

TEST REPORT

FCC UNII Test for CTS-CISW
Class II Permissive Change

APPLICANT
CanTops Co., Ltd.

REPORT NO.
HCT-RF-2302-FC004

DATE OF ISSUE
February 10, 2023

Tested by
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<p>TEST REPORT</p> <p>FCC UNII Test for CTS-CISW</p>	<p>REPORT NO. HCT-RF-2302-FC004</p> <p>DATE OF ISSUE February 10, 2023</p> <p>Additional Model CTS-CISW-MNAX, CTS-CISW-BNAX</p>
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Eut Type Model Name	Wireless IoT Station CTS-CISW
FCC ID	RMN-60SIPT
Modulation type	OFDM
FCC Classification	Unlicensed National Information Infrastructure(NII)
FCC Rule Part(s)	Part 15.407

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test results were applied only to the test methods required by the standard.

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	February 10, 2023	Initial Release

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance

If this report is required to confirmation of authenticity, please contact to www.hct.co.kr

CONTENTS

1. GENERAL INFORMATION	5
EUT DESCRIPTION	5
2. TEST METHODOLOGY	7
EUT CONFIGURATION	7
EUT EXERCISE	7
GENERAL TEST PROCEDURES	7
DESCRIPTION OF TEST MODES	8
3. INSTRUMENT CALIBRATION	8
4. FACILITIES AND ACCREDITATIONS	8
4.1 FACILITIES	8
4.2 EQUIPMENT	8
5. ANTENNA REQUIREMENTS	9
6. MEASUREMENT UNCERTAINTY	9
7. DESCRIPTION OF TESTS	10
9. SUMMARY OF TEST RESULTS	18
10. TEST RESULT	19
10.1 RADIATED SPURIOUS EMISSIONS	19
10.2 RADIATED RESTRICTED BAND EDGE	32
11. LIST OF TEST EQUIPMENT	59

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	CTS-CISW	
Additional Model	CTS-CISW-MNAX, CTS-CISW-BNAX	
EUT Type	Wireless IoT Station	
Power Supply	DC 24.0V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20MHz BW : 5180 - 5240 40MHz BW : 5190 - 5230 80MHz BW : 5210
	U-NII-2A	20MHz BW : 5260 - 5320 40MHz BW : 5270 - 5310 80MHz BW : 5290
	U-NII-2C	20MHz BW : 5500 - 5720 40MHz BW : 5510 - 5710 80MHz BW : 5530 - 5690
	U-NII-3	20MHz BW : 5745 - 5825 40MHz BW : 5755 - 5795 80MHz BW : 5775
RF Output Power	Max Power [dBm]: 5 150 MHz ~ 5 250 MHz: 21.60 5 250 MHz ~ 5 350 MHz: 18.92 5 470 MHz ~ 5 725 MHz: 21.01 5 725 MHz ~ 5 850 MHz: 21.28	
Antenna Specification	Antenna type: Internal PCB Antenna	
Straddle channel	Supported	
TDWR Band	Not Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	January 09, 2023 ~ February 06, 2023	
EUT serial numbers	Conduction : CW-00637 1.0.1 Radiated : CW-00638 1.0.1	

• **Directional Gain Calculation**

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) f) (ii)

Directional gain =

$$\bullet \quad \text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

[5G WLAN]

Band	Ant Gain (dBi)		N _{ANT} / N _{SS}	Directional Gain (dBi)
UNII 1~3	ANT1	3.86	2 / 2	CDD : 6.87 SDM : 3.86
	ANT2	3.86		

2. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 entitled “Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E” and ANSI C63.10 (Version : 2013) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’ were used in the measurement.

EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E. / RSS-Gen issue 5, RSS-247 issue 2.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1GHz. Above 1GHz with 1.5m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3.75 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

3. INSTRUMENT CALIBRATION

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

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

4. FACILITIES AND ACCREDITATIONS

4.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

For ISED, test facility was accepted dated February 14, 2019 (CAB identifier: KR0032).

4.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

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

5. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203, § 15.407:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of § 15.203, § 15.407

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.90 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.14 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.82 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.76 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.52 (Confidence level about 95 %, $k=2$)

7. DESCRIPTION OF TESTS

7.1. Radiated Test

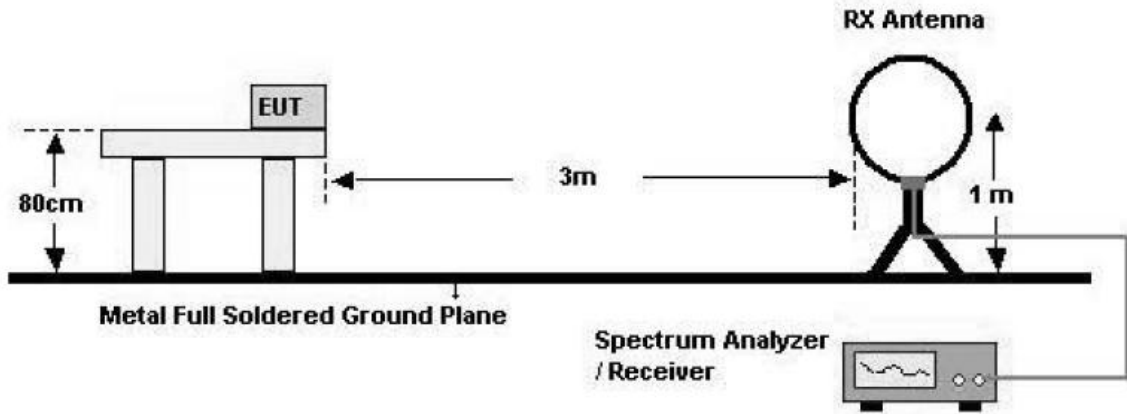
Limit

1. UNII 1: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
2. UNII 2A, 2C: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
3. UNII 3: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
4. 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 Section 15.209.

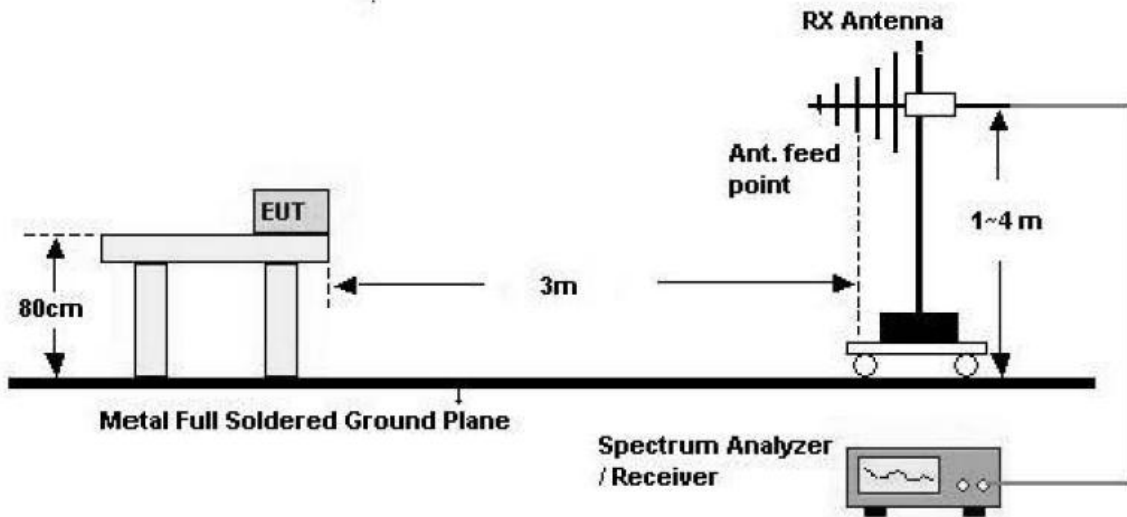
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

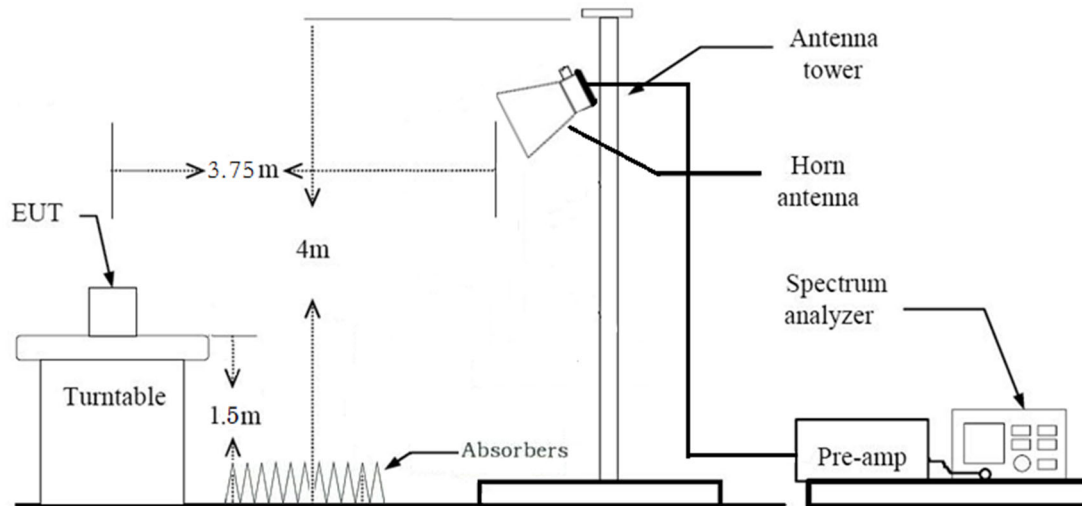
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) = $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$
Measurement Distance : 3 m
8. Spectrum Setting
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 9 kHz
 - VBW $\geq 3 \times$ RBW

9. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions(Below 1GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

6. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 100 kHz
- VBW \geq 3 x RBW

(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

In general, (1) is used mainly

7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)

8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3.75 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
 - ◆ Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. The unit was tested with its standard battery.
9. Spectrum Setting

(1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW \geq 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = max hold
- Allow sweeps to continue until the trace stabilizes.

Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

(2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW(Duty cycle \geq 98 percent) = $\text{VBW} \leq \text{RBW}/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = $\text{VBW} \geq 1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = max hold.
- Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a

factor of $1/x$, where x is the duty cycle.

10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor
11. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
12. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3.75 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. According to SVSWR requirement in ANSI 63.4-2014, We performed the radiated test at 3.75 m distance from center of turn table. So, we applied the distance factor(reference distance : 3 m).
 - ◆ Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)
6. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
7. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
8. The unit was tested with its standard battery.

9. Spectrum Setting

(1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW \geq 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = max hold
- Allow sweeps to continue until the trace stabilizes.

Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

(2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW(Duty cycle \geq 98 percent) = $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = $VBW \geq 1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.

- Trace mode = max hold.
- Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle.

10. Measured Frequency Range :

- 4500MHz ~ 5150MHz
- 5350MHz ~ 5460MHz
- 5460MHz ~ 5470MHz
- (75 MHz or more below the 5725MHz) ~ 5725MHz
- 5850MHz ~ (75 MHz or more above the 5850MHz)

11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(G) + Distance Factor(D.F)

7.2. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
 - Mode : Stand alone + Shark Antenna
2. EUT Axis
 - Radiated Spurious Emissions : X
 - Radiated Restricted Band Edge : X
3. All tests are performed in continuous transmission mode. (Duty cycle >98%)
4. All datarate of operation were investigated and the worst case datarate results are reported
 - 802.11a : 6Mbps
 - 802.11n : MCS0
 - 802.11ac : MCS0
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
 - Position : Horizontal, Vertical, Parallel to the ground plane

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	NT ^{Note2}
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)		NT ^{Note2}
Maximum Conducted Output Power	§ 15.407(a)(1)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10 log log ₁₀ (BW) dBm (5470-5725 MHz) <1 W(5725-5850 MHz)		NT ^{Note2}
Peak Power Spectral Density	§ 15.407(a)(1), (5)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		NT ^{Note2}
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		NT ^{Note2}
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits		NT ^{Note2}
Undesirable Emissions	§ 15.407(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.7 (UNII 3)		Radiated
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	C ^{Note3}	

Note:

1. C = Comply, NT = Not Tested, NA = Not Applicable, NC = Not Comply
2. C2PC model is electrically identical to the Original model.
The Product Equality Declaration includes detailed information about the changes between the devices.
3. The data from that application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the test result of section 10
4. Output power was verified to be within the expected tune up tolerances prior to performing the spot checks for radiated spurious emissions and band edge to confirm that the proposed changes to the digital circuitry had not adversely affected the previously reported values in the original filing.

10. TEST RESULT

10.1 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Value	A.F+C.L+D.F	Ant. POL	Total	Limit	Margin
[MHz]	[dB μ V]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]
No Critical peaks found						

Note:

1. The Measured Level of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = $40\log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dB μ V) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	Ant. POL	Total	Limit	Margin
[MHz]	[dB μ V]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]
No Critical peaks found						

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

[Only MIMO(CDD)]
Frequency Range : Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10360	54.46	-0.94	V	53.52	68.20	14.68	PK
15540	53.74	1.57	V	55.31	73.98	18.67	PK
15540	41.18	1.57	V	42.75	53.98	11.23	AV
10360	53.91	-0.94	H	52.97	68.20	15.23	PK
15540	54.53	1.57	H	56.10	73.98	17.88	PK
15540	42.22	1.57	H	43.79	53.98	10.19	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10400	54.95	-0.07	V	54.88	68.20	13.32	PK
15600	53.28	1.52	V	54.80	73.98	19.18	PK
15600	42.49	1.52	V	44.01	53.98	9.97	AV
10400	53.21	-0.07	H	53.14	68.20	15.06	PK
15600	54.89	1.52	H	56.41	73.98	17.57	PK
15600	43.26	1.52	H	44.78	53.98	9.20	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10480	55.92	-0.97	V	54.95	68.20	13.25	PK
15720	54.21	0.64	V	54.85	73.98	19.13	PK
15720	42.19	0.64	V	42.83	53.98	11.15	AV
10480	53.85	-0.97	H	52.88	68.20	15.32	PK
15720	55.88	0.64	H	56.52	73.98	17.46	PK
15720	43.37	0.64	H	44.01	53.98	9.97	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10520	56.49	-1.06	V	55.44	68.20	12.77	PK
15780	52.49	0.59	V	53.08	73.98	20.90	PK
15780	38.57	0.59	V	39.16	53.98	14.82	AV
10520	55.51	-1.06	H	54.46	68.20	13.75	PK
15780	56.15	0.59	H	56.74	73.98	17.24	PK
15780	43.44	0.59	H	44.03	53.98	9.95	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10600	56.67	-0.61	V	56.06	73.98	17.92	PK
10600	43.93	-0.61	V	43.32	53.98	10.66	AV
15900	55.57	0.25	V	55.82	73.98	18.16	PK
15900	43.29	0.25	V	43.54	53.98	10.44	AV
10600	54.59	-0.61	H	53.98	73.98	20.00	PK
10600	42.83	-0.61	H	42.22	53.98	11.76	AV
15900	56.19	0.25	H	56.44	73.98	17.54	PK
15900	44.66	0.25	H	44.91	53.98	9.07	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
10640	54.77	-0.73	V	54.04	73.98	19.94	PK
10640	42.61	-0.73	V	41.88	53.98	12.10	AV
15960	53.21	0.53	V	53.74	73.98	20.24	PK
15960	41.88	0.53	V	42.41	53.98	11.57	AV
10640	53.22	-0.73	H	52.49	73.98	21.49	PK
10640	41.58	-0.73	H	40.85	53.98	13.13	AV
15960	54.86	0.53	H	55.39	73.98	18.59	PK
15960	42.27	0.53	H	42.80	53.98	11.18	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11000	56.85	-0.18	V	56.67	73.98	17.31	PK
11000	43.08	-0.18	V	42.90	53.98	11.08	AV
16500	55.01	0.60	V	55.61	68.20	12.59	PK
11000	55.45	-0.18	H	55.27	73.98	18.71	PK
11000	43.05	-0.18	H	42.87	53.98	11.11	AV
16500	55.28	0.60	H	55.88	68.20	12.32	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11200	62.37	-1.01	V	61.36	73.98	12.62	PK
11200	48.97	-1.01	V	47.96	53.98	6.02	AV
16800	62.11	-0.07	V	62.04	68.20	6.16	PK
11200	61.27	-1.01	H	60.26	73.98	13.72	PK
11200	47.25	-1.01	H	46.24	53.98	7.74	AV
16800	64.92	-0.07	H	64.85	68.20	3.35	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11440	57.19	-0.52	V	56.67	73.98	17.31	PK
11440	44.46	-0.52	V	43.94	53.98	10.04	AV
17160	61.90	0.64	V	62.54	68.20	5.66	PK
11440	56.29	-0.52	H	55.77	73.98	18.21	PK
11440	43.12	-0.52	H	42.60	53.98	11.38	AV
17160	62.77	0.64	H	63.41	68.20	4.79	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11490	58.00	-0.38	V	57.62	73.98	16.36	PK
11490	45.09	-0.38	V	44.71	53.98	9.27	AV
17235	60.05	1.04	V	61.09	68.20	7.11	PK
11490	57.52	-0.38	H	57.14	73.98	16.84	PK
11490	44.61	-0.38	H	44.23	53.98	9.75	AV
17235	61.65	1.04	H	62.69	68.20	5.51	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11570	58.11	-0.29	V	57.82	73.98	16.17	PK
11570	45.02	-0.29	V	44.73	53.98	9.26	AV
17355	59.61	1.14	V	60.75	68.20	7.46	PK
11570	57.13	-0.29	H	56.84	73.98	17.15	PK
11570	44.92	-0.29	H	44.63	53.98	9.36	AV
17355	60.59	1.14	H	61.73	68.20	6.48	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11650	58.19	-1.16	V	57.03	73.98	16.95	PK
11650	45.07	-1.16	V	43.91	53.98	10.07	AV
17475	55.47	2.16	V	57.63	68.20	10.57	PK
11650	55.93	-1.16	H	54.77	73.98	19.21	PK
11650	43.63	-1.16	H	42.47	53.98	11.51	AV
17475	56.64	2.16	H	58.80	68.20	9.40	PK

Band :	UNII 2C
Operation Mode:	802.11n_HT20
MCS Index :	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11000	55.87	-0.18	V	55.69	73.98	18.29	PK
11000	42.59	-0.18	V	42.41	53.98	11.57	AV
16500	53.95	0.60	V	54.55	68.20	13.65	PK
11000	54.27	-0.18	H	54.09	73.98	19.89	PK
11000	41.88	-0.18	H	41.70	53.98	12.28	AV
16500	54.52	0.60	H	55.12	68.20	13.08	PK

Band :	UNII 2C
Operation Mode:	802.11n_HT20
MCS Index :	0
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11200	62.09	-1.01	V	61.08	73.98	12.90	PK
11200	48.79	-1.01	V	47.78	53.98	6.20	AV
16800	64.67	-0.07	V	64.60	68.20	3.60	PK
11200	61.28	-1.01	H	60.27	73.98	13.71	PK
11200	47.32	-1.01	H	46.31	53.98	7.67	AV
16800	64.71	-0.07	H	64.64	68.20	3.56	PK

Band :	UNII 2C
Operation Mode:	802.11n_HT20
MCS Index :	0
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11440	57.36	-0.52	V	56.84	73.98	17.14	PK
11440	44.11	-0.52	V	43.59	53.98	10.39	AV
17160	60.28	0.64	V	60.92	68.20	7.28	PK
11440	55.57	-0.52	H	55.05	73.98	18.93	PK
11440	43.26	-0.52	H	42.74	53.98	11.24	AV
17160	61.94	0.64	H	62.58	68.20	5.62	PK

Band :	UNII 2C
Operation Mode:	802.11ac_VHT20
MCS Index :	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11000	55.49	-0.18	V	55.31	73.98	18.67	PK
11000	42.56	-0.18	V	42.38	53.98	11.60	AV
16500	52.91	0.60	V	53.51	68.20	14.69	PK
11000	54.36	-0.18	H	54.18	73.98	19.80	PK
11000	41.42	-0.18	H	41.24	53.98	12.74	AV
16500	54.80	0.60	H	55.40	68.20	12.80	PK

Band :	UNII 2C
Operation Mode:	802.11ac_VHT20
MCS Index :	0
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11200	61.25	-1.01	V	60.24	73.98	13.74	PK
11200	48.59	-1.01	V	47.58	53.98	6.40	AV
16800	62.42	-0.07	V	62.35	68.20	5.85	PK
11200	60.45	-1.01	H	59.44	73.98	14.54	PK
11200	47.61	-1.01	H	46.60	53.98	7.38	AV
16800	63.29	-0.07	H	63.22	68.20	4.98	PK

Band :	UNII 2C
Operation Mode:	802.11ac_VHT20
MCS Index :	0
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11440	56.38	-0.52	V	55.86	73.98	18.12	PK
11440	44.12	-0.52	V	43.60	53.98	10.38	AV
17160	60.55	0.64	V	61.19	68.20	7.01	PK
11440	55.13	-0.52	H	54.61	73.98	19.37	PK
11440	43.53	-0.52	H	43.01	53.98	10.97	AV
17160	61.10	0.64	H	61.74	68.20	6.46	PK

Band :	UNII 2C
Operation Mode:	802.11n_HT40
MCS Index :	0
Operating Frequency	5590
Channel No.	118

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11180	57.10	-1.04	V	56.06	73.98	17.92	PK
11180	44.93	-1.04	V	43.89	53.98	10.09	AV
16770	58.42	0.35	V	58.77	68.20	9.43	PK
11180	56.04	-1.04	H	55.00	73.98	18.98	PK
11180	43.55	-1.04	H	42.51	53.98	11.47	AV
16770	59.70	0.35	H	60.05	68.20	8.15	PK

Band :	UNII 2C
Operation Mode:	802.11ac_VHT40
MCS Index :	0
Operating Frequency	5590
Channel No.	118

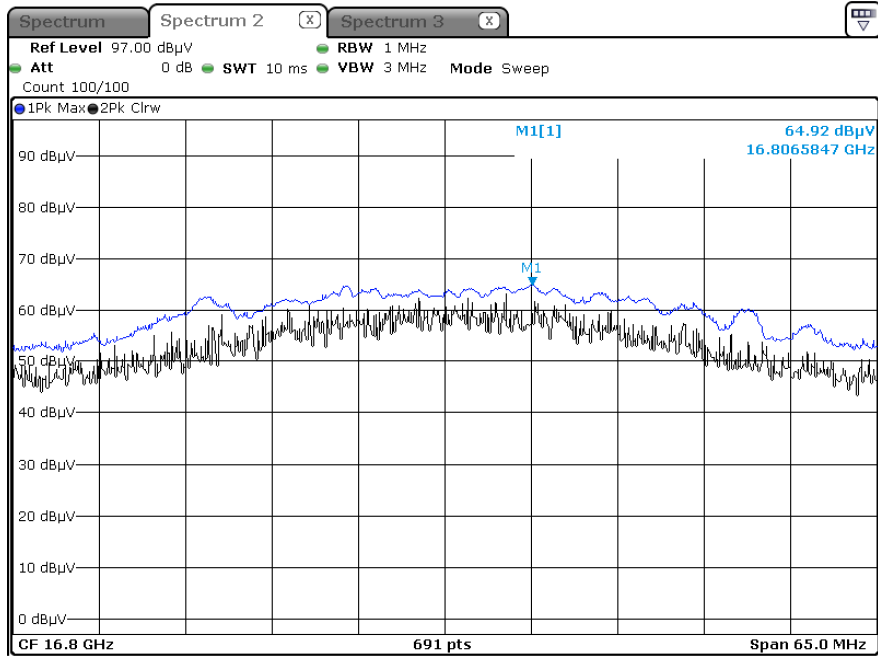
Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11180	56.84	-1.04	V	55.80	73.98	18.18	PK
11180	44.86	-1.04	V	43.82	53.98	10.16	AV
16770	57.91	0.35	V	58.26	68.20	9.94	PK
11180	55.78	-1.04	H	54.74	73.98	19.24	PK
11180	43.91	-1.04	H	42.87	53.98	11.11	AV
16770	59.06	0.35	H	59.41	68.20	8.79	PK

Band :	UNII 2C
Operation Mode:	802.11ac_VHT80
MCS Index :	0
Operating Frequency	5610
Channel No.	122

Frequency	Measured Value	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
11220	54.98	-0.80	V	54.18	73.98	19.80	PK
11220	42.73	-0.80	V	41.93	53.98	12.05	AV
16830	56.19	0.13	V	56.32	68.20	11.88	PK
11220	53.23	-0.80	H	52.43	73.98	21.55	PK
11220	41.88	-0.80	H	41.08	53.98	12.90	AV
16830	57.21	0.13	H	57.34	68.20	10.86	PK

Test Plots

Peak Reading (802.11a, Ch.120 3rd Harmonic, Y-H)

**Note:**

Only the worst case plots for Radiated Spurious Emissions.

10.2 RADIATED RESTRICTED BAND EDGE

[Olny MIMO(CDD)]

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	45.26	13.64	H	58.90	73.98	15.08	PK
5150	33.29	13.64	H	46.93	53.98	7.05	AV
5150	47.95	13.64	V	61.59	73.98	12.39	PK
5150	34.76	13.64	V	48.4	53.98	5.58	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency	Measured Value	CL+AF+DF-AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	45.64	13.64	H	59.28	73.98	14.70	PK
5150	32.65	13.64	H	46.29	53.98	7.69	AV
5150	46.17	13.64	V	59.81	73.98	14.17	PK
5150	33.73	13.64	V	47.37	53.98	6.61	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	44.43	14.22	H	58.65	73.98	15.33	PK
5350	32.41	14.22	H	46.63	53.98	7.35	AV
5350	45.66	14.22	V	59.88	73.98	14.10	PK
5350	33.03	14.22	V	47.25	53.98	6.73	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	46.23	14.22	H	60.45	73.98	13.53	PK
5350	34.07	14.22	H	48.29	53.98	5.69	AV
5350	47.21	14.22	V	61.43	73.98	12.55	PK
5350	35.19	14.22	V	49.41	53.98	4.57	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	42.37	14.69	H	57.06	73.98	16.92	PK
5460	31.68	14.69	H	46.37	53.98	7.61	AV
5470	47.69	15.03	H	62.72	68.20	5.48	PK
5460	43.83	14.69	V	58.52	73.98	15.46	PK
5460	32.72	14.69	V	47.41	53.98	6.57	AV
5470	48.44	15.03	V	63.47	68.20	4.73	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5520 MHz
Channel No.	104 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	42.67	14.69	H	57.36	73.98	16.62	PK
5460	31.90	14.69	H	46.59	53.98	7.39	AV
5470	44.05	15.03	H	59.08	68.20	9.12	PK
5460	43.17	14.69	V	57.86	73.98	16.12	PK
5460	32.12	14.69	V	46.81	53.98	7.17	AV
5470	45.44	15.03	V	60.47	68.20	7.73	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	46.65	13.64	H	60.29	73.98	13.69	PK
5150	34.66	13.64	H	48.3	53.98	5.68	AV
5150	48.26	13.64	V	61.9	73.98	12.08	PK
5150	35.16	13.64	V	48.8	53.98	5.18	AV

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	45.61	13.64	H	59.25	73.98	14.73	PK
5150	32.18	13.64	H	45.82	53.98	8.16	AV
5150	45.89	13.64	V	59.53	73.98	14.45	PK
5150	33.87	13.64	V	47.51	53.98	6.47	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	44.57	14.22	H	58.79	73.98	15.19	PK
5350	32.24	14.22	H	46.46	53.98	7.52	AV
5350	45.64	14.22	V	59.86	73.98	14.12	PK
5350	33.09	14.22	V	47.31	53.98	6.67	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	46.30	14.22	H	60.52	73.98	13.46	PK
5350	34.27	14.22	H	48.49	53.98	5.49	AV
5350	47.83	14.22	V	62.05	73.98	11.93	PK
5350	35.51	14.22	V	49.73	53.98	4.25	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	43.25	14.69	H	57.94	73.98	16.04	PK
5460	31.55	14.69	H	46.24	53.98	7.74	AV
5470	46.51	15.03	H	61.54	68.20	6.66	PK
5460	44.79	14.69	V	59.48	73.98	14.50	PK
5460	32.79	14.69	V	47.48	53.98	6.50	AV
5470	47.81	15.03	V	62.84	68.20	5.36	PK

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5520 MHz
Channel No.	104 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	41.99	14.69	H	56.68	73.98	17.30	PK
5460	31.99	14.69	H	46.68	53.98	7.30	AV
5470	43.82	15.03	H	58.85	68.20	9.35	PK
5460	42.85	14.69	V	57.54	73.98	16.44	PK
5460	32.16	14.69	V	46.85	53.98	7.13	AV
5470	44.54	15.03	V	59.57	68.20	8.63	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	46.87	13.64	H	60.51	73.98	13.47	PK
5150	34.54	13.64	H	48.18	53.98	5.80	AV
5150	47.53	13.64	V	61.17	73.98	12.81	PK
5150	35.04	13.64	V	48.68	53.98	5.30	AV

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	44.92	13.64	H	58.56	73.98	15.42	PK
5150	32.89	13.64	H	46.53	53.98	7.45	AV
5150	45.64	13.64	V	59.28	73.98	14.70	PK
5150	33.95	13.64	V	47.59	53.98	6.39	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	43.66	14.22	H	57.88	73.98	16.10	PK
5350	32.48	14.22	H	46.7	53.98	7.28	AV
5350	45.85	14.22	V	60.07	73.98	13.91	PK
5350	33.14	14.22	V	47.36	53.98	6.62	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	45.23	14.22	H	59.45	73.98	14.53	PK
5350	33.37	14.22	H	47.59	53.98	6.39	AV
5350	46.24	14.22	V	60.46	73.98	13.52	PK
5350	34.87	14.22	V	49.09	53.98	4.89	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	43.25	14.69	H	57.94	73.98	16.04	PK
5460	31.72	14.69	H	46.41	53.98	7.57	AV
5470	45.91	15.03	H	60.94	68.20	7.26	PK
5460	44.82	14.69	V	59.51	73.98	14.47	PK
5460	32.83	14.69	V	47.52	53.98	6.46	AV
5470	46.98	15.03	V	62.01	68.20	6.19	PK

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5520 MHz
Channel No.	104 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	42.72	14.69	H	57.41	73.98	16.57	PK
5460	31.93	14.69	H	46.62	53.98	7.36	AV
5470	44.54	15.03	H	59.57	68.20	8.63	PK
5460	43.29	14.69	V	57.98	73.98	16.00	PK
5460	32.44	14.69	V	47.13	53.98	6.85	AV
5470	45.16	15.03	V	60.19	68.20	8.01	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	47.95	13.64	H	61.59	73.98	12.39	PK
5150	37.11	13.64	H	50.75	53.98	3.23	AV
5150	49.21	13.64	V	62.85	73.98	11.13	PK
5150	38.12	13.64	V	51.76	53.98	2.22	AV

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	44.65	13.64	H	58.29	73.98	15.69	PK
5150	32.77	13.64	H	46.41	53.98	7.57	AV
5150	45.16	13.64	V	58.8	73.98	15.18	PK
5150	33.72	13.64	V	47.36	53.98	6.62	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	43.76	14.22	H	57.98	73.98	16.00	PK
5350	32.11	14.22	H	46.33	53.98	7.65	AV
5350	44.58	14.22	V	58.8	73.98	15.18	PK
5350	32.94	14.22	V	47.16	53.98	6.82	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	46.68	14.22	H	60.90	73.98	13.08	PK
5350	34.54	14.22	H	48.76	53.98	5.22	AV
5350	47.15	14.22	V	61.37	73.98	12.61	PK
5350	35.55	14.22	V	49.77	53.98	4.21	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	45.25	14.69	H	59.94	73.98	14.04	PK
5460	34.22	14.69	H	48.91	53.98	5.07	AV
5470	49.62	15.03	H	64.65	68.20	3.55	PK
5460	46.20	14.69	V	60.89	73.98	13.09	PK
5460	35.29	14.69	V	49.98	53.98	4.00	AV
5470	50.14	15.03	V	65.17	68.20	3.03	PK

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	43.26	14.69	H	57.95	73.98	16.03	PK
5460	33.02	14.69	H	47.71	53.98	6.27	AV
5470	45.37	15.03	H	60.4	68.20	7.80	PK
5460	44.58	14.69	V	59.27	73.98	14.71	PK
5460	33.29	14.69	V	47.98	53.98	6.00	AV
5470	46.06	15.03	V	61.09	68.20	7.11	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	49.62	13.64	H	63.26	73.98	10.72	PK
5150	36.15	13.64	H	49.79	53.98	4.19	AV
5150	50.48	13.64	V	64.12	73.98	9.86	PK
5150	37.70	13.64	V	51.34	53.98	2.64	AV

Band :	UNII 1
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	43.34	13.64	H	56.98	73.98	17.00	PK
5150	32.49	13.64	H	46.13	53.98	7.85	AV
5150	44.86	13.64	V	58.5	73.98	15.48	PK
5150	33.57	13.64	V	47.21	53.98	6.77	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	44.85	14.22	H	59.07	73.98	14.91	PK
5350	32.04	14.22	H	46.26	53.98	7.72	AV
5350	45.05	14.22	V	59.27	73.98	14.71	PK
5350	32.95	14.22	V	47.17	53.98	6.81	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	46.81	14.22	H	61.03	73.98	12.95	PK
5350	34.54	14.22	H	48.76	53.98	5.22	AV
5350	48.64	14.22	V	62.86	73.98	11.12	PK
5350	35.37	14.22	V	49.59	53.98	4.39	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	45.33	14.69	H	60.02	73.98	13.96	PK
5460	34.29	14.69	H	48.98	53.98	5.00	AV
5470	49.63	15.03	H	64.66	68.20	3.54	PK
5460	46.99	14.69	V	61.68	73.98	12.30	PK
5460	34.91	14.69	V	49.60	53.98	4.38	AV
5470	50.32	15.03	V	65.35	68.20	2.85	PK

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	42.87	14.69	H	57.56	73.98	16.42	PK
5460	32.62	14.69	H	47.31	53.98	6.67	AV
5470	45.38	15.03	H	60.41	68.20	7.79	PK
5460	43.49	14.69	V	58.18	73.98	15.80	PK
5460	33.97	14.69	V	48.66	53.98	5.32	AV
5470	46.45	15.03	V	61.48	68.20	6.72	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5150	48.76	13.64	H	62.40	73.98	11.58	PK
5150	36.22	13.64	H	49.86	53.98	4.12	AV
5150	49.17	13.64	V	62.81	73.98	11.17	PK
5150	37.86	13.64	V	51.5	53.98	2.48	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5290 MHz
Channel No.	58 Ch

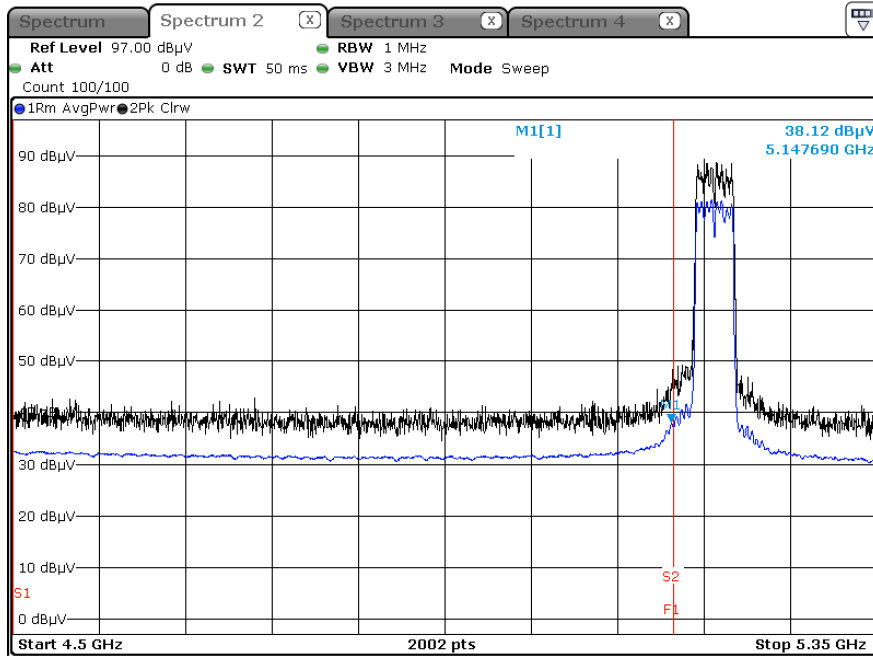
Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5350	46.59	14.22	H	60.81	73.98	13.17	PK
5350	35.07	14.22	H	49.29	53.98	4.69	AV
5350	47.98	14.22	V	62.2	73.98	11.78	PK
5350	36.14	14.22	V	50.36	53.98	3.62	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

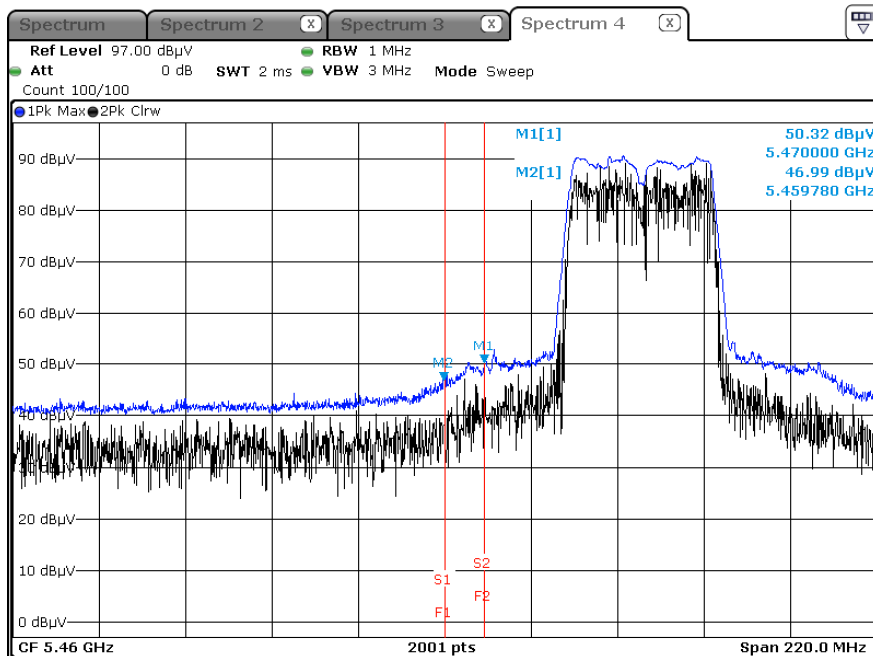
Frequency	Measured Value	CL+AF+DF -AG+ATT	ANT. POL	Total	Limit	Margin	Detect
[MHz]	[dB μ V/m]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]	
5460	46.05	14.69	H	60.74	73.98	13.24	PK
5460	35.73	14.69	H	50.42	53.98	3.56	AV
5470	48.02	15.03	H	63.05	68.20	5.15	PK
5460	47.28	14.69	V	61.97	73.98	12.01	PK
5460	36.23	14.69	V	50.92	53.98	3.06	AV
5470	48.39	15.03	V	63.42	68.20	4.78	PK

Test Plots(UNII 1)

Average Measured (802.11 n_HT40, Ch.38, Y-V)



Peak Measured (802.11 ac_VHT40, Ch.102, Y-V)

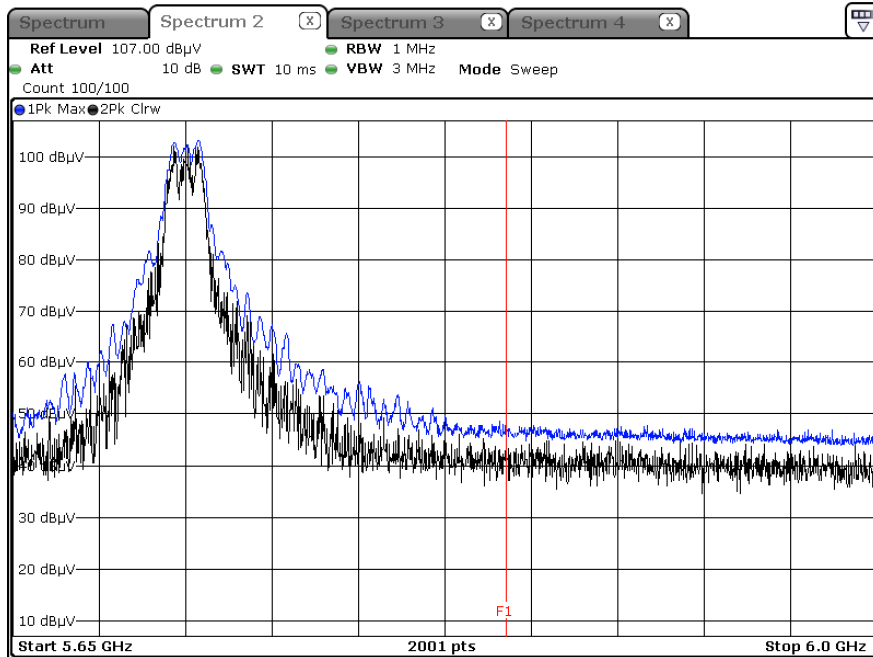


Note:

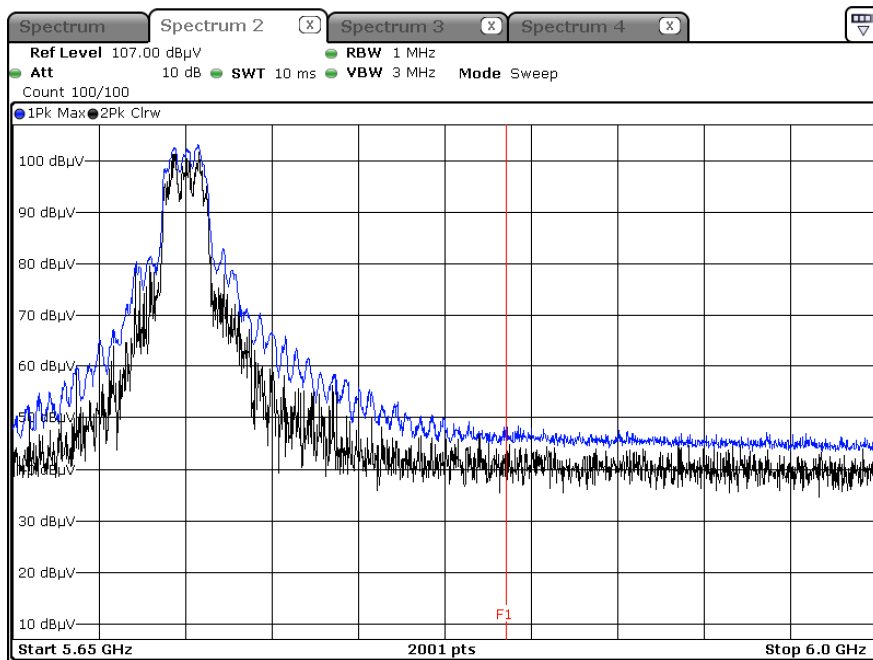
Only the worst case plots for Radiated Restricted Band Edge.

Test Plots(Straddle Channel)

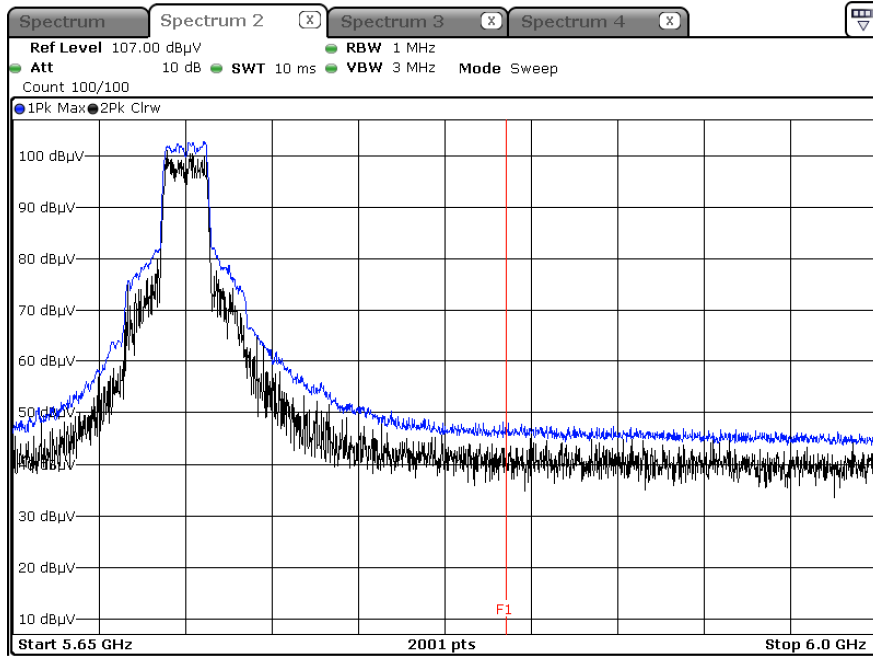
Peak Result (802.11a, Ch.144, Y-V)



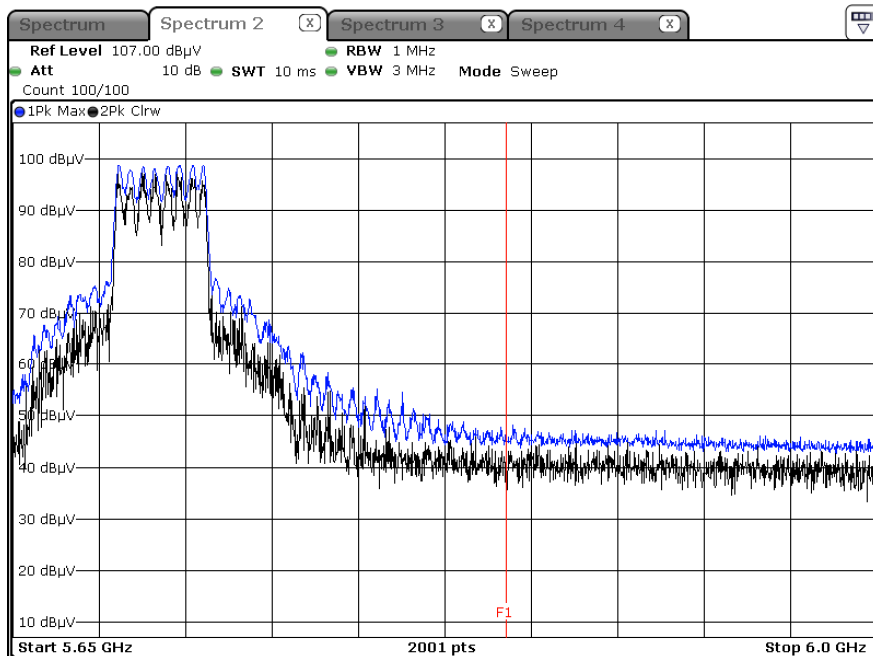
Peak Result (802.11n_HT20, Ch.144, Y-V)



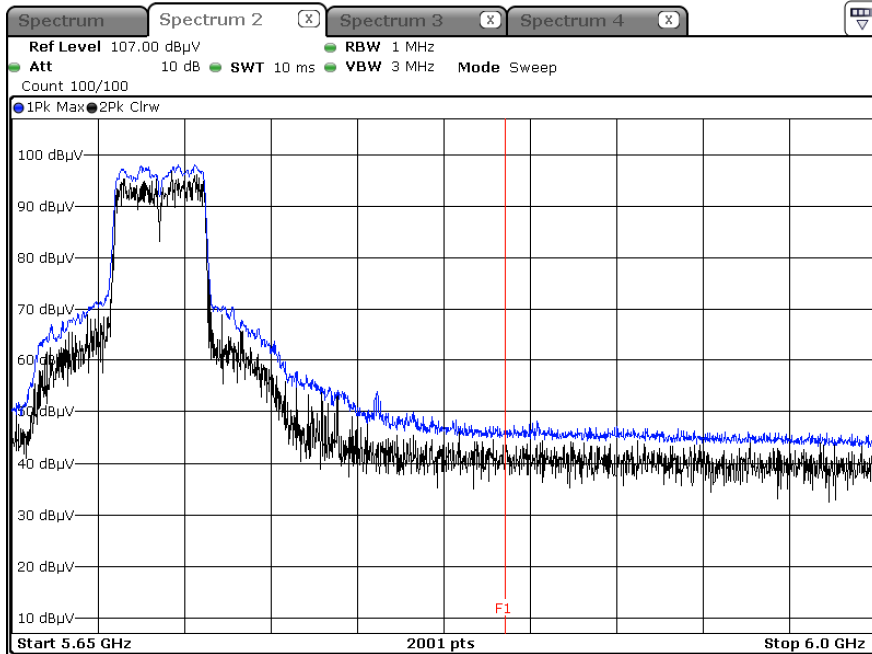
Peak Result (802.11ac_VHT20, Ch.144, Y-V)



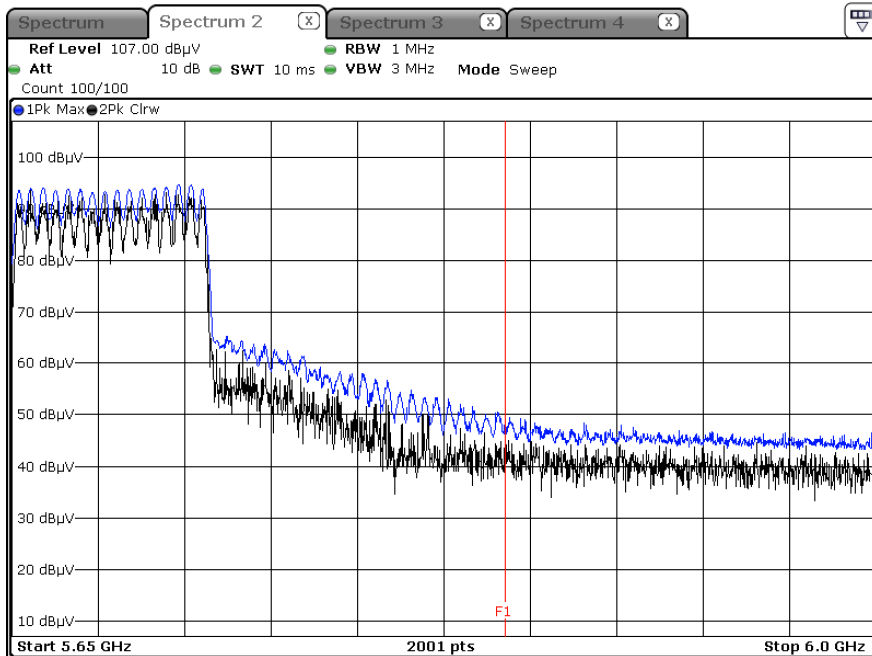
Peak Result (802.11n_HT40, Ch.142, Y-V)



Peak Result (802.11ac_VHT40, Ch.142, Y-V)



Peak Result (802.11ac_VHT80, Ch.138, Y-V)

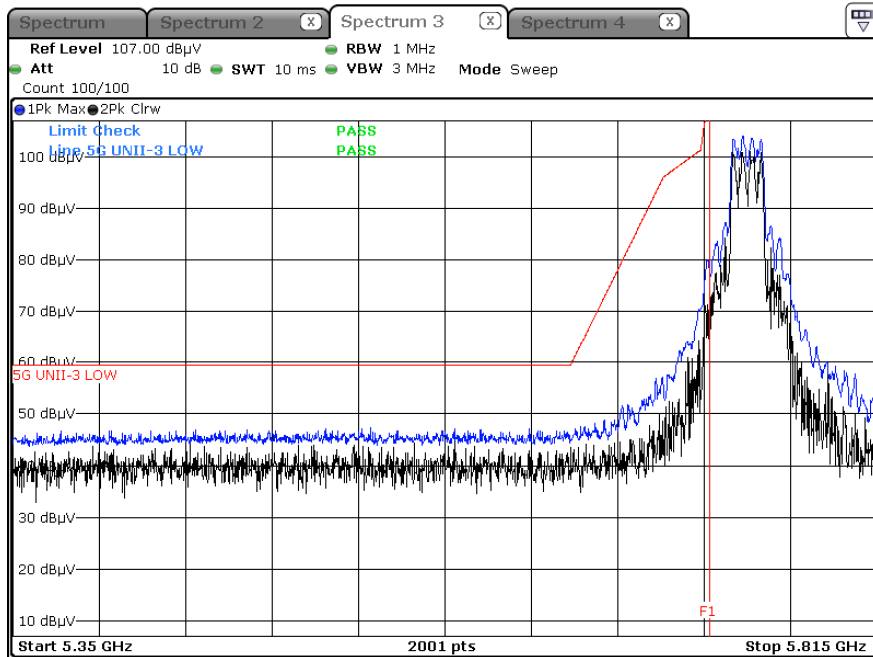


Note :

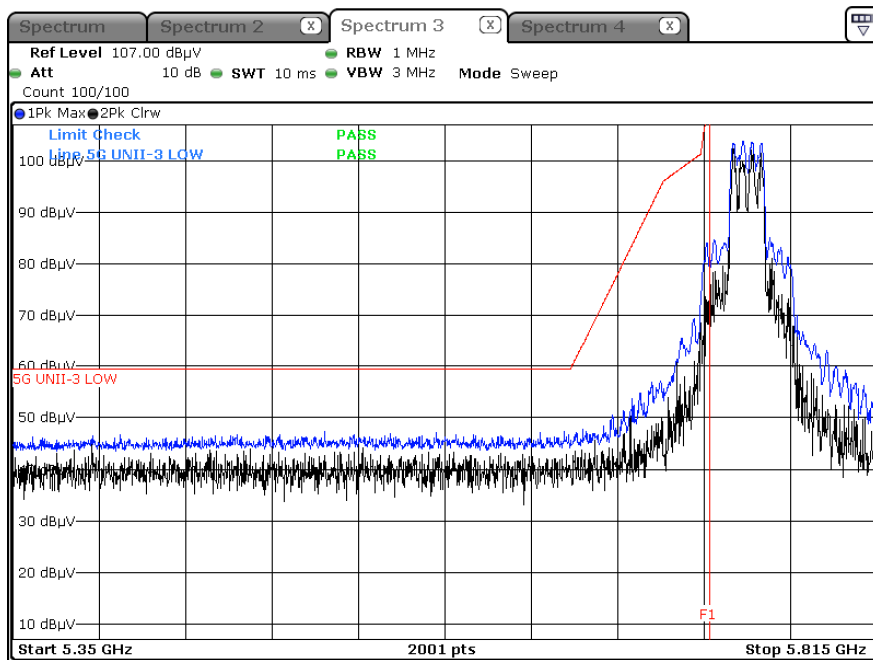
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5 850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

Test Plots(UNII 3)

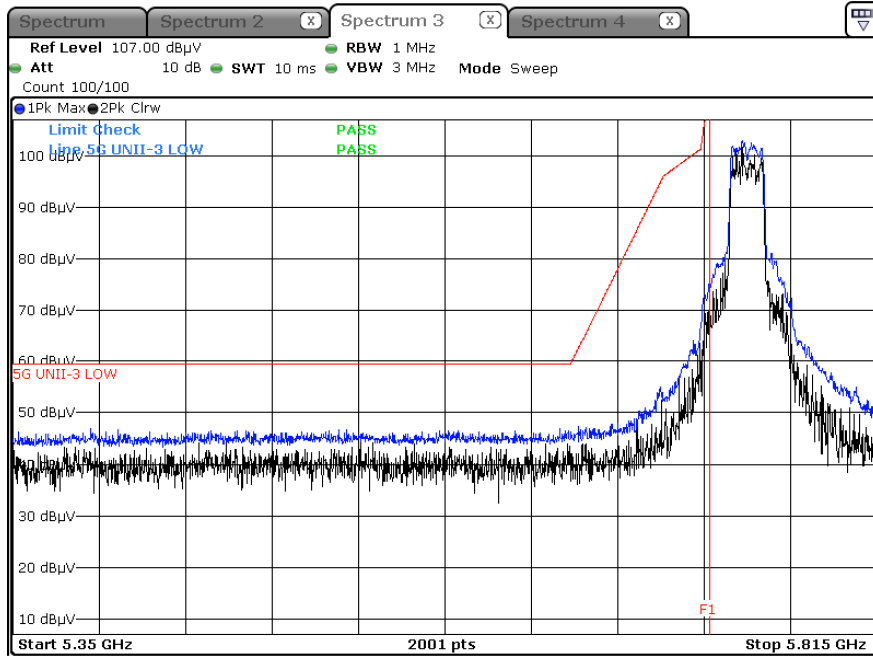
Peak Result (802.11a, Ch.149, Y-V)



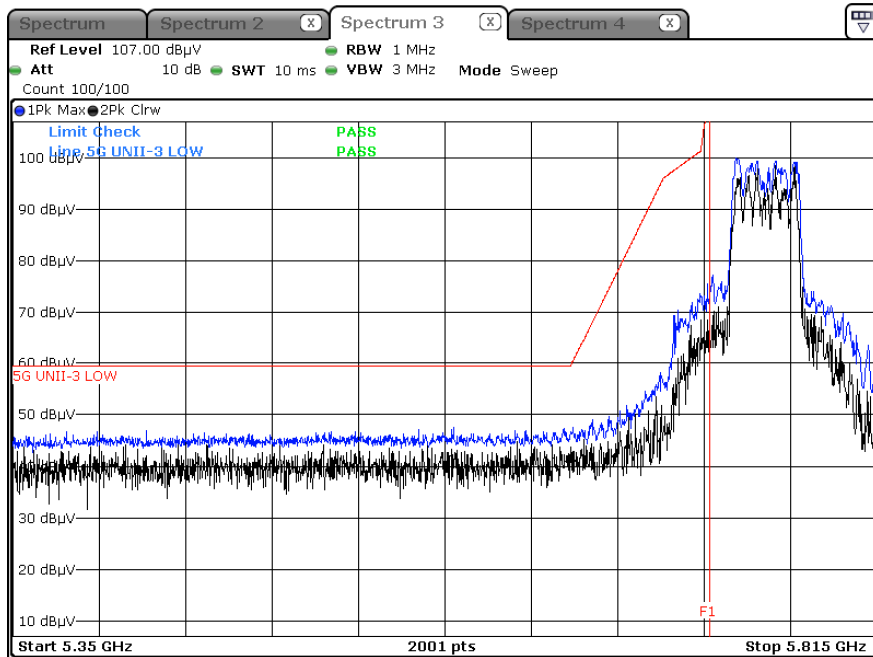
Peak Result (802.11n_HT20, Ch.149, Y-V)



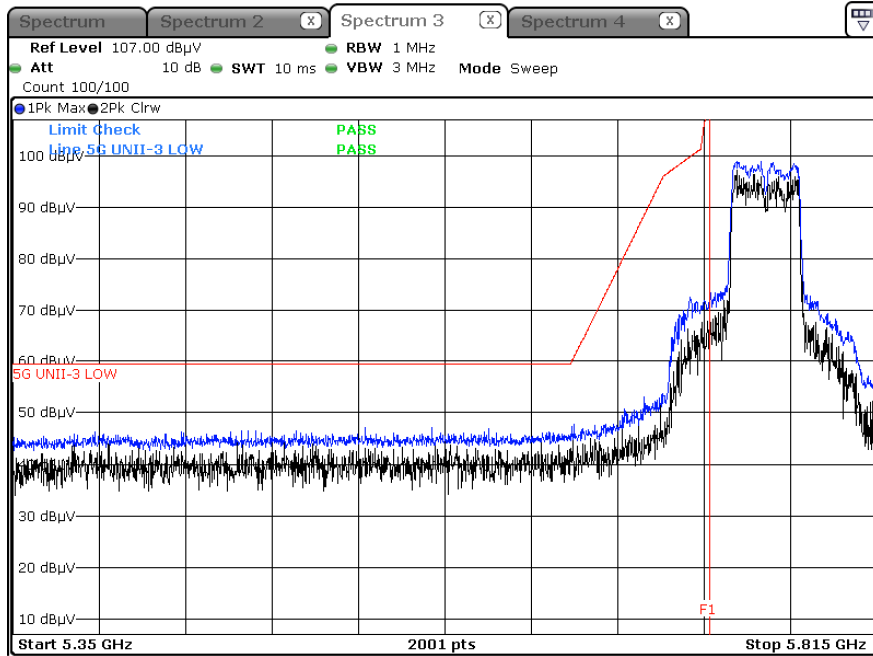
Peak Result (802.11ac_VHT20, Ch.149, Y-V)



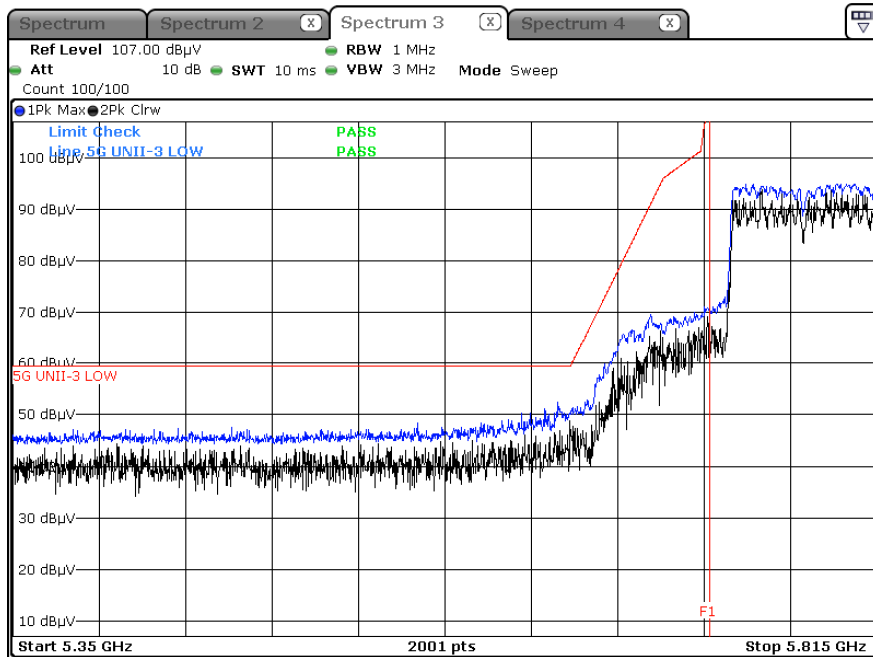
Peak Result (802.11n_HT40, Ch.151, Y-V)



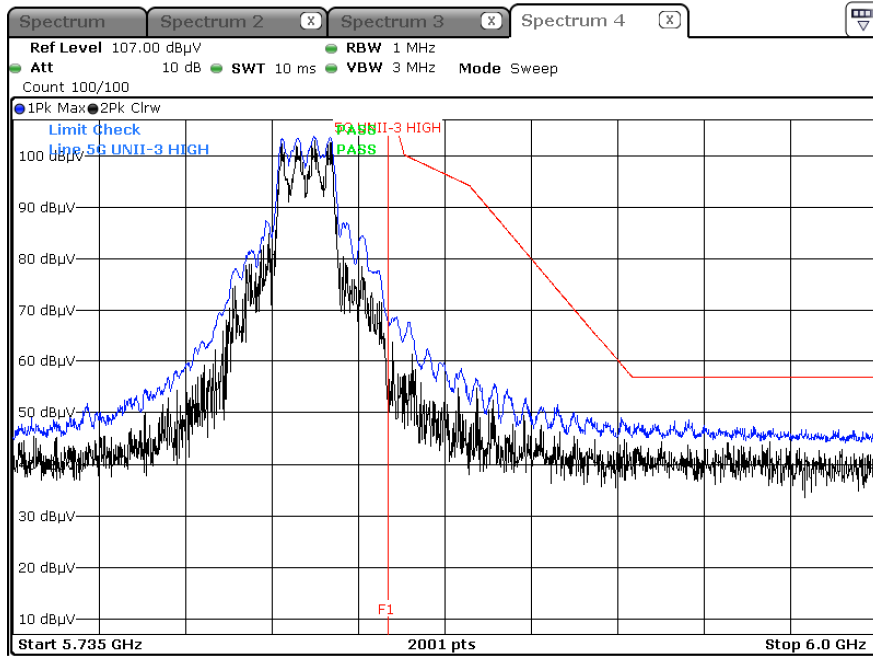
Peak Result (802.11ac_VHT40, Ch.151, Y-V)



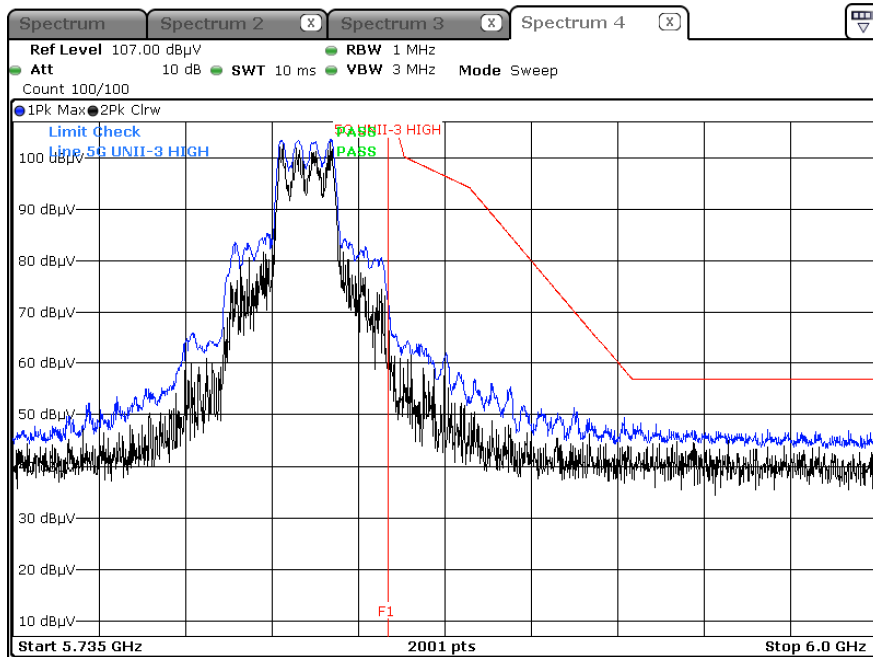
Peak Result (802.11ac_VHT80, Ch.155, Y-V)



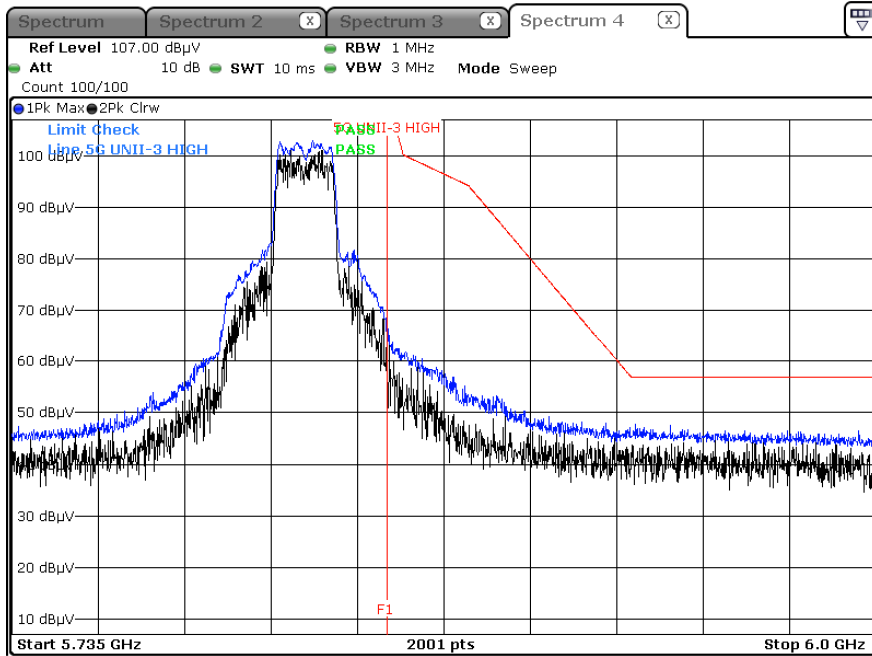
Peak Result (802.11a, Ch.165, Y-V)



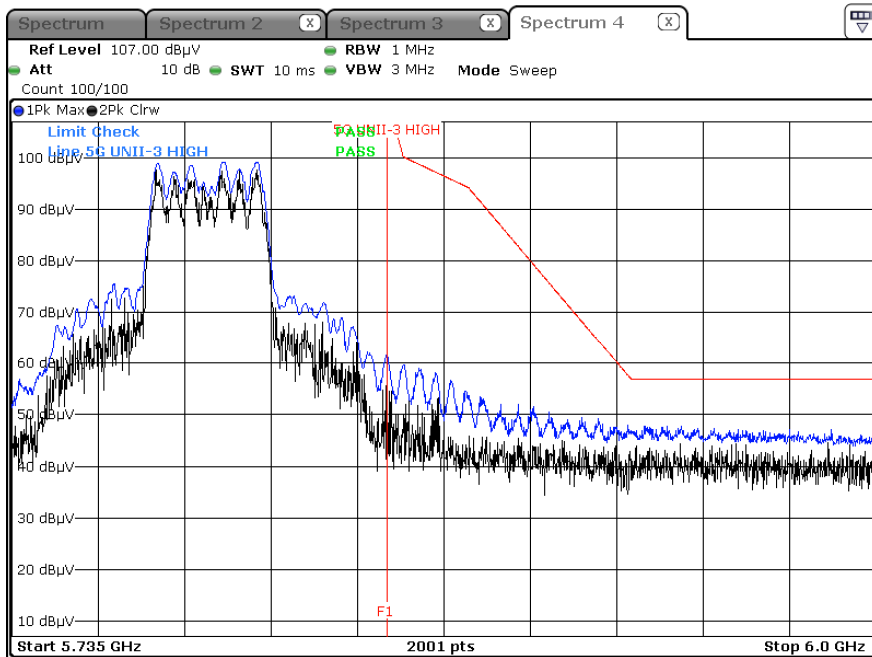
Peak Result (802.11n_HT20, Ch.165, Y-V)



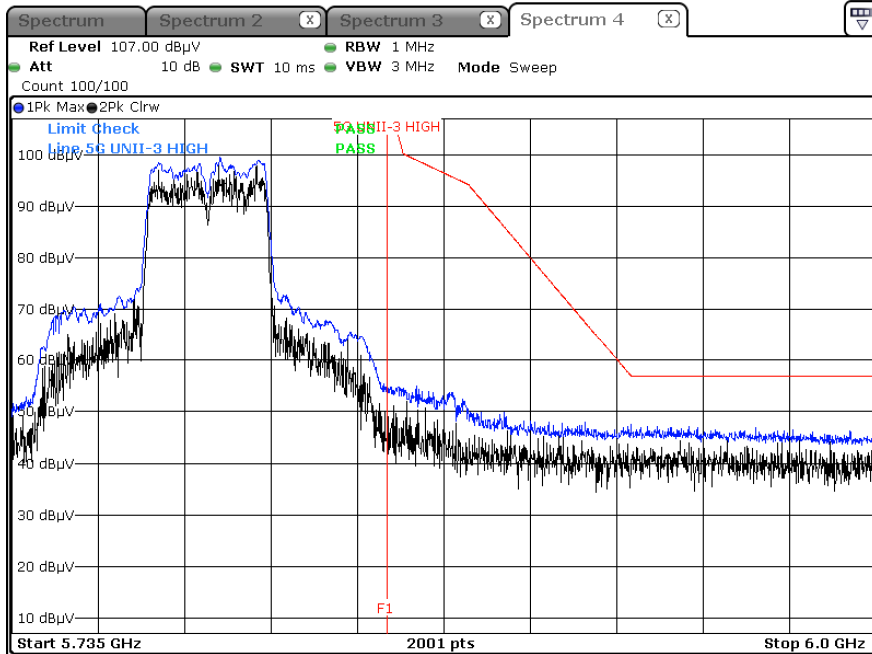
Peak Result (802.11ac_VHT20, Ch.165, Y-V)



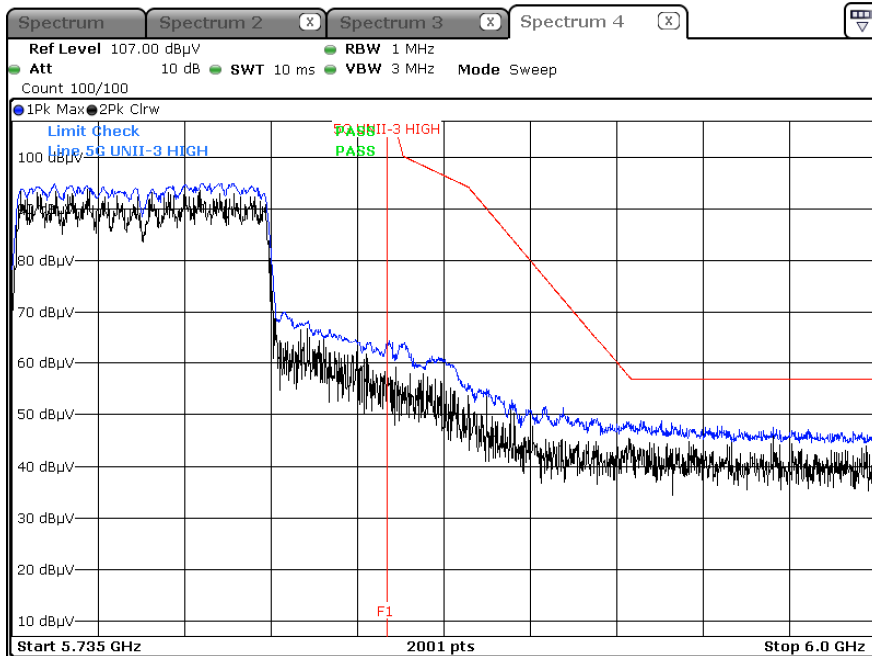
Peak Result (802.11n_HT40, Ch.159, Y-V)



Peak Result (802.11ac_VHT40, Ch.159, Y-V)



Peak Result (802.11ac_VHT80, Ch.155, Y-V)



Note :

1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

11. LIST OF TEST EQUIPMENT

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/22/2023	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	03/24/2024	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Spectrum Analyzer	FSV40-N	Rohde & Schwarz	102168	07/04/2023	Annual
Signal Analyzer	N9030A	Agilent	MY52350879	01/02/2024	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/13/2023	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/13/2023	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/05/2024	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/07/2023	Annual
High Pass Filter	WHK3.0/18G-10EF	Wainwright Instruments	8	01/16/2024	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	25	01/16/2024	Annual
Attenuator (3 dB)	18B-03	Api tech.	1	05/23/2023	Annual
Attenuator(10 dB)	8493C-10	Agilent	08285	06/21/2023	Annual
Power Amplifier	CBLU1183540	CERNEX	22964	01/16/2024	Annual
Power Amplifier	CBL06185030	CERNEX	22965	01/16/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/11/2023	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).