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JQA File No.: KL80070420 Issue Date: December 7, 2007

# TEST REPORT (SAR EVALUATION)

**APPLICANT** : FUJITSU LIMITED

ADDRESS : 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki,

211-8588, Japan

**PRODUCTS** : Cellular Phone

MODEL NO. : F905iBIZ

**SERIAL NO.** : 357018010000025

FCC ID : VQK-FOMA-F905IBIZ

**TEST STANDARD** : FCC/OET Bulletin 65 Supplement C (Edition 01-01)

**TESTING LOCATION**: Japan Quality Assurance Organization

KITA-KANSAI Testing Center

1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

TEST RESULTS : Passed

**DATE OF TEST** : December 4, 2007 ~ December 5, 2007

This report must not used by the client to claim product endorsement by NVLAP or NIST or any agency of the U.S. Government.



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Manager

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KITA-KANSAI Testing Center Testing Dept. EMC Division

1-7-7, Ishimaru, Minoh-shi, Osaka 562-0027, Japan

- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan, National Institute of Information and Communications Technology (NICT) of Japan, and Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland.
- The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
- The test results presented in this report relate only to the offered test sample.
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# <u>DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT</u>

"EUT"	means	Equipme	ent Under	the Test.

$\leq$	-	indicates	that the	listed	condition,	standard	or	equipment	is	applicable	for	this	report.	

<sup>&</sup>quot;N/A" means that Not Applicable.

<sup>&</sup>quot;N/T" means that Not Tested.

indicates that the listed condition, standard or equipment is not applicable for this report.



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#### **Documentation**

#### 1 Test Regulation

Applied Standard : FCC/OET Bulletin 65 Supplement C (Edition 01-01)

Evaluating Compliance with FCC Guidelines for Human Exposure to Radio-

frequency Electromagnetic Fields

Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions

Test Procedure : FCC/OET Bulletin 65 Supplement C (Edition 01-01) and IEEE Std.1528–2003

Exposure Limits : ANSI/IEEE Std. C95.1, 1999 Edition

#### 2 Test Location

KITA-KANSAI Testing Center

7-7, Ishimaru, 1-chome, Minoh-shi, Osaka, 562-0027, Japan

KAMEOKA EMC Branch

9-1, Ozaki, Inukanno, Nishibetsuin-cho, Kameoka-shi, Kyoto, 621-0126, Japan

#### 3 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center Testing Department EMC Division is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility of Testing Division is registered by the following bodies.

VLAC Code : VLAC-001-2 (Effective through : April 3, 2008) NVLAP Lab Code : 200191-0 (Effective through : June 30, 2008) BSMI Recognition No. : SL2-IS-E-6006, SL2-IN-E-6006, SL2-AI-E-6006

(Effective through: September 14, 2010)

VCCI Registration No. : R-006, R-008, R-1117, C-006, C-007, C-1674, C-2143

(Effective through : April 3, 2008)

FCC Registration No. : 683630 (Effective through: June 30, 2008)

IC Registration No. : IC 4125-1, IC 6217-1, IC 6217-2 (Effective through: November 16, 2008)

Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Effective through: February 22, 2010)



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# 4 Description of the Equipment Under Test

1. Manufacturer : FUJITSU LIMITED

1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki,

211-8588, Japan

2. Products : Cellular Phone

3. Model No. : F905iBIZ

Serial No. : 357018010000025
 Product Type : Pre-production

6. Date of Manufacture : --

7. Transmitting Frequency : 1850.20 MHz – 1909.80 MHz

8. Receiving Frequency : 1930.20 MHz – 1989.80 MHz

9. Max. RF Output Power : 30.17 dBm (GSM) (Conducted / Peak) : 30.19 dBm (GPRS)

10. Battery Option : Lithium-ion Battery Pack CA54310-0006 (870mAh)

11. Power Rating : 3.7VDC12. EUT Grounding : None

13. Device Category : Portable Device (§2.1093)

14. Exposure Category : General Population/Uncontrolled Exposure

15. FCC Rule Part(s) : 24(E)

16. EUT Authorization : Certification

17. Received Date of EUT : November 27, 2007



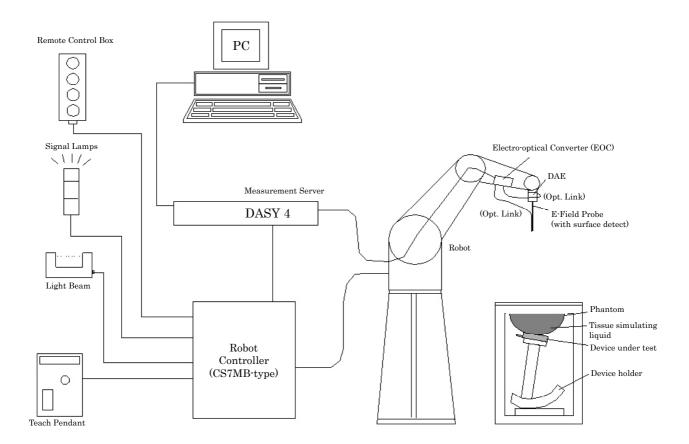
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## 5 Measurement System Diagram

These measurements are performed using the DASY4 automated dosimetric assessment system (manufactured by Schmid & Partner Engineering AG (SPEAG) in Zürich, Switzerland). It consists of high precision robotics system, cell controller system, DASY4 measurement server, personal computer with DASY4 software, data acquisition electronic (DAE) circuit, the Electro-optical converter (EOC), near-field probe, and the twin SAM phantom containing the equivalent tissue. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF).

The Robot is connected to the cell controller to allow software manipulation of the robot. The DAE is connected to the EOC. The DAE performs the signal amplification, signal multiplexing, A/D conversion, offset measurements, mechanical surface detection, collision detection, etc. The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server.





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## 6 System Components

# 6.1 Probe Specification

Construction : Symmetrical design with triangular core

Built-in optical fiber for surface detection system

Built-in shielding against static changes

Calibration : In air form 10 MHz to 2.5 GHz

In head tissue simulating liquid (HSL) and

muscle tissue simulating liquid 900 MHz (accuracy  $\pm$  11.0%; k=2) 1810 MHz (accuracy  $\pm$  11.0%; k=2) 1950 MHz (accuracy  $\pm$  11.0%; k=2) 2450 MHz (accuracy  $\pm$  11.8%; k=2)

Frequency : 10 MHz to 3 GHz (dosimetry);

Linearity: ±0.2 dB (30 MHz to 3 GHz)

Directivity :  $\pm 0.2 \text{ dB}$  in HSL (rotation around probe axis)

± 0.4 dB in HSL (rotation normal probe axis)

Dynamic Range :  $5 \mu W/g$  to >100 mW/g; Linearity:  $\pm 0.2 dB$ 

Surface Detection : ± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces

Dimensions : Overall length 330 mm

Tip length 16 mm Body diameter 12 mm Tip diameter 6.8 mm

Distance from probe tip to dipole centers 2.7 mm





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#### 6.2 Twin SAM Phantom

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, CENELEC 50361 and IEC 62209-1. It enables the dosimetric evaluation of left and right head 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 :  $2 \pm 0.2 \text{ mm}$ 

Filling Volume : Volume Approx. 25 liters

Dimensions :  $810 \times 1000 \times 500 \text{ mm} (H \times L \times W)$ 

#### 6.3 Mounting Device for Transmitters

The Mounting Device 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).



# 6.4 Typical Composition of Ingredients for Liquid Tissue

Inquadiants	Frequency (MHz)									
Ingredients (% by weight)	88	35	19	00	2450					
(70 by weight)	Head	Body	Head	Body	Head	Body				
Water	41.45	52.40	54.90	40.40	62.70	73.20				
Salt (NaCl)	1.45	1.40	0.18	0.50	0.50	0.04				
Sugar	56.00	45.00	0.00	58.00	0.00	0.00				
HEC	1.00	1.00	0.00	1.00	0.00	0.00				
Bactericide	0.10	0.10	0.00	0.10	0.00	0.00				
Triton X-100	0.00	0.00	0.00	0.00	36.80	0.00				
DGBE	0.00	0.00	44.92	0.00	0.00	26.70				

Salt : 99+% Pure Sodium Chloride Sugar : 98+% Pure Sucrose Water : De-ionized, 16  $M\Omega^+$  resistivity HEC : Hydroxyethyl Cellulose DGBE : 99+% Di (ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

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

The composition of ingredients is according to FCC/OET Bulletin 65 Supplement C.



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#### 7 Measurement Process

#### Area Scan for Maximum Search:

The SAR distribution at the exposed side of the head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was  $10 \text{ mm} \times 10 \text{ mm}$ . The evaluation on the measured area scan gives the interpolated maximum (hot spot) of the measured area.

#### Cube Scan for Spatial Peak SAR Evaluation:

The 1g and 10g peak evaluations were available for the predefined cube 5×5×7 scans. The grid spacing was 8 mm × 8 mm × 5 mm. The first procedure is an extrapolation to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (35000 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found. This last procedure is repeated for a 10g cube. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

#### Extrapolation:

The extrapolation is based on a least square algorithm. Through the points in the first 3 cm in all z-axis, polynomials of order four are calculated. This polynomial is then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from one another.

#### Interpolation:

The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) are computed by the 3D spline algorithm. The 3D spline is composed of three one-dimensional splines with the "Not a knot" –condition (x, y and z –directions). The volume is integrated with the trapezoidal algorithm.



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#### 8 Measurement Uncertainties

<b>Uncertainty Component</b>	Tol. (± %)	Prob. Dist.	Div.	c <sub>i</sub> (1g)	c <sub>i</sub> (10g)	Std. Un	c. (± %)	$v_i$
	(± 70)	Dist.		(1g)	(10g)	1g	10g	
Measurement System								
Probe calibration	5.9	N	1	1	1	5.9	5.9	$\infty$
Axial isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	8
Hemispherical isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.9	3.9	8
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	8
Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	8
Readout electronics	0.4	N	1	1	1	0.4	0.4	$\infty$
Response time	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	×
Integration time	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	8
RF ambient conditions – noise	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
RF ambient conditions – reflections	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
Probe positioner mechanical tolerance	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	$\infty$
Probe positioning with respect to phantom shell	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
Extrapolation, interpolation and integration	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
algorithms for max. SAR evaluation								
Test Sample Related								
Test sample positioning	3.4	N	1	1	1	3.4	3.4	23
Device holder uncertainty	2.9	N	1	1	1	2.9	2.9	5
Output power variation – SAR drift measurement	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	8
Phantom and Tissue Parameters								
Phantom uncertainty	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	× ×
Liquid conductivity – deviation from target	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
Liquid Conductivity – measurement uncertainty	3.2	N	1	0.64	0.43	2.0	1.4	5
Liquid Permittivity – deviation from target	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	$\infty$
Liquid Permittivity – measurement uncertainty	3.0	N	1	0.6	0.49	1.8	1.5	5
Combined Standard Uncertainty		RSS				11.0	10.7	
<b>Expanded Uncertainty (95% Confidence Interval)</b>		k=2				22.0	21.4	

## NOTES

1. Tol.: tolerance in influence quantity2. Prob. Dist.: probability distributions

3. N, R: normal, rectanglar

4. Div. : divisor used to obtain standard uncertainty

5.  $c_i$ : sensitivity coefficient

6. Std. Unc.: standard uncertainty

7. Measurement uncertainties are according to IEEE Std. 1528 and IEC 62209-1.



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9	Equipment Under Test Modification									
	To achie		by JQA to achieve compliance to the limitations. itations, the following changes were made by JQA during	•						
	The modificat	ions will be implemented	in all production models of this equipment.							
	Applicant Date Typed Name Position	<ul><li>: Not Applicable</li><li>: Not Applicable</li><li>: Not Applicable</li><li>: Not Applicable</li></ul>	Signatory:							
10	10 Responsible Party  Responsible Party of Test Item (Product)									
	Responsible	e Party :								
	Contact Per	rson :	Signatory							
11		ations from the standard	lescribed in clause 1. yed from the standard described in clause 1.							



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# 12 Test Results

# 12.1 SAR Measurement for Head Configuration

Maximum SAR (1g)	0.278 mW/g at	1909.80 MHz
Phantom Position	🛚 - Left Head	🗌 - Right Head
Device Position	☐ - Cheek/Touch	🗌 - Ear/Tilt
Antenna Position	🗌 - In 🔲 - Out	$\boxtimes$ - Fixed
Modulation Type		GSM
Remarks:		
12.2 SAR Measurement for Body-worn Configuration		
Maximum SAR (1g)	<u>0.373</u> mW/g at	1850.20 MHz
Body-worn Carry Accessories	Supplied	
Separation Distance between Device and Phantom		1.5 cm
Modulation Type		GSM+GPRS



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#### 13 Summary

#### General Remarks:

The EUT was tested according to the requirements of the following standard.

FCC/OET Bulletin 65 Supplement C (Edition 01-01)

The test configuration is shown in clause 14 to 15.

The conclusion for the test items of which are required by the applied regulation is indicated under the test results.

#### Test Results:

The "as received" sample;

- fulfill the test requirements of the regulation mentioned on clause 1.

doesn't fulfill the test requirements of the regulation mentioned on clause 1.

Reviewed by:

Shigeru Kinoshita Deputy Manager

Testing Dept. EMC Div.

JQA KITA-KANSAI Testing Center

Tested by:

Yasuhisa Sakai

Engineer

Testing Dept. EMC Div.

JQA KITA-KANSAI Testing Center



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Horizontal

Mobile phone box

Vertical

## 14 Test Arrangement

#### 14.1 Cheek-Touch Position

- 1. Position the device with the vertical center line of the body of the device and the horizontal line crossing the center of the ear piece in a plane parallel to the sagittal plane of the phantom.
- 2. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the center of the ear piece with the line RE-LE.
- 3. Translate the mobile phone box towards the phantom with the ear piece aligned with the line RE-LE until the phone touches the ear.
- 4. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.



# 14.2 Ear-Tilt Position

- 1. Position the device in the "Cheek/Touch Position".
- 2. While maintaining the device in the reference plane and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



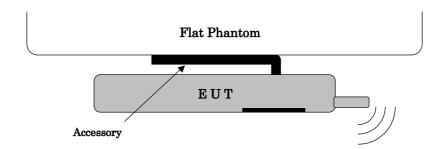


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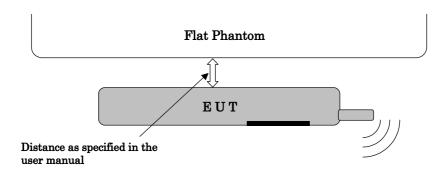
## 14.3 Body-worn Configuration

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. Both the physical spacing to the body of the user as dictated by the accessory and the materials used in an accessory affect the SAR produced by the transmitting 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 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.

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.



Lap-held device (e.g. laptop computer)

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



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## 15 Equipment Under Test Tune-Up Procedures

The following procedures had been used to prepare the EUT for the SAR test.

To setup the desire channel frequency and the maximum output power, a Radio Communication Tester "Rohde & Schwarz, CMU-200" was used to program the EUT.

SM Mobile Station : GSM 1900

GSM mode

Network Support : GSM only

Main Service : Circuit Switched Power Setting : PCL 0 (30 dBm)

GPRS mode

Network Support : GSM+GPRS (Power Setting 30 dBm)

Main Service : Packet Data Service Selection : Test Mode A

Slot Configuration : GPRS Class 8 (4 down / 1 up / 5 sum)

Coding Scheme : CS1 (GMSK)

Conducted power measurements:

Channel	Engange (MII-)	Peak Power (dBm)					
	Frequency (MHz)	GSM	GPRS				
512	1850.20	30.17	30.19				
661	1880.00	29.93	29.95				
810	1909.80	29.91	29.95				

Maximum conducted power was measured by replacing the antenna with an adapter for conductive measurements, before and after the SAR measurements was done.



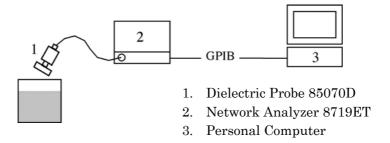
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# Appendix A: Test Data

# A.1 Tissue Verification

The tissue dielectric parameters of the tissue medium at the middle of a device transmission band should be within  $\pm 5\%$  of the parameters specified at that target frequency. It is verified by using the dielectric probe and the network analyzer.



#### Tissue Verification Results:

Ambient Conditions:	21°C 82%			Da	ate : Decembe	r 4, 2007
Liquid		D	m ,	3.4	D : 1: [0/]	T: : [0/]
Medium	Temp. [°C]	Parameters	Target	Measured	Deviation [%]	Limit [%]
H11000 MH-	91.0	Permittivity	40.0	39.41	-1.48	± 5
Head 1800 MHz	21.0	Conductivity	1.40	1.343	-4.07	± 5
H11000 MH-	91.0	Permittivity	40.0	39.00	-2.50	± 5
Head 1900 MHz	21.0	Conductivity	1.40	1.440	+2.86	± 5
Ambient Conditions:	21°C 78%			Da	ate : December	r 5, 2007
M 1 1000 MII	01.0	Permittivity	53.3	52.22	-2.03	± 5
Muscle 1800 MHz	21.0	Conductivity	1.52	1.469	-3.36	± 5
Marcala 1000 MII	99.0	Permittivity	53.3	51.96	-2.51	± 5
Muscle 1900 MHz	22.0	Conductivity	1.52	1.559	+2.57	± 5



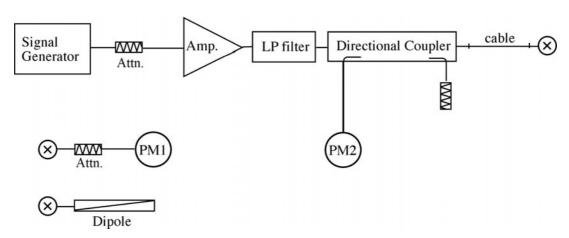
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## A.2 System Validation

The power meter PM1 (including Attenuator) measures the forward power at the location of the validation dipole connector. The signal generator is adjusted for 250 mW at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

The dipole antenna is matched to be used near flat phantom filled with tissue simulating solution. A specific distance holder is used in the positioning of the antenna to ensure correct spacing between the phantom and the dipole.



# System Validation Results:

System Validation Dipole : D1800V2, S/N: 2d038										
Ambient Conditions	s : 21°C 82%	Depth	of Liquid : 15.0 cm	Date: December 4, 2007						
Liquid		Measu	red SAR (mW/g)	m ,	D : 4: [0/]	T: : [0/]				
Medium	Temp. [°C]	1g SAR	Normalized to 1 W	Target	Deviation [%]	Limit [%]				
Head 1800 MHz	21.0	9.35	37.40	38.40	-2.60	± 10				
Ambient Conditions	of Liquid : 15.0 cm	D	ate: Decembe	er 5, 2007						
Muscle 1800 MHz 21.0		9.40	37.60	38.50	-2.34	± 10				

- 1. The results were normalized to 1 W forward power.
- 2. The numerical reference SAR values of SPEAG validation dipoles are given in DASY4 manual. These were calculated using the finite-difference time-domain method and the geometry parameters as defined in the reference documents (e.g., IEEE Std. 1528, IEC 62209-1).
- 3. Please refer to attachment for the result presentation in plot format.



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#### A.3 SAR Measurement Data

#### A.3.1 Left Side

#### **CONFIDENTIAL**

# Cheek/Touch Position

# Ear/Tilt Position

GSM 1900 (Du	GSM 1900 (Duty Cycle: 12.5 %, Crest Factor: 8)  Date: December 4, 2007										
EUT Set-up Configuration		Frequency			[dBm] ak)	Limit	SAR (1g)	Tissue Temp.			
EUT Position	Antenna	Channel	$\mathrm{MHz}$	Start	End	[mW/g]	[mW/g]	[°C]			
		0512	1850.20	30.17	30.17		0.265	21.0			
Cheek/Touch	Fixed	0661	1880.00	29.93	29.90	1.6	0.246	21.0			
		0810	1909.80	29.91	29.88		0.278	21.0			
		0512	1850.20				**				
Ear/Tilt	Fixed	0661	1880.00	29.93	29.90	1.6	0.0381	21.0			
		0810	1909.80				**				

- 1. Depth of Liquid: 15.0 cm
- 2. Transmitter power was measured at the antenna-conducted terminal.
- 3. The SAR result marked at \*\* is optional, because the SAR measured at the middle channel for that configuration is at least 3.0 dB lower than the SAR limit.
- 4. Please refer to attachment for the result presentation in plot format.



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# A.3.2 Right Side

#### **CONFIDENTIAL**

#### Cheek/Touch Position

#### Ear/Tilt Position

GSM 1900 (Du	GSM 1900 (Duty Cycle: 12.5 %, Crest Factor: 8)  Date: December 4, 2007									
EUT Set-up Configuration		Frequency			[dBm] ak)	Limit	SAR (1g)	Tissue Temp.		
EUT Position	Antenna	Channel	MHz	Start	End	[mW/g]	[mW/g]	[°C]		
	Fixed	0512	1850.20				**			
Cheek/Touch		0661	1880.00	29.93	29.92	1.6	0.204	21.0		
		0810	1909.80				**	1		
		0512	1850.20				**			
Ear/Tilt	Fixed	0661	1880.00	29.93	29.91	1.6	0.0347	21.0		
		0810	1909.80				**			

- 1. Depth of Liquid: 15.0 cm
- 2. Transmitter power was measured at the antenna-conducted terminal.
- 3. The SAR result marked at \*\* is optional, because the SAR measured at the middle channel for that configuration is at least  $3.0~\mathrm{dB}$  lower than the SAR limit.
- 4. Please refer to attachment for the result presentation in plot format.



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# A.3.3 Body-worn Position

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GSM 1900 (Duty Cycle: 12.5 %, Crest Factor: 8)  Date: December 5, 200								5, 2007
EUT Set-up Configuration		Frequency		Power [dBm] (Peak)		Limit	SAR (1g)	Tissue Temp.
Separation	Antenna	Channel	MHz	Start	End	[mW/g]	[mW/g]	[°C]
		0512	1850.20			1.6	**	
1.5 cm	Fixed	0661	1880.00	29.93	29.90		0.318	21.0
		0810	1909.80				**	
GSM 1900 GSM+GPRS (Duty Cycle: 12.5 %, Crest Factor: 8)								
1.5 cm	Fixed	0512	1850.20	30.19	30.19	1.6	0.373	21.0
		0661	1880.00	29.95	29.92		0.328	21.0
		0810	1909.80	29.95	29.92		0.346	21.0

- 1. Depth of Liquid: 15.0 cm
- $2. \quad Transmitter \ power \ was \ measured \ at \ the \ antenna-conducted \ terminal.$
- 3. The SAR result marked at \*\* is optional, because the SAR measured at the middle channel for that configuration is at least 3.0 dB lower than the SAR limit.
- $4. \quad \text{The earphone wire connected to the EUT to simulate hand-free operation in a body-worn configuration.} \\$
- 5. Please refer to attachment for the result presentation in plot format.



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# Appendix B: Test Instruments

Туре	Model	Manufacturer	ID No.	Last Cal.	Interval
E-Field Probe	ET3DV6	SPEAG	S-2	2007/11	1 Year
DAE	DAE3 V1	SPEAG	S-3	2007/11	1 Year
Robot	RX60L	SPEAG	S-7	N/A	N/A
Probe Alignment Unit	LB1RX60L	SPEAG	S-13	N/A	N/A
Network Analyzer	8719ET	Agilent	B-53	2007/10	1 Year
Dielectric Probe Kit	85070D	Agilent	B-54	N/A	N/A
1800MHz Dipole	D1800V2	SPEAG	S-5	2007/11	1 Year
Signal Generator	MG3681A	Anritsu	B-3	2007/2	1 Year
RF Amplifier	A0840-3833-R	R&K	A-34	N/A	N/A
Low Pass Filter	LSM2200-4BA	LARK	D-91	2007/11	1 Year
Universal Telecommunication Tester	CMU200	Rohde & Schwarz	B-21	2007/4	1 Year
Power Meter	E4417A	Agilent	B-51	2007/7	1 Year
Power Sensor	E9300B	Agilent	B-32	2007/7	1 Year
Power Sensor	E9321A	Agilent	B-52	2007/7	1 Year
Attenuator	4T-10	Weinschel	D-73	2007/6	1 Year
Attenuator	4T-10	Weinschel	D-74	2007/6	1 Year



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# Appendix C: Attachments

Exhibit	Contents	No. of page(s)	
1	System Validation Plots	2	
2	SAR Test Plots	12	
3	Dosimetric E-Field Probe – ET3DV6, S/N: 1679	9	
4	System Validation Dipole - D1800V2, S/N: 2d038	9	