







ISO/IEC17025Accredited Lab.

Report No: FCC 1405171-02 File reference No: 2014-04-22

Applicant: Maysun Info Technology Co., Limited

Product: smartphone

Model No: MID5502F, MID5502, MID5502D, MID5502E, Max5.5,

CALYPSO- SY-SP55Q81, KUDU- SY-SP45Q41,

WOXTER ZIELO S50

Trademark:





Test Standards: FCC Part 15 subpart C

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4 and FCC Part 15 Subpart C,

Paragraph 15.247 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung Manager

Dated: April 22, 2014

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd. CheGongMiao, FuTian District, Shenzhen, CHINA.

Tel (+86 755)8344 8688 Fax (+86 755)8344 2996 Email:info@timewaytech.com

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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

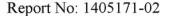
FCC-Registration No.: 899988

The 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.: 899988.

IC-Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

Nakamichi[®]



Date: 2014-04-22



1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD

Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd. CheGongMiao, FuTian District,

Shenzhen, CHINA.

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 899988

For 3m & 10 m OATS

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A-02

For 3m & 10 m OATS

1.2 Applicant Details

Applicant: Maysun Info Technology Co., Limited

Address: 10th floor, B10 Building, Lilang Industrial Zone, Buji Town, Longgang District, Shenzhen,

China

Telephone: --Fax: --

1.3 Description of EUT

Brand Name:

Product: smartphone

Manufacturer: Maysun Info Technology Co., Limited

Address: 10th floor, B10 Building, Lilang Industrial Zone, Buji Town, Longgang

District, Shenzhen, China

Model Number: MID5502F

Additional Model Number: MID5502, MID5502D, MID5502E, Max5.5, CALYPSO- SY-SP55Q81,

KUDU- SY-SP45Q41, WOXTER ZIELO S50

Type of Modulation CCK, DQPSK, DBPSK for DSSS

BPSK, QPSK, 16QAM and 64QAM for OFDM

Frequency range IEEE 802.11b/g/n (HT20): 2412-2462MHz;

IEEE 802.11n HT40: 2422MHz-2452MHz

Channel Spacing IEEE 802.11b/g/n (HT20/40): 5MHz

Air Data Rate 802.11b: 1-11Mbps

802.11g: 6-54Mbps

802.11n-20M: 6.5-72.2Mbps

The report refers only to the sample tested and does not apply to the bulk.

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802.11n-40M: 13.5-150Mbps

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels

IEEE 802.11n HT40: 7 Channels

Antenna: Integral Antenna with maximum gain 1.62 dBi

Power Supply: Model No.: PS05I050K1000EU

Input: AC100-240V 50/60Hz 0.3A; Output: DC 5.0V 1000mA

Rated input Voltage Input: DC5V

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2014-04-03 to 2014-04-21

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

Models difference

	Rating: 3.8V by Battery					
No.	Model No.	Trade Name				
1	MID5502F					
2	MID5502					
3	MID5502D					
4	MID5502E					
5	Max5.5					
6	CALYPSO- SY-SP55Q81	SYTECH®				
7	KUDU- SY-SP45Q41	SYIECH				
8	WOXTER ZIELO S50	Nakamichi*				

Note: All models are identical in circuitry and electrical, mechanical and physical construction, only different on model name, trade name, color and silk-screen.
All tests carried out on MID5502F.

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2.0		Test Equip	ments		
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2013-08-23	2014-08-22
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2013-08-23	2014-08-22
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2013-08-23	2014-08-22
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2013-08-25	2014-08-24
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2013-08-23	2014-08-22
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2013-08-24	2014-08-23
System Controller	CT	SC100	-		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXL O*	-	-
Loop Antenna	EMCO	6502	00042960	2013-08-23	2014-08-22
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2013-08-23	2014-08-22
3m OATS			N/A	2013-08-22	2014-08-21
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2013-08-24	2014-08-23
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2013-08-24	2014-08-23
Power meter	Anritsu	ML2487A	6K00003613	2013-08-24	2014-08-23
Power sensor	Anritsu	MA2491A	32263	2013-08-24	2014-08-23
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-24	2014-08-23
LISN	AFJ	LS16C	10010947251	2013-08-24	2014-08-23
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-23	2014-08-22
9*6*6 Anechoic			N/A	2013-08-22	2014-08-21
EMI Test Receiver	RS	ESCS30	100139	2013-08-23	2014-08-22
LISN	AFJ	LS16C	10010947251	2013-08-23	2014-08-22
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-23	2014-08-22

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Auxiliary Equipment 2.1

N.	N. 1.137	G : 137	N 6	G 11	
Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
TF Card			Kingston	-	
Earphone					

Device	Manufacturer	Model	FCC ID
	Maysun Info Technology	MID5502F, MID5502,	
	Co., Limited	MID5502D, MID5502E, Max5.5,	
smartphone		CALYPSO- SY-SP55Q81,	2AB8PMID5502F
		KUDU- SY-SP45Q41,	
		WOXTER ZIELO S50	

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3.0 TEST RESULT SUMMARY

FCC Part 15 Subpart C, Paragraph 15.247

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Pass
§15.207 (a)	Conducted Emissions	Pass
§15.247(d)	Spurious Emissions at Antenna Port	Pass
§15.205	Restricted Bands	Pass
§15.209, §15.205, 1§15.247(d)	Spurious Emissions	Pass
§15.247 (a)(2)	6 dB Bandwidth	Pass
§15.247(b)(3)	Maximum Peak Output Power	Pass
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Pass
§15.247(e)	Power Spectral Density	Pass

NOTE:

[&]quot; N/A" denotes test is not applicable in this Test Report The test result judgment is decided by the limit of test standard

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4.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	/	/	/	/	/	/	/

Note:

- 1) 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.

4.2. Description of Test Configuration

For 802.11b and 802.11g mode and 802.11n(20) and 802.11n(40), 11 channels are provided to testing:

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

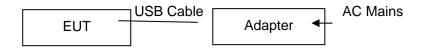
EUT was tested with Channel 1, 6 and 11 in 802.11b/g/n-HT20 and Channel 3, 6 and 9 in 802.11n-HT40.

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4.3. CONFIGURATION OF SYSTEM UNDER TEST



(EUT: smartphone)

4.4. Justification

- 1. Set up EUT with the relative support equipments.
- 2. Make sure the test software control the EUT working state. (according to the standard measurement).

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5 FACILITIES AND ACCREDITATIONS

5.1. FACILITIES

5.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Uncertainty
1	Conducted Emission Test	±3.6dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.7dB
5	All emissions,radiated(>1G)	±4.7dB
6	Temperature	±0.5°C
7	Humidity	±2%

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

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6.0- ANTENNA REQUIREMENT

Standard Applicable

According to § 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the 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 6 dBi.

Antenna Connector Construction

The EUT's antenna is integral Antenna, The Antenna gain is 1.62dBi. Please refer to the EUT internal photos.

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7.0 - CONDUCTED EMISSIONS

Applicable Standard

The specification used was with the FCC Part 15.207 limits.

Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

Test Result

PASS
Test Mode: Normal Operating

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	60%
ATM Pressure:	100.0kPa

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

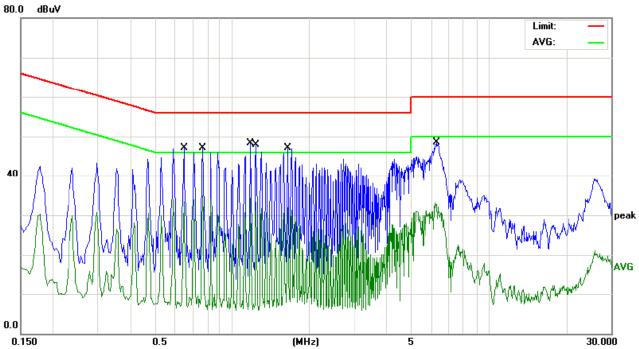
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.6500	36.29	10.80	47.09	56.00	-8.91	QP
2		0.6500	22.44	10.80	33.24	46.00	-12.76	AVG
3		0.7660	36.44	10.64	47.08	56.00	-8.92	QP
4		0.7660	24.28	10.64	34.92	46.00	-11.08	AVG
5	*	1.1820	37.82	10.58	48.40	56.00	-7.60	QP
6		1.1820	23.70	10.58	34.28	46.00	-11.72	AVG
7		1.2420	37.30	10.58	47.88	56.00	-8.12	QP
8		1.2420	22.64	10.58	33.22	46.00	-12.78	AVG
9		1.6540	36.58	10.59	47.17	56.00	-8.83	QP
10		1.6540	21.37	10.59	31.96	46.00	-14.04	AVG
11		6.3100	37.84	10.61	48.45	60.00	-11.55	QP
12		6.3100	21.74	10.61	32.35	50.00	-17.65	AVG

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

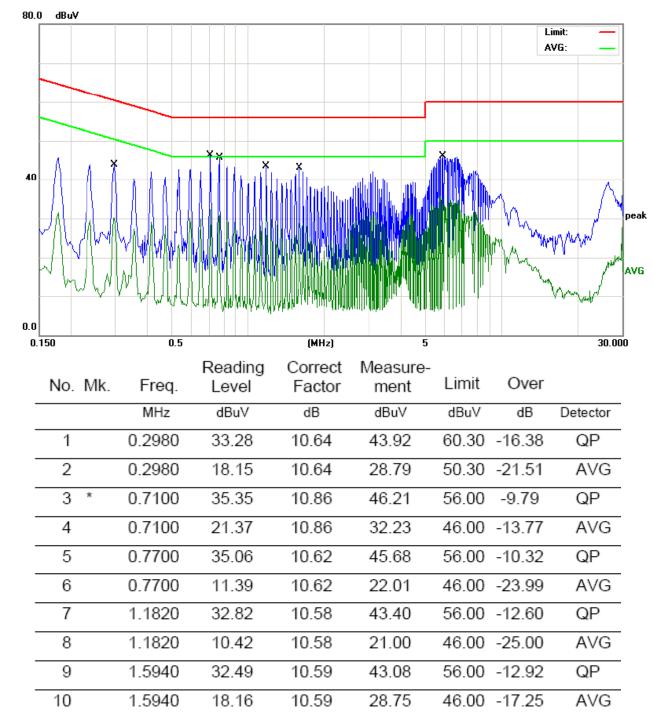
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Phase: Neutral



Remark:All of the Tx modes have been investigated, and only worst mode is presented in this report.

10.64

10.64

46.08

35.70

60.00 -13.92

50.00 -14.30

QΡ

5.9060

5.9060

11

12

35.44

25.06

The report refers only to the sample tested and does not apply to the bulk.

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8.0- Spurious Emissions

Test Equipment

Please refer to section 4 this report.

Test Procedure

The out of band emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part Subpart C limits.

Environmental Conditions

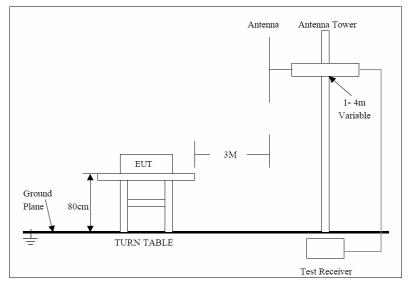
Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

Radiated Test Setup

The system was investigated from 9KHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	Detector
9KHz-30MHz	9kHz	30 kHz	QP
$30\ MHz-1000\ MHz$	100 kHz	300 kHz	QP
1000 MHz – 25 GHz	1 MHz	3 MHz	PK
1000 MHz – 25 GHz	1 MHz	10 Hz	Ave



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For the accrual test configuration, please refer to the related items-photos of Testing.

Radiated Emission Limit

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
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

Radiated Emission Test Result

Test Mode: Transmitting

NOTE: 9KHz-30MHz the measurements were greater than 20dB below the limit.

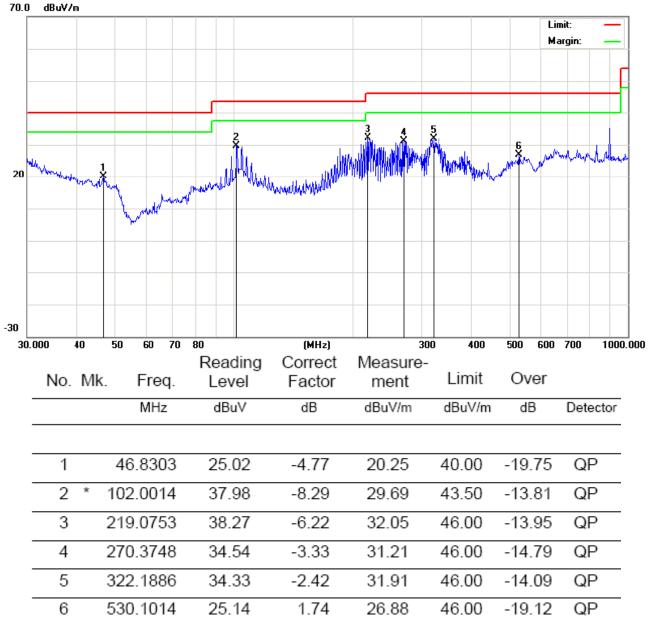
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Horizontal:



Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

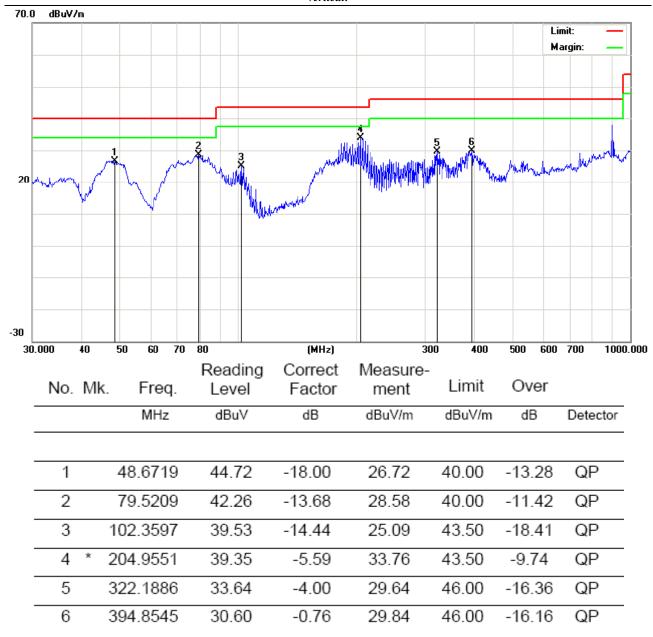
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Vertical:



Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

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Above 1GHz:

Operation Mode: 802.11b TX Channel 1 Test Date: April 8, 2014

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° % Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4824	V	58.5	40.1	74	54	-15.5	-13.9
7236	V	64.0	44.7	74	54	-10.0	-9.3
4824	Н	65.5	38.8	74	54	-8.5	-15.2
7236	Н	67.4	48.0	74	54	-6.6	-6.0

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) 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.

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Operation Mode: 802.11b TX (Channel 6) Test Date: April 8, 2014

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4874	V	59.2	41.1	74	54	-14.8	-12.9
7311	V	64.6	44.4	74	54	-9.4	-9.6
4874	Н	59.1	44.5	74	54	-14.9	-9.5
7311	Н	66.0	41.1	74	54	-8.0	-12.9

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.



Date: 2014-04-22

Operation Mode: 802.11b TX (Channel 11) Test Date: April 8, 2014

Above 1GHz 28℃ Frequency Range: Temperature: Test Result: **PASS** Humidity: 65 % Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4924	V	58.1	45.6	74	54	-15.9	-8.4
7386	V	66.6	40.9	74	54	-7.4	-13.1
4924	Н	62.8	38.8	74	54	-11.2	-15.2
7386	Н	66.4	46.3	74	54	-7.6	-7.7

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.247.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.

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Operation Mode: 802.11g TX Channel 1 Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4824	V	64.6	47.3	74	54	-9.4	-6.7
7236	V	67.4	42.1	74	54	-6.6	-11.9
9648	V	66.2	45.6	74	54	-7.8	-8.4
4824	Н	63.5	42.8	74	54	-10.5	-11.2
7236	Н	62.0	45.6	74	54	-12.0	-8.4
9648	Н	65.3	38.2	74	54	-8.7	-15.8

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.

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Operation Mode: 802.11g TX (Channel 6) Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4874	V	65.6	38.8	74	54	-8.4	-15.2
7311	V	62.0	42.8	74	54	-12.0	-11.2
9748	V	62.9	47.8	74	54	-11.1	-6.2
4874	Н	64.0	44.7	74	54	-10.0	-9.3
7311	Н	63.4	43.6	74	54	-10.6	-10.4
9748	Н	63.5	39.4	74	54	-10.5	-14.6

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.

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Operation Mode: 802.11g TX (Channel 11) Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° Measured Distance: 3m Test By: Neil Wong

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4924	V	61.6	38.1	74	54	-12.4	-15.9
7386	V	67.1	46.6	74	54	-6.9	-7.4
9848	V	66.7	42.6	74	54	-7.3	-11.4
4924	Н	65.1	45.9	74	54	-8.9	-8.1
7386	Н	62.0	39.6	74	54	-12.0	-14.4
9848	Н	62.9	41.9	74	54	-11.1	-12.1

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.247.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.



Date: 2014-04-22



Operation Mode: 802.11n HT-20 TX Channel 1 Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature : 28° C Test Result: PASS Humidity : 65° %

Measured Distance: 3m Test By: NEIL WONG

Freq.	Ant.Pol.	Emission I	Emission Level(dBuV)		Limit 3m(dBuV/m)		(dB)
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4824	V	64.0	44.6	74	54	-10.0	-9.4
7236	V	61.3	45.4	74	54	-12.7	-8.6
4824	Н	61.3	45.4	74	54	-12.7	-8.6
7236	Н	58.6	44.4	74	54	-15.4	-9.6

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) 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.

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Date: 2014-04-22



Operation Mode: 802.11n HT-20 TX (Channel 6) Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° %

Measured Distance: 3m Test By: NEIL WONG

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4874	V	62.3	42.5	74	54	-11.7	-11.5
7311	V	67.1	44.7	74	54	-6.9	-9.3
4874	Н	63.9	42.4	74	54	-10.1	-11.6
7311	Н	60.5	39.3	74	54	-13.5	-14.7

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.



Date: 2014-04-22

Operation Mode: 802.11n HT-20 TX (Channel 11) Test Date : April 20, 2013

28℃ Frequency Range: Above 1GHz Temperature: Test Result: **PASS** Humidity: 65 %

Measured Distance: 3m Test By: **NEIL WONG**

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4924	V	64.3	43.2	74	54	-9.7	-10.8
7386	V	67.6	38.3	74	54	-6.4	-15.7
4924	Н	60.9	44.9	74	54	-13.1	-9.1
7386	Н	59.7	40.0	74	54	-14.3	-14.0

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.247.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.



Date: 2014-04-22



Operation Mode: 802.11n HT-40 TX Channel 3 Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° %

Measured Distance: 3m Test By: NEIL WONG

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4844	V	62.2	39.0	74	54	-11.8	-15.0
7266	V	61.8	42.3	74	54	-12.2	-11.7
4844	Н	67.8	47.2	74	54	-6.2	-6.8
7266	Н	67.8	42.6	74	54	-6.2	-11.4

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
- (3) 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.

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Date: 2014-04-22



Operation Mode: 802.11n HT-40 TX (Channel 6) Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° %

Measured Distance: 3m Test By: NEIL WONG

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV	
4874	V	63.7	44.7	74	54	-10.3	-9.3	
7311	V	64.1	38.1	74	54	-9.9	-15.9	
4874	Н	64.2	44.4	74	54	-9.8	-9.6	
7311	Н	67.0	38.6	74	54	-7.0	-15.4	

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.

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Date: 2014-04-22



Operation Mode: 802.11n HT-40 TX (Channel 9) Test Date: April 20, 2013

Frequency Range: Above 1GHz Temperature: 28° C Test Result: PASS Humidity: 65° %

Measured Distance: 3m Test By: NEIL WONG

Freq.	Ant.Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4904	V	67.2	47.0	74	54	-6.8	-7.0
7356	V	59.5	42.2	74	54	-14.5	-11.8
4904	Н	59.1	40.5	74	54	-14.9	-13.5
7356	Н	66.7	46.9	74	54	-7.3	-7.1

No others harmonics emissions are higher than 20dB below the limits of 47 CFR Part 15.247.

- (2) Emission Level= Reading Level+Probe Factor +Cable Loss.
 - (3) 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.

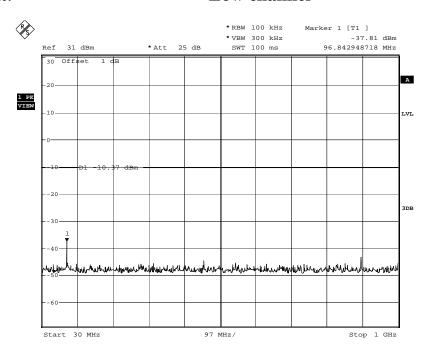
Date: 2014-04-22



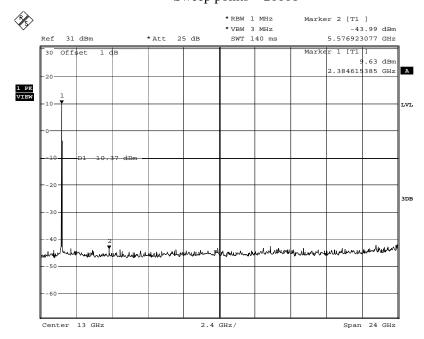
Antenna port conducted spurious emissions

802.11b mode:

Low channel



Sweep points = 20001



Sweep points = 20001

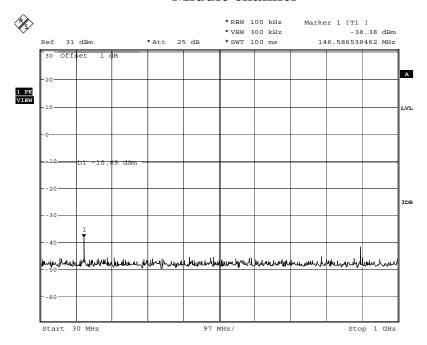
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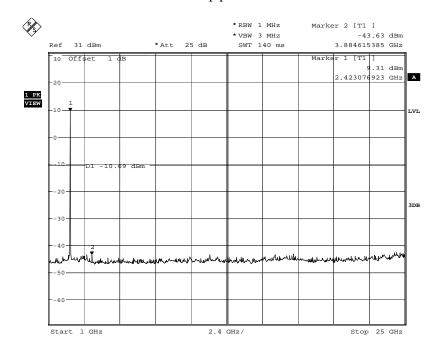
Date: 2014-04-22



Middle channel



Sweep points = 20001

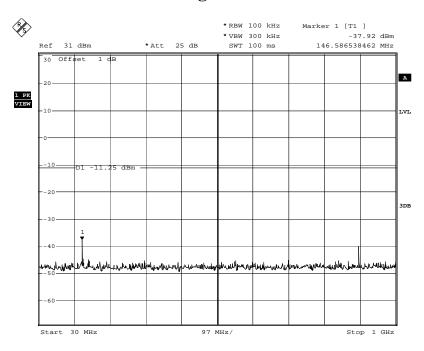


Sweep points = 20001

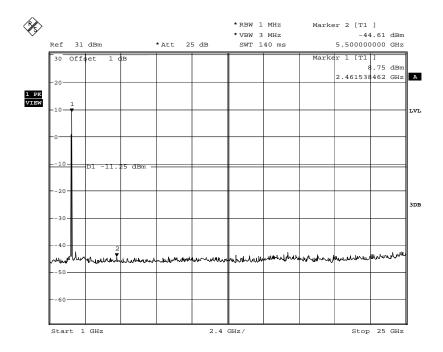
Date: 2014-04-22



High channel



Sweep points = 20001



Sweep points = 20001

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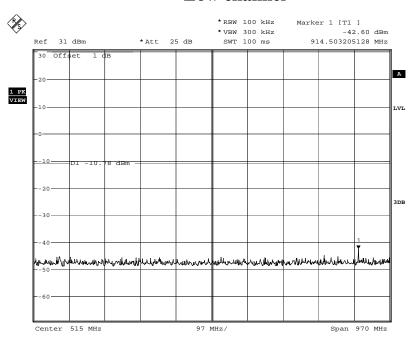
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Date: 2014-04-22

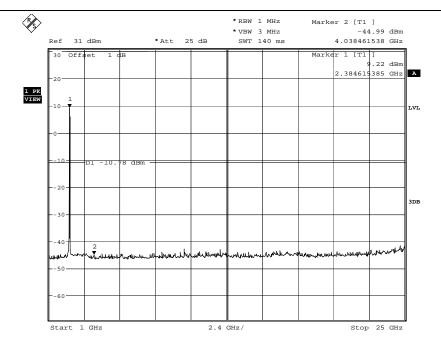


802.11g mode:

Low channel



Sweep points = 20001



Sweep points = 20001

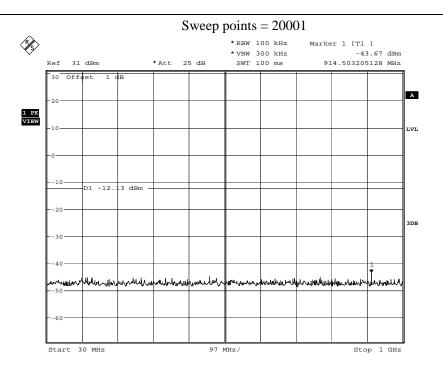
The report refers only to the sample tested and does not apply to the bulk.

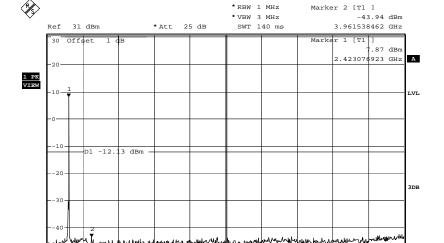
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Date: 2014-04-22



Middle channel





2.4 GHz/

Sweep points = 20001

The report refers only to the sample tested and does not apply to the bulk.

Start 1 GHz

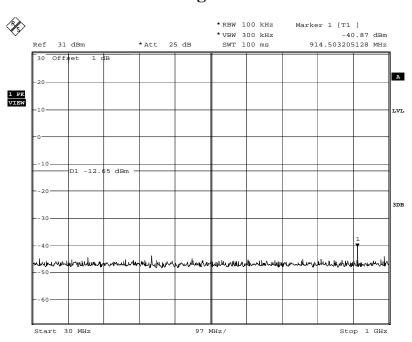
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Stop 25 GHz

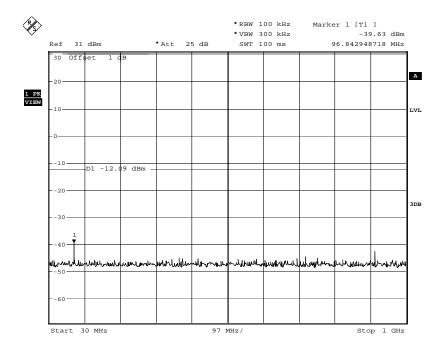
Date: 2014-04-22



High channel



Sweep points = 20001



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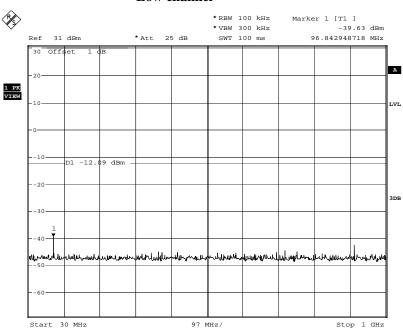
Date: 2014-04-22



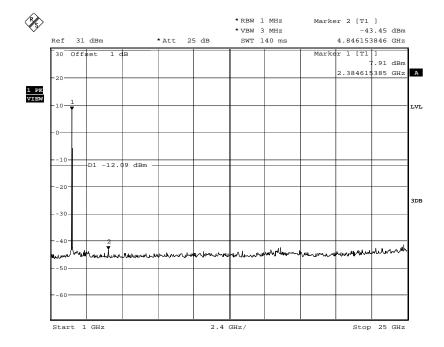
Sweep points = 20001

802.11n HT20 mode:

Low channel



Sweep points = 20001



Sweep points = 20001

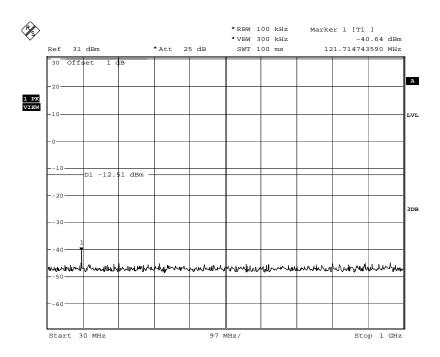
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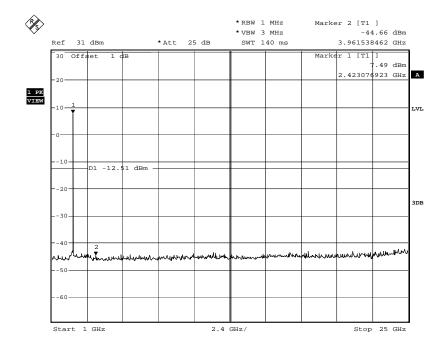
Date: 2014-04-22



Middle channel



Sweep points = 20001



Sweep points = 20001

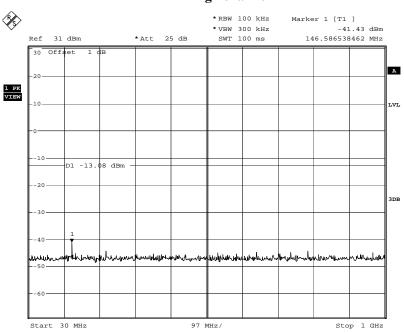
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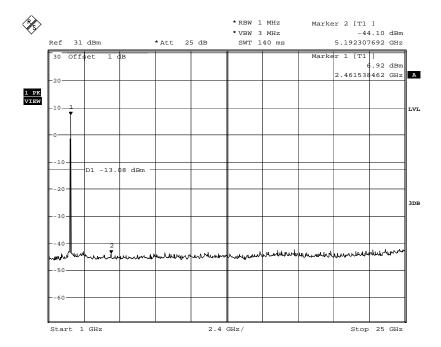
Date: 2014-04-22



High channel



Sweep points = 20001



Sweep points = 20001

The report refers only to the sample tested and does not apply to the bulk.

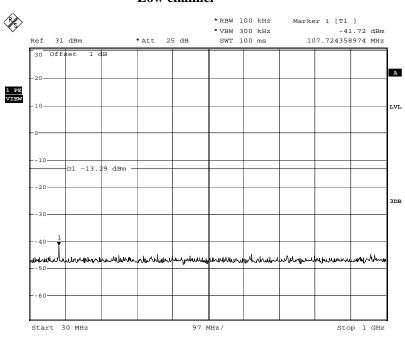
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Date: 2014-04-22

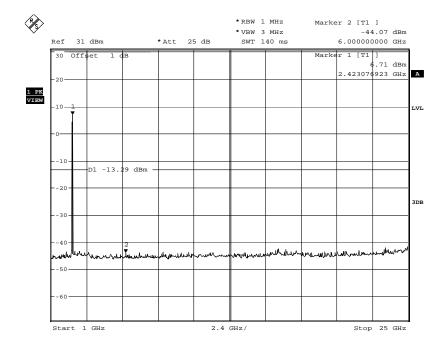


802.11n HT40 mode:

Low channel



Sweep points = 20001



Sweep points = 20001

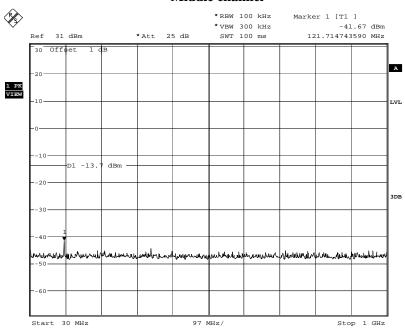
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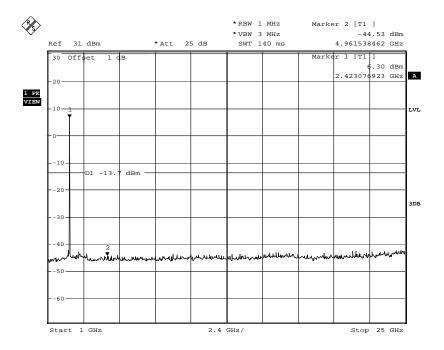
Date: 2014-04-22



Middle channel



Sweep points = 20001



Sweep points = 20001

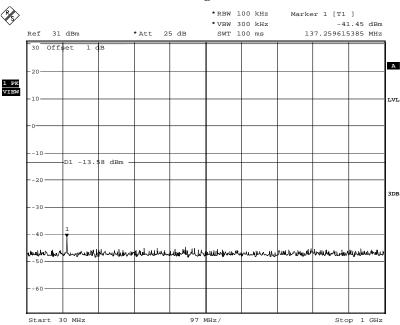
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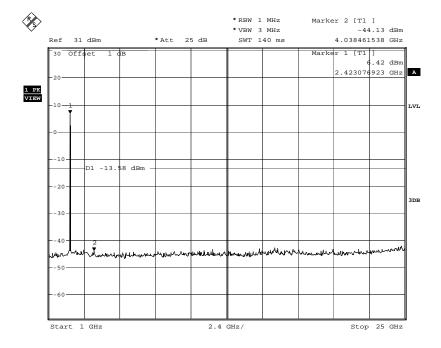
Date: 2014-04-22







Sweep points = 20001



Sweep points = 20001

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Date: 2014-04-22



9.0-6dB BANDWIDTH TESTING

Test Equipment

Please refer to Section 4 this report.

Test Procedure

- 1. Set EUT 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≥RBW, Span=40MHz,Sweep=auto.
- 4. Mark the peak frequency and -6dB(upper and lower)frequency.
- 5. Repeat until all the rest channels are investigated.

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

Applicable Standard

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.

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Test Result: Pass.

Please refer to the following tables

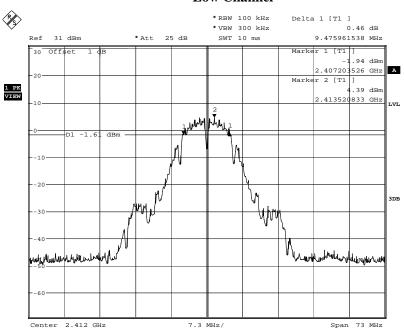
Channel Frequency (MHz)	Data Rate (Mbps)	6dB Bandwidth (KHz)	Limit (kHz)	Ref. Plot							
		802.11b Mode									
2412	1	9476.0	>500	PLOT 1							
2437	1	9294.9	>500	PLOT 2							
2462	1	9615.4	>500	PLOT 3							
	802.11g Mode										
2412	6	16346.2	>500	PLOT 4							
2437	6	16538.5	>500	PLOT 5							
2462	6	16538.5	>500	PLOT 6							
i .	80	02.11n HT20 Mode									
2412	6.5	16442.3	>500	PLOT 7							
2437	6.5	16153.8	>500	PLOT 8							
2462	6.5	16057.7	>500	PLOT 9							
	80	02.11n HT40 Mode									
2422	13.5	36410.3	>500	PLOT 10							
2437	13.5	36410.3	>500	PLOT 11							
2452	13.5	36538.5	>500	PLOT 12							

Date: 2014-04-22

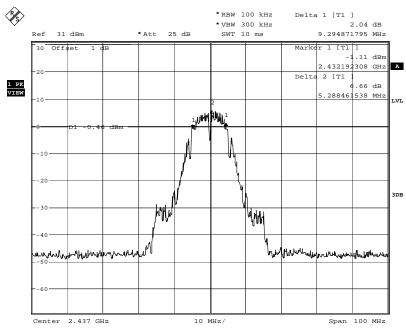


802.11b Mode:





Middle channel



The report refers only to the sample tested and does not apply to the bulk.

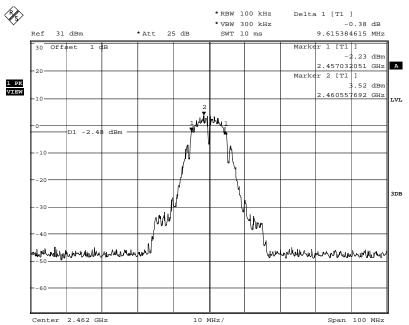
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High Channel



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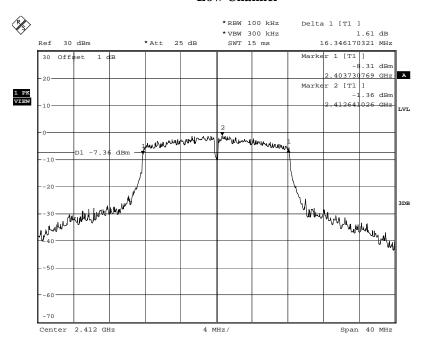
Report No: 1405171-02

Date: 2014-04-22

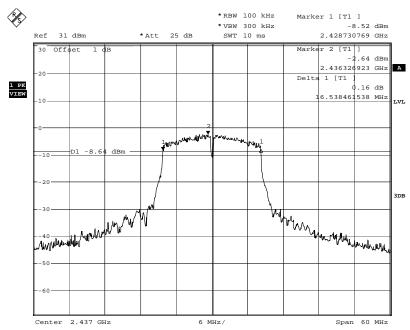


802.11g Mode:

Low Channel



Middle Channel



The report refers only to the sample tested and does not apply to the bulk.

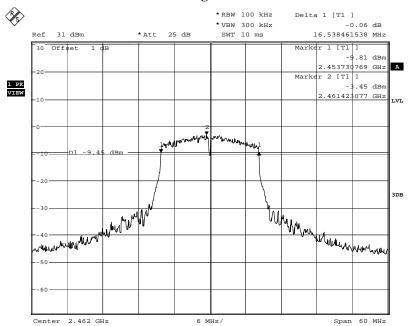
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High Channel



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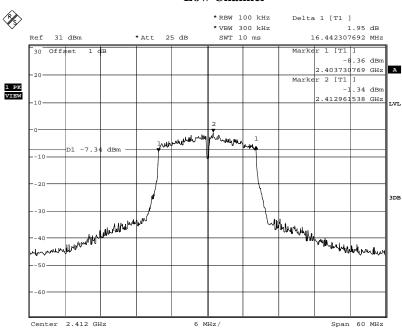
Report No: 1405171-02

Date: 2014-04-22

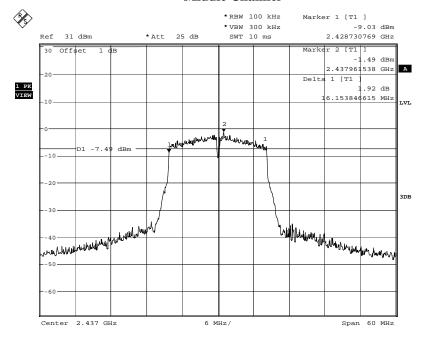


802.11n HT20 Mode:

Low Channel



Middle Channel



The report refers only to the sample tested and does not apply to the bulk.

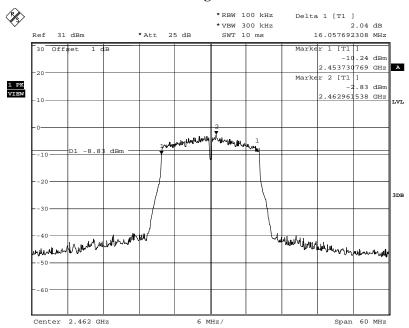
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Date: 2014-04-22



High Channel

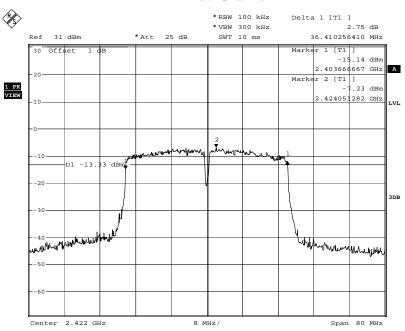


Date: 2014-04-22

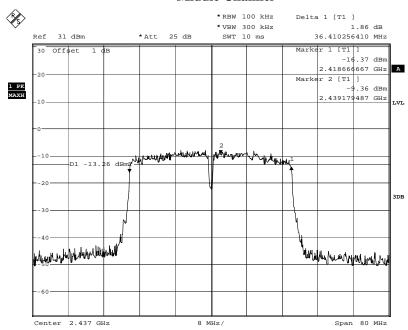


802.11n HT40 Mode:

Low Channel



Middle Channel



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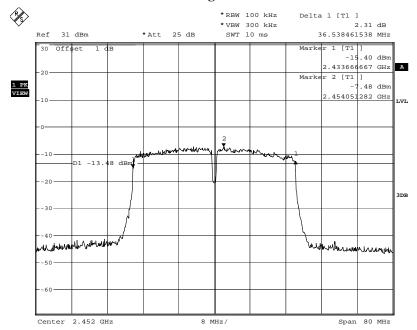
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High Channel



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10- MAXIMUM PEAK OUTPUT POWER

Test Equipment

Please refer to Section 4 this report.

Test Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set the RBW =1MHz, VBW ≥ 3RBW, span ≥ 1.5*6dbbandwith. Sweep time = auto couple, Detector = peak, Trace mode = max hold.
- 4. Record the maximum power from the spectrum analyzer.
- 5. The maximum peak power shall be less 1 Watt (30dBm).

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

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

Applicable Standard

According to §15.247(b) (3), 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. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

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Test Result

802.11b Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)	
Low	2412	2412 1 18.41			
Mid	2437	1	18.76	30	
High	2462	1	18.31	30	

802.11g Mode:

Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	Limit (dBm)
Low	2412	6	16.81	30
Mid	2437	6	16.78	30
High	2462	6	16.54	30

802.11n HT20 Mode:

Channel	Channel Frequency (MHz)	Data Rate (Mbps)	Power Output (dBm)	Limit (dBm)
Low	2412	6.5	16.07	30
Mid	2437	6.5	16.54	30
High	2462	6.5	16.43	30

802.11n HT40 Mode:

Channel	Channel Frequency (MHz)	Data Rate (Mbps)	Power Output (dBm)	Limit (dBm)
Low	2422	13.5	16.34	30
Mid	2437	13.5	16.65	30
High	2452	13.5	16.35	30

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11 – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Test Equipment

Please refer to Section 4 this report.

Test Procedure

The out of band emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC Part Subpart C limits.

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

Applicable Standard

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, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

Test Result

PASS

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Radiated measurement:

802.11b

Indicat	ed		Table	Anter	nna	Co	rrection Fa	actor	FCC	Part 15.2	47
Frequency (MHz)	Receiver Reading (dBµV/m)	result (PK/AV)	Angle Degree	Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit dBµV/m)	Margin (dB)
	Low Channel (2412MHz)										
2390	36.75	AV	250	1.6	V	30.3	4.1	33.1	38.05	54	15.95
2390	36.91	AV	120	1.7	Н	30.3	4.1	33.1	38.21	54	15.79
2390	56.95	PK	260	1.2	V	30.3	4.1	33.1	58.25	74	15.75
2390	61.64	PK	250	1.8	Н	30.3	4.1	33.1	62.94	74	11.06
				High	Chann	el (24621	MHz)				
2483.5	38.45	AV	290	1.9	V	31	4.4	32.7	41.15	54	12.85
2483.5	40.48	AV	80	1.4	Н	31	4.4	32.7	43.18	54	10.82
2483.5	55.02	PK	310	1.5	V	31	4.4	32.7	57.72	74	16.28
2483.5	59.01	PK	140	1.8	Н	31	4.4	32.7	61.71	74	12.29

802.11g

Indicat	ed		Table	Anter	nna	Co	rrection Fa	actor	FCC	C Part 15.24	.7
Frequency (MHz)	Receiver Reading (dBµV/m)	result (PK/AV)	Angle Degree	Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit dBµV/m)	Margin (dB)
Low Channel (2412MHz)											
2390	36.36	AV	350	1.1	V	30.3	4.1	33.1	37.66	54	16.34
2390	38.77	AV	90	1.3	Н	30.3	4.1	33.1	40.07	54	13.93
2390	58.98	PK	290	1.7	V	30.3	4.1	33.1	60.28	74	13.72
2390	63.28	PK	120	1.3	Н	30.3	4.1	33.1	64.58	74	9.42
				High	Chann	el (24621	MHz)				
2483.5	37.33	AV	30	1.4	V	31	4.4	32.7	40.03	54	13.97
2483.5	40.97	AV	280	1.7	Н	31	4.4	32.7	43.67	54	10.33
2483.5	63.11	PK	150	1.1	V	31	4.4	32.7	65.81	74	8.19
2483.5	65.58	PK	90	1.4	Н	31	4.4	32.7	68.28	74	5.72

Note: the BAND EDGE RESTRICTED BANDS emission is too low at least 20dB to the Fundamental.

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802.11n HT20

Indica	ted		Table		nna	Co	Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBµV/m)	result (PK/AV)	Angle He	Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit dBµV/m)	Margin (dB)	
	Low Channel (2412MHz)											
2390	39.25	AV	20	1.2	V	30.3	4.1	33.1	40.55	54	13.45	
2390	42.57	AV	10	1.9	Н	30.3	4.1	33.1	43.87	54	10.13	
2390	61.88	PK	190	1.7	V	30.3	4.1	33.1	63.18	74	10.82	
2390	65.56	PK	310	1.7	Н	30.3	4.1	33.1	66.86	74	7.14	
				High	Chann	el (24621	MHz)					
2483.5	40.72	AV	260	1.7	V	31	4.4	32.7	43.42	54	10.58	
2483.5	44.32	AV	210	1.3	Н	31	4.4	32.7	47.02	54	6.98	
2483.5	62.57	PK	280	1.7	V	31	4.4	32.7	65.27	74	8.73	
2483.5	64.43	PK	160	1.2	Н	31	4.4	32.7	67.13	74	6.87	

802.11n HT40

Indicat	ed	Table		Anter	nna	Co	rrection Fa	actor	FCC	Part 15.24	.7
Frequency (MHz)	Receiver Reading (dBµV/m)	result (PK/AV)	Angle Degree	Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBµV/m)	Limit dBµV/m)	Margin (dB)
				Low	Chann	el (24221	MHz)				
2390	44.90	AV	80	1.2	V	30.3	4.1	33.1	46.20	54	7.80
2390	45.78	AV	60	1.1	Н	30.3	4.1	33.1	47.08	54	6.92
2390	62.10	PK	300	1.9	V	30.3	4.1	33.1	63.40	74	10.60
2390	63.88	PK	250	1.5	Н	30.3	4.1	33.1	65.18	74	8.82
				High	Chann	el (24521	MHz)		_		
2483.5	38.91	AV	350	1.3	V	31	4.4	32.7	41.61	54	12.39
2483.5	42.07	AV	230	1.2	Н	31	4.4	32.7	44.77	54	9.23
2483.5	62.92	PK	120	1.9	V	31	4.4	32.7	65.62	74	8.38
2483.5	65.03	PK	180	1.1	Н	31	4.4	32.7	67.73	74	6.27

Note: the BAND EDGE RESTRICTED BANDS emission is too low at least 20dB to the Fundamental.

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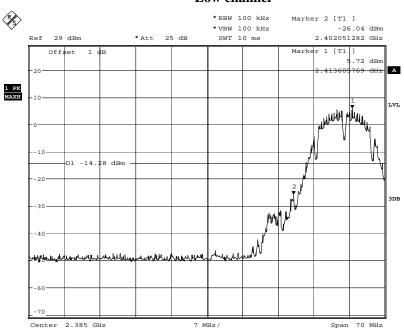
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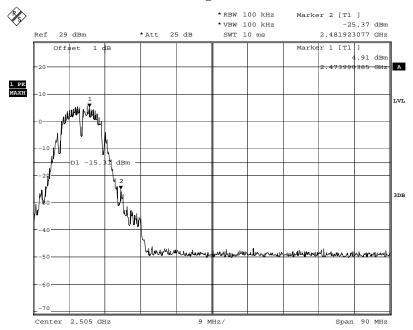
Conducted measurement:

802.11b

Low channel



High channel



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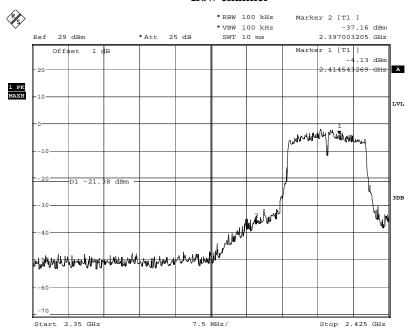
Report No: 1405171-02

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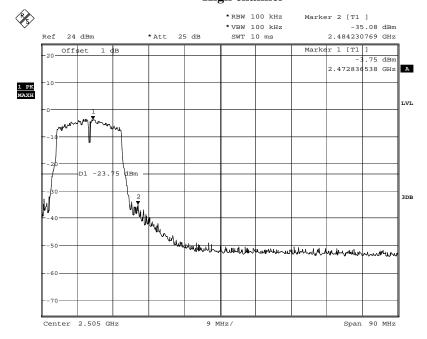


802.11g

Low channel



High channel



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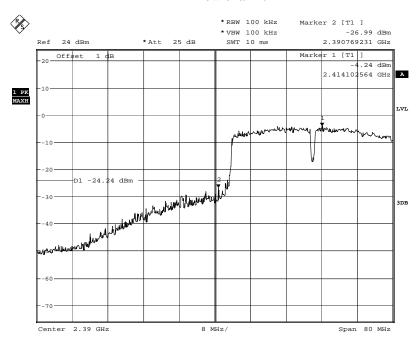
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Date: 2014-04-22

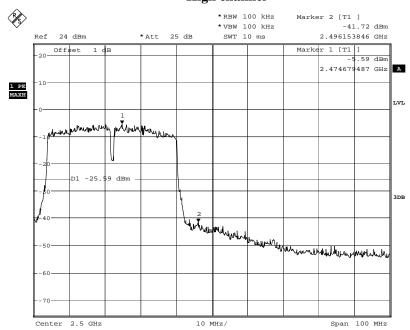


802.11n_HT20

Low channel



High channel



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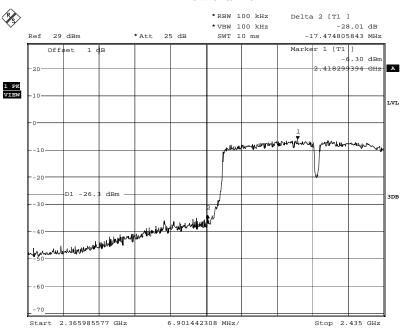
Report No: 1405171-02

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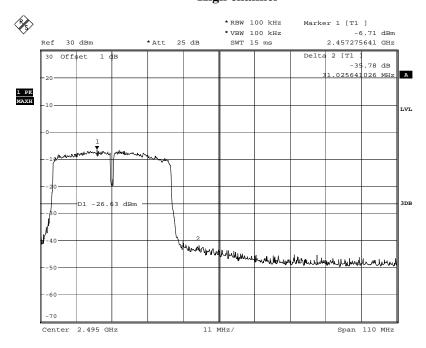


802.11n_HT40

Low channel



High channel



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12 -MAXIMUM CONDUCTED POWER

SPECTRAL DENSITY

Test Equipment

Please refer to Section 4 this report.

Test Procedure

- 1, This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.
- 2, Set analyzer center frequency to DTS channel center frequency.
- 3, Set the RBW to:3 kHz ≦RBW ≦100 kHz, Set the VBW ≧3 RBW, Detector = peak. Sweep time = auto couple
- 4, Trace mode = max hold, Allow trace to fully stabilize.

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

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55%
ATM Pressure:	100.0kPa

Applicable Standard

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 during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

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Test Result

PASS

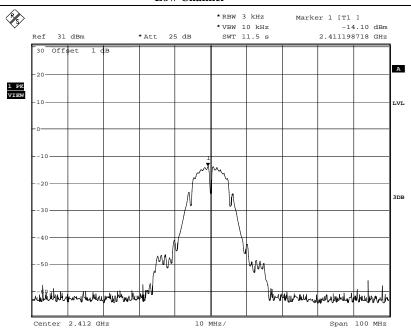
Channel Frequency (MHz)	Data Rate (Mbps)	PSD (dBm/3kHz)	Limit (dBm/3kHZ)	RESULT	
802.11b Mode					
2412	1	-14.10	8	Compliant	
2437	1	-14.54	8	Compliant	
2462	1	-15.16	8	Compliant	
802.11g Mode					
2412	6	-15.15	8	Compliant	
2437	6	-14.91	8	Compliant	
2462	6	-15.61	8	Compliant	
802.11n HT20 Mode					
2412	6.5	-16.45	8	Compliant	
2437	6.5	-16.03	8	Compliant	
2462	6.5	-16.91	8	Compliant	
802.11n HT40 Mode					
2422	13.5	-18.68	8	Compliant	
2437	13.5	-18.65	8	Compliant	
2452	13.5	-19.42	8	Compliant	

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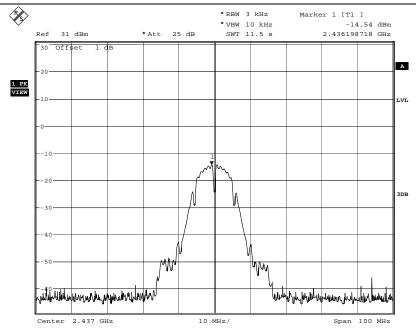


802.11b Mode:

Low Channel



Middle Channel



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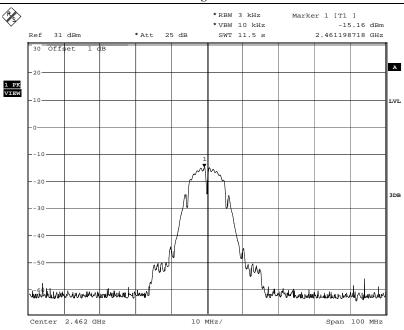
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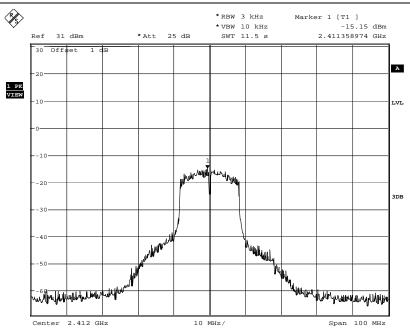


High Channel



802.11g Mode:

Low Channel



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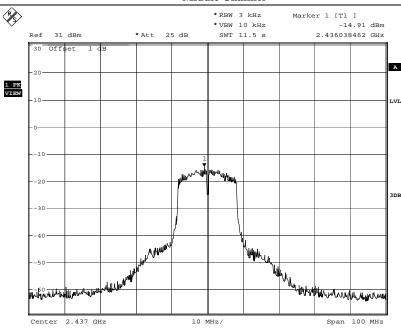
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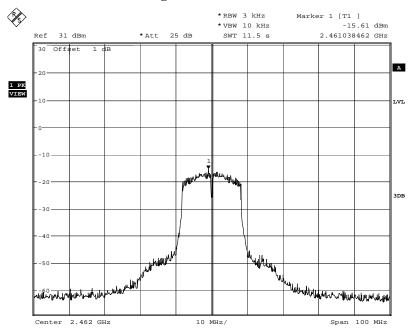
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Middle Channel



High Channel



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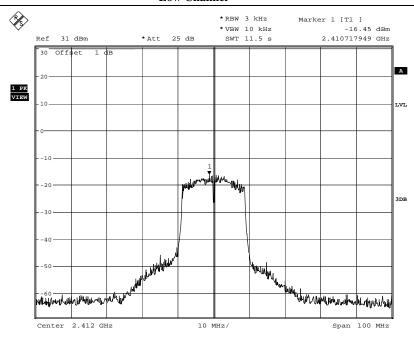
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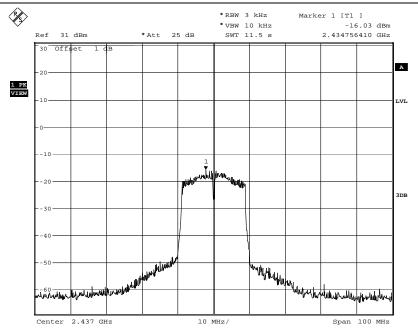


802.11n HT20 Mode:

Low Channel



Middle Channel



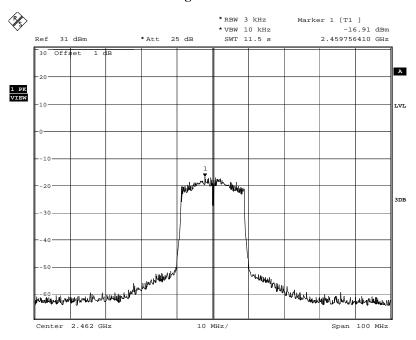
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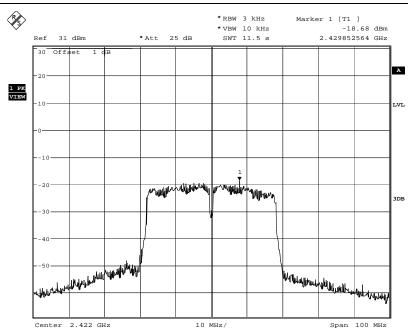


High Channel



802.11n HT40 Mode:

Low Channel



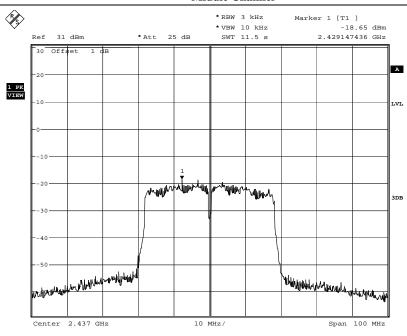
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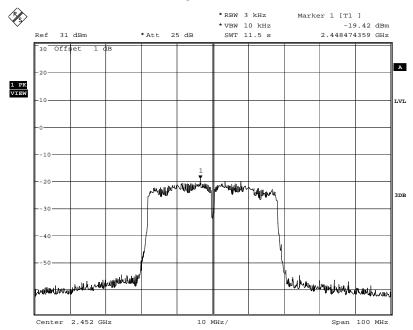
Date: 2014-04-22



Middle Channel



High Channel



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PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



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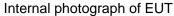
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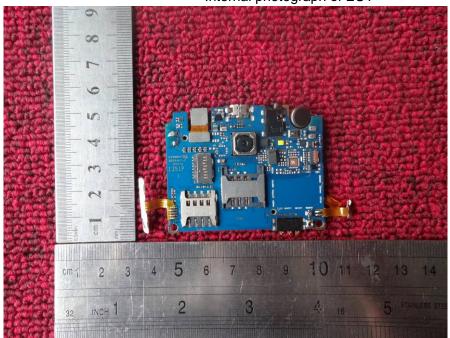
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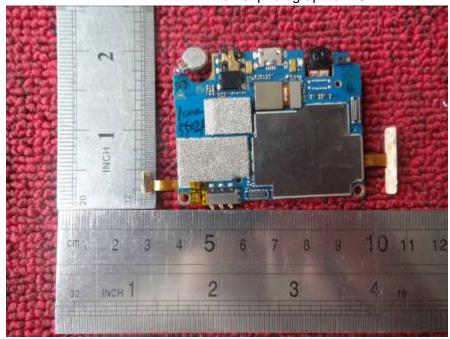
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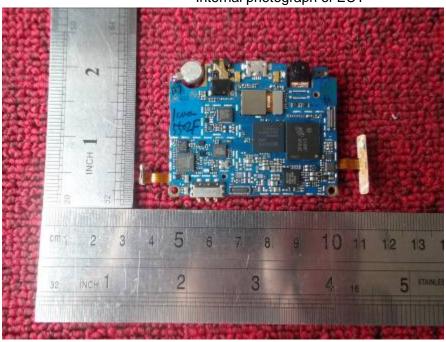
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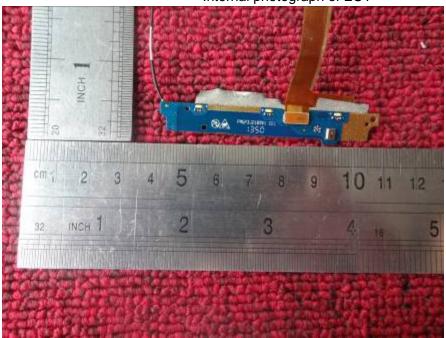
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