11ac MIMO(HT40)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	103.54	56.64	N/A	N/A	12.4	34.5
2	5150	54.27	7.37	-19.98	74	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11ac MIMO(HT40)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	99.37	52.47	N/A	N/A	12.4	34.5
2	5150	53.92	7.02	-19.81	74	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11ac MIMO(HT40)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	97.88	50.98	N/A	N/A	12.4	34.5
2	5150	40.16	-6.74	-13.84	54	12.4	34.5

Carrier frequency (MHz): 5190
Channel No.:38
Test Mode: 802.11ac MIMO(HT40)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5190	93.59	46.69	N/A	N/A	12.4	34.5
2	5150	39.9	-6.99	14.09	54	12.4	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11ac MIMO(HT40)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	103.48	56.38	N/A	N/A	12.6	34.5
2	5270	54.19	6.43	-19.81	74	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11ac MIMO(HT40)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	98.80	51.70	N/A	N/A	12.6	34.5
2	5270	53.26	6.16	-20.74	74	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11ac MIMO(HT40)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	95.65	48.55	N/A	N/A	12.6	34.5
2	5270	41.02	-5.75	-12.98	54	12.6	34.5

Carrier frequency (MHz): 5230
Channel No.: 46
Test Mode: 802.11ac MIMO(HT40)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5230	90.78	43.68	N/A	N/A	12.6	34.5
2	5270	40.62	-6.48	-13.38	54	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11ac MIMO(HT80)
Polarity: Vertical
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	103.94	56.84	N/A	N/A	12.6	34.5
2	5270	53.64	6.43	-20.36	74	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11ac MIMO(HT80)
Polarity:Horizontal
Detector: Peak

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	99.68	52.58	N/A	N/A	12.6	34.5
2	5270	53.19	6.09	-20.81	74	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11ac MIMO(HT80)
Polarity: Vertical
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	95.71	48.61	N/A	N/A	12.6	34.5
2	5270	40.50	-5.75	-13.50	54	12.6	34.5

Carrier frequency (MHz): 5210
Channel No.: 42
Test Mode: 802.11ac MIMO(HT80)
Polarity:Horizontal
Detector: Average

No	Frequency （MHz）	Measure Level （dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuv/m)	cable loss (dB)	antenna factor (dB)
1	5210	91.01	43.91	N/A	N/A	12.6	34.5
2	5270	40.75	-6.35	-13.25	54	12.6	34.5

5150 MHz -5250 MHz

For 802.11a

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
42.488750	26.45	-19.5	45.95	Horizontal	40.00
42.650417	26.76	-19.6	46.36	Vertical	40.00
43.014167	26	-19.8	45.80	Horizontal	40.00
48.712917	27.01	-23.4	50.41	Vertical	40.00
49.319167	26.04	-23.7	49.74	Vertical	40.00
79.874167	23.4	-23.9	47.30	Vertical	40.00
87.674583	12.5	-23	35.50	Vertical	40.00
172.024167	15.88	-22.7	38.58	Horizontal	43.50
181.764583	27.85	-22.4	50.25	Vertical	43.50
343.673750	13.35	-16.8	30.15	Vertical	46.00
482.828333	18.04	-12.5	30.54	Vertical	46.00
703.867083	21.7	-8.2	29.90	Vertical	46.00
941.032083	26.38	-4.2	30.58	Vertical	46.00

For 802.11n MIMO (HT20)

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
41.316667	25.63	-18.8	44.43	Horizontal	40.00
42.003750	26.16	-19.2	45.36	Vertical	40.00
43.054583	24.85	-19.8	44.65	Horizontal	40.00
49.278750	25.25	-23.7	48.95	Vertical	40.00
81.895000	18.95	-23.6	42.55	Vertical	40.00
87.553333	10.73	-23	33.73	Vertical	40.00
172.630417	17.5	-22.6	40.10	Vertical	43.50
183.502500	28.14	-22.4	50.54	Vertical	43.50
297.922083	13.75	-18.2	31.95	Horizontal	46.00
489.941667	17.93	-12.3	30.23	Vertical	46.00
672.746250	21.7	-8.9	30.60	Vertical	46.00
936.626667	28.06	-4.3	32.36	Vertical	46.00

For 802.11n MIMO (HT40)

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
42.286667	29.12	-19.3	48.42	Horizontal	40.00
43.458750	27.66	-20.1	47.76	Vertical	40.00
48.510833	30.76	-23.2	53.96	Horizontal	40.00
49.440417	27.9	-23.8	51.70	Vertical	40.00
78.540417	20.52	-23.9	44.42	Vertical	40.00
87.593750	11.9	-23	34.90	Vertical	40.00
171.054167	16.05	-22.7	38.75	Vertical	43.50
182.492083	27.41	-22.4	49.81	Horizontal	43.50
301.236250	13.04	-18.1	31.14	Vertical	46.00
476.685000	17.33	-12.7	30.03	Vertical	46.00
683.658750	21.59	-8.7	30.29	Vertical	46.00
946.084167	25.9	-4.2	30.10	Vertical	46.00

For 802.11ac MIMO (VHT20)

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
42.00375	24.95	-19.2	44.15	Horizontal	40.00
42.812083	25.76	-19.7	45.46	Vertical	40.00
47.500417	26.16	-22.6	48.76	Horizontal	40.00
48.470417	26.1	-23.2	49.30	Vertical	40.00
49.238333	27.57	-23.7	51.27	Vertical	40.00
79.955	22.13	-23.9	46.03	Vertical	40.00
86.219583	11.01	-23.1	34.11	Vertical	40.00
172.46875	16.69	-22.6	39.29	Horizontal	43.50
180.835	27.53	-22.4	49.93	Vertical	43.50
347.755833	14.01	-16.6	30.61	Vertical	46.00
476.56375	17.49	-12.7	30.19	Vertical	46.00
693.48	20.89	-8.4	29.29	Vertical	46.00
939.73875	26.27	-4.2	30.47	Vertical	46.00

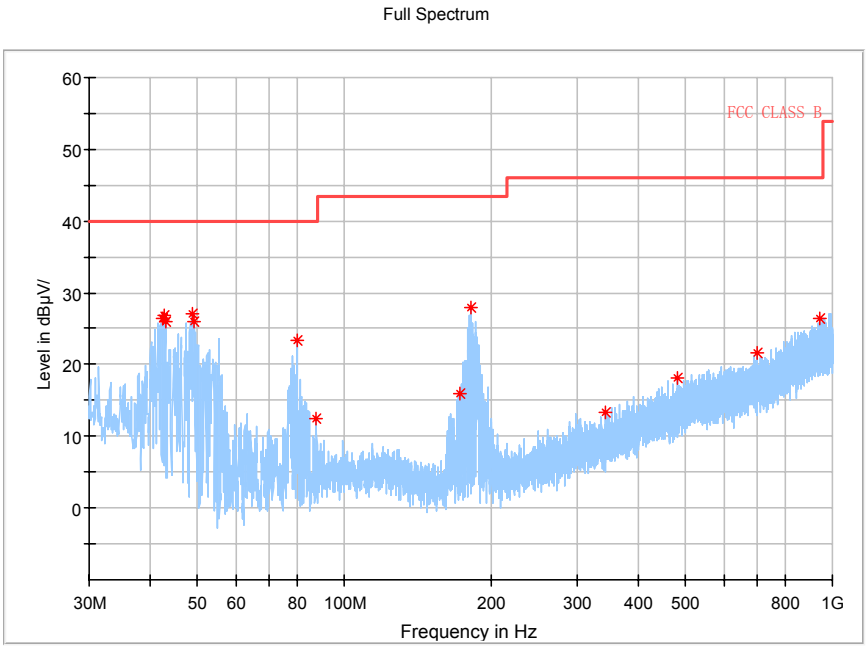
For 802.11ac MIMO (VHT40)

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
41.155	25.64	-18.7	44.34	Horizontal	40.00
42.00375	26.18	-19.2	45.38	Vertical	40.00
47.298333	25.8	-22.4	48.20	Horizontal	40.00
49.238333	26.44	-23.7	50.14	Vertical	40.00
80.925	18.9	-23.8	42.70	Vertical	40.00
86.947083	9.93	-23	32.93	Vertical	40.00
171.25625	16.15	-22.7	38.85	Vertical	43.50
182.572917	27.75	-22.4	50.15	Horizontal	43.50
299.498333	13.02	-18.1	31.12	Vertical	46.00
438.814583	20.07	-13.8	33.87	Vertical	46.00
689.640417	21.53	-8.5	30.03	Vertical	46.00
919.772917	26.1	-4.5	30.60	Vertical	46.00

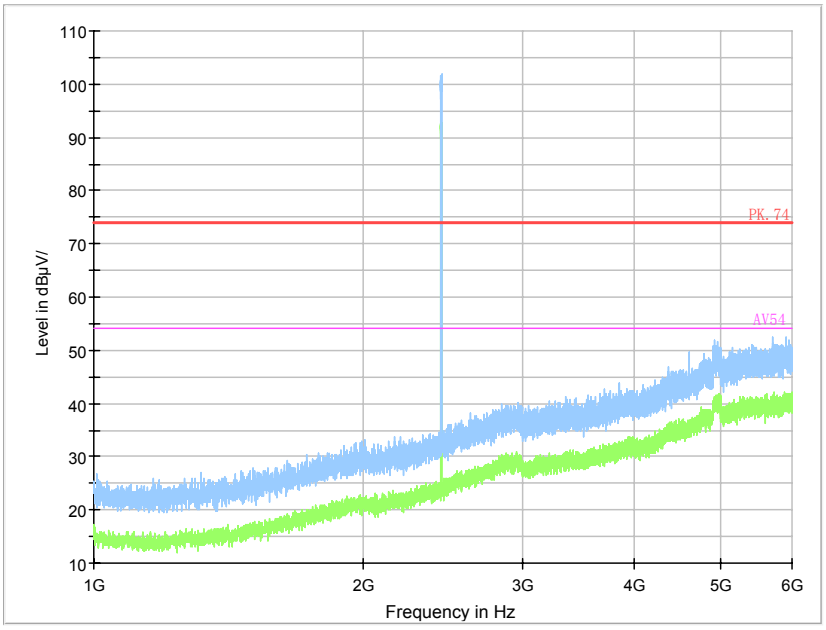
For 802.11ac MIMO (VHT80)

Frequency (MHz)	Result (dBuV/m)	ARpl (dB)	Pmea (dBuV/m)	Polarity	Limit (dBuV/m)
41.155	25.32	-18.7	44.02	Horizontal	40.00
41.801667	26.16	-19.1	45.26	Vertical	40.00
48.025833	25.94	-22.9	48.84	Horizontal	40.00
48.470417	26.47	-23.2	49.67	Vertical	40.00
79.793333	21.15	-23.9	45.05	Vertical	40.00
87.391667	10.23	-23	33.23	Vertical	40.00
172.22625	15.8	-22.7	38.50	Vertical	43.50
182.815417	28.71	-22.4	51.11	Vertical	43.50
348.645	13.84	-16.6	30.44	Horizontal	46.00
440.148333	17.44	-13.8	31.24	Vertical	46.00
702.33125	22.67	-8.3	30.97	Vertical	46.00
952.10625	26.07	-4.1	30.17	Vertical	46.00

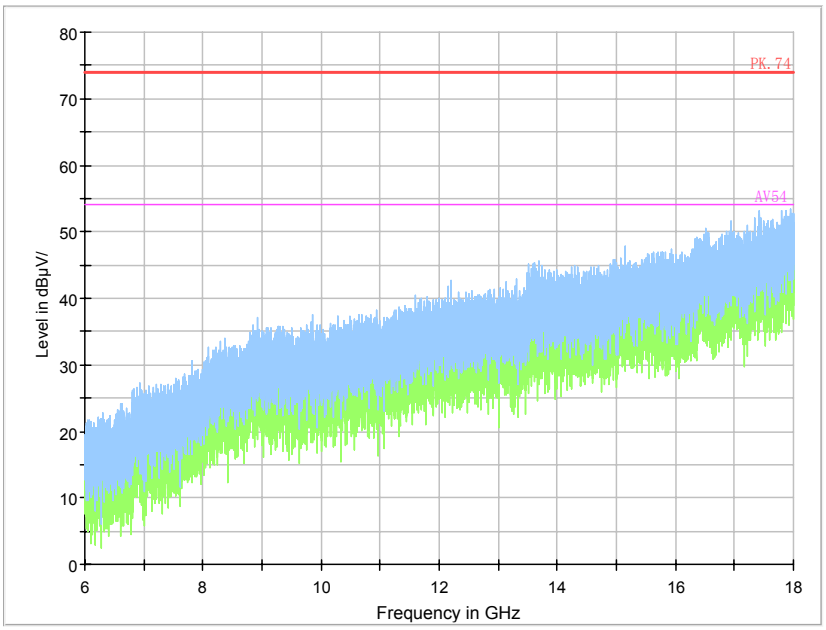
Carrier frequency (MHz): 5200
Channel No.:40



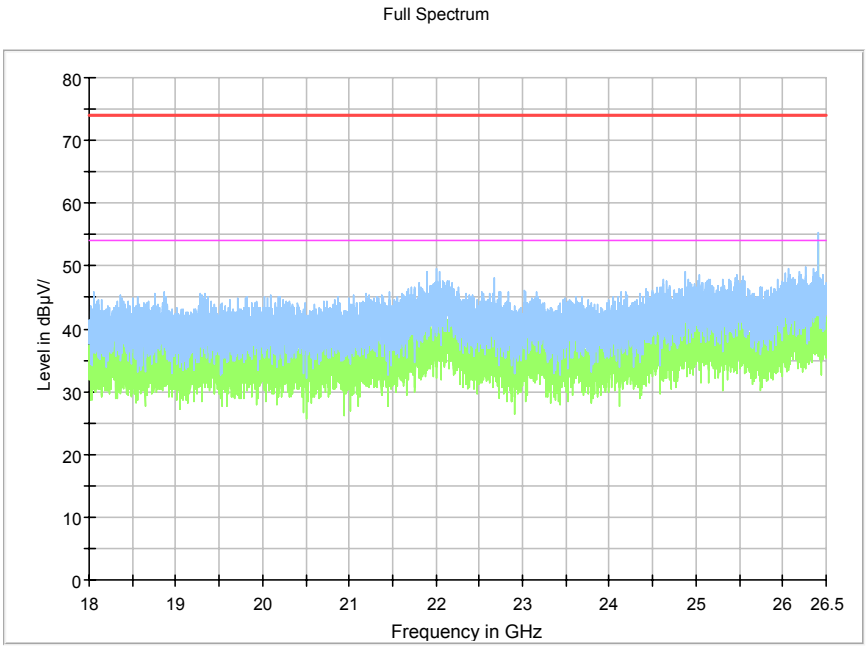
Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11a(HT20)



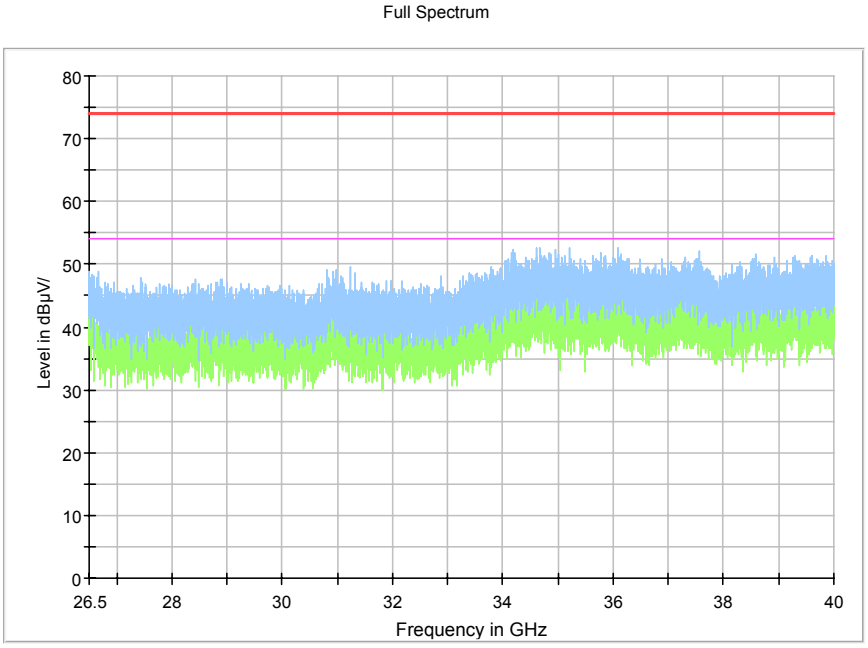
Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11a(HT20)



Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11a(HT20)

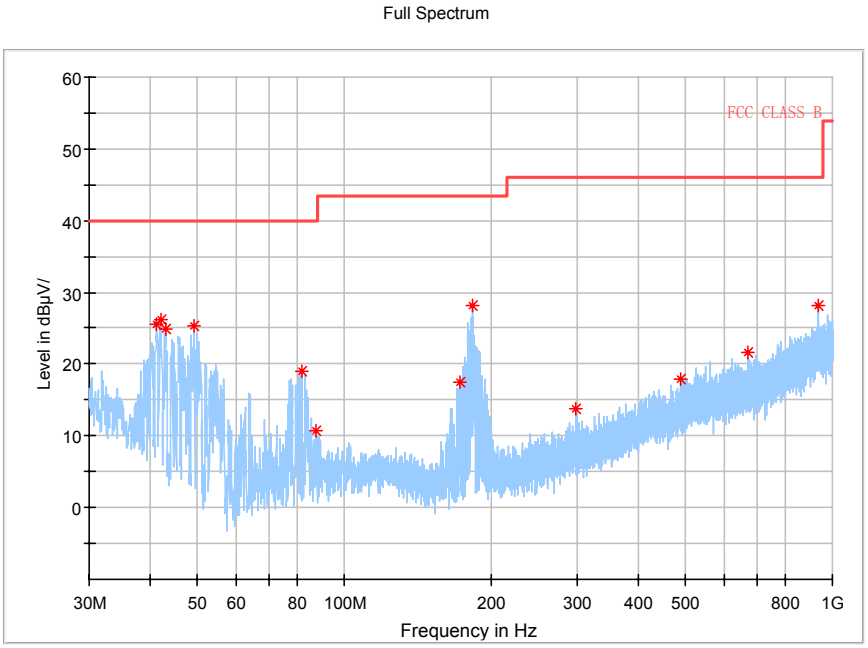


Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode
Modulation type: 802.11a(HT20)

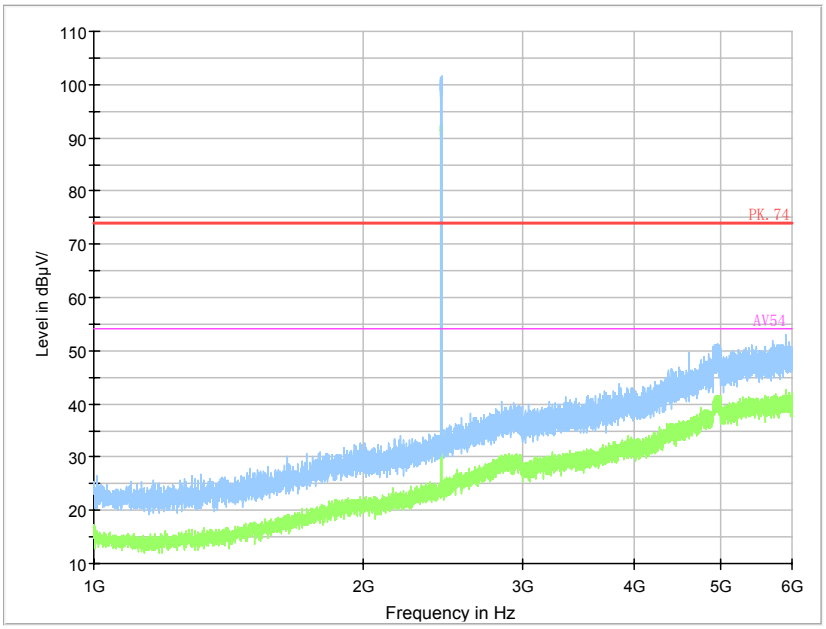


Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode
Modulation type: 802.11a(HT20)

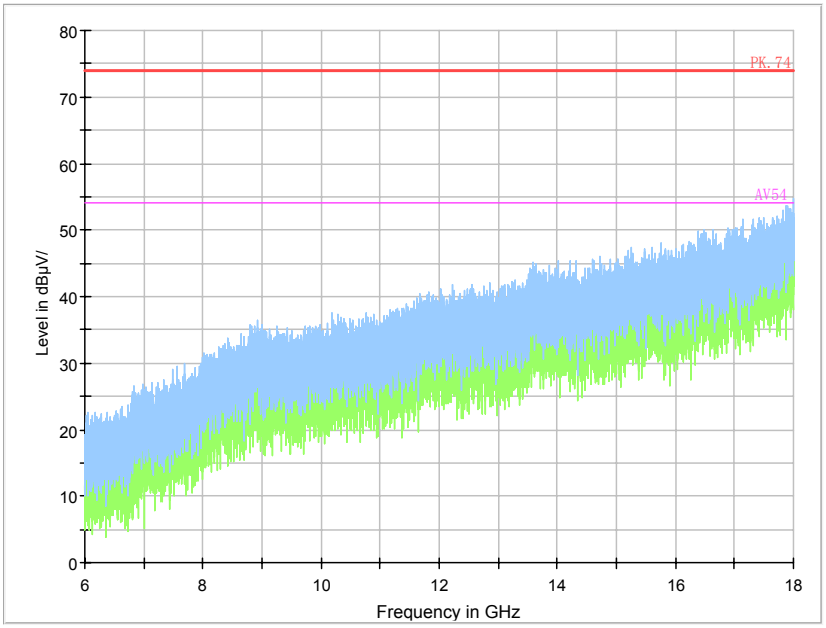
Carrier frequency (MHz): 5200
Channel No.:40



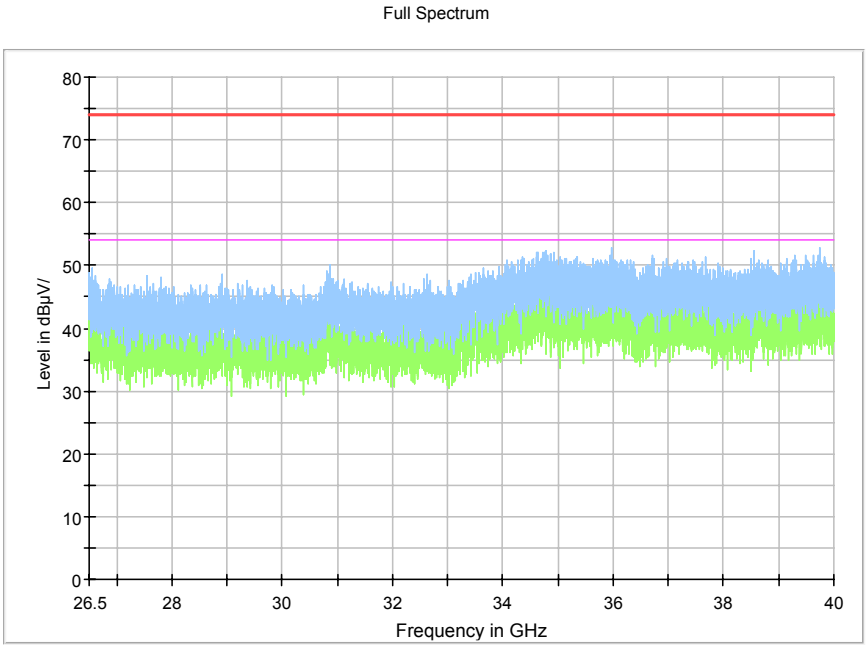
Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11n MIMO (HT20)



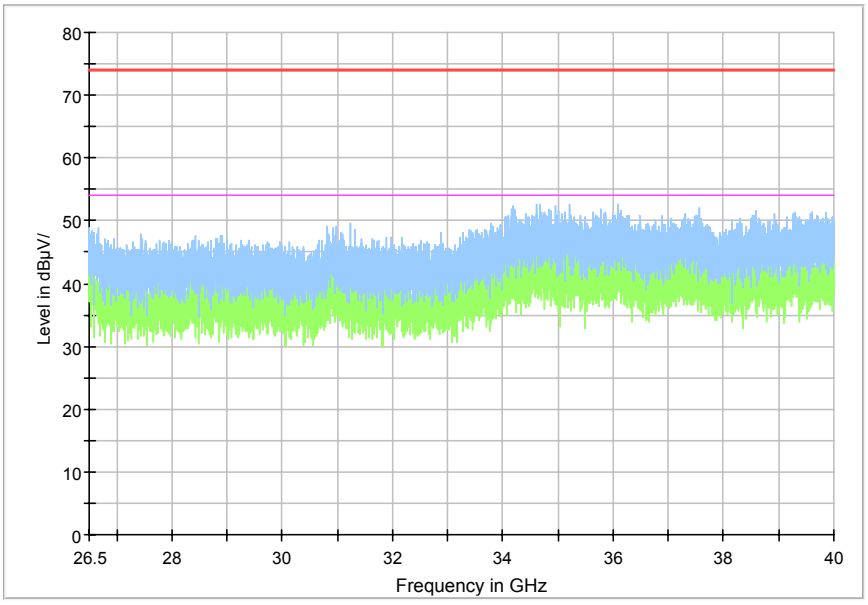
Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT20)



Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT20)

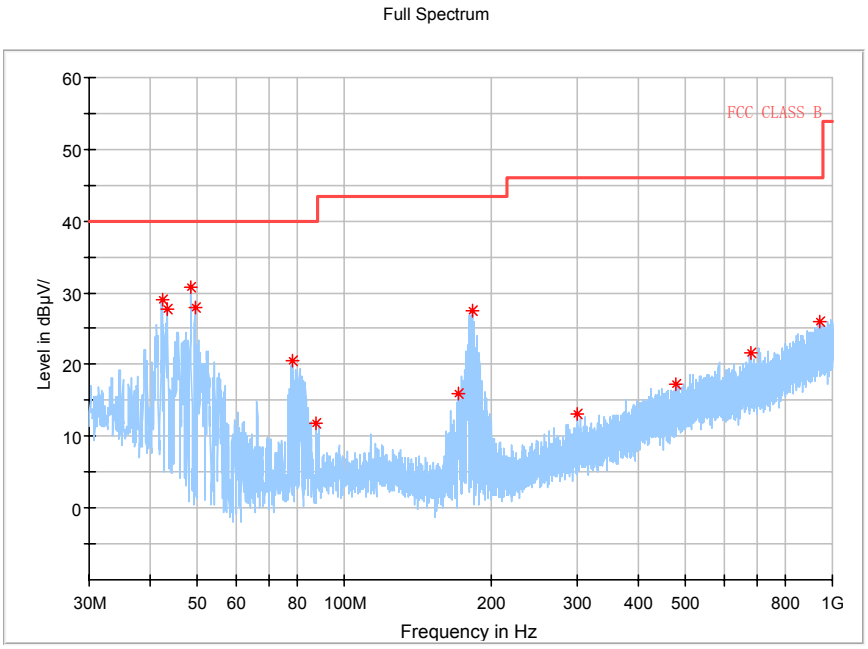


Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode

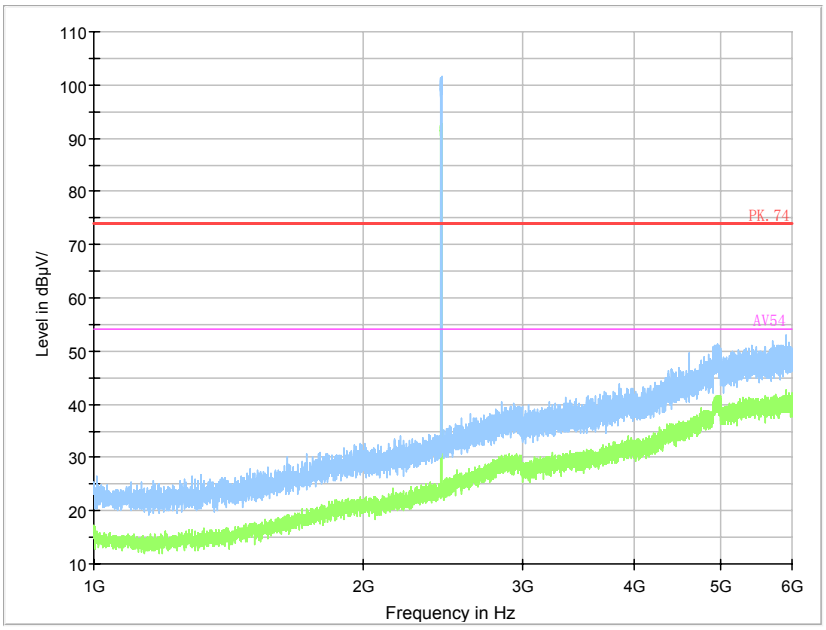


Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode

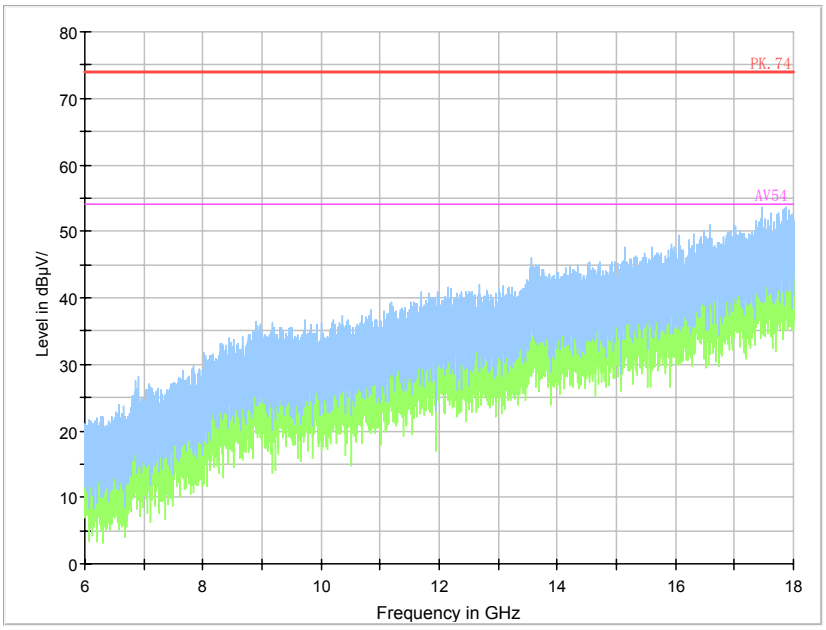
Carrier frequency (MHz): 5230
Channel No.:46



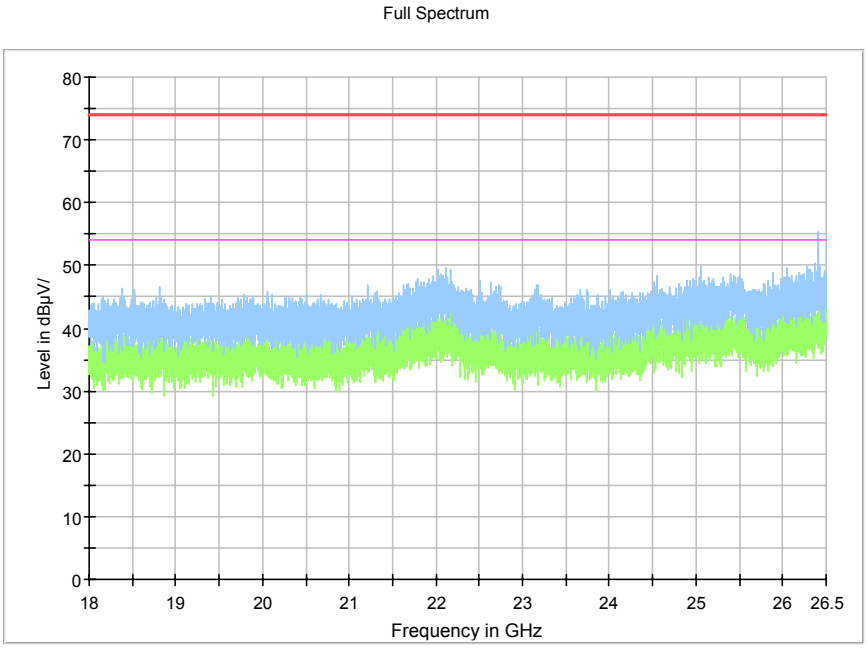
Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11n MIMO (HT40)



Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT40)

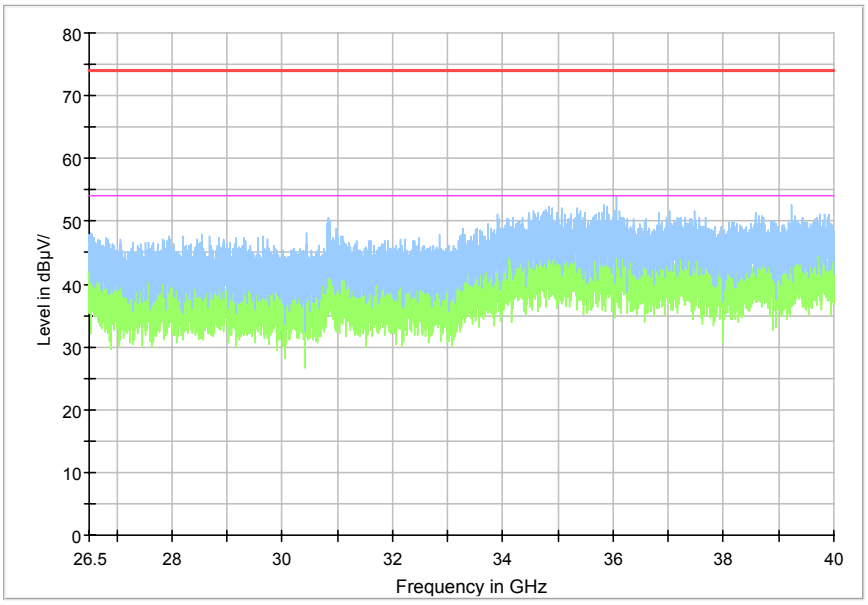


Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT40)



Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT40)

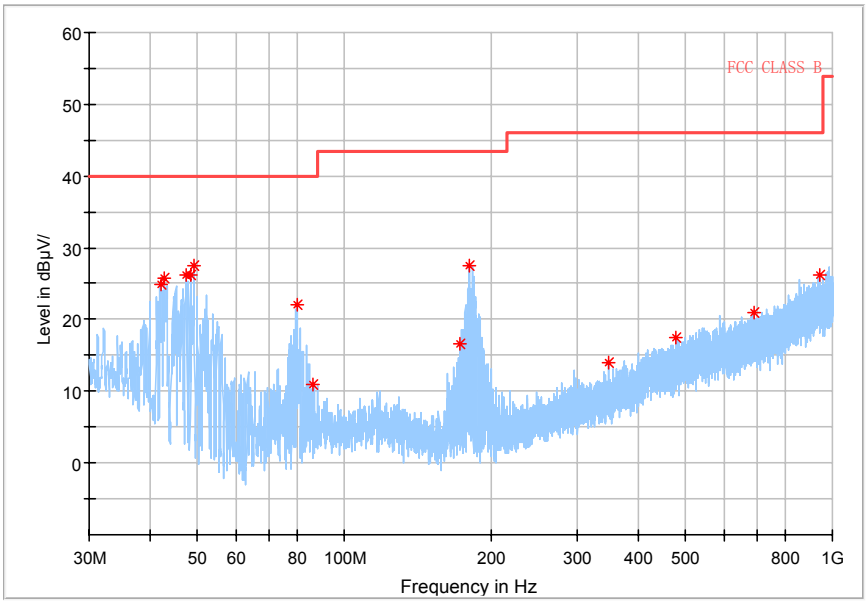
Full Spectrum



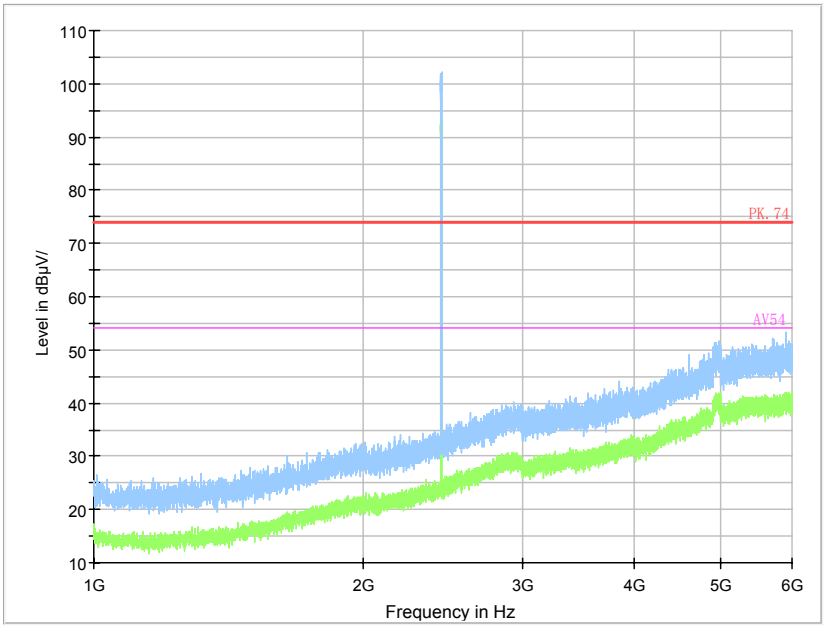
Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode
Modulation type: 802.11n MIMO (HT40)

Carrier frequency (MHz): 5200
Channel No.:40

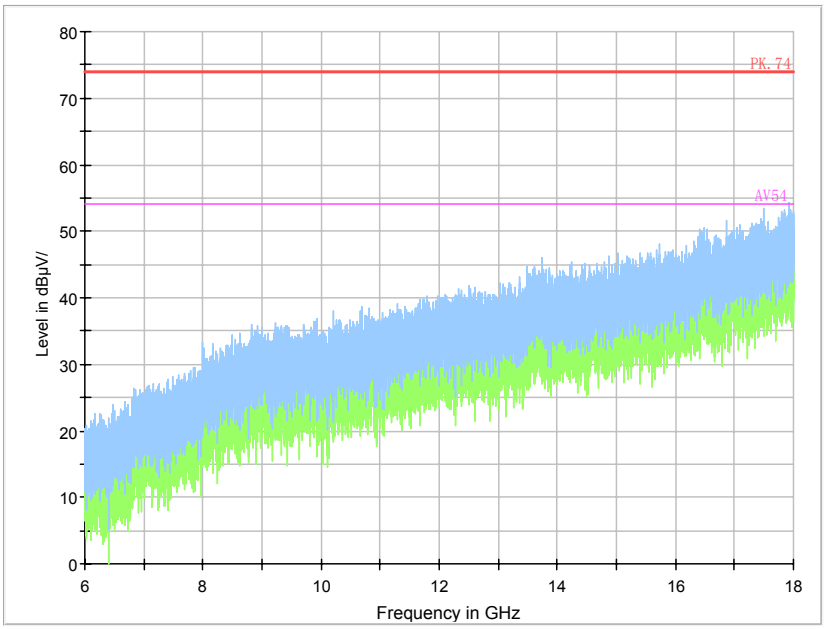
Full Spectrum



Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11ac MIMO (VHT20)

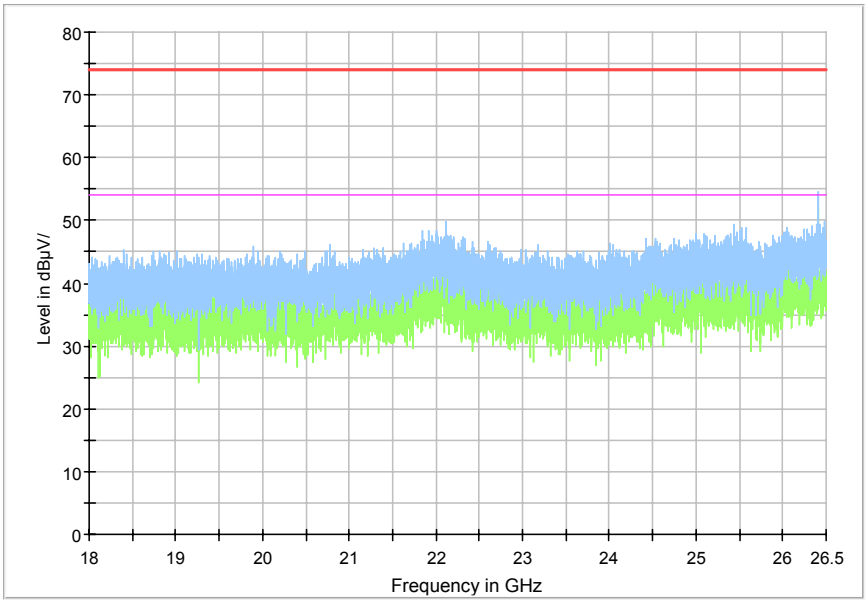


Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT20)



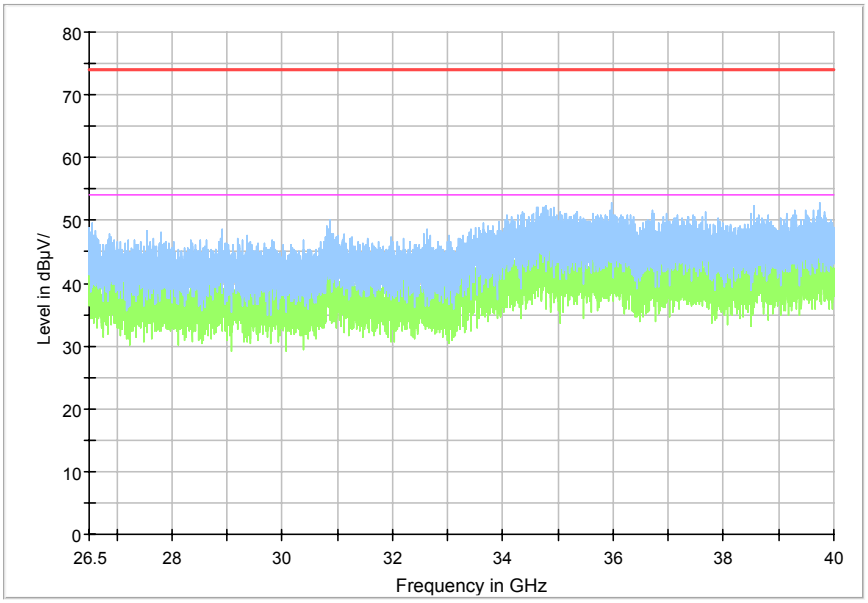
Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT20)

Full Spectrum



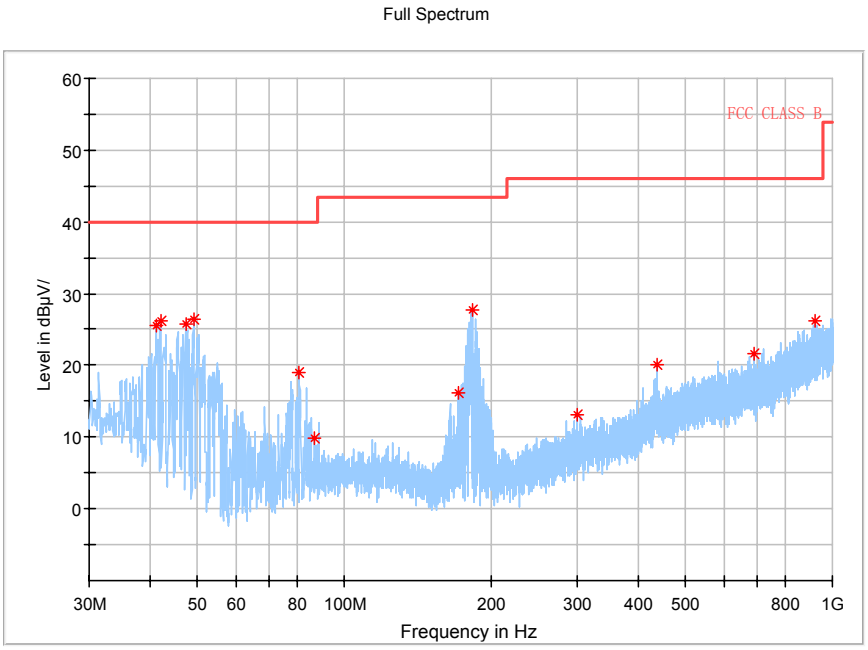
Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT20)

Full Spectrum

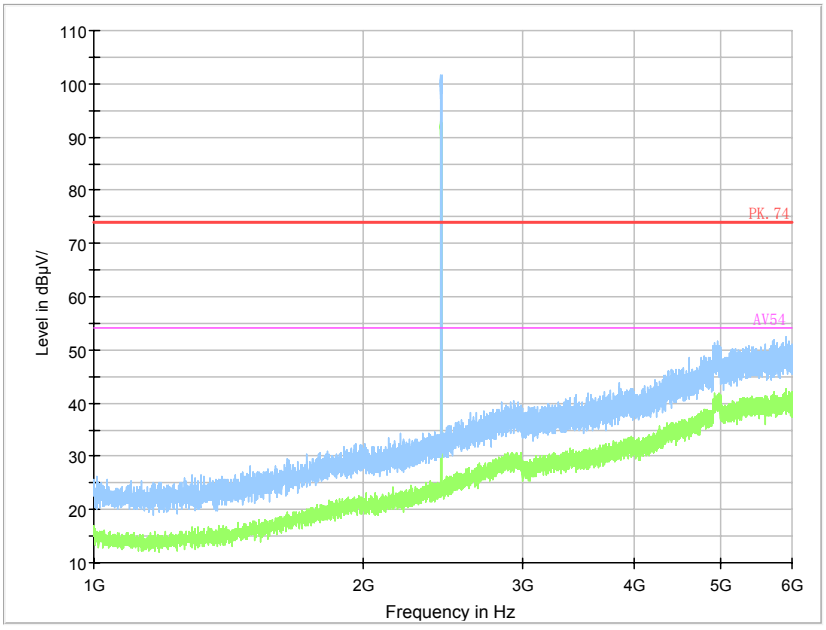


Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT20)

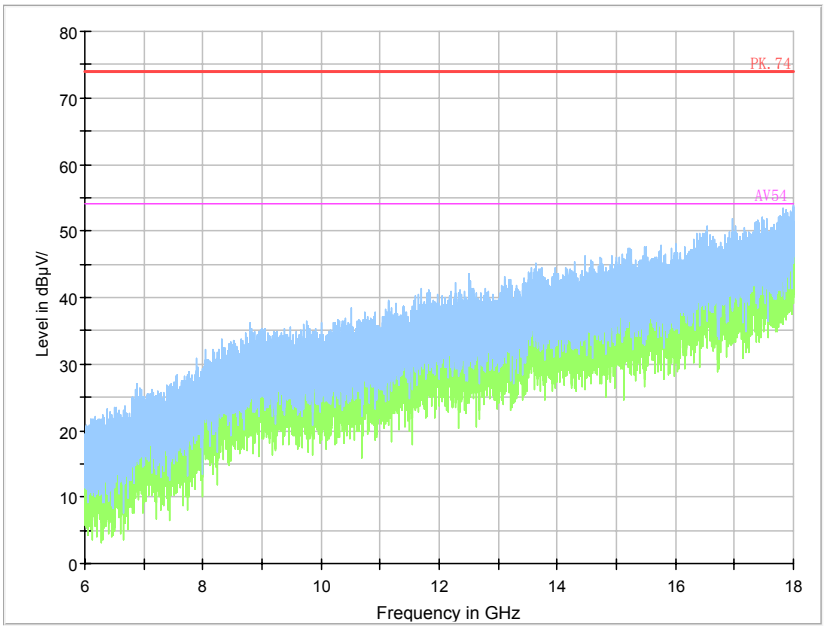
Carrier frequency (MHz): 5230
Channel No.:46



Frequency Range: 30MHz -1GHz
Detector: QP mode
Modulation type: 802.11ac MIMO (VHT40)

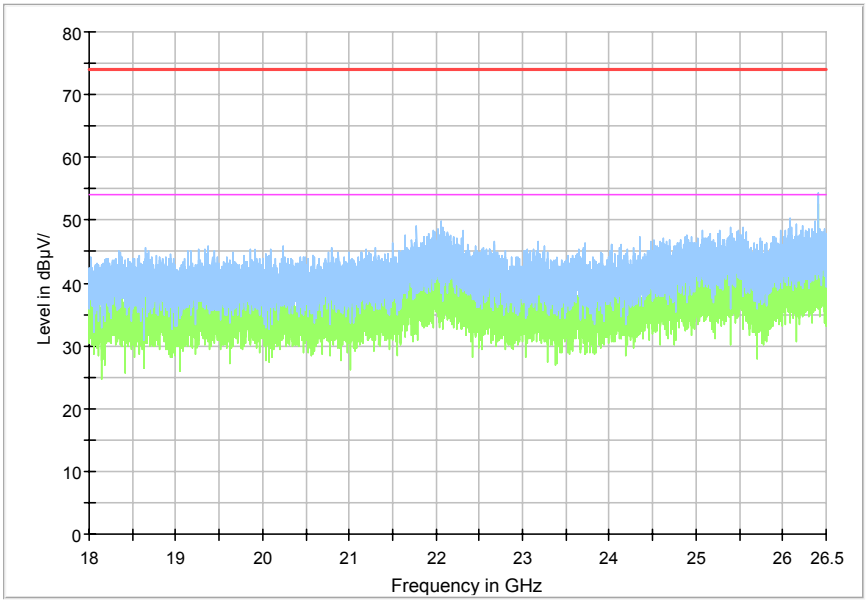


Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT40)

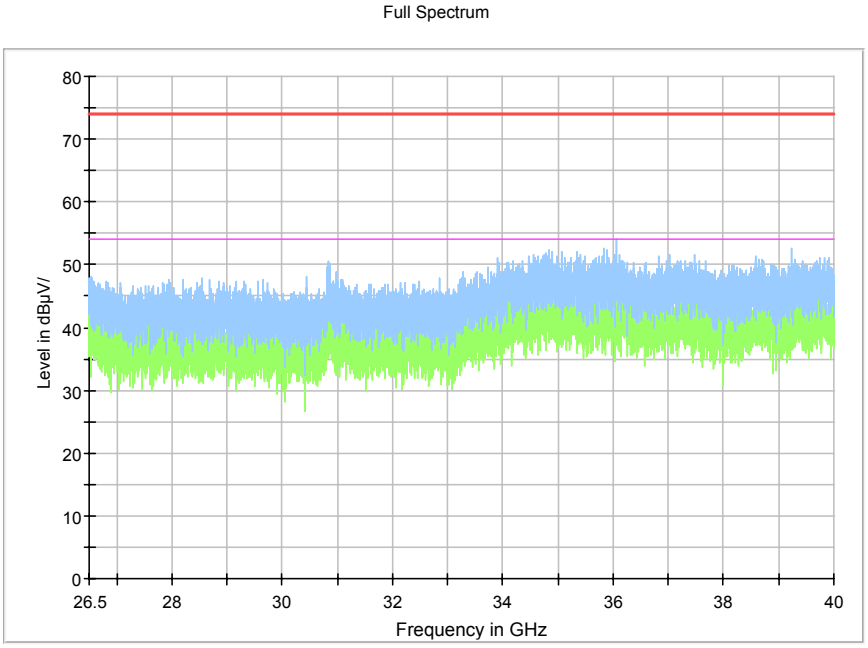


Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT40)

Full Spectrum

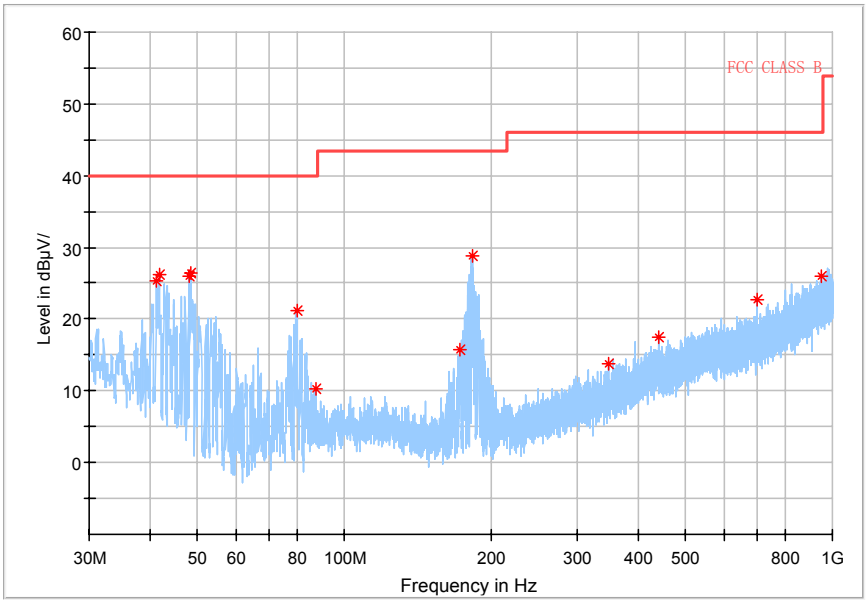


Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode

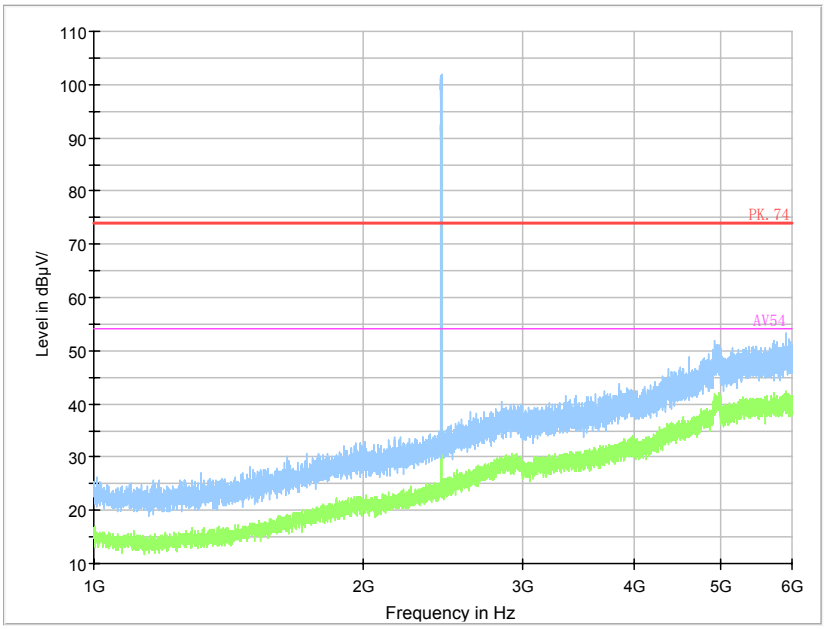


Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode

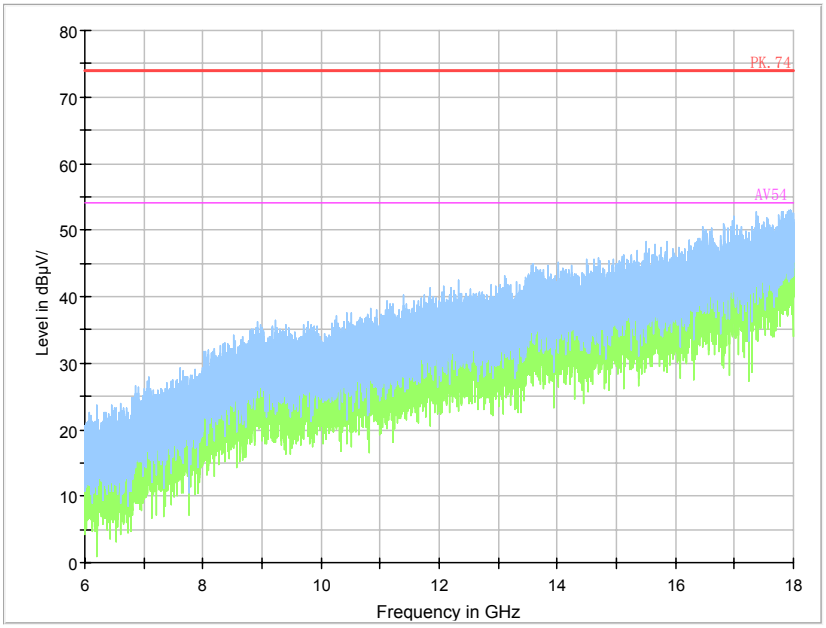
Carrier frequency (MHz): 5210
Channel No.:42



Frequency Range: 30MHz -1GHz
Detector: QP mode
Test Mode: 802.11ac MIMO (VHT80)

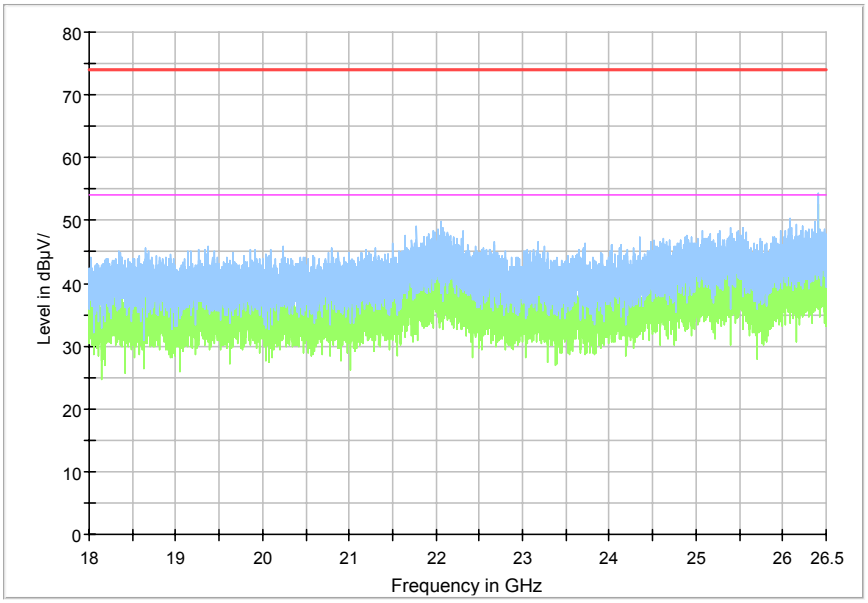


Frequency Range: 1GHz - 6GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT80)



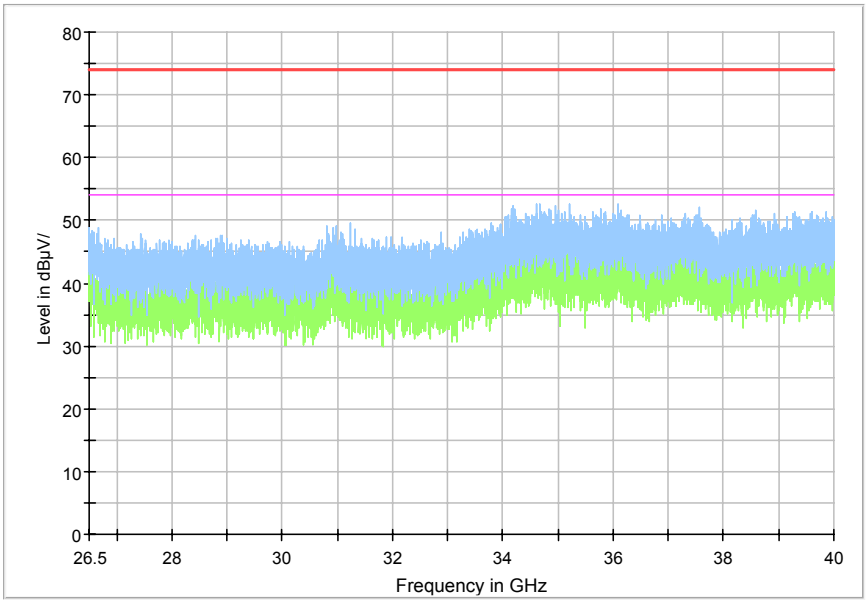
Frequency Range: 6GHz - 18GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT80)

Full Spectrum



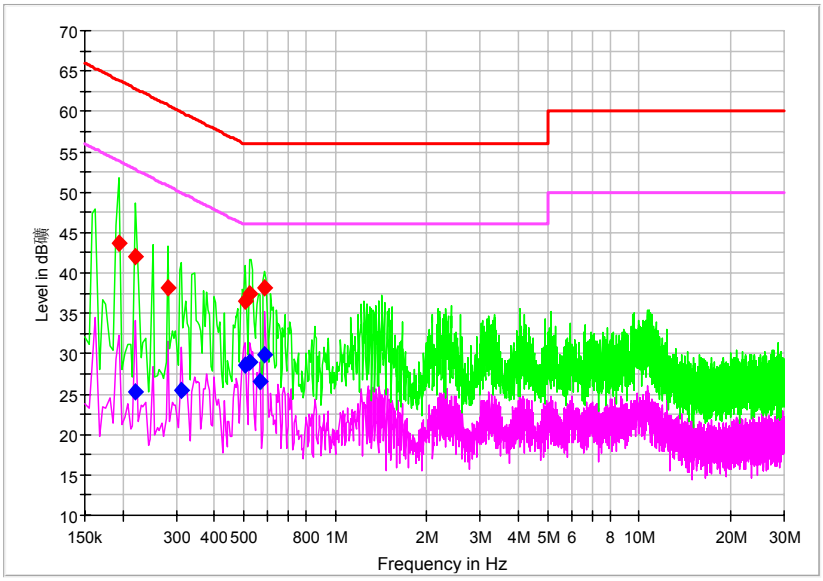
Frequency Range: 18GHz -26.5GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT80)

Full Spectrum



Frequency Range: 26.5GHz -40GHz
Detector: Av mode and PK mode
Modulation type: 802.11ac MIMO (VHT80)

AC Power line Conducted Emission (EUT on (11a) + Charging)



L +N Line

MEASUREMENT RESULT:

Frequency (MHz)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.220235	25.28	52.81	27.53	L1	29.9
0.312419	25.39	49.91	24.52	L1	30.0
0.505566	28.66	46.00	17.34	N	30.0
0.523125	28.91	46.00	17.09	N	30.0
0.567022	26.49	46.00	19.51	L1	30.0
0.584581	29.92	46.00	16.08	L1	30.0

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr. (dB)
0.193897	43.71	63.87	20.16	L1	29.9
0.220235	41.95	62.81	20.86	L1	29.9
0.281691	38.21	60.77	22.56	N	30.0
0.505566	36.53	56.00	19.47	N	30.0
0.523125	37.45	56.00	18.55	L1	30.0
0.584581	38.13	56.00	17.87	L1	30.0

---End of Test Report---