



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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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

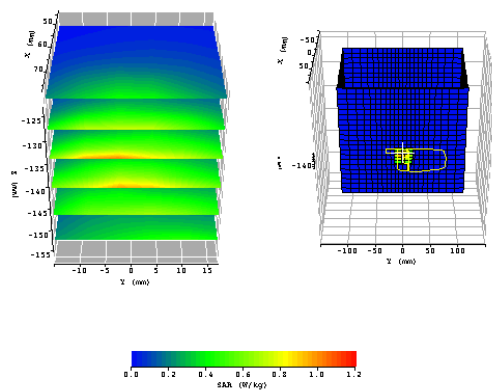
Prior to formal testing at each frequency, a system check was performed in accordance with IEEE 1528. The balanced dipole source was placed at the specified distance in an horizontal orientation with 0.5W CW feed at 1900 MHz. All of the testing described in this report was performed within 24 hours of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

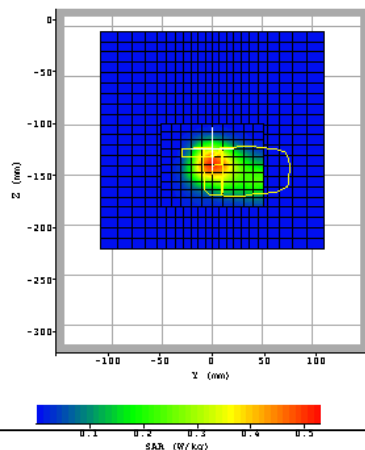
Date / Time:	5/14/2003 4:16:33 PM	Position:	Body antenna side to phantom
Filename:	*.txt	Phantom:	HeadBox_spout.csv
Device Tested:	Samsung SGH-E400	Head Rotation:	0
Antenna:	integral	Test Frequency:	1850.2
Shape File:	samsung_sgh_e700_body.c	Power Level:	maximum

Probe:	0123	Liquid:	1900
Cal File:	123_1900_BODY_GSM	Type:	body
Cal Factors:		Conductivity:	1.561
	Air	Relative Permittivity:	53.33
	DCP	Liquid Temp (deg C):	22.0
	Lin	Ambient Temp (deg C):	22.0
Amp Gain:	128	Ambient RH (%):	50
Averaging:	1	Density (kg/m3):	1000
Batteries Replaced:	05/13/03	Software Version:	0.420



ZOOM SCAN RESULTS:

Spot SAR (W/kg):	Start Scan	End Scan	
	0.227	0.227	
Change during Scan (%)	0.00		
Max E-field (V/m):	25.47		
Max SAR (W/kg)	1g	10g	
	0.785	0.428	
Location of Max (mm):	X	Y	Z
	77.1	-15.0	-138.1



AREA SCAN:

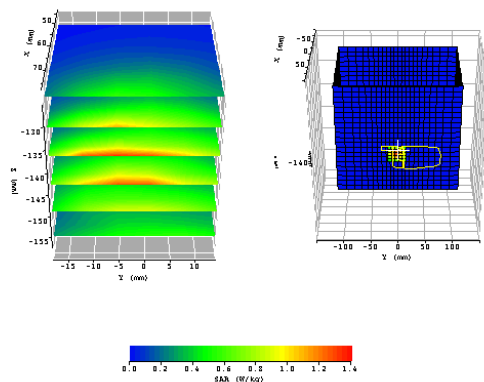
Scan Extent:

	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

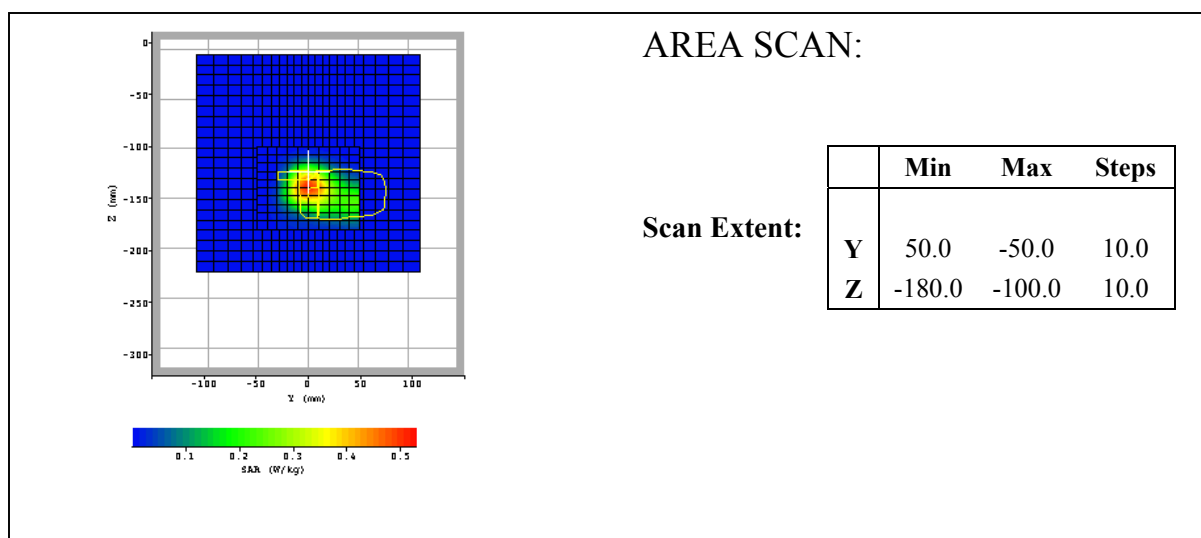
Probe:	0123			
Cal File:	123_1900_BODY_GSM			
Cal Factors:		X	Y	Z
	Air	346	318	386
	DCP	9	13.6	8.7
	Lin	.610	.610	.610
Amp Gain:	128			
Averaging:	1			
Batteries Replaced:	05/13/03			

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 on a grid, with the X-axis (mm) ranging from -10 to 15, the Y-axis (mm) ranging from -10 to 10, and the Z-axis (mm) ranging from -155 to -35. The color bar below the left plot indicates SAR (W/kg) values from 0.0 to 1.6, with a color gradient from blue to red. The right plot shows a 3D wireframe model of a head phantom with a yellow highlight indicating the maximum SAR location. The X-axis (mm) ranges from -100 to 100, the Y-axis (mm) ranges from -100 to 100, and the Z-axis (mm) ranges from -150 to -50.

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 with a color bar below it. The color bar represents SAR values in W/kg, ranging from 0.1 (blue) to 0.7 (red). The plot shows a localized area of high SAR (red/yellow) in the center of the grid, which is outlined by a yellow rectangle. The grid is defined by Y (mm) on the horizontal axis and Z (mm) on the vertical axis. The Y-axis ranges from -100 to 100 mm, and the Z-axis ranges from -300 to 0 mm. The SAR values are highest in the center of the grid, reaching up to 0.7 W/kg.

AREA SCAN:

Scan Extent:

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

4. Setup Photo

