

## RF EXPOSURE EVALUATION

## SPECIFIC ABSORPTION RATE

### SAR TEST REPORT

FOR THE

**ITRONIX CORPORATION**  
**IX325 SERIES RUGGED TABLET PC**  
WITH  
**802.11b/g WLAN MINI-PCI CARD**  
AND  
**DUAL INTERNAL PIFA ANTENNA**

**FCC ID: KBCIX325A580IWLBT**

**IC: 1943A-IX325f**

Test Report Serial Number

**100305KBC-T675-S15W**

Test Report Issue No.

**S675W-011906-R0**

Test Lab

**Celltech Compliance Testing & Engineering Lab**  
**(Celltech Labs Inc.)**  
**1955 Moss Court**  
**Kelowna, BC**  
**Canada**  
**V1Y 9L3**

**Test Report Prepared By:**

*Cheri Frangiadakis*

**Cheri Frangiadakis**  
**Test Report Writer**  
**Celltech Labs Inc.**

**Test Report Approved By:**

*[Signature]*

**Jonathan Hughes**  
**General Manager**  
**Celltech Labs Inc.**

|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure SAR     | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## DECLARATION OF COMPLIANCE SAR RF EXPOSURE EVALUATION

### 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**

12825 E. Mirabeau Parkway

Spokane Valley, WA 99216

United States

**FCC IDENTIFIER:** KBCIX325A580IWLBT  
**IC IDENTIFIER:** 1943A-IX325f  
**Model(s):** IX325A580IWLBT

**Rule Part(s):** FCC 47 CFR §2.1093; Health Canada Safety Code 6  
**Test Procedure(s):** FCC OET Bulletin 65, Supplement C (Edition 01-01)  
 Industry Canada RSS-102 Issue 2  
**FCC Device Classification:** Digital Transmission System (DTS)  
**IC Device Classification:** Low Power License-Exempt Radiocommunication Device (RSS-210 Issue 6)

**Device Description:** Rugged Tablet PC  
**Internal Transmitter:** Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card  
**Mode(s) of Operation:** DSSS (Direct Sequence Spread Spectrum) - 802.11b/g  
**Modulation Type(s):** OFDM with BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, CCK  
**Data Rate(s):** 802.11b: 1 / 2 / 5.5 / 11 Mbps  
 802.11g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps  
**Tx Frequency Range(s):** 2412 - 2462 MHz (802.11b/g)  
**Max. RF Output Power Tested:** 18.6 dBm (72 mW) Peak Conducted (802.11b, 1 Mbps)  
**Power Source(s) Tested:** Internal Lithium-ion Battery 11.1 V, 3600 mAh (Model: T8M-E)  
 75 W AC Power Adapter (Delta Electronics Model: ADP-75FB B)  
**Antenna Type(s) Tested:** Dual Internal PIFA (Transmit - Upper Right Side of LCD Display)

**Max. SAR Level(s) Evaluated:** Body: 0.00201 W/kg (Peak SAR measured from Area Scan)

Celltech Labs Inc. declares under its sole responsibility that this wireless device was compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01) and Industry Canada RSS-102 Issue 2 for the General Population / Uncontrolled Exposure environment. All measurements were performed in accordance with the SAR system manufacturer recommendations.

I attest to the accuracy of data. All measurements 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.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc. The results and statements contained in this report pertain only to the device(s) evaluated.

**Tested By:**



Sean Johnston  
Compliance Technologist  
Celltech Labs Inc.

**Reviewed By:**



Spencer Watson  
Senior Compliance Technologist  
Celltech Labs Inc.



|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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|                                                                                   | Type of Evaluation:     | RF Exposure SAR     | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## 1.0 INTRODUCTION

This measurement report demonstrates that ITRONIX CORPORATION Model: IX325A580IWLBT Rugged Tablet PC FCC ID: KBCIX325A580IWLBT incorporating the Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]), and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]), and IC RSS-102 Issue 2 (see reference [4]), were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

## 2.0 DESCRIPTION of DEVICE UNDER TEST (DUT)

|                                                |                                                                                                                                                                                                                                                                                   |       |                                          |                                 |                     |             |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------|---------------------------------|---------------------|-------------|
| FCC Rule Part(s)                               | 47 CFR §2.1093                                                                                                                                                                                                                                                                    |       |                                          |                                 |                     |             |
| IC Rule Part(s)                                | Health Canada Safety Code 6                                                                                                                                                                                                                                                       |       |                                          |                                 |                     |             |
| Test Procedure(s)                              | FCC OET Bulletin 65, Supplement C (01-01)                                                                                                                                                                                                                                         |       |                                          | Industry Canada RSS-102 Issue 2 |                     |             |
| FCC Device Classification                      | Digital Transmission System (DTS)                                                                                                                                                                                                                                                 |       |                                          |                                 | 47 CFR Part 15C     |             |
| IC Device Classification                       | Low Power License-Exempt Radiocommunication Device                                                                                                                                                                                                                                |       |                                          |                                 | RSS-210 Issue 6     |             |
| Device Description                             | Rugged Tablet PC                                                                                                                                                                                                                                                                  |       |                                          |                                 |                     |             |
| Internal Transmitter(s)                        | Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card                                                                                                                                                                                                                                     |       |                                          |                                 |                     |             |
| RF Exposure Category                           | General Population / Uncontrolled Environment                                                                                                                                                                                                                                     |       |                                          |                                 |                     |             |
| FCC IDENTIFIER                                 | KBCIX325A580IWLBT                                                                                                                                                                                                                                                                 |       | IC IDENTIFIER                            |                                 | 1943A-IX325f        |             |
| Model(s)                                       | IX325A580IWLBT                                                                                                                                                                                                                                                                    |       |                                          |                                 |                     |             |
| Serial No.(s)                                  | ZZGEG5074ZZ9799                                                                                                                                                                                                                                                                   |       | Rugged Tablet PC                         |                                 | Identical Prototype |             |
|                                                | 06036C074ADC54906006                                                                                                                                                                                                                                                              |       | Intel 802.11b/g                          |                                 | Production Unit     |             |
| Mode(s) of Operation                           | DSSS (Direct Sequence Spread Spectrum)                                                                                                                                                                                                                                            |       |                                          |                                 |                     |             |
| Modulation Type(s)                             | OFDM with BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, CCK                                                                                                                                                                                                                             |       |                                          |                                 |                     |             |
| Data Rate(s)                                   | 802.11b                                                                                                                                                                                                                                                                           |       | 1 / 2 / 5.5 / 11 Mbps                    |                                 |                     |             |
|                                                | 802.11g                                                                                                                                                                                                                                                                           |       | 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps |                                 |                     |             |
| Transmit Frequency Range(s)                    | 2412 - 2462 MHz                                                                                                                                                                                                                                                                   |       | 802.11b/g                                |                                 |                     |             |
| Max. Conducted RF Output Power Level(s) Tested | Freq. (MHz)                                                                                                                                                                                                                                                                       | Chan. | Test Mode                                | Data Rate                       | Peak Conducted      |             |
|                                                | 2442                                                                                                                                                                                                                                                                              | 6     | 802.11b                                  | 1Mbps                           | 18.6 dBm            | 0.072 Watts |
|                                                | Note: A SAR evaluation was performed for the bottom side of DUT in 802.11b mode at 11 Mbps data rate, which measured 20.5 dBm peak conducted RF output power level (see EMC test report). The SAR result for 11 Mbps was lower then the SAR levels reported for 1 Mbps data rate. |       |                                          |                                 |                     |             |
| Antenna Type(s) Tested                         | Internal PIFA (Transmit)                                                                                                                                                                                                                                                          |       | Upper Right Side of LCD Display          |                                 | 802.11b/g WLAN      |             |
| Power Source(s) Tested                         | Internal Lithium-ion Battery                                                                                                                                                                                                                                                      |       | 11.1 V, 3600 mAh                         |                                 | Model: T8M-E        |             |
|                                                | Delta Electronics AC Power Adapter                                                                                                                                                                                                                                                |       | 75 Watts AC                              |                                 | Model: ADP-75FB B   |             |
| Additional Power Source(s)<br>(Not Tested)     | External Second Lithium-ion Battery                                                                                                                                                                                                                                               |       | 11.1 V, 3600 mAh                         |                                 | Model: T8S-E        |             |
|                                                | Note: The external second lithium-ion battery was not evaluated for SAR due to the fact that it has exactly the same power specifications as the internal battery and provides increased separation.                                                                              |       |                                          |                                 |                     |             |
| DUT Configuration(s) Evaluated                 | Bottom Side                                                                                                                                                                                                                                                                       |       |                                          | 0.0 cm spacing                  |                     |             |

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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### 3.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for brain and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE3 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.



DASY4 SAR Measurement System with planar phantom



DASY4 SAR Measurement System with SAM phantom

|                                                                                   |                         |                     |                    |                    |
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|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure         | SAR                | FCC 47 CFR 2.1093  |
|                                                                                   |                         |                     |                    | IC RSS-102 Issue 2 |

## 4.0 MEASUREMENT SUMMARY

### BODY SAR MEASUREMENT RESULTS

| Freq.                                                                                                                                                            | Chan. | Test Mode     | Data Rate (Mbps) | Power Source            | Antenna Type  | DUT Position to Planar Phantom | Separation Distance to Planar Phantom (cm) | Conducted Power Before Test (dBm) | Peak SAR Measured from Area Scan (W/kg) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------|------------------|-------------------------|---------------|--------------------------------|--------------------------------------------|-----------------------------------|-----------------------------------------|
| 2442                                                                                                                                                             | 6     | 802.11b       | 1                | Internal Li-ion Battery | Internal PIFA | Bottom Side                    | 0.0                                        | 18.6                              | 0.00201                                 |
| 2442                                                                                                                                                             | 6     | 802.11b       | 1                | AC Power                | Internal PIFA | Bottom Side                    | 0.0                                        | 18.6                              | 0.00148                                 |
| <b>ANSI / IEEE C95.1 1999 - SAFETY LIMIT</b><br><b>BODY: 1.6 W/kg (averaged over 1 gram)</b><br><b>Spatial Peak - Uncontrolled Exposure / General Population</b> |       |               |                  |                         |               |                                |                                            |                                   |                                         |
| Test Date(s)                                                                                                                                                     |       | June 09, 2005 |                  |                         |               | Relative Humidity              |                                            | 34                                | %                                       |
| Measured Fluid Type                                                                                                                                              |       | 2450 MHz Body |                  |                         |               | Atmospheric Pressure           |                                            | 101.4                             | kPa                                     |
| Dielectric Constant $\epsilon_r$                                                                                                                                 |       | IEEE Target   |                  | Measured                | Deviation     | Ambient Temperature            |                                            | 24.7                              | °C                                      |
|                                                                                                                                                                  |       | 52.7          | ±5%              | 51.2                    | -2.8%         | Fluid Temperature              |                                            | 23.4                              | °C                                      |
| Conductivity $\sigma$ (mho/m)                                                                                                                                    |       | IEEE Target   |                  | Measured                | Deviation     | Fluid Depth                    |                                            | ≥ 15                              | cm                                      |
|                                                                                                                                                                  |       | 1.95          | ±5%              | 1.99                    | +2.1%         | $\rho$ (Kg/m <sup>3</sup> )    |                                            | 1000                              |                                         |

Note(s):

- The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
- The 1g averaged SAR was not measured because the peak SAR value from the area scan evaluations for each test configuration was less than 1% of the 1g average limit. The peak SAR values measured during the area scan evaluations for each test configuration are reported. The mathematical formula used to extrapolate the SAR value at the surface from the Zoom Scan SAR values measured at 5 mm steps leading away from the surface assumes a curving slope (i.e. the SAR values gradually decrease as the probe moves away from the surface). When the peak SAR of a device is so low that the RF noise level is competing with the level of the SAR, the Zoom Scan measurements leading away from the surface are no longer a curving slope and the extrapolation formula cannot accurately estimate the 1g average SAR. In this manner, we have reported the peak values from the Area Scan in place of the 1g averaged SAR values whenever the peak values are less than 1% of the average limit. This avoids gross uncertainties in the 1g average SAR calculation while maintaining a conservative estimation of the SAR level. It is the engineering judgment of Celltech Labs Inc. that no device operating in this frequency band could have a peak SAR value (measured on an Area Scan) less than 0.016 mW/g and simultaneously have a 1g average value greater than 1.6 mW/g (1g average limit).
- 802.11g mode was not evaluated for SAR based on the measured RF conducted output power levels were lower than the power levels measured in 802.11b mode (per Oct. 2005 TCB Council Workshop - see reference [6]).
- The DUT battery was fully charged prior to the SAR evaluations.
- The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
- The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
- The SAR evaluations were performed within 24 hours of the system performance check.

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |              |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|--------------|
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| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |              |
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|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## 5.0 DETAILS OF SAR EVALUATION

The ITRONIX CORPORATION Model: IX325A580IWLBT Rugged Tablet PC FCC ID: KBCIX325A580IWLBT with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card was compliant for localized Specific Absorption Rate (Uncontrolled Exposure) based on the test provisions and conditions described below. The detailed test setup photographs are shown in Appendix D.

### Test Configuration

1. The DUT was evaluated for body SAR with the bottom side of the tablet PC placed parallel to, and touching, the outer surface of the planar phantom. The DUT was evaluated with internal lithium-ion battery and AC power supply.
2. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the SAR evaluations. The temperatures reported were consistent for all measurement periods.
3. The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
4. The SAR evaluations were performed within 24 hours of the daily system performance check.

### Test Modes & Power Settings

5. The DUT was controlled in test mode via internal software. SAR measurements were performed with the DUT transmitting continuously at maximum power with a modulated DSSS signal.
6. The peak conducted power levels were measured prior to the SAR evaluations using a Gigatronix 8652A Universal Power Meter according to the procedures described in FCC 47 CFR §2.1046.
7. 802.11g mode was not evaluated for SAR based on the measured RF conducted output power levels were lower than the power levels measured in 802.11b mode (per Oct. 2005 TCB Council Workshop - see reference [6]).
8. The DUT battery was fully charged prior to the SAR evaluations.

## 6.0 EVALUATION PROCEDURES

- (i) The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated using the SAM phantom.
- (ii) For body-worn and face-held devices a planar phantom was used.
- The SAR was determined by a pre-defined procedure within the DASY4 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 15mm x 15mm.  
An area scan was determined as follows:
  - Based on the defined area scan grid, a more detailed grid is created to increase the points by a factor of 10. The interpolation function then evaluates all field values between corresponding measurement points.
  - A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.  
A 1g and 10g spatial peak SAR was determined as follows:
- Extrapolation is used to find the points between the dipole center of the probe and the surface of the phantom. This data cannot be measured, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.4 mm (see probe calibration document in Appendix F). The extrapolation was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.
- Interpolated data is used to calculate the average SAR over 1g and 10g cubes by spatially discretizing the entire measured cube. The volume used to determine the averaged SAR is a 1mm grid (42875 interpolated points).
- A zoom scan volume of 32 mm x 32 mm x 30 mm (5 x 5 x 7 points) centered at the peak SAR location determined from the area scan is used for all zoom scans for devices with a transmit frequency < 800 MHz. Zoom scans for frequencies ≥ 800 MHz are determined with a scan volume of 30 mm x 30 mm x 30 mm (7 x 7 x 7) to ensure complete capture of the peak spatial-average SAR.

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |              |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|--------------|
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| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |              |
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|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## 7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations a system check was performed with a 2450MHz dipole (see Appendix E for system validation procedures) evaluated at the planar section of the SAM phantom. The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C). A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of  $\pm 10\%$  (see Appendix B for system performance check test plot).

### SYSTEM PERFORMANCE CHECK EVALUATION

| Test Date | 2450MHz Equiv. Tissue | SAR 1g (W/kg)   |       |       | Dielectric Constant $\epsilon_r$ |       |       | Conductivity $\sigma$ (mho/m) |       |       | $\rho$ (Kg/m <sup>3</sup> ) | Amb. Temp. (°C) | Fluid Temp. (°C) | Fluid Depth (cm) | Humid. (%) | Barom. Press. (kPa) |
|-----------|-----------------------|-----------------|-------|-------|----------------------------------|-------|-------|-------------------------------|-------|-------|-----------------------------|-----------------|------------------|------------------|------------|---------------------|
|           |                       | IEEE Target     | Meas. | Dev.  | IEEE Target                      | Meas. | Dev.  | IEEE Target                   | Meas. | Dev.  |                             |                 |                  |                  |            |                     |
| 6/9/05    | Brain                 | 13.1 $\pm 10\%$ | 13.9  | +6.1% | 39.2 $\pm 5\%$                   | 37.4  | -4.6% | 1.80 $\pm 5\%$                | 1.87  | +3.9% | 1000                        | 22.0            | 24.8             | $\geq 15$        | 38         | 101.7               |

Note(s):

1. The ambient and fluid temperatures were measured prior to, and during, the fluid dielectric parameter check and the system performance check. The temperatures listed in the table above were consistent for all measurement periods.

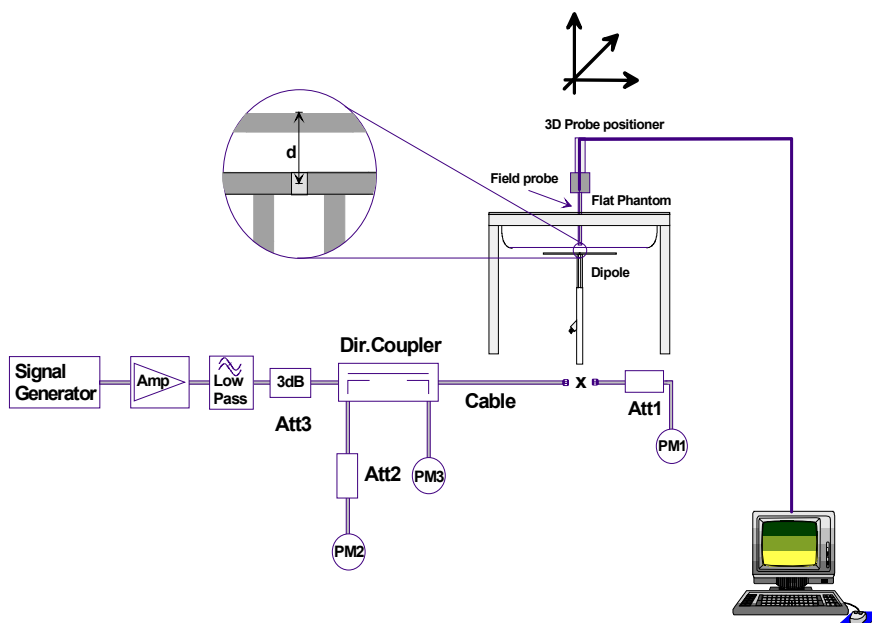


Figure 1. System Performance Check Setup Diagram



2450MHz Dipole Setup

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |              |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|--------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |              |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |              |
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|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## 8.0 SIMULATED EQUIVALENT TISSUES

The 2450MHz simulated tissue mixtures consist of Glycol-monobutyl, water, and salt (body mixture only). The fluids were prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

| SIMULATED TISSUE MIXTURES |                          |                |
|---------------------------|--------------------------|----------------|
| INGREDIENT                | 2450 MHz Brain           | 2450 MHz Body  |
|                           | System Performance Check | DUT Evaluation |
| Water                     | 52.00 %                  | 69.98 %        |
| Glycol Monobutyl          | 48.00 %                  | 30.00 %        |
| Salt                      | -                        | 0.02 %         |

## 9.0 SAR SAFETY LIMITS

| EXPOSURE LIMITS                                                  | SAR (W/kg)                                                     |                                                        |
|------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|
|                                                                  | (General Population /<br>Uncontrolled Exposure<br>Environment) | (Occupational /<br>Controlled Exposure<br>Environment) |
| Spatial Average<br>(averaged over the whole body)                | 0.08                                                           | 0.4                                                    |
| Spatial Peak<br>(averaged over any 1 g of tissue)                | 1.60                                                           | 8.0                                                    |
| Spatial Peak<br>(hands/wrists/feet/ankles<br>averaged over 10 g) | 4.0                                                            | 20.0                                                   |

**Notes:**

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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## 10.0 ROBOT SYSTEM SPECIFICATIONS

### Specifications

**POSITIONER:** Stäubli Unimation Corp. Robot Model: RX60L  
**Repeatability:** 0.02 mm  
**No. of axis:** 6

### Data Acquisition Electronic (DAE) System

#### Cell Controller

**Processor:** AMD Athlon XP 2400+  
**Clock Speed:** 2.0 GHz  
**Operating System:** Windows XP Professional

#### Data Converter

**Features:** Signal Amplifier, multiplexer, A/D converter, and control logic  
**Software:** DASY4 software  
**Connecting Lines:** Optical downlink for data and status info.  
 Optical uplink for commands and clock

### DASY4 Measurement Server

**Function:** Real-time data evaluation for field measurements and surface detection  
**Hardware:** PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM  
**Connections:** COM1, COM2, DAE, Robot, Ethernet, Service Interface

### E-Field Probe

**Model:** ET3DV6  
**Serial No.(s):** 1590  
**Construction:** Triangular core fiber optic detection system  
**Frequency:** 10 MHz to 6 GHz  
**Linearity:**  $\pm 0.2$  dB (30 MHz to 3 GHz)

### Phantom(s)

**Type:** Planar Phantom  
**Shell Material:** Fiberglass  
**Thickness:**  $2.0 \pm 0.1$  mm  
**Volume:** Approx. 72 liters

**Type:** SAM V4.0C  
**Shell Material:** Fiberglass  
**Thickness:**  $2.0 \pm 0.1$  mm  
**Volume:** Approx. 25 liters

## 11.0 PROBE SPECIFICATION (ET3DV6)

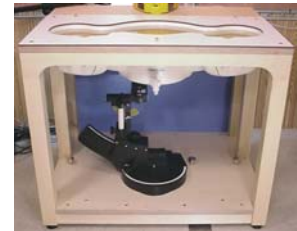
|                    |                                                                                                                                                              |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction:      | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g. glycol) |
| Calibration:       | In air from 10 MHz to 2.5 GHz<br>In brain simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy $\pm 8\%$ )                                      |
| Frequency:         | 10 MHz to >6 GHz; Linearity: $\pm 0.2$ dB<br>(30 MHz to 3 GHz)                                                                                               |
| Directivity:       | $\pm 0.2$ dB in brain tissue (rotation around probe axis)<br>$\pm 0.4$ dB in brain tissue (rotation normal to probe axis)                                    |
| Dynamic Range:     | 5 $\mu$ W/g to >100 mW/g; Linearity: $\pm 0.2$ dB                                                                                                            |
| Surface Detection: | $\pm 0.2$ mm repeatability in air and clear liquids over diffuse reflecting surfaces                                                                         |
| Dimensions:        | Overall length: 330 mm<br>Tip length: 16 mm<br>Body diameter: 12 mm<br>Tip diameter: 6.8 mm<br>Distance from probe tip to dipole centers: 2.7 mm             |
| Application:       | General dosimetry up to 3 GHz<br>Compliance tests of portable devices                                                                                        |



**ET3DV6**  
**E-Field Probe**

## 12.0 SAM PHANTOM V4.0C

The SAM phantom V4.0C is a fiberglass shell phantom with a 2.0 mm (+/-0.2 mm) shell thickness for left and right head and flat planar area integrated in a wooden table. The shape of the fiberglass shell corresponds to the phantom defined by SCC34-SC2. The device holder positions are adjusted to the standard measurement positions in the three sections (see Appendix G for specifications of the SAM phantom V4.0C).



**SAM Phantom**

## 13.0 PLANAR PHANTOM

The planar phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table (see Appendix H for dimensions and specifications of the planar phantom).



**Planar Phantom**

## 14.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. For evaluations of larger devices such as Laptop and Tablet PCs, a Plexiglas platform is attached to the device holder.



**Device Holder**

## 15.0 TEST EQUIPMENT LIST

| TEST EQUIPMENT |                                          | ASSET NO. | SERIAL NO. | DATE CALIBRATED            |         | CALIBRATION DUE DATE |
|----------------|------------------------------------------|-----------|------------|----------------------------|---------|----------------------|
| USED           | DESCRIPTION                              |           |            |                            |         |                      |
| x              | Schmid & Partner DASY4 System            | -         | -          | -                          |         | -                    |
| x              | -DASY4 Measurement Server                | 00158     | 1078       | N/A                        |         | N/A                  |
| x              | -Robot                                   | 00046     | 599396-01  | N/A                        |         | N/A                  |
|                | -DAE3                                    | 00019     | 353        | 06Jul04                    |         | 06Jul05              |
|                | -DAE4                                    |           |            | 15Jun05                    |         | 15Jun06              |
| x              | -DAE3                                    | 00018     | 370        | 25Jan05                    |         | 25Jan06              |
|                | -ET3DV6 E-Field Probe                    | 00016     | 1387       | 18Mar05                    |         | 18Mar06              |
| x              | -ET3DV6 E-Field Probe                    | 00017     | 1590       | 20May05                    |         | 20May06              |
|                | -EX3DV4 E-Field Probe                    | 00125     | 3547       | 21Jan05                    |         | 21Jan06              |
|                | -300MHz Validation Dipole                | 00023     | 135        | 26Oct04                    |         | 26Oct05              |
|                | -450MHz Validation Dipole                | 00024     | 136        | 04Nov04                    |         | 04Nov05              |
|                | -835MHz Validation Dipole                | 00022     | 411        | Brain                      | 30Mar05 | 30Mar06              |
|                |                                          |           |            | Body                       | 12Apr05 | 12Apr06              |
|                | -900MHz Validation Dipole                | 00020     | 054        | Brain                      | 10Jun04 | 10Jun05              |
|                |                                          |           |            |                            | 10Jun05 | 10Jun06              |
|                |                                          |           |            | Body                       | 10Jun05 | 10Jun06              |
|                |                                          |           |            | Brain                      | 08Jun04 | 08Jun05              |
|                | -1800MHz Validation Dipole               | 00021     | 247        |                            | 14Jun05 | 14Jun06              |
|                |                                          |           |            | Body                       | 14Jun05 | 14Jun06              |
|                | -1900MHz Validation Dipole               | 00032     | 151        | Brain                      | 18Jun04 | 18Jun05              |
|                |                                          |           |            |                            | 17Jun05 | 17Jun06              |
|                |                                          |           |            | Body                       | 22Apr05 | 22Apr06              |
| x              |                                          |           |            | -2450MHz Validation Dipole | 00025   | 150                  |
|                | Body                                     | 22Apr05   | 22Apr06    |                            |         |                      |
|                | -5000MHz Validation Dipole               | 00126     | 1031       | Brain                      | 11Jan05 | 11Jan06              |
|                |                                          |           |            | Body                       | 11Jan05 | 11Jan06              |
| x              | -SAM Phantom V4.0C                       | 00154     | 1033       | N/A                        |         | N/A                  |
| x              | -Barski Planar Phantom                   | 00155     | 03-01      | N/A                        |         | N/A                  |
|                | -Plexiglas Side Planar Phantom           | 00156     | 161        | N/A                        |         | N/A                  |
|                | -Plexiglas Validation Planar Phantom     | 00157     | 137        | N/A                        |         | N/A                  |
|                | HP 85070C Dielectric Probe Kit           | 00033     | N/A        | N/A                        |         | N/A                  |
| x              | ALS-PR-DIEL Dielectric Probe Kit         | 00160     | 260-00953  | N/A                        |         | N/A                  |
| x              | Gigatronics 8652A Power Meter            | 00110     | 1835801    | 16Apr05                    |         | 16Apr06              |
|                | Gigatronics 8652A Power Meter            | 00008     | 1835267    | 29Apr05                    |         | 29Apr06              |
|                | Gigatronics 8652A Power Meter            | 00007     | 1835272    | 18Oct04                    |         | 18Oct05              |
| x              | Gigatronics 80701A Power Sensor          | 00013     | 1833713    | 11Oct04                    |         | 11Oct05              |
|                | Gigatronics 80701A Power Sensor          | 00011     | 1833542    | 08Oct04                    |         | 08Oct05              |
| x              | Gigatronics 80701A Power Sensor          | 00109     | 1834366    | 16Apr05                    |         | 16Apr06              |
| x              | HP 8753ET Network Analyzer               | 00134     | US39170292 | 04May05                    |         | 04May06              |
| x              | HP 8648D Signal Generator                | 00005     | 3847A00611 | 29Apr05                    |         | 29Apr06              |
|                | Rohde & Schwarz SMR40 Signal Generator   | 00006     | 100104     | 12Apr05                    |         | 12Apr06              |
| x              | Amplifier Research 5S1G4 Power Amplifier | 00106     | 26235      | N/A                        |         | N/A                  |

## 16.0 MEASUREMENT UNCERTAINTIES

| UNCERTAINTY BUDGET FOR DEVICE EVALUATION |                         |                          |             |          |                              |                                    |
|------------------------------------------|-------------------------|--------------------------|-------------|----------|------------------------------|------------------------------------|
| Error Description                        | Uncertainty Value<br>±% | Probability Distribution | Divisor     | ci<br>1g | Uncertainty Value<br>±% (1g) | V <sub>i</sub> or V <sub>eff</sub> |
| <b>Measurement System</b>                |                         |                          |             |          |                              |                                    |
| Probe calibration                        | 5.9                     | Normal                   | 1           | 1        | 5.9                          | ∞                                  |
| Axial isotropy of the probe              | 4.7                     | Rectangular              | 1.732050808 | 0.7      | 1.9                          | ∞                                  |
| Spherical isotropy of the probe          | 9.6                     | Rectangular              | 1.732050808 | 0.7      | 3.9                          | ∞                                  |
| Spatial resolution                       | 0                       | Rectangular              | 1.732050808 | 1        | 0.0                          | ∞                                  |
| Boundary effects                         | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| Probe linearity                          | 4.7                     | Rectangular              | 1.732050808 | 1        | 2.7                          | ∞                                  |
| Detection limit                          | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| Readout electronics                      | 0.3                     | Normal                   | 1           | 1        | 0.3                          | ∞                                  |
| Response time                            | 0.8                     | Rectangular              | 1.732050808 | 1        | 0.5                          | ∞                                  |
| Integration time                         | 2.6                     | Rectangular              | 1.732050808 | 1        | 1.5                          | ∞                                  |
| RF ambient conditions                    | 3                       | Rectangular              | 1.732050808 | 1        | 1.7                          | ∞                                  |
| Mech. constraints of robot               | 0.4                     | Rectangular              | 1.732050808 | 1        | 0.2                          | ∞                                  |
| Probe positioning                        | 2.9                     | Rectangular              | 1.732050808 | 1        | 1.7                          | ∞                                  |
| Extrapolation & integration              | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| <b>Test Sample Related</b>               |                         |                          |             |          |                              |                                    |
| Device positioning                       | 2.9                     | Normal                   | 1           | 1        | 2.9                          | 12                                 |
| Device holder uncertainty                | 3.6                     | Normal                   | 1           | 1        | 3.6                          | 8                                  |
| Power drift                              | 5                       | Rectangular              | 1.732050808 | 1        | 2.9                          | ∞                                  |
| <b>Phantom and Setup</b>                 |                         |                          |             |          |                              |                                    |
| Phantom uncertainty                      | 4                       | Rectangular              | 1.732050808 | 1        | 2.3                          | ∞                                  |
| Liquid conductivity (target)             | 5                       | Rectangular              | 1.732050808 | 0.64     | 1.8                          | ∞                                  |
| Liquid conductivity (measured)           | 2.5                     | Normal                   | 1           | 0.64     | 1.6                          | ∞                                  |
| Liquid permittivity (target)             | 5                       | Rectangular              | 1.732050808 | 0.6      | 1.7                          | ∞                                  |
| Liquid permittivity (measured)           | 2.5                     | Normal                   | 1           | 0.6      | 1.5                          | ∞                                  |
| <b>Combined Standard Uncertainty</b>     |                         |                          |             |          | <b>10.79</b>                 |                                    |
| <b>Expanded Uncertainty (k=2)</b>        |                         |                          |             |          | <b>21.59</b>                 |                                    |

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

## MEASUREMENT UNCERTAINTIES (Cont.)

| UNCERTAINTY BUDGET FOR SYSTEM VALIDATION |                         |                          |             |          |                              |                                    |
|------------------------------------------|-------------------------|--------------------------|-------------|----------|------------------------------|------------------------------------|
| Error Description                        | Uncertainty Value<br>±% | Probability Distribution | Divisor     | ci<br>1g | Uncertainty Value<br>±% (1g) | V <sub>i</sub> or V <sub>eff</sub> |
| <b>Measurement System</b>                |                         |                          |             |          |                              |                                    |
| Probe calibration                        | 5.9                     | Normal                   | 1           | 1        | 5.9                          | ∞                                  |
| Axial isotropy of the probe              | 4.7                     | Rectangular              | 1.732050808 | 1        | 2.7                          | ∞                                  |
| Spherical isotropy of the probe          | 0                       | Rectangular              | 1.732050808 | 1        | 0.0                          | ∞                                  |
| Spatial resolution                       | 0                       | Rectangular              | 1.732050808 | 1        | 0.0                          | ∞                                  |
| Boundary effects                         | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| Probe linearity                          | 4.7                     | Rectangular              | 1.732050808 | 1        | 2.7                          | ∞                                  |
| Detection limit                          | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| Readout electronics                      | 0.3                     | Normal                   | 1           | 1        | 0.3                          | ∞                                  |
| Response time                            | 0                       | Rectangular              | 1.732050808 | 1        | 0.0                          | ∞                                  |
| Integration time                         | 0                       | Rectangular              | 1.732050808 | 1        | 0.0                          | ∞                                  |
| RF ambient conditions                    | 3                       | Rectangular              | 1.732050808 | 1        | 1.7                          | ∞                                  |
| Mech. constraints of robot               | 0.4                     | Rectangular              | 1.732050808 | 1        | 0.2                          | ∞                                  |
| Probe positioning                        | 2.9                     | Rectangular              | 1.732050808 | 1        | 1.7                          | ∞                                  |
| Extrapolation & integration              | 1                       | Rectangular              | 1.732050808 | 1        | 0.6                          | ∞                                  |
| <b>Test Sample Related</b>               |                         |                          |             |          |                              |                                    |
| Dipole Positioning                       | 2                       | Normal                   | 1.732050808 | 1        | 1.2                          | ∞                                  |
| Power & Power Drift                      | 4.7                     | Normal                   | 1.732050808 | 1        | 2.7                          | ∞                                  |
| <b>Phantom and Setup</b>                 |                         |                          |             |          |                              |                                    |
| Phantom uncertainty                      | 4                       | Rectangular              | 1.732050808 | 1        | 2.3                          | ∞                                  |
| Liquid conductivity (target)             | 5                       | Rectangular              | 1.732050808 | 0.64     | 1.8                          | ∞                                  |
| Liquid conductivity (measured)           | 2.5                     | Normal                   | 1           | 0.64     | 1.6                          | ∞                                  |
| Liquid permittivity (target)             | 5                       | Rectangular              | 1.732050808 | 0.6      | 1.7                          | ∞                                  |
| Liquid permittivity (measured)           | 2.5                     | Normal                   | 1           | 0.6      | 1.5                          | ∞                                  |
| <b>Combined Standard Uncertainty</b>     |                         |                          |             |          | <b>9.04</b>                  |                                    |
| <b>Expanded Uncertainty (k=2)</b>        |                         |                          |             |          | <b>18.08</b>                 |                                    |

Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 (see reference [5])

|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## 17.0 REFERENCES

- [1] Federal Communications Commission, "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093: 1999.
- [2] Health Canada, "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.
- [3] Federal Communications Commission, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- [4] Industry Canada, "Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 2: November 2005.
- [5] IEEE Standard 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques": December 2003.
- [6] FCC TCB Council Workshop, "RF Exposure (RFx) Mobile and Portable Device Review and Approval Procedures": October 2005.

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX A - SAR MEASUREMENT DATA

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure         | SAR                | FCC 47 CFR 2.1093  |
|                                                                                   |                         |                     |                    | IC RSS-102 Issue 2 |

Date Tested: 06/09/2005

## Body SAR - 802.11b - 1Mbps - Bottom Side of DUT - 0.0 cm Spacing - AC Power Supply

**DUT: Itronix Model: IX325A580IWLBT; Type: Rugged Tablet PC with 802.11b/g WLAN & Co-located GSM; Serial: ZZGEG5074ZZ9799**

Ambient Temp: 24.7 °C; Fluid Temp: 23.4 °C; Barometric Pressure: 101.4 kPa; Humidity: 34%

75 W AC Power Adapter (Delta Electronics Model: ADP-75FB B)

Communication System: DSSS WLAN

Frequency: 2442 MHz; Duty Cycle: 1:1

RF Output Power: 18.6 dBm (Peak Conducted)

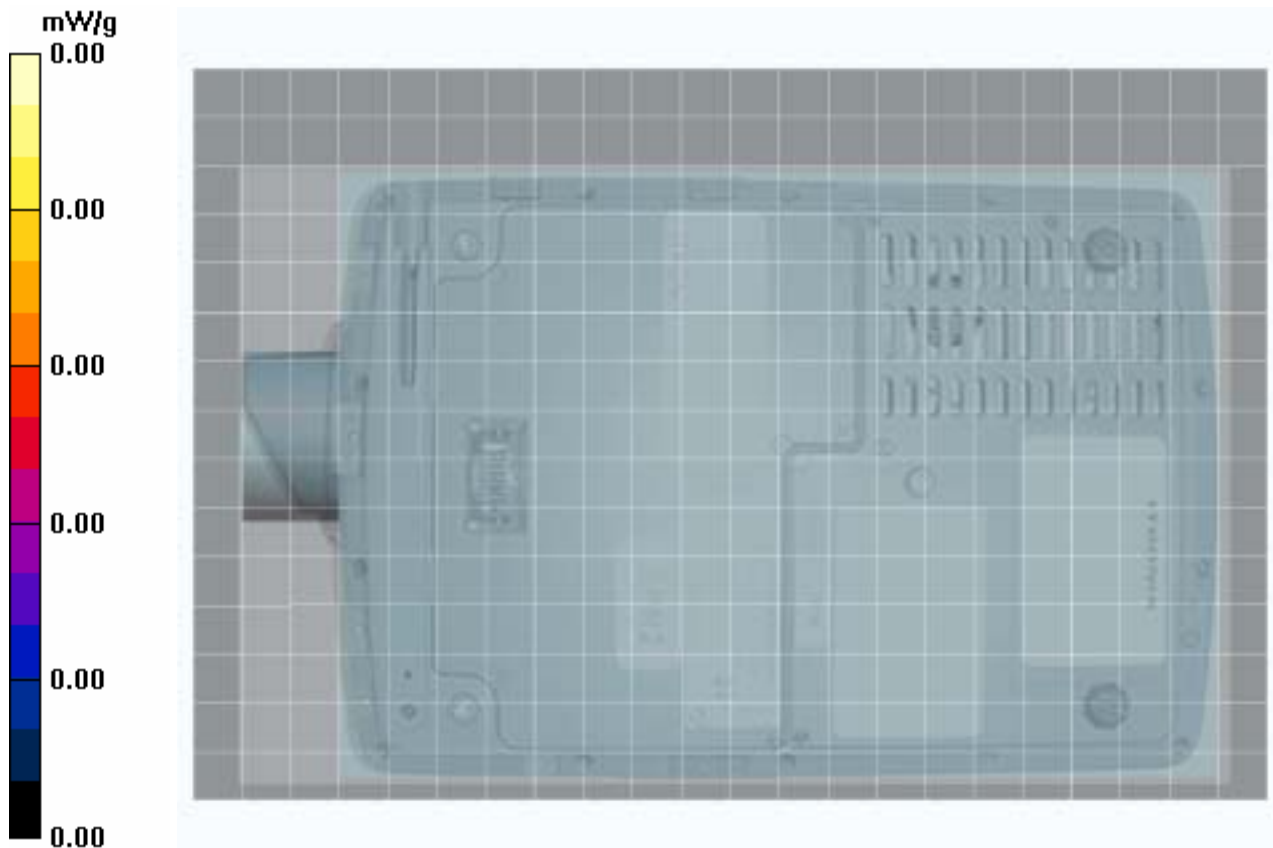
Medium: M2450 ( $\sigma = 1.99$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>)

- Probe: ET3DV6 - SN1590; ConvF(4.22, 4.22, 4.22); Calibrated: 20/05/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE3 Sn370; Calibrated: 25/01/2005
- Phantom: Barski Industries; Type: Fiberglass Planar; Serial: 03-01
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

## Body SAR - 802.11b - 0.0 cm Separation Distance from Bottom Side of DUT to Planar Phantom - Mid Channel

**Area Scan (16x23x1):** Measurement grid: dx=15mm, dy=15mm

**Maximum Peak Value of SAR (measured) = 0.00148 mW/g**



|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## Fluid Depth ( $\geq 15\text{cm}$ )



|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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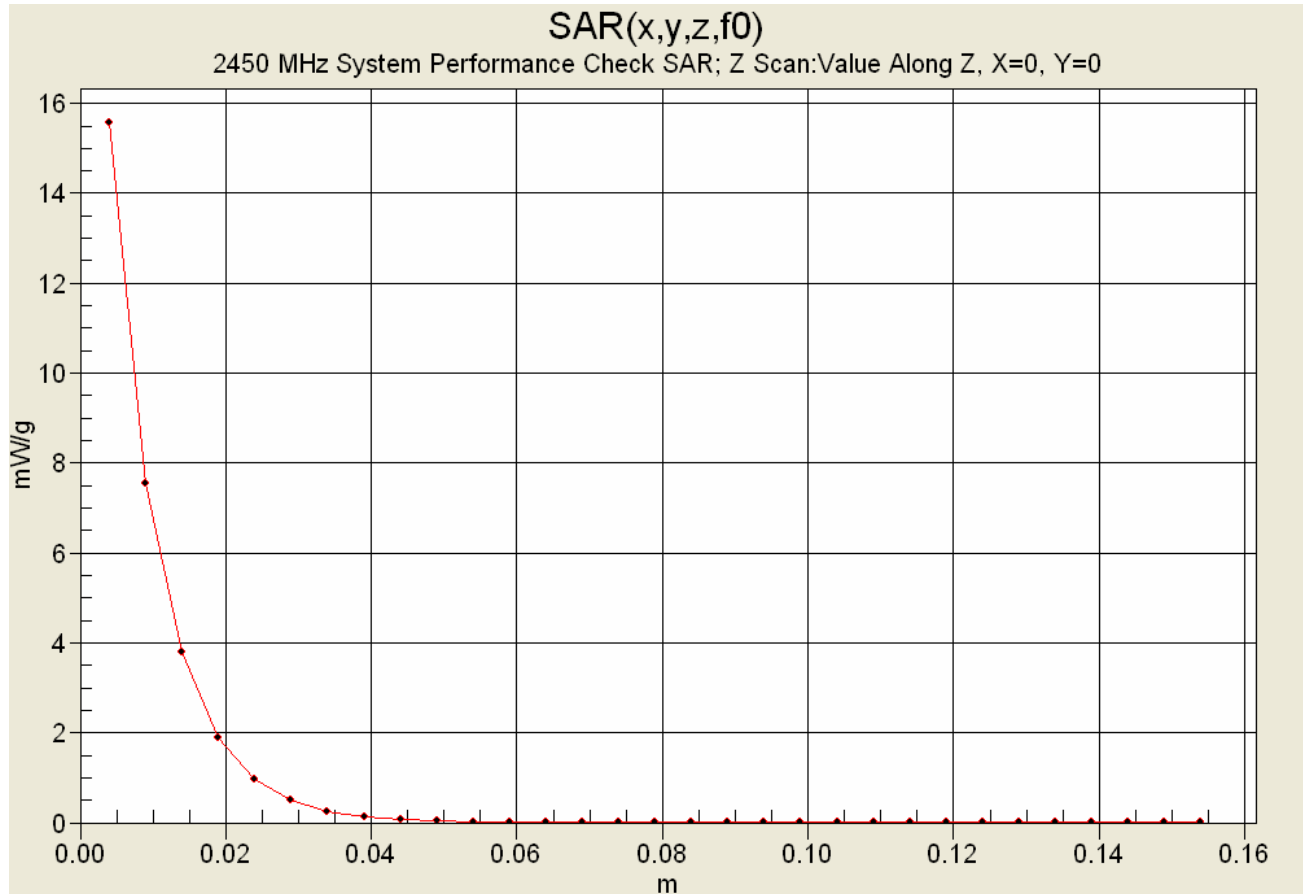
|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX B - SYSTEM PERFORMANCE CHECK DATA

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |               |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|---------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |               |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |               |
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## Z-Axis Scan



|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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## 2450 MHz DUT Evaluation (Body)

\*\*\*\*\*

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Thu 09/Jun/2005

Freq Frequency(GHz)

FCC\_eH FCC Bulletin 65 Supplement C ( June 2001) Limits for Head Epsilon

FCC\_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma

FCC\_eB FCC Limits for Body Epsilon

FCC\_sB FCC Limits for Body Sigma

Test\_e Epsilon of UIM

Test\_s Sigma of UIM

\*\*\*\*\*

| Freq   | FCC_eB | FCC_sB | Test_e | Test_s |
|--------|--------|--------|--------|--------|
| 2.3500 | 52.83  | 1.85   | 51.45  | 1.82   |
| 2.3600 | 52.82  | 1.86   | 51.45  | 1.84   |
| 2.3700 | 52.81  | 1.87   | 51.37  | 1.87   |
| 2.3800 | 52.79  | 1.88   | 51.40  | 1.88   |
| 2.3900 | 52.78  | 1.89   | 51.26  | 1.90   |
| 2.4000 | 52.77  | 1.90   | 51.29  | 1.89   |
| 2.4100 | 52.75  | 1.91   | 51.19  | 1.93   |
| 2.4200 | 52.74  | 1.92   | 51.25  | 1.93   |
| 2.4300 | 52.73  | 1.93   | 51.33  | 1.96   |
| 2.4400 | 52.71  | 1.94   | 51.17  | 1.96   |
| 2.4500 | 52.70  | 1.95   | 51.23  | 1.99   |
| 2.4600 | 52.69  | 1.96   | 51.05  | 1.98   |
| 2.4700 | 52.67  | 1.98   | 50.99  | 2.00   |
| 2.4800 | 52.66  | 1.99   | 51.08  | 2.01   |
| 2.4900 | 52.65  | 2.01   | 50.82  | 2.04   |
| 2.5000 | 52.64  | 2.02   | 50.76  | 2.04   |
| 2.5100 | 52.62  | 2.04   | 50.83  | 2.06   |
| 2.5200 | 52.61  | 2.05   | 50.83  | 2.07   |
| 2.5300 | 52.60  | 2.06   | 50.72  | 2.08   |
| 2.5400 | 52.59  | 2.08   | 50.79  | 2.09   |
| 2.5500 | 52.57  | 2.09   | 50.79  | 2.11   |

## 2450 MHz System Performance Check (Brain)

\*\*\*\*\*

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Thu 09/Jun/2005

Freq Frequency(GHz)

FCC\_eH FCC OET 65 Supplement C (June 2001) Limits for Head Epsilon

FCC\_sH FCC OET 65 Supplement C (June 2001) Limits for Head Sigma

Test\_e Epsilon of UIM

Test\_s Sigma of UIM

\*\*\*\*\*

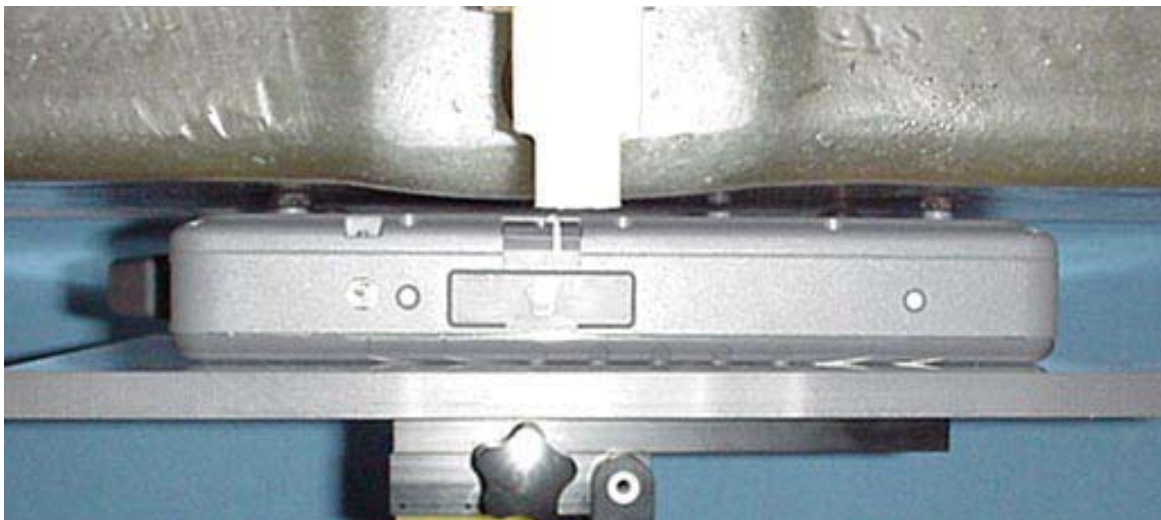
| Freq   | FCC_eH | FCC_sH | Test_e | Test_s |
|--------|--------|--------|--------|--------|
| 2.3500 | 39.38  | 1.71   | 38.04  | 1.75   |
| 2.3600 | 39.36  | 1.72   | 37.94  | 1.78   |
| 2.3700 | 39.34  | 1.73   | 37.91  | 1.78   |
| 2.3800 | 39.32  | 1.74   | 37.86  | 1.80   |
| 2.3900 | 39.31  | 1.75   | 37.74  | 1.82   |
| 2.4000 | 39.29  | 1.76   | 37.71  | 1.82   |
| 2.4100 | 39.27  | 1.76   | 37.74  | 1.84   |
| 2.4200 | 39.25  | 1.77   | 37.66  | 1.85   |
| 2.4300 | 39.24  | 1.78   | 37.56  | 1.84   |
| 2.4400 | 39.22  | 1.79   | 37.57  | 1.87   |
| 2.4500 | 39.20  | 1.80   | 37.44  | 1.87   |
| 2.4600 | 39.19  | 1.81   | 37.48  | 1.89   |
| 2.4700 | 39.17  | 1.82   | 37.30  | 1.90   |
| 2.4800 | 39.16  | 1.83   | 37.26  | 1.90   |
| 2.4900 | 39.15  | 1.84   | 37.15  | 1.92   |
| 2.5000 | 39.14  | 1.85   | 37.13  | 1.93   |
| 2.5100 | 39.12  | 1.87   | 37.08  | 1.94   |
| 2.5200 | 39.11  | 1.88   | 36.97  | 1.96   |
| 2.5300 | 39.10  | 1.89   | 37.02  | 1.96   |
| 2.5400 | 39.09  | 1.90   | 37.00  | 1.97   |
| 2.5500 | 39.07  | 1.91   | 36.89  | 1.99   |

|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX D - SAR TEST SETUP PHOTOGRAPHS

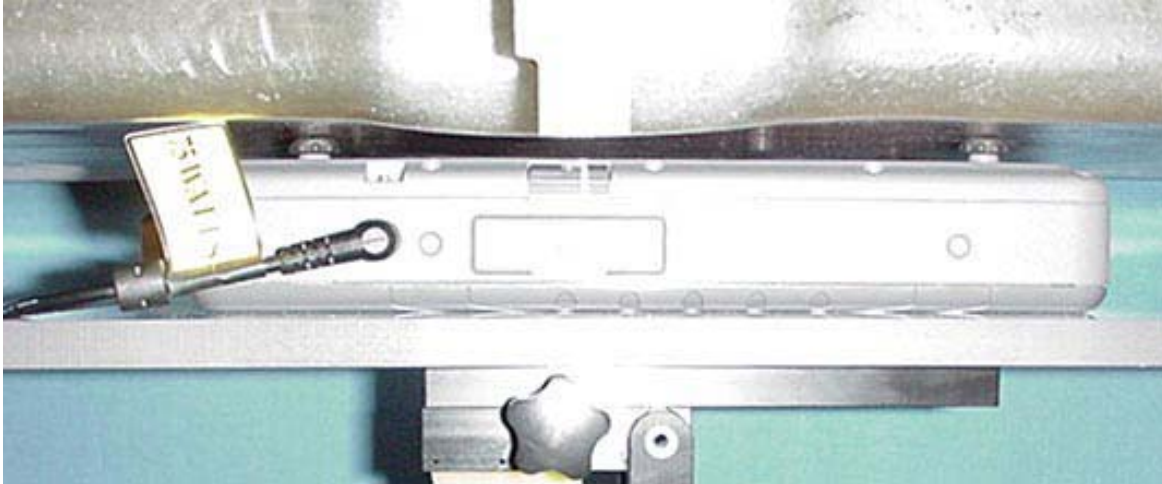
|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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**BODY SAR TEST SETUP PHOTOGRAPHS**  
0.0 cm Separation Distance from Bottom of DUT to Planar Phantom  
Internal Lithium-ion Battery Pack (Model: T8M-E)



## BODY SAR TEST SETUP PHOTOGRAPHS

0.0 cm Separation Distance from Bottom of DUT to Planar Phantom  
75 W AC Power Adapter (Delta Electronics Model: ADP-75FB B)



|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX E - SYSTEM VALIDATION

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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## 2450 MHz SYSTEM VALIDATION DIPOLE

Type:

**2450 MHz Validation Dipole**

Serial Number:

**150**

Place of Calibration:

**Celltech Labs Inc.**

Date of Calibration:

**September 30, 2004**

Celltech Labs Inc. hereby certifies that this device has been calibrated on the date indicated above.

Calibrated by:

*Spencer Watson*

Approved by:

*Russell W. Pipe*

## 1. Dipole Construction & Electrical Characteristics

The validation dipole was constructed in accordance with the IEEE Std “Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques”. The electrical properties were measured using an HP 8753E Network Analyzer. The network analyzer was calibrated to the validation dipole N-type connector feed point using an HP85032E Type N calibration kit. The dipole was placed parallel to a planar phantom at a separation distance of 10.0mm from the simulating fluid using a loss-less dielectric spacer. The measured input impedance is:

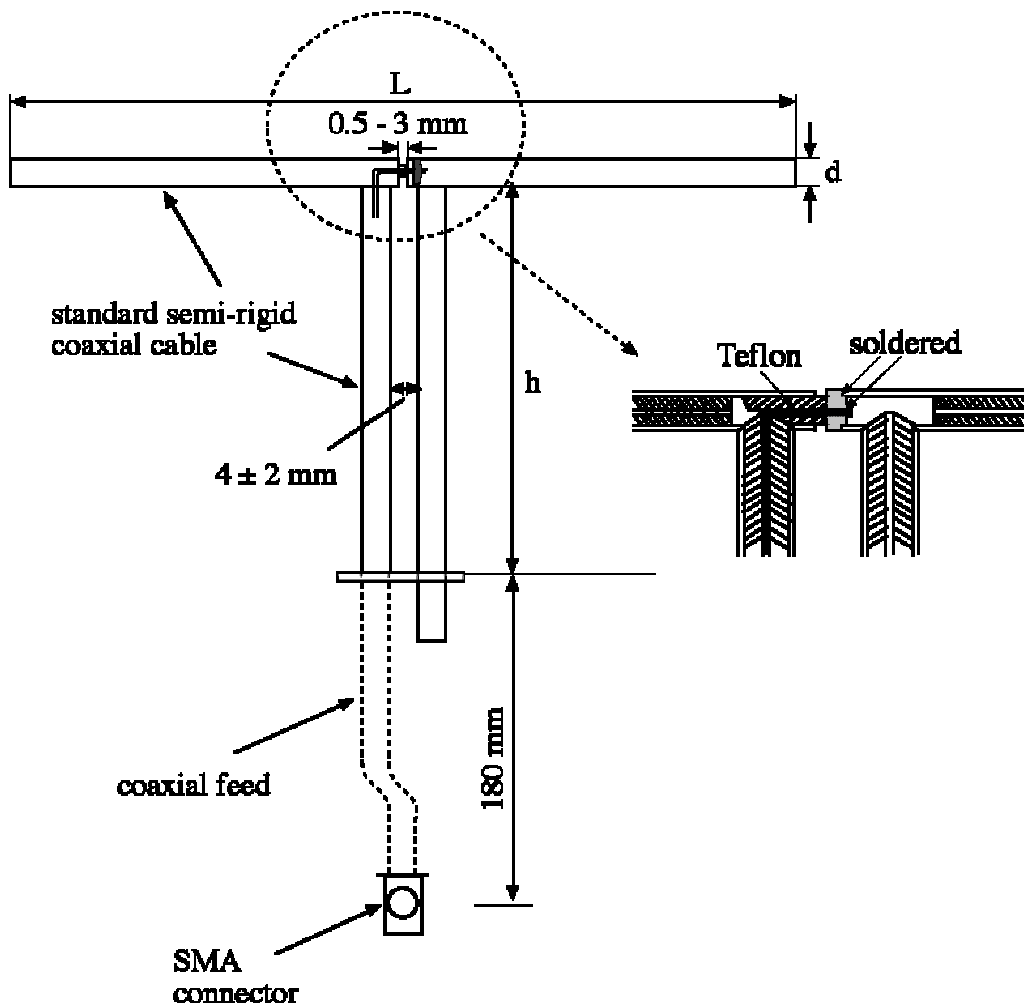
Feed point impedance at 2450 MHz

$$\text{Re}\{Z\} = 48.246\Omega$$

$$\text{Im}\{Z\} = 1.0996\Omega$$

Return Loss at 2450 MHz

$$-33.519 \text{ dB}$$



16:29:23

1 U FS

1: 48.246 Ω

1.0996

71.432 pH

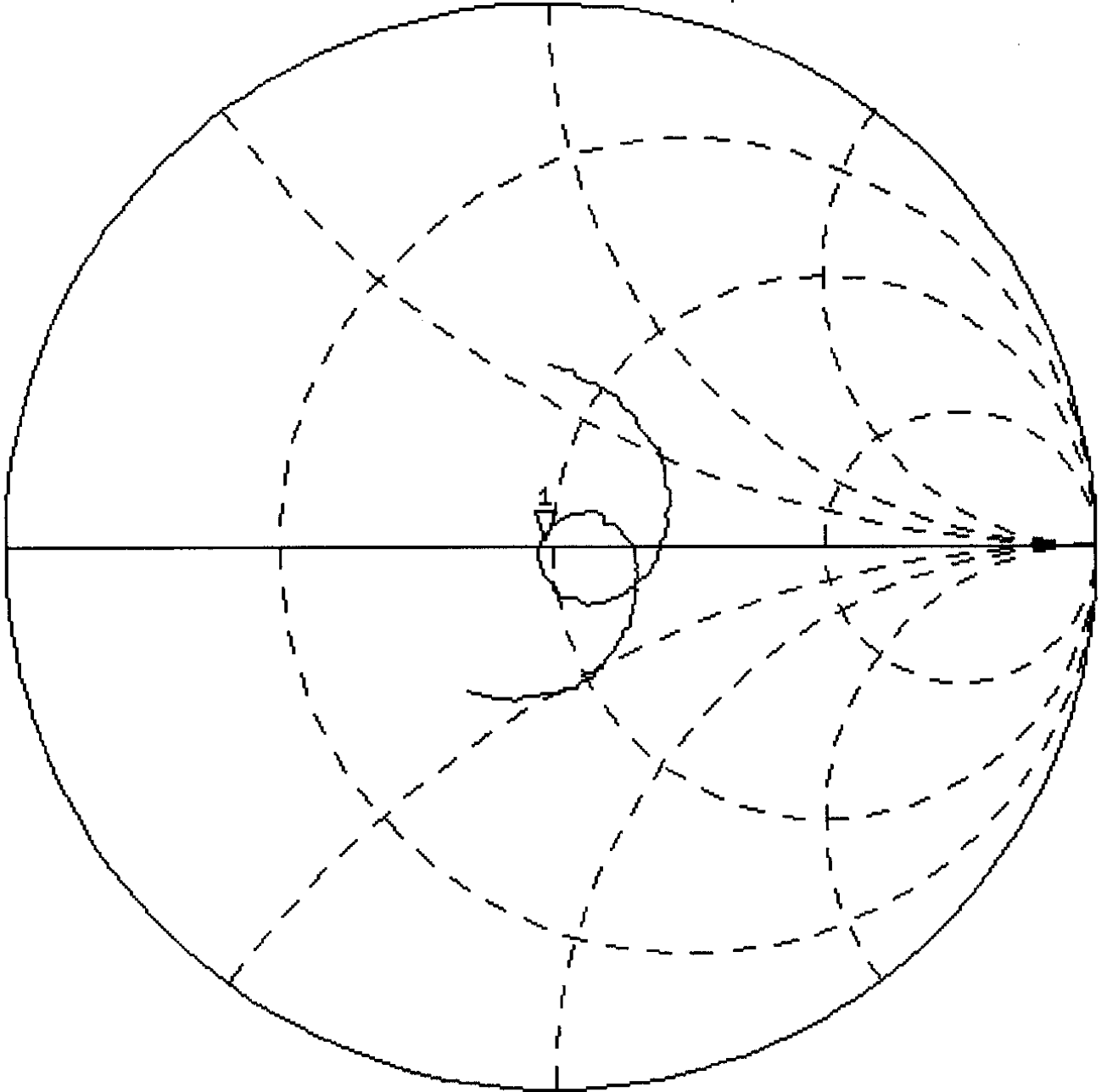
2 450.000 000 MHz

7

PRm

Cor

↑



CENTER 2 450.000 000 MHz

SPAN 400.000 000 MHz

30 Sep 2004 16:28:38

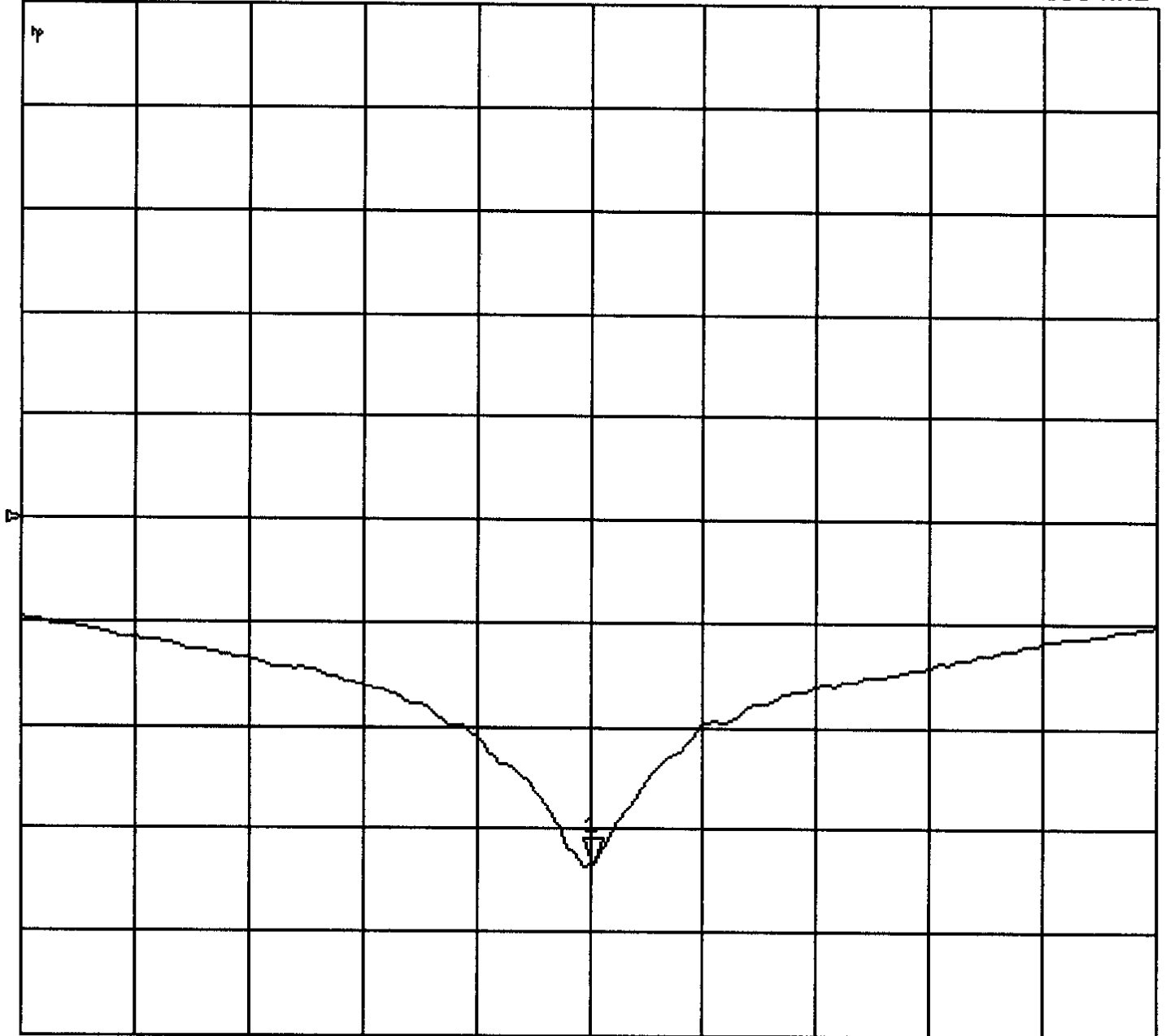
[CH1] MEM LOG 10 dB/REF 0 dB

1:-33.519 dB 2 450.000 000 MHz

PRm

Cor

↑



CENTER 2 450.000 000 MHz

SPAN 400.000 000 MHz

## 2. Validation Dipole Dimensions

| Frequency (MHz) | L (mm) | h (mm) | d (mm) |
|-----------------|--------|--------|--------|
| 300             | 420.0  | 250.0  | 6.2    |
| 450             | 288.0  | 167.0  | 6.2    |
| 835             | 161.0  | 89.8   | 3.6    |
| 900             | 149.0  | 83.3   | 3.6    |
| 1450            | 89.1   | 51.7   | 3.6    |
| 1800            | 72.0   | 41.7   | 3.6    |
| 1900            | 68.0   | 39.5   | 3.6    |
| 2000            | 64.5   | 37.5   | 3.6    |
| 2450            | 51.8   | 30.6   | 3.6    |
| 3000            | 41.5   | 25.0   | 3.6    |

## 3. Validation Phantom

The validation phantom is the SAM (Specific Anthropomorphic Mannequin) phantom manufactured by Schmid & Partner Engineering AG. The SAM phantom is a Fiberglass shell integrated in a wooden table. The shape of the shell corresponds to the phantom defined by SCC34-SC2. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

**Shell Thickness:** 2.0 ± 0.1 mm  
**Filling Volume:** Approx. 25 liters  
**Dimensions:** 50 cm (W) x 100 cm (L)

#### 4. 2450 MHz System Validation Setup



## 5. 2450 MHz Dipole Setup



## **6. Measurement Conditions**

The phantom was filled with brain simulating tissue having the following electrical parameters at 2450 MHz:

Relative Permittivity: 38.5  
 Conductivity: 1.86 mho/m  
 Fluid Temperature: 23.7 °C  
 Fluid Depth:  $\geq 15.0$  cm

Environmental Conditions:

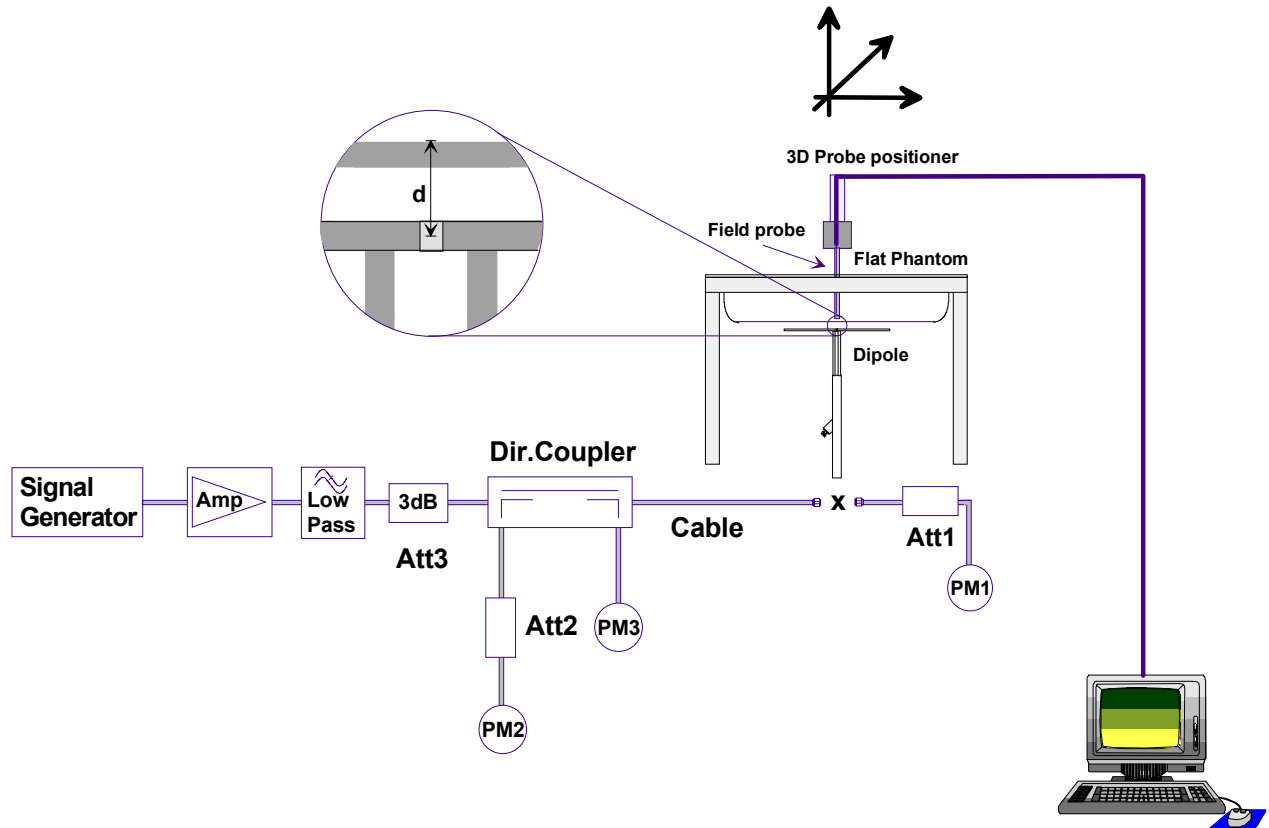
Ambient Temperature: 25.3 °C  
 Humidity: 32 %  
 Barometric Pressure: 102.7 kPa

The 2450 MHz simulated brain tissue mixture consists of the following ingredients:

| <b>Ingredient</b>                       | <b>Percentage by weight</b>                                |
|-----------------------------------------|------------------------------------------------------------|
| Water                                   | 52.00%                                                     |
| Glycol Monobutyl                        | 48.00%                                                     |
| Target Dielectric Parameters<br>at 22°C | $\epsilon_r = 39.2$ (+/-5%)<br>$\sigma = 1.80$ S/m (+/-5%) |

## 7. SAR Measurement

The SAR measurement was performed with the E-field probe in mechanical detection mode only. The setup and determination of the forward power into the dipole was performed using the following procedures.



First, the power meter PM1 (including attenuator Att1) is connected to the cable to measure the forward power at the location of the dipole connector (X). The signal generator is adjusted for the desired forward power at the dipole connector (taking into account the attenuation of Att1) as read by power meter PM2. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2. If the signal generator does not allow adjustment in 0.01dB steps, the remaining difference at PM2 must be taken into consideration. PM3 records the reflected power from the dipole to ensure that the value is not changed from the previous value. The reflected power should be 20dB below the forward power.

## 8. Validation Dipole SAR Test Results

Ten SAR measurements were performed in order to achieve repeatability and to establish an average target value.

| Validation Measurement | SAR @ 0.25W<br>Input averaged<br>over 1g | SAR @ 1W<br>Input averaged<br>over 1g | SAR @ 0.25W<br>Input averaged<br>over 10g | SAR @ 1W<br>Input averaged<br>over 10g | Peak SAR @<br>0.25W Input |
|------------------------|------------------------------------------|---------------------------------------|-------------------------------------------|----------------------------------------|---------------------------|
| Test 1                 | 14.2                                     | 56.8                                  | 6.58                                      | 26.32                                  | 30.4                      |
| Test 2                 | 14.1                                     | 56.4                                  | 6.54                                      | 26.16                                  | 30.2                      |
| Test 3                 | 14.1                                     | 56.4                                  | 6.54                                      | 26.16                                  | 30.4                      |
| Test 4                 | 14.1                                     | 56.4                                  | 6.51                                      | 26.04                                  | 30.6                      |
| Test 5                 | 14.0                                     | 56.0                                  | 6.51                                      | 26.04                                  | 29.8                      |
| Test 6                 | 14.0                                     | 56.0                                  | 6.49                                      | 25.96                                  | 29.6                      |
| Test 7                 | 14.1                                     | 56.4                                  | 6.54                                      | 26.16                                  | 30.0                      |
| Test 8                 | 14.1                                     | 56.4                                  | 6.53                                      | 26.12                                  | 30.1                      |
| Test 9                 | 14.0                                     | 56.0                                  | 6.50                                      | 26.00                                  | 29.8                      |
| Test10                 | 14.0                                     | 56.0                                  | 6.47                                      | 25.88                                  | 30.0                      |
| Average Value          | 14.07                                    | 56.28                                 | 6.52                                      | 26.08                                  | 30.09                     |

The results have been normalized to 1W (forward power) into the dipole.

IEEE Target over  $1\text{cm}^3$  (1g) of tissue: 52.4 mW/g (+/- 10%)

Averaged over 1cm (1g) of tissue: 56.28 mW/g (+ 7.4% deviation)

IEEE Target over  $10\text{cm}^3$  (10g) of tissue: 24.0 mW/g (+/- 10%)

Averaged over 10cm (10g) of tissue: 26.08 mW/g (+ 8.7% deviation)

## 2540 MHz System Validation - September 30, 2004

**DUT: Dipole 2450 MHz; Model: D2450V2; Serial: 150; Calibrated: 09/30/2004**

Ambient Temp: 25.3 °C; Fluid Temp: 23.7 °C; Barometric Pressure: 102.7 kPa; Humidity: 32%

Communication System: CW

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450 ( $\sigma = 1.86$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>)

- Probe: ET3DV6 - SN1590; ConvF(4.44, 4.44, 4.44); Calibrated: 24/05/2004

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn370; Calibrated: 14/05/2004

- Phantom: SAM 4.0; Type: Fiberglass; Serial: 1033

- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

**2450 MHz System Validation/Area Scan (6x10x1):** Measurement grid: dx=10mm, dy=10mm

**2450 MHz System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.9 V/m; Power Drift = 0.0 dB

Peak SAR (extrapolated) = 30.4 W/kg

**SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.58 mW/g**

**2450 MHz System Validation/Zoom Scan 2 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.9 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 30.2 W/kg

**SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.54 mW/g**

**2450 MHz System Validation/Zoom Scan 3 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.5 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 30.4 W/kg

**SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.54 mW/g**

**2450 MHz System Validation/Zoom Scan 4 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.1 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 30.6 W/kg

**SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.51 mW/g**

**2450 MHz System Validation/Zoom Scan 5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.9 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 29.8 W/kg

**SAR(1 g) = 14.0 mW/g; SAR(10 g) = 6.51 mW/g**

**2450 MHz System Validation/Zoom Scan 6 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.4 V/m; Power Drift = -0.0 dB

Peak SAR (extrapolated) = 29.6 W/kg

**SAR(1 g) = 14.0 mW/g; SAR(10 g) = 6.49 mW/g**

**2450 MHz System Validation/Zoom Scan 7 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.4 V/m; Power Drift = -0.008 dB

Peak SAR (extrapolated) = 30 W/kg

**SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.54 mW/g**

**2450 MHz System Validation/Zoom Scan 8 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.4 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 30.1 W/kg

**SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.53 mW/g**

**2450 MHz System Validation/Zoom Scan 9 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.3 V/m; Power Drift = -0.0 dB

Peak SAR (extrapolated) = 29.8 W/kg

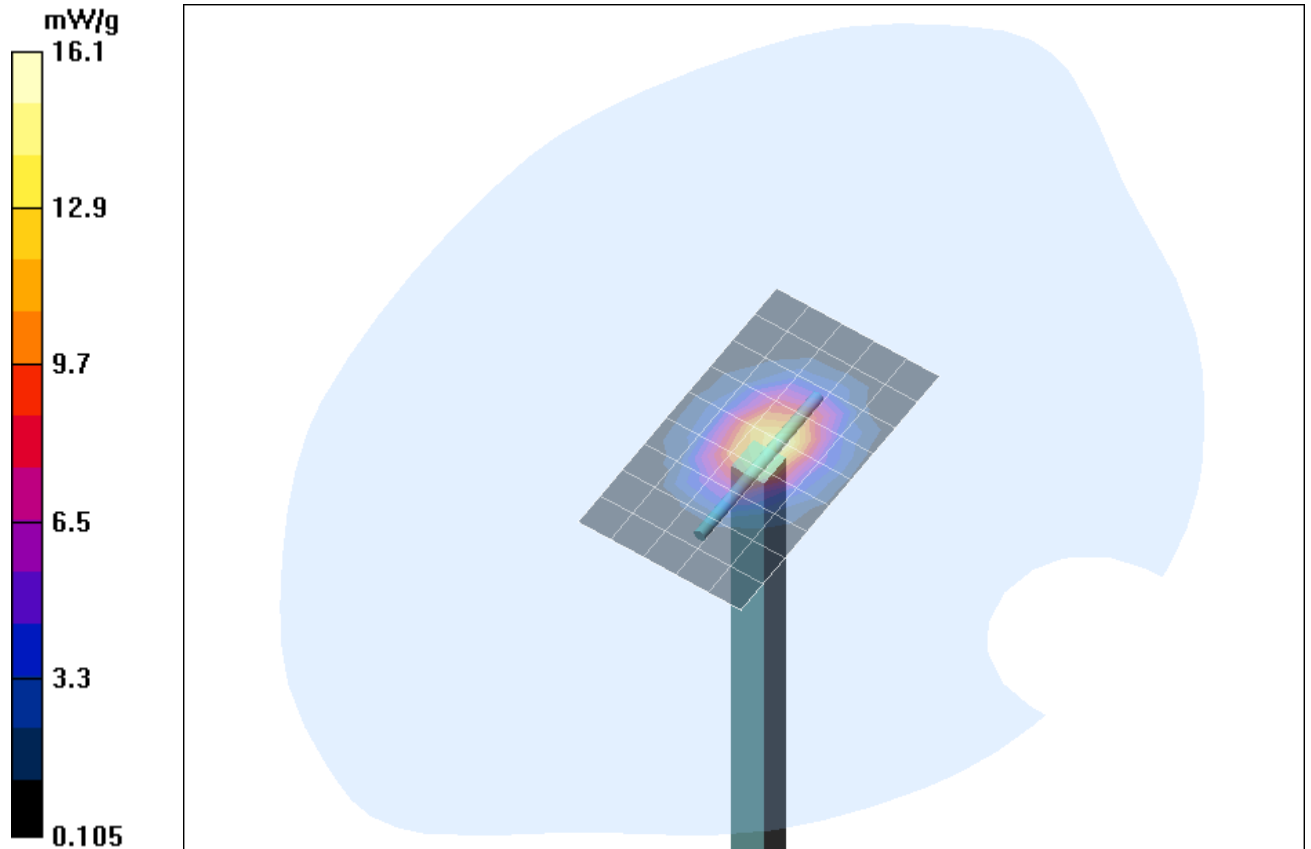
**SAR(1 g) = 14.0 mW/g; SAR(10 g) = 6.5 mW/g**

**2450 MHz System Validation/Zoom Scan 10 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

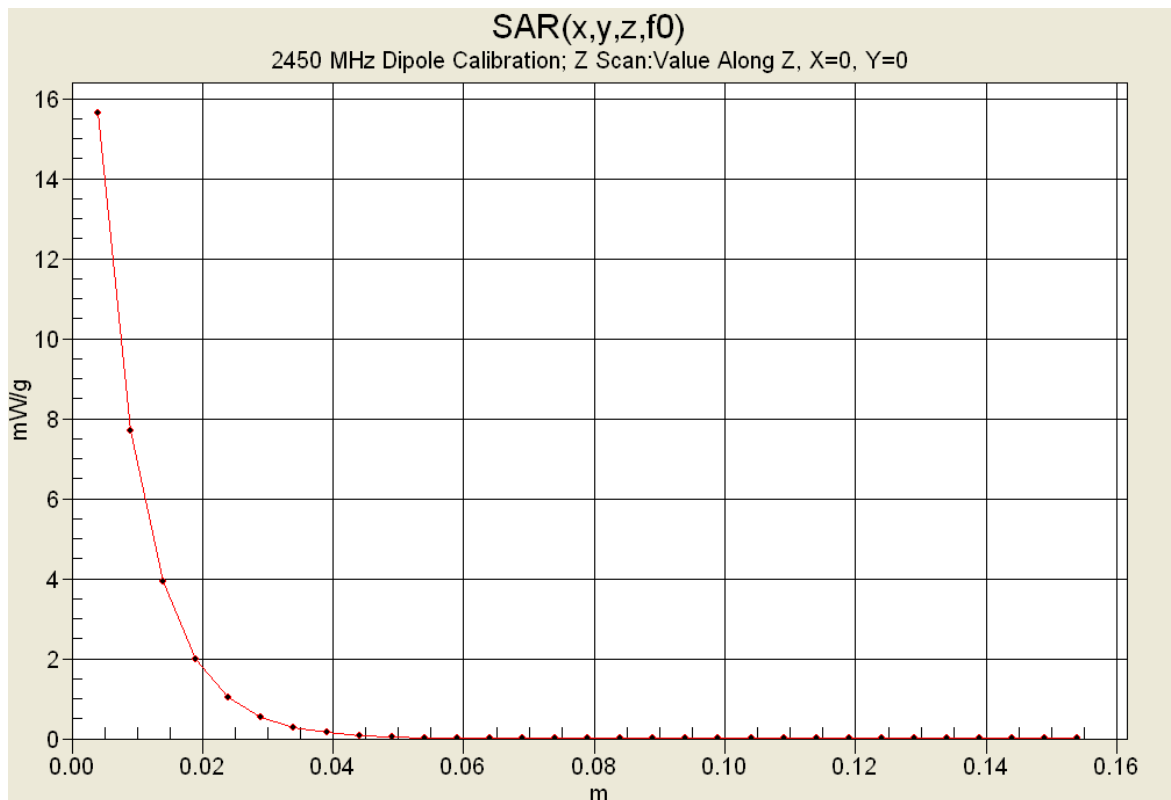
Reference Value = 96.4 V/m; Power Drift = -0.1 dB

Peak SAR (extrapolated) = 30 W/kg

**SAR(1 g) = 14.0 mW/g; SAR(10 g) = 6.47 mW/g**



**1 g average of 10 measurements: 14.07 mW/g**  
**10 g average of 10 measurements: 6.521 mW/g**



# 2450 MHz System Validation

## Measured Fluid Dielectric Parameters (Brain)

September 30, 2004

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 2.350000000 GHz | 38.9044 | 13.2920 |
| 2.360000000 GHz | 38.8598 | 13.3262 |
| 2.370000000 GHz | 38.8346 | 13.3589 |
| 2.380000000 GHz | 38.7702 | 13.3903 |
| 2.390000000 GHz | 38.7465 | 13.4360 |
| 2.400000000 GHz | 38.6987 | 13.4546 |
| 2.410000000 GHz | 38.6553 | 13.4975 |
| 2.420000000 GHz | 38.6023 | 13.5376 |
| 2.430000000 GHz | 38.5771 | 13.5800 |
| 2.440000000 GHz | 38.5403 | 13.6072 |
| 2.450000000 GHz | 38.5010 | 13.6535 |
| 2.460000000 GHz | 38.4824 | 13.6770 |
| 2.470000000 GHz | 38.4488 | 13.7080 |
| 2.480000000 GHz | 38.4153 | 13.7445 |
| 2.490000000 GHz | 38.3700 | 13.7692 |
| 2.500000000 GHz | 38.3378 | 13.7887 |
| 2.510000000 GHz | 38.2798 | 13.8028 |
| 2.520000000 GHz | 38.2288 | 13.8500 |
| 2.530000000 GHz | 38.1683 | 13.8945 |
| 2.540000000 GHz | 38.1113 | 13.9420 |
| 2.550000000 GHz | 38.0791 | 13.9851 |

|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX G - SAM PHANTOM CERTIFICATE OF CONFORMITY

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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# Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

## Certificate of conformity / First Article Inspection

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| Item                  | SAM Twin Phantom V4.0                                                    |
| Type No               | QD 000 P40 BA                                                            |
| Series No             | TP-1002 and higher                                                       |
| Manufacturer / Origin | Untersee Composites<br>Hauptstr. 69<br>CH-8559 Fruthwilen<br>Switzerland |

### Tests

The series production process used allows the limitation to test of first articles.  
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

| Test                 | Requirement                                                                             | Details                                                              | Units tested                 |
|----------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------|
| Shape                | Compliance with the geometry according to the CAD model.                                | IT'IS CAD File (*)                                                   | First article,<br>Samples    |
| Material thickness   | Compliant with the requirements according to the standards                              | 2mm +/- 0.2mm in specific areas                                      | First article,<br>Samples    |
| Material parameters  | Dielectric parameters for required frequencies                                          | 200 MHz – 3 GHz<br>Relative permittivity < 5<br>Loss tangent < 0.05. | Material sample<br>TP 104-5  |
| Material resistivity | The material has been tested to be compatible with the liquids defined in the standards | Liquid type HSL 1800 and others according to the standard.           | Pre-series,<br>First article |

### Standards

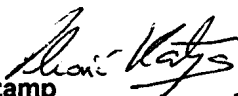
- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9
- (\*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

### Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 18.11.2001

Signature / Stamp



**Schmid & Partner  
Engineering AG**



Zeughausstrasse 43, CH-8004 Zurich  
Tel. +41 1 245 97 00, Fax +41 1 245 97 79

|                                                                                   |                         |                     |                    |                    |
|-----------------------------------------------------------------------------------|-------------------------|---------------------|--------------------|--------------------|
|  | Test Report Serial No.: | 100305KBC-T675-S15W | Report Issue Date: | January 19, 2006   |
|                                                                                   | Date(s) of Evaluation:  | June 09, 2005       | Report Issue No.:  | S675W-011906-R0    |
|                                                                                   | Type of Evaluation:     | RF Exposure    SAR  | FCC 47 CFR 2.1093  | IC RSS-102 Issue 2 |

## APPENDIX H - PLANAR PHANTOM CERTIFICATE OF CONFORMITY

|                         |                            |                                                                                                                      |                          |               |                     |                                                                                       |
|-------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|---------------------------------------------------------------------------------------|
| <b>Applicant:</b>       | <b>Itronix Corporation</b> | <b>FCC ID:</b>                                                                                                       | <b>KBCIX325A580IWLBT</b> | <b>IC ID:</b> | <b>1943A-IX325f</b> |  |
| <b>Model:</b>           | <b>IX325A580IWLBT</b>      | <b>Rugged Tablet PC with Intel Pro 2200BG 802.11b/g WLAN Mini-PCI Card</b>                                           |                          |               |                     |                                                                                       |
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2378 Westlake Road  
Kelowna, B.C. Canada  
V1Z-2V2



Ph. # 250-769-6848  
Fax # 250-769-6334  
E-mail: [barskiind@shaw.ca](mailto:barskiind@shaw.ca)  
Web: [www.bcfiberglass.com](http://www.bcfiberglass.com)

## FIBERGLASS FABRICATORS

### Certificate of Conformity

Item : Flat Planar Phantom Unit # 03-01  
Date: June 16, 2003  
Manufacturer: Barski Industries (1985 Ltd)

| Test                | Requirement                                                                            | Details                                                       |
|---------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Shape               | Compliance to geometry according to drawing                                            | Supplied CAD drawing                                          |
| Material Thickness  | Compliant with the requirements                                                        | 2mm +/- 0.2mm in measurement area                             |
| Material Parameters | Dielectric parameters for required frequencies<br>Based on Dow Chemical technical data | 100 MHz-5 GHz<br>Relative permittivity<5<br>Loss Tangent<0.05 |

#### Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature: \_\_\_\_\_

A handwritten signature in black ink, appearing to read 'Daniel Chailier', is written over a horizontal line.

Daniel Chailier



**Fiberglass Planar Phantom - Top View**



**Fiberglass Planar Phantom - Front View**



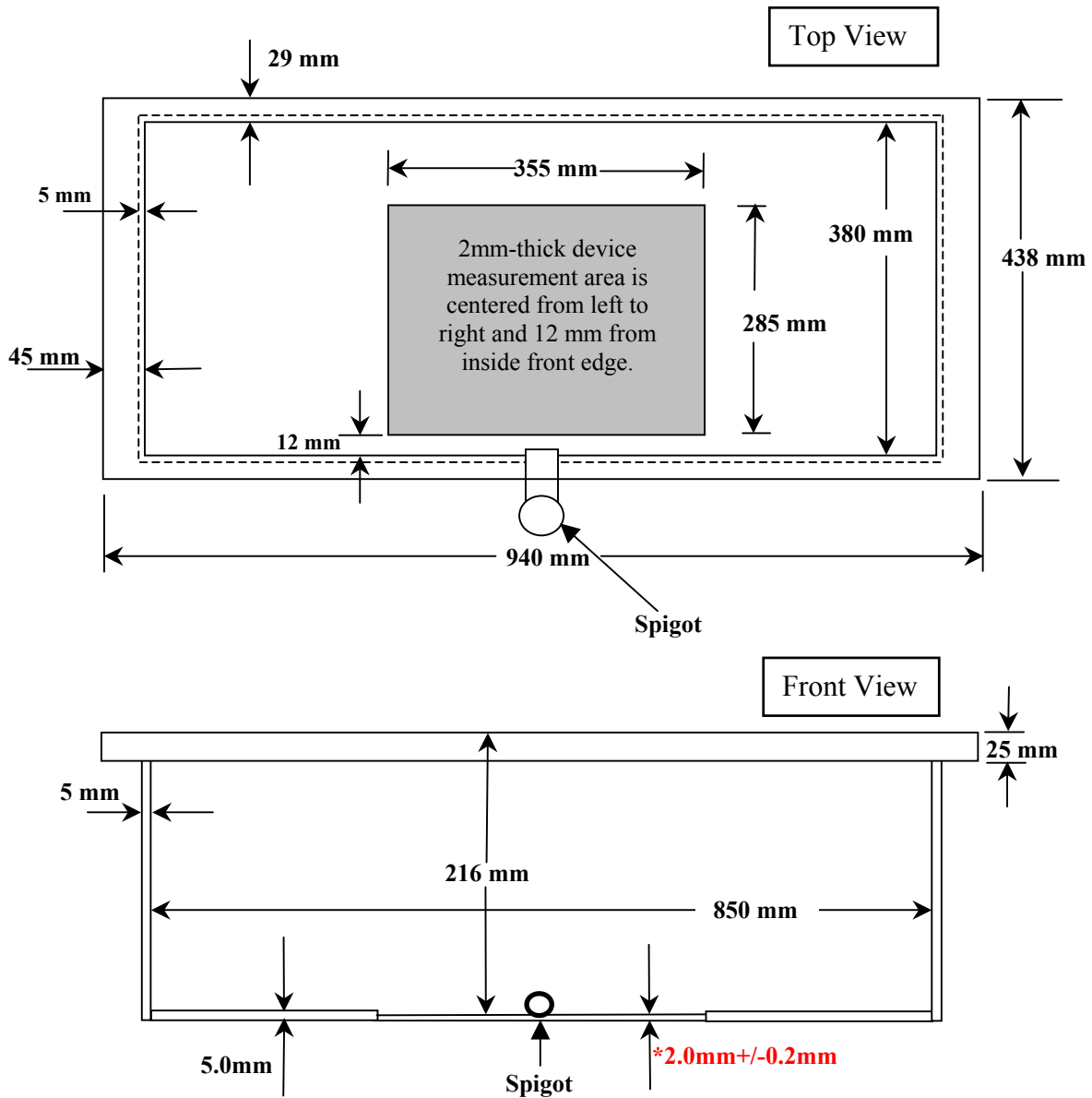
**Fiberglass Planar Phantom - Back View**



**Fiberglass Planar Phantom - Bottom View**

## Dimensions of Fiberglass Planar Phantom

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



**Note: Measurements that aren't repeated for the opposite sides are the same as the side measured.  
This drawing is not to scale.**