

EMC EMISSIONS - TEST REPORT (Full)

Test Report No. **3178596DEN-001** Issue Date: **Wednesday 6/17/2009**
 Model / Serial No. **Model: AMS-SM03 S/N: 004**
 Product Type **Wireless Base Station – Data Logger & Transceiver**
 Client **Alcohol Monitoring Systems**
 Manufacturer **Alcohol Monitoring Systems**
 License holder **Alcohol Monitoring Systems**
 Address **1241 West Mineral Ave., Suite 200**

Test Criteria Applied **FCC CFR47 Part 15.249**
 Test Result **PASS**
 Test Project Number **3178596**
 References
 Total Pages **56**
 Including
 Appendices:

Title 47 CFR 15: RADIO FREQUENCY DEVICES

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REVISION SUMMARY - The following changes have been made to this Report:

Rev.	Revision Statement	Author	Revision Date
	Initial Release of Document	See above	See above

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STATEMENT OF MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The measurement uncertainty for Conducted Emissions in the frequency range of 150kHz – 30MHz is calculated to be ± 3.14 dB and for Radiated Emissions is calculated to be ± 4.4 dB in the frequency range of 10kHz – 1000MHz at 3m and ± 4.9 dB in the frequency range of 1 – 18GHz at 3m. For testing at 10m ± 4.8 dB in the frequency range of 30 – 1000MHz. For Disturbance Power, ± 3.3 dB in the frequency range of 30 – 1000MHz. For Flicker and Harmonics testing the equipment used is calibrated by the manufacture and is with in the tolerances specified in 61000-3-2/3. These uncertainties have been calculated using CISPR 16-4-2:2003 and represent a 95% confidence level ($k=2$).

EUT Received Date: 3-June-2009

Testing Start Date: 3-June-2009

Testing End Date: 5-June-2009

The tests were performed according to following regulations:

1. FCC CFR47 Part 15 subpart C
2. FCC CFR47 Part 15 subpart B

Emission Test Results:

Conducted Emissions, Powerline 15.207 - PASS

Test Result

Minimum limit margin - 10.9 dB at 0.410 MHz

Remarks: Average Measurement - Line

Radiated Emissions 15.209/15.109 - PASS

Test Result

Minimum limit margin - 0.9 dB at 40.00 MHz
- 0.8 dB at 500.00 MHz

Remarks: Quasi-Peak Measurement – Vertical Polarity

Radiated Emissions 15.249 (a) Fundamental - PASS

Test Result

Minimum limit margin - 1.7 dB at 916.50 MHz

Remarks: Peak Measurement – Vertical (Internal Antenna # 1)

Radiated Emissions 15.249 (a) Harmonics of the Fundamental - PASS

Test Result

Minimum limit margin - 0.4 dB at 5499.30 MHz

Remarks: Peak Measurement – Horizontal Polarity (Internal Antenna # 1)

GENERAL REMARKS:

The following remarks are to be considered as “where applicable” and are taken into account while completing any FCC/IC/ETSI radio tests at Intertek.

Testing was performed in 3 different orthogonal axis to determine the worst case emissions from the device. The worst case emissions measurements are shown in this report.

FCC CFR47 Part 15.31: Measurement Standards: In any case where the device is powered off a battery, a fresh battery was used during test. In cases where the device is powered off an AC supply, voltage was varied per Part 15.31 to find worst case emissions.

FCC CFR47 Part 15.35: Measurement Detector Functions and Bandwidths: FCC Part 15.35 was utilized when performing the measurements within this report.

Product Test Notes: This product operates at a single transmit frequency (1-channel) and therefore, multi-channel testing was not applicable. Although the product is meant to be operated in a fixed/normal orientation, additional worst-case axis testing was performed.

The product contains (2) internal antennas. Both antennas were measured during Radiated testing.

The product to be sold in US only per client.

Sample:

Production Prototype See RFQ

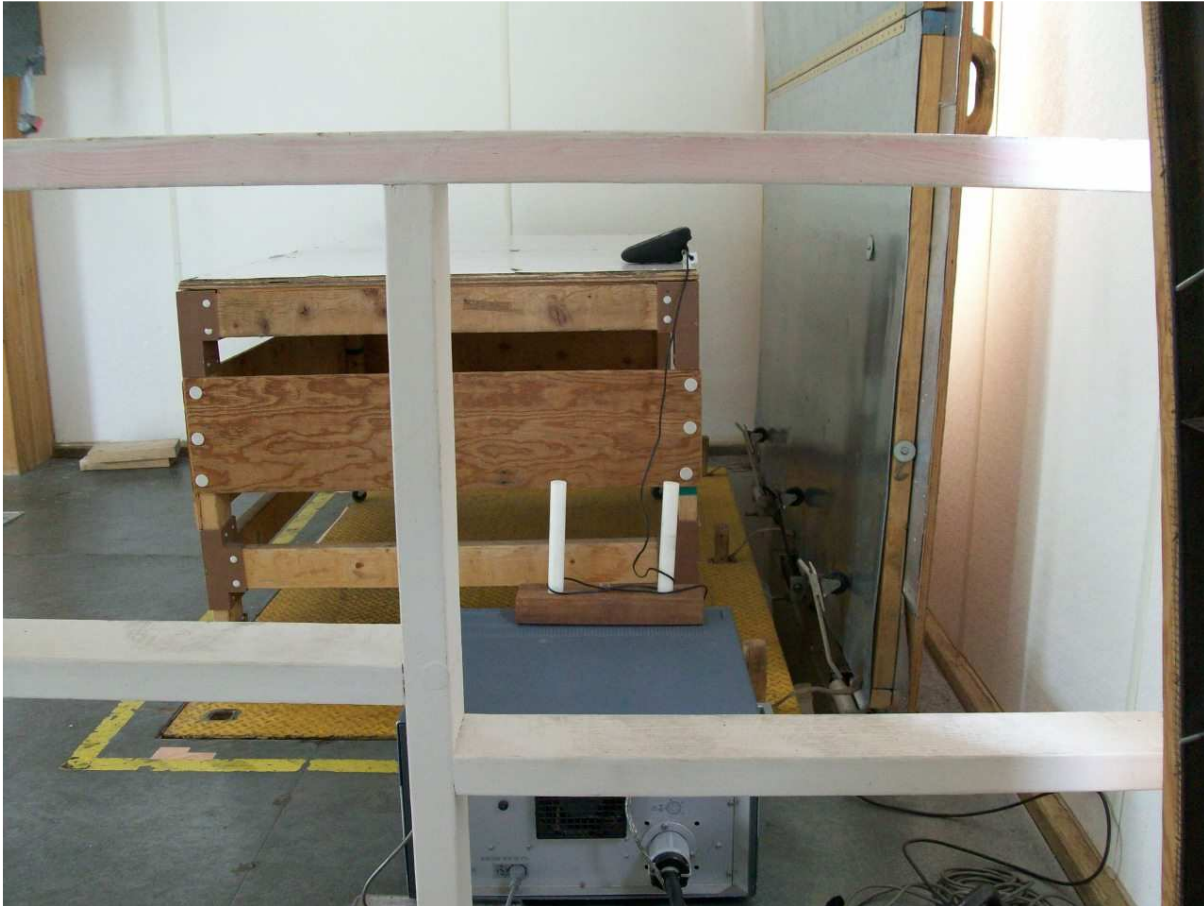
Modifications required to pass: None

Test Specification Deviations: Additions to or Exclusions from: None

Test-setup photo(s):
Conducted Emissions



Test-setup photo(s):
Conducted Emissions



Test-setup photo(s):
EUT – Axis 1 (Flat on Table, Normal Operation)



Test-setup photo(s):
EUT – Axis 2 (Vertical)



Test-setup photo(s):
Radiated Emissions: Intentional Emissions Axis 2: Worst Case



Test-setup photo(s):
Radiated Emissions: Intentional Emissions – Axis 2: Worst Case



Test-setup photo(s):
Radiated Emissions: Unintentional Emissions



Test-setup photo(s):
Radiated Emissions: Unintentional Emissions



Appendix A

Test Data Sheets
and
Test Equipment Used

Conducted Emissions Data

115VAC/60Hz

Conducted Electromagnetic Emissions

Test Report #: 3178596 Run 2	Test Area: Pinewood Site 1 Cond	Temperature: 24.1 °C
Test Method: FCC Part 15.107 Class B	Test Date: 05-Jun-2009	Relative Humidity: 47.2 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.1 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems	Level Key
EUT Description: Base Station Data Logger & Transceiver	Pk – Peak Nb – Narrow Band
Notes: Note: Product to be sold in US Only	Qp – QuasiPeak Bb – Broad Band
	Av - Average

FREQ	LEVEL	CABLE / LISN / ATTEN	FINAL	TEST POINT	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB)	(dBuV)		AV15.107B	QP15.107B
0.160	20.7 Av	0.1 / -0.3 / -9.7	30.2	Neutral	-25.3	N/A
0.160	39.3 Qp	0.1 / -0.3 / -9.7	48.8	Neutral	N/A	-16.7
0.200	18.7 Av	0.1 / -0.3 / -9.7	28.2	Neutral	-25.4	N/A
0.200	33.7 Qp	0.1 / -0.3 / -9.7	43.2	Neutral	N/A	-20.4
0.250	8.7 Av	0.1 / -0.3 / -9.7	18.2	Neutral	-33.6	N/A
0.250	25.7 Qp	0.1 / -0.3 / -9.7	35.2	Neutral	N/A	-26.6
0.310	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-19.2	N/A
0.310	36.0 Qp	0.1 / -0.3 / -9.7	45.5	Neutral	N/A	-14.5
0.160	20.7 Av	0.1 / -0.3 / -9.7	30.2	Neutral	-25.3	N/A
0.160	39.4 Qp	0.1 / -0.3 / -9.7	48.9	Neutral	N/A	-16.6
0.150	26.5 Av	0.1 / -0.3 / -9.7	36.0	Neutral	-20.0	N/A
0.150	42.8 Qp	0.1 / -0.3 / -9.7	52.3	Neutral	N/A	-13.7
0.200	18.6 Av	0.1 / -0.3 / -9.7	28.1	Neutral	-25.5	N/A
0.200	34.3 Qp	0.1 / -0.3 / -9.7	43.8	Neutral	N/A	-19.8
0.310	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-19.2	N/A
0.310	37.2 Qp	0.1 / -0.3 / -9.7	46.7	Neutral	N/A	-13.3
0.360	21.8 Av	0.1 / -0.3 / -9.7	31.3	Neutral	-17.4	N/A
0.360	35.4 Qp	0.1 / -0.3 / -9.7	44.9	Neutral	N/A	-13.8
0.410	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-16.8	N/A
0.410	35.3 Qp	0.1 / -0.3 / -9.7	44.8	Neutral	N/A	-12.8
0.460	17.7 Av	0.1 / -0.3 / -9.7	27.2	Neutral	-19.5	N/A
0.460	28.4 Qp	0.1 / -0.3 / -9.7	37.9	Neutral	N/A	-18.8
0.520	7.8 Av	0.1 / -0.3 / -9.7	17.3	Neutral	-28.7	N/A
0.520	23.7 Qp	0.1 / -0.3 / -9.7	33.2	Neutral	N/A	-22.8
0.160	26.0 Av	0.1 / -0.3 / -9.7	35.5	Line 1	-20.0	N/A
0.160	39.0 Qp	0.1 / -0.3 / -9.7	48.5	Line 1	N/A	-17.0
0.210	25.9 Av	0.1 / -0.3 / -9.7	35.4	Line 1	-17.8	N/A
0.210	39.7 Qp	0.1 / -0.3 / -9.7	49.2	Line 1	N/A	-14.0
0.260	24.5 Av	0.1 / -0.3 / -9.7	34.0	Line 1	-17.4	N/A
0.260	38.5 Qp	0.1 / -0.3 / -9.7	48.0	Line 1	N/A	-13.4
0.310	22.7 Av	0.1 / -0.3 / -9.7	32.2	Line 1	-17.8	N/A
0.310	32.8 Qp	0.1 / -0.3 / -9.7	42.3	Line 1	N/A	-17.7

FREQ (MHz)	LEVEL (dBuV)	CABLE / LISN / ATTEN (dB)	FINAL (dBuV)	TEST POINT	DELTA1 (dB) AV15.107B	DELTA2 (dB) QP15.107B
0.360	10.4 Av	0.1 / -0.3 / -9.7	19.9	Line 1	-28.8	N/A
0.360	35.8 Qp	0.1 / -0.3 / -9.7	45.3	Line 1	N/A	-13.4
0.410	27.2 Av	0.1 / -0.3 / -9.7	36.7	Line 1	-10.9	N/A
0.410	35.2 Qp	0.1 / -0.3 / -9.7	44.7	Line 1	N/A	-12.9
0.460	21.2 Av	0.1 / -0.3 / -9.7	30.7	Line 1	-16.0	N/A
0.460	29.4 Qp	0.1 / -0.3 / -9.7	38.9	Line 1	N/A	-17.8
0.520	13.8 Av	0.1 / -0.3 / -9.7	23.3	Line 1	-22.7	N/A
0.520	24.6 Qp	0.1 / -0.3 / -9.7	34.1	Line 1	N/A	-21.9

FREQ	LEVEL	CABLE / LISN / ATTEN	FINAL	TEST POINT	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB)	(dBuV)		AV15.107B	QP15.107B
***** Measurement Summary *****						
0.410	27.2 Av	0.1 / -0.3 / -9.7	36.7	Line 1	-10.9	N/A
0.410	35.3 Qp	0.1 / -0.3 / -9.7	44.8	Neutral	N/A	-12.8
0.410	35.2 Qp	0.1 / -0.3 / -9.7	44.7	Line 1	N/A	-12.9
0.310	37.2 Qp	0.1 / -0.3 / -9.7	46.7	Neutral	N/A	-13.3
0.260	38.5 Qp	0.1 / -0.3 / -9.7	48	Line 1	N/A	-13.4
0.360	35.8 Qp	0.1 / -0.3 / -9.7	45.3	Line 1	N/A	-13.4
0.150	42.8 Qp	0.1 / -0.3 / -9.7	52.3	Neutral	N/A	-13.7
0.360	35.4 Qp	0.1 / -0.3 / -9.7	44.9	Neutral	N/A	-13.8
0.210	39.7 Qp	0.1 / -0.3 / -9.7	49.2	Line 1	N/A	-14.0
0.310	36.0 Qp	0.1 / -0.3 / -9.7	45.5	Neutral	N/A	-14.5
0.460	21.2 Av	0.1 / -0.3 / -9.7	30.7	Line 1	-16	N/A
0.160	39.4 Qp	0.1 / -0.3 / -9.7	48.9	Neutral	N/A	-16.6
0.160	39.3 Qp	0.1 / -0.3 / -9.7	48.8	Neutral	N/A	-16.7
0.410	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-16.8	N/A
0.160	39.0 Qp	0.1 / -0.3 / -9.7	48.5	Line 1	N/A	-17.0
0.360	21.8 Av	0.1 / -0.3 / -9.7	31.3	Neutral	-17.4	N/A
0.260	24.5 Av	0.1 / -0.3 / -9.7	34	Line 1	-17.4	N/A
0.310	32.8 Qp	0.1 / -0.3 / -9.7	42.3	Line 1	N/A	-17.7
0.460	29.4 Qp	0.1 / -0.3 / -9.7	38.9	Line 1	N/A	-17.8
0.210	25.9 Av	0.1 / -0.3 / -9.7	35.4	Line 1	-17.8	N/A
0.310	22.7 Av	0.1 / -0.3 / -9.7	32.2	Line 1	-17.8	N/A
0.460	28.4 Qp	0.1 / -0.3 / -9.7	37.9	Neutral	N/A	-18.8
0.310	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-19.2	N/A
0.310	21.3 Av	0.1 / -0.3 / -9.7	30.8	Neutral	-19.2	N/A
0.460	17.7 Av	0.1 / -0.3 / -9.7	27.2	Neutral	-19.5	N/A
0.200	34.3 Qp	0.1 / -0.3 / -9.7	43.8	Neutral	N/A	-19.8
0.150	26.5 Av	0.1 / -0.3 / -9.7	36	Neutral	-20	N/A
0.160	26.0 Av	0.1 / -0.3 / -9.7	35.5	Line 1	-20	N/A
0.200	33.7 Qp	0.1 / -0.3 / -9.7	43.2	Neutral	N/A	-20.4
0.520	24.6 Qp	0.1 / -0.3 / -9.7	34.1	Line 1	N/A	-21.9
0.520	13.8 Av	0.1 / -0.3 / -9.7	23.3	Line 1	-22.7	N/A
0.520	23.7 Qp	0.1 / -0.3 / -9.7	33.2	Neutral	N/A	-22.8
0.160	20.7 Av	0.1 / -0.3 / -9.7	30.2	Neutral	-25.3	N/A
0.160	20.7 Av	0.1 / -0.3 / -9.7	30.2	Neutral	-25.3	N/A
0.200	18.7 Av	0.1 / -0.3 / -9.7	28.2	Neutral	-25.4	N/A
0.200	18.6 Av	0.1 / -0.3 / -9.7	28.1	Neutral	-25.5	N/A
0.250	25.7 Qp	0.1 / -0.3 / -9.7	35.2	Neutral	N/A	-26.6
0.520	7.8 Av	0.1 / -0.3 / -9.7	17.3	Neutral	-28.7	N/A
0.360	10.4 Av	0.1 / -0.3 / -9.7	19.9	Line 1	-28.8	N/A
0.250	8.7 Av	0.1 / -0.3 / -9.7	18.2	Neutral	-33.6	N/A

Radiated Emissions Data

115VAC/60 Hz

Where applicable, data flows as follows:

- **Product configured with internal antenna # 1**
- **Product configured with internal antenna # 2**

**Radiated Unintentional Emission
15.109**

and

**Spurious Emission
15.249 (d)
15.209**

Radiated Electromagnetic Emissions

Test Report #: 3178596 Part 209 Run 01	Test Area: Pinewood Site 1 (3m)	Temperature: 23.8 °C
Test Method: FCC Part 15.209	Test Date: 04-Jun-2009	Relative Humidity: 42.4 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.3 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems	Level Key
EUT Description: Base Station - Data Logger & Transceiver	Pk – Peak Nb – Narrow Band
Notes: Product is normal operating "receive" mode with intermittent transmit for measuring purposes (ignoring fundamental/harmonics)	Qp – QuasiPeak Bb – Broad Band
EUT Clocks: 12MHz, 26MHz, 28.224MHz, 32.768MHz, 50MHz, 288MHz	Av - Average

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB\m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) 15.209 >1GHz
Loop Antenna Parallel to EUT						
8-30MHz 0 degrees						
12.00	51.1 Qp	0.3 / 10.7 / 28.4	33.7	V / 1.0 / 0.0	-35.8	N/A
12.00	54.0 Qp	0.3 / 10.7 / 28.4	36.6	V / 1.0 / 124.0	-32.9	N/A
Loop Antenna Perpendicular to EUT						
10.23	47.2 Qp	0.2 / 10.7 / 28.4	29.8	H / 1.0 / 124.0	-39.7	N/A
12.02	53.6 Qp	0.3 / 10.7 / 28.4	36.3	H / 1.0 / 124.0	-33.2	N/A
16.20	46.5 Qp	0.4 / 10.7 / 28.3	29.1	H / 1.0 / 124.0	-40.4	N/A
29.82	46.2 Qp	0.5 / 8.1 / 28.2	26.7	H / 1.0 / 124.0	-42.8	N/A
No other significant signals found: 8-30MHz						

Radiated Electromagnetic Emissions

Test Report #: 3178596 Part 209 Run 02	Test Area: Pinewood Site 1 (3m)	Temperature: 23.8 °C
Test Method: FCC Part 15.209	Test Date: 05-Jun-2009	Relative Humidity: 42.4 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.3 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems	Level Key
EUT Description: Base Station - Data Logger & Transceiver	Pk – Peak Nb – Narrow Band
Notes: Product is normal operating "receive" mode with intermittent transmit for measuring purposes (ignoring fundamental/harmonics)	Qp – QuasiPeak Bb – Broad Band
	Av - Average

EUT Clocks: 12MHz, 26MHz, 28.224MHz, 32.768MHz, 50MHz, 288MHz

Internal Antenna # 1

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
30-200MHz Vertical 0 degrees						
30.00	38.6 Qp	0.5 / 13.0 / 28.2	23.9	V / 1.0 / 0.0	-16.1	N/A
32.77	42.2 Qp	0.6 / 12.4 / 28.2	27.0	V / 1.0 / 0.0	-13.0	N/A
36.00	47.0 Qp	0.6 / 11.9 / 28.2	31.3	V / 1.0 / 0.0	-8.7	N/A
40.00	54.8 Qp	0.6 / 11.4 / 28.2	38.6	V / 1.0 / 0.0	-1.4	N/A
48.00	53.4 Qp	0.7 / 10.3 / 28.2	36.2	V / 1.0 / 0.0	-3.8	N/A
52.00	40.7 Qp	0.7 / 9.7 / 28.1	23.0	V / 1.0 / 0.0	-17.0	N/A
56.45	39.2 Qp	0.7 / 9.1 / 28.2	20.8	V / 1.0 / 0.0	-19.2	N/A
60.00	45.0 Qp	0.7 / 8.5 / 28.1	26.1	V / 1.0 / 0.0	-13.9	N/A
65.53	43.3 Qp	0.8 / 8.2 / 28.2	24.1	V / 1.0 / 0.0	-15.9	N/A
70.00	43.2 Qp	0.8 / 8.4 / 28.2	24.2	V / 1.0 / 0.0	-15.8	N/A
72.00	42.0 Qp	0.8 / 8.0 / 28.1	22.7	V / 1.0 / 0.0	-17.3	N/A
78.00	33.2 Qp	0.9 / 7.1 / 28.1	13.1	V / 1.0 / 0.0	-26.9	N/A
84.67	35.3 Qp	0.9 / 7.0 / 28.0	15.2	V / 1.0 / 0.0	-24.8	N/A
112.90	31.0 Qp	1.1 / 11.0 / 28.0	15.2	V / 1.0 / 0.0	-28.3	N/A
130.00	32.3 Qp	1.2 / 12.0 / 27.8	17.7	V / 1.0 / 0.0	-25.8	N/A
132.00	41.9 Qp	1.2 / 12.2 / 27.9	27.4	V / 1.0 / 0.0	-16.1	N/A
141.12	34.1 Qp	1.3 / 12.5 / 27.7	20.2	V / 1.0 / 0.0	-23.3	N/A
144.00	33.4 Qp	1.3 / 12.6 / 27.7	19.5	V / 1.0 / 0.0	-24.0	N/A
150.00	39.0 Qp	1.3 / 12.6 / 27.7	25.2	V / 1.0 / 0.0	-18.3	N/A
156.00	29.4 Qp	1.4 / 12.4 / 27.7	15.4	V / 1.0 / 0.0	-28.1	N/A
163.84	26.6 Qp	1.4 / 12.2 / 27.6	12.5	V / 1.0 / 0.0	-31.0	N/A
168.00	25.9 Qp	1.4 / 12.1 / 27.6	11.8	V / 1.0 / 0.0	-31.7	N/A
182.00	27.2 Qp	1.4 / 12.8 / 27.5	13.9	V / 1.0 / 0.0	-29.6	N/A
184.63	27.5 Qp	1.4 / 12.8 / 27.5	14.3	V / 1.0 / 0.0	-29.2	N/A
196.60	24.1 Qp	1.5 / 13.2 / 27.4	11.3	V / 1.0 / 0.0	-32.2	N/A
199.99	34.9 Qp	1.5 / 13.4 / 27.3	22.4	V / 1.0 / 0.0	-21.1	N/A
30-200MHz Vertical 90 degrees						
30.00	39.1 Qp	0.5 / 13.0 / 28.2	24.4	V / 1.0 / 90.0	-15.6	N/A
32.77	42.4 Qp	0.6 / 12.4 / 28.2	27.2	V / 1.0 / 90.0	-12.8	N/A
36.00	47.1 Qp	0.6 / 11.9 / 28.2	31.5	V / 1.0 / 90.0	-8.5	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dBm) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) N/A
40.00	55.1 Qp	0.6 / 11.4 / 28.2	39.0	V / 1.0 / 90.0	-1.0	N/A
48.00	53.8 Qp	0.7 / 10.3 / 28.2	36.6	V / 1.0 / 90.0	-3.4	N/A
52.00	40.5 Qp	0.7 / 9.7 / 28.1	22.8	V / 1.0 / 90.0	-17.2	N/A
56.45	39.0 Qp	0.7 / 9.1 / 28.2	20.6	V / 1.0 / 90.0	-19.4	N/A
60.00	44.9 Qp	0.7 / 8.5 / 28.1	25.9	V / 1.0 / 90.0	-14.1	N/A
131.07	29.9 Qp	1.2 / 12.1 / 27.8	15.4	V / 1.0 / 90.0	-28.1	N/A
144.00	33.6 Qp	1.3 / 12.6 / 27.7	19.8	V / 1.0 / 90.0	-23.7	N/A
150.00	38.9 Qp	1.3 / 12.6 / 27.7	25.1	V / 1.0 / 90.0	-18.4	N/A
156.00	31.4 Qp	1.4 / 12.4 / 27.7	17.5	V / 1.0 / 90.0	-26.0	N/A
184.63	27.6 Qp	1.4 / 12.8 / 27.5	14.4	V / 1.0 / 90.0	-29.1	N/A
30-200MHz Vertical 180 degrees						
30.00	39.2 Qp	0.5 / 13.0 / 28.2	24.5	V / 1.0 / 180.0	-15.5	N/A
32.77	42.1 Qp	0.6 / 12.4 / 28.2	26.9	V / 1.0 / 180.0	-13.1	N/A
36.00	47.3 Qp	0.6 / 11.9 / 28.2	31.6	V / 1.0 / 180.0	-8.4	N/A
40.00	55.2 Qp	0.6 / 11.4 / 28.2	39.1	V / 1.0 / 180.0	-0.9	N/A
48.00	54.8 Qp	0.7 / 10.3 / 28.2	37.6	V / 1.0 / 180.0	-2.4	N/A
52.00	41.5 Qp	0.7 / 9.7 / 28.1	23.7	V / 1.0 / 180.0	-16.3	N/A
56.45	39.7 Qp	0.7 / 9.1 / 28.2	21.3	V / 1.0 / 180.0	-18.7	N/A
60.00	45.7 Qp	0.7 / 8.5 / 28.1	26.8	V / 1.0 / 180.0	-13.2	N/A
84.67	36.4 Qp	0.9 / 7.0 / 28.0	16.3	V / 1.0 / 180.0	-23.7	N/A
130.00	32.1 Qp	1.2 / 12.0 / 27.8	17.5	V / 1.0 / 180.0	-26.0	N/A
131.07	30.9 Qp	1.2 / 12.1 / 27.8	16.3	V / 1.0 / 180.0	-27.2	N/A
132.00	42.6 Qp	1.2 / 12.2 / 27.9	28.1	V / 1.0 / 180.0	-15.4	N/A
144.00	34.5 Qp	1.3 / 12.6 / 27.7	20.7	V / 1.0 / 180.0	-22.8	N/A
30-200MHz Vertical 270 degrees						
30.00	39.0 Qp	0.5 / 13.0 / 28.2	24.3	V / 1.0 / 270.0	-15.7	N/A
36.00	47.0 Qp	0.6 / 11.9 / 28.2	31.3	V / 1.0 / 270.0	-8.7	N/A
40.00	54.1 Qp	0.6 / 11.4 / 28.2	38.0	V / 1.0 / 270.0	-2.0	N/A
48.00	53.8 Qp	0.7 / 10.3 / 28.2	36.6	V / 1.0 / 270.0	-3.4	N/A
Following signals maximized between 30 & 200 MHz Vertical						
32.77	42.6 Qp	0.6 / 12.4 / 28.2	27.4	V / 1.0 / 186.0	-12.6	N/A
36.00	49.5 Qp	0.6 / 11.9 / 28.2	33.8	V / 1.0 / 212.0	-6.2	N/A
40.00	55.2 Qp	0.6 / 11.4 / 28.2	39.1	V / 1.0 / 212.0	-0.9	N/A
48.00	54.9 Qp	0.7 / 10.3 / 28.2	37.7	V / 1.0 / 224.0	-2.3	N/A
60.00	45.8 Qp	0.7 / 8.5 / 28.1	26.9	V / 1.0 / 224.0	-13.1	N/A
132.00	43.0 Qp	1.2 / 12.2 / 27.9	28.5	V / 1.0 / 224.0	-15.0	N/A
30-200MHz Horizontal 0 degrees						
30.00	25.0 Qp	0.5 / 13.0 / 28.2	10.3	H / 1.6 / 0.0	-29.7	N/A
32.77	24.4 Qp	0.6 / 12.4 / 28.2	9.2	H / 1.6 / 0.0	-30.8	N/A
36.00	25.6 Qp	0.6 / 11.9 / 28.2	10.0	H / 1.6 / 0.0	-30.0	N/A
40.00	28.6 Qp	0.6 / 11.4 / 28.2	12.4	H / 1.6 / 0.0	-27.6	N/A
48.00	32.2 Qp	0.7 / 10.3 / 28.2	15.0	H / 1.6 / 0.0	-25.0	N/A
52.00	27.4 Qp	0.7 / 9.7 / 28.1	9.6	H / 1.6 / 0.0	-30.4	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dBm) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) N/A
56.45	28.3 Qp	0.7 / 9.1 / 28.2	9.9	H / 1.6 / 0.0	-30.1	N/A
60.00	29.7 Qp	0.7 / 8.5 / 28.1	10.8	H / 1.6 / 0.0	-29.2	N/A
65.53	27.2 Qp	0.8 / 8.2 / 28.2	8.0	H / 1.6 / 0.0	-32.0	N/A
70.00	28.1 Qp	0.8 / 8.4 / 28.2	9.1	H / 1.6 / 0.0	-30.9	N/A
72.00	30.9 Qp	0.8 / 8.0 / 28.1	11.5	H / 1.6 / 0.0	-28.5	N/A
78.00	28.6 Qp	0.9 / 7.1 / 28.1	8.5	H / 1.6 / 0.0	-31.5	N/A
84.67	31.9 Qp	0.9 / 7.0 / 28.0	11.9	H / 1.6 / 0.0	-28.1	N/A
112.90	32.8 Qp	1.1 / 11.0 / 28.0	17.0	H / 1.6 / 0.0	-26.5	N/A
130.00	25.9 Qp	1.2 / 12.0 / 27.8	11.3	H / 1.6 / 0.0	-32.2	N/A
131.07	25.1 Qp	1.2 / 12.1 / 27.8	10.5	H / 1.6 / 0.0	-33.0	N/A
132.00	35.3 Qp	1.2 / 12.2 / 27.9	20.8	H / 1.6 / 0.0	-22.7	N/A
141.12	26.4 Qp	1.3 / 12.5 / 27.7	12.5	H / 1.6 / 0.0	-31.0	N/A
144.00	26.4 Qp	1.3 / 12.6 / 27.7	12.6	H / 1.6 / 0.0	-30.9	N/A
150.00	39.2 Qp	1.3 / 12.6 / 27.7	25.5	H / 1.6 / 0.0	-18.0	N/A
156.00	28.6 Qp	1.4 / 12.4 / 27.7	14.6	H / 1.6 / 0.0	-28.9	N/A
163.84	24.2 Qp	1.4 / 12.2 / 27.6	10.1	H / 1.6 / 0.0	-33.4	N/A
168.00	25.0 Qp	1.4 / 12.1 / 27.6	10.9	H / 1.6 / 0.0	-32.6	N/A
182.00	24.2 Qp	1.4 / 12.8 / 27.5	10.9	H / 1.6 / 0.0	-32.6	N/A
184.63	24.0 Qp	1.4 / 12.8 / 27.5	10.8	H / 1.6 / 0.0	-32.7	N/A
196.60	24.2 Qp	1.5 / 13.2 / 27.4	11.4	H / 1.6 / 0.0	-32.1	N/A
30-200MHz Horizontal 90 degrees						
36.00	32.1 Qp	0.6 / 11.9 / 28.2	16.4	H / 1.6 / 90.0	-23.6	N/A
40.00	40.3 Qp	0.6 / 11.4 / 28.2	24.2	H / 1.6 / 90.0	-15.8	N/A
48.00	41.5 Qp	0.7 / 10.3 / 28.2	24.4	H / 1.6 / 90.0	-15.6	N/A
52.00	29.6 Qp	0.7 / 9.7 / 28.1	11.9	H / 1.6 / 90.0	-28.1	N/A
131.07	32.2 Qp	1.2 / 12.1 / 27.8	17.7	H / 1.6 / 90.0	-25.8	N/A
132.00	48.8 Qp	1.2 / 12.2 / 27.9	34.3	H / 1.6 / 90.0	-9.2	N/A
141.12	32.2 Qp	1.3 / 12.5 / 27.7	18.3	H / 1.6 / 90.0	-25.2	N/A
150.00	46.7 Qp	1.3 / 12.6 / 27.7	32.9	H / 1.6 / 90.0	-10.6	N/A
156.00	30.8 Qp	1.4 / 12.4 / 27.7	16.8	H / 1.6 / 90.0	-26.7	N/A
199.99	36.5 Qp	1.5 / 13.4 / 27.3	24.0	H / 1.6 / 90.0	-19.5	N/A
30-200MHz Horizontal 180 degrees						
40.00	29.6 Qp	0.6 / 11.4 / 28.2	13.4	H / 1.6 / 180.0	-26.6	N/A
48.00	34.8 Qp	0.7 / 10.3 / 28.2	17.6	H / 1.6 / 180.0	-22.4	N/A
112.90	33.3 Qp	1.1 / 11.0 / 28.0	17.5	H / 1.6 / 180.0	-26.0	N/A
150.00	39.8 Qp	1.3 / 12.6 / 27.7	26.0	H / 1.6 / 180.0	-17.5	N/A
199.99	36.8 Qp	1.5 / 13.4 / 27.3	24.3	H / 1.6 / 180.0	-19.2	N/A
30-200MHz Horizontal 270 degrees						
40.00	41.5 Qp	0.6 / 11.4 / 28.2	25.4	H / 1.6 / 270.0	-14.6	N/A
48.00	40.5 Qp	0.7 / 10.3 / 28.2	23.3	H / 1.6 / 270.0	-16.7	N/A
112.90	36.6 Qp	1.1 / 11.0 / 28.0	20.8	H / 1.6 / 270.0	-22.7	N/A
130.00	34.3 Qp	1.2 / 12.0 / 27.8	19.7	H / 1.6 / 270.0	-23.8	N/A
131.07	34.4 Qp	1.2 / 12.1 / 27.8	19.8	H / 1.6 / 270.0	-23.7	N/A
132.00	48.8 Qp	1.2 / 12.2 / 27.9	34.3	H / 1.6 / 270.0	-9.2	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
156.00	31.6 Qp	1.4 / 12.4 / 27.7	17.7	H / 1.6 / 270.0	-25.8	N/A
Following signals maximized between 30 & 200MHz Horizontal						
36.00	34.6 Qp	0.6 / 11.9 / 28.2	18.9	H / 1.8 / 256.0	-21.1	N/A
40.00	43.6 Qp	0.6 / 11.4 / 28.2	27.5	H / 1.9 / 212.0	-12.5	N/A
48.00	44.2 Qp	0.7 / 10.3 / 28.2	27.0	H / 2.1 / 268.0	-13.0	N/A
132.00	49.2 Qp	1.2 / 12.2 / 27.9	34.8	H / 2.1 / 122.0	-8.7	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
***** Measurement Summary *****						
40.00	55.2 Qp	0.6 / 11.4 / 28.2	39.1	V / 1.0 / 212.0	-0.9	N/A
48.00	54.9 Qp	0.7 / 10.3 / 28.2	37.7	V / 1.0 / 224.0	-2.3	N/A
36.00	49.5 Qp	0.6 / 11.9 / 28.2	33.8	V / 1.0 / 212.0	-6.2	N/A
132.00	49.2 Qp	1.2 / 12.2 / 27.9	34.8	H / 2.1 / 122.0	-8.7	N/A
150.00	46.7 Qp	1.3 / 12.6 / 27.7	32.9	H / 1.6 / 90.0	-10.6	N/A
32.77	42.6 Qp	0.6 / 12.4 / 28.2	27.4	V / 1.0 / 186.0	-12.6	N/A
60.00	45.8 Qp	0.7 / 8.5 / 28.1	26.9	V / 1.0 / 224.0	-13.1	N/A
30.00	39.2 Qp	0.5 / 13.0 / 28.2	24.5	V / 1.0 / 180.0	-15.5	N/A
70.00	43.2 Qp	0.8 / 8.4 / 28.2	24.2	V / 1.0 / 0.0	-15.8	N/A
65.53	43.3 Qp	0.8 / 8.2 / 28.2	24.1	V / 1.0 / 0.0	-15.9	N/A
52.00	41.5 Qp	0.7 / 9.7 / 28.1	23.7	V / 1.0 / 180.0	-16.3	N/A
72.00	42.0 Qp	0.8 / 8.0 / 28.1	22.7	V / 1.0 / 0.0	-17.3	N/A
56.45	39.7 Qp	0.7 / 9.1 / 28.2	21.3	V / 1.0 / 180.0	-18.7	N/A
199.99	36.8 Qp	1.5 / 13.4 / 27.3	24.3	H / 1.6 / 180.0	-19.2	N/A
112.90	36.6 Qp	1.1 / 11.0 / 28.0	20.8	H / 1.6 / 270.0	-22.7	N/A
144.00	34.5 Qp	1.3 / 12.6 / 27.7	20.7	V / 1.0 / 180.0	-22.8	N/A
141.12	34.1 Qp	1.3 / 12.5 / 27.7	20.2	V / 1.0 / 0.0	-23.3	N/A
84.67	36.4 Qp	0.9 / 7.0 / 28.0	16.3	V / 1.0 / 180.0	-23.7	N/A
131.07	34.4 Qp	1.2 / 12.1 / 27.8	19.8	H / 1.6 / 270.0	-23.7	N/A
130.00	34.3 Qp	1.2 / 12.0 / 27.8	19.7	H / 1.6 / 270.0	-23.8	N/A
156.00	31.6 Qp	1.4 / 12.4 / 27.7	17.7	H / 1.6 / 270.0	-25.8	N/A
78.00	33.2 Qp	0.9 / 7.1 / 28.1	13.1	V / 1.0 / 0.0	-26.9	N/A
184.63	27.6 Qp	1.4 / 12.8 / 27.5	14.4	V / 1.0 / 90.0	-29.1	N/A
182.00	27.2 Qp	1.4 / 12.8 / 27.5	13.9	V / 1.0 / 0.0	-29.6	N/A
163.84	26.6 Qp	1.4 / 12.2 / 27.6	12.5	V / 1.0 / 0.0	-31.0	N/A
168.00	25.9 Qp	1.4 / 12.1 / 27.6	11.8	V / 1.0 / 0.0	-31.7	N/A
196.60	24.2 Qp	1.5 / 13.2 / 27.4	11.4	H / 1.6 / 0.0	-32.1	N/A

Radiated Electromagnetic Emissions

Test Report #: 3178596 Part 209 Run 01	Test Area: Pinewood Site 1 (3m)	Temperature: 23.8 °C
Test Method: FCC Part 15.209	Test Date: 04-Jun-2009	Relative Humidity: 42.4 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.3 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems

EUT Description: Base Station - Data Logger & Transceiver

Notes: Product is normal operating "receive" mode with intermittent transmit for measuring purposes (ignoring fundamental/harmonics)

EUT Clocks: 12MHz, 26MHz, 28.224MHz, 32.768MHz, 50MHz, 288MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

Internal Antenna # 1

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
200-1000MHz Vertical 0 degrees						
204.00	25.8 Qp	1.5 / 11.1 / 27.4	10.9	V / 1.0 / 0.0	-32.6	N/A
216.00	27.8 Qp	1.6 / 10.5 / 27.3	12.5	V / 1.0 / 0.0	-31.0	N/A
228.00	26.6 Qp	1.6 / 10.4 / 27.2	11.4	V / 1.0 / 0.0	-34.6	N/A
240.00	26.2 Qp	1.7 / 10.9 / 27.2	11.7	V / 1.0 / 0.0	-34.3	N/A
288.00	24.3 Qp	1.9 / 13.2 / 27.1	12.2	V / 1.0 / 0.0	-33.8	N/A
300.00	37.9 Qp	1.9 / 13.8 / 27.1	26.5	V / 1.0 / 0.0	-19.5	N/A
528.00	27.9 Qp	2.6 / 18.6 / 28.3	20.9	V / 1.0 / 0.0	-25.1	N/A
576.00	30.1 Qp	2.8 / 18.1 / 28.4	22.7	V / 1.0 / 0.0	-23.3	N/A
200.01	31.7 Qp	1.5 / 11.3 / 27.3	17.1	V / 1.0 / 0.0	-26.4	N/A
250.01	36.0 Qp	1.7 / 11.6 / 27.2	22.1	V / 1.0 / 0.0	-23.9	N/A
350.01	45.4 Qp	2.1 / 14.6 / 27.4	34.6	V / 1.0 / 0.0	-11.4	N/A
400.01	37.8 Qp	2.2 / 17.2 / 27.7	29.4	V / 1.0 / 0.0	-16.6	N/A
450.01	38.3 Qp	2.4 / 17.0 / 28.1	29.7	V / 1.0 / 0.0	-16.3	N/A
500.01	42.1 Qp	2.6 / 21.3 / 28.2	37.9	V / 1.0 / 0.0	-8.1	N/A
550.01	35.2 Qp	2.6 / 17.8 / 28.3	27.3	V / 1.0 / 0.0	-18.7	N/A
650.01	32.5 Qp	3.0 / 19.4 / 28.1	26.8	V / 1.0 / 0.0	-19.2	N/A
700.01	29.0 Qp	3.3 / 20.8 / 28.1	24.9	V / 1.0 / 0.0	-21.1	N/A
750.01	27.1 Qp	3.2 / 20.4 / 28.1	22.6	V / 1.0 / 0.0	-23.4	N/A
800.01	27.0 Qp	3.3 / 21.0 / 27.8	23.5	V / 1.0 / 0.0	-22.5	N/A
850.01	27.3 Qp	3.4 / 21.7 / 27.6	24.8	V / 1.0 / 0.0	-21.2	N/A
900.01	27.4 Qp	3.6 / 22.3 / 27.6	25.7	V / 1.0 / 0.0	-20.3	N/A
950.01	31.3 Qp	3.7 / 22.4 / 27.4	30.0	V / 1.0 / 0.0	-16.0	N/A
288.00	24.4 Qp	1.9 / 13.2 / 27.1	12.3	V / 1.0 / 0.0	-33.7	N/A
375.01	31.5 Qp	2.1 / 15.3 / 27.6	21.4	V / 1.0 / 0.0	-24.6	N/A
425.00	32.6 Qp	2.3 / 20.0 / 27.9	27.1	V / 1.0 / 0.0	-18.9	N/A
200-1000MHz Vertical 90 degrees						
200.01	29.6 Qp	1.5 / 11.3 / 27.3	15.0	V / 1.0 / 90.0	-28.5	N/A
204.00	27.2 Qp	1.5 / 11.1 / 27.4	12.4	V / 1.0 / 90.0	-31.1	N/A
216.00	28.4 Qp	1.6 / 10.5 / 27.3	13.2	V / 1.0 / 90.0	-30.3	N/A
228.00	27.9 Qp	1.6 / 10.4 / 27.2	12.7	V / 1.0 / 90.0	-33.3	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB/m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) 15.209 >1GHz
240.00	26.9 Qp	1.7 / 10.9 / 27.2	12.3	V / 1.0 / 90.0	-33.7	N/A
250.01	40.4 Qp	1.7 / 11.6 / 27.2	26.5	V / 1.0 / 90.0	-19.5	N/A
300.00	36.9 Qp	1.9 / 13.8 / 27.1	25.5	V / 1.0 / 90.0	-20.5	N/A
350.01	45.6 Qp	2.1 / 14.6 / 27.4	34.8	V / 1.0 / 90.0	-11.2	N/A
375.01	29.1 Qp	2.1 / 15.3 / 27.6	19.0	V / 1.0 / 90.0	-27.0	N/A
400.01	42.6 Qp	2.2 / 17.2 / 27.7	34.3	V / 1.0 / 90.0	-11.7	N/A
425.00	27.9 Qp	2.3 / 20.0 / 27.9	22.4	V / 1.0 / 90.0	-23.6	N/A
450.01	40.5 Qp	2.4 / 17.0 / 28.1	31.9	V / 1.0 / 90.0	-14.1	N/A
500.01	39.6 Qp	2.6 / 21.3 / 28.2	35.4	V / 1.0 / 90.0	-10.6	N/A
528.00	27.4 Qp	2.6 / 18.6 / 28.3	20.4	V / 1.0 / 90.0	-25.6	N/A
550.01	34.0 Qp	2.6 / 17.8 / 28.3	26.2	V / 1.0 / 90.0	-19.8	N/A
576.00	31.1 Qp	2.8 / 18.1 / 28.4	23.6	V / 1.0 / 90.0	-22.4	N/A
700.01	29.3 Qp	3.3 / 20.8 / 28.1	25.2	V / 1.0 / 90.0	-20.8	N/A
750.01	33.5 Qp	3.2 / 20.4 / 28.1	29.1	V / 1.0 / 90.0	-16.9	N/A
800.01	27.4 Qp	3.3 / 21.0 / 27.8	23.9	V / 1.0 / 90.0	-22.1	N/A
200-1000MHz Vertical 180 degrees						
200.01	37.0 Qp	1.5 / 11.3 / 27.3	22.4	V / 1.0 / 180.0	-21.1	N/A
216.00	33.7 Qp	1.6 / 10.5 / 27.3	18.4	V / 1.0 / 180.0	-25.1	N/A
250.01	33.9 Qp	1.7 / 11.6 / 27.2	20.0	V / 1.0 / 180.0	-26.0	N/A
288.00	27.6 Qp	1.9 / 13.2 / 27.1	15.5	V / 1.0 / 180.0	-30.5	N/A
300.00	36.5 Qp	1.9 / 13.8 / 27.1	25.2	V / 1.0 / 180.0	-20.8	N/A
350.01	41.3 Qp	2.1 / 14.6 / 27.4	30.5	V / 1.0 / 180.0	-15.5	N/A
450.01	38.5 Qp	2.4 / 17.0 / 28.1	29.9	V / 1.0 / 180.0	-16.1	N/A
500.01	45.5 Qp	2.6 / 21.3 / 28.2	41.3	V / 1.0 / 180.0	-4.7	N/A
700.01	29.8 Qp	3.3 / 20.8 / 28.1	25.7	V / 1.0 / 180.0	-20.3	N/A
200-1000MHz Vertical 270 degrees						
300.00	35.6 Qp	1.9 / 13.8 / 27.1	24.2	V / 1.0 / 270.0	-21.8	N/A
350.01	43.4 Qp	2.1 / 14.6 / 27.4	32.6	V / 1.0 / 270.0	-13.4	N/A
375.01	32.8 Qp	2.1 / 15.3 / 27.6	22.7	V / 1.0 / 270.0	-23.3	N/A
400.01	44.7 Qp	2.2 / 17.2 / 27.7	36.4	V / 1.0 / 270.0	-9.6	N/A
528.00	28.9 Qp	2.6 / 18.6 / 28.3	21.9	V / 1.0 / 270.0	-24.1	N/A
550.01	35.4 Qp	2.6 / 17.8 / 28.3	27.5	V / 1.0 / 270.0	-18.5	N/A
576.00	33.5 Qp	2.8 / 18.1 / 28.4	26.0	V / 1.0 / 270.0	-20.0	N/A
950.01	30.2 Qp	3.7 / 22.4 / 27.4	28.9	V / 1.0 / 270.0	-17.1	N/A
Following signals maximized between 200 & 1000MHz Vertical						
500.00	49.4 Qp	2.6 / 21.3 / 28.2	45.2	V / 1.0 / 270.0	-0.8	N/A
250.01	40.9 Qp	1.7 / 11.6 / 27.2	27.0	V / 1.1 / 320.0	-19.0	N/A
350.01	50.4 Qp	2.1 / 14.6 / 27.4	39.6	V / 1.6 / 320.0	-6.4	N/A
400.01	45.5 Qp	2.2 / 17.2 / 27.7	37.1	V / 1.4 / 228.0	-8.9	N/A
200-1000MHz Horizontal 0 degrees						
200.01	41.0 Qp	1.5 / 11.3 / 27.3	26.4	H / 1.6 / 0.0	-17.1	N/A
204.00	36.0 Qp	1.5 / 11.1 / 27.4	21.1	H / 1.6 / 0.0	-22.4	N/A
228.00	42.0 Qp	1.6 / 10.4 / 27.2	26.9	H / 1.6 / 0.0	-19.1	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dBm) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) 15.209 >1GHz
250.01	39.6 Qp	1.7 / 11.6 / 27.2	25.7	H / 1.6 / 0.0	-20.3	N/A
300.00	41.6 Qp	1.9 / 13.8 / 27.1	30.3	H / 1.6 / 0.0	-15.7	N/A
350.01	42.4 Qp	2.1 / 14.6 / 27.4	31.6	H / 1.6 / 0.0	-14.4	N/A
375.01	29.4 Qp	2.1 / 15.3 / 27.6	19.3	H / 1.6 / 0.0	-26.7	N/A
400.01	30.4 Qp	2.2 / 17.2 / 27.7	22.1	H / 1.6 / 0.0	-23.9	N/A
425.00	25.6 Qp	2.3 / 20.0 / 27.9	20.1	H / 1.6 / 0.0	-25.9	N/A
450.01	40.8 Qp	2.4 / 17.0 / 28.1	32.2	H / 1.6 / 0.0	-13.8	N/A
500.00	36.1 Qp	2.6 / 21.3 / 28.2	31.9	H / 1.6 / 0.0	-14.1	N/A
550.01	30.9 Qp	2.6 / 17.8 / 28.3	23.0	H / 1.6 / 0.0	-23.0	N/A
576.00	30.9 Qp	2.8 / 18.1 / 28.4	23.4	H / 1.6 / 0.0	-22.6	N/A
750.01	28.2 Qp	3.2 / 20.4 / 28.1	23.7	H / 1.6 / 0.0	-22.3	N/A
800.01	26.5 Qp	3.3 / 21.0 / 27.8	23.0	H / 1.6 / 0.0	-23.0	N/A
850.01	29.6 Qp	3.4 / 21.7 / 27.6	27.1	H / 1.6 / 0.0	-18.9	N/A
900.01	26.9 Qp	3.6 / 22.4 / 27.6	25.2	H / 1.6 / 0.0	-20.8	N/A
950.01	27.4 Qp	3.7 / 22.4 / 27.4	26.0	H / 1.6 / 0.0	-20.0	N/A
200-1000MHz Horizontal 90 degrees						
200.01	38.7 Qp	1.5 / 11.3 / 27.3	24.1	H / 1.6 / 90.0	-19.4	N/A
288.00	28.7 Qp	1.9 / 13.2 / 27.1	16.6	H / 1.6 / 90.0	-29.4	N/A
350.01	43.0 Qp	2.1 / 14.6 / 27.4	32.2	H / 1.6 / 90.0	-13.8	N/A
400.01	38.5 Qp	2.2 / 17.2 / 27.7	30.2	H / 1.6 / 90.0	-15.8	N/A
500.00	39.7 Qp	2.6 / 21.3 / 28.2	35.5	H / 1.6 / 90.0	-10.5	N/A
576.00	32.6 Qp	2.8 / 18.1 / 28.4	25.2	H / 1.6 / 90.0	-20.8	N/A
200-1000MHz Horizontal 180 degrees						
200.01	38.9 Qp	1.5 / 11.3 / 27.3	24.3	H / 1.6 / 180.0	-19.2	N/A
250.01	42.2 Qp	1.7 / 11.6 / 27.2	28.3	H / 1.6 / 180.0	-17.7	N/A
300.00	38.5 Qp	1.9 / 13.8 / 27.1	27.2	H / 1.6 / 180.0	-18.8	N/A
400.01	38.4 Qp	2.2 / 17.2 / 27.7	30.1	H / 1.6 / 180.0	-15.9	N/A
500.00	42.8 Qp	2.6 / 21.3 / 28.2	38.5	H / 1.6 / 180.0	-7.5	N/A
200-1000MHz Horizontal 270 degrees						
288.00	29.4 Qp	1.9 / 13.2 / 27.1	17.4	H / 1.6 / 270.0	-28.6	N/A
300.00	41.1 Qp	1.9 / 13.8 / 27.1	29.8	H / 1.6 / 270.0	-16.2	N/A
350.01	42.0 Qp	2.1 / 14.6 / 27.4	31.3	H / 1.6 / 270.0	-14.7	N/A
400.01	38.8 Qp	2.2 / 17.2 / 27.7	30.4	H / 1.6 / 270.0	-15.6	N/A
500.00	34.5 Qp	2.6 / 21.3 / 28.2	30.2	H / 1.6 / 270.0	-15.8	N/A
550.01	32.0 Qp	2.6 / 17.8 / 28.3	24.1	H / 1.6 / 270.0	-21.9	N/A
576.00	34.1 Qp	2.8 / 18.1 / 28.4	26.7	H / 1.6 / 270.0	-19.3	N/A
Following signals maximized between 200 & 1000MHz Horizontal						
350.01	45.5 Qp	2.1 / 14.6 / 27.4	34.7	H / 2.3 / 12.0	-11.3	N/A
400.01	43.4 Qp	2.2 / 17.2 / 27.7	35.0	H / 3.2 / 18.0	-11.0	N/A
500.00	44.5 Qp	2.6 / 21.3 / 28.2	40.2	H / 2.2 / 168.0	-5.8	N/A
*****REMEASURE 500MHZ VERTICAL *****						
500.00	49.3 Qp	2.6 / 21.3 / 28.2	45.1	V / 1.1 / 276.0	-0.9	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
Ambient level only @ 500MHz						
500.00	31.9 Qp	2.6 / 21.3 / 28.2	27.6	V / 1.1 / 276.0	-18.4	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB\m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 <1GHz	DELTA2 (dB) 15.209 >1GHz
***** Measurement Summary *****						
500.00	49.4 Qp	2.6 / 21.3 / 28.2	45.2	V / 1.0 / 270.0	-0.8	N/A
350.01	50.4 Qp	2.1 / 14.6 / 27.4	39.6	V / 1.6 / 320.0	-6.4	N/A
400.01	45.5 Qp	2.2 / 17.2 / 27.7	37.1	V / 1.4 / 228.0	-8.9	N/A
450.01	40.8 Qp	2.4 / 17.0 / 28.1	32.2	H / 1.6 / 0.0	-13.8	N/A
300.00	41.6 Qp	1.9 / 13.8 / 27.1	30.3	H / 1.6 / 0.0	-15.7	N/A
950.01	31.3 Qp	3.7 / 22.4 / 27.4	30.0	V / 1.0 / 0.0	-16.0	N/A
750.01	33.5 Qp	3.2 / 20.4 / 28.1	29.1	V / 1.0 / 90.0	-16.9	N/A
200.01	41.0 Qp	1.5 / 11.3 / 27.3	26.4	H / 1.6 / 0.0	-17.1	N/A
250.01	42.2 Qp	1.7 / 11.6 / 27.2	28.3	H / 1.6 / 180.0	-17.7	N/A
550.01	35.4 Qp	2.6 / 17.8 / 28.3	27.5	V / 1.0 / 270.0	-18.5	N/A
425.00	32.6 Qp	2.3 / 20.0 / 27.9	27.1	V / 1.0 / 0.0	-18.9	N/A
850.01	29.6 Qp	3.4 / 21.7 / 27.6	27.1	H / 1.6 / 0.0	-18.9	N/A
228.00	42.0 Qp	1.6 / 10.4 / 27.2	26.9	H / 1.6 / 0.0	-19.1	N/A
650.01	32.5 Qp	3.0 / 19.4 / 28.1	26.8	V / 1.0 / 0.0	-19.2	N/A
576.00	34.1 Qp	2.8 / 18.1 / 28.4	26.7	H / 1.6 / 270.0	-19.3	N/A
700.01	29.8 Qp	3.3 / 20.8 / 28.1	25.7	V / 1.0 / 180.0	-20.3	N/A
900.01	27.4 Qp	3.6 / 22.3 / 27.6	25.7	V / 1.0 / 0.0	-20.3	N/A
800.01	27.4 Qp	3.3 / 21.0 / 27.8	23.9	V / 1.0 / 90.0	-22.1	N/A
204.00	36.0 Qp	1.5 / 11.1 / 27.4	21.1	H / 1.6 / 0.0	-22.4	N/A
375.01	32.8 Qp	2.1 / 15.3 / 27.6	22.7	V / 1.0 / 270.0	-23.3	N/A
528.00	28.9 Qp	2.6 / 18.6 / 28.3	21.9	V / 1.0 / 270.0	-24.1	N/A
216.00	33.7 Qp	1.6 / 10.5 / 27.3	18.4	V / 1.0 / 180.0	-25.1	N/A
288.00	29.4 Qp	1.9 / 13.2 / 27.1	17.4	H / 1.6 / 270.0	-28.6	N/A
240.00	26.9 Qp	1.7 / 10.9 / 27.2	12.3	V / 1.0 / 90.0	-33.7	N/A

Radiated Electromagnetic Emissions

Test Report #: 3178596 HiFreq Run 01	Test Area: Pinewood Site 1 (3m)	Temperature: 24.3 °C
Test Method: FCC Part 15.209	Test Date: 04-Jun-2009	Relative Humidity: 45.1 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.1 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems

EUT Description: Base Station Data Logger & Transceiver

Notes: Product is normal operating "receive" mode with intermittent transmit for measuring purposes (ignoring fundamental/harmonics)

EUT Clocks: 12MHz, 26MHz, 28.224MHz, 32.768MHz, 50MHz, 288MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

Internal Antenna # 1

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 >1GHz	N/A
1-4 GHz Vertical 0 degrees						
1000.01	38.1 Av	2.0 / 24.1 / 38.2	26.0	V / 1.0 / 0.0	-28.0	N/A
1152.00	36.2 Av	2.2 / 24.4 / 38.3	24.4	V / 1.0 / 0.0	-29.6	N/A
1440.00	35.7 Av	2.4 / 24.9 / 37.4	25.7	V / 1.0 / 0.0	-28.3	N/A
1728.00	35.8 Av	2.7 / 26.0 / 37.8	26.7	V / 1.0 / 0.0	-27.3	N/A
2016.00	36.0 Av	3.0 / 27.2 / 38.1	28.1	V / 1.0 / 0.0	-25.9	N/A
2304.00	36.0 Av	3.2 / 28.2 / 38.4	28.9	V / 1.0 / 0.0	-25.1	N/A
2592.00	36.6 Av	3.3 / 29.2 / 38.2	30.9	V / 1.0 / 0.0	-23.1	N/A
2880.00	36.3 Av	3.6 / 30.4 / 38.3	32.0	V / 1.0 / 0.0	-22.0	N/A
3168.00	36.4 Av	4.0 / 31.1 / 38.3	33.1	V / 1.0 / 0.0	-20.9	N/A
3456.00	34.7 Av	4.3 / 31.4 / 38.0	32.5	V / 1.0 / 0.0	-21.5	N/A
3744.00	35.8 Av	4.6 / 31.9 / 38.3	33.9	V / 1.0 / 0.0	-20.1	N/A
1050.00	36.2 Av	2.0 / 24.2 / 38.2	24.2	V / 1.0 / 0.0	-29.8	N/A
1100.00	36.5 Av	2.1 / 24.3 / 38.3	24.6	V / 1.0 / 0.0	-29.4	N/A
1150.00	36.5 Av	2.1 / 24.4 / 38.3	24.7	V / 1.0 / 0.0	-29.3	N/A
1200.00	36.1 Av	2.2 / 24.5 / 38.3	24.5	V / 1.0 / 0.0	-29.5	N/A
1250.00	39.0 Av	2.2 / 24.6 / 38.0	27.8	V / 1.0 / 0.0	-26.2	N/A
1300.00	37.0 Av	2.3 / 24.7 / 37.8	26.1	V / 1.0 / 0.0	-27.9	N/A
1350.00	36.0 Av	2.3 / 24.8 / 37.7	25.4	V / 1.0 / 0.0	-28.6	N/A
1550.00	35.9 Av	2.5 / 25.3 / 37.3	26.4	V / 1.0 / 0.0	-27.6	N/A
1600.00	36.2 Av	2.6 / 25.5 / 37.4	26.9	V / 1.0 / 0.0	-27.1	N/A
1700.00	36.1 Av	2.7 / 25.9 / 37.6	27.0	V / 1.0 / 0.0	-27.0	N/A
1750.00	36.3 Av	2.8 / 26.1 / 37.9	27.3	V / 1.0 / 0.0	-26.7	N/A
1418.34	35.8 Av	2.4 / 24.9 / 37.5	25.7	V / 1.0 / 0.0	-28.3	N/A
2332.87	39.1 Av	3.2 / 28.3 / 38.4	32.1	V / 1.0 / 0.0	-21.9	N/A
2343.79	38.0 Av	3.2 / 28.3 / 38.5	31.1	V / 1.0 / 0.0	-22.9	N/A
1-4 GHz Vertical 90 degrees						
1000.01	36.0 Av	2.0 / 24.1 / 38.2	23.9	V / 1.0 / 90.0	-30.1	N/A
1050.00	36.4 Av	2.0 / 24.2 / 38.2	24.3	V / 1.0 / 90.0	-29.7	N/A
1100.00	38.9 Av	2.1 / 24.3 / 38.3	26.9	V / 1.0 / 90.0	-27.1	N/A
1150.00	36.9 Av	2.1 / 24.4 / 38.3	25.1	V / 1.0 / 90.0	-28.9	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB\m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 >1GHz	DELTA2 (dB) N/A
1350.00	36.0 Av	2.3 / 24.8 / 37.7	25.3	V / 1.0 / 90.0	-28.7	N/A
1550.00	36.5 Av	2.5 / 25.3 / 37.3	27.0	V / 1.0 / 90.0	-27.0	N/A
1600.00	36.0 Av	2.6 / 25.5 / 37.4	26.7	V / 1.0 / 90.0	-27.3	N/A
2332.87	39.8 Av	3.2 / 28.3 / 38.4	32.8	V / 1.0 / 90.0	-21.2	N/A
1-4 GHz Vertical 180 degrees						
1000.01	36.6 Av	2.0 / 24.1 / 38.2	24.5	V / 1.0 / 180.0	-29.5	N/A
1050.00	36.4 Av	2.0 / 24.2 / 38.2	24.4	V / 1.0 / 180.0	-29.6	N/A
1150.00	37.0 Av	2.1 / 24.4 / 38.3	25.2	V / 1.0 / 180.0	-28.8	N/A
1350.00	37.1 Av	2.3 / 24.8 / 37.7	26.5	V / 1.0 / 180.0	-27.5	N/A
2332.87	39.6 Av	3.2 / 28.3 / 38.4	32.6	V / 1.0 / 180.0	-21.4	N/A
1-4 GHz Vertical 270 degrees						
1000.01	38.2 Av	2.0 / 24.1 / 38.2	26.1	V / 1.0 / 270.0	-27.9	N/A
1100.00	37.0 Av	2.1 / 24.3 / 38.3	25.1	V / 1.0 / 270.0	-28.9	N/A
1150.00	36.9 Av	2.1 / 24.4 / 38.3	25.1	V / 1.0 / 270.0	-28.9	N/A
1350.00	36.2 Av	2.3 / 24.8 / 37.7	25.6	V / 1.0 / 270.0	-28.4	N/A
1550.00	39.2 Av	2.5 / 25.3 / 37.3	29.8	V / 1.0 / 270.0	-24.2	N/A
1600.00	38.7 Av	2.6 / 25.5 / 37.4	29.4	V / 1.0 / 270.0	-24.6	N/A
Following are maximized between 1 & 4 GHz Vertical						
1000.01	40.1 Av	2.0 / 24.1 / 38.2	28.0	V / 1.1 / 302.0	-26.0	N/A
1550.00	38.0 Av	2.5 / 25.3 / 37.3	28.5	V / 1.3 / 302.0	-25.5	N/A
1600.00	38.7 Av	2.6 / 25.5 / 37.4	29.4	V / 1.1 / 294.0	-24.6	N/A
2332.87	39.9 Av	3.2 / 28.3 / 38.4	32.9	V / 1.1 / 268.0	-21.1	N/A
3168.00	36.5 Av	4.0 / 31.1 / 38.3	33.2	V / 1.1 / 268.0	-20.8	N/A
1-4 GHz Horizontal 0 degrees						
1000.01	36.3 Av	2.0 / 24.1 / 38.2	24.2	H / 1.5 / 0.0	-29.8	N/A
1050.00	35.9 Av	2.0 / 24.2 / 38.2	23.9	H / 1.5 / 0.0	-30.1	N/A
1100.00	35.9 Av	2.1 / 24.3 / 38.3	23.9	H / 1.5 / 0.0	-30.1	N/A
1150.00	36.5 Av	2.1 / 24.4 / 38.3	24.7	H / 1.5 / 0.0	-29.3	N/A
1152.00	36.0 Av	2.2 / 24.4 / 38.3	24.2	H / 1.5 / 0.0	-29.8	N/A
1200.00	35.8 Av	2.2 / 24.5 / 38.3	24.2	H / 1.5 / 0.0	-29.8	N/A
1250.00	35.9 Av	2.2 / 24.6 / 38.0	24.7	H / 1.5 / 0.0	-29.3	N/A
1300.00	36.2 Av	2.3 / 24.7 / 37.8	25.3	H / 1.5 / 0.0	-28.7	N/A
1350.00	37.6 Av	2.3 / 24.8 / 37.7	27.0	H / 1.5 / 0.0	-27.0	N/A
1418.34	35.5 Av	2.4 / 24.9 / 37.5	25.4	H / 1.5 / 0.0	-28.6	N/A
1700.00	35.5 Av	2.7 / 25.9 / 37.6	26.4	H / 1.5 / 0.0	-27.6	N/A
1750.00	35.8 Av	2.8 / 26.1 / 37.9	26.7	H / 1.5 / 0.0	-27.3	N/A
1-4 GHz Horizontal 90 degrees						
1000.01	36.2 Av	2.0 / 24.1 / 38.2	24.1	H / 1.5 / 90.0	-29.9	N/A
1250.00	36.6 Av	2.2 / 24.6 / 38.0	25.4	H / 1.5 / 90.0	-28.6	N/A
1-4 GHz Horizontal 180 degrees						
1050.00	36.0 Av	2.0 / 24.2 / 38.2	24.0	H / 1.5 / 180.0	-30.0	N/A

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB) (dB\m) (dB)	FINAL (dBuV)	POL / HGT / AZ (m) (DEG)	DELTA1 (dB) 15.209 >1GHz	DELTA2 (dB) N/A
1100.00	37.6 Av	2.1 / 24.3 / 38.3	25.6	H / 1.5 / 180.0	-28.4	N/A
1150.00	37.8 Av	2.1 / 24.4 / 38.3	26.0	H / 1.5 / 180.0	-28.0	N/A
1200.00	36.3 Av	2.2 / 24.5 / 38.3	24.7	H / 1.5 / 180.0	-29.3	N/A
1250.00	37.5 Av	2.2 / 24.6 / 38.0	26.3	H / 1.5 / 180.0	-27.7	N/A
1350.00	37.1 Av	2.3 / 24.8 / 37.7	26.5	H / 1.5 / 180.0	-27.5	N/A
1-4 GHz Horizontal 270 degrees						
1150.00	36.5 Av	2.1 / 24.4 / 38.3	24.7	H / 1.5 / 270.0	-29.3	N/A
1350.00	35.8 Av	2.3 / 24.8 / 37.7	25.1	H / 1.5 / 270.0	-28.9	N/A
Following signals maximized between 1 & 4 GHz Horizontal						
1000.01	38.0 Av	2.0 / 24.1 / 38.2	25.8	H / 1.4 / 288.0	-28.2	N/A
1350.00	38.9 Av	2.3 / 24.8 / 37.7	28.3	H / 1.2 / 12.0	-25.7	N/A
1600.00	36.6 Av	2.6 / 25.5 / 37.4	27.3	H / 1.2 / 118.0	-26.7	N/A
4-8 GHz Vertical 0 degrees						
4000.00	32.1 Av	4.8 / 32.4 / 37.3	32.0	V / 1.0 / 0.0	-22.0	N/A
4400.00	35.2 Av	5.2 / 32.3 / 40.8	31.8	V / 1.0 / 0.0	-22.2	N/A
4950.00	33.6 Av	5.7 / 33.3 / 40.4	32.2	V / 1.0 / 0.0	-21.8	N/A
4-8 GHz Vertical 90 degrees						
No higher signals found: 90 degrees						
No higher signals found: 180 degrees						
No higher signals found: 270 degrees						
4-8 GHz Horizontal						
4000.00	32.6 Av	4.8 / 32.4 / 39.9	29.8	H / 1.0 / 0.0	-24.2	N/A
4400.00	35.0 Av	5.2 / 32.3 / 40.8	31.7	H / 1.0 / 0.0	-22.3	N/A
4950.00	34.0 Av	5.7 / 33.3 / 40.4	32.6	H / 1.0 / 0.0	-21.4	N/A
4950.00	34.1 Av	5.7 / 33.3 / 40.4	32.7	H / 1.0 / 0.0	-21.3	N/A
No higher signals found: 4-8 GHz Horizontal						
Following signals maximized between 4 & 8 GHz						
4000.00	32.7 Av	4.8 / 32.4 / 39.9	29.9	H / 1.0 / 0.0	-24.1	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 >1GHz	N/A
***** Measurement Summary *****						
3744.00	35.8 Av	4.6 / 31.9 / 38.3	33.9	V / 1.0 / 0.0	-20.1	N/A
3168.00	36.5 Av	4.0 / 31.1 / 38.3	33.2	V / 1.1 / 268.0	-20.8	N/A
2332.87	39.9 Av	3.2 / 28.3 / 38.4	32.9	V / 1.1 / 268.0	-21.1	N/A
4950.00	34.1 Av	5.7 / 33.3 / 40.4	32.7	H / 1.0 / 0.0	-21.3	N/A
3456.00	34.7 Av	4.3 / 31.4 / 38.0	32.5	V / 1.0 / 0.0	-21.5	N/A
2880.00	36.3 Av	3.6 / 30.4 / 38.3	32.0	V / 1.0 / 0.0	-22.0	N/A
4000.00	32.1 Av	4.8 / 32.4 / 37.3	32.0	V / 1.0 / 0.0	-22.0	N/A
4400.00	35.2 Av	5.2 / 32.3 / 40.8	31.8	V / 1.0 / 0.0	-22.2	N/A
2343.79	38.0 Av	3.2 / 28.3 / 38.5	31.1	V / 1.0 / 0.0	-22.9	N/A
2592.00	36.6 Av	3.3 / 29.2 / 38.2	30.9	V / 1.0 / 0.0	-23.1	N/A
1550.00	39.2 Av	2.5 / 25.3 / 37.3	29.8	V / 1.0 / 270.0	-24.2	N/A
1600.00	38.7 Av	2.6 / 25.5 / 37.4	29.4	V / 1.1 / 294.0	-24.6	N/A
2304.00	36.0 Av	3.2 / 28.2 / 38.4	28.9	V / 1.0 / 0.0	-25.1	N/A
1350.00	38.9 Av	2.3 / 24.8 / 37.7	28.3	H / 1.2 / 12.0	-25.7	N/A
2016.00	36.0 Av	3.0 / 27.2 / 38.1	28.1	V / 1.0 / 0.0	-25.9	N/A
1000.01	40.1 Av	2.0 / 24.1 / 38.2	28.0	V / 1.1 / 302.0	-26.0	N/A
1250.00	39.0 Av	2.2 / 24.6 / 38.0	27.8	V / 1.0 / 0.0	-26.2	N/A
1750.00	36.3 Av	2.8 / 26.1 / 37.9	27.3	V / 1.0 / 0.0	-26.7	N/A
1700.00	36.1 Av	2.7 / 25.9 / 37.6	27.0	V / 1.0 / 0.0	-27.0	N/A
1100.00	38.9 Av	2.1 / 24.3 / 38.3	26.9	V / 1.0 / 90.0	-27.1	N/A
1728.00	35.8 Av	2.7 / 26.0 / 37.8	26.7	V / 1.0 / 0.0	-27.3	N/A
1300.00	37.0 Av	2.3 / 24.7 / 37.8	26.1	V / 1.0 / 0.0	-27.9	N/A
1150.00	37.8 Av	2.1 / 24.4 / 38.3	26.0	H / 1.5 / 180.0	-28.0	N/A
1418.34	35.8 Av	2.4 / 24.9 / 37.5	25.7	V / 1.0 / 0.0	-28.3	N/A
1440.00	35.7 Av	2.4 / 24.9 / 37.4	25.7	V / 1.0 / 0.0	-28.3	N/A
1200.00	36.3 Av	2.2 / 24.5 / 38.3	24.7	H / 1.5 / 180.0	-29.3	N/A
1050.00	36.4 Av	2.0 / 24.2 / 38.2	24.4	V / 1.0 / 180.0	-29.6	N/A
1152.00	36.2 Av	2.2 / 24.4 / 38.3	24.4	V / 1.0 / 0.0	-29.6	N/A

Radiated Electromagnetic Emissions

Test Report #: 3178596 Part 209 Run 03	Test Area: Pinewood Site 1 (3m)	Temperature: 23.8 °C
Test Method: FCC Part 15.209	Test Date: 05-Jun-2009	Relative Humidity: 42.4 %
EUT Model #: AMS-SM03	EUT Power: 115VAC/60Hz	Air Pressure: 81.3 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems	Level Key
EUT Description: Base Station - Data Logger & Transceiver	Pk – Peak Nb – Narrow Band Qp – QuasiPeak Bb – Broad Band Av - Average
Notes:	

Highest signals from antenna # 1 only

Internal Antenna # 2

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
30-200MHz Vertical 0 degrees						
30.00	40.2 Qp	0.5 / 13.0 / 28.2	25.5	V / 1.0 / 0.0	-14.5	N/A
32.77	42.1 Qp	0.6 / 12.4 / 28.2	26.9	V / 1.0 / 0.0	-13.1	N/A
36.00	47.8 Qp	0.6 / 11.9 / 28.2	32.1	V / 1.0 / 0.0	-7.9	N/A
40.00	55.2 Qp	0.6 / 11.4 / 28.2	39.1	V / 1.0 / 0.0	-0.9	N/A
48.00	52.5 Qp	0.7 / 10.3 / 28.2	35.3	V / 1.0 / 0.0	-4.7	N/A
60.00	44.8 Qp	0.7 / 8.5 / 28.1	25.9	V / 1.0 / 0.0	-14.1	N/A
132.00	40.4 Qp	1.2 / 12.2 / 27.9	25.9	V / 1.0 / 0.0	-17.6	N/A
150.00	39.8 Qp	1.3 / 12.6 / 27.7	26.0	V / 1.0 / 0.0	-17.5	N/A
30-200MHz Vertical 90 degrees						
30.00	38.9 Qp	0.5 / 13.0 / 28.2	24.1	V / 1.0 / 90.0	-15.9	N/A
32.77	41.5 Qp	0.6 / 12.4 / 28.2	26.2	V / 1.0 / 90.0	-13.8	N/A
36.00	46.6 Qp	0.6 / 11.9 / 28.2	31.0	V / 1.0 / 90.0	-9.0	N/A
40.00	54.2 Qp	0.6 / 11.4 / 28.2	38.1	V / 1.0 / 90.0	-1.9	N/A
48.00	51.8 Qp	0.7 / 10.3 / 28.2	34.6	V / 1.0 / 90.0	-5.4	N/A
60.00	44.5 Qp	0.7 / 8.5 / 28.1	25.6	V / 1.0 / 90.0	-14.4	N/A
132.00	39.5 Qp	1.2 / 12.2 / 27.9	25.0	V / 1.0 / 90.0	-18.5	N/A
30-200MHz Vertical 180 degrees						
30.00	38.8 Qp	0.5 / 13.0 / 28.2	24.0	V / 1.0 / 180.0	-16.0	N/A
32.77	40.8 Qp	0.6 / 12.4 / 28.2	25.5	V / 1.0 / 180.0	-14.5	N/A
36.00	47.1 Qp	0.6 / 11.9 / 28.2	31.4	V / 1.0 / 180.0	-8.6	N/A
40.00	54.9 Qp	0.6 / 11.4 / 28.2	38.8	V / 1.0 / 180.0	-1.2	N/A
48.00	51.5 Qp	0.7 / 10.3 / 28.2	34.3	V / 1.0 / 180.0	-5.7	N/A
60.00	44.3 Qp	0.7 / 8.5 / 28.1	25.4	V / 1.0 / 180.0	-14.6	N/A
132.00	43.4 Qp	1.2 / 12.2 / 27.9	28.9	V / 1.0 / 180.0	-14.6	N/A
150.00	37.0 Qp	1.3 / 12.6 / 27.7	23.2	V / 1.0 / 180.0	-20.3	N/A
30-200MHz Vertical 270 degrees						
30.00	39.2 Qp	0.5 / 13.0 / 28.2	24.5	V / 1.0 / 270.0	-15.5	N/A
32.77	41.5 Pk	0.6 / 12.4 / 28.2	26.2	V / 1.0 / 270.0	-13.8	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
36.00	46.1 Qp	0.6 / 11.9 / 28.2	30.5	V / 1.0 / 270.0	-9.5	N/A
40.00	54.6 Qp	0.6 / 11.4 / 28.2	38.5	V / 1.0 / 270.0	-1.5	N/A
48.00	51.8 Qp	0.7 / 10.3 / 28.2	34.6	V / 1.0 / 270.0	-5.4	N/A
60.00	44.8 Qp	0.7 / 8.5 / 28.1	25.9	V / 1.0 / 270.0	-14.1	N/A
132.00	41.1 Qp	1.2 / 12.2 / 27.9	26.7	V / 1.0 / 270.0	-16.8	N/A
150.00	38.2 Qp	1.3 / 12.6 / 27.7	24.5	V / 1.0 / 270.0	-19.0	N/A
Following signals maximized between 30 & 200MHz Vertical						
32.77	45.5 Qp	0.6 / 12.4 / 28.2	30.2	V / 1.0 / 168.0	-9.8	N/A
36.00	49.0 Qp	0.6 / 11.9 / 28.2	33.3	V / 1.0 / 188.0	-6.7	N/A
40.00	55.4 Qp	0.6 / 11.4 / 28.2	39.2	V / 1.0 / 212.0	-0.8	N/A
48.00	55.2 Qp	0.7 / 10.3 / 28.2	38.0	V / 1.0 / 176.0	-2.0	N/A
60.00	46.2 Qp	0.7 / 8.5 / 28.1	27.3	V / 1.0 / 223.0	-12.7	N/A
132.00	48.6 Qp	1.2 / 12.2 / 27.9	34.2	V / 1.0 / 156.0	-9.3	N/A
30-200MHz Horizontal Maximized						
32.77	29.3 Qp	0.6 / 12.4 / 28.2	14.1	H / 1.7 / 296.0	-25.9	N/A
36.00	35.7 Qp	0.6 / 11.9 / 28.2	20.0	H / 1.3 / 296.0	-20.0	N/A
40.00	42.2 Qp	0.6 / 11.4 / 28.2	26.1	H / 1.3 / 168.0	-13.9	N/A
48.00	42.0 Qp	0.7 / 10.3 / 28.2	24.8	H / 1.3 / 124.0	-15.2	N/A
60.00	32.5 Qp	0.7 / 8.5 / 28.1	13.6	H / 1.3 / 186.0	-26.4	N/A
132.00	46.6 Qp	1.2 / 12.2 / 27.9	32.1	H / 1.4 / 122.0	-11.4	N/A
200-1000MHz Vertical Maximized						
350.01	48.1 Qp	2.1 / 14.6 / 27.4	37.4	V / 1.4 / 342.0	-8.6	N/A
400.01	46.8 Qp	2.2 / 17.2 / 27.7	38.4	V / 1.3 / 269.0	-7.6	N/A
450.01	46.6 Qp	2.4 / 17.0 / 28.1	38.0	V / 1.3 / 298.0	-8.0	N/A
500.00	49.3 Qp	2.6 / 21.3 / 28.2	45.1	V / 1.3 / 280.0	-0.9	N/A
200-1000MHz Horizontal Maximized						
350.01	46.4 Qp	2.1 / 14.6 / 27.4	35.6	H / 2.1 / 186.0	-10.4	N/A
400.01	45.2 Qp	2.2 / 17.2 / 27.7	36.9	H / 3.2 / 178.0	-9.1	N/A
450.01	43.8 Pk	2.4 / 17.0 / 28.1	35.2	H / 1.8 / 178.0	-10.8	N/A
500.00	44.0 Qp	2.6 / 21.3 / 28.2	39.8	H / 2.1 / 178.0	-6.2	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	N/A
***** Measurement Summary *****						
40.00	55.4 Qp	0.6 / 11.4 / 28.2	39.2	V / 1.0 / 212.0	-0.8	N/A
500.00	49.3 Qp	2.6 / 21.3 / 28.2	45.1	V / 1.3 / 280.0	-0.9	N/A
48.00	55.2 Qp	0.7 / 10.3 / 28.2	38.0	V / 1.0 / 176.0	-2.0	N/A
36.00	49.0 Qp	0.6 / 11.9 / 28.2	33.3	V / 1.0 / 188.0	-6.7	N/A
400.01	46.8 Qp	2.2 / 17.2 / 27.7	38.4	V / 1.3 / 269.0	-7.6	N/A
450.01	46.6 Qp	2.4 / 17.0 / 28.1	38.0	V / 1.3 / 298.0	-8.0	N/A
350.01	48.1 Qp	2.1 / 14.6 / 27.4	37.4	V / 1.4 / 342.0	-8.6	N/A
132.00	48.6 Qp	1.2 / 12.2 / 27.9	34.2	V / 1.0 / 156.0	-9.3	N/A
32.77	45.5 Qp	0.6 / 12.4 / 28.2	30.2	V / 1.0 / 168.0	-9.8	N/A
60.00	46.2 Qp	0.7 / 8.5 / 28.1	27.3	V / 1.0 / 223.0	-12.7	N/A
30.00	40.2 Qp	0.5 / 13.0 / 28.2	25.5	V / 1.0 / 0.0	-14.5	N/A
150.00	39.8 Qp	1.3 / 12.6 / 27.7	26.0	V / 1.0 / 0.0	-17.5	N/A

Radiated Intentional Emission
Fundamental & Harmonics of the Fundamental
15.249 (a)

Field Strength Measurements Fundamental and Spurious of the Transmitter

Test Report #: 3178596 Run 02	Test Area: Pinewood Site 1 (3m)	Temperature: 25.8 °C
Test Method: N/A	Test Date: 03-Jun-2009	Relative Humidity: 48 %
EUT Model #: AMS-SM003	EUT Power: 115VAC/60Hz	Air Pressure: 79.1 kPa
EUT Serial #: 004		
Manufacturer: Alcohol Monitoring Systems		

EUT Description: Base Station - Data Logger & Transceiver

Notes: ***** Measurements with Antenna # 1 *****

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

All Final Measurements done at Product Power Level: - 0.6 dBm

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)

The following Duty Cycle was declared by the manufacturer: N/A

The product operates on (1) channel only.

Averaging method for pulsed signals and calculation in accordance to FCC CFR47 Part 15.35 utilized to calculate field strength emissions.

The testing performed in accordance to FCC CFR47 Part 15.205 (restricted bands of operation) and 15.249 emissions and delta limits were calculated as follows:

Final Corrected Peak Measurement – Duty Cycle Correction Factor* = Final Calculated Emission

The Final Calculated Emission was then compared to the Limits in CFR47 Part 15.209 and 15.249 and the emission/limit delta was calculated.

the DTCF is calculated as follows $20 \cdot \log_{10}(\text{duty cycle in 100ms})$ "not to exceed 20dB"

Part 15.249 and 15.205 Respectively

All measurements taken in Axis 2 – Determined worst-case from previous testing of Antenna 2

Fundamental Measurements – Single Channel

Axis 2 - EUT is Vertical on the table.

916.50	66.5 Pk	3.6 / 22.1 / 0.0	92.3	V / 1.1 / 286.0	0.0	92.3	94.0	-1.7
916.50	66.5 Pk	3.6 / 22.1 / 0.0	92.3	H / 1.3 / 202.0	0.0	92.3	94.0	-1.7

Axis 2 was determined to be the worst case

All Harmonics will be measured in Axis 2

Harmonics – Single Channel

1833.03	36.9 Pk	2.8 / 26.5 / 37.1	29.1	V / 1.3 / 12.0	0.0	29.1	54.0	-24.9
1833.03	36.8 Pk	2.8 / 26.5 / 37.1	29.0	H / 1.5 / 246.0	0.0	29.0	54.0	-25.0
2749.5	37.7 Pk	3.5 / 29.8 / 37.6	33.5	V / 1.3 / 12.0	0.0	33.5	54.0	-20.5
2749.53	38.5 Pk	3.5 / 29.8 / 37.6	34.2	H / 1.5 / 246.0	0.0	34.2	54.0	-19.8
3666.03	38.4 Pk	4.5 / 31.8 / 38.3	36.3	V / 1.4 / 348.0	0.0	36.3	54.0	-17.7
3666.03	40.5 Pk	4.5 / 31.8 / 38.3	38.5	H / 1.5 / 246.0	0.0	38.5	54.0	-15.5
4582.52	37.1 Pk	5.3 / 32.5 / 40.8	34.1	V / 1.8 / 202.0	0.0	34.1	54.0	-19.9
4582.53	37.5 Pk	5.3 / 32.5 / 40.8	34.5	H / 1.5 / 188.0	0.0	34.5	54.0	-19.5
5499.03	53.0 Pk	6.1 / 34.5 / 40.1	53.6	H / 1.4 / 224.0	0.0	53.6	54.0	-0.4
5499.03	47.2 Pk	6.1 / 34.5 / 40.1	47.8	V / 1.8 / 202.0	0.0	47.8	54.0	-6.2
6415.53	37.5 Pk	6.7 / 35.2 / 40.5	39.0	H / 1.4 / 224.0	0.0	39.0	54.0	-15.0

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
6415.53	35.3 Pk	6.7 / 35.2 / 40.5	36.8	V / 1.7 / 28.0	0.0	36.8	54.0	-17.2
7332.03	39.5 Pk	7.4 / 36.4 / 40.2	43.1	H / 1.6 / 280.0	0.0	43.1	54.0	-10.9
7332.03	40.5 Pk	7.4 / 36.4 / 40.2	44.0	V / 1.7 / 22.0	0.0	44.0	54.0	-10.0
8248.52	44.2 Pk	7.9 / 37.1 / 47.7	41.5	V / 1.8 / 202.0	0.0	41.5	54.0	-12.5
8248.52	44.2 Pk	7.9 / 37.1 / 47.7	41.5	H / 1.3 / 178.0	0.0	41.5	54.0	-12.5
9165.02	46.6 Pk	8.5 / 38.1 / 48.6	44.6	V / 1.4 / 202.0	0.0	44.6	54.0	-9.4
9165.02	47.1 Pk	8.5 / 38.1 / 48.6	45.1	H / 1.3 / 178.0	0.0	45.1	54.0	-8.9

Field Strength Measurements Fundamental and Spurious of the Transmitter

Test Report #: 3178596 Run 02	Test Area: Pinewood Site 1 (3m)	Temperature: 25.8 °C
Test Method: N/A	Test Date: 03-Jun-2009	Relative Humidity: 48 %
EUT Model #: AMS-SM003	EUT Power: 115VAC/60Hz	Air Pressure: 79.1 kPa
EUT Serial #: 004		
Manufacturer: Alcohol Monitoring Systems		

EUT Description: Base Station - Data Logger & Transceiver

Notes: ***** Measurements with Antenna # 2 *****

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

All Final Measurements done at Product Power Level: - 0.6 dBm

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)

The following Duty Cycle was declared by the manufacturer: N/A

The product operates on (1) channel only.

Averaging method for pulsed signals and calculation in accordance to FCC CFR47 Part 15.35 utilized to calculate field strength emissions.

The testing performed in accordance to FCC CFR47 Part 15.205 (restricted bands of operation) and 15.249 emissions and delta limits were calculated as follows:

Final Corrected Peak Measurement – Duty Cycle Correction Factor* = Final Calculated Emission

The Final Calculated Emission was then compared to the Limits in CFR47 Part 15.209 and 15.249 and the emission/limit delta was calculated. the DTCF is calculated as follows $20 \cdot \log_{10}(\text{duty cycle in 100ms})$ "not to exceed 20dB"

Part 15.249 and 15.205 Respectively

All measurements taken in Axis 2 – Determined worst-case

Fundamental Measurements – Single Channel

Axis 2 - EUT is Vertical on the table.

916.50	66.2 Pk	3.6 / 22.1 / 0.0	91.9	H / 1.3 / 205.0	0.0	91.9	94.0	-2.1
916.50	66.4 Pk	3.6 / 22.1 / 0.0	92.1	V / 1.1 / 208.0	0.0	92.1	94.0	-1.9

Axis 2 was determined to be the worst case

All Harmonics will be measured in Axis 2

Harmonics – Single Channel

1833.00	37.0 Pk	2.8 / 26.0 / 37.1	28.9	V / 1.1 / 208.0	0.0	28.9	54.0	-25.1
1833.00	38.0 Pk	2.8 / 26.0 / 37.1	29.9	H / 1.6 / 294.0	0.0	29.9	54.0	-24.1
2749.50	36.9 Pk	3.5 / 28.3 / 37.6	31.0	V / 1.1 / 357.0	0.0	31.0	54.0	-23.0
2749.50	37.8 Pk	3.5 / 28.3 / 37.6	32.0	H / 1.7 / 12.0	0.0	32.0	54.0	-22.0
3666.00	41.2 Pk	4.5 / 31.0 / 38.3	38.4	V / 1.3 / 188.0	0.0	38.4	54.0	-15.6
3666.00	40.4 Pk	4.5 / 31.0 / 38.3	37.6	H / 1.7 / 188.0	0.0	37.6	54.0	-16.4
4582.50	39.5 Pk	5.3 / 32.1 / 40.8	36.1	H / 1.4 / 354.0	0.0	36.1	54.0	-17.9
4582.50	35.9 Pk	5.3 / 32.1 / 40.8	32.5	V / 1.3 / 212.0	0.0	32.5	54.0	-21.5
5499.00	52.9 Pk	6.1 / 32.9 / 40.1	51.7	H / 1.2 / 148.0	0.0	51.7	54.0	-2.3
5499.00	52.5 Pk	6.1 / 32.9 / 40.1	51.4	V / 1.3 / 212.0	0.0	51.4	54.0	-2.6
6415.50	35.6 Pk	6.7 / 33.9 / 40.5	35.7	H / 1.2 / 212.0	0.0	35.7	54.0	-18.3

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
6415.50	34.0 Pk	6.7 / 33.9 / 40.5	34.1	V / 1.2 / 224.0	0.0	34.1	54.0	-19.9
7332.00	34.6 Pk	7.4 / 35.4 / 40.2	37.2	H / 1.6 / 212.0	0.0	37.2	54.0	-16.8
7332.00	36.4 Pk	7.4 / 35.4 / 40.2	38.9	V / 1.2 / 224.0	0.0	38.9	54.0	-15.1
8248.43	44.8 Pk	7.9 / 36.3 / 47.7	41.2	V / 1.3 / 212.0	0.0	41.2	54.0	-12.8
8248.43	45.0 Pk	7.9 / 36.3 / 47.7	41.5	H / 1.4 / 224.0	0.0	41.5	54.0	-12.5
9164.93	45.7 Pk	8.5 / 36.8 / 48.6	42.4	V / 1.2 / 348.0	0.0	42.4	54.0	-11.6
9164.93	45.5 Pk	8.5 / 36.8 / 48.6	42.2	H / 1.4 / 224.0	0.0	42.2	54.0	-11.8

List of Equipment Utilized for Final Test

Equipment List

Project: 3178596
Test Engineer: Randall Thompson

Start Date: 6-3-09
End Date: 6-5-09

<u>Asset ID:</u>	<u>Description:</u>	<u>Manufacturer</u>	<u>Model:</u>	<u>Serial:</u>	<u>Cal Due:</u>
<u>Radiated Emissions</u>					
18882	Spectrum Analyzer (dc-22 GHz)	Hewlett-Packard	8566B	2410A00154	12/10/2009
18880	Q.P Adapter	Hewlett-Packard	85650A	2811A01300	12/11/2009
18889	Biconical Antenna 30-300MHz	EMC TEST SYSTEMS	3109	3142	02/22/2010
18888	Log Periodic Antenna (200-1000MHz)	EMCO	3146	9402-3775	10/21/2009
18737	Doubled Ridged Guide Antenna (1-18 GHz)	EMCO	3105	2076	04/03/2010
18912	9 kHz- 1.3GHz Pre Amp	Hewlett-Packard	8447F	3113A05545	05/12/2010
18906	RF Pre-Amplifier (1-4 GHz)	Mini-Circuits Lab	ZHL-42	N052792-2	05/12/2010
18900	RF Pre-Amplifier (4-8 GHz)	Avantek	AFT97-8434-10F	1007	05/12/2010
18901	RF Pre-Amplifier (8-18 GHz)	Avantek	AWT-18037	1002	05/12/2010

Conducted Emissions

18909	EMI Test Receiver	RHODE & SCHWARZ	ESHS 30	842806/001	04/08/2010
18729	Transient Limiter	Hewlett-Packard	11947A	3107A01975	04/14/2010
18890	LISN 50 ohm/50uH 3 line (1kHz - 30 MHz)	RHODE & SCHWARZ	ESH2-Z5	830364/002	04/09/2010

Flicker & Harmonics – N/A

Disturbance Power – N/A

Appendix B

- Test Plan and Constructional Data Form
[Provided by Client]

- Determination of Intentional Transmit Output Power – Fundamental
[Reference only-Intertek]

Product Information Packet

Contact Information:

Company:	Alcohol Monitoring Systems
Address:	1241 West Mineral Ave. Suite 200
Contact:	John Mattoon
Title:	Staff Electrical Engineer
Phone Number:	303-785-7859
Fax Number:	303-791-4262
Email Address:	jmattoon@alcoholmonitoring.com

Date samples and documentation will be ready for testing:	6/3/09	Requested completion date:	6/5/09
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Please fill out the pertinent pages within this document and email this form to Bryant Hart at Bryant.Hart@Intertek.com for a quotation. Pages that do not pertain to your device can be left blank.

This document is compiled as a WORD FORM. To enable the FORM tool, right click on the tool bar and select FORMS. You will then be able to add attachments, drawings etc by clicking on the "Lock" Graphic to unlock the FORM document. To make all the check boxes work within the FORM, the "Lock" graphic must be selected.

Estimates Requested:

EMC Testing and Services	
<input checked="" type="checkbox"/> Compliance Testing	<input type="checkbox"/> Compliance testing at your location
<input type="checkbox"/> Pre-Compliance Scans / Engineering testing	<input type="checkbox"/> Pre-Compliance testing at your location

Radio Device Testing and Certification	
<input checked="" type="checkbox"/> FCC Certification	<input checked="" type="checkbox"/> Canada Certification (Transmitters and Receivers)
<input type="checkbox"/> Europe	<input checked="" type="checkbox"/> TCB Services

Safety Testing and Certification	
<input type="checkbox"/> ETL Listing For US	<input type="checkbox"/> ETL Listing for Canada
<input type="checkbox"/> Preliminary Design Review	<input type="checkbox"/> CB Report and Certificate
<input type="checkbox"/> CE Testing for Europe	<input type="checkbox"/> Other:

Additional Services	
<input type="checkbox"/> Global Market Access Program	<input type="checkbox"/> Energy Star Compliance
<input type="checkbox"/> IntertekCheck Performance Mark	<input type="checkbox"/> Green Services (RoHS, WEEE, REACH, Prop. 65)
<input type="checkbox"/> Environmental Testing	<input type="checkbox"/> Hazardous Location (Intrinsic Safety, Ex-Proof, ATEX)
<input type="checkbox"/> Shock and Vibration Testing	<input type="checkbox"/> Other:

General Product Information: (Required for all Devices)

Product/Model Number(s):	Model: AMS-SM03	Serial Number: 004
Description of product(s): Please provide product literature if available.	Base Station – Data Logger & Transceiver	
Intended Use:	<input checked="" type="checkbox"/> Household/Office <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial	
Intended Location:	<input checked="" type="checkbox"/> Dry <input type="checkbox"/> Damp <input type="checkbox"/> Wet <input type="checkbox"/> Hazardous Location	
Product Type:	<input checked="" type="checkbox"/> Prototype <input type="checkbox"/> Production Sample <input type="checkbox"/> Revision of already listed product	
If part of a system, please describe system parts and accessories:		
If there is more than one product/model what are the differences? No		
Is the Product Enclosure:	<input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Both	
Size:	Length: 6"	Width: 5 3/4
		Height: 2 3/4
		Weight: 1 lb
<input checked="" type="checkbox"/> AC Wall Adapter <input type="checkbox"/> AC Internal Power Supply <input checked="" type="checkbox"/> Battery <input type="checkbox"/> External DC Power Supply	Rated Voltage: 10V Rated Current: 500 ma # of Phases/Conductors: 1 # of Power Cords: 1	
Are their multiple suppliers of power supplies?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes Please Describe:	
Are there Multiple Modes of Operation?		
<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes Please Describe:		
Is there programmable software?		
<input type="checkbox"/> Yes <input type="checkbox"/> No		
Can all modes of operation be operated simultaneously?		
<input type="checkbox"/> Yes <input type="checkbox"/> No Explain:		
In which countries will you be selling the product?		
United States		

EMC Specific Information: (Required only if EMC work is requested)

What EMC certifications are desired?	
<input checked="" type="checkbox"/> FCC/ICES (US & Canada)	<input type="checkbox"/> SII (Israel)
<input type="checkbox"/> CE (Europe)	<input type="checkbox"/> AS/NZS (Australia/New Zealand)
<input type="checkbox"/> BSMI (Taiwan)	<input type="checkbox"/> Korea MIC Certification / RRL
<input type="checkbox"/> VCCI (Japan)	<input type="checkbox"/> Other: Please Specify

Highest frequency utilized for device operation: 50MHz

List of Clock Frequencies: 12Mhz, 50MHz, 28.224MHz, 26MHz, 32.768kHz, 288MHz

For each mode of operation, please list the amount of time required to notice degradation of performance (cycle time)

Total Number of I/O Cables: # Greater than 3m (9.75 feet) in Length # Greater than 30m (97.5 feet) in Length # of cables at a longer length (specify)	_____ _____ _____ _____
--	----------------------------------

Number of Earth Ground Connections (Do NOT include AC Mains Ground): 0

Please list all Ethernet, USB, Parallel and/or Telecommunications Ports and their function

When the device is a compilation of subsystems (in separate chassis) how many interconnecting I/O cables are greater than 1 meter in length between the Subsystem chassis?

Please list any specific test requirements or standards:

Radio Specific Information: (Required only if the device contains an intentional transmitter)

What Radio certifications are desired?	
<input checked="" type="checkbox"/> FCC (USA) <input type="checkbox"/> Industry Canada <input type="checkbox"/> ETSI (R&TTE)	<input type="checkbox"/> Notified or Competent Body TCF Review <input type="checkbox"/> Other: Please Specify

Please list the particular radio standards that apply.
--

Operating Frequency:	916.5MHz
----------------------	----------

RF Output Power:	+10 dBm maximum
------------------	-----------------

Is there an RF Conducted Port?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Description:Used in test
--------------------------------	---	--------------------------

Number of Antennas & Description: (Internal, External, Known Gain, etc.)	2 internal antennas that switch back and forth, only one can be active at a time.
---	---

Modulation Technique:	GMFSK
-----------------------	-------

Number of Channels/Number of Discrete frequencies per Channel:	1/1
--	-----

Can the device be operated in CW Mode?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	For testing only
--	---	------------------

What is the lowest utilized frequency within the device?	916.5MHz
--	----------

Notes: Please ensure to bring a notch filter covering your fundamental operating frequency.

Additional Information:

Support Equipment:

Customers should be prepared to provide all support equipment necessary to fully operate the device undergoing testing. This includes any filters required for testing radio devices, computer equipment, etc.

Item

Description

Manufacturer

Model No.

Cabling Information:

Cable

Function*

Type of Shield

Length

Connectors

Connection**

* Function examples (Ethernet, RS232, USB, Analog, physiological parameter, etc.)

** Connection examples (Outside Plant, Patient Coupled, Ring Voltage, etc.)

Monitoring the Equipment:

Please provide instructions below on how to observe the device to verify proper operation in all modes.

Any other information required: (Notes, Photos, Block Diagrams, Drawings, etc.)

A minimum of a block diagram showing the equipment under test and its support equipment.

Radiated Electromagnetic Emissions

Test Report #: 3178596 Run 01	Test Area: Pinewood Site 1 (3m)	Temperature: 25.8 °C
Test Method: N/A	Test Date: 03-Jun-2009	Relative Humidity: 48 %
EUT Model #: AMS-SM003	EUT Power: 115VAC/60Hz	Air Pressure: 79.1 kPa
EUT Serial #: 004		

Manufacturer: Alcohol Monitoring Systems	Level Key
EUT Description: Base Station - Data Logger & Transceiver	Pk – Peak Nb – Narrow Band
Notes: ****ANTENNA # 2****	Qp – QuasiPeak Bb – Broad Band
Determination of Power Level & Worst-Case Axis	Av - Average

Evaluation Data Only for Reference Purposes

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB/m) (dB)	(dBuV)	(m) (DEG)	N/A	N/A
Fundamental - Axis 1 [EUT Flat - normal operation position]						
Initial Power Level: + 9.9dBm						
916.50	73.3 Pk	3.6 / 22.1 / 0.0	99.1	V / 1.6 / 354.0	N/A	N/A
916.50	75.5 Pk	3.6 / 22.1 / 0.0	101.3	H / 1.2 / 8.0	N/A	N/A
Dropped Power Level: +2.6 dBm						
916.50	69.2 Pk	3.6 / 22.1 / 0.0	94.9	H / 1.2 / 275.0	N/A	N/A
Dropped Power Level: to +1.4 dBm						
916.50	69.0 Pk	3.6 / 22.1 / 0.0	94.7	H / 1.2 / 215.0	N/A	N/A
Dropped Power Level: +1.0 dBm						
916.50	67.8 Pk	3.6 / 22.1 / 0.0	93.5	H / 1.3 / 298.0	N/A	N/A
916.50	63.9 Pk	3.6 / 22.1 / 0.0	89.6	V / 1.8 / 354.0	N/A	N/A
Fundamental - Axis 2 [EUT Vertical]						
916.50	65.7 Pk	3.6 / 22.1 / 0.0	91.4	V / 1.6 / 124.0	N/A	N/A
916.50	69.2 Pk	3.6 / 22.1 / 0.0	94.9	H / 1.3 / 210.0	N/A	N/A
Dropped Power Level: +0.5 dBm						
916.50	68.2 Pk	3.6 / 22.1 / 0.0	94.0	H / 1.3 / 205.0	N/A	N/A
Dropped Power Level: - 0.6 dBm						
All Final Measurements done at Power Level: - 0.6 dBm						
916.50	66.2 Pk	3.6 / 22.1 / 0.0	91.9	H / 1.3 / 205.0	N/A	N/A
916.50	66.4 Pk	3.6 / 22.1 / 0.0	92.1	V / 1.1 / 208.0	N/A	N/A

***** REFERENCE ONLY *****

Appendix C

Measurement Protocol

And

Test Procedures

MEASUREMENT PROTOCOL

GENERAL INFORMATION

Test Methodology

Conducted and radiated emission testing is performed according to the procedures in ANSI C63.4 & CNS13438.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

CONDUCTED EMISSIONS

The final level, expressed in dB μ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the applicable limit.

To convert between dB μ V and μ V, the following conversions apply:

- dB μ V = 20(log μ V)
- μ V = Inverse log(dB μ V/20)

RADIATED EMISSIONS

The final level, expressed in dB μ V/m, is arrived at by taking the reading from the spectrum analyzer (Level dB μ V) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has the applicable limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment B. The amplifier gain is automatically accounted for by using an analyzer offset.

Example: At a Test Frequency of 30 MHz, with a peak reading on the spectrum analyzer or measuring receiver of 14 dB μ V:

Measured Level	+	Transducer & Cable Loss factor	=	Corrected Reading	Specification Limit	-	Corrected Reading	=	Delta Specification
(dB μ V)		(dB)		(dB μ V/m)	(dB μ V/m)		(dB μ V/m)		
14.0		14.9		28.9	40.0		28.9		-11.1

DETAILS OF TEST PROCEDURES

General Standard Information

The test methods used comply with ANSI C63.4-2003 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

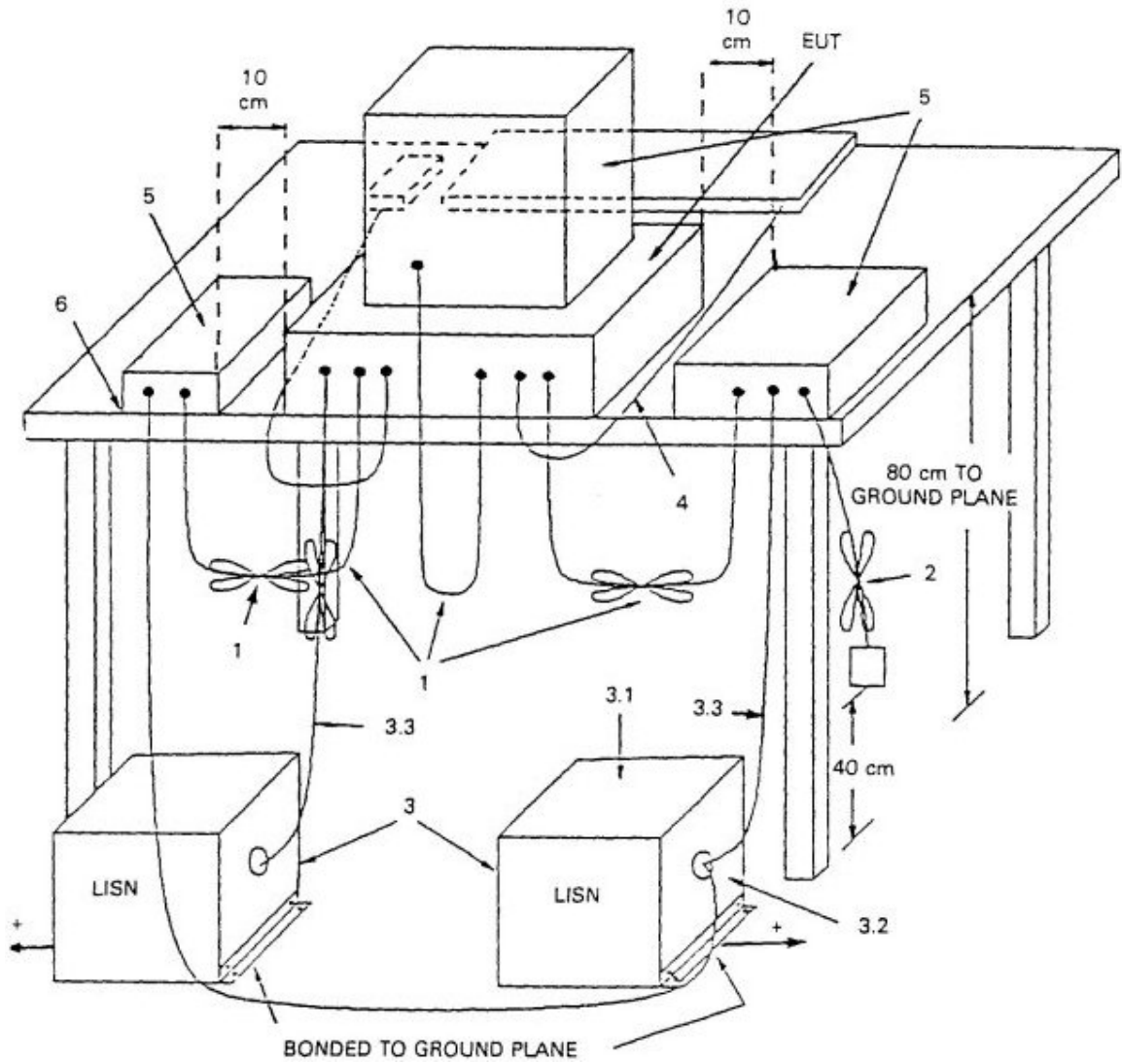
Conducted Emissions

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω /50 μ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver or spectrum analyzer with quasi-peak and average detection and recorded on the data sheets.

Radiated Emissions

Radiated emissions from the EUT are measured in the frequency range of 30 to 22GHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees.

Conducted Emissions Diagram:



Radiated Emissions Diagram:

