

*FCC PART 15, SUBPART B and C
TEST REPORT**for***WIRELESS TRANSCEIVER****MODEL: RC2004X**

Prepared for

E R A D
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DATE: JUNE 14, 2005

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., 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 Transceiver
Model: RC2004X
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: E R A D
P.O. Box 121715
Forth Worth, Texas 76121

Test Dates: June 3 and 10, 2005

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209, and 15.231

Test Procedure: ANSI C63.4: 2003

Test Deviations: The test procedure was not deviated from during the testing.

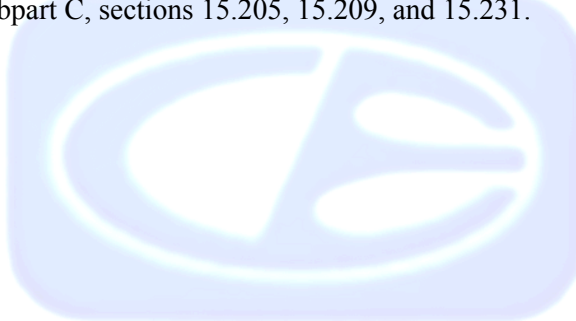
SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, section 15.207.
2	Radiated RF Emissions, 10 kHz - 4400 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.
3	-20 dB Bandwidth of the Fundamental	Complies with the limits of Subpart C, sections 15.231 [c].



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Wireless Transceiver Model: RC2004X. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2003. 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; and Subpart C, sections 15.205, 15.209, and 15.231.



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 92823.

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

E R A D

Greg Baack Owner

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
Benigno Chavez	Test Engineer
Michael Christensen	Lab Manager

2.4 Date Test Sample was Received

The test sample was received prior to its qualification testing on June 2, 2005.

2.5 Disposition of the Test Sample

The test sample has not been returned to E R A D as of the date of this test report.

2.6 Abbreviations and Acronyms

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

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
PCB	Printed Circuit Board
TX	Transmit
RX	Receive



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	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

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

For Intentional Radiator and Receive Mode: The Wireless Transceiver Model: RC2004X (EUT) was connected to a termination box. The EUT was continuously transmitting and receiving.

For Com Port Mode: The Wireless Transceiver Model: RC2004X (EUT) was connected to a computer via its USB port (through a USB to Serial Adapter). The EUT also had a 15 meter unterminated cable connected to it. The computer was also connected to a modem, printer, monitor, keyboard, and mouse via its serial, parallel, video keyboard, and mouse ports, respectively. The computer was continuously downloading files from the EUT.

Note: the EUT does not transmit nor receive when put in the Com Port mode. This mode is to only program the EUT with different programs and/or files.

The transmit antenna is a PCB trace. The receive antenna is permanently attached to the EUT.

The EUT normally starts transmitting after receiving a signal from an XT2004 Wireless Remote Transmitter or an XT2004R Wireless Remote Transceiver. The EUT shuts off within 5 seconds.

The final radiated data was taken in both modes described above. The final conducted data was taken in the Com Port mode described above. Please see Appendix E for the data sheets.



4.1.1 Cable Construction and Termination

Cable 1

(for Com Port mode only)

This is a 1.5 meter braid and foil shielded cable connecting the computer to the modem. The cable has a D-9 pin metallic connector at the computer end and a D-25 pin metallic connector at the modem end. The cable was bundled to a length of 95 centimeters. The shield of the cable was grounded to the chassis via the connectors.

Cable 2

(for Com Port mode only)

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 3

(for Com Port mode only)

This is a 40 centimeter braid shielded cable connecting the computer to the USB to serial adapter. The cable has a USB connector at the computer end and a D-9 pin metallic connector at the USB to serial adapter end. The shield of the cable was grounded to the chassis via the connectors.

Cable 4

(for Com Port mode only)

This is a 2.5 meter braid shielded cable connecting the EUT to the USB to serial adapter. The cable has a mini USB connector at the EUT end and a D-9 pin metallic connector at the USB to serial adapter end. The cable was bundled to a length of 90 centimeters. The shield of the cable was grounded to the chassis via the connectors.

Cable 5

(for Com Port mode only)

This is a 1.5 meter braid and foil shielded cable connecting the computer to the monitor. The cable has a high density D-15 pin metallic connector at the computer end and is hard wired into the monitor. The shield of the cable was grounded to the chassis via the connector. The cable has a molded ferrite at the computer end.

Cable 6

(for Com Port mode only)

This is a 2 meter foil shielded cable connecting the computer to the keyboard. The cable has a metallic 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 7

(for Com Port mode only)

This is a 1.8 meter foil shielded cable connecting the computer to the mouse. The cable has a metallic 6 pin mini DIN 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 8

(for Com Port mode only)

This is a 15 meter unshielded, unterminated cable connected to the EUT. The cable is hard wired into the EUT and has a 6pin MIL DIN connector at the other end. The cable was bundled to a length of 65 centimeters.

Cable 9

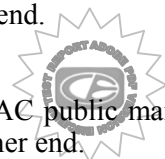
(for Tx/Rx Mode Only)

This is a 15 meter unshielded cable connecting the EUT to the termination box. The cable is hard wired into the EUT and has a 6pin MIL DIN connector at the termination box end.

Cable 10

(for Tx/Rx Mode Only)

This is a 3.5 meter unshielded cable connecting the termination box to the AC public mains. The cable is hard wired at the termination box end and has a 3 prong plug at the other end.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List****Intentional Radiator and Receive Mode**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS TRANSCEIVER (EUT)	E R A D	P/N: RC2004X	N/A	S9FRC2004X

Com Port Mode

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WIRELESS TRANSCEIVER (EUT)	E R A D	RC2004X	N/A	S9FRC2004X
USB TO SERIAL ADAPTER	iCONCEPTS	N/A	N/A	N/A
COMPUTER	DELL	DHM	JJ19M41	DoC
MONITOR	HEWLETT PACKARD	D7438A	DT91401489	DoC
KEYBOARD	DELL	RT7D20	CN-04N454-37172-419-4862	AQ6-7D20
MOUSE	DELL	M-SAW34	HCD35312230	DZL211029
PRINTER	CITIZEN	LSP-10	1130060-73	DLK66TLSP-10
MODEM	HAYES	231AA	A05631003823	BFJ9D9231AA
TERMINATION BOX	E R A D	N/A	N/A	N/A



5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiate Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 16, 2004	June 16, 2005
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 16, 2004	June 16, 2005
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 16, 2004	June 16, 2005
Preamplifier	Com Power	PA-103	1582	February 3, 2005	Feb. 3, 2006
Biconical Antenna	Com Power	AB-900	15250	March 11, 2005	Mar. 11, 2006
Log Periodic Antenna	Com Power	AL-100	16202	February 17, 2005	Feb. 17, 2006
Computer	Hewlett Packard	D5251A 888	US74458128	N/A	N/A
Monitor	Hewlett Packard	D5258A	DK74889705	N/A	N/A
Loop Antenna	Com-Power	AL-130	17089	September 3, 2004	Sept. 3, 2005
Horn Antenna	Antenna Research	DRG-118/A	1053	January 16, 2004	Jan. 16, 2006
Microwave Preamplifier	Com-Power	PA-122	25195	February 25, 2005	Feb. 25, 2006
EMI Receiver	Rohde & Schwarz	ESIB40	100172	October 28, 2004	Oct. 28, 2005



5.3 EMI Test Equipment Continued

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Antenna Mast	Com-Power	AM-100	N/A	N/A	N/A
Turntable	Com-Power	TT-100	N/A	N/A	N/A
LISN	Com Power	LI-215	12090	October 26, 2004	Oct. 26, 2005
LISN	Com Power	LI-215	12076	October 26, 2004	Oct. 26, 2005
Transient Limiter	Seaward	252A910	K39-0220	September 20, 2004	Sept. 20, 2005
Antenna Mast	EMCO	2090	9609-1176	N/A	N/A



6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 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 through the safety ground.



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 spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer 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 spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. 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: 2003. 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 for conducted emissions; and the limits of 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 Preamplifiers Model: PA-102 and PA-103 were 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 was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer and EMI Receiver record the highest measured reading over all the sweeps.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 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 4.40 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. 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.



7.1.3 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 final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47, Part 15, Subpart B; and Subpart C, section 15.205, 15.209 and 15.231 for radiated emissions.

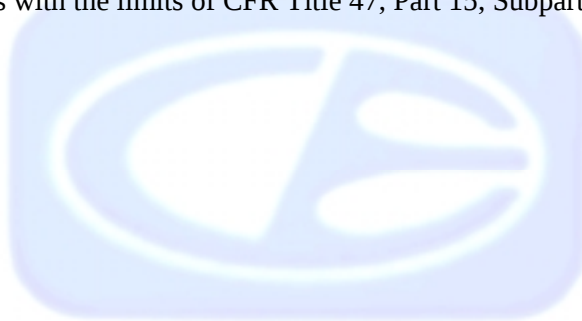


7.2 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. Data sheets of the -20 dB bandwidth are located in Appendix E.

Test Results:

The EUT complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.231 [c].



8. CONCLUSIONS

The Wireless Transceiver Model: RC2004X meets all of the Class B specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.231.



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

Radio-Frequency Technologies (Competent Body)



APPENDIX B

MODIFICATIONS TO THE EUT



MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 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 modifications 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 Transceiver
Model: RC2004X
S/N: N/A

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS



FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

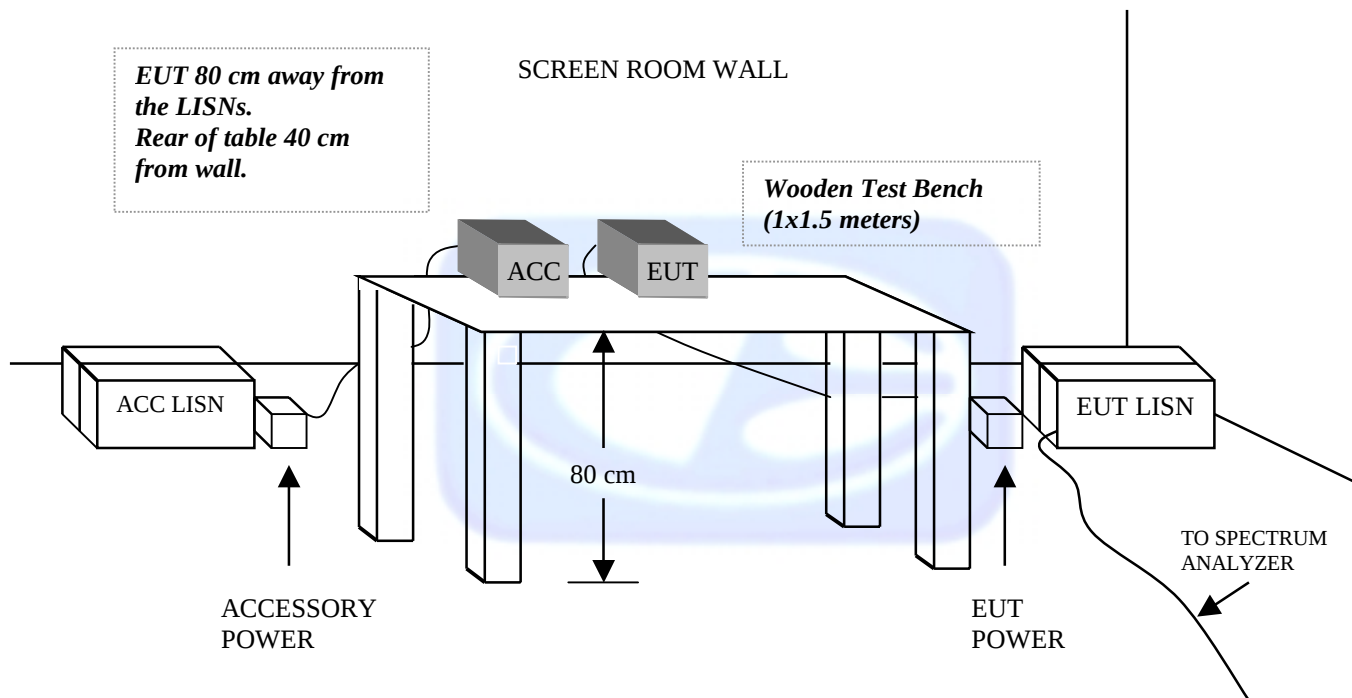
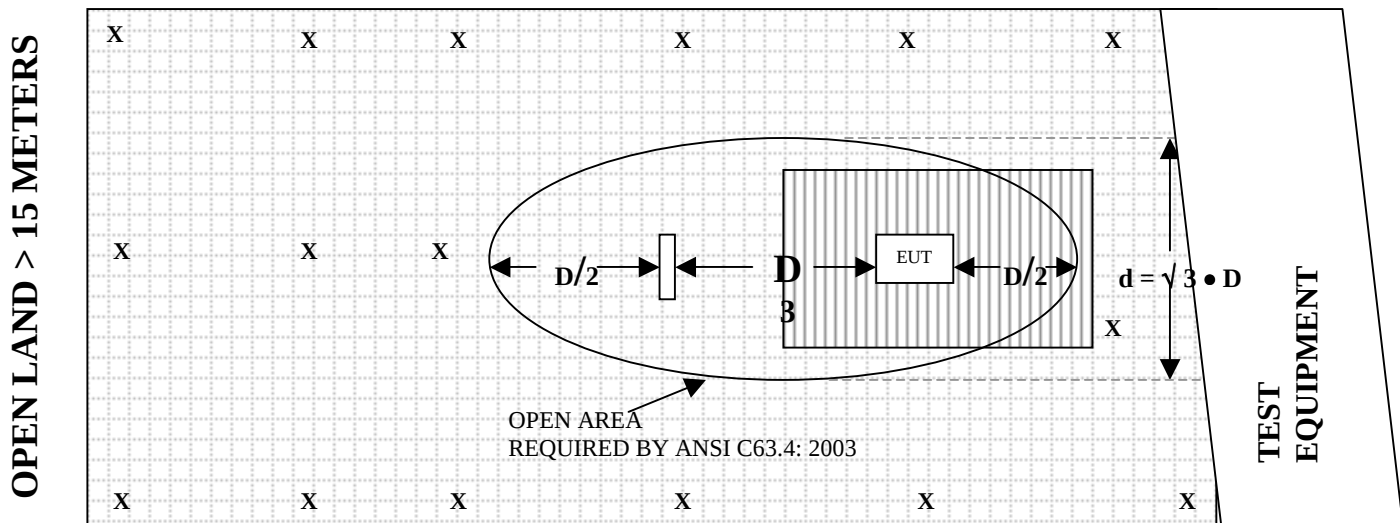
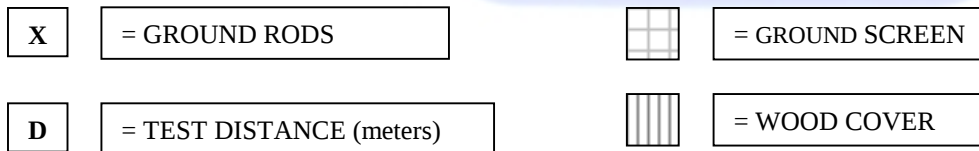


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED TEST SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS



COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15250

CALIBRATION DATE: MARCH 11, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	10.90	120	13.10
35	10.90	125	12.40
40	10.90	140	11.90
45	10.30	150	11.80
50	11.40	160	13.30
60	10.40	175	15.40
70	7.40	180	14.60
80	6.20	200	15.70
90	8.20	250	16.50
100	10.10	300	19.20



COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16202

CALIBRATION DATE: FEBRURY 17, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.70	700	19.20
400	13.70	800	19.40
500	16.00	900	21.50
600	16.50	1000	23.50



COM-POWER PA-103**PREAMPLIFIER**

S/N: 1582

CALIBRATION DATE: FEBRUARY 3, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	33.2	300	33.0
40	33.0	350	32.8
50	33.1	400	32.8
60	33.0	450	32.8
70	33.2	500	32.5
80	33.2	550	32.5
90	33.1	600	32.4
100	33.2	650	32.4
125	33.1	700	32.3
150	33.0	750	32.2
175	33.0	800	32.2
200	33.0	850	32.4
225	33.0	900	31.8
250	33.0	950	32.3
275	32.9	1000	32.0



COM-POWER PA-122**MICROWAVE PREAMPLIFIER**

S/N: 25195

CALIBRATION DATE: FEBRUARY 25, 2005

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	31.45	6.0	31.35
1.1	31.34	6.5	31.10
1.2	31.29	7.0	30.54
1.3	31.28	7.5	29.72
1.4	31.25	8.0	29.22
1.5	31.21	8.5	28.75
1.6	31.14	9.0	28.67
1.7	31.07	9.5	29.14
1.8	31.12	10.0	30.12
1.9	31.04	11.0	29.30
2.0	31.20	12.0	29.86
2.5	31.56	13.0	30.57
3.0	32.17	14.0	29.90
3.5	32.56	15.0	30.14
4.0	32.51	16.0	31.13
4.5	32.52	17.0	29.97
5.0	32.33	18.0	28.77
5.5	31.60		



ANTENNA RESEARCH DRG-118/A**HORN ANTENNA**

S/N: 1053

CALIBRATION DATE: JANUARY 16, 2004

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.4	10.0	38.7
1.5	25.2	10.5	39.0
2.0	28.2	11.0	38.9
2.5	28.5	11.5	41.3
3.0	30.1	12.0	40.5
3.5	31.0	12.5	40.0
4.0	31.2	13.0	40.2
4.5	31.9	13.5	40.5
5.0	33.2	14.0	41.6
5.5	33.7	14.5	44.8
6.0	34.3	15.0	41.4
6.5	35.0	15.5	39.2
7.0	36.7	16.0	39.4
7.5	37.3	16.5	40.9
8.0	37.1	17.0	42.6
8.5	37.3	17.5	45.1
9.0	37.7	18.0	41.7
9.5	38.6		



COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: SEPTEMBER 3, 2004

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-40.8	10.7
0.01	-40.9	10.6
0.02	-41.8	9.7
0.05	-42.0	9.5
0.07	-41.5	10.0
0.1	-41.7	9.8
0.2	-44.1	7.4
0.3	-41.6	9.9
0.5	-41.5	10.0
0.7	-41.4	10.1
1	-41.0	10.5
2	-40.6	10.9
3	-40.8	10.7
4	-41.0	10.5
5	-40.4	11.1
10	-40.7	10.8
15	-41.6	9.9
20	-41.3	10.2
25	-43.0	8.5
30	-42.6	8.9





FRONT VIEW

**E R A D
WIRELESS TRANSCEIVER
MODEL: RC2004X**

FCC SUBPART B AND C – RADIATED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – RADIATED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





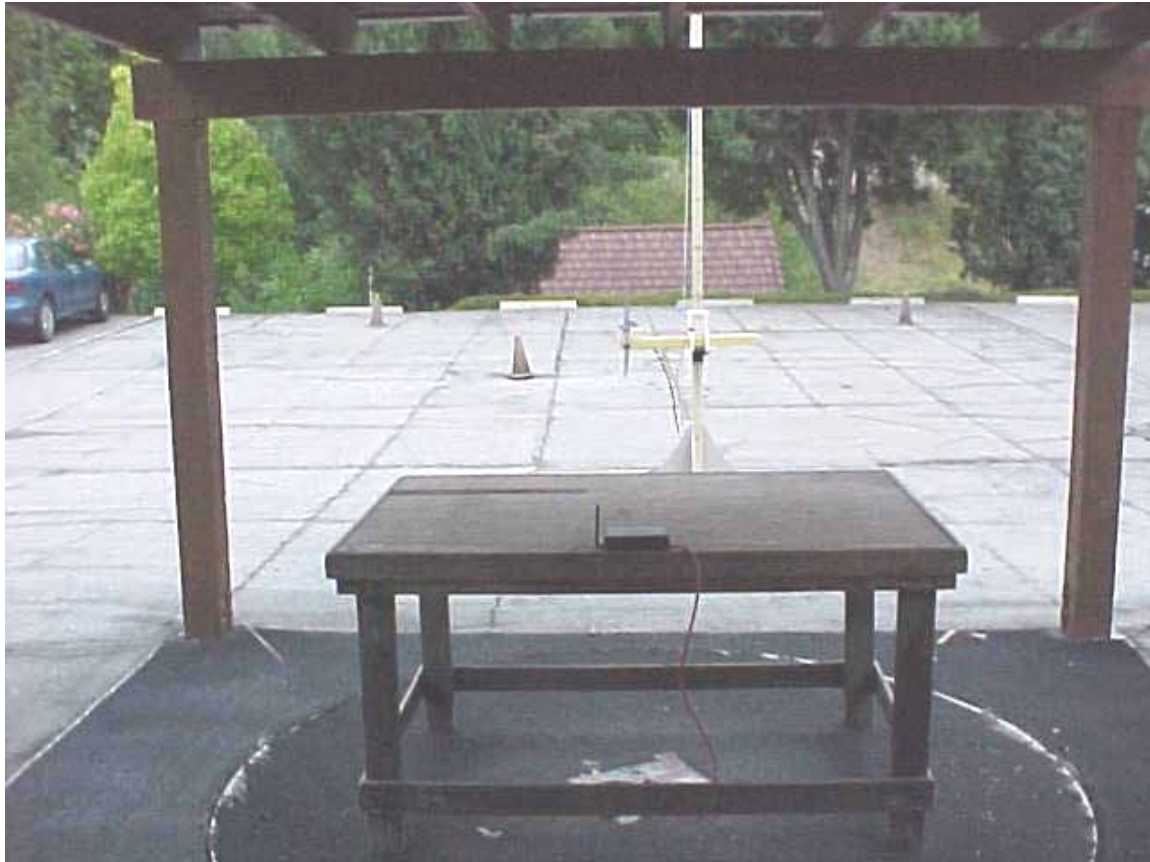
FRONT VIEW

**E R A D
WIRELESS TRANSCEIVER
MODEL: RC2004X**

FCC SUBPART B AND C – RADIATED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – RADIATED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





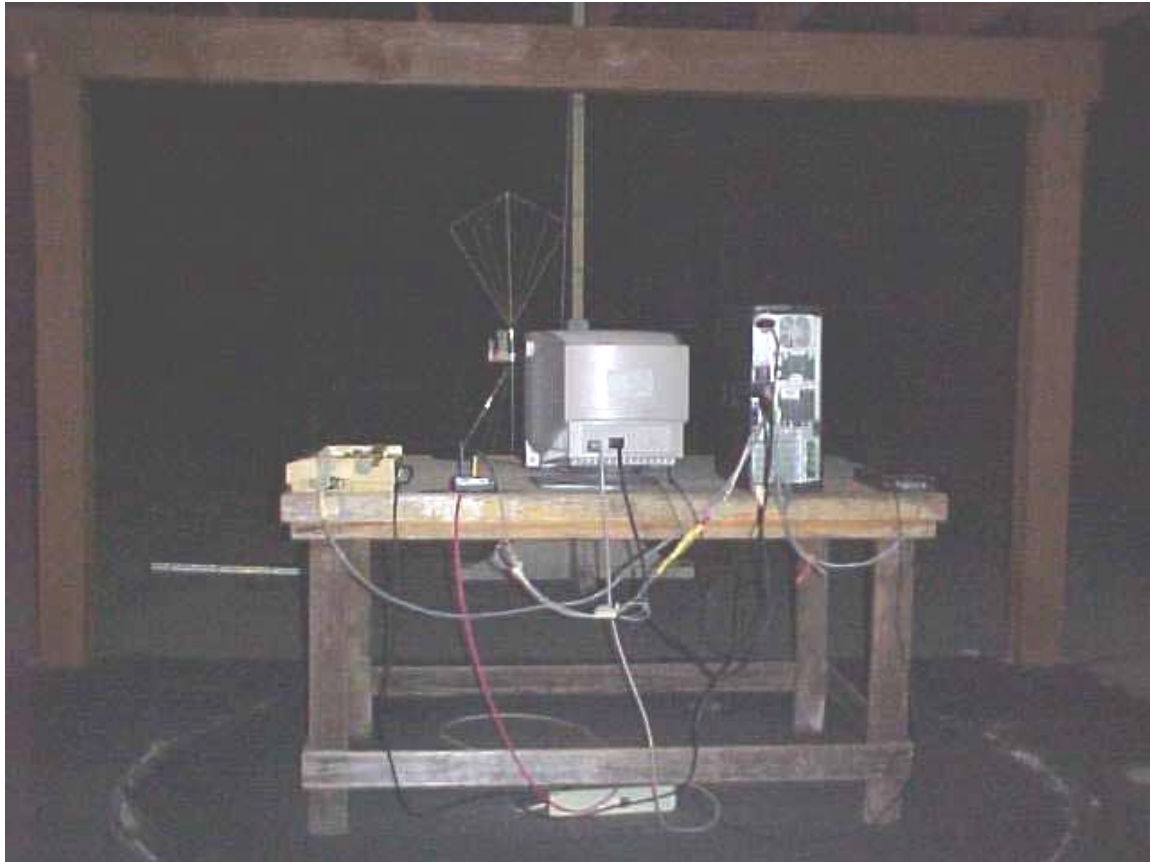
FRONT VIEW

**E R A D
WIRELESS TRANSCEIVER
MODEL: RC2004X**

FCC SUBPART B AND C – RADIATED EMISSIONS – COM PORT MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – RADIATED EMISSIONS – COM PORT MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

**E R A D
WIRELESS TRANSCEIVER
MODEL: RC2004X**

FCC SUBPART B AND C – CONDUCTED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – CONDUCTED EMISSIONS – Tx / Rx MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – CONDUCTED EMISSIONS – COM PORT MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

E R A D

WIRELESS TRANSCEIVER

MODEL: RC2004X

FCC SUBPART B AND C – CONDUCTED EMISSIONS – COM PORT MODE

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



APPENDIX E

DATA SHEETS



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	E R A D	DATE	6/2/05
EUT	Wireless Transceiver	DUTY CYCLE	10 %
MODEL	RC2004X	PEAK TO AVG	-20 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	Benigno_Chavez	LAB	A

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
418.0000	63.0	43.0 A	V	1.3	180	X		14.1	5.5	0.0	0.0		62.6	-17.6	80.2	
418.0000	68.7	48.7 A	V	1.3	135	Y		14.1	5.5	0.0	0.0		68.3	-11.9	80.2	
418.0000	69.3	49.3 A	V	1.3	135	Z		14.1	5.5	0.0	0.0		68.9	-11.3	80.2	
418.0000	68.9	48.9 A	H	1.0	180	X		14.1	5.5	0.0	0.0		68.5	-11.7	80.2	
418.0000	63.0	43.0 A	H	1.8	225	Y		14.1	5.5	0.0	0.0		62.6	-17.6	80.2	
418.0000	67.6	47.6 A	H	1.0	180	Z		14.1	5.5	0.0	0.0		67.2	-13.0	80.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	E R A D	DATE	6/2/05
EUT	Wireless Transceiver	DUTY CYCLE	10 %
MODEL	RC2004X	PEAK TO AVG	-20 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	Benigno_Chavez	LAB	A

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
836.0000	62.1	42.1 A	V	1.0	135	X		20.2	6.6	32.3	0.0		36.6	-23.6	60.2	
836.0000	66.1	46.1 A	V	1.5	270	Y		20.2	6.6	32.3	0.0		40.6	-19.6	60.2	
836.0000	67.1	47.1 A	V	1.0	0	Z		20.2	6.6	32.3	0.0		41.6	-18.6	60.2	
836.0000	65.8	45.8 A	H	1.0	225	X		20.2	6.6	32.3	0.0		40.3	-19.9	60.2	
836.0000	64.4	44.4 A	H	1.3	315	Y		20.2	6.6	32.3	0.0		38.9	-21.3	60.2	
836.0000	65.2	45.2 A	H	1.0	225	Z		20.2	6.6	32.3	0.0		39.7	-20.5	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - X Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	32.94	V	80.2	-47.26	Peak	1.87	0	
1254	12.94	V	60.2	-47.26	Avg	1.87	0	
1672	35.47	V	74	-38.53	Peak	1.9	45	
1672	15.47	V	54	-38.53	Avg	1.9	45	
2090		V	80.2	-80.2	Peak			No Emissions
2090	0.00	V	60.2	-60.2	Avg			Detected
2508		V	80.2	-80.2	Peak			No Emissions
2508	0.00	V	60.2	-60.2	Avg			Detected
2926		V	80.2	-80.2	Peak			No Emissions
2926	0.00	V	60.2	-60.2	Avg			Detected
3344		V	80.2	-80.2	Peak			No Emissions
3344	0.00	V	60.2	-60.2	Avg			Detected
3762		V	74	-74	Peak			No Emissions
3762	0.00	V	54	-54	Avg			Detected
4180		V	74	-74	Peak			No Emissions
4180	0.00	V	54	-54	Avg			Detected

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - X Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	32.25	H	80.2	-47.95	Peak	1.74	90	
1254	12.25	H	60.2	-47.95	Avg	1.74	90	
1672	35.66	H	74	-38.34	Peak	1.86	270	
1672	15.66	H	54	-38.34	Avg	1.86	270	
2090		H	80.2	-80.2	Peak			No Emissions
2090	0.00	H	60.2	-60.2	Avg			Detected
2508		H	80.2	-80.2	Peak			No Emissions
2508	0.00	H	60.2	-60.2	Avg			Detected
2926		H	80.2	-80.2	Peak			No Emissions
2926	0.00	H	60.2	-60.2	Avg			Detected
3344		H	80.2	-80.2	Peak			No Emissions
3344	0.00	H	60.2	-60.2	Avg			Detected
3762		H	74	-74	Peak			No Emissions
3762	0.00	H	54	-54	Avg			Detected
4180		H	74	-74	Peak			No Emissions
4180	0.00	H	54	-54	Avg			Detected

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - Z Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	32.19	V	80.2	-48.01	Peak	2.14	225	
1254	12.19	V	60.2	-48.01	Avg	2.14	225	
1672	36.40	V	74	-37.6	Peak	2.73	45	
1672	16.40	V	54	-37.6	Avg	2.73	45	
2090		V	80.2	-80.2	Peak			No Emissions
2090	0.00	V	60.2	-60.2	Avg			Detected
2508		V	80.2	-80.2	Peak			No Emissions
2508	0.00	V	60.2	-60.2	Avg			Detected
2926		V	80.2	-80.2	Peak			No Emissions
2926	0.00	V	60.2	-60.2	Avg			Detected
3344		V	80.2	-80.2	Peak			No Emissions
3344	0.00	V	60.2	-60.2	Avg			Detected
3762		V	74	-74	Peak			No Emissions
3762	0.00	V	54	-54	Avg			Detected
4180		V	74	-74	Peak			No Emissions
4180	0.00	V	54	-54	Avg			Detected

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - Z Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	33.12	H	80.2	-47.08	Peak	2.45	270	
1254	13.12	H	60.2	-47.08	Avg	2.45	270	
1672	34.89	H	74	-39.11	Peak	2.22	90	
1672	14.89	H	54	-39.11	Avg	2.22	90	
2090		H	80.2	-80.2	Peak			No Emissions
2090	0.00	H	60.2	-60.2	Avg			Detected
2508		H	80.2	-80.2	Peak			No Emissions
2508	0.00	H	60.2	-60.2	Avg			Detected
2926		H	80.2	-80.2	Peak			No Emissions
2926	0.00	H	60.2	-60.2	Avg			Detected
3344		H	80.2	-80.2	Peak			No Emissions
3344	0.00	H	60.2	-60.2	Avg			Detected
3762		H	74	-74	Peak			No Emissions
3762	0.00	H	54	-54	Avg			Detected
4180		H	74	-74	Peak			No Emissions
4180	0.00	H	54	-54	Avg			Detected

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - Y Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	32.52	V	80.2	-47.68	Peak	2.42	135	
1254	12.52	V	60.2	-47.68	Avg	2.42	135	
1672	36.84	V	74	-37.16	Peak	3.37	135	
1672	16.84	V	54	-37.16	Avg	3.37	135	
2090	37.60	V	80.2	-42.6	Peak	2.8	135	
2090	17.60	V	60.2	-42.6	Avg	2.8	135	
2508		V	80.2	-80.2	Peak			No Emissions
2508	0.00	V	60.2	-60.2	Avg			Detected
2926		V	80.2	-80.2	Peak			No Emissions
2926	0.00	V	60.2	-60.2	Avg			Detected
3344		V	80.2	-80.2	Peak			No Emissions
3344	0.00	V	60.2	-60.2	Avg			Detected
3762		V	74	-74	Peak			No Emissions
3762	0.00	V	54	-54	Avg			Detected
4180		V	74	-74	Peak			No Emissions
4180	0.00	V	54	-54	Avg			Detected

FCC 15.231

E R A D

Wireless Transceiver

M/N: RC2004X

Date: 06/03/05

Lab: B

Tested By: Benigno Chavez

418 MHz Version - Y Axis

Duty Cycle: Less than 10%

Peak to Average Ratio = 20 dB

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1254	32.23	H	80.2	-47.97	Peak	1.77	180	
1254	12.23	H	60.2	-47.97	Avg	1.77	180	
1672	35.75	H	74	-38.25	Peak	3.26	0	
1672	15.75	H	54	-38.25	Avg	3.26	0	
2090	36.69	H	80.2	-43.51	Peak	2.64	270	No Emissions
2090	16.69	H	60.2	-43.51	Avg	2.64	270	Detected
2508		H	80.2	-80.2	Peak			No Emissions
2508	0.00	H	60.2	-60.2	Avg			Detected
2926		H	80.2	-80.2	Peak			No Emissions
2926	0.00	H	60.2	-60.2	Avg			Detected
3344		H	80.2	-80.2	Peak			No Emissions
3344	0.00	H	60.2	-60.2	Avg			Detected
3762		H	74	-74	Peak			No Emissions
3762	0.00	H	54	-54	Avg			Detected
4180		H	74	-74	Peak			No Emissions
4180	0.00	H	54	-54	Avg			Detected

Test Location : Compatible Electronics
Customer : ERAD
Manufacturer : ERAD
Eut name : TRANSCEIVER
Model : RC2004
Serial # :
Specification : FCC B
Distance correction factor ($20 * \log(\text{test}/\text{spec})$) : 0.00
Test Mode : Transmitter Mode - QUALIFICATION SCAN
Full Generic Name: Wireless Transceiver
TEST RANGE: 10 kHz - 1 GHZ - VERTICAL & HORIZONTAL POLARIZATIONS
TESTED BY: BENIGNO CHAVEZ

Page : 1/2
Date : 6/09/2005
Time : 23:48:09
Lab : A
Test Distance : 3.0 Meters

Test Location : Compatible Electronics
 Customer : ERAD
 Manufacturer : ERAD
 Eut name : TRANSCEIVER
 Model : RC2004
 Serial # :
 Specification : FCC B
 Distance correction factor ($20 * \log(\text{test}/\text{spec})$) : 0.00
 Test Mode : Com Port Mode - QUALIFICATION SCAN
 Full Generic Name: Wireless Transceiver
 TEST RANGE: 30-1000 MHz - VERTICAL AND HORIZONTAL POLARIZATIONS
 TESTED BY: BENIGNO CHAVEZ

Page : 1/2
 Date : 6/09/2005
 Time : 23:17:08
 Lab : A
 Test Distance : 3.0 Meters

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
1H	40.546	55.40	1.81	10.83	33.01	35.04	40.00	-4.96
2V	45.059	60.30	1.91	10.31	33.05	39.47	40.00	-0.53
3V	45.059Qp	58.63	1.91	10.31	33.05	37.80	40.00	-2.20
4H	46.766	53.00	1.94	10.70	33.07	32.57	40.00	-7.43
5V	47.059	60.80	1.95	10.77	33.07	40.44	40.00	0.44
6V	47.060Qp	57.92	1.95	10.77	33.07	37.56	40.00	-2.44
7H	59.271	56.50	2.09	10.47	33.01	36.05	40.00	-3.95
8V	66.134	60.90	2.29	8.51	33.13	38.57	40.00	-1.43
9V	66.134Qp	57.46	2.29	8.51	33.13	35.13	40.00	-4.87
10H	66.384	61.30	2.30	8.43	33.13	38.90	40.00	-1.10
11H	66.385Qp	58.40	2.30	8.43	33.13	36.00	40.00	-4.00
12V	67.650	63.10	2.33	8.06	33.16	40.34	40.00	0.34
13V	67.651Qp	59.11	2.33	8.06	33.16	36.35	40.00	-3.65
14H	68.399	63.00	2.35	7.85	33.17	40.04	40.00	0.04
15H	68.400Qp	59.12	2.35	7.85	33.17	36.16	40.00	-3.84
16V	70.133	63.10	2.40	7.38	33.20	39.68	40.00	-0.32
17V	70.136Qp	58.88	2.40	7.38	33.20	35.46	40.00	-4.54
18H	71.538	64.60	2.42	7.20	33.20	41.02	40.00	1.02
19H	71.538Qp	61.15	2.42	7.20	33.20	37.57	40.00	-2.43
20V	72.034	62.10	2.42	7.14	33.20	38.46	40.00	-1.54
21V	72.034Qp	58.13	2.42	7.14	33.20	34.49	40.00	-5.51
22V	75.304	58.10	2.45	6.74	33.20	34.10	40.00	-5.90
23H	76.284	60.20	2.46	6.63	33.20	36.09	40.00	-3.91
24H	78.595	55.40	2.49	6.36	33.20	31.05	40.00	-8.95
25V	87.082	53.30	2.57	7.64	33.13	30.38	40.00	-9.62
26H	119.348	51.90	3.02	13.01	33.12	34.81	43.50	-8.69
27V	264.047	38.70	4.07	17.31	32.94	27.14	46.00	-18.86
28V	276.036	36.80	4.20	17.97	32.90	26.06	46.00	-19.94
29V	276.120	38.40	4.20	17.97	32.90	27.67	46.00	-18.33
30H	288.082	40.50	4.20	18.60	32.95	30.35	46.00	-15.65
31H	300.280	45.20	4.20	12.70	33.00	29.11	46.00	-16.89
32H	312.073	43.50	4.38	12.84	32.95	27.77	46.00	-18.23
33V	312.121	40.20	4.38	12.84	32.95	24.47	46.00	-21.53
34V	324.272	48.20	4.55	12.97	32.90	32.82	46.00	-13.18
35H	336.087	45.80	4.72	13.09	32.85	30.76	46.00	-15.24

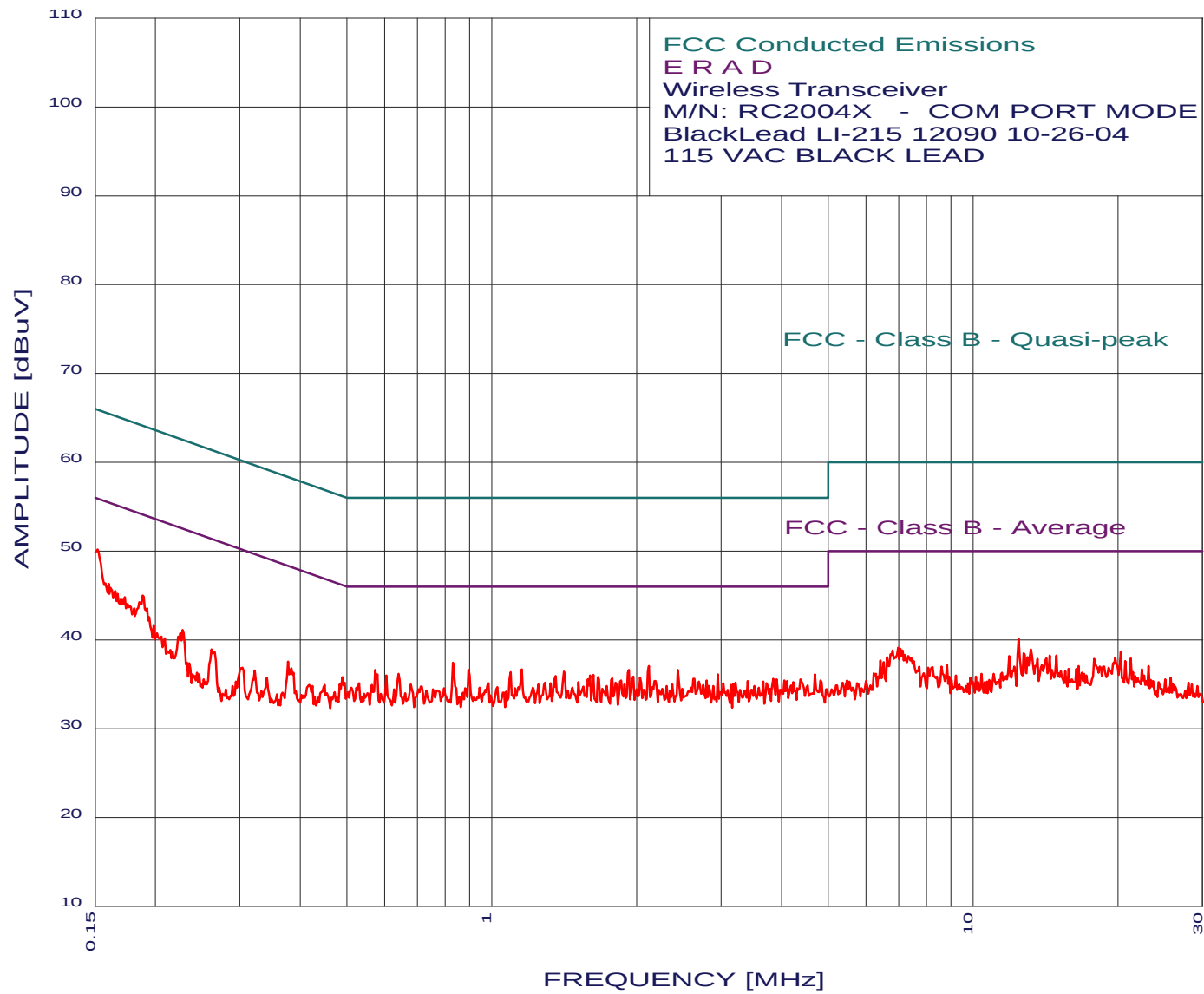
Test Location : Compatible Electronics
Customer : ERAD
Manufacturer : ERAD
Eut name : TRANSCEIVER
Model : RC2004
Serial # :
Specification : FCC B
Distance correction factor ($20 * \log(\text{test}/\text{spec})$) : 0.00
Test Mode : Com Port Mode - QUALIFICATION SCAN
Full Generic Name: Wireless Transceiver
TEST RANGE: 30-1000 MHz - VERTICAL AND HORIZONTAL POLARIZATIONS
TESTED BY: BENIGNO CHAVEZ

Page : 2/2
Date : 6/09/2005
Time : 23:17:08
Lab : A
Test Distance : 3.0 Meters

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
36V	336.099	43.30	4.72	13.09	32.85	28.26	46.00	-17.74
37H	360.067	42.60	4.98	13.33	32.80	28.12	46.00	-17.88
38H	372.314	43.70	5.09	13.45	32.80	29.44	46.00	-16.56
39H	384.085	42.80	5.18	13.56	32.80	28.74	46.00	-17.26
40V	384.125	42.10	5.18	13.56	32.80	28.04	46.00	-17.96
41V	432.085	45.60	5.63	14.50	32.80	32.92	46.00	-13.08
42H	432.091	47.60	5.63	14.50	32.80	34.92	46.00	-11.08

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/10/2005 19:55:07





E R A D

Wireless Transceiver

M/N: RC2004X - COM PORT MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

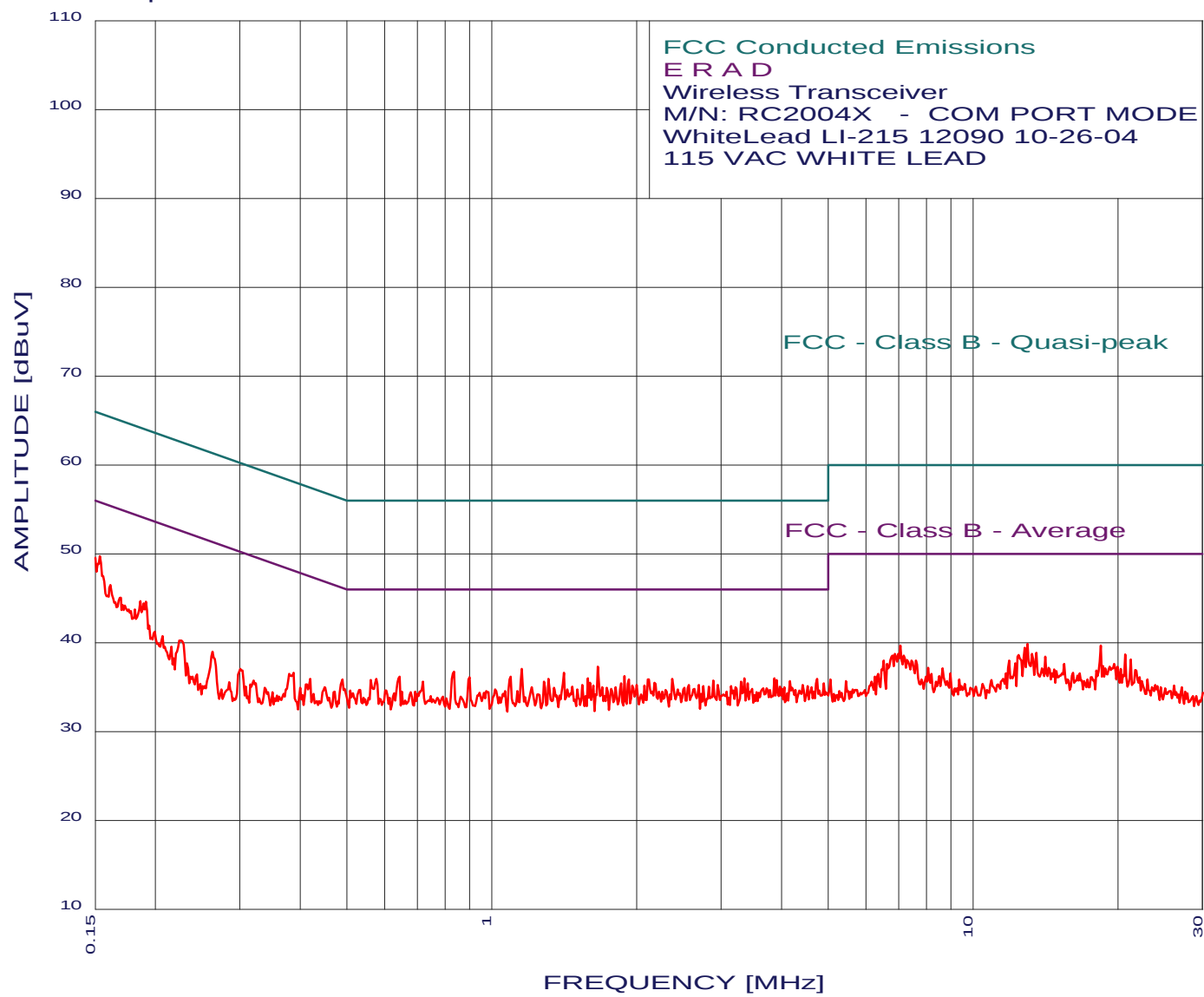
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.831	37.40	46.00	-8.60
2	2.123	37.03	46.00	-8.97
3	0.188	44.95	54.10	-9.16
4	1.154	36.65	46.00	-9.35
5	0.895	36.61	46.00	-9.39
6	1.929	36.61	46.00	-9.39
7	0.573	36.58	46.00	-9.42
8	2.436	36.56	46.00	-9.44
9	1.412	36.40	46.00	-9.60
10	1.094	36.34	46.00	-9.66
11	0.641	36.19	46.00	-9.81
12	2.948	36.12	46.00	-9.88
13	4.696	36.09	46.00	-9.91
14	12.453	40.07	50.00	-9.93
15	1.629	36.05	46.00	-9.95
16	0.605	35.98	46.00	-10.02
17	1.603	35.94	46.00	-10.06
18	1.359	35.89	46.00	-10.11
19	1.971	35.81	46.00	-10.19
20	1.663	35.75	46.00	-10.25
21	2.034	35.72	46.00	-10.28
22	1.781	35.68	46.00	-10.32
23	3.841	35.60	46.00	-10.40
24	0.489	35.77	46.18	-10.41
25	2.637	35.58	46.00	-10.42
26	4.384	35.56	46.00	-10.44
27	3.903	35.51	46.00	-10.49
28	4.050	35.42	46.00	-10.58
29	4.825	35.40	46.00	-10.60
30	2.796	35.40	46.00	-10.60
31	1.859	35.39	46.00	-10.61
32	3.401	35.36	46.00	-10.64
33	2.190	35.34	46.00	-10.66
34	4.114	35.33	46.00	-10.67
35	2.693	35.29	46.00	-10.71
36	3.663	35.29	46.00	-10.71
37	4.227	35.24	46.00	-10.76
38	1.512	35.22	46.00	-10.78
39	1.810	35.18	46.00	-10.82
40	1.290	35.18	46.00	-10.82

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/10/2005 19:43:58





E R A D

Wireless Transceiver

M/N: RC2004X - COM PORT MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

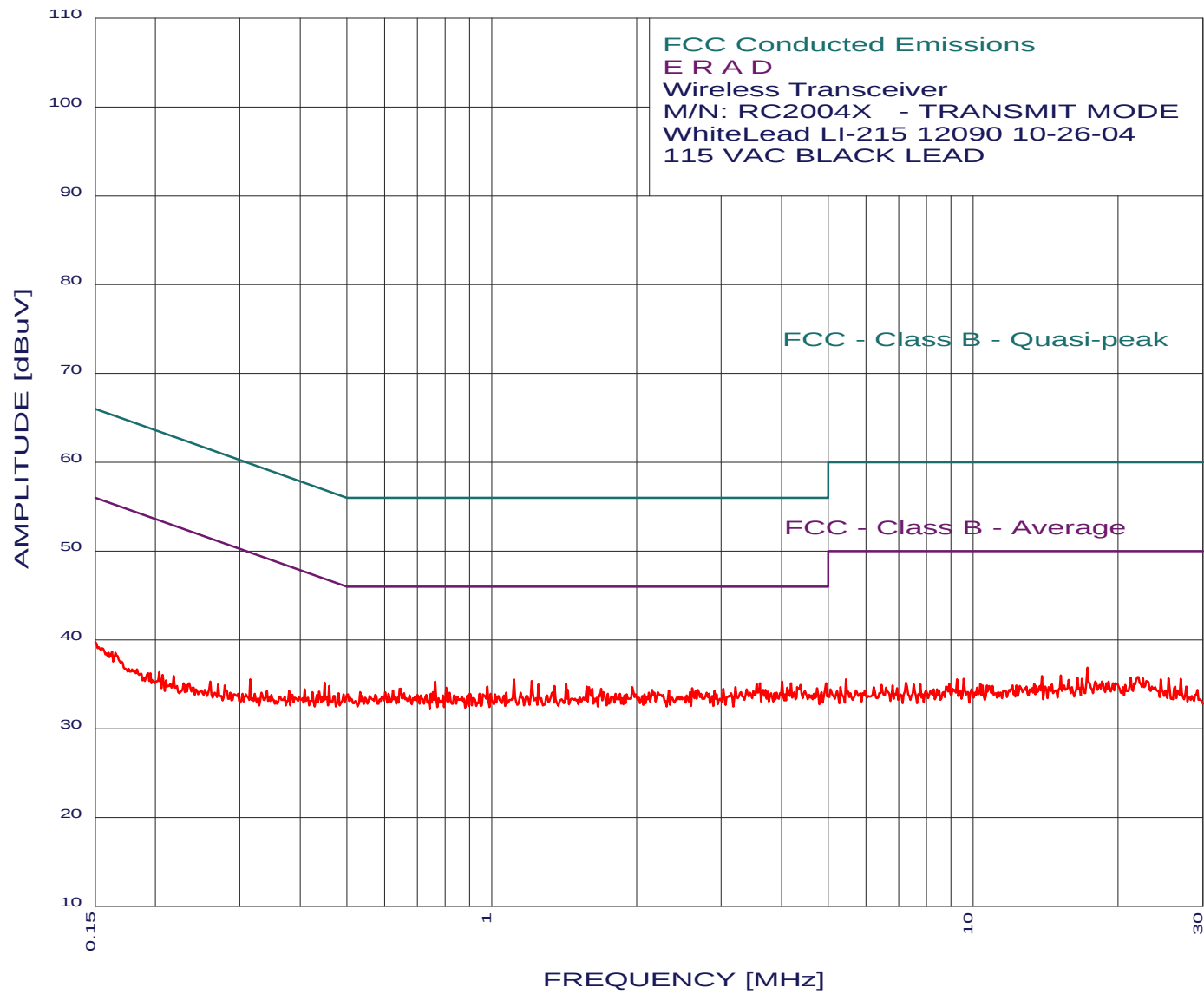
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.153	49.75	55.82	-6.07
2	1.663	37.27	46.00	-8.73
3	1.154	37.06	46.00	-8.94
4	0.162	46.44	55.38	-8.94
5	0.835	36.71	46.00	-9.29
6	0.192	44.62	53.97	-9.35
7	1.412	36.61	46.00	-9.39
8	0.186	44.63	54.19	-9.57
9	1.889	36.22	46.00	-9.78
10	0.644	36.19	46.00	-9.81
11	1.094	36.15	46.00	-9.85
12	0.899	36.12	46.00	-9.88
13	0.169	45.04	55.03	-9.99
14	3.346	35.99	46.00	-10.01
15	1.586	35.95	46.00	-10.05
16	3.862	35.95	46.00	-10.05
17	4.748	35.90	46.00	-10.10
18	1.311	35.89	46.00	-10.11
19	2.371	35.88	46.00	-10.12
20	0.577	35.88	46.00	-10.12
21	2.123	35.85	46.00	-10.15
22	12.994	39.83	50.00	-10.17
23	1.929	35.82	46.00	-10.18
24	3.903	35.75	46.00	-10.25
25	2.885	35.74	46.00	-10.26
26	0.489	35.87	46.18	-10.31
27	4.159	35.68	46.00	-10.32
28	18.431	39.64	50.00	-10.36
29	7.063	39.63	50.00	-10.37
30	0.720	35.60	46.00	-10.40
31	1.283	35.59	46.00	-10.41
32	3.294	35.58	46.00	-10.42
33	2.179	35.46	46.00	-10.54
34	1.603	35.46	46.00	-10.54
35	12.791	39.41	50.00	-10.59
36	1.859	35.41	46.00	-10.59
37	4.902	35.41	46.00	-10.59
38	3.401	35.40	46.00	-10.60
39	0.182	43.73	54.41	-10.68
40	2.948	35.25	46.00	-10.75

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:07:29





E R A D

Wireless Transceiver

M/N: RC2004X - TRANSMIT MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

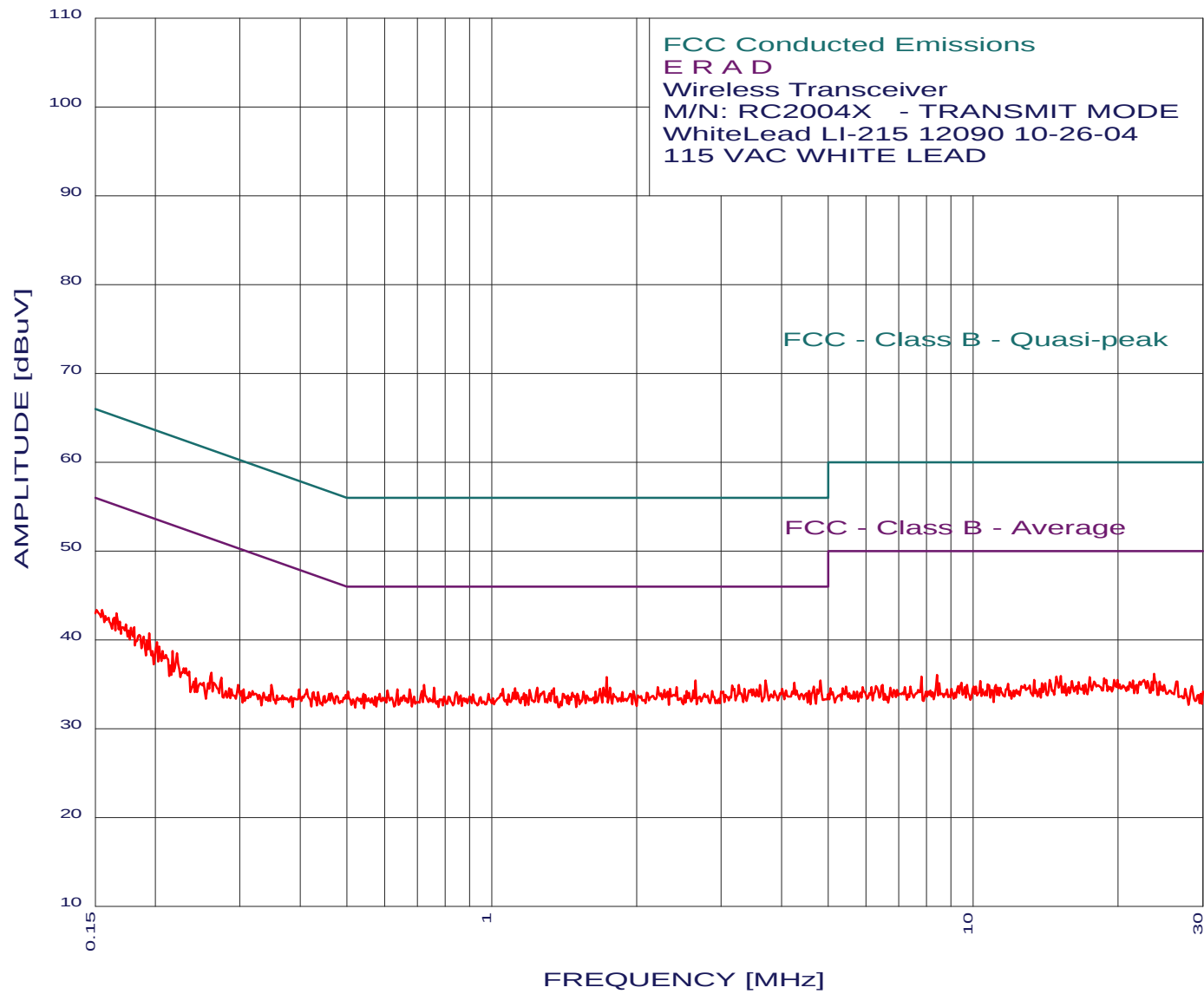
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.112	35.55	46.00	-10.45
2	1.210	35.37	46.00	-10.63
3	0.763	35.30	46.00	-10.70
4	4.008	35.26	46.00	-10.74
5	3.605	35.12	46.00	-10.88
6	4.954	35.11	46.00	-10.89
7	4.182	35.08	46.00	-10.92
8	1.426	35.02	46.00	-10.98
9	1.249	34.98	46.00	-11.02
10	4.384	34.89	46.00	-11.11
11	1.352	34.80	46.00	-11.20
12	1.577	34.75	46.00	-11.25
13	0.979	34.72	46.00	-11.28
14	3.209	34.67	46.00	-11.33
15	1.594	34.65	46.00	-11.35
16	1.960	34.63	46.00	-11.37
17	0.805	34.61	46.00	-11.39
18	2.610	34.51	46.00	-11.49
19	4.748	34.50	46.00	-11.50
20	0.648	34.49	46.00	-11.51
21	1.690	34.47	46.00	-11.53
22	3.027	34.45	46.00	-11.55
23	2.156	34.36	46.00	-11.64
24	3.702	34.33	46.00	-11.67
25	1.441	34.32	46.00	-11.68
26	2.679	34.32	46.00	-11.68
27	0.449	35.18	46.89	-11.71
28	0.624	34.29	46.00	-11.71
29	2.334	34.28	46.00	-11.72
30	2.900	34.24	46.00	-11.76
31	4.851	34.10	46.00	-11.90
32	2.582	34.10	46.00	-11.90
33	1.338	34.10	46.00	-11.90
34	0.601	34.08	46.00	-11.92
35	0.532	34.07	46.00	-11.93
36	0.459	34.78	46.71	-11.93
37	2.214	34.06	46.00	-11.94
38	1.148	34.06	46.00	-11.94
39	1.072	34.04	46.00	-11.96
40	0.818	34.01	46.00	-11.99

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:10:33





E R A D

Wireless Transceiver

M/N: RC2004X - TRANSMIT MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

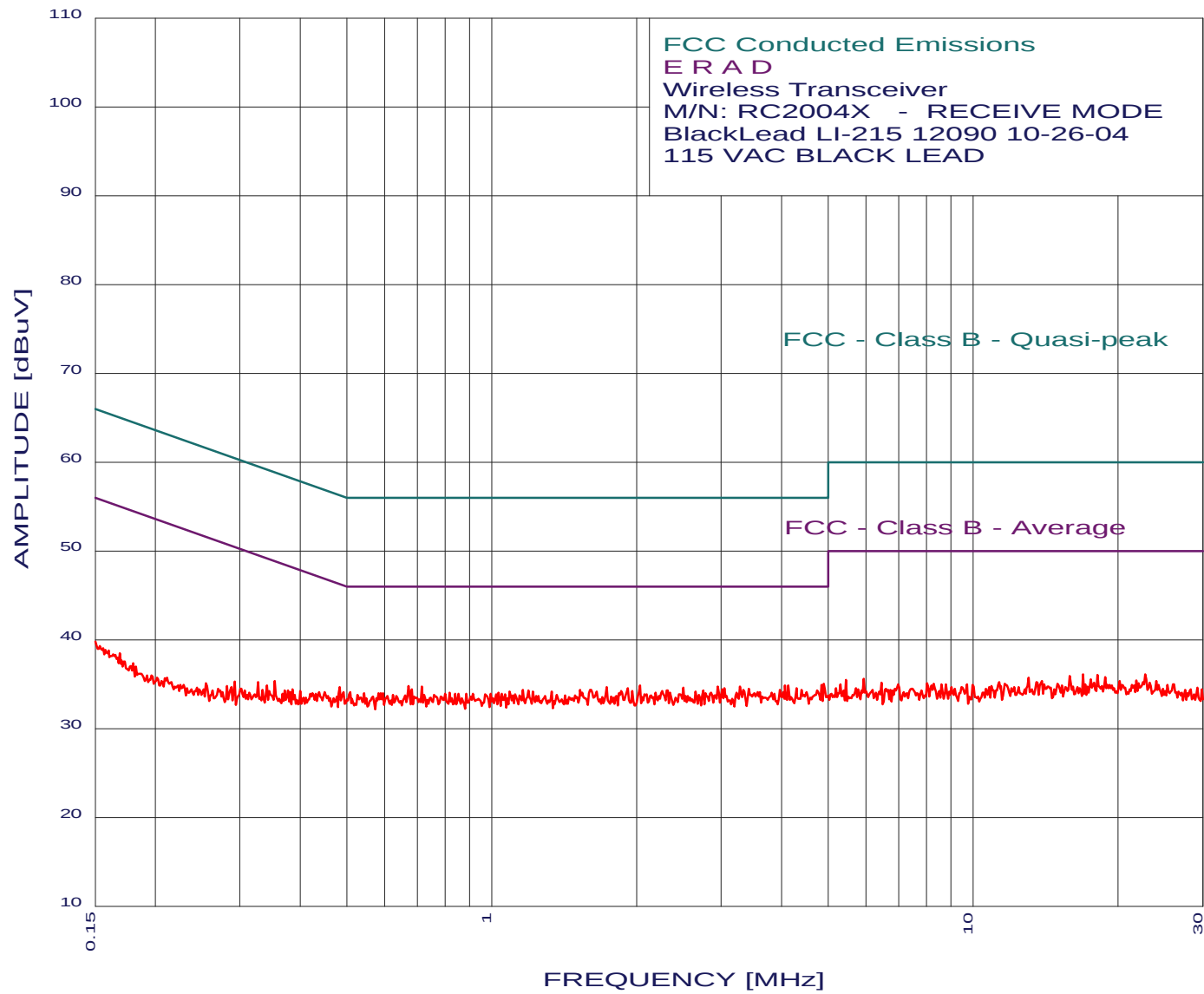
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.735	35.78	46.00	-10.22
2	3.702	35.43	46.00	-10.57
3	2.651	35.41	46.00	-10.59
4	4.825	35.40	46.00	-10.60
5	4.249	35.18	46.00	-10.82
6	3.605	34.92	46.00	-11.08
7	0.724	34.90	46.00	-11.10
8	3.260	34.88	46.00	-11.12
9	3.158	34.87	46.00	-11.13
10	4.672	34.70	46.00	-11.30
11	2.423	34.69	46.00	-11.31
12	2.214	34.66	46.00	-11.34
13	0.759	34.60	46.00	-11.40
14	1.763	34.59	46.00	-11.41
15	1.243	34.58	46.00	-11.42
16	1.118	34.55	46.00	-11.45
17	1.345	34.50	46.00	-11.50
18	3.346	34.49	46.00	-11.51
19	1.680	34.47	46.00	-11.53
20	4.008	34.46	46.00	-11.54
21	1.055	34.44	46.00	-11.56
22	0.676	34.39	46.00	-11.61
23	0.637	34.39	46.00	-11.61
24	2.286	34.37	46.00	-11.63
25	1.197	34.37	46.00	-11.63
26	0.608	34.28	46.00	-11.72
27	3.862	34.25	46.00	-11.75
28	2.870	34.24	46.00	-11.76
29	1.971	34.23	46.00	-11.77
30	2.540	34.20	46.00	-11.80
31	0.716	34.20	46.00	-11.80
32	4.576	34.19	46.00	-11.81
33	1.283	34.19	46.00	-11.81
34	0.502	34.17	46.00	-11.83
35	1.646	34.16	46.00	-11.84
36	3.027	34.15	46.00	-11.85
37	1.552	34.14	46.00	-11.86
38	1.869	34.11	46.00	-11.89
39	0.844	34.11	46.00	-11.89
40	1.472	34.03	46.00	-11.97

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:30:07





**COMPATIBLE
ELECTRONICS**

6/07/2005 22:30:07

E R A D

Wireless Transceiver

M/N: RC2004X - RECEIVE MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

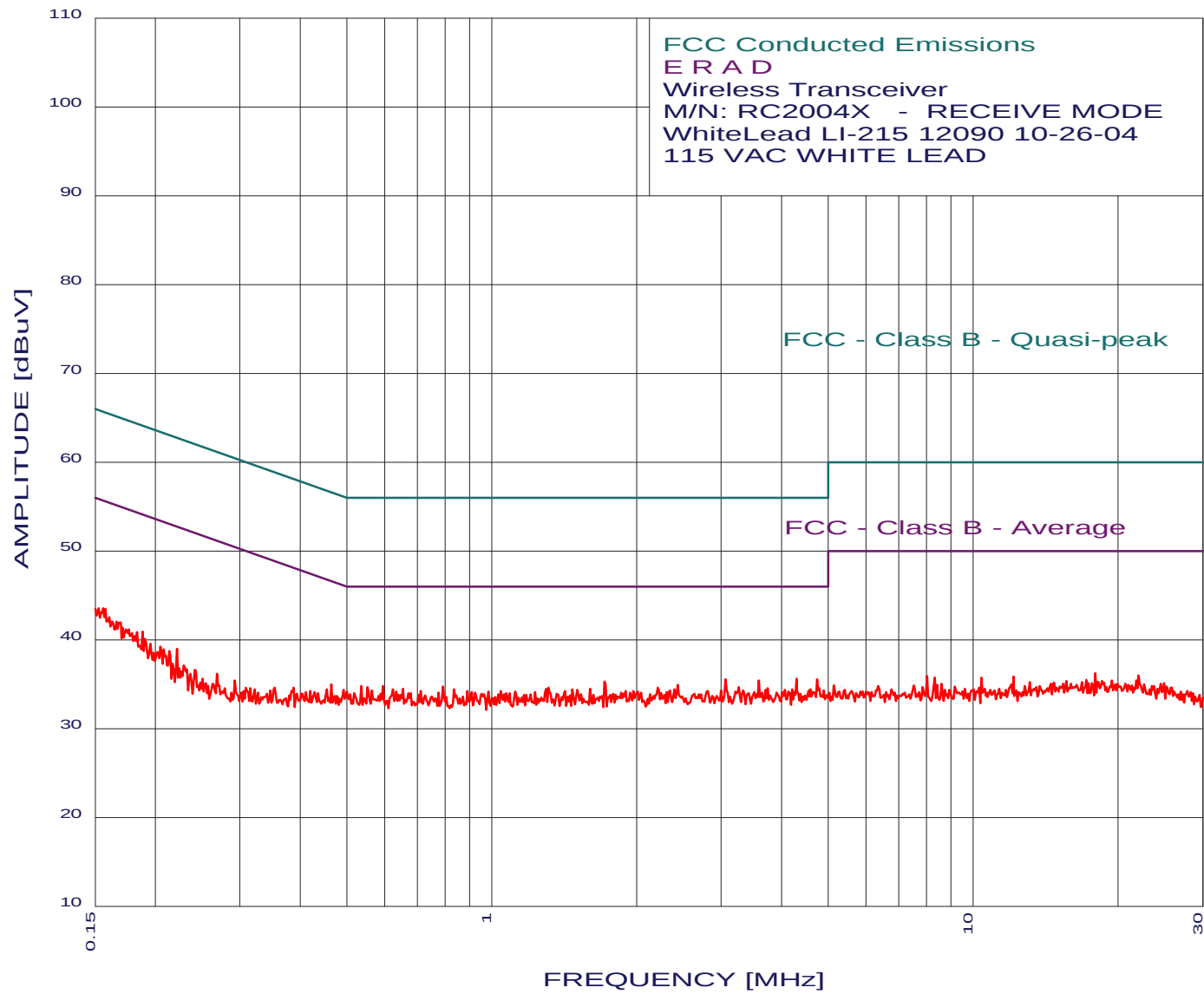
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.902	35.01	46.00	-10.99
2	4.851	34.90	46.00	-11.10
3	4.137	34.83	46.00	-11.17
4	4.071	34.83	46.00	-11.17
5	2.034	34.82	46.00	-11.18
6	0.672	34.79	46.00	-11.21
7	3.277	34.75	46.00	-11.25
8	2.948	34.72	46.00	-11.28
9	0.716	34.69	46.00	-11.31
10	1.735	34.67	46.00	-11.33
11	2.501	34.57	46.00	-11.43
12	4.294	34.55	46.00	-11.45
13	3.043	34.52	46.00	-11.48
14	1.918	34.50	46.00	-11.50
15	3.419	34.46	46.00	-11.54
16	0.484	34.68	46.27	-11.60
17	0.683	34.39	46.00	-11.61
18	4.408	34.36	46.00	-11.64
19	1.160	34.35	46.00	-11.65
20	1.611	34.34	46.00	-11.66
21	1.528	34.33	46.00	-11.67
22	2.751	34.30	46.00	-11.70
23	4.748	34.29	46.00	-11.71
24	1.191	34.26	46.00	-11.74
25	2.322	34.25	46.00	-11.75
26	2.262	34.25	46.00	-11.75
27	1.960	34.21	46.00	-11.79
28	1.331	34.19	46.00	-11.81
29	2.651	34.19	46.00	-11.81
30	1.217	34.16	46.00	-11.84
31	1.089	34.14	46.00	-11.86
32	0.508	34.07	46.00	-11.93
33	2.346	34.06	46.00	-11.94
34	1.032	34.03	46.00	-11.97
35	2.855	34.01	46.00	-11.99
36	0.818	34.00	46.00	-12.00
37	3.820	34.00	46.00	-12.00
38	0.595	33.98	46.00	-12.02
39	0.544	33.98	46.00	-12.02
40	1.049	33.93	46.00	-12.07

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:28:01





**COMPATIBLE
ELECTRONICS**

6/07/2005 22:28:01

E R A D

Wireless Transceiver

M/N: RC2004X - RECEIVE MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

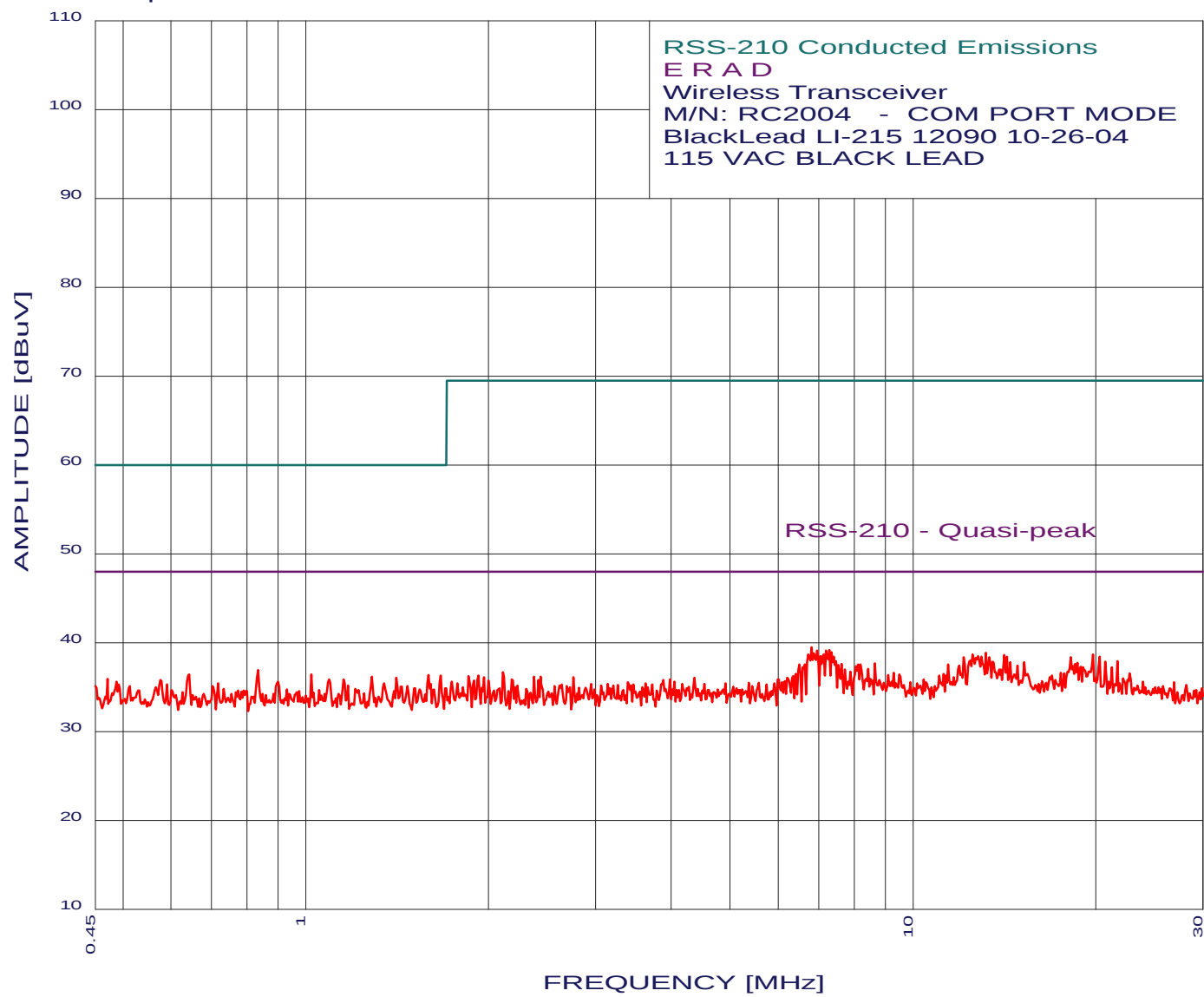
40 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	4.294	35.58	46.00	-10.42
2	3.059	35.56	46.00	-10.44
3	4.748	35.50	46.00	-10.50
4	3.585	35.42	46.00	-10.58
5	1.717	35.28	46.00	-10.72
6	2.436	34.89	46.00	-11.11
7	0.595	34.78	46.00	-11.22
8	0.535	34.78	46.00	-11.22
9	0.792	34.70	46.00	-11.30
10	3.260	34.68	46.00	-11.32
11	0.552	34.68	46.00	-11.32
12	1.311	34.59	46.00	-11.41
13	2.214	34.56	46.00	-11.44
14	3.741	34.53	46.00	-11.47
15	1.297	34.49	46.00	-11.51
16	0.655	34.49	46.00	-11.51
17	1.603	34.46	46.00	-11.54
18	1.472	34.43	46.00	-11.57
19	0.835	34.41	46.00	-11.59
20	0.624	34.39	46.00	-11.61
21	4.204	34.38	46.00	-11.62
22	4.071	34.37	46.00	-11.63
23	0.464	34.98	46.62	-11.64
24	1.504	34.33	46.00	-11.67
25	3.328	34.29	46.00	-11.71
26	0.564	34.28	46.00	-11.72
27	2.346	34.28	46.00	-11.72
28	2.995	34.25	46.00	-11.75
29	1.043	34.24	46.00	-11.76
30	0.492	34.37	46.14	-11.77
31	1.971	34.23	46.00	-11.77
32	2.811	34.23	46.00	-11.77
33	1.899	34.22	46.00	-11.78
34	1.419	34.22	46.00	-11.78
35	0.890	34.21	46.00	-11.79
36	0.713	34.20	46.00	-11.80
37	0.634	34.19	46.00	-11.81
38	1.118	34.15	46.00	-11.85
39	0.984	34.13	46.00	-11.87
40	0.909	34.12	46.00	-11.88

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/10/2005 19:52:58





ERAD

Wireless Transceiver

M/N: RC2004X - COM PORT MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

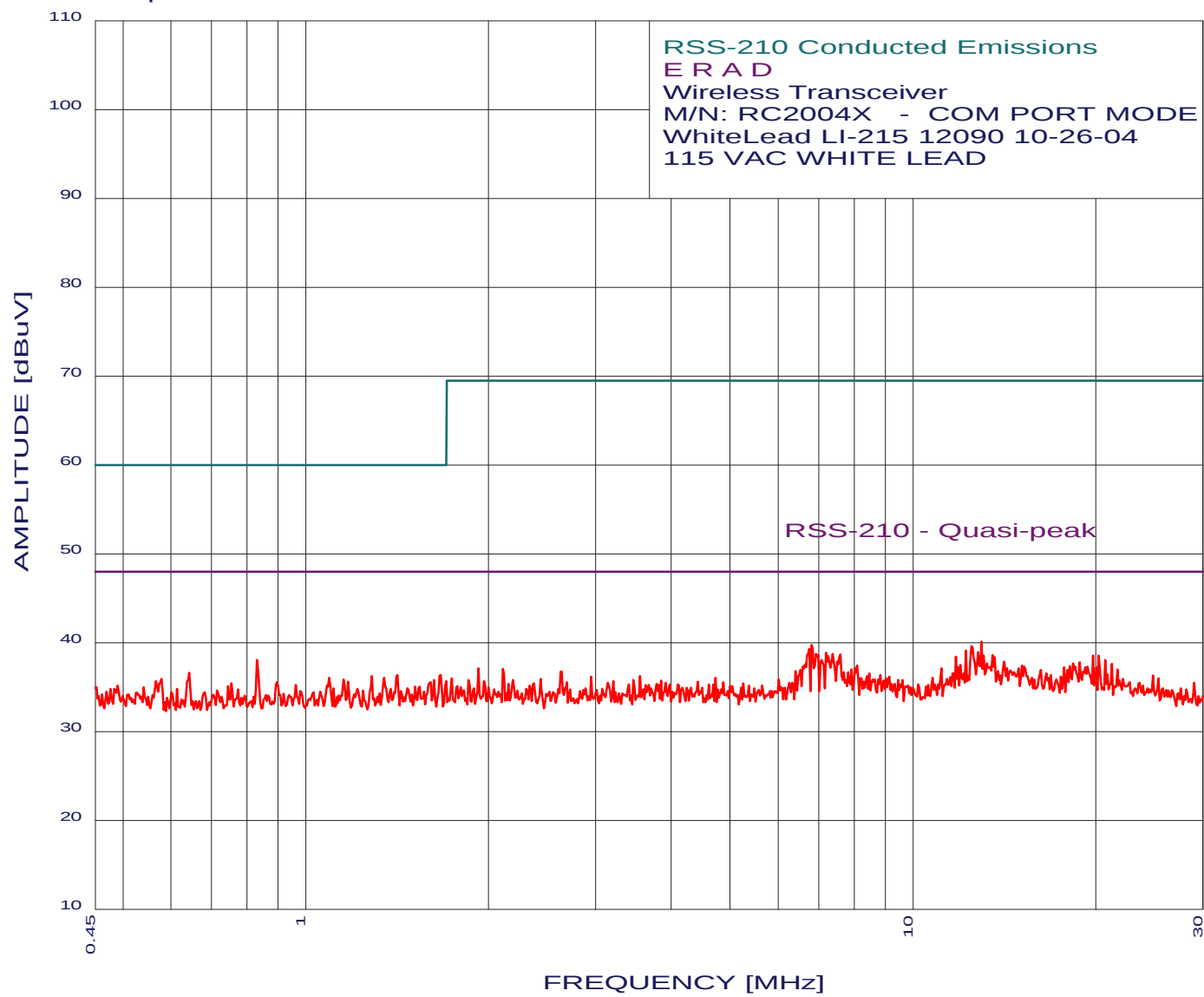
40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	6.814	39.46	48.00	-8.54
2	7.286	39.18	48.00	-8.82
3	6.958	39.06	48.00	-8.94
4	7.348	38.88	48.00	-9.12
5	13.174	38.82	48.00	-9.18
6	12.525	38.68	48.00	-9.32
7	7.137	38.67	48.00	-9.33
8	19.801	38.65	48.00	-9.35
9	14.149	38.59	48.00	-9.41
10	20.305	38.43	48.00	-9.57
11	12.957	38.41	48.00	-9.59
12	14.270	38.39	48.00	-9.61
13	18.205	38.36	48.00	-9.64
14	12.114	38.35	48.00	-9.65
15	13.340	38.33	48.00	-9.67
16	21.711	37.90	48.00	-10.10
17	13.512	37.84	48.00	-10.16
18	20.735	37.82	48.00	-10.18
19	14.452	37.81	48.00	-10.19
20	15.263	37.76	48.00	-10.24
21	18.670	37.69	48.00	-10.31
22	8.656	37.64	48.00	-10.36
23	7.632	37.60	48.00	-10.40
24	6.645	37.55	48.00	-10.45
25	6.505	37.54	48.00	-10.46
26	8.196	37.52	48.00	-10.48
27	8.126	37.52	48.00	-10.48
28	11.422	37.50	48.00	-10.50
29	7.537	37.49	48.00	-10.51
30	11.909	37.44	48.00	-10.56
31	14.879	37.44	48.00	-10.56
32	18.908	37.31	48.00	-10.69
33	19.067	37.22	48.00	-10.78
34	21.267	37.21	48.00	-10.79
35	8.442	37.03	48.00	-10.97
36	7.728	37.00	48.00	-11.00
37	13.971	36.97	48.00	-11.03
38	0.835	36.90	48.00	-11.10
39	7.894	36.71	48.00	-11.29
40	2.111	36.63	48.00	-11.37

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/10/2005 19:49:06





E R A D

Wireless Transceiver

M/N: RC2004X - COM PORT MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

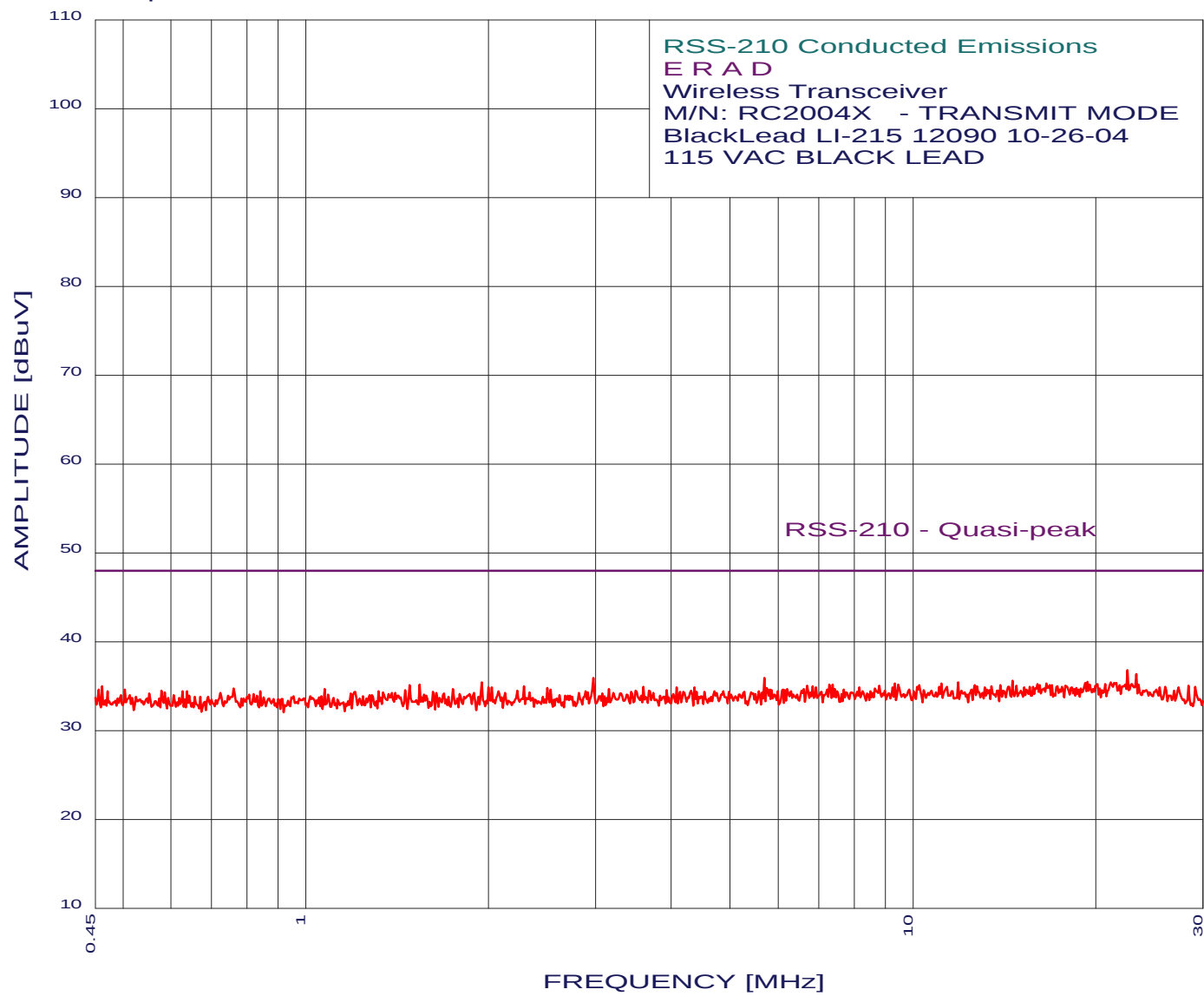
40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	12.957	40.12	48.00	-7.88
2	6.814	39.71	48.00	-8.29
3	12.474	39.59	48.00	-8.41
4	6.758	39.31	48.00	-8.69
5	12.217	39.07	48.00	-8.93
6	12.794	38.91	48.00	-9.09
7	7.196	38.84	48.00	-9.16
8	7.380	38.75	48.00	-9.25
9	6.928	38.72	48.00	-9.28
10	7.600	38.66	48.00	-9.34
11	13.512	38.57	48.00	-9.43
12	19.801	38.56	48.00	-9.44
13	20.221	38.54	48.00	-9.46
14	13.065	38.53	48.00	-9.47
15	11.763	38.43	48.00	-9.57
16	13.627	38.37	48.00	-9.63
17	20.735	38.03	48.00	-9.97
18	7.077	38.03	48.00	-9.97
19	0.831	38.01	48.00	-9.99
20	14.149	37.81	48.00	-10.19
21	18.829	37.77	48.00	-10.23
22	18.356	37.64	48.00	-10.36
23	21.267	37.62	48.00	-10.38
24	11.960	37.45	48.00	-10.55
25	15.135	37.39	48.00	-10.61
26	8.093	37.39	48.00	-10.61
27	18.130	37.32	48.00	-10.68
28	15.263	37.30	48.00	-10.70
29	19.386	37.28	48.00	-10.72
30	20.053	37.25	48.00	-10.75
31	11.860	37.24	48.00	-10.76
32	17.753	37.19	48.00	-10.81
33	1.925	37.12	48.00	-10.88
34	11.138	37.08	48.00	-10.92
35	14.943	37.08	48.00	-10.92
36	2.111	37.05	48.00	-10.95
37	21.711	36.98	48.00	-11.02
38	7.927	36.98	48.00	-11.02
39	17.979	36.91	48.00	-11.09
40	6.532	36.90	48.00	-11.10

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:16:18





E R A D

Wireless Transceiver

M/N: RC2004X - TRANSMIT MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

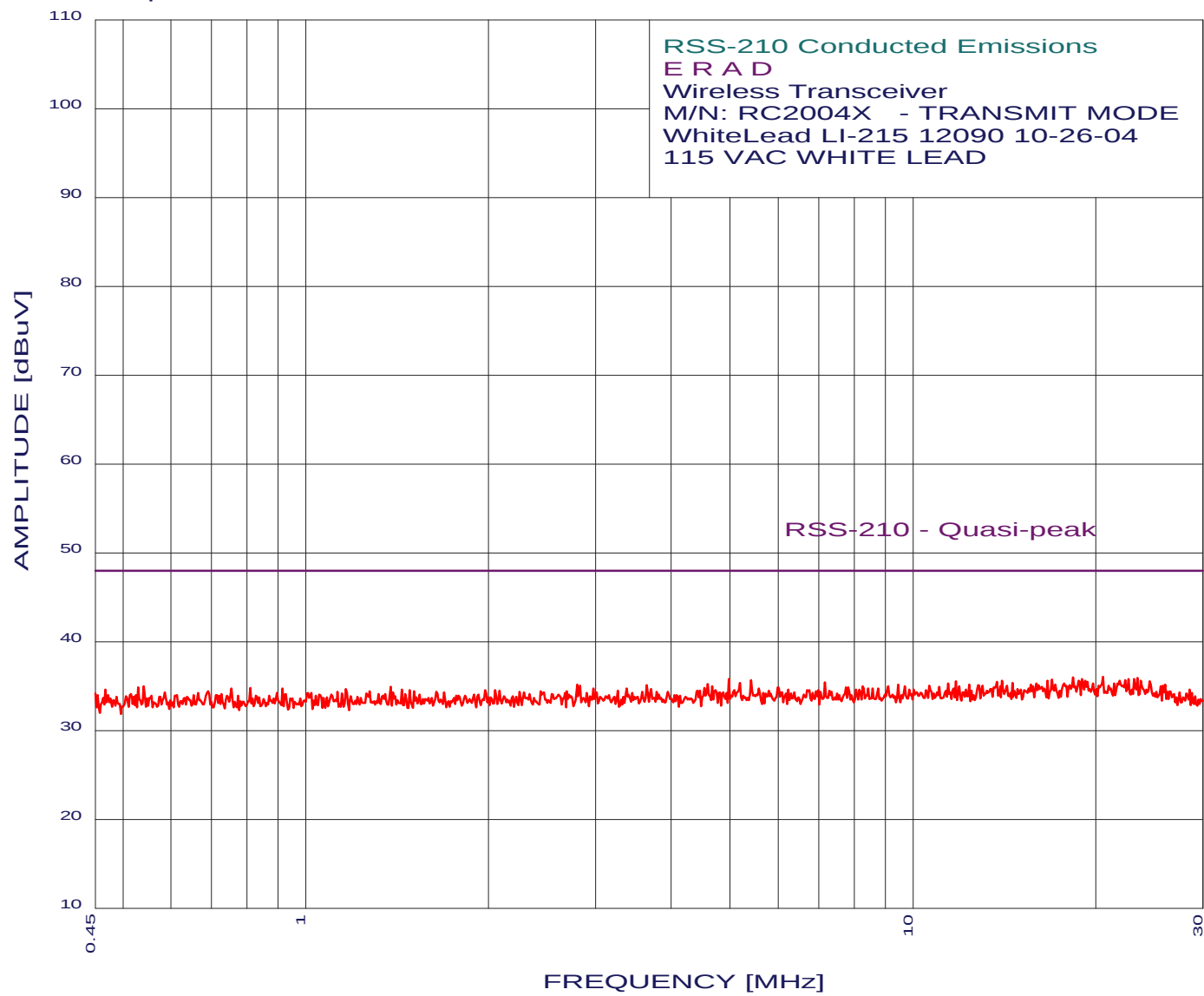
40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	22.554	36.79	48.00	-11.21
2	23.325	36.33	48.00	-11.67
3	2.979	35.92	48.00	-12.08
4	5.689	35.90	48.00	-12.10
5	14.573	35.61	48.00	-12.39
6	19.386	35.44	48.00	-12.56
7	11.860	35.43	48.00	-12.57
8	21.179	35.41	48.00	-12.59
9	1.949	35.41	48.00	-12.59
10	11.138	35.28	48.00	-12.72
11	9.338	35.28	48.00	-12.72
12	16.596	35.25	48.00	-12.75
13	20.735	35.22	48.00	-12.78
14	16.052	35.21	48.00	-12.79
15	7.380	35.18	48.00	-12.82
16	9.455	35.18	48.00	-12.82
17	7.286	35.18	48.00	-12.82
18	1.541	35.13	48.00	-12.87
19	10.240	35.12	48.00	-12.88
20	1.483	35.12	48.00	-12.88
21	12.631	35.08	48.00	-12.92
22	16.952	35.07	48.00	-12.93
23	13.913	35.07	48.00	-12.93
24	6.701	35.05	48.00	-12.95
25	8.804	35.05	48.00	-12.95
26	17.828	35.03	48.00	-12.97
27	14.815	35.03	48.00	-12.97
28	28.409	35.00	48.00	-13.00
29	17.309	35.00	48.00	-13.00
30	12.740	34.99	48.00	-13.01
31	0.462	34.98	48.00	-13.02
32	6.842	34.96	48.00	-13.04
33	2.287	34.95	48.00	-13.05
34	13.455	34.94	48.00	-13.06
35	14.391	34.90	48.00	-13.10
36	11.373	34.90	48.00	-13.10
37	29.141	34.89	48.00	-13.11
38	26.016	34.89	48.00	-13.11
39	3.598	34.88	48.00	-13.12
40	25.470	34.87	48.00	-13.13

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:13:47





**COMPATIBLE
ELECTRONICS**

6/07/2005 22:13:47

E R A D

Wireless Transceiver

M/N: RC2004X - TRANSMIT MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

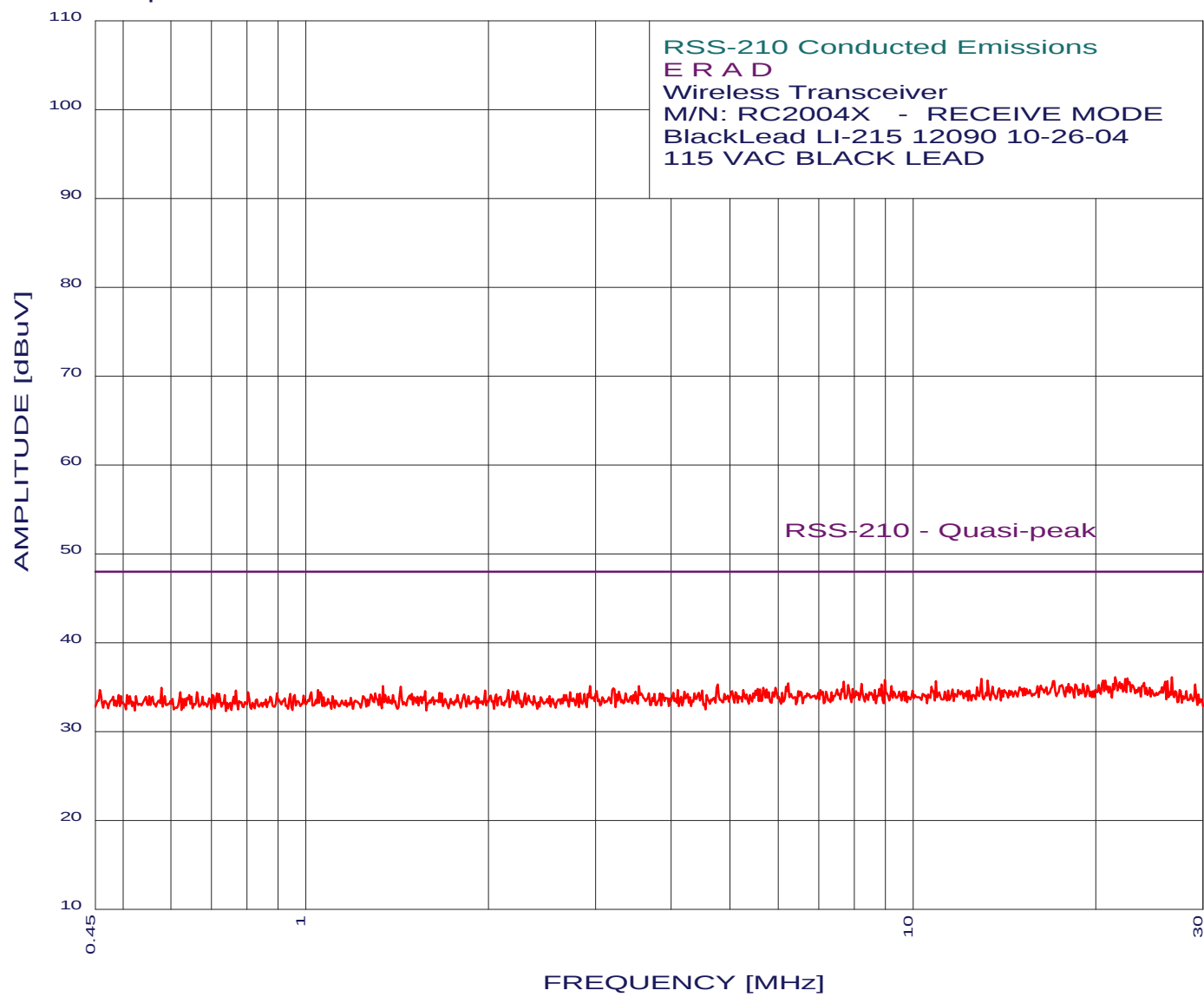
40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	20.557	36.04	48.00	-11.96
2	18.356	35.94	48.00	-12.06
3	23.424	35.91	48.00	-12.09
4	4.972	35.81	48.00	-12.19
5	18.988	35.79	48.00	-12.21
6	22.648	35.79	48.00	-12.21
7	23.127	35.75	48.00	-12.25
8	16.952	35.73	48.00	-12.27
9	22.367	35.68	48.00	-12.32
10	5.409	35.63	48.00	-12.37
11	16.667	35.61	48.00	-12.39
12	14.028	35.61	48.00	-12.39
13	18.749	35.57	48.00	-12.43
14	23.721	35.56	48.00	-12.44
15	24.530	35.54	48.00	-12.46
16	11.763	35.53	48.00	-12.47
17	13.741	35.48	48.00	-12.52
18	7.166	35.43	48.00	-12.57
19	14.573	35.35	48.00	-12.65
20	5.186	35.32	48.00	-12.68
21	11.422	35.30	48.00	-12.70
22	17.753	35.29	48.00	-12.71
23	21.445	35.29	48.00	-12.71
24	15.984	35.26	48.00	-12.74
25	4.592	35.20	48.00	-12.80
26	12.371	35.18	48.00	-12.82
27	26.016	35.17	48.00	-12.83
28	9.455	35.16	48.00	-12.84
29	15.646	35.13	48.00	-12.87
30	2.798	35.13	48.00	-12.87
31	3.645	35.12	48.00	-12.88
32	12.794	35.11	48.00	-12.89
33	10.633	35.04	48.00	-12.96
34	2.833	35.03	48.00	-12.97
35	13.011	35.03	48.00	-12.97
36	4.669	35.00	48.00	-13.00
37	13.913	35.00	48.00	-13.00
38	8.266	35.00	48.00	-13.00
39	9.696	34.98	48.00	-13.02
40	0.542	34.98	48.00	-13.02

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:22:22





E R A D

Wireless Transceiver

M/N: RC2004X - RECEIVE MODE

115 VAC BLACK LEAD

TEST ENGINEER : BENIGNO CHAVEZ

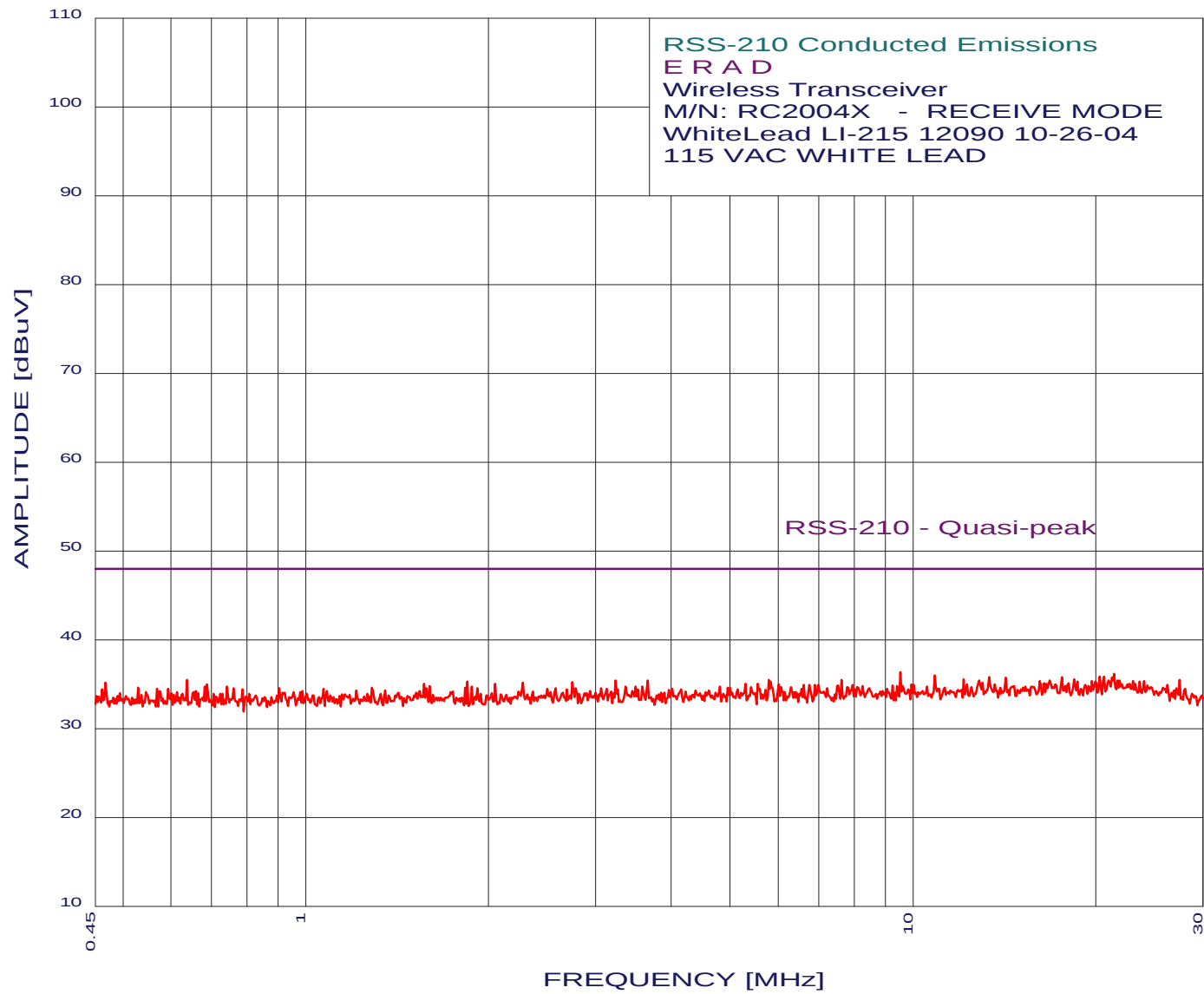
40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	21.534	36.11	48.00	-11.89
2	26.679	36.08	48.00	-11.92
3	22.554	35.99	48.00	-12.01
4	12.957	35.91	48.00	-12.09
5	22.367	35.88	48.00	-12.12
6	8.990	35.76	48.00	-12.24
7	13.283	35.73	48.00	-12.27
8	20.557	35.73	48.00	-12.27
9	20.735	35.72	48.00	-12.28
10	17.095	35.68	48.00	-12.32
11	10.907	35.67	48.00	-12.33
12	26.237	35.65	48.00	-12.35
13	7.694	35.60	48.00	-12.40
14	26.016	35.59	48.00	-12.41
15	24.018	35.45	48.00	-12.55
16	6.238	35.43	48.00	-12.57
17	18.054	35.35	48.00	-12.65
18	8.231	35.32	48.00	-12.68
19	19.067	35.32	48.00	-12.68
20	4.768	35.30	48.00	-12.70
21	29.141	35.29	48.00	-12.71
22	18.511	35.28	48.00	-12.72
23	8.879	35.25	48.00	-12.75
24	20.221	35.23	48.00	-12.77
25	17.602	35.22	48.00	-12.78
26	7.827	35.20	48.00	-12.80
27	19.386	35.14	48.00	-12.86
28	2.942	35.11	48.00	-12.89
29	16.052	35.11	48.00	-12.89
30	1.341	35.09	48.00	-12.91
31	3.539	35.07	48.00	-12.93
32	9.220	35.07	48.00	-12.93
33	10.723	35.06	48.00	-12.94
34	13.512	35.04	48.00	-12.96
35	1.435	35.01	48.00	-12.99
36	5.932	34.91	48.00	-13.09
37	5.665	34.90	48.00	-13.10
38	0.579	34.88	48.00	-13.12
39	13.856	34.87	48.00	-13.13
40	3.212	34.84	48.00	-13.16

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/07/2005 22:25:49





E R A D

Wireless Transceiver

M/N: RC2004X - RECEIVE MODE

115 VAC WHITE LEAD

TEST ENGINEER : BENIGNO CHAVEZ

40 highest peaks above -50.00 dB of RSS-210 - Quasi-peak limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	9.533	36.37	48.00	-11.63
2	21.445	36.19	48.00	-11.81
3	10.861	35.96	48.00	-12.04
4	20.305	35.84	48.00	-12.16
5	20.646	35.83	48.00	-12.17
6	17.602	35.78	48.00	-12.22
7	13.340	35.75	48.00	-12.25
8	14.210	35.72	48.00	-12.28
9	12.114	35.56	48.00	-12.44
10	18.431	35.54	48.00	-12.46
11	0.638	35.49	48.00	-12.51
12	27.476	35.48	48.00	-12.52
13	7.632	35.46	48.00	-12.54
14	5.784	35.46	48.00	-12.54
15	3.660	35.43	48.00	-12.57
16	16.810	35.42	48.00	-12.58
17	12.848	35.41	48.00	-12.59
18	21.898	35.39	48.00	-12.61
19	3.240	35.38	48.00	-12.62
20	16.187	35.37	48.00	-12.63
21	19.717	35.37	48.00	-12.63
22	24.018	35.32	48.00	-12.68
23	1.846	35.31	48.00	-12.69
24	23.622	35.28	48.00	-12.72
25	18.670	35.26	48.00	-12.74
26	2.750	35.22	48.00	-12.78
27	0.467	35.18	48.00	-12.82
28	2.277	35.17	48.00	-12.83
29	18.054	35.12	48.00	-12.88
30	1.567	35.05	48.00	-12.95
31	2.050	35.04	48.00	-12.96
32	5.545	35.04	48.00	-12.96
33	5.296	35.03	48.00	-12.97
34	0.688	34.99	48.00	-13.01
35	9.944	34.99	48.00	-13.01
36	12.268	34.97	48.00	-13.03
37	6.008	34.97	48.00	-13.03
38	26.237	34.93	48.00	-13.07
39	6.988	34.92	48.00	-13.08
40	6.898	34.92	48.00	-13.08

