FCC PART 15 SUBPART B and C
TEST REPORT

for

WIRELESS RS232 EXTENDER

Part Number: EXT-WRS232S

Prepared for

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DATE: AUGUST 9, 2010

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
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GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested:	Wireless RS232 Extender P/N: EXT-WRS232S S/N: N/A
Product Description:	See Expository Statement
Modifications:	The EUT was not modified in order to meet the specifications.
Customer:	Gefen, LLC 20600 Nordhoff Street Chatsworth, California 91311
Test Date(s):	April 20, 21, 22, and 23, 2010
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B
Test Procedure:	ANSI C63.4
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions 150 kHz to 30 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C, section 15.207. Highest reading in relation to spec limit: 51.18 dBuV @ 0.204 MHz (*U = 1.68 dB)
2	Radiated RF Emissions 10 kHz – 25000 MHz (Transmitter, Receive, and Digital Portion)	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249. Highest reading in relation to spec limit: 42.25 dBuV @ 668.390 MHz (*U = 5.24 dB)

*U = Expanded Uncertainty with a coverage factor of k=2

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless RS232 Extender, P/N: EXT-WRS232S. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Gefen, LLC

Gaston Santiago	Project Manager

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not yet been returned as of the date of this report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
IR	Infrared

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
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

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – EMI

External Power Mode: The Wireless RS232 Extender, P/N: EXT-WRS232S (EUT) was connected to the computer and switching power supply via its serial and power ports, respectively. The computer was also connected to a printer, monitor, keyboard, and mouse via its parallel, video, keyboard, and mouse ports respectively. The monitor was also connected to the power supply. The EUT was being powered by the external switching power supply. The EUT was continuously transmitting at 9600 baud or continuously receiving depending on the test being performed.

RS-232 Power Mode: The Wireless RS232 Extender, P/N: EXT-WRS232S (EUT) was connected to the computer via its serial port. The computer was also connected to a printer, monitor, keyboard, and mouse via its parallel, video, keyboard, and mouse ports respectively. The monitor was also connected to the power supply. The EUT was being powered by the computer's serial port. The EUT was continuously transmitting at 9600 baud or continuously receiving depending on the test being performed.

The EUT's antenna is a whip antenna.

Note: For the testing a unit with a standard antenna connector was used. For manufacturing purposes, a unit with a reverse polarity antenna connector will be used.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

Cable 1 This is a 2.7-meter braid and foil shielded cable connecting the EUT to the computer. The cable has a D-9 pin metallic connector at each end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.

Cable 2 (**For External Power Mode Only**)
This is a 2-meter unshielded cable connecting the EUT to the switching power supply. The cable has a twist-secure power barrel at the EUT end and is hard wired into the switching power supply. The cable was bundled to a length of 1.2-meters.

Cable 3 This is a 1.5-meter braid and foil shielded cable connecting the computer to the printer. The cable has a D-25 pin metallic connector at the computer end and a Centronics metallic type connector at the printer end. The shield of the cable was grounded to the chassis via the connectors.

Cable 4 This is a 1.5-meter braid and foil shielded cable connecting the monitor to the D-15 to DVI adapter directly connected to the computer. The cable has a high density D-15 pin metallic connector at each end. The cable was bundled to a length of 1-meter. The shield of the cable was grounded to the chassis via the connectors. The cable has a molded ferrite at the monitor end.

Cable 5 This is a 1.7-meter foil shielded cable connecting the computer to the keyboard. The cable has a 6-pin mini DIN connector at the computer end and is hard wired into the keyboard. The shield of the cable was grounded to the chassis via the connector.

Cable 6 This is a 1.7-meter foil shielded cable connecting the computer to the mouse. The cable has a USB type “A” connector at the computer end and is hard wired into the mouse. The shield of the cable was grounded to the chassis via the connector.

Cable 7 This is a 1.8-meter unshielded cable connecting the monitor to the AC Adapter. The cable has a power barrel at the monitor end and is hard wired into the AC Adapter. The cable was bundled to a length of 1-meter. The cable has a molded ferrite at the monitor end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS RS232 EXTENDER (EUT)	GEFEN, LLC	P/N: EXT-WRS232S	N/A	UYYEXTWRS232S
LCD MONITOR	PLANAR	997-2282-00	23T234400800	DoC
AC ADAPTER FOR MONITOR	LISHIN INTERNATIONAL ENTERPRISE CORP.	LSE9901B1250	A2M34101098	N/A
COMPUTER	IBM	42U	KCT7WKF	DoC
KEYBOARD	DELL	RT7D20	CN-04N454-37172-4C3-010J	AQC-7D20
MOUSE	DELL	M056U0A	G0P02BG6	DoC
DOT MATRIX PRINTER	CITIZEN	LSP-10	1262247	DLK66TLSP-10
SWITCHING POWER SUPPLY FOR THE EUT (FOR EXTERNAL POWER MODE ONLY)	GEFEN	HK-H5-A05	001668	DoC
D15 TO DVI ADAPTER	N/A	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 17, 2008	Sept. 17, 2010
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 29, 2009	May 29, 2010
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 29, 2009	May 29, 2010
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 29, 2009	May 29, 2010
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Combilog Antenna	Com Power	AC-220	61027	June 12, 2009	June 12, 2010
Preamplifier	Com-Power	PA-103	1582	January 6, 2010	January 6, 2011
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	Sept. 29, 2010
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Microwave Preamplifier	Com-Power	PA-840	711013	March 11, 2010	March 11, 2011
Horn Antenna	Com-Power	AH826	71957	N/A	N/A
Microwave Preamplifier	Com-Power	PA-122	181921	March 10, 2010	March 10, 2011
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12076	September 28, 2009	Sept. 28, 2010
LISN	Com Power	LI-215	12090	September 28, 2009	Sept. 28, 2010
Transient Limiter	Com Power	252A910	1	September 28, 2009	Sept. 28, 2010

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded to the computer via the shield of the serial cable.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The measurement receiver was used as a measuring meter. The data was collected with the measurement receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the measurement receiver's input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the measurement receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.207.

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz and the Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer and EMI Receiver were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The readings were averaged by a “duty cycle correction factor,” derived from 20 log (dwell time / one pulse train with blanking interval). The measurement bandwidths and transducers used for the radiated emissions test were:

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2003. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3-meter test distance to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249.

8. CONCLUSIONS

The Wireless RS232 Extender, Part Number: EXT-WRS232S, as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.

APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 and/or FCC **Class B** specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modification were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Wireless RS232 Extender
P/N: EXT-WRS232S
S/N: N/A

ALSO APPROVED UNDER THIS REPORT:

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

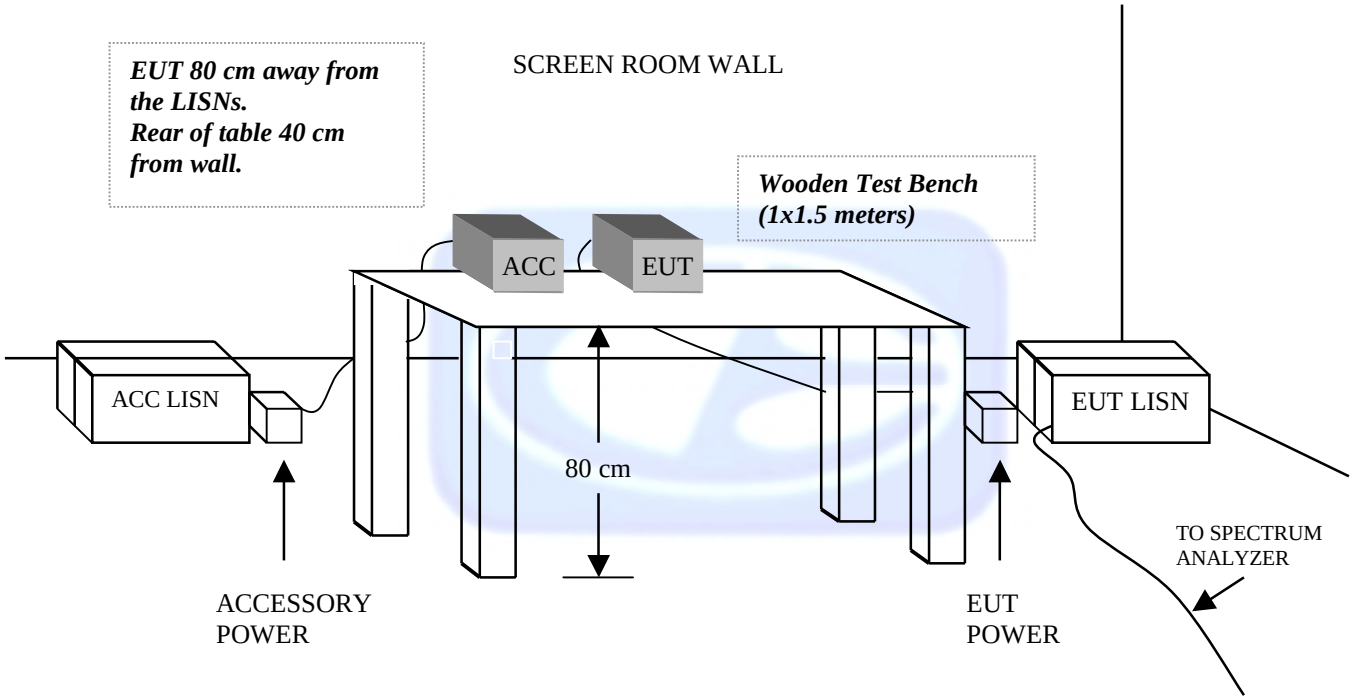
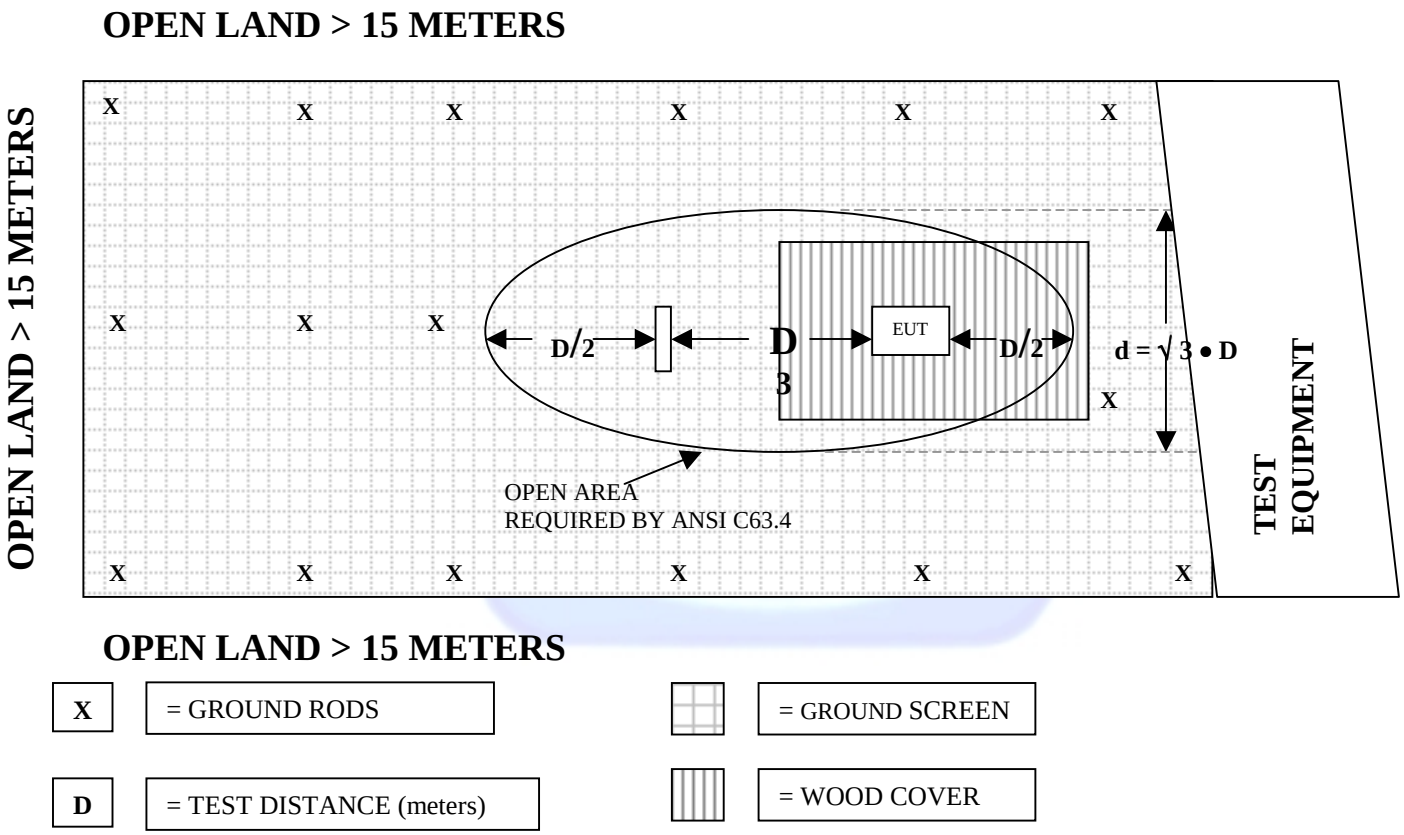


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS



COM-POWER AC-220

COMBILOG ANTENNA

S/N: 61027

CALIBRATION DATE: JUNE 12, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
25	17.7	180	10.0
30	18.1	200	10.2
35	17.4	250	11.7
40	16.8	275	13.3
45	16.1	300	13.9
50	16.3	400	15.8
60	14.0	500	17.3
70	8.1	600	18.7
80	7.5	700	19.6
90	8.5	800	20.9
100	9.9	900	21.5
120	9.9	1000	22.3
125	10.4	1200	18.1
140	10.1	1400	17.9
150	8.9	1600	20.1
160	8.9	1800	18.8
175	10.2	2000	20.0

COM-POWER PA-103

PREAMPLIFIER

S/N: 1582

CALIBRATION DATE: JANUARY 6, 2010

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.1	300	32.7
40	33.0	350	32.6
50	32.9	400	33.0
60	33.1	450	32.3
70	33.1	500	32.1
80	32.9	550	32.5
90	32.9	600	32.3
100	32.9	650	32.0
125	33.0	700	32.6
150	32.9	750	32.5
175	32.9	800	31.8
200	32.7	850	31.9
225	32.8	900	32.2
250	32.8	950	32.1
275	32.8	1000	32.1

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM-POWER PA-122

PREAMPLIFIER

S/N: 181921

CALIBRATION DATE: MARCH 10, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	35.53	10.0	34.78
1.5	34.92	10.5	34.36
2.0	34.63	11.0	33.14
2.5	34.42	11.5	34.42
3.0	34.40	12.0	34.24
3.5	34.36	12.5	34.95
4.0	34.11	13.0	34.62
4.5	33.61	13.5	35.24
5.0	33.83	14.0	35.40
5.5	34.53	14.5	36.66
6.0	35.09	15.0	35.98
6.5	35.58	15.5	35.94
7.0	36.50	16.0	35.80
7.5	34.83	16.5	34.98
8.0	34.08	17.0	35.00
8.5	33.57	17.5	34.25
9.0	34.68	18.0	33.51
9.5	35.84	18.5	32.88

COM-POWER PA-840

PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MARCH 11, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	24.36	29.0	24.83
18.5	24.54	29.5	23.52
19.0	24.06	30.0	21.73
19.5	23.71	30.5	22.34
20.0	23.42	31.0	20.06
20.5	22.87	31.5	20.02
21.0	22.60	32.0	18.11
21.5	21.08	32.5	19.35
22.0	22.13	33.0	17.50
22.5	22.42	33.5	17.49
23.0	22.85	34.0	17.48
23.5	22.85	34.5	18.57
24.0	23.82	35.0	18.64
24.5	22.33	35.5	18.82
25.0	24.09	36.0	19.14
25.5	23.20	36.5	18.58
26.0	23.18	37.0	15.07
26.5	23.50	37.5	17.29
27.0	24.25	38.0	20.82
27.5	23.58	38.5	19.96
28.0	23.81	39.0	20.06
28.5	23.76	39.5	21.41

COM-POWER AH826

HORN ANTENNA

S/N: 71957

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

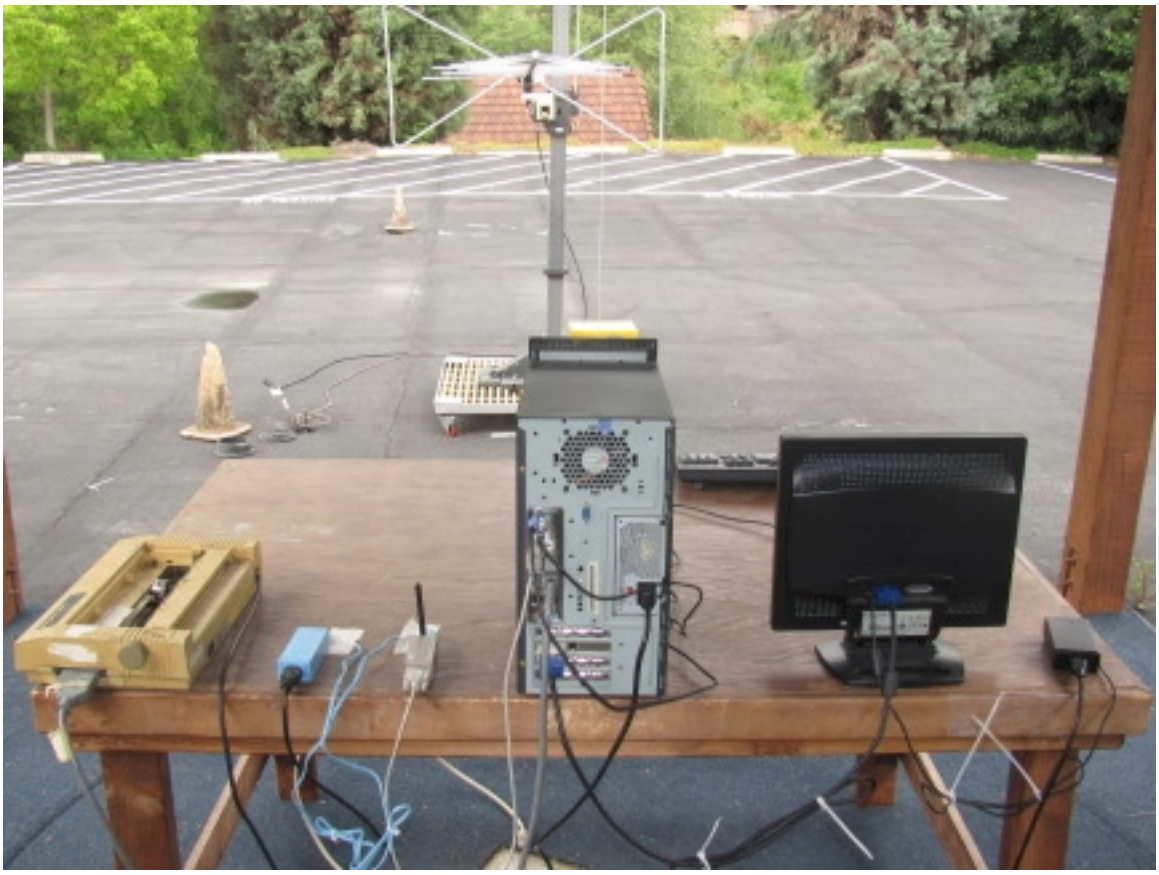
CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40

FRONT VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – RADIATED EMISSIONS – EXTERNAL POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

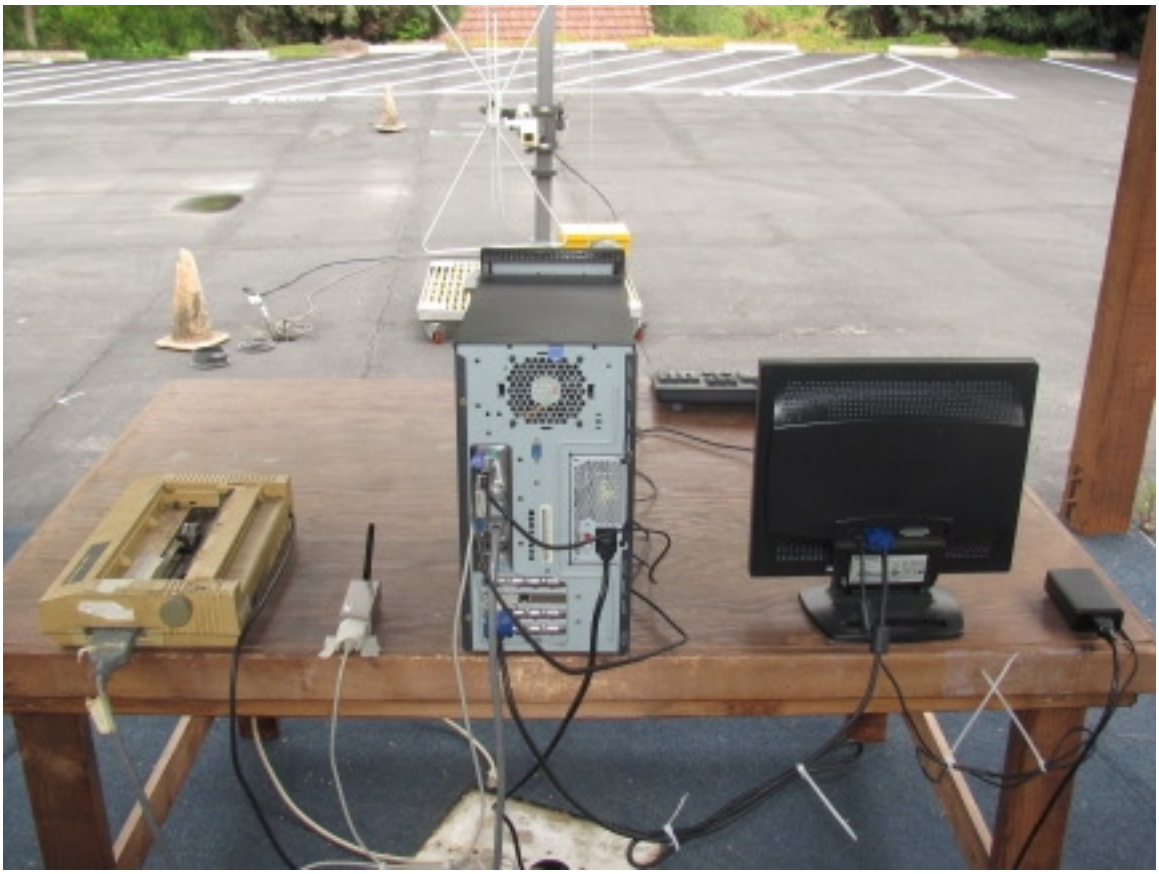
GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – RADIATED EMISSIONS – EXTERNAL POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – RADIATED EMISSIONS – RS-232 POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

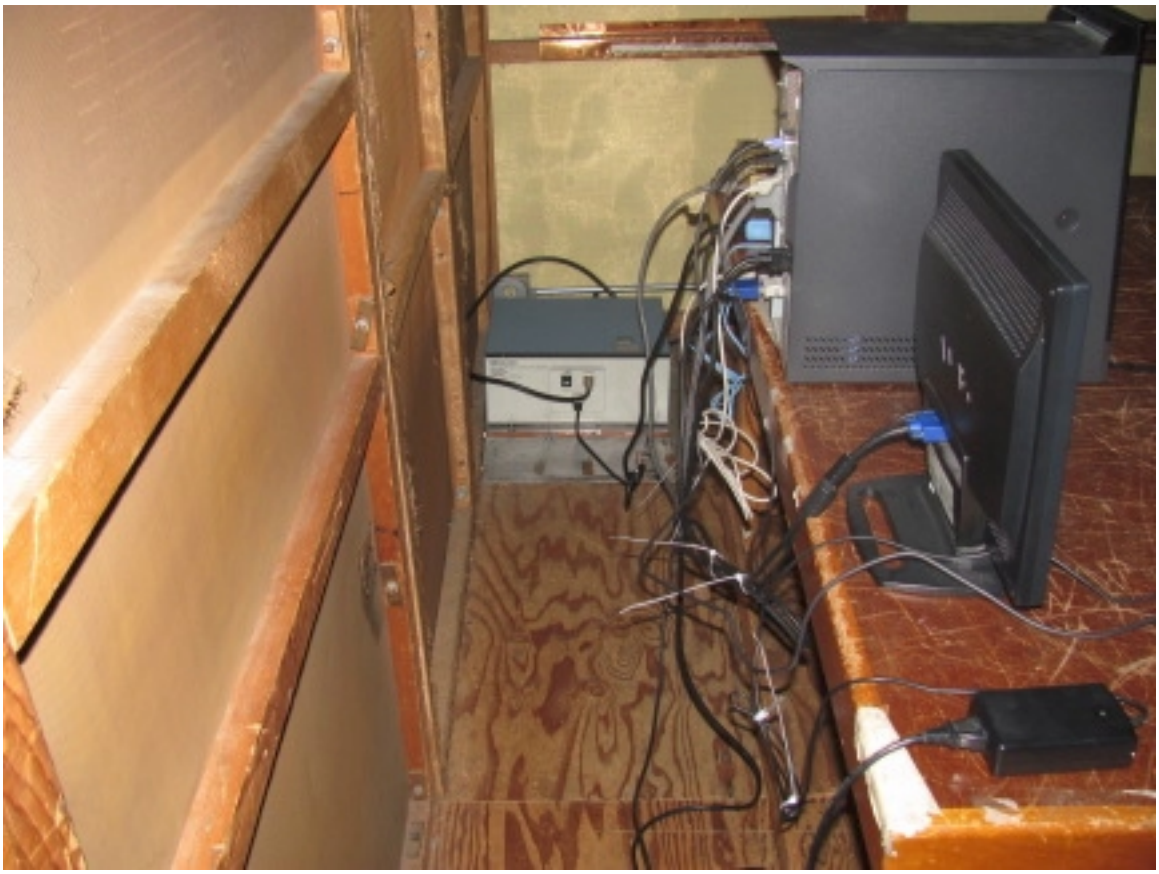
GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – RADIATED EMISSIONS – RS-232 POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – CONDUCTED EMISSIONS – EXTERNAL POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – CONDUCTED EMISSIONS – EXTERNAL POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – CONDUCTED EMISSIONS – RS-232 POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

GEFEN, LLC
WIRELESS RS232 EXTENDER
P/N: EXT-WRS232S
FCC SUBPART B AND C – CONDUCTED EMISSIONS – RS-232 POWER MODE

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	101.53	V	94	7.53	Peak	1	180	
2403	86.36	V	94	-7.64	Avg	1	180	
4806	48.96	V	74	-25.04	Peak	1.25	135	
4806	33.79	V	54	-20.21	Avg	1.25	135	
7209	48.65	V	74	-25.35	Peak	1.35	165	
7209	33.48	V	54	-20.52	Avg	1.35	165	
9612	45.26	V	74	-28.74	Peak	1.25	135	
9612	30.09	V	54	-23.91	Avg	1.25	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	92.45	H	94	-1.55	Peak	2.75	135	
2403	77.28	H	94	-16.72	Avg	2.75	135	
4806	47.85	H	74	-26.15	Peak	1.75	225	
4806	32.68	H	54	-21.32	Avg	1.75	225	
7209	45.69	H	74	-28.31	Peak	1.25	225	
7209	30.52	H	54	-23.48	Avg	1.25	225	
9612	46.25	H	74	-27.75	Peak	1.35	135	
9612	31.08	H	54	-22.92	Avg	1.35	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	100.29	V	94	6.29	Peak	1.25	180	
2403	85.12	V	94	-8.88	Avg	1.25	180	
4806	50.12	V	74	-23.88	Peak	1.75	45	
4806	34.95	V	54	-19.05	Avg	1.75	45	
7209	48.36	V	74	-25.64	Peak	1.25	90	
7209	33.19	V	54	-20.81	Avg	1.25	90	
9612	48.36	V	74	-25.64	Peak	1.55	225	
9612	33.19	V	54	-20.81	Avg	1.55	225	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	89.59	H	94	-4.41	Peak	1.25	135	
2403	74.42	H	94	-19.58	Avg	1.25	135	
4806	41.26	H	74	-32.74	Peak	1.25	270	
4806	26.09	H	54	-27.91	Avg	1.25	270	
7209	47.25	H	74	-26.75	Peak	1.55	135	
7209	32.08	H	54	-21.92	Avg	1.55	135	
9612	46.28	H	74	-27.72	Peak	1.75	180	
9612	31.11	H	54	-22.89	Avg	1.75	1580	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	101.45	V	94	7.45	Peak	1	180	
2403	86.28	V	94	-7.72	Avg	1	180	
4806	48.26	V	74	-25.74	Peak	1.25	180	
4806	33.09	V	54	-20.91	Avg	1.25	180	
7209	48.25	V	74	-25.75	Peak	1.35	45	
7209	33.08	V	54	-20.92	Avg	1.35	45	
9612	45.21	V	74	-28.79	Peak	1.25	165	
9612	30.04	V	54	-23.96	Avg	1.25	165	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	90.26	H	94	-3.74	Peak	1	45	
2403	75.09	H	94	-18.91	Avg	1	45	
4806	43.26	H	74	-30.74	Peak	1.35	155	
4806	28.09	H	54	-25.91	Avg	1.35	155	
7209	48.21	H	74	-25.79	Peak	1.55	45	
7209	33.04	H	54	-20.96	Avg	1.55	45	
9612	45.69	H	74	-28.31	Peak	1.25	135	
9612	30.52	H	54	-23.48	Avg	1.25	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	101.64	V	94	7.64	Peak	1.25	180	
2442	86.47	V	94	-7.53	Avg	1.25	180	
4884	45.33	V	74	-28.67	Peak	1.25	135	
4884	30.16	V	54	-23.84	Avg	1.25	135	
7326	46.54	V	74	-27.46	Peak	1.25	155	
7326	31.37	V	54	-22.63	Avg	1.25	155	
9768	43.47	V	74	-30.53	Peak	1.25	165	
9768	28.3	V	54	-25.7	Avg	1.25	165	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	91.63	H	94	-2.37	Peak	1.25	155	
2442	76.46	H	94	-17.54	Avg	1.25	155	
4884	44.28	H	74	-29.72	Peak	1.25	165	
4884	29.11	H	54	-24.89	Avg	1.25	165	
7326	46.45	H	74	-27.55	Peak	1.35	175	
7326	31.28	H	54	-22.72	Avg	1.35	175	
9768	43.39	H	74	-30.61	Peak	1.25	155	
9768	28.22	H	54	-25.78	Avg	1.25	155	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	101.66	V	94	7.66	Peak	1.25	135	
2442	86.49	V	94	-7.51	Avg	1.25	135	
4884	42.53	V	74	-31.47	Peak	1.35	145	
4884	27.36	V	54	-26.64	Avg	1.35	145	
7326	43.51	V	74	-30.49	Peak	1.45	165	
7326	28.34	V	54	-25.66	Avg	1.45	165	
9768	45.45	V	74	-28.55	Peak	1.25	175	
9768	30.28	V	54	-23.72	Avg	1.25	175	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	91.31	H	94	-2.69	Peak	1.25	135	
2442	76.14	H	94	-17.86	Avg	1.25	135	
4884	45.29	H	74	-28.71	Peak	1.35	165	
4884	30.12	H	54	-23.88	Avg	1.35	165	
7326	45.18	H	74	-28.82	Peak	1.25	175	
7326	30.01	H	54	-23.99	Avg	1.25	175	
9768	48.73	H	74	-25.27	Peak	1.26	185	
9768	33.56	H	54	-20.44	Avg	1.26	185	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	98.57	V	94	4.57	Peak	1.25	155	
2442	83.4	V	94	-10.6	Avg	1.25	155	
4884	45.75	V	74	-28.25	Peak	1.25	135	
4884	30.58	V	54	-23.42	Avg	1.25	135	
7326	47.67	V	74	-26.33	Peak	1.25	155	
7326	32.5	V	54	-21.5	Avg	1.25	155	
9768	46.71	V	74	-27.29	Peak	1.35	175	
9768	31.54	V	54	-22.46	Avg	1.35	175	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	88.55	H	94	-5.45	Peak	1.25	135	
2442	73.38	H	94	-20.62	Avg	1.25	135	
4884	42.41	H	74	-31.59	Peak	1.25	135	
4884	27.24	H	54	-26.76	Avg	1.25	135	
7326	48.72	H	74	-25.28	Peak	1.35	165	
7326	33.55	H	54	-20.45	Avg	1.35	165	
9768	48.81	H	74	-25.19	Peak	1.45	175	
9768	33.64	H	54	-20.36	Avg	1.45	175	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	101.76	V	94	7.76	Peak	1.15	180	
2480	86.59	V	94	-7.41	Avg	1.15	180	
4960	47.13	V	74	-26.87	Peak	1.25	135	
4960	31.96	V	54	-22.04	Avg	1.25	135	
7440	44.01	V	74	-29.99	Peak	1.35	165	
7440	28.84	V	54	-25.16	Avg	1.35	165	
9920	46.01	V	74	-27.99	Peak	1.35	175	
9920	30.84	V	54	-23.16	Avg	1.35	175	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	93.93	H	94	-0.07	Peak	1.25	135	
2480	78.76	H	94	-15.24	Avg	1.25	135	
4960	42.03	H	74	-31.97	Peak	1.35	165	
4960	26.86	H	54	-27.14	Avg	1.35	165	
7440	45.87	H	74	-28.13	Peak	1.55	175	
7440	30.7	H	54	-23.3	Avg	1.55	175	
9920	45.78	H	74	-28.22	Peak	1.65	185	
9920	30.61	H	54	-23.39	Avg	1.65	185	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249

Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	99.62	V	94	5.62	Peak	1.25	135	
2480	84.45	V	94	-9.55	Avg	1.25	135	
4960	45.17	V	74	-28.83	Peak	1.25	135	
4960	30	V	54	-24	Avg	1.25	135	
7440	48.37	V	74	-25.63	Peak	1.55	145	
7440	33.2	V	54	-20.8	Avg	1.55	145	
9920	47.17	V	74	-26.83	Peak	1.65	155	
9920	32	V	54	-22	Avg	1.65	155	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	91.66	H	94	-2.34	Peak	1.25	45	
2480	76.49	H	94	-17.51	Avg	1.25	45	
4960	43.87	H	74	-30.13	Peak	1.25	135	
4960	28.7	H	54	-25.3	Avg	1.25	135	
7440	46.53	H	74	-27.47	Peak	1.35	155	
7440	31.36	H	54	-22.64	Avg	1.35	155	
9920	48.47	H	74	-25.53	Peak	1.25	165	
9920	33.3	H	54	-20.7	Avg	1.25	165	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249

Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	101.41	V	94	7.41	Peak	1.25	135	
2480	86.24	V	94	-7.76	Avg	1.25	135	
4960	45.66	V	74	-28.34	Peak	1.25	155	
4960	30.49	V	54	-23.51	Avg	1.25	155	
7440	45.32	V	74	-28.68	Peak	1.25	135	
7440	30.15	V	54	-23.85	Avg	1.25	135	
9920	45.18	V	74	-28.82	Peak	1.25	135	
9920	30.01	V	54	-23.99	Avg	1.25	135	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wirless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	93.31	H	94	-0.69	Peak	1.25	135	
2480	78.14	H	94	-15.86	Avg	1.25	135	
4960	42.27	H	74	-31.73	Peak	1.25	155	
4960	27.1	H	54	-26.9	Avg	1.25	155	
7440	45.61	H	74	-28.39	Peak	1.35	175	
7440	30.44	H	54	-23.56	Avg	1.35	175	
9920	44.31	H	74	-29.69	Peak	1.25	185	
9920	29.14	H	54	-24.86	Avg	1.25	185	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC Class B, RSS-210, and FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Lab: B
Tested By: Kyle Fujimoto

Non-Harmonic Emissions From the Transmitter - External Power Mode - X-Axis (Worst Case)
Digital Portion in Transmit Mode - External Power Mode - X-Axis (Worst Case)
and Receiver Mode - External Power Mode - Middle Channel - X-Axis (Worst Case)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Non-Harmonic Emissions
								Found for the EUT from
								1 GHz to 25 GHz
								Vertical and Horizontal
								Polarizations
								No Emissions
								Found for the EUT from
								1 GHz to 25 GHz for both
								Vertical and Horizontal
								Polarizations
								For the Receiver Portion
								No Emissions
								Found for the EUT from
								1 GHz to 25 GHz for both
								Vertical and Horizontal
								Polarizations
								For the Digital Portion in
								Transmit Mode

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : 738921
Specification : FCC B

Page : 1/1
Date : 4/22/2010
Time : 8:49:39
Lab : A
Test Distance : 3.0

Distance correction factor (20 * log(test/spec) : 0.00

Transmit Mode (AC Adapter Powered)
Radiated Emissions Qualification
10 kHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	128.848	56.70	1.82	10.32	32.98	35.85	43.50	-7.65
V	132.950	55.80	1.83	10.24	32.97	34.90	43.50	-8.60
V	135.840	55.50	1.85	10.18	32.95	34.57	43.50	-8.93
V	146.348	54.00	1.89	9.33	32.91	32.30	43.50	-11.20
V	207.364	46.70	2.36	10.44	32.73	26.77	43.50	-16.73
V	267.061	48.70	2.64	12.81	32.80	31.35	46.00	-14.65
V	400.038	47.80	3.40	15.80	33.00	34.00	46.00	-12.00
V	430.815	50.20	3.46	16.30	32.56	37.40	46.00	-8.60
V	433.977	48.90	3.47	16.35	32.52	36.20	46.00	-9.80
V	728.865	46.60	5.08	19.99	32.54	39.13	46.00	-6.87
H	112.755	46.40	1.62	9.90	32.95	24.96	43.50	-18.54
H	232.026	48.40	2.50	11.20	32.80	29.30	46.00	-16.70
H	233.256	49.40	2.50	11.23	32.80	30.33	46.00	-15.67
H	299.226	45.20	2.80	13.88	32.70	29.18	46.00	-16.82
H	300.786	44.90	2.81	13.92	32.70	28.92	46.00	-17.08
H	364.523	45.70	3.19	15.19	32.72	31.36	46.00	-14.64
H	366.547	46.60	3.20	15.22	32.74	32.29	46.00	-13.71
H	430.777	42.90	3.46	16.30	32.56	30.10	46.00	-15.90
H	433.225	42.30	3.47	16.34	32.53	29.58	46.00	-16.42

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : N/A
Specification : FCC B

Page : 1/1
Date : 4/22/2010
Time : 10:06:35
Lab : A
Test Distance : 3.0 Meters

Distance correction factor (20 * log(test/spec) : 0.00

Receive Mode (AC Adapter Powered)
Radiated Emissions Qualification
30 MHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	108.556	54.40	1.55	9.90	32.94	32.91	43.50	-10.59
V	186.376	53.00	2.19	10.07	32.81	32.45	43.50	-11.05
V	232.051	47.20	2.50	11.20	32.80	28.10	46.00	-17.90
V	233.261	52.30	2.50	11.23	32.80	33.23	46.00	-12.77
V	298.273	45.70	2.79	13.86	32.71	29.65	46.00	-16.35
V	299.929	45.70	2.80	13.90	32.70	29.70	46.00	-16.30
V	324.236	46.10	2.95	14.41	32.65	30.81	46.00	-15.19
V	364.542	46.10	3.19	15.19	32.72	31.76	46.00	-14.24
V	366.576	43.10	3.20	15.22	32.74	28.79	46.00	-17.21
V	400.056	47.90	3.40	15.80	33.00	34.10	46.00	-11.90
V	430.777	46.80	3.46	16.30	32.56	34.00	46.00	-12.00
V	433.219	46.70	3.47	16.34	32.53	33.98	46.00	-12.02
V	668.390	50.50	4.65	19.33	32.23	42.25	46.00	-3.75
V	728.871	46.20	5.08	19.99	32.54	38.73	46.00	-7.27
V	733.220	46.10	5.10	20.05	32.53	38.72	46.00	-7.28
H	63.909	54.10	1.18	11.58	33.10	33.77	40.00	-6.23
H	110.318	48.00	1.58	9.90	32.94	26.53	43.50	-16.97
H	163.175	42.70	2.01	9.19	32.90	20.99	43.50	-22.51
H	165.800	52.10	2.03	9.42	32.90	30.65	43.50	-12.85
H	166.607	51.00	2.04	9.49	32.90	29.62	43.50	-13.88
H	232.034	52.40	2.50	11.20	32.80	33.30	46.00	-12.70
H	233.245	43.80	2.50	11.23	32.80	24.73	46.00	-21.27
H	299.202	48.00	2.80	13.88	32.70	31.98	46.00	-14.02
H	300.802	47.40	2.81	13.92	32.70	31.42	46.00	-14.58
H	364.527	45.70	3.19	15.19	32.72	31.36	46.00	-14.64
H	366.570	45.10	3.20	15.22	32.74	30.79	46.00	-15.21
H	430.775	42.10	3.46	16.30	32.56	29.30	46.00	-16.70
H	433.227	46.60	3.47	16.34	32.53	33.88	46.00	-12.12
H	728.878	45.70	5.08	19.99	32.54	38.23	46.00	-7.77
H	733.225	43.90	5.10	20.05	32.53	36.52	46.00	-9.48
H	810.121	37.30	5.28	20.96	31.82	31.73	46.00	-14.27

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	101.88	V	94	7.88	Peak	1	180	
2403	86.71	V	94	-7.29	Avg	1	180	
4806	46.98	V	74	-27.02	Peak	1.25	135	
4806	31.81	V	54	-22.19	Avg	1.25	135	
7209	47.01	V	74	-26.99	Peak	1.35	165	
7209	31.84	V	54	-22.16	Avg	1.35	165	
9612	43.94	V	74	-30.06	Peak	1.25	135	
9612	28.77	V	54	-25.23	Avg	1.25	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	91.26	H	94	-2.74	Peak	2.75	135	
2403	76.09	H	94	-17.91	Avg	2.75	135	
4806	45.77	H	74	-28.23	Peak	1.75	225	
4806	30.6	H	54	-23.4	Avg	1.75	225	
7209	44.48	H	74	-29.52	Peak	1.25	225	
7209	29.31	H	54	-24.69	Avg	1.25	225	
9612	44.05	H	74	-29.95	Peak	1.35	135	
9612	28.88	H	54	-25.12	Avg	1.35	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	95.17	V	94	1.17	Peak	1.25	180	
2403	80	V	94	-14	Avg	1.25	180	
4806	48.99	V	74	-25.01	Peak	1.25	180	
4806	33.82	V	54	-20.18	Avg	1.25	180	
7209	47.14	V	74	-26.86	Peak	1.25	180	
7209	31.97	V	54	-22.03	Avg	1.25	180	
9612	47.43	V	74	-26.57	Peak	1.25	180	
9612	32.26	V	54	-21.74	Avg	1.25	180	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	86.51	H	94	-7.49	Peak	1.25	135	
2403	71.34	H	94	-22.66	Avg	1.25	135	
4806	42.01	H	74	-31.99	Peak	1.35	155	
4806	26.84	H	54	-27.16	Avg	1.35	155	
7209	45.92	H	74	-28.08	Peak	1.45	165	
7209	30.75	H	54	-23.25	Avg	1.45	165	
9612	44.82	H	74	-29.18	Peak	1.65	175	
9612	29.65	H	54	-24.35	Avg	1.65	175	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	100.74	V	94	6.74	Peak	1.25	135	
2403	85.57	V	94	-8.43	Avg	1.25	135	
4806	46.92	V	74	-27.08	Peak	1.25	180	
4806	31.75	V	54	-22.25	Avg	1.25	180	
7209	46.52	V	74	-27.48	Peak	1.35	45	
7209	31.35	V	54	-22.65	Avg	1.35	45	
9612	43.51	V	74	-30.49	Peak	1.25	165	
9612	28.34	V	54	-25.66	Avg	1.25	165	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Low Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	87.65	H	94	-6.35	Peak	1.25	135	
2403	72.48	H	94	-21.52	Avg	1.25	135	
4806	42.71	H	74	-31.29	Peak	1.35	155	
4806	27.54	H	54	-26.46	Avg	1.35	155	
7209	45.88	H	74	-28.12	Peak	1.55	45	
7209	30.71	H	54	-23.29	Avg	1.55	45	
9612	42.91	H	74	-31.09	Peak	1.25	135	
9612	27.74	H	54	-26.26	Avg	1.25	135	
12015								**No Emission**
12015								**Detected**
14418								**No Emission**
14418								**Detected**
16821								**No Emission**
16821								**Detected**
19224								**No Emission**
19224								**Detected**
21627								**No Emission**
21627								**Detected**
24030								**No Emission**
24030								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	102.38	V	94	8.38	Peak	1.25	135	
2442	87.21	V	94	-6.79	Avg	1.25	135	
4884	40.15	V	74	-33.85	Peak	1.55	165	
4884	24.98	V	54	-29.02	Avg	1.55	165	
7326	45.68	V	74	-28.32	Peak	1.25	135	
7326	30.51	V	54	-23.49	Avg	1.25	135	
9768	49.35	V	74	-24.65	Peak	1.35	155	
9768	34.18	V	54	-19.82	Avg	1.35	155	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	91.25	H	94	-2.75	Peak	1.25	135	
2442	76.08	H	94	-17.92	Avg	1.25	135	
4884	45.71	H	74	-28.29	Peak	1.25	155	
4884	30.54	H	54	-23.46	Avg	1.25	155	
7326	44.48	H	74	-29.52	Peak	1.55	165	
7326	29.31	H	54	-24.69	Avg	1.55	165	
9768	44.95	H	74	-29.05	Peak	1.65	180	
9768	29.78	H	54	-24.22	Avg	1.65	180	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	98.35	V	94	4.35	Peak	2.25	180	
2442	83.18	V	94	-10.82	Avg	2.25	180	
4884	46.11	V	74	-27.89	Peak	1.25	135	
4884	30.94	V	54	-23.06	Avg	1.25	135	
7326	47.58	V	74	-26.42	Peak	1.35	165	
7326	32.41	V	54	-21.59	Avg	1.35	165	
9768	43.67	V	74	-30.33	Peak	1.45	175	
9768	28.5	V	54	-25.5	Avg	1.45	175	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	91.14	H	94	-2.86	Peak	1.25	135	
2442	75.97	H	94	-18.03	Avg	1.25	135	
4884	43.51	H	74	-30.49	Peak	1.25	165	
4884	28.34	H	54	-25.66	Avg	1.25	165	
7326	43.22	H	74	-30.78	Peak	1.35	175	
7326	28.05	H	54	-25.95	Avg	1.35	175	
9768	44.95	H	74	-29.05	Peak	1.25	135	
9768	29.78	H	54	-24.22	Avg	1.25	135	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	101.3	V	94	7.3	Peak	1.25	180	
2442	86.13	V	94	-7.87	Avg	1.25	180	
4884	46.48	V	74	-27.52	Peak	1.25	135	
4884	31.31	V	54	-22.69	Avg	1.25	135	
7326	46.42	V	74	-27.58	Peak	1.35	155	
7326	31.25	V	54	-22.75	Avg	1.35	155	
9768	48.82	V	74	-25.18	Peak	1.25	145	
9768	33.65	V	54	-20.35	Avg	1.25	145	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - Middle Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2442	86.94	H	94	-7.06	Peak	1.25	135	
2442	71.77	H	94	-22.23	Avg	1.25	135	
4884	42.64	H	74	-31.36	Peak	1.25	135	
4884	27.47	H	54	-26.53	Avg	1.25	135	
7326	46.66	H	74	-27.34	Peak	1.25	155	
7326	31.49	H	54	-22.51	Avg	1.25	155	
9768	45.87	H	74	-28.13	Peak	1.35	165	
9768	30.7	H	54	-23.3	Avg	1.35	165	
12210								**No Emission**
12210								**Detected**
14652								**No Emission**
14652								**Detected**
17094								**No Emission**
17094								**Detected**
19536								**No Emission**
19536								**Detected**
21978								**No Emission**
21978								**Detected**
24420								**No Emission**
24420								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	102.6	V	94	8.6	Peak	1.25	180	
2480	87.43	V	94	-6.57	Avg	1.25	180	
4960	46.42	V	74	-27.58	Peak	2.25	270	
4960	31.25	V	54	-22.75	Avg	2.25	270	
7440	43.97	V	74	-30.03	Peak	1.25	135	
7440	28.8	V	54	-25.2	Avg	1.25	135	
9920	44.77	V	74	-29.23	Peak	1.25	135	
9920	29.6	V	54	-24.4	Avg	1.25	135	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

X-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	91.44	H	94	-2.56	Peak	2.55	135	
2480	76.27	H	94	-17.73	Avg	2.55	135	
4960	43.82	H	74	-30.18	Peak	1.25	155	
4960	28.65	H	54	-25.35	Avg	1.25	155	
7440	45.52	H	74	-28.48	Peak	1.35	165	
7440	30.35	H	54	-23.65	Avg	1.35	165	
9920	43.67	H	74	-30.33	Peak	1.25	175	
9920	28.5	H	54	-25.5	Avg	1.25	175	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	97.82	V	94	3.82	Peak	1.25	135	
2480	82.65	V	94	-11.35	Avg	1.25	135	
4960	42.82	V	74	-31.18	Peak	1.25	135	
4960	27.65	V	54	-26.35	Avg	1.25	135	
7440	49.68	V	74	-24.32	Peak	1.35	125	
7440	34.51	V	54	-19.49	Avg	1.35	125	
9920	49.551	V	74	-24.449	Peak	1.25	135	
9920	34.381	V	54	-19.619	Avg	1.25	135	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Y-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	87.56	H	94	-6.44	Peak	1.25	135	
2480	72.39	H	94	-21.61	Avg	1.25	135	
4960	44.27	H	74	-29.73	Peak	1.25	165	
4960	29.1	H	54	-24.9	Avg	1.25	165	
7440	45.53	H	74	-28.47	Peak	1.25	165	
7440	30.36	H	54	-23.64	Avg	1.25	165	
9920	45.84	H	74	-28.16	Peak	1.25	165	
9920	30.67	H	54	-23.33	Avg	1.25	165	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	101.76	V	94	7.76	Peak	1.25	135	
2480	86.59	V	94	-7.41	Avg	1.25	135	
4960	45.63	V	74	-28.37	Peak	1.25	155	
4960	30.46	V	54	-23.54	Avg	1.25	155	
7440	45.32	V	74	-28.68	Peak	1.65	175	
7440	30.15	V	54	-23.85	Avg	1.65	175	
9920	46.85	V	74	-27.15	Peak	1.25	185	
9920	31.68	V	54	-22.32	Avg	1.25	185	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Labs: B and D
Tested By: Kyle Fujimoto

Z-Axis - Transmit Mode - High Channel - Duty Cycle = 17.42% - RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	92.07	H	94	-1.93	Peak	1.25	135	
2480	76.9	H	94	-17.1	Avg	1.25	135	
4960	47.48	H	74	-26.52	Peak	1.25	155	
4960	32.31	H	54	-21.69	Avg	1.25	155	
7440	45.71	H	74	-28.29	Peak	1.35	165	
7440	30.54	H	54	-23.46	Avg	1.35	165	
9920	47.58	H	74	-26.42	Peak	1.25	155	
9920	32.41	H	54	-21.59	Avg	1.25	155	
12400								**No Emission**
12400								**Detected**
14880								**No Emission**
14880								**Detected**
17360								**No Emission**
17360								**Detected**
19840								**No Emission**
19840								**Detected**
22320								**No Emission**
22320								**Detected**
24800								**No Emission**
24800								**Detected**

FCC Class B, RSS-210, and FCC 15.249

Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Lab: B
Tested By: Kyle Fujimoto

Non-Harmonic Emissions From the Transmitter - RS232 Power Mode - X-Axis (Worst Case)
Digital Portion in Transmit Mode - RS232 Power Mode - X-Axis (Worst Case)
and Receiver Mode - RS232 Power Mode - Middle Channel - X-Axis (Worst Case)

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Non-Harmonic Emissions
								Found for the EUT from
								1 GHz to 25 GHz
								Vertical and Horizontal
								Polarizations
								No Emissions
								Found for the EUT from
								1 GHz to 25 GHz for both
								Vertical and Horizontal
								Polarizations
								For the Receiver Portion
								No Emissions
								Found for the EUT from
								1 GHz to 25 GHz for both
								Vertical and Horizontal
								Polarizations
								For the Digital Portion in
								Transmit Mode

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : N/A
Specification : FCC B

Page : 1/2
Date : 4/22/2010
Time : 12:43:40
Lab : A
Test Distance : 3.0 Meters

Distance correction factor (20 * log(test/spec) : 0.00

Transmit Mode (PC RS232 Powered)
Radiated Emissions Qualification
10 kHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	125.197	56.80	1.80	10.40	33.00	36.00	43.50	-7.50
V	127.557	56.50	1.81	10.35	32.99	35.67	43.50	-7.83
V	166.191	45.50	2.03	9.45	32.90	24.08	43.50	-19.42
V	232.057	51.50	2.50	11.20	32.80	32.40	46.00	-13.60
V	233.281	48.10	2.50	11.23	32.80	29.03	46.00	-16.97
V	298.305	39.00	2.79	13.86	32.71	22.95	46.00	-23.05
V	300.069	42.70	2.80	13.90	32.70	26.70	46.00	-19.30
V	324.255	44.50	2.95	14.41	32.65	29.22	46.00	-16.78
V	333.789	39.20	3.01	14.60	32.63	24.18	46.00	-21.82
V	336.842	37.80	3.03	14.67	32.62	22.87	46.00	-23.13
V	347.495	36.40	3.09	14.87	32.60	21.75	46.00	-24.25
V	352.852	42.20	3.12	14.97	32.62	27.67	46.00	-18.33
V	430.815	49.00	3.46	16.30	32.56	36.20	46.00	-9.80
V	433.268	49.00	3.47	16.34	32.53	36.28	46.00	-9.72
V	697.568	46.40	4.88	19.58	32.57	38.29	46.00	-7.71
V	699.894	41.60	4.90	19.60	32.60	33.50	46.00	-12.50
V	728.847	45.80	5.08	19.99	32.54	38.33	46.00	-7.67
V	733.217	42.80	5.10	20.05	32.53	35.42	46.00	-10.58
V	762.017	35.60	5.20	20.43	32.33	28.90	46.00	-17.10
V	766.590	36.70	5.20	20.48	32.26	30.12	46.00	-15.88
V	768.208	39.00	5.20	20.51	32.24	32.47	46.00	-13.53
V	828.245	34.10	5.43	21.08	31.86	28.75	46.00	-17.25
V	833.238	33.70	5.47	21.11	31.87	28.41	46.00	-17.59
V	993.852	41.90	6.18	22.25	32.10	38.23	54.00	-15.77
V	999.913	42.00	6.20	22.30	32.10	38.40	54.00	-15.60
H	112.856	49.10	1.62	9.90	32.95	27.66	43.50	-15.84
H	165.805	53.20	2.03	9.42	32.90	31.75	43.50	-11.75
H	166.600	50.30	2.04	9.49	32.90	28.92	43.50	-14.58
H	232.066	49.70	2.50	11.20	32.80	30.60	46.00	-15.40
H	233.272	46.80	2.50	11.23	32.80	27.73	46.00	-18.27
H	299.306	46.90	2.80	13.88	32.70	30.88	46.00	-15.12
H	300.752	47.50	2.80	13.92	32.70	31.52	46.00	-14.48
H	364.524	40.70	3.19	15.19	32.72	26.36	46.00	-19.64
H	366.589	42.40	3.20	15.22	32.74	28.09	46.00	-17.91
H	430.778	46.80	3.46	16.30	32.56	34.00	46.00	-12.00

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : N/A
Specification : FCC B

Page : 2/2
Date : 4/22/2010
Time : 12:43:40
Lab : A
Test Distance : 3.0 Meters

Distance correction factor (20 * log(test/spec) : 0.00

Transmit Mode (PC RS232 Powered)
Radiated Emissions Qualification
10 kHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
H	433.238	46.10	3.47	16.34	32.53	33.38	46.00	-12.62
H	629.492	38.90	4.42	18.98	32.12	30.18	46.00	-15.82
H	633.195	40.40	4.43	19.01	32.10	31.75	46.00	-14.25
H	728.884	48.10	5.08	19.99	32.54	40.63	46.00	-5.37
H	733.211	45.70	5.10	20.05	32.53	38.32	46.00	-7.68
H	810.131	37.80	5.28	20.96	31.82	32.23	46.00	-13.77

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : 738921
Specification : FCC B

Page : 1/2
Date : 4/22/2010
Time : 13:56:59
Lab : A
Test Distance : 3.0 Meters

Distance correction factor (20 * log(test/spec) : 0.00

Receive Mode (PC RS232 Powered)
Radiated Emissions Qualification
30 MHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
V	104.080	57.70	1.47	9.90	32.92	36.15	43.50	-7.35
V	106.784	56.90	1.52	9.90	32.93	35.39	43.50	-8.11
V	128.632	54.20	1.82	10.32	32.98	33.36	43.50	-10.14
V	165.810	46.10	2.03	9.42	32.90	24.65	43.50	-18.85
V	176.990	54.70	2.12	10.12	32.88	34.05	43.50	-9.45
V	232.043	46.80	2.50	11.20	32.80	27.70	46.00	-18.30
V	233.270	45.20	2.50	11.23	32.80	26.13	46.00	-19.87
V	267.049	51.90	2.64	12.81	32.80	34.55	46.00	-11.45
V	276.589	50.70	2.71	13.34	32.79	33.95	46.00	-12.05
V	324.247	43.50	2.95	14.41	32.65	28.22	46.00	-17.78
V	331.440	40.40	2.99	14.56	32.64	25.32	46.00	-20.68
V	333.263	39.20	3.00	14.59	32.63	24.17	46.00	-21.83
V	352.864	41.70	3.12	14.97	32.62	27.17	46.00	-18.83
V	362.402	41.60	3.18	15.15	32.70	27.22	46.00	-18.78
V	430.783	51.50	3.46	16.30	32.56	38.70	46.00	-7.30
V	433.250	51.20	3.47	16.34	32.53	38.48	46.00	-7.52
V	697.926	42.50	4.88	19.58	32.58	34.39	46.00	-11.61
V	728.868	48.70	5.08	19.99	32.54	41.23	46.00	-4.77
V	733.217	45.50	5.10	20.05	32.53	38.12	46.00	-7.88
V	833.211	34.40	5.47	21.11	31.87	29.11	46.00	-16.89
V	993.814	35.00	6.18	22.25	32.10	31.33	54.00	-22.67
V	999.968	34.10	6.20	22.30	32.10	30.50	54.00	-23.50
H	110.321	48.40	1.58	9.90	32.94	26.93	43.50	-16.57
H	168.368	48.10	2.05	9.64	32.90	26.89	43.50	-16.61
H	298.284	46.30	2.79	13.86	32.71	30.25	46.00	-15.75
H	300.780	48.90	2.81	13.92	32.70	32.92	46.00	-13.08
H	305.178	49.50	2.83	14.01	32.69	33.66	46.00	-12.34
H	324.233	50.40	2.95	14.41	32.65	35.11	46.00	-10.89
H	331.430	48.00	2.99	14.56	32.64	32.92	46.00	-13.08
H	333.262	46.50	3.00	14.59	32.63	31.47	46.00	-14.53
H	364.548	46.70	3.19	15.19	32.72	32.36	46.00	-13.64
H	366.584	48.60	3.20	15.22	32.74	34.29	46.00	-11.71
H	398.882	42.80	3.39	15.78	32.99	28.98	46.00	-17.02
H	401.125	44.00	3.40	15.82	32.98	30.24	46.00	-15.76
H	430.794	45.50	3.46	16.30	32.56	32.70	46.00	-13.30

Test Location : Compatible Electronics
Customer : Gefen. LLC
Manufacturer : Gefen. LLC
Eut name : Wireless RS232 Extender
Model : EXT-WRS232S
Serial # : 738921
Specification : FCC B

Page : 2/2
Date : 4/22/2010
Time : 13:56:59
Lab : A
Test Distance : 3.0 Meters

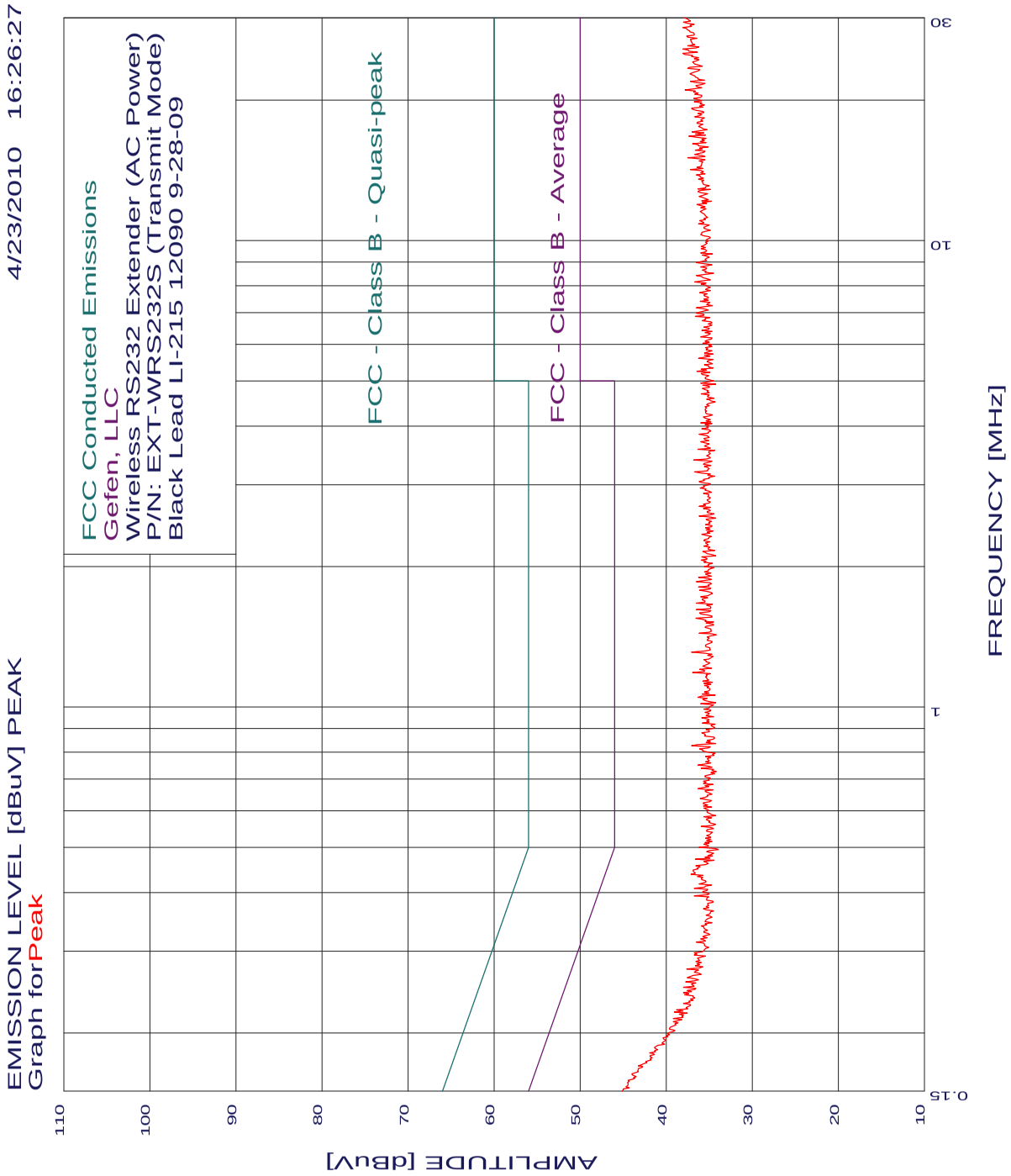
Distance correction factor (20 * log(test/spec) : 0.00

Receive Mode (PC RS232 Powered)
Radiated Emissions Qualification
30 MHz to 1000 MHz (Vetical and Horizontal)
James Ross, Test Engineer

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	Limit = L dBuV/m	Delta R-L dB
H	433.231	44.20	3.47	16.34	32.53	31.48	46.00	-14.52
H	463.907	37.10	3.59	16.80	32.24	25.24	46.00	-20.76
H	466.576	37.40	3.60	16.83	32.23	25.61	46.00	-20.39
H	629.521	40.50	4.42	18.98	32.12	31.78	46.00	-14.22
H	633.213	40.20	4.43	19.01	32.10	31.55	46.00	-14.45
H	662.627	37.10	4.60	19.28	32.16	28.83	46.00	-17.17
H	666.497	37.80	4.64	19.31	32.20	29.55	46.00	-16.45
H	993.787	38.80	6.18	22.25	32.10	35.13	54.00	-18.87
H	999.924	39.30	6.20	22.30	32.10	35.70	54.00	-18.30

CONDUCTED EMISSIONS

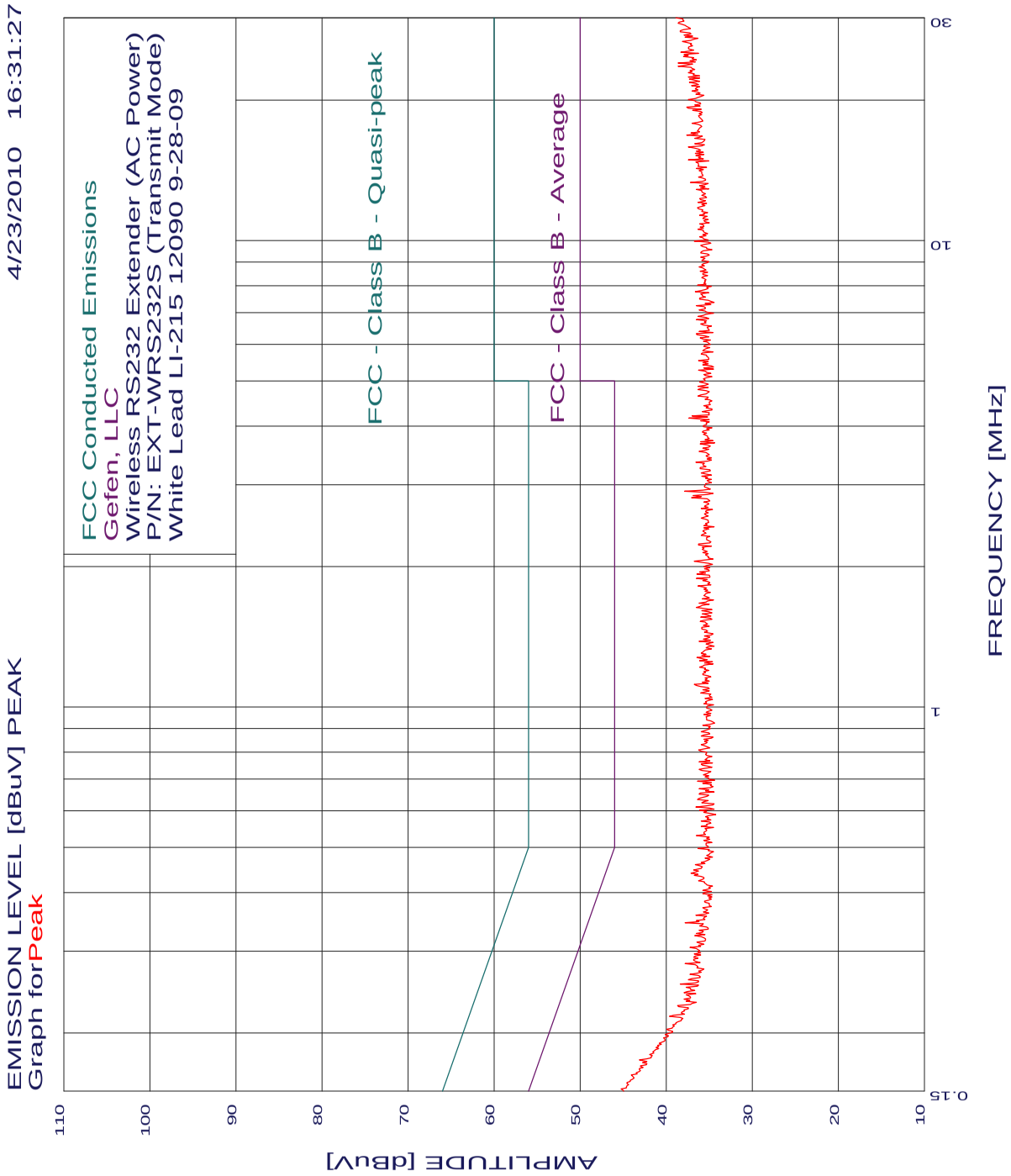
DATA SHEETS


EMISSION LEVEL [dBuV] PEAK
Graph forPeak
4/23/2010 16:26:27
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Transmit Mode)
Black Lead LI-215 12090 9-28-09
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Transmit Mode)
Black Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

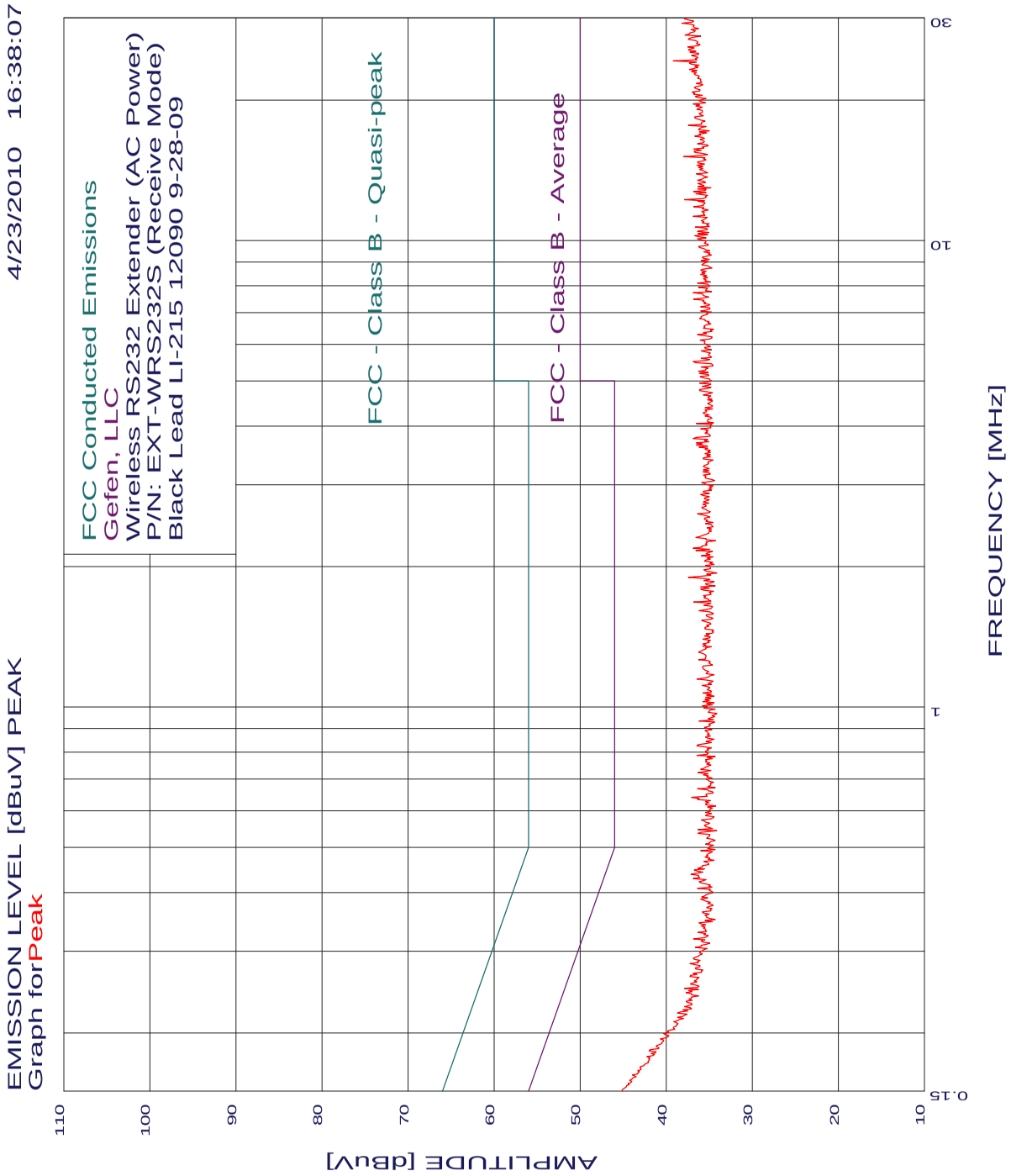
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.311	37.03	46.00	-8.97
2	0.826	37.02	46.00	-8.98
3	1.184	36.91	46.00	-9.09
4	3.383	36.75	46.00	-9.25
5	3.192	36.65	46.00	-9.35
6	1.552	36.56	46.00	-9.44
7	1.859	36.50	46.00	-9.50
8	1.671	36.48	46.00	-9.52
9	1.620	36.47	46.00	-9.53
10	1.049	36.30	46.00	-9.70
11	0.751	36.29	46.00	-9.71
12	3.565	36.26	46.00	-9.74
13	0.669	36.25	46.00	-9.75
14	1.899	36.20	46.00	-9.80
15	1.810	36.19	46.00	-9.81
16	0.500	36.18	46.01	-9.83
17	3.841	36.17	46.00	-9.83
18	1.441	36.15	46.00	-9.85
19	3.043	36.14	46.00	-9.86
20	2.693	36.14	46.00	-9.86
21	2.568	36.13	46.00	-9.87
22	0.814	36.11	46.00	-9.89
23	0.471	36.60	46.49	-9.89
24	1.781	36.09	46.00	-9.91
25	1.594	36.07	46.00	-9.93
26	2.948	36.04	46.00	-9.96
27	0.637	36.04	46.00	-9.96
28	0.438	37.12	47.11	-9.99
29	4.954	35.99	46.00	-10.01
30	1.016	35.99	46.00	-10.01


EMISSION LEVEL [dBuV] PEAK
Graph forPeak
4/23/2010 16:31:27
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Transmit Mode)
White Lead LI-215 12090 9-28-09
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Transmit Mode)
White Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

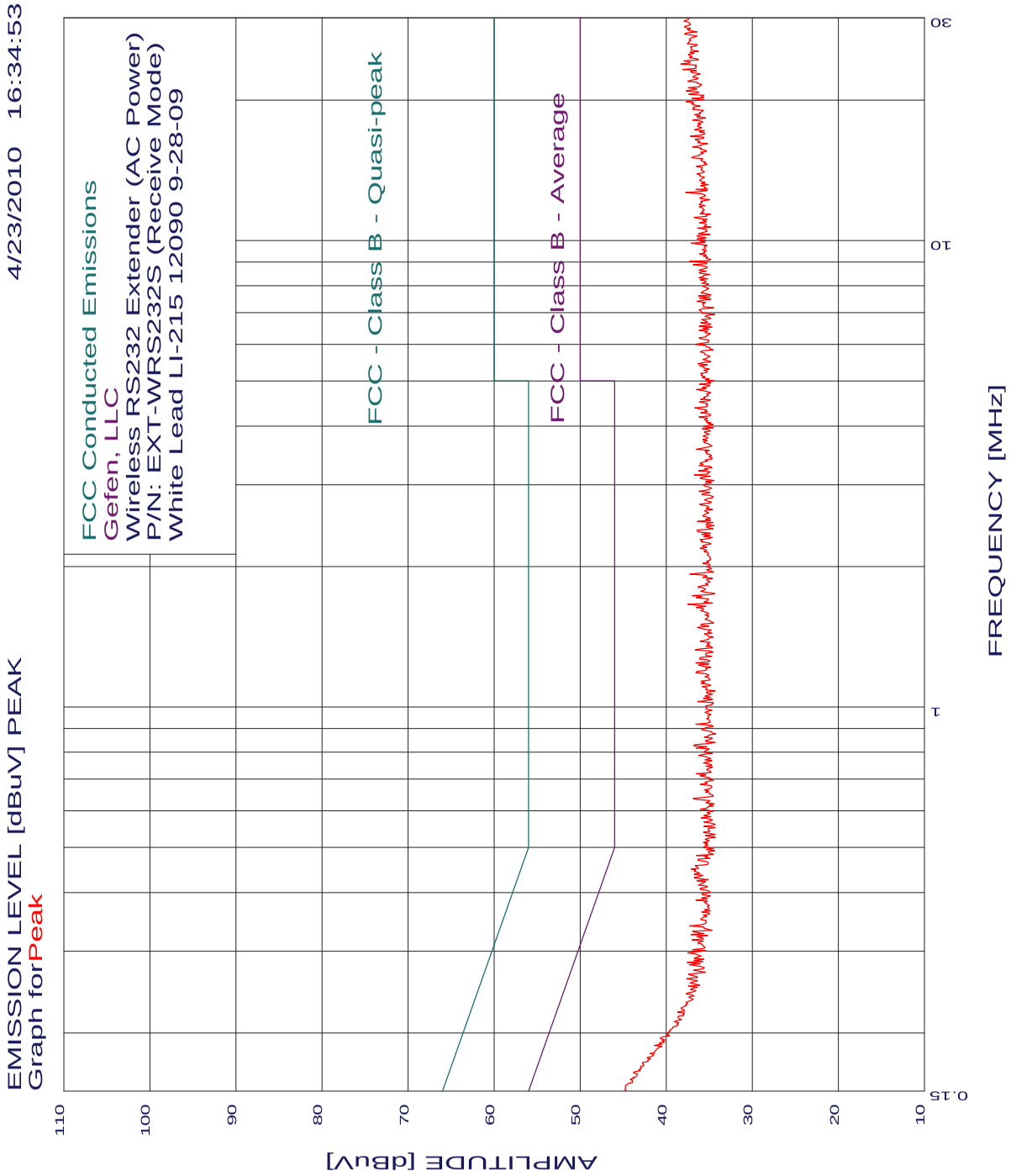
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	2.900	37.83	46.00	-8.17
2	4.159	37.36	46.00	-8.64
3	2.811	37.02	46.00	-8.98
4	4.204	36.96	46.00	-9.04
5	2.055	36.71	46.00	-9.29
6	1.118	36.69	46.00	-9.31
7	3.346	36.54	46.00	-9.46
8	0.611	36.51	46.00	-9.49
9	1.889	36.49	46.00	-9.51
10	0.530	36.48	46.00	-9.52
11	1.637	36.46	46.00	-9.54
12	1.276	36.41	46.00	-9.59
13	1.929	36.40	46.00	-9.60
14	0.694	36.35	46.00	-9.65
15	0.634	36.32	46.00	-9.68
16	1.820	36.28	46.00	-9.72
17	4.877	36.28	46.00	-9.72
18	4.799	36.27	46.00	-9.73
19	4.648	36.27	46.00	-9.73
20	0.497	36.27	46.05	-9.78
21	2.238	36.21	46.00	-9.79
22	0.809	36.20	46.00	-9.80
23	0.763	36.18	46.00	-9.82
24	0.735	36.17	46.00	-9.83
25	1.671	36.16	46.00	-9.84
26	3.529	36.14	46.00	-9.86
27	0.669	36.14	46.00	-9.86
28	0.651	36.13	46.00	-9.87
29	1.382	36.13	46.00	-9.87
30	0.601	36.11	46.00	-9.89


EMISSION LEVEL [dBuV] PEAK
Graph forPeak
4/23/2010 16:38:07
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Receive Mode)
Black Lead LI-215 12090 9-28-09
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Receive Mode)
Black Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

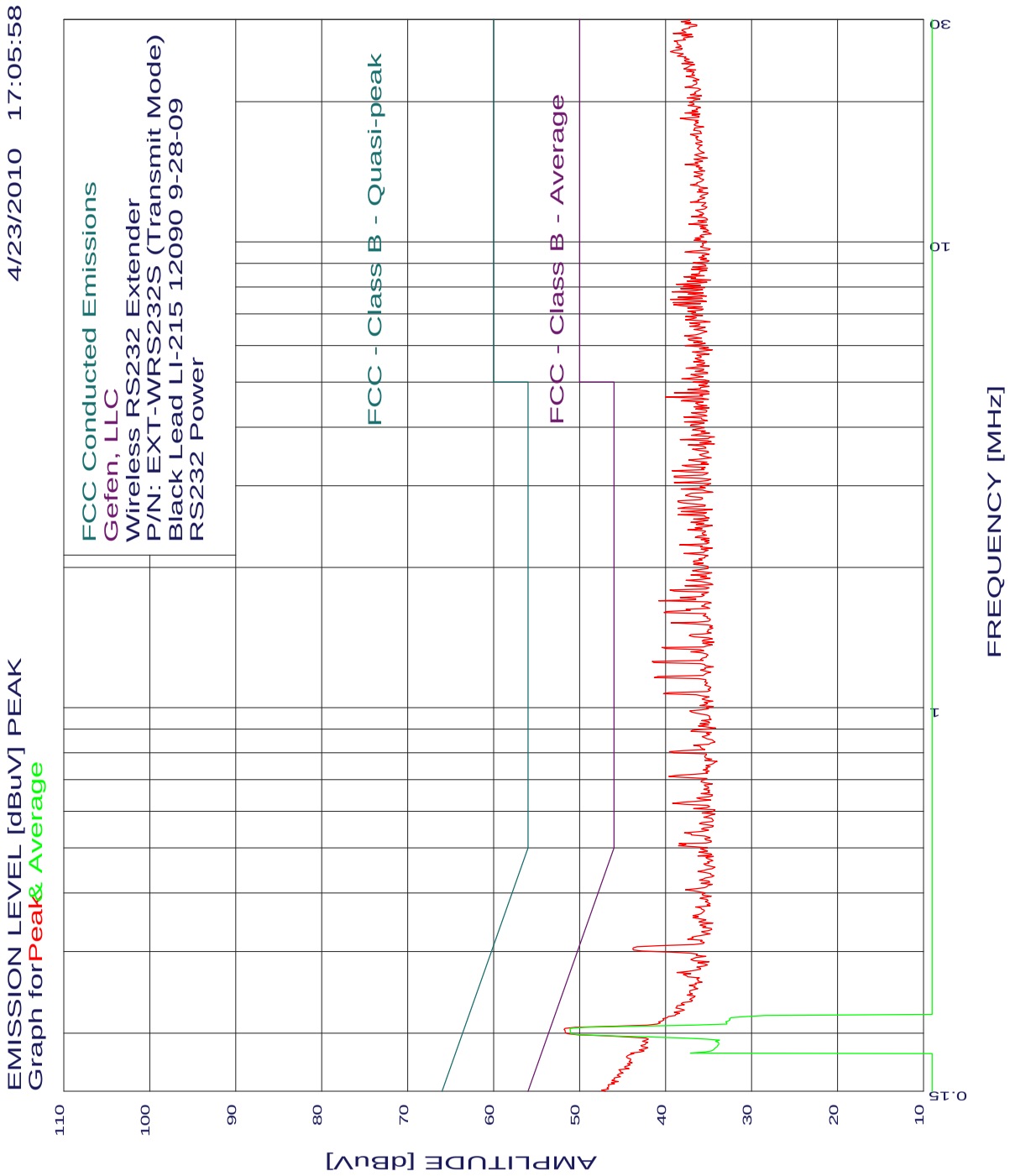
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.899	37.40	46.00	-8.60
2	0.641	37.04	46.00	-8.96
3	3.761	36.86	46.00	-9.14
4	2.190	36.82	46.00	-9.18
5	1.680	36.78	46.00	-9.22
6	2.310	36.53	46.00	-9.47
7	2.168	36.52	46.00	-9.48
8	4.050	36.47	46.00	-9.53
9	3.683	36.46	46.00	-9.54
10	0.826	36.42	46.00	-9.58
11	1.148	36.41	46.00	-9.59
12	0.788	36.40	46.00	-9.60
13	0.669	36.35	46.00	-9.65
14	2.596	36.33	46.00	-9.67
15	0.547	36.30	46.00	-9.70
16	0.535	36.29	46.00	-9.71
17	0.724	36.27	46.00	-9.73
18	1.311	36.23	46.00	-9.77
19	1.611	36.17	46.00	-9.83
20	0.934	36.16	46.00	-9.84
21	4.954	36.09	46.00	-9.91
22	4.799	36.09	46.00	-9.91
23	0.438	37.12	47.11	-9.99
24	1.810	35.99	46.00	-10.01
25	0.735	35.98	46.00	-10.02
26	3.945	35.97	46.00	-10.03
27	2.855	35.94	46.00	-10.06
28	2.111	35.92	46.00	-10.08
29	0.573	35.91	46.00	-10.09
30	1.536	35.86	46.00	-10.14


EMISSION LEVEL [dBuV] PEAK
Graph forPeak
4/23/2010 16:34:53
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Receive Mode)
White Lead LI-215 12090 9-28-09
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (AC Power)
P/N: EXT-WRS232S (Receive Mode)
White Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.663	37.46	46.00	-8.54
2	1.929	37.20	46.00	-8.80
3	1.735	36.97	46.00	-9.03
4	0.637	36.83	46.00	-9.17
5	0.826	36.81	46.00	-9.19
6	3.141	36.73	46.00	-9.27
7	4.384	36.66	46.00	-9.34
8	1.325	36.62	46.00	-9.38
9	0.919	36.54	46.00	-9.46
10	1.243	36.51	46.00	-9.49
11	1.184	36.50	46.00	-9.50
12	0.818	36.50	46.00	-9.50
13	4.799	36.47	46.00	-9.53
14	0.720	36.46	46.00	-9.54
15	1.637	36.46	46.00	-9.54
16	3.565	36.44	46.00	-9.56
17	2.384	36.41	46.00	-9.59
18	1.480	36.34	46.00	-9.66
19	2.501	36.32	46.00	-9.68
20	1.027	36.28	46.00	-9.72
21	1.810	36.28	46.00	-9.72
22	3.209	36.23	46.00	-9.77
23	0.449	37.10	46.89	-9.79
24	1.230	36.21	46.00	-9.79
25	0.788	36.19	46.00	-9.81
26	0.481	36.48	46.32	-9.84
27	4.182	36.16	46.00	-9.84
28	3.294	36.14	46.00	-9.86
29	2.900	36.13	46.00	-9.87
30	2.722	36.12	46.00	-9.88


EMISSION LEVEL [dBuV] PEAK
Graph forPeak& Average
4/23/2010 17:05:58
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S (Transmit Mode)
Black Lead LI-215 12090 9-28-09
RS232 Power
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Transmit Mode)
Black Lead 120 VAC
TEST ENGINEER :Alex Benitez

---
29 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

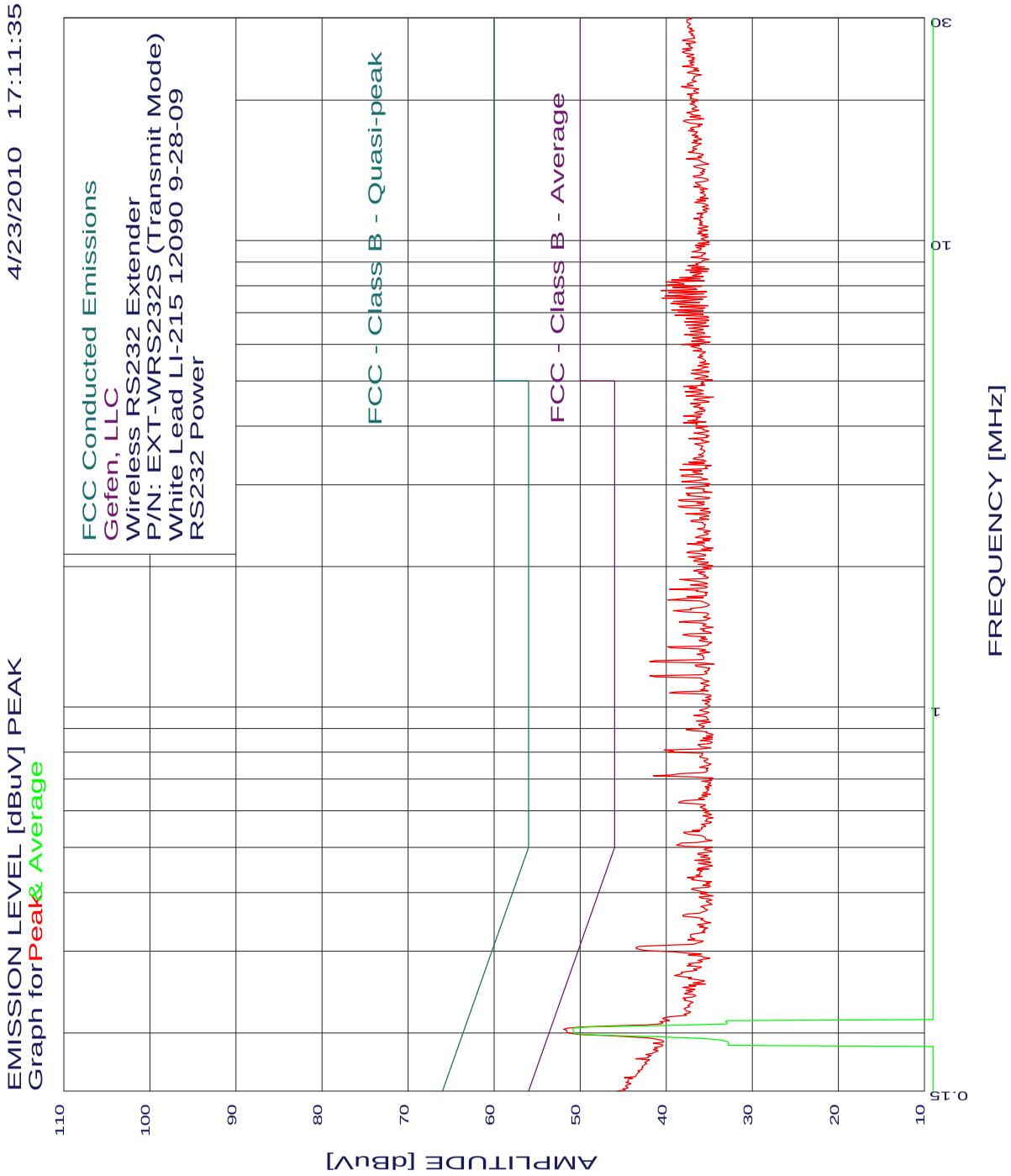
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)	
1	0.204	51.77	53.44	-1.67	**
2	1.256	41.52	46.00	-4.48	
3	1.160	41.31	46.00	-4.69	
4	1.699	40.78	46.00	-5.22	
5	1.345	40.44	46.00	-5.56	
6	1.072	40.20	46.00	-5.80	
7	1.603	40.17	46.00	-5.83	
8	4.648	39.99	46.00	-6.01	
9	0.304	43.80	50.14	-6.34	
10	0.713	39.57	46.00	-6.43	
11	0.805	39.51	46.00	-6.49	
12	1.790	39.49	46.00	-6.51	
13	1.520	39.36	46.00	-6.64	
14	3.226	39.25	46.00	-6.75	
15	0.624	39.13	46.00	-6.87	
16	4.748	38.99	46.00	-7.01	
17	3.141	38.95	46.00	-7.05	
18	3.043	38.94	46.00	-7.06	
19	2.781	38.54	46.00	-7.46	
20	2.679	38.54	46.00	-7.46	
21	2.596	38.53	46.00	-7.47	
22	0.505	38.48	46.00	-7.52	
23	2.238	38.32	46.00	-7.68	
24	1.726	38.28	46.00	-7.72	
25	3.761	38.26	46.00	-7.74	
26	4.552	38.18	46.00	-7.82	
27	2.948	38.14	46.00	-7.86	
28	2.637	38.13	46.00	-7.87	
29	3.311	38.05	46.00	-7.95	

**Please See the Average Readings on the Next Page and on the Plot

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Transmit Mode)
Black Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
2 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.204	51.11	53.44	-2.33
2	0.182	37.07	54.41	-17.34


EMISSION LEVEL [dBuV] PEAK
Graph forPeak& Average
4/23/2010 17:11:35
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S (Transmit Mode)
White Lead LI-215 12090 9-28-09
RS232 Power
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Transmit Mode)
White Lead 120 VAC
TEST ENGINEER :Alex Benitez

---
29 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

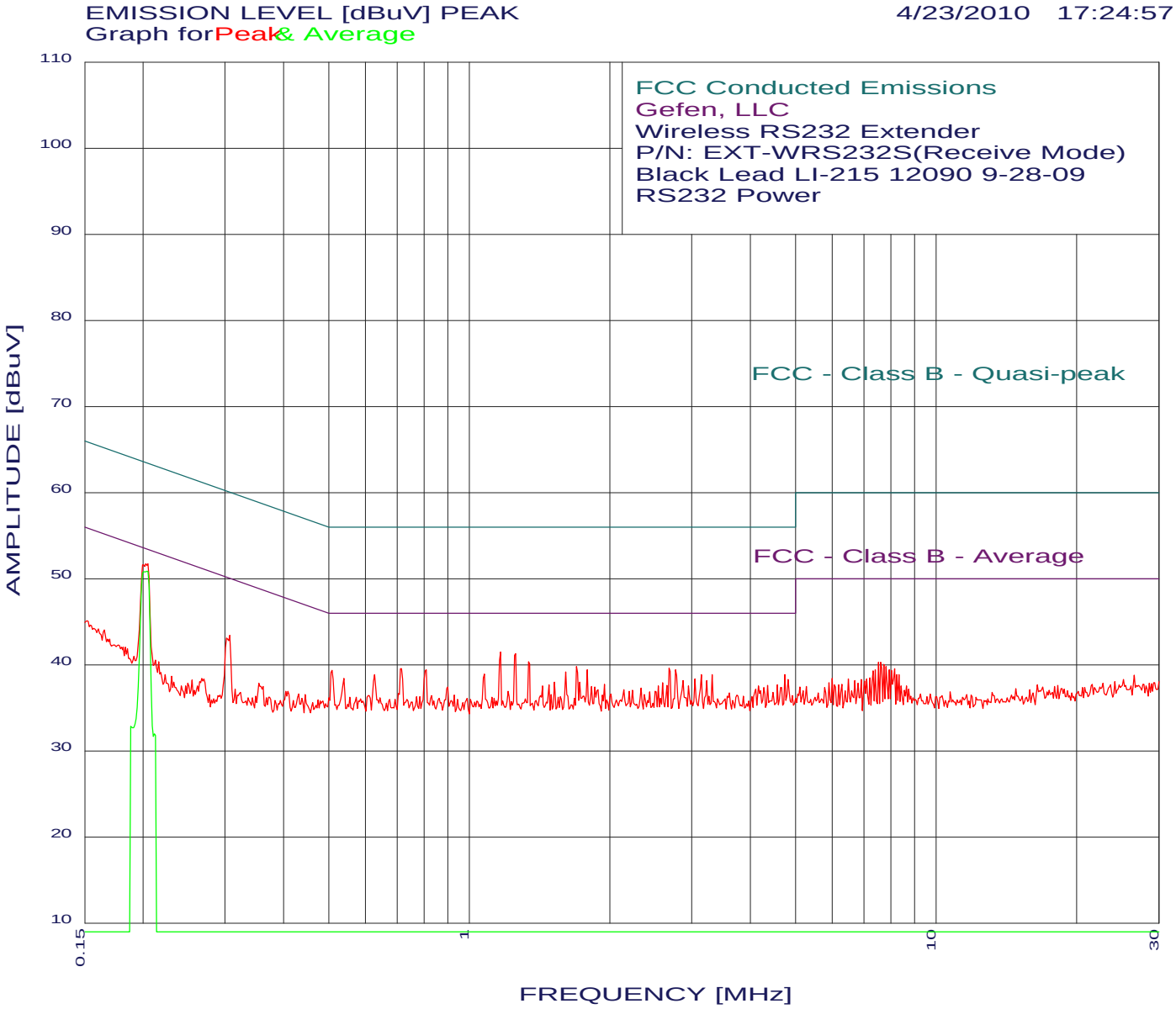
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)	
1	0.204	51.91	53.44	-1.54	**
2	1.249	41.91	46.00	-4.09	
3	1.166	41.90	46.00	-4.10	
4	0.713	41.46	46.00	-4.54	
5	0.809	40.20	46.00	-5.80	
6	1.345	39.82	46.00	-6.18	
7	1.699	39.77	46.00	-6.23	
8	1.072	39.59	46.00	-6.41	
9	1.790	39.58	46.00	-6.42	
10	0.304	43.49	50.14	-6.65	
11	1.611	39.16	46.00	-6.84	
12	0.505	38.77	46.00	-7.23	
13	2.693	38.62	46.00	-7.38	
14	2.781	38.52	46.00	-7.48	
15	0.624	38.52	46.00	-7.48	
16	1.520	38.44	46.00	-7.56	
17	3.226	38.43	46.00	-7.57	
18	1.879	38.39	46.00	-7.61	
19	3.124	38.23	46.00	-7.77	
20	3.043	38.13	46.00	-7.87	
21	3.311	38.04	46.00	-7.96	
22	1.426	38.03	46.00	-7.97	
23	0.538	37.98	46.00	-8.02	
24	4.877	37.98	46.00	-8.02	
25	4.204	37.96	46.00	-8.04	
26	4.071	37.96	46.00	-8.04	
27	4.748	37.77	46.00	-8.23	
28	2.948	37.73	46.00	-8.27	
29	2.596	37.72	46.00	-8.28	

**Please See the Average Readings on the Next Page and on the Plot

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Transmit Mode)
White Lead 120 VAC
TEST ENGINEER : Alex Benitez

---
1 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.204	50.82	53.44	-2.63


EMISSION LEVEL [dBuV] PEAK
Graph forPeak& Average
4/23/2010 17:24:57
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S(Receive Mode)
Black Lead LI-215 12090 9-28-09
RS232 Power
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Receive Mode)
Black Lead 120 VAC
TEST ENGINEER : Alex Benitez

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29 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)	
1	0.205	51.71	53.40	-1.69	**
2	1.166	41.50	46.00	-4.50	
3	1.256	41.31	46.00	-4.69	
4	1.338	40.32	46.00	-5.68	
5	1.699	39.77	46.00	-6.23	
6	2.679	39.62	46.00	-6.38	
7	0.716	39.56	46.00	-6.44	
8	2.766	39.42	46.00	-6.58	
9	0.809	39.40	46.00	-6.60	
10	1.790	39.38	46.00	-6.62	
11	0.508	39.37	46.00	-6.63	
12	0.307	43.39	50.05	-6.66	
13	1.611	39.16	46.00	-6.84	
14	1.077	38.89	46.00	-7.11	
15	4.748	38.87	46.00	-7.13	
16	3.311	38.84	46.00	-7.16	
17	3.141	38.83	46.00	-7.17	
18	0.627	38.82	46.00	-7.18	
19	0.538	38.38	46.00	-7.62	
20	3.043	38.33	46.00	-7.67	
21	4.825	38.27	46.00	-7.73	
22	3.226	38.13	46.00	-7.87	
23	2.870	38.13	46.00	-7.87	
24	1.726	37.97	46.00	-8.03	
25	1.520	37.94	46.00	-8.06	
26	2.596	37.92	46.00	-8.08	
27	1.950	37.70	46.00	-8.30	
28	4.576	37.67	46.00	-8.33	
29	1.480	37.64	46.00	-8.36	

**Please See the Average Readings on the Next Page and on the Plot

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Receive Mode)
Black Lead 120 VAC
TEST ENGINEER : Alex Benitez

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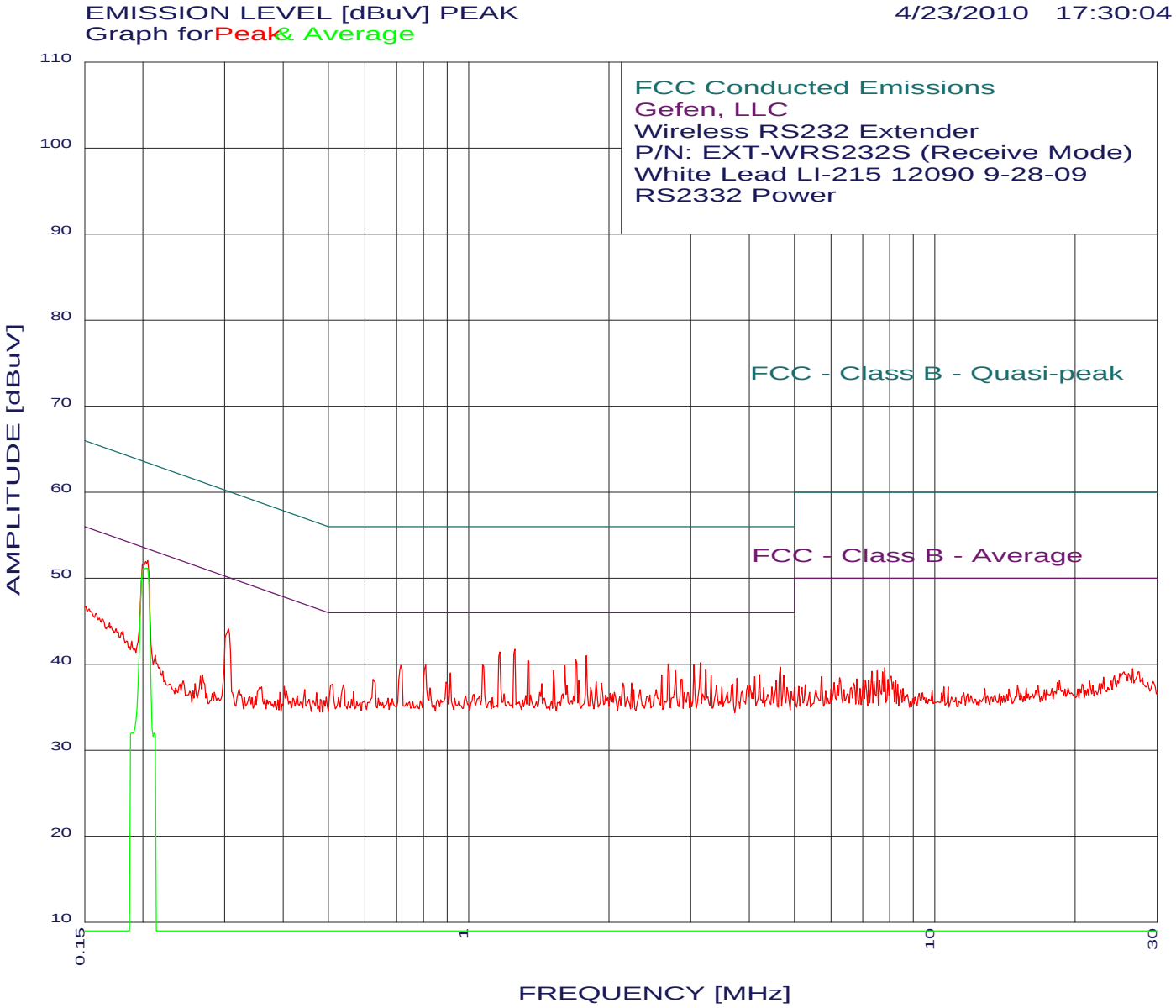
1 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.205	50.84	53.40	-2.56


EMISSION LEVEL [dBuV] PEAK
Graph forPeak& Average
4/23/2010 17:30:04
FCC Conducted Emissions
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S (Receive Mode)
White Lead LI-215 12090 9-28-09
RS2332 Power
FCC - Class B - Quasi-peak
FCC - Class B - Average
AMPLITUDE [dBuV]
110
100
90
80
70
60
50
40
30
20
10
0.15
1
10
30
FREQUENCY [MHz]

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Receive Mode)
White Lead 120 VAC
TEST ENGINEER : Alex Benitez

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29 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)	
1	0.205	52.01	53.40	-1.39	**
2	1.256	41.71	46.00	-4.29	
3	1.166	41.40	46.00	-4.60	
4	1.790	40.98	46.00	-5.02	
5	1.699	40.57	46.00	-5.43	
6	1.338	40.42	46.00	-5.58	
7	3.141	40.13	46.00	-5.87	
8	2.679	40.02	46.00	-5.98	
9	0.305	44.09	50.10	-6.01	
10	3.043	39.93	46.00	-6.07	
11	0.809	39.90	46.00	-6.10	
12	1.072	39.89	46.00	-6.11	
13	0.716	39.86	46.00	-6.14	
14	1.611	39.76	46.00	-6.24	
15	4.672	39.67	46.00	-6.33	
16	3.226	39.33	46.00	-6.67	
17	1.520	39.24	46.00	-6.76	
18	2.781	39.22	46.00	-6.78	
19	0.914	38.94	46.00	-7.06	
20	4.204	38.76	46.00	-7.24	
21	3.311	38.74	46.00	-7.26	
22	2.596	38.72	46.00	-7.28	
23	4.748	38.67	46.00	-7.33	
24	4.114	38.56	46.00	-7.44	
25	3.761	38.35	46.00	-7.65	
26	2.870	38.23	46.00	-7.77	
27	0.624	38.22	46.00	-7.78	
28	1.726	38.07	46.00	-7.93	
29	4.576	38.07	46.00	-7.93	

**Please See the Average Readings on the Next Page and on the Plot

Gefen, LLC
Wireless RS232 Extender (RS232 Power)
P/N: EXT-WRS232S (Receive Mode)
White Lead 120 VAC
TEST ENGINEER : Alex Benitez

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1 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 1.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.204	51.18	53.44	-2.27

BAND EDGES

DATA SHEETS

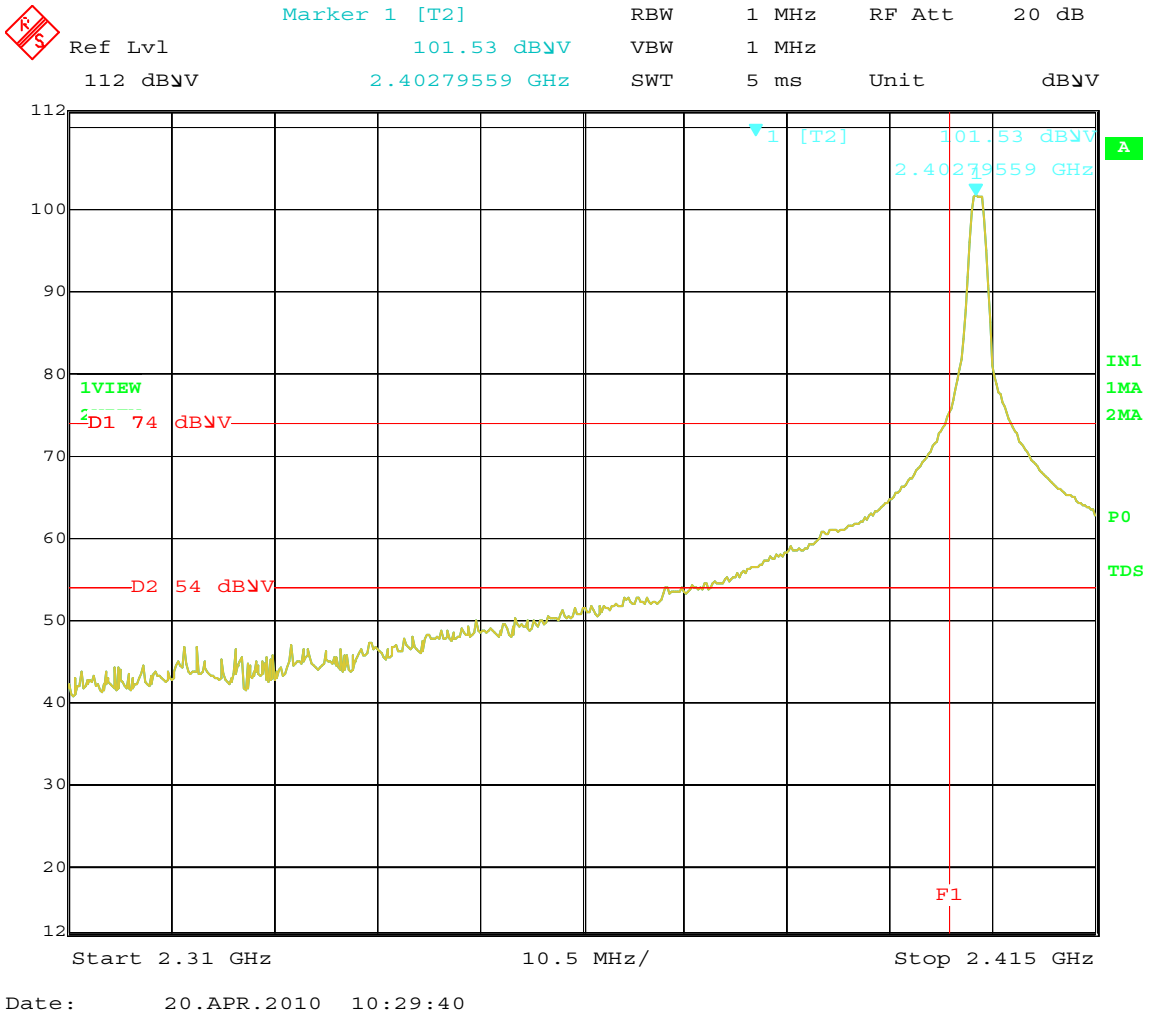
FCC 15.249
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/20/2010
Lab: B
Tested By: Kyle Fujimoto

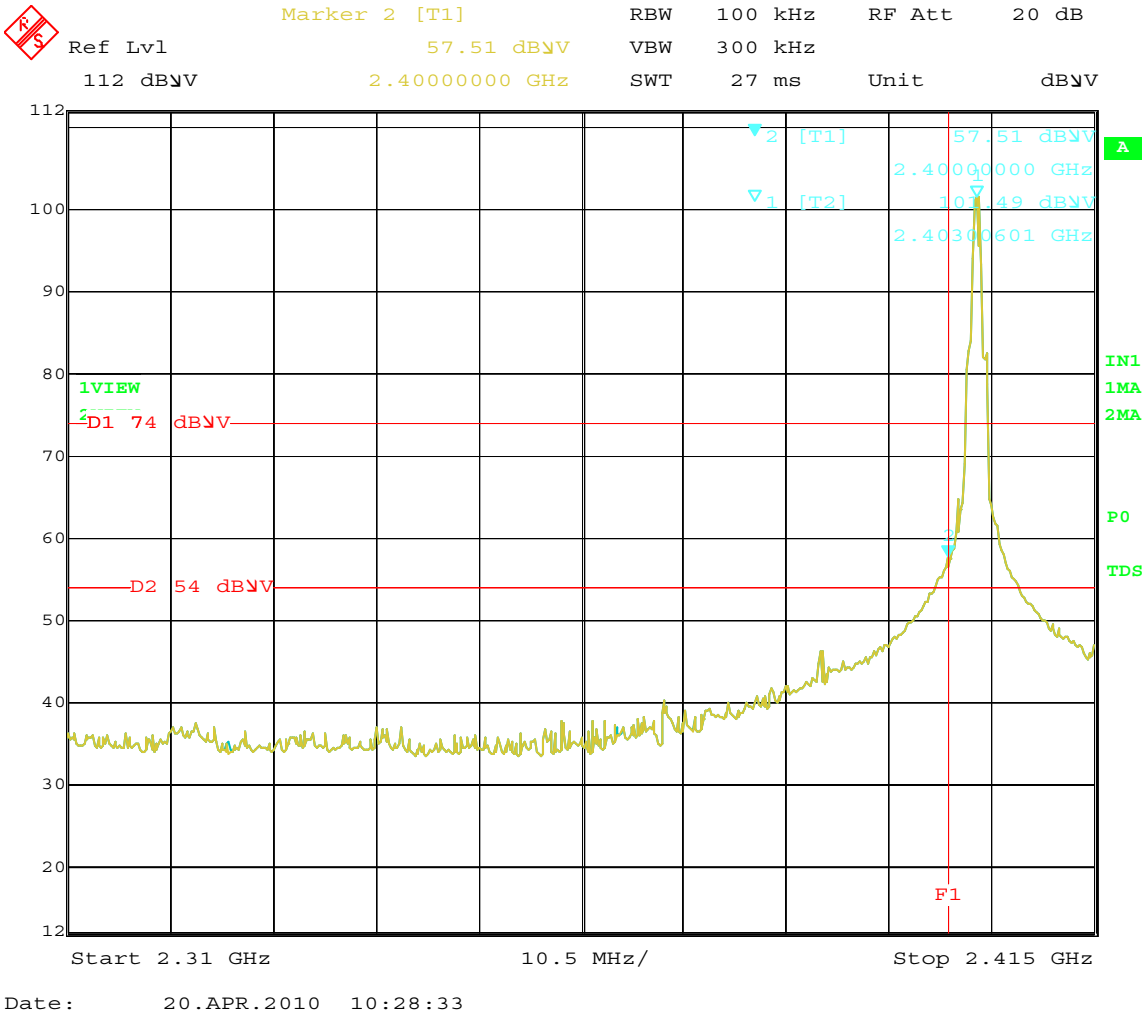
Band Edges - Vertical Polarization (Worst Case) - X-Axis (Worst Case) - Duty Cycle - 17.42%
External Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	101.53	V	94	7.53	Peak	1	180	Fundamental of Channel 1
2403	86.36	V	94	-7.64	Avg	1	180	@ 3 meters
2400	67.51	V	74	-6.49	Peak	1	180	Used 100 kHz RBW*
2400	52.34	V	54	-1.66	Avg	1	180	Used 100 kHz RBW*
2480	101.76	V	94	7.76	Peak	1	180	Fundamental of Channel 11
2480	86.59	V	94	-7.41	Avg	1	180	@ 3 meters
2483.8	67.89	V	74	-6.11	Peak	1	180	Used 100 kHz RBW*
2483.8	52.72	V	54	-1.28	Avg	1	180	Used 100 kHz RBW*

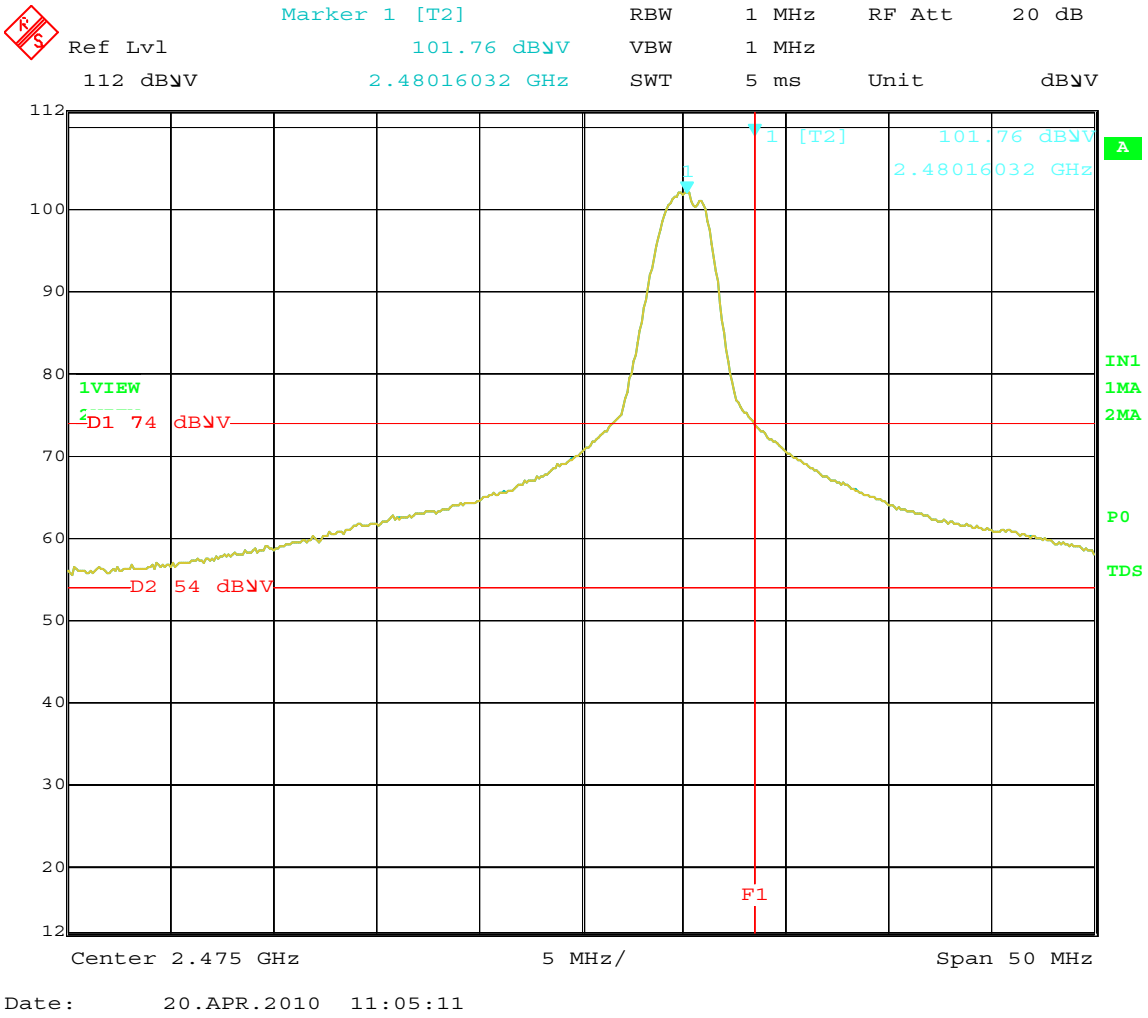
* The Reading was corrected back to a 1 MHz RBW by using a correction factor of
10 log (1000 kHz / 100 kHz) = 10 dB. The Level indicated has already been corrected using this factor.



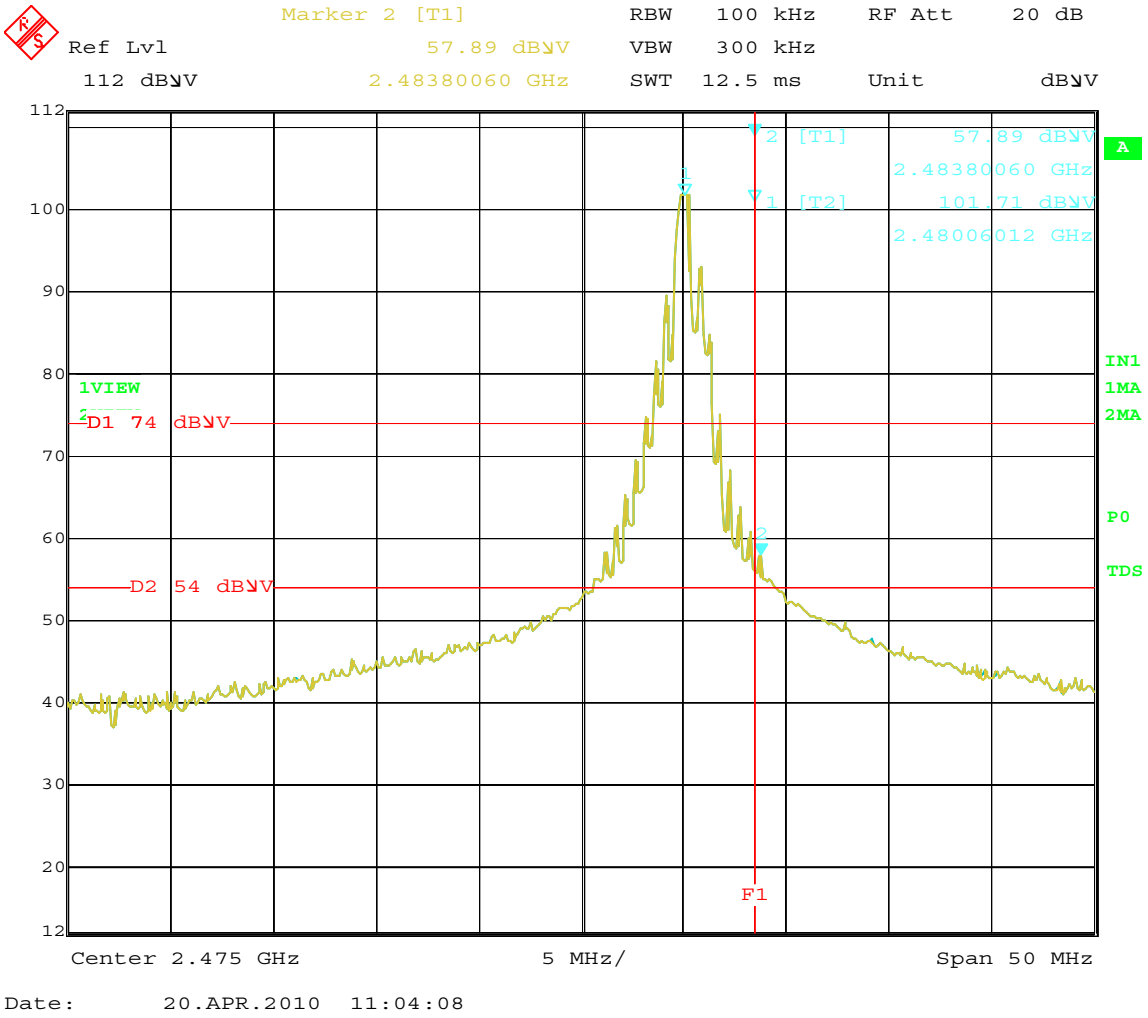
Band Edge – Low Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Fundamental Only – External Power Mode



Band Edge – Low Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Band Edge Only – External Power Mode
See Data Sheet for Correction Factor back to 1 MHz RBW



Band Edge – High Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Fundamental Only – External Power Mode



Band Edge – High Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Band Edge Only – External Power Mode
See Data Sheet for Correction Factor back to 1 MHz RBW

FCC 15.249

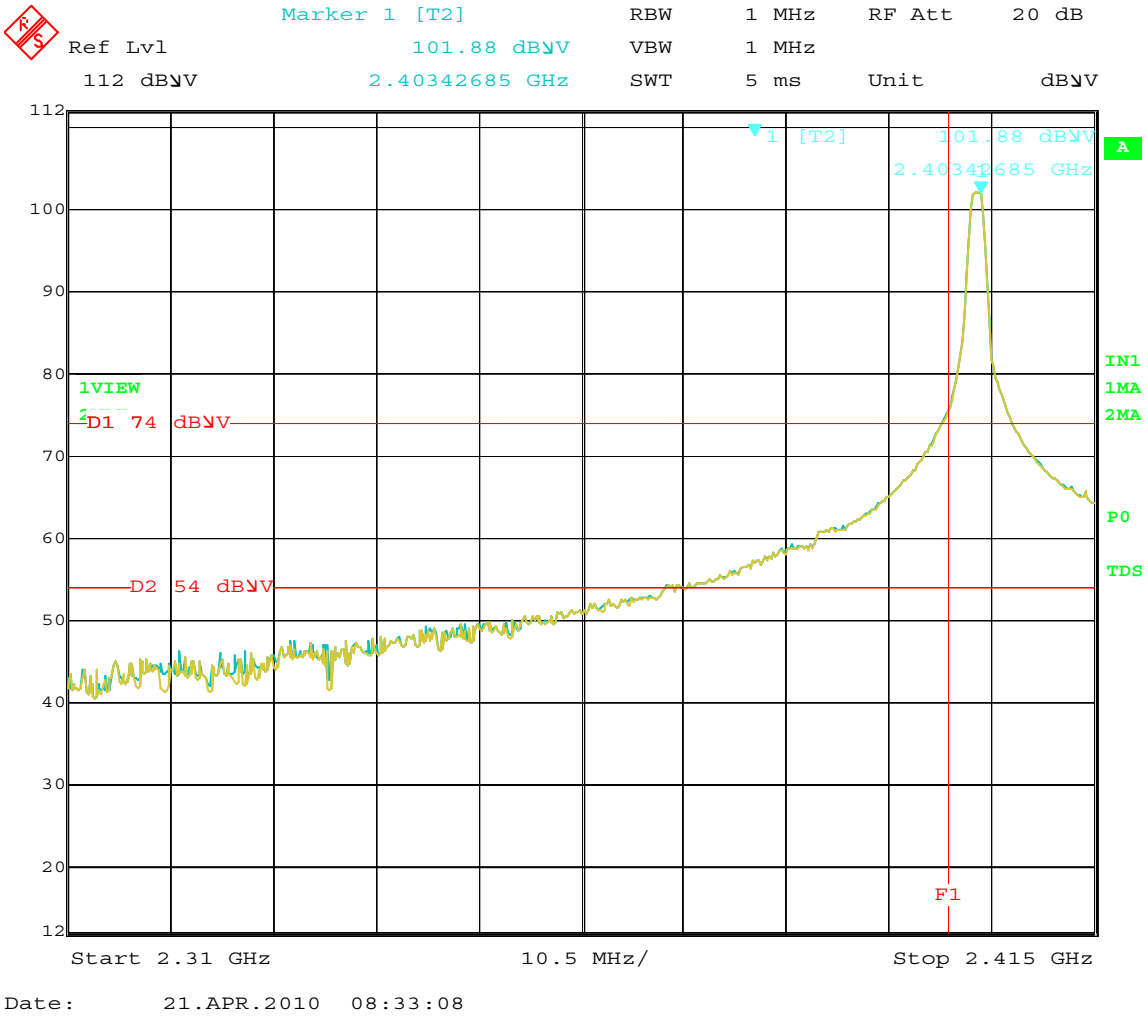
Gefen, LLC
Wireless RS232 Extender
P/N: EXT-WRS232S

Date: 04/21/2010
Labs: B and D
Tested By: Kyle Fujimoto

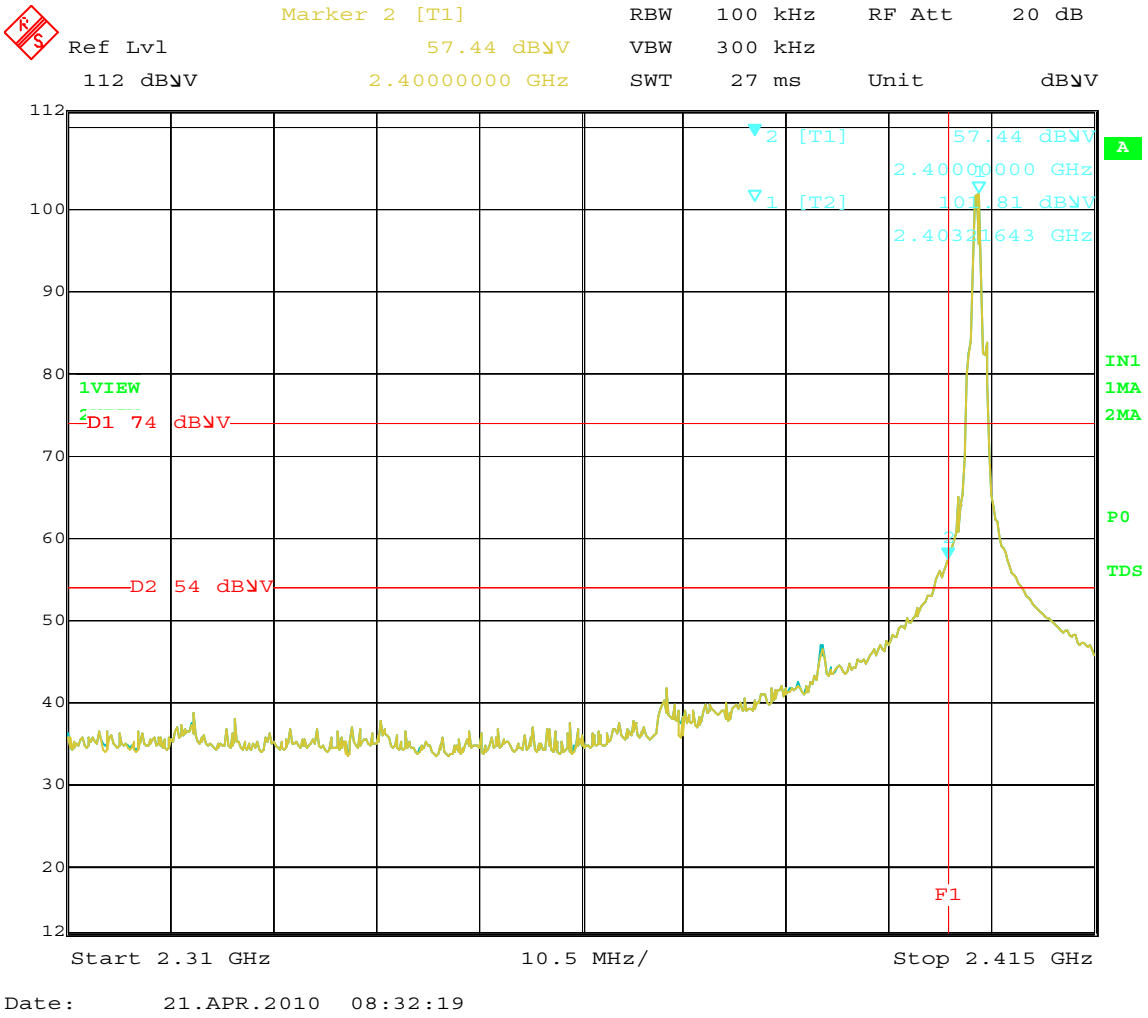
Band Edges - Vertical Polarization (Worst Case) - X-Axis (Worst Case) - Duty Cycle - 17.42%
RS232 Power Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403	101.88	V	94	7.88	Peak	1	180	Fundamental of Channel 1
2403	86.71	V	94	-7.29	Avg	1	180	@ 3 meters
2400	67.44	V	74	-6.56	Peak	1	180	Used 100 kHz RBW*
2400	52.27	V	54	-1.73	Avg	1	180	Used 100 kHz RBW*
2480	102.6	V	94	8.6	Peak	1	180	Fundamental of Channel 11
2480	87.43	V	94	-6.57	Avg	1	180	@ 3 meters
2483.8	68.54	V	74	-5.46	Peak	1	180	Used 100 kHz RBW*
2483.8	53.37	V	54	-0.63	Avg	1	180	Used 100 kHz RBW*

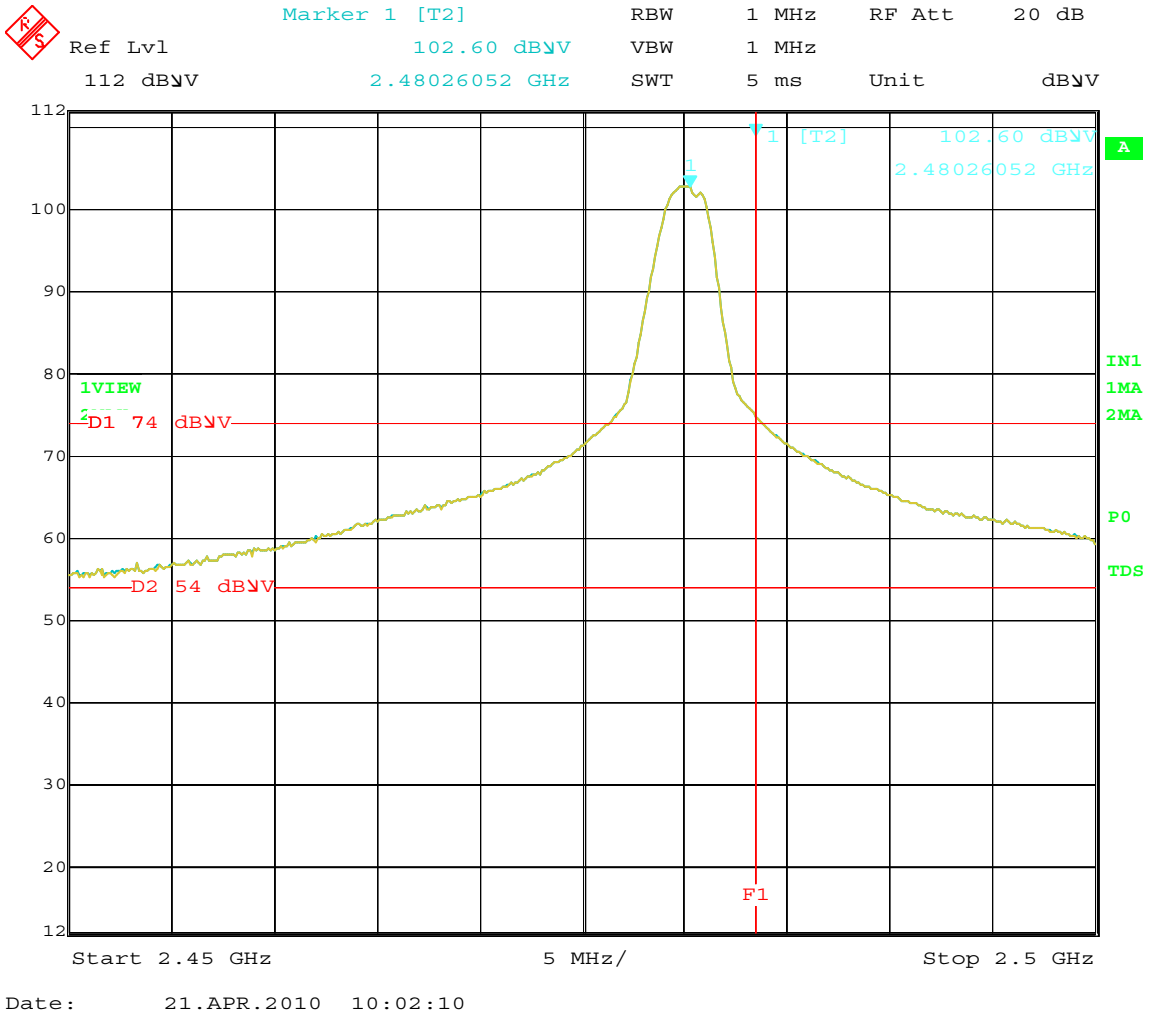
* The Reading was corrected back to a 1 MHz RBW by using a correction factor of
10 log (1000 kHz / 100 kHz) = 10 dB. The Level indicated has already been corrected using this factor.



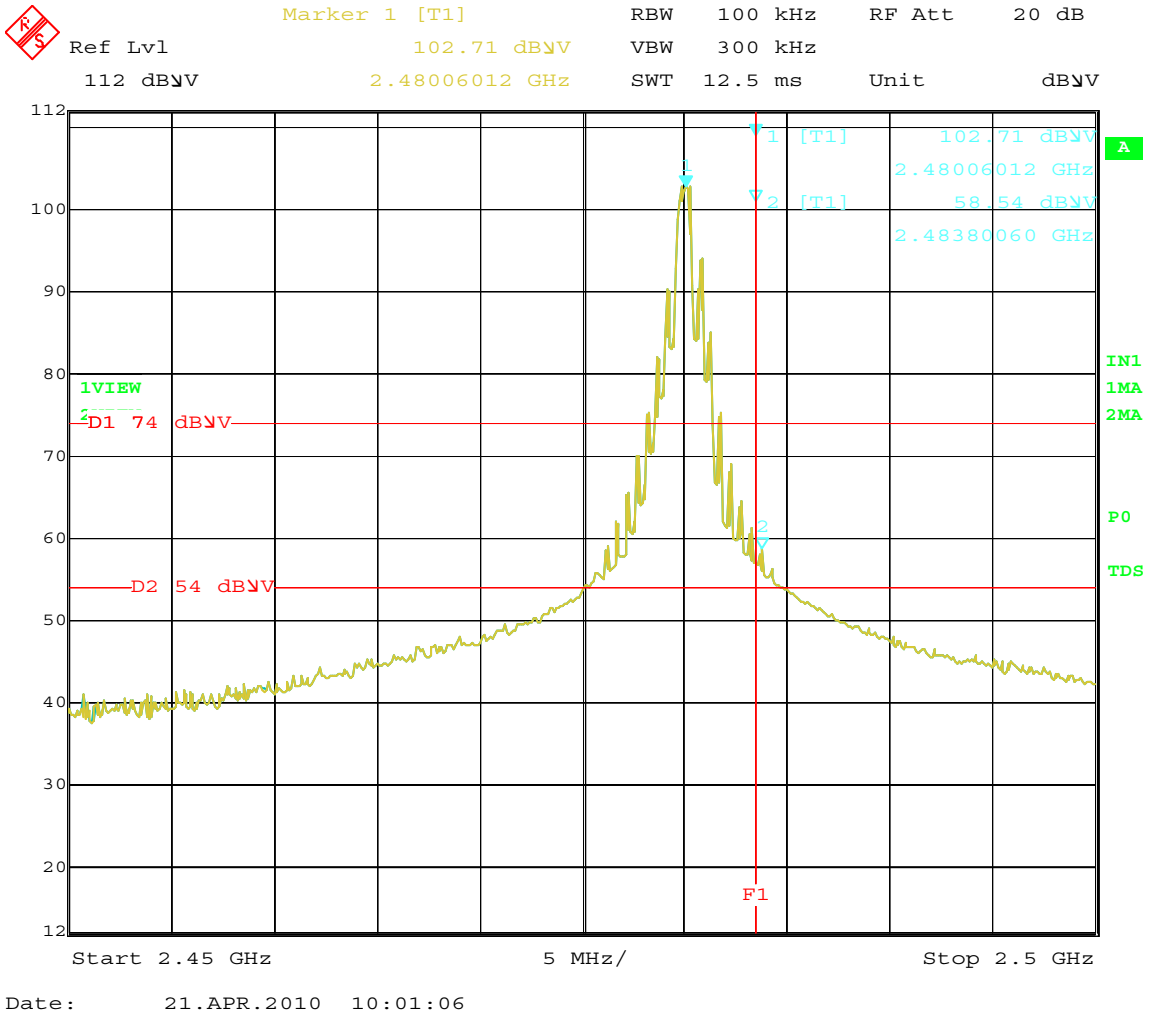
Band Edge – Low Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Fundamental Only – RS-232 Power Mode



Band Edge – Low Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Band Edge Only – RS-232 Power Mode
See Data Sheet for Correction Factor back to 1 MHz RBW



Band Edge – High Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Fundamental Only – RS-232 Power Mode



Band Edge – High Channel – Vertical Polarization – X-Axis (Worst Case)
Plot for Band Edge Only – RS-232 Power Mode
See Data Sheet for Correction Factor back to 1 MHz RBW