



FCC RF Test Report

APPLICANT : LITE-ON Technology Corp.
EQUIPMENT : 802.11 a/b/g/n/ac 2T2R+BT V4.2LE combo module
BRAND NAME : LITE-ON
MODEL NAME : WCBN3510A
FCC ID : PPQ-WCBN3510A
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was installed into Lenovo Smart Display (Brand Name: Lenovo, Model Name: Lenovo SD-X501F) during test.

The product was received on Feb. 26, 2018 and testing was completed on Apr. 24, 2018. We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

James Huang



Approved by: James Huang / Manager

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone,
Jiangsu Province 215335, China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR922206D	Rev. 01	Initial issue of report	Apr. 22, 2019

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	1
3.1	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
-	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	1
3.2	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 3.09 dB at 5350.50 MHz
3.3	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.68 dB at 0.155 MHz
3.4	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.5	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-
-	15.407 (h)	Dynamic Frequency Selection	15.407 (h)	Pass	2
Remark: 1. All conducted test items were leveraged from module RF report "FR7N1336AN". 2. DFS test items were leveraged from module RF report "FZ7N1336".					

1 General Description

1.1 Applicant

LITE-ON Technology Corp.

Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C

1.2 Manufacturer

LITE-ON TECHNOLOGY (Changzhou) CO., LTD

A9 Building, No.88 Yanghu Road, Wujin Hi-Tech Industrial Development Zone, Changzhou City, Jiangsu Province 213100 China

1.3 Product Feature of Equipment Under Test

Product Feature & Specification	
Equipment	802.11 a/b/g/n/ac 2T2R+BT V4.2LE combo module
Brand Name	LITE-ON
Model Name	WCBN3510A
FCC ID	PPQ-WCBN3510A
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth v2.1+EDR, Bluetooth v4.2 LE
EUT Stage	Identical Prototype

Host Feature & Specification	
Equipment	Lenovo Smart Display
Brand Name	Lenovo
Model Name	Lenovo SD-X501F
Applicant	Lenovo (Shanghai) Electronics Technology Co., Ltd. NO.68 BUILDING, 199 FENJU RD, China (Shanghai) Pilot Free Trade Zone, Shanghai, 200131 China
Manufacturer	Lenovo PC HK Limited 23/F, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay Hong Kong

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 ~ 5700 MHz		
Maximum Output Power to Antenna	MIMO <Ant. 1 + 2> <5180 MHz ~ 5240 MHz> 802.11a : 20.87 dBm / 0.1222 W 802.11ac VHT20 : 20.63 dBm / 0.1156 W 802.11ac VHT40 : 20.39 dBm / 0.1094 W 802.11ac VHT80 : 8.66 dBm / 0.0073 W <5260 MHz ~ 5320 MHz> 802.11a : 21.46 dBm / 0.1400 W 802.11ac VHT20 : 21.28 dBm / 0.1343 W 802.11ac VHT40 : 20.88 dBm / 0.1225 W 802.11ac VHT80 : 10.36 dBm / 0.0109 W <5500 MHz ~ 5700 MHz > 802.11a : 21.77 dBm / 0.1503 W 802.11ac VHT20 : 21.73 dBm / 0.1489 W 802.11ac VHT40 : 21.63 dBm / 0.1455 W 802.11ac VHT80 : 22.09 dBm / 0.1618 W		
Antenna Gain / Gain	<5150 MHz ~ 5250 MHz> <Ant. 1> : PIFA Antenna with gain 3.13 dBi <Ant. 2> : PIFA Antenna with gain 3.09 dBi <5250 MHz ~ 5350 MHz> <Ant. 1> : PIFA Antenna with gain 3.13 dBi <Ant. 2> : PIFA Antenna with gain 3.09 dBi <5470 MHz ~ 5725 MHz> <Ant. 1> : PIFA Antenna with gain 4.07 dBi <Ant. 2> : PIFA Antenna with gain 4.06 dBi		
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Antenna Function Description		Ant. 1	Ant. 2
	802.11 a/n/ac SISO	V	V
	802.11 a/n/ac MIMO	V	V

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

1.5 Modification of EUT

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

1.6 Component List

Sample 1		
Object	Specifications	Supplier
CPU	APQ-8053-A-792NSP-MT-01-1-AA 3.3V 1.2V SMD NSP 792 14*12.*0.85 TR Qualcomm	Qualcomm
FLASH	KLM4G1FETE-B041001 1.8V 4G SMD FBGA 153 TR	Samsung
DDR	MT52L512M32D2PF-107 WT:B 1.8V 512Mb*32 SMD-V WFBGA178 T&R 2GB 933MHz	Micron
LCD	2081101CH8032018-59F L228.6*W143*H2.5mm ±3.3V 800*1280 DIP-V Tray RoHS	XINYUAN
PANEL	B132366E1 L243.36*W165.76*H0.95mm 2.8V Tray RoHS	MUTTO
Camera	F4E8YAM S5K4E8YX FF:SPY8133B ZIF/MIPI/COB W-1057 V1.0 Box RoHS REACH	Qtech
loudspeaker	2" 6Ω 10W speaker	3nod
PCB	L102*W91*T0.8MM FR-4 0.5OZ UL94 V0 W-1057 MAIN V1.0 RoHS REACH	Hannstar
Module	WCBN3510A QCA9379-3 WIFI and Bluetooth combo W-1013/1014 V01 Tray	Liteon

Sample 2		
Object	Specifications	Supplier
CPU	APQ-8053-A-792NSP-MT-01-1-AA 3.3V 1.2V SMD NSP 792 14*12.*0.85 TR Qualcomm	Qualcomm
FLASH	EMMC04G-M627X02U 1.8V SMD FBGA 153 T&R NAND 15nm Flash	Samsung
DDR	K4E6E304EC-EGCF 1.8V 2GB*32 SMD WFBGA178 11*11.5 T&R	Samsung
LCD	KD101N89-45NI-A001 L228.6*W143*H2.5mm ±3.3V 800*1280 DIP-V Tray RoHS	kingdisplay
PANEL	99101D0017 L243.36*W165.76*H0.95mm 2.8V Tray RoHS	AVC
Camera	L4E8F00 S5K4E8YX FF:SPY8133B /MIPI/COB W-1057 V1.0 Box RoHS	Chicony
loudspeaker	2" 6Ω 10W speaker	3nod
PCB	L102*W91*T0.8MM FR-4 0.5OZ UL94 V0 W-1057 MAIN V1.0 RoHS REACH	Hannstar
Module	WCBN3510A QCA9379-3 WIFI and Bluetooth combo W-1013/1014 V01 Tray	Liteon

1.7 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958



Test Site No.	Sporton Site No.			FCC Test Firm Registration No.
	TH01-KS	03CH03-KS	CO01-KS	630927

Note: The test site complies with ANSI C63.4 2014 requirement.

1.8 Applicable Standards

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

- ♦ FCC 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)
5150-5250 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)
5250-5350 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)
5470-5725 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

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.

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Idle + WLAN Link(5G) + Adapter 1 Mode 2 : Bluetooth Idle + WLAN Link(5G) + Adapter 2
Remark: 1. The worst case of conducted emission is mode 2; only the test data of it was reported. 2. For Radiated Test Cases, The tests were performance with Adapter 1.	



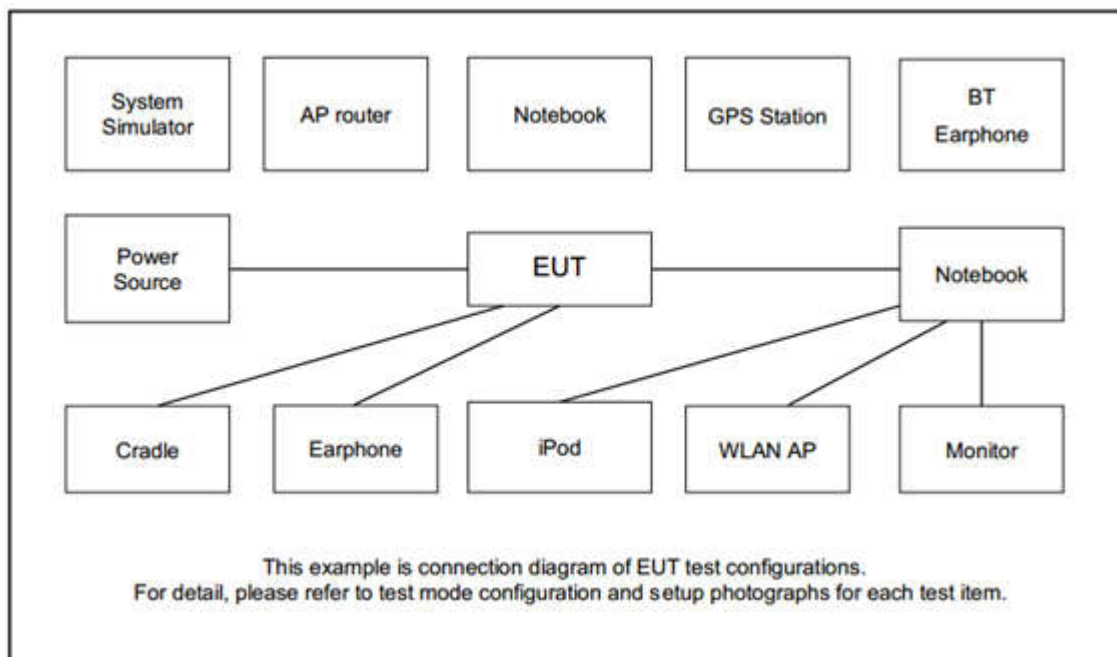
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT40	802.11ac VHT40	802.11ac VHT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	-	-	106
M	Middle	42	58	-
H	High	-	-	122

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
3.	SD Card	Kingston	SDC4/4GB	N/A	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 continuous transmit/receive.

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



3 Test Result

3.1 Maximum Conducted Output Power Measurement

3.1.1 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.

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.

3.1.2 Measuring Instruments

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

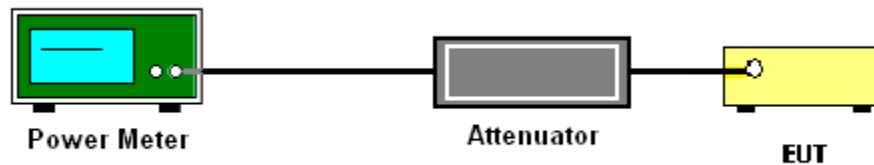
3.1.3 Test Procedures

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.

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.2 Unwanted Emissions Measurement

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

3.2.1 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	68.2

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

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

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

3.2.2 Measuring Instruments

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

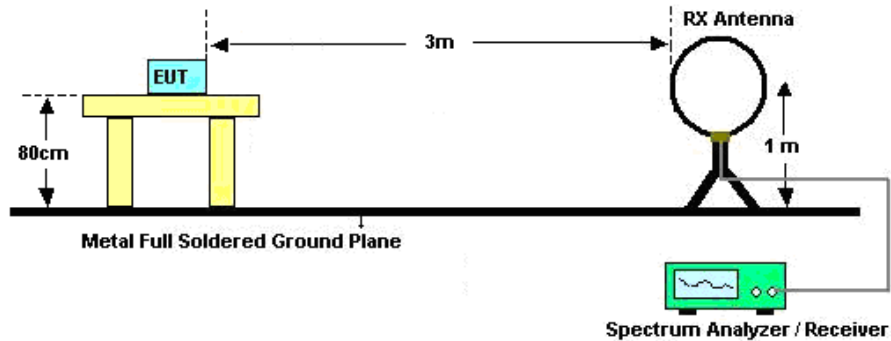


3.2.3 Test Procedures

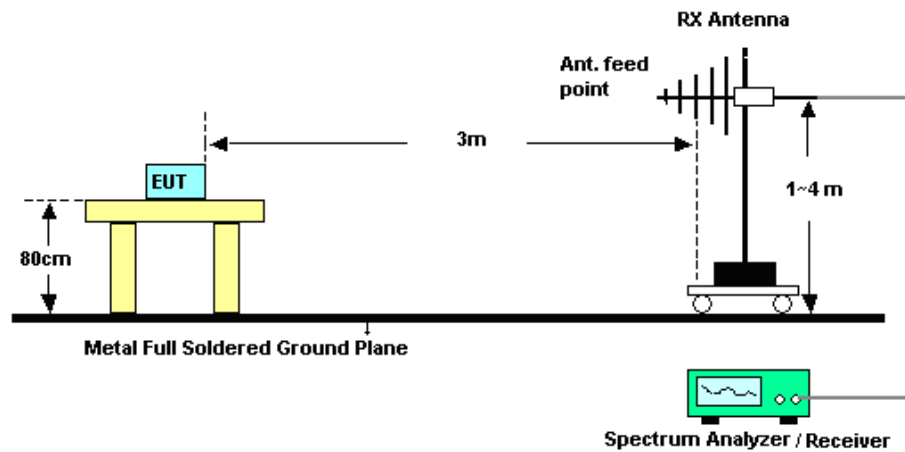
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak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

3.2.4 Test Setup

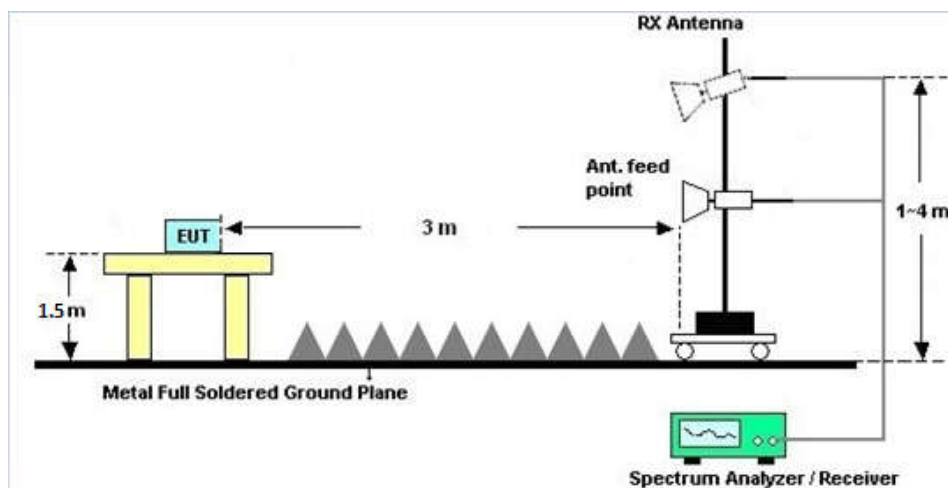
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



**3.2.5 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.

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.2.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.2.9 Test Result of Radiated Spurious Emission (Simultaneous TX)

Please refer to Appendix A.

Note: The worst cases of mode (BT3.0 / BLE / WLAN 5GHz) is tested

3.3 AC Conducted Emission Measurement

3.3.1 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.

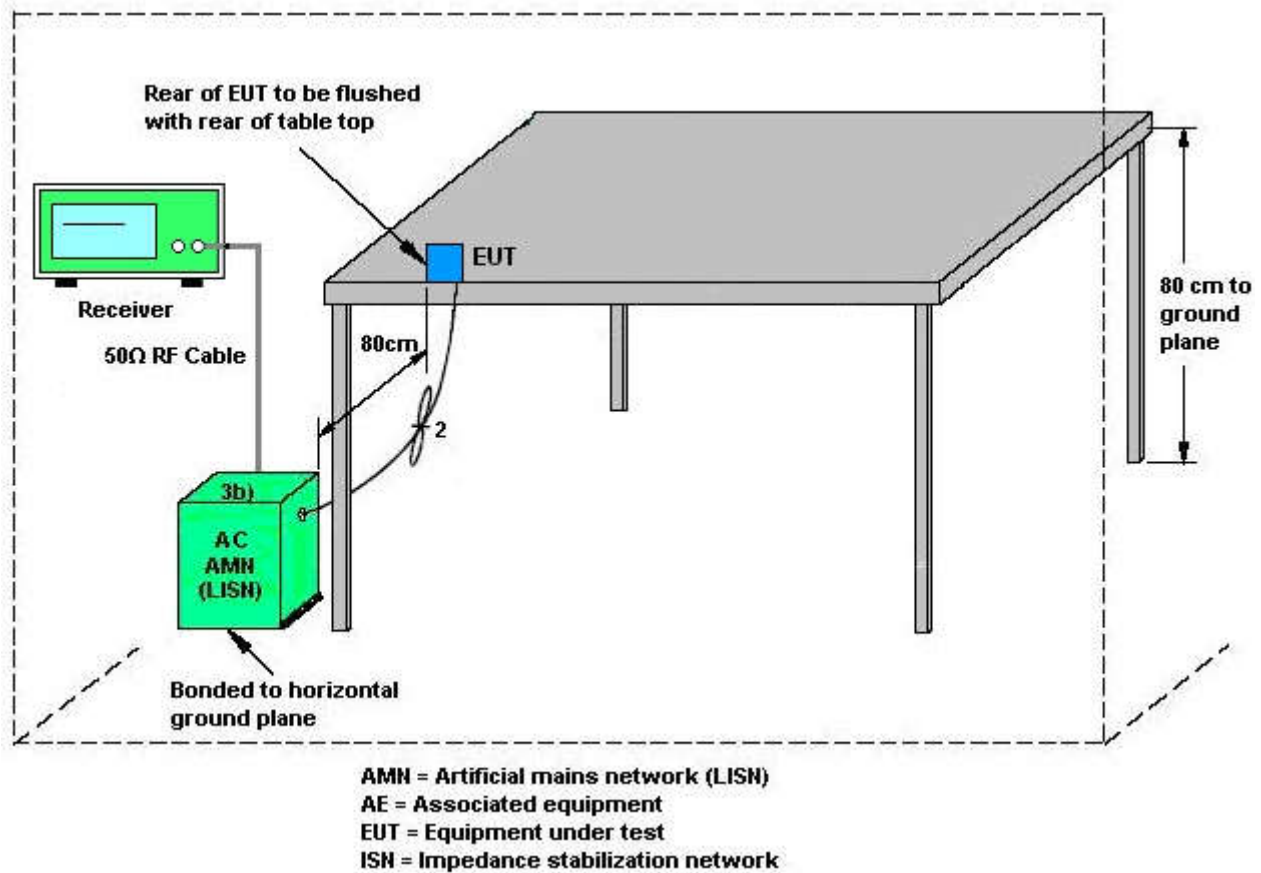
3.3.2 Measuring Instruments

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

3.3.3 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.

3.3.4 Test Setup



3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.



3.4 Automatically Discontinue Transmission

3.4.1 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.

3.4.2 Measuring Instruments

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

3.4.3 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.

3.5 Antenna Requirements

3.5.1 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.

3.5.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.5.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(\text{NANT}/\text{NSS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $\text{NANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e., F)2)f)i).

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

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.

<CDD Modes>						
			DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
	Ant. 1 (dBi)	Ant. 2 (dBi)				
Band I	3.13	3.09	3.13	6.12	0.00	0.12
Band II	3.13	3.09	3.13	6.12	0.00	0.12
Band III	4.07	4.06	4.07	7.08	0.00	1.08

Power limit reduction = Composite gain – 6dBi

PSD limit reduction = Composite gain + PSD Array gain – 6dBi



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 18, 2018	Apr. 16, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 18, 2018	Apr. 16, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 08, 2017	Apr. 16, 2018	Aug. 07, 2018	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 20, 2017	Mar. 30, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Mar. 30, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Mar. 30, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Mar. 30, 2018	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	Keysight	N9038A	MY564000 04	3Hz~8.5GHz;M ax 30dBm	Oct.19, 2017	Apr. 24, 2018	Oct.18, 2018	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY551502 44	10Hz~44GHz	Apr. 17, 2018	Apr. 24, 2018	Apr.16, 2019	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 22, 2017	Apr. 24, 2018	Oct.21, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	47610	30MHz~1GHz	Sep. 12, 2017	Apr. 24, 2018	Sep. 11, 2018	Radiation (03CH03-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 21, 2018	Apr. 24, 2018	Jan. 20, 2019	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Feb. 07, 2018	Apr. 24, 2018	Feb.06, 2019	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr 17, 2018	Apr. 24, 2018	Apr 16, 2019	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Oct. 12, 2017	Apr. 24, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2025788	1Ghz-18Ghz	Apr.17, 2018	Apr. 24, 2018	Apr.16, 2019	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Oct. 12, 2017	Apr. 24, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Apr. 24, 2018	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 24, 2018	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 24, 2018	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.3 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.5dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.1dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.0dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Silent Hai	Temperature:	21~25	°C
Test Date:	2018/4/16	Relative Humidity:	51~55	%

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
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	36	5180	0.20	0.26	13.58	12.32	16.01	24.00		3.13			Pass
11a	6Mbps	2	40	5200	0.20	0.26	18.45	16.33	20.53	24.00		3.13			Pass
11a	6Mbps	2	44	5220	0.20	0.26	18.55	16.65	20.72	24.00		3.13			Pass
11a	6Mbps	2	48	5240	0.20	0.26	18.28	17.38	20.87	24.00		3.13			Pass
HT20	MCS0	2	36	5180	0.25	0.25	14.69	13.20	17.02	24.00		3.13			Pass
HT20	MCS0	2	44	5220	0.25	0.25	18.33	16.52	20.53	24.00		3.13			Pass
HT20	MCS0	2	48	5240	0.25	0.25	18.06	17.06	20.60	24.00		3.13			Pass
HT40	MCS0	2	38	5190	0.49	0.43	6.06	5.22	8.68	24.00		3.13			Pass
HT40	MCS0	2	46	5230	0.49	0.43	18.01	16.61	20.38	24.00		3.13			Pass
VHT20	MCS0	2	36	5180	0.47	0.47	14.74	13.23	17.06	24.00		3.13			Pass
VHT20	MCS0	2	40	5200	0.47	0.47	18.18	16.25	20.34	24.00		3.13			Pass
VHT20	MCS0	2	44	5220	0.47	0.47	18.35	16.54	20.55	24.00		3.13			Pass
VHT20	MCS0	2	48	5240	0.47	0.47	18.12	17.04	20.63	24.00		3.13			Pass
VHT40	MCS0	2	38	5190	0.76	0.82	6.22	5.26	8.78	24.00		3.13			Pass
VHT40	MCS0	2	46	5230	0.76	0.82	18.12	16.49	20.39	24.00		3.13			Pass
VHT80	MCS0	2	42	5210	1.52	1.48	6.24	4.96	8.66	24.00		3.13			Pass

TEST RESULTS DATA
Average Power Table

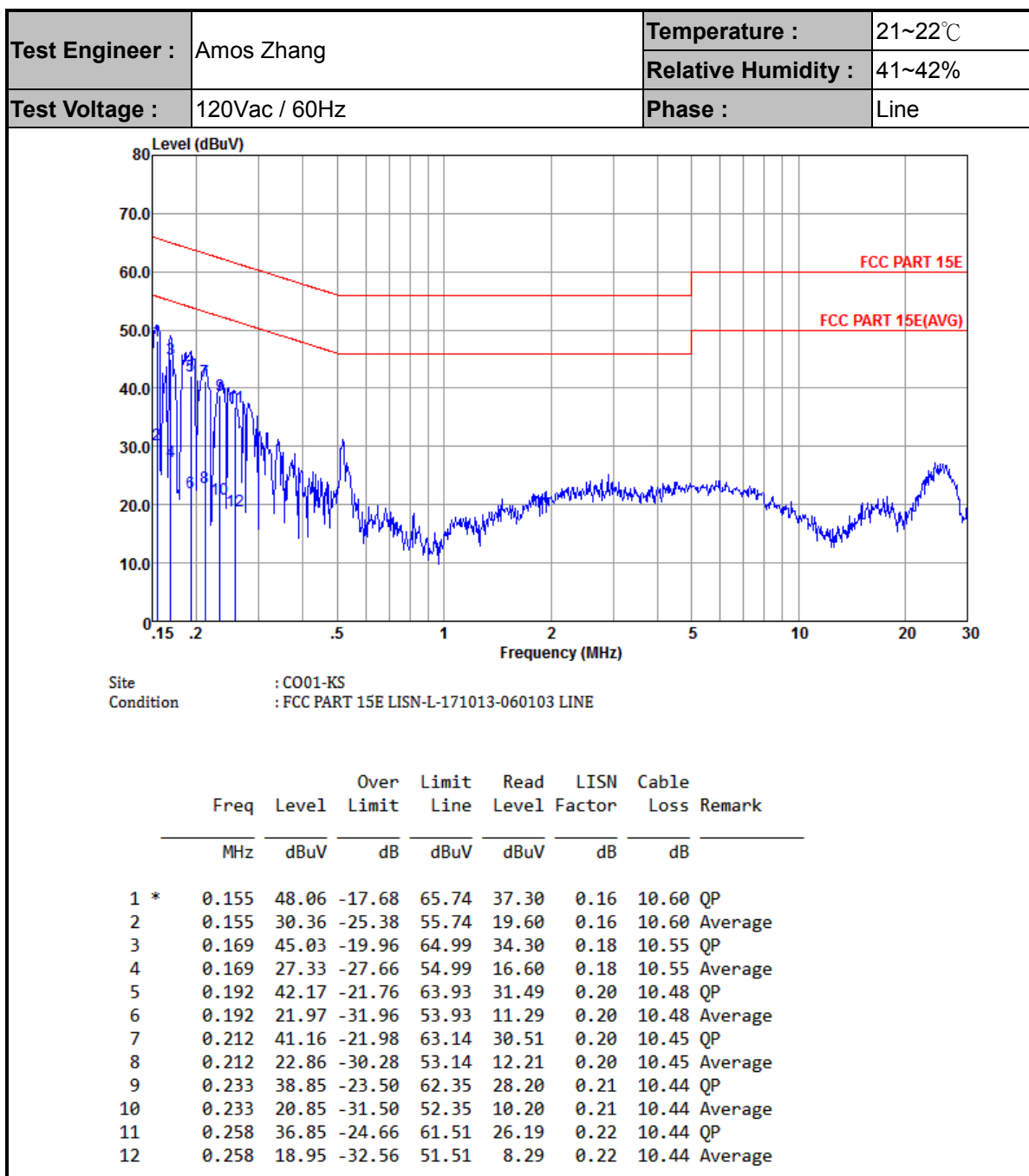
FCC Band II															
Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	52	5260	0.20	0.26	17.85	17.07	20.49	23.98		3.13		26.99	Pass
11a	6Mbps	2	60	5300	0.20	0.26	18.64	18.24	21.46	23.98		3.13		26.99	Pass
11a	6Mbps	2	64	5320	0.20	0.26	14.36	13.71	17.06	23.98		3.13		26.99	Pass
HT20	MCS0	2	52	5260	0.25	0.25	17.62	16.86	20.27	23.98		3.13		26.99	Pass
HT20	MCS0	2	60	5300	0.25	0.25	18.46	18.03	21.26	23.98		3.13		26.99	Pass
HT20	MCS0	2	64	5320	0.25	0.25	14.17	13.46	16.84	23.98		3.13		26.99	Pass
HT40	MCS0	2	54	5270	0.49	0.43	17.95	17.65	20.82	23.98		3.13		26.99	Pass
HT40	MCS0	2	62	5310	0.49	0.43	8.98	8.05	11.55	23.98		3.13		26.99	Pass
VHT20	MCS0	2	52	5260	0.47	0.47	17.63	16.99	20.34	23.98		3.13		26.99	Pass
VHT20	MCS0	2	60	5300	0.47	0.47	18.48	18.03	21.28	23.98		3.13		26.99	Pass
VHT20	MCS0	2	64	5320	0.47	0.47	14.21	13.62	16.94	23.98		3.13		26.99	Pass
VHT40	MCS0	2	54	5270	0.76	0.82	18.20	17.51	20.88	23.98		3.13		26.99	Pass
VHT40	MCS0	2	62	5310	0.76	0.82	9.08	8.13	11.64	23.98		3.13		26.99	Pass
VHT80	MCS0	2	58	5290	1.52	1.48	7.90	6.71	10.36	23.98		3.13		26.99	Pass

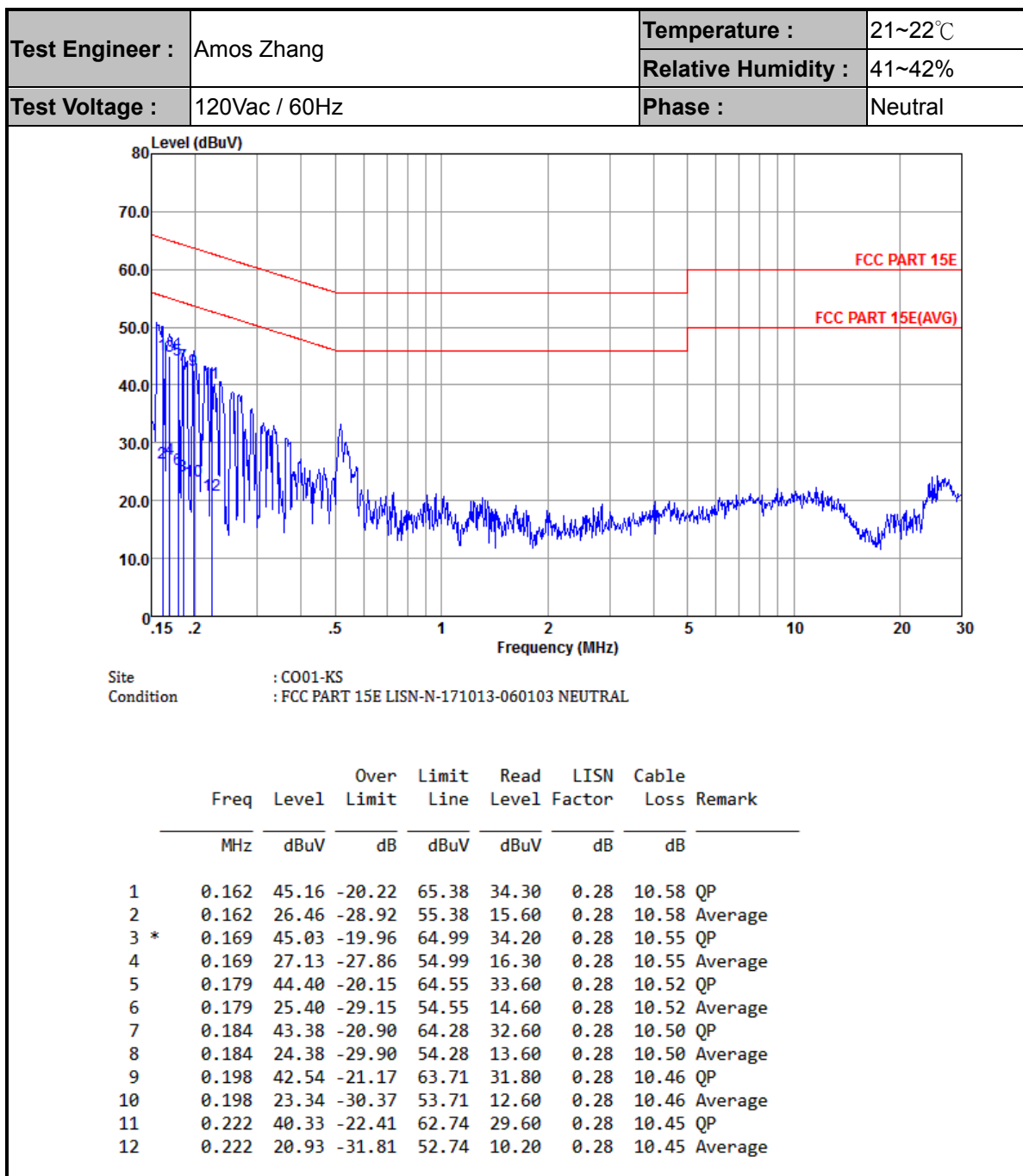
TEST RESULTS DATA
Average Power Table

FCC Band III															
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
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2		
11a	6Mbps	2	100	5500	0.20	0.26	12.38	10.99	14.76	23.98		4.07		26.99	Pass
11a	6Mbps	2	104	5520	0.20	0.26	13.28	12.72	16.02	23.98		4.07		26.99	Pass
11a	6Mbps	2	116	5580	0.20	0.26	18.78	18.74	21.77	23.98		4.07		26.99	Pass
11a	6Mbps	2	136	5680	0.20	0.26	15.41	14.83	18.14	23.98		4.07		26.99	Pass
11a	6Mbps	2	140	5700	0.20	0.26	9.96	10.04	13.01	23.98		4.07		26.99	Pass
HT20	MCS0	2	100	5500	0.25	0.25	12.27	10.73	14.58	23.98		4.07		26.99	Pass
HT20	MCS0	2	116	5580	0.25	0.25	18.70	18.63	21.68	23.98		4.07		26.99	Pass
HT20	MCS0	2	140	5700	0.25	0.25	11.70	11.83	14.78	23.98		4.07		26.99	Pass
HT40	MCS0	2	102	5510	0.49	0.43	12.17	10.72	14.52	23.98		4.07		26.99	Pass
HT40	MCS0	2	110	5550	0.49	0.43	19.25	17.82	21.61	23.98		4.07		26.99	Pass
HT40	MCS0	2	134	5670	0.49	0.43	14.81	14.67	17.76	23.98		4.07		26.99	Pass
VHT20	MCS0	2	100	5500	0.47	0.47	12.22	10.82	14.59	23.98		4.07		26.99	Pass
VHT20	MCS0	2	104	5520	0.47	0.47	12.62	11.41	15.07	23.98		4.07		26.99	Pass
VHT20	MCS0	2	116	5580	0.47	0.47	18.82	18.60	21.73	23.98		4.07		26.99	Pass
VHT20	MCS0	2	136	5680	0.47	0.47	15.29	14.59	17.97	23.98		4.07		26.99	Pass
VHT20	MCS0	2	140	5700	0.47	0.47	11.89	11.91	14.91	23.98		4.07		26.99	Pass
VHT40	MCS0	2	102	5510	0.76	0.82	12.19	11.50	14.87	23.98		4.07		26.99	Pass
VHT40	MCS0	2	110	5550	0.76	0.82	19.27	17.85	21.63	23.98		4.07		26.99	Pass
VHT40	MCS0	2	126	5630	0.76	0.82	19.21	17.64	21.51	23.98		4.07		26.99	Pass
VHT40	MCS0	2	134	5670	0.76	0.82	14.89	14.74	17.83	23.98		4.07		26.99	Pass
VHT80	MCS0	2	106	5530	1.52	1.48	8.44	7.27	10.90	23.98		4.07		26.99	Pass
VHT80	MCS0	2	122	5610	1.52	1.48	18.84	19.30	22.09	23.98		4.07		26.99	Pass



Appendix B. AC Conducted Emission Test Results







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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 36 5180MHz		5149.28	61.29	-12.71	74	51.16	35.39	7.99	33.25	314	356	P	H
	!	5149.76	48.26	-5.74	54	38.13	35.39	7.99	33.25	314	356	A	H
	*	5184	109.44	-	-	99.34	35.36	7.99	33.25	314	356	P	H
	*	5184	102.27	-	-	92.17	35.36	7.99	33.25	314	356	A	H
		5149.12	59.87	-14.13	74	49.74	35.39	7.99	33.25	100	360	P	V
	!	5150	49.97	-4.03	54	39.84	35.39	7.99	33.25	100	360	A	V
	*	5176	111.72	-	-	101.62	35.36	7.99	33.25	100	360	P	V
	*	5176	104.93	-	-	94.83	35.36	7.99	33.25	100	360	A	V
802.11a CH 40 5200MHz		5145.76	53.56	-20.44	74	43.43	35.39	7.99	33.25	100	344	P	H
		5105.28	43.36	-10.64	54	33.2	35.43	7.99	33.26	100	344	A	H
	*	5202	110.89	-	-	100.8	35.35	7.99	33.25	100	344	P	H
	*	5202	103.34	-	-	93.25	35.35	7.99	33.25	100	344	A	H
		5144.64	55.09	-18.91	74	44.96	35.39	7.99	33.25	108	360	P	V
		5150	44.39	-9.61	54	34.26	35.39	7.99	33.25	108	360	A	V
	*	5202	114.59	-	-	104.5	35.35	7.99	33.25	108	360	P	V
	*	5202	107.67	-	-	97.58	35.35	7.99	33.25	108	360	A	V



802.11a CH 44 5220MHz		5143.2	54	-20	74	43.87	35.39	7.99	33.25	100	348	P	H
		5126.56	43.64	-10.36	54	33.5	35.41	7.99	33.26	100	348	A	H
	*	5214	112.06	-	-	101.95	35.34	8.01	33.24	100	348	P	H
	*	5214	104.53	-	-	94.42	35.34	8.01	33.24	100	348	A	H
		5354.1	52.1	-21.9	74	41.87	35.23	8.22	33.22	100	348	P	H
		5375.34	42.2	-11.8	54	31.95	35.22	8.25	33.22	100	348	A	H
		5143.52	54.52	-19.48	74	44.39	35.39	7.99	33.25	302	94	P	V
		5124.96	43.98	-10.02	54	33.84	35.41	7.99	33.26	302	94	A	V
	*	5218	116.87	-	-	106.76	35.34	8.01	33.24	302	94	P	V
	*	5218	109.11	-	-	99	35.34	8.01	33.24	302	94	A	V
		5396.76	52.27	-21.73	74	41.99	35.19	8.3	33.21	302	94	P	V
		5398.02	42.44	-11.56	54	32.16	35.19	8.3	33.21	302	94	A	V
802.11a CH 48 5240MHz	*	5238	111.24	-	-	101.12	35.32	8.04	33.24	100	346	P	H
	*	5238	104.53	-	-	94.41	35.32	8.04	33.24	100	346	A	H
		5369.4	51.49	-22.51	74	41.24	35.22	8.25	33.22	100	346	P	H
		5398.2	42.27	-11.73	54	31.99	35.19	8.3	33.21	100	346	A	H
	*	5238	116.15	-	-	106.03	35.32	8.04	33.24	310	96	P	V
	*	5238	108.26	-	-	98.14	35.32	8.04	33.24	310	96	A	V
		5390.46	51.7	-22.3	74	41.43	35.2	8.28	33.21	310	96	P	V
		5372.1	42.43	-11.57	54	32.18	35.22	8.25	33.22	310	96	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+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 36 5180MHz		10360	49.22	-24.78	74	51.25	38.47	11.94	52.44	100	360	P	H
		10360	48.74	-25.26	74	50.77	38.47	11.94	52.44	100	360	P	V
802.11a CH 44 5220MHz		10440	50.15	-23.85	74	51.97	38.52	12.09	52.43	100	360	P	H
		10440	50.14	-23.86	74	51.96	38.52	12.09	52.43	100	360	P	V
802.11a CH 48 5240MHz		10480	49	-25	74	50.66	38.56	12.21	52.43	100	360	P	H
		10480	48.82	-25.18	74	50.48	38.56	12.21	52.43	100	360	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 VHT20 (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 VHT20 CH 36 5180MHz		5149.76	59.37	-14.63	74	49.24	35.39	7.99	33.25	283	355	P	H
	!	5150	50.17	-3.83	54	40.04	35.39	7.99	33.25	283	355	A	H
	*	5178	108.62	-	-	98.52	35.36	7.99	33.25	283	355	P	H
	*	5178	100.56	-	-	90.46	35.36	7.99	33.25	283	355	A	H
		5149.28	60.06	-13.94	74	49.93	35.39	7.99	33.25	299	96	P	V
	!	5150	50.19	-3.81	54	40.06	35.39	7.99	33.25	299	96	A	V
	*	5180	112.54	-	-	102.44	35.36	7.99	33.25	299	96	P	V
	*	5180	105.02	-	-	94.92	35.36	7.99	33.25	299	96	A	V
802.11ac VHT20 CH 40 5200MHz		5141.6	53.45	-20.55	74	43.32	35.39	7.99	33.25	102	344	P	H
		5146.4	43.97	-10.03	54	33.84	35.39	7.99	33.25	102	344	A	H
	*	5200	109.47	-	-	99.38	35.35	7.99	33.25	102	344	P	H
	*	5200	101.6	-	-	91.51	35.35	7.99	33.25	102	344	A	H
		5146.08	53.61	-20.39	74	43.48	35.39	7.99	33.25	106	0	P	V
		5147.52	44.45	-9.55	54	34.32	35.39	7.99	33.25	106	0	A	V
	*	5198	114.16	-	-	104.07	35.35	7.99	33.25	106	0	P	V
	*	5198	105.69	-	-	95.6	35.35	7.99	33.25	106	0	A	V



802.11ac VHT20 CH 44 5220MHz		5135.68	53.54	-20.46	74	43.4	35.41	7.99	33.26	300	114	P	H
		5147.52	44.02	-9.98	54	33.89	35.39	7.99	33.25	300	114	A	H
	*	5222	109.55	-	-	99.44	35.34	8.01	33.24	300	114	P	H
	*	5222	102.02	-	-	91.91	35.34	8.01	33.24	300	114	A	H
		5355.54	51.41	-22.59	74	41.18	35.23	8.22	33.22	300	114	P	H
		5397.66	42.75	-11.25	54	32.47	35.19	8.3	33.21	300	114	A	H
		5124.16	53.32	-20.68	74	43.18	35.41	7.99	33.26	303	93	P	V
		5126.24	44.64	-9.36	54	34.5	35.41	7.99	33.26	303	93	A	V
	*	5222	116.48	-	-	106.37	35.34	8.01	33.24	303	93	P	V
	*	5222	107.47	-	-	97.36	35.34	8.01	33.24	303	93	A	V
		5388.3	52.78	-21.22	74	42.51	35.2	8.28	33.21	303	93	P	V
		5371.74	42.86	-11.14	54	32.61	35.22	8.25	33.22	303	93	A	V
802.11ac VHT20 CH 48 5240MHz	*	5242	108.31	-	-	98.17	35.31	8.07	33.24	298	18	P	H
	*	5242	100.46	-	-	90.32	35.31	8.07	33.24	298	18	A	H
		5357.7	51.31	-22.69	74	41.08	35.23	8.22	33.22	298	18	P	H
		5392.98	42.76	-11.24	54	32.49	35.2	8.28	33.21	298	18	A	H
	*	5244	114.92	-	-	104.78	35.31	8.07	33.24	160	37	P	V
	*	5244	107.27	-	-	97.13	35.31	8.07	33.24	160	37	A	V
		5396.22	51.71	-22.29	74	41.43	35.19	8.3	33.21	160	37	P	V
		5373.54	43.13	-10.87	54	32.88	35.22	8.25	33.22	160	37	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 VHT20 (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 VHT20 CH 36 5180MHz		10360	47.6	-26.4	74	49.63	38.47	11.94	52.44	100	360	P	H
		10360	48.79	-25.21	74	50.82	38.47	11.94	52.44	100	360	P	V
802.11ac VHT20 CH 44 5220MHz		10440	48.98	-25.02	74	50.8	38.52	12.09	52.43	100	360	P	H
		10440	51.69	-22.31	74	53.51	38.52	12.09	52.43	100	360	P	V
		10440	46.53	-7.47	54	48.35	38.52	12.09	52.43	100	360	A	V
802.11ac VHT20 CH 48 5240MHz		10480	49.72	-24.28	74	51.38	38.56	12.21	52.43	100	360	P	H
		10480	50.17	-23.83	74	51.83	38.56	12.21	52.43	100	360	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 VHT40 (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 VHT40 CH 38 5190MHz		5125.76	61.13	-12.87	74	50.99	35.41	7.99	33.26	315	357	P	H
		5150	47.76	-6.24	54	37.63	35.39	7.99	33.25	315	357	A	H
	*	5192	98.71	-	-	88.62	35.35	7.99	33.25	315	357	P	H
	*	5192	91.07	-	-	80.98	35.35	7.99	33.25	315	357	A	H
		5377.32	51.45	-22.55	74	41.2	35.22	8.25	33.22	315	357	P	H
		5396.04	42.96	-11.04	54	32.68	35.19	8.3	33.21	315	357	A	H
		5133.44	62.95	-11.05	74	52.81	35.41	7.99	33.26	305	95	P	V
	!	5149.92	50.56	-3.44	54	40.43	35.39	7.99	33.25	305	95	A	V
	*	5194	105	-	-	94.91	35.35	7.99	33.25	305	95	P	V
	*	5194	95.76	-	-	85.67	35.35	7.99	33.25	305	95	A	V
		5384.34	52.1	-21.9	74	41.83	35.2	8.28	33.21	305	95	P	V
		5391.36	43.02	-10.98	54	32.75	35.2	8.28	33.21	305	95	A	V
802.11ac VHT40 CH 46 5230MHz		5128.48	63.36	-10.64	74	53.22	35.41	7.99	33.26	259	354	P	H
		5148.48	46.32	-7.68	54	36.19	35.39	7.99	33.25	259	354	A	H
	*	5234	106.12	-	-	96	35.32	8.04	33.24	259	354	P	H
	*	5234	97.97	-	-	87.85	35.32	8.04	33.24	259	354	A	H
		5371.56	56.89	-17.11	74	46.64	35.22	8.25	33.22	259	354	P	H
		5354.64	43.32	-10.68	54	33.09	35.23	8.22	33.22	259	354	A	H
		5130.88	66.97	-7.03	74	56.83	35.41	7.99	33.26	132	37	P	V
	!	5149.92	49.67	-4.33	54	39.54	35.39	7.99	33.25	132	37	A	V
	*	5224	112.3	-	-	102.19	35.34	8.01	33.24	132	37	P	V
	*	5224	103.86	-	-	93.75	35.34	8.01	33.24	132	37	A	V
		5355.9	59.34	-14.66	74	49.11	35.23	8.22	33.22	132	37	P	V
		5349.96	45.6	-8.4	54	35.37	35.23	8.22	33.22	132	37	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 VHT40 (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 VHT40		10380	48.18	-25.82	74	50.16	38.48	11.98	52.44	100	360	P	H
CH 38 5190MHz		10380	48.1	-25.9	74	50.08	38.48	11.98	52.44	100	360	P	V
802.11ac VHT40		10460	49.47	-24.53	74	51.24	38.53	12.13	52.43	100	360	P	H
CH 46 5230MHz		10460	47.02	-26.98	74	48.79	38.53	12.13	52.43	100	360	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+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 42 5210MHz		5143.68	56.65	-17.35	74	46.52	35.39	7.99	33.25	318	358	P	H
		5150	47.77	-6.23	54	37.64	35.39	7.99	33.25	318	358	A	H
	*	5216	95.04	-	-	84.93	35.34	8.01	33.24	318	358	P	H
	*	5216	88.82	-	-	78.71	35.34	8.01	33.24	318	358	A	H
		5350.86	50.64	-23.36	74	40.41	35.23	8.22	33.22	318	358	P	H
		5392.62	43.58	-10.42	54	33.31	35.2	8.28	33.21	318	358	A	H
		5147.2	58.24	-15.76	74	48.11	35.39	7.99	33.25	309	96	P	V
	!	5148.48	49.73	-4.27	54	39.6	35.39	7.99	33.25	309	96	A	V
	*	5216	99.28	-	-	89.17	35.34	8.01	33.24	309	96	P	V
	*	5216	92.96	-	-	82.85	35.34	8.01	33.24	309	96	A	V
		5362.56	51.84	-22.16	74	41.59	35.22	8.25	33.22	309	96	P	V
		5367.24	43.95	-10.05	54	33.7	35.22	8.25	33.22	309	96	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+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		10420	48.08	-25.92	74	49.94	38.51	12.06	52.43	100	360	P	H
CH 42 5210MHz		10420	49.39	-24.61	74	51.25	38.51	12.06	52.43	100	360	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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 52 5260MHz		5125.92	53.18	-20.82	74	43.04	35.41	7.99	33.26	109	346	P	H
		5108	43.53	-10.47	54	33.38	35.42	7.99	33.26	109	346	A	H
	*	5258	110.96	-	-	100.82	35.31	8.07	33.24	109	346	P	H
	*	5258	103.03	-	-	92.89	35.31	8.07	33.24	109	346	A	H
		5138.72	54.08	-19.92	74	43.94	35.41	7.99	33.26	100	36	P	V
		5128.8	43.8	-10.2	54	33.66	35.41	7.99	33.26	100	36	A	V
	*	5260	115.89	-	-	105.73	35.3	8.09	33.23	100	36	P	V
	*	5260	108.64	-	-	98.48	35.3	8.09	33.23	100	36	A	V
802.11a CH 60 5300MHz		5147.04	52.86	-21.14	74	42.73	35.39	7.99	33.25	109	347	P	H
		5100.96	43.37	-10.63	54	33.21	35.43	7.99	33.26	109	347	A	H
	*	5304	111.03	-	-	100.84	35.27	8.15	33.23	109	347	P	H
	*	5304	103.71	-	-	93.52	35.27	8.15	33.23	109	347	A	H
		5362	51.36	-22.64	74	41.11	35.22	8.25	33.22	109	347	P	H
		5391	42.42	-11.58	54	32.15	35.2	8.28	33.21	109	347	A	H
		5148.48	53.51	-20.49	74	43.38	35.39	7.99	33.25	180	35	P	V
		5100.96	43.53	-10.47	54	33.37	35.43	7.99	33.26	180	35	A	V
	*	5296	116.35	-	-	106.16	35.27	8.15	33.23	180	35	P	V
	*	5296	109.01	-	-	98.82	35.27	8.15	33.23	180	35	A	V
		5395.1	53.21	-20.79	74	42.93	35.19	8.3	33.21	180	35	P	V
		5394.8	44.36	-9.64	54	34.08	35.19	8.3	33.21	180	35	A	V



802.11a CH 64 5320MHz	*	5324	108.33	-	-	98.13	35.26	8.17	33.23	100	346	P	H
	*	5324	101.24	-	-	91.04	35.26	8.17	33.23	100	346	A	H
		5350.8	55.38	-18.62	74	45.15	35.23	8.22	33.22	100	346	P	H
		5350	46.5	-7.5	54	36.27	35.23	8.22	33.22	100	346	A	H
	*	5318	112.14	-	-	101.94	35.26	8.17	33.23	154	360	P	V
	*	5318	105.49	-	-	95.29	35.26	8.17	33.23	154	360	A	V
		5350.7	58.24	-15.76	74	48.01	35.23	8.22	33.22	154	360	P	V
	!	5350.4	49.32	-4.68	54	39.09	35.23	8.22	33.22	154	360	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+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 52 5260MHz		10520	50.91	-23.09	74	52.48	38.58	12.28	52.43	100	360	P	H
		10520	52.23	-21.77	74	53.8	38.58	12.28	52.43	100	360	P	V
		10520	44.88	-9.12	54	46.45	38.58	12.28	52.43	100	360	A	V
802.11a CH 60 5300MHz		10600	51.78	-22.22	74	53.1	38.64	12.47	52.43	100	360	P	H
		10600	45.9	-8.1	54	47.22	38.64	12.47	52.43	100	360	A	H
		10600	53.29	-20.71	74	54.61	38.64	12.47	52.43	100	360	P	V
		10600	46.26	-7.74	54	47.58	38.64	12.47	52.43	100	360	A	V
802.11a CH 64 5320MHz		10640	48.93	-25.07	74	50.14	38.67	12.55	52.43	100	360	P	H
		10640	48.73	-25.27	74	49.94	38.67	12.55	52.43	100	360	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 VHT20 (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 VHT20 CH 52 5260MHz		5119.2	54.21	-19.79	74	44.06	35.42	7.99	33.26	109	348	P	H
		5112.96	44.06	-9.94	54	33.91	35.42	7.99	33.26	109	348	A	H
	*	5256	109.27	-	-	99.13	35.31	8.07	33.24	109	348	P	H
	*	5256	100.79	-	-	90.65	35.31	8.07	33.24	109	348	A	H
		5137.28	53.51	-20.49	74	43.37	35.41	7.99	33.26	100	37	P	V
		5138.24	44.19	-9.81	54	34.05	35.41	7.99	33.26	100	37	A	V
	*	5262	114.22	-	-	104.06	35.3	8.09	33.23	100	37	P	V
	*	5262	106.73	-	-	96.57	35.3	8.09	33.23	100	37	A	V
802.11ac VHT20 CH 60 5300MHz		5115.68	53.23	-20.77	74	43.08	35.42	7.99	33.26	114	116	P	H
		5137.92	44.06	-9.94	54	33.92	35.41	7.99	33.26	114	116	A	H
	*	5298	109.21	-	-	99.02	35.27	8.15	33.23	114	116	P	H
	*	5298	101.58	-	-	91.39	35.27	8.15	33.23	114	116	A	H
		5368.5	51.58	-22.42	74	41.33	35.22	8.25	33.22	114	116	P	H
		5393.2	43.03	-10.97	54	32.76	35.2	8.28	33.21	114	116	A	H
		5144	53.98	-20.02	74	43.85	35.39	7.99	33.25	156	37	P	V
		5135.36	44.2	-9.8	54	34.06	35.41	7.99	33.26	156	37	A	V
	*	5302	114.78	-	-	104.59	35.27	8.15	33.23	156	37	P	V
	*	5302	106.5	-	-	96.31	35.27	8.15	33.23	156	37	A	V
		5367.6	52.54	-21.46	74	42.29	35.22	8.25	33.22	156	37	P	V
		5352.5	44.04	-9.96	54	33.81	35.23	8.22	33.22	156	37	A	V



802.11ac VHT20 CH 64 5320MHz	*	5322	107.78	-	-	97.58	35.26	8.17	33.23	100	345	P	H
	*	5322	99.61	-	-	89.41	35.26	8.17	33.23	100	345	A	H
		5352.6	55.76	-18.24	74	45.53	35.23	8.22	33.22	100	345	P	H
		5350.2	46.9	-7.1	54	36.67	35.23	8.22	33.22	100	345	A	H
	*	5320	110.13	-	-	99.93	35.26	8.17	33.23	302	93	P	V
	*	5320	103.51	-	-	93.31	35.26	8.17	33.23	302	93	A	V
		5351.2	56.95	-17.05	74	46.72	35.23	8.22	33.22	302	93	P	V
	!	5350.1	49.42	-4.58	54	39.19	35.23	8.22	33.22	302	93	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 VHT20 (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 VHT20 CH 52 5260MHz		10520	50.35	-23.65	74	51.92	38.58	12.28	52.43	100	360	P	H
		10520	50.73	-23.27	74	52.3	38.58	12.28	52.43	100	360	P	V
802.11ac VHT20 CH 60 5300MHz		10600	51.44	-22.56	74	52.76	38.64	12.47	52.43	100	360	P	H
		10600	44.9	-9.1	54	46.22	38.64	12.47	52.43	100	360	A	H
		10600	51.97	-22.03	74	53.29	38.64	12.47	52.43	100	360	P	V
		10600	45.9	-8.1	54	47.22	38.64	12.47	52.43	100	360	A	V
802.11ac VHT20 CH 64 5320MHz		10640	48.32	-25.68	74	49.53	38.67	12.55	52.43	100	360	P	H
		10640	48.51	-25.49	74	49.72	38.67	12.55	52.43	100	360	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 VHT40 (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 VHT40 CH 54 5270MHz		5141.76	57.66	-16.34	74	47.53	35.39	7.99	33.25	105	347	P	H
		5131.84	44.22	-9.78	54	34.08	35.41	7.99	33.26	105	347	A	H
	*	5272	106.84	-	-	96.68	35.3	8.09	33.23	105	347	P	H
	*	5272	97.71	-	-	87.55	35.3	8.09	33.23	105	347	A	H
		5356.9	58.4	-15.6	74	48.17	35.23	8.22	33.22	105	347	P	H
		5351.6	44.64	-9.36	54	34.41	35.23	8.22	33.22	105	347	A	H
		5142.56	64.51	-9.49	74	54.38	35.39	7.99	33.25	186	36	P	V
		5146.4	46.3	-7.7	54	36.17	35.39	7.99	33.25	186	36	A	V
	*	5272	111.54	-	-	101.38	35.3	8.09	33.23	186	36	P	V
	*	5272	103.54	-	-	93.38	35.3	8.09	33.23	186	36	A	V
		5350.2	67.05	-6.95	74	56.82	35.23	8.22	33.22	186	36	P	V
	!	5354.9	49.12	-4.88	54	38.89	35.23	8.22	33.22	186	36	A	V
802.11ac VHT40 CH 62 5310MHz		5139.36	54.07	-19.93	74	43.93	35.41	7.99	33.26	100	346	P	H
		5148.64	44.09	-9.91	54	33.96	35.39	7.99	33.25	100	346	A	H
	*	5312	98.37	-	-	88.17	35.26	8.17	33.23	100	346	P	H
	*	5312	90.63	-	-	80.43	35.26	8.17	33.23	100	346	A	H
		5355.6	58.69	-15.31	74	48.46	35.23	8.22	33.22	100	346	P	H
		5351.9	47	-7	54	36.77	35.23	8.22	33.22	100	346	A	H
		5124	54.22	-19.78	74	44.08	35.41	7.99	33.26	102	91	P	V
		5100.96	43.96	-10.04	54	33.8	35.43	7.99	33.26	102	91	A	V
	*	5302	103.7	-	-	93.51	35.27	8.15	33.23	102	91	P	V
	*	5302	95.96	-	-	85.77	35.27	8.15	33.23	102	91	A	V
		5353	65.35	-8.65	74	55.12	35.23	8.22	33.22	102	91	P	V
	!	5350.5	50.91	-3.09	54	40.68	35.23	8.22	33.22	102	91	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 VHT40 (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 VHT40		10540	48.57	-25.43	74	50.08	38.6	12.32	52.43	100	360	P	H
CH 54 5270MHz		10540	47.74	-26.26	74	49.25	38.6	12.32	52.43	100	360	P	V
802.11ac VHT40		10620	47.95	-26.05	74	49.21	38.66	12.51	52.43	100	360	P	H
CH 62 5310MHz		10620	48.59	-25.41	74	49.85	38.66	12.51	52.43	100	360	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+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 58 5290MHz		5140	54.75	-19.25	74	44.62	35.39	7.99	33.25	100	344	P	H
		5100.1	44.89	-9.11	54	34.73	35.43	7.99	33.26	100	344	A	H
	*	5286	97.58	-	-	87.41	35.28	8.12	33.23	100	344	P	H
	*	5286	89.14	-	-	78.97	35.28	8.12	33.23	100	344	A	H
		5354.9	53.51	-20.49	74	43.28	35.23	8.22	33.22	100	344	P	H
		5351.1	46.1	-7.9	54	35.87	35.23	8.22	33.22	100	344	A	H
		5113.12	54.65	-19.35	74	44.5	35.42	7.99	33.26	299	79	P	V
		5149.44	45.01	-8.99	54	34.88	35.39	7.99	33.25	299	79	A	V
	*	5282	100.41	-	-	90.24	35.28	8.12	33.23	299	79	P	V
	*	5282	94.16	-	-	83.99	35.28	8.12	33.23	299	79	A	V
		5356.2	55.84	-18.16	74	45.61	35.23	8.22	33.22	299	79	P	V
	!	5351.8	48.93	-5.07	54	38.7	35.23	8.22	33.22	299	79	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+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		10580	47.8	-26.2	74	49.17	38.63	12.43	52.43	100	360	P	H
CH 58 5290MHz		10580	47.76	-26.24	74	49.13	38.63	12.43	52.43	100	360	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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 100 5500MHz		5466.64	52.69	-15.61	68.3	42.36	35.14	8.39	33.2	100	342	P	H
		5458.48	42.9	-11.1	54	32.58	35.15	8.37	33.2	100	342	A	H
	*	5504	103.3	-	-	92.96	35.11	8.43	33.2	100	342	P	H
	*	5504	97.03	-	-	86.69	35.11	8.43	33.2	100	342	A	H
		5468.88	54.68	-13.62	68.3	44.35	35.14	8.39	33.2	128	23	P	V
		5458.8	44.53	-9.47	54	34.21	35.15	8.37	33.2	128	23	A	V
	*	5496	111.35	-	-	101.02	35.12	8.41	33.2	128	23	P	V
	*	5496	104.04	-	-	93.71	35.12	8.41	33.2	128	23	A	V
802.11a CH 104 5520MHz		5441.84	52.65	-21.35	74	42.36	35.16	8.34	33.21	368	355	P	H
		5455.76	42.5	-11.5	54	32.18	35.15	8.37	33.2	368	355	A	H
	*	5522	110.07	-	-	99.72	35.09	8.45	33.19	368	355	P	H
	*	5522	103.39	-	-	93.04	35.09	8.45	33.19	368	355	A	H
		5462.96	52.67	-15.63	68.3	42.34	35.14	8.39	33.2	114	353	P	V
		5429.04	43.17	-10.83	54	32.88	35.16	8.34	33.21	114	353	A	V
	*	5520	116.23	-	-	105.88	35.09	8.45	33.19	114	353	P	V
	*	5520	109.63	-	-	99.28	35.09	8.45	33.19	114	353	A	V
802.11a CH 116 5580MHz		5388.72	51.82	-22.18	74	41.55	35.2	8.28	33.21	100	343	P	H
		5454.16	42.51	-11.49	54	32.19	35.15	8.37	33.2	100	343	A	H
	*	5578	112.54	-	-	102.16	35.05	8.51	33.18	100	343	P	H
	*	5578	104.47	-	-	94.09	35.05	8.51	33.18	100	343	A	H
		5744.52	52.51	-21.49	74	42.18	34.91	8.59	33.17	100	343	P	H
		5750.12	42.79	-11.21	54	32.46	34.91	8.59	33.17	100	343	A	H
		5468.4	52.84	-15.46	68.3	42.51	35.14	8.39	33.2	106	93	P	V
		5455.28	43.1	-10.9	54	32.78	35.15	8.37	33.2	106	93	A	V
	*	5582	118.33	-	-	107.94	35.04	8.53	33.18	106	93	P	V
	*	5582	110.63	-	-	100.24	35.04	8.53	33.18	106	93	A	V
		5749.96	52.53	-21.47	74	42.2	34.91	8.59	33.17	106	93	P	V
		5725	42.85	-11.15	54	32.52	34.92	8.58	33.17	106	93	A	V



802.11a CH 136 5680MHz	*	5678	113.5	-	-	103.13	34.97	8.57	33.17	363	352	P	H
	*	5678	104.26	-	-	93.89	34.97	8.57	33.17	363	352	A	H
		5726.28	53.07	-20.93	74	42.74	34.92	8.58	33.17	363	352	P	H
		5725	43.4	-10.6	54	33.07	34.92	8.58	33.17	363	352	A	H
	*	5680	116.86	-	-	106.49	34.97	8.57	33.17	114	353	P	V
	*	5680	108.76	-	-	98.39	34.97	8.57	33.17	114	353	A	V
		5725	56.55	-17.45	74	46.22	34.92	8.58	33.17	114	353	P	V
		5726.12	45.99	-8.01	54	35.66	34.92	8.58	33.17	114	353	A	V
802.11a CH 140 5700MHz	*	5696	102.71	-	-	92.36	34.95	8.57	33.17	110	339	P	H
	*	5696	94.26	-	-	83.91	34.95	8.57	33.17	110	339	A	H
		5730.2	53.47	-20.53	74	43.14	34.92	8.58	33.17	110	339	P	H
		5725.24	43.82	-10.18	54	33.49	34.92	8.58	33.17	110	339	A	H
	*	5702	109.15	-	-	98.8	34.94	8.58	33.17	115	93	P	V
	*	5702	100.79	-	-	90.44	34.94	8.58	33.17	115	93	A	V
		5725.24	55.63	-18.37	74	45.3	34.92	8.58	33.17	115	93	P	V
		5725.72	46.17	-7.83	54	35.84	34.92	8.58	33.17	115	93	A	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+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 100 5500MHz		11000	48.55	-25.45	74	48.7	38.93	13.34	52.42	100	360	P	H
		11000	49.33	-24.67	74	49.48	38.93	13.34	52.42	100	360	P	V
802.11a CH 116 5580MHz		11160	49.09	-24.91	74	49.27	39.05	13.19	52.42	100	360	P	H
		11160	48.98	-25.02	74	49.16	39.05	13.19	52.42	100	360	P	V
802.11a CH 140 5700MHz		11400	47.82	-26.18	74	48.26	39.23	12.99	52.66	100	360	P	H
		11400	48.26	-25.74	74	48.7	39.23	12.99	52.66	100	360	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 VHT20 (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 VHT20 CH 100 5500MHz		5469.04	52.8	-15.5	68.3	42.47	35.14	8.39	33.2	100	339	P	H
		5458.16	43.81	-10.19	54	33.49	35.15	8.37	33.2	100	339	A	H
	*	5498	102.71	-	-	92.37	35.11	8.43	33.2	100	339	P	H
	*	5498	96.05	-	-	85.71	35.11	8.43	33.2	100	339	A	H
		5467.6	54.69	-13.61	68.3	44.36	35.14	8.39	33.2	295	90	P	V
		5458.48	44.66	-9.34	54	34.34	35.15	8.37	33.2	295	90	A	V
	*	5502	108.14	-	-	97.8	35.11	8.43	33.2	295	90	P	V
	*	5502	101.64	-	-	91.3	35.11	8.43	33.2	295	90	A	V
802.11ac VHT20 CH 104 5520MHz		5458	51.71	-22.29	74	41.39	35.15	8.37	33.2	328	354	P	H
		5453.52	43.43	-10.57	54	33.11	35.15	8.37	33.2	328	354	A	H
	*	5518	109.07	-	-	98.72	35.09	8.45	33.19	328	354	P	H
	*	5518	102.59	-	-	92.24	35.09	8.45	33.19	328	354	A	H
		5443.6	52.61	-21.39	74	42.32	35.16	8.34	33.21	106	21	P	V
		5456.08	43.72	-10.28	54	33.4	35.15	8.37	33.2	106	21	A	V
	*	5518	115.68	-	-	105.33	35.09	8.45	33.19	106	21	P	V
	*	5518	108.15	-	-	97.8	35.09	8.45	33.19	106	21	A	V
802.11ac VHT20 CH 116 5580MHz		5422.48	52.02	-21.98	74	41.73	35.18	8.32	33.21	100	343	P	H
		5455.76	42.89	-11.11	54	32.57	35.15	8.37	33.2	100	343	A	H
	*	5582	110.38	-	-	99.99	35.04	8.53	33.18	100	343	P	H
	*	5582	103.2	-	-	92.81	35.04	8.53	33.18	100	343	A	H
		5736.12	51.68	-22.32	74	41.35	34.91	8.59	33.17	100	343	P	H
		5754.92	43.18	-10.82	54	32.87	34.89	8.59	33.17	100	343	A	H
		5448.08	53.06	-20.94	74	42.74	35.15	8.37	33.2	107	97	P	V
		5434.48	43.36	-10.64	54	33.07	35.16	8.34	33.21	107	97	A	V
	*	5580	117.86	-	-	107.48	35.05	8.51	33.18	107	97	P	V
	*	5580	109.61	-	-	99.23	35.05	8.51	33.18	107	97	A	V
		5738.44	52.42	-21.58	74	42.09	34.91	8.59	33.17	107	97	P	V
		5725.4	43.35	-10.65	54	33.02	34.92	8.58	33.17	107	97	A	V



802.11ac VHT20 CH 136 5680MHz	*	5682	110.65	-	-	100.28	34.97	8.57	33.17	324	350	P	H
	*	5682	102.02	-	-	91.65	34.97	8.57	33.17	324	350	A	H
		5728.2	52.8	-21.2	74	42.47	34.92	8.58	33.17	324	350	P	H
		5726.84	43.91	-10.09	54	33.58	34.92	8.58	33.17	324	350	A	H
	*	5682	115.9	-	-	105.53	34.97	8.57	33.17	100	93	P	V
	*	5682	108.06	-	-	97.69	34.97	8.57	33.17	100	93	A	V
		5725	56.07	-17.93	74	45.74	34.92	8.58	33.17	100	93	P	V
		5725.24	46.35	-7.65	54	36.02	34.92	8.58	33.17	100	93	A	V
802.11ac VHT20 CH 140 5700MHz	*	5698	102.58	-	-	92.23	34.95	8.57	33.17	308	4	P	H
	*	5698	94.54	-	-	84.19	34.95	8.57	33.17	308	4	A	H
		5726.52	53.31	-20.69	74	42.98	34.92	8.58	33.17	308	4	P	H
		5725	44.87	-9.13	54	34.54	34.92	8.58	33.17	308	4	A	H
	*	5698	108.45	-	-	98.1	34.95	8.57	33.17	118	90	P	V
	*	5698	100.34	-	-	89.99	34.95	8.57	33.17	118	90	A	V
		5728.2	55.11	-18.89	74	44.78	34.92	8.58	33.17	118	90	P	V
		5725.24	46.96	-7.04	54	36.63	34.92	8.58	33.17	118	90	A	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 VHT20 (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 VHT20		11000	49.74	-24.26	74	49.89	38.93	13.34	52.42	100	360	P	H
CH 100 5500MHz		11000	48.47	-25.53	74	48.62	38.93	13.34	52.42	100	360	P	V
802.11ac VHT20		11160	50.23	-23.77	74	50.41	39.05	13.19	52.42	100	360	P	H
CH 116 5580MHz		11160	49.78	-24.22	74	49.96	39.05	13.19	52.42	100	360	P	V
802.11ac VHT20		11400	48.6	-25.4	74	49.04	39.23	12.99	52.66	100	360	P	H
CH 140 5700MHz		11400	48.26	-25.74	74	48.7	39.23	12.99	52.66	100	360	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 VHT40 (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 VHT40 CH 102 5510MHz		5457.36	57.72	-16.28	74	47.4	35.15	8.37	33.2	306	6	P	H
		5459.76	44.42	-9.58	54	34.1	35.15	8.37	33.2	306	6	A	H
	*	5502	98.43	-	-	88.09	35.11	8.43	33.2	306	6	P	H
	*	5502	92.25	-	-	81.91	35.11	8.43	33.2	306	6	A	H
		5741.32	52.96	-21.04	74	42.63	34.91	8.59	33.17	306	6	P	H
		5727.24	43.44	-10.56	54	33.11	34.92	8.58	33.17	306	6	A	H
	!	5469.68	64.78	-3.52	68.3	54.45	35.14	8.39	33.2	150	24	P	V
	!	5460	49.12	-4.88	54	38.8	35.15	8.37	33.2	150	24	A	V
	*	5504	106.81	-	-	96.47	35.11	8.43	33.2	150	24	P	V
	*	5504	99.99	-	-	89.65	35.11	8.43	33.2	150	24	A	V
		5753.08	56.51	-17.49	74	46.2	34.89	8.59	33.17	150	24	P	V
		5740.76	43.58	-10.42	54	33.25	34.91	8.59	33.17	150	24	A	V
802.11ac VHT40 CH 110 5550MHz		5450.96	61.4	-12.6	74	51.08	35.15	8.37	33.2	100	342	P	H
		5453.04	45.63	-8.37	54	35.31	35.15	8.37	33.2	100	342	A	H
	*	5556	107	-	-	96.63	35.07	8.49	33.19	100	342	P	H
	*	5556	99.24	-	-	88.87	35.07	8.49	33.19	100	342	A	H
		5761.64	53.54	-20.46	74	43.23	34.89	8.59	33.17	100	342	P	H
		5751.24	43.38	-10.62	54	33.05	34.91	8.59	33.17	100	342	A	H
		5445.36	63.1	-10.9	74	52.81	35.16	8.34	33.21	122	22	P	V
		5447.12	49.36	-4.64	54	39.04	35.15	8.37	33.2	122	22	A	V
	*	5554	112.93	-	-	102.56	35.07	8.49	33.19	122	22	P	V
	*	5554	106.54	-	-	96.17	35.07	8.49	33.19	122	22	A	V
		5747.08	59.24	-14.76	74	48.91	34.91	8.59	33.17	122	22	P	V
		5726.68	45.62	-8.38	54	35.29	34.92	8.58	33.17	122	22	A	V



802.11ac VHT40 CH 126 5630MHz		5455.28	52.18	-21.82	74	41.86	35.15	8.37	33.2	368	353	P	H
		5453.04	42.68	-11.32	54	32.36	35.15	8.37	33.2	368	353	A	H
	*	5634	106.64	-	-	96.25	35	8.56	33.17	368	353	P	H
	*	5634	98.76	-	-	88.37	35	8.56	33.17	368	353	A	H
		5726.52	58.71	-15.29	74	48.38	34.92	8.58	33.17	368	353	P	H
		5727.96	43.98	-10.02	54	33.65	34.92	8.58	33.17	368	353	A	H
		5457.52	59	-15	74	48.68	35.15	8.37	33.2	121	92	P	V
		5459.12	44.45	-9.55	54	34.13	35.15	8.37	33.2	121	92	A	V
	*	5628	113.24	-	-	102.85	35.01	8.56	33.18	121	92	P	V
	*	5628	104.46	-	-	94.07	35.01	8.56	33.18	121	92	A	V
		5732.44	62.31	-11.69	74	51.98	34.92	8.58	33.17	121	92	P	V
		5732.6	47.4	-6.6	54	37.07	34.92	8.58	33.17	121	92	A	V
802.11ac VHT40 CH 134 5670MHz		5414.32	51.1	-22.9	74	40.81	35.18	8.32	33.21	100	337	P	H
		5447.12	42.97	-11.03	54	32.65	35.15	8.37	33.2	100	337	A	H
	*	5662	104.59	-	-	94.21	34.98	8.57	33.17	100	337	P	H
	*	5662	95.84	-	-	85.46	34.98	8.57	33.17	100	337	A	H
		5725.56	55.72	-18.28	74	45.39	34.92	8.58	33.17	100	337	P	H
		5734.36	45.59	-8.41	54	35.26	34.92	8.58	33.17	100	337	A	H
		5430.96	55.78	-18.22	74	45.49	35.16	8.34	33.21	105	95	P	V
		5449.52	43.34	-10.66	54	33.02	35.15	8.37	33.2	105	95	A	V
	*	5662	109.9	-	-	99.52	34.98	8.57	33.17	105	95	P	V
	*	5662	102.03	-	-	91.65	34.98	8.57	33.17	105	95	A	V
		5730.04	65.4	-8.6	74	55.07	34.92	8.58	33.17	105	95	P	V
	!	5726.28	50.06	-3.94	54	39.73	34.92	8.58	33.17	105	95	A	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 VHT40 (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 VHT40		11020	49.01	-24.99	74	49.17	38.94	13.32	52.42	100	360	P	H
CH 102 5510MHz		11020	48.38	-25.62	74	48.54	38.94	13.32	52.42	100	360	P	V
802.11ac VHT40		11000	49.74	-24.26	74	49.89	38.93	13.34	52.42	100	360	P	H
CH 110 5550MHz		11000	48.47	-25.53	74	48.62	38.93	13.34	52.42	100	360	P	V
802.11ac VHT40		11340	48.37	-25.63	74	48.67	39.18	13.04	52.52	100	360	P	H
CH 134 5670MHz		11340	48.26	-25.74	74	48.56	39.18	13.04	52.52	100	360	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+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 106 5530MHz		5469.84	54.37	-13.93	68.3	44.04	35.14	8.39	33.2	312	355	P	H
		5458.32	45.7	-8.3	54	35.38	35.15	8.37	33.2	312	355	A	H
	*	5534	96.06	-	-	85.7	35.08	8.47	33.19	312	355	P	H
	*	5534	89.38	-	-	79.02	35.08	8.47	33.19	312	355	A	H
		5746.12	51.75	-22.25	74	41.42	34.91	8.59	33.17	312	355	P	H
		5751.48	44.29	-9.71	54	33.96	34.91	8.59	33.17	312	355	A	H
		5469.36	57.69	-10.61	68.3	47.36	35.14	8.39	33.2	112	22	P	V
	!	5460	48.64	-5.36	54	38.32	35.15	8.37	33.2	112	22	A	V
	*	5520	102.12	-	-	91.77	35.09	8.45	33.19	112	22	P	V
	*	5520	95.43	-	-	85.08	35.09	8.45	33.19	112	22	A	V
		5762.28	52.96	-21.04	74	42.65	34.89	8.59	33.17	112	22	P	V
		5741.32	44.5	-9.5	54	34.17	34.91	8.59	33.17	112	22	A	V
802.11ac VHT80 CH 122 5610MHz		5462.96	51.82	-16.48	68.3	41.49	35.14	8.39	33.2	100	8	P	H
		5429.36	44.86	-9.14	54	34.57	35.16	8.34	33.21	100	8	A	H
	*	5622	105.3	-	-	94.91	35.01	8.56	33.18	100	8	P	H
	*	5622	98.62	-	-	88.23	35.01	8.56	33.18	100	8	A	H
		5725.24	54.55	-19.45	74	44.22	34.92	8.58	33.17	100	8	P	H
		5726.28	46.28	-7.72	54	35.95	34.92	8.58	33.17	100	8	A	H
		5466.16	54.54	-13.76	68.3	44.21	35.14	8.39	33.2	100	91	P	V
		5457.36	46.62	-7.38	54	36.3	35.15	8.37	33.2	100	91	A	V
	*	5620	112.05	-	-	101.66	35.01	8.56	33.18	100	91	P	V
	*	5620	105.14	-	-	94.75	35.01	8.56	33.18	100	91	A	V
		5728.6	57.69	-16.31	74	47.36	34.92	8.58	33.17	100	91	P	V
	!	5725.24	49.52	-4.48	54	39.19	34.92	8.58	33.17	100	91	A	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+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		11060	47.5	-26.5	74	47.66	38.98	13.28	52.42	100	360	P	H
CH 106 5530MHz		11060	48.23	-25.77	74	48.39	38.98	13.28	52.42	100	360	P	V
802.11ac VHT80		11220	47.86	-26.14	74	48.04	39.09	13.15	52.42	100	360	P	H
CH 122 5610MHz		11220	48.4	-25.6	74	48.58	39.09	13.15	52.42	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



BLE + WLAN 5G Simultaneous TX

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)
BLE CH 39 2480M + 802.11ac VHT40 CH 62 5310MHz		2484.04	55.13	-18.87	74	52.22	31.44	5.75	34.28	101	131	P	H
	!	2483.5	43.53	-10.47	54	40.62	31.44	5.75	34.28	101	131	A	H
	*	2480	95.63	-	-	92.72	31.44	5.75	34.28	101	131	P	H
		5305	94.56	-	-	84.37	35.27	8.15	33.23	101	131	P	H
		2480	95.13	-	-	92.22	31.44	5.75	34.28	101	131	A	H
		5305	86.78	-	-	76.59	35.27	8.15	33.23	101	131	A	H
		2483.68	55.51	-18.49	74	52.6	31.44	5.75	34.28	383	100	P	V
		2483.5	43.45	-10.55	54	40.54	31.44	5.75	34.28	383	100	A	V
		2480	96.48	-	-	93.57	31.44	5.75	34.28	383	100	P	V
		5320	99.64	-	-	89.44	35.26	8.17	33.23	383	100	P	V
		2480	96.03	-	-	93.12	31.44	5.75	34.28	383	100	A	V
		5305	92.03	-	-	81.84	35.27	8.15	33.23	383	100	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)
802.11ac VHT40 CH 62 5310MHz + BLE CH 39 2480M		5141.76	52.88	-21.12	74	42.75	35.39	7.99	33.25	300	360	P	H
	!	5102.4	43.74	-10.26	54	33.58	35.43	7.99	33.26	300	360	A	H
	*	2480	86.15	-	-	83.24	31.44	5.75	34.28	300	360	P	H
		2480	85.13	-	-	82.22	31.44	5.75	34.28	300	360	A	H
		5315	96.25	-	-	86.05	35.26	8.17	33.23	300	360	P	H
		5315	88.66	-	-	78.46	35.26	8.17	33.23	300	360	A	H
		5365.6	54.43	-19.57	74	44.18	35.22	8.25	33.22	300	360	P	H
		5350.2	45.71	-8.29	54	35.48	35.23	8.22	33.22	300	360	A	H
		5122.24	53.74	-20.26	74	43.59	35.42	7.99	33.26	318	102	P	V
		5132.32	43.87	-10.13	54	33.73	35.41	7.99	33.26	318	102	A	V
		2480	95.86	-	-	92.95	31.44	5.75	34.28	318	102	P	V
		2480	94.93	-	-	92.02	31.44	5.75	34.28	318	102	A	V
		5300	101.03	-	-	90.84	35.27	8.15	33.23	318	102	P	V
		5300	93.19	-	-	83	35.27	8.15	33.23	318	102	A	V
		5358.2	59.88	-14.12	74	49.65	35.23	8.22	33.22	318	102	P	V
	*	5350.2	48.57	-5.43	54	38.34	35.23	8.22	33.22	318	102	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)
BLE		4960	42.1	-31.9	74	63.32	35.54	7.97	64.73	100	360	P	H
CH 39		7440	42.92	-31.08	74	62.46	35.97	9.57	65.08	100	360	P	H
2480M		10620	43.85	-30.15	74	58.65	38.66	12.51	65.97	100	360	P	H
+ 802.11ac		4960	44.03	-29.97	74	65.25	35.54	7.97	64.73	100	360	P	V
VHT40		7440	42.05	-31.95	74	61.59	35.97	9.57	65.08	100	360	P	V
CH 62		10620	44.46	-29.54	74	59.26	38.66	12.51	65.97	100	360	P	V
5310MHz													
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

WIFI 802.11ac Band 2 VHT40 (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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11ac VHT40 LF		30	26.4	-13.6	40	30.63	26.3	0.57	31.1	100	69	P	H
		75.59	24.35	-15.65	40	40.09	14.73	0.93	31.4	-	-	P	H
		148.34	27.35	-16.15	43.5	39.61	17.32	1.31	30.89	-	-	P	H
		170.65	25.57	-17.93	43.5	38.49	16.64	1.42	30.98	-	-	P	H
		256.01	25.06	-20.94	46	36.46	18.1	1.74	31.24	-	-	P	H
		460.68	25.04	-20.96	46	30.79	23.47	2.38	31.6	-	-	P	H
		32.91	34.83	-5.17	40	41.71	23.55	0.61	31.04	-	-	P	V
		43.58	33.92	-6.08	40	46.9	17.66	0.72	31.36	100	236	P	V
		69.77	30.05	-9.95	40	47.06	13.5	0.89	31.4	-	-	P	V
		96.93	29.71	-13.79	43.5	41.9	17.5	1.07	30.76	-	-	P	V
		191.02	20.26	-23.24	43.5	33.85	15.98	1.49	31.06	-	-	P	V
		595.51	25.67	-20.33	46	29.04	25.43	2.7	31.5	-	-	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 not under limit 6dB .
P/A	P eak or A verage
H/V	H orizontal or V ertical



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

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. 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)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

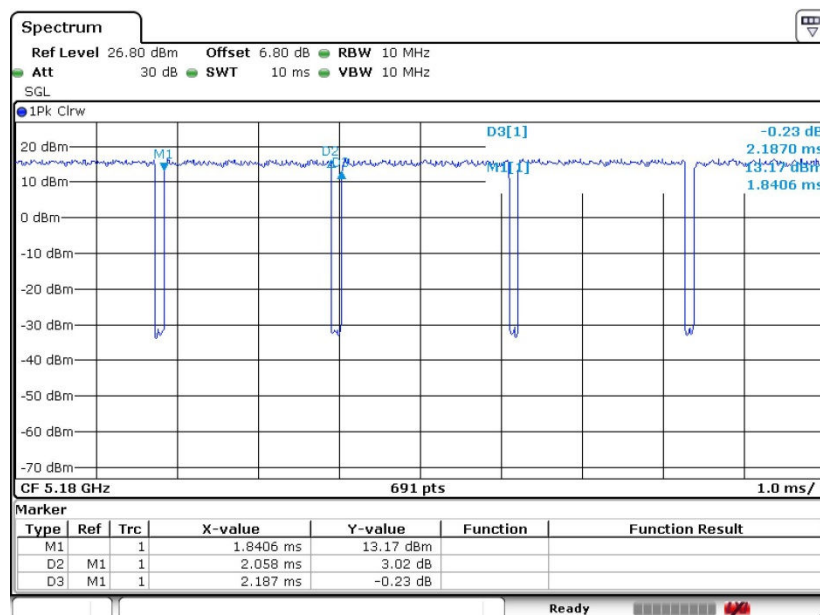
= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

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

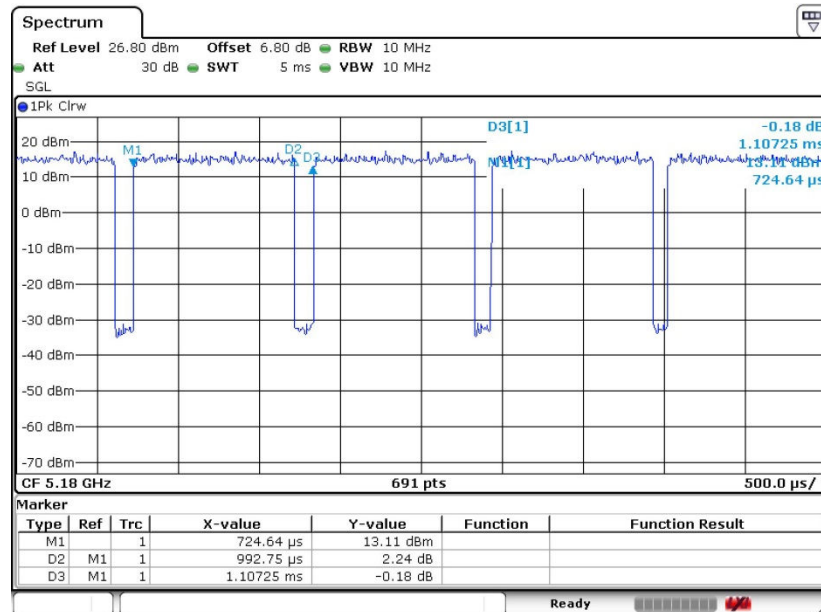
Appendix D. Duty Cycle Plots

Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
1+2	802.11a	94.10	2.058	0.486	1kHz
1+2	802.11ac VHT20	89.66	0.993	1.007	3kHz
1+2	802.11ac VHT40	83.98	0.501	1.994	3kHz
1+2	802.11ac VHT80	71.20	0.258	3.876	10kHz

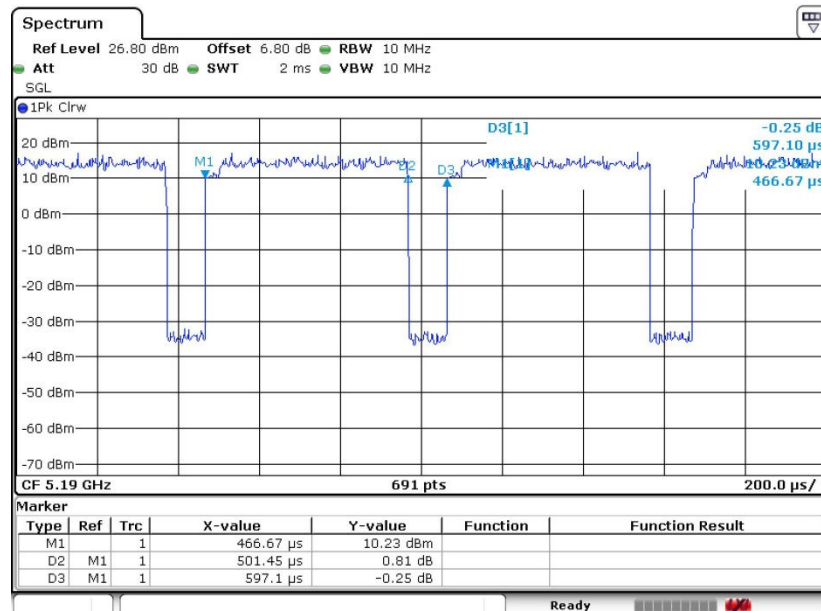
802.11a Ant. 1+2




802.11ac VHT20 Ant. 1+2



802.11ac VHT40 Ant. 1+2





802.11ac VHT80 Ant. 1+2

