



PCTEST ENGINEERING LABORATORY, INC.
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CERTIFICATE OF COMPLIANCE (SAR EVALUATION)

APPLICANT NAME & ADDRESS:

SAMSUNG ELECTRONICS CO., LTD.
416 Maetan-3 Dong, Paldal-Ku
Suwon City Kyungki-Do 441-742, KOREA
Attn: Wallace Oh, Engineering Manager
Samsung Electronics America (QA Lab)

DATE & LOCATION OF TESTING:

Dates of Tests: Mar. 28-29 & Apr. 9-10, 2002
Test Report S/N: SAR.220327137.A3L
Test Site: PCTEST Lab, Columbia MD

FCC ID:	A3LSPHA540
APPLICANT:	SAMSUNG ELECTRONICS CO., LTD.

EUT Type:	Tri-Mode Dual-Band Analog/PCS Phone (AMPS/CDMA)
Tx Frequency:	824.04 – 848.97 MHz (AMPS) / 824.70 – 848.31 MHz (CDMA) 1851.25 – 1908.75 MHz (PCS CDMA)
Rx Frequency:	869.04 – 893.97 MHz (AMPS) / 869.70 – 893.31 MHz (CDMA) 1931.25 – 1988.75 MHz (PCS CDMA)
Max. RF Output Power:	0.400 W ERP AMPS (26.023 dBm) / 26.0 dBm Conducted 0.319 W ERP CDMA (25.033 dBm) / 25.0 dBm Conducted 0.281 W EIRP PCS CDMA (24.481 dBm) / 24.5 dBm Conducted
Max. SAR Measurement:	1.48W/kg AMPS Head SAR; 1.39W/kg AMPS Body SAR; 1.02W/kg CDMA Head SAR; 0.95W/kg CDMA Body SAR; 1.31W/kg PCS CDMA Head SAR; 0.68W/kg PCS CDMA Body SAR
Trade Name/Model(s):	SPH-A540
FCC Classification:	Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§2.1093; FCC/OET Bulletin 65 Supplement C [July 2001]
Application Type:	Certification
Test Device Serial No.:	Identical prototype

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in FCC/OET Bulletin 65 Supplement C (2001) and IEEE Std. 1528-200X (Draft 6.4, July 2001).

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Alfred Cirwithian
Vice President Engineering



PCTEST™ SAR TEST REPORT	PCTEST	FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 1 of 32

12. SYSTEM VERIFICATION

Tissue Verification

Table 12.1 Simulated Tissue Verification

MEASURED TISSUE PARAMETERS									
Date(s)	03/25/02	835MHz Brain		835MHz Muscle		1900MHz Brain		1900MHz Muscle	
Liquid Temperature (°C)	21.8	Target	Measured	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ϵ		41.50	43.44	55.20	52.84	40.00	40.29	53.30	53.95
Conductivity: σ		0.900	0.87	0.970	0.990	1.400	1.440	1.520	1.530

Test System Validation

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at 835MHz and 1900MHz by using the system validation kit(s). (Graphic Plots Attached)

Table 12.2 System Validation

SYSTEM DIPOLE VALIDATION TARGET & MEASURED				
System Validation Kit: D-835S, S/N: 103	835MHz Brain	Targeted SAR _{1g} (mW/g) 2.375	Measured SAR _{1g} (mW/g) 2.39	Deviation (%) + 0.6
System Validation Kit: D-1900S, S/N: 104	1900MHz Brain	Targeted SAR _{1g} (mW/g) 9.925	Measured SAR _{1g} (mW/g) 10.31	Deviation (%) + 3.9

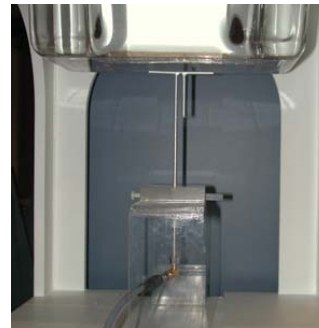
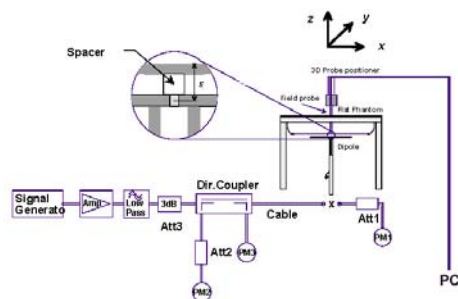


Figure 12.1 Dipole Validation Test Setup

PCTEST™ SAR TEST REPORT	PCTEST Engineering Laboratory, Inc.	FCC CERTIFICATION	SAMSUNG	Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 16 of 32

13. SAR TEST DATA SUMMARY

See Measurement Result Data Pages

Procedures Used To Establish Test Signal

The handset was placed into simulated call mode (AMPS, Cellular CDMA & PCS CDMA modes) using manufacturers test codes. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR [4]. When test modes are not available or inappropriate for testing a handset, the actual transmission is activated through a base station simulator or similar equipment. See data pages for actual procedure used in measurement.

Device Test Conditions

The handset is battery operated. Each SAR measurement was taken with a fully charged battery. In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power. If a conducted power deviation of more than 5% occurred, the test was repeated.

EUT Handset Reference Points

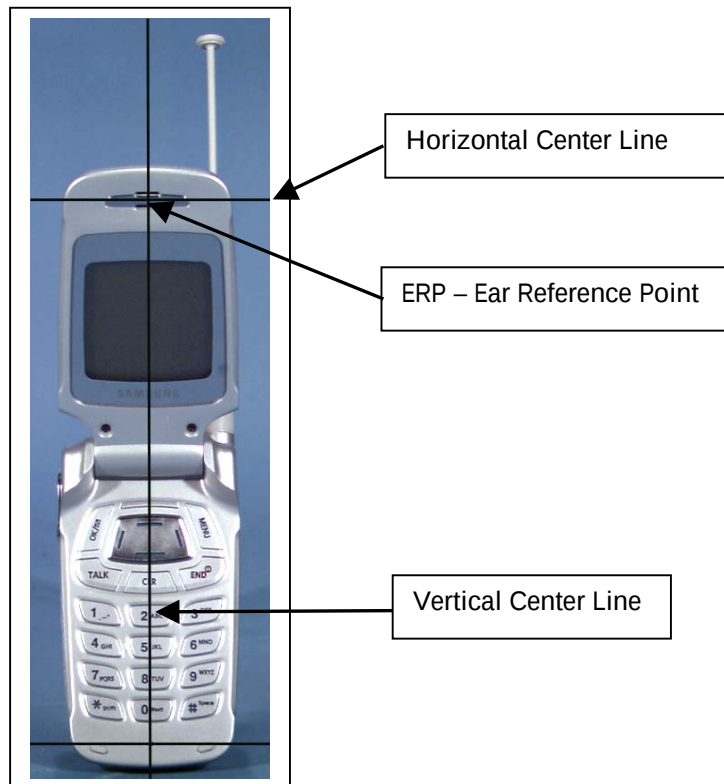


Figure 13.1 Handset Reference Points

PCTEST™ SAR TEST REPORT	PCTEST Engineering Laboratory, Inc.	FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 17 of 32

SAR DATA SUMMARY

Mixture Type: 835MHz Brain

14.1 MEASUREMENT RESULTS (AMPS Right Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	26.0	26.0	Standard	Cheek / Touch	In	1.15
824.04	0991	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	1.48
836.49	0383	AMPS	26.0	26.0	Standard	Cheek / Touch	In	0.59
836.49	0383	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	1.05
848.97	0799	AMPS	26.0	26.0	Standard	Cheek / Touch	In	0.78
848.97	0799	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	0.99
824.04	0991	AMPS	26.0	26.0	Extended	Cheek / Touch	Out	1.24
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
7. Tissue parameters and temperatures are listed on the SAR plots.
8. Liquid tissue depth is 15.1 cm. ± 0.1

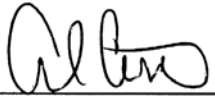

Alfred Cirwithian
Vice President Engineering



Figure 14.1 Right Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT	PCTEST Engineering Laboratory, Inc.		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 18 of 32	

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

14.2 MEASUREMENT RESULTS (AMPS Right Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	26.0	26.0	Standard	Ear / 15° Tilt	In	0.16
824.04	0991	AMPS	26.0	26.0	Standard	Ear / 15° Tilt	Out	0.37
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
- Tissue parameters and temperatures are listed on the SAR plots.
 - Liquid tissue depth is 15.1 cm. $\pm$ 0.1
 - Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in AMPS mode.

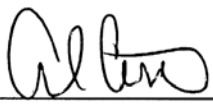

Alfred Cirwithian
Vice President Engineering



Figure 14.2 Right Head SAR Test Setup
-- Ear / 15° Tilt Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 19 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

14.3 MEASUREMENT RESULTS (AMPS Left Head SAR - Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	26.0	26.0	Standard	Cheek / Touch	In	0.63
824.04	0991	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	1.38
836.49	0383	AMPS	26.0	26.0	Standard	Cheek / Touch	In	0.64
836.49	0383	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	1.06
848.97	0799	AMPS	26.0	26.0	Standard	Cheek / Touch	In	0.62
848.97	0799	AMPS	26.0	26.0	Standard	Cheek / Touch	Out	1.23
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- *Power Measured ☒ Conducted ☐ ERP ☐ EIRP
4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
- Phantom Configuration ☒ Left Head ☐ Flat Phantom ☐ Right Head
5. SAR Configuration ☒ Head ☐ Body ☐ Hand
6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
7. Tissue parameters and temperatures are listed on the SAR plots.
8. Liquid tissue depth is 15.1 cm. $\pm$ 0.1

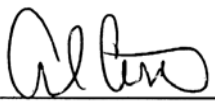

Alfred Cirwithian
Vice President Engineering



Figure 14.3 Left Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 20 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

14.4 MEASUREMENT RESULTS (CELLULAR CDMA Left Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.70	1013	CDMA	25.0	25.0	Standard	Cheek / Touch	In	0.59
824.70	1013	CDMA	25.0	25.0	Standard	Cheek / Touch	Out	0.97
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- | | | | |
|---------------------------|--|---|-------------------------------------|
| *Power Measured | ☒ Conducted | ☐ ERP | ☐ EIRP |
| 4. SAR Measurement System | ☐ DASY3 | ☒ IDX | ☐ |
| Phantom Configuration | ☒ Left Head | ☐ Flat Phantom | ☐ Right Head |
| 5. SAR Configuration | ☒ Head | ☐ Body | ☐ Hand |
| 6. Test Signal Call Mode | ☒ Manu. Test Codes | ☐ Base Station Simulator | |
- Tissue parameters and temperatures are listed on the SAR plots.
 - Liquid tissue depth is 15.1 cm. $\pm$ 0.1
 - Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in AMPS mode.

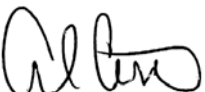

Alfred Cirwithian
Vice President Engineering



Figure 14.4 Left Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 21 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

14.5 MEASUREMENT RESULTS (CELLULAR CDMA Right Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.70	1013	CDMA	25.0	25.0	Standard	Cheek / Touch	In	0.50
824.70	1013	CDMA	25.0	25.0	Standard	Cheek / Touch	Out	1.02
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
 4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
 Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
 5. SAR Configuration ☒ Head ☐ Body ☐ Hand
 6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
 7. Tissue parameters and temperatures are listed on the SAR plots.
 8. Liquid tissue depth is 15.1 cm. ± 0.1
 9. Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in AMPS mode.

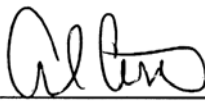

Alfred Cirwithian
Vice President Engineering



Figure 14.5 Right Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 22 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Brain

14.6 MEASUREMENT RESULTS (CELLULAR CDMA Right Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	25.0	25.0	Standard	Ear / 15° Tilt	In	0.13
824.04	0991	AMPS	25.0	25.0	Standard	Ear / 15° Tilt	Out	0.25
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
 4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
 Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
 5. SAR Configuration ☒ Head ☐ Body ☐ Hand
 6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
- Tissue parameters and temperatures are listed on the SAR plots.
 - Liquid tissue depth is 15.1 cm. $\pm$ 0.1
 - Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in AMPS mode.


Alfred Cirwithian
Vice President Engineering



Figure 14.6 Right Head SAR Test Setup
-- Ear / 15° Tilt Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

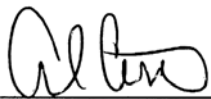
Mixture Type: 1900MHz Brain

14.7 MEASUREMENT RESULTS (PCS CDMA Right Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [†]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	1.11
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.20
1880.00	0600	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	0.90
1880.00	0600	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.27
1908.75	1175	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	0.72
1908.75	1175	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.31
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
 4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
 Phantom Configuration ☐ Left Head ☐ Flat Phantom ☒ Right Head
 5. SAR Configuration ☒ Head ☐ Body ☐ Hand
 6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
 7. Tissue parameters and temperatures are listed on the SAR plots.
 8. Liquid tissue depth is 15.1 cm. ± 0.1



Alfred Cirwithian
Vice President Engineering



**Figure 14.7 Right Head SAR Test Setup
-- Cheek / Touch Position --**

PCTEST™ SAR TEST REPORT	PCTEST Engineering Laboratory, Inc.		FCC CERTIFICATION	Reviewed by: Quality Manager
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SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain

14.8 MEASUREMENT RESULTS (PCS CDMA Left Head SAR – Touch)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	1.31
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.24
1880.00	0600	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	1.11
1880.00	0600	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.22
1908.75	1175	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	In	0.76
1908.75	1175	PCS CDMA	24.5	24.5	Standard	Cheek / Touch	Out	0.27
1851.25	0025	PCS CDMA	24.5	24.5	Extended	Cheek / Touch	In	1.27
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Brain 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
 4. SAR Measurement System ☐ DASY3 ☒ IDX ☐
 Phantom Configuration ☒ Left Head ☐ Flat Phantom ☐ Right Head
 5. SAR Configuration ☒ Head ☐ Body ☐ Hand
 6. Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
 7. Tissue parameters and temperatures are listed on the SAR plots.
 8. Liquid tissue depth is 15.1 cm. ± 0.1


Randy Ortanez
President



Figure 14.8 Left Head SAR Test Setup
-- Cheek / Touch Position --

PCTEST™ SAR TEST REPORT	 FCC CERTIFICATION 		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540
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SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Brain

14.9 MEASUREMENT RESULTS (PCS CDMA Left Head SAR – Tilt)

FREQUENCY		Modulation	Begin / End POWER [‡]			Device Test Position	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Ear / 15° Tilt	In	0.26
1851.25	0025	PCS CDMA	24.5	24.5	Standard	Ear / 15° Tilt	Out	0.02
ANSI / IEEE C95.1 1992 - SAFETY LIMIT						Brain 1.6 W/kg (mW/g) averaged over 1 gram		
Spatial Peak								
Uncontrolled Exposure/General Population								

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
☐ SAR Measurement System ☐ DASY3 ☒ IDX ☐
Phantom Configuration ☒ Left Head ☐ Flat Phantom ☐ Right Head
SAR Configuration ☒ Head ☐ Body ☐ Hand
Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
- Tissue parameters and temperatures are listed on the SAR plots.
 - Liquid tissue depth is 15.1 cm. ± 0.1
 - Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in PCS mode.

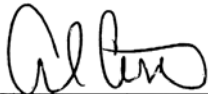

Alfred Cirwithian
Vice President Engineering



Figure 14.9 Left Head SAR Test Setup
-- Ear / Tilt Position --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 26 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Muscle

14.10 MEASUREMENT RESULTS (AMPS Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [‡]			Separation Distance (cm) ^{‡‡}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.04	0991	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.45
824.04	0991	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	Out	1.39
836.49	0383	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.40
836.49	0383	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	Out	1.13
848.97	0799	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	In	0.56
848.97	0799	AMPS	26.0	26.0	Standard	1.5 [w/o Holster]	Out	1.15
824.04	0991	AMPS	26.0	26.0	Extended	1.5 [w/o Holster]	Out	1.23
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
 - All modes of operation were investigated, and worst-case results are reported.
 - Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
- [‡]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
⁴ SAR Measurement System ☐ DASY3 ☒ IDX ☐
 Phantom Configuration ☐ Left Head ☒ Flat Phantom ☐ Right Head
⁵ SAR Configuration ☐ Head ☒ Body ☐ Hand
⁶ Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
⁷ ^{‡‡}Test Configuration ☐ With Holster ☒ Without Holster
- Tissue parameters and temperatures are listed on the SAR plots.
 - Both sides of the phone were tested and the worst-case side is reported.
 - Liquid tissue depth is 15.1 cm. ± 0.1


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Vice President Engineering



Figure 14.10 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT	 FCC CERTIFICATION			Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 27 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 835MHz Muscle

14.11 MEASUREMENT RESULTS (CELLULAR CDMA Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [‡]			Separation Distance (cm) ^{‡‡}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
824.70	1013	CDMA	25.0	25.0	Standard	1.5 [w/o Holster]	In	0.30
824.70	1013	CDMA	25.0	25.0	Standard	1.5 [w/o Holster]	Out	0.95
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*

[‡] Power Measured	☒ Conducted	☐ ERP	☐ EIRP
-----------------------------	---	------------------------------	-------------------------------
- SAR Measurement System

☐ DASY3	☒ IDX	☐
--------------------------------	---	--------------------------
- Phantom Configuration

☐ Left Head	☒ Flat Phantom	☐ Right Head
------------------------------------	--	-------------------------------------
- SAR Configuration

☐ Head	☒ Body	☐ Hand
-------------------------------	--	-------------------------------
- Test Signal Call Mode

☒ Manu. Test Codes	☐ Base Station Simulator
--	---
- ^{‡‡}Test Configuration

☐ With Holster	☒ Without Holster
---------------------------------------	---
- Tissue parameters and temperatures are listed on the SAR plots.
- Both sides of the phone were tested and the worst-case side is reported.
- Liquid tissue depth is 15.1 cm. $\pm$ 0.1
- Justification for reduced test configurations: Per FCC P1528 Power Rule (Jan. 31, 2002), SAR measurements were taken on only one channel because the peak SAR value is less than 85% of the maximum SAR value in AMPS mode.

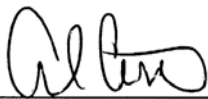

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Vice President Engineering



Figure 14.11 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 28 of 32

SAR DATA SUMMARY (Continued)

Mixture Type: 1900MHz Muscle

14.12 MEASUREMENT RESULTS (PCS CDMA Body SAR w/o Holster)

FREQUENCY		Modulation	Begin / End POWER [‡]			Separation Distance (cm) ^{††}	Antenna Position	SAR (W/kg)
MHz	Ch.		(dBm)		Battery			
1851.25	0025	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	In	0.68
1851.25	0025	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	Out	0.17
1880.00	0600	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	In	0.56
1880.00	0600	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	Out	0.26
1908.75	1175	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	In	0.45
1908.75	1175	PCS CDMA	24.5	24.5	Standard	1.5 [w/o Holster]	Out	0.26
1851.25	0025	PCS CDMA	24.5	24.5	Extended	1.5 [w/o Holster]	In	0.58
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Muscle 1.6 W/kg (mW/g) averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in atypical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
- All modes of operation were investigated, and worst-case results are reported.
- Battery is fully charged for all readings. *Standard & Extended Batteries are options.*
 - [†]Power Measured ☒ Conducted ☐ ERP ☐ EIRP
- SAR Measurement System ☐ DASY3 ☒ IDX ☐
 - Phantom Configuration ☐ Left Head ☒ Flat Phantom ☐ Right Head
- SAR Configuration ☐ Head ☒ Body ☐ Hand
- Test Signal Call Mode ☒ Manu. Test Codes ☐ Base Station Simulator
- ^{††}Test Configuration ☐ With Holster ☒ Without Holster
- Tissue parameters and temperatures are listed on the SAR plots.
- Both sides of the phone were tested and the worst-case side is reported.
- Liquid tissue depth is 15.1 cm. $\pm$ 0.1

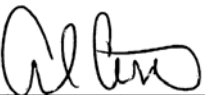

Alfred Cirwithian
Vice President Engineering



Figure 14.12 Body SAR Test Setup
-- w/o Holster --

PCTEST™ SAR TEST REPORT	PCTEST Engineering Laboratory, Inc.		FCC CERTIFICATION	Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 29 of 32

15. SAR TEST EQUIPMENT

Equipment Calibration

Table 15.1 Test Equipment Calibration

EQUIPMENT SPECIFICATIONS		
Type	Calibration Date	Serial Number
CRS Robot F3	February 2002	RAF0134133
CRS C500C Motion Controller	February 2002	RCB0003303
CRS Teach Pendant (Joystick)	February 2002	STP0132231
DELL Computer, Pentium 4 1.6 GHz, Windows 2000™	February 2002	
E-Field Probe E-010	February 2002	PCT002
Right Ear SAM Phantom (P-SAM-R)	February 2002	
Left Ear SAM Phantom (P-SAM-L)	February 2002	
IDX Robot End Effector (EE-103-C)	February 2002	07111223
IDX Probe Amplifier	February 2002	07111113
Validation Dipole D-835S	February 2002	PCT640
Validation Dipole D-1900S	February 2002	PCT639
Brain Equivalent Matter (835MHz)	April 2002	PCTBEM101
Brain Equivalent Matter (1900MHz)	April 2002	PCTBEM301
Muscle Equivalent Matter (835MHz)	April 2002	PCTMEM201
Muscle Equivalent Matter (1900MHz)	April 2002	PCTMEM401
Microwave Amp. Model: 5S1G4, (800MHz - 4.2GHz)	January 2002	22332
Gigatronics 8651A Power Meter	January 2002	1835299
HP-8648D (9kHz ~ 4GHz) Signal Generator	January 2002	PCT530
Amplifier Research 5S1G4 Power Amp	January 2002	PCT540
HP-8753E (30kHz ~ 3GHz) Network Analyzer	January 2002	PCT552
HP85070B Dielectric Probe Kit	January 2002	PCT501
Ambient Noise/Reflection, etc.	<12mW/kg/<3%of SAR	January 2002

NOTE:

The E-field probe was calibrated by IDX, by temperature measurement procedure. Dipole Validation measurement is performed by PCTEST Lab. before each test. The brain simulating material is calibrated by PCTEST using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain-equivalent material.

PCTEST™ SAR TEST REPORT		FCC CERTIFICATION		Reviewed by: Quality Manager
SAR Filename: SAR.220327137.A3L	Test Dates: Mar. 28-29 & Apr. 9-10, 2002	Phone Type: Tri-Mode Dual-Band	FCC ID: A3LSPHA540	Page 30 of 32

SAR Data Report 02032815

Start : 28-Mar-02 02:38:37 pm
End : 28-Mar-02 02:54:09 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.04 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-0991
CHEEK
CF=1; Amb. Temp= 21.8 'C; Liq. Temp=21.5 'C

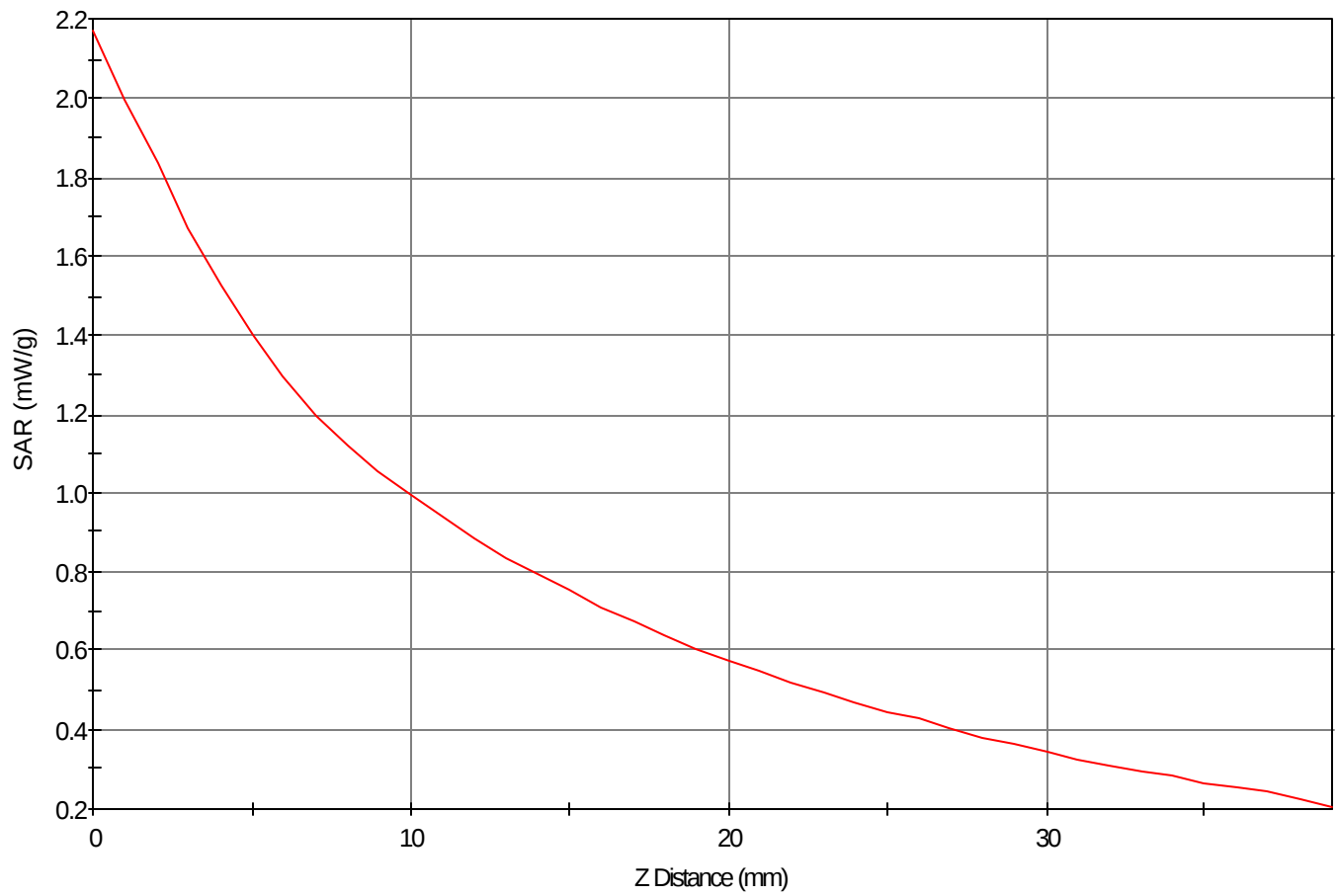
Area Scan - Max Peak SAR Value at x=77.0 y=10.0 = 1.44 W/kg

Zoom Scan - Max Peak SAR Value at x=76.0 y=11.0 z=0.0 = 2.17 W/kg

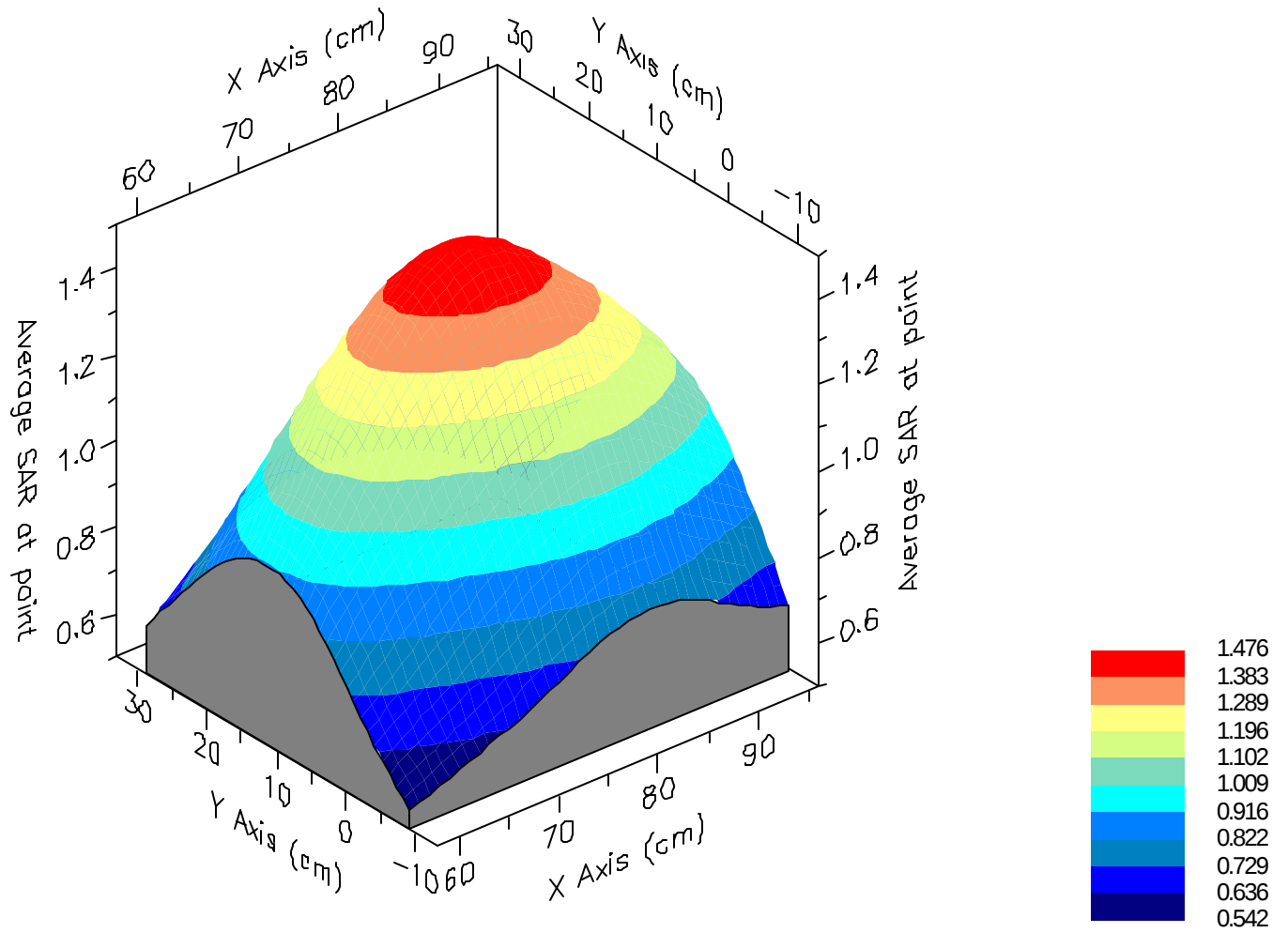
Max 1g SAR at x=77.0 y=11.0 z=0.0 = 1.48 W/kg

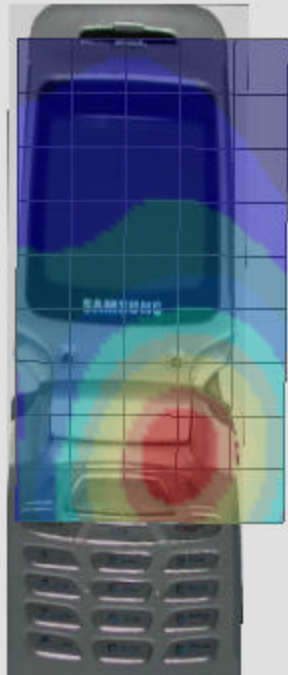
Max 10g SAR at x=78.0 y=11.0 z=0.0 = 0.97 W/kg

SAR - Z Axis
at Hotspot x:76.0 y:11.0



1g SAR Values





SAR Data Report 02032909

Start : 29-Mar-02 01:47:40 pm
End : 29-Mar-02 01:59:39 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.04 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-0991
TILT
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

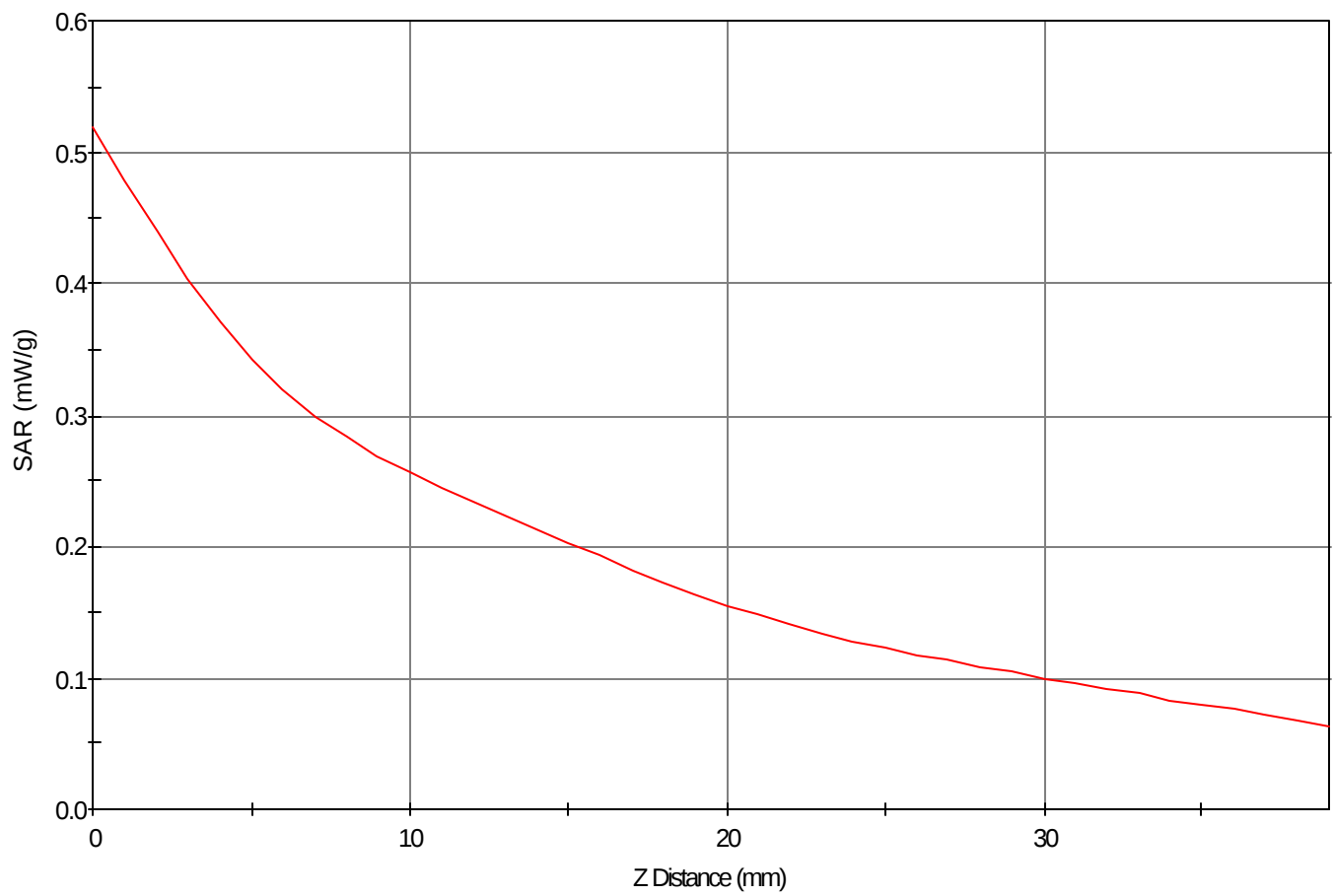
Area Scan - Max Peak SAR Value at x=57.0 y=8.0 = 0.37 W/kg

Zoom Scan - Max Peak SAR Value at x=65.0 y=7.0 z=0.0 = 0.52 W/kg

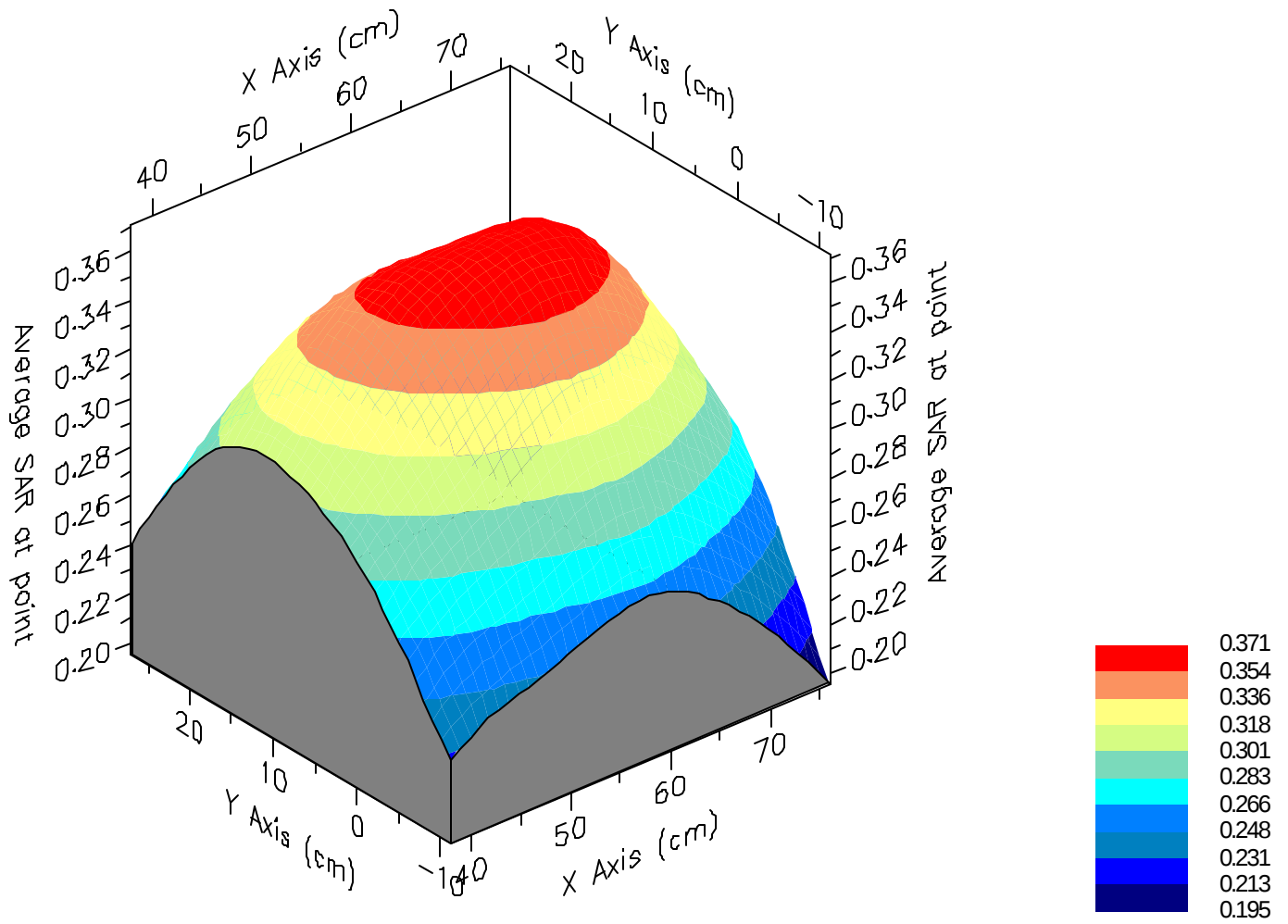
Max 1g SAR at x=60.0 y=6.0 z=0.0 = 0.37 W/kg

Max 10g SAR at x=57.0 y=8.0 z=0.0 = 0.27 W/kg

SAR - Z Axis
at Hotspot x:65.0 y:7.0



1g SAR Values





SAR Data Report 02032901

Start : 29-Mar-02 09:17:05 am
End : 29-Mar-02 09:43:35 am
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.04 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS Mode CH-0991
CHEEK
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

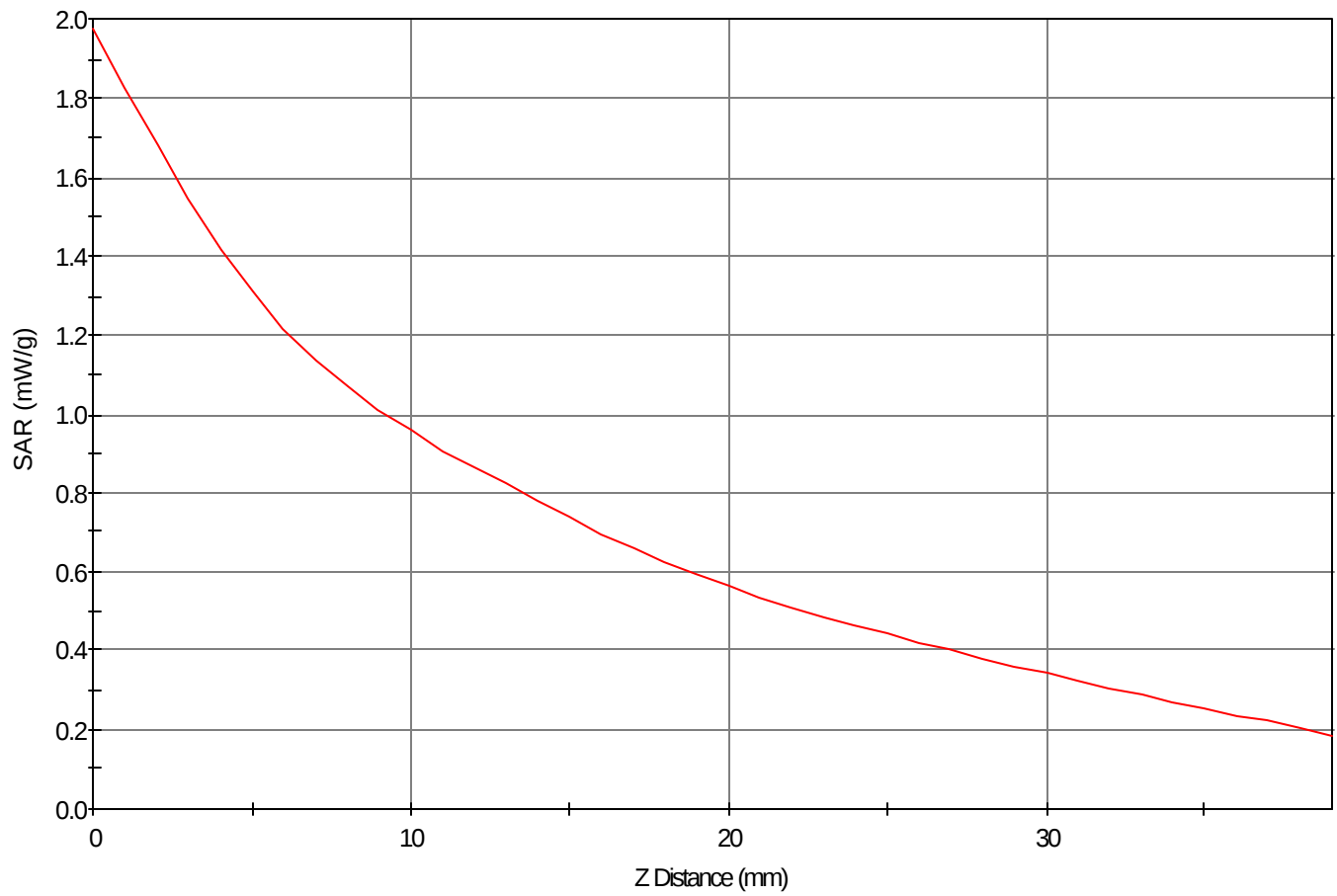
Area Scan - Max Peak SAR Value at x=75.0 y=9.0 = 1.40 W/kg

Zoom Scan - Max Peak SAR Value at x=73.0 y=10.0 z=0.0 = 1.97 W/kg

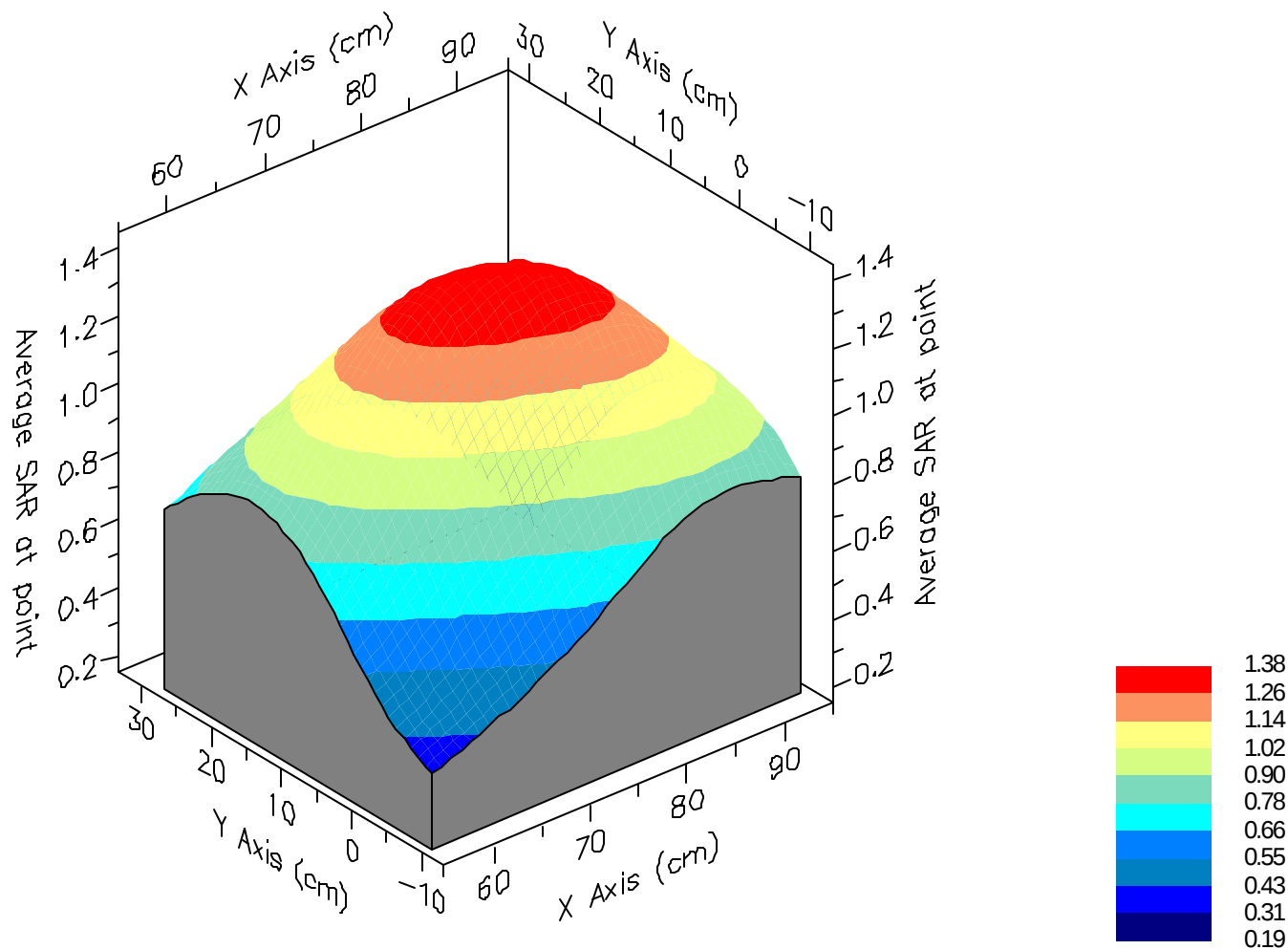
Max 1g SAR at x=77.0 y=9.0 z=0.0 = 1.38 W/kg

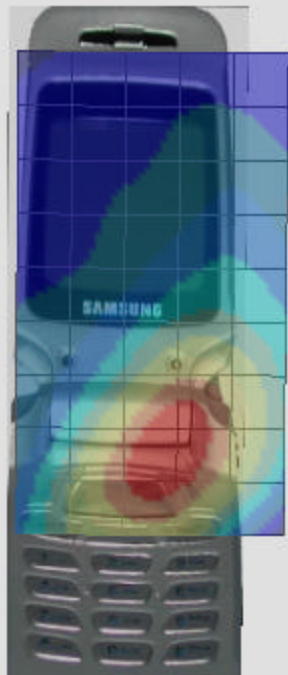
Max 10g SAR at x=77.0 y=8.0 z=0.0 = 0.92 W/kg

SAR - Z Axis
at Hotspot x:73.0 y:10.0



1g SAR Values





SAR Data Report 02032913

Start : 29-Mar-02 02:40:18 pm
End : 29-Mar-02 02:55:30 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.70 MHz
Transmit Pwr : 0.355 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
CHEEK
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

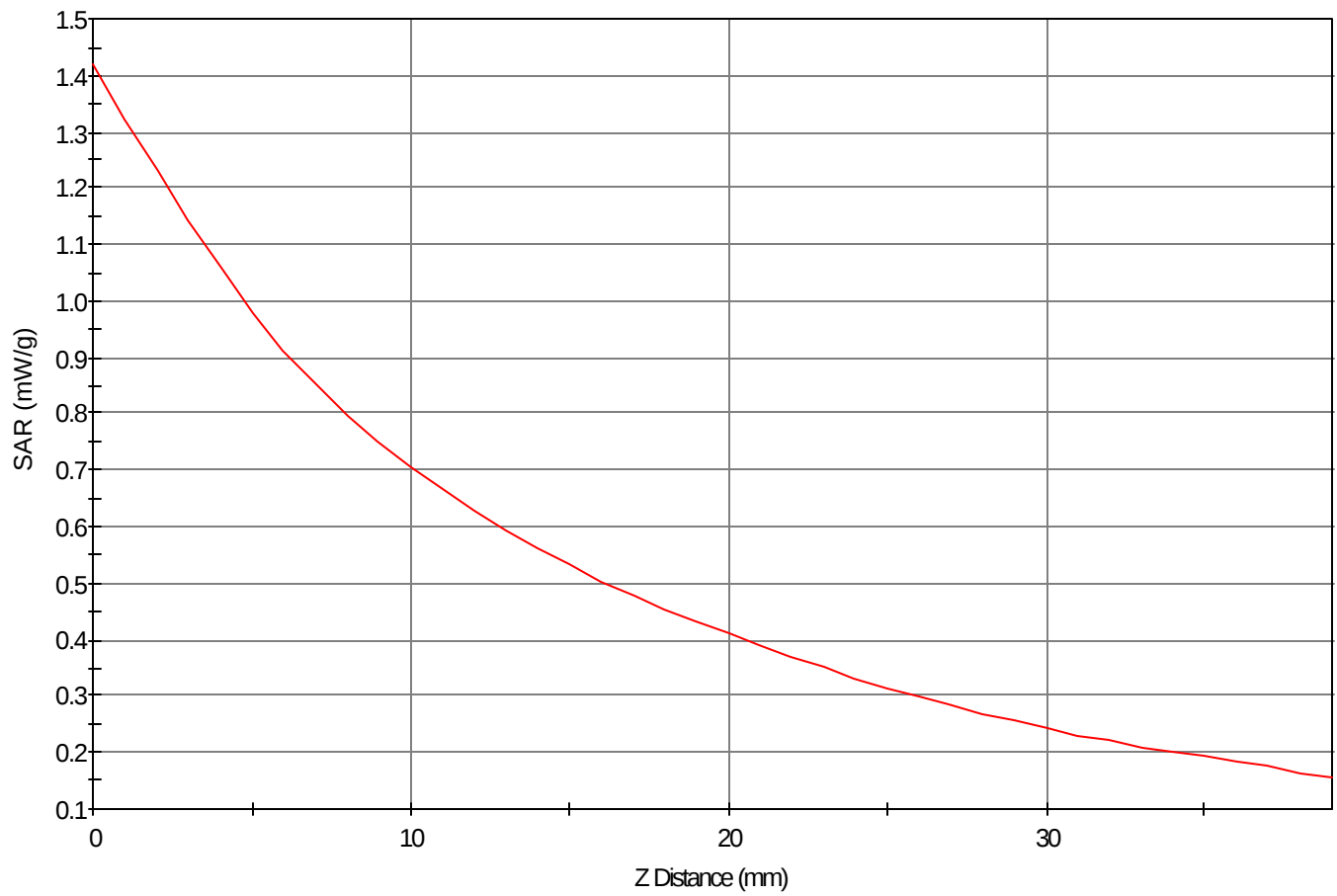
Area Scan - Max Peak SAR Value at x=77.0 y=14.0 = 1.00 W/kg

Zoom Scan - Max Peak SAR Value at x=77.0 y=11.0 z=0.0 = 1.42 W/kg

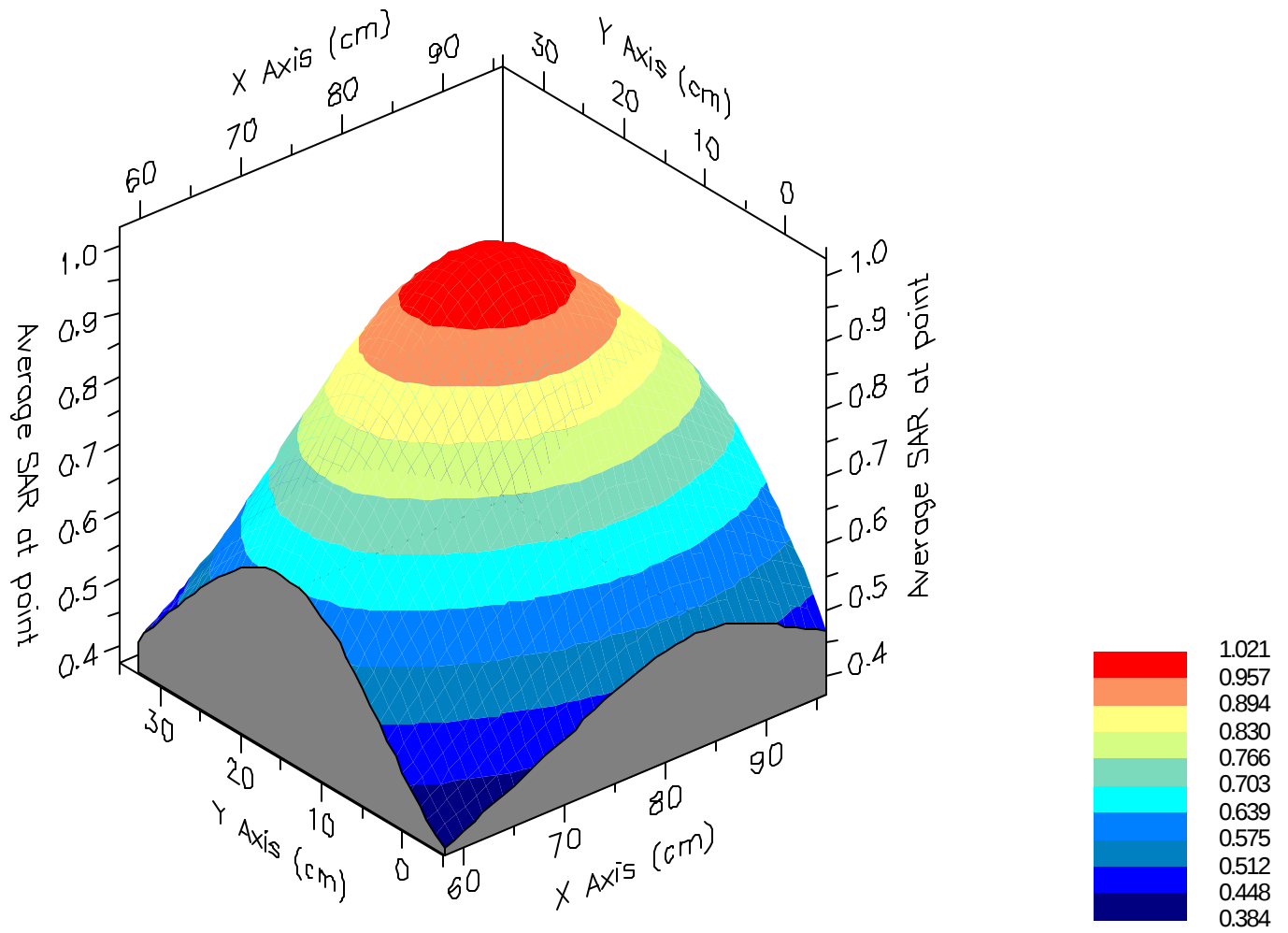
Max 1g SAR at x=77.0 y=14.0 z=0.0 = 1.02 W/kg

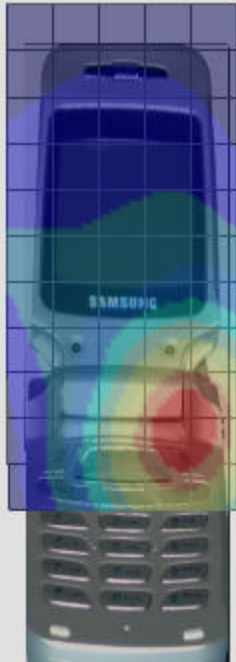
Max 10g SAR at x=78.0 y=14.0 z=0.0 = 0.68 W/kg

SAR - Z Axis
at Hotspot x:77.0 y:11.0



1g SAR Values





SAR Data Report 02032911

Start : 29-Mar-02 02:14:29 pm
End : 29-Mar-02 02:26:20 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.70 MHz
Transmit Pwr : 0.355 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
TILT
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

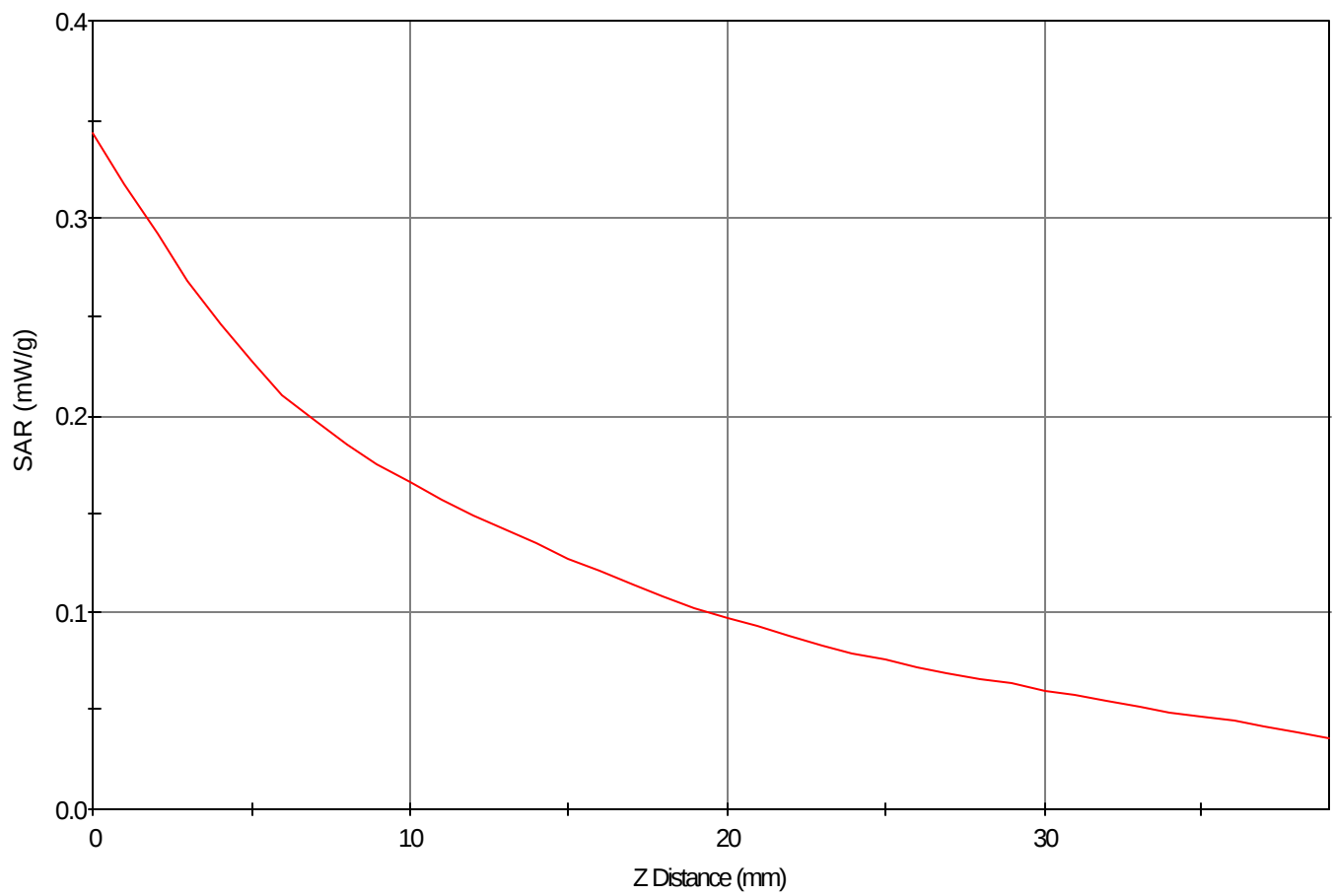
Area Scan - Max Peak SAR Value at x=54.0 y=7.0 = 0.24 W/kg

Zoom Scan - Max Peak SAR Value at x=41.0 y=13.0 z=0.0 = 0.34 W/kg

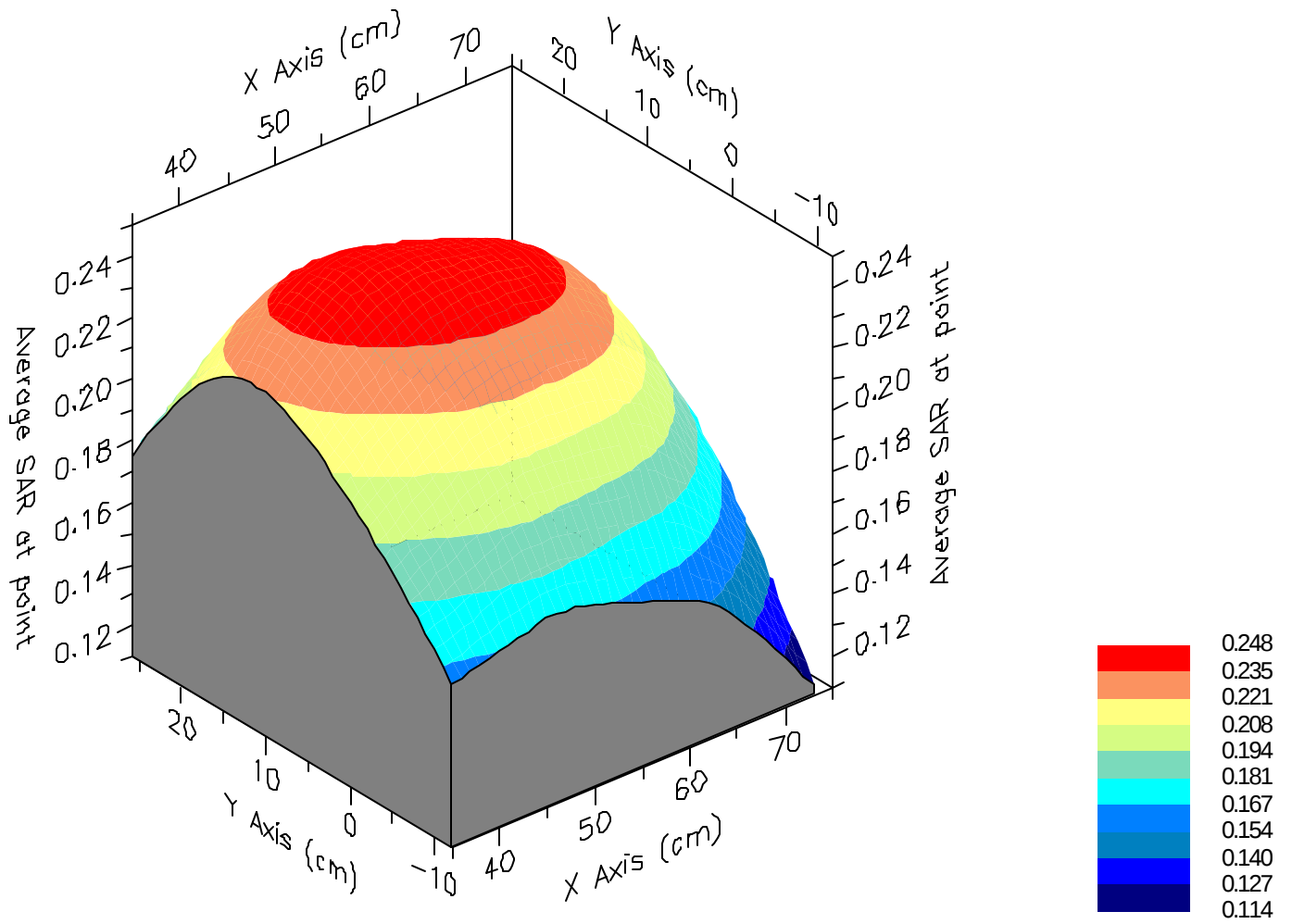
Max 1g SAR at x=48.0 y=10.0 z=0.0 = 0.25 W/kg

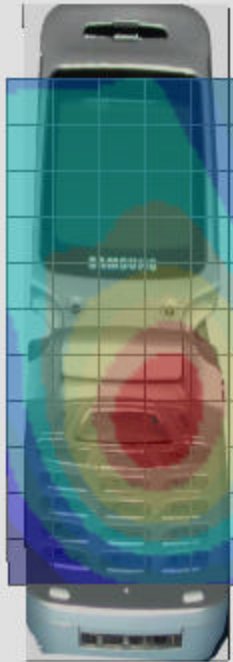
Max 10g SAR at x=52.0 y=8.0 z=0.0 = 0.18 W/kg

SAR - Z Axis
at Hotspot x:41.0 y:13.0



1g SAR Values





SAR Data Report 02032907

Start : 29-Mar-02 12:38:08 pm
End : 29-Mar-02 01:09:40 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.70 MHz
Transmit Pwr : 0.320 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Tissue Type : Brain
Tissue Dielectric : 43.440
Tissue Conductivity : 0.870
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.700
Calibrated Conductivity : 0.890
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 5.800
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA Mode CH-1013
CHEEK
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

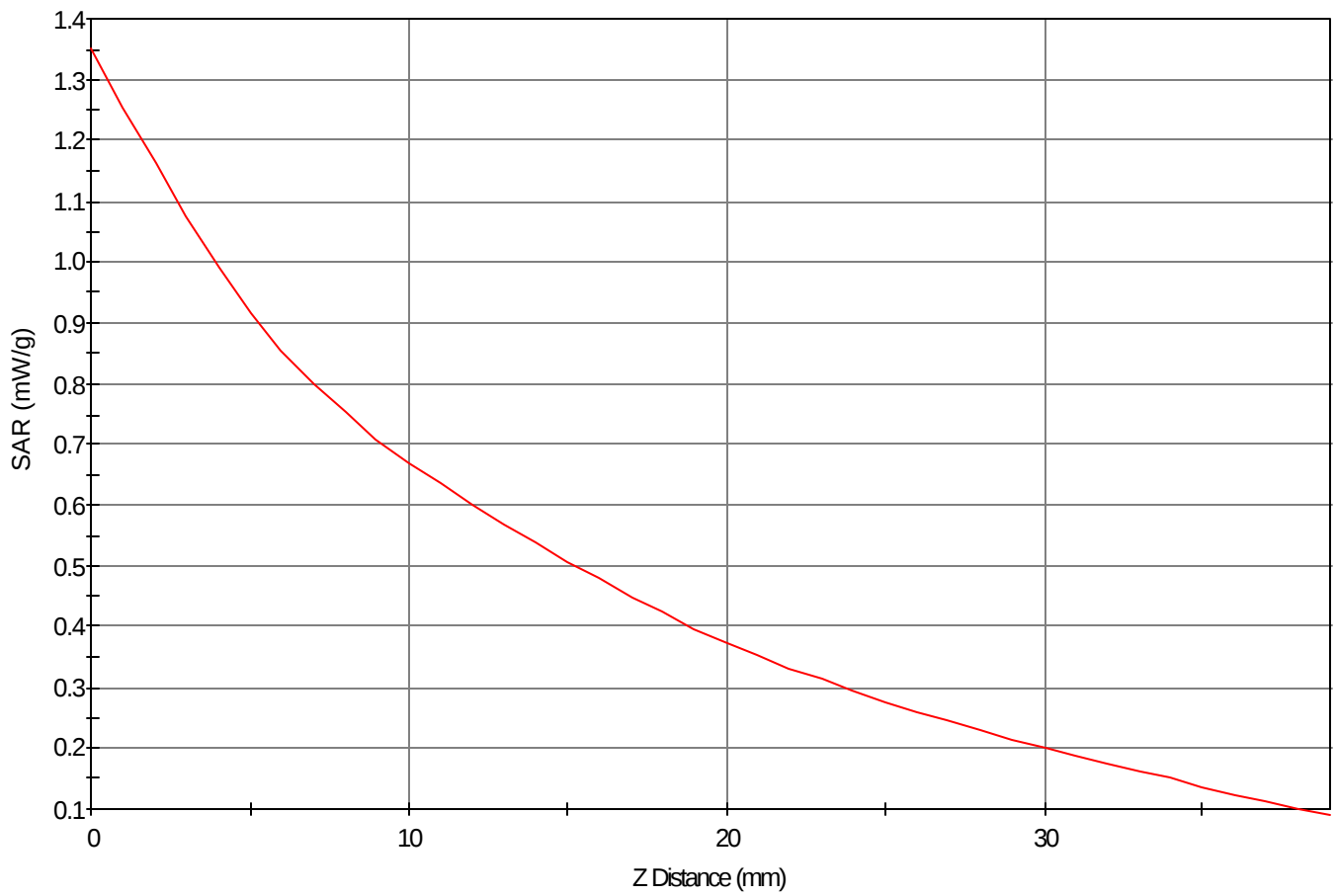
Area Scan - Max Peak SAR Value at x=76.0 y=8.0 = 0.95 W/kg

Zoom Scan - Max Peak SAR Value at x=77.0 y=8.0 z=0.0 = 1.35 W/kg

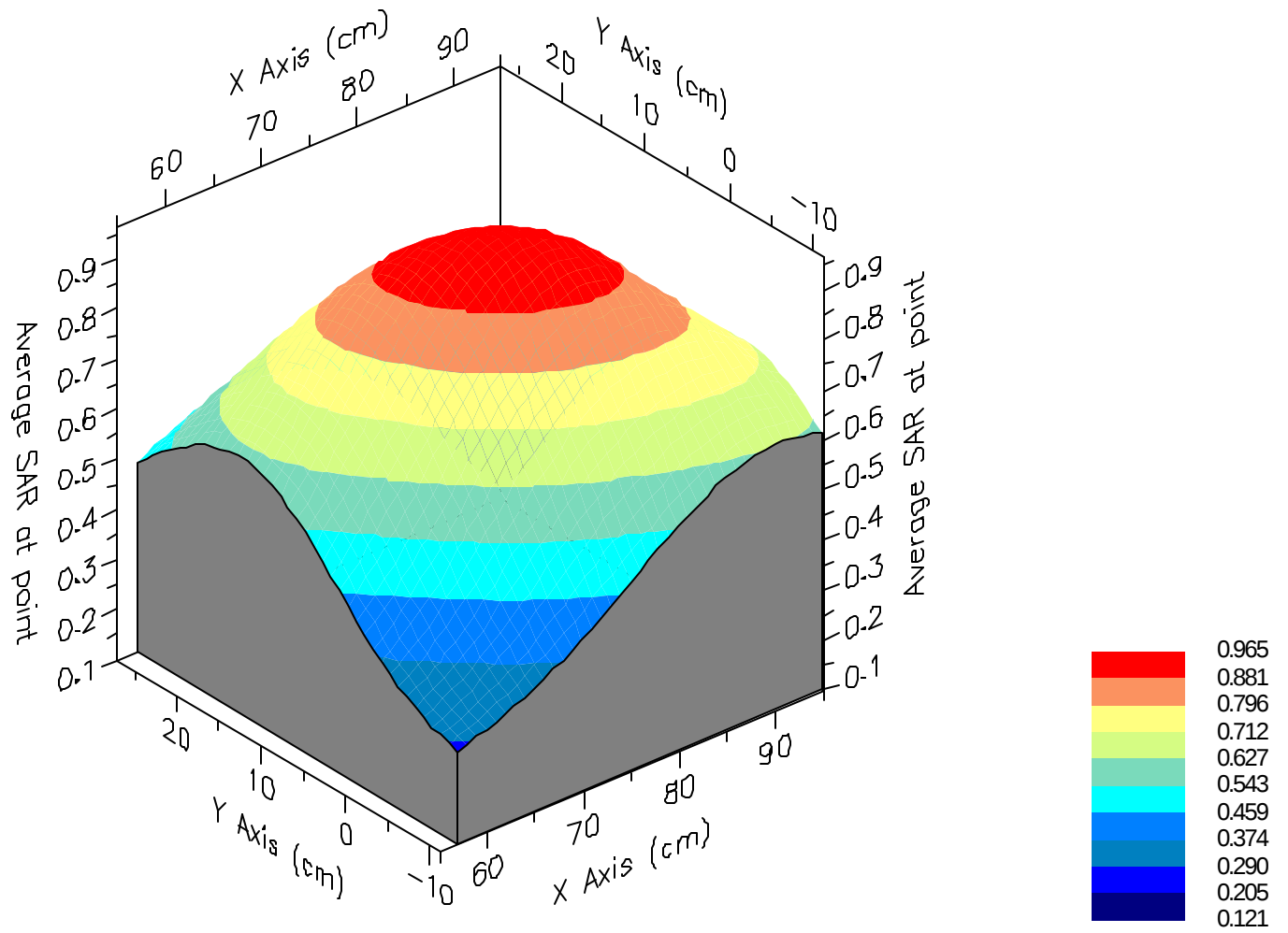
Max 1g SAR at x=78.0 y=7.0 z=0.0 = 0.97 W/kg

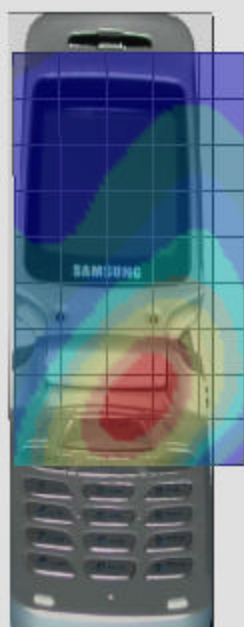
Max 10g SAR at x=78.0 y=7.0 z=0.0 = 0.65 W/kg

SAR - Z Axis
at Hotspot x:77.0 y:8.0



1g SAR Values





SAR Data Report 02032915

Start : 29-Mar-02 03:24:50 pm
End : 29-Mar-02 03:40:03 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 1851.25 MHz
Transmit Pwr : 0.280 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-R
Phantom Type : Right Ear
Tissue Type : Brain
Tissue Dielectric : 40.290
Tissue Conductivity : 1.440
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-0025
CHEEK
CF=1; Amb. Temp= 20.3 'C; Liq. Temp=20.1 'C

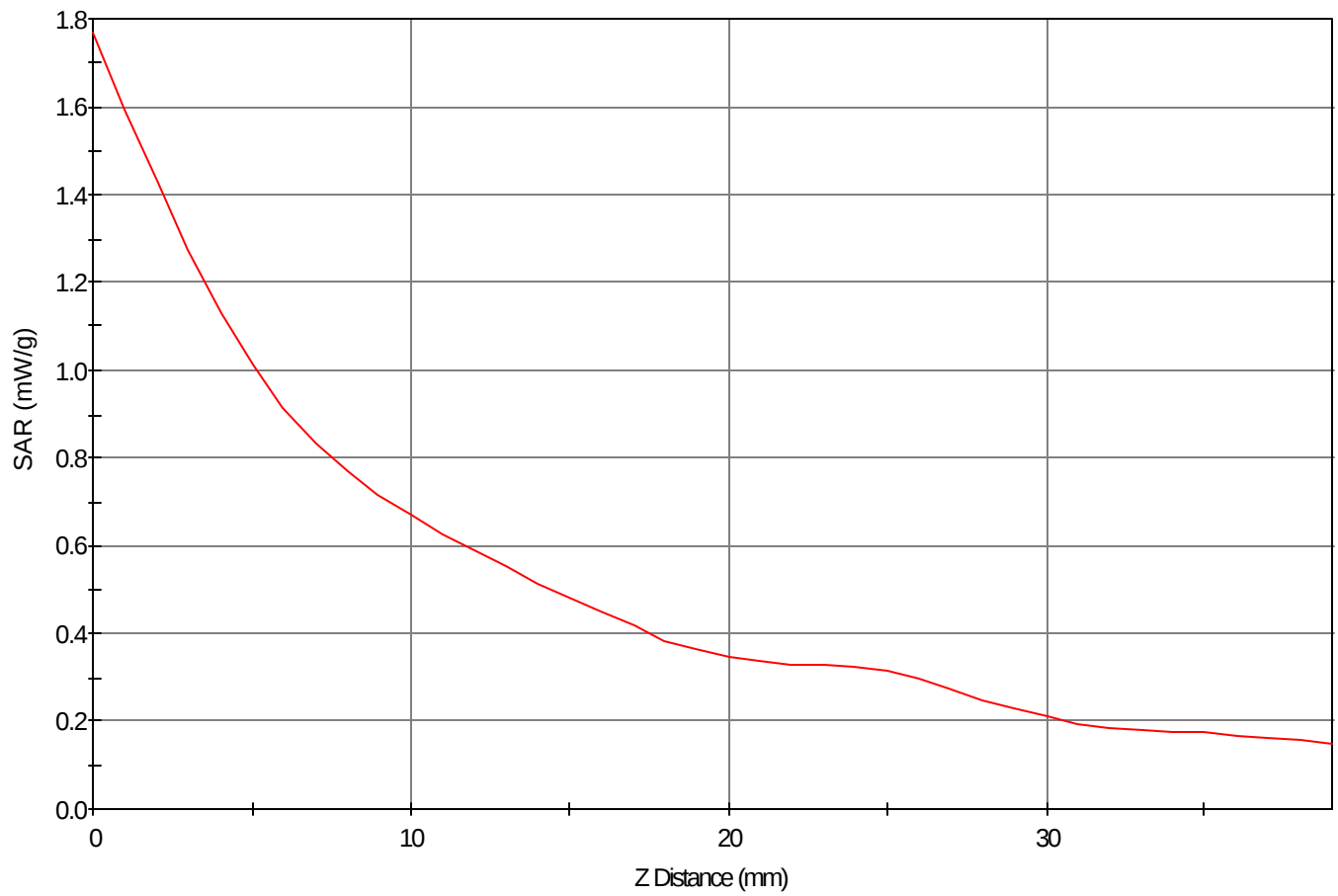
Area Scan - Max Peak SAR Value at x=80.0 y=8.0 = 1.01 W/kg

Zoom Scan - Max Peak SAR Value at x=79.0 y=8.0 z=0.0 = 1.76 W/kg

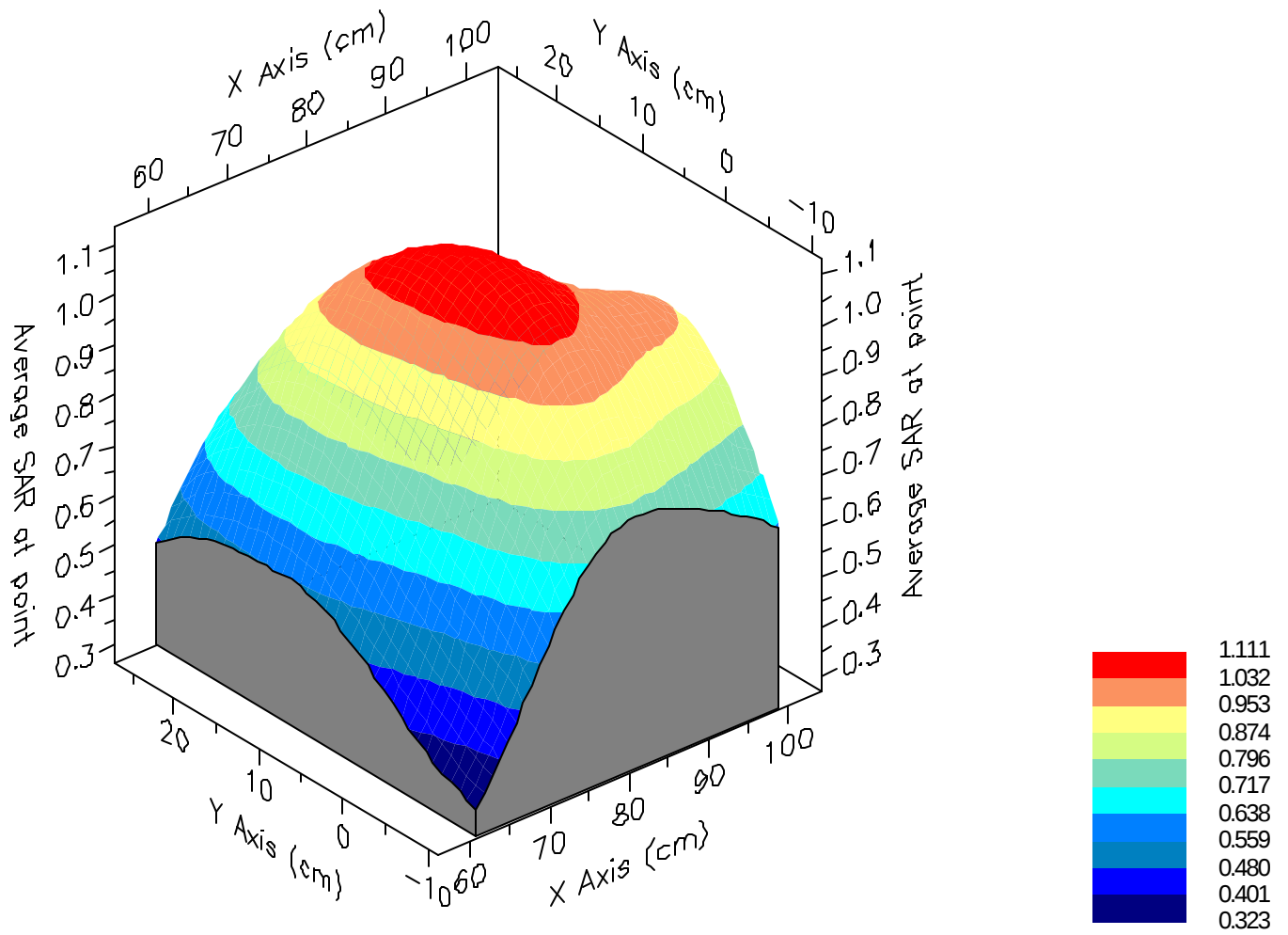
Max 1g SAR at x=80.0 y=8.0 z=0.0 = 1.11 W/kg

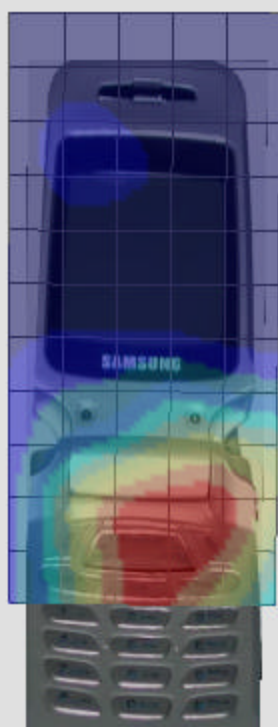
Max 10g SAR at x=86.0 y=4.0 z=0.0 = 0.73 W/kg

SAR - Z Axis
at Hotspot x:79.0 y:8.0



1g SAR Values





SAR Data Report 02032820

Start : 28-Mar-02 04:00:21 pm
End : 28-Mar-02 04:25:16 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 1851.25 MHz
Transmit Pwr : 0.280 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Tissue Type : Brain
Tissue Dielectric : 40.290
Tissue Conductivity : 1.440
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-0025
CHEEK
CF=1; Amb. Temp= 21.8 'C; Liq. Temp=21.5 'C

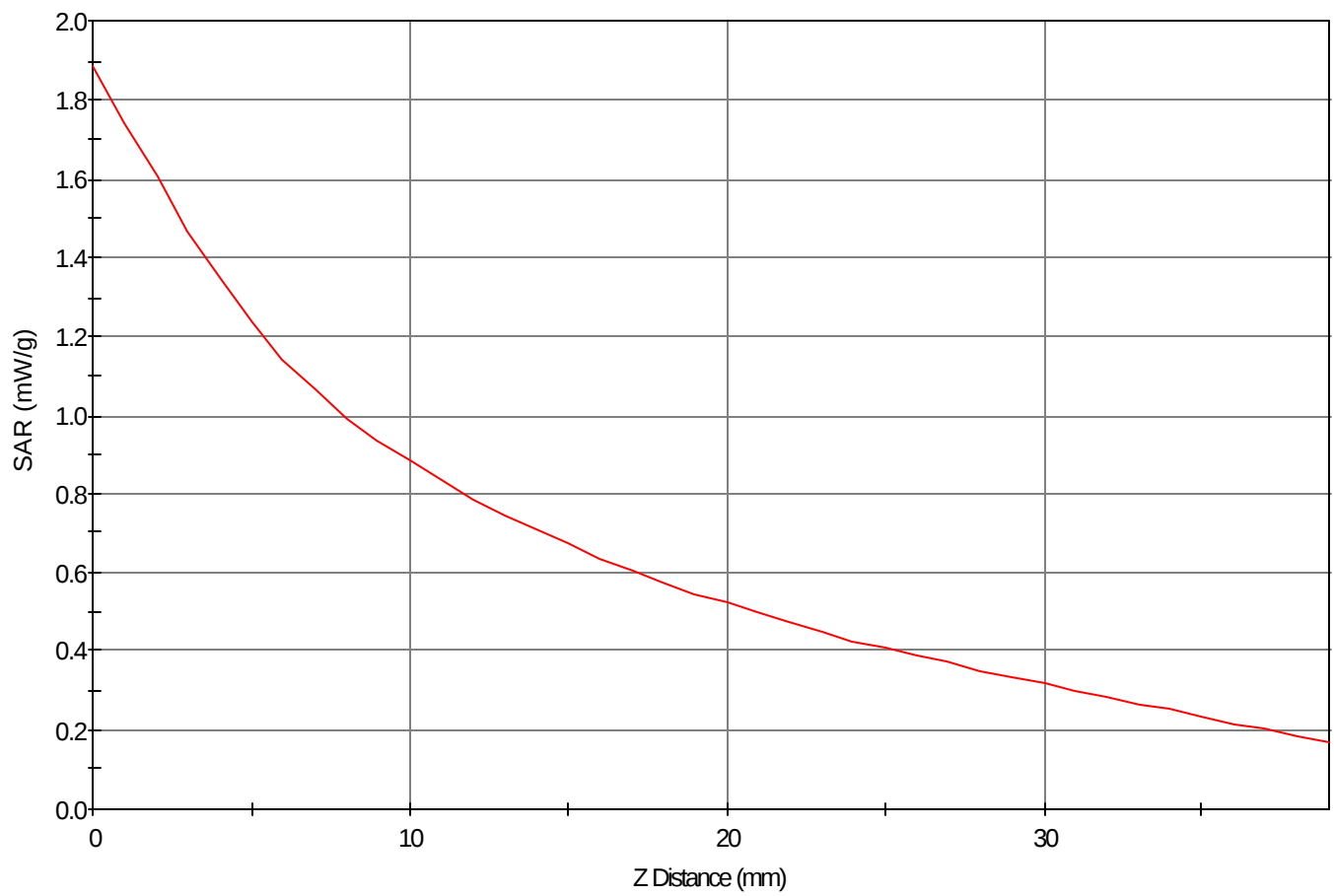
Area Scan - Max Peak SAR Value at x=84.0 y=-11.0 = 1.33 W/kg

Zoom Scan - Max Peak SAR Value at x=79.0 y=-14.0 z=0.0 = 1.89 W/kg

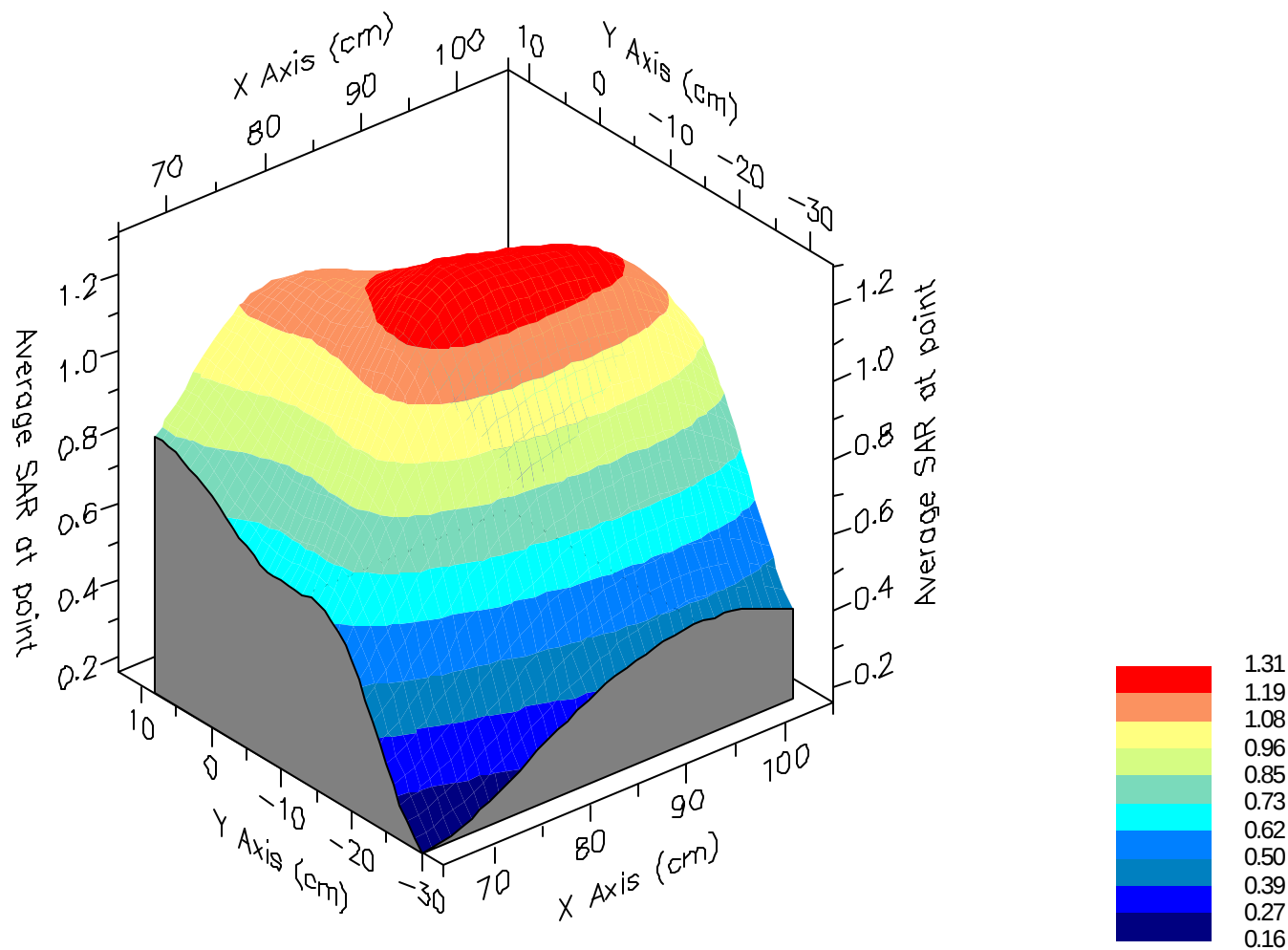
Max 1g SAR at x=82.0 y=-12.0 z=0.0 = 1.31 W/kg

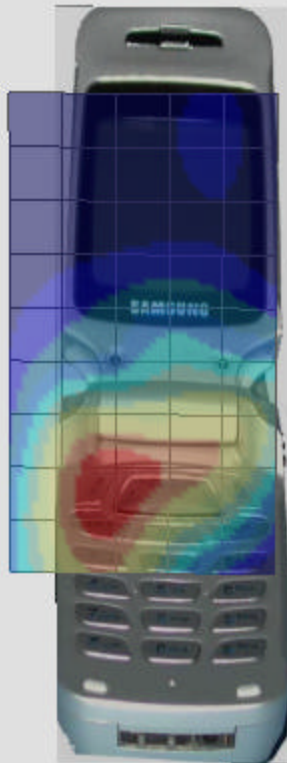
Max 10g SAR at x=84.0 y=-9.0 z=0.0 = 0.87 W/kg

SAR - Z Axis
at Hotspot x:79.0 y:-14.0



1g SAR Values





SAR Data Report 02032829

Start : 28-Mar-02 08:14:57 pm
End : 28-Mar-02 08:31:53 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 1851.25 MHz
Transmit Pwr : 0.280 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-L
Phantom Type : Left Ear
Tissue Type : Brain
Tissue Dielectric : 40.290
Tissue Conductivity : 1.440
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Brain
Calibrated Dielectric : 40.200
Calibrated Conductivity : 1.410
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.700
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-0025
TILT
CF=1; Amb. Temp= 21.8 'C; Liq. Temp=21.5 'C

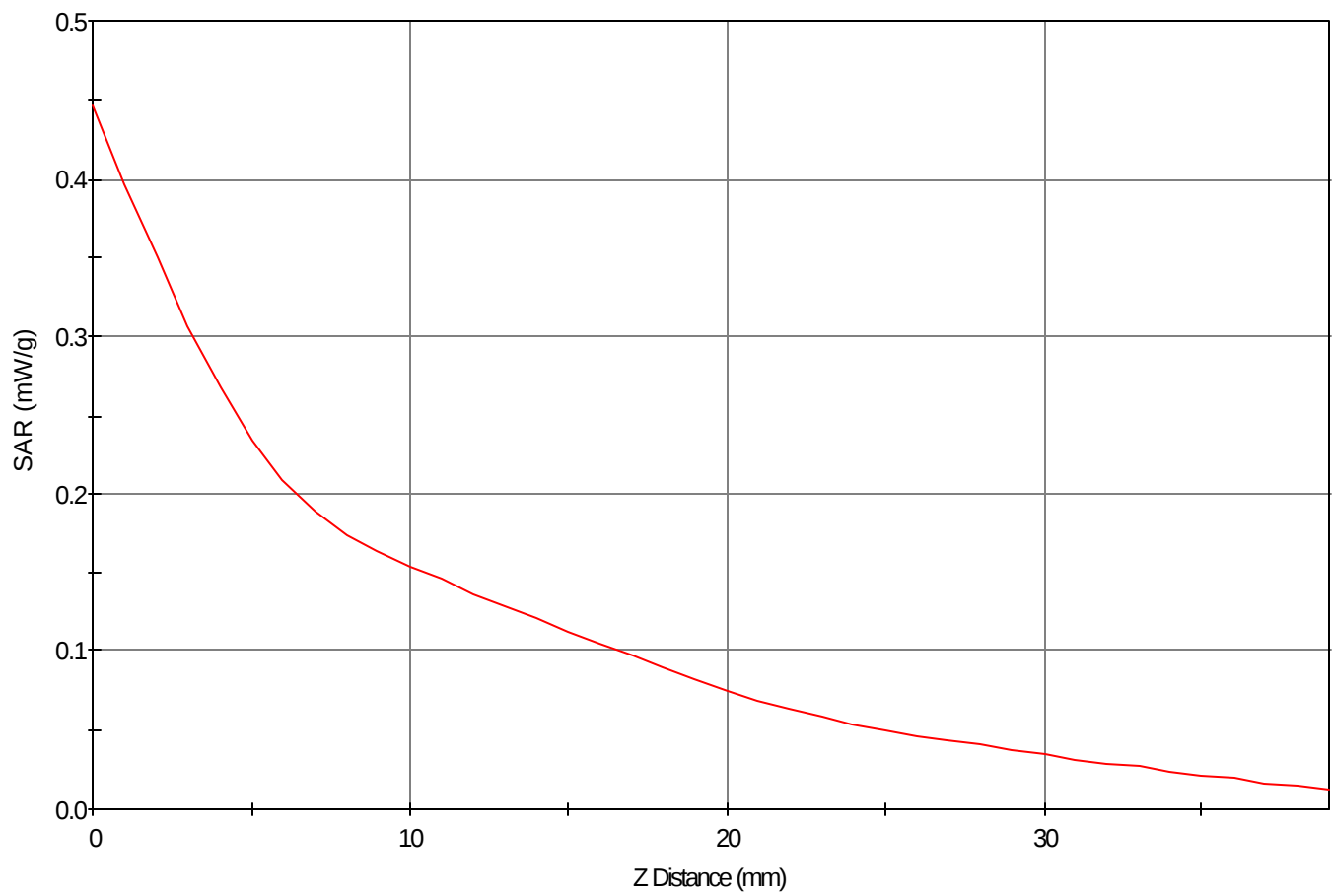
Area Scan - Max Peak SAR Value at x=72.0 y=-6.0 = 0.26 W/kg

Zoom Scan - Max Peak SAR Value at x=73.0 y=-6.0 z=0.0 = 0.45 W/kg

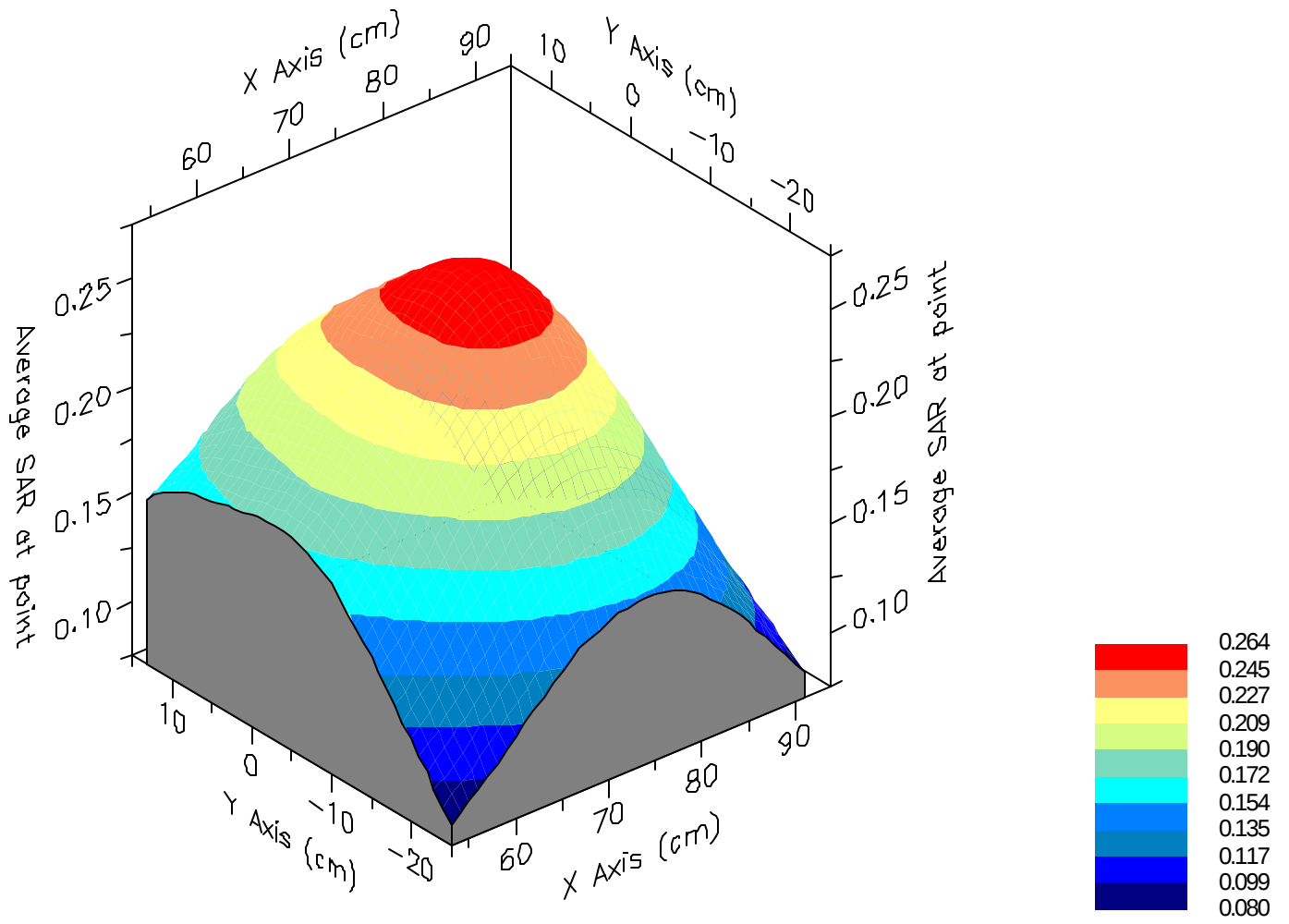
Max 1g SAR at x=73.0 y=-5.0 z=0.0 = 0.26 W/kg

Max 10g SAR at x=71.0 y=-4.0 z=0.0 = 0.16 W/kg

SAR - Z Axis
at Hotspot x:73.0 y:-6.0



1g SAR Values





SAR Data Report 02040926

Start : 9-Apr-02 05:35:20 pm
End : 9-Apr-02 05:47:17 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.04 MHz
Transmit Pwr : 0.400 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 52.840
Tissue Conductivity : 0.990
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Muscle
Calibrated Dielectric : 55.700
Calibrated Conductivity : 0.990
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.900
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

AMPS CH-991
Body
CF=1; Amb. Temp= 21.3 'C; Liq. Temp=21.0 'C

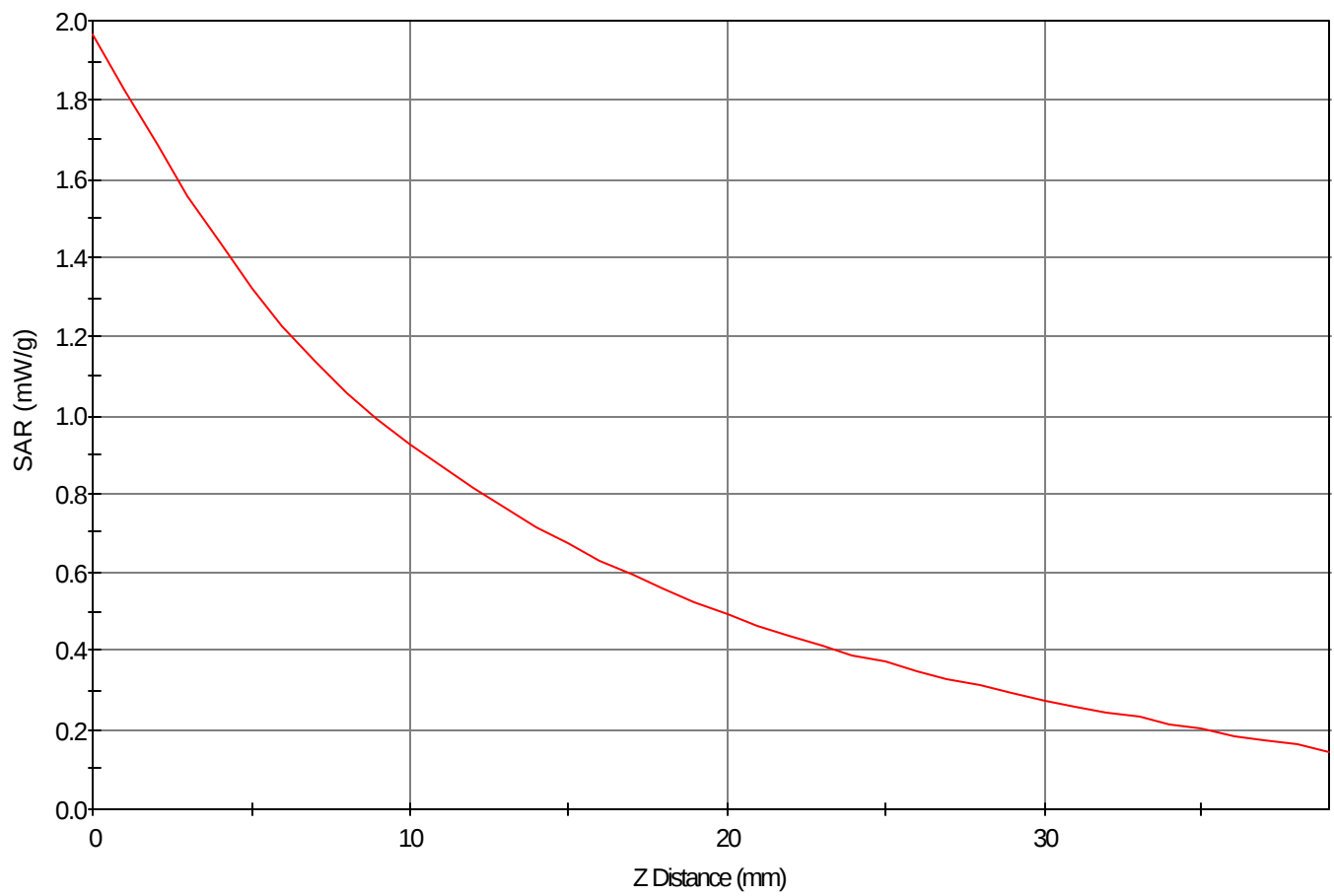
Area Scan - Max Peak SAR Value at x=0.0 y=-18.0 = 1.38 W/kg

Zoom Scan - Max Peak SAR Value at x=0.0 y=-17.0 z=0.0 = 1.96 W/kg

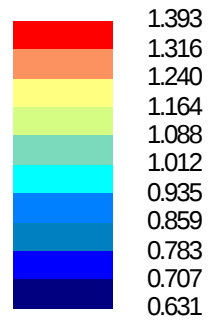
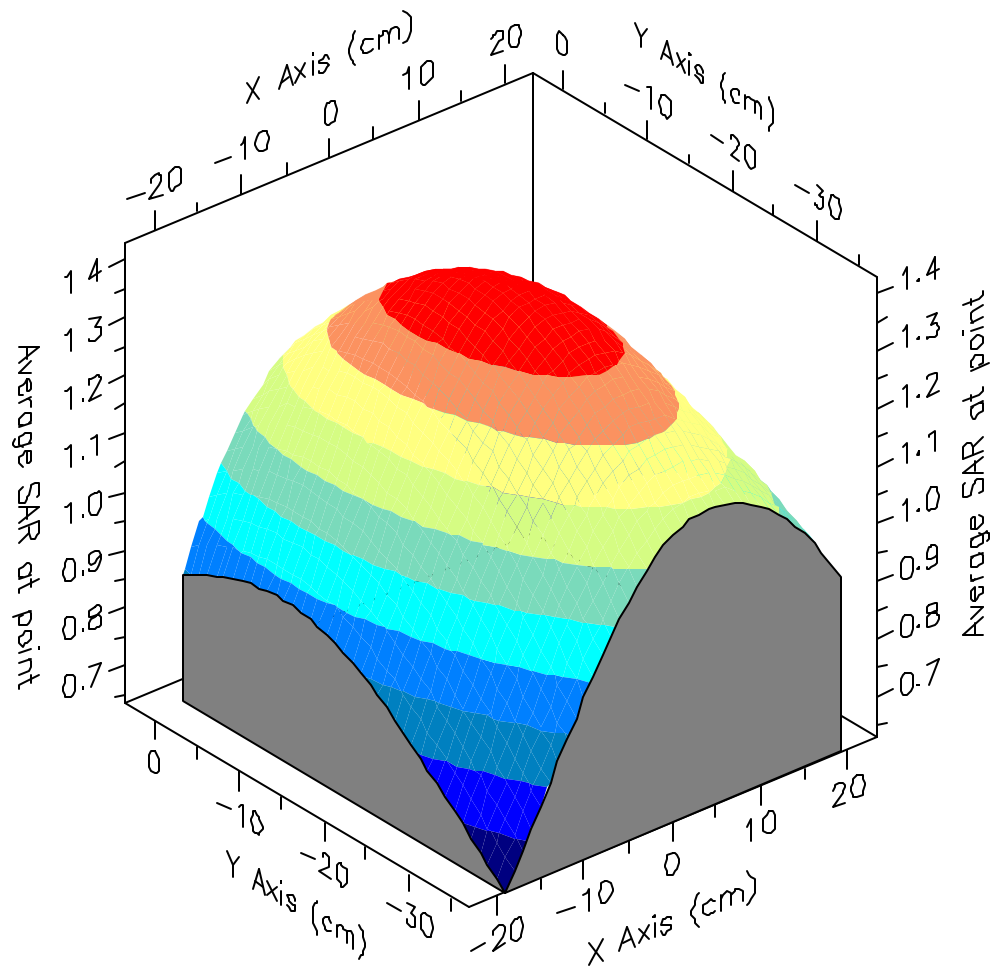
Max 1g SAR at x=0.0 y=-17.0 z=0.0 = 1.39 W/kg

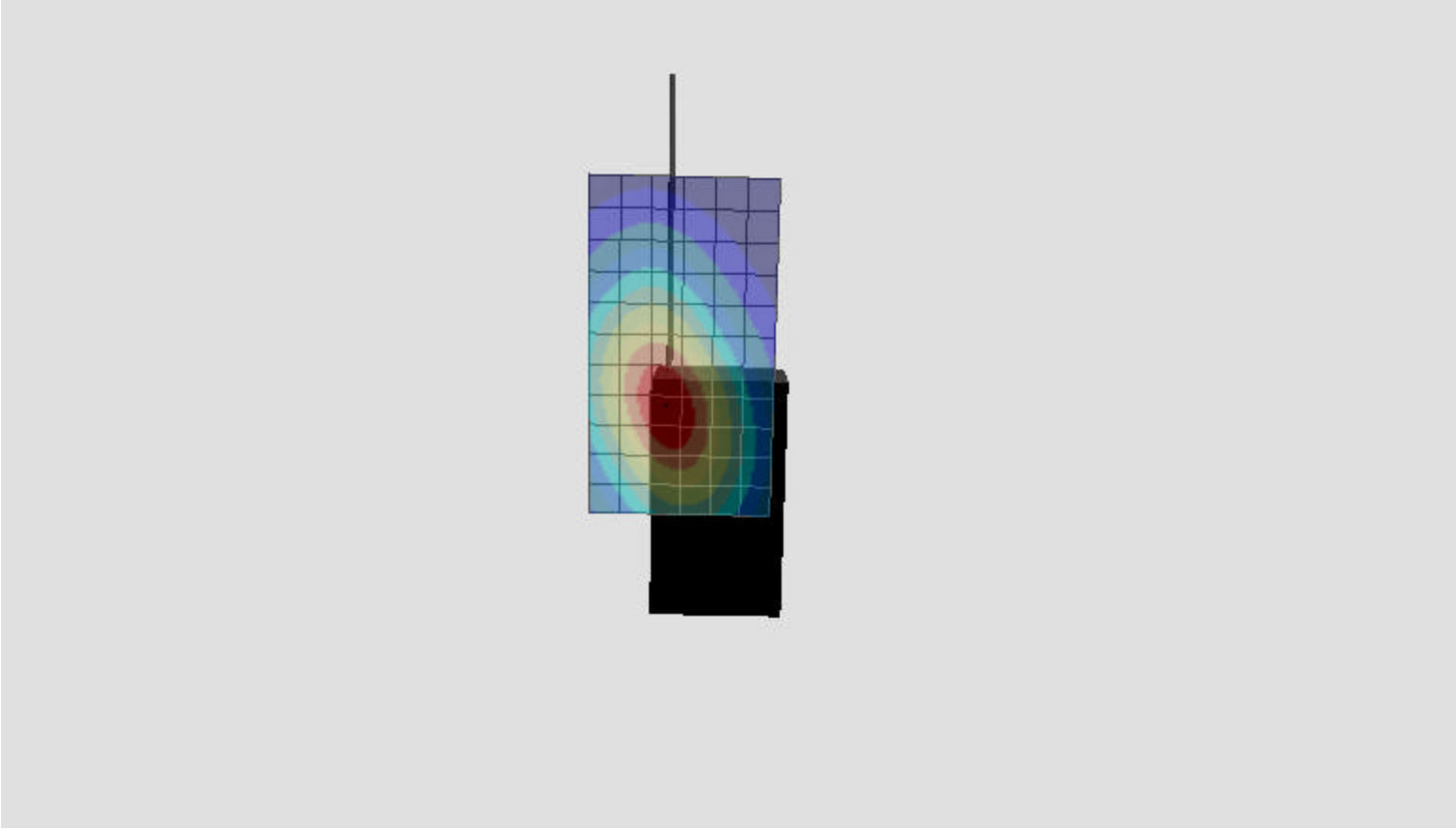
Max 10g SAR at x=1.0 y=-18.0 z=0.0 = 0.94 W/kg

SAR - Z Axis
at Hotspot x:0.0 y:-17.0



1g SAR Values





SAR Data Report 02041007

Start : 10-Apr-02 11:18:27 am
End : 10-Apr-02 11:30:45 am
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 824.70 MHz
Transmit Pwr : 0.320 W
Antenna Type : Helical
Antenna Posn. : Out

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 52.840
Tissue Conductivity : 0.990
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 835 MHz
Tissue Type : Muscle
Calibrated Dielectric : 55.700
Calibrated Conductivity : 0.990
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.900
Probe Sensitivity : 3.597 3.474 3.049 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

CDMA CH-1013
Body
CF=1; Amb. Temp= 21.3 'C; Liq. Temp=21.0 'C

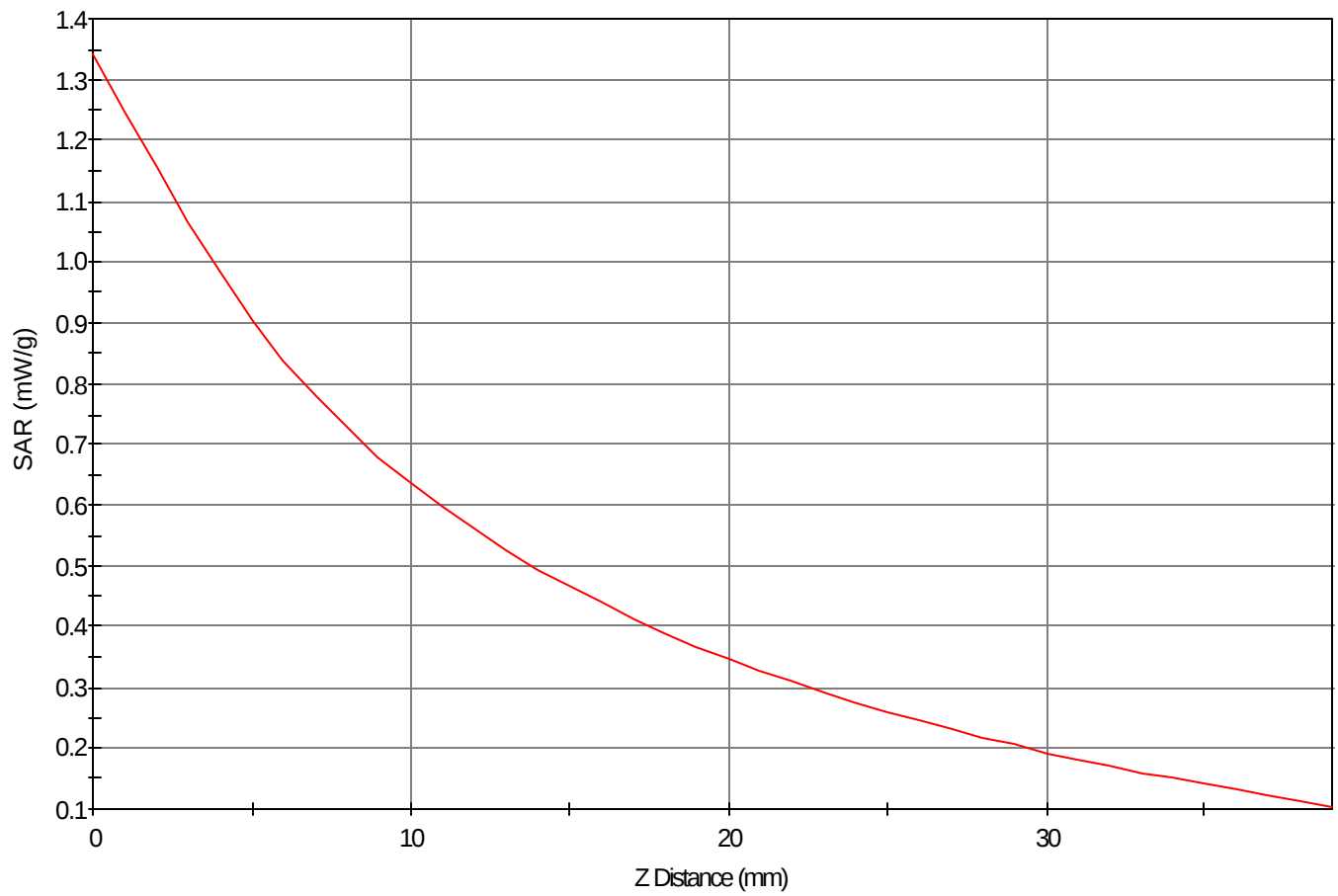
Area Scan - Max Peak SAR Value at x=2.0 y=-18.0 = 0.90 W/kg

Zoom Scan - Max Peak SAR Value at x=2.0 y=-15.0 z=0.0 = 1.34 W/kg

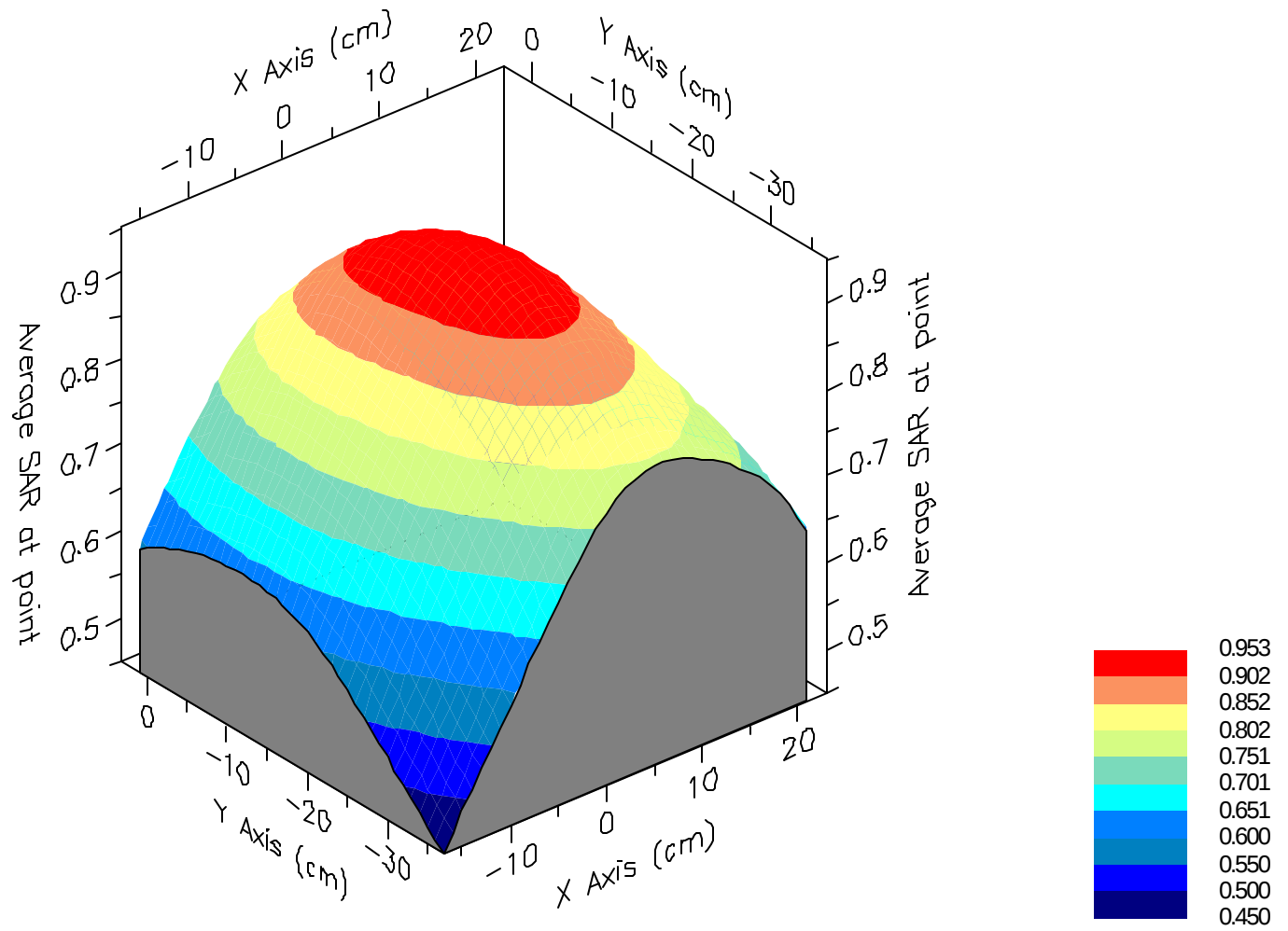
Max 1g SAR at x=2.0 y=-16.0 z=0.0 = 0.95 W/kg

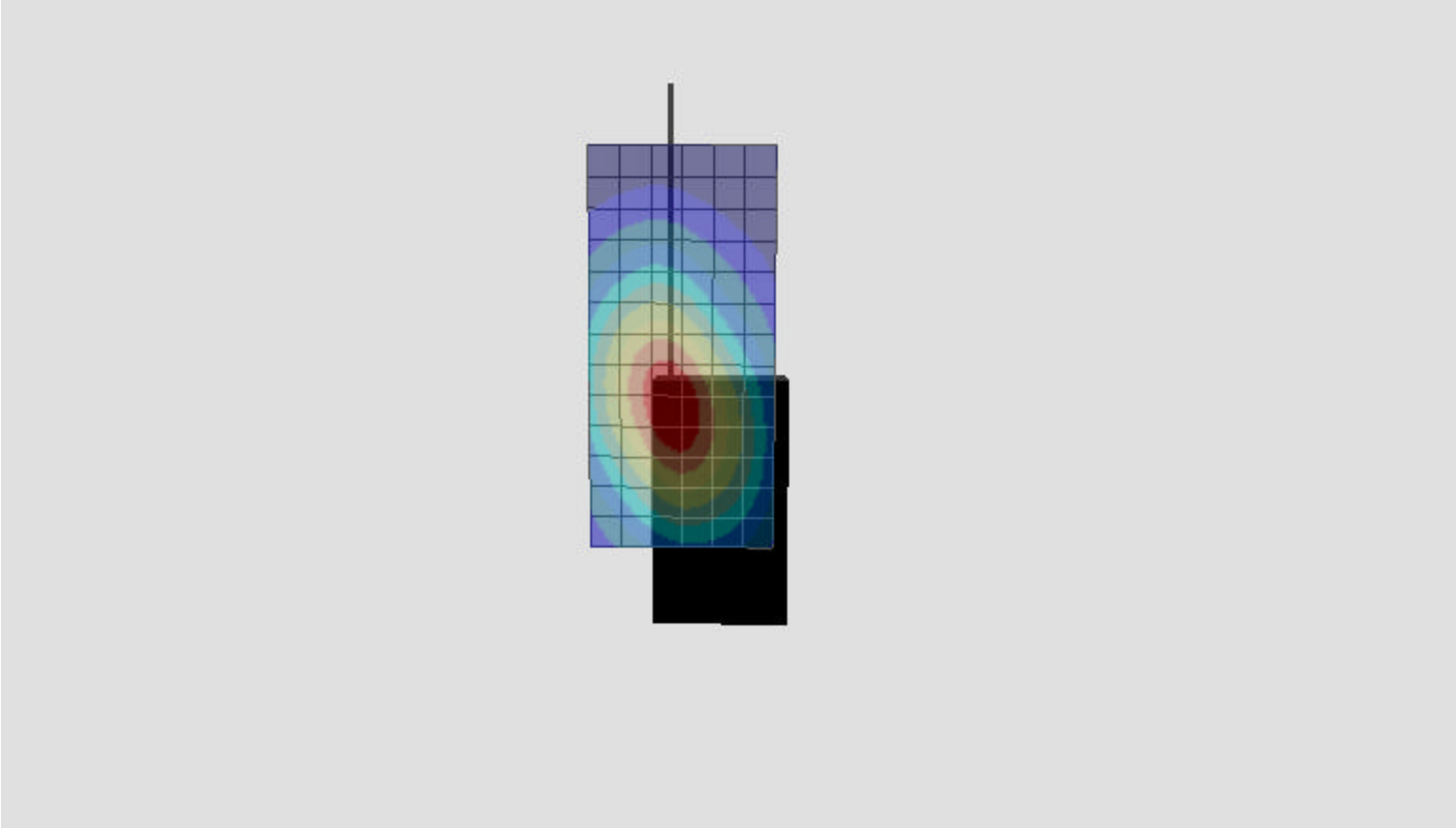
Max 10g SAR at x=3.0 y=-18.0 z=0.0 = 0.65 W/kg

SAR - Z Axis
at Hotspot x:2.0 y:-15.0



1g SAR Values





SAR Data Report 02040915

Start : 9-Apr-02 01:39:00 pm
End : 9-Apr-02 01:53:14 pm
Code Version : 4.08
Robot Version: 4.08

Product Data:

Type : SAMSUNG
Model Number : SPH-A540
Serial Number : 3
Frequency : 1851.25 MHz
Transmit Pwr : 0.280 W
Antenna Type : Helical
Antenna Posn. : In

Measurement Data:

Phantom Name : SAM-FLAT
Phantom Type : Uniphantom
Tissue Type : Muscle
Tissue Dielectric : 53.950
Tissue Conductivity : 1.530
Tissue Density : 1.000
Robot Name : CRS

Probe Data:

Probe Name : PCT002
Probe Type : E Fld Triangle
Frequency : 1900 MHz
Tissue Type : Muscle
Calibrated Dielectric : 53.900
Calibrated Conductivity : 1.480
Calibrated Density : 1.000
Probe Offset : 2.400 mm
Conversion Factor : 4.500
Probe Sensitivity : 3.000 2.995 2.653 mV/(mW/cm^2)
Amplifier Gains : 20.00 20.00 20.00

Sample:

Rate: 6000 Samples/Sec
Count: 100 Samples
NIDAQ Gain: 5

Comments:

PCS Mode CH-25
Body
CF=1; Amb. Temp= 21.3 'C; Liq. Temp=21.0 'C

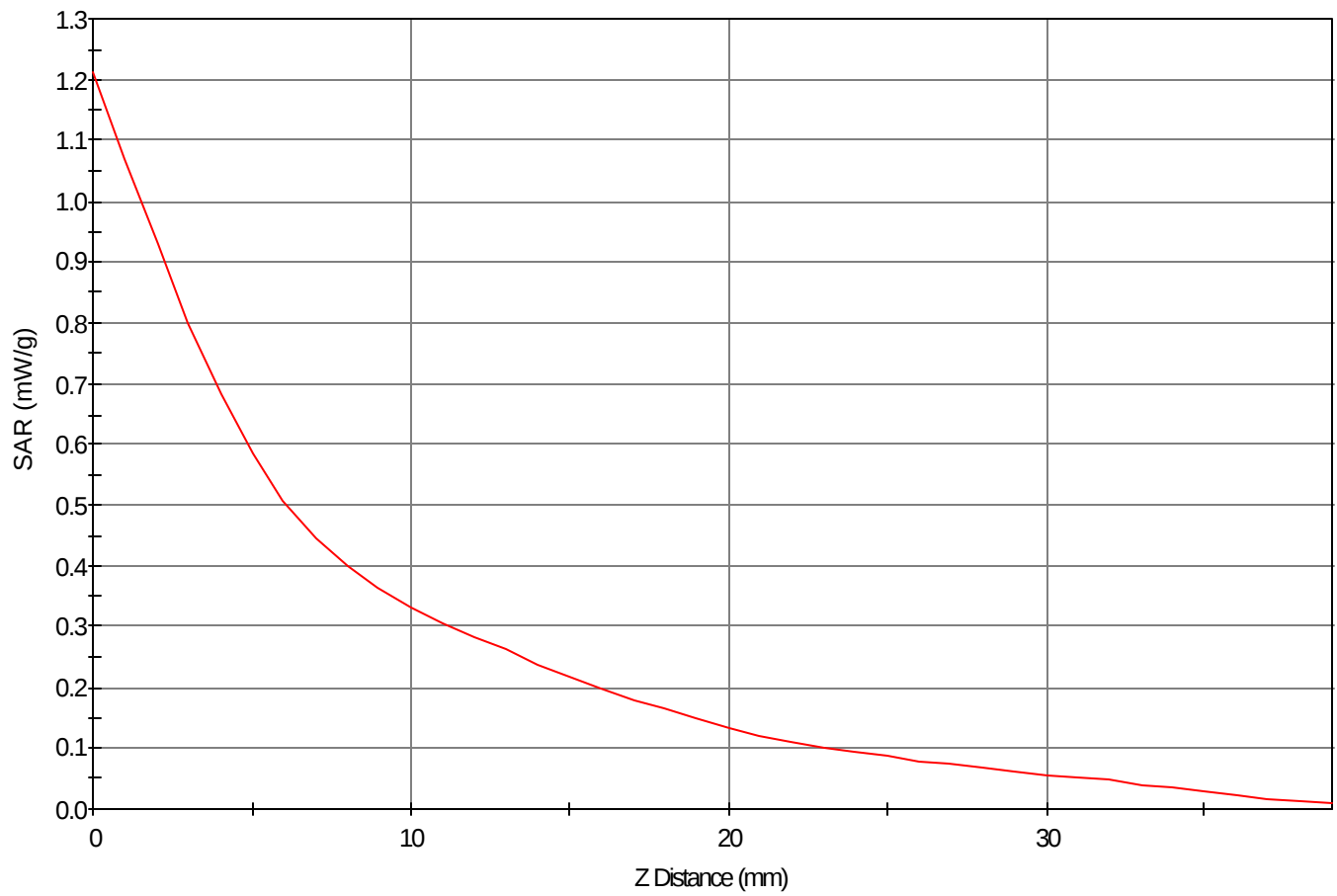
Area Scan - Max Peak SAR Value at x=3.0 y=-17.0 = 0.59 W/kg

Zoom Scan - Max Peak SAR Value at x=3.0 y=-17.0 z=0.0 = 1.21 W/kg

Max 1g SAR at x=4.0 y=-17.0 z=0.0 = 0.68 W/kg

Max 10g SAR at x=6.0 y=-20.0 z=0.0 = 0.40 W/kg

SAR - Z Axis
at Hotspot x:3.0 y:-17.0



1g SAR Values

