

# TEST REPORT



Your Ref:

Date: 15 April 2003

Our Ref: 56S030241/01

Page: 1 of 46

DID: 68851464

Fax: 67741459

**NOTE:** This Report is issued subject to the "Terms and Conditions Governing Technical Services" set out in the "Request for Technical Services" form. The terms and conditions governing the issue of this report are set out overleaf.

FORMAL REPORT ON TESTING IN ACCORDANCE WITH  
SAR (SPECIFIC ABSORPTION RATE) REQUIREMENTS

**Supplement C (Edition 01-01)**  
**FCC OET Bulletin 65 (Edition 97-01)**

OF A

**MOBILE PHONE come with CDMA\_2000 1x (800MHz) & Amps**  
**[ Model: QB04 ]**

**TEST FACILITY** Telecoms & EMC, Testing Group, PSB Corporation Pte Ltd  
1 Science Park Drive, Singapore 118221

**APPLICANT** Mr. Loh Boon Liang  
Flextronics Sales & Marketing (A-P) Ltd  
Suite 802, St James Court,  
St. Denis Street, Port Louis,  
Mauritius

Tel: (65) 62998888

Fax: (65) 65466346

**JOB NUMBER** 56S030241

**TEST PERIOD** 25 March 2003 - 10 April 2003

**PREPARED BY**

Gary Ng Ah Chye  
Associate Engineer

**APPROVED BY**

Benjamin Foo  
Assistant Vice President



Your product quality and safety mark



LA-2001-0212-A  
LA-2001-0213-F  
LA-2001-0214-E  
LA-2001-0215-B  
LA-2001-0216-G  
LA-2001-0217-G

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme

**This Report is issued under the following conditions:**

1. Results of the testing/calibration in the form of a report will be issued immediately after the service has been completed or terminated.
2. Unless otherwise requested, a report shall contain only technical results. Analysis and interpretation of the results and professional opinion and recommendations expressed thereupon, if required, shall be clearly indicated and additional fee paid for, by the Client.
3. This report is not a Certificate of Quality. It only applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are application to other similar items. In addition, such results must not be used to indicate or imply that PSB Corporation approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that PSB Corporation in any way "guarantees" the later performance of the product/equipment.
4. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client, PSB Corporation therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.
5. Additional copies of the report are available to the Client at an additional fee. No third party can obtain a copy of this report through PSB Corporation, unless the Client has authorised PSB Corporation in writing to do so.
6. PSB Corporation may at its sole discretion add to or amend the conditions of the report at the time of issue of the report and such report and such additions or amendments shall be binding on the Client.
7. All copyright in the report shall remain with PSB Corporation and the Client shall, upon payment of PSB Corporation's fees for the carrying out of the tests/calibrations, be granted a license to use or publish the report to the third parties subject to the terms and conditions herein, provided always that PSB Corporation may at its absolute discretion be entitled to impose such conditions on the license as it sees fit.
8. Nothing in this report shall be interpreted to mean that PSB Corporation has verified or ascertained any endorsement or marks from any testing authority or bodies that may be found on that sample.
9. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to PSB Corporation or to the report or results furnished by PSB Corporation in any advertisements or sales promotion.

TEST SUMMARY

PRODUCT DESCRIPTION

TEST RESULTS

|         |                                                               |
|---------|---------------------------------------------------------------|
| ANNEX A | - TEST INSTRUMENTATION & GENERAL PROCEDURES                   |
| ANNEX B | - EUT PHOTOGRAPHS / DIAGRAMS<br>Test Setup<br>EUT Photographs |
| ANNEX C | - TISSUE SIMULANT DATA SHEETS                                 |
| ANNEX D | - SAR VALIDATION RESULTS                                      |
| ANNEX E | - SAR PROBE CALIBRATION CERTIFICATES                          |
| ANNEX F | - REFERENCES                                                  |

The product was tested in accordance with the following standards.

**Test Results Summary**

| Test Standards                                                                                                                                            | Description                                                 | Pass / Fail |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------|
| <ul style="list-style-type: none"><li>Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)</li><li>ANSI/IEEE Standard C95.1-1993</li></ul> | SAR Measurement (AMPS Mode)<br>Device at head phantom       | Pass *      |
|                                                                                                                                                           | SAR Measurement (CDMA Mode)<br>Device at head phantom       | Pass *      |
|                                                                                                                                                           | SAR Measurement (AMPS Mode)<br>Body Worn Configuration Only | Pass *      |
|                                                                                                                                                           | SAR Measurement (CDMA Mode)<br>Body Worn Configuration Only | Pass *      |

Note:

- The worst-case SAR value was found to be **1.480W/kg** which is lower than the maximum limit of 1.60 W/kg, over 1g of tissue.
- \* Based on spatial peak uncontrolled exposure / general population level:  
Head: 1.60 W/kg, over 1g of tissue.  
Body: 1.60 W/kg, over 1g of tissue.

**Modifications**

No modifications were made.

**DEVICE DESCRIPTION**

|                      |                                                      |
|----------------------|------------------------------------------------------|
| Description          | Mobile Phone comes with CDMA_2000 1x (800MHz) & Amps |
| Device Category      | Portable Device                                      |
| Exposure Environment | General Population/Uncontrolled exposure             |
| Test Device Type     | Pre-Pilot Unit                                       |
| Model                | QB04                                                 |
| Brand Name           | Flextronics                                          |
| Serial Numbers       | PB100300254                                          |
| FCC ID               | Q3OODM-QB04                                          |

**DEVICE OPERATING CONFIGURATION**

|                                   |                                                                                                                                                                                                        |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Frequencies             | <div>AMPS Mode</div> Channel 991 (824.04Mhz)<br>Channel 384 (836.52Mhz)<br>Channel 799 (848.97Mhz) <div>CDMA Mode</div> Channel 1013 (824.70Mhz)<br>Channel 384 (836.52Mhz)<br>Channel 777 (848.31Mhz) |
| Operating Temperature Tolerance   | -30 ~ +60 Degree Celsius                                                                                                                                                                               |
| Operating Voltage Tolerance       | 3.6 V ~ 4.2 V Volt DC                                                                                                                                                                                  |
| Continuous Transmission Tolerance | The EUT shall cause no problem after transmitting for 110 minutes under maximum transmitting power rate.                                                                                               |
| Rated Output Power                | 25.0 dBm $\pm$ 0.5dBm, Maximum (AMPS Phone)<br>23.8 dBm $\pm$ 0.2dBm, Maximum (CDMA Phone)                                                                                                             |
| Antenna Type                      | Integrated Antenna                                                                                                                                                                                     |
| Duty Cycle                        | 1.0                                                                                                                                                                                                    |
| Input Power                       | Lithium Ion Integrated Battery, 3.7V 750mAh.                                                                                                                                                           |
| Accessories                       | 1) Charger<br>2) Belt Clip<br>3) Headset with Mic. and Speaker                                                                                                                                         |

**MANUFACTURER**

|                      |                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------|
| Manufacturer Address | Rod. Sen. Jose Ermirio De de Moraes,<br>KM11 Vila Aparecidinha-Sorocaba<br>18087-090-Sao Paulo Brasil |
| DID                  | 55-15-235 6284                                                                                        |
| Fax                  | 55-15-3325 1351                                                                                       |

**DEVICE OPERATING CONDITION**

The EUT was put into operation by a radio test set. Communication between the EUT and the Agilent wireless communication tester was established by air link. For every SAR measurement, the EUT was set to maximum output power level using fully charged battery.

DASY4 system measures power drift during SAR test by comparing E-field in the same location at the beginning and end of measurement. These records were used to monitor the stability of the device output power.

**TEMPERATURE AND HUMIDITY**

|                      |                             |
|----------------------|-----------------------------|
| Ambient Temperature: | $22 \pm 1^{\circ} \text{C}$ |
| Tissue Temperature:  | $23 \pm 1^{\circ} \text{C}$ |
| Humidity:            | 50% to 56%                  |

## Measurement Uncertainty

All test measurement carried out are traceable to national standards. The uncertainty of measurement at a confidence level of 95%, with a coverage of 2, is  $\pm 20.9\%$ .

| Error Description                                                               | Uncertainty Value $\pm \%$ | Probability Distribution | Divisor    | ci 1g          | Standard Unc.(1g) | Vi or Veff |
|---------------------------------------------------------------------------------|----------------------------|--------------------------|------------|----------------|-------------------|------------|
| <b>Measurement System</b>                                                       |                            |                          |            |                |                   |            |
| Probe Calibration                                                               | $\pm 4.8$                  | normal                   | 1          | 1              | $\pm 4.8$         | $\infty$   |
| Axial isotropy                                                                  | $\pm 4.7$                  | rectangular              | $\sqrt{3}$ | $(1-cp)^{1/2}$ | $\pm 1.9$         | $\infty$   |
| Hemispherical Isotropy                                                          | $\pm 9.6$                  | rectangular              | $\sqrt{3}$ | $(cp)^{1/2}$   | $\pm 3.9$         | $\infty$   |
| Spatial resolution                                                              | $\pm 0.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.0$         | $\infty$   |
| Boundary effects                                                                | $\pm 1.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.6$         | $\infty$   |
| Linearity                                                                       | $\pm 4.7$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 2.7$         | $\infty$   |
| System Detection limit                                                          | $\pm 1.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.6$         | $\infty$   |
| Readout electronics                                                             | $\pm 1.0$                  | normal                   | 1          | 1              | $\pm 1.0$         | $\infty$   |
| Response time                                                                   | $\pm 0.8$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.5$         | $\infty$   |
| Integration time                                                                | $\pm 2.6$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 1.5$         | $\infty$   |
| RF ambient conditions                                                           | $\pm 3.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 1.7$         | $\infty$   |
| Probe Positioning Mechanical Tolerance                                          | $\pm 0.4$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.2$         | $\infty$   |
| Probe Positioning with respect to Phantom Shell                                 | $\pm 2.9$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 1.7$         | $\infty$   |
| Extrapolation, Interpolation and Integration Algorithms for Max. SAR Evaluation | $\pm 1.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 0.6$         | $\infty$   |
| <b>Test Sample Related</b>                                                      |                            |                          |            |                |                   |            |
| Device positioning                                                              | $\pm 2.9$                  | normal                   | 1          | 1              | $\pm 2.9$         | 145        |
| Device holder uncertainty                                                       | $\pm 3.6$                  | normal                   | 1          | 1              | $\pm 3.6$         | 5          |
| Power drift                                                                     | $\pm 5.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 2.9$         | $\infty$   |
| <b>Phantom and Tissue Parameters</b>                                            |                            |                          |            |                |                   |            |
| Phantom uncertainty                                                             | $\pm 4.0$                  | rectangular              | $\sqrt{3}$ | 1              | $\pm 2.3$         | $\infty$   |
| Liquid conductivity (target)                                                    | $\pm 5.0$                  | rectangular              | $\sqrt{3}$ | 0.64           | $\pm 1.8$         | $\infty$   |
| Liquid conductivity (meas)                                                      | $\pm 3.7$                  | normal                   | 1          | 0.64           | $\pm 2.3$         | $\infty$   |
| Liquid permittivity (target)                                                    | $\pm 5.0$                  | rectangular              | $\sqrt{3}$ | 0.6            | $\pm 1.7$         | $\infty$   |
| Liquid permittivity (meas)                                                      | $\pm 2.8$                  | normal                   | 1          | 0.6            | $\pm 1.7$         | $\infty$   |
| <b>Combined Standard Uncertainty</b>                                            |                            |                          |            |                |                   |            |
|                                                                                 |                            |                          |            |                | $\pm 10.5$        | 330        |
| <b>Coverage Factor for 95%</b>                                                  |                            | k=2                      |            |                |                   |            |
| <b>Extended Standard Uncertainty</b>                                            |                            |                          |            |                | $\pm 20.9$        |            |

The measurement results were obtained with the EUT tested in the conditions described in this report (Annex A).

**Table 1 - SAR Test Results (AMPS Mode) – Device at head phantom**

| Phantom Configuration          | Device Test Positions | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|-----------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                       |                  | Channel: 991<br>824.04MHz                                     | Channel: 384<br>836.52MHz | Channel: 799<br>848.97MHz |
| Left Side of Head              | Cheek / Touch         | fixed            | 1.260                                                         | 1.310                     | 1.060                     |
|                                | Ear / Tilt            | fixed            | 0.855                                                         | 0.862                     | 0.660                     |
| Right Side of Head             | Cheek / Touch         | fixed            | 1.220                                                         | 1.250                     | 1.020                     |
|                                | Ear / Tilt            | fixed            | 0.967                                                         | 1.020                     | 0.746                     |
| Output Power (dBm) Before Test |                       |                  | 25.7                                                          | 25.6                      | 25.5                      |
| Output Power (dBm) After Test  |                       |                  | 25.6                                                          | 25.5                      | 25.4                      |

**Table 2 - SAR Test Results (CDMA Mode) – Device at head phantom**

| Phantom Configuration          | Device Test Positions | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|-----------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                       |                  | Channel: 1013<br>824.70MHz                                    | Channel: 384<br>836.52MHz | Channel: 777<br>848.31MHz |
| Left Side of Head              | Cheek / Touch         | fixed            | 0.869                                                         | 0.883                     | 0.815                     |
|                                | Ear / Tilt            | fixed            | 0.569                                                         | 0.586                     | 0.500                     |
| Right Side of Head             | Cheek / Touch         | fixed            | 0.735                                                         | 0.983                     | 0.720                     |
|                                | Ear / Tilt            | fixed            | 0.633                                                         | 0.695                     | 0.533                     |
| Output Power (dBm) Before Test |                       |                  | 24.1                                                          | 24.1                      | 24.0                      |
| Output Power (dBm) After Test  |                       |                  | 24.0                                                          | 24.0                      | 23.9                      |

Remarks:

1. All modes of operations were investigated and the worst-case SAR levels are reported.
2. A fully charged Battery was used for each mode of operation.
3. For the **AMPS Mode**, the worst-case SAR value was found to be **1.310W/Kg** (over a 1g tissue) at **Channel 384** which is lower than the maximum limit of 1.60 W/Kg, please refer to the above table.
4. For **CDMA Mode**, the worst-case SAR value were found to be **0.983W/Kg** (over a 1g tissue) at **Channel 384** which is lower than the maximum limit of 1.60 W/Kg, please refer to the above table.
5. The SAR limit of 1.60W/Kg (Spatial Peak level for Uncontrolled Exposure / General Population) is based on the Test Standards:
  - a) Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)
  - b) ANSI/IEEE Standard C95.1-1993

The measurement results were obtained with the EUT tested in the conditions described in this report (Annex A).

**Table 3 – Body Worn Position SAR Test Results (AMPS Mode), device with belt clip(9mm spacing).**

| Phantom Configuration          | Device Test Positions     | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|---------------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                           |                  | Channel: 991<br>824.04MHz                                     | Channel: 384<br>836.52MHz | Channel: 799<br>848.97MHz |
| Flat Phantom                   | EUT Rear<br>To<br>Phantom | fixed            | 1.370                                                         | 1.480                     | 1.320                     |
| Output Power (dBm) Before Test |                           |                  | 25.7                                                          | 25.6                      | 25.5                      |
| Output Power (dBm) After Test  |                           |                  | 25.6                                                          | 25.5                      | 25.4                      |

**Table 4 – Body Worn Position SAR Test Results (AMPS Mode), device Front Touching.**

| Phantom Configuration          | Device Test Positions           | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|---------------------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                                 |                  | Channel: 991<br>824.04MHz                                     | Channel: 384<br>836.52MHz | Channel: 799<br>848.97MHz |
| Flat Phantom                   | EUT Front<br>Touched<br>Phantom | fixed            | 0.894                                                         | 0.918                     | 0.727                     |
| Output Power (dBm) Before Test |                                 |                  | 25.7                                                          | 25.6                      | 25.5                      |
| Output Power (dBm) After Test  |                                 |                  | 25.6                                                          | 25.5                      | 25.4                      |

Remarks:

1. All modes of operations were investigated and the worst-case SAR levels are reported.
2. A fully charged Battery was used for each mode of operation.
3. For the **AMPS Mode**, the worst-case SAR value was found to be **1.480W/Kg** (over a 1g tissue) at **Channel 384** which is lower than the maximum limit of 1.60 W/Kg, please refer to the above table.
4. The SAR limit of 1.60W/Kg (Spatial Peak level for Uncontrolled Exposure / General Population) is based on the Test Standards:
  - a) Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)
  - b) ANSI/IEEE Standard C95.1-1993

The measurement results were obtained with the EUT tested in the conditions described in this report (Annex A).

**Table 5 – Body Worn Position SAR Test Results (CDMA Mode), device with belt clip(9mm spacing).**

| Phantom Configuration          | Device Test Positions     | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|---------------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                           |                  | Channel: 1013<br>824.70MHz                                    | Channel: 384<br>836.52MHz | Channel: 777<br>848.31MHz |
| Flat Phantom                   | EUT Rear<br>To<br>Phantom | fixed            | 0.877                                                         | 0.968                     | 0.968                     |
| Output Power (dBm) Before Test |                           |                  | 24.1                                                          | 24.1                      | 24.0                      |
| Output Power (dBm) After Test  |                           |                  | 24.0                                                          | 24.0                      | 23.9                      |

**Table 6 – Body Worn Position SAR Test Results (CDMA Mode), device Front Touching.**

| Phantom Configuration          | Device Test Positions           | Antenna Position | SAR (W/kg), over 1g Tissue<br>Device Test Channel & Frequency |                           |                           |
|--------------------------------|---------------------------------|------------------|---------------------------------------------------------------|---------------------------|---------------------------|
|                                |                                 |                  | Channel: 1013<br>824.70MHz                                    | Channel: 384<br>836.52MHz | Channel: 777<br>848.31MHz |
| Flat Phantom                   | EUT Front<br>Touched<br>Phantom | fixed            | 0.628                                                         | 0.622                     | 0.532                     |
| Output Power (dBm) Before Test |                                 |                  | 24.1                                                          | 24.1                      | 24.0                      |
| Output Power (dBm) After Test  |                                 |                  | 24.0                                                          | 24.0                      | 23.9                      |

Remarks:

1. All modes of operations were investigated and the worst-case SAR levels are reported.
2. A fully charged Battery was used for each mode of operation.
3. For the **CDMA Mode**, the worst-case SAR value was found to be **0.968W/Kg** (over a 1g tissue) at **Channel 384 and Channel 777** which is lower than the maximum limit of 1.60 W/Kg, please refer to the above table.
4. The SAR limit of 1.60W/Kg (Spatial Peak level for Uncontrolled Exposure / General Population) is based on the Test Standards:
  - a) Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)
  - b) ANSI/IEEE Standard C95.1-1993

**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 1: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 991<br>824.04MHz | 1.260                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_Left Head\_0deg\_CH991\_Data13.da4

**DUT:** Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil

**Program:** AMPS\_P4; AMPS\_Doumen P4\_Left Head\_0deg\_CH991\_Data13

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1

Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: LeftSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

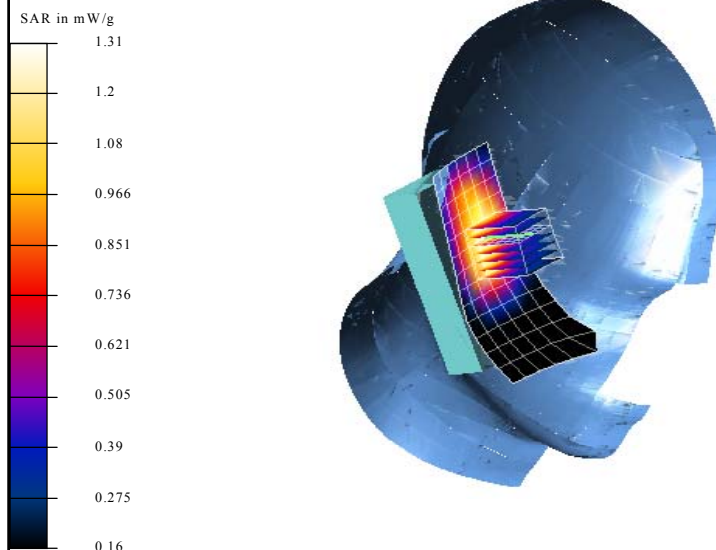
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 35.2 V/m

Peak SAR = 1.68 mW/g

SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.918 mW/g

Power Drift = -0.1 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 2: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 384<br>836.52MHz | 1.310                      |

Date: 04/09/2003

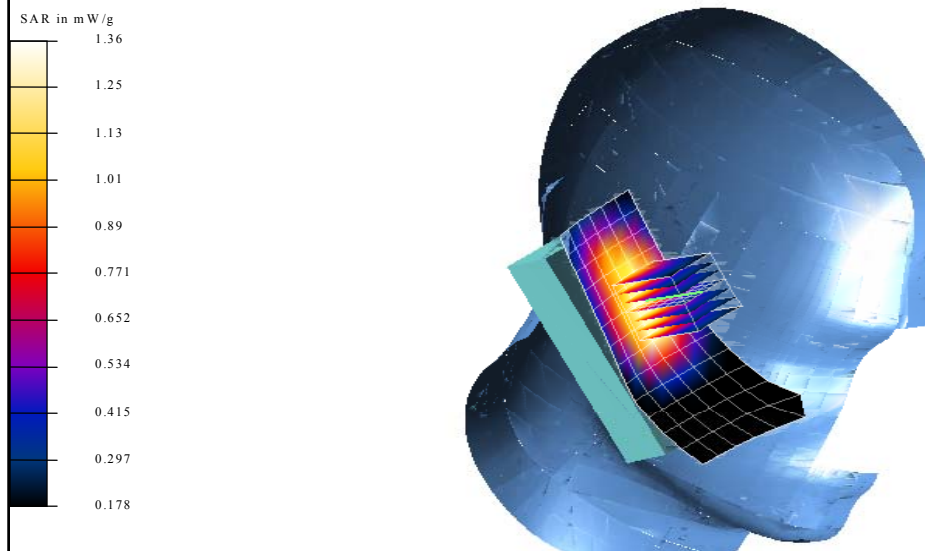
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Left Head\_0deg\_CH384\_Data11.da4

**DUT:** Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
**Program:** AMPS\_P4; AMPS\_P4\_Left Head\_0deg\_CH384\_Data11

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

**DASY4 Configuration:**  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 35.4 V/m  
 Peak SAR = 1.73 mW/g  
 SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.957 mW/g  
 Power Drift = 0.09 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 3: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 799<br>848.97MHz | 1.060                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_Left Head\_0deg\_CH799\_Data15.da4

**DUT:** Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil

**Program:** AMPS\_P4; AMPS\_Doumen P4\_Left Head\_0deg\_CH799\_Data15

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1

Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: LeftSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

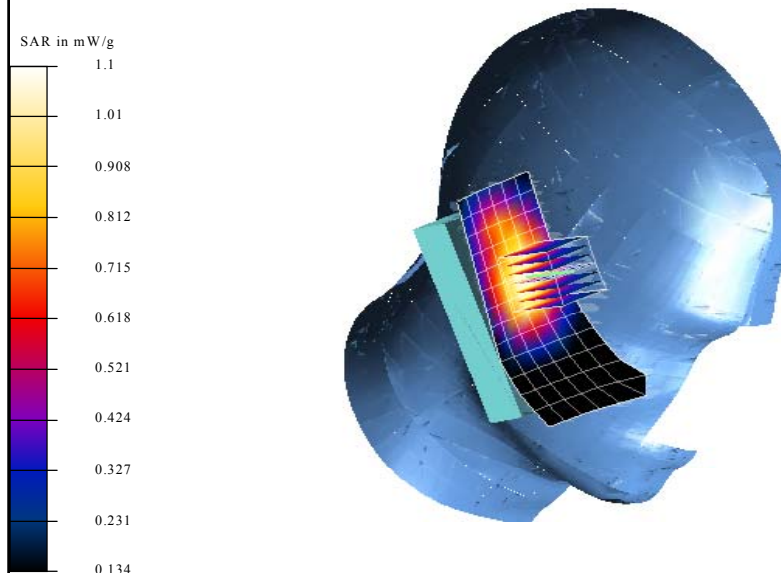
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 31.3 V/m

Peak SAR = 1.4 mW/g

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.766 mW/g

Power Drift = 0.06 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 4: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 991<br>824.04MHz | 0.855                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Left Head\_15deg\_CH991\_Data14.da4

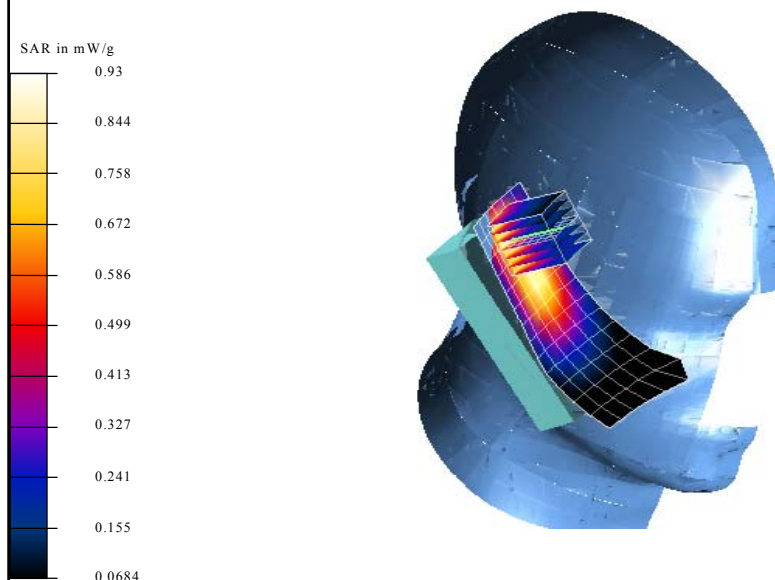
DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_P4; AMPS\_Doumen P4\_Left Head\_15deg\_CH991\_Data14

Communication System: CDMA 835; Frequency: 824.04 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 33 V/m  
 Peak SAR = 1.3 mW/g  
 SAR(1 g) = 0.855 mW/g; SAR(10 g) = 0.567 mW/g  
 Power Drift = 0.01 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 5: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 384<br>836.52MHz | 0.862                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Left Head\_15deg\_CH384\_Data12.da4

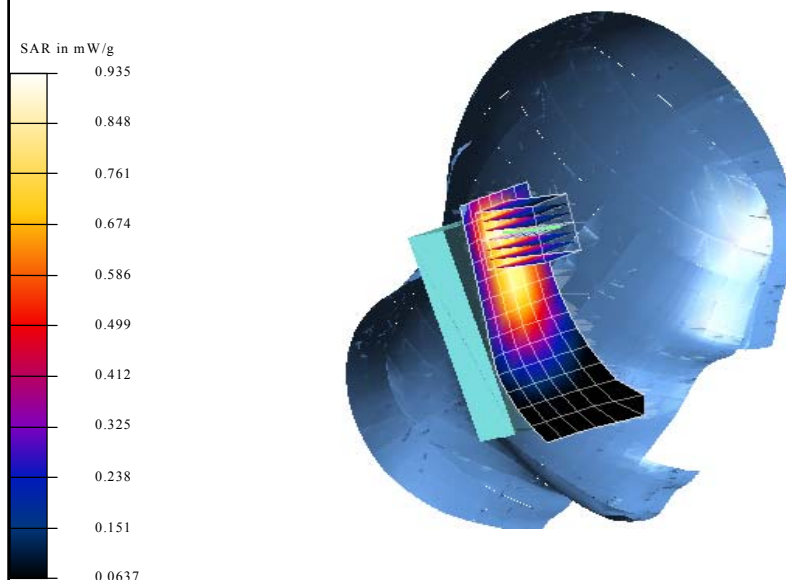
DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_P4; AMPS\_Doumen P4\_Left Head\_15deg\_CH384\_Data12

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 32.8 V/m  
 Peak SAR = 1.29 mW/g  
 SAR(1 g) = 0.862 mW/g; SAR(10 g) = 0.572 mW/g  
 Power Drift = 0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 6: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 799<br>848.97MHz | 0.660                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Left Head\_15deg\_CH799\_Data16.da4

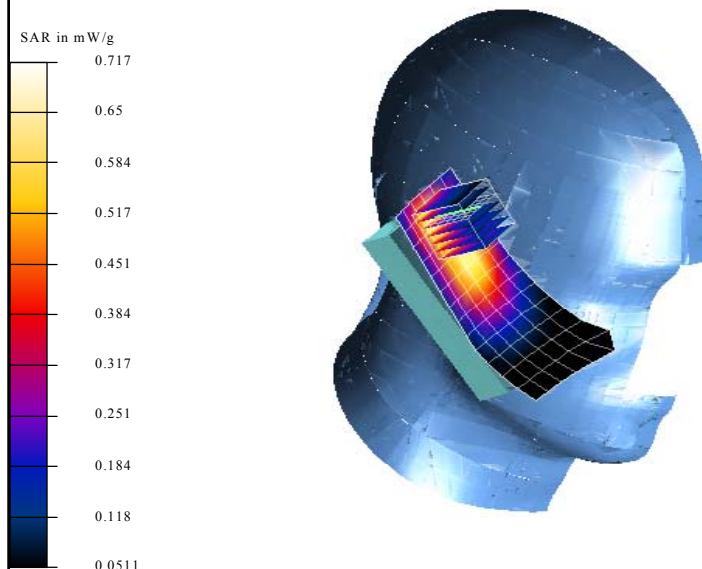
DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_P4; AMPS\_Doumen P4\_Left Head\_15deg\_CH799\_Data16

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 28.2 V/m  
 Peak SAR = 1.01 mW/g  
 SAR(1 g) = 0.66 mW/g; SAR(10 g) = 0.432 mW/g  
 Power Drift = 0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 7: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 991<br>824.04MHz | 1.220                      |

Date: 04/09/2003

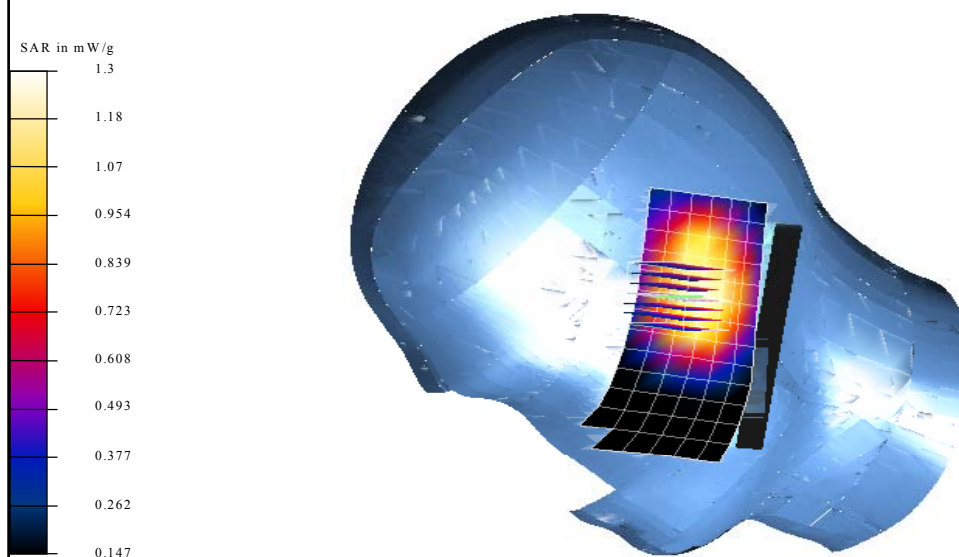
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_0deg\_CH991\_Data7.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: Flextronics\_P4 Phone; AMPS\_Doumen P4\_Right Head\_0deg\_CH991\_Data7**

Communication System: AMPS 835; Frequency: 824.04 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 37.5 V/m  
 Peak SAR = 1.56 mW/g  
 SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.902 mW/g  
 Power Drift = -0.03 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 8: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 384<br>836.52MHz | 1.250                      |

Date: 04/09/2003

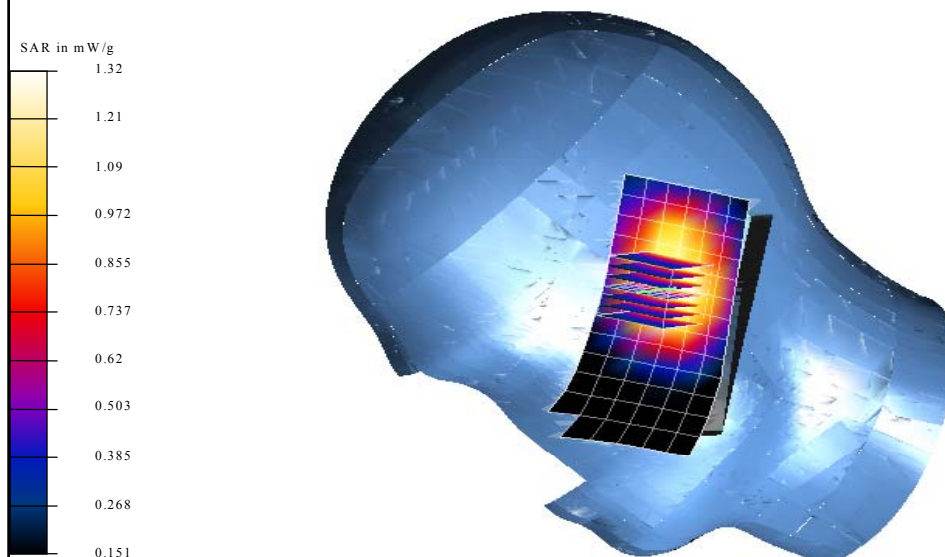
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_0deg\_CH384\_Data5.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: Flextronics\_P4 Phone; AMPS\_Doumen P4\_Right Head\_0deg\_CH384\_Data5**

Communication System: AMPS 835; Frequency: 836.52 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

**DASY4 Configuration:**  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 37.2 V/m  
 Peak SAR = 1.58 mW/g  
 SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.929 mW/g  
 Power Drift = 0.05 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 9: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 799<br>848.97MHz | 1.020                      |

Date: 04/09/2003

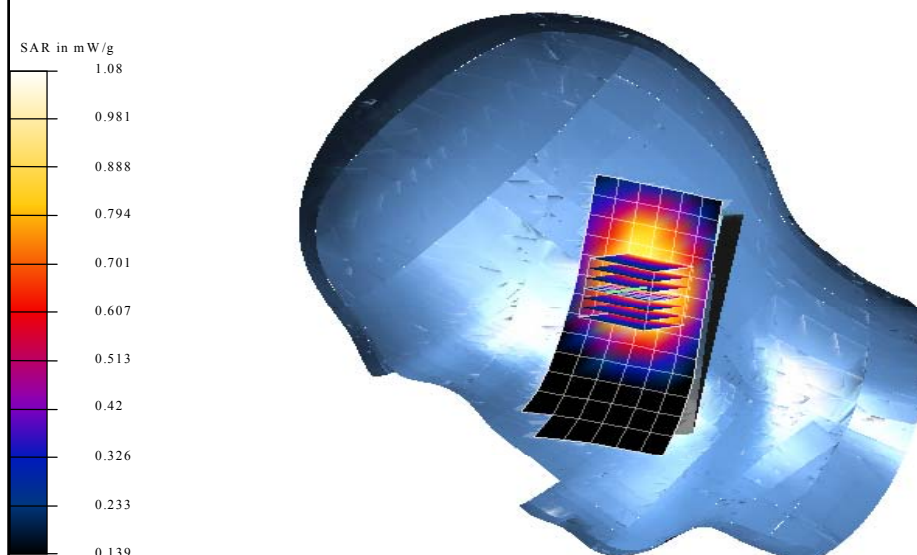
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_0deg\_CH799\_Data9.da4

DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_Doumen P4; AMPS\_Doumen P4\_Right Head\_0deg\_CH799\_Data9

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 32.6 V/m  
 Peak SAR = 1.34 mW/g  
 SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.76 mW/g  
 Power Drift = 0.2 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 10: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 991<br>824.04MHz | 0.967                      |

Date: 04/09/2003

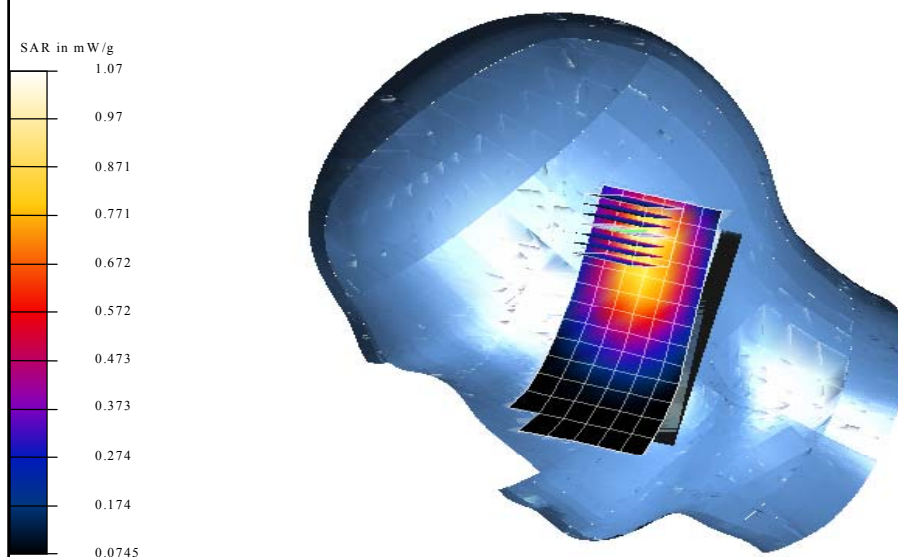
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_15deg\_CH991\_Data8.da4

DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_Doumen P4; AMPS\_Doumen P4\_Right Head\_15deg\_CH991\_Data8

Communication System: CDMA 835; Frequency: 824.04 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 34.9 V/m  
 Peak SAR = 1.55 mW/g  
 SAR(1 g) = 0.967 mW/g; SAR(10 g) = 0.616 mW/g  
 Power Drift = -0.06 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 11: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 384<br>836.52MHz | 1.020                      |

Date: 04/09/2003

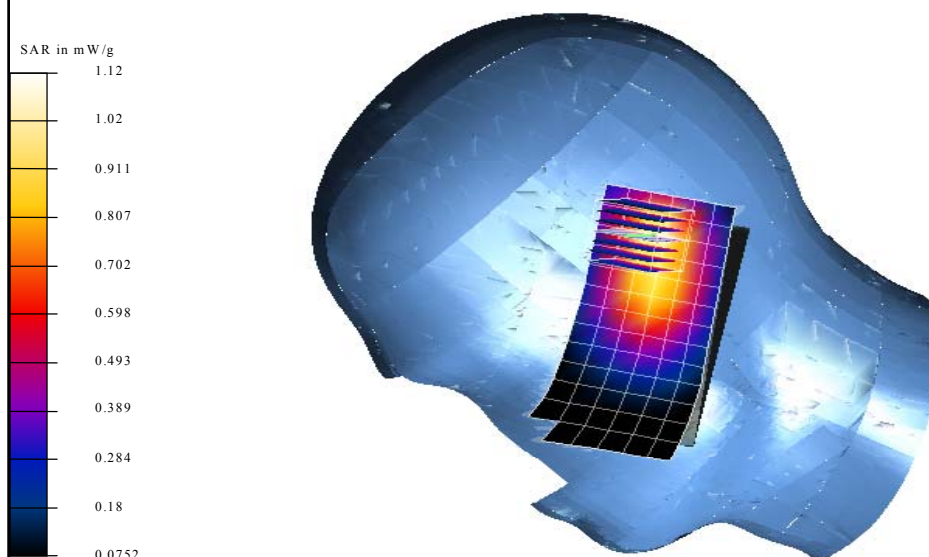
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_15deg\_CH384\_Data6.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: Flextronics\_P4 Phone; AMPS\_Doumen P4\_Right Head\_15deg\_CH384\_Data6**

Communication System: AMPS 835; Frequency: 836.52 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 35.2 V/m  
 Peak SAR = 1.62 mW/g  
 SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.65 mW/g  
 Power Drift = 0.2 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 12: SAR Test Distribution Plot (AMPS Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 799<br>848.97MHz | 0.746                      |

Date: 04/09/2003

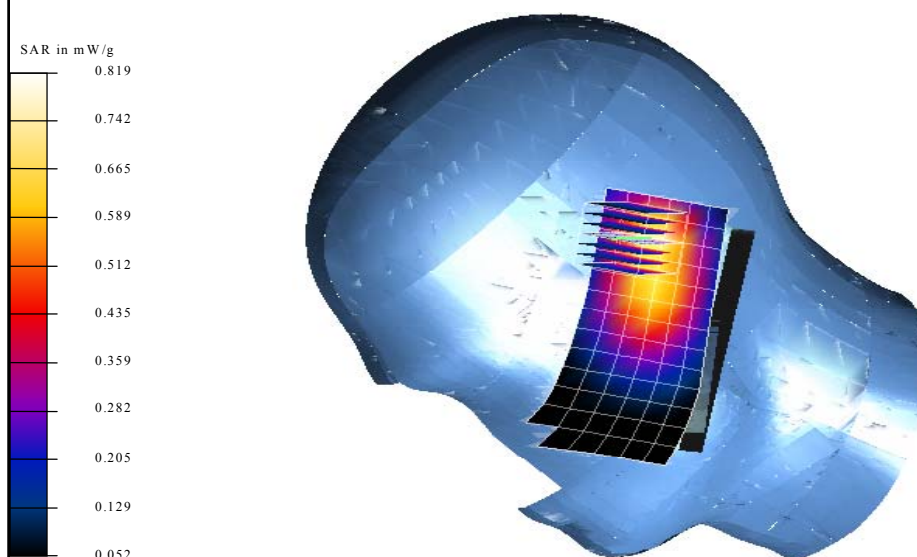
Test Laboratory: Telecom & EMC Testing Group  
 File Name: AMPS\_Doumen P4\_Right Head\_15deg\_CH799\_Data10.da4

DUT: Flextronics\_CDMA\_AMPS phone Type & Serial Number: Nil  
 Program: AMPS\_Doumen P4; AMPS\_Doumen P4\_Right Head\_15deg\_CH799\_Data10

Communication System: CDMA 835; Frequency: 848.97 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 29.9 V/m  
 Peak SAR = 1.19 mW/g  
 SAR(1 g) = 0.746 mW/g; SAR(10 g) = 0.477 mW/g  
 Power Drift = 0.2 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 13: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|----------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 1013<br>824.70MHz | 0.869                      |

Date: 04/09/2003

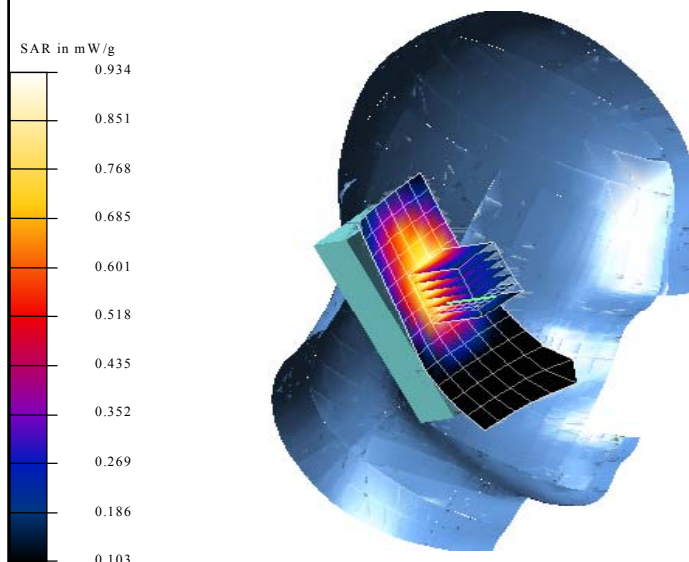
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_0deg\_CH1013\_Data20.da4

DUT: Flextronics\_P4 Phone Type & Serial Number: Nil  
 Program: CDMA\_P4; CDMA\_Doumen P4\_Left Head\_0deg\_CH1013\_Data20

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 28.5 V/m  
 Peak SAR = 1.22 mW/g  
 SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.632 mW/g  
 Power Drift = 0.04 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 14: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 384<br>836.52MHz | 0.883                      |

Date: 04/09/2003

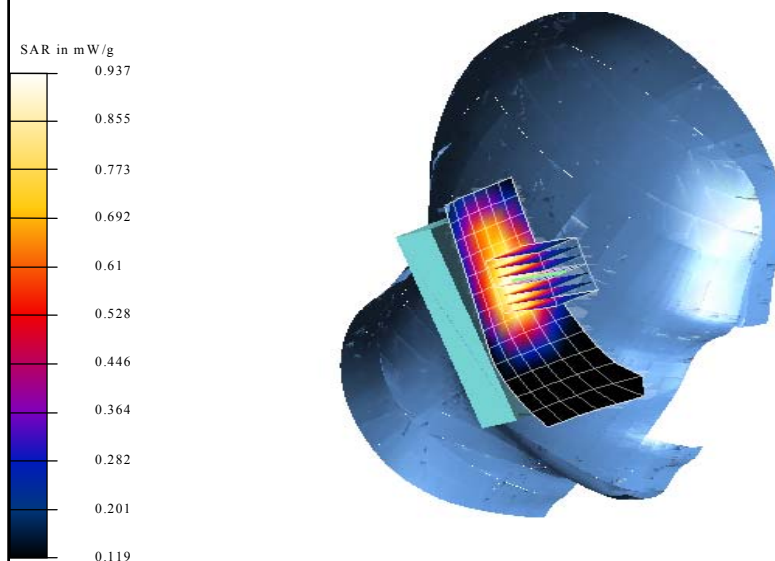
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_0deg\_CH384\_Data18.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: CDMA\_P4; CDMA\_Doumen P4\_Left Head\_0deg\_CH384\_Data18**

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup> )  
 Phantom section: LeftSection

**DASY4 Configuration:**  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 29.4 V/m  
 Peak SAR = 1.12 mW/g  
 SAR(1 g) = 0.883 mW/g; SAR(10 g) = 0.649 mW/g  
 Power Drift = 0.05 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 15: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Cheek / Touch         | Fixed            | Channel: 777<br>848.31MHz | 0.815                      |

Date: 04/09/2003

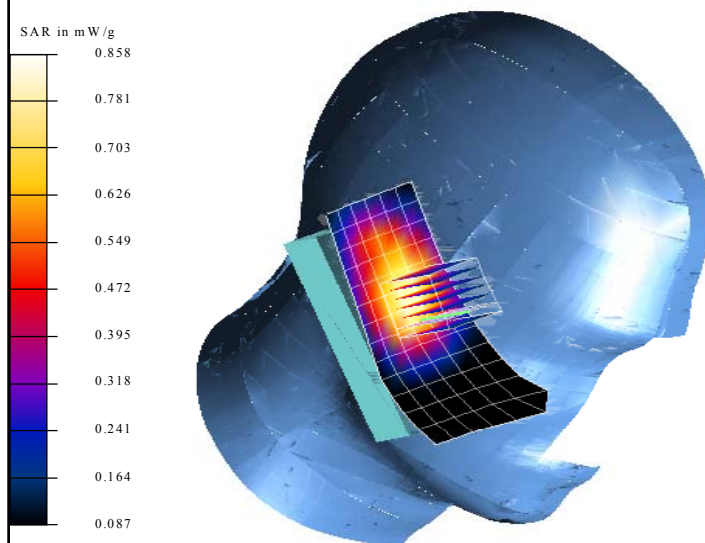
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_0deg\_CH777\_Data22.da4

**DUT:** Flextronics\_P4 Phone Type & Serial Number: Nil  
**Program:** CDMA\_P4; CDMA\_Doumen P4\_Left Head\_0deg\_CH777\_Data22

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue ( $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

**DASY4 Configuration:**  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 26.5 V/m  
 Peak SAR = 1.16 mW/g  
 SAR(1 g) = 0.815 mW/g; SAR(10 g) = 0.585 mW/g  
 Power Drift = 0.2 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 16: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|----------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 1013<br>824.70MHz | 0.569                      |

Date: 04/09/2003

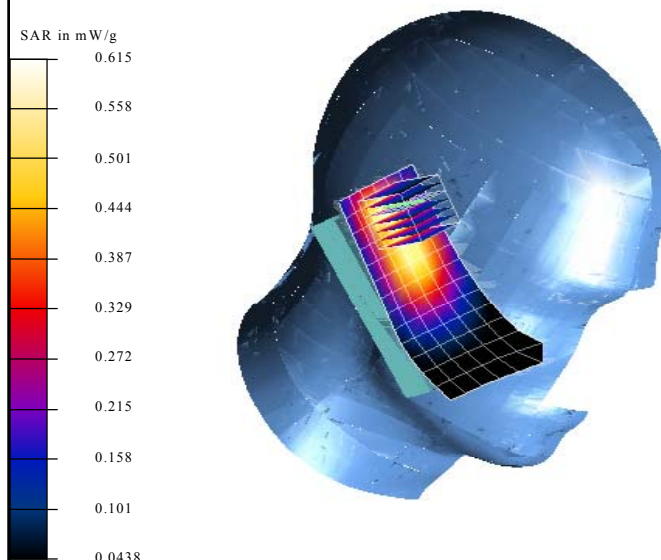
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_15deg\_CH1013\_Data21.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: CDMA\_P4; CDMA\_Doumen P4\_Left Head\_15deg\_CH1013\_Data21**

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue ( $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 26.4 V/m  
 Peak SAR = 0.872 mW/g  
 SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.374 mW/g  
 Power Drift = 0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 17: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 384<br>836.52MHz | 0.586                      |

Date: 04/09/2003

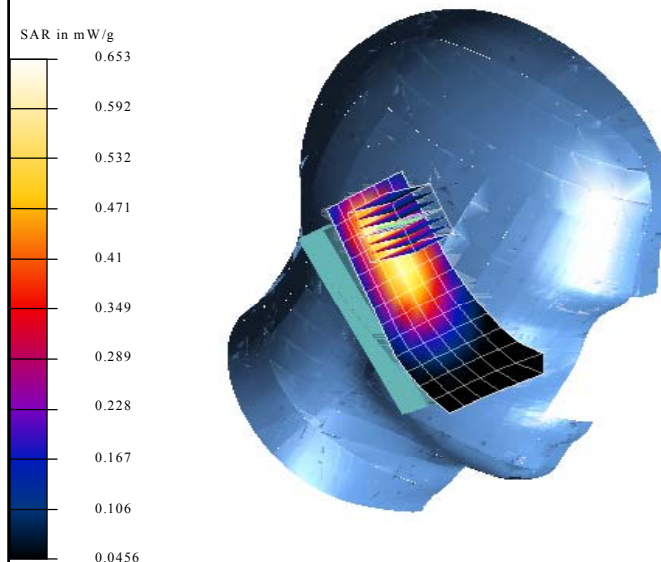
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_15deg\_CH384\_Data19.da4

**DUT: Flextronics\_P4 Phone** Type & Serial Number: Nil  
**Program: CDMA\_P4; CDMA\_Doumen P4\_Left Head\_15deg\_CH384\_Data19**

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

**DASY4 Configuration:**  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 27.3 V/m  
 Peak SAR = 0.855 mW/g  
 SAR(1 g) = 0.586 mW/g; SAR(10 g) = 0.394 mW/g  
 Power Drift = 0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 18: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Left Side of Head     | Ear / Tilt            | Fixed            | Channel: 777<br>848.31MHz | 0.500                      |

Date: 04/09/2003

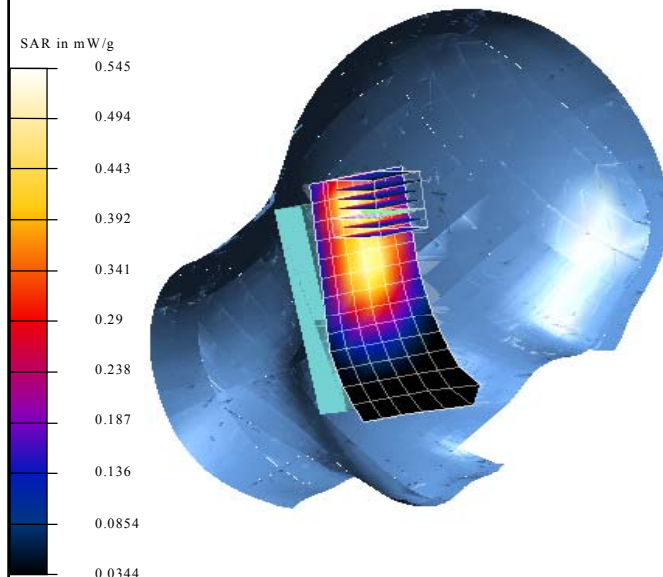
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Left Head\_15deg\_CH777\_Data23.da4

DUT: Flextronics\_P4 Phone Type & Serial Number: Nil  
 Program: CDMA\_P4; CDMA\_Doumen P4\_Left Head\_15deg\_CH777\_Data23

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: LeftSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 24.5 V/m  
 Peak SAR = 0.738 mW/g  
 SAR(1 g) = 0.5 mW/g; SAR(10 g) = 0.324 mW/g  
 Power Drift = 0.3 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 19: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|----------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 1013<br>824.70MHz | 0.735                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Right Head\_0deg\_CH1013\_Data26.da4

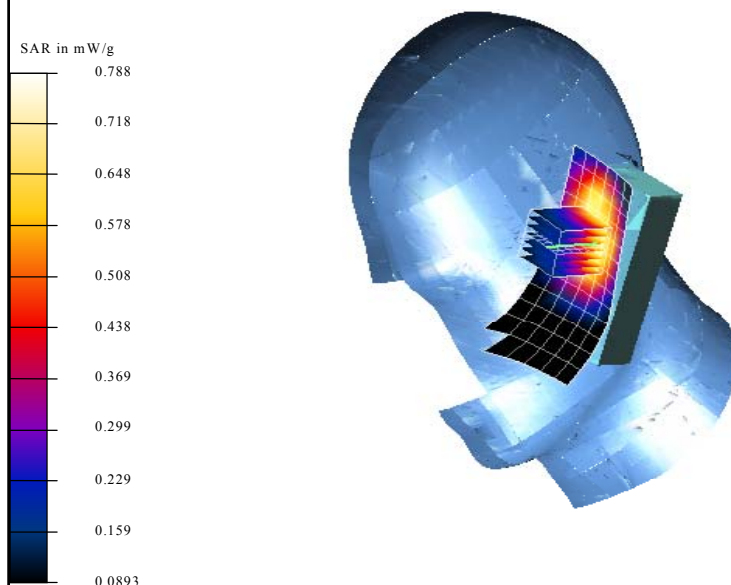
**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_0deg\_CH1013\_Data26**

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 29.7 V/m  
 Peak SAR = 0.946 mW/g  
 SAR(1 g) = 0.735 mW/g; SAR(10 g) = 0.55 mW/g  
 Power Drift = -0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 20: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 384<br>836.52MHz | 0.983                      |

Date: 04/09/2003

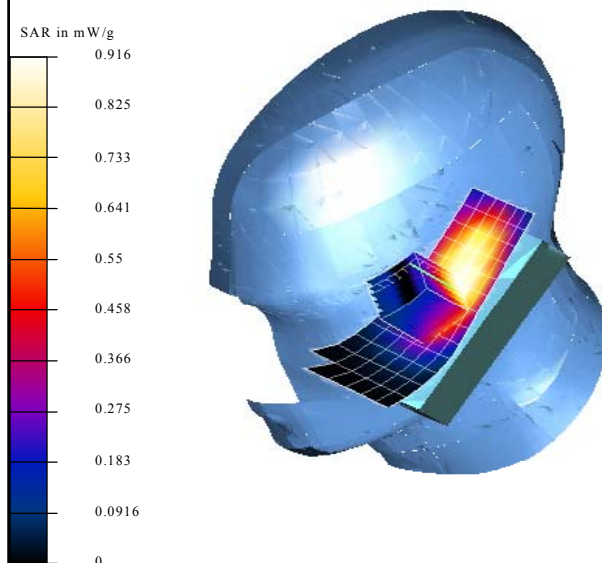
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Right Head\_0deg\_CH384\_Data24.da4

DUT: Flextronics\_P4 Phone Type & Serial Number: Nil  
 Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_0deg\_CH384\_Data24

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 31.5 V/m  
 Peak SAR = 3.63 mW/g  
 SAR(1 g) = 0.983 mW/g; SAR(10 g) = 0.401 mW/g  
 Power Drift = 0.002 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 21: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Cheek / Touch         | Fixed            | Channel: 777<br>848.31MHz | 0.720                      |

Date: 04/09/2003

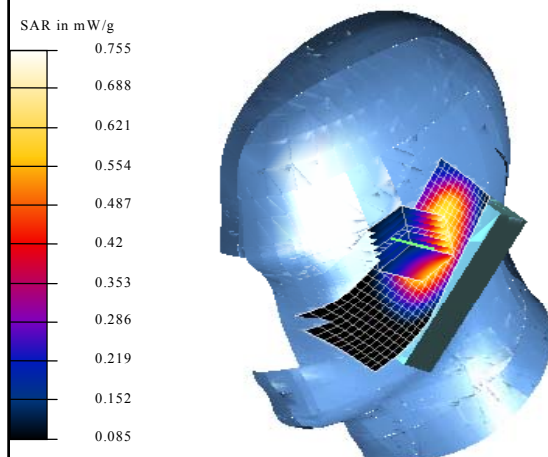
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Right Head\_0deg\_CH777\_Data33.da4

**DUT: Flextronics\_P4 Phone** Type & Serial Number: Nil  
**Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_0deg\_CH777\_Data33**

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (13x27x1):** Measurement grid: dx=5mm, dy=5mm  
**Zoom Scan 2 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 26.8 V/m  
 Peak SAR = 0.966 mW/g  
 SAR(1 g) = 0.72 mW/g; SAR(10 g) = 0.539 mW/g  
 Power Drift = 0.4 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 22: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|----------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 1013<br>824.70MHz | 0.633                      |

Date: 04/09/2003

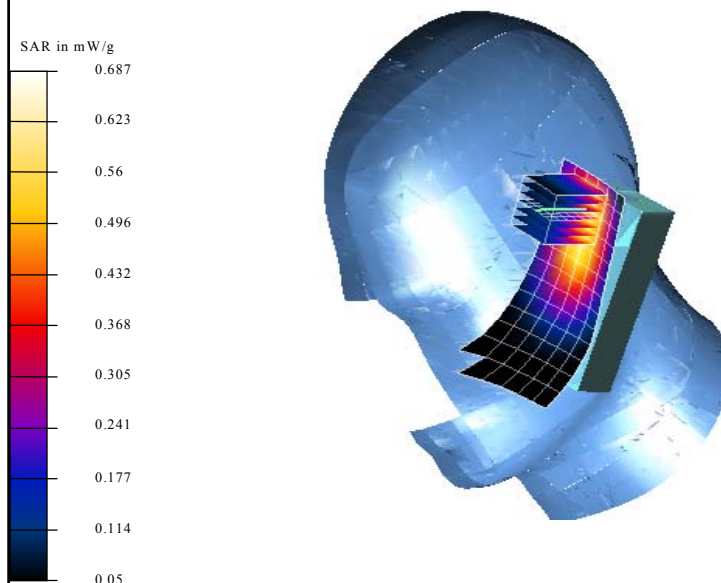
Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Right Head\_15deg\_CH1013\_Data27.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**  
**Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_15deg\_CH1013\_Data27**

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn475; Calibrated: 11/14/2002  
 - Phantom: - TP:  
 - Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 28.5 V/m  
 Peak SAR = 1 mW/g  
 SAR(1 g) = 0.633 mW/g; SAR(10 g) = 0.408 mW/g  
 Power Drift = -0.02 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 23: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 384<br>836.52MHz | 0.695                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: CDMA\_Doumen P4\_Right Head\_15deg\_CH384\_Data30\_retest data25.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_15deg\_CH384\_Data30**

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: RightSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

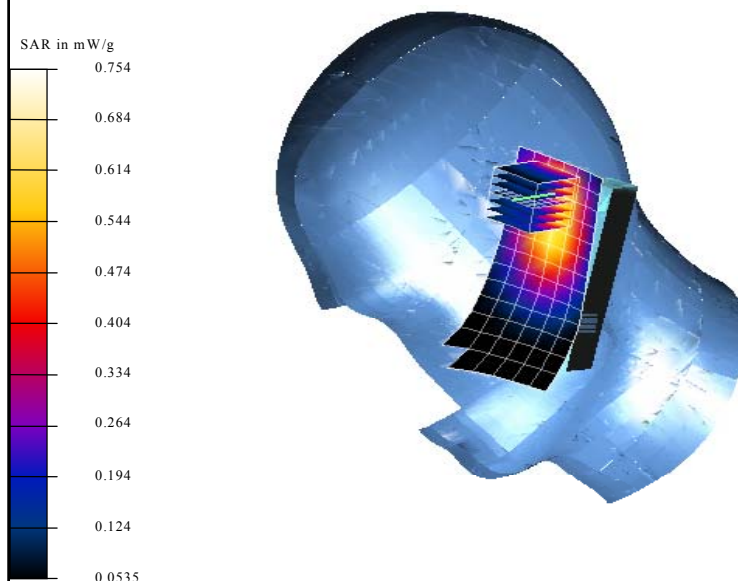
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 29.6 V/m

Peak SAR = 1.08 mW/g

SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.451 mW/g

Power Drift = 0.06 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

Figure 24: SAR Test Distribution Plot (CDMA Mode) – Device at head phantom

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Right Side of Head    | Ear / Tilt            | Fixed            | Channel: 777<br>848.31MHz | 0.533                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
 File Name: CDMA\_Doumen P4\_Right Head\_0deg\_CH777\_Data28.da4

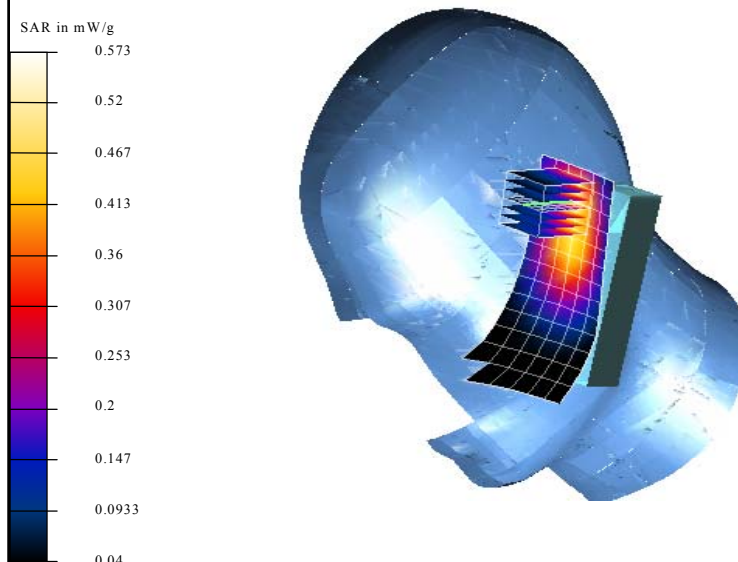
DUT: Flextronics\_P4 Phone Type & Serial Number: Nil  
 Program: CDMA P4; CDMA\_Doumen P4\_Right Head\_15deg\_CH777\_Data29

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1  
 Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: RightSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm  
 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm  
 Reference Value = 24.8 V/m  
 Peak SAR = 0.86 mW/g  
 SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.339 mW/g  
 Power Drift = 0.3 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 25: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 991<br>824.04MHz | 1.370                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH991\_Data44.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH991\_Data44**

Communication System: AMPS 835; Frequency: 824.04 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

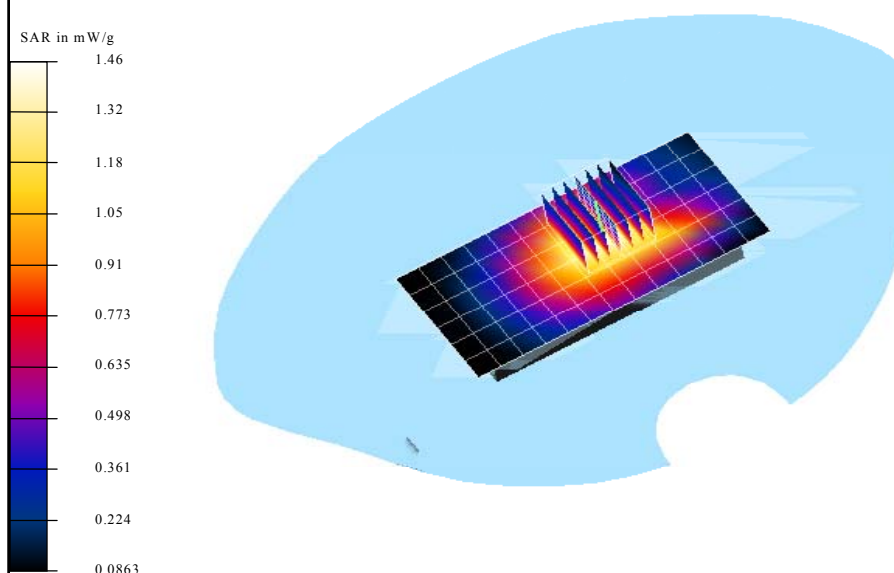
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 37.9 V/m

Peak SAR = 1.88 mW/g

SAR(1 g) = 1.37 mW/g; SAR(10 g) = 0.953 mW/g

Power Drift = 0.07 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 26: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 384<br>836.52MHz | 1.480                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH384\_Data43.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH384\_Data43**

Communication System: AMPS 835; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

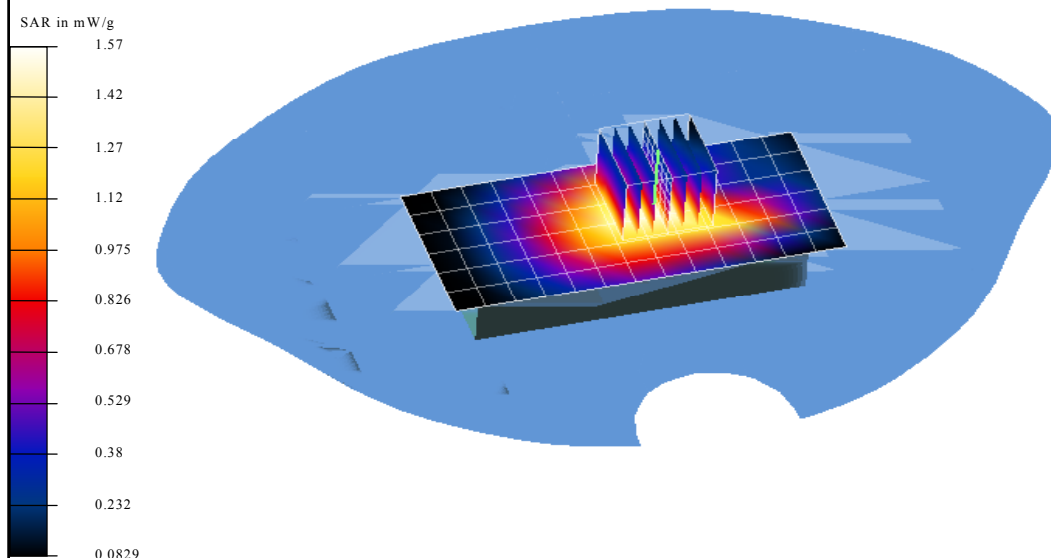
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 39.9 V/m

Peak SAR = 2.05 mW/g

SAR(1 g) = 1.48 mW/g; SAR(10 g) = 1.02 mW/g

Power Drift = 0.02 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 27: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 799<br>848.97MHz | 1.320                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH799\_Data45.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH799\_Data45**

Communication System: AMPS 835; Frequency: 848.97 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

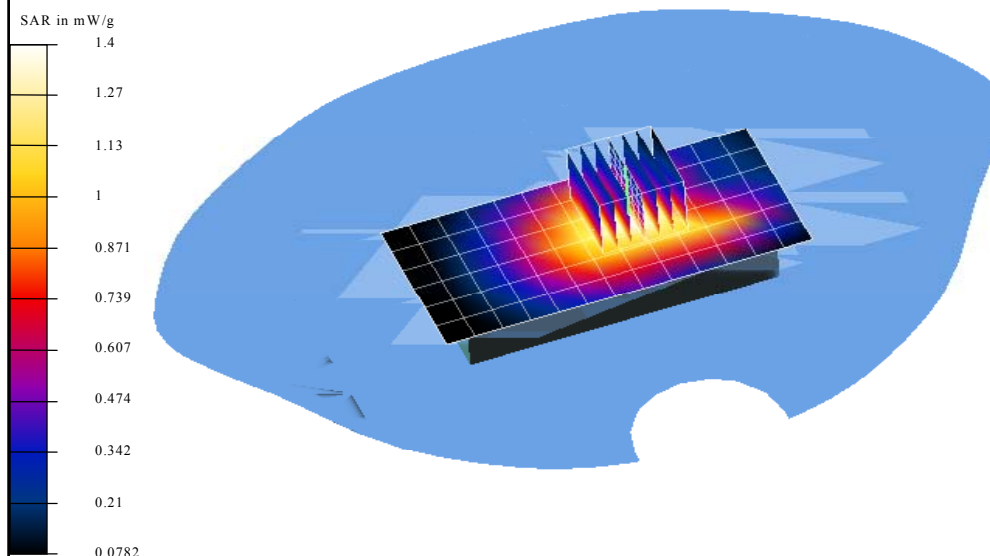
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 36.8 V/m

Peak SAR = 1.87 mW/g

SAR(1 g) = 1.32 mW/g; SAR(10 g) = 0.906 mW/g

Power Drift = -0.03 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 28: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 991<br>824.04MHz | 0.894                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH991\_Data38.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH991\_Data38**

Communication System: AMPS 835; Frequency: 824.04 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

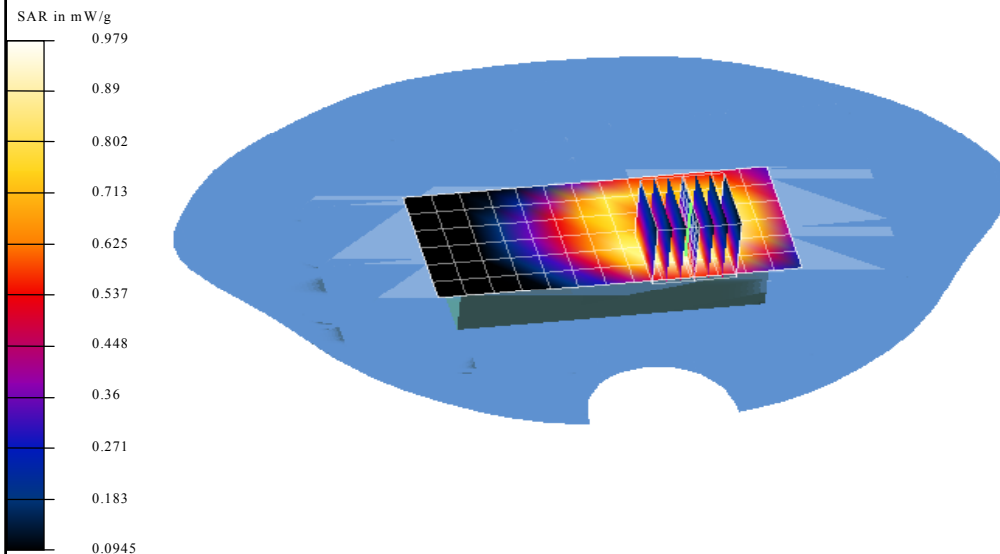
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 28.3 V/m

Peak SAR = 1.38 mW/g

SAR(1 g) = 0.894 mW/g; SAR(10 g) = 0.608 mW/g

Power Drift = -0.04 dB



Ambient Temperature:  $22 \pm 1^{\circ} \text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ} \text{C}$   
 Humidity: 50% to 56%

**Figure 29: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 384<br>836.52MHz | 0.918                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH384\_Data35\_Retest.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH384\_Data35**

Communication System: AMPS 835; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986 \text{ mho/m}$ ,  $\epsilon = 56.764$ ,  $\rho = 1000 \text{ kg/m}^3$ )

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

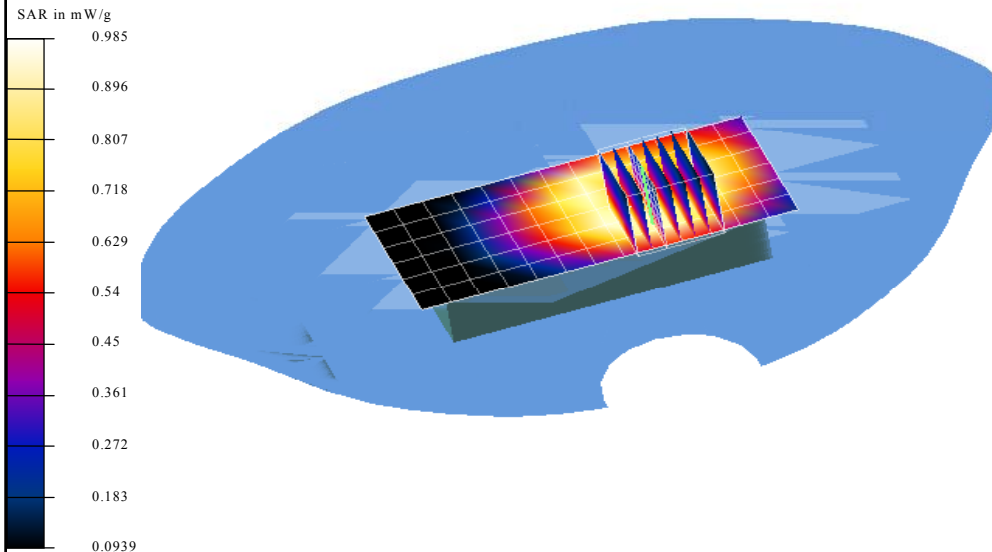
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 30.4 V/m

Peak SAR = 1.35 mW/g

SAR(1 g) = 0.918 mW/g; SAR(10 g) = 0.648 mW/g

Power Drift = -0.03 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 30: SAR Test Distribution Plot (AMPS Mode)**  
**Body Worn Position SAR Test Results (AMPS Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 799<br>848.97MHz | 0.727                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH799\_Data39.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: AMPS\_P4; AMPS\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH799\_Data39**

Communication System: AMPS 835; Frequency: 848.97 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

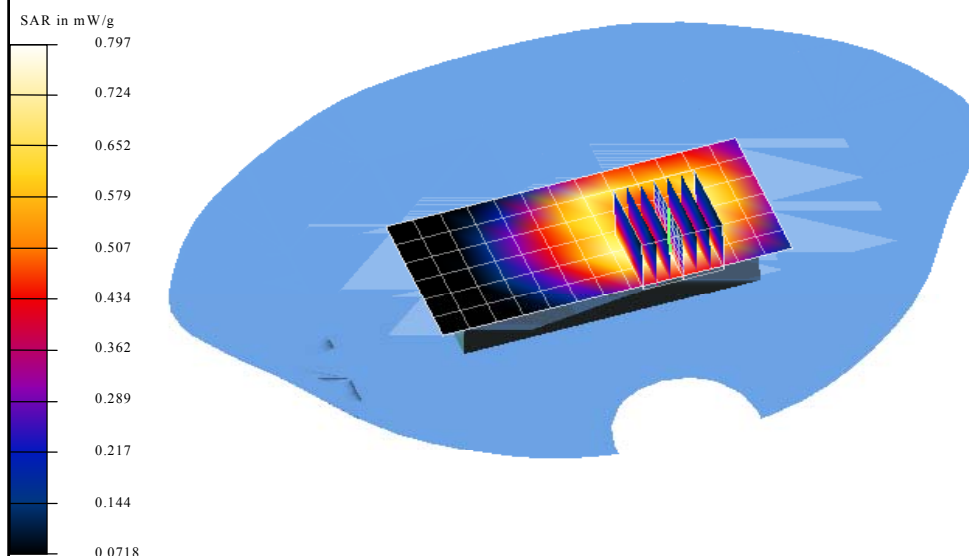
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 26.1 V/m

Peak SAR = 1.17 mW/g

SAR(1 g) = 0.727 mW/g; SAR(10 g) = 0.497 mW/g

Power Drift = -0.04 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 31: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|----------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 1013<br>824.70MHz | 0.877                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH1013\_Data47.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: CDMA\_P4; CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH1013\_Data47**

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

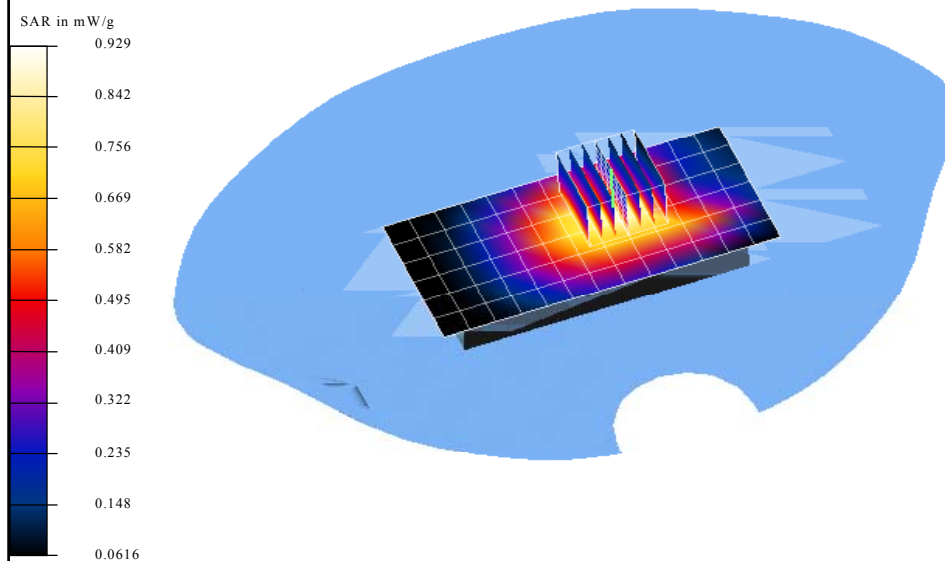
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 29.5 V/m

Peak SAR = 1.24 mW/g

SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.607 mW/g

Power Drift = 0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 32: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 384<br>836.52MHz | 0.968                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH384\_Data46.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: CDMA\_P4; CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH384\_Data46**

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

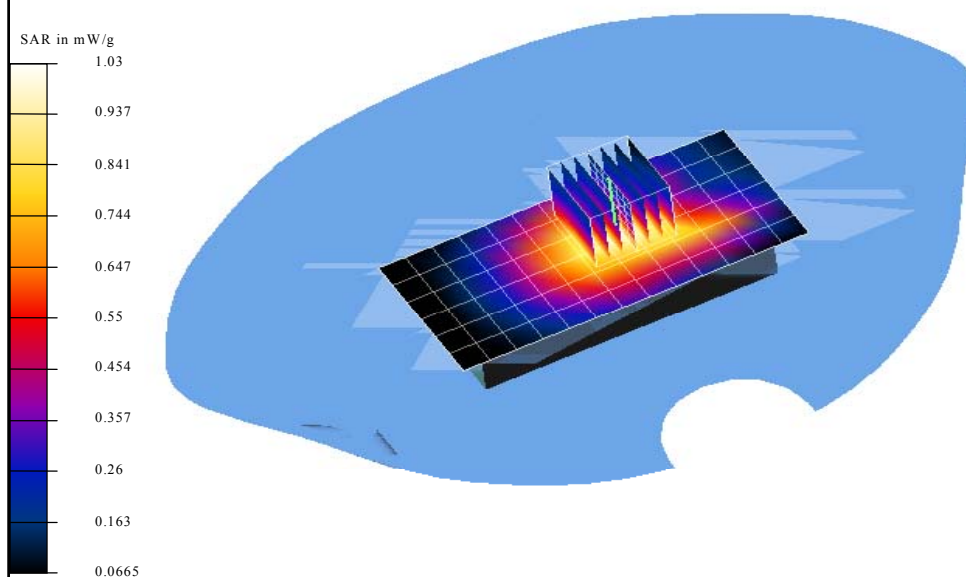
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 31.1 V/m

Peak SAR = 1.37 mW/g

SAR(1 g) = 0.968 mW/g; SAR(10 g) = 0.673 mW/g

Power Drift = 0.2 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 33: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device with belt clip(9mm spacing).**

| Phantom Configuration | Device Test Positions | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|-----------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Rear To Phantom   | Fixed            | Channel: 777<br>848.31MHz | 0.968                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH777\_Data48.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: CDMA\_P4; CDMA\_Doumen P4\_EUT with belt clip\_Flat Phantom\_CH777\_Data48**

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002

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

- Electronics: DAE3 Sn475; Calibrated: 11/14/2002

- Phantom: - TP:

- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

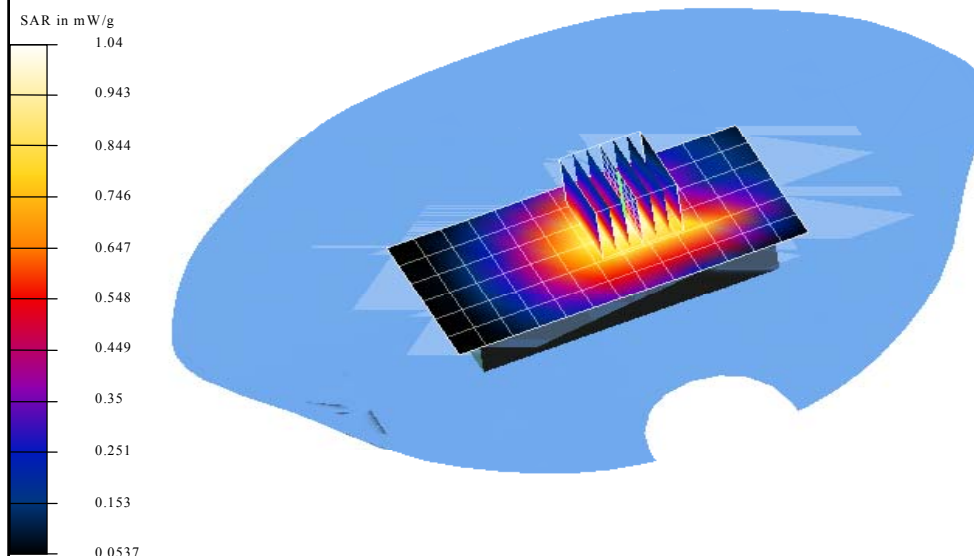
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 31.8 V/m

Peak SAR = 1.41 mW/g

SAR(1 g) = 0.968 mW/g; SAR(10 g) = 0.669 mW/g

Power Drift = 0.1 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 34: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                    | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|----------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 1013<br>824.70MHz | 0.628                      |

Date: 04/09/2003

Test Laboratory: Telecom &amp; EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH1013\_Data50.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**
**Program: CDMA\_P4 Phone; CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH1013\_Data50**

Communication System: CDMA 835; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986 \text{ mho/m}$ ,  $\epsilon = 56.764$ ,  $\rho = 1000 \text{ kg/m}^3$ )

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

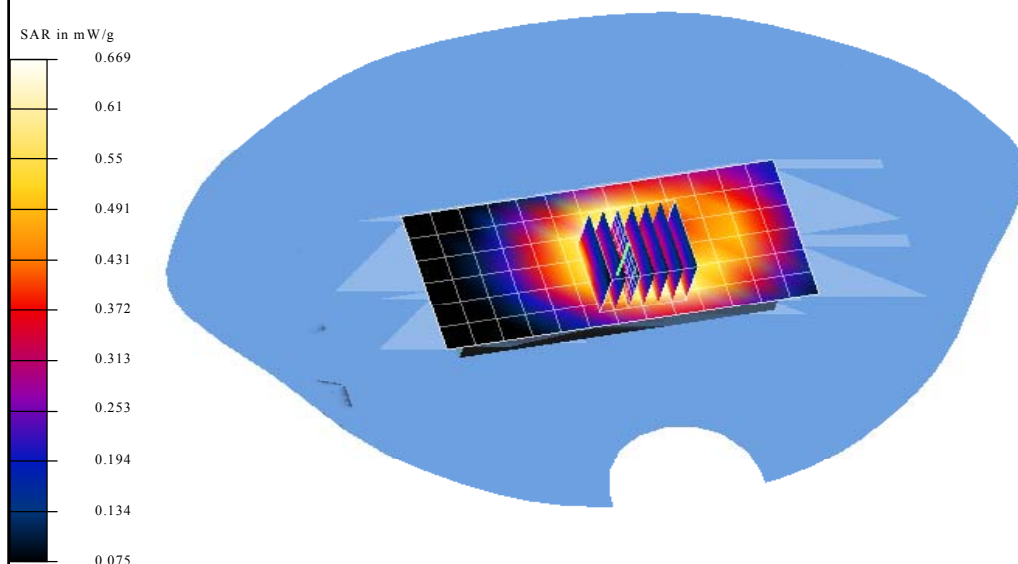
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 26.8 V/m

Peak SAR = 0.937 mW/g

SAR(1 g) = 0.628 mW/g; SAR(10 g) = 0.454 mW/g

Power Drift = -0.1 dB



Ambient Temperature:  $22 \pm 1^{\circ}\text{C}$   
 Tissue Temperature:  $23 \pm 1^{\circ}\text{C}$   
 Humidity: 50% to 56%

**Figure 35: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 384<br>836.52MHz | 0.622                      |

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH384\_Data49.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**

**Program: CDMA\_P4 Phone; CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH384\_Data49**

Communication System: CDMA 835; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986 \text{ mho/m}$ ,  $\epsilon = 56.764$ ,  $\rho = 1000 \text{ kg/m}^3$ )

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

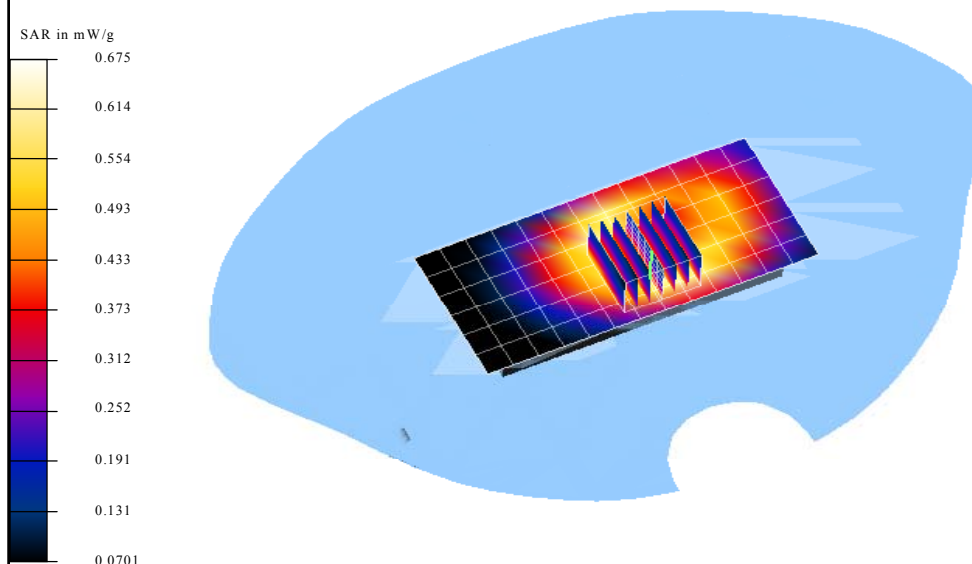
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 25.9 V/m

Peak SAR = 0.976 mW/g

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.44 mW/g

Power Drift = 0.08 dB



**Ambient Temperature:**  $22 \pm 1^{\circ}\text{C}$   
**Tissue Temperature:**  $23 \pm 1^{\circ}\text{C}$   
**Humidity:** 50% to 56%

**Figure 36: SAR Test Distribution Plot (CDMA Mode)**  
**Body Worn Position SAR Test Results (CDMA Mode), device Front Touching.**

| Phantom Configuration | Device Test Positions     | Antenna Position | Channel                   | SAR (W/kg), over 1g Tissue |
|-----------------------|---------------------------|------------------|---------------------------|----------------------------|
| Flat Phantom          | EUT Front Touched Phantom | Fixed            | Channel: 777<br>848.31MHz | 0.532                      |

Date: 04/09/2003

Test Laboratory: Telecom &amp; EMC Testing Group

File Name: CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH777\_Data51.da4

**DUT: Flextronics\_P4 Phone Type & Serial Number: Nil**
**Program: CDMA\_P4 Phone; CDMA\_Doumen P4\_EUT Front Touch\_Flat Phantom\_CH777\_Data51**

Communication System: CDMA 835; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium: 835Body Tissue (  $\sigma = 0.986 \text{ mho/m}$ ,  $\epsilon = 56.764$ ,  $\rho = 1000 \text{ kg/m}^3$ )

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x14x1):** Measurement grid: dx=10mm, dy=10mm

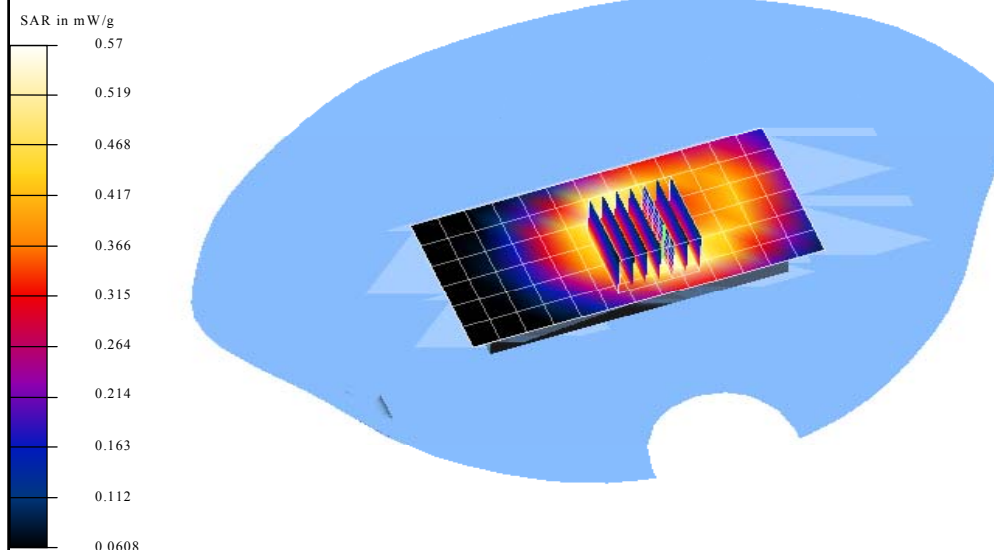
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 23.6 V/m

Peak SAR = 0.823 mW/g

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.375 mW/g

Power Drift = 0.1 dB



**ANNEX A**

**TEST INSTRUMENTATION  
&  
GENERAL PROCEDURE**

**A.1     General Test Procedure**

In the SAR measurement, the positioning of the probes must be performed with sufficient accuracy to obtain repeatable measurements in the presence of rapid spatial attenuation phenomena. The accurate positioning of the E-field probe is accomplished by using a high precision robot. The robot can be taught to position the probe sensor following a specific pattern of points. In a first sweep, the sensor is positioned as close as possible to the interface, with the sensor enclosure touching the inside of the fiberglass shell. The SAR is measured on a grid of points, which covers the curved surface of the phantom in an area larger than the size of the DUT. After the initial scan, a high- resolution grid is used to locate the absolute maximum measured energy point. At this location, attenuation versus depth scan will be accomplished by the measurement system to calculate the SAR value.

**A.2     SAR Test Instrumentation****SAR Measurement System****• Positioning Equipment**

Type: High Precision Industrial Robot, RX90.  
Precision: High precision (repeatability 0.02mm)  
Reliability: High reliability (industrial design)

**• Compaq Computer**

Type: 2.4GHz Pentium  
Memory: 512MB SDRAM  
Operating System: Windows 2000  
Dell Monitor: 17" LCD

**• Dosimetric E-Field Probe**

Type: ET3DV6  
Isotropy Error ( $\varnothing$ ):  $\pm 0.25\text{dB}$   
Dynamic Range: 0.01 – 100 W/kg

**• Phantom & Tissue**

Phantom: "SAM v4.0 Phantom", manufactured by SPEAG  
Tissue: Simulated Tissue with electrical characteristics similar to those of the human at normal body temperature ( $23 \pm 1^\circ\text{C}$ )  
Shell: Fiberglass shell phantom with 2mm thickness  
Dimension: A100cm x 50cm x 85cm (L x W x H)

### A.3 Test Setup

#### Phantom



The “SAM v4.0 Phantom”, manufactured by SPEAG is a fiberglass shell phantom with 2 mm shell thickness. It has three measurement areas:

- Left hand
- Right hand
- Flat phantom

The phantom table comes in the sizes: A 100x50x85 cm (LxWxH) table for use with free standing robots.

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. Only one device holder is necessary if two phantoms are used (e.g., for different solutions).

#### Simulated tissue

**Simulated Tissue:** Suggested in a paper by George Hartsgrove and colleagues in University of Ottawa Ref.: Bioelectromagnetics 8:29-36 (1987)

This simulated tissue is mainly composed of water, sugar and salt. At higher frequencies, in order to achieve the proper conductivity, the solution does not contain salt. Also, at these frequencies, D.I. water and alcohol is preferred.

Tissue Density : Approximately  $1.25 \text{ g/cm}^3$

- **Preparation**

The ingredients (i.e. water, sugar, salt, etc) required to prepare the simulated tissue are carefully weighed and poured into a clean container for mixing. A stirring paddle, that is attached to a hand drill is used to stir the solution for a duration of about 30 minutes or more. When the ingredients are completely dissolved, the solution is left in the container for the air bubbles to disappear.

- **Measurement of Electrical Characteristics of Simulated Tissue**

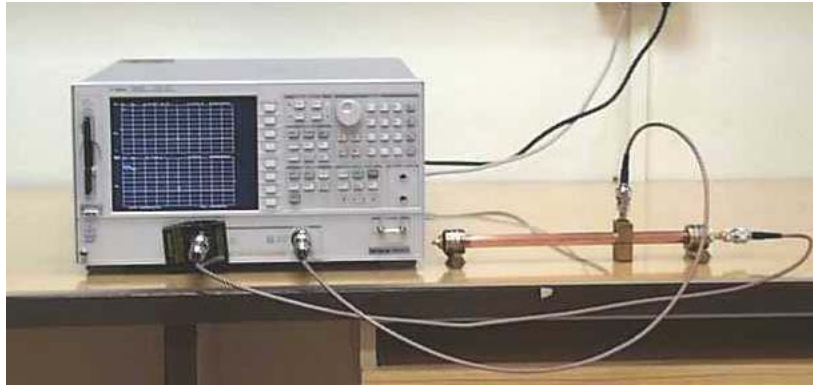
- 1) S-PARAMETER Network Analyzer, Agilent 8753ES (30kHz – 6GHz)
- 2) Slotted Coaxial Waveguide

- **Description of the slotted coaxial waveguide**

The cylindrical waveguide is constructed with copper tube of about 30 to 40 cm of length, generally 12.5 mm diameter, with connectors at both ends. Inside of this tube, a conductive rod about 6.3 mm is coaxial supported by the two ends connectors (radiator). A slot 3 mm wide start at the beginning of the tube to almost the two third of the tube length. The outer edge of the slotted tube is marked in centimeters. For frequency below 1GHz, 1 centimeter per step. For higher frequency above 1 GHz, 0.5 centimeter per step. A saddle piece containing the sampling probe is inserted in the slot so the tip of the probe is close but not in contact with the inner conductor (radiator).

To measure the electrical characteristics of the liquid simulated tissue, which fill the coaxial waveguide, select CW frequency and measure amplitude and phase with the Network Analyzer for every point in the slot (typically 11). An effort is made to keep the results dielectric constant and conductivity within 5 % of published data.

## ELECTRICAL CHARACTERISTIC MEASUREMENT SETUP



### Determining Relative Dielectric Constant and Effective Conductivity

$$c = 3 \cdot 10^8 (m/s) \qquad A = \frac{\Delta A}{20} \cdot \ln(10) \qquad \theta = \frac{\Delta \theta \cdot 2 \cdot \pi}{360}$$

$$\lambda = \frac{c}{f} \cdot \frac{100}{2.54} (inches) \qquad \epsilon_{re} = (A^2 + \theta^2) \cdot \frac{\lambda^2}{(4 \cdot \pi)^2}$$

$$\theta = \left( |A| \cdot \frac{\lambda}{4 \cdot \pi \cdot \sqrt{\epsilon_{re}}} \right) \qquad S = \tan(2 \cdot \theta^2)$$

Where:

$\Delta A$  is the amplitude attenuation in dB

$\Delta \theta$  is the phase change in degrees for 5 cm of wave propagation in the slotted line

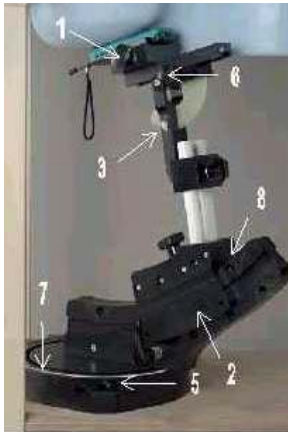
$f$  is the frequency of interest in Hz

$\epsilon_{re}$  is the real part of the complex dielectric constant

$$\epsilon_r = \frac{\epsilon_{re}}{\sqrt{1 + S^2}}$$

$$\sigma = S \cdot 2 \cdot \pi \cdot f \cdot 8.854 \cdot 10^{-12} \cdot \epsilon_r (S/m)$$

The results:  $\epsilon_r$  is the relative dielectric constant and  $\sigma$  is the conductivity in S/m.

**Positioning of EUT**

The **DASY4 holder** is designed to cope with different positions given in the standard. It has two scales for the 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 intended use position in the CENELEC document is has a rotation angle of 65° and an inclination angle of 80°. The rotation centers for both scales is the ear opening. Thus the device needs no repositioning when changing the angles. The device rotation around the device axis is not changed in the holder. In the CENELEC standard it is always 0°. If the standard changes, a support will be provided with the new angle.

1. **“Cheek/Touch Position”** – the device is brought toward the mouth of the head phantom by pivoting against the “ear reference point” or along the “N-F” line for the SCC-34/SC-2 head phantom. This test position is established:
  - i) When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.
  - ii) (Or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.

For existing head phantoms – when the handset loses contact with the phantom at the pivoting point, rotation should continue until the device touches the cheek of the phantom or breaks its last contact from the ear spacer.

2. **“Ear/Tilt Position”** – With the handset aligned in the “Cheek/Touch Position”:
  - i) If the earpiece of the handset is not in full contact with the phantom’s ear spacer (in the “Cheek/Touch position”) and the peak SAR location for the “Cheek/Touch” position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the “initial ear position” by rotating it away from the mouth until the earpiece is in full contact with the ear spacer.
  - ii) (Otherwise) The handset should be moved (translated) away from the cheek perpendicular to the line passes through both “ear reference points” (note: one of these ear reference points may not physically exist on a split head model) for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the “test device reference point” by 15°. After the tilt, it is then moved (translated) back toward the head perpendicular to the line passes through both “ear reference points” until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously. This test position may require a device holder or positioner to achieve the translation and tilting with acceptable positioning repeatability.

3. **Body Worn Configuration**

All body worn accessories are tested for the FCC RF exposure compliance. The phone is positioned into carrying case (if available) and placed below of the flat phantom. Headset or ear piece (if available) is connected during measurements.

# TEST INSTRUMENTATION & GENERAL PROCEDURES

# ANNEX A

| <u>Instrument</u>                                       | <u>Model</u> | <u>S/No</u> | <u>Cal Due Date</u> |   |
|---------------------------------------------------------|--------------|-------------|---------------------|---|
| Boonton RF Power Meter (Dual Channel)                   | 4532         | 72901       | 31 Aug 2003         | × |
| Boonton Peak Power Sensor                               | 56218-S/1    | 1417        | 31 Aug 2003         |   |
| Boonton Power Sensor                                    | 51075        | 32079       | 31 Aug 2003         | × |
| Boonton Power Sensor                                    | 51075        | 51075       | 31 Aug 2003         | × |
| Agilent Spectrum Analyzer<br>(30Hz – 40GHz)             | 8564E        | 3846A09953  | 4 Aug 2003          | × |
| S-Parameter Network Analyzer<br>(30kHz – 3GHz)          | HP8753ES     | US37390533  | 17 Sep 2003         | × |
| Anritsu RF Signal Generator<br>(10MHz – 20GHz)          | 68347C       | 04306       | 22 Apr 2003         | × |
| Amplifier Research Power Amplifier<br>(1MHz – 1000MHz)  | 25W1000B     | 27225       | -                   |   |
| Amplifier Research Power Amplifier<br>(800MHz – 4.2GHz) | 25S1G4A      | 29346       | -                   | × |
| Agilent Dual Directional Coupler                        | HP778D       | 18289       | -                   | × |
| Radio Test Set                                          | 2967         | 296501/331  | -                   |   |
| R&S Universal Radio Communication Tester                | CMU-200      | 837587/068  | 18 Sep 2003         |   |
| 450MHz System Validation Dipole                         | D450V2       | 1004        | 4 Apr 2003          |   |
| 835MHz System Validation Dipole                         | D835V2       | 447         | 12 Nov 2003         | × |
| 900MHz System Validation Dipole                         | D900V2       | 134         | 11 Nov 2002         |   |
| 1800MHz System Validation Dipole                        | D1800V2      | 2d019       | 11 Nov 2002         |   |
| 1900MHz System Validation Dipole                        | D1900V2      | 546         | 25 Nov 2002         |   |
| Data Acquisition Electronics (DAE)                      | DAE3V1       | 475         | 11 Nov 2003         | × |
| Dosimetric E-field Probe                                | ET3DV6       | 1645        | 25 Nov 2002         |   |
| Dosimetric E-field Probe                                | ET3DV6       | 1646        | 25 Nov 2002         |   |
| Dosimetric E-field Probe                                | ET3DV6       | 1647        | 20 Nov 2003         | × |
| Isotropic H-field Probe                                 | H3DV6        | 6115        | 6 Mar 2003          |   |
| Agilent Wireless Communication Tester                   | 8960         | US40300307  | 20 Jan 2004         | × |

# **ANNEX B**

## **TEST SETUP PHOTOGRAPHS**

## SAR Test Setup Photographs



SAR Test Setup (Device at head phantom) – Far View

SAR Test Setup Photographs

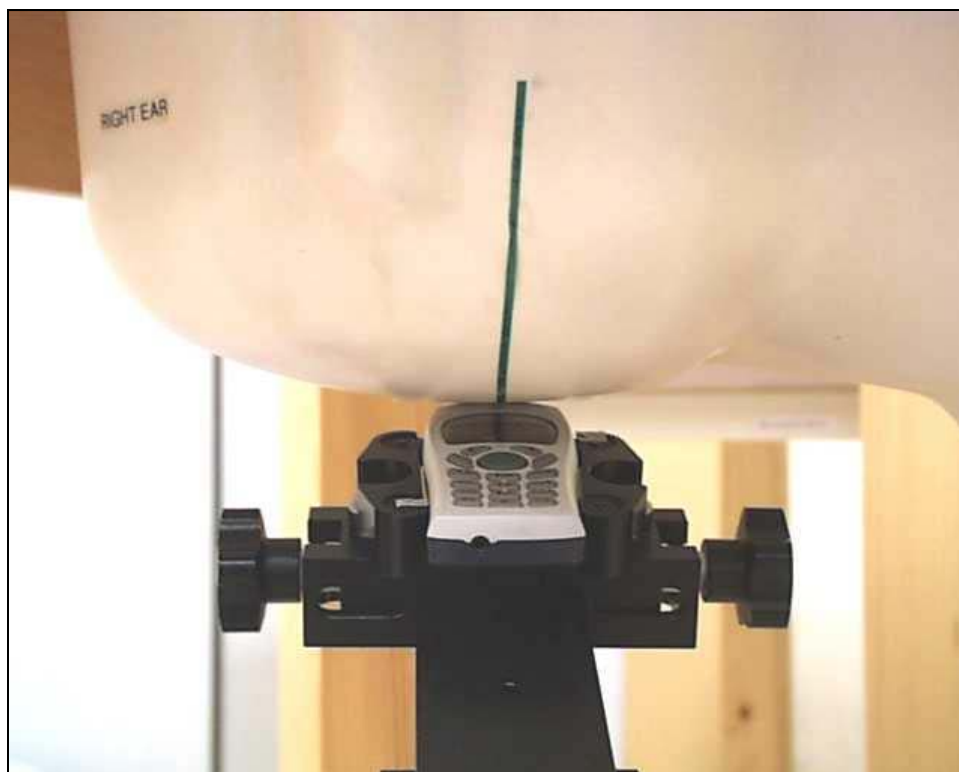


SAR Test Setup (Device at head phantom) – Closer Front View (**Cheek/Touch**)



SAR Test Setup (Device at head phantom) – Closer Front View (**Cheek/Touch**)

## SAR Test Setup Photographs

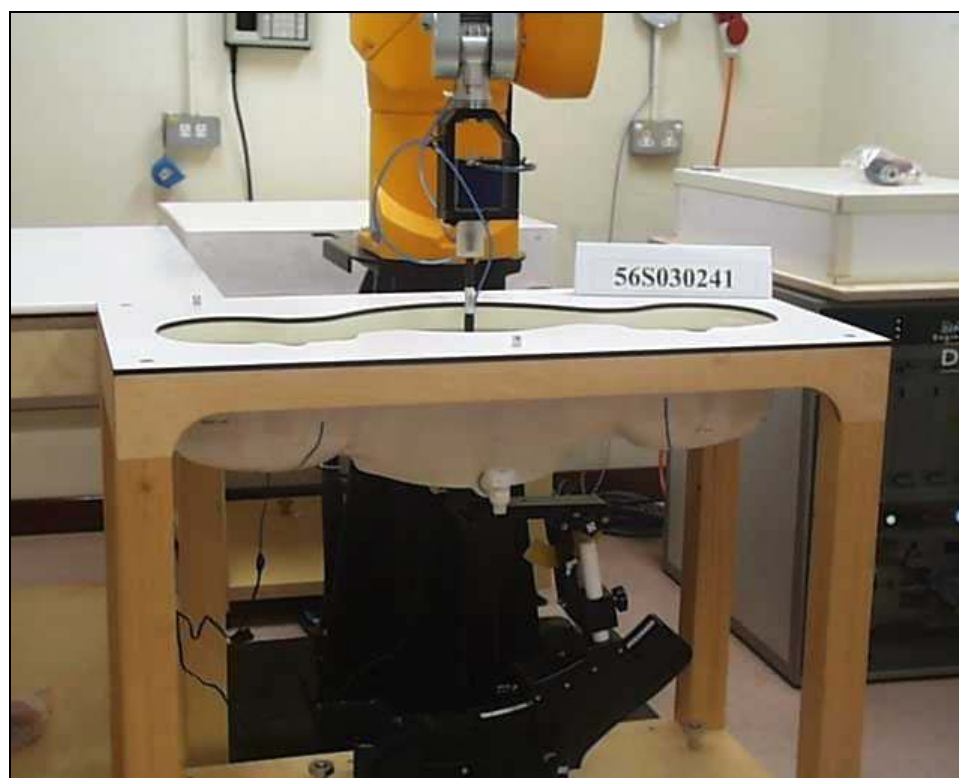


SAR Test Setup (Device at head phantom) – Closer Front View (Ear/Tilt)



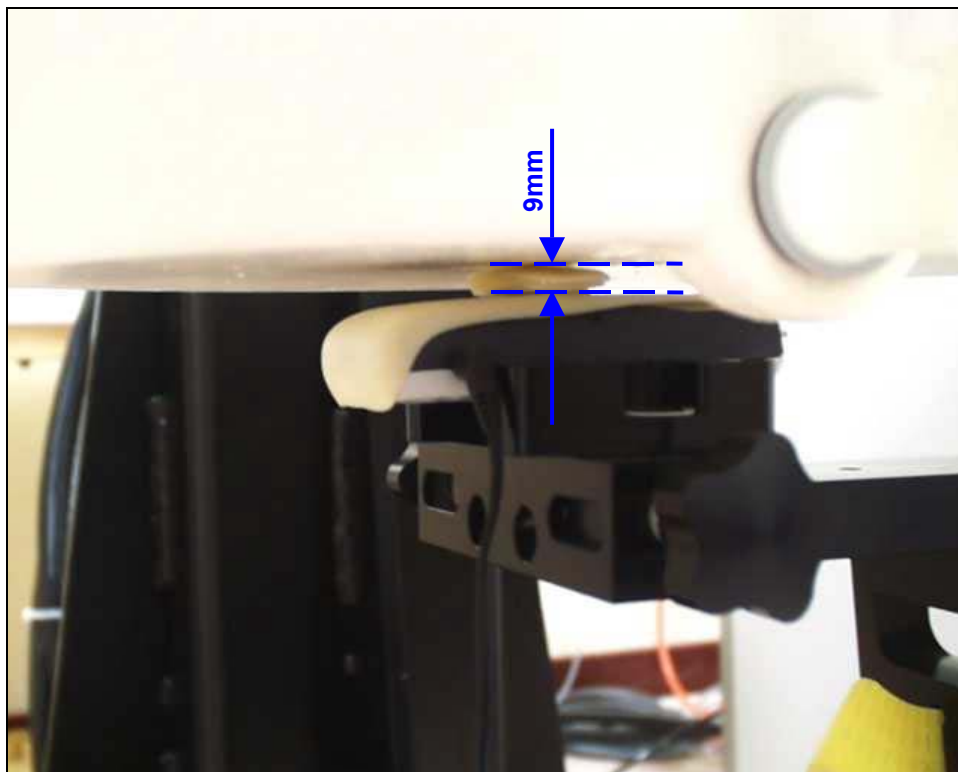
SAR Test Setup (Device at head phantom) – Closer Front View (Ear/Tilt)

## SAR Test Setup Photographs

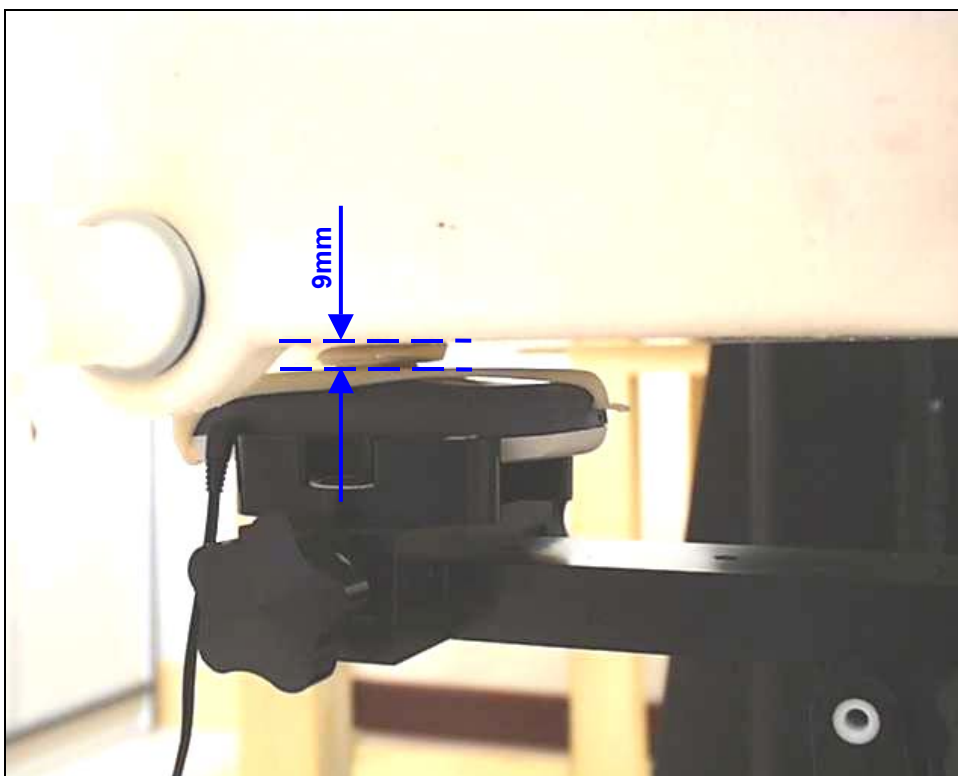


SAR Test Setup At Flat Phantom – Far View

## SAR Test Setup Photographs

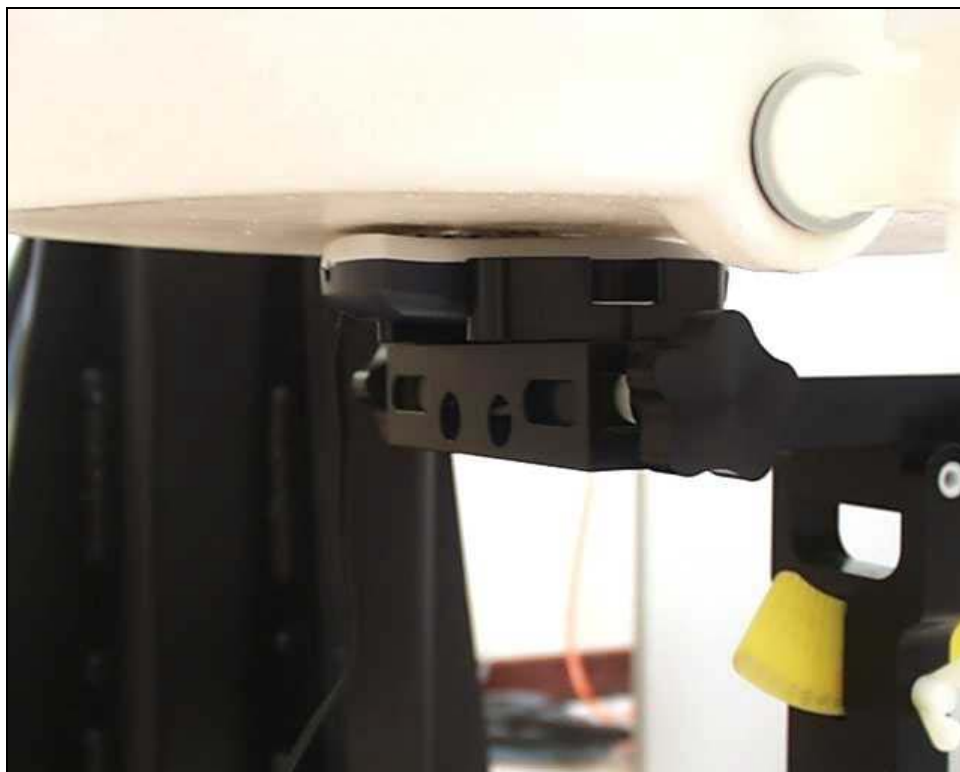


SAR Test Setup At Flat Phantom – Closer View (EUT Rear To Phantom)

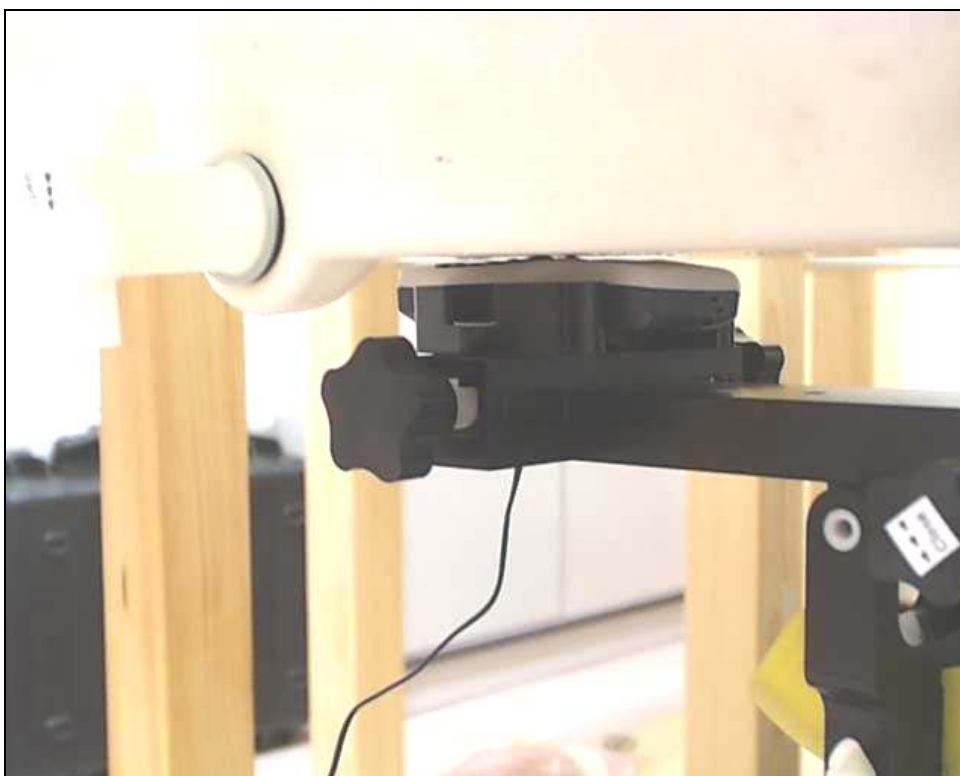


SAR Test Setup At Flat Phantom – Closer View (EUT Rear To Phantom)

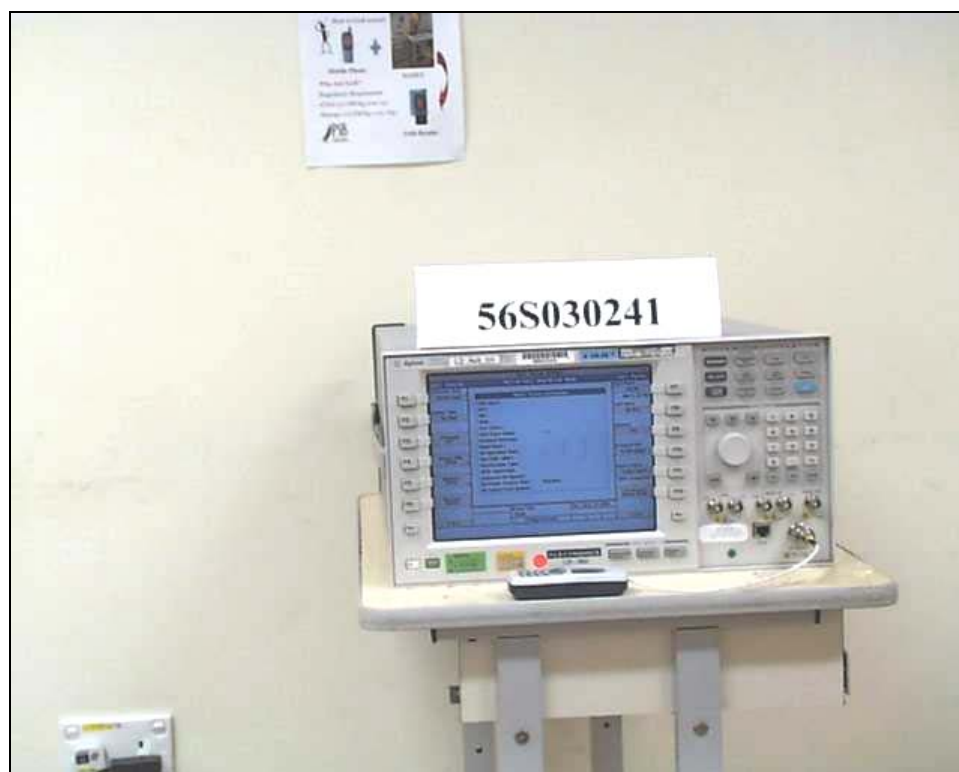
## SAR Test Setup Photographs



SAR Test Setup At Flat Phantom – Closer View (EUT Front Touched Phantom)



SAR Test Setup At Flat Phantom – Closer View (EUT Front Touched Phantom)

**Conducted Power Measurement Test Setup**

Conducted Power Measurement Test Setup

EUT PHOTOGRAPHS



Front of EUT



Rear of EUT

EUT PHOTOGRAPHS



EUT with Accessories

## **ANNEX C**

### **TISSUE SIMULANT DATA SHEETS**

## TISSUE SIMULANT DATA SHEETS

## ANNEX C

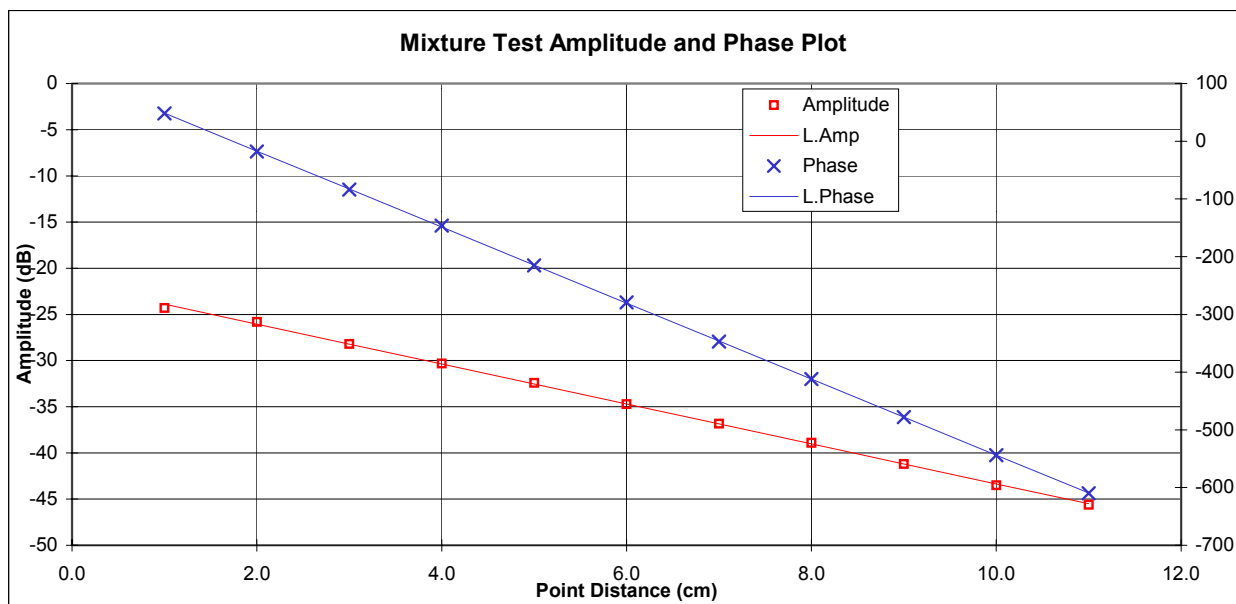
| Type of Tissue               | Head                                                                                                | Body                                                                                                |
|------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Target Frequency (MHz)       | 835MHz                                                                                              | 835MHz                                                                                              |
| Target Dielectric Constant   | 41.5                                                                                                | 55.2                                                                                                |
| Target Conductivity (S/m)    | 0.90                                                                                                | 0.97                                                                                                |
| Composition (by weight)      | Water (40.68%)<br>Ethanol (0%)<br>Sugar (58.34%)<br>Salt (0.92%)<br>HEC (0%)<br>Bactericide (0.06%) | Water (55.18%)<br>Ethanol (0%)<br>Sugar (43.91%)<br>Salt (0.84%)<br>HEC (0%)<br>Bactericide (0.07%) |
| Measured Dielectric Constant | 41.066                                                                                              | 56.764                                                                                              |
| Measured Conductivity (S/m)  | 0.868                                                                                               | 0.986                                                                                               |
| Probe Name                   | Dosimetric E-field Probe<br>ET3DV6                                                                  | Dosimetric E-field Probe<br>ET3DV6                                                                  |
| Probe Serial Number          | 1647                                                                                                | 1647                                                                                                |
| Sensor Offset (mm)           | 2.7                                                                                                 | 2.7                                                                                                 |
| Conversion Factor            | $6.6 \pm 9.5\%$                                                                                     | $6.3 \pm 9.5\%$                                                                                     |
| Calibration Date (DD/MM/YY)  | 31 <sup>st</sup> Mar 2003                                                                           | 31 <sup>st</sup> Mar 2003                                                                           |

# TISSUE SIMULANT DATA SHEETS

# ANNEX C

## Head Tissue at 835MHz

|              |                 |         |             |            |              |              |             |             |
|--------------|-----------------|---------|-------------|------------|--------------|--------------|-------------|-------------|
| Tested By:   | Gary Ng Ah Chye |         |             |            |              | Date:        | 31st Mar 03 |             |
|              |                 |         |             |            |              |              |             |             |
| Frequency:   | 835             | MHz     | Composition |            |              |              |             |             |
|              |                 |         | Tap Water   | DI Water   | Sugar        | Salt         | HEC         | Bactericide |
|              |                 |         | 13700.00 g  | 0.00 g     | 19645.00 g   | 310.20 g     | 0.00 g      | 20.00 g     |
| Mixture:     | Head Tissue     |         | 40.68 %     | 0.00 %     | 58.34 %      | 0.92 %       | 0.00 %      | 0.06 %      |
|              |                 |         |             |            |              |              |             |             |
| # of Points: | 11              |         | Point Dist: | 1.0        | cm           | Temperature: | 23          | °C          |
|              |                 |         |             |            |              |              |             |             |
| Point        | Amplitude       | Phase   |             |            | -49.9        |              |             |             |
| 1            | -24.30          | 48.00   |             |            | -51.6        | -2.162727273 |             |             |
| 2            | -25.80          | -18.00  |             |            | -53.5        | -21.72363636 |             |             |
| 3            | -28.20          | -84.00  |             |            | -55.3        | -65.81818182 |             |             |
| 4            | -30.30          | -146.00 |             |            | -56.9        | 114.4545455  |             |             |
| 5            | -32.40          | 145.00  |             |            |              |              |             |             |
| 6            | -34.70          | 81.00   |             |            | Omega:       | 5246459731   | rad/sec     |             |
| 7            | -36.80          | 13.00   |             |            | Epsilon 0:   | 8.85E-14     | F/m         |             |
| 8            | -38.90          | -52.00  |             |            | mu:          | 1.26E-08     | H/m         |             |
| 9            | -41.20          | -118.00 |             |            | alpha avg:   | -0.248993179 | Np/cm       |             |
| 10           | -43.50          | 176.00  |             |            | beta avg:    | -1.14874398  | rad/cm      |             |
| 11           | -45.60          | 110.00  |             |            |              |              |             |             |
|              |                 |         |             |            |              |              |             |             |
| Results:     |                 | Target  | Low Limit   | High Limit | % Off Target |              |             |             |
| D. Const:    | 41.066          | 41.50   | 39.43       | 43.58      | -1.05        |              |             |             |
| Cond:        | 0.868           | 0.90    | 0.86        | 0.95       | -3.65        |              |             |             |
|              |                 |         |             |            |              |              |             |             |

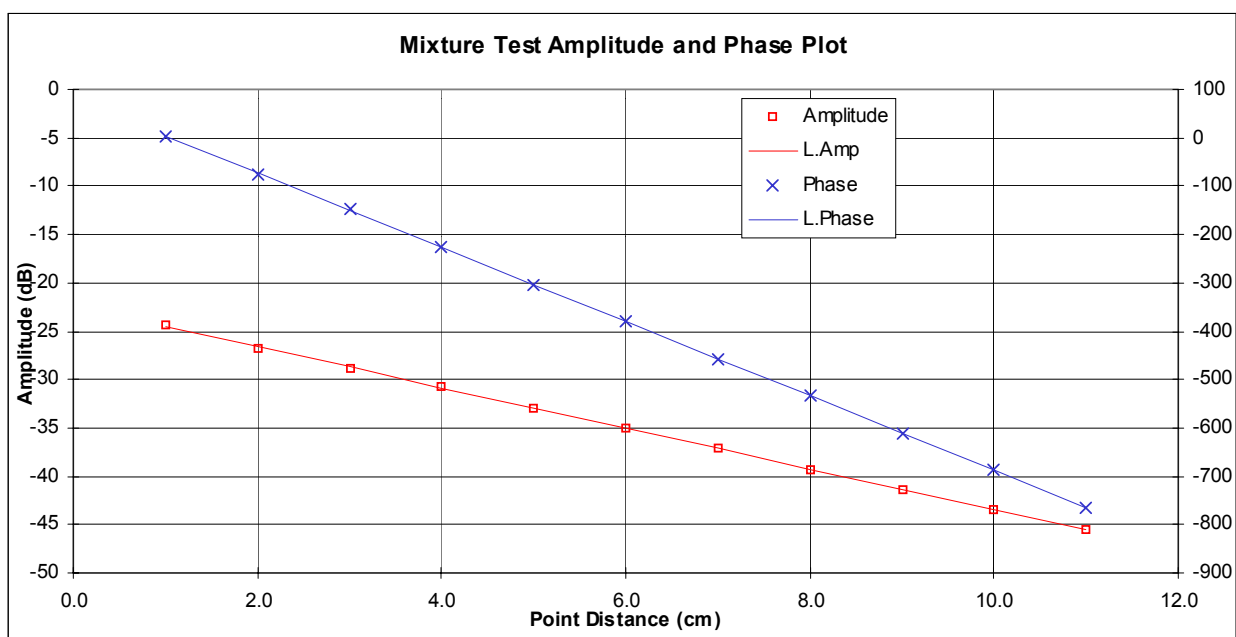


# TISSUE SIMULANT DATA SHEETS

# ANNEX C

## Body Tissue at 835MHz

|              |                 |         |             |            |              |              |             |             |
|--------------|-----------------|---------|-------------|------------|--------------|--------------|-------------|-------------|
| Tested By:   | Gary Ng Ah Chye |         |             |            |              | Date:        | 31st Mar 03 |             |
|              |                 |         |             |            |              |              |             |             |
| Frequency:   | 835             | MHz     | Composition |            |              |              |             |             |
|              |                 |         | Tap Water   | DI Water   | Sugar        | Salt         | HEC         | Bactericide |
|              |                 |         | 22920.00 g  | 0.00 g     | 18240.00 g   | 348.00 g     | 0.00 g      | 30.00 g     |
| Mixture:     | Body Tissue     |         | 55.18 %     | 0.00 %     | 43.91 %      | 0.84 %       | 0.00 %      | 0.07 %      |
|              |                 |         |             |            |              |              |             |             |
| # of Points: | 11              |         | Point Dist: | 1.0        | cm           | Temperature: | 23          | °C          |
|              |                 |         |             |            |              |              |             |             |
| Point        | Amplitude       | Phase   |             |            | -49.9        |              |             |             |
| 1            | -24.40          | 3.00    |             |            | -51.6        | -2.105454545 |             |             |
| 2            | -26.70          | -75.00  |             |            | -53.5        | -22.39454545 |             |             |
| 3            | -28.80          | -147.00 |             |            | -55.3        | -76.80909091 |             |             |
| 4            | -30.80          | 134.00  |             |            | -56.9        | 80.67272727  |             |             |
| 5            | -32.90          | 57.00   |             |            |              |              |             |             |
| 6            | -35.00          | -20.00  |             |            | Omega:       | 5246459731   | rad/sec     |             |
| 7            | -37.00          | -97.00  |             |            | Epsilon 0:   | 8.85E-14     | F/m         |             |
| 8            | -39.30          | -174.00 |             |            | mu:          | 1.26E-08     | H/m         |             |
| 9            | -41.40          | 109.00  |             |            | alpha avg:   | -0.242399413 | Np/cm       |             |
| 10           | -43.50          | 32.00   |             |            | beta avg:    | -1.340571532 | rad/cm      |             |
| 11           | -45.50          | -44.00  |             |            |              |              |             |             |
|              |                 |         |             |            |              |              |             |             |
| Results:     |                 | Target  | Low Limit   | High Limit | % Off Target |              |             |             |
| D. Const:    | 56.764          | 55.20   | 52.44       | 57.96      | 2.79         |              |             |             |
| Cond:        | 0.986           | 0.97    | 0.92        | 1.02       | 1.62         |              |             |             |
|              |                 |         |             |            |              |              |             |             |



# **ANNEX D**

## **SAR VALIDATION RESULTS**

## SAR VALIDATION RESULTS

## ANNEX D

## SAR Validation – Head Tissue at 835MHz

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
File Name: 835MHz Head\_Dipole\_Validation.da4

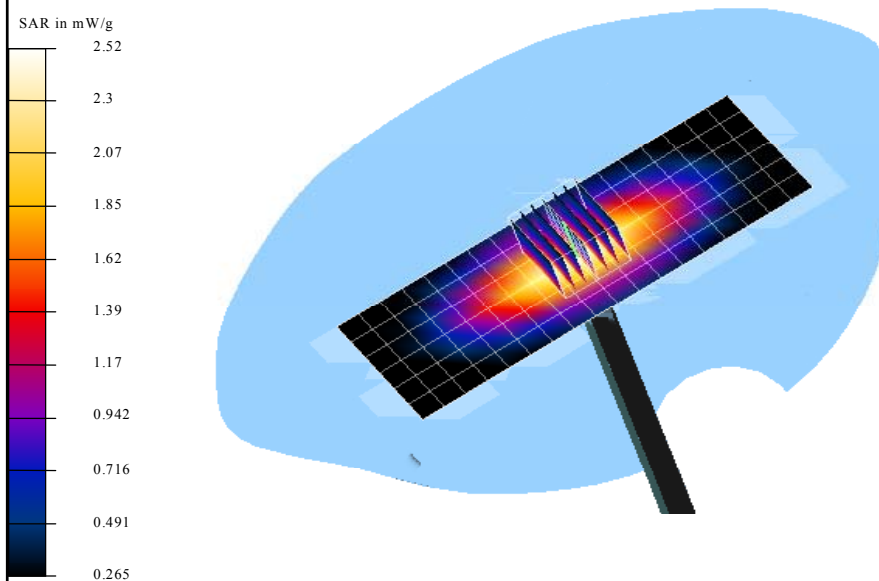
**DUT: Dipole 835MHz Type & Serial Number: 447**  
**Program: 835MHz Head\_Dipole\_Validation; 835MHz Head\_Dipole\_Validation**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: 835Head Tissue (  $\sigma = 0.868$  mho/m,  $\epsilon = 41.066$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
Phantom section: FlatSection

## DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.6, 6.6, 6.6); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

**Area Scan (7x19x1):** Measurement grid: dx=10mm, dy=10mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm  
Reference Value = 56.3 V/m  
Peak SAR = 3.4 mW/g  
SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.53 mW/g  
Power Drift = 0.01 dB



## SAR VALIDATION RESULTS

## ANNEX D

## SAR Validation – Body Tissue at 835MHz

Date: 04/09/2003

Test Laboratory: Telecom & EMC Testing Group  
File Name: 835MHz Body\_Dipole Validation.da4

**DUT: Dipole 835MHz Type & Serial Number: 447****Program: 835MHz Body\_ Dipole Validation; 835MHz Body\_ Dipole Validation**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835MHz Body Tissue (  $\sigma = 0.986$  mho/m,  $\epsilon = 56.764$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: FlatSection

DASY4 Configuration:

- Probe: ET3DV6 - SN1647; ConvF(6.3, 6.3, 6.3); Calibrated: 11/20/2002
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn475; Calibrated: 11/14/2002
- Phantom: - TP:
- Software: DASY4, V4.0 Build 51

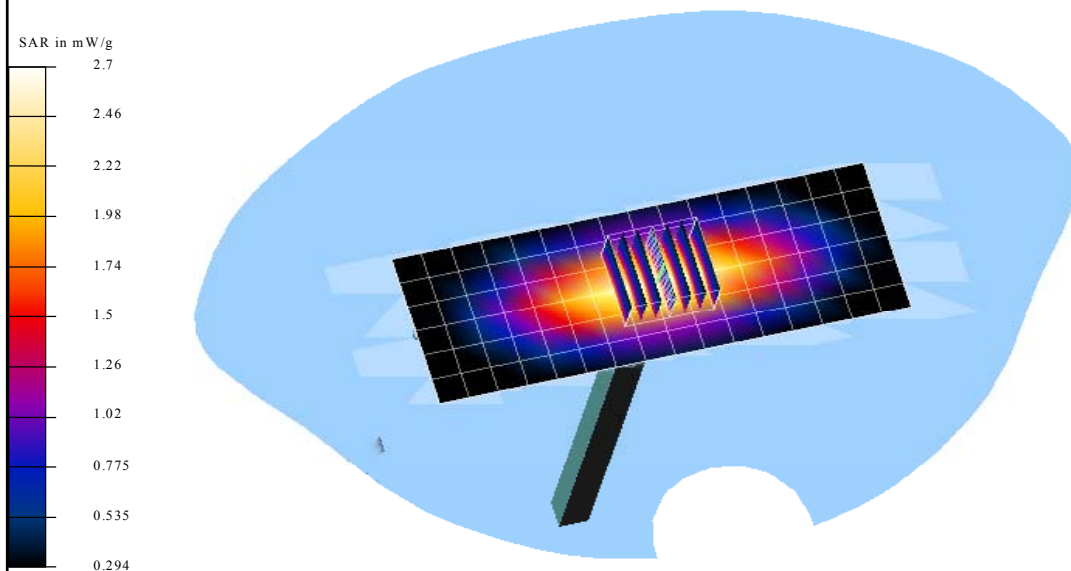
**Area Scan (7x17x1):** Measurement grid: dx=10mm, dy=10mm**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm

Reference Value = 54.6 V/m

Peak SAR = 3.55 mW/g

SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.64 mW/g

Power Drift = 0.003 dB



## **ANNEX E**

# **SAR PROBE CALIBRATION CERTIFICATES**

**Schmid & Partner  
Engineering AG**

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

**Calibration Certificate****Dosimetric E-Field Probe**

Type:

**ET3DV6**

Serial Number:

**1647**

Place of Calibration:

**Zurich**

Date of Calibration:

**November 20, 2002**

Calibration Interval:

**12 months**

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:



Approved by:



**Schmid & Partner  
Engineering AG**

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

# Probe ET3DV6

## SN:1647

|                   |                   |
|-------------------|-------------------|
| Manufactured:     | November 7, 2001  |
| Last calibration: | November 26, 2001 |
| Recalibrated:     | November 20, 2002 |

**Calibrated for DASY Systems**

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1647

November 20, 2002

# DASY - Parameters of Probe: ET3DV6 SN:1647

## Sensitivity in Free Space

## Diode Compression

|       |                                          |       |    |    |
|-------|------------------------------------------|-------|----|----|
| NormX | 1.70 $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP X | 96 | mV |
| NormY | 1.64 $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Y | 96 | mV |
| NormZ | 1.70 $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Z | 96 | mV |

## Sensitivity in Tissue Simulating Liquid

|         |                       |                             |                                       |
|---------|-----------------------|-----------------------------|---------------------------------------|
| Head    | 900 MHz               | $\epsilon_r = 41.5 \pm 5\%$ | $\sigma = 0.97 \pm 5\% \text{ mho/m}$ |
| Head    | 835 MHz               | $\epsilon_r = 41.5 \pm 5\%$ | $\sigma = 0.90 \pm 5\% \text{ mho/m}$ |
| ConvF X | 6.6 $\pm 9.5\%$ (k=2) | Boundary effect:            |                                       |
| ConvF Y | 6.6 $\pm 9.5\%$ (k=2) | Alpha                       | 0.41                                  |
| ConvF Z | 6.6 $\pm 9.5\%$ (k=2) | Depth                       | 2.40                                  |
| Head    | 1800 MHz              | $\epsilon_r = 40.0 \pm 5\%$ | $\sigma = 1.40 \pm 5\% \text{ mho/m}$ |
| ConvF X | 5.4 $\pm 8.9\%$ (k=2) | Boundary effect:            |                                       |
| ConvF Y | 5.4 $\pm 8.9\%$ (k=2) | Alpha                       | 0.51                                  |
| ConvF Z | 5.4 $\pm 8.9\%$ (k=2) | Depth                       | 2.40                                  |

## Boundary Effect

|                       |                              |                                   |      |  |
|-----------------------|------------------------------|-----------------------------------|------|--|
| Head                  | 900 MHz                      | Typical SAR gradient: 5 % per mm  |      |  |
| Probe Tip to Boundary |                              | 1 mm                              | 2 mm |  |
| SAR <sub>be</sub> [%] | Without Correction Algorithm | 9.8                               | 5.5  |  |
| SAR <sub>be</sub> [%] | With Correction Algorithm    | 0.3                               | 0.5  |  |
| Head                  | 1800 MHz                     | Typical SAR gradient: 10 % per mm |      |  |
| Probe Tip to Boundary |                              | 1 mm                              | 2 mm |  |
| SAR <sub>be</sub> [%] | Without Correction Algorithm | 12.0                              | 7.9  |  |
| SAR <sub>be</sub> [%] | With Correction Algorithm    | 0.2                               | 0.2  |  |

## Sensor Offset

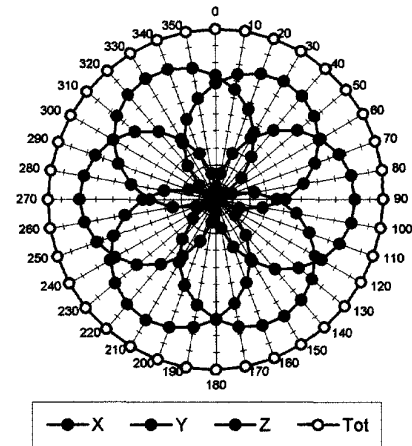
|                            |               |    |
|----------------------------|---------------|----|
| Probe Tip to Sensor Center | 2.7           | mm |
| Optical Surface Detection  | 1.2 $\pm$ 0.2 | mm |

ET3DV6 SN:1647

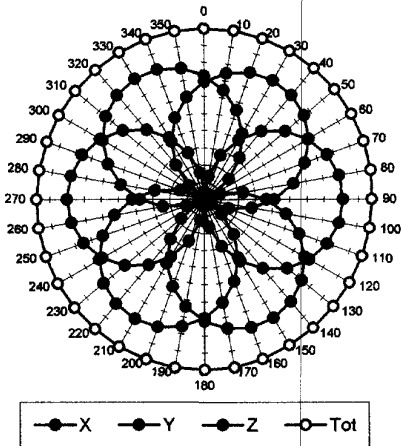
November 20, 2002

Receiving Pattern ( $\phi$ ),  $\theta = 0^\circ$

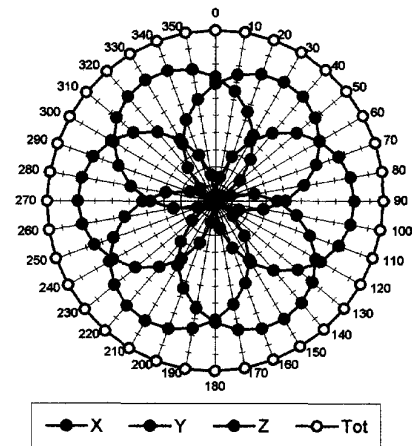
f = 30 MHz, TEM cell ifi110



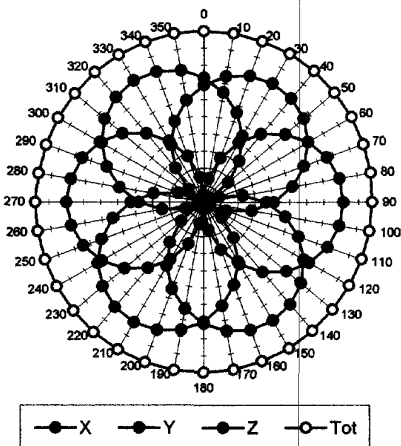
f = 100 MHz, TEM cell ifi110



f = 300 MHz, TEM cell ifi110

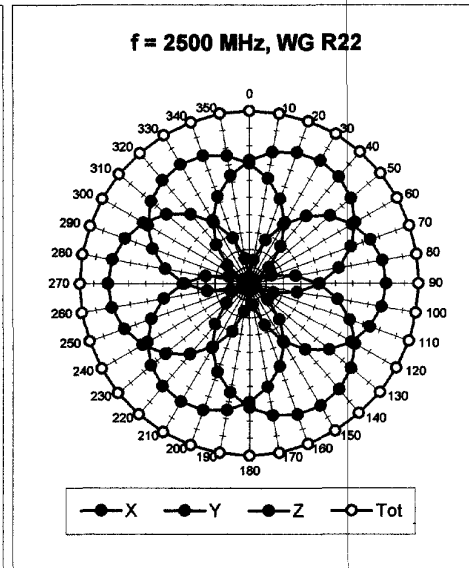
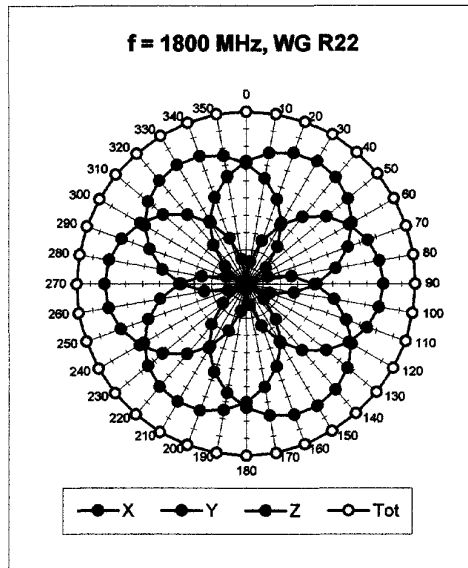


f = 900 MHz, TEM cell ifi110

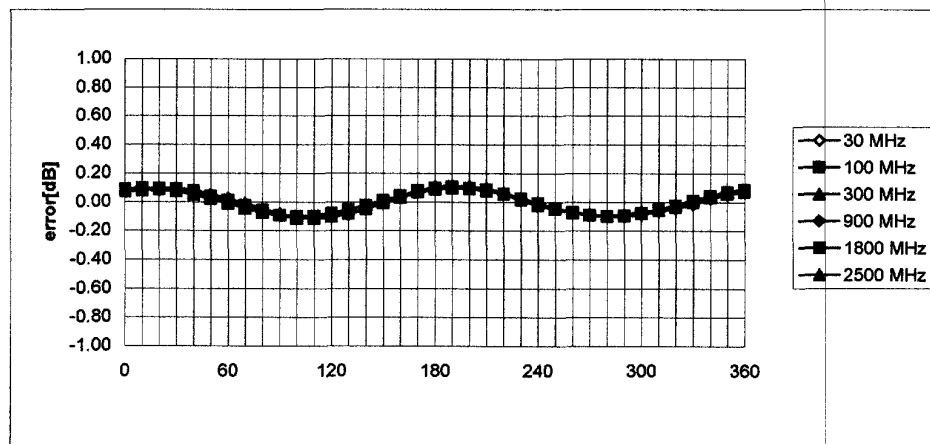


ET3DV6 SN:1647

November 20, 2002



### Isotropy Error ( $\phi$ ), $\theta = 0^\circ$

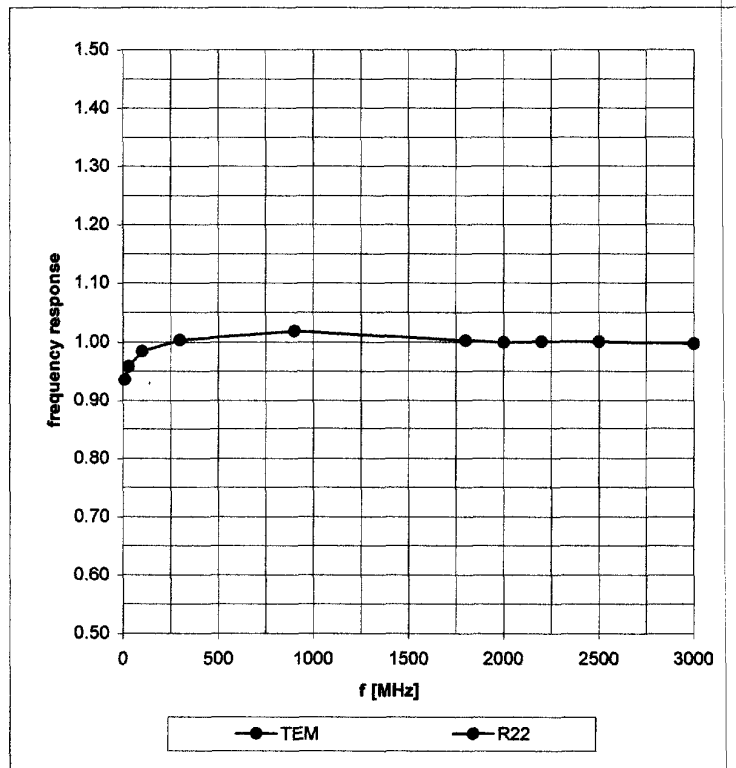


ET3DV6 SN:1647

November 20, 2002

# Frequency Response of E-Field

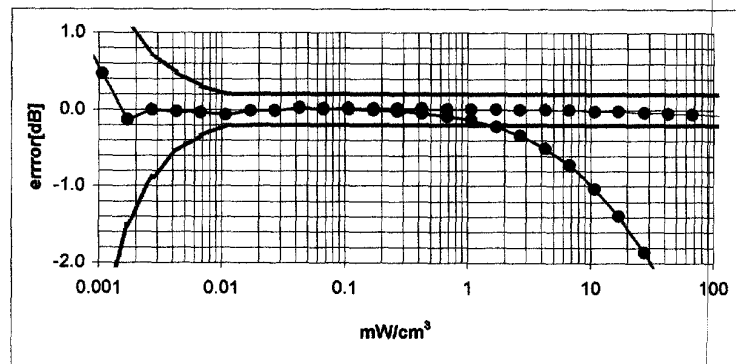
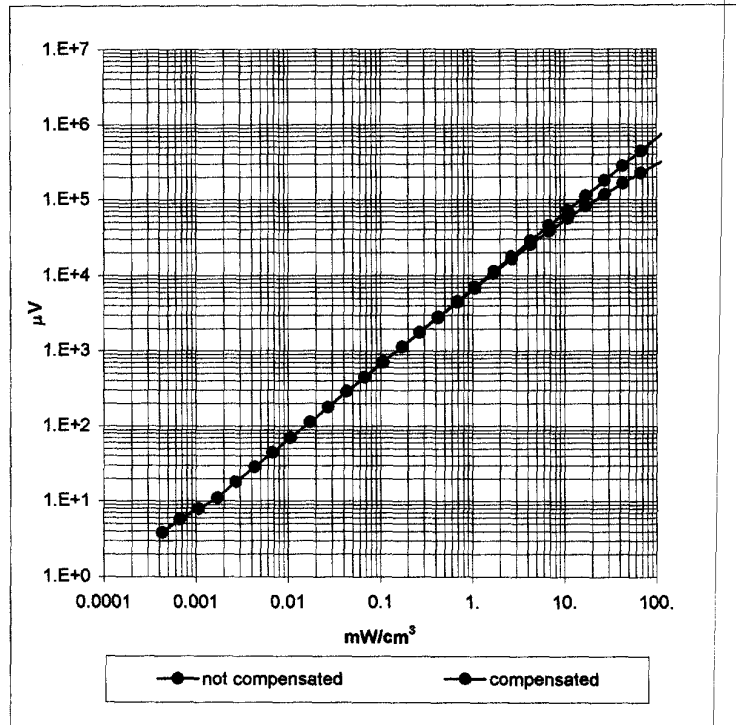
( TEM-Cell:ifi110, Waveguide R22)



ET3DV6 SN:1647

November 20, 2002

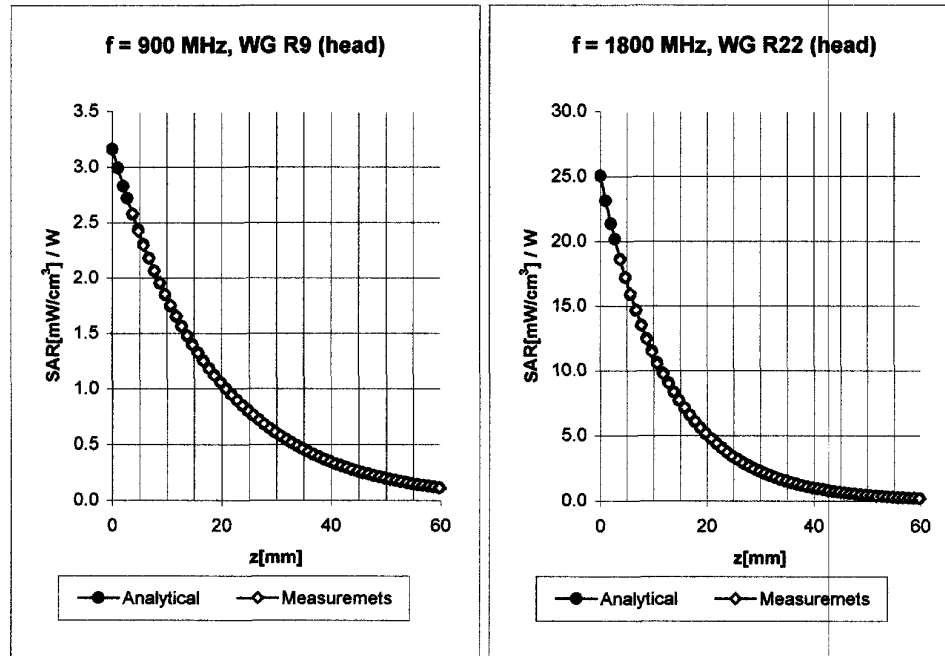
**Dynamic Range  $f(\text{SAR}_{\text{brain}})$**   
( Waveguide R22 )



ET3DV6 SN:1647

November 20, 2002

# Conversion Factor Assessment

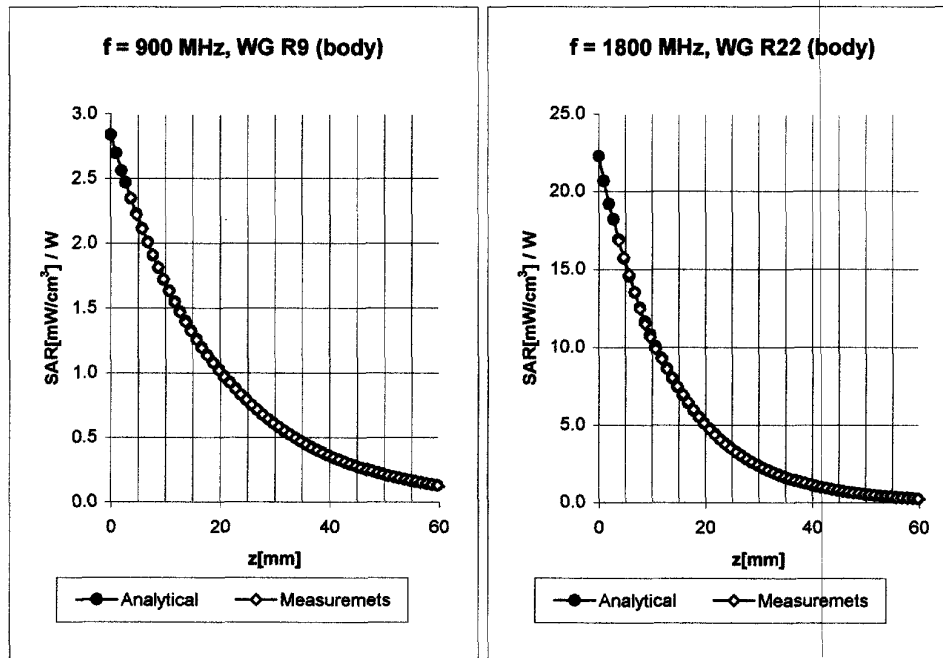


|      |          |                             |                                       |
|------|----------|-----------------------------|---------------------------------------|
| Head | 900 MHz  | $\epsilon_r = 41.5 \pm 5\%$ | $\sigma = 0.97 \pm 5\% \text{ mho/m}$ |
| Head | 835 MHz  | $\epsilon_r = 41.5 \pm 5\%$ | $\sigma = 0.90 \pm 5\% \text{ mho/m}$ |
|      | ConvF X  | $6.6 \pm 9.5\% (k=2)$       | Boundary effect:                      |
|      | ConvF Y  | $6.6 \pm 9.5\% (k=2)$       | Alpha 0.41                            |
|      | ConvF Z  | $6.6 \pm 9.5\% (k=2)$       | Depth 2.40                            |
| Head | 1800 MHz | $\epsilon_r = 40.0 \pm 5\%$ | $\sigma = 1.40 \pm 5\% \text{ mho/m}$ |
|      | ConvF X  | $5.4 \pm 8.9\% (k=2)$       | Boundary effect:                      |
|      | ConvF Y  | $5.4 \pm 8.9\% (k=2)$       | Alpha 0.51                            |
|      | ConvF Z  | $5.4 \pm 8.9\% (k=2)$       | Depth 2.40                            |

ET3DV6 SN:1647

November 20, 2002

# Conversion Factor Assessment

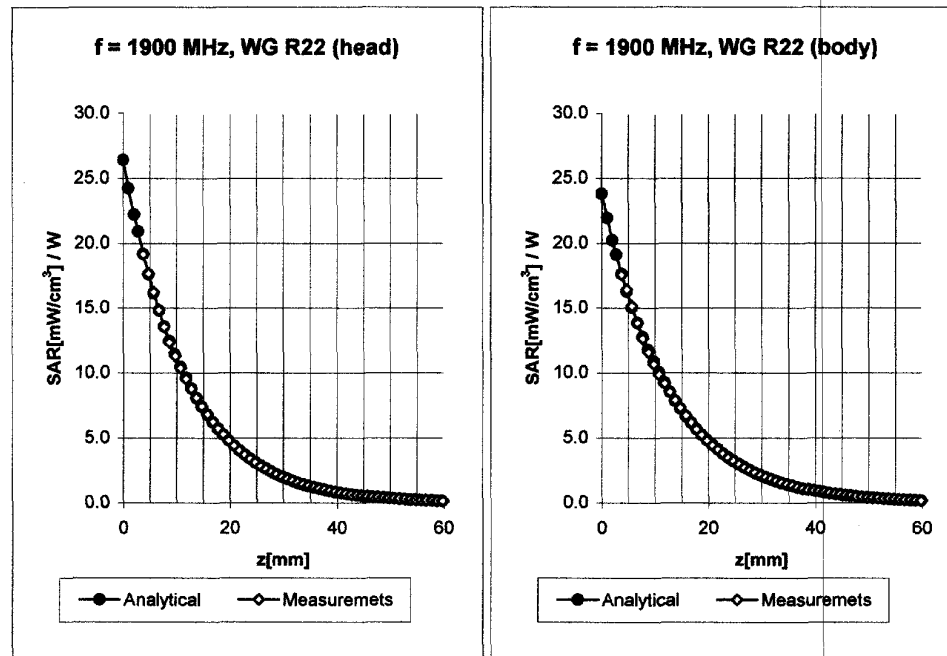


|      |          |                             |                                       |
|------|----------|-----------------------------|---------------------------------------|
| Body | 900 MHz  | $\epsilon_r = 55.0 \pm 5\%$ | $\sigma = 1.05 \pm 5\% \text{ mho/m}$ |
| Body | 835 MHz  | $\epsilon_r = 55.2 \pm 5\%$ | $\sigma = 0.97 \pm 5\% \text{ mho/m}$ |
|      | ConvF X  | $6.3 \pm 9.5\% (k=2)$       | Boundary effect:                      |
|      | ConvF Y  | $6.3 \pm 9.5\% (k=2)$       | Alpha 0.42                            |
|      | ConvF Z  | $6.3 \pm 9.5\% (k=2)$       | Depth 2.39                            |
| Body | 1800 MHz | $\epsilon_r = 53.3 \pm 5\%$ | $\sigma = 1.52 \pm 5\% \text{ mho/m}$ |
|      | ConvF X  | $5.1 \pm 8.9\% (k=2)$       | Boundary effect:                      |
|      | ConvF Y  | $5.1 \pm 8.9\% (k=2)$       | Alpha 0.63                            |
|      | ConvF Z  | $5.1 \pm 8.9\% (k=2)$       | Depth 2.26                            |

ET3DV6 SN:1647

November 20, 2002

# Conversion Factor Assessment



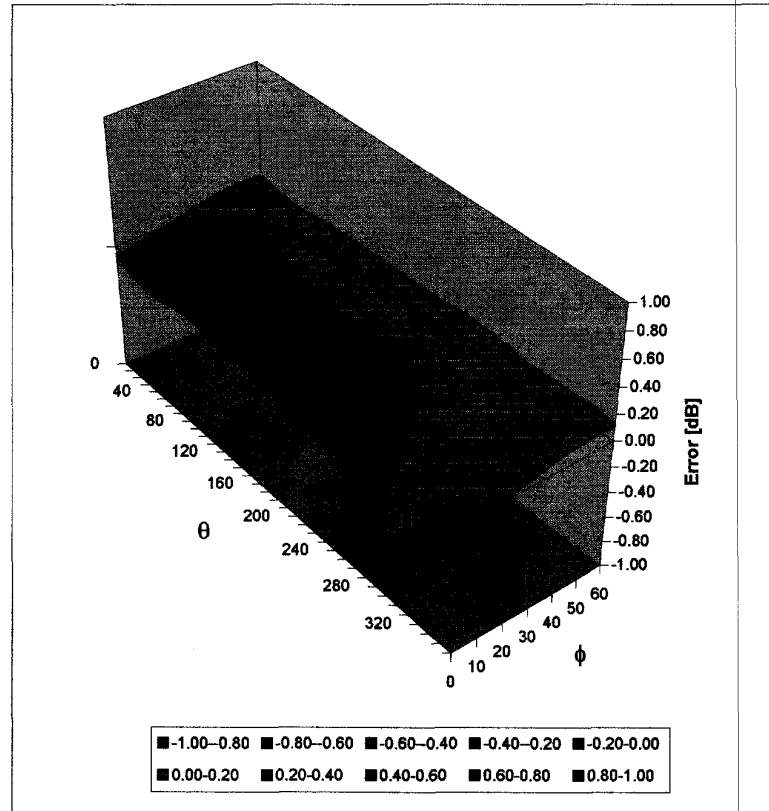
|             |                              |                             |                                       |
|-------------|------------------------------|-----------------------------|---------------------------------------|
| <b>Head</b> | <b>1900 MHz</b>              | $\epsilon_r = 40.0 \pm 5\%$ | $\sigma = 1.40 \pm 5\% \text{ mho/m}$ |
| ConvF X     | <b>5.3</b> $\pm 8.9\%$ (k=2) | Boundary effect:            |                                       |
| ConvF Y     | <b>5.3</b> $\pm 8.9\%$ (k=2) | Alpha                       | <b>0.55</b>                           |
| ConvF Z     | <b>5.3</b> $\pm 8.9\%$ (k=2) | Depth                       | <b>2.32</b>                           |
| <b>Body</b> | <b>1900 MHz</b>              | $\epsilon_r = 53.3 \pm 5\%$ | $\sigma = 1.52 \pm 5\% \text{ mho/m}$ |
| ConvF X     | <b>5.0</b> $\pm 8.9\%$ (k=2) | Boundary effect:            |                                       |
| ConvF Y     | <b>5.0</b> $\pm 8.9\%$ (k=2) | Alpha                       | <b>0.76</b>                           |
| ConvF Z     | <b>5.0</b> $\pm 8.9\%$ (k=2) | Depth                       | <b>2.06</b>                           |

ET3DV6 SN:1647

November 20, 2002

# Deviation from Isotropy in HSL

Error ( $\theta, \phi$ ),  $f = 900$  MHz



# **ANNEX F**

## **REFERENCES**

The methods and procedures used for the measurements contained in this report are details in the following reference standards:

| Publications                                                        | Year        | Title                                                                                                                                                           |
|---------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01) | 2001        | "Evaluating Compliance with FCC Guidelines for Human Exposure to radio Frequency Fields"                                                                        |
| IEEE Standard 1528-200X                                             | 2000        | "Product Performance Standards Relative to the safe Use of Electromagnetic Energy"                                                                              |
| ANSI/IEEE C95.3                                                     | 1992        | "Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave"                                                   |
| ANSI/IEEE C95.1                                                     | 1992        | "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300GHz"                                                        |
| ACA, Radio Communications (EMR Human Exposure)                      | 2000 (No.2) | "Radiocommunication (Electromagnetic Radiation – Human Exposure)"                                                                                               |
| EN50360                                                             | 2001        | Product Standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300MHz – 3GHz) |
| EN50361                                                             | 2001        | Basic Standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phone (300MHz – 3GHz)            |