FCC SAR TEST REPORT

APPLICANT	:	Haier Telecom (Qingdao) Co., Ltd.
PRODUCT NAME	:	SmartPhone
MODEL NAME	:	HM-G109-W/G11
TRADE NAME	:	Haier
BRAND NAME	:	Haier
FCC ID	:	SG7201603G11
STANDARD(S)	:	47CFR 2.1093 IEEE 1528-2013
ISSUE DATE	:	2016-05-05

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

DIRECTORY

Change History		
Issue	Date	Reason for change
1.0	2016-05-05	First edition

TEST REPORT DECLARATION

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Applicant	Haier Telecom (Qingdao) Co., Ltd.		
Applicant Address	No.1,Haier Road,Hi-tech Zone,Qingdao,P.R.China		
Manufacturer	Haier Telecom (Qingdao) Co., Ltd.		
Manufacturer Address	No.1,Haier Road,Hi-tech Zone,Qingdao,P.R.China		
Product Name	SmartPhone		
Model Name	HM-G109-W/G11		
Brand Name	Haier		
HW Version	H01		
SW Version	G11-H01-S001-MX		
Test Standards	47CFR 2.1093; IEEE 1528-2013		
Test Date	2016-04-27 to 2016-04-28		
The Highest Reported 1g-SAR(W/kg)	Head	0.492W/kg	Limit(W/kg): 1.6W/kg
	Body-worn	1.191W/kg	
	Hotspot	1.268W/kg	
	Simultaneous	1.595W/kg	

Tested by : Chen Shengkui
Chen Shengkui

Reviewed by : Zhu Zhan
Zhu Zhan

Approved by : Zeng Dexin
Zeng Dexin

1. SUMMARY OF MAXIMUM SAR VALUE

Mode/Band	Test Position	SAR-1g(W/kg)
GSM850	Head	0.464
	Body-worn (10mm Gap)	0.470
	Hotspot Mode (10mm Gap)	0.379
GSM1900	Head	0.239
	Body-worn (10mm Gap)	0.563
	Hotspot Mode (10mm Gap)	0.604
WCDMA V	Head	0.227
	Body-worn (10mm Gap)	0.326
	Hotspot Mode (10mm Gap)	0.326
WCDMA II	Head	0.492
	Body-worn (10mm Gap)	1.192
	Hotspot Mode (10mm Gap)	1.268
WLAN 2.4GHz	Head	0.084
	Body-worn (10mm Gap)	N/A
	Hotspot Mode (10mm Gap)	N/A
Bluetooth	Head	N/A
	Body-worn (10mm Gap)	N/A
	Hotspot Mode (10mm Gap)	N/A

Note:

1.The SAR limit(1.6W/kg) for general population/uncontrolled exposure is specified in FCC 47 CFR part2(2.1093) and ANSI/IEEE C95.1-1991.

2.Since the Bluetooth maximum power is less than P_{Ref} and maximum SAR for others transmitter is less than 1.2W/kg,SAR testing for Bluetooth is not required.

2.TECHNICAL INFORMATION

Note: the Following data is based on the information by the applicant.

2.1 Identification of Applicant

Company Name:	Haier Telecom (Qingdao) Co., Ltd.
Address:	No.1,Haier Road,Hi-tech Zone,Qingdao,P.R.China

2.2 Identification of Manufacturer

Company Name:	Haier Telecom (Qingdao) Co., Ltd.
Address:	No.1,Haier Road,Hi-tech Zone,Qingdao,P.R.China

2.3 Equipment Under Test (EUT)

Model Name:	HM-G109-W/G11
Trade Name:	Haier
Brand Name:	Haier
Hardware Version:	H01
Software Version:	G11-H01-S001-MX
Tx Frequency Bands:	GSM 850: 824-849 MHz; GSM 1900: 1850-1910 MHz; WCDMA Band II : 1850-1910MHz; WCDMA Band V: 824-849 MHz; 802.11 b/g/n20: 2412-2462 MHz; Bluetooth2.1+EDR; Bluetooth4.0: 2402-2480 MHz;
Uplink Modulations:	GSM/GPRS: GSMK; WCDMA/HSDPA/HSUPA/HSPA+:QPSK; WIFI 802.11b: DSSS; WIFI 802.11g: OFDM; WIFI 802.11n20:OFDM; Bluetooth: GFSK/π/4-DQPSK/8-DPSK; Bluetooth4.0: GFSK
Multislot Class:	GPRS: Class 12;
GPRS Class:	Class B
Antenna type:	Fixed Internal Antenna
Hotspot function:	Support
SIM cards description	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.

2.3.1 Photographs of the EUT

Please refer to the External Photos for the Photos of the EUT

2.3.2 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the Following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	H01	G11-H01-S001-MX

2.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	**47 CFR§2.1093**	Radiofrequency Radiation Exposure Evaluation: Portable Devices
2	**IEEE 1528-2013**	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
3	**KDB 447498 D01v06**	General RF Exposure Guidance
4	**KDB 248227 D01v02r02**	SAR Measurement Procedures for 802.11 Transmitters
5	**KDB 941225 D01v03r01**	SAR Measurement Procedures for 3G Devices
6	**KDB 941225 D02v02r02**	HSPA and 1x Advanced
7	**KDB 941225 D03v01**	SAR Test Reduction GSM GPRS EDGE
8	**KDB 941225 D04v01**	SAR for GSM E GPRS Dual Xfer Mode
9	**KDB 941225 D06v02r01**	Hotspot Mode SAR
10	**KDB 865664 D01v01r04**	SAR Measurement 100 MHz to 6 GHz
11	**KDB 865664 D02v01r02**	SAR Reporting
12	**KDB 648474 D04v01r03**	Handset SAR

2.5 Device Category and SAR Limits

Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Note: This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

3. SPECIFIC ABSORPTION RATE (SAR)

3.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are Middle than the limits for general population/uncontrolled.

3.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density. (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by,

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where C is the specific head capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^2}{\boldsymbol{\rho}}$$

Where σ is the conductivity of the tissue, ρ is the mass density of the tissue and $|E|$ is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR MEASUREMENT SETUP

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the Following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The Following figure shows the system.

The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

4.2 Probe

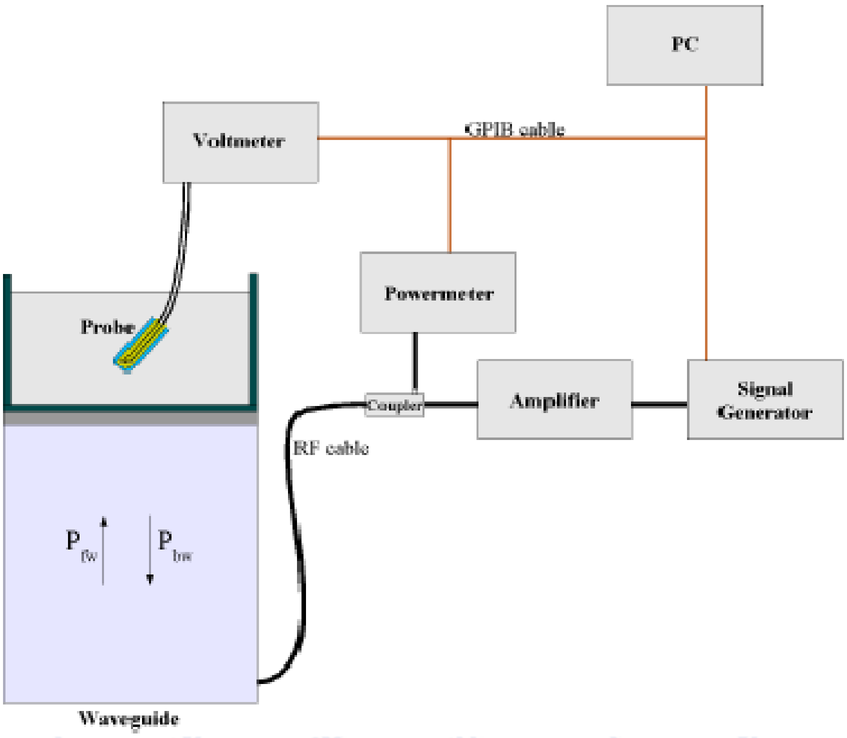
For the measurements the Specific Dosimetric E-Field Probe SN 37/08 EP80 with Following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter: 6.5 mm

- Distance between probe tip and sensor center: 2.5mm
- Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than +/- 1mm)
- Probe linearity: <0.25 dB
- Axial Isotropy: <0.25 dB
- Spherical Isotropy: <0.25 dB
- Calibration range: 835to 2500MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and surface normal line: less than 30°

Probe calibration is realized, in compliance with CENELEC EN 62209 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 622091 annex technique using reference guide at the five frequencies.



$$SAR = \frac{4\left(P_{fw} - P_{bw}\right)}{ab\delta}\cos^2\left(\pi\frac{y}{a}\right)e^{(2z/\delta)}$$

Where :

Pfw = Forward Power

Pbw = Backward Power

a and b = Waveguide dimensions

ı = Skin depth

Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO
After each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

CF(N)=SAR(N)/Vlin(N) (N=1,2,3)

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

Vlin(N)=V(N)*(1+V(N)/DCP(N)) (N=1,2,3)

Where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

4.3.1 Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm^2) using an with CALISAR, Antenna proprietary calibration system.

4.3.2 Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm^2.

4.3.3 Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulating head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

Where:

δt = exposure time (30 seconds),

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\delta T}{\delta t}\right)$$

C = heat capacity of tissue (brain or muscle),

δT = temperature increase due to RF exposure.

SAR is proportional to ΔT/Δt, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

$$\mathbf{SAR} = \frac{\sigma |E|^2}{\rho}$$

Where:

σ = simulated tissue conductivity,

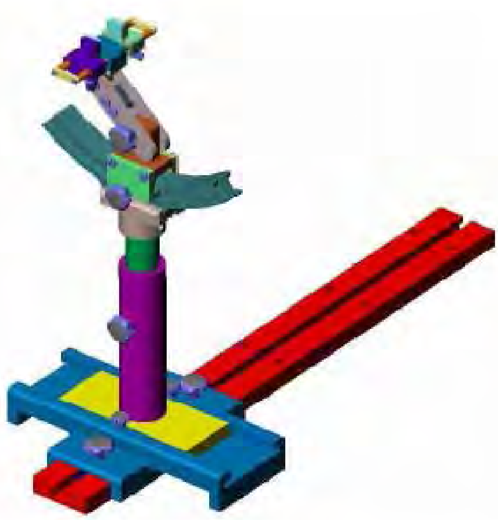
ρ = Tissue density (1.25 g/cm³ for brain tissue)

4.4 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

4.5 Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is Middle than 1°.



Device holder

System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

5. TISSUE SIMULATING LIQUIDS

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

The following table gives the recipes for tissue simulating liquids

Frequency Band (MHz)	750	835		1750	1900		2450	2600
Tissue Type	Body	Head	Body	Body	Head	Body	Body	Body
Ingredients (% by weight)								
Deionised Water	50.00	50.36	50.20	68.80	54.90	40.40	73.20	68.1
Salt(NaCl)	0.80	1.25	0.90	0.20	0.18	0.50	0.10	0.10
Sugar	48.80	0.00	48.50	0.00	0.00	58.00	0.00	0.00
Tween 20	0.00	48.39	0.00	0.00	0.00	0.00	0.00	0.00
HEC	0.20	0.00	0.20	0.00	0.00	1.00	0.00	0.00
Bactericide	0.20	0.00	0.20	0.00	0.00	0.10	0.00	0.00
Triton X-100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DGBE	0.00	0.00	0.00	31.00	44.92	0.00	26.70	31.8
Diethylenglycol monohexylether	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Target dielectric parameters								
Dielectric Constant	55.50	41.50	56.10	53.40	39.90	53.30	52.70	52.5
Conductivity (S/m)	0.96	0.90	0.95	1.49	1.42	1.52	1.95	2.16

Note: Please refer to the validation results for dielectric parameters of each frequency band.

The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.

Table 1: Dielectric Performance of Tissue Simulating Liquid

Temperature: 22.0~23.8°C, humidity: 54~60%.						
Date	**Freq.(MHz)**	**Liquid Parameters**	**Meas.**	**Target**	**Delta(%)**	**Limit±(%)**
2016/04/27	Head 835	Relative Permittivity(εr):	41.36	41.5	-0.34	5
		Conductivity(σ):	0.91	0.90	1.11	5
2016/04/27	Body 835	Relative Permittivity(εr):	55.69	56.10	-0.73	5
		Conductivity(σ):	0.97	0.95	2.11	5
2016/04/27	Head 1750	Relative Permittivity(εr):	40.20	40.08	0.30	5
		Conductivity(σ):	1.31	1.37	-4.38	5
2016/04/27	Body 1750	Relative Permittivity(εr):	53.56	53.40	-0.30	5
		Conductivity(σ):	1.47	1.49	-1.34	5
2016/04/28	Head 1900	Relative Permittivity(εr):	39.98	39.90	0.20	5
		Conductivity(σ):	1.41	1.42	-0.70	5
2016/04/28	Body 1900	Relative Permittivity(εr):	53.10	53.3	-0.38	5
		Conductivity(σ):	1.53	1.52	0.66	5
2016/04/28	Head 2450	Relative Permittivity(εr):	39.11	39.20	-0.23	5
		Conductivity(σ):	1.79	1.80	-0.56	5
2016/04/28	Body 2450	Relative Permittivity(εr):	52.52	52.70	-0.34	5
		Conductivity(σ):	1.94	1.95	-0.51	5

6. UNCERTAINTY ASSESSMENT

The Following table includes the uncertainty table of the IEEE 1528. The values are determined by Antennessa.

6.1 UNCERTAINTY EVALUATION FOR EUT SAR TEST

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.7	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.8	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.0	∞
Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.1	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Test sample Related									
Test sample positioning	E.4.2.1	0.03	N	1	1	1	0.03	0.03	N-1
Device Holder Uncertainty	E.4.1.	5.00	N	1	1	1	5.00	5.0	N-

	1							0	1
Output power Power drift - SAR drift measurement	6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.3 3	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.0 3	∞
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.1 3	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.1 5	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.0 4	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.0 0	N	1	0.6	0.49	6.00	4.9 0	M
Combined Standard Uncertainty			RSS				11.55	10. 67	
Expanded Uncertainty (95% Confidence interval)			K=2				23.11	21. 33	

6.2 UNCERTAINTY FOR SYSTEM PERFORMANCE CHECK

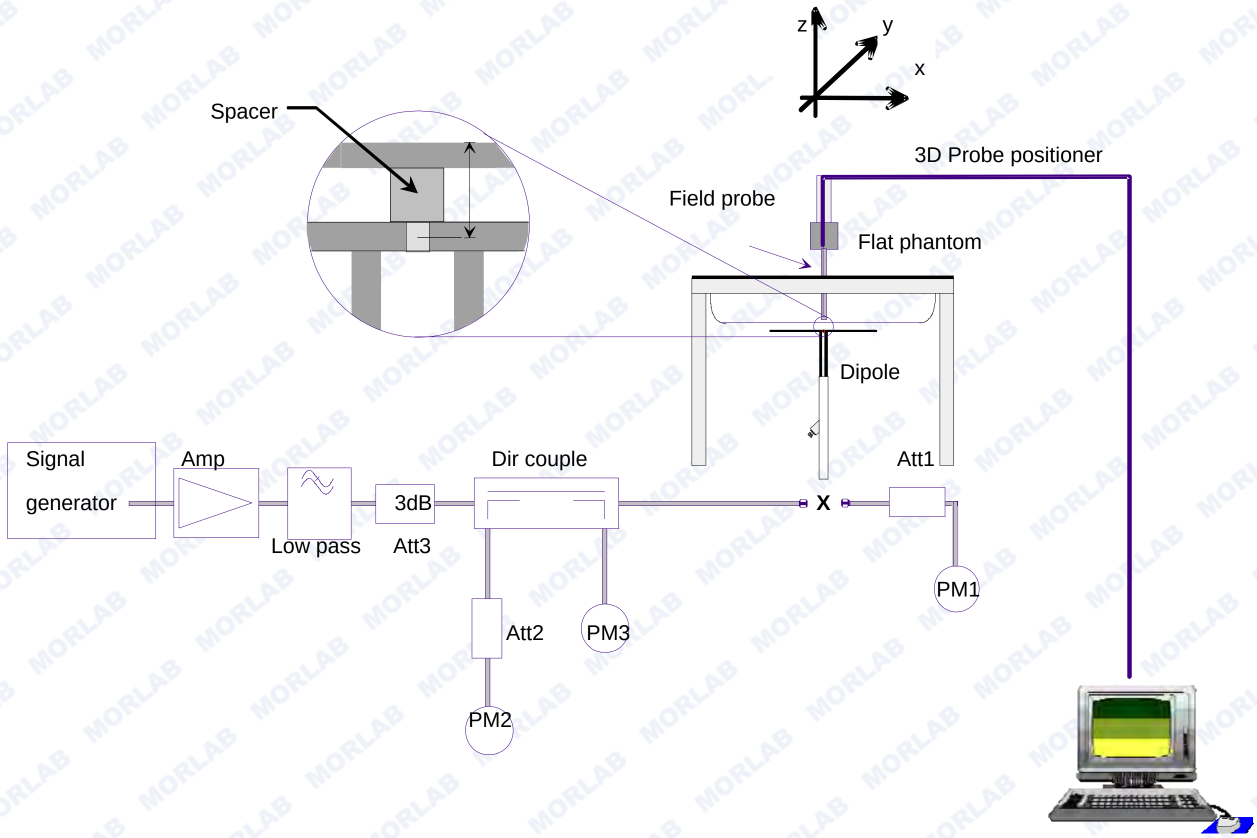
a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/ e	k
Uncertainty Component	Sec.	Tol (+- %)	Prob . Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+- %)	Vi
Measurement System									
Probe calibration	E.2.1	4.76	N	1	1	1	4.76	4.7	∞
Axial Isotropy	E.2.2	2.5	R	$\sqrt{3}$	0.7	0.7	1.01	1.0	∞
Hemispherical Isotropy	E.2.2	4.0	R	$\sqrt{3}$	0.7	0.7	1.62	1.6	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Linearity	E.2.4	5.0	R	$\sqrt{3}$	1	1	2.89	2.8	∞
System detection limits	E.2.5	1.0	R	$\sqrt{3}$	1	1	0.58	0.5	∞
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.0	∞

Reponse Time	E.2.7	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Integration Time	E.2.8	2.0	R	$\sqrt{3}$	1	1	1.15	1.1	∞
RF ambient Conditions	E.6.1	3.0	R	$\sqrt{3}$	1	1	1.73	1.7	∞
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5.2	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	$\sqrt{3}$	1	1	0.58	0.58	∞
Input power and SAR drift measurement	8,6.6.2	4.04	R	$\sqrt{3}$	1	1	2.33	2.33	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	$\sqrt{3}$	1	1	0.03	0.03	∞
Liquid conductivity - deviation from target value	E.3.2	4.57	R	$\sqrt{3}$	0.64	0.43	1.69	1.13	∞
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	$\sqrt{3}$	0.64	0.43	1.85	1.24	M
Liquid permittivity - deviation from target value	E.3.2	3.69	R	$\sqrt{3}$	0.6	0.49	1.28	1.04	∞
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	$\sqrt{3}$	0.6	0.49	3.46	2.83	M
Combined Standard Uncertainty			RSS				8.83	8.37	
Expanded Uncertainty (95% Confidence interval)			K=2				17.66	16.73	

7. SAR MEASUREMENT EVALUATION

7.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below



The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The power meter PM1 measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz,100 mW is used for 3.5 GHz to

6 GHz) at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

7.2 Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

Frequency	835MHz(H)	835MHz(B)	1750MHz(H)	1750MHz(B)
Target value 1W (1g)	9.68W/Kg	10.04 W/Kg	38.24W/Kg	40.14 W/Kg
Test value 1g (100 mW input power)	0.950W/Kg (04.27)	0.986 W/Kg (04.27)	3.810 W/Kg (04.27)	3.924 W/Kg (04.27)
Normalized to 1W value(1g)	9.50 W/Kg	9.86 W/Kg	38.10 W/Kg	39.24 W/Kg

Frequency	1900MHz(H)	1900MHz(B)	2450MHz(H)	2450MHz(B)
Target value 1W (1g)	39.36 W/Kg	42.36W/Kg	54.74 W/Kg	56.13 W/Kg
Test value 1g (100 mW input power)	4.012 W/Kg (04.28)	4.336 W/Kg (04.28)	5.249 W/Kg (04.28)	5.439 W/Kg (04.28)
Normalized to 1W value(1g)	40.12 W/Kg	43.36 W/Kg	52.49 W/Kg	54.39 W/Kg

Note: System checks the specific test data please see Annex D

8. OPERATIONAL CONDITIONS DURING TEST

8.1 Information on the testing

The mobile phone antenna and battery are those specified by the manufacturer. The battery is fully charged before each measurement. The output power and frequency are controlled using a base station simulator. The mobile phone is set to transmit at its highest output peak power level.

The mobile phone is test in the “cheek” and “tilted” positions on the left and right sides of the phantom. The mobile phone is placed with the vertical centre line of the body of the mobile phone and the horizontal line crossing the centre of the earpiece in a plane parallel to the sagittal plane of the phantom.

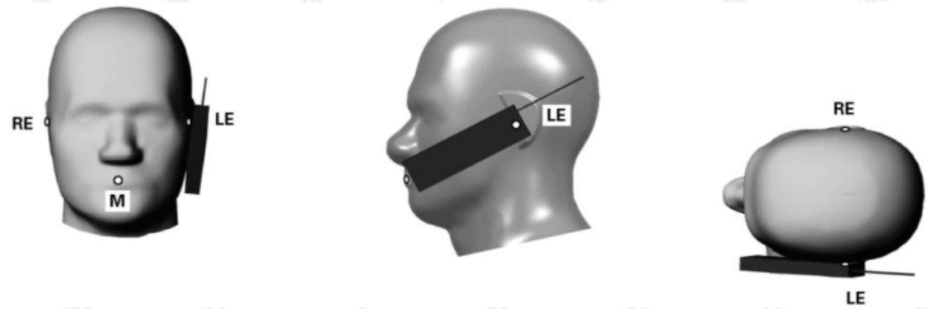


Illustration for Cheek Position

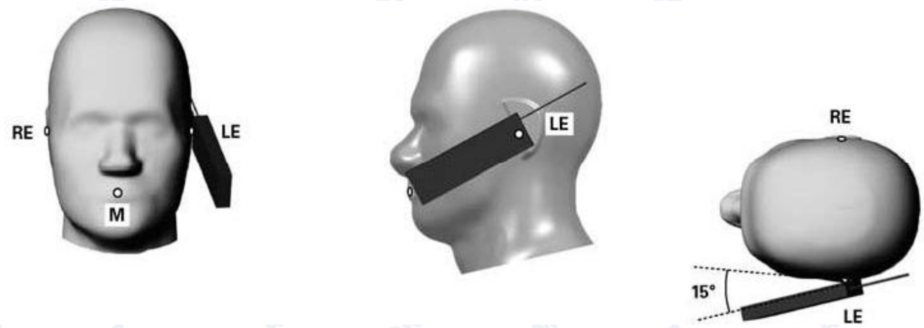


Illustration for Tilted Position

Description of the “cheek” position:

The mobile phone is well placed in the reference plane and the earpiece is in contact with the ear. Then the mobile phone is moved until any point on the front side get in contact with the cheek of the phantom or until contact with the ear is lost.

Description of the “tilted” position:

The mobile phone is well placed in the “cheek” position as described above. Then the mobile phone is moved outward away from the month by an angle of 15 degrees or until contact with the ear lost.

Remark: Please refer to Appendix B for the test setup photos.

8.2 Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.

For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

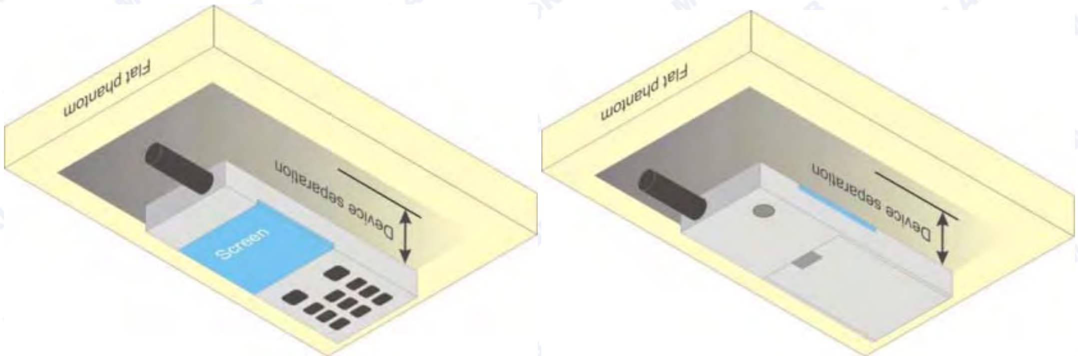


Illustration for Body Worn Position

8.3 Measurement procedure

The Following steps are used for each test position

1. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.
2. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
3. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
4. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or

8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

8.4 Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

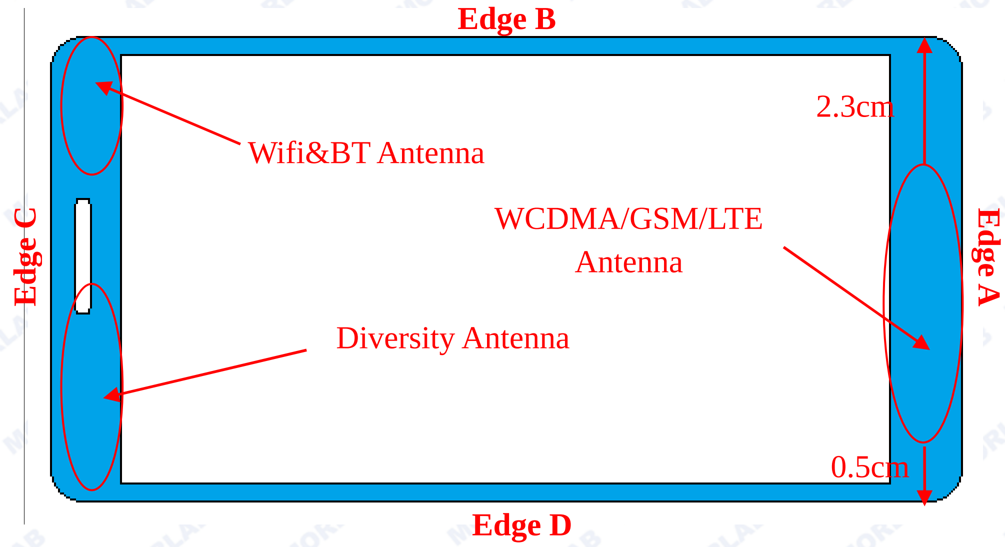
The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

9. HOTSPOT MODE EVALUATION PROCEDURE

The SAR evaluation procedures for Portable Devices with Wireless Router function is according to KDB 941225 D06 Hot Spot SAR v02r01.

SAR must be tested for all surfaces and edges (side) with a transmitting antenna with in 2.5 cm from that surface or edge, at a test separation distance of 10 mm, in the wireless mode that support wireless routing.

Edge configurations:



Assessment	Hotspot side for SAR					
					Test distance: 10mm	
Antennas	**Back**	**Front**	**Edge A**	**Edge B**	**Edge C**	**Edge D**
WCDMA/GSM	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**
WLAN&BT	**Yes**	**Yes**	No	**Yes**	**Yes**	No

10. MEASUREMENT OF CONDUCTED OUTPUT POWER

1. WCDMA mode conducted output power values

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	23.49	23.41	23.35	22.58	22.81	22.23
HSDPA	1	23.52	23.43	23.47	22.55	23.04	22.13
	2	23.51	23.42	23.45	22.52	23.03	22.12
	3	23.03	22.94	22.96	22.03	22.55	21.64
	4	23.00	22.93	22.94	22.01	22.52	21.61
HSUPA	1	23.52	23.42	23.37	22.53	23.00	22.10
	2	21.50	21.40	21.35	20.51	21.01	20.08
	3	22.51	22.41	22.36	21.52	21.99	21.09
	4	21.49	21.39	21.34	20.50	20.98	20.07
	5	23.50	23.41	23.35	22.52	22.99	22.09
HSPA+	1	23.56	23.39	23.37	22.60	23.03	22.07
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA/HSPA+ was tested by power meter.						

2. GSM Mode

Band	Channel	Frequency (MHz)	Output Power(dBm)
GSM 850	128	824.2	32.28
	190	836.6	32.40
	251	848.8	32.46
PCS 1900	512	1850.2	29.31
	661	1880.0	28.89
	810	1909.8	29.09

3. GPRS Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	32.49	30.37	29.06	28.89
	190	836.6	32.62	30.44	29.11	28.94
	251	848.8	32.67	30.56	29.12	28.98
PCS 1900	512	1850.2	29.33	27.00	25.49	24.45
	661	1880.0	28.90	26.96	25.46	24.44
	810	1909.8	29.12	27.17	25.67	24.66

GPRS Time-based Average Power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	23.46	24.35	24.80	25.88
	190	836.6	23.59	24.42	24.85	25.93
	251	848.8	23.64	24.54	24.86	25.97
PCS 1900	512	1850.2	20.30	20.98	21.23	21.44
	661	1880.0	19.87	20.94	21.20	21.43
	810	1909.8	20.09	21.15	21.41	21.65

Timeslot consignations:

No. Of Slots	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle	1:8	1:4	1:2.67	1:2
Correct Factor	-9.03dB	-6.02dB	-4.26dB	-3.01dB

4.WiFi Average output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			802.11b (DSSS)	802.11g (OFDM)	802.11n20 (OFDM)
WiFi	1	2412	10.47	8.60	4.35
	6	2437	10.97	9.06	4.91
	11	2462	11.84	9.78	5.61

5.BT+EDR 2.1 peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)		
			GFSK	π/4-DQPSK	8-DPSK
BT	0	2402	5.58	8.77	7.46
	39	2441	6.13	7.44	7.89
	78	2480	7.25	8.78	9.18

8

11. TEST RESULTS LIST

Summary of Measurement Results (GSM 850MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.							
Phantom Configurations		Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
Right Side Of Head		Cheek/Touch	190	0.454	1.023	0.464	
		Ear/Tilt		0.327		0.335	
Left Side Of Head		Cheek/Touch		0.198		0.203	
		Ear/Tilt		0.060		0.061	
Body (10mm Separation)	GSM	Back upward		0.459		0.470	
		Front upward		0.386		0.395	
	GPRS	Back upward	190	0.369	1.026	0.379	
		Front upward		0.269		0.276	
		Edge A		0.130		0.133	
		Edge B		0.304		0.312	
		Edge D		0.128		0.131	

Summary of Measurement Results (GSM 1900MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.							
Phantom Configurations		Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
Right Side Of Head		Cheek/Touch	661	0.203	1.026	0.208	
		Ear/Tilt		0.046		0.047	
Left Side Of Head		Cheek/Touch		0.233		0.239	
		Ear/Tilt		0.063		0.065	
Body (10mm Separation)	GSM	Back upward		0.549		0.563	
		Front upward		0.365		0.374	
	GPRS	Back upward	661	0.333	1.081	0.360	
		Front upward		0.256		0.277	
		Edge A		0.559		0.604	
		Edge B		0.064		0.069	
		Edge D		0.055		0.059	

Note:

1. GPRS test Scenario (Based on the Max. Time-based Average Power)

Band	Channel	Slots	Power level	Duty Cycle
GPRS850	190	4	5	1:2
GPRS1900	661	4	0	1:2

Summary of Measurement Results (WCDMA 850MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.						
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
Right Side Of Head	Cheek/Touch	4182	0.222	1.021	0.227	
	Ear/Tilt		0.082		0.084	
Left Side Of Head	Cheek/Touch		0.206		.0.210	
	Ear/Tilt		0.096		0.098	
Body (10mm Separation)	Back upward		0.319		0.326	
	Front upward		0.176		0.180	
	Edge A		0.104		0.106	
	Edge B		0.195		0.199	
	Edge D		0.166		0.169	

Summary of Measurement Results (WCDMA 1900MHz Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.						
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Scaling Factor	Scaled SAR (W/Kg), 1g	Plot No.
Right Side Of Head	Cheek/Touch	9400	0.471	1.045	0.492	
	Ear/Tilt		0.087		0.091	
Left Side Of Head	Cheek/Touch		0.409		0.427	
	Ear/Tilt		0.084		0.088	
Body (10mm Separation)	Back upward	9262	1.038	1.102	1.144	
		9400	0.964	1.045	1.007	
		9538	1.119	1.064	1.191	
	Front upward	9262	0.775	1.102	0.854	
		9400	0.828	1.045	0.865	
		9538	0.873	1.064	0.929	
	Edge A	9262	1.044	1.102	1.150	
		9400	1.185	1.045	1.238	
		9538	1.192	1.064	1.268	
	Edge B	9400	0.178	1.045	0.186	
	Edge D		0.167		0.175	

Note:

1. When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy the following conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)
   ≤ 0.8 W/kg and transmission band ≤ 100 MHz
   ≤ 0.6 W/kg and, 100 MHz < transmission bandwidth ≤ 200 MHz
   ≤ 0.4 W/kg and transmission band > 200 MHz
2. The WCDMA mode is test with 12.2kbps RMC and TPC set to all "1", if maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSDPA/HSUPA active is less than 1/4 dB Middle than that measured without HSDPA/HSUPA using 12.2kbps RMC, according to KDB 941225D01v03, SAR is not required for this handset with HSPA capabilities.
3. BT & WiFi SAR test is conducted according to section 12 stand-alone SAR evaluation of this report.
4. During 802.11 testing, engineering testing software installed on the EUT can provide continuous transmitting RF signal. The RF signal utilized in SAR measurement has almost 100% duty cycle, and its crest factor is 1.
5. IEEE Std 1528-2013 require the middle channel to be tested first. This generally applies to wireless devices that are designed to operate in technologies with tight tolerances for maximum output power variations across channels in the band. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

6. Per KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

7. The WCDMA mode is test with 12.2kbps RMC and TPC set to all “1”, if maximum SAR for 12.2kbps RMC is ≤ 75% of the SAR limit (i.e. 1.2W/Kg 1g) and maximum average output of each RF channel with HSDPA/HSUPA active is less than 1/4 dB higher than that measured without HSDPA/HSUPA using 12.2kbps RMC, according to KDB 941225D01v03, SAR is not required for this handset with HSPA capabilities. This module supports 3GPP release R7 HSPA+ using QPSK only without 16QAM in the uplink. So PBA is not required for HSPA+.

8. SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.

Summary of Measurement Results (WLAN 802.11b Band)

Temperature: 21.0~23.8°C, humidity: 54~60%.								
Phantom Configurations	Device Test Positions	Device Test channel	SAR(W/Kg), 1g Peak	Duty Cycle	Scaling Factor (Duty Cycle)	Scaling Factor (Power)	Scaled SAR (W/Kg), 1g	Plot No.
Right Side Of Head	Cheek/Touch	11	0.080	99%	1.010	1.037	0.084	
	Ear/Tilt		0.046				0.048	
Left Side Of Head	Cheek/Touch		0.030				0.031	
	Ear/Tilt		0.015				0.016	

Notes:

1. SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:
   1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
   2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2. 2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

3. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.

4. Justification for test configurations for WLAN per KDB Publication 248227 D02DR02-41929 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output

power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.

5.Scaling Factor calculation

Band	Tune-up power tolerance(dBm)	SAR test channel Power (dBm)	Scaling Factor
GSM 850	PCL = 5, PWR =32+-0.5	32.40	1.023
GPRS 850	PCL = 5, PWR =28.5+-0.5(4 slots)	28.89	1.026
GSM 1900	PCL = 0, PWR =28.5+-0.5	28.89	1.026
GPRS1900	PCL = 0, PWR =24.5+-0.5(4 slots)	24.66	1.081
WCDMA 850	Max output power =22.5(+1/-2)	23.41	1.021
WCDMA 1900	Max output power =22(+1/-2)	22.58	1.102
	Max output power =22(+1/-2)	22.81	1.045
	Max output power =23.5(+1/-2)	24.23	1.064
802.11b	Max output power =11.5+-0.5	11.84	1.037

12. REPEATED SAR MEASUREMENT

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Band	Test Position	Test Channel	Meas.SAR(W/kg)		Largest to Smallest SAR Ratio
			Original	Repeated	
WCDMA 1900	Back upward	9538	1.119	1.088	1.028
	Front upward	9538	0.873	0.855	1.021
	Edge A	9538	1.192	1.154	1.033

13. MULTIPLE TRANSMITTERS EVALUATION

Stand-alone SAR

Test distance: 5mm			
Band	**Highest power(mW) per tune up**	**1-g SAR test threshold**	**Test required?**
WIFI(2.4G)	15.85	[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR	Yes
BT	7.94		No

Test distance: 10mm			
Band	**Highest power(mW) per tune up**	**1-g SAR test threshold**	**Test required?**
WIFI(2.4G)	15.85	[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR	No
BT	7.94		No

The SAR test for BT is not required.
The body SAR test for WIFI is not required
The AR test for 802.11b (2.4GHz) is required, 802.11g/HT20 is not required, for the maximum average output power is less than 1/4 dB Higher than measured on the corresponding 802.11b channels. As per KDB 248227

The BT stand-alone SAR and body SAR for wifi are not required, the standalone SAR and body SAR for wifi must be estimated according to following to determine simultaneous transmission SAR test exclusion:
(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)]·[√f(GHz)/*x*] W/kg for *test separation distances* ≤ 50 mm;
where *x* = 7.5 for 1-g SAR, and *x* = 18.75 for 10-g SAR.
(Max power=7.94 mW; *min. test separation distance*= 5mm for Head; *f*=2.4GHz)
BT estimated Head SAR =0.328W/Kg (1g)
(Max power=7.94 mW; *min. test separation distance*= 10mm for Body; *f*=2.4GHz)
BT estimated Body SAR =0.164W/Kg (1g)
(Max power=15.85 mW; *min. test separation distance*= 10mm for Head; *f*=2.4GHz)
WIFI estimated Head SAR =0.327W/Kg (1g)

Simultaneous SAR

#	Simultaneous transmission conditions				
	WWAN		WLAN		Sum of WWAN& WLAN
	GSM	UMTS	802.11b/g/n	BT	
1			×		×
2	×		×		×
3		×	×		×
4				×	×
5	×			×	×
6		×		×	×

Note:

1. When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the Wi-Fi transmitter and another WWAN transmitter. Both transmitter often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

2. The hotspot SAR result may overlap with the body-worn accessory SAR requirements, per KDB 941225 D06, the more conservative configurations can be considered, thus excluding some unnecessary body-worn accessory SAR tests.

3. GSM supports voice and data transmission, though not simultaneously. WCDMA supports voice and data transmission simultaneously.

4. Simultaneous Transmission SAR evaluation is not required for BT and WiFi, because the software mechanism have been incorporated to guarantee that the WLAN and Bluetooth transmitters would not simultaneously operate.

5. Per KDB 447498D01v06, Simultaneous Transmission SAR Evaluation procedures is as followed:

   Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.

   Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.

Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.

Step 4: If the ratio of SAR to peak separation distance is > 0.04, Simultaneous SAR measurement is required and simultaneous transmission SAR value is calculated.

(The ratio is determined by: (SAR1 + SAR2) ^ 1.5/Ri ≤ 0.04,

Ri is the separation distance between the peak SAR locations for the antenna pair in mm)

6. Applicable Multiple Scenario Evaluation

Test Position	Main Ant. SARMax (W/Kg)	Bluetooth SAR(W/Kg)	WiFi SARMax(W/Kg)	∑1-g SARMax(W/Kg)	
				BT&Main Ant	WiFi&Main Ant
Head SAR	0.492	0.328	0.084	0.820	0.576
Body SAR	1.268	0.164	0.327	1.423	1.595

Simultaneous Transmission SAR evaluation is not required for WiFi and WCDMA&GSM because the sum of 1g SARMax is **1.519** W/Kg < 1.6W/Kg for Wifi and WCDMA&GSM.

Simultaneous Transmission SAR evaluation is not required for BT and WCDMA&GSM , because the sum of 1g SARMax is **1.356** W/Kg < 1.6W/Kg for BT and WCDMA&GSM.

(According to KDB 447498D01v06, the sum of the Highest *reported* SAR of each antenna does not exceed the limit, simultaneous transmission SAR evaluation is not required.)

14.ANNEX A GENERAL INFORMATION

15.ANNEX B PHOTOGRAPHS OF THE EUT

16.ANNEX C PLOTS OF HIGH SAR TEST RESULTS

17. ANNEX D SYSTEM PERFORMANCE CHECK DATA

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Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China
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18. ANNEX A GENERAL INFORMATION

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. List of Test Equipments

No.	Instrument	Type	Cal. Date	Cal. Due
1	PC	Dell (Pentium IV 2.4GHz, SN:X10-23533)	(n.a)	(n.a)
2	Network Emulator	Aglient (8960, SN:10752)	2015-6-18	1year
3	Network Analyzer	Agilent(E5071B ,SN:MY42404762)	2015-9-26	1year
4	Voltmeter	Keithley (2000, SN:1000572)	2015-9-24	1year
5	Signal Generator	Rohde&Schwarz (SMP_02)	2015-9-24	1year
6	Power Amplifier	PRANA (Ap32 SV125AZ)	2015-9-24	1year
7	Power Meter	Agilent (E4416A, SN:MY45102093)	2015-5-07	1year
8	Power Sensor	Agilent (N8482A, SN:MY41091706)	2015-5-07	1year
9	Directional coupler	Giga-tronics(SN:1829112)	2015-9-24	1year
10	Probe	Satimo (SN:SN 37/08 EP80)	2015-8-17	1year
11	Dielectric Probe Kit	Agilent (85033E)	2015-9-24	1year
12	Phantom	Satimo (SN:SN_36_08_SAM62)	2015-9-24	1year
13	Liquid	Satimo(Last Calibration: 2016-04-27 to 2016-04-28)	N/A	N/A
14	Dipole 835MHz	Satimo (SN 30/13 DIPC99-835)	2015-6-20	1year
15	Dipole 1900MHz	Satimo (SN 30/13 DIP1G900-261)	2015-6-20	1year
1+	Dipole 2450MHz	Satimo (SN 30/13 DIP2G450-263)	2015-6-20	1year

***** END OF REPORT *****

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