FCC RF Test Report

APPLICANT	:	Luxottica Group S.p.A
EQUIPMENT	:	Ray-Ban Stories
BRAND NAME	:	Ray Ban
MODEL NAME	:	RW4002, RW4003, RW4004, RW4005
FCC ID	:	2AYOA-4002
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure

The product was received on Jan. 08, 2021 and testing was completed on Jan. 30, 2021. We, Sporton International (Shenzhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Derreck Chen / Supervisor

Approved by: Eric Shih / Manager

ACCREDITED
Cert #5145.01

Sporton International (ShenZhen) Inc.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR110802D	Rev. 01	Initial issue of report	May 24, 2021

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	N/A	Report only
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 3.95 dB at 5150.000 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 22.02 dB at 0.200 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	N/A	-

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

Luxottica Group S.p.A
Piazzale Cadorna 3, 20123 Milano

1.2 Manufacturer

Luxottica Tristar (Dongguan) Optical Co., Ltd.
Oudeng Zone, Gaobu Town, Dongguan City, Guangdong Province 523268, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Ray-Ban Stories
Brand Name	Ray Ban
Model Name	RW4002, RW4003, RW4004, RW4005
FCC ID	2AYOA-4002
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20 WLAN 5GHz 802.11ac VHT20 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The manufacturer declares that all the equipment and models share the same radio characteristics and Software/Firmware, the only differences between each of them are color of frames, lenses, and sizes which certainly do not affect the test results. Therefore, the test is mainly performed on the Model RW4002 as a representative for the others.
3. The device has two power states, one is SoftAP mode (non-charging mode) with low rated RF power and SoftAP mode will disable 5G bands (U-NII-1, U-NII-2A, U-NII-2C), another is STA mode (charging mode) with high rated RF power. This report test STA mode (charging mode) with high rated RF power.

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	**<5180 MHz ~ 5240 MHz>** 802.11a : 15.06 dBm / 0.0321 W 802.11n HT20 : 14.07 dBm / 0.0255 W 802.11ac VHT20 : 11.99 dBm / 0.0158 W **<5260 MHz ~ 5320 MHz>** 802.11a : 15.27 dBm / 0.0337 W 802.11n HT20 : 14.40 dBm / 0.0275 W 802.11ac VHT20 : 12.07 dBm / 0.0161 W **<5500 MHz ~ 5720 MHz >** 802.11a : 15.27 dBm / 0.0337 W 802.11n HT20 : 14.07 dBm / 0.0255 W 802.11ac VHT20 : 12.01 dBm / 0.0159 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** 802.11a : 17.33 MHz 802.11n HT20 : 18.48 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 17.58 MHz 802.11n HT20 : 18.43 MHz **<5500 MHz ~ 5720 MHz >** 802.11a : 17.48 MHz 802.11n HT20 : 18.43 MHz
Antenna Type / Gain	**<5150 MHz ~ 5250 MHz>** PCBA Antenna with gain 1.3 dBi **<5250 MHz ~ 5350 MHz>** PCBA Antenna with gain 2.0 dBi **<5470 MHz ~ 5725 MHz>** PCBA Antenna with gain 2.8 dBi
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 mode, the whole testing have assessed only 802.11n HT20 by referring to the higher 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	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-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 (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
	40	5200	48	5240

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2 (U-NII-2A)	52	5260	60	5300
	56	5280	64	5320

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3 (U-NII-2C)	100	5500	112	5560
			116	5580
	104	5520	132	5660
	108	5540	136	5680
			140	5700

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
TDWR Channel			124	5620
	120	5600		
			128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel			144	5720

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**

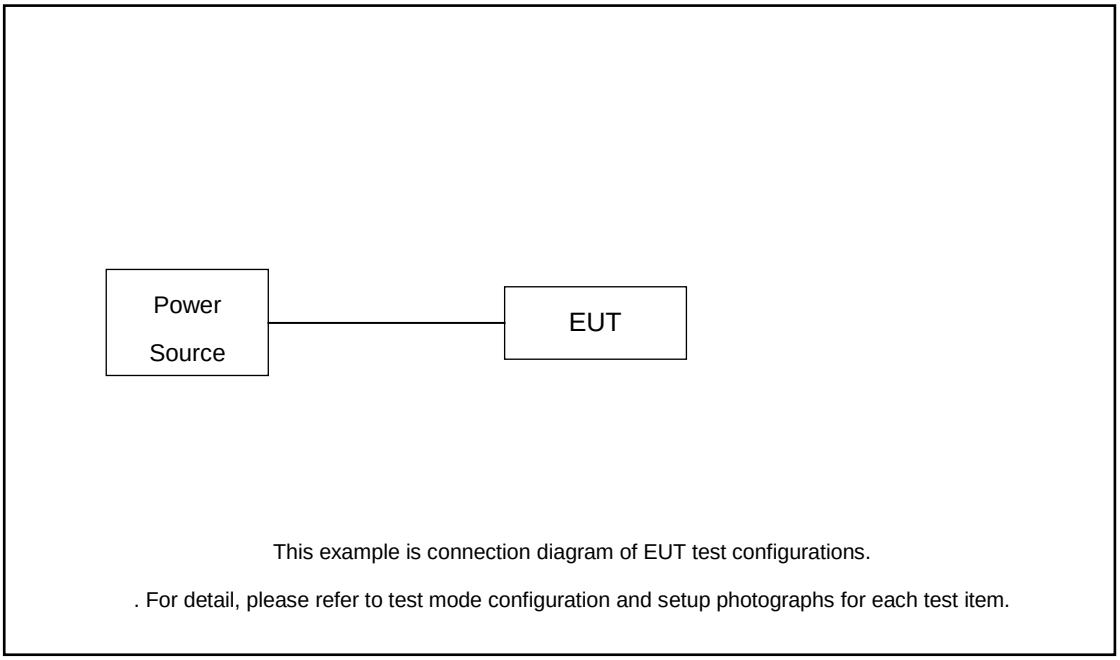
Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link to Mobile Phone + 5G Wifi Link to WLAN AP + Type C USB cable + EUT with Titan Charging Case + Charging from Apple power adapter(18W) for Sample 1
Remark: For Radiated Test Cases, The tests were performance with apple power adapter.	

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
Straddle		-	-	144

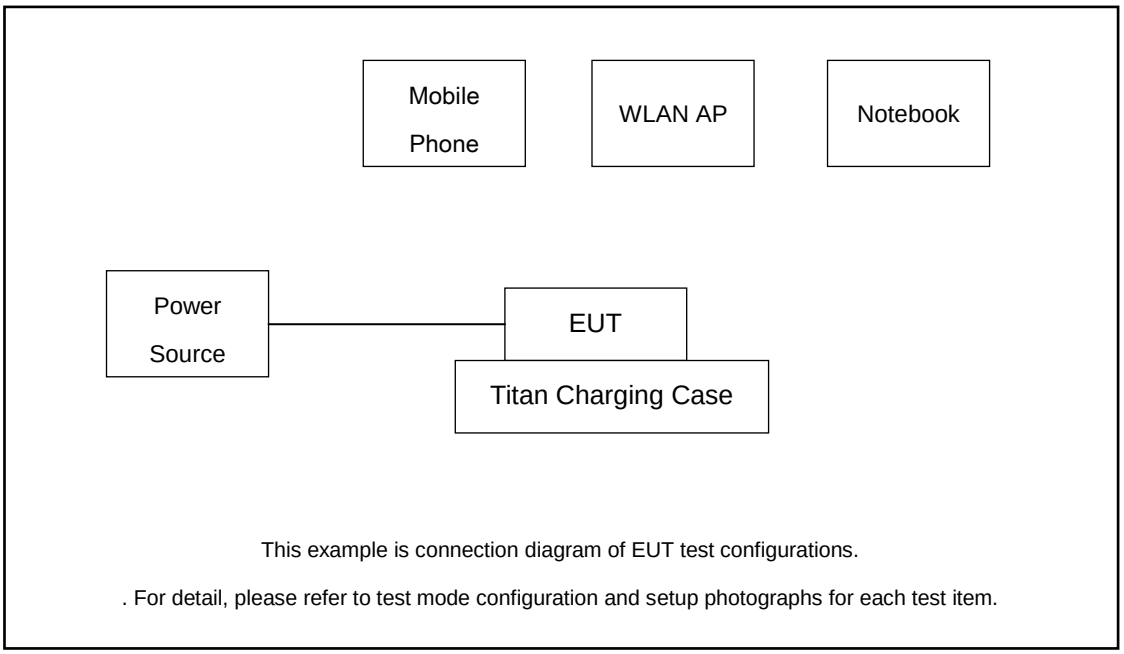
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725MHz
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140
Straddle		-	-	144

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.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Mobile Phone	N/A	N/A	N/A	N/A	N/A
4.	USB cable	N/A	N/A	N/A	N/A	N/A
5.	apple adapter	N/A	N/A	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.

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 2.8 dB and 20dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 2.8 + 20 = 22.8 (dB)

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.

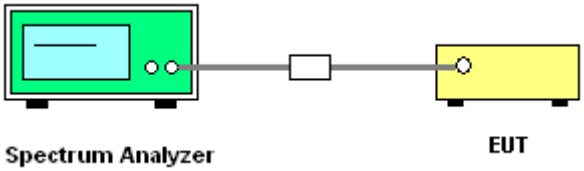
3.1.2 Measuring Instruments

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 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

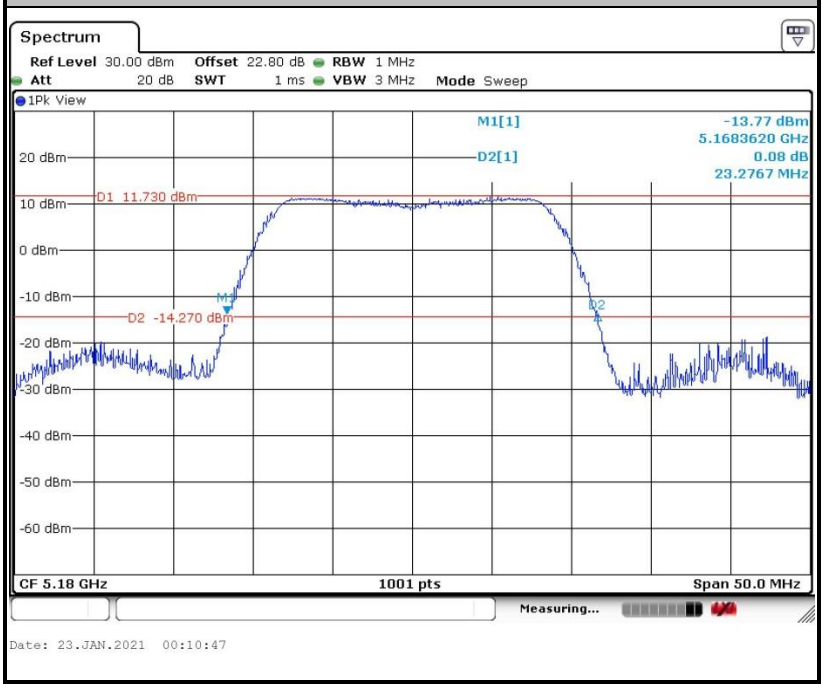
3.1.4 Test Setup



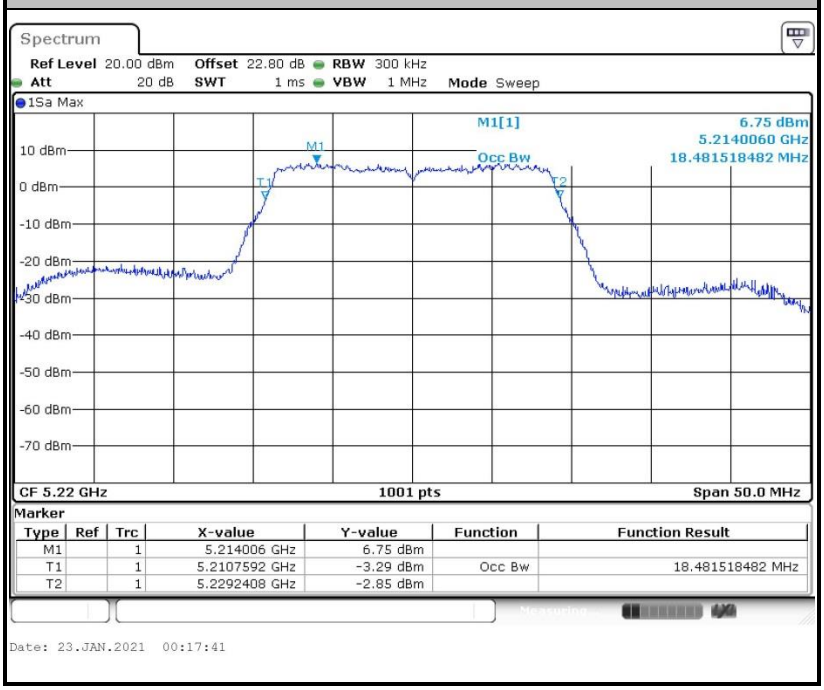
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

Maximum 26dB Bandwidth



Maximum 99% Occupied Bandwidth



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

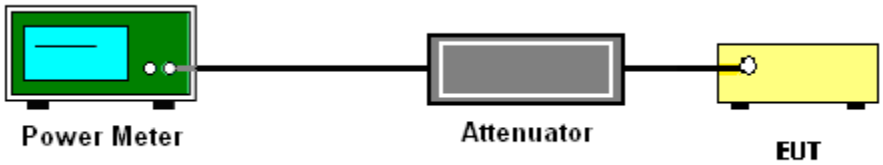
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

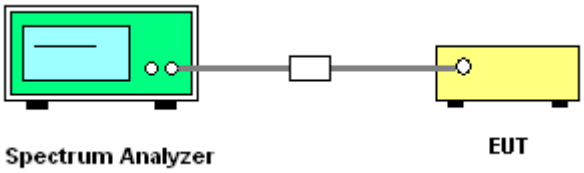
 # Method SA-2 #

(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 ≥ 3 MHz.
- Number of points in sweep ≥ 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.

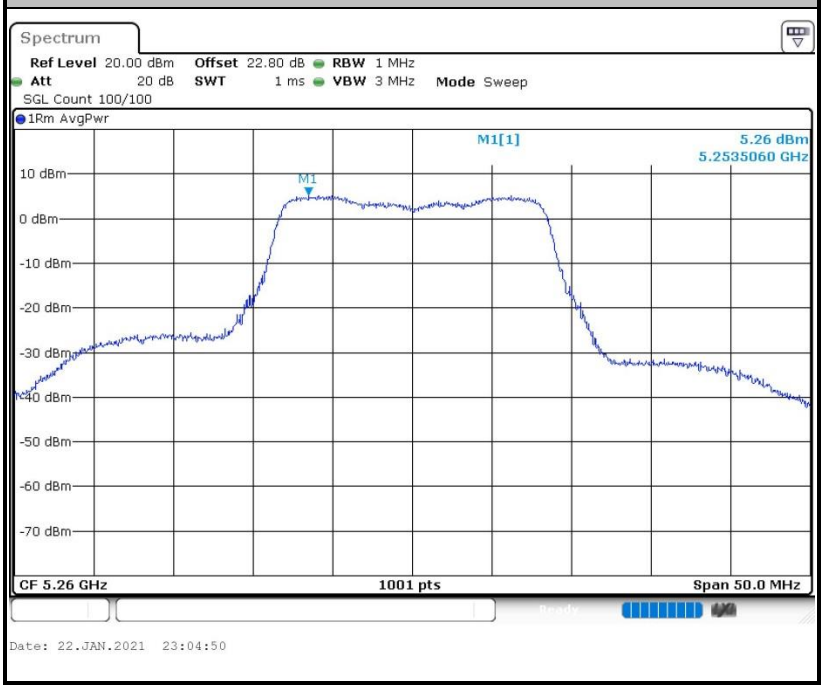
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/MHz)



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

3.4 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 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 ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

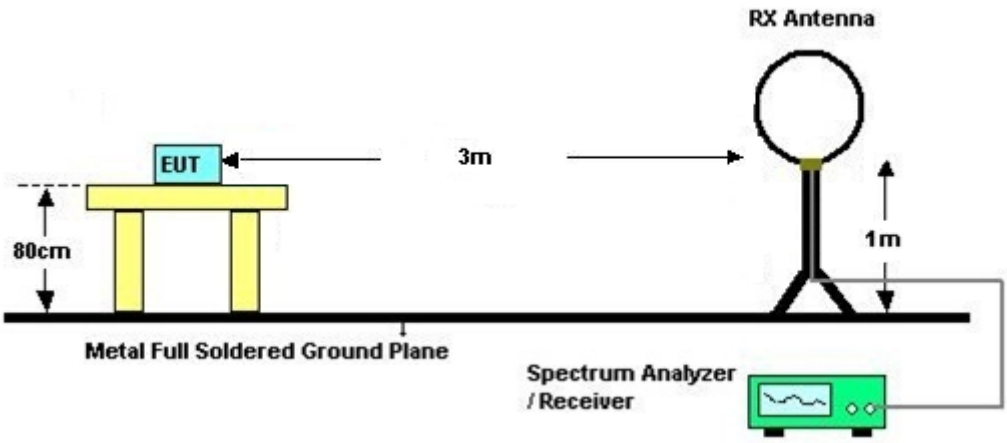
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

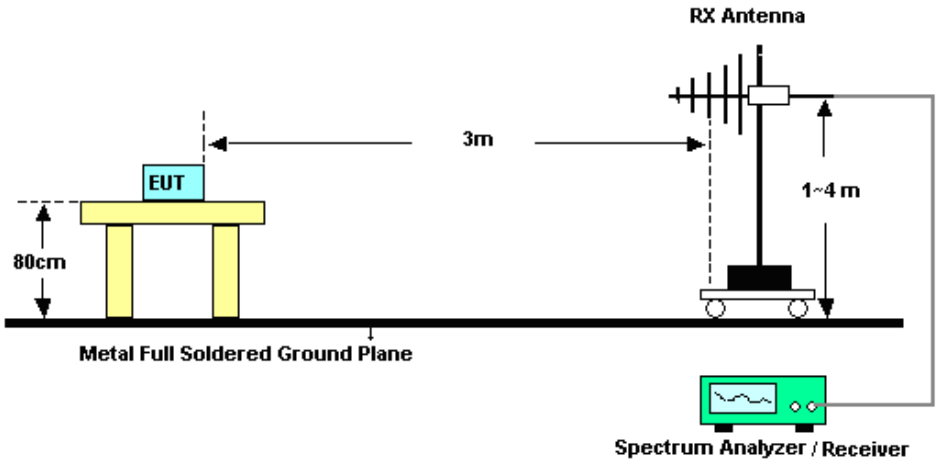
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

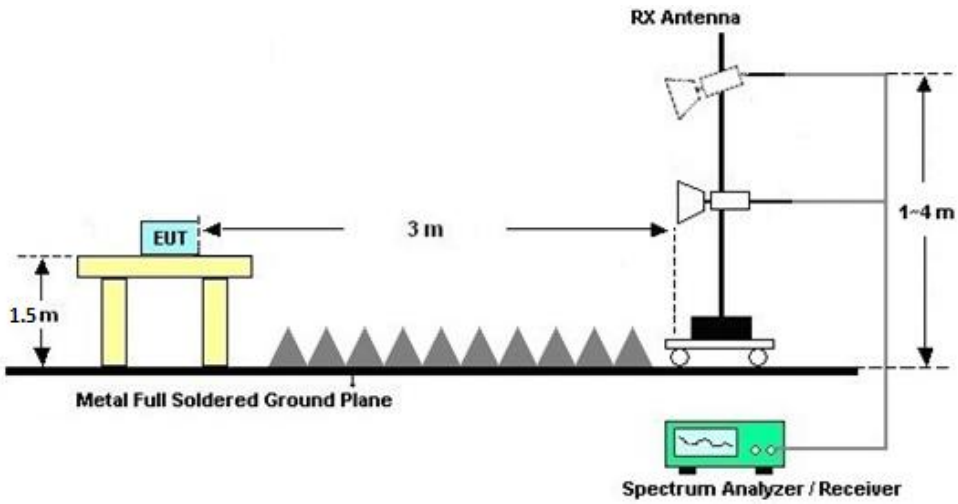
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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 or 40GHz, whichever is lower)

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

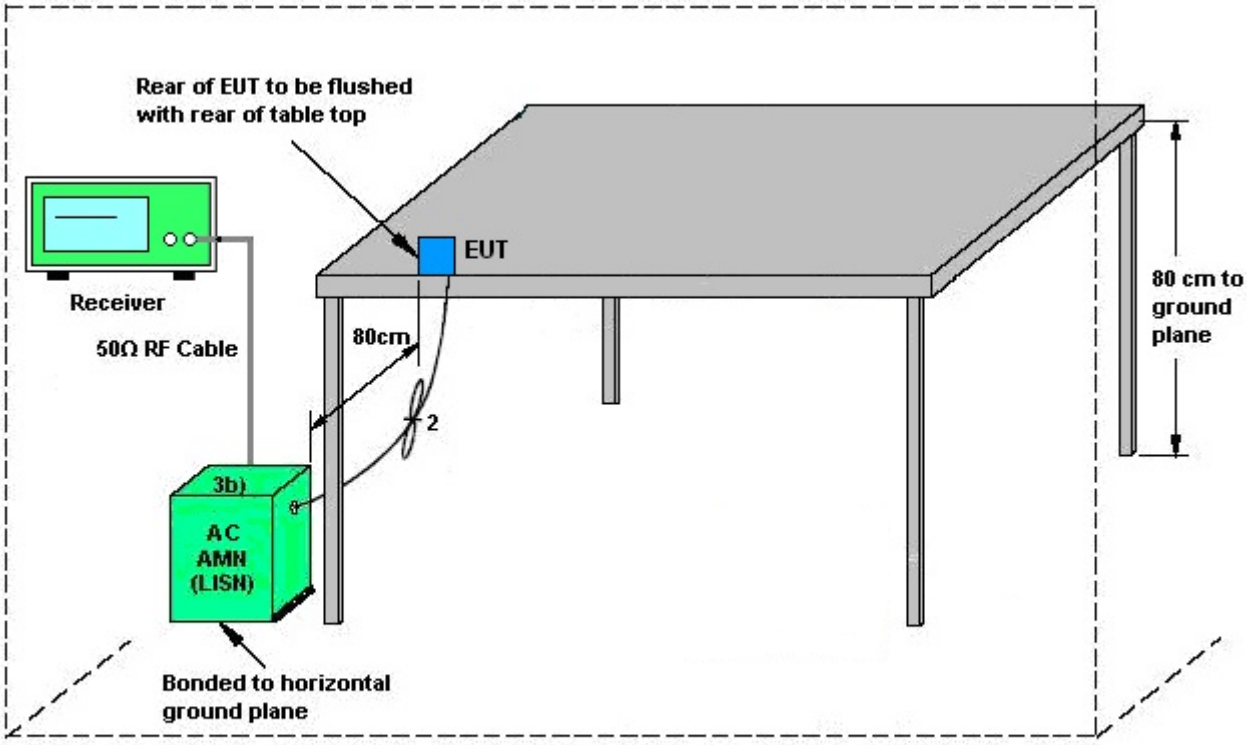
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

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. 17, 2020	Jan. 22, 2021~ Jan. 23, 2021	Apr. 16, 2021	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1207253	30MHz~40GHz	Dec. 25, 2020	Jan. 22, 2021~ Jan. 23, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Dec. 25, 2020	Jan. 22, 2021~ Jan. 23, 2021	Dec. 24, 2021	Conducted (TH01-SZ)
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Oct. 16, 2020	Jan. 27, 2021	Oct. 15, 2021	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 21, 2020	Jan. 27, 2021	Jul. 20, 2021	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 22, 2020	Jan. 27, 2021	Jun. 21, 2021	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	Nov. 07, 2020	Jan. 27, 2021	Nov. 06, 2021	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	May 23, 2020	Jan. 27, 2021	May 22, 2021	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	Jul. 26, 2020	Jan. 27, 2021	Jul. 25, 2021	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 16, 2020	Jan. 27, 2021	Oct. 15, 2021	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 17, 2020	Jan. 27, 2021	Oct. 16, 2021	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 21, 2020	Jan. 27, 2021	Jul. 20, 2021	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY53270156	500MHz~26.5GHz	Oct. 17, 2020	Jan. 27, 2021	Oct. 16, 2021	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Jan. 27, 2021	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jan. 27, 2021	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jan. 27, 2021	NCR	Radiation (03CH04-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Dec. 25, 2020	Jan. 30, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2 LISN	00103912	9kHz~30MHz	Dec. 25, 2020	Jan. 30, 2021	Dec. 24, 2021	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 15, 2020	Jan. 30, 2021	Oct. 14, 2021	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 21, 2020	Jan. 30, 2021	Jul. 20, 2021	Conduction (CO01-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

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

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

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8dB**

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

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

Appendix A. Conducted Test Results

Report Number : FR110802D

Test Engineer:	Chen Hong	Temperature:	21~25	°C
Test Date:	2021/1/22~2021/1/23	Relative Humidity:	51~54	%

Report Number : FR110802D

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	NTX	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	17.28	22.93	-	22.38		
11a	6Mbps	1	44	5220	17.28	22.83	-	22.38		
11a	6Mbps	1	48	5240	17.33	22.83	-	22.39		
HT20	MCS0	1	36	5180	18.23	23.28	-	22.61		
HT20	MCS0	1	44	5220	18.48	23.18	-	22.67		
HT20	MCS0	1	48	5240	18.28	22.93	-	22.62		

Report Number : FR110802D

TEST RESULTS DATA
Average Power Table

FCC Band I										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	0.09	15.02	24.00	1.30		Pass
11a	6Mbps	1	44	5220	0.09	14.99	24.00	1.30		Pass
11a	6Mbps	1	48	5240	0.09	15.06	24.00	1.30		Pass
HT20	MCS0	1	36	5180	0.09	14.07	24.00	1.30		Pass
HT20	MCS0	1	44	5220	0.09	13.98	24.00	1.30		Pass
HT20	MCS0	1	48	5240	0.09	14.01	24.00	1.30		Pass
VHT20	MCS0	1	36	5180	0.09	11.96	24.00	1.30		Pass
VHT20	MCS0	1	44	5220	0.09	11.99	24.00	1.30		Pass
VHT20	MCS0	1	48	5240	0.09	11.91	24.00	1.30		Pass

Report Number : FR110802D

TEST RESULTS DATA
Power Spectral Density

FCC Band I										
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	6Mbps	1	36	5180	0.09	4.56	11.00	1.30		Pass
11a	6Mbps	1	44	5220	0.09	4.65	11.00	1.30		Pass
11a	6Mbps	1	48	5240	0.09	4.60	11.00	1.30		Pass
HT20	MCS0	1	36	5180	0.09	3.35	11.00	1.30		Pass
HT20	MCS0	1	44	5220	0.09	3.56	11.00	1.30		Pass
HT20	MCS0	1	48	5240	0.09	3.52	11.00	1.30		Pass

Report Number : FR110802D

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	17.58	23.03	23.45	29.45	23.98	
11a	6M bps	1	60	5300	17.33	22.98	23.39	29.39	23.98	
11a	6M bps	1	64	5320	17.28	22.83	23.38	29.38	23.98	
HT20	MCS 0	1	52	5260	18.33	23.13	23.63	29.63	23.98	
HT20	MCS 0	1	60	5300	18.43	23.03	23.66	29.66	23.98	
HT20	MCS 0	1	64	5320	18.33	23.08	23.63	29.63	23.98	

Report Number : FR110802D

TEST RESULTS DATA
Average Power Table

FCC Band II									
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	0.09	15.27	2.00	26.99	Pass
11a	6M bps	1	60	5300	0.09	15.21	2.00	26.99	Pass
11a	6M bps	1	64	5320	0.09	15.23	2.00	26.99	Pass
HT20	MCS 0	1	52	5260	0.09	14.38	2.00	26.99	Pass
HT20	MCS 0	1	60	5300	0.09	14.40	2.00	26.99	Pass
HT20	MCS 0	1	64	5320	0.09	14.23	2.00	26.99	Pass
VHT20	MCS 0	1	52	5260	0.09	12.07	2.00	26.99	Pass
VHT20	MCS 0	1	60	5300	0.09	12.02	2.00	26.99	Pass
VHT20	MCS 0	1	64	5320	0.09	12.05	2.00	26.99	Pass

Report Number : FR110802D

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	0.09	5.35	11.00	2.00		Pass
11a	6M bps	1	60	5300	0.09	5.21	11.00	2.00		Pass
11a	6M bps	1	64	5320	0.09	4.87	11.00	2.00		Pass
HT20	MCS 0	1	52	5260	0.09	3.97	11.00	2.00		Pass
HT20	MCS 0	1	60	5300	0.09	3.72	11.00	2.00		Pass
HT20	MCS 0	1	64	5320	0.09	3.83	11.00	2.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band III										
Mod.	Data Rate	NTX	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	17.48	22.98	23.43	29.43	23.98	
11a	6M bps	1	116	5580	17.48	23.13	23.43	29.43	23.98	
11a	6M bps	1	140	5700	17.43	23.03	23.41	29.41	23.98	
11a	6Mbps	1	144	5720	17.28	22.93	23.38	29.38	23.98	
HT20	MCS 0	1	100	5500	18.28	23.13	23.62	29.62	23.98	
HT20	MCS 0	1	116	5580	18.28	23.08	23.62	29.62	23.98	
HT20	MCS 0	1	140	5700	18.43	22.83	23.66	29.66	23.98	
HT20	MCS0	1	144	5720	18.38	23.13	23.64	29.64	23.98	

Report Number : FR110802D

TEST RESULTS DATA
Average Power Table

FCC Band III									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	0.09	15.06	2.80	26.99	Pass
11a	6M bps	1	116	5580	0.09	15.27	2.80	26.99	Pass
11a	6M bps	1	140	5700	0.09	14.62	2.80	26.99	Pass
11a	6M bps	1	144	5720	0.09	14.99	2.80	26.99	Pass
HT20	MCS 0	1	100	5500	0.09	13.94	2.80	26.99	Pass
HT20	MCS 0	1	116	5580	0.09	14.07	2.80	26.99	Pass
HT20	MCS 0	1	140	5700	0.09	14.02	2.80	26.99	Pass
HT20	MCS 0	1	144	5720	0.09	13.99	2.80	26.99	Pass
VHT20	MCS 0	1	100	5500	0.09	11.96	2.80	26.99	Pass
VHT20	MCS 0	1	116	5580	0.09	12.01	2.80	26.99	Pass
VHT20	MCS 0	1	140	5700	0.09	11.96	2.80	26.99	Pass
VHT20	MCS 0	1	144	5720	0.09	11.94	2.80	26.99	Pass

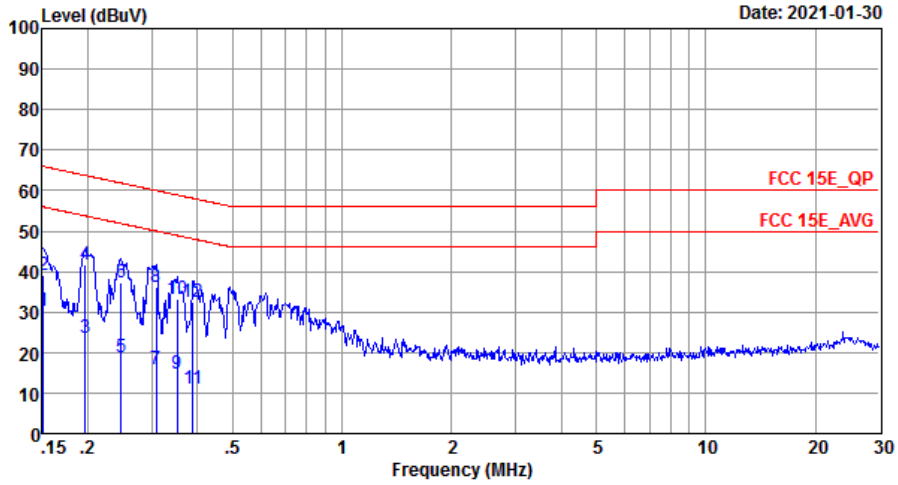
Report Number : FR110802D

TEST RESULTS DATA
Power Spectral Density

Band III										
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	6M bps	1	100	5500	0.09	4.73	11.00	2.80		Pass
11a	6M bps	1	116	5580	0.09	4.36	11.00	2.80		Pass
11a	6M bps	1	140	5700	0.09	4.18	11.00	2.80		Pass
11a	6Mbps	1	144	5720	0.09	4.40	11.00	2.80		Pass
HT20	MCS 0	1	100	5500	0.09	3.24	11.00	2.80		Pass
HT20	MCS 0	1	116	5580	0.09	3.58	11.00	2.80		Pass
HT20	MCS 0	1	140	5700	0.09	3.20	11.00	2.80		Pass
HT20	MCS0	1	144	5720	0.09	2.97	11.00	2.80		Pass

Appendix B. AC Conducted Emission Test Results

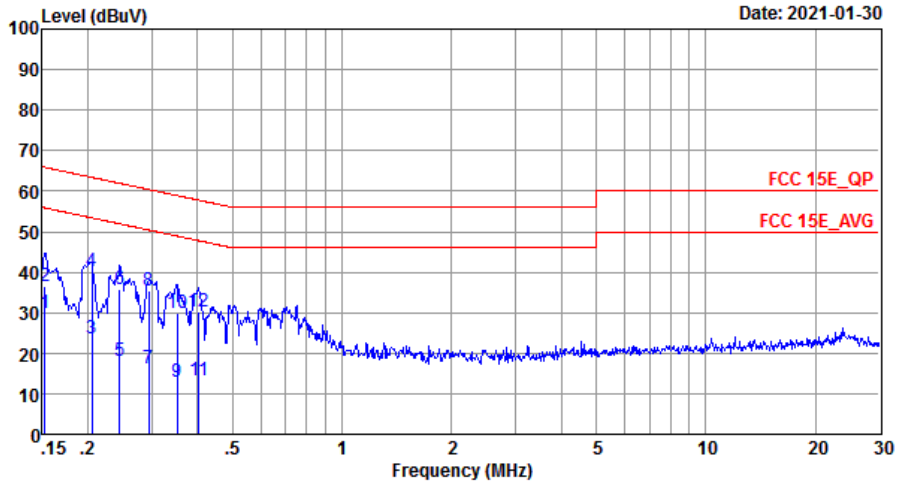
Test Engineer :	Xie YuQiang	**Temperature :**	22~25℃
		Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20200719_L LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.15	30.14	-25.82	55.96	20.10	0.03	10.01	Average
2		0.15	39.04	-26.92	65.96	29.00	0.03	10.01	QP
3		0.20	23.74	-30.02	53.76	13.70	0.03	10.01	Average
4	*	0.20	41.74	-22.02	63.76	31.70	0.03	10.01	QP
5		0.25	18.94	-32.92	51.86	8.90	0.03	10.01	Average
6		0.25	37.24	-24.62	61.86	27.20	0.03	10.01	QP
7		0.31	15.84	-34.18	50.02	5.80	0.03	10.01	Average
8		0.31	36.34	-23.68	60.02	26.30	0.03	10.01	QP
9		0.35	14.64	-34.27	48.91	4.60	0.03	10.01	Average
10		0.35	33.14	-25.77	58.91	23.10	0.03	10.01	QP
11		0.39	11.04	-37.04	48.08	1.00	0.03	10.01	Average
12		0.39	32.54	-25.54	58.08	22.50	0.03	10.01	QP

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



Site : CO01-SZ
Condition: FCC 15E_QP LISN_20200719_N NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.15	29.74	-26.13	55.87	19.70	0.03	10.01	Average
2		0.15	36.64	-29.23	65.87	26.60	0.03	10.01	QP
3		0.21	23.54	-29.86	53.40	13.50	0.03	10.01	Average
4	*	0.21	40.04	-23.36	63.40	30.00	0.03	10.01	QP
5		0.24	18.24	-33.71	51.95	8.20	0.03	10.01	Average
6		0.24	35.84	-26.11	61.95	25.80	0.03	10.01	QP
7		0.29	16.34	-34.07	50.41	6.30	0.03	10.01	Average
8		0.29	35.34	-25.07	60.41	25.30	0.03	10.01	QP
9		0.35	12.93	-35.98	48.91	2.90	0.02	10.01	Average
10		0.35	30.03	-28.88	58.91	20.00	0.02	10.01	QP
11		0.40	13.23	-34.54	47.77	3.20	0.02	10.01	Average
12		0.40	30.43	-27.34	57.77	20.40	0.02	10.01	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		5149.76	66.83	-7.17	74	59.08	31.8	8.51	32.56	100	126	P	H
		5150	49.81	-4.19	54	42.06	31.8	8.51	32.56	100	126	A	H
		5180	103.86	-	-	95.99	31.86	8.58	32.57	100	126	P	H
		5180	96.73	-	-	88.86	31.86	8.58	32.57	100	126	A	H
		5147.42	64.83	-9.17	74	57.09	31.79	8.51	32.56	100	276	P	V
		5150	50.05	-3.95	54	42.3	31.8	8.51	32.56	100	276	A	V
		5180	104.78	-	-	96.91	31.86	8.58	32.57	100	276	P	V
		5180	97.54	-	-	89.67	31.86	8.58	32.57	100	276	A	V
802.11a CH 44 5220MHz		5095.94	49.38	-24.62	74	41.8	31.69	8.43	32.54	100	129	P	H
		5150	39.23	-14.77	54	31.48	31.8	8.51	32.56	100	129	A	H
		5220	103.15	-	-	95.21	31.87	8.65	32.58	100	129	P	H
		5220	97.08	-	-	89.14	31.87	8.65	32.58	100	129	A	H
		5387.52	49.16	-24.84	74	40.54	31.62	9.66	32.66	100	129	P	H
		5458.8	39	-15	54	30.23	31.78	9.68	32.69	100	129	A	H
		5027.82	49.54	-24.46	74	42.2	31.56	8.29	32.51	100	270	P	V
		5149.76	39.41	-14.59	54	31.66	31.8	8.51	32.56	100	270	A	V
		5220	103.82	-	-	95.88	31.87	8.65	32.58	100	270	P	V
		5220	97.18	-	-	89.24	31.87	8.65	32.58	100	270	A	V
		5419.44	48.56	-25.44	74	39.91	31.66	9.66	32.67	100	270	P	V
		5459.28	39	-15	54	30.23	31.78	9.68	32.69	100	270	A	V

802.11a CH 48 5240MHz		5126.1	48.95	-25.05	74	41.24	31.75	8.51	32.55	107	126	P	H
		5016.9	38.94	-15.06	54	31.63	31.53	8.29	32.51	107	126	A	H
		5240	103.38	-	-	95.28	31.84	8.85	32.59	107	126	P	H
		5240	97.55	-	-	89.45	31.84	8.85	32.59	107	126	A	H
		5428.8	49.86	-24.14	74	41.17	31.69	9.68	32.68	107	126	P	H
		5457.84	38.83	-15.17	54	30.07	31.77	9.68	32.69	107	126	A	H
		5035.62	49.05	-24.95	74	41.7	31.57	8.29	32.51	100	270	P	V
		5084.24	39.1	-14.9	54	31.53	31.67	8.43	32.53	100	270	A	V
		5240	104.61	-	-	96.51	31.84	8.85	32.59	100	270	P	V
		5240	97.75	-	-	89.65	31.84	8.85	32.59	100	270	A	V
		5412.24	48.78	-25.22	74	40.15	31.64	9.66	32.67	100	270	P	V
		5459.76	38.98	-15.02	54	30.21	31.78	9.68	32.69	100	270	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	47.21	-21.09	68.3	47.03	39.58	12.06	51.46	122	255	P	H
		15540	47.15	-26.85	74	46.23	38.87	14.59	52.54	169	232	P	H
		10360	47.01	-21.29	68.3	46.83	39.58	12.06	51.46	152	260	P	V
		15540	47.7	-26.3	74	46.78	38.87	14.59	52.54	189	238	P	V
802.11a CH 44 5220MHz		10440	47.15	-21.15	68.3	46.71	39.7	12.12	51.38	116	226	P	H
		15660	47.67	-26.33	74	46.89	38.49	14.64	52.35	100	0	P	H
		10440	47.61	-20.69	68.3	47.17	39.7	12.12	51.38	150	230	P	V
		15660	47.99	-26.01	74	47.21	38.49	14.64	52.35	100	0	P	V
802.11a CH 48 5240MHz		10480	47.48	-20.82	68.3	46.88	39.77	12.15	51.32	142	236	P	H
		15720	47.31	-26.69	74	46.59	38.3	14.66	52.24	146	269	P	H
		10480	47.74	-20.56	68.3	47.14	39.77	12.15	51.32	150	289	P	V
		15720	47.61	-26.39	74	46.89	38.3	14.66	52.24	150	291	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		5147.68	65.79	-8.21	74	58.04	31.8	8.51	32.56	100	135	P	H
		5144.82	49.92	-4.08	54	42.18	31.79	8.51	32.56	100	135	A	H
		5180	101.82	-	-	93.95	31.86	8.58	32.57	100	135	P	H
		5180	93.87	-	-	86	31.86	8.58	32.57	100	135	A	H
		5146.12	60.34	-13.66	74	52.6	31.79	8.51	32.56	231	92	P	V
		5146.12	47.23	-6.77	54	39.49	31.79	8.51	32.56	231	92	A	V
		5180	100	-	-	92.13	31.86	8.58	32.57	231	92	P	V
		5180	93.13	-	-	85.26	31.86	8.58	32.57	231	92	A	V
802.11n HT20 CH 44 5220MHz		5022.1	49.33	-24.67	74	42.01	31.54	8.29	32.51	205	137	P	H
		5099.06	39.78	-14.22	54	32.19	31.7	8.43	32.54	205	137	A	H
		5220	101.37	-	-	93.43	31.87	8.65	32.58	205	137	P	H
		5220	94.19	-	-	86.25	31.87	8.65	32.58	205	137	A	H
		5442.24	48.41	-25.59	74	39.68	31.73	9.68	32.68	205	137	P	H
		5437.92	39.53	-14.47	54	30.82	31.71	9.68	32.68	205	137	A	H
		5119.6	49.16	-24.84	74	41.46	31.74	8.51	32.55	103	101	P	V
		5018.98	39.75	-14.25	54	32.43	31.54	8.29	32.51	103	101	A	V
		5220	102.05	-	-	94.11	31.87	8.65	32.58	103	101	P	V
		5220	94.69	-	-	86.75	31.87	8.65	32.58	103	101	A	V
		5415.36	48.32	-25.68	74	39.68	31.65	9.66	32.67	103	101	P	V
		5457.12	39.66	-14.34	54	30.9	31.77	9.68	32.69	103	101	A	V

802.11n HT20 CH 48 5240MHz		5095.42	48.66	-25.34	74	41.08	31.69	8.43	32.54	205	135	P	H
		5098.02	39.96	-14.04	54	32.37	31.7	8.43	32.54	205	135	A	H
		5240	102.11	-	-	94.01	31.84	8.85	32.59	205	135	P	H
		5240	95.77	-	-	87.67	31.84	8.85	32.59	205	135	A	H
		5432.4	49.41	-24.59	74	40.71	31.7	9.68	32.68	205	135	P	H
		5456.16	39.75	-14.25	54	30.99	31.77	9.68	32.69	205	135	A	H
		5088.4	49.23	-24.77	74	41.65	31.68	8.43	32.53	208	99	P	V
		5096.98	39.89	-14.11	54	32.31	31.69	8.43	32.54	208	99	A	V
		5240	101.56	-	-	93.46	31.84	8.85	32.59	208	99	P	V
		5240	94.37	-	-	86.27	31.84	8.85	32.59	208	99	A	V
		5378.64	48.6	-25.4	74	40.17	31.63	9.46	32.66	208	99	P	V
		5438.88	39.79	-14.21	54	31.07	31.72	9.68	32.68	208	99	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 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		10360	47.26	-21.04	68.3	47.08	39.58	12.06	51.46	122	255	P	H
HT20		15540	47.9	-26.1	74	46.98	38.87	14.59	52.54	169	232	P	H
CH 36		10360	47.38	-20.92	68.3	47.2	39.58	12.06	51.46	152	260	P	V
5180MHz		15540	47.81	-26.19	74	46.89	38.87	14.59	52.54	189	238	P	V
802.11n		10440	47.35	-20.95	68.3	46.91	39.7	12.12	51.38	116	226	P	H
HT20		15660	47.99	-26.01	74	47.21	38.49	14.64	52.35	155	233	P	H
CH 44		10440	47.62	-20.68	68.3	47.18	39.7	12.12	51.38	150	230	P	V
5220MHz		15660	47.62	-26.38	74	46.84	38.49	14.64	52.35	160	225	P	V
802.11n		10480	47.41	-20.89	68.3	46.81	39.77	12.15	51.32	142	236	P	H
HT20		15720	47.26	-26.74	74	46.54	38.3	14.66	52.24	146	269	P	H
CH 48		10480	47.69	-20.61	68.3	47.09	39.77	12.15	51.32	150	289	P	V
5240MHz		15720	47.34	-26.66	74	46.62	38.3	14.66	52.24	150	291	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

Band 2 - 5250~5350MHz

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 52 5260MHz		5134.68	49.18	-24.82	74	41.45	31.77	8.51	32.55	100	128	P	H
		5019.5	39.08	-14.92	54	31.76	31.54	8.29	32.51	100	128	A	H
		5260	104.42	-	-	96.37	31.81	8.85	32.61	100	128	P	H
		5260	97.57	-	-	89.52	31.81	8.85	32.61	100	128	A	H
		5391.6	48.22	-25.78	74	39.61	31.61	9.66	32.66	100	128	P	H
		5460	39.05	-14.95	54	30.28	31.78	9.68	32.69	100	128	A	H
		5002.86	48.38	-25.62	74	41.08	31.51	8.29	32.5	100	103	P	V
		5017.68	39.02	-14.98	54	31.7	31.54	8.29	32.51	100	103	A	V
		5260	103.47	-	-	95.42	31.81	8.85	32.61	100	103	P	V
		5260	97.62	-	-	89.57	31.81	8.85	32.61	100	103	A	V
		5437.44	48.31	-25.69	74	39.6	31.71	9.68	32.68	100	103	P	V
		5458.8	39.01	-14.99	54	30.24	31.78	9.68	32.69	100	103	A	V
802.11a CH 60 5300MHz		5098	49.1	-24.9	74	41.51	31.7	8.43	32.54	242	136	P	H
		5018.2	39.17	-14.83	54	31.85	31.54	8.29	32.51	242	136	A	H
		5300	103.72	-	-	95.55	31.75	9.05	32.63	242	136	P	H
		5300	96.14	-	-	87.97	31.75	9.05	32.63	242	136	A	H
		5357.52	50.09	-23.91	74	41.62	31.66	9.46	32.65	242	136	P	H
		5350.08	40.5	-13.5	54	32.02	31.67	9.46	32.65	242	136	A	H
		5140	48.37	-25.63	74	40.63	31.78	8.51	32.55	242	103	P	V
		5019.25	39.18	-14.82	54	31.86	31.54	8.29	32.51	242	103	A	V
		5300	103.72	-	-	95.55	31.75	9.05	32.63	242	103	P	V
		5300	96.65	-	-	88.48	31.75	9.05	32.63	242	103	A	V
		5350.08	48.47	-25.53	74	39.99	31.67	9.46	32.65	242	103	P	V
		5350.08	40.56	-13.44	54	32.08	31.67	9.46	32.65	242	103	A	V

802.11a CH 64 5320MHz		5320	103.26	-	-	94.91	31.72	9.26	32.63	100	136	P	H
		5320	96.53	-	-	88.18	31.72	9.26	32.63	100	136	A	H
		5350.72	54.16	-19.84	74	45.68	31.67	9.46	32.65	100	136	P	H
		5350.08	46.27	-7.73	54	37.79	31.67	9.46	32.65	100	136	A	H
		5320	103.27	-	-	94.92	31.72	9.26	32.63	101	101	P	V
		5320	95.58	-	-	87.23	31.72	9.26	32.63	101	101	A	V
		5350.56	58.64	-15.36	74	50.16	31.67	9.46	32.65	101	101	P	V
		5350.08	44.48	-9.52	54	36	31.67	9.46	32.65	101	101	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	47.37	-20.93	68.3	46.72	39.82	12.17	51.34	144	213	P	H
		15780	47.97	-26.03	74	47.34	38.1	14.69	52.16	136	142	P	H
		10520	47.01	-21.29	68.3	46.36	39.82	12.17	51.34	150	220	P	V
		15780	47.49	-26.51	74	46.86	38.1	14.69	52.16	159	345	P	V
802.11a CH 60 5300MHz		10600	47.46	-26.54	74	46.84	39.92	12.23	51.53	126	252	P	H
		15900	47.56	-26.44	74	47.06	37.72	14.75	51.97	129	164	P	H
		10600	47.48	-26.52	74	46.86	39.92	12.23	51.53	185	215	P	V
		15900	47.47	-26.53	74	46.97	37.72	14.75	51.97	196	190	P	V
802.11a CH 64 5320MHz		10640	47.71	-26.29	74	47.08	39.97	12.26	51.6	126	139	P	H
		15960	47.65	-26.35	74	47.2	37.53	14.78	51.86	146	263	P	H
		10640	47.41	-26.59	74	46.78	39.97	12.26	51.6	152	135	P	V
		15960	47.28	-26.72	74	46.83	37.53	14.78	51.86	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		5031.2	48.97	-25.03	74	41.63	31.56	8.29	32.51	259	133	P	H
		5080.6	40.05	-13.95	54	32.49	31.66	8.43	32.53	259	133	A	H
		5260	104.24	-	-	96.19	31.81	8.85	32.61	259	133	P	H
		5260	97.2	-	-	89.15	31.81	8.85	32.61	259	133	A	H
		5396.64	48.39	-25.61	74	39.78	31.61	9.66	32.66	259	133	P	H
		5454.72	39.78	-14.22	54	31.03	31.76	9.68	32.69	259	133	A	H
		5114.4	49.17	-24.83	74	41.55	31.73	8.43	32.54	224	102	P	V
		5018.46	39.78	-14.22	54	32.46	31.54	8.29	32.51	224	102	A	V
		5260	101.34	-	-	93.29	31.81	8.85	32.61	224	102	P	V
		5260	95.3	-	-	87.25	31.81	8.85	32.61	224	102	A	V
		5437.68	48.35	-25.65	74	39.64	31.71	9.68	32.68	224	102	P	V
		5445.36	39.62	-14.38	54	30.88	31.74	9.68	32.68	224	102	A	V
802.11n HT20 CH 60 5300MHz		5117.6	48.54	-25.46	74	40.83	31.74	8.51	32.54	258	136	P	H
		5087.85	39.93	-14.07	54	32.35	31.68	8.43	32.53	258	136	A	H
		5300	103.05	-	-	94.88	31.75	9.05	32.63	258	136	P	H
		5300	96.07	-	-	87.9	31.75	9.05	32.63	258	136	A	H
		5354.4	50.84	-23.16	74	42.36	31.67	9.46	32.65	258	136	P	H
		5350.32	40.74	-13.26	54	32.26	31.67	9.46	32.65	258	136	A	H
		5075.95	48.94	-25.06	74	41.39	31.65	8.43	32.53	230	101	P	V
		5094.15	39.8	-14.2	54	32.22	31.69	8.43	32.54	230	101	A	V
		5300	103	-	-	94.83	31.75	9.05	32.63	230	101	P	V
		5300	96.16	-	-	87.99	31.75	9.05	32.63	230	101	A	V
		5413.44	48.56	-25.44	74	39.93	31.64	9.66	32.67	230	101	P	V
		5350.56	41	-13	54	32.52	31.67	9.46	32.65	230	101	A	V

802.11n HT20 CH 64 5320MHz		5320	102.37	-	-	94.02	31.72	9.26	32.63	269	138	P	H
		5320	96.36	-	-	88.01	31.72	9.26	32.63	269	138	A	H
		5351.36	53.65	-20.35	74	45.17	31.67	9.46	32.65	269	138	P	H
		5351.2	45.18	-8.82	54	36.7	31.67	9.46	32.65	269	138	A	H
		5320	102.55	-	-	94.2	31.72	9.26	32.63	228	100	P	V
		5320	96.91	-	-	88.56	31.72	9.26	32.63	228	100	A	V
		5362.88	51.07	-22.93	74	42.6	31.66	9.46	32.65	228	100	P	V
		5351.68	43.56	-10.44	54	35.08	31.67	9.46	32.65	228	100	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	47.65	-20.65	68.3	47	39.82	12.17	51.34	144	213	P	H
HT20		15780	47.75	-26.25	74	47.12	38.1	14.69	52.16	136	142	P	H
CH 52		10520	47.26	-21.04	68.3	46.61	39.82	12.17	51.34	150	220	P	V
5260MHz		15780	47.35	-26.65	74	46.72	38.1	14.69	52.16	159	345	P	V
802.11n		10600	47.41	-26.59	74	46.79	39.92	12.23	51.53	126	252	P	H
HT20		15900	47.91	-26.09	74	47.41	37.72	14.75	51.97	129	164	P	H
CH 60		10600	47.13	-26.87	74	46.51	39.92	12.23	51.53	185	215	P	V
5300MHz		15900	47.59	-26.41	74	47.09	37.72	14.75	51.97	196	190	P	V
802.11n		10640	47.38	-26.62	74	46.75	39.97	12.26	51.6	126	139	P	H
HT20		15960	47.97	-26.03	74	47.52	37.53	14.78	51.86	146	263	P	H
CH 64		10640	47.75	-26.25	74	47.12	39.97	12.26	51.6	152	135	P	V
5320MHz		15960	47.65	-26.35	74	47.2	37.53	14.78	51.86	173	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 802.11a (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 100 5500MHz		5454.96	58.07	-15.93	74	49.32	31.76	9.68	32.69	251	136	P	H
		5465.68	60.02	-8.28	68.3	51.21	31.8	9.7	32.69	251	136	P	H
		5460	44.97	-9.03	54	36.2	31.78	9.68	32.69	251	136	A	H
		5500	104.22	-	-	95.32	31.9	9.7	32.7	251	136	P	H
		5500	98.58	-	-	89.68	31.9	9.7	32.7	251	136	A	H
		5455.28	59.14	-14.86	74	50.38	31.77	9.68	32.69	106	258	P	V
		5467.44	63.53	-4.77	68.3	54.72	31.8	9.7	32.69	106	258	P	V
		5460	45.69	-8.31	54	36.92	31.78	9.68	32.69	106	258	A	V
		5500	104.89	-	-	95.99	31.9	9.7	32.7	106	258	P	V
		5500	99	-	-	90.1	31.9	9.7	32.7	106	258	A	V
802.11a CH 116 5580MHz		5441.44	48.65	-25.35	74	39.93	31.72	9.68	32.68	100	221	P	H
		5460.64	47.65	-20.65	68.3	38.88	31.78	9.68	32.69	100	221	P	H
		5459.44	39.39	-14.61	54	30.62	31.78	9.68	32.69	100	221	A	H
		5580	105.11	-	-	95.91	32.14	9.74	32.68	100	221	P	H
		5580	98.29	-	-	89.09	32.14	9.74	32.68	100	221	A	H
		5744.525	49.06	-19.24	68.3	39.42	32.2	10.09	32.65	100	221	P	H
		5389.36	48.24	-25.76	74	39.62	31.62	9.66	32.66	103	264	P	V
		5466.16	47.61	-20.69	68.3	38.8	31.8	9.7	32.69	103	264	P	V
		5459.68	39.76	-14.24	54	30.99	31.78	9.68	32.69	103	264	A	V
		5580	106.44	-	-	97.24	32.14	9.74	32.68	103	264	P	V
		5580	100.61	-	-	91.41	32.14	9.74	32.68	103	264	A	V
		5737.28	49.9	-18.4	68.3	40.34	32.2	10.01	32.65	103	264	P	V

802.11a CH 140 5700MHz		5700	104.82	-	-	95.27	32.2	10.01	32.66	265	215	P	H
		5700	97.67	-	-	88.12	32.2	10.01	32.66	265	215	A	H
		5725.16	58.48	-9.82	68.3	48.92	32.2	10.01	32.65	265	215	P	H
		5700	104.14	-	-	94.59	32.2	10.01	32.66	100	121	P	V
		5700	97.2	-	-	87.65	32.2	10.01	32.66	100	121	A	V
		5731.4	60.54	-7.76	68.3	50.98	32.2	10.01	32.65	100	121	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	47.07	-26.93	74	46.56	40.4	12.51	52.4	123	216	P	H
		16500	47.52	-20.78	68.3	45.37	39.5	15.15	52.5	184	226	P	H
		11000	47.19	-26.81	74	46.68	40.4	12.51	52.4	155	212	P	V
		16500	47.14	-21.16	68.3	44.99	39.5	15.15	52.5	178	296	P	V
802.11a CH 116 5580MHz		11160	47.49	-26.51	74	46.98	40.43	12.65	52.57	183	320	P	H
		16740	47.06	-21.24	68.3	43.07	40.89	15.36	52.26	163	232	P	H
		11160	47.27	-26.73	74	46.76	40.43	12.65	52.57	170	200	P	V
		16740	47.8	-20.5	68.3	43.81	40.89	15.36	52.26	156	350	P	V
802.11a CH 140 5700MHz		11400	47.88	-26.12	74	47.38	40.48	12.82	52.8	157	285	P	H
		17100	47.01	-21.29	68.3	40.79	42.74	15.62	52.14	165	246	P	H
		11400	47.98	-26.02	74	47.48	40.48	12.82	52.8	122	291	P	V
		17100	47.58	-20.72	68.3	41.36	42.74	15.62	52.14	153	102	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		5450.16	55.39	-18.61	74	46.65	31.75	9.68	32.69	259	138	P	H
		5467.28	58.18	-10.12	68.3	49.37	31.8	9.7	32.69	259	138	P	H
		5460	43.8	-10.2	54	35.03	31.78	9.68	32.69	259	138	A	H
		5500	102.58	-	-	93.68	31.9	9.7	32.7	259	138	P	H
		5500	96.26	-	-	87.36	31.9	9.7	32.7	259	138	A	H
		5452.24	54.67	-19.33	74	45.92	31.76	9.68	32.69	100	117	P	V
		5469.36	60.24	-8.06	68.3	51.42	31.81	9.7	32.69	100	117	P	V
		5460	44.41	-9.59	54	35.64	31.78	9.68	32.69	100	117	A	V
		5500	103.43	-	-	94.53	31.9	9.7	32.7	100	117	P	V
		5500	97.25	-	-	88.35	31.9	9.7	32.7	100	117	A	V
802.11n HT20 CH 116 5580MHz		5447.44	49.39	-24.61	74	40.65	31.74	9.68	32.68	100	223	P	H
		5461.84	48.13	-20.17	68.3	39.35	31.79	9.68	32.69	100	223	P	H
		5454.64	39.59	-14.41	54	30.84	31.76	9.68	32.69	100	223	A	H
		5580	103.79	-	-	94.59	32.14	9.74	32.68	100	223	P	H
		5580	97.02	-	-	87.82	32.14	9.74	32.68	100	223	A	H
		5753.975	48.56	-19.74	68.3	38.92	32.2	10.09	32.65	100	223	P	H
		5453.68	48.03	-25.97	74	39.28	31.76	9.68	32.69	100	261	P	V
		5461.6	49.04	-19.26	68.3	40.27	31.78	9.68	32.69	100	261	P	V
		5455.84	39.78	-14.22	54	31.02	31.77	9.68	32.69	100	261	A	V
		5580	104.34	-	-	95.14	32.14	9.74	32.68	100	261	P	V
		5580	98.04	-	-	88.84	32.14	9.74	32.68	100	261	A	V
		5735.705	50.3	-18	68.3	40.74	32.2	10.01	32.65	100	261	P	V

802.11n HT20 CH 140 5700MHz		5700	103.17	-	-	93.62	32.2	10.01	32.66	253	142	P	H
		5700	96.33	-	-	86.78	32.2	10.01	32.66	253	142	A	H
		5727	57.48	-10.82	68.3	47.92	32.2	10.01	32.65	253	142	P	H
		5700	104.15	-	-	94.6	32.2	10.01	32.66	100	118	P	V
		5700	98.09	-	-	88.54	32.2	10.01	32.66	100	118	A	V
		5727.08	62.89	-5.41	68.3	53.33	32.2	10.01	32.65	100	118	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		11000	47.58	-26.42	74	47.07	40.4	12.51	52.4	123	216	P	H
HT20		16500	47.4	-20.9	68.3	45.25	39.5	15.15	52.5	184	226	P	H
CH 100		11000	47.65	-26.35	74	47.14	40.4	12.51	52.4	155	212	P	V
5500MHz		16500	47.22	-21.08	68.3	45.07	39.5	15.15	52.5	178	296	P	V
802.11n		11160	47.57	-26.43	74	47.06	40.43	12.65	52.57	183	320	P	H
HT20		16740	47.52	-20.78	68.3	43.53	40.89	15.36	52.26	163	232	P	H
CH 116		11160	47.02	-26.98	74	46.51	40.43	12.65	52.57	170	200	P	V
5580MHz		16740	47.54	-20.76	68.3	43.55	40.89	15.36	52.26	156	350	P	V
802.11n		11400	47.09	-26.91	74	46.59	40.48	12.82	52.8	157	285	P	H
HT20		17100	47.87	-20.43	68.3	41.65	42.74	15.62	52.14	165	246	P	H
CH 140		11400	47.66	-26.34	74	47.16	40.48	12.82	52.8	122	291	P	V
5700MHz		17100	47	-21.3	68.3	40.78	42.74	15.62	52.14	153	102	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

Band 3 - Straddle Channel

WIFI 802.11a (Harmonic @ 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 144 5720MHz		11440	47.41	-26.59	74	46.9	40.49	12.85	52.83	125	296	P	H
		17160	47.94	-20.36	68.3	41.58	42.94	15.65	52.23	163	225	P	H
		11440	47.15	-26.85	74	46.64	40.49	12.85	52.83	118	260	P	V
		17160	47.62	-20.68	68.3	41.26	42.94	15.65	52.23	129	336	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 HT20 (Harmonic @ 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)
802.11n HT20 CH 144 5720MHz		11440	47.67	-26.33	74	47.16	40.49	12.85	52.83	157	285	P	H
		17160	47.54	-20.76	68.3	41.18	42.94	15.65	52.23	165	246	P	H
		11440	47.09	-26.91	74	46.58	40.49	12.85	52.83	122	291	P	V
		17160	47.29	-21.01	68.3	40.93	42.94	15.65	52.23	153	102	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

Emission below 1GHz

WIFI 802.11a (LF @ 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 LF		30.97	27.58	-12.42	40	34.74	24.7	0.54	32.4	140	218	P	H
		161.92	24.3	-19.2	43.5	38.78	16.4	1.3	32.18	-	-	P	H
		304.51	32.42	-13.58	46	42.92	19.38	1.82	31.7	-	-	P	H
		633.34	29.55	-16.45	46	31.37	26.32	2.62	30.76	-	-	P	H
		790.48	32.54	-13.46	46	32.48	28.4	2.92	31.26	-	-	P	H
		967.02	35.69	-18.31	54	32.48	31.3	3.26	31.35	-	-	P	H
		30.97	26.33	-13.67	40	33.49	24.7	0.54	32.4	136	294	P	V
		122.15	24.22	-19.28	43.5	37.59	17.7	1.13	32.2	-	-	P	V
		304.51	31	-15	46	41.5	19.38	1.82	31.7	-	-	P	V
		557.68	26.14	-19.86	46	28.14	26.38	2.48	30.86	-	-	P	V
		738.1	27.67	-18.33	46	27.74	28.12	2.83	31.02	-	-	P	V
		963.14	30.63	-23.37	54	27.5	31.26	3.25	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	**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		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		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)

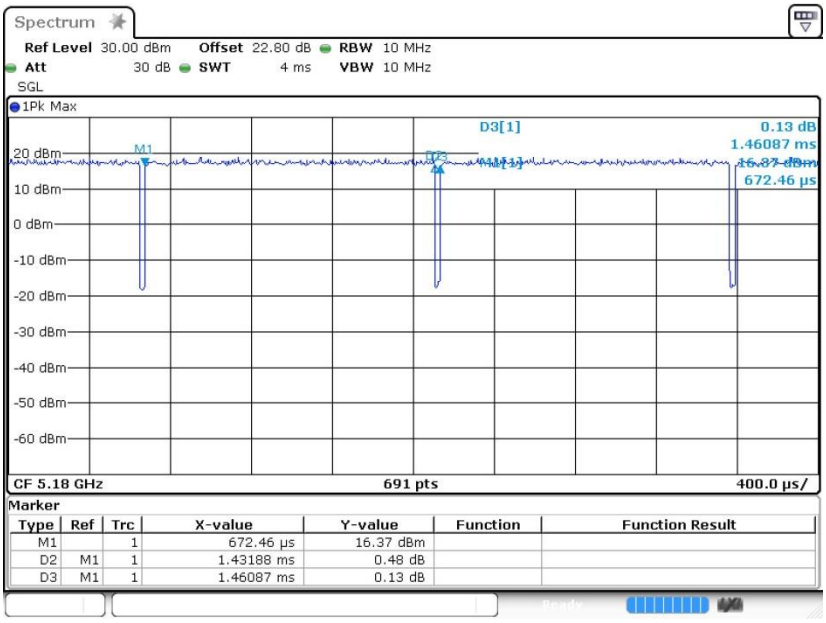
= -10.46(dB)

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

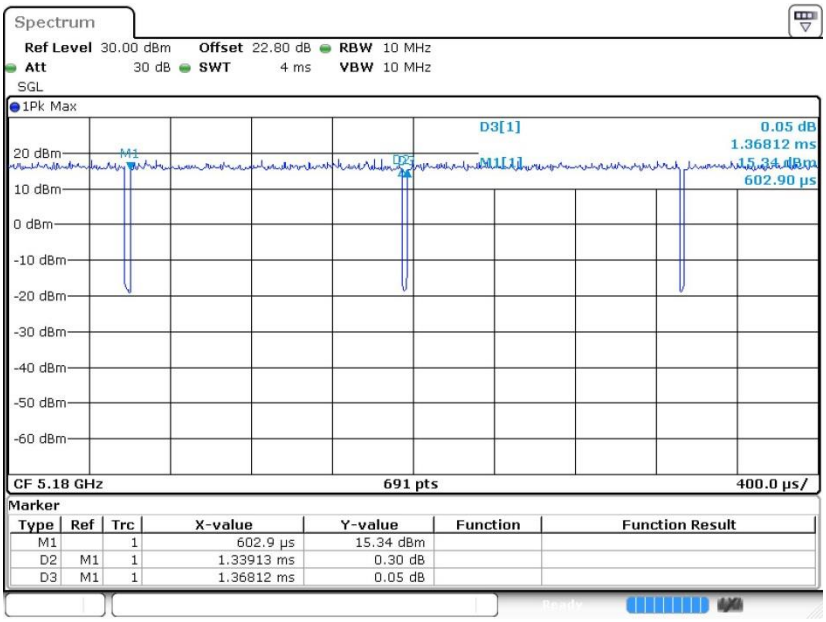
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	98.02	-	-	10Hz
802.11n HT20	97.88	1.339	0.747	1KHz

802.11a



802.11n HT20


Spectrum
Ref Level 30.00 dBm Offset 22.80 dB RBW 10 MHz
Att 30 dB SWT 4 ms VBW 10 MHz
SGL
1Pk Max
D3[1] 0.05 dB
1.36812 ms
M1[1] 15.34 dBm
602.90 µs
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 5.18 GHz 691 pts 400.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 602.9 µs 15.34 dBm
D2 M1 1 1.33913 ms 0.30 dB
D3 M1 1 1.36812 ms 0.05 dB