

# Shearwater Digital Innovations

## ***SDIWD-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, Abbotsford B.C., Canada  
FCC Registration Number 96437  
Industry Canada Registration Number IC3384

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# **CE Mark EMC Directive Compliance Test Report**

## **FCC CFR47 PART 15 Report of Measurements**

### **Testing Details**

TEST DATE: December 21, 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 Biog 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 Window Dowel RF Security Monitor

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

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 polarizations 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:

Shearwater Digital Innovations  
 SDIWD-101

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

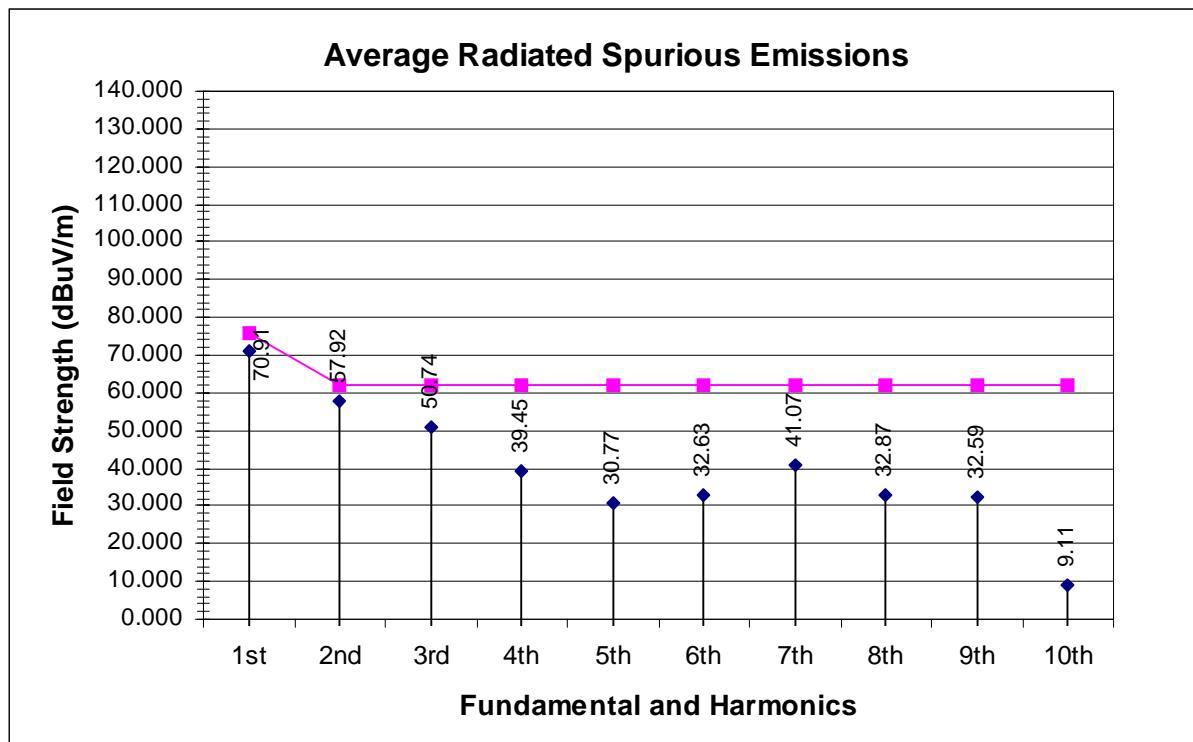


Figure 1 319.5 MHz Harmonics

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	77.7	3.2	80.9	70.9	75.9	-5.0
2nd	639.00	V	53.2	14.7	67.9	57.9	61.9	-4.0
3rd	958.50	V	41.6	19.1	60.7	50.7	61.9	-11.2
4th	1278.00	V	27.2	22.3	49.5	39.5	61.9	-22.4
5th	1597.50	V	15.9	24.9	40.8	30.8	61.9	-31.1
6th	1917.00	V	14.5	28.1	42.6	32.6	61.9	-29.3
7th	2236.50	V	57.2	-6.1	51.1	41.1	61.9	-20.8
8th	2556.00	V	46.4	-3.5	42.9	32.9	61.9	-29.0
9th	2875.50	H	43.3	-0.7	42.6	32.6	61.9	-29.3
10th	3195.00	V	17.2	1.9	19.1	9.1	61.9	-52.8

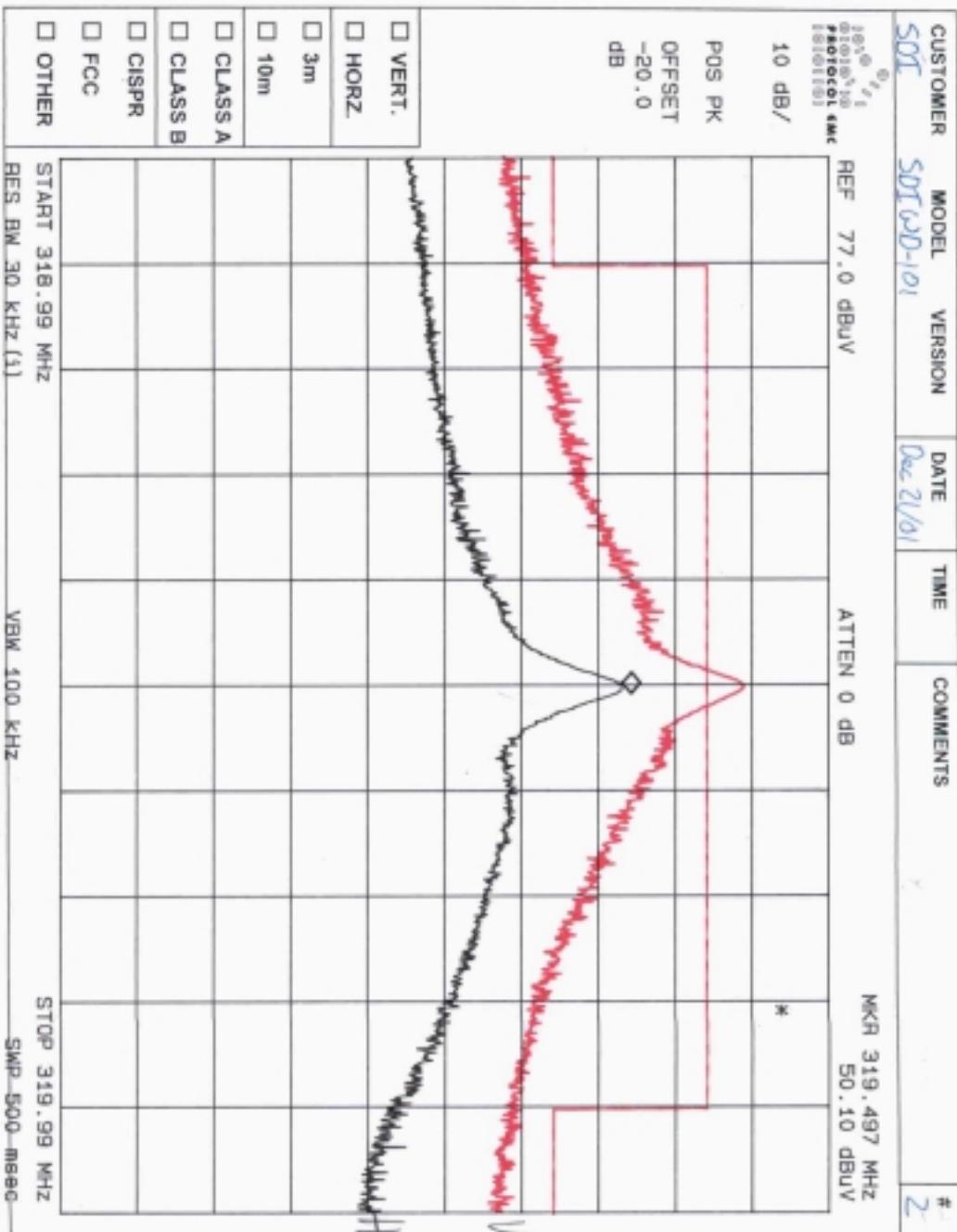


Figure 2 Occupied Bandwidth