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# SAR TEST REPORT

<b>Equipment Under Test</b>	PDA phone
Model Name	WING200
Company Name High Tech Computer Corp.	
Company Address	23 Hsin Hua Rd., Taoyuan 330, Taiwan, R.O.C.
Date of Receipt	2007.07.10
Date of Test(s)	2007.07.25-2007.12.17
Date of Issue	2007.12.18

Standards:

# FCC OET Bulletin 65 supplement C, ANSI/IEEE C95.1, C95.3, IEEE 1528

In the configuration tested, the EUT complied with the standards specified above. **Remarks:** 

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory Services or testing done by SGS Taiwan Electronic & Communication Laboratory Services in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory Services in writing.

Tested by : Ricky Huang

Sr. Engineer

**Tech. Manager** 

ad by . Dobort Chang

Date: 2007.12.18

2007.12.18

Approved by : Robert Chang

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# 1. General Information

### 1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory				
134, Wu Kung Road, Wuku industrial zone				
Taipei county, Taiwa	an, R.O.C.			
Telephone +886-2-2299-3279				
Fax +886-2-2298-0488				
Internet	http://www.tw.sgs.com/			

### 1.2 Details of Applicant

Company Name	High Tech Computer Corp.
Company Address	23 Hsin Hua Rd., Taoyuan 330, Taiwan, R.O.C.
Telephone	886-3-3753252
Fax	886-3-3755530
Contact Person	Emily Shih
E-mail	Emily_Shih@HTC.com.tw
Web site	http://www.htc.com/tw/

### 1.3 Description of EUT

EUT Name		PDA phone				
Model number		Wing200				
FCC ID	NM8WG					
Mode of Operation	GSM/GPRS/EDGE, Band 850/1900/WCDMA B2/WCDMA B5				2/WCDMA	
Duty Cyclo	GSM	GPRS	WCDMA B2	WCDMA B5	WiFi b+g	
Duty Cycle	1/8	1/4		1		
Modulation Mode	GSM/GPR S	EDGE	WCDMA B2	WCDMA B5	WiFi b+g	
Modulation Mode	GMSK	8PSK	I W/CIDMIA		B:DBPSK G:BPSK	
Maximum RF Conducted	EGSM 850	DCS 1900	WCDMA B2	WCDMA B5	WiFi b+g	

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				1 ugc	. 0	
Power(Average)	32.76dbm	30.10dbm	23.30db	m 23.24dbm	14.12	dBm
TX Frequency range	EGSM 850	DCS 1900	WCDMA	B2 WCDMA B5	WiFi	b+g
(MHz)	824.2- 848.8	1850- 1910	1852.4 1907.6	846.6	2412-	
	EGSM 850	DCS 1900	WCDMA I	B2 WCDMA B5	WiFi	b+g
(ARFCN)	128-251	512-810	9262-953	38 4132-4233	1-	11
Ambanaa Cain	EGSM 850	DCS 1900	WCDMA I	B2 WCDMA B5	WiF	i b+g
Antenna Gain			-2 ~ +2	dBi		
Antenna Type			PIFA			
Battery Type	1. Simplo, Model number:LIBR160 3.7V 1050mAh Lithium-Ion 2. Sanyo, Model number:LIBR160 3.7V 1050mAh Lithium-Ion 3. Samsung, Model number: WING160 3.7V 1050mAh Lithium-Ion					
Definition		Р	roduction	unit		
IMEI			•	Y722FY00163 Y722FY00207	•	
	For	Head part		For Body	Part	
Max. SAR Measurement value (1 g) 1 <sup>st</sup> solution	(At WCDM Slider-on	06 W/kg IA B2, Left I ,Cheek Posi nnel 9400)	/kg 1.42 W/kg , Left Head (At GSM 850 GPRS mo ek Position Channel 251 with Sar			-
Max. SAR Measurement value (1 g) 2 <sup>nd</sup> solution	(At WCDM Slider-on chann	05 W/kg IA B2, Left I ,Cheek Posi el 9400 with ung Battery)	tion (A	1.58 W/kg		

### Note:

1. EGPRS mode was not measured because maximum averaged output power is more than 3 dB lower in EGPRS mode than in GPRS mode. (In EDGE mode, its power class level is E2 and output power less than 24dBm)

	850 Band			1900 Band		
EDGE Conducted	Frequency (MHz)	CH Number	Peak Power (dBm)	Frequency (MHz)	CH Number	Peak Power (dBm)
output Power	1850.2	512	23.5	1850.2	512	23.5
	1880	661	23.8	1880	661	23.8
	1909.8	810	24.3	1909.8	810	24.3

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### **1.4 Test Environment**

Ambient Temperature: 22.2° C Tissue Simulating Liquid: 21.7° C

Relative Humidity: 62 %

### 1.5 Operation description

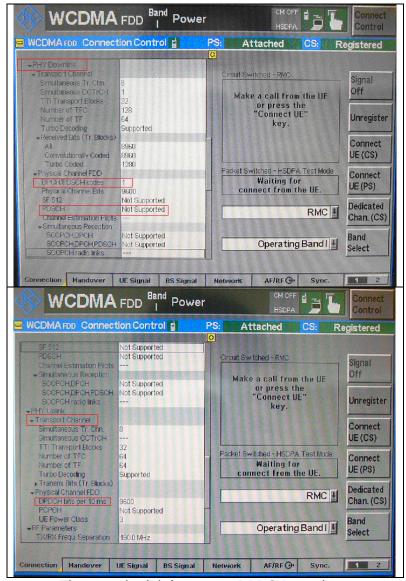
- 1. The EUT controlled by using a Wireless Communication Tester (Agilent 8960), and the communication between the EUT and the tester is established by air link. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
- 2. In each band perform SAR testing for each operation mode using the center frequency on both the left and right sides of the head, cheek and tilt positions to find the maximum mass-averaged SAR value of these configurations (the worst case configuration).
- 3. Measure the low-end and the high-end frequencies of the configuration giving rise to the maximum mass-averaged SAR in head positions.
- 4. For highest SAR configuration in this band repeated with Memory Card & Bluetooth active on & handset\_1 & headset\_2 & Samsung Battery & Sanyo Battery & WiFi b/g active and EDGE mode.
- 5. During the SAR testing, the DASY4 system checks power drift by comparing the -field strength of one specific location measured at the beginning with that measured at the end of the SAR testing

#### Note:

- 1. Follow document KDB 941225, we verified maximum output power on high, middle and low channels in WCDMA & HSDPA function.
- 2. Perfromed SAR testing in WCDMA mode (set in 12.2kbps RMC mode & Test Loop Mode1) to found the highest SAR value in Head & Body position.
- 3. In HSDPA function with 12.2kbps RMC using the highest SAR configurations to perform SAR testing in Body position.
- 4. The SAR is not required for other spreading codes and multiple  $DPDCH_n$  since the output power for each of theseother configurations 1/4 dB higher than 12.2kbps RMC.

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	Channel Bit Rate (kbps)	Channel Symbol Rate (ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
$DPDCH_1$	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320
	960	960	4	1	640
DPDCH <sub>n</sub>	960	960	4	1, 2, 3	640



The sample didn't support DPDCH<sub>n</sub> mode.

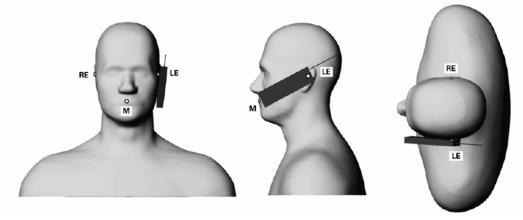
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2. For Wifi part, use the software to control the EUT channel and transmission power and record the conducted power value before the testing.

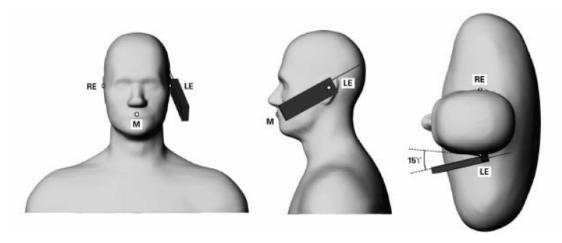
	and record and contacted points rando points and techniq.							
Wifi	802.11b	802.11g						
Channel Frequency Under Test And Its Conducted Output Power (Peak)	13.78 dBm (2412MHz) 13.75 dBm (2437MHz) 14.12 dBm (2462MHz)	10.97 dBm (2412MHz) 11.23 dBm (2437MHz) 11.48 dBm (2462MHz)						

After finish the SAR testing, we found the High channel is the worst with single mode, so we chosen high channel (worst channel) to do Co-location testing.

### 1.6 Positioning Procedure



Phone position 1, "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning



Phone position 2, "tilted position." The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning

Cheek/Touch Position: the handset was brought toward the mouth of the head phantom

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by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

Ear/Tilt Position: With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

### 1.7 EVALUATION PROCEDURES

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- 1. The extraction of the measured data (grid and values) from the Zoom Scan.
- 2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- 3. The generation of a high-resolution mesh within the measured volume
- 4. The interpolation of all measured values from the measurement grid to the high-resolution grid
- 5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- 6. The calculation of the averaged SAR within masses of 1g and 10g.

  The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within –2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are

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verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) 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 the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. 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.

### 1.8 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 4 professional system ). A Model EX3DV3 3526-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR=  $\sigma$  ( $|Ei|^2$ )/  $\rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant.

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

• A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).

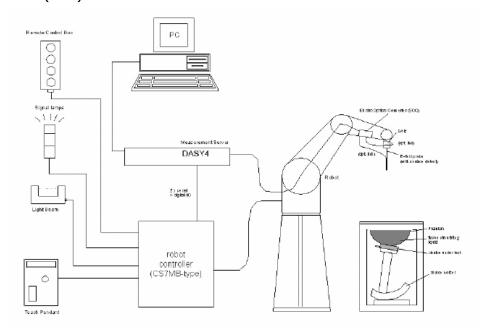


Fig.a The microwave circuit arrangement used for SAR system verification

- 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

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multiplexing, AD-conversion, 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 Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- 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 control 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.

### 1.9 System Components

### **ET3DV6 E-Field Probe**

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. glycol).	
Calibration	In air from 10 MHz to 2.5 GHz In brain simulating tissue (accuracy ± 8%)	EX3DV6 E-Field Probe
Frequency	10 MHz to >6 GHz; Linearity: ±0.2 dB (30	
Directivity	±0.2 dB in brain tissue (rotation around prob	•
,	±0.4 dB in brain tissue (rotation normal to p	,
Dynamic Range:	5 $\mu$ W/g to >100 mW/g; Linearity: $\pm$ 0.2 dB	·
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
Application	General dosimetry up to 3 GHz Compliance t	ests of mobile phone

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### **EX3DV3 E-Field Probe**

	11000
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL850/1900 Additional CF for other liquids and frequencies upon request
_	EX3DV3 E-Field Probe
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 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: $\pm$ 0.2 dB (noise: typically < 1 $\mu$ W/g)
Dimension	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%.

### **SAM PHANTOM V4.0C**

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 mm					
Filling Volume	Approx. 25 liters	( Williams				
Dimensions	Height: 251 mm; Length: 1000 mm; Width: 500 mm					

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#### **DEVICE HOLDER**

Construction In combination with the Twin SAM Phantom V4.0/V4.0C 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).



Device Holder

### 1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 900/1900MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.2°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

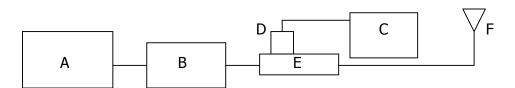


Fig.b The microwave circuit arrangement used for SAR system verification

- A. Agilent Model 8648D Signal Generator
- B. Mini circuits Model ZHL-42 Amplifier
- C. Agilent Model E4416A Power Meter
- D. Agilent Model 8481H Power Sensor
- E. Agilent Model 777D/778D Dual directional coupling
- F. Reference dipole antenna



Photograph of the dipole Antenna

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G. Agilent Model E4421B Signal Generator

- H. EMPOWER Model 2001-BBS3Q7ECK Amplifier
- I. Agilent Model E4419B Power Meter
- J. Agilent Model 9300H Power Sensor

Validation Kit	Frequency	Target Measured		Variation	Measured	
	(MHz)	(Pin=250mW)	SAR(1g)	(%)	Date	
D835V2	835 MHz	2.36m W/g	2.43m W/g	2.96	2007/7/25	
S/N: 490	(Head)	2.30m w/g	2.75III W/g	2.30	2007/7/23	
D835V2	835 MHz	2.36m W/g	2.37m W/g	0.4	2007/8/6	
S/N: 490	(Head)	2.30m w/g	2.5/111 VV/g	υ.τ	2007/6/0	
D835V2	835 MHz	2.36m W/g	2.36m W/g	0	2007/8/10	
S/N: 490	(Head)	2.3011 W/g	2.3011 W/g	U	2007/8/10	
D900V2	900 MHz	2.66m W/g	2.68m W/g	0.75	2007/9/29	
S/N: 178	(Head)	2.00m w/g	2.00III W/g	0.75	2007/3/23	
D900V2	900 MHz	2.69m W/g	2.68m W/g	-0.37	2007/0/22	
S/N: 178	(Body)	2.09111 W/g	2.00III W/g	-0.57	2007/9/23	
D900V2	900 MHz	2.60m W/a	2.70m W/g	0.37	2007/0/20	
S/N: 178	(Body)	2.69m W/g			2007/9/29	
D900V2	900 MHz	2.69m W/g	2.67m W/g	-0.74	2007/11/13	
S/N: 178	(Body)	2.03111	2.07111 W/g	0.7 ¬	2007/11/15	
D1900V2	1900 MHz	9.66m W/g	9.70m W/g	0.41	2007/7/26	
S/N: 5d033	(Head)	3100m 11, g	317 om 117 g	0112	2007/7720	
D1900V2	1900 MHz	9.66m W/g	9.82m W/g	1.66	2007/8/13	
S/N: 5d033	(Head)	3.00m <b>v</b> /g	3.02m <b>v</b> /g	1.00	2007/0/13	
D1900V2	1900 MHz	9.28 m W/g	9.71m W/g	4.6	2007/9/30	
S/N: 5d027	(Head)	3.20 III <b>VV</b> /g	3.7 IIII <b>vv</b> /g	110	2007/3/30	
D1900V2	1900 MHz	9.67 m W/g	9.84m W/g	1.75	2007/9/12	
S/N: 5d027	(Body)	3.07 III <b>VV</b> /g	3.0 IIII <b>vv</b> /g	1.75	2007/3/12	
D1900V2	1900 MHz	9.67 m W/g	9.82m W/g	1.55	2007/9/30	
S/N: 5d027	(Body)	3.07 III <b>vv</b> /g	3.02III W/g	1.55	2007/3/30	
D1900V2	1900 MHz	0.67 m W/a	0 E2m \///a	-1.44	2007/11/14	
S/N: 5d027	(Body)	9.67 m W/g	9.53m W/g	-1. <del>44</del>	2007/11/14	
D2450V2	2450MHz	14 m W/g	13.4m W/g	-4.28	2007/12/17	
S/N: 727	(Body)	17 III VV/9	עיינד איינד איינד	-7.20	2007/12/17	

Table 1. System validation (follow manufacture target value)

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### 1.11 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the HP Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjuncation with HP 8753D Network Analyzer (30 KHz-6000MHz) by using a procedure detailed in Section V.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the ear reference point of the phantom was 15cm±5mm during all tests. (Fig .2)

		Dielectric Paramet			rameters
Frequency	Tissue type	Measurement date/			Simulated Tissue
(MHz)	rissue type	Limits	ρ	σ (S/m)	Temperature(°
					C)
835	Head	Measured, 2007.07.25	42.2	0.884	22.2
055	Ticaa	Recommended Limits	39.4-43.6	0.86-1.05	20-24
835	Head	Measured, 2007.08.06	42.3	0.881	22.2
655	Ticaa	Recommended Limits	39.4-43.6	0.86-1.05	20-24
835	Head	Measured, 2007.08.10	42.3	0.878	22.3
633	Ticaa	Recommended Limits	39.4-43.6	0.86-1.05	20-24
900	Head	Measured, 2007.09.29	40.9	1	21.7
900	ricad	Recommended Limits	39.4-43.6	0.86-1.03	20-24
900	Body	Measured, 2007.09.23	55.5	1.03	21.7
900		Recommended Limits	52.3-58	0.92-1.1	20-24
900	Body	Measured, 2007.09.29	55.3	0.994	21.7
900		Recommended Limits	52.3-58	0.92-1.1	20-24
900	Body	Measured, 2007.11.13	55.5	1.03	21.7
900	body	Recommended Limits	52.3-58	0.92-1.1	20-24
1900	Head	Measured, 2007.07.26	41	1.37	21.7
1900	Ticaa	Recommended Limits	38-42	1.33-1.47	20-24
1900	Head	Measured, 2007.08.13	41	1.37	21.7
1900	Ticaa	Recommended Limits	38-42	1.33-1.47	20-24
1900	Head	Measured, 2007.09.30	39.5	1.42	21.7
1900	Ticaa	Recommended Limits	38-42	1.33-1.47	20-24
1900	Body	Measured, 2007.09.12	52.4	1.58	21.7
1900	Dody	Recommended Limits	50.6-56	1.38-1.6	20-24
1900	Body	Measured, 2007.09.30	52.3	1.58	21.7
1900	Dody	Recommended Limits	50.6-56	1.38-1.6	20-24

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1000	Body	Measured, 2007.11.14	53.2	1.58	21.7
1900 Body		Recommended Limits	50.6-56	1.38-1.6	20-24
2450	Body	Measured, 2007.12.17	54.3	1.97	21.7
		Recommended Limits	50.1-55.3	1.85-2.12	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

Band 850(Body) Frequency (MHz)	Channel	Target	Permittivity Measurement Date	Variation	Target	Conductivity Measurement Date	Variation
Low(824.2)	128		54	2.22%		0.925	4.86%
Mid(836.6)	190	55.2	53.9	2.41%	0.97	0.925	4.86%
High(848.8)	251		53.5	3.17%		0.944	2.75%

Table 3. Dielectric Parameters of Tissue Simulant Fluid (follow P1528 target value)

### The composition of the brain tissue simulating liquid:

Ingredients		Frequency (MHz)								
(% by weight)	45	50	83	35	9	15 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

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The composition	of the brain	tissue simula	ating liquid	for 900 &	1900 & 2450 band:

3							
Ingredient	900MHz(Head)	900Mhz(Body)	1900MHz(Head)	1900Mhz(Body)	2450Mhz(Body)		
DGMBE	X	X	444.52 g	300.67	301.7 ml		
Water	532.98 g	631.68 g	552.42 g	716.56 g	698.3 ml		
Salt	18.3 g	11.72 g	3.06 g	4.0 g	X		
Preventol	2.4 g	1.2g	X	X	X		
D-7					Λ		
Cellulose	3.2 g	X	X	X	X		
Sugar	766.0 g	600 g	X	X	X		
Total	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 I (1 Olza)		
amount					1 L (1.0kg)		

Table 4. Recipes for tissue simulating liquid

### 1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube). Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or

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by specific training or education through appropriate means, such as an RF safety program in a work environment.

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .5)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 m W/g	8.00 m W/g
Spatial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table .5 RF exposure limits

#### Notes:

- 1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
- 2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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# 2.Summary of Results

### **GSM 850 MHZ**

GOM 05						
Right Head	Slider-off	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.66dbm	0.317	22.1	21.7
Left Head S	lider-off (	Cheek I	Position)			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.295	22.1	21.7
Right Head	Slider-off	(15° Ti	lt Position)			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.238	22.1	21.7
Left Head S	lider-off(1	L5° Tilt	Position)	L		L
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.229	22.1	21.7
Right Head	Slider-on	(Cheek	Position)			•
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.220	22.1	21.7
Left Head S	lider-on (	Cheek F	Position)			I .
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.294	22.1	21.7
Right Head	Slider-on	(15° Til	t Position)		1	•
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.194	22.1	21.7
Left Head S	lider-on(1	5° Tilt	Position)		1	I
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	190	836.6	32.66dbm	0.269	22.1	21.7
Body worn (	1				1	I
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]

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	T	1	T		Page: 23	
	128	824.2	32.46dbm	1.25	22.1	21.7
850 MHz	190	836.6	32.66dbm	1.24	22.1	21.7
	251	848.8	32.76dbm	1.3	22.1	21.7
Body worn-	repeated	for EU	Γ front to phantom	1		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	0.535	22.1	21.7
<b>Body worn-</b>	repeated	with Mo	emory card			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.37	22.1	21.7
<b>Body worn-</b>		with Bl	uetooth active			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.32	22.1	21.7
Body worn-			msung Battery			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.38	22.1	21.7
Body worn-			nyo Battery		1	,
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
0-0-1		0.50	Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.42	22.1	21.7
Body worn-			1		T	
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
050 MH	254	040.0	Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.28	22.1	21.7
Body worn-						T
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
050 MH	254	0.40.0	Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.27	22.1	21.7
Body worn-			1			1
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
050 1411	254	040.0	Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.76dbm	1.05	22.1	21.7
Body worn-						T
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]

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850 MHz	251	848.8	32.76dbm	1.01	22.1	21.7		
Body worn-repeated with EGPRS mode								
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
850 MHz	251	848.8	32.76dbm	0.355	22.1	21.7		
Body worn-	repeated	with Sa	nyo Battery & Hol	ster_2				
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
850 MHz	251	848.8	32.76dbm	1.1	22.1	21.7		

# **PCS 1900 MHZ**

	CI: J	/AI :				
Right Head S	Silaer-off	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.358	22.1	21.7
Left Head SI	ider-off (	Cheek I	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.384	22.1	21.7
Right Head	Slider-off	(15° Ti	t Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.571	22.1	21.7
Left Head SI	ider-off(1	.5° Tilt	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.489	22.1	21.7
Right Head S	Slider-on(	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.355	22.1	21.7
Left Head SI	ider- on (	Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.521	22.1	21.7
Right Head S	Slider- on	(15° T	ilt Position)			

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					1 agc . 23	01 233	
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
1900 MHz	661	1880	29.88dbm	0.463	22.1	21.7	
Left Head S	lider- on (	15° Tilt	t Position)				
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
1900 MHz	661	1880	29.88dbm	0.518	22.1	21.7	
Body worn (	Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
	512	1850.2	29.79dbm	0.944	22.1	21.7	
1900 MHz	661	1880	29.88dbm	0.951	22.1	21.7	
	810	1909.8	30.08dbm	0.907	22.1	21.7	
<b>Body worn-</b>	repeated	with Ho	olster_2				
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
1900 MHz	661	1880	29.88dbm	0.376	22.1	21.7	

## **WCDMA B2**

Right Head	Slider-off	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WCDMA B2	9400	1880.0	23.16dbm	0.664	22.1	21.7
Left Head S	lider-off (	Cheek F	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WCDMA B2	9400	1880.0	23.16dbm	0.752	22.1	21.7
Right Head	Slider-off	(15° Til	t Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
	9262	1852.4	22.95dbm	0.865	22.1	21.7
WCDMA B2	9400	1880.0	23.16dbm	0.983	22.1	21.7
	9538	1907.6	22.98dbm	0.963	22.1	21.7
<b>Left Head S</b>	lider-off(:	15° Tilt	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WCDMA B2	9262	1852.4	22.95dbm	0.866	22.1	21.7

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	9400	1880.0	23.16dbm	0.925	22.1	21.7	
	9538	1907.6	22.98dbm	0.876	22.1	21.7	
Right Head Slider-on(Cheek Position)							
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
WCDMA B2	9400	1880.0	23.16dbm	0.759	22.1	21.7	
Left Head SI	ider- on (	Cheek I	Position)			I	
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
	9262	1852.4	22.95dbm	1.02	22.1	21.7	
WCDMA B2	9400	1880.0	23.16dbm	1.06	22.1	21.7	
	9538	1907.6	22.98dbm	1.04	22.1	21.7	
Left Head SI	ider- on (	Cheek I	Position) -repeate	d with Samsung	Battery		
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
WCDMA B2	9400	1880.0	23.16dbm	1.04	22.1	21.7	
Right Head	Slider- on	(15° Ti	ilt Position)				
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
	9262	1852.4	22.95dbm	0.813	22.1	21.7	
WCDMA B2	9400	1880.0	23.16dbm	0.864	22.1	21.7	
	9538	1907.6	22.98dbm	0.917	22.1	21.7	
Left Head SI	lider- on (	15° Tilt	: Position)				
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
	9262	1852.4	22.95dbm	1.00	22.1	21.7	
WCDMA_ B2	9400	1880.0	23.16dbm	1.05	22.1	21.7	
	9538	1907.6	22.98dbm	1.01	22.1	21.7	
<b>Left Head SI</b>	lider- on (	Cheek I	Position) -repeate	d with Bluetooth	active		
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
WCDMA B2	9400	1880.0	23.16dbm	0.904	22.1	21.7	
Left Head SI	lider- on (	Cheek I	Position) -repeate	d with MemoryC	ard active	2	
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
WCDMA B2	9400	1880.0	23.16dbm	0.907	22.1	21.7	
Left Head SI	ider- on (	Cheek I	Position) -repeate	d with Samsung	Battery a	ctive	

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Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.16dbm	0.855	22.1	21.7				
Left Head S	Left Head Slider- on (Cheek Position) -repeated with Sanyo Battery active									
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.16dbm	0.856	22.1	21.7				
Left Head S	lider- on (	Cheek I	Position) -repeate	d with Wibi b act	tive					
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.16dbm	0.833	22.1	21.7				
<b>Left Head S</b>	lider- on (	Cheek I	Position) -repeate	d with Wibi g act	tive					
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.16dbm	0.830	22.1	21.7				
Body worn	(testing ir	n GPRS	mode)							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
	9262	1852.4	22.95dbm	0.789	22.1	21.7				
WCDMA B2	9400	1880.0	23.16dbm	0.862	22.1	21.7				
	9538	1907.6	22.98dbm	0.832	22.1	21.7				
<b>Body worn-</b>	repeated	with Ho	lster_2							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.16dbm	0.786	22.1	21.7				
<b>Body worst</b>	case-repe	eated w	ith HSDPA mode							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid				
			Power (Average)	1g	Temp[°C]	Temp[°C]				
WCDMA B2	9400	1880.0	23.04dbm	0.884	22.1	21.7				

## **WCDMA B5**

Right Head	Slider-off	(Cheek	Position)				
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]	
WCDMA B5	4183	836.6	23.16dbm	0.466	22.1	21.7	
Left Head S	Left Head Slider-off (Cheek Position)						

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WCDMA B5         4183         836.6         23.16dbm         0.453         22.1           Right Head Slider-off(15° Tilt Position)           Frequency         Channel         MHz         Conducted Output Power (Average)         Measured(W/kg) Amb. Temp[°C]           WCDMA B5         4183         836.6         23.16dbm         0.348         22.1	Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid							
Right Head Slider-off(15° Tilt Position)FrequencyChannelMHzConducted Output Power (Average)Measured(W/kg) IgAmb. Temp[°C]WCDMA B54183836.623.16dbm0.34822.1	Liquid Temp[°C] 21.7							
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]  WCDMA B5 4183 836.6 23.16dbm 0.348 22.1	Temp[°C] 21.7							
Power (Average)         1g         Temp[°C]           WCDMA B5         4183         836.6         23.16dbm         0.348         22.1	Temp[°C] 21.7							
1203 00010 2012000111 010 10 2211								
	Liquid							
Left Head Slider-off(15° Tilt Position)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Temp[°C]							
WCDMA B5 4183 836.6 23.16dbm 0.352 22.1	21.7							
Right Head Slider-on(Cheek Position)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
WCDMA B5 4183 836.6 23.16dbm 0.315 22.1	21.7							
Left Head Slider- on (Cheek Position)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
WCDMA B5 4183 836.6 23.16dbm 0.433 22.1	21.7							
Right Head Slider- on (15° Tilt Position)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
WCDMA B5 4183 836.6 23.16dbm 0.282 22.1	21.7							
Left Head Slider- on (15° Tilt Position)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
WCDMA B5 4183 836.6 23.16dbm 0.416 22.1	21.7							
Body worn (testing in GPRS mode)								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
4132 826.4 23.20dbm 0.877 22.1	21.7							
WCDMA B5 4183 836.6 23.16dbm 0.796 22.1	21.7							
4233 846.6 23.02dbm 0.843 22.1	21.7							
Body worn-repeated with Holster_2								
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	Liquid Temp[°C]							
WCDMA B5 4132 826.4 23.20dbm 0.840 22.1	21.7							
Body worst case-repeat with HSDPA mode								

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Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WCDMA B5	4132	826.4	23.57dbm	1.09	22.1	21.7

### WiFi b

Body worn (testing in WiFi b mode)						
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
	1	2412	13.78dbm	0.352	22.1	21.7
WiFi b	6	2437	13.75dbm	0.411	22.1	21.7
	11	2462	14.12dbm	0.442	22.1	21.7

# WiFi g

Body worn (	testing in	WiFi g	mode)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
	1	2412	10.97dbm	0.127	22.1	21.7
WiFi g	6	2437	11.23dbm	0.127	22.1	21.7
	11	2462	11.48dbm	0.148	22.1	21.7

Note: SAR measurement results for the Mobile Phone at maximum output power.

### **Second solution measurement result (changed PCM & Camera)**

## **GSM 850 MHZ**

Right Head	Right Head Slider-off(Cheek Position)							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
850MHZ	190	836.6	32.6dbm	0.380	22.1	21.7		
Left Head Slider-off (Cheek Position)								
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
850 MHz	190	836.6	32.6dbm	0.364	22.1	21.7		
Right Head Slider-off(15° Tilt Position)								
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		

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850 MHz	190	836.6	32.6dbm	0.265	22.1	21.7
<b>Left Head S</b>	lider-off(1	L5° Tilt	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.6dbm	0.249	22.1	21.7
Right Head	Slider-on	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.6dbm	0.223	22.1	21.7
Left Head S	lider-on (	Cheek F	_	<del>,</del>	1	
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.6dbm	0.319	22.1	21.7
Right Head	Slider-on	(15° Til	t Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.6dbm	0.182	22.1	21.7
Left Head S	lider-on(1	.5° Tilt	_			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	190	836.6	32.6dbm	0.316	22.1	21.7
Body worn	(testing ir	GPRS	mode)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
	128	824.2	32.5dbm	1.51	22.1	21.7
850 MHz	190	836.6	32.6dbm	1.55	22.1	21.7
	251	848.8	32.5dbm	1.58	22.1	21.7
<b>Body worn-</b>	repeated	for EU	Γ front to phanton	1		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.5dbm	0.56	22.1	21.7
Body worn-	repeated	with Mo	emory card			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
850 MHz	251	848.8	32.5dbm	1.56	22.1	21.7
Body worn-	repeated	with Bl	uetooth active			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g` , 3,	Temp[°C]	Temp[°C]
	•					<u>-</u>

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850 MHz	251	848.8	32.5dbm	1.57	22.1	21.7
<b>Body worn-</b>	repeated	with Sa	msung Battery			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.49	22.1	21.7
Body worn-	repeated	with Sa	nyo Battery			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.54	22.1	21.7
Body worn-	repeated	with He	eadset 1			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.28	22.1	21.7
<b>Body worn-</b>	repeated	with He	eadset 2			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.29	22.1	21.7
Body worn-	repeated	with W	iFi b active			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.24	22.1	21.7
Body worn-	repeated	with W	iFi g active			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.19	22.1	21.7
<b>Body worn-</b>	repeated	with EG	SPRS mode			
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	0.311	22.1	21.7
Body worn-	repeated	with Ho	olster_2		-	,
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	251	848.8	32.5dbm	1.24	22.1	21.7
1						

# **PCS 1900 MHZ**

Right Head Slider-off(Cheek Position)						
Frequency	Channel	MHz	Conducted Output	. , 5,	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	remp[ C]

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1900 MHz	661	1880	30.0dbm	0.272	22.1	21.7
Left Head S	lider-off (	Cheek I	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	30.0dbm	0.318	22.1	21.7
Right Head					<b>T</b>	1
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	29.88dbm	0.403	22.1	21.7
Left Head S	L			01.00		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
requeries	Chamici		Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	29.88dbm	0.381	22.1	21.7
Right Head	Slider-on	(Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	30.0dbm	0.292	22.1	21.7
Left Head S	lider- on (	Cheek	Position)			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	30.0dbm	0.527	22.1	21.7
Right Head		(15° T			1	
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
1000 1411	664	1000	Power (Average)	1g	Temp[°C]	Temp[°C]
1900 MHz	661	1880	30.0dbm	0.377	22.1	21.7
Left Head S				1011		
Frequency	Channel	MHz	Conducted Output Power (Average)		Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.0dbm	1g 0.474	22.1	21.7
Body worn (				0.171	<u></u>	
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
	C. Id. II ICI		Power (Average)	1g	Temp[°C]	Temp[°C]
	512	1850.2	29.8dbm	0.713	22.1	21.7
1900 MHz	661	1880	30.0dbm	0.695	22.1	21.7
	810	1909.8	30.1dbm	0.638	22.1	21.7
<b>Body worn-</b>	repeated	with Ho	olster_2			
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]

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1900 MHz	512	1850.2	29.8dbm	0.518	22.1	21.7
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# **WCDMA B2**

Power (Average)   1g   Temp[°C]	Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7
Power (Average)   1g   Temp[°C]	Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7
WCDMA B2         9400         1880.0         23.3dbm         0.547         22.1           Left Head Slider-off (Cheek Position)           Frequency         Channel         MHz         Conducted Output Power (Average)         Measured(W/kg) Amb. Temp[°C] Temp[°C	21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7
Left Head Slider-off (Cheek Position)  Frequency   Channel   MHz   Conducted Output   1g   Temp[°C]   Temp[°C]	Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7
Frequency         Channel         MHz         Conducted Output Power (Average)         Measured(W/kg) 1g         Amb. Temp[°C] Temp[°	Temp[°C] 21.7  Liquid Temp[°C] 21.7  Liquid Temp[°C] 21.7
Power (Average)   1g   Temp[°C]	Temp[°C] 21.7  Liquid Temp[°C] 21.7  Liquid Temp[°C] 21.7
WCDMA B2         9400         1880.0         23.3dbm         0.607         22.1           Right Head Slider-off(15° Tilt Position)           Frequency         Channel         MHz         Conducted Output Power (Average)         Measured(W/kg)         Amb. Temp[°C]         T	21.7  Liquid Temp[°C]  21.7  Liquid Temp[°C]  21.7
Right Head Slider-off(15° Tilt Position)  Frequency   Channel   MHz   Conducted Output   Power (Average)   1g   Temp[°C]   Temp[°C]	Liquid Temp[°C] 21.7 Liquid Temp[°C] 21.7
Frequency Channel MHz Conducted Output Power (Average) 1g Temp[°C]	Temp[°C] 21.7  Liquid Temp[°C] 21.7
Power (Average)   1g   Temp[°C]	Temp[°C] 21.7  Liquid Temp[°C] 21.7
WCDMA B2         9400         1880.0         23.3dbm         0.769         22.1           Left Head Slider-off(15° Tilt Position)         Frequency         Channel         MHz         Conducted Output Power (Average)         Measured(W/kg) Amb. Temp[°C]         Amb. Temp[°C]	21.7 Liquid Temp[°C] 21.7
Left Head Slider-off(15° Tilt Position)  Frequency Channel MHz Conducted Output Power (Average) 1g Temp[°C] Tem	Liquid Temp[°C] 21.7
Frequency Channel MHz Conducted Output Power (Average) 1g Amb. Temp[°C] Tem	Temp[°C] 21.7
Power (Average)   1g   Temp[°C]	Temp[°C] 21.7
WCDMA B2 9400 1880.0 23.3dbm 0.727 22.1  Right Head Slider-on(Cheek Position)  Frequency Channel MHz Conducted Output Power (Average) 1g Temp[°C] T	21.7
Right Head Slider-on(Cheek Position)  Frequency Channel MHz Conducted Output Power (Average) 1g Temp[°C] Temp[°	
Frequency Channel MHz Conducted Output Power (Average) Measured(W/kg) Amb. Temp[°C]	
Power (Average)  1g Temp[°C] T	
WCDMA B2 9400 1880.0 23.3dbm 0.533 22.1  Left Head Slider- on (Cheek Position)  Frequency Channel MHz Conducted Output Power (Average) Measured(W/kg) Amb. Temp[°C] Temp[°C]	Liquid
Left Head Slider- on (Cheek Position)         Frequency       Channel       MHz       Conducted Output Power (Average)       Measured(W/kg) Amb. Temp[°C]       Temp[°C]	Temp[°C]
Frequency Channel MHz Conducted Output Measured(W/kg) Amb. Power (Average) 1g Temp[°C]	21.7
Power (Average) 1g Temp[°C] Temp	
	Liquid
	Temp[°C]
9262   1852.4   23.14dbm   0.842   22.1	21.7
WCDMA B2 9400 1880.0 23.3dbm 1 22.1	21.7
9538 1907.6 23.15dbm 0.892 22.1	21.7
Right Head Slider- on (15° Tilt Position)	
Frequency Channel MHz Conducted Output Measured(W/kg) Amb.	Liquid
	Temp[°C]
WCDMA_ B2   9400   1880.0   23.3dbm   0.680   22.1	21.7
Left Head Slider- on (15° Tilt Position)	
	Liquid
Power (Average) 1g Temp[°C] Temp	Temp[°C]

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				<u> </u>	Page . 34	01 233		
	9262	1852.4	23.14dbm	0.822	22.1	21.7		
WCDMA_ B2	9400	1880.0	23.3dbm	0.905	22.1	21.7		
	9538	1907.6	23.15dbm	0.811	22.1	21.7		
Left Head Slider- on (Cheek Position) -repeated with Bluetooth active								
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	0.995	22.1	21.7		
Left Head SI			Position) -repeate	-		1		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
MCDMA DO	0.400	1000 0	Power (Average)	1g	Temp[°C]	Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	0.988	22.1	21.7		
		1	Position) -repeate					
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg)	Amb. Temp[°C]	Liquid		
WCDMA B2	9400	1880.0	, ,	1g <b>1.05</b>	22.1	Temp[°C] 21.7		
	Channel	MHz	Position) -repeate Conducted Output		Amb.			
Frequency	Channel	IMI⊓Z	Power (Average)	Measured(W/kg) 1g	Temp[°C]	Liquid Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	1	22.1	21.7		
		l	Position) -repeate			21.7		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
rrequeriey	Chamic	11112	Power (Average)	1g	Temp[°C]	Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	1.01	22.1	21.7		
Left Head Si	lider- on (	Cheek I	Position) -repeate	d with Wibi g act	tive	<u>I</u>		
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
. ,			Power (Average)	1g	Temp[°C]	Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	0.990	22.1	21.7		
Body worn (	testing ir	1 GPRS	mode)					
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
	9262	1852.4	23.14dbm	0.857	22.1	21.7		
WCDMA B2	9400	1880.0	23.3dbm	0.934	22.1	21.7		
	9538	1907.6	23.15dbm	0.779	22.1	21.7		
Body worn-	repeated	with Ho	lster_2					
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid		
			Power (Average)	1g	Temp[°C]	Temp[°C]		
WCDMA B2	9400	1880.0	23.3dbm	0.759	22.1	21.7		
<b>Body worst</b>	case-repe	eated w	ith HSDPA mode					
	<u> </u>					<del></del>		

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Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WCDMA B2	9400	1880.0	23.11dbm	0.829	22.1	21.7

# **WCDMA B5**

Right Head	Right Head Slider-off(Cheek Position)							
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.488	22.1	21.7		
Left Head SI	Left Head Slider-off (Cheek Position)							
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.471	22.1	21.7		
Right Head	Slider-off	(15° Ti	t Position)					
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.373	22.1	21.7		
<b>Left Head SI</b>	Left Head Slider-off(15° Tilt Position)							
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.354	22.1	21.7		
Right Head	Slider-on	(Cheek	Position)					
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.367	22.1	21.7		
<b>Left Head S</b>	lider- on (	Cheek	Position)			1		
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.470	22.1	21.7		
Right Head	Slider- on	(15° T	ilt Position)					
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.302	22.1	21.7		
Left Head SI	lider- on (	15° Til	t Position)					
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]		
WCDMA B5	4183	836.6	23.12dbm	0.461	22.1	21.7		

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					1 <b>uge</b> . 30		
Body worn (testing in GPRS mode)							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
	4132	826.4	23.24dbm	1.07	22.1	21.7	
WCDMA B5	4183	836.6	23.16dbm	0.818	22.1	21.7	
	4233	846.6	23.07dbm	0.934	22.1	21.7	
Body worn-repeated with Holster_2							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
WCDMA B5	4132	826.4	23.24dbm	0.910	22.1	21.7	
Body worst case-repeat with HSDPA mode							
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid	
			Power (Average)	1g	Temp[°C]	Temp[°C]	
WCDMA B5	4132	826.4	23.63dbm	1.1	22.1	21.7	

## WiFi b

Body worn (testing in WiFi b mode)						
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
	1	2412	13.78dbm	0.394	22.1	21.7
WiFi b	6	2437	13.75dbm	0.429	22.1	21.7
	11	2462	14.12dbm	0.474	22.1	21.7

# WiFi g

Body worn (testing in WiFi g mode)						
Frequency	Channel	MHz	Conducted Output	Measured(W/kg)	Amb.	Liquid
			Power (Average)	1g	Temp[°C]	Temp[°C]
WiFi g	1	2412	10.97dbm	0.104	22.1	21.7
	6	2437	11.23dbm	0.120	22.1	21.7
	11	2462	11.48dbm	0.157	22.1	21.7

Note: SAR measurement results for the Mobile Phone at maximum output power.

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# 3. Instruments List

Maunfacturer	Device	Туре	Serial Number	Due date of Calibration
Stäubli	Robot	RX90BL	F03/5W05A1/A/01	N/A
Schmid& Partner Engineering AG	Dosimetric E-Field Probe	ET3DV6	1782	April 23, 2008
Schmid& Partner Engineering AG	835 MHz System Validation Dipole	D835V2	490	August 14, 2007
Schmid& Partner Engineering AG	1900 MHz System Validation Dipole	D1900V2	5d033	August 16, 2007
Schmid& Partner Engineering AG	Data acquisition Electronics	DAE3	567	September 22, 2007
Schmid& Partner Engineering AG	Software	DASY 4 V4.7	N/A	N/A
Schmid& Partner Engineering AG	Phantom	SAM Phantom V4.0	TP-1299 TP-1300	N/A
Agilent	Network Analyzer	E5070B	MY42100282	May 11, 2008
Agilent	Dielectric Probe Kit	85070D	2184	N/A
Agilent	Power Meter	E4419B	GB43311126	December 8, 2007
Agilent	Power Sensor	E9300H	MY41495308 MY41495314	December 8, 2007
Agilent	Signal Generator	E4421B	MY43350132	December 8, 2007
Empower RF Systems	Power Amplifier	2001-BBS3Q7ECK	1032 D/C 0336	May 11, 2008
Agilent	Dual Directional Coupler	777D 778D	50128 50454	December 8, 2007
Microlab	LP Filter	LA-15N LA-30N	N/A	December 8, 2007
R & S	Mobile Test Unit	CMU200	GB43345198	December 28,

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Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV3	3526	Aug.29.2008
Cabacid C Dawton	900/1900 MHz	D900V2	178	Feb.19.2008
Schmid & Partner	System	D1900V2	5d027	Mar.20.2008
Engineering AG	Validation Dipole	D2450V2	727	Mar.13.2008
Schmid & Partner	Data acquisition	DAE4	679	Apr.20.2008
Engineering AG	Electronics	DAE4	547	Oct.01.2008
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 53	N/A	Calibration isn't necessary
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration isn't necessary
Agilent	Network Analyzer	8753D	3410A05547	Nov.14.2008
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration isn't necessary
Agilent	Dual-directional coupler	778D	50313	Aug.21.2008
Agilent	RF Signal Generator	8648D	3847M00432	May.22.2008
Agilent	Power Sensor	8481H	MY41091361	Jun.04.2008

8960

GB44051912

Nov.27.2008

8960 Series 10 Wireless

Communication Tester

Agilent

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## 4. Measurements

Date/Time: 2007-07-25 11:43:56

Test Laboratory: SGS Testing Korea File Name: <u>GSM850</u> Right Ear.da4

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850\_Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886$  mho/m;  $\varepsilon_r = 42.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### GSM850\_RE\_Cheek\_Slide Close\_Mid/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.336 mW/g

#### GSM850\_RE\_Cheek\_Slide Close\_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

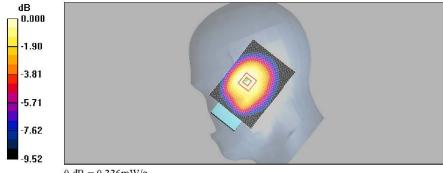
Reference Value = 16.4 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.410 W/kg

SAR(1 g) = 0.317 mW/g; SAR(10 g) = 0.238 mW/g

### Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.336 mW/g



0 dB = 0.336 mW/g

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Date/Time: 2007-07-25 10:23:48

Test Laboratory: SGS Testing Korea File Name: <u>GSM850\_Left Ear.da4</u>

#### DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850\_Left Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\varepsilon_r = 42.2$ ;  $\rho = 1000$ 

 $kg/m^3$ 

Phantom section: Left Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### GSM850\_LE\_Cheek\_Slide Close\_Mid/Area Scan (61x81x1): Measurement grid:

dx=15mm,  $dy=\overline{15}mm$ 

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.334 mW/g

#### GSM850 LE Cheek Slide Close Mid/Zoom Scan (7x7x7)/Cube 0; Measurement grid:

dx=5mm, dy=5mm, dz=5mm

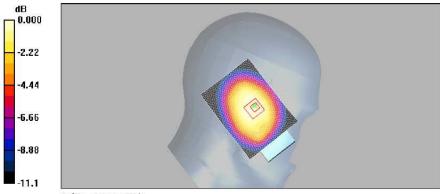
Reference Value = 16.4 V/m; Power Drift = -0.192 dB

Peak SAR (extrapolated) = 0.418 W/kg

SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.219 mW/g

#### Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.311 mW/g



0 dB = 0.311 mW/g

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Date/Time: 2007-07-25 12:02:56

Test Laboratory: SGS Testing Korea File Name: <u>GSM850\_Right Ear.da4</u>

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850\_Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\varepsilon_r = 42.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Right Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

## **GSM850\_RE\_Tilt\_Slide** Close\_Mid/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.250 mW/g

#### GSM850 RE Tilt Slide Close Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

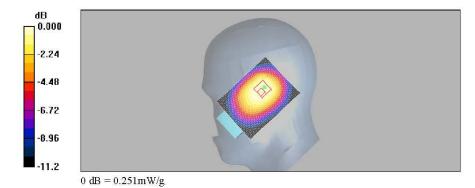
Reference Value = 16.9 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 0.297 W/kg

SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.170 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.251 mW/g



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Date/Time: 2007-07-25 10:42:27

Test Laboratory: SGS Testing Korea File Name: <u>GSM850 Left Ear. da4</u>

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850 Left Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\epsilon_n = 42.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Left Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

## GSM850\_LE\_Tilt\_Slide Close\_Mid/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.249 mW/g

#### GSM850\_LE\_Tilt\_Slide Close\_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

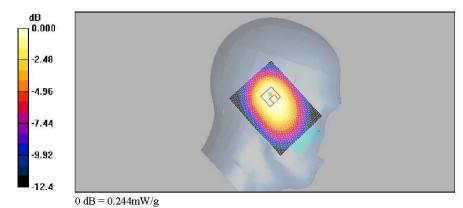
Reference Value = 16.4 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 0.316 W/kg

SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.159 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.244 mW/g



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Date/Time: 2007-07-25 1:12:42

Test Laboratory: SGS Testing Korea File Name: <u>GSM850\_Right Ear.da4</u>

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850 Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\varepsilon_r = 42.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Right Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### GSM850\_RE\_Cheek\_Slide Open\_Mid/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.233 mW/g

#### GSM850 RE Cheek Slide Open Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

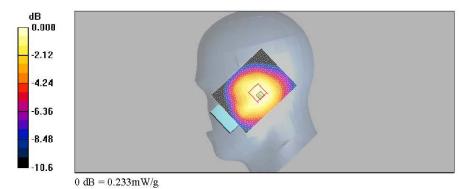
Reference Value = 13.9 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.284 W/kg

SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.164 mW/g

### Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.233 mW/g



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Date/Time: 2007-07-25 11:01:34

Test Laboratory: SGS Testing Korea File Name: GSM850 Left Ear.da4

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850 Left Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\varepsilon_r = 42.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Left Section

#### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### **GSM850\_LE\_Cheek\_Slide Open\_Mid/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.314 mW/g

#### GSM850 LE Cheek Slide Open Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

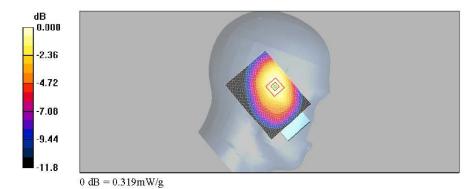
Reference Value = 13.2 V/m; Power Drift = 0.064 dB

Peak SAR (extrapolated) = 0.431 W/kg

SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.197 mW/g

### Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.319 mW/g



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Date/Time: 2007-07-25 1:31:44

Test Laboratory: SGS Testing Korea File Name: GSM850 Right Ear.da4

DUT: WING200; Type: Slide Keyboard; Serial: TY722FY00163

Program Name: GSM850 Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): f = 836.6 MHz;  $\sigma = 0.886 \text{ mho/m}$ ;  $\varepsilon_r = 42.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Right Section

### DASY4 Configuration:

- Probe: ET3DV6 SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP\_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

## **GSM850\_RE\_Tilt\_Slide Open\_Mid/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.207 mW/g

### GSM850\_RE\_Tilt\_Slide Open\_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 0.242 W/kg

SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.141 mW/g

#### Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.207 mW/g

