

Report No.: EH/2012/10024 Issue Date: Jul. 11, 2012

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT AND INDUSTRY CANADA RSS 210

OF

Product Name: PDA Phone

Brand Name: Sony

Marketing Name: ST21a

Model No.: PM-0120-BV

Model Different: N/A

FCC ID: **PY7PM-0120**

IC: 4170B-PM0120

Report No.: EH/2012/10024

Issue Date: Jul. 11, 2012

FCC Rule Part: §15.247, Cat: DTS

IC Rule Part: RSS-210 issue 8 :2010, Annex 8

Prepared for: Sony Mobile Communications AB

Nva Vattentornet 22188 Lund/SWEDEN

SGS Taiwan Ltd.

Prepared by: Electronics & Communication Laboratory

No. 134, Wu Kung Rd., Wuku Industrial Zone,

Taipei County, Taiwan



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VERIFICATION OF COMPLIANCE

Sony Mobile Communications AB **Applicant:**

Nya Vattentornet 22188 Lund/SWEDEN

Product Name: PDA Phone

Brand Name: Sony

Marketing Name: ST21a

Model No.: PM-0120-BV

Model Difference: N/A

PY7PM-0120 FCC ID:

IC: 4170B-PM0120

File Number: EH/2012/10024

Date of test: Jan. 13, 2012 ~ Jan. 22, 2012

Date of EUT Received: Jan. 13, 2012

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2003 & ANSI 63.10:2009 and RSS-Gen. issue 3 the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247 and IC RSS 210 issue 8: 2010 An-

The test results of this report relate only to the tested sample identified in this report.

Test By:	Lion Wang	Date	Jul. 11, 2012	
Prepared By:	Lion Wang / Engineer Tiffany Kar) Date	Jul. 11, 2012	
Approved By:	Tiffany Kao / Clerk Jim Ch ang	Date	Jul. 11, 2012	

Jim Chang / Supervisor

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Version

Version No.	Date	Description
00	Jan. 22, 2012	Initial creation of document
01	Jun. 19, 2012	Add accessories type number in general information and Measurement plot of Radiated spurious emission
02	Jun. 28, 2012	Revise Contents
03	Jul. 11, 2012	Add Hardware and software versions and RBW revised to 100 kHz in section 8.4

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GENERAL INFORMATION

General:

General.				
Product Name:	PDA Phone			
Brand Name:	Sony			
Marketing Name:	ST21a			
Model No.:	PM-0120-BV			
Model difference:	N/A			
Data Cable (USB):	Model No.: E0 Part No.: 1242	C450, Supplier: K-one, 2-6715		
Simple Hands-free (SHF):		Model No.: MH410C, Supplier: Foster Electric Type No.: CCA-0004017		
Car Charger:	Model No.: AN400, Supplier: Salcomp, Type No.: CAA-0003013			
Hardware Version:	A (Radiated) A (Conducted)			
Software Version:	E EMC_1.*.J.0.5_userdebug (Radiated) 1.1.J.0.3_1_03_userdebug (Conducted)			
(6)	3.7Vdc form Li-Ion battery or 5Vdc form adapter.			
Power Supply:	Battery: 1. Model No.: BA700, Supplier: LG Type No.: CBA-0002025 2. Model No.: BA700, Supplier: Samsung Type No.: CBA-0002026			
	Adapter: 1. Model No.: EP800, Supplier: Salcomp Type No.: CAA-0002016-US, CAA-0002016-BV 2. Model No.: EP800, Supplier: EMERSON Type No.: CAA-0002022-US, CAA-0002022-BV			

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WLAN:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology	Type of Emission
11b/g	2412-2462	11	b: 15.07dBm g: 15.92dBm	DSSS, OFDM	b: 12M4G1D g: 16M9G1D
11n	HT20 2412-2462	11	n: 13.92dBm	OFDM	n: 17M6G1D
Antenna Designation:			PIFA Antenna, 3.83dBi.		
Modulation type:			CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM		
Transition Rate:			802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps		

This report applies for WLAN, and complies with FCC rule part 15C.

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1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID:** <u>PY7PM-0120</u> filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. And **IC:** <u>4170B-PM0120</u> filing to comply with Industry Canada RSS-210 issue 8: 2010 Annex 8. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

1.2 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2003 and ANSI 63.10:2009 and RSS-Gen: 2010. Radiated testing was performed at an antenna to EUT distance 3 meters.

Tested in accordance with Jan 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 & ANSI 63.10:2009. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 & 10 meters) and FCC Registration Number: 94644.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003 & ANSI 63.10:2009. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna. according to the requirements in Section 8 and 13 of ANSI C63.4-2003 & ANSI 63.10:2009.

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Configuration of Tested System

Fig. 2-1 Conducted / Radiated Emission Configuration

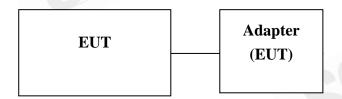


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1.	Adapter	Salcomp / EMERSON	EP800	N/A	shielded	Un-shielded
2.	WLAN Test Software	N/A	N/A	N/A	N/A	N/A

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SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a) RSS-Gen §7.2.4	AC Power Line Conducted Emission	Compliant
§15.247(b) (3),(4)(c) RSS-210 §A8.4(4)	Peak Output Power	Compliant
\$15.247(a)(2) RSS-210 \$A8.4(4)	6dB Bandwidth	Compliant
§15.247(d) RSS-210 §A8.4(4)	100 KHz Bandwidth Of Frequency Band Edges	Compliant
§15.247(d) RSS-210 §A8.4(4)	Spurious Emission	Compliant
§15.247(e) RSS-210 §A8.2(b)	Peak Power Density	Compliant
\$15.203 RSS-GEN \$7.1.2,	Antenna Requirement	Compliant
RSS-Gen §4.6.1	99% Power Bandwidth	Compliant

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

802.11 b mode: Channel low (2412MHz), mid (2437MHz) and high (2462MHz) with 1Mbps lowest data rate are chosen for full testing.

802.11 g mode: Channel low (2412MHz), mid (2437MHz) and high (2462MHz) with 6Mbps lowest data rate are chosen for full testing.

802.11 n mode: Channel low (2412MHz), mid (2437MHz) and high (2462MHz) with 6.5Mbps lowest data rate are chosen for full testing.

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

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MEASUREMENT UNCERTAINTY FOR FIELD STRENGTH OF SPURIOUS RADIATION

	30MHz - 180MHz: 3.37dB
Massayanantanasatsinta	180MHz -417MHz: 3.19dB
Measurement uncertainty (Polarization : Vertical)	0.417GHz-1GHz: 3.19dB
(1 ofder Edition : Vertical)	1GHz - 18GHz: 4.04dB
	18GHz - 40GHz: 4.04dB

	30MHz - 180MHz: 3.37dB
Massaurantun santaintu	180MHz -417MHz: 3.19dB
Measurement uncertainty (Polarization : Horizontal)	0.417GHz-1GHz: 3.19dB
(Totalization : Horizontal)	1GHz - 18GHz: 4.08dB
	18GHz - 40GHz: 4.08dB

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CONDUCTED EMISSION TEST

6.1 **Standard Applicable:**

According to §15.207 and RSS-Gen §7.2.4, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

	L	imits	
Frequency range	dB(uV)		
MHz	Quasi-peak	Average	
0.15 to 0.50	66 to 56	56 to 46	
0.50 to 5	56	46	
5 to 30	60	50	

Note

- 1. The lower limit shall apply at the transition frequencies
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	
EMI Test Receiver	R&S	ESCI7	100759	05/20/2011	05/19/2013	
EMI Test Receiver	R&S	ESCS30	828985/004	09/23/2011	09/22/2012	
LISN	Rolf-Heine	NNB-2/16Z	99012	03/31/2011	03/30/2012	
LISN	FCC	FCC-LISN-50/250-2 5-2-01	04034	03/31/2011	03/30/2012	
Coaxial Cables	N/A	WK CE Cable	N/A	01/05/2012	01/04/2013	

6.3 EUT Setup:

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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Measurement Procedure:

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

6.5 Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

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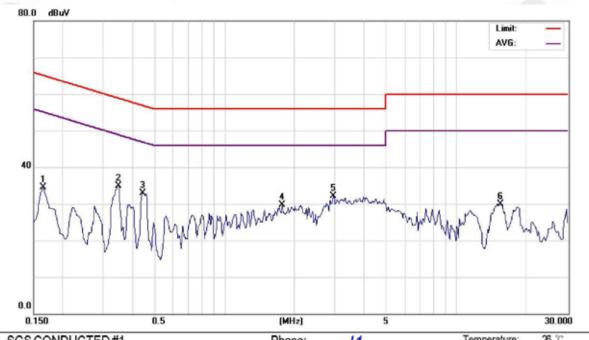


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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation			Test Date:	Jan. 22, 2012
Temperature:	24	Humidity:	59 %	Test By:	Lion



Site SGS CONDUCTED#1

Limit: FCC Class B Conduction(QP)

EUT: PDAPhone M/N: Tapioca

Note: WLAN -Link (Salcomp)

riiase.	LI	remperature.	20 (
Power:	AC 120V/60Hz	Humidity:	59%
Distance:		Air Pressure:	hpa

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dΒ	dBuV	dBuV	dΒ	Detector	Comment	
1	0.1650	34.30	0.11	34.41	65.21	-30.80	peak		
2	0.3500	34.78	0.08	34.86	58.96	-24.10	peak		
3	0.4450	32.84	0.08	32.92	56.97	-24.05	peak		
4	1.7800	29.58	0.10	29.68	56.00	-26.32	peak		
5 *	2.9600	32.00	0.11	32.11	56.00	-23.89	peak		
6	15.5400	29.72	0.23	29.95	60.00	-30.05	peak		

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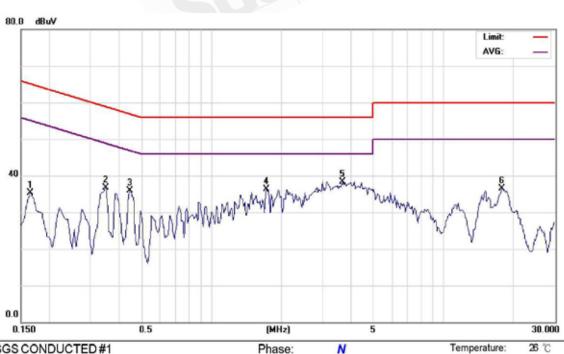


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Humidity:

Air Pressure:



N AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: FCC Class B Conduction(QP)

EUT: PDAPhone

M/N: Tapioca

Note: WLAN -Link (Salcomp)

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dΒ	dBuV	dBuV	dВ	Detector	Comment	
1		0.1650	35.18	0.15	35.33	65.21	-29.88	peak		
2		0.3500	36.62	0.12	36.74	58.96	-22.22	peak		
3		0.4450	35.76	0.12	35.88	56.97	-21.09	peak		
4		1.7200	36.08	0.13	36.21	56.00	-19.79	peak		
5	•	3.6700	38.22	0.16	38.38	56.00	-17.62	peak		
6		17.9200	36.14	0.30	36.44	60.00	-23.56	peak		

Power:

Distance:

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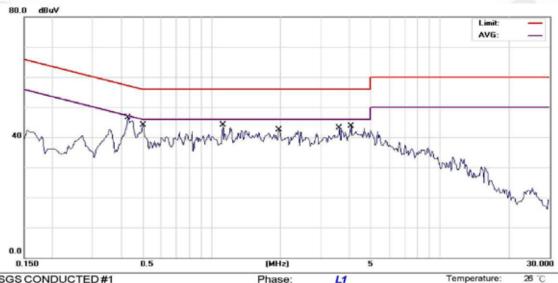
Humidity:

Air Pressure:

hpa

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation			Test Date:	Jan. 22, 2012
Temperature:	24	Humidity:	59 %	Test By:	Lion



Power:

Distance:

AC 120V/60Hz

Site SGS CONDUCTED#1

Limit: FCC Class B Conduction(QP)

EUT: PDAPhone M/N: Tapioca

Note: WLAN -Link(EMERSON)

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dΒ	dBuV	dBuV	dΒ	Detector	Comment
1	*	0.4295	40.34	0.08	40.42	57.26	-16.84	QΡ	
2		0.4295	29.62	0.08	29.70	47.26	-17.56	AVG	
3		0.4992	39.00	80.0	39.08	56.01	-16.93	QP	
4		0.4992	27.82	0.08	27.90	46.01	-18.11	AVG	
5		1.1189	34.64	0.08	34.72	56.00	-21.28	QP	
6		1.1189	24.04	0.08	24.12	46.00	-21.88	AVG	
7		1.9693	34.94	0.10	35.04	56.00	-20.96	QP	
8		1.9693	24.85	0.10	24.95	46.00	-21.05	AVG	
9		3.6278	34.76	0.12	34.88	56.00	-21.12	QР	
10		3.6278	24.72	0.12	24.84	46.00	-21.16	AVG	
11		4.0753	35.36	0.12	35.48	56.00	-20.52	QP	
12		4.0753	25.47	0.12	25.59	46.00	-20.41	AVG	

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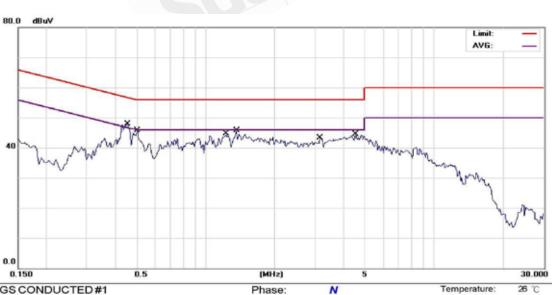


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Humidity:

Air Pressure:



Power:

Distance:

AC 120V/60Hz

Site SGS CONDUCTED#1

Limit: FCC Class B Conduction(QP)

EUT: PDAPhone M/N: Tapioca

Note: WLAN -Link(EMERSON)

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dΒ	dBuV	dBuV	dΒ	Detector	Comment
1		0.4526	43.24	0.12	43.36	56.83	-13.47	QΡ	
2	*	0.4526	34.95	0.12	35.07	46.83	-11.76	AVG	
3		0.4990	37.16	0.12	37.28	56.02	-18.74	QР	
4		0.4990	27.82	0.12	27.94	46.02	-18.08	AVG	
5		1.2284	36.40	0.12	36.52	56.00	-19.48	QΡ	
6		1.2284	27.49	0.12	27.61	46.00	-18.39	AVG	
7		1.3569	38.88	0.13	39.01	56.00	-16.99	QР	
8		1.3569	28.17	0.13	28.30	46.00	-17.70	AVG	
9		3.1736	36.42	0.15	36.57	56.00	-19.43	QР	
10		3.1736	27.54	0.15	27.69	46.00	-18.31	AVG	
11		4.5305	37.56	0.17	37.73	56.00	-18.27	QР	
12		4.5305	28.52	0.17	28.69	46.00	-17.31	AVG	

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7 PEAK OUTPUT POWER MEASUREMENT

7.1 Standard Applicable:

According to §15.247(a)(2), (b)

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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- (c) Operation with directional antenna gains greater than 6 dBi.
- (1) Fixed point-to-point operation:
- (i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi 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 6 dBi.
- (ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

According to RSS-210 issue 8,§A8.4(4), for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

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Measurement Equipment Used

7.2 Measurement I	Equipment Used:				
	Conduc	ted Emission T	est Site		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Sensor	Anritsu	MA2411B	917032	01/16/2012	01/17/2014
Power Meter	Anritsu	ML2495A	1005007	02/17/2010	02/16/2012
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2013
DC Block	Agilent	BLK-18	155452	07/05/2012	07/04/2013
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2012	01/04/2013
Attenuator	Mini-Circuit	BW-S6W5	001	01/05/2012	01/04/2013
Attenuator	Mini-Circuit	BW-S10W5	001	01/05/2012	01/04/2013
Attenuator	Mini-Circuit	BW-S20W5	001	01/05/2012	01/04/2013
Splitter	Agilent	11636B	N/A	01/05/2012	01/04/2013

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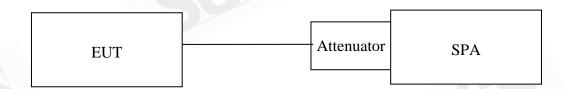
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Test Set-up:



Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW = 1MHz, VBW = 3MHz, Bandwidth = 26dB occupied Bandwidth)
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

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Measurement Result:

802.11b

002											
C	able $loss = 0$		Peak Power Output (dBm)								
CI	Frequency		Data Rate								
CI	(MHz)	1	1 2 5.5 11								
1	2412	15.07	15.04	15.01	1 Watt = 30 dBm						
6	2437	15.06	15.03	14.97	14.99	1 Watt = 30 dBm					
11	2462	14.89	14.85	14.79	14.80	1 Watt = 30 dBm					

Cab	ble $loss = 0$		Average Power Output (dBm)								
СН	Frequency		Data Rate								
Сп	(MHz)	1	1 2 5.5 11								
1	2412	12.51	12.44	12.36	1 Watt = 30 dBm						
6	2437	12.47	12.47 12.41 12.42 12.39								
11	2462	12.39									

802.11g

Cab	ole loss = 0			m)						
СН	Frequency		Data Rate							Required Limit
Сп	(MHz)	6	9	12	18	24	36	48	54	Required Limit
1	2412	15.83	15.66	15.53	15.52	15.48	15.45	15.47	15.49	1 Watt = 30 dBm
6	2437	15.76	15.66	15.49	15.45	15.41	15.37	15.34	15.33	1 Watt = 30 dBm
11	2462	15.92	15.75	15.66	15.51	15.42	15.39	15.38	15.35	1 Watt = 30 dBm

Cab	ole loss = 0			Bm)						
СН	Frequency			Required Limit						
CH	(MHz)	6	9	12	18	24	36	48	54	Kequired Limit
1	2412	12.43	12.35	12.22	12.1	11.88	11.62	11.49	11.31	1 Watt = 30 dBm
6	2437	12.52	12.46	12.43	12.28	12.03	11.93	11.88	11.84	1 Watt = 30 dBm
11	2462	12.49	12.43	12.42	12.22	12.05	11.95	11.82	11.77	1 Watt = 30 dBm

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802.11n_20M

Cab	le loss = 0				Po	eak Po	wer Oı	utput(d	lBm)		
СН	Frequency	Data Rate							Required		
(MHz)	6.5	13	19.5	26	39	52	58.5	65	72.2	Limit	
1	2412	13.92	13.75	13.52	13.31	12.82	12.57	12.42	12.37	13.92	1 Watt = 30 dBm
6	2437	13.72	13.51	13.28	13.08	12.66	12.42	12.31	12.19	13.72	1 Watt = 30 dBm
11	2462	13.78	13.62	13.34	13.11	12.74	12.49	12.38	12.21	13.78	1 Watt = 30 dBm

Cable loss = 0		Average Power Output(dBm)									
СН	Frequency	Data Rate							Required		
Сп	(MHz)	6.5	13	19.5	26	39	52	58.5	65	72.2	Limit
1	2412	10.44	10.11	9.82	9.67	9.25	9.07	8.91	8.87	10.44	1 Watt = 30 dBm
6	2437	10.32	10.05	9.91	9.82	9.55	9.36	9.01	8.92	10.32	1 Watt = 30 dBm
11	2462	10.37	10.15	10.01	9.81	9.44	9.28	9.02	8.88	10.37	1 Watt = 30 dBm

*Note: Offset 10.8 dB

Note: Refer to next page for plots.

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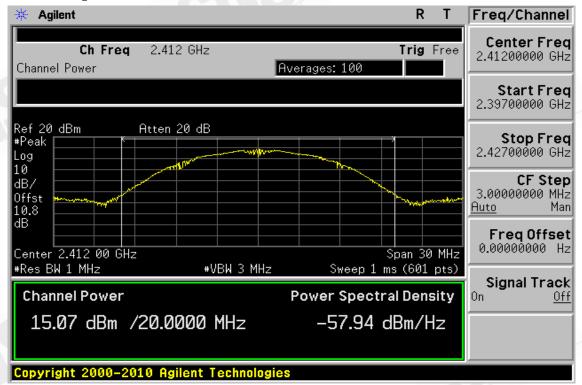


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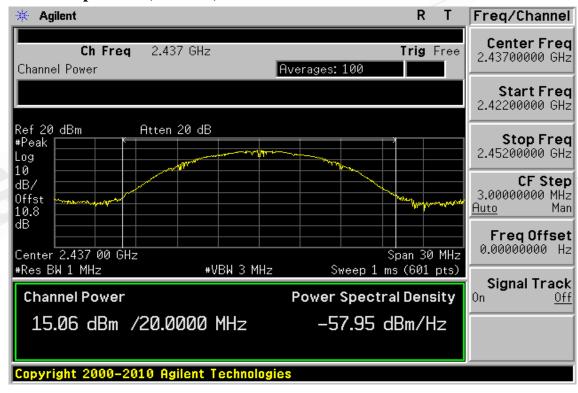
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802.11b, 1Mbps

Peak Power Output Plot (CH Low)



Peak Power Output Plot (CH Mid)



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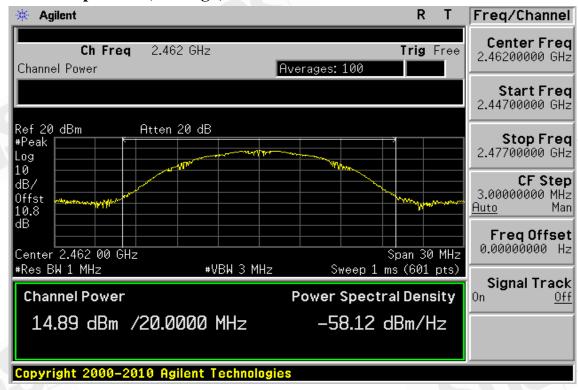
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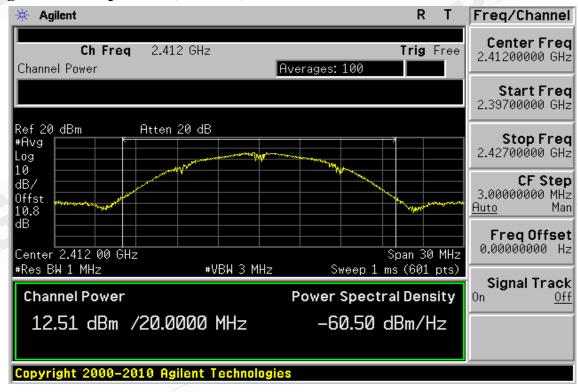
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Peak Power Output Plot (CH High)



Average Power Output Plot (CH Low)



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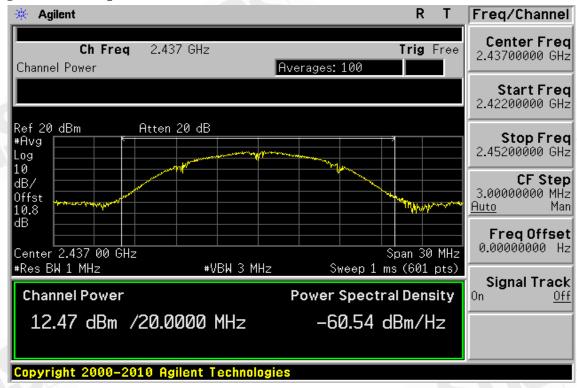
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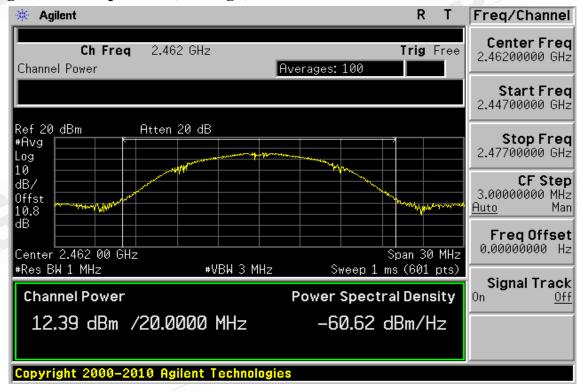
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Average Power Output Plot (CH Mid)



Average Power Output Plot (CH High)



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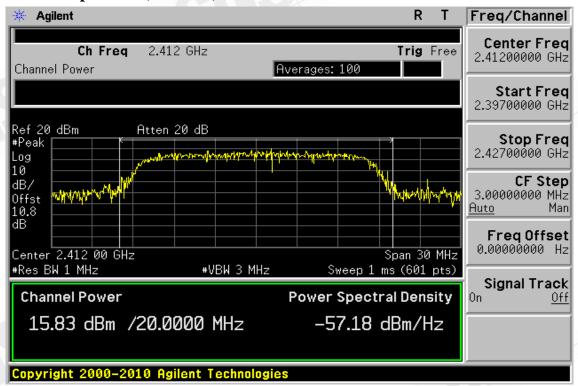


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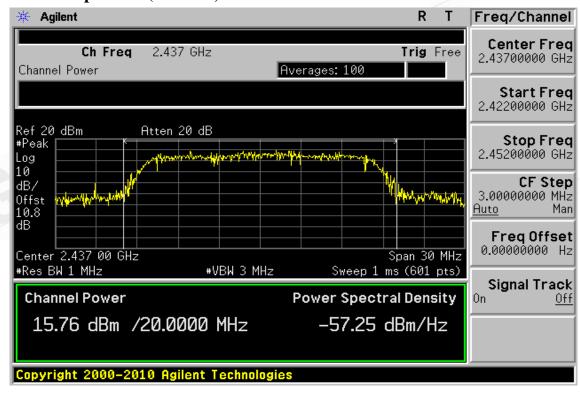
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802.11g, 6Mbps

Peak Power Output Plot (CH Low)



Peak Power Output Plot (CH Mid)



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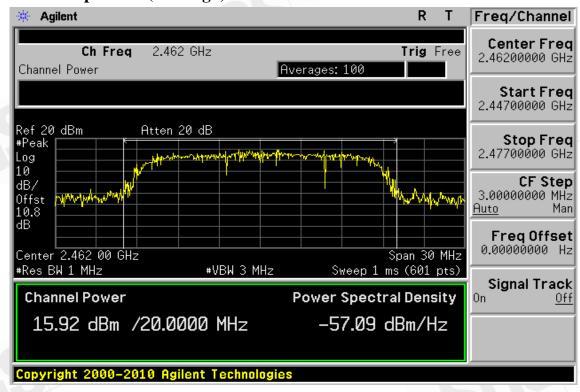
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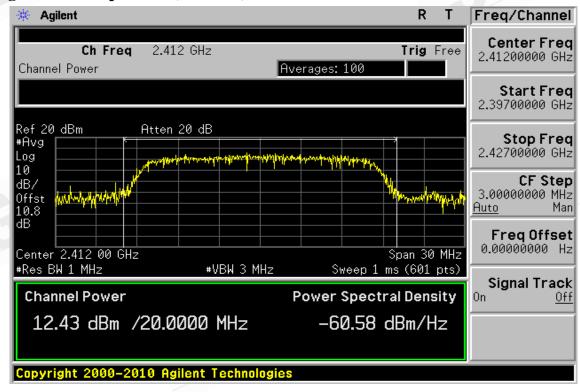
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Peak Power Output Plot (CH High)



Average Power Output Plot (CH Low)



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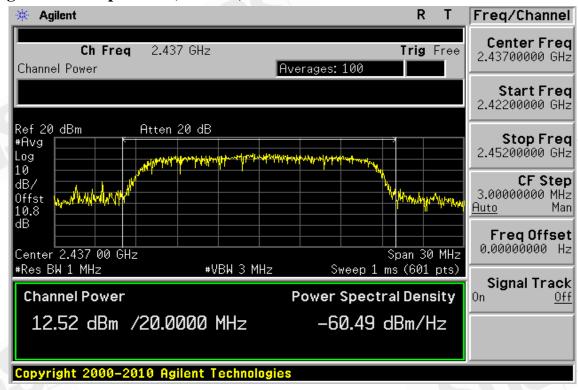
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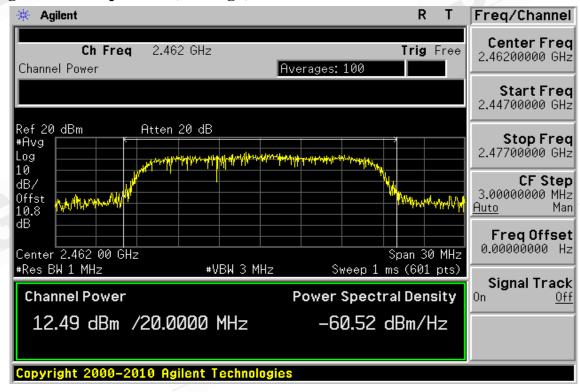
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Average Power Output Plot (CH Mid)



Average Power Output Plot (CH High)



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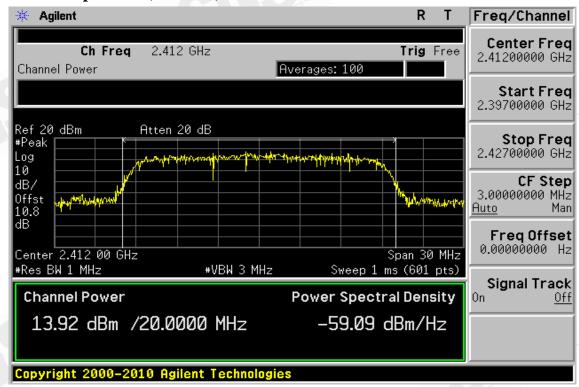


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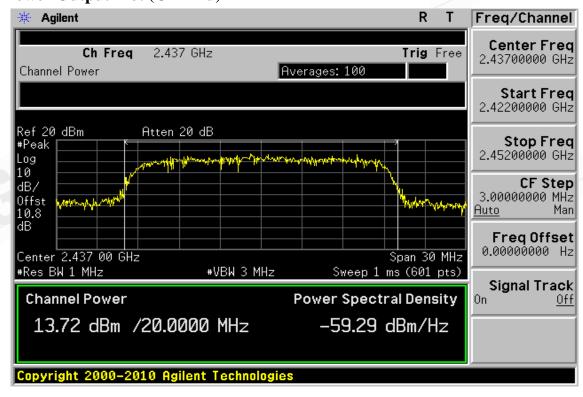
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802.11n_20M, 6.5Mbps

Peak Power Output Plot (CH Low)



Peak Power Output Plot (CH Mid)



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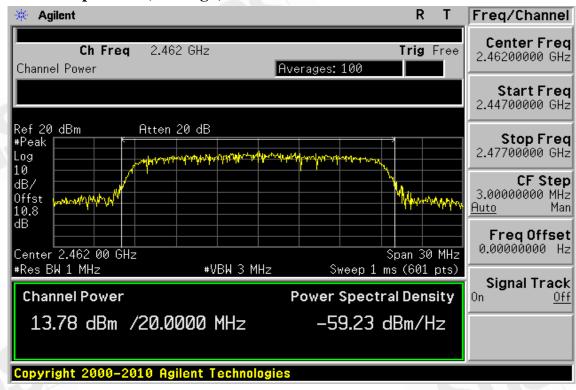
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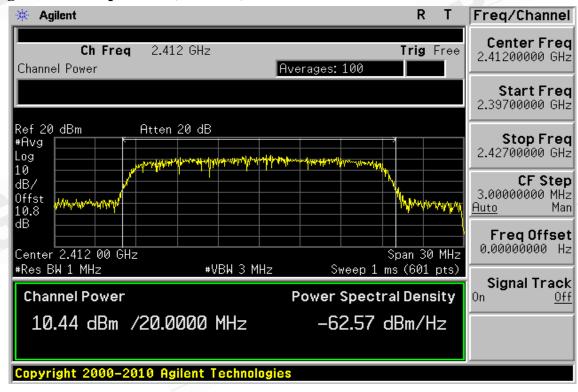
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Peak Power Output Plot (CH High)



Average Power Output Plot (CH Low)



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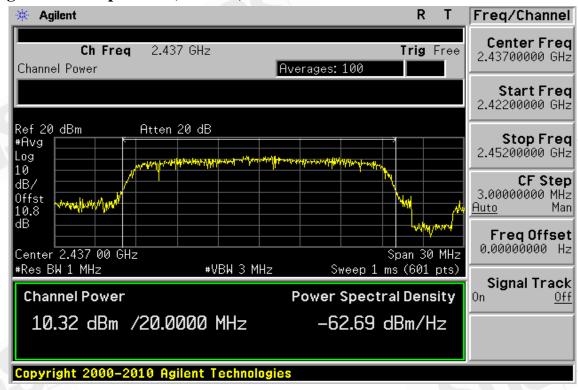
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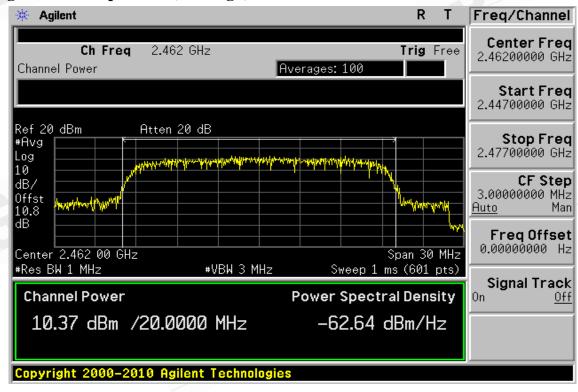
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Average Power Output Plot (CH Mid)



Average Power Output Plot (CH High)



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8 6dB BANDWIDTH

8.1 Standard Applicable:

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902 - 928 MHz,2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

According to RSS 210 issue 8: 2010Annex 8.2. Systems employing digital modulation techniques (which includes direct sequence) can now be certified under RSS-210 provided they comply with the following requirements: The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2 Measurement Equipment Used:

Refer to section 7.2 for details.

8.3 Test Set-up:

Refer to section 7.3 for details.

8.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW = 100KHz, VBW = 3*RBW, Span = 50MHz, Sweep=auto
- 4. Mark the peak frequency and –6dB (upper and lower) frequency.
- 5. Repeat above procedures until all frequency measured were complete.

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8.5 Measurement Result:

802.11b

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result		
2412	7.595	> 500	PASS		
2437	7.631	> 500	PASS		
2462	7.512	> 500	PASS		

802.11g

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	15.485	> 500	PASS
2437	15.180	> 500	PASS
2462	15.194	> 500	PASS

802.11n_20M

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	17.184	> 500	PASS
2437	14.168	> 500	PASS
2462	15.983	> 500	PASS

^{*}Offset 10.8dB

Note: Refer to next page for plots.

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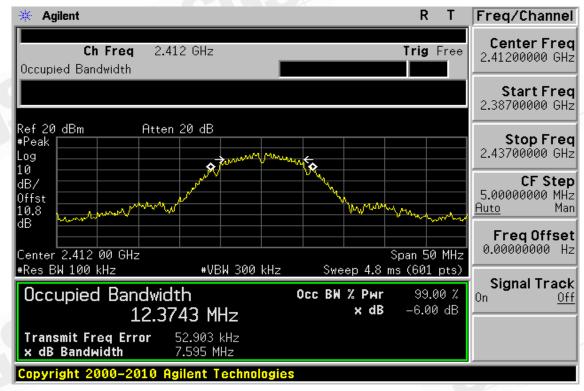


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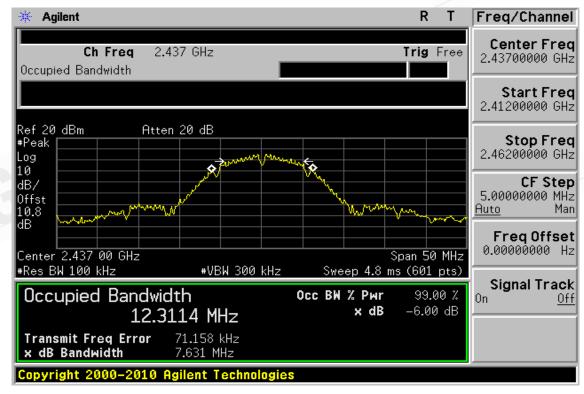
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802.11b

6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



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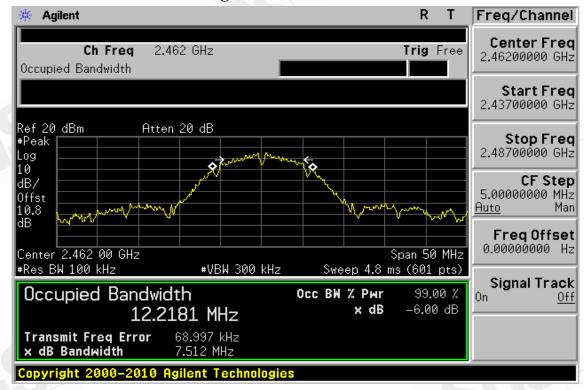
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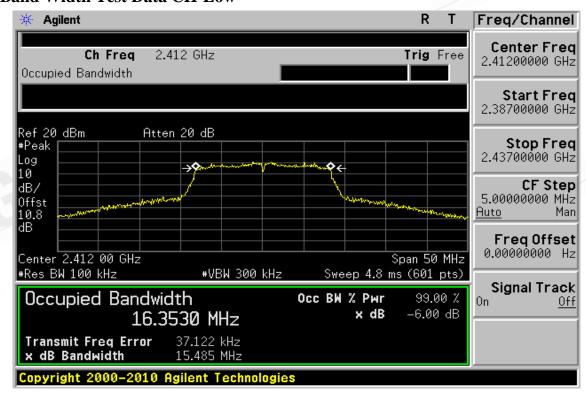
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6dB Band Width Test Data CH-High



802.11g

6dB Band Width Test Data CH-Low



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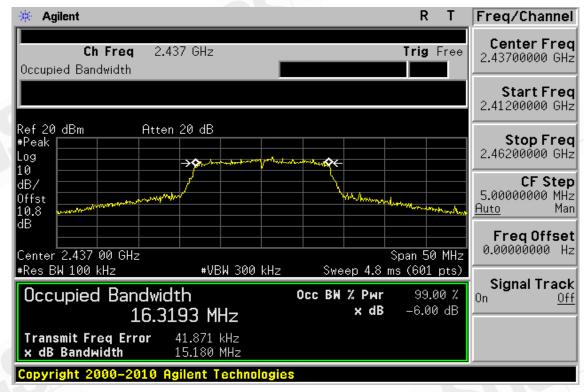
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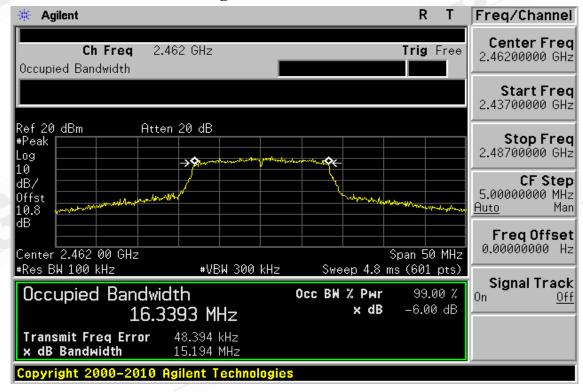
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6dB Band Width Test Data CH-Mid



6dB Band Width Test Data CH-High



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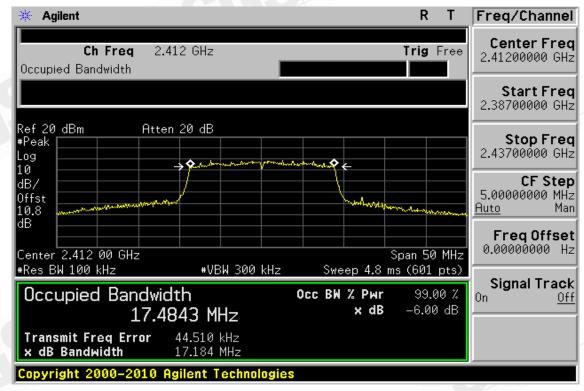


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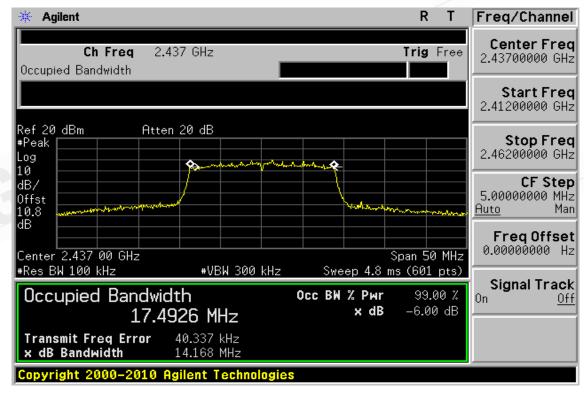
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802.11n 20M

6dB Band Width Test Data CH-Low



6dB Band Width Test Data CH-Mid



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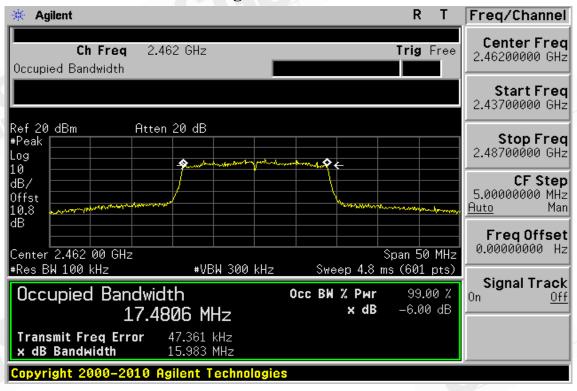
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6dB Band Width Test Data CH-High



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9 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

9.1 Standard Applicable:

According to §15.247(d), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

According to RSS-Gen §7.2.5 and RSS-210 issue 8,§A2.9, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 5 and 6 is not required. In addition, radiated emissions which fall in the restricted bands of Table 3 must also comply with the radiated emission limits specified in Tables 5 and 6 of RSS-GEN.

9.2 Measurement Equipment Used:

9.2.1 Conducted Emission at antenna port:

Refer to section 7.2 for details.

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9.2.2 Radiated emission:

	9	66 Chamber			
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2011	11/18/2013
Horn antenna	ETS.LINDGREN	3117	123995	03/19/2011	03/18/2013
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2011	11/27/2013
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2012	01/04/2013
Radio Communication Analyzer	R & S	CMU200	102189	08/12/2010	08/11/2012
DC Block	Agilent	BLK-18	155452	01/05/2012	01/04/2013
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2012	01/04/2013
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2012	01/04/2013
3m Site	SGS	966 chamber	N/A	07/15/2011	07/14/2012

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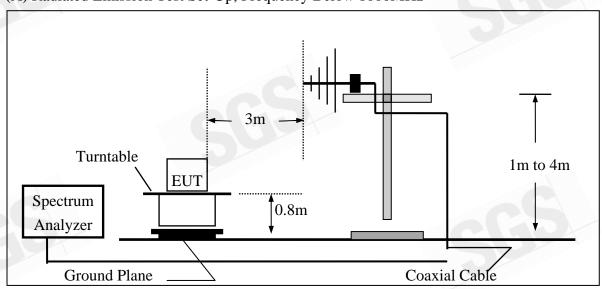
9.3 **Test SET-UP:**

Conducted Emission at antenna port:

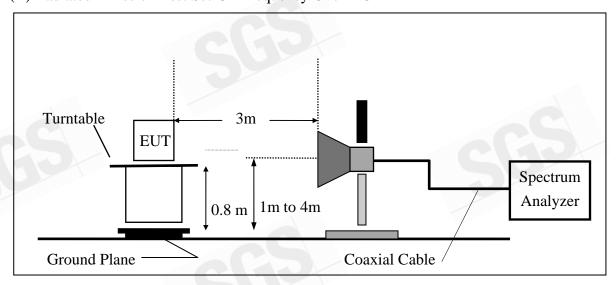
Refer to section 7.3 for details.

9.3.2 Radiated emission:

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



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Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Sweep = auto
- 5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
- 6. Repeat above procedures until all frequency measured were complete.

Field Strength Calculation:

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

9.6 **Measurement Result:**

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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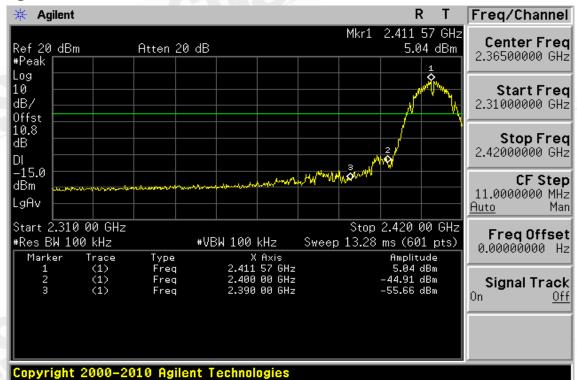


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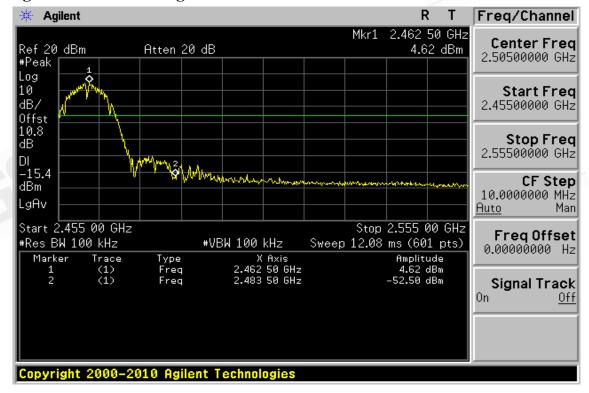
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802.11b

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



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Radiated Emission: 802.11 b mode

Operation Mode TX CH Low Test Date Jan. 13, 2012

Fundamental Frequency 2412 MHz Test By Lion Temperature 25 Pol Ver.

Humidity 65 %

		Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
	Freq. MHz)	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	$\begin{array}{c} AV \\ (dBuV/m) \end{array}$	Limit (dBuV/m)	Limit (dBuV/m	U	Remark
23	390.00	53.09	40.13	5.17	58.26	45.30	74.00	54.00	-8.70	AV
Op	eration ?	Mode	TX C	H Low			Test	Date .	Jan. 13, 20	12
Fu	ndamen	tal Frequer	ncy 2412	MHz			Test	By	Lion	
Te	mperatu	re	25				Pol]	Hor.	
Hu	midity		65 %							

	Peak	\mathbf{AV}		Actu	ıal FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2390.00	51.60	39.17	5.79	57.39	44.96	74.00	54.00	-9.04	AV

Remark:

- (1) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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Operation Mode TX CH High Test Date Jan. 13, 2012

Fundamental Frequency 2462 MHz Test By Lion Temperature 25 Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/n	(dB)	
2483.50	51.11	39.70	5.69	56.80	45.39	74.00	54.00	-8.61	AV
Operation	Mode	TX C	H High			Test	Date	Jan. 13, 20	12
Fundamen	tal Frequer	ncy 2462	MHz			Test	By	Lion	
Temperatu	re	25				Pol		Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)(dBuV/m)	(dB)	
2483.50	50.39	39.46	6.72	57.11	46.18	74.00	54.00	-7.82	AV

Remark:

- (1) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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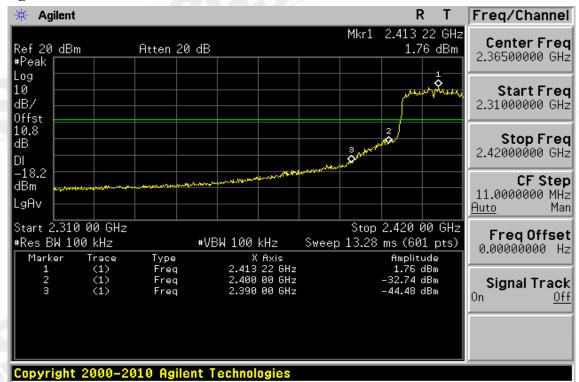


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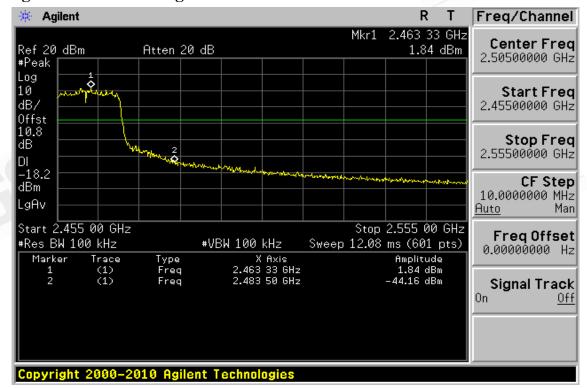
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802.11g

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



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Radiated Emission: 802.11 g mode

Operation Mode TX CH Low Test Date Jan. 13, 2012

Fundamental Frequency 2412 MHz Test By Lion Temperature 25 Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq (MH:	· ·	Reading (dBuV)		Peak (dBuV/m)	AV (dB uV/m)	Limit (dBuV/m)	Limit (dBuV/m	O	Remark
2390.0	00 55.35	41.12	5.17	60.52	46.29	74.00	54.00	-7.71	AV
Operati	on Mode	TX C	CH Low			Test	Date J	Jan. 13, 20	12
Fundan	nental Freque	ncy 2412	MHz			Test	By I	Lion	
Temper	ature	25				Pol	I	Hor.	
Humidi	ty	65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2390.00	53.26	39.97	5.79	59.05	45.76	74.00	54.00	-8.24	AV

Remark:

- (1) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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Operation Mode TX CH High Test Date Jan. 13, 2012

Fundamental Frequency 2462 MHz Test By Lion Temperature 25 Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m	(\mathbf{dB})	
2483.50	58.46	42.02	5.69	64.15	47.71	74.00	54.00	-6.29	AV
Operation :	Mode	TX C	H High			Test	Date J	fan. 13, 20	12
Fundamen	tal Frequer	ncy 2462	MHz			Test	By I	Lion	
Temperatu	re	25				Pol	I	Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.50	53.75	40.23	6.72	60.47	46.95	74.00	54.00	-7.05	AV

Remark:

- (1) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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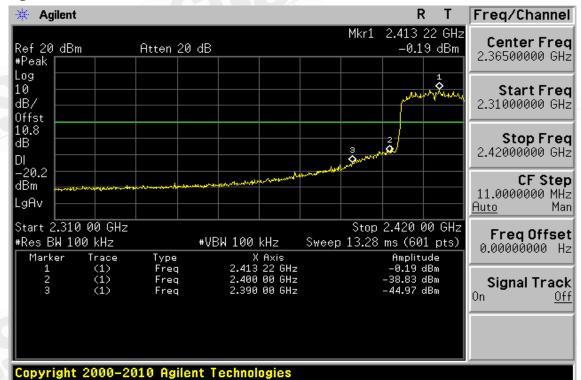


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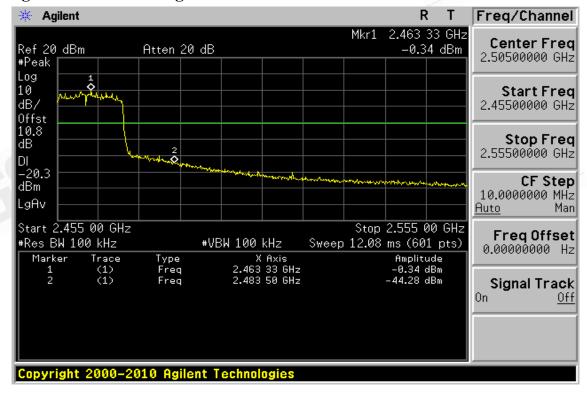
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802.11n_{20M}

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



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Radiated Emission: 802.11 n_20M mode

Operation Mode Jan. 13, 2012 TX CH Low **Test Date**

Fundamental Frequency 2412 MHz Test By Lion Temperature 25 Pol Ver.

Humidity 65 %

		Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
	Freq. (MHz)	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	$\begin{array}{c} AV \\ (dBuV/m) \end{array}$	Limit (dBuV/m)	Limit (dBuV/m	0	Remark
	2390.00	56.95	41.73	5.17	62.12	46.90	74.00	54.00	-7.10	AV
	Operation 1	Mode	TX C	CH Low			Test	Date .	Jan. 13, 20	12
	Fundament	tal Frequer	ncy 2412	MHz			Test	By 1	Lion	
,	Temperatu	re	25				Pol]	Hor.	
	Humidity		65 %							

	Peak	\mathbf{AV}		Actu	ıal FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2390.00	54.74	40.51	5.79	60.53	46.30	74.00	54.00	-7.70	AV

Remark:

- Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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Operation Mode TX CH High Test Date Jan. 13, 2012

2462 MHz Fundamental Frequency Test By Lion **Temperature** 25 Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dB uV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m	(dB)	
2483.50	59.76	42.22	5.69	65.45	47.91	74.00	54.00	-6.09	AV
Operation :	Mode	TX C	H High			Test	Date J	an. 13, 20	12
Fundamen	tal Frequer	ncy 2462	MHz			Test	By I	Lion	
Temperatu	re	25				Pol	I	Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Pea k	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.50	57.39	40.42	6.72	64.11	47.14	74.00	54.00	-6.86	AV

Remark:

- Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

For measurement plot of radiation revealing the compliance of 15.205, please refer to Appendix I.

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10 SPURIOUS RADIATED EMISSION TEST

10.1 Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-Gen §7.2.5 and RSS-210 issue 8,§A2.9, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 5 and 6 is not required. In addition, radiated emissions which fall in the restricted bands of Table 3 must also comply with the radiated emission limits specified in Tables 5 and 6 of RSS-GEN.

10.2 Measurement Equipment Used:

10.2.1 Conducted Emission at antenna port:

Refer to section 7.2 for details.

10.2.2 Radiated emission:

Refer to section 9.2.2 for details.

10.3 Test SET-UP:

10.3.1 Conducted Emission at antenna port:

Refer to section 7.3 for details.

10.3.2 Radiated emission:

Refer to section 9.3.2 for details.

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10.4 Measurement Procedure:

Radiated Emission:

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.
- 5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 7. Repeat above procedures until all frequency measured were complete.

Conducted Emission:

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. Set RBW = 100K & VBW = 100K on Spectrum.
- 3. Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 3G, 3G to 8G, 8G to 13G, 13G to 18G and 18G to 26.5GHz
- 4. Via Software, combine 5 spans of frequency range into one plot

10.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

10.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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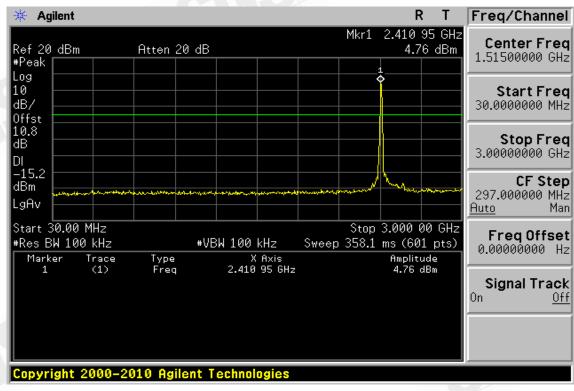


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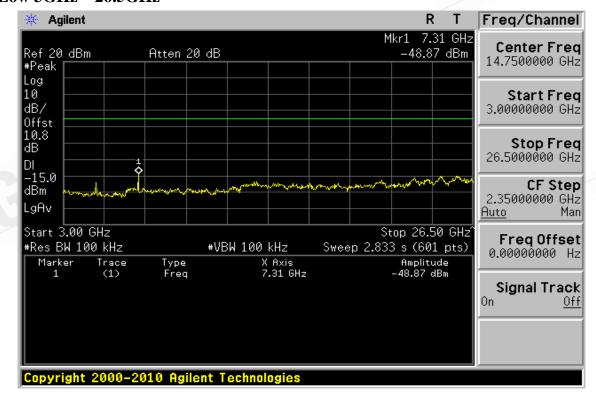
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Conducted Spurious Emission Measurement Result (802.11b)

Ch Low 30MHz - 3GHz



Ch Low 3GHz - 26.5GHz



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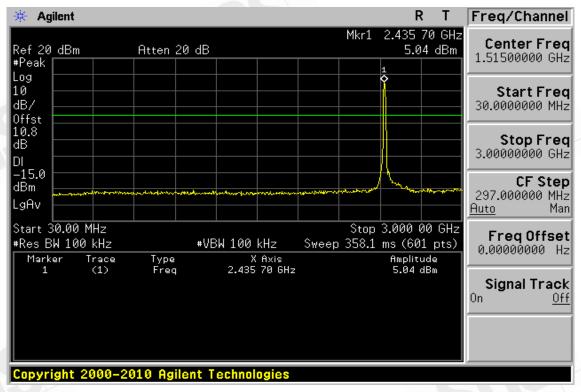
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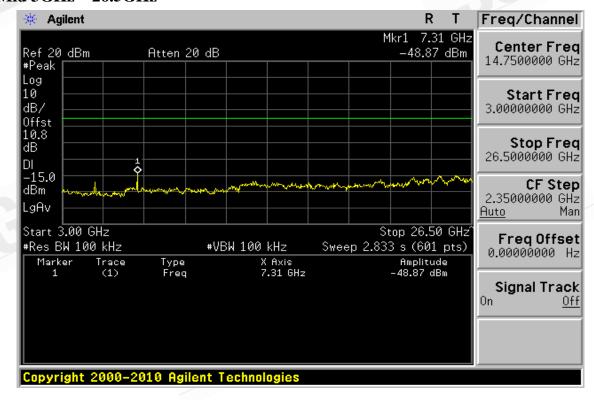
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Ch Mid 30MHz - 3GHz



Ch Mid 3GHz – 26.5GHz



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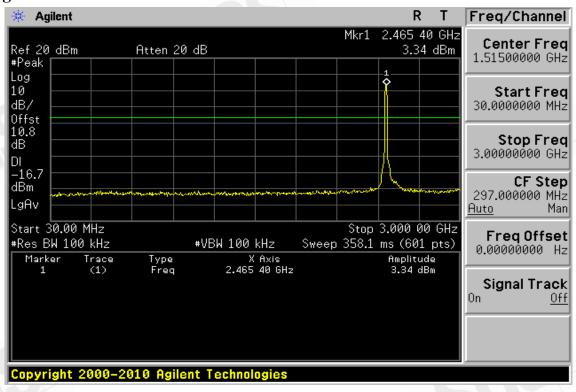
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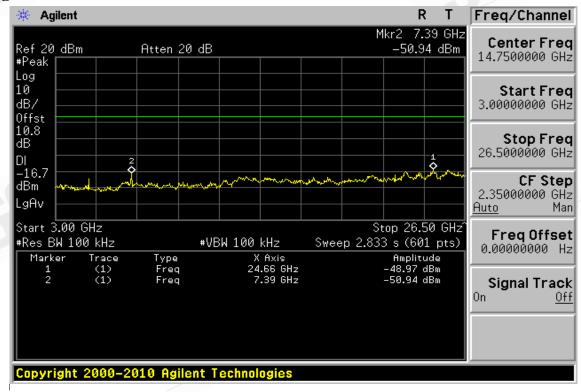
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Ch High 30MHz - 3GHz



Ch High 3GHz – 26.5GHz



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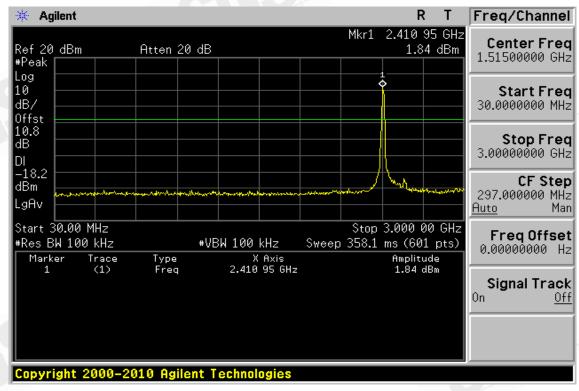


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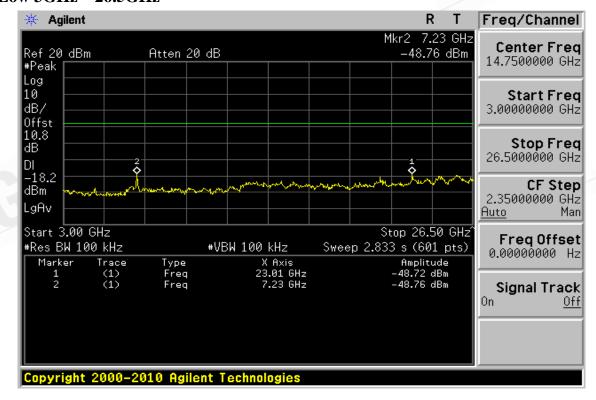
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Conducted Spurious Emission Measurement Result (802.11g)

Ch Low 30MHz - 3GHz



Ch Low 3GHz - 26.5GHz



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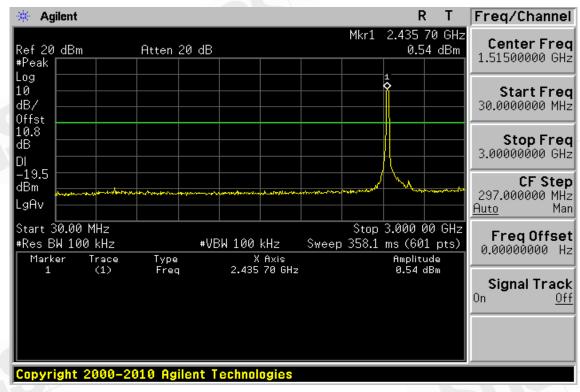
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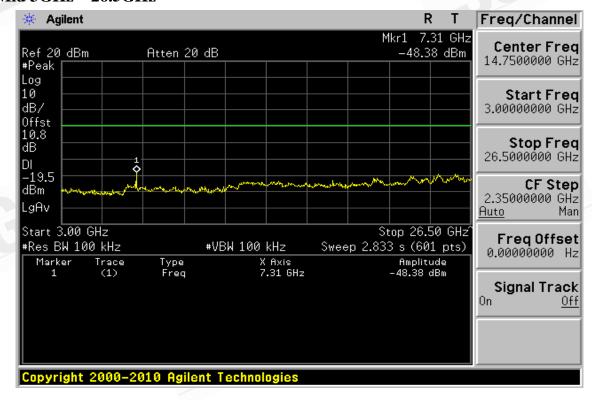
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Ch Mid 30MHz - 3GHz



Ch Mid 3GHz – 26.5GHz



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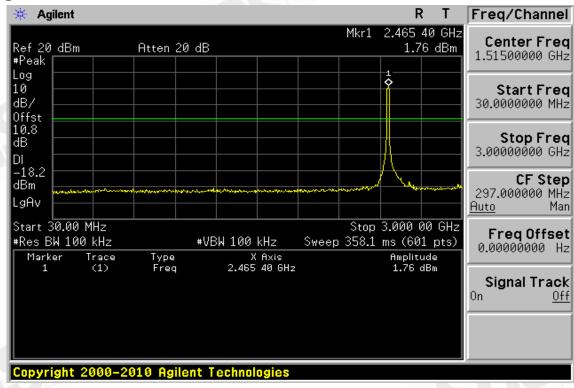
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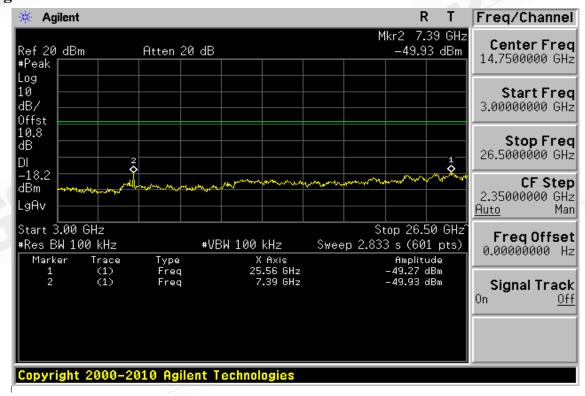
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Ch High 30MHz - 3GHz



Ch High 3GHz – 26.5GHz



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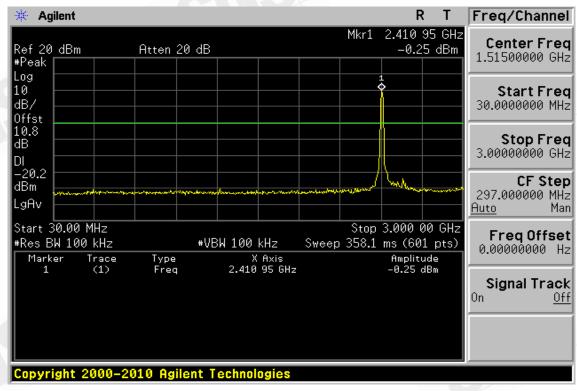


Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

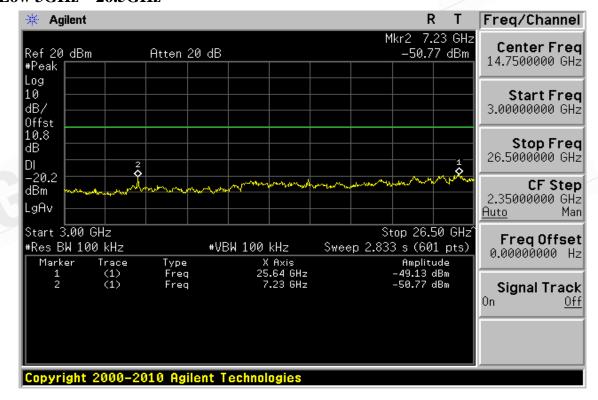
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Conducted Spurious Emission Measurement Result (802.11n_20M)

Ch Low 30MHz - 3GHz



Ch Low 3GHz - 26.5GHz



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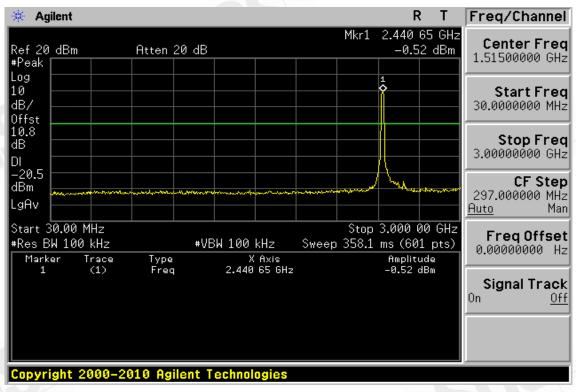
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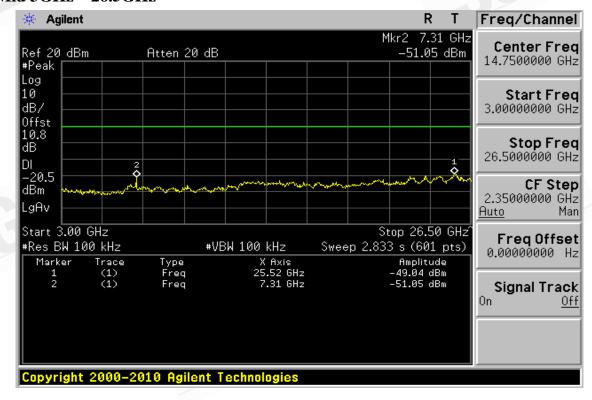
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Ch Mid 30MHz - 3GHz



Ch Mid 3GHz – 26.5GHz



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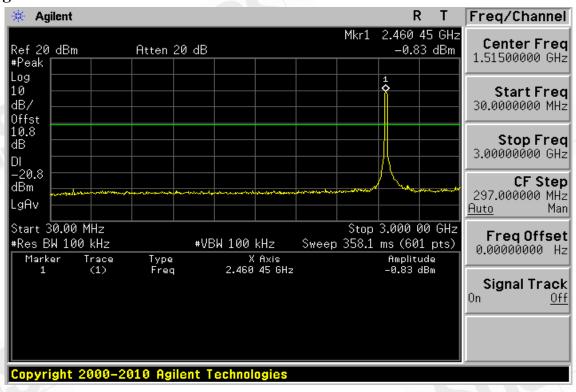
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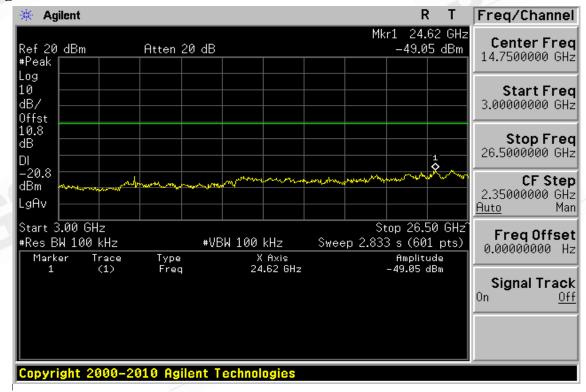
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Ch High 30MHz - 3GHz



Ch High 3GHz - 26.5GHz



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Radiated Spurious Emission Measurement Result (802.11b)

Operation Band :802.11b Test Date :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	39.70	S	Peak	45.97	-13.17	32.80	40.00	-7.20
	132.82	S	Peak	39.13	-13.01	26.12	43.50	-17.38
	393.75	S	Peak	26.94	-10.48	16.46	46.00	-29.54
	644.98	S	Peak	27.28	-5.94	21.34	46.00	-24.66
	717.73	S	Peak	27.51	-4.78	22.73	46.00	-23.27
	879.72	S	Peak	27.80	-2.48	25.32	46.00	-20.68
	4824.00	Н	Peak	41.33	9.89	51.22	74.00	-22.78
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b Test Date :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	36.60	-13.50	23.10	40.00	-16.90
	115.36	S	Peak	34.79	-14.46	20.33	43.50	-23.17
	396.66	S	Peak	26.82	-10.45	16.37	46.00	-29.63
	635.28	S	Peak	28.05	-6.09	21.96	46.00	-24.04
	713.85	S	Peak	27.50	-4.85	22.65	46.00	-23.35
	873.90	S	Peak	27.77	-2.62	25.15	46.00	-20.85
	4824.00	Н	Peak	41.05	9.90	50.95	74.00	-23.05
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b Test Date :2012-01-14

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2437 MHz Engineer :Lion

Operation Mode :TX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	42.61	S	Peak	44.88	-13.66	31.22	40.00	-8.78
	134.76	S	Peak	38.53	-12.90	25.63	43.50	-17.87
	384.05	S	Peak	26.97	-10.63	16.34	46.00	-29.66
	648.86	S	Peak	27.47	-5.93	21.54	46.00	-24.46
	709.97	S	Peak	28.10	-4.95	23.15	46.00	-22.85
	903.00	S	Peak	27.44	-2.12	25.32	46.00	-20.68
	4874.00	Н	Peak	37.79	10.22	48.01	74.00	-25.99
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :TX MID

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBµV/m	dBμV/m	dB
	41.64	S	Peak	35.39	-13.50	21.89	40.00	-18.11
	115.36	S	Peak	33.62	-14.46	19.16	43.50	-24.34
	394.72	S	Peak	26.70	-10.48	16.22	46.00	-29.78
	638.19	S	Peak	27.16	-6.06	21.10	46.00	-24.90
	691.54	S	Peak	27.69	-5.28	22.41	46.00	-23.59
	870.99	S	Peak	27.58	-2.66	24.92	46.00	-21.08
	4874.00	Н	Peak	40.09	10.17	50.26	74.00	-23.74
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :TX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	44.54	-13.50	31.04	40.00	-8.96
	134.76	S	Peak	37.22	-12.90	24.32	43.50	-19.18
	399.57	S	Peak	26.49	-10.50	15.99	46.00	-30.01
	649.83	S	Peak	27.30	-5.90	21.40	46.00	-24.60
	695.42	S	Peak	28.22	-5.23	22.99	46.00	-23.01
	831.22	S	Peak	27.96	-3.18	24.78	46.00	-21.22
	4924.00	Н	Peak	37.28	10.02	47.30	74.00	-26.70
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2462 MHz :Lion

Operation Mode :TX HIGH

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	35.05	-13.50	21.55	40.00	-18.45
	133.79	S	Peak	31.57	-13.01	18.56	43.50	-24.94
	396.66	S	Peak	27.17	-10.45	16.72	46.00	-29.28
	621.70	S	Peak	28.14	-6.27	21.87	46.00	-24.13
	704.15	S	Peak	27.90	-5.03	22.87	46.00	-23.13
	870.02	S	Peak	28.25	-2.66	25.59	46.00	-20.41
	4924.00	Н	Peak	38.07	9.91	47.98	74.00	-26.02
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Radiated Spurious Emission Measurement Result (802.11g)

Operation Band :802.11g Test Date :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	dBμV/m	dB
	41.64	S	Peak	44.26	-13.50	30.76	40.00	-9.24
	133.79	S	Peak	36.90	-13.01	23.89	43.50	-19.61
	380.17	S	Peak	27.04	-10.58	16.46	46.00	-29.54
	649.83	S	Peak	27.48	-5.90	21.58	46.00	-24.42
	692.51	S	Peak	28.09	-5.26	22.83	46.00	-23.17
	869.05	S	Peak	27.72	-2.70	25.02	46.00	-20.98
	4824.00	Н	Peak	36.04	9.89	45.93	74.00	-28.07
	7236.00	Н						
	9648.00	Н						
	12060.00	H						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2412 MHz :Lion

Operation Mode :TX LOW

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	35.95	-13.50	22.45	40.00	-17.55
	133.79	S	Peak	31.68	-13.01	18.67	43.50	-24.83
	396.66	S	Peak	27.72	-10.45	17.27	46.00	-28.73
	626.55	S	Peak	29.02	-6.21	22.81	46.00	-23.19
	716.76	S	Peak	27.33	-4.81	22.52	46.00	-23.48
	863.23	S	Peak	27.87	-2.75	25.12	46.00	-20.88
	4824.00	Н	Peak	37.18	9.90	47.08	74.00	-26.92
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :TX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	44.02	-13.50	30.52	40.00	-9.48
	133.79	S	Peak	37.21	-13.01	24.20	43.50	-19.30
	385.02	S	Peak	27.10	-10.56	16.54	46.00	-29.46
	649.83	S	Peak	27.34	-5.90	21.44	46.00	-24.56
	692.51	S	Peak	27.66	-5.26	22.40	46.00	-23.60
	886.51	S	Peak	27.94	-2.39	25.55	46.00	-20.45
4	4874.00	Н	Peak	34.64	10.22	44.86	74.00	-29.14
,	7311.00	Н						
	9748.00	Н						
1	12185.00	Н						
1	14622.00	Н						
	17059.00	Н						
1	19496.00	Н						
2	21933.00	Н						
2	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g Test Date :2012-01-14

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2437 MHz Engineer :Lion

Operation Mode :TX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
41.64	S	Peak	35.24	-13.50	21.74	40.00	-18.26
117.30	S	Peak	32.69	-14.35	18.34	43.50	-25.16
398.60	S	Peak	26.47	-10.44	16.03	46.00	-29.97
625.58	S	Peak	28.09	-6.21	21.88	46.00	-24.12
708.03	S	Peak	28.19	-4.98	23.21	46.00	-22.79
909.79	S	Peak	27.08	-1.99	25.09	46.00	-20.91
4874.00) Н	Peak	33.97	10.17	44.14	74.00	-29.86
7311.00) Н						
9748.00) Н						
12185.0	0 H						
14622.0	0 H						
17059.0	0 H						
19496.0	0 H						
21933.0	0 H						
24370.0	0 H						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2462 MHz :Lion

Operation Mode :TX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	43.72	-13.50	30.22	40.00	-9.78
	133.79	S	Peak	35.95	-13.01	22.94	43.50	-20.56
	397.63	S	Peak	26.85	-10.43	16.42	46.00	-29.58
	620.73	S	Peak	27.60	-6.29	21.31	46.00	-24.69
	699.30	S	Peak	27.83	-5.15	22.68	46.00	-23.32
	876.81	S	Peak	27.60	-2.58	25.02	46.00	-20.98
	4924.00	Н	Peak	34.06	10.02	44.08	74.00	-29.92
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :TX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	35.08	-13.50	21.58	40.00	-18.42
	117.30	S	Peak	32.67	-14.35	18.32	43.50	-25.18
	390.84	S	Peak	26.73	-10.50	16.23	46.00	-29.77
	624.61	S	Peak	27.84	-6.20	21.64	46.00	-24.36
	706.09	S	Peak	28.01	-5.04	22.97	46.00	-23.03
	867.11	S	Peak	27.39	-2.71	24.68	46.00	-21.32
	4924.00	Н	Peak	34.16	9.91	44.07	74.00	-29.93
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Radiated Spurious Emission Measurement Result (802.11n_20M)

Operation Band :802.11n20M Test Date :2012-01-14

ARFCN Temp./Humi. :27 deg_C / 66 RH :CH 01

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	dBμV/m	$dB\mu V/m$	dB
40.67	S	Peak	43.63	-13.35	30.28	40.00	-9.72
132.82	S	Peak	36.36	-13.01	23.35	43.50	-20.15
398.60	S	Peak	27.51	-10.44	17.07	46.00	-28.93
632.37	S	Peak	28.01	-6.12	21.89	46.00	-24.11
708.03	S	Peak	27.94	-4.98	22.96	46.00	-23.04
907.85	S	Peak	27.83	-2.02	25.81	46.00	-20.19
4824.00	Н	Peak	35.10	9.89	44.99	74.00	-29.01
7236.00	Н						
9648.00	Н						
12060.00	H						
14472.00	Н						
16884.00	Н						
19296.00	Н						
21708.00	Н						
24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M :2012-01-14 **Test Date**

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2412 MHz :Lion

Operation Mode :TX LOW

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	34.66	-13.50	21.16	40.00	-18.84
	132.82	S	Peak	30.68	-13.01	17.67	43.50	-25.83
	395.69	S	Peak	27.07	-10.49	16.58	46.00	-29.42
	627.52	S	Peak	27.64	-6.17	21.47	46.00	-24.53
	664.38	S	Peak	28.92	-5.71	23.21	46.00	-22.79
	890.39	S	Peak	27.46	-2.33	25.13	46.00	-20.87
	4824.00	Н	Peak	34.96	9.90	44.86	74.00	-29.14
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Operation Band :802.11n20M :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :TX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	43.77	-13.35	30.42	40.00	-9.58
	132.82	S	Peak	36.47	-13.01	23.46	43.50	-20.04
	390.84	S	Peak	26.72	-10.50	16.22	46.00	-29.78
	633.34	S	Peak	27.52	-6.10	21.42	46.00	-24.58
	694.45	S	Peak	27.93	-5.22	22.71	46.00	-23.29
	882.63	S	Peak	28.20	-2.45	25.75	46.00	-20.25
	4874.00	Н	Peak	34.37	10.22	44.59	74.00	-29.41
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Operation Band :802.11n20M Test Date :2012-01-14

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2437 MHz Engineer :Lion

Operation Mode :TX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	34.50	-13.35	21.15	40.00	-18.85
	129.91	S	Peak	30.68	-13.36	17.32	43.50	-26.18
	382.11	S	Peak	27.66	-10.58	17.08	46.00	-28.92
	624.61	S	Peak	28.35	-6.20	22.15	46.00	-23.85
	698.33	S	Peak	28.23	-5.20	23.03	46.00	-22.97
	870.99	S	Peak	28.16	-2.66	25.50	46.00	-20.50
	4874.00	Н	Peak	34.23	10.17	44.40	74.00	-29.60
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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Operation Band :802.11n20M Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :TX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	43.26	-13.50	29.76	40.00	-10.24
	133.79	S	Peak	36.41	-13.01	23.40	43.50	-20.10
	388.90	S	Peak	27.06	-10.54	16.52	46.00	-29.48
	633.34	S	Peak	27.13	-6.10	21.03	46.00	-24.97
	701.24	S	Peak	27.95	-5.11	22.84	46.00	-23.16
	892.33	S	Peak	27.88	-2.30	25.58	46.00	-20.42
	4924.00	Н	Peak	34.54	10.02	44.56	74.00	-29.44
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :TX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	35.46	-13.50	21.96	40.00	-18.04
	113.42	S	Peak	32.52	-14.74	17.78	43.50	-25.72
	382.11	S	Peak	27.59	-10.58	17.01	46.00	-28.99
	628.49	S	Peak	27.57	-6.18	21.39	46.00	-24.61
	705.12	S	Peak	27.19	-5.03	22.16	46.00	-23.84
	863.23	S	Peak	28.09	-2.75	25.34	46.00	-20.66
	4924.00	Н	Peak	34.65	9.91	44.56	74.00	-29.44
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Radiated Spurious Emission Measurement Result (802.11b)

:802.11b **Operation Band Test Date** :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :RX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
40.67	S	Peak	44.43	-13.35	31.08	40.00	-8.92
132.82	S	Peak	35.71	-13.01	22.70	43.50	-20.80
398.60	S	Peak	26.65	-10.44	16.21	46.00	-29.79
646.92	S	Peak	27.38	-5.94	21.44	46.00	-24.56
691.54	S	Peak	28.28	-5.28	23.00	46.00	-23.00
908.82	S	Peak	27.08	-1.99	25.09	46.00	-20.91
4824.00	Н	Peak	34.74	9.89	44.63	74.00	-29.37
7236.00	Н						
9648.00	Н						
12060.00	Н						
14472.00	Н						
16884.00	Н						
19296.00	Н						
21708.00	Н						
24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2412 MHz :Lion

Operation Mode :RX LOW

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	34.37	-13.50	20.87	40.00	-19.13
	115.36	S	Peak	31.97	-14.46	17.51	43.50	-25.99
	396.66	S	Peak	26.79	-10.45	16.34	46.00	-29.66
	648.86	S	Peak	27.53	-5.93	21.60	46.00	-24.40
	709.00	S	Peak	27.92	-4.93	22.99	46.00	-23.01
	903.00	S	Peak	27.08	-2.12	24.96	46.00	-21.04
	4824.00	Н	Peak	36.82	9.90	46.72	74.00	-27.28
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	43.65	-13.35	30.30	40.00	-9.70
	135.73	S	Peak	35.59	-12.85	22.74	43.50	-20.76
	393.75	S	Peak	26.37	-10.48	15.89	46.00	-30.11
	632.37	S	Peak	27.51	-6.12	21.39	46.00	-24.61
	708.03	S	Peak	27.57	-4.98	22.59	46.00	-23.41
	869.05	S	Peak	27.61	-2.70	24.91	46.00	-21.09
	4874.00	Н	Peak	34.18	10.22	44.40	74.00	-29.60
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

EUT Pol. :E2 Plan :HORIZONTAL Measurement Antenna Pol.

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	33.71	-13.50	20.21	40.00	-19.79
	132.82	S	Peak	31.31	-13.01	18.30	43.50	-25.20
	398.60	S	Peak	26.84	-10.44	16.40	46.00	-29.60
	630.43	S	Peak	27.89	-6.15	21.74	46.00	-24.26
	719.67	S	Peak	26.74	-4.67	22.07	46.00	-23.93
	863.23	S	Peak	28.41	-2.75	25.66	46.00	-20.34
	4874.00	Н	Peak	33.62	10.17	43.79	74.00	-30.21
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Operation Band :802.11b Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :RX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
40.67	S	Peak	43.19	-13.35	29.84	40.00	-10.16
132.82	S	Peak	35.65	-13.01	22.64	43.50	-20.86
396.66	S	Peak	26.82	-10.45	16.37	46.00	-29.63
625.58	S	Peak	28.42	-6.21	22.21	46.00	-23.79
701.24	S	Peak	28.75	-5.11	23.64	46.00	-22.36
831.22	S	Peak	27.72	-3.18	24.54	46.00	-21.46
4924.00) Н	Peak	35.35	10.02	45.37	74.00	-28.63
7386.00) Н						
9848.00) Н						
12310.0	0 Н						
14772.0	0 H						
17234.0	0 H						
19696.0	0 Н						
22158.0	0 Н						
24620.0	0 H						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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Operation Band :802.11b :2012-01-14 **Test Date**

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2462 MHz :Lion

Operation Mode :RX HIGH

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	34.62	-13.35	21.27	40.00	-18.73
	118.27	S	Peak	32.26	-14.13	18.13	43.50	-25.37
	383.08	S	Peak	27.39	-10.58	16.81	46.00	-29.19
	644.98	S	Peak	27.83	-5.94	21.89	46.00	-24.11
	708.03	S	Peak	27.52	-4.98	22.54	46.00	-23.46
	904.94	S	Peak	27.35	-2.05	25.30	46.00	-20.70
	4924.00	Н	Peak	34.47	9.91	44.38	74.00	-29.62
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

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Radiated Spurious Emission Measurement Result (802.11g)

Operation Band :802.11g **Test Date** :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :RX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
40.67	S	Peak	43.36	-13.35	30.01	40.00	-9.99
132.82	S	Peak	35.69	-13.01	22.68	43.50	-20.82
394.72	S	Peak	27.82	-10.48	17.34	46.00	-28.66
627.52	S	Peak	27.29	-6.17	21.12	46.00	-24.88
708.03	S	Peak	28.59	-4.98	23.61	46.00	-22.39
907.85	S	Peak	27.13	-2.02	25.11	46.00	-20.89
4824.00	Н	Peak	34.38	9.89	44.27	74.00	-29.73
7236.00	Н						
9648.00	Н						
12060.00	H						
14472.00	Н						
16884.00	Н						
19296.00	Н						
21708.00	Н						
24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g Test Date :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :RX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	34.15	-13.35	20.80	40.00	-19.20
	131.85	S	Peak	31.27	-13.22	18.05	43.50	-25.45
	387.93	S	Peak	26.68	-10.53	16.15	46.00	-29.85
	626.55	S	Peak	27.41	-6.21	21.20	46.00	-24.80
	698.33	S	Peak	28.65	-5.20	23.45	46.00	-22.55
	867.11	S	Peak	28.04	-2.71	25.33	46.00	-20.67
	4824.00	Н	Peak	34.36	9.90	44.26	74.00	-29.74
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	43.29	-13.35	29.94	40.00	-10.06
	136.70	S	Peak	35.56	-12.84	22.72	43.50	-20.78
	386.96	S	Peak	26.54	-10.56	15.98	46.00	-30.02
	635.28	S	Peak	27.58	-6.09	21.49	46.00	-24.51
	699.30	S	Peak	28.21	-5.15	23.06	46.00	-22.94
	863.23	S	Peak	27.73	-2.75	24.98	46.00	-21.02
	4874.00	Н	Peak	33.67	10.22	43.89	74.00	-30.11
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	41.64	S	Peak	34.70	-13.50	21.20	40.00	-18.80
	132.82	S	Peak	31.31	-13.01	18.30	43.50	-25.20
	382.11	S	Peak	26.56	-10.58	15.98	46.00	-30.02
	626.55	S	Peak	28.78	-6.21	22.57	46.00	-23.43
	703.18	S	Peak	28.09	-5.08	23.01	46.00	-22.99
	887.48	S	Peak	27.32	-2.36	24.96	46.00	-21.04
	4874.00	Н	Peak	34.64	10.17	44.81	74.00	-29.19
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g :2012-01-14 **Test Date**

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2462 MHz :Lion

Operation Mode :RX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	42.58	-13.35	29.23	40.00	-10.77
	133.79	S	Peak	36.04	-13.01	23.03	43.50	-20.47
	389.87	S	Peak	26.71	-10.48	16.23	46.00	-29.77
	649.83	S	Peak	27.05	-5.90	21.15	46.00	-24.85
	718.70	S	Peak	27.58	-4.79	22.79	46.00	-23.21
	870.99	S	Peak	27.72	-2.66	25.06	46.00	-20.94
	4924.00	Н	Peak	34.32	10.02	44.34	74.00	-29.66
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11g Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :RX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	33.45	-13.35	20.10	40.00	-19.90
	113.42	S	Peak	32.30	-14.74	17.56	43.50	-25.94
	387.93	S	Peak	26.26	-10.53	15.73	46.00	-30.27
	627.52	S	Peak	27.56	-6.17	21.39	46.00	-24.61
	697.36	S	Peak	27.70	-5.18	22.52	46.00	-23.48
	883.60	S	Peak	27.16	-2.44	24.72	46.00	-21.28
	4924.00	Н	Peak	34.17	9.91	44.08	74.00	-29.92
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Radiated Spurious Emission Measurement Result (802.11n_20M)

Operation Band :802.11n20M Test Date :2012-01-14

ARFCN Temp./Humi. :27 deg_C / 66 RH :CH 01

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :RX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual FS($dB\mu V/m$) = SPA. Reading level($dB\mu V$) + Factor(dB)

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
39.70	S	Peak	41.95	-13.17	28.78	40.00	-11.22
132.82	S	Peak	36.55	-13.01	23.54	43.50	-19.96
397.63	S	Peak	27.24	-10.43	16.81	46.00	-29.19
631.40	S	Peak	27.63	-6.14	21.49	46.00	-24.51
702.21	S	Peak	28.12	-5.10	23.02	46.00	-22.98
812.79	S	Peak	27.98	-3.40	24.58	46.00	-21.42
4824.00	Н	Peak	34.71	9.89	44.60	74.00	-29.40
7236.00	Н						
9648.00	Н						
12060.00	Н						
14472.00	Н						
16884.00	Н						
19296.00	Н						
21708.00	Н						
24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M Test Date :2012-01-14

ARFCN :CH 01 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2412 MHz Engineer :Lion

Operation Mode :RX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	39.70	S	Peak	33.52	-13.17	20.35	40.00	-19.65
	131.85	S	Peak	31.23	-13.22	18.01	43.50	-25.49
	391.81	S	Peak	26.81	-10.46	16.35	46.00	-29.65
	644.98	S	Peak	27.96	-5.94	22.02	46.00	-23.98
	697.36	S	Peak	27.68	-5.18	22.50	46.00	-23.50
	863.23	S	Peak	28.17	-2.75	25.42	46.00	-20.58
	4824.00	Н	Peak	34.60	9.90	44.50	74.00	-29.50
	7236.00	Н						
	9648.00	Н						
	12060.00	Н						
	14472.00	Н						
	16884.00	Н						
	19296.00	Н						
	21708.00	Н						
	24120.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dBμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	41.86	-13.35	28.51	40.00	-11.49
	131.85	S	Peak	36.34	-13.22	23.12	43.50	-20.38
	382.11	S	Peak	27.43	-10.58	16.85	46.00	-29.15
	648.86	S	Peak	27.95	-5.93	22.02	46.00	-23.98
	699.30	S	Peak	27.43	-5.15	22.28	46.00	-23.72
	902.03	S	Peak	27.71	-2.11	25.60	46.00	-20.40
	4874.00	Н	Peak	33.28	10.22	43.50	74.00	-30.50
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M :2012-01-14 **Test Date**

ARFCN :CH 06 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2437 MHz :Lion

Operation Mode :RX MID

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	33.95	-13.35	20.60	40.00	-19.40
	131.85	S	Peak	31.54	-13.22	18.32	43.50	-25.18
	396.66	S	Peak	26.58	-10.45	16.13	46.00	-29.87
	634.31	S	Peak	28.35	-6.09	22.26	46.00	-23.74
	718.70	S	Peak	27.77	-4.79	22.98	46.00	-23.02
	869.05	S	Peak	28.67	-2.70	25.97	46.00	-20.03
	4874.00	Н	Peak	33.81	10.17	43.98	74.00	-30.02
	7311.00	Н						
	9748.00	Н						
	12185.00	Н						
	14622.00	Н						
	17059.00	Н						
	19496.00	Н						
	21933.00	Н						
	24370.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M :2012-01-14 **Test Date**

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Engineer Fundamental Frequency :2462 MHz :Lion

Operation Mode :RX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. : VERTICAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

	Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Safe
			Mode	Reading Level		FS	@3m	Margin
_	MHz	F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
	40.67	S	Peak	41.53	-13.35	28.18	40.00	-11.82
	133.79	S	Peak	35.95	-13.01	22.94	43.50	-20.56
	396.66	S	Peak	26.64	-10.45	16.19	46.00	-29.81
	620.73	S	Peak	27.80	-6.29	21.51	46.00	-24.49
	697.36	S	Peak	28.25	-5.18	23.07	46.00	-22.93
	867.11	S	Peak	28.24	-2.71	25.53	46.00	-20.47
	4924.00	Н	Peak	34.34	10.02	44.36	74.00	-29.64
	7386.00	Н						
	9848.00	Н						
	12310.00	Н						
	14772.00	Н						
	17234.00	Н						
	19696.00	Н						
	22158.00	Н						
	24620.00	Н						

For measurement plot of radiation, please refer to Appendix I.

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Operation Band :802.11n20M Test Date :2012-01-14

ARFCN :CH 11 Temp./Humi. :27 deg_C / 66 RH

Fundamental Frequency :2462 MHz Engineer :Lion

Operation Mode :RX HIGH

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

Free	ı. Note	Detector	Spectrum	Factor	Actual	Limit	Safe
		Mode	Reading Level		FS	@3m	Margin
MH	z F/H/E/S	PK/QP/AV	dΒμV	dB	$dB\mu V/m$	$dB\mu V/m$	dB
40.6	7 S	Peak	33.64	-13.35	20.29	40.00	-19.71
151.2	25 S	Peak	33.02	-11.78	21.24	43.50	-22.26
390.8	34 S	Peak	26.89	-10.50	16.39	46.00	-29.61
635.2	28 S	Peak	27.18	-6.09	21.09	46.00	-24.91
695.4	12 S	Peak	28.40	-5.23	23.17	46.00	-22.83
866.	14 S	Peak	27.61	-2.70	24.91	46.00	-21.09
4924.	00 H	Peak	34.97	9.91	44.88	74.00	-29.12
7386.	00 H						
9848.	00 H						
12310	.00 Н						
14772	.00 Н						
17234	.00 Н						
19696	.00 Н						
22158	.00 Н						
24620	.00 Н						

For measurement plot of radiation, please refer to Appendix I.

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11 PEAK POWER SPECTRAL DENSITY

11.1 Standard Applicable:

According to §15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-210 issue 8, §A8.2(b) The transmitter power spectral density (into the antenna) shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0 second duration.

11.2 Measurement Equipment Used:

Refer to section 7.2 for details.

11.3 Test Set-up:

Refer to section 7.3 for details.

11.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW = 3KHz, VBW = 10KHz, Span = 300kHz, Sweep=100s
- 4. Record the max. reading.
- 5. Repeat above procedures until all frequency measured were complete.

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11.5 Measurement Result:

802.11b

Frequency	RF Power Density	RF Power Density	Maximum Limit	
MHz	Reading (dBm)	Level (dBm)	(dBm)	
2412	-8.38	-8.38	8	
2437	-8.59	-8.59	8	
2462	-7.68	-7.68	8	

802.11g

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2412	-11.16	-11.16	8
2437	-11.09	-11.09	8
2462	-10.92	-10.92	8

802.11n_20M

Frequency	RF Power Density	RF Power Density	Maximum Limit	
MHz	Reading (dBm)	Level (dBm)	(dBm)	
2412	-13.08	-13.08	8	
2437	-12.87	-12.87	8	
2462	-13.44	-13.44	8	

^{*}Offset 10.8 dB

Note: Refer to next page for plots.

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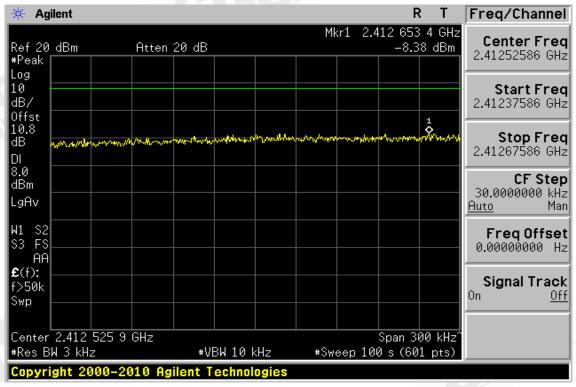


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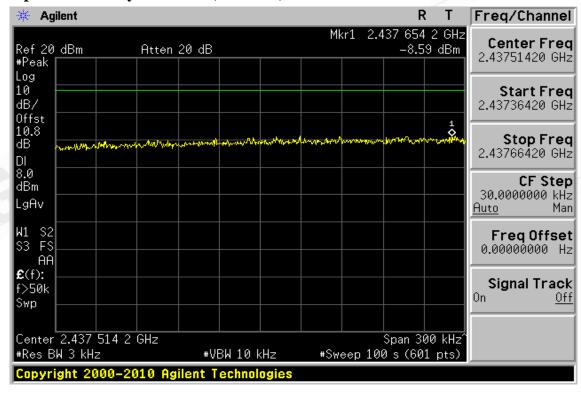
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802.11b

Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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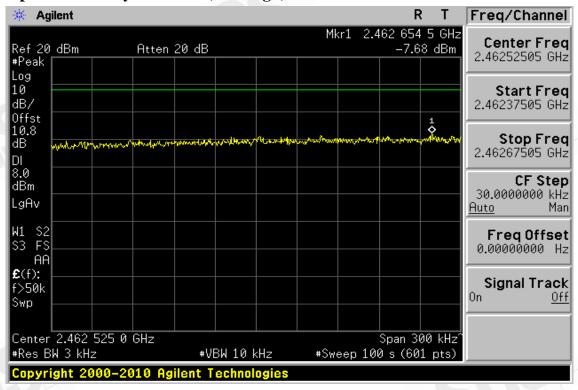
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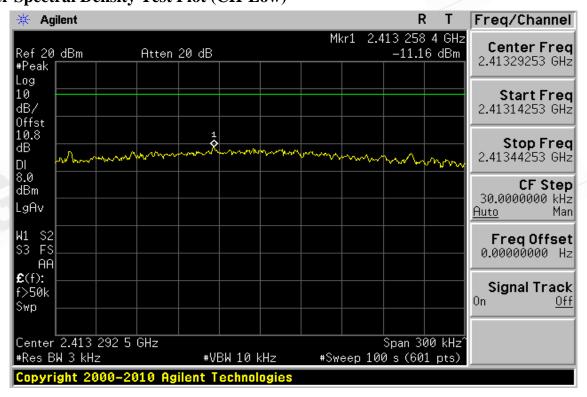
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Power Spectral Density Test Plot (CH-High)



802.11g

Power Spectral Density Test Plot (CH-Low)



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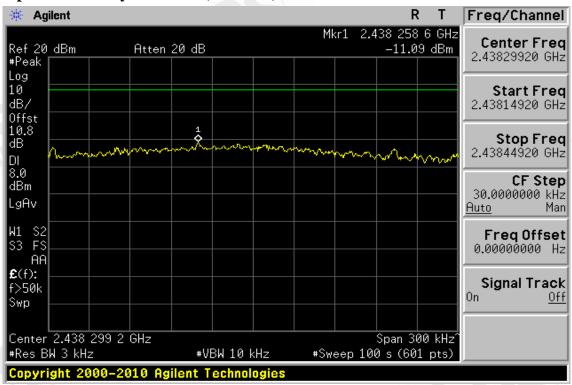
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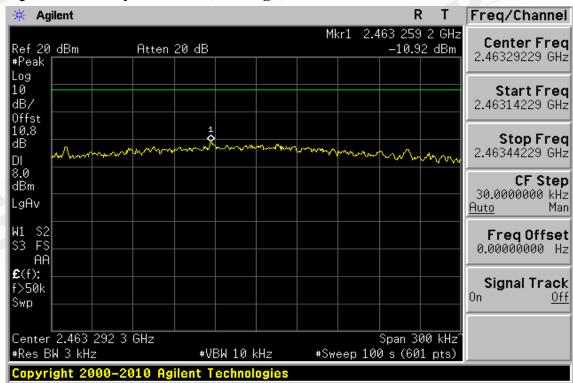
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Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



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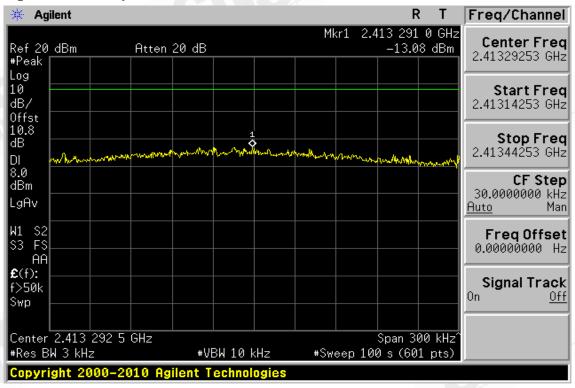


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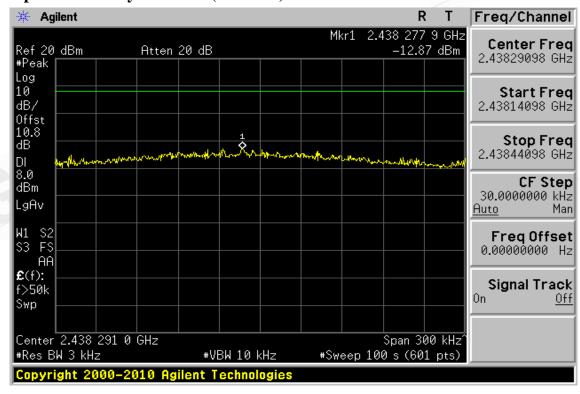
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802.11n 20M

Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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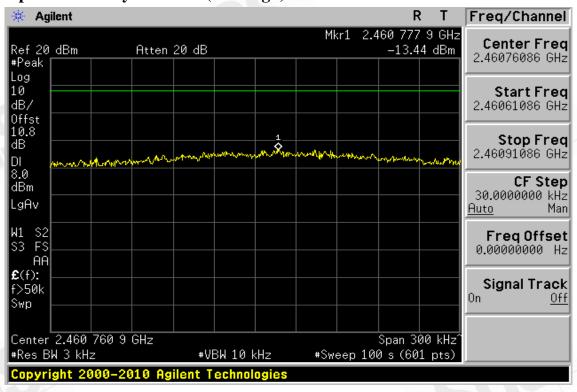
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Power Spectral Density Test Plot (CH-High)



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12 ANTENNA REQUIREMENT

12.1 Standard Applicable:

According to §15.203, Antenna 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

According to RSS-GEN 7.1.2, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

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When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

12.2 Antenna Connected Construction:

The directional gains of antenna used for transmitting is 3.83 dBi, and the antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

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13 99% BANDWIDTH MEASUREMENT

13.1 Standard Applicable:

RSS-Gen §4.6.1, the transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

The span between the two recorded frequencies is the occupied bandwidth.

13.2 Measurement Equipment Used:

Refer to section 7.2 for details.

13.3 Test Set-up:

Refer to section 7.3 for details.

13.4 Measurement Procedure:

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW=1% of the Span, VBW = 3 times RBW, Span= 20MHz.
- 4. Turn on the 99% bandwidth function, max reading...
- 5. Repeat above procedures until all frequency measured were complete.

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13.5 Measurement Result:

802.11b

Frequency	99%Bandwidth
MHz	(MHz)
2412	12.0608
2437	12.3132
2462	12.3514

802.11g

Frequency	99%Bandwidth
MHz	(MHz)
2412	16.8621
2437	16.6953
2462	16.7081

802.11n 20M

Frequency	99%Bandwidth
MHz	(MHz)
2412	17.6279
2437	17.6052
2462	17.5766

Note: Refer to next page for plots.

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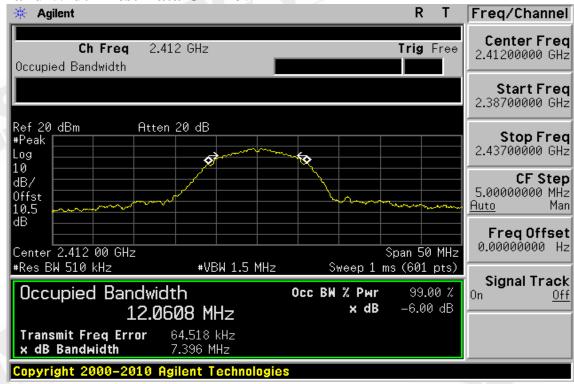
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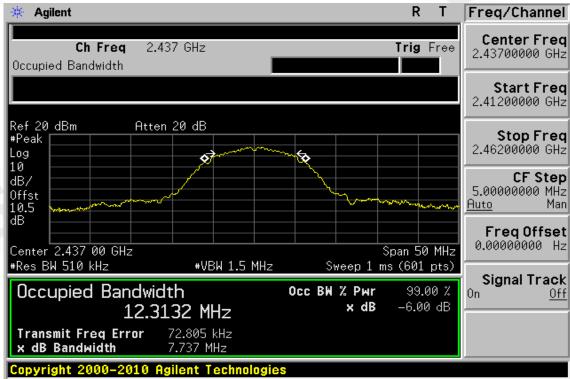
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802.11b 99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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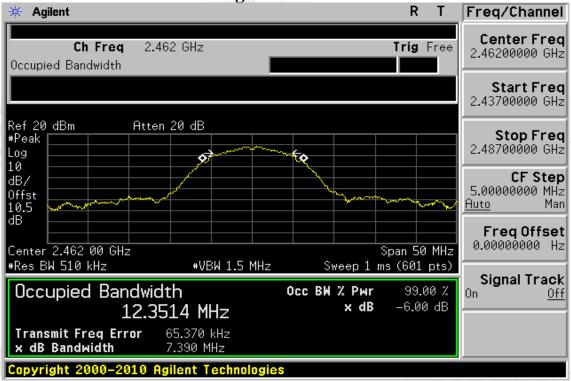
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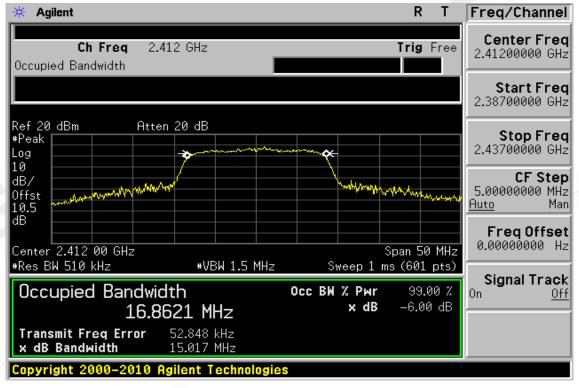
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99% Band Width Test Data CH-High



802.11g

99% Band Width Test Data CH-Low



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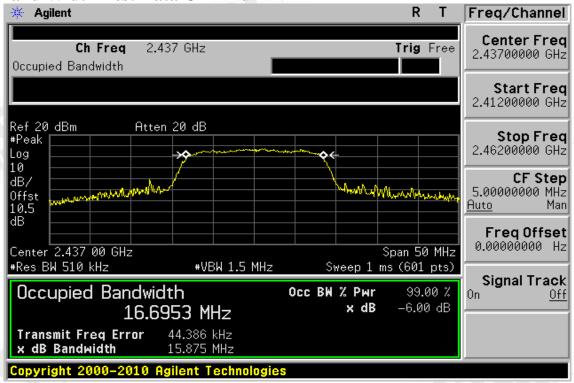
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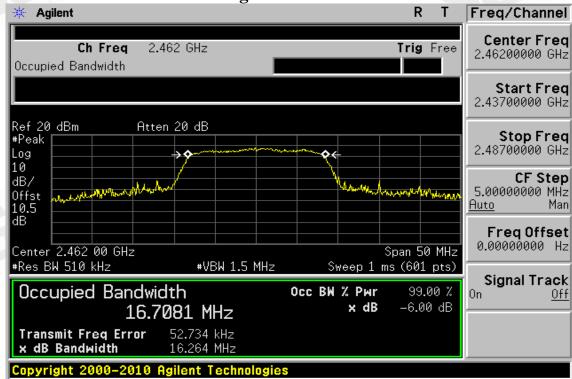
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99% Band Width Test Data CH-Mid



99% Band Width Test Data CH-High



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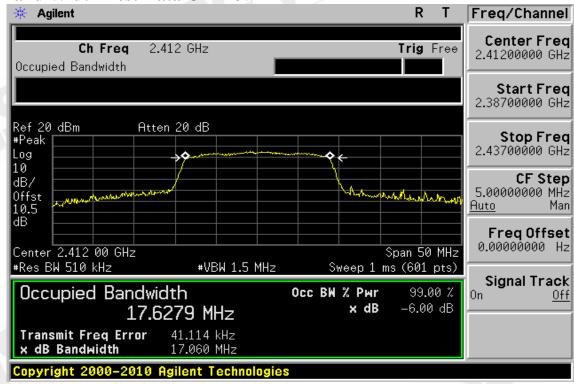
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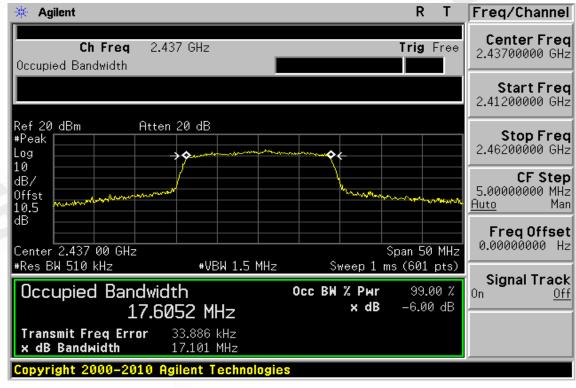
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802.11n 20M 99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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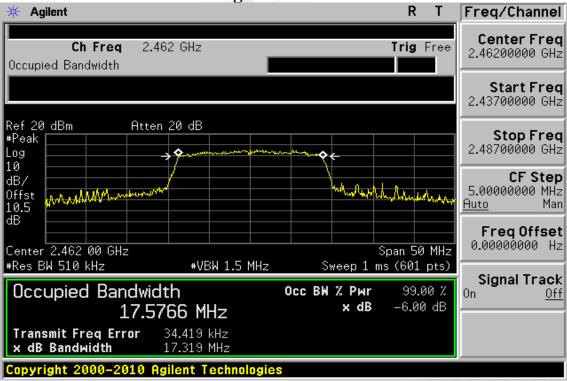
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99% Band Width Test Data CH-High



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APPENDIX 1 MEASUREMENT PLOT OF RADIATED SPURIOUS **EMISSION**

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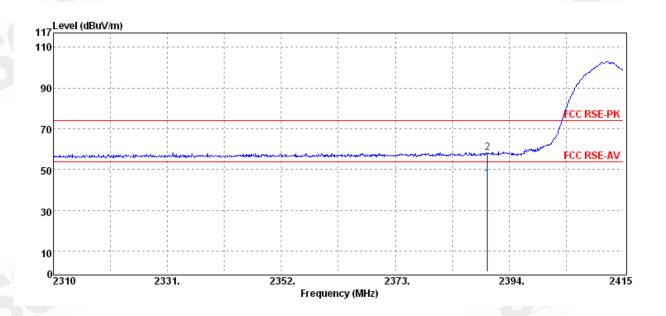
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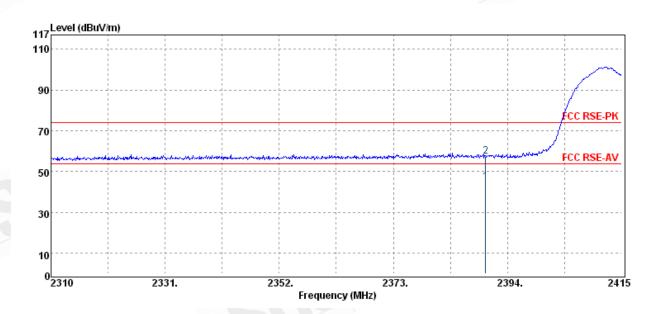
Band Edges Radiated Emission:

Operation Band :802.11b **Test Date** :2012-01-13

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

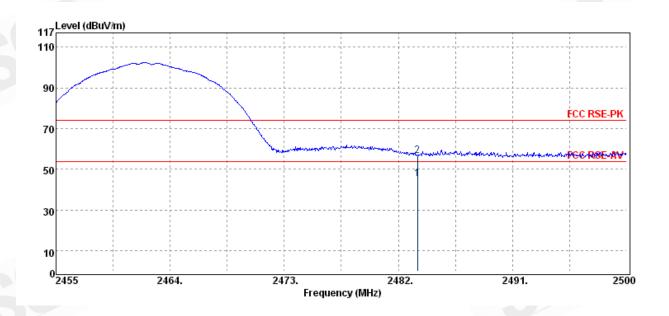
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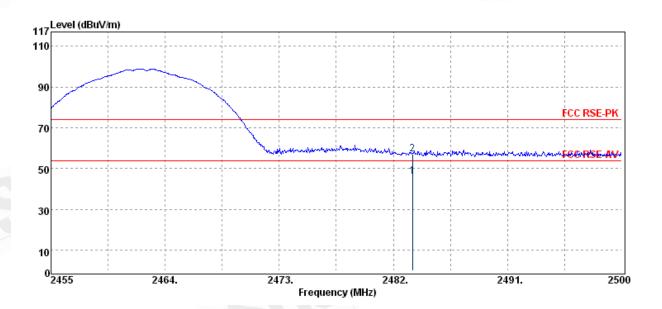
Operation Band :802.11b **Test Date** :2012-01-13

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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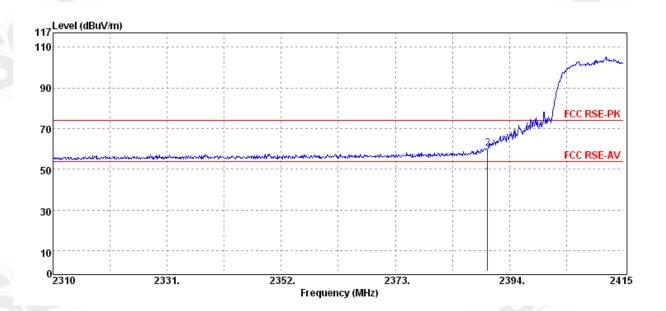
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

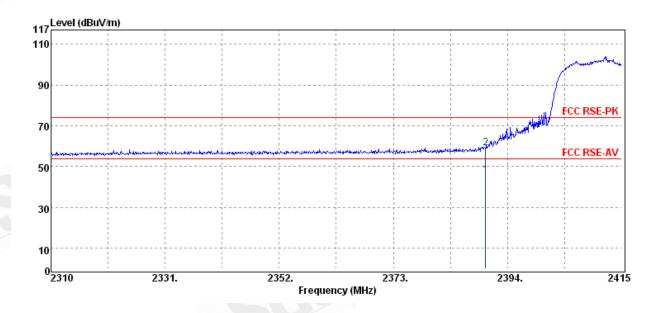
Page: 120 of 186

Operation Band :802.11g **Test Date** :2012-01-13

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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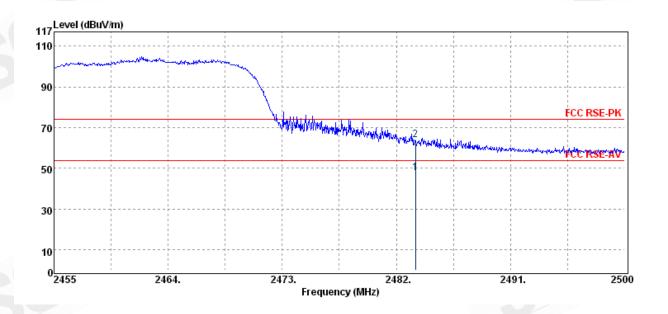
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

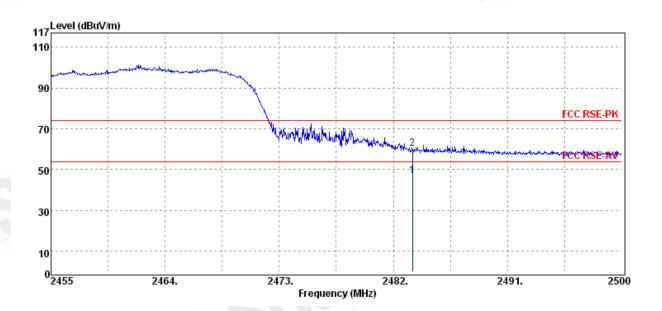
Page: 121 of 186

Operation Band :802.11g **Test Date** :2012-01-13

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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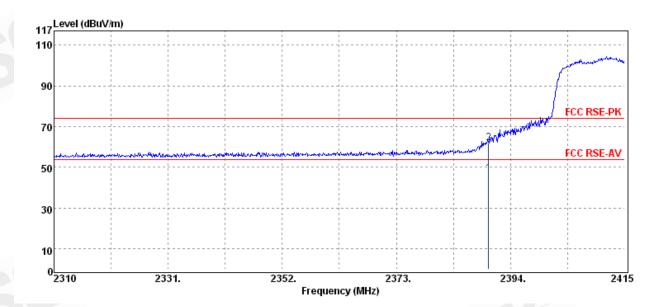
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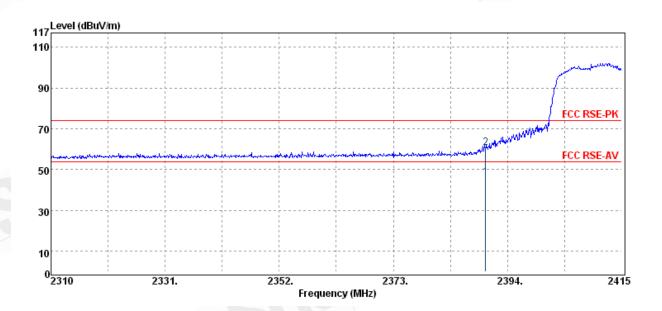
Page: 122 of 186

Operation Band :802.11n20M **Test Date** :2012-01-13

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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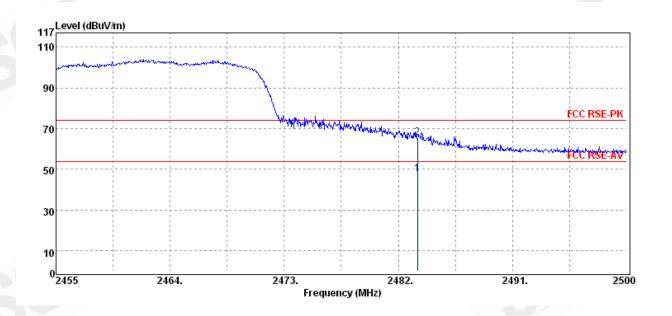
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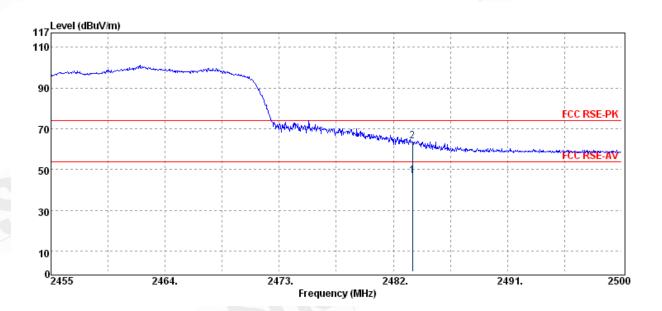
Operation Band :802.11n20M **Test Date** :2012-01-13

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :Bandedge Engineer :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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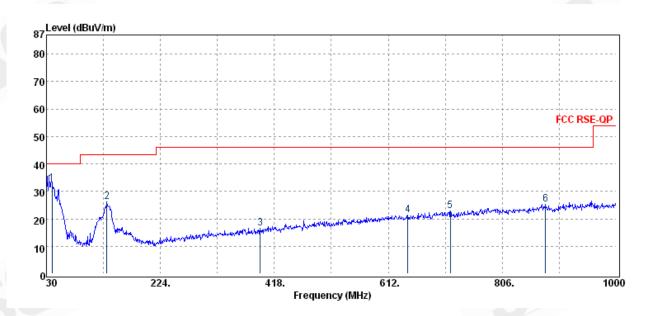
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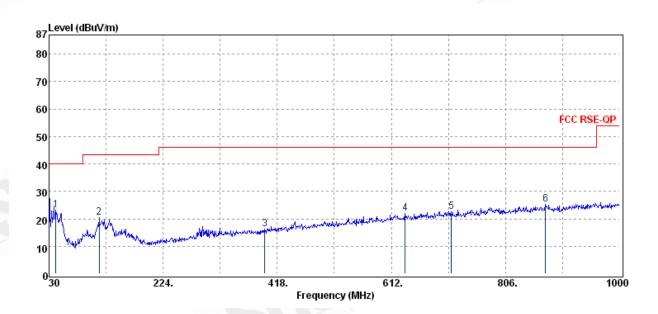
Radiated Spurious Emission Measurement photos Result (below 1GHz)

Operation Band **Test Date** :802.11b :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :TX Engineer EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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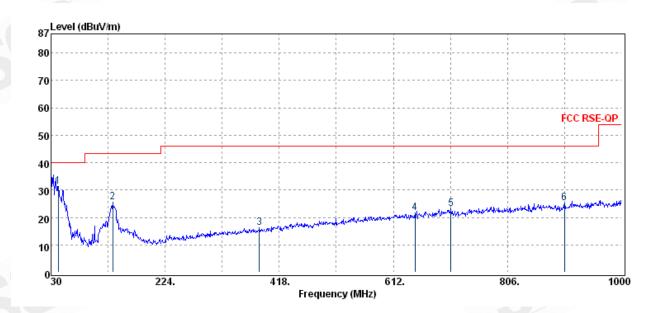
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

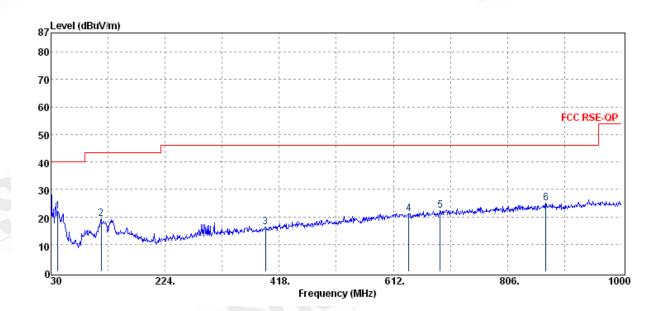
Page: 125 of 186

Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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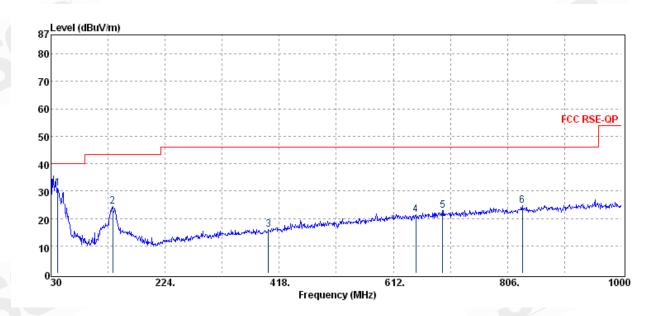
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

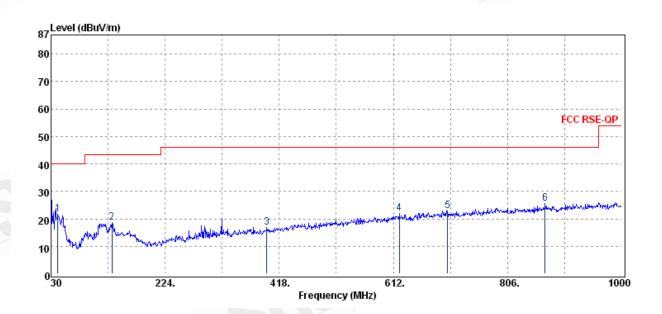
Page: 126 of 186

Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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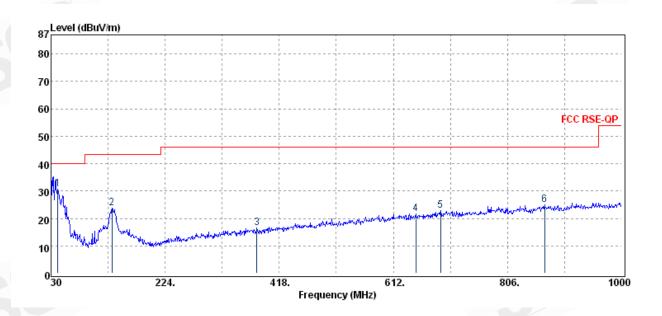
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

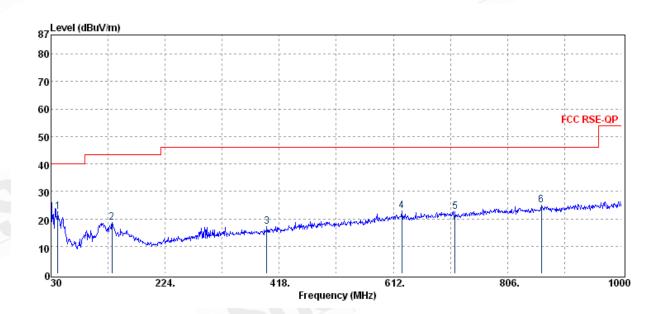
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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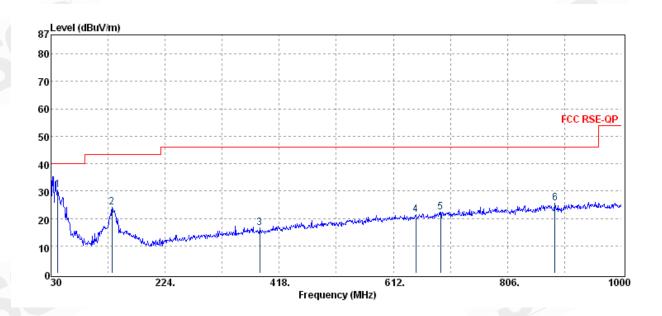
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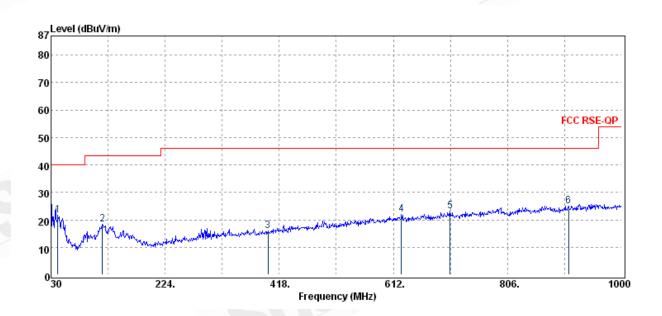
Page: 128 of 186

Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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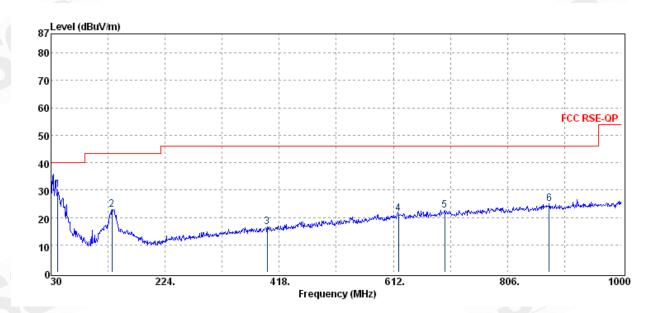
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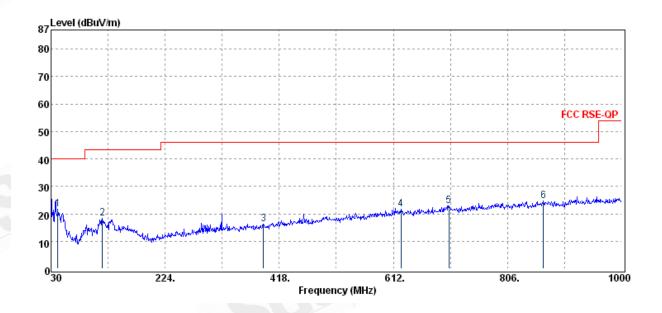
Page: 129 of 186

Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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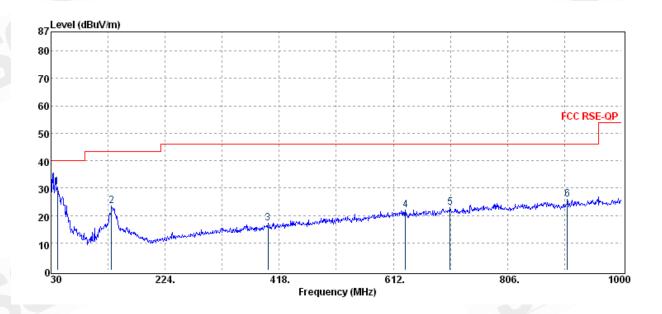
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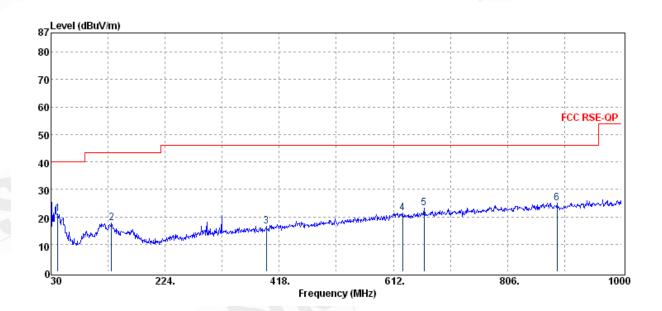
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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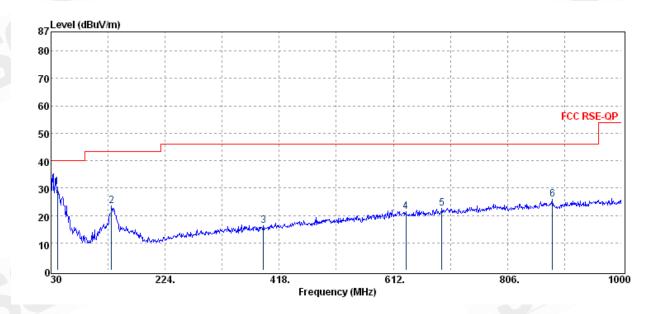
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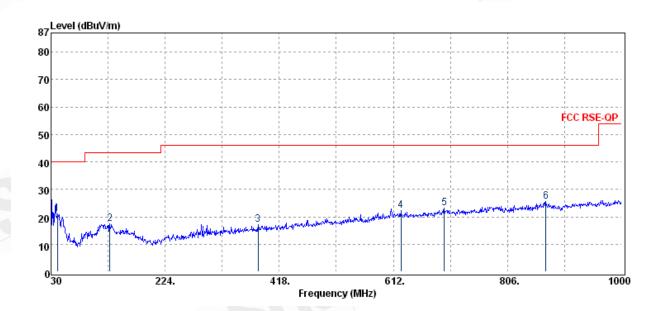
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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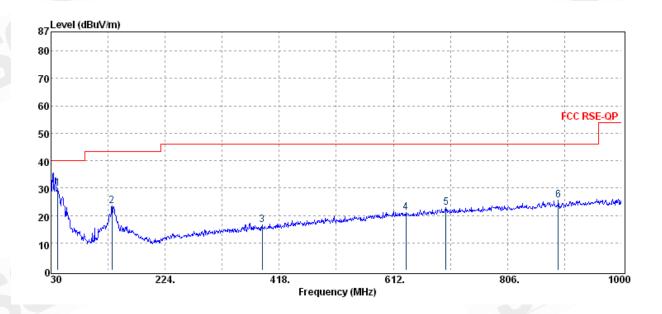
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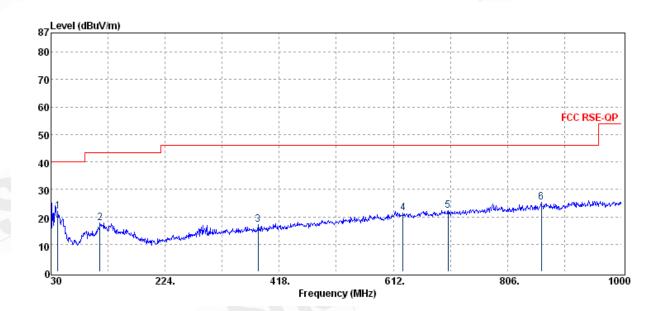
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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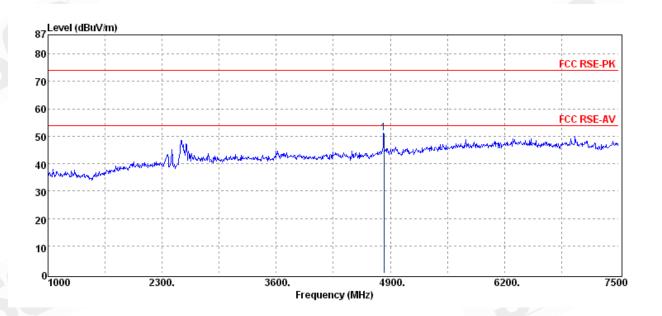
Radiated Spurious Emission Measurement photos Result (above 1GHz)

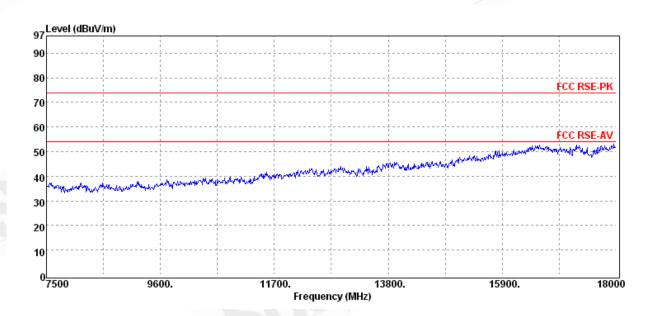
Operation Band **Test Date** :802.11b :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :TX Engineer :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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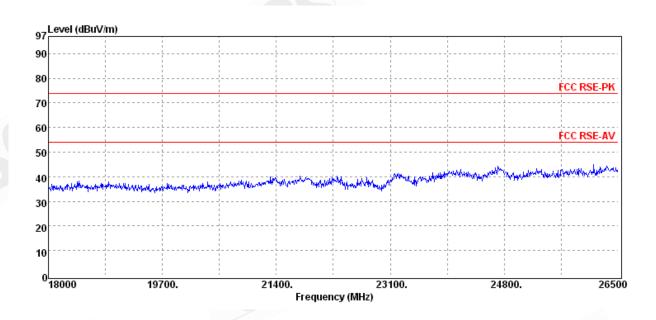
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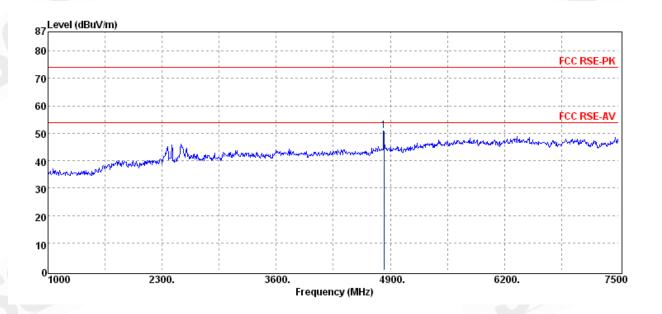
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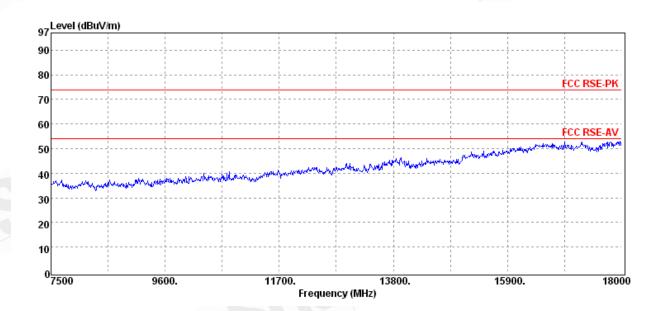
Operation Band :802.11b **Test Date** :2012-01-14

 $:23.6 deg_C / 67 RH$ Fundamental Frequency :2412 MHz Temp./Humi.

Operation Mode Engineer :TX

EUT Pol. :E2 Plan :HORIZONTAL Measurement Antenna Pol.





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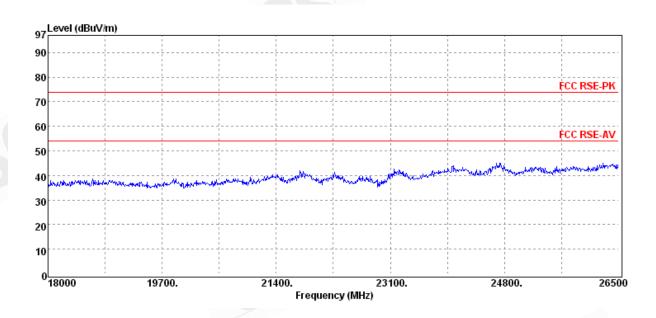
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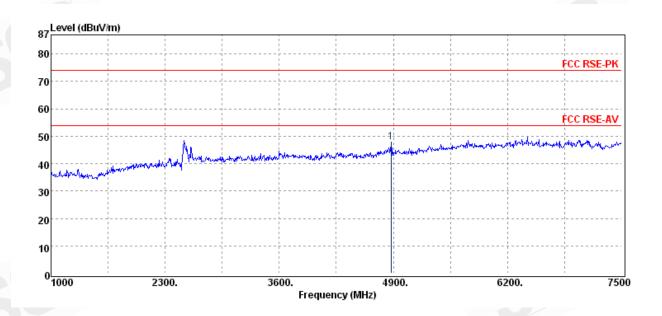
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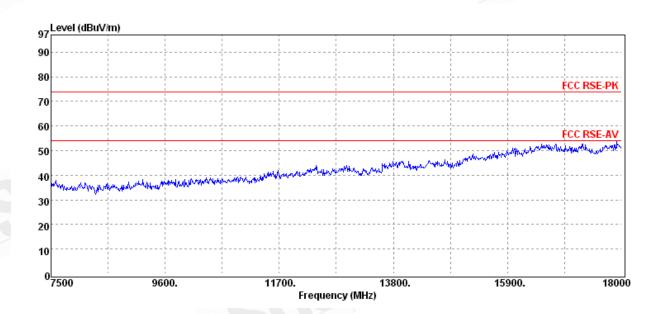
Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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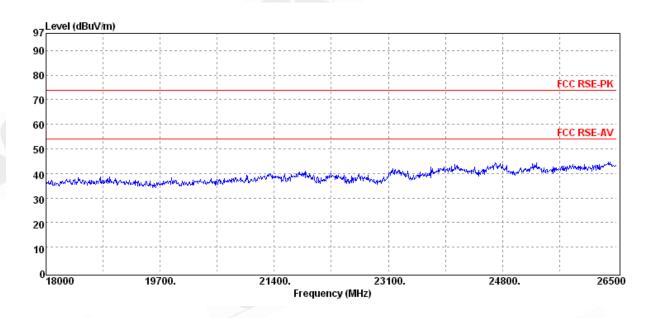
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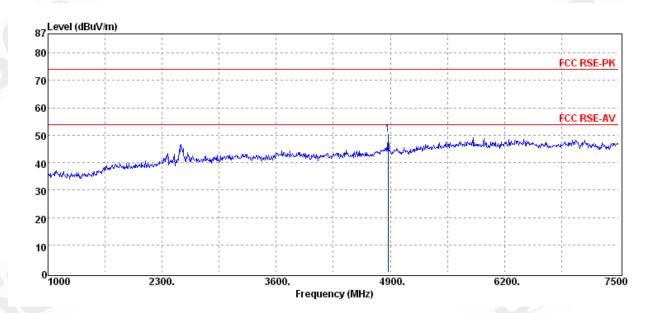
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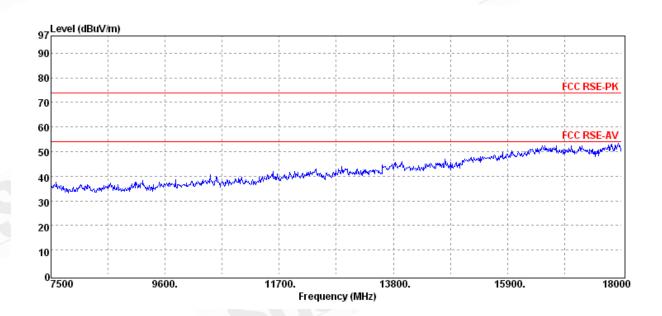
Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL





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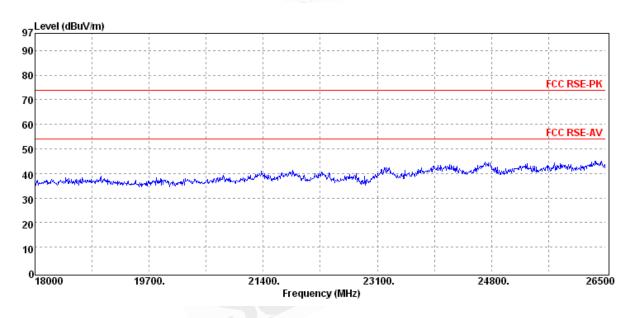
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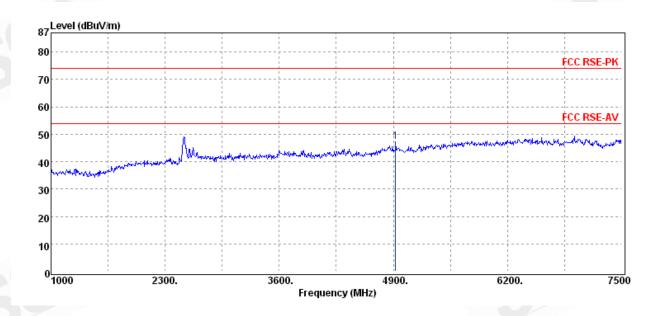
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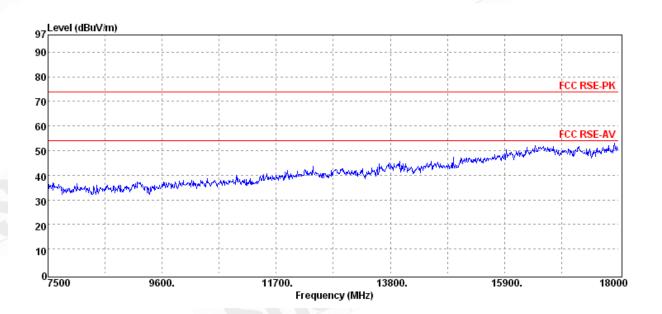
Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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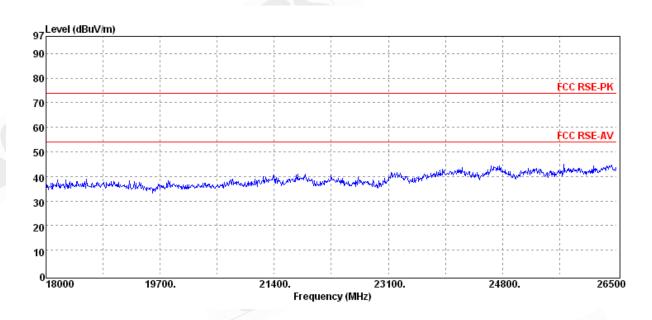
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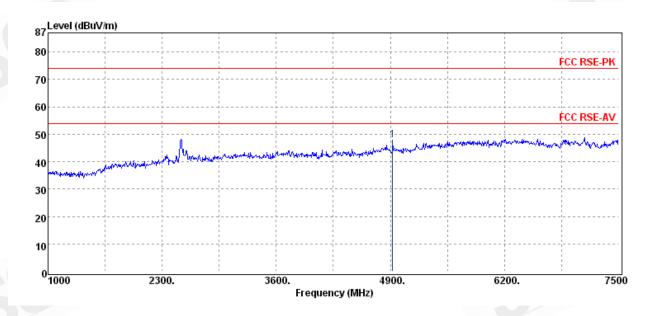
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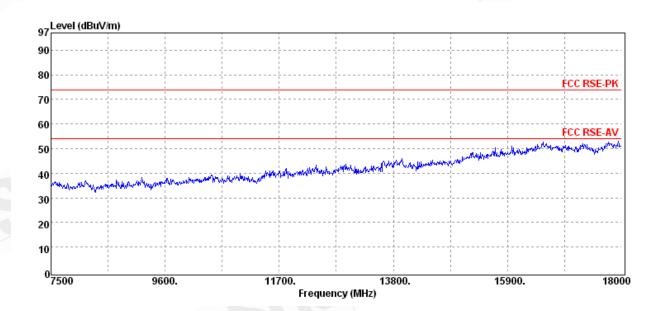
Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL





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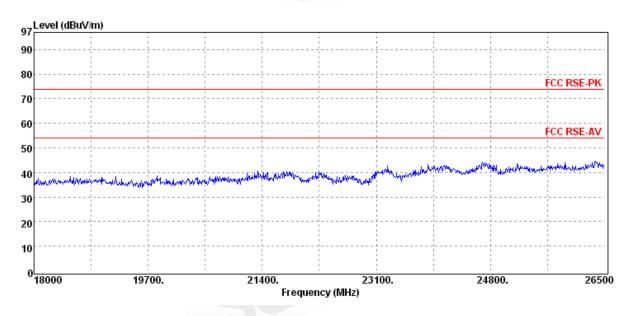
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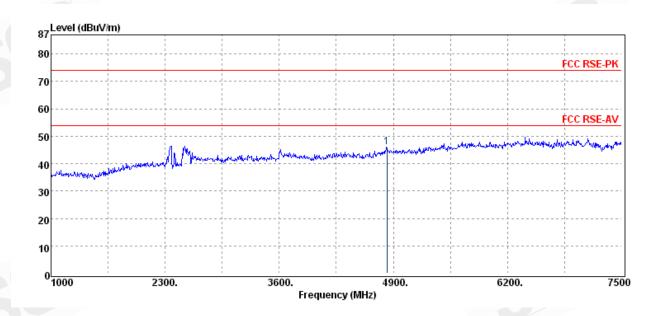
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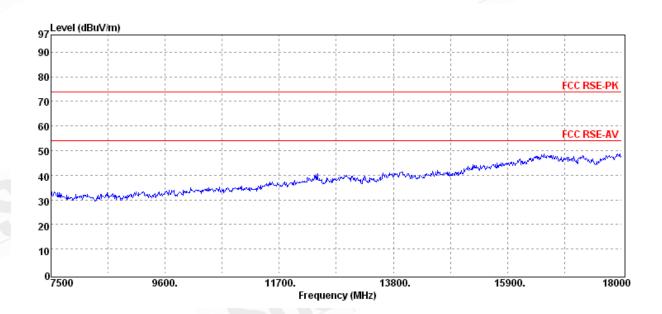
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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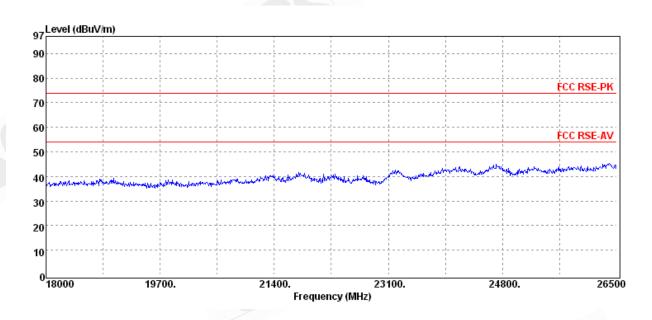
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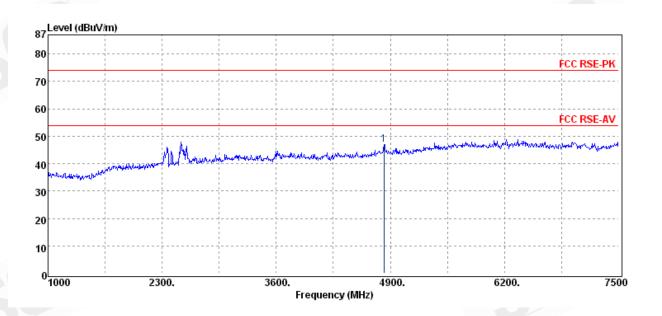
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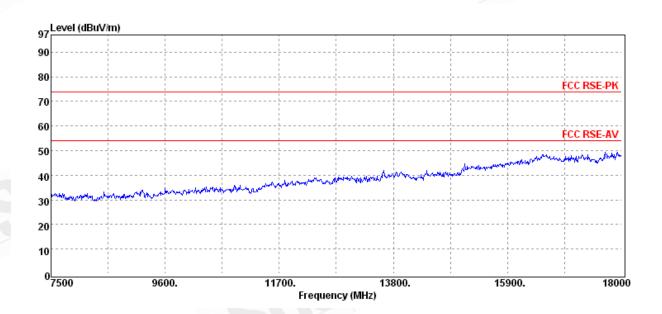
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL





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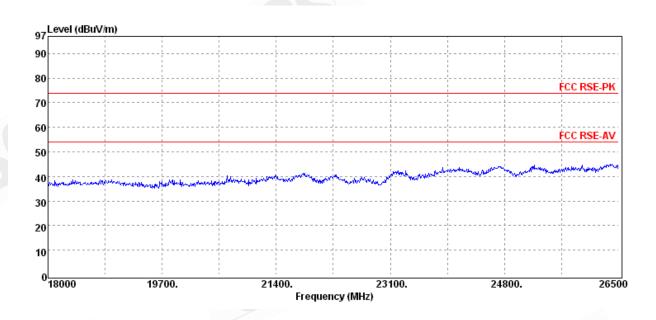
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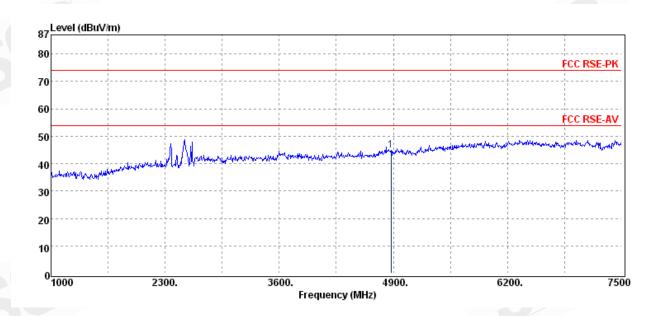
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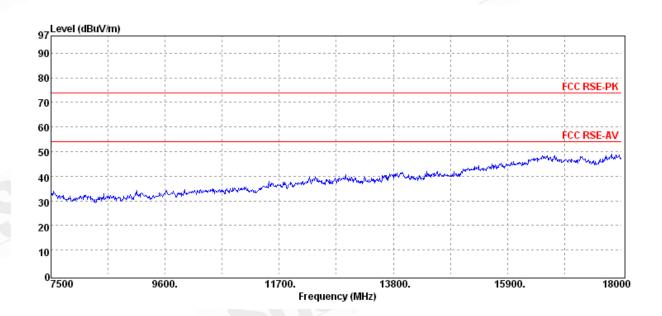
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL





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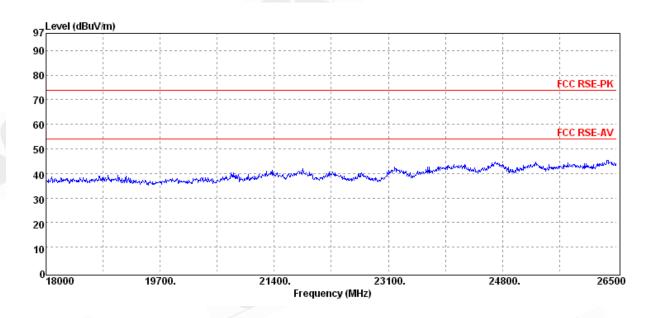
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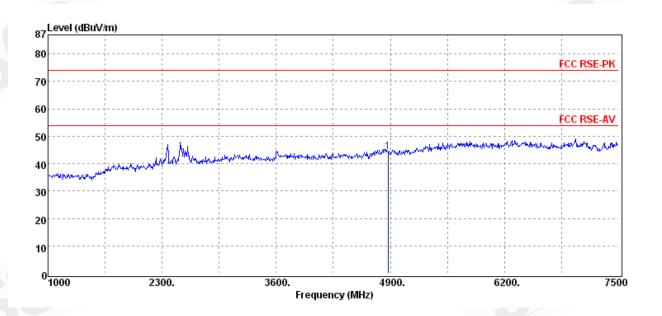
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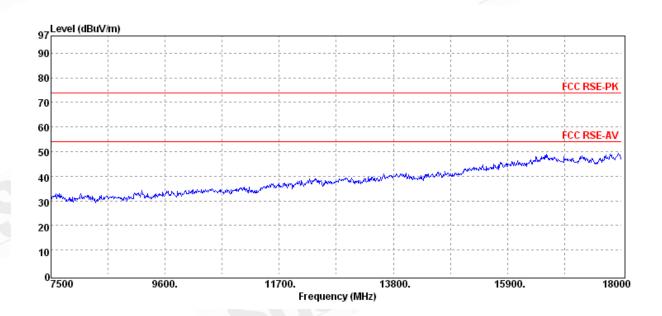
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

:HORIZONTAL EUT Pol. :E2 Plan Measurement Antenna Pol.





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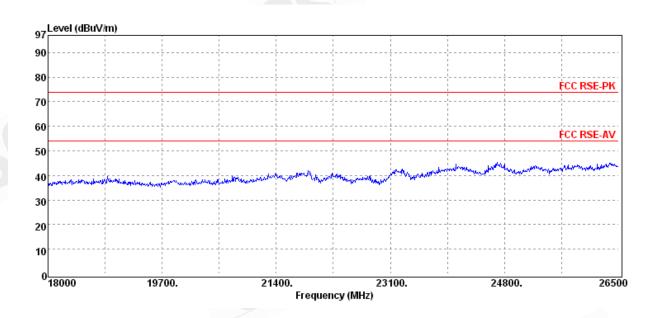
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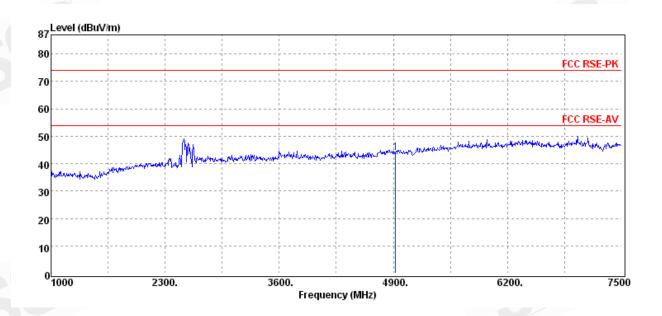
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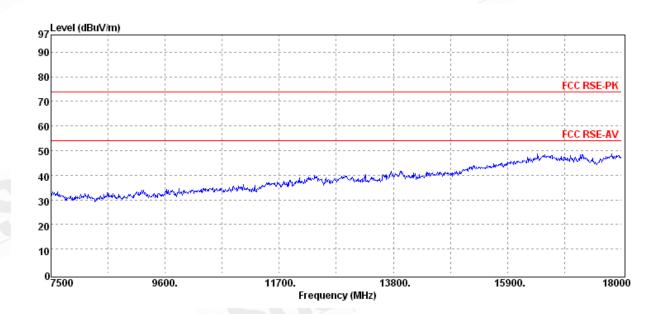
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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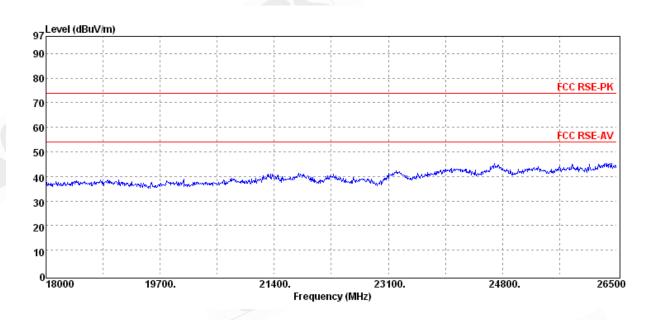
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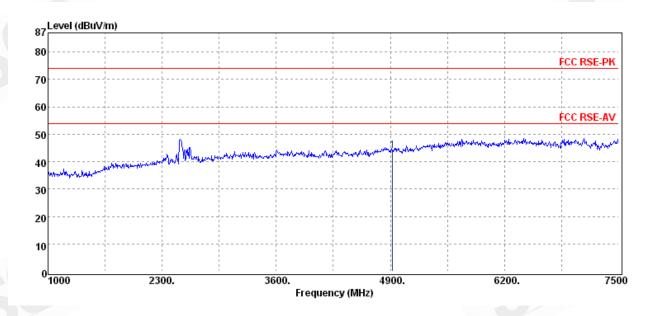
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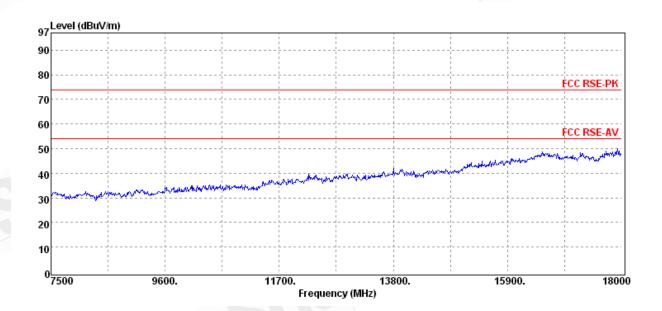
Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL





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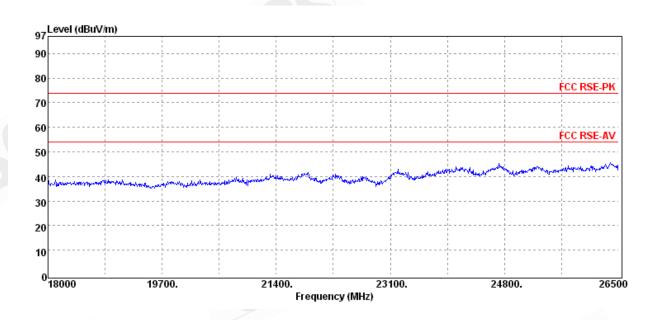
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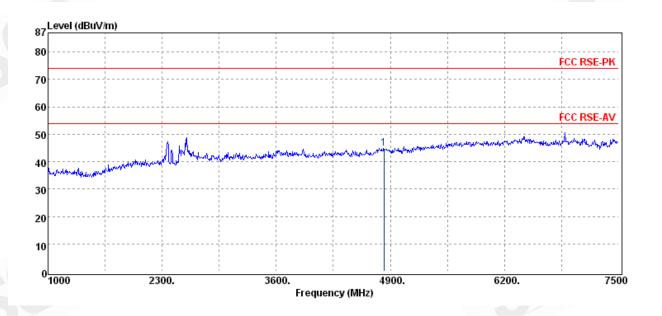
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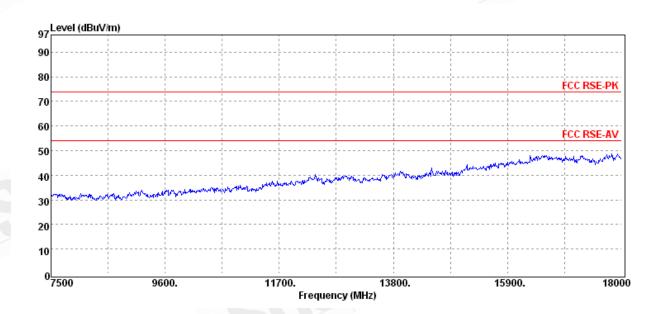
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL





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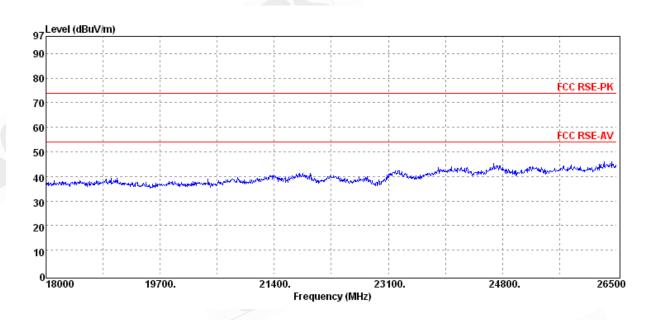
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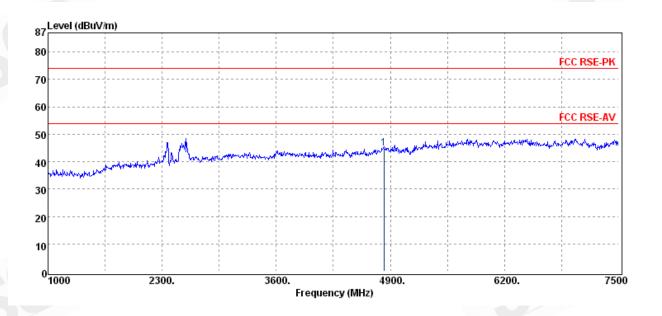
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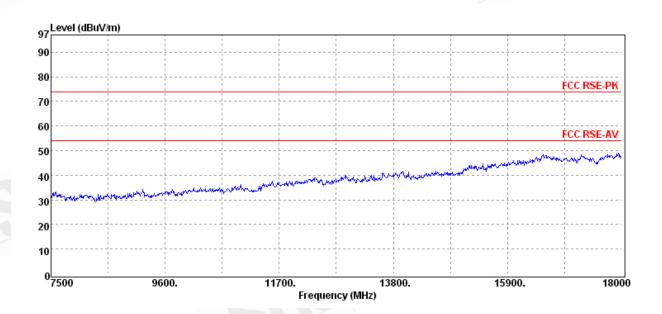
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

:HORIZONTAL EUT Pol. :E2 Plan Measurement Antenna Pol.





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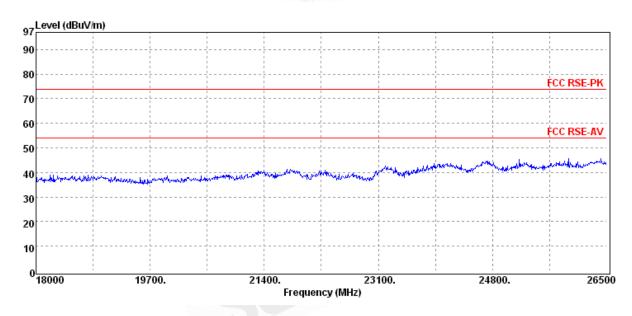
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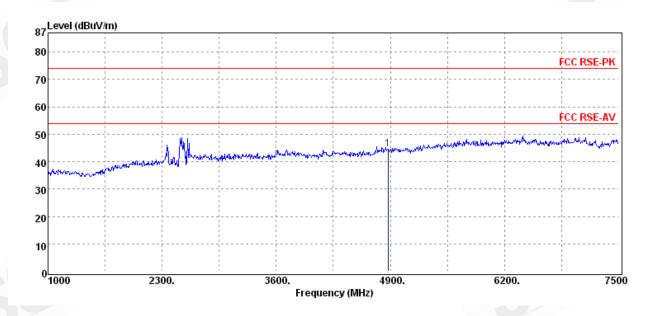
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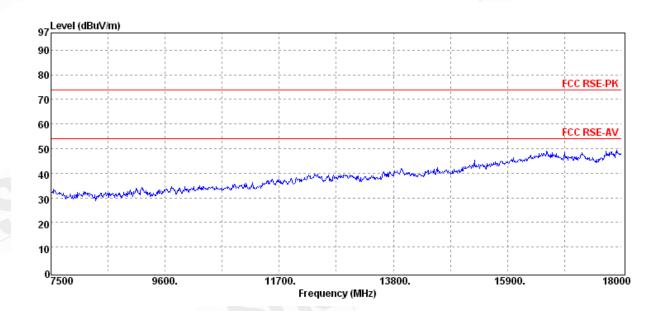
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :TX MID Engineer :Lion

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL





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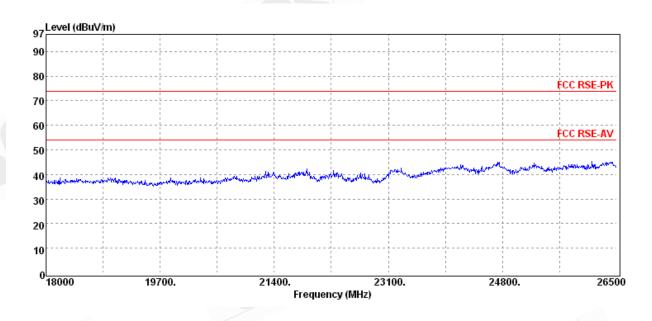
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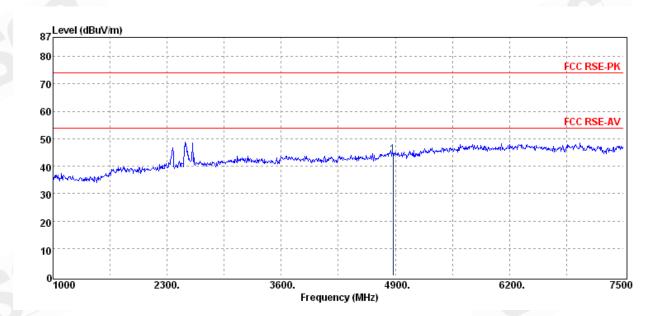
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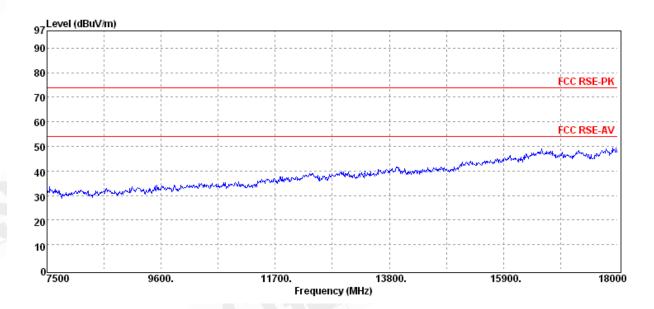
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion

:HORIZONTAL EUT Pol. :E2 Plan Measurement Antenna Pol.





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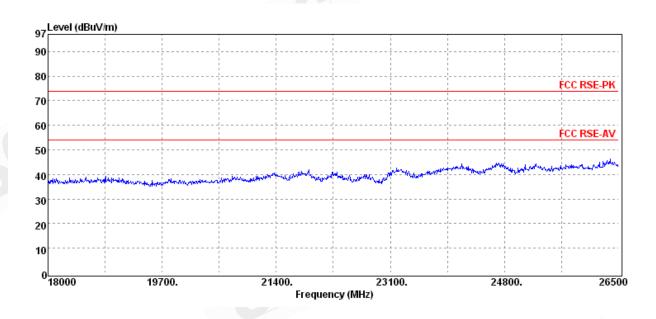
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Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

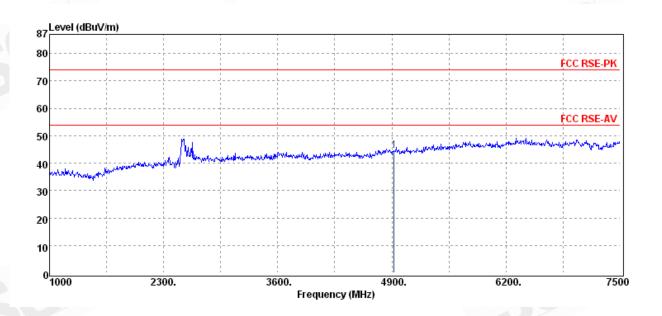
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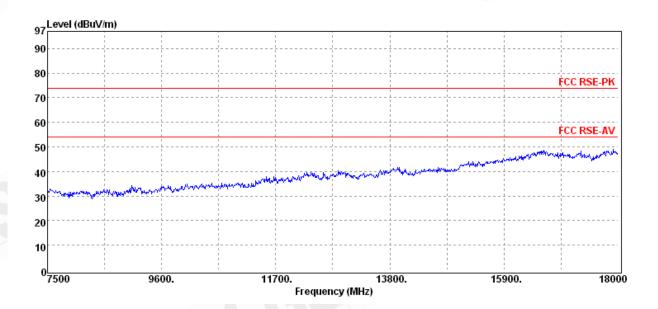
Operation Band :802.11n20M Test Date :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :TX Engineer :Lion

EUT Pol. :E2 Plan :VERTICAL Measurement Antenna Pol.





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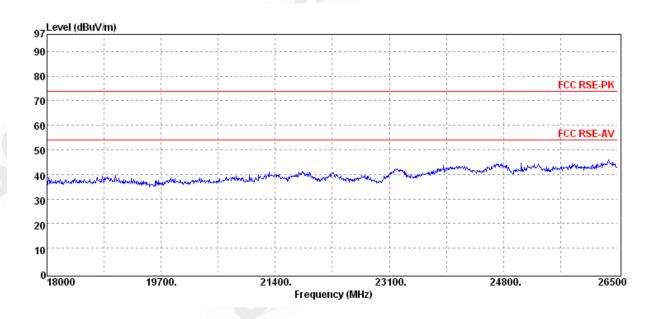
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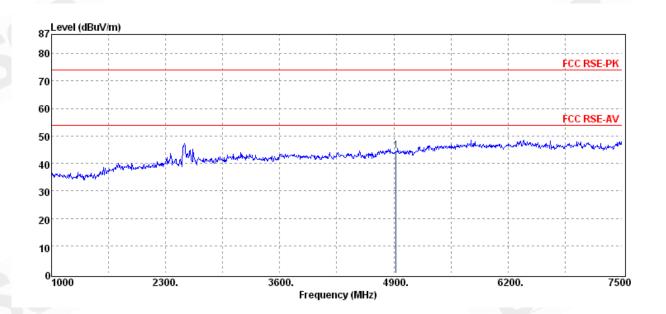
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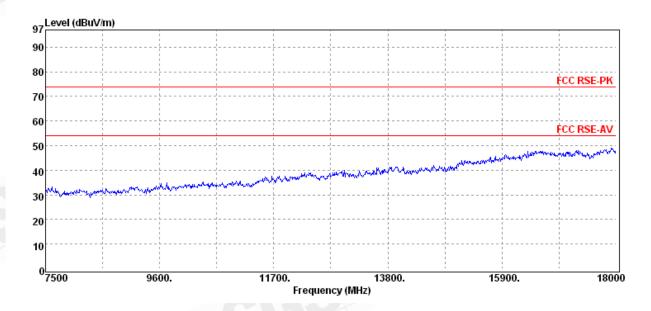
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :TX Engineer :Lion

:HORIZONTAL EUT Pol. :E2 Plan Measurement Antenna Pol.





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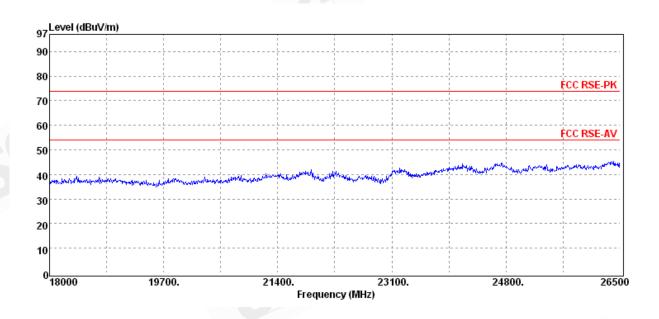
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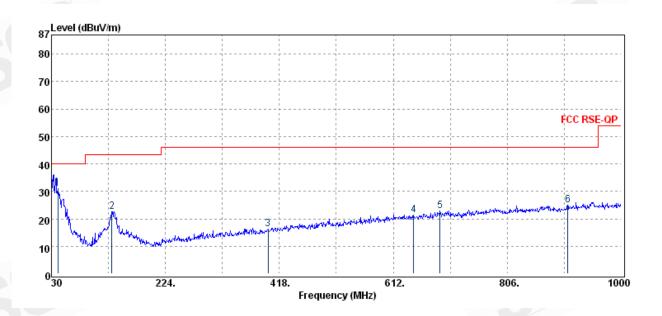
Page: 169 of 186

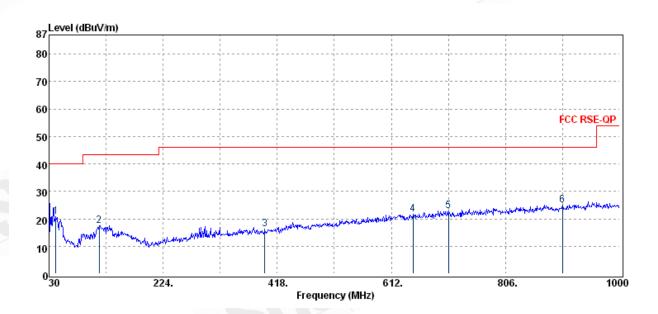
Radiated Spurious Emission Measurement photos Result (below 1GHz)

Operation Band **Test Date** :802.11b :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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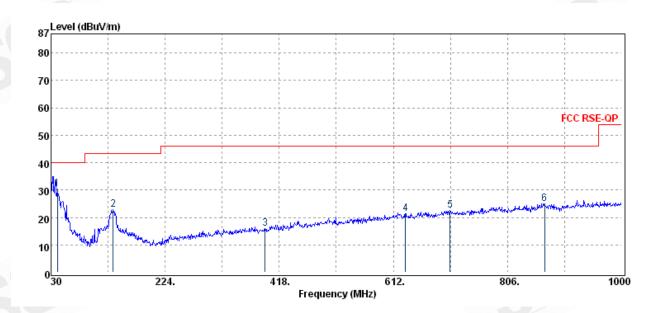
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

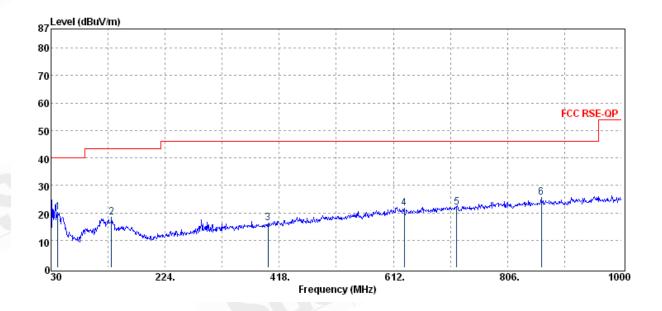
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Operation Band :802.11b **Test Date** :2012-01-14

:2437 MHz Fundamental Frequency Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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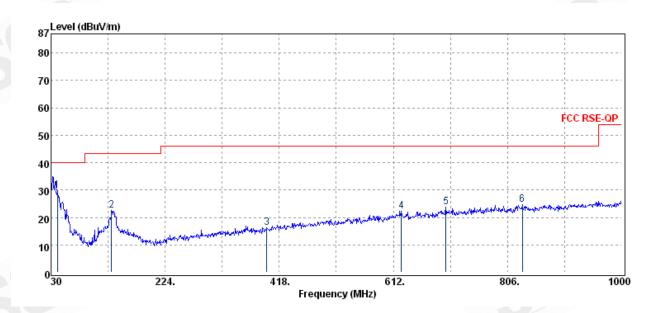
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

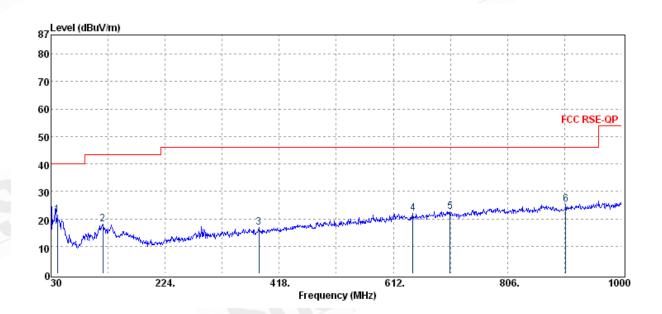
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Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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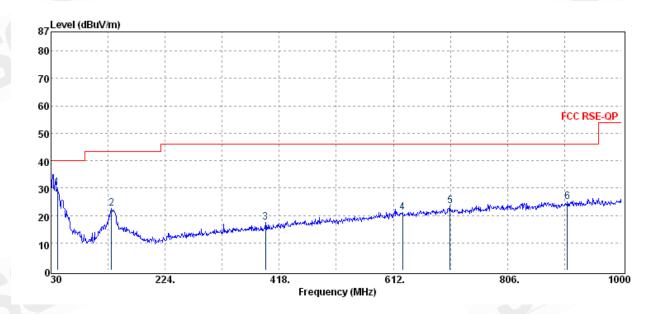
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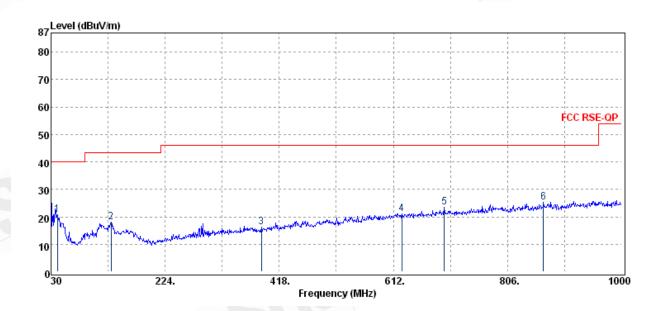
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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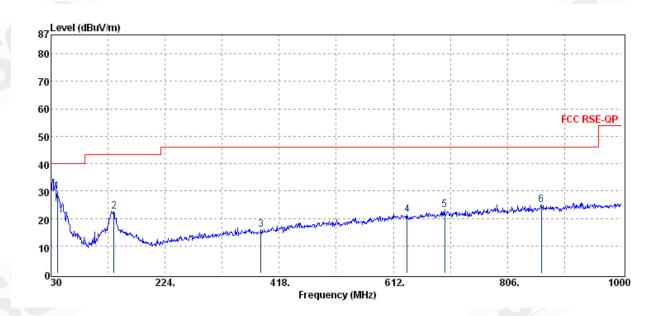
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

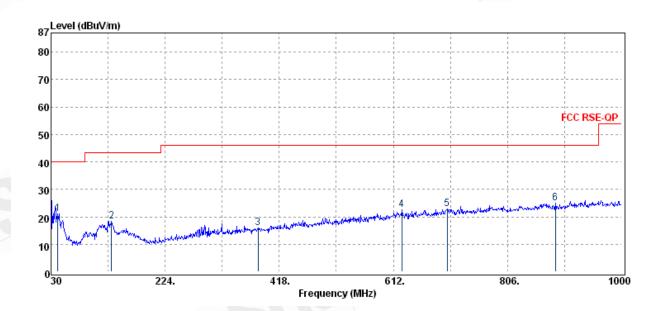
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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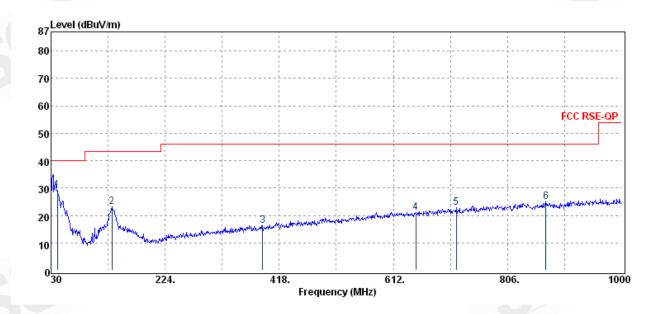
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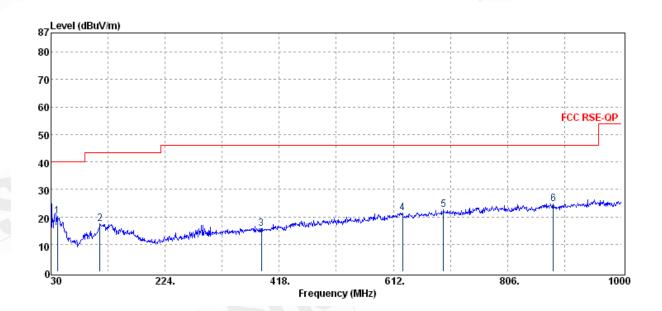
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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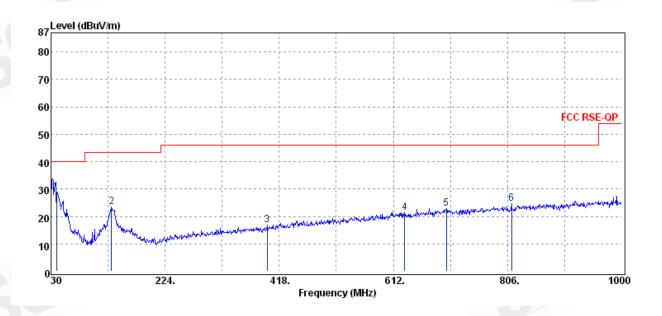
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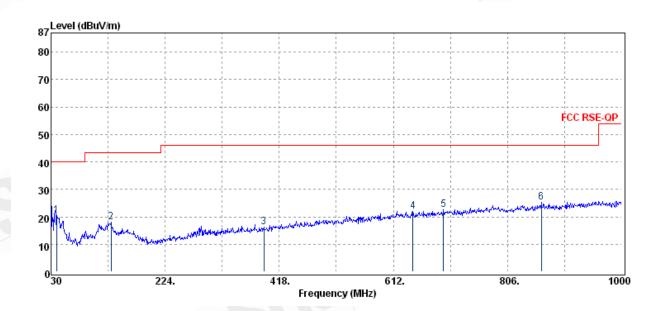
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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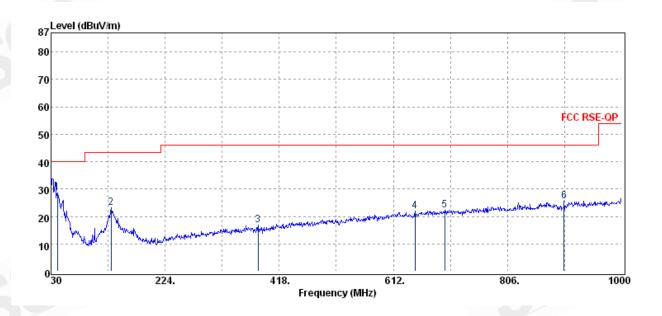
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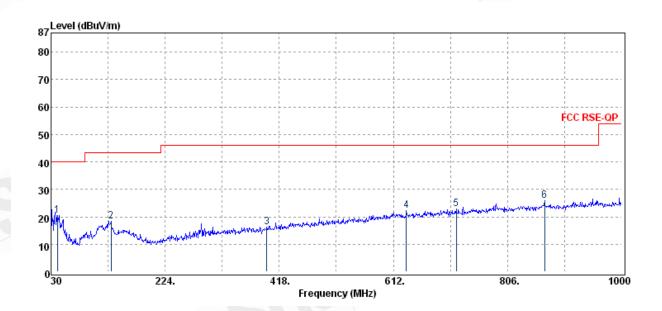
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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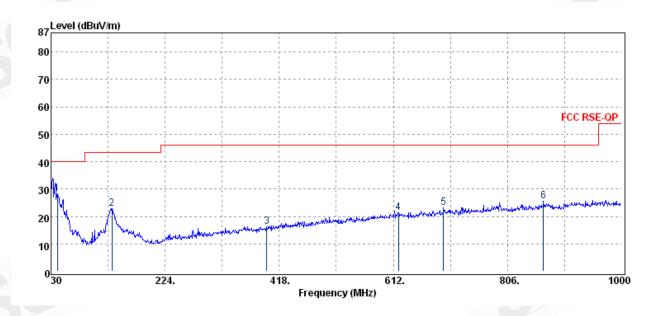
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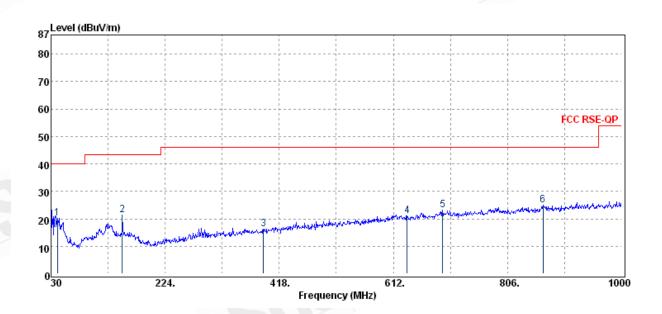
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer

EUT Pol. :E2 Measurement Antenna Pol. : Ver. / Hor.





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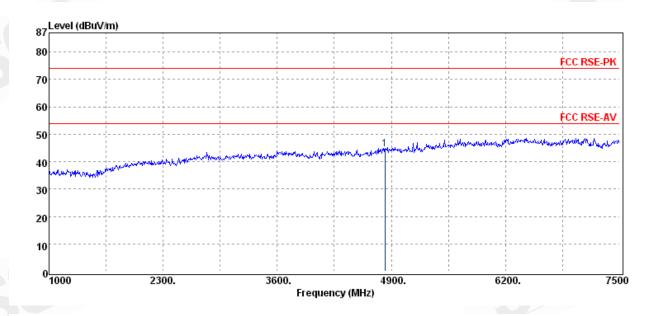
Radiated Spurious Emission Measurement photos Result (above 1GHz)

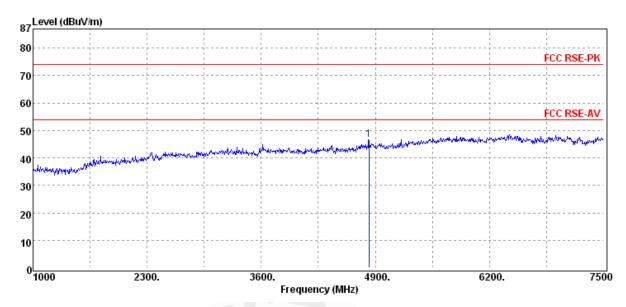
Operation Band **Test Date** :802.11b :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode :RX Engineer :Lion

: Ver. / Hor. EUT Pol. :E2 Plan Measurement Antenna Pol.





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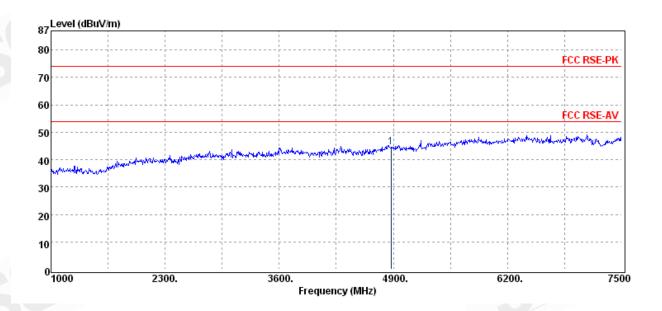
Report No.: EH/2012/10024 **Issue Date: Jul. 11, 2012**

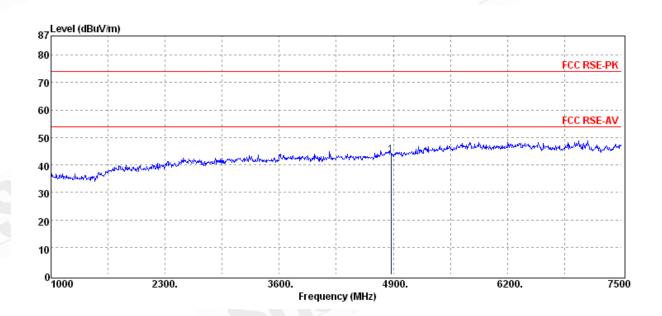
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Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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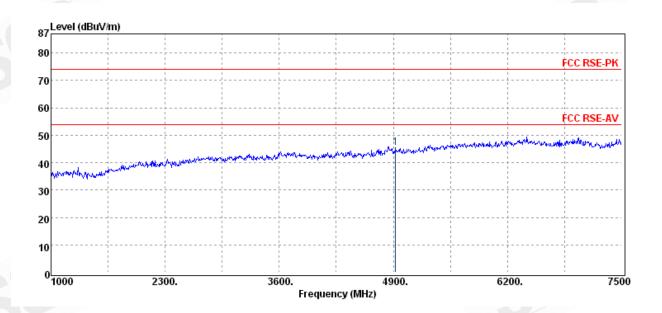
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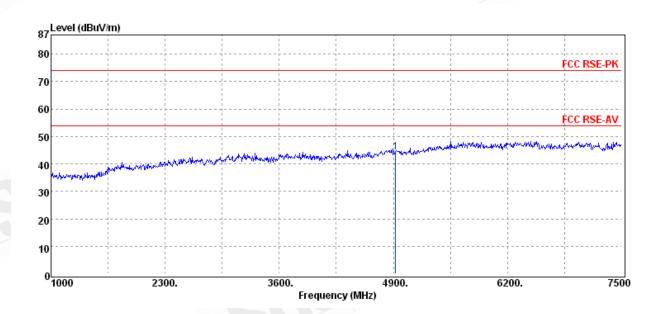
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Operation Band :802.11b **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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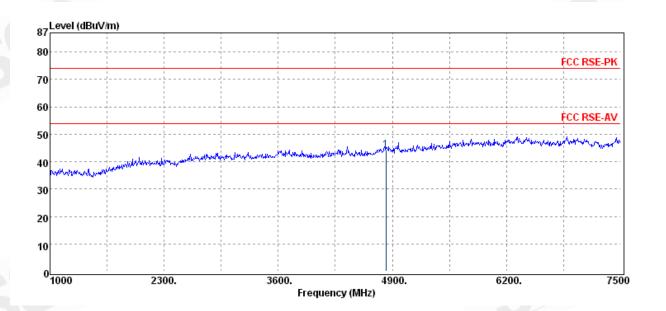
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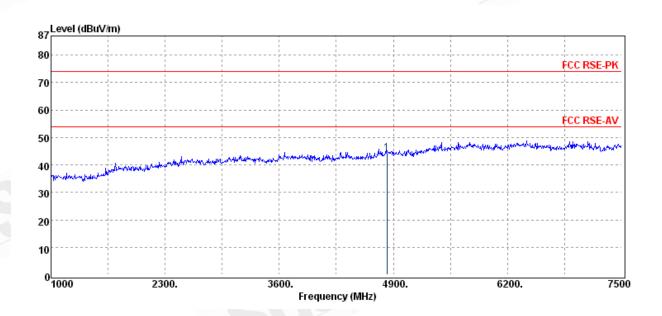
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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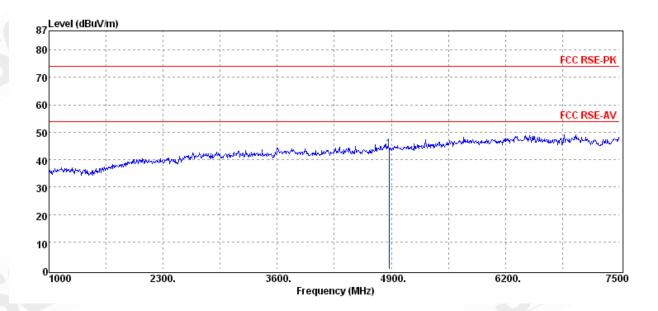
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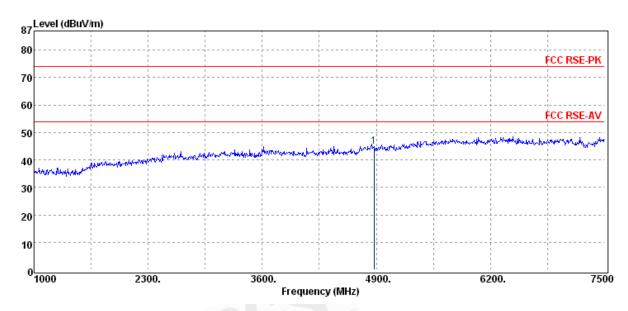
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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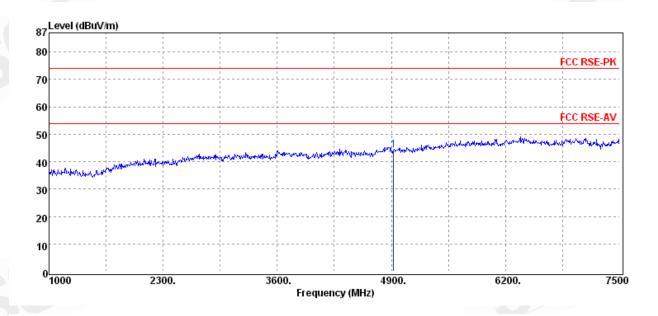
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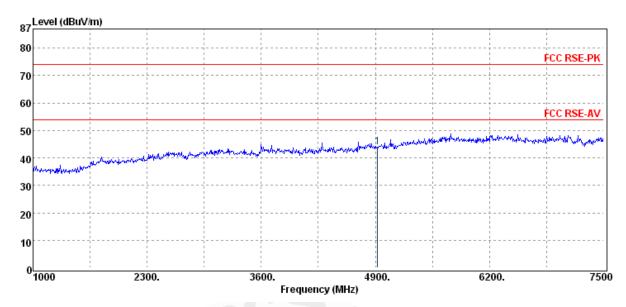
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Operation Band :802.11g **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :TX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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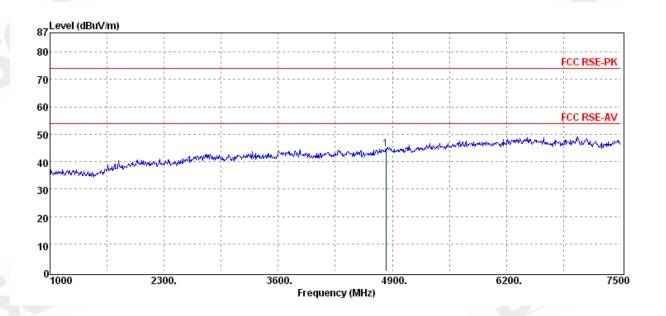
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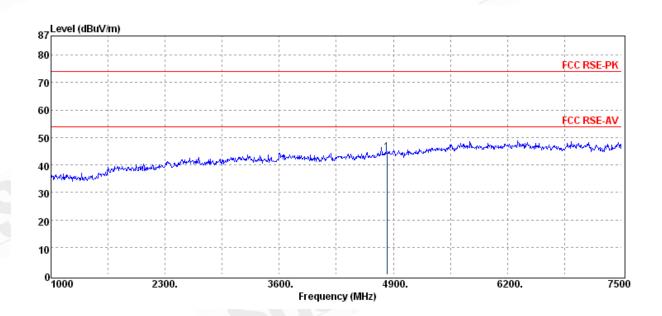
Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2412 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion

EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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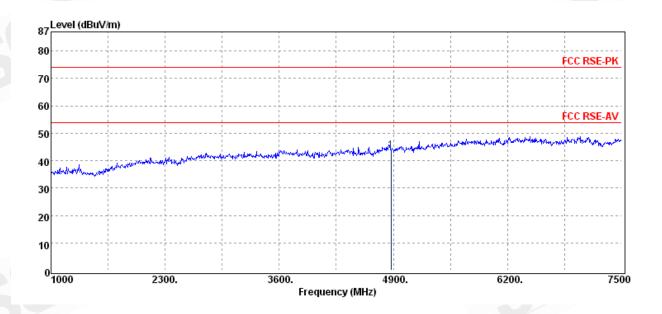
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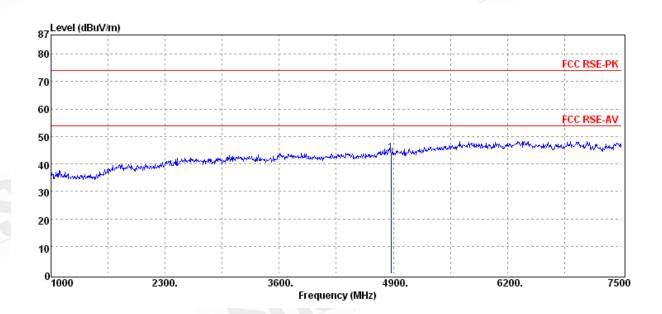
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Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2437 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan :Ver. / Hor. Measurement Antenna Pol.





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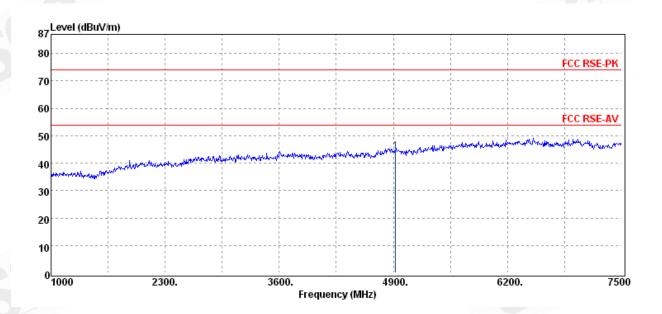
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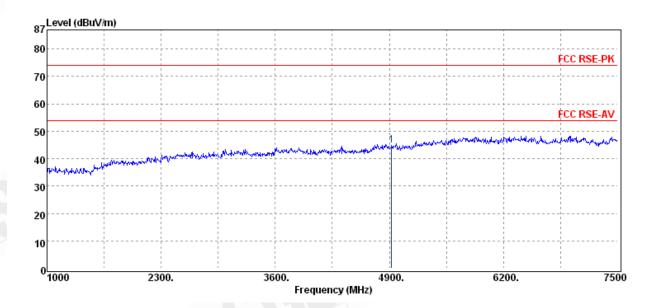
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Operation Band :802.11n20M **Test Date** :2012-01-14

Fundamental Frequency :2462 MHz Temp./Humi. :27 deg_C / 66 RH

Operation Mode Engineer :RX :Lion EUT Pol. :E2 Plan Measurement Antenna Pol. :Ver. / Hor.





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