

Report No.: ER/2011/90019 **Issue Date: Oct. 04, 2011**

Page: 1 of 128

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

Product Name: FlashAir

Brand Name: N/A

Model No.: THNSW008GAA-A

Model Different: N/A

IC: 9906A-P42350FA1

FCC ID: **ZVZP42350FA1**

Report No.: ER/2011/90019

Issue Date: Oct. 04, 2011

Rule Part: §15.247

RSS-210 issue 8 :2010, Annex 8

Prepared for: Toshiba Co., Semiconductor & Storage

2-5-1, Kasama, Sakae-Ku, Yokohama

247-8585, Japan

Prepared by: SGS Taiwan Ltd.

Electronics & Communication Laboratory

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

Taipei County, Taiwan.





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Page: 2 of 128

VERIFICATION OF COMPLIANCE

Applicant: Toshiba Co., Semiconductor & Storage

2-5-1, Kasama, Sakae-Ku, Yokohama 247-8585, Japan

Product Name: FlashAir

Brand Name: N/A

IC: 9906A-P42350FA1

FCC ID: ZVZP42350FA1

Model No.: THNSW008GAA-A

Model Difference: N/A

File Number: ER/2011/90019

Date of test: Sep. 20, 2011 ~ Oct. 04, 2011

Date of EUT Received: Sep. 20, 2011

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) 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 Annex 8. The test results of this report relate only to the tested sample identified in this report.

Test By:	Bondi Jin	Date	Oct. 04, 2011	
	Bondi Liu / Engineer			
Prepared By:	Cherry Chen	Date	Oct. 04, 2011	
Approved By:	Cherry Chen / Clerk Lang Jim Chang / Supervisor	Date	Oct. 04, 2011	

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Page: 3 of 128

Version

Version No.	Date	Description
00	Oct. 04, 2011	Initial creation of document

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 4 of 128

Table of Contents

1	GEN	ERAL INFORMATION	7
	1.1	Product Description	7
	1.2	Related Submittal(s) / Grant (s)	8
	1.3	Test Methodology	8
	1.4	Test Facility	8
	1.5	Special Accessories	8
	1.6	Equipment Modifications	8
2	SYST	FEM TEST CONFIGURATION	9
	2.1	EUT Configuration	9
	2.2	EUT Exercise	9
	2.3	Test Procedure	9
	2.4	Configuration of Tested System	10
3	SUM	MARY OF TEST RESULTS	11
4	DES	CRIPTION OF TEST MODES	12
5	CON	DUCTED EMISSION TEST	13
	5.1.	Standard Applicable:	13
	5.2.	Measurement Equipment Used:	13
	5.3.	EUT Setup:	13
	5.4.	Measurement Procedure:	14
	5.5.	Measurement Result:	14
6	PEA	K OUTPUT POWER MEASUREMENT	17
	6.1	Standard Applicable:	17
	6.2	Measurement Equipment Used:	18
	6.3	.Test Set-up:	19
	6.4	Measurement Procedure:	19
	6.5	Measurement Result:	20
7	6dB	Bandwidth	23
	7.1	Standard Applicable:	23
	7.2	Measurement Equipment Used:	23
	7.3	Test Set-up:	23
	7.4	Measurement Procedure:	23
	75	Massurament Desults	24

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 5 of 128

8	100K	Hz BANDWIDTH OF BAND EDGES MEASUREMENT	31
	8.1	Standard Applicable:	31
	8.2	Measurement Equipment Used:	31
	8.3	Test SET-UP:	33
	8.3.1	Conducted Emission at antenna port:	33
	8.3.2	Radiated emission:	33
	8.4	Measurement Procedure:	34
	8.5	Field Strength Calculation:	34
	8.6	Measurement Result:	34
9	SPUR	RIOUS RADIATED EMISSION TEST	44
	9.1	Standard Applicable	44
	9.2	Measurement Equipment Used:	44
	9.3	Test SET-UP:	44
	9.4	Measurement Procedure:	45
	9.5	Field Strength Calculation	45
	9.6	Measurement Result:	45
10	Peak	Power Spectral Density	109
	10.1	Standard Applicable:	
	10.2	Measurement Equipment Used:	109
	10.3	Test Set-up:	109
	10.4	Measurement Procedure:	109
	10.5	Measurement Result:	110
11	ANTI	ENNA REQUIREMENT	117
	11.1.	Standard Applicable:	
	11.2.	Antenna Connected Construction:	118
12	99%]	Bandwidth Measurement	119
	12.1.	Standard Applicable:	
	12.2.	Measurement Equipment Used:	119
	12.3.	Test Set-up:	119
	12.4.	Measurement Procedure:	119
	12.5.	Measurement Result:	120

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 6 of 128

13	RF EX	XPOSURE	127
	13.1.	Standard Applicable	127
	13.2.	Table of Average Power:	127
	13.3.	RF conducted output power vs EIRP output power	128
	13.4	Comparision Result:	128

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.
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 7 of 128

GENERAL INFORMATION

1.1 Product Description

General:

Product Name:	FlashAir
Brand Name:	N/A
Model No.:	THNSW008GAA-A
Model Difference:	N/A
Hardware Version:	MBH2WLZ11
Software Version:	F24A6W3AW1.00
Power Supply:	N/A

WLAN: 802.11 b/g/n

Wi-Fi	Frequency	Channels	Max Output Power(Conducted)		Modulation	Type of Emis-	
****	Range	Chameis	Peak	Average	Technology	sion	
11b/g	2412-2462	11	b: 13.15dBm g: 18.39dBm	b: 10.38dBm g: 9.46dBm	DSSS, OFDM	b : 16M8G1D g : 16M5G1D	
11n (2.4GHz)	HT20 2412-2462	11	n: 16.02dBm	n : 6.42dBm	OFDM	n:17M7D1D	
Antenna 1	Designation:	Printed (Circuit Board Ant	enna, 0dBi			
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM					
Transition Rate:		802.11 g	1 b: 1/2/5.5/11 Mbps; 1 g: 6/9/12/18/24/36/48/54 Mbps 1 n_20MHz: 7.2 – 72.2Mbps				

The max antenna gain is 0dBi which was choosing for Radiated Spurious Emission test. The EUT is compliance with IEEE 802.11 b/g /n Standard.

This report applies for frequency bands: 2412MHz – 2462MHz,

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 8 of 128

1.2 **Related Submittal(s) / Grant (s)**

This submittal(s) (test report) is intended for FCC ID: ZVZP42350FA1 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules and IC: 9906A-P42350FA1 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.

1.3 **Test Methodology**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

Tested in accordance with Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

1.4 **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. 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.

1.5 **Special Accessories**

Not available for this EUT intended for grant.

1.6 **Equipment Modifications**

Not available for this EUT intended for grant.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 9 of 128

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. 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.

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Page: 10 of 128

Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

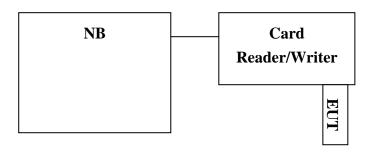


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.
1.	Notebook	Toshiba	Portage R830	5В073383Н
2.	Card Reader/Writer	I.O. Data	USB2-W63WR	B5E1002412B5

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 11 of 128

SUMMARY OF TEST RESULTS

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

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 12 of 128

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 2Mbps data rate are chosen for full testing.

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

802.11 n_20MHz mode: Channel low (2412MHz) · mid (2437MHz) and high (2462MHz) with 14.4Mbps data rate are chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b, g and n_20MHz mode. The worst-case of E2 for all testing mode were reported.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 13 of 128

5 CONDUCTED EMISSION TEST

5.1. 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.

Frequency range	Limits 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.

5.2. Measurement Equipment Used:

AC Power Line Conducted Emission Test Site						
EQUIPMENT MFR MODEL SERIAL LAST CAL DUE						
TYPE		NUMBER	NUMBER	CAL.		
EMI Test Receiver	R&S	ESCS30	828985/004	09/23/2010	09/22/2012	
LISN	Rolf-Heine	NNB-2/16Z	99012	03/31/2011	03/30/2012	
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	03/31/2011	03/30/2012	
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/2011	

5.3. 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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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 14 of 128

5.4. 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.

5.5. 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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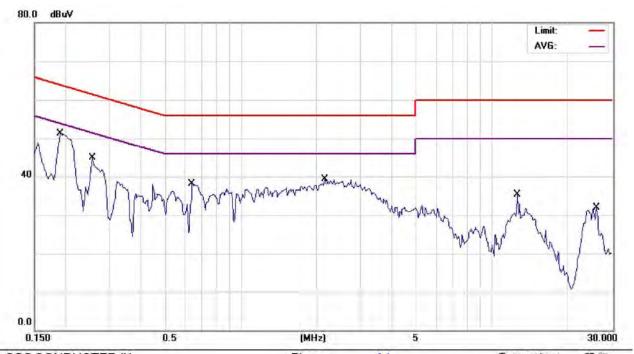


Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 15 of 128

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WIFI Operation Mode			Test Date:	Sep. 27, 2011
Temperature:	26 ℃	Humidity:	58 %	Test By:	Bondi



Site SGS CONDUCTED#1

Limit: FCC Class B Conduction(QP)

EUT: FlashAir

M/N: THNSW008GAA-A
Note: WIFI Operation Mode

Phase:	L1	Temperature:	26 6
Power:	AC 120V/60Hz	Humidity:	58%
Distance	6	Air Pressure:	hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dВ	dBuV	dBuV	dВ	Detector	Comment
1	*	0.1900	48.23	0.13	48.36	64.04	-15.68	QP	
2		0.1900	30.42	0.13	30.55	54.04	-23.49	AVG	
3		0.2550	44.82	0.12	44.94	61.59	-16.65	QP	
4		0.6400	37.95	0.12	38.07	56.00	-17.93	QP	
5		2.1600	39.21	0.15	39.36	56.00	-16.64	QP	
6		12.6000	34.97	0.43	35.40	60.00	-24.60	QP	
7		26.1800	31.53	0.32	31.85	60.00	-28.15	QP	

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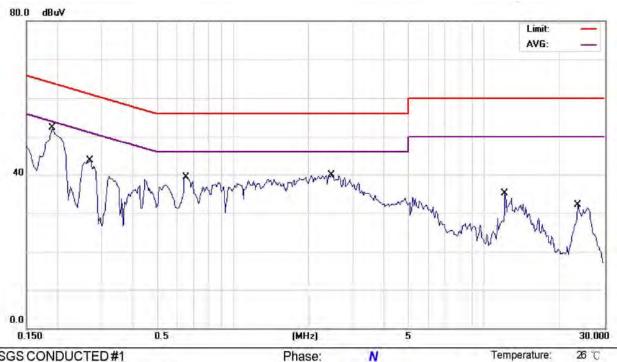
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Humidity:

Air Pressure:

hpa

Page: 16 of 128



Power:

Distance:

N

AC 120V/60Hz

Site SGS CONDUCTED#1

Limit: FCC Class B Conduction(QP)

EUT: FlashAir

M/N: THNSW008GAA-A Note: WIFI Operation Mode

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dΒ	dBuV	dBuV	dВ	Detector	Comment
1	0.1900	47.49	0.17	47.66	64.04	-16.38	QP	
2	0.1900	30.72	0.17	30.89	54.04	-23.15	AVG	
3	0.2700	43.58	0.16	43.74	61.12	-17.38	QP	
4	0.6500	39.13	0.16	39.29	56.00	-16.71	QP	
5 *	2.4700	39.71	0.18	39.89	56.00	-16.11	QP	
6	12.1600	34.72	0.47	35.19	60.00	-24.81	QP	
7	23.6800	31.79	0.34	32.13	60.00	-27.87	QP	

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 17 of 128

PEAK OUTPUT POWER MEASUREMENT

6.1 Standard Applicable:

According to $\S15.247(a)(2)$, (b)

- 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

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and

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.

- (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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 18 of 128

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.

6.2 Measurement Equipment Used:

	Conducted Emission Test Site											
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.							
TYPE		NUMBER	NUMBER	CAL.								
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012							
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012							
DC Block	Agilent	BLK-18	155452	07/05/2011	07/04/2012							
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012							
Attenuator	Mini-Circuit	BW-S6W5	001	01/05/2011	01/04/2012							
Attenuator	Mini-Circuit	BW-S10W5	001	01/05/2011	01/04/2012							
Attenuator	Mini-Circuit	BW-S20W5	001	01/05/2011	01/04/2012							
Splitter	Agilent	11636B	N/A	01/05/2011	01/04/2012							
Power Meter	Anritsu	ML2495A	1005007	02/17/2010	02/16/2012							

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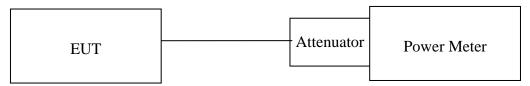
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 19 of 128

6.3 .Test Set-up:



6.4 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 power meter.
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 20 of 128

6.5 Measurement Result:

802.11b

002	4.110							
C	Cable loss $= 0.4$		Peak Power Output(dBm)					
СН	Frequency (MHz)		Data 1	Required Limit				
		1	2	5.5	11	Required Ellint		
1	2412	13.04	13.13	12.55	13.09	1 Watt = 30 dBm		
6	2437	12.90	13.15	12.56	13.12	1 Watt = 30 dBm		
11	2462	12.80	13.11	12.53	13.07	1 Watt = 30 dBm		

C	Cable loss = 0.4	Average Power Output (dBm)						
СН	Frequency (MHz)		Required Limit					
		1	2	5.5	11	. Kequireu Liiiit		
1	2412	10.36	10.35	10.36	10.26	1 Watt = 30 dBm		
6	2437	10.18	10.36	10.38	10.35	1 Watt = 30 dBm		
11	2462	10.13	10.12	10.31	10.32	1 Watt = 30 dBm		

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 21 of 128

802.11g

Cab	le loss = 0.4			Pe	ak Pow	er Outpi	ut (dBm)		
СН	Frequency (MHz)		Data Rate							
	(141112)	6	9	12	18	24	36	48	54	Required Limit
1	2412	18.39	18.32	18.21	18.05	18.22	18.23	18.12	18.02	1 Watt = 30 dBm
6	2437	18.37	18.26	18.23	18.02	18.16	18.21	18.08	18.06	1 Watt = 30 dBm
11	2462	18.22	18.23	18.07	17.97	18.07	17.95	17.88	17.85	1 Watt = 30 dBm

Cab	Cable loss = 0.4 Average Power Output (dBm)									
СН	Frequency (MHz)			Required Limit						
	(141112)	6	9	12	18	24	36	48	54	Required Emili
1	2412	9.41	9.40	9.44	9.42	9.46	9.42	9.41	9.40	1 Watt = 30 dBm
6	2437	9.46	9.42	9.46	9.38	9.43	9.44	9.43	9.40	1 Watt = 30 dBm
11	2462	9.32	9.34	9.34	9.34	9.35	9.32	9.32	9.30	1 Watt = 30 dBm

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 22 of 128

802.11n 20M

Cab	le loss = 0.4									
СН	Data Rate			Required Limit						
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	Required Emile
1	2412	15.72	15.92	15.85	15.82	15.87	15.72	15.82	15.88	1 Watt = 30 dBm
6	2437	15.78	16.02	15.88	15.92	15.77	15.78	15.88	15.87	1 Watt = 30 dBm
11	2462	15.88	15.92	15.77	15.84	15.71	15.75	15.79	15.78	1 Watt = 30 dBm

Cab	le loss = 0.4		Average Power Output (dBm)							
СН	Data Rate			Required Limit						
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	required Emile
1	2412	6.32	6.38	6.37	6.42	6.41	6.37	6.35	6.38	1 Watt = 30 dBm
6	2437	6.38	6.35	6.38	6.37	6.37	6.42	6.39	6.37	1 Watt = 30 dBm
11	2462	6.30	6.31	6.31	6.32	6.32	6.31	6.28	6.32	1 Watt = 30 dBm

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 23 of 128

7 6dB Bandwidth

7.1 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.

7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

7.3 Test Set-up:

Refer to section 6.3 for details.

7.4 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 3.antenna port to the spectrum analyzer.
- 3.Set the spectrum analyzer as RBW=100KHz, VBW = 3*RBW, Span= 30M/60MHz, 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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Page: 24 of 128

7.5 Measurement Result:

802.11b

002:110			
Frequency	Bandwidth	Bandwidth	Result
(MHz)	(MHz)	(KHz)	Kesuit
2412	13.051	> 500	PASS
2437	12.551	> 500	PASS
2462	12.591	> 500	PASS

802.11g

Frequency	Bandwidth	Bandwidth	Result
(MHz)	(MHz)	(KHz)	Kesuit
2412	16.631	> 500	PASS
2437	16.610	> 500	PASS
2462	16.626	> 500	PASS

802.11n 20M

Frequency	Bandwidth	Bandwidth	Result
(MHz)	(MHz)	(KHz)	Kesuit
2412	17.815	> 500	PASS
2437	17.837	> 500	PASS
2462	17.824	> 500	PASS

*Note: Offset:10. 4dB

Offset= Cable Loss + Connector Loss+ Att.

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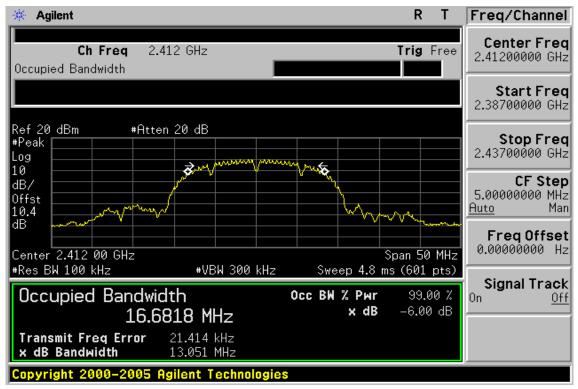


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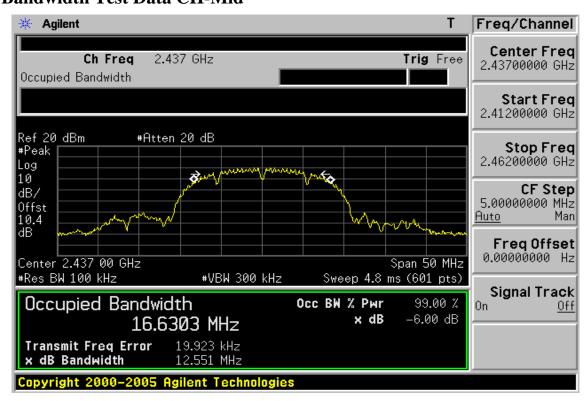
Page: 25 of 128

802.11b

6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid



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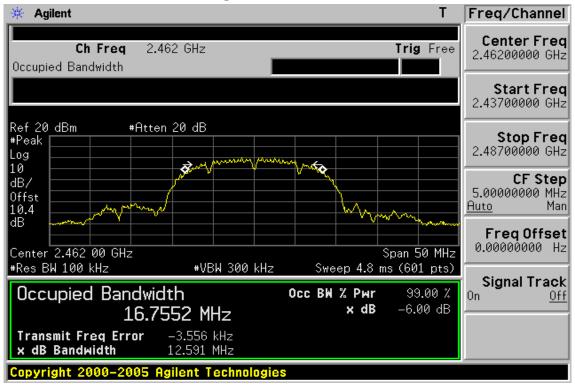
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 26 of 128

6dB Bandwidth Test Data CH-High



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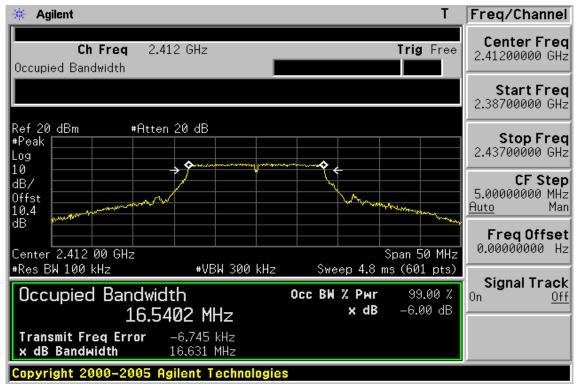


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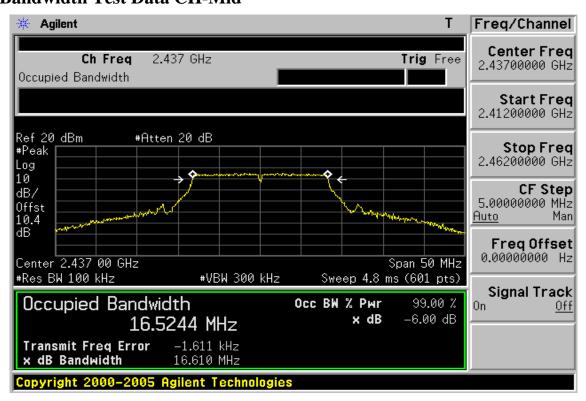
Page: 27 of 128

802.11g

6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid



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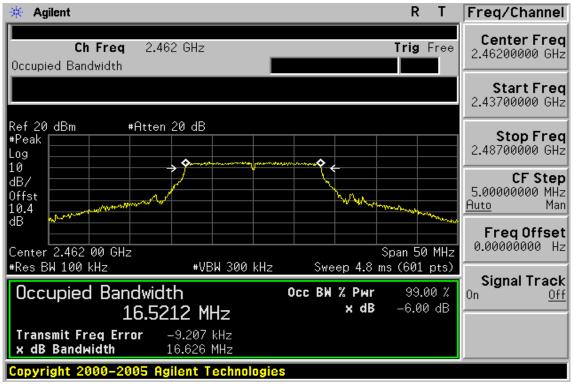
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 28 of 128

6dB Bandwidth Test Data CH-High



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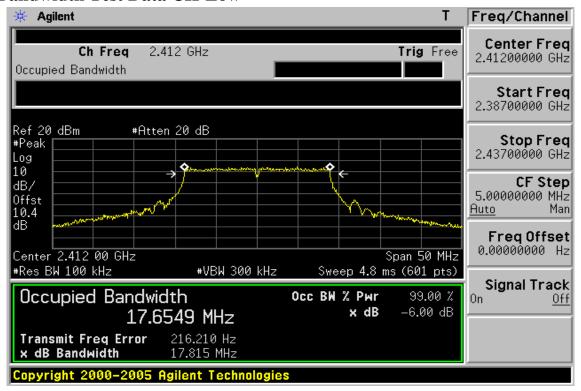


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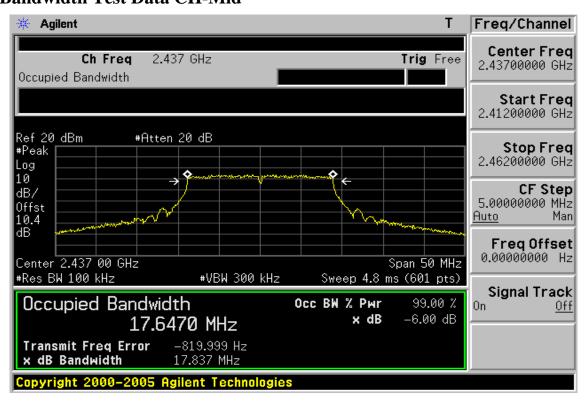
Page: 29 of 128

802.11n 20M

6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid



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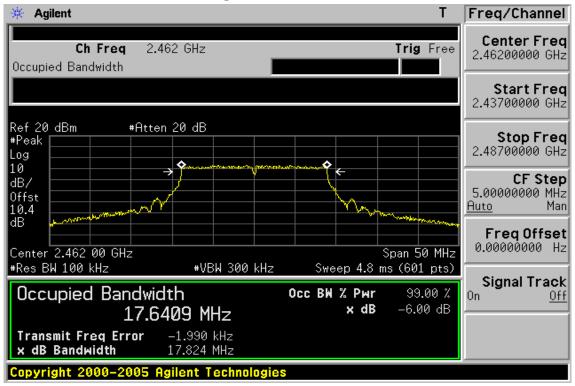
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Page: 30 of 128

6dB Bandwidth Test Data CH-High



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 31 of 128

8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

8.1 Standard Applicable:

According to §15.247(c), 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 in15.209(a).

According to RSS-210 issue 8,§A8.5, 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 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

8.2 Measurement Equipment Used:

8.2.1. Conducted Emission at antenna port:

1									
Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL SERIAL		LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012				
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012				
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012				
Attenuator	Mini-Circuit	BW-S6W5	N/A	01/05/2011	01/04/2012				
Software	Audix	Ver 6.2009 – 23B	N/A	N/A	N/A				

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 32 of 128

8.2.2. Radiated emission:

966 Chamber									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012				
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2010	11/18/2011				
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	01/22/2010	01/21/2012				
Pre-Amplifier	Pre-Amplifier Agilent		1937A02834	11/28/2010	11/27/2011				
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012				
Turn Table	urn Table HD		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	01/05/2011	01/04/2012				
Low Loss Cable	Low Loss Cable HUBER+SUHNER		3m	01/05/2011	01/04/2012				
3m Site SGS		966 chamber	N/A	09/06/2011	09/05/2012				

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Page: 33 of 128

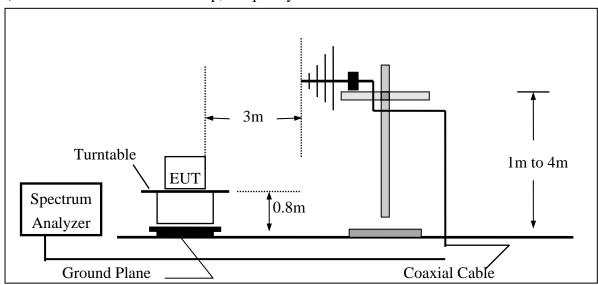
8.3 Test SET-UP:

8.3.1 Conducted Emission at antenna port:

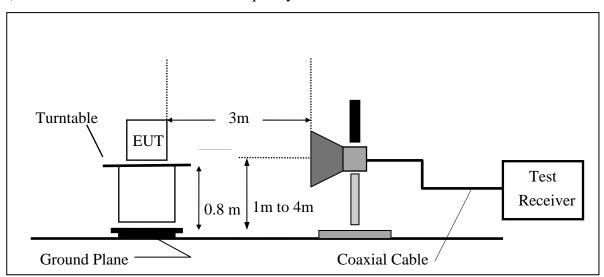
Refer to section 6.3 for details.

8.3.2 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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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 34 of 128

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 center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, 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.

8.5 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	

8.6 Measurement Result:

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

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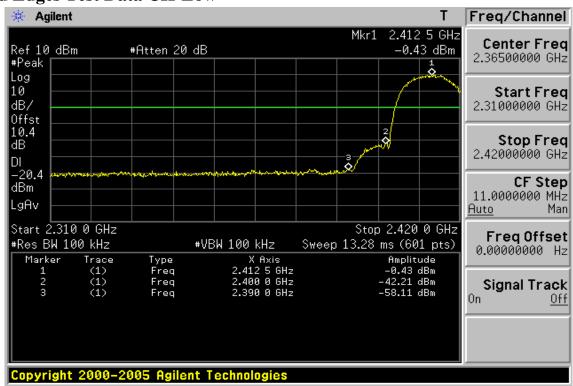
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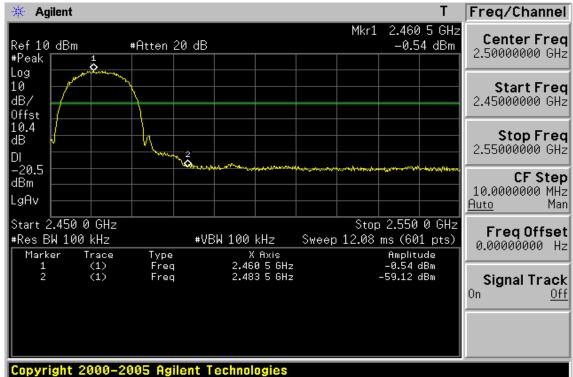
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 35 of 128

802.11b Band Edges Test Data CH-Low



Band Edges Test Data CH-High



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 36 of 128

Radiated Emission: 802.11 b mode

Operation Mode TX CH Low Test Date Sep. 27, 2011 Fundamental Frequency 2412 MHz Test By Bondi **Tmperature** 24 °C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Acti	ıal FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m) (dBuV/m) (d Bu V/m)	(dBuV/n	(dB)	
2390.00	50.77		-1.06	49.71		74.00	54.00	-4.29	Peak
Operation 1	Mode	TX C	H Low			Test	Date	Sep. 27, 20)11
Fundament	tal Frequer	ncy 2412	MHz			Test	By	Bondi	
Temperatu	re	24 ℃				Pol		Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	AV		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Lim it	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m) (d Bu V/m)	(dBuV/m)	(dB)	
2390.00	50.96		-1.06	49.90		74.00	54.00	-4.10	Peak

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 columno
- (3) Spectrum Peak Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

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Page: 37 of 128

Pol

Radiated Emission: 802.11 b mode

Operation Mode TX CH High Test Date Sep. 27, 2011 Fundamental Frequency 2462 MHz Test By Bondi

Temperature 24 °C Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m) (dBuV/m)(dBuV/m	(dB)	
2483.50	51.49	34.40	-0.59	50.90	33.81	74.00	54.00	-20.19	AV
Operation 1	Mode	TX C	H High			Test	Date	Sep. 27, 20)11
Fundament	tal Frequer	ncy 2462	MHz			Test	By	Bondi	
Temperatu	re	24 °C				Pol		Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m) (dBuV/m)	(dBuV/m)	(dB)	_
2483.50	51.12	34.35	-0.59	50.53	33.76	74.00	54.00	-20.24	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 columno
- (3) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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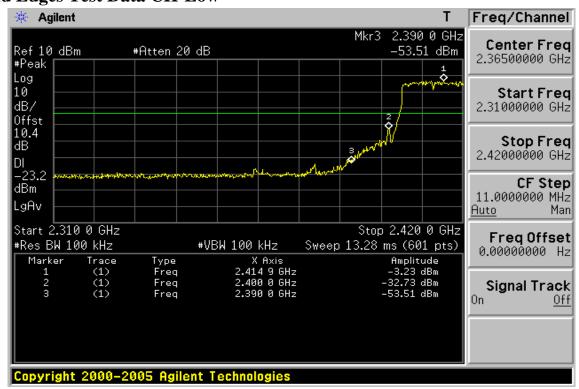
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 38 of 128

802.11g **Band Edges Test Data CH-Low**



Band Edges Test Data CH-High



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 39 of 128

Radiated Emission: 802.11 g mode

Operation Mode TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412 MHz Test By Bondi **Tmperature** 24 °C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)(dBuV/n	(dB)	
2390.00	52.76	35.59	-1.06	51.70	34.53	74.00	54.00	-19.47	AV
Operation :	Mode	TX C	H Low			Test		Sep. 27, 20)11
Fundament	tal Frequer	ncy 2412	MHz			Test	By	Bondi	
Temperatu	re	24 ℃				Pol		Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m) (d Bu V/m)	(dBuV/m)	(dB)	
2390.00	54.86	36.53	-1.06	53.80	35.47	74.00	54.00	-18.53	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 columno
- (3) Spectrum Peak Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 40 of 128

Radiated Emission: 802.11 g mode

Operation Mode TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462 MHz Test By Bondi Temperature 24 °C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)(Lim it (dBu V/m	O	Remark
2483.50	58.78	38.01	-0.59	58.19	37.42	74.00	54.00	-16.58	AV
Operation Fundament Temperatu Humidity	tal Frequer					Test Test Pol	By	Sep. 27, 20 Bondi Hor.	011

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)) (dBuV/m)	(dBuV/m)	(dB)	
2483.50	58.70	37.58	-0.59	58.11	36.99	74.00	54.00	-17.01	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- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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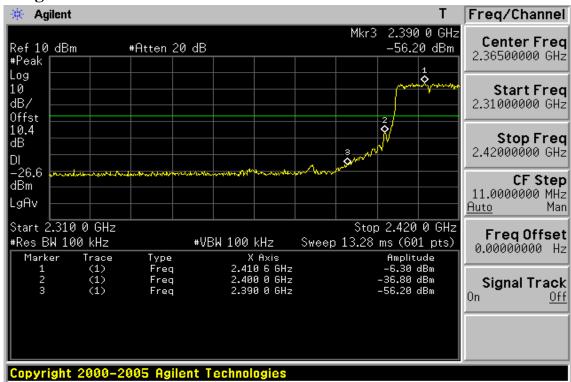


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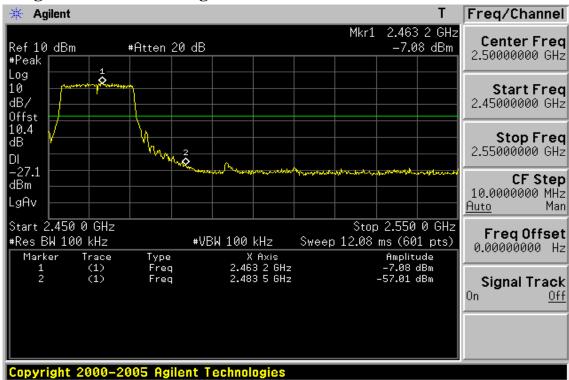
Page: 41 of 128

802.11n_20M

Band Edges Test Data CH-Low



Band Edges Test Data CH-High



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Page: 42 of 128

Radiated Emission: 802.11n 20M mode

Operation Mode TX CH Low Test Date Sep. 27, 2011 Fundamental Frequency 2412 MHz Test By Bondi

Temperature 24 °C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	(dB)	
2390.00	51.43	34.03	-1.06	50.37	32.97	74.00	54.00	-21.03	AV
Operation 1	Mode	TX C	H Low			Test	Date	Sep. 27, 20)11
Fundament	tal Frequer	ncy 2412	MHz			Test	By	Bondi	
Temperatu	re	24 ℃				Pol		Hor.	
Humidity		65 %							

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)) (dBuV/m)	(dBuV/m)	(dB)	
2390.00	51.55	34.44	-1.06	50.49	33.38	74.00	54.00	-20.62	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.
- 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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 43 of 128

Radiated Emission: 802.11 n 20M mode

Operation Mode TX CH High Test Date Sep. 27, 2011 Fundamental Frequency 2462 MHz Test By Bondi

Temperature 24° C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Lim it	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)) (dBuV/m)(dBuV/n	(dB)	
2483.50	51.22	34.51	-0.59	50.63	33.92	74.00	54.00	-20.08	AV
Operation	Mode	TX C	H High			Test	Date	Sep. 27, 20)11
Fundamen	tal Frequer	ncy 2462	MHz			Test	By	Bondi	
Temperatu	re	24 ℃				Pol		Hor.	
Humidity		65 %							

	Pea k	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)(dBuV/m)	(dB)	
2483.50	52.51	34.69	-0.59	51.92	34.10	74.00	54.00	-19.90	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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 44 of 128

9 SPURIOUS RADIATED EMISSION TEST

9.1 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-210 issue 8,§A8.5, 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 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

9.2 Measurement Equipment Used:

9.2.1. Conducted Emission at antenna port:

Refer to section 6.2 for details.

9.2.2. Radiated emission:

Refer to section 8.2.2 for details.

9.3 Test SET-UP:

9.3.1. Conducted Emission at antenna port:

Refer to section 6.3 for details.

9.3.2. Radiated emission:

Refer to section 8.2.2 for details.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 45 of 128

9.4 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

9.5 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	

9.6 Measurement Result:

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

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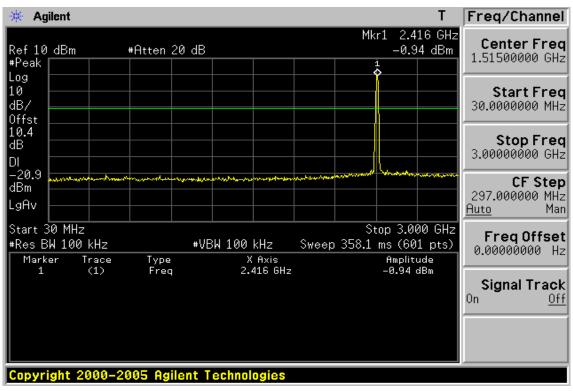
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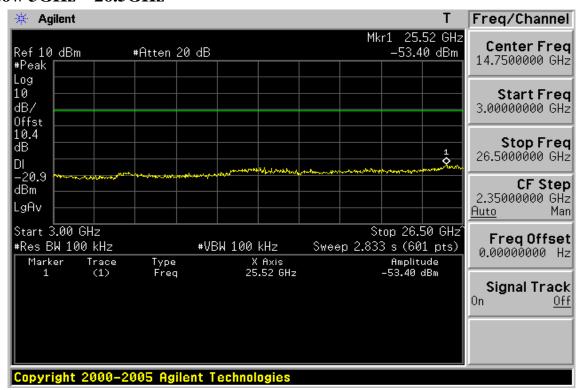
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Page: 46 of 128

Conducted Spurious Emission Measurement Result (802.11b) Ch Low 30MHz – 3GHz



Ch Low 3GHz - 26.5GHz



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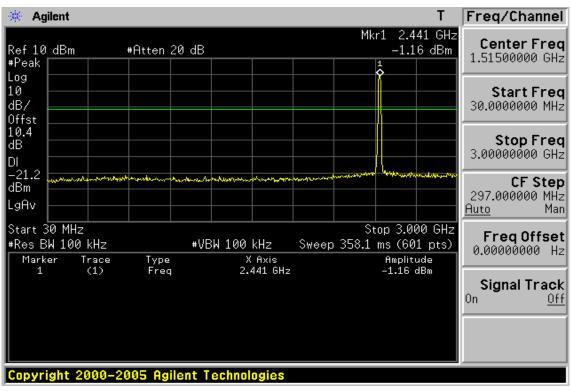
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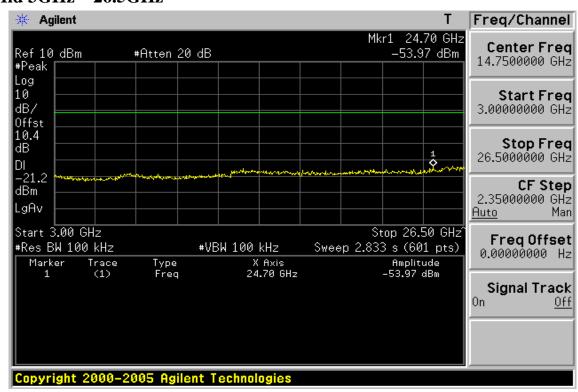
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 47 of 128

Ch Mid 30MHz – 3GHz



Ch Mid 3GHz – 26.5GHz



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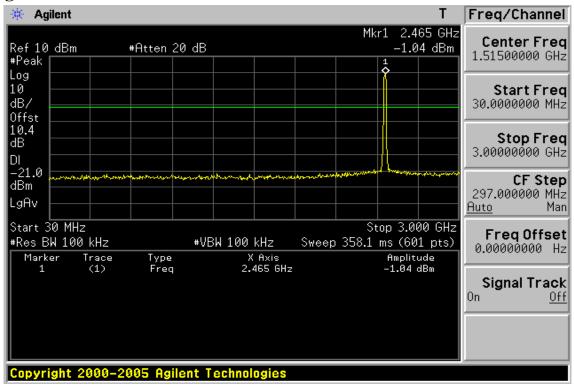
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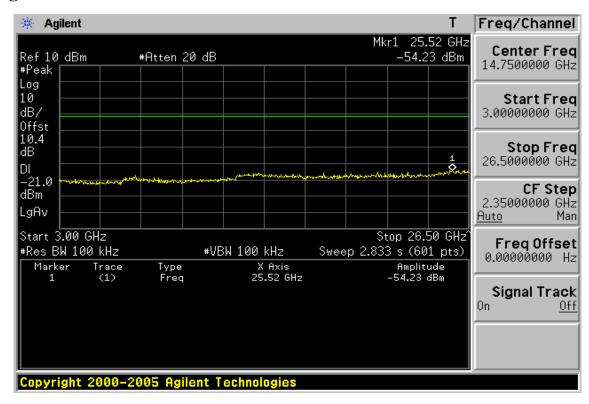
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Page: 48 of 128

Ch High 30MHz – 3GHz



Ch High 3GHz – 26.5GHz



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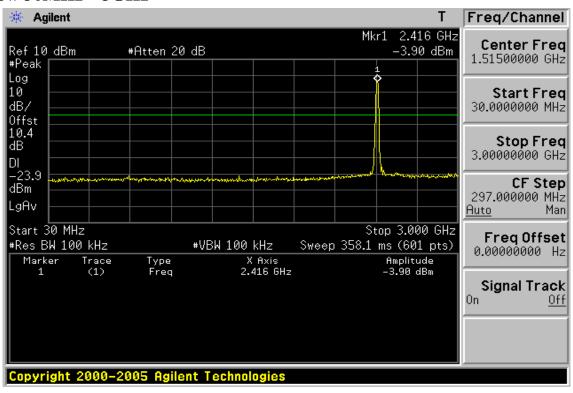
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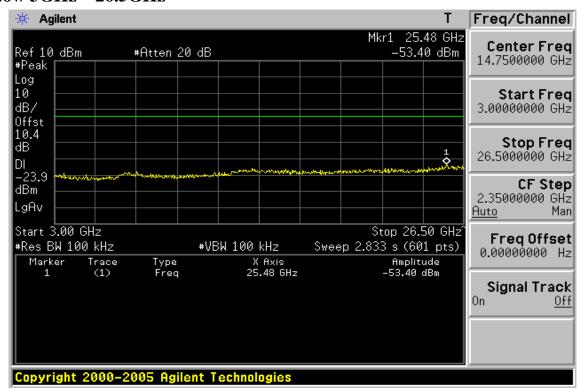
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Page: 49 of 128

Conducted Spurious Emission Measurement Result (802.11g) Ch Low 30MHz - 3GHz



Ch Low 3GHz – 26.5GHz



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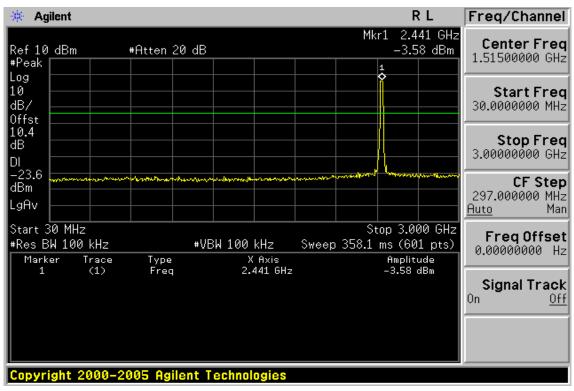
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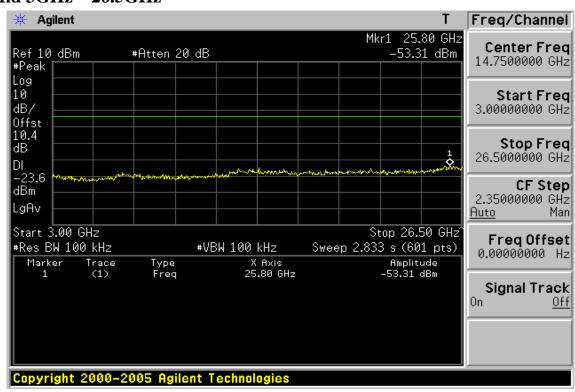
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Page: 50 of 128

Ch Mid 30MHz – 3GHz



Ch Mid 3GHz – 26.5GHz



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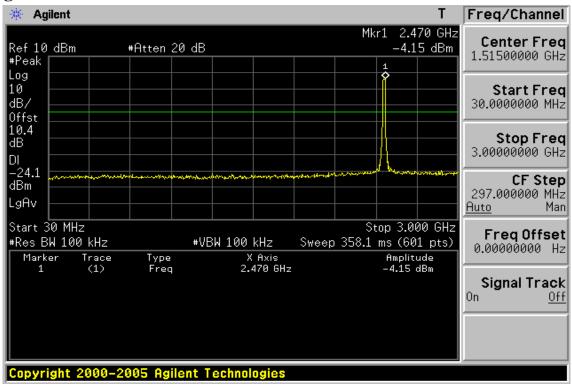
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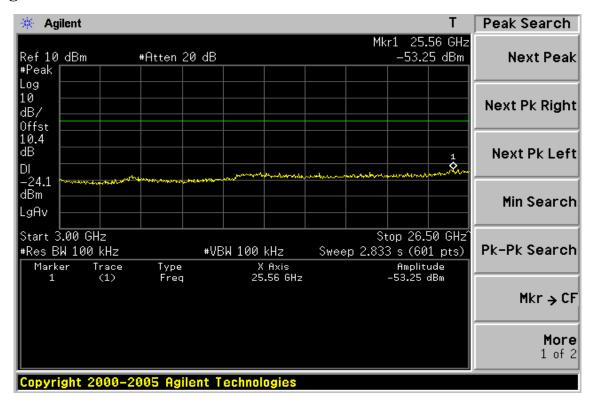
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Page: 51 of 128

Ch High 30MHz – 3GHz



Ch High 3GHz – 26.5GHz



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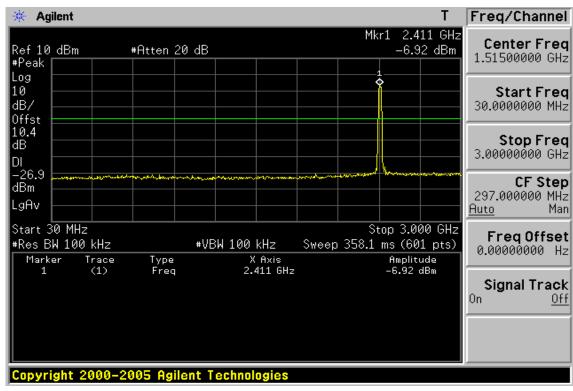
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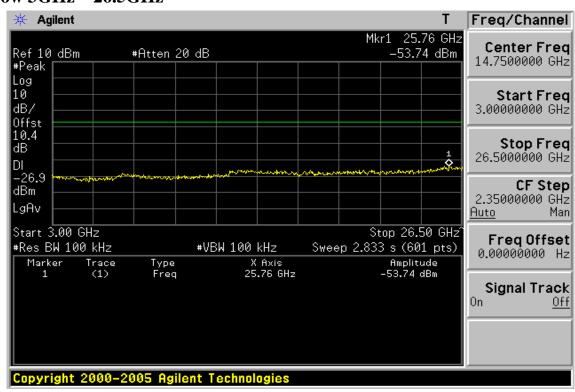
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Page: 52 of 128

Conducted Spurious Emission Measurement Result (802.11n_20M) Ch Low 30MHz – 3GHz



Ch Low 3GHz – 26.5GHz



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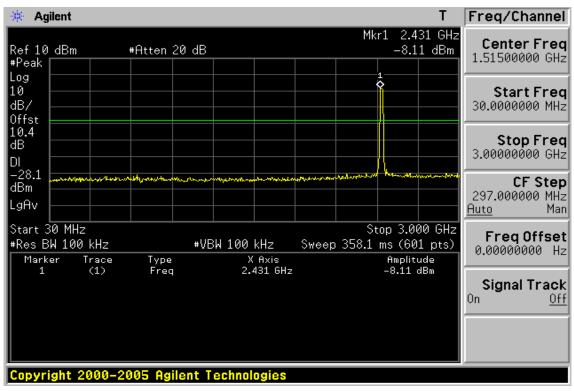
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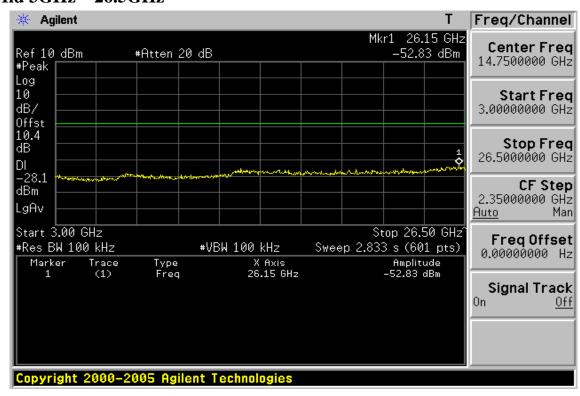
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 53 of 128

Ch Mid 30MHz - 3GHz



Ch Mid 3GHz – 26.5GHz



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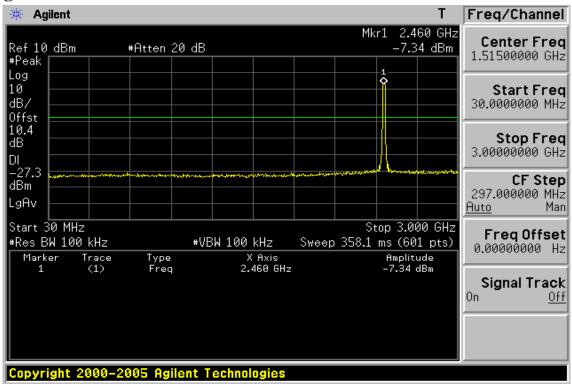
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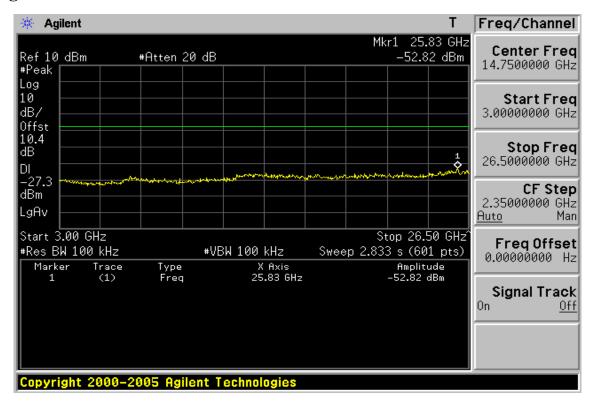
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 54 of 128

Ch High 30MHz – 3GHz



Ch High 3GHz – 26.5GHz



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 55 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode 802.11b TX CH Low **Test Date** Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Ver./Hor. Temperature 24°C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
148.34	V	Peak	36.56	-12.36	24.20	43.50	-19.30
248.25	V	Peak	44.26	-13.91	30.35	46.00	-15.65
343.31	V	Peak	49.90	-11.62	38.28	46.00	-7.72
445.16	V	Peak	45.22	-9.92	35.30	46.00	-10.70
684.75	V	Peak	39.56	-5.49	34.07	46.00	-11.93
745.86	V	Peak	43.61	-4.41	39.20	46.00	-6.80
99.84	Н	Peak	43.75	-16.70	27.05	43.50	-16.45
246.31	Н	Peak	55.18	-13.95	41.23	46.00	-4.77
343.31	Н	Peak	54.03	-11.62	42.41	46.00	-3.59
445.16	Н	Peak	50.66	-9.92	40.74	46.00	-5.26
742.95	Н	Peak	46.90	-4.47	42.43	46.00	-3.57
799.21	Н	Peak	41.30	-3.66	37.64	46.00	-8.36

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 56 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode 802.11b TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
148.34	V	Peak	36.57	-12.36	24.21	43.50	-19.29
246.31	V	Peak	44.76	-13.95	30.81	46.00	-15.19
343.31	V	Peak	46.31	-11.62	34.69	46.00	-11.31
440.31	V	Peak	44.00	-10.05	33.95	46.00	-12.05
539.25	V	Peak	41.57	-8.38	33.19	46.00	-12.81
745.86	V	Peak	43.69	-4.41	39.28	46.00	-6.72
99.84	Н	Peak	43.95	-16.70	27.25	43.50	-16.25
246.31	Н	Peak	55.01	-13.95	41.06	46.00	-4.94
347.19	Н	Peak	52.71	-11.58	41.13	46.00	-4.87
440.31	Н	Peak	52.68	-10.05	42.63	46.00	-3.37
740.04	Н	Peak	47.20	-4.51	42.69	46.00	-3.31
799.21	Н	Peak	40.96	-3.66	37.30	46.00	-8.70

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 57 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

802.11b TX CH High Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
170.65	V	Peak	37.27	-12.91	24.36	43.50	-19.14
246.31	V	Peak	44.44	-13.95	30.49	46.00	-15.51
343.31	V	Peak	45.99	-11.62	34.37	46.00	-11.63
445.16	V	Peak	44.74	-9.92	34.82	46.00	-11.18
684.75	V	Peak	39.33	-5.49	33.84	46.00	-12.16
745.86	V	Peak	43.59	-4.41	39.18	46.00	-6.82
97.90	Н	Peak	43.76	-16.85	26.91	43.50	-16.59
246.31	Н	Peak	55.29	-13.95	41.34	46.00	-4.66
343.31	Н	Peak	52.41	-11.62	40.79	46.00	-5.21
440.31	Н	Peak	52.19	-10.05	42.14	46.00	-3.86
740.04	Н	Peak	45.80	-4.51	41.29	46.00	-4.71
799.21	Н	Peak	40.37	-3.66	36.71	46.00	-9.29

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 58 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode 802.11g TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
148.34	V	Peak	36.18	-12.36	23.82	43.50	-19.68
246.31	V	Peak	43.50	-13.95	29.55	46.00	-16.45
345.25	V	Peak	45.50	-11.60	33.90	46.00	-12.10
440.31	V	Peak	44.92	-10.05	34.87	46.00	-11.13
539.25	V	Peak	40.95	-8.38	32.57	46.00	-13.43
745.86	V	Peak	43.34	-4.41	38.93	46.00	-7.07
99.84	Н	Peak	43.84	-16.70	27.14	43.50	-16.36
246.31	Н	Peak	55.12	-13.95	41.17	46.00	-4.83
343.31	Н	Peak	53.50	-11.62	41.88	46.00	-4.12
445.16	Н	Peak	51.09	-9.92	41.17	46.00	-4.83
740.04	Н	Peak	44.93	-4.51	40.42	46.00	-5.58
959.26	H	Peak	39.77	-1.54	38.23	46.00	-7.77

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 59 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode 802.11g TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
148.34	V	Peak	35.47	-12.36	23.11	43.50	-20.39
246.31	V	Peak	44.44	-13.95	30.49	46.00	-15.51
343.31	V	Peak	47.23	-11.62	35.61	46.00	-10.39
445.16	V	Peak	45.59	-9.92	35.67	46.00	-10.33
542.16	V	Peak	41.52	-8.31	33.21	46.00	-12.79
745.86	V	Peak	43.57	-4.41	39.16	46.00	-6.84
99.84	Н	Peak	44.60	-16.70	27.90	43.50	-15.60
248.25	Н	Peak	55.26	-13.91	41.35	46.00	-4.65
343.31	Н	Peak	52.08	-11.62	40.46	46.00	-5.54
445.16	Н	Peak	51.46	-9.92	41.54	46.00	-4.46
742.95	Н	Peak	45.12	-4.47	40.65	46.00	-5.35
799.21	H	Peak	41.64	-3.66	37.98	46.00	-8.02

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 60 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode 802.11g TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz

Test By

Bondi

Temperature 24°C

Pol Ver./Hor.

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
173.56	V	Peak	37.05	-13.50	23.55	43.50	-19.95
246.31	V	Peak	44.93	-13.95	30.98	46.00	-15.02
343.31	V	Peak	46.60	-11.62	34.98	46.00	-11.02
445.16	V	Peak	44.94	-9.92	35.02	46.00	-10.98
539.25	V	Peak	41.65	-8.38	33.27	46.00	-12.73
745.86	V	Peak	43.74	-4.41	39.33	46.00	-6.67
99.84	Н	Peak	44.69	-16.70	27.99	43.50	-15.51
245.34	Н	Peak	54.99	-13.96	41.03	46.00	-4.97
343.31	Н	Peak	52.60	-11.62	40.98	46.00	-5.02
440.31	Н	Peak	51.01	-10.05	40.96	46.00	-5.04
741.98	Н	Peak	44.66	-4.47	40.19	46.00	-5.81
799.21	H	Peak	40.77	-3.66	37.11	46.00	-8.89

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz \circ
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 61 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_20M)

Operation Mode 802.11n_20M TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi
Temperature 24°C Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
170.65	V	Peak	36.30	-12.91	23.39	43.50	-20.11
245.34	V	Peak	44.22	-13.96	30.26	46.00	-15.74
343.31	V	Peak	47.18	-11.62	35.56	46.00	-10.44
445.16	V	Peak	45.43	-9.92	35.51	46.00	-10.49
544.10	V	Peak	43.50	-8.28	35.22	46.00	-10.78
745.86	V	Peak	43.41	-4.41	39.00	46.00	-7.00
99.84	Н	Peak	44.09	-16.70	27.39	43.50	-16.11
246.31	Н	Peak	54.99	-13.95	41.04	46.00	-4.96
343.31	Н	Peak	52.33	-11.62	40.71	46.00	-5.29
444.19	Н	Peak	50.83	-9.97	40.86	46.00	-5.14
740.04	Н	Peak	44.70	-4.51	40.19	46.00	-5.81
799.21	Н	Peak	40.42	-3.66	36.76	46.00	-9.24

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 62 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

Operation Mode 802.11n_20M TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver./Hor 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
148.34	V	Peak	35.91	-12.36	23.55	43.50	-19.95
245.34	V	Peak	43.60	-13.96	29.64	46.00	-16.36
347.19	V	Peak	46.38	-11.58	34.80	46.00	-11.20
445.16	V	Peak	44.34	-9.92	34.42	46.00	-11.58
539.25	V	Peak	41.33	-8.38	32.95	46.00	-13.05
745.86	V	Peak	43.79	-4.41	39.38	46.00	-6.62
99.84	Н	Peak	44.27	-16.70	27.57	43.50	-15.93
246.31	Н	Peak	54.58	-13.95	40.63	46.00	-5.37
347.19	Н	Peak	52.76	-11.58	41.18	46.00	-4.82
440.31	Н	Peak	52.48	-10.05	42.43	46.00	-3.57
742.95	Н	Peak	45.11	-4.47	40.64	46.00	-5.36
939.86	Н	Peak	37.34	-1.67	35.67	46.00	-10.33

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 63 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

Operation Mode 802.11n_20M TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Temperature Pol Ver./Hor 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
173.56	V	Peak	36.82	-13.50	23.32	43.50	-20.18
248.25	V	Peak	44.74	-13.91	30.83	46.00	-15.17
345.25	V	Peak	46.61	-11.60	35.01	46.00	-10.99
440.31	V	Peak	44.39	-10.05	34.34	46.00	-11.66
539.25	V	Peak	41.28	-8.38	32.90	46.00	-13.10
745.86	V	Peak	43.11	-4.41	38.70	46.00	-7.30
99.84	Н	Peak	45.48	-16.70	28.78	43.50	-14.72
246.31	Н	Peak	54.85	-13.95	40.90	46.00	-5.10
343.31	Н	Peak	52.64	-11.62	41.02	46.00	-4.98
445.16	Н	Peak	51.60	-9.92	41.68	46.00	-4.32
742.95	Н	Peak	45.14	-4.47	40.67	46.00	-5.33
939.86	Н	Peak	36.59	-1.67	34.92	46.00	-11.08

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 64 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Ver. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4965.0	33.23		5.62	38.85		74.00	54.00	-15.15	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 65 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Hor. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4945.5	33.07		5.59	38.66		74.00	54.00	-15.34	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency
- (2) 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.
- (3) 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
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 66 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature 24° C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4835.0	33.79		5.33	39.12		74.00	54.00	-14.88	Peak
4874.0						74.00	54.00		
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency
- (2) 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.
- (3) 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
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 67 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Pol Hor. **Temperature** 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4984.5	34.23		5.67	39.90		74.00	54.00	-14.10	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency
- (2) 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.
- (3) 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
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 68 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Temperature 24 $^{\circ}$ C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4997.5	33.76		5.70	39.46		74.00	54.00	-14.54	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency
- (2) 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.
- (3) 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
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 69 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode 802.11b TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Hor. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4802.5	34.27		5.25	39.52		74.00	54.00	-14.48	Peak
4924.0						74.00	54.00		
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency
- (2) 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.
- (3) 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
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 **Issue Date: Oct. 04, 2011**

Page: 70 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Ver. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4815.5	33.23		5.25	38.48		74.00	54.00	-15.52	Peak
4824.0						74.00	54.00		
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental (1) frequency
- Data of measurement within this frequency range shown " " in the table above means (2) 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 instru-(3) ment using Peak detector mode and average detector mode of the emission shown in Actual FS column
- Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 (4)
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 71 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Temperature 24°C Pol Hor.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4952.0	33.77		5.60	39.37		74.00	54.00	-14.63	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 **Issue Date: Oct. 04, 2011**

Page: 72 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4978.0	33.59		5.67	39.26		74.00	54.00	-14.74	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		
Remark:									

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 73 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Pol Hor. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actual FS		Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4952.0	33.57		5.60	39.17		74.00	54.00	-14.83	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 74 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Ver. Temperature 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4997.5	33.53		5.70	39.23		74.00	54.00	-14.77	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 75 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode 802.11g TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462 MHz Test By Bondi Temperature 24°C Pol Hor.

Humidity 65 %

	Peak	\mathbf{AV}		Actual FS		Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4848.0	33.81		5.36	39.17		74.00	54.00	-14.83	Peak
4924.0						74.00	54.00		
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Page: 76 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode 802.11n_20M TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Temperature 24 $^{\circ}$ C 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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00			
4952.0	34.28		5.60	39.88		74.00	54.00	-14.12	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 77 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode 802.11n_20M TX CH Low Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Temperature 24 $^{\circ}$ C Pol Hor

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4685.5	34.21		4.95	39.16		74.00	54.00	-14.84	Peak
4824.0						74.00	54.00		
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 78 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n_20M)

Operation Mode 802.11n_20M TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437 MHz Test By Bondi Temperature 24°C 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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4984.5	33.02		5.67	38.69		74.00	54.00	-15.31	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 79 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n_20M TX CH Mid Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Pol Hor Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4750.5	33.58		5.13	38.71		74.00	54.00	-15.29	Peak
4874.0						74.00	54.00		
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 80 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n_20M TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Ver Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4997.5	36.08		5.70	41.78		74.00	54.00	-12.22	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 81 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n_20M TX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Hor Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4932.5	33.47		5.56	39.03		74.00	54.00	-14.97	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 82 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode 802.11b RX CH Low Sep. 27, 2011 **Test Date**

Fundamental Frequency 2412MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
167.74	V	Peak	37.09	-12.73	24.36	43.50	-19.14
245.34	V	Peak	42.75	-13.96	28.79	46.00	-17.21
347.19	V	Peak	46.94	-11.58	35.36	46.00	-10.64
444.19	V	Peak	44.13	-9.97	34.16	46.00	-11.84
539.25	V	Peak	40.46	-8.38	32.08	46.00	-13.92
745.86	V	Peak	43.81	-4.41	39.40	46.00	-6.60
97.90	Н	Peak	44.81	-16.85	27.96	43.50	-15.54
245.34	Н	Peak	54.42	-13.96	40.46	46.00	-5.54
343.31	Н	Peak	52.59	-11.62	40.97	46.00	-5.03
440.31	Н	Peak	49.59	-10.05	39.54	46.00	-6.46
735.19	Н	Peak	45.54	-4.67	40.87	46.00	-5.13
936.95	Н	Peak	36.68	-1.70	34.98	46.00	-11.02

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 83 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode 802.11b RX CH Mid Sep. 27, 2011 **Test Date**

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
173.56	V	Peak	38.01	-13.50	24.51	43.50	-18.99
246.31	V	Peak	43.67	-13.95	29.72	46.00	-16.28
347.19	V	Peak	46.27	-11.58	34.69	46.00	-11.31
440.31	V	Peak	43.65	-10.05	33.60	46.00	-12.40
539.25	V	Peak	41.28	-8.38	32.90	46.00	-13.10
745.86	V	Peak	43.59	-4.41	39.18	46.00	-6.82
99.84	Н	Peak	45.21	-16.70	28.51	43.50	-14.99
248.25	Н	Peak	54.64	-13.91	40.73	46.00	-5.27
343.31	Н	Peak	53.01	-11.62	41.39	46.00	-4.61
445.16	Н	Peak	50.47	-9.92	40.55	46.00	-5.45
741.98	Н	Peak	45.08	-4.47	40.61	46.00	-5.39
939.86	Н	Peak	38.10	-1.67	36.43	46.00	-9.57

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 84 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

802.11b RX CH High Operation Mode Sep. 27, 2011 **Test Date**

Fundamental Frequency 2462MHz Test By Bondi **Temperature** Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
172.59	V	Peak	37.14	-13.20	23.94	43.50	-19.56
246.31	V	Peak	43.71	-13.95	29.76	46.00	-16.24
347.19	V	Peak	46.13	-11.58	34.55	46.00	-11.45
440.31	V	Peak	44.81	-10.05	34.76	46.00	-11.24
539.25	V	Peak	40.47	-8.38	32.09	46.00	-13.91
745.86	V	Peak	43.47	-4.41	39.06	46.00	-6.94
99.84	Н	Peak	43.76	-16.70	27.06	43.50	-16.44
245.34	Н	Peak	54.12	-13.96	40.16	46.00	-5.84
343.31	Н	Peak	53.19	-11.62	41.57	46.00	-4.43
440.31	Н	Peak	50.74	-10.05	40.69	46.00	-5.31
735.19	Н	Peak	45.07	-4.67	40.40	46.00	-5.60
939.86	Н	Peak	36.46	-1.67	34.79	46.00	-11.21

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 85 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode 802.11g RX CH Low Sep. 27, 2011 **Test Date**

Fundamental Frequency 2412MHz Test By Bondi **Temperature** Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
175.50	V	Peak	38.61	-13.79	24.82	43.50	-18.68
246.31	V	Peak	43.31	-13.95	29.36	46.00	-16.64
343.31	V	Peak	46.64	-11.62	35.02	46.00	-10.98
440.31	V	Peak	45.29	-10.05	35.24	46.00	-10.76
684.75	V	Peak	38.61	-5.49	33.12	46.00	-12.88
745.86	V	Peak	43.95	-4.41	39.54	46.00	-6.46
99.84	Н	Peak	45.06	-16.70	28.36	43.50	-15.14
246.31	Н	Peak	53.90	-13.95	39.95	46.00	-6.05
343.31	Н	Peak	52.87	-11.62	41.25	46.00	-4.75
445.16	Н	Peak	51.17	-9.92	41.25	46.00	-4.75
735.19	Н	Peak	45.41	-4.67	40.74	46.00	-5.26
939.86	Н	Peak	37.97	-1.67	36.30	46.00	-9.70

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 86 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode 802.11g RX CH Mid Sep. 27, 2011 **Test Date**

Fundamental Frequency 2437MHz Test By Bondi **Temperature** Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
168.71	V	Peak	36.27	-12.72	23.55	43.50	-19.95
246.31	V	Peak	44.50	-13.95	30.55	46.00	-15.45
343.31	V	Peak	47.20	-11.62	35.58	46.00	-10.42
445.16	V	Peak	43.47	-9.92	33.55	46.00	-12.45
539.25	V	Peak	42.76	-8.38	34.38	46.00	-11.62
745.86	V	Peak	43.90	-4.41	39.49	46.00	-6.51
97.90	Н	Peak	43.86	-16.85	27.01	43.50	-16.49
248.25	Н	Peak	54.17	-13.91	40.26	46.00	-5.74
347.19	Н	Peak	52.61	-11.58	41.03	46.00	-4.97
445.16	Н	Peak	50.40	-9.92	40.48	46.00	-5.52
740.04	Н	Peak	45.35	-4.51	40.84	46.00	-5.16
939.86	Н	Peak	35.15	-1.67	33.48	46.00	-12.52

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 87 of 128

Radiated Spurious Emission Measurement Result (below 1GHz)

802.11g RX CH High Operation Mode **Test Date** Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi **Temperature** Pol Ver./Hor. 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
172.59	V	Peak	36.63	-13.20	23.43	43.50	-20.07
248.25	V	Peak	44.98	-13.91	31.07	46.00	-14.93
347.19	V	Peak	47.27	-11.58	35.69	46.00	-10.31
445.16	V	Peak	44.37	-9.92	34.45	46.00	-11.55
682.81	V	Peak	38.72	-5.51	33.21	46.00	-12.79
745.86	V	Peak	43.71	-4.41	39.30	46.00	-6.70
99.84	Н	Peak	44.74	-16.70	28.04	43.50	-15.46
248.25	Н	Peak	54.29	-13.91	40.38	46.00	-5.62
345.25	Н	Peak	52.14	-11.60	40.54	46.00	-5.46
444.19	Н	Peak	50.06	-9.97	40.09	46.00	-5.91
741.01	Н	Peak	44.48	-4.51	39.97	46.00	-6.03
939.86	Н	Peak	38.52	-1.67	36.85	46.00	-9.15

Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz •
- (2) Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (4) The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 88 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

802.11n_20M RX CH Low Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Temperature Pol Ver./Hor 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
167.74	V	Peak	35.87	-12.73	23.14	43.50	-20.36
246.31	V	Peak	44.89	-13.95	30.94	46.00	-15.06
347.19	V	Peak	46.18	-11.58	34.60	46.00	-11.40
440.31	V	Peak	44.43	-10.05	34.38	46.00	-11.62
539.25	V	Peak	41.16	-8.38	32.78	46.00	-13.22
745.86	V	Peak	43.47	-4.41	39.06	46.00	-6.94
97.90	Н	Peak	44.03	-16.85	27.18	43.50	-16.32
248.25	Н	Peak	54.54	-13.91	40.63	46.00	-5.37
347.19	Н	Peak	52.40	-11.58	40.82	46.00	-5.18
445.16	Н	Peak	49.97	-9.92	40.05	46.00	-5.95
735.19	Н	Peak	45.56	-4.67	40.89	46.00	-5.11
939.86	Н	Peak	36.76	-1.67	35.09	46.00	-10.91

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 89 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

802.11n_20M RX CH Mid Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Temperature Pol Ver./Hor 24℃

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
172.59	V	Peak	38.59	-13.20	25.39	43.50	-18.11
245.34	V	Peak	43.81	-13.96	29.85	46.00	-16.15
345.25	V	Peak	46.64	-11.60	35.04	46.00	-10.96
440.31	V	Peak	43.14	-10.05	33.09	46.00	-12.91
682.81	V	Peak	38.12	-5.51	32.61	46.00	-13.39
745.86	V	Peak	43.44	-4.41	39.03	46.00	-6.97
99.84	Н	Peak	43.95	-16.70	27.25	43.50	-16.25
246.31	Н	Peak	54.56	-13.95	40.61	46.00	-5.39
347.19	Н	Peak	51.46	-11.58	39.88	46.00	-6.12
440.31	Н	Peak	50.41	-10.05	40.36	46.00	-5.64
735.19	Н	Peak	45.25	-4.67	40.58	46.00	-5.42
930.16	Н	Peak	36.08	-1.76	34.32	46.00	-11.68

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 90 of 128

Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n_20M)

Operation Mode 802.11n_20M RX CH High Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi
Temperature 24°C Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
165.80	V	Peak	36.42	-12.54	23.88	43.50	-19.62
246.31	V	Peak	44.21	-13.95	30.26	46.00	-15.74
347.19	V	Peak	46.22	-11.58	34.64	46.00	-11.36
445.16	V	Peak	45.79	-9.22	36.57	46.00	-9.43
544.10	V	Peak	40.63	-8.28	32.35	46.00	-13.65
745.86	V	Peak	43.43	-4.41	39.02	46.00	-6.98
99.84	Н	Peak	45.50	-16.70	28.80	43.50	-14.70
246.31	Н	Peak	55.01	-13.95	41.06	46.00	-4.94
343.31	Н	Peak	52.14	-11.62	40.52	46.00	-5.48
445.16	Н	Peak	50.48	-9.92	40.56	46.00	-5.44
735.19	Н	Peak	44.43	-4.67	39.76	46.00	-6.24
959.26	Н	Peak	37.53	-1.54	35.99	46.00	-10.01

Remark:

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 91 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11b RX CH Low Test Date Sep. 27, 2011 Fundamental Frequency 2412 MHz Test By Bondi Temperature 24°C Pol Ver.

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4789.5	33.95		5.15	39.10		74.00	54.00	-14.90	Peak
4824.0						74.00	54.00		
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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_o
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 92 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11b RX CH Low Sep. 27, 2011 Test Date Fundamental Frequency 2412 MHz Test By Bondi Temperature Pol Hor. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4919.5	33.99		5.50	39.49		74.00	54.00	-14.51	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 93 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11b RX CH Mid Sep. 27, 2011 Test Date Fundamental Frequency 2437 MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4978.0	34.03		5.66	39.69		74.00	54.00	-14.31	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 94 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11b RX CH Mid Sep. 27, 2011 Test Date Fundamental Frequency 2437 MHz Test By Bondi Temperature Pol Hor. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4978.0	34.16		5.66	39.82		74.00	54.00	-14.18	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 95 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

802.11b RX CH High Operation Mode Sep. 27, 2011 Test Date Fundamental Frequency 2462 MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4984.5	34.01		5.66	39.67		74.00	54.00	-14.33	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 96 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

802.11b RX CH High Operation Mode Sep. 27, 2011 Test Date Fundamental Frequency 2462 MHz Test By Bondi Temperature Pol Hor. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4900.0	33.64		5.44	39.08		74.00	54.00	-14.92	Peak
4924.0						74.00	54.00		
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 97 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11g RX CH Low Sep. 27, 2011 Test Date Fundamental Frequency 2412 MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4984.5	34.01		5.66	39.67		74.00	54.00	-14.33	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 98 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11g RX CH Low Sep. 27, 2011 Test Date Fundamental Frequency 2412 MHz Test By Bondi Temperature Pol Hor. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4965.0	32.84		5.61	38.45		74.00	54.00	-15.55	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 99 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11g RX CH Mid Sep. 27, 2011 Test Date Fundamental Frequency 2437 MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4997.5	35.17		5.70	40.87		74.00	54.00	-13.13	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 100 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode 802.11g RX CH Mid Test Date Sep. 27, 2011 Fundamental Frequency 2437 MHz Test By Bondi Temperature 24 $^{\circ}$ C Pol Hor. Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4913.0	33.74		5.47	39.21		74.00	54.00	-14.79	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) 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.
- (3) 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_o
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 101 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

802.11g RX CH High Operation Mode Sep. 27, 2011 Test Date Fundamental Frequency 2462 MHz Test By Bondi Temperature Pol Ver. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4984.5	34.52		5.66	40.18		74.00	54.00	-13.82	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 102 of 128

Radiated Spurious Emission Measurement Result (above 1GHz)

802.11g RX CH High Operation Mode Sep. 27, 2011 Test Date Fundamental Frequency 2462 MHz Test By Bondi Temperature Pol Hor. 24℃

Humidity 65 %

	Peak	\mathbf{AV}		Actu	al FS	Peak	\mathbf{AV}		
Freq.	Reading	Reading	Ant./CL	Peak	\mathbf{AV}	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4919.5	33.93		5.50	39.43		74.00	54.00	-14.57	Peak
4924.0						74.00	54.00		
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency_o
- (2) 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.
- (3) 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.
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 103 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH Low Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Ver. Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4822.0	33.78		5.24	39.02		74.00	54.00	-14.98	Peak
4824.0						74.00	54.00		
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 104 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH Low Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2412MHz Test By Bondi Pol Hor Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4824.0						74.00	54.00		
4945.5	33.45		5.56	39.01		74.00	54.00	-14.99	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 105 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH Mid Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Pol Ver Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4874.0						74.00	54.00		
4997.5	33.54		5.70	39.24		74.00	54.00	-14.76	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 106 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH Mid Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2437MHz Test By Bondi Pol Hor Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4770.0	33.98		5.10	39.08		74.00	54.00	-14.92	Peak
4874.0						74.00	54.00		
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 107 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH High Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Ver Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4924.0						74.00	54.00		
4997.5	33.47		5.70	39.17		74.00	54.00	-14.83	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 108 of 128

Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

802.11n_20M RX CH High Operation Mode Test Date Sep. 27, 2011

Fundamental Frequency 2462MHz Test By Bondi Pol Hor Temperature 24℃

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)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4789.5	33.54		5.15	38.69		74.00	54.00	-15.31	Peak
4924.0						74.00	54.00		
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- 5 Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 109 of 128

10 Peak Power Spectral Density

10.1 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.

10.2 Measurement Equipment Used:

Refer to section 6.2 for details.

10.3 Test Set-up:

Refer to section 6.3 for details.

10.4 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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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 110 of 128

10.5 **Measurement Result:**

802.11b

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (dBm)	Maximum Limit (dBm)		
2412	-13.31	-13.31	8		
2437	-13.78	-13.78	8		
2462	-12.05	-12.05	8		

802.11g

Frequency MHz	RF Power Density Reading (dBm)	RF Power Density Level (dBm)	Maximum Limit (dBm)
2412	-15.60	-15.60	8
2437	-15.68	-15.68	8
2462	-15.81	-15.81	8

802.11n 20M

Frequency	RF Power Density	RF Power Density	Maximum Limit	
MHz	Reading (dBm)	Level (dBm)	(dBm)	
2412	-18.57	-18.57	8	
2437	-18.29	-18.29	8	
2462	-19.44	-19.44	8	

*Offset 10.4 dB

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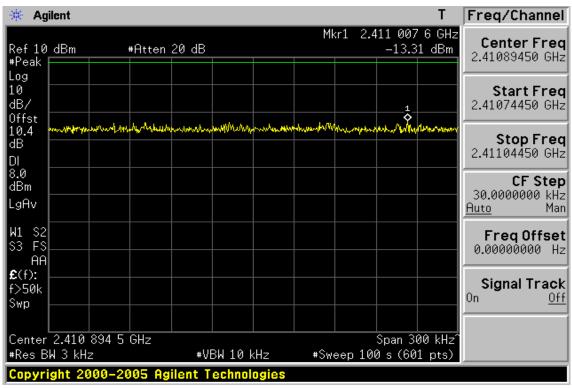
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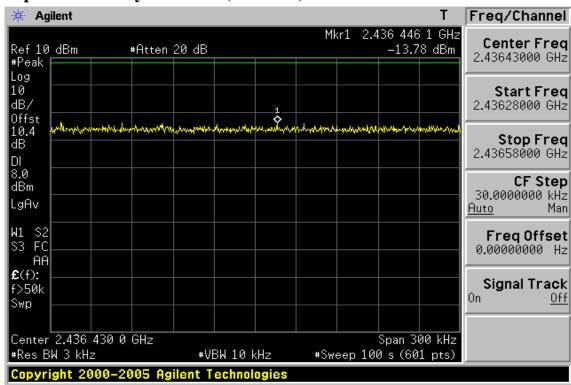
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 111 of 128

802.11b Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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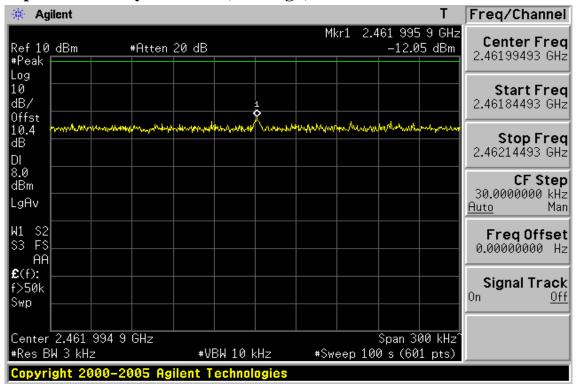
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 112 of 128

Power Spectral Density Test Plot (CH-High)



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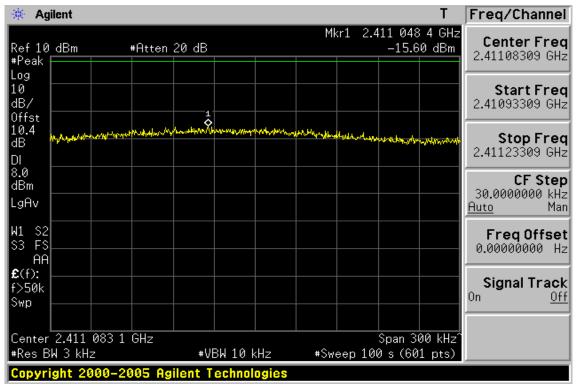
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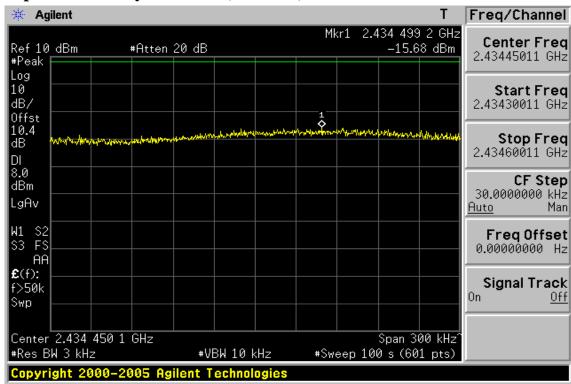
Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 113 of 128

802.11g **Power Spectral Density Test Plot (CH-Low)**



Power Spectral Density Test Plot (CH-Mid)



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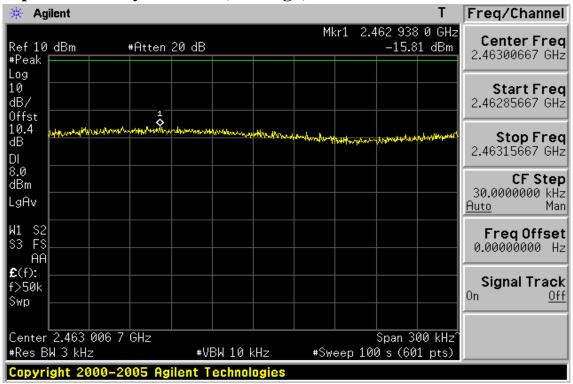
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 114 of 128

Power Spectral Density Test Plot (CH-High)



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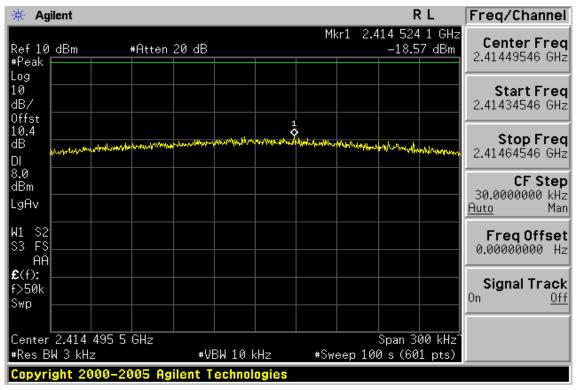


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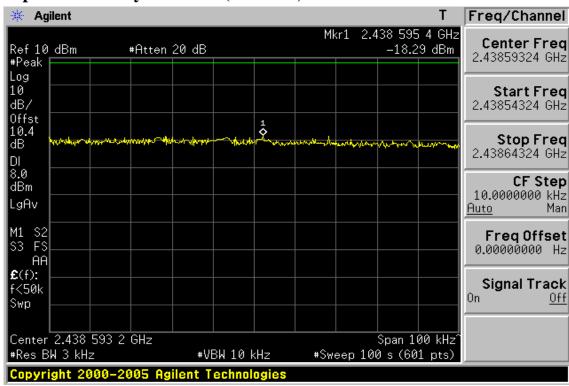
Page: 115 of 128

802.11n_20M

Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



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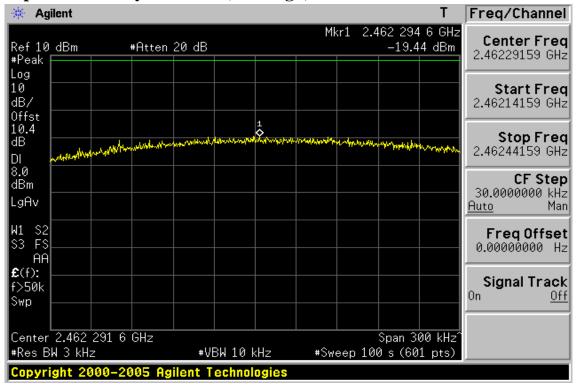
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 116 of 128

Power Spectral Density Test Plot (CH-High)



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 117 of 128

11 ANTENNA REQUIREMENT

11.1. 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

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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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 118 of 128

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.

11.2. Antenna Connected Construction:

The directional gains of antenna used for transmitting is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 119 of 128

12 99% Bandwidth Measurement

12.1. 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.

12.2. Measurement Equipment Used:

Refer to section 6.2 for details.

12.3. Test Set-up:

Refer to section 6.3 for details.

12.4. 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 approximate emission bandwidth, VBW = 3 times RBW, Span=50
- 4. Turn on the 99% bandwidth function, max reading...
- 5. Repeat above procedures until all frequency measured were complete.

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 120 of 128

12.5. Measurement Result:

802.11b

Frequency MHz	99%Bandwidth (MHz)
2412	16.6818
2437	16.6303
2462	16.7552

802.11g

Frequency MHz	99%Bandwidth (MHz)
2412	16.5402
2437	16.5244
2462	16.5212

802.11n_20M

Frequency MHz	99%Bandwidth (MHz)				
2412	17.6549				
2437	17.6470				
2462	17.6409				

Note: Refer to next page for plots.

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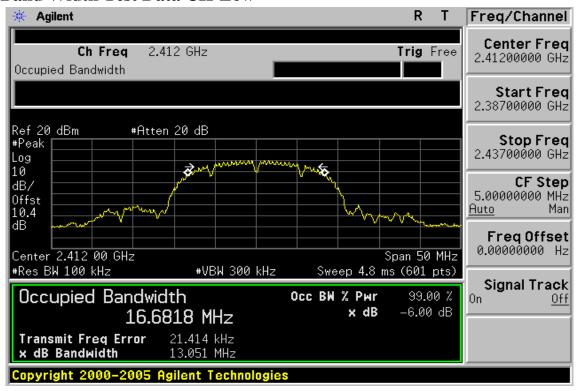


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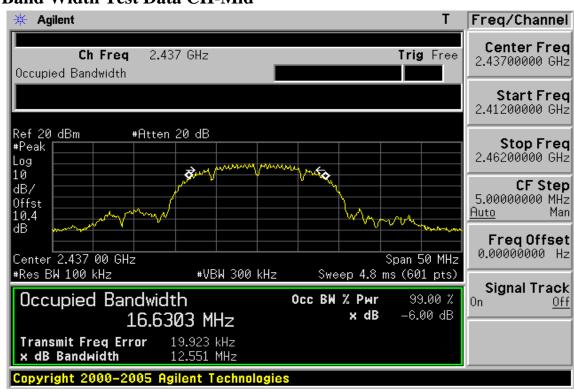
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802.11b

99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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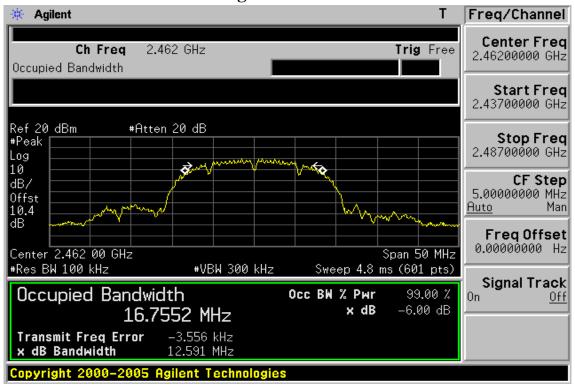
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 122 of 128

99% Band Width Test Data CH-High



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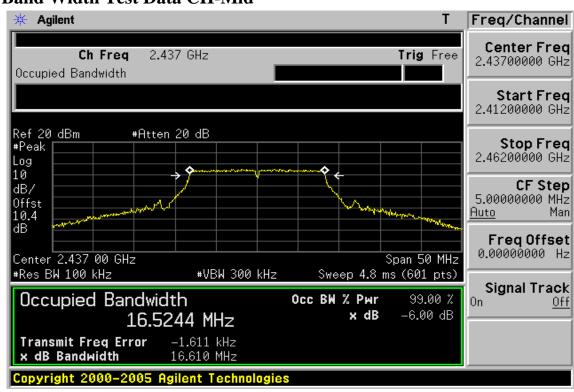
Page: 123 of 128

802.11g

99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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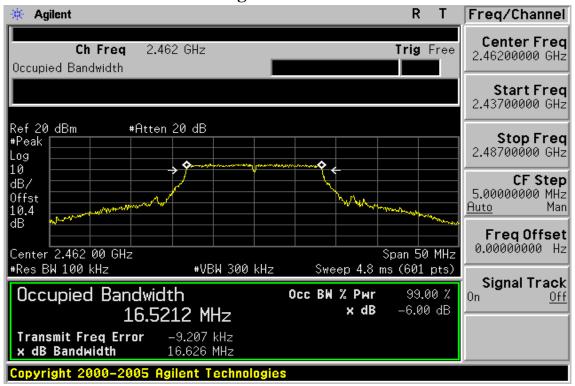
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 124 of 128

99% Band Width Test Data CH-High



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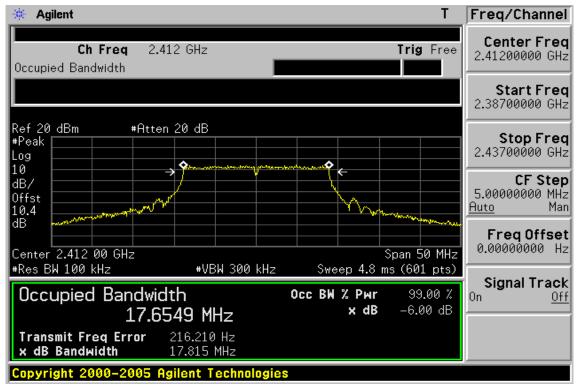


Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

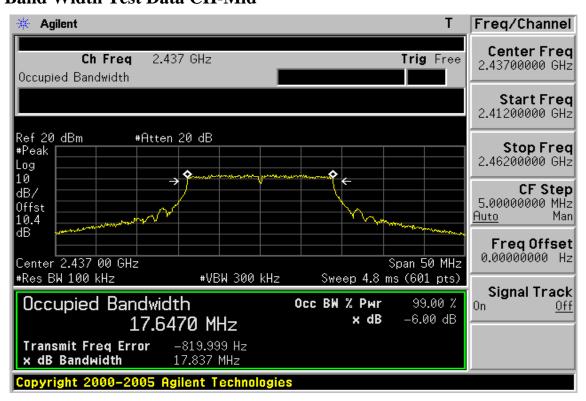
Page: 125 of 128

802.11n 20M

99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



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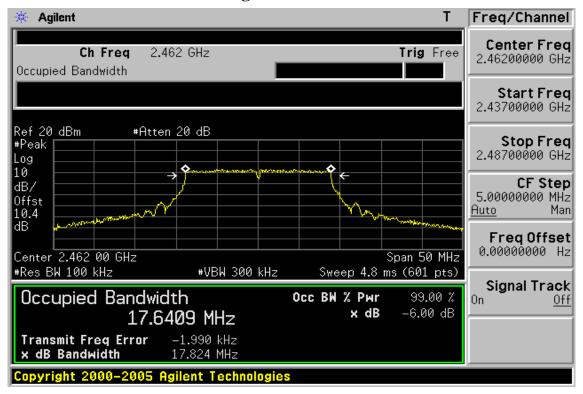
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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 126 of 128

99% Band Width Test Data CH-High



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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 127 of 128

13 RF EXPOSURE

13.1. Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

13.2. Table of Average Power:

802.11b

(Cable loss = 0.4	Average Power Output (dBm)					
СН	Frequency (MHz)		Required Limit				
		1	Kequired Emili				
1	2412	10.36	10.35	10.36	10.26	1 Watt = 30 dBm	
6	2437	10.18	10.36	10.38	10.35	1 Watt = 30 dBm	
11	2462	10.13	10.12	10.31	10.32	1 Watt = 30 dBm	

802.11g

002.1	8									
Cabl	le loss = 0.4		Average Power Output (dBm)							
СН	Frequency (MHz)		Data Rate							Required Limit
	(17112)	6	9	12	18	24	36	48	54	Required Limit
1	2412	9.41	9.40	9.44	9.42	9.46	9.42	9.41	9.40	1 Watt = 30 dBm
6	2437	9.46	9.42	9.46	9.38	9.43	9.44	9.43	9.40	1 Watt = 30 dBm
11	2462	9.32	9.34	9.34	9.34	9.35	9.32	9.32	9.30	1 Watt = 30 dBm

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Report No.: ER/2011/90019 Issue Date: Oct. 04, 2011

Page: 128 of 128

802.11n 20M

Cabl	le loss = 0.4	Average Power Output (dBm)								
СН	Data Rate		Data Rate							
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	Required Limit
1	2412	6.32	6.38	6.37	6.42	6.41	6.37	6.35	6.38	1 Watt = 30 dBm
6	2437	6.38	6.35	6.38	6.37	6.37	6.42	6.39	6.37	1 Watt = 30 dBm
11	2462	6.30	6.31	6.31	6.32	6.32	6.31	6.28	6.32	1 Watt = 30 dBm

13.3. RF conducted output power vs EIRP output power

– Higher of power is used for the calculation:

802.11b:

10.38dBm + 0dB = 10.38dBm (Conducted power is equal to EIRP Power!)

10.38dBm = $10^{\land} (10.38/10) = 10.91$ mW

802.11g

9.46dBm + 0dB = 9.46dBm (Conducted power is equal to EIRP Power!)

9.46dBm = $10^{(9.46/10)}$ = **8.83mW**

802.11n_20M

6.42dBm + 0dB = 6.42dBm (Conducted power is equal to EIRP Power!)

 $6.42 dBm = 10^{6} (6.42/10) = 4.39 mW$

13.4. Comparision Result:

This is a portable device and the Max peak output power is 10.38dBm (10.91mW) lower than low threshold 60/(fGHz) W (24.88mW), d<2.5cm in general population category;

Thus, the SAR measurement is not necessary.

~ End of Report ~

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