

FCC PART 15, SUBPART B and C
TEST REPORT

for
RF RECEIVER WITH MEMORY

MODEL: VP6490

Prepared for

SMK-LINK ELECTRONICS
3601-B CALLE TECATE
CAMARILLO, CALIFORNIA 93012

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DATE: OCTOBER 24, 2008

	REPORT BODY	APPENDICES					TOTAL
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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: RF Receiver with Memory
Model: VP6490
S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified in order to meet the specifications.

Manufacturer: SMK-Link Electronics
3601-B Calle Tecate
Camarillo, California 93012

Test Dates: October 3 and 6, 2008

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.249

Test Procedure: ANSI C63.4

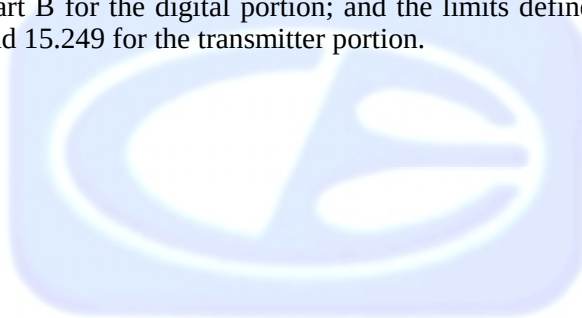
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 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 – 25000 MHz (Transmitter Portion)	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.249.
3	Radiated RF Emissions, 10 kHz – 25000 MHz (Digital Portion)	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the RF Receiver with Memory, Model: VP6490. 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 portion; and the limits defined in Subpart C, sections 15.205, 15.207, 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 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

SMK-Link Electronics

Massoud Niakan	G.M. Engineering
Daniel Grieder	RF/HW Engineer

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
James Ross	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on October 3, 2008.

2.5 Disposition of the Test Sample

The sample has not been returned to SMK-Link Electronics as of October 24, 2008.

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

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

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The RF Receiver with Memory, Model: VP6490 (EUT) was directly connected to the laptop. The Laptop was connected to an AC Adapter and scanner via its power and USB ports, respectively. The EUT's antenna is a PCB style antenna and is on the PCB itself. The EUT was tested in three orthogonal axis. The EUT was continuously transmitting and/or receiving.

The final radiated data was taken in the both transmitting and receiving modes. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 3-meter braid shielded cable connecting the laptop to the scanner. The cable has a USB 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** This is a 2-meter braid and foil shielded cable connecting the laptop to the modem. The cable has a D-25 pin metallic connector at the modem end and a D-9 pin metallic connector at the laptop 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 3** This is a 2-meter unshielded cable connecting the laptop to the AC Adapter. The cable has a special power connector at the laptop end and is hard wired into the AC Adapter. The cable was bundled to a length of 1 meter.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
RF RECEIVER WITH MEMORY (EUT)	SMK-LINK ELECTRONICS	VP6490	N/A	IE3VP649008
REMOTEPOINT EMERALD NAVIGATOR	SMK-LINK ELECTRONICS	VP4450	N/A	IE3VP445008
LAPTOP	DELL	PP04X	CN-0HN341-48643-78T-1390	DoC
AC ADAPTER	DELL	LA9OPS0-00	CN-0DF266-71615-77I-41F4	DoC
SCANNER	MICROTEK	MRS-2400A48U	W3756A12478	N/A
MODEM	HAYES	231AA	A05631003823	BFJ9D9231AA

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	100172	November 27, 2006	Nov. 27, 2008
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Biconical Antenna	Com Power	AB-900	15226	February 28, 2008	Feb. 28, 2009
Log Periodic Antenna	Com Power	AL-100	16060	June 27, 2008	June 27, 2009
Preamplifier	Com-Power	PA-102	1017	January 11, 2008	Jan. 11, 2009
Loop Antenna	Com Power	AL-130	17089	September 29, 2008	Sept. 29, 2009
Horn Antenna	Com Power	AH-118	071175	June 27, 2008	June 27, 2010
Microwave Preamplifier	Com Power	PA-122	181921	March 3, 2008	March 3, 2009
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Microwave Preamplifier	Com Power	PA-840	711013	March 3, 2008	March 3, 2009
Horn Antenna	Com-Power	AH826	71957	December 12, 2007	Dec. 12, 2009
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
LISN	Com Power	LI-215	12078	September 29, 2008	Sept. 29, 2009
LISN	Com Power	LI-215	12082	September 29, 2008	Sept. 29, 2009
Transient Limiter	Seaward	252A910	1	September 26, 2008	Sept. 26, 2009

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 to the chassis of the laptop via the shell of the USB connector.

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 EN 55022. 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 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 EMI Receiver was 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 EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

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 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. 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 the final test data. The final qualification data sheets are 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, sections 15.205, 15.209, and 15.249.

8. CONCLUSIONS

The RF Receiver with Memory, Model: VP6490 meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.207, 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

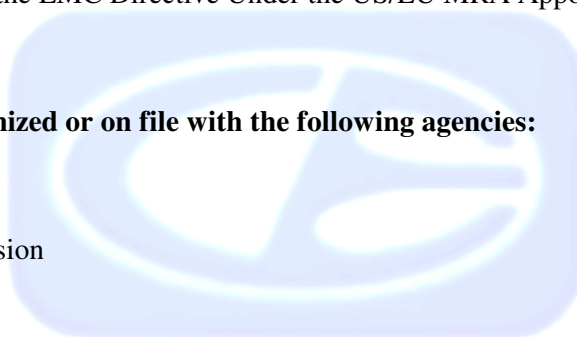
Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

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

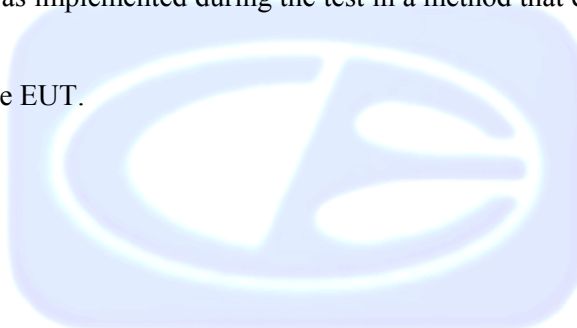
MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 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.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

RF Receiver with Memory
Model: VP6490
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

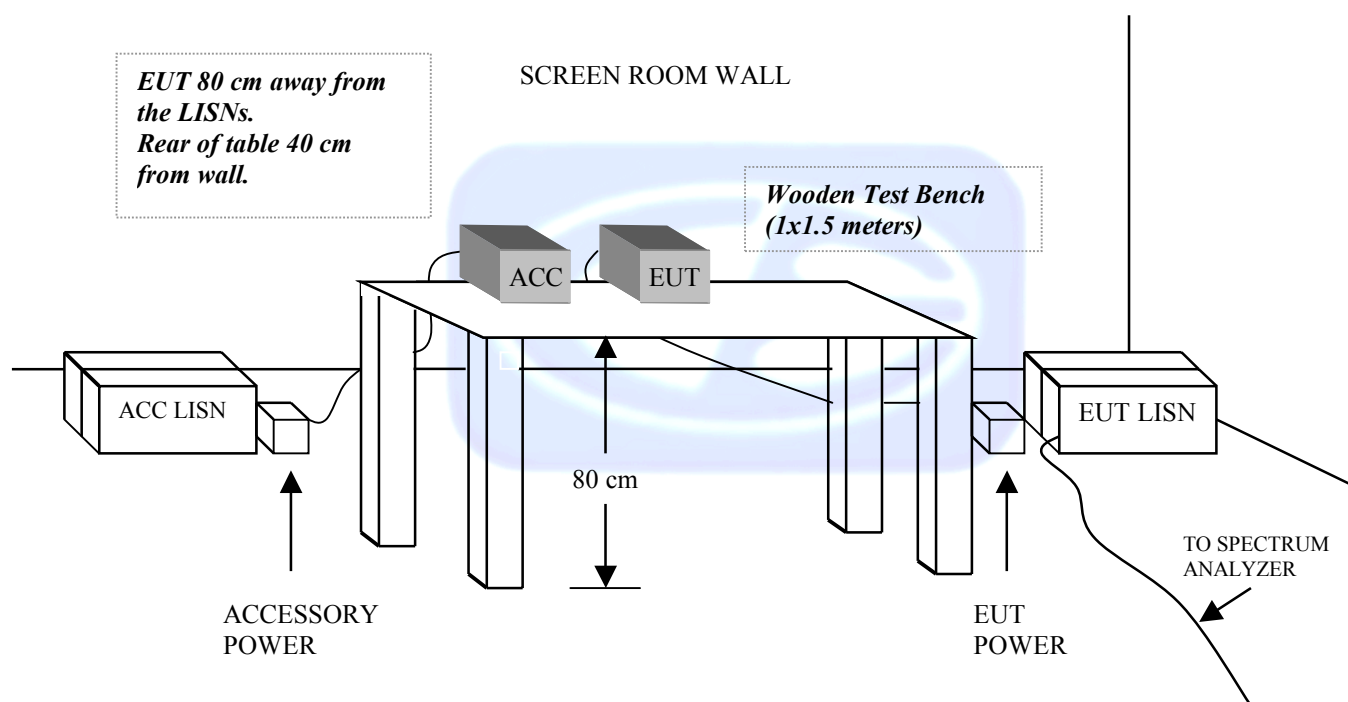
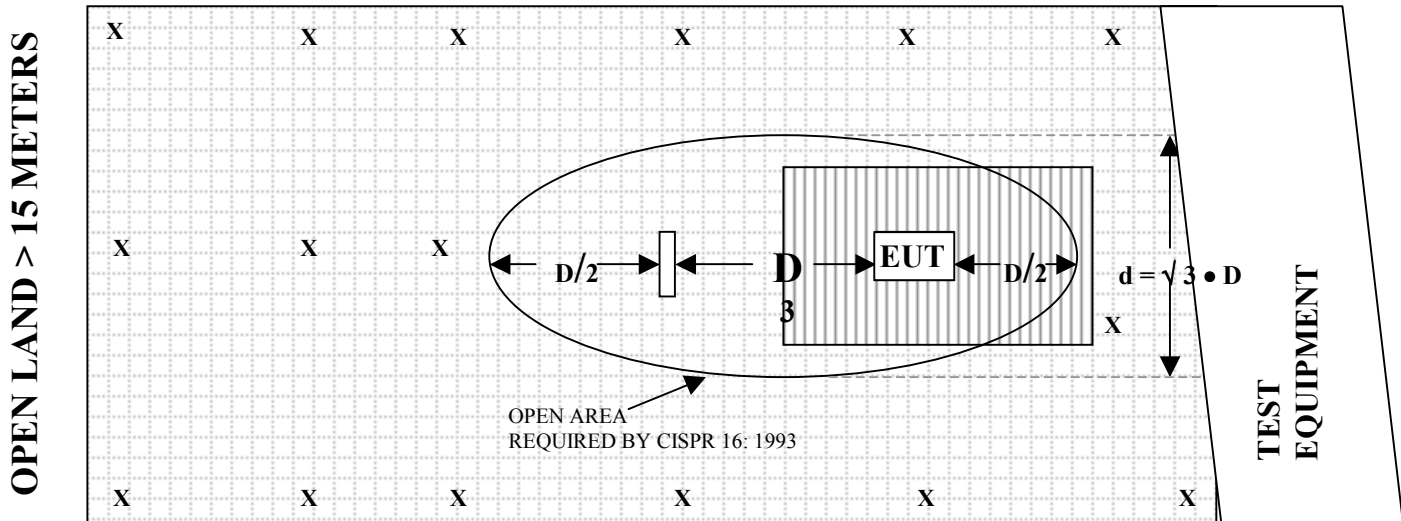
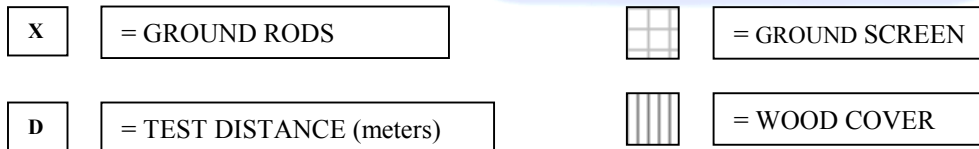


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED TEST SITE – 3 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS



COM-POWER AB-900**BICONICAL ANTENNA****S/N: 15226****CALIBRATION DATE: FEBRUARY 28, 2008**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.1	100	10.7
35	12.2	120	13.6
40	11.7	140	12.1
45	9.9	160	12.2
50	11.3	180	15.2
60	9.4	200	16.5
70	7.6	250	16.5
80	6.0	275	18.1
90	6.8	300	21.5

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: JUNE 27, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.5	700	20.5
400	15.8	800	21.6
500	17.0	900	21.3
600	19.2	1000	22.2

COM-POWER PA-103**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 11, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.2	300	38.0
40	38.0	350	38.3
50	38.3	400	38.0
60	38.6	450	37.5
70	38.4	500	37.9
80	38.4	550	37.9
90	38.3	600	37.8
100	38.1	650	37.5
125	38.5	700	38.0
150	38.2	750	37.7
175	38.1	800	37.1
200	38.4	850	37.1
225	38.2	900	37.1
250	38.2	950	37.0
275	38.2	1000	36.5

COM-POWER PA-122**PREAMPLIFIER**

S/N: 181921

CALIBRATION DATE: MARCH 3, 2008

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.32	10.0	35.47
1.5	35.40	10.5	35.05
2.0	34.77	11.0	34.16
2.5	35.07	11.5	33.75
3.0	34.86	12.0	34.65
3.5	34.48	12.5	34.41
4.0	34.30	13.0	35.36
4.5	33.96	13.5	35.30
5.0	34.06	14.0	35.87
5.5	34.54	14.5	36.44
6.0	35.90	15.0	36.24
6.5	36.85	15.5	35.92
7.0	36.55	16.0	35.53
7.5	35.31	16.5	35.29
8.0	33.57	17.0	34.96
8.5	33.36	17.5	34.02
9.0	35.01	18.0	33.39
9.5	35.97		

COM-POWER AH-118**HORN ANTENNA****S/N: 071175****CALIBRATION DATE: JUNE 27, 2008**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.5	10.0	39.4
1.5	25.4	10.5	39.7
2.0	28.3	11.0	39.0
2.5	28.9	11.5	40.0
3.0	29.7	12.0	39.7
3.5	30.8	12.5	41.7
4.0	31.4	13.0	42.7
4.5	32.6	13.5	41.2
5.0	33.7	14.0	41.6
5.5	34.4	14.5	43.2
6.0	34.7	15.0	42.3
6.5	35.4	15.5	39.3
7.0	37.0	16.0	41.7
7.5	37.4	16.5	39.6
8.0	37.6	17.0	43.0
8.5	37.6	17.5	47.1
9.0	38.5	18.0	46.2
9.5	38.6		

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

S/N: 17089

CALIBRATION DATE: SEPTEMBER 24, 2007

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.27	10.23
0.01	-41.96	9.54
0.02	-41.73	9.77
0.03	-40.46	11.04
0.04	-40.56	10.94
0.05	-42.00	9.50
0.06	-41.30	10.20
0.1	-41.43	10.07
0.2	-43.90	7.60
0.3	-41.43	10.07
0.4	-41.40	10.10
0.5	-41.40	10.10
0.6	-40.93	10.57
1	-40.83	10.67
2	-40.3	11.20
5	-40.2	11.30
8	-40.6	10.90
9	-40.1	11.40
10	-40.4	11.10
15	-41.67	9.83
20	-41.10	10.40
25	-42.8	8.70
30	-42.8	8.70

COM-POWER PA-840**MICROWAVE PREAMPLIFIER**

S/N: 711013

CALIBRATION DATE: MARCH 3, 2008

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	27.49	29.5	26.44
18.5	28.46	30.0	26.95
19.0	28.98	30.5	26.42
19.5	28.46	31.0	27.11
20.0	28.23	31.5	27.27
20.5	27.44	32.0	26.76
21.0	26.91	32.5	24.49
21.5	26.65	33.0	23.19
22.0	26.50	33.5	22.57
22.5	27.15	34.0	22.11
23.0	27.36	34.5	23.52
23.5	27.08	35.0	24.86
24.0	26.36	35.5	25.52
24.5	24.95	36.0	25.81
25.0	26.83	36.5	22.08
25.5	27.00	37.0	23.31
26.0	27.58	37.5	26.91
26.5	26.02	38.0	25.89
27.0	24.20	38.5	24.75
27.5	23.64	39.0	25.77
28.0	26.39	39.5	25.83
28.5	26.66	40.0	27.62
29.0	26.40		

COM-POWER AH826

HORN ANTENNA

S/N: 71957

CALIBRATION DATE: DECEMBER 12, 2007

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



FRONT VIEW

SMK-LINK ELECTRONICS
RF RECEIVER WITH MEMORY
MODEL: VP6490

FCC SUBPART B AND C – RADIATED EMISSIONS

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

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

SMK-LINK ELECTRONICS
RF RECEIVER WITH MEMORY
MODEL: VP6490
FCC SUBPART B AND C – RADIATED EMISSIONS

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

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



FRONT VIEW

SMK-LINK ELECTRONICS
RF RECEIVER WITH MEMORY
MODEL: VP6490

FCC SUBPART B AND C – CONDUCTED EMISSIONS

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

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



REAR VIEW

SMK-LINK ELECTRONICS
RF RECEIVER WITH MEMORY
MODEL: VP6490

FCC SUBPART B AND C – CONDUCTED EMISSIONS

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

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

X-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	92.54	V	114	-21.46	Peak	1.51	135	
2405	91.61	V	94	-2.39	Avg	1.51	135	
4810	51.97	V	74	-22.03	Peak	2.72	135	
4810	46.07	V	54	-7.93	Avg	2.72	135	
7215	54.04	V	74	-19.96	Peak	2.31	150	
7215	45.55	V	54	-8.45	Avg	2.31	150	
9620	50.95	V	74	-23.05	Peak	2.04	135	
9620	38.71	V	54	-15.29	Avg	2.04	135	
12025		V	74	-74	Peak			No Emission
12025		V	54	-54	Avg			Detected
14430		V	74	-74	Peak			No Emission
14430		V	54	-54	Avg			Detected
16835		V	74	-74	Peak			No Emission
16835		V	54	-54	Avg			Detected
19240		V	74	-74	Peak			No Emission
19240		V	54	-54	Avg			Detected
21645		V	74	-74	Peak			No Emission
21645		V	54	-54	Avg			Detected
24050		V	74	-74	Peak			No Emission
24050		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	90.99	H	114	-23.01	Peak	2.62	135	
2405	89.33	H	94	-4.67	Avg	2.62	135	
4810	56.43	H	74	-17.57	Peak	2.62	135	
4810	52.31	H	54	-1.69	Avg	2.62	135	
7215	57.49	H	74	-16.51	Peak	2.62	135	
7215	50.48	H	54	-3.52	Avg	2.62	135	
9620	48.45	H	74	-25.55	Peak	2.63	135	
9620	36.67	H	54	-17.33	Avg	2.63	135	
12025		H	74	-74	Peak			No Emission
12025		H	54	-54	Avg			Detected
14430		H	74	-74	Peak			No Emission
14430		H	54	-54	Avg			Detected
16835		H	74	-74	Peak			No Emission
16835		H	54	-54	Avg			Detected
19240		H	74	-74	Peak			No Emission
19240		H	54	-54	Avg			Detected
21645		H	74	-74	Peak			No Emission
21645		H	54	-54	Avg			Detected
24050		H	74	-74	Peak			No Emission
24050		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Y-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	92.23	V	114	-21.77	Peak	1.14	135	
2405	91.01	V	94	-2.99	Avg	1.14	135	
4810	56.14	V	74	-17.86	Peak	2.93	135	
4810	51.61	V	54	-2.39	Avg	2.93	135	
7215	55.68	V	74	-18.32	Peak	2.93	135	
7215	47.27	V	54	-6.73	Avg	2.93	135	
9620	49.85	V	74	-24.15	Peak	2.95	125	
9620	38.08	V	54	-15.92	Avg	2.95	125	
12025		V	74	-74	Peak			No Emission
12025		V	54	-54	Avg			Detected
14430		V	74	-74	Peak			No Emission
14430		V	54	-54	Avg			Detected
16835		V	74	-74	Peak			No Emission
16835		V	54	-54	Avg			Detected
19240		V	74	-74	Peak			No Emission
19240		V	54	-54	Avg			Detected
21645		V	74	-74	Peak			No Emission
21645		V	54	-54	Avg			Detected
24050		V	74	-74	Peak			No Emission
24050		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Y-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	86.05	H	114	-27.95	Peak	2.18	135	
2405	84.73	H	94	-9.27	Avg	2.18	135	
4810	56.96	H	74	-17.04	Peak	2.71	135	
4810	52.71	H	54	-1.29	Avg	2.71	135	
7215	57.53	H	74	-16.47	Peak	2.71	135	
7215	50.54	H	54	-3.46	Avg	2.71	135	
9620	50.38	H	74	-23.62	Peak	2.75	135	
9620	38.31	H	54	-15.69	Avg	2.75	135	
12025		H	74	-74	Peak			No Emission
12025		H	54	-54	Avg			Detected
14430		H	74	-74	Peak			No Emission
14430		H	54	-54	Avg			Detected
16835		H	74	-74	Peak			No Emission
16835		H	54	-54	Avg			Detected
19240		H	74	-74	Peak			No Emission
19240		H	54	-54	Avg			Detected
21645		H	74	-74	Peak			No Emission
21645		H	54	-54	Avg			Detected
24050		H	74	-74	Peak			No Emission
24050		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	90.11	V	114	-23.89	Peak	1	135	
2405	88.83	V	94	-5.17	Avg	1	135	
4810	55.92	V	74	-18.08	Peak	2.29	135	
4810	51.81	V	54	-2.19	Avg	2.29	135	
7215	57.33	V	74	-16.67	Peak	2.12	135	
7215	50.44	V	54	-3.56	Avg	2.12	135	
9620	52.41	V	74	-21.59	Peak	2.12	135	
9620	39.18	V	54	-14.82	Avg	2.12	135	
12025		V	74	-74	Peak			No Emission
12025		V	54	-54	Avg			Detected
14430		V	74	-74	Peak			No Emission
14430		V	54	-54	Avg			Detected
16835		V	74	-74	Peak			No Emission
16835		V	54	-54	Avg			Detected
19240		V	74	-74	Peak			No Emission
19240		V	54	-54	Avg			Detected
21645		V	74	-74	Peak			No Emission
21645		V	54	-54	Avg			Detected
24050		V	74	-74	Peak			No Emission
24050		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

Z-Axis - Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	94.79	H	114	-19.21	Peak	1.1	45	
2405	93.95	H	94	-0.05	Avg	1.1	45	
4810	54.83	H	74	-19.17	Peak	1.1	45	
4810	49.21	H	54	-4.79	Avg	1.1	45	
7215	57.25	H	74	-16.75	Peak	1.13	150	
7215	49.71	H	54	-4.29	Avg	1.13	150	
9620	50.03	H	74	-23.97	Peak	1.15	150	
9620	38.11	H	54	-15.89	Avg	1.15	150	
12025		H	74	-74	Peak			No Emission
12025		H	54	-54	Avg			Detected
14430		H	74	-74	Peak			No Emission
14430		H	54	-54	Avg			Detected
16835		H	74	-74	Peak			No Emission
16835		H	54	-54	Avg			Detected
19240		H	74	-74	Peak			No Emission
19240		H	54	-54	Avg			Detected
21645		H	74	-74	Peak			No Emission
21645		H	54	-54	Avg			Detected
24050		H	74	-74	Peak			No Emission
24050		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	91.03	V	114	-22.97	Peak	1.13	150	
2441	89.92	V	94	-4.08	Avg	1.13	150	
4882	56.64	V	74	-17.36	Peak	1.25	225	
4882	52.36	V	54	-1.64	Avg	1.25	225	
7323	56.48	V	74	-17.52	Peak	1.15	150	
7323	49.37	V	54	-4.63	Avg	1.15	150	
9764	50.93	V	74	-23.07	Peak	1.15	180	
9764	38.05	V	54	-15.95	Avg	1.15	180	
12205		V	74	-74	Peak			No Emission
12205		V	54	-54	Avg			Detected
14646		V	74	-74	Peak			No Emission
14646		V	54	-54	Avg			Detected
17087		V	74	-74	Peak			No Emission
17087		V	54	-54	Avg			Detected
19528		V	74	-74	Peak			No Emission
19528		V	54	-54	Avg			Detected
21969		V	74	-74	Peak			No Emission
21969		V	54	-54	Avg			Detected
24410		V	74	-74	Peak			No Emission
24410		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

X-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	90.99	H	114	-23.01	Peak	1.16	150	
2441	89.86	H	94	-4.14	Avg	1.16	150	
4882	56.08	H	74	-17.92	Peak	1.13	150	
4882	51.79	H	54	-2.21	Avg	1.13	150	
7323	58.02	H	74	-15.98	Peak	2.25	135	
7323	50.71	H	54	-3.29	Avg	2.25	135	
9764	51.88	H	74	-22.12	Peak	1.16	150	
9764	39.24	H	54	-14.76	Avg	1.16	150	
12205		H	74	-74	Peak			No Emission
12205		H	54	-54	Avg			Detected
14646		H	74	-74	Peak			No Emission
14646		H	54	-54	Avg			Detected
17087		H	74	-74	Peak			No Emission
17087		H	54	-54	Avg			Detected
19528		H	74	-74	Peak			No Emission
19528		H	54	-54	Avg			Detected
21969		H	74	-74	Peak			No Emission
21969		H	54	-54	Avg			Detected
24410		H	74	-74	Peak			No Emission
24410		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

Y-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	91.98	V	114	-22.02	Peak	1.16	150	
2441	90.93	V	94	-3.07	Avg	1.16	150	
4882	55.64	V	74	-18.36	Peak	1.18	135	
4882	51.81	V	54	-2.19	Avg	1.18	135	
7323	55.73	V	74	-18.27	Peak	1.13	150	
7323	48.18	V	54	-5.82	Avg	1.13	150	
9764	53.19	V	74	-20.81	Peak	1.15	150	
9764	38.91	V	54	-15.09	Avg	1.15	150	
12205		V	74	-74	Peak			No Emission
12205		V	54	-54	Avg			Detected
14646		V	74	-74	Peak			No Emission
14646		V	54	-54	Avg			Detected
17087		V	74	-74	Peak			No Emission
17087		V	54	-54	Avg			Detected
19528		V	74	-74	Peak			No Emission
19528		V	54	-54	Avg			Detected
21969		V	74	-74	Peak			No Emission
21969		V	54	-54	Avg			Detected
24410		V	74	-74	Peak			No Emission
24410		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Y-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	87.18	H	114	-26.82	Peak	1.13	150	
2441	86.25	H	94	-7.75	Avg	1.13	150	
4882	56.41	H	74	-17.59	Peak	1.16	150	
4882	52.41	H	54	-1.59	Avg	1.16	150	
7323	58.32	H	74	-15.68	Peak	1.15	180	
7323	51.04	H	54	-2.96	Avg	1.15	180	
9764	53.29	H	74	-20.71	Peak	1.16	150	
9764	38.79	H	54	-15.21	Avg	1.16	150	
12205		H	74	-74	Peak			No Emission
12205		H	54	-54	Avg			Detected
14646		H	74	-74	Peak			No Emission
14646		H	54	-54	Avg			Detected
17087		H	74	-74	Peak			No Emission
17087		H	54	-54	Avg			Detected
19528		H	74	-74	Peak			No Emission
19528		H	54	-54	Avg			Detected
21969		H	74	-74	Peak			No Emission
21969		H	54	-54	Avg			Detected
24410		H	74	-74	Peak			No Emission
24410		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	88.34	V	114	-25.66	Peak	1.15	180	
2441	87.11	V	94	-6.89	Avg	1.15	180	
4882	56.37	V	74	-17.63	Peak	1.13	150	
4882	52.53	V	54	-1.47	Avg	1.13	150	
7323	57.87	V	74	-16.13	Peak	1.15	150	
7323	50.83	V	54	-3.17	Avg	1.15	150	
9764	53.01	V	74	-20.99	Peak	1.19	135	
9764	39.39	V	54	-14.61	Avg	1.19	135	
12205		V	74	-74	Peak			No Emission
12205		V	54	-54	Avg			Detected
14646		V	74	-74	Peak			No Emission
14646		V	54	-54	Avg			Detected
17087		V	74	-74	Peak			No Emission
17087		V	54	-54	Avg			Detected
19528		V	74	-74	Peak			No Emission
19528		V	54	-54	Avg			Detected
21969		V	74	-74	Peak			No Emission
21969		V	54	-54	Avg			Detected
24410		V	74	-74	Peak			No Emission
24410		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	94.75	H	114	-19.25	Peak	1.25	45	
2441	93.75	H	94	-0.25	Avg	1.25	45	
4882	55.17	H	74	-18.83	Peak	1.25	45	
4882	50.31	H	54	-3.69	Avg	1.25	45	
7323	57.64	H	74	-16.36	Peak	1.13	150	
7323	50.33	H	54	-3.67	Avg	1.13	150	
9764	49.01	H	74	-24.99	Peak	1.16	150	
9764	37.51	H	54	-16.49	Avg	1.16	150	
12205		H	74	-74	Peak			No Emission
12205		H	54	-54	Avg			Detected
14646		H	74	-74	Peak			No Emission
14646		H	54	-54	Avg			Detected
17087		H	74	-74	Peak			No Emission
17087		H	54	-54	Avg			Detected
19528		H	74	-74	Peak			No Emission
19528		H	54	-54	Avg			Detected
21969		H	74	-74	Peak			No Emission
21969		H	54	-54	Avg			Detected
24410		H	74	-74	Peak			No Emission
24410		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	92.06	V	114	-21.94	Peak	1.13	150	
2470	90.52	V	94	-3.48	Avg	1.13	150	
4940	56.46	V	74	-17.54	Peak	1.15	150	
4940	52.14	V	54	-1.86	Avg	1.15	150	
7410	57.21	V	74	-16.79	Peak	1.16	150	
7410	50.35	V	54	-3.65	Avg	1.16	150	
9880	52.07	V	74	-21.93	Peak	1.16	150	
9880	39.22	V	54	-14.78	Avg	1.16	150	
12350		V	74	-74	Peak			No Emission
12350		V	54	-54	Avg			Detected
14820		V	74	-74	Peak			No Emission
14820		V	54	-54	Avg			Detected
17290		V	74	-74	Peak			No Emission
17290		V	54	-54	Avg			Detected
19760		V	74	-74	Peak			No Emission
19760		V	54	-54	Avg			Detected
22230		V	74	-74	Peak			No Emission
22230		V	54	-54	Avg			Detected
24700		V	74	-74	Peak			No Emission
24700		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	91.26	H	114	-22.74	Peak	1.16	225	
2470	90.27	H	94	-3.73	Avg	1.16	225	
4940	57.54	H	74	-16.46	Peak	1.16	225	
4940	52.76	H	54	-1.24	Avg	1.16	225	
7410	56.75	H	74	-17.25	Peak	1.13	225	
7410	48.15	H	54	-5.85	Avg	1.13	225	
9880	51.51	H	74	-22.49	Peak	1.16	150	
9880	38.72	H	54	-15.28	Avg	1.16	150	
12350		H	74	-74	Peak			No Emission
12350		H	54	-54	Avg			Detected
14820		H	74	-74	Peak			No Emission
14820		H	54	-54	Avg			Detected
17290		H	74	-74	Peak			No Emission
17290		H	54	-54	Avg			Detected
19760		H	74	-74	Peak			No Emission
19760		H	54	-54	Avg			Detected
22230		H	74	-74	Peak			No Emission
22230		H	54	-54	Avg			Detected
24700		H	74	-74	Peak			No Emission
24700		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

Y-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	93.19	V	114	-20.81	Peak	1.13	135	
2470	92.12	V	94	-1.88	Avg	1.13	135	
4940	55.44	V	74	-18.56	Peak	1.16	150	
4940	51.15	V	54	-2.85	Avg	1.16	150	
7410	57.27	V	74	-16.73	Peak	1.15	150	
7410	48.95	V	54	-5.05	Avg	1.15	150	
9880	51.48	V	74	-22.52	Peak	1.16	150	
9880	38.81	V	54	-15.19	Avg	1.16	150	
12350		V	74	-74	Peak			No Emission
12350		V	54	-54	Avg			Detected
14820		V	74	-74	Peak			No Emission
14820		V	54	-54	Avg			Detected
17290		V	74	-74	Peak			No Emission
17290		V	54	-54	Avg			Detected
19760		V	74	-74	Peak			No Emission
19760		V	54	-54	Avg			Detected
22230		V	74	-74	Peak			No Emission
22230		V	54	-54	Avg			Detected
24700		V	74	-74	Peak			No Emission
24700		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Y-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	86.41	H	114	-27.59	Peak	1.13	225	
2470	85.08	H	94	-8.92	Avg	1.13	225	
4940	56.44	H	74	-17.56	Peak	1.18	225	
4940	51.88	H	54	-2.12	Avg	1.18	225	
7410	57.95	H	74	-16.05	Peak	1.18	180	
7410	51.41	H	54	-2.59	Avg	1.18	180	
9880	49.83	H	74	-24.17	Peak	1.19	150	
9880	37.25	H	54	-16.75	Avg	1.19	150	
12350		H	74	-74	Peak			No Emission
12350		H	54	-54	Avg			Detected
14820		H	74	-74	Peak			No Emission
14820		H	54	-54	Avg			Detected
17290		H	74	-74	Peak			No Emission
17290		H	54	-54	Avg			Detected
19760		H	74	-74	Peak			No Emission
19760		H	54	-54	Avg			Detected
22230		H	74	-74	Peak			No Emission
22230		H	54	-54	Avg			Detected
24700		H	74	-74	Peak			No Emission
24700		H	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08

Lab: B

Tested By: Kyle Fujimoto

Z-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	87.41	V	114	-26.59	Peak	1.13	150	
2470	86.35	V	94	-7.65	Avg	1.13	150	
4940	56.07	V	74	-17.93	Peak	1.14	180	
4940	51.96	V	54	-2.04	Avg	1.14	180	
7410	56.07	V	74	-17.93	Peak	1.19	135	
7410	48.91	V	54	-5.09	Avg	1.19	135	
9880	50.51	V	74	-23.49	Peak	1.18	150	
9880	39.94	V	54	-14.06	Avg	1.18	150	
12350		V	74	-74	Peak			No Emission
12350		V	54	-54	Avg			Detected
14820		V	74	-74	Peak			No Emission
14820		V	54	-54	Avg			Detected
17290		V	74	-74	Peak			No Emission
17290		V	54	-54	Avg			Detected
19760		V	74	-74	Peak			No Emission
19760		V	54	-54	Avg			Detected
22230		V	74	-74	Peak			No Emission
22230		V	54	-54	Avg			Detected
24700		V	74	-74	Peak			No Emission
24700		V	54	-54	Avg			Detected

FCC 15.249

SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490

Date: 10/03/08
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	94.08	H	114	-19.92	Peak	1.16	45	
2470	93.22	H	94	-0.78	Avg	1.16	45	
4940	55.64	H	74	-18.36	Peak	1.16	45	
4940	50.48	H	54	-3.52	Avg	1.16	45	
7410	57.47	H	74	-16.53	Peak	1.19	225	
7410	49.63	H	54	-4.37	Avg	1.19	225	
9880	49.67	H	74	-24.33	Peak	1.19	150	
9880	37.21	H	54	-16.79	Avg	1.19	150	
12350		H	74	-74	Peak			No Emission
12350		H	54	-54	Avg			Detected
14820		H	74	-74	Peak			No Emission
14820		H	54	-54	Avg			Detected
17290		H	74	-74	Peak			No Emission
17290		H	54	-54	Avg			Detected
19760		H	74	-74	Peak			No Emission
19760		H	54	-54	Avg			Detected
22230		H	74	-74	Peak			No Emission
22230		H	54	-54	Avg			Detected
24700		H	74	-74	Peak			No Emission
24700		H	54	-54	Avg			Detected

SMK-Link Electronics
RF Receiver with Memory
Model: VP6490

Date: 10/03/08
Lab: B
Tested By: Kyle Fujimoto

Receiver Mode, Digital Portion, and Non-Harmonic Emissions of the Transmitter

[illegible]

BAND EDGES

DATA SHEETS

FCC 15.249

SMK-Link Electronics
RF Receiver with Memory
Model: VP6490

Date: 10/06/08
Lab: B
Tested By: Kyle Fujimoto

**Z-Axis (Worst Case) - Horizontal Polarization (Worst Case)
Low Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2405	94.79	H	114	-19.21	Peak	1.1	45	Fundamental of the Low Channel
2405	93.95	H	94	-0.05	Avg	1.1	45	
2329.29	53.88	H	74	-20.12	Peak	1.1	45	Band Edge of Low Channel
2329.78	41.36	H	54	-12.64	Avg	1.1	45	

FCC 15.249

SMK-Link Electronics
RF Receiver with Memory
Model: VP6490

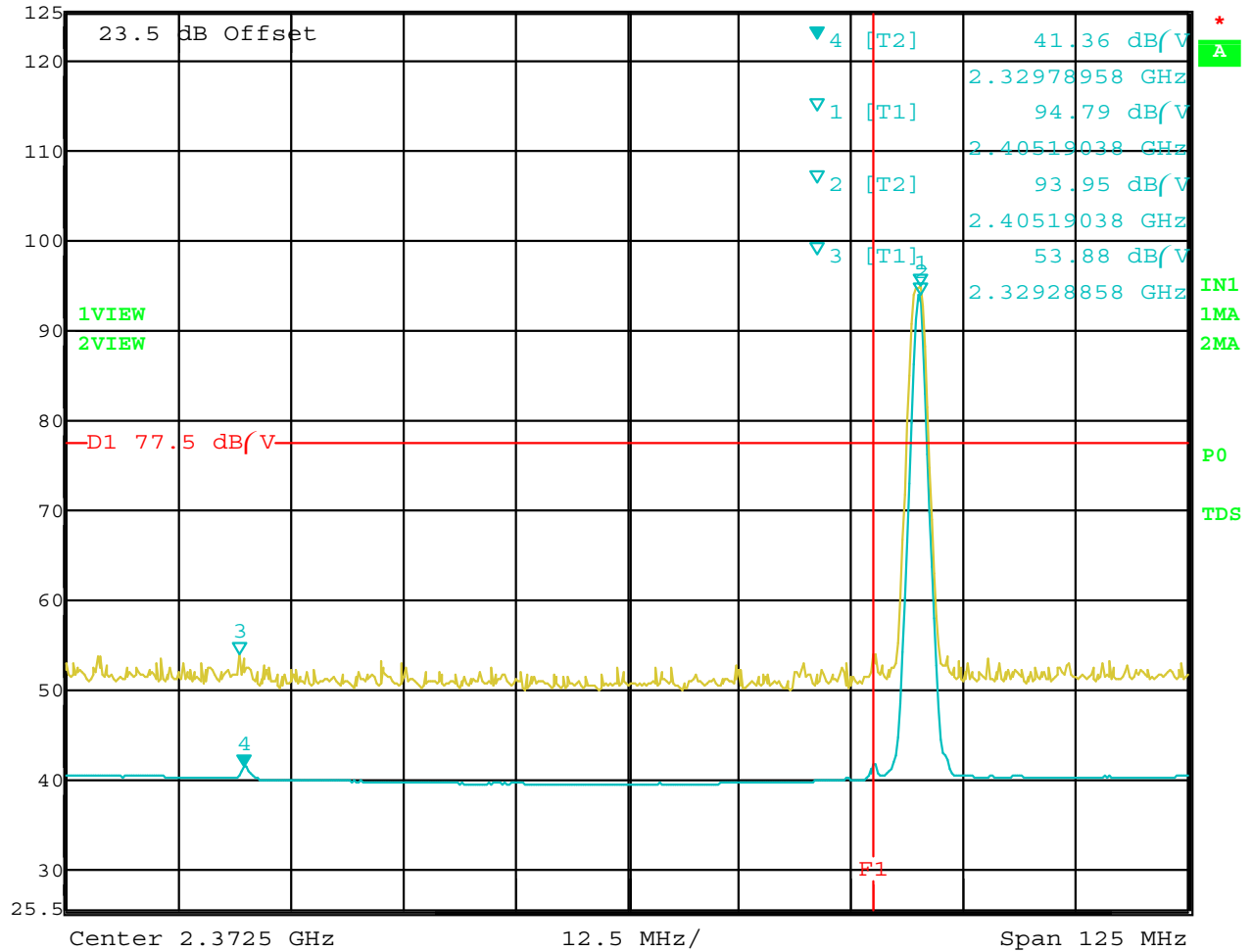
Date: 10/06/08
Lab: B
Tested By: Kyle Fujimoto

**Z-Axis (Worst Case) - Horizontal Polarization (Worst Case)
High Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2470	94.08	H	114	-19.92	Peak	1.16	45	Fundamental of the High Channel
2470	93.22	H	94	-0.78	Avg	1.16	45	
2483.5	42.15	H	74	-31.85	Peak	1.16	45	Band Edge of High Channel
2483.5	30.14	H	54	-23.86	Avg	1.16	45	



Marker 4 [T2] RBW 1 MHz RF Att 10 dB
Ref Lvl 41.36 dB/V VBW 10 Hz
125.5 dB/V 2.32978958 GHz SWT 32 s Unit dB/V

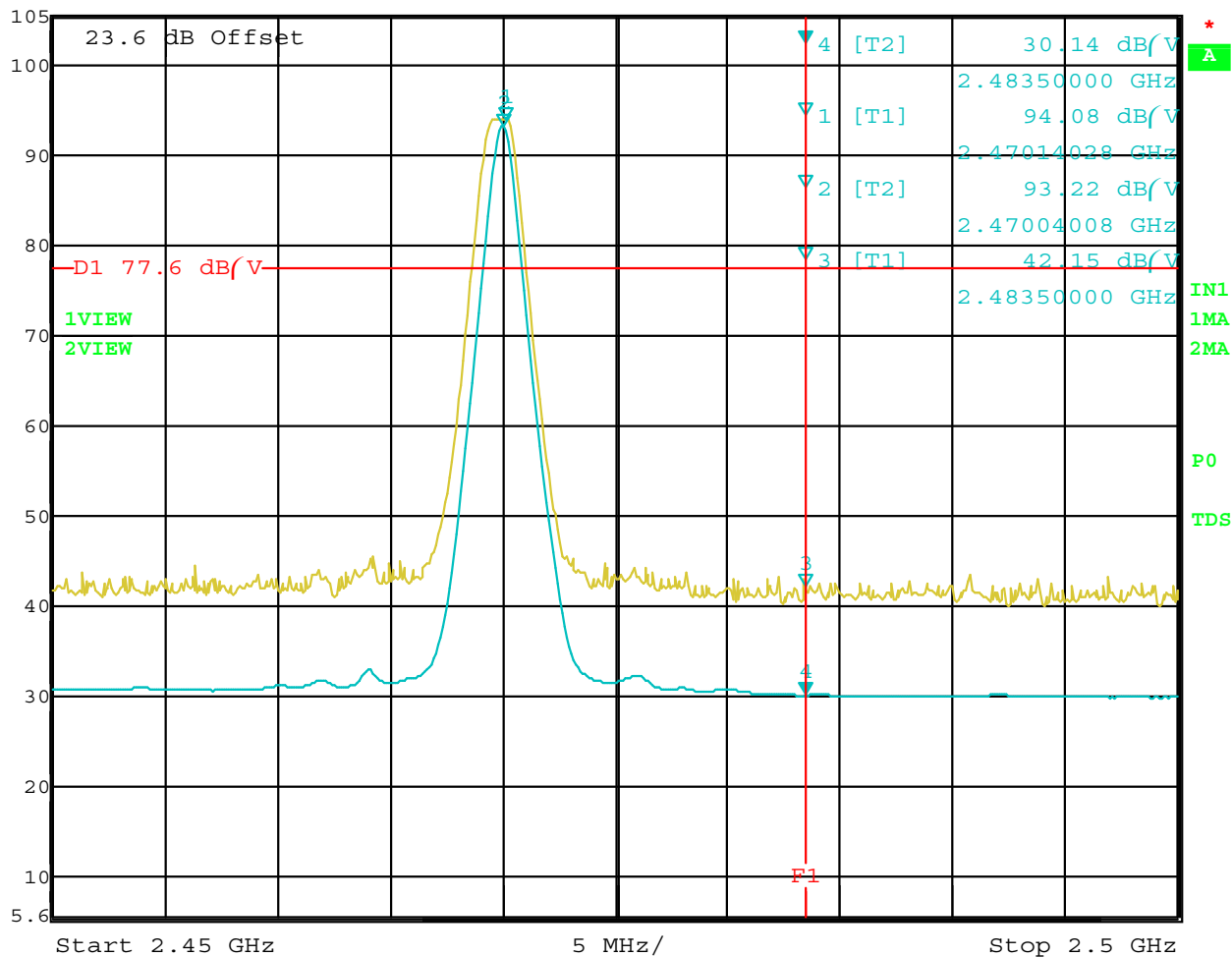


Date: 6.OCT.2008 10:22:04

Band Edge – Low Channel – Z-Axis (Worst Case) – Horizontal Polarization (Worst Case)

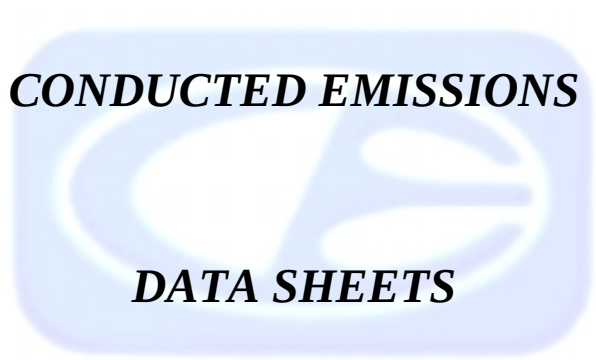


Ref Lvl 105.6 dB/V
Marker 4 [T2] 30.14 dB/V
2.48350000 GHz
RBW 1 MHz
VBW 10 Hz
SWT 12.5 s
RF Att 0 dB
Unit dB/V



Date: 6.OCT.2008 10:24:49

Band Edge – High Channel – Z-Axis (Worst Case) – Horizontal Polarization (Worst Case)

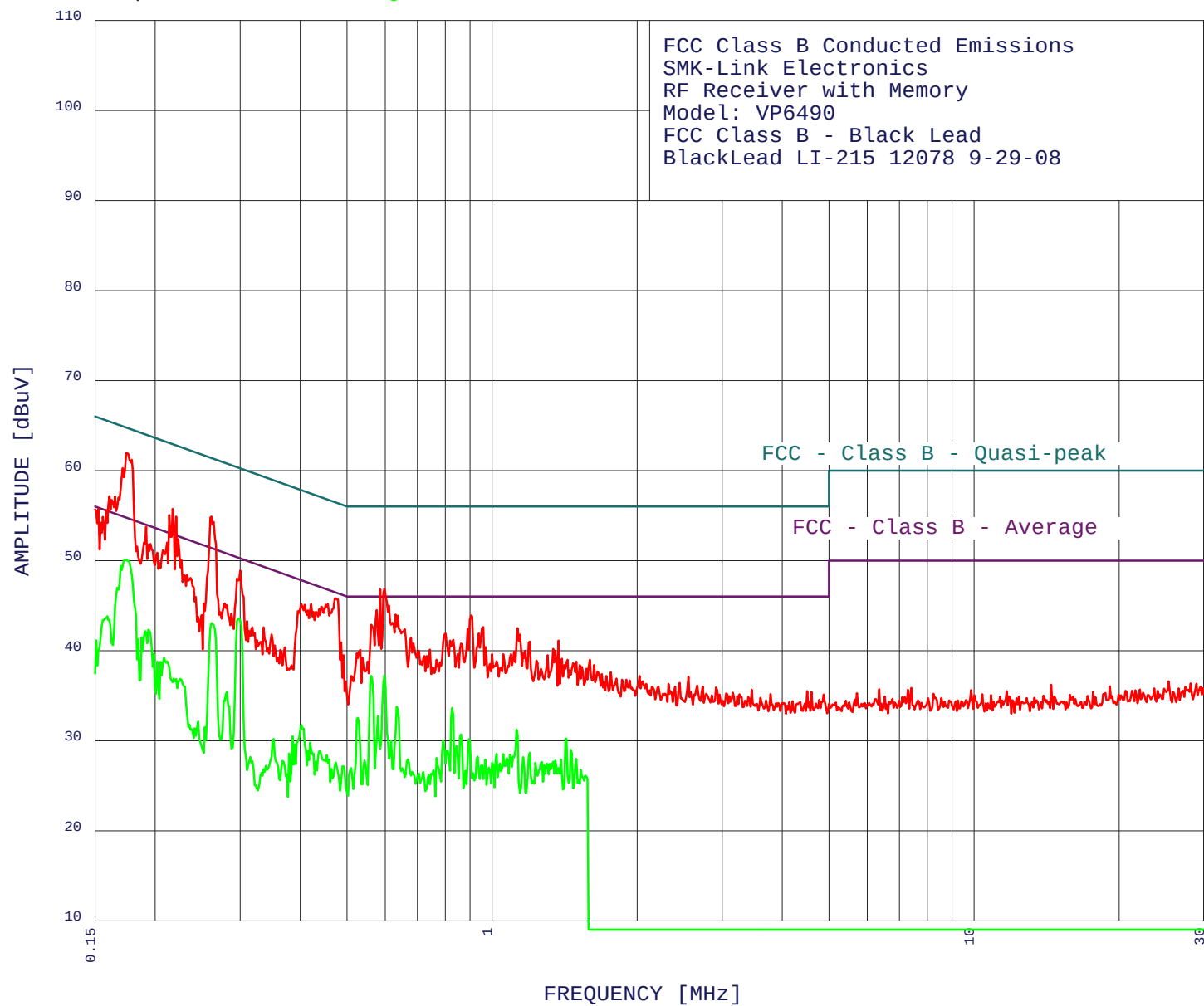


CONDUCTED EMISSIONS

DATA SHEETS

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

10/06/2008 10:36:28





10/06/2008

10:36:28

FCC Class B Conducted Emissions
 SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490
 FCC Class B - Black Lead
 BlackLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

50 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	0.174	61.94	54.77	7.17**
2	0.171	60.26	54.90	5.36**
3	0.262	54.89	51.38	3.52**
4	0.217	55.73	52.91	2.81**
5	0.221	54.90	52.78	2.11**
6	0.214	55.06	53.05	2.01**
7	0.165	57.12	55.20	1.92**
8	0.161	57.16	55.43	1.73**
9	0.598	46.89	46.00	0.89**
10	0.586	46.79	46.00	0.79**
11	0.158	55.61	55.56	0.05**
12	0.152	55.73	55.86	-0.13**
13	0.192	53.77	53.97	-0.20**
14	0.223	52.37	52.70	-0.32**
15	0.474	45.78	46.45	-0.66**
16	0.156	54.86	55.69	-0.83**
17	0.212	51.98	53.14	-1.16**
18	0.300	48.89	50.23	-1.34**
19	0.577	44.49	46.00	-1.51**
20	0.457	45.18	46.76	-1.57**
21	0.154	54.20	55.78	-1.58**
22	0.196	51.84	53.80	-1.96**
23	0.631	43.99	46.00	-2.01**
24	0.904	43.90	46.00	-2.10**
25	0.637	43.89	46.00	-2.11**
26	0.421	45.18	47.42	-2.24**
27	0.402	45.18	47.81	-2.63**
28	0.202	50.88	53.53	-2.65**
29	0.561	42.89	46.00	-3.11**
30	0.958	42.60	46.00	-3.40**
31	1.130	42.50	46.00	-3.50**
32	0.890	42.40	46.00	-3.60**
33	0.233	48.38	52.34	-3.96**
34	0.939	41.90	46.00	-4.10**
35	0.801	41.89	46.00	-4.11**
36	0.679	41.39	46.00	-4.61**
37	0.831	41.19	46.00	-4.81**
38	1.374	41.09	46.00	-4.91**
39	1.197	40.99	46.00	-5.01**
40	0.862	40.80	46.00	-5.20**
41	0.686	40.79	46.00	-5.21**
42	0.486	40.89	46.23	-5.34**
43	0.279	45.25	50.85	-5.60**
44	0.969	40.40	46.00	-5.60**
45	1.338	40.19	46.00	-5.81**
46	0.743	40.09	46.00	-5.91**
47	0.532	40.09	46.00	-5.91**
48	1.172	40.00	46.00	-6.00**
49	1.352	39.99	46.00	-6.01**
50	1.112	39.90	46.00	-6.10**



10/06/2008

10:36:28

FCC Class B Conducted Emissions
 SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490
 FCC Class B - Black Lead
 BlackLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

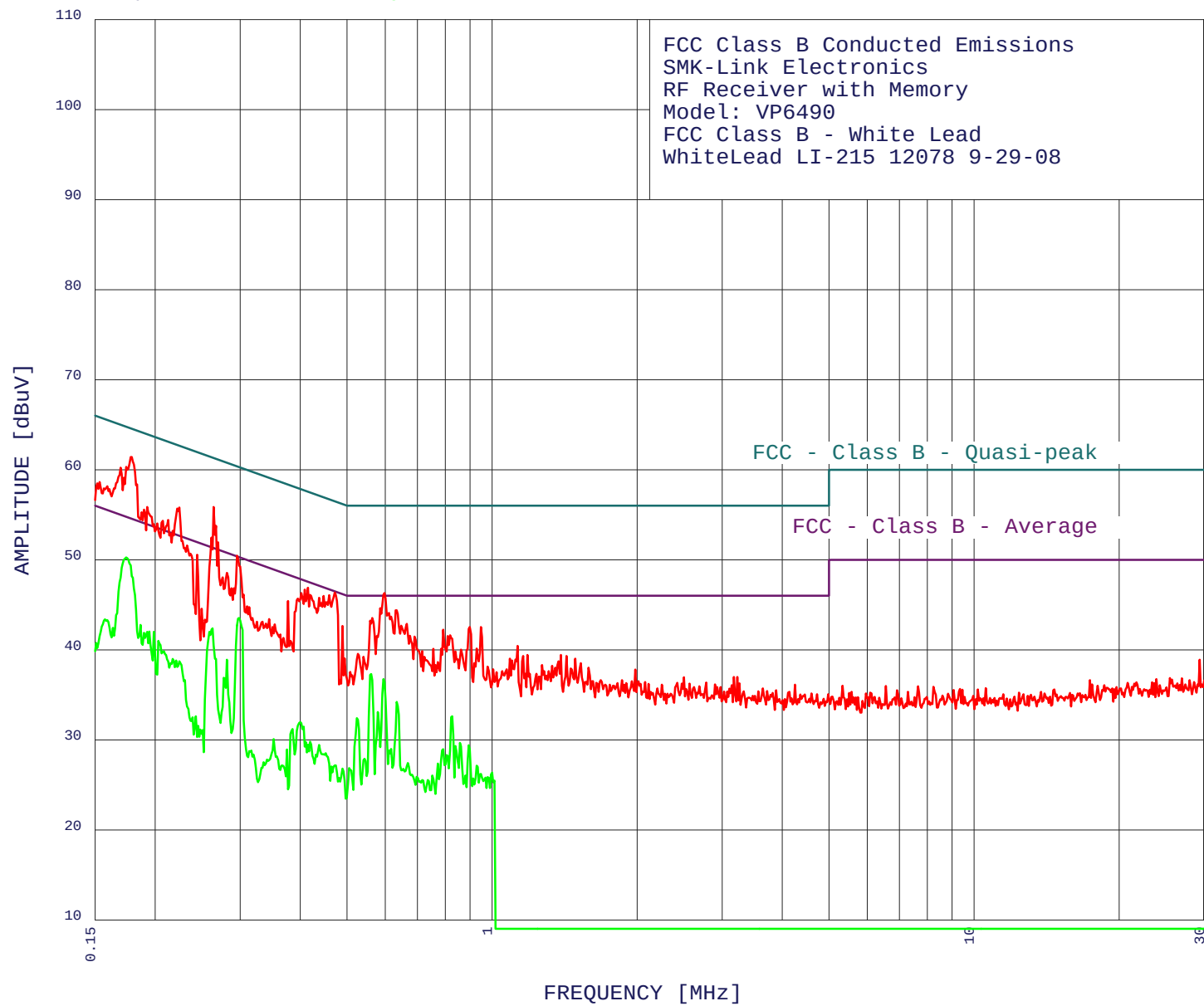
 50 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.174	50.11	54.77	-4.66
2	0.170	49.40	54.98	-5.59
3	0.299	43.59	50.28	-6.69
4	0.167	46.96	55.11	-8.15
5	0.262	43.06	51.38	-8.31
6	0.598	37.25	46.00	-8.75
7	0.561	37.19	46.00	-8.81
8	0.194	42.32	53.88	-11.57
9	0.159	43.83	55.51	-11.69
10	0.190	42.17	54.01	-11.84
11	0.161	43.41	55.43	-12.02
12	0.634	33.75	46.00	-12.25
13	0.826	33.64	46.00	-12.36
14	0.187	41.46	54.15	-12.69
15	0.184	41.24	54.28	-13.04
16	0.580	32.69	46.00	-13.31
17	0.527	32.51	46.00	-13.49
18	0.199	39.61	53.67	-14.06
19	0.208	39.20	53.27	-14.07
20	0.212	38.80	53.14	-14.34
21	0.205	38.74	53.40	-14.66
22	0.202	38.79	53.53	-14.74
23	1.124	31.23	46.00	-14.77
24	0.151	41.15	55.95	-14.80
25	0.862	30.69	46.00	-15.31
26	0.282	35.41	50.76	-15.35
27	0.226	36.87	52.61	-15.74
28	1.419	30.22	46.00	-15.78
29	0.895	30.16	46.00	-15.84
30	0.221	36.84	52.78	-15.95
31	0.219	36.89	52.87	-15.98
32	0.792	30.01	46.00	-15.99
33	0.618	29.98	46.00	-16.02
34	0.402	31.77	47.81	-16.04
35	0.223	36.61	52.70	-16.08
36	0.406	31.33	47.72	-16.39
37	0.277	34.47	50.89	-16.42
38	0.844	29.40	46.00	-16.60
39	0.285	33.84	50.67	-16.83
40	1.456	28.98	46.00	-17.02
41	0.809	28.82	46.00	-17.18
42	1.197	28.66	46.00	-17.34
43	1.021	28.54	46.00	-17.46
44	1.055	28.50	46.00	-17.50
45	1.089	28.46	46.00	-17.54
46	0.419	29.79	47.46	-17.67
47	0.385	30.48	48.16	-17.69
48	1.106	28.25	46.00	-17.75
49	0.934	28.21	46.00	-17.79
50	1.160	28.16	46.00	-17.84

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

10/06/2008 10:46:28





10/06/2008

10:46:28

FCC Class B Conducted Emissions
 SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490
 FCC Class B - White Lead
 WhiteLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

50 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	0.178	61.39	54.59	6.80**
2	0.170	60.21	54.98	5.22**
3	0.265	55.85	51.29	4.56**
4	0.224	55.79	52.65	3.13**
5	0.153	58.63	55.82	2.81**
6	0.193	55.86	53.93	1.93**
7	0.189	55.57	54.06	1.51**
8	0.213	54.41	53.09	1.32**
9	0.262	52.45	51.38	1.07**
10	0.207	54.33	53.31	1.01**
11	0.270	51.95	51.11	0.84**
12	0.598	46.30	46.00	0.30**
13	0.296	50.44	50.36	0.07**
14	0.471	46.36	46.49	-0.13**
15	0.459	46.06	46.71	-0.65**
16	0.415	46.88	47.55	-0.66**
17	0.447	45.97	46.93	-0.96**
18	0.409	46.69	47.68	-0.99**
19	0.438	45.77	47.11	-1.33**
20	0.419	46.08	47.46	-1.38**
21	0.244	50.56	51.95	-1.39**
22	0.402	46.29	47.81	-1.52**
23	0.631	44.38	46.00	-1.62**
24	0.282	48.54	50.76	-2.22**
25	0.564	43.51	46.00	-2.49**
26	0.377	45.40	48.34	-2.94**
27	0.665	42.86	46.00	-3.14**
28	0.948	42.52	46.00	-3.48**
29	0.899	42.52	46.00	-3.48**
30	0.489	42.65	46.18	-3.53**
31	0.792	42.21	46.00	-3.79**
32	0.818	41.62	46.00	-4.38**
33	0.690	41.45	46.00	-4.55**
34	1.130	40.42	46.00	-5.58
35	0.345	43.41	49.09	-5.68**
36	0.929	40.12	46.00	-5.88**
37	0.755	40.12	46.00	-5.88**
38	0.862	40.02	46.00	-5.98**
39	0.354	42.81	48.87	-6.06**
40	0.716	39.84	46.00	-6.16**
41	0.839	39.82	46.00	-6.18**
42	0.527	39.53	46.00	-6.47**
43	1.184	39.42	46.00	-6.58
44	1.389	39.42	46.00	-6.58
45	1.160	39.32	46.00	-6.68
46	1.426	39.32	46.00	-6.68
47	0.724	39.23	46.00	-6.77**
48	0.541	39.22	46.00	-6.78**
49	1.089	39.02	46.00	-6.98
50	1.488	39.01	46.00	-6.99



FCC Class B Conducted Emissions
 SMK-Link Electronics
 RF Receiver with Memory
 Model: VP6490
 FCC Class B - White Lead
 WhiteLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

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

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.174	50.25	54.77	-4.52
2	0.299	43.52	50.28	-6.76
3	0.561	37.31	46.00	-8.69
4	0.263	42.38	51.33	-8.95
5	0.595	36.75	46.00	-9.25
6	0.259	42.00	51.47	-9.46
7	0.186	42.75	54.19	-11.44
8	0.199	42.00	53.67	-11.67
9	0.634	34.20	46.00	-11.80
10	0.195	42.03	53.84	-11.81
11	0.282	38.89	50.76	-11.87
12	0.193	42.00	53.93	-11.93
13	0.189	41.89	54.06	-12.17
14	0.157	43.38	55.60	-12.22
15	0.159	43.28	55.51	-12.23
16	0.203	40.98	53.49	-12.51
17	0.163	42.43	55.29	-12.86
18	0.580	33.08	46.00	-12.92
19	0.826	32.62	46.00	-13.38
20	0.208	39.82	53.27	-13.44
21	0.524	32.41	46.00	-13.59
22	0.217	38.98	52.91	-13.93
23	0.224	38.71	52.65	-13.95
24	0.221	38.79	52.78	-13.99
25	0.277	36.87	50.89	-14.02
26	0.215	38.51	53.00	-14.50
27	0.151	40.74	55.95	-15.21
28	0.230	36.63	52.43	-15.80
29	0.400	31.95	47.86	-15.91
30	0.406	31.45	47.72	-16.28
31	0.858	29.65	46.00	-16.35
32	0.895	29.39	46.00	-16.61
33	0.839	29.32	46.00	-16.68
34	0.385	31.21	48.16	-16.96
35	0.618	29.00	46.00	-17.00
36	0.792	28.96	46.00	-17.04
37	0.611	28.80	46.00	-17.20
38	0.438	29.43	47.11	-17.67
39	0.419	29.77	47.46	-17.69
40	0.805	28.30	46.00	-17.70
41	0.411	29.74	47.63	-17.89
42	0.415	29.44	47.55	-18.10
43	0.544	27.89	46.00	-18.11
44	0.452	28.50	46.85	-18.35
45	0.669	27.41	46.00	-18.59
46	0.771	27.36	46.00	-18.64
47	0.352	30.06	48.91	-18.85
48	0.929	27.13	46.00	-18.87
49	0.431	28.34	47.24	-18.90
50	0.505	26.85	46.00	-19.15