FCC RF Test Report

APPLICANT	**:**	**Motorola Solutions, Inc.**
EQUIPMENT	**:**	**WAVE TWO-WAY RADIO TLK 100**
BRAND NAME	**:**	**Motorola**
MODEL NAME	**:**	**TLK 100**
MODEL NUMBER	**:**	**HK2112A**
FCC ID	**:**	**AZ489FT7117**
STANDARD	**:**	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	**:**	**(NII) Unlicensed National Information Infrastructure**

The product was received on May 08, 2018 and testing was completed on Aug. 06, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

James Huang

Approved by: James Huang / Manager

TESTING
NVLAP LAB CODE 600155-0

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR850818D	Rev. 01	Initial issue of report	Aug. 24, 2018

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	2.1049 & 15.403(i)	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	Pass	Under limit 12.15 dB at 74.62 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.80 dB at 3.681 MHz
3.6	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.7	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Solutions, Inc.
8000 West Sunrise Blvd., Ft Lauderdale, Florida 33322, United States

1.2 Manufacturer

Motorola Solutions, Inc.
8000 West Sunrise Blvd., Ft Lauderdale, Florida 33322, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	WAVE TWO-WAY RADIO TLK 100
Brand Name	Motorola
Model Name	TLK 100
Model Number	HK2112A
FCC ID	AZ489FT7117
EUT supports Radios application	LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE
IMEI Code	Conducted: 355661090006370 Conduction: N/A Radiation: N/A
HW Version	P2.3
SW Version	TLK100_BASE_ENG_D01.00.02
EUT Stage	Production Unit

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
Maximum Output Power to Antenna	**<5180 MHz ~ 5240 MHz>** 802.11a : 15.26 dBm / 0.0336 W 802.11n HT20 : 13.04 dBm / 0.0201 W 802.11n HT40 : 12.30 dBm / 0.0170 W **<5260 MHz ~ 5320 MHz>** 802.11a : 15.14 dBm / 0.0327 W 802.11n HT20 : 13.30 dBm / 0.0214 W 802.11n HT40 : 12.15 dBm / 0.0164 W **<5500 MHz ~ 5720 MHz >** 802.11a : 14.88 dBm / 0.0308 W 802.11n HT20 : 13.06 dBm / 0.0202 W 802.11n HT40 : 12.00 dBm / 0.0158 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** 802.11a : 16.78 MHz 802.11n HT20 : 17.73 MHz 802.11n HT40 : 36.06 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 16.73 MHz 802.11n HT20 : 17.73 MHz 802.11n HT40 : 36.06 MHz **<5500 MHz ~ 5720 MHz >** 802.11a : 16.78 MHz 802.11n HT20 : 17.73 MHz 802.11n HT40 : 36.06 MHz
Antenna Type / Gain	**<5180 MHz ~ 5240 MHz>** Internal FPC Antenna with gain 1.00 dBi **<5260 MHz ~ 5320 MHz>** Internal FPC Antenna with gain 1.00 dBi **<5500 MHz ~ 5720 MHz >** Internal FPC Antenna with gain 1.00 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Location

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

Test Site	Sporton International (Kunshan) Inc.			
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958			
Test Site No.	**Sporton Site No.**			**FCC Test Firm Registration No.**
	TH01-KS	03CH03-KS	CO01-KS	630927

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

1.7 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 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 (Z plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5180-5240 MHz Band 1 (U-NII-1)	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5720 MHz Band 3 (U-NII-2C)	100	5500	124	5620
	102*	5510	126*	5630
	104	5520	128	5640
	108	5540	132	5660
	110*	5550	134*	5670
	112	5560	136	5680
	116	5580	140	5700
	118*	5590	142*	5710
	120	5600	144	5720

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

2.2 Test Mode

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

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

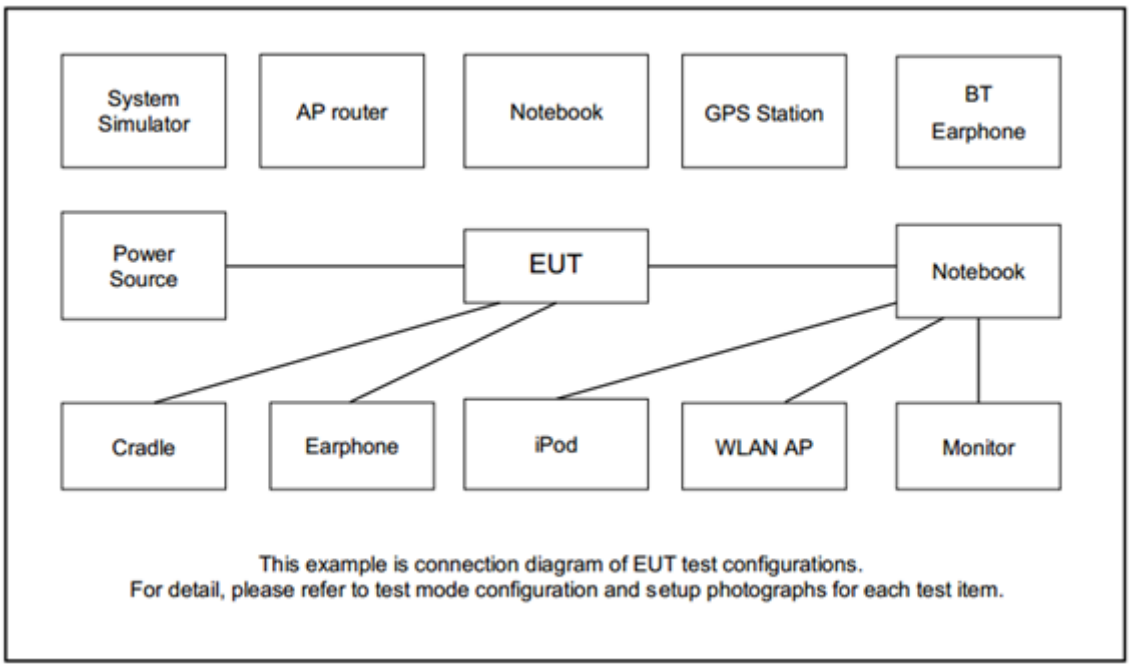
Test Cases	
AC Conducted Emission	Mode 1 : LTE Band 2 Idle + Bluetooth Link + WLAN Link(5GHz) + Adapter 1 + Battery + Earphone 1 Mode 2 : LTE Band 4 Idle + Bluetooth Link + WLAN Link(5GHz) + Adapter 1 + Battery + Earphone 2 Mode 3 : LTE Band 5 Idle + Bluetooth Link + WLAN Link(5GHz) + Adapter 1 + Battery + Earphone 3 Mode 4 : LTE Band 13 Idle + Bluetooth Link + WLAN Link(5GHz) + Adapter 1 + Battery + Earphone 4 Mode 5 : LTE Band 2 Idle + Bluetooth Link + WLAN Link(5GHz) + Adapter 1 + Battery + Earphone 5
Remark: **1.** The worst case of conducted emission is mode 1; only the test data of it was reported. **2.** For Radiated Test Cases, The tests were performance with Adapter 1, Battery and Earphone 2.	

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

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

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

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Mobile Phone	ZTE	A1	N/A	N/A	N/A
3.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded,1.8m
4.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

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

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

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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 6.5 dB.

Offset(dB) = RF cable loss(dB).

= 6.5(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.

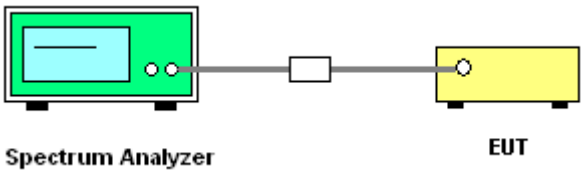
3.1.2 Measuring Instruments

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.

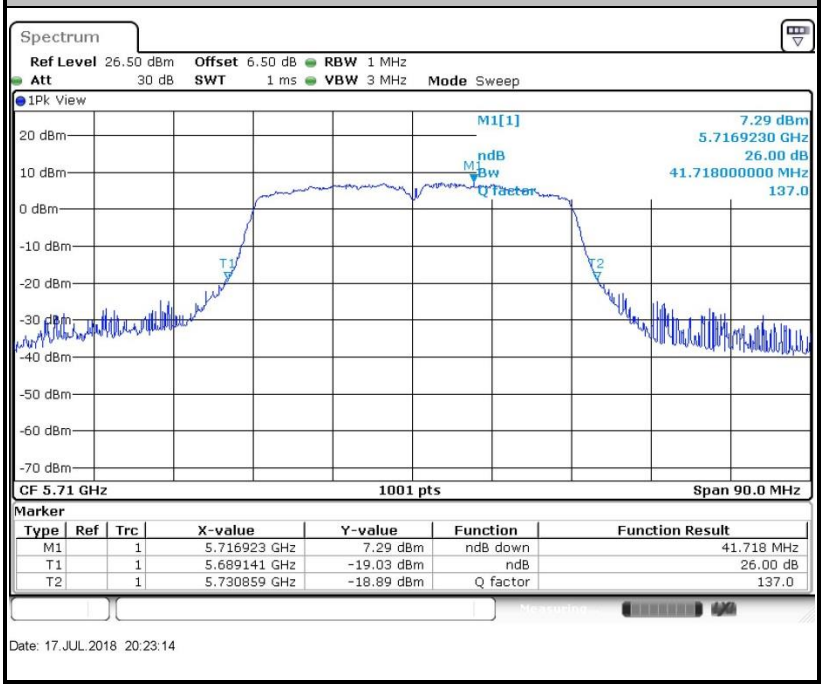
3.1.4 Test Setup



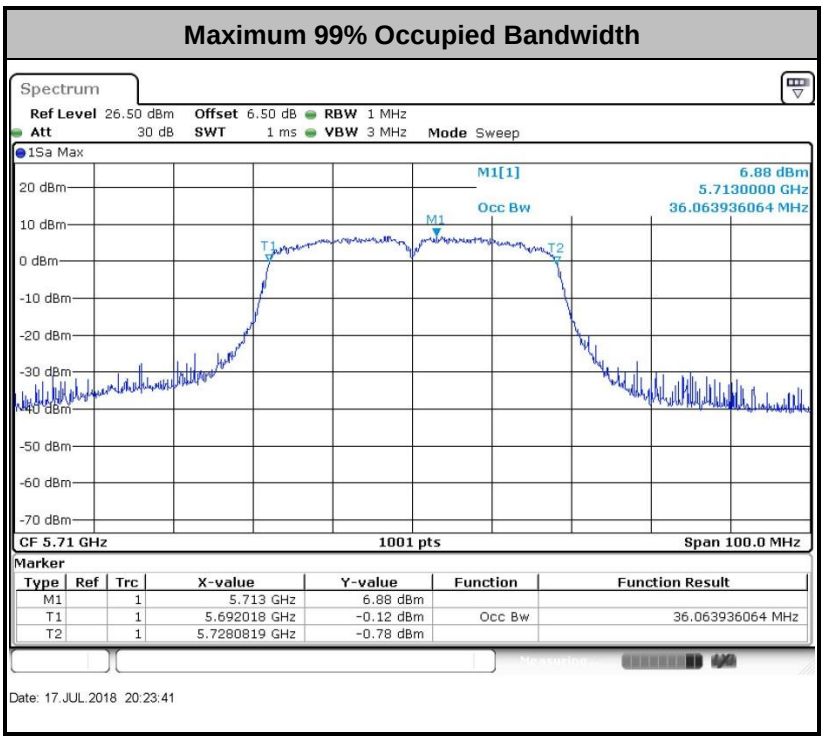
3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

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

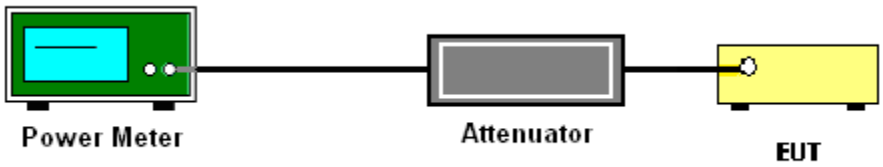
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

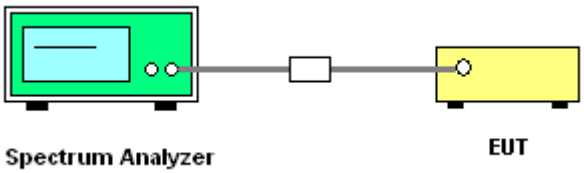
 # Method SA-2 #

(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.

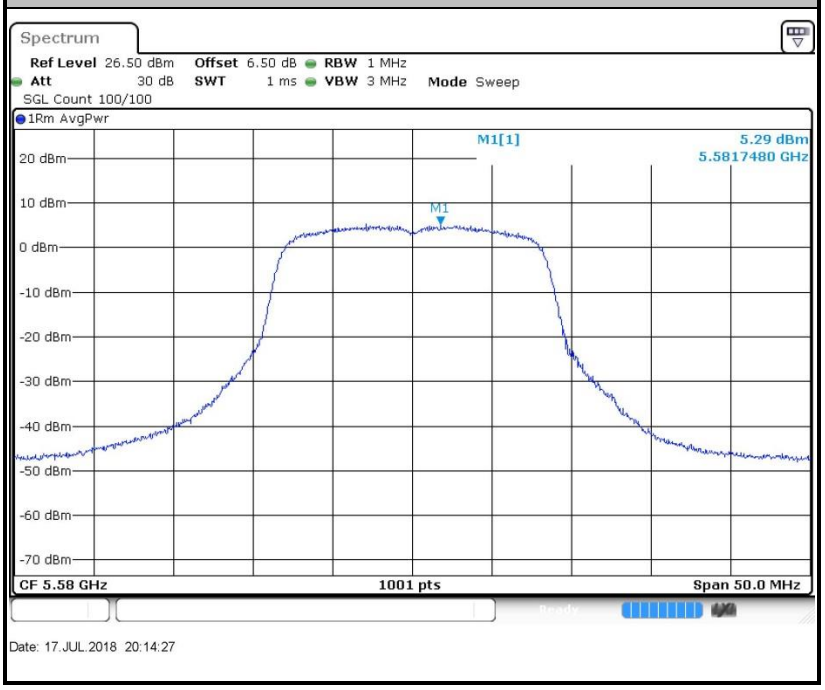
3.3.4 Test Setup



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.

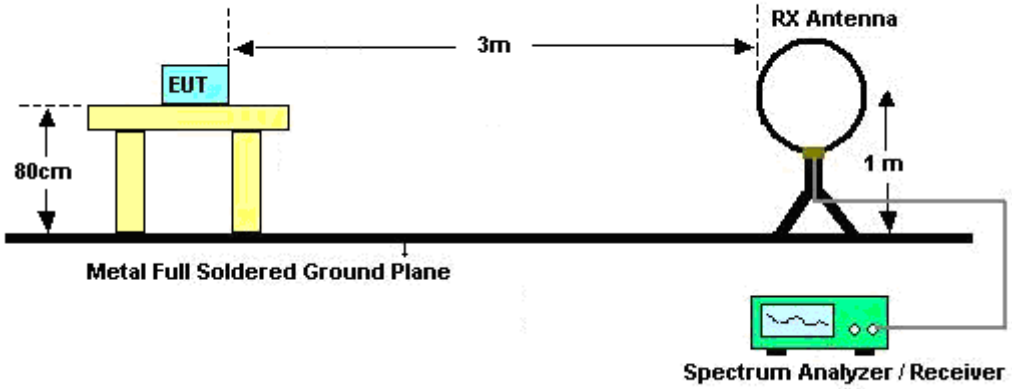
   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (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

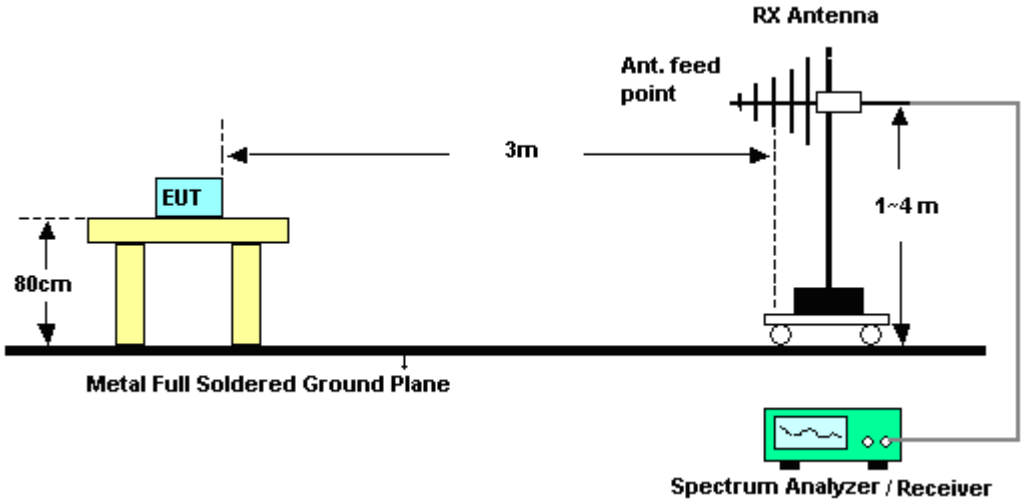
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting 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 average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

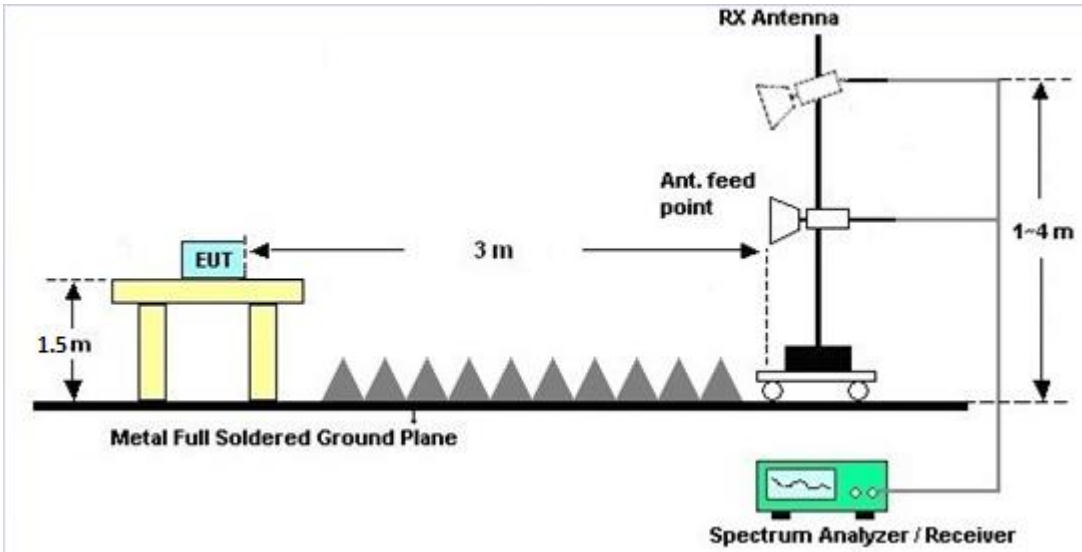
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

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

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

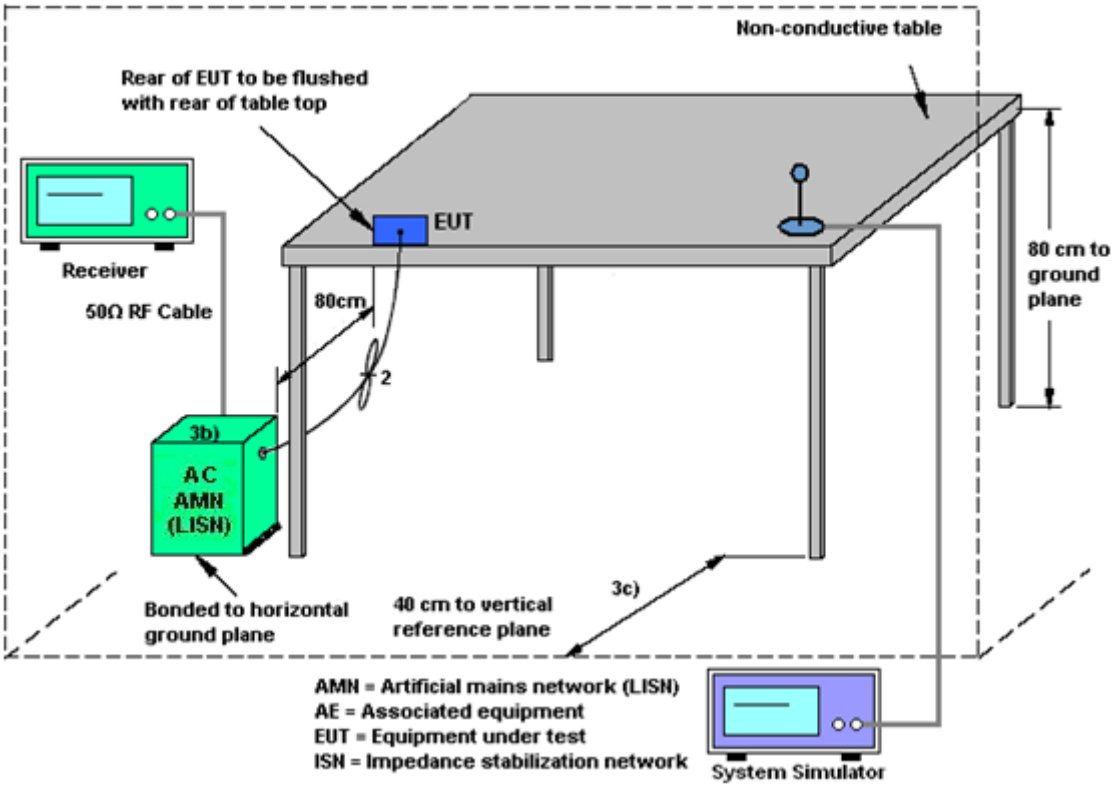
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Automatically Discontinue Transmission

3.6.1 Limit of Automatically Discontinue Transmission

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

3.6.2 Measuring Instruments

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

3.6.3 Test Result of Automatically Discontinue Transmission

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

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Aug. 08, 2017	Jul. 17, 2018~ Aug. 01, 2018	Aug. 07, 2018	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 18, 2018	Jul. 17, 2018~ Aug. 01, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 18, 2018	Jul. 17, 2018~ Aug. 01, 2018	Jan. 17, 2019	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 12, 2017	Jul. 17, 2018~ Aug. 01, 2018	Oct. 11, 2018	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 19, 2017	Jul. 31, 2018~ Aug. 06, 2018	Oct. 18, 2018	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 17, 2018	Jul. 31, 2018~ Aug. 06, 2018	Apr. 16, 2019	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 22, 2017	Jul. 31, 2018~ Aug. 06, 2018	Oct. 21, 2018	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	47610	30MHz-1GHz	Sep. 12, 2017	Jul. 31, 2018~ Aug. 06, 2018	Sep. 11, 2018	Radiation (03CH03-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 21, 2018	Jul. 31, 2018~ Aug. 06, 2018	Jan. 20, 2019	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 07, 2018	Jul. 31, 2018~ Aug. 06, 2018	Feb. 06, 2019	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 17, 2018	Jul. 31, 2018~ Aug. 06, 2018	Apr. 16, 2019	Radiation (03CH03-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Apr. 17, 2018	Jul. 31, 2018~ Aug. 06, 2018	Apr. 16, 2019	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 12, 2017	Jul. 31, 2018~ Aug. 06, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Oct. 12, 2017	Jul. 31, 2018~ Aug. 06, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 31, 2018~ Aug. 06, 2018	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 31, 2018~ Aug. 06, 2018	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 31, 2018~ Aug. 06, 2018	NCR	Radiation (03CH03-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 19, 2018	Jul. 31, 2018	Apr. 18, 2019	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Jul. 31, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Jul. 31, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Jul. 31, 2018	Oct. 11, 2018	Conduction (CO01-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.9dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.9dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.9dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.9dB

Appendix A. Conducted Test Results

Report Number : FR850818D

Test Engineer:	Silent Hai	Temperature:	21~25	°C
Test Date:	2018/7/17~2018/8/01	Relative Humidity:	51~55	%

Report Number : FR850818D

TEST RESULTS DATA
26dB and 99% OBW

Band I										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)		
11a	6Mbps	1	36	5180	16.73	20.73	-	22.24		
11a	6Mbps	1	44	5220	16.78	20.78	-	22.25		
11a	6Mbps	1	48	5240	16.73	20.88	-	22.24		
HT20	MCS0	1	36	5180	17.68	21.58	-	22.48		
HT20	MCS0	1	44	5220	17.73	21.63	-	22.49		
HT20	MCS0	1	48	5240	17.68	21.83	-	22.48		
HT40	MCS0	1	38	5190	35.96	41.45	-	23.01		
HT40	MCS0	1	46	5230	36.06	41.45	-	23.01		

Report Number : FR850818D

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	92.53	15.26	24.00	1.00		Pass
11a	6Mbps	1	44	5220	92.53	15.13	24.00	1.00		Pass
11a	6Mbps	1	48	5240	92.53	15.01	24.00	1.00		Pass
HT20	MCS0	1	36	5180	92.36	13.04	24.00	1.00		Pass
HT20	MCS0	1	44	5220	92.36	12.86	24.00	1.00		Pass
HT20	MCS0	1	48	5240	92.36	12.74	24.00	1.00		Pass
HT40	MCS0	1	38	5190	89.73	12.30	24.00	1.00		Pass
HT40	MCS0	1	46	5230	89.73	12.11	24.00	1.00		Pass

Report Number : FR850818D

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	0.34	4.92	11.00	1.00		Pass
11a	6Mbps	1	44	5220	0.34	4.90	11.00	1.00		Pass
11a	6Mbps	1	48	5240	0.34	4.76	11.00	1.00		Pass
HT20	MCS0	1	36	5180	0.35	2.36	11.00	1.00		Pass
HT20	MCS0	1	44	5220	0.35	2.58	11.00	1.00		Pass
HT20	MCS0	1	48	5240	0.35	2.74	11.00	1.00		Pass
HT40	MCS0	1	38	5190	0.47	-1.05	11.00	1.00		Pass
HT40	MCS0	1	46	5230	0.47	-1.37	11.00	1.00		Pass

TEST RESULTS DATA
26dB and 99% OBW

Band II										
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	52	5260	16.68	20.83	23.22	29.22	23.98	
11a	6M bps	1	60	5300	16.73	20.88	23.24	29.24	23.98	
11a	6M bps	1	64	5320	16.73	20.73	23.24	29.24	23.98	
HT20	MCS 0	1	52	5260	17.68	21.53	23.48	29.48	23.98	
HT20	MCS 0	1	60	5300	17.68	21.58	23.48	29.48	23.98	
HT20	MCS 0	1	64	5320	17.73	21.73	23.49	29.49	23.98	
HT40	MCS 0	1	54	5270	36.06	41.36	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	35.96	41.63	23.98	30.00	23.98	

Report Number : FR850818D

TEST RESULTS DATA
Average Power Table

FCC Band II										
Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	52	5260	92.53	15.14	23.98	1.00	26.99	Pass
11a	6M bps	1	60	5300	92.53	14.83	23.98	1.00	26.99	Pass
11a	6M bps	1	64	5320	92.53	14.63	23.98	1.00	26.99	Pass
HT20	MCS 0	1	52	5260	92.36	13.30	23.98	1.00	26.99	Pass
HT20	MCS 0	1	60	5300	92.36	13.08	23.98	1.00	26.99	Pass
HT20	MCS 0	1	64	5320	92.36	12.91	23.98	1.00	26.99	Pass
HT40	MCS 0	1	54	5270	89.73	12.15	23.98	1.00	26.99	Pass
HT40	MCS 0	1	62	5310	89.73	11.83	23.98	1.00	26.99	Pass

Report Number : FR850818D

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	0.34	5.48	11.00	1.00		Pass
11a	6M bps	1	60	5300	0.34	5.15	11.00	1.00		Pass
11a	6M bps	1	64	5320	0.34	5.12	11.00	1.00		Pass
HT20	MCS 0	1	52	5260	0.35	3.10	11.00	1.00		Pass
HT20	MCS 0	1	60	5300	0.35	3.42	11.00	1.00		Pass
HT20	MCS 0	1	64	5320	0.35	3.25	11.00	1.00		Pass
HT40	MCS 0	1	54	5270	0.47	-1.02	11.00	1.00		Pass
HT40	MCS 0	1	62	5310	0.47	-1.35	11.00	1.00		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	16.73	20.78	23.24	29.24	23.98	
11a	6M bps	1	116	5580	16.73	20.78	23.24	29.24	23.98	
11a	6M bps	1	140	5700	16.73	20.83	23.24	29.24	23.98	
11a	6Mbps	1	144	5720	16.78	20.98	23.25	29.25	23.98	
HT20	MCS 0	1	100	5500	17.73	21.63	23.49	29.49	23.98	
HT20	MCS 0	1	116	5580	17.73	21.58	23.49	29.49	23.98	
HT20	MCS 0	1	140	5700	17.73	21.63	23.49	29.49	23.98	
HT20	MCS0	1	144	5720	17.68	21.63	23.48	29.48	23.98	
HT40	MCS 0	1	102	5510	36.06	41.63	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.06	41.63	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	35.96	41.54	23.98	30.00	23.98	
HT40	MCS0	1	142	5710	36.06	41.72	23.98	30.00	23.98	

Report Number : FR850818D

TEST RESULTS DATA
Average Power Table

FCC Band III										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6M bps	1	100	5500	92.53	14.84	23.98	1.00	26.99	Pass
11a	6M bps	1	116	5580	92.53	14.88	23.98	1.00	26.99	Pass
11a	6M bps	1	140	5700	92.53	14.69	23.98	1.00	26.99	Pass
11a	6Mbps	1	144	5720	92.53	14.82	23.98	1.00	26.99	Pass
HT20	MCS 0	1	100	5500	92.36	13.03	23.98	1.00	26.99	Pass
HT20	MCS 0	1	116	5580	92.36	13.02	23.98	1.00	26.99	Pass
HT20	MCS 0	1	140	5700	92.36	13.00	23.98	1.00	26.99	Pass
HT20	MCS0	1	144	5720	92.36	13.06	23.98	1.00	26.99	Pass
HT40	MCS 0	1	102	5510	89.73	11.95	23.98	1.00	26.99	Pass
HT40	MCS 0	1	110	5550	89.73	12.00	23.98	1.00	26.99	Pass
HT40	MCS 0	1	134	5670	89.73	11.89	23.98	1.00	26.99	Pass
HT40	MCS0	1	142	5710	89.73	11.94	23.98	1.00	26.99	Pass

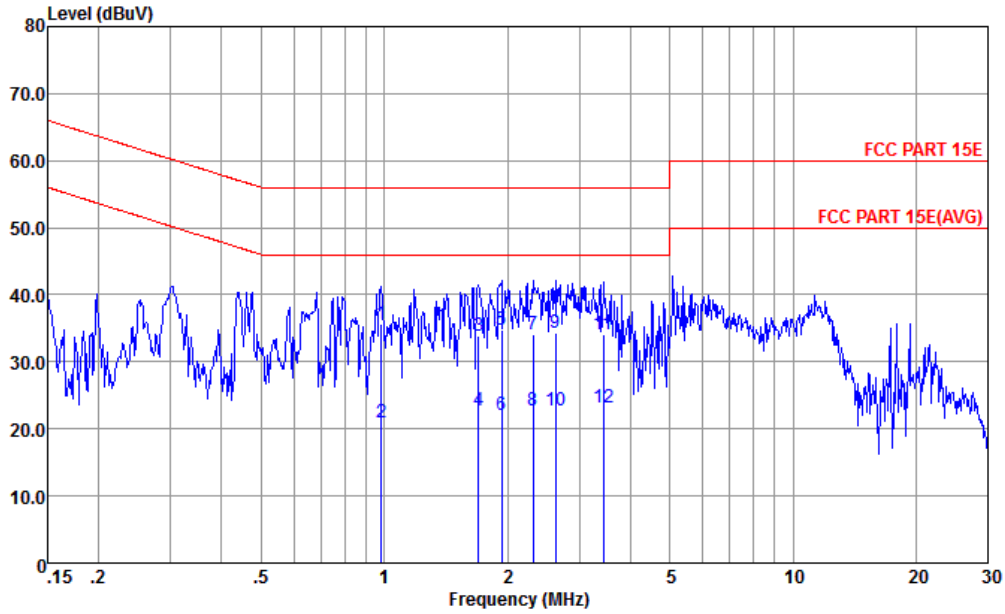
Report Number : FR850818D

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	0.34	5.04	11.00	1.00		Pass
11a	6M bps	1	116	5580	0.34	5.63	11.00	1.00		Pass
11a	6M bps	1	140	5700	0.34	5.25	11.00	1.00		Pass
11a	6Mbps	1	144	5720	0.34	5.17	11.00	1.00		Pass
HT20	MCS 0	1	100	5500	0.35	3.32	11.00	1.00		Pass
HT20	MCS 0	1	116	5580	0.35	3.19	11.00	1.00		Pass
HT20	MCS 0	1	140	5700	0.35	3.53	11.00	1.00		Pass
HT20	MCS0	1	144	5720	0.35	3.30	11.00	1.00		Pass
HT40	MCS 0	1	102	5510	0.47	-1.54	11.00	1.00		Pass
HT40	MCS 0	1	110	5550	0.47	-1.26	11.00	1.00		Pass
HT40	MCS 0	1	134	5670	0.47	-1.21	11.00	1.00		Pass
HT40	MCS0	1	142	5710	0.47	-1.25	11.00	1.00		Pass

Appendix B. AC Conducted Emission Test Results

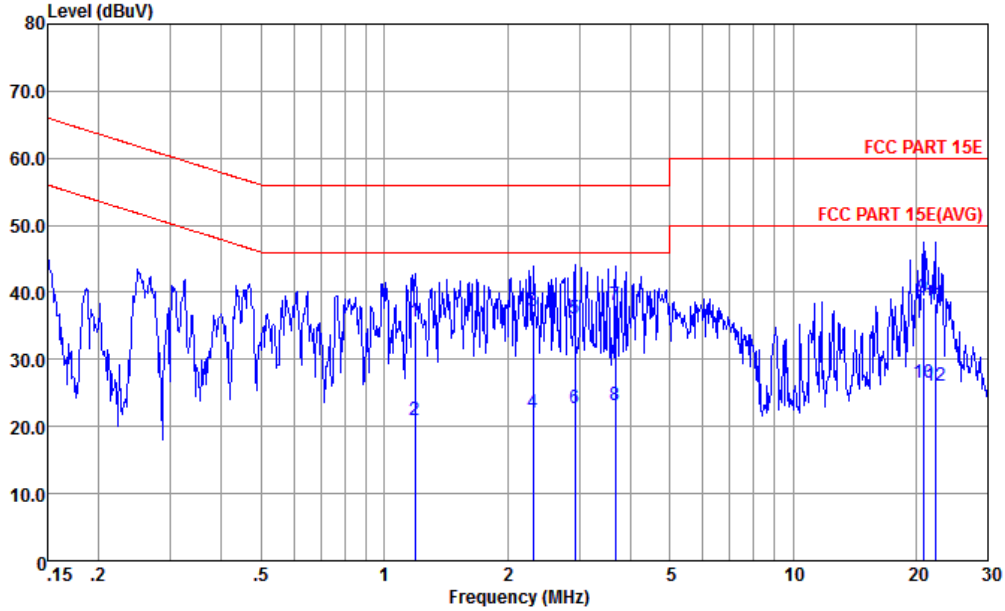
Test Engineer :	Amos Zhang	**Temperature :**	29.3~29.6℃
		Relative Humidity :	54~59%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line



Site : CO01-KS
Condition : FCC PART 15E LISN-L-171013-060103 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.984	35.57	-20.43	56.00	25.20	0.26	10.11	QP
2	0.984	20.97	-25.03	46.00	10.60	0.26	10.11	Average
3	1.698	33.96	-22.04	56.00	23.49	0.28	10.19	QP
4	1.698	22.66	-23.34	46.00	12.19	0.28	10.19	Average
5	1.939	34.69	-21.31	56.00	24.20	0.28	10.21	QP
6	1.939	22.09	-23.91	46.00	11.60	0.28	10.21	Average
7	2.309	34.10	-21.90	56.00	23.61	0.29	10.20	QP
8	2.309	22.70	-23.30	46.00	12.21	0.29	10.20	Average
9	2.622	34.30	-21.70	56.00	23.80	0.31	10.19	QP
10	2.622	22.80	-23.20	46.00	12.30	0.31	10.19	Average
11	3.436	34.11	-21.89	56.00	23.60	0.33	10.18	QP
12	3.436	23.11	-22.89	46.00	12.60	0.33	10.18	Average

Test Engineer :	Amos Zhang	**Temperature :**	29.3~29.6℃
		Relative Humidity :	54~59%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral



Site : CO01-KS
Condition : FCC PART 15E LISN-N-171013-060103 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		1.191	35.65	-20.35	56.00	25.21	0.31	10.13	QP
2		1.191	21.05	-24.95	46.00	10.61	0.31	10.13	Average
3		2.309	37.13	-18.87	56.00	26.61	0.32	10.20	QP
4		2.309	22.03	-23.97	46.00	11.51	0.32	10.20	Average
5		2.931	36.02	-19.98	56.00	25.50	0.33	10.19	QP
6		2.931	22.72	-23.28	46.00	12.20	0.33	10.19	Average
7	*	3.681	38.20	-17.80	56.00	27.70	0.33	10.17	QP
8		3.681	23.10	-22.90	46.00	12.60	0.33	10.17	Average
9		20.814	39.25	-20.75	60.00	28.60	0.15	10.50	QP
10		20.814	26.55	-23.45	50.00	15.90	0.15	10.50	Average
11		22.298	38.24	-21.76	60.00	27.50	0.21	10.53	QP
12		22.298	26.04	-23.96	50.00	15.30	0.21	10.53	Average

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		5130.56	49.91	-24.09	74	42.61	34.27	8.15	35.12	339	42	P	H
		5140.16	39.71	-14.29	54	32.38	34.3	8.15	35.12	339	42	A	H
	*	5182	95.48	-	-	88.07	34.37	8.16	35.12	339	42	P	H
		5182	88.18	-	-	80.77	34.37	8.16	35.12	339	42	A	H
		5139.04	49.44	-24.56	74	42.14	34.27	8.15	35.12	108	81	P	V
		5150	39.92	-14.08	54	32.59	34.3	8.15	35.12	108	81	A	V
	*	5182	97.52	-	-	90.11	34.37	8.16	35.12	108	81	P	V
		5182	89.84	-	-	82.43	34.37	8.16	35.12	108	81	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	41.96	-26.34	68.3	58.74	37.67	11.7	66.15	100	360	P	H
		10360	42.16	-26.14	68.3	58.94	37.67	11.7	66.15	100	0	P	V
802.11a CH 44 5220MHz		10440	41.88	-26.42	68.3	58.52	37.7	11.76	66.1	100	360	P	H
		10440	43.08	-25.22	68.3	59.72	37.7	11.76	66.1	100	0	P	V
802.11a CH 48 5240MHz		10480	41.21	-27.09	68.3	57.79	37.7	11.79	66.07	100	360	P	H
		10480	43.09	-25.21	68.3	59.67	37.7	11.79	66.07	100	0	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		5140.96	49.5	-24.5	74	42.17	34.3	8.15	35.12	320	38	P	H
		5104.32	39.6	-14.4	54	32.36	34.2	8.15	35.11	320	38	A	H
	*	5178	93.21	-	-	85.8	34.37	8.16	35.12	320	38	P	H
		5178	85.54	-	-	78.13	34.37	8.16	35.12	320	38	A	H
		5141.6	49.79	-24.21	74	42.46	34.3	8.15	35.12	113	84	P	V
		5135.52	39.71	-14.29	54	32.41	34.27	8.15	35.12	113	84	A	V
	*	5176	93.09	-	-	85.68	34.37	8.16	35.12	113	84	P	V
		5176	85.85	-	-	78.44	34.37	8.16	35.12	113	84	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 HT20 CH 36 5180MHz		10360	41.9	-26.4	68.3	58.68	37.67	11.7	66.15	100	0	P	H
		10360	42.07	-26.23	68.3	58.85	37.67	11.7	66.15	100	0	P	V
802.11n HT20 CH 44 5220MHz		10440	42.49	-25.81	68.3	59.13	37.7	11.76	66.1	100	0	P	H
		10440	43.41	-24.89	68.3	60.05	37.7	11.76	66.1	100	0	P	V
802.11n HT20 CH 48 5240MHz		10480	42.15	-26.15	68.3	58.73	37.7	11.79	66.07	100	0	P	H
		10480	42.55	-25.75	68.3	59.13	37.7	11.79	66.07	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		5125.44	48.96	-25.04	74	41.66	34.27	8.15	35.12	100	106	P	H
		5150	40.26	-13.74	54	32.93	34.3	8.15	35.12	100	106	A	H
	*	5186	88.13	-	-	80.72	34.37	8.16	35.12	100	106	P	H
		5186	80.75	-	-	73.34	34.37	8.16	35.12	100	106	A	H
		5380.74	47.84	-26.16	74	40.05	34.67	8.28	35.16	100	106	P	H
		5395.5	39.09	-14.91	54	31.24	34.7	8.31	35.16	100	106	A	H
		5120.64	51.65	-22.35	74	44.39	34.23	8.15	35.12	110	88	P	V
		5148.64	40.79	-13.21	54	33.46	34.3	8.15	35.12	110	88	A	V
	*	5192	91.97	-	-	84.53	34.4	8.16	35.12	110	88	P	V
		5192	84.12	-	-	76.68	34.4	8.16	35.12	110	88	A	V
		5368.86	48.12	-25.88	74	40.36	34.63	8.28	35.15	110	88	P	V
		5378.04	39.01	-14.99	54	31.22	34.67	8.28	35.16	110	88	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 1 5150~5250MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 38 5190MHz		10380	43.13	-25.17	68.3	59.86	37.68	11.73	66.14	100	0	P	H
		10380	42.74	-25.56	68.3	59.47	37.68	11.73	66.14	100	0	P	V
802.11n HT40 CH 46 5230MHz		10460	43.14	-25.16	68.3	59.74	37.7	11.79	66.09	100	0	P	H
		10460	43.34	-24.96	68.3	59.94	37.7	11.79	66.09	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 - 5250~5350MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI 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 64 5320MHz	*	5322	96.1	-	-	88.4	34.6	8.25	35.15	290	47	P	H
	*	5322	88.12	-	-	80.42	34.6	8.25	35.15	290	47	A	H
		5363.9	48.78	-25.22	74	41.02	34.63	8.28	35.15	290	47	P	H
		5351.5	39.95	-14.05	54	32.22	34.6	8.28	35.15	290	47	A	H
	*	5322	98.57	-	-	90.87	34.6	8.25	35.15	100	78	P	V
	*	5322	89.87	-	-	82.17	34.6	8.25	35.15	100	78	A	V
		5363.8	49.39	-24.61	74	41.63	34.63	8.28	35.15	100	78	P	V
		5351.4	40.53	-13.47	54	32.8	34.6	8.28	35.15	100	78	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	41.73	-26.57	68.3	58.21	37.73	11.83	66.04	100	0	P	H
		10520	41.25	-27.05	68.3	57.73	37.73	11.83	66.04	100	0	P	V
802.11a CH 60 5300MHz		10600	42.08	-31.92	74	58.27	37.9	11.89	65.98	100	0	P	H
		10600	42.11	-31.89	74	58.3	37.9	11.89	65.98	100	0	P	V
802.11a CH 64 5320MHz		10640	42.99	-31.01	74	59.13	37.9	11.92	65.96	100	0	P	H
		10640	42.02	-31.98	74	58.16	37.9	11.92	65.96	100	0	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 64 5320MHz		5370.8	48.59	-25.41	74	40.83	34.63	8.28	35.15	129	112	P	H
		5353.9	39.1	-14.9	54	31.37	34.6	8.28	35.15	129	112	A	H
	*	5318	93.16	-	-	85.46	34.6	8.25	35.15	129	112	P	H
		5318	85.84	-	-	78.14	34.6	8.25	35.15	129	112	A	H
		5380.5	48.62	-25.38	74	40.83	34.67	8.28	35.16	123	83	P	V
		5396.5	39.32	-14.68	54	31.47	34.7	8.31	35.16	123	83	A	V
	*	5316	96.12	-	-	88.42	34.6	8.25	35.15	123	83	P	V
		5316	88.48	-	-	80.78	34.6	8.25	35.15	123	83	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 HT20 CH 52 5260MHz		10520	41.63	-26.67	68.3	58.11	37.73	11.83	66.04	100	0	P	H
		10520	41.82	-26.48	68.3	58.3	37.73	11.83	66.04	100	0	P	V
802.11n HT20 CH 60 5300MHz		10600	42.51	-31.49	74	58.7	37.9	11.89	65.98	100	0	P	H
		10600	43.02	-30.98	74	59.21	37.9	11.89	65.98	100	0	P	V
802.11n HT20 CH 64 5320MHz		10640	42.97	-31.03	74	59.11	37.9	11.92	65.96	100	0	P	H
		10640	43.93	-30.07	74	60.07	37.9	11.92	65.96	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 62 5310MHz		5103.52	48.25	-25.75	74	41.01	34.2	8.15	35.11	300	41	P	H
		5116.64	39.6	-14.4	54	32.34	34.23	8.15	35.12	300	41	A	H
	*	5306	88.06	-	-	80.38	34.6	8.23	35.15	300	41	P	H
		5306	80.63	-	-	72.95	34.6	8.23	35.15	300	41	A	H
		5354.4	52.02	-21.98	74	44.29	34.6	8.28	35.15	300	41	P	H
		5356	39.53	-14.47	54	31.8	34.6	8.28	35.15	300	41	A	H
		5136.32	48.44	-25.56	74	41.14	34.27	8.15	35.12	110	88	P	V
		5103.2	39.67	-14.33	54	32.43	34.2	8.15	35.11	110	88	A	V
	*	5306	91.58	-	-	83.9	34.6	8.23	35.15	110	88	P	V
		5306	84.09	-	-	76.41	34.6	8.23	35.15	110	88	A	V
		5352.7	51.04	-22.96	74	43.31	34.6	8.28	35.15	110	88	P	V
		5350.6	39.7	-14.3	54	31.97	34.6	8.28	35.15	110	88	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 2 5250~5350MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 54 5270MHz		10540	42.12	-26.18	68.3	58.52	37.77	11.86	66.03	100	0	P	H
		10540	42.9	-25.4	68.3	59.3	37.77	11.86	66.03	100	0	P	V
802.11n HT40 CH 62 5310MHz		10620	43.27	-30.73	74	59.42	37.9	11.92	65.97	100	0	P	H
		10620	42.01	-31.99	74	58.16	37.9	11.92	65.97	100	0	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		5458.64	50.21	-23.79	74	42.46	34.6	8.32	35.17	114	93	P	H
		5468.56	50.42	-17.88	68.3	42.67	34.6	8.32	35.17	114	93	P	H
		5457.84	40.22	-13.78	54	32.47	34.6	8.32	35.17	114	93	A	H
	*	5500	98.99	-	-	91.24	34.6	8.32	35.17	114	93	P	H
		5500	88.96	-	-	81.21	34.6	8.32	35.17	114	93	A	H
		5455.28	49.34	-24.66	74	41.59	34.6	8.32	35.17	247	360	P	V
		5467.28	48.42	-19.88	68.3	40.67	34.6	8.32	35.17	247	360	P	V
		5459.6	40.09	-13.91	54	32.34	34.6	8.32	35.17	247	360	A	V
	*	5500	99.67	-	-	91.92	34.6	8.32	35.17	247	360	P	V
		5500	92.84	-	-	85.09	34.6	8.32	35.17	247	360	A	V
802.11a CH 140 5700MHz	*	5698	98.77	-	-	90.94	34.6	8.4	35.17	284	84	P	H
		5698	91.49	-	-	83.66	34.6	8.4	35.17	284	84	A	H
		5727.08	49.09	-19.21	68.3	41.16	34.67	8.42	35.16	284	84	P	H
	*	5696	102.38	-	-	94.55	34.6	8.4	35.17	244	354	P	V
		5696	94.72	-	-	86.89	34.6	8.4	35.17	244	354	A	V
		5727.72	51.49	-16.81	68.3	43.56	34.67	8.42	35.16	244	354	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	43.44	-30.56	74	58.83	38.1	12.21	65.7	100	0	P	H
		11000	43.58	-30.42	74	58.97	38.1	12.21	65.7	100	0	P	V
802.11a CH 116 5580MHz		11160	41.9	-32.1	74	57.03	38.1	12.35	65.58	100	0	P	H
		11160	43.55	-30.45	74	58.68	38.1	12.35	65.58	100	0	P	V
802.11a CH 140 5700MHz		11400	42.87	-31.13	74	57.56	38.2	12.52	65.41	100	0	P	H
		11400	42.1	-31.9	74	56.79	38.2	12.52	65.41	100	0	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		5442	49.46	-24.54	74	41.68	34.63	8.32	35.17	142	88	P	H
		5468.72	49.85	-18.45	68.3	42.1	34.6	8.32	35.17	142	88	P	H
		5459.44	40.02	-13.98	54	32.27	34.6	8.32	35.17	142	88	A	H
	*	5498	96.44	-	-	88.69	34.6	8.32	35.17	142	88	P	H
		5498	88.7	-	-	80.95	34.6	8.32	35.17	142	88	A	H
		5455.92	49.94	-24.06	74	42.19	34.6	8.32	35.17	310	3	P	V
		5462	48.3	-20	68.3	40.55	34.6	8.32	35.17	310	3	P	V
		5458.48	40.34	-13.66	54	32.59	34.6	8.32	35.17	310	3	A	V
	*	5496	98.61	-	-	90.86	34.6	8.32	35.17	310	3	P	V
		5496	90.96	-	-	83.21	34.6	8.32	35.17	310	3	A	V
802.11n HT20 CH 140 5700MHz		5760.04	49.36	-18.94	68.3	41.33	34.73	8.45	35.15	100	85	P	H
	*	5698	96.17	-	-	88.34	34.6	8.4	35.17	100	85	P	H
		5698	88.86	-	-	81.03	34.6	8.4	35.17	100	85	A	H
		5731.24	49.75	-18.55	68.3	41.82	34.67	8.42	35.16	310	11	P	V
	*	5696	100.12	-	-	92.29	34.6	8.4	35.17	310	11	P	V
		5696	92.78	-	-	84.95	34.6	8.4	35.17	310	11	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 100 5500MHz		11000	43.94	-30.06	74	59.33	38.1	12.21	65.7	100	0	P	H
		11000	44.62	-29.38	74	60.01	38.1	12.21	65.7	100	0	P	V
802.11n HT20 CH 116 5580MHz		11160	42.05	-31.95	74	57.18	38.1	12.35	65.58	100	0	P	H
		11160	41.68	-32.32	74	56.81	38.1	12.35	65.58	100	0	P	V
802.11n HT20 CH 140 5700MHz		11400	42.91	-31.09	74	57.6	38.2	12.52	65.41	100	0	P	H
		11400	43.63	-30.37	74	58.32	38.2	12.52	65.41	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		5456.56	49.73	-24.27	74	41.98	34.6	8.32	35.17	306	42	P	H
		5462.96	52	-22	74	44.25	34.6	8.32	35.17	306	42	P	H
		5457.84	39.7	-14.3	54	31.95	34.6	8.32	35.17	306	42	A	H
	*	5514	93.06	-	-	85.34	34.57	8.33	35.18	306	42	P	H
		5514	85.57	-	-	77.85	34.57	8.33	35.18	306	42	A	H
		5747.64	48.73	-19.57	68.3	40.73	34.7	8.45	35.15	299	12	P	H
		5455.92	48.82	-25.18	74	41.07	34.6	8.32	35.17	299	12	P	V
		5467.28	49.7	-18.6	68.3	41.95	34.6	8.32	35.17	299	12	P	V
		5458.96	40.2	-13.8	54	32.45	34.6	8.32	35.17	299	12	A	V
	*	5516	95.53	-	-	87.81	34.57	8.33	35.18	299	12	P	V
		5516	88.21	-	-	80.49	34.57	8.33	35.18	299	12	A	V
		5756.84	48.75	-19.55	68.3	40.72	34.73	8.45	35.15	299	12	P	V
802.11n HT40 CH 134 5670MHz		5459.12	50.51	-23.49	74	42.76	34.6	8.32	35.17	315	50	P	H
		5462.16	48.27	-20.03	68.3	40.52	34.6	8.32	35.17	299	11	P	H
		5456.56	39.79	-14.21	54	32.04	34.6	8.32	35.17	315	50	A	H
	*	5678	92.76	-	-	84.95	34.6	8.4	35.19	315	50	P	H
		5678	85.76	-	-	77.95	34.6	8.4	35.19	315	50	A	H
		5739	50.76	-23.24	74	42.76	34.7	8.45	35.15	315	50	P	H
		5446.16	48.22	-25.78	74	40.47	34.6	8.32	35.17	299	11	P	V
		5465.04	48.27	-20.03	68.3	40.52	34.6	8.32	35.17	299	11	P	V
		5455.12	39.67	-14.33	54	31.92	34.6	8.32	35.17	299	11	A	V
	*	5672	97.09	-	-	89.28	34.6	8.4	35.19	299	11	P	V
		5672	89.43	-	-	81.62	34.6	8.4	35.19	299	11	A	V
		5731.4	51.84	-16.46	68.3	43.91	34.67	8.42	35.16	299	11	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - 5470~5725MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 102 5510MHz		11020	43.24	-30.76	74	58.59	38.1	12.24	65.69	100	0	P	H
		11020	43.43	-30.57	74	58.78	38.1	12.24	65.69	100	0	P	V
802.11n HT40 CH 110 5550MHz		11100	44.37	-29.63	74	59.6	38.1	12.3	65.63	100	0	P	H
		11100	44.15	-29.85	74	59.38	38.1	12.3	65.63	100	0	P	V
802.11n HT40 CH 134 5670MHz		11340	42.15	-31.85	74	57.01	38.13	12.47	65.46	100	0	P	H
		11340	40.81	-33.19	74	55.67	38.13	12.47	65.46	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

WIFI 802.11a (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)
802.11a CH 144 5720MHz	*	5722	98.26	-	-	90.33	34.67	8.42	35.16	132	93	P	H
		5722	90.4	-	-	82.47	34.67	8.42	35.16	132	93	A	H
	*	5722	100.68	-	-	92.75	34.67	8.42	35.16	108	273	P	V
		5722	93.21	-	-	85.28	34.67	8.42	35.16	108	273	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

WIFI 802.11a (Harmonic @ 3m)

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 144 5720MHz		11440	43	-31	74	57.61	38.23	12.55	65.39	100	0	P	H
		11440	42.2	-31.8	74	56.81	38.23	12.55	65.39	100	0	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 (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	*	5718	97.78	-	-	89.85	34.67	8.42	35.16	110	91	P	H
HT20		5718	90.66	-	-	82.73	34.67	8.42	35.16	110	91	A	H
CH 144	*	5716	99.66	-	-	91.77	34.63	8.42	35.16	222	16	P	V
5720MHz		5716	91.54	-	-	83.65	34.63	8.42	35.16	222	16	A	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. 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 144 5720MHz		11440	43.67	-30.33	74	58.28	38.23	12.55	65.39	100	0	P	H
		11440	42.26	-31.74	74	56.87	38.23	12.55	65.39	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

WIFI 802.11n 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	*	5716	92.84	-	-	84.95	34.63	8.42	35.16	114	87	P	H
HT40		5716	85.24	-	-	77.35	34.63	8.42	35.16	114	87	A	H
CH 142	*	5712	96	-	-	88.12	34.63	8.42	35.17	108	156	P	V
5710MHz		5712	88.28	-	-	80.4	34.63	8.42	35.17	108	156	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Band 3 - Straddle Channel

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 142 5710MHz		11420	42.46	-31.54	74	57.12	38.22	12.52	65.4	100	360	P	H
		11420	42.81	-31.19	74	57.47	38.22	12.52	65.4	100	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

WIFI 802.11n HT40 (LF @ 3m)

WIFI 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 HT40 LF		30	23.92	-16.08	40	29.91	24.1	0.57	30.66	100	355	P	H
		32.91	21.64	-18.36	40	29.34	22.36	0.61	30.67	-	-	P	H
		61.04	19.22	-20.78	40	36.59	12.52	0.8	30.69	-	-	P	H
		69.77	20.1	-19.9	40	37.26	12.7	0.82	30.68	-	-	P	H
		258.92	20.37	-25.63	46	29.64	19.69	1.75	30.71	-	-	P	H
		846.74	28.1	-17.9	46	28.86	26.29	3.1	30.15	-	-	P	H
		30.97	27.43	-12.57	40	33.99	23.52	0.58	30.66	-	-	P	V
		37.76	27.59	-12.41	40	38.2	19.46	0.62	30.69	-	-	P	V
		62.98	20.44	-19.56	40	37.77	12.56	0.81	30.7	-	-	P	V
		74.62	27.85	-12.15	40	44.95	12.7	0.86	30.66	200	46	P	V
		96.93	19.48	-24.02	43.5	32.84	16.27	1	30.63	-	-	P	V
		921.43	28.67	-17.33	46	28.42	26.71	3.29	29.75	-	-	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)

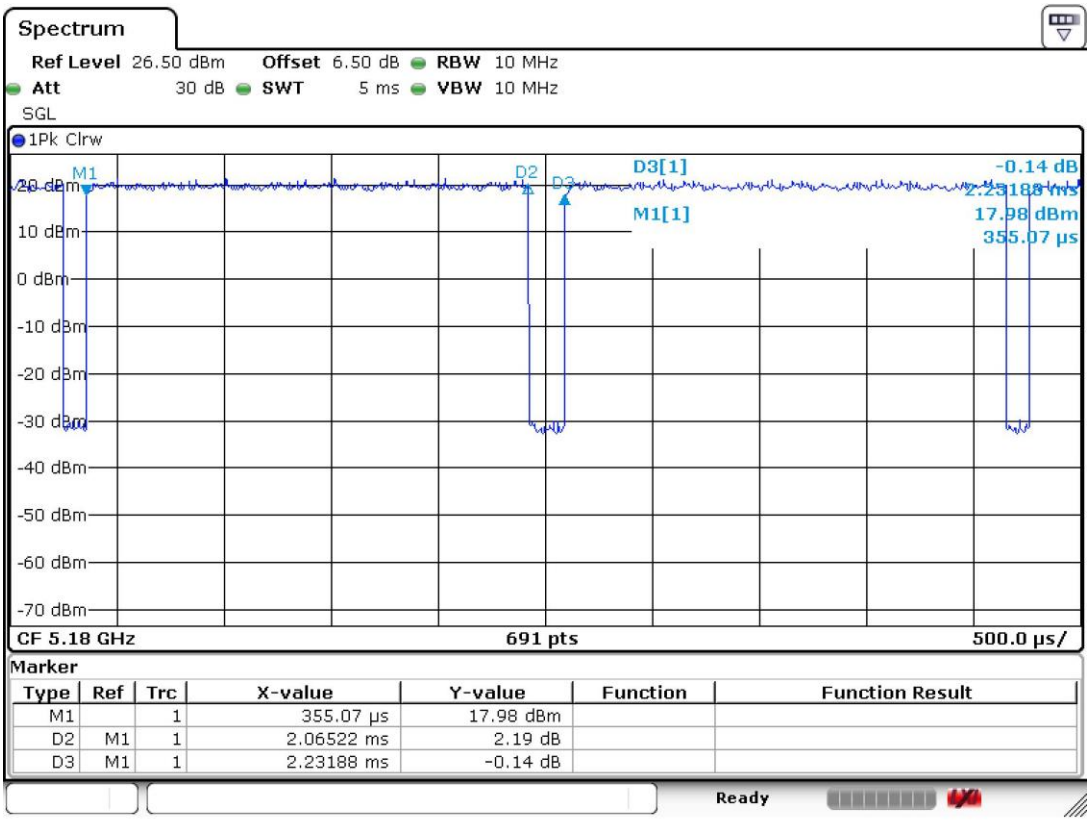
= -10.46(dB)

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

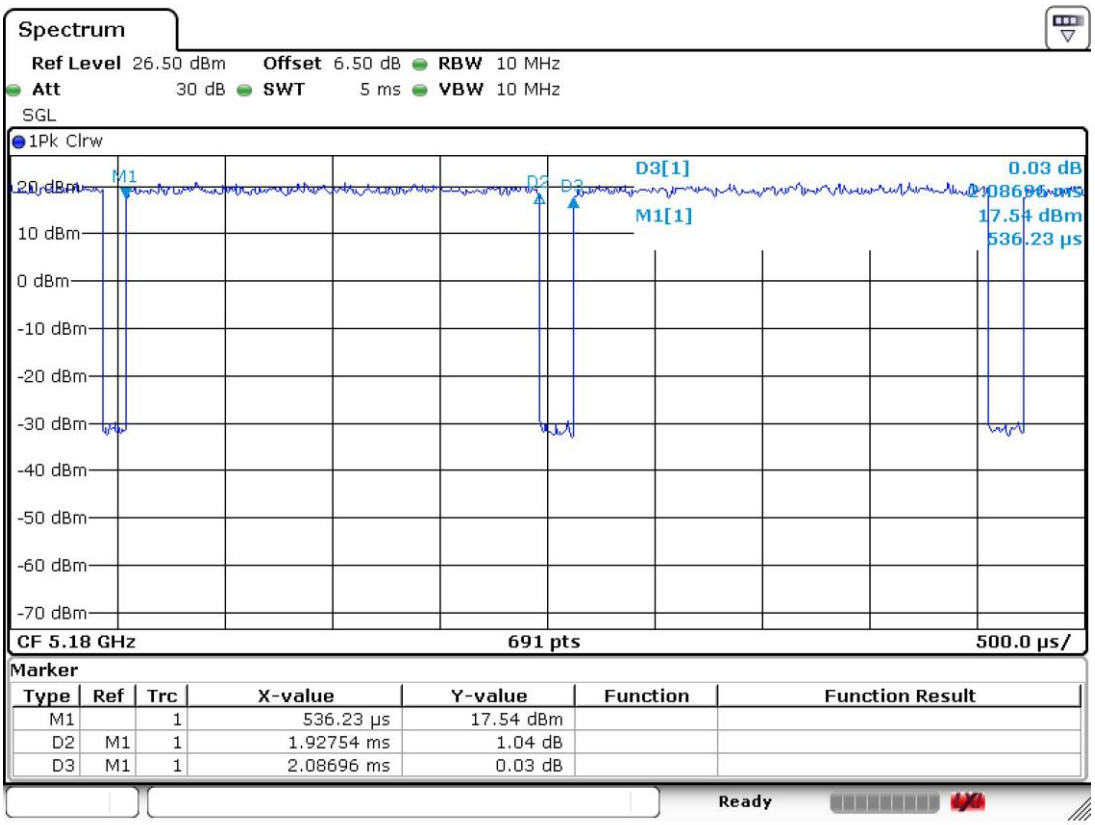
Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	92.53	2.065	0.484	0.51kHz
802.11n HT20	92.36	1.928	0.519	0.56kHz
802.11n HT40	89.73	0.949	1.053	1.10kHz

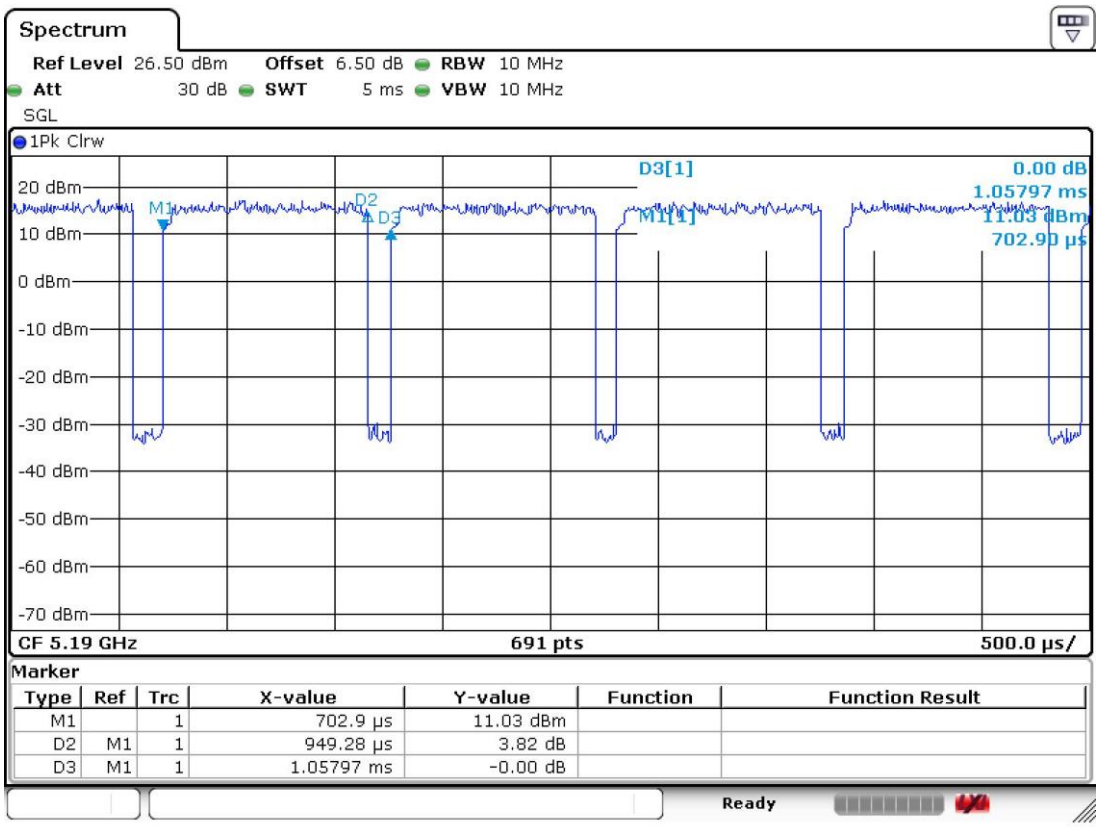
802.11a



802.11n HT20


Spectrum
Ref Level 26.50 dBm Offset 6.50 dB RBW 10 MHz
Att 30 dB SWT 5 ms VBW 10 MHz
SGL
1Pk Clrw
M1
D2
D3
D3[1]
0.03 dB
2.08696 ms
M1[1]
17.54 dBm
536.23 µs
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.18 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 536.23 µs 17.54 dBm
D2 M1 1 1.92754 ms 1.04 dB
D3 M1 1 2.08696 ms 0.03 dB
Ready

802.11n HT40


Spectrum
Ref Level 26.50 dBm Offset 6.50 dB RBW 10 MHz
Att 30 dB SWT 5 ms VBW 10 MHz
SGL
1Pk Clrw
D3[1]
0.00 dB
1.05797 ms
11.03 dBm
702.90 µs
M1
D2
D3
M1[1]
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.19 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 702.9 µs 11.03 dBm
D2 M1 1 949.28 µs 3.82 dB
D3 M1 1 1.05797 ms -0.00 dB
Ready