

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : CDMA/LTE Ufi
BRAND NAME : ZTE
MODEL NAME : MF975U
FCC ID : SRQ-MF975U
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Jun. 24, 2015 and testing was completed on Aug. 04, 2015. 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.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR562405C	Rev. 01	Initial issue of report	Aug. 13, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	6dB Bandwidth	> 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	$\leq -17, -27$ dBm/MHz & 15.209(a)	Pass	Under limit 2.33 dB at 5714.200 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.47 dB at 0.530 MHz
3.6	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.7	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057,
P. R. China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057,
P. R. China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	CDMA/LTE Ufi
Brand Name	ZTE
Model Name	MF975U
FCC ID	SRQ-MF975U
EUT supports Radios application	CDMA/EV-DO/LTE/ WLAN2.4GHz 802.11b/g/n HT20/HT40 WLAN5GHz 802.11a/n HT20/HT40/ WLAN5GHz 802.11ac VHT20/VHT40/VHT80
MEID Code	Conducted: 004401783463595 Radiation: 004401783463397 Conduction: 004401783463397
HW Version	xz3A
SW Version	USCC_MF975U_V1.0.0B04
EUT Stage	Identical Prototype

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

Product Specification subjective to this standard			
Tx/Rx Channel Frequency Range	5725 MHz ~ 5850 MHz		
Maximum Output Power	802.11a : 9.98 dBm / 0.0100 W 802.11n HT20 : 10.64 dBm / 0.0116 W 802.11n HT40 : 9.95 dBm / 0.0099 W 802.11ac VHT20: 10.28 dBm / 0.0107 W 802.11ac VHT40: 9.27 dBm / 0.0085 W 802.11ac VHT80: 8.45 dBm / 0.0070 W		
Antenna Type / Gain	Chain Port 0 : IFA Antenna with gain 2.60 dBi Chain Port 1 : IFA Antenna with gain 2.50 dBi		
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		
Antenna Function Description		Chain Port 0	Chain Port 1
	802.11a	V	V
	802.11n/ac SISO	V	V
	802.11n/ac MIMO	V	V

1.5 Modification of EUT

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

1.6 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC Registration No.
	TH01-KS	03CH02-KS	CO01-KS	418269

Note: The test site complies with ANSI C63.4 2009 requirement.

1.7 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 v01
- ♦ 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. FCC permits the use of the 1.5 meter table as an alternative in C63.10-2013 through inquiry tracking number 961829.
3. 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

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: conducted emission (150 kHz to 30 MHz) and radiated 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 were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4 (U-NII-3)	149	5745	157	5785
	151	5755	159	5795
	153	5765	161	5805
	155	5775	165	5825

Note: The above Frequency and Channel in boldface were 802.11n HT40.



2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

WLAN 5GHz 802.11a Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain Port	Data Rate 6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 149	5745	0	9.43	CH 157	9.82	9.81	9.76	9.84	9.74	9.83	9.85
CH 157	5785	0	9.89								
CH 165	5825	0	9.59								
CH 149	5745	1	9.58	CH 157	9.83	9.91	9.95	9.85	9.84	9.94	9.90
CH 157	5785	1	9.98								
CH 165	5825	1	9.36								

WLAN 5GHz 802.11n-HT20 Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745	0	9.44	CH 157	9.72	9.79	9.82	9.85	9.81	9.80	9.78
CH 157	5785	0	9.91								
CH 165	5825	0	9.39								
CH 149	5745	1	9.45	CH 157	9.69	9.72	9.73	9.82	9.87	9.86	9.85
CH 157	5785	1	9.88								
CH 165	5825	1	9.08								
CH 149	5745	0+1(0)	7.16	CH 157	7.43	7.39	7.51	7.61	7.60	7.57	7.56
CH 157	5785	0+1(0)	7.61								
CH 165	5825	0+1(0)	7.15								
CH 149	5745	0+1(1)	7.08	CH 157	7.45	7.41	7.62	7.63	7.60	7.64	7.56
CH 157	5785	0+1(1)	7.65								
CH 165	5825	0+1(1)	6.80								
CH 149	5745	0+1	10.13	CH 157	10.45	10.41	10.58	10.63	10.61	10.62	10.57
CH 157	5785	0+1	10.64								
CH 165	5825	0+1	9.99								



WLAN 5GHz 802.11n-HT40 Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 151	5755	0	9.70	CH 151	9.65	9.61	9.50	9.66	9.58	9.62	9.68
CH 159	5795	0	9.57								
CH 151	5755	1	9.95	CH 151	9.86	9.90	9.85	9.91	9.89	9.88	9.83
CH 159	5795	1	9.74								
CH 151	5755	0+1(0)	7.02	CH 151	6.97	6.95	7.03	6.63	6.67	6.57	6.53
CH 159	5795	0+1(0)	6.87								
CH 151	5755	0+1(1)	6.78	CH 151	6.75	6.74	6.25	6.52	6.29	6.47	6.37
CH 159	5795	0+1(1)	6.66								
CH 151	5755	0+1	9.91	CH 151	9.88	9.86	9.67	9.59	9.50	9.53	9.46
CH 159	5795	0+1	9.78								

WLAN 5GHz 802.11ac VHT20 Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 149	5745	0	9.50	CH 157	9.78	9.81	9.82	9.90	9.94	9.95	9.88	9.93
CH 157	5785	0	9.98									
CH 165	5825	0	9.55									
CH 149	5745	1	9.50	CH 157	9.76	9.78	9.83	9.81	9.85	9.88	9.84	9.79
CH 157	5785	1	9.89									
CH 165	5825	1	9.20									
CH 149	5745	0+1(0)	6.76	CH 157	7.11	7.13	7.22	7.21	7.25	7.28	7.15	7.20
CH 157	5785	0+1(0)	7.26									
CH 165	5825	0+1(0)	6.70									
CH 149	5745	0+1(1)	6.57	CH 157	7.05	7.18	7.26	7.28	7.25	7.23	7.24	7.22
CH 157	5785	0+1(1)	7.28									
CH 165	5825	0+1(1)	6.47									
CH 149	5745	0+1	9.68	CH 157	10.09	10.17	10.25	10.25	10.26	10.27	10.21	10.22
CH 157	5785	0+1	10.28									
CH 165	5825	0+1	9.60									



WLAN 5GHz 802.11ac VHT40 Average Power (dBm)													
Power vs. Channel				Power vs. Data Rate									
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 151	5755	0	8.89	CH 151	8.73	8.80	8.67	8.77	8.78	8.74	8.66	8.83	8.75
CH 159	5795	0	8.71	CH 151	8.90	8.94	8.86	8.89	8.92	8.84	8.91	8.81	8.79
CH 151	5755	1	8.95	CH 151	5.86	5.87	5.73	5.77	5.85	5.83	5.84	5.81	5.76
CH 159	5795	1	8.71	CH 151	6.39	6.52	6.54	6.44	6.60	6.46	6.35	6.42	6.43
CH 151	5755	0+1(0)	5.89	CH 151	9.15	9.22	9.16	9.13	9.25	9.17	9.11	9.14	9.12
CH 159	5795	0+1(0)	5.68										
CH 151	5755	0+1(1)	6.61										
CH 159	5795	0+1(1)	6.17										
CH 151	5755	0+1	9.27										
CH 159	5795	0+1	8.94										

WLAN 5GHz 802.11n-HT80 Average Power (dBm)													
Power vs. Channel				Power vs. Data Rate									
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 155	5775	0	8.09	CH 155	8.05	8.00	7.87	8.06	7.89	7.97	7.96	7.99	8.08
CH 155	5775	1	8.25	CH 155	8.23	8.20	8.22	8.09	8.07	8.18	8.23	8.19	8.15
CH 155	5775	0+1(0)	5.04	CH 155	4.95	4.87	4.98	4.99	5.01	5.00	4.97	5.03	4.97
CH 155	5775	0+1(1)	5.81	CH 155	5.66	5.68	5.50	5.68	5.60	5.55	5.73	5.61	5.71
CH 155	5775	0+1	8.45	CH 155	8.33	8.31	8.26	8.36	8.32	8.29	8.38	8.34	8.37

Note: Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1(0) and Chain Port 0+1(1).

2.3 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

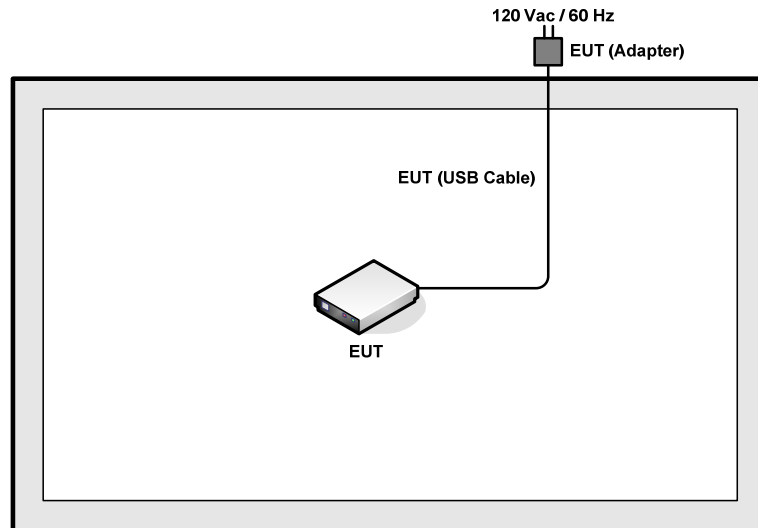
AC Conducted Emission	Mode 1 : CDMA2000 BC0 Idle + WLAN (5GHz) Link + USB Cable (Charging from Adapter)
Remark: For Radiated TCs, the tests were performed with adapter and USB cable.	

Ch. #		Band IV : 5725-5850 MHz		
		802.11a	802.11n HT20	802.11n HT40
L	Low	149	149	151
M	Middle	157	157	-
H	High	165	165	159

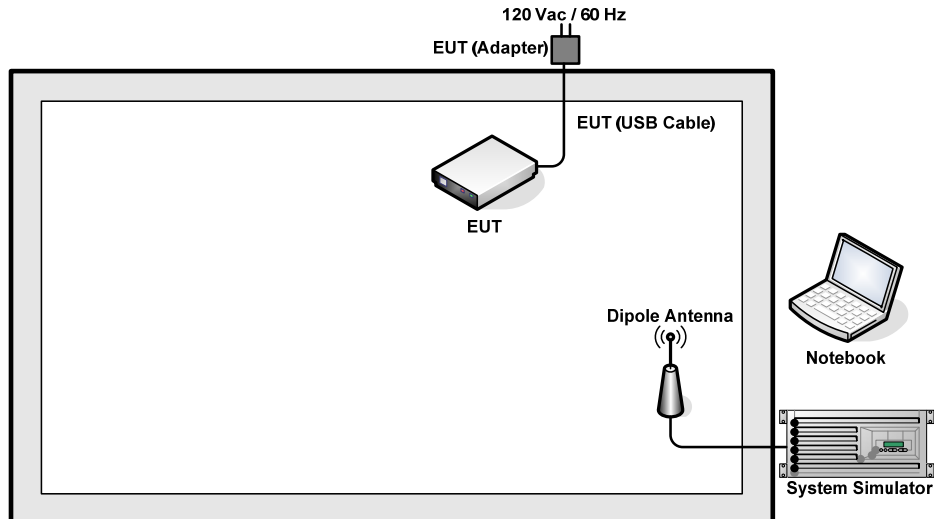
Ch. #		Band IV : 5725-5850 MHz		
		802.11ac VHT20	802.11ac VHT40	802.11ac VHT80
L	Low	149	151	-
M	Middle	157	-	155
H	High	165	159	-

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
3.	DC Power Supply	GW INSTEK	GPD-2303S	N/A	N/A	Unshielded, 1.8 m

2.6 EUT Operation Test Setup

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

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

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 7.5 dB.

$$\begin{aligned}\text{Offset (dB)} &= \text{RF cable loss(dB)} \\ &= 7.5 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Description of 6dB Bandwidth

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

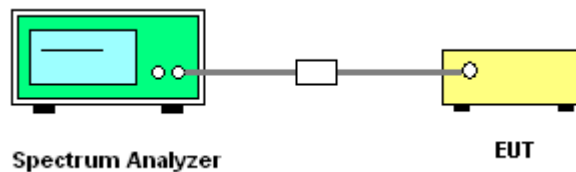
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

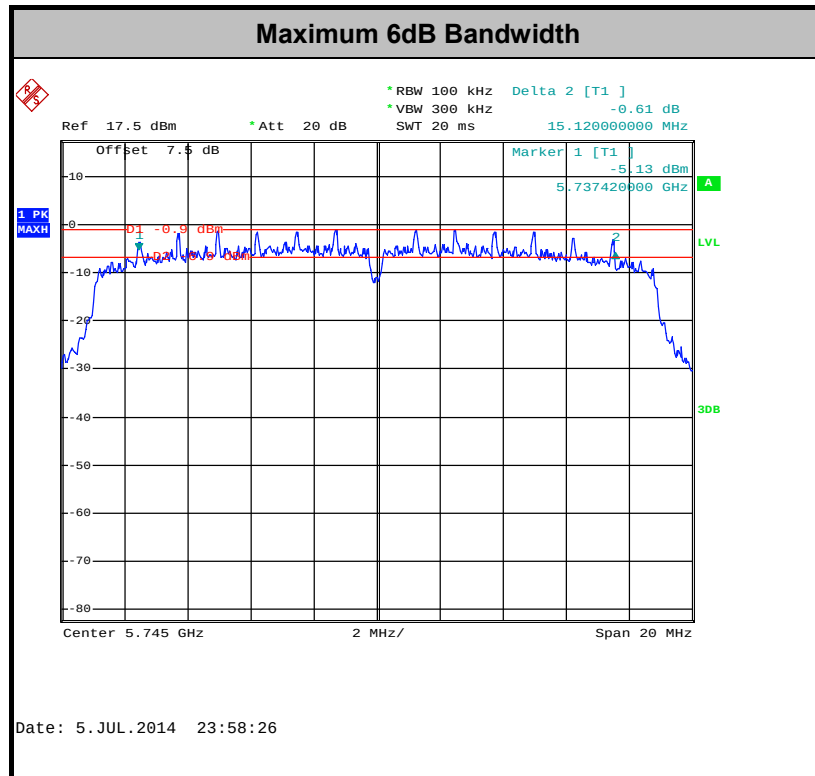
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
Section C) Emission bandwidth for the band 5.725-5.85GHz
2. Set RBW = 100kHz.
3. Set the VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.



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

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

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

3.2.2 Measuring Instruments

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

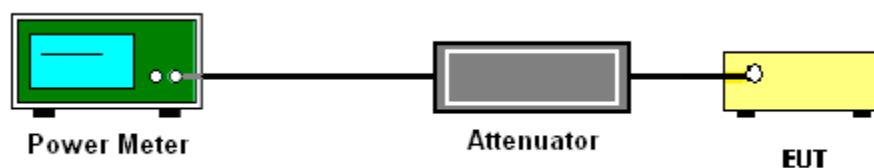
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.

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.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

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 v01.
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).

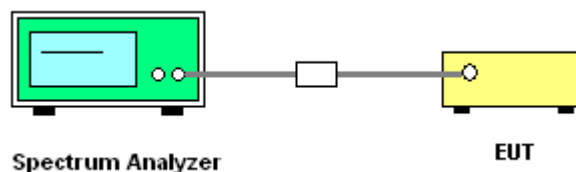
1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 300 kHz.
 - Set VBW $\geq$ 1 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(500\text{kHz}/\text{RBW})$ to the test result.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

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

Method (1): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

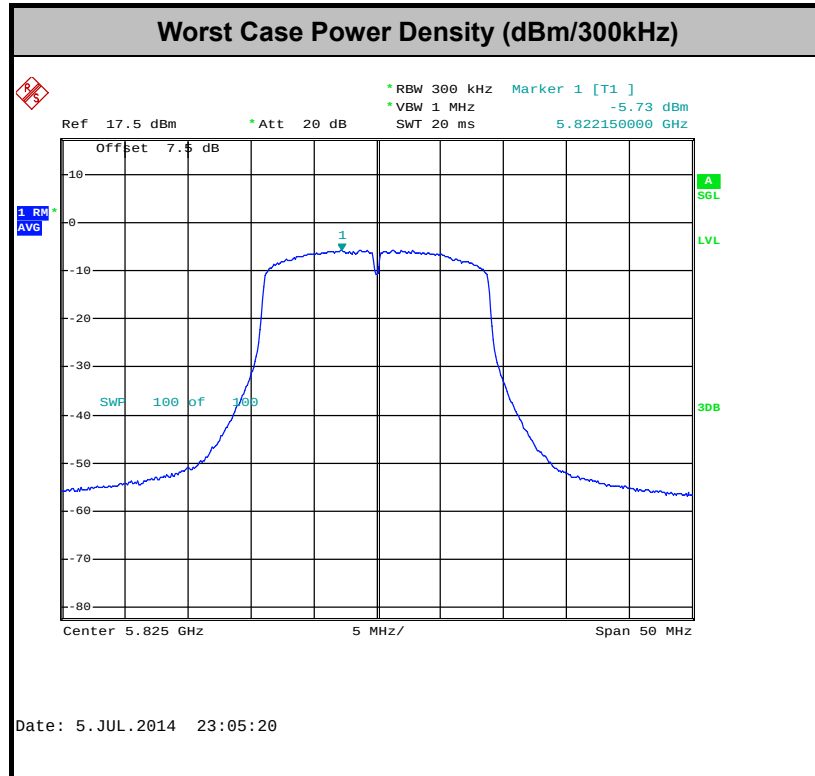
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

3.4.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5725-5850 MHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBμV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBμV/m).
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 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

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

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts)}$$

EIRP (dBm)	Field Strength at 3m (dBμV/m)
-17	78.3
-27	68.3

- (3) KDB789033 v01r03 H)2)c)(i) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

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 v01.

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.

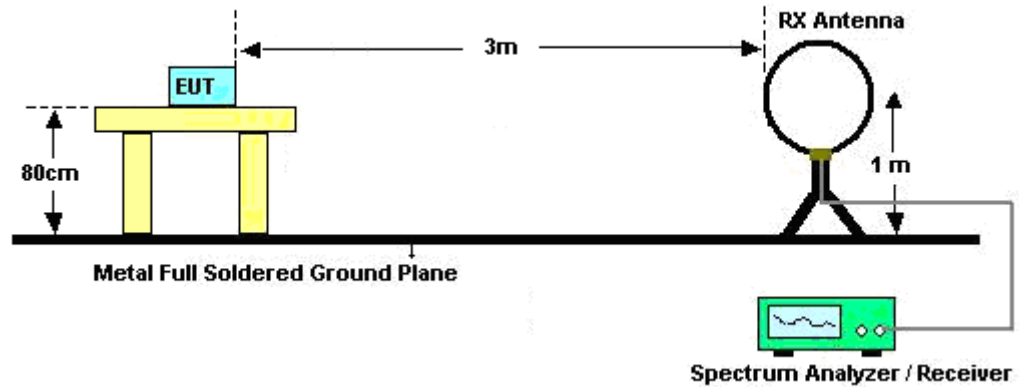
Antenna	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
0	802.11a	95.318	2.065	0.484	1kHz
1	802.11a	95.318	2.065	0.484	1kHz
1	802.11n HT40	90.331	0.948	1.055	3kHz
0+1	802.11n HT20	94.921	1.923	0.520	1kHz
0+1	802.11n HT40	91.316	0.945	1.058	3kHz
0+1	802.11n VHT20	95.353	1.933	0.517	1kHz
0+1	802.11n VHT40	91.491	0.951	1.052	3kHz
0+1	802.11n VHT80	84.294	0.467	2.143	3kHz



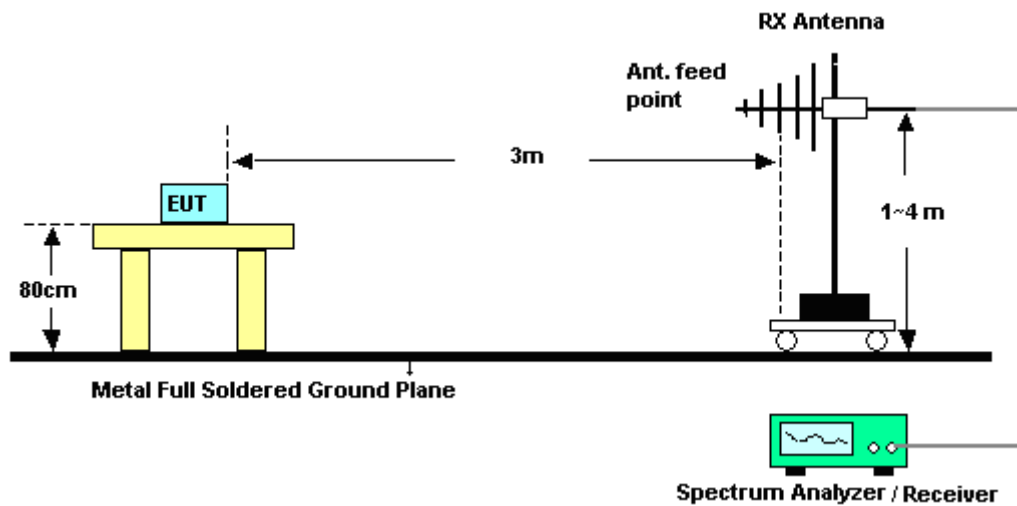
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

3.4.4 Test Setup

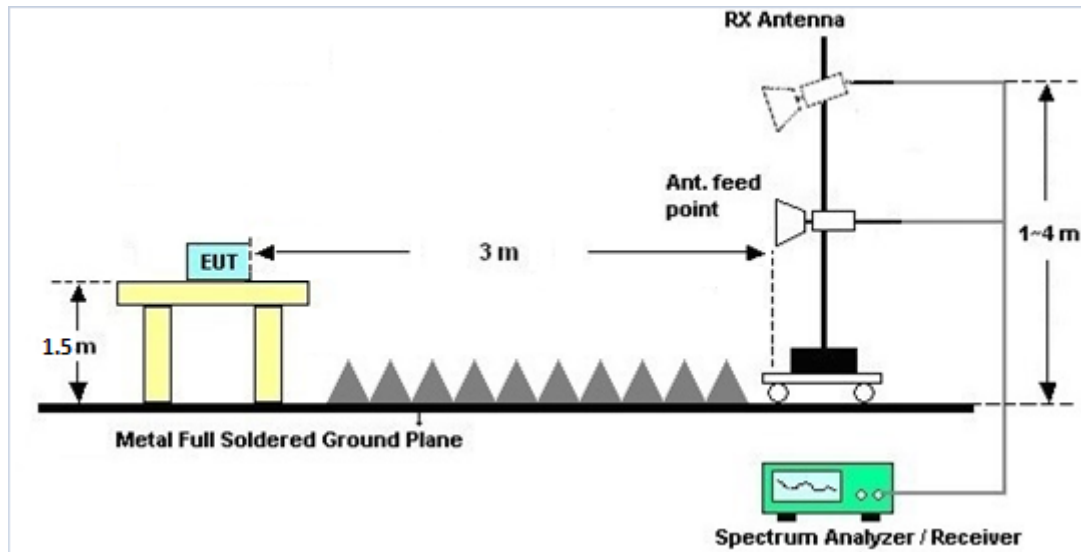
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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 per 15.31(o) was not reported.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix B.

3.4.7 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix B.

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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

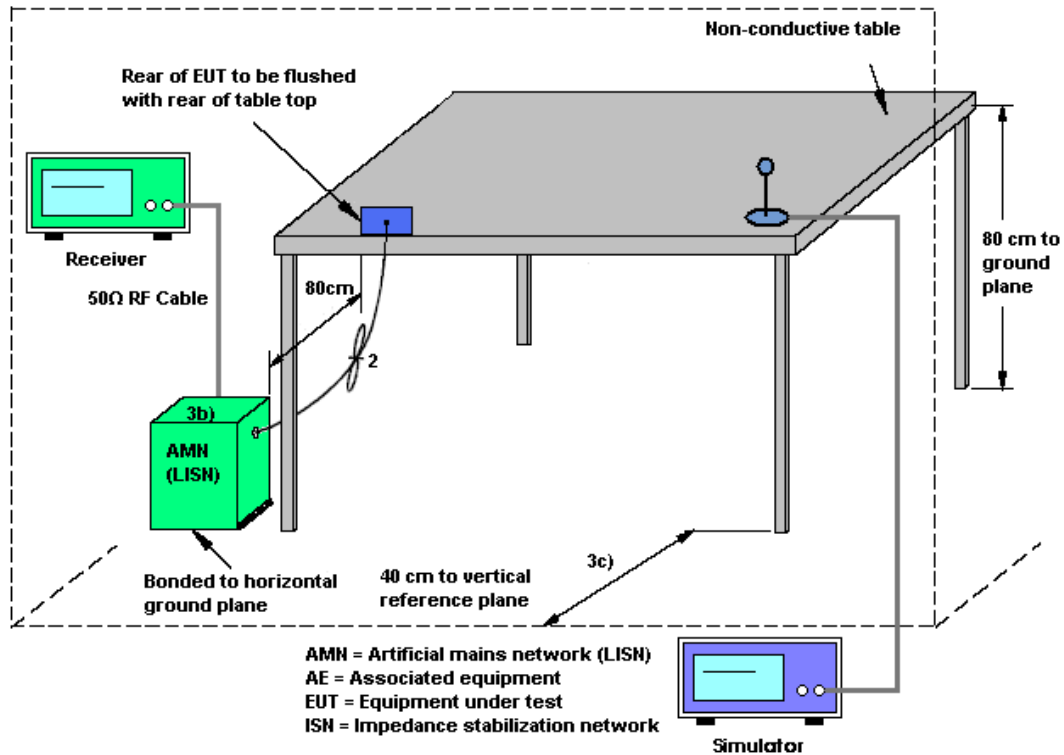
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

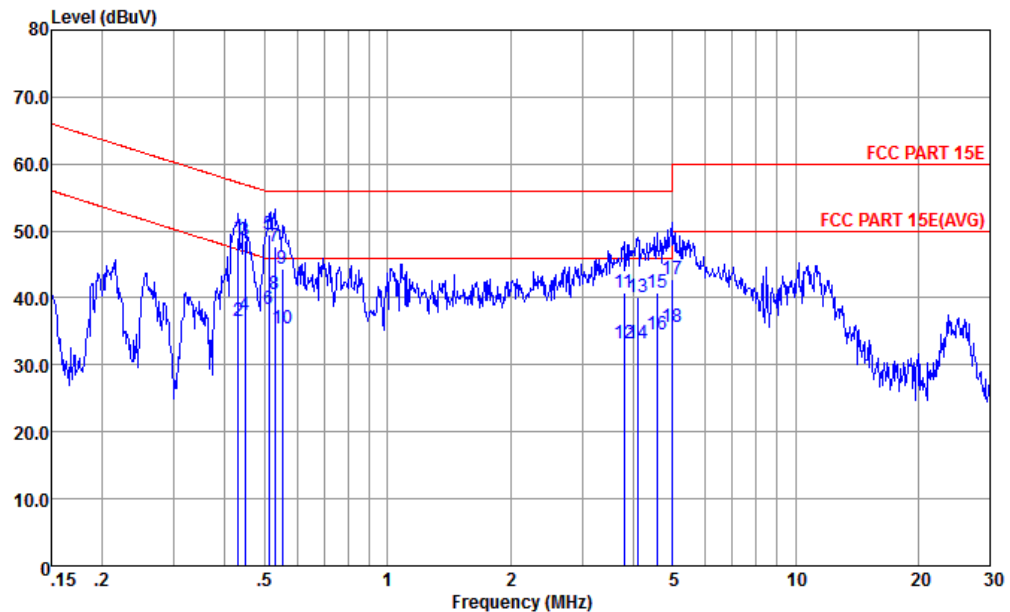
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + WLAN (5GHz) Link + USB Cable (Charging from Adapter)		

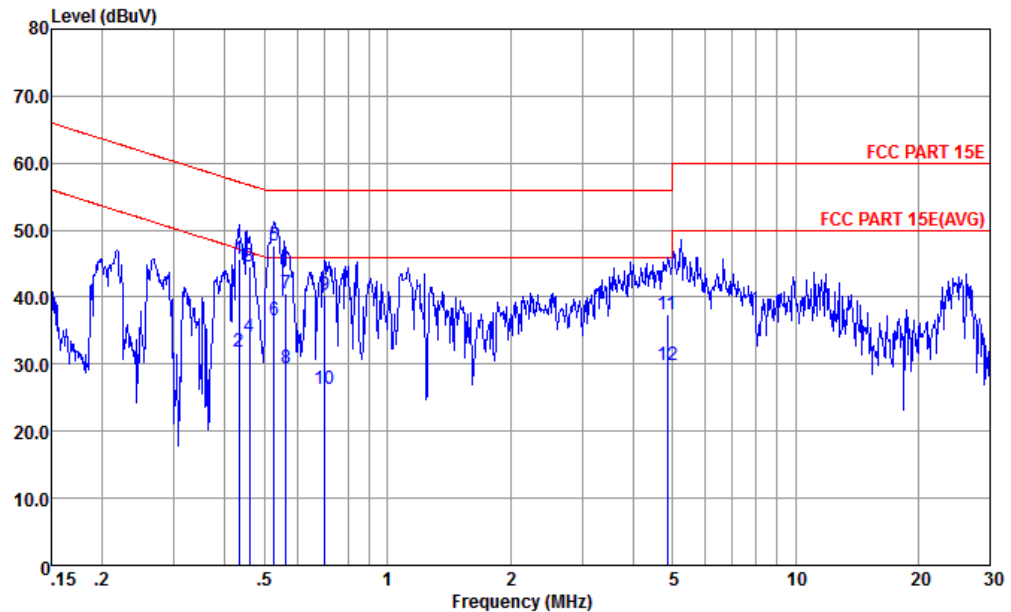


Site : CO01-KS
Condition : FCC PART 15E LISN-L20140306 LINE

mode	: Mode 1							
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.43	49.09	-8.15	57.24	38.20	0.27	10.62	QP
2	0.43	36.59	-10.65	47.24	25.70	0.27	10.62	Average
3	0.45	48.67	-8.26	56.93	37.80	0.25	10.62	QP
4	0.45	37.37	-9.56	46.93	26.50	0.25	10.62	Average
5	0.51	49.53	-6.47	56.00	38.70	0.20	10.63	QP
6	0.51	38.43	-7.57	46.00	27.60	0.20	10.63	Average
7	0.53	47.73	-8.27	56.00	36.90	0.20	10.63	QP
8 *	0.53	40.53	-5.47	46.00	29.70	0.20	10.63	Average
9	0.55	44.43	-11.57	56.00	33.60	0.20	10.63	QP
10	0.55	35.53	-10.47	46.00	24.70	0.20	10.63	Average
11	3.80	40.80	-15.20	56.00	29.80	0.18	10.82	QP
12	3.80	33.10	-12.90	46.00	22.10	0.18	10.82	Average
13	4.11	40.12	-15.88	56.00	29.10	0.19	10.83	QP
14	4.11	33.22	-12.78	46.00	22.20	0.19	10.83	Average
15	4.57	40.84	-15.16	56.00	29.81	0.19	10.84	QP
16	4.57	34.44	-11.56	46.00	23.41	0.19	10.84	Average
17	4.98	42.75	-13.25	56.00	31.70	0.20	10.85	QP
18	4.98	35.55	-10.45	46.00	24.50	0.20	10.85	Average



Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + WLAN (5GHz) Link + USB Cable (Charging from Adapter)		



Site : CO01-KS
Condition : FCC PART 15E LISN-N20140306 NEUTRAL

mode		: Mode 1							
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.43	45.78	-11.42	57.20	34.80	0.36	10.62	QP	
2	0.43	31.78	-15.42	47.20	20.80	0.36	10.62	Average	
3	0.46	44.66	-12.05	56.71	33.71	0.33	10.62	QP	
4	0.46	34.16	-12.55	46.71	23.21	0.33	10.62	Average	
5 *	0.53	47.61	-8.39	56.00	36.69	0.29	10.63	QP	
6	0.53	36.61	-9.39	46.00	25.69	0.29	10.63	Average	
7	0.56	40.50	-15.50	56.00	29.60	0.27	10.63	QP	
8	0.56	29.50	-16.50	46.00	18.60	0.27	10.63	Average	
9	0.70	40.34	-15.66	56.00	29.50	0.20	10.64	QP	
10	0.70	26.24	-19.76	46.00	15.40	0.20	10.64	Average	
11	4.85	37.54	-18.46	56.00	26.49	0.20	10.85	QP	
12	4.85	29.94	-16.06	46.00	18.89	0.20	10.85	Average	

3.6 Frequency Stability Measurement

3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

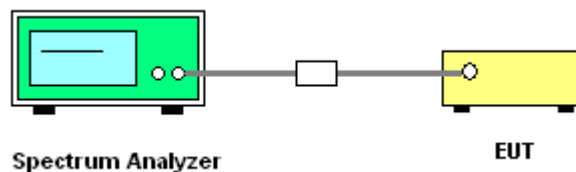
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.6.4 Test Setup



3.6.5 Test Result of Frequency Stability

Please refer to Appendix A.

3.7 Automatically Discontinue Transmission

3.7.1 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.

3.7.2 Measuring Instruments

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

3.7.3 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.

3.8 Antenna Requirements

3.8.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,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.

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.8.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

where

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

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

N_{ANT} = the total number of antennas

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

The EUT supports CDD mode.

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.



	Chain	Chain	DG	DG	Power	PSD
	Port 1	Port 2	for	for	Limit	Limit
			Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band IV	2.60	2.50	5.56	5.56	0.00	0.00

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

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Oct. 28, 2014	Jul. 05, 2015	Oct. 27, 2015	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	30MHz~40GHz	Jan. 23, 2015	Jul. 05, 2015	Jan. 22, 2016	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 23, 2015	Jul. 05, 2015	Jan. 22, 2016	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 25, 2014	Jul. 05, 2015	Oct. 24, 2015	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 29, 2014	Aug. 04, 2015	Sep. 28, 2015	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz; Max 30dBm	Sep. 25, 2014	Aug. 04, 2015	Sep. 24, 2015	Radiation (03CH02-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 13, 2014	Aug. 04, 2015	Nov. 12, 2015	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 13, 2014	Aug. 04, 2015	Sep. 12, 2015	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	Aug. 04, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	Aug. 04, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Sep. 04, 2014	Aug. 04, 2015	Sep. 03, 2015	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	May 04, 2015	Aug. 04, 2015	May 03, 2016	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1GHz~26.5GHz Gain 30dB	Oct. 28, 2014	Aug. 04, 2015	Oct. 27, 2015	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Aug. 04, 2015	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Aug. 04, 2015	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Aug. 04, 2015	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz;	May 04, 2015	Jul. 28, 2015	May 03, 2016	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 25, 2014	Jul. 28, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 25, 2014	Jul. 28, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 25, 2014	Jul. 28, 2015	Oct. 24, 2015	Conduction (CO01-KS)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	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% ($U = 2Uc(y)$)	5.1 dB
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Appendix A. Conducted Test Results

Report Number : FR562405C

Test Engineer:	Smile Huang	Temperature:	21~25	°C
Test Date:	2015/7/5	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% OBW

FCC Band IV									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	6 dB Bandwidth (MHz)		FCC 6 dB Bandwidth Min. Limit (MHz)		Pass/Fail
					Ant 0	Ant 1	Ant 0	Ant 1	
11a	6Mbps	1	149	5745		15.16	0.5	0.5	Pass
11a	6Mbps	1	157	5785		15.32	0.5	0.5	Pass
11a	6Mbps	1	165	5825		15.32	0.5	0.5	Pass
HT20	MCS0	1	149	5745	15.12		0.5	0.5	Pass
HT20	MCS0	1	157	5785	15.32		0.5	0.5	Pass
HT20	MCS0	1	165	5825	15.12		0.5	0.5	Pass
HT40	MCS0	1	151	5755		35.12	0.5	0.5	Pass
HT40	MCS0	1	159	5795		35.04	0.5	0.5	Pass
VHT20	MCS0	1	149	5745	15.12		0.5	0.5	Pass
VHT20	MCS0	1	157	5785	15.12		0.5	0.5	Pass
VHT20	MCS0	1	165	5825	15.44		0.5	0.5	Pass
VHT40	MCS0	1	151	5755		35.12	0.5	0.5	Pass
VHT40	MCS0	1	159	5795		35.12	0.5	0.5	Pass
VHT80	MCS0	1	155	5775		75.04	0.5	0.5	Pass
HT20	MCS0	2	149	5745	15.12	15.36	0.5		Pass
HT20	MCS0	2	157	5785	15.44	15.36	0.5		Pass
HT20	MCS0	2	165	5825	15.12	15.44	0.5		Pass
HT40	MCS0	2	151	5755	35.12	35.12	0.5		Pass
HT40	MCS0	2	159	5795	35.12	35.12	0.5		Pass
VHT20	MCS0	2	149	5745	15.16	15.12	0.5		Pass
VHT20	MCS0	2	157	5785	15.12	15.44	0.5		Pass
VHT20	MCS0	2	165	5825	15.14	15.12	0.5		Pass
VHT40	MCS5	2	151	5755	36.40	36.40	0.5		Pass
VHT40	MCS5	2	159	5795	36.32	36.40	0.5		Pass
VHT80	MCS0	2	155	5775	75.04	75.04	0.5		Pass

TEST RESULTS DATA
Average Power Table

Band IV														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1	
11a	6Mbps	1	149	5745	0.20	0.20	9.43	9.58		30.00	30.00	2.60	2.50	Pass
11a	6Mbps	1	157	5785	0.20	0.20	9.89	9.98		30.00	30.00	2.60	2.50	Pass
11a	6Mbps	1	165	5825	0.20	0.20	9.59	9.36		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	149	5745	0.23	0.21	9.44	9.45		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	157	5785	0.23	0.21	9.91	9.88		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	165	5825	0.23	0.21	9.39	9.08		30.00	30.00	2.60	2.50	Pass
HT40	MCS0	1	151	5755	0.39	0.44	9.70	9.95		30.00	30.00	2.60	2.50	Pass
HT40	MCS0	1	159	5795	0.39	0.44	9.57	9.74		30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	149	5745	0.24	0.23	9.50	9.50		30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	157	5785	0.24	0.23	9.98	9.89		30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	165	5825	0.24	0.23	9.55	9.20		30.00	30.00	2.60	2.50	Pass
VHT40	MCS0	1	151	5755	0.45	0.36	8.89	8.95		30.00	30.00	2.60	2.50	Pass
VHT40	MCS0	1	159	5795	0.45	0.36	8.71	8.71		30.00	30.00	2.60	2.50	Pass
VHT80	MCS0	1	155	5775	0.78	0.76	8.09	8.25		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	2	149	5745	0.23	0.23	7.16	7.08	10.13	30.00		5.56		Pass
HT20	MCS0	2	157	5785	0.23	0.23	7.61	7.65	10.64	30.00		5.56		Pass
HT20	MCS0	2	165	5825	0.23	0.23	7.15	6.80	9.99	30.00		5.56		Pass
HT40	MCS0	2	151	5755	0.39	0.40	7.02	6.78	9.91	30.00		5.56		Pass
HT40	MCS0	2	159	5795	0.39	0.40	6.87	6.66	9.78	30.00		5.56		Pass
VHT20	MCS0	2	149	5745	0.21	0.22	6.76	6.57	9.68	30.00		5.56		Pass
VHT20	MCS0	2	157	5785	0.21	0.22	7.26	7.28	10.28	30.00		5.56		Pass
VHT20	MCS0	2	165	5825	0.21	0.22	6.70	6.47	9.60	30.00		5.56		Pass
VHT40	MCS5	2	151	5755	0.39	0.42	5.89	6.61	9.27	30.00		5.56		Pass
VHT40	MCS5	2	159	5795	0.39	0.42	5.68	6.17	8.94	30.00		5.56		Pass
VHT80	MCS0	2	155	5775	0.74	0.74	5.04	5.81	8.37	30.00		5.56		Pass

TEST RESULTS DATA
Power Spectral Density

FCC Band IV																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		10log (500kHz /RBW) Factor (dB)		Average Power Density (dBm/500kHz)			Average PSD Limit (dBm/500kHz)		DG (dBi)		Pass /Fail
					Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1	
11a	6Mbps	1	149	5745	0.20	0.20	2.22	2.22		-3.69		30.00	30.00	2.60	2.50	Pass
11a	6Mbps	1	157	5785	0.20	0.20	2.22	2.22		-3.79		30.00	30.00	2.60	2.50	Pass
11a	6Mbps	1	165	5825	0.20	0.20	2.22	2.22		-3.64		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	149	5745	0.23	0.21	2.22	2.22	-3.74			30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	157	5785	0.23	0.21	2.22	2.22	-3.77			30.00	30.00	2.60	2.50	Pass
HT20	MCS0	1	165	5825	0.23	0.21	2.22	2.22	-3.45			30.00	30.00	2.60	2.50	Pass
HT40	MCS0	1	151	5755	0.39	0.44	2.22	2.22		-6.30		30.00	30.00	2.60	2.50	Pass
HT40	MCS0	1	159	5795	0.39	0.44	2.22	2.22		-6.49		30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	149	5745	0.24	0.23	2.22	2.22	-3.35			30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	157	5785	0.24	0.23	2.22	2.22	-3.66			30.00	30.00	2.60	2.50	Pass
VHT20	MCS0	1	165	5825	0.24	0.23	2.22	2.22	-3.27			30.00	30.00	2.60	2.50	Pass
VHT40	MCS0	1	151	5755	0.45	0.36	2.22	2.22		-7.22		30.00	30.00	2.60	2.50	Pass
VHT40	MCS0	1	159	5795	0.45	0.36	2.22	2.22		-7.43		30.00	30.00	2.60	2.50	Pass
VHT80	MCS0	1	155	5775	0.78	0.76	2.22	2.22		-11.51		30.00	30.00	2.60	2.50	Pass
HT20	MCS0	2	149	5745	0.23	0.23	2.22				-3.78	30.00		5.56		Pass
HT20	MCS0	2	157	5785	0.23	0.23	2.22				-3.86	30.00		5.56		Pass
HT20	MCS0	2	165	5825	0.23	0.23	2.22				-3.65	30.00		5.56		Pass
HT40	MCS0	2	151	5755	0.39	0.40	2.22				-6.54	30.00		5.56		Pass
HT40	MCS0	2	159	5795	0.39	0.40	2.22				-6.79	30.00		5.56		Pass
VHT20	MCS0	2	149	5745	0.21	0.22	2.22				-3.73	30.00		5.56		Pass
VHT20	MCS0	2	157	5785	0.21	0.22	2.22				-3.65	30.00		5.56		Pass
VHT20	MCS0	2	165	5825	0.21	0.22	2.22				-3.61	30.00		5.56		Pass
VHT40	MCS5	2	151	5755	0.39	0.42	2.22				-8.72	30.00		5.56		Pass
VHT40	MCS5	2	159	5795	0.39	0.42	2.22				-9.47	30.00		5.56		Pass
VHT80	MCS0	2	155	5775	0.74	0.74	2.22				-12.56	30.00		5.56		Pass

TEST RESULTS DATA
Frequency Stability

Band IV										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stability (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.6	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	4.35	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	20	3.8	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	-30	3.8	
11a	6Mbps	1	149	5745	5745.000	0.000	0.00	50	3.8	



Appendix B. Radiated Test Results

Band 4 - 5725~5850MHz

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.	
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz	*	5742	103.6	-	-	97.22	35.19	7.48	36.29	150	344	P	H
	*	5742	93.94	-	-	87.56	35.19	7.48	36.29	150	344	A	H
		5714.04	61.94	-6.36	68.3	55.6	35.16	7.45	36.27	150	344	P	H
		5724.28	71.17	-7.13	78.3	64.8	35.18	7.47	36.28	150	344	P	H
	*	5748	96.71	-	-	90.33	35.19	7.48	36.29	159	20	P	V
	*	5748	86.96	-	-	80.58	35.19	7.48	36.29	159	20	A	V
		5714.04	55.57	-12.73	68.3	49.23	35.16	7.45	36.27	159	20	P	V
		5723.96	63.97	-14.33	78.3	57.6	35.18	7.47	36.28	159	20	P	V
802.11a CH 157 5785MHz	*	5782	103.75	-	-	97.33	35.22	7.51	36.31	150	341	P	H
	*	5782	94.17	-	-	87.75	35.22	7.51	36.31	150	341	A	H
	*	5786	97.02	-	-	90.57	35.24	7.53	36.32	196	19	P	V
	*	5786	88.2	-	-	81.75	35.24	7.53	36.32	196	19	A	V
802.11a CH 165 5825MHz	*	5824	101.54	-	-	95.05	35.27	7.57	36.35	300	0	P	H
	*	5822	91.91	-	-	85.42	35.27	7.57	36.35	300	0	A	H
		5850.32	62.01	-16.29	78.3	55.5	35.28	7.59	36.36	300	0	P	H
		5861.6	56.32	-11.98	68.3	49.78	35.3	7.61	36.37	300	0	P	H
	*	5822	99.18	-	-	92.69	35.27	7.57	36.35	300	22	P	V
	*	5822	89.8	-	-	83.31	35.27	7.57	36.35	300	22	A	V
		5852.16	61.26	-17.04	78.3	54.75	35.28	7.59	36.36	300	22	P	V
		5860.24	56.11	-12.19	68.3	49.57	35.3	7.61	36.37	300	22	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 4 5725~5850MHz****WIFI 802.11a (Harmonic @ 3m)**

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 149 5745MHz		11490	48.96	-25.04	74	36.23	38.99	10.77	37.03	150	221	P	H
		11490	48.8	-25.2	74	36.07	38.99	10.77	37.03	154	112	P	V
802.11a CH 157 5785MHz		11570	48.39	-25.61	74	35.54	39.06	10.8	37.01	300	200	P	H
		11571	49.04	-24.96	74	36.19	39.06	10.8	37.01	150	36	P	V
802.11a CH 165 5825MHz		11650	49.06	-24.94	74	36.11	39.11	10.83	36.99	300	195	P	H
		11649	49.62	-24.38	74	36.67	39.11	10.83	36.99	174	162	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

5GHz WIFI 802.11a (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11a LF		97.9	26.54	-16.96	43.5	48.68	11.82	1.28	35.24	120	0	P	H
		340.4	26.44	-19.56	46	44.65	14.39	2.42	35.02	-	-	P	H
		345.25	23.08	-22.92	46	41.2	14.49	2.44	35.05	-	-	P	H
		602.3	20.84	-25.16	46	34.02	18.52	3.26	34.96	-	-	P	H
		723.55	21.45	-24.55	46	32.93	19.54	3.62	34.64	-	-	P	H
		914.64	25.27	-20.73	46	34.28	21.49	4.06	34.56	-	-	P	H
		35.82	31.2	-8.8	40	48.77	16.84	0.79	35.2	100	0	P	V
		160.95	23.18	-20.32	43.5	45.65	10.81	1.63	34.91	-	-	P	V
		482.99	19.59	-26.41	46	34.16	17.2	2.9	34.67	-	-	P	V
		571.26	20.58	-25.42	46	33.75	18.33	3.19	34.69	-	-	P	V
		835.1	23.08	-22.92	46	32.74	20.86	3.88	34.4	-	-	P	V
		891.36	24.63	-21.37	46	33.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz	*	5742	103.19	-	-	96.81	35.19	7.48	36.29	152	342	P	H
	*	5742	93.76	-	-	87.38	35.19	7.48	36.29	152	342	A	H
		5714.5	60.28	-8.02	68.3	53.94	35.16	7.45	36.27	152	342	P	H
		5724.36	69.86	-8.44	78.3	63.49	35.18	7.47	36.28	152	342	P	H
	*	5744	95.76	-	-	89.38	35.19	7.48	36.29	150	20	P	V
	*	5742	86.3	-	-	79.92	35.19	7.48	36.29	150	20	A	V
		5714.92	54.39	-13.91	68.3	48.05	35.16	7.45	36.27	150	20	P	V
		5724.44	60.82	-17.48	78.3	54.45	35.18	7.47	36.28	150	20	P	V
802.11a CH 157 5785MHz	*	5784	104.02	-	-	97.6	35.22	7.51	36.31	150	342	P	H
	*	5782	94.43	-	-	88.01	35.22	7.51	36.31	150	342	A	H
	*	5784	97.06	-	-	90.64	35.22	7.51	36.31	158	19	P	V
	*	5782	87.53	-	-	81.11	35.22	7.51	36.31	158	19	A	V
802.11a CH 165 5825MHz	*	5824	103.38	-	-	96.89	35.27	7.57	36.35	169	339	P	H
	*	5826	93.93	-	-	87.44	35.27	7.57	36.35	169	339	A	H
		5850.21	63.21	-15.09	78.3	56.7	35.28	7.59	36.36	169	339	P	H
		5861.6	56.52	-11.78	68.3	49.98	35.3	7.61	36.37	169	339	P	H
	*	5822	97.13	-	-	90.64	35.27	7.57	36.35	154	23	P	V
	*	5822	87.49	-	-	81	35.27	7.57	36.35	154	23	A	V
		5850.72	57.56	-20.74	78.3	51.05	35.28	7.59	36.36	154	23	P	V
		5861.68	51.42	-16.88	68.3	44.88	35.3	7.61	36.37	154	23	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

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 149 5745MHz		11490	49.09	-24.91	74	36.36	38.99	10.77	37.03	155	221	P	H
		11490	49.35	-24.65	74	36.62	38.99	10.77	37.03	300	74	P	V
802.11a CH 157 5785MHz		11570	49.61	-24.39	74	36.76	39.06	10.8	37.01	265	274	P	H
		11571	49.02	-24.98	74	36.17	39.06	10.8	37.01	174	195	P	V
802.11a CH 165 5825MHz		11650	49.81	-24.19	74	36.86	39.11	10.83	36.99	150	311	P	H
		11649	49.21	-24.79	74	36.26	39.11	10.83	36.99	199	46	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz	*	5764	100.8	-	-	94.39	35.21	7.5	36.3	152	338	P	H
	*	5760	91.08	-	-	84.67	35.21	7.5	36.3	152	338	A	H
	!	5714.2	65.97	-2.33	68.3	59.63	35.16	7.45	36.27	152	338	P	H
		5724.12	69.82	-8.48	78.3	63.45	35.18	7.47	36.28	152	338	P	H
	*	5748	95.56	-	-	89.18	35.19	7.48	36.29	300	176	P	V
	*	5750	86.28	-	-	79.9	35.19	7.48	36.29	300	176	A	V
		5710.2	61.24	-7.06	68.3	54.9	35.16	7.45	36.27	300	176	P	V
		5716.92	64.68	-13.62	78.3	58.34	35.16	7.45	36.27	300	176	P	V
802.11n HT40 CH 159 5795MHz	*	5786	100.52	-	-	94.07	35.24	7.53	36.32	150	338	P	H
	*	5786	91.24	-	-	84.79	35.24	7.53	36.32	150	338	A	H
		5851.6	56.7	-21.6	78.3	50.19	35.28	7.59	36.36	150	338	P	H
		5860.16	55.57	-12.73	68.3	49.03	35.3	7.61	36.37	150	338	P	H
	*	5800	94.12	-	-	87.67	35.24	7.53	36.32	167	20	P	V
	*	5800	84.53	-	-	78.08	35.24	7.53	36.32	167	20	A	V
		5852.4	51.85	-26.45	78.3	45.34	35.28	7.59	36.36	167	20	P	V
		5883.84	51.71	-16.59	68.3	45.16	35.3	7.63	36.38	167	20	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11510	47.24	-26.76	74	34.5	39	10.77	37.03	150	178	P	H
		11510	47.36	-26.64	74	34.62	39	10.77	37.03	150	265	P	V
802.11n HT40 CH 159 5795MHz		11590	48.45	-25.55	74	35.58	39.07	10.81	37.01	150	145	P	H
		11590	49.33	-24.67	74	36.46	39.07	10.81	37.01	150	78	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

5GHz WIFI 802.11a (LF @ 3m)

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)
5GHz 802.11a LF		97.9	25.54	-17.96	43.5	47.68	11.82	1.28	35.24	100	91	P	H
		340.4	23.44	-22.56	46	41.65	14.39	2.42	35.02	-	-	P	H
		408.3	20.51	-25.49	46	36.68	16.34	2.67	35.18	-	-	P	H
		614.91	21.02	-24.98	46	33.99	18.65	3.3	34.92	-	-	P	H
		723.55	22.45	-23.55	46	33.93	19.54	3.62	34.64	-	-	P	H
		914.64	24.27	-21.73	46	33.28	21.49	4.06	34.56	-	-	P	H
		35.82	33.2	-6.8	40	50.77	16.84	0.79	35.2	100	85	P	V
		160.95	23.18	-20.32	43.5	45.65	10.81	1.63	34.91	-	-	P	V
		482.99	19.59	-26.41	46	34.16	17.2	2.9	34.67	-	-	P	V
		571.26	20.58	-25.42	46	33.75	18.33	3.19	34.69	-	-	P	V
		821.52	23.18	-22.82	46	33.13	20.65	3.85	34.45	-	-	P	V
		891.36	25.63	-20.37	46	34.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		34.85	26.77	-13.23	40	43.66	17.6	0.78	35.27	-	-	P	H
		97.9	30.54	-12.96	43.5	52.68	11.82	1.28	35.24	132	199	P	H
		228.85	19.52	-26.48	46	41.95	10.55	1.98	34.96	-	-	P	H
		466.5	19.06	-26.94	46	33.89	17.1	2.85	34.78	-	-	P	H
		672.14	21.67	-24.33	46	33.89	19.13	3.48	34.83	-	-	P	H
		723.55	22.45	-23.55	46	33.93	19.54	3.62	34.64	-	-	P	H
		35.82	33.2	-6.8	40	50.77	16.84	0.79	35.2	100	23	P	V
		160.95	21.23	-22.27	43.5	43.7	10.81	1.63	34.91	-	-	P	V
		443.22	17.45	-28.55	46	32.72	16.89	2.78	34.94	-	-	P	V
		571.26	18.58	-27.42	46	31.75	18.33	3.19	34.69	-	-	P	V
		747.8	19.64	-26.36	46	30.62	19.78	3.67	34.43	-	-	P	V
		835.1	23.08	-22.92	46	32.74	20.86	3.88	34.4	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0+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 149 5745MHz	*	5744	102.39	-	-	96.01	35.19	7.48	36.29	300	79	P	H
	*	5742	92.67	-	-	86.29	35.19	7.48	36.29	300	79	A	H
		5706.76	55.44	-12.86	68.3	49.1	35.16	7.45	36.27	300	79	P	H
		5722.68	59.56	-18.74	78.3	53.19	35.18	7.47	36.28	300	79	P	H
	*	5746	101.68	-	-	95.3	35.19	7.48	36.29	300	86	P	V
	*	5746	91.93	-	-	85.55	35.19	7.48	36.29	300	86	A	V
		5714.12	54.73	-13.57	68.3	48.39	35.16	7.45	36.27	300	86	P	V
		5723.48	58.61	-19.69	78.3	52.24	35.18	7.47	36.28	300	86	P	V
802.11n HT20 CH 157 5785MHz	*	5790	96	-	-	89.55	35.24	7.53	36.32	300	84	P	H
	*	5782	85.43	-	-	79.01	35.22	7.51	36.31	300	85	A	H
	*	5786	97.07	-	-	90.62	35.24	7.53	36.32	300	88	P	V
	*	5786	87.4	-	-	80.95	35.24	7.53	36.32	300	88	A	V
802.11n HT20 CH 165 5825MHz	*	5822	103.12	-	-	96.63	35.27	7.57	36.35	150	349	P	H
	*	5822	93.25	-	-	86.76	35.27	7.57	36.35	150	349	A	H
		5851.04	57.64	-20.66	78.3	51.13	35.28	7.59	36.36	150	349	P	H
		5865.52	52.94	-15.36	68.3	46.4	35.3	7.61	36.37	150	349	P	H
	*	5826	100.11	-	-	93.62	35.27	7.57	36.35	300	86	P	V
	*	5826	90.19	-	-	83.7	35.27	7.57	36.35	300	86	A	V
		5851.2	56.21	-22.09	78.3	49.7	35.28	7.59	36.36	300	86	P	V
		5873.92	52.22	-16.08	68.3	45.67	35.3	7.63	36.38	300	86	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0+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		11490	47.72	-26.28	74	34.99	38.99	10.77	37.03	165	185	P	H
CH 149 5745MHz		11490	49.51	-24.49	74	36.78	38.99	10.77	37.03	169	326	P	V
802.11n HT20		11570	48.97	-25.03	74	36.12	39.06	10.8	37.01	165	228	P	H
CH 157 5785MHz		11571	48.78	-25.22	74	35.93	39.06	10.8	37.01	185	44	P	V
802.11n HT20		11650	49.39	-24.61	74	36.44	39.11	10.83	36.99	195	48	P	H
CH 165 5825MHz		11649	49.21	-24.79	74	36.26	39.11	10.83	36.99	300	148	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz	*	5752	99.95	-	-	93.54	35.21	7.5	36.3	166	76	P	H
	*	5750	90.68	-	-	84.3	35.19	7.48	36.29	166	76	A	H
		5714.44	60.71	-7.59	68.3	54.37	35.16	7.45	36.27	166	76	P	H
		5721.4	64.93	-13.37	78.3	58.56	35.18	7.47	36.28	166	76	P	H
	*	5748	97.79	-	-	91.41	35.19	7.48	36.29	320	176	P	V
	*	5748	88.59	-	-	82.21	35.19	7.48	36.29	320	176	A	V
		5714.76	58.88	-9.42	68.3	52.54	35.16	7.45	36.27	320	176	P	V
		5721.48	61.32	-16.98	78.3	54.95	35.18	7.47	36.28	320	176	P	V
802.11n HT40 CH 159 5795MHz	*	5792	99.98	-	-	93.53	35.24	7.53	36.32	150	78	P	H
	*	5790	90.52	-	-	84.07	35.24	7.53	36.32	150	78	A	H
		5852.48	54.28	-24.02	78.3	47.77	35.28	7.59	36.36	150	78	P	H
		5867.36	55.16	-13.14	68.3	48.62	35.3	7.61	36.37	150	78	P	H
	*	5790	95.97	-	-	89.52	35.24	7.53	36.32	194	309	P	V
	*	5790	86.3	-	-	79.85	35.24	7.53	36.32	194	309	A	V
		5851.92	52.62	-25.68	78.3	46.11	35.28	7.59	36.36	194	309	P	V
		5871.92	52.56	-15.74	68.3	46.01	35.3	7.63	36.38	194	309	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 151 5755MHz		11511	47.97	-26.03	74	35.23	39	10.77	37.03	150	178	P	H
		11511	48.69	-25.31	74	35.95	39	10.77	37.03	150	322	P	V
802.11n HT40 CH 159 5795MHz		11589	48.75	-25.25	74	35.88	39.07	10.81	37.01	162	334	P	H
		11589	48.21	-25.79	74	35.34	39.07	10.81	37.01	168	126	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 149 5745MHz	*	5744	102.8	-	-	96.42	35.19	7.48	36.29	150	83	P	H
	*	5744	92.8	-	-	86.42	35.19	7.48	36.29	150	83	A	H
		5711.64	55.37	-12.93	68.3	49.03	35.16	7.45	36.27	150	83	P	H
		5724.76	60.27	-18.03	78.3	53.9	35.18	7.47	36.28	150	83	P	H
	*	5744	99.96	-	-	93.58	35.19	7.48	36.29	300	94	P	V
	*	5746	90.58	-	-	84.2	35.19	7.48	36.29	300	94	A	V
		5706.04	53.15	-15.15	68.3	46.81	35.16	7.45	36.27	300	94	P	V
		5723.16	55.63	-22.67	78.3	49.26	35.18	7.47	36.28	300	94	P	V
802.11ac VHT20 CH 157 5785MHz	*	5782	103.23	-	-	96.81	35.22	7.51	36.31	150	163	P	H
	*	5788	92.39	-	-	85.94	35.24	7.53	36.32	150	163	A	H
	*	5788	100.64	-	-	94.19	35.24	7.53	36.32	300	349	P	V
	*	5790	90.35	-	-	83.9	35.24	7.53	36.32	300	349	A	V
802.11ac VHT20 CH 165 5825MHz	*	5824	102.95	-	-	96.46	35.27	7.57	36.35	289	68	P	H
	*	5824	93.06	-	-	86.57	35.27	7.57	36.35	289	68	A	H
		5853.92	54.82	-23.48	78.3	48.28	35.3	7.61	36.37	289	68	P	H
		5861.04	54.16	-14.14	68.3	47.62	35.3	7.61	36.37	289	68	P	H
	*	5826	100.37	-	-	93.88	35.27	7.57	36.35	285	82	P	V
	*	5828	90.74	-	-	84.25	35.27	7.57	36.35	285	82	A	V
		5852.64	53.12	-25.18	78.3	46.61	35.28	7.59	36.36	285	82	P	V
		5861.2	53.1	-15.2	68.3	46.56	35.3	7.61	36.37	285	82	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20		11490	49.17	-24.83	74	36.44	38.99	10.77	37.03	162	221	P	H
CH 149 5745MHz		11490	48.02	-25.98	74	35.29	38.99	10.77	37.03	174	45	P	V
802.11ac VHT20		11570	49.19	-24.81	74	36.34	39.06	10.8	37.01	200	169	P	H
CH 157 5785MHz		11571	48.89	-25.11	74	36.04	39.06	10.8	37.01	162	195	P	V
802.11ac VHT20		11650	49.81	-24.19	74	36.86	39.11	10.83	36.99	195	165	P	H
CH 165 5825MHz		11649	48.77	-25.23	74	35.82	39.11	10.83	36.99	150	185	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz
WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40 CH 151 5755MHz	*	5752	100.25	-	-	93.84	35.21	7.5	36.3	150	341	P	H
	*	5764	90.68	-	-	84.27	35.21	7.5	36.3	150	341	A	H
		5714.68	62.27	-6.03	68.3	55.93	35.16	7.45	36.27	150	341	P	H
		5721.4	65.91	-12.39	78.3	59.54	35.18	7.47	36.28	150	341	P	H
	*	5746	97.08	-	-	90.7	35.19	7.48	36.29	300	3	P	V
	*	5746	87.82	-	-	81.44	35.19	7.48	36.29	300	3	A	V
		5714.6	60.14	-8.16	68.3	53.8	35.16	7.45	36.27	300	3	P	V
		5724.6	65.12	-13.18	78.3	58.75	35.18	7.47	36.28	300	3	P	V
802.11ac VHT40 CH 159 5795MHz	*	5790	99.74	-	-	93.29	35.24	7.53	36.32	159	347	P	H
	*	5790	89.96	-	-	83.51	35.24	7.53	36.32	159	347	A	H
		5851.76	55.79	-22.51	78.3	49.28	35.28	7.59	36.36	159	347	P	H
		5860.48	52.21	-16.09	68.3	45.67	35.3	7.61	36.37	159	347	P	H
	*	5788	99.15	-	-	92.7	35.24	7.53	36.32	300	90	P	V
	*	5788	89.29	-	-	82.84	35.24	7.53	36.32	300	90	A	V
		5854.32	57.5	-20.8	78.3	50.96	35.3	7.61	36.37	300	90	P	V
		5868	55.07	-13.23	68.3	48.53	35.3	7.61	36.37	300	90	P	V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												

**Band 4 5725~5850MHz****WIFI 802.11ac VHT40 (Harmonic @ 3m)**

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT40		11510	48.67	-25.33	74	35.93	39	10.77	37.03	169	211	P	H
CH 151 5755MHz		11511	48.52	-25.48	74	35.78	39	10.77	37.03	195	187	P	V
802.11ac VHT40		11590	49.46	-24.54	74	36.59	39.07	10.81	37.01	159	285	P	H
CH 159 5795MHz		11590	48.72	-25.28	74	35.85	39.07	10.81	37.01	174	85	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80 CH 155 5775MHz	*	5760	96.71	-	-	90.3	35.21	7.5	36.3	300	349	P	H
	*	5754	84.1	-	-	77.69	35.21	7.5	36.3	300	349	A	H
	!	5712.68	62.93	-5.37	68.3	56.59	35.16	7.45	36.27	300	349	P	H
		5718.68	66.54	-11.76	78.3	60.17	35.18	7.47	36.28	300	349	P	H
		5851.04	59.42	-18.88	78.3	52.91	35.28	7.59	36.36	300	349	P	H
		5871.84	57.74	-10.56	68.3	51.19	35.3	7.63	36.38	300	349	P	H
	*	5784	89.6	-	-	83.18	35.22	7.51	36.31	150	360	P	V
	*	5784	79.63	-	-	73.21	35.22	7.51	36.31	150	360	A	V
		5711.08	59.09	-9.21	68.3	52.75	35.16	7.45	36.27	150	360	P	V
		5724.28	62.15	-16.15	78.3	55.78	35.18	7.47	36.28	150	360	P	V
		5850.16	57.13	-21.17	78.3	50.62	35.28	7.59	36.36	150	360	P	V
		5861.68	54.68	-13.62	68.3	48.14	35.3	7.61	36.37	150	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

**Band 4 5725~5850MHz****WIFI 802.11ac VHT80 (Harmonic @ 3m)**

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT80		11550	49.38	-24.62	74	36.57	39.04	10.79	37.02	195	171	P	H
CH 155 5775MHz		11550	48.44	-25.56	74	35.63	39.04	10.79	37.02	174	166	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

5GHz WIFI 802.11n HT20 (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.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT20 LF		97.9	25.54	-17.96	43.5	47.68	11.82	1.28	35.24	122	185	P	H
		195.87	19.23	-24.27	43.5	42.94	9.54	1.82	35.07	-	-	P	H
		315.18	19.65	-26.35	46	38.34	13.84	2.33	34.86	-	-	P	H
		340.4	25.44	-20.56	46	43.65	14.39	2.42	35.02	-	-	P	H
		602.3	22.84	-23.16	46	36.02	18.52	3.26	34.96	-	-	P	H
		723.55	22.45	-23.55	46	33.93	19.54	3.62	34.64	-	-	P	H
		35.82	30.2	-9.8	40	47.77	16.84	0.79	35.2	122	163	P	V
		160.95	23.18	-20.32	43.5	45.65	10.81	1.63	34.91	-	-	P	V
		482.99	19.59	-26.41	46	34.16	17.2	2.9	34.67	-	-	P	V
		620.73	19.4	-26.6	46	32.29	18.71	3.31	34.91	-	-	P	V
		686.69	19.79	-26.21	46	31.88	19.22	3.53	34.84	-	-	P	V
		891.36	23.63	-22.37	46	32.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												



Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		97.9	25.54	-17.96	43.5	47.68	11.82	1.28	35.24	122	96	P	H
		195.87	18.23	-25.27	43.5	41.94	9.54	1.82	35.07	-	-	P	H
		340.4	27.44	-18.56	46	45.65	14.39	2.42	35.02	-	-	P	H
		645.95	21.3	-24.7	46	33.78	18.96	3.39	34.83	-	-	P	H
		723.55	23.45	-22.55	46	34.93	19.54	3.62	34.64	-	-	P	H
		988.36	25.64	-28.36	54	34.13	21.93	4.24	34.66	-	-	P	H
		35.82	32.2	-7.8	40	49.77	16.84	0.79	35.2	100	82	P	V
		162.89	26.02	-17.48	43.5	48.55	10.74	1.64	34.91	-	-	P	V
		329.73	19.93	-26.07	46	38.35	14.16	2.38	34.96	-	-	P	V
		443.22	19.45	-26.55	46	34.72	16.89	2.78	34.94	-	-	P	V
		729.37	19.37	-26.63	46	30.74	19.59	3.63	34.59	-	-	P	V
		891.36	23.63	-22.37	46	32.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found.												
	2. All results are PASS against limit line.												



Emission below 1GHz

5GHz WIFI 802.11ac VHT20 (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.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT20 LF		97.9	28.54	-14.96	43.5	50.68	11.82	1.28	35.24	100	174	P	H
		195.87	22.23	-21.27	43.5	45.94	9.54	1.82	35.07	-	-	P	H
		340.4	29.44	-16.56	46	47.65	14.39	2.42	35.02	-	-	P	H
		408.3	23.51	-22.49	46	39.68	16.34	2.67	35.18	-	-	P	H
		578.05	21.28	-24.72	46	34.47	18.37	3.2	34.76	-	-	P	H
		723.55	20.45	-25.55	46	31.93	19.54	3.62	34.64	-	-	P	H
		35.82	33.2	-6.8	40	50.77	16.84	0.79	35.2	162	258	P	V
		160.95	25.18	-18.32	43.5	47.65	10.81	1.63	34.91	-	-	P	V
		398.6	18.88	-27.12	46	35.29	16.17	2.64	35.22	-	-	P	V
		571.26	19.58	-26.42	46	32.75	18.33	3.19	34.69	-	-	P	V
		620.73	21.4	-24.6	46	34.29	18.71	3.31	34.91	-	-	P	V
		891.36	23.63	-22.37	46	32.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

5GHz WIFI 802.11ac 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.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT40 LF		97.9	28.54	-14.96	43.5	50.68	11.82	1.28	35.24	120	158	P	H
		340.4	20.44	-25.56	46	38.65	14.39	2.42	35.02	-	-	P	H
		417.03	20.04	-25.96	46	35.99	16.48	2.69	35.12	-	-	P	H
		614.91	19.02	-26.98	46	31.99	18.65	3.3	34.92	-	-	P	H
		723.55	20.45	-25.55	46	31.93	19.54	3.62	34.64	-	-	P	H
		884.57	20.77	-25.23	46	29.97	21.31	3.99	34.5	-	-	P	H
		35.82	31.2	-8.8	40	48.77	16.84	0.79	35.2	185	49	P	V
		160.95	22.18	-21.32	43.5	44.65	10.81	1.63	34.91	-	-	P	V
		435.46	17	-29	46	32.47	16.77	2.75	34.99	-	-	P	V
		638.19	18.71	-27.29	46	31.32	18.88	3.37	34.86	-	-	P	V
		747.8	20.64	-25.36	46	31.62	19.78	3.67	34.43	-	-	P	V
		891.36	23.63	-22.37	46	32.8	21.35	4.01	34.53	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

5GHz WIFI 802.11ac VHT80 (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.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11ac VHT80 LF		97.9	27.54	-15.96	43.5	49.68	11.82	1.28	35.24	200	169	P	H
		340.4	24.44	-21.56	46	42.65	14.39	2.42	35.02	-	-	P	H
		408.3	21.51	-24.49	46	37.68	16.34	2.67	35.18	-	-	P	H
		691.54	20.83	-25.17	46	32.88	19.25	3.54	34.84	-	-	P	H
		840.92	22.66	-23.34	46	32.18	20.96	3.89	34.37	-	-	P	H
		914.64	24.27	-21.73	46	33.28	21.49	4.06	34.56	-	-	P	H
		35.82	29.2	-10.8	40	46.77	16.84	0.79	35.2	-	-	P	V
		50.37	30.11	-9.89	40	55.44	8.84	0.93	35.1	155	102	P	V
		160.95	24.18	-19.32	43.5	46.65	10.81	1.63	34.91	-	-	P	V
		329.73	18.93	-27.07	46	37.35	14.16	2.38	34.96	-	-	P	V
		609.09	18.91	-27.09	46	31.98	18.59	3.28	34.94	-	-	P	V
		801.15	20.7	-25.3	46	31.11	20.32	3.81	34.54	-	-	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.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

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”.