
	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

**RF EXPOSURE EVALUATION**

**SPECIFIC ABSORPTION RATE**

**SAR TEST REPORT**

FOR

**KENWOOD USA CORPORATION**

**PORTABLE ANALOG/DIGITAL UHF PTT RADIO TRANSCEIVER**

**MODEL(S): NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3**

<b>IDENTIFIER(S)</b>	<b>FCC ID: ALH378500</b>	<b>IC: 282D-378500</b>
<b>Test Standard(s) and Procedure(s)</b>	<b>FCC OET Bulletin 65, Supplement C (01-01)</b>	
	<b>Industry Canada RSS-102 Issue 2</b>	



**Test Report Serial No.**

**060807ALH-T834-S90U**

**Test Report Revision No.(s)**

**Revision 1.1 (June 22, 2007)**



**Revision 1.0 (June 18, 2007)**

**Test Lab and Location**

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<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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## DECLARATION OF COMPLIANCE SAR RF EXPOSURE EVALUATION

<u>Test Lab and Location</u> <b>CELLTECH LABS INCORPORATED</b> Testing and Engineering Services 21-364 Lougheed Rd. Kelowna, B.C. V1X 7R8 Canada e-mail: info@celltechlabs.com web site: www.celltechlabs.com Phone: 250-765-7650 Fax: 250-765-7645		<u>Company Information</u> <b>KENWOOD USA CORPORATION</b> 3975 John Creek Court, Suite 300 Suwanee, GA 30024 United States	
<b>FCC IDENTIFIER:</b> <b>IC IDENTIFIER:</b> <b>Model No.(s):</b>	<b>ALH378500</b> <b>282D-378500</b> <b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>		
<b>Standard(s) Applied:</b> <b>Procedure(s) Applied:</b>	<b>FCC 47 CFR §2.1093; Health Canada Safety Code 6</b> <b>FCC OET Bulletin 65, Supplement C (Edition 01-01)</b> <b>Industry Canada RSS-102 Issue 2</b>		
<b>FCC Device Classification:</b> <b>IC Device Classification:</b>	<b>Licensed Non-Broadcast Transmitter Held to Face (TNF)</b> <b>Land Mobile Radio Transmitter/Receiver (27.41-960 MHz)</b>		
<b>Device Description:</b> <b>Modulation Type(s):</b> <b>Transmit Frequency Range(s):</b> <b>Max. RF Output Power Tested:</b> <b>Antenna Type(s) Tested:</b>	<b>Portable UHF PTT Radio Transceiver</b> <b>Analog (FM) / Digital (FSK)</b> <b>450 - 520 MHz</b> <b>5.0 Watts (37.0 dBm) Conducted (450.05 MHz)</b> <b>Helical 440 - 490 MHz (P/N: KRA-23M)</b> <b>Helical 470 - 520 MHz (P/N: KRA-23M2)</b> <b>Whip 440 - 490 MHz (P/N: KRA-27M)</b> <b>Whip 470 - 520 MHz (P/N: KRA-27M2)</b>		
<b>Battery Type(s) Tested:</b>	<b>Li-ion 7.4 V, 2000 mAh - Normal Capacity (P/N: KNB-47L)</b> <b>Li-ion 7.4 V, 2500 mAh - High Capacity (P/N: KNB-48L)</b>		
<b>Body-worn Accessories Tested:</b> <b>Audio Accessories Tested:</b>	<b>Plastic Belt-Clip with Metal Spring (P/N: J29-0730&gt;PC&lt;1)</b> <b>Speaker-Microphone (P/N: KMC-25)</b>		
<b>Max. SAR Level(s) Evaluated:</b>	<b>Face-held: 3.28 W/kg (1g average) - 50% Duty Cycle</b> <b>Body-worn: 4.56 W/kg (1g average) - 50% Duty Cycle</b>		

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. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01) and Industry Canada RSS-102 Issue 2 for the Occupational/Controlled Exposure environment. All measurements were performed in accordance with the SAR system manufacturer recommendations.

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



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

**Test Report Approved By:**

**Jonathan Hughes**  
**Celltech Labs Inc.**






<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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Company:	Kenwood USA Corporation	Portable UHF PTT Radio Transceiver	Freq.:	450 - 520 MHz	
Model(s):	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	FCC ID:	ALH378500	IC ID:	
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## 1.0 INTRODUCTION

This measurement report demonstrates that the KENWOOD USA CORPORATION Model(s): NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3 Portable 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 test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]) and IC RSS-102 Issue 2 (see reference [4]) were employed. A description of the 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 DESCRIPTION OF DEVICE UNDER TEST (DUT)

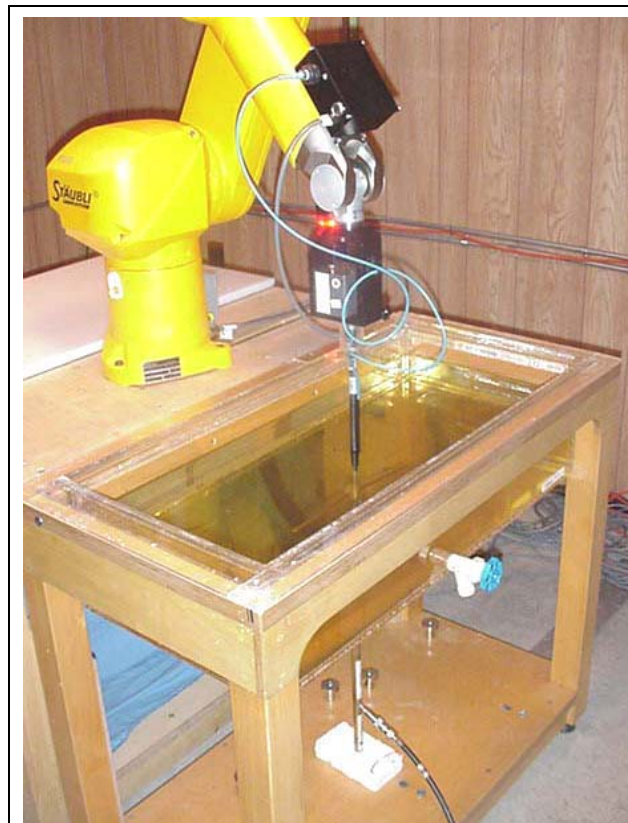
<b>Standard(s) Applied</b>	FCC Rule Part 47 CFR §2.1093			
	Health Canada Safety Code 6			
<b>Procedure(s) Applied</b>	FCC OET Bulletin 65, Supplement C (01-01)			
	Industry Canada RSS-102 Issue 2			
<b>Device Classification(s)</b>	FCC Licensed Non-Broadcast Transmitter Held to Face (TNF)			
	IC Land Mobile Radio Transmitter/Receiver (27.41-960 MHz)			
<b>Device Description</b>	Portable UHF PTT Radio Transceiver			
<b>Modulation Type(s)</b>	Analog (FM)		Digital (FSK)	
<b>RF Exposure Category</b>	Occupational / Controlled Environment			
<b>FCC IDENTIFIER</b>	ALH378500			
<b>IC IDENTIFIER</b>	282D-378500			
<b>Device Model(s)</b>	NX-300-K	NX-300-K3	TK-5320-K	TK-5320-K3
<b>Serial No. Tested</b>	U_15S No. 71		Identical Prototype	
<b>Transmit Frequency Range(s)</b>	450 - 520 MHz			
<b>Max. RF Output Power Tested</b>	5.0 Watts	37.0 dBm	450.05 MHz	Conducted
	4.9 Watts	36.9 dBm	485.05 MHz	Conducted
	4.8 Watts	36.8 dBm	519.95 MHz	Conducted
<b>Antenna Type(s) Tested</b>	Helical	440 - 490 MHz	Length: 84 mm	P/N: KRA-23M
	Helical	470 - 520 MHz	Length: 84 mm	P/N: KRA-23M2
	Whip	440 - 490 MHz	Length: 153 mm	P/N: KRA-27M
	Whip	470 - 520 MHz	Length: 143 mm	P/N: KRA-27M2
<b>Battery Type(s) Tested</b>	Lithium-ion	7.4 V, 2000 mAh	Normal Capacity	P/N: KNB-47L
	Lithium-ion	7.4 V, 2500 mAh	High Capacity	P/N: KNB-48L
<b>Body-Worn Accessories Tested</b>	Plastic Belt-Clip with Metal Spring			P/N: J29-0730>PC<1
<b>Audio Accessories Tested</b>	Speaker-Microphone			P/N: KMC-25

<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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### 3.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for brain and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The 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 its own controller with a built in VME-bus computer.





DASY4 SAR Measurement System with Plexiglas validation phantom



DASY4 SAR Measurement System with Plexiglas side planar phantom

<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
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## 4.0 SAR MEASUREMENT SUMMARY

### FACE-HELD SAR EVALUATION RESULTS

Freq.	Chan.	Test Mode	Antenna Part No.	Battery Part No.	DUT Position to Planar Phantom	DUT Spacing to Planar Phantom	Cond. Power Before Test	Measured SAR 1g (W/kg)		SAR Drift During Test	Scaled SAR with droop 1g (W/kg)	
								Duty Cycle			Duty Cycle	
								100%	50%		100%	50%
MHz						cm	dBm			dB		
485.05	Mid	CW	KRA-23M	KNB-47L	Front Side	2.5	36.9	4.20	2.10	-0.351	4.55	2.28
485.05	Mid	CW	KRA-23M2	KNB-47L	Front Side	2.5	36.9	6.03	3.02	-0.369	6.56	3.28
485.05	Mid	CW	KRA-27M	KNB-47L	Front Side	2.5	36.9	4.57	2.29	-0.211	4.80	2.40
485.05	Mid	CW	KRA-27M2	KNB-47L	Front Side	2.5	36.9	5.36	2.68	-0.155	5.55	2.78
485.05	Mid	CW	KRA-23M2	KNB-48L	Front Side	2.5	36.9	5.82	2.91	-0.290	6.22	3.11
<b>ANSI / IEEE C95.1: 2005 - SAFETY LIMIT</b>				<b>BRAIN: 8.0 W/kg (averaged over 1 gram)</b>			<b>Spatial Peak - Controlled Exposure / Occupational</b>					
<b>Test Date(s)</b>		June 13, 2007				<b>Relative Humidity</b>		31		%		
<b>Measure Fluid Type</b>		450 MHz Brain				<b>Atmospheric Pressure</b>		97.0		kPa		
<b>Dielectric Constant</b> $\epsilon_r$		<b>IEEE Target</b>		<b>Measured</b>	<b>Deviation</b>	<b>Ambient Temperature</b>		24.2		°C		
		43.5	± 5%	44.5	+2.3%	<b>Fluid Temperature</b>		23.0		°C		
<b>Conductivity</b> $\sigma$ (mho/m)		<b>IEEE Target</b>		<b>Measured</b>	<b>Deviation</b>	<b>Fluid Depth</b>		≥ 15		Cm		
		0.87	± 5%	0.91	+4.6%	<b><math>\rho</math> (Kg/m<sup>3</sup>)</b>		1000				
<b>Note(s)</b>	1.	The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.										
	2.	If the scaled SAR levels (50% duty cycle) evaluated at the mid channel were ≥ 3 dB below the SAR limit, SAR evaluation for the low and high channels was optional per FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]).										
	3.	The power droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.										
	4.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.										
	5.	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.										
	6.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).										
	7.	The SAR evaluations were performed within 24 hours of the system performance check.										

<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	<b>KENWOOD</b>	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>		282D-378500
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## SAR MEASUREMENT SUMMARY (Cont.)

### BODY-WORN SAR EVALUATION RESULTS

Freq. MHz	Chan.	Test Mode	Antenna Part No.	Battery Part No.	Accessories			Cond. Power Before Test dBm	Measured SAR 1g (W/kg)		SAR Drift During Test dB	Scaled SAR with droop 1g (W/kg)			
					Body-Worn	Spacing	Audio		Duty Cycle			Duty Cycle			
									100%	50%		100%	50%		
485.05	Mid	CW	KRA-23M	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	36.9	P	5.68	2.84	-0.226	P	5.98	2.99
									S	6.15	3.08		S	6.48	3.24
485.05	Mid	CW	KRA-23M2	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	36.9	P	7.92	3.96	-0.611	P	9.12	4.56
									S	7.02	3.51		S	8.08	4.04
485.05	Mid	CW	KRA-27M	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	36.9	P	6.08	3.04	-0.317	P	6.54	3.27
									S	5.69	2.85		S	6.12	3.06
485.05	Mid	CW	KRA-27M2	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	36.9	P	7.22	3.61	-0.370	P	7.86	3.93
									S	6.60	3.30		S	7.19	3.59
450.05	Low	CW	KRA-27M	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	37.0	7.16	3.58	-0.0241	7.20	3.60		
519.95	High	CW	KRA-23M2	KNB-47L	Belt-Clip	1.9 cm	Speaker-Mic	36.8	4.59	2.30	-0.455	5.10	2.55		
485.05	Mid	CW	KRA-23M2	KNB-48L	Belt-Clip	1.9 cm	Speaker-Mic	36.9	P	8.26	4.13	-0.388	P	9.03	4.52
									S	7.00	3.50		S	7.65	3.83

**ANSI / IEEE C95.1: 2005 - SAFETY LIMIT**



**BODY: 8.0 W/kg (averaged over 1 gram)**

**Spatial Peak - Controlled Exposure / Occupational**

<b>Test Date(s)</b>	June 12, 2007			<b>Relative Humidity</b>	31	%
<b>Measure Fluid Type</b>	450 MHz Body			<b>Atmospheric Pressure</b>	97.3	kPa
<b>Dielectric Constant <math>\epsilon_r</math></b>	<b>IEEE Target</b>		<b>Measured</b>	<b>Deviation</b>	<b>Ambient Temperature</b>	22.4
	56.7	$\pm 5\%$	56.5	-0.3%	<b>Fluid Temperature</b>	21.8
<b>Conductivity <math>\sigma</math> (mho/m)</b>	<b>IEEE Target</b>		<b>Measured</b>	<b>Deviation</b>	<b>Fluid Depth</b>	$\geq 15$
	0.94	$\pm 5\%$	0.91	-3.1%	<b><math>\rho</math> (Kg/m<sup>3</sup>)</b>	1000

<b>Note(s)</b>	1.	The measurement results were obtained with the DUT tested in the conditions described in this report. Detailed measurement data and plots showing the maximum SAR location of the DUT are reported in Appendix A.
	2.	If the scaled SAR levels (50% duty cycle) evaluated at the mid channel were $\geq 3$ dB below the SAR limit, SAR evaluation for the low and high channels was optional per FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]).
	3.	The power droops measured by the DASY4 system for the duration of the SAR evaluations were added to the measured SAR levels to report scaled SAR results as shown in the above test data table.
	4.	Secondary peak SAR levels measured within 2 dB of the primary were reported (P = Primary, S = Secondary).
	5.	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.
	6.	The area scan evaluation was performed with a fully charged battery. After the area scan evaluation was completed the battery was replaced with a fully charged battery prior to the zoom scan evaluation.
	7.	The fluid temperature was measured prior to and after the SAR evaluations to ensure the temperature remained within $\pm 2^\circ\text{C}$ of the fluid temperature reported during the dielectric parameter measurements.
	8.	The dielectric parameters of the simulated tissue mixture were measured prior to the SAR evaluations using an ALS-PR-DIEL Dielectric Probe Kit and an HP 8753ET Network Analyzer (see Appendix C).
	9.	The SAR evaluations were performed within 24 hours of the system performance check.

<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	<b>KENWOOD</b>
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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## 5.0 DETAILS OF SAR EVALUATION

The KENWOOD USA CORPORATION Model(s): NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3 Portable UHF PTT Radio Transceiver described in this report was compliant for localized Specific Absorption Rate (Occupational / Controlled Exposure) based on the test provisions and conditions described below. Detailed photographs of the test setup are shown in Appendix D.

### Test Configuration(s)

1. The DUT was tested in a face-held configuration with the front of the radio placed parallel to the outer surface of the planar phantom. A spacing of 2.5 cm was maintained between the front side of the DUT and the outer surface of the planar phantom.
2. The DUT was tested in a body-worn configuration with the back side of the radio placed parallel to the outer surface of the planar phantom. The attached belt-clip accessory was touching the planar phantom and provided 1.9 cm spacing between the back of the radio and the planar phantom. The body-worn evaluation was performed with the speaker-microphone audio accessory connected to the audio port.

### Power Setting(s) and Test Mode(s)



3. The conducted power levels were measured prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter according to the procedures described in FCC 47 CFR §2.1046.
4. The DUT was tested at maximum power 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.

## 6.0 EVALUATION PROCEDURES

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

<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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## 7.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, system checks were performed using a Plexiglas planar phantom and 450MHz dipole (see Appendix E for system validation procedures). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance checks using an ALS-PR-DIEL Dielectric Probe Kit and HP 8753ET 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  $\pm 10\%$  (see Appendix B for system performance check test plots).

SYSTEM PERFORMANCE CHECK EVALUATIONS																
Test Date	Equiv. Tissue	SAR 1g (W/kg)			Dielectric Constant $\epsilon_r$			Conductivity $\sigma$ (mho/m)			$\rho$ (Kg/m <sup>3</sup> )	Amb. Temp. (°C)	Fluid Temp. (°C)	Fluid Depth (cm)	Humid. (%)	Barom. Press. (kPa)
		IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.	IEEE Target	Meas.	Dev.						
Jun-11	Brain	1.23 $\pm 10\%$	1.31	+6.6%	43.5 $\pm 5\%$	44.0	+1.2%	0.87 $\pm 5\%$	0.91	+4.6%	1000	23.8	22.8	$\geq 15$	31	96.7
Jun-13	Brain	1.23 $\pm 10\%$	1.30	+5.7%	43.5 $\pm 5\%$	44.5	+2.3%	0.87 $\pm 5\%$	0.91	+4.6%	1000	24.2	23.0	$\geq 15$	31	97.0
Note(s)		1. The fluid temperature was measured prior to and after the system performance checks to ensure the temperature remained within $\pm 2^\circ\text{C}$ of the fluid temperature reported during the dielectric parameter measurements. 2. The SAR evaluations were performed within 24 hours of the system performance checks.														

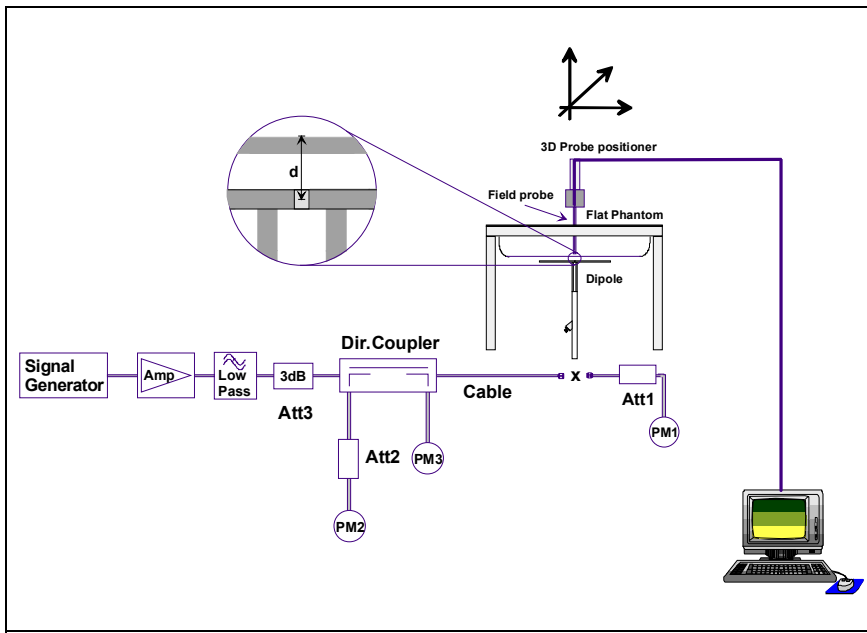




Figure 1. System Performance Check Setup Diagram



450 MHz Validation Dipole Setup

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## 8.0 SIMULATED EQUIVALENT TISSUES



The simulated tissue mixtures consisted of a viscous gel using hydroxethylcellulose (HEC) gelling agent and saline solution. Preservation with a bactericide was added and visual inspection made to ensure air bubbles were not trapped during the mixing process. The fluid was prepared according to standardized procedures and measured for dielectric parameters (permittivity and conductivity).

SIMULATED TISSUE MIXTURES		
INGREDIENT	450 MHz Brain	450 MHz Body
	System Check & DUT Evaluation	DUT Evaluation
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 %

## 9.0 SAR SAFETY LIMITS


EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	1.60	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0
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>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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## 10.0 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>	1387
<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>Phantom(s)</u>	
<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>Outer Dimensions</b>	75.0 cm (L) x 22.5 cm (W) x 20.5 cm (H); Back Plane: 25.7 cm (H)
<u>Validation Phantom (≤ 450MHz)</u>	
<b>Type</b>	Planar Phantom
<b>Shell Material</b>	Plexiglas
<b>Bottom Thickness</b>	6.2 mm ± 0.1 mm
<b>Outer Dimensions</b>	86.0 cm (L) x 39.5 cm (W) x 21.8 cm (H)

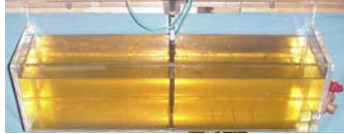
<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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## 11.0 PROBE SPECIFICATION (ET3DV6)

<p><b>Construction:</b> Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, glycol)</p> <p><b>Calibration:</b> In air from 10 MHz to 2.5 GHz In brain 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 brain tissue (rotation around probe axis) <math>\pm 0.4</math> dB in brain 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 Body diameter: 12 mm Tip diameter: 6.8 mm 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>


## 12.0 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>

## 13.0 VALIDATION PLANAR PHANTOM

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

## 14.0 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 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.</p>	
	<b>Device Holder</b>

<b>Company:</b> Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b> 450 - 520 MHz	<b>KENWOOD</b>
<b>Model(s):</b> NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b> ALH378500	<b>IC ID:</b> 282D-378500	
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## 15.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED		CALIBRATION DUE DATE	
USED	DESCRIPTION			Brain	Body		
x	Schmid & Partner DASY4 System	-	-	-	-	-	
x	-DASY4 Measurement Server	00158	1078	N/A	N/A	N/A	
x	-Robot	00046	599396-01	N/A	N/A	N/A	
x	-DAE4	00019	353	21Jun06	21Jun07	21Jun07	
	-DAE3	00018	370	13Mar07	13Mar08	13Mar08	
x	-ET3DV6 E-Field Probe	00016	1387	16Mar07	16Mar08	16Mar08	
	-EX3DV4 E-Field Probe	00213	3600	24Jan07	24Jan08	24Jan08	
	-300 MHz Validation Dipole	00023	135	08Jun07	08Jun08	08Jun08	
x	-450 MHz Validation Dipole	00024	136	07Jun07	07Jun08	07Jun08	
	-835 MHz Validation Dipole	00022	411	Brain	07Jun07	07Jun08	
				Body	07Jun07	07Jun08	
	-900 MHz Validation Dipole	00020	054	Brain	07Jun07	07Jun08	
				Body	07Jun07	07Jun08	
	-1640 MHz Validation Dipole	00212	0175	Brain	14Aug06	14Aug07	
	-1800 MHz Validation Dipole	00021	247	Brain	06Jun07	06Jun08	
				Body	06Jun07	06Jun08	
	-1900 MHz Validation Dipole	00032	151	Brain	06Jun07	06Jun08	
				Body	06Jun07	06Jun08	
	-2450 MHz Validation Dipole	00025	150	Brain	08Jun07	08Jun08	
				Body	08Jun07	08Jun08	
	5 GHz Validation Dipole	00126	1031	Body	18May07	18May08	
				5200 MHz	Body	22May07	22May08
				5500 MHz	Brain	09May07	09May08
				5800 MHz	Body	10May07	10May08
	-SAM Phantom V4.0C	00154	1033	N/A	N/A	N/A	
	-Barski Planar Phantom	00155	03-01	N/A	N/A	N/A	
x	-Plexiglas Side Planar Phantom	00156	161	N/A	N/A	N/A	
x	-Plexiglas Validation Planar Phantom	00157	137	N/A	N/A	N/A	
x	ALS-PR-DIEL Dielectric Probe Kit	00160	260-00953	N/A	N/A	N/A	
x	Gigatronics 8652A Power Meter	00007	1835272	26Mar07	26Mar08	26Mar08	
	Gigatronics 8652A Power Meter	00008	1835267	22Jan07	22Jan08	22Jan08	
	Gigatronics 80701A Power Sensor	00012	1834350	22Jan07	22Jan08	22Jan08	
x	Gigatronics 80701A Power Sensor	00014	1833699	22Jan07	22Jan08	22Jan08	
x	Gigatronics 80701A Power Sensor	00109	1834366	26Mar07	26Mar08	26Mar08	
x	HP 8753ET Network Analyzer	00134	US39170292	20Apr07	20Apr08	20Apr08	
x	HP 8648D Signal Generator	00005	3847A00611	NCR	NCR	NCR	
	Rohde & Schwarz SMR20 Signal Generator	00006	100104	NCR	NCR	NCR	
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	NCR	NCR	NCR	
	Amplifier Research 10W1000C Power Amplifier	00041	27887	NCR	NCR	NCR	
	HP E4408B Spectrum Analyzer	00015	US39240170	05Feb07	05Feb08	05Feb08	

## 16.0 MEASUREMENT UNCERTAINTIES



UNCERTAINTY BUDGET FOR DEVICE EVALUATION						
Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V <sub>i</sub> or V <sub>eff</sub>
<b>Measurement System</b>						
Probe calibration (450 MHz)	8.0	Normal	1	1	8.0	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	0.7	1.9	∞
Spherical isotropy of the probe	9.6	Rectangular	1.732050808	0.7	3.9	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	1	Rectangular	1.732050808	1	0.6	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0.8	Rectangular	1.732050808	1	0.5	∞
Integration time	2.6	Rectangular	1.732050808	1	1.5	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
<b>Test Sample Related</b>						
Device positioning	2.9	Normal	1	1	2.9	12
Device holder uncertainty	3.6	Normal	1	1	3.6	8
Power drift	5	Rectangular	1.732050808	1	2.9	∞
<b>Phantom and Setup</b>						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
<b>Combined Standard Uncertainty</b>					<b>12.65</b>	
<b>Expanded Uncertainty (k=2)</b>					<b>25.31</b>	

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

## MEASUREMENT UNCERTAINTIES (Cont.)


UNCERTAINTY BUDGET FOR SYSTEM VALIDATION						
Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	Uncertainty Value ±% (1g)	V <sub>i</sub> or V <sub>eff</sub>
<b>Measurement System</b>						
Probe calibration (450 MHz)	8.0	Normal	1	1	8.0	∞
Axial isotropy of the probe	4.7	Rectangular	1.732050808	1	2.7	∞
Spherical isotropy of the probe	0	Rectangular	1.732050808	1	0.0	∞
Spatial resolution	0	Rectangular	1.732050808	1	0.0	∞
Boundary effects	1	Rectangular	1.732050808	1	0.6	∞
Probe linearity	4.7	Rectangular	1.732050808	1	2.7	∞
Detection limit	1	Rectangular	1.732050808	1	0.6	∞
Readout electronics	0.3	Normal	1	1	0.3	∞
Response time	0	Rectangular	1.732050808	1	0.0	∞
Integration time	0	Rectangular	1.732050808	1	0.0	∞
RF ambient conditions	3	Rectangular	1.732050808	1	1.7	∞
Mech. constraints of robot	0.4	Rectangular	1.732050808	1	0.2	∞
Probe positioning	2.9	Rectangular	1.732050808	1	1.7	∞
Extrapolation & integration	1	Rectangular	1.732050808	1	0.6	∞
<b>Test Sample Related</b>						
Dipole Positioning	2	Normal	1.732050808	1	1.2	∞
Power & Power Drift	4.7	Normal	1.732050808	1	2.7	∞
<b>Phantom and Setup</b>						
Phantom uncertainty	4	Rectangular	1.732050808	1	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	1.8	∞
Liquid conductivity (measured)	5	Normal	1	0.64	3.2	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	1.7	∞
Liquid permittivity (measured)	5	Normal	1	0.6	3.0	∞
<b>Combined Standard Uncertainty</b>					<b>11.20</b>	
<b>Expanded Uncertainty (k=2)</b>					<b>22.39</b>	

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



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## 17.0 REFERENCES

- [1] Federal Communications Commission - "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093: 1999.
- [2] Health Canada - "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.
- [3] Federal Communications Commission - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- [4] Industry Canada - "Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 2: November 2005.
- [5] IEEE Standard 1528-2003 - "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques": December 2003.
- [6] ANSI/IEEE C95.1-2005 - "American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz", New York: IEEE, April 2006.



<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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**APPENDIX B - SYSTEM PERFORMANCE CHECK DATA**

<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Date Tested: 06/11/2007

## System Performance Check - 450 MHz Dipole

**DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 06/07/2007**

Ambient Temp: 23.8°C; Fluid Temp: 22.8°C; Barometric Pressure: 96.7 kPa; Humidity: 31%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 44.0$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007

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

- Electronics: DAE4 Sn353; Calibrated: 21/06/2006

- Phantom: Validation Planar; Type: Plexiglas; Serial: 37

- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### 450 MHz Dipole - System Performance Check/Area Scan (6x11x1):

Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.24 mW/g

### 450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:

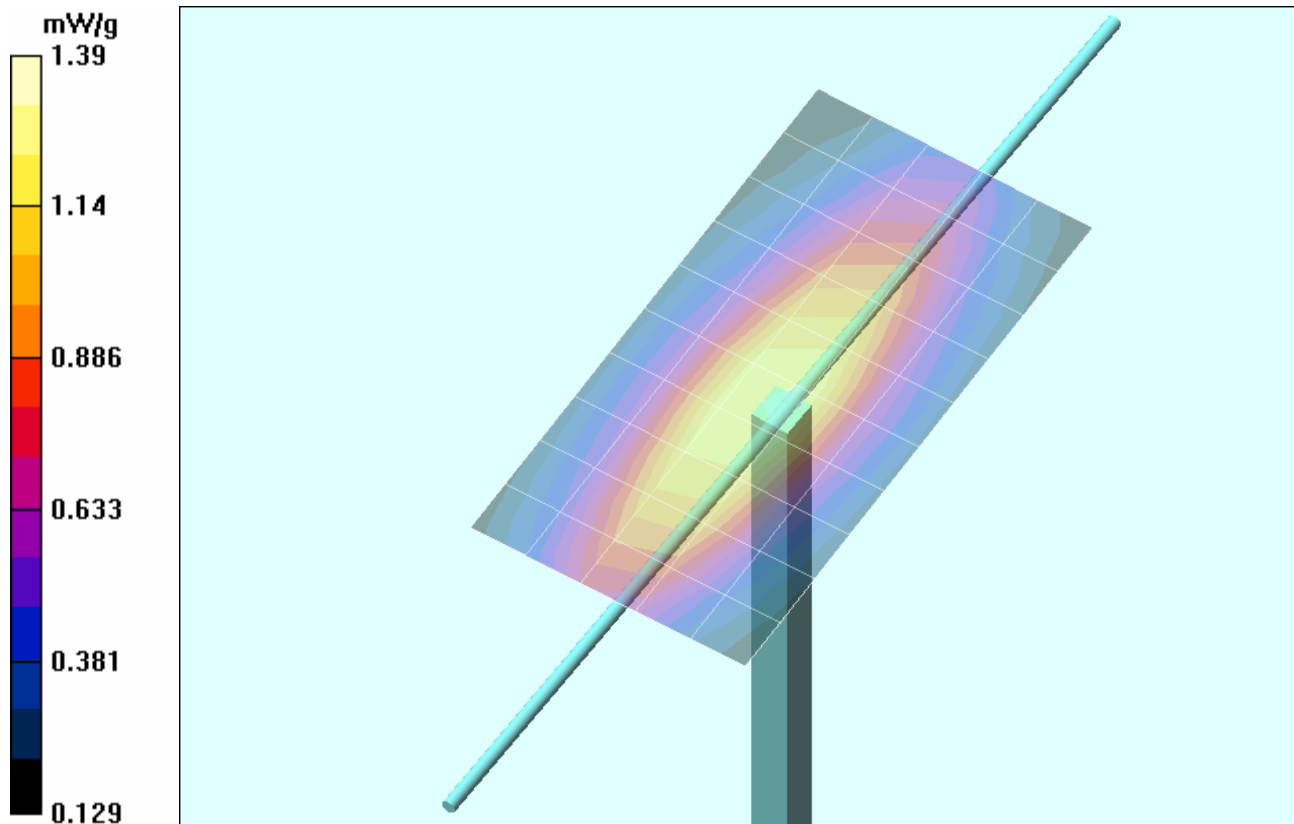
Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 38.6 V/m; Power Drift = -0.014 dB



Peak SAR (extrapolated) = 2.31 W/kg

**SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.837 mW/g**

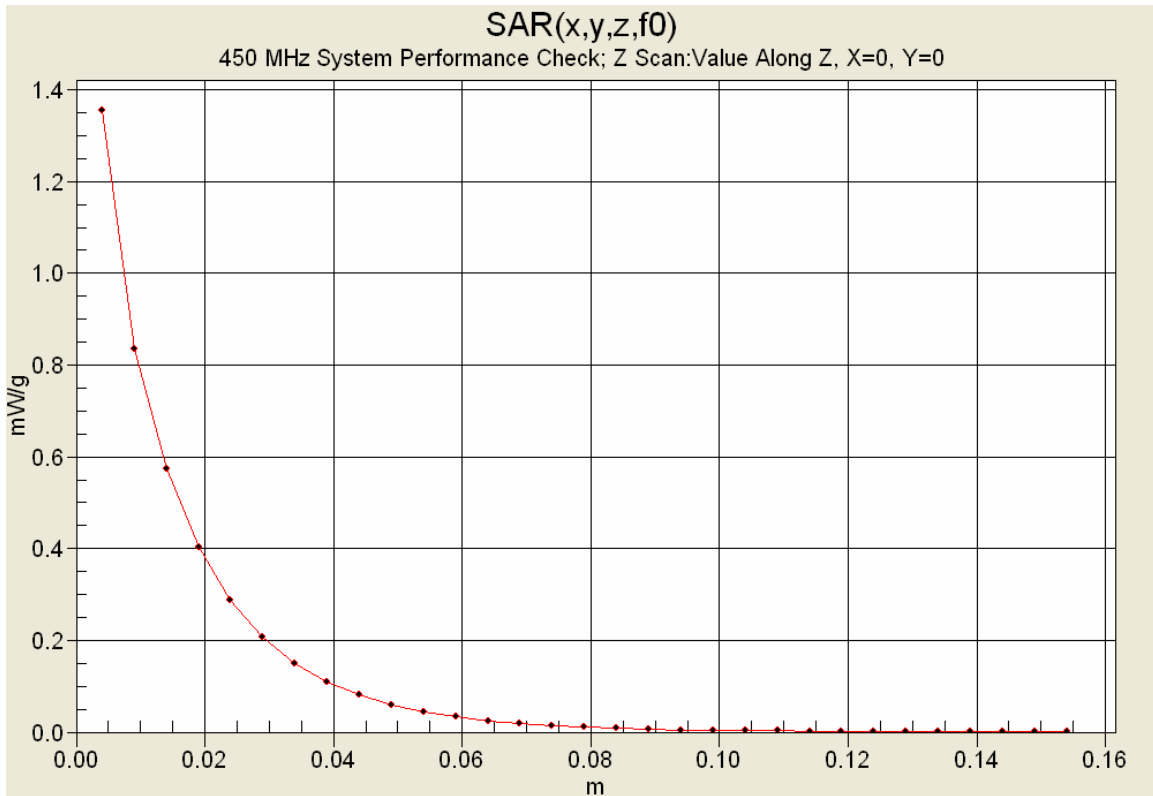
Maximum value of SAR (measured) = 1.39 mW/g






<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

## Z-Axis Scan



<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

Date Tested: 06/13/2007

## System Performance Check - 450 MHz Dipole

**DUT: Dipole 450 MHz; Asset: 00024; Serial: 136; Validation: 06/07/2007**

Ambient Temp: 24.2°C; Fluid Temp: 23.0°C; Barometric Pressure: 97.0 kPa; Humidity: 31%

Communication System: CW

Forward Conducted Power: 250 mW

Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450 Medium parameters used:  $f = 450 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 44.5$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1387; ConvF(7, 7, 7); Calibrated: 16/03/2007

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

- Electronics: DAE4 Sn353; Calibrated: 21/06/2006

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

- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

### 450 MHz Dipole - System Performance Check/Area Scan (6x11x1):

Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (measured) = 1.25 mW/g

### 450 MHz Dipole - System Performance Check/Zoom Scan (5x5x7)/Cube 0:

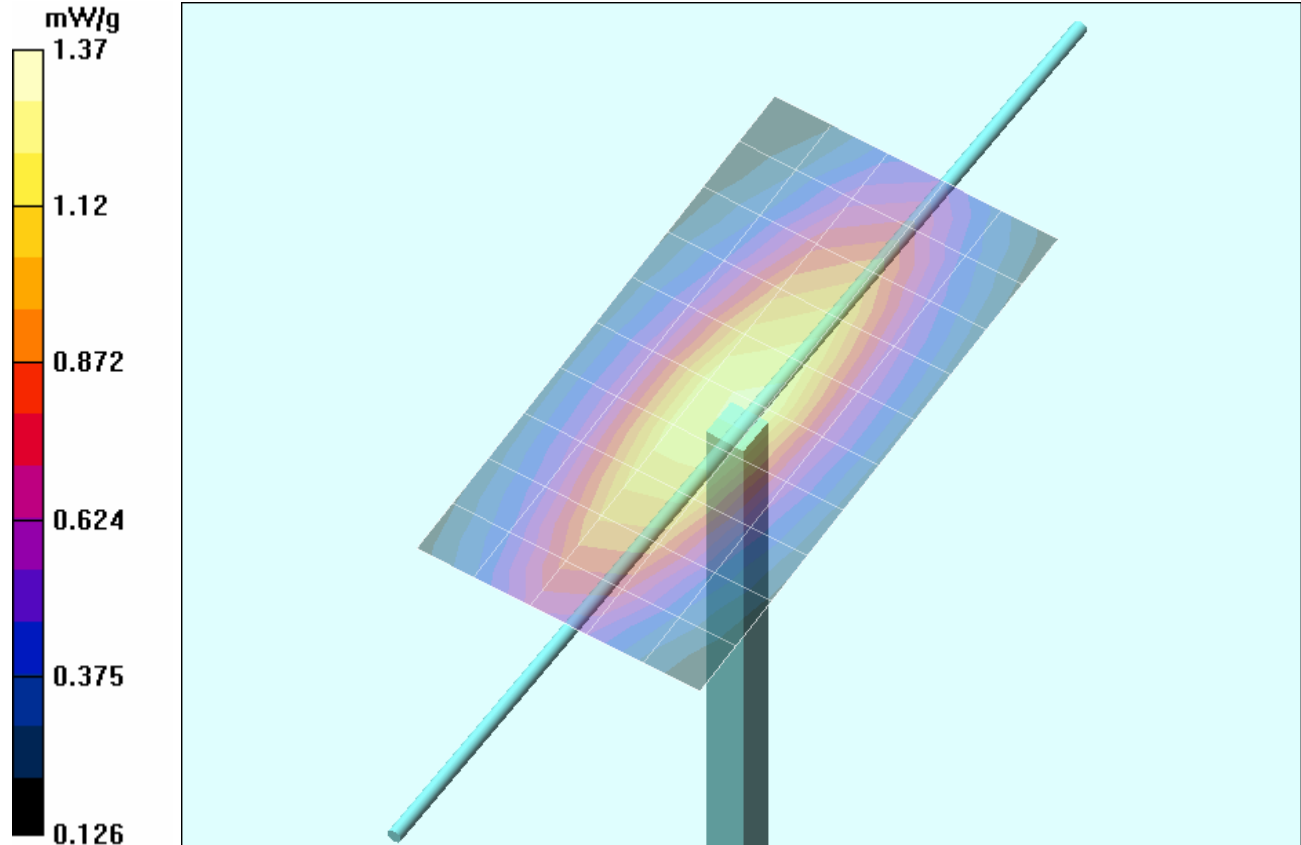
Measurement grid:  $dx=7.5\text{mm}$ ,  $dy=7.5\text{mm}$ ,  $dz=5\text{mm}$


Reference Value = 38.6 V/m; Power Drift = 0.059 dB

Peak SAR (extrapolated) = 2.30 W/kg

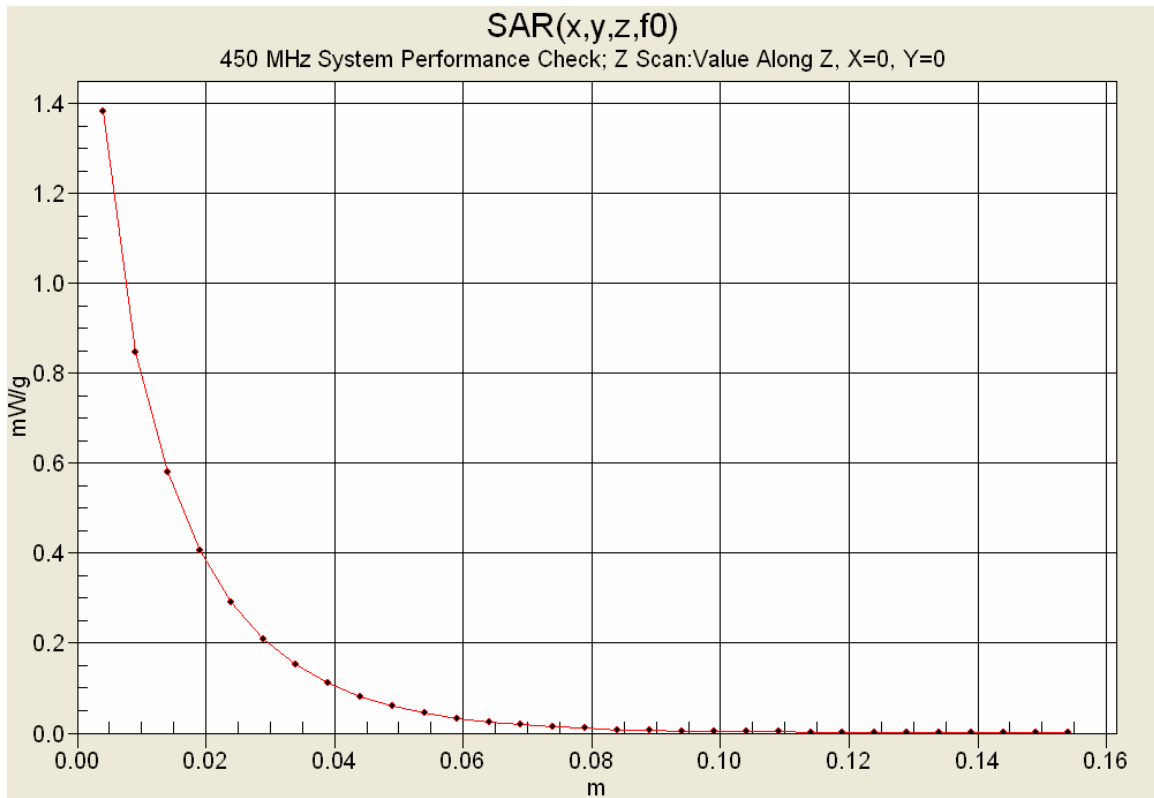
**SAR(1 g) = 1.30 mW/g; SAR(10 g) = 0.832 mW/g**



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



<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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### Z-Axis Scan



	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

**APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS**

<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

### 450 MHz System Performance Check (Brain)

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Celltech Labs Inc.

Test Result for UIM Dielectric Parameter

Mon 11/Jun/2007

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_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	46.48	0.82
0.3600	44.58	0.87	46.18	0.83
0.3700	44.46	0.87	45.80	0.83
0.3800	44.34	0.87	45.53	0.84
0.3900	44.22	0.87	45.47	0.85
0.4000	44.10	0.87	45.23	0.86
0.4100	43.98	0.87	44.77	0.87
0.4200	43.86	0.87	44.65	0.88
0.4300	43.74	0.87	44.55	0.89
0.4400	43.62	0.87	44.23	0.90
0.4500	43.50	0.87	44.04	0.91
0.4600	43.45	0.87	43.93	0.91
0.4700	43.40	0.87	43.68	0.92
0.4800	43.34	0.87	43.58	0.93
0.4900	43.29	0.87	43.34	0.94
0.5000	43.24	0.87	43.18	0.95
0.5100	43.19	0.87	42.86	0.95
0.5200	43.14	0.88	42.58	0.96
0.5300	43.08	0.88	42.56	0.97
0.5400	43.03	0.88	42.34	0.98
0.5500	42.98	0.88	42.18	0.99

<b>Company:</b>	Kenwood USA Corporation	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	450 - 520 MHz	
<b>Model(s):</b>	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	<b>FCC ID:</b>	ALH378500	<b>IC ID:</b>	
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	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	


### 450 MHz DUT Evaluation (Body)

\*\*\*\*\*



Celltech Labs Inc.  
 Test Result for UIM Dielectric Parameter  
 Tue 12/Jun/2007  
 Frequency (GHz)  
 FCC\_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon  
 FCC\_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma  
 FCC\_eB FCC Limits for Body Epsilon  
 FCC\_sB FCC Limits for Body Sigma  
 Test\_e Epsilon of UIM  
 Test\_s Sigma of UIM

\*\*\*\*\*

Freq	FCC_eB	FCC_sB	Test_e	Test_s
0.3500	57.70	0.93	57.89	0.84
0.3600	57.60	0.93	57.54	0.85
0.3700	57.50	0.93	57.42	0.85
0.3800	57.40	0.93	57.40	0.86
0.3900	57.30	0.93	57.38	0.87
0.4000	57.20	0.93	57.19	0.88
0.4100	57.10	0.93	57.10	0.88
0.4200	57.00	0.94	56.75	0.90
0.4300	56.90	0.94	56.76	0.90
0.4400	56.80	0.94	56.52	0.91
0.4500	56.70	0.94	56.49	0.91
0.4600	56.66	0.94	56.34	0.92
0.4700	56.62	0.94	56.37	0.93
0.4800	56.58	0.94	56.00	0.94
0.4900	56.54	0.94	56.09	0.95
0.5000	56.51	0.94	55.81	0.95
0.5100	56.47	0.94	55.72	0.96
0.5200	56.43	0.95	55.58	0.97
0.5300	56.39	0.95	55.55	0.98
0.5400	56.35	0.95	55.41	0.99
0.5500	56.31	0.95	55.24	0.99

Company:	Kenwood USA Corporation	Portable UHF PTT Radio Transceiver	Freq.:	450 - 520 MHz	
Model(s):	NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3	FCC ID:	ALH378500	IC ID:	
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	<u>Date(s) of Evaluation</u> June 11-13, 2007	<u>Test Report Serial No.</u> 060807ALH-T834-S90U	<u>Test Report Revision No.</u> Revision 1.1	
	<u>Test Report Issue Date</u> June 22, 2007	<u>Description of Test(s)</u> Specific Absorption Rate	<u>RF Exposure Category</u> Occupational (Controlled)	

### 450 MHz System Performance Check & DUT Evaluation (Brain)

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Celltech Labs Inc.  
 Test Result for UIM Dielectric Parameter  
 Wed 13/Jun/2007  
 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_eH	FCC_sH	Test_e	Test_s
0.3500	44.70	0.87	46.99	0.83
0.3600	44.58	0.87	46.64	0.83
0.3700	44.46	0.87	46.36	0.84
0.3800	44.34	0.87	45.86	0.85
0.3900	44.22	0.87	45.77	0.86
0.4000	44.10	0.87	45.78	0.87
0.4100	43.98	0.87	45.38	0.88
0.4200	43.86	0.87	45.19	0.88
0.4300	43.74	0.87	44.97	0.89
0.4400	43.62	0.87	44.83	0.90
0.4500	43.50	0.87	44.46	0.91
0.4600	43.45	0.87	44.35	0.92
0.4700	43.40	0.87	44.07	0.92
0.4800	43.34	0.87	43.95	0.93
0.4900	43.29	0.87	43.61	0.94
0.5000	43.24	0.87	43.54	0.95
0.5100	43.19	0.87	43.20	0.96
0.5200	43.14	0.88	43.09	0.97
0.5300	43.08	0.88	42.82	0.98
0.5400	43.03	0.88	42.82	0.98
0.5500	42.98	0.88	42.54	0.99

<b>Company:</b>	<b>Kenwood USA Corporation</b>	<b>Portable UHF PTT Radio Transceiver</b>	<b>Freq.:</b>	<b>450 - 520 MHz</b>	<b>KENWOOD</b>
<b>Model(s):</b>	<b>NX-300-K, NX-300-K3, TK-5320-K, TK-5320-K3</b>	<b>FCC ID:</b>	<b>ALH378500</b>	<b>IC ID:</b>	
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