FCC PART 15, SUBPART B and C TEST REPORT

for

SENSOR MODULE

MODEL: XSM-01

Prepared for

ONSITE PRO 28896 MOUNTAIN VIEW TRABUCO CANYON, CA 92679

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DATE: JANUARY 2, 2009

	REPORT		APPENDICES			TOTAL	
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FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module Model: XSM-01

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: Sensor Module

P/N: XSM-01 S/N: N/A

Product Description: See Expository Statement.

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

Manufacturer: Onsite PRO

28896 Mountain View Trabuco Canyon, CA 92679

Test Dates: November 15 and 24, 2008 and December 2 and 3, 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 – 9150 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 – 9150 MHz (Digital Portion)	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B.
4	Receiver Portion, 30MHz – 9150 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B.

FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module Model: XSM-01

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Sensor Module, Model: XSM-01. 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, 19121 El Toro Rd, Silverado, CA 92676.

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

Onsite PRO

Scott Walter Owner

Compatible Electronics, Inc.

Eugene Adams Test Technician

2.4 Date Test Sample was Received

The test sample was received on November 21, 2008.

2.5 Disposition of the Test Sample

The sample has not yet been returned to Onsite PRO.

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 Sensor Module, Model: XSM-01 (EUT) was connected to the water sensor. The EUT's antenna is a PCB style antenna and is on the PCB itself and uses FSK modulation. 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

<u>Cable 1</u> This is a 1-meter unshielded cable connecting the EUT to the water sensor. The cable has a custom connector at each end.



FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module Model: XSM-01

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIALNUMBER	FCC ID
SENSOR MODULE (EUT)	ONSITE PRO	XSM-01	N/A	WW8FS- SENSOR
WATER SENSOR	ONSITE PRO	NONE	NONE	NONE

Model: XSM-01



5.2

EMI Test Equipment

EQUIPMENT TYPE	MANU- FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE		
GI	GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS						
Analyzer Spectrum - Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01081	5/31/08	5/31/09		
Analyzer Spectrum – Display Section	Hewlett Packard	85662A	2848A18214	5/31/08	5/31/09		
Analyzer Spectrum – RF Section	Hewlett Packard	8566B	2747A04875	5/31/08	5/31/09		
	RF RADIA	ATED EMISSI	ONS TEST EQU	IPMENT			
Radiated Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A		
Antenna, Biconical	Com Power	AB-900	15228	1/24/08	1/24/09		
Antenna, Log Periodic	Com Power	AL-100	16016	1/11/08	1/11/09		
Preamplifier	Com Power	PA-103	161206	11/28/08	11/28/09		
Loop Antenna	Com Power	AL-130	17089	8/12/08	8/12/09		
Antenna ,Horn	Com-Power	AH-118	1319	8/08/08	8/08/10		
Preamplifier	Com Power	PA-122	181923	1/23/08	1/23/09		
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A		
	RF CONDUCTED EMISSIONS TEST EQUIPMENT						
LISN EUT Side	Com Power	LI-115	241043	8/06/08	8/06/09		
LISN Accessory Side	Com Power	LI-215	12073	8/06/08	8/06/09		
Transient Limiter	Com Power	Hz-560	N/A	2/06/08	2/06/09		

FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module

Model: XSM-01

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.

FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module Model: XSM-01

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. 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.

FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module

Sensor Module Model: XSM-01

7.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. The spectrum 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 quasi-peak reading was taken only for those readings which are marked accordingly on the data sheets. The following antennas and measurement bandwidths were used as specified in the following table.

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 10 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.

Model: XSM-01

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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.

FCC Part 15 Subpart B and FCC Section 15.249 Test Report

Sensor Module Model: XSM-01

8. CONCLUSIONS

The Sensor Module, Model: XSM-01 meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital and receiver portions; 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 ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Taiwan and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025 an ISO 9002 equivalent. Please follow the link to the NIST site for each of our facilities NVLAP certificate and scope of accreditation.

Silverado/Lake Forest Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005270.htm

Brea Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2005280.htm
Agoura Division: http://ts.nist.gov/ts/htdocs/210/214/scopes/2000630.htm



Compatible Electronics has been accredited by ANSI and appointed by the FCC to serve as a Telecommunications Certification Body (TCB). Compatible Electronics ANSI TCB listing can be found at: http://www.ansi.org/public/ca/ansi.cp.html



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/EU CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/emc-cabs-mar02.pdf



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA). Compatible Electronics NIST US/APEC CAB listing can be found at: http://ts.nist.gov/ts/htdocs/210/gsig/apec/bsmi-cabs-may02.pdf



Compatible Electronics has been validated by NEMKO against ISO/IEC 17025 under the NEMKO EMC Laboratory Authorization (ELA) program to all EN standards required by the European Union (EU) EMC Directive 89/336/EEC. Please follow the link to the Compatible Electronics' web site for each of our facilities NEMKO ELA certificate and scope of accreditation. http://www.celectronics.com/certs.htm

We are also certified/listed for IT products by the following country/agency:



Compatible Electronics VCCI listing can be found at: http://www.vcci.or.jp/vcci e/member/tekigo/setsubi index id.html

Just type "Compatible Electronics" into the Keyword search box.



Compatible Electronics FCC listing can be found at: https://gullfoss2.fcc.gov/prod/oet/index ie.html

Just type "Compatible Electronics" into the Test Firms search box.



Compatible Electronics IC listing can be found at: http://spectrum.ic.gc.ca/~cert/labs/oats lab c e.html

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

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

Sensor Module Model: XSM-01 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

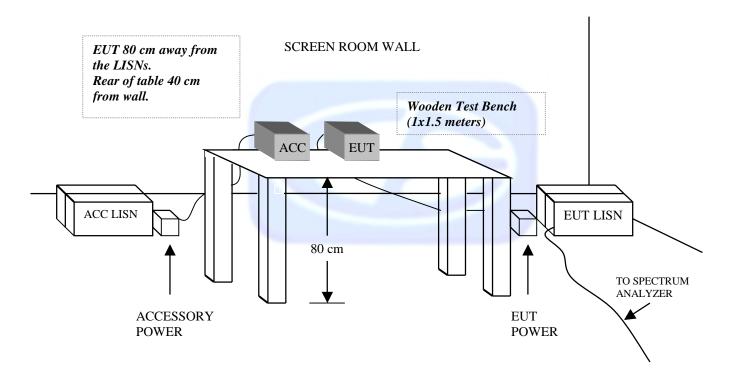
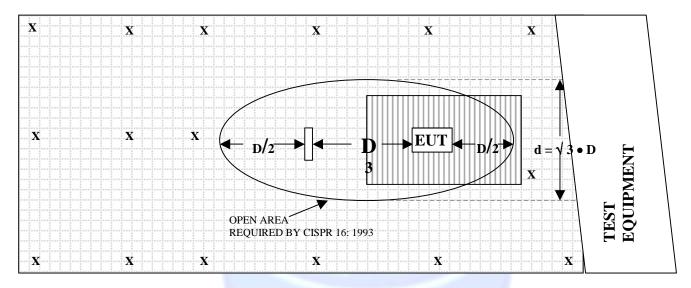


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED TEST SITE – 3 METERS

OPEN LAND > 15 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

X = GROUND RODS = GROUND SCREEN

D = TEST DISTANCE (meters) = WOOD COVER

COM-POWER AB-900

LAB J - BICONICAL ANTENNA

S/N: 15228

CALIBRATION DATE: JANUARY 24, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30.0	10.1	120.0	12.9
35.0	10.2	125.0	13.1
40.0	12.7	140.0	12.4
45.0	13.0	150.0	11.9
50.0	12.7	160.0	13.3
60.0	11.8	175.0	14.6
70.0	9.0	180.0	15.5
80.0	6.4	200.0	16.9-
90.0	8.2	250.0	15.6
100.0	10.8	300.0	19.1

COM-POWER AL-100

LAB J - LOG PERIODIC ANTENNA

S/N: 16016

CALIBRATION DATE: JANUARY 11, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.4	350	15.0
400	14.9	450	14.9
500	16.8	550	16.5
600	17.9	650	17.8
700	19.4	750	22.6
800	23.2	850	22.9
900	22.6	950	24.0
1000	23.8	-	-

COM-POWER AH-118

LAB J - HORN ANTENNA

S/N: 1319

CALIBRATION DATE: AUGUST 08, 2008

FREQUENCY	FACTOR	FREQUENCY	FACTOR
(MHz)	(dB)	(MHz)	(dB)
1000	22.8	10000	35.9
1500	24.2	10500	37.7
2000	26.8	11000	37.0
2500	26.1	11500	39.9
3000	28.1	12000	38.1
3500	27.7	12500	38.4
4000	28.2	13000	37.5
4500	29.4	13500	39. 0
5000	30.4	14000	40.3
5500	31.2	14500	40.0
6000	30.7	15000	39.6
6500	32.4	15500	38.1
7000	33.8	16000	37.3
7500	35.1	16500	38.4
8000	35.4	17000	39.4
8500	35.1	17500	41.4
9000	37.1	18000	43.1
9500	35.6		

COM-POWER PA-103

LAB J - PREAMPLIFIER

S/N: 161206

CALIBRATION DATE: NOVEMBER 26, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	29.9	300	30.5
40	30.5	350	30.0
50	30.5	400	30.3
60	30.3	450	30.2
70	29.5	500	29.5
80	27.0	550	29.7
90	25.0	600	29.5
100	28.0	650	29.4
125	29.2	700	28.4
150	30.0	750	28.3
175	30.5	800	26.1
200	30.5	850	29.0
225	30.6	900	28.9
250	30.3	950	30.3
275	30.3	1000	29.3

COM-POWER PA-122

LAB J – HI-FREQUENCY PREAMPLIFIER

S/N: 181923

CALIBRATION DATE: JANUARY 23, 2008

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	35.9	8000	33.3
1500	35.5	8500	35.0
2000	34.9	9000	35.6
2500	35.1	9500	34.7
3000	35.0	10000	34.0
3500	34.7	11000	32.3
4000	35.4	12000	33.9
4500	34.7	13000	34.9
5000	35.0	14000	33.7
5500	34.7	15000	33.7
6000	34.4	16000	33.3
6500	34.4	17000	34.5
7500	33.9	18000	32.6

COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY	MAGNETIC	ELECTRIC
(MHz)	(dB/m)	(dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40



FRONT VIEW

ONSITE PRO
SENSOR MODULE
MODEL: XSM-01
FCC SUBPART B AND C – RADIATED EMISSIONS



REAR VIEW

ONSITE PRO
SENSOR MODULE
MODEL: XSM-01
FCC SUBPART B AND C – RADIATED EMISSIONS



FRONT VIEW

ONSITE PRO
SENSOR MODULE
MODEL: XSM-01
FCC SUBPART B AND C – CONDUCTED EMISSIONS



REAR VIEW

ONSITE PRO
SENSOR MODULE
MODEL: XSM-01
FCC SUBPART B AND C – CONDUCTED EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS



Test Location : Compatible Electronics Page : 1/1

Customer: Scott WalterDate: 11/24/2008Manufacturer: Onsite ProductsTime: 02:14:56 PM

Eut name : Sensor Module AC TX Lab : J

Model : XSM-01 Test Distance : 3.00 Meters

Serial #

Specification : FCC Pt. 15 Section 15.249

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode

Test Engineer: Eugene Adams

Transmit Mode

AC

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	Corr'd rdg = R dBuV/m	Limit = L dBuV/m	Delta R-L dB
						,		
V	40.140	51.10	1.60	12.71	31.70	33.70	40.00	-6.30
V	80.026	48.90	1.90	6.40	31.60	25.60	40.00	-14.40
V	90.033	50.80	1.90	8.21	31.60	29.31	43.50	-14.19
V	180.037	37.70	2.56	15.50	31.70	24.07	43.50	-19.43
V	109.984	42.60	2.03	11.90	31.61	24.91	43.50	-18.59
Н	40.043	39.90	1.60	12.70	31.70	22.50	40.00	-17.50
Н	80.003	47.90	1.90	6.40	31.60	24.60	40.00	-15.40
Н	90.021	39.70	1.90	8.21	31.60	18.21	43.50	-25.29
H	100.015	44.60	1.90	10.80	31.40	25.90	43.50	-17.60
Н	110.021	43.30	2.03	11.90	31.61	25.61	43.50	-17.89
Н	180.028	36.70	2.56	15.50	31.70	23.07	43.50	-20.43
Н	329.979	40.00	3.45	14.39	31.40	26.44	46.00	-19.56
Н	915.049	81.70	6.35	23.03	30.94	80.14	94.00	-13.86
V	915.049	86.20	6.35	23.03	30.94	84.64	94.00	-9.36



Test Location : Compatible Electronics Page : 1/1

Customer: Scott WalterDate: 11/24/2008Manufacturer: Onsite ProductsTime: 02:28:21 PM

Eut name : Sensor Module AC TX Lab : J

Model : XSM-01 Test Distance : 3.00 Meters

Serial #

Specification: FCC Pt. 15 Section 15.249

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode

Test Engineer: Eugene Adams

Transmit Mode

AC

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	rdg = R	Limit = L dBuV/m	Delta R-L dB
V V V V	1829.841 2744.903 3659.906 4574.517 5491.302	46.20 43.80 43.00 43.80 43.80	6.40 6.40 6.40 6.40	26.00 27.13 27.87 29.56 31.19	35.09 35.05 34.77 34.75 34.70	43.51 42.28 42.50 45.01 46.68	54.00 54.00 54.00 54.00 54.00	-10.49 -11.72 -11.50 -8.99 -7.32
V V V	6406.246 7320.757 7320.758 Above read:	46.20 45.50 34.60 ing is an	6.40 6.40 6.40 average	32.09 34.64 34.64 reading.	34.40 33.97 33.97	50.29 52.57 41.67	54.00 54.00 54.00	-3.71 -1.43 -12.33
V V	8235.406 8235.403 Above read:	45.30 34.13 ing is an	6.40 6.40 average	35.26 35.26 reading.	34.11 34.11	52.84 41.67	54.00 54.00	-1.16 -12.33
V V	9149.812 9149.812 Above read:				35.33 35.33	54.12 42.22	54.00 54.00	0.12 -11.78
H H H	1830.306 2745.314 3660.020	47.80 45.40 43.70	6.40 6.40 6.40	26.00 27.13 27.87	35.08 35.05 34.77	45.11 43.88 43.20	54.00 54.00 54.00	-8.89 -10.12 -10.80
Н Н Н Н	4574.920 5489.912 6405.380 7320.114 7320.114 Above read:	43.40 43.00 46.20 46.20 34.53 ing is an	6.40 6.40 6.40 6.40 average	29.56 31.18 32.09 34.64 34.64 reading.	34.75 34.71 34.40 33.97 33.97	44.61 45.88 50.29 53.27 41.60	54.00 54.00 54.00 54.00 54.00	-9.39 -8.12 -3.71 -0.73 -12.40
н н н	8235.298 8235.298 Above read: 9149.568 9149.568 Above read:	45.90 34.11 ing is an 46.00 34.57	6.40 6.40 average 6.40 6.40	35.26 35.26 reading. 36.64 36.64	34.11 34.11 35.33 35.33	53.44 41.65 53.72 42.29	54.00 54.00 54.00 54.00	-0.56 -12.35 -0.28 -11.71



Test Location : Compatible Electronics Page : 1/2

Customer: Scott WalterDate: 12/02/2008Manufacturer: Onsite ProductsTime: 08:28:42 AM

Eut name : Sensor Module AC RX Lab : J

Model : XSM-01 Test Distance : 3.00 Meters

Serial #

Specification : FCC Pt. 15 B

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode : Test Range: 30-1000MHz

Test Engineer: Eugene Adams

Receive Mode

AC

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	Corr'd rdg = R dBuV/m	Limit = L dBuV/m	Delta R-L dB
H H H H	79.986 109.990 160.033 169.987 189.987	46.30 44.50 40.20 38.30 40.60	1.90 2.03 2.62 2.54 2.68	6.40 11.90 13.30 14.18 16.22	31.60 31.59 31.60 31.60 31.54	23.00 26.84 24.52 23.42 27.96	40.00 43.50 43.50 43.50 43.50	-17.00 -16.66 -18.98 -20.08 -15.54
H H V V V	199.993 250.047 80.048 109.980 159.977	41.50 43.80 47.10 43.10 42.40	2.80 3.20 1.90 2.03 2.62	16.90 15.60 6.41 11.90 13.30	31.50 31.50 31.60 31.59 31.60	29.70 31.10 23.81 25.44 26.71	43.50 46.00 40.00 43.50 43.50	-13.80 -14.90 -16.19 -18.06 -16.79
V V V H H	170.022 190.042 200.016 825.118 844.943	38.10 36.40 38.00 42.60 40.80	2.54 2.69 2.80 6.00	14.18 16.22 16.90 23.05 22.93	31.60 31.54 31.50 31.99 31.60	23.22 23.77 26.20 39.66 38.13	43.50 43.50 43.50 46.00	-20.28 -19.73 -17.30 -6.34 -7.87
Н Н Н Н	865.075 895.105 934.898 945.068 945.069Qp	39.70 42.50 38.20 45.50 43.22	6.03 6.09 6.66 6.82 6.82	22.81 22.63 23.59 23.87 23.87	31.47 31.41 31.75 31.85 31.85	37.07 39.81 36.70 44.34 42.06	46.00 46.00 46.00 46.00	-8.93 -6.19 -9.30 -1.66 -3.94
Н Н Н Н	955.057 965.111 974.909 984.908 901.418	40.80 44.60 39.70 41.30 42.40	6.85 6.75 6.65 6.55 6.12	23.98 23.94 23.90 23.86 22.64	31.83 31.68 31.55 31.41 31.41	39.80 43.60 38.70 40.30 39.75	46.00 54.00 54.00 54.00 46.00	-6.20 -10.40 -15.30 -13.70 -6.25
V V V V	824.901 844.938 865.065 894.924 935.077	41.20 38.70 37.90 43.30 45.50	6.00 6.00 6.03 6.09 6.67	23.05 22.93 22.81 22.63 23.59	31.99 31.60 31.47 31.41 31.75	38.25 36.03 35.27 40.61 44.00	46.00 46.00 46.00 46.00	-7.75 -9.97 -10.73 -5.39
V V V V	935.077Qp 944.958 944.959Qp 954.934 964.956	42.53 45.60 42.66 42.20 39.90	6.67 6.82 6.82 6.85 6.75	23.59 23.86 23.86 23.98 23.94	31.75 31.85 31.85 31.83 31.69	41.03 44.43 41.49 41.20 38.90	46.00 46.00 46.00 46.00 54.00	-4.97 -1.57 -4.51 -4.80 -15.10

Test Location : Compatible Electronics Page : 2/2

Customer: Scott WalterDate: 12/02/2008Manufacturer: Onsite ProductsTime: 08:28:42 AM

Eut name : Sensor Module AC RX Lab : J

Model : XSM-01 Test Distance : 3.00 Meters

Serial # :

Specification : FCC Pt. 15 B

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode : Test Range: 30-1000MHz

Test Engineer: Eugene Adams

Receive Mode

AC

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	rdg = R	Limit = L dBuV/m	Delta R-L dB
V	985.094	37.60	6.55	23.86	31.40	36.60	54.00	-17.40
V	974.950	36.10	6.65	23.90	31.55	35.10	54.00	-18.90





Test Location : Compatible Electronics Page : 1/1

Customer: Scott WalterDate: 12/02/2008Manufacturer: Onsite ProductsTime: 11:21:57 AM

Eut name : Sensor Module Lab : J

Model : P/N: XSM-01 Test Distance : 3.00 Meters

Serial #

Specification : FCC Pt. 15 B

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode : Test Range: 30-1000MHz

Test Engineer: Eugene Adams

Transmit Mode

Battery

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	Corr'd rdg = R dBuV/m		Delta R-L dB
V V V V	250.016 240.018 120.029 80.007 150.054	42.30 40.10 39.80 45.80 43.50	3.20 3.05 2.15 1.90 2.70	15.60 15.84 12.90 6.40 11.91	31.50 31.46 31.66 31.60 31.60	29.60 27.52 23.18 22.50 26.51	46.00 46.00 43.50 40.00 43.50	-16.40 -18.48 -20.32 -17.50 -16.99
V H H H	190.046 190.046 80.026 120.031 150.012	39.50 35.80 46.30 43.20 43.20	2.69 2.69 1.90 2.15 2.70	16.22 16.22 6.40 12.90 11.90	31.54 31.54 31.60 31.66 31.60	26.87 23.17 23.00 26.58 26.20	43.50 43.50 40.00 43.50 43.50	-16.63 -20.33 -17.00 -16.92 -17.30
H H H V	240.005 250.042 915.049 915.051 935.063	36.40 44.10 82.83 86.83 42.20	3.05 3.20 6.35 6.35 6.67	15.84 15.60 23.03 23.03 23.59	31.46 31.50 30.94 30.94 31.75	23.82 31.40 80.14 84.64 40.70	46.00 46.00 94.00 94.00 46.00	-22.18 -14.60 -12.73 -8.73 -5.30
V V V V	945.094 954.976 965.092 975.096 984.952	40.00 39.50 38.60 35.90 37.40	6.82 6.85 6.75 6.65 6.55	23.87 23.98 23.94 23.90 23.86	31.85 31.83 31.68 31.54 31.41	38.84 38.50 37.60 34.90 36.40	46.00 46.00 54.00 54.00 54.00	-7.16 -7.50 -16.40 -19.10 -17.60
н н н н	935.110 944.939 955.074 964.956 974.958	41.00 41.10 38.80 37.10 35.10	6.67 6.82 6.85 6.75 6.65	23.59 23.86 23.98 23.94 23.90	31.75 31.85 31.83 31.69 31.55	39.50 39.93 37.80 36.10 34.10	46.00 46.00 46.00 54.00	-6.50 -6.07 -8.20 -17.90 -19.90
H	984.944	36.70	6.55	23.86	31.41	35.70	54.00	-18.30



Test Location : Compatible Electronics Page : 1/1

Customer: Scott WalterDate: 12/15/2008Manufacturer: FloodstopTime: 10:18:20 AM

Eut name : Sensor Module Lab : J

Model : XSM-01 Test Distance : 3.00 Meters

Serial #

Specification : FCC Pt. 15 Section 15.249

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode :

Test Engineer: Eugene Adams

Transmit Mode

Battery

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna i factor dB	Amplifier gain dB	Corr'd rdg = R dBuV/m	Limit = L dBuV/m	Delta R-L dB
H H V V	1829.977 2745.016 3659.966 1830.032 2745.322	43.80 42.70 43.20 43.90 43.70	2.67 3.11 3.80 2.67 3.11	26.00 27.13 27.87 26.00 27.13	35.09 35.05 34.77 35.09 35.05	37.38 37.88 40.10 37.48 38.88	54.00 54.00 54.00 54.00	-16.62 -16.12 -13.90 -16.52 -15.12
V	3659.964	44.00	3.80	27.87	34.77	40.90	54.00	-13.10



Test Location : Compatible Electronics Page : 1/1

Customer: Scott WalterDate: 12/03/2008Manufacturer: Onsite ProductsTime: 09:55:39 AM

Eut name : Sensor Module Lab : J

Model : P/N: XSM-01 Test Distance : 3.00 Meters

Serial #

Specification : FCC Pt. 15 B

Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode : Test Range: 30-1000MHz

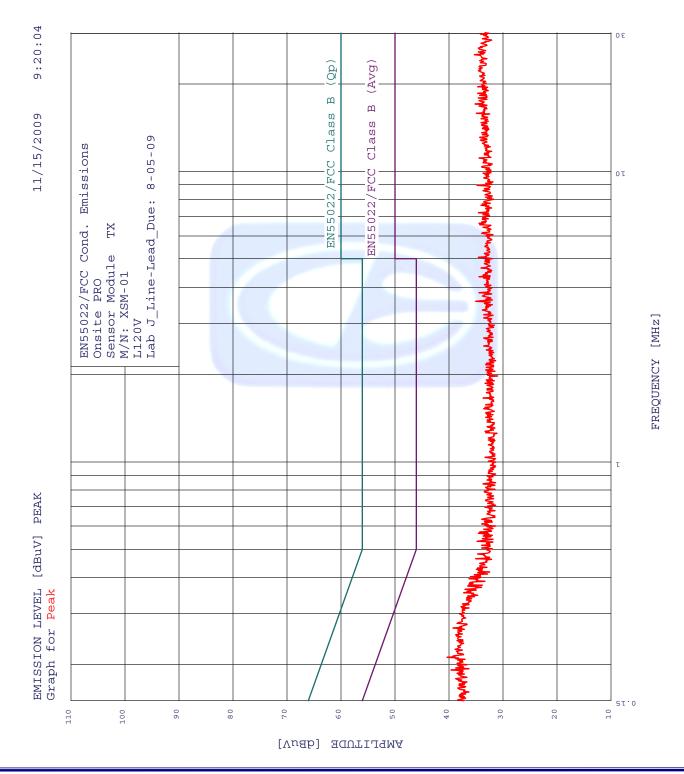
Test Engineer: Eugene Adams

Receive Mode Battery

Pol	Freq MHz	Reading dBuV	Cable loss dB	Antenna factor dB	Amplifier gain dB	Corr'd rdg = R dBuV/m	Limit = L dBuV/m	Delta R-L dB
V	935.226	35.20	6.67	23.59	31.76	33.71	46.00	-12.29
V	944.951	36.70	6.82	23.86	31.85	35.53	46.00	-10.47
V	955.400	35.90	6.84	23.98	31.82	34.90	46.00	-11.10
V	965.184	35.80	6.75	23.94	31.68	34.80	54.00	-19.20
V	975.354	34.90	6.64	23.90	31.54	33.90	54.00	-20.10
V	984.852	35.40	6.55	23.86	31.41	34.40	54.00	-19.60
H	934.854	35.00	6.66	23.58	31.75	33.49	46.00	-12.51
H	944.842	35.40	6.82	23.86	31.85	34.23	46.00	-11.77
H	954.996	35.70	6.85	23.98	31.83	34.70	46.00	-11.30
H	964.720	36.00	6.75	23.94	31.69	35.00	54.00	-19.00
H	975.426	35.00	6.64	23.90	31.54	34.00	54.00	-20.00
H	985.334	35.20	6.54	23.86	31.40	34.20	54.00	-19.80

CONDUCTED EMISSIONS

DATA SHEETS





EN55022/FCC Cond. Emissions 11/15/2009 9:20:04

Onsite PRO

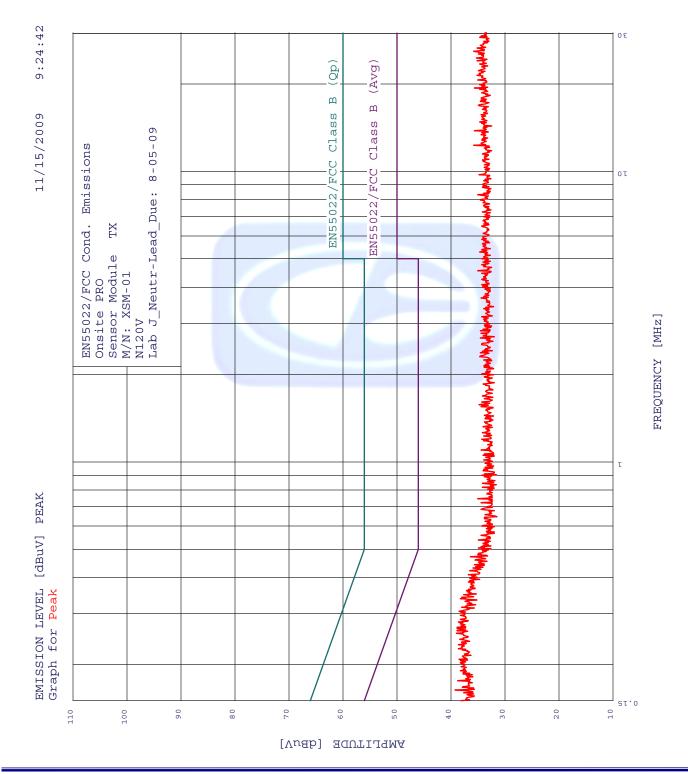
Sensor Module TX

M/N: XSM-01

L120V

Lab J Line-Lead Due: 8-05-09

Lab J_Line-Lead_Due: 8-05-09 TEST ENGINEER: Eugene Adams									
1 1 1 2 2 1	ENGINEER :	Eugene Adan	ເຮ 						
	ghest peaks criteria :			5022/FCC Clas	ss B (Avg)	limit line			
Peak#		Amp (dBuV)		Delta(dB)					
1		34.94	46.00	-11.06					
2	0.532	34.75	46.00	-11.25					
3	0.567	34.45	46.00	-11.55					
4	0.354	37.28	48.87	-11.58					
5	3.820	34.40	46.00	-11.60					
6	4.339	34.38	46.00	-11.62					
7	0.464	34.99	46.62	-11.63					
8	0.363	36.97	48.65	-11.68					
9	0.396	36.24	47.95	-11.70					
10	0.481	34.57	46.32	-11.74					
11 12	0.573 0.402	34.25 35.94	46.00 47.81	-11.75 -11.88					
13	0.402	36.46	48.43	-11.96					
14	4.648	34.02	46.00	-11.98					
15	0.267	39.16	51.20	-12.04					
16	0.317	37.72	49.79	-12.08					
17	0.377	36.26	48.34	-12.08					
18	0.324	37.51	49.62	-12.11					
19	0.505	33.86	46.00	-12.14					
20	0.516	33.86	46.00	-12.14					
21	0.383	36.05	48.21	-12.15					
22	0.611	33.84	46.00	-12.16					
23	0.634	33.83	46.00	-12.17					
24	0.358	36.58	48.78	-12.20					
25	3.328	33.79	46.00	-12.21					
26	3.722	33.78	46.00	-12.22					
27	0.544	33.75	46.00	-12.25					
28	0.839	33.69	46.00	-12.31					
29	0.299	37.93	50.28	-12.34					
30	0.555	33.65	46.00	-12.35					
31 32	1.663 4.384	33.61 33.59	46.00 46.00	-12.39 -12.41					
33	0.426	34.92	47.33	-12.41					
34	0.310	37.52	49.97	-12.44					
35	0.277	38.45	50.89	-12.45					
36	0.409	35.23	47.68	-12.45					
37	0.586	33.54	46.00	-12.46					
38	3.124	33.54	46.00	-12.46					
39	2.665	33.54	46.00	-12.46					
40	0.320	37.21	49.71	-12.49					
41	2.501	33.50	46.00	-12.50					
42	1.528	33.48	46.00	-12.52					
43	4.294	33.48	46.00	-12.52					
44	0.339	36.70	49.22	-12.53					
45	3.209	33.46	46.00	-12.54					
46	0.561	33.45	46.00	-12.55					
47	3.511	33.43	46.00	-12.57					
48	0.788	33.40	46.00	-12.60					
49 50	0.345 0.304	36.49 37.53	49.09 50.14	-12.60 -12.61					
	0.304	ى ى . 	JU.14	- IZ.UI					



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

Model: SXM-01



FCC Part 15 Subpart B and FCC Section 15.249 Test Report Sensor Module

9:24:42

11/15/2009 EN55022/FCC Cond. Emissions

Onsite PRO

Sensor Module TX

M/N: XSM-01

N120V

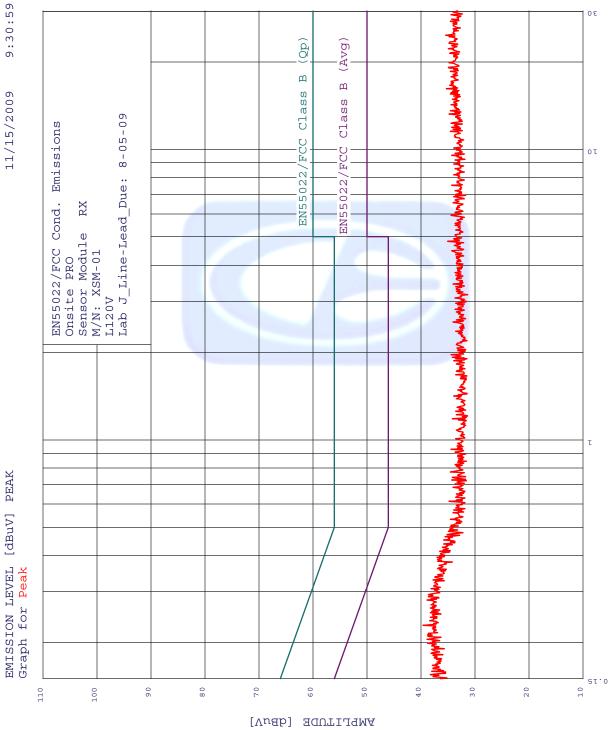
Lab J Neutr-Lead Due: 8-05-09 TEST ENGINEER : Eugene Adams

			, 						
50 hic	thest neaks	above -50.00	dB of ENS	5022/FCC	Class	B	(Ava)	limit	line
		0.10 dB, Cur		3022/100	Старр	ב	(1109)	11111C	11110
Peak#			Limit (dB)	Delta(dE	۵ /				
1	0.471	36.30	46.49	-10.19	,				
2	0.421		47.42	-10.88					
3			47.68						
4	0.409	36.75		-10.93					
	4.552	35.06	46.00	-10.94					
5	0.747		46.00	-10.97					
6		38.21	49.26	-11.05					
7	0.505	34.88	46.00	-11.12					
8	0.538	34.87	46.00	-11.13					
9		38.01	49.18	-11.17					
10	0.459	35.51	46.71	-11.20					
11	1.577	34.72	46.00	-11.28					
12		34.66	46.00	-11.34					
13	0.479	35.00	46.36	-11.36					
14	0.484	34.89	46.27	-11.38					
15		36.77	48.16	-11.39					
16	0.442	35.63	47.02	-11.39					
17	0.348	37.60	49.00	-11.40					
18	0.431	35.83	47.24	-11.40					
19	0.398	36.46	47.90	-11.44					
20	2.665	34.53	46.00	-11.47					
21	2.371	34.47	46.00	-11.53					
22	2.826	34.47	46.00	-11.53					
23	1.100	34.42	46.00	-11.58					
24	1.552	34.41	46.00	-11.59					
25	0.389	36.47	48.08	-11.61					
26	0.404	36.15	47.77	-11.61					
27	0.510	34.38	46.00	-11.62					
28	0.558	34.37	46.00	-11.63					
29	0.360	37.09	48.73	-11.64					
30	2.766	34.35	46.00	-11.65					
31	0.686	34.34	46.00	-11.66					
32	0.305	38.44	50.10	-11.66					
33	0.724	34.34	46.00	-11.66					
34	3.663	34.33	46.00	-11.67					
35	2.002	34.30	46.00	-11.70					
36	0.435	35.43	47.15	-11.72					
37	4.774	34.28	46.00	-11.72					
38	0.500	34.28	46.01	-11.72					
39	0.601	34.26	46.00	-11.74					
40	4.456	34.25	46.00	-11.75					
41	1.197	34.24	46.00	-11.76					
42	3.158	34.23	46.00	-11.77					
43	4.249	34.22	46.00	-11.78					
44	1.603	34.22	46.00	-11.78					
45	2.540	34.21	46.00	-11.79					
46	4.071	34.21	46.00	-11.79					
47	0.899	34.20	46.00	-11.80					
48	1.262	34.15	46.00	-11.85					
49	1.690	34.14	46.00	-11.86					
50	0.818	34.12	46.00	-11.88					

FREQUENCY [MHz]

Sensor Module Model: SXM-01









line

EN55022/FCC Cond. Emissions 11/15/2009 9:30:59

Onsite PRO

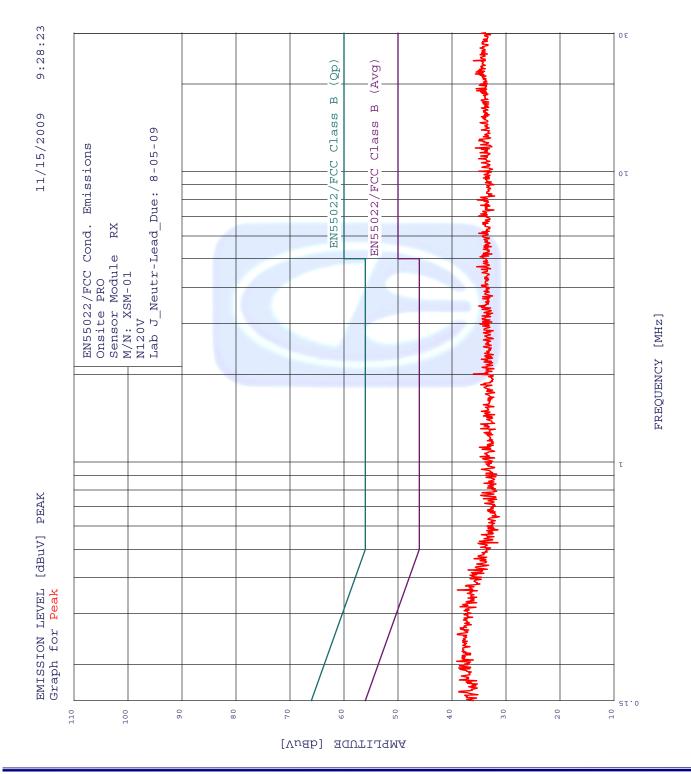
Sensor Module RX

M/N: XSM-01

L120V

Lab J_Line-Lead_Due: 8-05-09
TEST ENGINEER: Eugene Adams

	hest peaks riteria :	above -50. 0.10 dB, C			022/FCC	Class	В	(Avg)	limit
Peak#	Freq(MHz)	Amp (dBuV)		mit(d	Delta(dE	3)			
1	4.825	35.04		6.00	-10.96	-,			
2				7.99					
	0.393	36.94			-11.05				
3	0.452	35.80		6.85	-11.05				
4	0.413	36.53		7.59	-11.06				
5	0.464	35.49	4	6.62	-11.13				
6	0.614	34.74	4	6.00	-11.26				
7	0.387	36.85	4	8.12	-11.27				
8	0.471	35.18	4	6.49	-11.31				
9	0.426	36.02	4	7.33	-11.31				
10	0.381	36.85		8.25	-11.40				
11	0.438	35.71		7.11	-11.40				
				6.27					
12	0.484	34.87			-11.40				
13	0.404	36.33		7.77	-11.43				
14	0.502	34.56		6.00	-11.44				
15	0.398	36.44		7.90	-11.46				
16	0.492	34.67		6.14	-11.47				
17	0.775	34.50	4	6.00	-11.50				
18	0.532	34.45	4	6.00	-11.55				
19	1.960	34.38	4	6.00	-11.62				
20	0.929	34.37	4	6.00	-11.63				
21	0.508	34.36	4	6.00	-11.64				
22	0.417	35.82		7.50	-11.68				
23	0.728	34.31		6.00	-11.69				
24	0.329	37.71		9.48	-11.78				
25	4.480	34.20		6.00	-11.80				
26	0.459	34.89		6.71	-11.82				
27	1.929	34.17		6.00	-11.83				
28	0.369	36.67		8.52	-11.85				
29	0.360	36.88		8.73	-11.86				
30	0.338	37.40		9.26	-11.87				
31	0.743	34.11		6.00	-11.89				
32	1.184	34.10	4	6.00	-11.90				
33	0.293	38.54	5	0.45	-11.91				
34	0.561	34.05	4	6.00	-11.95				
35	0.280	38.85	5	0.81	-11.96				
36	0.686	34.02	4	6.00	-11.98				
37	0.433	35.21	4	7.19	-11.98				
38	3.438	34.01		6.00	-11.99				
39	2.540	34.01		6.00	-11.99				
40	0.307	38.03		0.05	-12.03				
41	0.288	38.54		0.58	-12.04				
42	0.573	33.95		6.00	-12.05				
				6.00	-12.05				
43	4.928	33.86							
44	1.869	33.86		6.00	-12.14				
45	1.419	33.85		6.00	-12.15				
46	0.322	37.41		9.66	-12.25				
47	0.313	37.62		9.88	-12.26				
48	4.672	33.73		6.00	-12.27				
49	0.822	33.70		6.00	-12.30				
50	0.909	33.68	4	6.00	-12.32				



Model: SXM-01

FCC Part 15 Subpart B and FCC Section 15.249 Test Report Sensor Module

EN55022/FCC Cond. Emissions 11/15/2009 9:28:23

Onsite PRO

Sensor Module RX

M/N: XSM-01

N120V

Lab J Neutr-Lead Due: 8-05-09

TEST ENGINEER: Eugene Adams										
50 hig	hest peaks	above -50.00	0 dB of EN5	5022/FCC Class	B (Avg)	limit line				
Peak c	riteria :	0.10 dB, Cu	rve : Peak							
Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)						
1	0.362	38.89	48.69	-9.80						
2	2.002	36.00	46.00	-10.00						
3	0.424	36.94	47.37	-10.43						
4	4.696	35.37	46.00	-10.63						
5	0.464	35.81	46.62	-10.81						
6	0.524	35.08	46.00	-10.92						
7	0.373	37.48	48.43	-10.95						
8	3.438	34.99	46.00	-11.01						
9	0.532	34.87	46.00	-11.13						
10	0.406	36.55	47.72	-11.17						
11	1.124	34.82	46.00	-11.18						
12	1.043	34.81	46.00	-11.19						
13	0.415	36.35	47.55	-11.20						
14	2.979	34.80	46.00	-11.20						
15	1.352	34.67	46.00	-11.33						
16 17	1.304	34.66	46.00 46.45	-11.34						
17 18	0.474 0.317	35.10 38.43	49.79	-11.35 -11.36						
19	0.767	34.63	46.00	-11.37						
20	0.396	36.56	47.95	-11.37						
21	0.508	34.58	46.00	-11.42						
22	1.840	34.57	46.00	-11.43						
23	0.561	34.57	46.00	-11.43						
24	2.250	34.55	46.00	-11.45						
25	0.944	34.53	46.00	-11.47						
26	4.050	34.51	46.00	-11.49						
27	1.496	34.50	46.00	-11.50						
28	3.401	34.48	46.00	-11.52						
29	4.600	34.46	46.00	-11.54						
30	0.402	36.26	47.81	-11.55						
31	0.433	35.63	47.19	-11.56						
32	0.783	34.42	46.00	-11.58						
33	3.107	34.42	46.00	-11.58						
34	1.106	34.42	46.00	-11.58						
35	0.411	36.05	47.63	-11.58						
36	4.008	34.40	46.00	-11.60						
37	3.346	34.37	46.00	-11.63						
38	0.445	35.32	46.98	-11.65						
39	4.480	34.35	46.00	-11.65						
40	3.175	34.33	46.00	-11.67						
41 42	2.111 1.027	34.32 34.31	46.00 46.00	-11.68 -11.69						
43	3.011	34.30	46.00	-11.70						
44			46.00	-11.71						
45		36.79	48.52	-11.73						
46	0.322	37.93	49.66	-11.74						
47	3.702		46.00	-11.76						
48	3.644		46.00	-11.77						
49	3.043	34.21	46.00	-11.79						
			48.91	-11.81						