



FCC RF Test Report

APPLICANT : Bullitt Group
EQUIPMENT : Rugged Smart Phone
BRAND NAME : CAT
MODEL NAME : S42
FCC ID : ZL5S42
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on May 22, 2020 and testing was completed on Jun. 20, 2020. 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.

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager



Sporton International (ShenZhen) Inc.

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055
People's Republic of China**



TABLE OF CONTENTS

REVISION HISTORY.....3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

 1.1 Applicant.....5

 1.2 Manufacturer.....5

 1.3 Product Feature of Equipment Under Test.....5

 1.4 Product Specification of Equipment Under Test.....6

 1.5 Modification of EUT7

 1.6 Testing Location7

 1.7 Test Software.....7

 1.8 Applicable Standards.....8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....9

 2.1 Carrier Frequency and Channel9

 2.2 Test Mode.....11

 2.3 Connection Diagram of Test System.....13

 2.4 Support Unit used in test configuration and system14

 2.5 EUT Operation Test Setup14

 2.6 Measurement Results Explanation Example.....14

3 TEST RESULT.....15

 3.1 26dB & 99% Occupied Bandwidth Measurement15

 3.2 Maximum Conducted Output Power Measurement17

 3.3 Power Spectral Density Measurement19

 3.4 Unwanted Emissions Measurement.....22

 3.5 AC Conducted Emission Measurement.....27

 3.6 Automatically Discontinue Transmission29

 3.7 Antenna Requirements.....30

4 LIST OF MEASURING EQUIPMENT.....31

5 UNCERTAINTY OF EVALUATION.....32

APPENDIX A. CONDUCTED TEST RESULTS

APPENDIX B. AC CONDUCTED EMISSION TEST RESULT

APPENDIX C. RADIATED SPURIOUS EMISSION

APPENDIX D. DUTY CYCLE PLOTS

APPENDIX E. SETUP PHOTOGRAPHS



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 3.10 dB at 5350.080 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 4.22 dB at 0.500 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/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

Bullitt Group

One Valpy, Valpy Street, Reading, Berkshire, England RG1 1AR

1.2 Manufacturer

Bullitt Group

One Valpy, Valpy Street, Reading, Berkshire, England RG1 1AR

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Rugged Smart Phone
Brand Name	CAT
Model Name	S42
FCC ID	ZL5S42
EUT supports Radios application	GSM/WCDMA/LTE/NFC WLAN 2.4GHz 802.11 b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE FM Receiver / GNSS
IMEI Code	Conducted: N/A Conduction : 359145660001926/359145660005927 Radiation : 359145660002965/359145660006966
HW Version	V1.0
SW Version	LTE_C01091.10_NE_S42G_0.030.00
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 Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
Maximum Output Power to Antenna	<p><5180 MHz ~ 5240 MHz> 802.11a : 16.22 dBm / 0.0419 W 802.11n HT20 : 15.70 dBm / 0.0372 W 802.11n HT40 : 15.24 dBm / 0.0334 W 802.11ac VHT20 : 15.58 dBm / 0.0361 W 802.11ac VHT40 : 15.19 dBm / 0.0330 W 802.11ac VHT80 : 11.94 dBm / 0.0156 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 16.53 dBm / 0.0450 W 802.11n HT20 : 15.95 dBm / 0.0394 W 802.11n HT40 : 15.26 dBm / 0.0336 W 802.11ac VHT20 : 15.85 dBm / 0.0385 W 802.11ac VHT40 : 15.17 dBm / 0.0329 W 802.11ac VHT80 : 12.22 dBm / 0.0167 W</p> <p><5500 MHz ~ 5720 MHz > 802.11a : 14.27 dBm / 0.0267 W 802.11n HT20 : 13.75 dBm / 0.0237 W 802.11n HT40 : 13.20 dBm / 0.0209 W 802.11ac VHT20 : 13.70 dBm / 0.0234 W 802.11ac VHT40 : 13.05 dBm / 0.0202 W 802.11ac VHT80 : 11.94 dBm / 0.0156 W</p>
99% Occupied Bandwidth	<p><5180 MHz ~ 5240 MHz> 802.11a : 17.03 MHz 802.11n HT20 : 17.88 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 76.00 MHz</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 16.98 MHz 802.11n HT20 : 17.93 MHz 802.11n HT40 : 36.56 MHz 802.11ac VHT80 : 75.88 MHz</p> <p><5500 MHz ~ 5720 MHz > 802.11a : 16.93 MHz 802.11n HT20 : 17.98 MHz 802.11n HT40 : 36.76 MHz 802.11ac VHT80 : 76.00 MHz</p>
Antenna Type / Gain	<p><5150 MHz ~ 5250 MHz> IFA Antenna with gain -1.00 dBi</p> <p><5250 MHz ~ 5350 MHz> IFA Antenna with gain -1.00 dBi</p> <p><5470 MHz ~ 5725 MHz> IFA Antenna with gain -1.00 dBi</p>
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

Note: For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11n HT20/ HT40 by referring to their maximum conducted power.



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	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan Shenzhen, 518055 People's Republic of China TEL: +86-755-33202398		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH01-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24
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.
- ♦ 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 (X 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)
5180-5240 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5260-5320 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5720 MHz Band 3 (U-NII-2C)	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700



Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 [#]	5610	128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710		

Note:

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



2.2 Test Mode

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

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT80	MCS0

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



Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

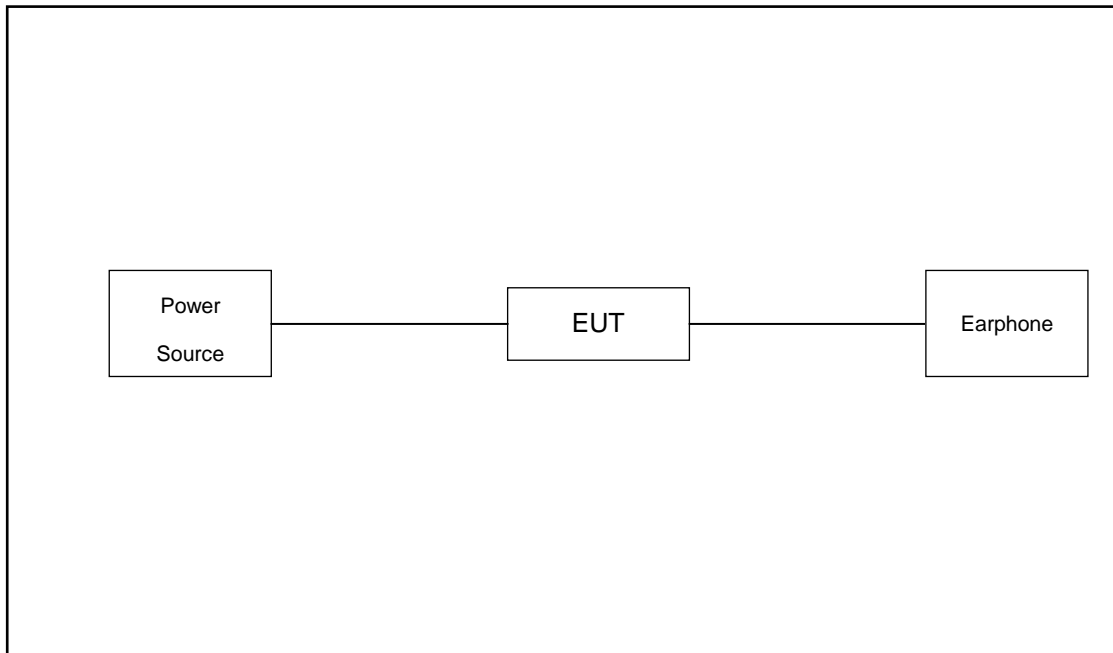
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134
Straddle		-	-	142

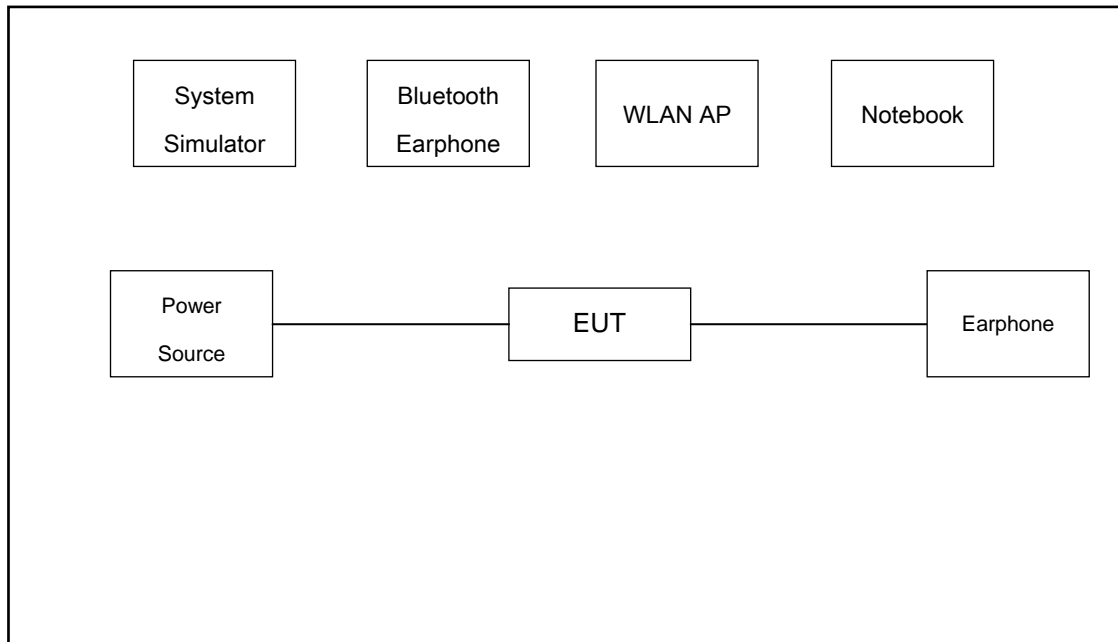
Ch. #		Band I : 5180-5240 MHz	Band II : 5260-5320 MHz	Band III : 5500-5720MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122
Straddle		-	-	138

2.3 Connection Diagram of Test System

For Radiation



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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8m
2.	WLAN AP	D-Link	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8m
3.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
4.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

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

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 5.1 dB and 20dB attenuator.

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\
 &= 5.1 + 20 = 25.1(\text{dB})
 \end{aligned}$$

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

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.

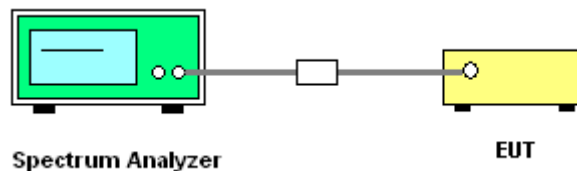
3.1.2 Measuring Instruments

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
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 3MHz and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

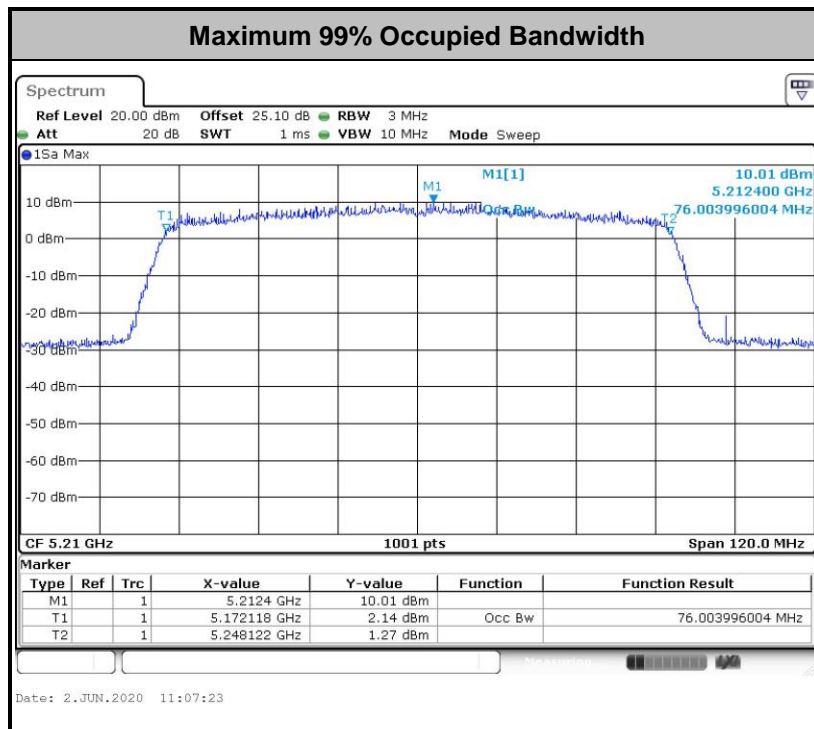
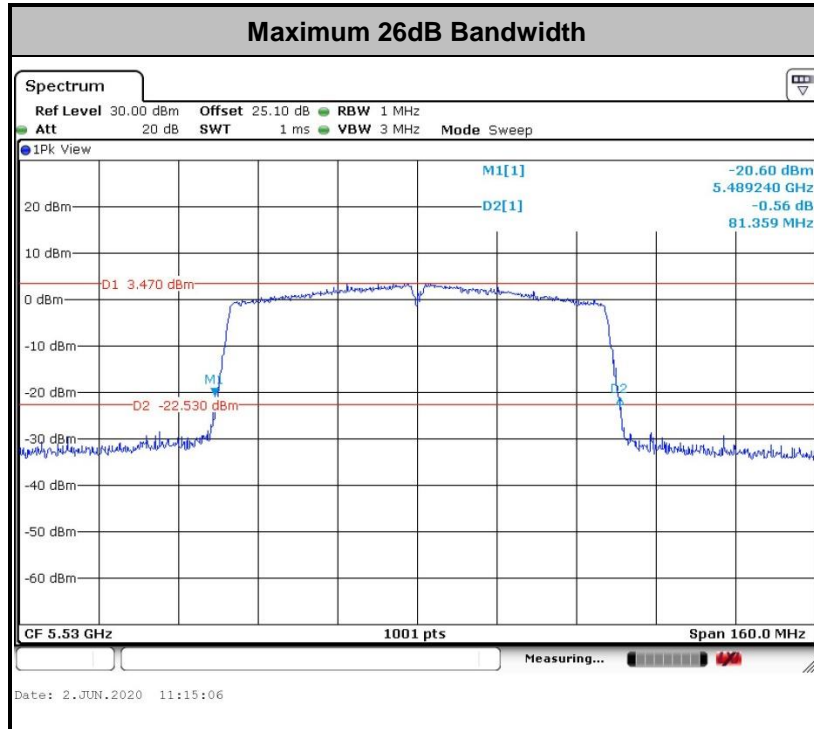
3.1.4 Test Setup





3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



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

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

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.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

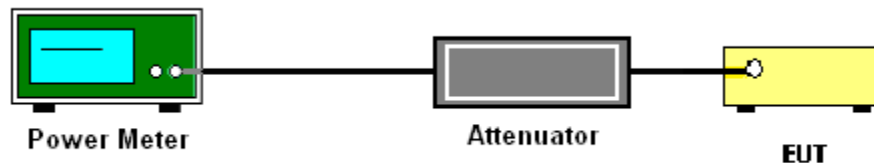
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

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.

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

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz 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

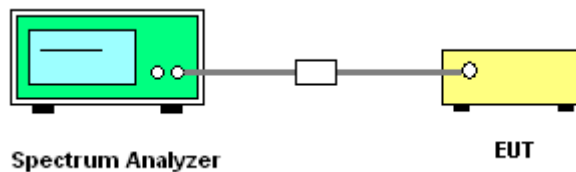
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Section F) Maximum power spectral density.

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 = 1 MHz.
 - Set VBW \geq 3 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 $10 \log(1/x)$, 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.

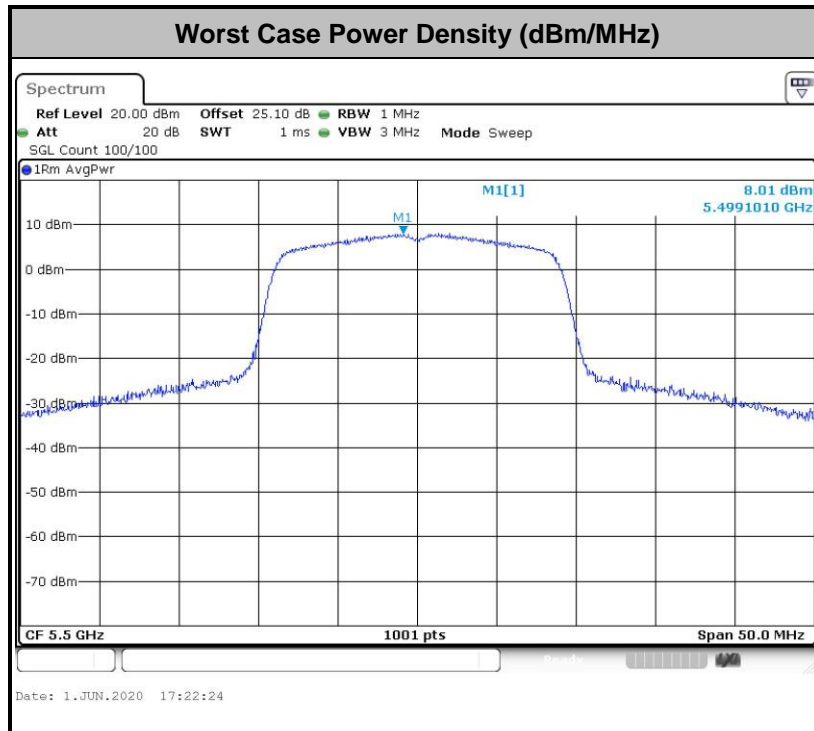
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.





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 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (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.

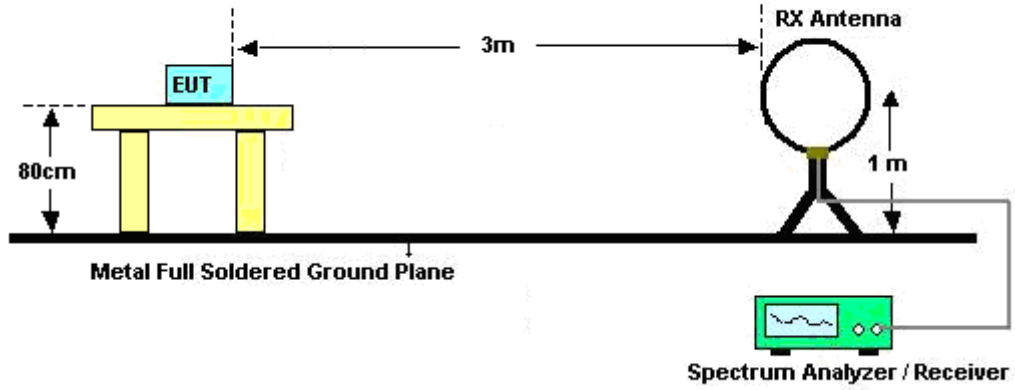


3.4.3 Test Procedures

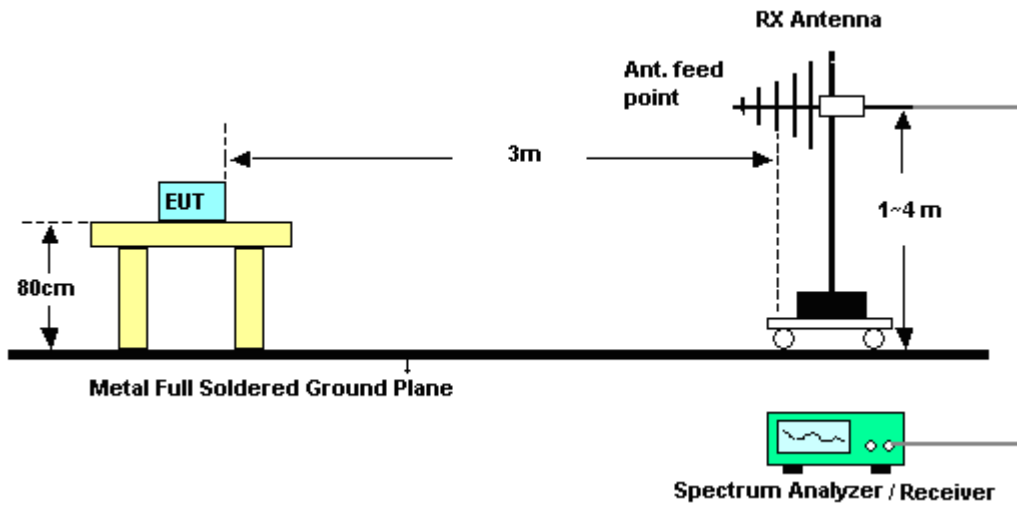
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak 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 average 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

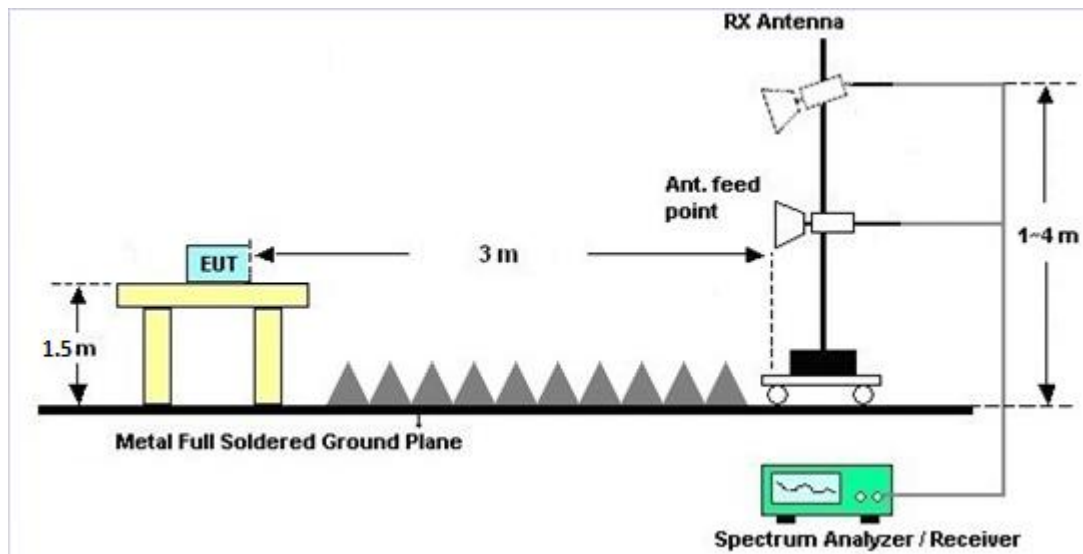
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated Spurious 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 Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

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 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

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

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

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



3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



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. 16, 2020	Jun. 01, 2020~Jun. 02, 2020	Apr. 15, 2021	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 26, 2019	Jun. 01, 2020~Jun. 02, 2020	Dec. 25, 2020	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 26, 2019	Jun. 01, 2020~Jun. 02, 2020	Dec. 25, 2020	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Jul. 22, 2019	Jun. 20, 2020	Jul. 21, 2020	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Apr. 17, 2020	Jun. 20, 2020	Apr. 16, 2021	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 28, 2020	Jun. 20, 2020	May 27, 2021	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Jul. 19, 2019	Jun. 20, 2020	Jul. 18, 2020	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Apr. 01, 2020	Jun. 20, 2020	Mar. 31, 2021	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz-40GHz	Apr. 17, 2020	Jun. 20, 2020	Apr. 16, 2021	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 17, 2020	Jun. 20, 2020	Apr. 16, 2021	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2019	Jun. 20, 2020	Oct. 17, 2020	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270104	0.5GHz~26.5GHz	Dec. 27, 2019	Jun. 20, 2020	Dec. 26, 2020	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 22, 2019	Jun. 20, 2020	Jul. 21, 2020	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 20, 2020	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 20, 2020	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 20, 2020	NCR	Radiation (03CH01-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 26, 2019	Jun. 02, 2020	Dec. 25, 2020	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Oct. 17, 2019	Jun. 02, 2020	Oct. 16, 2020	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 17, 2019	Jun. 02, 2020	Oct. 16, 2020	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 23, 2019	Jun. 02, 2020	Jul. 22, 2020	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))	2.7dB
---	-------

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.7dB
---	-------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
---	-------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.3dB
---	-------



Appendix A. Conducted Test Results

Report Number : FR052014-01E

Test Engineer:	Zeng Meng Hui	Temperature:	21~25	°C
Test Date:	2020/6/1~2020/6/2	Relative Humidity:	51~54	%

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	16.93	30.32	-	22.29		
11a	6Mbps	1	44	5220	16.98	33.67	-	22.30		
11a	6Mbps	1	48	5240	17.03	37.21	-	22.31		
HT20	MCS0	1	36	5180	17.88	29.07	-	22.52		
HT20	MCS0	1	44	5220	17.88	31.02	-	22.52		
HT20	MCS0	1	48	5240	17.88	33.02	-	22.52		
HT40	MCS0	1	38	5190	36.46	46.48	-	23.01		
HT40	MCS0	1	46	5230	36.56	41.36	-	23.01		
VHT80	MCS0	1	42	5210	76.00	81.04	-	23.01		

TEST RESULTS DATA
Average Power Table

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.00	16.22	24.00	-1.00		Pass
11a	6Mbps	1	44	5220	0.00	16.18	24.00	-1.00		Pass
11a	6Mbps	1	48	5240	0.00	16.13	24.00	-1.00		Pass
HT20	MCS0	1	36	5180	0.00	15.61	24.00	-1.00		Pass
HT20	MCS0	1	44	5220	0.00	15.70	24.00	-1.00		Pass
HT20	MCS0	1	48	5240	0.00	15.64	24.00	-1.00		Pass
HT40	MCS0	1	38	5190	0.00	15.14	24.00	-1.00		Pass
HT40	MCS0	1	46	5230	0.00	15.24	24.00	-1.00		Pass
VHT20	MCS0	1	36	5180	0.00	15.50	24.00	-1.00		Pass
VHT20	MCS0	1	44	5220	0.00	15.56	24.00	-1.00		Pass
VHT20	MCS0	1	48	5240	0.00	15.58	24.00	-1.00		Pass
VHT40	MCS0	1	38	5190	0.00	15.07	24.00	-1.00		Pass
VHT40	MCS0	1	46	5230	0.00	15.19	24.00	-1.00		Pass
VHT80	MCS0	1	42	5210	0.00	11.94	24.00	-1.00		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.00	6.70	11.00	-1.00		Pass
11a	6Mbps	1	44	5220	0.00	5.63	11.00	-1.00		Pass
11a	6Mbps	1	48	5240	0.00	5.94	11.00	-1.00		Pass
HT20	MCS0	1	36	5180	0.00	6.86	11.00	-1.00		Pass
HT20	MCS0	1	44	5220	0.00	6.48	11.00	-1.00		Pass
HT20	MCS0	1	48	5240	0.00	6.50	11.00	-1.00		Pass
HT40	MCS0	1	38	5190	0.00	3.34	11.00	-1.00		Pass
HT40	MCS0	1	46	5230	0.00	3.43	11.00	-1.00		Pass
VHT80	MCS0	1	42	5210	0.00	-4.78	11.00	-1.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	52	5260	16.88	26.87	23.27	29.27	23.98	
11a	6M bps	1	60	5300	16.98	30.12	23.30	29.30	23.98	
11a	6M bps	1	64	5320	16.83	30.57	23.26	29.26	23.98	
HT20	MCS 0	1	52	5260	17.93	34.32	23.54	29.54	23.98	
HT20	MCS 0	1	60	5300	17.88	31.52	23.52	29.52	23.98	
HT20	MCS 0	1	64	5320	17.88	29.22	23.52	29.52	23.98	
HT40	MCS 0	1	54	5270	36.46	42.44	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.56	41.27	23.98	30.00	23.98	
VHT80	MCS 0	1	58	5290	75.88	81.04	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band II										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.00	16.32	23.98	-1.00	26.99	Pass
11a	6M bps	1	60	5300	0.00	16.46	23.98	-1.00	26.99	Pass
11a	6M bps	1	64	5320	0.00	16.53	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	52	5260	0.00	15.95	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	60	5300	0.00	15.90	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	64	5320	0.00	15.80	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	54	5270	0.00	15.26	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	62	5310	0.00	15.25	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	52	5260	0.00	15.85	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	60	5300	0.00	15.85	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	64	5320	0.00	15.75	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	54	5270	0.00	15.17	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	62	5310	0.00	15.15	23.98	-1.00	26.99	Pass
VHT80	MCS 0	1	58	5290	0.00	12.22	23.98	-1.00	26.99	Pass

TEST RESULTS DATA
Power Spectral Density

Band II										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	52	5260	0.00	5.07	11.00	-1.00		Pass
11a	6M bps	1	60	5300	0.00	6.37	11.00	-1.00		Pass
11a	6M bps	1	64	5320	0.00	5.64	11.00	-1.00		Pass
HT20	MCS 0	1	52	5260	0.00	6.74	11.00	-1.00		Pass
HT20	MCS 0	1	60	5300	0.00	7.70	11.00	-1.00		Pass
HT20	MCS 0	1	64	5320	0.00	7.71	11.00	-1.00		Pass
HT40	MCS 0	1	54	5270	0.00	2.94	11.00	-1.00		Pass
HT40	MCS 0	1	62	5310	0.00	2.99	11.00	-1.00		Pass
VHT80	MCS 0	1	58	5290	0.00	-5.13	11.00	-1.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
11a	6M bps	1	100	5500	16.93	32.37	23.29	29.29	23.98	
11a	6M bps	1	116	5580	16.88	30.77	23.27	29.27	23.98	
11a	6M bps	1	140	5700	16.93	30.22	23.29	29.29	23.98	
11a	6Mbps	1	144	5720	16.88	38.11	23.27	29.27	23.98	
HT20	MCS 0	1	100	5500	17.98	37.21	23.55	29.55	23.98	
HT20	MCS 0	1	116	5580	17.88	28.82	23.52	29.52	23.98	
HT20	MCS 0	1	140	5700	17.88	33.72	23.52	29.52	23.98	
HT20	MCS0	1	144	5720	17.88	33.37	23.52	29.52	23.98	
HT40	MCS 0	1	102	5510	36.66	42.17	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.56	52.60	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.76	41.45	23.98	30.00	23.98	
HT40	MCS0	1	142	5710	36.66	49.72	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	75.88	81.36	23.98	30.00	23.98	
VHT80	MCS 0	1	122	5610	76.00	81.20	23.98	30.00	23.98	
VHT80	MCS0	1	138	5690	75.88	80.88	23.98	30.00	23.98	

TEST RESULTS DATA
Average Power Table

FCC Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.00	14.27	23.98	-1.00	26.99	Pass
11a	6M bps	1	116	5580	0.00	14.17	23.98	-1.00	26.99	Pass
11a	6M bps	1	140	5700	0.00	14.22	23.98	-1.00	26.99	Pass
11a	6M bps	1	144	5720	0.00	14.25	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	100	5500	0.00	13.52	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	116	5580	0.00	13.54	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	140	5700	0.00	13.61	23.98	-1.00	26.99	Pass
HT20	MCS 0	1	144	5720	0.00	13.75	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	102	5510	0.00	13.02	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	110	5550	0.00	13.05	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	134	5670	0.00	13.09	23.98	-1.00	26.99	Pass
HT40	MCS 0	1	142	5710	0.00	13.20	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	100	5500	0.00	13.51	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	116	5580	0.00	13.53	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	140	5700	0.00	13.55	23.98	-1.00	26.99	Pass
VHT20	MCS 0	1	144	5720	0.00	13.70	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	102	5510	0.00	13.01	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	110	5550	0.00	13.03	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	134	5670	0.00	13.02	23.98	-1.00	26.99	Pass
VHT40	MCS 0	1	142	5710	0.00	13.05	23.98	-1.00	26.99	Pass
VHT80	MCS 0	1	106	5530	0.00	11.75	23.98	-1.00	26.99	Pass
VHT80	MCS 0	1	122	5610	0.00	11.93	23.98	-1.00	26.99	Pass
VHT80	MCS 0	1	138	5690	0.00	11.94	23.98	-1.00	26.99	Pass

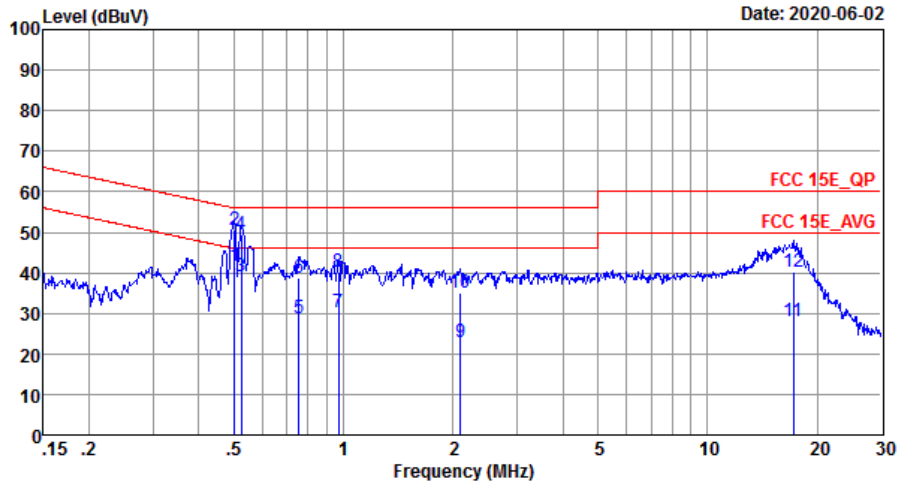
TEST RESULTS DATA
Power Spectral Density

Band III										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)		Pass/Fail
11a	6M bps	1	100	5500	0.00	7.38	11.00	-1.00		Pass
11a	6M bps	1	116	5580	0.00	7.83	11.00	-1.00		Pass
11a	6M bps	1	140	5700	0.00	6.13	11.00	-1.00		Pass
11a	6Mbps	1	144	5720	0.00	6.62	11.00	-1.00		Pass
HT20	MCS 0	1	100	5500	0.00	8.01	11.00	-1.00		Pass
HT20	MCS 0	1	116	5580	0.00	7.55	11.00	-1.00		Pass
HT20	MCS 0	1	140	5700	0.00	7.04	11.00	-1.00		Pass
HT20	MCS0	1	144	5720	0.00	7.14	11.00	-1.00		Pass
HT40	MCS 0	1	102	5510	0.00	3.04	11.00	-1.00		Pass
HT40	MCS 0	1	110	5550	0.00	3.47	11.00	-1.00		Pass
HT40	MCS 0	1	134	5670	0.00	2.97	11.00	-1.00		Pass
HT40	MCS0	1	142	5710	0.00	2.85	11.00	-1.00		Pass
VHT80	MCS 0	1	106	5530	0.00	-4.53	11.00	-1.00		Pass
VHT80	MCS 0	1	122	5610	0.00	-4.79	11.00	-1.00		Pass
VHT80	MCS0	1	138	5690	0.00	-5.24	11.00	-1.00		Pass



Appendix B. AC Conducted Emission Test Results

Test Engineer :	Doom Wu	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line

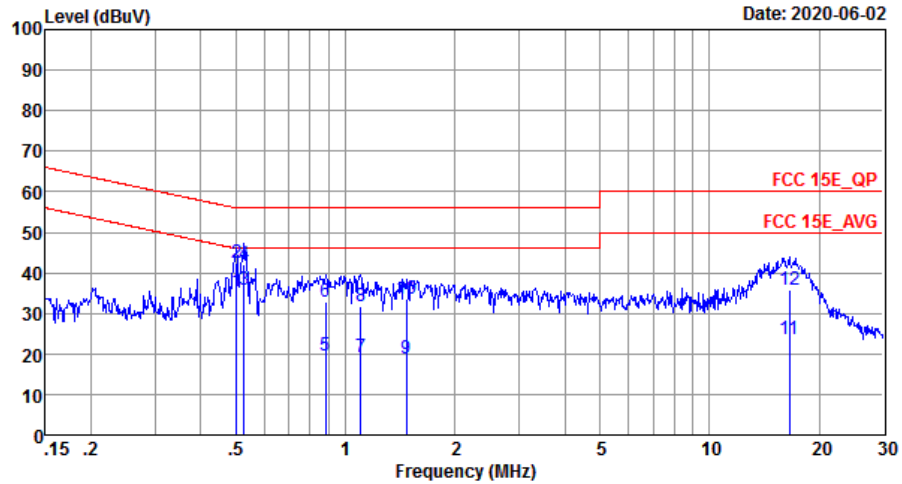


Site : CO01-SZ
 Condition: FCC 15E_QP LISN_20190719_L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.50	41.78	-4.22	46.00	31.70	0.02	10.06	Average
2	0.50	50.58	-5.42	56.00	40.50	0.02	10.06	QP
3	0.52	39.28	-6.72	46.00	29.20	0.02	10.06	Average
4	0.52	49.58	-6.42	56.00	39.50	0.02	10.06	QP
5	0.75	28.70	-17.30	46.00	18.60	0.03	10.07	Average
6	0.75	38.70	-17.30	56.00	28.60	0.03	10.07	QP
7	0.97	30.32	-15.68	46.00	20.20	0.07	10.05	Average
8	0.97	40.22	-15.78	56.00	30.10	0.07	10.05	QP
9	2.10	22.77	-23.23	46.00	12.60	0.12	10.05	Average
10	2.10	35.17	-20.83	56.00	25.00	0.12	10.05	QP
11	17.20	28.17	-21.83	50.00	17.00	0.88	10.29	Average
12	17.20	40.17	-19.83	60.00	29.00	0.88	10.29	QP



Test Engineer :	Doom Wu	Temperature :	22~25°C
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : C001-SZ
 Condition: FCC 15E_QP LISN_20190719_N NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.50	35.28	-10.72	46.00	25.20	0.02	10.06	Average
2	0.50	42.38	-13.62	56.00	32.30	0.02	10.06	QP
3 *	0.53	35.78	-10.22	46.00	25.70	0.02	10.06	Average
4	0.53	42.08	-13.92	56.00	32.00	0.02	10.06	QP
5	0.88	19.60	-26.40	46.00	9.50	0.04	10.06	Average
6	0.88	32.80	-23.20	56.00	22.70	0.04	10.06	QP
7	1.10	19.10	-26.90	46.00	9.00	0.05	10.05	Average
8	1.10	31.80	-24.20	56.00	21.70	0.05	10.05	QP
9	1.47	18.90	-27.10	46.00	8.80	0.05	10.05	Average
10	1.47	33.50	-22.50	56.00	23.40	0.05	10.05	QP
11	16.57	23.51	-26.49	50.00	12.80	0.42	10.29	Average
12	16.57	35.91	-24.09	60.00	25.20	0.42	10.29	QP

Note:

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



Appendix C. Radiated Spurious Emission

Band 1 - 5150~5250MHz 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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5148.98	62.31	-11.69	74	46.23	34.9	14.28	33.1	101	351	P	H
		5150	50.76	-3.24	54	34.68	34.9	14.28	33.1	101	351	A	H
	*	5180	106.21	-	-	90.25	34.9	14.16	33.1	101	351	P	H
		5180	99.98	-	-	84.02	34.9	14.16	33.1	101	351	A	H
		5148.98	62.49	-11.51	74	46.41	34.9	14.28	33.1	101	241	P	V
		5150	50.08	-3.92	54	34	34.9	14.28	33.1	101	241	A	V
	*	5180	103.88	-	-	87.92	34.9	14.16	33.1	101	241	P	V
		5180	97.97	-	-	82.01	34.9	14.16	33.1	101	241	A	V
802.11a CH 44 5220MHz		5146.64	56.36	-17.64	74	40.28	34.9	14.28	33.1	123	351	P	H
		5150	45.72	-8.28	54	29.64	34.9	14.28	33.1	123	351	A	H
	*	5220	106.86	-	-	91.03	34.9	14.03	33.1	123	351	P	H
		5220	101.08	-	-	85.25	34.9	14.03	33.1	123	351	A	H
		5409.88	53.89	-20.11	74	37.33	34.9	14.76	33.1	123	351	P	H
		5385.24	44.43	-9.57	54	28.02	34.9	14.61	33.1	123	351	A	H
		5141.44	55.22	-18.78	74	39.14	34.9	14.28	33.1	116	111	P	V
		5149.76	45.18	-8.82	54	29.1	34.9	14.28	33.1	116	111	A	V
	*	5220	104.98	-	-	89.15	34.9	14.03	33.1	116	111	P	V
		5220	99.08	-	-	83.25	34.9	14.03	33.1	116	111	A	V
		5395.6	54.3	-19.7	74	37.74	34.9	14.76	33.1	116	111	P	V
		5387.76	44.12	-9.88	54	27.56	34.9	14.76	33.1	116	111	A	V



WIFI Ant. 1	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 48 5240MHz		5095.68	55.06	-18.94	74	38.85	34.9	14.41	33.1	100	351	P	H
		5149.76	44.66	-9.34	54	28.58	34.9	14.28	33.1	100	351	A	H
	*	5240	107.13	-	-	91.15	34.9	14.18	33.1	100	351	P	H
		5240	101.37	-	-	85.39	34.9	14.18	33.1	100	351	A	H
		5459.44	54.45	-19.55	74	38.1	34.9	14.55	33.1	100	351	P	H
		5352.76	44.63	-9.37	54	28.22	34.9	14.61	33.1	100	351	A	H
		5019.5	54.92	-19.08	74	38.46	34.9	14.66	33.1	100	110	P	V
		5144.3	44.31	-9.69	54	28.23	34.9	14.28	33.1	100	110	A	V
	*	5240	104.73	-	-	88.75	34.9	14.18	33.1	100	110	P	V
		5240	97.63	-	-	81.65	34.9	14.18	33.1	100	110	A	V
		5394.48	54.86	-19.14	74	38.3	34.9	14.76	33.1	100	110	P	V
		5352.76	44.08	-9.92	54	27.67	34.9	14.61	33.1	100	110	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	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 36 5180MHz		10360	48.42	-19.88	68.3	48.49	38.47	20.45	58.99	152	260	P	H
		15540	50.39	-23.61	74	44.73	41.43	23.16	58.93	189	238	P	H
		10360	49.36	-18.94	68.3	49.43	38.47	20.45	58.99	241	260	P	V
		15540	49.38	-24.62	74	43.72	41.43	23.16	58.93	189	184	P	V
802.11a CH 44 5220MHz		10440	48.73	-19.57	68.3	48.69	38.49	20.47	58.92	185	230	P	H
		15660	49.63	-24.37	74	43.87	41.56	23.26	59.06	160	59	P	H
		10440	49.28	-19.02	68.3	49.24	38.49	20.47	58.92	150	230	P	V
		15660	49.97	-24.03	74	44.21	41.56	23.26	59.06	160	225	P	V
802.11a CH 48 5240MHz		10480	49.72	-18.58	68.3	49.6	38.5	20.48	58.86	150	289	P	H
		15720	48.66	-25.34	74	42.86	41.62	23.3	59.12	150	291	P	H
		10480	50.02	-18.28	68.3	49.9	38.5	20.48	58.86	126	238	P	V
		15720	49.07	-24.93	74	43.27	41.62	23.3	59.12	186	329	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	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 36 5180MHz		5149.5	65.31	-8.69	74	49.23	34.9	14.28	33.1	100	351	P	H
		5150	50.62	-3.38	54	34.54	34.9	14.28	33.1	100	351	A	H
	*	5180	105.41	-	-	89.45	34.9	14.16	33.1	100	351	P	H
		5180	99.65	-	-	83.69	34.9	14.16	33.1	100	351	A	H
		5147.42	61.96	-12.04	74	45.88	34.9	14.28	33.1	101	239	P	V
		5150	49.41	-4.59	54	33.33	34.9	14.28	33.1	101	239	A	V
	*	5180	103.79	-	-	87.83	34.9	14.16	33.1	101	239	P	V
		5180	96.62	-	-	80.66	34.9	14.16	33.1	101	239	A	V
802.11n HT20 CH 44 5220MHz		5119.86	55.03	-18.97	74	38.95	34.9	14.28	33.1	100	356	P	H
		5148.98	45.55	-8.45	54	29.47	34.9	14.28	33.1	100	356	A	H
	*	5220	105.17	-	-	89.34	34.9	14.03	33.1	100	356	P	H
		5220	99.09	-	-	83.26	34.9	14.03	33.1	100	356	A	H
		5374.6	54.78	-19.22	74	38.37	34.9	14.61	33.1	100	356	P	H
		5356.96	44.39	-9.61	54	27.98	34.9	14.61	33.1	100	356	A	H
		5065	54.43	-19.57	74	38.1	34.9	14.53	33.1	108	112	P	V
		5150	44.77	-9.23	54	28.69	34.9	14.28	33.1	108	112	A	V
	*	5220	103.19	-	-	87.36	34.9	14.03	33.1	108	112	P	V
		5220	96.28	-	-	80.45	34.9	14.03	33.1	108	112	A	V
		5393.08	54.34	-19.66	74	37.78	34.9	14.76	33.1	108	112	P	V
	5378.52	43.71	-10.29	54	27.3	34.9	14.61	33.1	108	112	A	V	



WIFI Ant. 1	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 48 5240MHz		5144.82	54.65	-19.35	74	38.57	34.9	14.28	33.1	100	355	P	H
		5148.46	44.54	-9.46	54	28.46	34.9	14.28	33.1	100	355	A	H
	*	5240	105.3	-	-	89.32	34.9	14.18	33.1	100	355	P	H
		5240	99.24	-	-	83.26	34.9	14.18	33.1	100	355	A	H
		5425.84	53.81	-20.19	74	37.25	34.9	14.76	33.1	100	355	P	H
		5351.08	44.46	-9.54	54	28.05	34.9	14.61	33.1	100	355	A	H
		5122.72	54.32	-19.68	74	38.24	34.9	14.28	33.1	113	111	P	V
		5149.5	44.26	-9.74	54	28.18	34.9	14.28	33.1	113	111	A	V
	*	5240	103.24	-	-	87.26	34.9	14.18	33.1	113	111	P	V
		5240	96.47	-	-	80.49	34.9	14.18	33.1	113	111	A	V
		5454.68	53.57	-20.43	74	37.22	34.9	14.55	33.1	113	111	P	V
		5351.64	43.79	-10.21	54	27.38	34.9	14.61	33.1	113	111	A	V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. 												



Band 1 5150~5250MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	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 36		10360	49.29	-19.01	68.3	49.36	38.47	20.45	58.99	191	224	P	H
		15540	48.73	-25.27	74	43.07	41.43	23.16	58.93	111	202	P	H
5180MHz		10360	50.92	-17.38	68.3	50.99	38.47	20.45	58.99	152	260	P	V
		15540	48.54	-25.46	74	42.88	41.43	23.16	58.93	189	238	P	V
802.11n HT20 CH 44		10440	50.26	-18.04	68.3	50.22	38.49	20.47	58.92	133	232	P	H
		15660	49.65	-24.35	74	43.89	41.56	23.26	59.06	157	225	P	H
		10440	50.4	-17.9	68.3	50.36	38.49	20.47	58.92	128	217	P	V
		15660	49.6	-24.4	74	43.84	41.56	23.26	59.06	160	225	P	V
5220MHz		10480	50.68	-17.62	68.3	50.56	38.5	20.48	58.86	101	221	P	H
		15720	49.78	-24.22	74	43.98	41.62	23.3	59.12	167	284	P	H
		10480	50.37	-17.93	68.3	50.25	38.5	20.48	58.86	134	128	P	V
		15720	48.87	-25.13	74	43.07	41.62	23.3	59.12	166	101	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	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 38 5190MHz		5139.62	64.97	-9.03	74	48.89	34.9	14.28	33.1	293	20	P	H
		5150	49.32	-4.68	54	33.24	34.9	14.28	33.1	293	20	A	H
	*	5190	102.2	-	-	86.24	34.9	14.16	33.1	293	20	P	H
		5190	95.52	-	-	79.56	34.9	14.16	33.1	293	20	A	H
		5371.52	54.06	-19.94	74	37.65	34.9	14.61	33.1	293	20	P	H
		5351.08	44.09	-9.91	54	27.68	34.9	14.61	33.1	293	20	A	H
		5147.68	65.79	-8.21	74	49.71	34.9	14.28	33.1	103	241	P	V
		5149.5	49.16	-4.84	54	33.08	34.9	14.28	33.1	103	241	A	V
	*	5190	100.23	-	-	84.27	34.9	14.16	33.1	103	241	P	V
		5190	94.65	-	-	78.69	34.9	14.16	33.1	103	241	A	V
		5426.96	54.14	-19.86	74	37.79	34.9	14.55	33.1	103	241	P	V
		5372.92	44.06	-9.94	54	27.65	34.9	14.61	33.1	103	241	A	V
802.11n HT40 CH 46 5230MHz		5074.1	54.99	-19.01	74	38.66	34.9	14.53	33.1	290	21	P	H
		5149.76	44.69	-9.31	54	28.61	34.9	14.28	33.1	290	21	A	H
	*	5230	101.39	-	-	85.56	34.9	14.03	33.1	290	21	P	H
		5230	95.48	-	-	79.65	34.9	14.03	33.1	290	21	A	H
		5409.12	54.39	-19.61	74	37.83	34.9	14.76	33.1	290	21	P	H
		5351.28	44.32	-9.68	54	27.91	34.9	14.61	33.1	290	21	A	H
		5146.64	55.76	-18.24	74	39.68	34.9	14.28	33.1	106	236	P	V
		5145.34	44.56	-9.44	54	28.48	34.9	14.28	33.1	106	236	A	V
	*	5230	99.86	-	-	84.03	34.9	14.03	33.1	106	236	P	V
		5230	92.71	-	-	76.88	34.9	14.03	33.1	106	236	A	V
	5399.04	54.16	-19.84	74	37.6	34.9	14.76	33.1	106	236	P	V	
	5373.12	44.08	-9.92	54	27.67	34.9	14.61	33.1	106	236	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	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 38		10380	48.14	-20.16	68.3	48.17	38.48	20.46	58.97	150	360	P	H
		15570	49.26	-24.74	74	43.56	41.47	23.2	58.97	155	360	P	H
5190MHz		10380	48.61	-19.69	68.3	48.64	38.48	20.46	58.97	150	360	P	V
		15570	49.13	-24.87	74	43.43	41.47	23.2	58.97	155	360	P	V
802.11n HT40 CH 46		10460	47.93	-20.37	68.3	47.86	38.49	20.48	58.9	150	360	P	H
		15690	48.7	-25.3	74	42.9	41.59	23.3	59.09	150	225	P	H
5230MHz		10460	48.78	-19.52	68.3	48.71	38.49	20.48	58.9	150	360	P	V
		15690	48.1	-25.9	74	42.3	41.59	23.3	59.09	150	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1	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 42 5210MHz		5149.5	56.84	-17.16	74	40.76	34.9	14.28	33.1	100	20	P	H
		5149.76	47.48	-6.52	54	31.4	34.9	14.28	33.1	100	20	A	H
	*	5210	95.31	-	-	79.48	34.9	14.03	33.1	100	20	P	H
		5210	88.19	-	-	72.36	34.9	14.03	33.1	100	20	A	H
		5366.16	54.71	-19.29	74	38.3	34.9	14.61	33.1	100	20	P	H
		5351.76	43.96	-10.04	54	27.55	34.9	14.61	33.1	100	20	A	H
		5005.2	55.19	-18.81	74	38.73	34.9	14.66	33.1	109	238	P	V
		5150	46.29	-7.71	54	30.21	34.9	14.28	33.1	109	238	A	V
	*	5210	93.71	-	-	77.88	34.9	14.03	33.1	109	238	P	V
		5210	86.09	-	-	70.26	34.9	14.03	33.1	109	238	A	V
		5452.08	54.11	-19.89	74	37.76	34.9	14.55	33.1	109	238	P	V
		5373.36	43.9	-10.1	54	27.49	34.9	14.61	33.1	109	238	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 1 5150~5250MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	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		10420	48.09	-20.21	68.3	48.07	38.48	20.47	58.93	150	230	P	H
VHT80		15630	49.36	-24.64	74	43.63	41.54	23.23	59.04	160	225	P	H
CH 42		10420	48.81	-19.49	68.3	48.79	38.48	20.47	58.93	150	230	P	V
5210MHz		15630	49.79	-24.21	74	44.06	41.54	23.23	59.04	160	225	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 - 5250~5350MHz
WIFI 802.11a (Band Edge @ 3m)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5109.55	53.81	-20.19	74	37.6	34.9	14.41	33.1	104	30	P	H
		5077.35	43.89	-10.11	54	27.68	34.9	14.41	33.1	104	30	A	H
		5260	104.7	-	-	88.72	34.9	14.18	33.1	104	30	P	H
	*	5260	97.44	-	-	81.46	34.9	14.18	33.1	104	30	A	H
		5353.2	54.08	-19.92	74	37.67	34.9	14.61	33.1	104	30	P	H
		5350.08	44.46	-9.54	54	28.05	34.9	14.61	33.1	104	30	A	H
		5126.35	54.45	-19.55	74	38.37	34.9	14.28	33.1	259	236	P	V
		5075.6	44.01	-9.99	54	27.8	34.9	14.41	33.1	259	236	A	V
		5260	103.56	-	-	87.58	34.9	14.18	33.1	259	236	P	V
	*	5260	96.41	-	-	80.43	34.9	14.18	33.1	259	236	A	V
		5402.64	54.44	-19.56	74	37.88	34.9	14.76	33.1	259	236	P	V
		5351.04	44.08	-9.92	54	27.67	34.9	14.61	33.1	259	236	A	V
802.11a CH 60 5300MHz	*	5137.9	53.61	-20.39	74	37.53	34.9	14.28	33.1	103	31	P	H
		5043.4	43.85	-10.15	54	27.52	34.9	14.53	33.1	103	31	A	H
		5300	106.93	-	-	90.81	34.9	14.32	33.1	103	31	P	H
		5300	100.38	-	-	84.26	34.9	14.32	33.1	103	31	A	H
		5350.56	60.21	-13.79	74	43.8	34.9	14.61	33.1	103	31	P	H
		5350.08	47.2	-6.8	54	30.79	34.9	14.61	33.1	103	31	A	H
	*	5059.5	54.29	-19.71	74	37.96	34.9	14.53	33.1	276	286	P	V
		5044.45	43.91	-10.09	54	27.58	34.9	14.53	33.1	276	286	A	V
		5300	105.21	-	-	89.09	34.9	14.32	33.1	276	286	P	V
		5300	99.72	-	-	83.6	34.9	14.32	33.1	276	286	A	V
		5351.76	58.97	-15.03	74	42.56	34.9	14.61	33.1	276	286	P	V
		5350.08	46.6	-7.4	54	30.19	34.9	14.61	33.1	276	286	A	V



WIFI Ant. 1	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 64 5320MHz		5320	104.03	-	-	87.76	34.9	14.47	33.1	100	35	P	H
		5320	96.63	-	-	80.36	34.9	14.47	33.1	100	35	A	H
		5352	65.69	-8.31	74	49.28	34.9	14.61	33.1	100	35	P	H
		5350.08	50.12	-3.88	54	33.71	34.9	14.61	33.1	100	35	A	H
		5320	104.75	-	-	88.48	34.9	14.47	33.1	256	278	P	V
		5320	98.33	-	-	82.06	34.9	14.47	33.1	256	278	A	V
		5353.6	64.83	-9.17	74	48.42	34.9	14.61	33.1	256	278	P	V
		5350.08	50.8	-3.2	54	34.39	34.9	14.61	33.1	256	278	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	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 52 5260MHz		10520	50.26	-18.04	68.3	50.1	38.49	20.49	58.82	129	266	P	H
		15780	49.73	-24.27	74	43.86	41.68	23.37	59.18	146	275	P	H
		10520	49.98	-18.32	68.3	49.82	38.49	20.49	58.82	150	220	P	V
		15780	49.36	-24.64	74	43.49	41.68	23.37	59.18	159	345	P	V
802.11a CH 60 5300MHz		10600	49.7	-24.3	74	49.46	38.46	20.51	58.73	185	215	P	H
		15900	49.66	-24.34	74	43.69	41.8	23.47	59.3	196	190	P	H
		10600	50.21	-23.79	74	49.97	38.46	20.51	58.73	133	74	P	V
		15900	48.86	-25.14	74	42.89	41.8	23.47	59.3	129	188	P	V
802.11a CH 64 5320MHz		10640	50.15	-23.85	74	49.87	38.44	20.53	58.69	107	234	P	H
		15960	50.4	-23.6	74	44.36	41.87	23.54	59.37	144	168	P	H
		10640	50.08	-23.92	74	49.8	38.44	20.53	58.69	152	135	P	V
		15960	50.1	-23.9	74	44.06	41.87	23.54	59.37	173	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	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 52 5260MHz		5114.8	53.95	-20.05	74	37.87	34.9	14.28	33.1	118	356	P	H
		5144.9	44.16	-9.84	54	28.08	34.9	14.28	33.1	118	356	A	H
	*	5260	105.59	-	-	89.61	34.9	14.18	33.1	118	356	P	H
		5260	98.77	-	-	82.79	34.9	14.18	33.1	118	356	A	H
		5361.84	53.78	-20.22	74	37.37	34.9	14.61	33.1	118	356	P	H
		5350.8	44.9	-9.1	54	28.49	34.9	14.61	33.1	118	356	A	H
		5068.95	54.87	-19.13	74	38.54	34.9	14.53	33.1	116	111	P	V
		5143.85	43.93	-10.07	54	27.85	34.9	14.28	33.1	116	111	A	V
	*	5260	102.83	-	-	86.85	34.9	14.18	33.1	116	111	P	V
		5260	95.31	-	-	79.33	34.9	14.18	33.1	116	111	A	V
		5402.64	54.21	-19.79	74	37.65	34.9	14.76	33.1	116	111	P	V
		5350.08	43.86	-10.14	54	27.45	34.9	14.61	33.1	116	111	A	V
802.11n HT20 CH 60 5300MHz		5094.5	53.6	-20.4	74	37.39	34.9	14.41	33.1	108	357	P	H
		5043.05	43.97	-10.03	54	27.64	34.9	14.53	33.1	108	357	A	H
	*	5300	105.21	-	-	89.09	34.9	14.32	33.1	108	357	P	H
		5300	100.38	-	-	84.26	34.9	14.32	33.1	108	357	A	H
		5353.68	59.54	-14.46	74	43.13	34.9	14.61	33.1	108	357	P	H
		5350.32	48.06	-5.94	54	31.65	34.9	14.61	33.1	108	357	A	H
		5102.55	53.94	-20.06	74	37.73	34.9	14.41	33.1	109	112	P	V
		5042	43.81	-10.19	54	27.48	34.9	14.53	33.1	109	112	A	V
	*	5300	103.17	-	-	87.05	34.9	14.32	33.1	109	112	P	V
		5300	96.58	-	-	80.46	34.9	14.32	33.1	109	112	A	V
	5351.76	55.9	-18.1	74	39.49	34.9	14.61	33.1	109	112	P	V	
	5350.08	45.09	-8.91	54	28.68	34.9	14.61	33.1	109	112	A	V	



WIFI Ant. 1	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 64 5320MHz	*	5320	106.7	-	-	90.43	34.9	14.47	33.1	107	31	P	H
		5320	99.53	-	-	83.26	34.9	14.47	33.1	107	31	A	H
		5350.72	68.89	-5.11	74	52.48	34.9	14.61	33.1	107	31	P	H
		5350.08	50.13	-3.87	54	33.72	34.9	14.61	33.1	107	31	A	H
	*	5320	102.42	-	-	86.15	34.9	14.47	33.1	104	112	P	V
		5320	95.23	-	-	78.96	34.9	14.47	33.1	104	112	A	V
		5350.72	67.84	-6.16	74	51.43	34.9	14.61	33.1	104	112	P	V
		5350.08	48.44	-5.56	54	32.03	34.9	14.61	33.1	104	112	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	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		10520	50.02	-18.28	68.3	49.86	38.49	20.49	58.82	100	124	P	H
HT20		15780	49.16	-24.84	74	43.29	41.68	23.37	59.18	134	185	P	H
CH 52		10520	49.69	-18.61	68.3	49.53	38.49	20.49	58.82	122	278	P	V
5260MHz		15780	50.35	-23.65	74	44.48	41.68	23.37	59.18	110	329	P	V
802.11n		10600	49.8	-24.2	74	49.56	38.46	20.51	58.73	185	215	P	H
HT20		15900	49.28	-24.72	74	43.31	41.8	23.47	59.3	196	190	P	H
CH 60		10600	50.47	-23.53	74	50.23	38.46	20.51	58.73	189	235	P	V
5300MHz		15900	50.17	-23.83	74	44.2	41.8	23.47	59.3	136	145	P	V
802.11n		10640	50.31	-23.69	74	50.03	38.44	20.53	58.69	152	135	P	H
HT20		15960	49.39	-24.61	74	43.35	41.87	23.54	59.37	173	245	P	H
CH 64		10640	49.98	-24.02	74	49.7	38.44	20.53	58.69	196	153	P	V
5320MHz		15960	50.45	-23.55	74	44.41	41.87	23.54	59.37	157	269	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	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 54 5270MHz		5045.5	54.38	-19.62	74	38.05	34.9	14.53	33.1	112	46	P	H
		5149.5	44.43	-9.57	54	28.35	34.9	14.28	33.1	112	46	A	H
	*	5270	102.14	-	-	86.16	34.9	14.18	33.1	112	46	P	H
		5270	95.14	-	-	79.16	34.9	14.18	33.1	112	46	A	H
		5350.56	56.07	-17.93	74	39.66	34.9	14.61	33.1	112	46	P	H
		5350.08	46.36	-7.64	54	29.95	34.9	14.61	33.1	112	46	A	H
		5132.08	54.76	-19.24	74	38.68	34.9	14.28	33.1	106	239	P	V
		5144.04	44.44	-9.56	54	28.36	34.9	14.28	33.1	106	239	A	V
	*	5270	100.28	-	-	84.3	34.9	14.18	33.1	106	239	P	V
		5270	93.67	-	-	77.69	34.9	14.18	33.1	106	239	A	V
		5353.44	59.68	-14.32	74	43.27	34.9	14.61	33.1	106	239	P	V
		5350.08	46.69	-7.31	54	30.28	34.9	14.61	33.1	106	239	A	V
802.11n HT40 CH 62 5310MHz		5131.25	54.09	-19.91	74	38.01	34.9	14.28	33.1	103	47	P	H
		5069.65	43.96	-10.04	54	27.63	34.9	14.53	33.1	103	47	A	H
	*	5310	101.36	-	-	85.09	34.9	14.47	33.1	103	47	P	H
		5310	95.83	-	-	79.56	34.9	14.47	33.1	103	47	A	H
		5351.52	63.13	-10.87	74	46.72	34.9	14.61	33.1	103	47	P	H
		5350.08	50.9	-3.1	54	34.49	34.9	14.61	33.1	103	47	A	H
		5147.35	54.92	-19.08	74	38.84	34.9	14.28	33.1	119	238	P	V
		5070	44.24	-9.76	54	27.91	34.9	14.53	33.1	119	238	A	V
	*	5310	102.64	-	-	86.37	34.9	14.47	33.1	119	238	P	V
		5310	96.31	-	-	80.04	34.9	14.47	33.1	119	238	A	V
	5350.56	67.79	-6.21	74	51.38	34.9	14.61	33.1	119	238	P	V	
	5350.08	48.83	-5.17	54	32.42	34.9	14.61	33.1	119	238	A	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	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 54		10540	48.41	-19.89	68.3	48.22	38.49	20.5	58.8	150	220	P	H
		15810	49.21	-24.79	74	43.31	41.71	23.4	59.21	168	345	P	H
5270MHz		10540	48.74	-19.56	68.3	48.55	38.49	20.5	58.8	150	220	P	V
		15810	49.13	-24.87	74	43.23	41.71	23.4	59.21	168	345	P	V
802.11n HT40 CH 62		10620	47.84	-26.16	74	47.57	38.45	20.53	58.71	150	220	P	H
		15930	49.38	-24.62	74	43.38	41.83	23.5	59.33	160	100	P	H
		10620	48.66	-25.34	74	48.39	38.45	20.53	58.71	150	220	P	V
		15930	49.7	-24.3	74	43.7	41.83	23.5	59.33	160	100	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1	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 58 5290MHz		5012.48	54.3	-19.7	74	37.84	34.9	14.66	33.1	120	47	P	H
		5041.34	43.69	-10.31	54	27.36	34.9	14.53	33.1	120	47	A	H
	*	5290	95.09	-	-	78.97	34.9	14.32	33.1	120	47	P	H
		5290	88.48	-	-	72.36	34.9	14.32	33.1	120	47	A	H
		5355.36	54.78	-19.22	74	38.37	34.9	14.61	33.1	120	47	P	H
		5350.08	46.18	-7.82	54	29.77	34.9	14.61	33.1	120	47	A	H
		5013	54.54	-19.46	74	38.08	34.9	14.66	33.1	110	240	P	V
		5043.16	43.82	-10.18	54	27.49	34.9	14.53	33.1	110	240	A	V
	*	5290	92.8	-	-	76.68	34.9	14.32	33.1	110	240	P	V
		5290	86.81	-	-	70.69	34.9	14.32	33.1	110	240	A	V
		5359.92	54.09	-19.91	74	37.68	34.9	14.61	33.1	110	240	P	V
		5350.08	45.68	-8.32	54	29.27	34.9	14.61	33.1	110	240	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 2 5250~5350MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	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		10580	48.8	-19.5	68.3	48.57	38.47	20.51	58.75	150	220	P	H
VHT80		15870	49.37	-24.63	74	43.44	41.78	23.43	59.28	168	345	P	H
CH 58		10580	49.77	-18.53	68.3	49.54	38.47	20.51	58.75	150	220	P	V
5290MHz		15870	48.73	-25.27	74	42.8	41.78	23.43	59.28	168	345	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11a (Band Edge @ 3m)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5458.8	57.19	-16.81	74	40.84	34.9	14.55	33.1	116	33	P	H
		5468.56	63.71	-4.59	68.3	47.57	34.9	14.34	33.1	116	33	P	H
		5460	46.66	-7.34	54	30.31	34.9	14.55	33.1	116	33	A	H
		5500	105.48	-	-	89.34	34.9	14.34	33.1	116	33	P	H
		5500	99.4	-	-	83.26	34.9	14.34	33.1	116	33	A	H
		5459.92	58.83	-15.17	74	42.48	34.9	14.55	33.1	246	268	P	V
		5468.88	64.67	-3.63	68.3	48.53	34.9	14.34	33.1	246	268	P	V
		5460	47.56	-6.44	54	31.21	34.9	14.55	33.1	246	268	A	V
		5500	103.82	-	-	87.68	34.9	14.34	33.1	246	268	P	V
		5500	97.16	-	-	81.02	34.9	14.34	33.1	246	268	A	V
802.11a CH 116 5580MHz		5362	54.33	-19.67	74	37.92	34.9	14.61	33.1	114	32	P	H
		5462.32	53.65	-14.65	68.3	37.3	34.9	14.55	33.1	114	32	P	H
		5387.44	43.87	-10.13	54	27.46	34.9	14.61	33.1	114	32	A	H
		5580	106.75	-	-	90.89	35.04	13.92	33.1	114	32	P	H
		5580	100.19	-	-	84.33	35.04	13.92	33.1	114	32	A	H
		5763.11	54.21	-14.09	68.3	37.91	35.42	13.98	33.1	114	32	P	H
		5405.44	54.35	-19.65	74	37.79	34.9	14.76	33.1	246	268	P	V
		5460.16	54.51	-13.79	68.3	38.16	34.9	14.55	33.1	246	268	P	V
		5388.16	43.84	-10.16	54	27.28	34.9	14.76	33.1	246	268	A	V
		5580	105.18	-	-	89.32	35.04	13.92	33.1	246	268	P	V
		5580	98.29	-	-	82.43	35.04	13.92	33.1	246	268	A	V
	5752.4	54.19	-14.11	68.3	37.89	35.42	13.98	33.1	246	268	P	V	



WIFI Ant. 1	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 140 5700MHz		5700	104.85	-	-	88.76	35.28	13.91	33.1	100	30	P	H
		5700	97.51	-	-	81.42	35.28	13.91	33.1	100	30	A	H
		5726.6	64.22	-4.08	68.3	48.06	35.35	13.91	33.1	100	30	P	H
		5700	104.79	-	-	88.7	35.28	13.91	33.1	245	262	P	V
		5700	97.57	-	-	81.48	35.28	13.91	33.1	245	262	A	V
		5725.4	64.11	-4.19	68.3	47.95	35.35	13.91	33.1	245	262	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11a (Harmonic @ 3m)

WIFI Ant. 1	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 100 5500MHz		11000	48.88	-25.12	74	48.26	38.3	20.62	58.3	163	230	P	H
		16500	50.38	-17.92	68.3	42.93	42.3	23.99	58.84	178	296	P	H
		11000	48.15	-25.85	74	47.53	38.3	20.62	58.3	163	230	P	V
		16500	49.98	-18.32	68.3	42.53	42.3	23.99	58.84	178	296	P	V
802.11a CH 116 5580MHz		11160	49.25	-24.75	74	48.18	38.5	20.68	58.11	119	224	P	H
		16740	49.87	-18.43	68.3	42.21	42.01	24.23	58.58	187	326	P	H
		11160	50.63	-23.37	74	49.56	38.5	20.68	58.11	170	200	P	V
		16740	50.21	-18.09	68.3	42.55	42.01	24.23	58.58	156	350	P	V
802.11a CH 140 5700MHz		11400	49.65	-24.35	74	47.97	38.78	20.75	57.85	180	261	P	H
		17100	50.59	-17.71	68.3	42.55	41.66	24.54	58.16	122	169	P	H
		11400	49.62	-24.38	74	47.94	38.78	20.75	57.85	157	285	P	V
		17100	49.21	-19.09	68.3	41.17	41.66	24.54	58.16	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1	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 100 5500MHz		5459.92	59.57	-14.43	74	43.22	34.9	14.55	33.1	104	36	P	H
		5469.2	64.99	-3.31	68.3	48.85	34.9	14.34	33.1	104	36	P	H
		5459.92	46.67	-7.33	54	30.32	34.9	14.55	33.1	104	36	A	H
	*	5500	105.11	-	-	88.97	34.9	14.34	33.1	104	36	P	H
		5500	96.8	-	-	80.66	34.9	14.34	33.1	104	36	A	H
		5387.12	55.94	-18.06	74	39.53	34.9	14.61	33.1	104	61	P	V
		5469.84	62.25	-6.05	68.3	46.11	34.9	14.34	33.1	104	61	P	V
		5459.92	44.18	-9.82	54	27.83	34.9	14.55	33.1	104	61	A	V
	*	5500	102.26	-	-	86.12	34.9	14.34	33.1	104	61	P	V
		5500	96.39	-	-	80.25	34.9	14.34	33.1	104	61	A	V
802.11n HT20 CH 116 5580MHz		5410.72	54.18	-19.82	74	37.62	34.9	14.76	33.1	106	38	P	H
		5463.52	53.45	-14.85	68.3	37.1	34.9	14.55	33.1	106	38	P	H
		5459.92	44.05	-9.95	54	27.7	34.9	14.55	33.1	106	38	A	H
	*	5580	105.31	-	-	89.45	35.04	13.92	33.1	106	38	P	H
		5580	98.65	-	-	82.79	35.04	13.92	33.1	106	38	A	H
		5761.85	54.47	-13.83	68.3	38.17	35.42	13.98	33.1	106	38	P	H
		5358.16	54.27	-19.73	74	37.86	34.9	14.61	33.1	115	247	P	V
		5469.76	52.71	-15.59	68.3	36.57	34.9	14.34	33.1	115	247	P	V
		5392.72	43.72	-10.28	54	27.16	34.9	14.76	33.1	115	247	A	V
	*	5580	102.64	-	-	86.78	35.04	13.92	33.1	115	247	P	V
	5580	95.32	-	-	79.46	35.04	13.92	33.1	115	247	A	V	
	5743.58	53.39	-14.91	68.3	37.13	35.38	13.98	33.1	115	247	P	V	



WIFI Ant. 1	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 140 5700MHz	*	5700	105.41	-	-	89.32	35.28	13.91	33.1	100	35	P	H
		5700	98.49	-	-	82.4	35.28	13.91	33.1	100	35	A	H
		5726.2	64.25	-4.05	68.3	48.09	35.35	13.91	33.1	100	35	P	H
	*	5700	101.3	-	-	85.21	35.28	13.91	33.1	138	260	P	V
		5700	93.95	-	-	77.86	35.28	13.91	33.1	138	260	A	V
		5725.56	62.82	-5.48	68.3	46.66	35.35	13.91	33.1	138	260	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	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		11000	48.79	-25.21	74	48.17	38.3	20.62	58.3	100	163	P	H
		16500	49.65	-18.65	68.3	42.2	42.3	23.99	58.84	178	296	P	H
CH 100 5500MHz		11000	50.24	-23.76	74	49.62	38.3	20.62	58.3	148	219	P	V
		16500	50.42	-17.88	68.3	42.97	42.3	23.99	58.84	148	232	P	V
802.11n HT20 CH 116 5580MHz		11160	49.15	-24.85	74	48.08	38.5	20.68	58.11	121	170	P	H
		16740	50.37	-17.93	68.3	42.71	42.01	24.23	58.58	156	350	P	H
		11160	48.78	-25.22	74	47.71	38.5	20.68	58.11	148	232	P	V
		16740	48.81	-19.49	68.3	41.15	42.01	24.23	58.58	136	342	P	V
802.11n HT20 CH 140 5700MHz		11400	50.51	-23.49	74	48.83	38.78	20.75	57.85	127	158	P	H
		17100	49.82	-18.48	68.3	41.78	41.66	24.54	58.16	165	246	P	H
		11400	49.5	-24.5	74	47.82	38.78	20.75	57.85	136	246	P	V
		17100	48.95	-19.35	68.3	40.91	41.66	24.54	58.16	155	196	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	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 102 5510MHz		5459.92	61.13	-12.87	74	44.78	34.9	14.55	33.1	106	40	P	H
		5464.24	62.93	-5.37	68.3	46.58	34.9	14.55	33.1	106	40	P	H
		5459.92	48.05	-5.95	54	31.7	34.9	14.55	33.1	106	40	A	H
	*	5510	100.95	-	-	85.02	34.9	14.13	33.1	106	40	P	H
		5510	95.13	-	-	79.2	34.9	14.13	33.1	106	40	A	H
		5761.22	53.49	-14.81	68.3	37.19	35.42	13.98	33.1	106	40	P	H
		5459.44	59.01	-14.99	74	42.66	34.9	14.55	33.1	107	244	P	V
		5468.32	60.62	-7.68	68.3	44.48	34.9	14.34	33.1	107	244	P	V
		5459.92	45.95	-8.05	54	29.6	34.9	14.55	33.1	107	244	A	V
	*	5510	97.23	-	-	81.3	34.9	14.13	33.1	107	244	P	V
		5510	90.89	-	-	74.96	34.9	14.13	33.1	107	244	A	V
		5761.22	53.52	-14.78	68.3	37.22	35.42	13.98	33.1	107	244	P	V
802.11n HT40 CH 110 5550MHz		5453.2	54.21	-19.79	74	37.86	34.9	14.55	33.1	106	31	P	H
		5461.12	56.62	-11.68	68.3	40.27	34.9	14.55	33.1	106	31	P	H
		5459.92	45.71	-8.29	54	29.36	34.9	14.55	33.1	106	31	A	H
	*	5550	100.42	-	-	84.6	35	13.92	33.1	106	31	P	H
		5550	94.08	-	-	78.26	35	13.92	33.1	106	31	A	H
		5763.74	53.64	-14.66	68.3	37.34	35.42	13.98	33.1	106	31	P	H
		5351.44	54.14	-19.86	74	37.73	34.9	14.61	33.1	105	243	P	V
		5461.84	55.29	-13.01	68.3	38.94	34.9	14.55	33.1	105	243	P	V
		5459.92	44.43	-9.57	54	28.08	34.9	14.55	33.1	105	243	A	V
	*	5550	96.29	-	-	80.47	35	13.92	33.1	105	243	P	V
	5550	90.34	-	-	74.52	35	13.92	33.1	105	243	A	V	
	5740.43	52.96	-15.34	68.3	36.7	35.38	13.98	33.1	105	243	P	V	



WIFI Ant. 1	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 134 5670MHz		5452.2	53.85	-20.15	74	37.5	34.9	14.55	33.1	100	34	P	H
		5466.55	53.21	-15.09	68.3	37.07	34.9	14.34	33.1	100	34	P	H
		5392.35	43.79	-10.21	54	27.23	34.9	14.76	33.1	100	34	A	H
	*	5670	100.98	-	-	84.99	35.24	13.85	33.1	100	34	P	H
		5670	93.68	-	-	77.69	35.24	13.85	33.1	100	34	A	H
		5726.85	60.78	-7.52	68.3	44.62	35.35	13.91	33.1	100	34	P	H
		5393.05	53.62	-20.38	74	37.06	34.9	14.76	33.1	105	245	P	V
		5461.3	51.97	-16.33	68.3	35.62	34.9	14.55	33.1	105	245	P	V
		5389.55	43.78	-10.22	54	27.22	34.9	14.76	33.1	105	245	A	V
	*	5670	98.67	-	-	82.68	35.24	13.85	33.1	105	245	P	V
		5670	93.83	-	-	77.84	35.24	13.85	33.1	105	245	A	V
		5728.25	59.85	-8.45	68.3	43.69	35.35	13.91	33.1	105	245	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	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		11020	48.74	-25.26	74	48.06	38.32	20.64	58.28	170	230	P	H
HT40		16530	49.25	-19.05	68.3	41.77	42.26	24.02	58.8	160	300	P	H
CH 102		11020	48.28	-25.72	74	47.6	38.32	20.64	58.28	170	230	P	V
5510MHz		16530	49.94	-18.36	68.3	42.46	42.26	24.02	58.8	160	300	P	V
802.11n		11100	48.02	-25.98	74	47.13	38.42	20.66	58.19	150	200	P	H
HT40		16650	49.78	-18.52	68.3	42.21	42.11	24.13	58.67	180	350	P	H
CH 110		11100	48.03	-25.97	74	47.14	38.42	20.66	58.19	150	200	P	V
5550MHz		16650	49.57	-18.73	68.3	42	42.11	24.13	58.67	180	350	P	V
802.11n		11340	47.64	-26.36	74	46.15	38.7	20.72	57.93	144	321	P	H
HT40		17010	48.1	-20.2	68.3	40.22	41.69	24.47	58.28	184	261	P	H
CH 134		11340	48.63	-25.37	74	47.14	38.7	20.72	57.93	144	321	P	V
5670MHz		17010	49.77	-18.53	68.3	41.89	41.69	24.47	58.28	184	261	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - 5470~5725MHz
WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 1	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 106 5530MHz		5452.48	58.31	-15.69	74	41.96	34.9	14.55	33.1	103	31	P	H
		5469.76	58.53	-9.77	68.3	42.39	34.9	14.34	33.1	103	31	P	H
		5458	46.59	-7.41	54	30.24	34.9	14.55	33.1	103	31	A	H
	*	5530	95.28	-	-	79.32	34.93	14.13	33.1	103	31	P	H
		5530	89.58	-	-	73.62	34.93	14.13	33.1	103	31	A	H
		5743.265	53.37	-14.93	68.3	37.11	35.38	13.98	33.1	103	31	P	H
		5453.68	54.05	-19.95	74	37.7	34.9	14.55	33.1	102	244	P	V
		5461.12	55.16	-13.14	68.3	38.81	34.9	14.55	33.1	102	244	P	V
		5458	45.12	-8.88	54	28.77	34.9	14.55	33.1	102	244	A	V
	*	5530	91.85	-	-	75.89	34.93	14.13	33.1	102	244	P	V
		5530	85.61	-	-	69.65	34.93	14.13	33.1	102	244	A	V
		5759.33	53.62	-14.68	68.3	37.32	35.42	13.98	33.1	102	244	P	V
802.11ac VHT80 CH 122 5610MHz		5397.28	55.39	-18.61	74	38.83	34.9	14.76	33.1	100	33	P	H
		5461.84	52.88	-15.42	68.3	36.53	34.9	14.55	33.1	100	33	P	H
		5386.96	43.85	-10.15	54	27.44	34.9	14.61	33.1	100	33	A	H
	*	5610	96.45	-	-	80.73	35.11	13.71	33.1	100	33	P	H
		5610	89.95	-	-	74.23	35.11	13.71	33.1	100	33	A	H
		5738.225	54.61	-13.69	68.3	38.42	35.38	13.91	33.1	100	33	P	H
		5362.72	54.02	-19.98	74	37.61	34.9	14.61	33.1	100	244	P	V
		5464.72	53.51	-14.79	68.3	37.16	34.9	14.55	33.1	100	244	P	V
		5390.8	43.79	-10.21	54	27.23	34.9	14.76	33.1	100	244	A	V
	*	5610	93.63	-	-	77.91	35.11	13.71	33.1	100	244	P	V
	5610	85.88	-	-	70.16	35.11	13.71	33.1	100	244	A	V	
	5730.035	53.81	-14.49	68.3	37.65	35.35	13.91	33.1	100	244	P	V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 5470~5725MHz
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	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		11060	48.7	-25.3	74	47.9	38.38	20.65	58.23	150	200	P	H
VHT80		16590	49.21	-19.09	68.3	41.67	42.2	24.09	58.75	180	350	P	H
CH 106		11060	48.37	-25.63	74	47.57	38.38	20.65	58.23	150	200	P	V
5530MHz		16590	49.81	-18.49	68.3	42.27	42.2	24.09	58.75	180	350	P	V
802.11ac		11220	48.94	-25.06	74	47.75	38.56	20.69	58.06	200	360	P	H
VHT80		16830	49.06	-19.24	68.3	41.34	41.91	24.3	58.49	200	360	P	H
CH 122		11220	48.04	-25.96	74	46.85	38.56	20.69	58.06	200	360	P	V
5610MHz		16830	49.8	-18.5	68.3	42.08	41.91	24.3	58.49	200	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11a (Harmonic @ 3m)

Table with 14 columns: WIFI, Note, Frequency, Level, Over, Limit, Read, Antenna, Cable, Preamp, Ant, Table, Peak, Pol. It contains test data for 802.11a CH 144 and a Remark section.



Band 3 - Straddle Channel
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	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		11440	48.36	-25.64	74	46.6	38.82	20.76	57.82	157	285	P	H
HT20		17160	49.24	-19.06	68.3	41.09	41.63	24.58	58.06	165	246	P	H
CH 144		11440	48.78	-25.22	74	47.02	38.82	20.76	57.82	157	285	P	V
5720MHz		17160	49.87	-18.43	68.3	41.72	41.63	24.58	58.06	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	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		11420	48.52	-25.48	74	46.8	38.8	20.75	57.83	157	285	P	H
HT40		17130	49.25	-19.05	68.3	41.13	41.65	24.58	58.11	165	246	P	H
CH 142		11420	48.1	-25.9	74	46.38	38.8	20.75	57.83	157	285	P	V
5710MHz		17130	49.57	-18.73	68.3	41.45	41.65	24.58	58.11	165	246	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 3 - Straddle Channel
WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI Ant. 1	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		11380	48.71	-25.29	74	47.09	38.76	20.73	57.87	129	236	P	H
VHT80		17070	49.07	-19.23	68.3	41.1	41.67	24.51	58.21	184	227	P	H
CH 138		11380	48.9	-25.1	74	47.28	38.76	20.73	57.87	129	236	P	V
5690MHz		17070	49.89	-18.41	68.3	41.92	41.67	24.51	58.21	184	227	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11n HT40 (LF @ 3m)

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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 LF		30	26.34	-13.66	40	31.73	24.9	1.01	31.3	100	17	P	H
		111.48	28.32	-15.18	43.5	40.06	17.9	1.92	31.56	-	-	P	H
		157.07	24.28	-19.22	43.5	37	16.38	2.28	31.38	-	-	P	H
		383.08	26.81	-19.19	46	33.46	21.19	3.52	31.36	-	-	P	H
		645.95	29.56	-16.44	46	31.04	25.36	4.58	31.42	-	-	P	H
		872.93	31.57	-14.43	46	31.05	26.67	5.3	31.45	-	-	P	H
		40.67	35.24	-4.76	40	46.42	19.1	1.17	31.45	100	96	P	V
		87.23	29.73	-10.27	40	44.98	14.55	1.7	31.5	-	-	P	V
		160.95	24.53	-18.97	43.5	37.43	16.17	2.31	31.38	-	-	P	V
		554.77	28.42	-17.58	46	30.32	25.2	4.24	31.34	-	-	P	V
		748.77	31.21	-14.79	46	31.18	26.2	4.93	31.1	-	-	P	V
	840.92	31.08	-14.92	46	30.76	26.5	5.2	31.38	-	-	P	V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



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		(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)

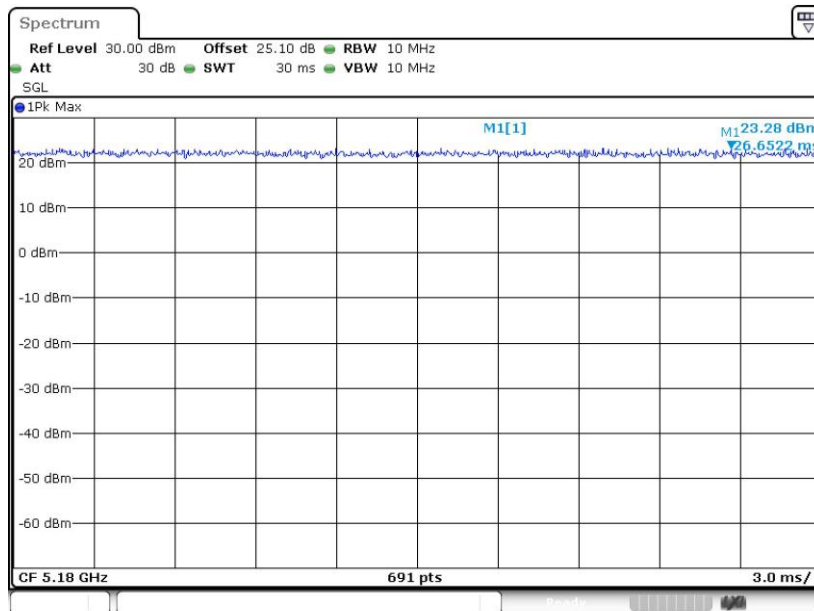
Both peak and average measured complies with the limit line, so test result is “PASS”.



Appendix D. Duty Cycle Plots

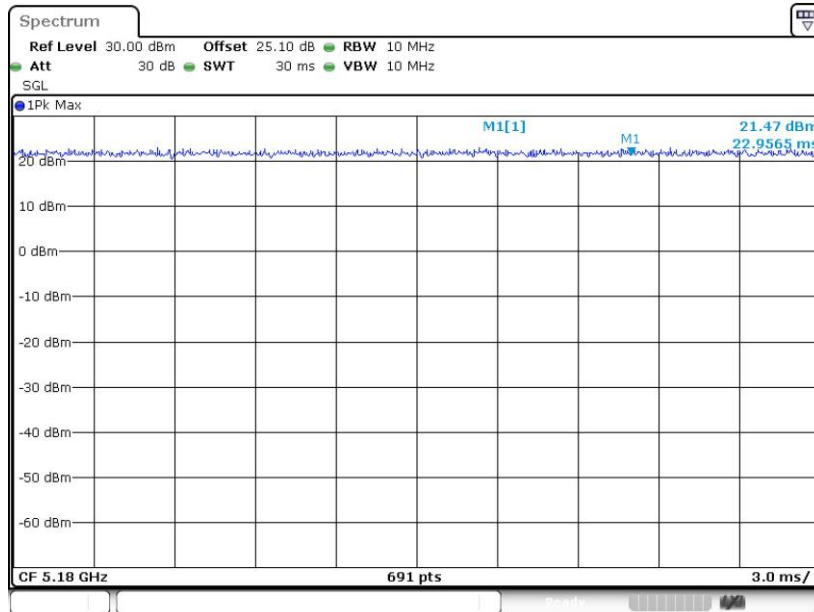
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	100	-	-	10Hz
802.11n HT20	100	-	-	10Hz
802.11n HT40	100	-	-	10Hz
802.11ac VHT80	100	-	-	10Hz

802.11a

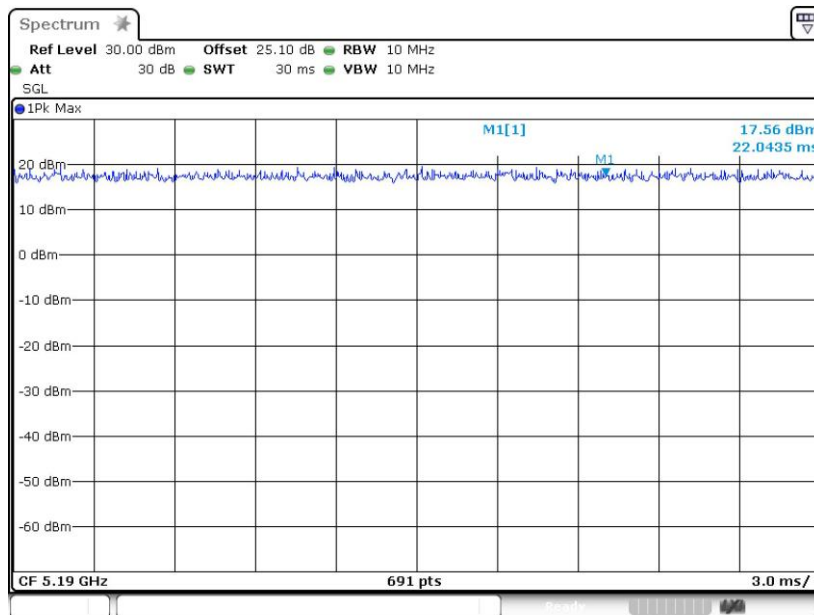




802.11n HT20



802.11n HT40





802.11ac VHT80

