CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID TEST REPORT

TEST REPORT NUMBER : CGZ3150209-00162-EF

CENTRE OF TESTING SERVICE CO., LTD.

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

TEST REPORT For FCC ID

47 CFR PART 15 OCT, 2014

Report Reference No.	CGZ3150209-00162-EF
Date of issue	11 February 2015
Testing Laboratory Name	**CENTRE OF TESTING SERVICE CO., LTD.**
Address	A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China
Testing location/ procedure	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's name	Worldpicom Corporation
Address	Yokohama Landmark Tower 9F, 2-2-1 Minatomirai, Nishi-ku,Yokohama, Japan
Test specification	
Standard	**47 CFR PART 15 OCT, 2014**
Test Report Form No.	CTSEMC-1.0
TRF Originator	CENTRE OF TESTING SERVICE CO., LTD.
Master TRF	Dated 2009-01

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Test item description.....	Table Terminal
Trade Mark.....	/
Manufacturer.....	Leo Electronics (Hong Kong) Limited
Model/Type reference.....	WP-D801
Ratings.....	Battery 7.4V DC 12V by Adpater for Charging; Adapter Input: AC 100-240V, 50/60Hz; Output:DC 12V
Operating Frequency.....	802.11b/g :2412.0 MHz~2462.0 MHz
Result	**Positive**

Compiled by:	Supervised by:	Approved by:
Kate zhang / Fileadministrators	Duke yang / Technique principal	Vincent yao / Manager

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FCC ID -- T E S T R E P O R T

Test Report No. : **CGZ3150209-00162-EF**	11 February 2014 Date of issue

Type / Model.....	WP-D801
EUT.....	Table Terminal
Applicant……	Worldpicom Corporation
Address.....	Yokohama Landmark Tower 9F, 2-2-1 Minatomirai, Nishi-ku,Yokohama, Japan
Telephone.....	+86-755-29735015
Fax.....	+86-755-29567380
Contact.....	BENSON MA
Manufacturer……	Leo Electronics (Hong Kong) Limited
Address.....	25 King's Road Room 702B-3, 7/F North Point, Hong Kong
Telephone.....	+852-28800398
Fax.....	+852-25650485
Contact.....	Hoshino
Test report holder……	Worldpicom Corporation
Address.....	Yokohama Landmark Tower 9F, 2-2-1 Minatomirai, Nishi-ku,Yokohama, Japan
Telephone.....	+86-755-29735015
Fax.....	+86-755-29567380
Contact.....	BENSON MA

Test Result according to the standards on page 1: **PASSED**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1.0 TEST STANDARDS

The tests were performed according to following standards:

- **47 CFR PART 15 OCT, 2014**
- **ANSI C63.4-2009**

2.0 SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	09 February 2015
Testing commenced on	09~11 February 2015
Testing concluded on	11 February 2015

2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes are

■ - fulfilled.
☐ - **not** fulfilled.

The equipment under test

■ - fulfils the FCC requirements cited on page 1.
☐ - **does not** fulfil the FCC requirements cited on page 1.

3.0 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage : ■ Battery 7.4V, AC 120V/60Hz for adapter

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: **1**
Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

☐ - Standby
☐ TX- Y position
☐ TX- Zposition
■ TX- X position

802.11b/g:TX-X Position Low (2412.0 MHz) , TX-X Position Middle (2437.0 MHz),
TX-X Position High (2462.0 MHz)
Charging

Note:Operation mode TX -X position of EUT is the radiated test worst case. So only these test results be recorded in the test report.

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3.4 EUT configuration

3.4.1. Description of configuration (EUT)

Description	:	Table Terminal
Model Number	:	WP-D801
Operation frequency	:	802.11b/g:2412.0 MHZ~2462.0 MHz
WiFi	:	802.11:b/g
Modulation Technology	:	DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64QAM
Date Rate		802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
Antenna 1	:	Internal antenna, met requirement of FCC 15.203

3.4.2. Tested Supporting System Details

3.4.2.1. Notebook

M/N	:	N/A
S/N	:	N/A
Manufacturer	:	Fujitsu
Power Cord	:	Unshielded, Detachabled, 1.5m , 3Pin
FCC ID	:	By DoC

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4.0 TEST ENVIRONMENT

4.1 Address of the test laboratory

A101，No.65，Zhuji Highway,Tianhe District，Guangzhou, China

Tel：+86-20-85543113 (32 lines) Fax：+86-20-38780406

4.2 Test facility

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

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on May 22, 2014.

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.791995, July 13,2012.

4.3 Environmental conditions

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

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 Definitions of symbols used in this test report

■ - The black square indicates that the listed condition, standard or equipment is applicable for this report.

□ - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)
	1GHz~26.5GHz	±3.54dB	(1)

(1).This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5.0 Summary of standards and results

5.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Conducted Emission Test	FCC Part 15 : 15.207 ANSI C63.4-2009	PASSED
6dB Bandwidth Measurement	FCC Part 15.247(a)(2) ANSI C63.4-2009	PASSED
Output Power	FCC Part 15.247(b)(3)(4) ANSI C63.4-2009	PASSED
Peak Power Spectral Density	15.247(e) Power Density ANSI C63.4-2009	PASSED
Band edges measurement	FCC Part 15.247(d) ANSI C63.4-2009	PASSED
Spurious Emissions	FCC Part 15: 15.209 ANSI C63.4-2009	PASSED
Antenna Requirements	FCC Part 15: 15.203 ANSI C63.4-2009	PASSED
N/A is an abbreviation for Not Applicable.		

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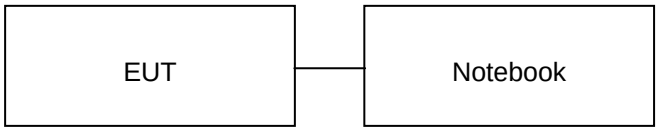
6.0 Power Line Conducted Emission Test

6.1.Test Equipment

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842884/012	2014/11
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2014/11
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/026	2014/11
4	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100301	2014/11
5	EMI Test Software	EZ-EMC	Farad	N/A	N/A

6.2. Block Diagram of Test Setup



(EUT: Table Terminal***)***

6.3. Power Line Conducted Emission Test Limits

Standard: FCC Part 15 : 15.207,ANSI C63.4-2009

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.4.Test Procedure

The Adapter Power connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). This provides a 50 ohm coupling impedance for the EUT. Please refer the block diagram of the test setup and photographs. The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#1). Power on the PC and let it work normally, we use a keyboard test soft ware, let EUT working in test mode, then test it. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC Part 15C on Conducted Emission Test.

6.5. Power Line Conducted Emission Test Results

PASSED.

The frequency range from 150KHz~30MHz is investigated. Please see the following pages.

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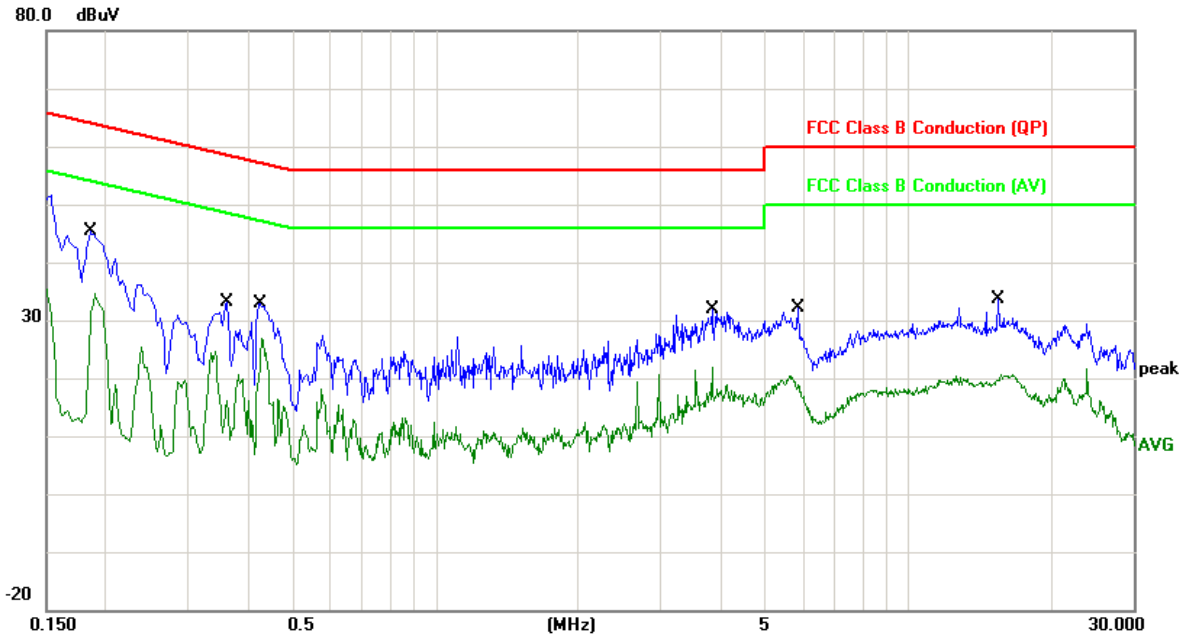
Test point: L Frequency range: 0.15MHz~30MHz		Result:	■ - passed ☐ - not passed

EUT	Table Terminal
Operating Condition	TX
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Operator	**Duke**
MODEL NO	WP-D801



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1860	9.78	31.12	40.90	64.21	-23.31	QP
2	0.1860	9.78	15.38	25.16	54.21	-29.05	AVG
3	0.3620	9.81	20.25	30.06	58.68	-28.62	QP
4	0.3620	9.81	2.26	12.07	48.68	-36.61	AVG
5	0.4260	9.82	21.60	31.42	57.33	-25.91	QP
6	0.4260	9.82	12.86	22.68	47.33	-24.65	AVG
7	3.8580	9.90	17.03	26.93	56.00	-29.07	QP
8	3.8580	9.90	11.70	21.60	46.00	-24.40	AVG
9	5.8420	9.91	13.80	23.71	60.00	-36.29	QP
10	5.8420	9.91	7.67	17.58	50.00	-32.42	AVG
11	15.4820	9.95	14.19	24.14	60.00	-35.86	QP
12	15.4820	9.95	8.56	18.51	50.00	-31.49	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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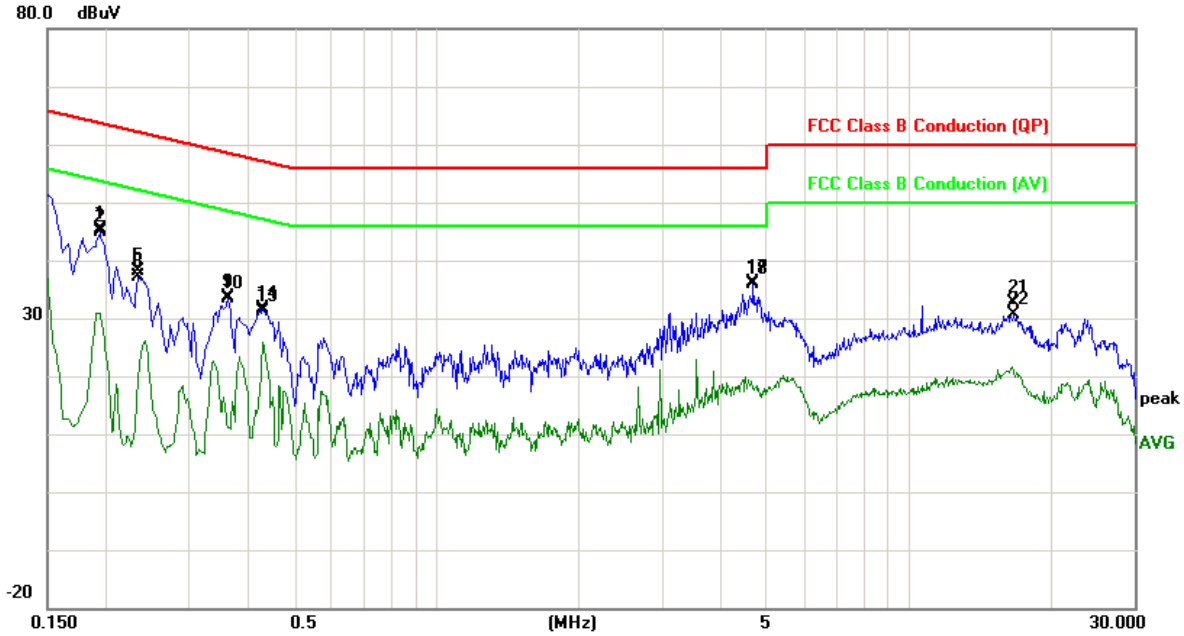
Test point:	N	Result:	■ - passed
Frequency range:	0.15MHz~30MHz		☐ - not passed



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1940	9.78	31.30	41.08	63.86	-22.78	QP
2	0.1940	9.78	19.96	29.74	53.86	-24.12	AVG
3	0.2340	9.78	22.39	32.17	62.31	-30.14	QP
4	0.2340	9.78	7.25	17.03	52.31	-35.28	AVG
5	0.3620	9.81	19.53	29.34	58.68	-29.34	QP
6	0.3620	9.81	2.02	11.83	48.68	-36.85	AVG
7	0.4305	9.82	19.35	29.17	57.24	-28.07	QP
8	0.4305	9.82	12.44	22.26	47.24	-24.98	AVG
9	4.6860	9.91	17.06	26.97	56.00	-29.03	QP
10	4.6860	9.91	6.72	16.63	46.00	-29.37	AVG
11	16.6860	9.96	15.31	25.27	60.00	-34.73	QP
12	16.6860	9.96	9.57	19.53	50.00	-30.47	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Note:Level=Reading+Factor. Margin= Level-Limit

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7.0 6dB BANDWIDTH MEASUREMENT

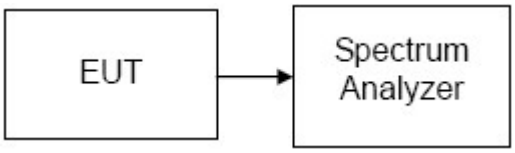
7.1 LIMITS

According to §15.247(a)(2), 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.

7.2 MEASUREMENT EQUIPMENT USED

6dB Bandwidth					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4440A	------	07/16/2014

7.3 TEST CONFIGURATION



7.4 TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Span =1.5 times of bandwidth, Sweep = auto.
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated

7.5 TEST RESULTS

Modulation Standard	Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (KHz)	Result
802.11b	Low	2412	9.98	>500	PASSED
	Middle	2437	9.98		PASSED
	High	2462	10.03		PASSED
802.11g	Low	2412	16.57	>500	PASSED
	Middle	2437	16.56		PASSED
	High	2462	16.56		PASSED

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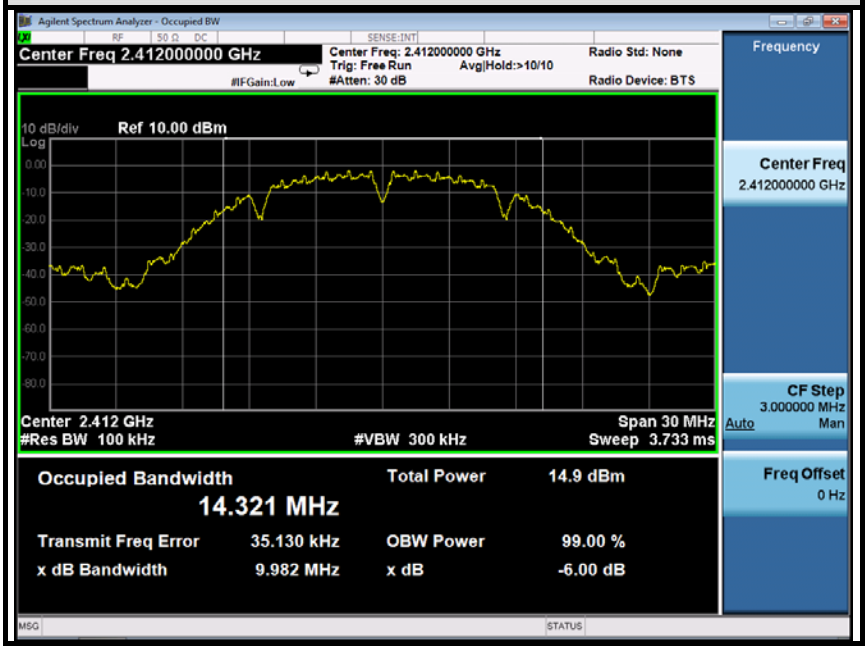
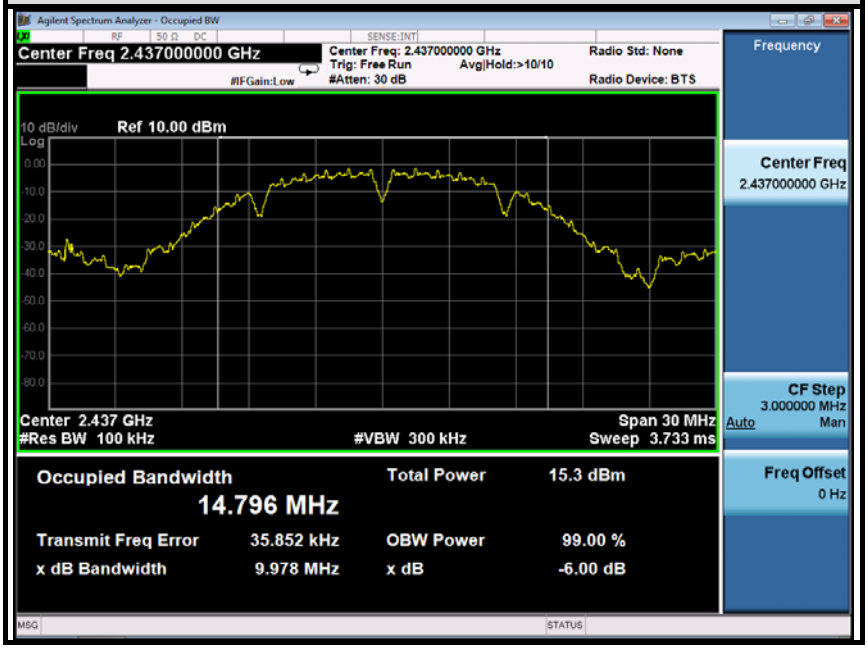
Test Plot

Modulation Standard: 802.11b 6dB Bandwidth CH Low



Modulation Standard: 802.11b 6dB Bandwidth CH Middle



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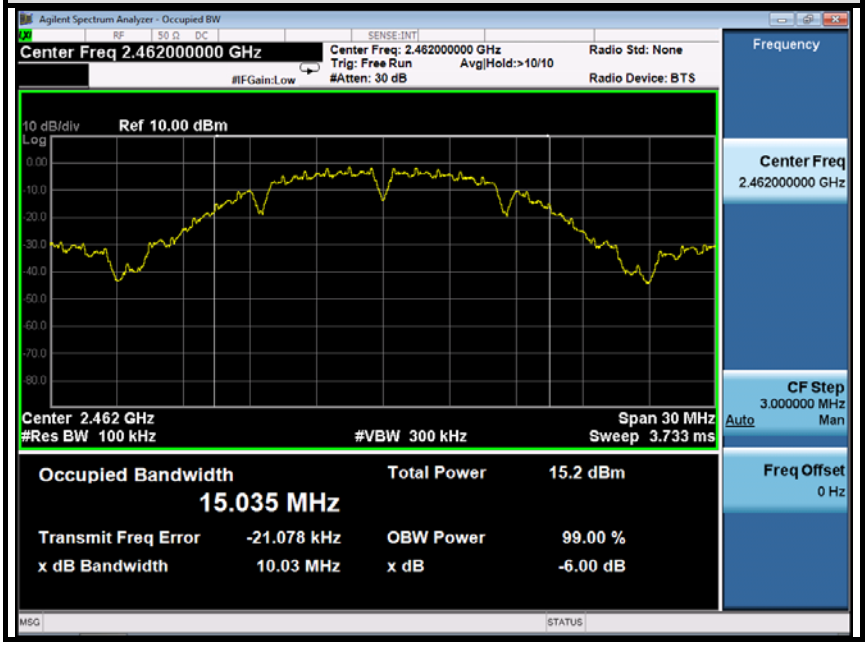
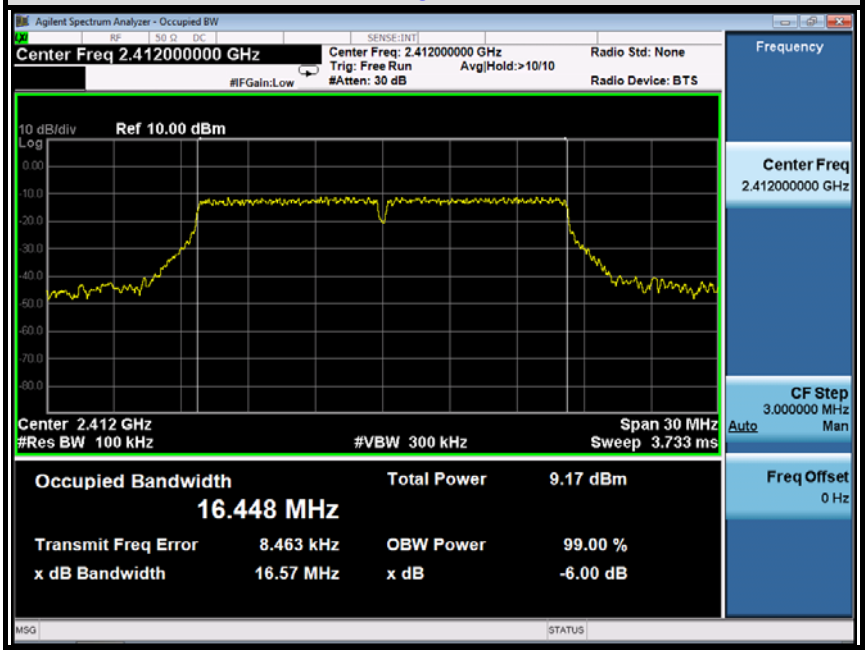
Modulation Standard: 802.11b **6dB Bandwidth CH High**



Modulation Standard: 802.11g **6dB Bandwidth CH Low**



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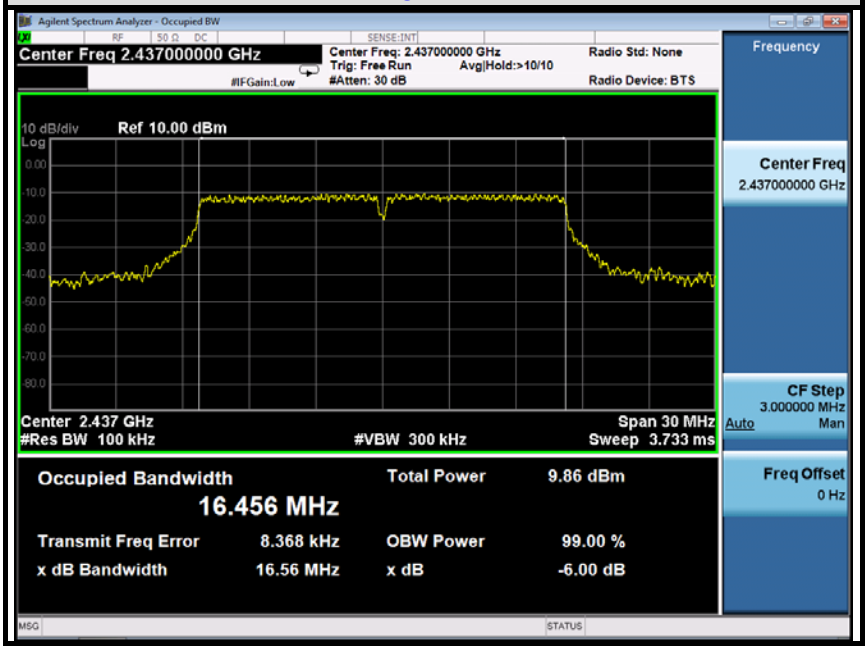
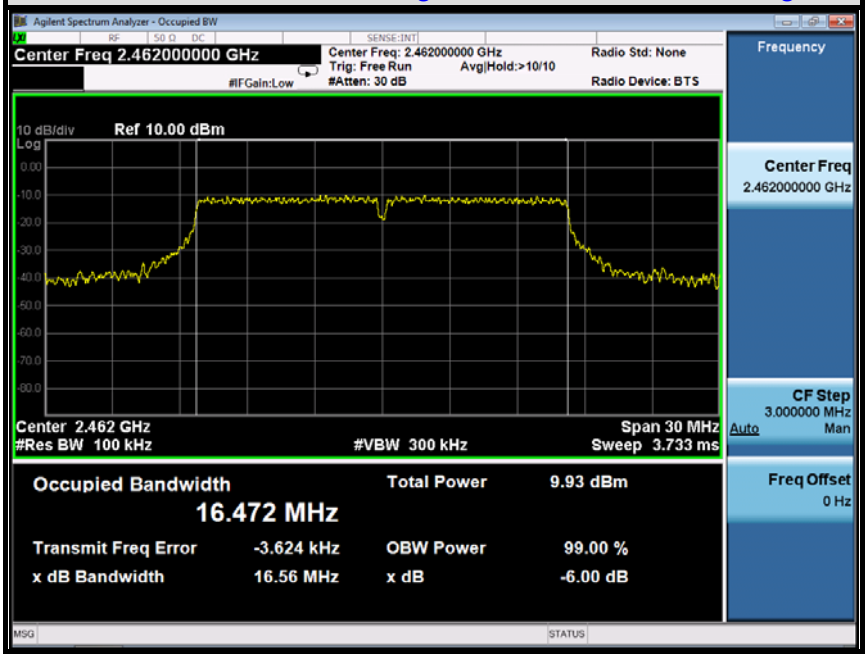
Modulation Standard: 802.11g **6dB Bandwidth CH Middle**



Modulation Standard: 802.11g **6dB Bandwidth CH High**



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8.0 OUTPUT POWER

8.1 LIMIT

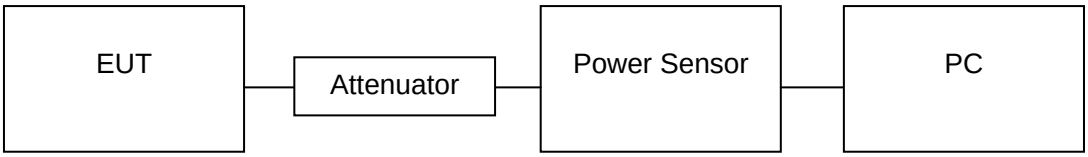
The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 MEASUREMENT EQUIPMENT USED

Peak Power					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Power Sensor	R&S	NRP-Z23	------	07/16/2014
2	RF attenuator	WEINSCHEL CORP	58-30-33		07/25/2014

8.3 TEST CONDIGURATION



8.4 TEST PROCEDURE

For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note： The EUT was tested according to KDB 558074v03r02 for compliance to FCC 47CFR 15.247 requirements..

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8.5 TEST RESULTS

Passed

Test Data

Modulation Standard	Channel	Frequency (MHz)	Output Average Power (dBm)	Limit (dBm)	Result
802.11b: 5.5Mbps (Worst Case)	Low	2412	8.15	30dBm	PASSED
	Middle	2437	8.07		PASSED
	High	2462	8.09		PASSED
802.11g: 54Mbps (Worst Case)	Low	2412	7.95	30dBm	PASSED
	Middle	2437	7.89		PASSED
	High	2462	7.94		PASSED

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9.0 PEAK POWER SPECTRAL DENSITY

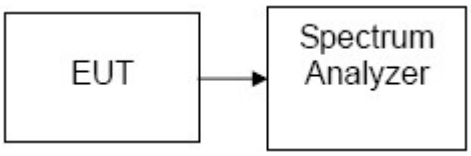
9.1 LIMIT

1. For direct sequence systems, the peak 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.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section

9.2 MEASUREMENT EQUIPMENT USED

Peak Power Spectral Density					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4440A	------	07/16/2014

9.3 TEST CONFIGURATION



9.4 TEST PROCEDURE

(1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator

(2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.

(3). Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

9.5 TEST RESULTS

Test Data

Modulation Standard	Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
802.11b: 5.5Mbps (Worst Case)	Low	2412	-9.54	8	PASSED
	Middle	2437	-9.34		PASSED
	High	2462	-9.55		PASSED
802.11g: 54Mbps (Worst Case)	Low	2412	-15.41	8	PASSED
	Middle	2437	-15.08		PASSED
	High	2462	-15.16		PASSED

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Test Plot

Modulation Standard: 802.11b PPSD CH Low

Modulation Standard: 802.11b PPSD CH Middle

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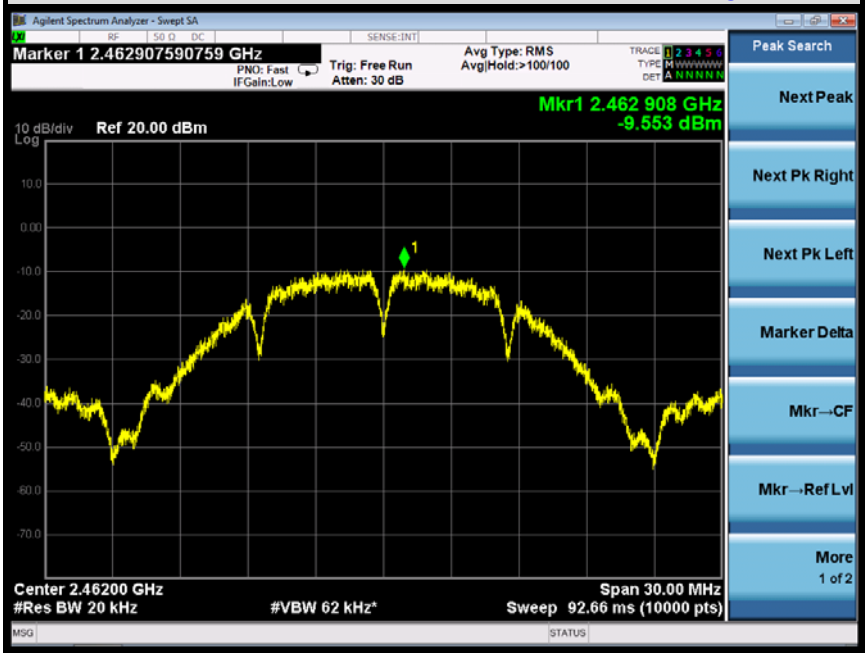
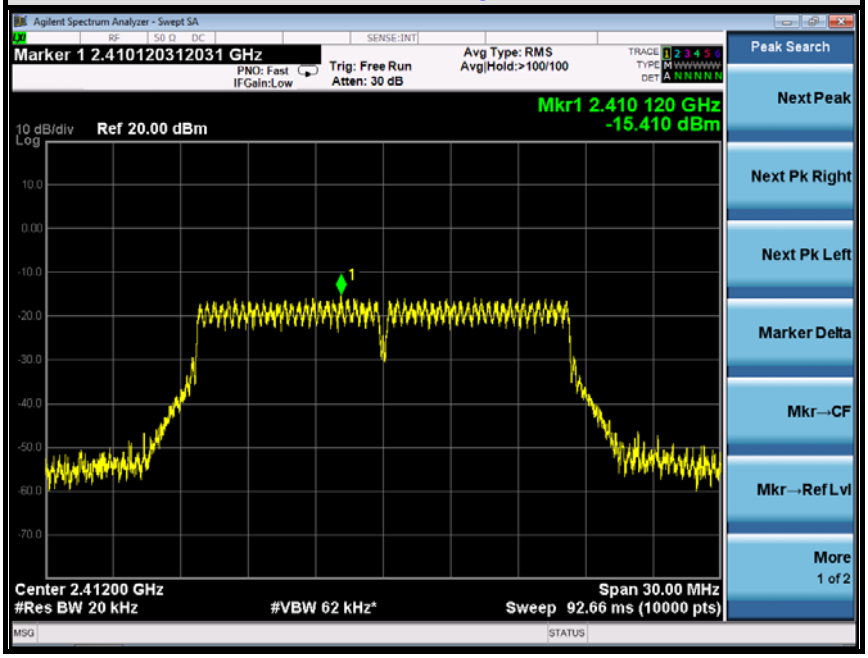
Modulation Standard: 802.11b PPSD CH High



Modulation Standard: 802.11g PPSD CH Low



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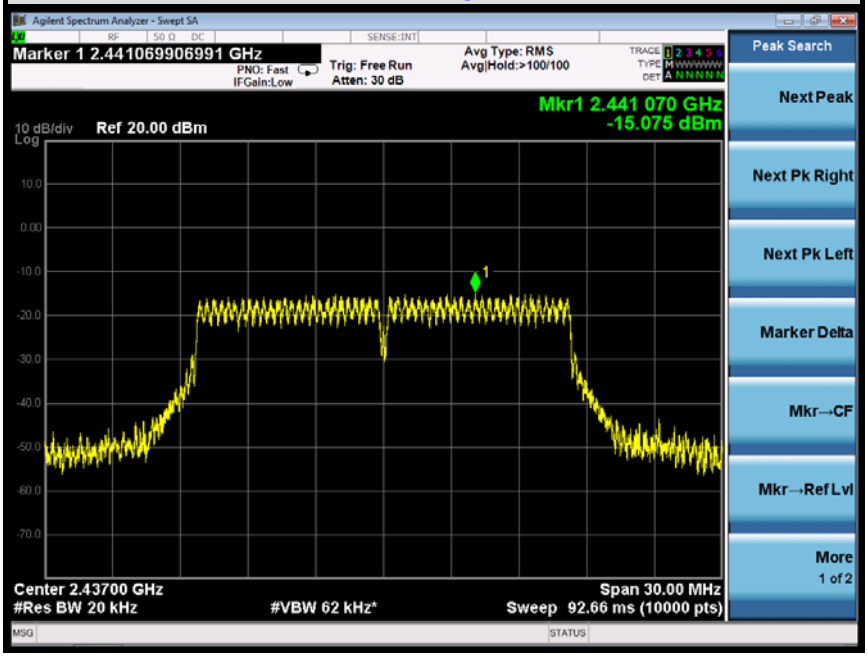
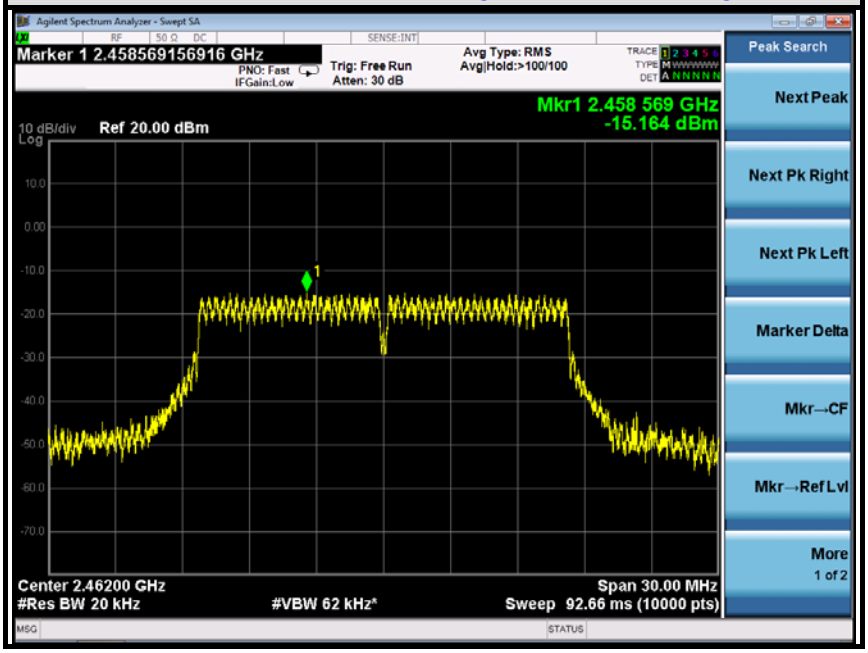
Modulation Standard: 802.11g PPSD CH Middle



Modulation Standard: 802.11g PPSD CH High



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10.0 BAND EDGES MEASUREMENT

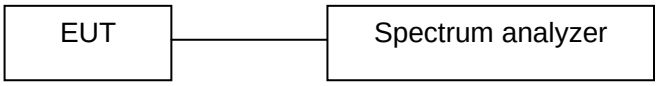
10.1 LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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. 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 Section 15.205(c)).

10.2 MEASUREMENT EQUIPMENT USED

Band Edges Measurement					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4440A	------	07/16/2014

10.3 Test Configuration



10.4 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation
   RBW = 100KHz(1% of the span)
   VBW =3RBW
   Sweep = auto

10.5 TEST RESULTS

Refer to attach spectrum analyzer data chart.

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Test Polt:

Modulation Standard: 802.11 b Band Edges CH-Low

Modulation Standard: 802.11 b Band Edges CH-High

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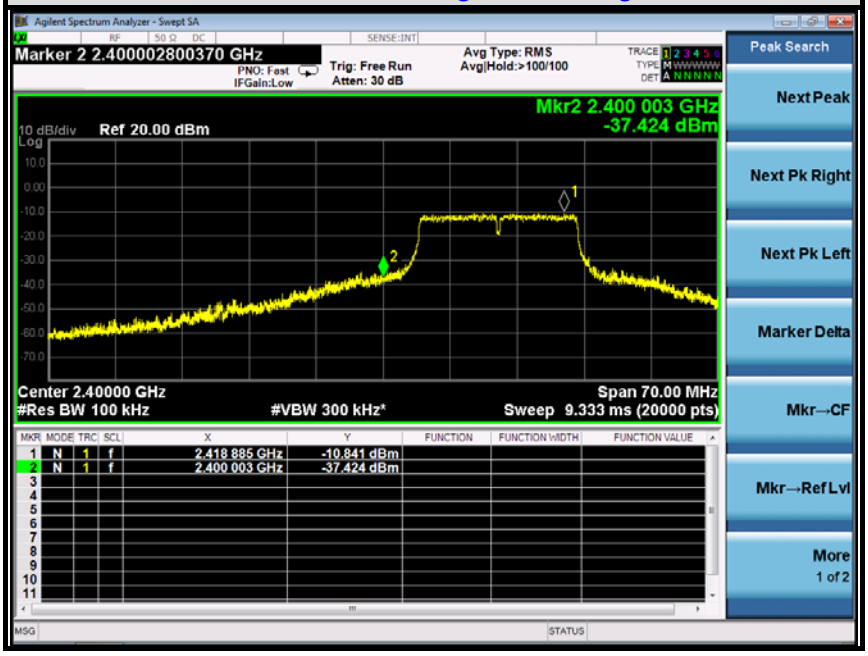
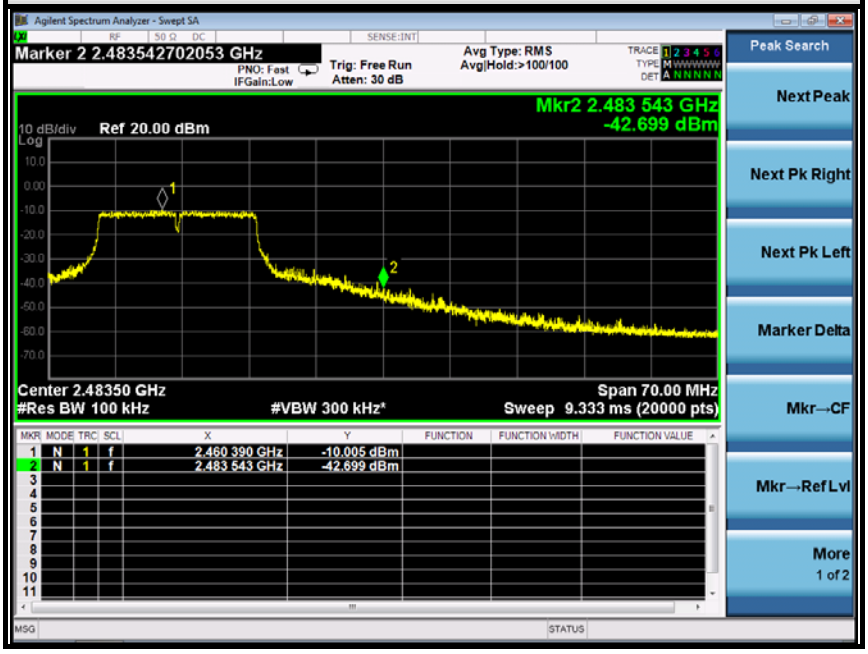
Modulation Standard: 802.11g Band Edges CH-Low



Modulation Standard: 802.11 g Band Edges CH-High



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11.0 CONDUCTED SPURIOUS EMISSIONS

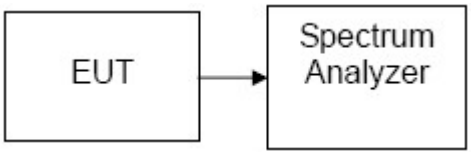
11.1 LIMIT

According to FCC Part 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

11.2 TEST EQUIPMENT

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4440A	------	07/16/2014

11.3 TEST CONFIGURATION



11.4 TEST PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

   Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW＞RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW＞RBW) are conform to the requirement.

15.5 TEST RESULTS

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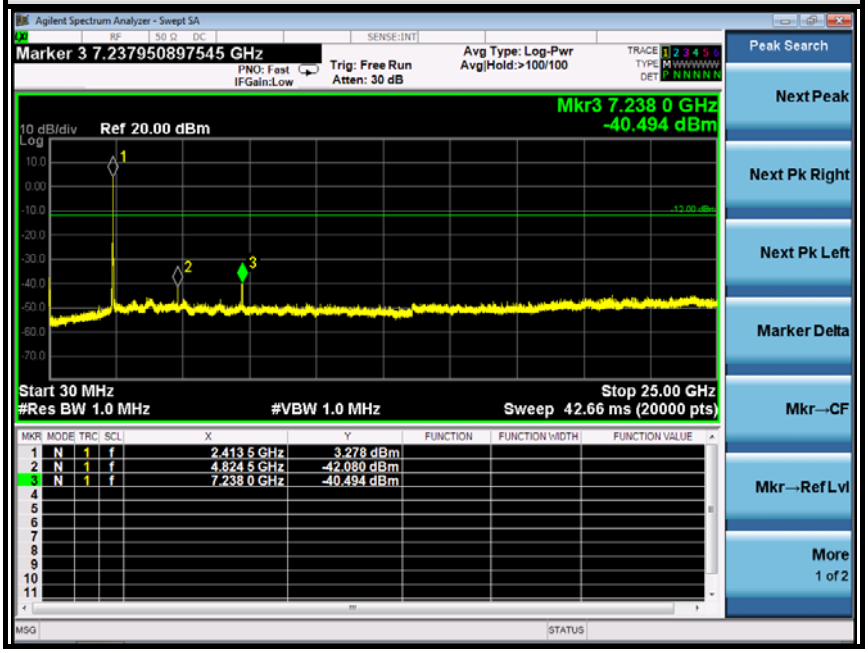
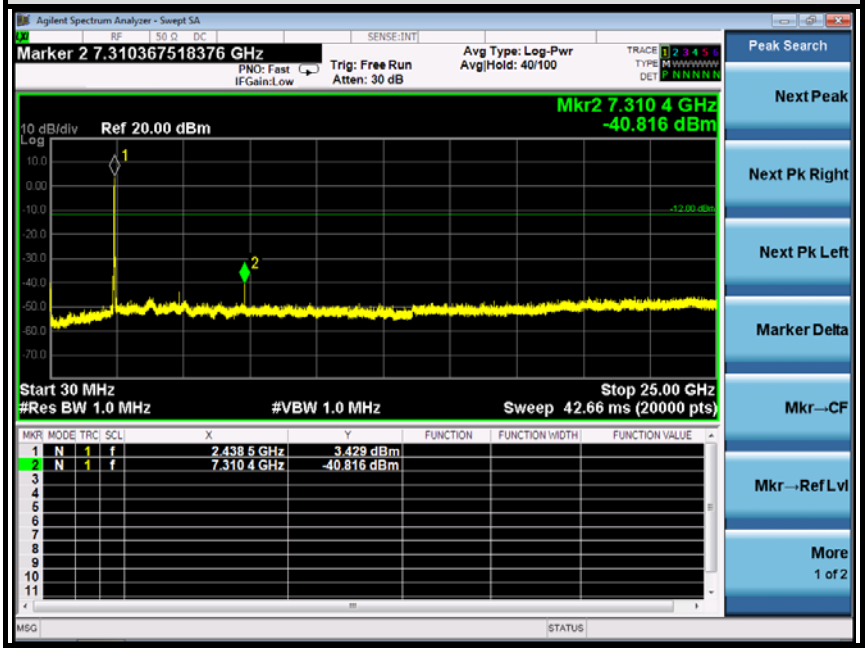
Test Plot:

Modulation Standard: 802.11 b CH-Low



Modulation Standard: 802.11 b CH-Middle



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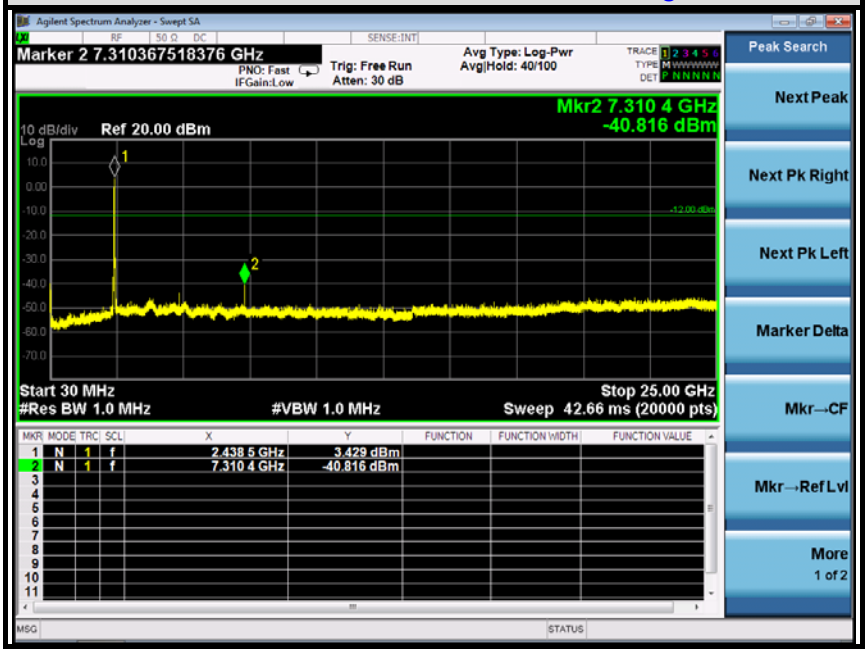
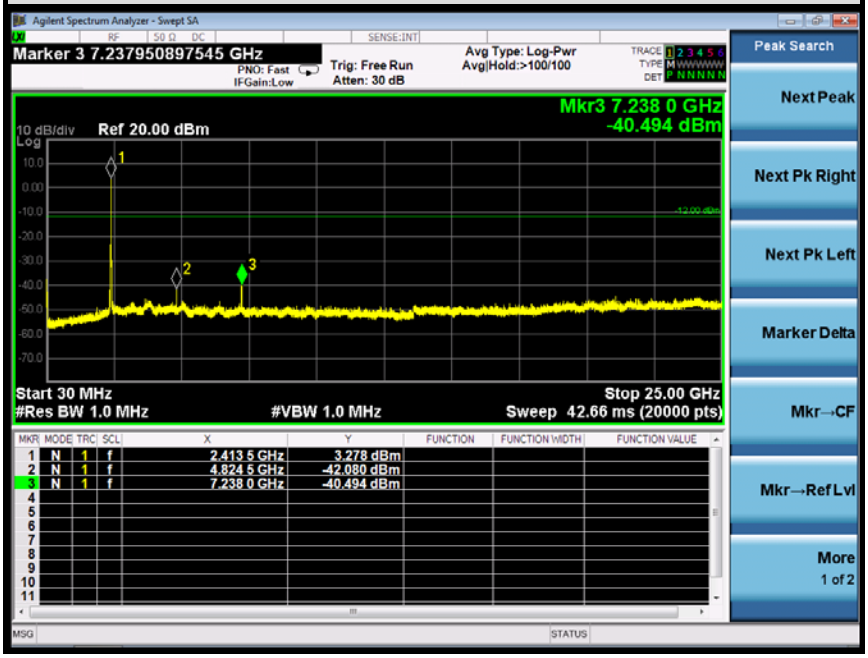
Modulation Standard: 802.11 b CH-High



Modulation Standard: 802.11 g CH-Low



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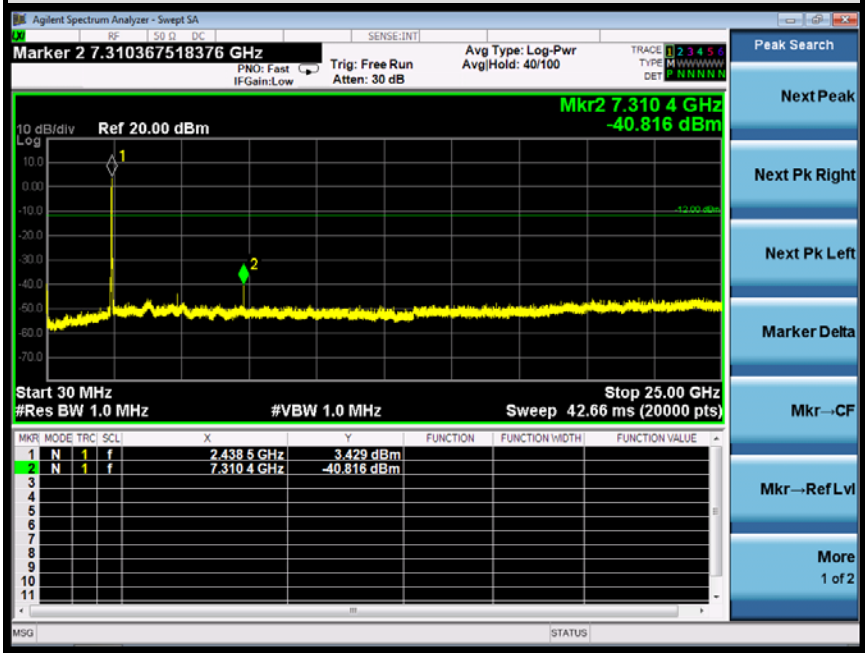
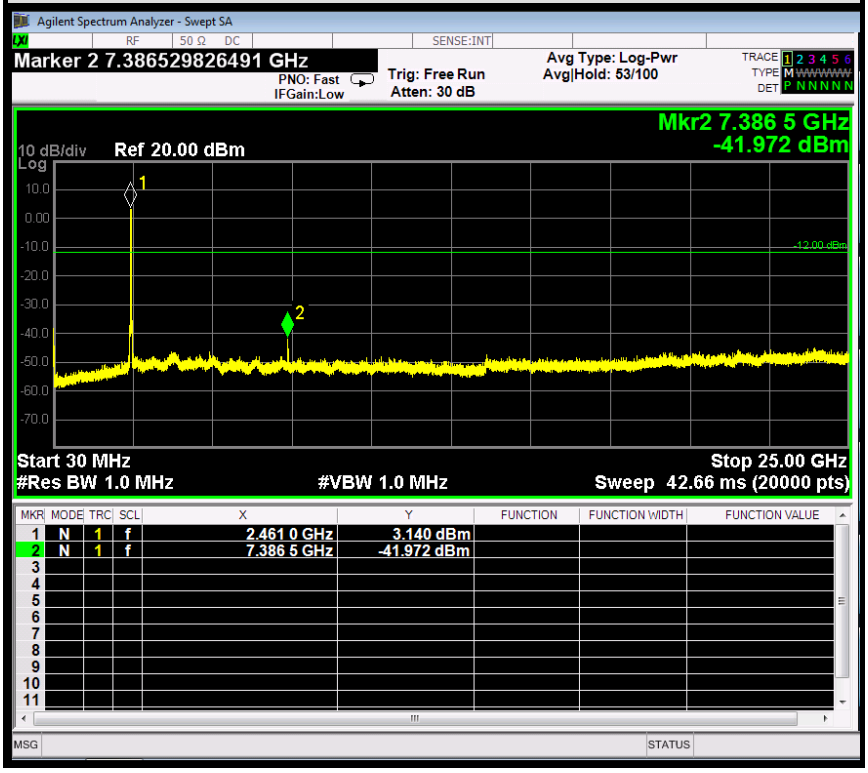
Modulation Standard: 802.11 g CH-Middle



Modulation Standard: 802.11 g CH-High



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12.0 SPURIOUS EMISSIONS

12.1 LIMIT

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	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

12.2 Test Equipment

Radiated disturbance (electric field)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2014/11
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2014/03
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2014/03
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2014/03
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2014/03
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2014/11
7	EMI Test Software	EZ-EMC	Farad	N/A	N/A

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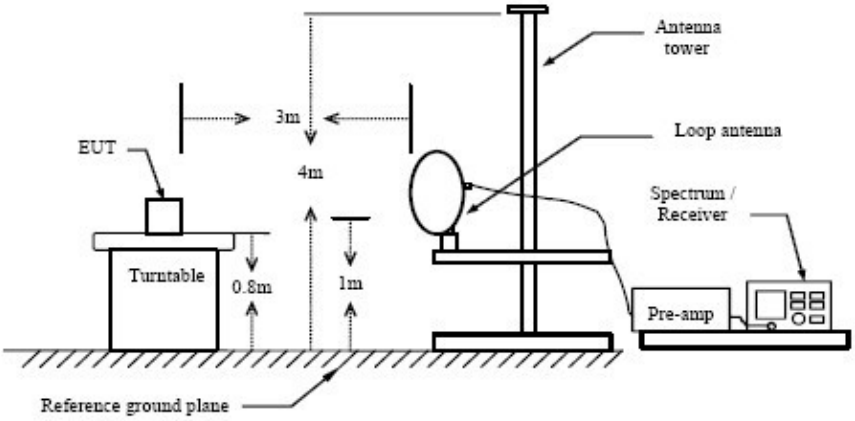
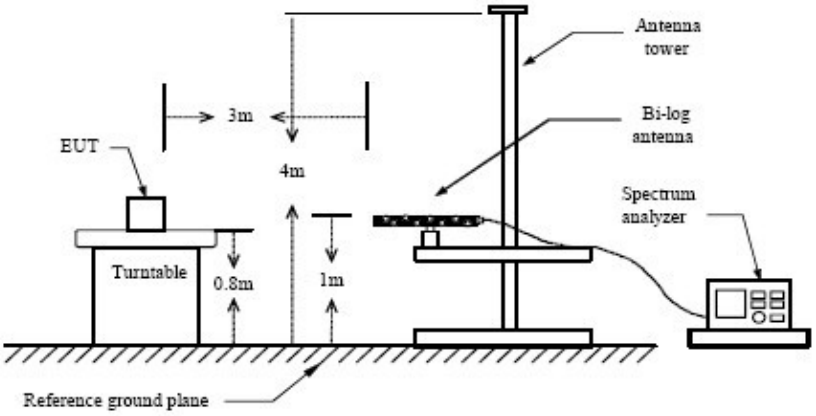
12.3 TEST CONFIGURATION

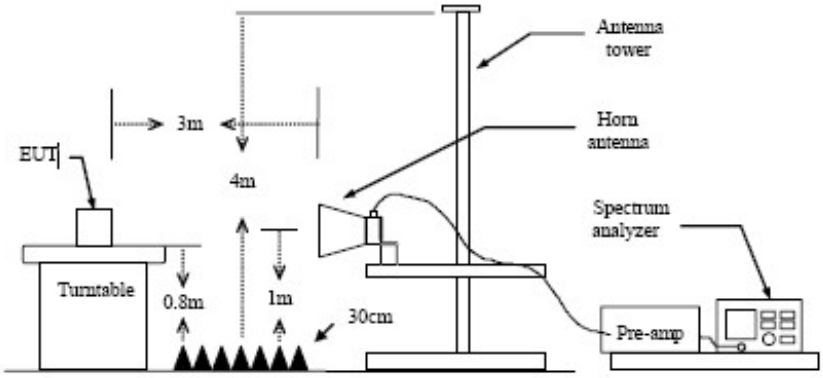
Below 30MHz



Below 1 GHz



Above 1 GHz



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12.4 TEST PROCEDURE

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

12.5 TEST RESULTS

The frequency range from 9KHz~30MHz,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

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Test Mode:	TX –X Position Mode	Result:	■ - passed
Frequency range:	9KHz~30MHz		□ - not passed

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
Remark: The test result reading value is to low, margin all > 10dB of the limit.							

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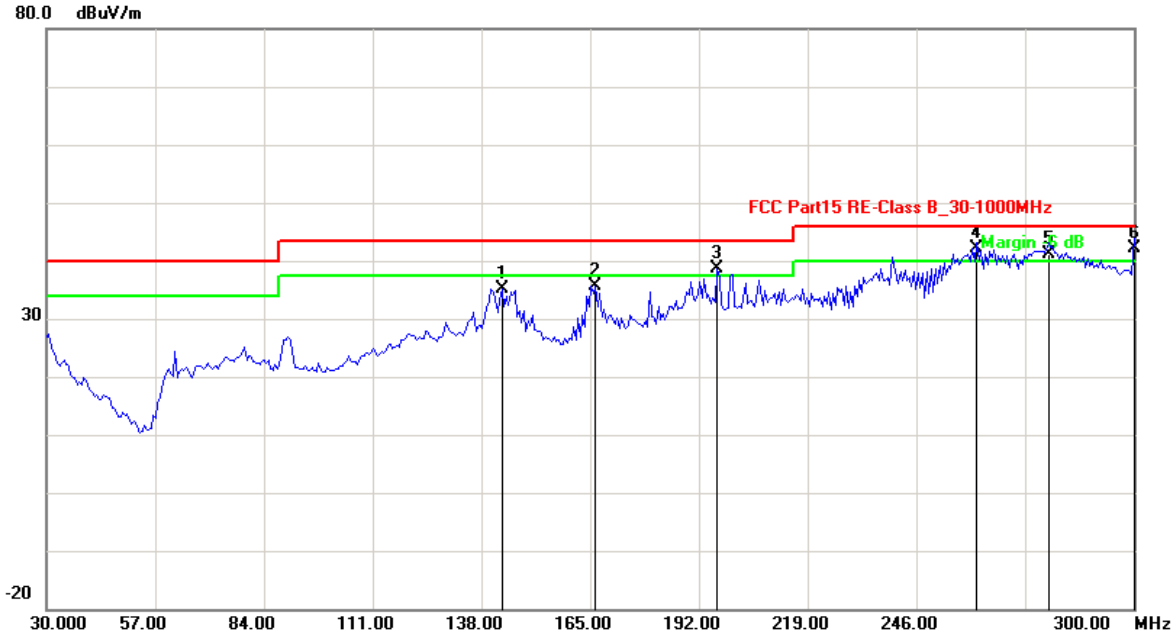
EUT	Table Terminal
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test distance	3 Meter
Operator	**Duke**
MODEL NO	WP-D801

Channel:	TX –X Position	Result:	■ - passed
Test point:	Horizontal		☐ - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	143.0862	-22.68	57.93	35.25	43.50	-8.25	QP
2	166.3527	-23.47	59.04	35.57	43.50	-7.93	QP
3	196.6533	-18.44	57.12	38.68	43.50	-4.82	QP
4	261.0421	-18.53	60.68	42.15	46.00	-3.85	QP
5	278.8978	-15.61	56.82	41.21	46.00	-4.79	QP
6	300.0000	-12.07	54.16	42.09	46.00	-3.91	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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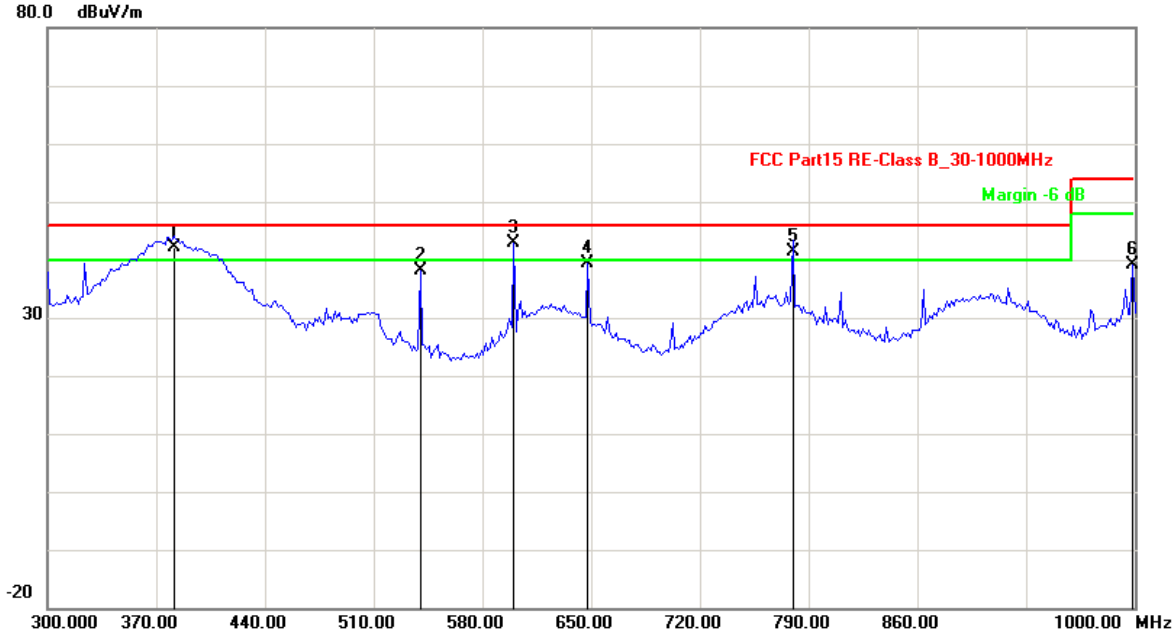

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	381.3627	-24.57	66.66	42.09	46.00	-3.91	QP
2	539.8798	-23.62	61.64	38.02	46.00	-7.98	QP
3	600.2004	-19.49	62.32	42.83	46.00	-3.17	QP
4	647.8958	-17.28	56.58	39.30	46.00	-6.70	QP
5	779.7595	-14.42	55.90	41.48	46.00	-4.52	QP
6	998.5972	-16.11	55.25	39.14	54.00	-14.86	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	Low Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2102.204	-8.28	45.94	37.66	74.00	-36.34	peak
2	2102.204	-8.28	30.64	22.36	54.00	-31.64	AVG
3	5034.068	3.79	44.82	48.61	74.00	-25.39	peak
4	5034.068	3.79	29.70	33.49	54.00	-20.51	AVG
5	6400.802	7.87	45.24	53.11	74.00	-20.89	peak
6	6400.802	7.87	30.60	38.47	54.00	-15.53	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	Middle Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2234.469	-7.04	46.64	39.60	74.00	-34.40	peak
2	2234.469	-7.04	31.63	24.59	54.00	-29.41	AVG
3	5188.377	4.29	45.95	50.24	74.00	-23.76	peak
4	5188.377	4.29	31.38	35.67	54.00	-18.33	AVG
5	6709.419	8.62	44.25	52.87	74.00	-21.13	peak
6	6709.419	8.62	29.87	38.49	54.00	-15.51	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	High Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1991.984	-9.28	44.86	35.58	74.00	-38.42	peak
2	1991.984	-9.28	29.44	20.16	54.00	-33.84	AVG
3	4042.084	1.43	46.18	47.61	74.00	-26.39	peak
4	4042.084	1.43	31.26	32.69	54.00	-21.31	AVG
5	6444.890	7.98	44.55	52.53	74.00	-21.47	peak
6	6444.890	7.98	29.43	37.41	54.00	-16.59	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	Low Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2036.072	-8.89	46.56	37.67	74.00	-36.33	peak
2	2036.072	-8.89	31.48	22.59	54.00	-31.41	AVG
3	4108.216	1.58	46.27	47.85	74.00	-26.15	peak
4	4108.216	1.58	30.83	32.41	54.00	-21.59	AVG
5	7899.800	10.66	46.78	57.44	74.00	-16.56	peak
6	7899.800	10.66	31.70	42.36	54.00	-11.64	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	Middle Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1639.279	-11.34	45.95	34.61	74.00	-39.39	peak
2	1639.279	-11.34	31.48	20.14	54.00	-33.86	AVG
3	4130.261	1.64	45.72	47.36	74.00	-26.64	peak
4	4130.261	1.64	31.01	32.65	54.00	-21.35	AVG
5	5739.479	6.06	46.51	52.57	74.00	-21.43	peak
6	5739.479	6.06	31.42	37.48	54.00	-16.52	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	High Channel		
Test point:	Horizontal		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1837.675	-10.18	45.36	35.18	74.00	-38.82	peak
2	1837.675	-10.18	30.33	20.15	54.00	-33.85	AVG
3	4262.525	1.95	45.31	47.26	74.00	-26.74	peak
4	4262.525	1.95	30.41	32.36	54.00	-21.64	AVG
5	6488.978	8.08	45.88	53.96	74.00	-20.04	peak
6	6488.978	8.08	30.39	38.47	54.00	-15.53	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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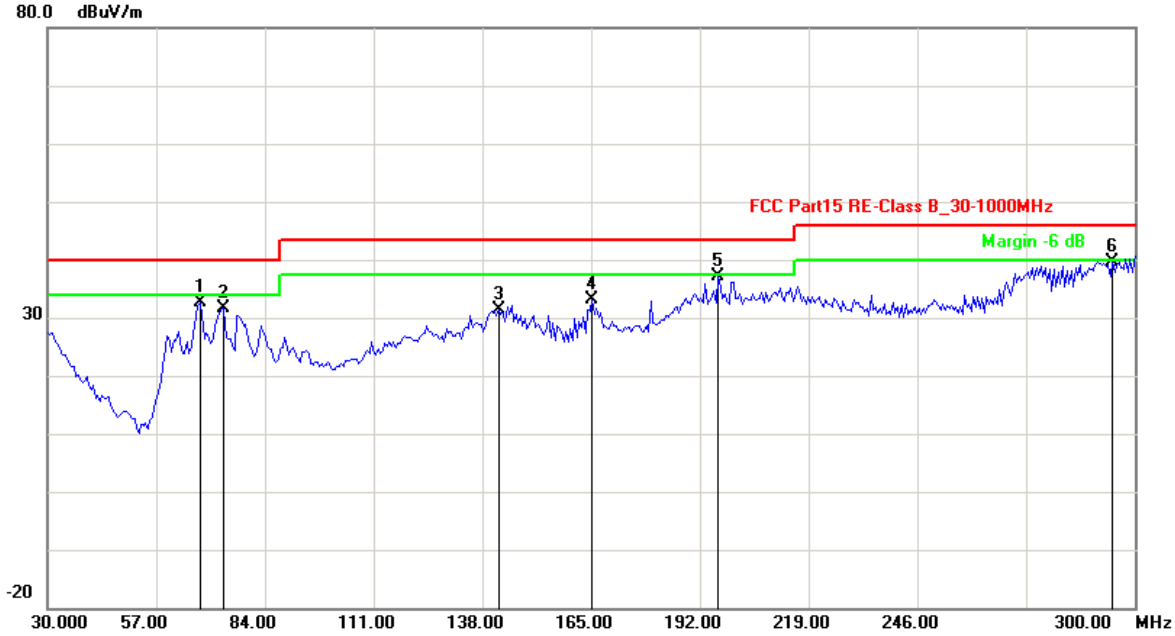
Channel:	TX –X Position	Result:	■ - passed
Test point:	Vertical		☐ - not passed
Frequency range:	30MHz-1GHz		



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	67.8758	-29.43	62.17	32.74	40.00	-7.26	QP
2	73.8277	-27.84	59.54	31.70	40.00	-8.30	QP
3	142.0040	-22.57	54.02	31.45	43.50	-12.05	QP
4	165.2705	-23.72	56.92	33.20	43.50	-10.30	QP
5	196.6533	-18.44	55.61	37.17	43.50	-6.33	QP
6	294.5892	-12.60	52.30	39.70	46.00	-6.30	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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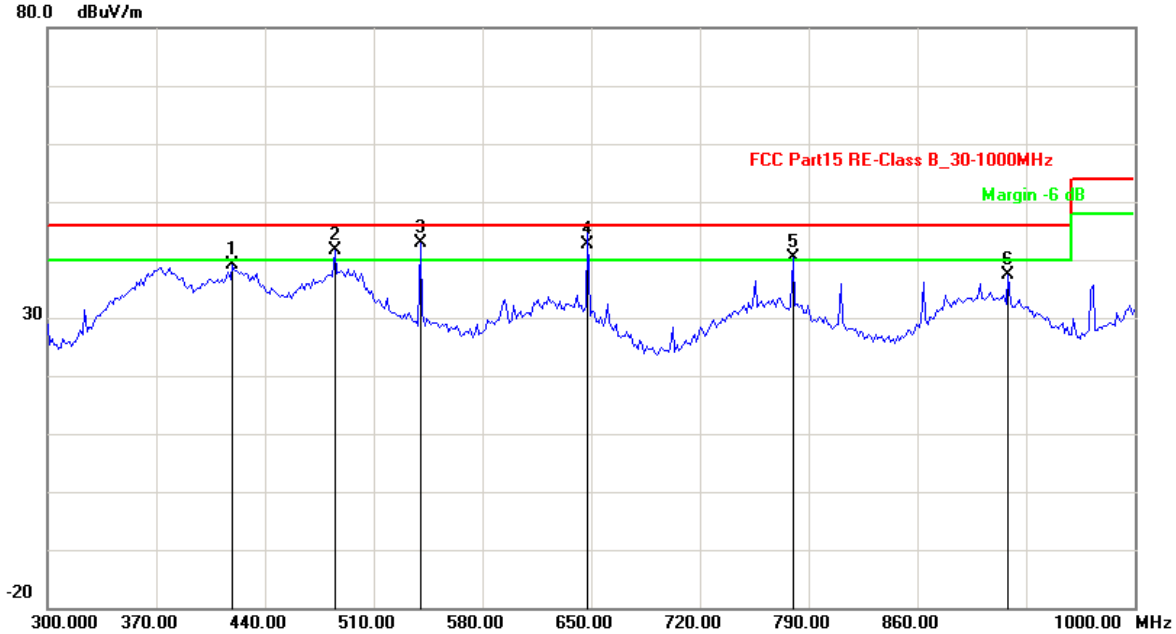

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	419.2385	-23.92	63.01	39.09	46.00	-6.91	QP
2	485.1703	-18.80	60.40	41.60	46.00	-4.40	QP
3	539.8798	-23.62	66.50	42.88	46.00	-3.12	QP
4	647.8958	-17.28	59.86	42.58	46.00	-3.42	QP
5	779.7595	-14.42	54.87	40.45	46.00	-5.55	QP
6	918.6373	-12.28	49.62	37.34	46.00	-8.66	QP
Remark: Other frequency mini margin all >6 dB of Limit							

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Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	Low Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1484.970	-12.22	49.13	36.91	74.00	-37.09	peak
2	1484.970	-12.22	33.28	21.06	54.00	-32.94	AVG
3	4020.040	1.38	47.19	48.57	74.00	-25.43	peak
4	4020.040	1.38	31.90	33.28	54.00	-20.72	AVG
5	6422.846	7.92	45.74	53.66	74.00	-20.34	peak
6	6422.846	7.92	30.75	38.67	54.00	-15.33	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	Middle Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2058.116	-8.69	45.82	37.13	74.00	-36.87	peak
2	2058.116	-8.69	31.04	22.35	54.00	-31.65	AVG
3	4637.275	2.83	45.45	48.28	74.00	-25.72	peak
4	4637.275	2.83	30.81	33.64	54.00	-20.36	AVG
5	5893.788	6.56	46.20	52.76	74.00	-21.24	peak
6	5893.788	6.56	31.29	37.85	54.00	-16.15	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 b	Result:	■ - passed ☐ - not passed
Channel:	High Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2212.425	-7.25	45.82	38.57	74.00	-35.43	peak
2	2212.425	-7.25	30.86	23.61	54.00	-30.39	AVG
3	4284.569	2.00	45.96	47.96	74.00	-26.04	peak
4	4284.569	2.00	30.68	32.68	54.00	-21.32	AVG
5	6709.419	8.62	45.31	53.93	74.00	-20.07	peak
6	6709.419	8.62	29.79	38.41	54.00	-15.59	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	Low Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	2256.513	-6.84	44.73	37.89	74.00	-36.11	peak
2	2256.513	-6.84	29.00	22.16	54.00	-31.84	AVG
3	4394.790	2.26	46.10	48.36	74.00	-25.64	peak
4	4394.790	2.26	30.92	33.18	54.00	-20.82	AVG
5	6555.110	8.24	45.21	53.45	74.00	-20.55	peak
6	6555.110	8.24	30.17	38.41	54.00	-15.59	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	Middle Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1484.970	-12.22	49.81	37.59	74.00	-36.41	peak
2	1484.970	-12.22	34.41	22.19	54.00	-31.81	AVG
3	4130.261	1.64	45.80	47.44	74.00	-26.56	peak
4	4130.261	1.64	30.97	32.61	54.00	-21.39	AVG
5	6731.463	8.67	45.09	53.76	74.00	-20.24	peak
6	6731.463	8.67	29.17	37.84	54.00	-16.16	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

Modulation Standard:	802.11 g	Result:	■ - passed ☐ - not passed
Channel:	High Channel		
Test point:	Vertical		
Frequency range:	1GHz-26.5GHz		

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	1484.970	-12.22	48.64	36.42	74.00	-37.58	peak
2	1484.970	-12.22	33.25	21.03	54.00	-32.97	AVG
3	3336.673	-0.80	47.63	46.83	74.00	-27.17	peak
4	3336.673	-0.80	32.08	31.28	54.00	-22.72	AVG
5	5651.303	5.78	43.56	49.34	74.00	-24.66	peak
6	5651.303	5.78	27.94	33.72	54.00	-20.28	AVG
Remark: Other frequency mini margin all >6 dB of Limit							

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13.0 Antenna Requirements

13.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

13.2 Antenna Construction and Directional Gain

Antenna type: External antenna
Antenna Gain: 0.7 dBi

14.0 Deviation to test specifications

The following identical model(s):

N/A

Belong to the tested device:

Product description: **Table Terminal**
Model name: **WP-D801**

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