# DECLARATION OF COMPLIANCE
# FCC PARTS 24(E) & 22(H) EMC MEASUREMENTS


**Test Lab**

**CELLTECH LABS INC.**
Testing and Engineering Services
1955 Moss Court
Kelowna, B.C.
Canada V1Y 9L3
Phone: 250-448-7047
Fax: 250-448-7046
e-mail: info@celltechlabs.com
web site: www.celltechlabs.com

**Applicant Information**

**ITRONIX CORPORATION**
801 South Stevens Street
Spokane, WA 99204
United States


| | |
|---|---|
| **FCC IDENTIFIER:** | **KBCIX100XA555WLBT** |
| **IC IDENTIFIER:** | **1943A-IX100Xb** |
| **Model(s):** | **IX100XA555WLBT** |

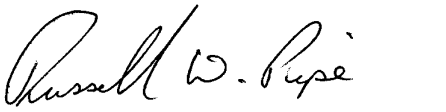
| | |
|---|---|
| **FCC Rule Part(s):** | **47 CFR §24(E), §22(H), §2** |
| **IC Rule Part(s):** | **RSS-133 Issue 2, RSS-132 Issue 1** |
| **Test Procedure(s):** | **FCC 47 CFR §24(E), §22(H), §2; ANSI TIA/EIA-603-A-2001**<br>**IC RSS-133 Issue 2, RSS-132 Issue 1** |
| **FCC Device Classification:** | **PCS Licensed Transmitter worn on body (PCT)** |
| **IC Device Classification:** | **2GHz Personal Communication Services (RSS-133 Issue 2)**<br>**800 MHz Cellular Telephones Employing New Technologies (RSS-132 Issue 1)** |
| **Device Description:** | **Rugged Handheld PC with Sierra Wireless AirCard 555/550 PCS/Cellular CDMA Modem (co-located with USI WM-BB-AG-01 802.11b and Bluetooth Combo Transmitter)** |
| **Class II Permissive Change(s):** | **1. Add Itronix IX100X Vehicle Cradle (P/N: 50-0107-001)**<br>**2. Add MaxRad 3 dBi Gain Vehicle-Mount Antenna (P/N: WMLPVDB800/1900)** |

| | |
|---|---|
| **Tx Frequency Range(s):** | **1851.25 - 1908.75 MHz (PCS CDMA)**<br>**824.70 - 848.31 MHz (Cellular CDMA)** |
| **Max. ERP/EIRP Measured:** | **0.078 Watts (18.93 dBm) EIRP - PCS CDMA (MaxRad Vehicle-Mount Antenna)**<br>**0.080 Watts (19.05 dBm) ERP - Cellular CDMA (MaxRad Vehicle-Mount Antenna)** |
| **Conducted Power Tested:** | **23.0 dBm (PCS CDMA)**<br>**23.0 dBm (Cellular CDMA)** |
| **Emission Designator(s):** | **1M25F9W** |
| **Frequency Tolerance(s):** | **150 Hz (PCS CDMA)**<br>**300 Hz (Cellular CDMA)** |
| **Antenna Type(s) Tested:** | **MaxRad 3 dBi Gain Vehicle-Mount (P/N: WMLPVDB800/1900)** |
| **Power Source(s) Tested:** | **12V AC Adapter (Magic Power Model: MPE-C045-12-R-1)** |

**This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR §24(E), §22(H), §2, Industry Canada RSS-133 Issue 2, RSS-132 Issue 1, and ANSI TIA/EIA-603-A-2001.**

**I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.**





**Russell Pipe**
**Senior Compliance Technologist**
**Celltech Labs Inc.**

**Duane M. Friesen**
**EMC Manager**
**Celltech Labs Inc.**

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# FCC PART 24(E) & 22(H) EMC MEASUREMENT REPORT

## 1.1 SCOPE

This report describes the measurements made and results collected during the Electromagnetic emissions testing of the Itronix Corporation IX100X Rugged Handheld PC incorporating the internal Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem (co-located with USI WM-BB-AG-01 802.11b / Bluetooth Combo Transmitter and internal antennas), with the Class II Permissive Change(s) adding the Itronix IX100X Vehicle Cradle and MaxRad 3 dBi Gain Vehicle-Mount Antenna. The measurement results were applied against the EMC requirements and limits outlined in the technical rules and regulations set forth in the Federal Communication Commission Code of Federal Regulations Title 47 Parts 24(E), 22(H), 2; and RSS-133 Issue 2, RSS-132 Issue 1 (Provisional) of Industry Canada.

## 2.1 GENERAL INFORMATION / DEVICE DESCRIPTION

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **APPLICANT** | | **ITRONIX CORPORATION** | | **801 South Stevens Street, Spokane, WA 99210** | | | | |
| **FCC IDENTIFIER** | | KBCIX100XA555WLBT | | | | | | |
| **Model(s)** | | IX100XA555WLBT | | | | | | |
| **Serial No.(s)** | | E03020400906015 | | AirCard 555 | | Production Unit | | |
| | | 510495001-U5103-0025 | | IX100X | | Identical Prototype | | |
| | | 05 | | Vehicle Cradle | | Identical Prototype | | |
| **Device Description** | | Rugged Handheld PC with Sierra Wireless AirCard 555/550 Dual-Band CDMA PCMCIA Modem | | | | | | |
| **Co-located Transmitter(s)** | | Universal Scientific Industrial WM-BB-AG-01 802.11b & Bluetooth Combo Module | | | | | | |
| **Class II Permissive Change(s)** | | 1. Add Vehicle Cradle | | Itronix IX100X | | P/N: 50-0107-001 | | |
| | | 2. Add Vehicle-Mount Antenna | | MaxRad 3 dBi Gain | | P/N: WMLPVDB800/1900 | | |
| **Transmitter Operating Configuration(s)** | | **CDMA & 802.11b co-located transmitters do not transmit simultaneously** | | | | | | |
| | | **Vehicle Cradle and Vehicle-Mount Antenna for use with CDMA Transmitter Only** | | | | | | |
| **FCC** | **Rule Part(s)** | §24(E) | | §22(H) | | §2 | | |
| | **Classification(s)** | PCS Licensed Transmitter worn on body (PCT) | | | | | | |
| **IC** | **Rule Part(s)** | RSS-133 Issue 2 | | | | RSS-132 Issue 1 (Provisional) | | |
| | **Classification(s)** | 2GHz Personal Communication Services | | | | 800MHz CDMA Cellular Transmitter | | |
| **Tx Frequency Range(s)** | | 1851.25 - 1908.75 MHz | | | | PCS CDMA | | |
| | | 824.70 - 848.31 MHz | | | | Cellular CDMA | | |
| **RF Conducted Output Power Level(s) Tested** | | 23.0 dBm | | | | PCS CDMA | | |
| | | 23.0 dBm | | | | Cellular CDMA | | |
| **Frequency Tolerance(s)** | | 150 Hz | | | | PCS CDMA | | |
| | | 300 Hz | | | | Cellular CDMA | | |
| **Emission Designator(s)** | | 1M25F9W | | | | | | |
| **Power Source(s) Tested** | | Magic Power AC Adapter | | 12 V | | Model: MPE-C045-12-R-1 | | |
| **Antenna Type(s) Tested** | | Description | Max. RF Output Power Measured (EIRP/ERP) | | | | | Height |
| | | MaxRad 3 dBi Gain Vehicle-Mount | 0.078 | W | 18.93 | dBm | EIRP PCS | 2.7 " |
| | | | 0.080 | W | 19.05 | dBm | ERP Cellular | |

## 3.1 TEST EQUIPMENT LIST

| Equipment Type | Model | Serial No. | Calibration Due Date |
|---|---|---|---|
| HP Signal Generator | 8648D (9kHz-4.0GHz) | 3847A00611 | April 2005 |
| Rohde & Schwarz Signal Generator | SMR 20 (10MHz-40GHz) | 100104 | April 2005 |
| Gigatronics Power Meter | 8651A | 8650137 | April 2005 |
| Gigatronics Power Meter | 8652A | 1835267 | April 2005 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | 1833535 | April 2005 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | 1833542 | April 2005 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | 1834350 | April 2005 |
| Amplifier Research Power Amp. | 5S1G4 (5W, 800MHz-4.2GHz) | 26235 | N/A |
| Amplifier Research Power Amp. | 10W1000C (0.5 – 1 GHz) | 27887 | N/A |
| Microwave System Amplifier | HP 83017A (0.5-26.5GHz) | 3123A00587 | N/A |
| Network Analyzer | HP 8753E (30kHz-3GHz) | US38433013 | April 2005 |
| Frequency Counter | HP 53181A (3GHz) | 3736A05175 | April 2005 |
| DC Power Supply | HP E3611A | KR83015294 | N/A |
| Multi-Device Controller | EMCO 2090 | 9912-1484 | N/A |
| Mini Mast | EMCO 2075 | 0001-2277 | N/A |
| Turntable | EMCO 2080-1.2/1.5 | 0002-1002 | N/A |
| Double Ridged Horn Antenna | ETS 3115 (1-18GHz)<br>TX Substitution Antenna (Horn SN6267) | 6267 | Oct 2004 |
| Double Ridged Horn Antenna | ETS 3115 (1-18GHz) | 6276 | Oct 2004 |
| Standard Gain Horn Antenna | ETS 3160-09<br>TX Substitution Antenna (3160-09) | 9810-1123 | N/A |
| Standard Gain Horn Antenna | ETS 3160-09 | 1263 | N/A |
| Bilog Antenna | Schaffner CBL6111A | 1607 | Jan 2005 |
| Roberts Dipole Antenna | 3121C-DB4<br>TX Substitution Antenna (B_3121C) | 0003-1494 | Dec 2004 |
| Roberts Dipole Antenna | 3121C-DB4 | 0003-1498 | Dec 2004 |
| Spectrum Analyzer | HP 8594E | 3543A02721 | April 2005 |
| Spectrum Analyzer | HP E4408B | US39240170 | Dec 2004 |
| Shielded Screen Room | Lindgren R.F. 18W-2/2-0 | 16297 | N/A |
| Environmental Chamber | ESPEC ECT-2 (Temperature/Humidity) | 0510154-B | Feb 2005 |
| Directional Coupler | Amplifier Research DC7154 (0.8-4.2 GHz) | 26197 | N/A |
| Directional Coupler | Pasternack PE2214-20 | 00078 | N/A |
| High Pass Filter | Microwave Circuits HIG318G1 | 0001DC0020 | N/A |
| High Pass Filter | Microwave Circuits H02G18G1 | 0001DC0020 | N/A |
| 30 dB Attenuator | Pasternack PE7019-30 | 00065 | N/A |
| Itronix Laptop PC | IX260+ | ZZGEG4112ZZ9777 | N/A |

# FCC PART 24(E) & 22(H) EMC MEASUREMENT REPORT (Continued)

## 4.1 SUMMARY

The data in this measurement report demonstrates that the ITRONIX CORPORATION Model: IX100XA555WLBT FCC ID: KBCIX100XA555WLBT Rugged Handheld PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem (co-located with USI WM-BB-AG-01 802.11b / Bluetooth Combo Transmitter and internal antennas), with the Class II Permissive Change adding Itronix IX100X Vehicle Cradle and MaxRad 3 dBi Gain Vehicle-Mount Antenna, complies with the requirements of FCC Rule Parts §24(E), §22(H), §2; and RSS-133 Issue 2, RSS-132 Issue 1 (Provisional) of Industry Canada.

# APPENDIX A - RF OUTPUT POWER MEASUREMENT - §2.1046

## A.1. MEASUREMENT PROCEDURE

The average conducted power levels were measured with a Gigatronics 8652A Universal Power Meter using modulated average power mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The transmitter terminal was coupled to the power meter and the DUT was placed into test mode via internal software. All subsequent tests were performed using the same tune-up procedures.

## A.2. MEASUREMENT DATA

| Conducted Power Measurements | |
|---|---|
| **Frequency (MHz)** | **Average Power (dBm)** |
| 824.70 | 23.0 |
| 835.89 | 23.0 |
| 848.31 | 23.0 |
| 1851.25 | 23.0 |
| 1880.00 | 23.0 |
| 1908.75 | 23.0 |

# APPENDIX B - EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)

## B.1. MEASUREMENT PROCEDURE

EIRP measurements were performed on a 3-meter open area test site using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001. The Sierra Wireless AirCard 555 test software installed in the IX100X Handheld PC was used to control the DUT in the CDMA "always up" power control mode. The DUT was placed in the vehicle cradle and positioned on the turntable. The vehicle-mount antenna was fixed on a 50 cm x 50 cm ground plane placed on a Styrofoam support at a distance of 3 meters from the receive antenna. The vehicle-mount antenna was connected to the vehicle cradle via a 17-foot LMR-195 cable representing a typical vehicle-mount installation. The maximum field intensity was determined by rotating the DUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. Once the maximum emission was found, the spectrum analyzer was set to peak hold and the uncorrected emission value recorded for each of the low, mid and high channels tested. The DUT was then substituted with a horn antenna. A signal, simulating the DUT emission was generated, amplified, and fed through a directional coupler to the substitution antenna. The height and direction of the receive antenna as well as the direction of the substitution horn was adjusted for a maximum received signal. The power applied to the horn was then adjusted to give the same field strength reading as previously recorded for the DUT and the power at the forward coupler port recorded. The substitution antenna was then replaced with a calibrated power sensor, the forward coupler port power level confirmed and the power applied to the horn antenna recorded. The EIRP level was determined by correcting the applied feed point power with the addition of the horn gain.

## B.2. MEASUREMENT DATA

| | | | | | |
|---|---|---|---|---|---|
| **Project Number:** | 073004-547KBC | | | **Standard:** | FCC24.232b |
| **Company:** | Itronix | | | **Test Start Date:** | 18-Aug-04 |
| **Product:** | IX100 with AC555 | | | **Test End Date:** | 27-Aug-04 |

| Polarity | Distance | Substitution Antenna Type | Channel | Frequency | Corrected Field Strength | Substituted SA Signal Level (uncorrected) | Power Applied to Antenna | Antenna Gain | Carrier EIRP Level | | EIRP Limit | | Margin | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | | MHz | dBuV/m | dBuV | dBm | dBi | dBm | Watts | dBm | Watts | dB | |
| H | 3 | Horn SN6276 | 25 | 1851.25 | 110.69 | 78.69 | 2.77 | 6.67 | 9.44 | 0.009 | 33.01 | 2.00 | 23.57 | PASS |
| H | 3 | Horn SN6276 | 600 | 1880.00 | 108.32 | 76.21 | 2.96 | 6.68 | 9.64 | 0.009 | 33.01 | 2.00 | 23.37 | PASS |
| H | 3 | Horn SN6276 | 1175 | 1908.75 | 107.74 | 75.51 | 3.61 | 6.68 | 10.29 | 0.011 | 33.01 | 2.00 | 22.72 | PASS |
| V | 3 | Horn SN6276 | 25 | 1851.25 | 117.22 | 85.22 | 10.34 | 6.67 | 17.01 | 0.050 | 33.01 | 2.00 | 16.00 | PASS |
| V | 3 | Horn SN6276 | 600 | 1880.00 | 118.19 | 86.08 | 10.94 | 6.68 | 17.62 | 0.058 | 33.01 | 2.00 | 15.39 | PASS |
| V | 3 | Horn SN6276 | 1175 | 1908.75 | 119.33 | 87.10 | 12.25 | 6.68 | 18.93 | 0.078 | 33.01 | 2.00 | 14.08 | PASS |

Note:
Horn Antenna used for substitution

Formulae:
EIRP Level (dBm) = Power applied to Antenna (dBm) + Antenna Gain (dB)
Margin (dB) = Limit (dBm) - Level (dBm)

**PCS CDMA - DUT with IX100X Vehicle Cradle & MaxRad 3 dBi Gain Vehicle-Mount Antenna**

# APPENDIX C - EFFECTIVE RADIATED POWER OUTPUT - §22.913

## C.1. MEASUREMENT PROCEDURE

ERP measurements were performed on a 3-meter open area test site using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001. The Sierra Wireless AirCard 555 test software installed in the IX100X Handheld PC was used to control the DUT in the CDMA "always up" power control mode. The DUT was placed in the vehicle cradle and positioned on the turntable. The vehicle-mount antenna was fixed on a 50 cm x 50 cm ground plane placed on a Styrofoam support at a distance of 3 meters from the receive antenna. The vehicle-mount antenna was connected to the vehicle cradle via a 17-foot LMR-195 cable representing a typical vehicle-mount installation. The maximum field intensity was determined by rotating the DUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. Once the maximum emission was found, the spectrum analyzer was set to peak hold and the uncorrected emission value recorded for each of the low, mid and high channels tested. The DUT was then substituted with a dipole antenna. A signal, simulating the DUT emission was generated, amplified, and fed through a directional coupler to the substitution antenna. The height and direction of the receive antenna as well as the direction of the substitution dipole was adjusted for a maximum received signal. The power applied to the dipole was then adjusted to give the same field strength reading as previously recorded for the DUT and the power at the forward coupler port recorded. The substitution antenna was then replaced with a calibrated power sensor, the forward coupler port power level confirmed and the power applied to the dipole antenna recorded. The ERP level was determined by correcting the applied feed point power with the addition of the dipole gain.

## C.2. MEASUREMENT DATA

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Number:** | 073004-547KBC | | | | | | | | | **Standard:** | FCC22.913 | | | |
| **Company:** | Itronix | | | | | | | | | **Test Start Date:** | 18-Aug-04 | | | |
| **Product:** | IX100 with AC555 | | | | | | | | | **Test End Date:** | 27-Aug-04 | | | |
| Polarity | Distance | Substitution Antenna Type | Channel | Frequency | Corrected Field Strength | Substituted SA Signal Level (uncorrected) | Power Applied to Antenna | Antenna Gain | Carrier ERP Level | | ERP Limit | | Margin | Pass/Fail |
| | m | | | MHz | dBuV/m | dBuV | dBm | dBi | dBm | Watts | dBm | Watts | dB | |
| H | 3 | B_3121C | 1013 | 824.70 | 106.63 | 81.46 | 9.92 | 1.30 | 9.08 | 0.008 | 38.45 | 7.00 | 29.37 | PASS |
| H | 3 | B_3121C | 363 | 835.89 | 104.72 | 79.26 | 8.39 | 1.43 | 7.68 | 0.006 | 38.45 | 7.00 | 30.77 | PASS |
| H | 3 | B_3121C | 777 | 848.31 | 105.86 | 80.28 | 9.35 | 1.58 | 8.79 | 0.008 | 38.45 | 7.00 | 29.66 | PASS |
| V | 3 | B_3121C | 1013 | 824.70 | 112.95 | 87.78 | 19.89 | 1.30 | 19.05 | 0.080 | 38.45 | 7.00 | 19.40 | PASS |
| V | 3 | B_3121C | 363 | 835.89 | 113.14 | 87.68 | 18.47 | 1.43 | 17.76 | 0.060 | 38.45 | 7.00 | 20.69 | PASS |
| V | 3 | B_3121C | 777 | 848.31 | 112.83 | 87.25 | 18.48 | 1.58 | 17.92 | 0.062 | 38.45 | 7.00 | 20.53 | PASS |

Note:
Dipole Antenna used for substitution

Formulae:
ERP Level (dBm) = Power applied to Antenna (dBm) + Antenna Gain (dBi) - 2.14
Margin (dB) = Limit (dBm) - Level (dBm)

**Cellular CDMA - DUT with IX100X Vehicle Cradle & MaxRad 3 dBi Gain Vehicle-Mount Antenna**

# APPENDIX D - FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053, §24.238, §22.917

## D.1. MEASUREMENT PROCEDURE

EIRP measurements were performed on a 3-meter open area test site using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001. The Sierra Wireless AirCard 555 test software installed in the IX100X Handheld PC was used to control the DUT in the CDMA "always up" power control mode. The DUT was placed in the vehicle cradle and positioned on the turntable. The vehicle-mount antenna was fixed on a 50 cm x 50 cm ground plane placed on a Styrofoam support at a distance of 3 meters from the receive antenna. The vehicle-mount antenna was connected to the vehicle cradle via a 17-foot LMR-195 cable representing a typical vehicle-mount installation. A frequency band from just above the highest transmitted frequency to just above the 10$^{th}$ harmonic of the highest transmitted frequency was divided into smaller bands corresponding to measurement equipment setups and capabilities. The measurement equipment including carrier blocking filters, was optimized for maximum sensitivity for each band while ensuring no saturation occurred in any gain stages that may be present. It was also necessary to measure the bands above 10 GHz at a distance of 1 meter versus the 3-meter measurement distance used for the lower bands. The applicable bands were chosen from: 800 MHz to 1 GHz, 1 GHz to 5 GHz, 5 GHz to 10 GHz, 10 GHz to 18 GHz and 18 GHz to 20 GHz. The maximum field intensity in each of these bands were determined by rotating the DUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters while maintaining the spectrum analyzer trace in max hold. The stored trace was then evaluated to determine any significant emissions that should be evaluated by substitution. The frequency and uncorrected field strength level for each significant emission was recorded. To describe the noise floor, the maximum level associated with a number of frequencies within the band were also recorded. The DUT was then substituted with a transmit antenna. A signal simulating the DUT emission was generated for each of the signals recorded; it was amplified and fed through a directional coupler to the substitution antenna. The height and direction of the receive antenna as well as the direction of the substitution horn was adjusted for a maximum received signal. The power applied to the transmit antenna was then adjusted to give the same field strength reading as previously recorded for the DUT and the power at the forward coupler port recorded. The substitution antenna was then replaced with a calibrated power sensor, the forward coupler port power level confirmed and the power applied to the horn antenna recorded. The radiated power level was determined by correcting the applied feed point power with the addition of the antenna gain.

(See next pages for measurement data)

## D.2. MEASUREMENT SETUP

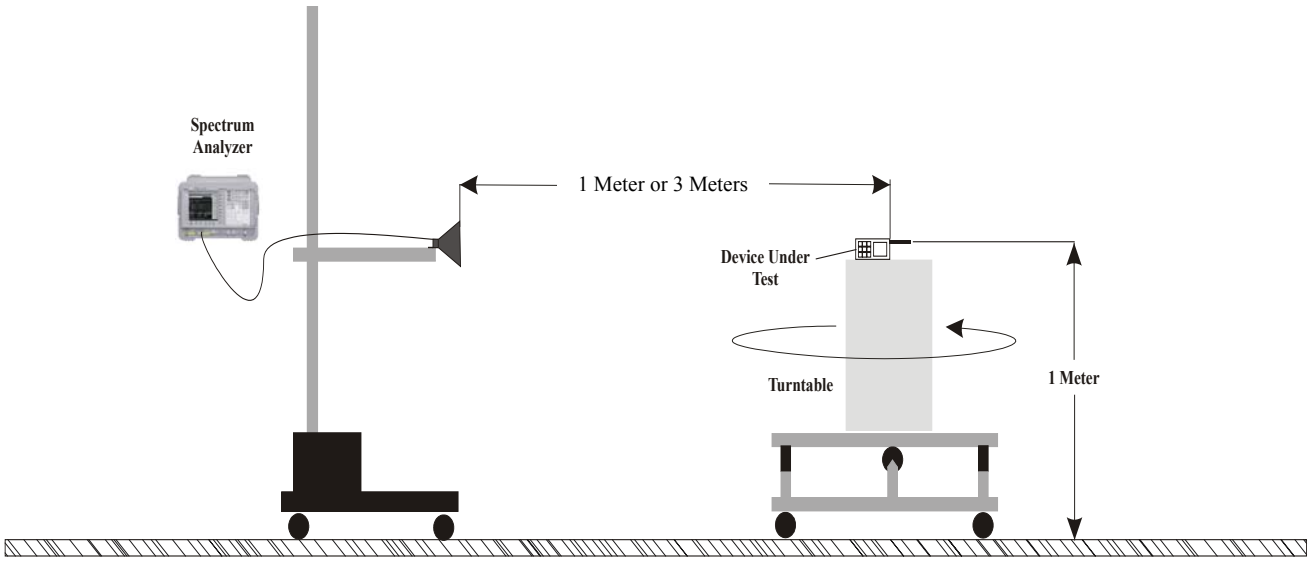


**Figure 1. Radiated Spurious Measurement Test Setup Diagram**
**(3 Meters for Frequencies < 10 GHz - 1 Meter for Frequencies ≥ 10 GHz)**

# FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053, §24.238

## D.3. MEASUREMENT DATA

**DUT with Itronix IX100X Vehicle Cradle & MaxRad 3 dBi Gain Vehicle-Mount Antenna - PCS CDMA**

| | | | |
|---|---|---|---|
| **Project Number:** | 073004-547KBC | **Standard:** | FCC24.238 |
| **Company:** | Itronix | **Test Start Date:** | 18-Aug-04 |
| **Product:** | IX100 with AC555 | **Test End Date:** | 27-Aug-04 |

| Polarity | Distance | Substitution Antenna Type | Channel | Frequency | Corrected Field Strength | Substituted SA Signal Level (uncorrected) | Power Applied to Antenna | Antenna Gain | Emission EIRP Level | EIRP Limit | Margin | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | | MHz | dBuV/m | dBuV | dBm | dBi | dBm | dBm* | dB | |
| H | 3 | Horn SN6267 | 25 | 2000.00 | 67.38 | 34.70 | -41.84 | 6.70 | -35.14 | -13.00 | 22.14 | PASS |
| H | 3 | Horn SN6267 | 25 | 3701.88 | 49.71 | 47.57 | -52.69 | 8.06 | -44.63 | -13.00 | 31.63 | PASS |
| H | 3 | Horn SN6267 | 25 | 4952.50 | 49.25 | 44.10 | -52.10 | 8.61 | -43.49 | -13.00 | 30.49 | PASS |
| H | 3 | Horn SN6267 | 25 | 7129.37 | 54.08 | 45.30 | -48.00 | 9.20 | -38.80 | -13.00 | 25.80 | PASS |
| H | 1 | Horn SN6267 | 25 | 14740.00 | 60.53 | 44.90 | -52.80 | 11.05 | -41.76 | -13.00 | 28.76 | PASS |
| H | 1 | Horn SN6267 | 25 | 17960.00 | 67.29 | 45.50 | -43.41 | 8.08 | -35.33 | -13.00 | 22.33 | PASS |
| H | 1 | 3160-09 | 25 | 19800.00 | 61.16 | 45.70 | -42.12 | 15.92 | -26.20 | -13.00 | 13.20 | PASS |
| V | 3 | Horn SN6267 | 25 | 1871.00 | 67.18 | 35.10 | -41.39 | 6.57 | -34.82 | -13.00 | 21.82 | PASS |
| V | 3 | Horn SN6267 | 25 | 2116.00 | 42.63 | 46.90 | -49.67 | 6.96 | -42.71 | -13.00 | 29.71 | PASS |
| V | 3 | Horn SN6267 | 25 | 3703.75 | 56.14 | 54.00 | -42.26 | 8.06 | -34.20 | -13.00 | 21.20 | PASS |
| V | 3 | Horn SN6267 | 25 | 4849.38 | 48.39 | 43.50 | -53.19 | 8.63 | -44.56 | -13.00 | 31.56 | PASS |
| V | 3 | Horn SN6267 | 25 | 8372.50 | 55.35 | 44.70 | -50.16 | 9.30 | -40.86 | -13.00 | 27.86 | PASS |
| V | 1 | Horn SN6267 | 25 | 11108.00 | 64.43 | 52.10 | -54.38 | 10.45 | -43.93 | -13.00 | 30.93 | PASS |
| V | 1 | Horn SN6267 | 25 | 17994.00 | 67.01 | 44.90 | -40.52 | 7.93 | -32.59 | -13.00 | 19.59 | PASS |
| V | 1 | 3160-09 | 25 | 19902.00 | 60.41 | 44.70 | -40.28 | 15.96 | -24.32 | -13.00 | 11.32 | PASS |
| H | 3 | Horn SN6267 | 600 | 1998.00 | 67.17 | 34.50 | -41.03 | 6.70 | -35.24 | -13.00 | 22.24 | PASS |
| H | 3 | Horn SN6267 | 600 | 5616.25 | 53.48 | 47.10 | -46.63 | 8.74 | -37.89 | -13.00 | 24.89 | PASS |
| H | 1 | Horn SN6267 | 600 | 17930.00 | 66.90 | 45.30 | -42.08 | 8.21 | -33.87 | -13.00 | 20.87 | PASS |
| H | 1 | 3160-09 | 600 | 19892.00 | 60.97 | 45.30 | -39.34 | 15.96 | -23.38 | -13.00 | 10.38 | PASS |
| V | 3 | Horn SN6267 | 600 | 1999.00 | 67.38 | 34.70 | -41.39 | 6.70 | -34.69 | -13.00 | 21.69 | PASS |
| V | 3 | Horn SN6267 | 600 | 3761.88 | 57.19 | 54.90 | -41.14 | 8.05 | -33.09 | -13.00 | 20.09 | PASS |
| V | 1 | Horn SN6267 | 600 | 17976.00 | 67.04 | 45.10 | -39.75 | 8.01 | -31.74 | -13.00 | 18.74 | PASS |
| V | 1 | 3160-09 | 600 | 19706.00 | 60.68 | 45.30 | -38.94 | 15.88 | -23.06 | -13.00 | 10.06 | PASS |
| H | 3 | Horn SN6267 | 1175 | 1984.00 | 66.90 | 34.30 | -41.80 | 6.68 | -35.11 | -13.00 | 22.11 | PASS |
| H | 3 | Horn SN6267 | 1175 | 5618.13 | 51.88 | 45.50 | -48.69 | 8.74 | -39.95 | -13.00 | 26.95 | PASS |
| H | 3 | Horn SN6267 | 1175 | 9295.00 | 55.84 | 43.70 | -51.35 | 9.10 | -42.26 | -13.00 | 29.26 | PASS |
| H | 1 | Horn SN6267 | 1175 | 17990.00 | 67.17 | 45.10 | -43.20 | 7.94 | -35.26 | -13.00 | 22.26 | PASS |
| H | 1 | 3160-09 | 1175 | 19882.00 | 61.52 | 45.90 | -38.54 | 15.95 | -22.59 | -13.00 | 9.59 | PASS |
| V | 3 | Horn SN6267 | 1175 | 1891.00 | 66.46 | 34.30 | -42.36 | 6.59 | -35.77 | -13.00 | 22.77 | PASS |
| V | 3 | Horn SN6267 | 1175 | 8113.75 | 53.79 | 43.50 | -52.53 | 9.30 | -43.23 | -13.00 | 30.23 | PASS |
| V | 1 | Horn SN6267 | 1175 | 17978.00 | 66.86 | 44.90 | -39.39 | 8.00 | -31.40 | -13.00 | 18.40 | PASS |
| V | 1 | 3160-09 | 1175 | 19974.00 | 60.68 | 44.90 | -40.95 | 15.99 | -24.96 | -13.00 | 11.96 | PASS |

Note:
Horn Antenna used for substitution

All applicable frequency ranges were investigated up to the carrier tenth harmonic and any significant emissions or noise floor level reported for each range.

Formulae:

Limit = 43 + 10*log(Fundamental Power Level, in watts) below the Fundamental peak power gives -13 dBm

EIRP Level (dBm) = Power applied to Antenna (dBm) + Antenna Gain (dBi)

Margin (dB) = Limit (dBm) - Level (dBm)

# FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053, §22.917

## MEASUREMENT DATA (Cont.)

**DUT with Itronix IX100X Vehicle Cradle & MaxRad 3 dBi Gain Vehicle-Mount Antenna - Cellular CDMA**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Project Number:** | 073004-547KBC | | | | | **Standard:** | FCC22.917 | | | |
| | | **Company:** | Itronix | | | | | **Test Start Date:** | 18-Aug-04 | | | |
| | | **Product:** | IX100 with AC555 | | | | | **Test End Date:** | 27-Aug-04 | | | |

| Polarity | Distance | Substitution Antenna Type | Channe | Frequency | Corrected Field Strength | Substituted SA Signal Level (uncorrected) | Powor Applied to Antenna | Antenna Gain | Emission ERP Level | ERP Limit | Margin | Pass/Fail |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | m | | | MHz | dBuV/m | dBuV | dBm | dBi | dBm | dBm* | dB | |
| H | 3 | B_3121C | 1013 | 854.00 | 68.35 | 42.80 | -27.94 | 1.66 | -26.27 | -13.00 | 13.27 | PASS |
| H | 3 | Horn SN6267 | 1013 | 1078.00 | 67.15 | 56.90 | -46.68 | 4.09 | -42.59 | -13.00 | 29.59 | PASS |
| H | 3 | Horn SN6267 | 1013 | 5792.50 | 55.34 | 48.80 | -45.62 | 8.95 | -36.67 | -13.00 | 23.67 | PASS |
| V | 3 | B_3121C | 1013 | 839.00 | 68.35 | 42.80 | -25.09 | 1.47 | -23.62 | -13.00 | 10.62 | PASS |
| V | 3 | Horn SN6267 | 1013 | 1001.50 | 62.40 | 44.50 | -45.51 | 3.71 | -41.80 | -13.00 | 28.80 | PASS |
| V | 3 | Horn SN6267 | 1013 | 8421.25 | 54.60 | 43.90 | -51.31 | 9.30 | -42.01 | -13.00 | 29.01 | PASS |
| H | 3 | B_3121C | 363 | 810.40 | 66.84 | 42.00 | -27.74 | 1.07 | -26.67 | -13.00 | 13.67 | PASS |
| H | 3 | Horn SN6267 | 363 | 1127.50 | 60.60 | 55.30 | -54.26 | 4.34 | -49.92 | -13.00 | 36.92 | PASS |
| H | 3 | Horn SN6267 | 363 | 8100.00 | 55.15 | 44.90 | -51.60 | 9.30 | -42.30 | -13.00 | 29.30 | PASS |
| V | 3 | B_3121C | 363 | 859.00 | 67.91 | 42.40 | -24.56 | 1.74 | -22.82 | -13.00 | 9.82 | PASS |
| V | 3 | Horn SN6267 | 363 | 1073.50 | 60.40 | 49.70 | -52.15 | 4.07 | -48.08 | -13.00 | 35.08 | PASS |
| V | 3 | Horn SN6267 | 363 | 7570.00 | 54.11 | 44.30 | -50.38 | 8.96 | -41.42 | -13.00 | 28.42 | PASS |
| H | 3 | B_3121C | 777 | 854.20 | 67.25 | 41.70 | -26.95 | 1.67 | -25.28 | -13.00 | 12.28 | PASS |
| H | 3 | Horn SN6267 | 777 | 1000.00 | 60.55 | 42.50 | -48.34 | 3.70 | -44.64 | -13.00 | 31.64 | PASS |
| H | 3 | Horn SN6267 | 777 | 5783.13 | 55.37 | 48.80 | -51.35 | 8.94 | -42.41 | -13.00 | 29.41 | PASS |
| H | 3 | Horn SN6267 | 777 | 8698.75 | 55.76 | 44.70 | -57.07 | 9.10 | -47.97 | -13.00 | 34.97 | PASS |
| V | 3 | B_3121C | 777 | 920.80 | 64.22 | 37.60 | -29.52 | 2.05 | -27.47 | -13.00 | 14.47 | PASS |
| V | 3 | Horn SN6267 | 777 | 1129.00 | 64.85 | 59.70 | -51.56 | 4.35 | -47.22 | -13.00 | 34.22 | PASS |
| V | 3 | Horn SN6267 | 777 | 8785.00 | 55.17 | 43.90 | -56.73 | 9.01 | -47.72 | -13.00 | 34.72 | PASS |

Note:
Dipole Antenna used for substitution for 1000 MHz and below. Horn Antenna used above 1000 MHz
All applicable frequency ranges were investigated up to the carrier tenth harmonic and any significant emissions or noise floor level reported for each range.

Formulae:
Limit = 43 + 10*log(Fundamental Power Level, in watts) below the Fundamental peak power gives -13 dBm
ERP Level (dBm) = Power applied to Antenna (dBm) + Antenna Gain (dBi) - 2.14
Margin (dB) = Limit (dBm) - Level (dBm)