



Test Report
And Application for Grant of Equipment Authorization

TEST REPORT PERTAINING TO:

Equipment Under Test	Model Number(s)
Premium Seat Electronics Box	RD-FA3221-01

CONFIGURATION

Tested with an Intel PRO/Wireless 2915ABG Network Connection
with a Centurion PIFA Type Antenna

MEASUREMENTS PERFORMED IN ACCORDANCE WITH THE FOLLOWING STANDARD (S)

Regulatory Standard(s)

47 CFR Part 15, Subpart C Section 15.247

Test Method:

ANSI C63.4: 2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



Certificate Number: 1111.01

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Test Report #: PANAS-070202F

Test Report Revision: NONE

	REPORT BODY	APPENDICES		TOTAL PAGES
		A	B	
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TABLE OF CONTENTS

SECTION	TITLE	PAGE
	COVER SHEET.....	01
	TABLE OF CONTENTS.....	02
1.0	REGULATORY COMPLIANCE GUIDELINES.....	03
1.1	Guidelines For Testing To Emissions Standards.....	03
2.0	SUMMARY OF REGULATORY LIMITS.....	04
3.0	ADMINISTRATIVE DATA AND TEST DESCRIPTION.....	06
4.0	DESCRIPTION OF EUT CONFIGURATION.....	07
4.1	EUT Description	07
4.2	EUT Configuration.....	08
4.3	List of EUT Sub-Assemblies and Host Equipment.....	09
4.4	I/O Cabling Diagram and Description	10
4.5	EMC Test Hardware and Software Measurement Equipment.....	11
5.0	CONDITIONS DURING EMISSIONS MEASUREMENTS.....	12
5.1	General.....	12
5.2	Radiated Emissions Test Setup.....	12

APPENDICES

A	Test Data
B	Modifications And Recommendations



1.0 REGULATORY COMPLIANCE GUIDELINES

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual. Testing and engineering functions provided by Aegis Labs were furnished by RF technicians and engineers with accredited qualifications and training credentials to carry out their duties.

The object of this report was to publish verifiable test results of an EUT subjected to the tests outlined in the standard listed on the cover page of this report.

1.1 Guidelines For Testing To Emissions Standards

This standard for EMC emission requirements apply to electrical equipment for Information Technology Equipment (ITE). Compliance to these standards and in combination with the other standards listed in this test report can be used to demonstrate presumption of compliance with the protection requirements of the appropriate agency standard.

The purpose of this standard is to specify minimum requirements for emissions regarding electromagnetic compatibility (EMC) and protect the radio frequency spectrum 9 kHz. – 400 GHz. from unwanted interference generated from electrical/digital systems that intentionally or unintentionally generated RF energy. The emissions standards, normative documents and/or publications were used to conduct all tests performed on the equipment herein referred to as “Equipment Under Test”.



2.0 SUMMARY OF TEST RESULTS

802.11b Mode (2400-2483.5 MHz)

EMISSIONS STANDARD

FCC Part 15 Section	Description	Results	Comments
15.247(a)(2)	The minimum 6dB bandwidth shall be at least 500 kHz.	PASSED	2412 MHz = 10.00 MHz 2437 MHz = 10.00 MHz 2462 MHz = 9.92 MHz
15.247(b)(3)	The maximum peak output power of the intentional radiator shall not exceed 1 watt.	PASSED	2412 MHz = 17.31 dBm = 53.83 mW 2437 MHz = 19.01 dBm = 79.62 mW 2462 MHz = 18.88 dBm = 77.27 mW
15.247(b)(5)	The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1).	PASSED	Refer to SAR Test Report
15.247(d)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.	PASSED	See Data Sheets
15.247(d)	Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc.	PASSED	See Data Sheets
15.247(e)	The peak 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.	PASSED	2412 MHz = -10.67 dB 2437 MHz = -9.33 dB 2462 MHz = -10.00 dB
15.209	Radiated Emissions (30-1000 MHz)	PASSED	See Data Sheets



2.0 Summary of Test Results (Continued)

802.11g Mode (2400-2483.5 MHz)**EMISSIONS STANDARD**


FCC Part 15 Section	Description	Results	Comments
15.247(a)(2)	The minimum 6dB bandwidth shall be at least 500 kHz.	PASSED	2412 MHz = 16.33 MHz 2437 MHz = 16.33 MHz 2462 MHz = 15.50 MHz
15.247(b)(3)	The maximum peak output power of the intentional radiator shall not exceed 1 watt.	PASSED	2412 MHz = 23.84 dBm = 242.10 mW 2437 MHz = 23.59 dBm = 228.56 mW 2462 MHz = 23.94 dBm = 247.74 mW
15.247(b)(5)	The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1).	PASSED	Refer to SAR Test Report
15.247(d)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.	PASSED	See Data Sheets
15.247(d)	Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc.	PASSED	See Data Sheets
15.247(e)	The peak 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.	PASSED	2412 MHz = -15.17 dB 2437 MHz = -9.50 dB 2462 MHz = -9.33 dB
15.209	Radiated Emissions (30-1000 MHz)	PASSED	See Data Sheets

ANALYSIS AND CONCLUSIONS

Based upon the measurement results we find that this equipment is within the limits of the global standards listed on the cover page of this test report. All results are based on a test of one sample. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.


Approval Signatories

Test and Report Completed By:


Johnny Candelas
Test Technician
Aegis Labs, Inc.

04/30/07
Date:

Report Approved By:


Rick Candelas
Quality Assurance & EMC Lab Manager
Aegis Labs, Inc.

05/02/07
Date:



3.0 ADMINISTRATIVE DATA AND TEST DESCRIPTION

DEVICE TESTED:	ITE Type: Premium Seat Electronics Box Model Number(s): RD-FA3221-01 Serial Number: D085560 FCC ID: U6YRD-FA3221
DATE EUT RECEIVED:	April 10 th , 2007
TEST DATE(S):	April 10 th – 25 th , 2007
ORIGIN OF TEST SAMPLE(S):	Production
EQUIPMENT CLASS:	EUT tested as CLASS B device
RESPONSIBLE PARTY:	Panasonic Avionics 26200 Enterprise Way Lake Forest, CA 92630
CLIENT CONTACT:	Mr. William Wallace
MANUFACTURER:	Panasonic Avionics
TEST LOCATION:	Aegis Labs, Inc. 32231 Trabuco Creek Road Trabuco Canyon, CA 92678 Open Area Test Site #1& #2
ACCREDITATION CERTIFICATE(s):	A2LA Certificate Number: 1111.01, Valid through February 28, 2008
PURPOSE OF TEST:	To demonstrate compliance with the standards as described in Sections 1.0 & 2.0 of this report.
UNCERTAINTY BUDGET:	Proficiency Testing and Uncertainty Calculations for all tests indicated in this report have been conducted in accordance with ISO 17025: 2005 requirements Section 5.4.6, and 5.9. Uncertainty Budgets and Proficiency Test results available upon request.
STATEMENT OF CALIBRATION:	All accredited equipment calibrations were performed by Liberty Labs, Inc. and World Cal. with typical calibration uncertainty estimates derived from ISO Guide to the determination of uncertainties with a Coverage Factor of k=2 for 95% level of confidence.



4.0 DESCRIPTION OF EUT CONFIGURATION

4.1 EUT Description

Equipment Under Test (EUT)	
Trade Name:	Premium Seat Electronics Box
Model Number:	RD-FA3221-01
Frequency Range:	802.11b/g = 2412 – 2462MHz
Type of Transmission:	Direct Sequence Spread Spectrum
Transfer Rate:	1/5.5/11 Mbps for 802.11b mode 6/36/54 Mbps for 802.11g mode
Number of Channels:	802.11b mode (2400-2483.5 MHz) = 11 802.11g mode (2400-2483.5 MHz) = 11
Modulation Type:	DBPSK, DQPSK, CCK, OFDM
Antenna Type:	PIFA
Antenna Gain (See Note 2):	Centurion Antenna @ 5 GHz = 4.00 dBi Centurion Antenna @ 2.4 GHz = 3.00 dBi
Transmit Output Power:	Please see Appendix A (Data Sheets) for actual output power.
Power Supply:	28VDC
Number of External Test Ports Exercised:	1 Antenna Port

The PSEB is a device designed to provide video entertainment and peripheral interfaces for one seat in the premium class of an aircraft. It will be installed below the passenger seat. An 802.11abg radio module (Intel PRO/Wireless 2915ABG) will be integrated in the chassis of the PSEB and the transmitter/receiving antenna will be remotely located off to the left or right of the passenger depending on the location of the seat (using a 52 inch long coax cable) in the vicinity between the foot and knee of a passenger. The coax will connect to the radio module using an SMA Type connector but will not be readily accessible to the passenger.

NOTE 1: For a more detailed description, please refer to the manufacture's specifications or User's Manual.

NOTE 2: The EUT was tested with a set of Centurion Antennas. (Refer to the antenna specifications exhibits).



4.2 EUT Configuration

The EUT was tested with an Intel PRO/Wireless 2915ABG Network Connection (MN: WM3B2915ABG) installed in its Mini PCI slot and was connected to a Centurion multi-band antenna via its main antenna port. Data for a Centurion Antenna can be found in Appendix A.

The low, middle, and high channels were tested in 802.11a, b, & g modes. Also, the EUT was tested transmitting from the Main antenna port. The EUT was placed in either continuous transmit or continuous receive mode by a program provided by the Intel Corporation (*CRTU Version 3.2.15.0000*).



4.3 List of EUT, Sub-Assemblies and Host Equipment

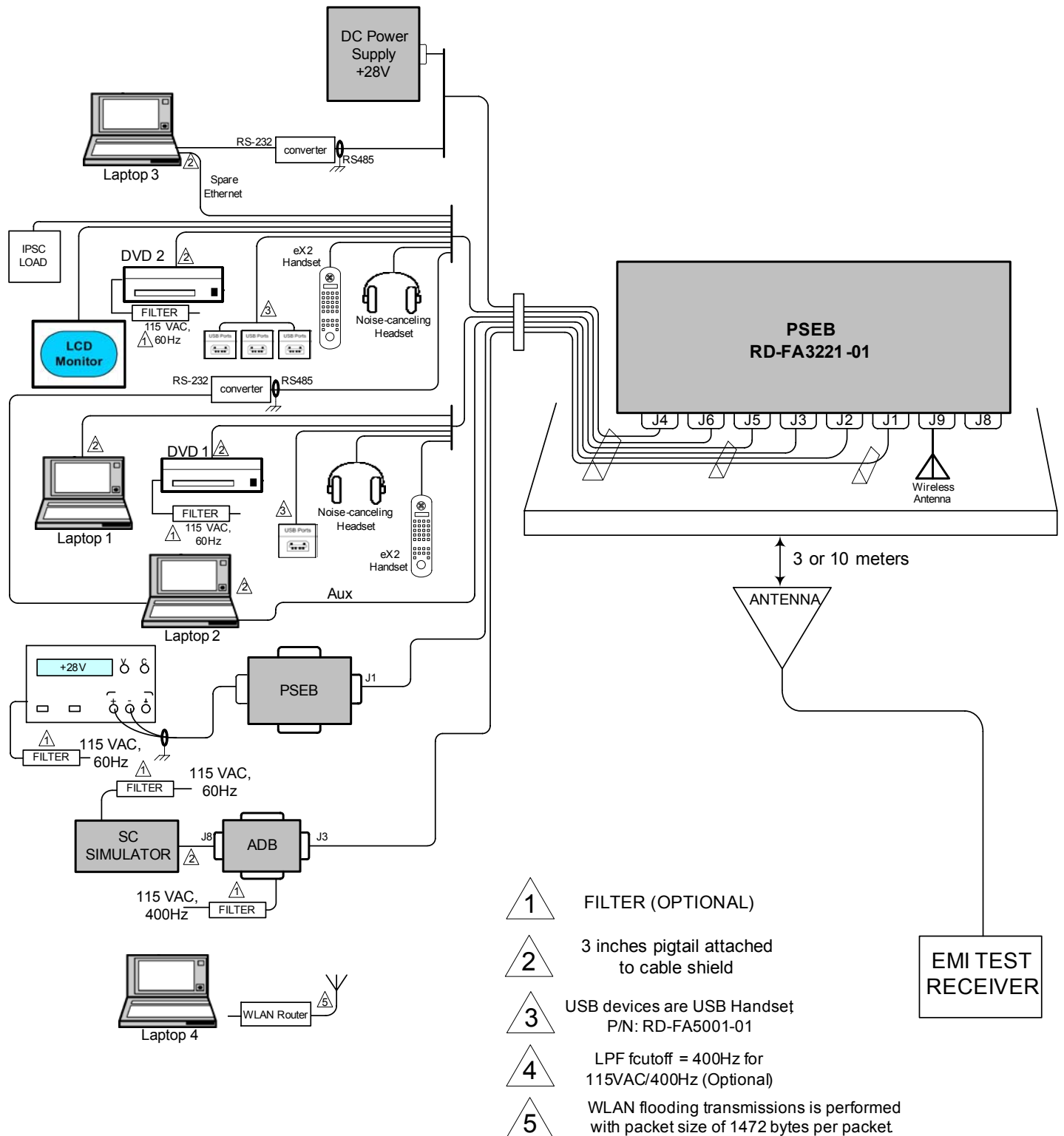
Equipment Under Test			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Panasonic Avionics	Premium Seat Electronics Box	RD-FA3221-01	D085560

EUT Sub Assemblies			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Intel Corporation	Intel PRO/Wireless Network Connection	WM3B2915ABG	N/A
Centurion	Main Antenna	WID2452	N/A

HOST EQUIPMENT LIST			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Linksys	Wireless Router	WRT55AG ver 2	MDJ104A03092
Phitek	Headset 1	2101	N/A
Phitek	Headset 2	2101	N/A
Panasonic	ADB	RD-FA2011-01	C893980
Resistors	ISPC Load	N/A	N/A
Generic	SC Simulator	112760	HW28
Sony	DVD Player 1	DVP-FX705	5008376
Sony	DVD Player 2	DVP-FX705	5000356
Panasonic	USB Handset 1	RDFA5001-01	C872229
Panasonic	USB Handset 2	RDFA5001-01	C872813
Panasonic	USB Handset 3	RDFA5001-01	C872537
Panasonic	USB Handset 4	RDFA5001-01	C872232
Panasonic	USB Handset 5	RDFA5001-01	C872233
Panasonic	USB Handset 6	RDFA5001-01	C872764
Dell	Laptop 1	PP10S	CN-0C8864-48643-53F-0182
Dell	Laptop 2	PP10S	CN-0C8864-48643-53F-0172
Dell	Laptop 3	PP10S	CN-0C8864-48643-53F-0112
Panasonic	Laptop 4	CF-48	CF-48E4KFUKM
Byte Runner	Byte Runner 1	COMMI	116710
Byte Runner	Byte Runner 2	COMMI	115285
Panasonic	LCD Monitor	U-FW7239-01	C997349
GW	DC Power Supply 1	GPR-6030D	D610327
GW	DC Power Supply 2	PSP-603	EE132868
Generic	Keyboard	5140	C67270459
Panasonic	PSEB (Support)	RDFA3221-01	D031938

NOTE: All the power cords of the above support equipment are standard and non-shielded.

4.4 I/O Cabling Diagram and Description



Note: Diagram was obtained from Panasonic Avionics Corporation.



4.5 EMC Test Hardware and Software Measurement Equipment

TEST EQUIPMENT LIST - Emissions					
Equipment Name	Manufacturer	Model Number	Serial Number	Calibration Due Date	Maintenance Calibration Cycle
Spectrum Analyzer	Agilent	8565EC	3946A00245	07/24/07	1 Year
Antenna - Horn	EMCO	3115	2230	05/15/07	1 Year
Preamp	Miteq	JS42-01001800-25-10P	815980	09/21/07	1 Year
28 Foot Coax	Semflex	S1L29BFS1348	608	07/26/07	1 Year
2.4 GHz Notch Filter	Micro-Tronics	BRM50702-02	003	NCR	NCR
Antenna - 18-26.5 GHz Pre-amplified Horn	Aegis Labs, Inc.	H042	SLK-35-3W	02/08/08	1 Year
Antenna - 26.5-40 GHz Pre-amplified Horn	Aegis Labs, Inc.	H028	GM1260-10	02/08/08	1 Year
EMI Receiver - RF Section	Hewlett Packard	8546A	3325A00137	04/26/07	1 Year
EMI Receiver - RF Filter Section	Hewlett Packard	85460A	3325A00138	04/26/07	1 Year
Antenna - Biconical	EMCO	3110	9108-1421	07/25/07	1 Year
Antenna - Log Periodic	ETS	3148	4947	07/25/07	1 Year
Power Meter	Anritsu	ML2487A	6K00001785	05/30/07	1 Year
Wide Bandwidth Sensor	Anritsu	MA2491A	31193	05/30/07	1 Year
12dB Attenuator	Narda	4779-12	203	07/09/07	2 Years
Temperature/Humidity Monitor	Dickson	TH550	7255185	04/13/08	1 Year

NCR – No Calibration Required.

5.0 CONDITIONS DURING EMISSIONS MEASUREMENTS

5.1 General

All measurements were made according to the procedures defined in or referred to by the standard listed on the cover page of this report. The measurements were made in the operating mode producing the largest emissions consistent with normal operation and connected to the minimum configuration of auxiliary devices.

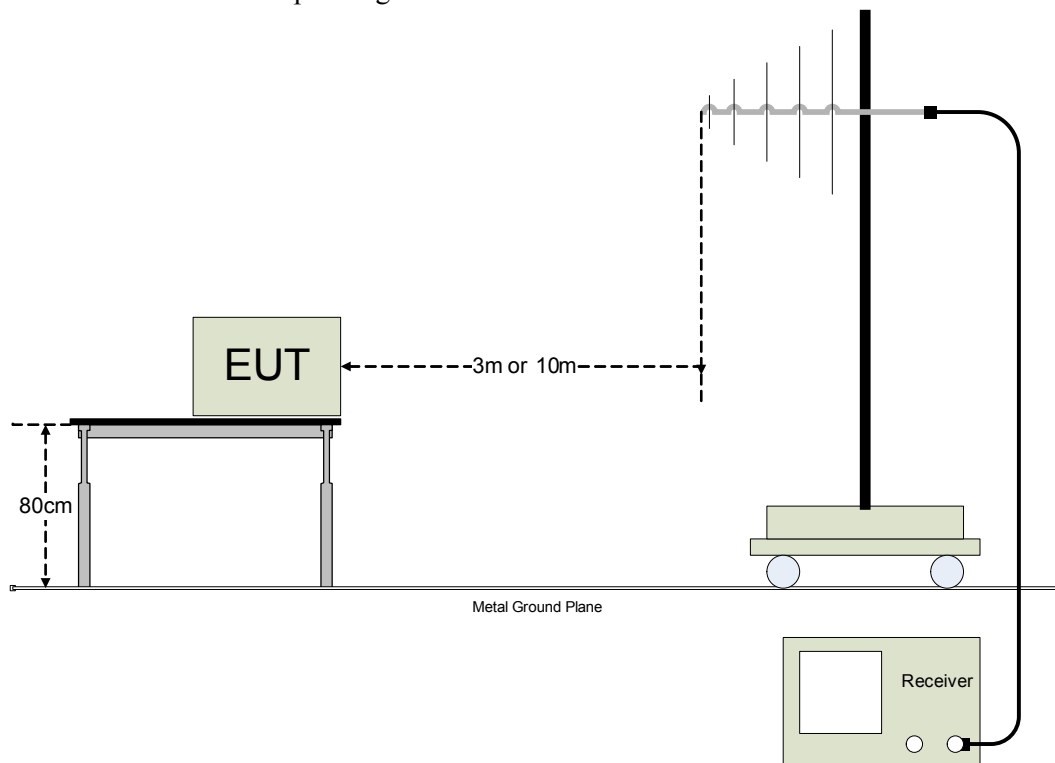
5.2 Radiated Emissions Test Setup

The Open Area Test Site (OATS) was used for radiated emission testing. The receiving (Rx) antenna(s) was placed 10m from the nearest side of the EUT facing the Rx antenna. The EUT (if floor-standing) was placed directly on the flush-mounted 360 degree rotating turntable. The EUT (if table-top) was placed directly on an 80cm high non-metallic table, and the table was placed on the rotating turntable. During the initial EMI scan, all the suspect frequencies, i.e.; harmonics, broadband signals were checked with the Rx broadband antennas in both vertical and horizontal polarities. The biconical Rx, log periodic Rx, and horn Rx antennas were used from 30MHz – 299.99MHz, 300MHz – 1000MHz, and 1GHz – 18GHz respectively.

Upon completion of all harmonic and broadband measurements, the balance of any remaining frequencies was checked between 30MHz – 18GHz. Any signals appearing within 20 dB of the classification limit was measured. Each signal was maximized by first rotating the turntable at least 360 degrees and recording the azimuth in the data sheet. Lastly, the Rx antenna was raised and/or lowered to maximize the signal elevation. If the measured signal was obtained using the peak detector and that signal appeared within 3 dB of the regulatory limit line, then the same signal was re-measured using the quasi-peak detector on the EMI receiver. Both meter readings if necessary were recorded on the data sheet.

Climatic Conditions:

The EUT was tested within its intended operating and climatic conditions.





APPENDIX A

TEST DATA

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Panasonic Avionics	DATE:	04/10/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot.	TEMPERATURE:	21 deg. C
		HUMIDITY:	50%
		TIME:	1:45 PM

Description:	Radiated RF Emissions (30 MHz – 1000 MHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with the power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

SC Simulator Mode (PANAS-070202-03)**Horizontal Open Field Maximized Data**

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
69.10	6.49	400	0		2.48	9.60	10.46	29.03	40.00	-10.97
124.97	7.38	400	45		2.46	11.35	10.46	31.65	43.50	-11.85
146.04	4.88	400	0		2.59	12.04	10.46	29.97	43.50	-13.53
150.00	3.16	400	45		2.53	12.20	10.46	28.35	43.50	-15.15
200.01	4.28	400	0		2.68	15.00	10.46	32.42	43.50	-11.08
224.97	4.28	400	45		2.75	16.30	10.46	33.79	46.00	-12.21
250.00	8.72	400	90		2.91	17.30	10.46	39.39	46.00	-6.61
300.00	5.13	300	315		3.05	13.90	10.46	32.54	46.00	-13.46
319.99	6.26	300	0		3.13	14.94	10.46	34.79	46.00	-11.21
333.32	8.37	275	90		3.18	15.13	10.46	37.14	46.00	-8.86
366.66	8.69	250	225		3.31	14.93	10.46	37.39	46.00	-8.61
375.00	5.45	250	45		3.35	14.90	10.46	34.16	46.00	-11.85
400.01	11.91	250	90		3.45	15.20	10.46	41.02	46.00	-4.98
432.05	7.68	225	225		3.58	16.01	10.46	37.73	46.00	-8.27
448.04	12.91	225	135		3.65	16.71	10.46	43.74	46.00	-2.26
499.99	8.17	225	0		3.84	19.00	10.46	41.47	46.00	-4.53
533.33	3.83	200	90		3.97	18.93	10.46	37.20	46.00	-8.80
599.99	5.72	200	45		4.16	18.80	10.46	39.14	46.00	-6.86
666.68	4.84	200	45		4.47	21.27	10.46	41.03	46.00	-4.97



Radiated Emissions Test Results (Continued)

SC Simulator Mode (PANAS-070202-03)**Vertical Open Field Maximized Data**

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
42.98	8.94	100	0			2.68	10.44	10.46	32.52	40.00	-7.48
69.19	9.25	100	45			2.48	8.76	10.46	30.95	40.00	-9.05
124.97	12.46	100	225	10.48	Q	2.46	11.30	10.46	34.70	43.50	-8.80
150.00	5.74	100	45			2.53	11.70	10.46	30.43	43.50	-13.07
200.01	4.64	100	180			2.68	15.60	10.46	33.38	43.50	-10.12
249.98	8.21	100	225			2.91	18.40	10.46	39.98	46.00	-6.02
300.00	5.03	100	45			3.05	14.20	10.46	32.74	46.00	-13.26
320.59	15.75	100	135	14.31	Q	3.13	15.68	10.46	43.58	46.00	-2.42
375.00	5.49	100	0			3.35	15.20	10.46	34.50	46.00	-11.51
384.99	7.04	100	90			3.39	15.52	10.46	36.41	46.00	-9.59
399.96	8.06	100	0			3.45	16.00	10.46	37.97	46.00	-8.03
432.04	6.22	100	45			3.58	16.58	10.46	36.85	46.00	-9.15
448.03	12.72	100	315	10.08	Q	3.65	17.22	10.46	41.41	46.00	-4.59
500.00	5.00	100	45			3.84	17.90	10.46	37.20	46.00	-8.80
533.33	3.78	100	45			3.97	19.17	10.46	37.38	46.00	-8.62
599.99	3.98	100	90			4.16	20.00	10.46	38.60	46.00	-7.40
666.68	3.39	100	45			4.47	21.20	10.46	39.52	46.00	-6.48



Radiated Emissions Test Results (Continued)

DVD 1 Mode (PANAS-070202-03)

Horizontal Open Field Maximized Data

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Antenna Factor (dB)	Distance Factor (dB)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Diff (dB) +=FAIL
200.00	4.61	400	90			2.68	15.00	10.46	32.75	43.50	-10.75
225.00	4.21	400	0			2.75	16.30	10.46	33.72	46.00	-12.28
400.00	8.79	250	225			3.45	15.20	10.46	37.90	46.00	-8.10
448.00	7.66	225	315			3.65	16.71	10.46	38.48	46.00	-7.52
499.98	7.28	200	0			3.84	19.00	10.46	40.58	46.00	-5.42
666.66	4.50	150	45			4.47	21.27	10.46	40.69	46.00	-5.31

Vertical Open Field Maximized Data

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Antenna Factor (dB)	Distance Factor (dB)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Diff (dB) +=FAIL
43.00	7.55	100	225			2.68	10.44	10.46	31.13	40.00	-8.88
124.97	12.16	100	135	9.88	Q	2.46	11.30	10.46	34.10	43.50	-9.40
200.00	4.21	100	180			2.68	15.60	10.46	32.95	43.50	-10.55
249.99	8.14	100	225			2.91	18.40	10.46	39.91	46.00	-6.09
320.60	16.36	100	45	15.41	Q	3.13	15.68	10.46	44.68	46.00	-1.32
448.00	10.68	100	0			3.65	17.22	10.46	42.01	46.00	-3.99



Radiated Emissions Test Results (Continued)

DVD 2 Mode (PANAS-070202-03)**Horizontal Open Field Maximized Data**

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
200.00	4.86	400	45		2.68	15.00	10.46	33.00	43.50	-10.50
225.00	4.03	400	135		2.75	16.30	10.46	33.54	46.00	-12.46
400.00	9.64	300	315		3.45	15.20	10.46	38.75	46.00	-7.25
448.00	7.60	225	45		3.65	16.71	10.46	38.42	46.00	-7.58
499.98	6.63	225	90		3.84	19.00	10.46	39.93	46.00	-6.07
666.66	5.78	200	45		4.47	21.27	10.46	41.97	46.00	-4.03

Vertical Open Field Maximized Data

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
43.00	7.12	100	45		2.68	10.44	10.46	30.70	40.00	-9.31
124.97	10.73	100	90		2.46	11.30	10.46	34.95	43.50	-8.55
200.00	5.00	100	180		2.68	15.60	10.46	33.74	43.50	-9.76
249.99	9.44	100	315		2.91	18.40	10.46	41.21	46.00	-4.79
320.60	13.25	100	45		3.13	15.68	10.46	42.52	46.00	-3.48
448.00	9.98	100	0		3.65	17.22	10.46	41.31	46.00	-4.69



Radiated Emissions Test Results (Continued)

HDD Mode (PANAS-070202-03)**Horizontal Open Field Maximized Data**

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
200.00	4.14	400	315		2.68	15.00	10.46	32.28	43.50	-11.22
225.00	3.92	400	180		2.75	16.30	10.46	33.43	46.00	-12.57
400.00	7.85	250	45		3.45	15.20	10.46	36.96	46.00	-9.04
448.00	8.90	250	0		3.65	16.71	10.46	39.72	46.00	-6.28
499.98	8.07	225	45		3.84	19.00	10.46	41.37	46.00	-4.63
666.66	5.68	175	90		4.47	21.27	10.46	41.87	46.00	-4.13

Vertical Open Field Maximized Data

<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Distance Factor (dB)</i>	<i>Corrected Reading (dBuV/m)</i>	<i>Limits (dBuV/m)</i>	<i>Diff (dB) +=FAIL</i>
42.98	10.99	100	45		2.68	10.44	10.46	34.57	40.00	-5.43
124.97	11.36	100	0		2.46	11.30	10.46	35.58	43.50	-7.92
200.00	6.70	100	45		2.68	15.60	10.46	35.44	43.50	-8.06
249.99	9.76	100	90		2.91	18.40	10.46	41.53	46.00	-4.47
320.60	12.88	100	135		3.13	15.68	10.46	42.15	46.00	-3.85
448.00	10.84	100	225		3.65	17.22	10.46	42.17	46.00	-3.83

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Panasonic Avionics	DATE:	04/11/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC/BM
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot in 802.11b (2400-2483.5 MHz) mode with Centurion Antenna.	TEMPERATURE:	18 deg. C
		HUMIDITY:	58% RH
		TIME:	11:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

Fundamental Measurements in 802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11****Continuous TX at Main Antenna port with Centurion Antenna****Aegis Labs, Inc. File #: PANAS-070202-05****RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2412.00	70.33	150	225			1.99	29.50	101.82			Ch. 1
2412.00				67.06	A	1.99	29.50	98.55			
2437.00	70.00	150	270			2.00	29.59	101.59			Ch. 6
2437.00				66.92	A	2.00	29.59	98.51			
2462.00	71.00	150	270			2.01	29.67	102.68			Ch. 11
2462.00				67.88	A	2.01	29.67	99.56			

RADIATED EMISSIONS – Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2412.00	72.67	100	225			1.99	29.04	103.70			Ch. 1
2412.00				69.32	A	1.99	29.04	100.35			
2437.00	72.33	100	0			2.00	29.11	103.44			Ch. 6
2437.00				69.04	A	2.00	29.11	100.15			
2462.00	74.83	100	0			2.01	29.19	106.03			Ch. 11
2462.00				71.70	A	2.01	29.19	102.90			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

Band Edge Field Strength Measurements in 802.11b mode (2400-2483.5 MHz)**Channels 1 & 11****Continuous TX at Main Antenna port with Centurion Antenna****Aegis Labs, Inc. File #: PANAS-070202-05****RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2390.00							44.65	74.00	-29.35	Ch. 1
2390.00				A			33.55	54.00	-20.45	
2384.80							48.45	74.00	-25.55	
2359.80				A			37.38	54.00	-16.62	
2400.00	39.00	150	225		1.98	29.46	70.44	81.82	-11.38	
2483.50							48.85	74.00	-25.15	Ch. 11
2483.50				A			39.89	54.00	-14.11	
2529.70							51.51	74.00	-22.49	
2489.30				A			43.56	54.00	-10.44	

RADIATED EMISSIONS – Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2390.00							46.53	74.00	-27.47	Ch. 1
2390.00				A			35.35	54.00	-18.65	
2384.80							50.33	74.00	-23.67	
2359.80				A			39.18	54.00	-14.82	
2400.00	40.00	100	225		1.98	29.00	70.98	83.70	-12.71	
2483.50							52.20	74.00	-21.80	Ch. 11
2483.50				A			43.23	54.00	-10.77	
2529.70							54.86	74.00	-19.14	
2489.30				A			46.90	54.00	-7.10	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = F_m - \Delta m$$

Where

BE = Band Edge Field Strength

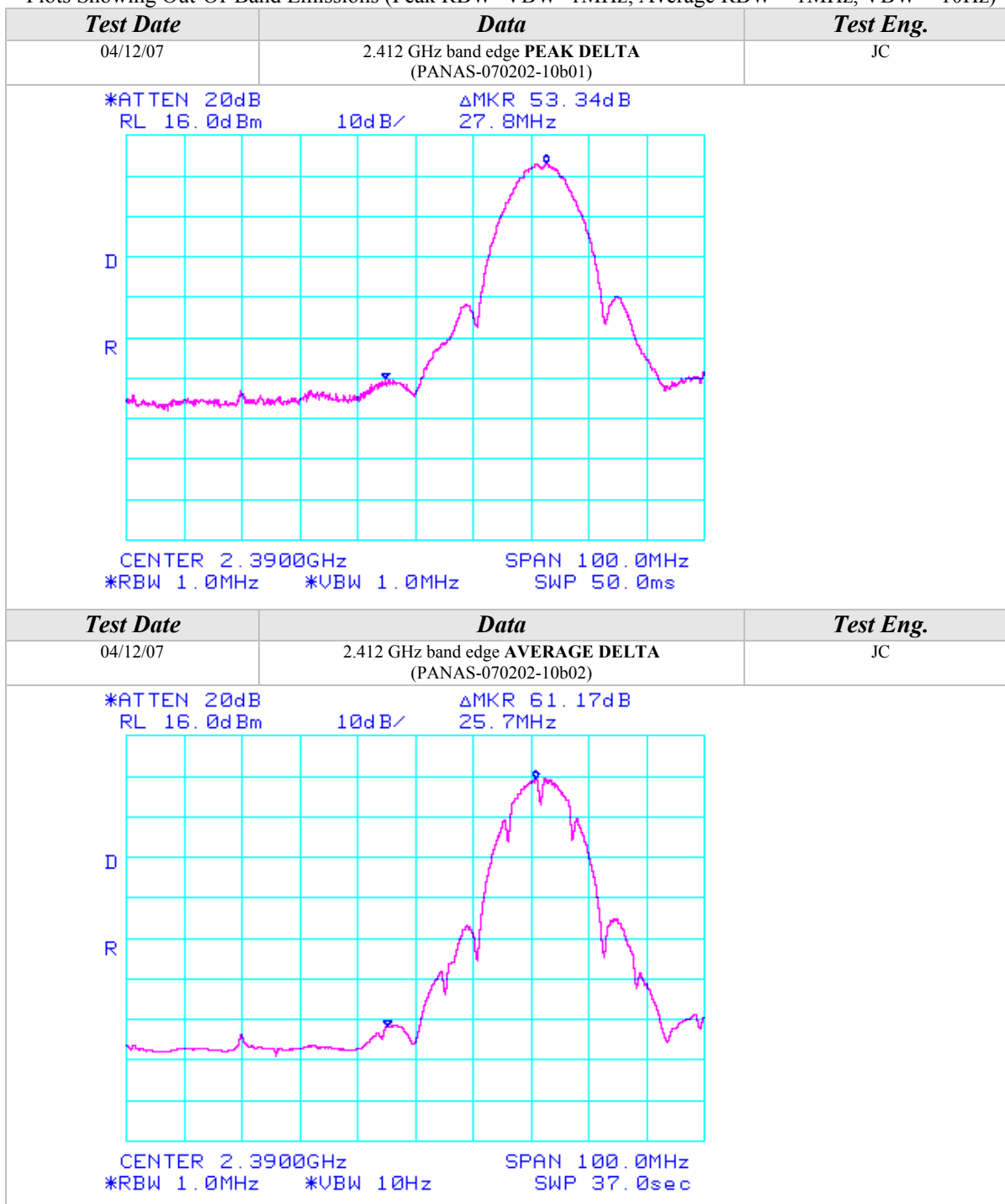
F_m = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)



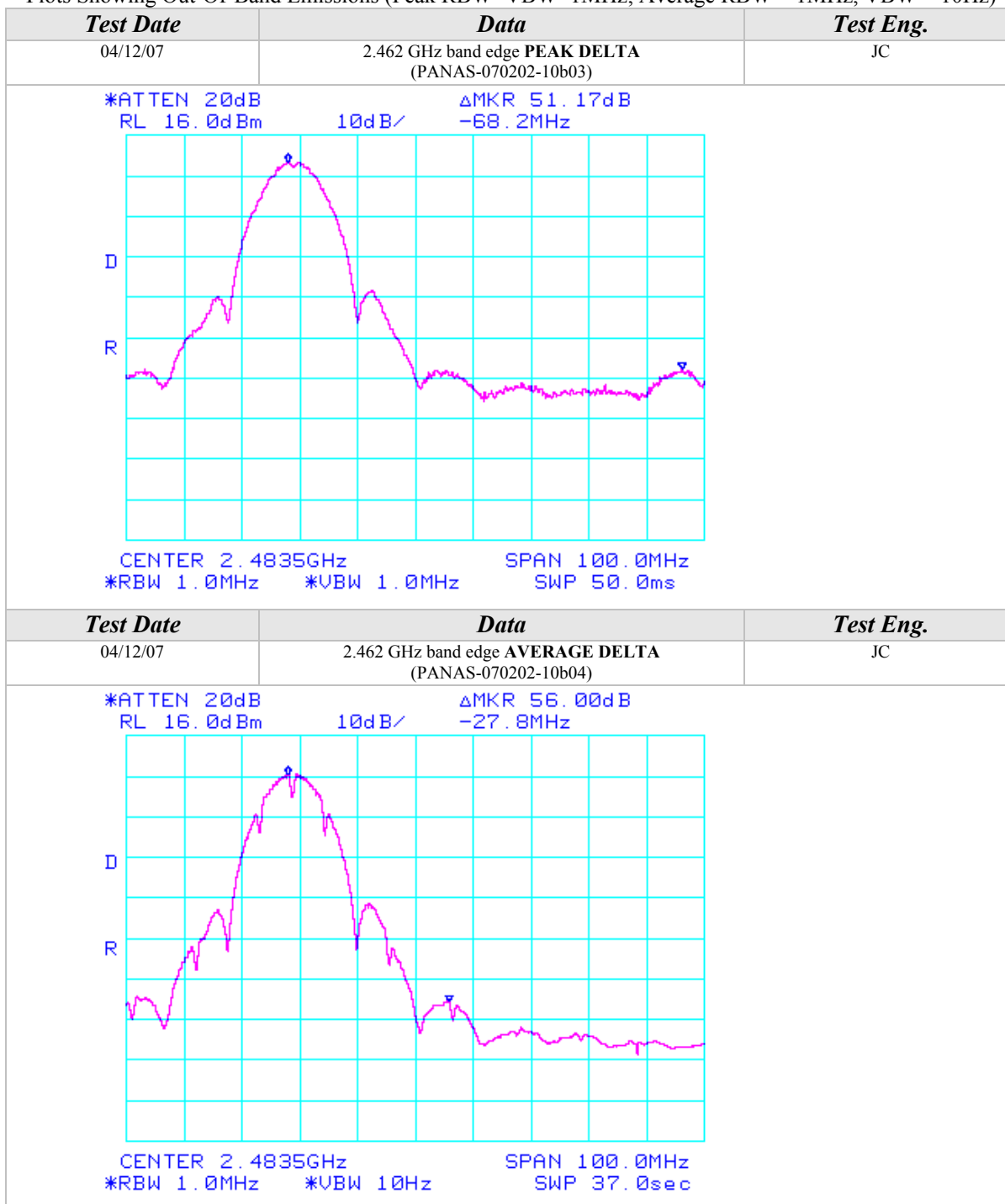
Radiated Emissions Test Results (Continued)

Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)



Radiated Emissions Test Results (Continued)

Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Spurious Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11**Continuous TX at Main Antenna port with Centurion Antenna**Aegis Labs, Inc. File #: PANAS-070202-07***RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
2312.00	32.00	100	270			9.54	1.94	29.16	53.57	74.00	-20.43	Ch. 1
2312.00				17.54	A	9.54	1.94	29.16	39.11	54.00	-14.89	
2360.00	32.17	100	270			9.54	1.97	29.32	53.92	74.00	-20.08	
2360.00				16.25	A	9.54	1.97	29.32	38.00	54.00	-16.00	
2336.00	31.83	100	270			9.54	1.96	29.24	53.49	74.00	-20.51	Ch. 6
2336.00				15.49	A	9.54	1.96	29.24	37.15	54.00	-16.85	
2360.00	31.83	100	270			9.54	1.97	29.32	53.58	74.00	-20.42	
2360.00				15.49	A	9.54	1.97	29.32	37.24	54.00	-16.76	
2280.00	33.17	100	270			9.54	1.93	29.05	54.61	74.00	-19.39	Ch. 11
2280.00				15.47	A	9.54	1.93	29.05	36.91	54.00	-17.09	
2358.66	32.83	100	270			9.54	1.97	29.32	54.58	74.00	-19.42	
2358.66				20.32	A	9.54	1.97	29.32	42.07	54.00	-11.93	
2360.00	33.17	100	270			9.54	1.97	29.32	54.92	74.00	-19.08	
2360.00				20.71	A	9.54	1.97	29.32	42.46	54.00	-11.54	

RADIATED EMISSIONS - Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
2312.00	32.83	100	270			9.54	1.94	28.74	53.97	74.00	-20.03	Ch. 1
2312.00				17.76	A	9.54	1.94	28.74	38.90	54.00	-15.10	
2360.00	32.00	100	270			9.54	1.97	28.88	53.31	74.00	-20.69	
2360.00				16.40	A	9.54	1.97	28.88	37.71	54.00	-16.29	
2336.00	32.00	100	270			9.54	1.96	28.81	53.22	74.00	-20.78	Ch. 6
2336.00				15.52	A	9.54	1.96	28.81	36.74	54.00	-17.26	
2360.00	31.50	100	270			9.54	1.97	28.88	52.81	74.00	-21.19	
2360.00				15.94	A	9.54	1.97	28.88	37.25	54.00	-16.75	
2280.00	32.50	100	270			9.54	1.93	28.64	53.53	74.00	-20.47	Ch. 11
2280.00				15.99	A	9.54	1.93	28.64	37.02	54.00	-16.98	
2358.66	33.87	100	270			9.54	1.97	28.88	55.17	74.00	-18.83	
2358.66				20.44	A	9.54	1.97	28.88	41.74	54.00	-12.26	
2360.00	33.83	100	270			9.54	1.97	28.88	55.14	74.00	-18.86	
2360.00				20.95	A	9.54	1.97	28.88	42.26	54.00	-11.74	

NOTE: These spurious emissions measurements were taken without a preamp at a distance on 1 meter to avoid saturating the preamp and analyzer because the signals were close to the fundamental frequency. The readings were extrapolated to 3 meters.



Spurious Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11**Continuous TX at Main Antenna port with Centurion Antenna**Aegis Labs, Inc. File #: PANAS-070202-06*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
1000.00	61.67	100	225			46.32	1.27	24.40	41.02	74.00	-32.98	Ch. 1
1000.00				55.19	A	46.32	1.27	24.40	34.54	54.00	-19.46	
1200.00	66.50	175	270			46.32	1.42	25.00	46.60	74.00	-27.40	
1200.00				60.68	A	46.32	1.42	25.00	40.78	54.00	-13.22	
4824.00	53.00	100	315			46.31	2.87	33.91	43.48	74.00	-30.52	
4824.00				40.98	A	46.31	2.87	33.91	31.46	54.00	-22.54	
1000.00	61.17	100	315			46.32	1.27	24.40	40.52	74.00	-33.48	Ch. 6
1000.00				54.93	A	46.32	1.27	24.40	34.28	54.00	-19.72	
1200.00	63.50	100	225			46.32	1.42	25.00	43.60	74.00	-30.40	
1200.00				56.83	A	46.32	1.42	25.00	36.93	54.00	-17.07	
4873.99	52.17	100	180			46.31	2.89	34.02	42.77	74.00	-31.23	
4873.99				39.57	A	46.31	2.89	34.02	30.17	54.00	-23.83	
1000.00	60.50	100	225			46.32	1.27	24.40	39.85	74.00	-34.15	Ch. 11
1000.00				53.90	A	46.32	1.27	24.40	33.25	54.00	-20.75	
1200.00	66.17	150	270			46.32	1.42	25.00	46.27	74.00	-27.73	
1200.00				59.90	A	46.32	1.42	25.00	40.00	54.00	-14.00	
4924.00	51.83	100	135			46.31	2.90	34.13	42.55	74.00	-31.45	
4924.00				39.93	A	46.31	2.90	34.13	30.65	54.00	-23.35	



Spurious Radiated Emissions Test Results (Continued)

RADIATED EMISSIONS - Vertical Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
1000.00	61.17	175	0			46.32	1.27	24.60	40.72	74.00	-33.28	Ch. 1
1000.00				54.48	A	46.32	1.27	24.60	34.03	54.00	-19.97	
1200.00	67.00	175	0			46.32	1.42	25.12	47.22	74.00	-26.78	
1200.00				60.74	A	46.32	1.42	25.12	40.96	54.00	-13.04	
4824.01	54.17	100	0			46.31	2.87	33.78	44.52	74.00	-29.48	
4824.01				42.99	A	46.31	2.87	33.78	33.34	54.00	-20.66	
1000.00	59.50	100	0			46.32	1.27	24.60	39.05	74.00	-34.95	Ch. 6
1000.00				52.27	A	46.32	1.27	24.60	31.82	54.00	-22.18	
1200.00	67.00	200	0			46.32	1.42	25.12	47.22	74.00	-26.78	
1200.00				60.95	A	46.32	1.42	25.12	41.17	54.00	-12.83	
4873.99	52.33	100	180			46.31	2.89	33.87	42.78	74.00	-31.22	
4873.99				40.77	A	46.31	2.89	33.87	31.22	54.00	-22.78	
1000.00	61.83	200	0			46.32	1.27	24.60	41.38	74.00	-32.62	Ch. 11
1000.00				53.63	A	46.32	1.27	24.60	33.18	54.00	-20.82	
1200.00	66.83	200	0			46.32	1.42	25.12	47.05	74.00	-26.95	
1200.00				60.68	A	46.32	1.42	25.12	40.90	54.00	-13.10	
4924.00	52.33	100	225			46.31	2.90	33.96	42.88	74.00	-31.12	
4924.00				40.92	A	46.31	2.90	33.96	31.47	54.00	-22.53	



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11**Continuous RX at Main Antenna port with Centurion Antenna**Aegis Labs, Inc. File #: PANAS-070202-06*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
1000.00	64.01	100	225			46.32	1.27	24.40	43.36	74.00	-30.64	Ch. 1
1000.00				58.00	A	46.32	1.27	24.40	37.35	54.00	-16.65	
1200.00	67.00	175	270			46.32	1.42	25.00	47.10	74.00	-26.90	
1200.00				61.25	A	46.32	1.42	25.00	41.35	54.00	-12.65	
3216.02	52.33	100	0			46.62	2.32	31.72	39.76	74.00	-34.24	
3216.02				39.67	A	46.62	2.32	31.72	27.10	54.00	-26.90	
6432.00	51.33	100	225			45.94	3.33	35.47	44.19	74.00	-29.81	
6432.00				39.29	A	45.94	3.33	35.47	32.15	54.00	-21.85	
1000.00	62.00	100	315			46.32	1.27	24.40	41.35	74.00	-32.65	Ch. 6
1000.00				55.80	A	46.32	1.27	24.40	35.15	54.00	-18.85	
1200.00	64.50	100	225			46.32	1.42	25.00	44.60	74.00	-29.40	
1200.00				57.42	A	46.32	1.42	25.00	37.52	54.00	-16.48	
3249.32	52.33	100	0			46.61	2.34	31.80	39.85	74.00	-34.15	
3249.32				39.83	A	46.61	2.34	31.80	27.35	54.00	-26.65	
6498.64	51.00	100	315			45.85	3.34	35.50	43.99	74.00	-30.01	
6498.64				38.20	A	45.85	3.34	35.50	31.19	54.00	-22.81	
1000.00	60.00	100	225			46.32	1.27	24.40	39.35	74.00	-34.65	Ch. 11
1000.00				54.00	A	46.32	1.27	24.40	33.35	54.00	-20.65	
1200.00	65.93	150	270			46.32	1.42	25.00	46.03	74.00	-27.97	
1200.00				58.90	A	46.32	1.42	25.00	39.00	54.00	-15.00	
3282.66	52.67	100	0			46.61	2.35	31.88	40.29	74.00	-33.71	
3282.66				39.90	A	46.61	2.35	31.88	27.52	54.00	-26.48	
6565.32	51.33	100	315			45.74	3.37	35.57	44.52	74.00	-29.48	
6565.32				38.59	A	45.74	3.37	35.57	31.78	54.00	-22.22	



Radiated Emissions Test Results (Continued)

RADIATED EMISSIONS - Vertical Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
1000.00	63.50	175	0			46.32	1.27	24.60	43.05	74.00	-30.95	Ch. 1
1000.00				56.00	A	46.32	1.27	24.60	35.55	54.00	-18.45	
1200.00	68.90	175	0			46.32	1.42	25.12	49.12	74.00	-24.88	
1200.00				62.40	A	46.32	1.42	25.12	42.62	54.00	-11.38	
3216.00	51.83	100	0			46.62	2.32	31.28	38.81	74.00	-35.19	
3216.00				39.57	A	46.62	2.32	31.28	26.55	54.00	-27.45	
6432.00	51.67	100	225			45.94	3.33	35.46	44.52	74.00	-29.48	
6432.00				39.53	A	45.94	3.33	35.46	32.38	54.00	-21.62	
1000.00	60.12	100	0			46.32	1.27	24.60	39.67	74.00	-34.33	Ch. 6
1000.00				53.00	A	46.32	1.27	24.60	32.55	54.00	-21.45	
1200.00	67.99	200	0			46.32	1.42	25.12	48.21	74.00	-25.79	
1200.00				61.00	A	46.32	1.42	25.12	41.22	54.00	-12.78	
3249.32	52.00	100	0			46.61	2.34	31.35	39.07	74.00	-34.93	
3249.32				39.80	A	46.61	2.34	31.35	26.87	54.00	-27.13	
6498.64	50.50	100	315			45.85	3.34	35.50	43.49	74.00	-30.51	
6498.64				38.24	A	45.85	3.34	35.50	31.23	54.00	-22.77	
1000.00	64.90	200	0			46.32	1.27	24.60	44.45	74.00	-29.55	Ch. 11
1000.00				56.10	A	46.32	1.27	24.60	35.65	54.00	-18.35	
1200.00	68.23	200	0			46.32	1.42	25.12	48.45	74.00	-25.55	
1200.00				62.80	A	46.32	1.42	25.12	43.02	54.00	-10.98	
3282.67	52.00	100	0			46.61	2.35	31.42	39.16	74.00	-34.84	
3282.67				39.67	A	46.61	2.35	31.42	26.83	54.00	-27.17	
6565.32	50.83	100	315			45.74	3.37	35.55	44.00	74.00	-30.00	
6565.32				38.28	A	45.74	3.37	35.55	31.45	54.00	-22.55	

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Panasonic Avionics	DATE:	04/11/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC/BM
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot in 802.11g (2400-2483.5 MHz) mode with Centurion Antenna.	TEMPERATURE:	18 deg. C
		HUMIDITY:	58% RH
		TIME:	11:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

Fundamental Measurements in 802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11****Continuous TX at Main Antenna port with Centurion Antenna****Aegis Labs, Inc. File #: PANAS-070202-05****RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2412.00	71.17	150	225			1.99	29.50	102.66			Ch. 1
2412.00				61.37	A	1.99	29.50	92.86			
2437.00	70.83	175	270			2.00	29.59	102.42			Ch. 6
2437.00				61.04	A	2.00	29.59	92.63			
2462.00	71.67	150	270			2.01	29.67	103.35			Ch. 11
2462.00				61.86	A	2.01	29.67	93.54			

RADIATED EMISSIONS – Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2412.00	75.33	100	0			1.99	29.04	106.36			Ch. 1
2412.00				65.15	A	1.99	29.04	96.18			
2437.00	74.17	100	0			2.00	29.11	105.28			Ch. 6
2437.00				64.08	A	2.00	29.11	95.19			
2462.00	75.33	100	0			2.01	29.19	106.53			Ch. 11
2462.00				65.65	A	2.01	29.19	96.85			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

Band Edge Field Strength Measurements in 802.11g mode (2400-2483.5 MHz)
Channels 1 & 11**Continuous TX at Main Antenna port with Centurion Antenna**
Aegis Labs, Inc. File #: PANAS-070202-05**RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2390.00							57.82	74.00	-16.18	Ch. 1
2390.00				A			43.86	54.00	-10.14	
2400.00	46.67	150	225		1.98	29.46	78.11	82.66	-4.55	
2483.50							61.02	74.00	-12.98	Ch. 11
2483.50				A			43.37	54.00	-10.63	

RADIATED EMISSIONS – Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
2390.00							61.52	74.00	-12.48	Ch. 1
2390.00				A			47.18	54.00	-6.82	
2400.00	51.00	100	0		1.98	29.00	81.98	86.36	-4.37	
2483.50							64.20	74.00	-9.80	Ch. 11
2483.50				A			46.68	54.00	-7.32	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = F_m - \Delta m$$

Where

BE = Band Edge Field Strength

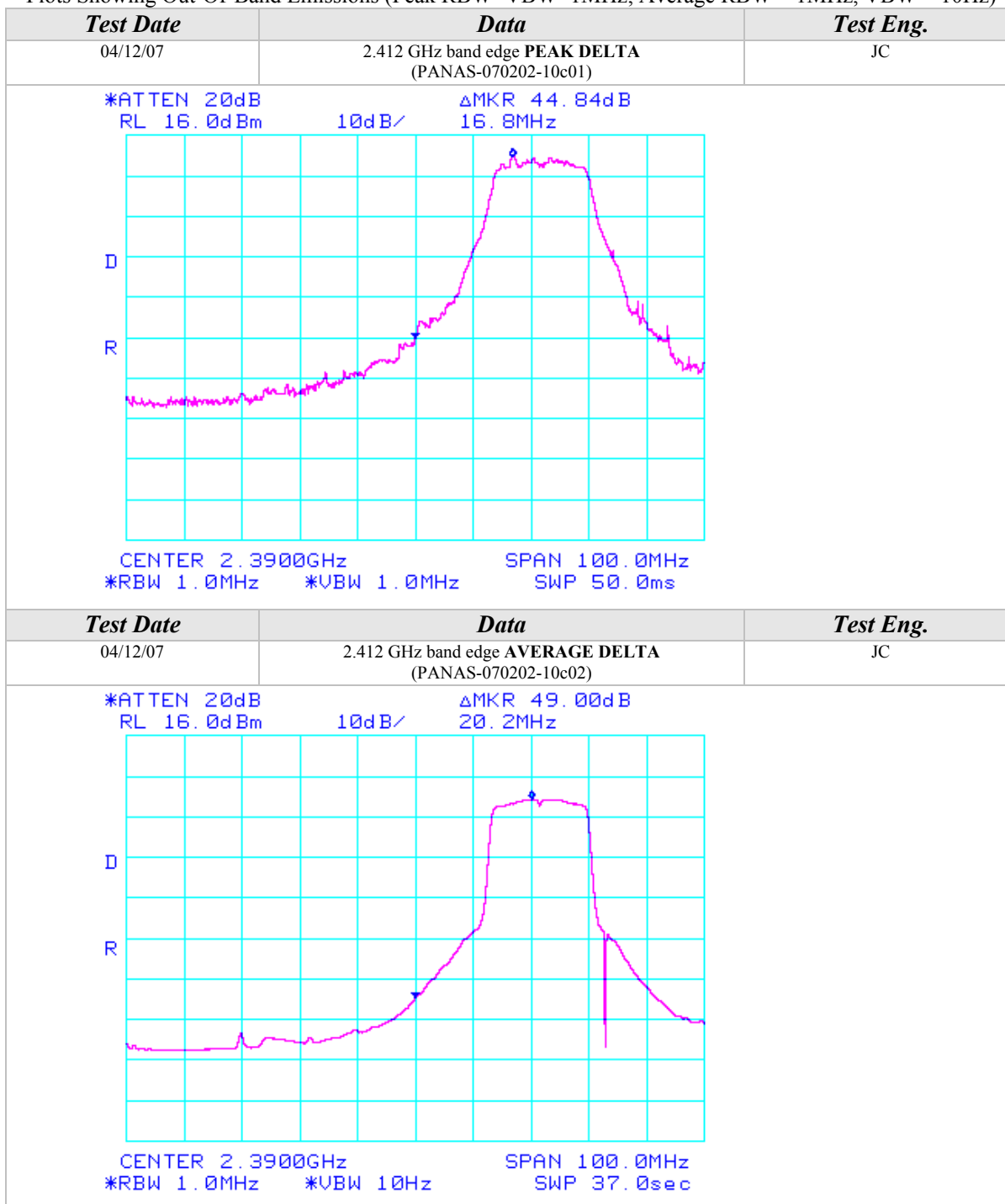
F_m = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)



Radiated Emissions Test Results (Continued)

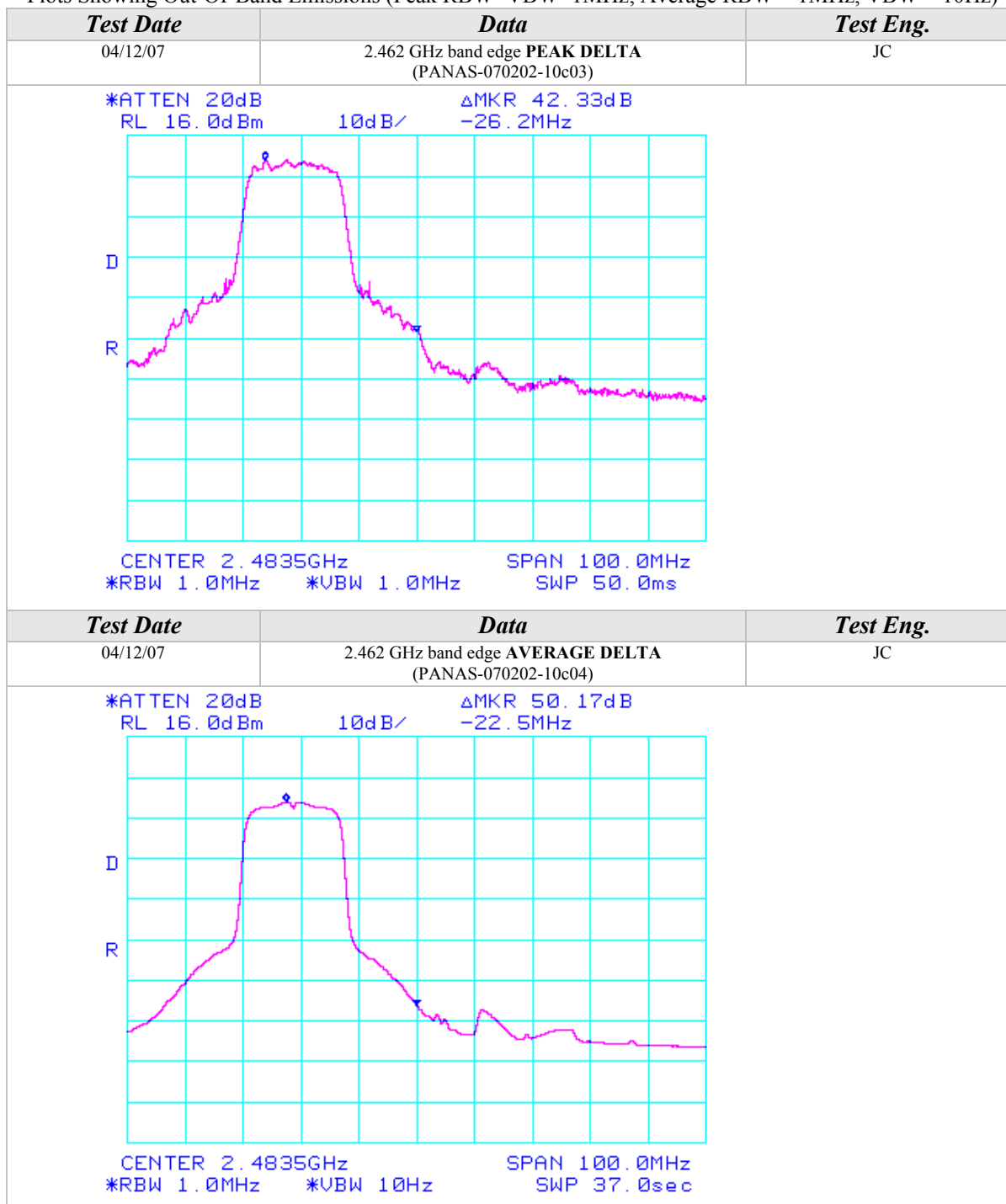
Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Radiated Emissions Test Results (Continued)

Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Spurious Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11**Continuous TX at Main Antenna port with Centurion Antenna**Aegis Labs, Inc. File #: PANAS-070202-07***RADIATED EMISSIONS - Horizontal Antenna Polarization**

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
2280.00	32.00	100	270			9.54	1.93	29.05	53.44	74.00	-20.56	Ch. 1
2280.00				15.50	A	9.54	1.93	29.05	36.94	54.00	-17.06	
2312.00	35.00	100	270			9.54	1.94	29.16	56.57	74.00	-17.43	
2312.00				26.59	A	9.54	1.94	29.16	48.16	54.00	-5.84	
2360.00	33.33	100	270			9.54	1.97	29.32	55.08	74.00	-18.92	
2360.00				20.13	A	9.54	1.97	29.32	41.88	54.00	-12.12	
2280.00	31.67	100	270			9.54	1.93	29.05	53.11	74.00	-20.89	Ch. 6
2280.00				16.10	A	9.54	1.93	29.05	37.54	54.00	-16.46	
2336.00	35.50	100	270			9.54	1.96	29.24	57.16	74.00	-16.84	
2336.00				26.97	A	9.54	1.96	29.24	48.63	54.00	-5.37	
2360.00	32.83	100	270			9.54	1.97	29.32	54.58	74.00	-19.42	
2360.00				18.82	A	9.54	1.97	29.32	40.57	54.00	-13.43	
2358.66	35.00	100	270			9.54	1.97	29.32	56.75	74.00	-17.25	Ch. 11
2358.66				25.52	A	9.54	1.97	29.32	47.27	54.00	-6.73	
2360.00	34.50	100	270			9.54	1.97	29.32	56.25	74.00	-17.75	
2360.00				25.02	A	9.54	1.97	29.32	46.77	54.00	-7.23	

RADIATED EMISSIONS - Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Distance Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
2280.00	31.67	100	270			9.54	1.93	28.64	52.70	74.00	-21.30	Ch. 1
2280.00				16.15	A	9.54	1.93	28.64	37.18	54.00	-16.82	
2312.00	35.67	100	270			9.54	1.94	28.74	56.81	74.00	-17.19	
2312.00				26.69	A	9.54	1.94	28.74	47.83	54.00	-6.17	
2360.00	33.83	100	270			9.54	1.97	28.88	55.14	74.00	-18.86	
2360.00				20.80	A	9.54	1.97	28.88	42.11	54.00	-11.89	
2280.00	32.33	100	270			9.54	1.93	28.64	53.36	74.00	-20.64	Ch. 6
2280.00				16.15	A	9.54	1.93	28.64	37.18	54.00	-16.82	
2336.00	35.67	100	270			9.54	1.96	28.81	56.89	74.00	-17.11	
2336.00				28.00	A	9.54	1.96	28.81	49.22	54.00	-4.78	
2360.00	33.00	100	270			9.54	1.97	28.88	54.31	74.00	-19.69	
2360.00				19.04	A	9.54	1.97	28.88	40.35	54.00	-13.65	
2358.66	35.50	100	270			9.54	1.97	28.88	56.80	74.00	-17.20	Ch. 11
2358.66				26.54	A	9.54	1.97	28.88	47.84	54.00	-6.16	
2360.00	36.17	100	270			9.54	1.97	28.88	57.48	74.00	-16.52	
2360.00				25.79	A	9.54	1.97	28.88	47.10	54.00	-6.90	

NOTE: These spurious emissions measurements were taken without a preamp at a distance on 1 meter to avoid saturating the preamp and analyzer because the signals were close to the fundamental frequency. The readings were extrapolated to 3 meters.



Spurious Radiated Emissions Test Results (Continued)

Spurious Emissions Measurements in 802.11g mode (2400-2483.5 MHz)

Channels 1, 6, & 11

Continuous TX at Main Antenna port with Centurion Antenna

Aegis Labs, Inc. File #: PANAS-070202-06

RADIATED EMISSIONS - Horizontal Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
1000.00	61.50	100	270			46.32	1.27	24.40	40.85	74.00	-33.15	Ch. 1
1000.00				55.41	A	46.32	1.27	24.40	34.76	54.00	-19.24	
1200.00	63.33	125	270			46.32	1.42	25.00	43.43	74.00	-30.57	
1200.00				56.87	A	46.32	1.42	25.00	36.97	54.00	-17.03	
3216.00	52.50	100	225			46.62	2.32	31.72	39.93	82.66	-42.73	
1000.00	61.17	100	270			46.32	1.27	24.40	40.52	74.00	-33.48	Ch. 6
1000.00				54.82	A	46.32	1.27	24.40	34.17	54.00	-19.83	
1200.00	63.83	100	315			46.32	1.42	25.00	43.93	74.00	-30.07	
1200.00				56.87	A	46.32	1.42	25.00	36.97	54.00	-17.03	
3249.32	52.00	100	0			46.61	2.34	31.80	39.52	82.42	-42.90	
1000.00	61.17	100	225			46.32	1.27	24.40	40.52	74.00	-33.48	Ch. 11
1000.00				54.67	A	46.32	1.27	24.40	34.02	54.00	-19.98	
1200.00	65.67	150	270			46.32	1.42	25.00	45.77	74.00	-28.23	
1200.00				59.29	A	46.32	1.42	25.00	39.39	54.00	-14.61	
3282.66	53.00	100	0			46.61	2.35	31.88	40.62	83.35	-42.73	

RADIATED EMISSIONS - Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
1000.00	59.17	100	0			46.32	1.27	24.60	38.72	74.00	-35.28	Ch. 1
1000.00				52.17	A	46.32	1.27	24.60	31.72	54.00	-22.28	
1200.00	66.83	200	0			46.32	1.42	25.12	47.05	74.00	-26.95	
1200.00				60.86	A	46.32	1.42	25.12	41.08	54.00	-12.92	
3216.00	52.67	100	0			46.62	2.32	31.28	39.65	86.36	-46.71	
1000.00	59.83	175	0			46.32	1.27	24.60	39.38	74.00	-34.62	Ch. 6
1000.00				53.63	A	46.32	1.27	24.60	33.18	54.00	-20.82	
1200.00	67.50	200	0			46.32	1.42	25.12	47.72	74.00	-26.28	
1200.00				61.12	A	46.32	1.42	25.12	41.34	54.00	-12.66	
3249.32	52.50	100	0			46.61	2.34	31.35	39.57	85.28	-45.71	
1000.00	60.50	175	0			46.32	1.27	24.60	40.05	74.00	-33.95	Ch. 11
1000.00				53.50	A	46.32	1.27	24.60	33.05	54.00	-20.95	
1200.00	66.83	200	0			46.32	1.42	25.12	47.05	74.00	-26.95	
1200.00				60.59	A	46.32	1.42	25.12	40.81	54.00	-13.19	
3282.66	52.33	100	0			46.61	2.35	31.42	39.49	86.53	-47.04	



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11**Continuous RX at Main Antenna port with Centurion Antenna**Aegis Labs, Inc. File #: PANAS-070202-06*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
1000.00	62.35	100	270			46.32	1.27	24.40	41.70	74.00	-32.30	Ch. 1
1000.00				57.00	A	46.32	1.27	24.40	36.35	54.00	-17.65	
1200.00	64.00	125	270			46.32	1.42	25.00	44.10	74.00	-29.90	
1200.00				57.80	A	46.32	1.42	25.00	37.90	54.00	-16.10	
3216.00	51.67	100	0			46.62	2.32	31.72	39.10	74.00	-34.90	
3216.00				39.83	A	46.62	2.32	31.72	27.26	54.00	-26.74	
6432.00	51.50	100	0			45.94	3.33	35.47	44.36	74.00	-29.64	
6432.00				39.46	A	45.94	3.33	35.47	32.32	54.00	-21.68	
1000.00	62.00	100	270			46.32	1.27	24.40	41.35	74.00	-32.65	Ch. 6
1000.00				56.23	A	46.32	1.27	24.40	35.58	54.00	-18.42	
1200.00	64.12	100	315			46.32	1.42	25.00	44.22	74.00	-29.78	
1200.00				57.00	A	46.32	1.42	25.00	37.10	54.00	-16.90	
3249.32	52.17	100	0			46.61	2.34	31.80	39.69	74.00	-34.31	
3249.32				39.87	A	46.61	2.34	31.80	27.39	54.00	-26.61	
6498.64	50.17	100	0			45.85	3.34	35.50	43.16	74.00	-30.84	
6498.64				38.04	A	45.85	3.34	35.50	31.03	54.00	-22.97	
1000.00	62.83	100	225			46.32	1.27	24.40	42.18	74.00	-31.82	Ch. 11
1000.00				55.00	A	46.32	1.27	24.40	34.35	54.00	-19.65	
1200.00	64.87	150	270			46.32	1.42	25.00	44.97	74.00	-29.03	
1200.00				60.00	A	46.32	1.42	25.00	40.10	54.00	-13.90	
3282.66	51.83	100	0			46.61	2.35	31.88	39.45	74.00	-34.55	
3282.66				39.80	A	46.61	2.35	31.88	27.42	54.00	-26.58	
6565.32	50.50	100	225			45.74	3.37	35.57	43.69	74.00	-30.31	
6565.32				38.32	A	45.74	3.37	35.57	31.51	54.00	-22.49	



Radiated Emissions Test Results (Continued)

RADIATED EMISSIONS - Vertical Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
1000.00	60.54	100	0			46.32	1.27	24.60	40.09	74.00	-33.91	Ch. 1
1000.00				54.17	A	46.32	1.27	24.60	33.72	54.00	-20.28	
1200.00	67.63	200	0			46.32	1.42	25.12	47.85	74.00	-26.15	
1200.00				61.86	A	46.32	1.42	25.12	42.08	54.00	-11.92	
3216.00	51.33	100	0			46.62	2.32	31.28	38.31	74.00	-35.69	
3216.00				39.57	A	46.62	2.32	31.28	26.55	54.00	-27.45	
6432.00	51.17	100	135			45.94	3.33	35.46	44.02	74.00	-29.98	
6432.00				39.29	A	45.94	3.33	35.46	32.14	54.00	-21.86	
1000.00	59.17	175	0			46.32	1.27	24.60	38.72	74.00	-35.28	Ch. 6
1000.00				54.29	A	46.32	1.27	24.60	33.84	54.00	-20.16	
1200.00	68.33	200	0			46.32	1.42	25.12	48.55	74.00	-25.45	
1200.00				62.17	A	46.32	1.42	25.12	42.39	54.00	-11.61	
3249.33	51.50	100	0			46.61	2.34	31.35	38.57	74.00	-35.43	
3249.33				39.83	A	46.61	2.34	31.35	26.90	54.00	-27.10	
6498.64	50.83	100	225			45.85	3.34	35.50	43.82	74.00	-30.18	
6498.64				38.40	A	45.85	3.34	35.50	31.39	54.00	-22.61	
1000.00	63.00	175	0			46.32	1.27	24.60	42.55	74.00	-31.45	Ch. 11
1000.00				54.40	A	46.32	1.27	24.60	33.95	54.00	-20.05	
1200.00	68.83	200	0			46.32	1.42	25.12	49.05	74.00	-24.95	
1200.00				59.59	A	46.32	1.42	25.12	39.81	54.00	-14.19	
3282.67	51.50	100	0			46.61	2.35	31.42	38.66	74.00	-35.34	
3282.67				39.60	A	46.61	2.35	31.42	26.76	54.00	-27.24	
6565.32	50.67	100	315			45.74	3.37	35.55	43.84	74.00	-30.16	
6565.32				38.44	A	45.74	3.37	35.55	31.61	54.00	-22.39	

**PEAK TRANSMIT POWER**

CLIENT:	Panasonic Avionics	DATE:	04/11/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot.	TEMPERATURE:	16 deg. C
		HUMIDITY:	67% RH
		TIME:	9:15 AM

Description:	The maximum peak output power of the intentional radiator shall not exceed 1 watt.
Results:	Passed (See Data Sheet)
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC

Peak Transmit Power Limits	
Frequency (MHz)	Output Power (W)
2412-2462	1



Peak Transmit Power (Continued)

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Average Power (dBm)	Average Power (mW)	Peak Power (dBm)	Peak Power (mW)
802.11b	1	2412	1	15.27	33.65	17.31	53.83
802.11b	1	2412	5.5	15.30	33.88	17.38	54.70
802.11b	1	2412	11	15.35	34.28	17.50	56.23
802.11b	6	2437	1	16.91	49.09	19.01	79.62
802.11b	6	2437	5.5	17.06	50.82	19.15	82.22
802.11b	6	2437	11	17.02	50.35	19.24	83.95
802.11b	11	2462	1	16.85	48.42	18.88	77.27
802.11b	11	2462	5.5	16.94	49.43	19.02	79.80
802.11b	11	2462	11	16.89	48.87	19.12	81.66
802.11g	1	2412	6	15.05	31.99	23.84	242.10
802.11g	1	2412	36	14.95	31.26	24.04	253.51
802.11g	1	2412	54	14.84	30.48	24.32	270.40
802.11g	6	2437	6	14.97	31.41	23.59	228.56
802.11g	6	2437	36	14.86	30.62	23.87	243.78
802.11g	6	2437	54	14.79	30.13	23.92	246.60
802.11g	11	2462	6	15.25	33.50	23.94	247.74
802.11g	11	2462	36	15.30	33.88	24.07	255.27
802.11g	11	2462	54	15.34	34.20	24.11	257.63

NOTE: The output power measurement is conducted.

**6dB EMISSIONS BANDWIDTH**

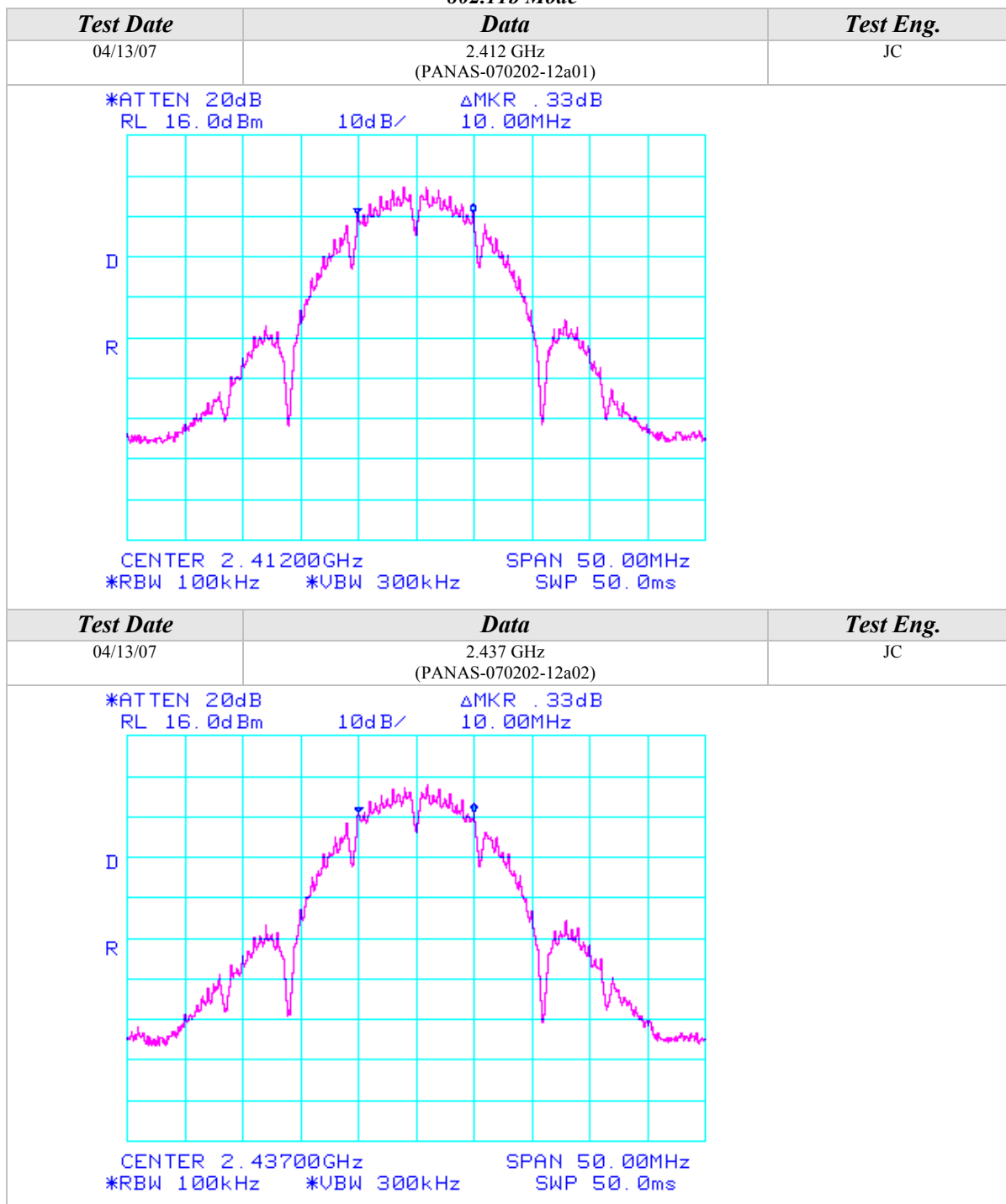
CLIENT:	Panasonic Avionics	DATE:	04/13/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot.	TEMPERATURE:	21 deg. C
		HUMIDITY:	42% RH
		TIME:	11:15 AM

Description:	The minimum 6dB bandwidth shall be at least 500 kHz.
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC



6dB Emissions Bandwidth (Continued)

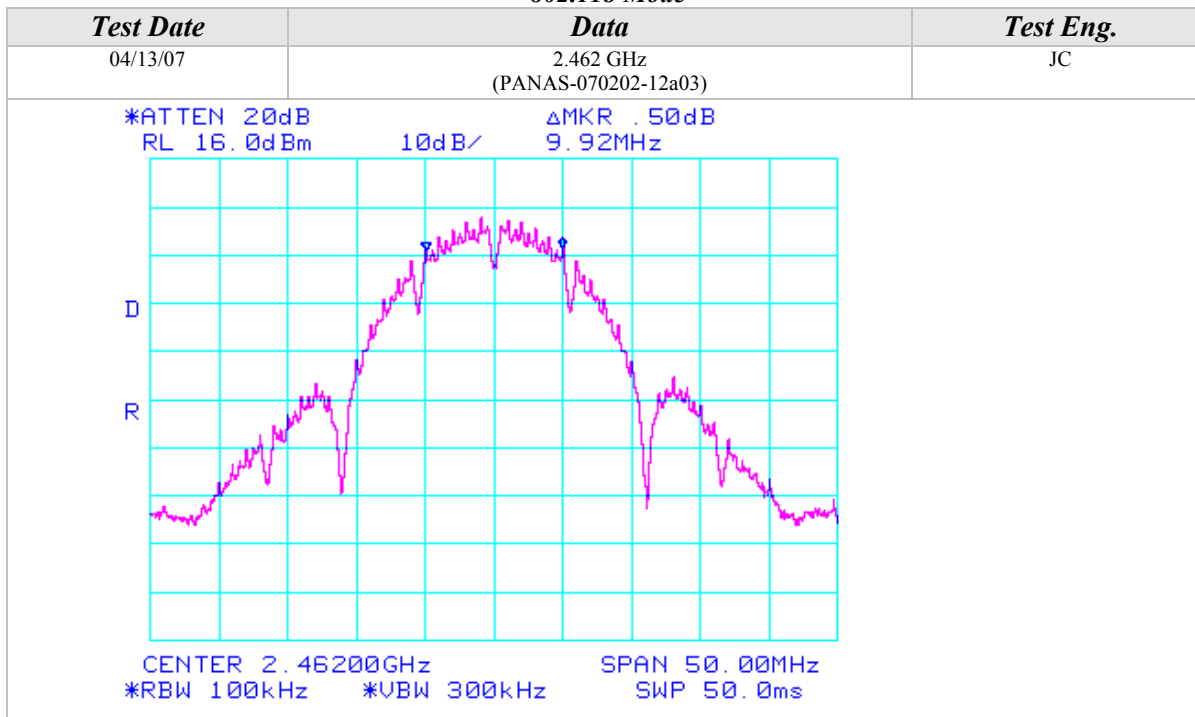
802.11b Mode



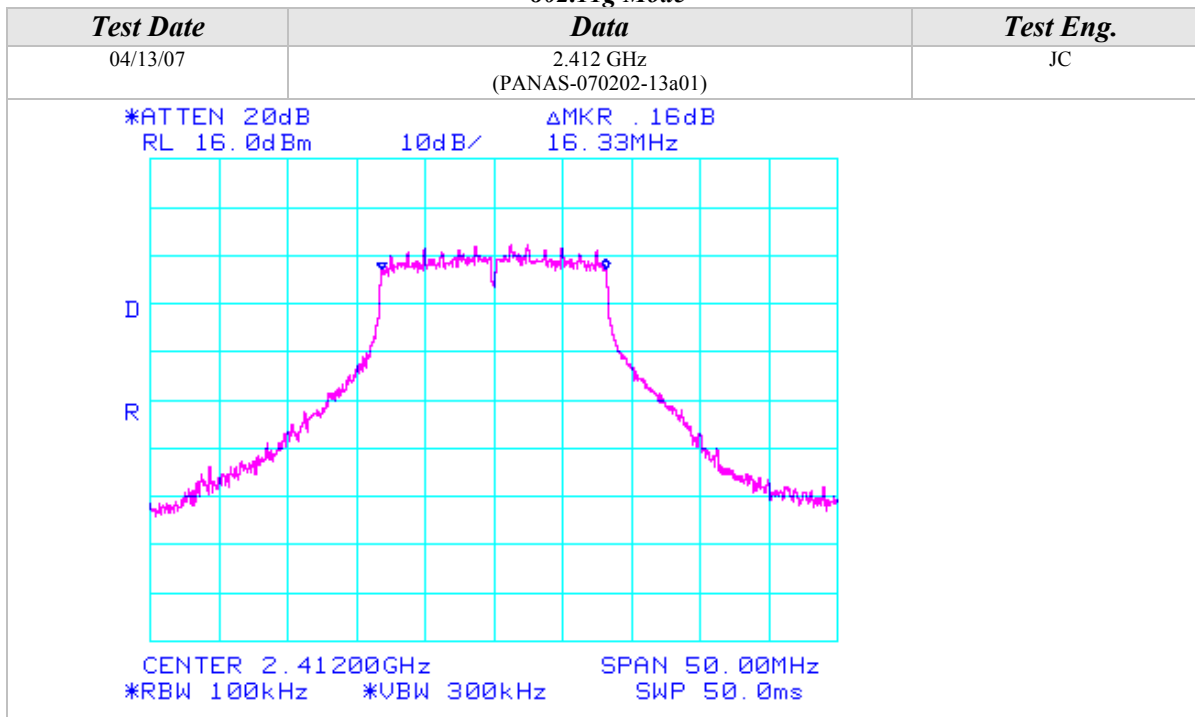


6dB Emissions Bandwidth (Continued)

802.11b Mode



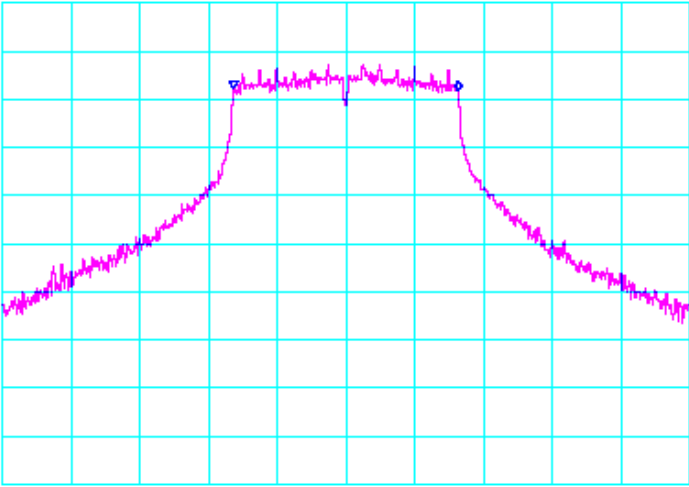
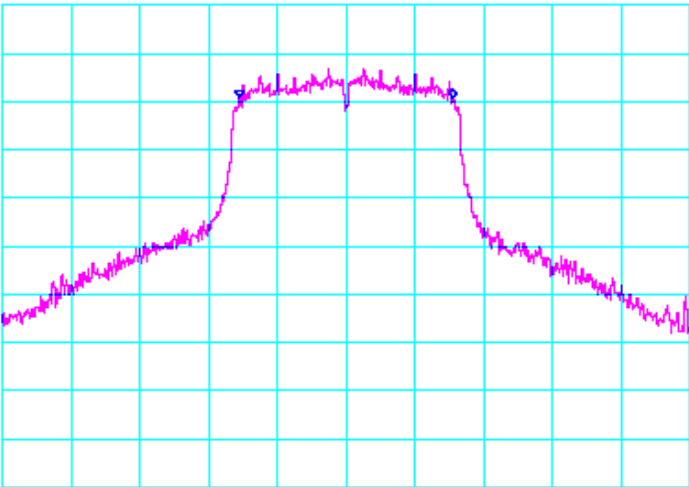
802.11g Mode





6dB Emissions Bandwidth (Continued)

802.11g Mode

Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-13a02)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>ΔMKR -.50dB 16.33MHz</div></div><div>CENTER 2.43700GHz SPAN 50.00MHz *RBW 100kHz *VBW 300kHz SWP 50.0ms</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-13a03)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>ΔMKR -.16dB 15.50MHz</div></div><div>CENTER 2.46200GHz SPAN 50.00MHz *RBW 100kHz *VBW 300kHz SWP 50.0ms</div></div>		

**PEAK POWER SPECTRAL DENSITY**

CLIENT:	Panasonic Avionics	DATE:	04/13/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot.	TEMPERATURE:	21 deg. C
		HUMIDITY:	42% RH
		TIME:	11:15 AM

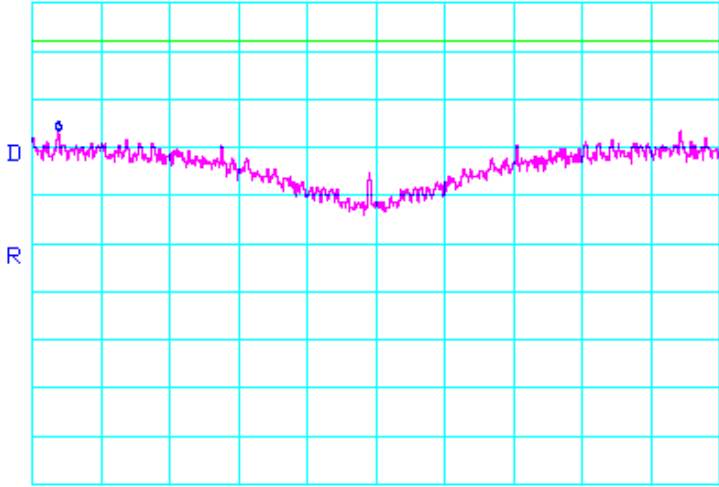
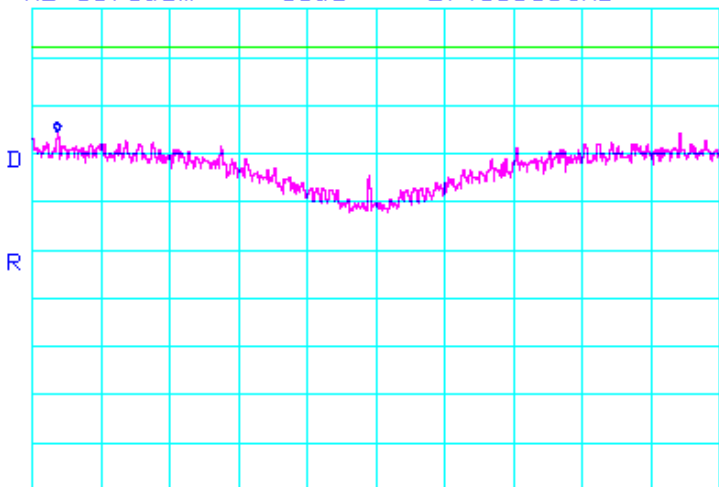
Description:	The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC

Peak Power Spectral Density Limits	
Frequency (MHz)	Limit (dBm)
2412-2462	8



Peak Power Spectral Density (Continued)

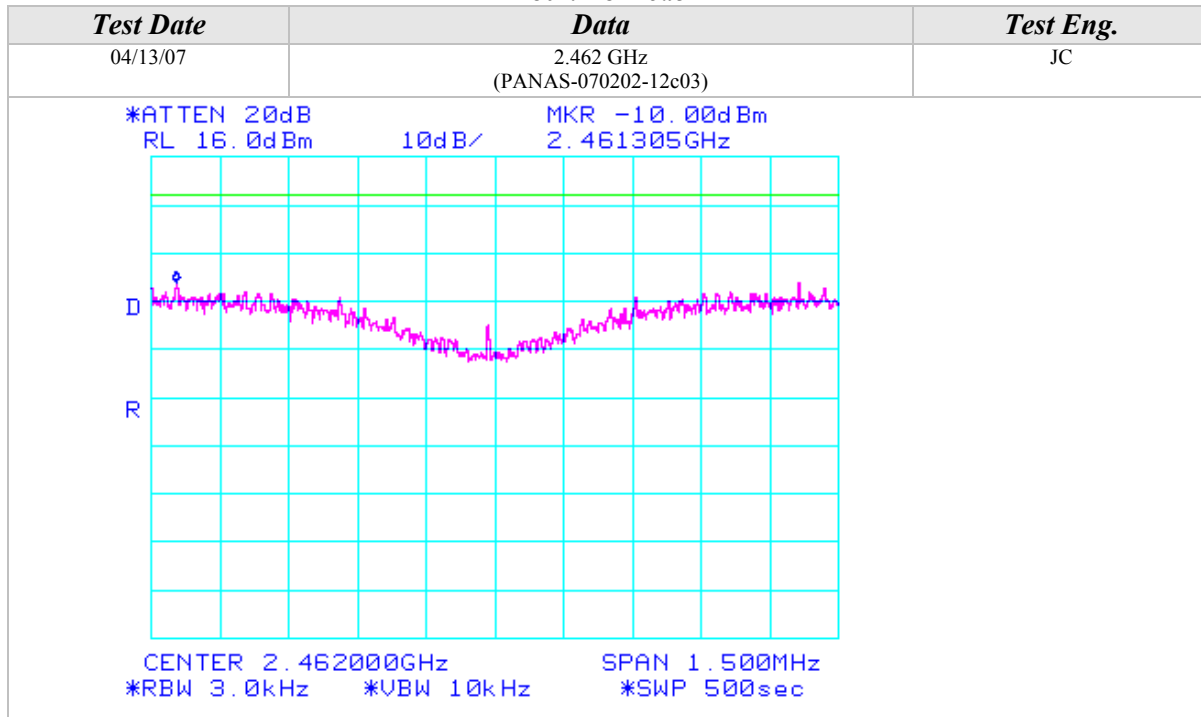
802.11b Mode

Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-12c01)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -10.67dBm 2.411308GHz</div></div><div>CENTER 2.412000GHz *RBW 3.0kHz *VBW 10kHz *SWP 500sec</div><div>SPAN 1.500MHz</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-12c02)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -9.33dBm 2.436305GHz</div></div><div>CENTER 2.437000GHz *RBW 3.0kHz *VBW 10kHz *SWP 500sec</div><div>SPAN 1.500MHz</div></div>		

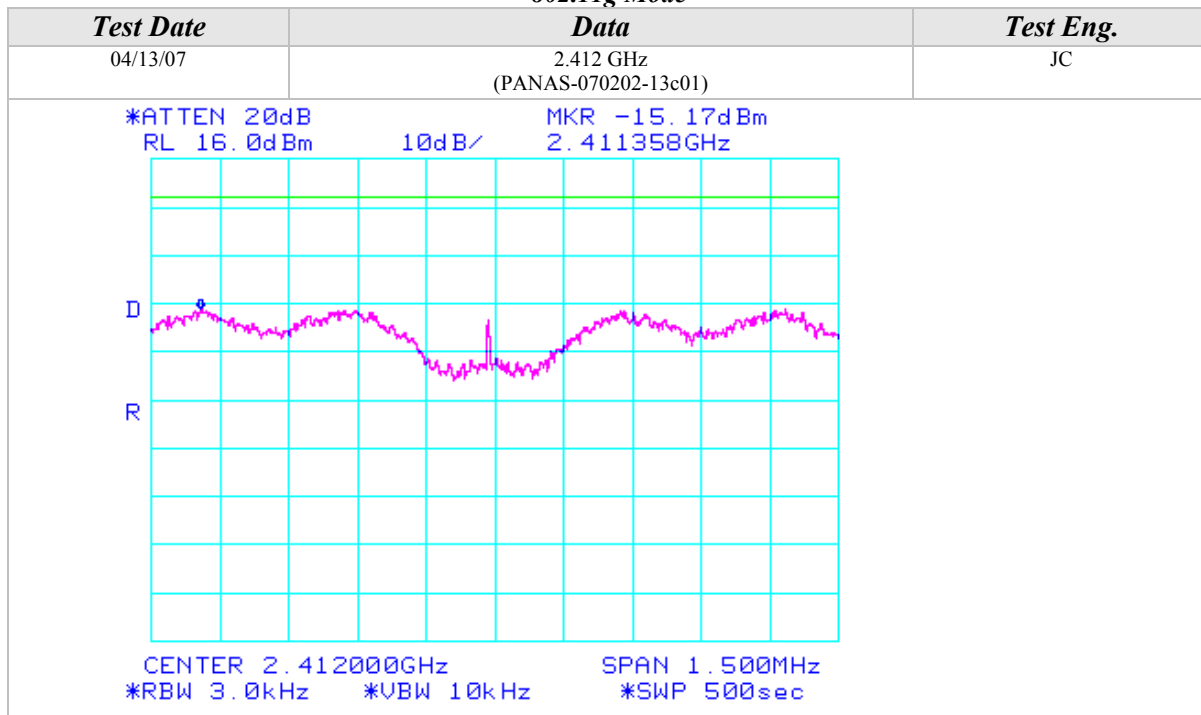


Peak Power Spectral Density (Continued)

802.11b Mode



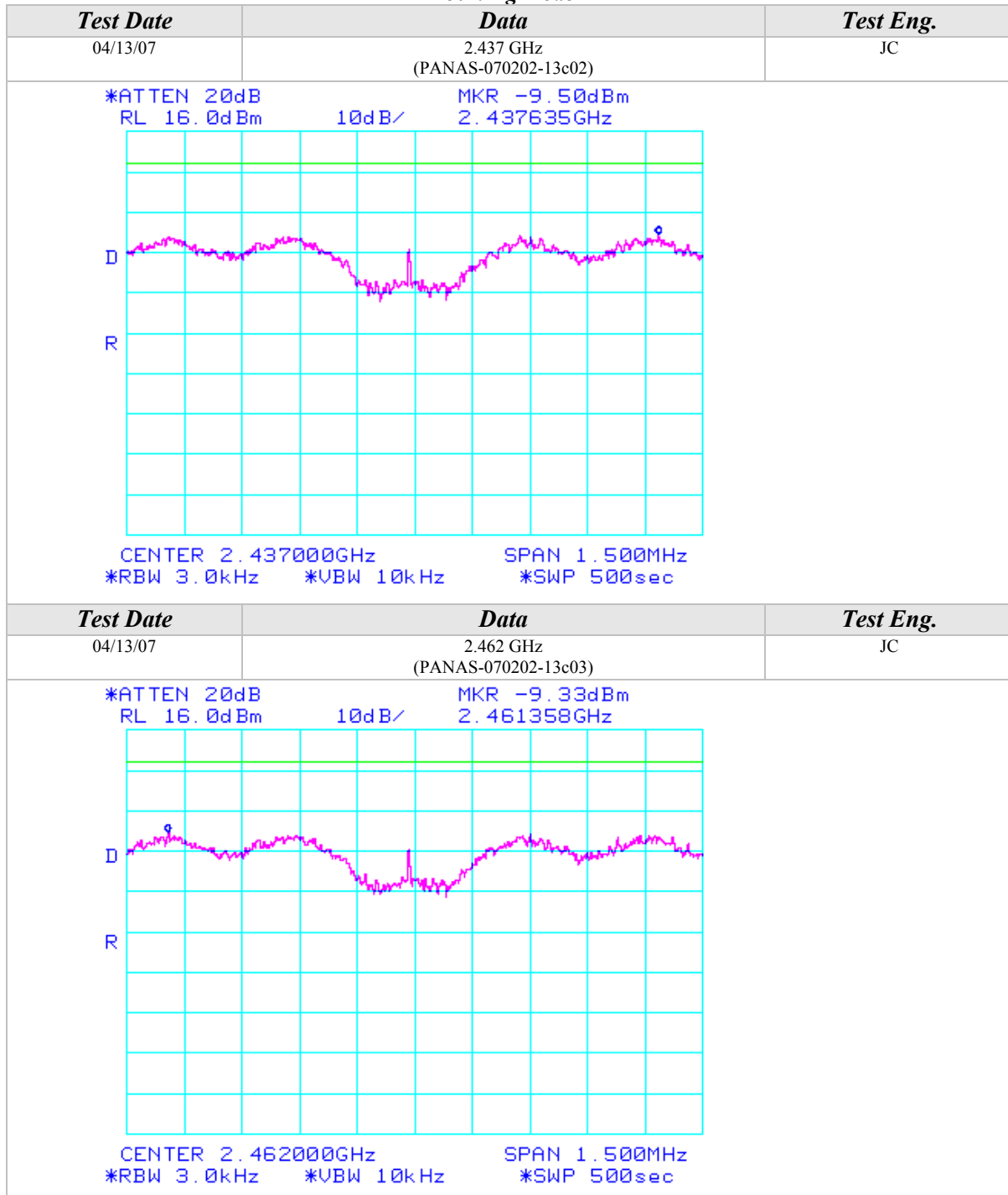
802.11g Mode





Peak Power Spectral Density (Continued)

802.11g Mode



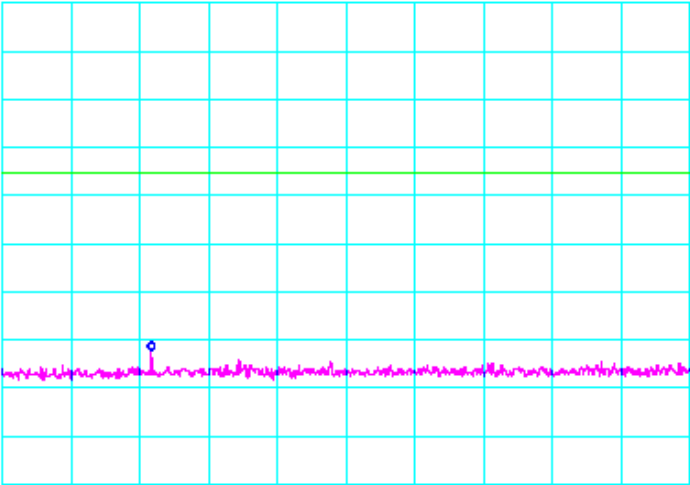
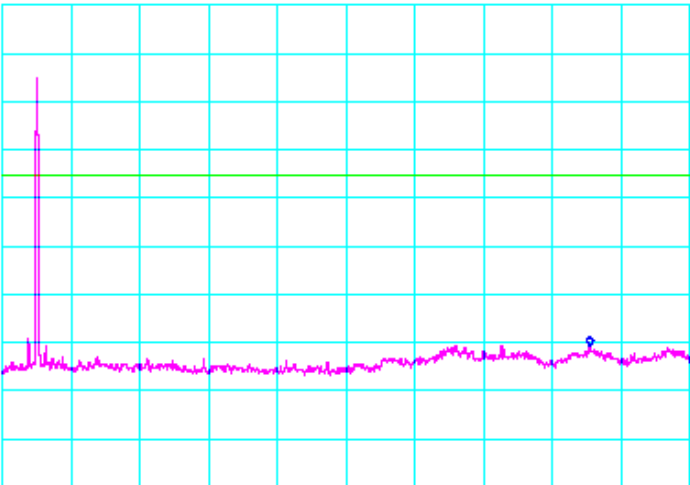
**CONDUCTED OUT OF BAND EMISSIONS**

CLIENT:	Panasonic Avionics	DATE:	04/13/07
EUT:	Premium Seat Electronics Box	PROJECT NUMBER:	PANAS-070202
MODEL NUMBER:	RD-FA3221-01	TEST ENGINEER:	JC
SERIAL NUMBER:	D085560	SITE #:	2
CONFIGURATION:	Tested with an Intel PRO/Wireless 2915ABG Network Connection installed in the EUT's mini PCI slot.	TEMPERATURE:	21 deg. C
		HUMIDITY:	42% RH
		TIME:	11:15 AM

Description:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage. <ul style="list-style-type: none">• 28VDC



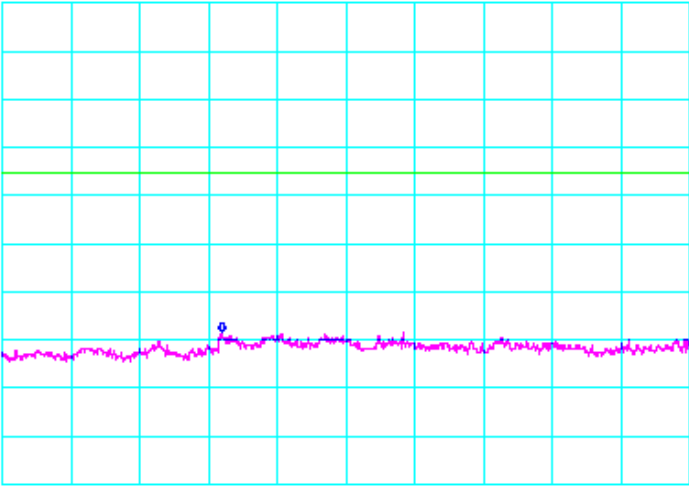
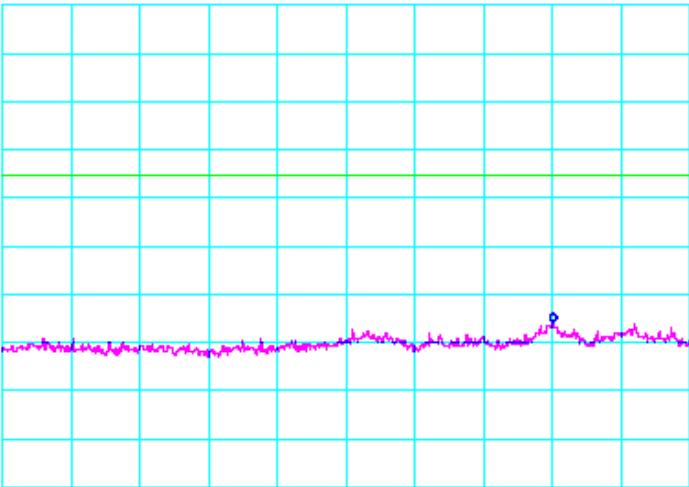
Conducted Out Of Band Emissions (Continued)

802.11b Mode		
Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-12d01)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -56.33dBm 457MHz</div></div><div>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-12d02)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -54.67dBm 8.840GHz</div></div><div>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</div></div>		



Conducted Out Of Band Emissions (Continued)

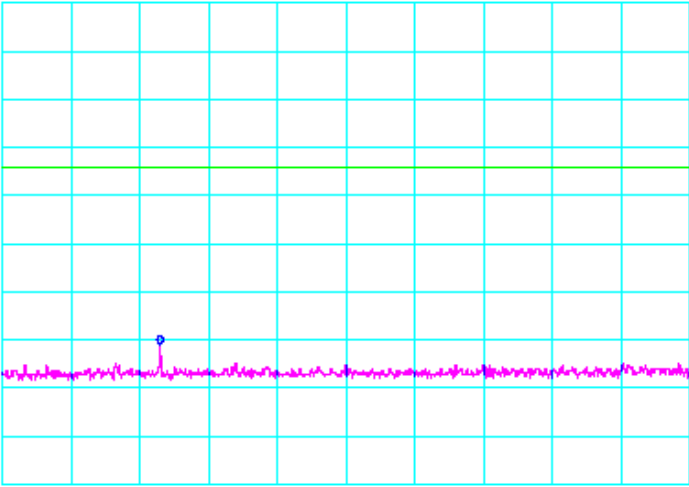
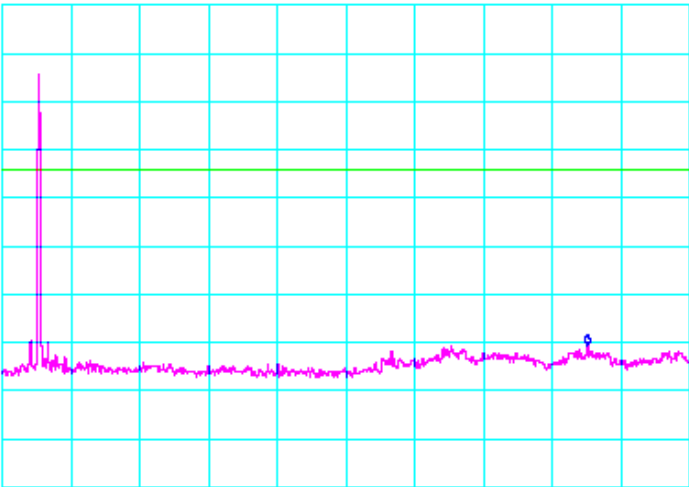
802.11b Mode

Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-12d03)	JC
<p>*ATTEN 20dB MKR -52.50dBm RL 16.0dBm 10dB/ 13.20GHz</p>  <p>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-12d04)	JC
<p>*ATTEN 20dB MKR -49.83dBm RL 16.0dBm 10dB/ 24.810GHz</p>  <p>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</p>		



Conducted Out Of Band Emissions (Continued)

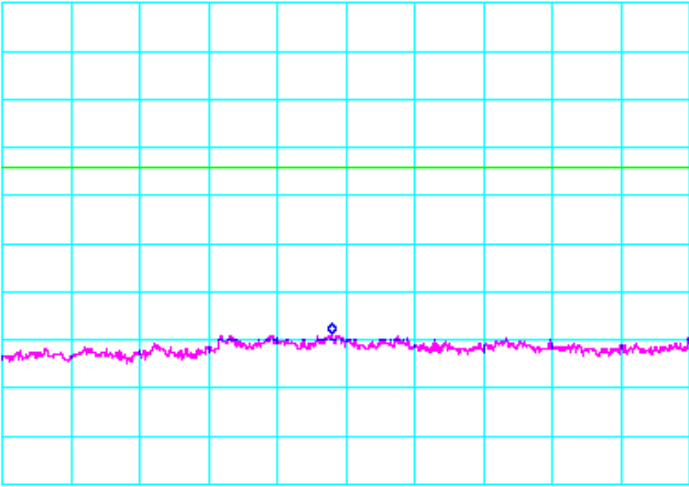
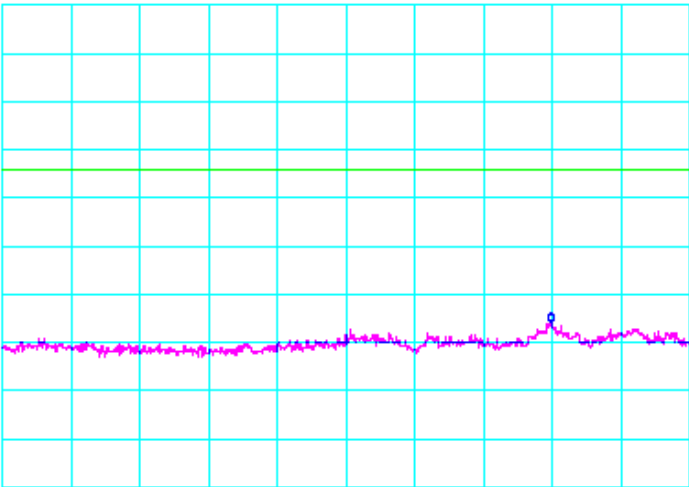
802.11b Mode

Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-12d05)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -55.00dBm 483MHz</p>  <p>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-12d06)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -54.50dBm 8.813GHz</p>  <p>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</p>		



Conducted Out Of Band Emissions (Continued)

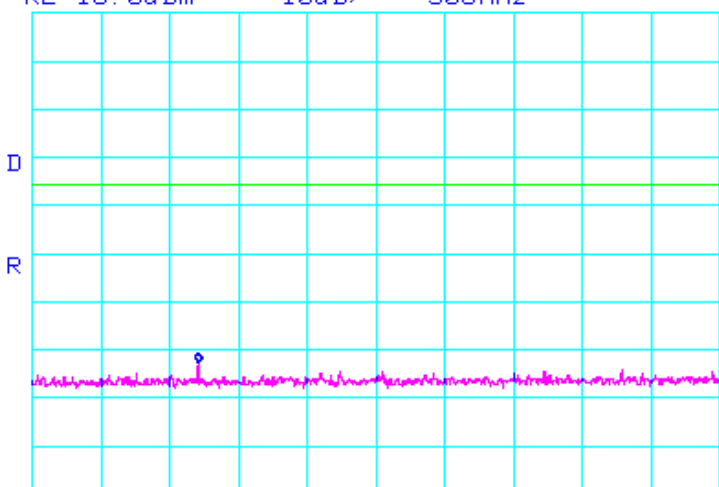
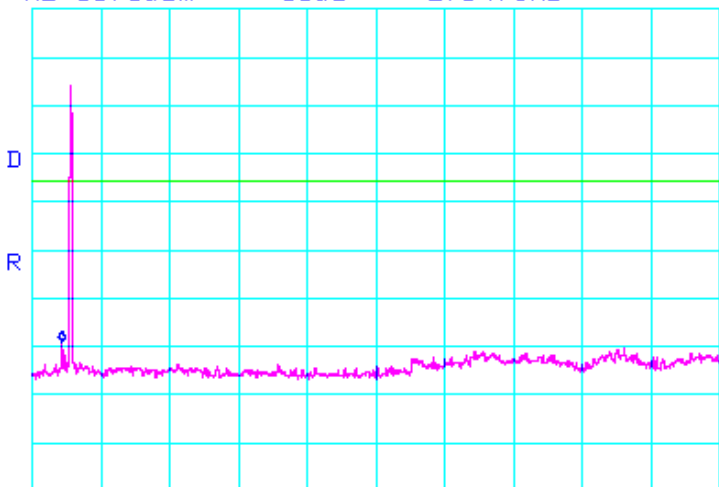
802.11b Mode

Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-12d07)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -52.67dBm 14.80GHz</div></div><div>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-12d08)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -49.83dBm 24.790GHz</div></div><div>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</div></div>		



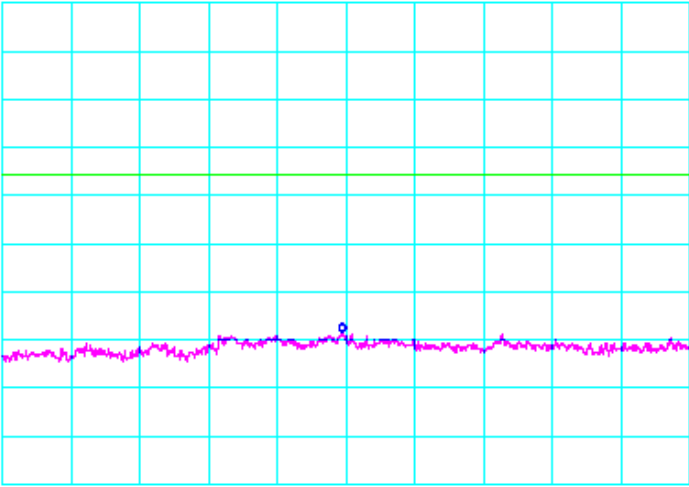
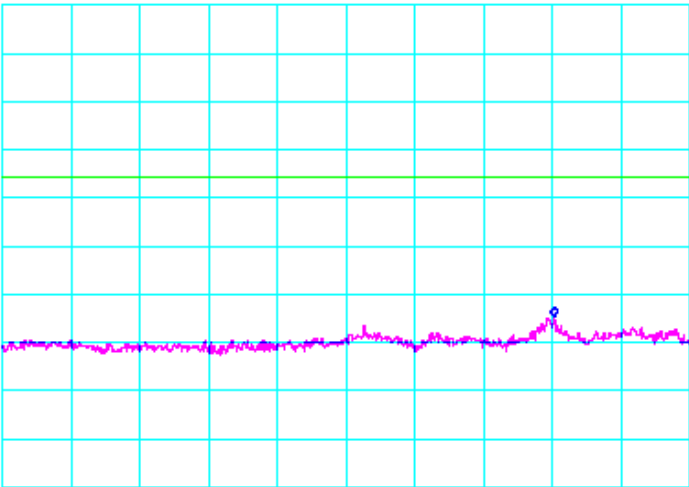
Conducted Out Of Band Emissions (Continued)

802.11b Mode

Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-12d09)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -56.67dBm 506MHz</p>  <p>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-12d10)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -53.00dBm 2.347GHz</p>  <p>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</p>		



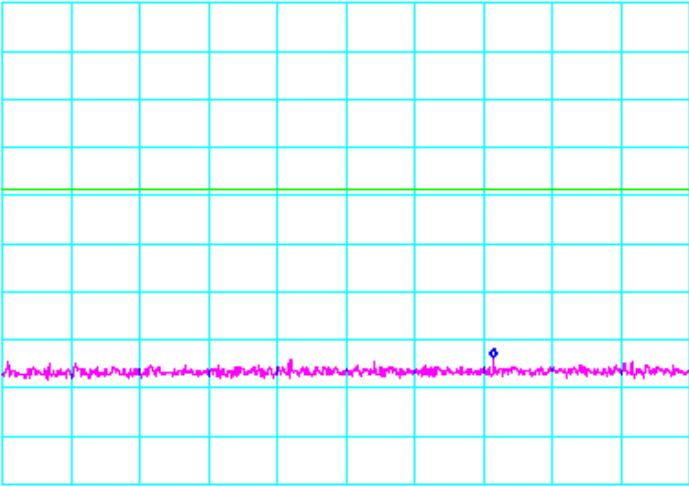
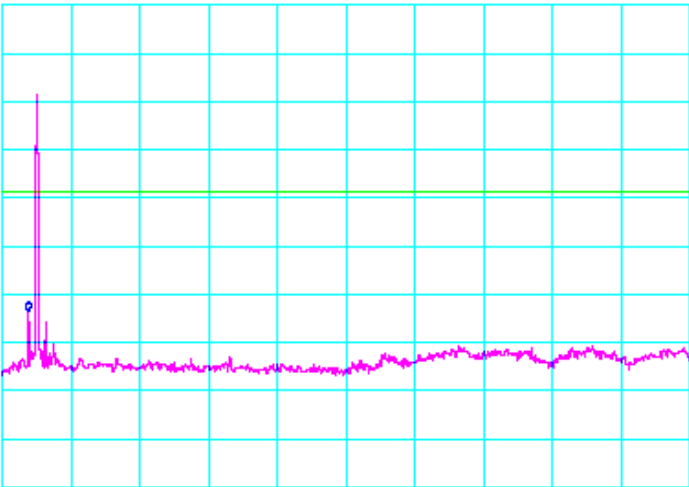
Conducted Out Of Band Emissions (Continued)

802.11b Mode		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-12d11)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -52.50dBm 14.95GHz</div></div><div>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-12d12)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -48.67dBm 24.820GHz</div></div><div>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</div></div>		



Conducted Out Of Band Emissions (Continued)

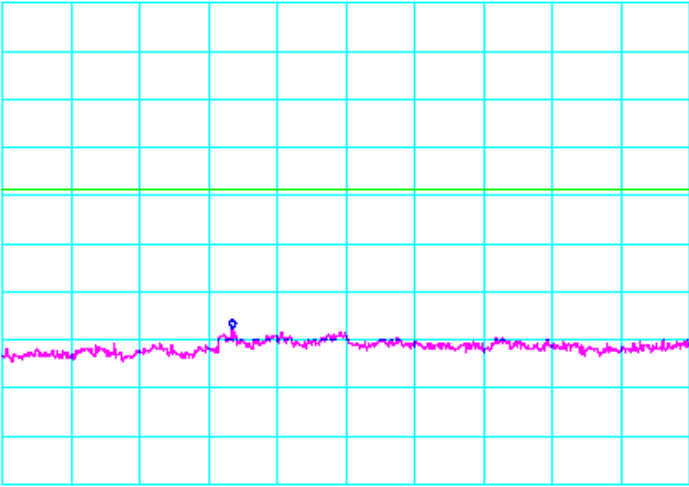
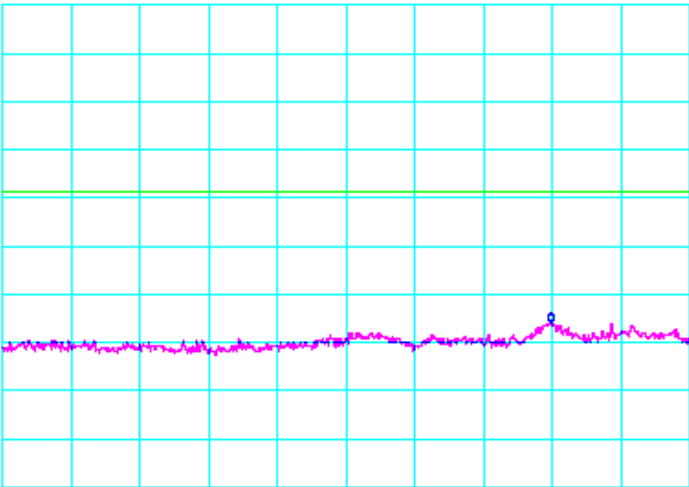
802.11g Mode

Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-13d01)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -57.83dBm 1.439GHz</p>  <p>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-13d02)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -47.50dBm 2.307GHz</p>  <p>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</p>		



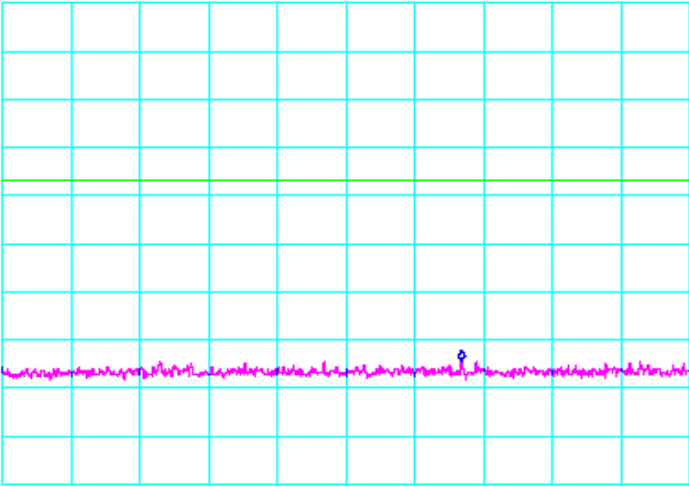
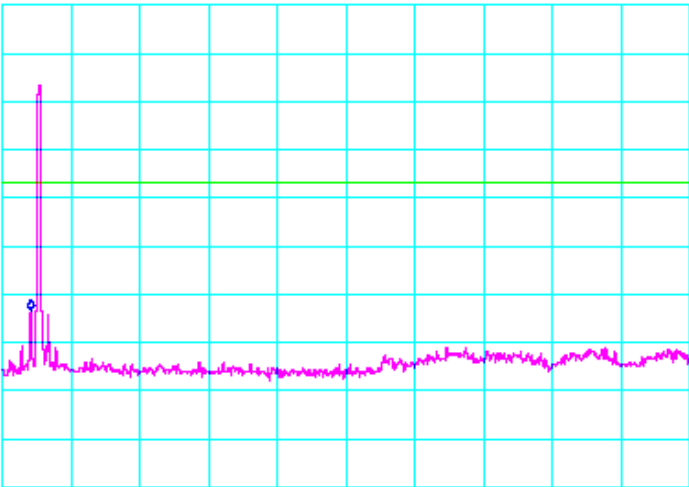
Conducted Out Of Band Emissions (Continued)

802.11g Mode

Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-13d03)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -51.67dBm 13.35GHz</p>  <p>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.412 GHz (PANAS-070202-13d04)	JC
<p>*ATTEN 20dB RL 16.0dBm 10dB/ MKR -49.83dBm 24.790GHz</p>  <p>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</p>		



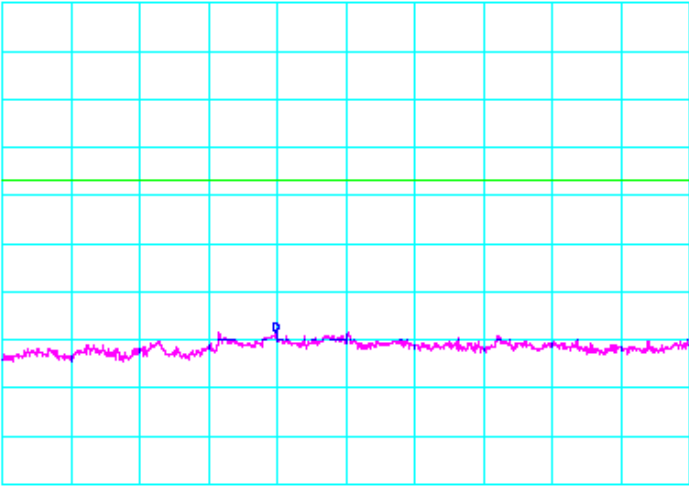
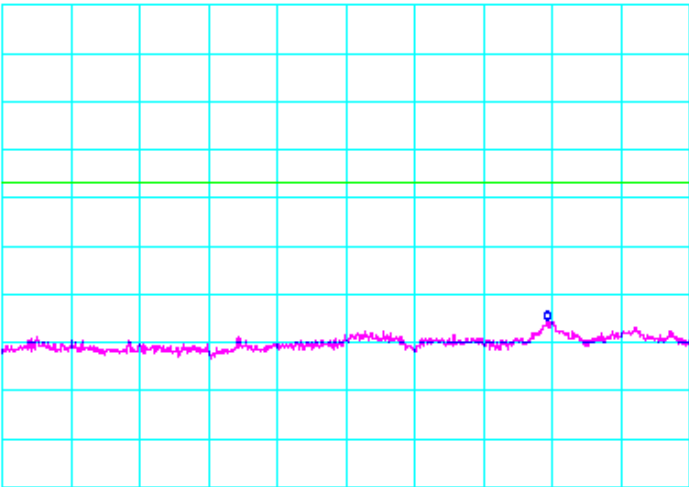
Conducted Out Of Band Emissions (Continued)

802.11g Mode		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-13d05)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -58.33dBm 1.347GHz</div></div><div>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-13d06)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -47.33dBm 2.333GHz</div></div><div>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</div></div>		



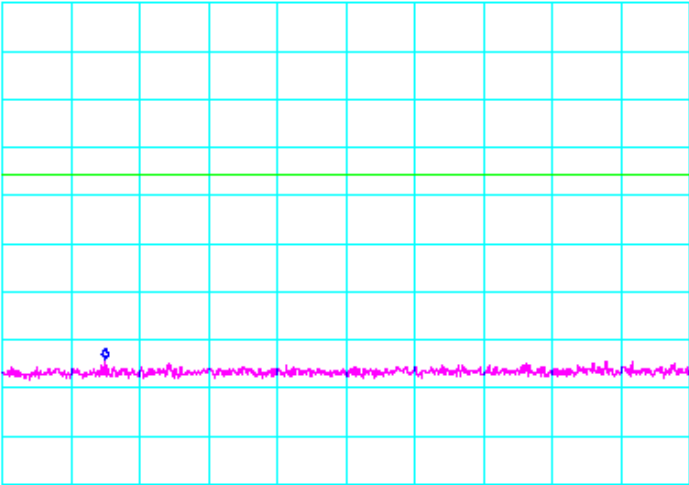
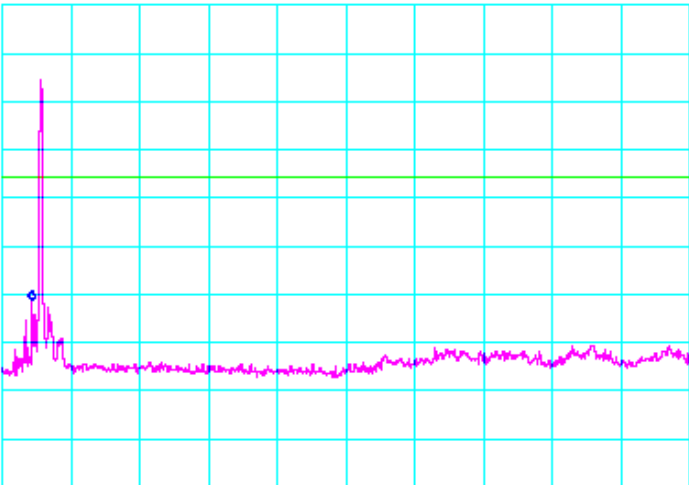
Conducted Out Of Band Emissions (Continued)

802.11g Mode

Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-13d07)	JC
<p>*ATTEN 20dB MKR -52.33dBm RL 16.0dBm 10dB/ 13.98GHz</p>  <p>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.437 GHz (PANAS-070202-13d08)	JC
<p>*ATTEN 20dB MKR -49.50dBm RL 16.0dBm 10dB/ 24.750GHz</p>  <p>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</p>		



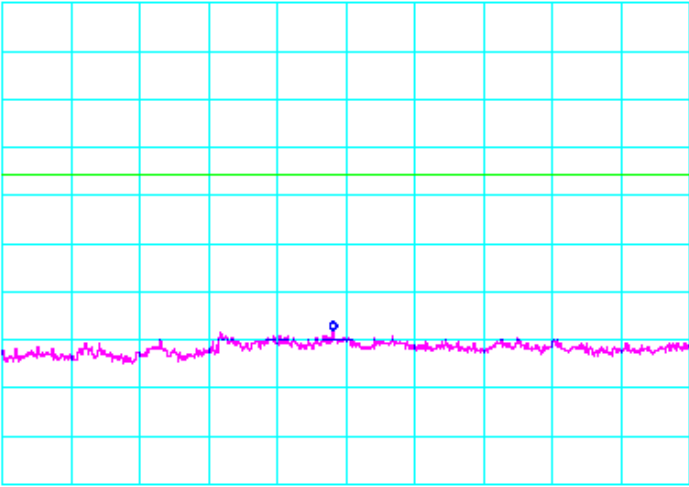
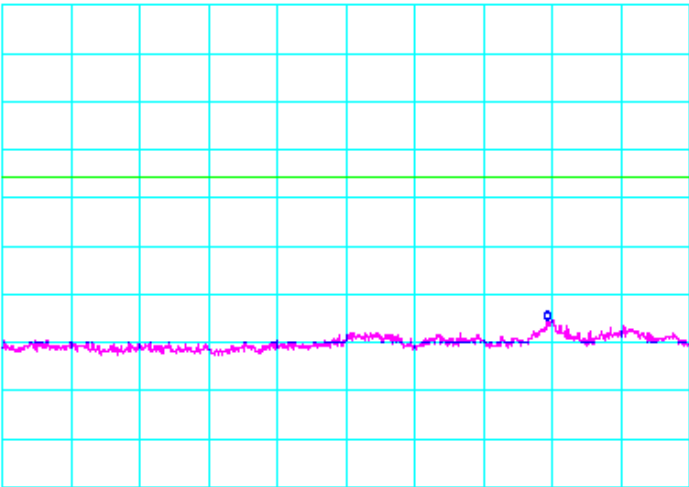
Conducted Out Of Band Emissions (Continued)

802.11g Mode		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-13d09)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -58.00dBm 326MHz</div></div><div>START 30MHz STOP 2.000GHz *RBW 100kHz *VBW 300kHz SWP 1.10sec</div></div>		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-13d10)	JC
<div><div><div>*ATTEN 20dB RL 16.0dBm</div><div>10dB/</div><div>MKR -45.33dBm 2.347GHz</div></div><div>START 2.000GHz STOP 10.000GHz *RBW 100kHz *VBW 300kHz SWP 4.40sec</div></div>		



Conducted Out Of Band Emissions (Continued)

802.11g Mode

Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-13d11)	JC
<p>*ATTEN 20dB MKR -52.17dBm RL 16.0dBm 10dB/ 14.82GHz</p>  <p>START 10.00GHz STOP 20.00GHz *RBW 100kHz *VBW 300kHz SWP 5.50sec</p>		
Test Date	Data	Test Eng.
04/13/07	2.462 GHz (PANAS-070202-13d12)	JC
<p>*ATTEN 20dB MKR -49.50dBm RL 16.0dBm 10dB/ 24.750GHz</p>  <p>START 20.000GHz STOP 26.000GHz *RBW 100kHz *VBW 300kHz SWP 3.30sec</p>		



APPENDIX B

MODIFICATIONS AND RECOMMENDATIONS

1.0	NONE