

FCC PART 15, SUBPART B and C
TEST REPORT

for

TELEMETRY TRANSMITTER

MODEL: 90305

Prepared for

SENSOR DEVELOPMENTS, INC.
1050 WEST SILVER BELL ROAD
ORION, MICHIGAN 48359-1327

Prepared by: 

KYLE FUJIMOTO

Approved by: 

MICHAEL CHRISTENSEN

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114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: OCTOBER 17, 2008

	REPORT BODY	APPENDICES					TOTAL
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1	Plot Map And Layout of 3 Meter Radiated Site

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: Telemetry Transmitter
Model: 90305
S/N: N/A

Product Description: See Expository Statement

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

Customer: Sensor Developments, Inc.
1050 West Silver Bell Road
Orion, Michigan 48359-1327

Test Date: October 17, 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

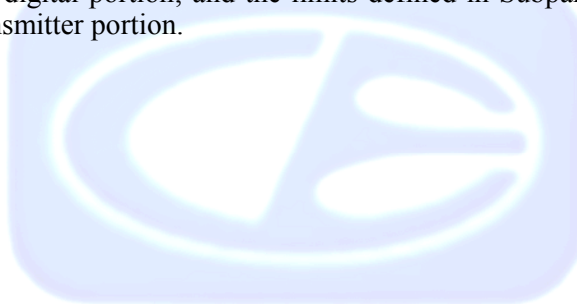
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Radiated RF Emissions, 10 kHz – 9300 MHz (Transmitter Portion)	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.249.
2	Radiated RF Emissions, 10 kHz – 9300 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 Telemetry Transmitter, Model: 90305. 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, 15.209, 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

Sensor Developments, Inc.

Rick West Engineer

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer
Michael Christensen Lab Manager, Brea Division

2.4 Date Test Sample was Received

The test sample was received prior to September 18, 2008.

2.5 Disposition of the Test Sample

The sample has not yet been returned to Sensor Developments, Inc. as of October 17, 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
INC.	Incorporated

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 Telemetry Transmitter, Model: 90305 (EUT) was connected to a strain gauge sensor and a 9-volt battery. The EUT was tested in three orthogonal axis and tested for the low, middle, and high channels. The EUT was transmitting on a continuous basis. The antenna is connected to the EUT's PCB via a reverse SMA connector.

The final radiated was taken in the mode above. The cables were moved to maximize the emissions. All initial investigations were performed with the EMI Receiver in manual mode scanning the frequency range continuously. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 1-meter unshielded cable connecting the strain gauge sensor to the EUT. The cable is hard wired at each end. This cable was bundled to a length of 40 centimeters.

Cable 2 This is a 1-meter unshielded cable connecting the 9-volt battery to the EUT. The cable has a 9-volt battery connector at the 9-volt battery end and is hard wired into the EUT.



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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
TELEMETRY TRANSMITTER (EUT)	SENSOR DEVELOPMENTS, INC.	90305	N/A	NF690305B
STRAIN GAUGE SENSOR	SENSOR DEVELOPMENTS, INC.	N/A	N/A	N/A

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	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 24, 2007	Sept. 24, 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

6. TEST SITE DESCRIPTION

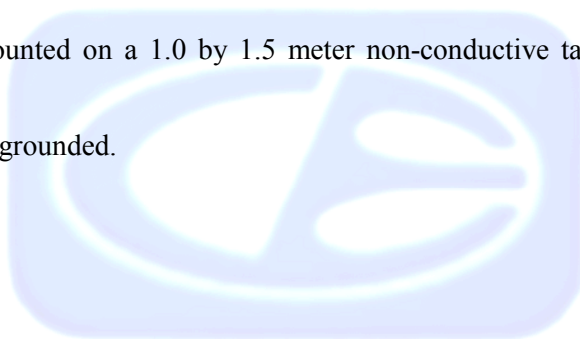
6.1 Test Facility Description

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 not grounded.



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 Radiated Emissions (Spurious and Harmonics) Test

The EMI Receiver was used as a measuring meter. 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 EMI Receiver analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The 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 EMI Receiver 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 9.3 GHz	1 MHz	Horn Antenna

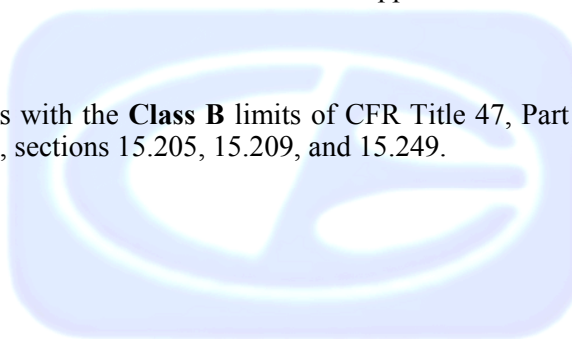
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. 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.

7.1.2 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 Telemetry Transmitter, Model: 90305 (EUT) 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, 15.209, 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

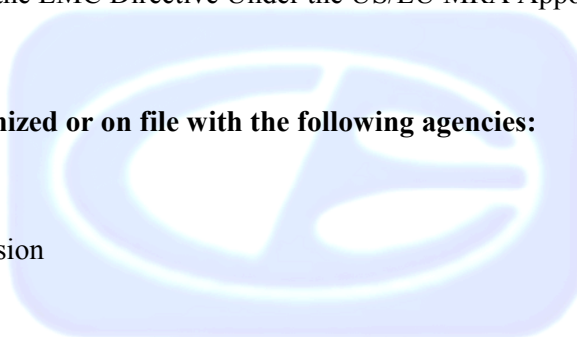
Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

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



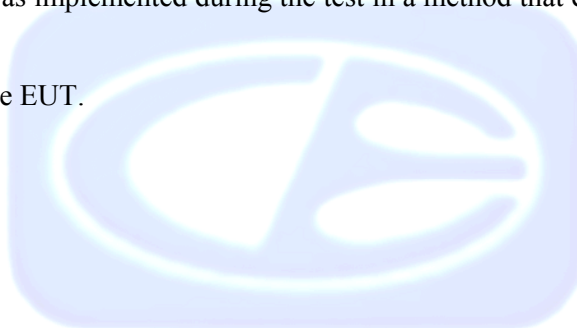
APPENDIX B***MODIFICATIONS TO THE EUT***

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***

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Telemetry Transmitter
Model: 90305
S/N: N/A

There were no additional models covered under this report.

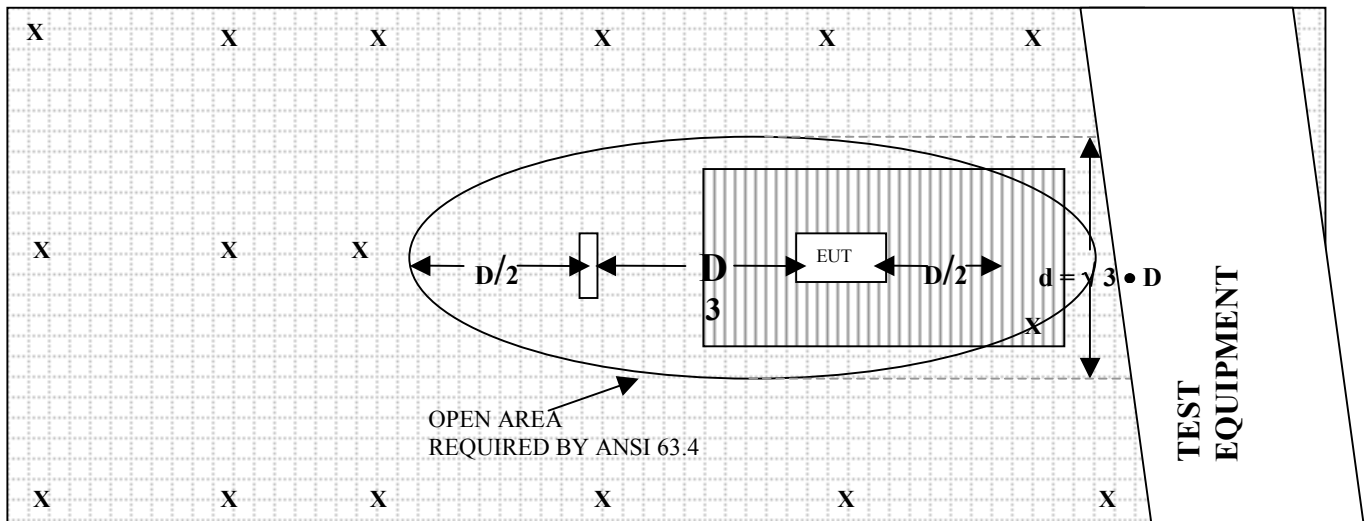


APPENDIX D***DIAGRAMS, CHARTS, AND PHOTOS***

FIGURE 1: PLOT MAP AND LAYOUT OF 3 METER RADIATED SITE

OPEN LAND > 15 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X	= GROUND RODS		= GROUND SCREEN
D	= TEST DISTANCE (meters)		= WOOD COVER

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	12.7	700	21.2
400	15.3	800	21.7
500	17.4	900	21.8
600	19.0	1000	22.8

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



FRONT VIEW

SENSOR DEVELOPMENTS, INC.
TELEMETRY TRANSMITTER
MODEL: 90305

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

SENSOR DEVELOPMENTS, INC.
TELEMETRY TRANSMITTER
MODEL: 90305

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

APPENDIX E

DATA SHEETS

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - X-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	81.67	V	94	-12.33	Peak	1	90	
1806.74	43.69	V	74	-30.31	Peak	2.17	135	
1806.74	40.41	V	54	-13.59	Avg	2.17	135	
2710.11	46.17	V	74	-27.83	Peak	1.82	135	
2710.11	38.26	V	54	-15.74	Avg	1.82	135	
3613.48	50.05	V	74	-23.95	Peak	2.04	135	
3613.48	46.96	V	54	-7.04	Avg	2.04	135	
4516.85	43.64	V	74	-30.36	Peak	2.42	135	
4516.85	32.76	V	54	-21.24	Avg	2.42	135	
5420.22	42.49	V	74	-31.51	Peak	2.41	135	
5420.22	30.39	V	54	-23.61	Avg	2.41	135	
6323.59		V	74	-74	Peak			No Emission
6323.59		V	54	-54	Avg			Detected
7226.96		V	74	-74	Peak			No Emission
7226.96		V	54	-54	Avg			Detected
8130.33		V	74	-74	Peak			No Emission
8130.33		V	54	-54	Avg			Detected
9033.7		V	74	-74	Peak			No Emission
9033.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - X-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	81.63	H	94	-12.37	Peak	1	90	
1806.74	42.35	H	74	-31.65	Peak	1.08	180	
1806.74	38.98	H	54	-15.02	Avg	1.08	180	
2710.11	51.25	H	74	-22.75	Peak	2.74	180	
2710.11	49.82	H	54	-4.18	Avg	2.74	180	
3613.48	46.74	H	74	-27.26	Peak	1.21	180	
3613.48	44.28	H	54	-9.72	Avg	1.21	180	
4516.85	43.14	H	74	-30.86	Peak	2.13	180	
4516.85	30.08	H	54	-23.92	Avg	2.13	180	
5420.22		H	74	-74	Peak			No Emission
5420.22		H	54	-54	Avg			Detected
6323.59		H	74	-74	Peak			No Emission
6323.59		H	54	-54	Avg			Detected
7226.96		H	74	-74	Peak			No Emission
7226.96		H	54	-54	Avg			Detected
8130.33		H	74	-74	Peak			No Emission
8130.33		H	54	-54	Avg			Detected
9033.7		H	74	-74	Peak			No Emission
9033.7		H	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Middle Channel - X-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	78.61	V	94	-15.39	Peak	1	90	
1824.74	42.58	V	74	-31.42	Peak	2.49	135	
1824.74	38.01	V	54	-15.99	Avg	2.49	135	
2737.11	46.45	V	74	-27.55	Peak	2.49	135	
2737.11	42.66	V	54	-11.34	Avg	2.49	135	
3649.48	48.15	V	74	-25.85	Peak	2.15	125	
3649.48	43.21	V	54	-10.79	Avg	2.15	125	
4561.85	43.99	V	74	-30.01	Peak	2.15	125	
4561.85	30.38	V	54	-23.62	Avg	2.15	125	
5474.22		V	74	-74	Peak			No Emission
5474.22		V	54	-54	Avg			Detected
6386.59		V	74	-74	Peak			No Emission
6386.59		V	54	-54	Avg			Detected
7298.96		V	74	-74	Peak			No Emission
7298.96		V	54	-54	Avg			Detected
8211.33		V	74	-74	Peak			No Emission
8211.33		V	54	-54	Avg			Detected
9123.7		V	74	-74	Peak			No Emission
9123.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

**Middle Channel - X-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	83.58	H	94	-10.42	Peak	1	90	
1824.74	44.62	H	74	-29.38	Peak	2.16	135	
1824.74	40.79	H	54	-13.21	Avg	2.16	135	
2737.11	51.99	H	74	-22.01	Peak	2.44	180	
2737.11	49.58	H	54	-4.42	Avg	2.44	180	
3649.48	51.26	H	74	-22.74	Peak	1.92	135	
3649.48	49.58	H	54	-4.42	Avg	1.92	135	
4561.85	44.22	H	74	-29.78	Peak	1.92	135	
4561.85	29.69	H	54	-24.31	Avg	1.92	135	
5474.22		H	74	-74	Peak			No Emission
5474.22		H	54	-54	Avg			Detected
6386.59		H	74	-74	Peak			No Emission
6386.59		H	54	-54	Avg			Detected
7298.96		H	74	-74	Peak			No Emission
7298.96		H	54	-54	Avg			Detected
8211.33		H	74	-74	Peak			No Emission
8211.33		H	54	-54	Avg			Detected
9123.7		H	74	-74	Peak			No Emission
9123.7		H	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

High Channel - X-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	80.02	V	94	-13.98	Peak	1	90	
1842.74	45.07	V	74	-28.93	Peak	2.45	180	
1842.74	41.63	V	54	-12.37	Avg	2.45	180	
2764.11	47.78	V	74	-26.22	Peak	1.08	135	
2764.11	44.27	V	54	-9.73	Avg	1.08	135	
3685.48	48.86	V	74	-25.14	Peak	1.19	180	
3685.48	44.67	V	54	-9.33	Avg	1.19	180	
4606.85	43.05	V	74	-30.95	Peak	2.36	150	
4606.85	30.99	V	54	-23.01	Avg	2.36	150	
5528.22		V	74	-74	Peak			No Emission
5528.22		V	54	-54	Avg			Detected
6449.59		V	74	-74	Peak			No Emission
6449.59		V	54	-54	Avg			Detected
7370.96		V	74	-74	Peak			No Emission
7370.96		V	54	-54	Avg			Detected
8292.33		V	74	-74	Peak			No Emission
8292.33		V	54	-54	Avg			Detected
9213.7		V	74	-74	Peak			No Emission
9213.7		V	54	-54	Avg			Detected

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Sensor Developments, Inc.
Telemetry Transmitter
Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

**High Channel - X-Axis
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	84.72	H	94	-9.28	Peak	1.5	90	
1842.74	43.58	H	74	-30.42	Peak	1.79	135	
1842.74	41.69	H	54	-12.31	Avg	1.79	135	
2764.11	45.99	H	74	-28.01	Peak	2.21	135	
2764.11	44.11	H	54	-9.89	Avg	2.21	135	
3685.48	51.26	H	74	-22.74	Peak	2.13	135	
3685.48	47.85	H	54	-6.15	Avg	2.13	135	
4606.85	43.92	H	74	-30.08	Peak	2.69	135	
4606.85	31.01	H	54	-22.99	Avg	2.69	135	
5528.22		H	74	-74	Peak			No Emission
5528.22		H	54	-54	Avg			Detected
6449.59		H	74	-74	Peak			No Emission
6449.59		H	54	-54	Avg			Detected
7370.96		H	74	-74	Peak			No Emission
7370.96		H	54	-54	Avg			Detected
8292.33		H	74	-74	Peak			No Emission
8292.33		H	54	-54	Avg			Detected
9213.7		H	74	-74	Peak			No Emission
9213.7		H	54	-54	Avg			Detected

Sensor Developments, Inc.
Telemetry Transmitter
Model: 90305

Date: 10/17/08
Lab: B
Tested By: Kyle Fujimoto

Digital Portion - 10 kHz to 9300 MHz
Non - Harmonic Emissions - 10 kHz to 9300 MHz

[illegible]

FCC 15.249

Sensor Developments, Inc.
 Telemetry Trasnmmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	85.77	V	94	-8.23	Peak	1	90	
1806.74	45.21	V	74	-28.79	Peak	1.39	135	
1806.74	42.21	V	54	-11.79	Avg	1.39	135	
2710.11	45.89	V	74	-28.11	Peak	2.36	180	
2710.11	42.35	V	54	-11.65	Avg	2.36	180	
3613.48	46.99	V	74	-27.01	Peak	1.44	90	
3613.48	42.01	V	54	-11.99	Avg	1.44	90	
4516.85	45.41	V	74	-28.59	Peak	2	225	
4516.85	33.69	V	54	-20.31	Avg	2	225	
5420.22		V	74	-74	Peak			No Emission
5420.22		V	54	-54	Avg			Detected
6323.59		V	74	-74	Peak			No Emission
6323.59		V	54	-54	Avg			Detected
7226.96		V	74	-74	Peak			No Emission
7226.96		V	54	-54	Avg			Detected
8130.33		V	74	-74	Peak			No Emission
8130.33		V	54	-54	Avg			Detected
9033.7		V	74	-74	Peak			No Emission
9033.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Trasnmmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	81.36	H	94	-12.64	Peak	1	90	
1806.74	44.37	H	74	-29.63	Peak	2.02	180	
1806.74	38.36	H	54	-15.64	Avg	2.02	180	
2710.11	47.01	H	74	-26.99	Peak	1.06	225	
2710.11	43.93	H	54	-10.07	Avg	1.06	225	
3613.48	47.85	H	74	-26.15	Peak	1.64	135	
3613.48	42.45	H	54	-11.55	Avg	1.64	135	
4516.85	45.39	H	74	-28.61	Peak	1.48	125	
4516.85	32.15	H	54	-21.85	Avg	1.48	125	
5420.22		H	74	-74	Peak			No Emission
5420.22		H	54	-54	Avg			Detected
6323.59		H	74	-74	Peak			No Emission
6323.59		H	54	-54	Avg			Detected
7226.96		H	74	-74	Peak			No Emission
7226.96		H	54	-54	Avg			Detected
8130.33		H	74	-74	Peak			No Emission
8130.33		H	54	-54	Avg			Detected
9033.7		H	74	-74	Peak			No Emission
9033.7		H	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Trasnmmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	82.53	V	94	-11.47	Peak	1	90	
1824.74	46.79	V	74	-27.21	Peak	1.16	125	
1824.74	44.61	V	54	-9.39	Avg	1.16	125	
2737.11	44.75	V	74	-29.25	Peak	2.34	180	
2737.11	39.91	V	54	-14.09	Avg	2.34	180	
3649.48	47.51	V	74	-26.49	Peak	1.95	0	
3649.48	44.99	V	54	-9.01	Avg	1.95	0	
4561.85	46.22	V	74	-27.78	Peak	2.41	0	
4561.85	35.2	V	54	-18.8	Avg	2.41	0	
5474.22		V	74	-74	Peak			No Emission
5474.22		V	54	-54	Avg			Detected
6386.59		V	74	-74	Peak			No Emission
6386.59		V	54	-54	Avg			Detected
7298.96		V	74	-74	Peak			No Emission
7298.96		V	54	-54	Avg			Detected
8211.33		V	74	-74	Peak			No Emission
8211.33		V	54	-54	Avg			Detected
9123.7		V	74	-74	Peak			No Emission
9123.7		V	54	-54	Avg			Detected

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Sensor Developments, Inc.
 Telemetry Trasnmittter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	79.98	H	94	-14.02	Peak	1	90	
1824.74	45.21	H	74	-28.79	Peak	1.48	135	
1824.74	41.01	H	54	-12.99	Avg	1.48	135	
2737.11	48.57	H	74	-25.43	Peak	1.79	135	
2737.11	45.54	H	54	-8.46	Avg	1.79	135	
3649.48	49.82	H	74	-24.18	Peak	2.48	180	
3649.48	47.58	H	54	-6.42	Avg	2.48	180	
4561.85	44.58	H	74	-29.42	Peak	1.66	125	
4561.85	30.25	H	54	-23.75	Avg	1.66	125	
5474.22		H	74	-74	Peak			No Emission
5474.22		H	54	-54	Avg			Detected
6386.59		H	74	-74	Peak			No Emission
6386.59		H	54	-54	Avg			Detected
7298.96		H	74	-74	Peak			No Emission
7298.96		H	54	-54	Avg			Detected
8211.33		H	74	-74	Peak			No Emission
8211.33		H	54	-54	Avg			Detected
9123.7		H	74	-74	Peak			No Emission
9123.7		H	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Trasnmmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	84.84	V	94	-9.16	Peak	1	90	
1842.74	46.78	V	74	-27.22	Peak	3.03	180	
1842.74	42.26	V	54	-11.74	Avg	3.03	180	
2764.11	44.81	V	74	-29.19	Peak	1.07	150	
2764.11	40.01	V	54	-13.99	Avg	1.07	150	
3685.48	47.72	V	74	-26.28	Peak	3.12	90	
3685.48	43.06	V	54	-10.94	Avg	3.12	90	
4606.85	44.88	V	74	-29.12	Peak	1	270	
4606.85	31.39	V	54	-22.61	Avg	1	270	
5528.22		V	74	-74	Peak			No Emission
5528.22		V	54	-54	Avg			Detected
6449.59		V	74	-74	Peak			No Emission
6449.59		V	54	-54	Avg			Detected
7370.96		V	74	-74	Peak			No Emission
7370.96		V	54	-54	Avg			Detected
8292.33		V	74	-74	Peak			No Emission
8292.33		V	54	-54	Avg			Detected
9213.7		V	74	-74	Peak			No Emission
9213.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Trasnmmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Y-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	81.47	H	94	-12.53	Peak	1	90	
1842.74	41.13	H	74	-32.87	Peak	1.2	270	
1842.74	35.81	H	54	-18.19	Avg	1.2	270	
2764.11	48.16	H	74	-25.84	Peak	1.5	180	
2764.11	43.25	H	54	-10.75	Avg	1.5	180	
3685.48	49.82	H	74	-24.18	Peak	2.2	180	
3685.48	46.25	H	54	-7.75	Avg	2.2	180	
4606.85	44.67	H	74	-29.33	Peak	1.51	180	
4606.85	30.25	H	54	-23.75	Avg	1.51	180	
5528.22		H	74	-74	Peak			No Emission
5528.22		H	54	-54	Avg			Detected
6449.59		H	74	-74	Peak			No Emission
6449.59		H	54	-54	Avg			Detected
7370.96		H	74	-74	Peak			No Emission
7370.96		H	54	-54	Avg			Detected
8292.33		H	74	-74	Peak			No Emission
8292.33		H	54	-54	Avg			Detected
9213.7		H	74	-74	Peak			No Emission
9213.7		H	54	-54	Avg			Detected

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Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	83.24	V	94	-10.76	Peak	1	150	
1806.74	51.37	V	74	-22.63	Peak	1.58	225	
1806.74	49.97	V	54	-4.03	Avg	1.58	225	
2710.11	46.85	V	74	-27.15	Peak	2.18	135	
2710.11	44.07	V	54	-9.93	Avg	2.18	135	
3613.48	49.74	V	74	-24.26	Peak	1.39	180	
3613.48	45.95	V	54	-8.05	Avg	1.39	180	
4516.85	43.38	V	74	-30.62	Peak	1.31	180	
4516.85	33.58	V	54	-20.42	Avg	1.31	180	
5420.22		V	74	-74	Peak			No Emission
5420.22		V	54	-54	Avg			Detected
6323.59		V	74	-74	Peak			No Emission
6323.59		V	54	-54	Avg			Detected
7226.96		V	74	-74	Peak			No Emission
7226.96		V	54	-54	Avg			Detected
8130.33		V	74	-74	Peak			No Emission
8130.33		V	54	-54	Avg			Detected
9033.7		V	74	-74	Peak			No Emission
9033.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Low Channel - Z-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
903.37	81.69	H	94	-12.31	Peak	1	180	
1806.74	46.82	H	74	-27.18	Peak	1.93	180	
1806.74	44.83	H	54	-9.17	Avg	1.93	180	
2710.11	53.69	H	74	-20.31	Peak	1.47	90	
2710.11	50.28	H	54	-3.72	Avg	1.47	90	
3613.48	50.73	H	74	-23.27	Peak	1.07	90	
3613.48	47.11	H	54	-6.89	Avg	1.07	90	
4516.85	45.28	H	74	-28.72	Peak	2.17	225	
4516.85	37.86	H	54	-16.14	Avg	2.17	225	
5420.22		H	74	-74	Peak			No Emission
5420.22		H	54	-54	Avg			Detected
6323.59		H	74	-74	Peak			No Emission
6323.59		H	54	-54	Avg			Detected
7226.96		H	74	-74	Peak			No Emission
7226.96		H	54	-54	Avg			Detected
8130.33		H	74	-74	Peak			No Emission
8130.33		H	54	-54	Avg			Detected
9033.7		H	74	-74	Peak			No Emission
9033.7		H	54	-54	Avg			Detected

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Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

Middle Channel - Z-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	88.06	V	94	-5.94	Peak	1	45	
1824.74	44.69	V	74	-29.31	Peak	2.69	225	
1824.74	41.69	V	54	-12.31	Avg	2.69	225	
2737.11	49.69	V	74	-24.31	Peak	3.05	315	
2737.11	45.56	V	54	-8.44	Avg	3.05	315	
3649.48	50.36	V	74	-23.64	Peak	1.58	135	
3649.48	44.98	V	54	-9.02	Avg	1.58	135	
4561.85	46.68	V	74	-27.32	Peak	1.21	225	
4561.85	37.59	V	54	-16.41	Avg	1.21	225	
5474.22		V	74	-74	Peak			No Emission
5474.22		V	54	-54	Avg			Detected
6386.59		V	74	-74	Peak			No Emission
6386.59		V	54	-54	Avg			Detected
7298.96		V	74	-74	Peak			No Emission
7298.96		V	54	-54	Avg			Detected
8211.33		V	74	-74	Peak			No Emission
8211.33		V	54	-54	Avg			Detected
9123.7		V	74	-74	Peak			No Emission
9123.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

**Middle Channel - Z-Axis
 Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
912.37	78.86	H	94	-15.14	Peak	1	90	
1824.74	44.7	H	74	-29.3	Peak	1.52	90	
1824.74	41.05	H	54	-12.95	Avg	1.52	90	
2737.11	45.38	H	74	-28.62	Peak	1.12	180	
2737.11	42.69	H	54	-11.31	Avg	1.12	180	
3649.48	45.48	H	74	-28.52	Peak	1.37	180	
3649.48	39.48	H	54	-14.52	Avg	1.37	180	
4561.85	46.12	H	74	-27.88	Peak	1.86	135	
4561.85	31.81	H	54	-22.19	Avg	1.86	135	
5474.22		H	74	-74	Peak			No Emission
5474.22		H	54	-54	Avg			Detected
6386.59		H	74	-74	Peak			No Emission
6386.59		H	54	-54	Avg			Detected
7298.96		H	74	-74	Peak			No Emission
7298.96		H	54	-54	Avg			Detected
8211.33		H	74	-74	Peak			No Emission
8211.33		H	54	-54	Avg			Detected
9123.7		H	74	-74	Peak			No Emission
9123.7		H	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
 Telemetry Transmitter
 Model: 90305

Date: 09/18/08

Lab: B

Tested By: Kyle Fujimoto

High Channel - Z-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	82.56	V	94	-11.44	Peak	1	90	
1842.74	50.75	V	74	-23.25	Peak	1.15	180	
1842.74	48.14	V	54	-5.86	Avg	1.15	180	
2764.11	49.69	V	74	-24.31	Peak	2.11	180	
2764.11	46.29	V	54	-7.71	Avg	2.11	180	
3685.48	49.19	V	74	-24.81	Peak	2.28	90	
3685.48	43.87	V	54	-10.13	Avg	2.58	90	
4606.85	40.65	V	74	-33.35	Peak	2.65	180	
4606.85	28.27	V	54	-25.73	Avg	2.65	180	
5528.22		V	74	-74	Peak			No Emission
5528.22		V	54	-54	Avg			Detected
6449.59		V	74	-74	Peak			No Emission
6449.59		V	54	-54	Avg			Detected
7370.96		V	74	-74	Peak			No Emission
7370.96		V	54	-54	Avg			Detected
8292.33		V	74	-74	Peak			No Emission
8292.33		V	54	-54	Avg			Detected
9213.7		V	74	-74	Peak			No Emission
9213.7		V	54	-54	Avg			Detected

FCC 15.249

Sensor Developments, Inc.
Telemetry Transmitter
Model: 90305

Date: 09/18/08

Lab: B

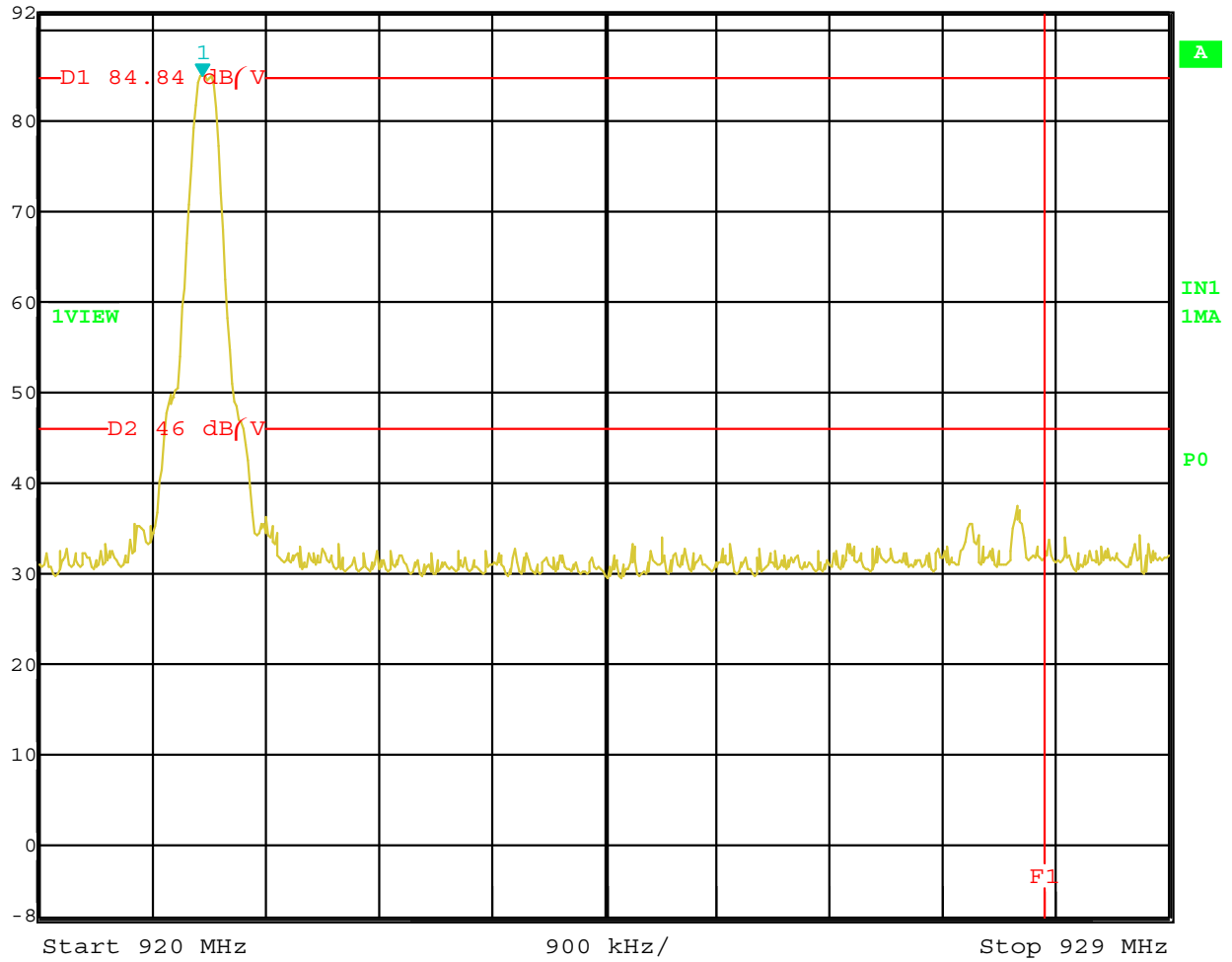
Tested By: Kyle Fujimoto

High Channel - Z-Axis
Transmit Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
921.37	81.99	H	94	-12.01	Peak	1	270	
1842.74	43.82	H	74	-30.18	Peak	1.58	90	
1842.74	39.95	H	54	-14.05	Avg	1.58	90	
2764.11	52.25	H	74	-21.75	Peak	2.63	180	
2764.11	48.06	H	54	-5.94	Avg	2.63	180	
3685.48	44.94	H	74	-29.06	Peak	3.18	0	
3685.48	42.96	H	54	-11.04	Avg	3.18	0	
4606.85	44.02	H	74	-29.98	Peak	2.78	90	
4606.85	30.55	H	54	-23.45	Avg	2.78	90	
5528.22		H	74	-74	Peak			No Emission
5528.22		H	54	-54	Avg			Detected
6449.59		H	74	-74	Peak			No Emission
6449.59		H	54	-54	Avg			Detected
7370.96		H	74	-74	Peak			No Emission
7370.96		H	54	-54	Avg			Detected
8292.33		H	74	-74	Peak			No Emission
8292.33		H	54	-54	Avg			Detected
9213.7		H	74	-74	Peak			No Emission
9213.7		H	54	-54	Avg			Detected



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
Ref Lvl 84.84 dB/V VBW 100 kHz
92 dB/V 921.29859719 MHz SWT 5 ms Unit dB/V

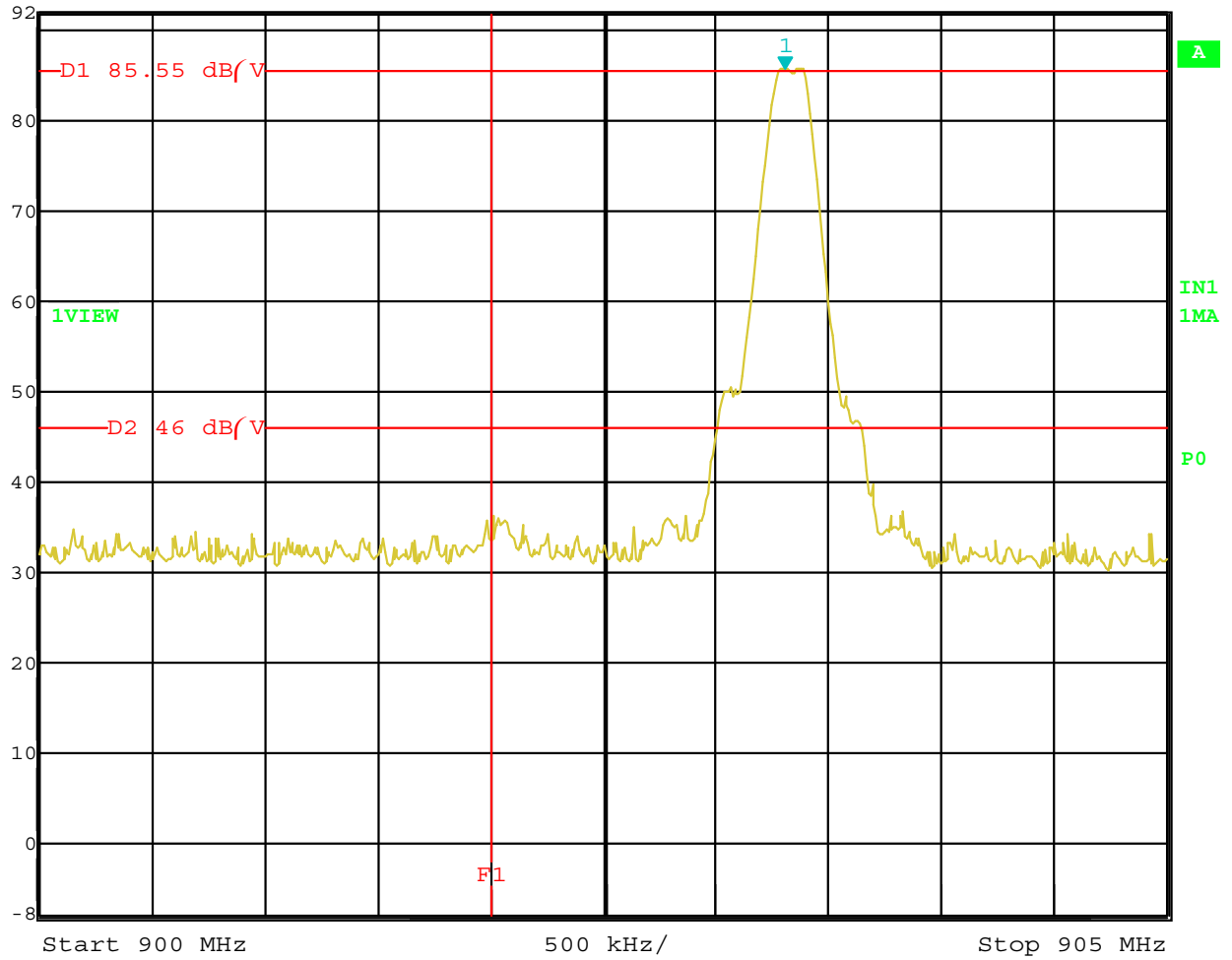


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Band Edge – High Channel – Y-Axis – Vertical Polarization (Worst Case)



Ref Lvl 92 dB/V
Marker 1 [T1] 85.72 dB/V
RBW 100 kHz RF Att 10 dB
VBW 100 kHz
SWT 5 ms Unit dB/V
903.30661323 MHz



Date: 18.SEP.2008 10:22:05

Band Edge - Low Channel - Y-Axis - Vertical Polarization (Worst Case)