

FCC 47 CFR PART 15 SUBPART C TEST REPORT

For

- Applicant : Shenzhen Risun Communication Technology Co., Ltd.
 - Address : Room 601, Fuqiang Building, No. 1-2, Area 62, Mabu Community, Xixiang Street, Baoan District, Shenzhen, China
- Product Name : Android TV Box
 - Model Name : N03, N02, N04, N05, N06
 - Brand Name : N/A
 - FCC ID : PZN-N03
 - Report No.: MTE/DAL/D12081154
 - Date of Issue : Sep. 19, 2012
 - Issued by : Most Technology Service Co., Ltd.
 - Address : No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China
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1. VERIFICATION OF CONFORMITY

Equipment Under Test:	Android TV Box
Brand Name:	N/A
Model Number:	N03
Series Model Number:	N02, N04, N05, N06
FCC ID:	PZN-N03
Applicant:	Shenzhen Risun Communication Technology Co., Ltd.
	Room 601, Fuqiang Building, No. 1-2, Area 62, Mabu Community, Xixiang Street, Baoan District, Shenzhen, China
Manufacturer:	Shenzhen Risun Communication Technology Co., Ltd.
	Room 601, Fuqiang Building, No. 1-2, Area 62, Mabu Community, Xixiang Street, Baoan District, Shenzhen, China
Technical Standards:	47 CFR Part 15 Subpart C
File Number:	MTE/DAL/D12081154
Date of test:	Aug. 28-Sep. 19, 2012
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	PASS

The above equipment was tested by *MOST* for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

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	Elva Wong	Sep. 19, 2012
Approved by (+ signature):		5
	Yvette Zhou	Sep. 19, 2012

2. GENERAL INFORMATION

2.1 Product Information

Description:	MID
Model Name:	N03
Series Number:	N02, N04, N05, N06
Model Difference description:	The series models are different in model name with the same functions.
Frequency Range:	802.11b/g/n:2412MHz – 2462MHz
Number of Channels:	IEEE 802.11b/g/nmode: 11 Channels
Modulation Technique:	IEEE 802.11b mode: CCK (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) 802.11n Standard-20 MHz Channel mode: OFDM (6.5, 13, 19.5,26, 39, 52, 58.5, 65.0Mbps)
Antenna Type:	Internal Fixed
Antenna Gain:	2.0dBi
Power Supply:	DC 5V Adaptor Input AC 100-240V, 50/60Hz
Temperature Range:	0°C ~ +45°C

NOTE:

1. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

Perform FCC Part 15 Subpart C tests for FCC Marking.

2.3 Test Standards and Results

Test items and the results are as bellow:

No.	Section	Description	Result	Date of Test
1	15.247(a)(2)	6dB Bandwidth	PASS	2012/09/06
2	15.247(b)(3)	Peak Output Power	PASS	2012/09/04
3	15.247(d)	conducted spurious emission	PASS	2012/09/15
4	15.247(d)	Band Edge	PASS	2012/09/15
5	15.247(e)	Power Spectral Density	PASS	2012/09/19
6	15.207	Conducted Emission	PASS	2012/08/29
7	15.247(d) 15.205 15.209	Radiated Emission	PASS	2012/08/28

Note: 1. The test result judgment is decided by the limit of measurement standard 2. The information of measurement uncertainty is available upon the customer's request.

2.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

2.5 MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

The report uncertainty of measurement $y\pm U$, where expended uncertainly U is based on a standard uncertainty multiplied by a coverage factor of k=2,Providing a level of confidence of approximately 95%

- Uncertainty of Conducted Emission, Uc = ±1.8dB

- Uncertainty of Radiated Emission, Uc = ±3.2dB

3. TEST FACILITY

Test Site:	Most Technology Service Co., Ltd.
Location:	No.5, Nangshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final
	test. The Open Area Test Sites and the Line Conducted labs are constructed and
	calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 16
	requirements.
	The FCC Registration Number is 490827.
Site Filing:	The site description is on file with the Federal Communications
	Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4 and CISPR 16 requirements
	that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted
	Emission, one in vertical and the other in horizontal. The dimensions of these ground
	planes are as below. The vertical ground plane was placed distancing 40 cm to the
	rear of the wooden test table on where the EUT and the support equipment were
	placed during test. The horizontal ground plane projected 50 cm beyond the footprint
	of the EUT system and distanced 80 cm to the wooden test table. For Radiated
	Emission Test, one horizontal conductive ground plane extended at least 1m beyond
	the periphery of the EUT and the largest measuring antenna, and covered the entire
	area between the EUT and the antenna. It has no holes or gaps having longitudinal
	dimensions larger than one-tenth of a wavelength at the highest frequency of
	measurement up to 1GHz.
558074 D01 DTS	provides Guidance for Performing Compliance Measurements on Digital Transmission
Meas Guidance v01:	Systems (DTS) Operating Under CFR Title 47 15.247

3.2 Test Conditions

The EUT has been tested under normal continuous operating (TX) condition.

Based on client request, all normal using modes of the normal function were tested but only the worst test data is reported by this report.

3.3 Channel List

Channel List for 802.11b/g/n(20MHz)							
Channel Frequency (MHz)		Channel	Frequency (MHz)	Channel	Frequency (MHz)		
01	2412MHz	05	2432MHz	09	2452MHz		
02	2417MHz	06	2437MHz	10	2457MHz		
03	2422MHz	07	2442MHz	11	2462MHz		
04	2427MHz	08	2447MHz				

3.4 Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level, Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively

Pre-test Mode	Description
Mode 1	802.11b CH01/CH07/CH11
Mode 2	802.11g CH01/CH07/CH11
Mode 3	802.11n(20MHz)CH01/CH07/CH11

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all bit rate of transmitter, the worst data was reported.

3.5 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level, the RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software Version	Test program:N/A			
802.11b	2412MHz	2442MHz	2462MHz	
802.11g	2412MHz	2442MHz	2462MHz	
802.11n(20MHz)	2412MHz	2442MHz	2462MHz	

4. TEST EQUIPMENT LIST

4.1 Test equipment List

Instrumentation: The following list contains equipment used at MOST for testing. The equipment conforms to the CISPR 16-1/ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

No.	Equipment	Manufacturer	Model No.	S/N	Calibration date	Calibration Interval
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2012/03/14	1 Year
2	Spectrum Analyzer	Agilent	E7405A	US44210471	2012/03/14	1 Year
3	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2012/03/14	1 Year
4	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2012/03/14	1 Year
5	Terminator	Hubersuhner	50_	No.1	2012/03/14	1 Year
6	RF Cable	SchwarzBeck	N/A	No.1	2012/03/14	1 Year
7	Test Receiver	Rohde & Schwarz	ESPI	101202	2012/03/14	1 Year
8	Bilog Antenna	Sunol	JB3	A121206	2012/03/14	1 Year
9	Horn Antenna	TRC	N/A	N/A	2012/03/14	1 Year
10	Cable	Resenberger	N/A	NO.1	2012/03/14	1 Year
11	Cable	SchwarzBeck	N/A	NO.2	2012/03/14	1 Year
12	Cable	SchwarzBeck	N/A	NO.3	2012/03/14	1 Year
13	DC Power Filter	DuoJi	DL2×30B	N/A	2012/03/14	1 Year
14	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2012/03/14	1 Year
15	3 Phase Power Line Filter	DuoJi	FNF 402B30	N/A	2012/03/14	1 Year
16	Test Receiver	Rohde & Schwarz	ESCI	100492	2012/03/14	1 Year
17	Absorbing Clamp	Luthi	MDS21	3635	2012/03/14	1 Year
18	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2012/03/14	1 Year
19	AC Power Source	Kikusui	AC40MA	LM003232	2012/03/14	1 Year
20	Test Analyzer	Kikusui	KHA1000	LM003720	2012/03/14	1 Year
21	Line Impendence Network	Kikusui	LIN40MA- PCR-L	LM002352	2012/03/14	1 Year
22	ESD Tester	Kikusui	KES4021	LM003537	2012/03/14	1 Year
23	EMCPRO System	EM Test	UCS-500-M4	V0648102026	2012/03/14	1 Year
24	Signal Generator	IFR	2032	203002/100	2012/03/14	1 Year
25	Amplifier	A&R	150W1000	301584	2012/03/14	1 Year
26	CDN	FCC	FCC-801-M2-25	47	2012/03/14	1 Year
27	CDN	FCC	FCC-801-M3-25	107	2012/03/14	1 Year
28	EM Injection Clamp	FCC	F-203I-23mm	403	2012/03/14	1 Year
29	RF Cable	MIYAZAKI	N/A	No.1/No.2	2012/03/14	1 Year
30	Universal Radio Communication Tester	ROHDE&SCHWARZ	CMU200	0304789	2012/03/14	1 Year
31	Telecommunication Antenna	European Antennas	PSA 75301R/170	0304213	2012/03/14	1 Year
32	8 Loop Antenna	ARA	PLA-1030/B	1029	2012/02/19	1 Year
33	Power Meter	R&S	NRVS	100444	2012/03/14	1 Year

NOTE: Equipments listed above have been calibrated and are in the period of validation.

4.2 SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Test TV Monitor	Huike	15B1			Unshielded, detachable, 1.8m

Remark:

All the equipment/cables were placed in the worst-case [-configuration to maximize the emission during the test.

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. 47 CFR Part 15 C 15.247 Requirements

5.1 6dB Bandwidth

5.1.1 Definition

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.1.2 Limit

FCC Part15(15.247)								
Section	Test Item	Limit	Frequency	Result				
			Range(MHz)					
15.247(a)(2)	Bandwidth	>=500KHz	2400-2483.5	PASS				
		(6dB Bandwidth)						

5.1.3 Test Configuration

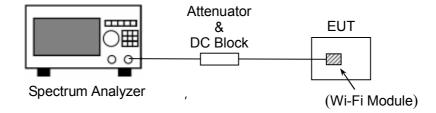


Figure 1: RF Test Setup

5.1.4 Test Procedure

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	>Measurement bandwidth or channel separation
RB	1-5% of the emission bandwidth(EBW)
VB	≧3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

The EUT is powered by the Battery, is coupled to the Spectrum Analyzer (SA) through the Attenuator/DC Block. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power. The RF load attached to the EUT antenna terminal is 500hm.

5.1.5 Test Result

The lowest, middle and highest channels are selected to perform testing to record the 6 dB bandwidth of the Module.

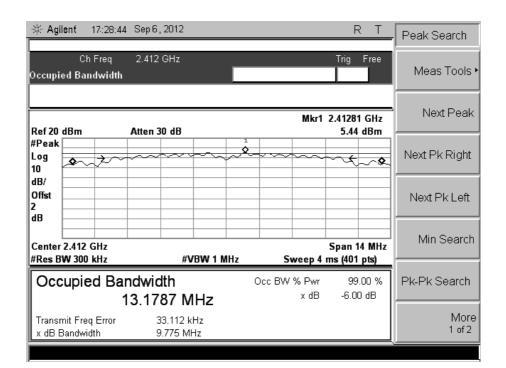
5.1.5.1 802.11b Test Mode

The minimum occupied bandwidth for the fundamental frequency 2462 MHz is 9.772 MHz. This occupied bandwidth complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	9.775	≥500	PASS
7	2442	9.772	≥500	PASS
11	2462	9.819	≥500	PASS

B. Test Plot:



(CH Low)

🔆 Agi	lent 17:31:	17 Sep 6 , 2012			RT	Peak Search
Occupi	Ch Freq ed Bandwidt	2.442 GHz h			Trig Free	Meas Tools ►
Ref 20	dBm	Atten 30 dB		Mkr1 2	2.44281 GHz 6.583 dBm	Next Peak
#Peak Log 10	\$ ~.>~		~		~~~~	Next Pk Right
dB/ Offst 2 dB						Next Pk Left
Center	2.442 GHz W 300 kHz	#VB\	N 1 MHz		Span 14 MHz ns (401 pts)	Min Search
Occupied Bandwidth 13.1913 MHz			Doo BW % Pwr x dB	99.00 % -6.00 dB	Pk-Pk Search	
	mit Freq Error Bandwidth	29.007 kHz 9.772 MHz				More 1 of 2

(CH Mid)

🔆 Agil	ent 17:1	24:47	Sep 6,	2012					RI		Peak Search
Occupie	Ch Fre ed Bandw		2.462 (GHz					Trig Free	9	Meas Tools ▸
Ref 20	dBm		Atten 30) dB				Mkr1	2.46281 GH: 6.148 dBn		Next Peak
#Peak Log 10		~	~~		~~	~ ? -				<u>.</u>	Next Pk Right
dB/ Offst 2											Next Pk Left
	2.462 GHz W 300 kHz	-		#\	'BW 1 N	147		woon 4	Span 14 MH ms (401 pts)	- 1z	Min Search
	upied	Ban	dwid 3.194	th			Dcc BW		99.00 % -6.00 dB	6	Pk-Pk Search
	nit Freq Er 3andwidth		18	8.200 ki 819 MH	Hz						More 1 of 2
ļ											

(CH High)

5.1.5.2 802.11g Test Mode

The minimum occupied bandwidth for the fundamental frequency 2462MHz is 17.732MHz. This occupied bandwidth complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	17.437	≥500	PASS
7	2442	17.736	≥500	PASS
11	2462	17.732	≥500	PASS

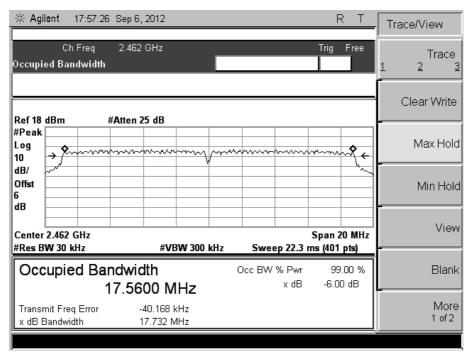
B. Test Plot:

🔆 Ag	ilent 17:57:40	Sep 6, 2012			RT	Freq/Channel
Occup	Ch Freq ied Bandwidth	2.412 GHz			Trig Free	Center Freq 2.41200000 GHz
Ref 18	dBm #	Atten 25 dB				Start Freq 2.40200000 GHz
#Peak Log 10		man providence	V~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Freq 2.42200000 GHz
dB/ Offst 6 dB						CF Step 2.0000000 MHz <u>Auto Mar</u>
Cente	r 2.412 GHz BW 30 kHz	#VBW 300	kHz Swe		Span 20 MHz Is (401 pts)	Freq Offset 0.00000000 Hz
Oc	cupied Bar 1	Occ BW		99.00 % -6.00 dB	Signal Track On <u>Off</u>	
	mit Freq Error Bandwidth	-29.117 kHz 17.734 MHz				

('Cł	н	Low)
			LOW

🔆 Agi	ilent 1	7:57:57	Sep 6, 2013	2				R	Т	Freq/Channel
Occupi	Ch F ed Band		2.442 GHz	<u>:</u>				Trig F	ree	Center Freq 2.44200000 GHz
Ref 18	dBm	#	Atten 25 dl	3						Start Freq 2.43200000 GHz
#Peak Log 10			man man	-	~~~~	mm	~~~~~	m	♦	Stop Freq 2.45200000 GHz
dB/ Offst 6 dB									**~`	CF Step 2.0000000 MHz <u>Auto Man</u>
Center	2.442 G		i	#VBW 300	kHz	Swee	ep 22.3 r	Span 20 ns (401 p		Freq Offset 0.00000000 Hz
Oco	cupied		ndwidth 7.5562	MHz	(Doc BW		99.0 -6.00	0%	Signal Track On <u>Off</u>
	mit Freq I Bandwidt			96 kHz 16 MHz						

(CH Mid)



(CH High)

5.1.5.3 802.11n Test Mode

The minimum occupied bandwidth for the fundamental frequency 2442MHz is 17.727MHz. This occupied bandwidth complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	17.742	≥500	PASS
7	2442	17.727	≥500	PASS
11	2462	17.748	≥500	PASS

B. Test Plot:

∰ Agilent 17:59:	07 Sep 6, 2012	R	T_Freq/Channel
Ch Freq Occupied Bandwidt		Trig I	Free Center Freq 2.41200000 GHz
Center 2.412	2000000 GHz		Start Freq 2.40200000 GHz
#Peak Log 10 → ♪			Stop Freq 2.42200000 GHz
dB/ And			CF Step 2.00000000 MHz <u>Auto Mar</u>
Center 2.412 GHz #Res BW 30 kHz	#VBW 300 k	Span 20 Span 20 Hz Sweep 22.3 ms (401 p	
Occupied Ba			Do % Signal Track
Transmit Freq Error x dB Bandwidth	-35.943 kHz 17.742 MHz		

(CH Low)

- ∰ Agilent 17:58:30 Sei	o 6, 2012		RT	Trace/View
Ch Freq 2.4 Occupied Bandwidth	442 GHz		Trig Free	Trace 1 <u>2</u> <u>3</u>
Ref 18 dBm #Atte	en 25 dB			Clear Write
10 7	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Max Hold
dB/ ~~~ Offst dB			**	Min Hold
Center 2.442 GHz #Res BW 30 kHz	#VBW 300 kHz	Sweep 22.3 m	ipan 20 MHz s (401 pts)	View
Occupied Bandy 17.5	vidth 5587 MHz	Occ BW % Pwr x dB	99.00 % -6.00 dB	Blank
Transmit Freq Error x dB Bandwidth	-37.857 kHz 17.727 MHz			More 1 of 2

(CH Mid)

∰ Agilent 17:58:50 Sep 6, 2012 R	TFreq/Channel
Ch Freq 2.462 GHz Trig Fr Occupied Bandwidth	Center Freq 2.46200000 GHz
Ref 18 dBm #Atten 25 dB	Start Freq 2.45200000 GHz
#Peak Log 10 → \$~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Freq 2.47200000 GHz
dB/ ~~^^	CF Step 2.00000000 MHz <u>Auto Mar</u>
Center 2.462 GHz Span 20 M #Res BW 30 kHz #VBW 300 kHz Sweep 22.3 ms (401 pts	
Occupied Bandwidth Occ BW % Pwr 99.00 17.5639 MHz x dB -6.00 dl	% Signal Track
Transmit Freq Error -38.828 kHz x dB Bandwidth 17.748 MHz	

(CH High)

5.2 Peak Output Power

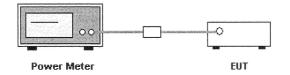
5.2.1 Definition

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

5.2.2 Limit

		FCC Part15(15.247)		
Section	Test Item	Limit	Frequency	Result
			Range(MHz)	
15.247(b)(1)	Peak Output Power	30dBm	2400-2483.5	PASS

5.2.3 Test Configuration



5.2.4 Test Procedure

The EUT which is powered by AC adapter, is coupled to the Power Meter; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading.

5.2.5 Test Result

The EUT operates at maximum output power mode. The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

5.2.5.1 802.11b Test Mode

The maximum output power for the fundamental frequency 2412MHz is 12.05dBm. This power complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output I	Peak Power	Lin	Verdict	
Channel	Frequency (WHZ)	dBm	W	dBm	W	veruiet
1	2412	12.05	0.016			PASS
5	2442	11.20	0.013	30	1	PASS
11	2462	10.45	0.011			PASS

5.2.5.2 802.11g Test Mode

The maximum output power for the fundamental frequency 2412 MHz is 12.10dBm. This power complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output I	Peak Power	Lin	Verdict	
Channel	Frequency (WITZ)	dBm	W	dBm	W	veruiet
1	2412	12.10	0.016			PASS
5	2442	11.70	0.015	30	1	PASS
11	2462	10.54	0.011			PASS

5.2.5.3 802.11n Test Mode

The maximum output power for the fundamental frequency 2412 MHz is 12.03dBm. This power complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output I	Peak Power	Lin	Verdict	
Channel	Frequency (WITZ)	dBm	W	dBm	W	veruiet
1	2412	12.03	0.016			PASS
5	2442	11.17	0.013	30	1	PASS
11	2462	10.47	0.011			PASS

5.3 Conducted Spurious Emission

5.3.1 Definition

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits.

5.3.2 Test Description

See section 5.1.2 of this report.

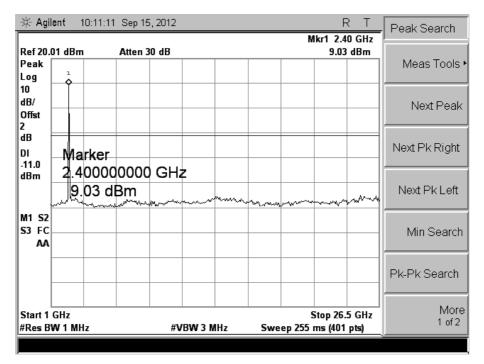
5.3.3 Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

5.3.3.1 802.11b Test Mode

Mkr1 895 MHz Ref 20.01 dBm Atten 30 dB 33.92 dBm Peak 33.92 dBm 33.92 dBm Log 10 10 10 10 0B/ Offst 10 10 10 10 0B/ Marker 10 10 10 10 10 0I Marker 10 30.92 dBm 10 10 10 10 M1 S2 S3 FC Marker 10 <th10< t<="" th=""><th>R T Peak Search</th><th></th><th>5, 2012</th><th>Sep 15</th><th>0:16:49</th><th>lent 1</th><th>🔆 Agil</th></th10<>	R T Peak Search		5, 2012	Sep 15	0:16:49	lent 1	🔆 Agil
dB/ Offst 2 dB			0 dB	Atten 3		01 dBm	Peak
dB DI Marker -11.0 895.000000 MHz -33.92 dBm M1 s2 s3 FC AA	Next Peak						dB/ Offst
-33.92 dBm	Next Pk Right						dB DI
S3 FC	Next Pk Left		MHz				dBm
	Min Search	har and the second second	www		~~~~~		S3 FC
	Pk-Pk Search						
Start 9 kHz Stop 1 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 103.6 ms (401 pts)	• 1 of 2	00 kHz S	#VBV		tHz		

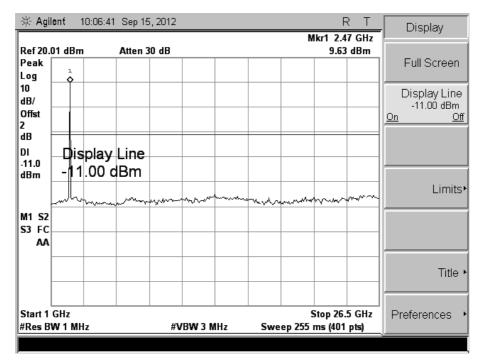
(CH Low, 9kHz to 1GHz)



(CH Low, 1GHz to 26.5GHz)

🔆 Agil	ent (10:20:37	7 Sep 1	5,2012				-		<u> х т</u>	Tra	ce/View
Ref 20.(01 dBm		Atten	30 dB					4 kr1 89 -38.98			Trace
Peak Log											<u>1</u>	2 3
10 dB/ Offst 2											(Clear Write
dB DI -11.0												Max Hold
dBm									1			Min Hold
M1 S2 S3 FC AA	www	an-Norr		ar marina and	mm	hhowan	the way	an a	www	han share		View
												Blank
Start 9 #Res Bl		cHz.		#VI	3W 300	kHz	Swee	p 103.6 i		1 GHz pts)		More 1 of 2
No Pea	k Found											

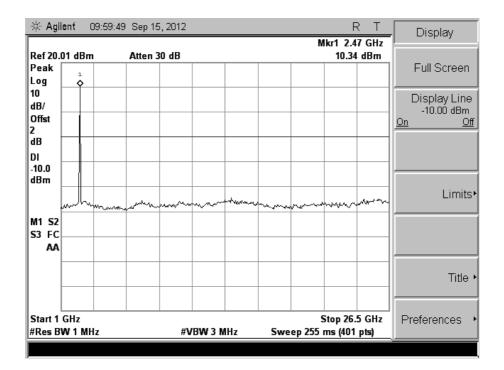
(CH Mid, 9kHz to 1GHz)



(CH Mid, 1GHz to 26.5GHz)

🔆 Agilent	10:24:07	' Sep 15,	2012				R Mkr1 3		Peak Search
Ref 20.01 c Peak Log	IBm	Atten 30	dB				-34.53		Meas Tools •
10 dB/ Offst 2									Next Peak
z dB DI -10.0									Next Pk Right
dBm ∳									Next Pk Left
M1 S2 S3 FC AA	6-13-W-~~W/~~	****~~?****		m	~~~~~	ener and the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	and and a	Min Search
									Pk-Pk Search
Start 9 kHz #Res BW 1			#VBW	300 kHz	Sweep) 103.6 п	Stop 1 ns (401 p		More 1 of 2
No Peak Fo	ound								

(CH High, 9kHz to 1GHz)

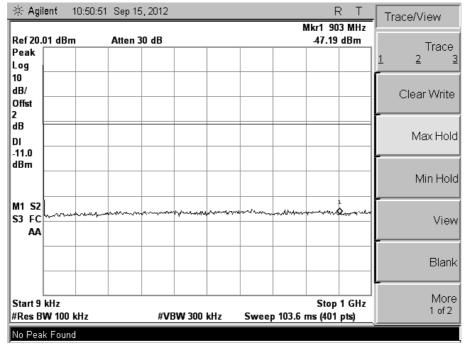




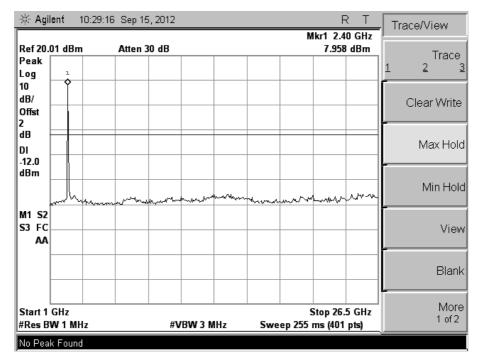
Note:

1. The power of the Module transmitting frequency should be ignored.

5.3.2. 802.11g Test Mode



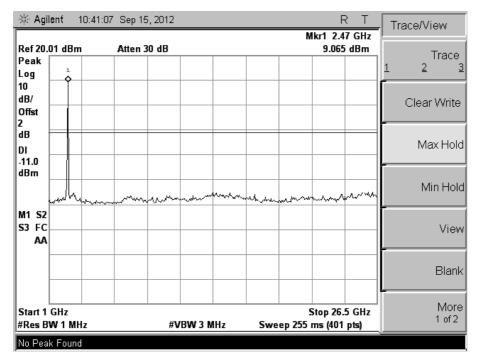




(CH Low, 1GHz to 26.5GHz)

🔆 Agilent	10:49:32	2 Sep 15	, 2012					F Vikr1 90		Trace	View
Ref 20.01 d Peak	Bm	Atten 3	0 dB					45.74		1	Trace
Log 10 dB/ Offst 2										L Cle	ear Write
dB DI											Max Hold
dBm											Min Hold
M1 S2 S3 FC AA	www.www	Annon	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	hunnan	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			En er som		View
											Blank
Start 9 kHz #Res BW 10	D0 kHz		#VB	W 300	kHz	Swee	o 103.6	Stop ms (401	1 GHz pts)		More 1 of 2
No Peak Fo	und										

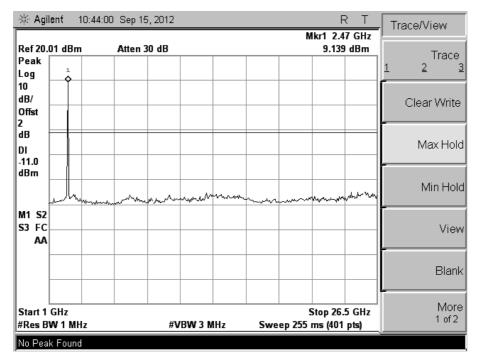
(CH Mid, 9kHz to 1GHz)



(CH Mid, 1GHz to 26.5GHz)

🔆 Agilent	10:47:11 8	Sep 15, 2012			R T	Peak Search
Ref 20.01 dB Peak Log	m A	tten 30 dB			42.5 dBm	Meas Tools ►
10 dB/ Offst						Next Peak
2 dB DI -11.0						Next Pk Right
dBm					1	Next Pk Left
M1 S2 S3 FC AA	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		an a		Min Search
						Pk-Pk Search
Start 9 kHz #Res BW 100) kHz	#VE	3W 300 kHz	Sweep 103.6	Stop 1 GHz ms (401 pts)	More 1 of 2
No Peak Fou	nd					

(CH High, 9kHz to 1GHz)

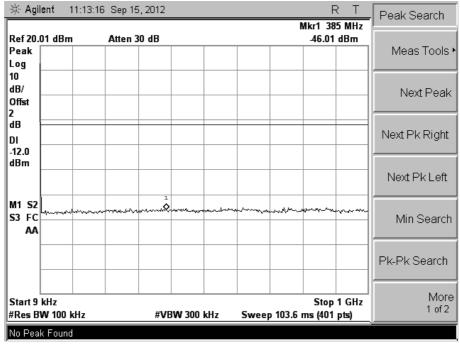


(CH High, 1GHz to 26.5GHz)

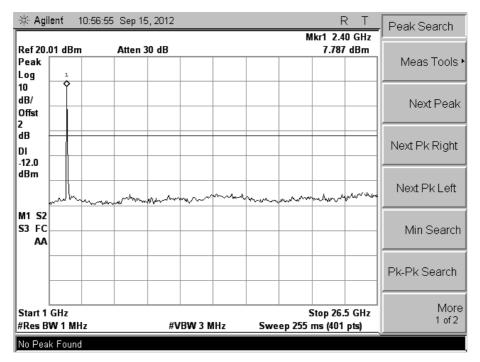
Note:

1. The power of the Module transmitting frequency should be ignored.

5.3.3. 802.11n Test Mode



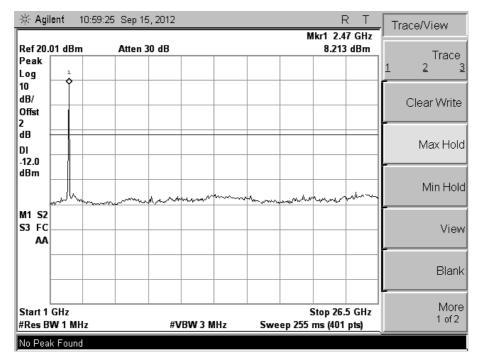
(CH Low, 9kHz to 1GHz)



(CH Low, 1GHz to 26.5GHz)

🔆 Agile	ent 1	1:08:51	Sep 1	5,2012					F Akr1 45	ЗМН 7	Peak Search
Ref 20.0 Peak Log)1 dBm		Atten	30 dB					-44.88		Meas Tools ►
10 dB/ Offst 2											Next Peak
dB DI -12.0		rker									Next Pk Right
dBm		.88 c		MHz							Next Pk Left
M1 S2 S3 FC AA	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mm			n kan	mm		ag-20-20-4			Min Search
											Pk-Pk Search
Start 9 #Res BV		Hz		# V E	300 W	kHz	Swee	p 103.6 i	-	1 GHz pts)	More 1 of 2
No Peak	Found										

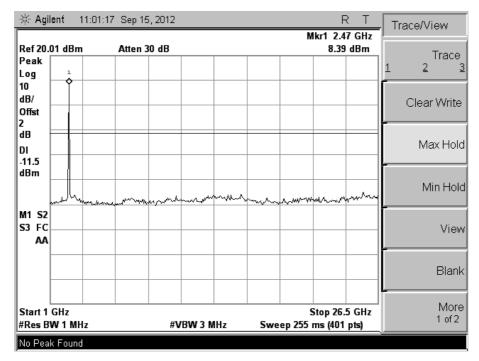
(CH Mid, 9kHz to 1GHz)



(CH Mid, 1GHz to 26.5GHz)

		Mkr1 3 MHz	Peak Search
Ref 20.01 dBm A Peak Log	tten 30 dB	-34.17 dBm	Meas Tools •
10 dB/ Offst 2			Next Peak
2 dB DI			Next Pk Right
dBm			Next Pk Left
M1 S2 S3 FC AA		and the second	Min Search
			Pk-Pk Search
Start 9 kHz #Res BW 100 kHz	#VBW 300 kHz	Stop 1 GHz Sweep 103.6 ms (401 pts)	More 1 of 2

(CH High, 9kHz to 1GHz)



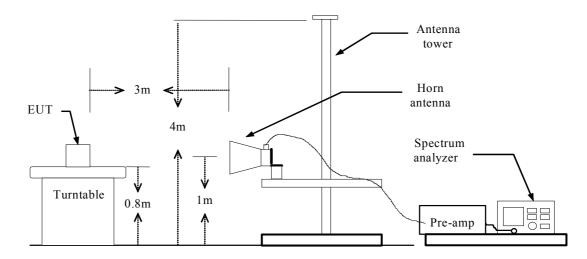
(CH High, 1GHz to 26.5GHz)

5.4 Band Edge

5.4.1 Definition

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits.

5.4.2 Test Configuration



5.4.3 Test Result

The EUT operates at continuous transmit test mode. The lowest and highest channels are tested to verify the band edge emissions.

5.4.3.1 802.11b Test Mode

				Test Result Highest Emission (dBuv/m)					
Test	Mode	Channel Marked Frequency	Limit (dBuv/m)	Ver	tical	Horizontal			
				Peak	Average	Peak	Average		
	Uow Channel WIFI High	2390MHz		60.62	30.23	58.63	27.96		
		2400MHz	74(Peak)	62.63	20.38	59.66	29.30		
		2483.5MHz	54(Average)	60.51	30.02	60.71	22.00		
	Channel	2500MHz		59.96	30.00	58.88	28.56		

🄄 Agile		22 Sep 15,	2012			Mki	3 2.390		Tra	ce/View
lef 127	dBµ∨	Atten 30	dB				60.62	dBµ∀		Trace
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o⊢								<u>\$</u>	r	
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. -							- /		Γ	
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Bµ∀∣										
·										Min Ho
										10111110
tart 2.3	85 GHz					S	top 2.41	2 GHz	-	
Res BV	V 100 kHz		#VBW 30	0 kHz	Swee		ms (401			Vie
Marker	Trace	Туре		X Axis			Amplit	ude		VIE
1	(1)	Freq	2.	4108 GHz			108.6 dBj			
2	(1)	Freq	2.	4002 GHz			62.63 dBj	w		
з	(1)	Freq	2.	3900 GHz			60.62 dBj	v		Blar
										Diar
										Mor
										1 of 2

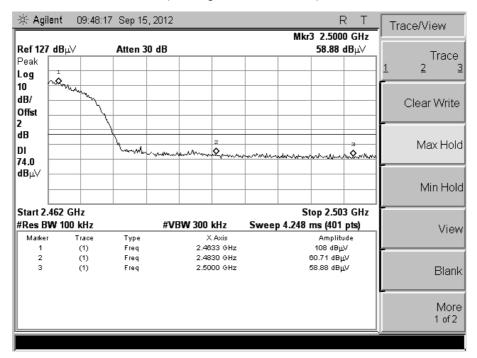
(CH Low, Vertical, Peak)

🔆 Agilen	it 09:37:3	34 Sep 15	, 2012				Miles	F 3 2.390		Tra	ce/View
Ref 127 d	В µ√	Atten 3	0 dB				MIKI	58.63			T
Peak Log	·								1	1	Trace
10 dB/ Offst								/	Ann and a		Clear Write
IB) '4.0	****		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~	~~~~	3 Mari Mariana	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	an/			Max Hold
IBµ∨											Min Hol
Start 2.35						_		top 2.41			
Res BW Marker	100 kHz Trace	-	#VB	W 300	kHz Axis	Sweep	6.423	ms (401			Viev
Marker 1	(1)	Type Freg			. Axis 08 GHz			Amplitı 106.7 dBı			
2 3	(1) (1)	Freq Freq			102 GHz 100 GHz			59.66 dBj 58.63 dBj	v		Blanl
											More 1 of 2

(CH Low, Horizontal, Peak)

🔆 Agilen	it 09:48:0	8 Sep 15,2	2012		R T	Trace/View
Ref 127 d	BµV	Atten 30	dB		59.96 dBµ∨	Tanaa
Peak 🗌						Trace
10 🌱 1B/ – Offst –	2000 March					Clear Write
HB DI 74.0		Lunn-		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	е тал ~\$~~~	Max Hold
dBµ∨						Min Hold
Start 2.46 Res BW			#VBW 300 kHz	Steep 4.248 r	op 2.503 GHz	
Marker 1	Trace (1)	Type Freq	X Axis 2.4633 GHz	•	Amplitude 07.5 dBцV	Viev
2 3	(1) (1)	Freq Freq	2.4830 GHz 2.5000 GHz	e	ю.51 dBµV ю.51 dBµV ю.96 dBµV	Blank
						More 1 of 2

(CH High, Vertical, Peak)

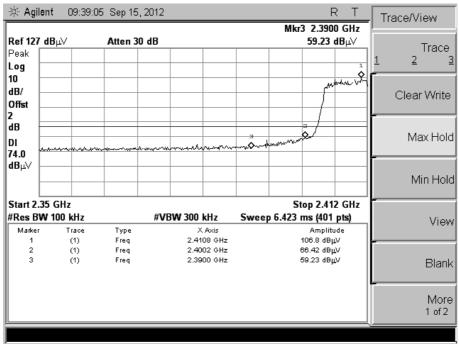


(CH High, Horizontal, Peak)

5.4.3.2 802.11g Test Mode

				Test Result Highest Emission (dBuv/m)					
Test	Mode	Channel Marked Frequency	Limit (dBuv/m)	Ver	tical	Horizontal			
				Peak	Average	Peak	Average		
	Uow Channel WIFI High	2390MHz		58.84	28.62	59.23	28.87		
		2400MHz	74(Peak)	66.40	36.17	66.42	36.21		
		2483.5MHz	54(Average)	61.60	41.39	62.52	40.32		
	Channel	2500MHz		59.07	36.85	59.15	37.56		

Test Plot:



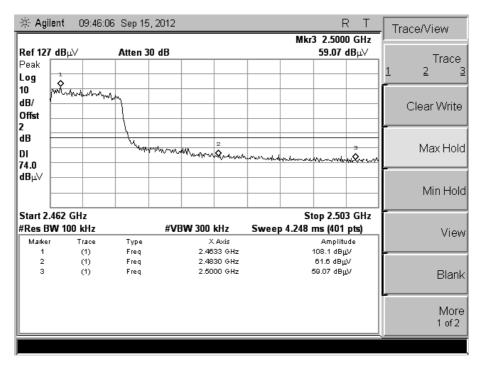
(CH Low, Horizontal, Peak)

🔆 Agilen	n t 09:39:1	2 Sep 15,3	2012	M	R T	Trace/View
Ref 127 d	BµV	Atten 30	dB		58.84 dBµ∨	Traca
Peak 🗌						
Log ⊢					1	1 2
10 dB/ Offst 2					mmmt	Clear Write
-dB ⊨	****	undonandelemes.	usere folgen and a color	3 www.Shalowed	a Martin	Max Hold
dBµ∨						Min Hol
Start 2.35	GHz				Stop 2.412 GHz	
#Res BW	100 kHz		#VBW 300 kHz	Sweep 6.42	3 ms (401 pts)	View
Marker	Trace	Туре	X Axis		Amplitude	1101
1	(1)	Freq	2.4108 GI		104.9 dBµV	
2 3	(1) (1)	Freq Freq	2.4002 GI 2.3900 GI		66.4 dВµV 58.84 dВµV	Blan
						More 1 of 2

(CH Low, Vertical, Peak)

🔆 Agilent	09:45:	58 Sep 15,	2012			Mkr3	F 3 2.500		Tra	ce/View
Ref 127 df	3 µV	Atten 30	dB				59.15 o	iBμV		T
Peak 🗌								<u> </u>		Trace
Log 📑									1	2
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4.0								11.00		
IBµ∨ —										
										Min Hol
Start 2.462	2 GHz					St	op 2.503	3 GHz	-	
Res BW	100 kHz		#VBW 3	300 kHz	Sweer	o 4.248 n	•			1 line
Marker	Trace	Туре		X Axis			Amplitu	· · · ·		Vie
1	(1)	Freq		2.4633 GHz		1	107.6 dBµ			
2	(1)	Freq		2.4830 GHz			2.52 dBµ			
з	(1)	Freq		2.5000 GHz		5	i9.15 dBµ	v		Blan
										Bidin
										Mor
										1 of 2
										1 01 2

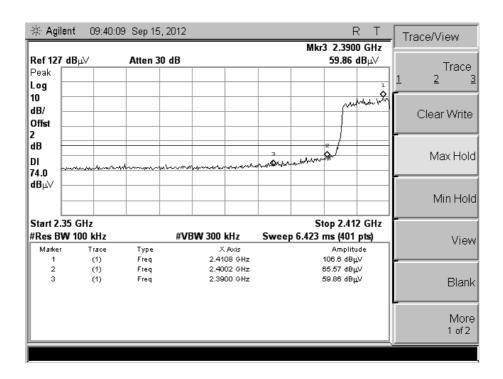
(CH High, Horizontal, Peak)



(CH High, Vertical, Peak)

5.4.3.3 802.11n Test Mode

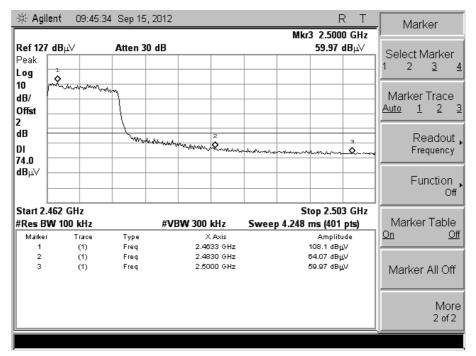
				Test Result Highest Emission (dBuv/m)					
Test	Mode	Channel Marked Frequency	Limit (dBuv/m)	Ver	tical	Horizontal			
				Peak	Average	Peak	Average		
	Uow Channel WIFI High	2390MHz		58.67	28.24	59.86	29.40		
		2400MHz	74(Peak)	64.51	34.33	65.57	35.23		
		2483.5MHz	54(Average)	62.37	30.95	64.07	32.88		
	Channel	2500MHz		57.97	27.77	59.97	29.35		



🤄 Agilen	(09:40:	15 Sep 15, 3	2012		Mkr3 2.39	R T 900 GHz	Trace/View	(
lef 127 dl	BµV	Atten 30	dB		58.6	7 dBµ∀	Tra	
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							Min H	Нο
tart 2.35	GHz				Stop 2.4	12 GHz	-	-
Res BW	100 kHz		#VBW 300 k	diz Swee	p 6.423 ms (40			/ie
Marker	Trace	Туре		Axis		litude	V	le
1	(1)	Freq	2.410)8 GHz	106.6 d			
2	(1)	Freq	2.400)2 GHz	64.51 d	вщи		
з	(1)	Freq	2.390	0 GHz	58.67 d	вщи 🛛	Bl	ar
							2.	<u> </u>
							_	-
							М	101
							1 0	
							10	114

(CH Low, Horizontal, Peak)

(CH Low, Vertical, Peak)



(CH High, Horizontal, Peak)

🔆 Agilent		48 Sep 15,					R T		e/View
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Start 2.462	CH7					Ston	2.503 GHz		
Res BW '			#\/D\A/	300 kHz	E.u.o.o.n	4.248 ms			
		T	#VDVV		Sweep				Vie
Marker 1	Trace (1)	Type Freg		X Axis 2.4633 GHz			mplitude 1 dBµV		
2	(1)	Freq		2.4830 GHz			:соди 8 dBµ,∨	_	
3	(Ť)	Freq		2.5000 GHz			7 dBцV		Blan
									Dian
									Mor
									1 of 2

(CH High, Vertical, Peak)

5.5 Power Spectral Density (PSD)

5.5.1 Definition

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band.

5.5.2 Limit

FCC Part15(15.247)								
Section	Test Item	Limit	Frequency	Result				
			Range(MHz)					
15.247	Power Spectral	8 dBm	2402-2483.5	PASS				
	Density	(in any 3KHz)						

5.5.4 Test Configuration

FUT	Spectrum
	Analyzer

5.5.3 Test Description

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	5-30% greater than the EBW
RB	100kHz
VB	300KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

a. The EUT was directly connectd to the spectrum analyzer and antenna output port as show in the block diagram below,

b. Spectrum Setting: RBW=100KHz, VBW=300KHz, Sweep time=Auto. Span to 5-30% greater than EBW

c. Scale the observed power level to an equivalent value in 3kHz by adjusting(reducing) the measured power by a bandwidth correction factor(BWCF) where BWCF=10log(3kHz/100kHz=-15.2dB).

d. Use peak detector+BWCF.

f. The resulting peak PSD level must be \leq 8dBm.

5.5.4 Test Configuration

	Spectrum
EUT	Analyzer

5.5.3 Operation Condition

The EUT tested system was configured as the statements of 2.1 unless otherwise a special operating condition is specified in the follows during the testing.

5.5.6 Test Result

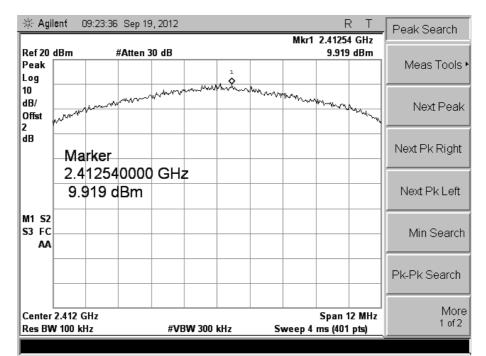
The lowest, middle and highest channels are tested to verify the power spectral density.

5.5.6.1 802.11b Test Mode

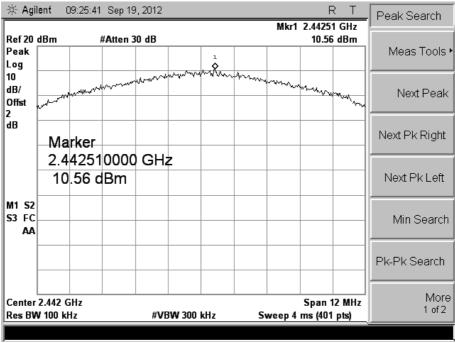
A. Test Verdict:

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	-5.281	$\leqslant 8$	PASS
7	2442	-4.640	$\leqslant 8$	PASS
11	2462	-3.890	$\leqslant 8$	PASS

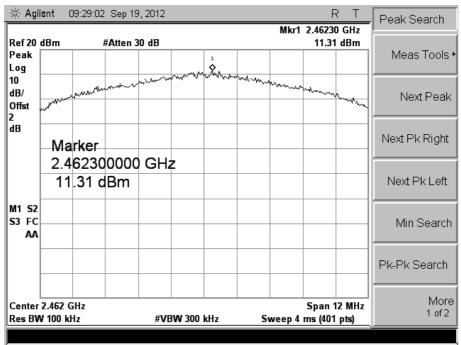
B. Test Plot:



(CH Low)



(CH Mid)



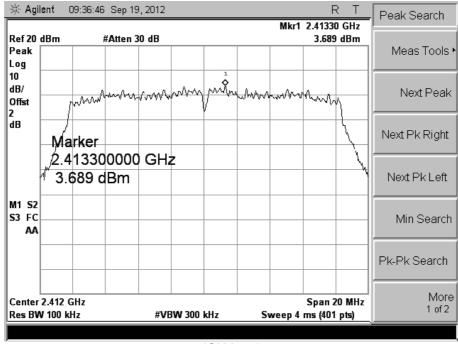
(CH High)

5.5.6.2 802.11g Test Mode

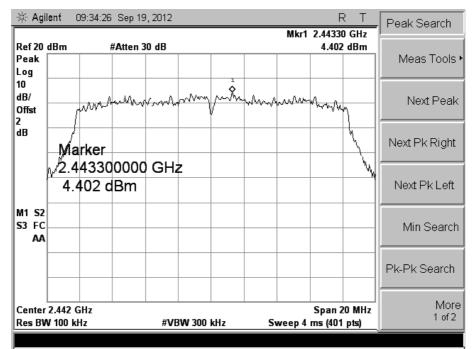
A. Test Verdict:

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	-11.51	$\leqslant 8$	PASS
7	2442	-10.80	$\leqslant 8$	PASS
11	2462	-10.58	$\leqslant 8$	PASS

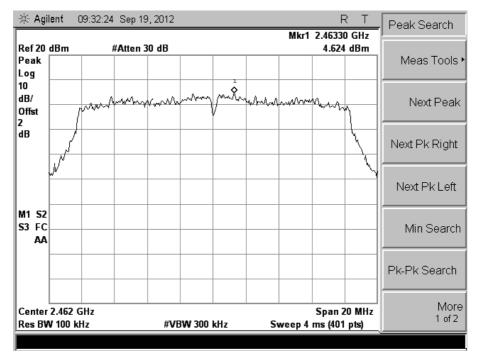
B. Test Plot:



(CH Low)







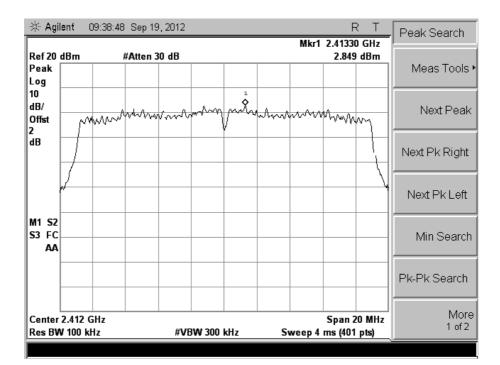
(CH High)

5.5.6.3 802.11n Test Mode

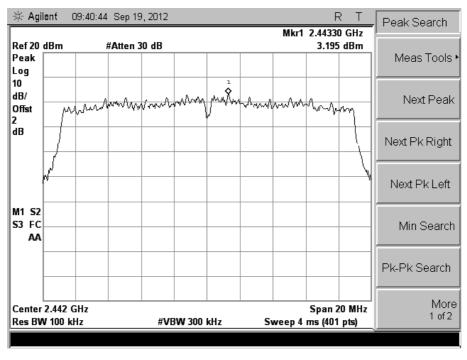
A. Test Verdict:

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	-12.35	$\leqslant 8$	PASS
7	2442	-12.01	$\leqslant 8$	PASS
11	2462	-11.81	$\leqslant 8$	PASS

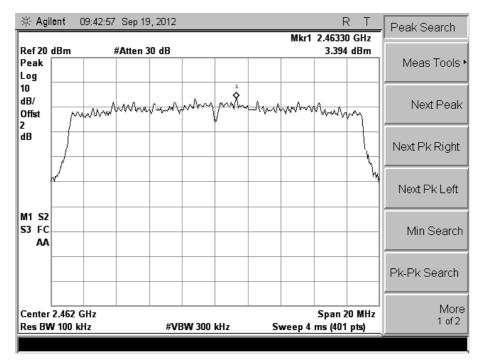
B. Test Plot:







(CH Mid)



(CH High)

5.6 Conducted Emission

5.6.1 Definition

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Fraguanay	Maximum RF Line Voltage					
Frequency	Q.P.(dBuV)	Average(dBuV)				
150kHz-500kHz	66-56	56-46				
500kHz-5MHz	56	46				
5MHz-30MHz	60	50				

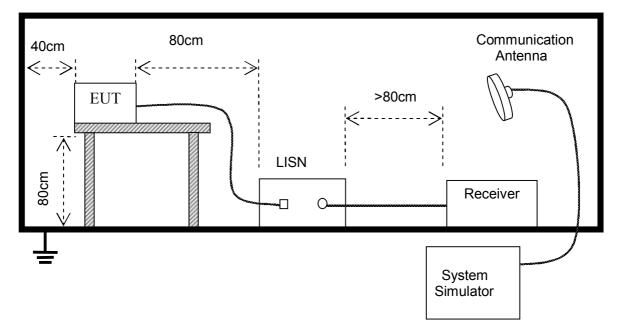
Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

5.6.2 Test Description

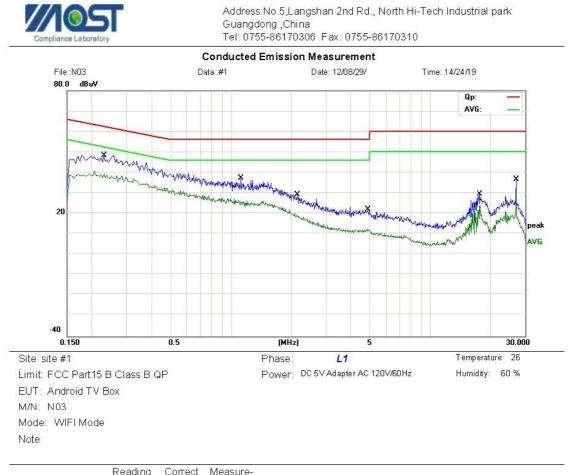
The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power.



5.6.3 Test Result

A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

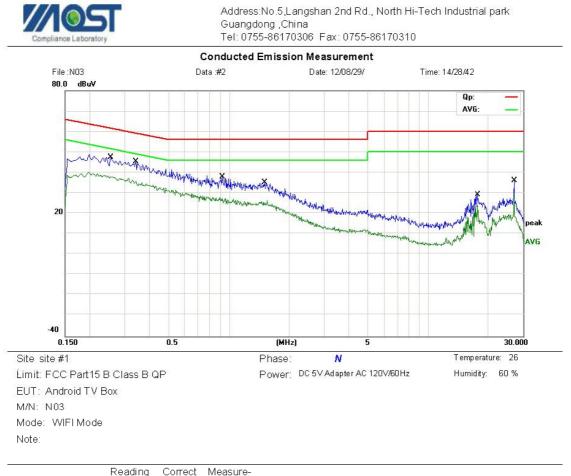
The Wifi model was carried out for 802.11b/g/n modulation types, 802.11b High channel modulation type was the worst case condition, The test data was shown on the summary data page.



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBu∨	dB	dBu∨	dBuV	dB	Detector	Comment
1	*	0.2300	36.56	11.80	48.36	62.45	-14.09	QP	
2		1.1220	27.27	9.88	37.15	56.00	-18.85	QP	
3		2.1460	19.89	9.15	29.04	56.00	-26.96	QP	
4		4.8780	10.17	11.88	22.05	56.00	-33.95	QP	
5		17.7300	20.43	9.00	29.43	60.00	-30.57	QP	
6		26.9980	27.57	9.00	36.57	60.00	-23.43	QP	

*:Maximum data x:Over limit !:over margin

Engineer Signature: Allen



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBu∨	dB	dBuV	dBu∨	dB	Detector	Comment
1	0.2540	35.89	11.64	47.53	61.63	-14.10	QP	
2 *	0.3420	34.26	11.05	45.31	59.15	-13.84	QP	
3	0.9260	27.76	10.00	37.76	56.00	-18.24	QP	
4	1.5100	25.54	9.49	35.03	56.00	-20.97	QP	
5	17.6740	20.19	9.00	29.19	60.00	-30.81	QP	
6	27.0020	27.16	9.00	36.16	60.00	-23.84	QP	

*:Maximum data x:Over limit !:over margin

Engineer Signature:

Allen

5.7 Radiated Emission

5.7.1 Definition

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

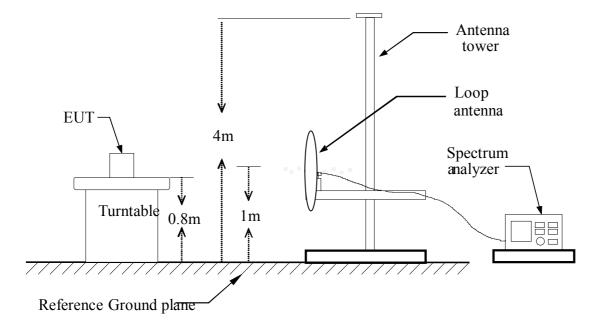
According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

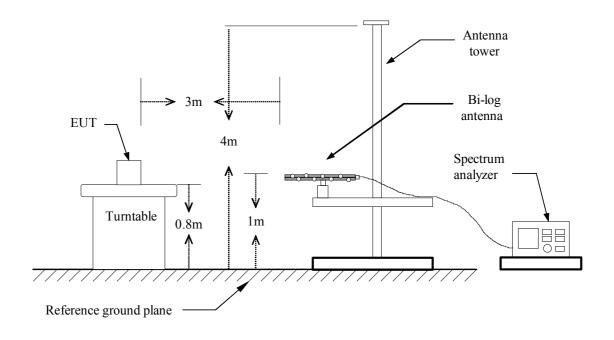
As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

5.7.2 Test Description

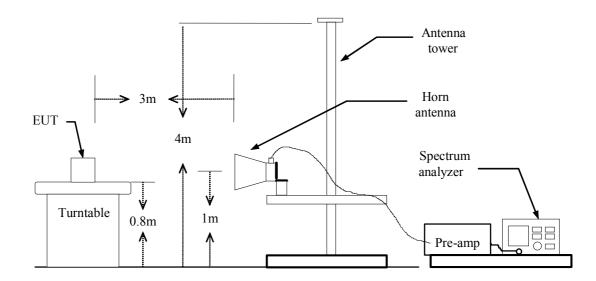
A. Test Configuration:



Below 1GHz:



Above 1GHz:



B. Test procedures

- 1. The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Set the spectrum analyzer in the following setting as:

Below 1GHz: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz : (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

5.7.3 Test Result

The Wifi model was carried out for 802.11b/g/n modulation types, 802.11b High channel modulation type was the worst case condition, The test data was shown on the summary data page.

From 9KHz to 30MHz:

EUT:	MID	Model Name. :	N03
Temperature:	20 °C	Relative HuMaylong Mobility Tabletity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5V by Adapter AC 120V/60Hz
Test Mode :	ТХ	Polarization :	

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
				PASS
				PASS

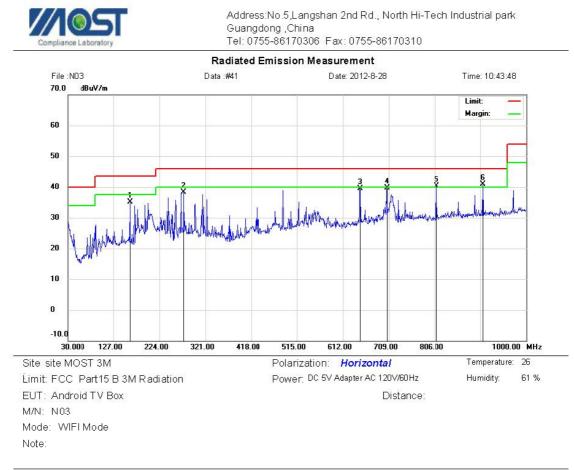
Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =20 log (specific distance/test distance)(dB); Limit line = specific limits(dBuv) + distance extrapolation factor.

Conclusion: PASS

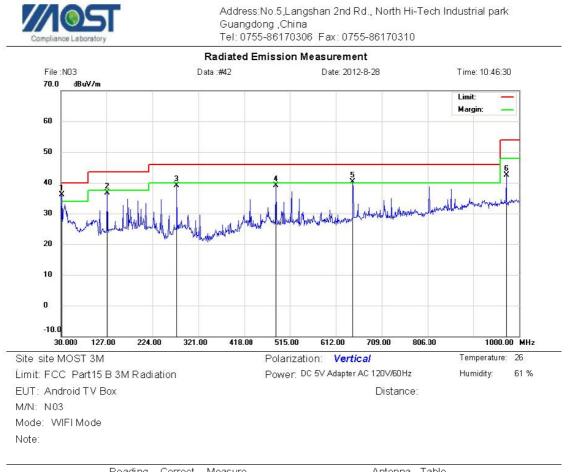
Below 1 GHz



MHz dBuV dB dBuV/m dBuV/m dB Detector cm degree Comment 1 161.9200 17.79 17.26 35.05 43.50 -8.45 QP 2 275.4100 19.04 19.22 38.26 46.00 -7.74 QP 3 647.8900 15.46 24.08 39.54 46.00 -6.46 QP 4 704.1500 14.99 24.66 39.65 46.00 -6.35 QP 5 1 809.8799 14.43 25.90 40.33 46.00 -5.67 QP 6 * 908.8200 13.32 27.58 40.90 46.00 -5.10 QP	No	. Mł	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
2 275.4100 19.04 19.22 38.26 46.00 -7.74 QP 3 647.8900 15.46 24.08 39.54 46.00 -6.46 QP 4 704.1500 14.99 24.66 39.65 46.00 -6.35 QP 5 1 809.8799 14.43 25.90 40.33 46.00 -5.67 QP			MHz	dBu∨	dB	dBu∨/m	dBuV/m	dB	Detector	cm	degree	Comment
3 647.8900 15.46 24.08 39.54 46.00 -6.46 QP 4 704.1500 14.99 24.66 39.65 46.00 -6.35 QP 5 ! 809.8799 14.43 25.90 40.33 46.00 -5.67 QP	1		161.9200	17.79	17.26	35.05	43.50	-8.45	QP			
4 704.1500 14.99 24.66 39.65 46.00 -6.35 QP 5 ! 809.8799 14.43 25.90 40.33 46.00 -5.67 QP	2		275.4100	19.04	19.22	38.26	46.00	-7.74	QP			
5 ! 809.8799 14.43 25.90 40.33 46.00 -5.67 QP	3		647.8900	15.46	24.08	39.54	46.00	-6.46	QP			
	4		704.1500	14.99	24.66	39.65	46.00	-6.35	QP			
6 * 908.8200 13.32 27.58 40.90 46.00 -5.10 QP	5	I	809.8799	14.43	25.90	40.33	46.00	-5.67	QP			
	6	*	908.8200	13.32	27.58	40.90	46.00	-5.10	QP			

*:Maximum data x:Over limit 1:over margin

Engineer Signature: Allen



No	. N	٨k.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
			MHz	dBu∨	dB	dBu∨/m	dBuV/m	dB	Detector	cm	degree	Comment
1	1	*	31.9400	12.88	23.31	36.19	40.00	-3.81	QP			
2		1	28.9398	18.95	17.70	36.65	43.50	-6.85	QP			
3		2	275.4100	19.90	19.22	39.12	46.00	-6.88	QP			
4		4	85.8999	17.41	21.78	39.19	46.00	-6.81	QP			
5	ļ	6	647.8899	16.29	24.08	40.37	46.00	-5.63	QP			
6		ĝ	72.8400	14.41	28.19	42.60	54.00	-11.40	QP			

*:Maximum data x:Over limit 1:over margin

Engineer Signature: Allen

Above 1 GHz

Operation Mode:	TX/ IEEE 802.11b/CH Low	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4824.0	Н	33.28	14.02	23.54	56.82	37.56	74.00	54.00	-16.44
N/A	Н								
4824.0	V	32.71	13.59	23.36	56.07	36.95	74.00	54.00	-17.05
N/A	V								

Notes:

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "----" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11b/CH Mid	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4884.0	Н	36.39	17.56	23.54	59.93	41.10	74.00	54.00	-12.90
N/A	Н								
4884.0	V	36.25	16.84	23.36	59.61	40.20	74.00	54.00	-13.80
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "----" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11b/CH High	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4924.0	Н	32.70	11.67	23.54	56.24	34.21	74.00	54.00	-19.79
N/A	Н								
4924.0	V	32.82	12.01	23.36	55.18	35.37	74.00	54.00	-18.63
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11g/CH Low	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak AV		(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4824.0	Н	32.95	13.78	23.78	56.73	36.56	74.00	54.00	-17.44
N/A	Н								
4824.0	V	31.37	10.64	24.01	55.38	34.65	74.00	54.00	-19.35
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11g/CH Mid	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4884.0	Н	32.84	13.54	23.78	56.62	37.32	74.00	54.00	-16.68
N/A	Н								
4884.0	V	31.97	10.20	24.01	55.98	34.21	74.00	54.00	-19.79
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11g/CH High	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4924.0	Н	32.41	11.58	23.78	56.19	35.36	74.00	54.00	-18.64
N/A	Н								
4924.0	V	31.58	10.42	24.01	55.59	34.43	74.00	54.00	-19.57
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11n/CH Low	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4824.0	Н	30.84	10.23	24.02	54.86	34.25	74.00	54.00	-19.75
N/A	Н								
4824.0	V	31.06	11.42	24.68	55.74	36.10	74.00	54.00	-17.90
N/A	V								

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "----" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11n/CH Mid	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4884.0	Н	31.59	11.09	24.02	55.61	35.11	74.00	54.00	-18.89
N/A	Н								
4884.0	V	30.52	10.42	24.68	55.20	35.10	74.00	54.00	-18.90
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

Operation Mode:	TX/ IEEE 802.11n/CH High	Test Date:	Aug. 28, 2012
Temperature:	20°C	Tested by:	Habby Guo
Humidity:	70 % RH	Polarity:	Ver. / Hor.

Freq.	Ant. Pol	Peak	AV	Ant. / CL	Actual Fs		Peak	AV	AV
(MHz)	H/V	Reading	Reading	CF			Limit	Limit	Margin
		(dBuV)	(dBuV)	(dB)	Peak	AV	(dBuV/m)	(dBuV/m)	(dB)
					(dBuV/m)	(dBuV/m)			
4924.0	Н	30.70	11.23	24.02	54.72	35.25	74.00	54.00	-18.75
N/A	Н								
4924.0	V	29.41	10.20	24.68	54.09	34.88	74.00	54.00	-19.12
N/A	V								

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
- 3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
- 4. Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:

margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

APPENDIX 1

PHOTOGRAPHS OF TEST SETUP



CONDUCTED SPURIOUS EMISSION TEST SETUP

-----END OF REPORT-----