SAR TEST REPORT

Test Report No. : 32IE0169-HO-C-R1

Applicant	:	**SAMSUNG ELECTRONICS CO., LTD.**
Type of Equipment	:	**GSM/GPRS1900 Phone with bluetooth**
Model No.	:	**SHW-A350K**
FCC ID	:	**A3LSHWA350K**
Test regulation	:	**FCC47CFR 2.1093** **FCC OET Bulletin 65, Supplement C (Edition 01-01)**
Test Result	:	**Complied** **FCC Part 24E** Head : 0.097W/kg Body : 0.871W/kg

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this report are traceable to the national or international standards.
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6 This report is a revised version of 32IE0169-HO-C. 32IE0169-HO-C is replaced with this report.

Date of test: April 18, 2012

Representative test engineer:

Hisayoshi Sato
Engineer of WiSE Japan,
UL Verification Service

Approved by :

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Leader of WiSE Japan
UL Verification Service

NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address, http://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

SECTION 1: Customer information

Company Name	:	SAMSUNG ELECTRONICS CO., LTD.
Address	:	416, MAETAN 3-DONG, YEONGTONG-GU SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of EUT	GSM/GPRS1900 Phone with bluetooth
Model No.	SHW-A350K
Serial No.	FJ-111-B
Rating	DC3.7V
Receipt Date of Sample	April 11, 2012
Modification of EUT	No Modification by the test lab
Option Battery	N/A
Body-worn Accessory	Ear phone (typical)
Device category	Portable
Antenna to antenna separation distance	66.7mm from WWAN antenna to Bluetooth antenna
Simultaneous transmission	WWAN can transmit simultaneously with Bluetooth

2.2 Product description

Radio Specification

Bluetooth

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Type	FPCB type
Antenna Gain	-6.8dBi

GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] PCS: 1850 – 1910MHz [Down Link] PCS: 1930 – 1990MHz
Type of Modulation	GMSK
Emission Designator	PCS: 250KGWX
Antenna Type	Cap type
Antenna Gain	-4.54dBi

SECTION 3 : Test standard information

3.1 Test Specification

Title : **Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01):**

Supplement C (Edition 01-01) - Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
OET Bulletin 65 (Edition 97-01) - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

: **IEEE Std 1528-2003:**

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Supplement C

In additions;

☑ **KDB450824 D01**	SAR Prob Cal and Ver Meas v01r01
☑ **KDB450824 D01**	Dipole SAR Validation Verification v01
☑ **KDB447498D01(v04)**	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
☐ **KDB447498D02(v02)**	SAR Measurement Procedures for USB Dongle Transmitters
☑ **KDB648474D01**	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas
☐ **KDB941225D01(v02)**	SAR Measurement Procedures for 3G Devices
☐ **KDB941225D02(v02v01)**	3GPP R6 HSPA and R7 HSPA+ SAR Guidance
☑ **KDB941225D03(v01)**	Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE
☐ **KDB941225D04(v01)**	Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode
☐ **KDB941225D05(v01)**	SAR for LTE Devices
☐ **KDB941225D06(v01)**	SAR test procedures for devices incorporating SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
☐ **KDB941225D07(v01)**	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
☐ **KDB 616217 D01(v01r01)**	SAR Evaluation Considerations for Laptop Computer with antennas Built-in on Display Screen
☐ **KDB 616217 D03(v01)**	SAR Evaluation Considerations for Laptop/Notebook/Netbook and Tablet
☐ **KDB865664**	SAR Measurement Requirements for 3 to 6 GHz
☐ **KDB248227(rev.1.2)**	SAR Measurement Procedures for 802.11a//b/g Transmitters

Reference

[1]ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.
[2]SPEAG uncertainty document (AN 15-7/AN19-17) for DASY 5 System from SPEAG (Shimid & Partner Engineering AG).

3.2 Procedure

Transmitter	WWAN	Bluetooth
Test Procedure	FCC OET BULLETIN 65, SUPPLEMENT C	Exemption (Power < 12mW)
	SAR	
Category	FCC47CFR 2.1093	FCC47CFR 2.1093
Note: UL Japan, Inc. 's SAR Work Procedures 13-EM-W0429 and 13-EM-W0430		

Bluetooth mode is excluded from SAR test since power was 1/2 *60/$f_{[GHz]}$[mW].

3.3 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE
SPATIAL PEAK(averaged over any 1g of tissue) LIMIT
1.6 W/kg

3.4 Test Location

*Shielded room for SAR testings
UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

SECTION 4 : Test result

4.1 Stand-alone SAR result

No.	Capable Tx configrations		Head SAR	Body-worn SAR	Body SAR (HotSpot)	Note
1	WWAN	GSM/GPRS 1900 MHz	Yes	Yes	No	-
2	Bluetooth	Bluetooth BDR/EDR	Exemption*1			-

Note
*1 Bluetooth power is 1/2 *60/$f_{[GHz]}$[mW].

Mode	1g Head SAR [W/kg]	1g Body-worn SAR [W/kg]	1g BodySAR [W/kg]
PCS1900	0.097	0.871	No
Bluetooth	Exemption		

4.2 Simultaneous transmission SAR result

<Simultaneous Procedure>

This EUT has the unlicensed transmitter such as Bluetooth devices besides licensed transmitter WWAN (GSM), and the following simultaneous transmission is possible.

No.	Capable Tx configrations	Head SAR	Body SAR	Note
3	WWAN+Bluetooth	Exemption		

<WWAN + Bluetooth >
Simultaneous transmitter evaluation based on the KDB648474.

Step1.	WWAN antenna is >5cm from Bluetooth antenna
Step2.	Bluetooth power < Pref (=1/2 *60/$f_{[GHz]}$). Refer to the FCC 15.247 test report
Step3.	No stand-alone SAR for Bluetooth
Step4.	No simultaneous transmission SAR

SECTION 5 : Description of the operating mode

5.1 SAR testing operating modes

The operating mode for SAR testing was decided by the output power

5.2 Output power operating modes

Band	Duty cycle or Multislot class(GSM)	Test Frequency	Mode
PCS1900	Multislot class 12	1850.2MHz(512ch) 1880.0MHz(661ch) 1909.8MHz(810ch)	GSM GPRS (CS-1)
WWAN			
The communication link was set up with the Wireless Communications Test Set (Agilent). The EUT was command to operate at maximum transmit power. PCS1900 :PCL 0 (GPRS class)			

5.3 WWAN Output power measurement results

[GSM]
*Connection Type > AUTO
*Power control leve >0(PCS1900)

[GPRS]
*Connection Type > Type B
*Power control level > 0(PCS1900)
*Coding Scheme > CS-1

SAR measurement for GSM

1) PCS1900

1.The GPRS 2up mode was maximum time-based average power. The other slots SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured GPRS 2up mode.

PCS1900 SAR Power

Mode		CF (Crest Factor)	Ch	Frequency [MHz]	Time-based AVG				Slotted-AVG		
					Reading [dBm] Time-AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] Time-AVG	Reading [dBm] slotted AVG	Atten. +Cable Loss [dB]	Result [dBm] Slotted AVG
GSM	1slot	8.3	512	1850.2	2.54	9.99	8.19	20.72	22.34	8.19	30.53
			661	1880.0	1.81	9.99	8.19	19.99	21.27	8.19	29.46
			810	1909.8	1.40	9.99	8.19	19.58	21.07	8.19	29.26
GPRS (CS1)	1slot	8.3	512	1850.2	2.41	9.99	8.19	20.59	22.32	8.19	30.51
			661	1880.0	1.65	9.99	8.19	19.83	21.26	8.19	29.45
			810	1909.8	1.22	9.99	8.19	19.40	21.04	8.19	29.23
	2slots	4.2	512	1850.2	3.63	9.99	8.19	21.81	21.74	8.19	29.93
			661	1880.0	2.86	9.99	8.19	21.04	20.64	8.19	28.83
			810	1909.8	2.53	9.99	8.19	20.71	20.49	8.19	28.68
	3slots	2.8	512	1850.2	2.30	9.99	8.19	20.48	21.72	8.19	29.91
			661	1880.0	1.56	9.99	8.19	19.74	20.62	8.19	28.81
			810	1909.8	1.21	9.99	8.19	19.39	20.48	8.19	28.67
	4slots	2.1	512	1850.2	2.31	9.99	8.19	20.49	21.71	8.19	29.90
			661	1880.0	1.56	9.99	8.19	19.74	20.62	8.19	28.81
			810	1909.8	1.23	9.99	8.19	19.41	20.47	8.19	28.66

Time based AVG Results = P/M Reading + Atten.Loss + Cable Loss
Slotted AVG Results = Agilent Reading + Cable Loss
:Maximum time based AVG power mode

5.4 Confirmation before SAR testing

Correlation of Output Power between EMC and SAR tests

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)
SAR power is equal to DATA of EMC test based on the following reason.

- EMC and SAR tests are performed with the same test sample such as serial number under the same condition.
- EMC and SAR tests are performed at the same laboratory.

5.5 Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%.The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measureing the e-filed at the same location at beginning and the end of the scan measurement for each test position.

DASY5 system calucation Power drift value[dB] =20log(Ea)/(Eb)
Before SAR testing : Eb[V/m]
After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5%
X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

from E-filed relations with power.
p=E^2/η=E^2/
Therefore, The correlation of power and the E-filed
XdB=10log(P)=10log(E)^2=20log(E)

Therefore,
The calculated power drift of DASY5 System must be the less than +/-0.212dB.

SECTION6 : Description of the Head/Body setup

6.1 Test position for Head setup

i)Procedure for SAR testing

The EUT was tested in accordance with FCC OET Bulletin 65 Supplement C: 2001-01 and IEEE 1528: 2003 for both the "Cheek/Touch" and "Ear/Tilt" positions at the left and right sides of the SAM phantom head region. The FCC KDB 648474 D01 was also incorporated.

ii)Test mode

PCS1900	**Voice mode (GSM)**

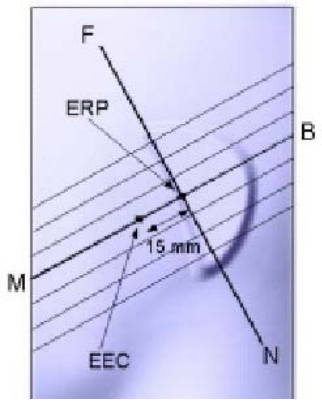
iii)Test position

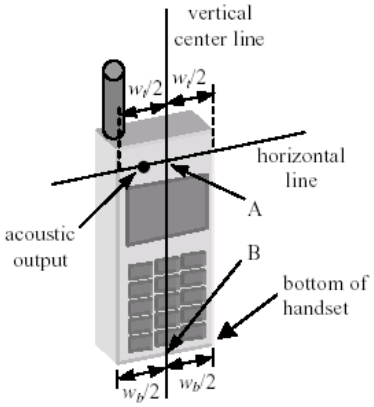
(1) Left cheek
(2) Left tilt
(3) Right cheek
(4) Right tilt

Initial ear position

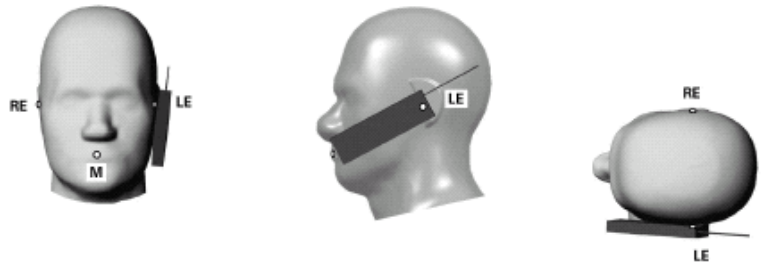
A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom.

The device should be positioned parallel to the "N-F" line defined along the base of the ear spacer that contains the "ear reference point". The "test device reference point" is aligned to the "ear reference point" on the head phantom and the "vertical centerline" is aligned to the "phantom reference plane".

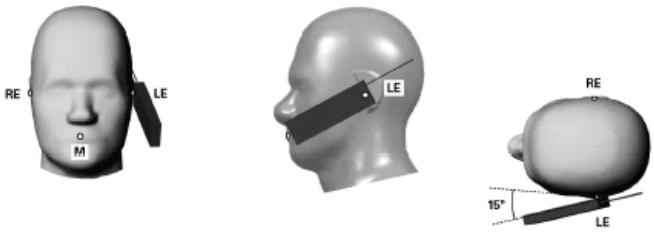




Cheek position
The device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line.
This test position is established:
i) When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.
ii) (or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.



Tilt position
If the earpiece of the handset is not in full contact with the phantom's ear spacer and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer. Otherwise the handset should be moved away from the cheek perpendicular to the line passes through both "ear reference points" for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the "test device reference point" by 15°. After the tilt, it is then moved back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously.



SAR test in Mouse and Jaw Regions of the SAM Phantom
The measurement procedure using a flat phantom according to the KDB648474 D01.

The SAR required in these regions of SAM should be measured using a flat phantom. Clam-shell phones should be positioned with the hinge against a smooth edge of the flat phantom where the upper half of the phone is unfolded and extended beyond the phantom side wall. The lower half of the phone is secured in the test device holder at a fixed distance below the flat phantom determined by the minimum separation along the lower edge of the phone in the cheek touching position using SAM.

<Antenna position>
The antennas use for WWAN in a single fixed position. The antennas are integral part of the device.

6.2 Description of the Body-worn setup

i)Procedure for SAR testing
The EUT was tested in accordance with FCC OET Bulletin 65 Supplement C: 2001-01.
Test performed at 15 mm from a flat section.

ii)Test mode

PCS1900	**Data transmission mode (GPRS)**

ii)Test position
(1) Rear (15mm) :
The measurement separated 15mm distance between the rear face of EUT and flat section.
The tests were performed in the EUT with the earphone. (Refer to the Appendix1)
(2) Front (15mm) :
The measurement separated 15mm distance between the front face of EUT and flat section.
The tests were performed in the EUT with the earphone. (Refer to the Appendix1)

<Antenna position>
The antennas use for WWAN in a single fixed position. The antennas are integral part of the device.

SECTION 7 : Test surrounding

7.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents[2] and is given in the following Table.

Error Description	Uncertai value ±	Probability distribution	divisor	(ci) 1g	Standard (1g)	vi or veff
Measurement System						
Probe calibration	± 6.00	Normal	1	1	± 6.00	∞
Axial isotropy of the probe	± 4.7	Rectangular	√3	0.7	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	√3	0.7	± 3.9	∞
Boundary effects	± 1.0	Rectangular	√3	1	± 0.6	∞
Probe linearity	± 4.7	Rectangular	√3	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	√3	1	± 0.6	∞
Readout electronics	± 0.3	Normal	1	1	± 0.3	∞
Response time	± 0.8	Rectangular	√3	1	± 0.5	∞
Integration time	± 2.6	Rectangular	√3	1	± 1.5	∞
RF ambient Noise	± 3.0	Rectangular	√3	1	± 1.7	∞
RF ambient Reflections	± 3.0	Rectangular	√3	1	± 1.7	∞
Probe Positioner	± 0.4	Rectangular	√3	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	√3	1	± 1.7	∞
Max.SAR Eval.	± 1.0	Rectangular	√3	1	± 0.6	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	8
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	6
Power drift	± 5.0	Rectangular	√3	1	± 2.9	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	√3	1	± 2.3	∞
Liquid conductivity (target)	± 5.0	Rectangular	√3	0.64	± 1.8	∞
Liquid conductivity (meas.)	+ 4.9	Rectangular	1	0.64	+ 3.1	∞
Liquid permittivity (target)	± 5.0	Rectangular	√3	0.6	± 1.7	∞
Liquid permittivity (meas.)	- 4.8	Rectangular	1	0.6	- 2.9	∞
Combined Standard Uncertainty					± **11.583**	
Expanded Uncertainty (k=2)					± **23.2**	

SECTION 8 : Measurement results

8.1 PCS1900 MHz HEAD SAR

(1)Method of measurement

Step1. The searching for the worst position

The test was performed in maximum average output power channel.

For the Zoom scan measurement at the cheek position was confirmed the tight region of SAM phantom

SAR test in Mouse and Jaw Regions of the SAM Phantom

WWAN antenna is located near the lower edge of EUT. Therefor Head SAR for WWAN applied the measurement procedure using a flat phantom according to the KDB648474 D01.

Step2. The measurement at Flat phantom

The test was positioned 55mm against the lower edge from flat phantom.

The test was performed in mode of the maximum average output power

Note:

1)The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
18-Apr	24	40	HSL 1800	23.5	1850.2	εr	40.0	38.1	-4.8	+/-5
						σ [mho/m]	1.40	1.41	0.9	+/-5

εr: Relative Permittivity / σ : Coductivity

*1 The Target value is a parameter defined in FCC OET65.

(3)Result of HEAD SAR

HEAD SAR MEASUREMENT RESULTS							
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separation [mm]	Maximum value of multi-peak
Step.1 Position searching							
512	1850.2	GSM	Left	Fixed	Cheek	0	**Tight region**
512	1850.2	GSM	Left	Fixed	Tilt	0	**0.097**
512	1850.2	GSM	Right	Fixed	Cheek	0	**Tight region**
512	1850.2	GSM	Right	Fixed	Tilt	0	**0.076**
Step.2 The measurement at Flat phantom							
512	1850.2	GSM	Flat	Fixed	Front	55(Lower edge)	**0.027**

8.2 PCS1900MHz Body-worn SAR

(1)Method of measurement

<Body-worn>

Step1. The searching for the worst position

Measurement of Body-worn setup

Test performed at 15 mm from a flat section.

The test was performed in mode of the maximum output power.

Step2. The changing to the other channels

Note:

1)The power of other mode was lower than GPRS 2up mode.

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.

The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS

Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
18-Apr	24.0	40	MSL 1800	23.5	1850.2	εr	53.3	51.5	-3.4	+/-5
						σ [mho/m]	1.52	1.54	1.0	+/-5
18-Apr	24.0	40	MSL 1800	23.5	1880	εr	53.3	51.4	-3.6	+/-5
						σ [mho/m]	1.52	1.57	3.0	+/-5
18-Apr	24.0	40	MSL 1800	23.5	1910	εr	53.3	51.3	-3.8	+/-5
						σ [mho/m]	1.52	1.59	4.9	+/-5

εr: Relative Permittivity / σ : Coductivity

*1 The Target value is a parameter defined in FCC OET65.

(3)Result of Body-worn SAR

BODY SAR MEASUREMENT RESULTS

Frequency		Modulation	Phantom Section	EUT Set-up Conditions			SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separation [mm]	Maximum value of multi-peak
Step.1 Measurement of Body-worn setup							
512	1850.2	GPRS 2slots	Flat	Fixed	Rear	15	**0.871**
512	1850.2	GPRS 2slots	Flat	Fixed	Front	15	**0.225**
Step.2 Channel change (SAR level in Step.1 > 0.8 w/kg)							
661	1880.0	GPRS 2slots	Flat	Fixed	Rear	15	**0.691**
810	1909.8	GPRS 2slots	Flat	Fixed	Rear	15	**0.640**

SECTION 9 Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MURC-03	Radio Communication Analyzer	Anritsu	MT8815B	6200711471	Power measurement	2011/11/26 * 12
MURC-02	Wireless Communication Test Set	Agilent	E5515C	GB47050683	Power measurement	2011/11/26 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	Power measurement	2012/03/27 * 12
MPD-02	Power Divider DC-12.4GHz	SUHNER	4901.19.A	-	Power measurement	2011/05/23 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	Power measurement	2011/10/28 * 12
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	Power measurement	2011/09/13 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	Power measurement	2011/09/13 * 12
MPM-01	Power Meter	Agilent	E4417A	GB41290639	SAR	2012/03/05 * 12
MPSE-01	Power Sensor	Agilent	E9300B	US40010300	SAR	2012/02/29 * 12
MPSE-03	Power sensor	Agilent	E9327A	US40440576	SAR	2012/03/07 * 12
MAT-15	Attenuator(30dB)	Agilent	8498A	US40010300	SAR	2012/03/15 * 12
MSG-10	Signal Generator	Agilent	N5181A	MY47421098	SAR	2011/09/22 * 12
MRFA-08	Pre Amplifier	TSJ	TCBP0206	-	SAR	2012/03/22 * 12
MHDC-11	Dual Directional Coupler	Hewlett Packard	778D	16605	SAR	Pre Check
MNA-01	Network Analyzer	Agilent/HP	E8358A	US41080381	SAR	2011/08/22 * 12
MDPK-01	Dielectric probe kit	Agilent	85070D	702	SAR	2010/10/25 * 36
MNCK-01	Type N Calibration Kit	Agilent	85032F	MY41495257	SAR	2011/08/12 * 12
MPB-07	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3825	SAR	2011/12/16 * 12
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	SAR	2011/07/20 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY52.6.1.408	-	SAR	-
COTS-MSAR-02	S-Parameter Network Analyzer	Agilent	—	—	SAR	-
MDA-06	Dipole Antenna	Schmid&Partner Engineering AG	D1800V2	2d040	SAR	2011/11/23 * 36
MPSAM-02	SAM Phantom	Schmid&Partner Engineering AG	SAM Twin Phantom V4.0	1333	SAR	2011/04/01 * 12
MPF-02	2mmOval Flat Phantom ERI 4.0	Schmid&Partner Engineering AG	QD VA 001B (ERI4.0)	1045	SAR	2011/04/01 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-26	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q29	SAR	2011/05/26 * 12
MOS-10	Digtal thermometer	HANNA	Checktemp-2	MOS-10	SAR	2011/08/22 * 12
HSL/MSL1800				Daily check Target value ± 5%		
SAR room				Daily check Ambient Noise<0.012W/kg		

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.