Shearwater Digital Innovations

SDIDD-101

FCC CFR47 Part 15
Report of Measurements

Revision 1.0

February 15, 2002

Approvals		
Written By	**Craig Long**	**Date**
Checked by	**Robert Stirling, P. Eng.**	**Date**

Protocol Labs, Abbottsford B.C., Canada
FCC Registration Number 96437
Industry Canada Registration Number IC3384

Index of Submitted Measured Data

CE Mark EMC Directive Compliance Test Report
FCC CFR47 PART 15 Report of Measurements

Testing Details

TEST DATE: December 20, 2001

TESTED BY: Rob Stirling/ Craig Long

TEST CONDITIONS: Temperature and Humidity: 18 C, 35%

TEST VOLTAGE: 3 Vdc

Test Facilities

Protocol Labs
28945 McTavish Rd.
Abbotsford B.C., Canada, V4X 2E7

FCC Registration Number 96437
Industry Canada Registration Number IC3384

Test Equipment List:

Device	Model Number	Serial No.	Last Cal.	Next Cal
Antenna	EMCO 3141 Bilog Antenna	1127	09/13/01	09/13/02
Horn	EMCO 31405 Horn Antenna	2024	09/10/01	09/10/02
Amp	Hewlett Packard 8349A	2512A00824	09/13/01	09/13/02
LISN	Solar 8012-50-R-24-BNC	863092	02/20/01	02/20/02
Spectrum Analyzer	Hewlett Packard 8566B	2241A02102	12/28/00	12/28/01
RF-Preselector	Hewlett Packard 85685A	3107A01222	12/28/00	12/28/01
Quasi-Peak Adapter	Hewlett Packard 85650A	2043A00240	12/28/00	12/28/01
Tower	Rhientech Labs	Custom		
Turntable	Protocol	Custom		

Equipment Under Test:

EUT Door Dowel RF Security Monitor

Manufacturer	Shearwater Digital Innovations
Model Number	SDIDD-101
Serial Number	ENG001

RADIATED SETUP: The equipment was set up in an open field test site. All harmonic measurements were made at a 3-meter open field test site. Peak spurious Emissions in both horizontal and vertical polarization's were measured based on continuous modulated signal while rotating the EUT on a turntable to maximize the emissions signal strength and the results recorded on the attached tables and plots. Average emissions are based on actual duty cycles pulsed and modulated signal as in Appendix F. Refer to Photographs in Appendix A.

CABLING:

Cable	Connector	Load/Termination?
N/A	N/A	N/A

TEST FIRMWARE: Continuous Modulated output.

TEST DATA: Refer to Appendix B for Graphs and Test Results.

CONCLUSION: The EUT complies with the requirements of FCC Part 15.

Appendix B: Measurement Data:

Spurious Emissions

Harmonics of 319.500 MHz

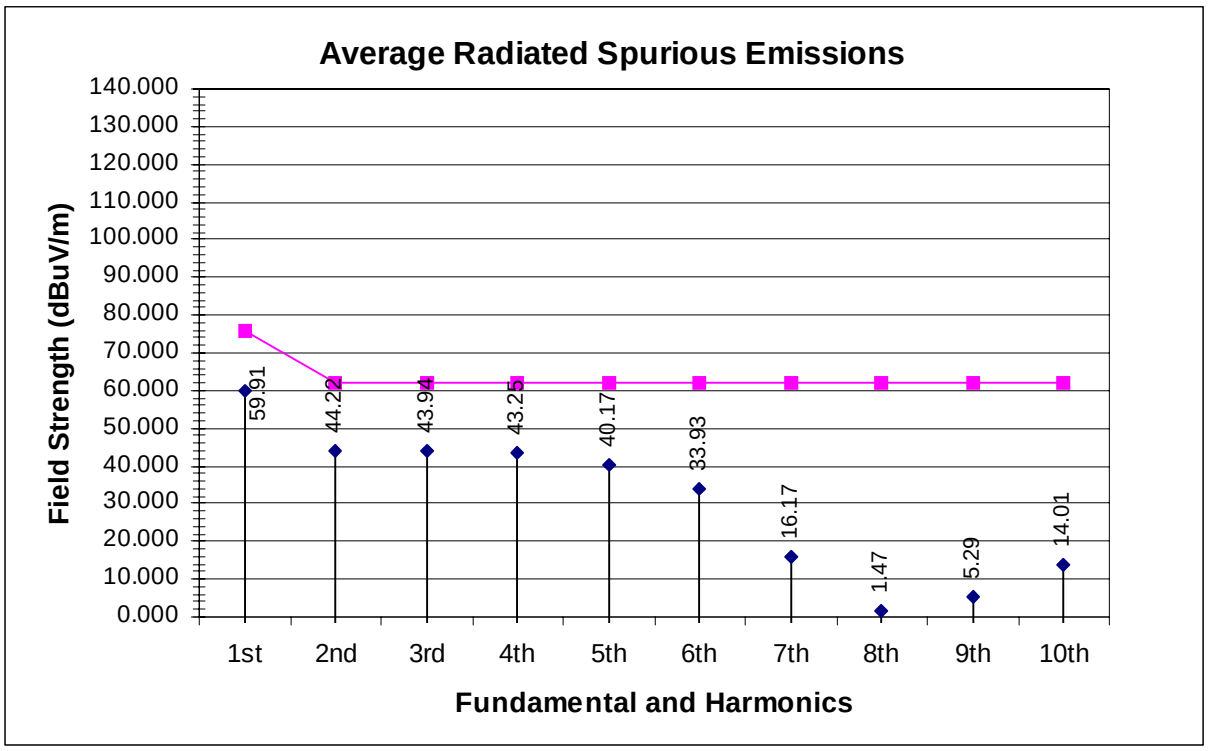

Figure 1 319.5 MHz Harmonics

Harmonic	Frequency (MHz) +/- 0.005	Polarity	Uncor Pk (dBuV) +/- 0.05	Tot Corr (dB) +/- 0.05	Peak (dBuV/m) +/- 0.05	Average (dBuV/m) +/- 0.05	Limit (dBuV/m) +/- 0.05	Delta Lim (dB) +/- 0.05
1st	319.50	V	66.7	3.2	69.9	59.9	75.9	-15.9
2nd	639.00	V	39.5	14.7	54.2	44.2	61.9	-17.7
3rd	958.50	V	34.8	19.1	53.9	43.9	61.9	-18.0
4th	127.80	V	31	22.3	53.3	43.3	61.9	-18.6
5th	1597.50	V	25.3	24.9	50.2	40.2	61.9	-21.7
6th	1917.00	V	15.8	28.1	43.9	33.9	61.9	-28.0
7th	2236.50	V	32.3	-6.1	26.2	16.2	61.9	-45.7
8th	2556.00	V	15	-3.5	11.5	1.5	61.9	-60.4
9th	2875.50	V	16	-0.7	15.3	5.3	61.9	-56.6
10th	3195.00	H	22.1	1.9	24.0	14.0	61.9	-47.9

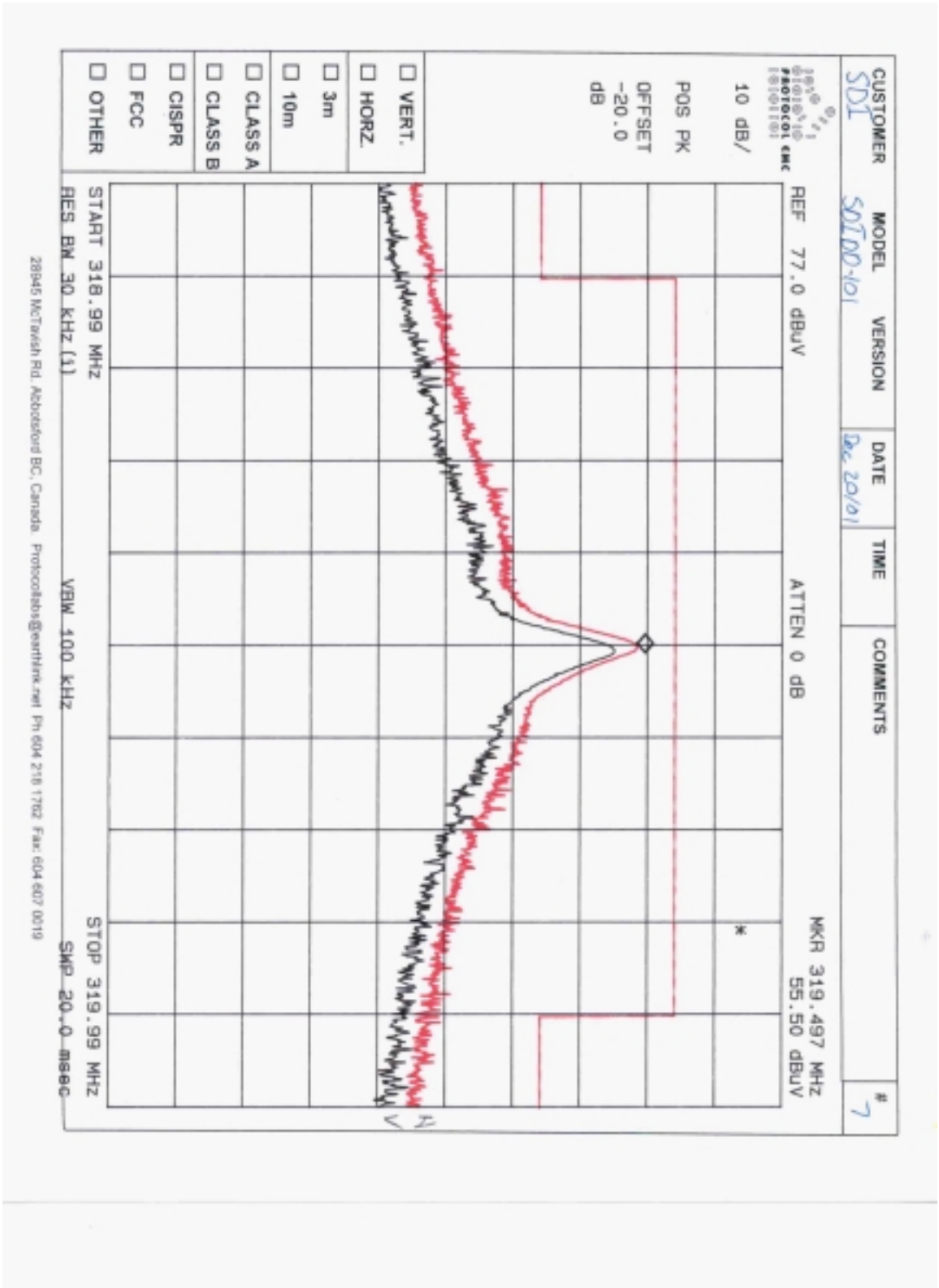

Figure 2 Occupied Bandwidth