

# SAR Evaluation Report

IN ACCORDANCE WITH THE REQUIREMENTS OF FCC REPORT AND ORDER: ET DOCKET 93-62, AND OET BULLETIN 65 SUPPLEMENT C

FOR

**PDA Phone** 

MODEL: WIZA100, WIZA110, WIZA200

FCC ID: NM8WZ

**REPORT NUMBER: 05T3452-4** 

ISSUE DATE: June 22, 2005

Prepared for

High Tech Computer Corp. 23 Hsin Hua Road Taoyuan 330, Taiwan, R. O. C.

Prepared by

COMPLIANCE CERTIFICATION SERVICES 561F MONTEREY ROAD, MORGAN HILL, CA 95037, USA TEL: (408) 463-0885

LAB CODE:200065-0

# **Revision History**

Rev.	Revisions	Revised By
А	Initial issue	MH

#### CERTIFICATE OF COMPLIANCE (SAR EVALUATION) DATES OF TEST: June 1 - 9, 2005

APPLICANT:	High Tech Computer Corp.						
ADDRESS:	23 Hsin Hua Road, Taoyuan 330, Taiwan, R. O. C						
FCC ID:	NM8WZ						
MODEL:	WIZA100, WIZA110 and WIZA200						
DEVICE CATEGORY:	Portable Device						
EXPOSURE CATEGORY:	General Population/Uncontrolled Explosure						

PDA Phone (GSM850/1900 with WiFi 802.11bg and Bluetooth radio)								
Test Sample is a:	Production unit	Production unit						
FCC Rule Parts	Frequency Range [MHz]	The Highest SAR Values						
22H	824.2 - 848.8	<ul> <li>The highest reported SAR values are: Head: 0.233 W/kg and Body-worn: 1.192 W/kg</li> <li>The highest reported collocated SAR values are Head: 0.278 W/kg and body: 1.272 W/kg.</li> </ul>						
24E	1850.2 – 1909.8	<ul> <li>The highest reported SAR values are Head: 0.184 W/kg; Body-worn: 0.793 W/kg</li> <li>The highest reported collocated SAR values are Head: 0.263 W/kg and body: 0.854 W/kg.</li> </ul>						
15C	2412 - 2462	The highest reported SAR values are head: 0.079 W/kg     and body: 0.08 W/kg						

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Explosure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in FCC OET 65 Supplement C (Edition 01-01). And RSS-102 Issue 1 (Provisional) September 25, 1999.

The maximum 1g SAR level measured for all the tests performed did not exceed the limits for General Population/Uncontrolled Exposure (W/kg) Partial Body of 1.6 W/kg. Level defined in Supplement C (Edition 01-01) to OET Bulletin 65 (97-01).

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Released for CCS By:	Tested By:
MH	Hsin-Fr. Shih
Mike Heckrotte COMPLIANCE CERTIFICATION SERVICES	Hsin Fu Shih (Sunny Shih) COMPLIANCE CERTIFICATION SERVICES

# TABLE OF CONTENTS

1	Equ	ipment Under Test (EUT) Description	6
2	FAC	CILITIES AND ACCREDITATION	6
3	Sys	tem Description	7
4	Sys	tem Component	8
4	4.1	DASY4 Measurement Server	8
4	1.2	Data Acquisition Electronics (DAE)	8
4	1.3	EX3DV3 Isotropic E-Field Probe for Dosimetric Measurements	8
4	1.4	Light Beam Unit	9
4	4.5	SAM Phantom (V4.0)	9
4	1.6	Device Holder for SAM Twin Phantom	
4	1.7	System Validation Kits	
4	4.8	Composition of Ingredients for tissue simulating liquid	10
5	Tes	t positions for devices Operating Next To A Person's Ear	11
5	5.1	Cheek/Touch Position	12
5	5.2	Ear/Tilt Position	13
6	Tes	t Positions For Body-worn And Other Similar Configurations	14
7	Sim	ulating Liquid Parameters Check	15
7	7.1	Simulating Liquid Parameter Check Result	16
8	Sys	tem Performance Check	29
8	3.1	System Performance Check Result for 835 MHz	
8	3.2	System Performance Check Result for 1900 MHz	
8	3.3	System Performance Check Result for 2450 MHz	31
9	SAF	R Measurement Procedure	32
10	Pro	cedures Used to Establish Test Signal	34
11	The	Highest SAR Values for GSM850	35
12		Highest SAR Values for GSM1900	
13	The	Highest SAR Values for WLAN (WiFi)	
14	SAF	R Measurement Result (GSM835)	
1	14.1	Left Hand Side for model WIZA100	
	14.1.	1 Left Hand Side for model WIZA100 with keypad open	
	14.1.	2 Right Hand Side for model WIZA100	40
	14.1.	5 51 1	
	14.1.4	4 Body Worn 1 – for model WIZA100	42
	14.1.	5 Body Worn 2 – for model WIZA100	43
1	14.2	Left Hand Side for WIZA110	44
	14.2.		
	14.2.2	5	
	14.2.3	3 Right Hand Side for model WIZA110 with keypad open	47
	14.2.4	5	
	14.2.	5 Body Worn 2 – for model WIZA110	49
1	14.3	Left Hand Side for model WIZA200	50
	14.3.	1 Left Hand Side for model WIZA200 with keypad open	51
	14.3.	2 Right Hand Side for model WIZA200	52
CO	MPLIA	ANCE CERTIFICATION SERVICES	Page: 4 of 4

14.3.3	Right Hand Side for model WIZA200 with keypad open	. 53
14.3.4	Body Worn 1 – for model WIZA200	. 54
14.3.5	Body Worn 2 – for model WIZA200	. 55
15 SAR Me	asurement Result (GSM1900)	. 56
15.1 Left	Hand Side for model WIZA100	. 56
15.1.1	Left Hand Side for model WIZA100 with keypad open	. 57
15.1.2	Right Hand Side for model WIZA100	
15.1.3	Right Hand Side for model WIZA100 with keypad open	. 59
15.1.4	Body Worn 1 – for model WIZA100	. 60
15.1.5	Body Worn 2 – for model WIZA100	. 61
15.2 Left	Hand Side for WIZA110	. 62
15.2.1	Left Hand Side for model WIZA110 with keypad open	.63
15.2.2	Right Hand Side for model WIZA110	. 64
15.2.3	Right Hand Side for model WIZA110 with keypad open	
15.2.4	Body Worn 1 – for model WIZA110	. 66
15.2.5	Body Worn 2 – for model WIZA110	
15.3 Left	Hand Side for model WIZA200	. 68
15.3.1	Left Hand Side for model WIZA200 with keypad open	.69
15.3.2	Right Hand Side for model WIZA200	.70
15.3.3	Right Hand Side for model WIZA200 with keypad open	.71
15.3.4	Body Worn 1 – for model WIZA200	.72
15.3.5	Body Worn 2 – for model WIZA200	.73
16 SAR Me	asurement Result (WIFi and Bluetooth)	.74
16.1 Left	Hand Side for model WIZA100	.74
16.1.1	Left Hand Side for model WIZA100 with keypad open	.75
16.1.2	Right Hand Side for model WIZA100	.76
16.1.3	Right Hand Side for model WIZA100 with keypad open	.77
16.1.4	Body Worn 1 – for model WIZA100	.78
16.1.5	Body Worn 2 – for model WIZA100	.79
16.2 Left	Hand Side for WIZA110	. 80
16.2.1	Right Hand Side for model WIZA110	. 81
16.2.2	Body Worn 1 – for model WIZA110	. 82
16.2.3	Body Worn 2 – for model WIZA110	. 83
16.3 Left	Hand Side for model WIZA200	. 84
16.3.1	Right Hand Side for model WIZA200	. 85
16.3.2	Body Worn 1 – for model WIZA200	. 86
16.3.3	Body Worn 2 – for model WIZA200	. 87
17 Measure	ment Uncertainty	. 88
17.1 Mea	surement Uncertainty for 300 MHz – 3GHz	. 88
17.2 Mea	surement Uncertainty 3 GHz – 6 GHz	. 89
18 Equipme	nt List	.90
19 Attachme	ents	.91

# 1 EQUIPMENT UNDER TEST (EUT) DESCRIPTION

PDA Phone (CDMA Transceiver with WLAN and Bluetooth)						
Normal operation: Held to ear, worn on body and hand-held						
Duty cycle of Transmitter:	12.5% for GSM only 25% for GSM+(E)GPRS 100% for WiFi (802.11bg) 100% for Bluetooth					
Power supply:	<b>Rechargeable Li-ion Battery -</b> Manufactured by: Celxpert Energy Co., Ltd. model number: WIZA16, rating: 3.7Vdc, 1250mA/h (Only one type of battery to be used in the EUT)					
Body worn Accessory:	Holster with belt clip (Pouch) - New Tech, P/N: HTC-125B-1 Headset - Merry, P/N: EMC147-012-01					

# 2 FACILITIES AND ACCREDITATION

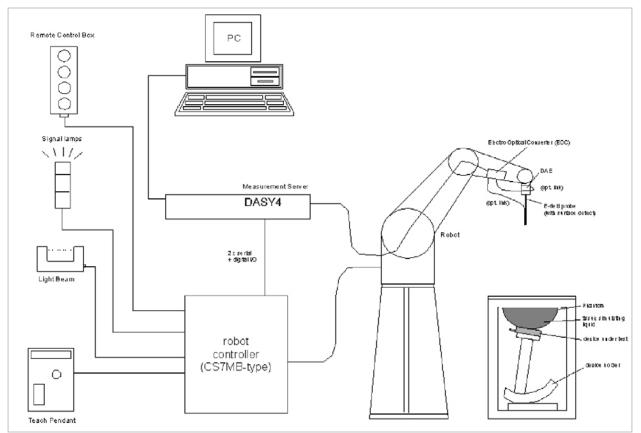
The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."



CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

# **3 SYSTEM DESCRIPTION**



# The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, ADconversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY4 software.
- Remote controls with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

# 4 SYSTEM COMPONENT

# 4.1 DASY4 MEASUREMENT SERVER



The DASY4 measurement server is based on a PC/104 CPU board with a 166MHz low-power Pentium, 32MB chip disk and 64MB RAM. The necessary circuits for communication with either the DAE3 electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY4 I/O-board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. The PC-operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with two expansion slots which are reserved for future applications. Please note that the expansion slots do not have a standardized pinout and therefore only the expansion cards provided by SPEAG can be inserted. Expansion cards from any other supplier could seriously damage the measurement server. Calibration: No calibration required.

# 4.2 DATA ACQUISITION ELECTRONICS (DAE)

The data acquisition electronics (DAE3) consists of 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 measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and



probe collision detection. The input impedance of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

# 4.3 EX3DV3 ISOTROPIC E-FIELD PROBE FOR DOSIMETRIC MEASUREMENTS

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency:	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity:	± 0.3 dB in HSL (rotation around probe axis);
	± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range:	10 $\mu$ W/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically
	< 1 µW/g)
Dimensions:	Overall length: 330 mm (Tip: 20 mm)
	Tip diameter: 2.5 mm (Body: 12 mm)
	Typical distance from probe tip to dipole centers: 1 mm
Application:	High precision dosimetric measurements in any exposure
	scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

# 4.4 LIGHT BEAM UNIT

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, so that the robot coordinates are valid for the probe tip. The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe



within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

# 4.5 SAM PHANTOM (V4.0)

**Construction:** The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.

Shell Thickness:2 ±0.2 mmFilling Volume:Approx. 25 litersDimensions:Height: 810mm; Length: 1000mm; Width: 500mm



#### **DEVICE HOLDER FOR SAM TWIN PHANTOM** 4.6

**Construction:** In combination with the Twin SAM Phantom V4.0 or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).



#### SYSTEM VALIDATION KITS 4.7

Construction:	Symmetrical dipole with I/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor.
Frequency:	450, 900, 1800, 2450, 5800 MHz
Return loss:	> 20 dB at specified validation position
Power capability:	> 100 W (f < 1GHz); > 40 W (f > 1GHz)
Dimensions:	450V2: dipole length: 270 mm; overall height: 330 mm
	D900V2: dipole length: 149 mm; overall height: 330 mm
	D1800V2: dipole length: 72 mm; overall height: 300 mm
	D835V2: dipole length: 161; overall height: 330
	D1900V2: dipole length: 68; overall height: 300
	D2450V2: dipole length: 51.5 mm; overall height: 300 mm D5GHzV2: dipole length: 25.5 mm; overall height: 290 mm

#### 4.8 COMPOSITION OF INGREDIENTS FOR TISSUE SIMULATING LIQUID

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients	Frequency (MHz)									
(% by weight)	45	450 835		915		1900		2450		
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MQ+ resistivity DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

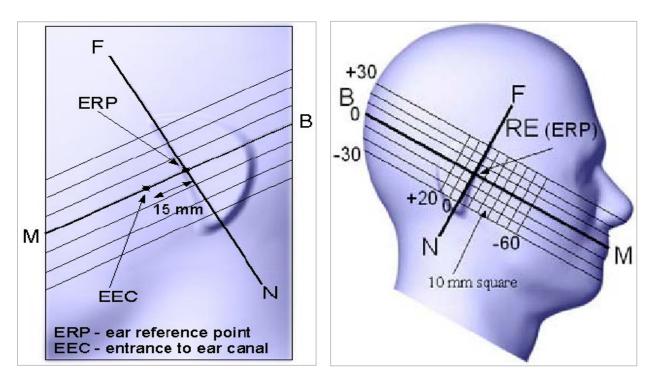
Sugar: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose

Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

# 5 TEST POSITIONS FOR DEVICES OPERATING NEXT TO A PERSON'S EAR

This category includes most wireless handsets with fixed, retractable or internal antennas located toward the top half of the device, with or without a foldout, sliding or similar keypad cover. The handset should have its earpiece located within the upper ¼ of the device, either along the centerline or off-centered, as perceived by its users. This type of handset should be positioned in a normal operating position with the "test device reference point" located along the "vertical centerline" on the front of the device aligned to the "ear reference point". The "test device reference point" should be located at the same level as the center of the earpiece region. The "vertical centerline" should bisect the front surface of the handset at its top and bottom edges. A "ear reference point" is located on the outer surface of the head phantom on each ear spacer. It is located 1.5 cm above the center of the ear canal entrance in the "phantom reference plane" defined by the three lines joining the center of each "ear reference point" (left and right) and the tip of the mouth.

A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom. For the SCC-34/SC-2 head phantom, the device should be positioned parallel to the "N-F" line defined along the base of the ear spacer that contains the "ear reference point". For interim head phantoms, the device should be positioned parallel to the cheek for maximum RF energy coupling. The "test device reference point" is aligned to the "ear reference point" on the head phantom and the "vertical centerline" is aligned to the "phantom reference plane". This is called the "initial ear position". While maintaining these three alignments, the body of the handset is gradually adjusted to each of the following positions for evaluating SAR:



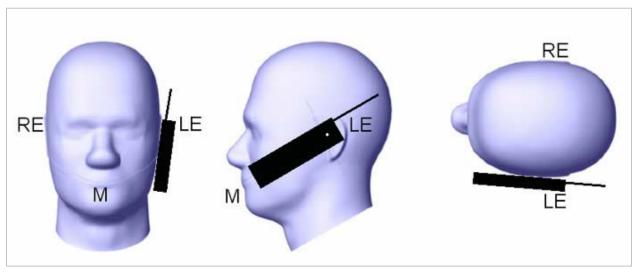
# 5.1 CHEEK/TOUCH POSITION

The device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line for the SCC-34/SC-2 head phantom.

This test position is established:

- i. When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.
- ii. (or) When any portion of a foldout, sliding or similar keypad cover opened to its intended selfadjusting normal use position is in contact with the cheek or mouth of the phantom.

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



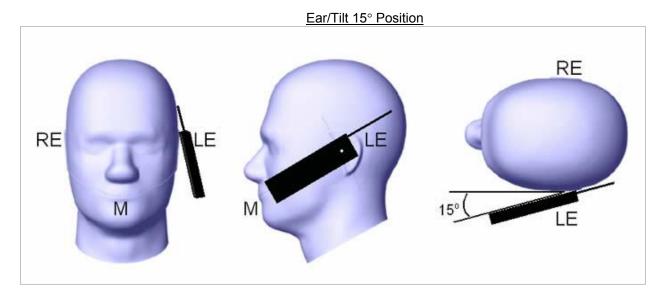
Cheek / Touch Position

# 5.2 EAR/TILT POSITION

With the handset aligned in the "Cheek/Touch Position":

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

If a device is also designed to transmit with its keypad cover closed for operating in the head position, such positions should also be considered in the SAR evaluation. The device should be tested on the left and right side of the head phantom in the "Cheek/Touch" and "Ear/Tilt" positions. When applicable, each configuration should be tested with the antenna in its fully extended and fully retracted positions. These test configurations should be tested at the high, middle and low frequency channels of each operating mode; for example, AMPS, CDMA, and TDMA. If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tile/Ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s). If the transmission band of the test device is less than 10 MHz, testing at the high and low frequency channels is optional.



# 6 TEST POSITIONS FOR BODY-WORN AND OTHER SIMILAR CONFIGURATIONS

# With the belt-clips or holsters

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. For purpose of determining test requirements, accessories may be divided into two categories: those that do not contain metallic components and those that do.

# When multiple accessories

When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

# Without the belt-clips or holsters

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

Transmitter that is designed to operate in front of a person's face (face-held)

Transmitters that are designed to operate in front of a person's face, in push-to-talk configurations, should be tested for SAR compliance with the front of the device positioned at 2.5 cm from a flat phantom. Frontal face-phantoms are typically not recommended because of the potential of higher E-field probe boundary-effects errors in the non-smooth regions of these face phantoms, such as the nose, lips and eyes etc. For devices that are carried next to the body, such as shoulder, waist or chest-worn transmitters, SAR compliance should be tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in normal use configurations.

# With neck-strap or lanyard

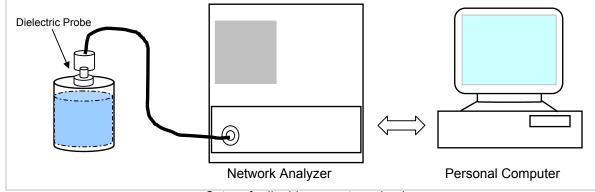
SAR data is requested for cell phones designed to be used with a headset while worn next to the body using a neck-strap or lanyard; device should be tested with front and back sides in contact with a flat phantom

# Lap-held

SAR is tested for a lap-held position with the bottom of the computer in direct contact against a flat phantom.

# 7 SIMULATING LIQUID PARAMETERS CHECK

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameters are within the tolerances of the specified target values. The relative permittivity and conductivity of the tissue material should be within  $\pm$  5% of the values given in the table below.



Set-up for liquid parameters check

# Reference Values of Tissue Dielectric Parameters for Head and Body Phantom

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in IEEE Standard 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in IEEE Standard 1528.

Target Frequency (MHz)	He	ad	Body		
rarget requency (winz)	ε <sub>r</sub>	σ (S/m)	ε <sub>r</sub>	σ (S/m)	
150	52.3	0.76	61.9	0.80	
300	45.3	0.87	58.2	0.92	
450	43.5	0.87	56.7	0.94	
835	41.5	0.90	55.2	0.97	
900	41.5	0.97	55.0	1.05	
915	41.5	0.98	55.0	1.06	
1450	40.5	1.20	54.0	1.30	
1610	40.3	1.29	53.8	1.40	
1800 – 2000	40.0	1.40	53.3	1.52	
2450	39.2	1.80	52.7	1.95	
3000	38.5	2.40	52.0	2.73	
5800	35.3	5.27	48.2	6.00	

( $\varepsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho$  = 1000 kg/m<sup>3</sup>)

# 7.1 SIMULATING LIQUID PARAMETER CHECK RESULT

Simulating Liquid Parameter Check Result @ Head 835 MHz

Room Ambient Temperature = 24.0°C; Relative humidity = 40%

Simulating Liqu f (MHz) Temp. (°C)	1		Parameters	Target	Measured	Deviation (%)	Limit (%)	
		e'	Relative Permittivity (e"):	41.5	41.6539	0.37	± 5	
835 23	15	20.0644	Conductivity ( $\sigma$ ):	0.90	0.9320	3.56	± 5	
Liquid Check Ambient temperature: 24.0 deg. C, Liquid temperature: 23.0 deg. C June 01, 2005 04:21 PM								
Frequency	e'		e"					
750000000.	42.7		20.4240					
755000000.	42.6		20.3915					
760000000.	42.5		20.3754					
765000000.	42.5		20.3561					
770000000.	42.4		20.3057					
775000000.	42.3		20.3061					
780000000.	42.3		20.2876					
785000000.	42.2		20.2768					
790000000.	42.2		20.2453					
795000000.	42.1		20.2270					
80000000.	42.0		20.2014					
805000000.	42.0	179	20.1833					
810000000.	41.9	528	20.1565					
815000000.	41.9	108	20.1509					
820000000.	41.8	527	20.1229					
825000000.	41.7	851	20.0767					
830000000.	41.7	092	20.0547					
835000000.	41.6	539	20.0644					
840000000.	41.6	067	20.0246					
845000000.	41.5	631	19.9946					
850000000.	41.4	816	19.9758					
855000000.	41.4	110	19.9544					
860000000.	41.3	631	19.9372					
865000000.	41.3	092	19.8604					
870000000.	41.2	280	19.8638					
875000000.	41.1	358	19.8606					
880000000.	41.1	211	19.8756					
885000000.	41.0	694	19.8307					
890000000.	40.9	777	19.8182					
895000000.	40.9	607	19.7841					
90000000.	40.9	090	19.7655					
The conductivity ( $\sigma$ )	can be giv	/en as:						
$\sigma = \omega \varepsilon_{\theta}  \mathbf{e}'' = 2  \pi f  \varepsilon$	ɛ₀e″							
where $f = target f^*$ $\varepsilon_0 = 8.854 * 1$	$10^{6}$							
<b>c</b> y = 0.034 * 1	U							

# Simulating Liquid Parameter Check Result @ Head 835 MHz

Room Ambient Temperature = 24.0°C; Relative humidity = 40%

Si f (MHz)	mulating Liqu Temp. (°C)	uid Depth (cm)		Parameters	Target	Measured	Deviation (%)	Limit (%)
			e'	Relative Permittivity (e"):	41.5	42.1735	1.62	± 5
835	23	15	20.3310	Conductivity ( $\sigma$ ):	0.90	0.9444	4.94	± 5
Liquid Che Ambient te June 02, 2	mperatur		g. C, Liqu	iid temperature: 23.0 c	leg. C			
Frequency		e'		e"				
750000000	Э.	43.2	668	20.6715				
755000000	Э.	43.1	996	20.6260				
76000000	Э.	43.1	308	20.5702				
765000000		43.0		20.5284				
77000000		42.9		20.4629				
775000000		42.8		20.4829				
78000000		42.8		20.4259				
785000000		42.7		20.4089				
79000000		42.6	961	20.3685				
795000000	Э.	42.6	509	20.3331				
80000000	Э.	42.5	843	20.3369				
805000000	Э.	42.5	420	20.3451				
81000000	Э.	42.4	922	20.3227				
815000000	Э.	42.4	481	20.3370				
82000000	Э.	42.3	843	20.3351				
825000000	Э.	42.3	075	20.3211				
83000000	Э.	42.2	136	20.3176				
83500000	Э.	42.1	735	20.3310				
84000000	Э.	42.1	225	20.3212				
845000000	Э.	42.0	460	20.2558				
850000000	Э.	41.9	596	20.2255				
855000000	Э.	41.9	087	20.2063				
860000000	Э.	41.8	476	20.1491				
865000000	Э.	41.7	764	20.0543				
87000000	Э.	41.7	092	20.0414				
875000000	Э.	41.6	590	20.0137				
880000000	Э.	41.6	190	19.9834				
885000000	).	41.5	676	19.9466				
89000000		41.5	078	19.9129				
89500000		41.5	031	19.8932				
900000000	Э.	41.4	584	19.9055				
		can be giv	en as:					
$\sigma = \omega \varepsilon_{\theta}  e^{\prime}$	U							
where f= Eg=	= target f * = 8.854 * 1							

# Simulating Liquid Parameter Check Result @ Head 835 MHz

Room Ambient Temperature = 24.0°C; Relative humidity = 42%

f (MHz)	Temp. (°C)			Parameters	Target	Measured	Deviation (%)	Limit (%)
		15	e'	Relative Permittivity (e"):	41.5	41.4790	-0.05	± 5
835	23	15	20.0815	Conductivity ( $\sigma$ ):	0.90	0.9328	3.65	± 5
			g. C, Liqu	uid temperature: 23.0 c	deg. C			
Frequency	y	e'		e"				
75000000	0.	42.5	669	20.4250				
75500000	0.	42.5	414	20.3950				
76000000	0.	42.4	493	20.3256				
76500000	0.	42.4	042	20.3017				
77000000	0.	42.3	123	20.2678				
77500000		42.2	406	20.2630				
78000000		42.1		20.2109				
78500000		42.1	050	20.1854				
79000000	0.	42.0	416	20.1574				
79500000	0.	42.0	053	20.1445				
80000000	0.	41.9	207	20.1121				
80500000	0.	41.8	742	20.1352				
81000000	0.	41.8	236	20.0997				
81500000	0.	41.7	712	20.1137				
82000000	0.	41.7	130	20.1024				
82500000	0.	41.6	403	20.0741				
83000000	0.	41.5	477	20.0465				
83500000	0.	41.4	790	20.0815				
84000000	0.	41.4	453	20.0488				
84500000	0.	41.3	901	20.0120				
85000000	0.	41.2	972	19.9863				
85500000	0.	41.2	206	19.9774				
86000000	0.	41.1	778	19.9385				
86500000		41.1		19.8619				
87000000	0.	41.0	432	19.8251				
87500000	0.	40.9	774	19.8046				
88000000	0.	40.9	552	19.7922				
88500000		40.8	884	19.7626				
89000000		40.8		19.7371				
89500000		40.8		19.6944				
90000000	0.	40.7	984	19.6939				
	,	can be giv	en as:					
	$a''=2\pi f \epsilon$	-						
	= target f * = 8.854 * 1							

# Simulating Liquid Parameter Check Result @ Muscle 835 MHz

Room Ambient Temperature = 24.0 °C; Relative humidity = 42%

Simulating Liquic f (MHz) Temp. (°C)	t Depth (cm)		Parameters	Target	Measured	Deviation (%)	Limit (%)
835 23	15	e'	Relative Permittivity (e"):	55.2	56.2932	1.98	± 5
000 20	10	21.3763	Conductivity (o):	0.97	0.9930	2.37	± 5
Liquid Check Ambient temperature: June 03, 2005 02:14 I		g. C, Liqu	id temperature: 23.0 o	deg. C			
Frequency	e'		e"				
750000000.	57.1	118	21.8390				
755000000.	57.07	780	21.7891				
760000000.	57.02	239	21.7466				
765000000.	56.97	753	21.7502				
770000000.	56.94	445	21.7001				
775000000.	56.87	765	21.6754				
780000000.	56.84	476	21.6254				
785000000.	56.79	924	21.5968				
79000000.	56.75	560	21.5850				
795000000.	56.69	992	21.5460				
80000000.	56.62	244	21.5486				
805000000.	56.59	912	21.5359				
81000000.	56.54	492	21.4811				
815000000.	56.50	042	21.4618				
820000000.	56.4	517	21.4343				
825000000.	56.40	)39	21.4166				
83000000.	56.34	497	21.3790				
835000000.	56.29	932	21.3763				
84000000.	56.24	460	21.3368				
845000000.	56.2	131	21.3032				
85000000.	56.16	677	21.2637				
855000000.	56.13	306	21.2432				
86000000.	56.07	776	21.2073				
865000000.	56.04	443	21.1640				
870000000.	55.99	986	21.1692				
875000000.	55.92	262	21.1313				
880000000.	55.9 <sup>-</sup>	140	21.1341				
885000000.	55.87	767	21.1254				
890000000.	55.80	073	21.0873				
895000000.	55.79	992	21.0672				
90000000.	55.76		21.0379				
905000000.	55.73	304	21.0220				
The conductivity ( $\sigma$ ) c	an be giv	en as:					
$\sigma = \omega \varepsilon_{\theta}  \mathbf{e}'' = 2  \pi f  \varepsilon_{\theta}$	e″						
where $f = target f * 1$							
$\epsilon_0 = 8.854 * 10^{-1}$							

# Simulating Liquid Parameter Check Result @ Head 835 MHz

Room Ambient Temperature = 24.0°C; Relative humidity = 40%

	ulating Liquid emp. (°C)	n)	Parameters	Target	Measured	Deviation (%)	Limit (%)
835	23 15	e'	Relative Permittivity (e"):	41.5	41.5625	0.15	± 5
635	23 15	20.1534	Conductivity ( $\sigma$ ):	0.90	0.9362	4.02	± 5
		eg. C, Liqı	id temperature: 23.0	deg. C			
Frequency	e'		e"				
750000000.	42	6486	20.4732				
755000000.	42	.5713	20.4217				
760000000.	42	5008	20.3921				
765000000.	42	4657	20.3197				
770000000.		3757	20.2512				
775000000.	42	2931	20.2492				
780000000.		2217	20.1998				
785000000.		1334	20.1668				
790000000.		0829	20.1464				
795000000.	42	0566	20.1308				
800000000.	41.	9772	20.1187				
805000000.	41.	.9323	20.1085				
810000000.	41.	8896	20.1034				
815000000.		8346	20.1286				
820000000.		7829	20.1422				
825000000.	41	7162	20.1171				
830000000.	41.	6413	20.1161				
835000000.		5625	20.1534				
840000000.		.5311	20.1299				
845000000.	41	4771	20.0608				
850000000.	41	3645	20.0402				
855000000.	41.	2821	20.0117				
860000000.	41	2650	19.9549				
865000000.	41.	1751	19.8578				
870000000.	41.	.0958	19.8304				
875000000.	41.	.0243	19.7911				
880000000.	41.	.0004	19.7386				
885000000.	40.	9665	19.7197				
890000000.	40.	9040	19.6693				
895000000.	40	9083	19.6398				
900000000.	40.	8666	19.6389				
995000000.		7841	19.3477				
The conduct	tivity (σ) can be g	jiven as:					
$\sigma = \omega \varepsilon_{\theta}  e'' =$	= $2 \pi f \varepsilon_{\theta}$ e"						
where $f = t$	target $f * 10^6$						
	8.854 * 10 <sup>-12</sup>						

# Simulating Liquid Parameter Check Result @ Muscle 835 MHz

Room Ambient Temperature = 24.0 °C; Relative humidity = 40%

	imulating Liqu			Parameters	Target	Measured	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)	e'	Polotivo Pormittivity (o"):	55.2	55 0156	1 20	+ 5
835	23	15	e 21.3197	Relative Permittivity (e"): Conductivity (σ):	0.97	55.9156 0.9903	1.30 2.10	± 5 ± 5
invid Oh a			21.3197	Conductivity (0).	0.97	0.9903	2.10	ΞJ
Liquid Che			0.1.					
			g. C, Liqu	id temperature: 23.0 d	deg. C			
June 04, 2	005 03:34	PM						
Frequency	,	e'		e"				
750000000		56.73	357	21.7282				
755000000		56.69		21.7191				
760000000		56.6		21.6740				
76500000		56.6		21.6395				
770000000		56.54		21.6056				
77500000		56.49		21.6238				
78000000		56.4		21.5785				
78500000		56.40		21.5266				
79000000	Э.	56.34	473	21.5130				
79500000	Э.	56.3 <sup>°</sup>	102	21.4918				
80000000	Э.	56.24	474	21.4916				
80500000	Э.	56.20	388	21.4598				
81000000	Э.	56.13	386	21.4171				
81500000	Э.	56.10	049	21.4238				
82000000	Э.	56.06	67	21.3700				
82500000	Э.	55.99	938	21.3410				
83000000	Э.	55.9 <sup>-</sup>	179	21.3303				
83500000(		55.9 <sup>°</sup>		21.3197				
84000000		55.87		21.2582				
84500000		55.8		21.2463				
85000000		55.76		21.2210				
85500000		55.73		21.1883				
86000000		55.69		21.1497				
86500000		55.60		21.0980				
87000000		55.59		21.1022				
87500000		55.54		21.0894				
880000000		55.52		21.0968				
885000000		55.4		21.0963				
890000000		55.4		21.0645				
89500000		55.38		21.0453				
90000000		55.34		21.0078				
The condu		-	en as:					
$\sigma = \omega \varepsilon_{\theta}  \mathbf{e}$	v							
where $f$ =								
<b>E</b> _0 =	= 8.854 * 10	0 <sup>-12</sup>						

Simulating Liquid Dielectric Parameters Check Result @ Head 1900 MHz

Room Ambient Temperature = 24°C; Relative humidity = 36%

f (MHz)	Simulating Liqu	uid Depth (cm)		Parameters	Target	Measured	Deviation (%)	Limit (%)
	,		с"	Relative Permittivity ( $\varepsilon_r$ ):	40.0	40.9103	2.28	± 5
1900	23	15	13.6359	Conductivity (σ):	1.40	1.4413	2.95	± 5
Liquid Che	ack						2.00	- 0
		≥ <sup>.</sup> 24 0 dec	n C. Liqu	id temperature: 23.0	dea C			
June 05, 2			. 0, шqu		ucy. o			
Frequency	/	e'		e"				
17100000	00.	41.7 <sup>-</sup>	134	13.1445				
17200000	00.	41.68	315	13.1767				
17300000	00.	41.62	260	13.2043				
17400000	00.	41.58	308	13.2257				
17500000	00.	41.53	356	13.2599				
17600000		41.47		13.3018				
17700000		41.43		13.3384				
17800000		41.38		13.3567				
17900000		41.33		13.3860				
18000000		41.30		13.4232				
18100000		41.26		13.4342				
18200000		41.22		13.4620				
18300000		41.17		13.4503				
18400000		41.12		13.4778				
18500000		41.08		13.5148				
18600000		41.03		13.5484				
18700000		41.00		13.5595				
18800000		40.97		13.5801				
18900000		40.93 40.91		13.6114				
19100000		40.9		13.6359 13.6410				
				13.0410				
The condu	ıctivity (σ)	can be giv	en as:					
$\sigma = \omega \varepsilon_{\theta} \mathbf{e}$	"= 2 π f ε	a e"						
where $f =$	= target f *	10°						
<b>E</b> Ø =	= 8.854 * 10	0~12						

Simulating Liquid Dielectric Parameters Check Result @ Head 1900 MHz

Room Ambient Temperature = 24°C; Relative humidity = 34%

S	imulating Liqu	uid		Parameters	Target	Measured	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)			Ũ			( )
1900	23	15	с"	Relative Permittivity ( $\varepsilon_r$ ):	40.0	41.2361	3.09	± 5
1000	20	10	13.5733	Conductivity (o):	1.40	1.4347	2.48	± 5
Liquid Che	eck							
Ambient te	emperatur	e: 24.0 deg	g. C, Liqu	id temperature: 23.0 d	deg. C			
June 06, 2	2005 10:04	1 AM						
Frequency		e'		e"				
17100000		41.9		13.1154				
17200000		41.9		13.1488				
17300000		41.9		13.1888				
17400000		41.8		13.1999				
17500000		41.8		13.2409				
17600000 17700000		41.7 41.7		13.2418 13.2627				
17800000		41.7		13.2784				
17900000		41.6		13.3130				
18000000		41.6		13.3445				
18100000		41.5		13.3776				
18200000		41.4		13.4175				
18300000		41.4		13.4358				
18400000		41.3		13.4726				
18500000		41.3		13.4807				
18600000	00.	41.3	499	13.4891				
18700000	00.	41.3	528	13.4978				
18800000	00.	41.3	287	13.5334				
18900000	00.	41.2	759	13.5515				
<mark>19000000</mark>		41.2		13.5733				
19100000	00.	41.1	880	13.5766				
The condu	uctivity (σ)	can be giv	ven as:					
$\sigma = \omega \varepsilon_{\theta} e$	$= 2\pi fs$	د ۵ <b>۳</b>						
	v							
where $f =$								
<b>€</b> Ø =	= 8.854 * 1	012						

Simulating Liquid Dielectric Parameters Check Result @ Muscle 1900 MHz

Room Ambient Temperature = 22°C; Relative humidity = 34%

S	imulating Liqu			Parameters	Target	Measured	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)			Ŭ			. ,
1900	23	15	с"	Relative Permittivity ( $\varepsilon_r$ ):	53.3	53.7872	0.91	± 5
1000	20	10	14.6749	Conductivity ( $\sigma$ ):	1.52	1.55113	2.05	± 5
Liquid Che	eck							
•		e: 22.0 dec	g. C, Liqu	id temperature: 21.0	deg. C			
June 06, 2	.005 09:30	PM		·	•			
Frequency		e'		e"				
17100000		54.4	147	14.1927				
17200000		54.39		14.2206				
17300000		54.34		14.2527				
17400000		54.32		14.2822				
17500000		54.29		14.3039				
17600000		54.2		14.3321				
17700000		54.22		14.3715				
17800000		54.17		14.3849				
17900000		54.13		14.4116				
18000000		54.09 54.04		14.4418 14.4724				
18100000		54.04 53.98		14.4724				
18300000		53.94		14.5013				
18400000		53.9		14.5432				
18500000		53.88		14.5794				
18600000		53.86		14.5973				
18700000		53.84		14.6180				
18800000		53.83		14.6227				
18900000	00.	53.79		14.6470				
19000000	00.	53.78	372	14.6749				
19100000	00.	53.74	402	14.6951				
The condu	ıctivity (σ)	can be giv	en as:					
$\sigma = \omega \varepsilon_{\theta}$ e	"=2πfε	₀e″						
where $f =$	= target f *	$10^{6}$						
	= 8.854 * 1							
00	5.557 1	~						

Simulating Liquid Dielectric Parameters Check Result @ Head 1900 MHz

Room Ambient Temperature = 22°C; Relative humidity = 34%

S	imulating Liqu	uid		Parameters	Target	Measured	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)		T drameters	raiget	Medodred	Deviation (70)	Ennie (70)
1900	21	15	с"	Relative Permittivity ( $\varepsilon_r$ ):	40.0	40.4662	1.17	± 5
			13.4851	Conductivity ( $\sigma$ ):	1.40	1.4254	1.81	± 5
Liquid Che	eck							
Ambient te	emperatur	e: 24.0 deg	g. C, Liqu	id temperature: 23.0 o	deg. C			
June 07, 2	2005 07:56	6 PM						
Frequency		e'		e"				
17100000		41.20		13.0135				
17200000		41.24		13.0196				
17300000		41.2		13.0509				
17400000		41.18		13.0678				
17500000		41.1		13.0989				
17600000		41.0		13.1468				
17700000		41.0		13.1779				
17800000		40.9		13.2066 13.2349				
17900000 18000000		40.8 40.8		13.2349				
18100000		40.8		13.3017				
18200000		40.8		13.3020				
18300000		40.72		13.3040				
18400000		40.7		13.3334				
18500000		40.6		13.3692				
18600000		40.64		13.3985				
18700000		40.5		13.4251				
18800000		40.5		13.4498				
18900000		40.5		13.4627				
1900000		40.4		13.4851				
19100000	00.	40.42	250	13.4966				
The condu	uctivity (σ)	can be giv	en as:					
$\sigma = \omega \varepsilon_{\theta}$ e	"= 2 π f ε	c₀e″						
where $f =$	= tarøet f *	10 <sup>6</sup>						
	= 8.854 * 1							

Simulating Liquid Dielectric Parameters Check Result @ Muscle 1900 MHz

Room Ambient Temperature = 22°C; Relative humidity = 34%

$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	S	Simulating Liqu	uid		Parameters	Target	Measured	Deviation (%)	Limit (%)	
1900211514.6218Conductivity (σ):1.521.545521.68 $\pm 5$ Liquid CheckAmbient temperature: 22.0 deg. C, Liquid temperature: 21.0 deg. CJune 07, 2005 09:30 PMFrequencye'e''Prequencye''e''171000000.53.733814.1094172000000.53.694714.1515174000000.53.664314.2213176000000.53.622014.3248177000000.53.62214.3248177000000.53.399614.4200181000000.53.294514.410518000000.53.29314.410518000000.53.294514.410518000000.53.294518000000.53.294518000000.53.294518000000.53.198714.58563187000000.53.093714.5826188000000.53.040614.6218191000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \sigma \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$	f (MHz)	Temp. (°C)	Depth (cm)			. a. got	mododiou		2( (70)	
146218Conductivity ( $\sigma$ ):1.521.545521.68 $\pm 5$ Liquid CheckAmbient temperature: 22.0 deg. C, Liquid temperature: 21.0 deg. CJune 07, 2005 09:30 PMFrequencye'e''171000000.53.743514.1094172000000.53.694714.1515174000000.53.694714.1515174000000.53.664314.2213176000000.53.664314.2257177000000.53.502214.3248178000000.53.399614.3859180000000.53.361914.4205182000000.53.289314.4134183000000.53.294514.4105184000000.53.294514.4105186000000.53.247514.5071186000000.53.198714.5663187000000.53.093714.5826188000000.53.068114.590319000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e'''where f = target f^* 10^6$	1900	21	15	с"	Relative Permittivity ( $\varepsilon_r$ ):	53.3	53.0406	-0.49	± 5	
Ambient temperature: 22.0 deg. C, Liquid temperature: 21.0 deg. C June 07, 2005 09:30 PM Frequency e' e" 1710000000. 53.7435 14.1094 1720000000. 53.7338 14.1182 1730000000. 53.6947 14.1515 1740000000. 53.6643 14.2213 1760000000. 53.5643 14.2857 1770000000. 53.5022 14.3248 1780000000. 53.3096 14.3859 180000000. 53.336 14.4200 1810000000. 53.336 14.4200 1810000000. 53.2893 14.4134 1830000000. 53.2893 14.4134 1830000000. 53.2945 14.4105 1840000000. 53.2945 14.4105 1840000000. 53.1433 14.5653 1870000000. 53.1987 14.5563 1870000000. 53.0937 14.5826 189000000. 53.0937 14.5826 189000000. 53.0937 14.5826 189000000. 53.0124 14.6543 The conductivity (o) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^{\delta}$				14.6218	Conductivity ( $\sigma$ ):	1.52	1.54552	1.68	± 5	
June 07, 2005 09:30 PM Frequency e' e" 1710000000. 53.7435 14.1094 1720000000. 53.7338 14.1182 1730000000. 53.6947 14.1515 1740000000. 53.6764 14.1674 1750000000. 53.6643 14.2857 1770000000. 53.5022 14.3248 1780000000. 53.4426 14.3512 1790000000. 53.3996 14.3859 1800000000. 53.33619 14.4200 1810000000. 53.2893 14.4134 1820000000. 53.2893 14.4134 1830000000. 53.2945 14.4105 1840000000. 53.2945 14.4105 1840000000. 53.1343 14.5563 1870000000. 53.1987 14.5563 1880000000. 53.0937 14.5864 1880000000. 53.0937 14.5826 189000000. 53.0937 14.5826 189000000. 53.0124 14.6543 The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$	Liquid Che	eck								
Frequencye'e"171000000053.743514.1094172000000053.733814.1182173000000053.694714.1515174000000053.676414.1674175000000053.622014.2213176000000053.564314.2857177000000053.502214.3248178000000053.399614.385918000000053.361914.4200181000000053.361914.4200181000000053.3294514.410518200000053.247514.507118600000053.198714.556318700000053.198714.565418800000053.093714.582618900000053.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^{\phi}$	Ambient te	emperature	e: 22.0 deg	g. C, Liqu	id temperature: 21.0	deg. C				
171000000.53.743514.10941720000000.53.733814.11821730000000.53.694714.15151740000000.53.676414.16741750000000.53.62014.22131760000000.53.502214.32481770000000.53.361914.48571770000000.53.361914.42001810000000.53.361914.42051820000000.53.289314.41341830000000.53.294514.41051840000000.53.277114.4423186000000.53.277514.5071186000000.53.198714.5663187000000.53.093714.5826189000000.53.008114.5903190000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $f = target f^* 10^6$	June 07, 2	2005 09:30	PM							
171000000.53.743514.10941720000000.53.733814.11821730000000.53.694714.15151740000000.53.676414.16741750000000.53.62014.22131760000000.53.502214.32481770000000.53.361914.48571770000000.53.361914.42001810000000.53.361914.42051820000000.53.289314.41341830000000.53.294514.41051840000000.53.277114.4423186000000.53.277514.5071186000000.53.198714.5663187000000.53.093714.5826189000000.53.008114.5903190000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $f = target f^* 10^6$										
172000000.53.733814.1182173000000.53.694714.1515174000000.53.676414.1674175000000.53.622014.2213176000000.53.502214.32481770000000.53.399614.3512179000000.53.361914.4200181000000.53.333614.4205182000000.53.289314.4134183000000.53.294514.4105184000000.53.294514.5663185000000.53.198714.5663187000000.53.093714.5826189000000.53.093714.5826189000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $= 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0$					-					
173000000.53.694714.1515174000000.53.676414.1674175000000.53.62014.2213176000000.53.564314.2857177000000.53.502214.3248178000000.53.442614.3512179000000.53.399614.3859180000000.53.361914.4200181000000.53.289314.4134183000000.53.294514.4105184000000.53.277114.423185000000.53.198714.5653187000000.53.198714.5654188000000.53.093714.5826189000000.53.093714.6543The conductivity (σ) can be given as: $σ = ωε_{\theta} e^{u} = 2 \pi f ε_{\theta} e^{u}$ where $f = target f^* 10^{\delta}$ $= 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0$										
174000000.53.676414.1674175000000.53.622014.2213176000000.53.564314.28571770000000.53.502214.32481780000000.53.442614.35121790000000.53.399614.3859180000000.53.361914.42001810000000.53.289314.41341830000000.53.294514.4105184000000.53.277114.4423186000000.53.198714.5563187000000.53.093714.5654188000000.53.093714.5826189000000.53.040614.6218191000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^{6}$ $= 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0$										
$175000000$ $53.6220$ $14.2213$ $176000000$ $53.5643$ $14.2857$ $177000000$ $53.5022$ $14.3248$ $178000000$ $53.4426$ $14.3512$ $179000000$ $53.3996$ $14.3859$ $180000000$ $53.3619$ $14.4200$ $181000000$ $53.3336$ $14.4205$ $182000000$ $53.2893$ $14.4134$ $183000000$ $53.2945$ $14.4105$ $184000000$ $53.2771$ $14.4423$ $185000000$ $53.2475$ $14.5071$ $186000000$ $53.1987$ $14.5563$ $187000000$ $53.0937$ $14.5654$ $188000000$ $53.0937$ $14.5826$ $189000000$ $53.0406$ $14.6218$ $191000000$ $53.0124$ $14.6543$ The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $406^{2}$										
$176000000$ $53.5643$ $14.2857$ $177000000$ $53.5022$ $14.3248$ $178000000$ $53.4426$ $14.3512$ $179000000$ $53.3996$ $14.3859$ $180000000$ $53.3619$ $14.4200$ $181000000$ $53.2893$ $14.4134$ $183000000$ $53.2945$ $14.4105$ $184000000$ $53.2771$ $14.4423$ $185000000$ $53.2475$ $14.5071$ $186000000$ $53.1987$ $14.563$ $187000000$ $53.0937$ $14.5654$ $188000000$ $53.0937$ $14.5826$ $189000000$ $53.0406$ $14.6218$ $191000000$ $53.0124$ $14.6543$ The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $4.6218$										
$177000000$ $53.5022$ $14.3248$ $178000000$ $53.4426$ $14.3512$ $179000000$ $53.3996$ $14.3859$ $180000000$ $53.3619$ $14.4200$ $181000000$ $53.336$ $14.4205$ $182000000$ $53.2893$ $14.4134$ $183000000$ $53.2945$ $14.4105$ $184000000$ $53.2771$ $14.4423$ $185000000$ $53.2475$ $14.5071$ $186000000$ $53.1987$ $14.5563$ $187000000$ $53.0937$ $14.5826$ $189000000$ $53.0937$ $14.5826$ $189000000$ $53.0124$ $14.6543$ The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$ $4.6218$										
$178000000.$ $53.4426$ $14.3512$ $179000000.$ $53.3996$ $14.3859$ $180000000.$ $53.3619$ $14.4200$ $181000000.$ $53.2893$ $14.4134$ $182000000.$ $53.2945$ $14.4105$ $184000000.$ $53.2771$ $14.4423$ $185000000.$ $53.2475$ $14.5071$ $186000000.$ $53.1987$ $14.5563$ $187000000.$ $53.0937$ $14.5826$ $189000000.$ $53.0937$ $14.5826$ $189000000.$ $53.0406$ $14.6218$ $191000000.$ $53.0124$ $14.6543$ The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^{6}$ $4^{0}$										
179000000.53.399614.3859180000000.53.361914.4200181000000.53.289314.4134182000000.53.294514.4105184000000.53.277114.4423185000000.53.247514.5071186000000.53.198714.5663187000000.53.093714.5826189000000.53.093714.5826189000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$										
180000000.53.361914.4200181000000.53.333614.4205182000000.53.289314.4134183000000.53.294514.4105184000000.53.277114.4423185000000.53.247514.5071186000000.53.198714.5563187000000.53.093714.5826189000000.53.068114.5903190000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$										
181000000.53.333614.4205182000000.53.289314.4134183000000.53.294514.4105184000000.53.277114.4423185000000.53.247514.5071186000000.53.198714.5563187000000.53.134314.5654188000000.53.093714.5826189000000.53.068114.5903190000000.53.040614.62181910000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^{6}$ $u^{6}$										
182000000.53.289314.4134183000000.53.294514.4105184000000.53.277114.4423185000000.53.247514.5071186000000.53.198714.5563187000000.53.093714.5826188000000.53.068114.5903190000000.53.012414.6543The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$										
183000000.       53.2945       14.4105         184000000.       53.2771       14.4423         185000000.       53.2475       14.5071         186000000.       53.1987       14.5663         187000000.       53.1343       14.5654         188000000.       53.0937       14.5826         189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         191000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e^{\mu} = 2 \pi f \varepsilon_{\theta} e^{\mu}$ where $f = target f^* 10^6$ $f = target f^* 10^6$										
184000000.       53.2771       14.4423         185000000.       53.2475       14.5071         186000000.       53.1987       14.5563         187000000.       53.1343       14.5654         188000000.       53.0937       14.5826         189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         191000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$ $f = target f^* 10^6$										
185000000. $53.2475$ $14.5071$ 186000000. $53.1987$ $14.5563$ 187000000. $53.1343$ $14.5654$ 188000000. $53.0937$ $14.5826$ 189000000. $53.0681$ $14.5903$ 190000000. $53.0406$ $14.6218$ 191000000. $53.0124$ $14.6543$ The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$										
186000000.       53.1987       14.5563         187000000.       53.1343       14.5654         188000000.       53.0937       14.5826         189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         191000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$ $f = target f^* 10^6$										
187000000.       53.1343       14.5654         188000000.       53.0937       14.5826         189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         191000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$										
188000000.       53.0937       14.5826         189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         1910000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e''= 2 \pi f \varepsilon_{\theta} e''$ where $f = target f^* 10^6$ $f = target f^* 10^6$										
189000000.       53.0681       14.5903         190000000.       53.0406       14.6218         1910000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^6$										
190000000.       53.0406       14.6218         1910000000.       53.0124       14.6543         The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^6$										
191000000. 53.0124 14.6543 The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^{6}$										
The conductivity ( $\sigma$ ) can be given as: $\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^{6}$										
$\sigma = \omega \varepsilon_{\theta} e'' = 2 \pi f \varepsilon_{\theta} e''$ where $f = target f * 10^{6}$					17.0040					
where $f = target f * 10^6$	The condu	The conductivity ( $\sigma$ ) can be given as:								
where $f = target f * 10^{6}$ $\epsilon_{0} = 8.854 * 10^{-12}$	$\sigma = \omega \varepsilon_{\theta}$ e	"=2πfε	<i>₀</i> e″							
$\epsilon_0 = 8.854 * 10^{-12}$	where <b>f</b> =	= target f *	$10^{6}$							
v	ε <sub>0</sub> =	= 8.854 * 1	0-12							

Simulating Liquid Parameter Check Result @ Head 2450 MHz Date: 06/08/05

Ambient Temperature = 24°C; Relative humidity = 43%

f (MHz)	imulating Liqu Temp. (°C)	uid Depth (cm)		Parameters	Target	Measured	Deviation (%)	Limit (%)
2450	23	15	с"	Relative Permittivity ( $\varepsilon_r$ ):	39.2	39.2310	0.08	± 5
2430	25	15	13.7468	Conductivity ( $\sigma$ ):	1.80	1.874	4.09	± 5
Ambient te	Liquid Check Ambient temperature: 24.0 deg. C, Liquid temperature: 23.0 deg. C June 09, 2005 12:10 AM							
Frequency	/	e'		e"				
24000000		39.4	378	13.5949				
24100000	00.	39.3	910	13.6271				
24200000	00.	39.3	660	13.6607				
24300000	00.	39.3	082	13.6943				
24400000	00.	39.2	849	13.7242				
<mark>24500000</mark>	00.	39.2	310	13.7468				
24600000	00.	39.2	046	13.7743				
24700000	00.	39.1	425	13.8047				
24800000	00.	39.1	175	13.8315				
24900000		39.0	713	13.8685				
25000000	00.	39.0	223	13.9139				
The condu	ıctivity (σ)	can be giv	en as:					
$\sigma = \omega \varepsilon_{\theta}$ e	"=2πfε	<i>:</i> ₀e″						
where <b>f</b> = <b>E</b> 0 =	= target f * = 8.854 * 1							

Simulating Liquid Dielectric Parameter Check Result @ Muscle 2450 MHz

Room Ambient Temperature =24°C; Relative humidity = 45%

S	imulating Liqu	uid		Parameters	Target	Measured	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)			- 0			- ( /
2450	23	15	e"	Relative Permittivity (e'):	52.7	51.7005	-1.90	± 5
			13.8239	Conductivity ( $\sigma$ ):	1.95	1.88415	-3.38	± 5
Liquid Check Ambient temperature: 24.0 deg. C, Liquid temperature: 23.0 deg. C June 09, 2005 11:41 AM								
Frequency	,	e'		e"				
24000000		51.88	399	13.6517				
24100000	00.	51.87	740	13.6558				
24200000	00.	51.86	654	13.6882				
24300000	00.	51.80	001	13.7482				
24400000		51.74		13.7719				
24500000	00.	51.70	005	13.8239				
24600000	00.	51.67	794	13.8561				
24700000	00.	51.66	656	13.9509				
24800000	00.	51.62	273	14.0253				
24900000	00.	51.58	500	14.0799				
25000000	00.	51.52	234	14.0882				
The conductivity ( $\sigma$ ) can be given as:								
$\sigma = \omega \varepsilon_{\theta}  \mathbf{e}$	"=2πfε	₀e″						
where $f =$								
<b>E</b> Ø =	= 8.854 * 10	J''						

# 8 SYSTEM PERFORMANCE CHECK

The system performance check is performed prior to any usage of the system in order to guarantee reproducible results. The system performance check verifies that the system operates within its specifications of  $\pm 10\%$ .

# System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the SAM twin phantom filled with Head simulating liquid of the following parameters.
- The DASY4 system with an Isotropic E-Field Probe EX3DV3-SN: 3552 was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and f 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
- Special  $5 \times 5 \times 7$  fine cube was chosen for cube integration(dx=dy=7.5mm; dz=5mm).
- Distance between probe sensors and phantom surface was set to 2.5 (below 3 G) mm.
- The dipole input power (forward power) was 250 mW±3%.
- The results are normalized to 1 W input power.

# Reference SAR Values

IEEE Standard 1528 Recommended Reference Value

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

# 8.1 SYSTEM PERFORMANCE CHECK RESULT FOR 835 MHZ

# @ System Validation Dipole: D835V2 SN:4d002

Date: June 1, 2005

Ambient Temperature = 24°C; Relative humidity = 40%

Head Simulating Liquid			Mrasured		Target_1g	Deviation[%]	Limit [%]
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W			LIIIIIL [70]
835	23	15	2.42	9.68	9.5	1.89	± 10

Date: June 2, 2005

Ambient Temperature = 24°C; Relative humidity = 40%

#### Head Simulating Liquid Mrasured Target\_1g Deviation[%] Limit [%] f (MHz) Temp. [°C] Depth [cm] Normalized to 1 W 1 g 835 2.49 9.96 9.5 4.84 23 15 ± 10

Date: June 3, 2005

Ambient Temperature = 24°C; Relative humidity = 42%

Head Simulating Liquid				Mrasured		Deviation[%]	Limit [%]
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W			Limit [%]
835	23	15	2.54	10.16	9.5	6.95	± 10

Date: June 4, 2005

Ambient Temperature = 24°C; Relative humidity = 40%

# Measured by: Sunny Shih

Head	d Simulating	Liquid	I	Mrasured	Target .	Deviation[%]	Limit [%]
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W			
835	23	15	2.47	9.88	9.5	4.00	± 10

# 8.2 SYSTEM PERFORMANCE CHECK RESULT FOR 1900 MHZ

# @ System Validation Dipole: D1900V2 SN:5d043

Date: June 5, 2005

Ambient Temperature = 24°C; Relative humidity = 36%

# Measured by: Sunny Shih

Hea	d Simulating	Liquid	l	Mrasured	Target	Deviation[%]	Limit [%]
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W	rarget_1g		LIIIIII [%]
1900	23	15	10	40	39.7	0.76	± 10

# Date: June 6, 2005

Ambient Temperature = 24°C; Relative humidity = 35%

# Measured by: Sunny Shih

	Head	I Sim ulating	Liquid		Mrasured	Target .	Deviation[%]	Limit [%]
	f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W			LIIIIIL [70]
ſ	1900	23	10	9.67	38.68	39.7	-2.57	± 10

- <u>-</u>

Measured by: Sunny Shih

Measured by: Sunny Shih

# Date: June 7, 2005

Ambient Temperature = 24°C; Relative humidity = 34%

Measured by: James Lee

Head	I Sim ulating	Liquid		Mrasured		Deviation[%]	Limit [%]
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W		Deviation[%]	Linin [70]
1900	23	15	9.48	37.92	39.7	-4.48	± 10

# 8.3 SYSTEM PERFORMANCE CHECK RESULT FOR 2450 MHZ

# @ System Validation Dipole: D2450V2 SN: 748

Date: June 9, 2005

Ambient Temperature =  $24^{\circ}$ C, Relative humidity = 45%

Body	/ Sim ulating	Liquid	Mrasured		Target	Doviation[%]	Limit [%]	
f(MHz)	Temp.[°C]	Depth [cm]	1 g	Normalized to 1 W		Deviation[%]	LIIIIIL [%]	
2450	23	15	12.6	50.4	52.4	-3.82	± 10	

# 9 SAR MEASUREMENT PROCEDURE

A summary of the procedure follows:

- a) A measurement of the SAR value at a fixed location is used as a reference value for assessing the power drop of the EUT. The SAR at this point is measured at the start of the test, and then again at the end of the test.
- b) The SAR distribution at the exposed flat section of the flat phantom is measured at a distance of 2.5 mm from the inner surface of the shell. The area covers the entire dimension of the EUT and the horizontal grid spacing is 15 mm x 15 mm. Based on this data, the area of the maximum absorption is determined by Spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.
- c) Around this point, a volume of X=Y=Z=30 mm is assessed by measuring 5 x 5 x 7 mm points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:
  - (i) The data at the surface are extrapolated, since the centre of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation is based on a least square algorithm. A polynomial of the fourth order is calculated through the points in z-axes. This polynomial is then used to evaluate the points between the surface and the probe tip.
  - (ii) The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g and 10 g) are computed using the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"- condition (in x, y and z-direction). The volume is integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) are interpolated to calculate the averages.
  - (iii) All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.
  - (iv) The SAR value at the same location as in Step (a) is again measured to evaluate the actual power drift.

# DASY4 SAR MEASUREMENT PROCEDURE

# **Step 1: Power Reference Measurement**

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties (for example, 1.2 mm for an EX3DV3 probe type).

# Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY4 software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

# Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures  $5 \times 5 \times 7$  points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

# Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

# Step 5: Z-Scan

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a onedimensional grid. In order to get a reasonable extrapolation, the extrapolated distance should not be larger than the step size in Z-direction.

# 10 PROCEDURES USED TO ESTABLISH TEST SIGNAL

The following settings were used to configure the Radio Communication Tester, R&S model CMU 200.

# GSM850

Network Support: GSM only Main Service: Circuit Switched Power Setting: PCL: 5 (33 dBm) - for GSM850 **GPRS/EGPRS mode** Service Selection: Test Mode A Main Service: Packet Data Network Support: GSM+GPRS (Power setting: 33 dBm) Network Support: GSM+EGPRS (Power setting: 27 dBm) Slot configurations: 2 slots (3 Dn/2 up/ 5 Sum)

Conducted power measured result

Ch. #	f (M山云)	Average Conducted Power (dBm)				
	f (MHz)	GSM	GPRS	EGPRS		
128	824.2	32.1	32.0	26.6		
190			31.9	26.5		
251	848.8	32.0	31.9	26.5		

# GSM1900

Network Support: GSM only Main Service: Circuit Switched Power Setting: PCL: 0 (30 dBm) **GPRS/EGPRS mode** Service Selection: Test Mode A Main Service: Packet Data Network Support: GSM+GPRS (Power setting: 30 dBm) Network Support: GSM+EGPRS (Power setting: 26 dBm) Slot configurations: 2 slots (3 Dn/2 up/ 5 Sum)

# Conducted power measured result

Ch. #	f (MHz)	Average Conducted Power (dBm)				
011. #	( (IVII 12)	GSM	GPRS	EGPRS		
512	512 1850.2		29.2	26.3		
661	661 1880.0		29.0	26.2		
810	1909.8	28.9	28.9	26.1		

# 11 THE HIGHEST SAR VALUES FOR GSM850

The highest reported SAR values are: **Part 22H** - Head: 0.233 W/kg; Body-worn: 1.192 W/kg The highest reported **collocated** SAR values are Head: 0.278 W/kg and body: 1.272 W/kg.

						SAR_1	g (mW/g)
Test Position	Model	Modulation	Test Mode	Ch. #	f (MHz)	Measured	Summation
		GSM850	GSM only	128	824.20	0.212	
Right Head - Touch	WIZA100	WiFi	802.11b	6	2437	0.039	0.251
		Bluetooth		78	2480	0.000	
		GSM850	GSM only	128	824.20	0.233	
Right Head - Touch	WIZA110	WiFi	802.11b	6	2437	0.044	0.277
		Bluetooth		78	2480	0.000	
		GSM850	GSM only	251	848.80	0.203	
Left Head - Touch	WIZA200	WiFi	802.11b	6	2437	0.075	0.278
		Bluetooth		78	2480	0.000	
		GSM850	GPRS	128	824.20	1.086	
Body	WIZA100	WiFi	802.11b	6	2437	0.046	1.132
		Bluetooth		78	2480	0.000	
		GSM850	GPRS	128	824.20	1.050	
Body	WIZA110	WiFi	802.11b	6	2437	0.062	1.112
		Bluetooth		78	2480	0.000	
		GSM850	GPRS	128	824.20	1.192	
Body	WIZA200	WiFi	802.11b	6	2437	0.080	1.272
		Bluetooth		78	2480	0.000	

# 12 THE HIGHEST SAR VALUES FOR GSM1900

The highest reported SAR values are: **Part 24E** - Head: 0.184 W/kg; Body-worn: 0.793 W/kg The highest reported **collocated** SAR values are Head: 0.263 W/kg and body: 0.854 W/kg.

						SAR_1	g (mW/g)
Test Position	Model	Modulation	Test Mode	Ch. #	f (MHz)	Measured	Summation
		GSM1900	GSM only	512	1850.20	0.180	
Left Head - Tilt	WIZA100	WiFi	802.11b	6	2437	0.038	0.218
		Bluetooth		78	2480	0.000	
		GSM1900	GSM only	512	1850.20	0.167	
Left Head - Tilt	WIZA110	WiFi	802.11b	6	2437	0.041	0.208
		Bluetooth		78	2480	0.000	
		GSM1900	GSM only	512	1850.20	0.184	
Right Head - Tilt	WIZA200	WiFi	802.11b	6	2437	0.079	0.263
		Bluetooth		78	2480	0.000	
		GSM1900	GPRS	810	1909.80	0.793	
Body	WIZA100	WiFi	802.11b	6	2437	0.046	0.839
		Bluetooth		78	2480	0.000	
		GSM1900	GPRS	512	1850.20	0.591	
Body	WIZA110	WiFi	802.11b	6	2437	0.062	0.653
		Bluetooth		78	2480	0.000	
		GSM1900	GPRS	512	1850.20	0.774	
Body	WIZA200	WiFi	802.11b	6	2437	0.080	0.854
		Bluetooth		78	2480	0.000	

## 13 THE HIGHEST SAR VALUES FOR WLAN (WIFI)

The highest reported SAR values are: Part 15 - WLAN head: 0.079 W/kg and body: 0.08 W/kg.

Test Position	Model	Mode	Channel	f (MHz)	SAR_1g (mW/g)
Right Head - Tilt	WIZA100	802.11b	6	2437	0.043
Right Head - Tilt	WIZA110	802.11b	6	2437	0.048
Right Head - Tilt	WIZA200	802.11b	6	2437	0.079
Body	WIZA100	802.11b	6	2437	0.046
Body	WIZA110	802.11b	6	2437	0.062
Body	WIZA200	802.11b	6	2437	0.080

## 14 SAR MEASUREMENT RESULT (GSM835)

#### 14.1 Left Hand Side for model WIZA100

	Touch Posit	tion		Tilt (	(15°) Position	
lote: Setup p	ohotos on th	is page have	e been extra	icted under s	eparate doo	cument.
CSM850 (Aut		()				
G310000 (aut	ty cycle:12.5%	<i>)</i> /				
Test Position	Channel	ĺ	Measured	Power Drift (dBm)	Extrapolated	Limit (mW/g)
		f (MHz) 824.2	Measured 1g (mW/g)		Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 128 190 151	f (MHz) 824.2 836.6 848.8	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Tilt	Channel 128 190 151 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.196	(dBm) -0.058	1g (mW/g) 0.199	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 14.1.1 Left Hand Side for model WIZA100 with keypad open

	Touch Posi	tion		Tilt (	(15°) Position	
ote: Setup p	hotos on th	is page have	e been extra	cted under s	separate doc	cument.
GSM850 (dut	y cycle:12.5%	6)				
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	128	824.2	3( 3/		3( 3/	
Touch	190	836.6	0.107	-0.086	0.109	1.6
Touch	151	848.8				
Tilt	128	824.2				
Tilt	190	836.6	0.095	-0.050	0.096	1.6
Tilt	151	848.8				
otes: 1) The exact			ed SAR x 10 ^ (-dri rement system can	,		

# 14.1.2 Right Hand Side for model WIZA100

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setu	ip photos or	n this page h	nave been ex	tracted und	er separate	document.
GSM850 (dut	y cycle: 12.5%	%)				
			Measured	Power Drift	Extrapolated	l imit (mW/a)
	y cycle: 12.5% Channel 128	6) f (MHz) 824.2	Measured 1g (mW/g) 0.212	(dBm)	Extrapolated 1g (mW/g) 0.212	Limit (mW/g)
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm) 0.000	1g (mW/g)	
Test Position Touch Touch	Channel 128	f (MHz) 824.2	1g (mW/g) 0.212	(dBm)	1g (mW/g) 0.212	1.6
Test Position Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g) 0.212 0.204	(dBm) 0.000 -0.038	1g (mW/g) 0.212 0.206	1.6 1.6
Test Position Touch Touch Touch	Channel 128 190 251	f (MHz) 824.2 836.6 848.8	1g (mW/g) 0.212 0.204	(dBm) 0.000 -0.038	1g (mW/g) 0.212 0.206	1.6 1.6

# 14.1.3 Right Hand Side for model WIZA100 with keypad open

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setu	ıp photos or	n this page h	nave been ex	tracted und	er separate	document.
GSM850 (dut	y cycle: 12.5%	<b>%</b> )	Magaurad	Dowor Drift		
			Measured	Power Drift	Extrapolated	Limit (mW/a)
	y cycle: 12.5% Channel 128	6) f (MHz) 824.2	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel	f (MHz) 824.2 836.6				Limit (mW/g)
Test Position Touch	Channel 128 190	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 128 190 251	f (MHz) 824.2 836.6 848.8	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Tilt	Channel 128 190 251 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.122	(dBm) -0.175	1g (mW/g) 0.127	1.6

#### 14.1.4 Body Worn 1 – for model WIZA100

			•			
lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
		1.0				
GSM850 GSM o	only (duty cy	(cle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2		()		
18 w/Holster	190	836.6	0.240	-0.101	0.246	1.6
 18_w/Holster	151	848.8				
GSM850 GSM+	GPRS (dutv	cvcle: 25%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2	<u> </u>		0, 0,	( 0,
18 w/Holster	190	836.6	0.443	-0.141	0.458	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	EGPRS (dut	v cvcle: 25%)				
Separation.	,	<i>,</i>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2				
18 w/Holster	190	836.6	0.129	-0.213	0.135	1.6
18 w/Holster	151	848.8				-
lotes:						
	od of extrapolat	ion is <i>measured</i> S	AR x 10^(-drift/10)	). The SAR report	ed at the end of th	e measurement
			be scaled up by t			
beginning of the						
<ol><li>The SAR measurement</li></ol>	ured at the midd	lle channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & high

2) The SAK measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & his channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 14.1.5 Body Worn 2 – for model WIZA100

			·			
Note: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
• •		1 0			•	
00M050 00M -		(ala : 40 50/)				
GSM850 GSM o Separation.	only (duty cy	/CIE: 12.5%)	Measured	Power Drift	Extrapolated	
	Channel	f (N /IL I)			•	$1$ implify $(m_1)\Lambda/(m_2)$
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2	0.510		0.550	
18_w/Holster	190	836.6	0.546	-0.093	0.558	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	GPRS (duty	cycle: 25%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2	1.04	-0.189	1.086	1.6
18 w/Holster	190	836.6	1.03	-0.187	1.075	1.6
18 w/Holster	151	848.8	0.98	-0.022	0.985	1.6
GSM850 GSM+	EGPRS (dut					
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2	ig (in Wg)	(abiii)	ig (in vig)	Linit (in Wg)
18 w/Holster	120	836.6	0.162	-0.014	0.163	1.6
18 w/Holster	151	848.8	0.102	-0.014	0.105	1.0
—	101	040.0				
lotes:	ad of ovtranalat	ion in monourod S	A D x 100/ drift/10)	The SAD report	ad at the and of th	o mooouromont
			AR x 10^(-drift/10) be scaled up by tl			
beginning of the				ie measureu utili		
			configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hia
channel is optio			5			- 0

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 14.2 Left Hand Side for WIZA110

	Touch Posit	lion		Tilt (	(15°) Position	
lote: Setup p	bhotos on th	is page have	e been extra	acted under s	separate doc	cument.
CSM950 /du		2				
G310000 (aut	y cycle:12.5%	9/				
			Measured	Power Drift	Extrapolated	Limit (mW/a)
Test Position Touch	Channel	y f (MHz) 824.2	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 128 190 151	f (MHz) 824.2 836.6 848.8	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Tilt	Channel 128 190 151 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.207	(dBm) -0.195	1g (mW/g) 0.217	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 14.2.1 Left Hand Side for model WIZA110 with keypad open

	Touch Positi	ion		Tilt (	15°) Position	
lote: Setu	o photos on	this page I	nave been ex	tracted und	er separate	document.
M850 (duty	v cycle:12.5%	)				
st Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	128	824.2	.9(9)	(02)		
Touch	190	836.6	0.113	-0.078	0.115	1.6
	251	848.8				
Touch	100	824.2				
Touch Tilt	128			0.040	0.100	
	128	836.6	0.099	-0.042	0.100	1.6
	-			0.040	0.400	

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 3)

4)

## 14.2.2 Right Hand Side for model WIZA110

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setu	ıp photos or	n this page h	nave been ex	tracted und	er separate	document.
COMOSO (dut	v ovolo : 12 50	/)				
GSM850 (duty	y cycle: 12.5%	<b>%</b> )	Measured	Power Drift	Extrapolated	
GSM850 (duty	<mark>y cycle: 12.5</mark> % Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated	Limit (mW/g)
		-			•	Limit (mW/g) 1.6
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	( <b>)</b>
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g) 0.232	(dBm) -0.014	1g (mW/g) 0.233	1.6
Test Position Touch Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g) 0.232 0.231	(dBm) -0.014 -0.017	1g (mW/g) 0.233 0.232	1.6 1.6
Test Position Touch Touch Touch	Channel 128 190 251	f (MHz) 824.2 836.6 848.8	1g (mW/g) 0.232 0.231	(dBm) -0.014 -0.017	1g (mW/g) 0.233 0.232	1.6 1.6
Test Position Touch Touch Touch Tilt	Channel 128 190 251 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.232 0.231 0.228	(dBm) -0.014 -0.017 -0.005	1g (mW/g) 0.233 0.232 0.228	1.6 1.6 1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 14.2.3 Right Hand Side for model WIZA110 with keypad open

hotos on t	his page h	nave been ex	tracted und	er separate	document.
cle: 12.5%)					
Channel	f (MHz)			•	Limit (mW/g)
128			(02)		
190	-	0.140	-0.044	0.141	1.6
251	848.8				
128	824.2				
	836.6	0.142	-0.019	0.143	1.6
190	000.0				
	190 251	Channel         f (MHz)           128         824.2           190         836.6           251         848.8	Measured           f (MHz)         1g (mW/g)           128         824.2           190         836.6         0.140           251         848.8	Measured         Power Drift           128         824.2         (dBm)           190         836.6         0.140         -0.044           251         848.8	Measured         Power Drift         Extrapolated           Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)           128         824.2         -         -           190         836.6         0.140         -0.044         0.141           251         848.8         -         -         -

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 3)

4)

#### 14.2.4 Body Worn 1 – for model WIZA110

			4			
Note: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doo	ument.
		e page nare			oparato dec	
GSM850 GSM o	only (duty cy	/cle: 12.5%)				
Separation.		,	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.228	-0.083	0.232	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	GPRS (duty	cycle: 25%)				
Separation.		<b>,</b>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.437	-0.109	0.448	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	EGPRS (dut	v cvcle: 25%)		•	•	
Separation.		<b>,</b> . <b>,</b>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2			<u> </u>	( ),
18 w/Holster	190	836.6	0.076	-0.108	0.078	1.6
 18_w/Holster	151	848.8				
lotes:						
			AR x 10^(-drift/10)			
			be scaled up by t	he measured drift	to determine the S	SAR at the
beginning of the			and much and in the			
<ol><li>The SAR measurement</li></ol>	ured at the midd	ie channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig!

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & hig channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 14.2.5 Body Worn 2 – for model WIZA110

			ł			
Note: Setup pho	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
		1 0			•	
00M050 00M -		(ala: 40 50/)				
GSM850 GSM o	niy (auty cy	/CIE: 12.5%)	Mana a surra al	David Daift		
Separation.		<b>5 (1) (1)</b> (1)	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.535	-0.064	0.543	1.6
18_w/Holster	151	848.8				
GSM850 GSM+C	GPRS (duty	cycle: 25%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2	1.02	-0.125	1.050	1.6
18 w/Holster	190	836.6	0.976	0.000	0.976	1.6
18 w/Holster	151	848.8	0.937	-0.026	0.943	1.6
GSM850 GSM+E						
Separation.		y cycle. 25 /6)	Measured	Power Drift	Extrapolated	
	Channel	£ / N /II   )			•	$1 \text{ im it } (m) \Lambda / (n)$
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2	0.1.10		0.4.4.0	
18_w/Holster	190	836.6	0.142	-0.014	0.142	1.6
18_w/Holster	151	848.8				
lotes:				-		
			AR x 10^(-drift/10)			
beginning of the			be scaled up by the	ne measured drift	to determine the S	AR at the
<ol><li>The SAR measu</li></ol>	ured at the midd	le channel for this	configuration is a	t least 3 dB lower	than SAR limit tee	ting at low & high

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 14.3 Left Hand Side for model WIZA200

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setup p	photos on th	is page have	e been extra	cted under s	separate doc	cument.
GSM850 (dut	y cycle:12.5%	5)	Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	128	824.2	0.195	-0.014	0.196	1.6
Touch	190	836.6	0.189	-0.116	0.194	1.6
Touch	251	848.8	0.203	-0.010	0.203	1.6
Tilt	128	824.2				
Tilt	190	836.6	0.186	-0.010	0.186	1.6
Tilt	151	848.8				
process by the beginning of	e DASY4 measur the measurement asured at the mide	ement system car process.	be scaled up by	0). The SAR repo the measured drift at least 3 dB lower	to determine the S	

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 14.3.1 Left Hand Side for model WIZA200 with keypad open

	Touch Posi	tion		Tilt (	(15°) Position	
lote: Setup	photos on th	is page hav	e been extra	cted under s	separate doc	ument.
GSM850 (du	ty cycle: 12.5%	%)				
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	128	824.2				
Touch	190	836.6	0.111	-0.055	0.112	1.6
Touch	251	848.8				
Tilt	128	824.2				
Tilt	190	836.6	0.128	-0.085	0.131	1.6
		848.8				
Tilt	151	040.0				

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 14.3.2 Right Hand Side for model WIZA200

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setu	p photos or	n this page l	have been ex	tracted und	er separate	document.
SM850 (duty	, cycle: 12.5%	(a)				
GSM850 (duty	/ cycle: 12.5%	6)	Measured	Power Drift	Extrapolated	
	<mark>/ cycle: 12.5</mark> % Channel	6) f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
						Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 128 190 251	f (MHz) 824.2 836.6 848.8	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Tilt	Channel 128 190 251 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.178	(dBm)	1g (mW/g) 0.178	1.6
Test Position Touch Touch Touch Tilt Tilt	Channel           128           190           251           128           190	f (MHz) 824.2 836.6 848.8 824.2 836.6	1g (mW/g) 0.178	(dBm)	1g (mW/g) 0.178	1.6
Test Position Touch Touch Touch Tilt Tilt Tilt Tilt es:	Channel           128           190           251           128           190           151	f (MHz) 824.2 836.6 848.8 824.2 836.6 848.8	1g (mW/g) 0.178	(dBm) 0.000 -0.070	1g (mW/g) 0.178 0.167	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 14.3.3 Right Hand Side for model WIZA200 with keypad open

	Touch Posit	tion		Tilt (	(15°) Position		
Note: Setup photos on this page have been extracted under separate document.							
GSM850 (dut	y cycle: 12.5%	<i>(</i> <sub>0</sub> )	Moasurod	Power Drift	Extranolated		
GSM850 (dut	<b>y cycle: 12.5</b> % Channel		Measured	Power Drift (dBm)	Extrapolated	Limit (mW/q)	
		6) f (MHz) 824.2	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)	
Test Position	Channel	f (MHz)				Limit (mW/g)	
Test Position Touch	Channel 128	f (MHz) 824.2	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch	Channel 128 190	f (MHz) 824.2 836.6	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch Touch	Channel 128 190 251	f (MHz) 824.2 836.6 848.8	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch Touch Tilt	Channel 128 190 251 128	f (MHz) 824.2 836.6 848.8 824.2	1g (mW/g) 0.135	(dBm) -0.158	1g (mW/g) 0.140	1.6	

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 14.3.4 Body Worn 1 – for model WIZA200

			•			
lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
GSM850 GSM o	only (duty cy	/cle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.228	-0.127	0.235	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	GPRS (duty	cycle: 25%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.426	-0.204	0.446	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	EGPRS (dut	v cvcle: 25%)		•	•	
Separation.		<b></b>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2		()		
18 w/Holster	190	836.6	0.143	-0.143	0.148	1.6
18 w/Holster	151	848.8				
lotes:	-					
	od of extrapolat	ion is <i>measured</i> S	AR x 10^(-drift/10)	). The SAR report	ed at the end of th	e measurement
process by the	DASY4 measure	ement system can				
beginning of the						
<ol><li>The SAR measure</li></ol>	ured at the midd	lle channel for this	configuration is a	t least 3 dB lower	than SAR limit, tee	sting at low & high

channel is optional.The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 14.3.5 Body Worn 2 – for model WIZA200

			•			
Note: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
					-	
GSM850 GSM o	only (duty cy	/cle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	128	824.2				
18_w/Holster	190	836.6	0.611	-0.029	0.615	1.6
18_w/Holster	151	848.8				
GSM850 GSM+	GPRS (duty	cycle: 25%)				
Separation.	. , ,	<u> </u>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2	1.14	-0.193	1.192	1.6
18 w/Holster	190	836.6	1.14	-0.037	1.150	1.6
18_w/Holster	151	848.8	1.13	-0.013	1.133	1.6
GSM850 GSM+	EGPRS (dut	v cvcle: 25%)			•	
Separation.		<b></b>	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	128	824.2	19 (111.9)	(dBiii)	· g (	(,g)
18 w/Holster	190	836.6	0.253	-0.202	0.265	1.6
18 w/Holster	150	848.8	0.200	0.202	0.200	1.0
lotes:	101	0+0.0				
	od of extranolat	ion is measured S	A R v 10^(_drift/10	The SAR report	ed at the end of th	e measurement
					to determine the S	
beginning of the			se source up by t			
0 0		•	configuration is a	t least 3 dB lower	than SAR limit tes	ting at low & hig

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 15 SAR MEASUREMENT RESULT (GSM1900)

#### 15.1 Left Hand Side for model WIZA100

	Touch Posit	tion		Tilt (	(15°) Position	
ote: Setup p	photos on th	is page have	e been extra	cted under s	separate doo	cument.
					•	
GSM1900 (dı	ity cycle:12.5	%)				
GSM1900 (dı	ıty cycle:12.5	%)	Measured	Power Drift	Extrapolated	
	<b>ity cycle:12.5</b> Channel	<b>%)</b> f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
						Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 512	f (MHz) 1850.20	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 512 661	f (MHz) 1850.20 1880.00	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 512 661 810	f (MHz) 1850.20 1880.00 1909.80	1g (mW/g) 0.147	(dBm) -0.161	1g (mW/g) 0.153	1.6
Test Position Touch Touch Touch Tilt	Channel 512 661 810 512	f (MHz) 1850.20 1880.00 1909.80 1850.20	1g (mW/g) 0.147 0.180	(dBm) -0.161 0.000	1g (mW/g) 0.153 0.180	1.6
Test Position Touch Touch Touch Tilt Tilt Tilt Tilt otes:	Channel           512           661           810           512           661           810           512           661           810	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00 1909.80	1g (mW/g) 0.147 0.180 0.159 0.164	(dBm) -0.161 0.000 -0.087 -0.088	1g (mW/g) 0.153 0.180 0.162 0.167	1.6 1.6 1.6 1.6
Test Position Touch Touch Touch Tilt Tilt Tilt Tilt otes:	Channel 512 661 810 512 661 810 ethod of extrapola	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00 1909.80 tion is <i>measured</i> S	1g (mW/g) 0.147 0.180 0.159 0.164 SAR x 10 ^ (-drift/1	(dBm) -0.161 0.000 -0.087 -0.088 0). The SAR repo	1g (mW/g) 0.153 0.180 0.162 0.167 rted at the end of	1.6 1.6 1.6 1.6 the measuremen
Test Position Touch Touch Touch Tilt Tilt Tilt Tilt otes: 1) The exact me process by th	Channel 512 661 810 512 661 810 ethod of extrapola	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00 1909.80 tion is <i>measured</i> S rement system car	1g (mW/g) 0.147 0.180 0.159 0.164 SAR x 10 ^ (-drift/1	(dBm) -0.161 0.000 -0.087 -0.088	1g (mW/g) 0.153 0.180 0.162 0.167 rted at the end of	1.6 1.6 1.6 1.6 the measuremen

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 3)

4)

# 15.1.1 Left Hand Side for model WIZA100 with keypad open

	Touch Posi	tion		Tilt (	(15°) Position	
ote: Setup p	photos on th	is page have	e been extra	cted under s	eparate doc	cument.
GSM1900 (du	ty cycle:12.5	%)				
		f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position						
	Channel 512	· · · ·	ig (in wy)	(ubiii)	ig (in thg)	Linnt (mvv/g)
Touch	512	1850.20				
Touch Touch	512 661	1850.20 1880.00	0.033	-0.125	0.034	1.6
Touch Touch Touch	512 661 810	1850.20 1880.00 1909.80				
Touch Touch	512 661	1850.20 1880.00				
Touch Touch Tilt	512 661 810 512	1850.20 1880.00 1909.80 1850.20	0.033	-0.125	0.034	1.6

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 3) 4)

## 15.1.2 Right Hand Side for model WIZA100

	Touch Posit	tion		Tilt (	15°) Position	
Note: Setu	ıp photos or	n this page h	ave been ex	tracted und	er separate (	document.
GSM1900 (dı	ity cycle:12.5	%)	Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Test Position Touch	Channel 512	f (MHz) 1850.20	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
		,	1g (mW/g) 0.098	(dBm) -0.064	1g (mW/g) 0.099	Limit (mW/g) 1.6
Touch	512	1850.20				
Touch Touch	512 661	1850.20 1880.00				
Touch Touch Touch	512 661 810	1850.20 1880.00 1909.80				
Touch Touch Tilt	512 661 810 512	1850.20 1880.00 1909.80 1850.20	0.098	-0.064	0.099	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 15.1.3 Right Hand Side for model WIZA100 with keypad open

	Touch Posi	tion		Tilt (	(15°) Position	
Note: Setu	p photos or	n this page h	ave been ex	tracted und	er separate	document.
		r ano pago n			or ooperato	
GSM1900 (du	ty cycle:12.5	5%)				
GSM1900 (du			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
						Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 512	f (MHz) 1850.20	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 512 661	f (MHz) 1850.20 1880.00	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g) 1.6
Test Position Touch Touch Touch	Channel 512 661 810	f (MHz) 1850.20 1880.00 1909.80	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Touch Tilt	Channel 512 661 810 512	f (MHz) 1850.20 1880.00 1909.80 1850.20	1g (mW/g) 0.024	(dBm) -0.091	1g (mW/g) 0.025	1.6
Test Position Touch Touch Touch Tilt Tilt Tilt	Channel 512 661 810 512 661	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00	1g (mW/g) 0.024	(dBm) -0.091	1g (mW/g) 0.025	1.6
Test Position Touch Touch Touch Tilt Tilt Tilt Tilt Tilt Tilt 1) The exact	Channel 512 661 810 512 661 810 method of extrap	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00 1909.80 polation is measure	1g (mW/g) 0.024 0.026 ed SAR x 10^ (-drin	(dBm) -0.091 -0.161 ft/10). The SAR re	1g (mW/g) 0.025 0.027 eported at the end	1.6 1.6 of the
Test Position Touch Touch Touch Tilt Tilt Tilt es: 1) The exact measuren	Channel 512 661 810 512 661 810 method of extrap	f (MHz) 1850.20 1880.00 1909.80 1850.20 1880.00 1909.80	1g (mW/g) 0.024 0.026 ed SAR x 10^ (-drin rement system car	(dBm) -0.091 -0.161 ft/10). The SAR re	1g (mW/g) 0.025 0.027 eported at the end	1.6 1.6 of the

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. 3) 4)

#### 15.1.4 Body Worn 1 – for model WIZA100

			•			
lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
GSM1900 GSM	only (duty o	cycle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	512	1850.20				
18 w/Holster	661	1880.00	0.067	-0.102	0.069	1.6
 18_w/Holster	810	1909.80				
GSM1900 GSM-	+GPRS (dut	y cycle: 25%)				
Separation.		<b>,</b> , , , , , , , , , , , , , , , , , ,	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	512	1850.20	.9(9)	(0.2)	.9(9)	
18 w/Holster	661	1880.00	0.127	-0.047	0.128	1.6
18 w/Holster	810	1909.80	0.127	0.011	0.120	1.0
		utv cvcle: 25%	 ລ		•	
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20	ig (in thg)	(dBiii)	ig (ming)	Ennie (niewig)
18 w/Holster	661	1880.00	0.024	-0.19	0.025	1.6
18 w/Holster	810	1909.80	0.024	-0.19	0.025	1.0
-	810	1909.80				
otes:						
			AR x 10 <sup>(</sup> -drift/10)			
beginning of the			be scaled up by t	ne measureu dritt		AR al line
			<b>c</b>	t least 3 dB lower		

channel is optional.The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 15.1.5 Body Worn 2 – for model WIZA100

lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
		e page nare				
GSM1900 GSM	only (duty (	Svelo: 12 5%)				
Separation.		Sycie: 12.376	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20	ig (in vig)	(ubiii)	ig (in vig)	1.6
18_w/Holster	661	1880.00	0.423	-0.044	0.427	1.6
18 w/Holster	810	1909.80	0.120	0.011	0.127	1.6
GSM1900 GSM+						
Separation.		<b>y cycle</b> : <b>20</b> /0)	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20	0.762	-0.025	0.766	1.6
18_w/Holster	661	1880.00	0.766	-0.082	0.781	1.6
18_w/Holster	810	1909.80	0.788	-0.027	0.793	1.6
GSM1900 GSM-						-
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20		(02)	.9(9)	(,g)
18 w/Holster	661	1880.00	0.155	-0.037	0.156	1.6
18 w/Holster	810	1909.80		0.001		
otes:	0.0					
	od of extrapolat	ion is <i>measured</i> S	AR x 10^(-drift/10)	. The SAR report	ed at the end of th	e measurement
			be scaled up by t			
beginning of the	e measurement	process.				
) The SAR measu	ured at the midd	lle channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 15.2 Left Hand Side for WIZA110

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setup p	photos on th	is page have	e been extra	cted under s	separate doc	cument.
GSM1900 (dı	ity cycle:12.5	%)	Managurad	Devuer Drift		
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	512	1850.20		(ubiii)	· g (	(
Touch	661	1880.00	0.130	-0.059	0.132	1.6
Touch	810	1909.80				
Tilt	512	1850.20	0.165	-0.062	0.167	1.6
Tilt	661	1880.00	0.140	-0.010	0.140	1.6
Tilt	810	1909.80	0.125	-0.022	0.126	1.6
process by the beginning of	ne DASY4 measur the measurement asured at the mide	ement system car process.	be scaled up by	0). The SAR repo the measured drift at least 3 dB lower	to determine the S	

## 15.2.1 Left Hand Side for model WIZA110 with keypad open

	Touch Posit	tion		Tilt (	15°) Position	
Note: Setu	ip photos or	n this page h	ave been ex	tracted und	er separate	document.
GSM1900 (du	ty cycle:12.5	%)	-			
		f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	
Test Position	Channel					$\lim_{n \to \infty} \lim_{n \to \infty} \lim_{n$
	Channel 512		rg (mvvg)	(ubiii)	ig (in wy)	Limit (mW/g)
Touch	512	1850.20				
Touch Touch	512 661	1850.20 1880.00	0.025	-0.157	0.026	Limit (mW/g) 1.6
Touch	512	1850.20				
Touch Touch Touch	512 661 810	1850.20 1880.00 1909.80				
Touch Touch Tilt	512 661 810 512	1850.20 1880.00 1909.80 1850.20	0.025	-0.157	0.026	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 15.2.2 Right Hand Side for model WIZA110

	Touch Dooi	lion				
	Touch Posit	lion		l lit (	(15°) Position	
			ave been ex	tracted und	er separate	document.
GSM1900 (al	ity cycle:12.5	%) 	Measured	Power Drift	Extranalated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	512	1850.20	.9(9)	(02)	.9(9)	g)
	004	1880.00	0.000			
Touch	661	1000.00	0.088	0.000	0.088	1.6
Touch Touch	810	1909.80	0.088	0.000	0.088	1.6
			0.088	0.000	0.088	1.6
Touch	810	1909.80	0.088	-0.058	0.088	1.6 1.6
Touch	810 512	1909.80 1850.20				

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 15.2.3 Right Hand Side for model WIZA110 with keypad open

	Touch Posit	lion		Tilt (	15°) Position	
Note: Setu	ıp photos or	n this page h	ave been ex	tracted und	er separate	document.
GSM1900 (du	ty cycle:12.5	%)				1
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f(MHz)	$1 \alpha (mW/\alpha)$	(dBm)	$1 \sigma (mW/\sigma)$	l imit (mW/a)
	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	512	1850.20	1g (mW/g) 0.019		1g (mW/g) 0.020	Limit (mW/g)
Touch Touch		, ,		(dBm) -0.167		Limit (mW/g) 1.6
Touch	512 661	1850.20 1880.00				
Touch Touch Touch	512 661 810	1850.20 1880.00 1909.80				
Touch Touch Tilt	512 661 810 512	1850.20 1880.00 1909.80 1850.20	0.019	-0.167	0.020	1.6

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 3)

4)

# 15.2.4 Body Worn 1 – for model WIZA110

ote: Setup ph	otos on thi	e nade have	heen extra	nted under s	enarate doc	ument
		s page nave				union.
GSM1900 GSM	only (duty o	cycle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20				
18 w/Holster	661	1880.00	0.061	-0.039	0.062	1.6
18 w/Holster	810	1909.80				
		v cycle: 25%)			•	
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20	ig (in w/g)	(dbiii)	ig (in w/g)	Linit (in Wg)
18 w/Holster	661	1880.00	0.118	-0.146	0.122	1.6
18 w/Holster	810	1909.80	0.110	-0.140	0.122	1.0
—						
GSM1900 GSM	EGPRS (du	ity cycle: 25%				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20				
18_w/Holster	661	1880.00	0.023	-0.128	0.024	1.6
18_w/Holster	810	1909.80				
otes:			-		-	
1) The exact method	od of extrapolati	ion is <i>measured</i> S	AR x 10^(-drift/10)	. The SAR report	ed at the end of th	e measurement
			be scaled up by the	he measured drift	to determine the S	SAR at the
beginning of the						
<ol><li>The SAR measurements</li></ol>	ured at the midd	le channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig
channel is option	1					

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 4)

5)

#### 15.2.5 Body Worn 2 – for model WIZA110

lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument
		o pago nave				
GSM1900 GSM	only (duty d	cycle: 12.5%)	Magazinad	Deuxer Drift		
Separation.	Observat	5 (N AL L_)	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz) 1850.20	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512		0.074	0.050	0.074	1.0
18_w/Holster	661	1880.00	0.271	-0.050	0.274	1.6
18_w/Holster	810	1909.80				
GSM1900 GSM-	+GPRS (dut	y cycle: 25%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20	0.577	-0.101	0.591	1.6
18_w/Holster	661	1880.00	0.507	-0.094	0.518	1.6
18_w/Holster	810	1909.80	0.465	-0.091	0.475	1.6
GSM1900 GSM-	+EGPRS (dı	ity cycle: 25%	6)			
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20				
18 w/Holster	661	1880.00	0.110	-0.145	0.114	1.6
18 w/Holster	810	1909.80			-	
otes:						
	od of extrapolat	ion is <i>measured</i> S	AR x 10^(-drift/10)	). The SAR report	ed at the end of th	e measurement
			be scaled up by t			
beginning of the						
<ol><li>The SAR measurement</li></ol>	ured at the midd	lle channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & high

 The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 15.3 Left Hand Side for model WIZA200

Touch Position     Tilt (15°) Position						
ote: Setup p	photos on th	is page have	e been extra	cted under s	eparate doc	cument.
GSM1900 (dı	ity cycle:12.5	%)				
			Magazinad		Estre a stated	
	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated	Limit (mW/a)
		f (MHz) 1850.20	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position	Channel	. ,			· · ·	Limit (mW/g)
Test Position Touch	Channel 512	1850.20	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 512 661	1850.20 1880.00	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 512 661 810	1850.20 1880.00 1909.80	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Tilt	Channel 512 661 810 512	1850.20 1880.00 1909.80 1850.20	1g (mW/g) 0.149	(dBm) -0.118	1g (mW/g) 0.153	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 15.3.1 Left Hand Side for model WIZA200 with keypad open

	Touch Posit	tion		Tilt	(15°) Position	
Note: Setup p			e been extra	acted under s	separate doc	ument.
GSM1900 (du	ity cycle:12.5	%)	Mensured	Devuer Drift		
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	512	1850.20	ig (mwg)	(dBiii)	ig (iii w/g)	Linnt (in wyg)
Touch	661	1880.00	0.034	-0.028	0.034	1.6
Touch	810	1909.80				
Tilt	512	1850.20				
Tilt	661	1880.00	0.023	-0.056	0.023	1.6
Tilt	810	1909.80				
process by the beginning of	ne DASY4 measur the measurement asured at the mide	rement system car process. dle channel for this	be scaled up by	10). The SAR repo the measured drift at least 3 dB lower	to determine the S	SAR at the

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 15.3.2 Right Hand Side for model WIZA200

	Touch Posi	tion		Tilt (	(15°) Position	
	· ·		ave been ex	tracted und	er separate	document.
GSM1900 (du	ity cycle:12.5	%) I	Measured	Power Drift	Extrapolated	
		£ (N/ILL_)			•	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Test Position Touch	Channel 512	1850.20	1g (mvv/g)	(aBm)	1g (mW/g)	Limit (mW/g)
		,	1g (mVV/g) 0.107	-0.067	1g (mW/g) 0.109	Limit (mW/g) 1.6
Touch	512	1850.20				
Touch Touch	512 661	1850.20 1880.00				
Touch Touch Touch	512 661 810	1850.20 1880.00 1909.80	0.107	-0.067	0.109	
Touch Touch Touch Tilt	512 661 810 512	1850.20 1880.00 1909.80 1850.20	0.107	-0.067 -0.149	0.109	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 15.3.3 Right Hand Side for model WIZA200 with keypad open

	Touch Posit	tion		Tilt (	(15°) Position	
Note: Setu	up photos or	n this page h	ave been ex	tracted und	er separate	document.
GSM1900 (dı	uty cycle:12.5	%)				
	<b>ity cycle:12.5</b> Channel		Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated	Limit (mW/g)
		<b>%)</b> f (MHz) 1850.20	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Test Position	Channel	f (MHz)				Limit (mW/g)
Test Position Touch	Channel 512	f (MHz) 1850.20	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch	Channel 512 661	f (MHz) 1850.20 1880.00	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch	Channel 512 661 810	f (MHz) 1850.20 1880.00 1909.80	1g (mW/g)	(dBm)	1g (mW/g)	
Test Position Touch Touch Touch Touch Tilt	Channel 512 661 810 512	f (MHz) 1850.20 1880.00 1909.80 1850.20	1g (mW/g) 0.021	(dBm) -0.166	1g (mW/g) 0.022	1.6

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 15.3.4 Body Worn 1 – for model WIZA200

18_w/Hoister         512         1850.20         0							
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20            1           18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80                GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               18_w/Holster         661         1880.00         0.124         -0.071         0.126         1.           18_w/Holster         810         1909.80                GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.              1.           63tance (mm)         Channel         f (MHz)         1g (mW/g)				ł			
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20            1           18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80                GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               18_w/Holster         661         1880.00         0.124         -0.071         0.126         1.           18_w/Holster         810         1909.80                GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.              1.           63tance (mm)         Channel         f (MHz)         1g (mW/g)							
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20            1           18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80                GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               18_w/Holster         661         1880.00         0.124         -0.071         0.126         1.           18_w/Holster         810         1909.80                GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.              1.           63tance (mm)         Channel         f (MHz)         1g (mW/g)							
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20            1           18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80               GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.                    GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation. </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80               GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.							
GSM1900 GSM only (duty cycle: 12.5%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80               GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (n           18_w/Holster         512         1850.20               GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.	nent.	eparate doci	cted under s	e been extrac	s page have	otos on thi	ote: Setup ph
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20		•					
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 5121850.20							
distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (n18_w/Holster5121850.200.064-0.0570.0651.18_w/Holster8101909.800.064-0.0570.0651.GSM1900 GSM+GPRS (duty cycle: 25%)Separation.distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (n18_w/Holster5121850.20111.1.18_w/Holster6611880.000.124-0.0710.1261.18_w/Holster6611909.80111.1.GSM1900 GSM+EGPRS (duty cycle: 25%)Separation.MeasuredPower DriftExtrapolated18_w/Holster8101909.801GSM1900 GSM+EGPRS (duty cycle: 25%)Separation.Extrapolateddistance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (n18_w/Holster5121850.20118_w/Holster5121850.20118_w/Holster6611880.000.057-0.0440.0581.18_w/Holster8101909.801The exact method of extrapolation is measured SAR x 10^(-drift/10). The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the meas					ycle: 12.5%)	only (duty o	
$18\_w/Holster$ $512$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1850.20$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1850.20$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $1909.80$ $119(mW/g)$ $11g(mW/g)$ $11g(mW/g)$ $11mit(n)$ $18\_w/Holster$ $512$ $1850.20$ <td></td> <td>Extrapolated</td> <td>Power Drift</td> <td>Measured</td> <td></td> <td></td> <td>Separation.</td>		Extrapolated	Power Drift	Measured			Separation.
18_w/Holster         661         1880.00         0.064         -0.057         0.065         1.           18_w/Holster         810         1909.80         Image: Constraint of the state of	mit (mW/g)	1g (mW/g)	(dBm)	1g (mW/g)		Channel	distance (mm)
18_w/Holster       810       1909.80         GSM1900 GSM+GPRS (duty cycle: 25%)         Separation.       Measured       Power Drift       Extrapolated         distance (mm)       Channel       f (MHz)       1g (mW/g)       (dBm)       1g (mW/g)       Limit (n         18_w/Holster       512       1850.20					1850.20	512	18_w/Holster
GSM1900 GSM+GPRS (duty cycle: 25%)Separation. distance (mm)Measured f (MHz)Power Drift 1g (mW/g)Extrapolated (dBm)18_w/Holster5121850.20118_w/Holster6611880.000.124-0.07118_w/Holster8101909.801GSM1900 GSM+EGPRS (duty cycle: 25%)Separation. distance (mm)Measured f (MHz)Power Drift 1g (mW/g)Extrapolated (dBm)18_w/Holster5121850.20118_w/Holster5121850.20118_w/Holster5121850.20118_w/Holster5121850.20118_w/Holster6611880.000.057-0.0440.058118_w/Holster8101909.801otes:1The exact method of extrapolation is measured SAR x 10^(-drift/10). The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.	1.6	0.065	-0.057	0.064	1880.00	661	18_w/Holster
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (n18_w/Holster5121850.20					1909.80	810	18_w/Holster
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (n18_w/Holster5121850.20					v cvcle: 25%)	+GPRS (dut	GSM1900 GSM-
distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (n $18\_w/Holster$ $512$ $1850.20$ </td <td></td> <td>Extrapolated</td> <td>Power Drift</td> <td>Measured</td> <td></td> <td></td> <td></td>		Extrapolated	Power Drift	Measured			
18_w/Holster         512         1850.20         0.124         -0.071         0.126         1.           18_w/Holster         661         1880.00         0.124         -0.071         0.126         1.           18_w/Holster         810         1909.80         0         0         0         0.126         1.           GSM1900 GSM+EGPRS (duty cycle: 25%)	mit (mW/a)				f (MHz)	Channel	
$18\_w/Holster$ $661$ $1880.00$ $0.124$ $-0.071$ $0.126$ $1.$ $18\_w/Holster$ $810$ $1909.80$ $0.124$ $-0.071$ $0.126$ $1.$ <b>GSM1900 GSM+EGPRS (duty cycle: 25%)</b> Separation. distance (mm)Measured f (MHz)Power Drift 1g (mW/g)Extrapolated (dBm)Limit (n $18\_w/Holster$ $512$ $1850.20$ $0.057$ $-0.044$ $0.058$ $1.$ $18\_w/Holster$ $661$ $1880.00$ $0.057$ $-0.044$ $0.058$ $1.$ $18\_w/Holster$ $810$ $1909.80$ $0.057$ $-0.044$ $0.058$ $1.$ $0 tes:$ $1$ The exact method of extrapolation is <i>measured SAR x 10^{(-drift/10)</i> . The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process. $0.052$ $0.071$ $0.071$ $0.071$ $0.126$ $1.$	int (in w/g)	ig (in wig)	(dBIII)	ig (mwg)			
18_w/Holster       810       1909.80         GSM1900 GSM+EGPRS (duty cycle: 25%)         Separation.       Measured       Power Drift       Extrapolated         distance (mm)       Channel       f (MHz)       1g (mW/g)       (dBm)       1g (mW/g)         18_w/Holster       512       1850.20	1.6	0.126	-0.071	0 124		-	
Contraction         Measured       Power Drift       Extrapolated         distance (mm)       Channel       f (MHz)       1g (mW/g)       (dBm)       1g (mW/g)       Limit (n         18_w/Holster       512       1850.20          1         18_w/Holster       661       1880.00       0.057       -0.044       0.058       1.         18_w/Holster       810       1909.80              otes:       1)       The exact method of extrapolation is <i>measured SAR x 10^(-drift/10)</i> . The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.	1.0	0.120	-0.071	0.124			
Separation.       Measured       Power Drift       Extrapolated         distance (mm)       Channel       f (MHz)       1g (mW/g)       (dBm)       1g (mW/g)       Limit (n         18_w/Holster       512       1850.20         1							_
distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (n18_w/Holster5121850.20 </td <td></td> <td></td> <td></td> <td><i>.</i></td> <td>ity cycle: 25%</td> <td>+EGPRS (dι</td> <td></td>				<i>.</i>	ity cycle: 25%	+EGPRS (dι	
18_w/Holster       512       1850.20       0.057         18_w/Holster       661       1880.00       0.057       -0.044       0.058       1.         18_w/Holster       810       1909.80       0.057       -0.044       0.058       1.         otes:       11       The exact method of extrapolation is <i>measured SAR x 10^(-drift/10)</i> . The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.							
18_w/Holster       661       1880.00       0.057       -0.044       0.058       1.         18_w/Holster       810       1909.80             1.         otes:       11       The exact method of extrapolation is <i>measured SAR x 10^(-drift/10)</i> . The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.	mit (mW/g)	1g (mW/g)	(dBm)	1g (mW/g)			
18_w/Holster       810       1909.80         otes:       1       The exact method of extrapolation is <i>measured SAR x 10^(-drift/10)</i> . The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.						512	_
<ul> <li>The exact method of extrapolation is <i>measured SAR x 10<sup>^</sup>(-drift/10)</i>. The SAR reported at the end of the measure process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.</li> </ul>	1.6	0.058	-0.044	0.057			—
<ol> <li>The exact method of extrapolation is measured SAR x 10<sup>^</sup>(-drift/10). The SAR reported at the end of the measured process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.</li> </ol>					1909.80	810	18_w/Holster
process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process.							otes:
beginning of the measurement process.	easurement	ed at the end of the	. The SAR reporte	AR x 10^(-drift/10)	on is measured S	od of extrapolat	1) The exact method
	at the	o determine the SA	ne measured drift f	be scaled up by the	ement system can	DASY4 measure	process by the I
2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low	] at low & hig	han SAR limit, test	least 3 dB lower t	configuration is at	le channel for this		
channel is optional. 3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.		<i>c</i>					

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements. Please see attachment for the detailed measurement data and plots. 4)

5)

#### 15.3.5 Body Worn 2 – for model WIZA200

Note: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
GSM1900 GSM	only (duty d	cycle: 12.5%)				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	512	1850.20				
18_w/Holster	661	1880.00	0.377	-0.047	0.381	1.6
18_w/Holster	810	1909.80				
GSM1900 GSM-	+GPRS (dut	v cvcle: 25%)				
Separation.		, . ,	Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	512	1850.20	0.765	-0.053	0.774	1.6
18 w/Holster	661	1880.00	0.692	-0.111	0.710	1.6
 18_w/Holster	810	1909.80	0.666	-0.126	0.686	1.6
GSM1900 GSM-	+EGPRS (di	tv cvcle: 25%	6)	-		
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	512	1850.20	3(3)	( ,	3(3)	
18 w/Holster	661	1880.00	0.284	-0.121	0.292	1.6
18 w/Holster	810	1909.80				
lotes:					1	1
<ol> <li>The exact methors process by the I beginning of the</li> </ol>	DASY4 measure measurement	ement system can process.	AR x 10^(-drift/10, be scaled up by t configuration is a	he measured drift	to determine the S	SAR at the

channel is optional.

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16 SAR MEASUREMENT RESULT (WIFI AND BLUETOOTH)

### 16.1 Left Hand Side for model WIZA100

	Touch Positi	on			Tilt (	15°) Position	
ote: Setup ph	otos on thi	s page have	e been (	extrac	cted under s	eparate doc	ument.
802.11b (duty c	ycle: 100%)						
	Í		Measu	ured	Power Drift	Extrapolated	
<b>Test Position</b>	Channel	f (MHz)	1g (m'	W/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412					
Touch	6	2437	0.03	31	-0.039	0.031	1.6
Touch	11	2462					
Tilt	1	2412					
Tilt	6	2437	0.03	37	-0.108	0.038	1.6
Tilt	11	2462					
302.11g (duty c	ycle: 100%)		-			-	-
			Measu	ured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (m	W/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412					
Touch	6	2437	0.02	24	-0.150	0.025	1.6
Touch	11	2462					
Tilt	1	2412					
Tilt	6	2437	0.02	29	-0.110	0.030	1.6
Tilt	11	2462					
Bluetooth							
			Measu	ured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (m	W/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	78	2480	0		0	0.000	1.6
Tilt	78	2480	0		0	0.000	1.6
Measuremen SAR at the b 2) The SAR me high channe	nt process by the beginning of the easured at the m I is optional.	e DASY4 measure measurement pro iiddle channel for	ement syst cess. this config	em can uration i	be scaled up by th s at least 3 dB low	eported at the end ne measured drift t ver than SAR limit, o SAR measurem	o determine the testing at low &

# 16.1.1 Left Hand Side for model WIZA100 with keypad open

	Touch Positi	on		Tilt (	15°) Position	
ote: Setup ph	otos on this	s page have	e been extra	cted under s	eparate doc	ument.
02.11b (duty c	ycle: 100%)					
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.020	-0.160	0.021	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.020	-0.118	0.021	1.6
Tilt	11	2462				
02.11g (duty cy	ycle: 100%					
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.020	-0.111	0.021	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.017	-0.188	0.018	1.6
Tilt	11	2462				
luetooth						
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	78	2480	0	0	0.000	1.6
Tilt	78	2480	0	0	0.000	1.6
process by the		ment system car	SAR x 10 ^ (-drift/10 n be scaled up by th			

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.1.2 Right Hand Side for model WIZA100

	Touch Positi	ion			15°) Position	
	1000111 00.0					
Note: Coture		this sease b		the stead wood.		-la europent
Note: Setup	photos on	this page na	ave been ex	tracted unde	er separate o	Jocument.
02.11b (duty c	vola: 100%)					
			Measured	Power Drift	Extrapolated	T
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412	ig (inw/g)	(ubiii)	ig (mv/g)	Linit (invig)
Touch	6	2412	0.038	-0.136	0.039	1.6
Touch	0 11	2437	0.030	-0.150	0.039	1.0
Tilt Tilt	1	2412 2437	0.041	0.107	0.0420	16
Tilt	6 11		0.041	-0.197	0.0429	1.6
		2462				
02.11g (duty c	ycle: 100%					
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.037	-0.183	0.039	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.042	-0.011	0.0421	1.6
Tilt	11	2462				
Bluetooth						
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	78	2480	0	0	0.000	1.6
Tilt	78	2480	0	0	0.000	1.6
tes:	-					
	nethod of extrapo	plation is <i>measure</i>	d SAR x 10^ (-drif	t/10). The SAR re	ported at the end	of the
				be scaled up by the	he measured drift	to determine the
		measurement pro				
		hiddle channel for	this configuration	is at least 3 dB low	ver than SAR limit,	, testing at low 8
nign channe	el is optional.				to SAR measurem	

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

## 16.1.3 Right Hand Side for model WIZA100 with keypad open

	Touch Positi	on		Tilt (	15°) Position	
Note: Setup	photos on	this page h	ave been ex	tracted unde	er separate o	document.
02.11b (duty cy	ycle: 100%)					
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.031	-0.191	0.032	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.039	-0.137	0.040	1.6
Tilt	11	2462				
02.11g (duty cy	ycle: 100%					
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.025	-0.165	0.026	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.032	-0.063	0.032	1.6
Tilt	11	2462				
luetooth						
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	78	2480	0	0	0.000	1.6
Tilt	78	2480	0	0	0.000	1.6
process by the		ment system car	SAR x 10^ (-drift/10 n be scaled up by th			

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.1.4 Body Worn 1 – for model WIZA100

Note: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
802.11b (duty c	ycle: 100%)					
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	1	2412	3( 3/		3( 3/	
18 w/Holster	6	2437	0.00736	-0.107	0.008	1.6
18 w/Holster	11	2462	0.000.00		0.000	
—						
802.11g (duty c	ycie: 100%		Management	Devue a Drift		
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	1	2412				
18_w/Holster	6	2437	0.00495	-0.205	0.0052	1.6
18_w/Holster	11	2462				
Bluetooth						
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	0	2402	3( 3/		3( 3/	- ( 3/
18 w/Holster	39	2441	0.000	0.000	0.000	1.6
18 w/Holster	78	2480				
otes:	10	2.00				
	od of extrapolat	ion is measured S	AR x 10^(-drift/10)	The SAR report	ed at the end of th	e measurement
			be scaled up by t			
	e measurement					
			configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig
channel is optio	onal.					

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.1.5 Body Worn 2 – for model WIZA100

lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
• •		1 0				
802.11b (duty c	ycle: 100%)					
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	1	2412				
18_w/Holster	6	2437	0.045	-0.095	0.046	1.6
 18_w/Holster	11	2462				
	vcle: 100%					
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	1	2412	ig (in vig)	(dBiii)	ig (in Wg)	Emit (mw/g)
18 w/Holster	6	2437	0.037	-0.184	0.039	1.6
18 w/Holster	11	2462	0.037	-0.104	0.039	1.0
_	11	2402				
Bluetooth						
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	0	2402				
18_w/Holster	39	2441	0.000	0.000	0.000	1.6
18_w/Holster	78	2480				
otes:						
			AR x 10^(-drift/10)			
			be scaled up by t	he measured drift	to determine the S	SAR at the
beginning of the			<b>_</b>			
		lle channel for this	configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig
channel is optio	nal.		late band for a sur-	and and the second second		

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

### 16.2 Left Hand Side for WIZA110

	Touch Positi	on		Tilt (	15°) Position	
ote: Setup ph	iotos on thi	s page have	e been extra	cted under s	eparate doc	ument.
02.11b (duty c	ycle: 100%)			D D		
Test Position	Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)
Touch		2412	ig (illw/g)	(dbiii)	ig (iiw/g)	
Touch	6	2437	0.032	-0.180	0.033	1.6
Touch	11	2462	0.001	01100	0.000	
Tilt	1	2412				
Tilt	6	2437	0.039	-0.165	0.041	1.6
Tilt	11	2462				
luetooth						
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	78	2480	0	0	0.000	1.6
Tilt	78	2480	0	0	0.000	1.6
tes: ) The exact meth			AR x 10 ^ (-drift/10	0). The SAR report the measured drift		

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 16.2.1 Right Hand Side for model WIZA110

	Touch Positi	on		Tilt (	15°) Position	
Note: Setup	photos on	this page h	ave been ex	tracted unde	er separate o	document.
02.11b (duty c	ycle: 100%)					
			Measured	Power Drift	Extrapolated	
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Touch	1	2412				
Touch	6	2437	0.042	-0.182	0.044	1.6
Touch	11	2462				
Tilt	1	2412				
Tilt	6	2437	0.047	-0.122	0.048	1.6
Tilt	11	2462				
luetooth						
			Measured	Power Drift	Extrapolated	
	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
Test Position	78	2480	0	0	0.000	1.6
Test Position Touch			0	0	0.000	1.6
	78	2480	0	0	0.000	1.0

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.2.2 Body Worn 1 – for model WIZA110

			•			
		_				
lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
802.11b (duty c	ycle: 100%)			-		
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	1	2412				
18_w/Holster	6	2437	0.00904	-0.105	0.009	1.6
18_w/Holster	11	2462				
	vcle: 100%)					
Separation.	,,		Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	1	2412	.9 (	()	.3 (	
18 w/Holster	6	2437	0.00915	-0.203	0.010	1.6
18 w/Holster	11	2462	0.00010	0.200	0.010	1.0
Bluetooth		2102				
Separation.			Measured	Power Drift	Extrapolated	
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18 w/Holster	0	2402	ig (in W/g)	(dbiii)	ig (in wig)	Linit (in W/g)
18 w/Holster	39	2402	0.000	0.000	0.000	1.6
18 w/Holster	78	2441	0.000	0.000	0.000	1.0
-	10	2460				
otes:						
			AR x 10^(-drift/10)			
beginning of the			be scaled up by t	ne measured drift	to determine the S	AR at the
			configuration is a	t least 3 dB lower	than SAR limit tee	sting at low & hig
channel is optio			, comparation is a			ang at ion a mg

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

4) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.2.3 Body Worn 2 – for model WIZA110

18_w/Holster         1         2412         0							
802.11b (duty cycle: 100%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         6         2437         0.060         -0.155         0.062         1.6           18_w/Holster         11         2462               802.11g (duty cycle: 100%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         1         2412                8paration.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV           8paration.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV           Separation.							
802.11b (duty cycle: 100%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         6         2437         0.060         -0.155         0.062         1.6           18_w/Holster         11         2462               802.11g (duty cycle: 100%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         1         2412                Bluetooth         Separation.         Measured         Power Drift         Extrapolated              distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g) <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
802.11b (duty cycle: 100%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         6         2437         0.060         -0.155         0.062         1.6           18_w/Holster         11         2462               802.11g (duty cycle: 100%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         1         2412                80earation.         Measured         Power Drift         Extrapolated                18_w/Holster         11         2462							
802.11b (duty cycle: 100%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         6         2437         0.060         -0.155         0.062         1.6           18_w/Holster         11         2462               802.11g (duty cycle: 100%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         1         2412                Bluetooth         Separation.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV           18_w/Holster         0         2402							
802.11b (duty cycle: 100%)           Separation.         Measured         Power Drift         Extrapolated           distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         6         2437         0.060         -0.155         0.062         1.6           18_w/Holster         11         2462               802.11g (duty cycle: 100%)         Separation.         Measured         Power Drift         Extrapolated            distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412               18_w/Holster         1         2412                8paration.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV           8paration.         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV           Separation.							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412	lote: Setup ph	otos on thi	s page have	e been extra	cted under s	eparate doc	ument.
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412						-	
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
Separation.         Measured 1g (mW/g)         Power Drift (dBm)         Extrapolated 1g (mW/g)         Limit (mV/g)           18_w/Holster         1         2412							
distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (mV) $18\_w/Holster$ 12412		ycle: 100%)			-		
18_w/Holster         1         2412         0	Separation.			Measured	Power Drift	Extrapolated	
Image: Second	distance (mm)	Channel		1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster         11         2462         Image: constraint of the start of the st	18_w/Holster	1	2412				
Boz.11g (duty cycle: 100%)Separation.distance (mm)Channelf (MHz)1g (mW/g)Power DriftExtrapolated18_w/Holster124121118_w/Holster624370.054-0.1730.0561.618_w/Holster112462111BluetoothSeparation.distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (mV18_w/Holster0240211Image: Colspan="4">Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (mV18_w/Holster02402111	18 w/Holster	6	2437	0.060	-0.155	0.062	1.6
Boz.11g (duty cycle: 100%)Separation.distance (mm)Channelf (MHz)1g (mW/g)Power DriftExtrapolated18_w/Holster124121118_w/Holster624370.054-0.1730.0561.618_w/Holster112462111BluetoothSeparation.Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (mV Limit (mV 18_w/HolsterLimit (mV 13_w/HolsterLimit (mV 13_w/HolsterDistancePower Drift 1g (mW/g)Extrapolated 1g (mW/g)Limit (mV Limit (mV 18_w/HolsterDistancePower Drift 1g (mW/g)Limit (mV 1g (mW/g)18_w/Holster78248000 <td></td> <td>11</td> <td>2462</td> <td></td> <td></td> <td></td> <td></td>		11	2462				
Separation.Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g) $18\_w/Holster$ 12412		vcle: 100%)					
distance (mm)Channelf (MHz)1g (mW/g)(dBm)1g (mW/g)Limit (mV/g) $18\_w/Holster$ 12412 $18\_w/Holster$ 624370.054-0.1730.0561.6 $18\_w/Holster$ 112462BluetoothSeparation.MeasuredPower DriftExtrapolatedLimit (mV/g) $18\_w/Holster$ 02402 $18\_w/Holster$ 3924410.0000.0000.0001.6 $18\_w/Holster$ 782480otes:1)The exact method of extrapolation is measured SAR x 10^(-drift/10).The SAR reported at the end of the measured same same same same same same same same		, cici i co /aj		Measured	Power Drift	Extrapolated	
18_w/Holster         1         2412         1           18_w/Holster         6         2437         0.054         -0.173         0.056         1.6           18_w/Holster         11         2462         1	•	Channel	f(MHz)				Limit (mW/a)
18_w/Holster         6         2437         0.054         -0.173         0.056         1.6           18_w/Holster         11         2462         -0.173         0.056         1.6           Bluetooth         Separation.         Measured         Power Drift         Extrapolated         1g (mW/g)         Limit (mV/g)           18_w/Holster         0         2402         -0.000         0.000         1.6           18_w/Holster         0         2402         -0.173         0.056         1.6           18_w/Holster         0         2402         -0.173         0.056         1.6           18_w/Holster         0         2402         -0.000         0.000         0.000         1.6           18_w/Holster         78         2480         -0.000         0.000         0.000         1.6           18_w/Holster         78         2480         -0.000         0.000         0.000         1.6           18_w/Holster         78         2480         -0.000         0.000         0.000         1.6           1000000000000000000000000000000000000				ig (in vig)	(dBiii)	ig (in w/g)	Ellint (III V/g)
18_w/Holster       11       2462       Image: Constraint of the measured states	—	=		0.054	0 173	0.056	16
Blue tooth         Separation.       Measured       Power Drift       Extrapolated         distance (mm)       Channel       f (MHz)       1g (mW/g)       (dBm)       1g (mW/g)       Limit (mV/g)         18_w/Holster       0       2402             18_w/Holster       39       2441       0.000       0.000       0.000       1.6         18_w/Holster       78       2480             otes:       1)       The exact method of extrapolation is measured SAR x 10^/(-drift/10).       The SAR reported at the end of the measured				0.034	-0.173	0.030	1.0
Separation. distance (mm)Channelf (MHz)Measured 1g (mW/g)Power Drift (dBm)Extrapolated 1g (mW/g)Limit (mV Limit (mV)18_w/Holster02402			2402				
distance (mm)         Channel         f (MHz)         1g (mW/g)         (dBm)         1g (mW/g)         Limit (mV/g)           18_w/Holster         0         2402 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
18_w/Holster         0         2402         0							
18_w/Holster         39         2441         0.000         0.000         0.000         1.6           18_w/Holster         78         2480         0 </td <td></td> <td></td> <td></td> <td>1g (mW/g)</td> <td>(dBm)</td> <td>1g (mW/g)</td> <td>Limit (mW/g)</td>				1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster       78       2480         otes:       1)       The exact method of extrapolation is measured SAR x 10^(-drift/10). The SAR reported at the end of the measurer		-					
otes: 1) The exact method of extrapolation is <i>measured SAR x 10<sup>^</sup>(-drift/10)</i> . The SAR reported at the end of the measurer		39		0.000	0.000	0.000	1.6
1) The exact method of extrapolation is measured SAR x 10 <sup>^</sup> (-drift/10). The SAR reported at the end of the measurer	18_w/Holster	78	2480				
	otes:			•	•	•	-
measure by the DAOVA measurement evidence and he cooled up by the measured diff to determine the OAD of the	1) The exact method	od of extrapolat	ion is <i>measured</i> S	SAR x 10^(-drift/10)	. The SAR report	ed at the end of th	e measurement
process by the DASY4 measurement system can be scaled up by the measured drift to determine the SAR at the				be scaled up by t	he measured drift	to determine the S	SAR at the
beginning of the measurement process.							
2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low or channel is optional.			lle channel for this	s configuration is a	t least 3 dB lower	than SAR limit, tes	sting at low & hig

3) The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.3 Left Hand Side for model WIZA200

	Touch Dooit			<b>T</b> :14 /				
	Touch Posit	on		Tilt (15°) Position				
Note: Setup ph	otos on thi	s page have	e been extra	acted under s	eparate doc	ument.		
802.11b (duty cy	ycle: 100%)					-		
			Measured	Power Drift	Extrapolated			
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)		
Touch	1	2412						
Touch	6	2437	0.057	-0.156	0.059	1.6		
Touch	11	2462						
Tilt	1	2412						
Tilt	6	2437	0.074	-0.056	0.075	1.6		
Tilt	11	2462						
Bluetooth								
			Measured	Power Drift	Extrapolated			
Test Position	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)		
Touch	78	2480	0	0	0.000	1.6		
Tilt	78	2480	0	0	0.000	1.6		
process by the beginning of the	DASY4 measure e measurement	ement system can process.	be scaled up by	10). The SAR repo the measured drift at least 3 dB lower	to determine the S	SAR at the		

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

#### 16.3.1 Right Hand Side for model WIZA200

Touch Position				Tilt (15°) Position			
Note: Setup photos on this page have been extracted under separate document.							
802.11b (duty cycle: 100%)							
302.11b (duty cy	ycle: 100%)						
802.11b (duty cy	ycle: 100%)		Measured	Power Drift	Extrapolated		
<b>802.11b (duty c</b> Test Position	<b>cle: 100%)</b> Channel	f (MHz)	Measured 1g (mW/g)	Power Drift (dBm)	Extrapolated 1g (mW/g)	Limit (mW/g)	
		f (MHz) 2412	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)	
Test Position	Channel 1 6	· · · /				Limit (mW/g)	
Test Position Touch	Channel 1	2412	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch Touch Tilt	Channel 1 6	2412 2437	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch Touch	Channel 1 6 11	2412 2437 2462	1g (mW/g)	(dBm)	1g (mW/g)		
Test Position Touch Touch Touch Tilt	Channel 1 6 11 1	2412 2437 2462 2412	1g (mW/g) 0.070	(dBm) -0.149	1g (mW/g) 0.072	1.6	
Test Position Touch Touch Touch Tilt Tilt	Channel 1 6 11 1 6	2412 2437 2462 2412 2437	1g (mW/g) 0.070	(dBm) -0.149	1g (mW/g) 0.072	1.6	
Test Position Touch Touch Touch Tilt Tilt Tilt	Channel 1 6 11 1 6	2412 2437 2462 2412 2437	1g (mW/g) 0.070	(dBm) -0.149	1g (mW/g) 0.072	1.6	
Test Position Touch Touch Touch Tilt Tilt Tilt	Channel 1 6 11 1 6	2412 2437 2462 2412 2437	1g (mW/g) 0.070 0.079	(dBm) -0.149 -0.019	1g (mW/g) 0.072 0.079	1.6	
Test Position Touch Touch Touch Tilt Tilt Tilt Bluetooth	Channel 1 6 11 1 6 11 1 6 11 1 1 1 1 1 1 1 1 1	2412 2437 2462 2412 2437 2462	1g (mW/g) 0.070 0.079 Measured	(dBm) -0.149 -0.019 Power Drift	1g (mW/g) 0.072 0.079 Extrapolated	1.6	

2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high channel is optional.

3) The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 16.3.2 Body Worn 1 – for model WIZA200

Note: Setup photo 802.11b (duty cycl Separation.	os on this	s page have	e been extrac	cted under s	eparate doc	ument.
802.11b (duty cycl	os on this	s page have	e been extra	cted under s	eparate doc	ument.
Separation.	le: 100%)					
			Measured	Power Drift	Extrapolated	
distance (mm) 0	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	1	2412				
18_w/Holster	6	2437	0.00931	-0.208	0.010	1.6
18_w/Holster	11	2462				
Bluetooth	<b>.</b>					<u>.</u>
Separation.			Measured	Power Drift	Extrapolated	
	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)
18_w/Holster	0	2402	.9(9)	()	.9(	
18 w/Holster	39	2441	0.000	0.000	0.000	1.6
18 w/Holster	78	2480				
lotes:						
1) The exact method of	of extrapolation	on is <i>measured</i> S	AR x 10^(-drift/10)	. The SAR report	ed at the end of the	e measurement
process by the DAS	SY4 measure	ment system can	be scaled up by the	he measured drift	to determine the S	AR at the
beginning of the me						
2) The SAR measured		e channel for this	configuration is a	t least 3 dB lower f	than SAR limit, tes	iting at low & high
channel is optional.					<b>c</b>	
<ol> <li>The earphone wire</li> <li>The battery was full</li> </ol>						_

# 16.3.3 Body Worn 2 – for model WIZA200

Noto: Sotup photos on this page have been extracted under congrate document									
Note: Setup photos on this page have been extracted under separate document.									
802.11b (duty c	vcle: 100%)								
Separation.	,		Measured	Power Drift	Extrapolated				
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)			
18_w/Holster	1	2412	0.068	-0.202	0.071	1.6			
18 w/Holster	6	2437	0.077	-0.161	0.080	1.6			
18 w/Holster	11	2462	0.053	-0.126	0.055	1.6			
		2102	0.000	0.120	0.000	1.0			
802.11g (duty c	ycle: 100%								
Separation.			Measured	Power Drift	Extrapolated				
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)			
18_w/Holster	1	2412							
18_w/Holster	6	2437	0.051	-0.209	0.054	1.6			
18_w/Holster	11	2462							
Bluetooth									
Separation.			Measured	Power Drift	Extrapolated				
distance (mm)	Channel	f (MHz)	1g (mW/g)	(dBm)	1g (mW/g)	Limit (mW/g)			
18 w/Holster	0	2402	.9(9)	(0.2)	.9(9)	(			
18 w/Holster	39	2441	0.000	0.000	0.000	1.6			
18 w/Holster	78	2480	0.000	0.000	0.000	1.0			
Notes:	10	2400							
	od of extranolati	ion is measured S	AR x 10^(-drift/10)	The SAR report	ed at the end of th	e measurement			
			be scaled up by t						
beginning of the									
2) The SAR measured at the middle channel for this configuration is at least 3 dB lower than SAR limit, testing at low & high									
channel is optio									

The earphone wire connected to the EUT to simulate hand-free operation in a body worn configuration.

The battery was fully charged in accordance with manufacture's instructions prior to SAR measurements.

# 17 MEASUREMENT UNCERTAINTY

#### 17.1 MEASUREMENT UNCERTAINTY FOR 300 MHZ - 3GHZ

Uncontainty component	<b>T</b> -1 (10()	Probe	Div.	Ci (1g)	Ci (10cr)	Std. Unc.(±%)	
Uncertainty component	Tol. (±%)	Dist.	DIV.		Ci (10g)	Ui (1g)	Ui(10g)
Measurement System							
Probe Calibration	4.80	Ν	1	1	1	4.80	4.80
Axial Isotropy	4.70	R	1.732	0.707	0.707	1.92	1.92
Hemispherical Isotropy	9.60	R	1.732	0.707	0.707	3.92	3.92
Boundary Effects	1.00	R	1.732	1	1	0.58	0.58
_inearity	4.70	R	1.732	1	1	2.71	2.71
System Detection Limits	1.00	R	1.732	1	1	0.58	0.58
Readout Electronics	1.00	Ν	1	1	1	1.00	1.00
Response Time	0.80	R	1.732	1	1	0.46	0.46
ntegration Time	2.60	R	1.732	1	1	1.50	1.50
RF Ambient Conditions - Noise	1.59	R	1.732	1	1	0.92	0.92
RF Ambient Conditions - Reflections	0.00	R	1.732	1	1	0.00	0.00
Probe Positioner Mechnical Tolerance	0.40	R	1.732	1	1	0.23	0.23
Probe Positioning With Respect to Phantom Shell	2.90	R	1.732	1	1	1.67	1.67
Extrapolation, interpolation, and integration algorithms for							
max. SAR evaluation	3.90	R	1.732	1	1	2.25	2.25
Test sample Related							
Test Sample Positioning	1.10	Ν	1	1	1	1.10	1.10
Device Holder Uncertainty	3.60	Ν	1	1	1	3.60	3.60
Power and SAR Drift Measurement	5.00	R	1.732	1	1	2.89	2.89
Phantom and Tissue Parameters							
Phantom Uncertainty	4.00	R	1.732	1	1	2.31	2.31
Liquid Conductivity - Target	5.00	R	1.732	0.64	0.43	1.85	1.24
Liquid Conductivity - Meas.	8.60	Ν	1	0.64	0.43	5.50	3.70
Liquid Permittivity - Target	5.00	R	1.732	0.6	0.49	1.73	1.41
Liquid Permittivity - Meas.	3.30	Ν	1	0.6	0.49	1.98	1.62
Combined Standard Uncertainty			RSS			11.44	10.49
Expanded Uncertainty (95% Confidence Interval)			K=2			22.87	20.98
Notesfor table	-						=
1. Tol tolerance in influence quaitity							
2. N - Nomal							
3. R - Rectangular							

4. Div. - Divisor used to obtain standard uncertainty

5. Ci - is te sensitivity coefficient

# 17.2 MEASUREMENT UNCERTAINTY 3 GHZ - 6 GHZ

Lincortainty component	Tel (+0()	Probe	Div.	O(4x)	Ci(10c)	Std. U	nc.(±%)
Uncertainty component	Tol. (±%)	Dist.	Div.	Ci (1g)	Ci (10g)	Ui (1g)	Ui(10g)
Measurement System							
Probe Calibration	4.80	Ν	1	1	1	4.80	4.80
Axial Isotropy	4.70	R	1.732	0.707	0.707	1.92	1.92
Hemispherical Isotropy	9.60	R	1.732	0.707	0.707	3.92	3.92
Boundary Effects	1.00	R	1.732	1	1	0.58	0.58
Linearity	4.70	R	1.732	1	1	2.71	2.71
System Detection Limits	1.00	R	1.732	1	1	0.58	0.58
Readout Electronics	1.00	Ν	1	1	1	1.00	1.00
Response Time	0.80	R	1.732	1	1	0.46	0.46
Integration Time	2.60	R	1.732	1	1	1.50	1.50
RF Ambient Conditions - Noise	3.00	R	1.732	1	1	1.73	1.73
RF Ambient Conditions - Reflections	3.00	R	1.732	1	1	1.73	1.73
Probe Positioner Mechnical Tolerance	0.40	R	1.732	1	1	0.23	0.23
Probe Positioning With Respect to Phantom Shell	2.90	R	1.732	1	1	1.67	1.67
Extrapolation, interpolation, and integration algorithms for							
max. SAR evaluation	3.90	R	1.732	1	1	2.25	2.25
Test sample Related							
Test Sample Positioning	1.10	Ν	1	1	1	1.10	1.10
Device Holder Uncertainty	3.60	Ν	1	1	1	3.60	3.60
Power and SAR Drift Measurement	5.00	R	1.732	1	1	2.89	2.89
Phantom and Tissue Parameters							
Phantom Uncertainty	4.00	R	1.732	1	1	2.31	2.31
Liquid Conductivity - Target	5.00	R	1.732	0.64	0.43	1.85	1.24
Liquid Conductivity - Meas.	8.60	Ν	1	0.64	0.43	5.50	3.70
Liquid Permittivity - Target	5.00	R	1.732	0.6	0.49	1.73	1.41
Liquid Permittivity - Meas.	3.30	Ν	1	0.6	0.49	1.98	1.62
Combined Standard Uncertainty	RSS					11.66	10.73
Expanded Uncertainty (95% Confidence Interval)	K=2					23.32	21.46
Notesfor table	•						-
1. Tol tolerance in influence quaitity							
2. N - Nomal							
3. R - Rectangular							
4. Div Divisor used to obtain standard uncertainty							

5. Ci - is te sensitivity coefficient

#### 18 EQUIPMENT LIST

Name of Equipment	Manufacturer	Type/Model	Serial Number	Cal. Due date
Robot - Six Axes	Stäubli	RX90BL	N/A	N/A
Robot Remote Control	Stäubli	CS7MB	3403-91535	N/A
DASY4 Measurement Server	SPEAG	SEUMS001BA	1041	N/A
Probe Alignment Unit	SPEAG	LB (V2)	261	N/A
S-Parameter Network Analyzer	Agilent	8753ES-6	US39173569	8/19/05
Electronic Probe kit	Hewlett Packard	85070C	N/A	N/A
E-Field Probe	SPEAG	EX3DV3	3531	7/18/05
E-Field Probe	SPEAG	EX3DV4	3552	3/19/06
Thermometer	ERTCO	639-1	8402	10/13/2005
Thermometer	ERTCO	639-1	8404	10/21/2005
Thermometer	ERTCO	637-1	8661	10/21/2005
SAM Phantom (SAM1)	SPEAG	TP-1185	QD000P40CA	N/A
SAM Phantom (SAM2)	SPEAG	TP-1015	N/A	N/A
Data Acquisition Electronics	SPEAG	DAE3 V1	500	2/7/06
System Validation Dipole	SPEAG	D835V2	4d002	2/11/06
System Validation Dipole	SPEAG	D1900V2	5d043	2/16/06
System Validation Dipole	SPEAG	D2450V2	748	5/14/06
Signal General	R&H	SMP 04	DE34210	6/2/06
Power Meter	Giga-tronics	8651A	8651404	9/16/05
Power Sensor	Giga-tronics	80701A	1834588	9/16/05
Amplifier	Mini-Circuits	ZVE-8G	0360	N/A
Amplifier	Mini-Circuits	ZHL-42W	D072701-5	N/A
Radio Communication Tester	Rohde & Schwarz	CMU 200	838114/032	12/17/06
Simulating Liquid	CCS	H835	N/A	Within 24 hrs of first test
Simulating Liquid	CCS	H1900	N/A	Within 24 hrs of first test
Simulating Liquid	CCS	M835	N/A	Within 24 hrs of first test
Simulating Liquid	CCS	M1900	N/A	Within 24 hrs of first test
Simulating Liquid	CCS	M2450	N/A	Within 24 hrs of first test

### **19 ATTACHMENTS**

No.	Contents	No. of page (s)
1	System Performance Check Plots	16
2-1	SAR Test Plots (GSM850_Model WIZA100)	20
2-2	SAR Test Plots (GSM850_Model WIZA110)	20
2-3	SAR Test Plots (GSM835_Model WIZA200)	20
3-1	SAR Test Plots (GSM1900_Model WIZA100)	20
3-2	SAR Test Plots (GSM1900_Model WIZA110)	20
3-2	SAR Test Plots (GSM1900_Model WIZA200)	20
4-1	SAR Test Plots (WiFi_Model WIZA100)	21
4-2	SAR Test Plots (WiFi_Model WIZA110)	9
4-3	SAR Test Plots (WiFi_Model WIZA200)	10
5	Certificate of E-filed Probe EX3DV4 SN 3552	10
6	Certificate of System Validation Dipole D835V2 SN 4d002	6
7	Certificate of System Validation Dipole D1900V2 SN 5d043	6
8	Certificate of System Validation Dipole D2450V2 SN 748	9
9	EUT Photo	6

END OF REPORT