# **FCC RF Test Report**

APPLICANT : TCL Communication Ltd.

EQUIPMENT : GSM Quad-band / UMTS Quad-band / LTE hexa-band

mobile phone

BRAND NAME : alcatel MODEL NAME : 6055U

FCC ID : 2ACCJA018

STANDARD : FCC Part 15 Subpart E §15.407

**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product testing was completed on May 24, 2016. 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.

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL (KUNSHAN) INC. No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China

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Testing Laboratory 2627

: Rev. 01

Report No.: FR642504E

Report Template No.: BU5-FR15EWL AC Version 1.4

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## **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR642504E	Rev. 01	Initial issue of report	May 27, 2016

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## **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	FCC ≤24 dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	FCC ≤11 dBm (depend on band)	Pass	1
3.4	15.407(b)	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 0.13 dB at 5462.800 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 7.55 dB at 1.460 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	-

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## 1 General Description

## 1.1. Applicant

#### **TCL Communication Ltd.**

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

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### 1.2. Manufacturer

#### **TCL Communication Ltd.**

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

## 1.3. Feature of Equipment Under Test

1 catale of Equipment officer rest					
Product Feature & Specification					
Equipment	GSM Quad-band / UMTS Quad-band / LTE hexa-band mobile phone				
Brand Name	alcatel				
Model Name	6055U				
FCC ID	2ACCJA018				
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/ HSPA+(16QAM uplink is not supported)/LTE/NFC/ WLAN 2.4GHz 802.11b/g/n HT20/HT40/ WLAN 5GHz 802.11a/n HT20/HT40/ WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0+EDR/ Bluetooth v4.0 LE/ Bluetooth v4.2 LE				
IMEI Code	Conducted: 014658000006832 Radiation: 014658000006832 Conduction: 014658000003722				
HW Version	PIO				
SW Version	010 01				
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.

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## 1.4. Product Specification of Equipment Under Test

Product Specification of Equipment Under Test  Product Specification subjective to this standard			
	5180 MHz ~ 5240 MHz		
Tx/Rx Frequency Range	5260 MHz ~ 5320 MHz		
	5500 MHz ~ 5700 MHz		
	<5180 MHz ~ 5240 MHz>		
	802.11a : 12.45 dBm / 0.0176 W		
	802.11n HT20 : 12.42 dBm / 0.0175 W		
	802.11n HT40 : 12.44 dBm / 0.0175 W		
	802.11ac VHT20 : 12.39 dBm / 0.0173 W		
	802.11ac VHT40 : 12.42 dBm / 0.0175 W		
	802.11ac VHT80 : 12.41 dBm / 0.0174 W		
	<5260 MHz ~ 5320 MHz>		
	802.11a : 12.43 dBm / 0.0175 W 802.11n HT20 : 12.30 dBm / 0.0170 W		
Maximum Output Power to Antenna	802.11n HT40 : 12.41 dBm / 0.0174 W		
Maximum Output I ower to Antenna	802.11ac VHT20 : 12.40 dBm / 0.0174 W		
	802.11ac VHT40 : 12.27 dBm / 0.0169 W		
	802.11ac VHT80 : 12.42 dBm / 0.0175 W		
	<5500 MHz ~ 5700 MHz>		
	802.11a : 11.33 dBm / 0.0136 W		
	802.11n HT20 : 11.00 dBm / 0.0126 W		
	802.11n HT40 : 11.11 dBm / 0.0129 W		
	802.11ac VHT20 : 11.12 dBm / 0.0129 W		
	802.11ac VHT40 : 11.12 dBm / 0.0129 W		
	802.11ac VHT80 : 11.07 dBm / 0.0128 W		
	<5180 MHz ~ 5240 MHz>		
	802.11a : 18.53 MHz		
	802.11n HT20 : 19.58 MHz		
	802.11n HT40 : 36.76 MHz		
	802.11ac VHT20: 19.33 MHz		
	802.11ac VHT40 : 36.96 MHz 802.11ac VHT80 : 74.93 MHz		
	<5260 MHz ~ 5320 MHz>		
	802.11a : 18.63 MHz		
	802.11n HT20 : 19.38 MHz		
99% Occupied Bandwidth	802.11n HT40 : 36.86 MHz		
, , , , , , , , , , , , , , , , , , , ,	802.11ac VHT20: 19.38 MHz		
	802.11ac VHT40 : 36.86 MHz		
	802.11ac VHT80 : 74.93 MHz		
	<5500 MHz ~ 5700 MHz>		
	802.11a : 18.68 MHz		
	802.11n HT20 : 19.33 MHz		
	802.11n HT40 : 36.86 MHz		
	802.11ac VHT20: 19.33 MHz		
	802.11ac VHT40 : 37.06 MHz		
	802.11ac VHT80 : 74.93 MHz		

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Antenna Type	IFA Antenna		
	<5180 MHz ~ 5240 MHz>: -3.70 dBi		
Antenna Gain	<5260 MHz ~ 5320 MHz>: -3.70 dBi		
	<5500 MHz ~ 5700 MHz>: -3.70 dBi		
Type of Madulation	802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Type of Modulation	802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)		

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## 1.5. Specification of Accessory

<u>. Opcomed</u>	epecinication of Accessory					
	Specification of Accessory					
	Brand Name	alcatel	Model Name	UC13US		
AC Adapter	Power Rating	I/P: 100-240Vac,	I/P: 100-240Vac, 500mA, O/P: 5Vdc, 2000mA			
	P/N	CBA0059AG8C1				
Battery 1	Brand Name	ALCATEL onetouch	Model Name	TLp026EJ		
	<b>Power Rating</b>	3.85Vdc, 2610m/	3.85Vdc, 2610mAh			
Battery 2	Brand Name	ALCATEL onetouch	Model Name	TLp026E2		
	Power Rating	3.84Vdc, 2610m/	Ah			
USB Cable	Brand Name	N/A	Model Name	CDA0000049C2		
USB Cable	Signal Line Type	1.0m shielded wi	thout core			

### 1.6. Modification of EUT

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

## 1.7. Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.				
	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China				
Test Site Location	TEL: +86-0512-5790-0158				
	FAX: +86-0512-5790-0958				
Took Site No	Sporton Site No. FCC Registration			FCC Registration No.	
Test Site No.	TH01-KS	CO01-KS	03CH03-KS	306251	

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

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## 1.8. Applicable Standards

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

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- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- 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.

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## 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 (Y/Z plane) 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 Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	36	5180	44	5220
5180- 5240 MHz Band 1	38	5190	46	5230
(U-NII-1)	40	5200	48	5240
(5 1 1)	42	5210		

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	52	5260	60	5300
5260-5320 MHz Band 2	54	5270	62	5310
(U-NII-2A)	56	5280	64	5320
(5 : 27 1)	58	5290		

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Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	100	5500	120	5600
	102	5510	122	5610
	104	5520	124	5620
5500-5700 MHz	106	5530	126	5630
Band 3	108	5540	128	5640
(U-NII-2C)	110	5550	132	5660
	112	5560	134	5670
	116	5580	136	5680
	118	5590	140	5700

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	144	5720	142	5710
Straudie Charmer	138	5690		

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

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## 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.

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		WLA	N 5GHz 8	02.11a	Average	Power (d	IBm)				
Pow	er vs. Chanr	nel	Power vs. Data Rate								
Channel	Frequency (MHz)	Data Rate	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
	(1411 12)	6Mbps									
CH 36	5180	12.14									
CH 44	5220	12.21	CH 48	12.34	12.41	12.40	12.33	12.39	12.42	12.37	
CH 48	5240	<mark>12.45</mark>									
CH 52	5260	<mark>12.43</mark>									
CH 60	5300	12.04	CH 52	12.39	12.40	12.41	12.34	12.42	12.38	12.36	
CH 64	5320	11.53									
CH 100	5500	<mark>11.33</mark>									
CH 116	5580	10.88	CH 100	10.96	11.04	11.02	10.97	11.00	11.07	11.08	
CH 140	5700	10.11									

		WLAN (	5GHz 802.	11n-HT	20 Avera	ge Powe	r (dBm)				
Pow	er vs. Chanı	nel	Power vs. Data Rate								
Channel Frequency		MCS Index	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
	(MHz)	MCS0									
CH 36	5180	12.41									
CH 44	5220	<mark>12.42</mark>	CH 44	12.37	12.39	12.35	12.36	12.38	12.34	12.33	
CH 48	5240	11.96									
CH 52	5260	<mark>12.30</mark>									
CH 60	5300	11.91	CH 52	12.18	12.23	12.28	12.18	12.27	12.23	12.26	
CH 64	5320	11.43									
CH 100	5500	<mark>11.00</mark>									
CH 116	5580	10.77	CH 100	10.90	10.95	10.91	10.86	10.92	10.96	10.93	
CH 140	5700	9.97									

	WLAN 5GHz 802.11n-HT40 Average Power (dBm)											
Pow	er vs. Chanr	nel		Power vs. Data Rate								
Channel	Channel Frequency (MHz) MCS Index		Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7		
	(IVITZ)	MCS0										
CH 38	5190	<mark>12.44</mark>	CH 38	12.37	12.33	12.39	12.34	12.35	12.36	12.41		
CH 46	5230	11.88	CH 36	12.31	12.33	12.39	12.34	12.33	12.30	12.41		
CH 54	5270	<b>12.41</b>	CH 54	12.31	12.29	12.39	12.34	12.33	12.35	12.32		
CH 62	5310	11.85	CH 34	12.31	12.29	12.39	12.34	12.33	12.33	12.32		
CH 102	5510	<mark>11.11</mark>										
CH 110	5550	11.04	CH 102	11.00	11.06	11.04	11.03	11.09	11.08	11.10		
CH 134	5670	10.94										

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		WLAN	5GHz 802.1	1ac VH	T20 Ave	rage Po	ower (di	3m)				
Po	wer vs. Cha	nnel	Power vs. Data Rate									
Channel	Frequency MCS		Channel	MCS1	MCS2	MCS3	MCS4	MOOF	MCCC	MCCZ	MCS8	
Chamilei	(MHz)	Index MCS0	Chamilei	IVICST	IVICSZ	IVICOS	WC34	IVICOS	IVICS	IVICS	IVICSO	
CH 36	5180	<b>12.39</b>										
CH 44	5220	12.34	CH 36	12.37	12.30	12.32	12.29	12.36	12.31	12.33	12.34	
CH 48	5240	11.83	1									
CH 52	5260	12.40										
CH 60	5300	12.10	CH 52	12.31	12.34	12.38	12.37	12.30	12.39	12.35	12.33	
CH 64	5320	11.59	1									
CH 100	5500	<mark>11.12</mark>										
CH 116	5580	10.85	CH 100	11.05	10.99	10.98	11.01	11.09	11.10	11.02	11.08	
CH 140	5700	10.20										

	WLAN 5GHz 802.11ac VHT40 Average Power (dBm)												
Pov	ver vs. Chan	nel		Power vs. Data Rate									
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
CH 38	5190	12.42	011.00	40.00	40.05	40.04	40.00	40.00	40.04	12.40	12.35	40.00	
CH 46	5230	12.05	CH 38	12.32	2.32   12.35	12.34	12.30	12.39	12.31	12.40	12.33	12.38	
CH 54	5270	12.27	CH 54	12.16	12.10	10 14	12.07	10.15	12.20	12.24	12.17	12.25	
CH 62	5310	11.97	CH 54	12.10	12.10	12.14	12.07	12.15	12.20	12.24	12.17	12.25	
CH 102	5510	<mark>11.12</mark>											
CH 110	5550	11.07	CH 102	11.01	11.03	10.97	11.05	11.09	11.04	11.08	11.10	11.11	
CH 134	5670	10.74											

	WLAN 5GHz 802.11ac VHT80 Average Power (dBm)												
Pov	Power vs. Channel				Power vs. Data Rate								
Channel	hannel Frequency MCS Index		Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
	(MHz)	MCS0											
CH 42	5210	<b>12.41</b>	CH 42	12.36	12.30	12.37	12.35	12.39	12.40	12.38	12.31	12.32	
CH 58	5290	<mark>12.42</mark>	CH 58	12.32	12.41	12.37	12.34	12.39	12.36	12.40	12.38	12.41	
CH 106	5530	<b>11.07</b>	CH 106	10.96	10.98	10.99	10.97	11.05	11.06	11.04	11.02	11.01	
CH 122	5610	10.71	CH 100	10.90	10.96	10.99	10.97	11.05	11.00	11.04	11.02	11.01	

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## 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.

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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

	Test Cases										
AC	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + USB Cable (Charging										
Conducted	from Adapter) + Battery 1										
Emission	Mode 2 : GSM850 Idle + Bluetooth Link + WLAN (5GHz) Link + Earphone + USB Cable (Charging from										
Ellission	Adapter) + Battery 2										

#### Remark:

- 1. For Radiated TCs, the tests were performed with Adapter, Earphone, Battery 1 and USB Cable, only the worst mode need to verify Battery 2.
- 2. The worst case of conducted emission is mode 1; only the test data of it was reported.

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	Ch. #	Band I: 5180-5240 MHz	Band II: 5260-5320 MHz	Band III: 5500-5700MHz
	CII. #	802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
Н	High	48	64	140
5	Straddle			144
(	Channel	-	-	144

	4	Band I: 5180-5240 MHz	Band II:5260-5320 MHz	Band III:5500-5700MHz
	Ch. #	802.11n HT20	802.11n HT20	802.11n HT20
Г	Low	36	52	100
M	Middle	44	60	116
Н	High	48	64	140
5	Straddle			144
(	Channel	-	-	1 <del>44</del>

	Ch #	Band I: 5180-5240 MHz	Band II:5260-5320 MHz	Band III:5500-5700MHz
	Ch. #	802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
Н	High	46	62	134
5	Straddle			142
(	Channel	-	-	142

	Ch #	Band I: 5180-5240 MHz	Band II:5260-5320 MHz	Band III:5500-5700MHz
	Ch. #	802.11ac VHT20	802.11ac VHT20	802.11ac VHT20
L	Low	36	52	100
M	Middle	44	60	116
Н	High	48	64	140
5	Straddle			144
(	Channel	-	-	144

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Ch. #		Band I: 5180-5240 MHz	Band II:5260-5320 MHz	Band III:5500-5700MHz		
	CII. #	802.11ac VHT40	802.11ac VHT40	802.11ac VHT40		
L	Low	38	54	102		
M	Middle	•	-	110		
Н	High	46	62	134		
5	Straddle			142		
(	Channel	-	-	142		

Ch. #		Band I: 5180-5240 MHz	Band II:5260-5320 MHz	Band III:5500-5700MHz
		802.11ac VHT80	802.11ac VHT80	802.11ac VHT80
L	Low	•	-	106
M	Middle	42	58	-
Н	High	-	-	122
5	Straddle			138
(	Channel	-	-	130

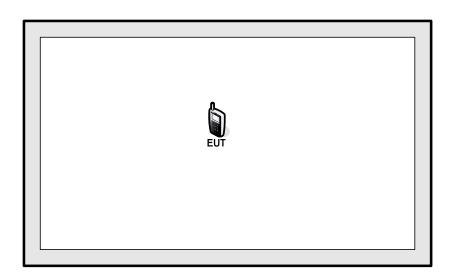
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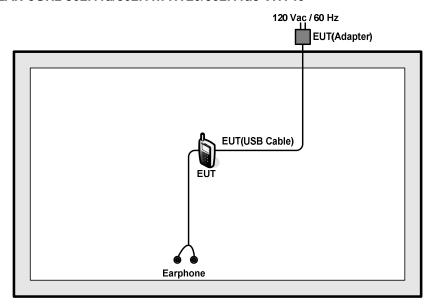
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## 2.4 Connection Diagram of Test System

<WLAN Tx Mode>
For WLAN 5GHz 802.11n HT40/802.11ac VHT20/VHT80



#### For WLAN 5GHz 802.11a/802.11n HT20/802.11ac VHT40

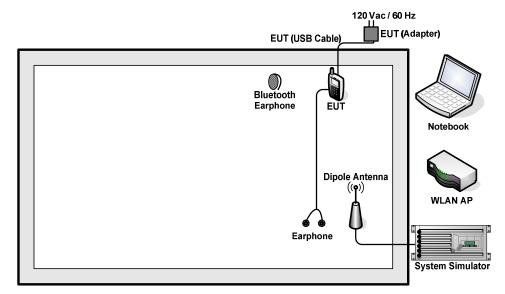


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#### <AC Conducted Emission Mode>



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## 2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
2.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
3.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
5.	DC Power Supply	GW INSTEK	GPD-2303S	N/A	N/A	Unshielded, 1.8 m
6.	Earphone	Lenovo	SH100	N/A	Unshielded,1.0m	N/A

## 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 7.0 dB.

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

= 7.0 (dB)

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### 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, U-NII procedures were applied for operations in the frequency band in accordance with FCC KDB 644545 D03.

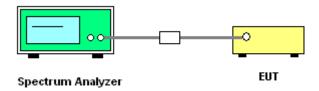
#### 3.1.2 Measuring Instruments

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

#### 3.1.3 Test Procedures

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.
   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



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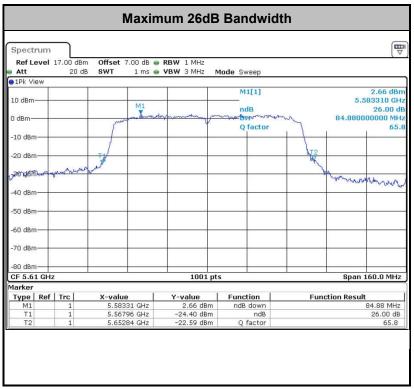
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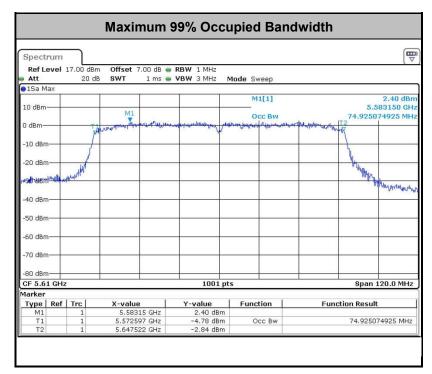
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#### 3.1.5 Test Result of 26dB & 99% Occupied Bandwidth Plots

Please refer to Appendix A.





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

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## 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.

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For the 5.25–5.35 GHz and 5.47–5.725 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, U-NII procedures and limits were applied for operations in the frequency band in accordance with FCC KDB 644545 D03.

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.

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#### 3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.

Method PM (Measurement using an RF average power meter):

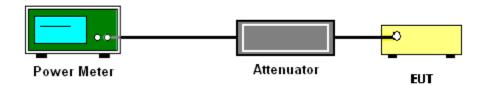
- 1. Measurement is performed using a wideband RF power meter.
- 2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
- 3. Measure the average power of the transmitter, and the average power is corrected with duty factor,  $10 \log(1/x)$ , where x is the duty cycle.

For straddle channel, the testing follows Method SA-3 (RMS detection with max hold) of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.

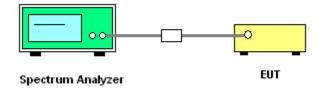
Compute power by integrating the spectrum across the 99% occupied bandwidth of the signal using the instrument's band power measurement function.

### 3.2.4 Test Setup

For normal channel:



#### For straddle channel:



#### 3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

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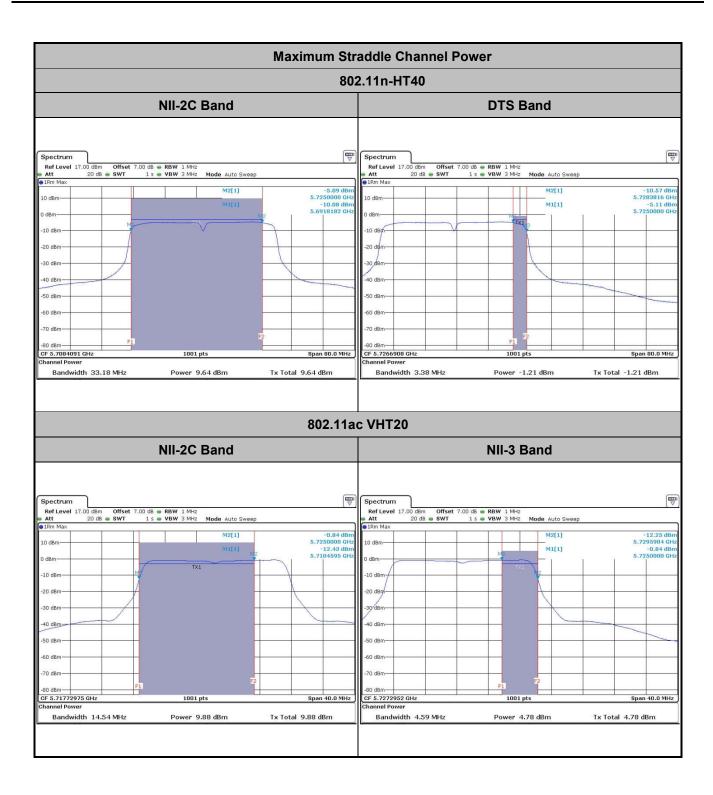
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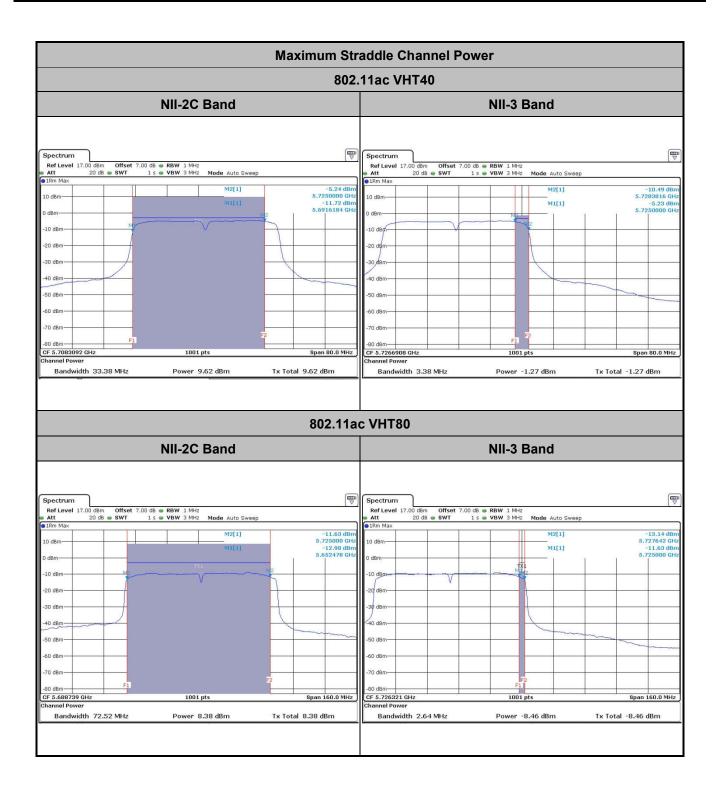
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## 3.3 Power Spectral Density Measurement

### 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.

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For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For Straddle Channel, U-NII procedures and limits were applied for operations in the frequency band in accordance with FCC KDB 644545 D03.

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.

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#### 3.3.3 Test Procedures

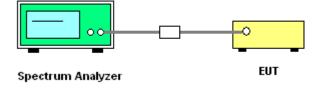
The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02. Section F) Maximum power spectral density.

#### # 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 D02 General UNII Test Procedures New Rules v01r02.
  - 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.
- 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.

#### 3.3.4 Test Setup



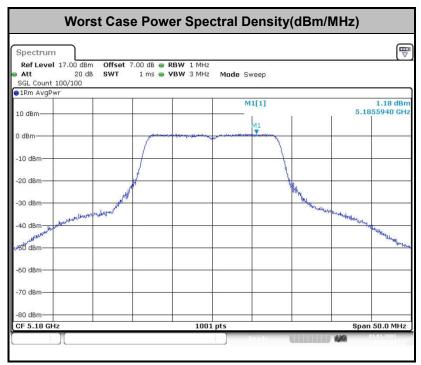
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## 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



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

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#### **Unwanted Radiated Emission Measurement** 3.4

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 Part15.205.

#### 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--5725MHz band: all emissions outside of the 5470-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table

Frequency	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(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.

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

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

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(3) KDB789033 D02 v01r02 G)2)c) 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

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02.
   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.

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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.

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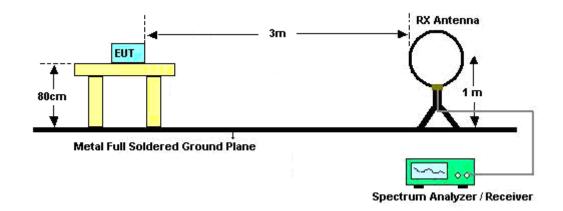
- 3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for 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.

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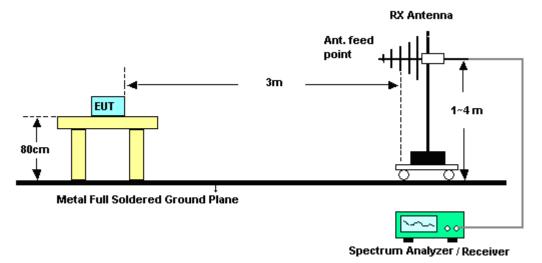
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## 3.4.4 Test Setup

#### For radiated emissions below 30MHz



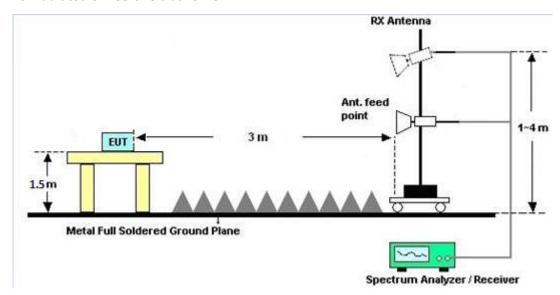
#### For radiated emissions from 30MHz to 1GHz



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#### 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 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.

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### 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.

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

<sup>\*</sup>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.

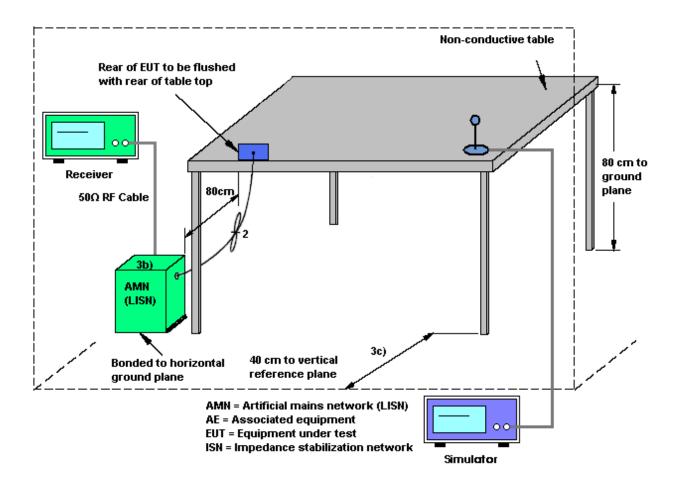
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### 3.5.4 Test Setup



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### 3.5.5 Test Result of AC Conducted Emission

Test Mode :	Mode				Temperature :		22~24	22~24℃ 43~46%				
Test Engineer :	Amos				Relative Humidity :							43~46
Test Voltage :	120Va	120Vac / 60Hz			Phase	Phase :		Line	Line			
	GSM8	50 Idle	+ Blue	etooth I	ink +	WLAN	(5GHz)	link +	Farnhor	ne + USB (	 Cab	
Function Type :			m Adap				(00112)		Laipiioi		<b>5</b> 45	
80 Leve	el (dBuV)											
70.0												
	$\downarrow$									CC PART 15E		
60.0									-	CC PART TOE		
									FCC D/	ART 15E(AVG)		
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30.0												
20.0												
10.0												
0.15	.2		.5	1		2	5		10	20 30		
					Freque	ncy (MHz)						
Site Condition		: CO01-R	KS RT 15E LIS	N-L-2015	1024 LINE	i						
			0ver	Limit	Read	LISN	Cable					
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark				
_	MHz	dBuV	——dB	dBuV	dBuV	——dB	dB					
		abav	ub.	abar	abav	ub.	u.					
1			-11.41				10.16					
2			-9.31				10.16					
3			-12.41				10.16	_				
4			-9.71				10.16	_				
5 6	0.77		-14.01 -11.31					_				
7			-11.31				10.15	Average				
8			-14.11					۷۲ Average				
9			-11.31					_				
10			-9.82				10.14	-				
11			-11.04					_				
12			-8.44					v، Average				
13			-10.35				10.14	_				
14 *	1.46		-7.55				10.14					
15			10 36									

1.59 45.64 -10.36 56.00 35.30 0.20 10.14 QP

3.11 41.64 -14.36 56.00 31.30 0.18 10.16 QP

3.11 34.14 -11.86 46.00 23.80

1.59 38.44 -7.56 46.00 28.10 0.20 10.14 Average

1.86 44.53 -11.47 56.00 34.20 0.19 10.14 QP 1.86 36.93 -9.07 46.00 26.60 0.19 10.14 Average

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17 18 19

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0.18 10.16 Average



Test Mode :	Mode	1			Temp	erature	:	22~24	$^{\circ}\mathbb{C}$		
Test Engineer :	Amos	Zhang			Relati	ve Hun	nidity:	43~46	%		
Test Voltage :	120Va	c / 60H	Z		Phase	<b>:</b>		Neutra	al		
Function Type :	GSM8	50 Idle	+ Blue	tooth L	_ink +	WLAN	(5GHz)	Link +	Earpho	one + USI	3 Cable
		ing fro	m Adap	ter) + E	Battery	1					
80 Level	(dBuV)										7
70.0											+
										FCC PART 15	E
60.0											
50.0									FCC I	PART 15E(AVG	<u>)</u>
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					8 10 12	4					
20.0											-
10.0											1
<sup>0</sup> .15 .	.2		5	1		2	5		10	20	30
Site		: CO01-F	rc		rreque	ncy (MHz)					
Condition			RT 15E LIS	N-N-2015	1024 NEU	TRAL					
			0ver	Limit	Read	LTCN	Cable				
	Freq	Level		Line		Factor		Remark			
	MHz	dBuV	dB	dBuV	dBuV	dB	dB				
1 *	0.56		-14.71	56.00	30.80	0.33	10.16				
2			-14.91		20.60	0.33		_			
3	0.97		-18.90				10.14 (	_			
4			-19.90				10.14	_			
5 6	1.16 1.16		-17.29 -19.19			0.37 0.37		ر۲ Average			
7	1.16		-16.19			0.37		_			
8			-18.89			0.37		ر. Average			
9			-15.18			0.38	10.14	_			
10			-18.68			0.38		verage			
11			-15.18			0.38		_			
12	1.78		-20.28			0.38		Average			
13	2.01	37.12	-18.88	56.00	26.60	0.38	10.14 (				
14	2.01	23.82	-22.18	46.00	13.30	0.38	10.14	Average			

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## 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

- 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.
- 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.

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## 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.

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## 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.

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## 3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

### 3.8.3 Antenna Gain

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

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## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration	Test Date	Due Date	Remark
				23.2.2.2.0.1.0.1.00	Date		230 2410	
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Sep. 10, 2015	Apr. 22, 2016~ May 24, 2016	Sep. 09, 2016	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	30MHz~40GHz	Jan. 20, 2016	Apr. 22, 2016~ May 24, 2016	Jan. 19, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	L2495A 1005002 50MHz Bandwidth		Jan. 20, 2016	Apr. 22, 2016~ May 24, 2016	Jan. 19, 2017	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502			Apr. 22, 2016~ May 24, 2016	Oct. 23, 2016	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 10, 2015	Apr. 22, 2016~ May 19, 2016	Sep. 09, 2016	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 22, 2016	Apr. 22, 2016~ May 19, 2016	Apr. 21, 2017	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 07, 2015	Apr. 22, 2016~ May 19, 2016	Nov. 06, 2016	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	25MHz-2GHz	Mar. 12, 2016	Apr. 22, 2016~ May 19, 2016	Mar. 11, 2017	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120 D	9120D-1356	1GHz~18GHz	Apr. 16, 2016	Apr. 22, 2016~ May 19, 2016	Apr. 15, 2017	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18Ghz-40Ghz	Oct. 10, 2015	Apr. 22, 2016~ May 19, 2016	Oct. 09, 2016	Radiation (03CH03-KS)
Amplifier	Burgeon	BPA-530	102212	0.01MHz-3000M Hz	Aug. 10, 2015	Apr. 22, 2016~ May 19, 2016	Aug. 09, 2016	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 24, 2015	Apr. 22, 2016~ May 19, 2016	Oct. 23, 2016	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-3 5-HG	1887435	18GHz~40GHz	Aug. 27, 2015	Apr. 22, 2016~ May 19, 2016	Aug. 26, 2016	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Apr. 22, 2016~ May 19, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 22, 2016~ May 19, 2016	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 22, 2016~ May 19, 2016	NCR	Radiation (03CH03-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 29, 2016	May 12, 2016	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 24, 2015	May 12, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 24, 2015	May 12, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 24, 2015	May 12, 2016	Oct. 23, 2016	Conduction (CO01-KS)

NCR: No Calibration Required

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## 5 Uncertainty of Evaluation

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

	4
Measuring Uncertainty for a Level of	2.3 dB
Confidence of 95% (U = 2Uc(y))	2.3 UB

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

Measuring Uncertainty for a Level of	4.5 dB
Confidence of 95% (U = 2Uc(y))	4.5 UB

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## **Appendix A. Conducted Test Results**

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Test Engineer:	Issac Song	Temperature:	24~25	°C
Test Date:	2016/4/22~2016/5/24	Relative Humidity:	49~51	%

## TEST RESULTS DATA 26dB and 99% OBW

						Band	I		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	
11a	6Mbps	1	36	5180	18.53	23.03	-	22.68	
11a	6Mbps	1	44	5220	18.43	23.83	-	22.66	
11a	6Mbps	1	48	5240	18.48	23.63	-	22.67	
HT20	MCS0	1	36	5180	19.08	23.73	-	22.81	
HT20	MCS0	1	44	5220	19.58	23.93	-	22.92	
HT20	MCS0	1	48	5240	19.08	24.48	-	22.81	
HT40	MCS0	1	38	5190	36.66	45.94	-	23.01	
HT40	MCS0	1	46	5230	36.76	44.96	-	23.01	
VHT20	MCS0	1	36	5180	19.23	24.18	-	22.84	
VHT20	MCS0	1	44	5220	19.33	24.23	-	22.86	
VHT20	MCS0	1	48	5240	19.33	24.18	-	22.86	
VHT40	MCS0	1	38	5190	36.86	45.05	-	23.01	
VHT40	MCS0	1	46	5230	36.96	44.69	-	23.01	
VHT80	MCS0	1	42	5210	74.93	83.60	-	23.01	

# TEST RESULTS DATA Average Power Table

						FCC Ba	ınd I		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	36	5180	0.58	12.14	24.00	-3.70	Pass
11a	6Mbps	1	44	5220	0.58	12.21	24.00	-3.70	Pass
11a	6Mbps	1	48	5240	0.58	12.45	24.00	-3.70	Pass
HT20	MCS0	1	36	5180	0.63	12.41	24.00	-3.70	Pass
HT20	MCS0	1	44	5220	0.63	12.42	24.00	-3.70	Pass
HT20	MCS0	1	48	5240	0.63	11.96	24.00	-3.70	Pass
HT40	MCS0	1	38	5190	1.19	12.44	24.00	-3.70	Pass
HT40	MCS0	1	46	5230	1.19	11.88	24.00	-3.70	Pass
VHT20	MCS0	1	36	5180	0.78	12.39	24.00	-3.70	Pass
VHT20	MCS0	1	44	5220	0.78	12.34	24.00	-3.70	Pass
VHT20	MCS0	1	48	5240	0.78	11.83	24.00	-3.70	Pass
VHT40	MCS0	1	38	5190	1.47	12.42	24.00	-3.70	Pass
VHT40	MCS0	1	46	5230	1.47	12.05	24.00	-3.70	Pass
VHT80	MCS0	1	42	5210	2.58	12.41	24.00	-3.70	Pass

# TEST RESULTS DATA Power Spectral Density

						FCC Ba	ind I			
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Average PSD Limit (dBm/MHz)	DG (dBi)	-	Pass/Fail
11a	6Mbps	1	36	5180	0.58	1.76	11.00	-3.70		Pass
11a	6Mbps	1	44	5220	0.58	1.37	11.00	-3.70		Pass
11a	6Mbps	1	48	5240	0.58	1.32	11.00	-3.70		Pass
HT20	MCS0	1	36	5180	0.63	1.45	11.00	-3.70		Pass
HT20	MCS0	1	44	5220	0.63	1.60	11.00	-3.70		Pass
HT20	MCS0	1	48	5240	0.63	1.34	11.00	-3.70		Pass
HT40	MCS0	1	38	5190	1.19	-0.27	11.00	-3.70		Pass
HT40	MCS0	1	46	5230	1.19	-1.08	11.00	-3.70		Pass
VHT20	MCS0	1	36	5180	0.78	1.74	11.00	-3.70		Pass
VHT20	MCS0	1	44	5220	0.78	1.25	11.00	-3.70		Pass
VHT20	MCS0	1	48	5240	0.78	1.32	11.00	-3.70		Pass
VHT40	MCS0	1	38	5190	1.47	-0.19	11.00	-3.70		Pass
VHT40	MCS0	1	46	5230	1.47	-0.35	11.00	-3.70		Pass
VHT80	MCS0	1	42	5210	2.58	-3.56	11.00	-3.70		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	18.53	23.73	23.68	29.68	23.98	
11a	6M bps	1	60	5300	18.63	24.08	23.70	29.70	23.98	
11a	6M bps	1	64	5320	18.58	23.93	23.69	29.69	23.98	
HT20	MCS 0	1	52	5260	19.33	24.03	23.86	29.86	23.98	
HT20	MCS 0	1	60	5300	19.38	24.03	23.87	29.87	23.98	
HT20	MCS 0	1	64	5320	19.18	24.18	23.83	29.83	23.98	
HT40	MCS 0	1	54	5270	36.66	45.32	23.98	30.00	23.98	
HT40	MCS 0	1	62	5310	36.86	45.41	23.98	30.00	23.98	
VHT20	MCS 0	1	52	5260	19.28	24.23	23.85	29.85	23.98	
VHT20	MCS 0	1	60	5300	19.38	24.18	23.87	29.87	23.98	
VHT20	MCS 0	1	64	5320	19.28	24.08	23.85	29.85	23.98	
VHT40	MCS 0	1	54	5270	36.76	45.41	23.98	30.00	23.98	
VHT40	MCS 0	1	62	5310	36.86	45.58	23.98	30.00	23.98	
VHT80	MCS 0	1	58	5290	74.93	83.92	23.98	30.00	23.98	

# TEST RESULTS DATA Average Power Table

						FCC Ba	nd II		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6M bps	1	52	5260	0.58	12.43	23.98	-3.70	Pass
11a	6M bps	1	60	5300	0.58	12.04	23.98	-3.70	Pass
11a	6M bps	1	64	5320	0.58	11.53	23.98	-3.70	Pass
HT20	MCS 0	1	52	5260	0.63	12.30	23.98	-3.70	Pass
HT20	MCS 0	1	60	5300	0.63	11.91	23.98	-3.70	Pass
HT20	MCS 0	1	64	5320	0.63	11.43	23.98	-3.70	Pass
HT40	MCS 0	1	54	5270	1.19	12.41	23.98	-3.70	Pass
HT40	MCS 0	1	62	5310	1.19	11.85	23.98	-3.70	Pass
VHT20	MCS 0	1	52	5260	0.78	12.40	23.98	-3.70	Pass
VHT20	MCS 0	1	60	5300	0.78	12.10	23.98	-3.70	Pass
VHT20	MCS 0	1	64	5320	0.78	11.59	23.98	-3.70	Pass
VHT40	MCS 0	1	54	5270	1.47	12.27	23.98	-3.70	Pass
VHT40	MCS 0	1	62	5310	1.47	11.97	23.98	-3.70	Pass
VHT80	MCS 0	1	58	5290	2.58	12.42	23.98	-3.70	Pass

# TEST RESULTS DATA Power Spectral Density

						Band	II		
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	52	5260	0.58	1.33	11.00	-3.70	Pass
11a	6M bps	1	60	5300	0.58	0.98	11.00	-3.70	Pass
11a	6M bps	1	64	5320	0.58	0.94	11.00	-3.70	Pass
HT20	MCS 0	1	52	5260	0.63	1.08	11.00	-3.70	Pass
HT20	MCS 0	1	60	5300	0.63	0.70	11.00	-3.70	Pass
HT20	MCS 0	1	64	5320	0.63	0.74	11.00	-3.70	Pass
HT40	MCS 0	1	54	5270	1.19	-0.71	11.00	-3.70	Pass
HT40	MCS 0	1	62	5310	1.19	-1.69	11.00	-3.70	Pass
VHT20	MCS 0	1	52	5260	0.78	1.34	11.00	-3.70	Pass
VHT20	MCS 0	1	60	5300	0.78	0.79	11.00	-3.70	Pass
VHT20	MCS 0	1	64	5320	0.78	0.88	11.00	-3.70	Pass
VHT40	MCS 0	1	54	5270	1.47	-0.67	11.00	-3.70	Pass
VHT40	MCS 0	1	62	5310	1.47	-1.01	11.00	-3.70	Pass
VHT80	MCS 0	1	58	5290	2.58	-3.83	11.00	-3.70	Pass

## TEST RESULTS DATA 26dB and 99% OBW

						Band	III			
Mod.	Data Rate	N⊤x	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	18.48	23.73	23.67	29.67	23.98	
11a	6M bps	1	116	5580	18.68	23.48	23.71	29.71	23.98	
11a	6M bps	1	140	5700	18.43	23.48	23.66	29.66	23.98	
HT20	MCS 0	1	100	5500	19.33	24.13	23.86	29.86	23.98	
HT20	MCS 0	1	116	5580	19.28	23.98	23.85	29.85	23.98	
HT20	MCS 0	1	140	5700	19.18	23.58	23.83	29.83	23.98	
HT40	MCS 0	1	102	5510	36.66	44.51	23.98	30.00	23.98	
HT40	MCS 0	1	110	5550	36.56	44.69	23.98	30.00	23.98	
HT40	MCS 0	1	134	5670	36.86	45.05	23.98	30.00	23.98	
VHT20	MCS 0	1	100	5500	19.23	23.98	23.84	29.84	23.98	
VHT20	MCS 0	1	116	5580	19.33	23.83	23.86	29.86	23.98	
VHT20	MCS 0	1	140	5700	19.23	23.93	23.84	29.84	23.98	
VHT40	MCS 0	1	102	5510	36.76	44.96	23.98	30.00	23.98	
VHT40	MCS 0	1	110	5550	36.76	44.96	23.98	30.00	23.98	_
VHT40	MCS 0	1	134	5670	37.06	44.87	23.98	30.00	23.98	
VHT80	MCS 0	1	106	5530	74.81	83.92	23.98	30.00	23.98	
VHT80	MCS 0	1	122	5610	74.93	84.88	23.98	30.00	23.98	

# TEST RESULTS DATA Average Power Table

						FCC Ba	nd III		
Mod.	Data Rate	N⊤x	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6M bps	1	100	5500	0.58	11.33	23.98	-3.70	Pass
11a	6M bps	1	116	5580	0.58	10.88	23.98	-3.70	Pass
11a	6M bps	1	140	5700	0.58	10.11	23.98	-3.70	Pass
HT20	MCS 0	1	100	5500	14.00	11.00	23.98	-3.70	Pass
HT20	MCS 0	1	116	5580	14.00	10.77	23.98	-3.70	Pass
HT20	MCS 0	1	140	5700	14.00	9.97	23.98	-3.70	Pass
HT40	MCS 0	1	102	5510	1.19	11.11	23.98	-3.70	Pass
HT40	MCS 0	1	110	5550	1.19	11.04	23.98	-3.70	Pass
HT40	MCS 0	1	134	5670	1.19	10.94	23.98	-3.70	Pass
VHT20	MCS 0	1	100	5500	0.78	11.12	23.98	-3.70	Pass
VHT20	MCS 0	1	116	5580	0.78	10.85	23.98	-3.70	Pass
VHT20	MCS 0	1	140	5700	0.78	10.20	23.98	-3.70	Pass
VHT40	MCS 0	1	102	5510	1.47	11.12	23.98	-3.70	Pass
VHT40	MCS 0	1	110	5550	1.47	11.07	23.98	-3.70	Pass
VHT40	MCS 0	1	134	5670	1.47	10.74	23.98	-3.70	Pass
VHT80	MCS 0	1	106	5530	2.58	11.07	23.98	-3.70	Pass
VHT80	MCS 0	1	122	5610	2.58	10.71	23.98	-3.70	Pass

# 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	0.58	0.23	11.00	-3.70	Pass
11a	6M bps	1	116	5580	0.58	-0.09	11.00	-3.70	Pass
11a	6M bps	1	140	5700	0.58	-0.39	11.00	-3.70	Pass
HT20	MCS 0	1	100	5500	0.63	0.08	11.00	-3.70	Pass
HT20	MCS 0	1	116	5580	0.63	-0.34	11.00	-3.70	Pass
HT20	MCS 0	1	140	5700	0.63	-0.90	11.00	-3.70	Pass
HT40	MCS 0	1	102	5510	1.19	-2.29	11.00	-3.70	Pass
HT40	MCS 0	1	110	5550	1.19	-2.42	11.00	-3.70	Pass
HT40	MCS 0	1	134	5670	1.19	-2.32	11.00	-3.70	Pass
VHT20	MCS 0	1	100	5500	0.78	0.55	11.00	-3.70	Pass
VHT20	MCS 0	1	116	5580	0.78	-0.33	11.00	-3.70	Pass
VHT20	MCS 0	1	140	5700	0.78	-0.65	11.00	-3.70	Pass
VHT40	MCS 0	1	102	5510	1.47	-1.74	11.00	-3.70	Pass
VHT40	MCS 0	1	110	5550	1.47	-2.08	11.00	-3.70	Pass
VHT40	MCS 0	1	134	5670	1.47	-2.01	11.00	-3.70	Pass
VHT80	MCS 0	1	106	5530	2.58	-4.45	11.00	-3.70	Pass
VHT80	MCS 0	1	122	5610	2.58	-5.44	11.00	-3.70	Pass

### TEST RESULTS DATA 26dB and 99% OBW

						Str	addle Channel				
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Bandwidth (MHz)	6DB Bandwidth (MHz)	Emission Bandwidth (MHz)	IC 99% Bandwidth Power Limit (dBm)	IC 99% Bandwidth EIRP Limit (dBm)	FCC 26dB Bandwidth Power Limit (dBm)	Note
				5720	18.23	16.34	23.28	-	ı	-	
11a	6Mbps	1	144	NII-2C	14.0909	13.152	16.638	22.49	28.49	23.21	
				NII-3	4.1409	3.192	6.638	23.17	29.17	-	
				5720	19.08	17.58	23.93	i	ı	-	
HT20	MCS0	1	144	NII-2C	14.4905	13.771	16.938	22.61	28.61	23.29	
				NII-3	4.5904	3.811	6.988	23.62	29.62	-	
				5710	36.56	35.29	44.51	-	i	-	
HT40	MCS0	1	142	NII-2C	33.1818	32.502	37.298	23.98	30.00	23.98	
				NII-3	3.3816	2.783	7.208	22.29	28.29	-	
				5720	19.13	17.56	23.88	-	ı	-	
VHT20	MCS0	1	144	NII-2C	14.5405	13.751	16.938	22.63	28.63	23.29	
				NII-3	4.5904	3.811	6.938	23.62	29.62	-	
				5710	36.76	35.13	45.14	ı	ı	-	
VHT40	MCS0	1	142	NII-2C	33.3816	32.502	37.657	23.98	30.00	23.98	
				NII-3	3.3816	2.623	7.478	22.29	28.29	-	
				5690	75.16	75.05	86.15	1	ı	-	
VHT80	MCS0	1	138	NII-2C	72.522	72.483	77.35	23.98	30.00	23.98	
				NII-3	2.642	2.562	8.8	21.22	27.22	-	

# TEST RESULTS DATA Average Power Table

						FCC Straddle	e Channel		
Mod.	Data Rate	N⊤x	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
				5720	0.58	11.28	-	-3.70	Pass
11a	6Mbps	1	144	NII-2C	0.58	10.23	23.21	-3.70	Pass
				NII-3	0.58	4.59	30.00	-3.70	Pass
				5720	0.63	11.27	-	-3.70	Pass
HT20	MCS0	1	144	NII-2C	0.63	10.16	23.29	-3.70	Pass
				NII-3	0.63	4.81	30.00	-3.70	Pass
				5710	1.19	9.98	-	-3.70	Pass
HT40	MCS0	1	142	NII-2C	1.19	9.64	23.98	-3.70	Pass
				NII-3	1.19	-1.21	30.00	-3.70	Pass
				5720	0.78	11.05	-	-3.70	Pass
VHT20	MCS0	1	144	NII-2C	0.78	9.88	23.29	-3.70	Pass
				NII-3	0.78	4.78	30.00	-3.70	Pass
				5710	1.47	9.96	-	-3.70	Pass
VHT40	MCS0	1	142	NII-2C	1.47	9.62	23.98	-3.70	Pass
				NII-3	1.47	-1.27	30.00	-3.70	Pass
				5690	2.58	8.47	-	-3.70	Pass
VHT80	VHT80 MCS0	1	138	NII-2C	2.58	8.38	23.98	-3.70	Pass
				NII-3	2.58	-8.46	30.00	-3.70	Pass

# TEST RESULTS DATA Power Spectral Density

						Straddle C	channel		
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	6Mhno	1	144	NII-2C	0.58	0.01	11.00	-3.70	Pass
Ha	olvibps	6Mbps 1	144	NII-3	0.58	0.01	30.00	-3.70	Pass
HT20	MCS0 1	1	144	NII-2C	0.63	-0.23	11.00	-3.70	Pass
пі20	MCSU	'	144	NII-3	0.63	-0.23	30.00	-3.70	Pass
HT40	MCS0	1	142	NII-2C	1.19	-2.19	11.00	-3.70	Pass
П140	MCSU	'	142	NII-3	1.19	-2.19	30.00	-3.70	Pass
VILTON	MCS0	1	144	NII-2C	0.78	-0.37	11.00	-3.70	Pass
VH120	IVICSU	' '	144	NII-3	0.78	-0.37	30.00	-3.70	Pass
VUTAO	MCS0	1	142	NII-2C	1.47	-2.38	11.00	-3.70	Pass
VH140	IVICSU	' '	142	NII-3	1.47	-2.38	30.00	-3.70	Pass
VIITOO	MCCO	1	120	NII-2C	2.58	-5.35	11.00	-3.70	Pass
VH180	MCS0		138	NII-3	2.58	-5.35	30.00	-3.70	Pass

## TEST RESULTS DATA Frequency Stability

						Band	П			
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Center Frequency (MHz)	Frequency Deviation (MHz)	Frequency Stablility (ppm)	Temperature (°C)	Voltage (V)	Note
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	3.55	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	4.35	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	20	3.9	
11a	6Mbps	1	36	5180	5180.050	0.050	9.65	-30	3.9	
11a	6Mbps	1	36	5180	5180.000	0.000	0.00	50	3.9	

						Band	II				
Mod.	Data Rate	NTX CH. Freq. (MHz) Center Frequency (MHz) Frequency (MHz) Frequency (MHz) Frequency (MHz) Frequency (ppm) Temperature (C) Voltage (V)									
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	3.55		
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	4.35		
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	20	3.9		
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	-30	3.9		
11a	6Mbps	1	64	5320	5320.050	0.050	9.40	50	3.9		

						Band	III				
Mod.	Rate (MHz) (MHz) (MHz) (ppm) (*C) (V)										
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	3.55		
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	4.35		
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	20	3.9		
11a	6Mbps	1	100	5500	5500.050	0.050	9.09	-30	3.9		
11a	6Mbps	1	100	5500	5500.025	0.025	4.55	50	3.9		

# Appendix B. Radiated Spurious Emission **Battery 1**

## Band 1 - 5150~5250MHz

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)
		5149.1	49.91	-24.09	74	46.47	31.84	8.13	36.53	326	344	Р	Н
		5149.85	38.8	-15.2	54	35.36	31.84	8.13	36.53	326	344	Α	Н
000 44 -	*	5188	97	-	-	93.49	31.85	8.17	36.51	326	344	Р	Н
802.11a CH 36	*	5188	89.92	-	-	86.41	31.85	8.17	36.51	326	344	Α	Н
5180MHz		5147.15	48.68	-25.32	74	45.24	31.84	8.13	36.53	279	4	Р	V
3100WI112		5149.55	37.8	-16.2	54	34.36	31.84	8.13	36.53	279	4	Α	٧
	*	5184	93.83	-	-	90.32	31.85	8.17	36.51	279	4	Р	٧
	*	5186	86.99	-	-	83.48	31.85	8.17	36.51	279	4	Α	V
	*	5224	97.43	-	-	93.87	31.86	8.2	36.5	337	348	Р	Н
802.11a	*	5224	90.61	-	-	87.05	31.86	8.2	36.5	337	348	Α	Н
CH 44 5220MHz	*	5226	94.56	-	-	90.98	31.87	8.21	36.5	202	0	Р	V
3220WITZ	*	5224	86.66	-	-	83.1	31.86	8.2	36.5	202	0	Α	V
	*	5244	99.16	-	-	95.56	31.88	8.22	36.5	123	314	Р	Н
	*	5244	91.73	-	-	88.13	31.88	8.22	36.5	123	314	Α	Н
		5383.05	45.67	-28.33	74	41.93	31.92	8.32	36.5	123	314	Р	Н
802.11a		5382.75	36.28	-17.72	54	32.54	31.92	8.32	36.5	123	314	Α	Н
CH 48 5240MHz	*	5236	95.12	-	-	91.54	31.87	8.21	36.5	270	1	Р	٧
524UNITZ	*	5248	87.98	-	-	84.38	31.88	8.22	36.5	270	1	Α	٧
		5381.6	45.78	-28.22	74	42.04	31.92	8.32	36.5	270	1	Р	٧
		5370.45	36.19	-17.81	54	32.47	31.91	8.31	36.5	270	1	Avg. (P/A) P A P A P A P A P A P A P A P A A P A	V

Remark 2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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## Band 1 5150~5250MHz

## WIFI 802.11a (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	( deg )	_	(H/V)
802.11a		10359	47.59	-26.41	74	57.13	38.02	13.54	61.1	100	0	Р	Н
CH 36 5180MHz		10359	50.69	-23.31	74	60.23	38.02	13.54	61.1	100	360	Р	V
802.11a		10440	46.05	-27.95	74	55.48	38.06	13.58	61.07	100	0	Р	Н
CH 44 5220MHz		10440	49.52	-24.48	74	58.95	38.06	13.58	61.07	100	360	Р	٧
802.11a		10479	46.66	-27.34	74	56	38.09	13.61	61.04	100	0	Р	Н
CH 48 5240MHz		10479	47.82	-26.18	74	57.16	38.09	13.61	61.04	100	360	Р	V
Damark	1. No	o other spurio	us found.										

SPORTON INTERNATIONAL (KUNSHAN) INC.

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Remark 2. All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz WIFI 802.11n HT20 (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.	İ
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
		5148.9	48.53	-25.47	74	45.09	31.84	8.13	36.53	315	332	Р	Н
		5149.35	38.46	-15.54	54	35.02	31.84	8.13	36.53	315	332	Α	Н
802.11n	*	5184	96.13	-	-	92.62	31.85	8.17	36.51	315	332	Р	Н
HT20	*	5184	88.71	-	-	85.2	31.85	8.17	36.51	315	332	Α	Н
CH 36		5127.55	48.16	-25.84	74	44.75	31.84	8.11	36.54	111	344	Р	V
5180MHz		5128.5	38.06	-15.94	54	34.65	31.84	8.11	36.54	111	344	Α	V
	*	5176	94.6	-	-	91.09	31.85	8.17	36.51	111	344	Р	V
	*	5186	87.38	-	-	83.87	31.85	8.17	36.51	111	344	Α	V
802.11n	*	5216	96.58	-	-	93.02	31.86	8.2	36.5	364	326	Р	Н
HT20	*	5226	89.59	-	-	86.01	31.87	8.21	36.5	364	326	Α	Н
CH 44	*	5228	95.23	-	-	91.65	31.87	8.21	36.5	100	343	Р	٧
5220MHz	*	5224	88.77	-	-	85.21	31.86	8.2	36.5	100	343	Α	٧
	*	5248	97.21	-	-	93.61	31.88	8.22	36.5	308	332	Р	Н
	*	5244	89.83	-	-	86.23	31.88	8.22	36.5	308	332	Α	Н
802.11n		5389.3	45.97	-28.03	74	42.23	31.92	8.32	36.5	308	332	Р	Н
HT20		5372.25	36.28	-17.72	54	32.56	31.91	8.31	36.5	308	332	Α	Н
CH 48	*	5234	96.83	-	-	93.25	31.87	8.21	36.5	100	348	Р	V
5240MHz	*	5234	89.44	-	-	85.86	31.87	8.21	36.5	100	348	Α	V
		5386.2	45.81	-28.19	74	42.07	31.92	8.32	36.5	100	348	Р	V
		5369.1	36.28	-17.72	54	32.56	31.91	8.31	36.5	100	348	Α	V

## Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor ( dB )	Pos ( cm )	Pos ( deg )	Avg. (P/A)	Ĭ
802.11n		10359	46.61	-27.39	74	56.15	38.02	13.54	61.1	100	0	Р	Н
HT20													
CH 36		10359	50.35	-23.65	74	59.89	38.02	13.54	61.1	100	360	Р	V
5180MHz													
802.11n		10440	46.3	-27.7	74	55.73	38.06	13.58	61.07	100	0	Р	Н
HT20 CH 44 5220MHz		10440	50.12	-23.88	74	59.55	38.06	13.58	61.07	100	360	Р	V
802.11n		10479	45.53	-28.47	74	54.87	38.09	13.61	61.04	100	0	Р	Н
HT20 CH 48		10479	49.13	-24.87	74	58.47	38.09	13.61	61.04	100	360	Р	V
5240MHz													

### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz WIFI 802.11n HT40 (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.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V
		5147.7	56.43	-17.57	74	52.99	31.84	8.13	36.53	326	331	Р	Н
		5149.65	46.35	-7.65	54	42.91	31.84	8.13	36.53	326	331	Α	Н
802.11n	*	5200	93.64	-	-	90.09	31.86	8.19	36.5	326	331	Р	Н
HT40	*	5202	86.49	-	-	82.94	31.86	8.19	36.5	326	331	Α	Н
CH 38		5146.95	55.71	-18.29	74	52.27	31.84	8.13	36.53	100	336	Р	V
5190MHz		5148.9	45.65	-8.35	54	42.21	31.84	8.13	36.53	100	336	Α	٧
	*	5204	92.67	-	-	89.12	31.86	8.19	36.5	100	336	Р	٧
	*	5202	85.83	-	-	82.28	31.86	8.19	36.5	100	336	Α	V
	*	5234	95.1	-	-	91.52	31.87	8.21	36.5	334	327	Р	Н
	*	5244	87.69	-	-	84.09	31.88	8.22	36.5	334	327	Α	Н
802.11n		5352.6	46	-28	74	42.3	31.91	8.29	36.5	334	327	Р	Н
HT40		5361.45	36.8	-17.2	54	33.08	31.91	8.31	36.5	334	327	Α	Н
CH 46	*	5234	92.88	-	-	89.3	31.87	8.21	36.5	106	346	Р	٧
5230MHz	*	5240	86.04	-	-	82.46	31.87	8.21	36.5	106	346	Α	٧
		5359.65	46.62	-27.38	74	42.92	31.91	8.29	36.5	106	346	Р	٧
		5397.05	36.78	-17.22	54	33.03	31.92	8.33	36.5	106	346	Α	٧

SPORTON INTERNATIONAL (KUNSHAN) INC.

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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)

							=					
Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
	(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V
	10380	46.15	-27.85	74	55.67	38.03	13.55	61.1	100	0	Р	Н
	10380	48.39	-25.61	74	57.91	38.03	13.55	61.1	100	360	Р	V
	10461	44.63	-29.37	74	54	38.08	13.6	61.05	100	18	Р	Н
	10461	47.91	-26.09	74	57.28	38.08	13.6	61.05	100	0	Р	V
	Note	(MHz) 10380 10380 10461	(MHz) (dBμV/m) 10380 46.15 10380 48.39 10461 44.63	(MHz) (dBμV/m) (dB) 10380 46.15 -27.85  10380 48.39 -25.61  10461 44.63 -29.37	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)       10380     46.15     -27.85     74       10380     48.39     -25.61     74       10461     44.63     -29.37     74	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)     Level (dBμV/m)       10380     46.15     -27.85     74     55.67       10380     48.39     -25.61     74     57.91       10461     44.63     -29.37     74     54	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)           10380         46.15         -27.85         74         55.67         38.03           10380         48.39         -25.61         74         57.91         38.03           10461         44.63         -29.37         74         54         38.08	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)           10380         46.15         -27.85         74         55.67         38.03         13.55           10380         48.39         -25.61         74         57.91         38.03         13.55           10461         44.63         -29.37         74         54         38.08         13.6	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)           10380         46.15         -27.85         74         55.67         38.03         13.55         61.1           10380         48.39         -25.61         74         57.91         38.03         13.55         61.1           10461         44.63         -29.37         74         54         38.08         13.6         61.05	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (cm)           10380         46.15         -27.85         74         55.67         38.03         13.55         61.1         100           10380         48.39         -25.61         74         57.91         38.03         13.55         61.1         100           10461         44.63         -29.37         74         54         38.08         13.6         61.05         100	(MHz)         (dBμV/m)         Limit (dB)         Level (dBμV/m)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)           10380         46.15         -27.85         74         55.67         38.03         13.55         61.1         100         0           10380         48.39         -25.61         74         57.91         38.03         13.55         61.1         100         360           10461         44.63         -29.37         74         54         38.08         13.6         61.05         100         18	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)         Avg. (deg)         (P/A)           10380         46.15         -27.85         74         55.67         38.03         13.55         61.1         100         0         P           10380         48.39         -25.61         74         57.91         38.03         13.55         61.1         100         360         P           10461         44.63         -29.37         74         54         38.08         13.6         61.05         100         18         P

## Remark

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Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz WIFI 802.11ac VHT20 (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)
		5144.15	51.07	-22.93	74	47.63	31.84	8.13	36.53	298	2	Р	Н
		5149.85	39.35	-14.65	54	35.91	31.84	8.13	36.53	298	2	Α	Н
802.11ac	*	5188	95.64	-	-	92.13	31.85	8.17	36.51	298	2	Р	Н
VHT20	*	5188	88.05	-	-	84.54	31.85	8.17	36.51	298	2	Α	Н
CH 36		5144.35	51.64	-22.36	74	48.2	31.84	8.13	36.53	112	346	Р	٧
5180MHz		5149.95	38.9	-15.1	54	35.46	31.84	8.13	36.53	112	346	Α	٧
	*	5188	94.48	-	-	90.97	31.85	8.17	36.51	112	346	Р	٧
	*	5188	87.41	-	-	83.9	31.85	8.17	36.51	112	346	Α	٧
802.11ac	*	5212	95.87	-	-	92.31	31.86	8.2	36.5	382	1	Р	Н
VHT20	*	5224	89.08	-	-	85.52	31.86	8.2	36.5	382	1	Α	Н
CH 44	*	5224	95.98	-	-	92.42	31.86	8.2	36.5	100	349	Р	٧
5220MHz	*	5228	89.11	-	-	85.53	31.87	8.21	36.5	100	349	Α	٧
	*	5246	97.04	-	-	93.44	31.88	8.22	36.5	324	360	Р	Н
	*	5234	89.34	-	-	85.76	31.87	8.21	36.5	324	360	Α	Н
802.11ac		5356.25	45.76	-28.24	74	42.06	31.91	8.29	36.5	324	360	Р	Н
VHT20		5357.75	36.87	-17.13	54	33.17	31.91	8.29	36.5	324	360	Α	Н
CH 48	*	5248	96.48	-	-	92.88	31.88	8.22	36.5	100	350	Р	٧
5240MHz	*	5248	89.5	-	-	85.9	31.88	8.22	36.5	100	350	Α	٧
		5383.7	46.11	-27.89	74	42.37	31.92	8.32	36.5	100	350	Р	٧
		5352.5	37.04	-16.96	54	33.34	31.91	8.29	36.5	100	350	Α	٧

### Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz WIFI 802.11ac VHT20 (Harmonic @ 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.	i l
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11ac		10359	46.73	-27.27	74	56.27	38.02	13.54	61.1	100	0	Р	Н
VHT20													
CH 36		10359	49.46	-24.54	74	59	38.02	13.54	61.1	100	360	Р	V
5180MHz													
802.11ac		10440	48.27	-25.73	74	57.7	38.06	13.58	61.07	100	0	Р	Н
VHT20													
CH 44		10440	48.83	-25.17	74	58.26	38.06	13.58	61.07	100	360	Р	V
5220MHz													
802.11ac		10479	45.8	-28.2	74	55.14	38.09	13.61	61.04	100	0	Р	Н
VHT20													
CH 48		10479	47.84	-26.16	74	57.18	38.09	13.61	61.04	100	360	Р	V
5240MHz													

## Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz WIFI 802.11ac VHT40 (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)
		5146.8	54.99	-19.01	74	51.55	31.84	8.13	36.53	335	357	Р	Н
		5150	46.04	-7.96	54	42.6	31.84	8.13	36.53	335	357	Α	Н
802.11ac	*	5204	93.61	-	-	90.06	31.86	8.19	36.5	335	357	Р	Н
VHT40	*	5198	86.47	-	-	82.92	31.86	8.19	36.5	335	357	Α	Н
CH 38		5146.05	55.49	-18.51	74	52.05	31.84	8.13	36.53	100	348	Р	٧
5190MHz		5149	45.09	-8.91	54	41.65	31.84	8.13	36.53	100	348	Α	٧
	*	5198	93.74	-	-	90.19	31.86	8.19	36.5	100	348	Р	٧
	*	5198	86.8	-	-	83.25	31.86	8.19	36.5	100	348	Α	٧
	*	5226	94.41	-	-	90.83	31.87	8.21	36.5	314	330	Р	Н
	*	5228	87.27	-	-	83.69	31.87	8.21	36.5	314	330	Α	Н
802.11ac		5386.35	45.69	-28.31	74	41.95	31.92	8.32	36.5	314	330	Р	Н
VHT40		5371.1	36.82	-17.18	54	33.1	31.91	8.31	36.5	314	330	Α	Н
CH 46	*	5242	94.97	-	-	91.37	31.88	8.22	36.5	100	339	Р	٧
5230MHz	*	5242	87.66	-	-	84.06	31.88	8.22	36.5	100	339	Α	٧
		5360.65	46.23	-27.77	74	42.51	31.91	8.31	36.5	100	339	Р	٧
		5357.1	36.83	-17.17	54	33.13	31.91	8.29	36.5	100	339	Α	٧

## Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz

## WIFI 802.11ac VHT40 (Harmonic @ 3m)

Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	İ
	(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	(dB)	( dB )	( cm )	(deg)	(P/A)	(H/V
	10380	46.78	-27.22	74	56.3	38.03	13.55	61.1	100	0	Р	Н
	10380	50.18	-23.82	74	59.7	38.03	13.55	61.1	100	360	Р	V
	10461	47.43	-26.57	74	56.8	38.08	13.6	61.05	100	0	Р	Н
	10461	46.71	-27.29	74	56.08	38.08	13.6	61.05	100	360	Р	V
	Note	(MHz) 10380 10380 10461	(MHz) (dBμV/m) 10380 46.78  10380 50.18  10461 47.43	(MHz) (dBμV/m) (dB) 10380 46.78 -27.22 10380 50.18 -23.82 10461 47.43 -26.57	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)       10380     46.78     -27.22     74       10380     50.18     -23.82     74       10461     47.43     -26.57     74	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)     Level (dBμV/m)       10380     46.78     -27.22     74     56.3       10380     50.18     -23.82     74     59.7       10461     47.43     -26.57     74     56.8	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)           10380         46.78         -27.22         74         56.3         38.03           10380         50.18         -23.82         74         59.7         38.03           10461         47.43         -26.57         74         56.8         38.08	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)           10380         46.78         -27.22         74         56.3         38.03         13.55           10380         50.18         -23.82         74         59.7         38.03         13.55           10461         47.43         -26.57         74         56.8         38.08         13.6	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)           10380         46.78         -27.22         74         56.3         38.03         13.55         61.1           10380         50.18         -23.82         74         59.7         38.03         13.55         61.1           10461         47.43         -26.57         74         56.8         38.08         13.6         61.05	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (cm)           10380         46.78         -27.22         74         56.3         38.03         13.55         61.1         100           10380         50.18         -23.82         74         59.7         38.03         13.55         61.1         100           10461         47.43         -26.57         74         56.8         38.08         13.6         61.05         100	(MHz)         Limit (dB μV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)           10380         46.78         -27.22         74         56.3         38.03         13.55         61.1         100         0           10380         50.18         -23.82         74         59.7         38.03         13.55         61.1         100         360           10461         47.43         -26.57         74         56.8         38.08         13.6         61.05         100         0	(MHz)         Limit (dB μV/m)         Line (dB μV/m)         Level (dB μV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (cm)         Avg. (deg)         (P/A)           10380         46.78         -27.22         74         56.3         38.03         13.55         61.1         100         0         P           10380         50.18         -23.82         74         59.7         38.03         13.55         61.1         100         360         P           10461         47.43         -26.57         74         56.8         38.08         13.6         61.05         100         0         P

## Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor	Pos ( cm )	Pos (deg)	Avg.	(H/V)
•		5144.2	56.72	-17.28	74	53.28	31.84	8.13	36.53	154	351	P	Н
	!	5147.85	49.16	-4.84	54	45.72	31.84	8.13	36.53	154	351	Α	Н
	*	5234	89.07	-	-	85.49	31.87	8.21	36.5	154	351	Р	Н
	*	5214	82.46	-	-	78.9	31.86	8.2	36.5	154	351	Α	Н
802.11ac		5388.55	45.98	-28.02	74	42.24	31.92	8.32	36.5	154	351	Р	Н
VHT80		5354.8	38.16	-15.84	54	34.46	31.91	8.29	36.5	154	351	Α	Н
CH 42		5139.4	57.17	-16.83	74	53.76	31.84	8.11	36.54	334	346	Р	V
5210MHz	!	5142.85	48.41	-5.59	54	44.97	31.84	8.13	36.53	334	346	Α	V
	*	5218	88.64	-	-	85.08	31.86	8.2	36.5	334	346	Р	V
	*	5214	82.25	-	-	78.69	31.86	8.2	36.5	334	346	Α	V
		5369	46.03	-27.97	74	42.31	31.91	8.31	36.5	334	346	Р	V
		5352.9	38.35	-15.65	54	34.65	31.91	8.29	36.5	334	346	Α	V

## Remark

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No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 1 5150~5250MHz

## WIFI 802.11ac VHT80 (Harmonic @ 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.	ł
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11ac		10419	44.91	-29.09	74	54.37	38.05	13.57	61.08	100	0	Р	Н
VHT80													
CH 42		10419	44.07	-29.93	74	53.53	38.05	13.57	61.08	100	360	Р	V
5210MHz													

Remark 1. No other spurious found.

All results are PASS against Peak and Average limit line.

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## Band 2 - 5250~5350MHz

## WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V
		5146.15	47.11	-26.89	74	43.67	31.84	8.13	36.53	334	330	Р	Н
		5113	36.92	-17.08	54	33.54	31.83	8.1	36.55	334	330	Α	Н
000.44	*	5264	98.87	-	-	95.26	31.88	8.23	36.5	334	330	Р	Н
802.11a	*	5256	91.56	-	-	87.96	31.88	8.22	36.5	334	330	Α	Н
CH 52 5260MHz		5100.35	46.47	-27.53	74	43.12	31.83	8.08	36.56	244	360	Р	٧
3200WII 12		5108.9	36.78	-17.22	54	33.4	31.83	8.1	36.55	244	360	Α	٧
	*	5262	95.65	-	-	92.04	31.88	8.23	36.5	244	360	Р	٧
	*	5264	87.79	-	-	84.18	31.88	8.23	36.5	244	360	Α	٧
802.11a CH 60 -	*	5306	99.3	-	-	95.65	31.89	8.26	36.5	325	327	Р	Н
	*	5306	91.94	-	-	88.29	31.89	8.26	36.5	325	327	Α	Н
	*	5304	96.1	-	-	92.45	31.89	8.26	36.5	237	360	Р	٧
3300WII 12	*	5306	87.74	-	-	84.09	31.89	8.26	36.5	237	360	Α	٧
	*	5314	99.8	-	-	96.13	31.9	8.27	36.5	326	330	Р	Н
	*	5316	92.23	-	-	88.56	31.9	8.27	36.5	326	330	Α	Н
		5350	49.37	-24.63	74	45.67	31.91	8.29	36.5	326	330	Р	Н
802.11a		5372.4	40.63	-13.37	54	36.91	31.91	8.31	36.5	326	330	Α	Н
CH 64 5320MHz	*	5324	96.29	-	-	92.62	31.9	8.27	36.5	156	356	Р	V
JJZUWIFIZ	*	5326	88.57	1	-	84.9	31.9	8.27	36.5	156	356	Α	V
		5351.3	47.47	-26.53	74	43.77	31.91	8.29	36.5	156	356	Р	V
		5372.45	38.67	-15.33	54	34.95	31.91	8.31	36.5	156	356	Α	٧

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## Band 2 5250~5350MHz

## WIFI 802.11a (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	-
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	(cm)		(P/A)	ĭ .
802.11a		10521	45.04	-28.96	74	54.33	38.11	13.63	61.03	100	0	Р	Н
CH 52 5260MHz		10521	48.67	-25.33	74	57.96	38.11	13.63	61.03	100	360	Р	V
802.11a		10599	45.63	-28.37	74	54.77	38.16	13.68	60.98	100	0	Р	Н
CH 60 5300MHz		10599	48.59	-25.41	74	57.73	38.16	13.68	60.98	100	360	Р	V
802.11a		10641	47.64	-26.36	74	56.73	38.18	13.7	60.97	100	0	Р	Н
CH 64 5320MHz		10641	48.3	-25.7	74	57.39	38.18	13.7	60.97	100	360	Р	V

## Remark

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Report No.: FR642504E

Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

## Band 2 5250~5350MHz WIFI 802.11n HT20 (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)
		5121.1	46.87	-27.13	74	43.49	31.83	8.1	36.55	285	322	Р	Н
		5111.65	36.92	-17.08	54	33.54	31.83	8.1	36.55	285	322	Α	Н
802.11n	*	5254	97.24	-	-	93.64	31.88	8.22	36.5	285	322	Р	Н
HT20	*	5256	90.03	-	-	86.43	31.88	8.22	36.5	285	322	Α	Н
CH 52		5100.05	46.4	-27.6	74	43.05	31.83	8.08	36.56	100	331	Р	٧
5260MHz		5100.8	36.93	-17.07	54	33.58	31.83	8.08	36.56	100	331	Α	٧
	*	5260	98.1	-	-	94.49	31.88	8.23	36.5	100	331	Р	V
	*	5264	89.39	-	-	85.78	31.88	8.23	36.5	100	331	Α	٧
802.11n	*	5298	97.33	-	-	93.68	31.89	8.26	36.5	299	331	Р	Н
HT20	*	5304	90.12	-	-	86.47	31.89	8.26	36.5	299	331	Α	Н
CH 60	*	5306	96.39	-	-	92.74	31.89	8.26	36.5	100	319	Р	٧
5300MHz	*	5306	89.5	-	-	85.85	31.89	8.26	36.5	100	319	Α	٧
	*	5326	98.33	-	-	94.66	31.9	8.27	36.5	330	329	Р	Н
	*	5324	90.84	-	-	87.17	31.9	8.27	36.5	330	329	Α	Н
802.11n		5353.8	49.76	-24.24	74	46.06	31.91	8.29	36.5	330	329	Р	Н
HT20		5371.85	39.76	-14.24	54	36.04	31.91	8.31	36.5	330	329	Α	Н
CH 64	*	5324	97.29	-	-	93.62	31.9	8.27	36.5	116	326	Р	٧
5320MHz	*	5324	89.95	-	-	86.28	31.9	8.27	36.5	116	326	Α	٧
		5371.6	48.91	-25.09	74	45.19	31.91	8.31	36.5	116	326	Р	V
		5371.7	39.78	-14.22	54	36.06	31.91	8.31	36.5	116	326	Α	٧

### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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Report Version : Boy 01

Report No.: FR642504E

Report Version : Rev. 01
Report Template No.: BU5-FR15EWL AC Version 1.4

<sup>1.</sup> No other spurious found.

<sup>2.</sup> 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	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 )	Avg.	}
802.11n		10521	44.94	-29.06	74	54.23	38.11	13.63	61.03	100	0	Р	Н
HT20 CH 52 5260MHz		10521	48.33	-25.67	74	57.62	38.11	13.63	61.03	100	360	Р	V
802.11n		10599	43.99	-30.01	74	53.13	38.16	13.68	60.98	100	0	Р	Н
HT20 CH 60 5300MHz		10599	49.38	-24.62	74	58.52	38.16	13.68	60.98	100	360	Р	<b>V</b>
802.11n		10641	45.45	-28.55	74	54.54	38.18	13.7	60.97	100	0	Р	Н
HT20 CH 64 5320MHz		10641	49.75	-24.25	74	58.84	38.18	13.7	60.97	100	360	Р	V

#### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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Report No.: FR642504E

Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor (dB)	Pos ( cm )	Pos ( deg )	Avg. (P/A)	i .
		5106.9	47.2	-26.8	74	43.82	31.83	8.1	36.55	341	330	Р	Н
		5105.45	37.82	-16.18	54	34.47	31.83	8.08	36.56	341	330	Α	Н
802.11n	*	5256	94.37	-	-	90.77	31.88	8.22	36.5	341	330	Р	Н
HT40	*	5258	87.4	-	-	83.8	31.88	8.22	36.5	341	330	Α	Н
CH 54		5125.95	46.63	-27.37	74	43.22	31.84	8.11	36.54	100	338	Р	V
5270MHz		5109.2	37.57	-16.43	54	34.19	31.83	8.1	36.55	100	338	Α	V
	*	5258	94.1	-	-	90.5	31.88	8.22	36.5	100	338	Р	V
	*	5282	87.16	-	-	83.52	31.89	8.25	36.5	100	338	Α	V
	*	5326	96.2	-	-	92.53	31.9	8.27	36.5	361	325	Р	Н
	*	5322	88.75	-	-	85.08	31.9	8.27	36.5	361	325	Α	Н
802.11n		5354.75	61.29	-12.71	74	57.59	31.91	8.29	36.5	361	325	Р	Н
HT40	!	5350.45	48.11	-5.89	54	44.41	31.91	8.29	36.5	361	325	Α	Н
CH 62	*	5322	95.89	-	-	92.22	31.9	8.27	36.5	120	349	Р	V
5310MHz	*	5322	88.57	-	-	84.9	31.9	8.27	36.5	120	349	Α	V
		5352.4	60.09	-13.91	74	56.39	31.91	8.29	36.5	120	349	Р	V
		5350.1	41.85	-12.15	54	38.15	31.91	8.29	36.5	120	349	Α	V

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Report Version : Rev. 01

Remark 1. No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 2 5250~5350MHz

# WIFI 802.11n HT40 (Harmonic @ 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.	ĺ
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11n		10539	46.3	-27.7	74	55.56	38.12	13.64	61.02	100	360	Р	Н
HT40													
CH 54		10539	47.59	-26.41	74	56.85	38.12	13.64	61.02	100	360	Р	٧
5270MHz													
802.11n		10620	44.82	-29.18	74	53.94	38.17	13.69	60.98	100	0	Р	Н
HT40													
CH 62		10620	49.38	-24.62	74	58.5	38.17	13.69	60.98	100	360	Р	٧
5310MHz													
		I	1	1	I	1	1		1	1	1	1	1

# Remark 2.

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Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 2 5250~5350MHz WIFI 802.11ac VHT20 (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)
		5105.5	48.39	-25.61	74	45.01	31.83	8.1	36.55	333	4	Р	Н
		5110.9	37.77	-16.23	54	34.39	31.83	8.1	36.55	333	4	Α	Н
802.11ac	*	5268	96.88	-	-	93.27	31.88	8.23	36.5	333	4	Р	Н
VHT20	*	5268	89.73	-	-	86.12	31.88	8.23	36.5	333	4	Α	Н
CH 52		5123.45	47.52	-26.48	74	44.11	31.84	8.11	36.54	100	348	Р	V
5260MHz		5103	37.7	-16.3	54	34.35	31.83	8.08	36.56	100	348	Α	V
	*	5256	97.19	-	-	93.59	31.88	8.22	36.5	100	348	Р	V
	*	5264	90.25	-	-	86.64	31.88	8.23	36.5	100	348	Α	V
802.11ac	*	5308	97.02	-	-	93.37	31.89	8.26	36.5	337	360	Р	Н
VHT20	*	5292	89.51	-	-	85.87	31.89	8.25	36.5	337	360	Α	Н
CH 60	*	5308	97.03	-	-	93.38	31.89	8.26	36.5	100	0	Р	٧
5300MHz	*	5308	89.84	-	-	86.19	31.89	8.26	36.5	100	0	Α	٧
	*	5328	97.76	-	-	94.08	31.9	8.28	36.5	369	328	Р	Н
	*	5324	90.13	-	-	86.46	31.9	8.27	36.5	369	328	Α	Н
802.11ac		5350.05	47.42	-26.58	74	43.72	31.91	8.29	36.5	369	328	Р	Н
VHT20		5372	39.41	-14.59	54	35.69	31.91	8.31	36.5	369	328	Α	Н
CH 64	*	5316	97.92	-	-	94.25	31.9	8.27	36.5	100	345	Р	V
5320MHz	*	5316	90.64	-	-	86.97	31.9	8.27	36.5	100	345	Α	V
		5372.4	49.56	-24.44	74	45.84	31.91	8.31	36.5	100	345	Р	V
		5371.9	39.88	-14.12	54	36.16	31.91	8.31	36.5	100	345	Α	V

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Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

Remark

2. All results are PASS against Peak and Average limit line.

# Band 2 5250~5350MHz

### WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor (dB)	Pos ( cm )	Pos ( deg )	Avg. (P/A)	(H/V)
802.11ac		10521	44.36	-29.64	74	53.65	38.11	13.63	61.03	100	0	Р	Τ
VHT20 CH 52 5260MHz		10521	47.95	-26.05	74	57.24	38.11	13.63	61.03	100	360	Р	V
802.11ac		10599	46.05	-27.95	74	55.19	38.16	13.68	60.98	100	0	Р	Н
VHT20 CH 60 5300MHz		10599	47.55	-26.45	74	56.69	38.16	13.68	60.98	100	360	Р	V
802.11ac		10641	46.53	-27.47	74	55.62	38.18	13.7	60.97	100	0	Р	Н
VHT20 CH 64 5320MHz		10641	49.76	-24.24	74	58.85	38.18	13.7	60.97	100	360	Р	V

### Remark

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Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 2 5250~5350MHz WIFI 802.11ac VHT40 (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)
		5114.15	46.68	-27.32	74	43.3	31.83	8.1	36.55	103	346	Р	Н
		5109.25	37.9	-16.1	54	34.52	31.83	8.1	36.55	103	346	Α	Н
802.11ac	*	5282	93.69	-	-	90.05	31.89	8.25	36.5	103	346	Р	Н
VHT40	*	5282	86.46	-	-	82.82	31.89	8.25	36.5	103	346	Α	Н
CH 54		5109.2	46.66	-27.34	74	43.28	31.83	8.1	36.55	335	328	Р	V
5270MHz		5105.35	37.44	-16.56	54	34.09	31.83	8.08	36.56	335	328	Α	٧
	*	5258	84.51	-	-	80.91	31.88	8.22	36.5	335	328	Р	٧
	*	5256	77.72	-	-	74.12	31.88	8.22	36.5	335	328	Α	٧
	*	5320	95.59	-	-	91.92	31.9	8.27	36.5	316	328	Р	Н
	*	5322	88.09	-	-	84.42	31.9	8.27	36.5	316	328	Α	Н
802.11ac		5351.75	58.71	-15.29	74	55.01	31.91	8.29	36.5	316	328	Р	Н
VHT40		5350.25	46.38	-7.62	54	42.68	31.91	8.29	36.5	316	328	Α	Н
CH 62	*	5324	95.35	-	-	91.68	31.9	8.27	36.5	110	337	Р	V
5310MHz	*	5322	87.96	-	-	84.29	31.9	8.27	36.5	110	337	Α	V
		5352.35	58.76	-15.24	74	55.06	31.91	8.29	36.5	110	337	Р	٧
		5350.25	47.07	-6.93	54	43.37	31.91	8.29	36.5	110	337	Α	V

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Report No.: FR642504E

Report Version : Rev. 01

Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

# Band 2 5250~5350MHz

### WIFI 802.11ac VHT40 (Harmonic @ 3m)

Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
	(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V
	10539	44.54	-29.46	74	53.8	38.12	13.64	61.02	100	0	Р	Н
	10539	47.51	-26.49	74	56.77	38.12	13.64	61.02	100	360	Р	٧
	10620	45.71	-28.29	74	54.83	38.17	13.69	60.98	100	0	Р	Н
	10620	48.4	-25.6	74	57.52	38.17	13.69	60.98	100	360	Р	V
	Note	(MHz) 10539 10539 10620	(MHz) (dBμV/m) 10539 44.54 10539 47.51 10620 45.71	(MHz) (dBμV/m) (dB) 10539 44.54 -29.46  10539 47.51 -26.49  10620 45.71 -28.29	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)       10539     44.54     -29.46     74       10539     47.51     -26.49     74       10620     45.71     -28.29     74	(MHz)     (dBμV/m)     Limit (dB)     Line (dBμV/m)     Level (dBμV/m)       10539     44.54     -29.46     74     53.8       10539     47.51     -26.49     74     56.77       10620     45.71     -28.29     74     54.83	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)           10539         44.54         -29.46         74         53.8         38.12           10539         47.51         -26.49         74         56.77         38.12           10620         45.71         -28.29         74         54.83         38.17	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)           10539         44.54         -29.46         74         53.8         38.12         13.64           10539         47.51         -26.49         74         56.77         38.12         13.64           10620         45.71         -28.29         74         54.83         38.17         13.69	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)           10539         44.54         -29.46         74         53.8         38.12         13.64         61.02           10539         47.51         -26.49         74         56.77         38.12         13.64         61.02           10620         45.71         -28.29         74         54.83         38.17         13.69         60.98	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (cm)           10539         44.54         -29.46         74         53.8         38.12         13.64         61.02         100           10539         47.51         -26.49         74         56.77         38.12         13.64         61.02         100           10620         45.71         -28.29         74         54.83         38.17         13.69         60.98         100	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)           10539         44.54         -29.46         74         53.8         38.12         13.64         61.02         100         0           10539         47.51         -26.49         74         56.77         38.12         13.64         61.02         100         360           10620         45.71         -28.29         74         54.83         38.17         13.69         60.98         100         0	(MHz)         Limit (dB μV/m)         Line (dB μV/m)         Level (dB μV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)         Avg. (deg)         (P/A)           10539         44.54         -29.46         74         53.8         38.12         13.64         61.02         100         0         P           10539         47.51         -26.49         74         56.77         38.12         13.64         61.02         100         360         P           10620         45.71         -28.29         74         54.83         38.17         13.69         60.98         100         0         P

# Remark

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Report Version : Rev. 01

<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor (dB)	Pos ( cm )	Pos ( deg )	Avg. (P/A)	(H/V)
		5125.8	46.94	-27.06	74	43.53	31.84	8.11	36.54	176	350	Р	Н
		5139.55	38.65	-15.35	54	35.21	31.84	8.13	36.53	176	350	Α	Н
	*	5318	91.61	-	-	87.94	31.9	8.27	36.5	176	350	Р	Н
	*	5310	84.63	-	-	80.96	31.9	8.27	36.5	176	350	Α	Н
802.11ac		5369.65	56.07	-17.93	74	52.35	31.91	8.31	36.5	176	350	Р	Н
VHT80	!	5353.15	48.78	-5.22	54	45.08	31.91	8.29	36.5	176	350	Α	Н
CH 58		5144.45	47.13	-26.87	74	43.69	31.84	8.13	36.53	100	290	Р	V
5290MHz		5144.3	39	-15	54	35.56	31.84	8.13	36.53	100	290	Α	٧
	*	5314	91.48	-	-	87.81	31.9	8.27	36.5	100	290	Р	٧
	*	5312	84.3	-	-	80.63	31.9	8.27	36.5	100	290	Α	٧
		5354.55	55.44	-18.56	74	51.74	31.91	8.29	36.5	100	290	Р	٧
	!	5353.4	48.71	-5.29	54	45.01	31.91	8.29	36.5	100	290	Α	٧

## Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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#### Band 2 5250~5350MHz

### WIFI 802.11ac VHT80 (Harmonic @ 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)
802.11ac		10581	44.4	-29.6	74	53.57	38.15	13.67	60.99	100	0	Р	Н
VHT80													
CH 58		10581	43.31	-30.69	74	52.48	38.15	13.67	60.99	100	360	Р	٧
5290MHz													

## Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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#### Band 3 - 5470~5725MHz

## WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V
		5447.28	49.32	-24.68	74	45.43	31.94	8.37	36.42	322	334	Р	Н
		5447.6	39.9	-14.1	54	36.01	31.94	8.37	36.42	322	334	Α	Н
000 44	*	5494	97.57	-	-	93.61	31.95	8.39	36.38	322	334	Р	Н
802.11a	*	5494	90.64	-	-	86.68	31.95	8.39	36.38	322	334	Α	Н
CH 100 5500MHz		5463.92	47.57	-26.43	74	43.64	31.95	8.38	36.4	105	336	Р	V
3300WIFI2		5447.28	38.54	-15.46	54	34.65	31.94	8.37	36.42	105	336	Α	V
	*	5496	94.3	-	-	90.34	31.95	8.39	36.38	105	336	Р	V
	*	5492	87.42	-	-	83.46	31.95	8.39	36.38	105	336	Α	V
	*	5576	95.58	-	-	91.4	31.98	8.45	36.25	342	334	Р	Н
802.11a	*	5584	88.21	-	-	83.99	31.98	8.47	36.23	342	334	Α	Н
CH 116 5580MHz	*	5584	93.65	-	-	89.43	31.98	8.47	36.23	105	344	Р	V
3300WIFI2	*	5586	86.75	-	-	82.53	31.98	8.47	36.23	105	344	Α	V
	*	5698	90.2	-	-	85.89	32.02	8.54	36.25	121	64	Р	Н
	*	5694	83.21	-	-	78.9	32.02	8.54	36.25	121	64	Α	Н
		5726.68	47.46	-26.54	74	43.13	32.04	8.57	36.28	121	64	Р	Н
802.11a		5725	37.96	-16.04	54	33.63	32.04	8.57	36.28	121	64	Α	Н
CH 140	*	5696	92.44	-	-	88.13	32.02	8.54	36.25	123	339	Р	V
5700MHz	*	5696	84.74	-	-	80.43	32.02	8.54	36.25	123	339	Α	V
		5728.44	49.23	-24.77	74	44.9	32.04	8.57	36.28	123	339	Р	V
		5725.56	38.78	-15.22	54	34.45	32.04	8.57	36.28	123	339	Α	V

SPORTON INTERNATIONAL (KUNSHAN) INC.

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# Band 3 - 5470~5725MHz

#### WIFI 802.11a (Harmonic @ 3m)

Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant			ļ
	(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )		_	i
	11001	47.9	-26.1	74	56.38	38.4	13.91	60.79	100	0	Р	Н
	11001	50.19	-23.81	74	58.67	38.4	13.91	60.79	100	360	Р	V
	11160	47.02	-26.98	74	55.25	38.47	14.01	60.71	100	0	Р	Н
	11160	49.19	-24.81	74	57.42	38.47	14.01	60.71	100	0	Р	V
	11400	48.22	-25.78	74	56.1	38.56	14.15	60.59	100	0	Р	Н
	11400	48.26	-25.74	74	56.14	38.56	14.15	60.59	100	360	Р	V
	Note	( MHz ) 11001 11001 11160 11160 11400	(MHz) (dBμV/m) 11001 47.9 11001 50.19 11160 47.02 11160 49.19 11400 48.22	(MHz) (dBμV/m) (dB)  11001 47.9 -26.1  11001 50.19 -23.81  11160 47.02 -26.98  11160 49.19 -24.81  11400 48.22 -25.78	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)           11001         47.9         -26.1         74           11001         50.19         -23.81         74           11160         47.02         -26.98         74           11160         49.19         -24.81         74           11400         48.22         -25.78         74	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV/m)           11001         47.9         -26.1         74         56.38           11001         50.19         -23.81         74         58.67           11160         47.02         -26.98         74         55.25           11160         49.19         -24.81         74         57.42           11400         48.22         -25.78         74         56.1	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)           11001         47.9         -26.1         74         56.38         38.4           11001         50.19         -23.81         74         58.67         38.4           11160         47.02         -26.98         74         55.25         38.47           11160         49.19         -24.81         74         57.42         38.47           11400         48.22         -25.78         74         56.1         38.56	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)           11001         47.9         -26.1         74         56.38         38.4         13.91           11001         50.19         -23.81         74         58.67         38.4         13.91           11160         47.02         -26.98         74         55.25         38.47         14.01           11160         49.19         -24.81         74         57.42         38.47         14.01           11400         48.22         -25.78         74         56.1         38.56         14.15	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)           11001         47.9         -26.1         74         56.38         38.4         13.91         60.79           11001         50.19         -23.81         74         58.67         38.4         13.91         60.79           11160         47.02         -26.98         74         55.25         38.47         14.01         60.71           11160         49.19         -24.81         74         57.42         38.47         14.01         60.71           11400         48.22         -25.78         74         56.1         38.56         14.15         60.59	(MHz)         (dBμV/m)         Limit (dB)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (cm)           11001         47.9         -26.1         74         56.38         38.4         13.91         60.79         100           11001         50.19         -23.81         74         58.67         38.4         13.91         60.79         100           11160         47.02         -26.98         74         55.25         38.47         14.01         60.71         100           11160         49.19         -24.81         74         57.42         38.47         14.01         60.71         100           11400         48.22         -25.78         74         56.1         38.56         14.15         60.59         100	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)           11001         47.9         -26.1         74         56.38         38.4         13.91         60.79         100         0           11001         50.19         -23.81         74         58.67         38.4         13.91         60.79         100         360           11160         47.02         -26.98         74         55.25         38.47         14.01         60.71         100         0           11160         49.19         -24.81         74         57.42         38.47         14.01         60.71         100         0           11400         48.22         -25.78         74         56.1         38.56         14.15         60.59         100         0	(MHz)         Limit (dBμV/m)         Line (dBμV/m)         Level (dBμV)         Factor (dB/m)         Loss (dB)         Factor (dB)         Pos (deg)         Avg. (deg)         (P/A)           11001         47.9         -26.1         74         56.38         38.4         13.91         60.79         100         0         P           11001         50.19         -23.81         74         58.67         38.4         13.91         60.79         100         360         P           11160         47.02         -26.98         74         55.25         38.47         14.01         60.71         100         0         P           11160         49.19         -24.81         74         57.42         38.47         14.01         60.71         100         0         P           11400         48.22         -25.78         74         56.1         38.56         14.15         60.59         100         0         P

# Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

				_	_								_
WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor (dB)	Pos ( cm )	Pos ( deg )	Avg. (P/A)	(H/V
-	*	5496	95.51	-	-	91.55	31.95	8.39	36.38	348	332	P	Н
	*	5494	88.14	-	-	84.18	31.95	8.39	36.38	348	332	Α	Н
802.11n		5469.76	51	-23	74	47.07	31.95	8.38	36.4	348	332	Р	Н
HT20		5448.24	39.72	-14.28	54	35.83	31.94	8.37	36.42	348	332	Α	Н
CH 100	*	5496	96.27	-	-	92.31	31.95	8.39	36.38	123	330	Р	V
5500MHz	*	5492	87.92	-	-	83.96	31.95	8.39	36.38	123	330	Α	V
		5447.44	48.47	-25.53	74	44.58	31.94	8.37	36.42	123	330	Р	V
		5448.24	39.47	-14.53	54	35.58	31.94	8.37	36.42	123	330	Α	V
802.11n	*	5574	94.91	-	-	90.73	31.98	8.45	36.25	111	8	Р	Н
HT20	*	5588	88	-	-	83.78	31.98	8.47	36.23	111	8	Α	Н
CH 116	*	5586	94.21	-	-	89.99	31.98	8.47	36.23	114	331	Р	V
5580MHz	*	5588	86.89	-	-	82.67	31.98	8.47	36.23	114	331	Α	V
	*	5706	93.16	-	-	88.85	32.03	8.55	36.27	126	314	Р	Н
	*	5694	85.74	-	-	81.43	32.02	8.54	36.25	126	314	Α	Н
802.11n		5727.32	51.29	-22.71	74	46.96	32.04	8.57	36.28	126	314	Р	Н
HT20		5725.08	40.51	-13.49	54	36.18	32.04	8.57	36.28	126	314	Α	Н
CH 140	*	5706	92.6	-	-	88.29	32.03	8.55	36.27	108	320	Р	V
5700MHz	*	5704	85.41	-	-	81.1	32.03	8.55	36.27	108	320	Α	V
		5726.84	51.19	-22.81	74	46.86	32.04	8.57	36.28	108	320	Р	٧
		5725.24	40.09	-13.91	54	35.76	32.04	8.57	36.28	108	320	Α	V

## Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		( MHz )	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor ( dB )	Pos ( cm )	Pos ( deg )	Avg. (P/A)	(H/V)
802.11n		11001	47.32	-26.68	74	55.8	38.4	13.91	60.79	100	0	Р	Н
HT20													
CH 100		11001	50.73	-23.27	74	59.21	38.4	13.91	60.79	100	360	Р	V
5500MHz													
802.11n		11160	47.33	-26.67	74	55.56	38.47	14.01	60.71	100	360	Р	Н
HT20													
CH 116		11160	49.9	-24.1	74	58.13	38.47	14.01	60.71	100	360	Р	V
5580MHz													
802.11n		11400	47.75	-26.25	74	55.63	38.56	14.15	60.59	100	360	Р	Н
HT20													
CH 140		11400	48.97	-25.03	74	56.85	38.56	14.15	60.59	100	360	Р	V
5700MHz													

#### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 3 - 5470~5725MHz WIFI 802.11n HT40 (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 )	( $dB\mu V$ )	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
		5469.2	58.06	-15.94	74	54.13	31.95	8.38	36.4	106	345	Р	Н
		5469.84	46.84	-7.16	54	42.91	31.95	8.38	36.4	106	345	Α	Н
802.11n	*	5500	93.37	-	-	89.36	31.96	8.4	36.35	106	345	Р	Н
HT40	*	5498	86.08	-	-	82.07	31.96	8.4	36.35	106	345	Α	Н
CH 102		5464.96	59.84	-14.16	74	55.91	31.95	8.38	36.4	127	339	Р	V
5510MHz		5469.68	47.47	-6.53	54	43.54	31.95	8.38	36.4	127	339	Α	٧
	*	5500	93.92	-	-	89.91	31.96	8.4	36.35	127	339	Р	٧
	*	5498	86.86	-	-	82.85	31.96	8.4	36.35	127	339	Α	٧
802.11n	*	5542	93.96	-	-	89.86	31.97	8.43	36.3	104	344	Р	Н
HT40	*	5548	86.94	-	-	82.81	31.97	8.44	36.28	104	344	Α	Н
CH 110	*	5552	93.53	-	-	89.4	31.97	8.44	36.28	122	334	Р	V
5550MHz	*	5546	86.15	-	-	82.05	31.97	8.43	36.3	122	334	Α	V
	*	5658	92.22	-	-	87.92	32.01	8.52	36.23	153	344	Р	Н
	*	5658	85.36	-	-	81.06	32.01	8.52	36.23	153	344	Α	Н
802.11n		5726.12	49.23	-24.77	74	44.9	32.04	8.57	36.28	153	344	Р	Н
HT40		5727.24	39.25	-14.75	54	34.92	32.04	8.57	36.28	153	344	Α	Н
CH 134	*	5664	92.26	-	-	87.96	32.01	8.52	36.23	119	340	Р	V
5670MHz	*	5658	84.83	-	-	80.53	32.01	8.52	36.23	119	340	Α	V
		5730.52	47.69	-26.31	74	43.36	32.04	8.57	36.28	119	340	Р	V
		5725.24	38.69	-15.31	54	34.36	32.04	8.57	36.28	119	340	Α	V

#### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		(MHz)	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level ( dBµV )	Factor ( dB/m )	Loss (dB)	Factor ( dB )	Pos ( cm )		Avg. (P/A)	(H/V)
802.11n HT40		11019	45.98	-28.02	74	54.43	38.41	13.92	60.78	100	360	Р	Н
CH 102 5510MHz		11019	50.69	-23.31	74	59.14	38.41	13.92	60.78	100	360	Р	V
802.11n		11100	46.99	-27.01	74	55.32	38.44	13.97	60.74	100	0	Р	Н
HT40 CH 110 5550MHz		11100	50.21	-23.79	74	58.54	38.44	13.97	60.74	100	360	Р	V
802.11n		11340	46.13	-27.87	74	54.11	38.53	14.11	60.62	100	0	Р	Н
HT40 CH 134 5670MHz		11340	48.42	-25.58	74	56.4	38.53	14.11	60.62	100	0	Р	V

#### Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 3 - 5470~5725MHz WIFI 802.11ac VHT20 (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)
	*	5506	93.48	-	-	89.47	31.96	8.4	36.35	100	350	Р	Н
	*	5494	86.59	-	-	82.63	31.95	8.39	36.38	100	350	Α	Н
802.11ac		5465.52	49.59	-24.41	74	45.66	31.95	8.38	36.4	100	350	Р	Н
VHT20		5469.68	39.08	-14.92	54	35.15	31.95	8.38	36.4	100	350	Α	Н
CH 100	*	5496	94.01	-	-	90.05	31.95	8.39	36.38	100	333	Р	٧
5500MHz	*	5492	86.86	-	-	82.9	31.95	8.39	36.38	100	333	Α	V
		5465.2	47.34	-26.66	74	43.41	31.95	8.38	36.4	100	333	Р	V
		5447.76	39.26	-14.74	54	35.37	31.94	8.37	36.42	100	333	Α	V
802.11ac	*	5588	93.28	-	-	89.06	31.98	8.47	36.23	112	350	Р	Н
VHT20	*	5588	86.35	-	-	82.13	31.98	8.47	36.23	112	350	Α	Н
CH 116	*	5584	92.91	-	-	88.69	31.98	8.47	36.23	100	334	Р	V
5580MHz	*	5588	86.24	-	-	82.02	31.98	8.47	36.23	100	334	Α	V
	*	5692	92.34	-	-	88.03	32.02	8.54	36.25	100	345	Р	Н
	*	5704	85.64	-	-	81.33	32.03	8.55	36.27	100	345	Α	Н
802.11ac		5725.4	48.34	-25.66	74	44.01	32.04	8.57	36.28	100	345	Р	Н
VHT20		5725	39.96	-14.04	54	35.63	32.04	8.57	36.28	100	345	Α	Н
CH 140	*	5694	92.7	-	-	88.39	32.02	8.54	36.25	100	334	Р	V
5700MHz	*	5692	85.65	-	-	81.34	32.02	8.54	36.25	100	334	Α	V
		5725	50.94	-23.06	74	46.61	32.04	8.57	36.28	100	334	Р	V
		5725	40.9	-13.1	54	36.57	32.04	8.57	36.28	100	334	Α	V

## Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 3 - 5470~5725MHz WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		( MHz )	( dBµV/m )	Limit (dB)	Line ( dBµV/m )	Level (dBµV)	Factor ( dB/m )	Loss (dB)	Factor ( dB )	Pos ( cm )	Pos ( deg )	Avg. (P/A)	(H/V)
802.11ac		11001	46.54	-27.46	74	55.02	38.4	13.91	60.79	100	0	Р	Н
VHT20													
CH 100		11001	49.66	-24.34	74	58.14	38.4	13.91	60.79	100	360	Р	V
5500MHz													
802.11ac		11160	47.79	-26.21	74	56.02	38.47	14.01	60.71	100	0	Р	Н
VHT20													
CH 116		11160	50.67	-23.33	74	58.9	38.47	14.01	60.71	100	360	Р	V
5580MHz													
802.11ac		11400	48.22	-25.78	74	56.1	38.56	14.15	60.59	100	0	Р	Н
VHT20													
CH 140		11400	49.62	-24.38	74	57.5	38.56	14.15	60.59	100	360	Р	V
5700MHz													

#### Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 3 - 5470~5725MHz WIFI 802.11ac VHT40 (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 )	(dB <sub>µ</sub> V)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
	*	5508	90.91	-	-	86.9	31.96	8.4	36.35	100	335	Р	Н
	*	5518	83.6	-	-	79.55	31.96	8.42	36.33	100	335	Α	Н
802.11ac		5468.56	54.59	-19.41	74	50.66	31.95	8.38	36.4	100	335	Р	Н
VHT40		5468.88	44.55	-9.45	54	40.62	31.95	8.38	36.4	100	335	Α	Н
CH 102	*	5502	92.16	-	-	88.15	31.96	8.4	36.35	100	335	Р	٧
5510MHz	*	5500	85.45	-	-	81.44	31.96	8.4	36.35	100	335	Α	٧
		5468.72	57.58	-16.42	74	53.65	31.95	8.38	36.4	100	335	Р	٧
		5470	46.52	-7.48	54	42.59	31.95	8.38	36.4	100	335	Α	٧
802.11ac	*	5564	89.95	-	-	85.82	31.97	8.44	36.28	100	333	Р	Н
VHT40	*	5548	83.02	-	-	78.89	31.97	8.44	36.28	100	333	Α	Н
CH 110	*	5540	92.34	-	-	88.24	31.97	8.43	36.3	100	334	Р	٧
5550MHz	*	5540	85.52	-	-	81.42	31.97	8.43	36.3	100	334	Α	٧
	*	5680	90.25	-	-	85.94	32.02	8.53	36.24	100	326	Р	Н
	*	5678	83.22	-	-	78.91	32.02	8.53	36.24	100	326	Α	Н
802.11ac		5731.64	47.7	-26.3	74	43.37	32.04	8.57	36.28	100	326	Р	Н
VHT40		5727.4	38.47	-15.53	54	34.14	32.04	8.57	36.28	100	326	Α	Н
CH 134	*	5680	90.64	-	-	86.33	32.02	8.53	36.24	100	337	Р	٧
5670MHz	*	5658	83.76	-	-	79.46	32.01	8.52	36.23	100	337	Α	V
		5725.64	47.62	-26.38	74	43.29	32.04	8.57	36.28	100	337	Р	V
		5726.6	38.87	-15.13	54	34.54	32.04	8.57	36.28	100	337	Α	٧

## Remark

SPORTON INTERNATIONAL (KUNSHAN) INC.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

# Band 3 - 5470~5725MHz WIFI 802.11ac VHT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant. 1		( MHz )	( dBµV/m )	Limit ( dB )	Line ( dBµV/m )	Level ( dBµV )	Factor ( dB/m )	Loss (dB)	Factor (dB)	Pos ( cm )		Avg. (P/A)	i l
802.11ac		11019	46.93	-27.07	74	55.38	38.41	13.92	60.78	100	0	Р	Н
VHT40		11019	53.85	-20.15	74	62.3	38.41	13.92	60.78	100	360	Р	V
CH 102 5510MHz	!	11019	48.89	-5.11	54	57.34	38.41	13.92	60.78	100	360	Α	V
802.11ac		11100	46.49	-27.51	74	54.82	38.44	13.97	60.74	100	0	Р	Н
VHT40		11100	54.66	-19.34	74	62.99	38.44	13.97	60.74	100	360	Р	٧
CH 110 5550MHz	!	11100	48.86	-5.14	54	57.19	38.44	13.97	60.74	100	360	Α	V
802.11ac		11340	48.46	-25.54	74	56.44	38.53	14.11	60.62	100	0	Р	Н
VHT40 CH 134 5670MHz		11340	47.85	-26.15	74	55.83	38.53	14.11	60.62	100	360	Р	V

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<sup>1.</sup> No other spurious found.

Remark

2. All results are PASS against Peak and Average limit line.

# Band 3 5470~5725MHz WIFI 802.11ac VHT80 (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.	i
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	(dB)	( cm )		(P/A)	1
	*	5458.96	60.87	-13.13	74	56.98	31.94	8.37	36.42	163	352	Р	Н
	*	5469.68	53.25	-0.75	54	49.32	31.95	8.38	36.4	163	352	Α	Н
		5506	90.18	-	-	86.17	31.96	8.4	36.35	163	352	Р	Н
	!	5504	83.74	-	-	79.73	31.96	8.4	36.35	163	352	Α	Н
802.11ac		5746.6	47.37	-26.63	74	43.03	32.05	8.58	36.29	163	352	Р	Н
VHT80		5751.56	39.02	-14.98	54	34.68	32.05	8.59	36.3	163	352	Α	Н
CH 106	*	5449.52	60.75	-13.25	74	56.86	31.94	8.37	36.42	100	343	Р	٧
5530MHz	*	5470	53.01	-0.99	54	49.08	31.95	8.38	36.4	100	343	Α	V
		5524	90.26	-	-	86.21	31.96	8.42	36.33	100	343	Р	V
	!	5524	83.94	-	-	79.89	31.96	8.42	36.33	100	343	Α	V
		5731.96	47.21	-26.79	74	42.88	32.04	8.57	36.28	100	343	Р	V
		5754.2	39.03	-14.97	54	34.69	32.05	8.59	36.3	100	343	Α	V
		5463.28	46.32	-27.68	74	42.39	31.95	8.38	36.4	174	356	Р	Н
		5443.12	38.59	-15.41	54	34.75	31.94	8.35	36.45	174	356	Α	Н
	*	5588	88.76	-	-	84.54	31.98	8.47	36.23	174	356	Р	Н
	*	5584	82.41	-	-	78.19	31.98	8.47	36.23	174	356	Α	Н
802.11ac		5732.12	46.27	-27.73	74	41.94	32.04	8.57	36.28	174	356	Р	Н
VHT80		5740.44	39.11	-14.89	54	34.77	32.05	8.58	36.29	174	356	Α	Н
CH 122		5414.8	46.55	-27.45	74	42.75	31.93	8.34	36.47	100	344	Р	V
5610MHz		5467.44	38.81	-15.19	54	34.88	31.95	8.38	36.4	100	344	Α	V
	*	5590	88.93	-	-	84.71	31.98	8.47	36.23	100	344	Р	V
	*	5584	82.88	-	-	78.66	31.98	8.47	36.23	100	344	Α	V
		5738.6	46.91	-27.09	74	42.57	32.05	8.58	36.29	100	344	Р	V
		5728.28	38.97	-15.03	54	34.64	32.04	8.57	36.28	100	344	Α	V

#### Remark

I. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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# Band 3 5470~5725MHz

### WIFI 802.11ac VHT80 (Harmonic @ 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
802.11ac		11061	49.62	-24.38	74	58	38.43	13.95	60.76	100	0	Р	Н
VHT80													
CH 106		11061	45	-29	74	53.38	38.43	13.95	60.76	100	360	Р	V
5530MHz													
802.11ac		11220	48.15	-25.85	74	56.3	38.49	14.04	60.68	100	0	Р	Н
VHT80													
CH 122		11220	46.2	-27.8	74	54.35	38.49	14.04	60.68	100	360	Р	V
5610MHz													
		11220	40.2	-21.0	74	34.33	30.49	14.04	00.00	100		300	300 1

# Remark

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against Peak and Average limit line.

#### **Band 3 - Straddle Channel**

### 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)
	*	5726	94.43	-	-	90.1	32.04	8.57	36.28	153	344	Р	Н
802.11a	*	5724	87.58	-	-	83.25	32.04	8.57	36.28	153	344	Α	Н
CH 144 5720MHz	*	5716	92.6	-	-	88.29	32.03	8.55	36.27	112	337	Р	V
37 ZUIVITIZ	*	5716	85.21	-	-	80.9	32.03	8.55	36.27	112	337	Α	V

# Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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# Band 3 - Straddle Channel

### WIFI 802.11a (Harmonic @ 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		11439	48.15	-25.85	74	55.98	38.57	14.17	60.57	100	0	Р	Н
CH 144		11439	50.05	-23.95	74	57.88	38.57	14.17	60.57	100	360	P	V
5720MHz		11439	50.05	-23.95	74	37.00	36.37	14.17	60.57	100	300	F	V

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		/ <b></b> .		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	(cm)	(deg)	(P/A)	(H/V)
802.11n	*	5716	93.79	-	-	89.48	32.03	8.55	36.27	118	344	Р	Н
HT20	*	5716	86.84	1	-	82.53	32.03	8.55	36.27	118	344	Α	Н
CH 144	*	5712	92.41	-	-	88.1	32.03	8.55	36.27	100	336	Р	V
5720MHz	*	5714	85.17	-	-	80.86	32.03	8.55	36.27	100	336	Α	V

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos		Avg.	1
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11n		11439	48.96	-25.04	74	56.79	38.57	14.17	60.57	100	0	Р	Н
HT20													
CH 144		11439	50.35	-23.65	74	58.18	38.57	14.17	60.57	100	360	Р	V
5720MHz													

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	( dBuV/m )	Limit (dB)	Line ( dBµV/m )	Level ( dBµV )	Factor	Loss (dB)	Factor ( dB )	Pos ( cm )	Pos (deg)	Avg.	1
•		( 141172 )	( ubµv/iii )	(ub)	( ubµv/iii )	(ивру)	( ub/iii )	(ub)	(ub)	( CIII )	( ueg )	(F/A)	(m/v)
802.11n	*	5702	91.38	-	-	87.07	32.03	8.55	36.27	100	11	Р	Н
HT40	*	5698	84.47	-	-	80.16	32.02	8.54	36.25	100	11	Α	Н
CH 142	*	5712	91.19	-	-	86.88	32.03	8.55	36.27	100	335	Р	V
5710MHz	*	5712	84.36	-	-	80.05	32.03	8.55	36.27	100	335	Α	V

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	( dBµV/m )	Limit	Line ( dBµV/m )	Level	Factor	Loss (dB)	Factor	Pos ( cm )	Pos ( deg )	Avg.	ł
802.11n		11421	48.55	-25.45	74	56.4	38.57	14.16	60.58	100	( <b>deg</b> )	P	(11/ <b>v</b> )
		11721	40.00	-20.40	7-7	30.4	30.37	14.10	00.00	100	0	'	
HT40													
CH 142		11421	47.3	-26.7	74	55.15	38.57	14.16	60.58	100	360	Р	V
5710MHz													

# Remark

No other spurious found.

2. All results are PASS against Peak and Average limit line.

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# Band 3 - Straddle Channel WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		/ <b></b> .		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)
802.11ac	*	5716	93.04	-	-	88.73	32.03	8.55	36.27	100	345	Р	Н
VHT20	*	5714	86.25	-	-	81.94	32.03	8.55	36.27	100	345	Α	Н
CH 144	*	5728	93.29	-	-	88.96	32.04	8.57	36.28	139	339	Р	V
5720MHz	*	5712	86.2	-	-	81.89	32.03	8.55	36.27	139	339	Α	V

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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# **Band 3 - Straddle Channel** WIFI 802.11ac VHT20 (Harmonic @ 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.	ł
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11ac		11439	49.46	-24.54	74	57.29	38.57	14.17	60.57	100	0	Р	Н
VHT20													
CH 144		11439	47.68	-26.32	74	55.51	38.57	14.17	60.57	100	360	Р	V
5720MHz													

Remark 1. No other spurious found.

All results are PASS against Peak and Average limit line.

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# Band 3 - Straddle Channel WIFI 802.11ac VHT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		(MHz)	( dBuV/m )	Limit (dB)	Line ( dBµV/m )	Level ( dBµV )	Factor	Loss (dB)	Factor	Pos ( cm )	Pos ( deg )	Avg.	1
'	*	, ,	( · r /	(ub)	( ασμν/ιιι )	,	,	,	, ,	,			
802.11ac	Α	5708	92.35	-	-	88.04	32.03	8.55	36.27	100	346	Р	Н
VHT40	*	5708	84.36	-	-	80.05	32.03	8.55	36.27	100	346	Α	Н
CH 142	*	5708	91.46	-	-	87.15	32.03	8.55	36.27	100	339	Р	V
5710MHz	*	5718	84.03	-	-	79.7	32.04	8.57	36.28	100	339	Α	٧

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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# **Band 3 - Straddle Channel** WIFI 802.11ac VHT40 (Harmonic @ 3m)

	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	reak	POI
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
	(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/\
	11421	48.8	-25.2	74	56.65	38.57	14.16	60.58	100	0	Р	Н
	11421	47.86	-26.14	74	55.71	38.57	14.16	60.58	100	360	Р	V
1. No	o other spurio	us found.										
	1. <b>N</b> o	11421	11421 48.8	(MHz) (dBμV/m) (dB) 11421 48.8 -25.2 11421 47.86 -26.14	(MHz)     (dBμV/m)     (dB)     (dBμV/m)       11421     48.8     -25.2     74       11421     47.86     -26.14     74	(MHz)         (dBμV/m)         (dB)         (dBμV/m)         (dBμV/m)           11421         48.8         -25.2         74         56.65           11421         47.86         -26.14         74         55.71	(MHz)     (dBμV/m)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV)     (dB/m)       11421     48.8     -25.2     74     56.65     38.57       11421     47.86     -26.14     74     55.71     38.57	(MHz)         (dBμV/m)         (dBμV/m)         (dBμV)         (dBμV)         (dB/m)         (dB)           11421         48.8         -25.2         74         56.65         38.57         14.16           11421         47.86         -26.14         74         55.71         38.57         14.16	(MHz)         (dBμV/m)         (dB μV/m)         (dBμV)         (dB/m)         (dB)         (dB)           11421         48.8         -25.2         74         56.65         38.57         14.16         60.58           11421         47.86         -26.14         74         55.71         38.57         14.16         60.58	(MHz)     (dBμV/m)     (dB)     (dBμV/m)     (dBμV)     (dB/m)     (dB)     (dB)     (cm)       11421     48.8     -25.2     74     56.65     38.57     14.16     60.58     100       11421     47.86     -26.14     74     55.71     38.57     14.16     60.58     100	(MHz)     (dBμV/m)     (dB)     (dBμV/m)     (dBμV)     (dB/m)     (dB)     (dB)     (cm)     (deg)       11421     48.8     -25.2     74     56.65     38.57     14.16     60.58     100     0       11421     47.86     -26.14     74     55.71     38.57     14.16     60.58     100     360	(MHz)         (dBμV/m)         (dB)         (dBμV)         (dB/m)         (dB)         (dB)         (cm)         (deg)         (P/A)           11421         48.8         -25.2         74         56.65         38.57         14.16         60.58         100         0         P           11421         47.86         -26.14         74         55.71         38.57         14.16         60.58         100         360         P

2. All results are PASS against Peak and Average limit line.

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.		( <b>54</b> 11 )		Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	( dB )	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	(cm)	( aeg )	(P/A)	(H/V)
802.11ac	*	5672	88.97	-	-	84.66	32.02	8.53	36.24	346	351	Р	Н
VHT80	*	5664	81.6	-	-	77.3	32.01	8.52	36.23	346	351	Α	Н
CH 138	*	5686	87.06	-	-	82.75	32.02	8.54	36.25	301	38	Р	V
5690MHz	*	5684	80.88	-	-	76.57	32.02	8.54	36.25	301	38	Α	V

#### Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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# **Band 3 - Straddle Channel** WIFI 802.11ac VHT80 (Harmonic @ 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.	ļ
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)
802.11ac		11379	46.05	-27.95	74	53.96	38.55	14.14	60.6	100	0	Р	Н
VHT80													
CH 138		11379	43.23	-30.77	74	51.14	38.55	14.14	60.6	100	360	Р	V
5690MHz													

Remark 1. No other spurious found.

All results are PASS against Peak and Average limit line.

SPORTON INTERNATIONAL (KUNSHAN) INC.

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#### **Emission below 1GHz**

### 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.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
		36.79	18.47	-21.53	40	33.82	16.42	0.73	32.5	-	-	Р	Н
		58.13	26.19	-13.81	40	50.7	7.12	0.91	32.54	108	227	Р	Н
		216.24	15.4	-30.6	46	34.49	11.52	1.73	32.34	-	-	Р	Н
		323.91	19.99	-26.01	46	34.69	15.33	2.21	32.24	-	-	Р	Н
		779.81	24.14	-21.86	46	30.96	21.34	3.54	31.7	-	-	Р	Н
802.11n		919.49	25.07	-20.93	46	29.58	23.11	3.9	31.52	-	-	Р	Н
HT40 LF		30	28.01	-11.99	40	41.37	18.6	0.65	32.61	-	-	Р	٧
Lr		58.13	32.38	-7.62	40	56.89	7.12	0.91	32.54	147	306	Р	٧
		252.13	18.95	-27.05	46	36.37	13.27	1.75	32.44	-	-	Р	٧
		288.02	21.38	-24.62	46	37.04	14.5	2.04	32.2	-	-	Р	٧
		552.83	21.91	-24.09	46	32.1	18.52	2.94	31.65	-	-	Р	٧
		839.95	24.83	-21.17	46	30.61	22.18	3.69	31.65	-	-	Р	٧
			1	ı	1	1	1		1	1	1	1	1

# Remark 2.

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<sup>1.</sup> No other spurious found.

<sup>2.</sup> All results are PASS against limit line.

# **Battery 2**

# 15E band 3 - 5470~5725MHz WIFI 802.11ac VHT80 (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)
		5449.36	57.44	-16.56	74	53.55	31.94	8.37	36.42	343	0	Р	Н
		5453.68	49.25	-4.75	54	45.36	31.94	8.37	36.42	343	0	Α	Н
	*	5550	87.54	-	-	83.41	31.97	8.44	36.28	343	0	Р	Н
	*	5504	81.27	-	-	77.26	31.96	8.4	36.35	343	0	Α	Н
802.11ac		5764.44	47.18	-26.82	74	42.84	32.05	8.59	36.3	343	0	Р	Н
VHT80		5744.36	38.95	-15.05	54	34.61	32.05	8.58	36.29	343	0	Α	Н
CH 106		5449.2	61.21	-12.79	74	57.32	31.94	8.37	36.42	160	25	Р	٧
5530MHz		5462.8	53.87	-0.13	54	49.94	31.95	8.38	36.4	160	25	Α	V
	*	5504	92.65	-	-	88.64	31.96	8.4	36.35	160	25	Р	V
	*	5504	85.04	-	-	81.03	31.96	8.4	36.35	160	25	Α	V
		5729.96	47.65	-26.35	74	43.32	32.04	8.57	36.28	160	25	Р	V
		5745.72	39.08	-14.92	54	34.74	32.05	8.58	36.29	160	25	Α	V

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#### 15E band 3 - 5470~5725MHz

#### WIFI 802. 11ac VHT80 (Harmonic @ 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)
802.11ac		11061	48.58	-25.42	74	56.96	38.43	13.95	60.76	100	0	Р	Н
VHT80													
CH 106		11061	43.24	-30.76	74	51.62	38.43	13.95	60.76	100	360	Р	٧
5530MHz													
Remark		o other spurio I results are F		st Peak	and Averag	je limit lin	e.						

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### 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 <b>over limit</b> line.					
P/A	Peak or Average					
H/V	Horizontal or Vertical					

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#### A calculation example for radiated spurious emission is shown as below:

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	( dBµV/m )	(dB)	( dBµV/m )	(dBµV)	( dB/m )	( dB )	( dB )	( cm )	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	Р	Н
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	Α	Н

1. Level( $dB\mu V/m$ ) =

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

2. Over Limit(dB) = Level(dB $\mu$ V/m) – Limit Line(dB $\mu$ V/m)

#### For Peak Limit @ 2390MHz:

- Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 54.51(dB\mu V) 35.86 (dB)$
- $= 55.45 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level( $dB\mu V/m$ ) Limit Line( $dB\mu V/m$ )
- $= 55.45(dB\mu V/m) 74(dB\mu V/m)$
- = -18.55(dB)

#### For Average Limit @ 2390MHz:

- Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 42.6(dB\mu V) 35.86 (dB)$
- $= 43.54 (dB\mu V/m)$
- Over Limit(dB)
- = Level(dBµV/m) Limit Line(dBµV/m)
- $= 43.54(dB\mu V/m) 54(dB\mu V/m)$
- = -10.46(dB)

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

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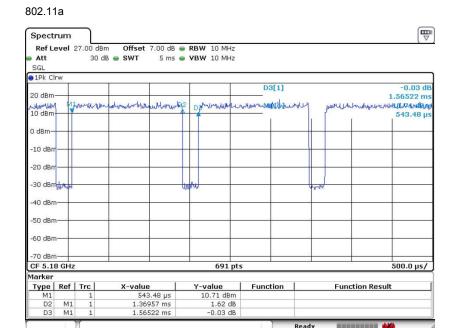
FCC ID: 2ACCJA018 Report Template No.: BU5-FR15EWL AC Version 1.4



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# Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11a	87.500	1.370	0.730	1kHz
802.11n HT20	86.516	1.274	0.785	1kHz
802.11n HT40	75.951	0.636	1.572	3kHz
802.11ac VHT20	83.560	0.980	1.021	3kHz
802.11ac VHT40	71.217	0.491	2.035	3kHz
802.11ac VHT80	55.162	0.248	4.035	10kHz



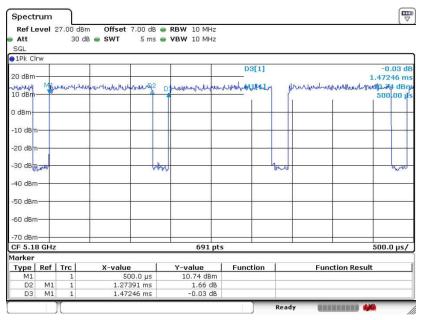
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# FCC RF Test Report

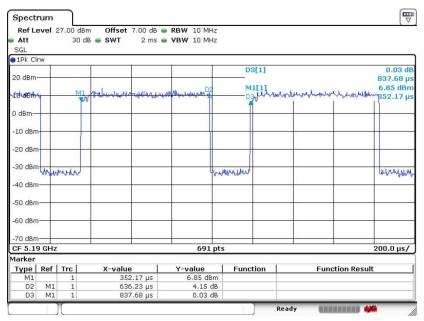
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#### 802.11n HT20



Date: 22.APR.2016 22:09:38

#### 802.11n HT40



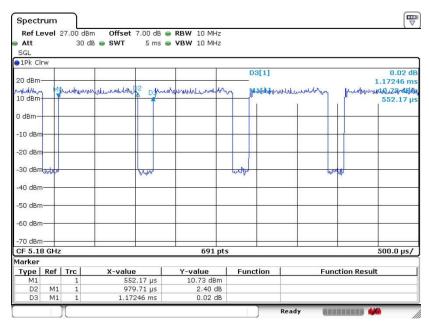
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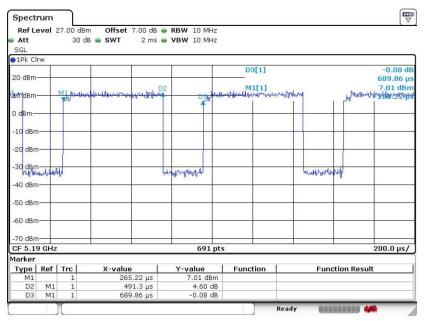
Report No.: FR642504E

#### 802.11ac VHT20



Date: 22.APR.2016 22:20:11

#### 802.11ac VHT40



Date: 22.APR.2016 22:25:44

SPORTON INTERNATIONAL (KUNSHAN) INC.

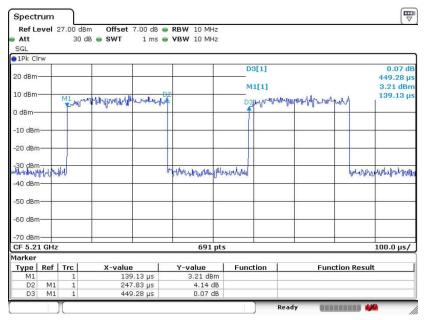
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### FCC RF Test Report

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#### 802.11ac VHT80



Date: 22.APR.2016 22:31:36

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