



FCC RF Test Report

APPLICANT : Guangdong OPPO Mobile Telecommunications Corp., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : OPPO
MODEL NAME : CPH2305
FCC ID : R9C-CPH2305
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Oct. 30, 2021 ~ Nov. 22, 2021

We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.

Derreck Chen

Reviewed by: Derreck Chen / Supervisor

Eric Shih

Approved by: Eric Shih / Manager



Sporton International (ShenZhen) Inc.

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 People's Republic of China



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB, 26dB and 99% Occupied Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 9.44 dB at 5942.600 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 18.08 dB at 0.180 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Applicant

Guangdong OPPO Mobile Telecommunications Corp., Ltd.
NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

1.2 Manufacturer

Guangdong OPPO Mobile Telecommunications Corp., Ltd.
NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	OPPO
Model Name	CPH2305
FCC ID	R9C-CPH2305
IMEI Code	Conducted: 866483050043877&866483050043869 Conduction: 866483050044297/866483050044289 Radiation: 866483050046391/866483050046383
HW Version	11
SW Version	ColorOS V12.1
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power	<MIMO Ant. 1+2> <5745 MHz ~ 5825 MHz> 802.11a : 19.38 dBm / 0.0867 W 802.11n HT20 : 19.22 dBm / 0.0836 W 802.11n HT40 : 19.33 dBm / 0.0857 W 802.11ac VHT20 : 19.20 dBm / 0.0832 W 802.11ac VHT40 : 19.30 dBm / 0.0851 W 802.11ac VHT80: 18.80 dBm / 0.0759 W 802.11ax HE20 : 19.25 dBm / 0.0841 W 802.11ax HE40 : 19.29 dBm / 0.0849 W 802.11ax HE80 : 18.89 dBm / 0.0774 W



99% Occupied Bandwidth	<MIMO Ant. 1+2> 802.11a : 16.38 MHz 802.11n HT20 : 17.53 MHz 802.11n HT40 : 36.16 MHz 802.11ac VHT80 : 75.28 MHz 802.11ax HE20 : 18.88 MHz 802.11ax HE40 : 37.86 MHz 802.11ax HE80 : 77.08 MHz		
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)		
Antenna Type / Gain	<Ant. 1> : Fixed Internal Antenna with gain -3.0 dBi <Ant. 2> : Fixed Internal Antenna with gain -2.5 dBi		
Antenna Function Description		Ant. 1	Ant. 2
	802.11 a/n/ac/ax SISO/MIMO	V	V

Note:

1. WLAN 5G Ant. 1 / Ant. 2 corresponding to EUT Photo Ant. 8 / Ant. 10
2. For 802.11n/11ac/11ax of 20M/40M/80M modes, the full testing assessed 802.11n HT20/HT40, 802.11ac VHT80 and 802.11ax HE20/HE40/HE80 by referring to the maximum output power.
3. 802.11ax support full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) are tested, only the worse data were reported.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.



1.6 Testing Location

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-SZ TH01-SZ	CN1256	421272

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH02-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a
2.	CO01-SZ	AUDIX	E3	6.120613b

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 15 Subpart E
- ♦ FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz U-NII-3	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Note:

- 1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
- 2. The above Frequency and Channel in "#n" were 802.11ac VHT80.



2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

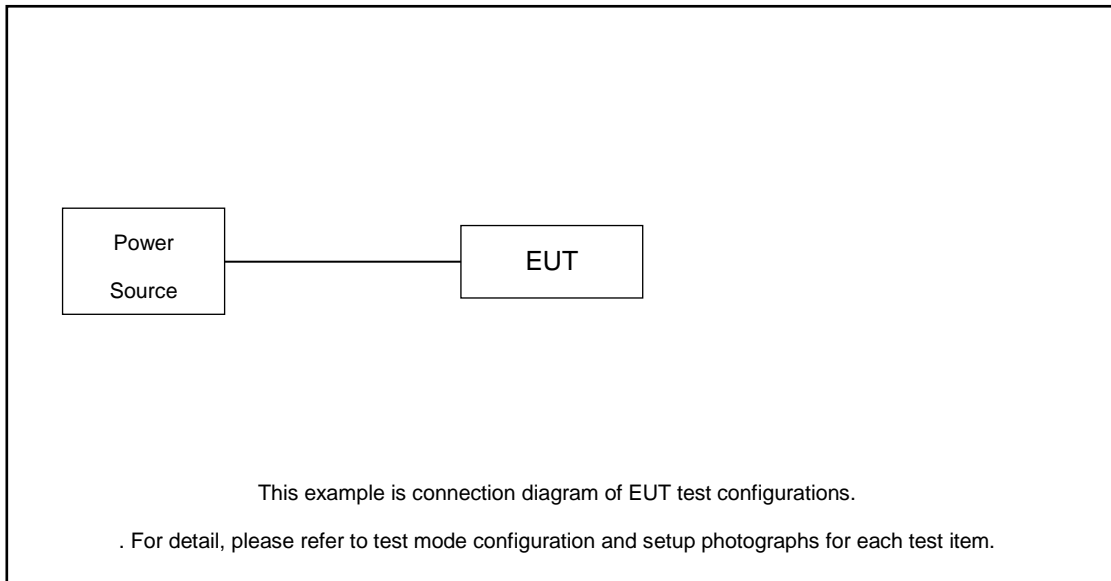
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter) + Battery
Remark: For Radiated Test Cases, The tests were performance with Adapter, Battery and USB Cable.	

Ch. #		U-NII-3 : 5725-5850 MHz			
		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
L	Low	149	149	151	-
M	Middle	157	157	-	155
H	High	165	165	159	-

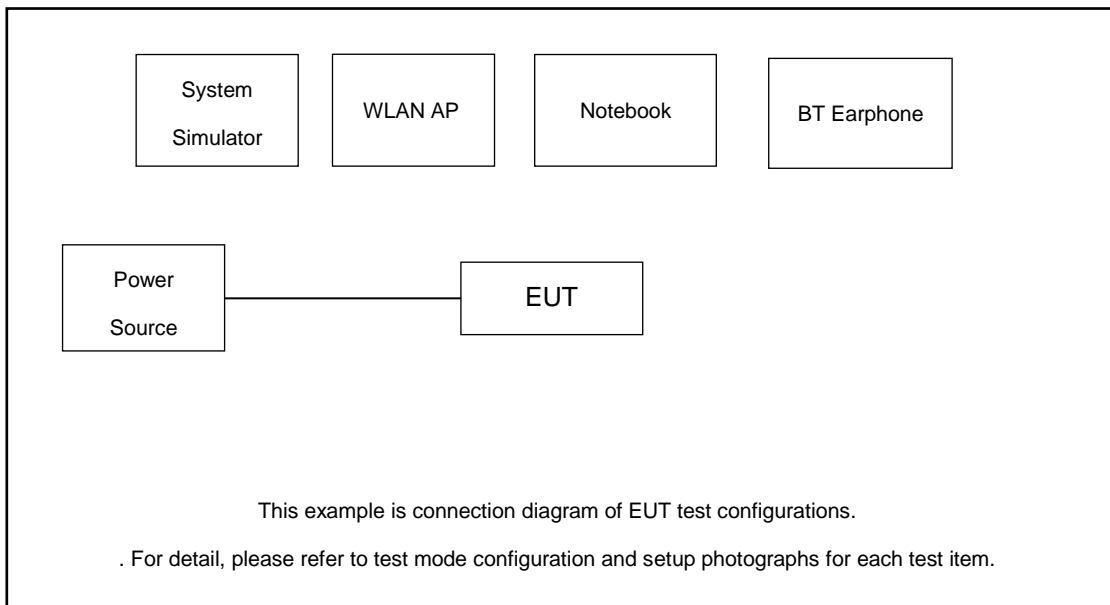
Ch. #		U-NII-3 : 5725-5850 MHz		
		802.11ax HE20	802.11ax HE40	802.11ax HE80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.3 Connection Diagram of Test System

For Radiated Emission



For Conducted Emission



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.7 dB and 20dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.7 + 20 = 24.7 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

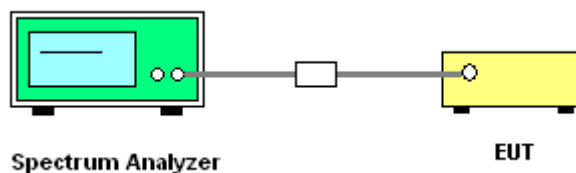
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

3.1.4 Test Setup

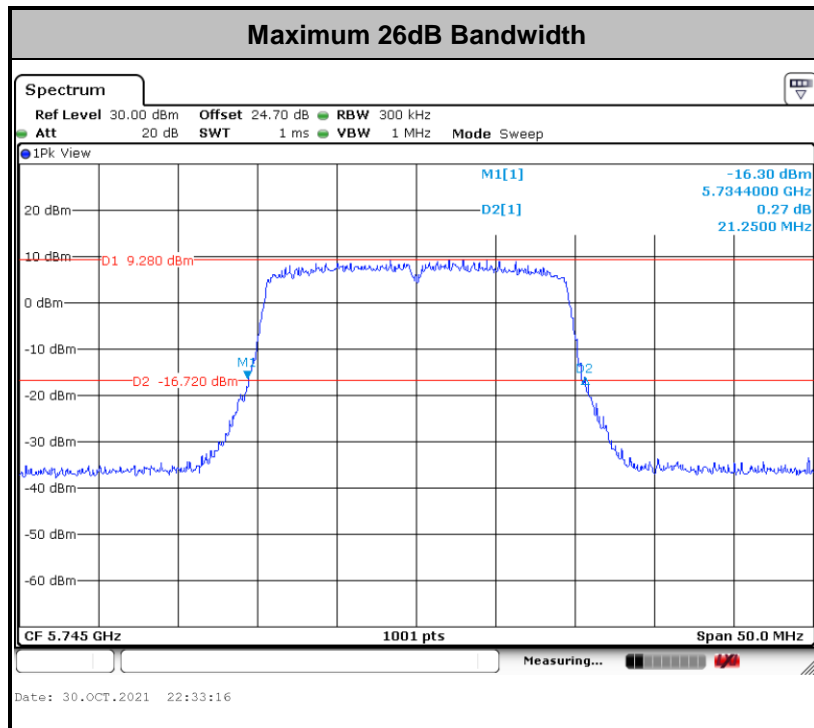
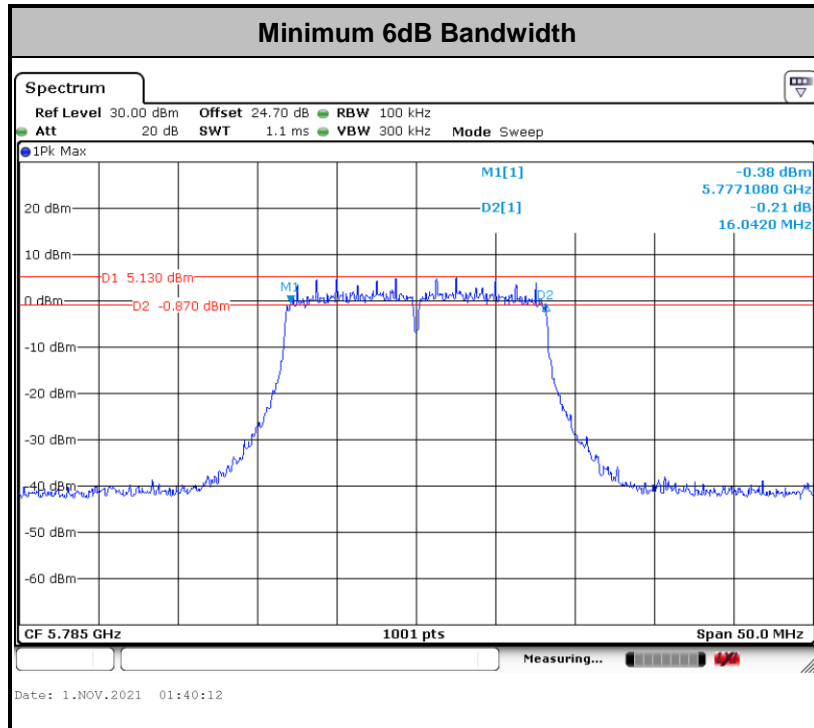


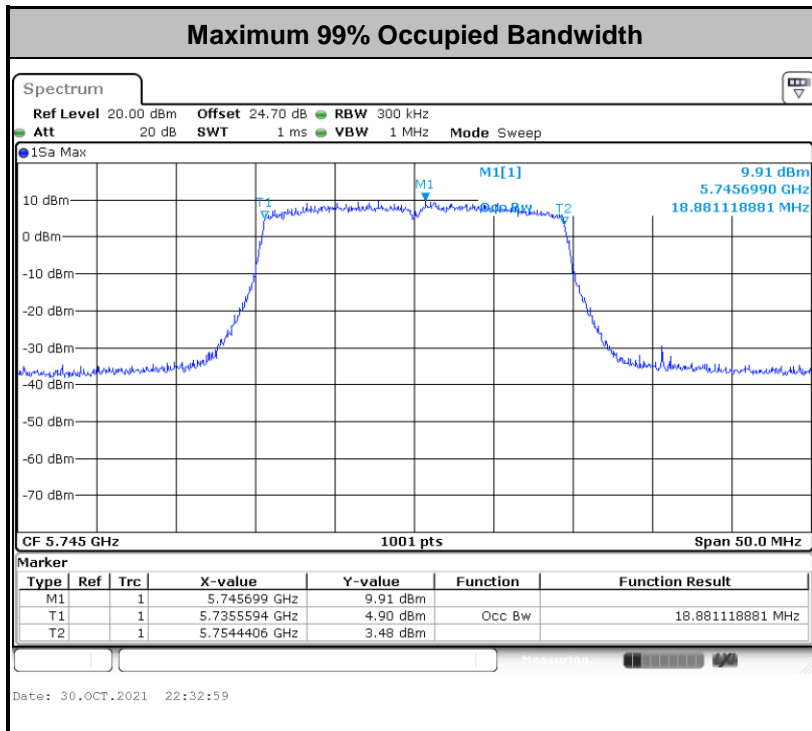
3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.



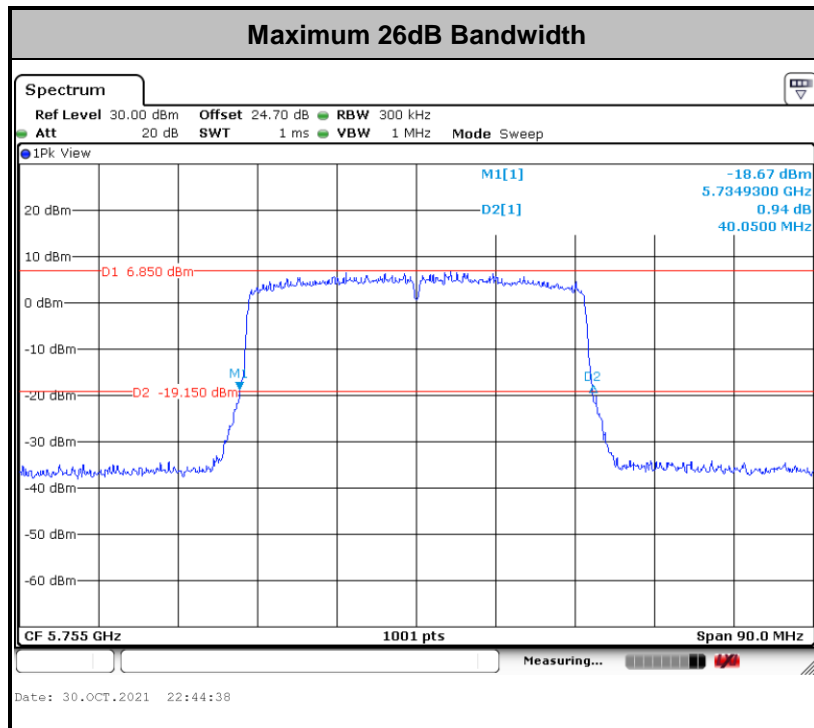
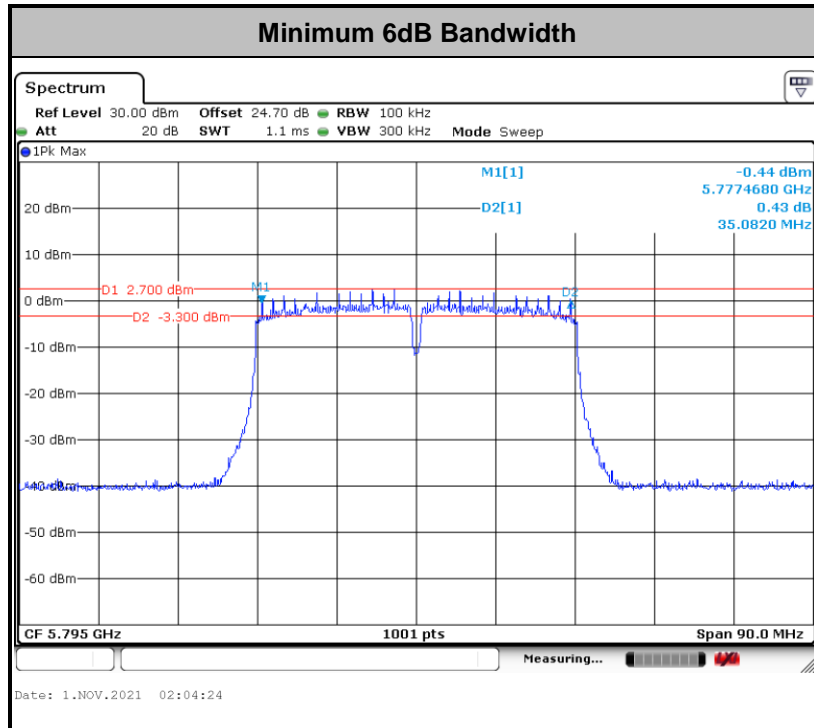
For 20MHz:

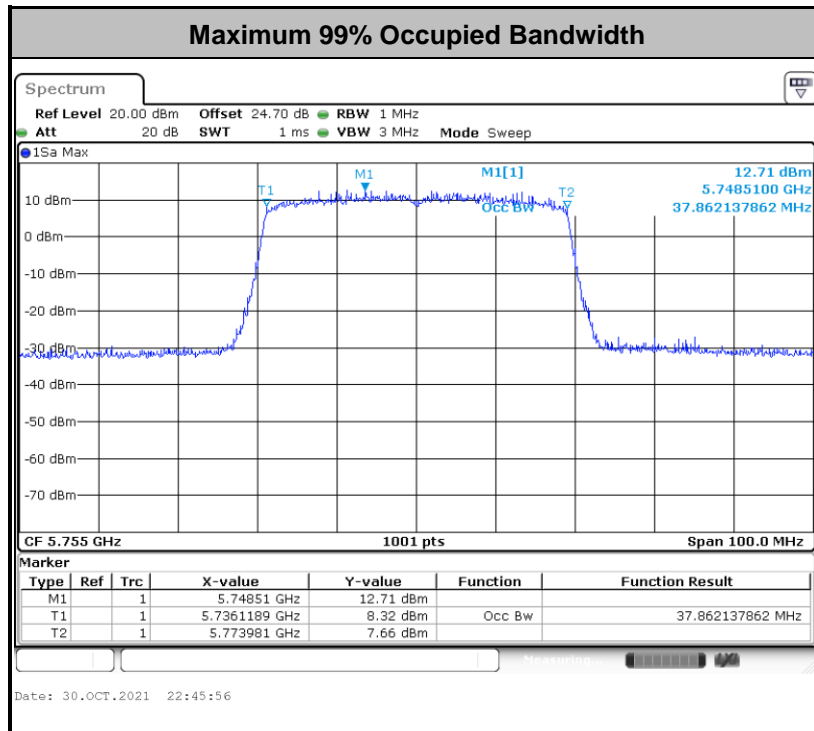






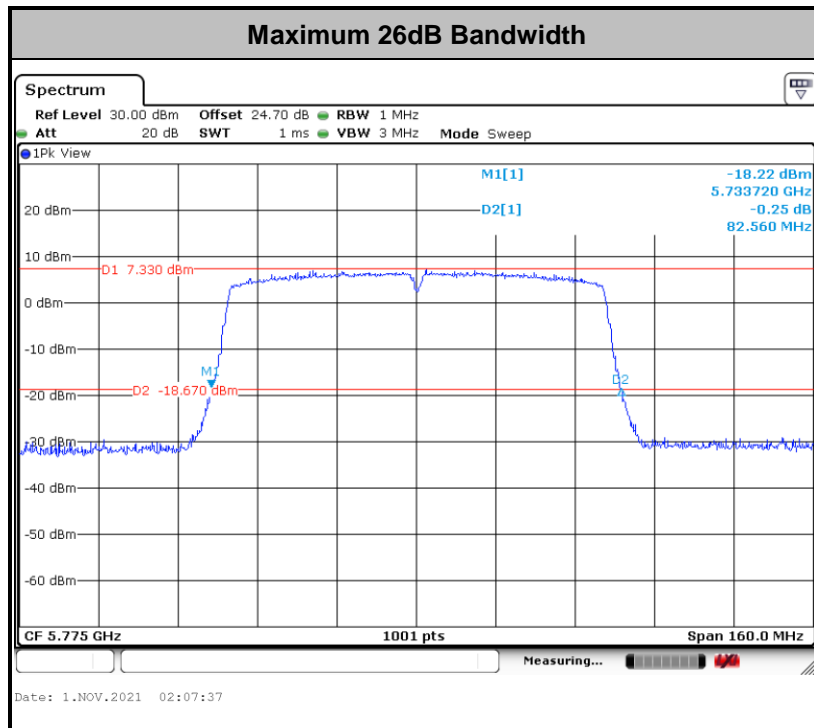
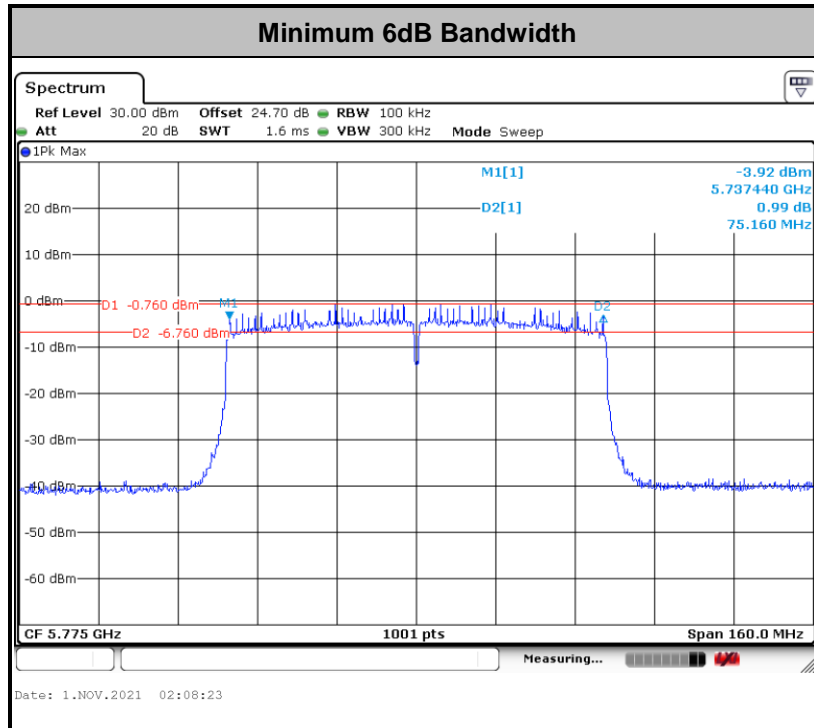
For 40MHz:

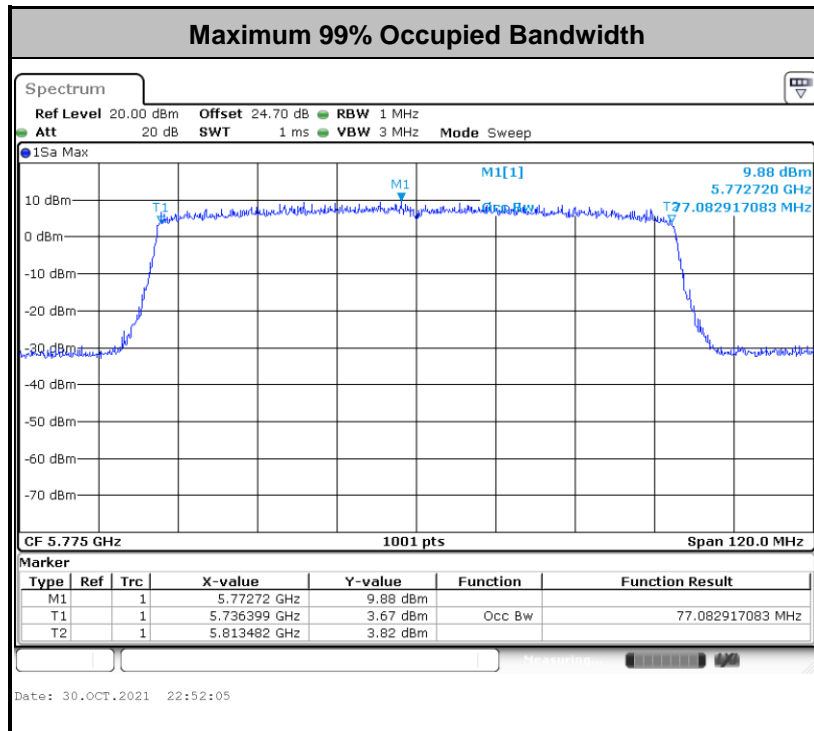






For 80MHz:





Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

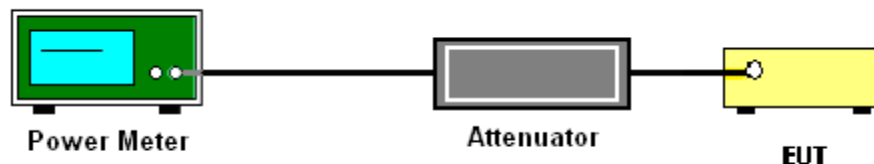
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x)$, where x is the duty cycle.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Maximum power spectral density.

Method SA-2

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

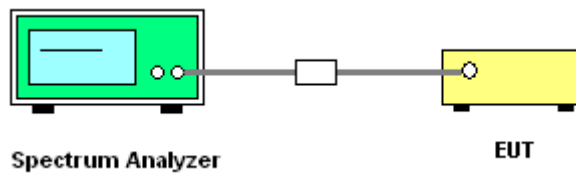
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz.
- Set VBW \geq 1 MHz.
- Number of points in sweep \geq 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add $10 \log(500\text{kHz}/\text{RBW})$ to the test result.
- Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (c): Measure and add $10 \log(N_{\text{ANT}})$ dB.

With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity $10 \log(N_{\text{ANT}})$ dB is added to each spectrum value before comparing to the emission limit. The addition of $10 \log(N_{\text{ANT}})$ dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{\text{ANT}}^{\text{th}}$ of the PSD limit.

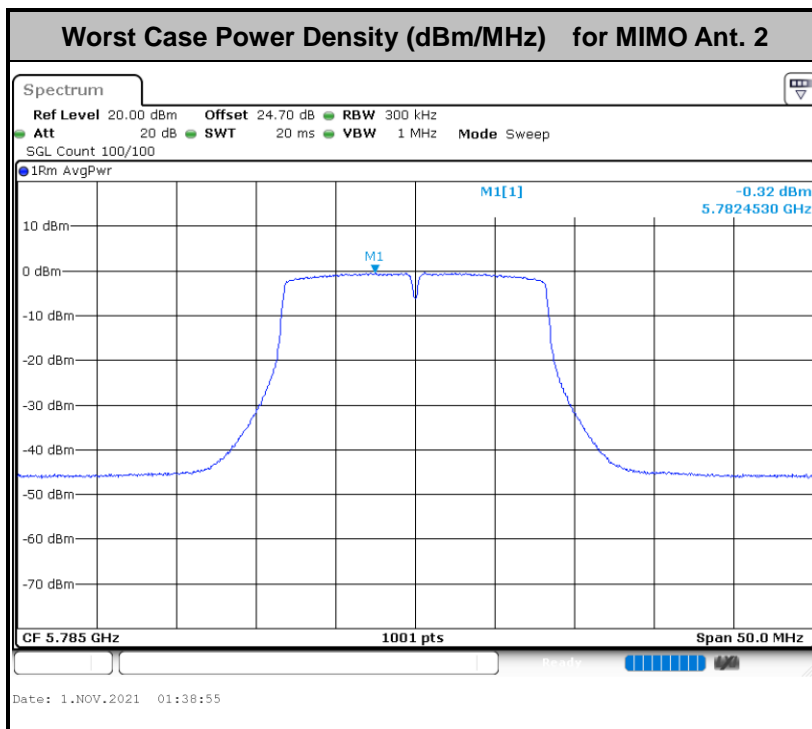
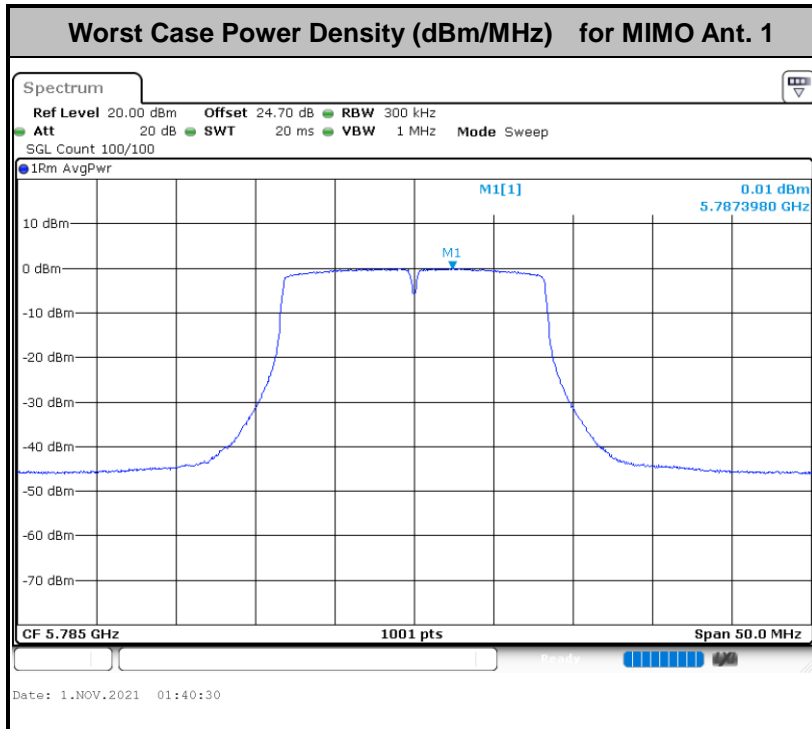
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



Note: Average Power Density (dB) = Measured value MIMO ANT1 + Duty Factor



3.4 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band:
 15.407(b)(4)(i) 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.
- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

EIRP (dBm)	Field Strength at 3m (dBµV/m)
- 27	68.3

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

$$EIRP = E_{Meas} + 20\log (d_{Meas}) -104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBµV/m

d_{Meas} is the measurement distance, in m

3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

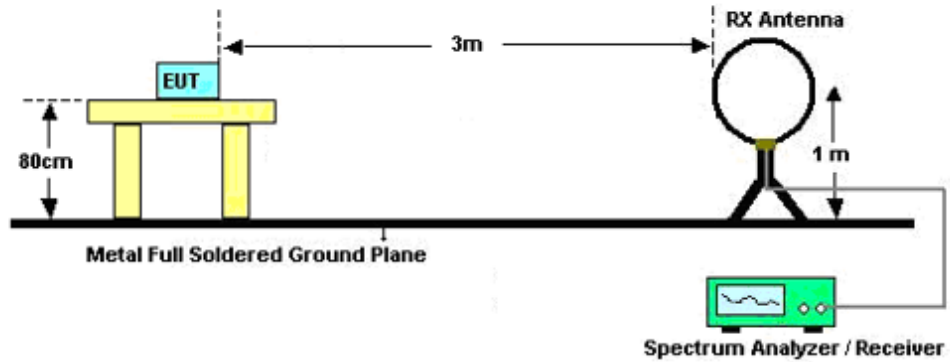


3.4.3 Test Procedures

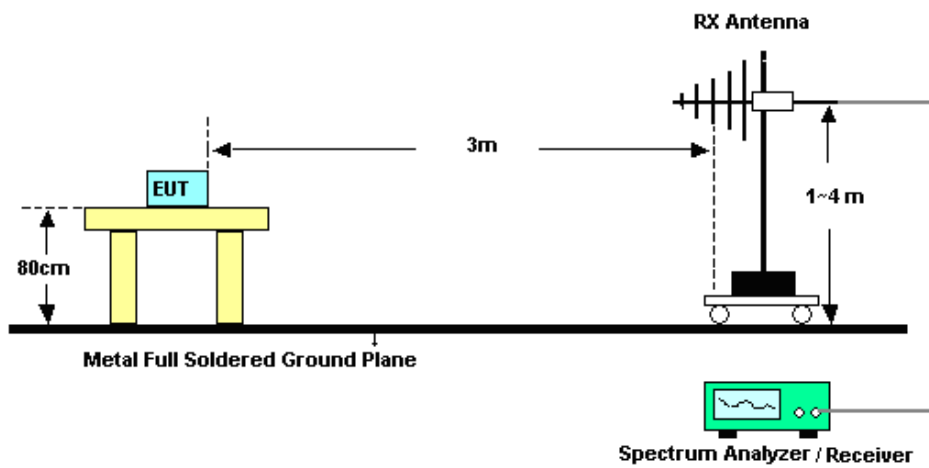
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW \geq 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

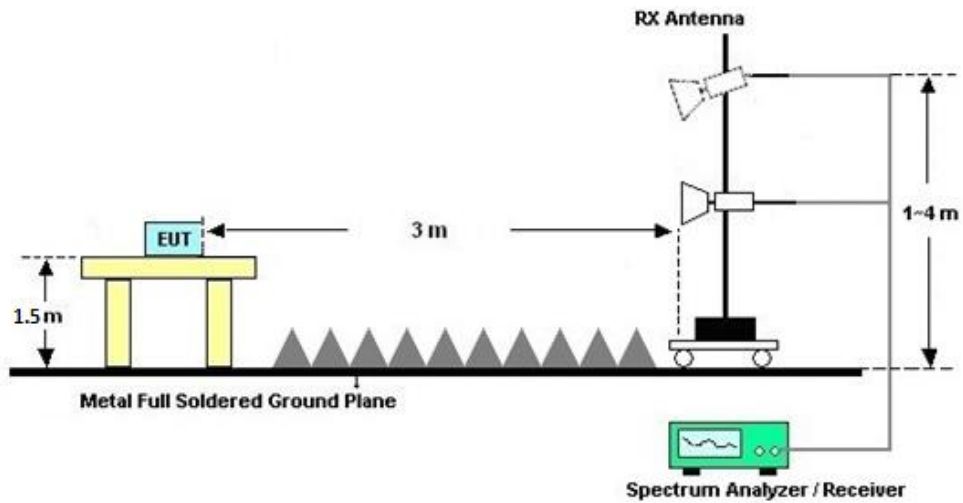
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.



3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBµV)	
	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.

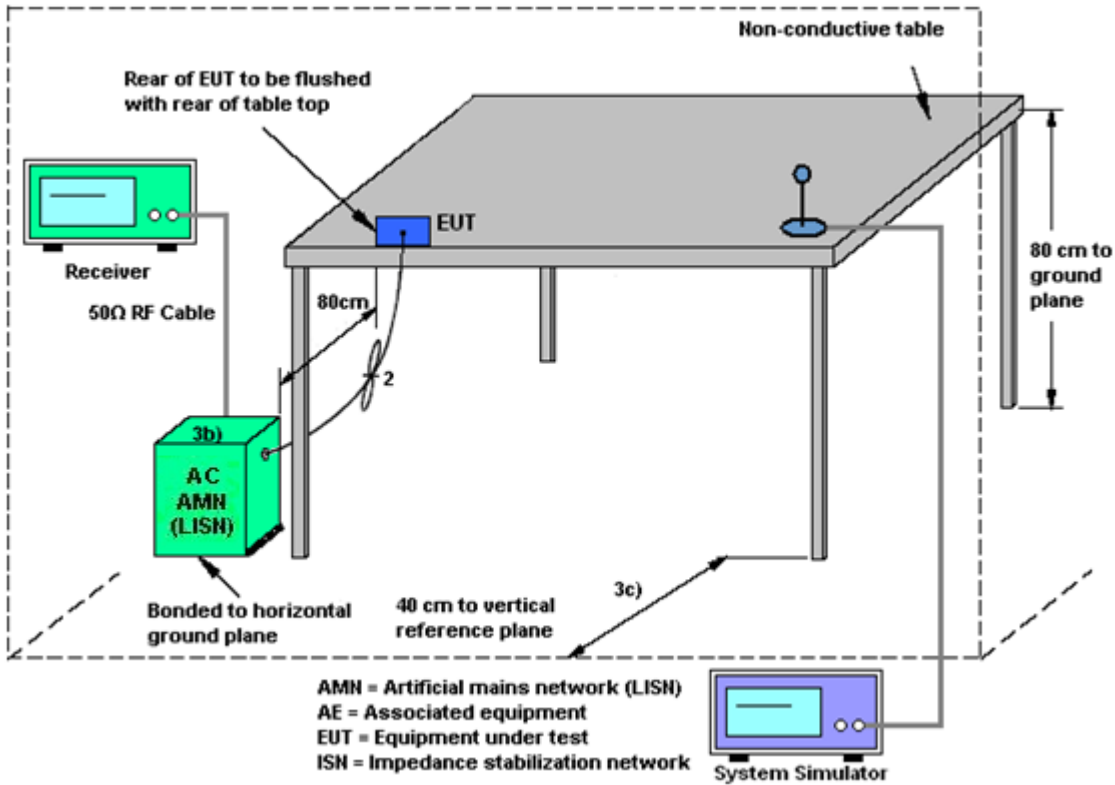
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

The EUT supports MIMO mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain.

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the k th antenna is being fed by spatial stream j , or zero if it is not;

G_k is the gain in dBi of the k th antenna.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant. 1 (dBi)	Ant. 2 (dBi)				
Band IV	-3.00	-2.50	-2.50	0.26	0.00	0.00

Power Limit Reduction = $DG(Power) - 6dBi, (min = 0)$

PSD Limit Reduction = $DG(PSD) - 6dBi, (min = 0)$



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 08, 2021	Oct. 30, 2021~Nov. 01, 2021	Apr. 07, 2022	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 25, 2020	Oct. 30, 2021~Nov. 01, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 25, 2020	Oct. 30, 2021~Nov. 01, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 14, 2021	Oct. 30, 2021~Nov. 01, 2021	Jul. 13, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 13, 2021	Nov. 22, 2021	Jul. 13, 2022	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2021	Nov. 22, 2021	Jun. 21, 2022	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 15, 2021	Nov. 22, 2021	Jul. 14, 2022	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 25, 2021	Nov. 22, 2021	Jul. 24, 2022	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 13, 2021	Nov. 22, 2021	Jul. 13, 2022	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 11 2021	Nov. 22, 2021	Apr. 10, 2022	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 22, 2021	Nov. 22, 2021	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Nov. 22, 2021	Oct. 21, 2022	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5GHz	Oct. 22, 2021	Nov. 22, 2021	Oct. 21, 2022	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Nov. 22, 2021	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Nov. 22, 2021	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Nov. 22, 2021	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Mar. 07, 2021	Nov. 16, 2021	Mar. 06, 2022	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Dec. 25, 2020	Nov. 16, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 28, 2021	Nov. 16, 2021	Oct. 27, 2022	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 21, 2021	Nov. 16, 2021	Jul. 20, 2022	Conduction (CO01-SZ)

NCR: No Calibration Required.



5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.2dB
---	-------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB
---	-------

----- THE END -----



Appendix A. Conducted Test Results

Test Engineer:	Qiuqiu Liu	Temperature:	21~25	°C
Test Date:	2021/10/30~2021/11/1	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 26dB EBW and 99% OBW

U-NII-3													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)		6 dB Bandwidth (MHz)		6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	5745	16.38	16.33	19.45	19.25	16.29	16.29	0.5		Pass
11a	6Mbps	2	157	5785	16.38	16.33	19.25	19.30	16.04	16.29	0.5		Pass
11a	6Mbps	2	165	5825	16.38	16.33	19.40	19.20	16.24	16.29	0.5		Pass
HT20	MCS0	2	149	5745	17.53	17.53	20.40	20.55	17.19	16.94	0.5		Pass
HT20	MCS0	2	157	5785	17.53	17.53	20.60	20.50	16.79	17.24	0.5		Pass
HT20	MCS0	2	165	5825	17.53	17.53	20.45	20.35	16.89	17.24	0.5		Pass
HT40	MCS0	2	151	5755	36.06	36.16	39.24	39.24	35.53	35.26	0.5		Pass
HT40	MCS0	2	159	5795	36.06	36.06	39.15	39.24	35.44	35.08	0.5		Pass
VHT80	MCS0	2	155	5775	75.28	75.28	82.56	82.24	75.16	75.16	0.5		Pass
HE20	MCS0	2	149	5745	18.88	18.88	21.20	21.25	18.64	18.19	0.5		Pass
HE20	MCS0	2	157	5785	18.88	18.83	21.20	20.95	18.74	18.19	0.5		Pass
HE20	MCS0	2	165	5825	18.88	18.88	21.25	21.10	18.64	18.69	0.5		Pass
HE40	MCS0	2	151	5755	37.86	37.76	40.05	39.87	37.69	36.88	0.5		Pass
HE40	MCS0	2	159	5795	37.86	37.86	39.96	40.05	37.60	36.97	0.5		Pass
HE80	MCS0	2	155	5775	76.96	77.08	82.40	82.40	77.24	77.24	0.5		Pass

TEST RESULTS DATA
Average Power Table

U-NII-3															
Mod.	Data Rate	Ntx	CH.	RU Config	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	Full	5745	0.04	0.04	16.62	16.11	19.38	30.00	-2.50		Pass	
11a	6Mbps	2	157	Full	5785	0.04	0.04	16.61	16.08	19.37	30.00	-2.50		Pass	
11a	6Mbps	2	165	Full	5825	0.04	0.04	16.64	16.07	19.38	30.00	-2.50		Pass	
HT20	MCS0	2	149	Full	5745	0.00	0.00	16.44	15.95	19.21	30.00	-2.50		Pass	
HT20	MCS0	2	157	Full	5785	0.00	0.00	16.48	15.93	19.22	30.00	-2.50		Pass	
HT20	MCS0	2	165	Full	5825	0.00	0.00	16.43	15.92	19.19	30.00	-2.50		Pass	
HT40	MCS0	2	151	Full	5755	0.00	0.00	16.58	16.04	19.33	30.00	-2.50		Pass	
HT40	MCS0	2	159	Full	5795	0.00	0.00	16.57	16.01	19.31	30.00	-2.50		Pass	
VHT20	MCS0	2	149	Full	5745	0.00	0.00	16.42	15.92	19.19	30.00	-2.50		Pass	
VHT20	MCS0	2	157	Full	5785	0.00	0.00	16.45	15.91	19.20	30.00	-2.50		Pass	
VHT20	MCS0	2	165	Full	5825	0.00	0.00	16.40	15.90	19.17	30.00	-2.50		Pass	
VHT40	MCS0	2	151	Full	5755	0.00	0.00	16.55	16.02	19.30	30.00	-2.50		Pass	
VHT40	MCS0	2	159	Full	5795	0.00	0.00	16.53	15.98	19.27	30.00	-2.50		Pass	
VHT80	MCS0	2	155	Full	5775	0.00	0.00	16.11	15.45	18.80	30.00	-2.50		Pass	
HE20	MCS0	2	149	Full	5745	0.00	0.00	16.50	15.90	19.22	30.00	-2.50		Pass	
HE20	MCS0	2	149	26/0	5745	0.00	0.00	6.75	6.59	9.68	30.00	-2.50		Pass	
HE20	MCS0	2	149	52/37	5745	0.00	0.00	10.05	9.48	12.78	30.00	-2.50		Pass	
HE20	MCS0	2	149	106/53	5745	0.00	0.00	13.25	12.78	16.03	30.00	-2.50		Pass	
HE20	MCS0	2	157	Full	5785	0.00	0.00	16.53	15.92	19.25	30.00	-2.50		Pass	
HE20	MCS0	2	165	Full	5825	0.00	0.00	16.55	15.88	19.24	30.00	-2.50		Pass	
HE20	MCS0	2	165	26/8	5825	0.00	0.00	6.91	6.54	9.74	30.00	-2.50		Pass	
HE20	MCS0	2	165	52/40	5825	0.00	0.00	10.17	9.64	12.92	30.00	-2.50		Pass	
HE20	MCS0	2	165	106/54	5825	0.00	0.00	13.46	12.83	16.17	30.00	-2.50		Pass	
HE40	MCS0	2	151	Full	5755	0.00	0.00	16.55	15.99	19.29	30.00	-2.50		Pass	
HE40	MCS0	2	151	242/61	5755	0.00	0.00	16.26	15.87	19.08	30.00	-2.50		Pass	
HE40	MCS0	2	159	Full	5795	0.00	0.00	16.53	15.96	19.26	30.00	-2.50		Pass	
HE40	MCS0	2	159	242/62	5795	0.00	0.00	16.32	15.85	19.10	30.00	-2.50		Pass	
HE80	MCS0	2	155	Full	5775	0.00	0.00	16.17	15.56	18.89	30.00	-2.50		Pass	
HE80	MCS0	2	155	484/65	5775	0.00	0.00	15.93	15.49	18.73	30.00	-2.50		Pass	
HE80	MCS0	2	155	484/66	5775	0.00	0.00	16.05	15.43	18.76	30.00	-2.50		Pass	

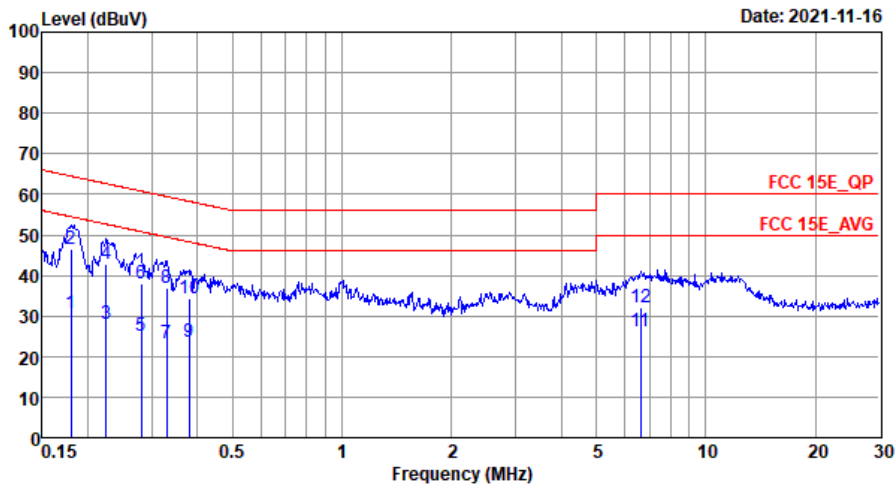
TEST RESULTS DATA
Power Spectral Density

U-NII-3																	
Mod.	Data Rate	N _{Tx}	CH.	RU Config	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
						Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	2	149	Full	5745	0.04	0.04	2.22					5.15	30.00	0.26		Pass
11a	6Mbps	2	157	Full	5785	0.04	0.04	2.22					5.28	30.00	0.26		Pass
11a	6Mbps	2	165	Full	5825	0.04	0.04	2.22					5.27	30.00	0.26		Pass
HT20	MCS0	2	149	Full	5745	0.00	0.00	2.22					4.66	30.00	0.26		Pass
HT20	MCS0	2	157	Full	5785	0.00	0.00	2.22					4.79	30.00	0.26		Pass
HT20	MCS0	2	165	Full	5825	0.00	0.00	2.22					4.76	30.00	0.26		Pass
HT40	MCS0	2	151	Full	5755	0.00	0.00	2.22					2.05	30.00	0.26		Pass
HT40	MCS0	2	159	Full	5795	0.00	0.00	2.22					1.99	30.00	0.26		Pass
VHT80	MCS0	2	155	Full	5775	0.00	0.00	2.22					-1.75	30.00	0.26		Pass
HE20	MCS0	2	149	Full	5745	0.00	0.00	2.22					4.59	30.00	0.26		Pass
HE20	MCS0	2	149	26/0	5745	0.00	0.00	2.22					4.05	30.00	0.26		Pass
HE20	MCS0	2	149	52/37	5745	0.00	0.00	2.22					4.51	30.00	0.26		Pass
HE20	MCS0	2	149	106/53	5745	0.00	0.00	2.22					4.52	30.00	0.26		Pass
HE20	MCS0	2	157	Full	5785	0.00	0.00	2.22					4.67	30.00	0.26		Pass
HE20	MCS0	2	165	Full	5825	0.00	0.00	2.22					4.74	30.00	0.26		Pass
HE20	MCS0	2	165	26/8	5825	0.00	0.00	2.22					3.99	30.00	0.26		Pass
HE20	MCS0	2	165	52/40	5825	0.00	0.00	2.22					4.44	30.00	0.26		Pass
HE20	MCS0	2	165	106/54	5825	0.00	0.00	2.22					4.61	30.00	0.26		Pass
HE40	MCS0	2	151	Full	5755	0.00	0.00	2.22					1.76	30.00	0.26		Pass
HE40	MCS0	2	151	242/61	5755	0.00	0.00	2.22					4.14	30.00	0.26		Pass
HE40	MCS0	2	159	Full	5795	0.00	0.00	2.22					1.80	30.00	0.26		Pass
HE40	MCS0	2	159	242/62	5795	0.00	0.00	2.22					4.15	30.00	0.26		Pass
HE80	MCS0	2	155	Full	5775	0.00	0.00	2.22					-1.05	30.00	0.26		Pass
HE80	MCS0	2	155	484/65	5775	0.00	0.00	2.22					0.84	30.00	0.26		Pass
HE80	MCS0	2	155	484/66	5775	0.00	0.00	2.22					0.88	30.00	0.26		Pass



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Yuqiang Xie	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

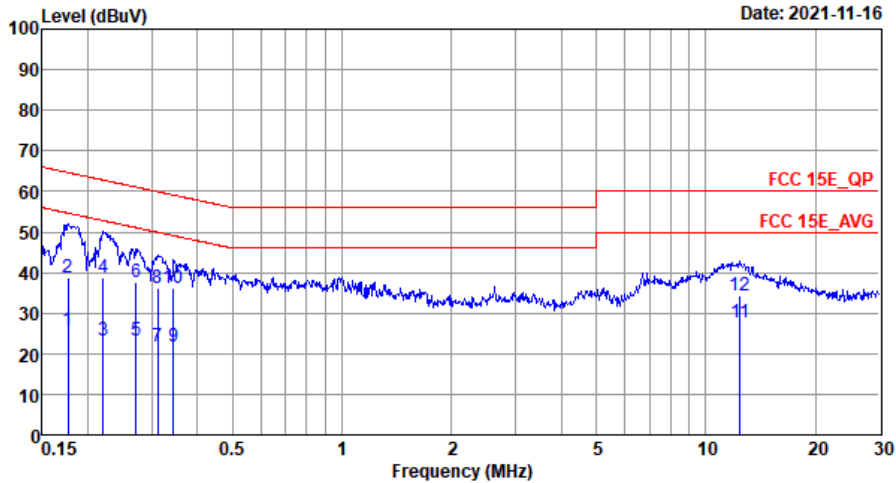


Site : CO01-SZ
 Condition: FCC 15E_QP LISN_20210901_L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.18	30.52	-23.98	54.50	10.30	10.20	10.02	Average
2 *	0.18	46.42	-18.08	64.50	26.20	10.20	10.02	QP
3	0.22	28.12	-24.54	52.66	7.90	10.19	10.03	Average
4	0.22	42.62	-20.04	62.66	22.40	10.19	10.03	QP
5	0.28	25.00	-25.81	50.81	4.79	10.17	10.04	Average
6	0.28	38.10	-22.71	60.81	17.89	10.17	10.04	QP
7	0.33	23.25	-26.19	49.44	3.10	10.11	10.04	Average
8	0.33	37.05	-22.39	59.44	16.90	10.11	10.04	QP
9	0.38	23.44	-24.86	48.30	3.31	10.09	10.04	Average
10	0.38	34.44	-23.86	58.30	14.31	10.09	10.04	QP
11	6.63	26.17	-23.83	50.00	6.00	9.95	10.22	Average
12	6.63	32.17	-27.83	60.00	12.00	9.95	10.22	QP



Test Engineer :	Yuqiang Xie	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
 Condition: FCC 15E_QP LISN_20210901_N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.18	25.92	-28.72	54.64	5.60	10.30	10.02	Average
2	0.18	38.82	-25.82	64.64	18.50	10.30	10.02	QP
3	0.22	23.20	-29.59	52.79	2.90	10.27	10.03	Average
4	0.22	38.70	-24.09	62.79	18.40	10.27	10.03	QP
5	0.27	23.27	-27.80	51.07	3.00	10.23	10.04	Average
6	0.27	37.67	-23.40	61.07	17.40	10.23	10.04	QP
7	0.31	21.74	-28.19	49.93	1.50	10.20	10.04	Average
8	0.31	36.04	-23.89	59.93	15.80	10.20	10.04	QP
9	0.34	21.72	-27.37	49.09	1.51	10.17	10.04	Average
10	0.34	36.22	-22.87	59.09	16.01	10.17	10.04	QP
11 *	12.45	27.64	-22.36	50.00	7.50	9.93	10.21	Average
12	12.45	34.14	-25.86	60.00	14.00	9.93	10.21	QP

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



Appendix C. Radiated Spurious Emission

U-NII-3 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5615.6	54.17	-14.13	68.3	37.56	34.3	10.56	28.25	179	44	P	H
		5664.8	54.86	-24.4	79.26	38.11	34.3	10.59	28.14	179	44	P	H
		5716.4	56.42	-53.37	109.79	39.3	34.53	10.61	28.02	179	44	P	H
		5725	60.4	-61.8	122.2	43.22	34.57	10.61	28	179	44	P	H
	*	5745	113.48	-	-	96.22	34.6	10.62	27.96	179	44	P	H
		5745	106.38	-	-	89.12	34.6	10.62	27.96	179	44	A	H
		5636.2	54.38	-13.92	68.3	37.7	34.3	10.58	28.2	162	19	P	V
		5676.8	54.05	-34.07	88.12	37.17	34.4	10.59	28.11	162	19	P	V
		5718	53.69	-56.55	110.24	36.53	34.57	10.61	28.02	162	19	P	V
		5725	56.43	-65.77	122.2	39.25	34.57	10.61	28	162	19	P	V
	*	5745	108.3	-	-	91.04	34.6	10.62	27.96	162	19	P	V
		5745	101.5	-	-	84.24	34.6	10.62	27.96	162	19	A	V



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 157 5785MHz		5637.8	54.54	-13.76	68.3	37.86	34.3	10.58	28.2	176	50	P	H
		5679.2	55.04	-34.85	89.89	38.16	34.4	10.59	28.11	176	50	P	H
		5712.8	53.6	-55.19	108.79	36.49	34.53	10.61	28.03	176	50	P	H
		5722.2	53.38	-62.44	115.82	36.21	34.57	10.61	28.01	176	50	P	H
	*	5785	113.84	-	-	96.4	34.67	10.64	27.87	176	50	P	H
		5785	106.55	-	-	89.11	34.67	10.64	27.87	176	50	A	H
		5851	55.02	-64.9	119.92	37.17	34.9	10.68	27.73	176	50	P	H
		5870	55.39	-51.21	106.6	37.44	34.93	10.71	27.69	176	50	P	H
		5905.6	56.57	-25.95	82.52	38.4	35.03	10.75	27.61	176	50	P	H
		5942.6	58.86	-9.44	68.3	40.51	35.1	10.78	27.53	176	50	P	H
		5618.2	54.6	-13.7	68.3	37.98	34.3	10.56	28.24	166	20	P	V
		5661.2	53.97	-22.62	76.59	37.23	34.3	10.59	28.15	166	20	P	V
		5703.2	54.73	-51.37	106.1	37.64	34.53	10.61	28.05	166	20	P	V
		5720.8	53.28	-59.34	112.62	36.11	34.57	10.61	28.01	166	20	P	V
	*	5785	109.08	-	-	91.64	34.67	10.64	27.87	166	20	P	V
		5785	101.66	-	-	84.22	34.67	10.64	27.87	166	20	A	V
		5854.8	54.01	-57.25	111.26	36.12	34.93	10.68	27.72	166	20	P	V
		5874.6	55.73	-49.58	105.31	37.73	34.97	10.71	27.68	166	20	P	V
		5889	55.23	-39.58	94.81	37.16	35	10.71	27.64	166	20	P	V
		5943.2	55.35	-12.95	68.3	36.99	35.1	10.78	27.52	166	20	P	V



WiFi Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz	*	5825	113.67	-	-	95.94	34.83	10.68	27.78	106	38	P	H
		5825	105.98	-	-	88.25	34.83	10.68	27.78	106	38	A	H
		5850	55.56	-66.64	122.2	37.71	34.9	10.68	27.73	106	38	P	H
		5866.6	54.57	-52.98	107.55	36.62	34.93	10.71	27.69	106	38	P	H
		5899.6	55.12	-31.84	86.96	36.99	35	10.75	27.62	106	38	P	H
		5947	55.95	-12.35	68.3	37.59	35.1	10.78	27.52	106	38	P	H
	*	5825	109.88	-	-	92.15	34.83	10.68	27.78	154	17	P	V
		5825	102.84	-	-	85.11	34.83	10.68	27.78	154	17	A	V
		5851.4	55.02	-63.99	119.01	37.17	34.9	10.68	27.73	154	17	P	V
		5874.6	55.21	-50.1	105.31	37.21	34.97	10.71	27.68	154	17	P	V
		5891.2	55.04	-38.14	93.18	36.97	35	10.71	27.64	154	17	P	V
		5934.4	55.34	-12.96	68.3	37.03	35.07	10.78	27.54	154	17	P	V
	Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 											



U-NII-3 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	47.45	-26.55	74	54.55	38.34	12.32	57.76	-	-	P	H
		17235	47.56	-20.74	68.3	47.68	42.27	15.58	57.97	-	-	P	H
		11490	47.43	-26.57	74	54.53	38.34	12.32	57.76	-	-	P	V
		17235	47.41	-20.89	68.3	47.53	42.27	15.58	57.97	-	-	P	V
802.11a CH 157 5785MHz		11570	47.9	-26.1	74	54.84	38.42	12.31	57.67	-	-	P	H
		17355	47.75	-20.55	68.3	47.8	42.1	15.65	57.8	-	-	P	H
		11570	46.17	-27.83	74	53.11	38.42	12.31	57.67	-	-	P	V
		17355	47.43	-20.87	68.3	47.48	42.1	15.65	57.8	-	-	P	V
802.11a CH 165 5825MHz		11650	47.6	-26.4	74	54.35	38.48	12.36	57.59	-	-	P	H
		17475	47.9	-20.4	68.3	47.81	41.94	15.79	57.64	-	-	P	H
		11650	47.43	-26.57	74	54.18	38.48	12.36	57.59	-	-	P	V
		17475	47.01	-21.29	68.3	46.92	41.94	15.79	57.64	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include frequencies from 5649.6 to 5745 MHz with various measurement values.



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 157 5785MHz		5631.8	55.32	-12.98	68.3	38.65	34.3	10.58	28.21	104	39	P	H
		5675.4	54.75	-32.34	87.09	37.87	34.4	10.59	28.11	104	39	P	H
		5717	53.82	-56.14	109.96	36.7	34.53	10.61	28.02	104	39	P	H
		5722	52.92	-62.44	115.36	35.75	34.57	10.61	28.01	104	39	P	H
	*	5785	112.57	-	-	95.13	34.67	10.64	27.87	104	39	P	H
		5785	106.44	-	-	89	34.67	10.64	27.87	104	39	A	H
		5855	53.89	-56.91	110.8	36	34.93	10.68	27.72	104	39	P	H
		5856	55.7	-54.82	110.52	37.78	34.93	10.71	27.72	104	39	P	H
		5922.6	56.38	-13.59	69.97	38.13	35.07	10.75	27.57	104	39	P	H
		5927	55.72	-12.58	68.3	37.46	35.07	10.75	27.56	104	39	P	H
		5632.6	54.34	-13.96	68.3	37.67	34.3	10.58	28.21	166	22	P	V
		5688.6	54.9	-41.92	96.82	37.9	34.5	10.59	28.09	166	22	P	V
		5715	54.33	-55.07	109.4	37.22	34.53	10.61	28.03	166	22	P	V
		5724.6	53.51	-67.78	121.29	36.34	34.57	10.61	28.01	166	22	P	V
	*	5785	109.45	-	-	92.01	34.67	10.64	27.87	166	22	P	V
		5785	102.54	-	-	85.1	34.67	10.64	27.87	166	22	A	V
		5852	54.93	-62.71	117.64	37.08	34.9	10.68	27.73	166	22	P	V
		5859.6	55.92	-53.59	109.51	37.99	34.93	10.71	27.71	166	22	P	V
	5915	55.95	-19.62	75.57	37.76	35.03	10.75	27.59	166	22	P	V	
	5944.2	56.85	-11.45	68.3	38.49	35.1	10.78	27.52	166	22	P	V	



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 165 5825MHz	*	5825	111.72	-	-	93.99	34.83	10.68	27.78	104	37	P	H
		5825	104.25	-	-	86.52	34.83	10.68	27.78	104	37	A	H
		5851	54.1	-65.82	119.92	36.25	34.9	10.68	27.73	104	37	P	H
		5871.2	54.1	-52.16	106.26	36.1	34.97	10.71	27.68	104	37	P	H
		5921.8	56.51	-14.05	70.56	38.26	35.07	10.75	27.57	104	37	P	H
		5939.2	55.24	-13.06	68.3	36.89	35.1	10.78	27.53	104	37	P	H
	*	5825	109.42	-	-	91.69	34.83	10.68	27.78	156	9	P	V
		5825	103.83	-	-	86.1	34.83	10.68	27.78	156	9	A	V
		5851	55.15	-64.77	119.92	37.3	34.9	10.68	27.73	156	9	P	V
		5869.4	53.85	-52.92	106.77	35.9	34.93	10.71	27.69	156	9	P	V
		5911.4	55	-23.23	78.23	36.81	35.03	10.75	27.59	156	9	P	V
	5937.6	55.63	-12.67	68.3	37.32	35.07	10.78	27.54	156	9	P	V	
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



U-NII-3 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20		11490	46.45	-27.55	74	53.55	38.34	12.32	57.76	-	-	P	H
		17235	46.56	-21.74	68.3	46.68	42.27	15.58	57.97	-	-	P	H
CH 149 5745MHz		11490	46.43	-27.57	74	53.53	38.34	12.32	57.76	-	-	P	V
		17235	47.41	-20.89	68.3	47.53	42.27	15.58	57.97	-	-	P	V
802.11n HT20 CH 157 5785MHz		11570	46.9	-27.1	74	53.84	38.42	12.31	57.67	-	-	P	H
		17355	47.75	-20.55	68.3	47.8	42.1	15.65	57.8	-	-	P	H
		11570	47.17	-26.83	74	54.11	38.42	12.31	57.67	-	-	P	V
		17355	47.43	-20.87	68.3	47.48	42.1	15.65	57.8	-	-	P	V
802.11n HT20 CH 165 5825MHz		11650	46.6	-27.4	74	53.35	38.48	12.36	57.59	-	-	P	H
		17475	46.9	-21.4	68.3	46.81	41.94	15.79	57.64	-	-	P	H
		11650	45.43	-28.57	74	52.18	38.48	12.36	57.59	-	-	P	V
		17475	47.01	-21.29	68.3	46.92	41.94	15.79	57.64	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Cable Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include frequency measurements from 5645.4 to 5934.4 MHz.



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 159 5795MHz		5636.6	56.07	-12.23	68.3	39.39	34.3	10.58	28.2	151	4	P	H
		5697.4	54.59	-48.7	103.29	37.57	34.5	10.59	28.07	151	4	P	H
		5710.2	54.13	-53.93	108.06	37.03	34.53	10.61	28.04	151	4	P	H
		5723.4	55.69	-62.86	118.55	38.52	34.57	10.61	28.01	151	4	P	H
	*	5795	109.68	-	-	92.19	34.7	10.64	27.85	151	4	P	H
		5795	102.6	-	-	85.11	34.7	10.64	27.85	151	4	A	H
		5853.8	55.68	-57.86	113.54	37.79	34.93	10.68	27.72	151	4	P	H
		5874	55.31	-50.17	105.48	37.31	34.97	10.71	27.68	151	4	P	H
		5911.6	56.32	-21.77	78.09	38.13	35.03	10.75	27.59	151	4	P	H
		5929.8	56.84	-11.46	68.3	38.57	35.07	10.75	27.55	151	4	P	H
		5634.6	55.77	-12.53	68.3	39.09	34.3	10.58	28.2	151	8	P	V
		5658	54.94	-19.29	74.23	38.21	34.3	10.58	28.15	151	8	P	V
		5707.2	54.17	-53.05	107.22	37.07	34.53	10.61	28.04	151	8	P	V
		5724.6	53.57	-67.72	121.29	36.4	34.57	10.61	28.01	151	8	P	V
	*	5795	106.79	-	-	89.3	34.7	10.64	27.85	151	8	P	V
		5795	99.69	-	-	82.2	34.7	10.64	27.85	151	8	A	V
		5850	55.31	-66.89	122.2	37.46	34.9	10.68	27.73	151	8	P	V
		5874.8	55.22	-50.04	105.26	37.22	34.97	10.71	27.68	151	8	P	V
	5901	56.05	-29.87	85.92	37.92	35	10.75	27.62	151	8	P	V	
	5939.6	56.89	-11.41	68.3	38.54	35.1	10.78	27.53	151	8	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**U-NII-3 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40		11510	47.32	-26.68	74	54.36	38.36	12.34	57.74	-	-	P	H
		17265	46.07	-22.23	68.3	46.26	42.22	15.51	57.92	-	-	P	H
CH 151 5755MHz		11510	47.27	-26.73	74	54.31	38.36	12.34	57.74	-	-	P	V
		17265	46.66	-21.64	68.3	46.85	42.22	15.51	57.92	-	-	P	V
802.11n HT40 CH 159 5795MHz		11590	46.9	-27.1	74	53.81	38.43	12.31	57.65	-	-	P	H
		17385	46.59	-21.71	68.3	46.5	42.05	15.79	57.75	-	-	P	H
		11590	46.45	-27.55	74	53.36	38.43	12.31	57.65	-	-	P	V
		17385	46.28	-22.02	68.3	46.19	42.05	15.79	57.75	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz		5642	55.54	-12.76	68.3	38.85	34.3	10.58	28.19	154	2	P	H
		5689	55.49	-41.62	97.11	38.48	34.5	10.59	28.08	154	2	P	H
		5706.6	56.43	-50.62	107.05	39.34	34.53	10.61	28.05	154	2	P	H
		5725	57.2	-65	122.2	40.02	34.57	10.61	28	154	2	P	H
	*	5775	104.02	-	-	86.63	34.67	10.62	27.9	154	2	P	H
		5775	97.4	-	-	80.01	34.67	10.62	27.9	154	2	A	H
		5853	57.59	-57.77	115.36	39.73	34.9	10.68	27.72	154	2	P	H
		5863.2	56.74	-51.76	108.5	38.8	34.93	10.71	27.7	154	2	P	H
		5916	56.55	-18.29	74.84	38.35	35.03	10.75	27.58	154	2	P	H
		5941.6	55.91	-12.39	68.3	37.56	35.1	10.78	27.53	154	2	P	H
		5646.4	54.56	-13.74	68.3	37.86	34.3	10.58	28.18	140	15	P	V
		5665.4	54.91	-24.79	79.7	38.16	34.3	10.59	28.14	140	15	P	V
		5718.6	56.29	-54.12	110.41	39.13	34.57	10.61	28.02	140	15	P	V
		5724	55.43	-64.49	119.92	38.26	34.57	10.61	28.01	140	15	P	V
	*	5775	103.33	-	-	85.94	34.67	10.62	27.9	140	15	P	V
		5775	97.39	-	-	80	34.67	10.62	27.9	140	15	A	V
		5851.6	56.18	-62.37	118.55	38.33	34.9	10.68	27.73	140	15	P	V
		5857.4	56.48	-53.65	110.13	38.55	34.93	10.71	27.71	140	15	P	V
	5893.4	56.66	-34.89	91.55	38.58	35	10.71	27.63	140	15	P	V	
	5936.6	55.9	-12.4	68.3	37.59	35.07	10.78	27.54	140	15	P	V	

Remark

- No other spurious found.
- All results are PASS against Peak and Average limit line.



U-NII-3 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac		11550	46.47	-27.53	74	53.45	38.4	12.32	57.7	-	-	P	H
VHT80		17325	46.31	-21.99	68.3	46.49	42.15	15.52	57.85	-	-	P	H
CH 155		11550	47.16	-26.84	74	54.14	38.4	12.32	57.7	-	-	P	V
5775MHz		17325	47.6	-20.7	68.3	47.78	42.15	15.52	57.85	-	-	P	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE20_Full (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test data for frequencies 5641.2, 5687.4, 5719.2, 5724.6, 5745, 5745, 5645.2, 5685, 5719.6, 5725, 5745, 5745.



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 157 5785MHz		5610.2	55.27	-13.03	68.3	38.67	34.3	10.56	28.26	178	49	P	H
		5674.6	55.1	-31.4	86.5	38.23	34.4	10.59	28.12	178	49	P	H
		5701.2	54.59	-50.95	105.54	37.51	34.53	10.61	28.06	178	49	P	H
		5723.6	54.12	-64.89	119.01	36.95	34.57	10.61	28.01	178	49	P	H
	*	5785	113.69	-	-	96.25	34.67	10.64	27.87	178	49	P	H
		5785	107.09	-	-	89.65	34.67	10.64	27.87	178	49	A	H
		5852.8	55.24	-60.58	115.82	37.38	34.9	10.68	27.72	178	49	P	H
		5864	54.86	-53.42	108.28	36.92	34.93	10.71	27.7	178	49	P	H
		5901.4	56.71	-28.91	85.62	38.58	35	10.75	27.62	178	49	P	H
		5940.4	56.29	-12.01	68.3	37.94	35.1	10.78	27.53	178	49	P	H
		5642.6	54.24	-14.06	68.3	37.55	34.3	10.58	28.19	171	21	P	V
		5692.4	54.43	-45.18	99.61	37.42	34.5	10.59	28.08	171	21	P	V
		5708.8	54.17	-53.5	107.67	37.07	34.53	10.61	28.04	171	21	P	V
		5721.6	54.38	-60.07	114.45	37.21	34.57	10.61	28.01	171	21	P	V
	*	5785	109.91	-	-	92.47	34.67	10.64	27.87	171	21	P	V
		5785	103.07	-	-	85.63	34.67	10.64	27.87	171	21	A	V
		5853	55.84	-59.52	115.36	37.98	34.9	10.68	27.72	171	21	P	V
		5871.2	55.26	-51	106.26	37.26	34.97	10.71	27.68	171	21	P	V
	5893	56.06	-35.78	91.84	37.99	35	10.71	27.64	171	21	P	V	
	5934.6	56.38	-11.92	68.3	38.07	35.07	10.78	27.54	171	21	P	V	



WiFi Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Full CH 165 5825MHz	*	5825	116.26	-	-	98.53	34.83	10.68	27.78	167	32	P	H
		5825	110.72	-	-	92.99	34.83	10.68	27.78	167	32	A	H
		5850	56.81	-65.39	122.2	38.96	34.9	10.68	27.73	167	32	P	H
		5856.4	55.24	-55.17	110.41	37.32	34.93	10.71	27.72	167	32	P	H
		5876	55.48	-48.98	104.46	37.47	34.97	10.71	27.67	167	32	P	H
		5928	55	-13.3	68.3	36.74	35.07	10.75	27.56	167	32	P	H
	*	5825	110.76	-	-	93.03	34.83	10.68	27.78	154	10	P	V
		5825	102.34	-	-	84.61	34.83	10.68	27.78	154	10	A	V
		5850.4	57.26	-64.03	121.29	39.41	34.9	10.68	27.73	154	10	P	V
		5862.4	55.6	-53.13	108.73	37.66	34.93	10.71	27.7	154	10	P	V
	5922	54.71	-15.7	70.41	36.46	35.07	10.75	27.57	154	10	P	V	
	5932.6	54.81	-13.49	68.3	36.54	35.07	10.75	27.55	154	10	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz

WIFI 802.11ax HE20 Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax		11490	47.45	-26.55	74	54.55	38.34	12.32	57.76	-	-	P	H
HE20 Full		17235	47.56	-20.74	68.3	47.68	42.27	15.58	57.97	-	-	P	H
CH 149		11490	47.43	-26.57	74	54.53	38.34	12.32	57.76	-	-	P	V
5745MHz		17235	47.41	-20.89	68.3	47.53	42.27	15.58	57.97	-	-	P	V
802.11ax		11570	46.9	-27.1	74	53.84	38.42	12.31	57.67	-	-	P	H
HE20 Full		17355	46.75	-21.55	68.3	46.8	42.1	15.65	57.8	-	-	P	H
CH 157		11570	46.17	-27.83	74	53.11	38.42	12.31	57.67	-	-	P	V
5785MHz		17355	47.43	-20.87	68.3	47.48	42.1	15.65	57.8	-	-	P	V
802.11ax		11650	47.6	-26.4	74	54.35	38.48	12.36	57.59	-	-	P	H
HE20 Full		17475	47.9	-20.4	68.3	47.81	41.94	15.79	57.64	-	-	P	H
CH 165		11650	46.43	-27.57	74	53.18	38.48	12.36	57.59	-	-	P	V
5825MHz		17475	47.01	-21.29	68.3	46.92	41.94	15.79	57.64	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE20_Partial 106 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include test results for frequencies 5614.4, 5689.8, 5713.8, 5724.6, 5745, 5745, 5626.8, 5672.2, 5701.2, 5720, 5745, 5745.



WiFi Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 106/54 CH 165 5825MHz	*	5825	115.32	-	-	97.59	34.83	10.68	27.78	138	61	P	H
		5825	107.95	-	-	90.22	34.83	10.68	27.78	138	61	A	H
		5852.6	55.52	-60.75	116.27	37.66	34.9	10.68	27.72	138	61	P	H
		5871.4	55.51	-50.7	106.21	37.51	34.97	10.71	27.68	138	61	P	H
		5894.8	55.93	-34.58	90.51	37.81	35	10.75	27.63	138	61	P	H
		5937.8	56.2	-12.1	68.3	37.89	35.07	10.78	27.54	138	61	P	H
	*	5825	112.72	-	-	94.99	34.83	10.68	27.78	100	22	P	V
		5825	104.98	-	-	87.25	34.83	10.68	27.78	100	22	A	V
		5851.2	54.87	-64.59	119.46	37.02	34.9	10.68	27.73	100	22	P	V
		5870	55.61	-50.99	106.6	37.66	34.93	10.71	27.69	100	22	P	V
	5915.4	57.23	-18.05	75.28	39.04	35.03	10.75	27.59	100	22	P	V	
	5937	56.06	-12.24	68.3	37.75	35.07	10.78	27.54	100	22	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz

WIFI 802.11ax HE20_Partial 106 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE20 Partial 106/53 CH 149 5745MHz		11490	47.86	-26.14	74	54.96	38.34	12.32	57.76	-	-	P	H
		17235	47.13	-21.17	68.3	47.25	42.27	15.58	57.97	-	-	P	H
		11490	46.89	-27.11	74	53.99	38.34	12.32	57.76	-	-	P	V
		17235	47.98	-20.32	68.3	48.1	42.27	15.58	57.97	-	-	P	V
802.11ax HE20 Partial 106/54 CH 165 5825MHz		11650	47.24	-26.76	74	53.99	38.48	12.36	57.59	-	-	P	H
		17475	47.63	-20.67	68.3	47.54	41.94	15.79	57.64	-	-	P	H
		11650	47.93	-26.07	74	54.68	38.48	12.36	57.59	-	-	P	V
		17475	47.11	-21.19	68.3	47.02	41.94	15.79	57.64	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz

WIFI 802.11ax HE40_Full (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 151 5755MHz		5602.2	56.06	-12.24	68.3	39.48	34.3	10.56	28.28	178	52	P	H
		5695	55.01	-46.51	101.52	37.99	34.5	10.59	28.07	178	52	P	H
		5717	61.1	-48.86	109.96	43.98	34.53	10.61	28.02	178	52	P	H
		5720.4	63.16	-48.55	111.71	46	34.57	10.61	28.02	178	52	P	H
	*	5755	110.82	-	-	93.51	34.63	10.62	27.94	178	52	P	H
		5755	103.43	-	-	86.12	34.63	10.62	27.94	178	52	A	H
		5854.4	54.75	-57.42	112.17	36.86	34.93	10.68	27.72	178	52	P	H
		5871.4	56.04	-50.17	106.21	38.04	34.97	10.71	27.68	178	52	P	H
		5900.6	56.66	-29.56	86.22	38.53	35	10.75	27.62	178	52	P	H
		5929	55.73	-12.57	68.3	37.47	35.07	10.75	27.56	178	52	P	H
		5616.4	54.53	-13.77	68.3	37.91	34.3	10.56	28.24	179	20	P	V
		5690.2	54.08	-43.91	97.99	37.07	34.5	10.59	28.08	179	20	P	V
		5719.4	58.82	-51.81	110.63	41.66	34.57	10.61	28.02	179	20	P	V
		5724.4	66.62	-54.21	120.83	49.45	34.57	10.61	28.01	179	20	P	V
	*	5755	107.98	-	-	90.67	34.63	10.62	27.94	179	20	P	V
		5755	99.88	-	-	82.57	34.63	10.62	27.94	179	20	A	V
		5854.8	55.3	-55.96	111.26	37.41	34.93	10.68	27.72	179	20	P	V
		5874.8	54.9	-50.36	105.26	36.9	34.97	10.71	27.68	179	20	P	V
		5914	55.93	-20.38	76.31	37.74	35.03	10.75	27.59	179	20	P	V
	5948.4	55.86	-12.44	68.3	37.49	35.1	10.78	27.51	179	20	P	V	



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Full CH 159 5795MHz		5645.2	56.34	-11.96	68.3	39.64	34.3	10.58	28.18	104	40	P	H
		5650.4	55.97	-12.63	68.6	39.26	34.3	10.58	28.17	104	40	P	H
		5716.6	54.48	-55.37	109.85	37.36	34.53	10.61	28.02	104	40	P	H
		5723.6	53.96	-65.05	119.01	36.79	34.57	10.61	28.01	104	40	P	H
	*	5795	112.66	-	-	95.17	34.7	10.64	27.85	104	40	P	H
		5795	104.85	-	-	87.36	34.7	10.64	27.85	104	40	A	H
		5850	58.67	-63.53	122.2	40.82	34.9	10.68	27.73	104	40	P	H
		5855.2	55.66	-55.08	110.74	37.77	34.93	10.68	27.72	104	40	P	H
		5911	56.59	-21.94	78.53	38.41	35.03	10.75	27.6	104	40	P	H
		5931.2	56.81	-11.49	68.3	38.54	35.07	10.75	27.55	104	40	P	H
		5644.2	55.36	-12.94	68.3	38.66	34.3	10.58	28.18	147	10	P	V
		5693.6	54.21	-46.28	100.49	37.19	34.5	10.59	28.07	147	10	P	V
		5716	54.59	-55.09	109.68	37.47	34.53	10.61	28.02	147	10	P	V
		5721.6	54.01	-60.44	114.45	36.84	34.57	10.61	28.01	147	10	P	V
	*	5795	108.73	-	-	91.24	34.7	10.64	27.85	147	10	P	V
		5795	100.82	-	-	83.33	34.7	10.64	27.85	147	10	A	V
		5851.2	56.07	-63.39	119.46	38.22	34.9	10.68	27.73	147	10	P	V
		5855	55.23	-55.57	110.8	37.34	34.93	10.68	27.72	147	10	P	V
		5919.6	55.75	-16.43	72.18	37.55	35.03	10.75	27.58	147	10	P	V
	5928.2	56.23	-12.07	68.3	37.97	35.07	10.75	27.56	147	10	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE40_Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax		11510	46.32	-27.68	74	53.36	38.36	12.34	57.74	-	-	P	H
HE40 Full		17265	47.07	-21.23	68.3	47.26	42.22	15.51	57.92	-	-	P	H
CH 151		11510	47.27	-26.73	74	54.31	38.36	12.34	57.74	-	-	P	V
5755MHz		17265	46.66	-21.64	68.3	46.85	42.22	15.51	57.92	-	-	P	V
802.11ax		11590	46.9	-27.1	74	53.81	38.43	12.31	57.65	-	-	P	H
HE40 Full		17385	47.59	-20.71	68.3	47.5	42.05	15.79	57.75	-	-	P	H
CH 159		11590	46.45	-27.55	74	53.36	38.43	12.31	57.65	-	-	P	V
5795MHz		17385	47.28	-21.02	68.3	47.19	42.05	15.79	57.75	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE40_Partial 242 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include frequency measurements from 5604 to 5946.2 MHz.



WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Partial 262/62 CH 159 5795MHz		5600.6	54.83	-13.47	68.3	38.25	34.3	10.56	28.28	100	37	P	H
		5650.6	55.11	-13.63	68.74	38.4	34.3	10.58	28.17	100	37	P	H
		5712	54.32	-54.24	108.56	37.21	34.53	10.61	28.03	100	37	P	H
		5721.2	54	-59.54	113.54	36.83	34.57	10.61	28.01	100	37	P	H
	*	5795	113.37	-	-	95.88	34.7	10.64	27.85	100	37	P	H
		5795	105.81	-	-	88.32	34.7	10.64	27.85	100	37	A	H
		5851	61.75	-58.17	119.92	43.9	34.9	10.68	27.73	100	37	P	H
		5858.8	57.77	-51.96	109.73	39.84	34.93	10.71	27.71	100	37	P	H
		5900.6	56.93	-29.29	86.22	38.8	35	10.75	27.62	100	37	P	H
		5929.4	57.63	-10.67	68.3	39.37	35.07	10.75	27.56	100	37	P	H
		5619	55.45	-12.85	68.3	38.83	34.3	10.56	28.24	100	21	P	V
		5666	54.56	-25.58	80.14	37.8	34.3	10.59	28.13	100	21	P	V
		5716.4	53.93	-55.86	109.79	36.81	34.53	10.61	28.02	100	21	P	V
		5722.4	53.65	-62.62	116.27	36.48	34.57	10.61	28.01	100	21	P	V
	*	5795	110.18	-	-	92.69	34.7	10.64	27.85	100	21	P	V
		5795	102.75	-	-	85.26	34.7	10.64	27.85	100	21	A	V
		5851.2	62.9	-56.56	119.46	45.05	34.9	10.68	27.73	100	21	P	V
		5863.8	58.08	-50.25	108.33	40.14	34.93	10.71	27.7	100	21	P	V
	5925	56.7	-11.5	68.2	38.45	35.07	10.75	27.57	100	21	P	V	
	5925.4	57.15	-11.15	68.3	38.89	35.07	10.75	27.56	100	21	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz

WIFI 802.11ax HE40_Partial 242 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE40 Partial 262/61 CH 151 5755MHz		11510	47.03	-26.97	74	54.07	38.36	12.34	57.74	-	-	P	H
		17265	47.37	-20.93	68.3	47.56	42.22	15.51	57.92	-	-	P	H
		11510	47.86	-26.14	74	54.9	38.36	12.34	57.74	-	-	P	V
		17265	47.22	-21.08	68.3	47.41	42.22	15.51	57.92	-	-	P	V
802.11ax HE40 Partial 262/62 CH 159 5795MHz		11590	47.82	-26.18	74	54.73	38.43	12.31	57.65	-	-	P	H
		17385	47.22	-21.08	68.3	47.13	42.05	15.79	57.75	-	-	P	H
		11590	47.26	-26.74	74	54.17	38.43	12.31	57.65	-	-	P	V
		17385	46.7	-21.6	68.3	46.61	42.05	15.79	57.75	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE80_Full (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include frequencies from 5618.6 to 5949.4 MHz.

Remark
1. No other spurious found.
2. All results are PASS against Peak and Average limit line.



U-NII-3 5725~5850MHz

WIFI 802.11ax HE80_Full (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax		11550	47.47	-26.53	74	54.45	38.4	12.32	57.7	-	-	P	H
HE80 Full		17325	47.31	-20.99	68.3	47.49	42.15	15.52	57.85	-	-	P	H
CH 155		11550	47.16	-26.84	74	54.14	38.4	12.32	57.7	-	-	P	V
5775MHz		17325	46.6	-21.7	68.3	46.78	42.15	15.52	57.85	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



U-NII-3 5725~5850MHz
WIFI 802.11ax HE80_Partial 484 (Band Edge @ 3m)

Table with 14 columns: WIFI Ant. 1+2, Note, Frequency (MHz), Level (dBµV/m), Over Limit (dB), Limit Line (dBµV/m), Read Level (dBµV), Antenna Factor (dB/m), Path Loss (dB), Preamp Factor (dB), Ant Pos (cm), Table Pos (deg), Peak Avg. (P/A), Pol. (H/V). Rows include frequency measurements from 5634.4 to 5939.4 MHz.

Remark
1. No other spurious found.
2. All results are PASS against Peak and Average limit line.



U-NII-3 5725~5850MHz

WIFI 802.11ax HE80_Partial 484 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ax HE80 Partial 484/66 CH 155 5775MHz		11550	47.16	-26.84	74	54.14	38.4	12.32	57.7	-	-	P	H
		17325	47.68	-20.62	68.3	47.86	42.15	15.52	57.85	-	-	P	H
		11550	47.64	-26.36	74	54.62	38.4	12.32	57.7	-	-	P	V
		17325	47.86	-20.44	68.3	48.04	42.15	15.52	57.85	-	-	P	V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.



Emission below 1GHz
5GHz WIFI 802.11a (LF @ 3m)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Cable, Preamp, Ant, Table, Peak, Pol. It contains 12 rows of test data for 5GHz WIFI 802.11a LF and a Remark section at the bottom.



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

- Level(dBμV/m) =
Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

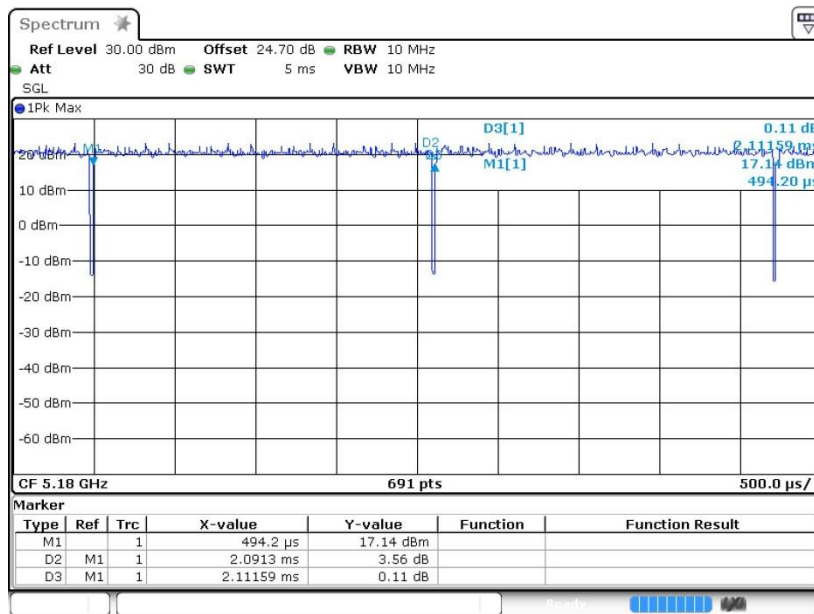
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	99.04	-	-	10Hz
1+2	802.11n HT20	100	-	-	10Hz
1+2	802.11n HT40	100	-	-	10Hz
1+2	802.11ac VHT80	100	-	-	10Hz
1+2	802.11ax HE20	100	-	-	10Hz
1+2	802.11ax HE40	100	-	-	10Hz
1+2	802.11ax HE80	100	-	-	10Hz

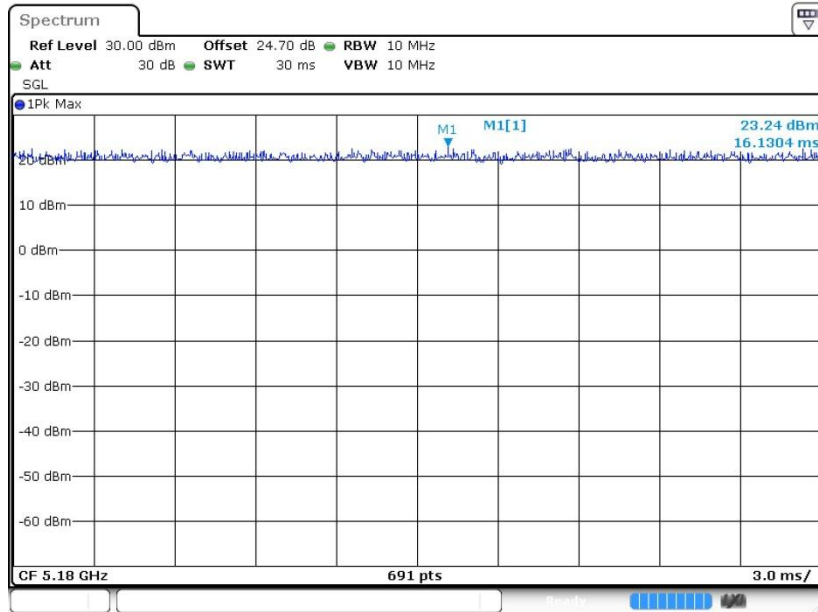
802.11a



Date: 22.OCT.2021 10:51:27

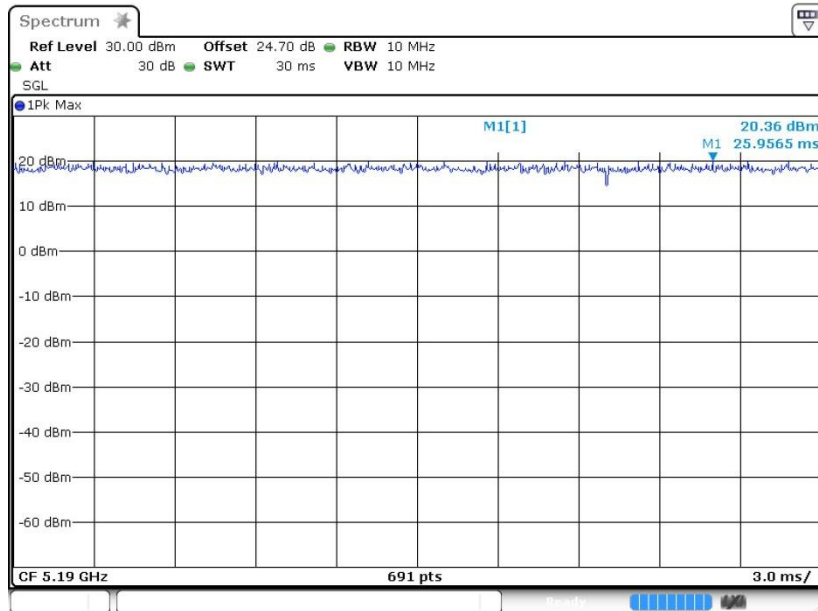


802.11n HT20



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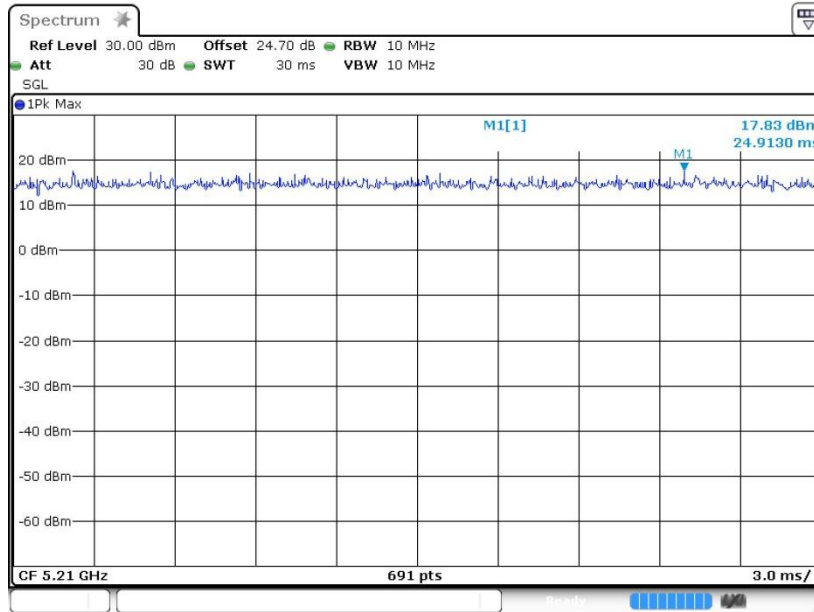
802.11n HT40



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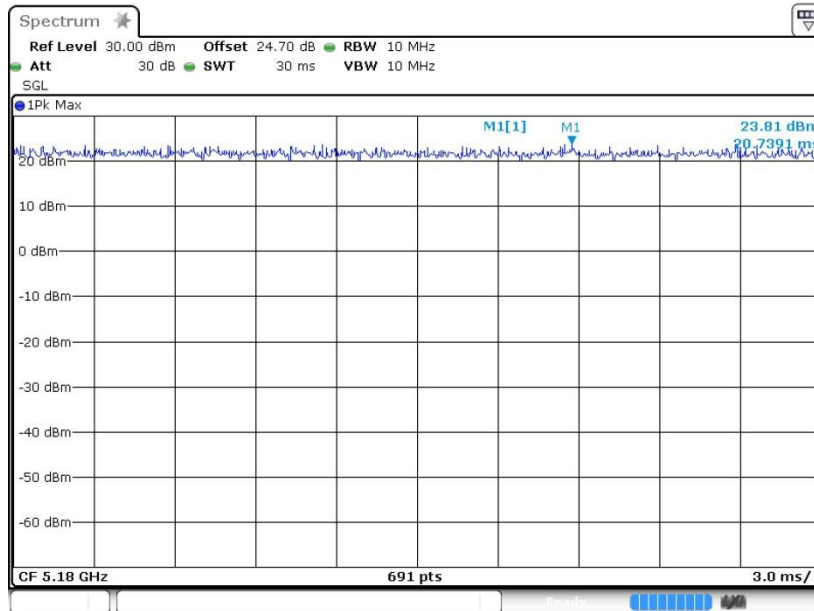


802.11ac VHT80



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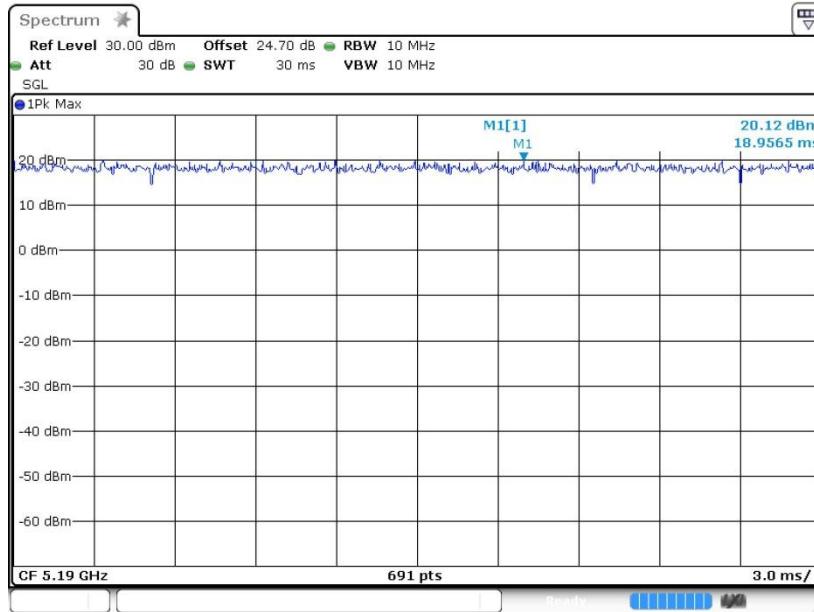
802.11ax HE20



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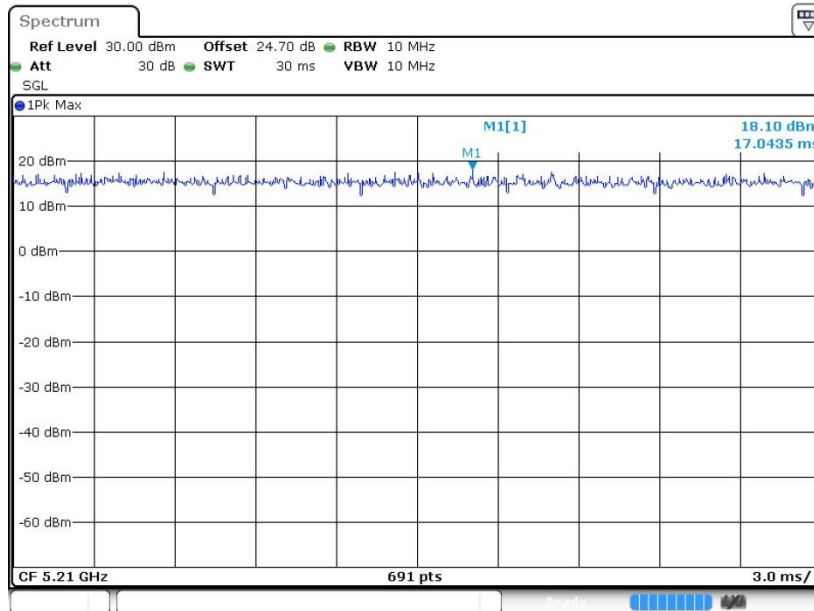


802.11ax HE40



Date: 22.OCT.2021 14:10:35

802.11ax HE80



Date: 22.OCT.2021 14:18:55