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Report No.: SZEM110900398001

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FCC REPORT

Application No.: SZEM1109003980RF

Applicant: Philips Consumer Lifestyle Product Name: Blu-ray Disc / DVD Player

Operation Frequency: 2412MHz to 2462MHz

FCC ID: BOUBDP5406

Standards: FCC CFR Title 47 Part 15 Subpart C

 Date of Receipt:
 2011-09-30

 Date of Test:
 2011-10-01

 Date of Issue:
 2011-11-07

Test Result : PASS *

Authorized Signature:



Jack Zhang

EMC Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

^{*} In the configuration tested, the EUT complied with the standards specified above.



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3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Radiated Emission	15.205/15.209	Pass
Band Edge	15.247(d)	Pass

Remark: Pass: The EUT complies with the essential requirements in the standard.

Fail: The EUT does not comply with the essential requirements in the standard.

Remark:

The Blu-ray Disc / DVD player consist of the following difference stroke versions Versions which are similar in electrical circuit, mechanical style and physical construction except with different colour of cosmetic, exported countries, plug portions and various safeties marking.

Stroke number is difference /zz

/07 denote sales for Canadan only and supplied with an US type power supply cord.

/F7 denote sales for USA and Canadan and supplied with an US type power supply cord.

/37 denote sales for USA and Canadan and supplied an US type type power supply cord.



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4 General Information

4.1 Client Information

Applicant:	Philips Consumer Lifestyle
Address of Applicant:	1600 Summer Street Stamford Connecticut 06905 United States
Manufacturer:	Philips Electronics Hong Kong Ltd.
Address of Manufacturer:	5/F., Philips Electronics Building 5 Science Park East Avenue, Hong
	Kong Science Park, Shatin, New Territories, Hong Kong
Factory:	1. ACTION INDUSTRIES (MALAYSIA) SDN. BHD.
	2. Action Asia (Shenzhen) Co. Ltd.
	3. Philips Ltd. Assembly Centre Hungary (PACH)
Address of Factory:	1. 2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE
	ZONE,13600 PERAI, PENANG, MALAYSIA.
	2. Dede Industrial Park Jianan Rd, FuyongHI-Tech Park ,Shenzhen, China
	3. Szekesfehervar Holland fasor 6. H-8000 Hungary

4.2 General Description of E.U.T.

<u> </u>				
Product Name:	Blu-ray Disc / DVD Player			
Model No.:	BDP5406			
Operation Frequency:	2412MHz~2462MHz			
Type of modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK)			
	IEEE for 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)			
	IEEE for 802.11n(HT20 and HT40): OFDM (64QAM, 16QAM,			
	QPSK,BPSK)			
Channel Number:	IEEE 802.11b/g, IEEE 802.11n HT20:11 Channels			
	IEEE 802.11n HT40: 7 Channels			
Test power grade:	ATETXPOW0=13, ATETXPOW1=13 (manufacturer declare)			
Test software of EUT:	MTK tool (manufacturer declare)			
Antenna Type:	Integral			
Antenna gain:	0dBi			
Power supply:	110-127V~ 50Hz-60Hz			



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

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels for testing see below:

802.11b/g/n (HT20)

Channel	Frequency
lowest channel	2412MHz
middle channel	2437MHz
highest channel	2462MHz

802.11n (HT40)

Channel	Frequency
lowest channel	2422MHz
middle channel	2437MHz
highest channel	2452MHz

4.3 Test environment and mode

Test Environment:					
Temperature:	25.0 °C				
Humidity:	50 % RH				
Atmospheric Pressure:	1004mbar				
Test mode:					
WIFI mode:	Keep the EUT exchange data with HDMI output or AV output under WIFI mode				
Transmitter: Keep the EUT in continuously transmitting mode					



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We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan under all rate at lowest channel 1								
Mode 802.11b								
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps				
EIRP(dBm)	21.85	21.59	21.16	20.88				
Mode				80	2.11g			
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
EIRP(dBm)	18.69	18.21	18.04	17.73	17.46	17.11	16.92	16.58
Mode				802.1	1n(HT20)			
Data Rate	6.5Mbps	13Mbp s	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
EIRP(dBm)	18.72	18.51	18.40	18.17	17.85	17.42	16.96	16.57
Mode	802.11n(HT40)							
Data Rate	13Mbps	26Mbps	39Mbps	52Mbps	78Mbps	104Mbps	117Mbps	130Mbps
EIRP(dBm)	15.20	15.08	14.90	14.68	14.16	13.95	13.64	13.22

Through Pre-scan, 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of 802.11n(HT40); Test method refer to section 5.3, used the modulation signal with 100% duty cycle.



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4.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
Television	Samsung	2232MW

4.5 Test Facility

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

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

VCCI

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

• FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 556682, March 16, 2011

Industry Canada (IC)

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.7 Other Information Requested by the Customer

None.



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4.8 Test Instruments list

RE i	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)	
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2012-06-10	
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2012-05-26	
3	EMI Test software	AUDIX	E3	SEL0050	N/A	
4	Coaxial cable	SGS	N/A	SEL0028	2012-05-29	
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2011-11-09	
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2011-11-09	
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2011-11-09	
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2012-05-26	
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2011-10-27	
11	Band filter	Amindeon	82346	SEL0094	2012-05-26	

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)	
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2012-06-10	
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2011-10-26	
3	Two-Line V-Network	ETS-LINDGREN	3816/2	SEL0021	2012-05-26	
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2012-05-26	
5	Coaxial Cable	SGS	N/A	SEL0024	2012-05-29	



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RF conducted					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2011-10-27
2	Coaxial cable	SGS	N/A	SEL0028	2012-05-29

	General used equipment				
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2011-11-04
2	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2012-03-10
3	Barometer	ChangChun	DYM3	SEL0088	2012-05-18



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5 Test results and Measurement Data

5.1 Antenna requirement:

Standard requirement: FCC Part15 C Section 15.203 /247(c)

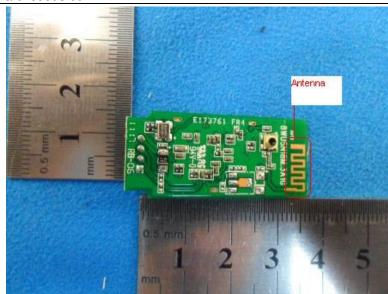
15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:



The antenna is integrated on the main PCB and no consideration of replacement . The best case gain of the antenna is 0dBi.



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5.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207			
Test Method:	ANSI C63.10:2009 section 6.2			
Test Frequency Range:	150KHz to 30MHz			
Class / Severity:	Class B			
Receiver setup:	RBW=9kHz, VBW=30kHz			
Limit:	Limit (dRuV)			
	Frequency range (MHz) Quasi-peak Average			
	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	
	5-30	60	50	
	* Decreases with the logarithm			
Test procedure	The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.			
Test setup:	Reference Plane			
	AUX Equipment E.U Test table/Insulation pla Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilizatio Test table height=0.8m		er — AC power	
Test Instruments:	Refer to section 4.8 for details			
Test mode:	WIFI mode		_	
Test results:	Pass			
	<u> </u>			

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

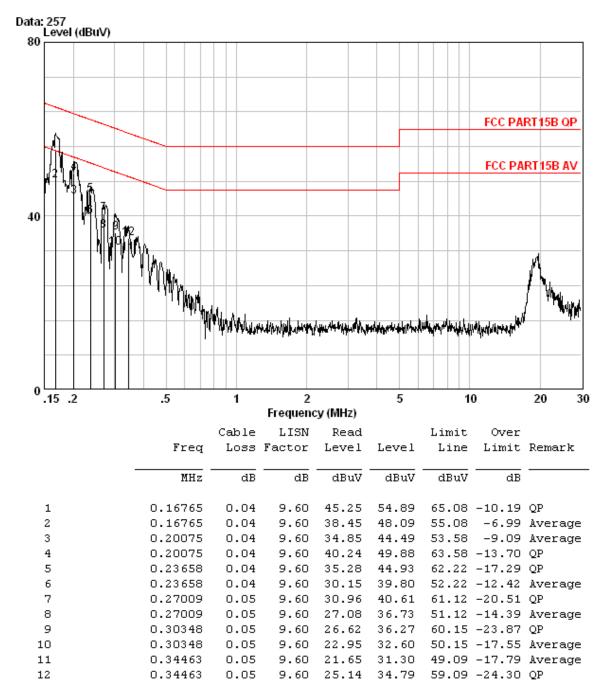


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Live Line:



Notes:

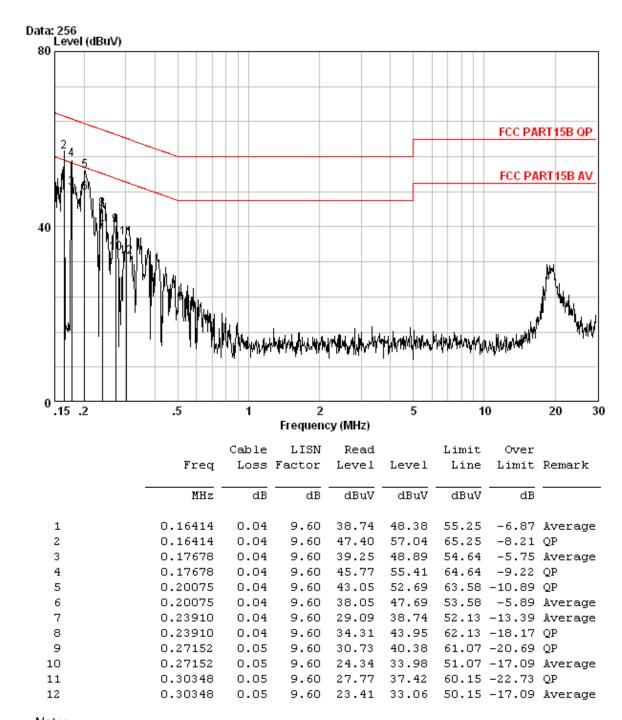
- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.



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Neutral Line:



Notes:

- 1. The following Quasi-Peak and Average measurements were performed on the EUT:
- 2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.



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5.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)		
Test Method:	KDB558074 Power Output Option 2 Method #1		
Limit:	30dBm		
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark:		
Toot lootrum enter	Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.		
Test Instruments:	Refer to section 4.8 for details.		
Test results:	sults: Pass		

Measurement Data

Weasurement Data	weasurement Data			
802.11b mode				
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result	
Lowest	21.85	30.00	Pass	
Middle	19.93	30.00	Pass	
Highest	20.76	30.00	Pass	
-	802.11g mc	ode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result	
Lowest	18.57	30.00	Pass	
Middle	18.36	30.00	Pass	
Highest	18.69	30.00	Pass	
	802.11n(HT20)	mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result	
Lowest	18.72	30.00	Pass	
Middle	18.18	30.00	Pass	
Highest	18.72	30.00	Pass	
802.11n(HT40) mode				
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result	
Lowest	14.97	30.00	Pass	
Middle	15.20	30.00	Pass	
Highest	15.01	30.00	Pass	

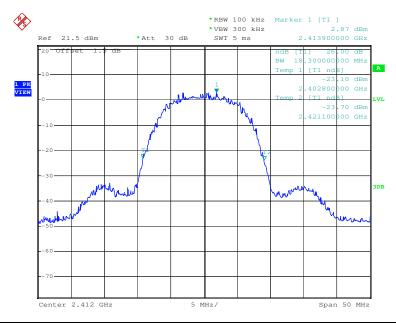


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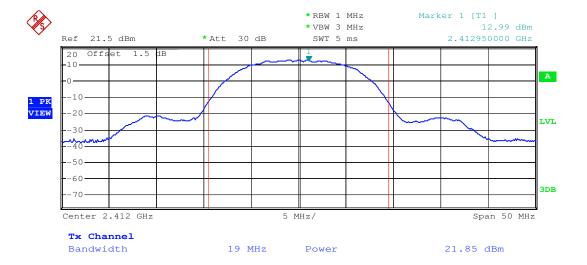
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest -26dB



Test mode: 802.11b Test channel: Lowest



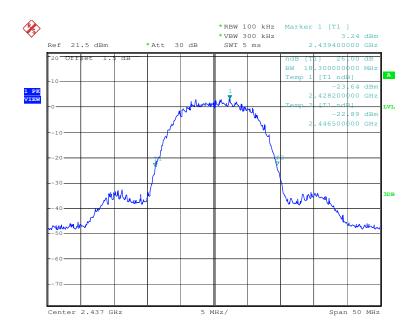


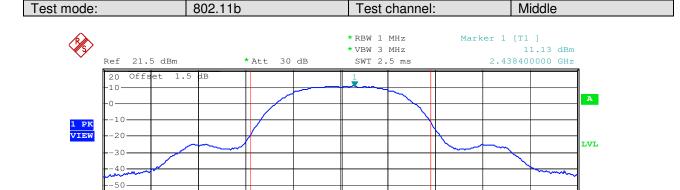
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3DB

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Test mode: 802.11b Test channel: Middle -26dB





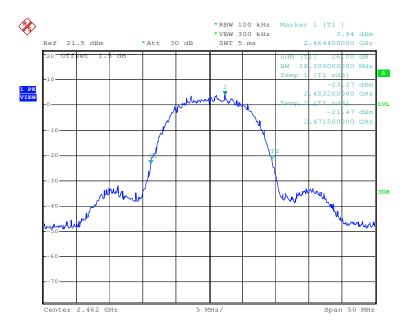
 Tx Channel
 19 MHz
 Power
 19.93 dBm



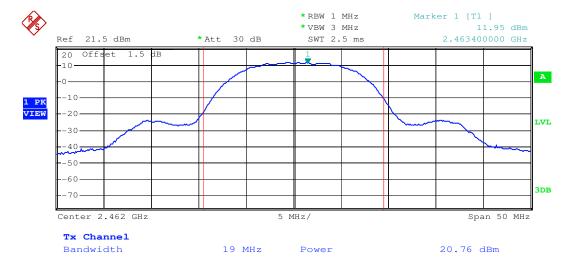
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Test mode: 802.11b Test channel: Highest -26dB



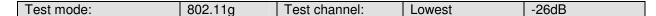
Test mode: 802.11b Test channel: Highest

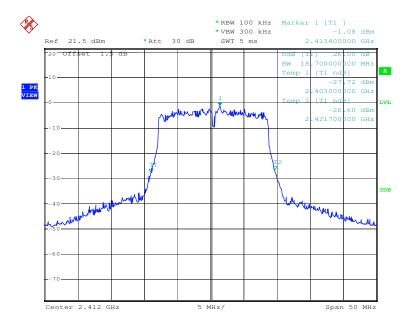




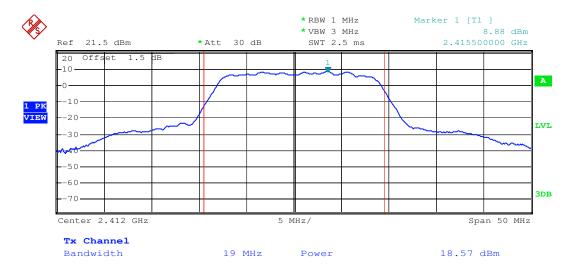
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Test mode: 802.11g Test channel: Lowest

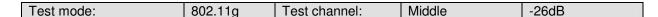


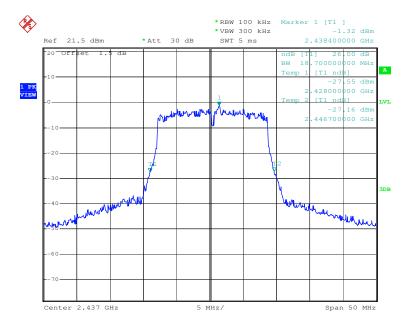
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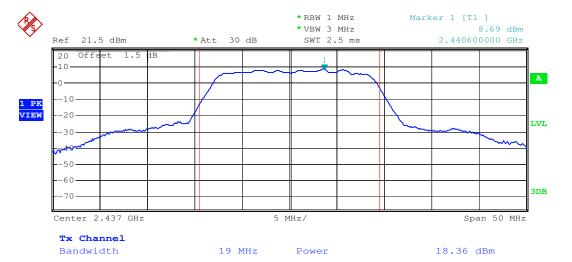
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Test mode: 802.11g Test channel: Middle





Tx Channel
Bandwidth

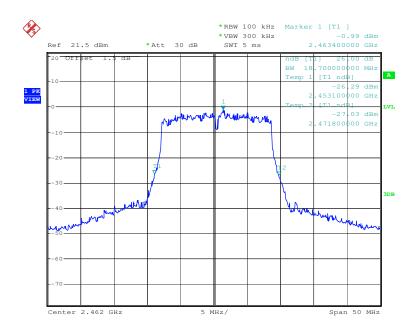
SGS-CSTC Standards Technical Services Ltd.

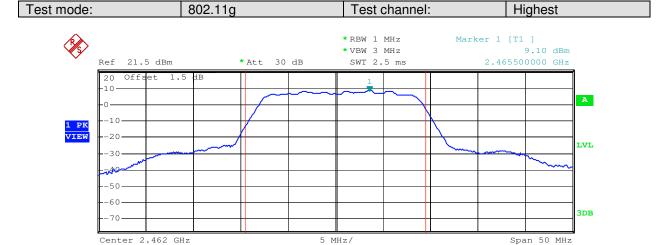
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18.69 dBm

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Test mode: 802.11g Test channel: Highest -26dB





Power

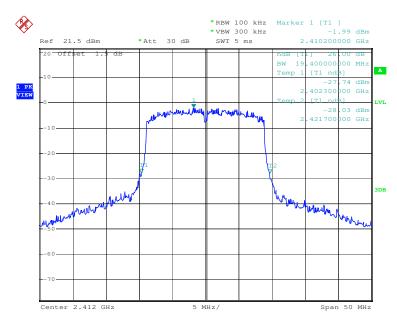
19 MHz



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Test mode: 802.11n(HT20) Test channel: Lowest -26dB



Test mode: 802.11n(HT20) Test channel: Lowest



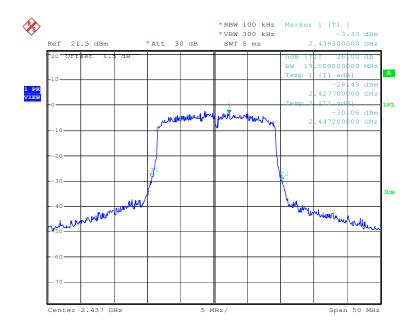




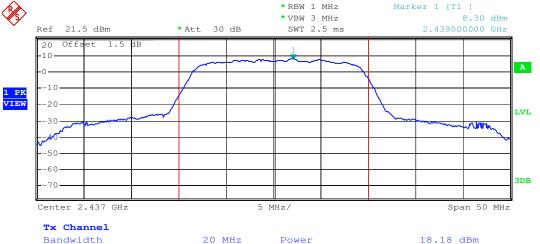
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Test mode: 802.11n(HT20) Test channel: Middle -26dB



Test mode: 802.11n(HT20) Test channel: Middle



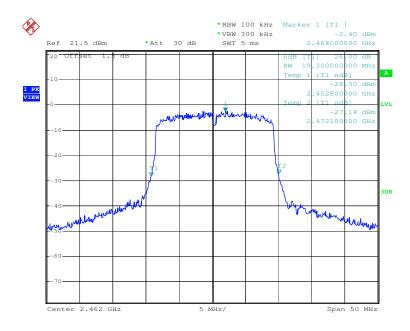
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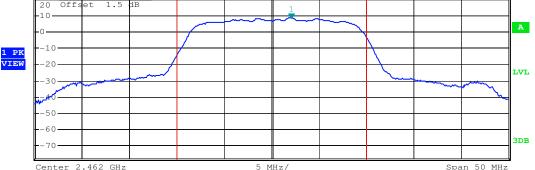


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Test mode: 802.11n(HT20) Test channel: Highest -26dB





Tx Channel
Bandwidth 20 MHz Power 18.72 dBm

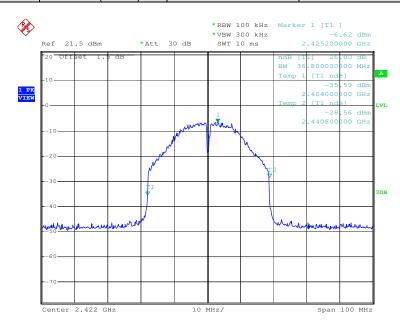
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Test mode: 802.11n(HT40) Test channel: Lowest -26dB



Test mode: 802.11n(HT40) Test channel: Lowest

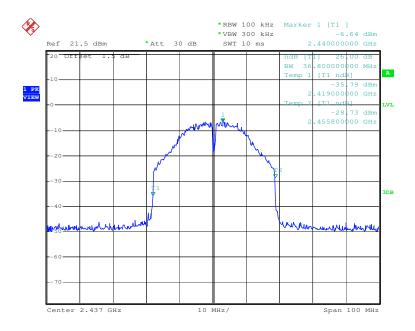




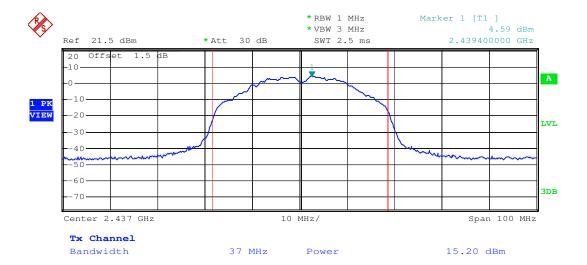
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Test mode: 802.11n(HT40) Test channel: Middle -26dB



Test mode: 802.11n(HT40) Test channel: Middle

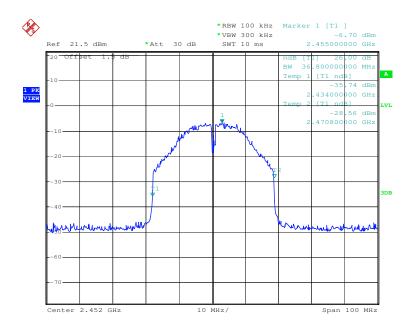


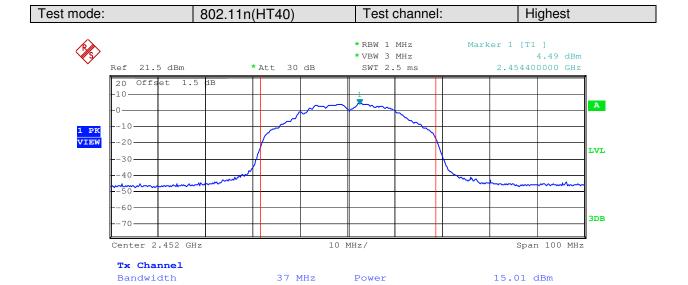


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Test mode: 802.11n(HT40) Test channel: Highest -26dB







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5.4 6dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)	
Test Method:	KDB558074	
Limit:	>500KHz	
Test setup:	Spectrum Analyzer	
	E.U.T	
	Non-Conducted Table	
	Ground Reference Plane	
Test Instruments:	Refer to section 4.8 for details	
Test results:	Pass	

Measurement Data

Measurement Data					
802.11b mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result		
Lowest	11.90	>500	Pass		
Middle	12.10	>500	Pass		
Highest	12.10	>500	Pass		
	802.11g mode				
Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result		
Lowest	16.60	>500	Pass		
Middle	16.60	>500	Pass		
Highest	16.60	>500	Pass		
	802.11n(HT20) mode				
Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result		
Lowest	17.90	>500	Pass		
Middle	17.80	>500	Pass		
Highest	17.80	>500	Pass		
802.11n(HT40) mode					
Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result		
Lowest	21.60	>500	Pass		
Middle	21.80	>500	Pass		
Highest	21.80	>500	Pass		

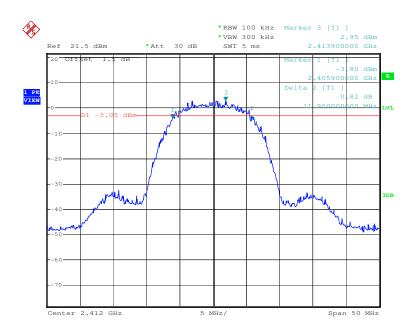


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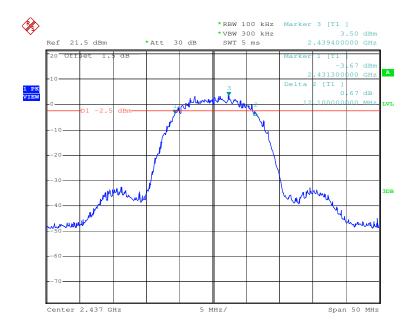
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle

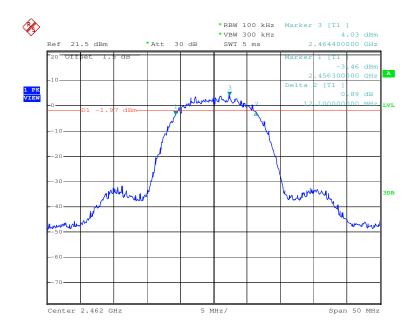




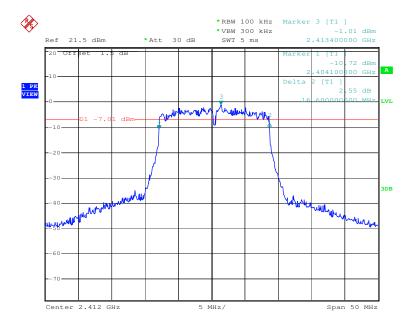
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Test mode: 802.11b Test channel: Highest



Test mode: 802.11g Test channel: Lowest

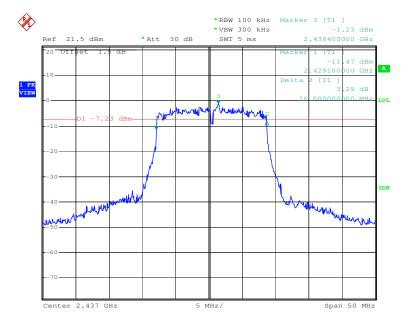




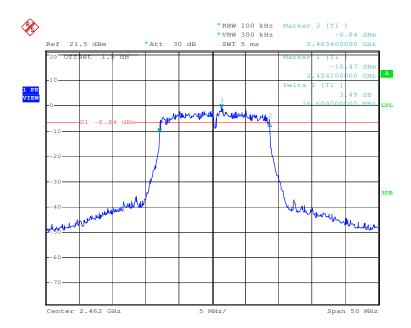
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Test mode: 802.11g Test channel: Middle





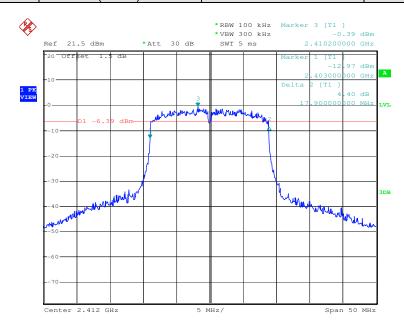




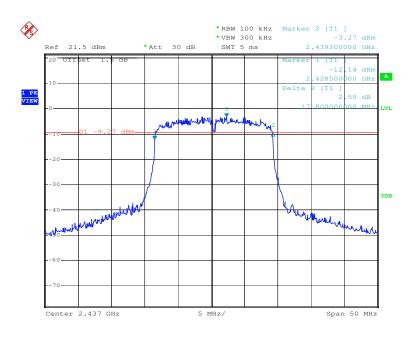
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Test mode: 802.11n(HT20) Test channel: Lowest



Test mode: 802.11n(HT20) Test channel: Middle



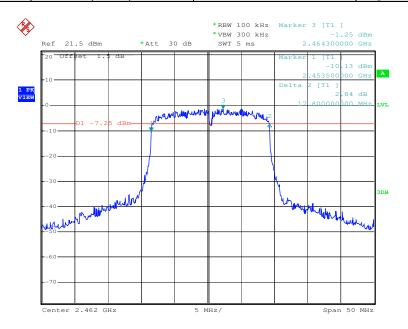




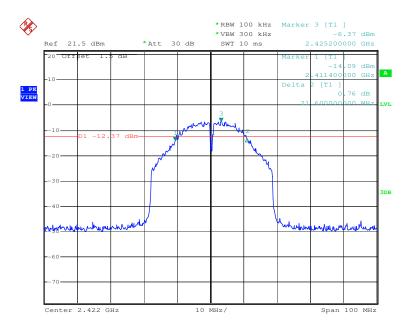
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Test mode: 802.11n(HT20) Test channel: Highest



Test mode: 802.11n(HT40) Test channel: Lowest



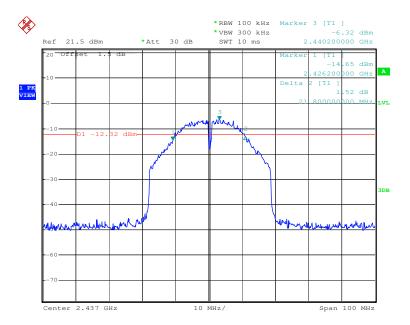
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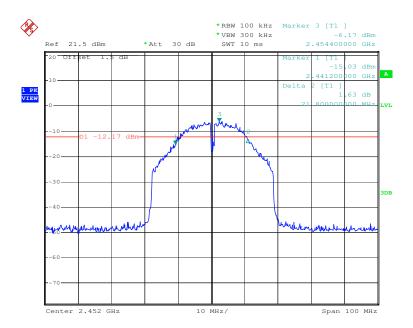
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Test mode: 802.11n(HT40) Test channel: Middle



Test mode: 802.11n(HT40) Test channel: Highest



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5.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)	
Test Method:	ANSI C63.10:2009 section 6.11	
Limit:	<8dBm	
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.	
Test Instruments:	Refer to section 4.8 for details.	
Test results:	Pass	

Measurement Data

Measurement Data				
802.11b mode				
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result	
Lowest	-12.15	<8.00	Pass	
Middle	-12.27	<8.00	Pass	
Highest	-11.87	<8.00	Pass	
	802.11g mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result	
Lowest	-17.24	<8.00	Pass	
Middle	-17.35	<8.00	Pass	
Highest	-16.99	<8.00	Pass	
	802.11n(HT20) mode)		
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result	
Lowest	-18.35	<8.00	Pass	
Middle	-18.79	<8.00	Pass	
Highest	-18.15	<8.00	Pass	
802.11n(HT40) mode				
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result	
Lowest	-21.90	<8.00	Pass	
Middle	-21.72	<8.00	Pass	
Highest	-21.76	<8.00	Pass	

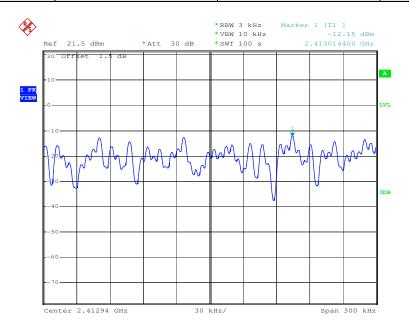


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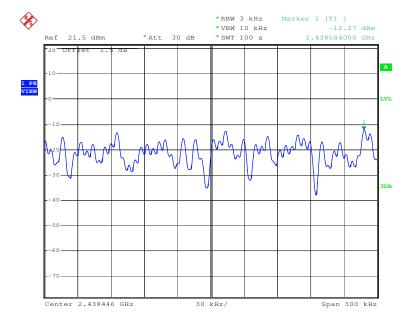
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle



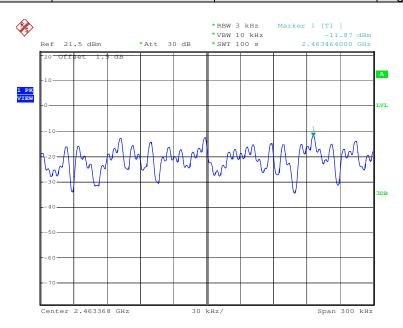
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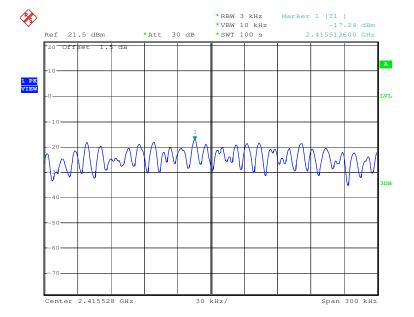
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Test mode: 802.11b Test channel: Highest



Test mode: 802.11g Test channel: Lowest



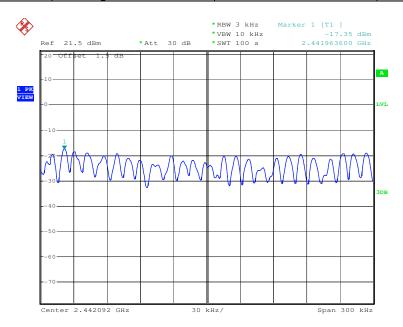
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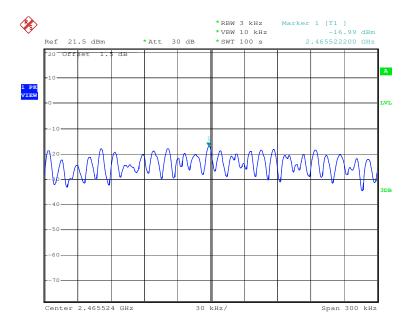
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Test mode: 802.11g Test channel: Middle



Test mode: 802.11g Test channel: Highest



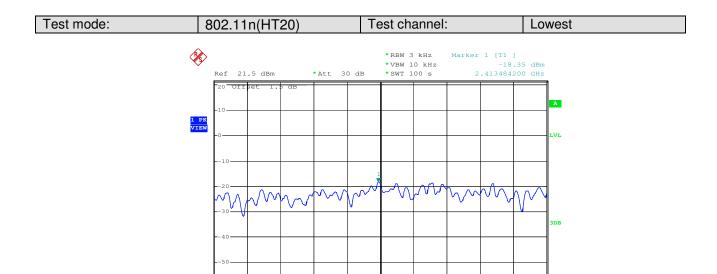
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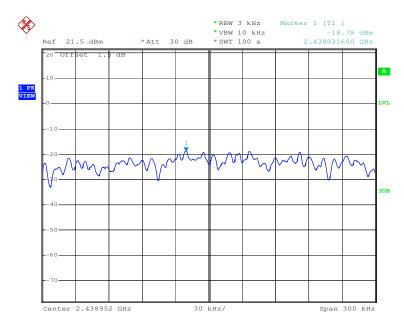
Span 300 kHz





30 kHz/

Center 2.413486 GHz



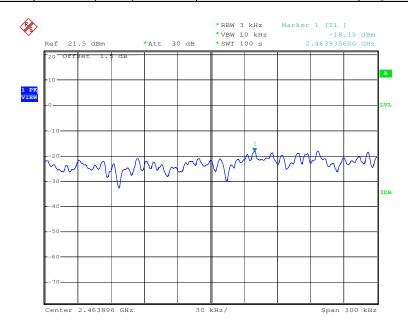
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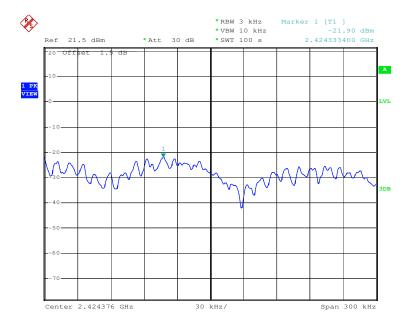
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Test mode: 802.11n(HT20) Test channel: Highest



Test mode: 802.11n(HT40) Test channel: Lowest



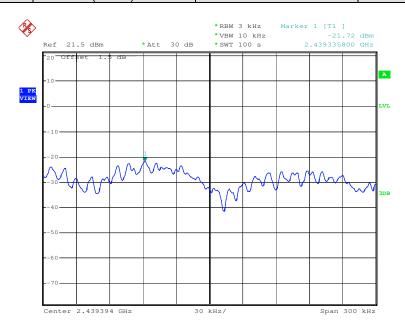
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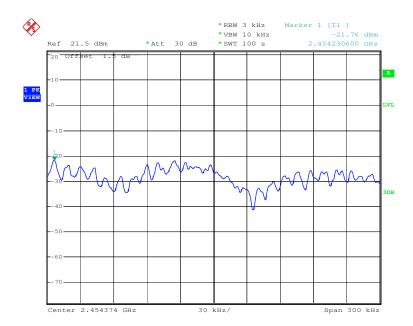
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Test mode: 802.11n(HT40) Test channel: Middle



Test mode: 802.11n(HT40) Test channel: Highest



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5.6 Band Edge

Test Requirement:	FCC Part15 C Section 15.247 (d)							
Test Method:	ANSI C63.10:2009 section 6.9							
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.							
Test setup:	Spectrum Analyzer E.U.T							
	Non-Conducted Table							
	Ground Reference Plane							
	Remark:							
	Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.							
Test Instruments:	Refer to section 4.8 for details.							
Test results:	Pass							



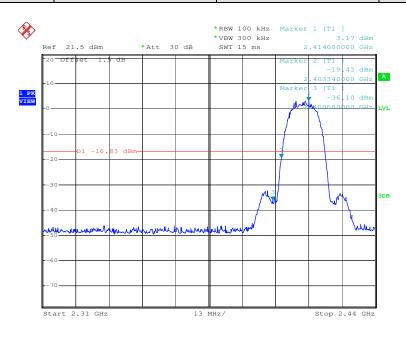


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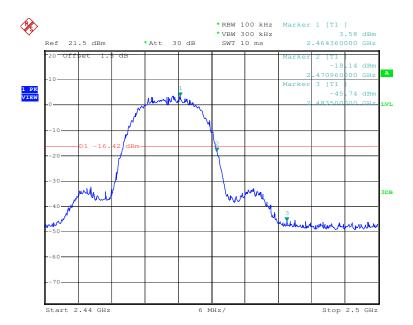
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Highest

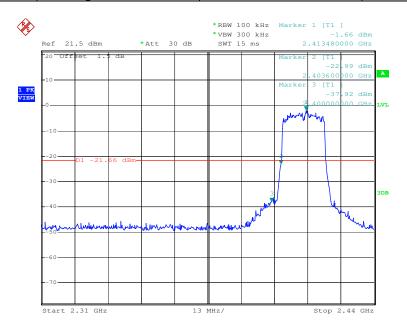




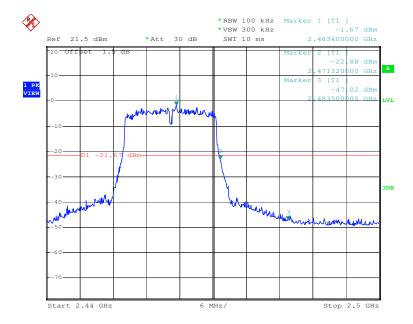
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Test mode: 802.11g Test channel: Lowest



Test mode: 802.11g Test channel: Highest



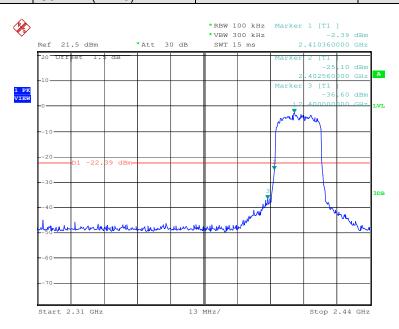
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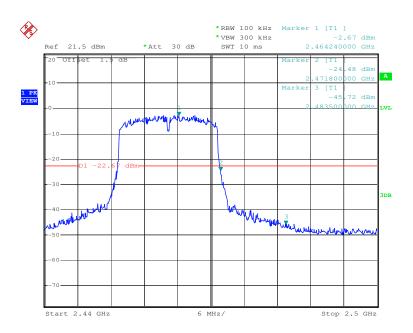
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Test mode: 802.11n(HT20) Test channel: Lowest





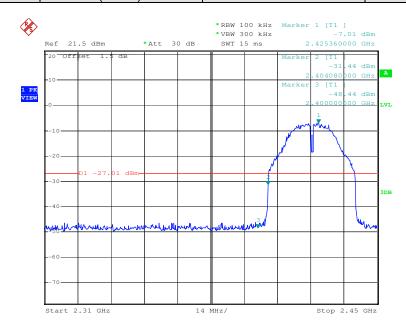




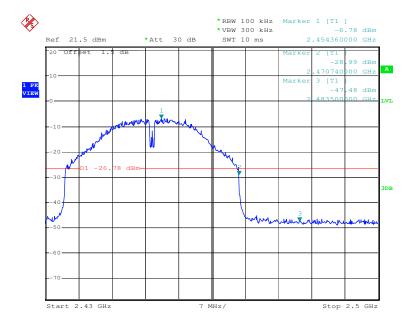
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Test mode: 802.11n(HT40) Test channel: Lowest



Test mode: 802.11n(HT40) Test channel: Highest



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5.7 RF Antenna Conducted spurious emissions

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2009
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Instruments:	Refer to section 4.8 for details.
Test results:	Pass Pass

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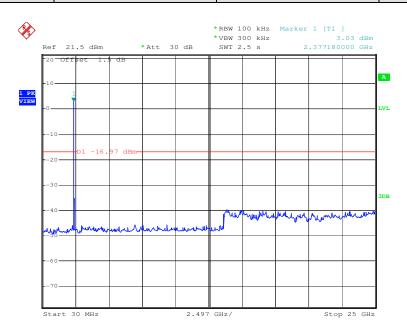


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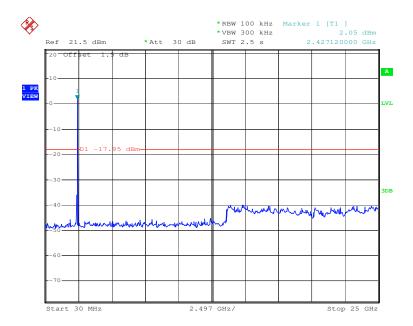
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Test plot as follows:

Test mode: 802.11b Test channel: Lowest



Test mode: 802.11b Test channel: Middle

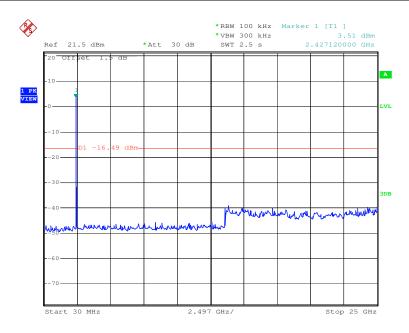




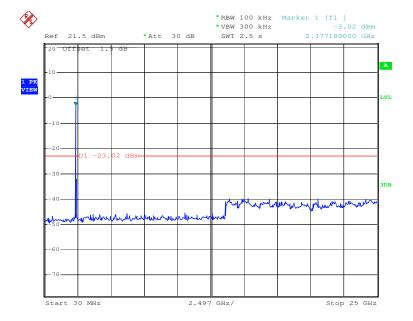
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Test mode: 802.11b Test channel: Highest



Test mode: 802.11g Test channel: Lowest



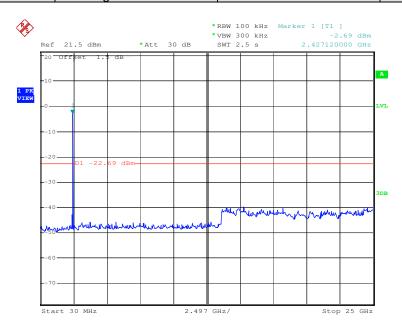
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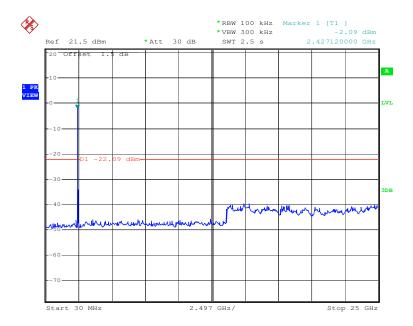
Report No.: SZEM110900398001

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Test mode: 802.11g Test channel: Middle



Test mode: 802.11g Test channel: Highest



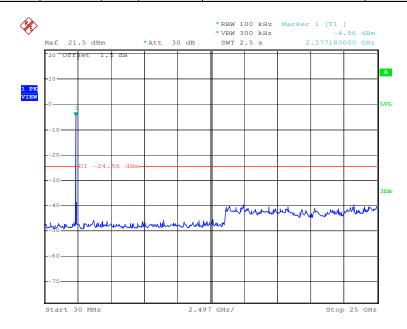
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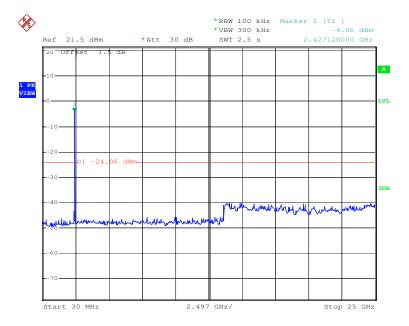
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Test mode: 802.11n(HT20) Test channel: Lowest



Test mode: 802.11n(HT20) Test channel: Middle



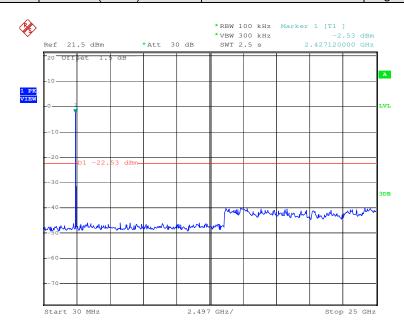
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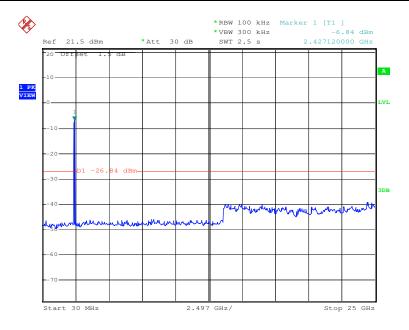
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Test mode: 802.11n(HT20) Test channel: Highest



Test mode: 802.11n(HT40) Test channel: Lowest



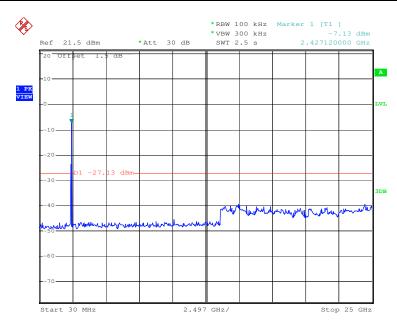




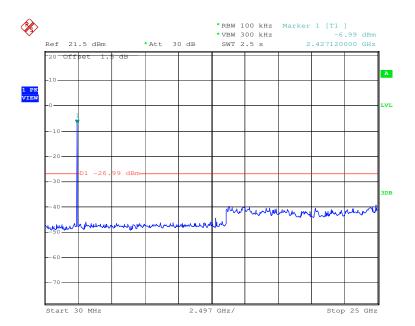
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Test mode: 802.11n(HT40) Test channel: Middle



Test mode: 802.11n(HT40) Test channel: Highest





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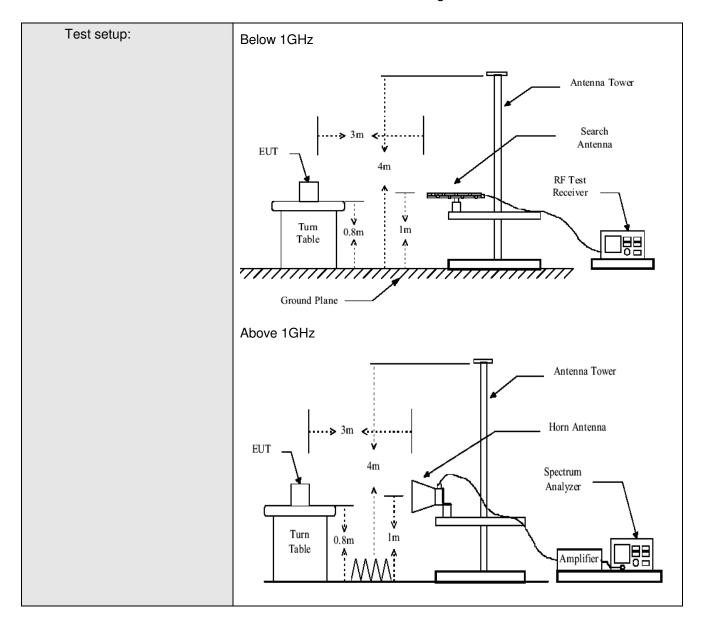
5.8 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205						
Test Method:	ANSI C63.10:20	009 section 6.	5 and 6.6				
Test Frequency Range:	30MHz to 25GH	lz					
Test site:	Measurement D	istance: 3m (Semi-Anecho	ic Chamber	·)		
Receiver setup:		•					
·	Frequency	Detector	RBW	VBW	Remark		
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value		
	Above 1GHz	Peak	1MHz	3MHz	Peak Value		
	Above IGHZ	Peak	1MHz	10Hz	Average Value		
Limit:							
	Freque	ency	Limit (dBuV/	m @3m)	Remark		
	30MHz-8	8MHz	40.0)	Quasi-peak Value		
	88MHz-21	16MHz	43.5	5	Quasi-peak Value		
	216MHz-9	60MHz	46.0)	Quasi-peak Value		
	960MHz-	1GHz	54.0)	Quasi-peak Value		
	Above 1	CH2	54.0)	Average Value		
	Above I	GHZ	74.0)	Peak Value		
Test Procedure:	above ground. I position of the n down between 1 level. Both horizontal measurement. I	The turn table naximum emist meter and 4 and vertical pen order to find	can rotate 36 ssion level. The meters to find olarization of the maximur	O degrees to the antenna dout the match the antenna memission,	e which is 0.8meter to determine the can move up and aximum emission are set on all of the interface 0:2009 on radiated		
Test Instruments:	Refer to section	4.8 for details	S				
Test mode:	Non-hopping transmitting with modulation. 1. Pre-scan the EUT in 802.11b, 802.11g, 802.11n (HT20) and 802.11n (H T40) modes and find out the worst case is 802.11b mode. only the worst case data was displayed. 2. Test the EUT in WIFI mode.						
Test results:	Pass						



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Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

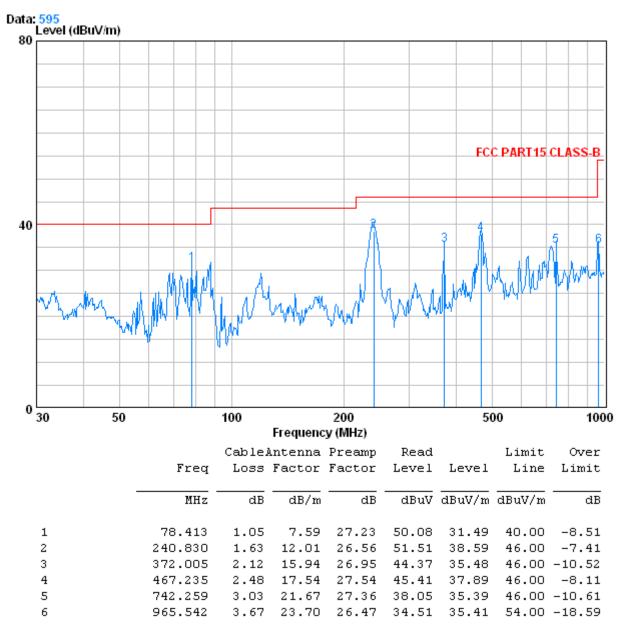


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5.8.1 Radiated emission below 1GHz

Vertical:



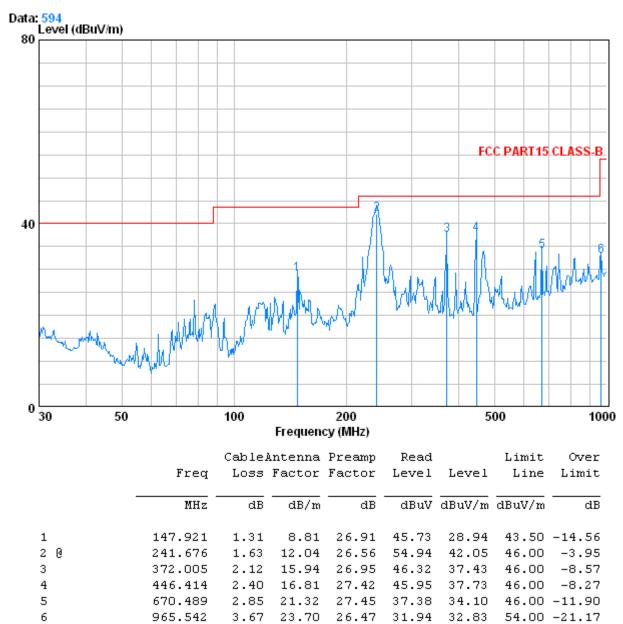
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Horizontal:



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5.8.2 Transmitter emission above 1GHz

Test mode:	802	.11b	Test ch	annel:	Lowest	Remark	:	Peak	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBμV/m)	Over limit	polarization	
2621.500	4.77	32.86	40.02	51.60	49.21	74.00	-24.79	Vertical	
3902.250	6.33	33.70	40.97	49.00	48.06	74.00	-25.94	Vertical	
4824.840	7.45	34.68	41.64	61.00	61.49	74.00	-12.51	Vertical	
6428.500	8.12	36.20	40.55	49.98	53.75	74.00	-20.25	Vertical	
7803.250	9.27	36.00	39.36	49.15	55.06	74.00	-18.94	Vertical	
10693.750	10.34	38.38	37.73	44.76	55.75	74.00	-18.25	Vertical	
1540.500	3.94	28.47	39.37	58.62	51.66	74.00	-22.34	Horizontal	
3150.250	5.27	33.34	40.41	49.40	47.60	74.00	-26.40	Horizontal	
4090.250	6.57	34.08	41.11	50.42	49.96	74.00	-24.04	Horizontal	
4824.800	7.45	34.68	41.64	64.50	64.99	74.00	-9.01	Horizontal	
6957.250	8.43	35.85	40.08	50.50	54.70	74.00	-19.30	Horizontal	
9859.500	9.79	37.56	37.58	46.52	56.29	74.00	-17.71	Horizontal	

Test mode:	802	.11b	Test ch	annel:	Lowest	Remark	:	Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBμV/m)	Over limit	polarization	
2621.500	4.77	32.86	40.02	42.32	39.93	54.00	-14.07	Vertical	
3902.250	6.33	33.70	40.97	40.07	39.13	54.00	-14.87	Vertical	
4824.840	7.45	34.68	41.64	48.00	48.49	54.00	-5.51	Vertical	
6428.500	8.12	36.20	40.55	40.39	44.16	54.00	-9.84	Vertical	
7803.250	9.27	36.00	39.36	40.49	46.40	54.00	-7.60	Vertical	
10693.750	10.34	38.38	37.73	35.97	46.96	54.00	-7.04	Vertical	
1540.500	3.94	28.47	39.37	45.35	38.39	54.00	-15.61	Horizontal	
3150.250	5.27	33.34	40.41	40.12	38.32	54.00	-15.68	Horizontal	
4090.250	6.57	34.08	41.11	41.89	41.43	54.00	-12.57	Horizontal	
4824.800	7.45	34.68	41.64	48.00	48.49	54.00	-5.51	Horizontal	
6957.250	8.43	35.85	40.08	41.05	45.25	54.00	-8.75	Horizontal	
9859.500	9.79	37.56	37.58	37.75	47.52	54.00	-6.48	Horizontal	



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Test mode:	802	.11b	Test ch	annel:	Middle	Remark		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
3232.500	5.40	33.31	40.48	50.43	48.66	74.00	-25.34	Vertical
4031.500	6.50	33.89	41.07	49.43	48.75	74.00	-25.25	Vertical
4844.450	7.46	34.65	41.65	58.89	59.35	74.00	-14.65	Vertical
6428.500	8.12	36.20	40.55	50.10	53.87	74.00	-20.13	Vertical
7521.250	9.12	36.00	39.61	49.61	55.12	74.00	-18.88	Vertical
10576.250	10.27	38.33	37.69	45.77	56.68	74.00	-17.32	Vertical
2950.500	5.02	33.33	40.27	50.22	48.30	74.00	-25.70	Horizontal
4137.250	6.63	34.22	41.14	50.79	50.50	74.00	-23.50	Horizontal
4884.230	7.48	34.59	41.68	61.00	61.39	74.00	-12.61	Horizontal
6111.250	8.02	35.84	40.83	50.50	53.53	74.00	-20.47	Horizontal
7415.500	8.99	35.97	39.69	50.38	55.65	74.00	-18.35	Horizontal
9871.250	9.79	37.58	37.57	46.29	56.09	74.00	-17.91	Horizontal

Test mode:	802	.11b	Test ch	annel:	Middle	Remark		Average	
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBμV/m)	Over limit	polarization	
3232.500	5.40	33.31	40.48	41.99	40.22	54.00	-13.78	Vertical	
4031.500	6.50	33.89	41.07	39.80	39.12	54.00	-14.88	Vertical	
4844.450	7.46	34.65	41.65	48.16	48.62	54.00	-5.38	Vertical	
6428.500	8.12	36.20	40.55	40.32	44.09	54.00	-9.91	Vertical	
7521.250	9.12	36.00	39.61	39.73	45.24	54.00	-8.76	Vertical	
10576.250	10.27	38.33	37.69	35.64	46.55	54.00	-7.45	Vertical	
2950.500	5.02	33.33	40.27	41.39	39.47	54.00	-14.53	Horizontal	
4137.250	6.63	34.22	41.14	41.52	41.23	54.00	-12.77	Horizontal	
4884.230	7.48	34.59	41.68	48.00	48.39	54.00	-5.61	Horizontal	
6111.250	8.02	35.84	40.83	43.02	46.05	54.00	-7.95	Horizontal	
7415.500	8.99	35.97	39.69	40.51	45.78	54.00	-8.22	Horizontal	
9871.250	9.79	37.58	37.57	37.45	47.25	54.00	-6.75	Horizontal	



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Test mode:	802	.11b	Test ch	annel:	Highest	Remark	:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
3279.500	5.45	33.29	40.51	50.68	48.91	74.00	-25.09	Vertical
4043.250	6.53	33.94	41.07	49.00	48.40	74.00	-25.60	Vertical
4864.910	7.47	34.62	41.67	54.80	55.22	74.00	-18.78	Vertical
5688.250	7.84	35.20	41.19	49.96	51.81	74.00	-22.19	Vertical
7227.500	8.76	35.89	39.85	49.95	54.75	74.00	-19.25	Vertical
10564.500	10.25	38.33	37.68	46.19	57.09	74.00	-16.91	Vertical
3373.500	5.57	33.25	40.58	49.94	48.18	74.00	-25.82	Horizontal
4454.500	7.01	35.06	41.37	49.63	50.33	74.00	-23.67	Horizontal
4864.910	7.47	34.62	41.67	57.44	57.86	74.00	-16.14	Horizontal
6099.500	8.01	35.82	40.84	51.21	54.20	74.00	-19.80	Horizontal
7615.250	9.22	36.00	39.52	50.32	56.02	74.00	-17.98	Horizontal
8919.500	9.61	36.53	38.39	48.29	56.04	74.00	-17.96	Horizontal

Test mode:	802	.11b	Test ch	annel:	Highest	Remark		Average
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBμV/m)	Over limit	polarization
3279.500	5.45	33.29	40.51	40.57	38.80	54.00	-15.20	Vertical
4043.250	6.53	33.94	41.07	41.07	40.47	54.00	-13.53	Vertical
4864.910	7.47	34.62	41.67	45.60	46.02	54.00	-7.98	Vertical
5688.250	7.84	35.20	41.19	42.30	44.15	54.00	-9.85	Vertical
7227.500	8.76	35.89	39.85	42.19	46.99	54.00	-7.01	Vertical
10564.500	10.25	38.33	37.68	36.41	47.31	54.00	-6.69	Vertical
3373.500	5.57	33.25	40.58	40.26	38.50	54.00	-15.50	Horizontal
4454.500	7.01	35.06	41.37	41.17	41.87	54.00	-12.13	Horizontal
4864.910	7.47	34.62	41.67	47.44	47.86	54.00	-6.14	Horizontal
6099.500	8.01	35.82	40.84	42.67	45.66	54.00	-8.34	Horizontal
7615.250	9.22	36.00	39.52	41.24	46.94	54.00	-7.06	Horizontal
8919.500	9.61	36.53	38.39	39.68	47.43	54.00	-6.57	Horizontal

Remark

The disturbance above 11GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics have been displayed.

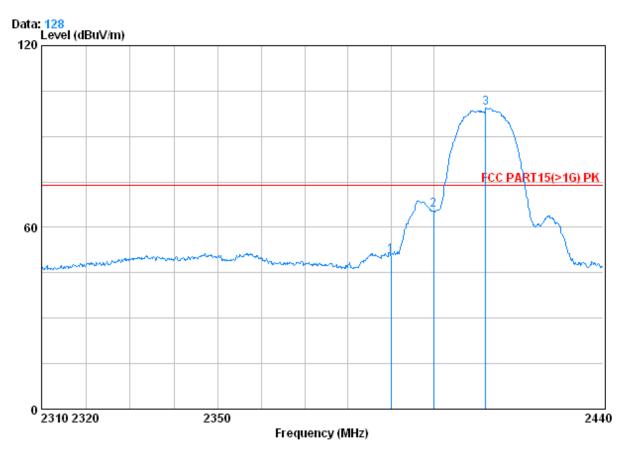


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5.8.3 Band edge (Radiated Emission)

Test mode:	802.11b	Test channel:	Lowest	Vortical	Peak
I COLINOUC.	1 002.110	i coi chaillei.	l Lowest	l Vertical	i c an



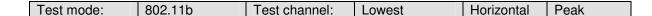
		Cablei	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	55.00	50.65	74.00	-23.35	Peak
2	2400.000	2.98	32.51	39.86	70.00	65.63	74.00	-8.37	Peak
3 0	2412.180	2.99	32.54	39.86	103.71	99.38	74.00	25.38	Peak

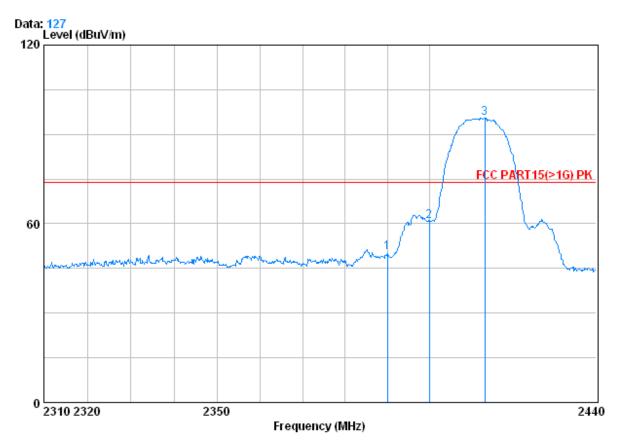
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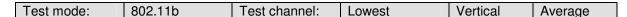
		CableAntenna		Preamp Read			Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	54.84	50.49	74.00	-23.51	Peak
2	2400.000	2.98	32.51	39.86	65.26	60.90	74.00	-13.10	Peak
3 @	2413.220	2.99	32.54	39.86	99.91	95.58	74.00	21.58	Peak

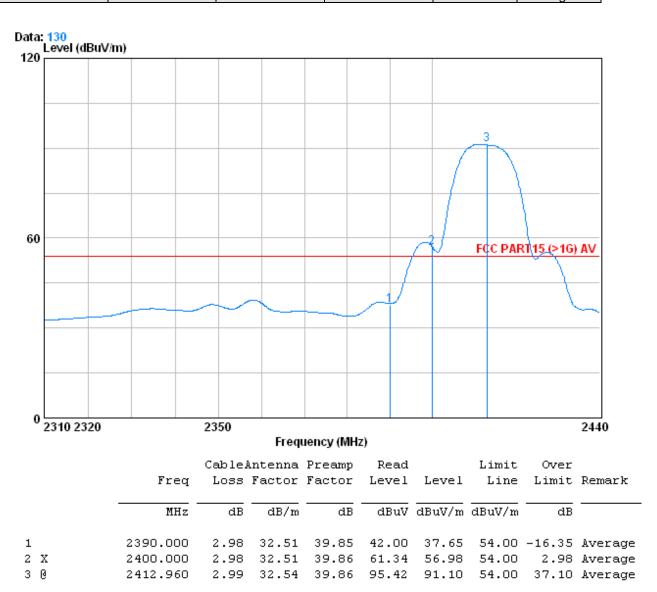




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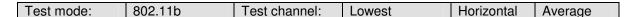


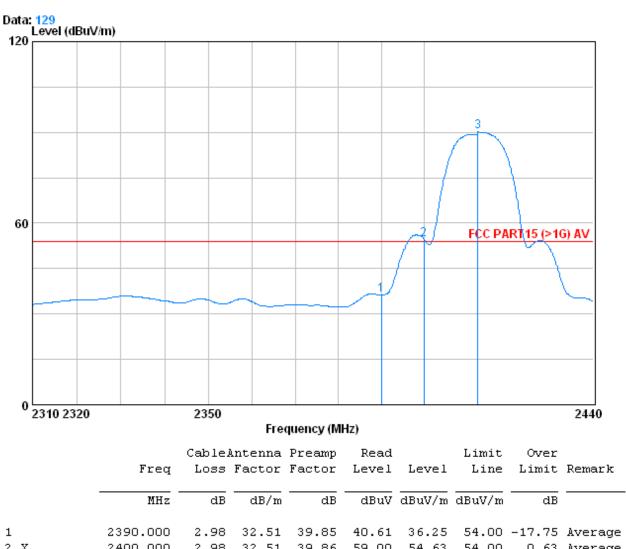
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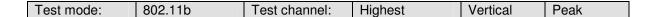


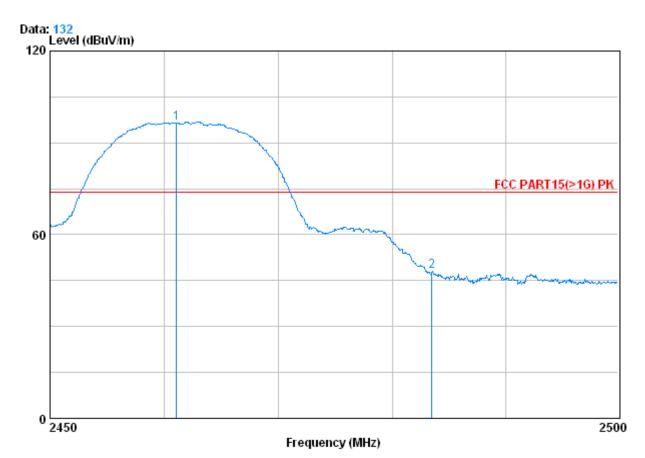
		Cable	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	40.61	36.25	54.00	-17.75	Average
2 X	2400.000	2.98	32.51	39.86	59.00	54.63	54.00	0.63	Average
3 @	2412.700	2.99	32.54	39.86	94.45	90.13	54.00	36.13	Average



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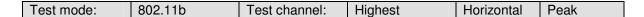
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		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	0	2461.050 2483.500				100.69 52.24				

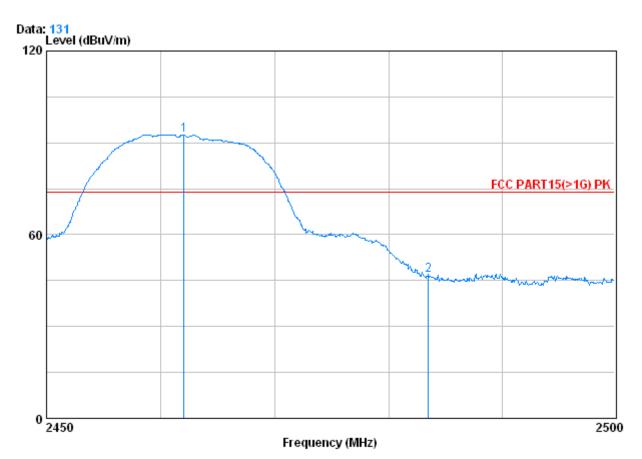
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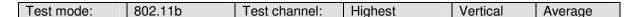
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	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2462.000 2483.500			39.91 39.92					

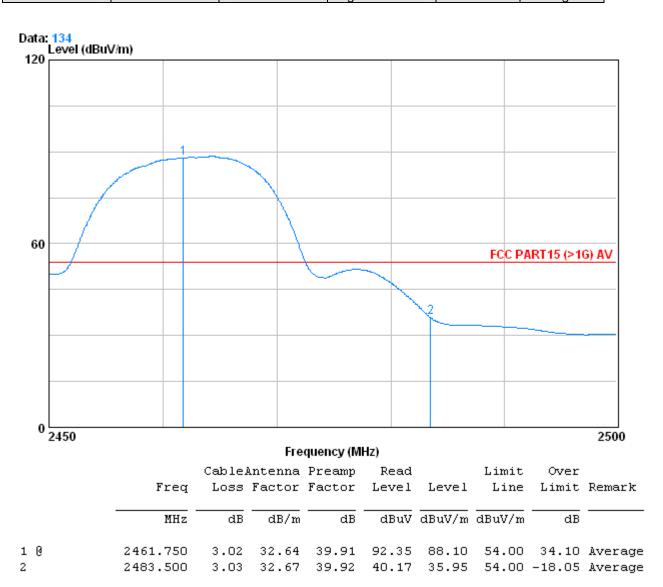
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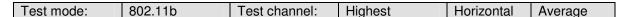


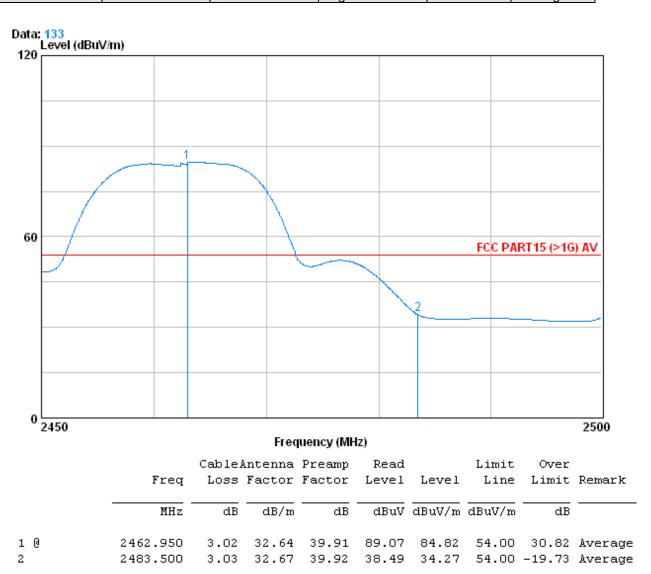
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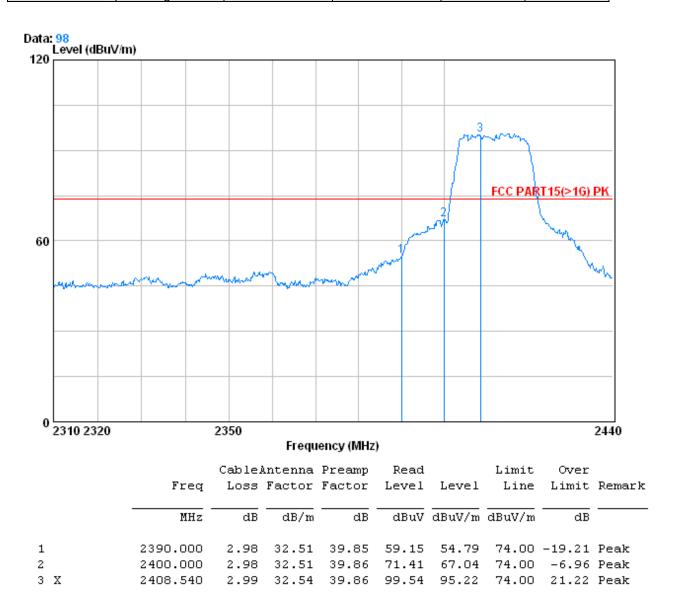
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Test mode:	802.11a	Test channel:	Lowest	Vertical	Peak
I COL IIIOUC.	1 00Z.11U	i toli ciiaiiitei.	LOWESI	v C i licai	I I Gan



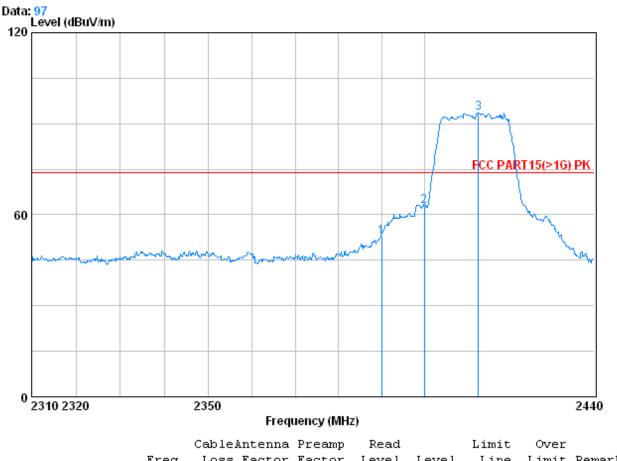
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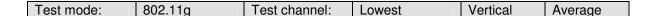
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	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	——dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	56.90	52.55	74.00	-21.45	Peak
2	2400.000	2.98	32.51	39.86	67.01	62.64	74.00	-11.36	Peak
3 X	2412.700	2.99	32.54	39.86	97.80	93.47	74.00	19.47	Peak

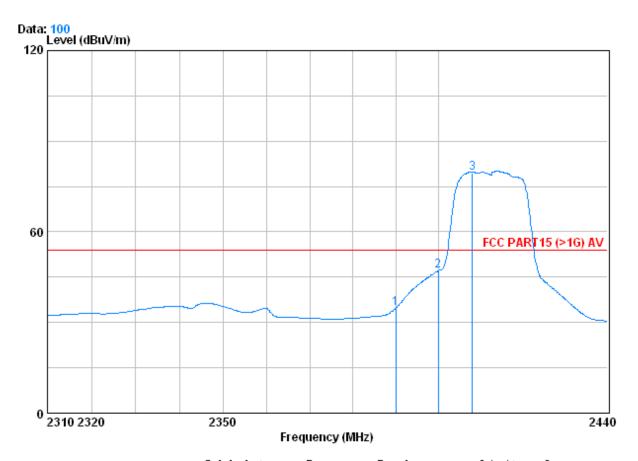
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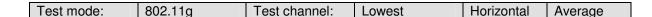
	Freq			Preamp Factor	Read Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 2 3 X	2390.000 2400.000 2408.020	2.98	32.51	39.86	51.37	47.00	54.00	-7.00	Average Average Average

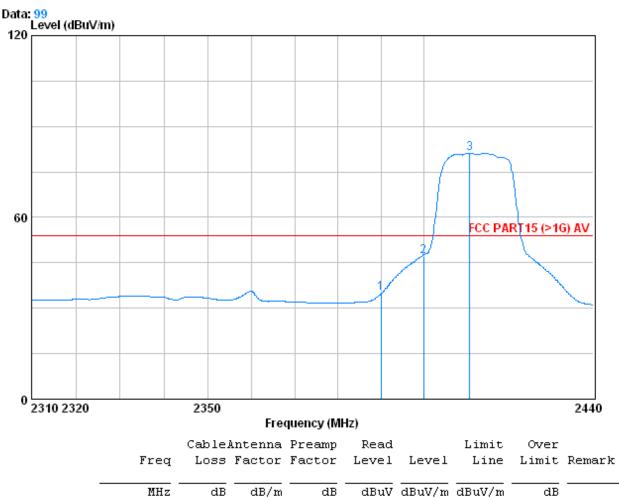
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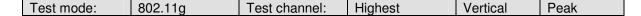
		Cablei	lntenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	39.18	34.83	54.00	-19.17	Average
2	2400.000	2.98	32.51	39.86	51.37	47.00	54.00	-7.00	Average
3 X	2410.750	2.99	32.54	39.86	85.55	81.22	54.00	27.22	Average

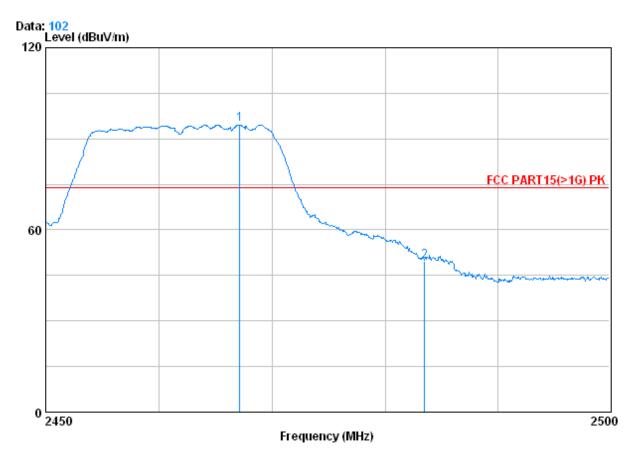




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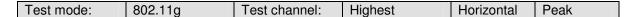


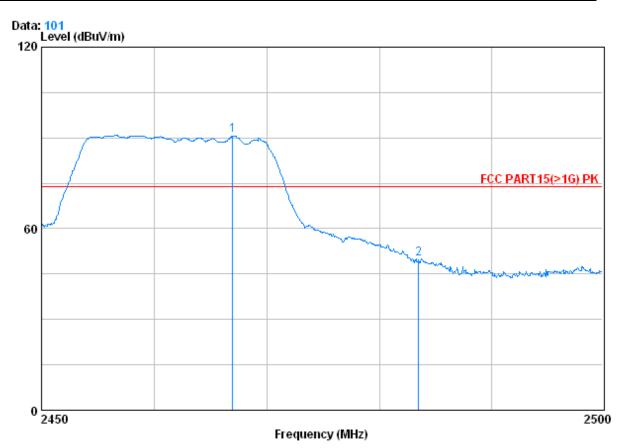
	Freq			Preamp Factor	Read Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2467.100 2483.500			39.91 39.92					



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	Freq			Preamp Factor	Read Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2466.950 2483.500			39.91 39.92					

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2483.500

3.03

32.67

39.92

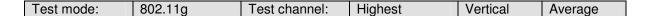
38.70

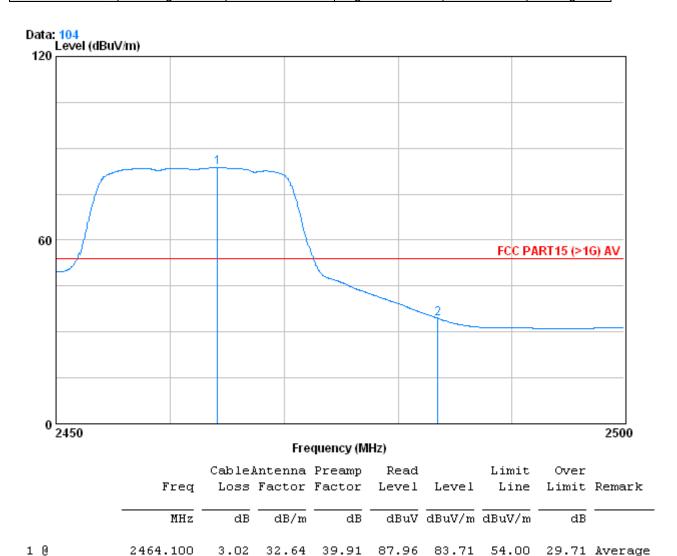
34.48 54.00 -19.52 Average

SGS-CSTC Standards Technical Services Ltd.

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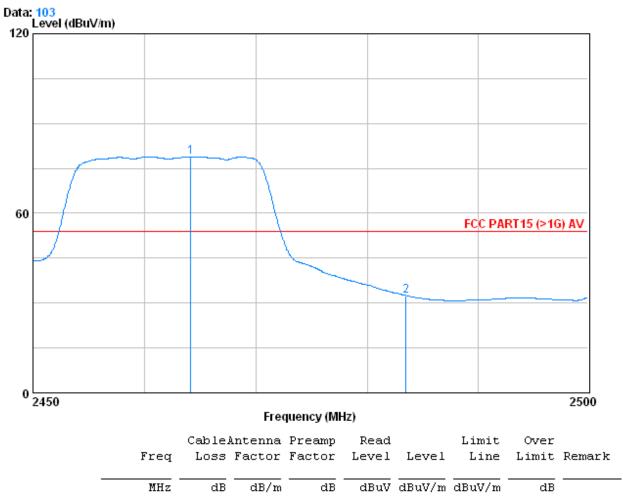
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Test mode:	802.11a	Test channel:	Highest	Horizontal	Average
i out illoud.	002.119	i cot onamici.	riigiioot	i ionzonia	rivolage



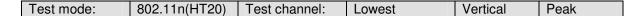
		Cablei	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
			,						
1 X	2464.100	2 02	22 64	20.01	02 00	70 75	E4 00	24 75	A
1 A	2404.100	3.02	34.04	39.91	03.00	70.75	54.00	24.75	Average
2	2483.500	3.03	32.67	39.92	36.50	32.28	54.00	-21.72	Average

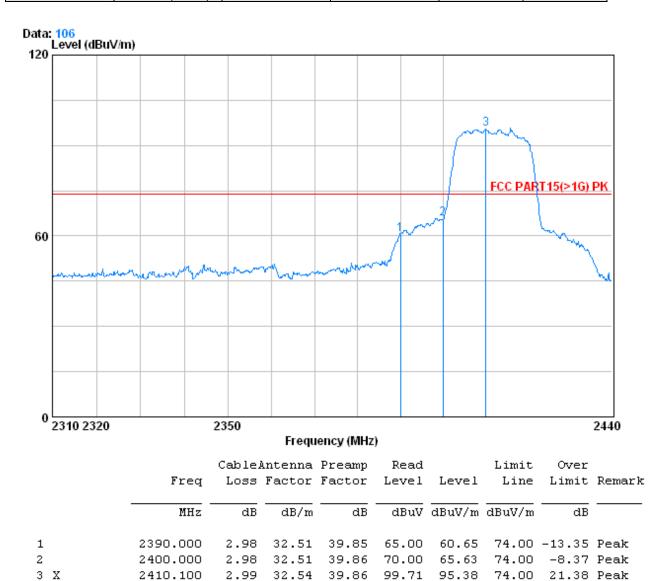
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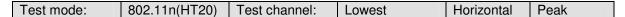


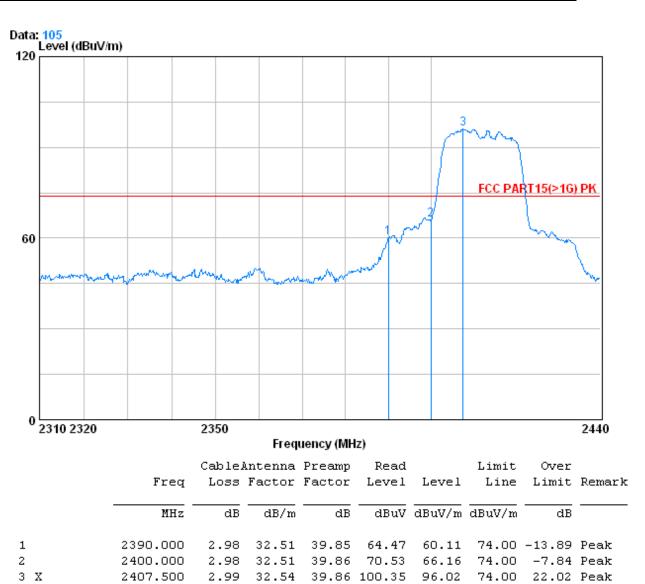
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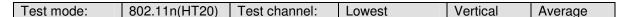


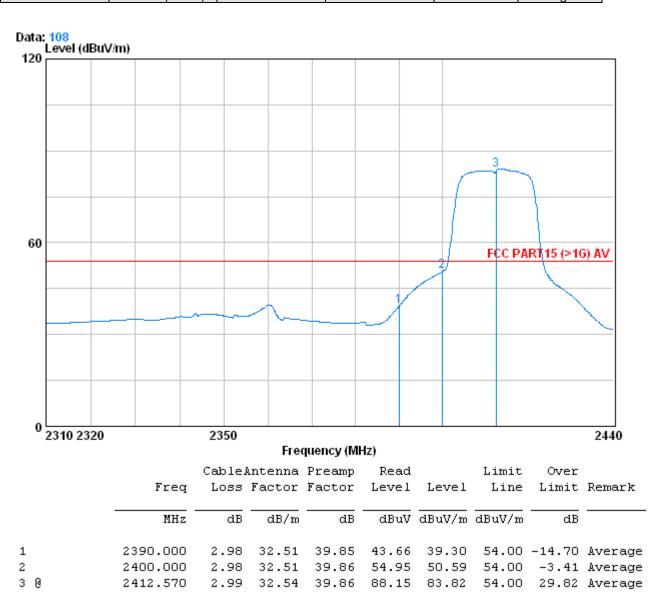
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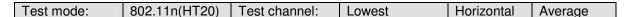


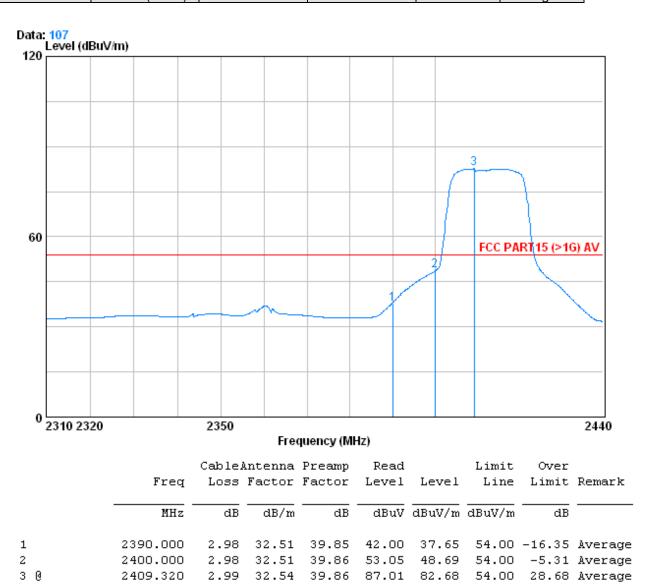
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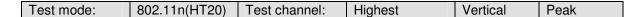


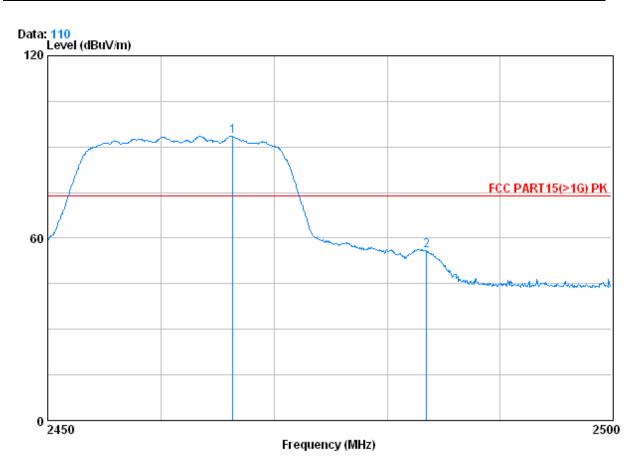
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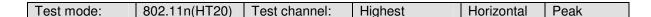
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	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2466.300 2483.500			39.91 39.92					

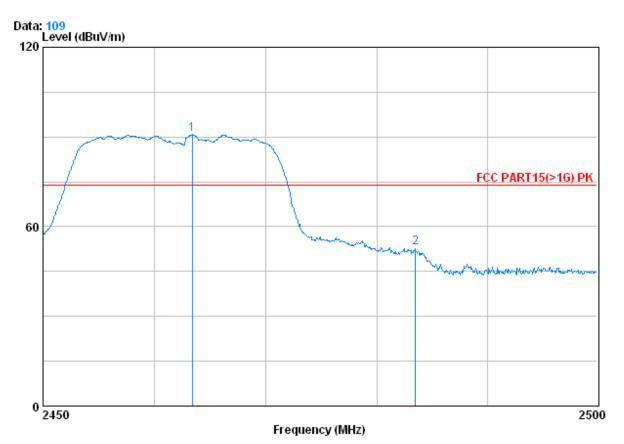
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	Freq			Preamp Factor			Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2463.350 2483.500			39.91 39.92					



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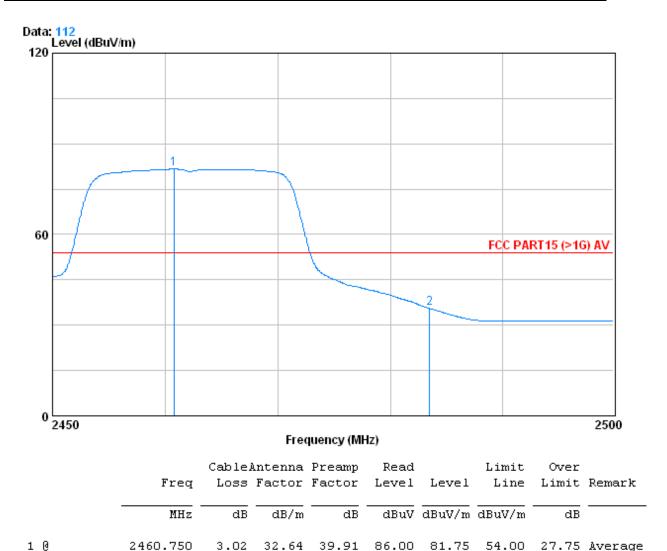
2483.500

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3.03 32.67 39.92

40.00

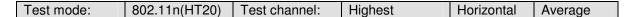
35.78 54.00 -18.22 Average

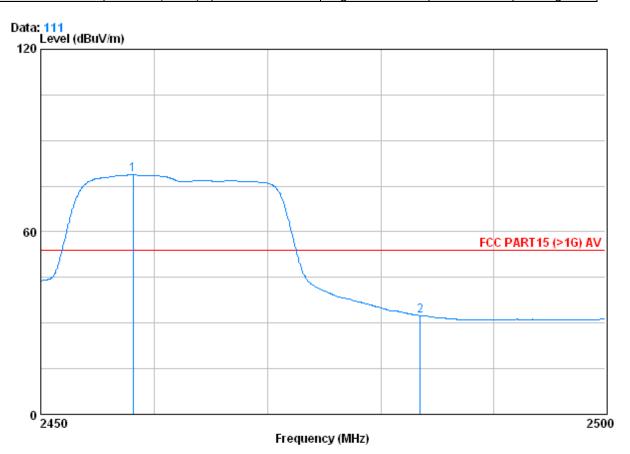
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	Freq		Antenna Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X 2	2458.100 2483.500								Average Average

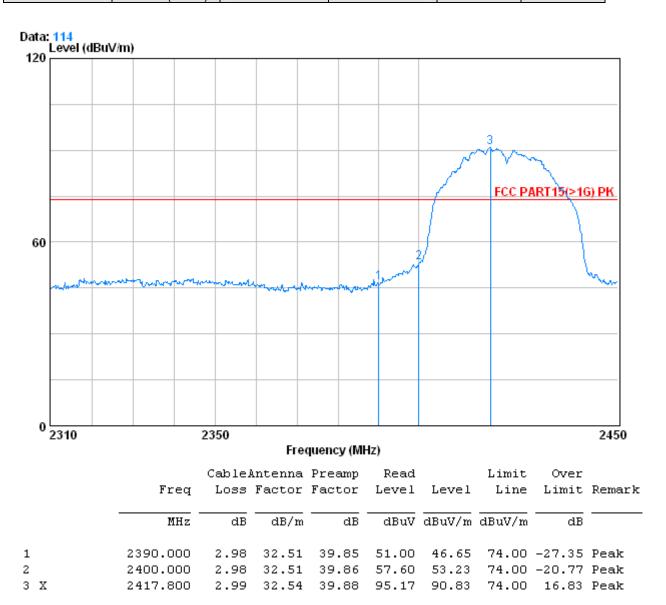
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The state of the	000 44 - (LIT40)	Table to the second	1	A / a at a a f	D 1	
l lest mode:	l 802.11n(HT40)	l lest channel:	LLowest	l Vertical	l Peak	
i i col illouc.	1 002.111(11170)	i i coi citatilici.	LUWUSI	i v Ci iiCai	i i can	

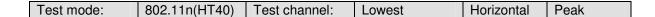


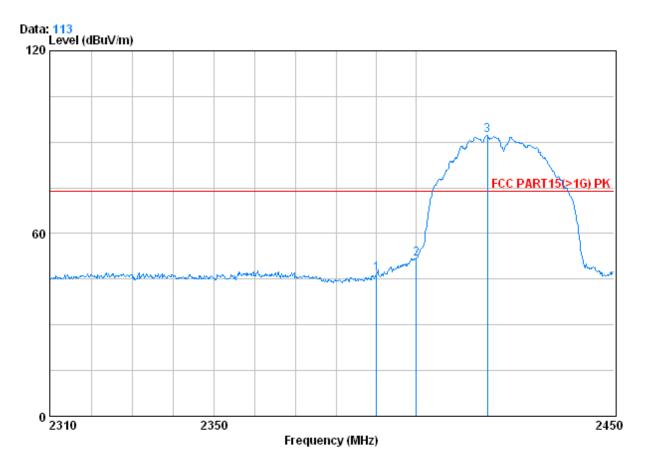
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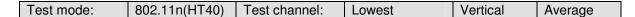
		Cable	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	51.00	46.65	74.00	-27.35	Peak
2	2400.000	2.98	32.51	39.86	56.00	51.63	74.00	-22.37	Peak
3 X	2417.800	2.99	32.54	39.88	96.48	92.14	74.00	18.14	Peak

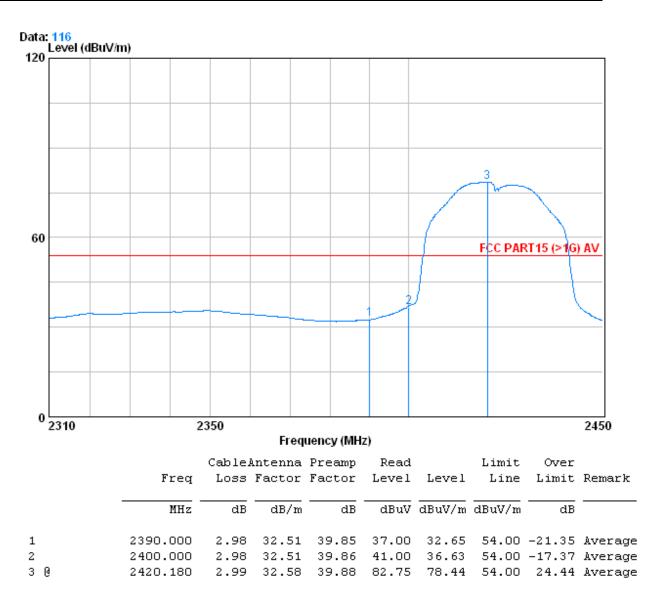
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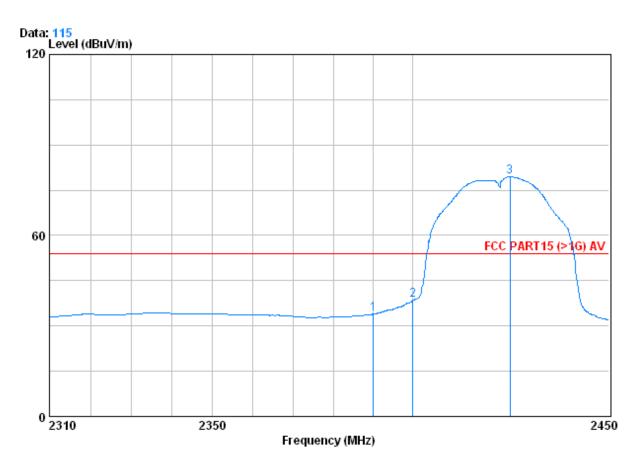
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Test mode:	802.11n(HT40)	Test channel:	Lowest	Horizontal	Average
i cot illouc.	002.1111(11140)	i cot onamici.	LOWCOL	i ionzonia	rivolage



	Freq			Preamp Factor	Read Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	2.98	32.51	39.85	38.25	33.90	54.00	-20.10	Average
2	2400.000	2.98	32.51	39.86	42.94	38.57	54.00	-15.43	Average
3 @	2424.660	3.00	32.58	39.88	83.66	79.36	54.00	25.36	Average

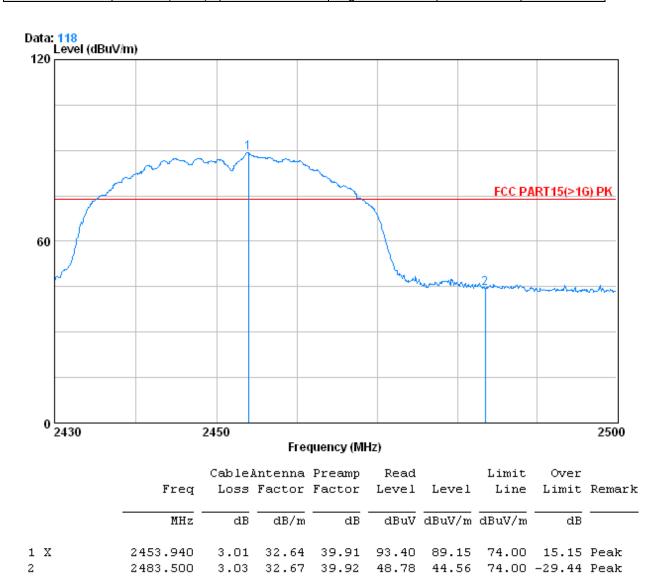
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Test mode:	802.11n(HT40)	Test channel:	Highest	Vertical	Peak
i cot illouc.	002.1111(11170)	i col chamile.	riigiiost	v Ci ticai	I Can

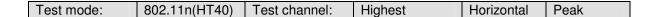


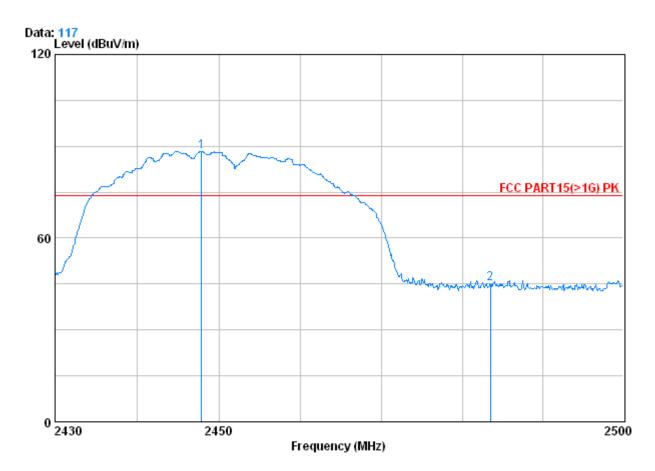
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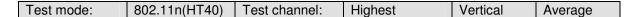
		CableAntenna		Preamp	Read	d Lim		Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2447.850	3.01	32.61	39.89	92.54	88.26	74.00	14.26	Peak
2	2483.500								
1 X	2447.850	3.01	32.61	dB 39.89 39.92	92.54	88.26	74.00	14.26	

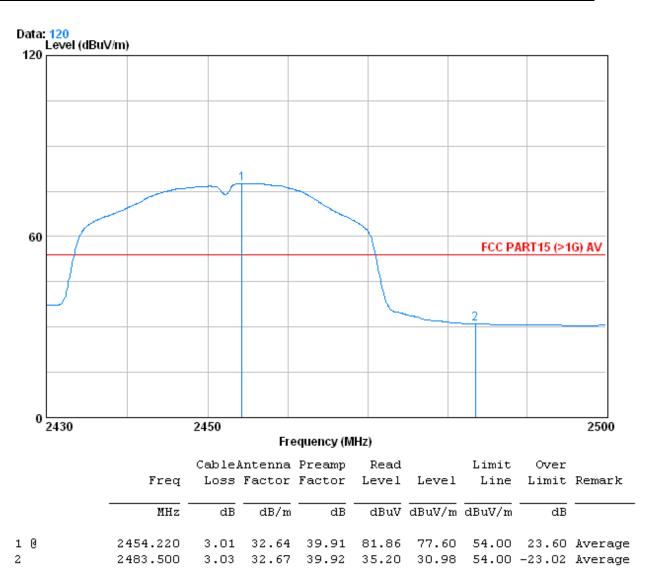
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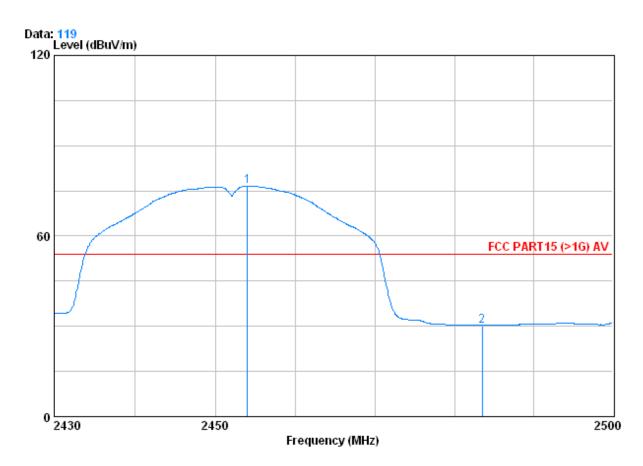
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Test mode:	802.11n(HT40)	Test channel:	Highest	Horizontal	Average
i cot illouc.	002.1111(11170)	i cot onamici.	riigiiost	i ionzontai	/ Working



			CableAntenna		Preamp	Read	Read		Over	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	X	2454.010	3.01	32.64	39.91	80.92	76.66	54.00	22.66	Average
2		2483.500	3.03	32.67	39.92	34.20	29.98	54.00	-24.02	Average



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