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Report No.: SZEMO10090587303

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# **FCC REPORT**

Application No: SZEMO100905873RF

Applicant: Binatone Electronics International Ltd.

Manufacturer/ Factory: HIVISION CO., LTD

Product Name: MID

**Operation Frequency**: 2412MHz to 2462MHz

FCC ID: VLJHST8

Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2009

**Date of Receipt:** 2010-09-13

**Date of Test:** 2010-09-13 to 2010-10-19

**Date of Issue:** 2010-11-11

Test Result : PASS \*

In the configuration tested, the EUT complied with the standards specified above. This report supersedes our previous report SZEMO10090587302, issued on 2010-11-02, which is hereby deemed null and void.

Authorized Signature:

Jack Zhang

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.



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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
RF Antenna Conducted spurious emissions	15.247 (d)	Pass*
Radiated Emission	15.205/15.209	Pass*
Band Edge	15.247(d)	Pass

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

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

<sup>\*</sup> The EUT passed the AC Power Line Conducted Emission, Radiated Emission and RF Antenna Conducted spurious emissions tests after modification.



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# 4 General Information

## 4.1 Client Information

Applicant:	Binatone Electronics International Ltd.
Manufacturer/ Factory:	HIVISION CO., LTD
Address of Applicant:	Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong
Address of Manufacturer:	Building 3, NO 5 Fuqiao Industrial Estate, Qiaotou, Fuyong, Baoan District, Shenzhen, China
Address of Factory:	Building 3, NO 5 Fuqiao Industrial Estate, Qiaotou, Fuyong, Baoan District, Shenzhen, China

# 4.2 General Description of E.U.T.

FUT N	MID (Mobile Internet Devices)
EUT Name:	MID ( Mobile Internet Device )
Item No.:	Homesurf Tablet 8, PWS800CS Only the Item No. Homesurf Tablet 8 was tested in this report, client declared that the above models are identical on interior structure and electrical circuits, and different on their colour of appearance and model name.
Trade mark:	Binatone
Operation Frequency:	2412MHz~2462MHz
No. of Channel:	11
Channel spacing:	5MHz
Data rate (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data rate (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Antenna Type:	Integral
Antenna gain:	2.0dBi
Power Supply:	AC/ DC adapter: Model: HNC055200U Input: 100-240V 50-60Hz 0.35A max a.c Output: 5.5V 2.0A d.c. Power Line: <3m 3.7V DC 3000mAh (Lithium Ion Rechargeable Battery)



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Operation Channel Frequency								
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 of the EUT is over 10 MHz, the lowest, the middle and the highest frequency of channels were selected for testing:

Channel	Frequency (MHz)		
lowest	2412		
middle	2437		
highest	2462		



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#### 4.3 Test environment and mode

Test Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1010 mBar
Test mode:	
Communication with PC (memory)	Connect the EUT and PC, exchanging data with internal memory.
Communication with PC (SD card)	Connect the EUT and PC, exchanging data with SD card.
Playing (memory MP3)	Keep the EUT playing MP3 with its internal memory.
Playing (SD Card MP3)	Keep the EUT playing MP3 with its SD card.
Playing (memory MP4)	Keep the EUT playing MP4 with its internal memory.
Playing (SD Card MP4)	Keep the EUT playing MP4 with its SD card.
Playing (memory photo)	Keep the EUT taking photo(memory).
Playing (SD card photo)	Keep the EUT taking photo(SD card).
Charge + WI-FI	Keep the EUT in charge mode and keep the communication between EUT and Route.
Charge + Communication with PC (SD card)	Keep the EUT in charge mode, connect the EUT and PC, exchanging data with SD card.
Charge + Playing (SD Card MP4)	Keep the EUT in charge mode and playing MP4 with its SD card.
Charge (base) + Communication with PC (SD card)	Keep the EUT(add base) in charge mode, connect the EUT and PC, exchanging data with SD card.
Charge (base) + Playing (SD Card MP4)	Keep the EUT(add base) in charge mode and playing MP4 with its SD card.
Charge	Keep the EUT in charge mode.
Charge (base)	Keep the EUT(add base) in charge mode.

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-Test Mode:

Mode	802.11b								<del></del>
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps					
Power (dBm)	18.58	18.22	18.01	17.89					_
Mode			-	8	02.11g				
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbp	s

## Final Test Mode:

According to ANSI C63.10:2009 standard, the test results are the worst case

1Mbps for 802.11b, 6Mbps for 802.11g



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## 4.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.			
PC (1)	DELL	OPTIPLEX 755			
LCD-displaying	DELL	E1909WF			
KEYBOARD	DELL	SK-8115			
MOUSE	DELL	MOC5110			
PC (2)	DELL	OPTIDLEX 330			
LCD-displaying	DELL	SP2208WFPT			
KEYBOARD	DELL	SK-8115			
MOUSE	DELL	MOC5110			
Coder	HengTong ELECTRON	HT4000			
Printer	Canon	BJC-1000SP			
Router	TP-LINK	N/A			

# 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, June 27, 2008.

#### • 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.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)			
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2010-06-17	2011-06-17			
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2009-11-05	2010-11-05			
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A			
4	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18			
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2009-11-05	2010-11-05			
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2009-11-10	2010-11-10			
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2009-11-10	2010-11-10			
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2010-06-02	2011-06-02			
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2009-12-18	2010-12-18			
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	2010-06-04	2011-06-04			
11	Band filter	Amindeon	82346	SEL0094	2010-06-02	2011-06-02			

Conducted Emission									
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)			
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A			
2	LISN	ETS-LINDGREN	3816/2	SEL0021	2010-06-02	2011-06-02			
3	Two-Line V-Network	Rohde & Schwarz	ENV216	SEL0152	2009-10-22	2010-10-22			
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2010-06-02	2011-06-02			
5	Coaxial Cable	SGS	N/A	SEL0024	2008-06-18	2011-06-18			



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RF c	RF conducted										
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)					
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	2009-10-22	2010-10-22					
2	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18					



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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:

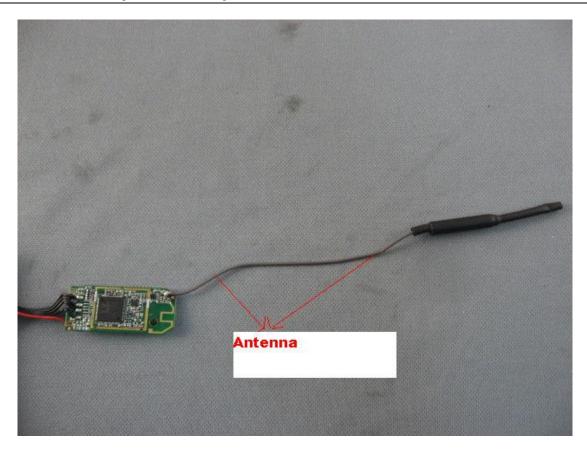
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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. The best gain of the antenna is 2.0dBi.





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#### 5.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.10: 2009					
Test Frequency Range:	150kHz to 30MHz	150kHz to 30MHz				
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz					
Limit:	Frequency range (MHz)	Limit (d	lBuV)			
	, , ,	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5 5-30	56 60	46 50			
	* Decreases with the logarithm		50			
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 LISN provides 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:	Refere	nce Plane				
Test setup:	LISN 40cm	J.T EMI Receiver	er — AC power			
Test setup:  Test Instruments:	AUX Equipment  Test table/Insulation pla  Remark: E.U.T. Equipment Under Test LISN Line Impedence Stabilizatio Test table height=0.8m  Refer to section 4.7 for details	J.T EMI Receiver				
	AUX Equipment E.U  Test table/Insulation pla  Remark: E.U.T. Equipment Under Test LISN: Line Impedence Stabilizatio Test table height=0.8m	nce Plane  80cm LISN Filte EMI Receiver  m Network  communication with PC rge (base) + Communication (SD Card MP4), the EUT at above mode	(SD card), Charge + nication with PC (SD Charge and Charge s, and then found the			
Test Instruments:	Remark: E.U.T. Equipment Under Test LISN  Refer to section 4.7 for details  Charge + WI-FI, Charge + Co Playing (SD Card MP4), Cha card), Charge (base) + Play (base).  Pre-scan was performed on the	nce Plane  80cm LISN Filte EMI Receiver  m Network  communication with PC rge (base) + Communication (SD Card MP4), the EUT at above mode	(SD card), Charge + nication with PC (SD Charge and Charge s, and then found the			



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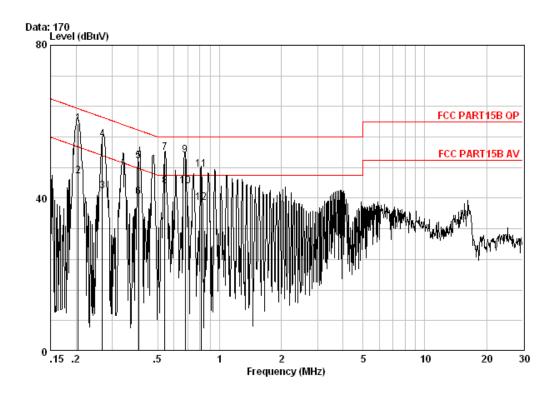
#### **Measurement Data**

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.

#### Charge + Communication with PC (SD card)

#### Live Line:



	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20500	0.04	-0.04	59.60	59.60	63.41	-3.81	QP
2	0.20500	0.04	-0.04	45.80	45.80	53.41	-7.61	Average
3	0.26800	0.05	-0.04	41.90	41.90	51.18	-9.28	Average
4	0.26800	0.05	-0.04	55.30	55.30	61.18	-5.88	QP
5	0.40300	0.06	-0.04	49.60	49.61	57.79	-8.18	QP
6	0.40300	0.06	-0.04	40.40	40.41	47.79	-7.38	Average
7	0.54000	0.06	-0.04	51.90	51.92	56.00	-4.08	QP
8 @	0.54000	0.06	-0.04	43.20	43.22	46.00	-2.78	Average
9	0.67900	0.06	-0.05	51.30	51.31	56.00	-4.69	QP
10	0.67900	0.06	-0.05	43.20	43.21	46.00	-2.79	Average
11	0.81500	0.07	-0.05	47.50	47.52	56.00	-8.48	QP
12	0.81500	0.07	-0.05	38.80	38.82	46.00	-7.18	Average

Read

Limit

Over

LISN

#### Notes:

The following Quasi-Peak and Average measurements were performed on the EUT:

Cable

2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

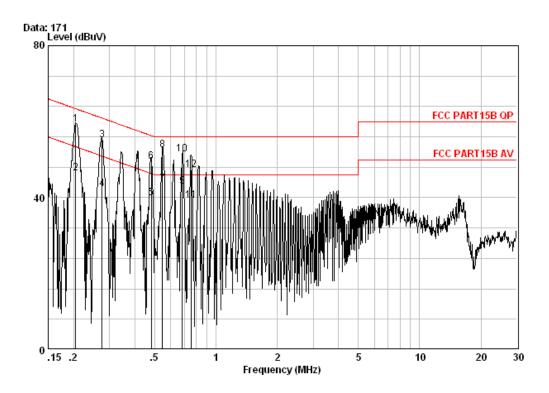
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#### **Neutral Line:**



		Cable	LISN	Read		Limit	Over	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20500	0.04	-0.04	59.20	59.20	63.41	-4.21	QP
2	0.20500	0.04	-0.04	46.40	46.40	53.41	-7.01	Average
3	0.27600	0.05	-0.04	55.20	55.21	60.94	-5.73	QP
4	0.27600	0.05	-0.04	42.30	42.31	50.94	-8.63	Average
5	0.48200	0.06	-0.04	39.90	39.92	46.30	-6.39	Average
6	0.48200	0.06	-0.04	49.50	49.52	56.30	-6.79	QP
7 0	0.54600	0.06	-0.04	43.50	43.52	46.00	-2.48	Average
8	0.54600	0.06	-0.04	52.60	52.62	56.00	-3.38	QP
9	0.68400	0.06	-0.04	42.90	42.92	46.00	-3.08	Average
10	0.68400	0.06	-0.04	51.50	51.52	56.00	-4.48	QP
11	0.75500	0.06	-0.04	39.30	39.32	46.00	-6.68	Average
12	0.75500	0.06	-0.04	47.30	47.32	56.00	-8.68	QP

#### 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:	ANSI C63.10:2009 and KDB558074
Limit:	30dBm
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 4.7 for details
Test results:	Pass

#### **Measurement Data**

Wicasurciniciti Data						
	802.11b mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	18.58	30.00	Pass			
Middle	18.15	30.00	Pass			
Highest	17.79	30.00	Pass			
	802.11g mg	ode				
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result			
Lowest	20.77	30.00	Pass			
Middle	20.37	30.00	Pass			
Highest	20.01	30.00	Pass			

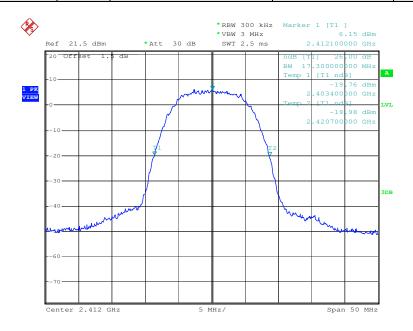


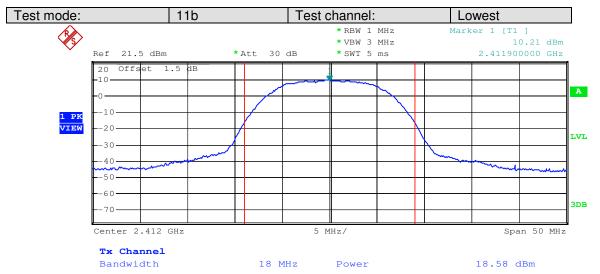
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# Test plot as follows:

Test mode: 11b Test channel: Lowest -26dB

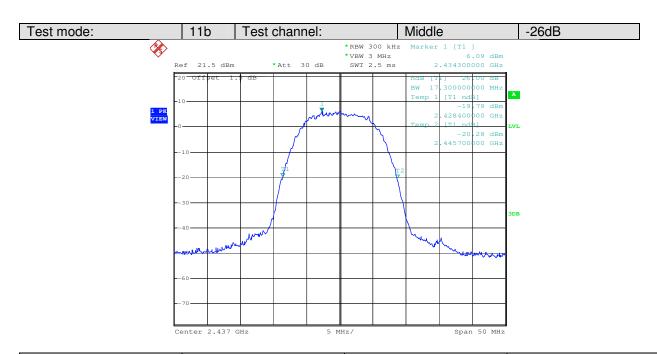


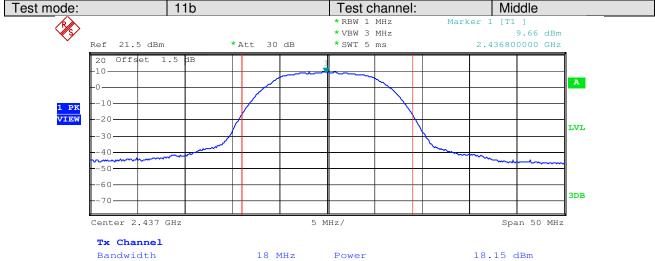




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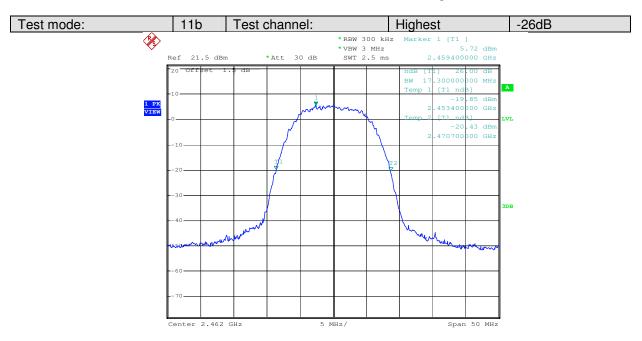


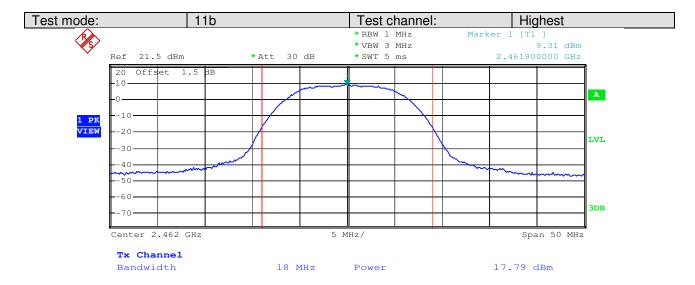




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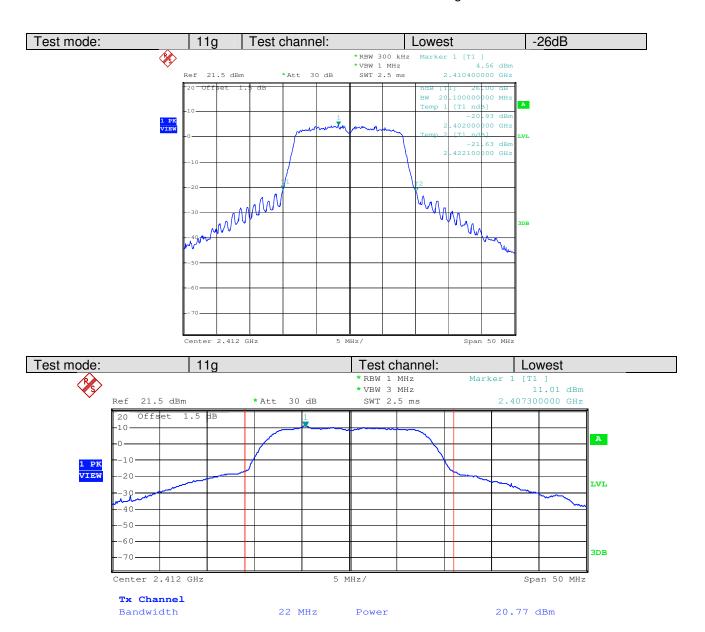






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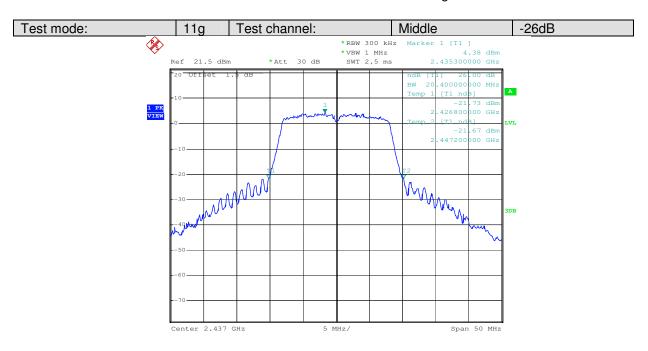
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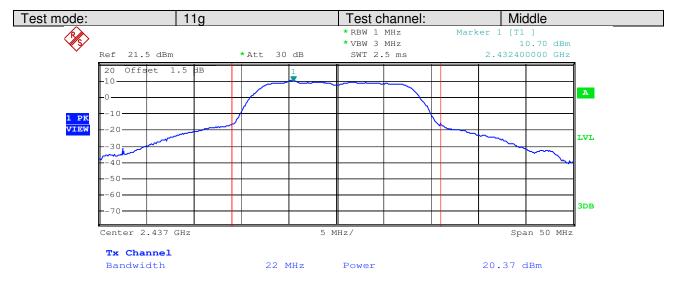




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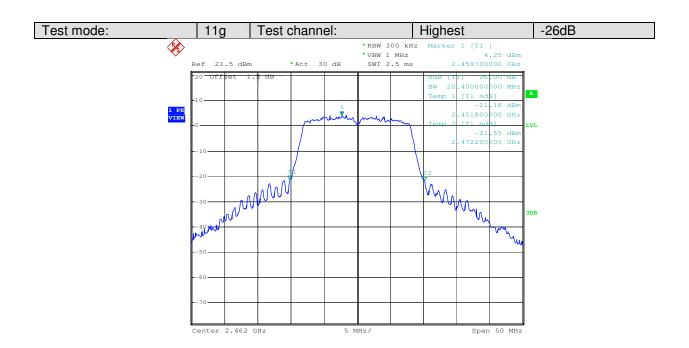


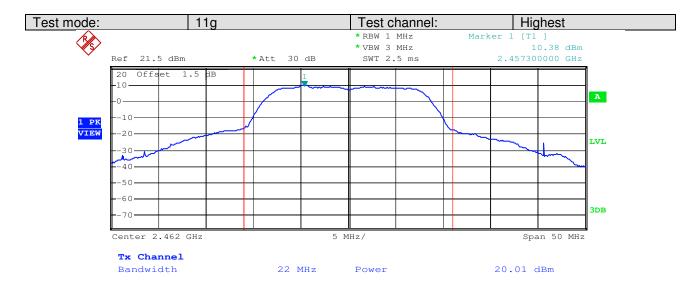




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## 5.4 6dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)				
Test Method:	ANSI C63.10:2009 and KDB558074				
Requirement:	≥500kHz				
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table				
	Ground Reference Plane				
Test Instruments:	Refer to section 4.7 for details				
Test results:	Pass				

#### **Measurement Data**

Weasurement Data							
	802.11b mode						
Test channel	6dB Occupy Bandwidth (MHz)	Requirement(kHz)	Result				
Lowest	10.38	≥500	Pass				
Middle	10.68	≥500	Pass				
Highest	10.80	≥500	Pass				
	802.11g mode						
Test channel	6dB Occupy Bandwidth (MHz)	Requirement(kHz)	Result				
Lowest	16.62	≥500	Pass				
Middle	16.68	≥500	Pass				
Highest	16.62	≥500	Pass				

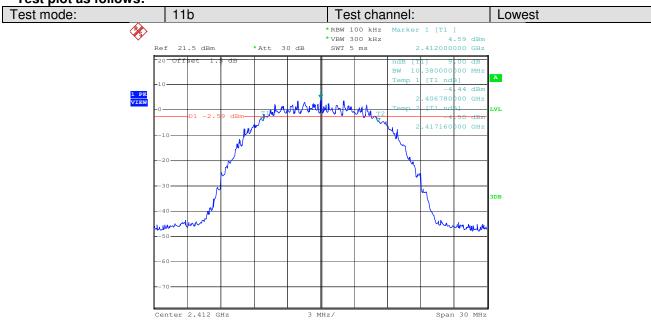
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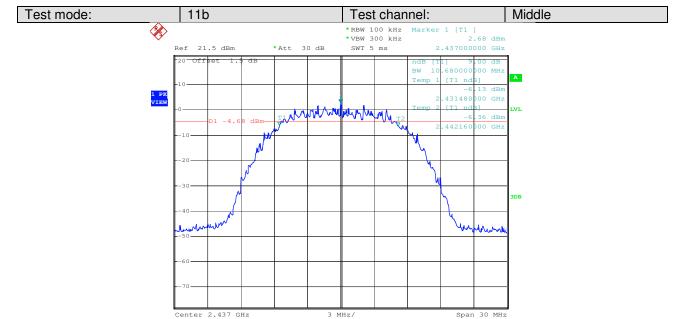


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Test plot as follows:

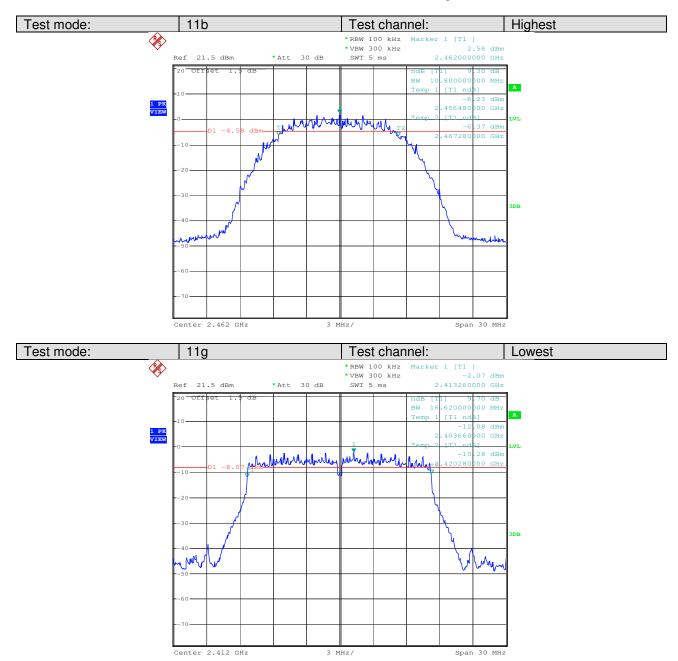






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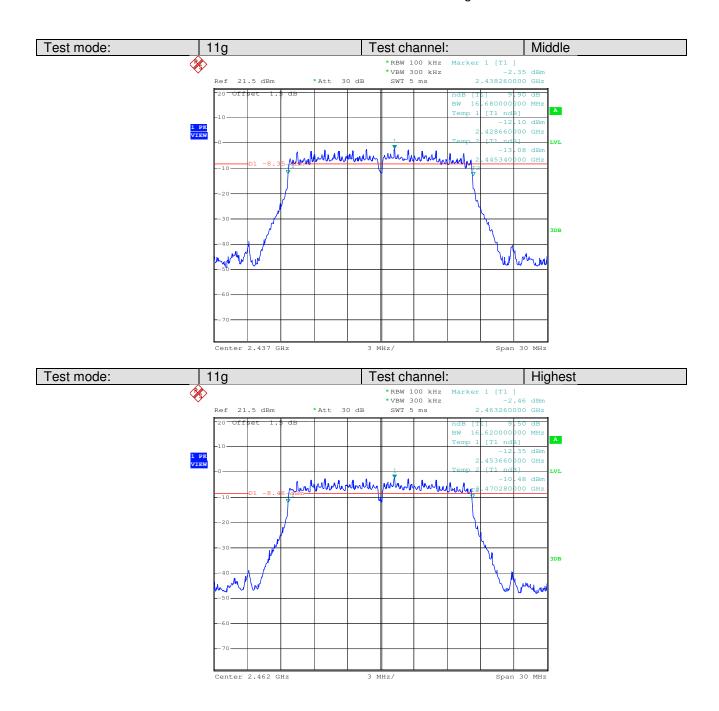


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# 5.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2009 and KDB558074
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 4.7 for details
Test results:	Pass

#### Measurement Data

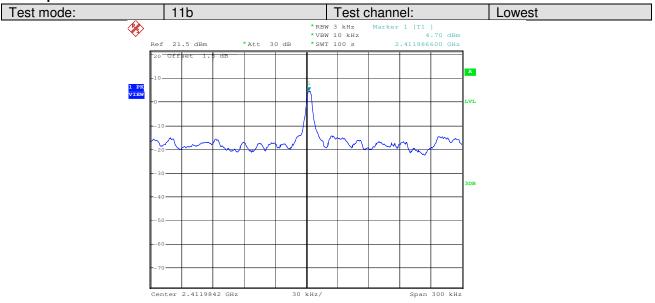
Measurement Data						
802.11b mode						
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result			
Lowest	4.70	≤8.00	Pass			
Middle	4.82	≪8.00	Pass			
Highest	4.71	≪8.00	Pass			
	802.11g mode					
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result			
Lowest	-12.22	≪8.00	Pass			
Middle	-12.59	≪8.00	Pass			
Highest	-13.18	≪8.00	Pass			



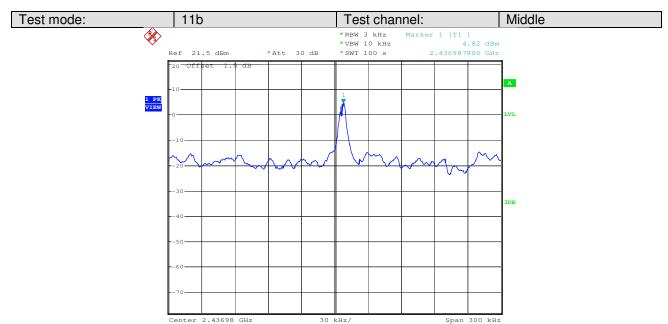
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# Test plot as follows:



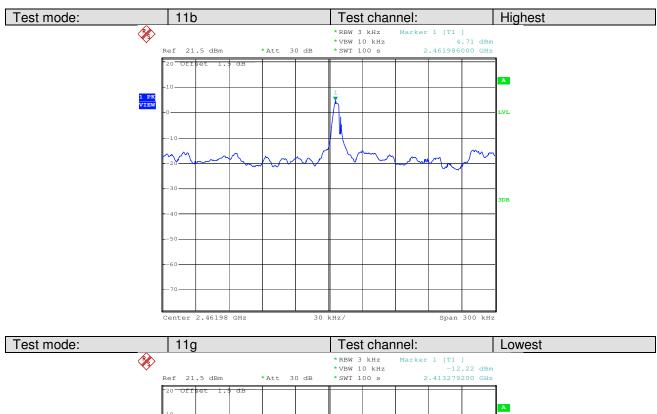
Date: 21.0CT.2010 15:21:54

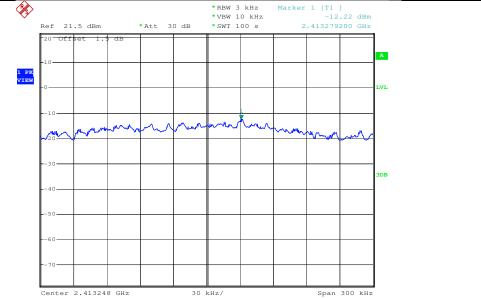




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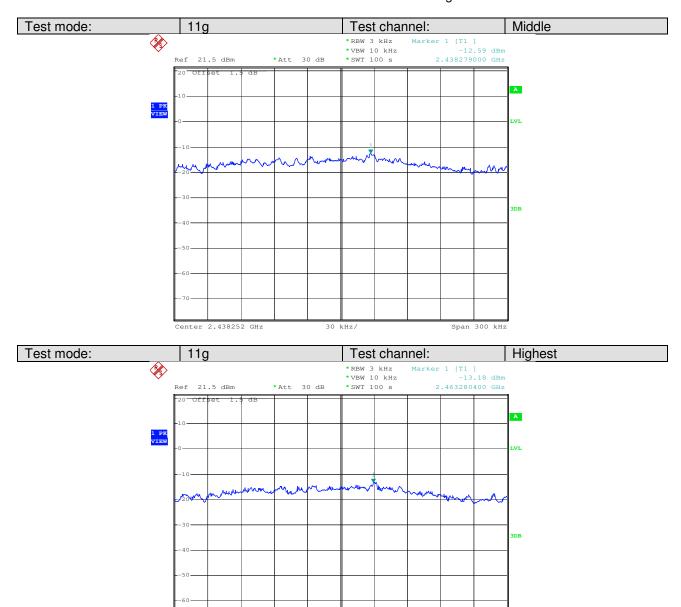




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Span 300 kHz



30 kHz/

Center 2.463251 GHz

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# 5.6 Band Edge

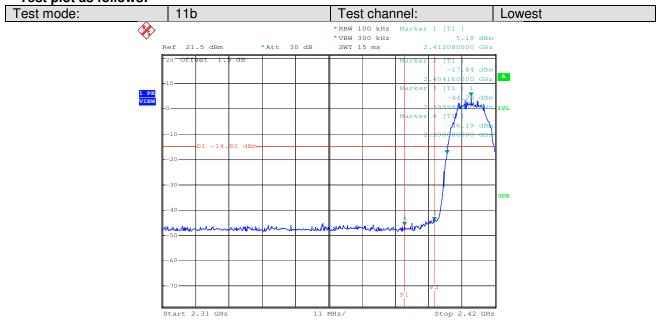
Test Requirement:	FCC Part15 C Section 15.247 (d)			
Test Method:	ANSI C63.10:2009 and KDB558074			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be 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 4.7 for details			
Test results:	Pass			

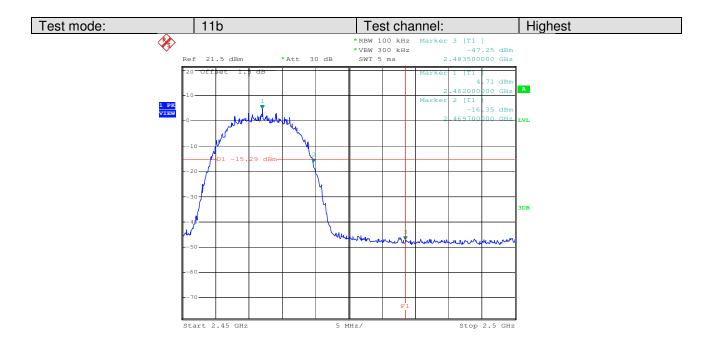


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Test plot as follows:

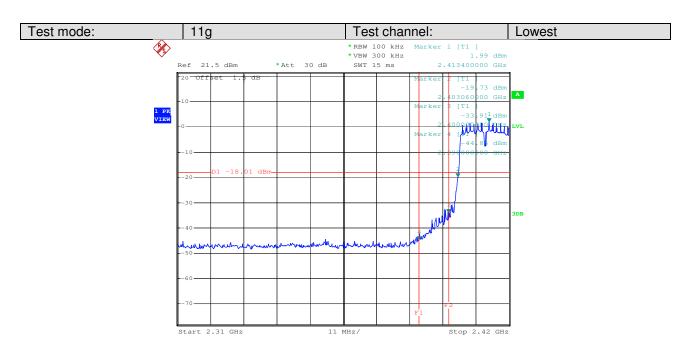


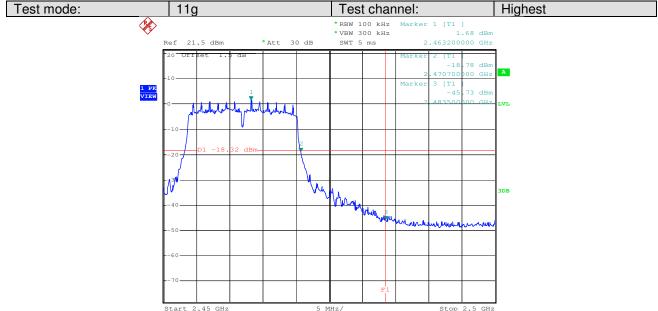




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# 5.7 RF Antenna Conducted spurious emissions

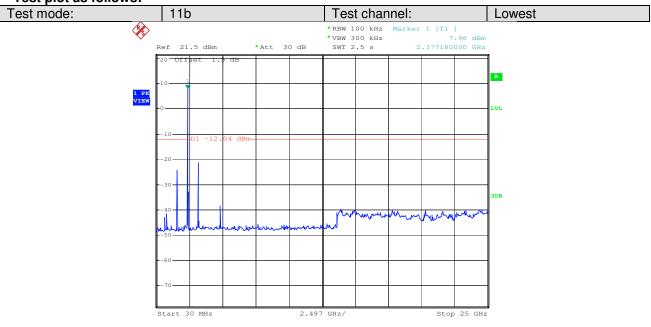
Test Requirement:	FCC Part15 C Section 15.247 (d)				
Test Method:	ANSI C63.10:2009 and KDB558074				
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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 4.7 for details				
Test results:	Pass				

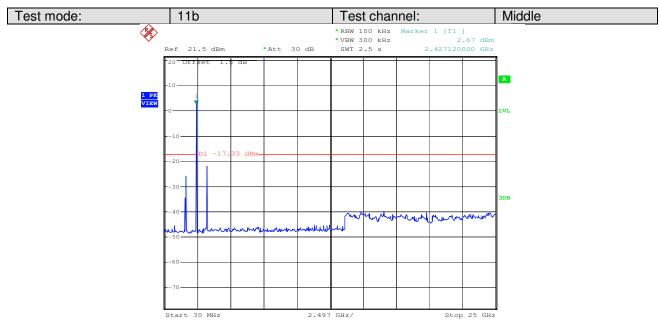


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## Test plot as follows:

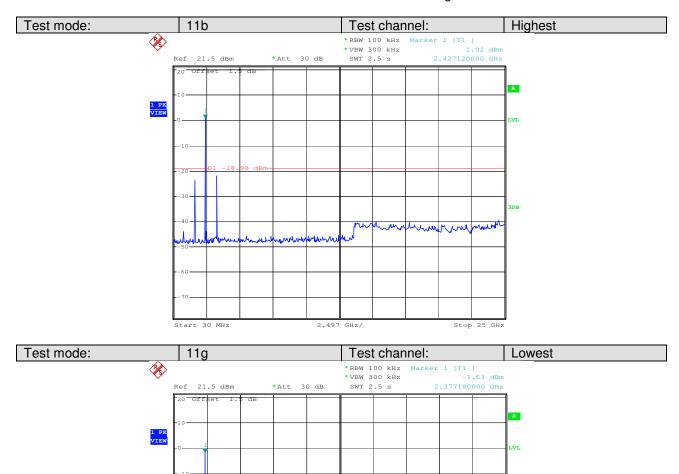






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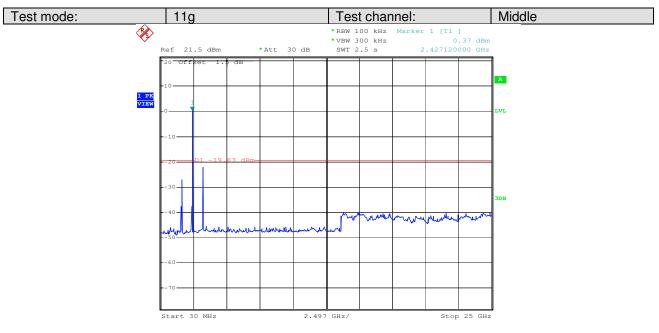


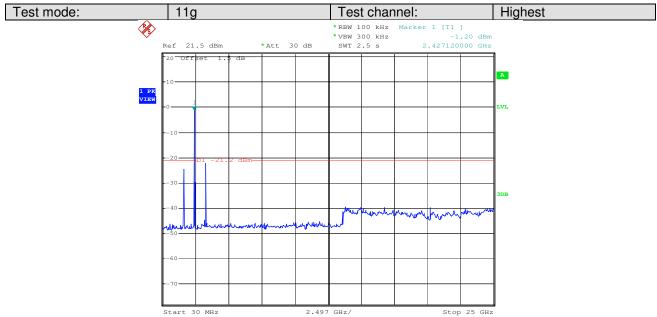
20 D1 -18.37 dBm 3DB 3DB -40 -40 -50 -60 -70 -70 Start 30 MHz 2.497 GHz/ Stop 25 GHz



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## 5.8 Radiated Emission

Test Requirement:	FCC Part15 C S	Section 15.209	and 15.205			
Test Method:	ANSI C63.10: 2	009				
Test Frequency Range:	30MHz to 25GH	lz				
Test site:	Measurement D	istance: 3m (S	emi-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	
	7100VC TGITE	Peak	1MHz	10Hz	Average Value	
Limit:					ı	
	Freque		Limit (dBuV/		Remark	
	30MHz-8		40.0		Quasi-peak Value	
	88MHz-21		43.5		Quasi-peak Value	
	216MHz-9		46.0		Quasi-peak Value	
	960MHz-	1GHz	54.0		Quasi-peak Value	
	Above 1	GHz			Average Value	
Test Procedure:	- The FUT					
	Above 1GHz  54.0  74.0  Reak Value  a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The turntable was rotated 360 degrees to determine the position of the highest radiation.  b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.  c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.  d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.  e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.  f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet.  The radiation measurements are performed in X, Y, Z axis positioning.					
Test Instruments:	Only the worst on Refer to section		-1			



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Test mode:	Communication with PC (memory), Communication with PC (SD card), Playing (memory MP3), Playing (SD Card MP3), Playing (memory MP4), Playing (SD Card MP4), Playing (memory photo), Playing (SD card photo), Charge + WI-FI, Charge + Communication with PC (SD card), Charge + Playing (SD Card MP4), Charge (base) + Communication with PC (SD card), Charge (base) + Playing (SD Card MP4), Charge and Charge (base).  Pre-scan was performed on the EUT at above modes, and then found the worst case is Charge + WI-FI mode.
Test results:	Pass
Test setup:	Antenna Tower  Search Antenna  RF Test Receiver  Ground Plane  Above 1GHz  Antenna Tower  Horn Antenna  Spectrum Analyzer  Amplifier

#### 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

Frequenc y (MHz)	Cable Loss (dB)	Antenn a Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
132.820	1.28	7.82	27.17	54.65	36.58	43.50	-6.92	Vertical
319.060	1.96	14.59	26.63	53.09	43.01	46.00	-2.99	Vertical
343.310	2.04	15.25	26.82	55.03	45.50	46.00	-0.50	Vertical
366.590	2.11	15.81	26.97	51.83	42.78	46.00	-3.22	Vertical
443.220	2.38	16.74	27.42	49.33	41.03	46.00	-4.97	Vertical
505.300	2.61	17.96	27.68	46.79	39.68	46.00	-6.32	Vertical
132.820	1.28	7.82	27.17	53.36	35.29	43.50	-8.06	Horizontal
222.060	1.53	11.34	26.75	49.01	35.13	46.00	-10.87	Horizontal
292.870	1.87	13.58	26.53	46.37	35.29	46.00	-10.71	Horizontal
479.110	2.52	17.80	27.61	45.29	38.00	46.00	-8.00	Horizontal
665.350	2.84	21.16	27.27	41.72	38.45	46.00	-7.55	Horizontal
893.300	3.58	23.14	26.57	39.38	39.53	46.00	-6.47	Horizontal



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## 5.8.2 Transmitter emission above 1GHz

Test channel	: Low	est	Remark	:	Peak	Mode:		802.11b
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Pream p Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2316.000	6.00	29.74	39.83	50.73	46.64	74.00	-27.36	Vertical
3655.500	7.92	32.72	40.07	45.15	45.72	74.00	-28.28	Vertical
4830.500	10.34	34.28	41.43	44.81	48.00	74.00	-26.00	Vertical
7333.250	12.91	37.31	40.40	40.38	50.20	74.00	-23.80	Vertical
9648.000	13.49	37.99	37.64	36.53	50.37	74.00	-23.63	Vertical
12056.750	16.77	39.12	39.13	36.06	52.82	74.00	-21.18	Vertical
2327.750	6.02	29.76	39.75	49.77	45.80	74.00	-28.20	Horizontal
3526.250	7.62	32.57	39.84	44.84	45.19	74.00	-28.81	Horizontal
4842.250	11.47	34.30	41.59	44.82	49.00	74.00	-25.00	Horizontal
7239.250	13.22	37.26	40.78	40.53	50.23	74.00	-23.77	Horizontal
9612.750	13.39	37.99	37.56	36.45	50.27	74.00	-23.73	Horizontal
12056.750	16.77	39.12	39.13	35.02	51.78	74.00	-22.22	Horizontal

Test channel	: Mide	dle	Remark:	F	Peak	Mode:		802.11b
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
1493.500	4.73	27.11	39.75	49.95	42.04	74.00	-31.96	Vertical
3620.250	8.23	32.68	40.64	44.72	44.99	74.00	-29.01	Vertical
4877.500	10.36	34.34	39.89	44.29	49.10	74.00	-24.90	Vertical
7321.500	12.91	37.31	40.40	40.38	50.20	74.00	-23.80	Vertical
9753.750	13.89	38.03	37.94	36.26	50.24	74.00	-23.76	Vertical
12162.500	17.71	39.19	39.23	33.32	50.99	74.00	-23.01	Vertical
1258.500	4.46	26.30	39.34	51.05	42.47	74.00	-31.53	Horizontal
3244.250	6.97	32.22	39.27	45.97	45.89	74.00	-28.11	Horizontal
4865.750	9.68	34.32	40.35	43.14	46.79	74.00	-27.21	Horizontal
7333.250	12.91	37.31	40.40	36.26	46.08	74.00	-27.92	Horizontal
9730.250	13.79	38.02	37.86	37.25	51.20	74.00	-22.80	Horizontal
12162.500	17.71	39.19	39.23	32.87	50.54	74.00	-23.46	Horizontal



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Test channel	: High	nest	Remark:		Peak	Mode:		802.11b
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
1481.750	4.69	27.07	39.61	49.07	41.22	74.00	-32.78	Vertical
2974.000	6.58	31.83	39.10	46.74	46.05	74.00	-27.95	Vertical
4924.500	10.53	34.41	40.90	44.43	48.47	74.00	-25.53	Vertical
7380.250	12.68	37.35	40.11	38.33	48.25	74.00	-25.75	Vertical
9836.000	14.13	38.05	38.01	34.63	48.80	74.00	-25.20	Vertical
12327.000	17.71	39.30	39.41	32.86	50.46	74.00	-23.54	Vertical
1258.500	4.46	26.30	39.34	52.46	43.88	74.00	-30.12	Horizontal
3690.750	7.50	32.76	39.33	44.81	45.74	74.00	-28.26	Horizontal
4924.500	10.53	34.41	40.90	44.80	48.84	74.00	-25.16	Horizontal
7380.250	12.68	37.35	40.11	39.05	48.97	74.00	-25.03	Horizontal
9859.500	14.17	38.06	37.93	36.17	50.47	74.00	-23.53	Horizontal
12291.750	17.79	39.28	39.38	33.46	51.15	74.00	-22.85	Horizontal

Test channel:	Low	est	Remark:		Peak	Mode:		802.11g
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
2327.750	6.02	29.76	39.75	50.44	46.47	74.00	-27.53	Vertical
3690.750	7.50	32.76	39.33	46.07	47.00	74.00	-27.00	Vertical
4818.750	9.21	34.26	41.27	44.77	46.97	74.00	-27.03	Vertical
7239.250	13.22	37.26	40.78	40.75	50.45	74.00	-23.55	Vertical
9648.000	13.49	37.99	37.64	37.14	50.98	74.00	-23.02	Vertical
12056.750	16.77	39.12	39.13	35.83	52.59	74.00	-21.41	Vertical
2316.000	6.00	29.74	39.83	50.54	46.45	74.00	-27.55	Horizontal
3643.750	8.02	32.70	40.26	45.58	46.04	74.00	-27.96	Horizontal
4830.500	10.34	34.28	41.43	45.41	48.60	74.00	-25.40	Horizontal
7239.250	13.22	37.26	40.78	41.85	51.55	74.00	-22.45	Horizontal
9648.000	13.49	37.99	37.64	36.66	50.50	74.00	-23.50	Horizontal
12056.750	16.77	39.12	39.13	34.24	51.00	74.00	-23.00	Horizontal



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Test channel	: Mide	dle	Remark:		Peak	Mode:		802.11g
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
1775.500	5.52	27.94	38.94	45.51	40.03	74.00	-33.97	Vertical
3690.750	7.50	32.76	39.33	45.17	46.10	74.00	-27.90	Vertical
4865.750	9.68	34.32	40.35	44.67	48.32	74.00	-25.68	Vertical
7321.500	12.91	37.31	40.40	40.42	50.24	74.00	-23.76	Vertical
9753.750	13.89	38.03	37.94	38.44	52.42	74.00	-21.58	Vertical
12162.500	17.71	39.19	39.23	33.75	51.42	74.00	-22.58	Vertical
1575.750	5.03	27.36	39.07	47.43	40.75	74.00	-33.25	Horizontal
3667.250	7.71	32.74	39.70	44.75	45.50	74.00	-28.50	Horizontal
4865.750	9.68	34.32	40.35	44.71	48.36	74.00	-25.64	Horizontal
7333.250	12.91	37.31	40.40	42.12	51.94	74.00	-22.06	Horizontal
9730.250	13.79	38.02	37.86	36.50	50.45	74.00	-23.55	Horizontal
12197.750	18.03	39.21	39.27	34.82	52.79	74.00	-21.21	Horizontal

Test channel	: High	nest	Remark:		Peak	Mode:		802.11g
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Emission Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Antenna Polarization
1470.000	4.66	27.03	39.47	47.09	39.31	74.00	-34.69	Vertical
3726.000	7.42	32.80	39.42	45.13	45.93	74.00	-28.07	Vertical
4924.500	10.53	34.41	40.90	44.40	48.44	74.00	-25.56	Vertical
7380.250	12.68	37.35	40.11	38.55	48.47	74.00	-25.53	Vertical
9836.000	14.13	38.05	38.01	35.14	49.31	74.00	-24.69	Vertical
12327.000	17.71	39.30	39.41	33.70	51.30	74.00	-22.70	Vertical
1258.500	4.46	26.30	39.34	53.06	44.48	74.00	-29.52	Horizontal
3549.750	7.85	32.60	40.17	44.59	44.87	74.00	-29.13	Horizontal
4936.250	10.53	34.41	40.90	43.73	47.77	74.00	-26.23	Horizontal
7380.250	12.68	37.35	40.11	39.41	49.33	74.00	-24.67	Horizontal
9859.500	14.17	38.06	37.93	35.80	50.10	74.00	-23.90	Horizontal
12291.750	17.79	39.28	39.38	33.33	51.02	74.00	-22.98	Horizontal

### Remark:

- 1. The disturbance above 13GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



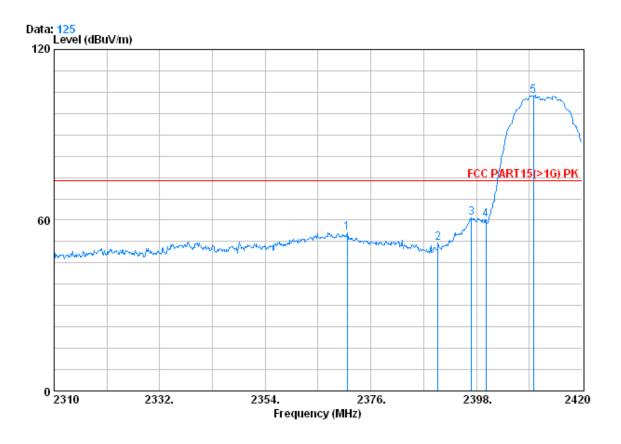
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# 5.8.3 Band edge (Radiated Emission)

Test mode:	802.11b	Remark	Peak	Test channel:	Lowest

Vertical:



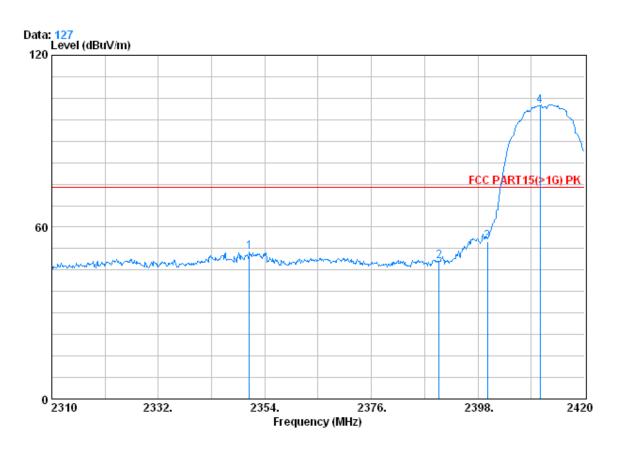
		Cable.	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2371.050	6.23	32.23	39.19	56.32	55.58	74.00	-18.42	Peak
2	2390.000	6.28	32.24	39.03	52.51	52.00	74.00	-22.00	Peak
3	2397.010	6.31	32.24	38.95	61.21	60.81	74.00	-13.19	Peak
4	2400.000	6.34	32.25	38.87	60.29	60.01	74.00	-13.99	Peak
5 0	2409.880	6.25	32.25	38.83	104.07	103.74	74.00	29.74	Peak



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#### Horizontal:



	Freq		Intenna Factor	•			Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2350.810	6.14	32.22	39.43	52.38	51.30	74.00	-22.70	Peak
2	2390.000	6.28	32.24	39.03	48.62	48.11	74.00	-25.89	Peak
3	2400.000	6.34	32.25	38.87	55.12	54.83	74.00	-19.17	Peak
4 @	2410.870	6.25	32.25	38.83	102.82	102.49	74.00	28.49	Peak

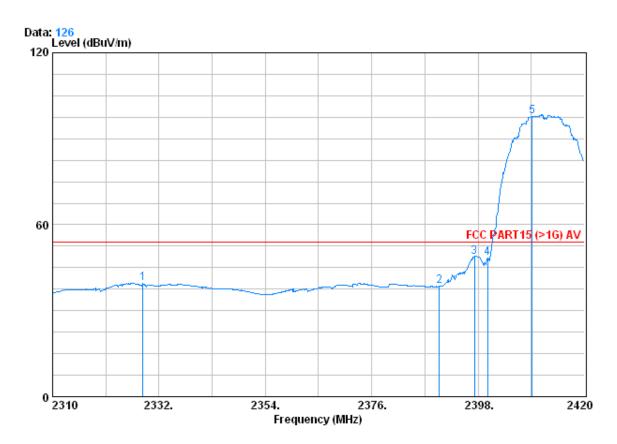


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Test mode:	802.11b	Remark	Average	Test channel:	Lowest
i est illoue.	002.110	Helliain	Average	i est chamile.	LOWEST

Vertical:



		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	2328.700	6.02	32.20	39.75	41.08	39.56	54.00	-14.44	Average
2	2390.000	6.28	32.24	39.03	38.97	38.46	54.00	-15.54	Average
3	2397.230	6.31	32.24	38.95	49.28	48.88	54.00	-5.12	Average
4	2400.000	6.34	32.25	38.87	48.59	48.30	54.00	-5.70	Average
5 @	2409.220	6.25	32.25	38.83	98.26	97.93	54.00	43.93	Average

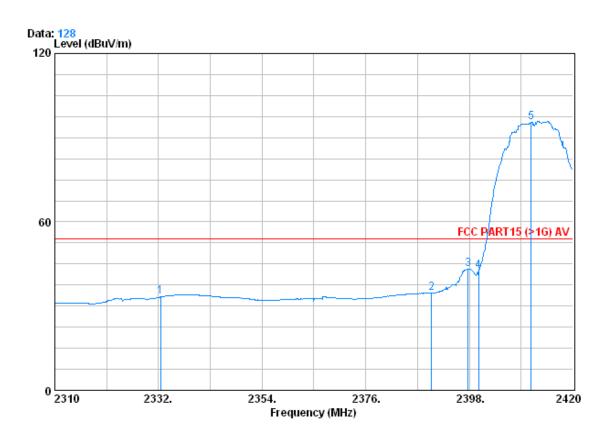
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### Horizontal:



	Freq			Preamp Factor	Kead Level		Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 2 3	2332.440 2390.000 2397.780	6.28	32.24	39.03	35.12	34.61	54.00	-19.39	Average Average Average
5 4 5 @	2400.000 2411.090	6.34	32.25	38.87	42.87	42.58	54.00	-11.42	Average Average Average

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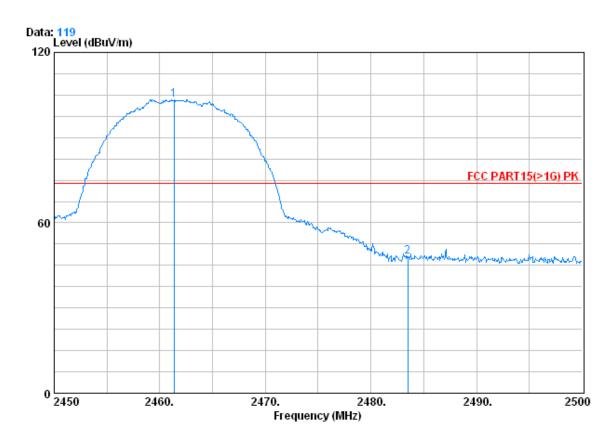


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Test mode:	802.11b	Remark	Peak	Test channel:	Highest
restilloue.	002.110	nemain	rean	rest channel.	nignesi

Vertical:



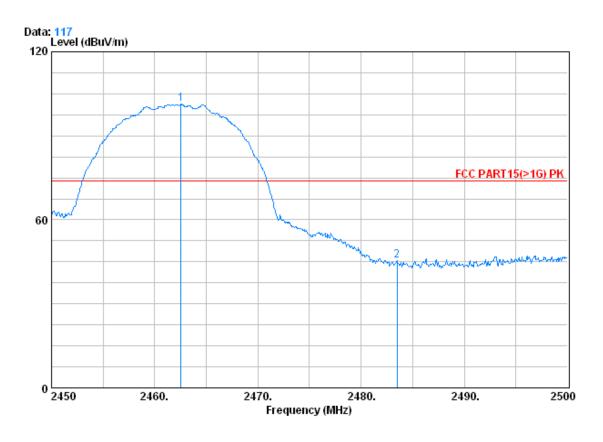
		Cablei	Antenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2461.350	6.70	32.28	39.61	104.10	103.47	74.00	29.47	Peak
2	2483.500	6.22	32.29	39.53	49.20	48.18	74.00	-25.82	Peak



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### Horizontal:



	Freq			•		Level			Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2462.550	6.70	32.28	39.61	101.85	101.22	74.00	27.22	Peak
2	2483.500	6.22	32.29	39.53	46.49	45.48	74.00	-28.52	Peak

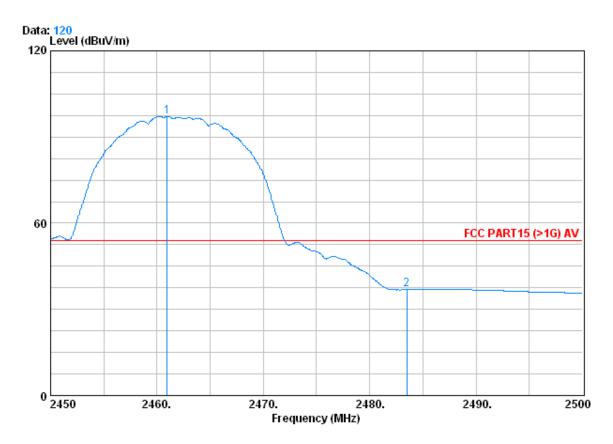


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Test mode:	802.11b	Remark	Average	Test channel:	Highest
i cot illouc.	002.110	Homan	/ worage	i cot oriaririoi.	riigiiost

Vertical:



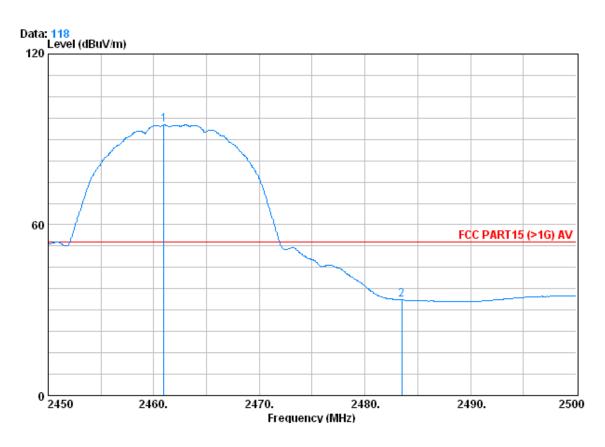
	Freq			Preamp Factor			Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2460.950	6.70	32.28	39.61	97.81	97.18	54.00	43.18	Average
2	2483.500	6.22	32.29	39.53	37.94	36.93	54.00	-17.07	Average



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### Horizontal:



	Freq			Preamp Factor	Read Level		Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2460.950	6.70	32.28	39.61	95.72	95.09	54.00	41.09	Average
2	2483.500	6.22	32.29	39.53	34.58	33.57	54.00	-20.43	Average

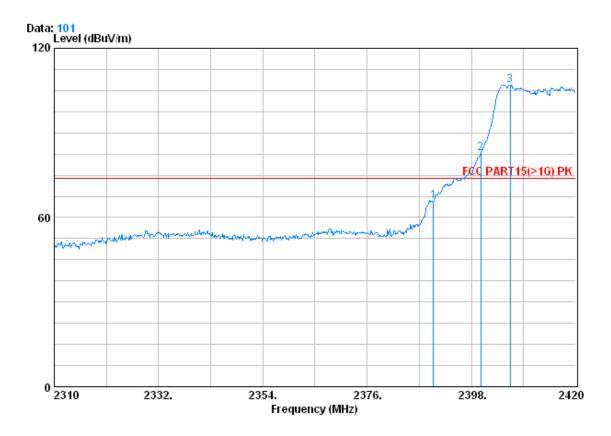


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Toot model	802.11a	Domork	Dools	Test channel:	Lowest
l est mode:	802.11g	Remark	Peak	l est channel:	Lowest

Vertical:



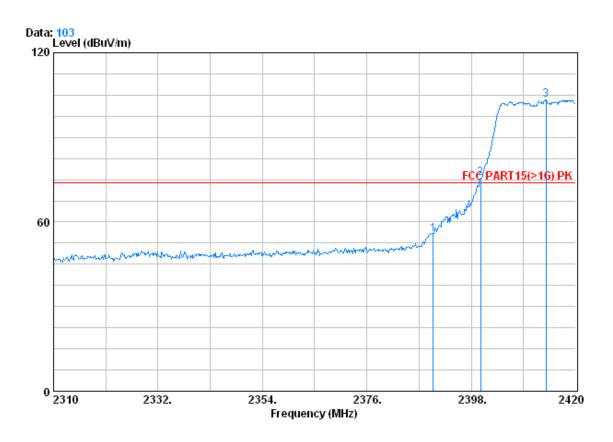
		Cablei	lntenna	Preamp	Read		Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2390.000	6.28	32.24	39.03	66.32	65.81	74.00	-8.19	Peak
2 X	2400.000	6.34	32.25	38.87	82.90	82.62	74.00	8.62	Peak
3 @	2406.140	6.25	32.25	38.83	107.27	106.94	74.00	32.94	Peak



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### Horizontal:



		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	6.28	32.24	39.03	56.25	55.74	74.00	-18.26	Peak
2 X	2400.000	6.34	32.25	38.87	75.86	75.57	74.00	1.57	Peak
3 @	2413.730	6.15	32.25	38.78	103.78	103.40	74.00	29.40	Peak

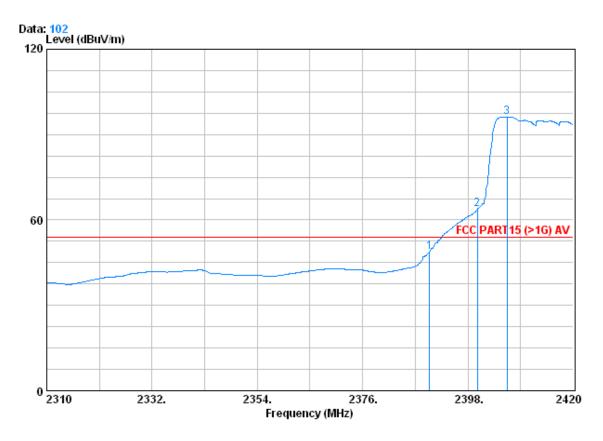


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Test medical COO 44 m Demonts Avenues Test showed		
Test mode:   802.11g   Remark   Average   Test channel:	Lowest	

Vertical:



			CableAntenna		Preamp	mp 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	6.28	32.24	39.03	49.38	48.87	54.00	-5.13	Average
2	X	2400.000	6.34	32.25	38.87	63.91	63.63	54.00	9.63	Average
3	0	2406.140	6.25	32.25	38.83	96.59	96.26	54.00	42.26	Average

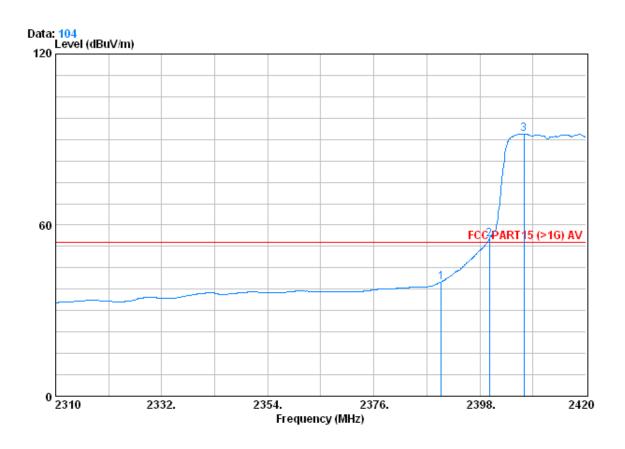
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### Horizontal:



		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	6.28	32.24	39.03	40.53	40.02	54.00	-13.98	Average
2 X	2400.000	6.34	32.25	38.87	55.26	54.97	54.00	0.97	Average
3 @	2407.130	6.25	32.25	38.83	92.35	92.02	54.00	38.02	Average

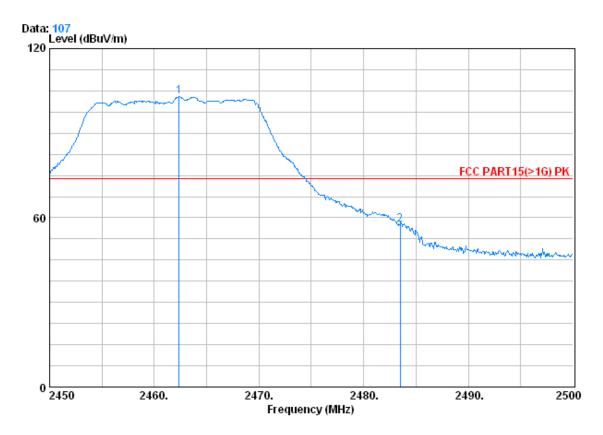


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Test mode:	802.11a	Remark	Poak	Test channel:	Highaet
restillode.	002.119	Remark	Peak	rest channel.	Highest

Vertical:



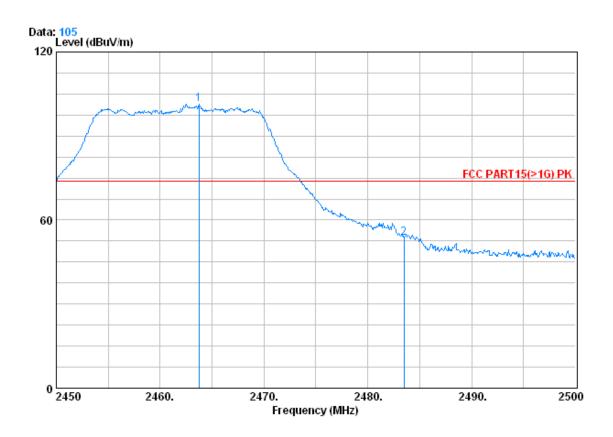
	Freq			-	Read Level Level				Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2462.350	6.70	32.28	39.61	103.53	102.90	74.00	28.90	Peak
2	2483.500	6.22	32.29	39.53	58.41	57.39	74.00	-16.61	Peak



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### Horizontal:



	С	CableAntenna (		Preamp Read		Limit	Over		
	Freq	Loss 1	Factor	Factor	Level	Level	Line	Limit	Remark
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 0	2463.750	6.70	32.28	39.61	101.93	101.31	74.00	27.31	Peak
2	2483.500	6.22	32.29	39.53	54.78	53.77	74.00	-20.23	Peak
4	4 <del>4</del> 83.500	6.22	34.49	39.53	54.70	53.77	74.00	-20.23	reak

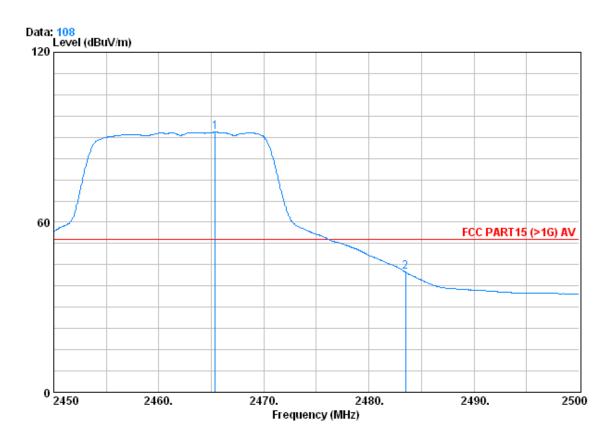


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Test mode:	802.11a	Remark	Average	Test channel:	Highest
1631111006.	802.110	HUINAIN	AVEIAGE	i est channer.	HIGHEST

Vertical:



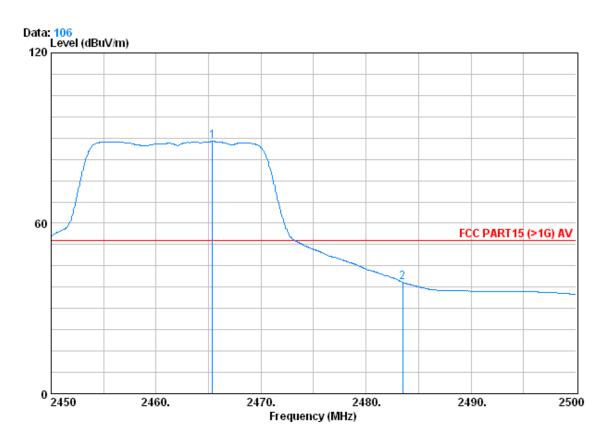
	Over	Limit		Read	Preamp	Antenna	Cable		
Remark	Limit	Line	Level	Level	Factor	Factor	Loss	Freq	
	dB	dBuV/m	dBuV/m	dBuV	dB	dB/m	dB	MHz	
Average	37.77	54.00	91.77	92.40	39.61	32.28	6.70	2465.350	1 0
Average								2483.500	2
Average	dB 37.77	dBuV/m 54.00	dBuV/m 91.77	dBuV 92.40	dB 39.61	dB/m	dB 6.70	MHz 2465.350	



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### Horizontal:



CableAntenna	Preamp Read		Limit	Over	
Loss Factor	Factor Le	evel Level	Line	Limit	Remark
dB dB/m	dB (	dBuV dBuV/m	dBuV/m	dB	
6.70 32.28	39.61 89	9.46 88.83	54.00	34.83	Average
	00 50 44		F4 00	44 55	
	Loss Factor  dB dB/m  6.70 32.28	Loss Factor Factor Le  dB dB/m dB   6.70 32.28 39.61 89	Loss Factor Factor         Level         Level           dB         dB/m         dB         dBuV/m           6.70         32.28         39.61         89.46         88.83	Loss Factor Factor Level Level Line $ \frac{dB}{dB/m} \frac{dB/m}{dB} \frac{dBuV}{dBuV/m} \frac{dBuV/m}{dBuV/m} $ 6.70 32.28 39.61 89.46 88.83 54.00	Loss Factor Factor Level Level Line Limit