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# **FCC REPORT**

**Applicant:** i-TRINETECH Co.,Ltd.

Address of Applicant: F4, M-8 East, Sparrow Ridge Industrial Zone, Science &

Technology Park, Nanshan, Shenzhen, China

**Equipment Under Test (EUT)** 

Product Name: LR948

Model No.: mw948D\_2C0032

FCC ID: 2ACZVLR948XX-XXX

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247:2013

Date of sample receipt: August 11, 2014

Date of Test: August 11- August 20, 2014

Date of report issued: August 26, 2014

Test Result: PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kevin Yu 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 EBO product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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### 2 Version

Version No.	Date	Description
00	August 26, 2014	Original

Prepared By:	Edward.pan	Date:	August 26, 2014
	Project Engineer		
Check By:	hank. yan	Date:	August 26, 2014
	Reviewer		



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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
Channel 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.



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### 5 General Information

### 5.1 Client Information

Applicant:	i-TRINETECH Co.,Ltd.
Address of Applicant:	F4, M-8 East, Sparrow Ridge Industrial Zone, Science & Technology Park, Nanshan, Shenzhen, China
Manufacturer:	i-TRINETECH Co.,Ltd.
Address of Manufacturer:	F4, M-8 East, Sparrow Ridge Industrial Zone, Science & Technology Park, Nanshan, Shenzhen, China

### 5.2 General Description of EUT

Product Name:	LR948
Model No.:	mw948D_2C0032
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20))
	2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g /802.11n(H20)
	7 for 802.11(H40)
Channel separation:	5MHz
Modulation technology:	Direct Sequence Spread Spectrum (DSSS)
(IEEE 802.11b)	
Modulation technology:	Orthogonal Frequency Division Multiplexing(OFDM)
(IEEE 802.11g/802.11n)	
Antenna Type:	integral antenna
Antenna gain:	2dBi (declare by Applicant)
Power supply:	Input: DC 5.0V 1000mA
	Or
	DC 3.7V 1500mAh Li-ion Battery



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Operation Frequency each of channel							
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			

#### 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 mode

Transmitting mode Keep the EUT in transmitting mode.

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

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)	13.0Mbps	

#### **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 802.11g, 6.5Mbps for 802.11n(H20), 13Mbps for 802.11n(H40)

### 5.4 Test Facility

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

### CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. to ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testingand Calibration Laboratories) for the competence in the field of testing.

### • FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 28, 2013.

### • Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

#### 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480 Fax: 0755-27798960



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# 5.6 Other Information Requested by the Customer

None.

# 5.7 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC Approval
APPLE	Mobile Phone	MD235ZP	C35HCKSUDTCO	FCC DOC
Emerson Network Power	USB Charger	A1299	N/A	FCC VoC
PHILIPS	SPEAKER SYSTEM	MCM305	P0905922	FCC VoC



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### 6 Test Instruments list

Radi	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	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 29 2014	Mar. 28 2015	
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A	
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Jul. 01 2014	Jun 30 2015	
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Feb. 23 2014	Feb. 22 2015	
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 23 2014	Feb. 22 2015	
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 27 2014	June 26 2015	
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 28 2014	Mar. 27 2015	
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	
9	Coaxial Cable	GTS	N/A	GTS213	Mar. 29 2014	Mar. 28 2015	
10	Coaxial Cable	GTS	N/A	GTS211	Mar. 29 2014	Mar. 28 2015	
11	Coaxial cable	GTS	N/A	GTS210	Mar. 29 2014	Mar. 28 2015	
12	Coaxial Cable	GTS	N/A	GTS212	Mar. 29 2014	Mar. 28 2015	
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 01 2014	Jun. 30, 2015	
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 01 2014	Jun. 30, 2015	
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 27 2014	June 26 2015	
16	Band filter	Amindeon	82346	GTS219	Mar. 29 2014	Mar. 28 2015	
17	Power Meter	Anritsu	ML2495A	GTS540	July 01 2014	June 30 2015	
18	Power Sensor	Anritsu	MA2411B	GTS541	July 01 2014	June 30 2015	



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Con	Conducted Emission:										
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)					
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015					
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 01 2014	Jun. 30, 2015					
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	Jul. 01 2014	Jun. 30, 2015					
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	Jul. 01 2014	Jun. 30, 2015					
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 01 2014	Jun. 30, 2015					
6	Coaxial Cable	GTS	N/A	GTS227	Jul. 01 2014	Jun. 30, 2015					
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A					

G	General used equipment:									
It	em	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)			
	1	Barometer	ChangChun	DYM3	GTS257	Jul. 01 2014	Jun. 30, 2015			



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### 7 Test results and Measurement Data

### 7.1 Antenna requirement:

**Standard requirement:** FCC Part15 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 is integral antenna, the best case gain of the antenna is 2dBi





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### 7.2 Conducted Emissions

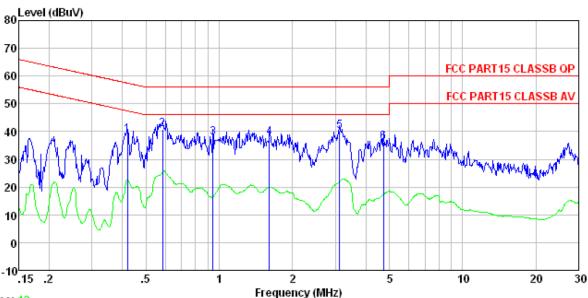
Test Requirement:	FCC Part15 C Section 15.207	,				
Test Method:	ANSI C63.4:2003					
Test Frequency Range:	150KHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9KHz, VBW=30KHz, St	weep time=auto				
Limit:	<u> </u>	Limit (c	IRu\/)			
Limit.	Frequency range (MHz)	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
	* Decreases with the logarithn	n of the frequency.				
Test setup:	Reference Plane					
	AUX Filter AC power  Equipment E.U.T  Remark: E.U.T Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m					
Test procedure:	<ol> <li>The E.U.T and simulators a line impedance stabilization 500hm/50uH coupling impedance.</li> <li>The peripheral devices are LISN that provides a 500hm termination. (Please refer to photographs).</li> </ol>	n network (L.I.S.N.). The dance for the measuri also connected to the m/50uH coupling imped	nis provides a ng equipment. main power through a dance with 50ohm			
	<ol> <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 ch according to ANSI C63.4: 2003 on conducted measurement.</li> </ol>					
Test Instruments:	Refer to section 5.8 for details					
Test mode:	Refer to section 5.3 for details	3				
Test results:	Pass					

### Measurement data:



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### Line:



Trace: 12

Condition : FCC PART15 CLASSB QP LISN-2013 LINE

Job No. : 1271RF
Test mode : WiFi mode

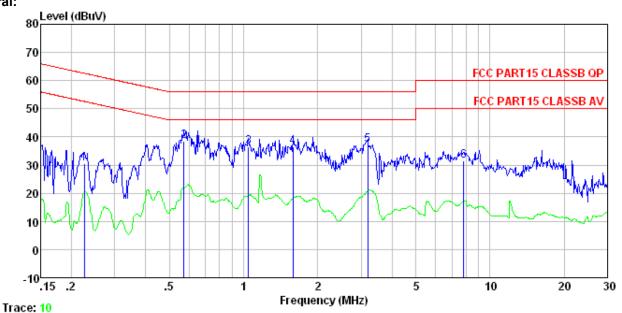
Test Engineer: Mike

	21.611.001		LISN	Cable		Limit	Over	
	Freq		Factor				Limit	Remark
	MHz	-dBuV	dB	dB	dBuV	-dBuV	dB	
	0.440	00.40				EE 46	10.71	o.p.
1	0.419	38. 49	0.12	0.11	38.72	57.46	-18.74	Ų٢
2 3	0.585	40.71	0.13	0.12	40.96	56.00	-15.04	QP
3	0.943	37.54	0.14	0.13	37.81	56.00	-18.19	QP
4	1.610	37.73	0.12	0.14	37.99	56.00	-18.01	QP
4 5	3.123	39.80	0.16	0.15	40.11	56.00	-15.89	QP
6	4.721	35.89	0.21	0.15	36.25	56.00	-19.75	QP



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### **Neutral:**



Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL

Job No. : 1271RF Test mode : WiFi mode

Test Engineer: Mike

CSI	DIRETHCCI.								
		Read	LISN	Cable		Limit	Over		
	Fred	Level	Factor	Ingg	Level	line	limit	Remark	
	1104	20,01	1 40 (01	2000	20101	22110	LIMIT C	TORIGH II	
	$\mathtt{MHz}$	dBu∀	d₿	d₿	dBu∀	dBuV	d₿		
1	0.226	30.38	0.06	0.12	30.56	62.61	-32.05	QP	
2	0.573	38.20						-	
								-	
3	1.049	36.19	0.07	0.13	36.39	56.UU	-19.61	Ų٢	
4	1.585	36.16	0.09	0.14	36.39	56.00	-19.61	QP	
5	3.190	36.89	0.12	0.15	37, 16	56, 00	-18.84	ΩP	
								_	
6	r. XIU	31, 28	0.19	0.18	- 51. bb	- ԵՍ. ՍՍ	-28. 35 ·	WP.	

#### Notes:

- 1. An initial pre-scan was performed on the line 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
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.



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### 7.3 Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)		
Test Method:	ANSI C63.4:2003 and KDB558074 D01 DTS Meas Guidance V03		
Limit:	30dBm		
Test setup:	Power Meter  E.U.T  Non-Conducted Table  Ground Reference Plane		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

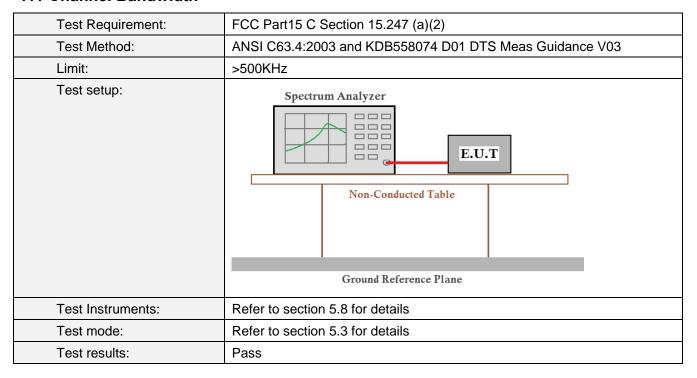
#### **Measurement Data**

Test CH		Peak Output	Limit(dBm)	Result			
rest Off	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(abin)	IVESUIL	
Lowest	8.37	7.94	7.87	6.81		Pass	
Middle	8.69	8.11	7.74	6.76	30.00		
Highest	8.26	7.83	7.76	6.39			



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#### 7.4 Channel Bandwidth



### **Measurement Data**

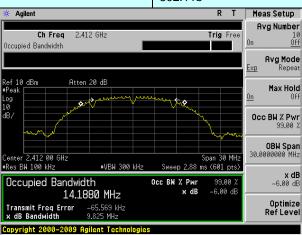
Test CH		Emission Bar	Limit(KHz)	Result			
1631 011	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Lillin(IXI IZ)	Rosuit	
Lowest	9.825	16.438	17.751	35.523		Pass	
Middle	10.128	16.391	17.788	35.460	>500		
Highest	9.645	16.418	17.710	35.510			

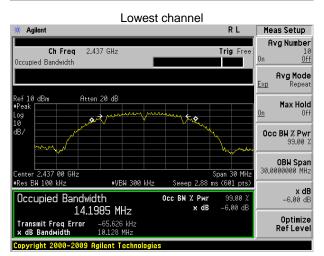
### Test plot as follows:

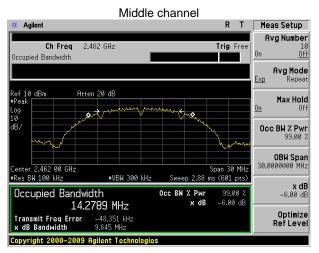


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Test mode: 802.11b





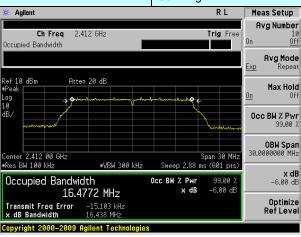


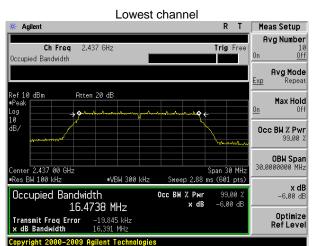
Highest channel

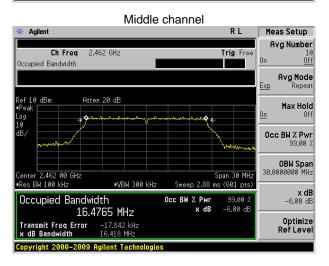


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Test mode: 802.11g





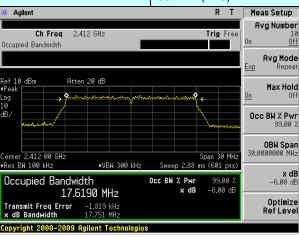


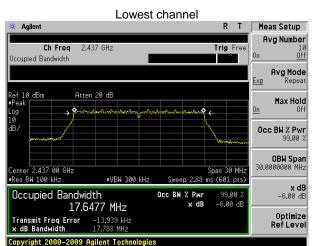
Highest channel

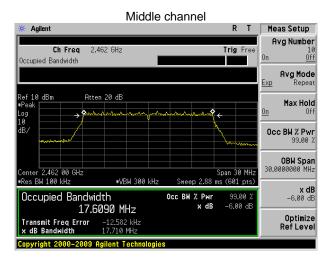


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Test mode: 802.11n(H20)





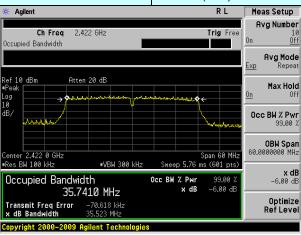


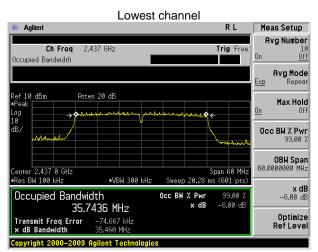
Highest channel

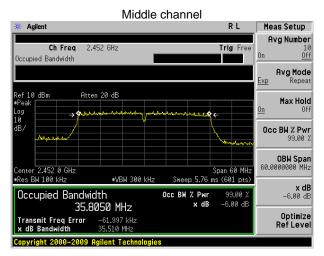


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Test mode: 802.11n(H40)







Highest channel



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### 7.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)			
Test Method:	ANSI C63.4:2003 and KDB558074 D01 DTS Meas Guidance V03			
Limit:	8dBm			
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane			
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass			

#### **Measurement Data**

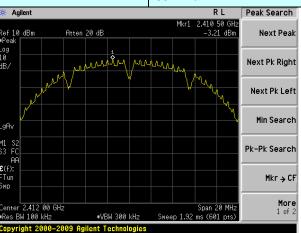
Test CH		Power	Limit(8dBm/3kHz)	Result			
rest Off	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	LIIIII((OUDIII/3KI 12)	Result	
Lowest	-3.21	-6.76	-4.31	-6.25		Pass	
Middle	-2.87	-6.46	-3.98	-5.81	8.00		
Highest	-3.60	-6.67	-4.32	-6.69			

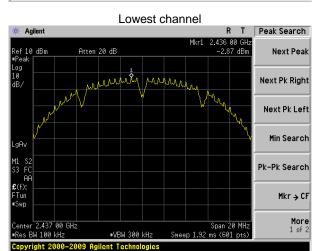
### Test plot as follows:

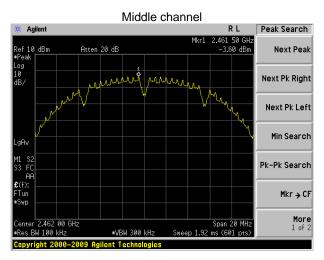


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Test mode: 802.11b





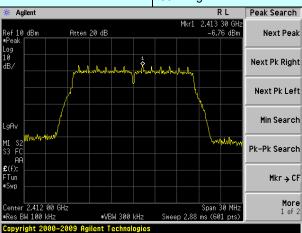


Highest channel

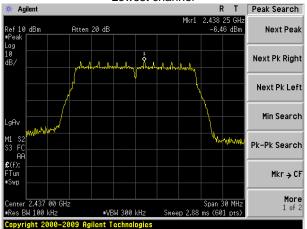


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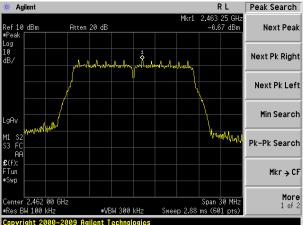




#### Lowest channel



#### Middle channel

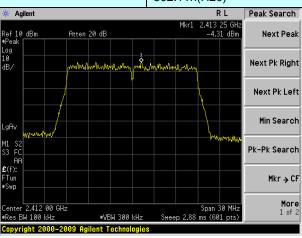


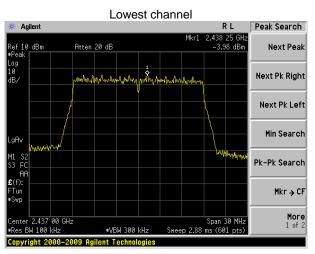
Highest channel

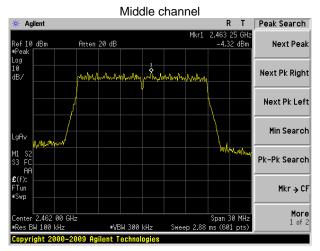


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Test mode: 802.11n(H20)



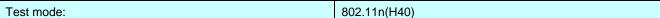


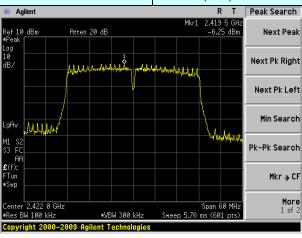


Highest channel

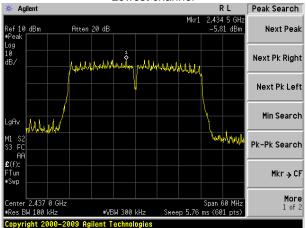


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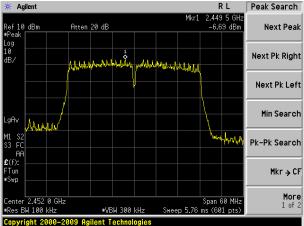




#### Lowest channel



#### Middle channel



Highest channel



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# 7.6 Band edges

### 7.6.1 Conducted Emission Method

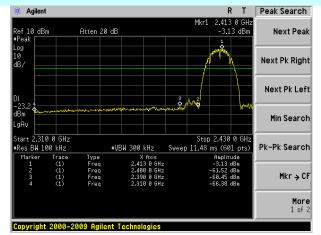
Test Requirement:	FCC Part15 C Section 15.247 (d)				
Test Method:	ANSI C63.4:2003 and KDB558074 D01 DTS Meas Guidance V03				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional 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  E.U.T  Non-Conducted Table  Ground Reference Plane				
Test Instruments:	Refer to section 5.8 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Pass				

# Test plot as follows:



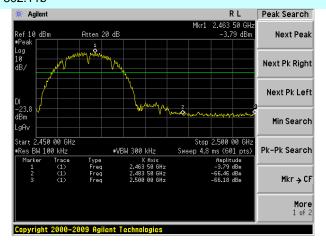
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#### Test mode:



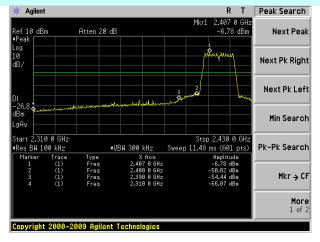
Lowest channel

#### 802.11b



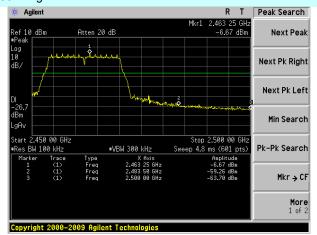
Highest channel

#### Test mode:



Lowest channel

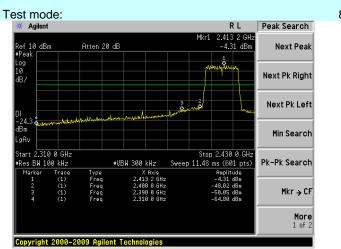
### 802.11g

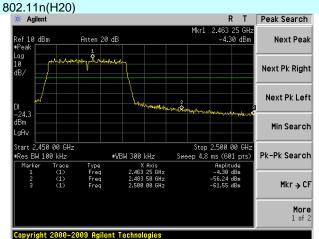


Highest channel



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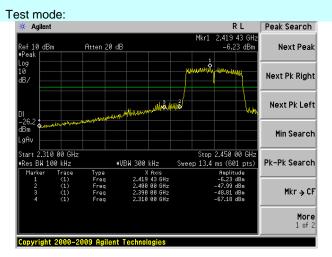
Lowest channel

Highest channel

Next Pk Left

Min Search

Mkr → CF



802.11n(H40) R T Peak Search Next Pk Right Start 2.430 00 GHz •Res BW 100 kHz Stop 2.500 00 GH: Sweep 6.72 ms (601 pts) #VBW 300 kHz Pk-Pk Search Copyright 2000-2009 Agilent Technologies

Lowest channel

Highest channel



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### 7.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205							
Test Method:	ANSI C63.4: 2003							
Test Frequency Range:	30MHz to 25GHz, only worse case is reported							
Test site:	Measurement Dis	Measurement Distance: 3m						
Receiver setup:	Frequency	Detector	RBW	VBW	Remark			
	Above 1GHz	Peak	1MHz	3MHz	Peak Value			
	Above 1GHz	RMS	1MHz	3MHz	Average Value			
Limit:	Freque	ency	Limit (dBuV/	/m @3m)	Remark			
	Above 1	IGHz	54.0		Average Value			
	7,5070	0.12	74.0	0	Peak Value			
Test setup:	Antenna Tower  Horn Antenna  Spectrum Analyzer  Turn Table  Amplifier							
Test Procedure:	<ol> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be</li> </ol>							
Test Instruments:	Refer to section 5	rted in a data sh						
Test mode:	Refer to section 5.3 for details							
Test results:	Pass							
Remark:								

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.



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#### Measurement data:

Test mode:	802.11b	Test channel:	Lowest

#### Peak value:

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)	Polarization
2390.00	49.86	27.59	5.38	30.18	52.65	74.00	-21.35	Horizontal
2400.00	58.27	27.58	5.39	30.18	61.06	74.00	-12.94	Horizontal
2390.00	51.41	27.59	5.38	30.18	54.20	74.00	-19.80	Vertical
2400.00	59.58	27.58	5.39	30.18	62.37	74.00	-11.63	Vertical

#### Average value:

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)	Polarization
2390.00	37.13	27.59	5.38	30.18	39.92	54.00	-14.08	Horizontal
2400.00	45.23	27.58	5.39	30.18	48.02	54.00	-5.98	Horizontal
2390.00	38.81	27.59	5.38	30.18	41.60	54.00	-12.40	Vertical
2400.00	46.22	27.58	5.39	30.18	49.01	54.00	-4.99	Vertical

### Peak value:

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)	Polarization
2483.50	49.74	27.53	5.47	29.93	52.81	74.00	-21.19	Horizontal
2500.00	46.14	27.55	5.49	29.93	49.25	74.00	-24.75	Horizontal
2483.50	51.63	27.53	5.47	29.93	54.70	74.00	-19.30	Vertical
2500.00	48.32	27.55	5.49	29.93	51.43	74.00	-22.57	Vertical

### Average value:

	Attorago varao.								
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)	Polarization	
2483.50	37.23	27.53	5.47	29.93	40.30	54.00	-13.70	Horizontal	
2500.00	33.67	27.55	5.49	29.93	36.78	54.00	-17.22	Horizontal	
2483.50	39.01	27.53	5.47	29.93	42.08	54.00	-11.92	Vertical	
2500.00	35.48	27.55	5.49	29.93	38.59	54.00	-15.41	Vertical	

### 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.



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Over

Limit

(dB)

-14.35

-17.72

-12.63

-15.94

Polarization

Horizontal

Horizontal

Vertical

Vertical

Test mode:		802.1	1g	Те	st channel:	L	_owest	
Peak value:		·		·				
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)	Polarization
2390.00	49.11	27.59	5.38	30.18	51.90	74.00	-22.10	Horizontal
2400.00	57.27	27.58	5.39	30.18	60.06	74.00	-13.94	Horizontal
2390.00	50.61	27.59	5.38	30.18	53.40	74.00	-20.60	Vertical
2400.00	58.38	27.58	5.39	30.18	61.17	74.00	-12.83	Vertical
Average val	ue:							
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)	Polarization
2390.00	36.60	27.59	5.38	30.18	39.39	54.00	-14.61	Horizontal
2400.00	44.62	27.58	5.39	30.18	47.41	54.00	-6.59	Horizontal
2390.00	38.22	27.59	5.38	30.18	41.01	54.00	-12.99	Vertical
2400.00	45.55	27.58	5.39	30.18	48.34	54.00	-5.66	Vertical
Test mode:		802.1	1g	Te	st channel:	ŀ	Highest	
Peak value:		·		·		,		
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)	Polarization
2483.50	48.67	27.53	5.47	29.93	51.74	74.00	-22.26	Horizontal
2500.00	45.31	27.55	5.49	29.93	48.42	74.00	-25.58	Horizontal
2483.50	50.41	27.53	5.47	29.93	53.48	74.00	-20.52	Vertical
2500.00	47.34	27.55	5.49	29.93	50.45	74.00	-23.55	Vertical
Average val	ue:							

Preamp

Factor

(dB)

29.93

29.93

29.93

29.93

Level

(dBuV/m)

39.65

36.28

41.37

38.06

Limit Line

(dBuV/m)

54.00

54.00

54.00

54.00

### Remark:

Frequency

(MHz)

2483.50

2500.00

2483.50

2500.00

Read

Level

(dBuV)

36.58

33.17

38.30

34.95

Antenna

Factor

(dB/m)

27.53

27.55

27.53

27.55

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

Cable

Loss

(dB)

5.47

5.49

5.47

5.49

2. The emission levels of other frequencies are very lower than the limit and not show in test report.



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Test mode:		802.1	1n(H20)	1	Fest channel:		_owest	
Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	1 6//61	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	49.67	27.59	5.38	30.18	52.46	74.00	-21.54	Horizontal
2400.00	58.02	27.58	5.39	30.18	60.81	74.00	-13.19	Horizontal
2390.00	51.22	27.59	5.38	30.18	54.01	74.00	-19.99	Vertical
2400.00	59.29	27.58	5.39	30.18	62.08	74.00	-11.92	Vertical
Average val	lue:							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	1 41/41	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	37.00	27.59	5.38	30.18	39.79	54.00	-14.21	Horizontal
2400.00	45.08	27.58	5.39	30.18	47.87	54.00	-6.13	Horizontal
2390.00	38.67	27.59	5.38	30.18	41.46	54.00	-12.54	Vertical
2400.00	46.06	27.58	5.39	30.18	48.85	54.00	-5.15	Vertical
Test mode:		802.1	1n(H20)		Test channel:		Highest	
Peak value:		002.1	111(1120)		TOST OF IGHT TOT.		iigiioot	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	1 4041	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	49.48	27.53	5.47	29.93	52.55	74.00	-21.45	Horizontal
2500.00	45.94	27.55	5.49	29.93	49.05	74.00	-24.95	Horizontal
2483.50	51.34	27.53	5.47	29.93	54.41	74.00	-19.59	Vertical
2500.00	48.08	27.55	5.49	29.93	51.19	74.00	-22.81	Vertical
Average va	lue:						<del></del>	
Frequency (MHz)	Read Level	Antenna Factor	Cable Loss	Preamp Factor	1 404	Limit Line	Over Limit	Polarization

### 2500.00 Remark:

(MHz)

2483.50

2500.00

2483.50

(dBuV)

37.07

33.55

38.84

35.35

(dB/m)

27.53

27.55

27.53

27.55

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

(dB)

5.47

5.49

5.47

5.49

The emission levels of other frequencies are very lower than the limit and not show in test report.

(dB)

29.93

29.93

29.93

29.93

(dBuV/m)

40.14

36.66

41.91

38.46

(dBuV/m)

54.00

54.00

54.00

54.00

(dB)

-13.86

-17.34

-12.09

-15.54

Horizontal

Horizontal

Vertical

Vertical



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Horizontal

Horizontal

Vertical

Vertical

Limit

(dB)

-14.95

-18.19

-13.30

-16.44

Test mode:		802.1	1n(H40)	Te	st channel:	l	_owest	
Peak value:	1	1		•		•		
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)	Polarization
2390.00	48.41	27.59	5.38	30.18	51.20	74.00	-22.80	Horizontal
2400.00	56.33	27.58	5.39	30.18	59.12	74.00	-14.88	Horizontal
2390.00	49.86	27.59	5.38	30.18	52.65	74.00	-21.35	Vertical
2400.00	57.26	27.58	5.39	30.18	60.05	74.00	-13.95	Vertical
Average va	lue:							
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)	Polarization
2390.00	36.10	27.59	5.38	30.18	38.89	54.00	-15.11	Horizontal
2400.00	44.05	27.58	5.39	30.18	46.84	54.00	-7.16	Horizontal
2390.00	37.66	27.59	5.38	30.18	40.45	54.00	-13.55	Vertical
2400.00	44.92	27.58	5.39	30.18	47.71	54.00	-6.29	Vertical
Test mode:		802.1	1n(H40)	Te	st channel:	ŀ	Highest	
Peak value:		<u> </u>						
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)	Polarization
2483.50	47.67	27.53	5.47	29.93	50.74	74.00	-23.26	Horizontal
2500.00	44.54	27.55	5.49	29.93	47.65	74.00	-26.35	Horizontal
2483.50	49.27	27.53	5.47	29.93	52.34	74.00	-21.66	Vertical
2500.00	46.44	27.55	5.49	29.93	49.55	74.00	-24.45	Vertical
Average va	lue:	<u> </u>			,		-	
Frequency	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Polarization

### 2500.00 Remark:

(MHz)

2483.50

2500.00

2483.50

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

Loss

(dB)

5.47

5.49

5.47

5.49

Factor

(dB/m)

27.53

27.55

27.53

27.55

Level

(dBuV)

35.98

32.70

37.63

34.45

The emission levels of other frequencies are very lower than the limit and not show in test report.

Factor

(dB)

29.93

29.93

29.93

29.93

(dBuV/m)

39.05

35.81

40.70

37.56

(dBuV/m)

54.00

54.00

54.00

54.00



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# 7.7 Spurious Emission

### 7.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)					
Test Method:	ANSI C63.4:2003 and KDB558074 D01 DTS Meas Guidance V03					
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  E.U.T  Non-Conducted Table  Ground Reference Plane					
Test Instruments:	Refer to section 5.8 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

# Test plot as follows:



Atten 20 dB

Ref 10 dBm

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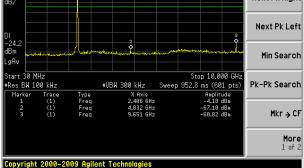
Peak Search

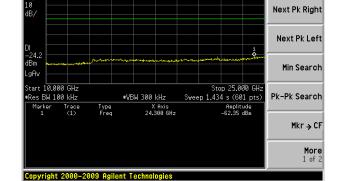
Next Peak

24.300 GHz -62.35 dBm

802.11b Test mode:

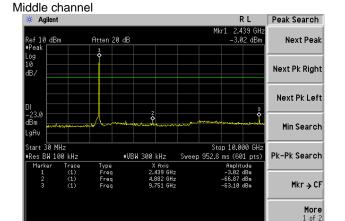
### Lowest channel Peak Search 2.406 GHz -4.18 dBm Atten 20 dB **Next Peak** 10 dBm Next Pk Right Next Pk Left Min Search Pk-Pk Search #VBW 300 kHz



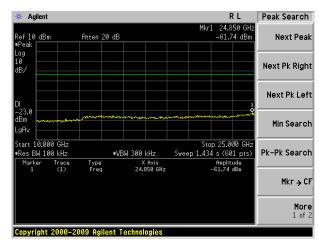


30MHz~10GHz

10GHz~25GHz



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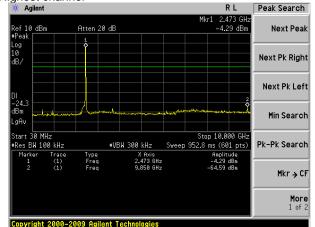


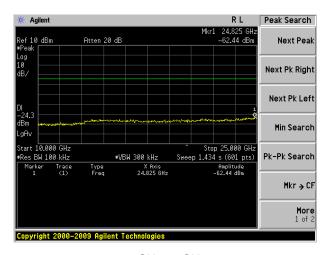
30MHz~10GHz 10GHz~25GHz



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Highest channel





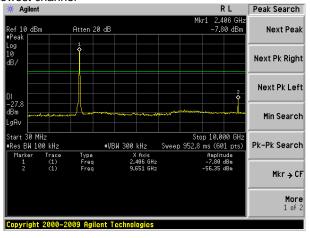
30MHz~10GHz

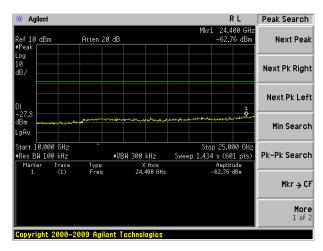
10GHz~25GHz

Test mode:

802.11g

Lowest channel





30MHz~10GHz 10GHz~25GHz



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Start 10.000 GHz Res BW 100 kHz Report No.: FCC14-RTE082601 Page 37 of 63

> Stop 25.000 GHz Sweep 1.434 s (601 pts)

R T Peak Search

Next Peak

Next Pk Right

Next Pk Left

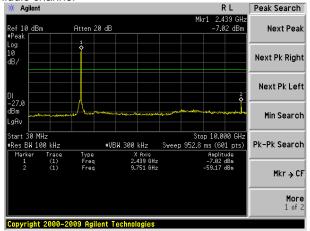
Min Search

Mkr → CF

More 1 of 2

Pk-Pk Search

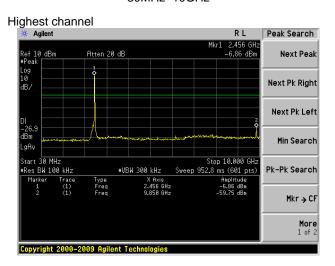
#### Middle channel



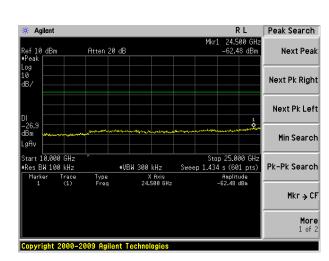
30MHz~10GHz

# 10GHz~25GHz

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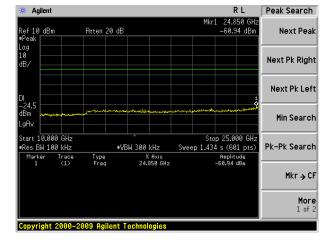


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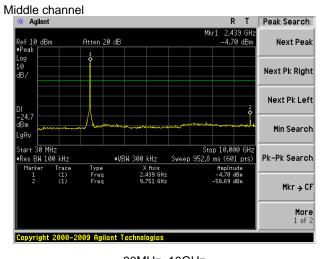
Test mode: 802.11n(H20)

# 

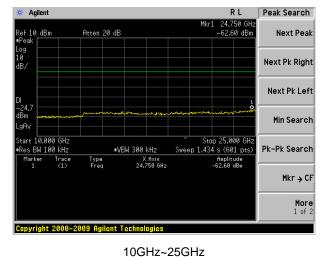
30MHz~10GHz



10GHz~25GHz



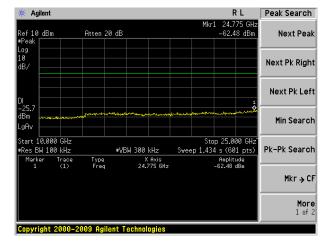






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Highest channel R T Peak Search Next Peak Next Pk Right Next Pk Left Min Search Stop 10.000 GHz Sweep 952.8 ms (601 pts)



30MHz~10GHz

10GHz~25GHz

Test mode:

802.11n(H40)

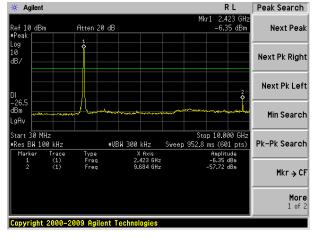
Pk-Pk Search

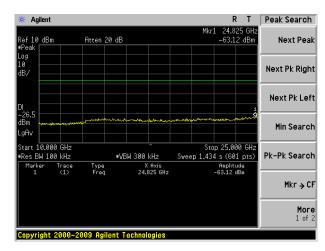
Mkr → CF

More 1 of 2

### Lowest channel

Start 30 MHz •Res BW 100 kHz





30MHz~10GHz 10GHz~25GHz



🔆 Agilent

Start 10.000 GHz •Res BW 100 kHz

Trace (1)

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R L

Stop 25.000 GH: Sweep 1.434 s (601 pts) Peak Search

Next Pk Right

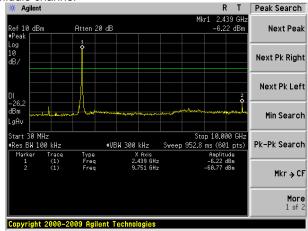
Next Pk Left

Min Search

Mkr → CF

Pk-Pk Search

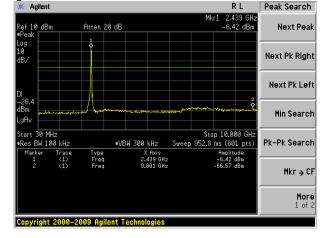
#### Middle channel



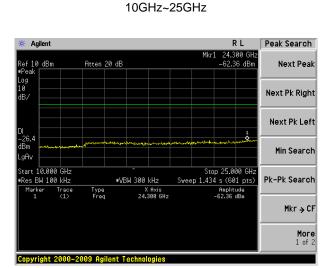
30MHz~10GHz

### JGH<sub>7</sub>





30MHz~10GHz 10GHz~25GHz



#VBW 300 kHz

X Axis 24.675 GHz



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### 7.7.2 Radiated Emission Method

FCC Part15 C Section 15.209						
ANSI C63.4: 20	03					
30MHz to 25GH	lz					
Measurement D	Distance: 3m					
Frequency	Detector	RBW	VBW	Remark		
30MHz- 1GHz	1GHz		300KHz	Quasi-peak Value		
Above 1CHz	Peak	1MHz	3MHz	Peak Value		
Above 1GHz	RMS	1MHz	3MHz	Average Value		
Frequency Limit (dBuV/m @3m) Remark						
30MHz-8	8MHz	40.0	)	Quasi-peak Value		
88MHz-216MHz 43.5 Quasi-peak						
216MHz-960MHz		46.0	)	Quasi-peak Value		
960MHz-	Quasi-peak Value					
Above 1	IGH <sub>7</sub>	)	Average Value			
Above	GHZ	74.0	)	Peak Value		
Ground Plane	4m  4m  0.8m  1m		Anten  Sea Ante			
	ANSI C63.4: 20 30MHz to 25GH Measurement E Frequency 30MHz- 1GHz Above 1GHz  Freque 30MHz-8 88MHz-2: 216MHz-9 960MHz- Above 1 Below 1GHz	ANSI C63.4: 2003  30MHz to 25GHz  Measurement Distance: 3m  Frequency  30MHz- 1GHz  Above 1GHz  Peak RMS  Frequency  30MHz-88MHz  88MHz-216MHz  216MHz-960MHz  960MHz-1GHz  Above 1GHz  Below 1GHz  Below 1GHz	ANSI C63.4: 2003  30MHz to 25GHz  Measurement Distance: 3m  Frequency Detector RBW  30MHz- Quasi-peak 120KHz  1GHz  Above 1GHz  Peak 1MHz  RMS 1MHz  Frequency Limit (dBuV)  30MHz-88MHz 40.0  88MHz-216MHz 43.9  216MHz-960MHz 46.0  960MHz-1GHz 54.0  Above 1GHz 54.0  Below 1GHz  Below 1GHz	ANSI C63.4: 2003  30MHz to 25GHz  Measurement Distance: 3m  Frequency Detector RBW VBW  30MHz- Quasi-peak 120KHz 300KHz  1GHz Peak 1MHz 3MHz  Above 1GHz RMS 1MHz 3MHz  Frequency Limit (dBuV/m @3m)  30MHz-88MHz 40.0  88MHz-216MHz 43.5  216MHz-960MHz 46.0  960MHz-1GHz 54.0  Above 1GHz 54.0  Above 1GHz 74.0  Below 1GHz  Anten  Ground Plane		



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	Antenna Tower  Horn Antenna  Spectrum  Analyzer  Turn  Table  A  A  A  A  A  A  A  A  A  A  A  A  A				
Test Procedure:	The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.				
	2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.				
	<ol> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> </ol>				
	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.				
	The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.				
	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
Test Instruments:	Refer to section 5.8 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Pass				

## Remark:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.



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### ■ Below 1GHz

- Bolow I	<b>O</b>							
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)	polarization
48.332	52.78	15.35	0.75	31.98	36.9	40	-3.1	Vertical
192.419	57.27	12.56	1.8	32.12	39.51	43.5	-3.99	Vertical
237.476	57.34	13.99	2.06	32.16	41.23	46	-4.77	Vertical
298.268	56.77	15	2.35	32.18	41.94	46	-4.06	Vertical
366.823	54.9	16.48	2.7	31.98	42.1	46	-3.9	Vertical
400.432	53.99	17.1	2.85	31.89	42.05	46	-3.95	Vertical
48.163	51.8	15.36	0.75	31.98	35.93	40	-4.07	Horizontal
78.965	56.68	10.43	1.02	31.77	36.36	40	-3.64	Horizontal
124.133	57.74	11.8	1.39	31.88	39.05	43.5	-4.45	Horizontal
162.611	58.65	10.74	1.65	32.03	39.01	43.5	-4.49	Horizontal
252.948	58.86	14.06	2.14	32.16	42.9	46	-3.1	Horizontal
400.432	54.1	17.1	2.85	31.89	42.16	46	-3.84	Horizontal



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### ■ Above 1GHz

Test mode:	802.11b	Test channel:	Lowest

### Peak value:

reak value.								
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)	polarization
4824.00	38.15	31.79	8.62	32.10	46.46	74.00	-27.54	Vertical
7236.00	32.87	36.19	11.68	31.97	48.77	74.00	-25.23	Vertical
9648.00	31.75	38.07	14.16	31.56	52.42	74.00	-21.58	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	37.16	31.79	8.62	32.10	45.47	74.00	-28.53	Horizontal
7236.00	32.78	36.19	11.68	31.97	48.68	74.00	-25.32	Horizontal
9648.00	31.40	38.07	14.16	31.56	52.07	74.00	-21.93	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

### Average value:

Average van	uc.							
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)	polarization
4824.00	27.41	31.79	8.62	32.10	35.72	54.00	-18.28	Vertical
7236.00	21.78	36.19	11.68	31.97	37.68	54.00	-16.32	Vertical
9648.00	22.13	38.07	14.16	31.56	42.80	54.00	-11.20	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	26.81	31.79	8.62	32.10	35.12	54.00	-18.88	Horizontal
7236.00	21.40	36.19	11.68	31.97	37.30	54.00	-16.70	Horizontal
9648.00	21.18	38.07	14.16	31.56	41.85	54.00	-12.15	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal
Damarla	•							

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11b	Test channel:	Middle
			111131313

### Peak value:

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)	polarization
4874.00	37.58	31.85	8.66	32.12	45.97	74.00	-28.03	Vertical
7311.00	33.17	36.37	11.71	31.91	49.34	74.00	-24.66	Vertical
9748.00	32.93	38.27	14.25	31.56	53.89	74.00	-20.11	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.33	31.85	8.66	32.12	46.72	74.00	-27.28	Horizontal
7311.00	31.95	36.37	11.71	31.91	48.12	74.00	-25.88	Horizontal
9748.00	32.88	38.27	14.25	31.56	53.84	74.00	-20.16	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*			_		74.00		Horizontal
17059.00	*					74.00		Horizontal

### Average value:

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)	polarization
4874.00	28.57	31.85	8.66	32.12	36.96	54.00	-17.04	Vertical
7311.00	21.53	36.37	11.71	31.91	37.70	54.00	-16.30	Vertical
9748.00	22.22	38.27	14.25	31.56	43.18	54.00	-10.82	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.54	31.85	8.66	32.12	36.93	54.00	-17.07	Horizontal
7311.00	21.07	36.37	11.71	31.91	37.24	54.00	-16.76	Horizontal
9748.00	22.63	38.27	14.25	31.56	43.59	54.00	-10.41	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11b	Test channel:	Highest
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### Peak value:

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)	polarization
4924.00	41.83	31.90	8.70	32.15	50.28	74.00	-23.72	Vertical
7386.00	33.04	36.49	11.76	31.83	49.46	74.00	-24.54	Vertical
9848.00	35.65	38.62	14.31	31.77	56.81	74.00	-17.19	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	41.61	31.90	8.70	32.15	50.06	74.00	-23.94	Horizontal
7386.00	32.18	36.49	11.76	31.83	48.60	74.00	-25.40	Horizontal
9848.00	31.93	38.62	14.31	31.77	53.09	74.00	-20.91	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

#### Average value:

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)	polarization
4924.00	32.98	31.90	8.70	32.15	41.43	54.00	-12.57	Vertical
7386.00	23.02	36.49	11.76	31.83	39.44	54.00	-14.56	Vertical
9848.00	24.21	38.62	14.31	31.77	45.37	54.00	-8.63	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	32.13	31.90	8.70	32.15	40.58	54.00	-13.42	Horizontal
7386.00	21.62	36.49	11.76	31.83	38.04	54.00	-15.96	Horizontal
9848.00	21.23	38.62	14.31	31.77	42.39	54.00	-11.61	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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ļ	Test mode:	802.11g	Test channel:	lowest

### Peak value:

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)	polarization
4824.00	37.20	31.79	8.62	32.10	45.51	74.00	-28.49	Vertical
7236.00	32.26	36.19	11.68	31.97	48.16	74.00	-25.84	Vertical
9648.00	31.32	38.07	14.16	31.56	51.99	74.00	-22.01	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	36.35	31.79	8.62	32.10	44.66	74.00	-29.34	Horizontal
7236.00	32.26	36.19	11.68	31.97	48.16	74.00	-25.84	Horizontal
9648.00	31.00	38.07	14.16	31.56	51.67	74.00	-22.33	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

#### Average value:

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)	polarization
4824.00	26.53	31.79	8.62	32.10	34.84	54.00	-19.16	Vertical
7236.00	21.20	36.19	11.68	31.97	37.10	54.00	-16.90	Vertical
9648.00	21.72	38.07	14.16	31.56	42.39	54.00	-11.61	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertica
4824.00	26.05	31.79	8.62	32.10	34.36	54.00	-19.64	Horizontal
7236.00	20.89	36.19	11.68	31.97	36.79	54.00	-17.21	Horizontal
9648.00	20.80	38.07	14.16	31.56	41.47	54.00	-12.53	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11g	Test channel:	Middle

### Peak value:

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)	polarization
4874.00	36.79	31.85	8.66	32.12	45.18	74.00	-28.82	Vertical
7311.00	32.67	36.37	11.71	31.91	48.84	74.00	-25.16	Vertical
9748.00	32.58	38.27	14.25	31.56	53.54	74.00	-20.46	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	37.67	31.85	8.66	32.12	46.06	74.00	-27.94	Horizontal
7311.00	31.52	36.37	11.71	31.91	47.69	74.00	-26.31	Horizontal
9748.00	32.55	38.27	14.25	31.56	53.51	74.00	-20.49	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

### Average value:

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)	polarization
4874.00	27.84	31.85	8.66	32.12	36.23	54.00	-17.77	Vertical
7311.00	21.04	36.37	11.71	31.91	37.21	54.00	-16.79	Vertical
9748.00	21.88	38.27	14.25	31.56	42.84	54.00	-11.16	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	27.91	31.85	8.66	32.12	36.30	54.00	-17.70	Horizontal
7311.00	20.65	36.37	11.71	31.91	36.82	54.00	-17.18	Horizontal
9748.00	22.31	38.27	14.25	31.56	43.27	54.00	-10.73	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11g	Test channel:	Highest
			geet

### Peak value:

reak value.								
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)	polarization
4924.00	40.47	31.90	8.70	32.15	48.92	74.00	-25.08	Vertical
7386.00	32.18	36.49	11.76	31.83	48.60	74.00	-25.40	Vertical
9848.00	35.03	38.62	14.31	31.77	56.19	74.00	-17.81	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	40.46	31.90	8.70	32.15	48.91	74.00	-25.09	Horizontal
7386.00	31.43	36.49	11.76	31.83	47.85	74.00	-26.15	Horizontal
9848.00	31.36	38.62	14.31	31.77	52.52	74.00	-21.48	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

### Average value:

Average val	Average value.										
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)	polarization			
4924.00	31.73	31.90	8.70	32.15	40.18	54.00	-13.82	Vertical			
7386.00	22.19	36.49	11.76	31.83	38.61	54.00	-15.39	Vertical			
9848.00	23.62	38.62	14.31	31.77	44.78	54.00	-9.22	Vertical			
12310.00	*					54.00		Vertical			
14772.00	*					54.00		Vertical			
17234.00	*					54.00		Vertical			
4924.00	31.05	31.90	8.70	32.15	39.50	54.00	-14.50	Horizontal			
7386.00	20.89	36.49	11.76	31.83	37.31	54.00	-16.69	Horizontal			
9848.00	20.69	38.62	14.31	31.77	41.85	54.00	-12.15	Horizontal			
12310.00	*					54.00		Horizontal			
14772.00	*					54.00		Horizontal			
17234.00	*					54.00		Horizontal			

### Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11n(H20)	Test channel:	Lowest
10011110001	002((20)	100001111011	2011001

#### Peak value:

i cak value.								
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)	polarization
4824.00	37.60	31.79	8.62	32.10	45.91	74.00	-28.09	Vertical
7236.00	32.51	36.19	11.68	31.97	48.41	74.00	-25.59	Vertical
9648.00	31.50	38.07	14.16	31.56	52.17	74.00	-21.83	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	36.69	31.79	8.62	32.10	45.00	74.00	-29.00	Horizontal
7236.00	32.48	36.19	11.68	31.97	48.38	74.00	-25.62	Horizontal
9648.00	31.17	38.07	14.16	31.56	51.84	74.00	-22.16	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

### Average value:

	Attornage value									
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)	polarization		
4824.00	26.89	31.79	8.62	32.10	35.20	54.00	-18.80	Vertical		
7236.00	21.44	36.19	11.68	31.97	37.34	54.00	-16.66	Vertical		
9648.00	21.89	38.07	14.16	31.56	42.56	54.00	-11.44	Vertical		
12060.00	*					54.00		Vertical		
14472.00	*					54.00		Vertical		
16884.00	*					54.00		Vertical		
4824.00	26.37	31.79	8.62	32.10	34.68	54.00	-19.32	Horizontal		
7236.00	21.10	36.19	11.68	31.97	37.00	54.00	-17.00	Horizontal		
9648.00	20.96	38.07	14.16	31.56	41.63	54.00	-12.37	Horizontal		
12060.00	*					54.00		Horizontal		
14472.00	*					54.00		Horizontal		
16884.00	*					54.00		Horizontal		

## Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11n(H20)	Test channel:	Middle

### Peak value:

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)	polarization
4874.00	37.12	31.85	8.66	32.12	45.51	74.00	-28.49	Vertical
7311.00	32.88	36.37	11.71	31.91	49.05	74.00	-24.95	Vertical
9748.00	32.73	38.27	14.25	31.56	53.69	74.00	-20.31	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	37.95	31.85	8.66	32.12	46.34	74.00	-27.66	Horizontal
7311.00	31.70	36.37	11.71	31.91	47.87	74.00	-26.13	Horizontal
9748.00	32.69	38.27	14.25	31.56	53.65	74.00	-20.35	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

### Average value:

7ttorago tar	<del></del>							
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)	polarization
4874.00	28.16	31.85	8.66	32.12	36.55	54.00	-17.45	Vertical
7311.00	21.25	36.37	11.71	31.91	37.42	54.00	-16.58	Vertical
9748.00	22.02	38.27	14.25	31.56	42.98	54.00	-11.02	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.18	31.85	8.66	32.12	36.57	54.00	-17.43	Horizontal
7311.00	20.82	36.37	11.71	31.91	36.99	54.00	-17.01	Horizontal
9748.00	22.44	38.27	14.25	31.56	43.40	54.00	-10.60	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

### Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11n(H20)	Test channel:	Highest
	,		)

### Peak value:

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)	polarization
4924.00	41.04	31.90	8.70	32.15	49.49	74.00	-24.51	Vertical
7386.00	32.54	36.49	11.76	31.83	48.96	74.00	-25.04	Vertical
9848.00	35.29	38.62	14.31	31.77	56.45	74.00	-17.55	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	40.94	31.90	8.70	32.15	49.39	74.00	-24.61	Horizontal
7386.00	31.74	36.49	11.76	31.83	48.16	74.00	-25.84	Horizontal
9848.00	31.60	38.62	14.31	31.77	52.76	74.00	-21.24	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

#### Average value:

Average val	ue.							
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)	polarization
4924.00	32.25	31.90	8.70	32.15	40.70	54.00	-13.30	Vertical
7386.00	22.54	36.49	11.76	31.83	38.96	54.00	-15.04	Vertical
9848.00	23.86	38.62	14.31	31.77	45.02	54.00	-8.98	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	31.51	31.90	8.70	32.15	39.96	54.00	-14.04	Horizontal
7386.00	21.20	36.49	11.76	31.83	37.62	54.00	-16.38	Horizontal
9848.00	20.92	38.62	14.31	31.77	42.08	54.00	-11.92	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

### Remark:

- 1 Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2 "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11n(H40)	Test channel:	Lowest

### Peak value:

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)	polarization
4844.00	36.20	31.81	8.63	32.11	44.53	74.00	-29.47	Vertical
7266.00	31.63	36.28	11.69	31.94	47.66	74.00	-26.34	Vertical
9688.00	30.87	38.13	14.21	31.52	51.69	74.00	-22.31	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4844.00	35.51	31.81	8.63	32.11	43.84	74.00	-30.16	Horizontal
7266.00	31.71	36.28	11.69	31.94	47.74	74.00	-26.26	Horizontal
9688.00	30.59	38.13	14.21	31.52	51.41	74.00	-22.59	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

### Average value:

Average var	ue.							
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)	polarization
4844.00	25.61	31.81	8.63	32.11	33.94	54.00	-20.06	Vertical
7266.00	20.59	36.28	11.69	31.94	36.62	54.00	-17.38	Vertical
9688.00	21.29	38.13	14.21	31.52	42.11	54.00	-11.89	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4844.00	25.26	31.81	8.63	32.11	33.59	54.00	-20.41	Horizontal
7266.00	20.36	36.28	11.69	31.94	36.39	54.00	-17.61	Horizontal
9688.00	20.40	38.13	14.21	31.52	41.22	54.00	-12.78	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

### Remark:

- Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test mode:	802.11n(H40)	Test channel:	Middle

### Peak value:

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)	polarization
4874.00	35.97	31.85	8.66	32.12	44.36	74.00	-29.64	Vertical
7311.00	32.15	36.37	11.71	31.91	48.32	74.00	-25.68	Vertical
9748.00	32.20	38.27	14.25	31.56	53.16	74.00	-20.84	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	36.97	31.85	8.66	32.12	45.36	74.00	-28.64	Horizontal
7311.00	31.06	36.37	11.71	31.91	47.23	74.00	-26.77	Horizontal
9748.00	32.21	38.27	14.25	31.56	53.17	74.00	-20.83	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

## Average value:

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)	polarization
4874.00	27.09	31.85	8.66	32.12	35.48	54.00	-18.52	Vertical
7311.00	20.54	36.37	11.71	31.91	36.71	54.00	-17.29	Vertical
9748.00	21.52	38.27	14.25	31.56	42.48	54.00	-11.52	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	27.26	31.85	8.66	32.12	35.65	54.00	-18.35	Horizontal
7311.00	20.20	36.37	11.71	31.91	36.37	54.00	-17.63	Horizontal
9748.00	21.98	38.27	14.25	31.56	42.94	54.00	-11.06	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

### Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "\*", means this data is the too weak instrument of signal is unable to test.



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Test m	node:	802.11n(H	40)	Test of	channel:		Highe	est		
Peak value:										

Frequency (MHz)	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit	polarization
(***: 12)	(dBuV)	(dB/m)	(dB)	(dB)	(aBa v/iii)	( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	(dB)	
4904.00	39.05	31.88	8.68	32.13	47.48	74.00	-26.52	Vertical
7356.00	31.28	36.45	11.75	31.86	47.62	74.00	-26.38	Vertical
9808.00	34.39	38.43	14.29	31.68	55.43	74.00	-18.57	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4904.00	39.26	31.88	8.68	32.13	47.69	74.00	-26.31	Horizontal
7356.00	30.64	36.45	11.75	31.86	46.98	74.00	-27.02	Horizontal
9808.00	30.77	38.43	14.29	31.68	51.81	74.00	-22.19	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal

### Average value:

Average value.								
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)	polarization
4904.00	30.42	31.88	8.68	32.13	38.85	54.00	-15.15	Vertical
7356.00	21.32	36.45	11.75	31.86	37.66	54.00	-16.34	Vertical
9808.00	23.00	38.43	14.29	31.68	44.04	54.00	-9.96	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4904.00	29.93	31.88	8.68	32.13	38.36	54.00	-15.64	Horizontal
7356.00	20.13	36.45	11.75	31.86	36.47	54.00	-17.53	Horizontal
9808.00	20.12	38.43	14.29	31.68	41.16	54.00	-12.84	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

### Remark:

- 1 Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2 "\*", means this data is the too weak instrument of signal is unable to test.

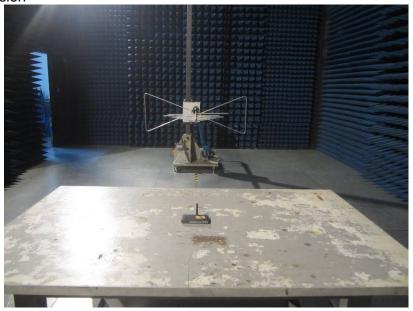


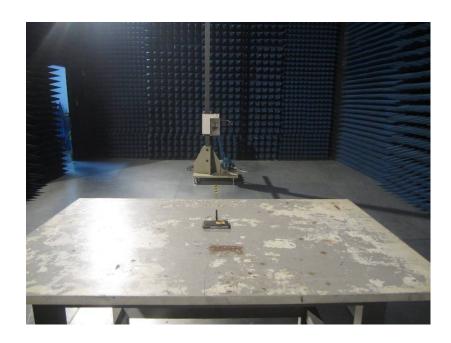
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# 8 Test Setup Photo

Radiated Emission







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### Conducted Emission





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## 9 EUT Constructional Details







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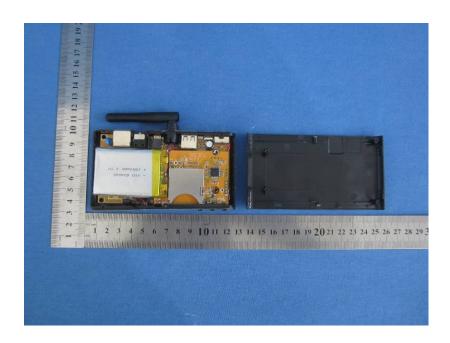




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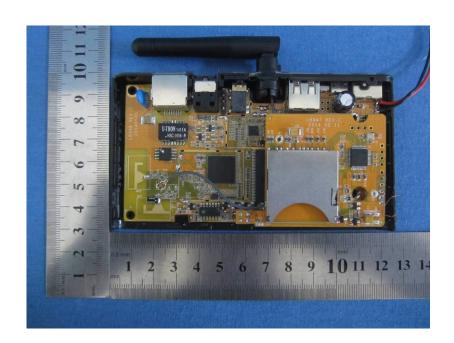






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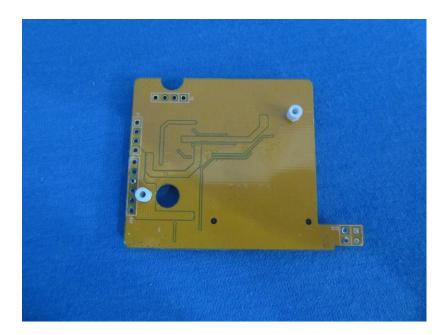




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