Report Ref.:SZ21100 37S02

SAR Testing Report

Sample Name	Mobile phone radiation battery patch
Test nature	Commissioned test
Inspection unit	[redacted]
Test date	November 5th, 2012
Issue date	November 24th, 2012

深圳市摩亚环宇通信技术有限公司

Tester: Zhu Zhan　　Issuer: Wu Xuewen　　Reviewer: Peng Shimeng

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Table of Contents

1. Main Information

1.1 Notes for this report

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1.2 System / Device Information

Laboratory name: Shenzhen Morlab Global Communication Technology Co. Ltd.
System / Device Manufacturer: SATIMO
System / Device Model no.: COMOSAR Test Bench
System / Device Serial no.: SAR-280-1-08-SATB-A
System / Device Use location: Shenzhen Morlab Liuxian Inspection Base

1.3 Test Product Information

Test Product Model: None
Test Product Manufacturer: [redacted]
Test Frequency Band: GSM900

1.4 Test Methods

Implementation method: One after another, use the same test sample (cell phone) and the same test method, with and without the "mobile phone radiation battery patch", to test the reading of the Special Absorption Ratio (SAR) on human's left side of head, and test the effec tiveness of "mobile phone radiation battery patches".

Determination standards: Put the resulting data into the formula $|E_n| = \frac{y_A - y_B}{y_A}$ yA is the value of SAR when "mobile phone radiation battery patch" is not attached, yB is the value of SAR when "mobile phone radiation battery patch" is attached, and measure the value of |En| to determine the effectiveness of the "mobile phone radiation battery patch".

2. Test Standards

EN50361: 201 (2001):	"The basic standard for absorption (SAR) measurements associated with the human body's exposure to electromagnetic fields emitted by mobile phones"
IEEE 1528 (2003):	"An experimental technique for determining the mean value of the high est absorption rate of the Special Absorption Ratio (SAR) from wireless communication devices into the human body"

3. Test Items

SAR (1/10g)

The full name of SAR in English is Specific Absorption Rate; it is the electromagnetic wave energy absorption value of wireless products such as mobile phones. It is defined as the induction electromagnetic field in the human body under the action of an external electromagnetic field. As various organs in the human body act as a medium (lossy dielectric), the body will produce an electromagnetic current, leading to absorption and dissipation of electromagnetic energy. SAR is usually calculated from the energy absorbed by the whole body, or a small amount (1g or 10g) of body tissue, in units of watts per kilogram, i.e. W / Kg, which means an average of the electromagnetic power absorbed or consumed per kilogram of human tissue.

4. Data Analysis

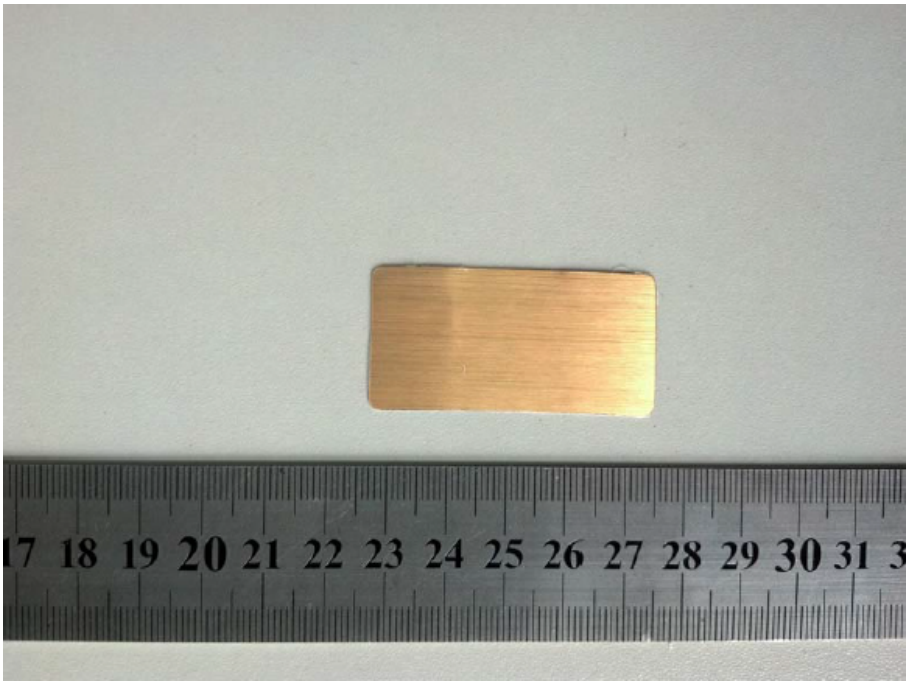
(GSM 900MHz Band)

Body parts	Test position	Is there a patch?	Result value	Test channel	SAR (W/Kg)	
					10g	1g
Left side of head	Close to the cheek	No	yA	38	0.920	1.321
Left side of head	Close to the cheek	Yes	yB	38	0.026	0.039
Using anti-radiation patch SAR value reduction value |En|					97.17%	97.04%

Note: $|E_n| = \frac{y_A - y_B}{y_A}$

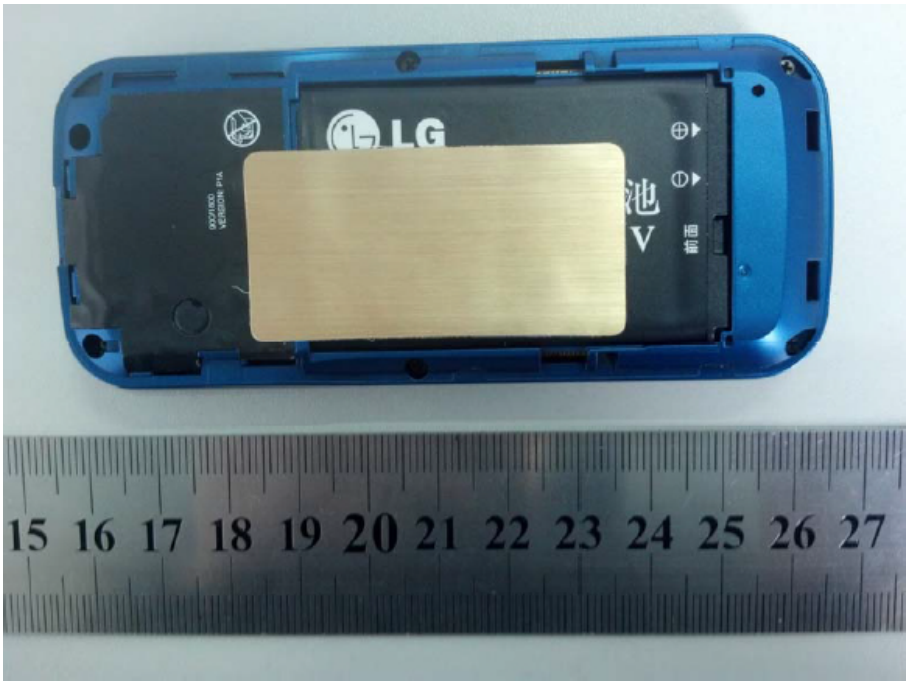
Appedix A - Images for Test Objects

1. Test Sample

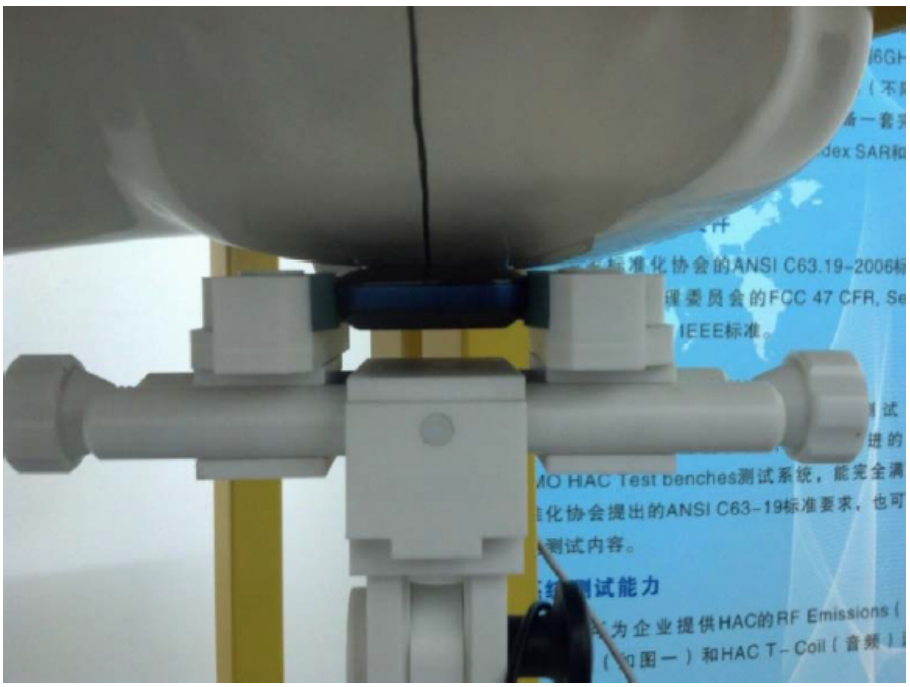


1. Front view of phone test sample

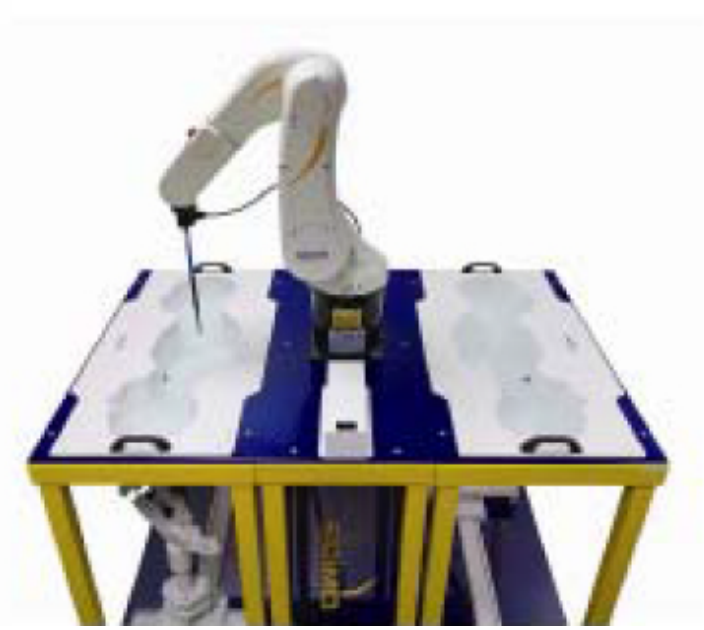
3. The test sample is affixed on the phone test sample



4. Test position of human body model



3. Test equipment



Appedix B - Testing Images

Frequency Band	**PARAMETERS**
GSM900	Measurement 1: Left side of head, cheek, device position using Middle Channel in GSM mode (without patch). Measurement 2: Left side of head, cheek, device position using Middle Channel in GSM mode (with patch).

MEASUREMENT 1

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 07/11/2012
Measurement duration: 7 minutes 31 seconds

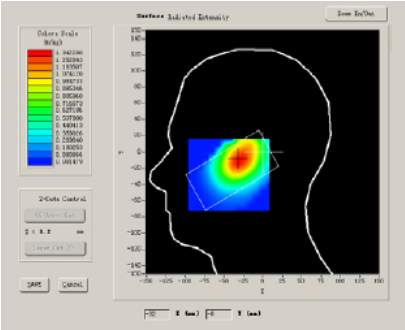
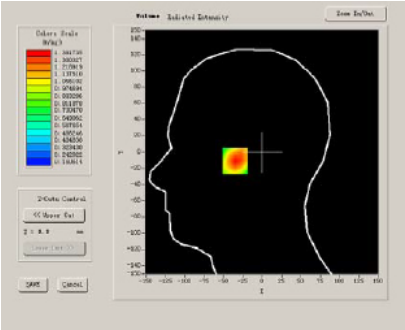
A. Experimental conditions.

Phantom File	zinf3.txt
Phantom	Left Head
Device Position	Cheek
Bands	GSM900
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 38):

Frequency (MHz)	897.599976
Relative Permittivity (real part)	40.330002
Relative Permittivity	19.219999
Conductivity (S/m)	0.958437
Power Drift (%)	-0.990000
Ambient Temperature:	22.4°C
Liquid Temperature:	22.8°C
ConvF:	28.479, 25.214, 27.196
Crest Factor:	1:8

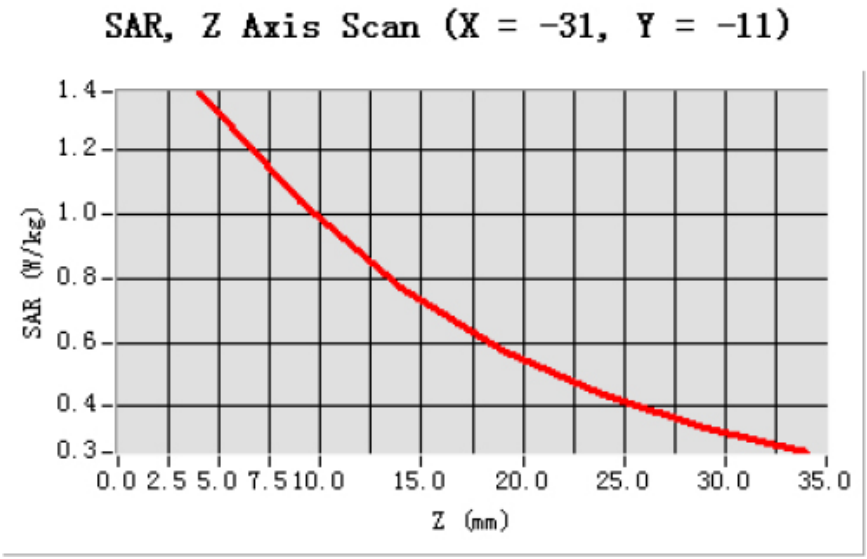
SURFACE SAR	VOLUME SAR
	

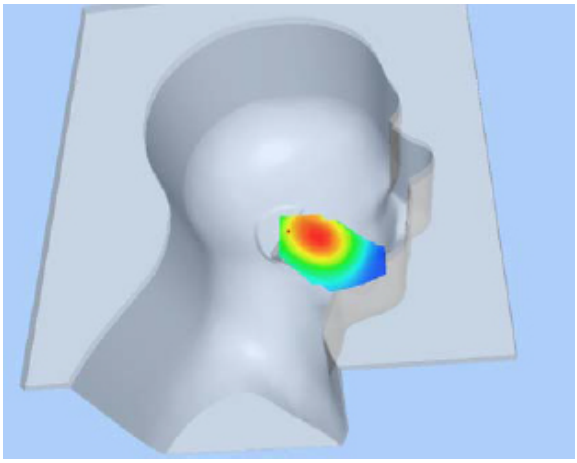
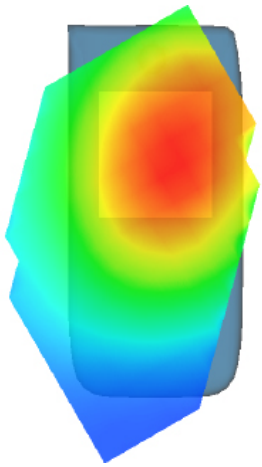
Maximum location: X=31.00, Y=11.00

SAR 10g (W/Kg)	0.920329
SAR 1g (W/Kg)	1.321395

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	1.3817	1.0441	0.7732	0.5767	0.4340	0.3305



3D screen shot	Hot spot position
	

MEASUREMENT 2

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 07/11/2012
Measurement duration: 7 minutes 53 seconds

A. Experimental conditions.

Phantom File	sam_direct_droit2_surf8mm.txt
Phantom	Left Head
Device Position	Cheek
Bands	GSM900
Channels	Middle
Signal	GSM

B. SAR Measurement Results

Middle Band SAR (Channel 38):

Frequency (MHz)	897.599976
Relative Permittivity (real part)	40.330002
Relative Permittivity	19.219999
Conductivity (S/m)	0.958437
Power Drift (%)	-2.200000
Ambient Temperature:	22.4°C
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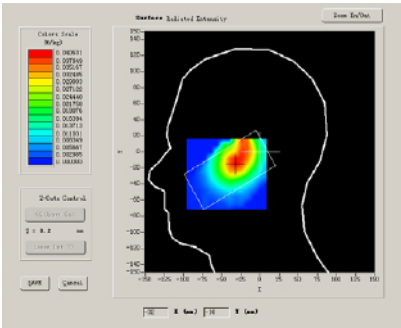
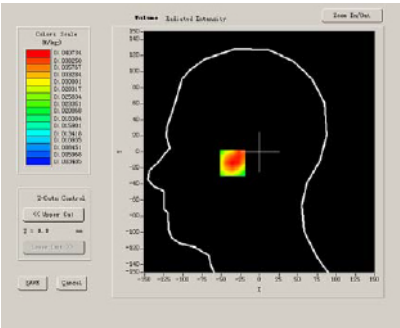
ConvF:	28.479, 25.214, 27.196
Crest Factor:	1:8

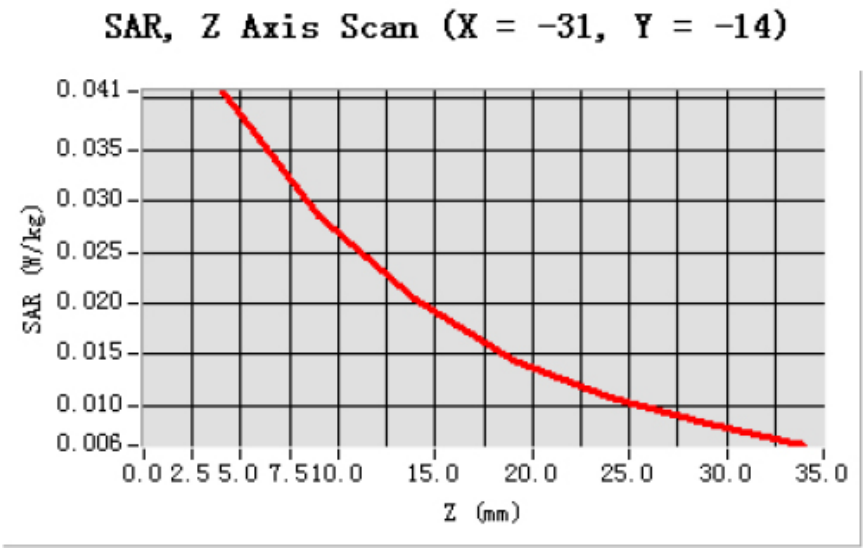
SURFACE SAR	VOLUME SAR
	

Maximum location: X=31.00, Y=14.00

SAR 10g (W/Kg)	0.026218
SAR 1g (W/Kg)	0.039660

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	0.0407	0.0285	0.0205	0.0145	0.0108	0.0082



3D screen shot	Hot spot position