

# Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS15120093103

# FCC REPORT (WIFI)

Applicant: HUNG WAI PRODUCTS LIMITED

Address of Applicant: Unit 11, 12/F., New Commerce Centre, 19 On Sum Street,

Shatin, Hong Kong

**Equipment Under Test (EUT)** 

Product Name: 21.5"Quad Core Media Player Slim Housing

Model No.: DT215-AS4-1080-SL, 502-2159ATM

**FCC ID:** 2AB6Z-DT215-AS4-SL

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 08 Dec., 2015

**Date of Test:** 08 Dec., to 16 Dec., 2015

Date of report issued: 17 Dec., 2015

Test Result: PASS\*

#### Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.





## Version

Version No.	Date	Description			
00	17 Dec., 2015	Android player Main board with wireless module (FCC ID: 2AB6Z-1859ATMB) and same antenna were used by the device, only conducted emission and Radiated emission were re-tested.			

Viki zhul Test Engineer Tested by: Date: 17 Dec., 2015

Reviewed by: Date: 17 Dec., 2015

Project Engineer





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# 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass*
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass*
Power Spectral Density	15.247 (e)	Pass*
Band Edge	15.247(d)	Pass*
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.

Pass\*: The test data refer to FCC ID: 2AB6Z-1859ATMB.

Remark: Test according to ANSI C63.4:2009





# 5 General Information

# **5.1 Client Information**

Applicant:	HUNG WAI PRODUCTS LIMITED
Address of Applicant:	Unit 11, 12/F., New Commerce Centre, 19 On Sum Street, Shatin, Hong Kong
Manufacturer:	HUNG WAI ELECTRONICS (HUIZHOU) LTD.
Address of Manufacturer:	3 <sup>rd</sup> floor, NO. 3, Minfeng Road, Huinan High and New Technology Industry Park, Huiao Avenue, Huizhou City, Guangdong, China

# 5.2 General Description of E.U.T.

Product Name:	21.5"Quad Core Media Player Slim Housing
Model No.:	DT215-AS4-1080-SL, 502-2159ATM
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g/802.11(H20) 7 for 802.11n(H40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Omni-directional
Antenna gain:	2.5 dBi
AC Adapter:	MODEL: PS36IBCAY3000S Input: AC 100-240V 50/60Hz 1.0A Output: DC 12V, 3000mA
Remark:	Model No.: DT215-AS4-1080-SL, 502-2159ATM are electrically identical, only model number is different for customer and for HUNG WAI.





Operation Frequency each of channel For 802.11b/g/n(H20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel For 802.11n(H40)									
Channel	Channel Frequency Channel Frequency Channel Frequency Channel Frequency								
		4	2427MHz	7	2442MHz				
		5	2432MHz	8	2447MHz				
3	2422MHz	6	2437MHz	9	2452MHz				

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

#### 802.11b/802.11g/802.11n (H20)

Channel	Frequency		
The lowest channel	2412MHz		
The middle channel	2437MHz		
The Highest channel	2462MHz		

#### 802.11n (H40)

Channel	Frequency		
The lowest channel	2422MHz		
The middle channel	2437MHz		
The Highest channel	2452MHz		



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#### 5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Operation mode	Keep the EUT in continuous transmitting with modulation

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

#### Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate	
802.11b	1Mbps	
802.11g	6Mbps	
802.11n(H20)	6.5Mbps	
802.11n(H40)	13.5Mbps	

#### **Final Test Mode:**

According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11p, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40). Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.



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## 5.4 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### • FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

#### • IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

#### • CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

## 5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282 Fax: +86-755-23116366





## 5.6 Test Instruments list

Radiated Emission:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017	
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	03-28-2015	03-28-2016	
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016	
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
5	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016	
6	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016	
7	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2015	03-31-2016	
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016	
9	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A	
10	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A	
11	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	03-28-2015	03-28-2016	
12	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	03-28-2015	03-28-2016	
13	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016	
14	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	03-28-2015	03-28-2016	
15	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	04-08-2015	04-08-2016	

Cond	Conducted Emission:											
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)						
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	11-10-2013	11-09-2016						
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016						
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016						
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016						
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A						





### 6 Test results and Measurement Data

## **6.1 Antenna requirement:**

#### Standard requirement: FCC Part 15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### E.U.T Antenna:

The antenna of EUT is a reverse-SMA connector, which cannot be replaced by end-user. And the antenna gain is 2.5 dBi.







# 6.2 Conducted Emission

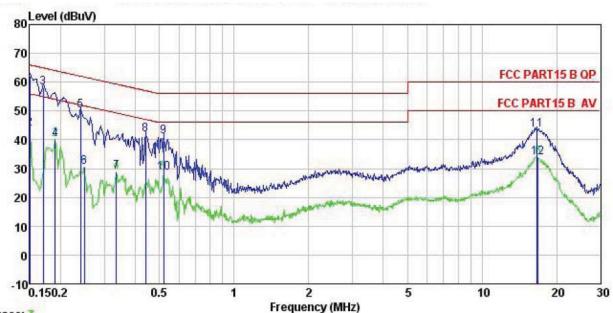
Test Requirement:  Test Method: ANSI C63.4: 2009  Test Frequency Range: Class / Severity: Class B  Receiver setup:  RBW=9 kHz, VBW=30 kHz  Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56° 56 to 46° 0.5-5 5 66 46 5-30 60 50 * Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50hm/50uH coupling impedance with 50hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Test setup:  Test setup:  Test stable/Insulation plane  Reference Plane  Test table/Insulation plane  Reference Plane  Test table/Insulation plane  Reference Plane  Test table/Insulation Plane  Reference Plane									
Test Frequency Range:  Class / Severity:  Class B  Receiver setup:  RBW=9 kHz, VBW=30 kHz  Frequency range (MHz)  Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 * Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (LLSN.), which provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a line impedance as 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Test setup:  Reference Plane  ISN 40cm 80cm Filter AC power  LISN Line Impedence Stabilization Network Test Lisk Line Impedence Stabilization Network Test stable height-0 bm  Test Instruments: Refer to section 5.6 for details  Refer to section 5.3 for details	Test Requirement:	FCC Part 15 C Section 15.207							
Class / Severity:  Receiver setup:  RBW=9 kHz, VBW=30 kHz  Frequency range (MHz)  Quasi-peak Average  0.15-0.5 66 to 56° 56 to 46° 0.5-5 56 46 5-30 60 50  * Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance or the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Reference Plane  Reference Plane  LISN  Reference Plane  LISN  Reference Plane	Test Method:	ANSI C63.4: 2009							
Receiver setup:  RBW=9 kHz, VBW=30 kHz  Limit (dBuV) Quasi-peak Average 0.15-0.5 66 to 56° 56 to 46° 0.5-5 56 46 5-30 60 50 *Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Reference Plane  Reference Plane  Reference Plane  Test lnstruments: Refer to section 5.6 for details  Test mode: Refer to section 5.3 for details	Test Frequency Range:	150 kHz to 30 MHz							
Limit (dBuV)  Quasi-peak Average  0.15-0.5 66 to 56* 56 to 46*  0.5-5 56 46  5-30 60 50  * Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50chm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 50chm/50uH coupling impedance with 50chm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Reference Plane	Class / Severity:								
Limit:    Dust   Quasi-peak   Average   O.15-0.5   66 to 56*   56 to 46*	Receiver setup:	RBW=9 kHz, VBW=30 kHz							
Limit:    0.15-0.5   66 to 56*   56 to 46*		Fraguerou von se (MILIN)	Limit (c	dBuV)					
Test setup:    Content		, , , ,							
Test setup:    O.5-5	Limit:			+					
* Decreases with the logarithm of the frequency.  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane    Reference Plane									
1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Reference Plane  Reference Plane  Reguipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m  Test Instruments:  Refer to section 5.6 for details  Refer to section 5.3 for details				50					
a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.  Reference Plane  Reference Plane  Regulipment Under Test LISN Line impedance Stabilization Network Test table height=0.8m  Test Instruments:  Refer to section 5.6 for details  Refer to section 5.3 for details									
Test setup:    LISN	Test procedure	<ol> <li>50ohm/50uH coupling impedance for the measuring equipment.</li> <li>The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted</li> </ol>							
Test mode: Refer to section 5.3 for details	Test setup:	LISN 40cm  AUX Equipment E.U.T  Test table/Insulation plane  Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Net	80cm LISN Filter	— AC power					
	Test Instruments:	Refer to section 5.6 for details							
Test results: Passed	Test mode:	Refer to section 5.3 for details							
	Test results:	Passed							

#### **Measurement Data**





#### **Neutral:**



Trace: 7

Site

: CCIS Shielding Room : FCC PART15 B QP LISN NEUTRAL : 21.5 Quad Core Media Player : DT215-AS4-1080-SL Condition EUT

Model

Test Mode : Wifi mode

Power Rating: AC 120V/60Hz Environment: Temp: 23 °C Huni:56% Atmos:101KPa Test Engineer: Viki

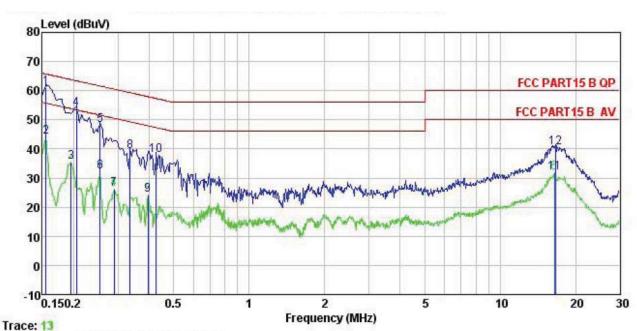
Remark

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
-	MHz	₫BuV	dB	₫B	dBu∀	dBu√	<u>dB</u>	
1	0.150	51.14	0.25	10.78	62.17	66.00	-3.83	QP
2	0.150	32.71	0.25	10.78	43.74	56.00	-12.26	Average
3	0.170	47.04	0.25	10.77	58.06	64.94	-6.88	QP
1 2 3 4 5 6 7 8 9	0.190	28.98	0.25	10.76	39.99	54.02	-14.03	Average
5	0.240	39.06	0.25	10.75	50.06	62.08	-12.02	QP
6	0.249	19.50	0.26	10.75	30.51	51.78	-21.27	Average
7	0.336	17.77	0.26	10.73	28.76	49.31	-20.55	Average
8	0.440	30.89	0.27	10.74	41.90	57.07	-15.17	QP
9	0.521	30.17	0.28	10.76	41.21	56.00	-14.79	QP
10	0.521	17.45	0.28	10.76	28.49	46.00	-17.51	Average
11	16.573	32.15	0.25	10.91	43.31	60.00	-16.69	QP
12	16.839	22.77	0.25	10.91	33.93	50.00	-16.07	Average





#### Line:



: CCIS Shielding Room : FCC PART15 B QP LISN LINE Site Condition

: 21.5 Quad Core Media Player EUT

Model : DT215-AS4-1080-SL

Test Mode : Wifi mode Power Rating : AC 120V/60Hz

Environment : Temp: 23 °C Huni:56% Atmos:101KPa Test Engineer: Viki

Kemark	: Freq	Read Level	LISN Factor	Cable Loss		Limit Line	Over Limit	Remark
	MHz	dBu₹	<u>dB</u>	<u>dB</u>	dBu√	—dBu₹	<u>dB</u>	
1	0.155	49.93	0.27	10.78	60.98	65.74	-4.76	QP
2	0.155	33.23	0.27	10.78	44.28	55.74	-11.46	Average
1 2 3 4 5 6 7 8 9	0.195	24.30	0.28	10.76	35.34	53.80	-18.46	Average
4	0.205	42.71	0.28	10.76	53.75	63.40	-9.65	QP
5	0.255	37.00	0.27	10.75	48.02	61.60	-13.58	QP
6	0.255	21.31	0.27	10.75	32.33	51.60	-19.27	Average
7	0.289	15.10	0.26	10.74	26.10	50.54	-24.44	Average
8	0.336	28.24	0.27	10.73	39.24	59.31	-20.07	QP
9	0.396	13.09	0.28	10.72	24.09	47.95	-23.86	Average
10	0.426	26.76	0.28	10.73	37.77	57.33	-19.56	QP
11	16.486	20.44	0.33	10.91	31.68	50.00	-18.32	Average
12	16.573	29.08	0.33	10.91	40.32	60.00	-19.68	QP

#### Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss



# **6.3 Conducted Output Power**

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)					
Test Method:	ANSI C63.4:2009 and KDB558074					
Limit:	30dBm					
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane					
Test Instruments:	Refer to section 5.6 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Refer to FCC ID: 2AB6Z-1859ATMB					
Remark:	Test method refer to KDB558074 (DTS Measure Guidance) section 8.2, option 1.					





# 6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)				
Test Method:	ANSI C63.4:2009 and KDB558074				
Limit:	>500kHz				
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane				
Test Instruments:	Refer to section 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Refer to FCC ID: 2AB6Z-1859ATMB				



# 6.5 Power Spectral Density

•	•
Test Requirement:	FCC Part 15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2009 and KDB558074
Limit:	8dBm
Test setup:	
	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Refer to FCC ID: 2AB6Z-1859ATMB





# 6.6 Band Edge

#### 6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)				
Test Method:	ANSI C63.4:2009 and KDB558074				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.				
Test setup:					
	Spectrum Analyzer  E.U.T  Non-Conducted Table				
<del>-</del>	Ground Reference Plane				
Test Instruments:	Refer to section 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Refer to FCC ID: 2AB6Z-1859ATMB				





#### 6.6.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205						
Test Method:	ANSI C63.4: 2009						
Test Frequency Range:	2.3GHz to 2.5GHz						
Test site:	Measurement D	istance: 3m					
Receiver setup:	Frequency Detector RBW VBW Remark  Above 1GHz Peak 1MHz 3MHz Peak Valu  RMS 1MHz 3MHz Average Va						
Limit:	Freque Above 1	ency	Limit (dBuV, 54.0	/m @3m)	Remark Average Value Peak Value		
Test Procedure:	the ground to determin 2. The EUT wantenna, watower. 3. The antennathe ground Both horizon make the number of the end of the end of the end of the EUT have 10dB peak or averside end to determine the end of the EUT have 10dB peak or averside end to determine the end of the en	at a 3 meter come the position was set 3 meter which was mour that he ight is varied to determine the total and vertice measurement. If the rota table maximum read ceiver system and width with sion level of the would be reported to the position of the would be reported to the terminal than the rota table maximum read ceiver system and width with sion level of the ecified, then the would be reported to the terminal than the rotal table.	amber. The of the highests away from the on the tried from one he maximum al polarizations in the EU a was turned was turned was set to P Maximum He EUT in peasing could buted. Otherwise re-tested	table was rest radiation. the interfer op of a variation are meter to for a value of the ons of the are to heights from 0 degreeak Detect old Mode. The stopped arise the emitone by one	rence-receiving able-height antenna our meters above he field strength. Intenna are set to happen to its worst from 1 meter to 4 lees to 360 degrees.  Function and s 10dB lower than and the peak values issions that did not e using peak, quasi-		
Test setup:	peak or average method as specified and then reported in a data sheet.  Antenna Tower  Horn Antenna Spectrum Analyzer Antenna Analyzer Anaplifier						
Test Instruments:	Refer to section	5.6 for details					
Test mode:	Refer to section	5.3 for details					
Test results:	Passed						





#### **Measurement Data:**

Test mode: 802.11b			Test channel: Lowest			Remark: Peak		
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
(MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	Polar.
(1011 12)	(dBuV)	(dB/m)	(dB)	(dB)	(dDd V/III)	(ubu v/III)	(dB)	
2390.00	24.56	27.58	6.63	0.00	58.77	74.00	-15.23	Vertical
2390.00	23.96	27.58	6.63	0.00	58.17	74.00	-15.83	Horizontal
Test mode: 80	)2.11b		Test channel: Lowest			Remark: Ave	erage	
Fraguency	Read	Antenna	Cable	Preamp			Over	
Frequency					1 00/01	l limitlino	0 4 61	
	Level	Factor	Loss	Factor	Level	Limit Line	Limit	Polar.
(MHz)	Level (dBuV)	Factor (dB/m)	Loss (dB)		Level (dBuV/m)	Limit Line (dBuV/m)		Polar.
				Factor			Limit	Polar.  Vertical

Test mode: 802.11b			Test channel: Highest			Remark: Peak		
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
(MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	Polar.
(1711 12)	(dBuV)	(dB/m)	(dB)	(dB)	(aba v/III)	(abav/iii)	(dB)	
2483.50	24.52	27.52	6.85	0.00	58.89	74.00	-15.11	Vertical
2483.50	23.04	27.52	6.85	0.00	57.41	74.00	-16.59	Horizontal
Test mode: 80	)2.11b		Test channel: Highest			Remark: Ave	erage	
Fraguenov	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
Frequency	Level	Factor	Loss	Factor			Limit	Polar.
(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
2483.50	11.36	27.52	6.85	0.00	45.73	54.00	-8.27	Vertical
2483.50	11.96	27.52	6.85	0.00	46.33	54.00	-7.67	Horizontal

Test mode: 802.11g			Test channel: Lowest			Remark: Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
2390.00	25.74	27.58	6.63	0.00	59.95	74.00	-14.05	Vertical
2390.00	25.36	27.58	6.63	0.00	59.57	74.00	-14.43	Horizontal
Test mode: 80	)2.11g		Test channel: Lowest			Remark: Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
2390.00	10.47	27.58	6.63	0.00	44.68	54.00	-9.32	Vertical
2390.00	10.63	27.58	6.63	0.00	44.84	54.00	-9.16	Horizontal

Test mode: 80	est mode: 802.11g			nel: Highest		Remark: Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
2483.50	24.52	27.52	6.85	0.00	58.89	74.00	-15.11	Vertical
2483.50	25.03	27.52	6.85	0.00	59.40	74.00	-14.60	Horizontal
Test mode: 80	)2.11g		Test char	nel: Highest		Remark: Ave	erage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
2483.50	12.46	27.52	6.85	0.00	46.83	54.00	-7.17	Vertical
2483.50	12.07	27.52	6.85	0.00	46.44	54.00	-7.56	Horizontal

#### Remark:

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No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
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<sup>1.</sup> Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor





Test mode: 80	02.11n-HT20	)	Test char	nel: Lowest		Remark: Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
2390.00	34.05	27.58	6.63	0.00	68.26	74.00	-5.74	Vertical
2390.00	33.96	27.58	6.63	0.00	68.17	74.00	-5.83	Horizontal
Test mode: 80	02.11n-HT20	)	Test char	nel: Lowest		Remark: Ave	erage	
Test mode: 80 Frequency (MHz)	02.11n-HT20 Read Level (dBuV)	Antenna Factor (dB/m)	Test char Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Remark: Ave Limit Line (dBuV/m)	Over Limit (dB)	Polar.
Frequency	Read Level	Antenna Factor	Cable Loss	Preamp Factor		Limit Line	Over Limit	Polar.

Test mode: 80	)2.11n-HT20	)	Test char	nel: Highest		Remark: Pea		
Frequency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
(MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	Polar.
(1411 12)	(dBuV)	(dB/m)	(dB)	(dB)	(dDd V/III)	(aba v/iii)	(dB)	
2483.50	24.55	27.52	6.85	0.00	58.92	74.00	-15.08	Vertical
2483.50	23.94	27.52	6.85	0.00	58.31	74.00	-15.69	Horizontal
Test mode: 80	02.11n -HT2	0	Test char	nel: Highest		Remark: Ave	erage	
Erogueney	Read	Antenna	Cable	Preamp	Level	Limit Line	Over	
Frequency (MHz)	Level	Factor	Loss	Factor	(dBuV/m)		Limit	Polar.
(IVITZ)	(dBuV)	(dB/m)	(dB)	(dB)	(ubuv/III)	(dBuV/m)	(dB)	
2483.50	12.45	27.52	6.85	0.00	46.82	54.00	-7.18	Vertical
2483.50	13.06	27.52	6.85	0.00	47.43	54.00	-6.57	Horizontal

Test mode: 80	02.11n -HT4	0	Test char	nel: Lowest		Remark: Peak			
Frequency	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Polar.	
(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		
2390.00	23.45	27.58	6.63	0.00	57.66	74.00	-16.34	Vertical	
2390.00	23.56	27.58	6.63	0.00	57.77	74.00	-16.23	Horizontal	
Test mode: 80	02.11n -HT4	0	Test char	nel: Lowest		Remark: Ave	erage		
Fraguency	Read	Antenna	Cable	Preamp	Level	Limit Line	Over		
Frequency (MHz)	Level	Factor	Loss	Factor	(dBuV/m)	(dBuV/m)	Limit	Polar.	
(1711-12)	(dBuV)	(dB/m)	(dB)	(dB)	(ubu v/III)	(ubu v/III)	(dB)		
2390.00	13.24	27.58	6.63	0.00	47.45	54.00	-6.55	Vertical	
2390.00	13.05	27.58	6.63	0.00	47.26	54.00	-6.74	Horizontal	

Test mode: 80	Test mode: 802.11n -HT40			nel: Highest		Remark: Peak			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
2483.50	23.04	27.52	6.85	0.00	57.41	74.00	-16.59	Vertical	
2483.50	23.06	27.52	6.85	0.00	57.43	74.00	-16.57	Horizontal	
Test mode: 80	)2.11n -HT4	0	Test char	nel: Highest		Remark: Ave	erage		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
2483.50	10.98	27.52	6.85	0.00	45.35	54.00	-8.65	Vertical	
	11.04	27.52	6.85	0.00	45.41	54.00	-8.59	Horizontal	

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<sup>1.</sup> Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor



# 6.7 Spurious Emission

## 6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2009 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
	Spectrum Analyzer
	Non-Conducted Table
	Ground Reference Plane
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Refer to FCC ID: 2AB6Z-1859ATMB



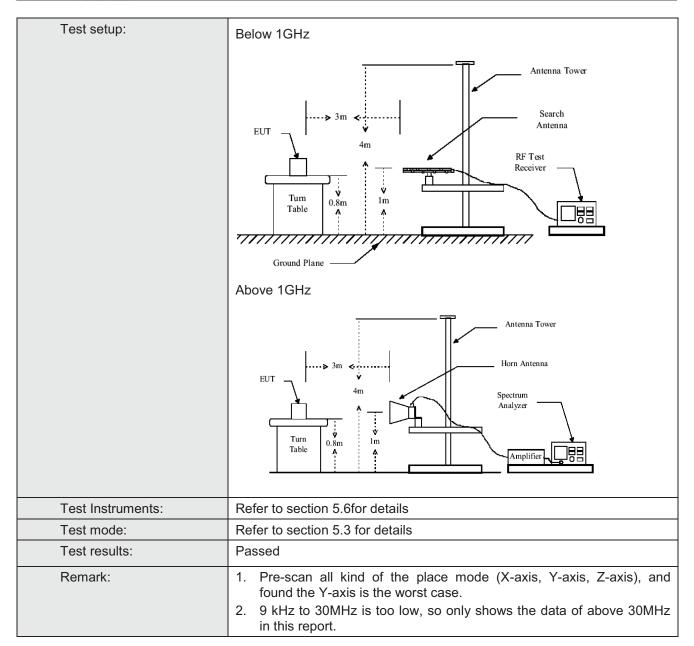


#### 6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C	Section 15.209	and 15.205		
Test Method:	ANSI C63.4:200	)9			
Test Frequency Range:	9KHz to 25GHz				
Test site:	Measurement D	istance: 3m			
Receiver setup:					
	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
	7.5575 15112	RMS	1MHz	3MHz	Average Value
Limit:		1		, OO )	
	Freque		Limit (dBuV/		Remark
	30MHz-8 88MHz-21		40.0 43.5		Quasi-peak Value Quasi-peak Value
	216MHz-9		46.0		Quasi-peak Value
	960MHz-		54.0		Quasi-peak Value
			54.0		Average Value
	Above 1	GHz	74.0		Peak Value
Test Procedure:	the ground to determin 2. The EUT wantenna, wantenna, watower. 3. The antenrathe ground Both horizon make the numbers and to find the number state of the emission of the EUT have 10dB	at a 3 meter can be the position of as set 3 meter which was mour that he ight is varied and vertical and the rota table maximum read ceiver system of and width with sion level of the ecified, then te would be reportant and would	amber. The tands the highest saway from the on the to ied from one the maximum al polarization in the maximum al polarization in the maximum al polarization in the maximum displays set to P. Maximum He EUT in peasting could by the could be re-tested.	able was roost radiation. It the interfer op of a variate meter to for a value of the arrow of the arrow 0 degree ak Detect old Mode. It was arranged to heights of the existence of the existence arrow one by one	e 0.8 meters above tated 360 degrees rence-receiving able-height antenna our meters above e field strength. Intenna are set to reged to its worst from 1 meter to 4 rees to 360 degrees.  Function and s 10dB lower than and the peak values essions that did not e using peak, quasi-ported in a data





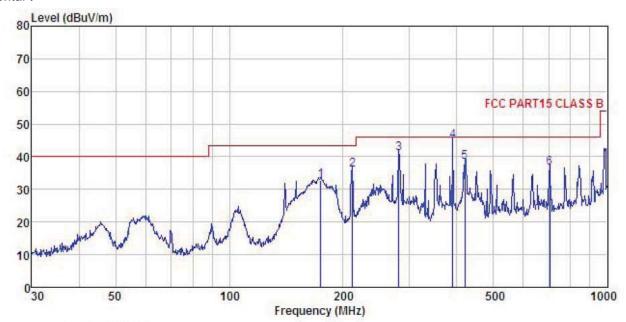






#### **Below 1GHz**

Horizontal:



Site : 3m chamber

: FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL : 21.5 "Quad Core Media Player : DT215-AS4-1080-SL Condition

EUT

Model

Test mode : Wifi mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5°C Huni:55% 101KPa

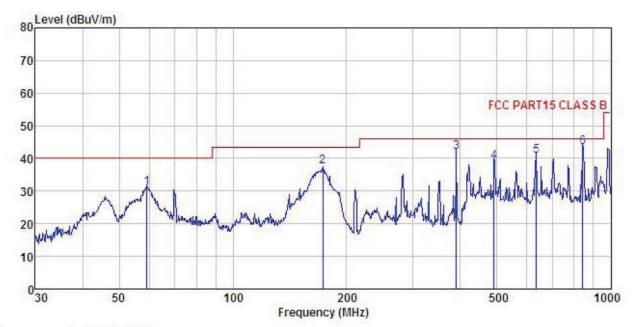
Test Engineer: Viki REMARK

Freq						Limit Line	Over Limit	Remark
MHz	dBu₹	$\overline{-dB/m}$	dB	<u>dB</u>	dBuV/m	$\overline{dBuV/m}$	dB	
174.424	51.05	9.29	1.35	29.02	32.67	43.50	-10.83	QP
211.527	52.33	10.93	1.44	28.76	35.94	43.50	-7.56	QP
281.008	55.00	12.70	1.72	28.48	40.94	46.00	-5.06	QP
390.723	56.59	14.87	2.09	28.74	44.81	46.00	-1.19	QP
420.580	49.66	15.47	2.18	28.82	38.49	46.00	-7.51	QP
704.226	43.50	18.86	2.92	28.65	36.63	46.00	-9.37	QP
	MHz 174. 424 211. 527 281. 008 390. 723 420. 580	Freq Level MHz dBuV  174.424 51.05 211.527 52.33 281.008 55.00 390.723 56.59 420.580 49.66	Freq Level Factor  MHz dBuV dB/m  174.424 51.05 9.29 211.527 52.33 10.93 281.008 55.00 12.70 390.723 56.59 14.87 420.580 49.66 15.47	Freq Level Factor Loss  MHz dBuV dB/m dB  174.424 51.05 9.29 1.35 211.527 52.33 10.93 1.44 281.008 55.00 12.70 1.72 390.723 56.59 14.87 2.09 420.580 49.66 15.47 2.18	MHz         dBuV         dB/m         dB         dB           174.424         51.05         9.29         1.35         29.02           211.527         52.33         10.93         1.44         28.76           281.008         55.00         12.70         1.72         28.48           390.723         56.59         14.87         2.09         28.74           420.580         49.66         15.47         2.18         28.82	MHz dBuV dB/m dB dB dBuV/m  174.424 51.05 9.29 1.35 29.02 32.67 211.527 52.33 10.93 1.44 28.76 35.94 281.008 55.00 12.70 1.72 28.48 40.94 390.723 56.59 14.87 2.09 28.74 44.81 420.580 49.66 15.47 2.18 28.82 38.49	Freq Level Factor Loss Factor Level Line  MHz dBuV dB/m dB dB dBuV/m dBuV/m  174.424 51.05 9.29 1.35 29.02 32.67 43.50 211.527 52.33 10.93 1.44 28.76 35.94 43.50 281.008 55.00 12.70 1.72 28.48 40.94 46.00 390.723 56.59 14.87 2.09 28.74 44.81 46.00 420.580 49.66 15.47 2.18 28.82 38.49 46.00	MHz         dBuV         dB/m         dB         dB         dBuV/m         dBuV/m         dBuV/m         dB         dB         dB dBuV/m         dBuV/m         dBuV/m         dB           174.424         51.05         9.29         1.35         29.02         32.67         43.50         -10.83           211.527         52.33         10.93         1.44         28.76         35.94         43.50         -7.56           281.008         55.00         12.70         1.72         28.48         40.94         46.00         -5.06           390.723         56.59         14.87         2.09         28.74         44.81         46.00         -1.19           420.580         49.66         15.47         2.18         28.82         38.49         46.00         -7.51





#### Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL : 21.5 "Quad Core Media Player : DT215-A34-1080-SL Condition

EUT

Model

Test mode : Wifi mode Power Rating : AC120V/60Hz

Environment: Temp: 25.5°C Huni: 55% 101KPa

Test Engineer: Viki

RE

REMARK		D J	A	C-11-	D		TODOL	0		
	Freq		Antenna Factor				Limit Line	Over Limit	Remark	
	MHz	dBu₹	dB/m	<u>d</u> B	<u>dB</u>	dBuV/m	$\overline{dBuV/m}$	<u>dB</u>		
1	59.232	47.21	12.75	0.68	29.77	30.87	40.00	-9.13	QP	
2	173.205	55.86	9.16	1.35	29.02	37.35	43.50	-6.15	QP	
2	390.723	53.71	14.87	2.09	28.74	41.93	46.00	-4.07	QP	
4	490.745	49.05	16.39	2.38	28.94	38.88	46.00	-7.12	QP	
4 5	636.134	48.32	18.59	2.75	28.82	40.84	46.00	-5.16	QP	
6	842.130	47.66	20.51	3.24	28.03	43.38	46.00	-2.62	QP	





#### **Above 1GHz**

Test mode: 80	02.11b		Test char	nnel: Lowest		Remark: Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4824.00	44.25	31.54	10.58	40.22	46.15	74.00	-27.85	Vertical
4824.00	43.26	31.54	10.58	40.22	45.16	74.00	-28.84	Horizontal
Test mode: 80	02.11b		Test char	nnel: Lowest		Remark: Ave	arado	
			1 CSt Cital	IIICI. LOWCSI		I Nomani. Avi	zi aye	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
	Read Level	Factor	Cable Loss	Preamp Factor		Limit Line	Over Limit	Polar.

Test mode: 80	Test mode: 802.11b			nnel: Middle		Remark: Peak			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4874.00	44.15	31.57	10.64	40.15	46.21	74.00	-27.79	Vertical	
4874.00	43.59	31.57	10.64	40.15	45.65	74.00	-28.35	Horizontal	
Test mode: 80	02.11b		Test char	nnel: Middle		Remark: Ave	rage		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4874.00	32.56	31.57	10.64	40.15	34.62	54.00	-19.38	Vertical	
4874.00	33.41	31.57	10.64	40.15	35.47	54.00	-18.53	Horizontal	

Test mode: 802.11b			Test char	nnel: Highest		Remark: Peak			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4924.00	42.16	31.61	10.70	40.08	44.39	74.00	-29.61	Vertical	
4924.00	42.55	31.61	10.70	40.08	44.78	74.00	-29.22	Horizontal	
Test mode: 80	02.11b		Test char	nnel: Highest		Remark: Ave	rage		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4924.00	33.25	31.61	10.70	40.08	35.48	54.00	-18.52	Vertical	
4924.00	34.15	31.61	10.70	40.08	36.38	54.00	-17.62	Horizontal	

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Test mode: 80	Test mode: 802.11g			Test channel: Lowest			Remark: Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4824.00	44.26	31.54	10.58	40.22	46.16	74.00	-27.84	Vertical	
4824.00	41.56	31.54	10.58	40.22	43.46	74.00	-30.54	Horizontal	
Test mode: 80	)2.11g		Test char	nel: Lowest		Remark: Ave	rage		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4824.00	34.26	31.54	10.58	40.22	36.16	54.00	-17.84	Vertical	
4824.00	33.96	31.54	10.58	40.22	35.86	54.00	-18.14	Horizontal	

Test mode: 80	02.11g		Test char	nel: Middle		Remark: Pea		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	42.56	31.57	10.64	40.15	44.62	74.00	-29.38	Vertical
4874.00	43.06	31.57	10.64	40.15	45.12	74.00	-28.88	Horizontal
Test mode: 80	02.11g		Test char	nel: Middle		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	35.16	31.57	10.64	40.15	37.22	54.00	-16.78	Vertical
4874.00	34.95	31.57	10.64	40.15	37.01	54.00	-16.99	Horizontal

Test mode: 8	02.11g		Test char	nnel: Highest		Remark: Pea	k	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m )	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4924.00	42.56	31.61	10.70	40.08	44.79	74.00	-29.21	Vertical
4924.00	42.06	31.61	10.70	40.08	44.29	74.00	-29.71	Horizontal
Test mode: 8	02.11g		Test channel: Highest			Remark: Average		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m )	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4924.00	33.49	31.61	10.70	40.08	35.72	54.00	-18.28	Vertical
4924.00	35.05	31.61	10.70	40.08	37.28	54.00	-16.72	Horizontal

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Test mode: 80	02.11n(H20)		Test char	nnel: Lowest		Remark: Pea	ık	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4824.00	44.16	31.54	10.58	40.22	46.06	74.00	-27.94	Vertical
4824.00	43.05	31.54	10.58	40.22	44.95	74.00	-29.05	Horizontal
Test mode: 80	02.11n(H20)		Test char	nnel: Lowest		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4824.00	34.26	31.54	10.58	40.22	36.16	54.00	-17.84	Vertical
4824.00	33.59	31.54	10.58	40.22	35.49	54.00	-18.51	Horizontal

Test mode: 80	02.11n(H20)		Test char	nnel: Middle		Remark: Pea		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	46.28	31.57	10.64	40.15	48.34	74.00	-25.66	Vertical
4874.00	45.96	31.57	10.64	40.15	48.02	74.00	-25.98	Horizontal
Test mode: 80	02.11n(H20)		Test char	nnel: Middle		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	33.46	31.57	10.64	40.15	35.52	54.00	-18.48	Vertical
4874.00	35.16	31.57	10.64	40.15	37.22	54.00	-16.78	Horizontal

Test mode: 80	02.11n(H20)		Test char	nnel: Highest		Remark: Pea		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4924.00	42.53	31.61	10.70	40.08	44.76	74.00	-29.24	Vertical
4924.00	44.16	31.61	10.70	40.08	46.39	74.00	-27.61	Horizontal
Test mode: 80	02.11n(H20)		Test char	nnel: Highest		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4924.00	35.26	31.61	10.70	40.08	37.49	54.00	-16.51	Vertical
4924.00	34.16	31.61	10.70	40.08	36.39	54.00	-17.61	Horizontal

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Test mode: 80	02.11n(H40)		Test char	nnel: Lowest		Remark: Pea			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
4844.00	45.26	31.55	10.61	40.19	47.23	74.00	-26.77	Vertical	
4844.00	45.26	31.55	10.61	40.19	47.23	74.00	-26.77	Horizontal	
Test meder 0	00 44/1140)	.11n(H40) Test channel: Lowest				Remark: Average			
rest mode. of	02.11n(H4U)		l est char	nnel: Lowest		Remark: Ave	rage		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.	
Frequency	Read Level	Antenna Factor	Cable Loss	Preamp Factor		Limit Line	Over Limit	Polar.	

Test mode: 80	02.11n(H40)		Test char	nnel: Middle		Remark: Pea	ık	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	44.20	31.57	10.64	40.15	46.26	74.00	-27.74	Vertical
4874.00	43.15	31.57	10.64	40.15	45.21	74.00	-28.79	Horizontal
Test mode: 80	02.11n(H40)		Test char	nnel: Middle		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4874.00	33.56	31.57	10.64	40.15	35.62	54.00	-18.38	Vertical
4874.00	35.26	31.57	10.64	40.15	37.32	54.00	-16.68	Horizontal

Test mode: 80	02.11n(H40)		Test char	nnel: Highest		Remark: Pea		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4904.00	44.26	31.59	10.67	40.10	46.42	74.00	-27.58	Vertical
4904.00	45.16	31.59	10.67	40.10	47.32	74.00	-26.68	Horizontal
Test mode: 80	02.11n(H40)		Test char	nnel: Highest		Remark: Ave	rage	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polar.
4904.00	33.26	31.59	10.67	40.10	35.42	54.00	-18.58	Vertical
4904.00	31.46	31.59	10.67	40.10	33.62	54.00	-20.38	Horizontal

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.