



Amendment to SAR Test Report

No.: 368_2002_FCC_1900

for the
Samsung Electronics Co., Ltd.
SGH-E400
Mobile Phone
Model Number: SGH-E400
FCC ID: A3LSGHE400

Date of Report: 05/16/2003
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TTI-P-G 081/94-A0

**ACCREDITED ACCORDING TO
ISO/IEC 17025**



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CETECOM Inc.

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: + 1 (408) 586 6200 • Fax: + 1 (408) 586 6299 • E-mail: info@cetecomusa.com • <http://www.cetecom.com>

CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686

Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

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1. Subject of Investigation

The SGH-E400 is a new from Samsung Electronics Co., Ltd. operating in the 1900 MHz frequency ranges. The device has an antenna. The purpose of this amendment is to present data from additional measurements. The additional measurements were performed with the EUT in a body worn configuration with the antenna side of the phone touching the phantom.



Technical Manager

2. Test results summary

2.1. Conducted Output Power

Prior to testing the conducted output power was measured. The results are shown below.

Channel 512: 29.31 dBm

Channel 661: 29.31 dBm

Channel 810 29.11 dBm

2.2. Body SAR results for GSM 1900MHz band for SGH-E400

Antenna side of phone toward phantom	CHANNEL NUMBER	FREQUENCY (MHz)	Max. 1g SAR (W/kg)	Area scan	Positioning photo
Antenna touching phantom	LOW #512	1850.2	0.785	Plot 1	Photo 1
Antenna touching phantom	MID #661	1880	1.060	Plot 2	Photo 1
Antenna touching phantom	HIGH #810	1909.8	1.167	Plot 3	Photo 1

2.3. Validation Check Results

Prior to formal testing at each frequency, a system check was performed in accordance with IEEE 1528. The balanced dipole source was placed at the specified distance in an horizontal orientation with 0.5W CW feed at 1900 MHz. All of the testing described in this report was performed within 24 hours of the system verifications. The following results were obtained:

Date	FREQUENCY (MHz)	Max. 10g Volume averaged SAR (W/kg)	Percentage drift on reference (%)
05/14/2003	1900	20.09	+1.21

3. Plots

Date / Time:	5/14/2003 4:16:33 PM	Position:	Body antenna side to phantom
Filename:	*.txt	Phantom:	HeadBox_spout.csv
Device Tested:	Samsung SGH-E400	Head Rotation:	0
Antenna:	integral	Test Frequency:	1850.2
Shape File:	samsung_sgh_e700_body.c	Power Level:	maximum

Probe:	0123			
Cal File:	123_1900_BODY_GSM			
Cal Factors:		X	Y	Z
	Air	346	318	386
	DCP	9	13.6	8.7
	Lin	.610	.610	.610
Amp Gain:	128			
Averaging:	1			
Batteries Replaced:	05/13/03			

Liquid:	1900
Type:	body
Conductivity:	1.561
Relative Permittivity:	53.33
Liquid Temp (deg C):	22.0
Ambient Temp (deg C):	22.0
Ambient RH (%):	50
Density (kg/m3):	1000
Software Version:	0.420

Two 3D SAR plots are shown. The left plot displays SAR distribution on a body phantom, with the X-axis (mm) ranging from -10 to 15, the Y-axis (mm) ranging from -150 to -155, and the Z-axis (mm) ranging from -125 to -155. The right plot displays SAR distribution on a body phantom, with the X-axis (mm) ranging from -100 to 100, the Y-axis (mm) ranging from -100 to 100, and the Z-axis (mm) ranging from -140 to -150. A color scale at the bottom indicates SAR (W/kg) from 0.0 to 1.2.

ZOOM SCAN RESULTS:

Spot SAR

(W/kg):

Start Scan

0.227

End Scan

0.227

Change during
Scan (%)

0.00

Max E-field

(V/m):

25.47

Max SAR

(W/kg)

1g

0.785

10g

0.428

Location of

Max (mm):

X

77.1

Y

-15.0

Z

-138.1

A 2D AREA SCAN plot showing SAR distribution on a body phantom. The plot is a square grid with X and Y axes ranging from -100 to 100 mm. The Z-axis ranges from -300 to 0 mm. A color bar at the bottom indicates SAR values from 0.1 to 0.5 W/kg. The highest SAR values (red/orange) are concentrated in the central region of the phantom, specifically around the head and torso area, with a yellow/orange oval highlighting the peak region.

AREA SCAN:

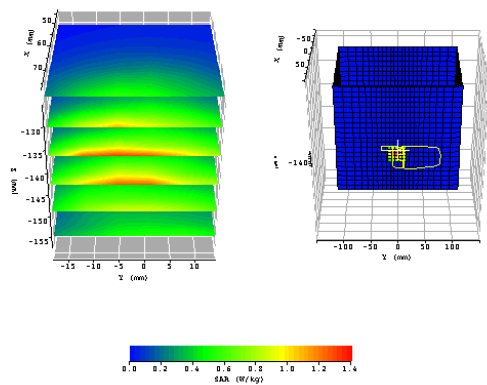
Scan Extent:

	Min	Max	Steps
Y	50.0	-50.0	10.0
Z	-180.0	-100.0	10.0

Date / Time:	5/14/2003 3:52:09 PM	Position:	Body antenna side to phantom
Filename:	1880MHzbody_3d.txt	Phantom:	HeadBox_spout.csv
Device Tested:	Samsung SGH-E400	Head Rotation:	0
Antenna:	integral	Test Frequency:	1880
Shape File:	samsung_sgh_e700_body.c	Power Level:	maximum

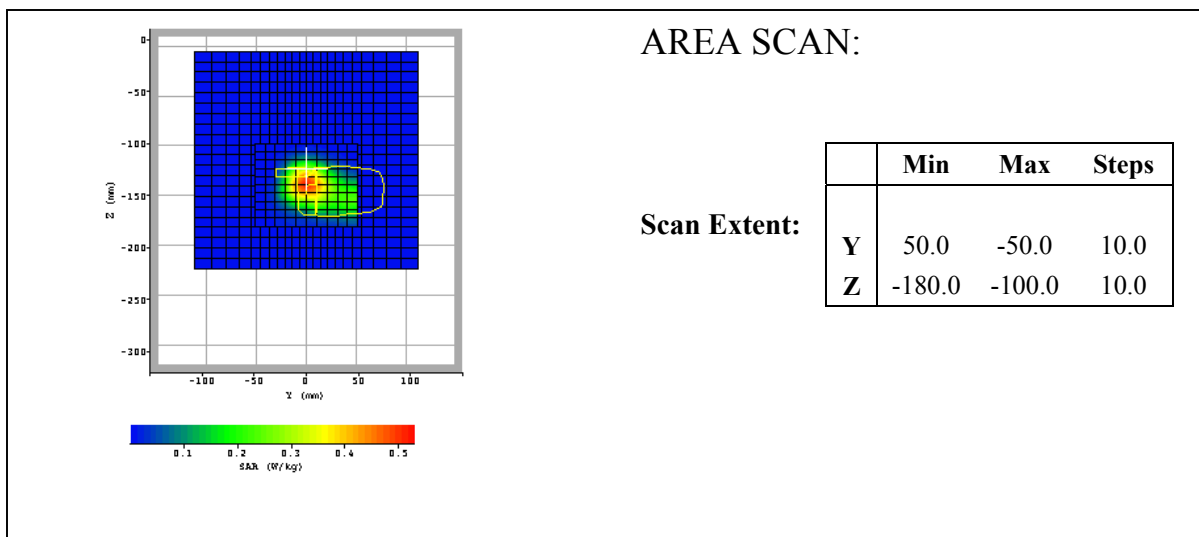
Probe:	0123			
Cal File:	123_1900_BODY_GSM			
Cal Factors:		X	Y	Z
	Air	346	318	386
	DCP	9	13.6	8.7
	Lin	.610	.610	.610
Amp Gain:	128			
Averaging:	1			
Batteries Replaced:	05/13/03			

Liquid:	1900
Type:	body
Conductivity:	1.561
Relative Permittivity:	53.11
Liquid Temp (deg C):	22.0
Ambient Temp (deg C):	22.0
Ambient RH (%):	50
Density (kg/m3):	1000
Software Version:	0.420



ZOOM SCAN RESULTS:

Spot SAR (W/kg):	Start Scan	End Scan	
	0.294	0.296	
Change during Scan (%)	0.98		
Max E-field (V/m):	28.90		
Max SAR (W/kg)	1g	10g	
	1.060	0.568	
Location of Max (mm):	X	Y	Z
	77.1	-18.0	-140.5



AREA SCAN:

Scan Extent:

	Min	Max	Steps
Y	50.0	-50.0	10.0
Z	-180.0	-100.0	10.0

Date / Time:	5/14/2003 4:45:43 PM	Position:	Body antenna side to phantom
Filename:	*.txt	Phantom:	HeadBox_spout.csv
Device Tested:	Samsung SGH-E400	Head Rotation:	0
Antenna:	integral	Test Frequency:	1909.8
Shape File:	samsung_sgh_e700_body.c	Power Level:	maximum

Probe:	0123			
Cal File:	123_1900_BODY_GSM			
Cal Factors:		X	Y	Z
	Air	346	318	386
	DCP	9	13.6	8.7
	Lin	.610	.610	.610
Amp Gain:	128			
Averaging:	1			
Batteries Replaced:	05/13/03			

Liquid:	1900
Type:	body
Conductivity:	1.581
Relative Permittivity:	52.90
Liquid Temp (deg C):	22.0
Ambient Temp (deg C):	22.0
Ambient RH (%):	50
Density (kg/m3):	1000
Software Version:	0.420

The figure consists of two 3D surface plots and a color bar. The left plot shows a color-coded SAR distribution over a volume, with axes X (mm), Y (mm), and Z (mm). The right plot shows a similar distribution but with a yellow highlight indicating a specific region of interest. A color bar at the bottom indicates SAR values from 0.0 to 1.6 W/kg.

ZOOM SCAN RESULTS:

Spot SAR

(W/kg):

Start Scan

0.329

End Scan

0.318

**Change during
Scan (%)**

-3.26

Max E-field

(V/m):

29.95

Max SAR

(W/kg)

1g

1.167

10g

0.638

Location of

Max (mm):

X

77.1

Y

-15.0

Z

-139.5

The figure displays a 2D area scan plot of SAR (Specific Absorption Rate) distribution. The horizontal axis is labeled 'Y (mm)' and ranges from -100 to 100. The vertical axis is labeled 'Z (mm)' and ranges from 0 to -300. The plot shows a grid of blue squares, with a central region of higher SAR values (yellow and red) indicating a localized source. A yellow rectangular box highlights the area of interest, which is centered around Y=0 and Z=-150. Below the plot, a color bar indicates the SAR values, ranging from 0.1 (blue) to 0.7 (red).

AREA SCAN:

Scan Extent:

	Min	Max	Steps
Y	50.0	-50.0	10.0
Z	-180.0	-100.0	10.0

4. Setup Photo

