

# **Test Report**

Report No.: MTi160413E001

Date of issue: Jul. 16, 2016

Sample Description: Wireless POS Terminal

Model(s): G3

Applicant: Shenzhen Xinguodu Technology Co., Ltd.

Address: 17/A, Jinsong Building Tairan Industry And Trading Garden

Shenzhen China

Date of Test: Jun. 04, 2016 to Jul. 14, 2016

Shenzhen Microtest Co., Ltd. http://www.mtitest.com

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Test Result Certification				
Applicant's name:	Shenzhen Xinguodu Technology Co., Ltd.			
Address:	17/A, Jinsong Building Tairan Industry And Trading Garden Shenzhen China			
Manufacture's Name:	Shenzhen Xinguodu Technology Co., Ltd.			
Address:	17/A, Jinsong Building Tairan Industry And Trading Garden Shenzhen China			
Product description				
Product name:	Wireless POS Terminal			
Trademark:	NEXGO			
Model name:	G3			
Standards:	FCC Part 15.247			
Test Procedure:	ANSI C63.10-2013 558074 D01 DTS Meas Guidance v03r05			

This device described above has been tested by Shenzhen Toby Technology Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:	David Ch	ien	
	David Chen	Jul. 16, 2016	
Reviewed by:	(en cho	^	
	Leon Chen	Jul. 16, 2016	
Approved by:	Jun (	iu.	
	Ares Liu	Jul. 16, 2016	



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# **Summary of Test Result**

Item	FCC Part No.	Description of Test	Result
1	15.203	Antenna requirement	Pass
2	15.207	AC power line conducted emission	Pass
3	15.247(b)(3)	Maximum output power	Pass
4	15.247(a)(2)	6dB emission bandwidth	Pass
5	15.247(e)	Power spectral density (PSD)	Pass
8	15.247(d)	Band edge & conducted spurious emission	Pass
9	15.247(d), 15.205, 15.209	Radiated emission	Pass



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# 1 General description

# 1.1 Feature of equipment under test (EUT)

Product name:	Wireless POS Terminal		
Model name:	G3		
Operating frequency range:	2412MHz~2462MHz for 802.11b/g/n20 mode		
WIFI feature:	⊠802.11b ⊠802.11g ⊠802.11n20 □802.11n40		
Modulation type:	DSSS, OFDM		
Power supply:	DC 7.4V form Polymer-Li-ion battery		
Adapter information:	Model: HKA02108525-8A Input: 100-240V~0.8A 50/60Hz Output: 8.5V 2.5A		

# 1.2 Operation channel list

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	6	2437MHz	11	2462MHz
2	2417MHz	7	2442MHz		
3	2422MHz	8	2447MHz		
4	2427MHz	9	2452MHz		
5	2432MHz	10	2457MHz		

# 1.3 Test frequency channel

Channel	802.11b/g/n20	802.11n40
Low	2412MHz	1
Middle	2437MHz	1
High	2462MHz	1



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# 1.4 EUT operation mode

During testing, RF test program provided by the manufacture to control the Tx operation followed the test requirement. The EUT is configured to transmit continuously (duty cycle > 98 %) at the maximum power control level.

#### 1.5 Test conditions

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

- Temperature: 20°C~30°C - Humidity: 30%~70%

- Atmospheric pressure: 98kPa~101kPa

# 1.6 Testing site

Test Site	Shenzhen Toby Technology Co., Ltd.		
Test Site Location	1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467, Shenzhen, Guangdong, China		
FCC Registration No.:	811562		
CNAS Registration No.:	CNAS L5813		

# 1.7 Ancillary equipment list

Equipmen	t Model	S/N	Manufacturer	Certificate type
/	1	1	1	/

# 1.8 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %



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# 2 List of test equipment

For AC power line conducted emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
LISN	R&S	ENV216	101313	2016.12.06
LISN	SCHWARZBECK	NNLK 8129	8129245	2016.12.25
Pulse Limiter	SCHWARZBECK	VTSD 9561F	9716	2016.12.25
Test Cable	N/A	N/A	C01	2016.12.06
EMI Test Receiver	R&S	ESCI	101160	2016.12.06

#### For Radiated emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Log-Bicon Antenna	MESS-ELEKTRO NIK	VULB 9160	3058	2016.12.11
Horn Antenna	Schwarzbeck	BBHA 9120D	631	2016.12.05
Horn Antenna	Schwarzbeck	BBHA 9170	373	2016.12.05
Test Cable	United Microwave	57793	1m	2016.12.05
Test Cable	United Microwave	A30A30-5006	10m	2016.12.05
Microwave Pre_amplifier	Agilent	8449B	3008A01714	2016.12.05
Pre-Amplifier	Anritsu	MH648A	M09961	2016.12.05
EMI Test Receiver	R&S	ESPI-7	101318	2016.12.05
Spctrum analyzer	Agient	E4470B	MY41441082	2017.06.01

# For RF conducted emission:

Equipment	Manufacturer Model		Serial No.	Calibration Due
Spctrum analyzer	Agient	E4470B	MY41441082	2017.06.01
Power meter	Anritsu	ML2495A	1005002	2016.09.11
Power Senor	Anritsu	MA2411B	0917070	2016.09.11

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



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# 3 Test Result

#### 3.1 Conducted emission

#### 3.1.1 Limit

Frequency	Li	imit	
(MHz)	Quasi-peak	Average	
0.15-0.5	66 to 56	56 to 46	
0.5-5	56	46	
5-30	60	50	

Note: Decreases with the logarithm of the frequency from 0.15MHz to 0.5MHz.

#### 3.1.2 Test method

- 1. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.
- 2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- 3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 4. LISN is at least 80 cm from nearest part of EUT chassis.
- 5. The resolution bandwidth of EMI test receiver is set at 9 kHz.

#### 3.1.3 Test Result



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Cilipcia	ature:	25℃			Relativ	e e		54%	6				
Pressure	):	101k	Pa	I	Polariz	ation:		L Transmitting					
Test volt	age:	AC 1	20V/60	Hz .	Test m	ode:							
100.0 dBu	υV												,
90													
80													
70													
60							FCCP	art15 C	lassB /	AC Condu	ction(QP)		
50							FCCPa	rt15 Cla	ssB A	Conduc	tion(AVG)		
50													
40	Munu	Valuanity W.	man digitani	VIII-ALTHANIMAN	Markillanda	er water by	e Mary Mary	Makali Marani	unda dan philip	noran da pantan	manadaya da ayada	Munn	
30												M	peak
20	annound .	war have been	والمرودة والمراجو المراجو المراجو	hushaihil		ry/vypiddydgyyg	(Made Haberralia)	elangean		- Maria de la companione de la companion	والمراجعة	d amount	AVG
20													
10													
0.0		0.5			(411-)							20.00	
10		0.5			(MHz)		5	i				30.00	] DO
0.0	. Freq.	Reading	Correct	Measurement	(MHz)	Over	5	i				30.00	00
0.0	. Freq.		Correct Factor	Measure- ment dBuV		Over dB	5 Detector		mment			30.00	00
0.0		Reading Level	Factor	ment	Limit	dB			mment			30.00	000
0.0 0.150 No. Mk	MHz	Reading Level	Factor dB	ment dBuV	Limit	dB -31.23	Detector		mment			30.00	000
10 0.0 0.150 No. Mk	MHz 0.1971	Reading Level dBuV 2.48	Factor dB 30.02	ment dBuV 32.50	Limit dBuV 63.73	dB -31.23 -24.67	Detector QP		mment			30.00	00
10 0.0 0.150 No. Mk	0.1971 0.1971 0.9455 0.9455	Reading Level dBuV 2.48 -0.96 2.09 -0.58	Factor dB 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44	Limit dBuV 63.73 53.73 56.00 46.00	dB -31.23 -24.67 -23.89 -16.56	Detector QP AVG QP AVG		mment			30.00	00
10 0.0 0.150 No. Mk	MHz 0.1971 0.1971 0.9455 0.9455 1.2721	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16	Factor dB 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86	Limit dBuV 63.73 53.73 56.00 46.00 56.00	dB -31.23 -24.67 -23.89 -16.56 -28.14	Detector QP AVG QP AVG		mment			30.00	000
10 0.0 0.150 No. Mk	MHz 0.1971 0.1971 0.9455 0.9455 1.2721	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16 -4.77	30.02 30.02 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86 25.25	Limit dBuV 63.73 53.73 56.00 46.00 46.00	dB -31.23 -24.67 -23.89 -16.56 -28.14 -20.75	Detector QP AVG QP AVG QP AVG		mment			30.00	000
No. Mk  1 2 3 4 * 5 6 7	MHz 0.1971 0.1971 0.9455 0.9455 1.2721 1.2721 1.9068	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16 -4.77 -1.88	Factor dB 30.02 30.02 30.02 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86 25.25 28.14	Limit dBuV 63.73 53.73 56.00 46.00 56.00 56.00	dB -31.23 -24.67 -23.89 -16.56 -28.14 -20.75 -27.86	Detector QP AVG QP AVG QP AVG QP AVG		mment			30.00	000
No. Mk  1 2 3 4 * 5 6 7 8	MHz 0.1971 0.1971 0.9455 0.9455 1.2721 1.2721 1.9068 1.9068	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16 -4.77 -1.88 -4.71	Factor dB 30.02 30.02 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86 25.25 28.14 25.31	Limit dBuV 63.73 53.73 56.00 46.00 56.00 46.00 46.00	dB -31.23 -24.67 -23.89 -16.56 -28.14 -20.75 -27.86 -20.69	Detector QP AVG QP AVG QP AVG QP AVG		mment			30.00	000
10 0.0 0.150 No. Mk 1 2 3 4 * 5 6 7 8	MHz 0.1971 0.1971 0.9455 0.9455 1.2721 1.9068 1.9068 3.5747	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16 -4.77 -1.88 -4.71 0.14	30.02 30.02 30.02 30.02 30.02 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86 25.25 28.14 25.31 30.18	Limit dBuV 63.73 53.73 56.00 46.00 56.00 46.00 56.00 56.00	dB -31.23 -24.67 -23.89 -16.56 -28.14 -20.75 -27.86 -20.69 -25.82	Detector QP AVG QP AVG QP AVG QP AVG QP AVG		mment			30.00	000
No. Mk  1 2 3 4 * 5 6 7 8	MHz 0.1971 0.1971 0.9455 0.9455 1.2721 1.2721 1.9068 1.9068	Reading Level dBuV 2.48 -0.96 2.09 -0.58 -2.16 -4.77 -1.88 -4.71	Factor dB 30.02 30.02 30.02 30.02 30.02 30.02 30.02	ment dBuV 32.50 29.06 32.11 29.44 27.86 25.25 28.14 25.31	Limit dBuV 63.73 53.73 56.00 46.00 56.00 46.00 46.00	dB -31.23 -24.67 -23.89 -16.56 -28.14 -20.75 -27.86 -20.69 -25.82 -20.47	Detector QP AVG QP AVG QP AVG QP AVG		mment			30.00	000



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Tempe	erature	e:	25°C	2	F	Relati	ve		54%			
Pressu	ıre:		101	kPa	1	Polarization: N				N		
Test v	oltage	:	AC	120V/60	Hz -	Test m	node:		Transmitting			
100.0	dBu∀											
90												
80												
70												
"								FCCE	Part15 ClassR A	AC Conduction(QP)		
60		_	-					1001	dicio ciusab A	se conduction(qr)		
50								FCCPa	art15 ClassB AC	Conduction(AVG)		
\ 												
40	$\sqrt{\lambda}_{uv}$	2mm	www	Whater LA Market	Marina Angelyan	w Xum du	and white will	latter abilities was	markathan tan karan	general market property of	Mudmy	peak
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~		~~~~	home	Contraction desired	hulhalla	wayyy	LALLANDANIAN	Market Market Market	degreedigag-day, principality		والمستسم	AVG
20												
10												
0.0												
0.150	)		0.5	5		(MHz)		,	5		30.000	)
-			Reading	Correct	Measure-							
No.	Mk.	Freq.	Level	Factor	ment	Limit	Over					
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment			
1		1888	0.71	30.02	30.73	64.08	-33.35	QP				
2	0	1888										
_			-2.63	30.02	27.39		-26.69	AVG				
3	0.	5563	-0.61	30.02	29.41	56.00	-26.59	QP				
4	0.	5563 5563	-0.61 -4.01	30.02 30.02	29.41 26.01	56.00 46.00	-26.59 -19.99	QP AVG				
4 5	0. 0. 0.	5563 5563 9534	-0.61 -4.01 1.04	30.02 30.02 30.02	29.41 26.01 31.06	56.00 46.00 56.00	-26.59 -19.99 -24.94	QP AVG QP				
4 5 6	0. 0. 0. * 0.	5563 5563 9534 9534	-0.61 -4.01 1.04 -1.80	30.02 30.02 30.02 30.02	29.41 26.01 31.06 28.22	56.00 46.00 56.00 46.00	-26.59 -19.99 -24.94 -17.78	QP AVG QP AVG				
4 5 6 7	0. 0. 0. * 0.	5563 5563 9534 9534 7504	-0.61 -4.01 1.04 -1.80 -1.44	30.02 30.02 30.02 30.02 30.02	29.41 26.01 31.06 28.22 28.58	56.00 46.00 56.00 46.00 56.00	-26.59 -19.99 -24.94 -17.78 -27.42	QP AVG QP AVG QP				
4 5 6 7 8	0. 0. * 0. 1.	5563 5563 9534 9534 7504	-0.61 -4.01 1.04 -1.80 -1.44 -4.06	30.02 30.02 30.02 30.02 30.02 30.02	29.41 26.01 31.06 28.22 28.58 25.96	56.00 46.00 56.00 46.00 56.00 46.00	-26.59 -19.99 -24.94 -17.78 -27.42 -20.04	QP AVG QP AVG QP AVG				
4 5 6 7 8 9	0. 0. * 0. 1. 1.	5563 5563 9534 9534 7504 7504 1903	-0.61 -4.01 1.04 -1.80 -1.44 -4.06 -0.88	30.02 30.02 30.02 30.02 30.02 30.02 30.04	29.41 26.01 31.06 28.22 28.58 25.96 29.16	56.00 46.00 56.00 46.00 56.00 56.00	-26.59 -19.99 -24.94 -17.78 -27.42 -20.04 -26.84	QP AVG QP AVG QP AVG QP				
4 5 6 7 8	0. 0. * 0. 1. 1. 3.	5563 5563 9534 9534 7504	-0.61 -4.01 1.04 -1.80 -1.44 -4.06	30.02 30.02 30.02 30.02 30.02 30.02	29.41 26.01 31.06 28.22 28.58 25.96	56.00 46.00 56.00 46.00 56.00 46.00 56.00	-26.59 -19.99 -24.94 -17.78 -27.42 -20.04	QP AVG QP AVG QP AVG				



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### 3.2 Antenna requirement

### 3.2.1 Requirement defined in FCC 15.203

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

# 3.2.2 EUT antenna description

The WIFI antenna of EUT is an internal permanently attached PCB antenna, the maximum gain of the antenna is 2dBi. So the antenna meets the requirement of this part.



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# 3.3 Maximum output power

### 3.3.1 **Limits**

Conducted output power limit is 1W (30dBm).

# 3.3.2 Test Method

The maximum conducted output power may be measured using a broadband RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

#### 3.3.3 Test Result

Frequency (MHz)	Maximum peak output power (dBm)	Maximum Average output power (dBm)	Limit (dBm)
		802.11b	
2412	16.51	14.75	30
2437	16.52	14.83	30
2462	16.21	14.51	30
		802.11g	
2412	15.29	12.07	30
2437	15.22	11.73	30
2462	15.21	11.86	30
		802.11n20	
2412	14.71	11.36	30
2437	14.76	11.38	30
2462	14.73	11.31	30



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# 3.4 6dB emission bandwidth

#### 3.4.1 **Limits**

The minimum 6 dB bandwidth shall be at least 500 kHz.

#### 3.4.2 Test method

Use the following spectrum analyzer settings:

RBW = 100kHz VBW ≥ 3RBW Detector = peak

Trace mode = max hold

Sweep time = auto couple

Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 3.4.3 Test result

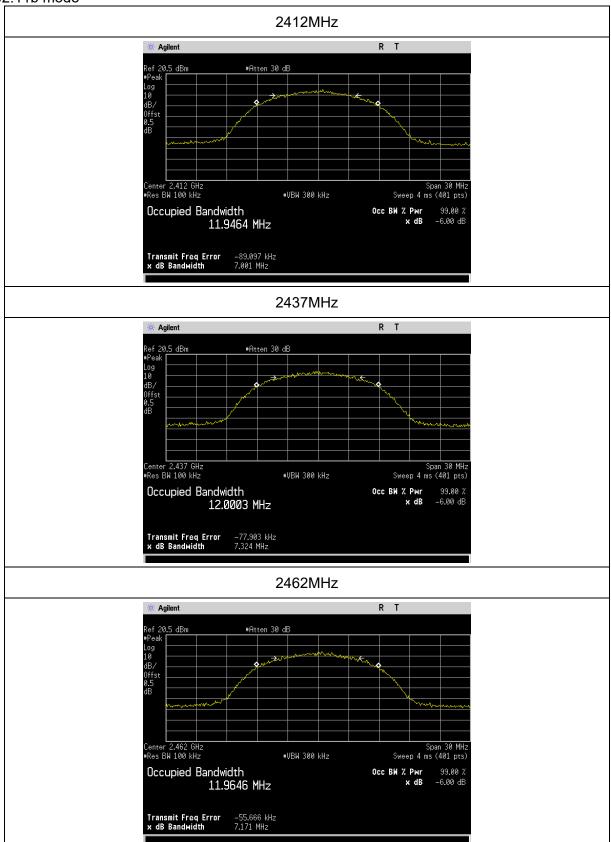
Frequency (MHz)	6dB emission bandwidth (MHz)	Limit	
	802.11b		
2412	7.001		
2437	7.324	500kHz	
2462	7.171		
	802.11g		
2412	16.291		
2437	15.792	500kHz	
2462	15.911		
	802.11n20		
2412	16.315		
2437	16.616	500kHz	
2462	16.28		

Test plots as below:



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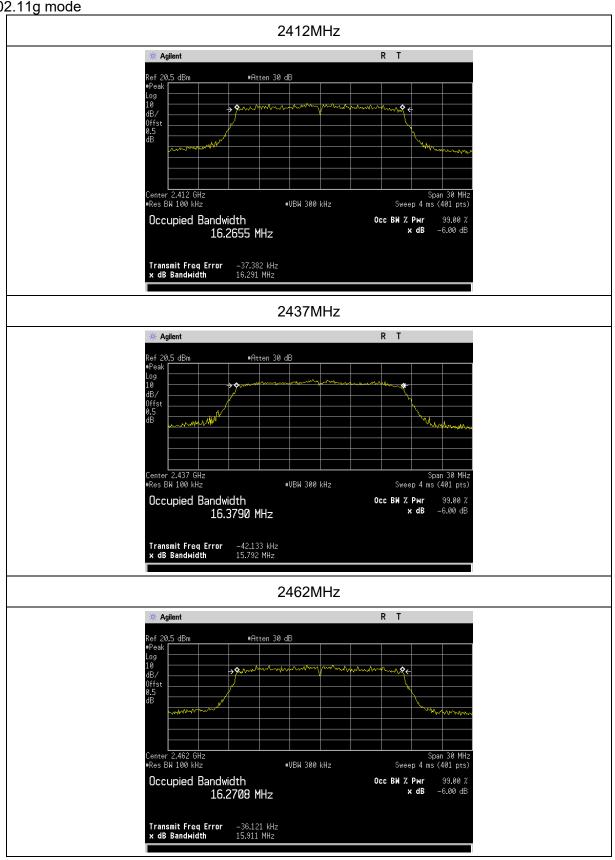
# 802.11b mode





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802.11g mode

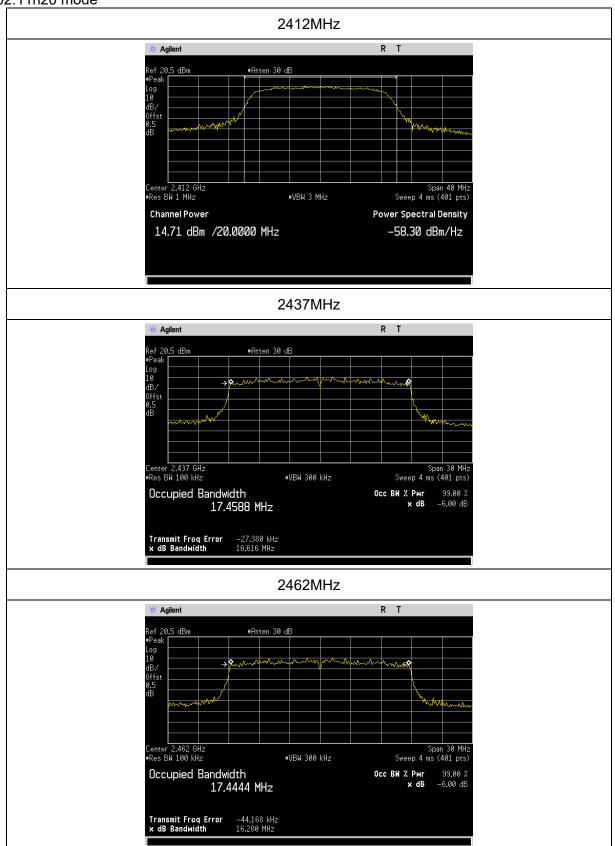


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# 802.11n20 mode





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# 3.5 Power spectral density

#### 3.5.1 **Limits**

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

### 3.5.2 Test method

Span = 1.5 times DTS bandwidth (6dB emission bandwidth, see section 4.4)

RBW = 3kHz to 100kHz

VBW ≥ 3RBW

Detector = RMS

Sweep time = auto

Trace mode = max hold

Allow the trace to stabilize. Use the peak marker function to determine the maximum amplitude level within the RBW.

#### 3.5.3 Test result

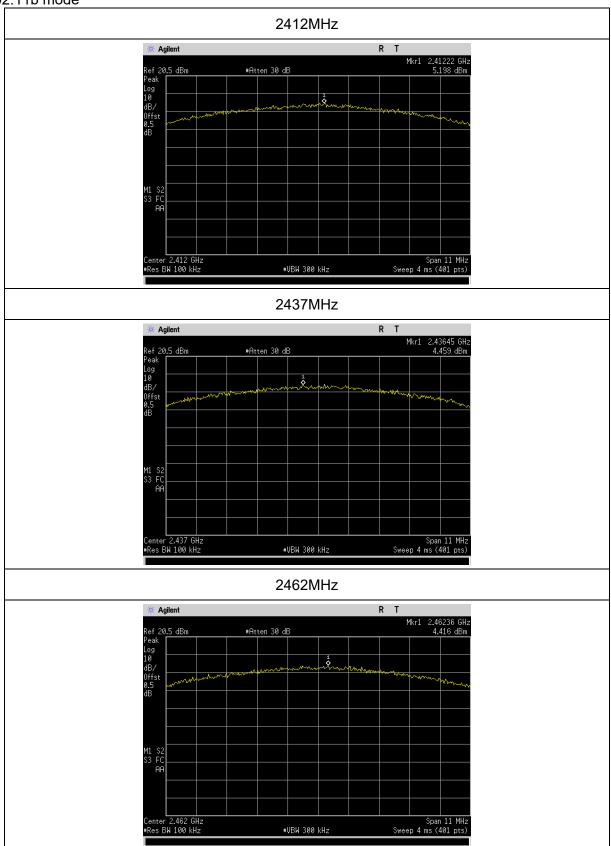
Frequency (MHz)	PSD (dBm/100kHz)	Limit (dBm/3kHz)					
	802.11b						
2412	5.198						
2437	4.459	8					
2462	4.416						
	802.11g						
2412	1.187						
2437	0.964	8					
2462	0.737						
	802.11n20						
2412	1.051						
2437	1.164	8					
2462	0.631						

Test plots as below:



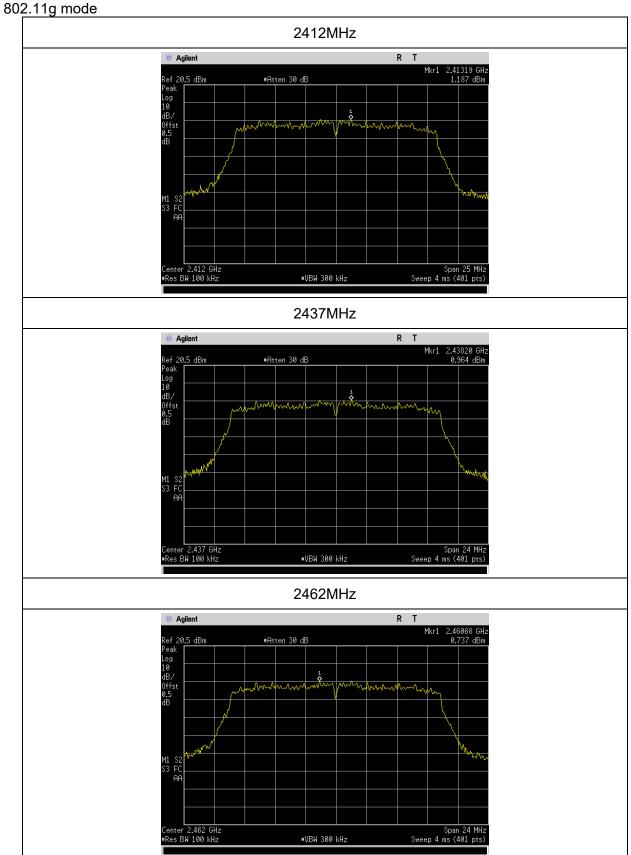
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# 802.11b mode





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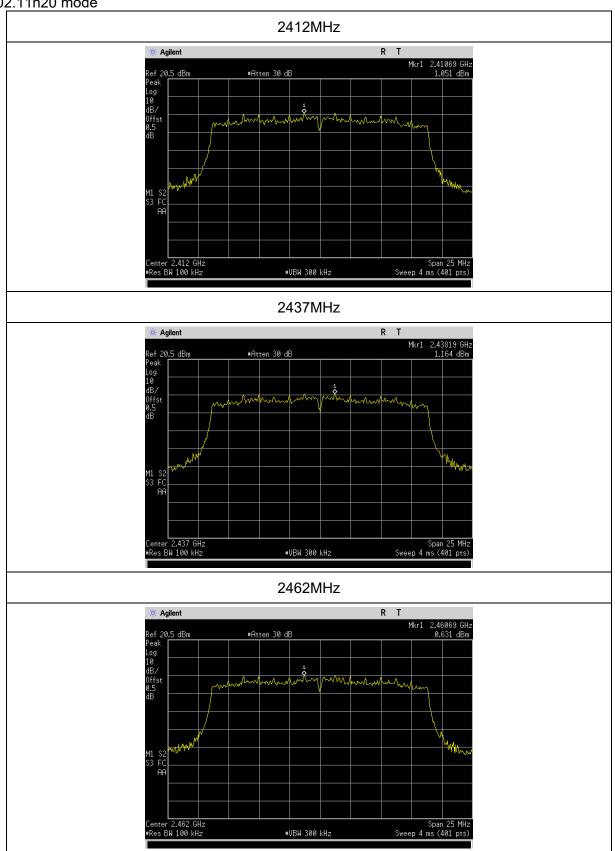


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# 802.11n20 mode



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# 3.6 Band edge

#### 3.6.1 Limit

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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30dB instead of 20dB.

#### 3.6.2 Test method

Use the following spectrum analyzer settings:

Set RBW = 100 kHz. VBW ≥ 3RBW. Detector = peak, Sweep time = auto couple, Trace mode = max hold.

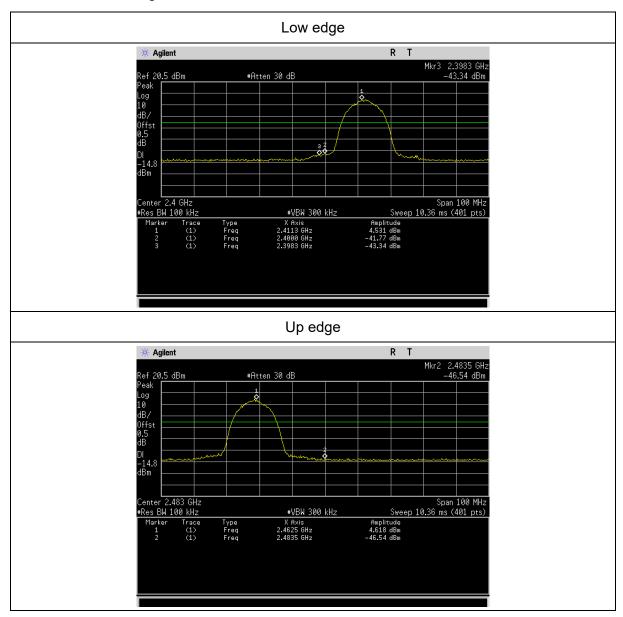
#### 3.6.3 Test Result

Test plots as below:



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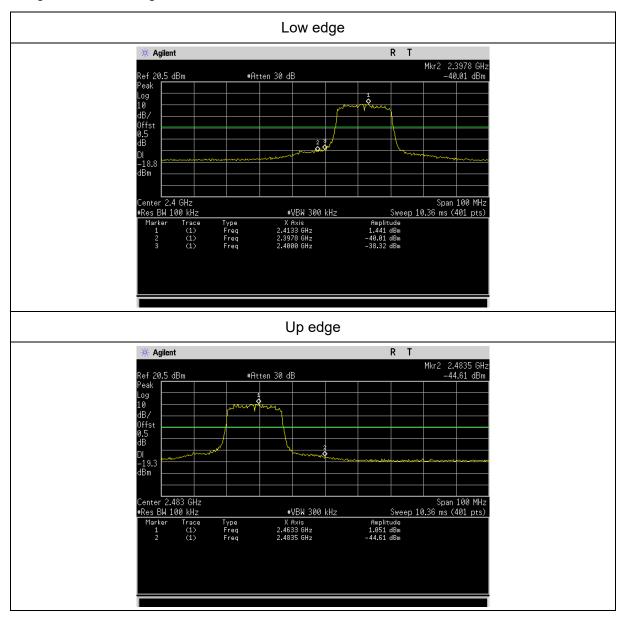
# 802.11b mode, Band edge





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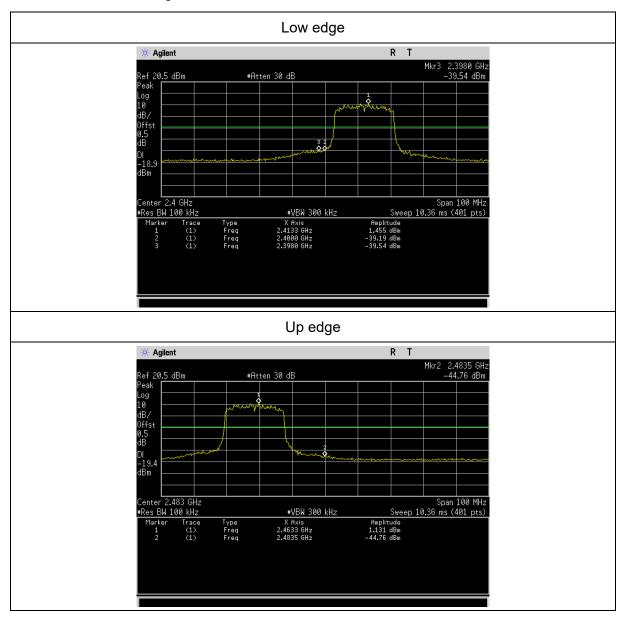
# 802.11g mode, Band edge





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# 802.11n20 mode, Band edge





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#### 3.7 Radiated emission

#### 3.7.1 Limit

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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20dB. Attenuation below the general limits defined 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 defined in §15.209(a).

# Radiated emission limits defined in FCC 15.209:

Frequency (MHz)	Field strength µV/m	Field strength dBµV/m	Detector	Measurement distance
30-88	100	40	QP	
88-216	150	43.5	QP	
216-960	200	46	QP	2
960-1000	500	46	QP	3m
Above 1000	500	54	AV	
Above 1000	5000	74	PK	

#### Restricted bands defined in FCC 15.205:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			



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#### 3.7.2 Test method

- 1. The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range blew 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.
- 2. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 3. Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured, RBW = 1 MHz for  $f \ge 1$ GHz, 100 kHz for f < 1 GHz, VBW  $\ge R$ BW, Sweep = auto, Detector function = peak, Trace = max hold

- 4. Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 5. Set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the duty cycle per channel of the hopping signal is less than 100ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log(duty cycle/100ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

#### 3.7.3 Test Result

#### Remark:

If the PK measured values lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.



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802.11b: 241	2MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBμV/m	dBμV/m			
388.74	V	29.6	46	QP		Spurious emission
388.74	Н	35.1	46	QP		Spurious emission
2390	V	49.31	74	PK		Restricted bands
2390	Н	50.63	74	PK		Restricted bands
4824	V	52.58	74	PK	Pass	Restricted bands
4824	Н	57.23	74	PK		Restricted bands
4824	Н	53.07	54	AVG		Restricted bands
7236	V	53.13	74	PK		Spurious emission
7236	Н	52.79	74	PK		Spurious emission
802.11b: 243	7MHz			•		
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBμV/m	dBµV/m	1		
388.74	V	29.2	46	QP		Spurious emission
388.74	Н	36.4	46	QP		Spurious emission
4874	V	51.16	74	PK		Restricted bands
4874	Н	56.66	74	PK	Pass	Restricted bands
4874	Н	52.88	54	AVG		Restricted bands
7311	V	52.07	74	PK		Restricted bands
7311	Н	52.75	74	PK		Restricted bands
802.11b: 246	2MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector		Comment
(MHz)	H/V	dBμV/m	dBµV/m			
388.74	V	28.6	46	QP		Spurious emission
388.74	Н	35.4	46	QP		Spurious emission
2483.5	V	47.24	74	PK		Restricted bands
2483.5	Н	46.23	74	PK	Pass	Restricted bands
4924	V	52.11	74	PK		Restricted bands
4924	Н	55.1	74	PK		Restricted bands
4924	Н	51.41	54	AVG		Restricted bands
7386	V	52.39	74	PK		Restricted bands
7386	Н	50.63	74	PK		Restricted bands



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802.11g: 241	2MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBμV/m	dBµV/m			
388.74	V	29.4	46	QP		Spurious emission
388.74	Н	36.3	46	QP		Spurious emission
2390	V	57.83	74	PK		Restricted bands
2390	V	47.25	54	AVG		Restricted bands
2390	Н	62.32	74	PK	Daga	Restricted bands
2390	Н	49.16	54	AVG	Pass	Restricted bands
4824	V	50.69	74	PK		Restricted bands
4824	Н	50.5	74	PK		Restricted bands
7236	V	53.55	74	PK		Spurious emission
7236	Н	52.23	74	PK		Spurious emission
802.11g: 243	7MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBμV/m	dBµV/m			
388.74	V	27.6	46	QP		Spurious emission
388.74	Н	34.9	46	QP		Spurious emission
4874	V	51.46	74	PK	Door	Restricted bands
4874	Н	51.06	74	PK	Pass	Restricted bands
7311	V	52.19	74	PK		Restricted bands
7311	Н	50.34	74	PK		Restricted bands
802.11g: 246	2MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector		Comment
(MHz)	H/V	dBμV/m	dBµV/m			
388.74	V	28.1	46	QP		Spurious emission
388.74	Н	35.4	46	QP		Spurious emission
2483.5	V	57.7	74	PK		Restricted bands
2483.5	V	45.07	54	AVG	Pass	Restricted bands
2483.5	Н	61.01	74	PK		Restricted bands
2483.5	Н	49.83	54	AVG		Restricted bands
4924	V	53.46	74	PK		Restricted bands
4924	Н	51.33	74	PK	]	Restricted bands
7386	V	52.93	74	PK		Restricted bands
7386	Н	52.03	74	PK		Restricted bands



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802.11n20: 2	412MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBµV/m	dBµV/m			
388.74	V	29	46	QP		Spurious emission
388.74	Н	36.4	46	QP		Spurious emission
2390	V	64.8	74	PK		Restricted bands
2390	V	47.68	54	AVG		Restricted bands
2390	Н	67.79	74	PK	Door	Restricted bands
2390	Н	48.9	54	AVG	Pass	Restricted bands
4824	V	50.81	74	PK		Restricted bands
4824	Н	51.9	74	PK		Restricted bands
7236	V	51.21	74	PK		Spurious emission
7236	Н	50.08	74	PK		Spurious emission
802.11n20: 2	437MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result	Comment
(MHz)	H/V	dBµV/m	dBµV/m			
388.74	V	27.5	46	QP		Spurious emission
388.74	Н	35.7	46	QP		Spurious emission
4874	V	49.33	74	PK	Pass	Restricted bands
4874	Н	52.34	74	PK	F a 5 5	Restricted bands
7311	V	49.51	74	PK		Restricted bands
7311	Н	50.88	74	PK		Restricted bands
802.11n20: 2	462MHz					
Frequency	Ant. Polarization	Emission level	Limits	Detector		Comment
(MHz)	H/V	dBµV/m	dBµV/m			
388.74	V	28.3	46	QP		Spurious emission
388.74	Н	35.1	46	QP		Spurious emission
2483.5	V	62.03	74	PK		Restricted bands
2483.5	V	47.62	54	AVG	Pass	Restricted bands
2483.5	Н	66.33	74	PK		Restricted bands
2483.5	Н	51.71	54	AVG	]	Restricted bands
4924	V	51.58	74	PK		Restricted bands
4924	Н	50.01	74	PK	]	Restricted bands
7386	V	52.09	74	PK	]	Restricted bands
7386	Н	51.94	74	PK		Restricted bands

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