Curtis-Straus

Test Report

| | |
|---|---|
| Report No | ED0094-4 |
| Client | Sensormatic Electronics Corp<br>6600 Congress Ave<br>Boca Raton, FL 33487 |
| Phone | 561-921-6440 |
| Fax | 561-912-6093 |
| FRN | 0005052626 |
| Models | RF ID Reader |
| FCC ID | BVCIDR3000 |
| Equipment Type | Low Power Communication Device Transmitter |
| Equipment Code | DXX |
| Results | As detailed within this report |
| Prepared by | Mairaj Hussain – Test Engineer |
| Authorized by | Michael Buchholz – EMC Manager |
| Issue Date | 3-25-03 |
| Conditions of issue | This Test Report is issued subject to the conditions stated in 'terms and conditions' section of this |

Curtis-Straus LLC is accredited by the American Association for Laboratory Accreditation for the specific scope of accreditation under Certificate Number 1627-01. This report may contain data which is not covered by the A2LA accreditation.

## *Summary*

This report is an application for certification of a transmitter operating under 47 CFR 15.225 of the FCC rules provided for operating within the band 13.553 – 13.567 MHz. The product covered by this report is RF ID Reader.

The product also contains a transmitter covered by 47 CFR 15.247 of the FCC rules provided for operation of frequency hopping systems in the frequency range of 902 MHz – 928 MHz. FHSS transmitter section of the product is covered under a separate report.

Product uses four antennas for transmissions, however only one antenna is activated at any given moment in time as described in the technical description exhibit of the report.

## *Test Methodology*

All testing was performed according to the procedures specified in ANSI C63.4 (2000).

| ***Frequency range investigated:*** | 13MHz – 1000MHz |
|---|---|

| ***Measurement Distance:*** | | |
|---|---|---|
| *Frequency (MHz)* | *Distance (m)* | *Comments* |
| 13 MHz – 1000 MHz | 3 | Radiated |

The EUT was maximized around three orthogonal axes. EUT antennas were maximized within their range of motion.

Magnetic loop antenna at 3m away from the EUT was used for measuring E-field below 30MHz. The readings obtained from the loop antenna were adjusted to account for the distance factor of 30m to 3m. The distance factor was calculated as:

$$40Log\left(\frac{30}{3}\right) = 40dB$$

All readings are peak unless otherwise noted.

## *EUT Configuration*

### EUT Configuration

**Work Order:** D0094
**Company:** Sensormatic Electronics Corp
**Company Address:** 6600 Congress Ave
Boca Raton, FL 33487
**Contact:** Don Umbdenstock
**Person Present:** Matt Reynolds

| | MN | SN | FCC ID |
|---|---|---|---|
| **EUT:** | RF ID Reader | - | BVCIDR3000 |
| **Antenna:** | ICode 9910 (13.56 MHz box) | | |
| | RI-Ant-T01A (13.56 MHz loop) | | |
| **AC Adapter** | EA10603A | - | - |

**EUT Description:** RFID Reader
**EUT Max Frequency:** 927.35 MHz
**EUT Min Frequency:** 13.56 MHz

| ***Support Equipment:*** | **MN** | **SN** | **FCC ID** |
|---|---|---|---|
| Dell laptop | - | - | - |

| ***EUT Cables:*** | **Qty** | **Shielded?** | **Length** | **Ferrites** |
|---|---|---|---|---|
| DC cable from adapter | 1 | No | 1 m | One |
| AC cable to adapter | 1 | No | > 1M | None |
| RJ 45 (Ethernet) | 1 | Yes | > 1m | None |
| Antenna Cables | 1 | Yes | > 1m | None |

| ***Unpopulated EUT Ports:*** | **Qty** | **Reason** |
|---|---|---|
| db-9 | 1 | Not used in the configuration |

***Software / Operating Mode Description:***

Radar was operated at 13.56 MHz with maximum power and with and without modulation

## *Statement of Conformity*

The 13.56MHz transmitter has been found to conform with the following parts of the 47 CFR as detailed below:

| 47 CFR Part # | 47 CFR Part # | Comments |
|---|---|---|
| | 15.15(b) | The product contains no user accessible controls that increase transmission power above allowable levels. |
| 2.925 | 15.19 | The label is shown in the label exhibit. |
| | 15.21 | Information to the user is shown in the instruction manual exhibit. |
| | 15.27 | No special accessories are required for compliance. |
| 15.31(e) | 15.225 (c) | The frequency tolerance of the carrier signal complies with 0.01% of the operating frequency (table 2). The input power was varied from its nominal value (120V) to 102V and 138V. The respective radiated power was measured see table 1. |
| | 15.203 | The device utilizes reverse sex BNC type antenna connector. |
| | 15.204 | See attached documentation describing the antenna(s). |
| | 15.205<br>15.209 | The fundamental is not in a Restricted band and the spurious emissions in the Restricted bands comply with the general emission limits of 15.209. |
| | 15.207 | Conducted EMI data on AC side of DC supply is provided in this report, table 6. |
| 15.225 | (a) (b) | The field strength of emissions within the band of 13.553 – 13.567MHz is less than 10,000µV/m at 30m. See table 3. |

*Test Data and Plots*

## Section 15.31(e)

Input Voltage variation

| ***Section 15.31(e) Voltage Variation*** | | | ***Curtis-Straus LLC*** |
|---|---|---|---|
| **Work Order:** | D0094 | | **Table:** 1 |
| **Date(s):** | 2/4/03 | | |
| **Engineer:** | Evan Gould | | |
| **EUT:** | RFID Reader | | |
| ***Carrier Frequency:*** | 13.56 MHz | **Temp:** | 20°C |
| **Voltage** | | **Peak Signal Level** | |
| Nominal (120V) | | 119.7dBuV | |
| 102V | | 119.7 dBuV | |
| 139V | | 119.7 dbuV | |

| **Conclusion:** | The level of output signal at the antenna port does not change with input voltage. |
|---|---|

*Note: Above PoP readings are off of spectrum analyzer and do not take in account for cables loss and any attenuator used.*



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## *Section 15.225(c) Frequency Stability* — *Curtis-Straus LLC*

**Work Order:** D0094 **Table:** 2
**Date(s):** 2/4/03
**Engineer:** Evan Gould
**EUT:** RFID Reader

| | |
|---|---|
| **Carrier Frequency:** | 13.55933 MHz |
| **Tolerance Allowed:** | 0.01% of carrier frequency |
| | 1355.93 Hz |

| Temp °C | Start Freq (MHz) | Change (Hz) |
|---|---|---|
| 20 | 13.55933 | - |
| 10 | 13.55933 | 0 |
| 0 | 13.5594 | -70 |
| -10 | 13.55945 | -120 |
| -20 | 13.55955 | -220 |
| 30 | 13.5593 | 30 |
| 40 | 13.5592 | 130 |
| 50 | 13.55915 | 180 |

| | |
|---|---|
| **Conclusion:** | The carrier frequency variation with respect to temperature variations is within the specified limits |

# Section 15.225 (a) & (b)

## Spurious Radiated Emissions

### Radiated Spurious Emissions Table - Low Freq E-Fields Sec 15.225

*Curtis-Straus LLC*

**Date:** 05-Feb-03 **Company:** Sensormatic Electronics Corp **Table** 3
**Engineer:** MH/EG/YF **EUT Desc:** RF ID Reader **Work Order:** D0094

**Frequency Range:** 10kHz - 30MHz **Measurement Distance:** 3 m

**Notes:** Four antennas on reader: 900 Circ, 900 Lin, 13.56 TI, 13.56 Philips

| Antenna Polarization (H / V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | --- Limit (dBµV/m) | --- Margin (dB) | --- Result (Pass/Fail) | FCC 15.209 & 225 Limits useed Limit (dBµV/m) | FCC 15.209 & 225 Limits useed Margin (dB) | FCC 15.209 & 225 Limits useed Result (Pass/Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ICODE antenna in HF1 port | | | | | | | | | | | | |
| 0 pk | 13.56 | 70.0 | 0.0 | 38.2 | 0.0 | 108.2 | | | | 120.0 | -11.8 | Pass |
| RI-Ant-T01A antenna HF1 port | | | | | | | | | | | | |
| 0 pk | 13.56 | 70.4 | 0.0 | 38.2 | 0.0 | 108.6 | | | | 120.0 | -11.4 | Pass |
| RI-Ant-T01A antenna HF2 port | | | | | | | | | | | | |
| 0 pk | 13.56 | 70.4 | 0.0 | 38.2 | 0.0 | 108.6 | | | | 120.0 | -11.4 | Pass |
| **Spurious Emissions 13-30MHz** | | | | | | | | | | | | |
| Noise | 17.0 | 25.0 | 0.0 | 37.6 | 0.0 | 62.6 | | | | 69.5 | -6.9 | Pass |
| 0 qpk (1m) | 27.1 | 16.5 | 0.0 | 36.6 | 0.0 | 53.1 | | | | 88.6 | -35.5 | Pass |

***Table Result:*** Pass by -6.9 dB ***Worst Freq:*** 17.0 MHz

**Test Site:** "T" **Pre-Amp:** none **Cable:** 65 ft RG8A/U **Analyzer:** Green **Antenna:** Sm Loop (high)

**LIMIT for Fundamental**

40 dB Factor to adjust limit from 30m to 3 m
80 dbuV/m Limit at 30m
120 dBuV/m Limit at 3m

**LIMIT for Spurious EMI (13MHz-30MHz)**

59.08 dB Factor to adjust limit at 1m
29.54 dbuV/m Sec 15.209 Limit at 30m
88.58 dBuV/m Sec 15.209 Limit at 1.0m

### Radiated Emissions Table

*Curtis-Straus LLC*

**Date:** 07-Feb-03 **Company:** Sensormatic Electronics Corp **Table** 4
**Engineer:** Mairaj Hussain **EUT Desc:** RFID Reader **Work Order:** D0094

**Frequency Range:** 30 - 1000 MHz **Measurement Distance:** 3 m

**Notes:** Four antennas on reader: 900 Cicr, 900 Lin, 13.56 TI, 13.56 Philips **EUT Max Freq:** 927.35 MHz

| Antenna Polarization (H / V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | --- Limit (dBµV/m) | --- Margin (dB) | --- Result (Pass/Fail) | FCC Class B Limit (dBµV/m) | FCC Class B Margin (dB) | FCC Class B Result (Pass/Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | 128.0 | 41.0 | 21.9 | 7.9 | 1.1 | 28.1 | | | | 43.5 | -15.4 | Pass |
| H | 160.0 | 42.6 | 21.9 | 9.3 | 1.3 | 31.3 | | | | 43.5 | -12.2 | Pass |
| H | 192.0 | 50.0 | 21.6 | 10.1 | 1.5 | 40.0 | | | | 43.5 | -3.5 | Pass |
| H | 256.0 | 47.1 | 21.7 | 13.0 | 1.8 | 40.2 | | | | 46.0 | -5.8 | Pass |
| H | 288.0 | 48.4 | 21.8 | 13.8 | 1.9 | 42.3 | | | | 46.0 | -3.7 | Pass |
| H | 320.0 | 49.5 | 21.8 | 14.6 | 2.1 | 44.4 | | | | 46.0 | -1.6 | Pass |
| H | 352.0 | 48.5 | 21.8 | 15.4 | 2.2 | 44.3 | | | | 46.0 | -1.7 | Pass |
| H | 384.0 | 48.0 | 21.8 | 16.3 | 2.3 | 44.8 | | | | 46.0 | -1.2 | Pass |
| H | 448.0 | 39.0 | 21.7 | 17.2 | 2.5 | 37.0 | | | | 46.0 | -9.0 | Pass |
| H | 480.0 | 38.1 | 21.6 | 17.5 | 2.7 | 36.7 | | | | 46.0 | -9.3 | Pass |
| H | 512.0 | 35.0 | 21.6 | 18.0 | 2.8 | 34.2 | | | | 46.0 | -11.8 | Pass |
| H | 704.0 | 40.5 | 21.7 | 21.1 | 3.5 | 43.4 | | | | 46.0 | -2.6 | Pass |
| H | 768.0 | 37.6 | 21.7 | 22.5 | 3.7 | 42.1 | | | | 46.0 | -3.9 | Pass |

***Table Result:*** Pass by -1.2 dB ***Worst Freq:*** 384.0 MHz

**Test Site:** "T" **Pre-Amp:** Black **Cable:** 65 ft RG8A/U **Analyzer:** Black **Antenna:** Red

Thickness of DC cable's barrel was increased by using the Cu tape. Recommended thickness is 5.5mm. .
Barrel used during the testing had thickness of 5.0mm. This modification was done to pass some of the failing frequencies below 1000MHz.

## Radiated Emissions Table

*Curtis-Straus LLC*

**Date:** 07-Feb-03 **Company:** Sensormatic Electronics Corp **Table** 5

**Engineer:** Mairaj Hussain **EUT Desc:** RFID Reader **Work Order:** D0094

**Frequency Range:** 30 - 1000 MHz **Measurement Distance:** 3 m

**Notes:** Four antennas on reader: 900 Cicr, 915 Shelf Antenna, 13.56 TI, 13.56 Philips **EUT Max Freq:** 927.35 MHz

| Antenna Polarization (H / V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | --- Limit (dBµV/m) | --- Margin (dB) | --- Result (Pass/Fail) | FCC Class B Limit (dBµV/m) | FCC Class B Margin (dB) | FCC Class B Result (Pass/Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | 128.0 | 38.7 | 21.9 | 7.9 | 1.1 | 25.8 | | | | 43.5 | -17.7 | Pass |
| V | 160.0 | 36.5 | 21.9 | 9.3 | 1.3 | 25.2 | | | | 43.5 | -18.3 | Pass |
| V | 174.99 | 33.6 | 21.8 | 9.4 | 1.3 | 22.5 | | | | 43.5 | -21.0 | Pass |
| H | 192.0 | 46.7 | 21.6 | 10.1 | 1.5 | 36.7 | | | | 43.5 | -6.8 | Pass |
| H | 224.0 | 42.0 | 21.6 | 11.6 | 1.6 | 33.6 | | | | 46.0 | -12.4 | Pass |
| H | 256.0 | 49.0 | 21.7 | 13.0 | 1.8 | 42.1 | | | | 46.0 | -3.9 | Pass |
| H | 288.0 | 50.6 | 21.8 | 13.8 | 1.9 | 44.5 | | | | 46.0 | -1.5 | Pass |
| H | 320.0 | 49.0 | 21.8 | 14.6 | 2.1 | 43.9 | | | | 46.0 | -2.1 | Pass |
| H | 352.0 | 48.6 | 21.8 | 15.4 | 2.2 | 44.4 | | | | 46.0 | -1.6 | Pass |
| V | 384.0 | 45.4 | 21.8 | 16.3 | 2.3 | 42.2 | | | | 46.0 | -3.8 | Pass |
| H | 448.0 | 38.0 | 21.7 | 17.2 | 2.5 | 36.0 | | | | 46.0 | -10.0 | Pass |
| H | 480.0 | 39.0 | 21.6 | 17.5 | 2.7 | 37.6 | | | | 46.0 | -8.4 | Pass |
| H | 512.0 | 40.0 | 21.6 | 18.0 | 2.8 | 39.2 | | | | 46.0 | -6.8 | Pass |

***Table Result:*** Pass by -1.5 dB ***Worst Freq:*** 288.0 MHz

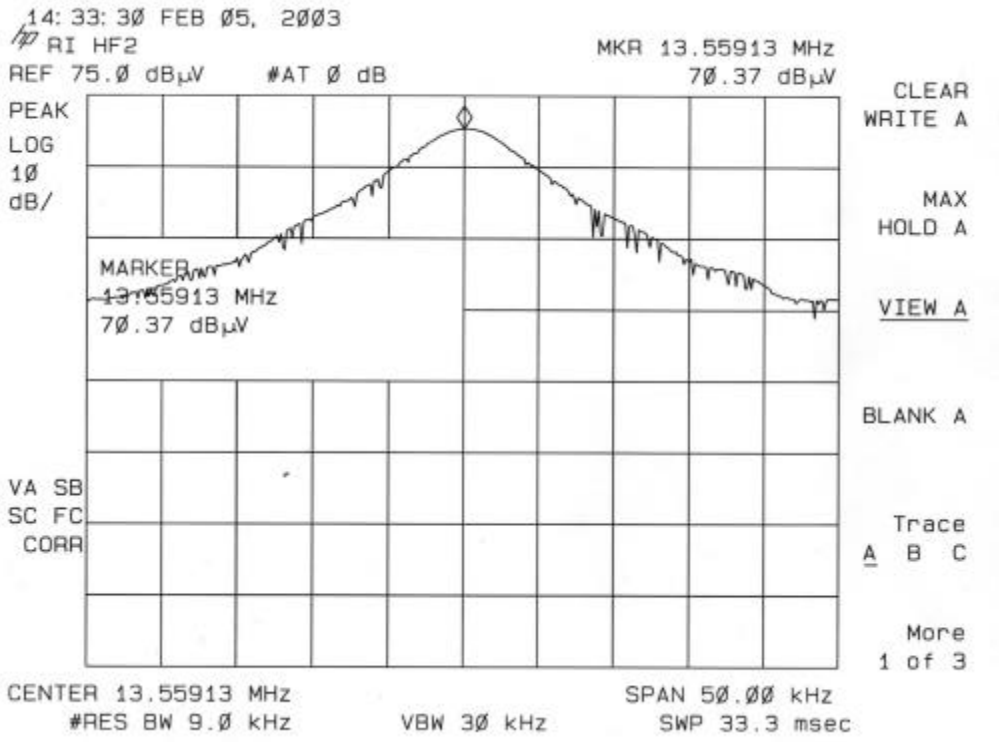
**Test Site:** "T" **Pre-Amp:** Black **Cable:** 65 ft RG8A/U **Analyzer:** Black **Antenna:** Red

Thickness of DC cable's barrel was increased by using the Cu tape. Recommended thickness is 5.5mm. .
Barrel used during the testing had thickness of 5.0mm. This modification was done to pass some of the failing frequencies below 1000MHz.

## Sample Calculation:

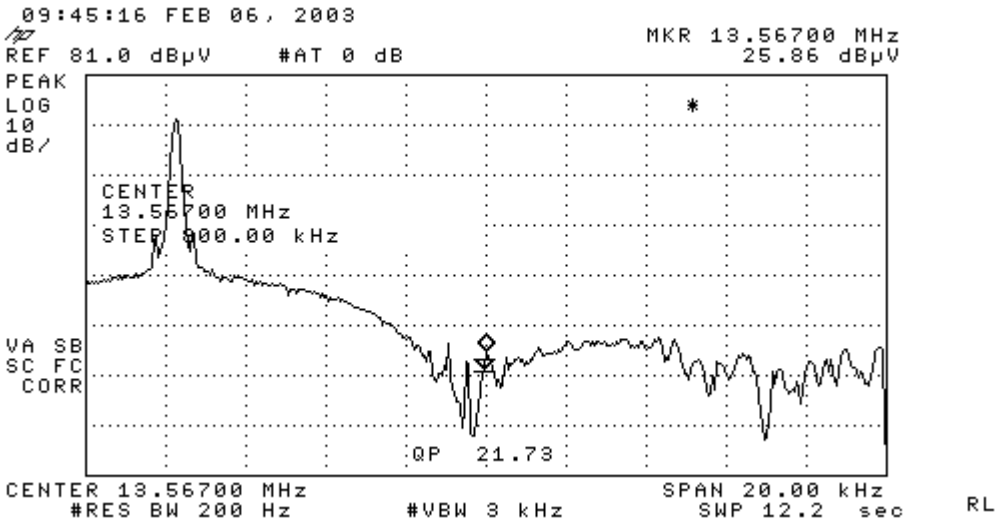
*Sample calculation:*

*Adjusted Reading = Reading + Antenna factor + Cable factor – PreAmp factor*

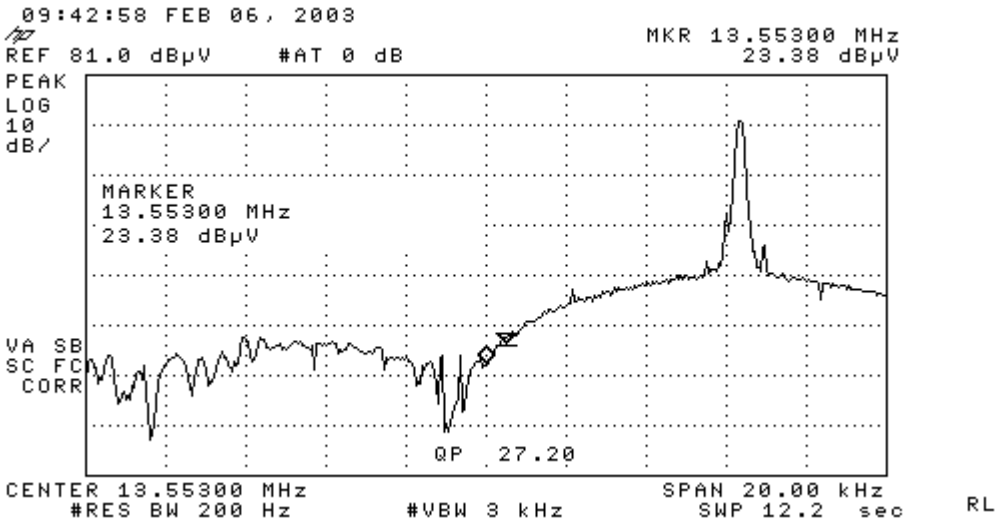



Plot showing fundamental at 13.559MHz

BandEdge Plots:




Plot showing upper band edge




Plot showing lower band edge

**Band Edge Requirements for Section 15.225** *Curtis-Straus LLC*

**Date:** 25-Mar-03 **Company:** Sensormatic Electronics Corp **Table** 6

**Engineer:** Mairaj Hussain **EUT Desc:** RFID Reader **Work Order:** D0094

**Measurement Distance:** 3 m

**Notes:** Highest emissions outside the band of operation.

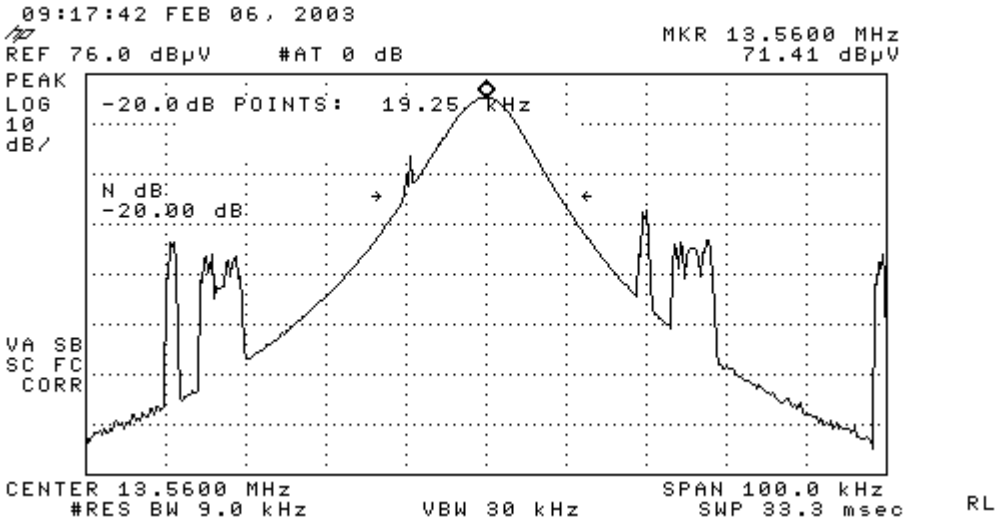
| Antenna Polarization (H / V) | Frequency (MHz) | Reading (dBµV) | Preamp Factor (dB) | Antenna Factor (dB/m) | Cable Factor (dB) | Adjusted Reading (dBµV/m) | --- Limit (dBµV/m) | --- Margin (dB) | --- Result (Pass/Fail) | FCC 15.209 Class B Limit (dBµV/m) | FCC 15.209 Class B Margin (dB) | FCC 15.209 Class B Result (Pass/Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 13.57 | 25.1 | 0.0 | 38.2 | 0.0 | 63.3 | | | | 69.5 | -6.2 | Pass |
| 0 | 13.548 | 26.1 | 0.0 | 38.2 | 0.0 | 64.3 | | | | 69.5 | -5.2 | Pass |

***Table Result:*** Pass by -5.2 dB ***Worst Freq:*** 13.548 MHz

**Test Site:** "T" **Pre-Amp:** none **Cable:** 65 ft RG8A/U **Analyzer:** Blue **Antenna:** Sm Loop (high)

Limit was adjusted to account for distance factor.
Limit at 30m 29.54 dBuV
Distance factor for 3m 40.00
Limit at 3m 69.54 dBuV

20dB Band Width




## AC Line Conducted Emission Measurements

LIMITS

Quasi-Peak: 250µV = 47.9dBµV in the range 450kHz to 30MHz

[47 CFR 15.207(a) Revised as of October 1, 2001]

**Note:** On July 12, 2004, FCC adopts the conducted emissions limits of the European CISPR 22 standard as outlined below

| Frequency of emission (MHz) | Quasi-peak limit (dBµV) | Average limit (dBµV) |
|---|---|---|
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

[47 CFR 15.207(a) Revised as of October 1, 2002; amended by ET Docket 98-80; FCC 02-157, published in the Federal Register Vol. 67, No. 132, on Wednesday, July 10, 2002]

## AC Mains Conducted Emissions

*Curtis-Straus LLC*

**Date:** 07-Feb-03 **Company:** Sensormatic Electronics Corp **Table No:** 7

**Engineer:** Mairaj Hussain **EUT Desc:** RFID Reader **Work Order:** D0094

**Notes:**

**Range:** 0.15-30Mhz **LISN(s):** Yellow-Black Orange **Other Equipment:** --- **Spectrum Analyzer:** Black

| Frequency (MHz) | Q.P. Readings QP1 (dBµV) | Q.P. Readings QP2 (dBµV) | Ave. Readings AV1 (dBµV) | Ave. Readings AV2 (dBµV) | Impedance Factor (dB) | FCC A Applicable until July 12, 2004 Limit (dBµV) | FCC A Applicable until July 12, 2004 Margin dB | FCC/CISPR A qp Limit (dBµV) | FCC/CISPR A qp Margin dB | FCC/CISPR A AVE Limit (dBµV) | FCC/CISPR A AVE Margin dB | Overall Result (Pass/Fail) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.02 | 10.6 | 12.5 | | | 20.0 | 69.5 | -37.0 | 73.0 | -40.5 | 60.0 | -27.5 | Pass |
| 12.77 | 22.0 | 22.1 | | | 20.0 | 69.5 | -27.4 | 73.0 | -30.9 | 60.0 | -17.9 | Pass |
| 13.41 | 31.1 | 31.3 | | | 20.0 | 69.5 | -18.2 | 73.0 | -21.7 | 60.0 | -8.7 | Pass |
| 13.56 | 73.7 | 68.7 | 38.0 | 38.8 | 20.0 | 69.5 | **11.2** | 73.0 | **20.7** | 60.0 | -1.2 | Fail |
| 13.57 | 31.7 | 31.0 | | | 20.0 | 69.5 | -17.8 | 73.0 | -21.3 | 60.0 | -8.3 | Pass |
| 13.70 | 28.5 | 30.2 | | | 20.0 | 69.5 | -19.3 | 73.0 | -22.8 | 60.0 | -9.8 | Pass |
| 18.53 | 19.6 | 20.0 | | | 20.0 | 69.5 | -29.5 | 73.0 | -33.0 | 60.0 | -20.0 | Pass |
| 22.30 | 17.6 | 19.1 | | | 20.0 | 69.5 | -30.4 | 73.0 | -33.9 | 60.0 | -20.9 | Pass |
| 50 ohm terminator on HF 1 & 2 | | | | | | | | | | | | |
| 13.56 | 12.6 | 13.1 | | | 20.0 | 69.5 | -36.4 | 73.0 | -39.9 | 60.0 | -26.9 | Pass |

***Table Result:*** Pass by 8.30 dB ***Worst Freq:*** 13.57 MHz

# *Test Equipment Used*

REV. 3/5/03

| ***SPECTRUM ANALYZERS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 9kHz-1.8GHz | 8591E | HP | 3441A03559 | 00024 | 05-JUN-2003 |
| WHITE | 9kHz-22GHz | 8593E | HP | 3547U01252 | 00022 | 25-FEB-2004 |
| BLUE | 9kHz-1.8GHz | 8591E | HP | 3223A00227 | 00070 | 04-SEP-2003 |
| YELLOW | 9kHz-2.9GHz | 8594E | HP | 3523A01958 | 00100 | 03-JUL-2003 |
| GREEN | 9kHz-26.5GHz | 8593E | HP | 3829A03618 | 00143 | 02-OCT-2003 |
| BLACK | 9kHz-12.8GHz | 8596E | HP | 3710A00944 | 00337 | 08-JUL-2003 |
| YELLOW-BLACK | 20Hz-40.0MHz | 3585A | HP | 2504A05219 | 00030 | 25-DEC-2003 |
| ORANGE | 9kHz-26.5GHz | E4407B | HP | US39440975 | 00394 | 07-JUN-2003 |

| ***LISN*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 10kHz-30MHz | 8012-50-R-24-BNC | SOLAR | 956348 | 00753 | 18-APR-2003 |
| BLUE | 10kHz-30MHz | 8012-50-R-24-BNC | SOLAR | 956349 | 00752 | 18-APR-2003 |
| YELLOW-BLACK | 10kHz-30MHz | 8012-50-R-24-BNC | SOLAR | 984735 | 00248 | 10-MAY-2003 |
| ORANGE | 10kHz-30MHz | 8012-50-R-24-BNC | SOLAR | 903707 | 00754 | 24-OCT-2003 |
| GOLD | 10kHz-30MHz | 8012-50-R-24-BNC | SOLAR | 984734 | 00247 | 24-OCT-2003 |
| WHITE-BLACK | 10kHz-30MHz | 8610-50-TS-100-N | SOLAR | 972019 | 00678 | 18-APR-2003 |
| BLACK | 10kHz-30MHz | 8610-50-TS-100-N | SOLAR | 972017 | 00675 | 18-APR-2003 |
| RED-BLACK | 10kHz-30MHz | 8610-50-TS-100-N | SOLAR | 972016 | 00677 | 18-APR-2003 |
| BLUE-BLACK | 10kHz-30MHz | 8610-50-TS-100-N | SOLAR | 972018 | 00676 | 18-APR-2003 |

| ***OPEN AREA TEST SITE (OATS)*** | FCC CODE | IC CODE | VCCI CODE | CALIBRATION DUE |
|---|---|---|---|---|
| SITE F | 93448 | IC 2762-F | R-468 | 04-FEB-2004 |
| SITE T | 93448 | IC 2762-T | R-905 | 04-FEB-2004 |
| SITE A | 93448 | IC 2762-A | R-903 | 04-FEB-2004 |
| SITE M | 93448 | IC 2762-M | R-904 | 04-FEB-2004 |
| BUBBLE (HP FACILITY) | N/A | N/A | R-1467 | 16-MAY-2005 |

| ***LINE CONDUCTED TEST SITES*** | FCC CODE | IC CODE | VCCI CODE | CALIBRATION DUE |
|---|---|---|---|---|
| EMI 1 | 93448 | N/A | C-480 | 31-MAR-2003 |
| EMI 2 | 93448 | N/A | C-480 | 31-MAR-2003 |
| EMI 3 | 93448 | N/A | C-480 | 31-MAR-2003 |
| BUBBLE (HP FACILITY) | N/A | N/A | C-1556 | 16-MAY-2005 |

| ***ANTENNAS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| GREEN BILOG | 30MHz-2GHz | CBL6112B | CHASE | 2742 | 00620 | 26-FEB-2003 |
| GREEN-BLACK BILOG | 30MHz-2GHz | CBL6112B | CHASE | 2412 | 00127 | 11-JUL-2004 |
| GREEN-WHITE BILOG | 30MHz-2GHz | CBL6112B | CHASE | 2574 | 00319 | 11-JUL-2004 |
| RED BILOG | 30MHz-1GHz | 3143 | EMCO | 1270 | 00042 | 11-JUL-2004 |
| BLUE BILOG | 30MHz-1GHz | 3143 | EMCO | 1271 | 00803 | 11-JUL-2004 |
| GRAY BILOG | 26MHz-2GHz | 3141 | EMCO | 9703-1038 | 00066 | 18-JUL-2003 |
| YELLOW-BLACK BILOG | 20-2000MHz | CBL6140A | CHASE | 1112 | 00126 | 18-JUL-2003 |
| YELLOW HORN | 1-18GHz | 3115 | EMCO | 9608-4898 | 00037 | 08-MAY-2003 |
| BLACK HORN | 1-18GHz | 3115 | EMCO | 9703-5148 | 00056 | 12-JUN-2003 |
| ORANGE HORN | 1-18GHz | 3115 | EMCO | 0004-6123 | 00390 | 27-MAY-2003 |
| WHITE HORN | 18-26.5GHz | 3160-09 | EMCO | 9610-1068 | 00758 | 26-JUN-2003 |
| SMALL LOOP | 9kHz-30MHz | PLA-130/A | ARA | 1024 | 00755 | 27-JAN-2004 |
| LARGE LOOP | 20Hz-5MHz | 6511 | EMCO | 9704-1154 | 00067 | 05-NOV-2003 |
| ACTIVE MONOPOLE | 30Hz-30MHz | 3301B | EMCO | 3824 | 00068 | 24-APR-2003 |
| BLUE ACTIVE MONOPOLE | 30Hz-50MHz | 3301B | EMCO | 4287 | TELOGY RENTAL | 17-AUG-2003 |
| INDUCTION COIL | 50-60Hz | 1000-4-8 | C-S | N/A | 00778 | 16-SEP-2004 |
| ADJUSTABLE DIPOLE | 30-1000MHz | 3121C | EMCO | 1370 | 00757 | 26-JUN-2003 |
| ADJUSTABLE DIPOLE | 30-1000MHz | 3121C | EMCO | 1371 | 00756 | 26-JUN-2003 |
| RE101 LOOP SENSOR | 30Hz-100kHz | RE101-13.3CM | C-S | N/A | 00818 | 07-JAN-2005 |
| RS101 RADIATING LOOP | 30Hz-100kHz | RS101-12CM | C-S | N/A | 00819 | 07-JAN-2005 |
| RS101 LOOP SENSOR | 30Hz-100kHz | RS101-4CM | C-S | N/A | 00820 | 07-JAN-2005 |

| ***MIXERS/DIPLEXERS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| MIXER / HORN | 26.5-40 GHz | 11970A/28-442-6 | HP/ATM | 2332A00900/A046903-01 | 00369 | 09-JUL-2003 |
| MIXER / HORN | 40-60 GHz | M19HW/A | OML | U30110-1 | 00821 | 03-JAN-2005 |
| MIXER / HORN | 60-90 GHz | M12HW/A | OML | E30110-1 | 00822 | 03-JAN-2005 |
| MIXER / HORN | 90-140 GHz | MO8HW/A | OML | F21206-1 | 00811 | 05-DEC-2004 |
| MIXER / HORN | 140-220 GHz | MO5HW/A | OML | G21206-1 | 00812 | 05-DEC-2004 |
| DIPLEXER | | DPL.26 | OML | N/A | 00813 | 05-DEC-2004 |

| ***PREAMPS / ATTENUATORS / FILTERS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 0.10-2000MHz | ZFL-1000-LN | C-S | N/A | 00798 | 22-MAR-2003 |
| BLUE | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00759 | 07-AUG-2003 |
| BLUE-BLACK | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00800 | 12-SEP-2003 |
| GREEN | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00802 | 22-MAR-2003 |
| GOLD | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00044 | 24-MAY-2003 |
| BLACK | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00799 | 22-MAR-2003 |
| ORANGE | 0.01-2000MHz | ZFL-1000-LN | C-S | N/A | 00765 | 22-MAR-2003 |
| WHITE | 1-20GHz | SMC-12A | C-S | 426643 | 00760 | 27-AUG-2003 |
| YELLOW-BLACK | 1-20GHz | SMC-12A | C-S | 535055 | 00801 | 27-AUG-2003 |
| ORANGE-BLACK | 1-20GHz | SMC-12A | C-S | 690639 | 00761 | 27-AUG-2003 |
| YELLOW | 18-26.5GHz | AFS4-18002650-60-8P-4 | C-S | 467559 | 00758 | 27-AUG-2003 |
| HIGH PASS FILTER | 1-18 GHz | SPA-F-55204 | K&L | 36 | 00817 | 31-DEC-2003 |
| LOW PASS FILTER | 1-9 GHz | 11SL10-4100/X4400-O/O | K&L | 4 | 00816 | 31-DEC-2003 |
| 20DB ATTENUATOR | 0.03-20 GHz | PE 7019-20 | PASTERNACK | 01 | 00791 | 13-JUN-2003 |

| ***ABSORBING CLAMPS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| FISCHER CLAMP | 30-1000MHz | F-201-23MM | FISCHER | 10 | 00081 | 04-JAN-2004 |

| ***EFT GENERATORS*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| EFT/B-100 | EFT/B-100 | CDI | 101 | 00038 | 02-JUL-2003 |
| EFT DIRECT COUPLING CAP | N/A | C-S | 01 | 00794 | 10-DEC-2003 |

| ***ESD GENERATORS*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| GREEN | NSG435 | SCHAFFNER | 000839 | 00763 | 04-NOV-2003 |
| RED | NSG435 | SCHAFFNER | 001625 | 00762 | 15-NOV-2003 |
| BLUE | NSG435 | SCHAFFNER | 005274 | TELOGY RENTAL | 19-SEP-2003 |
| YELLOW | 930D | ETS | 201 | 00673 | 29-APR-2003 |

| ***BEST EMC-2*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| BLUE | 711-1100 | SCHAFFNER | 199824-002SC | 00117 | 04-SEP-2003 |
| RED | 711-1100 | SCHAFFNER | 200122-074SC | 00623 | 04-SEP-2003 |

| ***CHAMBERS AND STRIPLINE*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| RFI 1 CHAMBER | 3 METER COMPACT | PANASHIELD | N/A | 00797 | 11-JUN-2003 |
| RFI 2 CHAMBER | 04' X 07' SHIELDING SYSTEM | LINDGREN | 13329 | 00795 | 09-MAY-2003 |
| RFI 3 STRIPLINE | N/A | C-S | N/A | 00796 | 09-JUL-2003 |
| ENVIRONMENTAL (SAFETY) | SGTH-31S | B-M-A INC. | 2245 | 00321 | 07-JUN-2003 |

| ***AMPLIFIERS*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 0.5-1000MHz | 10W1000B | AR | 18708 | 00032 | 11-JUN-2003 |
| BLUE | 0.01-250MHz | 75A250 | AR | 19165 | 00039 | 14-JAN-2004 |
| GREEN | 0.5-1000MHz | 10W1000B | AR | 23423 | 00123 | 11-JUN-2003 |
| BLACK | 0.01-250MHz | 75A250 | AR | 23411 | 00122 | 14-JAN-2004 |
| ORANGE | 0.01-250MHz | 75A250 | AR | 26827 | 00367 | 14-JAN-2004 |
| HP489A | 1.0-2.0GHz | HP489A | HP | 1144AU1780 | 00083 | 28-AUG-2003 |
| HP491C | 2.0-4.0GHz | HP491C | HP | 449-00638 | 00764 | 28-AUG-2003 |
| HP493A | 4.0-8.0GHz | HP493A | HP | 171402242 | 00085 | 28-AUG-2003 |
| HP495A | 7.0-12.0GHz | HP495A | HP | 904-00237 | 00086 | 28-AUG-2003 |

| ***FIELD PROBES*** | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 0.01-1000MHz | HI-4422 | HOLADAY | 90369 | 00031 | 13-APR-2003 |
| GREEN | 0.01-1000MHz | HI-4422 | HOLADAY | 97363 | 00136 | 01-APR-2003 |

| *SIGNAL GENERATORS* | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 0.09-2000MHz | HP8648B | HP | 3847U02192 | 00366 | 11-DEC-2003 |
| BLUE | 0.1-1000MHz | HP8648A | HP | 3426A00548 | 00034 | 11-JUL-2003 |
| GREEN | 0.09-2000MHz | HP8648B | HP | 3623A02072 | 00125 | 04-SEP-2003 |
| ORANGE | 0.1-1000MHz | HP8648B | HP | 3537A01210 | 00025 | 05-JUN-2003 |
| WHITE | 0.2Hz-2MHz | FG2A | BECKMAN | 102037 | 00767 | 25-MAR-2003 |
| BLACK | 15MHz | HP33120A | HP | US36004674 | 00766 | 23-OCT-2003 |
| YELLOW | 15MHz | HP33120A | HP | US36014119 | 00249 | 07-JUN-2003 |
| BLUE-WHITE | 0.1Hz-13MHz | HP3312A | HP | 1432A07632 | 00775 | 27-FEB-2004 |
| SWEEPER | 0.01-20.0GHz | HP83752A | HP | 3610A01133 | 00087 | 12-APR-2003 |

| *BULK INJECTION CLAMPS* | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| RED | 0.01-100MHz | 95236-1 | TEGAM | 12248 | 00035 | 14-JAN-2004 |
| GREEN | 0.01-100MHz | 95236-1 | EMCO | 50215 | 00118 | 14-JAN-2004 |

| *MEASUREMENT PROBES* | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| BLUE MONITORING PROBE | 0.01-150MHz | 91550-2 | TEGAM | 12350 | 00807 | 17-APR-2003 |
| YELLOW MONITORING PROBE | 0.01-150MHz | 91550-2 | ETS | 50972 | 00493 | 21-NOV-2003 |
| GREEN CURRENT TRANSFORMER | 40Hz-20MHz | 150 | PEARSON | 10226 | 00793 | 19-MAR-2003 |
| CISPR LINE PROBE | 150kHz-30MHz | N/A | C-S | 01 | 00805 | 20-DEC-2004 |
| CISPR TELCO VOLTAGE PROBE | 150kHz-30MHz | CS A/C-10 | C-S | CS01 | 00296 | 12-SEP-2003 |

| *CDN NETWORKS* | RANGE | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|---|
| BLACK | 0.15-100MHz | 20A M-2 | C-S | 04 | 00783 | 14-JAN-2004 |
| BLUE | 0.15-100MHz | 15A M-3 | C-S | 05 | 00806 | 14-JAN-2004 |
| RED | 0.15-100MHz | 15A M-3 | C-S | 06 | 00780 | 14-JAN-2004 |
| WHITE | 0.15-100MHz | 15A M-3 | C-S | 07 | 00782 | 14-JAN-2004 |
| YELLOW-BLACK | 0.15-100MHz | 15A M-3 | C-S | 08 | 00784 | 14-JAN-2004 |
| BLUE-BLACK | 0.15-100MHz | 15A M-3 | C-S | 09 | 00781 | 14-JAN-2004 |
| GREEN | 0.15-100MHz | 30A M-3 | C-S | 10 | 00779 | 14-JAN-2004 |
| YELLOW | 0.15-100MHz | 30A M-5 | C-S | 11 | 00804 | 14-JAN-2004 |
| BLUE-WHITE | 0.15-100MHz | 15A M-5 | C-S | 12 | 00788 | 14-JAN-2004 |
| YELLOW (RES) | 0.15-100MHz | 100Ω RESISTOR NWK | C-S | 01 | 00810 | 10-SEP-2003 |
| GREEN (RES) | 0.15-100MHz | 100Ω RESISTOR NWK | C-S | 02 | 00785 | 10-SEP-2003 |

| *HARMONIC ANALYZER* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| HFTS | HP6842A | HP | 3531A-00169 | 00738 | 29-OCT-2003 |

| *FREQUENCY COUNTER* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| 5340A | HP5340A | HP | 1440A02320 | 00787 | 12-JUN-2003 |

| *SURGE GENERATORS* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| TRANSIENT WAVEFORM MONITOR | TWM-5 | CDI | 003982 | 00323 | 13-JUN-2003 |
| UNIVERSAL SURGE GENERATOR | M5 | CDI | 003966 | 00324 | 10-OCT-2003 |
| THREE PHASE COUPLING NWK | 3CN | CDI | 003455 | 00325 | 10-OCT-2003 |
| HIGH VOLTAGE CAP NWK 5kVDC, 18µF | CS-HVCC | C-S | 01 | 00772 | 15-OCT-2003 |
| NEBS SURGE GENERATOR | N/A | C-S | N/A | 00088 | 12-SEP-2003 |
| 12 PAIR SURGE RESISTOR MODULE | N/A | C-S | N/A | 00768 | 12-SEP-2003 |

| *POWER SUPPLIES* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| 10001I/2 AC POWER SYSTEM | (2) 500I | CALIFORNIA INSTRUMENTS | HK53687/HK53688 | 00376 | 31-DEC-2003 |

| *RMS VOLTMETERS/CURRENT CLAMP* | MN | MNFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| RED RMS VOLTMETER | 3400A | HP | 40102044 | 00770 | 04-OCT-2003 |
| WHITE RMS VOLTMETER | 3400A | HP | 1218A14427 | 00809 | 09-DEC-2003 |
| GREEN RMS VOLTMETER (TELECOM) | 3400A | HP | 806-09594 | 00344 | 10-DEC-2003 |
| TRUE-RMS VOLTMETER | 79III | FLUKE | 71700298 | 00769 | 03-OCT-2003 |
| TRUE-RMS CLAMP METER (SAFETY) | 36 | FLUKE | 68805882 | 00700 | 04-APR-2003 |

| *POWER/NOISE METERS* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| POWER METER | 435B | HP | 2445A11012 | 00773 | 22-MAR-2003 |
| POWER SENSOR | 8481A | HP | 2702A61351 | 00774 | 22-MAR-2003 |
| TRANSMISSION LINE TESTER (dBrnC) | 185T | AMREL | 998658 | 00823 | 14-JAN-2004 |

| *OVERVOLTAGE CHAMBERS* | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 72KW POWER FAULT SIMULATOR | OV1 | C-S | N/A | 00792 | 04-APR-2003 |

| ***DIPOLE TAPE MEASURES*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| 26FT TAPE #1 | 2338CME | LUFKIN | C3166-1 | 00776 | 26-MAR-2005 |
| 26FT TAPE #2 | 2338CME | LUFKIN | C3166-2 | 00772 | 26-MAR-2005 |

| ***METEOROLOGICAL METERS*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| TEMPERATURE /HUMIDITY GAUGE | TH300 | DICKSON | 9044101 | 00733 | 09-DEC-2003 |
| TEMPERATURE /HUMIDITY GAUGE | THG-912 | HUGER | 4000562 | 00789 | 08-NOV-2003 |
| ATMOSPHERIC PRESSURE GAUGE | BA928 | OREGON SCIENTIFIC | C3166-1 | 00831 | 03-MAR-2004 |

| ***TRACEABLE CLOCKS*** | MN | MFR | SN | ASSET | CALIBRATION DUE |
|---|---|---|---|---|---|
| 5003 | 5003 | CONTROL COMPANY | 99026940 | 00808 | 09-DEC-2003 |

*Unless otherwise noted the calibration interval is one year. All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.*

# *Terms And Conditions*

**Paragraph 1.** SERVICES. LABORATORY will:

1.1 Use the degree of care and skill ordinarily exercised by and consistent with the standards of the profession.
1.2 Perform all technical services in substantial accordance with the generally accepted laboratory principles and practices.
1.3 Retain all pertinent records relating to the services performed for a period of three (3) years following submission of the report describing such services, during which period the records will be made available to CLIENT upon reasonable request.

**Paragraph 2**. CLIENT'S RESPONSIBILITIES. CLIENT or his authorized representative will:

2.1 Provide LABORATORY with all plans, schematics, specifications, addenda, change orders, drawings and other information for the proper performance of technical services.
2.2 Designate a person to act as CLIENT's representative with respect to LABORATORY's services to be performed on behalf of the CLIENT; such person or firm to have complete authority to transmit instructions, receive information and data, interpret and define CLIENT's policies and decisions with respect to the LABORATORY's work on behalf of the CLIENT and to order, at CLIENT's expense, such technical services as may be required.
2.3 Designate a person who is authorized to receive copies of LABORATORY's reports.
2.4 Undertake the following:
(a) Secure and deliver to LABORATORY, without cost to LABORATORY, preliminary representative samples of the equipment proposed to require technical services, together with any relevant data.
(b) Furnish such labor and equipment needed by LABORATORY to handle samples at the LABORATORY and to facilitate the specified technical services.

**Paragraph 3.** GENERAL CONDITIONS:

3.1 LABORATORY, by the performance of services covered hereunder, does not in any way assume any of those duties or responsibilities customarily vested in the CLIENT, its employees, or any other party, agency or authority.
3.2 LABORATORY shall not be responsible for acts of omissions of any other party or parties involved in the design, manufacture or maintenance of the equipment or the failure of any employee, contractor or subcontractor to undertake any aspect of equipment's design, manufacture or maintenance.
3.3 LABORATORY is not authorized to revoke, alter, release, enlarge or release any requirement of the equipment's design, manufacture or maintenance unless specifically authorized by CLIENT or his authorized representative.
3.4 THE ONLY WARRANTY MADE BY LABORATORY IN CONNECTION WITH ITS SERVICE PERFORMED HEREUNDER IS THAT IT WILL USE THAT DEGREE OF CARE AND SKILL AS SET FORTH IN PARAGRAPH 1 ABOVE. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE OR INTENDED FOR SERVICES PROVIDED HEREUNDER.
3.5 Where the LABORATORY indicates that additional testing is advisable to obtain more valid or useful data, and where such testing has not been authorized, CLIENT agrees to view such test reports as inconclusive and preliminary.
3.6 The LABORATORY will supply technical service and prepare a report based solely on the sample submitted to the LABORATORY by the CLIENT. The CLIENT understands that application of the data to other devices is highly speculative and should be applied with extreme caution.
3.7 The LABORATORY agrees to exercise ordinary care in receiving, preserving and shipping (F.O.B. Littleton, MA) any sample to be tested, but assumes no responsibility for damages, either direct or consequential, which arise from loss, damage or destruction of the samples due to the act of examination, modification or testing, or technical services or circumstances beyond LABORATORY's control.
3.8 The LABORATORY will hold samples for thirty (30) days after tests are completed, or until the CLIENT's outstanding debts to the LABORATORY are satisfied, whichever is later.
3.9 The CLIENT recognizes that generally accepted error variances apply and agrees to consider such error variances in its use of test data.
3.10 It is agreed between LABORATORY and CLIENT that no distribution of any tests, reports or analysis other than that described below shall be made to any third party without the prior written consent of both parties unless such distribution is mandated by operation of law. It is agreed that tests, reports, or analysis results may be disclosed to third party auditors of the laboratory at the laboratory facility in the course of accreditation maintenance audits. No reference to reports or technical services of the LABORATORY shall be made in any advertising or promotional literature without the express written permission of the LABORATORY.
3.11 The CLIENT acknowledges that all employees of LABORATORY operate under employment contracts with the LABORATORY and CLIENT agrees not to solicit employment of such employees or to solicit information related to other clients from said employees.
3.12 In recognition of the relative risks and benefits of the project to both CLIENT and LABORATORY, the risks have been allocated such that the CLIENT agrees, to the fullest extent permitted by law, to limit the liability of the LABORATORY to the CLIENT for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, including attorneys' fees and costs and expert witness fees and costs, so that the total aggregate liability of the LABORATORY to the CLIENT shall not exceed $100,000, or the LABORATORY'S total fee for services rendered on this project, whichever is greater. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

**Paragraph 4.** INSURANCE:

4.1 LABORATORY shall secure and maintain throughout the full period of the services provided to the CLIENT adequate insurance to protect it from claims under applicable Workmen's Compensation Acts and also shall maintain one million dollars of general liability coverage to cover claims for bodily injury, death or property damage as may arise from the performance of its services.
4.2 The CLIENT hereby warrants that it has sufficient insurance to protect its employees adequately under applicable Workmen's Compensation Acts and for bodily injury, death, or property damage.

4.3 No insurance of whatever kind or type, which may be carried by either party is to be considered as in any way limiting any other party's responsibility for damages resulting from their operations or for furnishing work and materials.

**Paragraph 5.** PAYMENT:

5.1 CLIENT shall pay to LABORATORY such fees for services as previously agreed, orally or in writing, within 30 days of presentment of a bill for such services performed. In the event CLIENT ordered, orally or in writing, services but such services were not assigned a rate for billing, such services shall be billed at the LABORATORY's reasonable and customary rate.
5.2 CLIENT shall be responsible for all shipping, customs and other expenses related to services provided by LABORATORY to the CLIENT, and shall fully insure any test sample or other equipment provided to LABORATORY by the CLIENT.
5.3 Amounts overdue from CLIENT to LABORATORY shall be charged interest at a rate of 1½% per month.

**Paragraph 6.** ISO/IEC GUIDE 17025 ADDITIONS:

6.1 CLIENT agrees that this test report will not be reproduced except in full, without written approval from the LABORATORY.
6.2 CLIENT agrees that this test report shall not be used to claim product endorsement by A2LA or ANSI or any agency of the U.S. Government.
6.3 CLIENT agrees that test results presented herein relate only to the sample tested by the LABORATORY.