







|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) |  |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |


## SAR TEST REPORT (FCC)

| RF EXPOSURE EVALUATION    |  | SPECIFIC ABSORPTION RATE |                                       |
|---------------------------|--|--------------------------|---------------------------------------|
| APPLICANT / MANUFACTURER  | KENWOOD USA CORPORATION  |                          |                                       |
| DEVICE UNDER TEST (DUT)   | PORTABLE FM UHF PUSH-TO-TALK RADIO TRANSCEIVER   |                          |                                       |
| DEVICE MODEL(S)           | TK-3360-K  | TK-3360-X                |                                       |
| MANUF. RATED OUTPUT POWER | 5 Watts Conducted  |                          |                                       |
| FREQUENCY RANGE(S) TESTED | FCC  | 450.0 - 512.0 MHz        |                                       |
| DEVICE IDENTIFIER(S)      | FCC ID:  | ALH415100                |                                       |
| APPLICATION TYPE          | Certification  |                          |                                       |
| STANDARD(S) APPLIED       | FCC 47 CFR §2.1093   |                          |                                       |
|                           | Health Canada Safety Code 6  |                          |                                       |
| PROCEDURE(S) APPLIED      | FCC OET Bulletin 65, Supplement C (01-01)  |                          |                                       |
|                           | FCC KDB 447498 D01 v03r03  |                          |                                       |
|                           | Industry Canada RSS-102 Issue 3  |                          |                                       |
|                           | IEEE 1528-2003   |                          |                                       |
|                           | IEC 62209-1:2005   | IEC 62209-2 (Draft)      |                                       |
| FCC DEVICE CLASSIFICATION | Licensed Non-Broadcast Transmitter Held to Face (TNF)  |                          |                                       |
| IC DEVICE CLASSIFICATION  | Land Mobile Radio Transmitter/Receiver (27.41-960 MHz)   |                          |                                       |
| RF EXPOSURE CATEGORY      | Occupational / Controlled  |                          |                                       |
| RF EXPOSURE EVALUATION(S) | Face-held & Body-worn  |                          |                                       |
| DATE(S) OF EVALUATION     | October 14-15, 2009  |                          |                                       |
| TEST REPORT SERIAL NO.    | 100909ALH-T985-S90U  |                          |                                       |
| TEST REPORT REVISION NO.  | Revision 1.0   | Initial Release          | October 28, 2009                      |
| TEST REPORT SIGNATORIES   | Testing Performed By   |                          | Test Report Prepared By               |
|                           | Sean Johnston<br>Celltech Labs Inc.  |                          | Jonathan Hughes<br>Celltech Labs Inc. |
| TEST LAB AND LOCATION     | Celltech Compliance Testing and Engineering Lab  |                          |                                       |
|                           | 21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada   |                          |                                       |
| TEST LAB CONTACT INFO.    | Tel.: 250-765-7650   |                          | Fax: 250-765-7645                     |
|                           | info@celltechlabs.com  |                          | www.celltechlabs.com                  |
| TEST LAB ACCREDITATION(S) |  <br>Test Lab Certificate No. 2470.01 |                          |                                       |

|                         |  |  |                      |         |           |                |
|-------------------------|--|--|----------------------|---------|-----------|----------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | <b>KENWOOD</b> |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  | 450-512 MHz          |         |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |         |           | Page 1 of 65   |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) |  |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## DECLARATION OF COMPLIANCE SAR RF EXPOSURE EVALUATION

|  |  |  |  |                             |                                |
|--|--|--|--|-----------------------------|--------------------------------|
| <b>Test Lab Information</b>  | <b>Name</b>  | <b>CELLTECH LABS INC.</b>  |  |                             |                                |
|  | <b>Address</b>   | 21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada                 |  |                             |                                |
| <b>Applicant Information</b>   | <b>Name</b>  | <b>KENWOOD USA CORPORATION</b>                                     |  |                             |                                |
|  | <b>Address</b>   | 3970 Johns Creek Court, Suite 100, Suwanee, GA 30024 United States |  |                             |                                |
| <b>Standard(s) Applied</b>   | <b>FCC</b>   | 47 CFR §2.1093   | <b>IC</b>                                  | Health Canada Safety Code 6 |                                |
|  | <b>FCC</b>   | OET Bulletin 65, Supplement C                                      | <b>IC</b>                                  | RSS-102 Issue 3             |                                |
| <b>Procedure(s) Applied</b>  | <b>FCC</b>   | Mobile & Portable RF Exposure Procedures (KDB 447498 D01 v03r03)   |  |                             |                                |
|  | <b>IEEE</b>  | 1528-2003  | <b>IEC</b>                                 | 62209-1:2005                | <b>IEC</b> 62209-2 (Draft)     |
| <b>Device Classification(s)</b>  | <b>FCC</b>   | Licensed Non-Broadcast Transmitter Held to Face (TNF)              |  |                             |                                |
| <b>Device Identifier(s)</b>  | <b>FCC ID:</b>   | ALH415100  |  |                             |                                |
| <b>Device Model(s)</b>   | TK-3360-K, TK-3360-X   |  |  |                             |                                |
|  | Note: The models are electrically and mechanically identical confirmed by the manufacturer |  |  |                             |                                |
| <b>Test Sample Serial No.</b>  | 0217 (Identical Prototype)   |  |  |                             |                                |
| <b>Device Description</b>  | Portable FM UHF Push-To-Talk (PTT) Radio Transceiver                                       |  |  |                             |                                |
| <b>Frequency Range(s) Tested</b>   | 450.0 - 512.0 MHz  |  |  |                             |                                |
| <b>Manufacturer Rated Output Power</b>   | 5 Watts (Conducted)  |  |  |                             |                                |
| <b>RF Output Power Level(s) Tested</b>   | 37.3 dBm   | 5.37 Watts   | Conducted                                  | 450.0 MHz                   | Test Channel 1                 |
|  | 37.3 dBm   | 5.37 Watts   | Conducted                                  | 465.5 MHz                   | Test Channel 2                 |
|  | 37.4 dBm   | 5.50 Watts   | Conducted                                  | 481.0 MHz                   | Test Channel 3                 |
|  | 37.3 dBm   | 5.37 Watts   | Conducted                                  | 496.5 MHz                   | Test Channel 4                 |
|  | 37.2 dBm   | 5.25 Watts   | Conducted                                  | 512.0 MHz                   | Test Channel 5                 |
| <b>Antenna Type(s) Tested</b>  | Detachable   | P/N: KRA-23M   | 440 - 490 MHz                              |                             | Length: 80 mm                  |
|  | Detachable   | P/N: KRA-23M2  | 470 - 520 MHz                              |                             | Length: 80 mm                  |
|  | Detachable   | P/N: KRA-27M   | 440 - 490 MHz                              |                             | Length: 149 mm                 |
|  | Detachable   | P/N: KRA-27M2  | 470 - 520 MHz                              |                             | Length: 140 mm                 |
| <b>Battery Type(s) Tested</b>  | Ni-MH  | 7.2 V  | 1400 mAh                                   |                             | P/N: KNB-56N                   |
|  | Li-ion   | 7.4 V  | 1480 mAh                                   |                             | P/N: KNB-55L                   |
|  | Li-ion   | 7.4 V  | 2000 mAh                                   |                             | P/N: KNB-57L                   |
| <b>Body-worn Accessories Tested</b>  | Metal Belt-Clip  | Contains Metal and Plastic Components                              |  |                             | P/N: KBH-12                    |
| <b>Audio Accessories Tested</b>  | Speaker-Microphone (P/N: KMC-45)   |  | Headset with Boom-Microphone (P/N: KHS-21) |                             |                                |
| <b>Max. SAR Level(s) Evaluated</b>   | Face-held  | <b>3.96 W/kg</b>   | 1g   | 50% PTT duty cycle          | Occupational / Controlled Exp. |
|  | Body-worn  | <b>7.69 W/kg</b>   | 1g   | 50% PTT duty cycle          | Occupational / Controlled Exp. |
| <b>FCC/IC Spatial Peak SAR Limit</b>   | Head/Body  | 8.0 W/kg   | 1g   | 50% PTT duty cycle          | Occupational / Controlled Exp. |
| <p>Celltech Labs Inc. declares under its sole responsibility that this wireless portable device has demonstrated compliance with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada's Safety Code 6 for the Occupational / Controlled Exposure environment. The device was tested in accordance with the measurement procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 3, IEEE Standard 1528-2003, IEC International Standard 62209-1:2005 and IEC International Draft Standard 62209-2 (106-62209-2-CDV_090323). All measurements were performed in accordance with the SAR system manufacturer recommendations.</p> <p>I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.</p> <p>The results and statements contained in this report pertain only to the device(s) evaluated. This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.</p> |  |  |  |                             |                                |
| <b>Test Report Approved By</b>   |         |  | <b>Sean Johnston</b>                       | <b>Celltech Labs Inc.</b>   |                                |





|                         |   |  |                             |                    |                  |                |
|-------------------------|---|--|-----------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> | <b>Transmit Frequency Range:</b>   |                             | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                             |                    |                  | Page 2 of 65   |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

| <b>TABLE OF CONTENTS</b>  |    |
|---|----|
| 1.0 INTRODUCTION _____  | 4  |
| 2.0 SAR MEASUREMENT SYSTEM _____                                | 4  |
| 3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS _____                | 4  |
| 4.0 FCC POWER THRESHOLDS FOR PTT DEVICES ( $F < 0.5$ GHZ) _____ | 5  |
| 5.0 SAR PROBE CALIBRATION & MEASUREMENT FREQUENCIES _____       | 5  |
| 6.0 SAR MEASUREMENT SUMMARY _____                               | 6  |
| 7.0 MEASURED FLUID DIELECTRIC PARAMETERS _____                  | 7  |
| 8.0 DETAILS OF SAR EVALUATION _____                             | 7  |
| 9.0 EVALUATION PROCEDURES _____                                 | 8  |
| 10.0 SYSTEM PERFORMANCE CHECK _____                             | 8  |
| 11.0 SIMULATED EQUIVALENT TISSUES _____                         | 9  |
| 12.0 SAR LIMITS _____   | 9  |
| 13.0 ROBOT SYSTEM SPECIFICATIONS _____                          | 10 |
| 14.0 PROBE SPECIFICATION (ET3DV6) _____                         | 11 |
| 15.0 SIDE PLANAR PHANTOM _____                                  | 11 |
| 16.0 VALIDATION PLANAR PHANTOM _____                            | 11 |
| 17.0 DEVICE HOLDER _____  | 11 |
| 18.0 TEST EQUIPMENT LIST _____                                  | 12 |
| 19.0 MEASUREMENT UNCERTAINTIES _____                            | 13 |
| 20.0 REFERENCES _____   | 14 |
| APPENDIX A - SAR MEASUREMENT DATA _____                         | 15 |
| APPENDIX B - SYSTEM PERFORMANCE CHECK _____                     | 42 |
| APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS _____         | 48 |
| APPENDIX D - SAR TEST SETUP & DUT PHOTOGRAPHS _____             | 52 |
| APPENDIX E - DIPOLE CALIBRATION (FCC KDB 250418) _____          | 64 |
| APPENDIX F - PROBE CALIBRATION _____                            | 65 |

|                         |  |                                  |                      |                |              |                |
|-------------------------|--|----------------------------------|----------------------|----------------|--------------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation  | <b>Model(s):</b>                 | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100    | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver   | <b>Transmit Frequency Range:</b> | 450-512 MHz          |                |              |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                      |                | Page 3 of 65 |                |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## 1.0 INTRODUCTION

This measurement report demonstrates that the Kenwood USA Corporation Models: TK-3360-K, TK-3360-X Portable FM UHF PTT Radio Transceiver complies with the SAR (Specific Absorption Rate) RF exposure requirements specified in FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the Occupational / Controlled Exposure environment. The measurement procedures described in FCC OET Bulletin 65, Supplement C 01-01 (see reference [3]), IC RSS-102 Issue 3 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]), IEC Standard 62209-1:2005 (see reference [6]) and Draft Standard IEC 62209-2 (see reference [7]) were employed. A description of the device, operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used and the various provisions of the rules are included within this test report.

## 2.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for head and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot uses a controller with a built in VME-bus computer.



## 3.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

| <b>MEASURED RF CONDUCTED OUTPUT POWER LEVELS</b> |       |      |      |       |
|--|-------|------|------|-------|
| $N_c = 5^1$                                      | Freq. | Mode | dBm  | Watts |
| 1  | 450.0 | CW   | 37.3 | 5.37  |
| 2  | 465.5 | CW   | 37.3 | 5.37  |
| 3  | 481.0 | CW   | 37.4 | 5.50  |
| 4  | 496.5 | CW   | 37.3 | 5.37  |
| 5  | 512.0 | CW   | 37.2 | 5.25  |

**Notes**

- The test channels were selected in accordance with the procedures specified in IEEE 1528-2003 Section 6.3.2.
- The RF conducted output power levels of the DUT were measured by Celltech prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the external antenna connector.

|                         |   |  |                             |                    |                  |                |
|-------------------------|---|--|-----------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> | <b>Transmit Frequency Range:</b>   |                             | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                             |                    |                  | Page 4 of 65   |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

#### 4.0 FCC POWER THRESHOLDS FOR PTT DEVICES ( $f \leq 0.5$ GHz)



| FCC SAR Evaluation Power Thresholds for PTT Devices, $f \leq 0.5$ GHz*   |                           |                     | Manufacturer's Rated RF Output Power   |                    |
|--|---------------------------|---------------------|--|--------------------|
| Exposure Conditions  | P mW (General Population) | P mW (Occupational) | 100% PTT Duty Cycle  | 50% PTT Duty Cycle |
| Held to face, $d \geq 2.5$ cm  | 250                       | 1250                | 5 Watts  | 2.5 Watts          |
| Body-worn, $d \geq 1.5$ cm   | 200                       | 1000                |  |                    |
| Body-worn, $d \geq 1.0$ cm   | 150                       | 750                 | 5 Watts  | 2.5 Watts          |
| 1. The time-averaged output power, corresponding to the required PTT duty factor, is compared with these thresholds.<br>2. The closest distance between the user and the device or its antenna is used to determine the power thresholds.<br>* Per FCC KDB 447498 D01 v03r03 Section 5)b)i) (see reference [8]). |                           |                     | 1. The conducted output power level of the DUT exceeds the FCC threshold for SAR evaluation requirement. |                    |

#### 5.0 SAR PROBE CALIBRATION & MEASUREMENT FREQUENCIES

The following procedures are recommended for measurements at 150 MHz - 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. In general, SAR measurements below 300 MHz should be within  $\pm 50$  MHz of the probe calibration frequency. At 300 MHz to 3 GHz, measurements should be within  $\pm 100$  MHz of the probe calibration frequency. Measurements exceeding 50% of these intervals,  $\pm 25$  MHz  $< 300$  MHz and  $\pm 50$  MHz  $\geq 300$  MHz, require additional steps (per FCC KDB 450824 D01 v01r01, SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz - see reference [9]).

| Probe Calibration Freq.   | Device Measurement Freq. | Frequency Interval | $\pm 50$ MHz $\geq 300$ MHz   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
|---|--------------------------|--------------------|---|--------------|-------------|----------|----------------------------|----|-------------|-----------|------------|----------|--------|--|--|--|--|----------|--------|--------|---|---------|--------|--------|------|----------|--------|--------|------|
| 450 MHz   | 450.0 MHz                | 0 MHz              | $< 50$ MHz <sup>1</sup>   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
|   | 465.5 MHz                | 15.5 MHz           | $< 50$ MHz <sup>1</sup>   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
|   | 481.0 MHz                | 31.0 MHz           | $< 50$ MHz <sup>1</sup>   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
|   | 496.5 MHz                | 46.5 MHz           | $< 50$ MHz <sup>1</sup>   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
|   | 512.0 MHz                | 62 MHz             | $> 50$ MHz <sup>2</sup>   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| 1. The probe calibration and measurement frequency interval is $< 50$ MHz; therefore the additional steps were not required.  |                          |                    |   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| 2. The probe calibration and measurement frequency interval is $> 50$ MHz; therefore the following additional steps were implemented (per FCC KDB 450824 D01 v01r01): <i>The measured 1-g SAR may be compensated with respect to +5% tolerances in <math>\epsilon_r</math> and -5% tolerances in <math>\sigma</math>, computed according to valid SAR sensitivity data, to reduce SAR underestimation and maintain conservativeness.</i> SAR sensitivity data is per SPEAG DASY4 Manual (see reference [10]).                                       |                          |                    |   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| Probe Calibration Frequency = 450 MHz   |                          | Target Parameters: | Head 43.5 $\epsilon_r$ / 0.87 $\sigma$ Body = 56.7 $\epsilon_r$ / 0.94 $\sigma$ |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| Test Freq.  | Tissue                   | $\sigma$           | Sensitivity   | $\epsilon_r$ | Sensitivity | % Change | Compensated SAR at 512 MHz |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| 512 MHz   | Body                     | -1.1%              | 0.473%  | +1.8%        | 0.828%      | 1.3 %    | 7.33 W/kg                  | 1g | 50% ptt d/c |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| <table border="1"> <thead> <tr> <th>Parameter</th> <th><math>\epsilon</math></th> <th><math>\sigma</math></th> <th><math>\rho</math></th> </tr> </thead> <tbody> <tr> <td colspan="4"> <math>f=450</math> MHz, <math>d=15</math> mm<br/> <math>(\epsilon_r=43.5, \sigma=0.87</math> S/m) </td> </tr> <tr> <td>SAR Peak</td> <td>- 0.56</td> <td>+ 0.67</td> <td>-</td> </tr> <tr> <td>SAR 1 g</td> <td>- 0.46</td> <td>+ 0.43</td> <td>0.09</td> </tr> <tr> <td>SAR 10 g</td> <td>- 0.37</td> <td>+ 0.22</td> <td>0.17</td> </tr> </tbody> </table> |                          |                    |   |              |             |          |                            |    |             | Parameter | $\epsilon$ | $\sigma$ | $\rho$ | $f=450$ MHz, $d=15$ mm<br>$(\epsilon_r=43.5, \sigma=0.87$ S/m) |  |  |  | SAR Peak | - 0.56 | + 0.67 | - | SAR 1 g | - 0.46 | + 0.43 | 0.09 | SAR 10 g | - 0.37 | + 0.22 | 0.17 |
| Parameter   | $\epsilon$               | $\sigma$           | $\rho$  |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| $f=450$ MHz, $d=15$ mm<br>$(\epsilon_r=43.5, \sigma=0.87$ S/m)  |                          |                    |   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| SAR Peak  | - 0.56                   | + 0.67             | -   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| SAR 1 g   | - 0.46                   | + 0.43             | 0.09  |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| SAR 10 g  | - 0.37                   | + 0.22             | 0.17  |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |
| Note: Per SPEAG, the above sensitivity data (Head) from the DASY4 manual (see reference [10]) can be applied to Body tissue parameters provided the approximation is for $< 5\%$ deviation of liquid parameters.  |                          |                    |   |              |             |          |                            |    |             |           |            |          |        |  |  |  |  |          |        |        |   |         |        |        |      |          |        |        |      |

|                         |  |  |                      |         |           |              |
|-------------------------|--|--|----------------------|---------|-----------|--------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | KENWOOD      |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  | 450-512 MHz          |         |           |              |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |         |           | Page 5 of 65 |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) |  |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

## 6.0 SAR MEASUREMENT SUMMARY

### SAR EVALUATION RESULTS

| Test Type | Test Date | Freq. | Battery Part No. | Antenna Part No. | Accessory Type(s) |          | Device Distance to Planar Phantom |         | Cond. Power Before Test<br>Watts | Measured SAR 1g (W/kg) |      | SAR Drift During Test<br>dB | Scaled SAR with droop 1g (W/kg) |      |
|-----------|-----------|-------|------------------|------------------|-------------------|----------|-----------------------------------|---------|----------------------------------|------------------------|------|-----------------------------|---------------------------------|------|
|           |           |       |                  |                  | Body-worn         | Audio    | DUT                               | Antenna |                                  | PTT Duty Cycle         |      |                             | PTT Duty Cycle                  |      |
|           |           | MHz   |                  |                  |                   |          |                                   |         | 100%                             | 50%                    | 100% | 50%                         |                                 |      |
| Face      | 10/15     | 481.0 | KNB-56N          | KRA-23M          | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 5.39                   | 2.70 | -0.568                      | 6.14                            | 3.07 |
| Face      | 10/15     | 481.0 | KNB-56N          | KRA-23M2         | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 6.53                   | 3.27 | -0.481                      | 7.29                            | 3.65 |
| Face      | 10/15     | 481.0 | KNB-56N          | KRA-27M          | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 6.19                   | 3.10 | -0.558                      | 7.04                            | 3.52 |
| Face      | 10/15     | 481.0 | KNB-56N          | KRA-27M2         | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 6.28                   | 3.14 | -0.474                      | 7.00                            | 3.50 |
| Face      | 10/15     | 481.0 | KNB-55L          | KRA-23M2         | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 6.99                   | 3.50 | -0.547                      | 7.93                            | 3.96 |
| Face      | 10/15     | 481.0 | KNB-57L          | KRA-23M2         | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.5                              | 6.73                   | 3.37 | -0.427                      | 7.43                            | 3.72 |
| Face      | 10/15     | 465.5 | KNB-56N          | KRA-27M          | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.37                             | 6.58                   | 3.29 | -0.521                      | 7.42                            | 3.71 |
| Face      | 10/15     | 496.5 | KNB-56N          | KRA-23M2         | n/a               | n/a      | 2.5 cm                            | 3.7 cm  | 5.37                             | 5.25                   | 2.63 | -0.542                      | 5.95                            | 2.97 |
| Body      | 10/14     | 481.0 | KNB-56N          | KRA-23M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.5                              | 9.55                   | 4.78 | -0.482                      | 10.7                            | 5.34 |
| Body      | 10/14     | 481.0 | KNB-56N          | KRA-23M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.5                              | 12.9                   | 6.45 | -0.764                      | 15.4                            | 7.69 |
| Body      | 10/14     | 481.0 | KNB-56N          | KRA-27M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.5                              | 12.4                   | 6.20 | -0.249                      | 13.1                            | 6.57 |
| Body      | 10/14     | 481.0 | KNB-56N          | KRA-27M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.5                              | 13.5                   | 6.75 | -0.506                      | 15.2                            | 7.58 |
| Body      | 10/14     | 481.0 | KNB-55L          | KRA-27M2         | Belt-Clip         | Spkr-Mic | 1.5 cm                            | 2.7 cm  | 5.5                              | 11.1                   | 5.55 | -0.426                      | 12.2                            | 6.12 |
| Body      | 10/14     | 481.0 | KNB-57L          | KRA-27M2         | Belt-Clip         | Spkr-Mic | 1.2 cm                            | 2.7 cm  | 5.5                              | 10.3                   | 5.15 | -0.303                      | 11.0                            | 5.52 |
| Body      | 10/14     | 450.0 | KNB-56N          | KRA-23M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 12.8                   | 6.40 | -0.256                      | 13.6                            | 6.79 |
| Body      | 10/14     | 450.0 | KNB-56N          | KRA-27M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 11.5                   | 5.75 | -0.295                      | 12.3                            | 6.15 |
| Body      | 10/14     | 465.5 | KNB-56N          | KRA-23M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 9.58                   | 4.79 | -0.543                      | 10.9                            | 5.43 |
| Body      | 10/14     | 465.5 | KNB-56N          | KRA-27M          | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 12.9                   | 6.45 | -0.469                      | 14.4                            | 7.19 |
| Body      | 10/14     | 496.5 | KNB-56N          | KRA-23M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 10.7                   | 5.35 | -0.268                      | 11.4                            | 5.69 |
| Body      | 10/14     | 496.5 | KNB-56N          | KRA-27M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.37                             | 13.6                   | 6.80 | -0.492                      | 15.2                            | 7.62 |
| Body      | 10/14     | 512.0 | KNB-56N          | KRA-23M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.25                             | 10.8                   | 5.40 | -0.239                      | 11.4                            | 5.71 |
| Body      | 10/14     | 512.0 | KNB-56N          | KRA-27M2         | Belt-Clip         | Spkr-Mic | 1.0 cm                            | 2.7 cm  | 5.25                             | 13.3                   | 6.65 | -0.367                      | 14.5                            | 7.24 |
| Body      | 10/14     | 496.5 | KNB-56N          | KRA-27M2         | Belt-Clip         | Headset  | 1.0 cm                            | 2.7 cm  | 5.37                             | 13.7                   | 6.85 | -0.433                      | 15.1                            | 7.57 |

#### SAR LIMIT(S)

#### HEAD & BODY

#### SPATIAL PEAK

#### RF EXPOSURE CATEGORY

FCC 47 CFR 2.1093

Health Canada Safety Code 6

8.0 W/kg

averaged over 1 gram

Occupational / Controlled



| Test Date     | Fluid Type | Ambient Temp. | Fluid Temp. | Fluid Depth | Atmospheric Pressure | Relative Humidity | $\rho$ (Kg/m <sup>3</sup> ) |
|---------------|------------|---------------|-------------|-------------|----------------------|-------------------|-----------------------------|
| Oct. 14, 2009 | 450 Body   | 22.4 °C       | 21.6 °C     | ≥ 15 cm     | 101.1 kPa            | 35%               | 1000                        |
| Oct. 15, 2009 | 450 Head   | 22.0 °C       | 21.0 °C     | ≥ 15 cm     | 101.1 kPa            | 35%               | 1000                        |

#### Battery Types Tested

#### Antenna Types Tested

|              |        |                 |                        |                        |
|--------------|--------|-----------------|------------------------|------------------------|
| P/N: KNB-56N | Ni-MH  | 7.2 V, 1400 mAh | KRA-23M/M2 = Stub Type | KRA-27M/M2 = Whip Type |
| P/N: KNB-55L | Li-ion | 7.4 V, 1480 mAh |                        |                        |
| P/N: KNB-57L | Li-ion | 7.4 V, 2000 mAh |                        |                        |

|                         |  |  |                      |         |           |              |
|-------------------------|--|--|----------------------|---------|-----------|--------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | KENWOOD      |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  | 450-512 MHz          |         |           |              |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |         |           | Page 6 of 65 |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |



## 7.0 MEASURED FLUID DIELECTRIC PARAMETERS

| 450 MHz Body - Oct. 14/09        |           |      | 470 MHz Body - Oct. 14/09        |       |           | 480 MHz Body - Oct. 14/09        |       |      | 500 MHz Body - Oct. 14/09        |       |       | 510 MHz Body - Oct. 14/09        |           |      |       |
|----------------------------------|-----------|------|----------------------------------|-------|-----------|----------------------------------|-------|------|----------------------------------|-------|-------|----------------------------------|-----------|------|-------|
| Dielectric Constant $\epsilon_r$ |           |      | Dielectric Constant $\epsilon_r$ |       |           | Dielectric Constant $\epsilon_r$ |       |      | Dielectric Constant $\epsilon_r$ |       |       | Dielectric Constant $\epsilon_r$ |           |      |       |
| 450 Target                       | Meas.     | Dev. | 450 Target                       | Meas. | Dev.      | 450 Target                       | Meas. | Dev. | 450 Target                       | Meas. | Dev.  | 450 Target                       | Meas.     | Dev. |       |
| 56.7                             | $\pm 5\%$ | 58.7 | +3.5%                            | 56.7  | $\pm 5\%$ | 58.4                             | +3.0% | 56.7 | $\pm 5\%$                        | 58.3  | +2.8% | 56.7                             | $\pm 5\%$ | 57.7 | +1.8% |
| Conductivity $\sigma$ (mho/m)    |           |      | Conductivity $\sigma$ (mho/m)    |       |           | Conductivity $\sigma$ (mho/m)    |       |      | Conductivity $\sigma$ (mho/m)    |       |       | Conductivity $\sigma$ (mho/m)    |           |      |       |
| 450 Target                       | Meas.     | Dev. | 450 Target                       | Meas. | Dev.      | 450 Target                       | Meas. | Dev. | 450 Target                       | Meas. | Dev.  | 450 Target                       | Meas.     | Dev. |       |
| 0.94                             | $\pm 5\%$ | 0.90 | -4.3%                            | 0.94  | $\pm 5\%$ | 0.91                             | -3.2% | 0.94 | $\pm 5\%$                        | 0.92  | -2.1% | 0.94                             | $\pm 5\%$ | 0.93 | -1.1% |
| 450 MHz Head - Oct. 15/09        |           |      | 470 MHz Head - Oct. 15/09        |       |           | 480 MHz Head - Oct. 15/09        |       |      | 500 MHz Head - Oct. 15/09        |       |       | 510 MHz Head - Oct. 15/09        |           |      |       |
| Dielectric Constant $\epsilon_r$ |           |      | Dielectric Constant $\epsilon_r$ |       |           | Dielectric Constant $\epsilon_r$ |       |      | Dielectric Constant $\epsilon_r$ |       |       | Dielectric Constant $\epsilon_r$ |           |      |       |
| 450 Target                       | Meas.     | Dev. | 450 Target                       | Meas. | Dev.      | 450 Target                       | Meas. | Dev. | 450 Target                       | Meas. | Dev.  | 450 Target                       | Meas.     | Dev. |       |
| 43.5                             | $\pm 5\%$ | 43.4 | -0.2%                            | 43.5  | $\pm 5\%$ | 43.4                             | -0.2% | 43.5 | $\pm 5\%$                        | 42.8  | -1.6% | 43.5                             | $\pm 5\%$ | 42.4 | -2.5% |
| Conductivity $\sigma$ (mho/m)    |           |      | Conductivity $\sigma$ (mho/m)    |       |           | Conductivity $\sigma$ (mho/m)    |       |      | Conductivity $\sigma$ (mho/m)    |       |       | Conductivity $\sigma$ (mho/m)    |           |      |       |
| 450 Target                       | Meas.     | Dev. | 450 Target                       | Meas. | Dev.      | 450 Target                       | Meas. | Dev. | 450 Target                       | Meas. | Dev.  | 450 Target                       | Meas.     | Dev. |       |
| 0.87                             | $\pm 5\%$ | 0.83 | -4.5%                            | 0.87  | $\pm 5\%$ | 0.85                             | -2.3% | 0.87 | $\pm 5\%$                        | 0.84  | -3.4% | 0.87                             | $\pm 5\%$ | 0.86 | -1.1% |

## 8.0 DETAILS OF SAR EVALUATION

- The number of test frequencies and the channels evaluated for SAR were selected in accordance with the procedures described in IEEE 1528-2003 Section 6.3.2.
- The DUT was evaluated in a face-held configuration with the front of the radio placed parallel to the outer surface of the planar phantom. A 2.5 cm spacing was maintained between the front side of the DUT and the outer surface of the planar phantom. The Ni-MH battery was selected as the primary battery out of the three available battery options based on the SAR levels measured with each battery in the body-worn configuration. The DUT was firstly evaluated with the Ni-MH battery at the mid channel with each antenna type. The two Li-ion battery options were evaluated at the mid channel in the worst-case antenna configuration from the Ni-MH evaluations. The remaining face-held SAR evaluations were performed with the worst-case battery from the mid channel evaluations. The low and high channels were not evaluated for face-held SAR based on the measurement results at the middle channels were > 3 dB below the SAR limit at 50% PTT duty cycle (based on applying the test reduction provision per FCC OET 65, Supplement C 01-01).
- The DUT was evaluated in a body-worn configuration with the back of the radio facing the outer surface of the planar phantom and the attached belt-clip accessory placed parallel to and touching the planar phantom. The Ni-MH battery was selected as the primary battery out of the three available battery options based on the lesser spacing it provides with the belt-clip accessory from the back of the radio to the user's body (1.0 cm). The DUT was firstly evaluated with the Ni-MH battery at the mid channel with each antenna type. The two Li-ion battery options were evaluated at the mid channel in the worst-case antenna configuration from the Ni-MH evaluations. The remaining body-worn SAR evaluations were performed with the worst-case battery from the mid channel evaluations. The DUT was evaluated for body-worn SAR with the customer-supplied speaker-microphone audio accessory connected to the audio port. The maximum SAR level configuration (100% PTT duty cycle) with the speaker-microphone was subsequently evaluated with the headset boom-microphone audio accessory connected to the audio port to report a SAR comparison between the audio accessories.
- The DUT was tested at the maximum output power level preset by the manufacturer in unmodulated continuous transmit operation (Continuous Wave mode at 100% duty cycle) with the transmit key constantly depressed. For a push-to-talk device the 50% duty cycle compensation reported assumes a transmit/receive cycle of equal time base.
- The conducted output power levels of the DUT referenced in this report were measured by Celltech Labs Inc. prior to the SAR evaluations at the antenna connector of the DUT using a Gigatronics 8652A Universal Power Meter in accordance with FCC 47 CFR §2.1046 and IC RSS-Gen.
- The area scan evaluation was performed with a fully charged battery. After the area scan was completed the radio was cooled down and the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
- A SAR-versus-Time power droop evaluation was performed in the test configuration that reported the maximum scaled SAR level. See Appendix A (SAR Test Plots) for SAR-versus-Time power droop evaluation plot.
- The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements.
- The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).

|                         |  |  |                      |         |           |              |
|-------------------------|--|--|----------------------|---------|-----------|--------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | KENWOOD      |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  | 450-512 MHz          |         |           |              |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |         |           | Page 7 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## 9.0 EVALUATION PROCEDURES

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

## 10.0 SYSTEM PERFORMANCE CHECK



Prior to the SAR evaluation a daily system check was performed using a Plexiglas planar phantom and 450 MHz dipole (see Appendix B for system performance check test plots) in accordance with the procedures described in IEEE Standard 1528-2003 (see reference [5]). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C for measured fluid dielectric parameters). A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±10% from the system validation target SAR value (see Appendix E for system validation target SAR value listed on page 10 of the dipole calibration report).

### SYSTEM PERFORMANCE CHECK EVALUATION

| Test Date | Equiv. Tissue<br>Freq. (MHz) | SAR 1g (W/kg)   |       |       | Dielectric Constant $\epsilon_r$ |       |       | Conductivity $\sigma$ (mho/m) |       |       | $\rho$ (Kg/m <sup>3</sup> ) | Amb. Temp. (°C) | Fluid Temp. (°C) | Fluid Depth (cm) | Humid. (%) | Barom. Press. (kPa) |
|-----------|------------------------------|---|-------|-------|----------------------------------|-------|-------|-------------------------------|-------|-------|-----------------------------|-----------------|------------------|------------------|------------|---------------------|
|           |                              | Sys. Val. Target  | Meas. | Dev.  | Sys. Val. Target                 | Meas. | Dev.  | Sys. Val. Target              | Meas. | Dev.  |                             |                 |                  |                  |            |                     |
| Oct-14    | Head 450                     | 1.22 ±10%   | 1.28  | +4.9% | 43.8 ±5%                         | 44.3  | +1.2% | 0.86 ±5%                      | 0.85  | -1.0% | 1000                        | 22.2            | 21.4             | ≥ 15             | 35         | 101.1               |
| Oct-15    | Head 450                     | 1.22 ±10%   | 1.28  | +4.9% | 43.8 ±5%                         | 43.4  | -0.9% | 0.86 ±5%                      | 0.83  | -3.5% | 1000                        | 22.0            | 21.0             | ≥ 15             | 35         | 101.1               |
| Notes     | 1.                           | The target SAR value is referenced from the System Validation performed by Celltech Labs Inc. (see Appendix E).   |       |       |                                  |       |       |                               |       |       |                             |                 |                  |                  |            |                     |
|           | 2.                           | The target dielectric parameters are referenced from the System Validation performed by Celltech Labs Inc. (see Appendix E).  |       |       |                                  |       |       |                               |       |       |                             |                 |                  |                  |            |                     |
|           | 3.                           | The fluid temperature was measured prior to and after the system performance check to ensure the temperature remained within +/-2°C of the fluid temperature reported during the dielectric parameter measurements. |       |       |                                  |       |       |                               |       |       |                             |                 |                  |                  |            |                     |
|           | 4.                           | The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).                                 |       |       |                                  |       |       |                               |       |       |                             |                 |                  |                  |            |                     |

|                         |  |  |                      |                |           |              |
|-------------------------|--|--|----------------------|----------------|-----------|--------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD      |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |              |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 8 of 65 |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## 11.0 SIMULATED EQUIVALENT TISSUES



The simulated equivalent tissue recipes in the table below are derived from the SAR system manufacturer's suggested recipes in the DASY4 manual (see references [11] and [12]) in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]) and IEC Standard 62209-1:2005 (see reference [6]). The ingredient percentage may have been adjusted minimally in order to achieve the appropriate target dielectric parameters within the specified tolerance.

| SIMULATED TISSUE MIXTURES |              |              |
|---------------------------|--------------|--------------|
| INGREDIENT                | 450 MHz Head | 450 MHz Body |
| Water                     | 38.56 %      | 52.00 %      |
| Sugar                     | 56.32 %      | 45.65 %      |
| Salt                      | 3.95 %       | 1.75 %       |
| HEC                       | 0.98 %       | 0.50 %       |
| Bactericide               | 0.19 %       | 0.10 %       |

## 12.0 SAR LIMITS

| SAR RF EXPOSURE LIMITS   |                             |                    |              |
|--|-----------------------------|--------------------|--------------|
| FCC 47 CFR 2.1093  | Health Canada Safety Code 6 | General Population | Occupational |
| Spatial Average<br>(averaged over the whole body)  |                             | 0.08 W/kg          | 0.4 W/kg     |
| Spatial Peak<br>(averaged over any 1 g of tissue)  |                             | 1.6 W/kg           | 8.0 W/kg     |
| Spatial Peak<br>(hands/wrists/feet/ankles averaged over 10 g)  |                             | 4.0 W/kg           | 20.0 W/kg    |
| The Spatial Average value of the SAR averaged over the whole body.   |                             |                    |              |
| The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.                              |                             |                    |              |
| The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.                            |                             |                    |              |
| Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.                              |                             |                    |              |
| Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure. |                             |                    |              |



|                         |  |  |                      |                |           |              |
|-------------------------|--|--|----------------------|----------------|-----------|--------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD      |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   |                      | 450-512 MHz    |           |              |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 9 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |


## 13.0 ROBOT SYSTEM SPECIFICATIONS

| <u>Specifications</u>                           |   |
|---|---|
| <b>Positioner</b>                               | Stäubli Unimation Corp. Robot Model: RX60L  |
| <b>Repeatability</b>                            | 0.02 mm   |
| <b>No. of axis</b>                              | 6   |
| <u>Data Acquisition Electronic (DAE) System</u> |   |
| <u>Cell Controller</u>                          |   |
| <b>Processor</b>                                | AMD Athlon XP 2400+   |
| <b>Clock Speed</b>                              | 2.0 GHz   |
| <b>Operating System</b>                         | Windows XP Professional   |
| <u>Data Converter</u>                           |   |
| <b>Features</b>                                 | Signal Amplifier, multiplexer, A/D converter, and control logic                   |
| <b>Software</b>                                 | Measurement Software: DASY4, V4.7 Build 44  |
|   | Postprocessing Software: SEMCAD, V1.8 Build 171                                   |
| <b>Connecting Lines</b>                         | Optical downlink for data and status info., Optical uplink for commands and clock |
| <u>DASY4 Measurement Server</u>                 |   |
| <b>Function</b>                                 | Real-time data evaluation for field measurements and surface detection            |
| <b>Hardware</b>                                 | PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM                              |
| <b>Connections</b>                              | COM1, COM2, DAE, Robot, Ethernet, Service Interface                               |
| <u>E-Field Probe</u>                            |   |
| <b>Model</b>                                    | ET3DV6  |
| <b>Serial No.</b>                               | 1590  |
| <b>Construction</b>                             | Triangular core fiber optic detection system                                      |
| <b>Frequency</b>                                | 10 MHz to 6 GHz   |
| <b>Linearity</b>                                | ±0.2 dB (30 MHz to 3 GHz)   |
| <u>Evaluation Phantom</u>                       |   |
| <b>Type</b>                                     | Side Planar Phantom   |
| <b>Shell Material</b>                           | Plexiglas   |
| <b>Bottom Thickness</b>                         | 2.0 mm ± 0.1 mm   |
| <b>Inner Dimensions</b>                         | 72.6 cm (L) x 20.3 cm (W) x 20.3 cm (H)   |
| <u>Validation Phantom (≤ 450MHz)</u>            |   |
| <b>Type</b>                                     | Planar Phantom  |
| <b>Shell Material</b>                           | Plexiglas   |
| <b>Bottom Thickness</b>                         | 6 mm ± 0.1 mm   |
| <b>Inner Dimensions</b>                         | 83.5 cm (L) x 36.9 cm (W) x 21.8 cm (H)   |

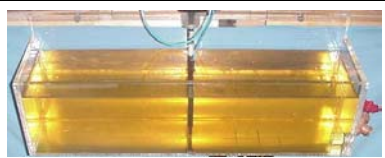
|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 10 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |


## 14.0 PROBE SPECIFICATION (ET3DV6)

|  |   |
|--|---|
| <p><b>Construction:</b> Symmetrical design with triangular core;<br/>Built-in shielding against static charges<br/>PEEK enclosure material (resistant to organic solvents, glycol)</p> <p><b>Calibration:</b> In air from 10 MHz to 2.5 GHz<br/>In head simulating tissue at frequencies of 900 MHz and 1.8 GHz (accuracy <math>\pm 8\%</math>)</p> <p><b>Frequency:</b> 10 MHz to &gt; 6 GHz; Linearity: <math>\pm 0.2</math> dB (30 MHz to 3 GHz)</p> <p><b>Directivity:</b> <math>\pm 0.2</math> dB in head tissue (rotation around probe axis)<br/><math>\pm 0.4</math> dB in head tissue (rotation normal to probe axis)</p> <p><b>Dynamic Range:</b> 5 <math>\mu</math>W/g to &gt; 100 mW/g; Linearity: <math>\pm 0.2</math> dB</p> <p><b>Surface Detect:</b> <math>\pm 0.2</math> mm repeatability in air and clear liquids over diffuse reflecting surfaces</p> <p><b>Dimensions:</b> Overall length: 330 mm; Tip length: 16 mm;<br/>Body diameter: 12 mm; Tip diameter: 6.8 mm<br/>Distance from probe tip to dipole centers: 2.7 mm</p> <p><b>Application:</b> General dosimetry up to 3 GHz; Compliance tests of mobile phone</p> |  |
| <b>ET3DV6 E-Field Probe</b>  |   |


## 15.0 SIDE PLANAR PHANTOM

|   |  |
|---|--|
| <p>The side planar phantom is constructed of Plexiglas material with a 2.0 mm shell thickness for face-held and body-worn SAR evaluations of portable radio transceivers. The side planar phantom is mounted on the side of the DASY4 compact system table.</p> |  |
| <b>Plexiglas Side Planar Phantom</b>  |  |



## 16.0 VALIDATION PLANAR PHANTOM

|  |   |
|--|---|
| <p>The validation planar phantom is constructed of Plexiglas material with a 6.0 mm shell thickness for system validations at 450MHz and below. The validation planar phantom is mounted to the table of the DASY4 compact system.</p> |  |
| <b>Plexiglas Validation Planar Phantom</b>   |   |

## 17.0 DEVICE HOLDER

|  |   |
|--|---|
| <p>The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of <math>65^\circ</math>. 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.</p> |  |
| <b>Device Holder</b>   |   |



|   |  |                          |                |
|---|--|--------------------------|----------------|
| <b>Applicant:</b> Kenwood USA Corporation                       | <b>Model(s):</b> TK-3360-K, TK-3360-X  | <b>FCC ID:</b> ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b> Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b> 450-512 MHz   |                          |                |
| 2009 Celltech Labs Inc.   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                          | Page 11 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## 18.0 TEST EQUIPMENT LIST

| TEST EQUIPMENT |  | ASSET NO. | SERIAL NO. | DATE CALIBRATED | CALIBRATION DUE DATE |
|----------------|--|-----------|------------|-----------------|----------------------|
| USED           | DESCRIPTION                              |           |            |                 |                      |
| x              | Schmid & Partner DASY4 System            | -         | -          | -               | -                    |
| x              | -DASY4 Measurement Server                | 00158     | 1078       | CNR             | CNR                  |
| x              | -Robot                                   | 00046     | 599396-01  | CNR             | CNR                  |
| x              | -DAE4                                    | 00019     | 353        | 28Apr09         | 28Apr10              |
| x              | -ET3DV6 E-Field Probe                    | 00017     | 1590       | 16Jul09         | 16Jul10              |
| x              | -Celltech 450 MHz Validation Dipole      | 00024     | 136        | 19Jan09         | 19Jan10              |
| x              | -Plexiglas Side Planar Phantom           | 00156     | 161        | CNR             | CNR                  |
| x              | -Plexiglas Validation Planar Phantom     | 00157     | 137        | CNR             | CNR                  |
| x              | HP 85070C Dielectric Probe Kit           | 00033     | US39240170 | CNR             | CNR                  |
| x              | HP E4408B Spectrum Analyzer              | 00015     | US39240170 | 23Apr08         | 28Apr10              |
| x              | Gigatronics 8652A Power Meter            | 00007     | 1835272    | 23Apr08         | 28Apr10              |
| x              | Gigatronics 80701A Power Sensor          | 00014     | 1833699    | 23Apr08         | 28Apr10              |
| x              | HP 8753ET Network Analyzer               | 00134     | US39170292 | 28Apr08         | 28Apr10              |
| x              | Rohde & Schwarz SMR20 Signal Generator   | 00006     | 100104     | CNR             | CNR                  |
| x              | Amplifier Research 5S1G4 Power Amplifier | 00106     | 26235      | CNR             | CNR                  |
| Abbr.          | CNR = Calibration Not Required           |           |            |                 |                      |



|                         |   |  |                             |                    |                  |                |
|-------------------------|---|--|-----------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> | <b>Transmit Frequency Range:</b>   |                             | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                             |                    |                  | Page 12 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

## 19.0 MEASUREMENT UNCERTAINTIES

| UNCERTAINTY BUDGET FOR DEVICE EVALUATION                                      |                   |                      |                          |             |       |        |                           |                            |                                    |
|---|-------------------|----------------------|--------------------------|-------------|-------|--------|---------------------------|----------------------------|------------------------------------|
| Uncertainty Component   | IEEE 1528 Section | Uncertainty Value ±% | Probability Distribution | Divisor     | ci 1g | ci 10g | Uncertainty Value ±% (1g) | Uncertainty Value ±% (10g) | V <sub>i</sub> or V <sub>eff</sub> |
| <b>Measurement System</b>   |                   |                      |                          |             |       |        |                           |                            |                                    |
| Probe Calibration (450 MHz)   | E.2.1             | 6.65                 | Normal                   | 1           | 1     | 1      | 6.65                      | 6.65                       | ∞                                  |
| Axial Isotropy  | E.2.2             | 4.7                  | Rectangular              | 1.732050808 | 0.7   | 0.7    | 1.9                       | 1.9                        | ∞                                  |
| Hemispherical Isotropy  | E.2.2             | 9.6                  | Rectangular              | 1.732050808 | 0.7   | 0.7    | 3.9                       | 3.9                        | ∞                                  |
| Boundary Effect   | E.2.3             | 1                    | Rectangular              | 1.732050808 | 1     | 1      | 0.6                       | 0.6                        | ∞                                  |
| Linearity   | E.2.4             | 4.7                  | Rectangular              | 1.732050808 | 1     | 1      | 2.7                       | 2.7                        | ∞                                  |
| System Detection Limits   | E.2.5             | 1                    | Rectangular              | 1.732050808 | 1     | 1      | 0.6                       | 0.6                        | ∞                                  |
| Readout Electronics   | E.2.6             | 0.3                  | Normal                   | 1           | 1     | 1      | 0.3                       | 0.3                        | ∞                                  |
| Response Time   | E.2.7             | 0.8                  | Rectangular              | 1.732050808 | 1     | 1      | 0.5                       | 0.5                        | ∞                                  |
| Integration Time  | E.2.8             | 2.6                  | Rectangular              | 1.732050808 | 1     | 1      | 1.5                       | 1.5                        | ∞                                  |
| RF Ambient Conditions   | E.6.1             | 3                    | Rectangular              | 1.732050808 | 1     | 1      | 1.7                       | 1.7                        | ∞                                  |
| Probe Positioner Mechanical Tolerance   | E.6.2             | 0.4                  | Rectangular              | 1.732050808 | 1     | 1      | 0.2                       | 0.2                        | ∞                                  |
| Probe Positioning wrt Phantom Shell   | E.6.3             | 2.9                  | Rectangular              | 1.732050808 | 1     | 1      | 1.7                       | 1.7                        | ∞                                  |
| Extrapolation, interpolation & integration algorithms for max. SAR evaluation | E.5               | 1                    | Rectangular              | 1.732050808 | 1     | 1      | 0.6                       | 0.6                        | ∞                                  |
| <b>Test Sample Related</b>  |                   |                      |                          |             |       |        |                           |                            |                                    |
| Test Sample Positioning   | E.4.2             | 2.9                  | Normal                   | 1           | 1     | 1      | 2.9                       | 2.9                        | 12                                 |
| Device Holder Uncertainty   | E.4.1             | 3.6                  | Normal                   | 1           | 1     | 1      | 3.6                       | 3.6                        | 8                                  |
| SAR Drift Measurement   | 6.6.2             | 5                    | Rectangular              | 1.732050808 | 1     | 1      | 2.9                       | 2.9                        | ∞                                  |
| <b>Phantom and Tissue Parameters</b>  |                   |                      |                          |             |       |        |                           |                            |                                    |
| Phantom Uncertainty   | E.3.1             | 4                    | Rectangular              | 1.732050808 | 1     | 1      | 2.3                       | 2.3                        | ∞                                  |
| Liquid Conductivity (target)  | E.3.2             | 5                    | Rectangular              | 1.732050808 | 0.64  | 0.43   | 1.8                       | 1.2                        | ∞                                  |
| Liquid Conductivity (measured)  | E.3.3             | 4.5                  | Normal                   | 1           | 0.64  | 0.43   | 2.9                       | 1.9                        | ∞                                  |
| Liquid Permittivity (target)  | E.3.2             | 5                    | Rectangular              | 1.732050808 | 0.6   | 0.49   | 1.7                       | 1.4                        | ∞                                  |
| Liquid Permittivity (measured)  | E.3.3             | 3.5                  | Normal                   | 1           | 0.6   | 0.49   | 2.1                       | 1.7                        | ∞                                  |
| <b>Combined Standard Uncertainty</b>  |                   |                      | <b>RSS</b>               |             |       |        | <b>11.57</b>              | <b>11.18</b>               |                                    |
| <b>Expanded Uncertainty (95% Confidence Interval)</b>                         |                   |                      | <b>k=2</b>               |             |       |        | <b>23.14</b>              | <b>22.35</b>               |                                    |
| Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003      |                   |                      |                          |             |       |        |                           |                            |                                    |



|                         |  |  |                      |             |           |                |               |
|-------------------------|--|--|----------------------|-------------|-----------|----------------|---------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID:     | ALH415100 | <b>KENWOOD</b> |               |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  |                      | 450-512 MHz |           |                |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |             |           |                | Page 13 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## 20.0 REFERENCES



- [1] Federal Communications Commission - "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093.
- [2] Health Canada - "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.
- [3] Federal Communications Commission - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- [4] Industry Canada - "Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 3: June 2009.
- [5] IEEE Standard 1528-2003 - "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques": December 2003.
- [6] IEC International Standard 62209-1:2005 - "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures."
- [7] International Standard IEC 62209-2 Draft (106-62209-2-CDV\_090323) - "Human exposure to radio frequency fields from hand-held & body-mounted wireless comm. devices - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (30 MHz to 6 GHz)".
- [8] Federal Communications Commission, Office of Engineering and Technology - "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies"; KDB 447498 D01 v03r03: January 2009.
- [9] Federal Communications Commission, Office of Engineering and Technology - "Application Note: SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz"; KDB 450824 D01 v01r01: January 2007.
- [10] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 21 Application Note, SAR Sensitivities: Sept. 2005.
- [11] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 16 Application Note, Head Tissue Recipe: Sept. 2005.
- [12] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 17 Application Note, Body Tissue Recipe: Sept. 2005.

|                         |  |                                  |                             |                    |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> |                             | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                    |                  | Page 14 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**APPENDIX A - SAR MEASUREMENT DATA**

|                         |  |                                  |                             |                |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                |                  | Page 15 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

## Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M Antenna - 481.0 MHz

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 5.51 mW/g

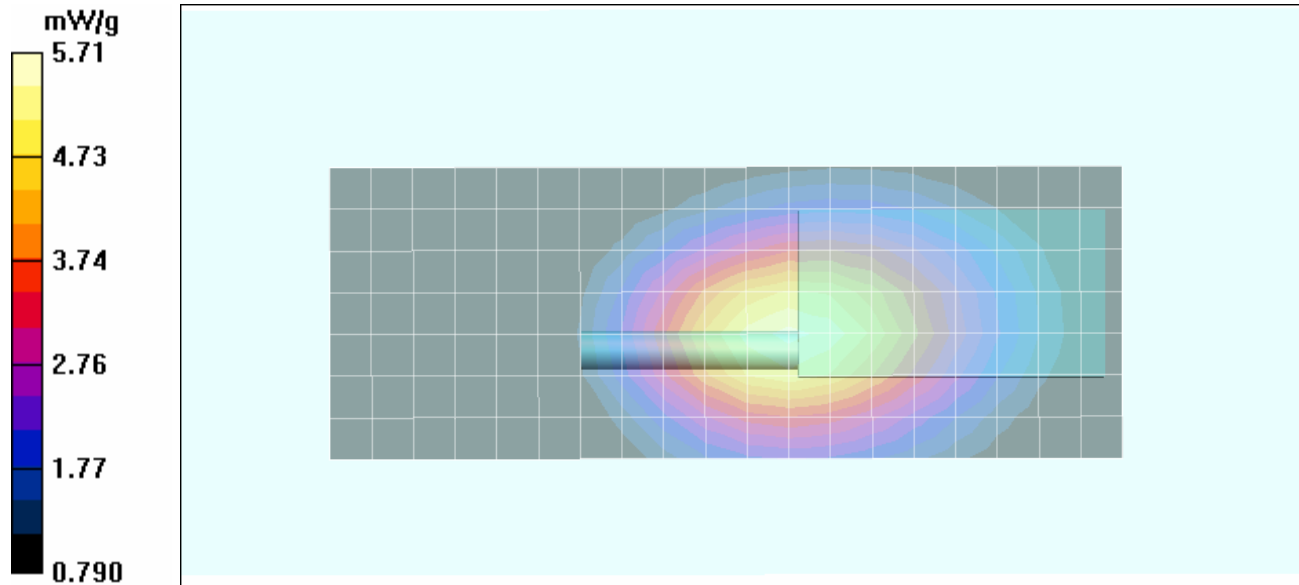
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 81.8 V/m; Power Drift = -0.568 dB

Peak SAR (extrapolated) = 7.55 W/kg



**SAR(1 g) = 5.39 mW/g; SAR(10 g) = 3.92 mW/g**

Maximum value of SAR (measured) = 5.71 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 16 of 65 |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

### Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M2 Antenna - 481.0 MHz

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

#### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 6.98 mW/g

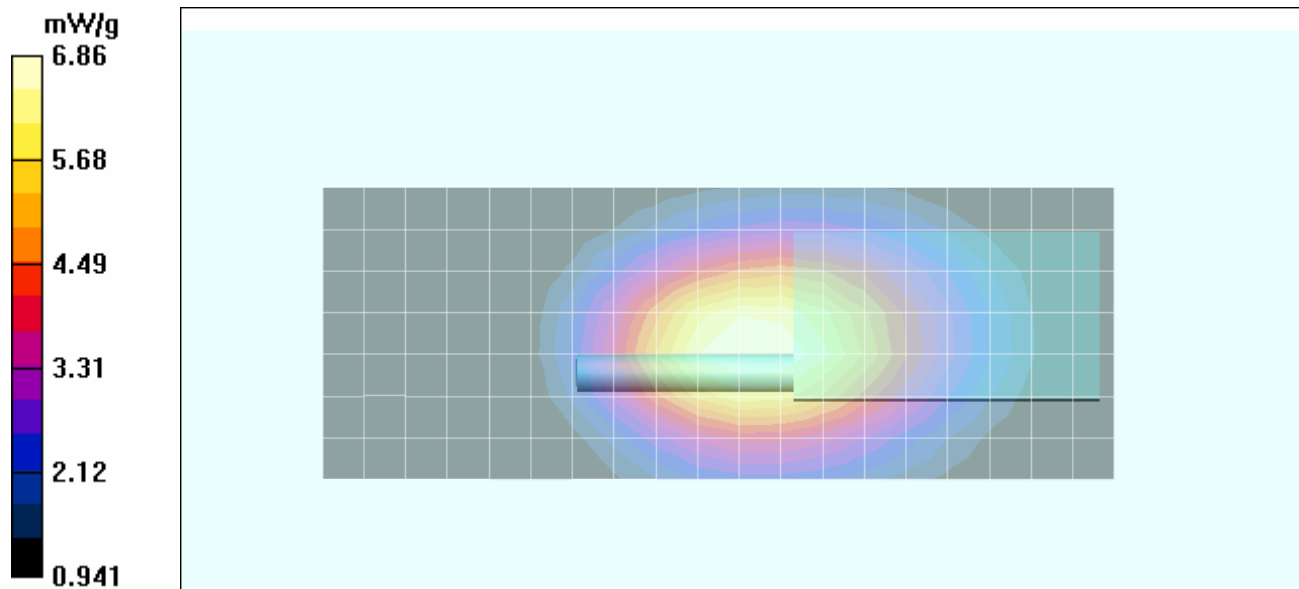
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 91.8 V/m; Power Drift = -0.481 dB



Peak SAR (extrapolated) = 9.12 W/kg

**SAR(1 g) = 6.53 mW/g; SAR(10 g) = 4.8 mW/g**

Maximum value of SAR (measured) = 6.86 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 17 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

## Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M Antenna - 481.0 MHz

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 6.59 mW/g

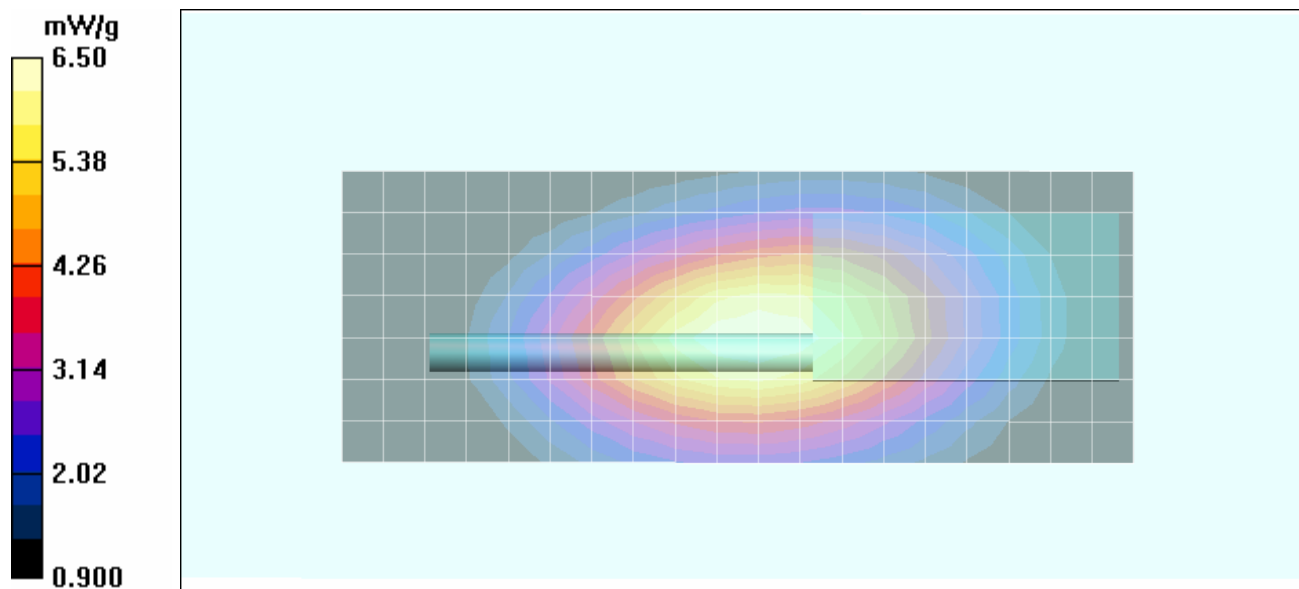
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 86.9 V/m; Power Drift = -0.558 dB



Peak SAR (extrapolated) = 8.52 W/kg

**SAR(1 g) = 6.19 mW/g; SAR(10 g) = 4.55 mW/g**

Maximum value of SAR (measured) = 6.50 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 18 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

## Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M2 Antenna - 481.0 MHz

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 5.59 mW/g

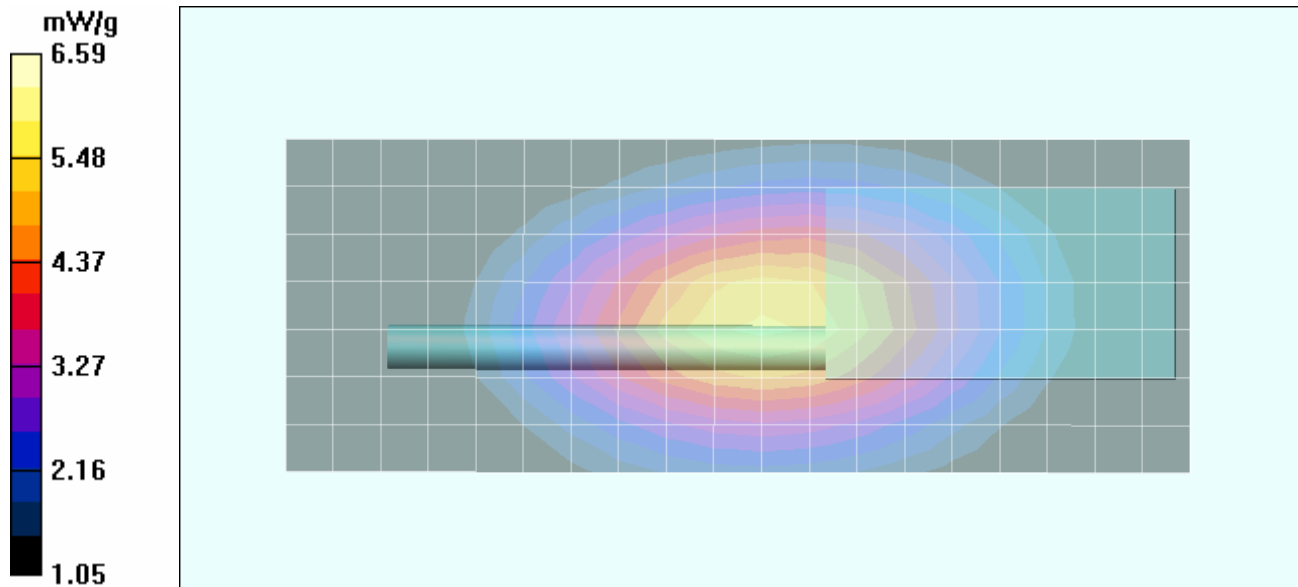
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 87.2 V/m; Power Drift = -0.474 dB



Peak SAR (extrapolated) = 8.64 W/kg

**SAR(1 g) = 6.28 mW/g; SAR(10 g) = 4.64 mW/g**

Maximum value of SAR (measured) = 6.59 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 19 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

**Face-held SAR - Li-ion Battery 1480 mAh (P/N: KNB-55L) - KRA-23M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.99 mW/g

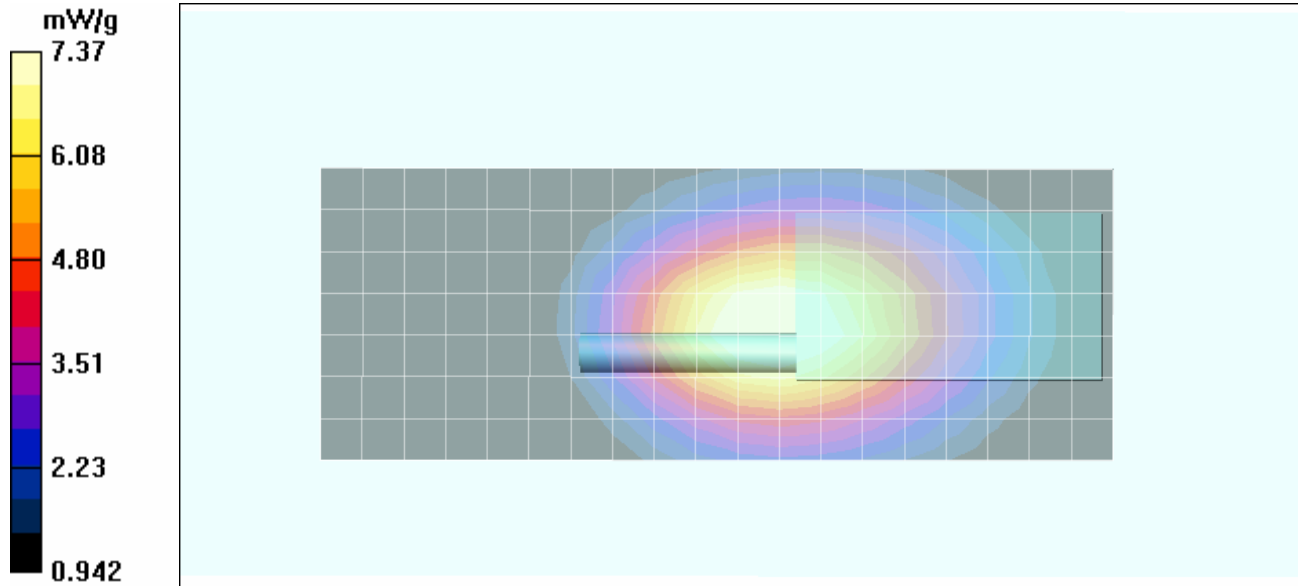
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 94.1 V/m; Power Drift = -0.547 dB

Peak SAR (extrapolated) = 9.98 W/kg

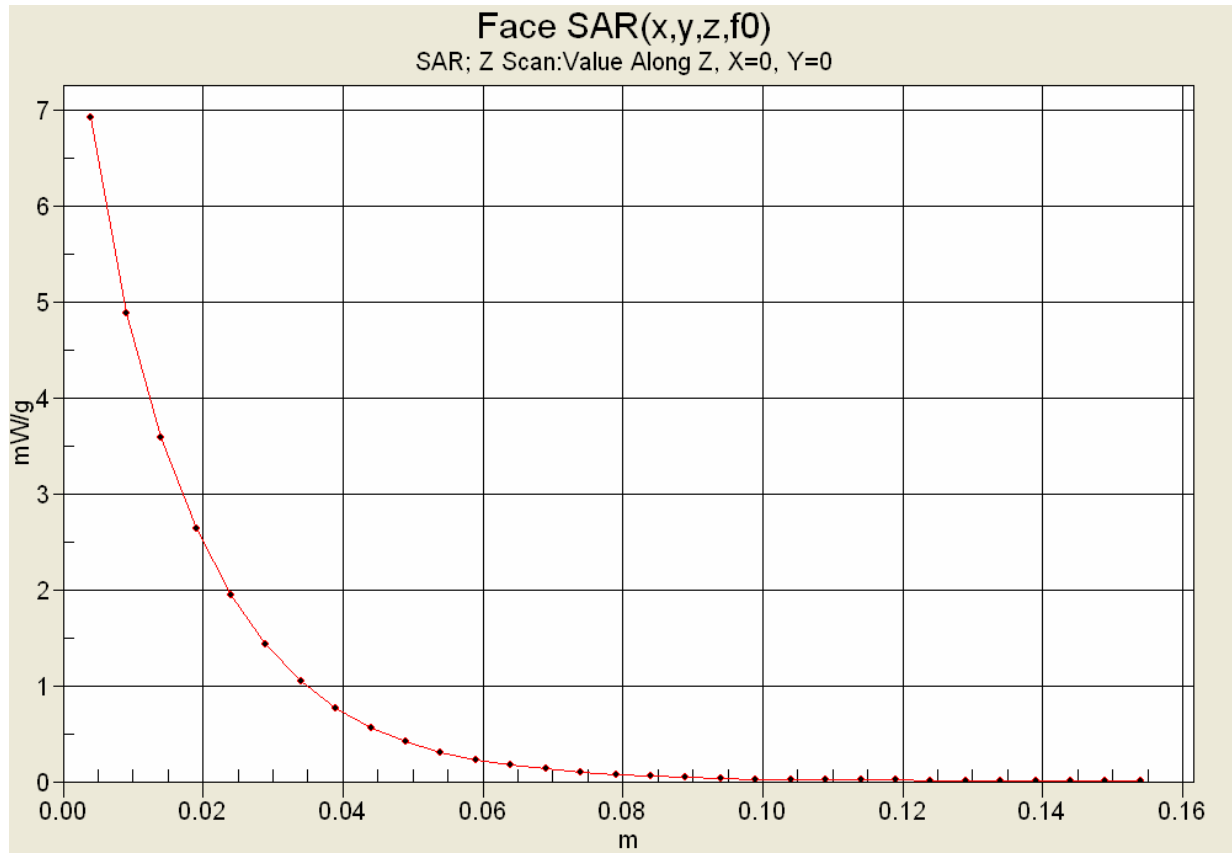
**SAR(1 g) = 6.99 mW/g; SAR(10 g) = 4.99 mW/g**



Maximum value of SAR (measured) = 7.37 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 20 of 65 |

## Z-Axis Scan



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

**Face-held SAR - Li-ion Battery 2000 mAh (P/N: KNB-57L) - KRA-23M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.84 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.34 mW/g

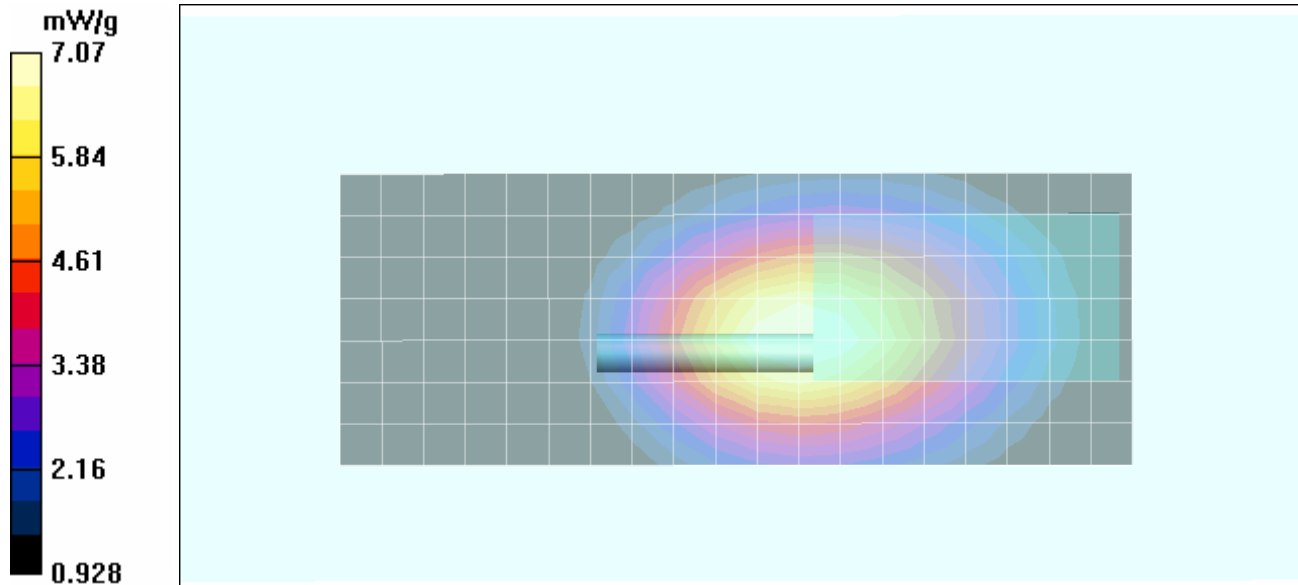
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 92.2 V/m; Power Drift = -0.427 dB



Peak SAR (extrapolated) = 9.50 W/kg

**SAR(1 g) = 6.73 mW/g; SAR(10 g) = 4.84 mW/g**

Maximum value of SAR (measured) = 7.07 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 22 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

## Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M Antenna - 465.5 MHz

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 465.5 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.85 \text{ mho/m}$ ;  $\epsilon_r = 43.4$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 7.81 mW/g

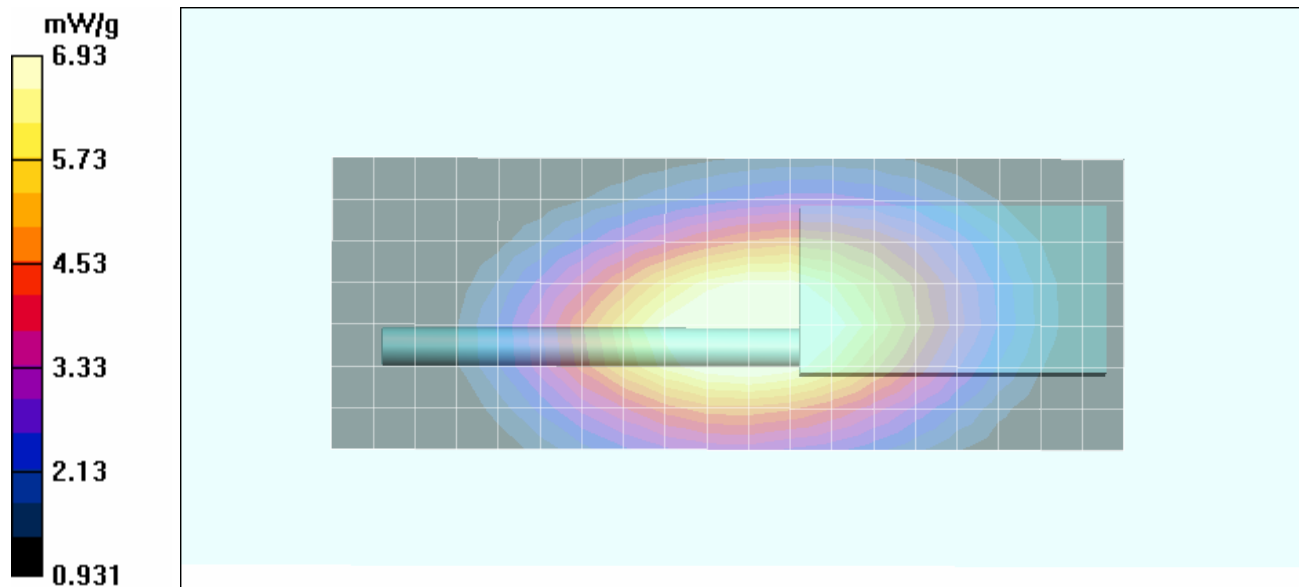
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 89.8 V/m; Power Drift = -0.521 dB



Peak SAR (extrapolated) = 9.20 W/kg

**SAR(1 g) = 6.58 mW/g; SAR(10 g) = 4.78 mW/g**

Maximum value of SAR (measured) = 6.93 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 23 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

**Face-held SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M2 Antenna - 496.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 496.5 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 500 \text{ MHz}$ ;  $\sigma = 0.86 \text{ mho/m}$ ;  $\epsilon_r = 42.6$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Face-held SAR - 2.5 cm Spacing from Front of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 5.54 mW/g

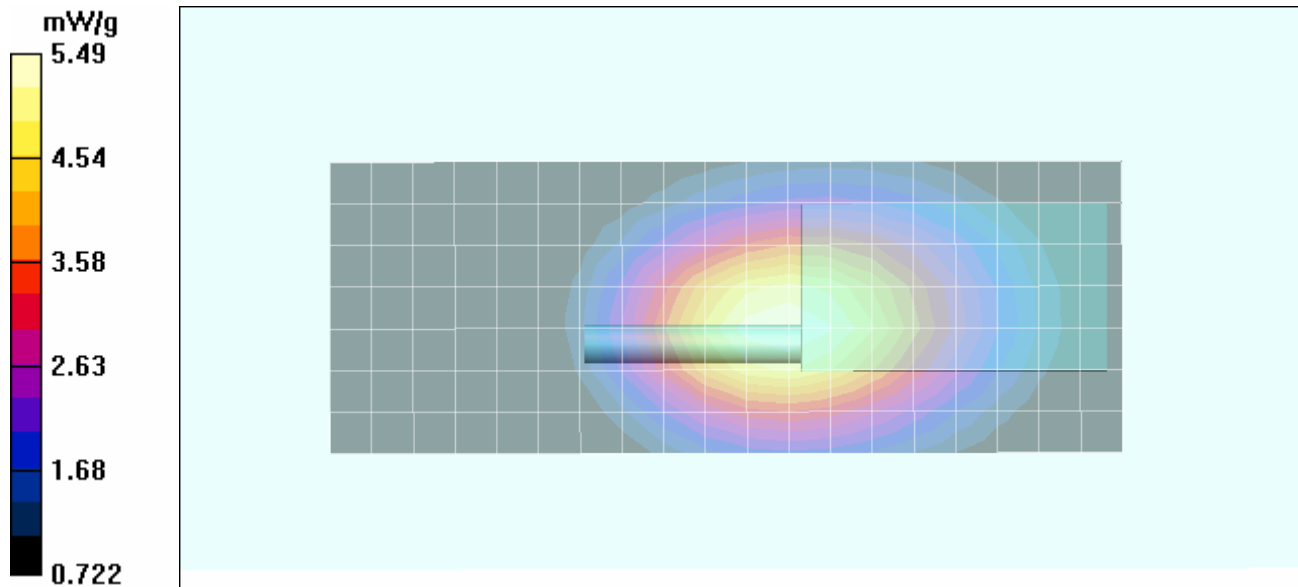
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 80.8 V/m; Power Drift = -0.542 dB

Peak SAR (extrapolated) = 7.40 W/kg



**SAR(1 g) = 5.25 mW/g; SAR(10 g) = 3.78 mW/g**

Maximum value of SAR (measured) = 5.49 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 24 of 65 |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 9.89 mW/g

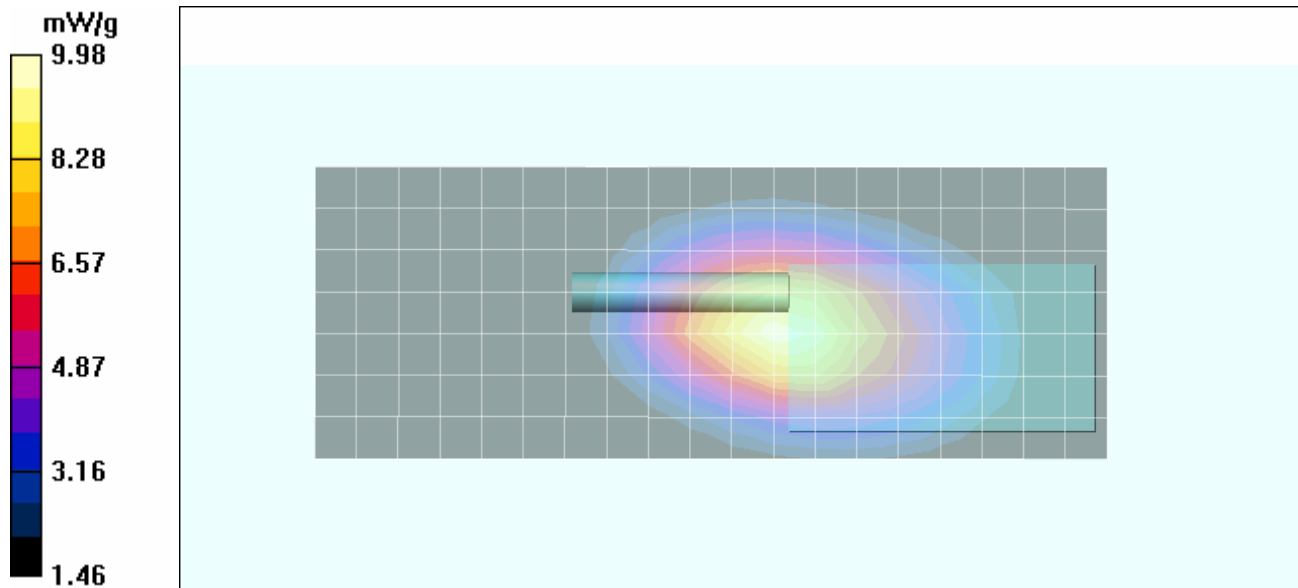
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 108.6 V/m; Power Drift = -0.482 dB



Peak SAR (extrapolated) = 13.9 W/kg

**SAR(1 g) = 9.55 mW/g; SAR(10 g) = 6.84 mW/g**

Maximum value of SAR (measured) = 9.98 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 25 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 13.3 mW/g

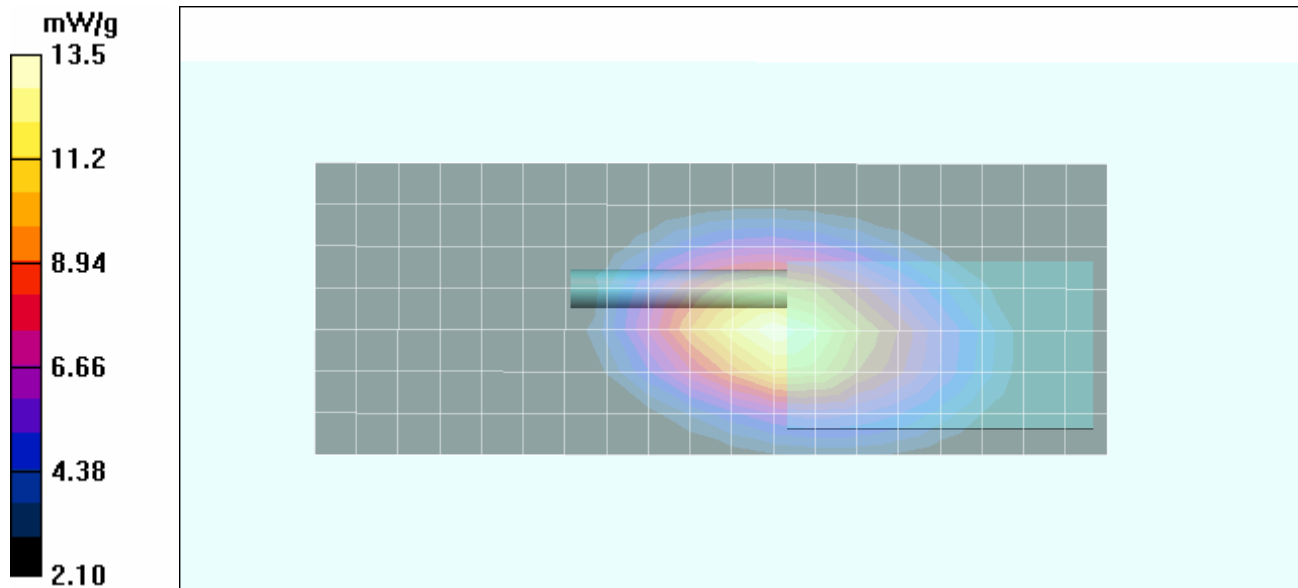
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 130.5 V/m; Power Drift = -0.764 dB

Peak SAR (extrapolated) = 18.9 W/kg

**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 9.23 mW/g**

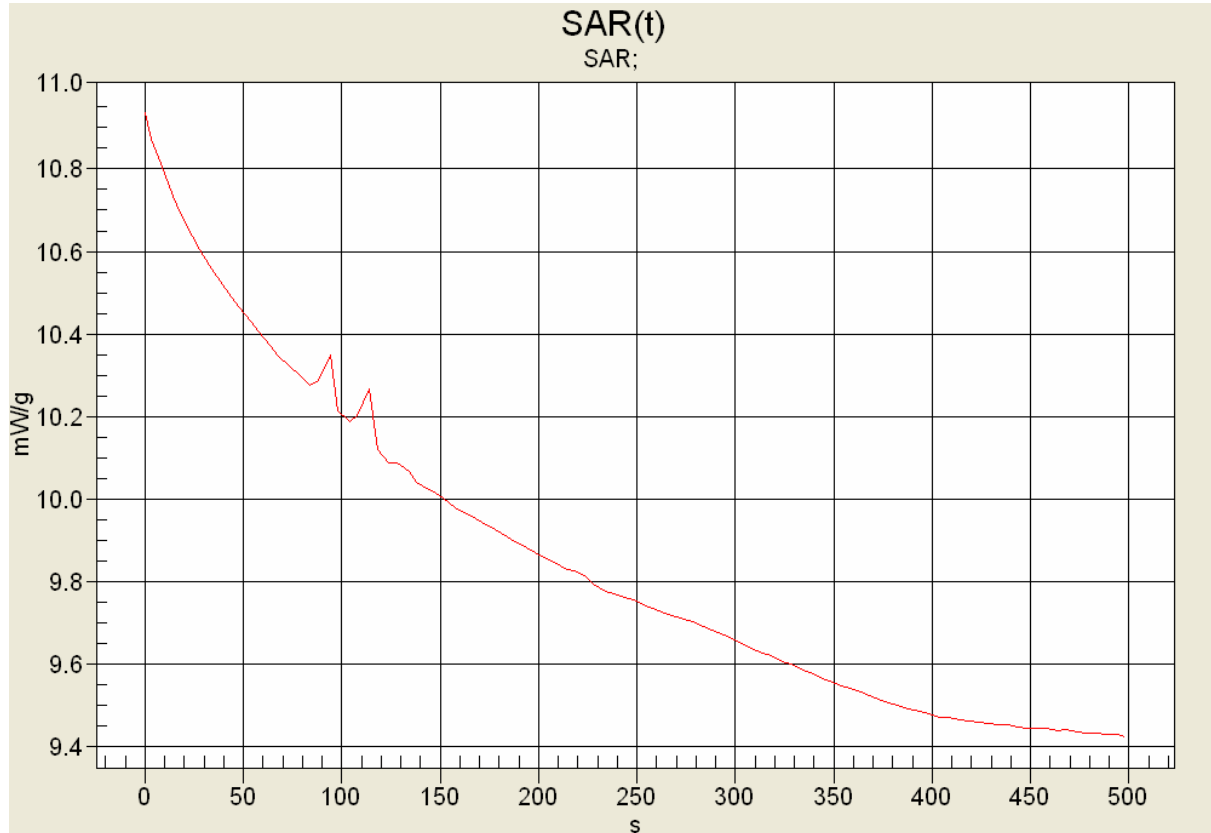
Maximum value of SAR (measured) = 13.5 mW/g





|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 26 of 65 |

## SAR-versus-Time Droop Evaluation

**Body-worn Configuration**  
**Mid Channel 481.0 MHz**  
**Ni-MH Battery KNB-56N**  
**KRA-23M2 Antenna**



|      |         |           |           |
|------|---------|-----------|-----------|
| 0s   | 10.9262 |           | start     |
| 340s | 9.57013 | -0.576 dB | zoom scan |
| 500s | 9.41620 | -0.646 dB | area scan |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.0 mW/g

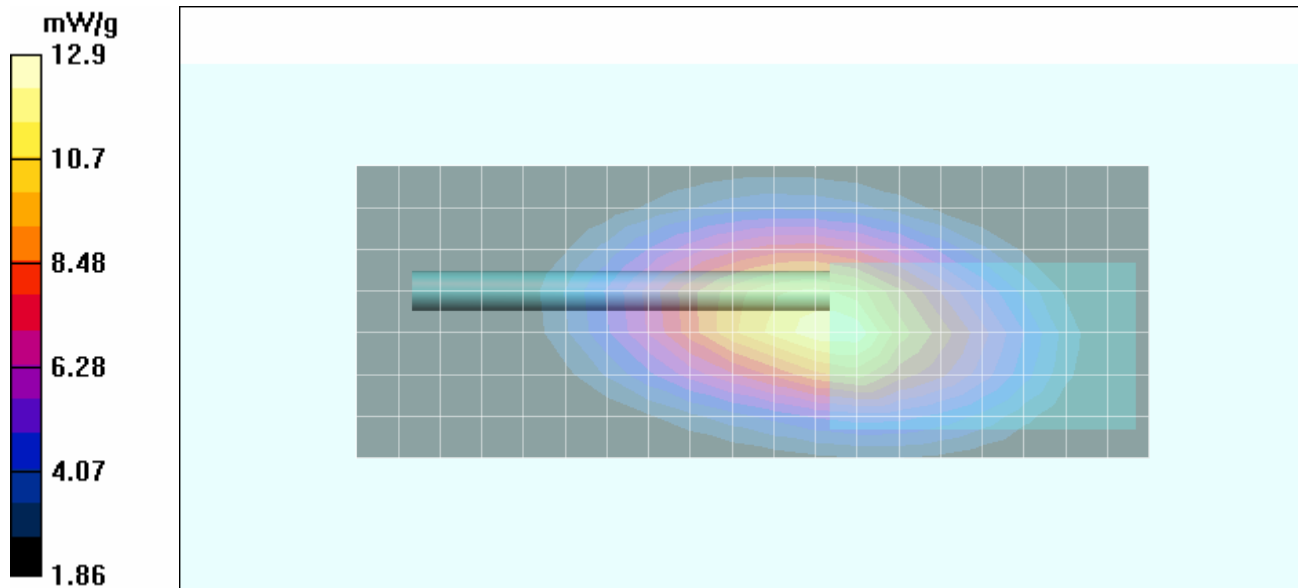
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 121.9 V/m; Power Drift = -0.249 dB



Peak SAR (extrapolated) = 17.7 W/kg

**SAR(1 g) = 12.4 mW/g; SAR(10 g) = 9.09 mW/g**

Maximum value of SAR (measured) = 12.9 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 28 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 14.1 mW/g

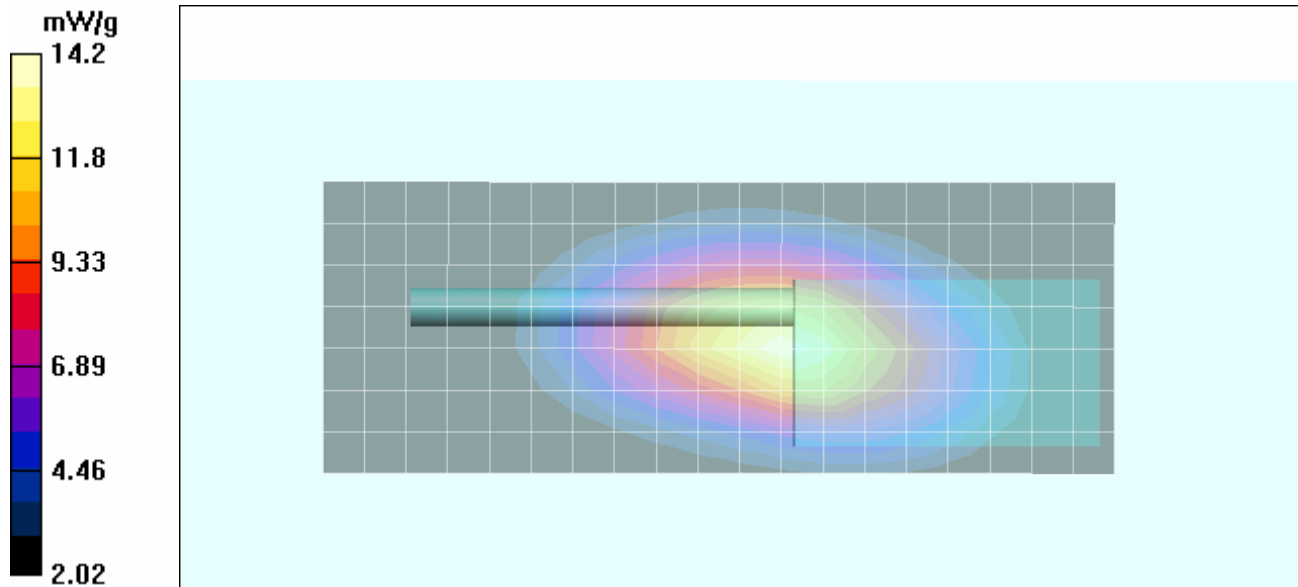
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 130.2 V/m; Power Drift = -0.506 dB



Peak SAR (extrapolated) = 19.5 W/kg

**SAR(1 g) = 13.5 mW/g; SAR(10 g) = 9.79 mW/g**

Maximum value of SAR (measured) = 14.2 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 29 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Li-ion Battery (P/N: KNB-55L) - KRA-27M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.5 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.8 mW/g

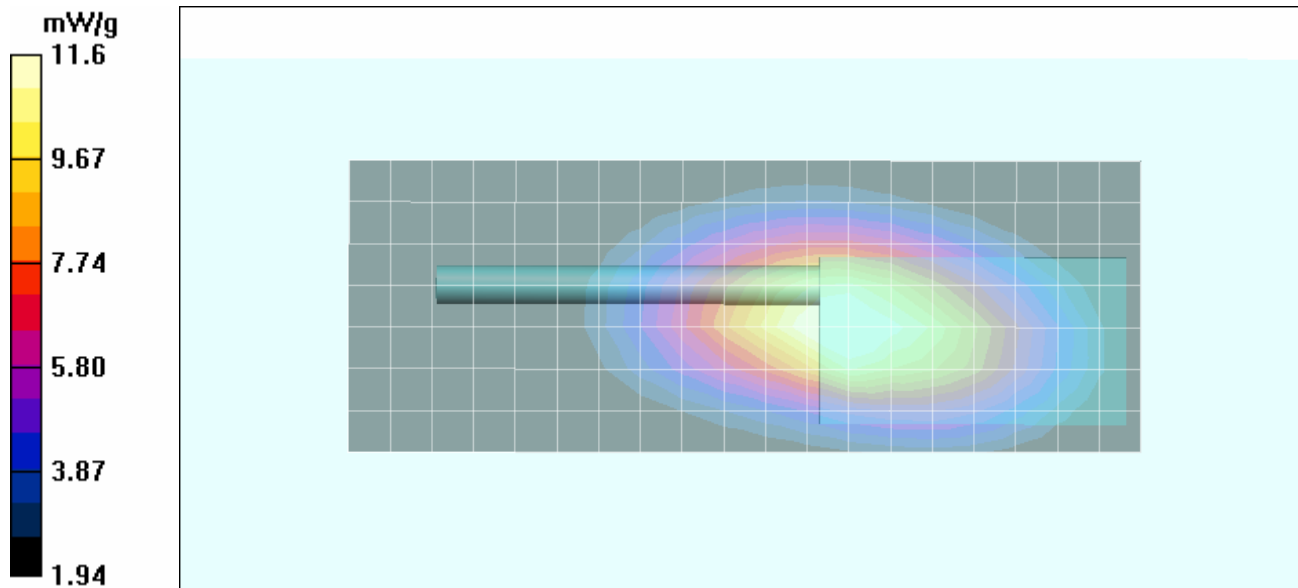
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 112.1 V/m; Power Drift = -0.426 dB



Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 11.1 mW/g; SAR(10 g) = 8 mW/g**

Maximum value of SAR (measured) = 11.6 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 30 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Li-ion Battery (P/N: KNB-57L) - KRA-27M2 Antenna - 481.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 481 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 480 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 58.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.2 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.3 mW/g

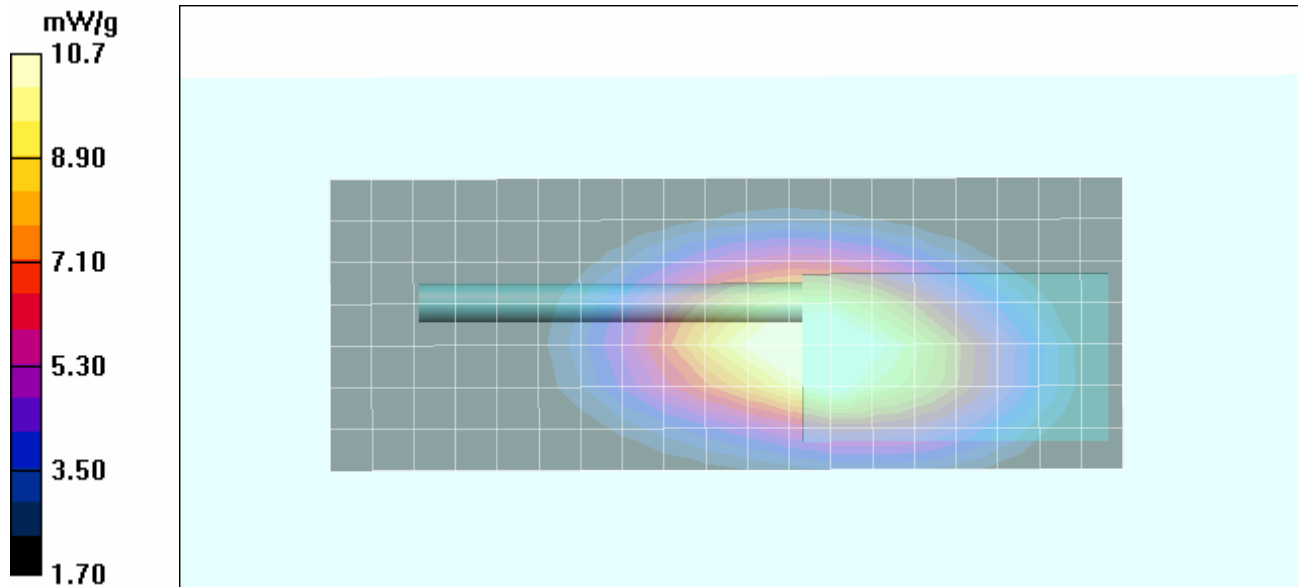
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 105.6 V/m; Power Drift = -0.303 dB



Peak SAR (extrapolated) = 14.6 W/kg

**SAR(1 g) = 10.3 mW/g; SAR(10 g) = 7.45 mW/g**

Maximum value of SAR (measured) = 10.7 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 31 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M Antenna - 450.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 58.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 12.2 mW/g

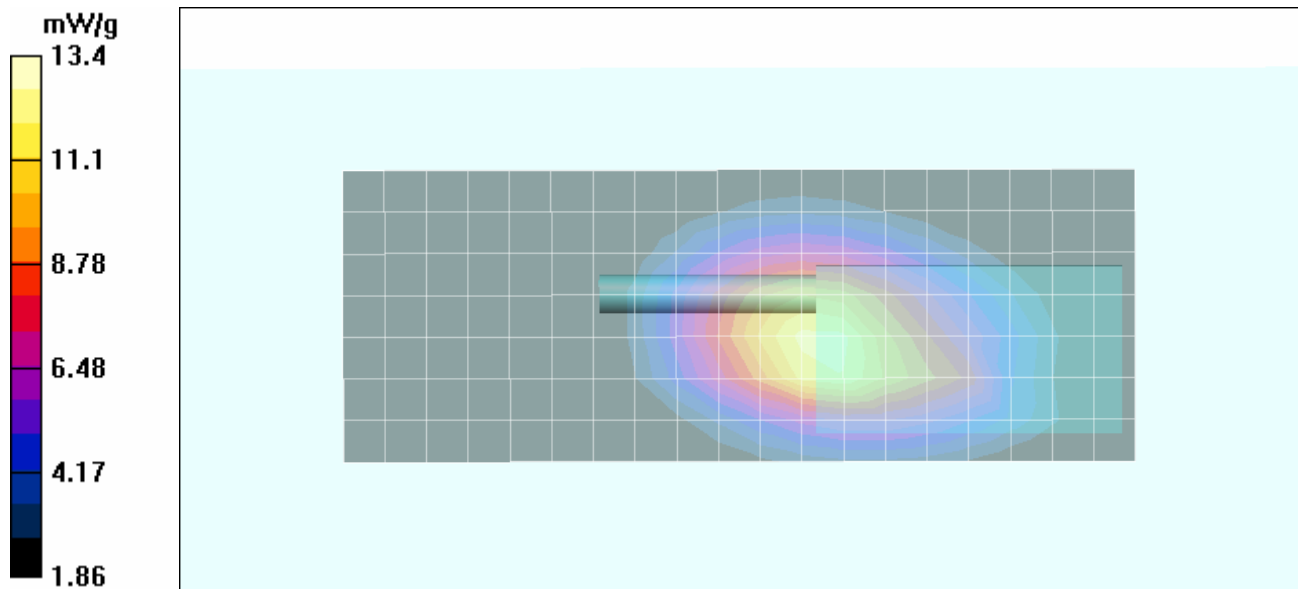
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 123.8 V/m; Power Drift = -0.256 dB

Peak SAR (extrapolated) = 18.7 W/kg



**SAR(1 g) = 12.8 mW/g; SAR(10 g) = 9.13 mW/g**

Maximum value of SAR (measured) = 13.4 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 32 of 65  |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M Antenna - 450.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 58.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 13.6 mW/g

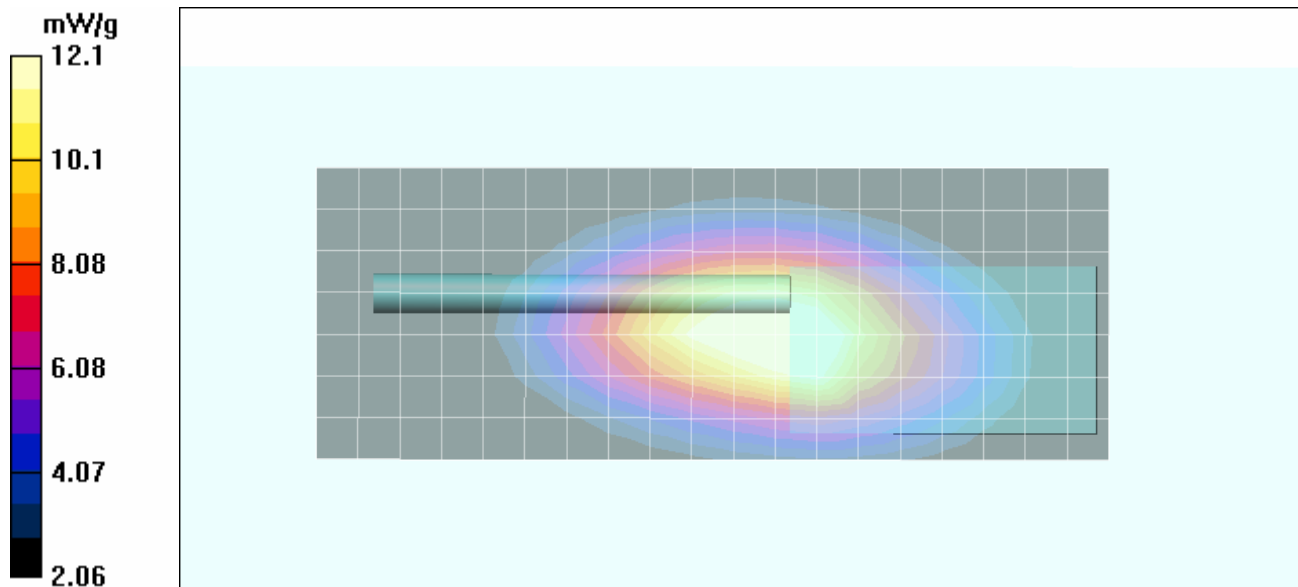
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 114.6 V/m; Power Drift = -0.295 dB



Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 11.5 mW/g; SAR(10 g) = 8.43 mW/g**

Maximum value of SAR (measured) = 12.1 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 33 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M Antenna - 465.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 465.5 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.4$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 13.7 mW/g

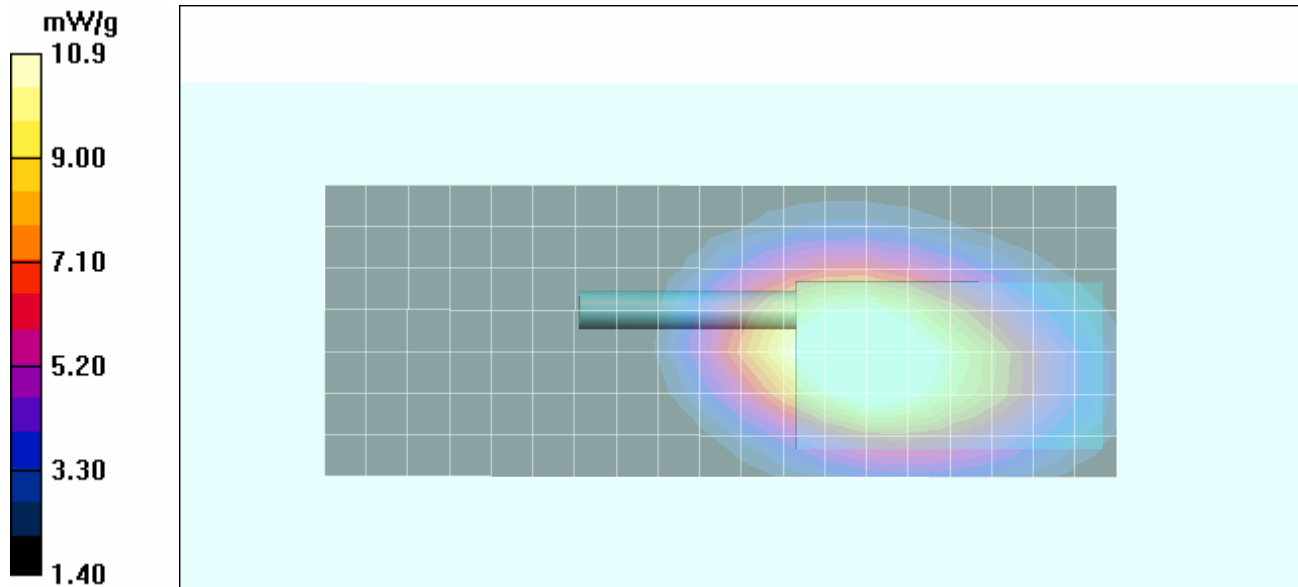
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 118.0 V/m; Power Drift = -0.543 dB



Peak SAR (extrapolated) = 14.8 W/kg

**SAR(1 g) = 9.58 mW/g; SAR(10 g) = 6.66 mW/g**

Maximum value of SAR (measured) = 10.9 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 34 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M Antenna - 465.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 465.5 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 470 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 58.4$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 13.5 mW/g

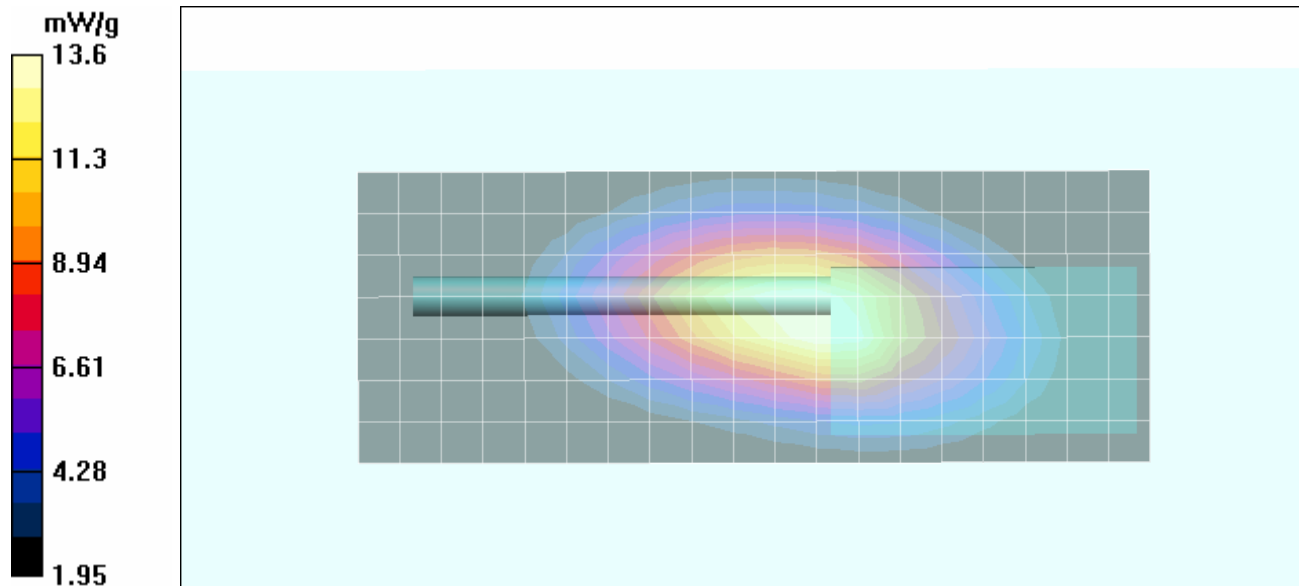
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 119.4 V/m; Power Drift = -0.469 dB



Peak SAR (extrapolated) = 18.5 W/kg

**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 9.35 mW/g**

Maximum value of SAR (measured) = 13.6 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 35 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M2 Antenna - 496.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 496.5 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 500 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 58.1$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 11.0 mW/g

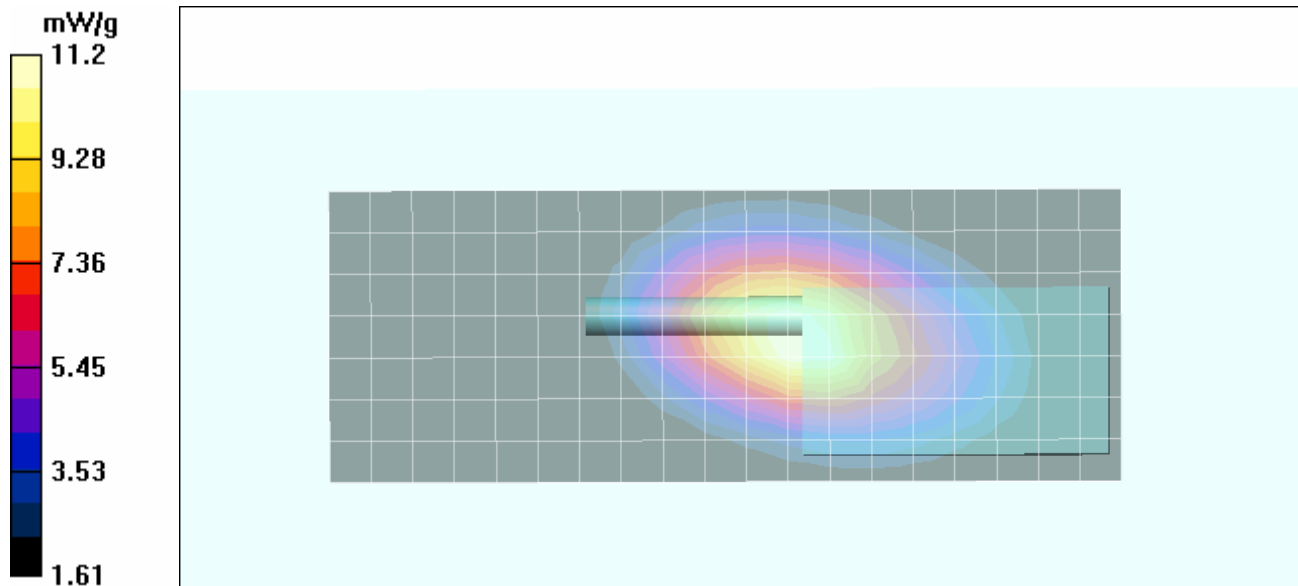
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 110.3 V/m; Power Drift = -0.268 dB



Peak SAR (extrapolated) = 15.5 W/kg

**SAR(1 g) = 10.7 mW/g; SAR(10 g) = 7.68 mW/g**

Maximum value of SAR (measured) = 11.2 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 36 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M2 Antenna - 496.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 496.5 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 500 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 58.1$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 13.9 mW/g

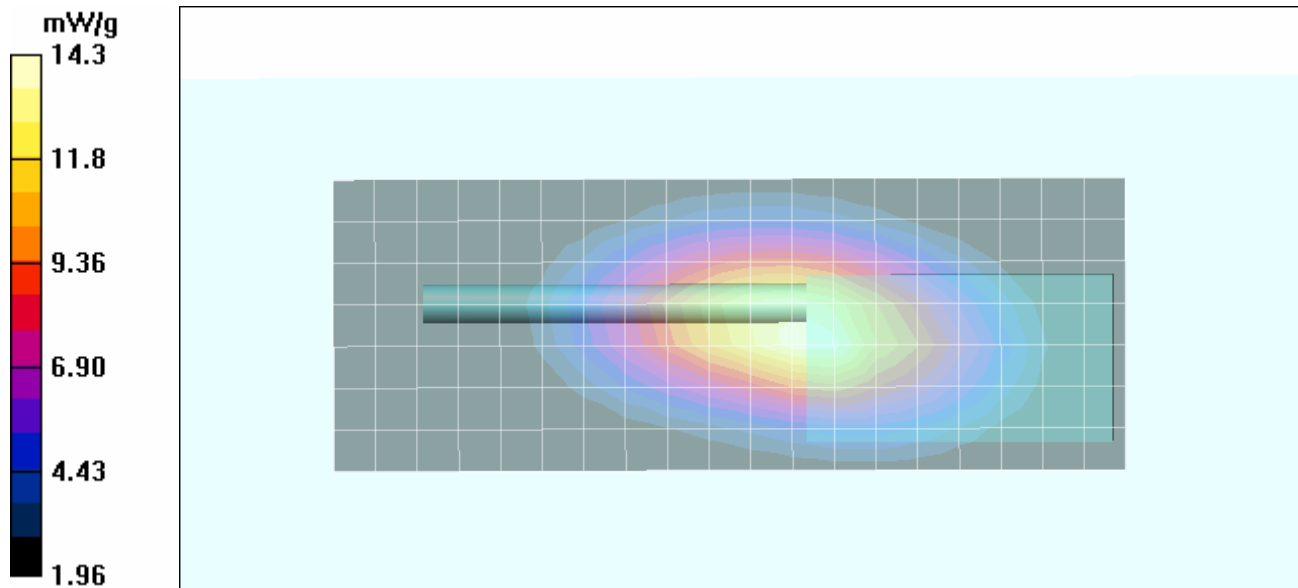
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 125.6 V/m; Power Drift = -0.492 dB



Peak SAR (extrapolated) = 19.7 W/kg

**SAR(1 g) = 13.6 mW/g; SAR(10 g) = 9.65 mW/g**

Maximum value of SAR (measured) = 14.3 mW/g



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 37 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-23M2 Antenna - 512.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512.0 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 510 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 57.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 11.6 mW/g

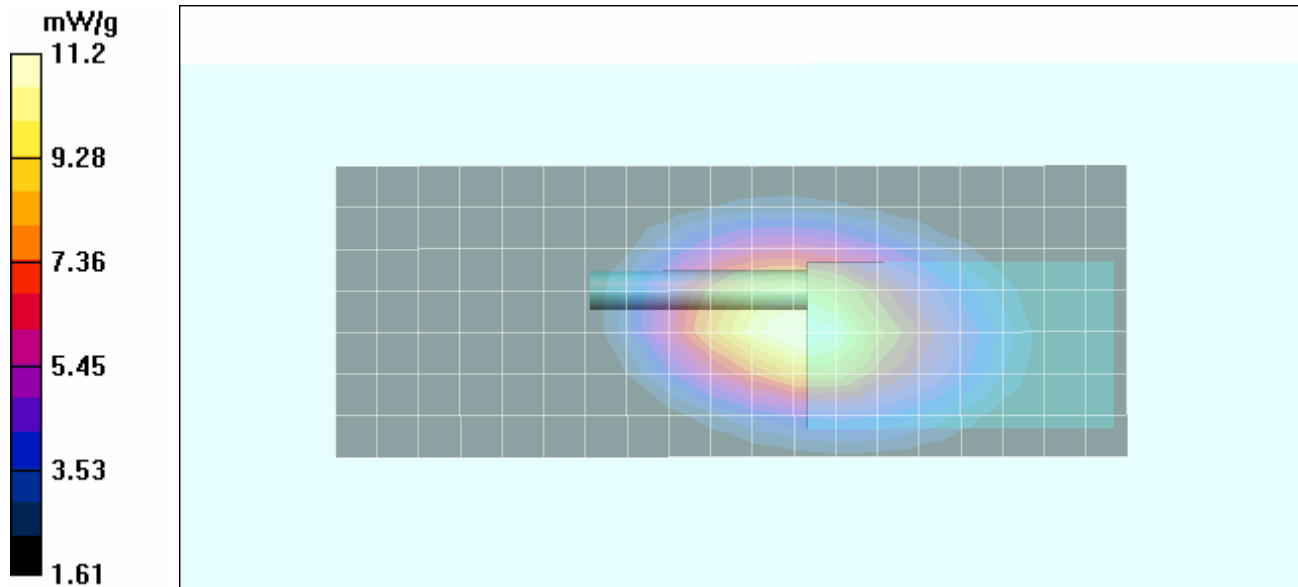
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 109.0 V/m; Power Drift = -0.239 dB



Peak SAR (extrapolated) = 15.7 W/kg

**SAR(1 g) = 10.8 mW/g; SAR(10 g) = 7.66 mW/g**

Maximum value of SAR (measured) = 11.2 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 38 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) |  |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M2 Antenna - 512.0 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Speaker-Microphone (P/N: KMC-45)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 512.0 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 510 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 57.7$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 15.0 mW/g

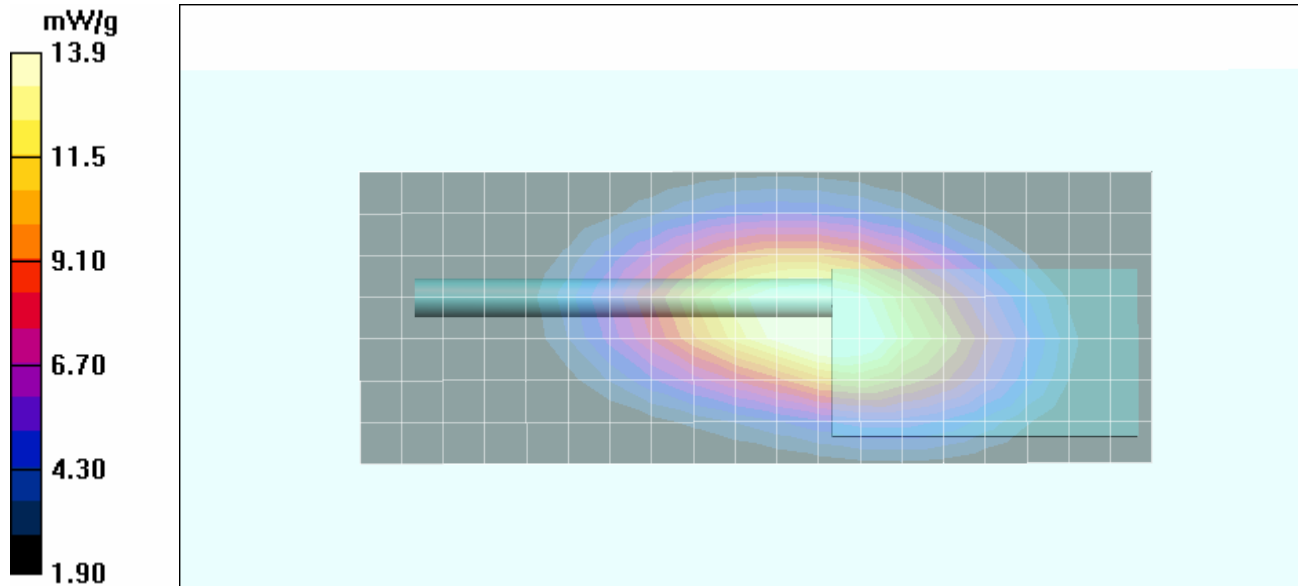
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 121.6 V/m; Power Drift = -0.367 dB



Peak SAR (extrapolated) = 19.2 W/kg

**SAR(1 g) = 13.3 mW/g; SAR(10 g) = 9.51 mW/g**

Maximum value of SAR (measured) = 13.9 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 39 of 65 |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

**Body-worn SAR - Ni-MH Battery (P/N: KNB-56N) - KRA-27M2 Antenna - 496.5 MHz**

**DUT: Kenwood TK-3360-K/X; Type: Portable FM UHF PTT Radio Transceiver; Serial: 0217 (Pre-production)**

**Body-worn Accessory: Belt-Clip (P/N: KBH-12); Audio Accessory: Headset Boom-Microphone (P/N: KHS-21)**

Ambient Temp: 22.4°C; Fluid Temp: 21.6°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 496.5 MHz; Duty Cycle: 1:1

Medium: M450 Medium parameters used:  $f = 500 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 58.1$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Side Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**Body-worn SAR - 1.0 cm Belt-Clip Spacing from Back of DUT to Planar Phantom**

**Area Scan (8x20x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 11.8 mW/g

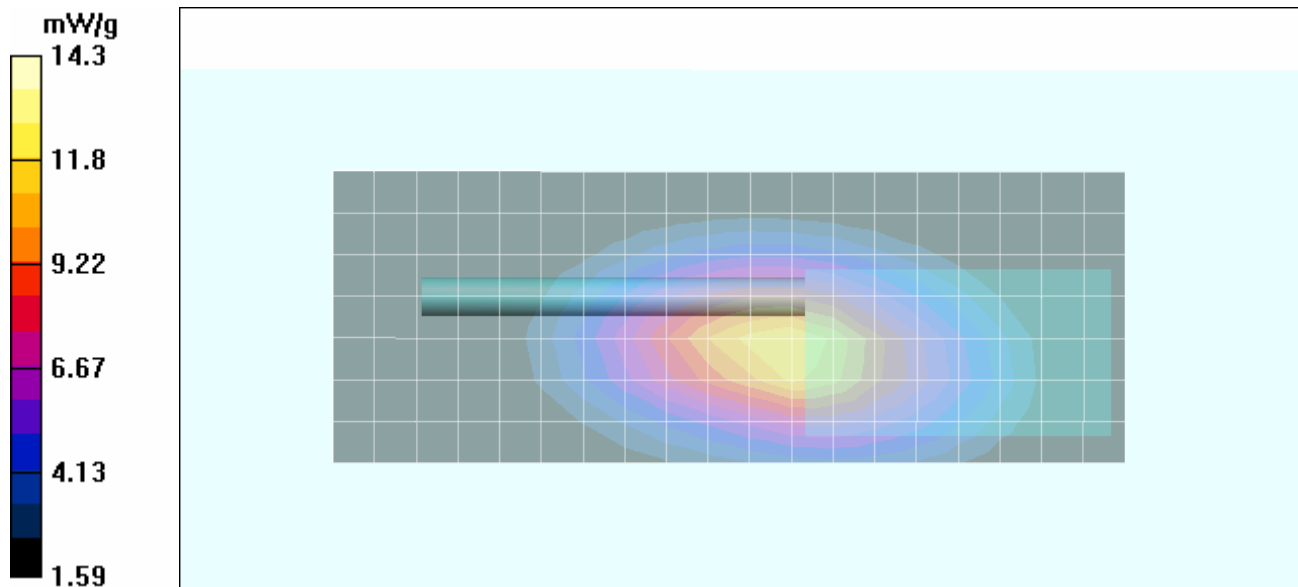
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 129.6 V/m; Power Drift = -0.433 dB

Peak SAR (extrapolated) = 20.9 W/kg

**SAR(1 g) = 13.7 mW/g; SAR(10 g) = 9.45 mW/g**

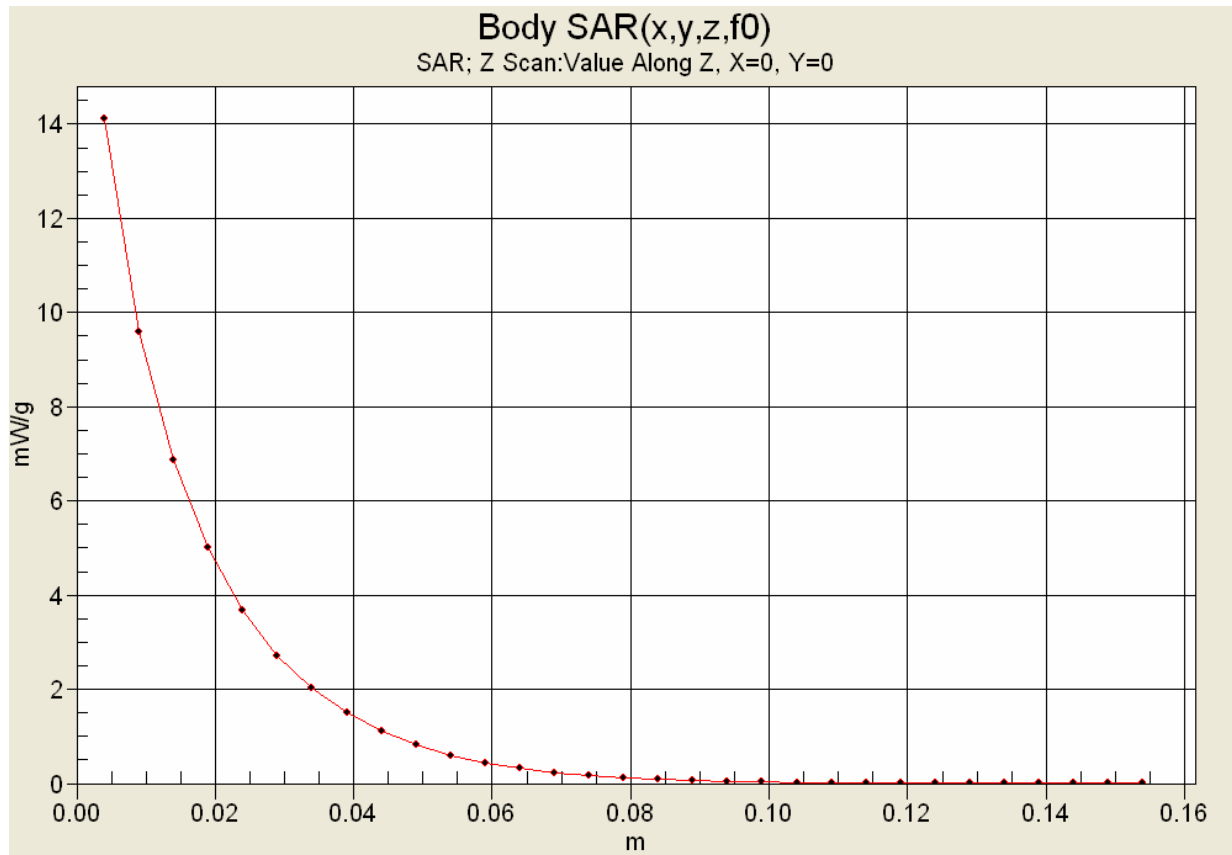
Maximum value of SAR (measured) = 14.3 mW/g





|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 40 of 65 |





## Z-Axis Scan



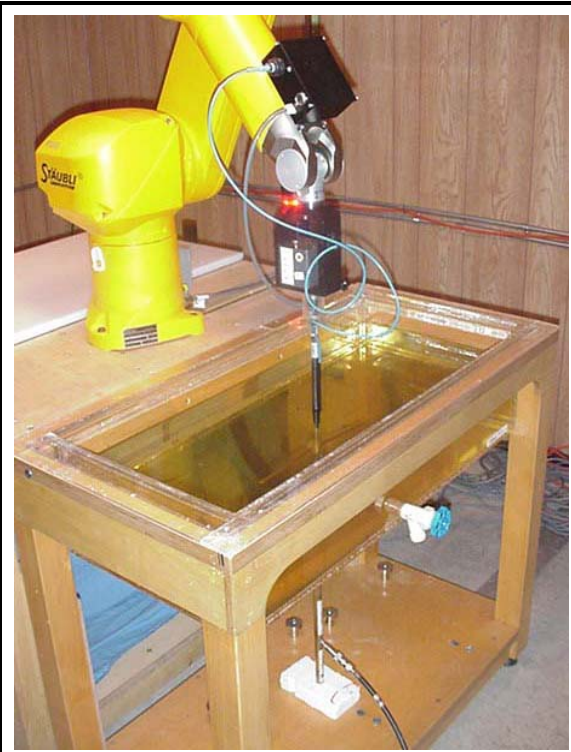
|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**APPENDIX B - SYSTEM PERFORMANCE CHECK**

|                         |  |                                  |                             |                |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                |                  | Page 42 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

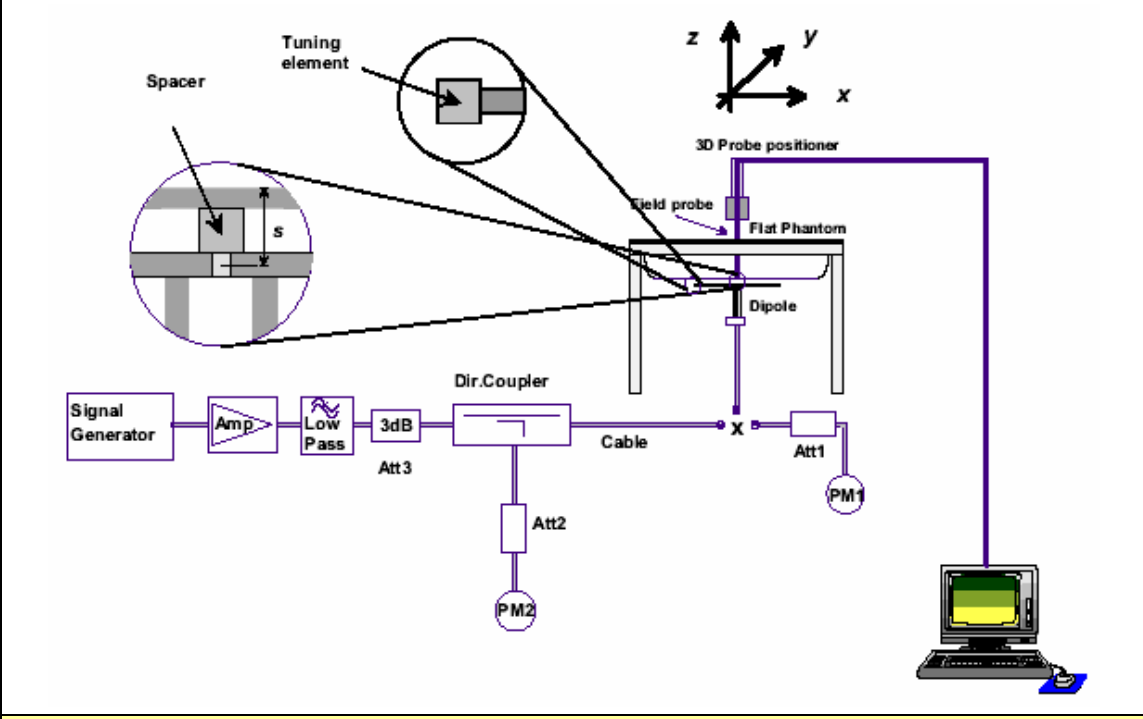
## SYSTEM PERFORMANCE CHECK MEASUREMENT SETUP



DASY4 System with Plexiglas Validation Phantom





450 MHz Validation Dipole Setup



System Performance Check Measurement Setup Diagram (IEEE Standard 1528-2003)

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 43 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/14/2009

## System Performance Check - 450 MHz Dipole - HSL

**DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Calibration: 01/19/2009**

Ambient Temp: 22.2°C; Fluid Temp: 21.4°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.85 \text{ mho/m}$ ;  $\epsilon_r = 44.3$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Validation Planar; Type: Plexiglas; Serial: TE#137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### System Performance Check - 450 MHz Dipole

**Area Scan (6x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.26 mW/g

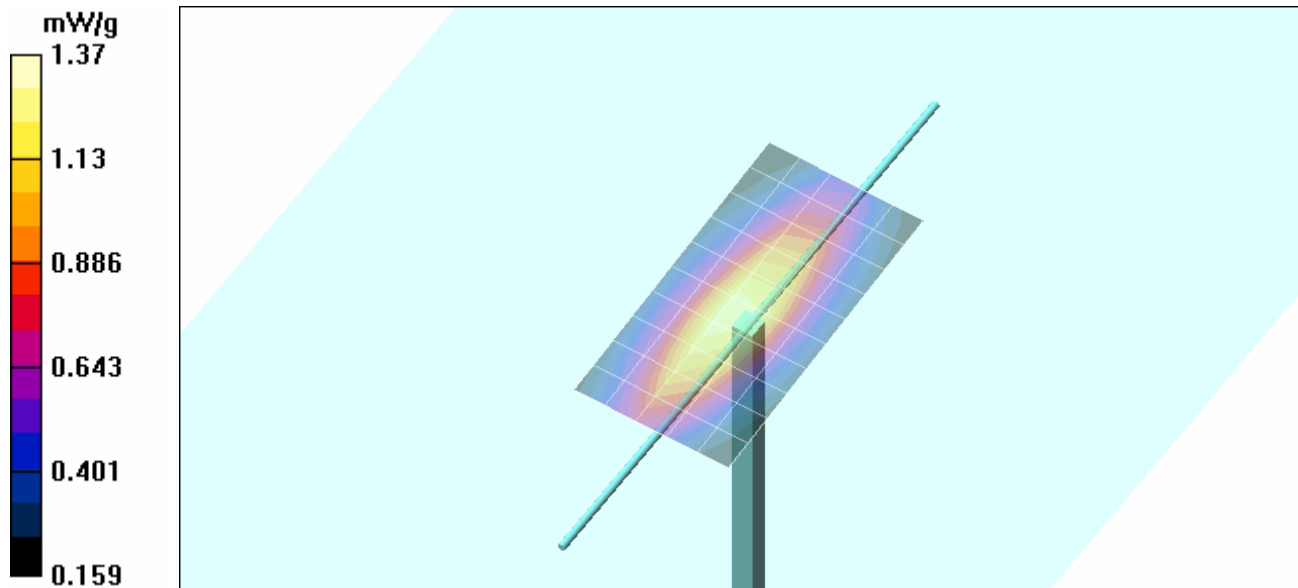
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 40.6 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 2.01 W/kg

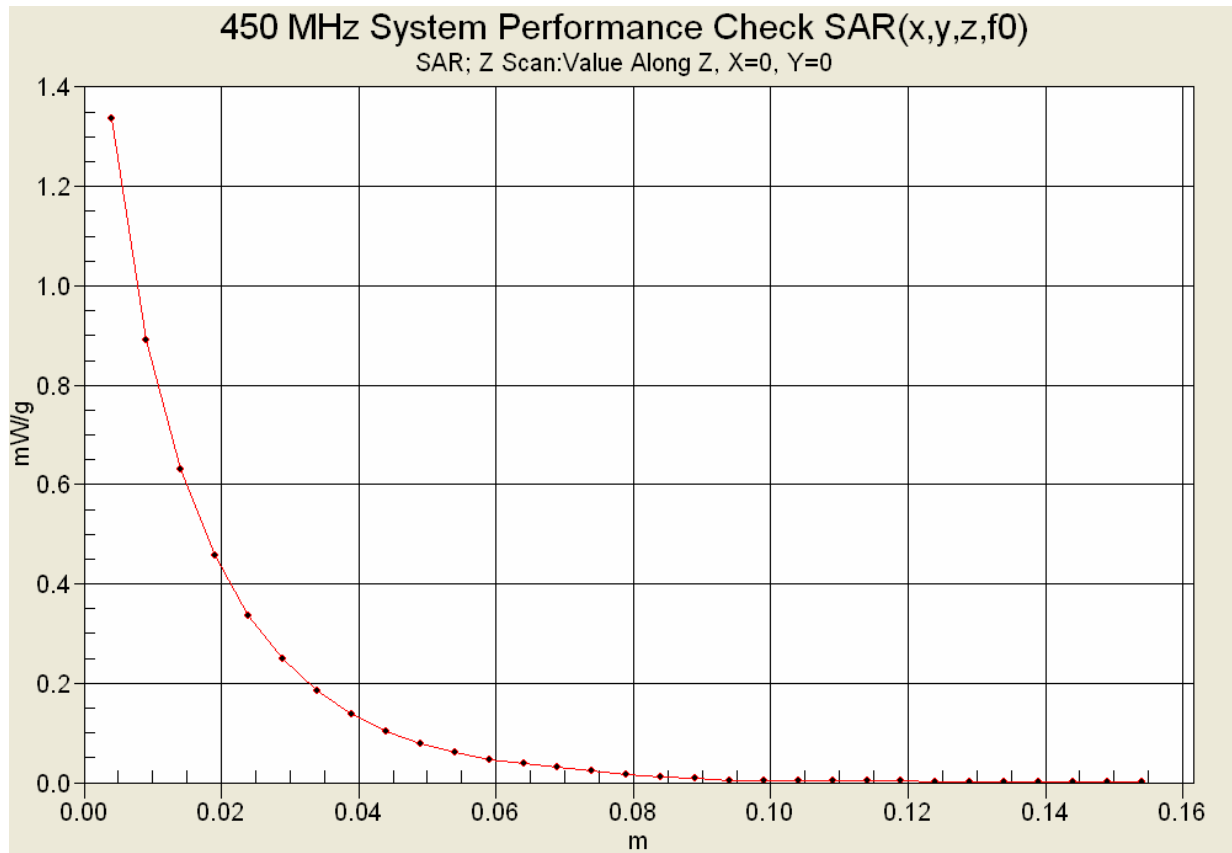
**SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.857 mW/g**



Maximum value of SAR (measured) = 1.37 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 44 of 65 |

## Z-Axis Scan



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

Date Tested: 10/15/2009

## System Performance Check - 450 MHz Dipole - HSL

**DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Calibration: 01/19/2009**

Ambient Temp: 22.0°C; Fluid Temp: 21.0°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.83 \text{ mho/m}$ ;  $\epsilon_r = 43.4$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1590; ConvF(7.34, 7.34, 7.34); Calibrated: 16/07/2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 28/04/2009
- Phantom: Validation Planar; Type: Plexiglas; Serial: TE#137
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### System Performance Check - 450 MHz Dipole

**Area Scan (6x11x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.26 mW/g

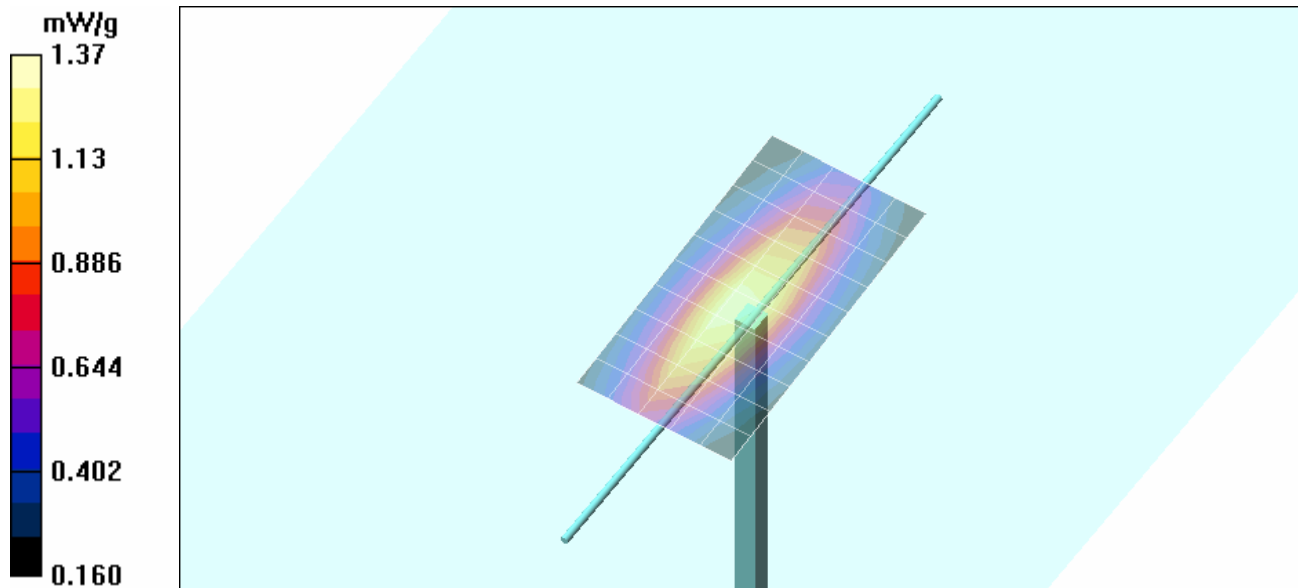
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 41.2 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 2.00 W/kg

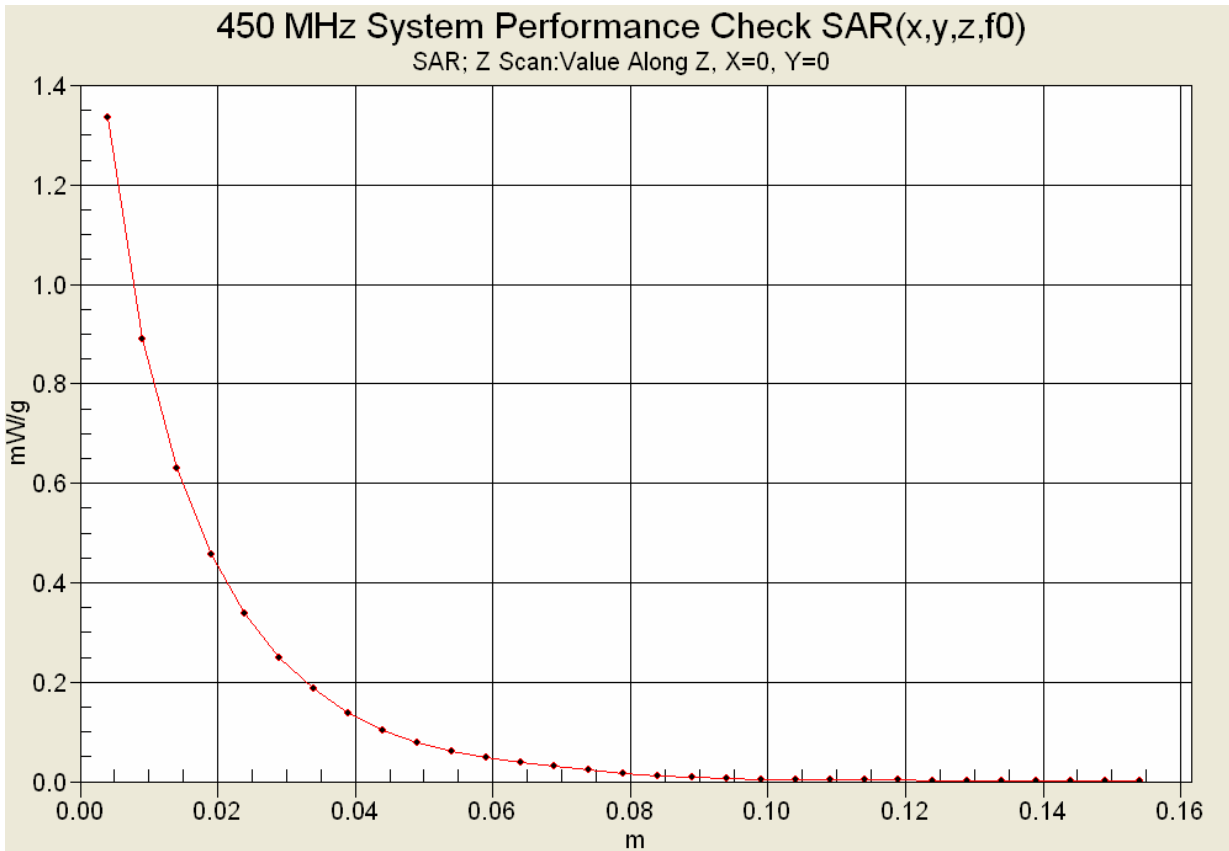
**SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.857 mW/g**



Maximum value of SAR (measured) = 1.37 mW/g



|                         |  |  |                      |                |           |               |
|-------------------------|--|--|----------------------|----------------|-----------|---------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | KENWOOD       |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 46 of 65 |

**Z-Axis Scan**





|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS**

|                         |  |                                  |                             |                |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                |                  | Page 48 of 65  |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |



### 450 MHz System Performance Check (Head)

\*\*\*\*\*

Celltech Labs Inc.  
Test Result for UIM Dielectric Parameter  
14/Oct/2009  
Frequency (GHz)  
FCC\_eHFCC OET 65 Supplement C (June 2001) Limits for Head Epsilon  
FCC\_sHFCC OET 65 Supplement C (June 2001) Limits for Head Sigma  
Test\_e Epsilon of UIM  
Test\_s Sigma of UIM  
\*\*\*\*\*

| Freq   | FCC_eHF | FCC_sH | Test_e | Test_s |
|--------|---------|--------|--------|--------|
| 0.3500 | 44.70   | 0.87   | 46.03  | 0.78   |
| 0.3600 | 44.58   | 0.87   | 46.01  | 0.79   |
| 0.3700 | 44.46   | 0.87   | 46.25  | 0.79   |
| 0.3800 | 44.34   | 0.87   | 45.84  | 0.80   |
| 0.3900 | 44.22   | 0.87   | 45.62  | 0.81   |
| 0.4000 | 44.10   | 0.87   | 45.51  | 0.81   |
| 0.4100 | 43.98   | 0.87   | 45.46  | 0.81   |
| 0.4200 | 43.86   | 0.87   | 45.23  | 0.82   |
| 0.4300 | 43.74   | 0.87   | 44.71  | 0.83   |
| 0.4400 | 43.62   | 0.87   | 44.49  | 0.85   |
| 0.4500 | 43.50   | 0.87   | 44.29  | 0.85   |
| 0.4600 | 43.45   | 0.87   | 43.84  | 0.86   |
| 0.4700 | 43.40   | 0.87   | 44.21  | 0.87   |
| 0.4800 | 43.34   | 0.87   | 43.52  | 0.87   |
| 0.4900 | 43.29   | 0.87   | 43.65  | 0.87   |
| 0.5000 | 43.24   | 0.87   | 43.62  | 0.90   |
| 0.5100 | 43.19   | 0.87   | 43.42  | 0.91   |
| 0.5200 | 43.14   | 0.88   | 42.89  | 0.91   |
| 0.5300 | 43.08   | 0.88   | 42.67  | 0.92   |
| 0.5400 | 43.03   | 0.88   | 42.12  | 0.92   |
| 0.5500 | 42.98   | 0.88   | 42.39  | 0.94   |

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 49 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

### 450/470/480/500/510 MHz DUT Evaluation (Body)



\*\*\*\*\*

Celltech Labs Inc.  
Test Result for UIM Dielectric Parameter  
14/Oct/2009  
Frequency (GHz)  
FCC\_eHFCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon  
FCC\_sHFCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma  
FCC\_eB FCC Limits for Body Epsilon  
FCC\_sB FCC Limits for Body Sigma  
Test\_e Epsilon of UIM  
Test\_s Sigma of UIM

\*\*\*\*\*

| Freq   | FCC_eB | FCC_sB | Test_e | Test_s |
|--------|--------|--------|--------|--------|
| 0.3500 | 57.70  | 0.93   | 59.67  | 0.81   |
| 0.3600 | 57.60  | 0.93   | 59.32  | 0.82   |
| 0.3700 | 57.50  | 0.93   | 59.73  | 0.84   |
| 0.3800 | 57.40  | 0.93   | 59.84  | 0.84   |
| 0.3900 | 57.30  | 0.93   | 58.93  | 0.85   |
| 0.4000 | 57.20  | 0.93   | 59.37  | 0.87   |
| 0.4100 | 57.10  | 0.93   | 58.68  | 0.87   |
| 0.4200 | 57.00  | 0.94   | 58.86  | 0.87   |
| 0.4300 | 56.90  | 0.94   | 59.23  | 0.89   |
| 0.4400 | 56.80  | 0.94   | 58.93  | 0.90   |
| 0.4500 | 56.70  | 0.94   | 58.73  | 0.90   |
| 0.4600 | 56.66  | 0.94   | 58.22  | 0.91   |
| 0.4700 | 56.62  | 0.94   | 58.42  | 0.91   |
| 0.4800 | 56.58  | 0.94   | 58.28  | 0.92   |
| 0.4900 | 56.54  | 0.94   | 58.05  | 0.92   |
| 0.5000 | 56.51  | 0.94   | 58.07  | 0.93   |
| 0.5100 | 56.47  | 0.94   | 57.73  | 0.93   |
| 0.5200 | 56.43  | 0.95   | 58.26  | 0.94   |
| 0.5300 | 56.39  | 0.95   | 57.86  | 0.95   |
| 0.5400 | 56.35  | 0.95   | 57.30  | 0.95   |
| 0.5500 | 56.31  | 0.95   | 57.80  | 0.96   |

|                         |   |  |                                  |                    |                  |                |
|-------------------------|---|--|----------------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b>      | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> |  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                    |                  | Page 50 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

### 450 MHz System Performance Check & 470/480/500 MHz DUT Evaluation (Head)



\*\*\*\*\*

Celltech Labs Inc.  
 Test Result for UIM Dielectric Parameter  
 15/Oct/2009  
 Frequency (GHz)  
 FCC\_eHFCC OET 65 Supplement C (June 2001) Limits for Head Epsilon  
 FCC\_sHFCC OET 65 Supplement C (June 2001) Limits for Head Sigma  
 Test\_e Epsilon of UIM  
 Test\_s Sigma of UIM

\*\*\*\*\*

| Freq   | FCC_eHFCC_sH | Test_e | Test_s     |
|--------|--------------|--------|------------|
| 0.3500 | 44.70        | 0.87   | 45.63 0.76 |
| 0.3600 | 44.58        | 0.87   | 45.73 0.75 |
| 0.3700 | 44.46        | 0.87   | 45.35 0.75 |
| 0.3800 | 44.34        | 0.87   | 44.64 0.78 |
| 0.3900 | 44.22        | 0.87   | 44.98 0.77 |
| 0.4000 | 44.10        | 0.87   | 44.81 0.79 |
| 0.4100 | 43.98        | 0.87   | 44.37 0.79 |
| 0.4200 | 43.86        | 0.87   | 44.48 0.80 |
| 0.4300 | 43.74        | 0.87   | 44.04 0.81 |
| 0.4400 | 43.62        | 0.87   | 43.73 0.82 |
| 0.4500 | 43.50        | 0.87   | 43.39 0.83 |
| 0.4600 | 43.45        | 0.87   | 43.53 0.83 |
| 0.4700 | 43.40        | 0.87   | 43.39 0.85 |
| 0.4800 | 43.34        | 0.87   | 42.76 0.84 |
| 0.4900 | 43.29        | 0.87   | 43.06 0.85 |
| 0.5000 | 43.24        | 0.87   | 42.64 0.86 |
| 0.5100 | 43.19        | 0.87   | 42.36 0.87 |
| 0.5200 | 43.14        | 0.88   | 41.91 0.88 |
| 0.5300 | 43.08        | 0.88   | 41.86 0.89 |
| 0.5400 | 43.03        | 0.88   | 41.53 0.88 |
| 0.5500 | 42.98        | 0.88   | 41.70 0.91 |

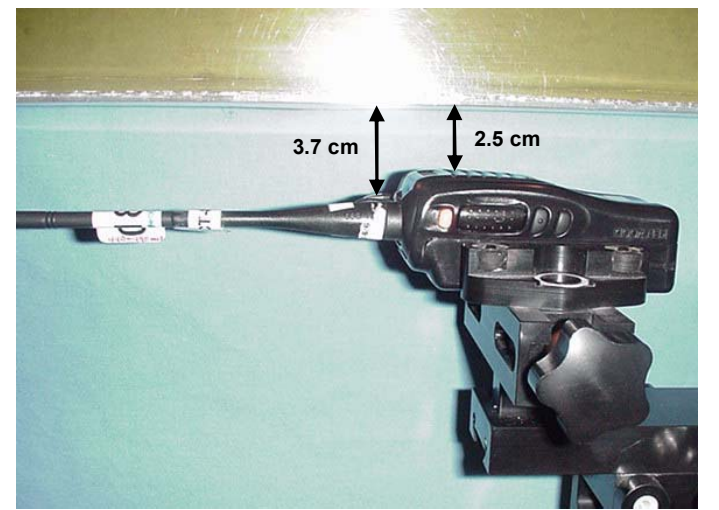
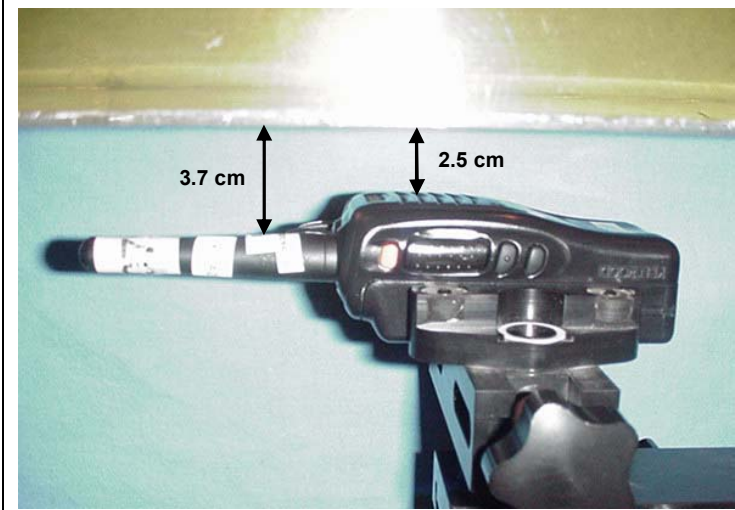
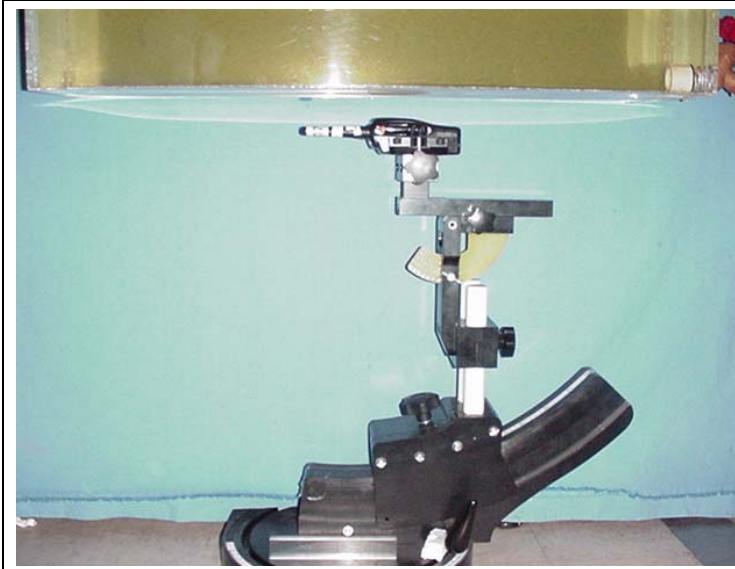
|                         |   |  |                                  |                    |                  |                |
|-------------------------|---|--|----------------------------------|--------------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b>      | <b>FCC ID:</b>     | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> |  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b> |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                    |                  | Page 51 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**APPENDIX D - SAR TEST SETUP & DUT PHOTOGRAPHS**

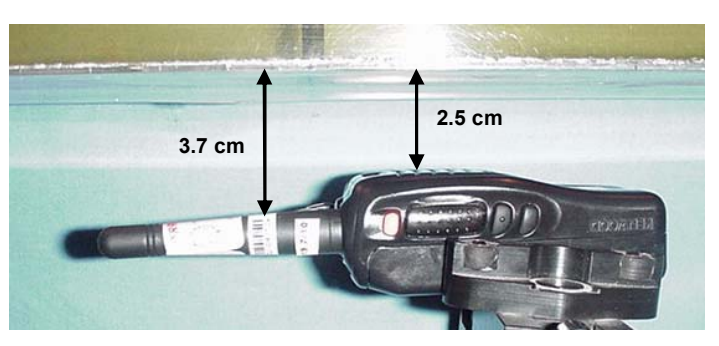
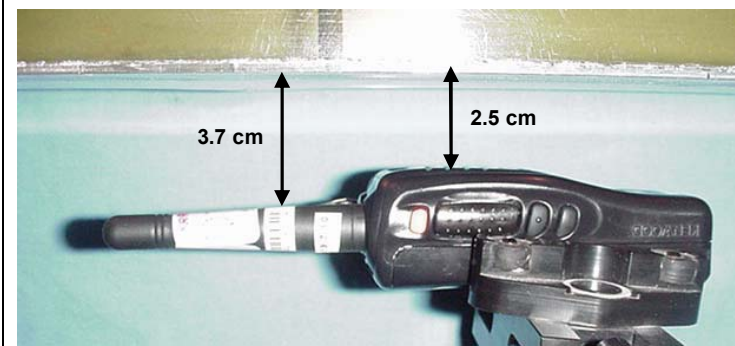
|                         |  |                                  |                             |                |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                |                  | Page 52 of 65  |

**FACE-HELD SAR TEST SETUP PHOTOGRAPHS**  
2.5 cm Spacing from Front of DUT to Planar Phantom



DUT with Ni-MH Battery P/N: KNB-56N & Antenna P/N: KRA-23M/M2



DUT with Ni-MH Battery P/N: KNB-56N & Antenna P/N: KRA-27M/M2



DUT with Li-ion Battery P/N: KNB-55L & Antenna P/N: KRA-23M/M2

DUT with Li-ion Battery P/N: KNB-57L & Antenna P/N: KRA-23M/M2

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 53 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**BODY-WORN SAR TEST SETUP PHOTOGRAPHS**





**DUT with Speaker-Microphone Audio Accessory (P/N: KMC-45)**

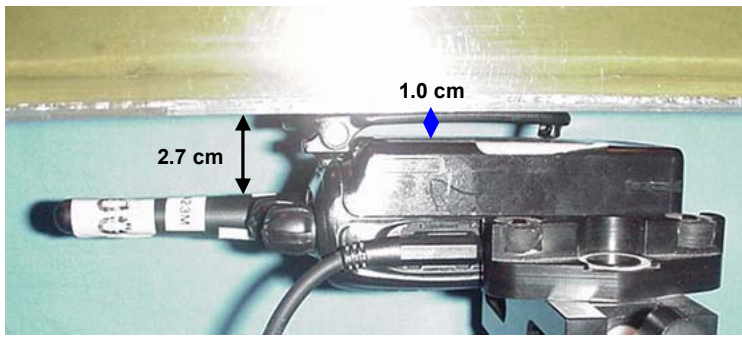
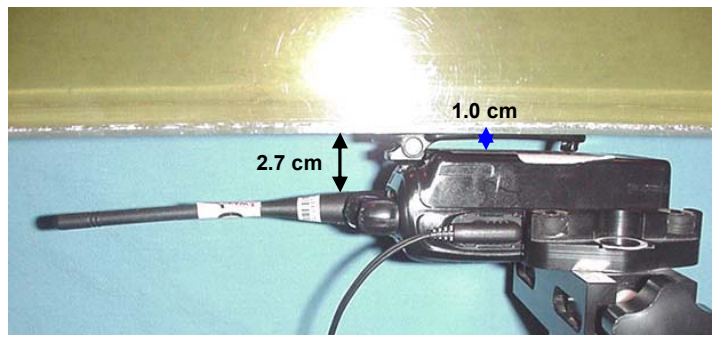
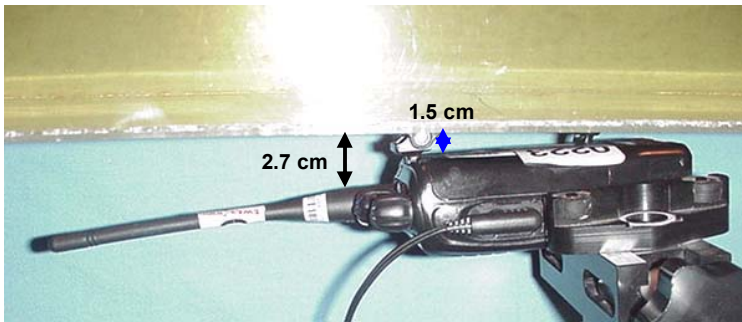
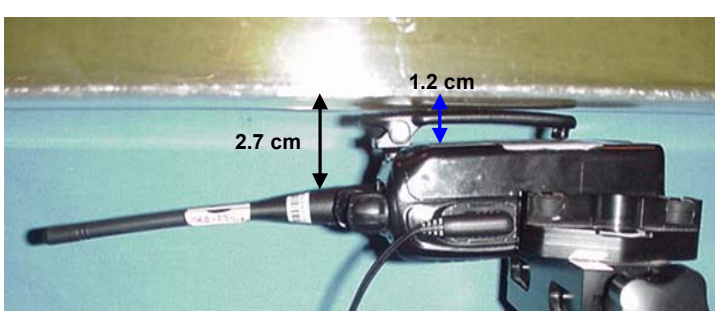


**DUT with Headset Boom-Microphone Audio Accessory (P/N: KHS-21)**



|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 54 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

**BODY-WORN SAR TEST SETUP PHOTOGRAPHS**

|   |   |
|---|---|
|   |   |
| DUT with Ni-MH Battery P/N: KNB-56N & Antenna P/N: KRA-23M/M2                     | DUT with Ni-MH Battery P/N: KNB-56N & Antenna P/N: KRA-27M/M2                       |
|  |  |
| DUT with Li-ion Battery P/N: KNB-55L & Antenna P/N: KRA-27M/M2                    | DUT with Li-ion Battery P/N: KNB-57L & Antenna P/N: KRA-27M/M2                      |

|                         |  |  |                      |         |           |               |
|-------------------------|--|--|----------------------|---------|-----------|---------------|
| Applicant:              | Kenwood USA Corporation                        | Model(s):  | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | KENWOOD       |
| DUT Type:               | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range:  | 450-512 MHz          |         |           |               |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |         |           | Page 55 of 65 |

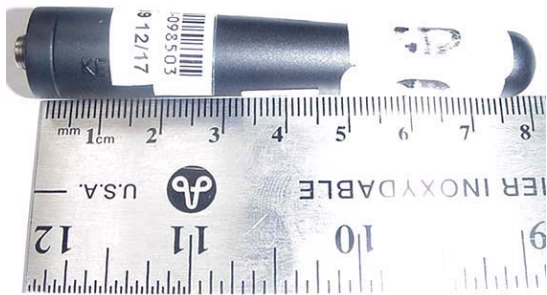
|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## DUT PHOTOGRAPHS

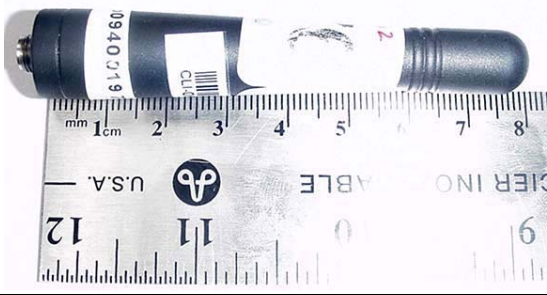


Front of DUT with KRA-23M/M2 Antenna

Back of DUT with KRA-23M/M2 Antenna





Antenna P/N: KRA-23M



Antenna P/N: KRA-23M2

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 56 of 65  |



|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## DUT PHOTOGRAPHS



Front & Back of DUT with KRA-27M Antenna
Front & Back of DUT with KRA-27M2 Antenna





Antenna P/N: KRA-27M



Antenna P/N: KRA-27M2

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 57 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**DUT PHOTOGRAPHS**





**Left and Right Sides of DUT with Ni-MH Battery P/N: KNB-56N**



**Top and Bottom end of DUT with Ni-MH Battery P/N: KNB-56N**

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 58 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

## DUT PHOTOGRAPHS





Left and Right Sides of DUT with Li-ion Battery P/N: KNB-55L (1480 mAh)



Top and Bottom end of DUT with Li-ion Battery P/N: KNB-55L (1480 mAh)

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 59 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**DUT PHOTOGRAPHS**





Left and Right Sides of DUT with Li-ion Battery P/N: KNB-57L (2000 mAh)



Top and Bottom end of DUT with Li-ion Battery P/N: KNB-57L (2000 mAh)

|                         |  |  |                      |                |           |                |
|-------------------------|--|--|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation                        | <b>Model(s):</b>   | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b>   | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. |  | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                      |                |           | Page 60 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

## DUT PHOTOGRAPHS





|                             |                            |                             |
|-----------------------------|----------------------------|-----------------------------|
| Li-ion Battery P/N: KNB-55L | Ni-MH Battery P/N: KNB-56N | Li-ion Battery P/N: KNB-57L |
|-----------------------------|----------------------------|-----------------------------|



|                             |                            |                             |
|-----------------------------|----------------------------|-----------------------------|
| Li-ion Battery P/N: KNB-55L | Ni-MH Battery P/N: KNB-56N | Li-ion Battery P/N: KNB-57L |
|-----------------------------|----------------------------|-----------------------------|



|  |  |                           |                      |         |           |                |
|--|--|---------------------------|----------------------|---------|-----------|----------------|
| Applicant:   | Kenwood USA Corporation                        | Model(s):                 | TK-3360-K, TK-3360-X | FCC ID: | ALH415100 | <b>KENWOOD</b> |
| DUT Type:  | Portable FM UHF Push-To-Talk Radio Transceiver | Transmit Frequency Range: | 450-512 MHz          |         |           |                |
| 2009 Celltech Labs Inc. This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |  |                           |                      |         |           | Page 61 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

## DUT PHOTOGRAPHS

|   |   |   |
|---|---|---|
|   |   |    |
| <b>DUT Battery Housing</b>  | <b>Belt-Clip Assembly</b>   | <b>Belt-Clip P/N: KBH-12</b>  |
|  |  |  |
| <b>Back of DUT with Belt-Clip removed</b>   | <b>Back of DUT with Belt-Clip attached</b>  | <b>Belt-Clip P/N: KBH-12</b>  |

|   |  |                          |                |
|---|--|--------------------------|----------------|
| <b>Applicant:</b> Kenwood USA Corporation                       | <b>Model(s):</b> TK-3360-K, TK-3360-X  | <b>FCC ID:</b> ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b> Portable FM UHF Push-To-Talk Radio Transceiver | <b>Transmit Frequency Range:</b> 450-512 MHz   |                          |                |
| 2009 Celltech Labs Inc.   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                          | Page 62 of 65  |

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**DUT PHOTOGRAPHS**





**DUT with Speaker-Microphone Audio Accessory (P/N: KMC-45)**



**DUT with Headset Boom-Microphone Audio Accessory (P/N: KHS-21)**

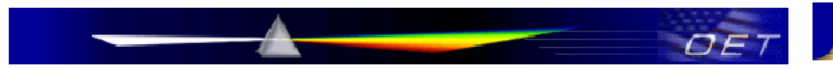
|                         |  |                                  |                      |                |           |                |
|-------------------------|--|----------------------------------|----------------------|----------------|-----------|----------------|
| <b>Applicant:</b>       | Kenwood USA Corporation  | <b>Model(s):</b>                 | TK-3360-K, TK-3360-X | <b>FCC ID:</b> | ALH415100 | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | Portable FM UHF Push-To-Talk Radio Transceiver   | <b>Transmit Frequency Range:</b> | 450-512 MHz          |                |           |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                      |                |           | Page 63 of 65  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Date(s) of Evaluation<br>October 14-15, 2009 | Test Report Serial No.<br>100909ALH-T985-S90U      | Test Report Revision No.<br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | Test Report Issue Date<br>October 28, 2009   | Description of Test(s)<br>Specific Absorption Rate | RF Exposure Category<br>Occupational (Controlled)      |  |

## APPENDIX E - DIPOLE CALIBRATION (FCC KDB 250418)



[FCC Home](#) | [Search](#) | [Updates](#) | [E-Filing](#) | [Initiatives](#) | [For Consumers](#) | [Find People](#)



### Office of Engineering and Technology

**Inquiry:**

Uploading 300 MHz and 450 MHz Dipole Calibration Reports

**Response:**

FCC confirmation attached for Celltech Labs Dipoles with following identifications:

- Serial #: 136 / 450 MHz / Head Tissue-Equivalent Medium / Expires 02/28/2010
- Serial #: 135 / 300 MHz / Head Tissue-Equivalent Medium / Expires 02/28/2010

A copy of the confirmation and corresponding Dipole Report(s) are required to be included in SAR reports of applicable equipment certification filings. Each filing must have KDB tracking number 250418 included on 731 Form.



The dipoles listed below have prior coordination with the FCC Lab for use in SAR system validation and verification by Celltech Labs through February 2010. The SAR target values, specific operating parameters and identifications are indicated below. SAR measurements using these dipoles must be in accordance with the parameters specified below; for example, phantom shell and tissue dielectric requirements etc. These will be verified during each equipment certification by the FCC or TCB, according to measurement protocols required for testing the specific device and wireless technology, to support the test methodologies and measurement results.

This confirmation and copies of the dipole calibration reports are required to be included in SAR reports for equipment certification containing SAR system verification results involving these dipoles. The information is available and can be verified through the KDB inquiry tracking number provided to Celltech Labs. The same tracking number must also be included on the 731 Form of the corresponding equipment certifications.

| Dipole Serial Number   | 136                          | 135                          |
|--|------------------------------|------------------------------|
| Calibration Document No.                                       | DC450H-021209-R1.2           | DC300H-021209-R1.2           |
| Frequency  | 450 MHz                      | 300 MHz                      |
| Dipole Impedance   | 58.21 + j 5.69 Ohms          | 46.39 + j 6.25 Ohms          |
| Dipole Return Loss   | -20.7 dB                     | - 22.6 dB                    |
| Tissue-Equivalent Dielectric Type                              | Head                         |                              |
| Tissue Dielectric Constant                                     | 43.5                         | 45.3                         |
| Tissue Conductivity  | 0.87 S/m                     | 0.87 S/m                     |
| Phantom Shell Thickness  | 6.0 mm Plexiglas             |                              |
| Phantom Shell Dielectric Constant                              | 2.7                          |                              |
| Dipole Axis to Tissue Medium Separation Distance               | 15.175 mm                    |                              |
| Numerical Simulation:  | FDTD                         |                              |
| 1-g SAR Target Value   | 4.893 W/kg @ 1.0 W           | 3.019 W/kg @ 1.0 W           |
| 10-g SAR Target Value  | 3.263 W/kg @ 1.0 W           | 2.051 W/kg @ 1.0 W           |
| SAR at Phantom Surface above Dipole Feed-Point                 | 6.845 W/kg @ 1.0 W           | 4.046 W/kg @ 1.0 W           |
| SAR at Phantom Surface at 2.0 cm offset from Dipole Feed-Point | 3.101 W/kg @ 1.0 W           | 2.049 W/kg @ 1.0 W           |
| Experimental Verification:                                     | SAR Measurements             |                              |
| 1-g SAR Target Value   | 1.21 ~ 1.23 W/kg @ 0.25 W    | 0.753 ~ 0.765 W/kg @ 0.25 W  |
| 10-g SAR Target Value  | 0.787 ~ 0.803 W/kg @ 0.25W   | 0.503 ~ 0.509 W/kg @ 0.25 W  |
| SAR at Phantom Surface above Dipole Feed-Point                 | 1.93 W/kg (average) @ 0.25 W | 1.20 W/kg (average) @ 0.25 W |
| SAR at Phantom Surface at 2.0 cm offset from Dipole Feed-Point | 0.79 W/kg @ 0.25 W           | 0.56 W/kg @ 0.25 W           |

Expires February 2010

Celltech Labs Inc.

February 13, 2009

|                         |   |  |                             |                |                  |                |
|-------------------------|---|--|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>                        | <b>Model(s):</b>   | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b> | <b>Transmit Frequency Range:</b>   | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. |   | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                             |                |                  | Page 64 of 65  |



|   |                         |                         |                                  |                    |             |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: |

## 450 MHz Dipole Calibration

Type:

**450 MHz Validation Dipole**

Asset Number:

**00024**

Serial Number:

**136**

Place of Calibration:

**Celltech Labs Inc.**

Date(s) of Calibration:

**Jan. 19 & Feb. 09, 2009**

**Celltech Labs Inc. certifies that the 450 MHz Dipole Calibration was performed on the date(s) indicated above.**

Calibrated by:

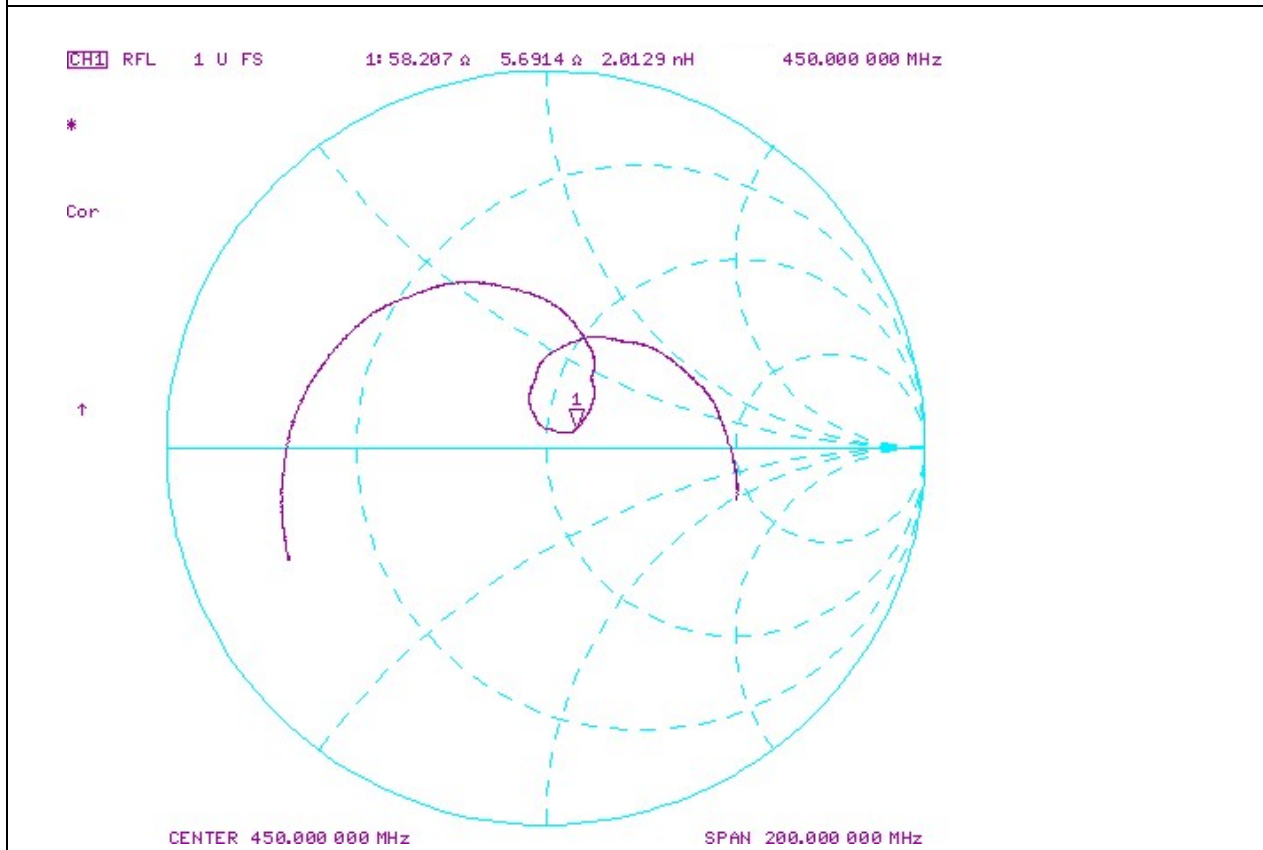
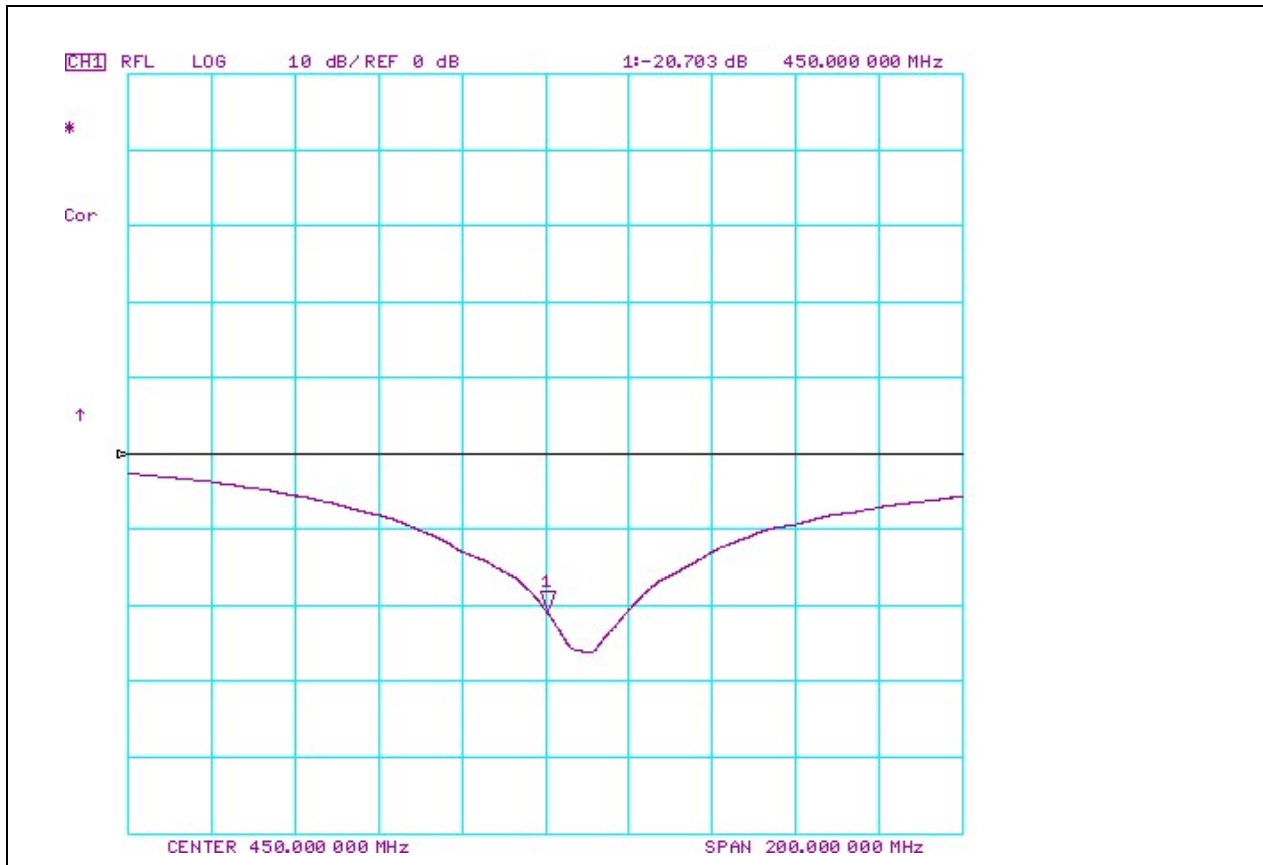
**Sean Johnston**

Signature:





## 2. Validation Dipole VSWR Data



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

### 3. Validation Dipole Dimensions

| Dimension | IEEE 1528 (mm) | Measured (mm) | Difference (mm) | Tolerance (1528 1%) |
|-----------|----------------|---------------|-----------------|---------------------|
| L (mm)    | 270.0          | 272.7         | +2.7            | +1%                 |
| h (mm)    | 166.7          | 167.0         | +0.3            | +0.2%               |
| d (mm)    | 6.35           | 6.36          | +0.01           | +0.2%               |

The L, h and d dimensions should be within  $\pm 1\%$  tolerance per 1528-2003.

### 4. Validation Phantom

The validation phantom (planar) was constructed using relatively low-loss tangent Plexiglas material. The dielectric constant used for the numerical analysis was 2.7. The typical range of 2.5 - 3 was selected and the mean of this value was used for the simulation.

The inner dimensions of the validation phantom are as follows:

Length: 83.5 cm  
Width: 36.9 cm  
Height: 21.8 cm

The bottom section of the validation phantom is constructed of  $6.0 \pm 0.1\text{mm}$  Plexiglas.

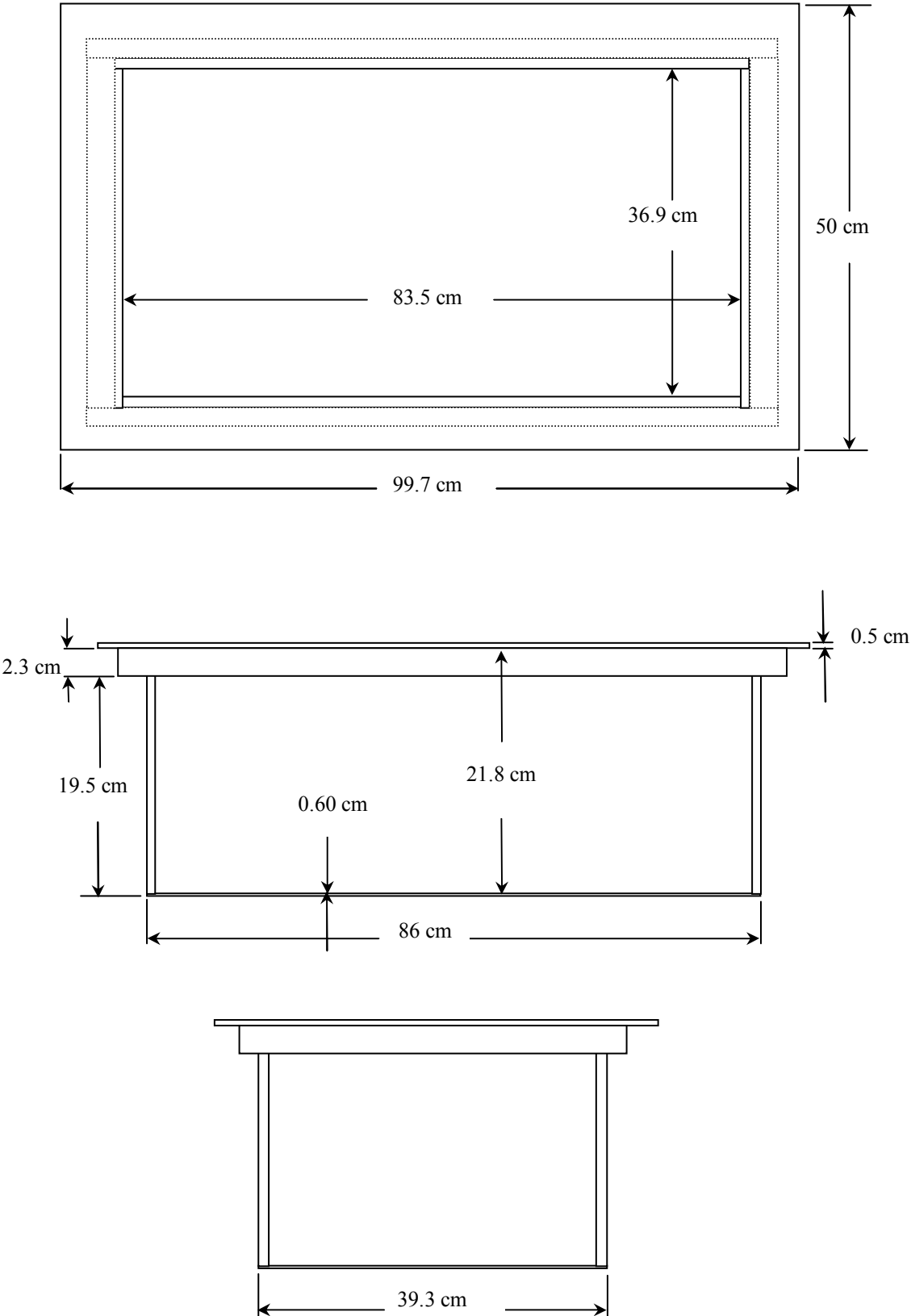
$$s = 3.175\text{mm}(d/2) + 6.0\text{mm}(\text{phantom}) + 6.0\text{mm}(\text{spacer}) = 15.175\text{mm}$$

### 5. Test Equipment List

| TEST EQUIPMENT                           | ASSET NO. | SERIAL NO. | DATE OF CAL. | CAL. DUE DATE |
|--|-----------|------------|--------------|---------------|
| SPEAG DASY4 Measurement Server           | 00158     | 1078       | CNR          | CNR           |
| SPEAG Robot                              | 00046     | 599396-01  | CNR          | CNR           |
| SPEAG DAE4                               | 00019     | 353        | 22Apr08      | 22Apr09       |
| SPEAG ET3DV6 E-Field Probe               | 00017     | 1590       | 21Jul08      | 21Jul09       |
| Plexiglas Validation Planar Phantom      | 00157     | 137        | CNR          | CNR           |
| HP 85070C Dielectric Probe Kit           | 00033     | US39240170 | CNR          | CNR           |
| Gigatronics 8652A Power Meter            | 00007     | 1835272    | 23Apr08      | 23Apr09       |
| Gigatronics 80701A Power Sensor          | 00014     | 1833699    | 23Apr08      | 23Apr09       |
| HP 8753ET Network Analyzer               | 00134     | US39170292 | 28Apr08      | 28Apr09       |
| HP 8648D Signal Generator                | 00005     | 3847A00611 | CNR          | CNR           |
| Amplifier Research 5S1G4 Power Amplifier | 00106     | 26235      | CNR          | CNR           |
| CNR = Calibration Not Required           |           |            |              |               |

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

**6. Dimensions of Plexiglas Planar Validation Phantom**



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

**7. Plexiglas Planar Validation Phantom**



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

**8. 450 MHz Validation Dipole**



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## 9. SAR Target Validation

| Parameter         |                 |                      |                    |                    |                                       |                                   |                              |  |                     |   |             |               |               |               |   | Result   |                  |                   |   |  |
|-------------------|-----------------|----------------------|--------------------|--------------------|---------------------------------------|-----------------------------------|------------------------------|--|---------------------|---|-------------|---------------|---------------|---------------|---|--|------------------|-------------------|---|--|
|                   | Frequency (MHz) | Shell thickness (mm) | Shell permittivity | Shell permeability | Shell Conductivity ( $\sigma$ ) (S/m) | Phantom dimensions (mm) [x, y, z] | Liquid Relative permittivity | Liquid Conductivity ( $\sigma$ ) (S/m) | Liquid permeability | Reference dipole distances from the liquid (mm) | Spacer (mm) | Dipole L (mm) | Dipole h (mm) | Dipole d (mm) | Distance between dipole feedpoint gap S1 (mm) | Distance between dipole balun elements S2 (mm) | 1 g SAR (1 Watt) | 10 g SAR (1 Watt) | Local SAR at surface (above feed-point) | Local SAR at surface (y = 2 cm offset from feed-point) |
| SEMCAD Simulation | 450             | 6                    | 2.7                | 1                  | 0                                     | 700, 600, 170                     | 43.5                         | 0.87                                   | 1                   | 15.175  | 6           | 270           | 166.7         | 6.35          | 1   | 4  | 4.893            | 3.263             | 6.845                                   | 3.101  |
|                   |                 |                      |                    |                    |                                       |                                   |                              |  |                     |   |             |               |               |               |   | <b>CELLTECH TARGET</b>                         |                  |                   |   |  |
|                   |                 |                      |                    |                    |                                       |                                   |                              |  |                     |   |             |               |               |               |   | 1.223 W/kg                                     | 1g               | 0.25 W            |   |  |
|                   |                 |                      |                    |                    |                                       |                                   |                              |  |                     |   |             |               |               |               |   | 0.816 W/kg                                     | 10g              | 0.25 W            |   |  |

- Standard dipole dimensions used in simulation per 1528-2003 mechanical dimensions of the reference dipole.
- Reference distance from liquid is actual measured distance.

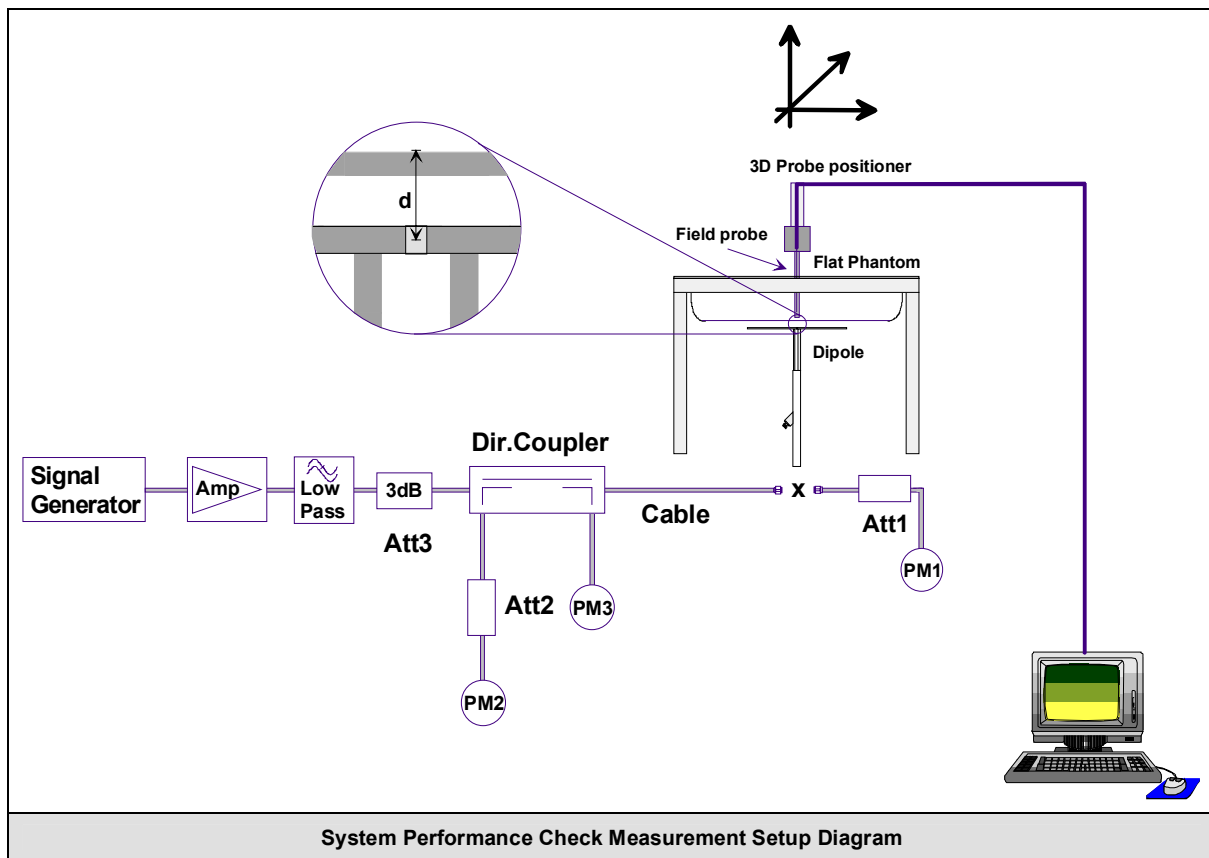


|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## 10. SAR Measurement

Measurements were made using a dosimetric E-field probe ET3DV6 (S/N: 1590, Conversion Factor 7.66). The SAR measurement was performed with the E-field probe in mechanical detection mode only. The setup and determination of the forward power into the dipole was performed using the procedures described below.

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



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## 11. Measurement Conditions

The validation phantom was filled with 450 MHz Head tissue simulant.

Relative Permittivity: 43.8 (+0.7% deviation from target)  
 Conductivity: 0.86 mho/m (-1.1% deviation from target)  
 Fluid Temperature: 22.1°C (Start of Test) / 22.3°C (End of Test)  
 Fluid Depth: ≥ 15.0 cm

Environmental Conditions:

Ambient Temperature: 23.1°C  
 Barometric Pressure: 101.1 kPa  
 Humidity: 35%

The 450 MHz Head tissue simulant consisted of the following ingredients:

| Ingredient  | Percentage by weight                            |  |
|---|---|--|
| Water   | 38.56%  |  |
| Sugar   | 56.32%  |  |
| Salt  | 3.95%   |  |
| HEC   | 0.98%   |  |
| Dowicil 75  | 0.19%   |  |
| <b>IEEE/IEC Target Dielectric Parameters (450 MHz):</b> | <b><math>\epsilon_r = 43.5 (+/- 5\%)</math></b> | <b><math>\sigma = 0.87 \text{ S/m } (+/- 5\%)</math></b> |

## 12. System Performance Check SAR Results

| SAR @ 0.25W Input averaged over 1g (W/kg)  |          |           |        | SAR @ 1W Input averaged over 1g (W/kg)  |          |           |        |
|--|----------|-----------|--------|---|----------|-----------|--------|
| Validation Target (450)                    | Measured | Deviation |        | Validation Target (450)                 | Measured | Deviation |        |
| 1.223                                      | +/- 10%  | 1.216     | -0.57% | 4.892                                   | +/- 10%  | 4.864     | -0.57% |
| SAR @ 0.25W Input averaged over 10g (W/kg) |          |           |        | SAR @ 1W Input averaged over 10g (W/kg) |          |           |        |
| Validation Target (450)                    | Measured | Deviation |        | Validation Target (450)                 | Measured | Deviation |        |
| 0.816                                      | +/- 10%  | 0.799     | -2.08% | 3.264                                   | +/- 10%  | 3.196     | -2.08% |

| 450 MHz System Performance Check @ 250mW (1g) |               |  |       |       |                          |
|---|---------------|--|-------|-------|--------------------------|
|   | SAR 1g (mW/g) | Deviation From 450 MHz Numerical Simulation (1.223 mW/g) | STDEV | Mean  | Coefficient of Variation |
| Test 1  | 1.21          | -1.06%   | 0.008 | 1.216 | 0.007                    |
| Test 2  | 1.22          | -0.25%   |       |       |                          |
| Test 3  | 1.22          | -0.25%   |       |       |                          |
| Test 4  | 1.21          | -1.06%   |       |       |                          |
| Test 5  | 1.22          | -0.25%   |       |       |                          |
| Test 6  | 1.20          | -1.88%   |       |       |                          |
| Test 7  | 1.22          | -0.25%   |       |       |                          |
| Test 8  | 1.22          | -0.25%   |       |       |                          |
| Test 9  | 1.23          | 0.57%  |       |       |                          |
| Test 10                                       | 1.21          | -1.06%   |       |       |                          |
|   | 1.216         | -0.57%   |       |       |                          |

| 450 MHz System Performance Check @ 250mW (10g) |                |  |       |       |                          |
|--|----------------|--|-------|-------|--------------------------|
|  | SAR 10g (mW/g) | Deviation From 450 MHz Numerical Simulation (0.816 mW/g) | STDEV | Mean  | Coefficient of Variation |
| Test 1   | 0.799          | -2.08%   | 0.006 | 0.799 | 0.007                    |
| Test 2   | 0.800          | -1.96%   |       |       |                          |
| Test 3   | 0.803          | -1.59%   |       |       |                          |
| Test 4   | 0.796          | -2.45%   |       |       |                          |
| Test 5   | 0.801          | -1.84%   |       |       |                          |
| Test 6   | 0.793          | -2.82%   |       |       |                          |
| Test 7   | 0.802          | -1.72%   |       |       |                          |
| Test 8   | 0.802          | -1.72%   |       |       |                          |
| Test 9   | 0.807          | -1.10%   |       |       |                          |
| Test 10  | 0.787          | -3.55%   |       |       |                          |
|  | 0.799          | -2.08%   |       |       |                          |

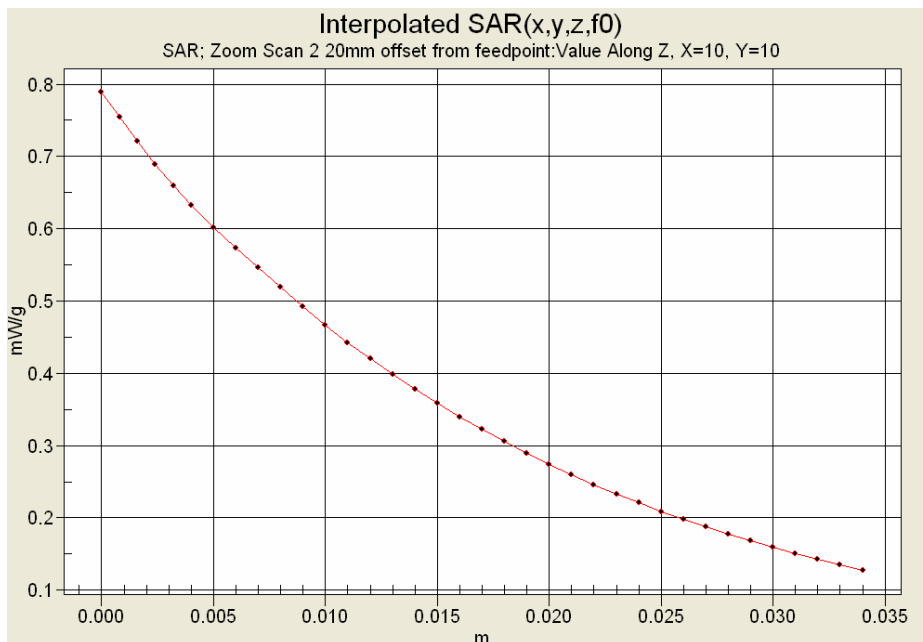
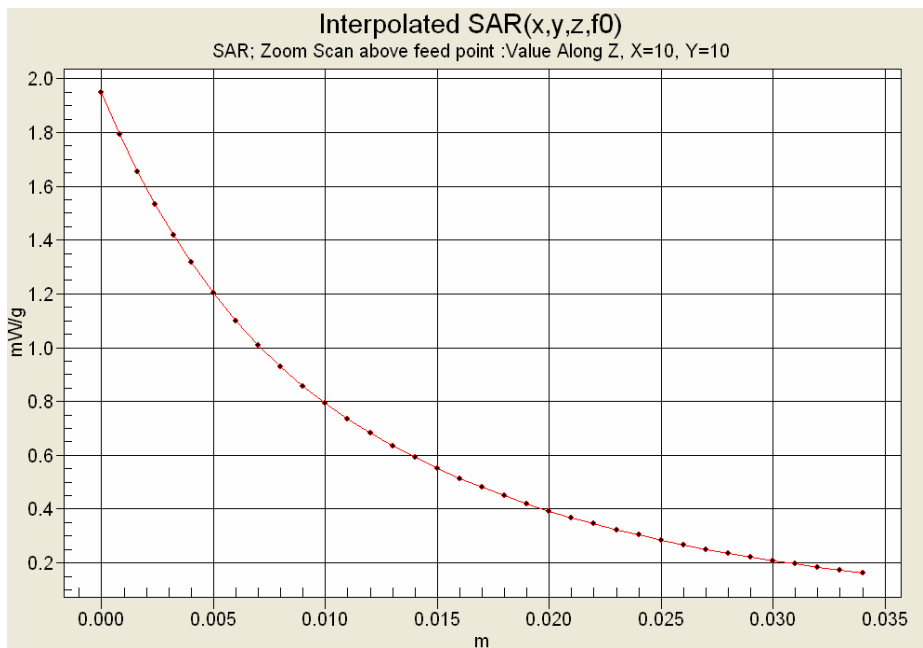
|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

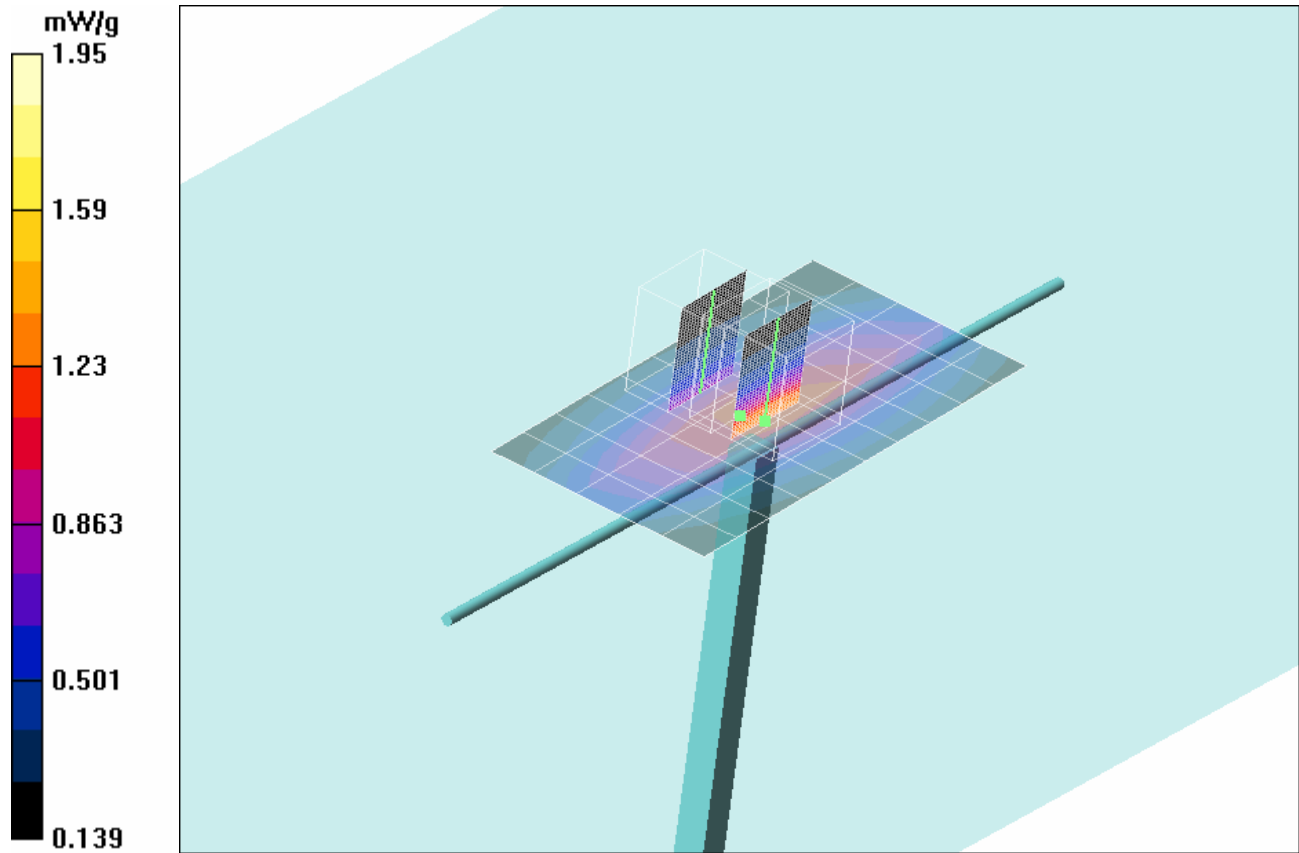
**b) Extrapolation Routine:**

The zoom scan routine was used to extrapolate the peak SAR above the feed point and offset at 20mm. Two zoom scans were used, the first centered above the feedpoint and the second offset 20mm. The interpolated SAR at these points are shown in the table below. Note: Center point of zoom scan located at x=10, y=10.

| Measurement Location | Measured SAR mW/g | SAR 1W Normalized | Peak Target mW/g | Deviation | System Performance Check Expanded Uncertainty +/-% |
|----------------------|-------------------|-------------------|------------------|-----------|--|
| Feed Point           | 1.93*             | 7.72              | 6.85             | 12.7%     | 17.86  |
| 2 cm Offset          | 0.79              | 3.16              | 3.10             | 1.9%      | 17.86  |

\*Note: measured SAR level is the average from the 10 evaluations





|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## System Performance Check - 450 MHz Dipole - HSL

DUT: Dipole 450 MHz; Asset: 00024; Serial: 136

Ambient Temp: 23.1°C; Fluid Temp: 22.1°C; Barometric Pressure: 101.1 kPa; Humidity: 35%

Communication System: CW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.86$  mho/m;  $\epsilon_r = 43.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: ET3DV6 - SN1590; ConvF(7.66, 7.66, 7.66); Calibrated: 21/07/2008

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

- Electronics: DAE4 Sn353; Calibrated: 22/04/2008

- Phantom: Validation Planar; Type: Plexiglas; Serial: TE#137

- Measurement SW: DASy4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

**450 MHz Area Scan (6x11x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.20 mW/g

**450 MHz Zoom Scan 1 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.6 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.799 mW/g**

Maximum value of SAR (measured) = 1.30 mW/g

**450 MHz Zoom Scan 2 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.5 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 1.93 W/kg

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.800 mW/g**

Maximum value of SAR (measured) = 1.30 mW/g

**450 MHz Zoom Scan 3 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.4 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.803 mW/g**

Maximum value of SAR (measured) = 1.30 mW/g

**450 MHz Zoom Scan 4 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.3 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.796 mW/g**

Maximum value of SAR (measured) = 1.29 mW/g

**450 MHz Zoom Scan 5 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.5 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 1.94 W/kg

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.801 mW/g**

Maximum value of SAR (measured) = 1.32 mW/g

**450 MHz Zoom Scan 6 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.3 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 1.90 W/kg

**SAR(1 g) = 1.20 mW/g; SAR(10 g) = 0.793 mW/g**

Maximum value of SAR (measured) = 1.29 mW/g

**450 MHz Zoom Scan 7 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.4 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 1.94 W/kg

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.802 mW/g**

Maximum value of SAR (measured) = 1.31 mW/g

**450 MHz Zoom Scan 8 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.7 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 1.93 W/kg

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.802 mW/g**

Maximum value of SAR (measured) = 1.30 mW/g

**450 MHz Zoom Scan 9 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.6 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 1.95 W/kg

**SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.807 mW/g**

Maximum value of SAR (measured) = 1.32 mW/g

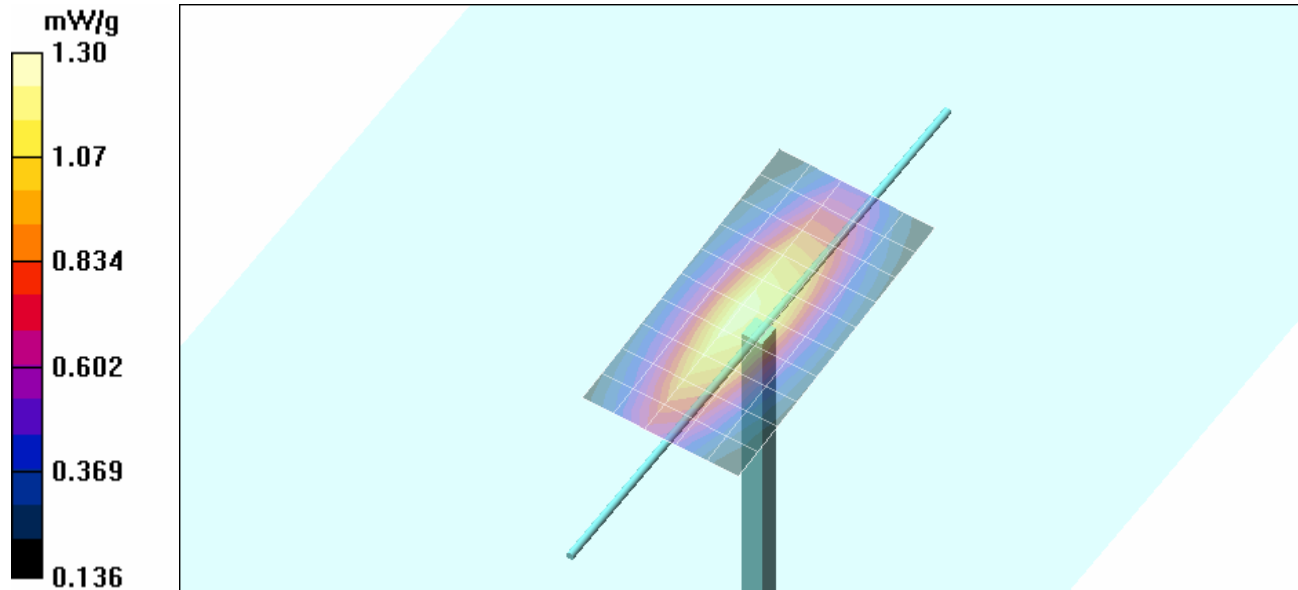
**450 MHz Zoom Scan 10 (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 39.3 V/m; Power Drift = 0.007 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.787 mW/g**

Maximum value of SAR (measured) = 1.29 mW/g



### 13. Measured Fluid Dielectric Parameters

#### 450 MHz (Head)

\*\*\*\*\*

Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

19/Jan/2009

Frequency (GHz)

IEEE\_eH IEEE 1528-2003 Limits for Head Epsilon

IEEE\_sH IEEE 1528-2003 Limits for Head Sigma

Test\_e Epsilon of UIM

Test\_s Sigma of UIM

\*\*\*\*\*

| Freq   | FCC_eH | FCC_sH | Test_e | Test_s |
|--------|--------|--------|--------|--------|
| 0.3500 | 44.70  | 0.87   | 44.61  | 0.78   |
| 0.3600 | 44.58  | 0.87   | 46.57  | 0.79   |
| 0.3700 | 44.46  | 0.87   | 45.58  | 0.79   |
| 0.3800 | 44.34  | 0.87   | 44.52  | 0.80   |
| 0.3900 | 44.22  | 0.87   | 44.68  | 0.82   |
| 0.4000 | 44.10  | 0.87   | 44.30  | 0.83   |
| 0.4100 | 43.98  | 0.87   | 43.79  | 0.84   |
| 0.4200 | 43.86  | 0.87   | 44.67  | 0.85   |
| 0.4300 | 43.74  | 0.87   | 43.93  | 0.86   |
| 0.4400 | 43.62  | 0.87   | 43.86  | 0.86   |
| 0.4500 | 43.50  | 0.87   | 43.79  | 0.86   |
| 0.4600 | 43.45  | 0.87   | 43.00  | 0.86   |
| 0.4700 | 43.40  | 0.87   | 42.82  | 0.88   |
| 0.4800 | 43.34  | 0.87   | 42.69  | 0.89   |
| 0.4900 | 43.29  | 0.87   | 42.38  | 0.91   |
| 0.5000 | 43.24  | 0.87   | 42.02  | 0.90   |
| 0.5100 | 43.19  | 0.87   | 42.04  | 0.92   |
| 0.5200 | 43.14  | 0.88   | 42.26  | 0.95   |
| 0.5300 | 43.08  | 0.88   | 41.66  | 0.94   |
| 0.5400 | 43.03  | 0.88   | 41.84  | 0.95   |
| 0.5500 | 42.98  | 0.88   | 41.33  | 0.96   |

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## 14. Measurement Uncertainties

| UNCERTAINTY BUDGET FOR SYSTEM PERFORMANCE CHECK   |                   |                           |                          |             |       |        |                                |                                 |                    |
|---|-------------------|---------------------------|--------------------------|-------------|-------|--------|--------------------------------|---------------------------------|--------------------|
| Uncertainty Component   | IEEE 1528 Section | Uncertainty Value $\pm\%$ | Probability Distribution | Divisor     | ci 1g | ci 10g | Uncertainty Value $\pm\%$ (1g) | Uncertainty Value $\pm\%$ (10g) | $V_i$ or $V_{eff}$ |
| <b>Measurement System</b>   |                   |                           |                          |             |       |        |                                |                                 |                    |
| Probe Calibration (450 MHz)   | E.2.1             | 6.65                      | Normal                   | 1           | 1     | 1      | 6.65                           | 6.65                            | $\infty$           |
| Axial Isotropy  | E.2.2             | 4.7                       | Rectangular              | 1.732050808 | 1     | 1      | 2.7                            | 2.7                             | $\infty$           |
| Hemispherical Isotropy  | E.2.2             | 0                         | Rectangular              | 1.732050808 | 1     | 1      | 0.0                            | 0.0                             | $\infty$           |
| Boundary Effect   | E.2.3             | 1                         | Rectangular              | 1.732050808 | 1     | 1      | 0.6                            | 0.6                             | $\infty$           |
| Linearity   | E.2.4             | 4.7                       | Rectangular              | 1.732050808 | 1     | 1      | 2.7                            | 2.7                             | $\infty$           |
| System Detection Limits   | E.2.5             | 1                         | Rectangular              | 1.732050808 | 1     | 1      | 0.6                            | 0.6                             | $\infty$           |
| Readout Electronics   | E.2.6             | 0.3                       | Normal                   | 1           | 1     | 1      | 0.3                            | 0.3                             | $\infty$           |
| Response Time   | E.2.7             | 0                         | Rectangular              | 1.732050808 | 1     | 1      | 0.0                            | 0.0                             | $\infty$           |
| Integration Time  | E.2.8             | 0                         | Rectangular              | 1.732050808 | 1     | 1      | 0.0                            | 0.0                             | $\infty$           |
| RF Ambient Conditions   | E.6.1             | 3                         | Rectangular              | 1.732050808 | 1     | 1      | 1.7                            | 1.7                             | $\infty$           |
| Probe Positioner Mechanical Tolerance   | E.6.2             | 0.4                       | Rectangular              | 1.732050808 | 1     | 1      | 0.2                            | 0.2                             | $\infty$           |
| Probe Positioning wrt Phantom Shell   | E.6.3             | 2.9                       | Rectangular              | 1.732050808 | 1     | 1      | 1.7                            | 1.7                             | $\infty$           |
| Extrapolation, interpolation & integration algorithms for max. SAR evaluation   | E.5               | 1                         | Rectangular              | 1.732050808 | 1     | 1      | 0.6                            | 0.6                             | $\infty$           |
| <b>Dipole</b>   |                   |                           |                          |             |       |        |                                |                                 |                    |
| Dipole Positioning  | E.4.2             | 2                         | Normal                   | 1.732050808 | 1     | 1      | 1.2                            | 1.2                             | $\infty$           |
| SAR Drift Measurement   | 6.6.2             | 0.5                       | Normal                   | 1.732050808 | 1     | 1      | 0.3                            | 0.3                             | $\infty$           |
| <b>Phantom and Tissue Parameters</b>  |                   |                           |                          |             |       |        |                                |                                 |                    |
| Phantom Uncertainty   | E.3.1             | 4                         | Rectangular              | 1.732050808 | 1     | 1      | 2.3                            | 2.3                             | $\infty$           |
| Liquid Conductivity (target)  | E.3.2             | 5                         | Rectangular              | 1.732050808 | 0.64  | 0.43   | 1.8                            | 1.2                             | $\infty$           |
| Liquid Conductivity (measured)  | E.3.3             | 1.1                       | Normal                   | 1           | 0.64  | 0.43   | 0.7                            | 0.5                             | $\infty$           |
| Liquid Permittivity (target)  | E.3.2             | 5                         | Rectangular              | 1.732050808 | 0.6   | 0.49   | 1.7                            | 1.4                             | $\infty$           |
| Liquid Permittivity (measured)  | E.3.3             | 0.7                       | Normal                   | 1           | 0.6   | 0.49   | 0.4                            | 0.3                             | $\infty$           |
| <b>Combined Standard Uncertainty</b>  |                   |                           | <b>RSS</b>               |             |       |        | <b>8.93</b>                    | <b>8.75</b>                     |                    |
| <b>Expanded Uncertainty (95% Confidence Interval)</b>   |                   |                           | <b>k=2</b>               |             |       |        | <b>17.86</b>                   | <b>17.50</b>                    |                    |
| <b>Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003 and IEC International Standard 62209-1:2005</b> |                   |                           |                          |             |       |        |                                |                                 |                    |



|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

## 15. Dipole Calibration History

| 450 MHz Dipole Calibration History |                       |                    |                       |                               |  |  |                       |          |         |           |
|------------------------------------|-----------------------|--------------------|-----------------------|-------------------------------|--|--|-----------------------|----------|---------|-----------|
| Dipole Calibration Date            | SAR Probe Information |                    |                       | Celltech Measured Data        |  |  |                       |          |         |           |
|                                    | Serial Number         | Calibration Factor | Calibration Procedure | SAR (W/kg) Measured at 250 mW | % Deviation from IEEE 1528 Target (4.9 W/kg @ 1 W) | % Deviation from Target validated by Celltech (4.893 W/kg @ 1 W) | Dielectric Parameters |          | RL (dB) | Impedance |
|                                    |                       |                    |                       |                               |  |  | $\epsilon_r$          | $\sigma$ |         |           |
| 2003                               | 1387                  | 7.50               | Numerical             | 1.30                          | 6.12   |  | 43.70                 | 0.88     | -22.60  | 49.98     |
| 2004                               | 1387                  | 7.50               | Numerical             | 1.23                          | 0.41   |  | 42.90                 | 0.85     | -23.74  | 54.04     |
| 2005                               | 1387                  | 7.50               | Numerical             | 1.24                          | 1.22   |  | 43.20                 | 0.84     | -20.40  | 58.50     |
| 2006                               | 1387                  | 7.40               | Numerical             | 1.27                          | 3.67   |  | 44.70                 | 0.90     | -21.60  | 56.17     |
| 2007                               | 1387                  | 7.00               | Numerical             | 1.29                          | 5.31   |  | 43.10                 | 0.85     | -22.20  | 55.20     |
| 2008                               | 1387                  | 7.32               | Measured              | 1.19                          |  | -2.72  | 43.60                 | 0.86     | -23.10  | 55.60     |
| 2008                               | 1590                  | 7.66               | Measured              | 1.18                          |  | -3.53  | 43.44                 | 0.89     | -20.70  | 58.20     |
| 2008                               | 1590                  | 7.66               | Measured              | 1.22                          |  | -0.26  | 43.80                 | 0.86     | -20.70  | 58.20     |

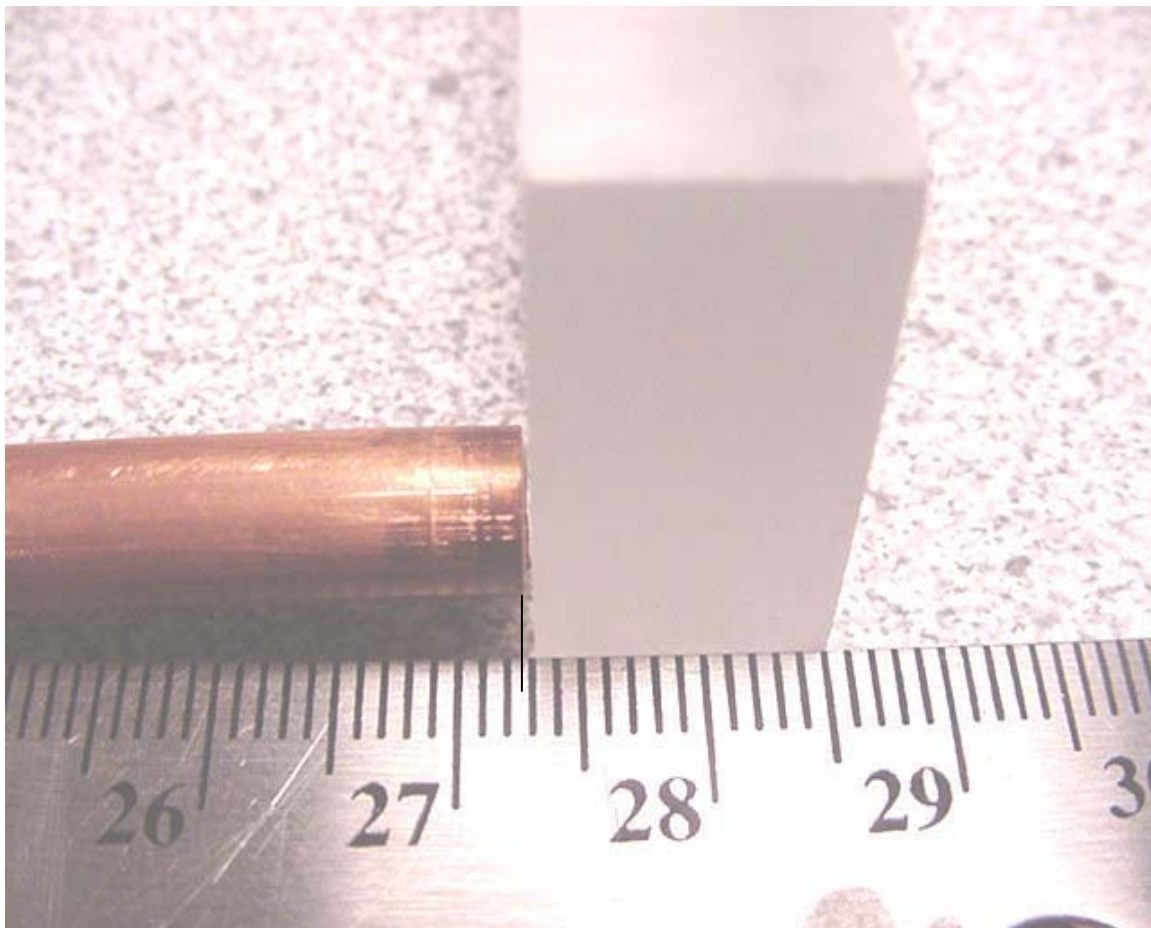
Target Dielectric Parameters:  $\epsilon_r = 43.5$ ,  $\sigma = 0.87$  s/m

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

---

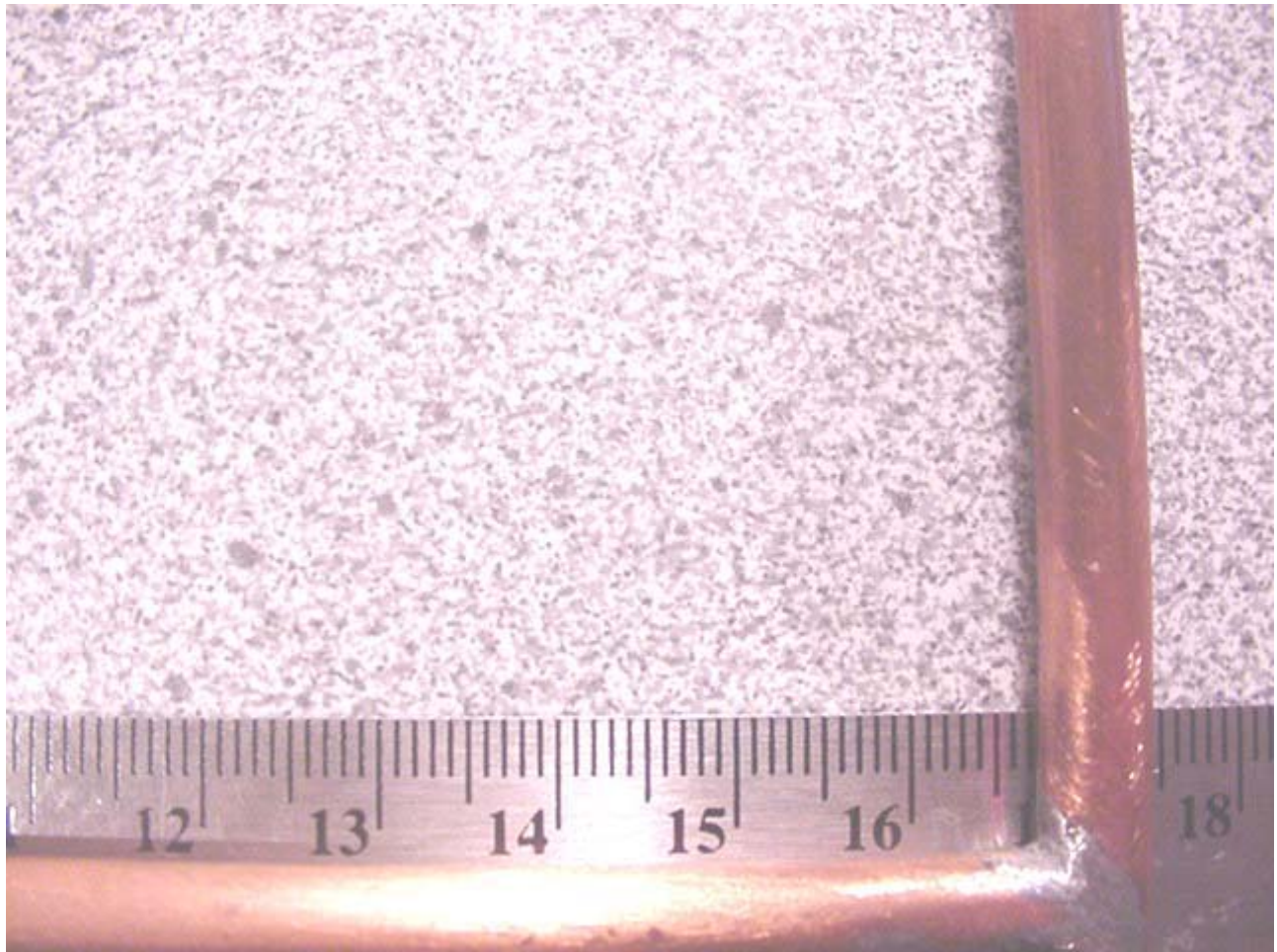
## APPENDIX A - PHOTOGRAPHS

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |



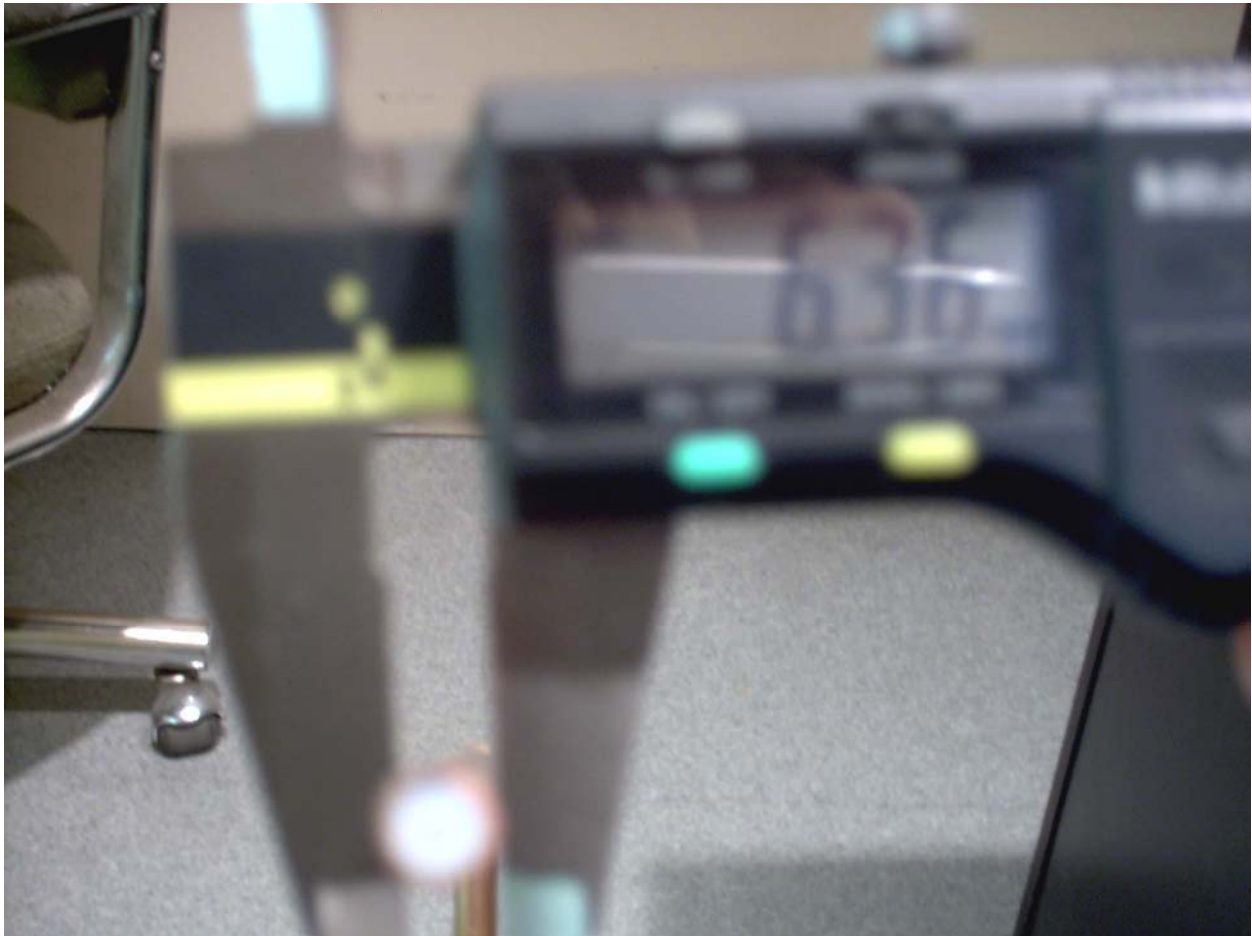
**Dipole Dimension L = 272.7mm**

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |



**Dipole Dimension  $h = 167\text{mm}$**

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |



**Dipole Dimension  $d = 6.36\text{mm}$**

|   |                         |                         |                                  |                    |                  |
|---|-------------------------|-------------------------|----------------------------------|--------------------|------------------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |                  |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: Head |



**Dipole Spacer Dimension = 6.0mm**

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

---

## **APPENDIX B - SEMCAD SIMULATION LOG FILE**

|   |                         |                         |                                  |                    |             |      |
|---|-------------------------|-------------------------|----------------------------------|--------------------|-------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: | DC450H-021209-R1.3 |             |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz            | Fluid Type: | Head |

iSolve X, Version 13.4, Build 34, 64Bit Windows, Single Precision  
Simulation name 'Dielec Const = 2.7, Low Conduct'  
Maxwell Solver started the 2009-Feb-09 10:40:20.  
Initializing FDTD (x1 CFL) Harmonic Simulation at 450 MHz

Overall discretization:

Smallest number of cells per wavelength = 20.202, largest = 422.988, average = 113.419  
Simulation time-step = 9.781e-013 s  
Simulation time-step / minimum of CFL criteria = 0.999938  
Maximum of CFL criteria / minimum of CFL criteria = 64.6059  
Average of CFL criteria / minimum of CFL criteria = 9.92029

Discretization by solids:

Background: epsr = 1, mur = 1, sigma = 0, sigma\* = 0 - smallest number of cells per wavelength = 133.241, largest = 422.988, average = 145.219  
Phantom/Shell: epsr = 2.7, mur = 1, sigma = 0, sigma\* = 0 - smallest number of cells per wavelength = 81.0879, largest = 237.738, average = 120.104  
Phantom/Liquid: epsr = 43.5, mur = 1, sigma = 0.87, sigma\* = 0 - smallest number of cells per wavelength = 20.202, largest = 55.4378, average = 23.1303

Boundary conditions:

Side X-: U-PML(8)  
Side X+: U-PML(8)  
Side Y-: U-PML(8)  
Side Y+: U-PML(8)  
Side Z-: U-PML(8)  
Side Z+: U-PML(8)

Grid:

Number of nodes=285x233x175, number of voxels=11464512

Excitations:

Initializing (Voltage) edge source Quelle  
Overall duration : 3.33333e-008 s or 34080 iterations

Probes & Sensors:

Initializing near-field sensor lg  
Initializing near-field sensor lg  
Initializing near to far field transformation  
Initializing near-field sensor Overall Field  
Initializing near-field sensor Unnamed  
Initializing port sensor Sensor of Quelle  
Initializing port sensor TDSensor  
Initializing port sensor FDSensor  
Initializing port sensor ObererSensor

Enable monitoring:

Sensor of Quelle, V(t)  
Sensor of Quelle, I(t)  
TDSensor, V(t)  
TDSensor, I(t)  
FDSensor, V(t)  
FDSensor, I(t)  
ObererSensor, V(t)  
ObererSensor, I(t)

Checking out the license feature ISOLVEX\_SOLVER\_FDTD, expiring the 1-mar-2009, version 10.0, (1).

Calculating update coefficients:

Created thread pool with 2 thread(s).  
Calculating update coefficients: completed. Time: 17.8 seconds.

Hardware acceleration not used, please contact SPEAG for more information.

Yee (explicit) iterations starting using U-PML Boundary Condition.

0% - iterations: 8 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:34:02  
0% - iterations: 16 / 34079 - [7.64 MCells/s] - Estimated time to completion: 14:11:34  
0% - iterations: 24 / 34079 - [8.34 MCells/s] - Estimated time to completion: 13:00:25  
0% - iterations: 32 / 34079 - [7.64 MCells/s] - Estimated time to completion: 14:11:10  
0% - iterations: 43 / 34079 - [11.5 MCells/s] - Estimated time to completion: 09:27:16  
0% - iterations: 53 / 34079 - [10.4 MCells/s] - Estimated time to completion: 10:23:48  
0% - iterations: 62 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:32:56



|   |                         |                         |                                  |         |                    |      |
|---|-------------------------|-------------------------|----------------------------------|---------|--------------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: |         | DC450H-021209-R1.3 |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz | Fluid Type:        | Head |

0% - iterations: 70 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:59:22  
0% - iterations: 77 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:50:31  
0% - iterations: 84 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:11:17  
0% - iterations: 91 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:50:09  
0% - iterations: 100 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:32:09  
0% - iterations: 110 / 34079 - [10.4 MCells/s] - Estimated time to completion: 10:22:45  
0% - iterations: 118 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:58:16  
0% - iterations: 126 / 34079 - [7.64 MCells/s] - Estimated time to completion: 14:08:49  
0% - iterations: 133 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:49:03  
0% - iterations: 140 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:48:52  
0% - iterations: 147 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:48:41  
0% - iterations: 154 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:48:30  
0% - iterations: 161 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:48:19  
0% - iterations: 170 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:30:44  
1% - iterations: 179 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:30:33  
1% - iterations: 186 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:47:40  
1% - iterations: 191 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:42:33  
1% - iterations: 198 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:08:01  
1% - iterations: 203 / 34079 - [4.78 MCells/s] - Estimated time to completion: 22:35:02  
1% - iterations: 208 / 34079 - [4.78 MCells/s] - Estimated time to completion: 22:34:50  
1% - iterations: 214 / 34079 - [6.25 MCells/s] - Estimated time to completion: 17:14:45  
1% - iterations: 221 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:07:22  
1% - iterations: 228 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:46:34  
1% - iterations: 235 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:06:58  
1% - iterations: 243 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:55:24  
1% - iterations: 252 / 34079 - [7.94 MCells/s] - Estimated time to completion: 13:34:21  
1% - iterations: 257 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:40:08  
1% - iterations: 262 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:39:57  
1% - iterations: 269 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:45:30  
1% - iterations: 277 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:54:37  
1% - iterations: 286 / 34079 - [8.6 MCells/s] - Estimated time to completion: 12:30:57  
1% - iterations: 290 / 34079 - [3.82 MCells/s] - Estimated time to completion: 28:09:27  
1% - iterations: 295 / 34079 - [4.78 MCells/s] - Estimated time to completion: 22:31:21  
1% - iterations: 300 / 34079 - [4.78 MCells/s] - Estimated time to completion: 22:31:09  
1% - iterations: 305 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:38:22  
1% - iterations: 313 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:53:48  
1% - iterations: 320 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:44:09  
1% - iterations: 327 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:43:58  
1% - iterations: 339 / 34079 - [12.5 MCells/s] - Estimated time to completion: 08:35:28  
1% - iterations: 347 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:53:01  
1% - iterations: 355 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:52:50  
1% - iterations: 362 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:03:20  
1% - iterations: 369 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:42:52  
1% - iterations: 376 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:02:56  
1% - iterations: 383 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:42:30  
1% - iterations: 391 / 34079 - [7.64 MCells/s] - Estimated time to completion: 14:02:12  
1% - iterations: 400 / 34079 - [8.6 MCells/s] - Estimated time to completion: 12:28:25  
1% - iterations: 407 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:41:53  
1% - iterations: 415 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:51:28  
1% - iterations: 424 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:25:33  
1% - iterations: 433 / 34079 - [8.6 MCells/s] - Estimated time to completion: 12:27:41  
1% - iterations: 442 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:25:11  
1% - iterations: 449 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:40:47  
1% - iterations: 456 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:00:39  
1% - iterations: 461 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:32:39  
1% - iterations: 468 / 34079 - [6.69 MCells/s] - Estimated time to completion: 16:00:18  
1% - iterations: 475 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:40:06  
1% - iterations: 481 / 34079 - [6.25 MCells/s] - Estimated time to completion: 17:06:36  
1% - iterations: 486 / 34079 - [4.78 MCells/s] - Estimated time to completion: 22:23:43  
1% - iterations: 491 / 34079 - [5.21 MCells/s] - Estimated time to completion: 20:31:33  
1% - iterations: 498 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:39:30  
1% - iterations: 504 / 34079 - [5.73 MCells/s] - Estimated time to completion: 18:39:10  
1% - iterations: 510 / 34079 - [5.29 MCells/s] - Estimated time to completion: 20:12:12  
2% - iterations: 516 / 34079 - [5.73 MCells/s] - Estimated time to completion: 18:38:46  
2% - iterations: 523 / 34079 - [7.3 MCells/s] - Estimated time to completion: 14:38:50  
2% - iterations: 531 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:48:48  
2% - iterations: 539 / 34079 - [8.34 MCells/s] - Estimated time to completion: 12:48:37  
2% - iterations: 548 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:23:02  
2% - iterations: 557 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:22:51  
2% - iterations: 566 / 34079 - [8.6 MCells/s] - Estimated time to completion: 12:24:44  
2% - iterations: 575 / 34079 - [9.38 MCells/s] - Estimated time to completion: 11:22:29

|   |                         |                         |                                  |         |                    |      |
|---|-------------------------|-------------------------|----------------------------------|---------|--------------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: |         | DC450H-021209-R1.3 |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz | Fluid Type:        | Head |

62% - iterations: 21213 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:22:05  
62% - iterations: 21221 / 34079 - [7.64 MCells/s] - Estimated time to completion: 05:21:27  
62% - iterations: 21229 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:54:28  
62% - iterations: 21238 / 34079 - [8.6 MCells/s] - Estimated time to completion: 04:45:21  
62% - iterations: 21246 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:54:05  
62% - iterations: 21254 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:53:54  
62% - iterations: 21263 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:21:03  
62% - iterations: 21271 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:53:31  
62% - iterations: 21280 / 34079 - [8.6 MCells/s] - Estimated time to completion: 04:44:25  
62% - iterations: 21289 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:20:32  
62% - iterations: 21298 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:20:21  
63% - iterations: 21307 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:20:10  
63% - iterations: 21316 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:19:59  
63% - iterations: 21329 / 34079 - [13.5 MCells/s] - Estimated time to completion: 02:59:48  
63% - iterations: 21340 / 34079 - [10.5 MCells/s] - Estimated time to completion: 03:51:37  
63% - iterations: 21349 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:19:18  
63% - iterations: 21358 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:19:07  
63% - iterations: 21367 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:18:56  
63% - iterations: 21376 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:18:45  
63% - iterations: 21383 / 34079 - [7.3 MCells/s] - Estimated time to completion: 05:32:30  
63% - iterations: 21390 / 34079 - [6.69 MCells/s] - Estimated time to completion: 06:02:32  
63% - iterations: 21397 / 34079 - [6.69 MCells/s] - Estimated time to completion: 06:02:20  
63% - iterations: 21404 / 34079 - [6.69 MCells/s] - Estimated time to completion: 06:02:08  
63% - iterations: 21411 / 34079 - [7.3 MCells/s] - Estimated time to completion: 05:31:46  
63% - iterations: 21418 / 34079 - [7.3 MCells/s] - Estimated time to completion: 05:31:35  
63% - iterations: 21425 / 34079 - [7.3 MCells/s] - Estimated time to completion: 05:31:24  
63% - iterations: 21433 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:49:48  
63% - iterations: 21442 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:17:25  
63% - iterations: 21451 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:17:14  
63% - iterations: 21457 / 34079 - [6.25 MCells/s] - Estimated time to completion: 06:25:40  
63% - iterations: 21462 / 34079 - [5.21 MCells/s] - Estimated time to completion: 07:42:37  
63% - iterations: 21467 / 34079 - [5.21 MCells/s] - Estimated time to completion: 07:42:26  
63% - iterations: 21473 / 34079 - [5.29 MCells/s] - Estimated time to completion: 07:35:13  
63% - iterations: 21482 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:16:36  
63% - iterations: 21491 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:16:25  
63% - iterations: 21499 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:48:17  
63% - iterations: 21508 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:16:04  
63% - iterations: 21516 / 34079 - [8.34 MCells/s] - Estimated time to completion: 04:47:54  
63% - iterations: 21525 / 34079 - [8.6 MCells/s] - Estimated time to completion: 04:38:58  
63% - iterations: 21534 / 34079 - [9.38 MCells/s] - Estimated time to completion: 04:15:32  
63% - iterations: 21546 / 34079 - [12.5 MCells/s] - Estimated time to completion: 03:11:28  
63% - iterations: 21557 / 34079 - [11.5 MCells/s] - Estimated time to completion: 03:28:42  
63% - iterations: 21569 / 34079 - [12.5 MCells/s] - Estimated time to completion: 03:11:07  
63% - iterations: 21581 / 34079 - [12.5 MCells/s] - Estimated time to completion: 03:10:56

Steady state detected at iteration: 21585 - the simulation will end shortly.

Please wait ... saving the sensor 'Overall Field' (E-fields) on disk.

Please wait ... saving the sensor 'Overall Field' (H-fields) on disk.

Please wait ... saving the sensor 'Unnamed' (E-fields) on disk.

Please wait ... saving the sensor 'Unnamed' (H-fields) on disk.

97% - iterations: 21585 / 22153 - [0.0356 MCells/s] - Estimated time to completion: 50:45:54  
97% - iterations: 21592 / 22153 - [6.69 MCells/s] - Estimated time to completion: 00:16:01  
98% - iterations: 21600 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:12:40  
98% - iterations: 21609 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:11:04  
98% - iterations: 21618 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:10:53  
98% - iterations: 21627 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:10:42  
98% - iterations: 21636 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:10:31  
98% - iterations: 21644 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:11:39  
98% - iterations: 21653 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:10:11  
98% - iterations: 21662 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:10:00  
98% - iterations: 21671 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:10:42  
98% - iterations: 21680 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:09:38  
98% - iterations: 21689 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:09:27  
98% - iterations: 21698 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:09:16  
98% - iterations: 21706 / 22153 - [7.64 MCells/s] - Estimated time to completion: 00:11:10  
98% - iterations: 21713 / 22153 - [7.3 MCells/s] - Estimated time to completion: 00:11:31  
98% - iterations: 21720 / 22153 - [7.3 MCells/s] - Estimated time to completion: 00:11:20  
98% - iterations: 21727 / 22153 - [6.69 MCells/s] - Estimated time to completion: 00:12:10

|   |                         |                         |                                  |         |                    |      |
|---|-------------------------|-------------------------|----------------------------------|---------|--------------------|------|
|  | Date(s) of Evaluations: | Jan. 19 & Feb. 09, 2009 | Calibration Document Serial No.: |         | DC450H-021209-R1.3 |      |
|   | Type of Evaluation:     | Dipole Calibration      | Dipole Frequency:                | 450 MHz | Fluid Type:        | Head |

98% - iterations: 21735 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:09:34  
98% - iterations: 21743 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:09:23  
98% - iterations: 21751 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:09:12  
98% - iterations: 21760 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:08:44  
98% - iterations: 21769 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:08:32  
98% - iterations: 21778 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:08:20  
98% - iterations: 21786 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:08:24  
98% - iterations: 21794 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:08:13  
98% - iterations: 21802 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:08:02  
98% - iterations: 21810 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:07:51  
98% - iterations: 21818 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:07:40  
99% - iterations: 21826 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:07:29  
99% - iterations: 21834 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:07:18  
99% - iterations: 21841 / 22153 - [7.3 MCells/s] - Estimated time to completion: 00:08:10  
99% - iterations: 21849 / 22153 - [7.64 MCells/s] - Estimated time to completion: 00:07:36  
99% - iterations: 21857 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:06:47  
99% - iterations: 21865 / 22153 - [7.64 MCells/s] - Estimated time to completion: 00:07:12  
99% - iterations: 21873 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:06:25  
99% - iterations: 21881 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:06:14  
99% - iterations: 21889 / 22153 - [7.64 MCells/s] - Estimated time to completion: 00:06:36  
99% - iterations: 21897 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:05:52  
99% - iterations: 21905 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:05:41  
99% - iterations: 21913 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:05:30  
99% - iterations: 21921 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:05:19  
99% - iterations: 21929 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:05:08  
99% - iterations: 21938 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:04:46  
99% - iterations: 21947 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:04:11  
99% - iterations: 21956 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:04:22  
99% - iterations: 21965 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:03:49  
99% - iterations: 21972 / 22153 - [7.3 MCells/s] - Estimated time to completion: 00:04:44  
99% - iterations: 21981 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:03:30  
99% - iterations: 21990 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:03:19  
99% - iterations: 22001 / 22153 - [11.5 MCells/s] - Estimated time to completion: 00:02:32  
99% - iterations: 22012 / 22153 - [11.5 MCells/s] - Estimated time to completion: 00:02:21  
99% - iterations: 22021 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:02:41  
99% - iterations: 22030 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:02:44  
99% - iterations: 22039 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:02:19  
100% - iterations: 22048 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:02:08  
100% - iterations: 22056 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:02:13  
100% - iterations: 22065 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:01:47  
100% - iterations: 22072 / 22153 - [7.3 MCells/s] - Estimated time to completion: 00:02:07  
100% - iterations: 22078 / 22153 - [6.25 MCells/s] - Estimated time to completion: 00:02:17  
100% - iterations: 22084 / 22153 - [6.25 MCells/s] - Estimated time to completion: 00:02:06  
100% - iterations: 22092 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:01:23  
100% - iterations: 22101 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:01:03  
100% - iterations: 22109 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:01:00  
100% - iterations: 22118 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:00:42  
100% - iterations: 22126 / 22153 - [8.34 MCells/s] - Estimated time to completion: 00:00:37  
100% - iterations: 22135 / 22153 - [9.38 MCells/s] - Estimated time to completion: 00:00:22  
100% - iterations: 22144 / 22153 - [8.6 MCells/s] - Estimated time to completion: 00:00:12  
Please wait ... saving the sensor 'Overall Field' (E-fields) on disk.

Please wait ... saving the sensor 'Overall Field' (H-fields) on disk.



Please wait ... saving the sensor 'Unnamed' (E-fields) on disk.

Please wait ... saving the sensor 'Unnamed' (H-fields) on disk.

100% - iterations: 22153 / 22153 - [0.0834 MCells/s] - Estimated time to completion: 00:00:00

Convert time-domain data to frequency-domain data.

Maxwell Solver run ended the 2009-Feb-09 21:12:38. Total simulation time was 10:32:18 (hh:mm:ss, wall-clock time).

|  |   |   |   |  |
|--|---|---|---|--|
|  | <u>Date(s) of Evaluation</u><br>October 14-15, 2009 | <u>Test Report Serial No.</u><br>100909ALH-T985-S90U      | <u>Test Report Revision No.</u><br>Rev. 1.0 (Initial Release) | <br>Test Lab Certificate No. 2470.01 |
|  | <u>Test Report Issue Date</u><br>October 28, 2009   | <u>Description of Test(s)</u><br>Specific Absorption Rate | <u>RF Exposure Category</u><br>Occupational (Controlled)      |  |

**APPENDIX F - PROBE CALIBRATION**

|                         |  |                                  |                             |                |                  |                |
|-------------------------|--|----------------------------------|-----------------------------|----------------|------------------|----------------|
| <b>Applicant:</b>       | <b>Kenwood USA Corporation</b>   | <b>Model(s):</b>                 | <b>TK-3360-K, TK-3360-X</b> | <b>FCC ID:</b> | <b>ALH415100</b> | <b>KENWOOD</b> |
| <b>DUT Type:</b>        | <b>Portable FM UHF Push-To-Talk Radio Transceiver</b>  | <b>Transmit Frequency Range:</b> | <b>450-512 MHz</b>          |                |                  |                |
| 2009 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the prior written permission of Celltech Labs Inc. |                                  |                             |                |                  | Page 65 of 65  |



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Celltech**

Certificate No: **ET3-1590\_Jul09**

## CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1590**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-12.v5, QA CAL-23.v3 and QA CAL-25.v2  
Calibration procedure for dosimetric E-field probes**

Calibration date: **July 16, 2009**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID #            | Cal Date (Certificate No.)    | Scheduled Calibration |
|----------------------------|-----------------|-------------------------------|-----------------------|
| Power meter E4419B         | GB41293874      | 1-Apr-09 (No. 217-01030)      | Apr-10                |
| Power sensor E4412A        | MY41495277      | 1-Apr-09 (No. 217-01030)      | Apr-10                |
| Power sensor E4412A        | MY41498087      | 1-Apr-09 (No. 217-01030)      | Apr-10                |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 31-Mar-09 (No. 217-01026)     | Mar-10                |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 31-Mar-09 (No. 217-01028)     | Mar-10                |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 31-Mar-09 (No. 217-01027)     | Mar-10                |
| Reference Probe ES3DV2     | SN: 3013        | 2-Jan-09 (No. ES3-3013_Jan09) | Jan-10                |
| DAE4                       | SN: 660         | 9-Sep-08 (No. DAE4-660_Sep08) | Sep-09                |

| Secondary Standards       | ID #         | Check Date (in house)             | Scheduled Check        |
|---------------------------|--------------|-----------------------------------|------------------------|
| RF generator HP 8648C     | US3642U01700 | 4-Aug-99 (in house check Oct-07)  | In house check: Oct-09 |
| Network Analyzer HP 8753E | US37390585   | 18-Oct-01 (in house check Oct-08) | In house check: Oct-09 |

| Calibrated by: | Name               | Function              | Signature |
|----------------|--------------------|-----------------------|-----------|
|                | <b>Marcel Fehr</b> | Laboratory Technician |           |

| Approved by: | Name                 | Function          | Signature |
|--------------|----------------------|-------------------|-----------|
|              | <b>Katja Pokovic</b> | Technical Manager |           |

Issued: July 16, 2009

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

### Glossary:

|                          |  |
|--------------------------|--|
| TSL                      | tissue simulating liquid   |
| NORM <sub>x,y,z</sub>    | sensitivity in free space  |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>   |
| DCP                      | diode compression point  |
| Polarization $\varphi$   | $\varphi$ rotation around probe axis   |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

# Probe ET3DV6

## SN:1590

|                  |                |
|------------------|----------------|
| Manufactured:    | March 19, 2001 |
| Last calibrated: | July 21, 2008  |
| Recalibrated:    | July 16, 2009  |

Calibrated for DASY Systems

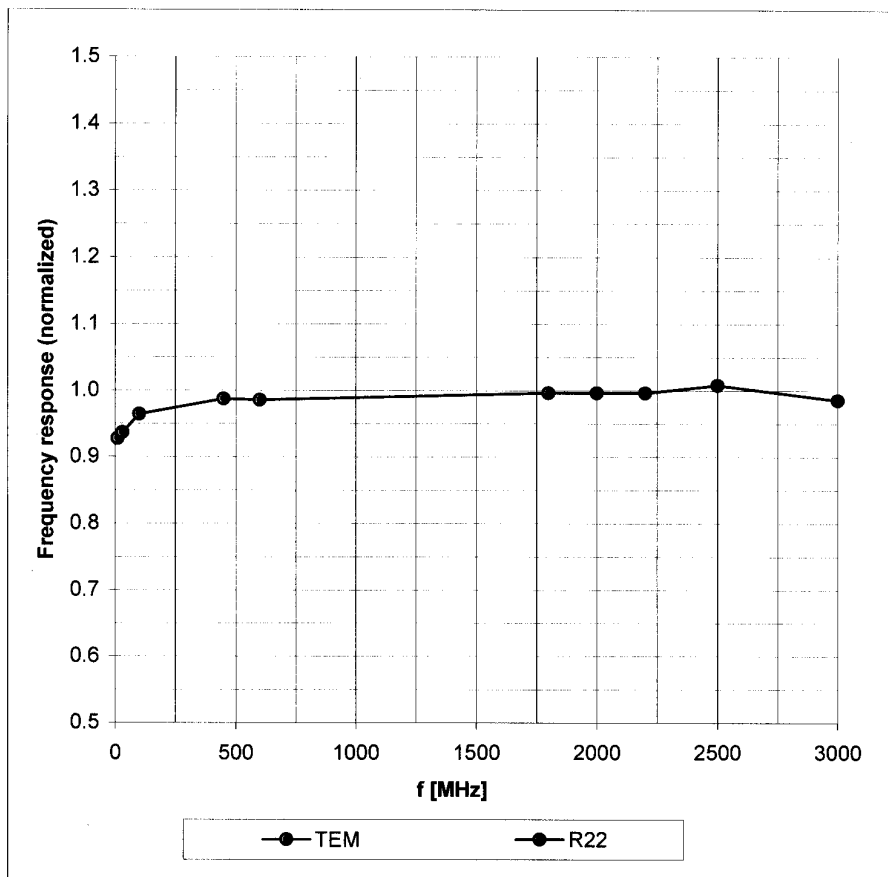
(Note: non-compatible with DASY2 system!)





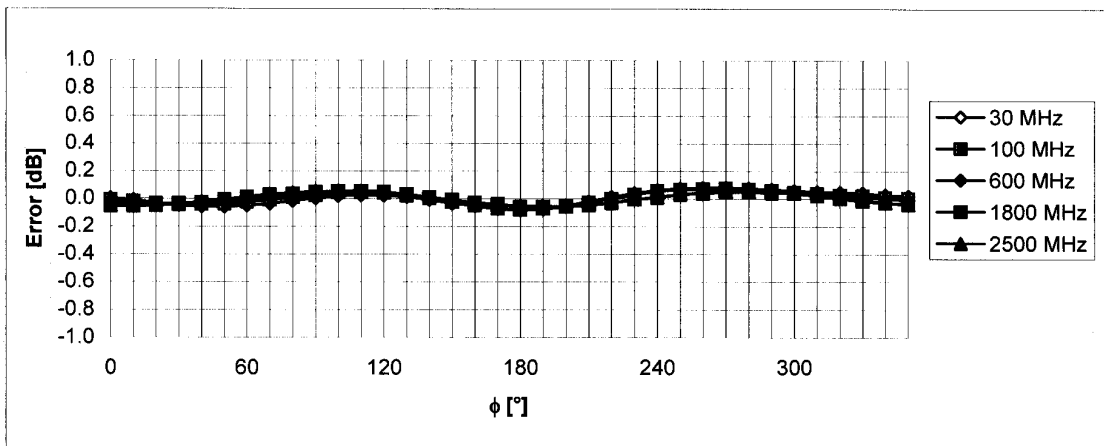
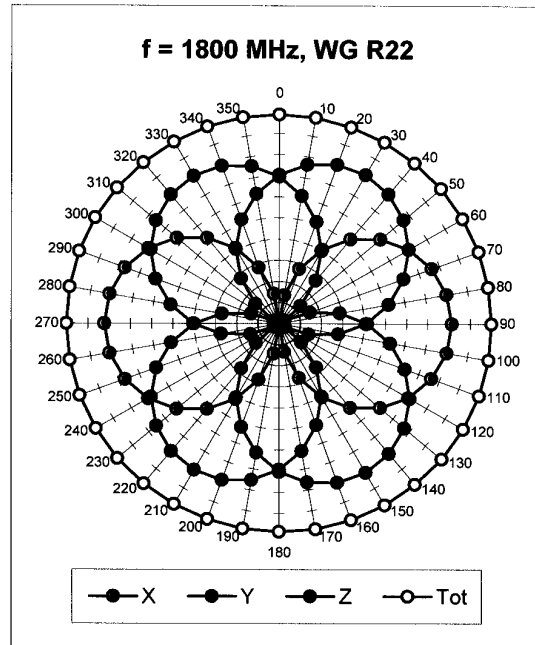
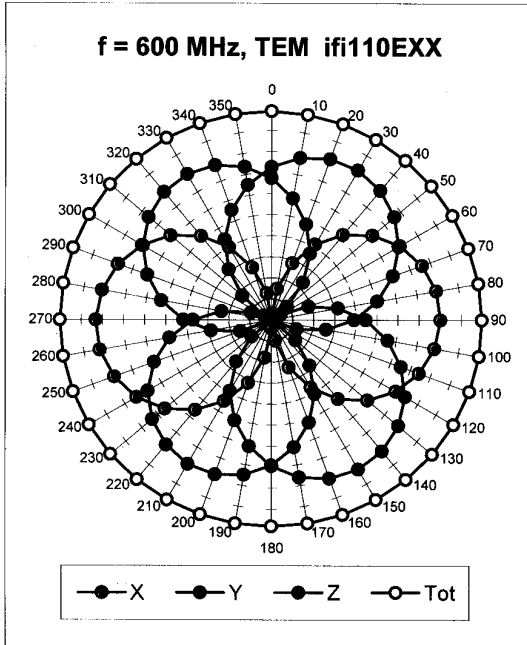
# Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



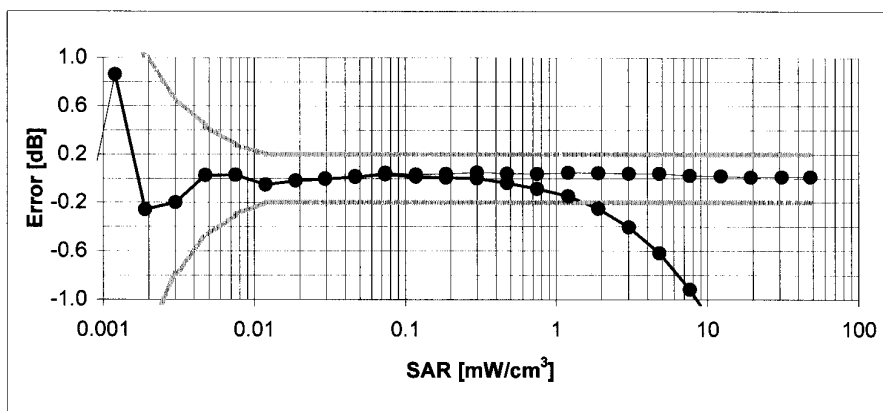
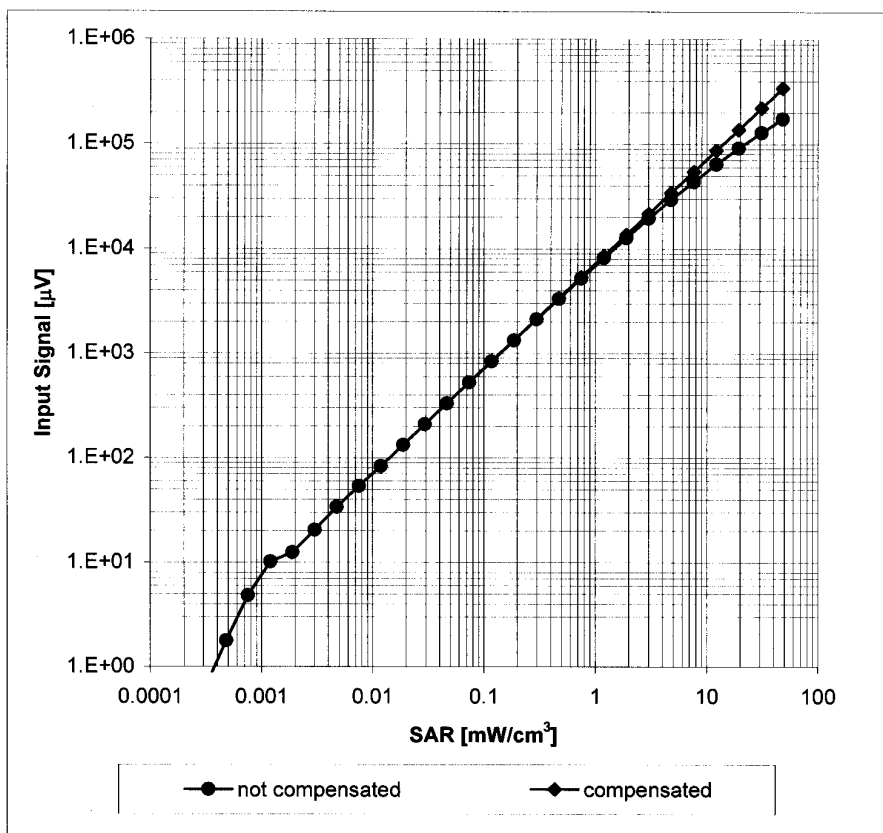
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

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



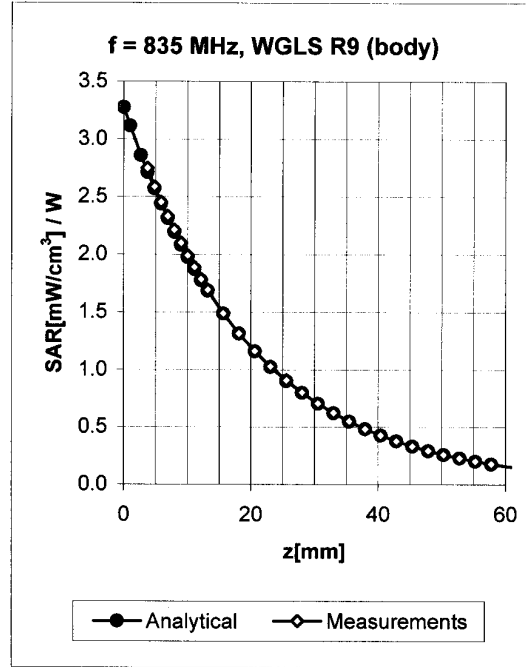
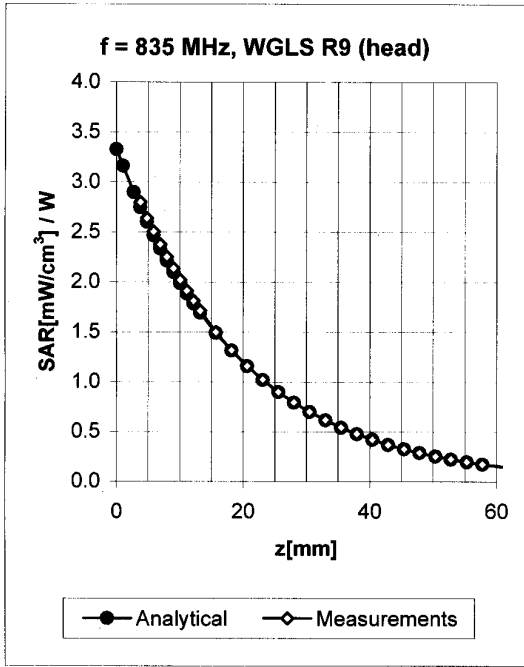
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

### Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$ )



Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

### Conversion Factor Assessment

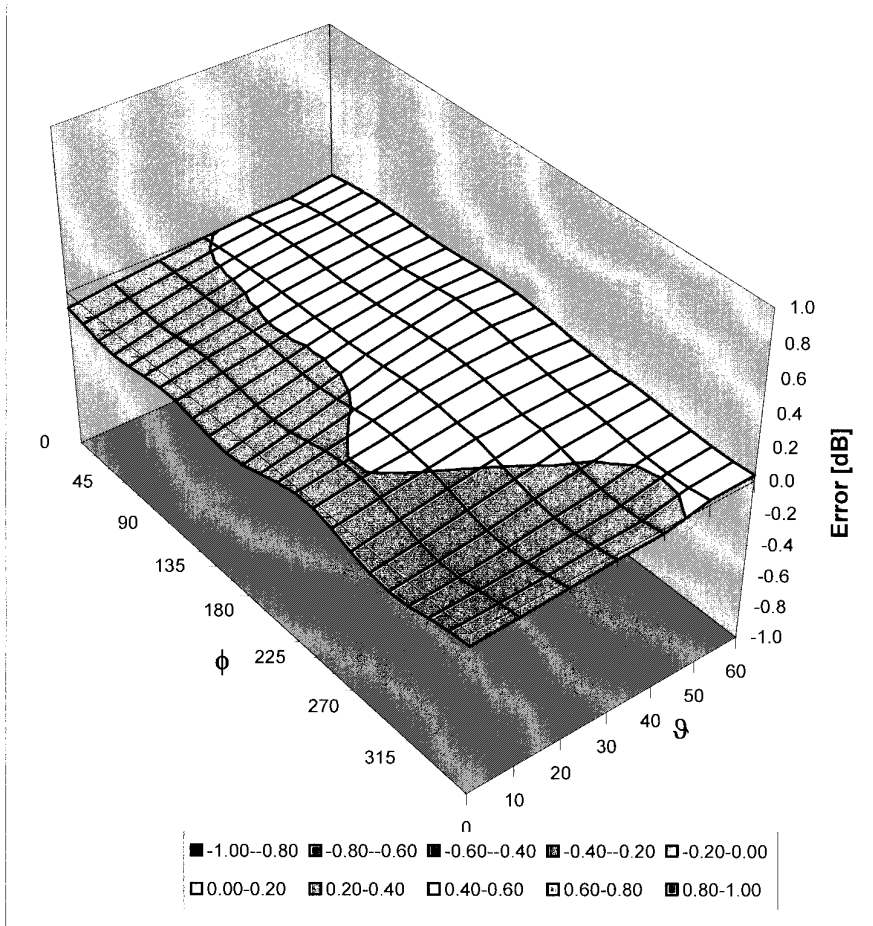


| f [MHz] | Validity [MHz] <sup>c</sup> | TSL  | Permittivity | Conductivity | Alpha | Depth | ConvF Uncertainty  |
|---------|-----------------------------|------|--------------|--------------|-------|-------|--------------------|
| 450     | ± 50 / ± 100                | Head | 43.5 ± 5%    | 0.87 ± 5%    | 0.29  | 1.90  | 7.34 ± 13.3% (k=2) |
| 835     | ± 50 / ± 100                | Head | 41.5 ± 5%    | 0.90 ± 5%    | 0.37  | 2.32  | 6.59 ± 11.0% (k=2) |
| 450     | ± 50 / ± 100                | Body | 56.7 ± 5%    | 0.94 ± 5%    | 0.22  | 1.91  | 7.34 ± 13.3% (k=2) |
| 835     | ± 50 / ± 100                | Body | 55.2 ± 5%    | 0.97 ± 5%    | 0.30  | 2.77  | 6.34 ± 11.0% (k=2) |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

## Deviation from Isotropy in HSL

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



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  ( $k=2$ )