



Report No: FCC 1507150 File reference No: 2015-08-05

Applicant: Shenzhen Phiradar Technology Co., Ltd

Product: fish finder

Model No: SP200A

Trademark: phiradar/vexilar

Test Standards: FCC Part 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10, FCC Part 15 Subpart C, Paragraph 15.247 for the evaluation of electromagnetic

compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: August 05, 2015

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 TESTING LABORATORIES

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail: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.

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Room 512-519,5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen,

Guangdong 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: Shenzhen Phiradar Technology Co., Ltd

Address: Bldg.11, Xiaweishui Industrial Area, Hongqiaotou Street, Songgang Town, Bao an

District, Shenzhen, Guangdong, China

Telephone: 15813807142 Fax: 0755-36855285

1.3 Description of EUT

Product: fish finder

Manufacturer: Shenzhen Phiradar Technology Co., Ltd

Address: Bldg.11, Xiaweishui Industrial Area, Hongqiaotou Street, Songgang Town,

Bao an District, Shenzhen, Guangdong, China

Brand Name: phiradar/vexilar

Model Number: SP200A

Additional Model Number: N/A

Type of Modulation IEEE 802.11b : DSSS (CCK, QPSK, DBPSK)

IEEE 802.11g/n (HT20/40): OFDM(64QAM, 16QAM, QPSK, BPSK)

Frequency range IEEE 802.11b/g/n (HT20): 2412-2462MHz; IEEE 802.11n (HT40): 2422-2452MHz

Channel Spacing 5MHz for IEEE 802.11b/g/n(HT20/40)
Air Data Rate IEEE 802.11b: 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48,36, 24, 18, 12, 9, 6 Mbps

IEEE 802.11n HT20/40: 65, 58.5, 52, 39, 26, 19.5, 13, 6.5 Mbps

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels; IEEE 802.11n (HT40): 7 Channels,

Antenna: Integral Antenna and the maximum Gain of this antenna is 2.0dBi;

1.4 Submitted Sample: 2 Samples

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Test Duration 2015-07-28 to 2015-08-05

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

Terry Tang Test Engineer The sample tested by

Print Name: Terry Tang

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2.0 Test Equipments					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2014-08-21	2015-08-20
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2014-08-22	2015-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2014-08-22	2015-08-21
Ultra Broadband ANT	R&S	HL562	100157	2014-08-23	2015-08-22
ESDV Test Receiver	R&S	ESDV	100008	2014-08-22	2015-08-21
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2014-08-21	2015-08-20
System Controller	CT	SC100	-		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2014-08-22	2015-08-21
ESPI Test Receiver	R&S	ESI26	838786/013	2014-08-22	2015-08-21
3m OATS			N/A	2014-08-21	2015-08-20
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2014-08-23	2015-08-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2014-08-23	2015-08-22
Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-23	2015-08-22
LISN	AFJ	LS16C	10010947251	2014-08-21	2015-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21
9*6*6 Anechoic			N/A	2014-08-21	2015-08-20
EMI Test Receiver	RS	ESCS30	100139	2014-08-22	2015-08-21

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3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 11Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 54Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: 6.5Mbps data rate (worst case) were chosen for full testing

IEEE 802.11n (HT40) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n (HT40) mode: 6.5Mbps data rate (worst case) were chosen for full testing

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

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3.0 **Technical Details**

3.1 **Summary of test results**

Standard	Test Type	Result	Notes
CC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit:	PASS	Complies

3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247 and ANSI C63.10:2013 and ANSI C63.4:2014

4.0 **EUT Modification**

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

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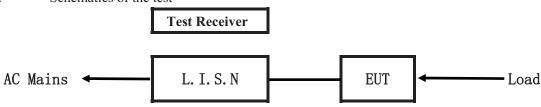
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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

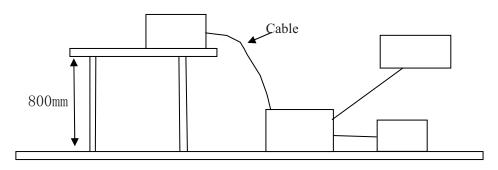


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
fish finder	Shenzhen Phiradar Technology Co., Ltd	SP200A	2AA86-SP200A

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable

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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency		Class A Lim	its (dB µ V)	Class B Limits (dB µ V)	
	(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
Ī	0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
	$0.50 \sim 5.00$	73.0	60.0	56.0	46.0
	5.00 ~ 30.00	73.0	60.0	60.0	50.0

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: Powered by Boat battery

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6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup Distance = 3m Computer Pre -Amplifier Furn-table Receiver

- 6.2 Configuration of The EUT
 Same as section 5.3 of this report
- 6.3 EUT Operating Condition
 Same as section 5.4 of this report.

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

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109 and RSS-210

Frequency Range (MHz)	Distance (m)	Field strength (dB µ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal/Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
141.720	38.68	Н	43.50
400.000	42.54	Н	46.00
800.040	41.72	Н	46.00
240.000	38.99	Н	46.00
147.960	34.78	V	43.50
800.000	43.28	V	46.00
480.000	42.82	V	46.00
240.000	35.49	V	46.00

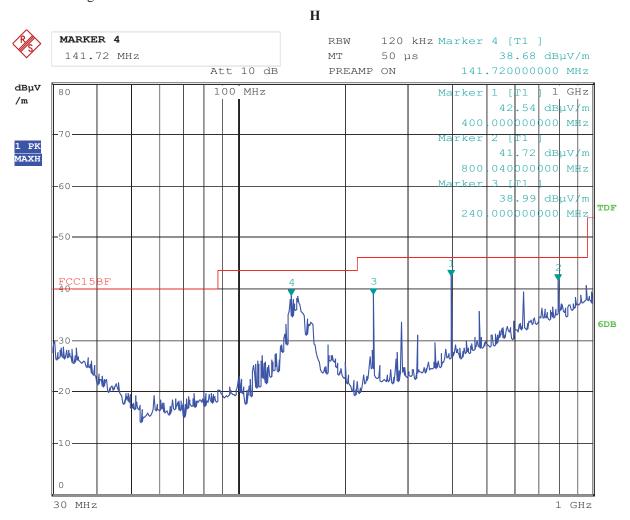
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Test Figure:



5.AUG.2015 10:08:38 Date:

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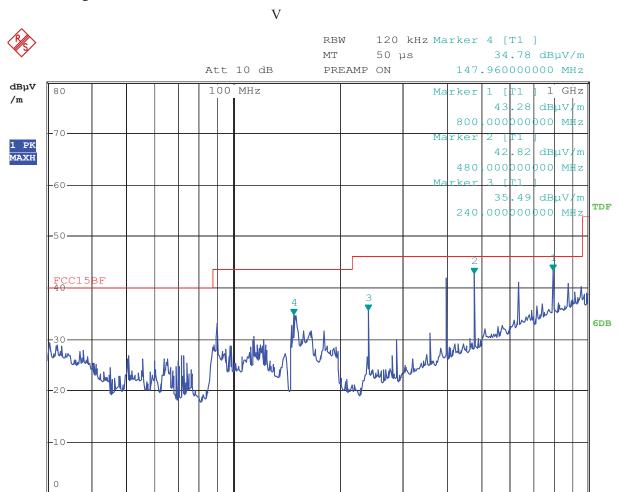
1 GHz

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Test Figure:



5.AUG.2015 10:05:56 Date:

30 MHz

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Operation Mode: Transmitting under CH01 for 11g at 54Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4824.00	50.78 (PK)	Н	74(Peak)/ 54(AV)
4824.00	50.82 (PK)	V	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16884		H/V	74(Peak)/ 54(AV)
19296		H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 54Mbps

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Operation Mode: Transmitting under CH06 for 11g at 54Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4874.00	52.47 (PK)	V	74(Peak)/ 54(AV)
4874.00	52.32 (PK)	Н	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496	-	H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode 54 Mbps

Operation Mode: Transmitting under CH11 for 11g at 54Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
4924	51.58 (PK)	Н	74(Peak)/ 54(AV)
4924	51.14 (PK)	V	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772	-	H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696		H/V	74(Peak)/ 54(AV)
22158	-	H/V	74(Peak)/ 54(AV)
24620		H/V	74(Peak)/ 54(AV)

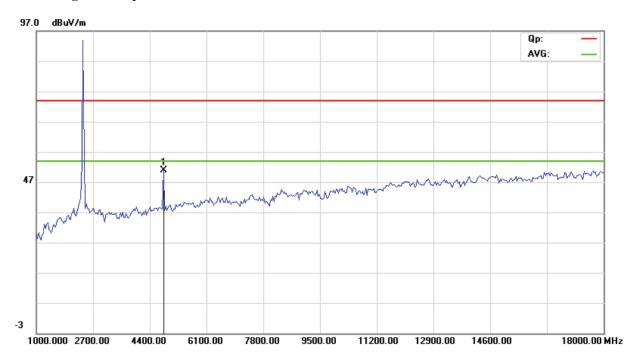
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11g mode at 54 Mbps

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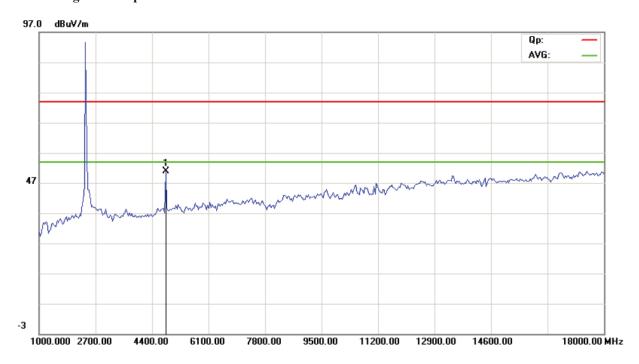


Please refer to the following test plots for details:

CH01 for 11g at 54Mbps: Horizontal



CH01 for 11g at 54Mbps: Vertical



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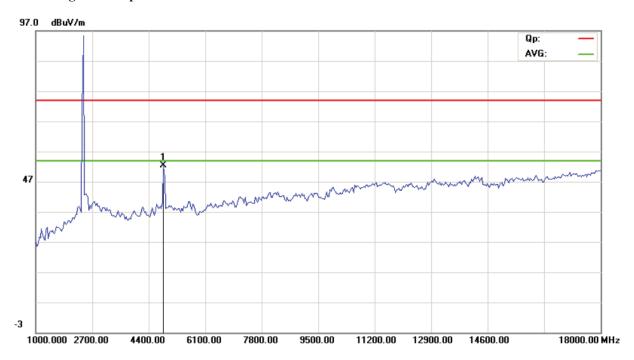
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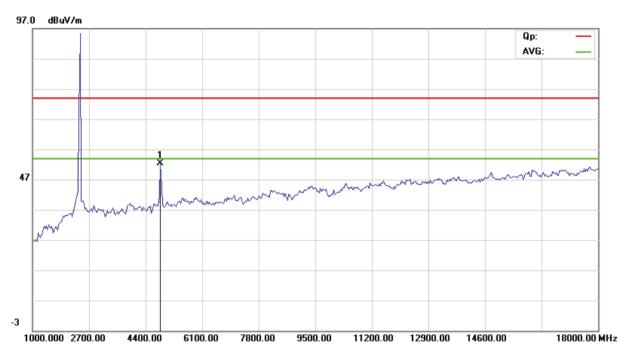
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CH06 for 11g at 54Mbps: Vertical



CH06 for 11g at 54Mbps: Horizontal



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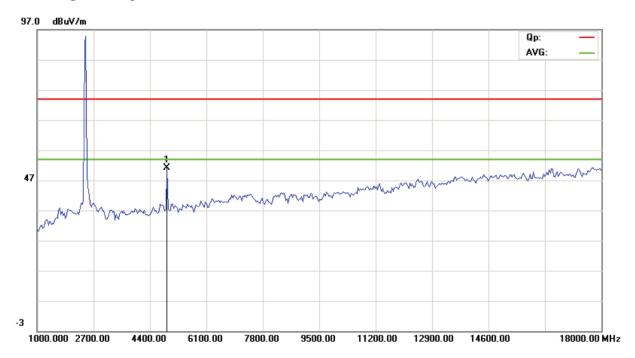
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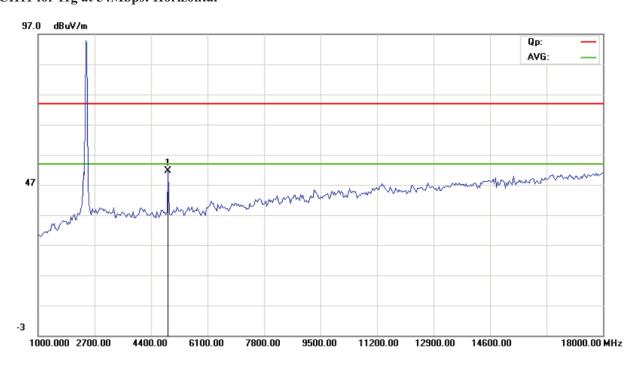
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CH11 for 11g at 54Mbps: Vertical



CH11 for 11g at 54Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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adopt any other remedies which may be appropriate.

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Operation Mode: Transmitting under CH01 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
4824.00	50.82 (PK)	Н	74(Peak)/ 54(AV)
4824.00	50.59 (PK)	V	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16684		H/V	74(Peak)/ 54(AV)
19296		H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

Operation Mode: Transmitting under CH06 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03ba V/m)	Antenna Polarity	Limit@3m (dB \u03b4 V/m)
4874.00	51.62 (PK)	Н	74(Peak)/ 54(AV)
4874.00	50.58 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode 11Mbps

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Operation Mode: Transmitting under CH11 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	52.29 (PK)	Н	74(Peak)/ 54(AV)
4924	50.13 (PK)	V	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772		H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696		H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24620		H/V	74(Peak)/ 54(AV)

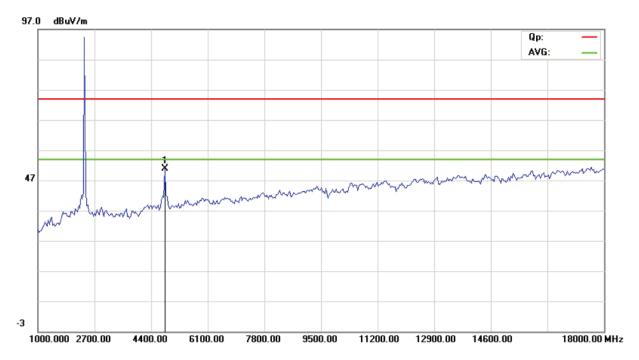
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 11Mbps

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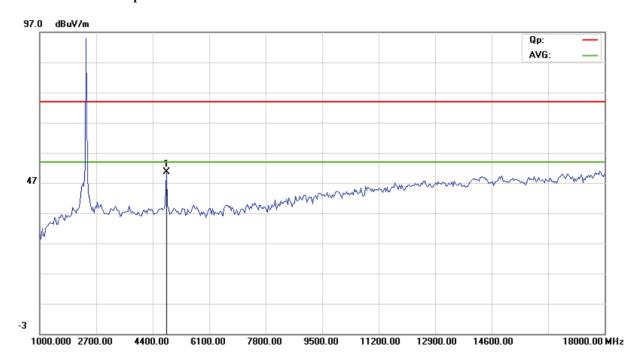


Please refer to the following test plots for details:

CH01 for 11b at 11Mbps: Horizontal



CH01 for 11b at 11Mbps: Vertical



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

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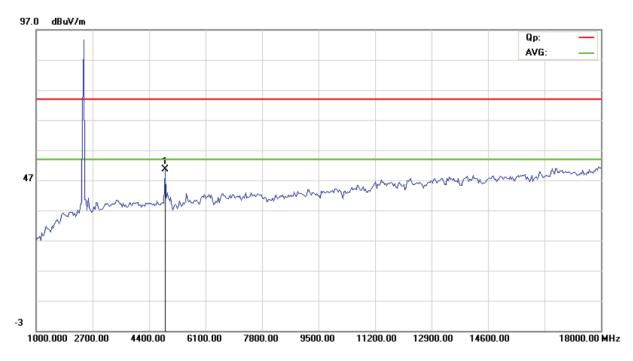
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

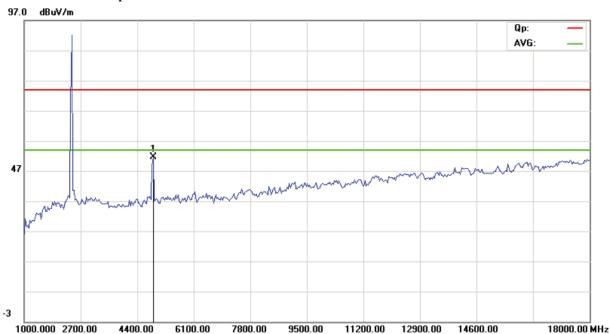
Date: 2015-08-05



CH06 for 11b at 11Mbps: Vertical



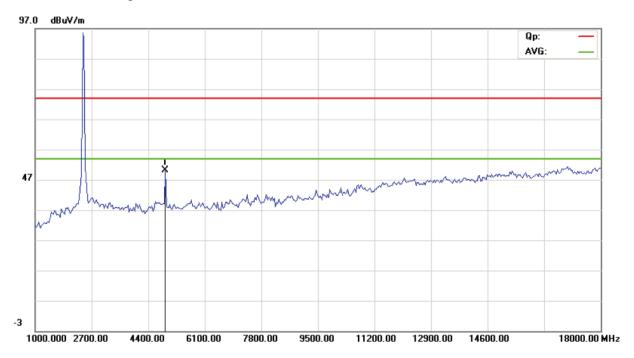
CH06 for 11b at 11Mbps: Horizontal



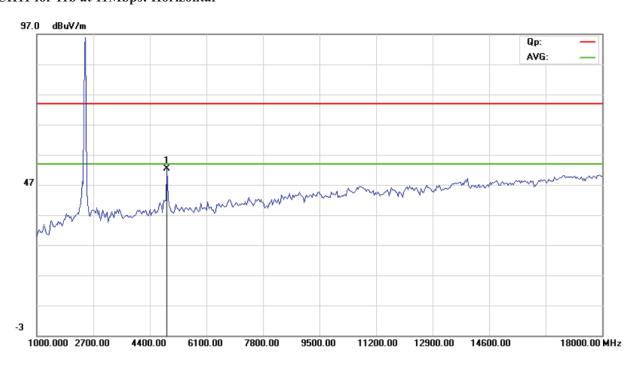
Date: 2015-08-05



CH11 for 11b at 11Mbps: Vertical



CH11 for 11b at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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Operation Mode: Transmitting under CH01 for 11n HT20 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4824.00	51.85 (PK)	Н	74(Peak)/ 54(AV)
4824.00	51.10 (PK)	V	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16684		H/V	74(Peak)/ 54(AV)
19296	-	H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 6.5Mbps

Operation Mode: Transmitting under CH06 for 11n HT20 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
4874.00	51.54 (PK)	Н	74(Peak)/ 54(AV)
4874.00	52.19 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 6.5Mbps

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Operation Mode: Transmitting under CH11 for 11n HT20 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	51.69 (PK)	Н	74(Peak)/ 54(AV)
4924	51.64 (PK)	V	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772		H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696	-	H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24620		H/V	74(Peak)/ 54(AV)

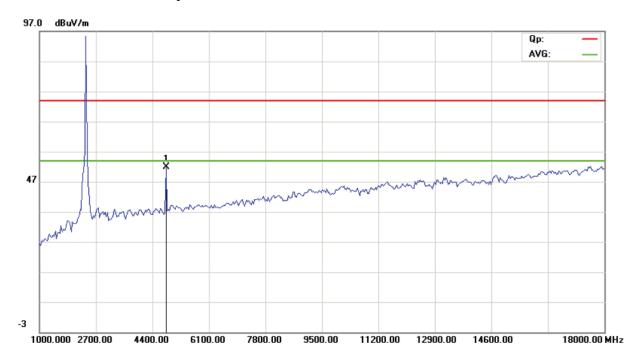
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT20) mode 6.5Mbps

Date: 2015-08-05

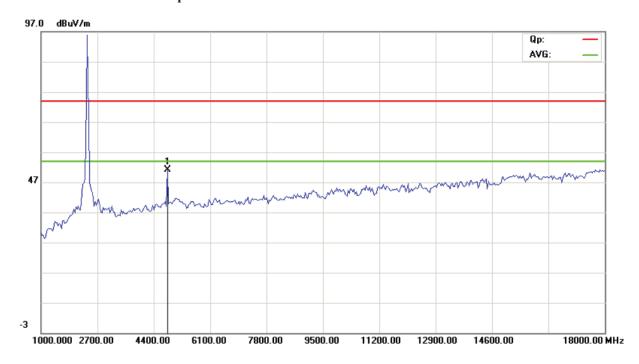


Please refer to the following test plots for details:

CH01 for 11n HT20 at 6.5Mbps: Horizontal



CH01 for 11n HT20 at 6.5Mbps: Vertical



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

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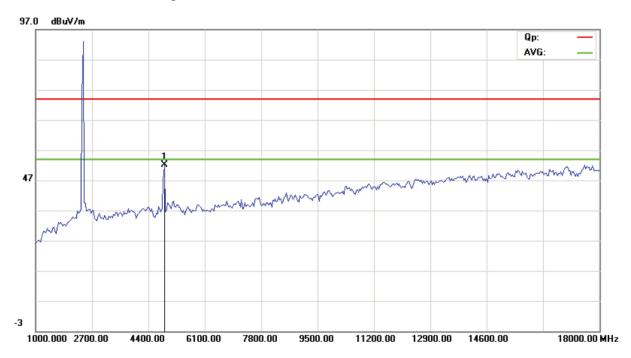
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

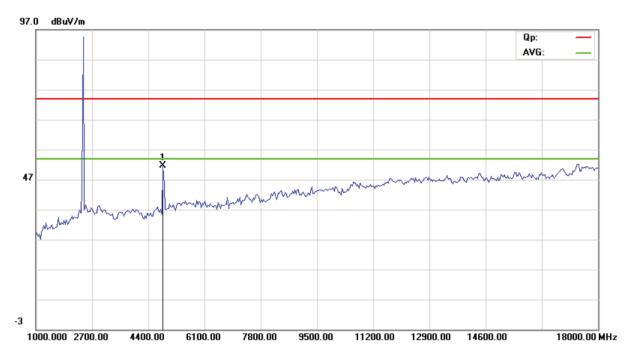
Date: 2015-08-05



CH06 for 11n HT20 at 6.5Mbps: Vertical



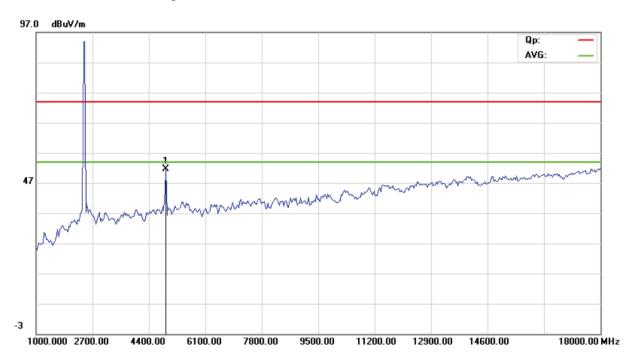
CH06 for 11n HT20 at 6.5Mbps: Horizontal



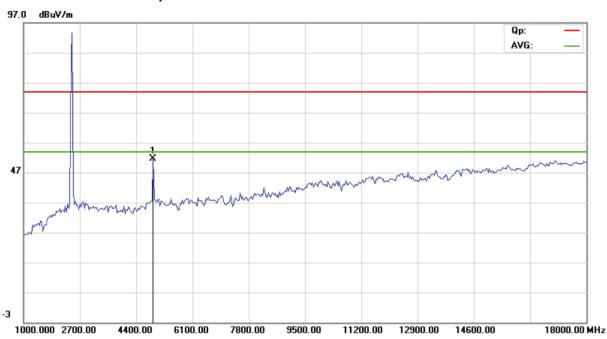
Date: 2015-08-05



CH11 for 11n HT20 at 6.5Mbps: Vertical



CH11 for 11n HT20 at 6.5Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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Operation Mode: Transmitting under CH01 for 11n HT40 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4844.00	49.51 (PK)	Н	74(Peak)/ 54(AV)
4844.00	49.27 (PK)	V	74(Peak)/ 54(AV)
7266.00		H/V	74(Peak)/ 54(AV)
9688.00	-	H/V	74(Peak)/ 54(AV)
12110		H/V	74(Peak)/ 54(AV)
14532		H/V	74(Peak)/ 54(AV)
16954		H/V	74(Peak)/ 54(AV)
19376	-	H/V	74(Peak)/ 54(AV)
21798		H/V	74(Peak)/ 54(AV)
24220		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 6.5Mbps

Operation Mode: Transmitting under CH04 for 11n HT40 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \mu V/m)
4874.00	50.16 (PK)	Н	74(Peak)/ 54(AV)
4874.00	50.46 (PK)	V	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 6.5Mbps

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Operation Mode: Transmitting under CH07 for 11n HT40 at 6.5Mbps

Frequency (MHz)	Level@3m (dB \u03bc V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4904	48.82 (PK)	Н	74(Peak)/ 54(AV)
4904	50.08 (PK)	V	74(Peak)/ 54(AV)
7356		H/V	74(Peak)/ 54(AV)
9808		H/V	74(Peak)/ 54(AV)
12260		H/V	74(Peak)/ 54(AV)
14712		H/V	74(Peak)/ 54(AV)
17164		H/V	74(Peak)/ 54(AV)
19616		H/V	74(Peak)/ 54(AV)
22068		H/V	74(Peak)/ 54(AV)
24520		H/V	74(Peak)/ 54(AV)

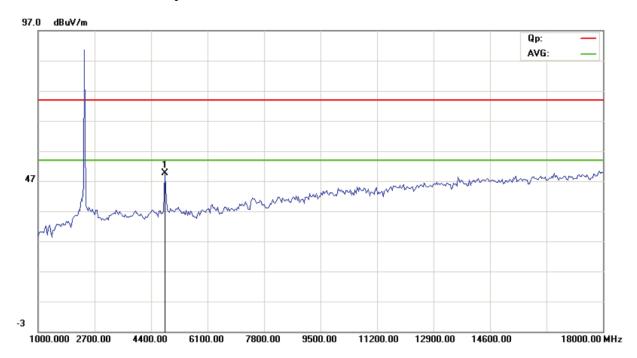
- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11n (HT40) mode 6.5Mbps

Date: 2015-08-05

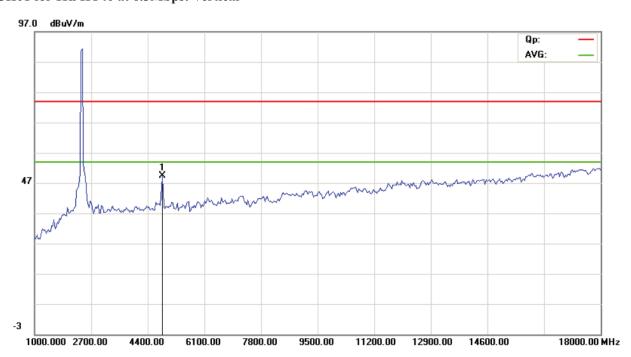


Please refer to the following test plots for details:

CH01 for 11n HT40 at 6.5Mbps: Horizontal



CH01 for 11n HT40 at 6.5Mbps: Vertical



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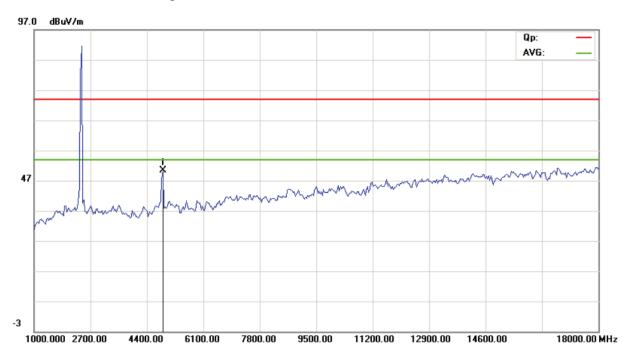
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

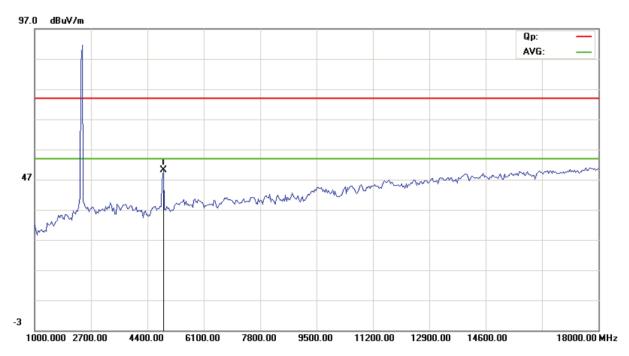
Date: 2015-08-05



CH04 for 11n HT40 at 6.5Mbps: Vertical



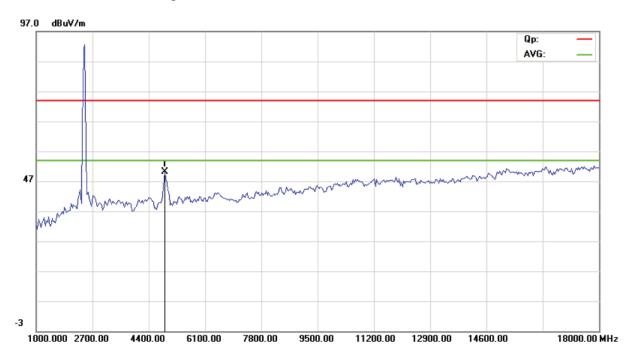
CH04 for 11n HT40 at 6.5Mbps: Horizontal



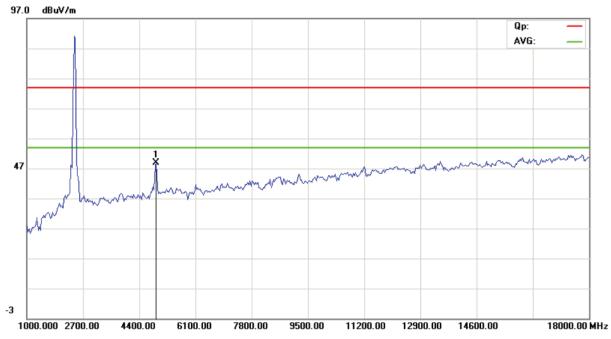
Date: 2015-08-05



CH07 for 11n HT40 at 6.5Mbps: Vertical



CH07 for 11n HT40 at 65Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

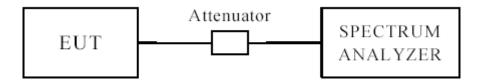
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW) \geq 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

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6dB Occupied Bandwidth

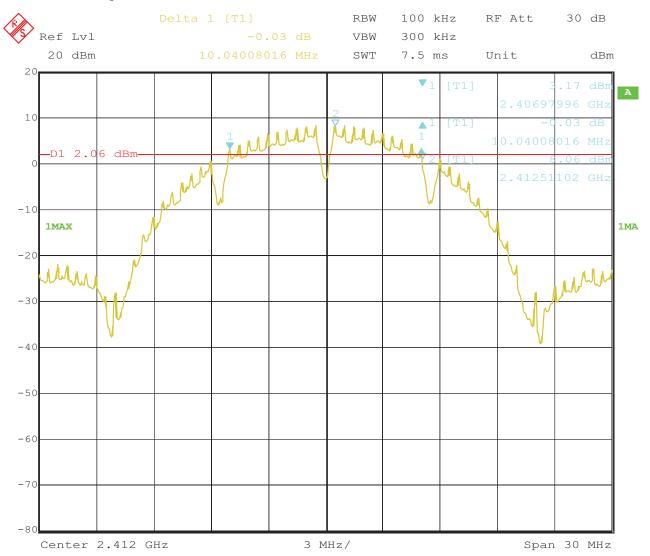
EUT	T fish		sh finder		Model		SP2	200A
Mode		8	302.11b		Input Vol	tage	DC	212V
Temperat	ure	24	4 deg. C,		Humidity	,	56%	% RH
Channel		el Frequency (MHz)			Minimum Limit (MHz)		Pass/ Fail	
1		2412	1	10	.04	0.5		Pass
6		2437	1	10	.04	0.5		Pass
11		2462	1	10	.04		0.5	Pass
1		2412	11	9.	9.32		0.5	Pass
6		2437	11	9.	9.32		0.5	Pass
11		2462	11 9.3		32		0.5	Pass

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1. 802.11b at 1Mbps of CH01



4.AUG.2015 15:01:07 Date:

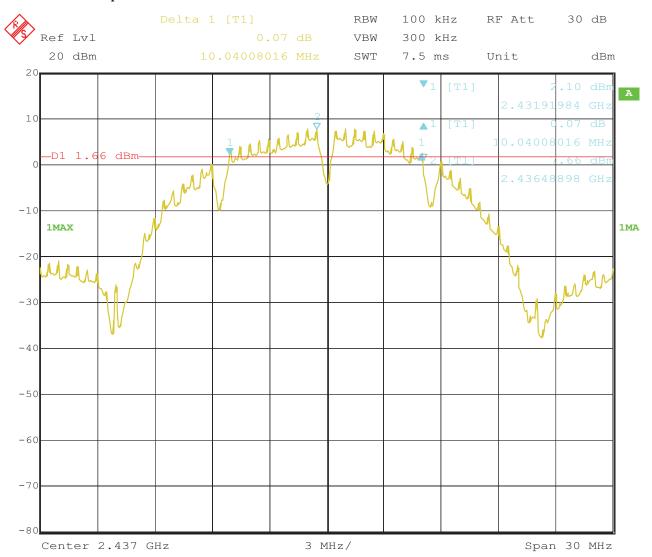
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2. 802.11b at 1Mbps of CH06



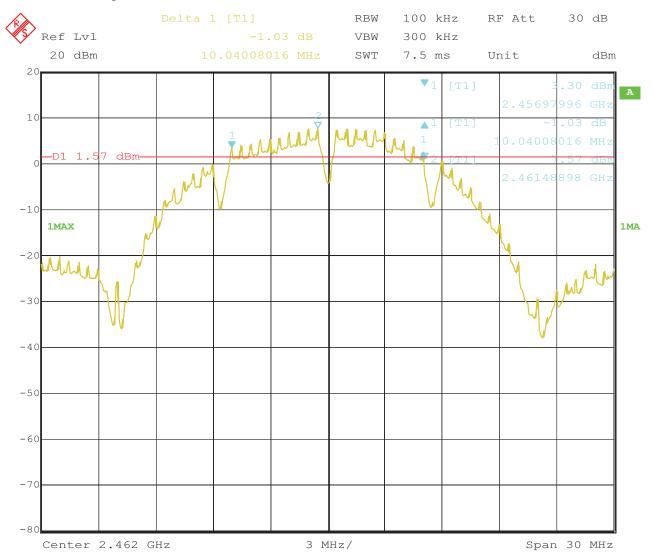
4.AUG.2015 15:16:45 Date:

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3. 802.11b at 1Mbps of CH11

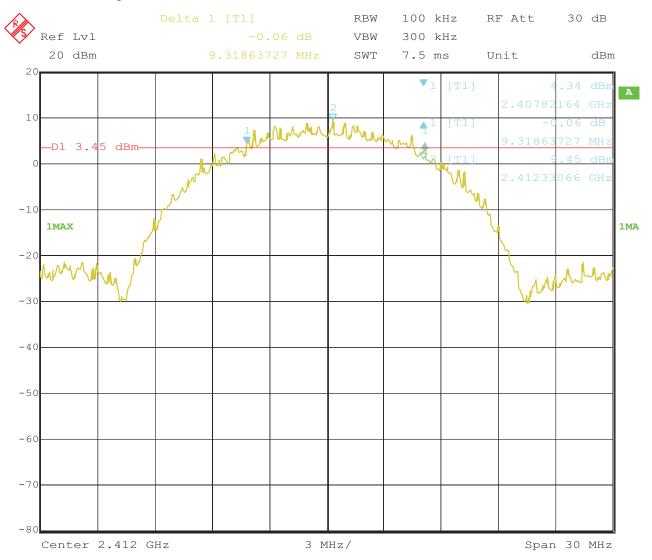


4.AUG.2015 Date: 15:19:28 Report No: FCC1507150 Page 41 of 99

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4. 802.11b at 11Mbps of CH01



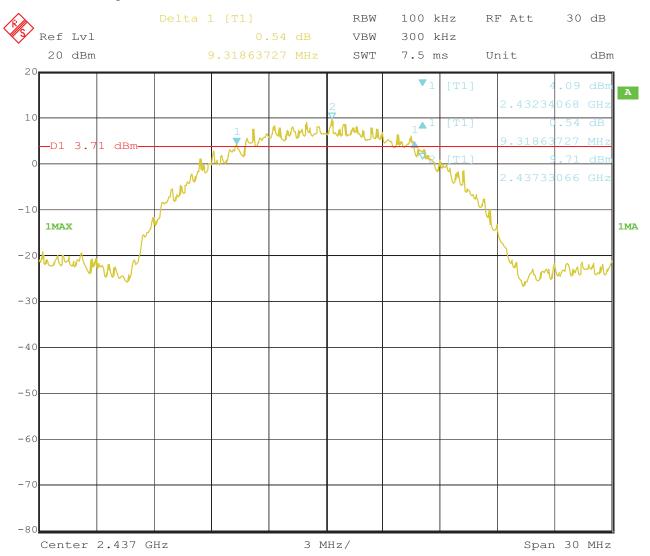
4.AUG.2015 15:08:33 Date:

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5. 802.11b at 11Mbps of CH06



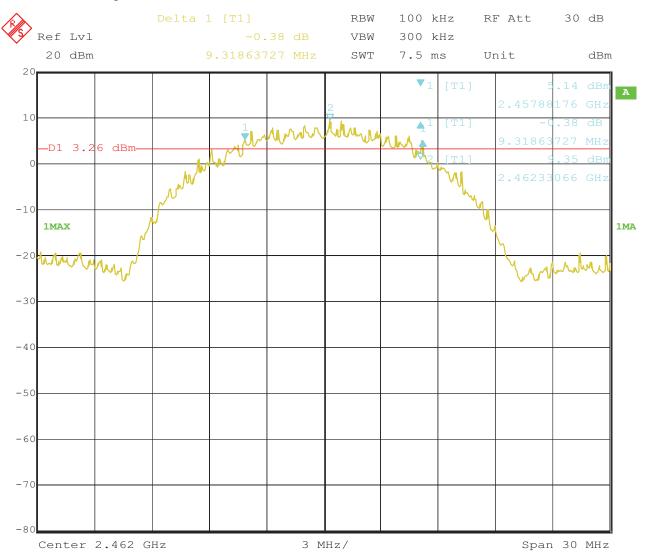
4.AUG.2015 15:10:56 Date:

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6. 802.11b at 11Mbps of CH11



4.AUG.2015 15:24:21 Date:

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6dB Occupied Bandwidth

EUT		fis	sh finder		Model		S	SP200A
Mode		8	302.11g		Input Vol	tage	I	DC12V
Temperat	ure	24	4 deg. C,		Humidity	,	5	6% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		andwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	54	16	5.41		0.5	Pass
6		2437	54	16	.41	0.5		Pass
11		2462	54	16	.41		0.5	Pass

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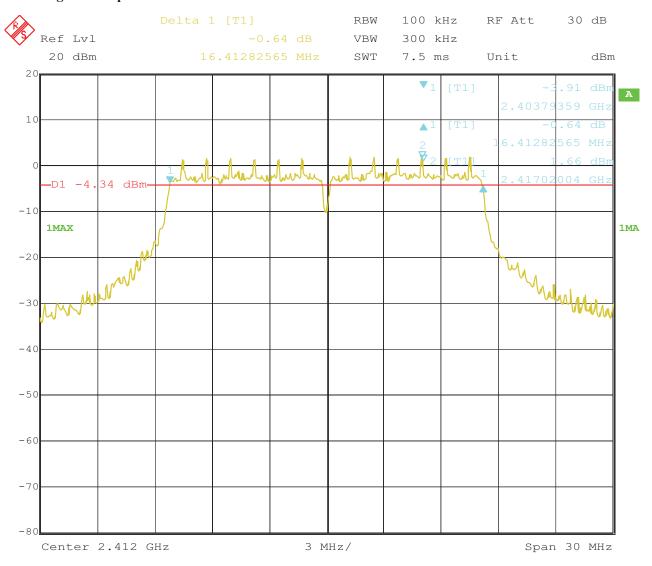
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Test Plots:

1. 802.11g at 54Mbps of CH01



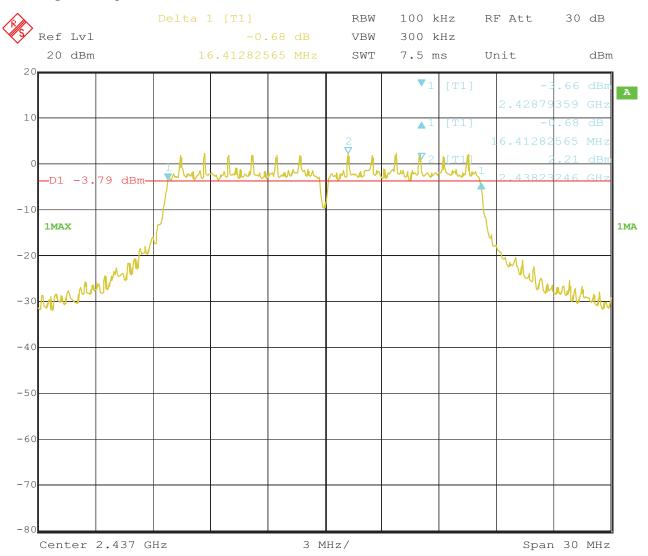
4.AUG.2015 15:06:15 Date:

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2. 802.11g at 54Mbps of CH06



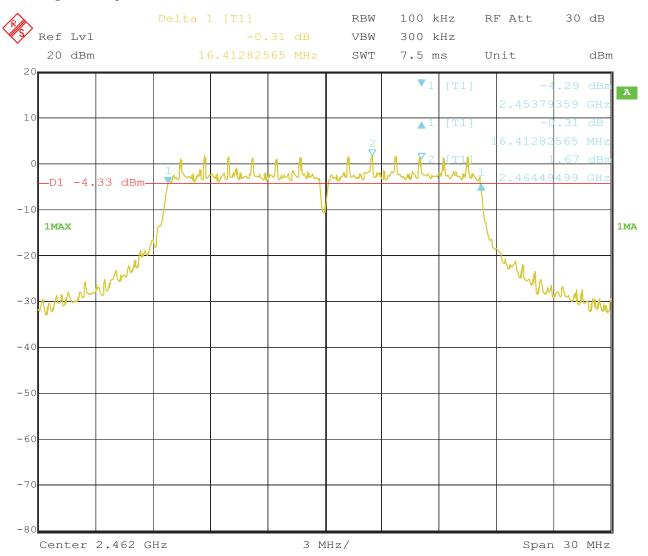
4.AUG.2015 15:13:49 Date:

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3. 802.11g at 54Mbps of CH11



4.AUG.2015 15:21:43 Date:

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6dB Occupied Bandwidth

EUT		fi	sh finder		Model		SP2	200A
Mode		802	.11n HT20		Input Vol	tage	DC	212V
Temperat	ure	24	4 deg. C,		Humidity		56%	6 RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	6.5M	17	.56		0.5	Pass
6		2437	6.5M	17	.56		0.5	Pass
11		2462	6.5M	17	.56		0.5	Pass

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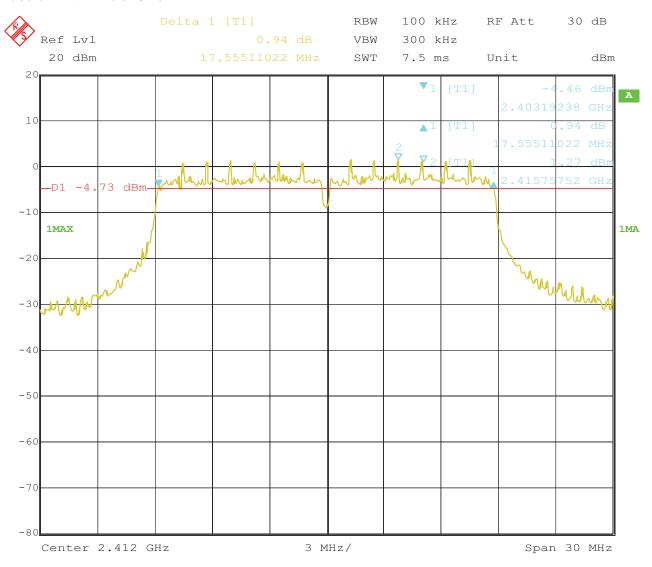
Report No: FCC1507150

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Test Plots:

1. 802.11n at HT20 of CH01



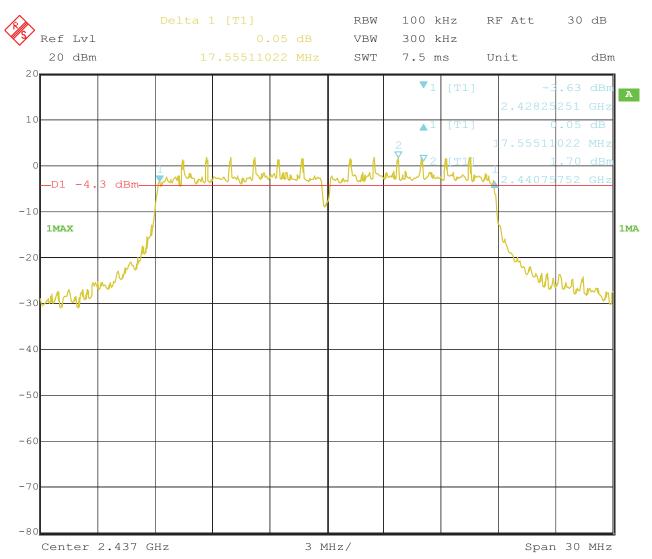
4.AUG.2015 15:33:42 Date:

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2. 802.11n at HT20 of CH06



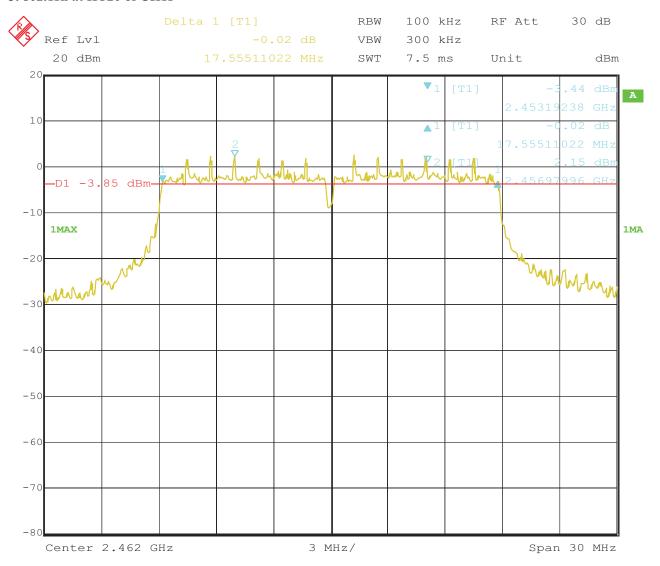
4.AUG.2015 15:30:51 Date:

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3. 802.11n at HT20 of CH11



4.AUG.2015 15:26:20 Date:

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6dB Occupied Bandwidth

EUT		fi	sh finder		Model		SP2	200A
Mode		802	.11n HT40		Input Vol	tage	DC	212V
Temperat	ure	24	4 deg. C,		Humidity	,	56%	% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)		mum Limit MHz)	Pass/ Fail
1		2422	6.5M	35	.39		0.5	Pass
4		2437	6.5M	35	.39		0.5	Pass
7		2452	6.5M	35	.39	0.5		Pass

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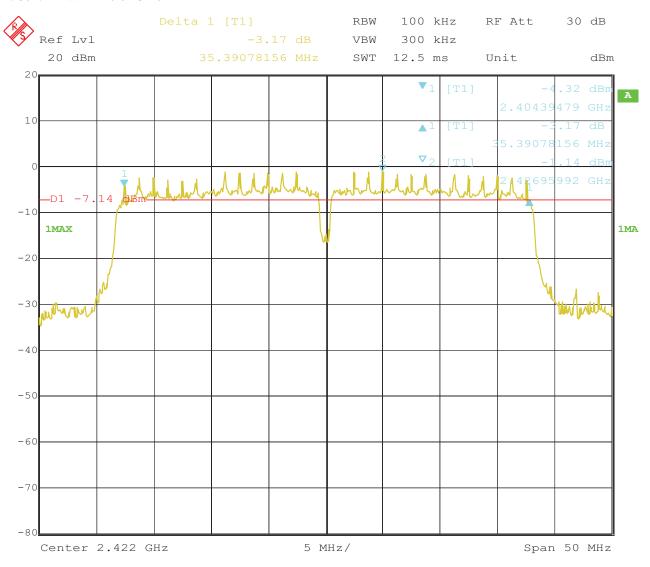
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Test Plots:

1. 802.11n at HT40 of CH01



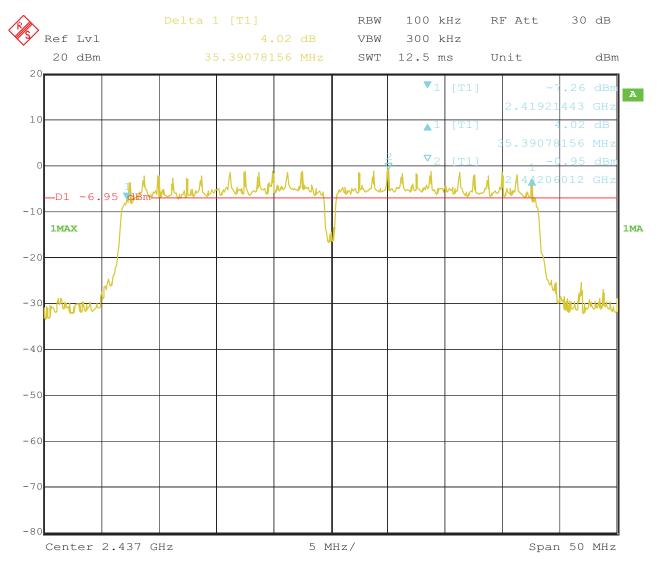
4.AUG.2015 15:36:21 Date:

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2. 802.11n at HT40 of CH04



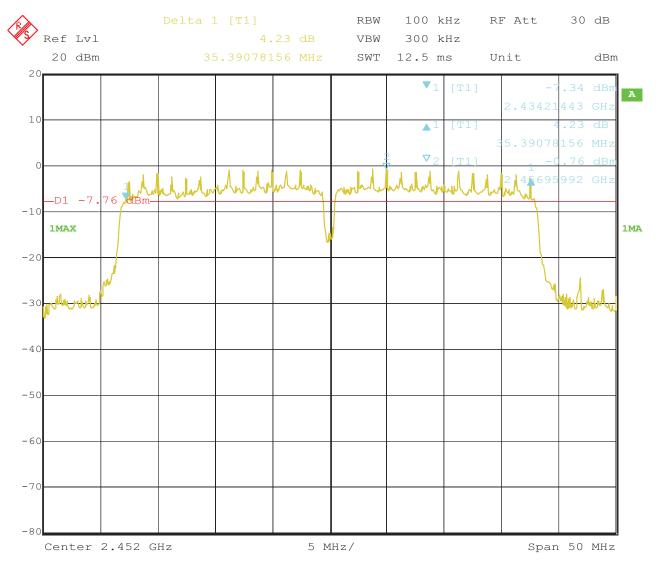
4.AUG.2015 15:39:24 Date:

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3. 802.11n at HT40 of CH07



4.AUG.2015 Date: 15:41:51 Report No: FCC1507150

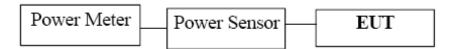
Date: 2015-08-05



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8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the Peak power was measured

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8.4Test Results

EUT	EUT fish fine		nder	M	odel		SP200A	
Mode	Mode 802.1		.1b Inj		Input Voltage		DC12V	
Temperat	Temperature 24 deg		g. C, Hum		nidity		56% RH	
Channel	nnel Channel Frequency (MHz)		Max. Power Output (dBm)		Power Limit (dBm)		Pass/ Fail	
1		2412	23.00		30		Pass	
6		2437	22.89		30		Pass	
11		2462	23.20		30)	Pass	

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	T fish fin		nder	M	odel		SP200A	
Mode	Mode 802.1		1g Input		nput Voltage		DC12V	
Temperat	Temperature 24 deg		g. C, Hum		midity		56% RH	
Channel	Channel Frequency (MHz)		Max. Power Output (dBm)		Power Limit (dBm)		Pass/ Fail	
1		2412	20.36		30		Pass	
6		2437	20.46		30		Pass	
11		2462	20.93		30)	Pass	

Note: 1. At finial test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

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EUT	EUT fish fin		nder	M	odel		SP200A	
Mode	Mode 802.11n ((HT20)	Input Voltage			DC12V	
Temperat	Temperature 24 deg		g. C, Hum		midity		56% RH	
Channel	nnel Channel Frequency (MHz)		Max. Power Output (dBm)		Power Limit (dBm)		Pass/ Fail	
1		2412	20.41		30		Pass	
6	2437		20.61		30		Pass	
11		2462	20.71	·	30)	Pass	

Note: 1. At finial test to get the worst-case emission at 6.5Mbps of 11n HT20 for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT	EUT fish fine		nder	M	odel		SP200A	
Mode	Mode 802.11n ((HT40)	Input Voltage			DC12V	
Temperat	Temperature 24 deg		g. C, Hum		midity		56% RH	
Channel	Channel Frequency (MHz)		Max. Power Output (dBm)		Power Limit (dBm)		Pass/ Fail	
1		2422	20.30		30		Pass	
4		2437	20.62		30		Pass	
7		2452	20.93		30)	Pass	

Note: 1. At finial test to get the worst-case emission at 6.5Mbps of 11n HT40 for CH01, CH04 and CH7

2. The result basic equation calculation as follow:

Max. Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

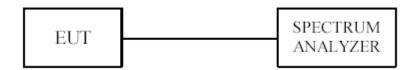
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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 10 kHz.
- 3. Set the VBW \geq 30 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be ≤ 8 dBm.

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9.4Test Result

EUT		fish fi	nder	M	odel		SP200A
Mode		802.11b 11Mbps		Input Voltage		DC12V	
Temperature		24 deg. C,		Humidity			56% RH
Channel	Cha	annel Frequency	Final RF Po	wer	Maximum Limit		Pass/ Fail
Chamie		(MHz)	Level (dBm)		(dB	m)	
			11Mbps	5			
1	2412		-1.56		8		Pass
6 2437		-0.82		8		Pass	
11	·	2462	-1.34		8		Pass

EUT		fish fii	nder	M	odel		SP200A	
Mode	Mode 80		02.11b 1Mbps		Input Voltage		DC12V	
Temperat	Temperature		g. C,	Humidity			56% RH	
Channel	Cha	annel Frequency (MHz)	Final RF Power Level in (dBm)		Maximui (dB:		Pass/ Fail	
			<u> </u>		`	,		
			1Mbps	}				
1		2412	-2.35		8		Pass	
6	6 2437		-2.46		8		Pass	
11		2462	-0.70	•	8	·	Pass	

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EUT	EUT fish fi		nder	M	Model		SP200A
Mode 80		802.11g 5	802.11g 54Mbps		Input Voltage		DC12V
Temperature		24 deg	g. C,	Humidity		56% RH	
Channel	Cha	annel Frequency (MHz)	Final RF Power Level in (dBm)		Maximur (dB:		Pass/ Fail
			54Mbps	S	<u>'</u>		
1		2412	-8.66		8		Pass
6	6 2437		-8.30		8		Pass
11		2462	-8.64		8		Pass

EUT	EUT fish fir		nder	M	Model		SP200A
Mode 802.1		802.11n HT2	802.11n HT20 6.5Mbps		Input Voltage		DC12V
Temperature		24 deg	g. C,	Humidity		56% RH	
Channel	Cha	annel Frequency	Final RF Power		Maximum Limit		Pass/ Fail
Chamici		(MHz)	Level (dBm)		(dB	m)	
			HT20				
1	2412		-7.11		8		Pass
6	6 2437		-6.81		8		Pass
11		2462	-6.61		8		Pass

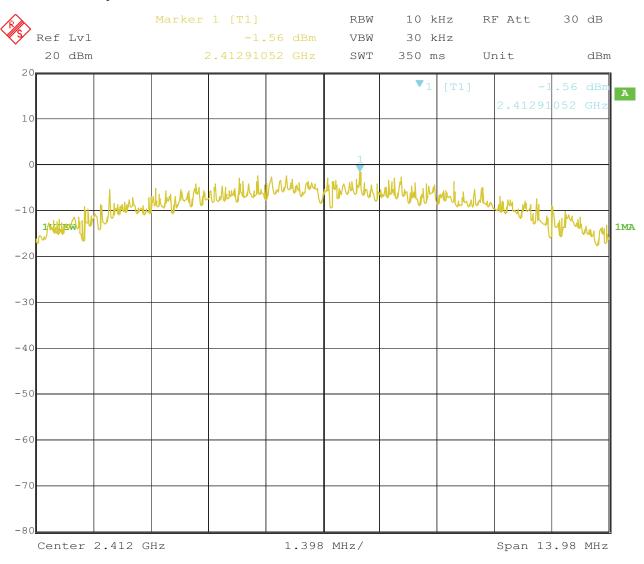
EUT		fish finder		Model		SP200A	
Mode		802.11n HT40 6.5Mbps		Input Voltage		DC12V	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Channel Frequency (MHz)		Final RF Power Level (dBm)		Maximum Limit (dBm)		Pass/ Fail
HT40							
1	2422		-10.85		8		Pass
4	2437		-9.99		8		Pass
7	2452		-10.08		8		Pass

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9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



4.AUG.2015 17:09:07 Date:

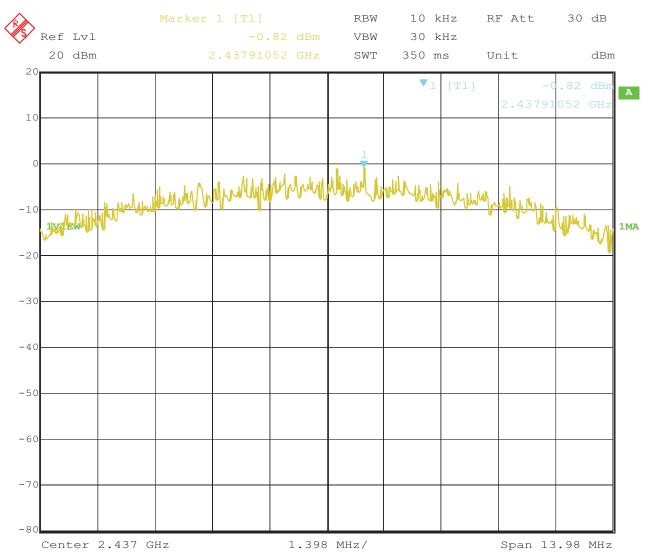
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2. 802.11b at 11Mbps at CH06



4.AUG.2015 17:09:41 Date:

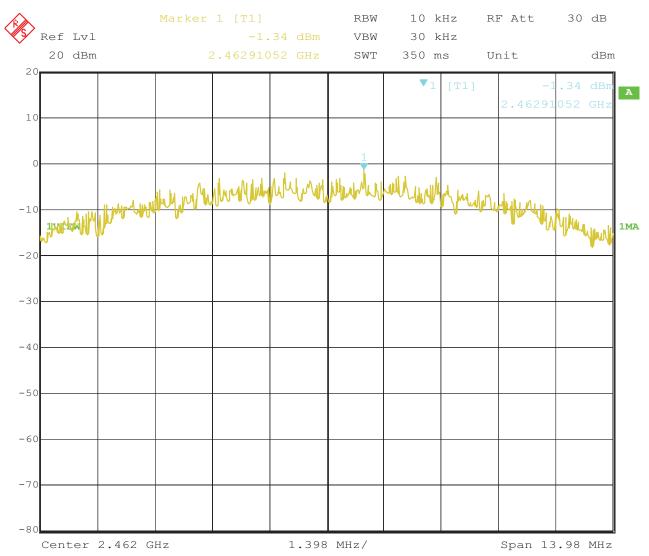
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3. 802.11b at 11Mbps of CH11



4.AUG.2015 Date: 17:10:42

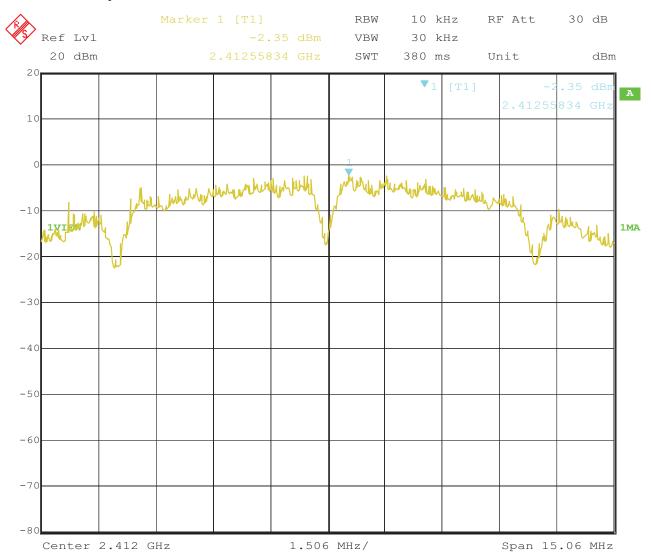
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4. 802.11b at 1Mbps of CH1



4.AUG.2015 17:15:34 Date:

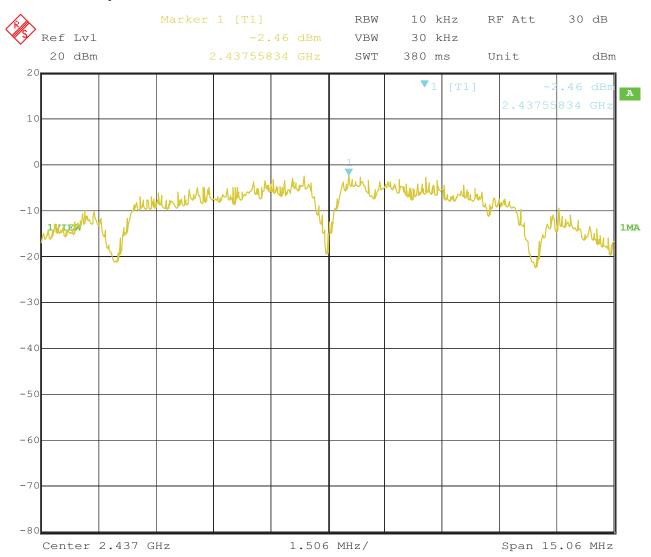
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5. 802.11b at 1Mbps of CH6



4.AUG.2015 17:16:07 Date:

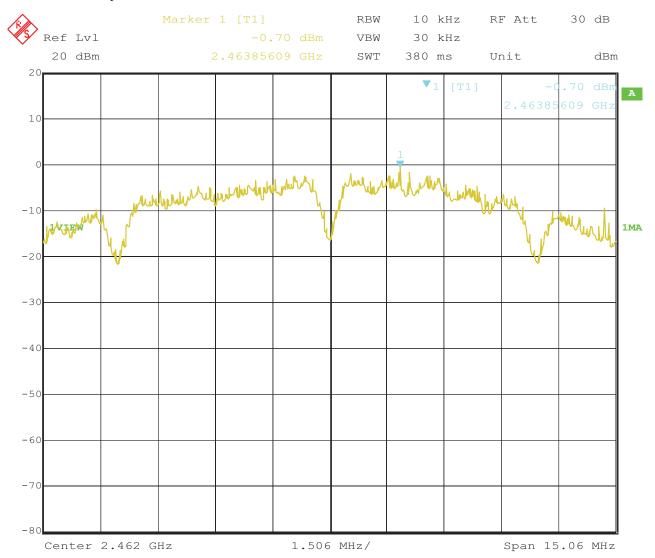
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6. 802.11b at 1Mbps of CH11



4.AUG.2015 17:16:36 Date:

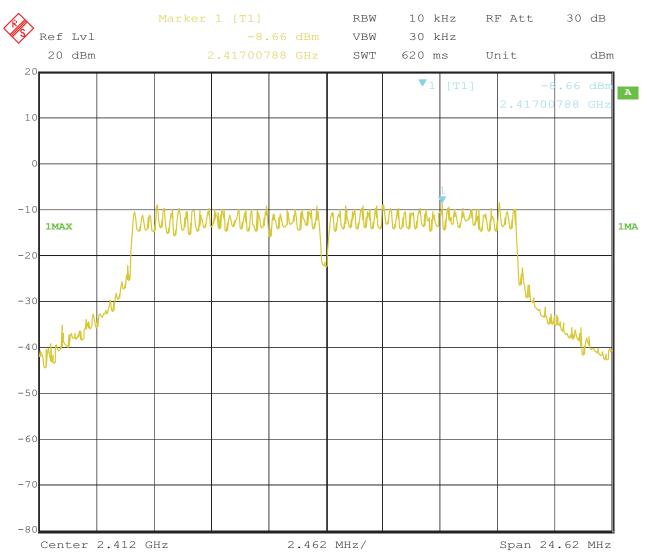
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7. 802.11g at 54Mbps of CH1



4.AUG.2015 17:14:44 Date:

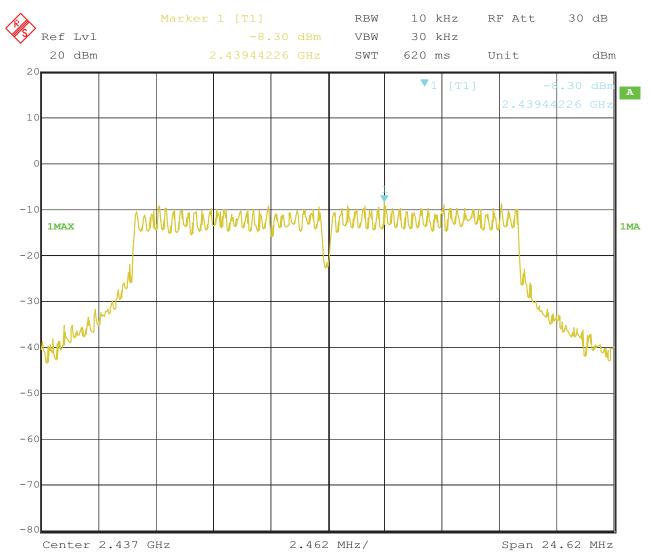
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8. 802.11g at 54Mbps of CH6



4.AUG.2015 17:13:22 Date:

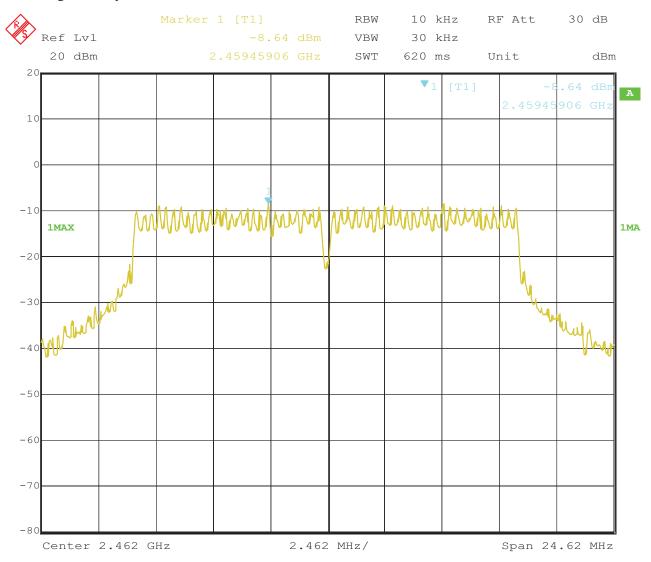
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9. 802.11g at 54Mbps of CH11



4.AUG.2015 17:12:08 Date:

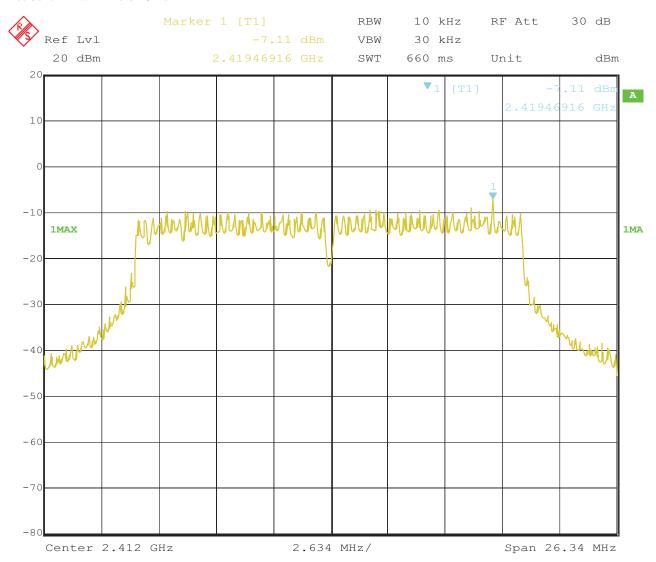
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10. 802.11n at HT20 of CH01

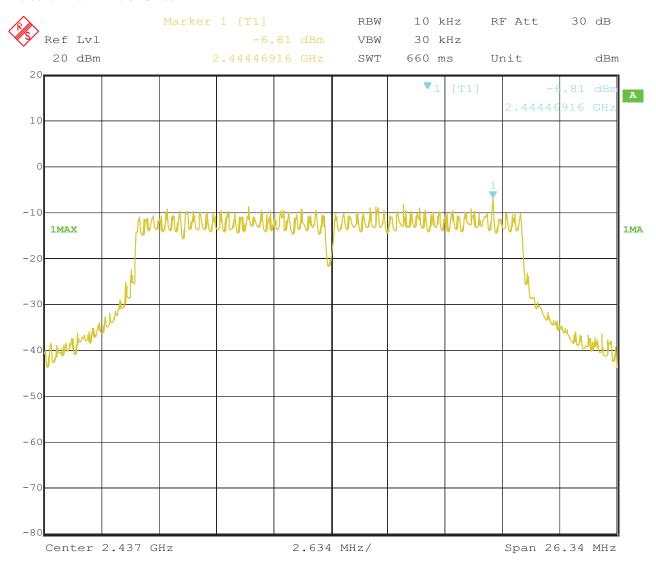


4.AUG.2015 Date: 17:18:41 Report No: FCC1507150 Page 72 of 99

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11. 802.11n at HT20 of CH06



4.AUG.2015 17:18:19 Date:

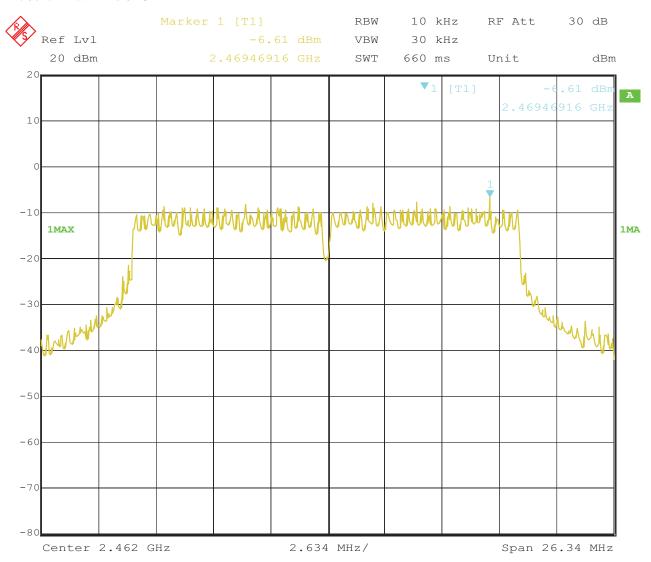
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12. 802.11n at HT20 of CH11



4.AUG.2015 17:17:35 Date:

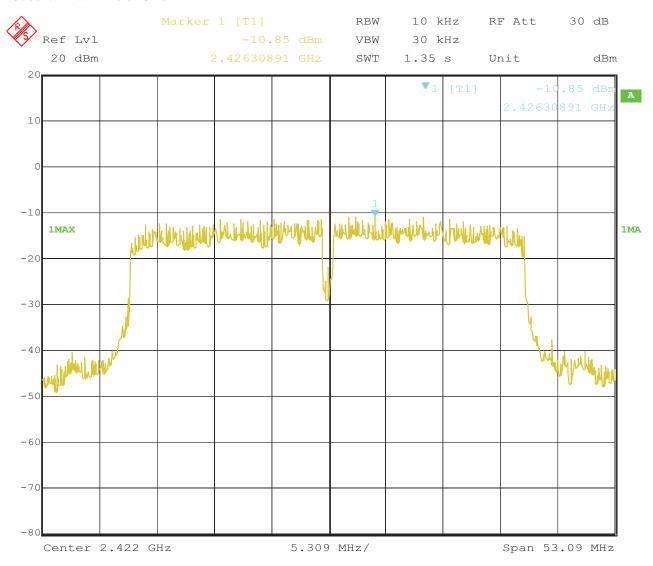
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13. 802.11n at HT40 of CH01



4.AUG.2015 17:19:30 Date:

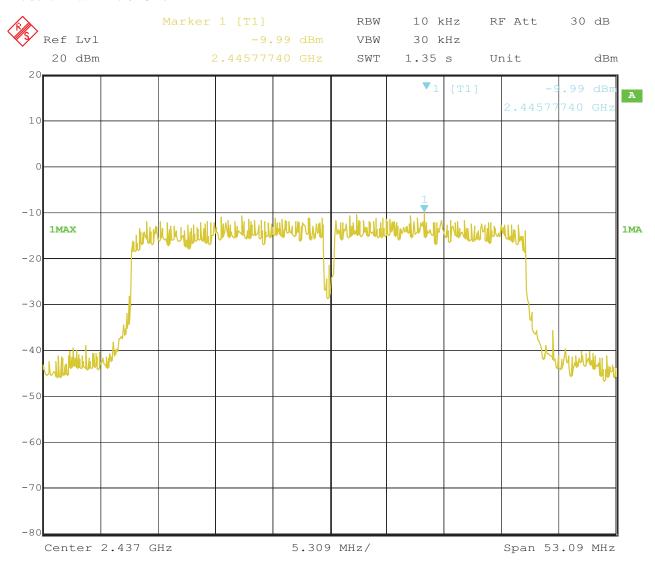
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14. 802.11n at HT40 of CH04



4.AUG.2015 17:20:52 Date:

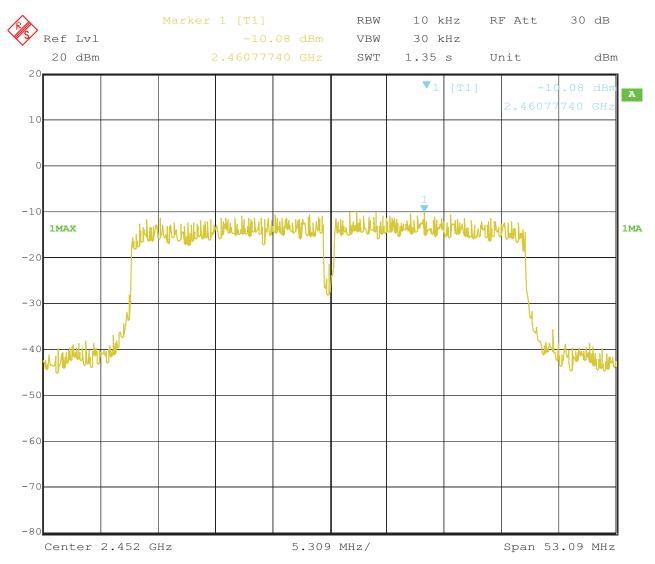
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15. 802.11n at HT40 of CH07

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4.AUG.2015 17:22:19 Date:

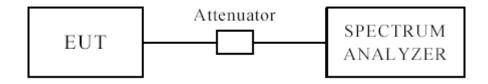
Date: 2015-08-05



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10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.(Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

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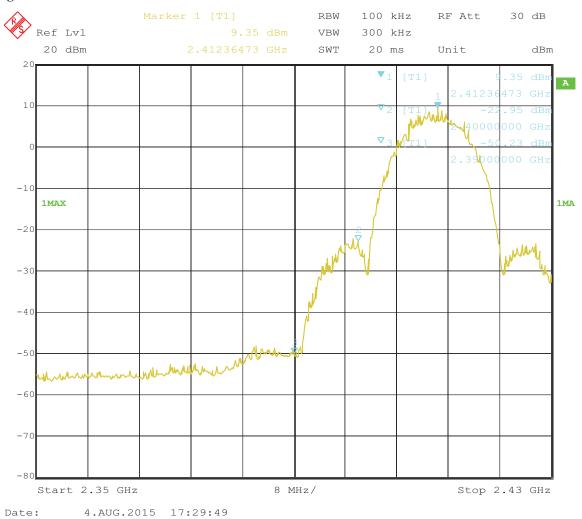
For 802.11b mode

CH01 at 11Mbps

Band-edge and Restricted band Measurement 10.4

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass	Detector	PK
2400	PK (dBµV/m)	67.2	T innit	$74(dB\mu V/m)$
	AV (dBμV/m)	47.5	Limit	$54(dB\mu V/m)$
2390	PK (dBµV/m)	44.6	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)		Liiiit	$54(dB\mu V/m)$

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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

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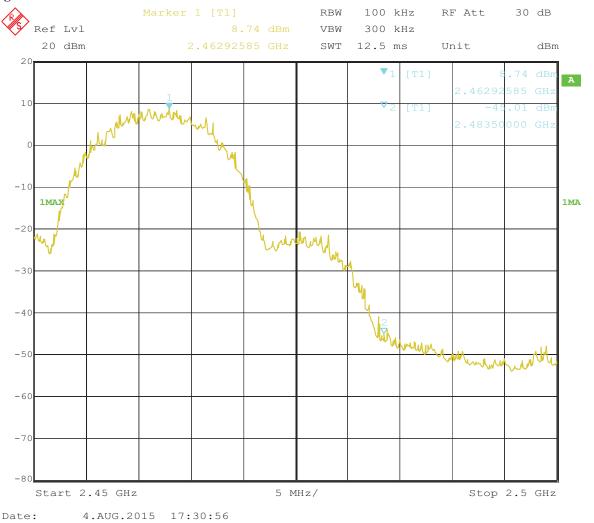


CH11 at 11Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	48.7	T,	74(dBμV/m)
	AV (dBμV/m)		Limit	54(dBμV/m)

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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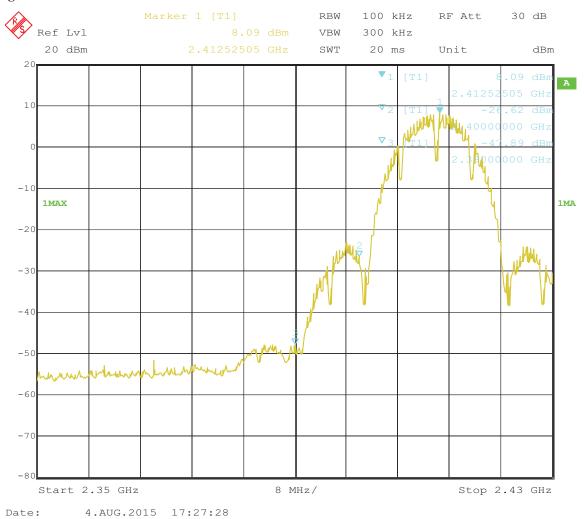
For 802.11b mode

CH01 at 1Mbps

Band-edge and Restricted band Measurement 10.4

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass	Detector	PK
2400	PK (dBµV/m)	66.5	T innit	$74(dB\mu V/m)$
	AV (dBμV/m)	46.2	Limit	$54(dB\mu V/m)$
2390	PK (dBµV/m)	44.0	Limit	$74(dB\mu V/m)$
	AV (dBμV/m)		Liiiit	$54(dB\mu V/m)$

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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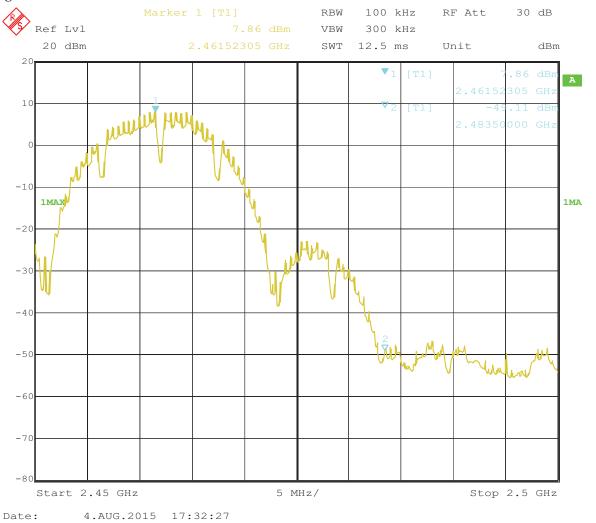


CH11 at 1Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	47.9	T,	74(dBμV/m)
	AV (dBμV/m)		Limit	54(dBμV/m)

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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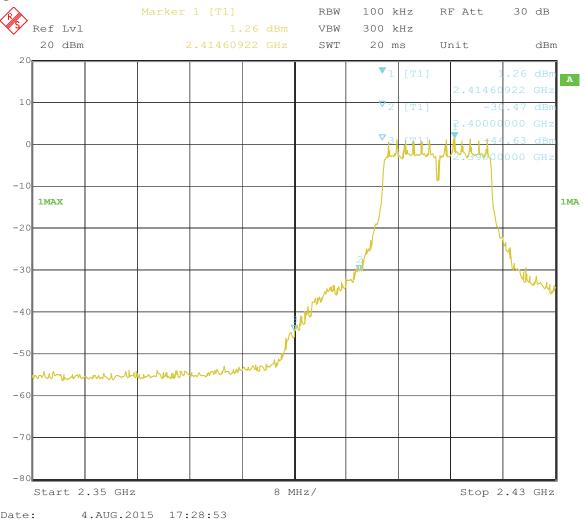
For 802.11g mode

CH01 at 54Mbps

Band-edge and Restricted band Measurement 10.4

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass	Detector	PK
2400	PK (dBµV/m)	68.5	T imais	$74(dB\mu V/m)$
	AV (dBμV/m)	49.1	Limit	$54(dB\mu V/m)$
2390	PK (dBμV/m)	55.9	Limit	74(dBμV/m)
	AV (dBμV/m)	36.1	Limit	54(dBμV/m)

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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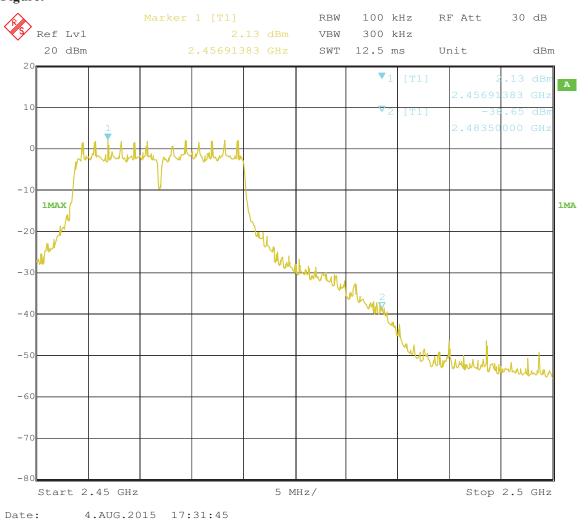


CH11 at 54Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Mod	lel	SP200A
Mode	Keeping Transmitting		Input V	oltage	DC12V
Temperature	24 deg. C,		Humi	dity	56% RH
Test Result:	Pass		Detec	ctor	PK
2483.5	PK (dBμV/m)	55.5	T ::4	74(dBμV/m) 54(dBμV/m)	
	AV (dBμV/m)	36.3	Limit		

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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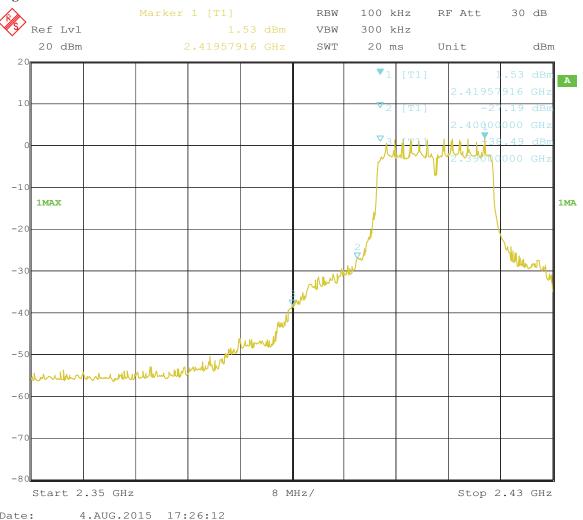
For 802.11n (HT20) mode

CH01 at 6.5Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass		PK
2400	PK (dBμV/m)	69.1	T: '4	$74(dB\mu V/m)$
	AV (dBμV/m)	50.3	Limit	54(dBμV/m)
2390	PK (dBμV/m)	56.2	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)	38.2	Limit	54(dBμV/m)

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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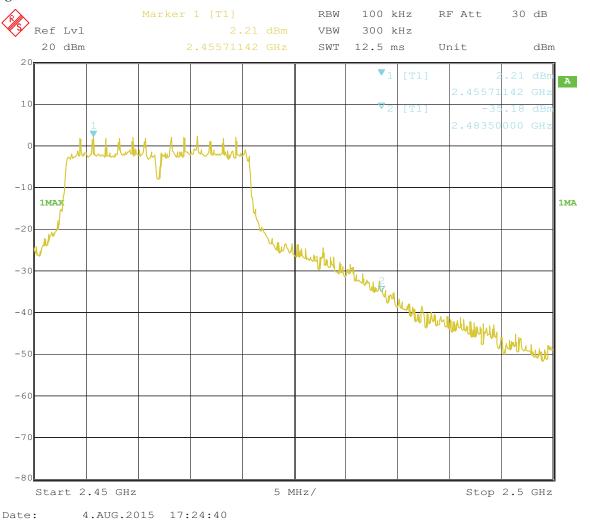


CH11 at 6.5Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	57.2	T,	$74(dB\mu V/m)$
	AV (dBμV/m)	38.1	Limit	$54(dB\mu V/m)$

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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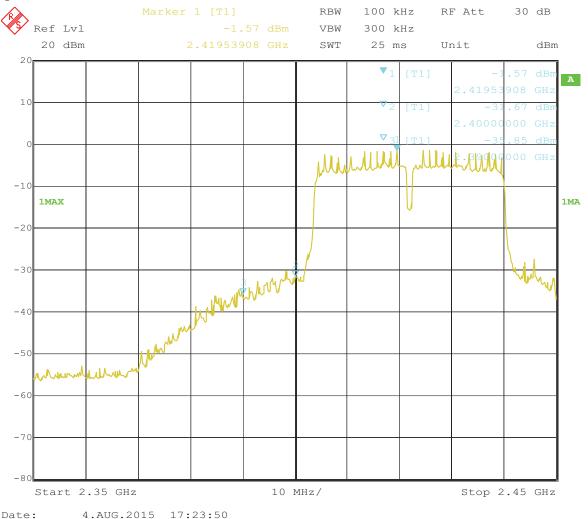
For 802.11n (HT40) mode

CH01 at 6.5Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping	Transmitting	Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:		Pass	Detector	PK
2400	PK (dBμV/m)	70.4	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)	50.3	Limit	$54(dB\mu V/m)$
2390	PK (dBμV/m)	57.9	Limit	74(dBμV/m)
	AV (dBμV/m)	38.5	Limit	$54(dB\mu V/m)$

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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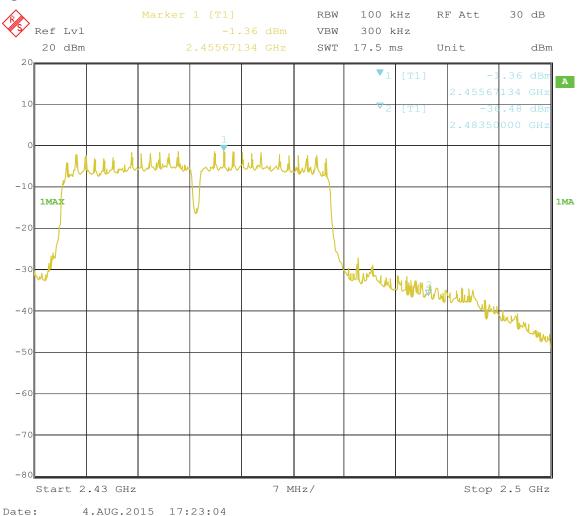


CH7 at 6.5Mbps

10.4 Band-edge and Restricted band Measurement

EUT	fish finder		Model	SP200A
Mode	Keeping Transmitting		Input Voltage	DC12V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBµV/m)	59.3	T ::4	$74(dB\mu V/m)$
	AV (dBμV/m)	40.5	Limit	$54(dB\mu V/m)$

Test Figure:



Note: The Max. FS in Restrict Band are measured in conventional method.

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11.0 Antenna Requirement

11.1 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 transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Integral antenna used. The maximum Gain of the antennas is 2.0dBi.

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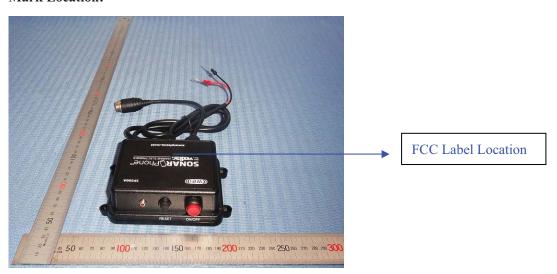
12.0 FCC ID/ IC Label

FCC ID: 2AA86-SP200A

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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13.0 Photo of testing

Conducted Emission Test Setup:

N/A

Radiated Emission Test Setup:





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Photographs - EUT

Outside view





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Outside view





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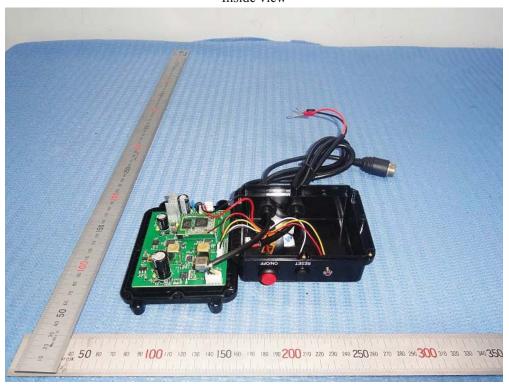
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Inside view





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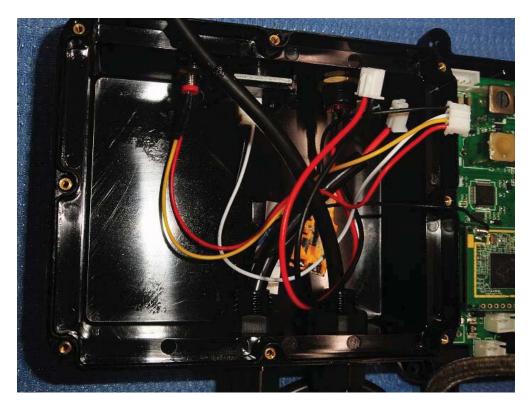
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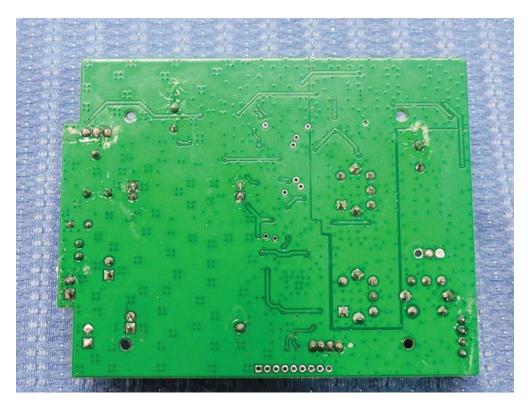
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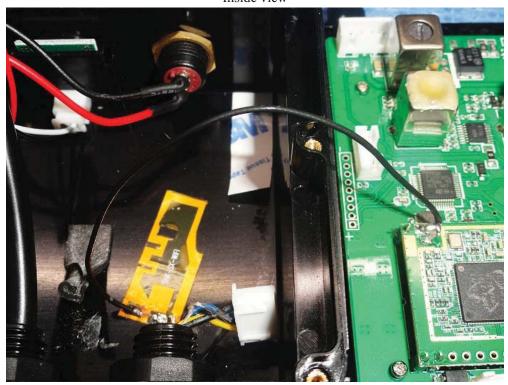
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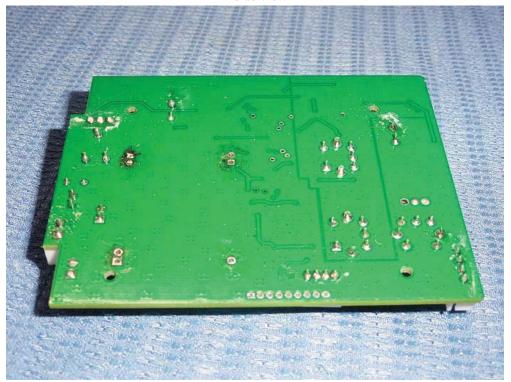
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End of the report