

1. MEASUREMENT RESULTS

1.1. SYSTEM VALIDATION

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of $\pm 10\%$. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

IEEE P1528 Recommended Reference Value

| Frequency (MHz) | 1 g SAR | 10 g SAR | Local SAR at surface (Above feed point) | Local SAR at surface (y=2cm offset from feed point) |
|-----------------|---------|----------|---|---|
| 300 | 3.0 | 2.0 | 4.4 | 2.1 |
| 450 | 4.9 | 3.3 | 7.2 | 3.2 |
| 835 | 9.5 | 6.2 | 14.1 | 4.9 |
| 900 | 10.8 | 6.9 | 16.4 | 5.4 |
| 1450 | 29.0 | 16.0 | 50.2 | 6.5 |
| 1800 | 38.1 | 19.8 | 69.5 | 6.8 |
| 1900 | 39.7 | 20.5 | 72.1 | 6.6 |
| 2000 | 41.1 | 21.1 | 74.6 | 6.5 |
| 2450 | 52.4 | 24.0 | 104.2 | 7.7 |
| 3000 | 63.8 | 25.7 | 140.2 | 9.5 |

System Validation Results

Ambient conduction: Temperature: 24°C; Relative humidity: 41%

System Validation Dipole: D1800V2 SN: 294

Date: March 13, 2003

| Medium | | | Parameters | Target | Measured | Deviation[%] | Limited[%] |
|----------|------------|------------|---------------|--------|----------|--------------|------------|
| Type | Temp. [°C] | Dipth [cm] | | | | | |
| Head | 20.80 | 15.00 | Permittivity: | 40 | 39.5 | -1.25 | ± 10 |
| 1800 MHz | | | Conductivity: | 1.4 | 1.3639 | -2.58 | ± 5 |
| | | | 1g SAR: | 38.1 | 35.16 | -7.72 | ± 10 |

1.2. TEST LIQUID CONFIRMATION

Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070C dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

IEEE SCC-34/SC-2 P1528 recommended Tissue Dielectric Parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528

| Target Frequency (MHz) | Head | | Body | |
|---------------------------|--------------|----------------|--------------|----------------|
| | ϵ_r | σ (S/m) | ϵ_r | σ (S/m) |
| 150 | 52.3 | 0.76 | 61.9 | 0.80 |
| 300 | 45.3 | 0.87 | 58.2 | 0.92 |
| 450 | 43.5 | 0.87 | 56.7 | 0.94 |
| 835 | 41.5 | 0.90 | 55.2 | 0.97 |
| 900 | 41.5 | 0.97 | 55.0 | 1.05 |
| 915 | 41.5 | 0.98 | 55.0 | 1.06 |
| 1450 | 40.5 | 1.20 | 54.0 | 1.30 |
| 1610 | 40.3 | 1.29 | 53.8 | 1.40 |
| 1800-2000 | 40.0 | 1.40 | 53.3 | 1.52 |
| 2450 | 39.2 | 1.80 | 52.7 | 1.95 |
| 3000 | 38.5 | 2.40 | 52.0 | 2.73 |
| 5800 | 45.3 | 5.27 | 48.2 | 6.00 |

(ϵ_r = relative permittivity, σ = conductivity and $\rho = 1000 \text{ kg/m}^3$)

Liquid Confirmation Results

Ambient conduction – Temperature: 23°C; Relative humidity: 41% **Date:** March 13, 2003

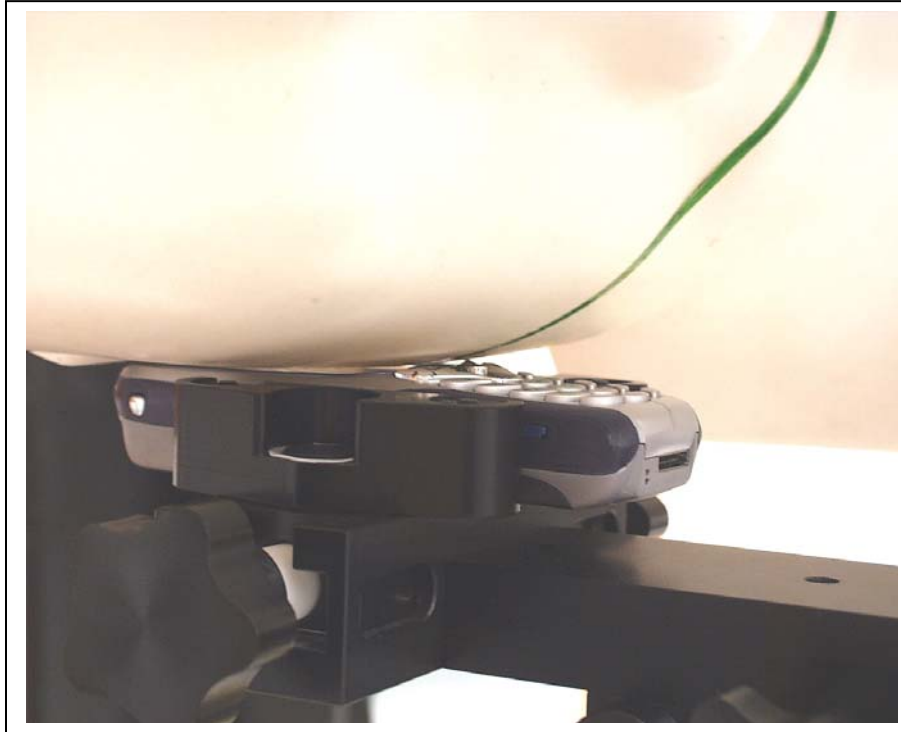
| Medium | | | Parameters | Target | Measured | Deviation[%] | Limited[%] |
|----------|------------|------------|---------------|--------|----------|--------------|------------|
| Type | Temp. [°C] | Dipth (cm) | | | | | |
| Head | 20.50 | 15.00 | Permittivity: | 40 | 40.4 | 1.00 | ± 10 |
| 1900 Mhz | | | Conductivity: | 1.4 | 1.3889 | -0.79 | ± 5 |

Ambient conduction – Temperature: 23°C; Relative humidity: 41% **Date:** March 13, 2003

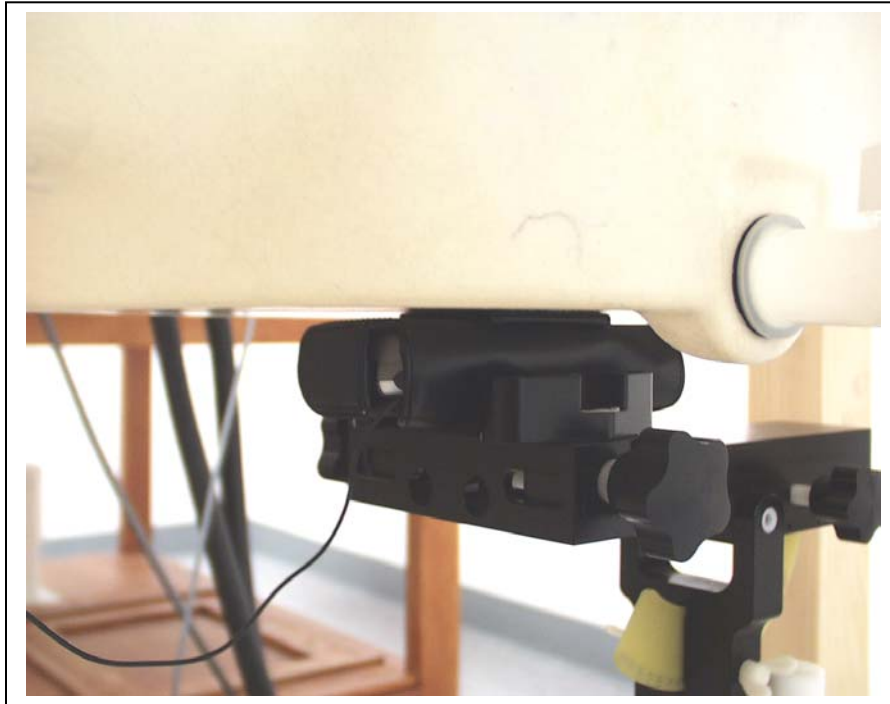
| Medium | | | Parameters | Target | Measured | Deviation[%] | Limited[%] |
|----------|------------|------------|---------------|--------|----------|--------------|------------|
| Type | Temp. [°C] | Dipth (cm) | | | | | |
| Muscle | 20.50 | 15.00 | Permittivity: | 53.3 | 52.24 | -1.99 | ± 10 |
| 1900 Mhz | | | Conductivity: | 1.52 | 1.5422 | 1.46 | ± 5 |

1.3. EUT SETUP PHOTOS

EUT Setup Configuration 1
(Right Head -Touched position)



EUT Setup Configuration 2
(Flat/Body-worn position)



1.4. SAR MEASUREMENT RESULTS

| | | | | | | | | |
|---|---------|-----------|--------|--|-------|----------------------|---------------------------------------|--------------|
| Model Name: PC20B | | | | | | | | |
| Modulation Type: GSM (Duty Cycle = 12.5 %, Crest Factor: 8) | | | | | | | | |
| EUT Setup Configuration 1 Right Head | | | | Depth of liquid: 15.0 cm | | Date: March 13, 2003 | | |
| EUT Set-up conditions | | Frequency | | Conducted Power [dBm] (Peak) | | Liquid Temp [°C] | SAR (W/kg) | Limit (W/kg) |
| Sep. [cm] | Antenna | Channel | MHz | Before | After | | | |
| With memory card | | | | | | | | |
| Touched | Fixed | 810 | 1909.8 | 29.8 | 29.7 | 20.5 | 0.388 | 1.6 |
| Without memory card | | | | | | | | |
| Touched | Fixed | 810 | 1909.8 | 29.8 | 29.7 | 20.5 | 0.377 | |
| EUT Setup Configuration 2: Body/Flat | | | | Depth of liquid: 15.0 cm | | | | |
| EUT Set-up conditions | | Frequency | | Conducted Power [dBm] (Peak) | | Liquid Temp [°C] | SAR (W/kg) *Cube 0 / Cube 1 | Limit (W/kg) |
| Sep. [cm] | Antenna | Channel | MHz | Before | After | | | |
| Without memory card | | | | | | | | |
| With holster | Fixed | 810 | 1909.8 | 29.8 | 29.7 | 20.2 | 0.421 / 0.352 | 1.6 |
| With memory card | | | | | | | | |
| With holster | Fixed | 810 | 1909.8 | 29.8 | 29.7 | 20.3 | 0.432 / 0.289 | |
| Note (s): 1. * Cube 0 = primary hot spot; Cube 1 = secondary hot spot 2. Please refer to attachment for the result presentation in plot format. | | | | | | | | |

2. EUT PHOTOS



3. EQUIPMENTS LIST & CALIBRATION INFORMATION

| Name of Equipment | Manufacturer | Type/Model | Serial Number | Calibration | |
|--------------------------------------|-----------------|------------|----------------|-------------|----------|
| | | | | last cal. | due date |
| S-Parameter Network Analyzer | Agilent | 8753ES | MY40001647 | 8/6/02 | 8/6/03 |
| Electronic Probe kit | Hewlett Packard | 85070C | N/A | N/A | N/A |
| 3.5 mm Calibration Kit | Agilent | 85033D | 3423A07200 | 8/6/02 | 8/6/03 |
| Power Meter | Agilent | E5516A | GB41291160 | 8/9/02 | 8/9/03 |
| Power Sensor | Agilent | E9327A | US40440755 | 9/5/02 | 9/5/03 |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 838114/032 | 2/14/03 | 2/14/04 |
| Amplifier | Mini-Circuit | ZHL-42W | D072701-5 | N/A | N/A |
| DC Power generator | Kenwood | PA36-3A | 7060074 | N/A | N/A |
| Data Acquisition Electronics (DAE) | SPEAG | DAE3 V1 | 427 | 2/4/03 | 2/4/04 |
| Dosimetric E-Field Probe | SPEAG | ET3DV6 | 1577 | 2/7/02 | 2/7/04 |
| 450 MHz System Validation Dipole | SPEAG | D450V2 | 1003 | 4/5/02 | 4/19/04 |
| 900 MHz System Validation Dipole | SPEAG | D900V2 | 108 | 4/17/01 | 4/17/03 |
| 1800 MHz System Validation Dipole | SPEAG | D1800V2 | 294 | 4/19/01 | 4/19/03 |
| 2450 MHz System Validation Dipole | SPEAG | D2450V2 | 706 | 6/4/02 | 6/4/04 |
| Probe Alignment Unit | SPEAG | LB (V2) | 261 | N/A | N/A |
| Robot | Staubli | RX90B L | F00/5H31A1/A01 | N/A | N/A |
| Generic Twin Phantom | SPEAG | N/A | N/A | N/A | N/A |
| SAM Phantom | SPEAG | N/A | N/A | N/A | N/A |
| Devices Holder | SPEAG | N/A | N/A | N/A | N/A |
| Head 450 MHz | CCS | H450A | N/A | Daily | N/A |
| Muscle 450 MHz | CCS | M450A | N/A | Daily | N/A |
| Head 835 MHz | CCS | H835A | N/A | Daily | N/A |
| Muscle 835 MHz | CCS | M835A | N/A | Daily | N/A |
| Head 900 MHz | CCS | H900A | N/A | Daily | N/A |
| Muscle 900 MHz | CCS | M900A | N/A | Daily | N/A |
| Head 1800 MHz | CCS | H1800A | N/A | Daily | N/A |
| Muscle 1800 MHz | CCS | M1800A | N/A | Daily | N/A |
| Head 1900 MHz | CCS | H1900A | N/A | Daily | N/A |
| Muscle 1900 MHz | CCS | M1900A | N/A | Daily | N/A |
| Head 2450 MHz | CCS | H2450A | N/A | Daily | N/A |
| Muscle 2450 MHz | CCS | M2450A | N/A | Daily | N/A |

4. ATTACHMENTS

| Exhibit | Contents | No. of page (s) |
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| 1 | System Validation Plots | 1 |
| 2 | SAR Test Plots | 7 |
| 3 | Dosimetric E-Field Probe - ET3DV6, S/N: 1577 | 14 |

End of Report