



Sony Ericsson

Company Internal
REPORT

Prepared (also subject responsible if other)

LD/SEM/C/BGG/INM Hamid Kami Shirazi
Approved

No. BGG/IN05:137
Checked 050527
Date 050525

Rev A

Reference
File

Report issued by Accredited SAR Laboratory

For

PY77A1022013

Date of test:

19-20-23, May, 2005

Laboratory:

Sony Ericsson SAR Test Laboratory
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Statement of Compliance

Sony Ericsson Mobile Communications AB declares under its sole responsibility that the product

Sony Ericsson Type AAB-1022013-BV; FCC ID:PY77A1022013;IC:4170B-A1022013

to which this declaration relates, is in conformity with the appropriate RF exposure standards recommendations and guidelines. It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:
(None)

This laboratory is accredited to ISO/IEC 17025 (SWEDAC accreditation no. 1847).

Laboratories are accredited by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC) under the terms of Swedish legislation. The accredited laboratory activities meet the requirements in SS-EN ISO/IEC 17025 (2000). This report may not be reproduced other than in full, except with the prior written approval of the Issuing Laboratory.

The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

Sony Ericsson encourages all feedback, both positive and negative, on this report.

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2 Introduction

In this test report, compliance of the Sony Ericsson PY7A1022013 portable telephone with RF safety guidelines is demonstrated. The applicable RF safety guidelines and the SAR measurement specifications used for the test are described in the *SAR Measurement Specifications of Wireless Handsets* [1].

3 Device under Test

3.1 Antenna Description

Type	Build in	
Location	Up on the back side	
Dimensions	Max length	32mm
	Max width	20mm
Configuration	PIFA	

3.2 Device description

Device model	PY7A1022013
Serial number	695146-0
Mode	GSM1900
Multiple Access Scheme	TDMA
Maximum Output Power Setting	30.0dBm
Factory Tolerance in Power Setting	±0.5dBm
Maximum Peak Output Power for GPRS	28.5±0.5dBm
Crest Factor	8
Transmitting Frequency Range(MHz)	1850.2 – 1909.8
Prototype or Production Unit	Preproduction
Device Category	Portable
RF exposure environment	General population / uncontrolled



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4 Test equipment

4.1 Dosimetric system

SAR measurements were made using the DASY3 professional system (software version 3.1c) with SAM twin phantom, manufactured by Schmid & Partner Engineering AG (SPEAG). The list of calibrated equipment is given below.

<i>Description</i>	<i>Serial Number</i>	<i>Due Date</i>
DASY3 DAE V1	433	032006
E-field probe ETDV6	1582	032006
Dipole Validation Kit, D1900V2	5d002	032007

4.2 Additional equipment

<i>Description</i>	<i>Inventory Number</i>	<i>Due Date</i>
Signal generator ESG-D4000A	INV 462935	112006
Directional coupler HP778D	INV 2903	012006
Power meter R&S NRVD	INV 483920	012006
Power sensor R&S NRV-Z5	INV 2333	012006
Power sensor R&S NRV-Z5	INV 2334	012006
Termination 65N50-0-11	INV 2903	012006
Network analyzer HP8753C	INV421671	092005
S-parameter test set HP85047A	INV 421670	092005
Dielectric probe kit HP8507D	INV 2000053	012006
CMU200	Ser 833870/062	032006



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5 Electrical parameters on the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity, ϵ_r , and the conductivity, σ , of the tissue simulating liquids were measured with the dielectric probe kit. These values are shown in the table below. The mass density, ρ , entered into the DASY3 software is also given.

Recommended limits for permittivity ϵ_r , conductivity σ and mass density ρ are also shown.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	σ (S/m)	ρ (g/cm ³)
1900	Head	Measured, 19/05/2005	39.3	1.47	1.00
		Recommended	40.0	1.40	1.00
1900	Body	Measured, 23/05/2005	51.5	1.54	1.00
		Recommended	53.3	1.52	1.00

6 System accuracy verification

A system accuracy verification of the DASY3 was performed using the dipole validation kit listed in section 3.1. The system verification test was conducted on the same day as the measurement of the DUT. Measurement made in ambient temperature (23-24) °C and humidity (45-50) %. The obtained results are displayed in the table below.

RF noise had been measured in liquid when all RF equipment in lab was set off. Measured value was 0.00001 mW/g in 1g mass.

f (MHz)	Tissue type	Measured / Reference	SAR (W/kg) 1g/10g	Dielectric Parameters			Liquid t(°C)
				ϵ_r	σ (S/m)	ρ (g/cm ³)	
1900	Head	Measured, 19/05/2005	37.2/19.1	39.3	1.47	1.00	23
		Measured, 20/05/2005	37.2/19.2	39.3	1.47	1.00	23
		Reference	38.3/20.1	39.6	1.45	1.00	-
1900	Head	Measured, 17/04/2005	38.2/19.8	51.5	1.52	1.00	23.5
		Reference	37.9/20	51.6	1.58	1.00	-



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7 SAR measurement uncertainty

SAR measurement uncertainty evaluation for Sonyericsson PY7A1022013 phone

Uncertainty Component	Uncer. (%)	Prob Dist.	Div.	C _i	GSM 1900-Head	GSM 1900-Body
Measurement System						
Probe Calibration	±4.4	N	1	1	±4.4	±4.4
Axial Isotropy	±4.7	R	√3	0.5	±1.4	±1.4
Spherical Isotropy	±9.6	R	√3	0.5	±2.8	±2.8
Boundary effect	±0.0	R	√3	1	±0.0	±0.0
Probe linearity	±5.5	R	√3	1	±3.2	±3.2
Detection limit	±4.7	R	√3	1	±2.7	±2.7
Readout electronics	±1.0	R	√3	1	±0.6	±0.6
Response time	±1.0	N	1	1	±1.0	±1.0
Integration time	±0.8	R	√3	1	±0.5	±0.5
RF Ambient Conditions	±1.4	R	√3	1	±0.8	±0.8
Mech. Constraints of robot	±3.0	R	√3	1	±1.7	±1.7
Probe positioning	±0.4	R	√3	1	±0.2	±0.2
Extrap., interpolation and integration	±2.9	R	√3	1	±1.7	±1.7
Measurement System Uncertainty	±3.9	R	√3	1	±2.3	±2.3
Test Sample Related						
Device positioning	±6.0	N	0.89	1	±6.7	±6.7
Device holder uncertainty	±5.0	N	0.84	1	±5.9	±5.9
Power drift	-0.9/2.8	R	√3	1	-0.5	-1.6
Test Sample Related Uncertainty						
Phantom and Tissue Parameters						
Phantom uncertainty	±4.0	R	√3	1	±2.3	±2.3
Liquid conductivity (meas.)	+5/+1.3	R	√3	0.6	+1.7	+0.5
Liquid conductivity (target)	±5.0	R	√3	0.6	±1.7	±1.7
Liquid Permittivity (meas.)	-1.8/-3.4	R	√3	0.6	-0.6	-1.2
Liquid Permittivity (target)	±5.0	R	√3	0.6	±1.7	±1.7
Phantom and Tissue Parameters Uncertainty						
Combined standard uncertainty					±12.4	±12.5
Extended standard uncertainty (k=2)					±24.8	±25.0



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8 Test results

The measured 1-gram averaged SAR values of the device against head and body are provided in Table 1 and Table 2. The ambient humidity and temperature of test facility were (45-53) % and (23-24) °C respectively.

The depth of the head and body tissue simulating liquids were 15.4cm and 15.1cm. A base station simulator was used to control the device during the SAR measurements. The phone was supplied with full-charged battery for each measurement.

For head measurement, the device was tested on the right-hand phantom (corresponding to the right side of the head) and the left-hand phantom in two different phones position, cheek (touch) and tilt (cheek + 15deg). For all modes, the device was tested at the lowest, middle and highest frequencies in the transmit band.

For body measurements the phone was tested on either the phone's antenna (Back) or the Front side phone against the flat section of the phantom with 15mm distance. GPRS measurements are done only for back side of the phone for all three different channels

For Blue Tooth mode the phone was paired with Sony Ericsson HBH-60 Blue tooth head set and measured only on the worst case on both head and Body positions.

Mode	Channel	Power (dB)	Phone Position	Liquid t (°C)	SAR (W/kg)	
					Right-hand 1g mass	Left-hand 1g mass
1900 GSM	512	30.5	Cheek	23-24	0.50	0.43
			Tilt	23-24	0.52	0.56
			Cheek	23-24	0.52	0.43
			Tilt-Blue tooth	23-24	0.55	-
			Tilt	23-24	0.55	0.53
1900 GSM	661	30.3	Cheek	23-24	0.44	0.47
			Tilt	23-24	0.47	0.42

Table1: SAR measurement result for Sony Ericsson PY7A1022013 telephone at highest possible output power. Measurements have done against the head.

Mode	Channel	Power (dBm)	Phone Position	Liquid t (°C)	SAR (W/kg) In 1 g mass
GSM 1900 Body	512	30.5	Front to phantom	23-24	0.14
			Antenna to phantom	23-24	0.56
			Antenna to phantom, GPRS 2 Slots	23-24	0.77
			Front to phantom	23-24	0.14
			Antenna to phantom	23-24	0.65
	661	30.4	Antenna to phantom Blue Tooth	23-24	0.61
			Antenna to phantom, GPRS 2 Slots	23-24	0.87
			Front to phantom	23-24	0.11
			Antenna to phantom	23-24	0.53
			Antenna to phantom, GPRS 2 Slots	23-24	0.84
810	30.4	29	Front to phantom	23-24	0.11
			Antenna to phantom	23-24	0.53

Table2: SAR measurement result for Sony Ericsson PY7A1022013 telephone at highest possible output power. Measurements have done against the Body.



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[1] R.Plicanic, "SAR Measurement Specification of Wireless Handsets", Sony Ericsson SAR Test Laboratory internal document GUG/N 03:141

[2] Basic standard for the Measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300MHz-3GHz), European Standard EN 50361, July 2001

[3] FCC, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields: Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radio Frequency Emissions," Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01).

[4] IEEE, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques," Std. 1528-2003, June, 2003.



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10 Appendix

10.1 Photographs of the device under test



Front & Back sides



Down Connector



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Back side with battery



Sides



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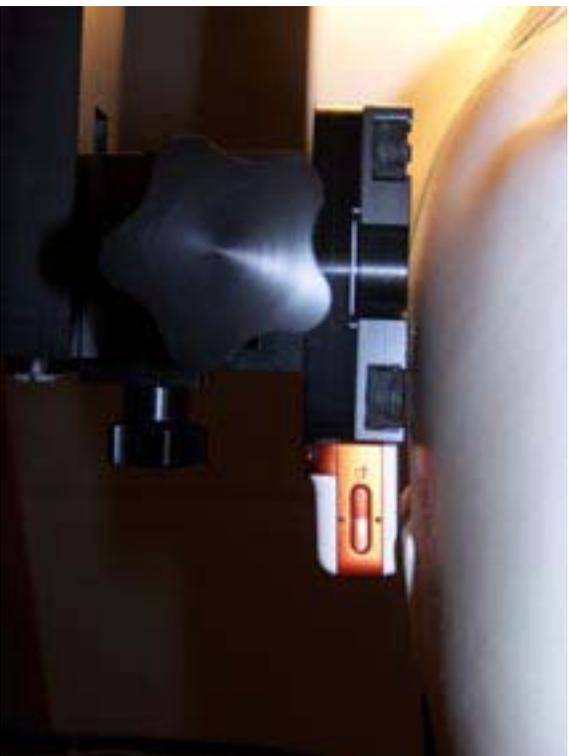
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10.2 Device position on SAM Twins Phantom



Device position against the head: Cheek (touch) phone position



Device position against the head: Tilt (cheek+15deg) phone position



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Device position against the body: 15mm distance from Phantom.

DASY4 Validation Report for Head TSL

Date/Time: 09.03.2005 15:20:45

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002

Communication System: CW-1900; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.96, 4.96, 4.96); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0; Type: QDD000P50AA; Serial: 1001;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.4 mW/g

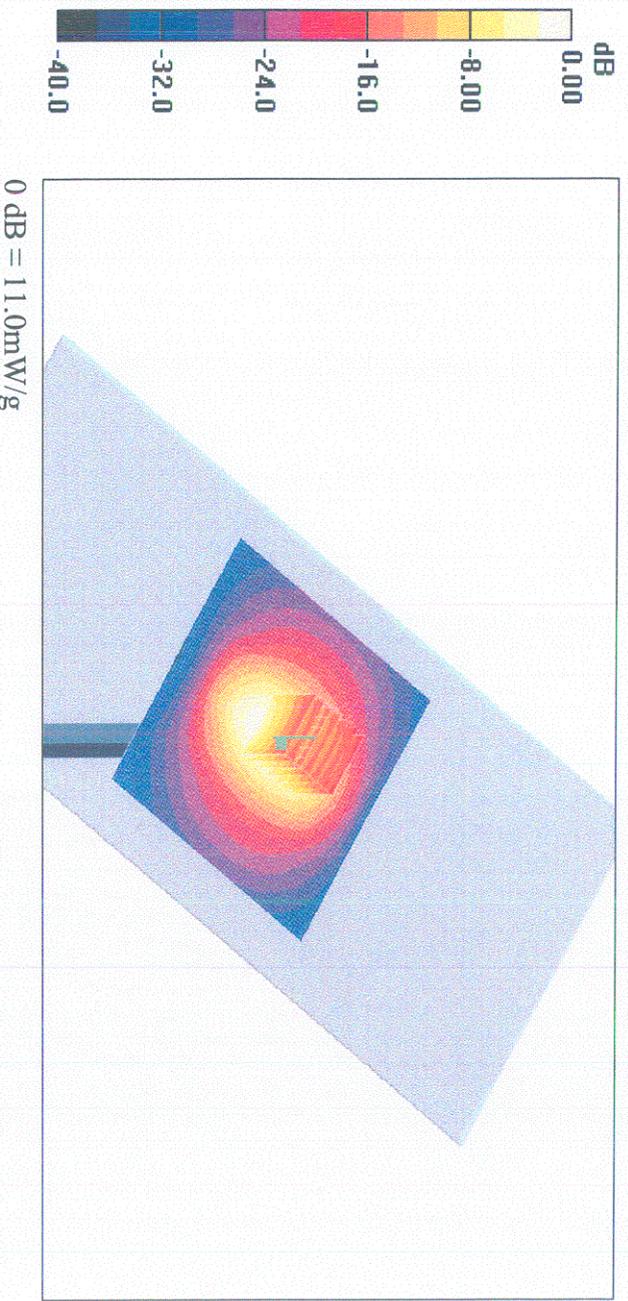
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm

Reference Value = 91.4 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 9.81 mW/g; SAR(10 g) = 5.15 mW/g

Maximum value of SAR (measured) = 11.0 mW/g



DASY4 Validation Report for Body TSL

Date/Time: 15.03.2005 15:20:32

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002

Communication System: CW-1900; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.43, 4.43, 4.43); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0; Type: QDD000P50AA; Serial: 1001;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.4 mW/g

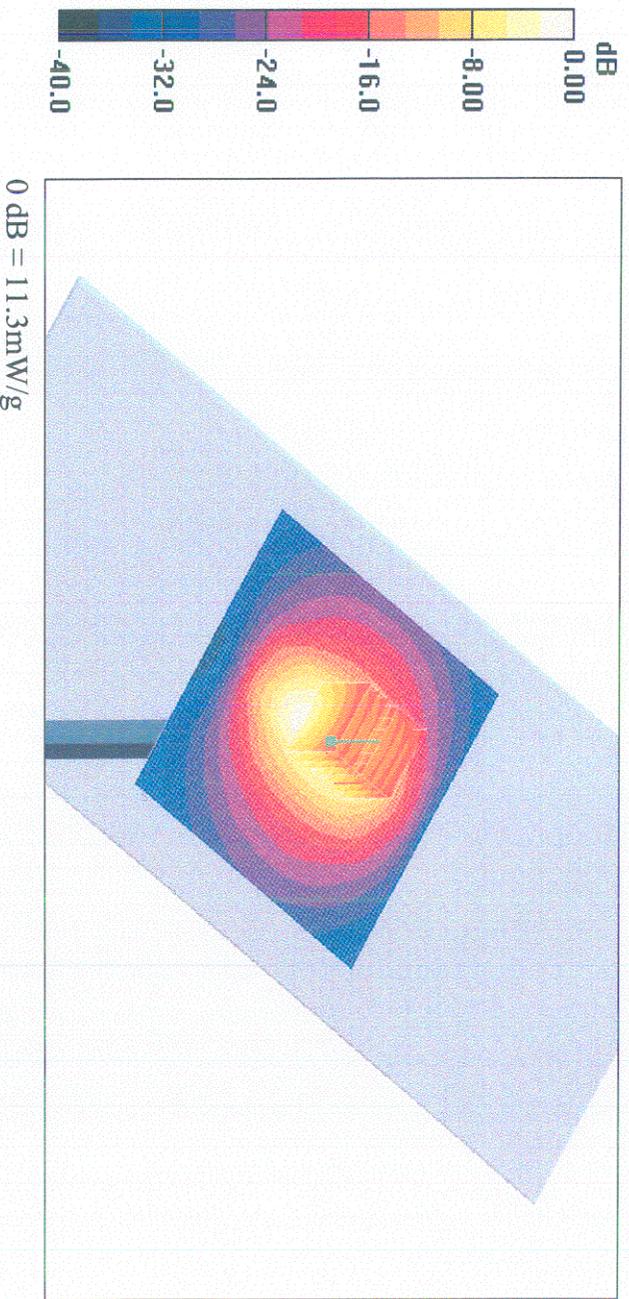
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.3 V/m; Power Drift = 0.061 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 9.91 mW/g; SAR(10 g) = 5.23 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



D1900 V2

SAM 4 Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 1.0; Muscle 1900: $\sigma = 1.54 \text{ mho/m}$ $\epsilon_r = 51.5$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: SAR (1g): 3.82 mW/g, SAR (10g): 1.98 mW/g, (Worst-case extrapolation)

Coarse: Dx = 17.0, Dy = 17.0, Dz = 17.0

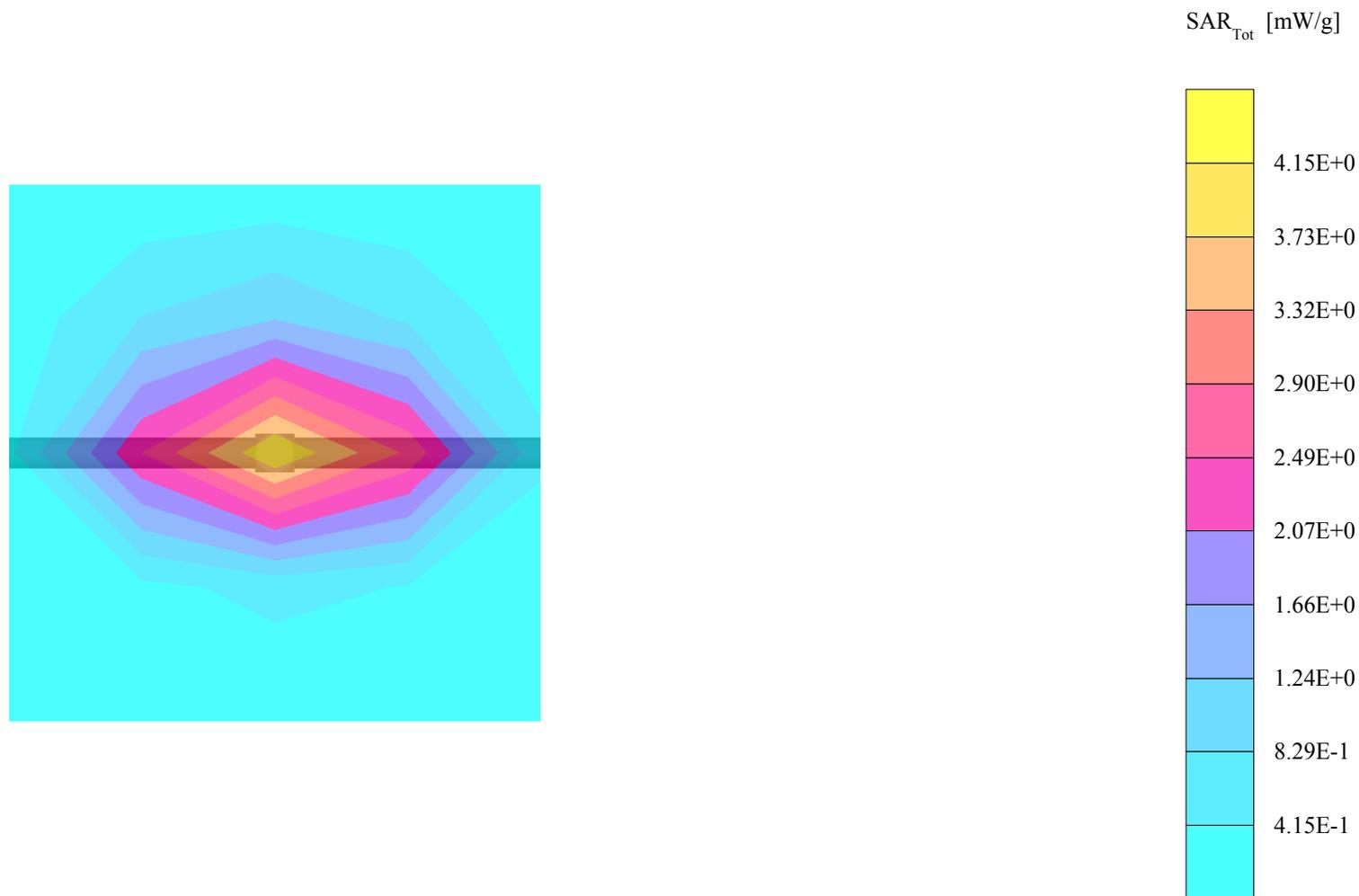
Powerdrift: -0.17 dB

P=100mW, d=10mm, 1900MHz dipol D1900V2 s/n 5d002

Target values: 1g mass 37.9mW/g, 10g mass 20mW/g

Measured values: 1g mass 38.2mW/g(+0,8%), 10g mass 19.8mW/g(-1%)

BODY LIQUID'S Temperature 22°C ; Room's Temperature 23°C, Humidity 53%



D1900 V2

SAM 4 Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 1.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 3.72 mW/g ± 0.00 dB, SAR (10g): 1.91 mW/g ± 0.00 dB, (Worst-case extrapolation)

Coarse: Dx = 17.0, Dy = 17.0, Dz = 17.0

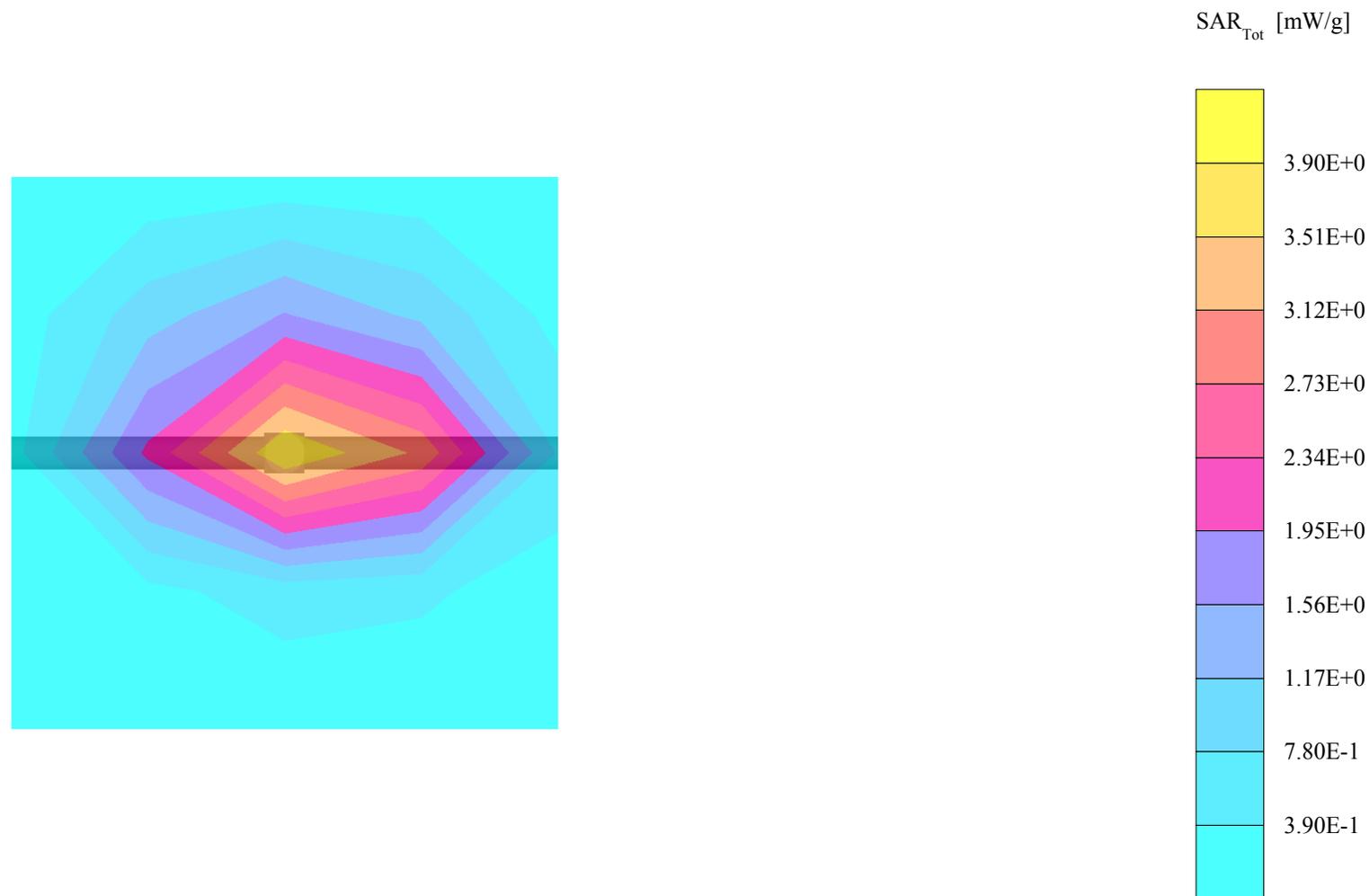
Powerdrift: -0.05 dB

P=100mW, d=10mm, 1900MHz dipol D1900V2 s/n 5d002

Target values: 1g mass 38.3 mW/g, 10g mass 20.1 mW/g

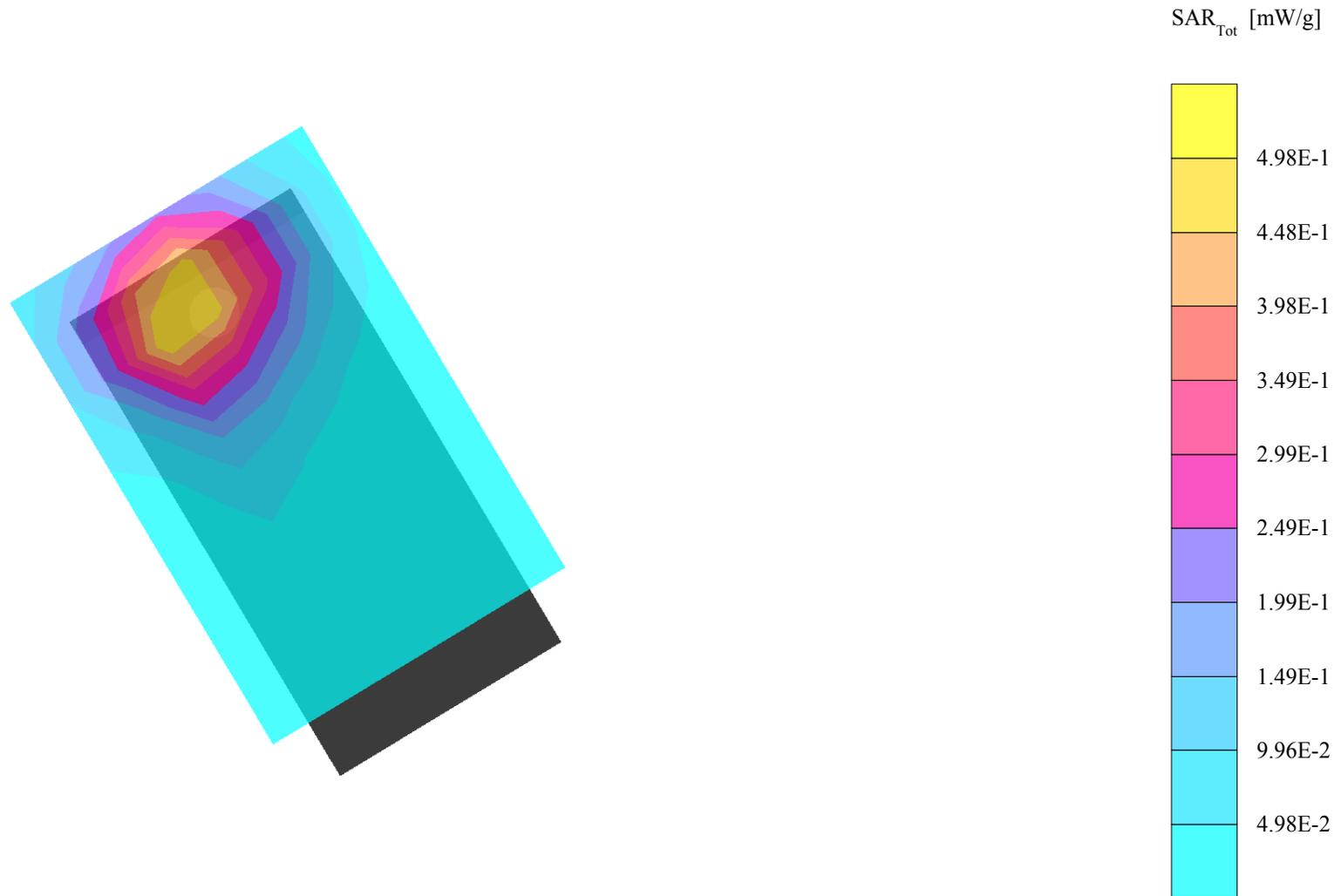
Measured values: 1g mass 37.2mW/g(-2.8%), 10g mass 19.1mW/g(+5%)

LIQUID'S Temperature 22C, Ambeint Temperature 24C ,humidity 29%



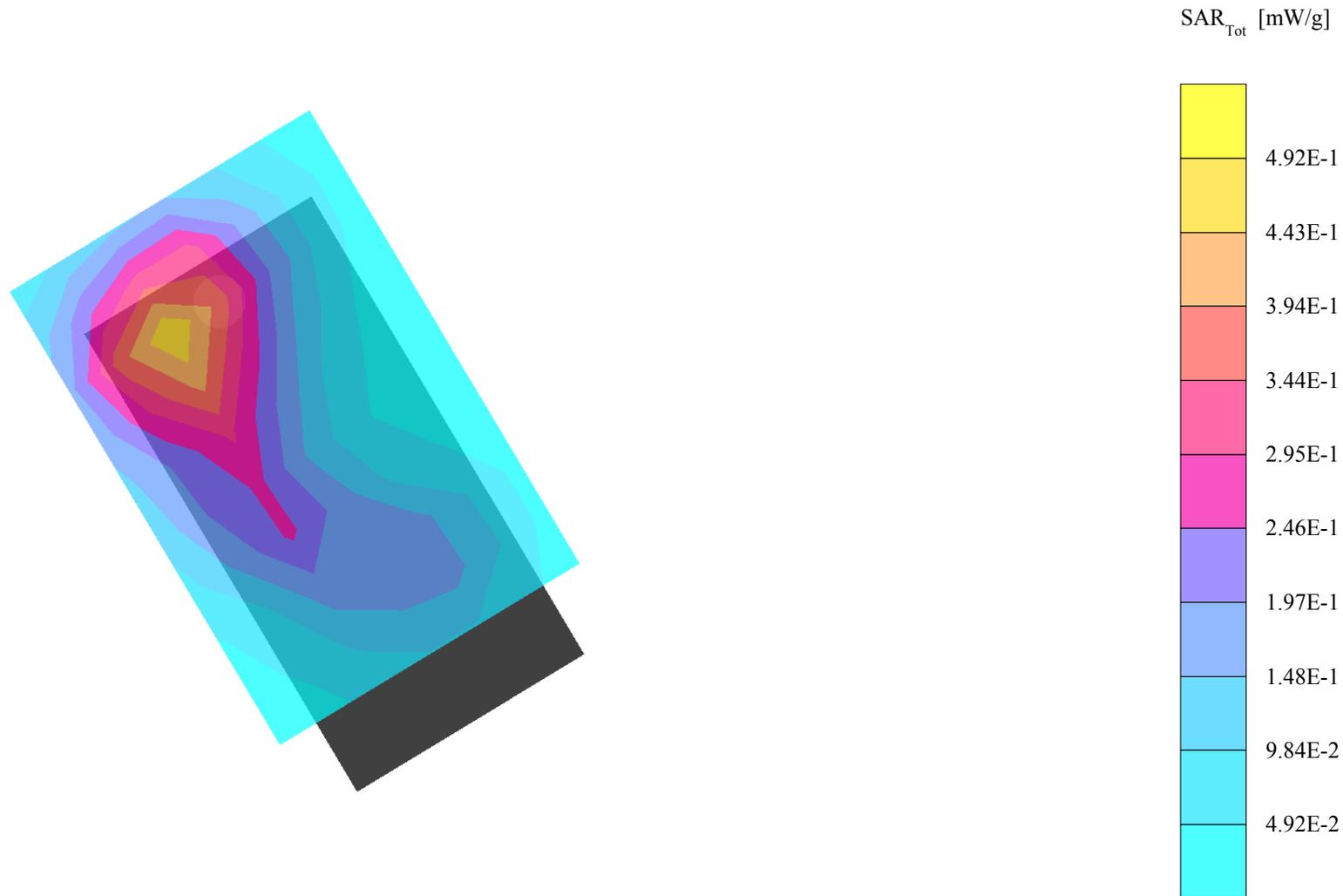
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SAM 4 Phantom; Righ Hand Section; Position: (105°,301°); Frequency: 1910 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.472 mW/g, SAR (10g): 0.258 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0
Powerdrift: -0.11 dB
PY7A1022013-,S/N:695146-0 ;frequevcy 1910MHz(ch810), Right Hand Side,Tilt
(105°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature
24C°,and humidity 29%,Date:050519



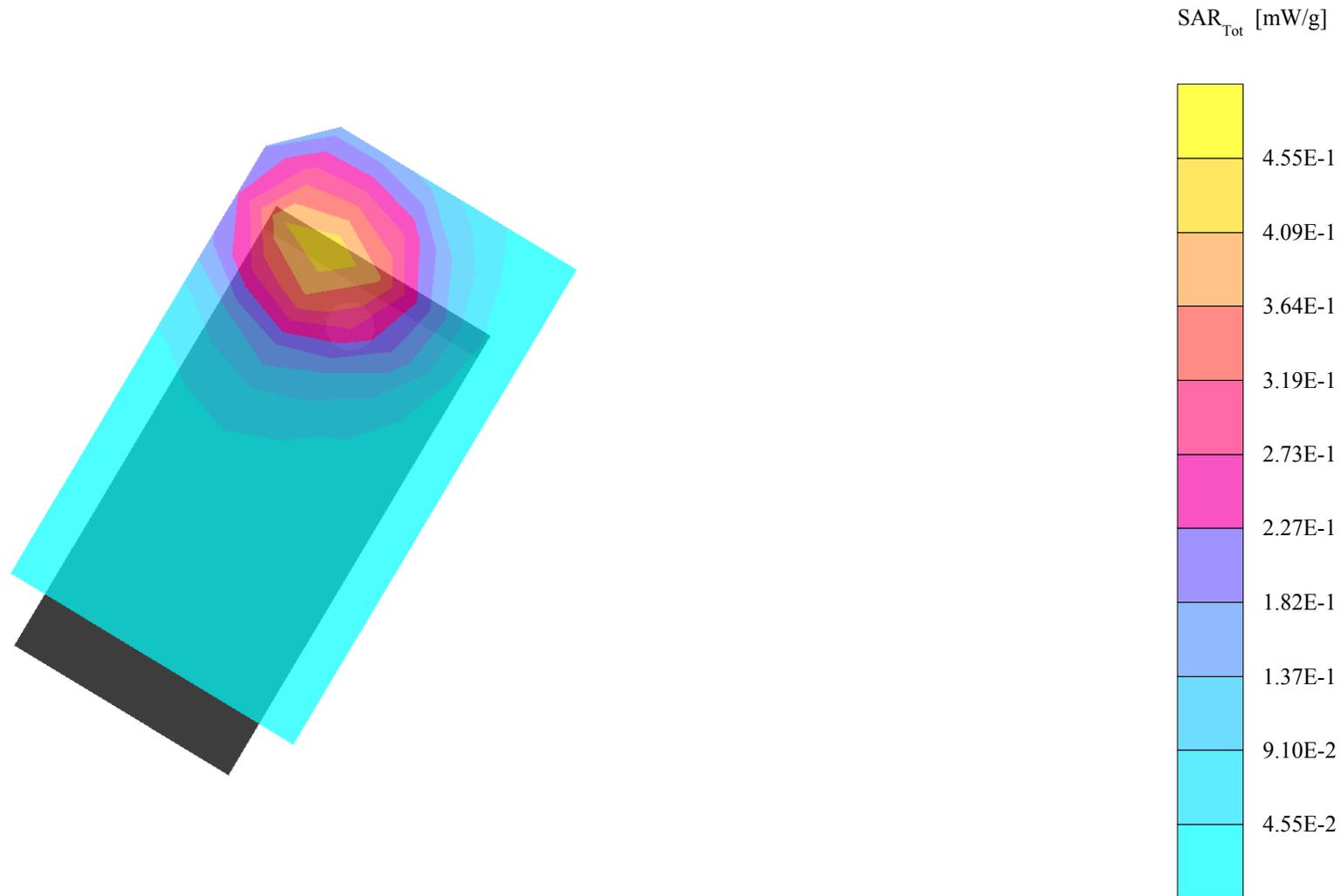
PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (90°,301°); Frequency: 1910 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.443 mW/g, SAR (10g): 0.239 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0
Powerdrift: -0.07 dB
PY7A1022013-,S/N:695146-0 ;frequevcy 1910MHz(ch810), Right Hand Side,Cheek
(90°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature
24(c-degree)and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (105°,59°); Frequency: 1910 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.424 mW/g, SAR (10g): 0.236 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0
Powerdrift: -0.09 dB
PY7A1022013-,S/N:695146-0 ;frequevcy 1910MHz(ch810), Left Hand Side,Tilt(105°) ,
Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature24°C,
and humidity 29%,Date:050520



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (90°,59°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.338 mW/g, SAR (10g): 0.187 mW/g, (Worst-case extrapolation)

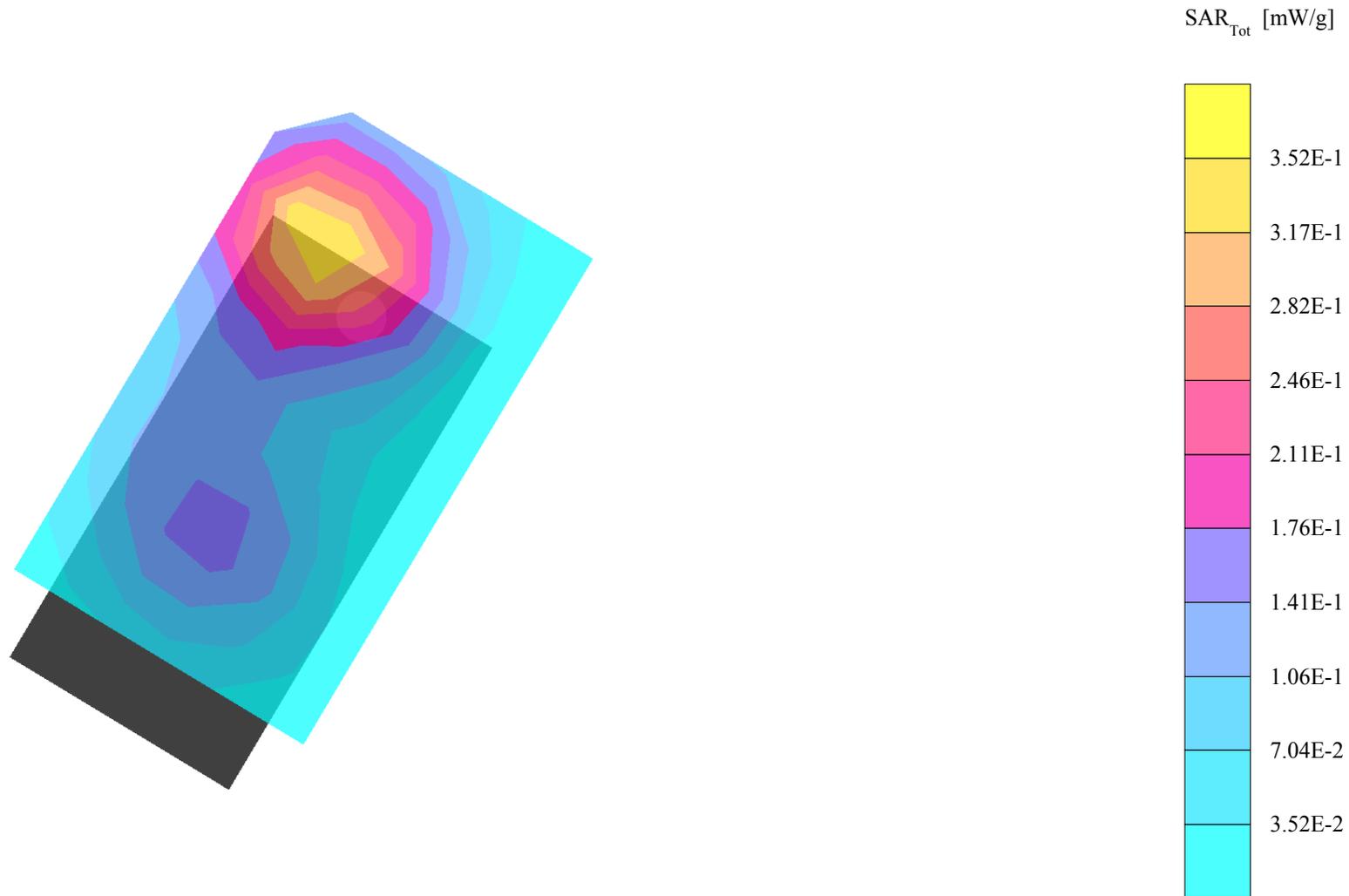
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0

Powerdrift: -0.04 dB

PY7A1022013-,S/N:695146-0 ;frequency 1910MHz(ch810), Left Hand Side,Cheek

(90°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature

24°C,and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1910 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.108 mW/g, SAR (10g): 0.0652 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.18 dB

PY7A1022013-,S/N:695146-0 ;frequency 1910MHz(ch810),Front side Phone Position+15mm

distance from flat section pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1910 MHz

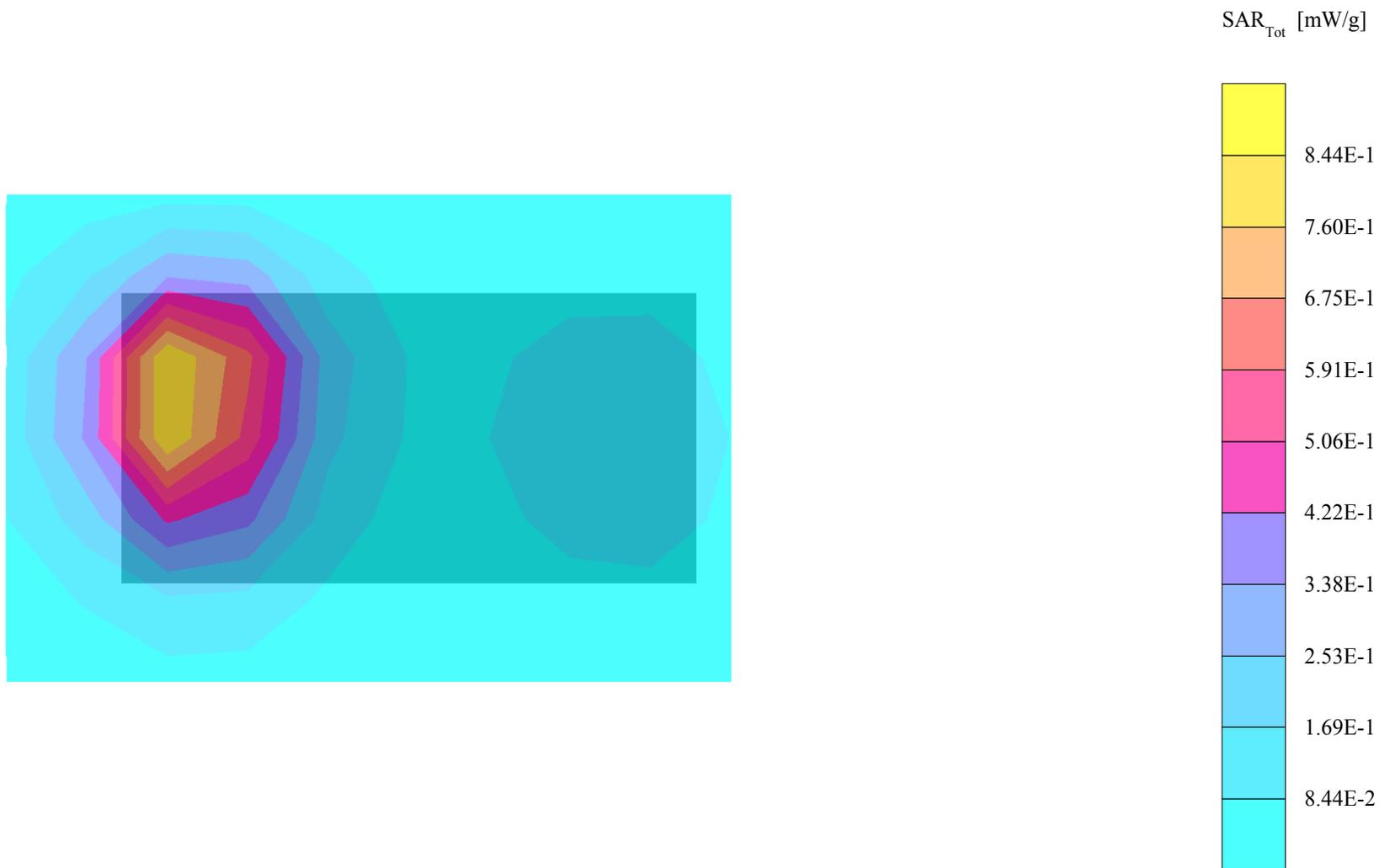
Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 4.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.840 mW/g, SAR (10g): 0.459 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: 0.00 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1910MHz(ch810),Back side Phone Position+15mm
distance from flat Section pantom,meas.Power=29dBm,Nom.Power=29dBm;Data Communicaton
measurement;ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1910 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.530 mW/g, SAR (10g): 0.293 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.18 dB

PY7A1022013-,S/N:695146-0 ;frequency 1910MHz(ch810),Back side Phone Position+15mm

distance from flat cection pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (105°,301°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.549 mW/g, SAR (10g): 0.298 mW/g, (Worst-case extrapolation)

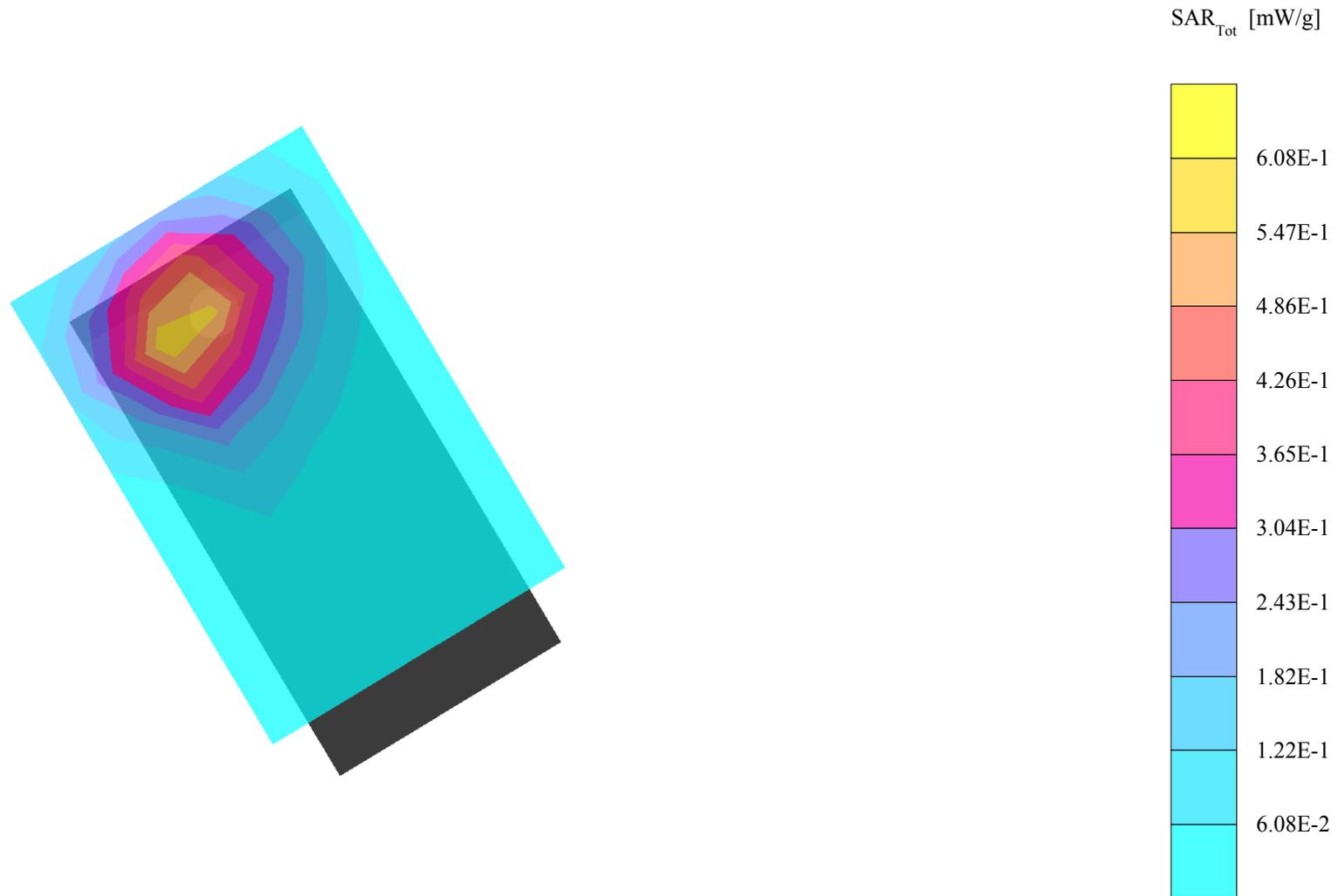
Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0

Powerdrift: -0.04 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1880MHz(ch661), Right Hand Side,Tilt

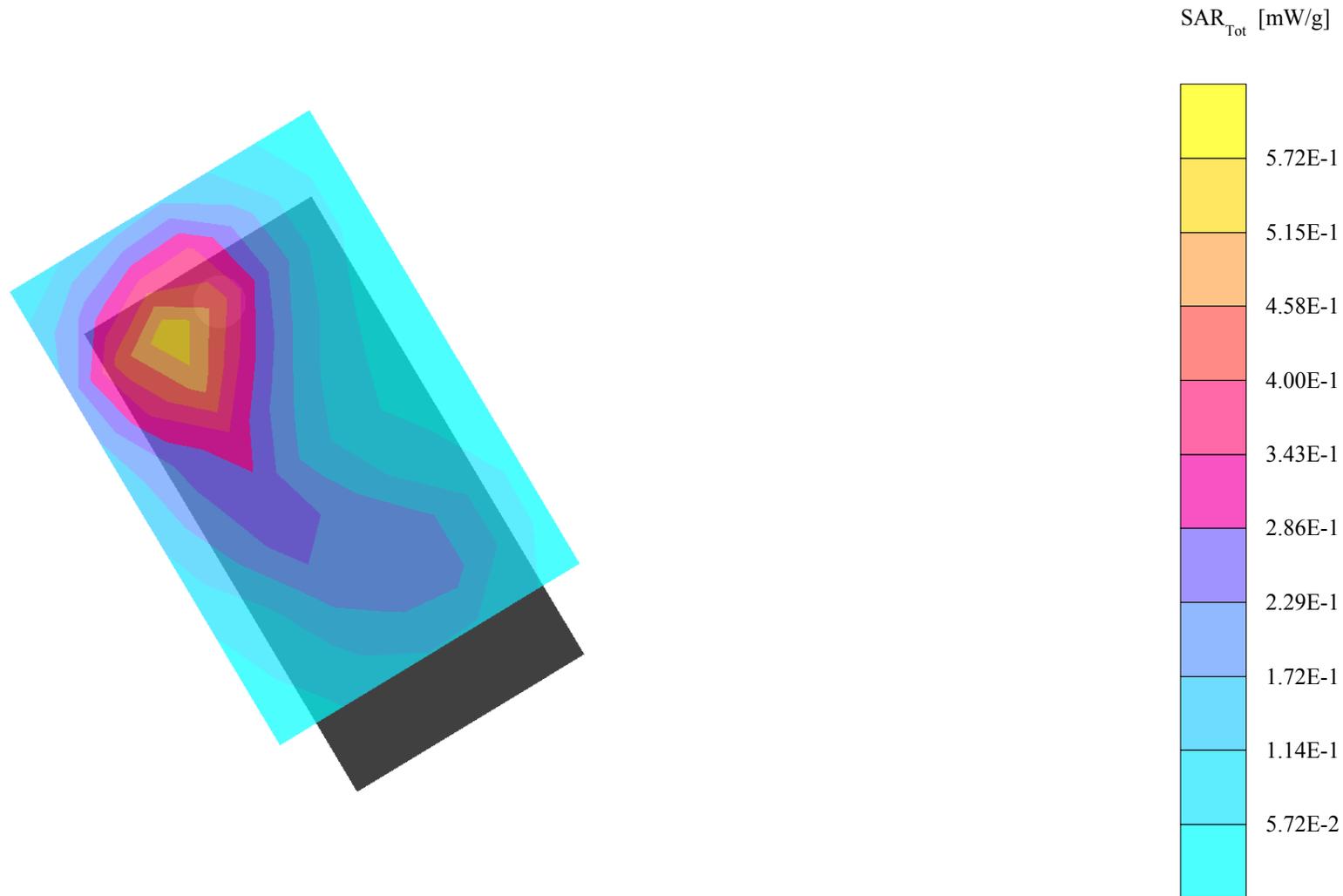
(105°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature

24°Cand humidity 29%,Date:050519



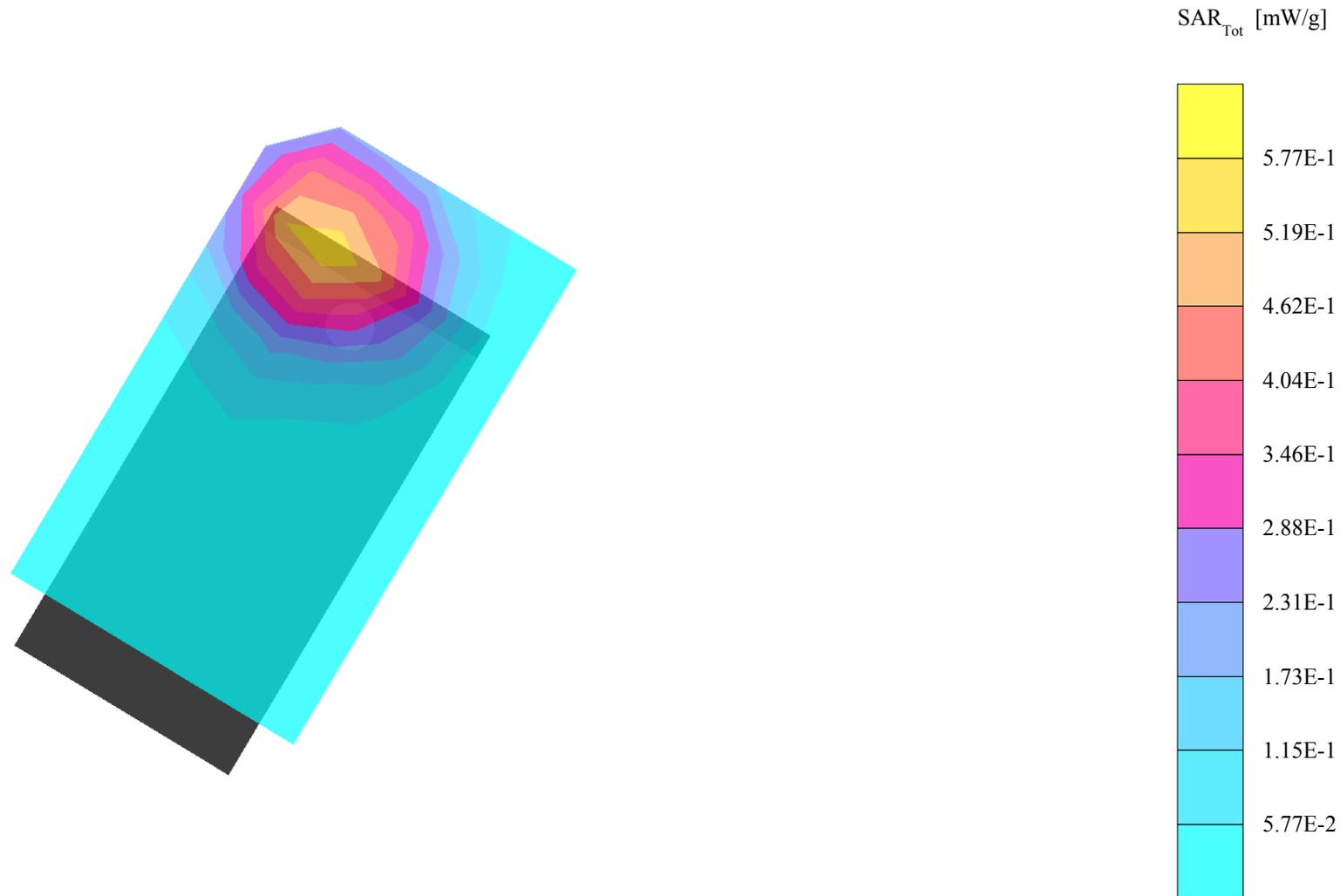
PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (90°,301°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.521 mW/g, SAR (10g): 0.279 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0
Powerdrift: 0.00 dB
PY7A1022013-,S/N:695146-0 ;frequevcy 1880MHz(ch661), Right Hand Side,Cheek
(90°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature
24(c-degree)and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (105°,59°); Frequency: 1880 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.533 mW/g, SAR (10g): 0.301 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0
Powerdrift: -0.04 dB
PY7A1022013-,S/N:695146-0 ;frequency 1880MHz(ch661), Left Hand Side,Tilt
(105°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature
24°C,and humidity 29%,Date:050520



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (90°,59°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.434 mW/g, SAR (10g): 0.238 mW/g, (Worst-case extrapolation)

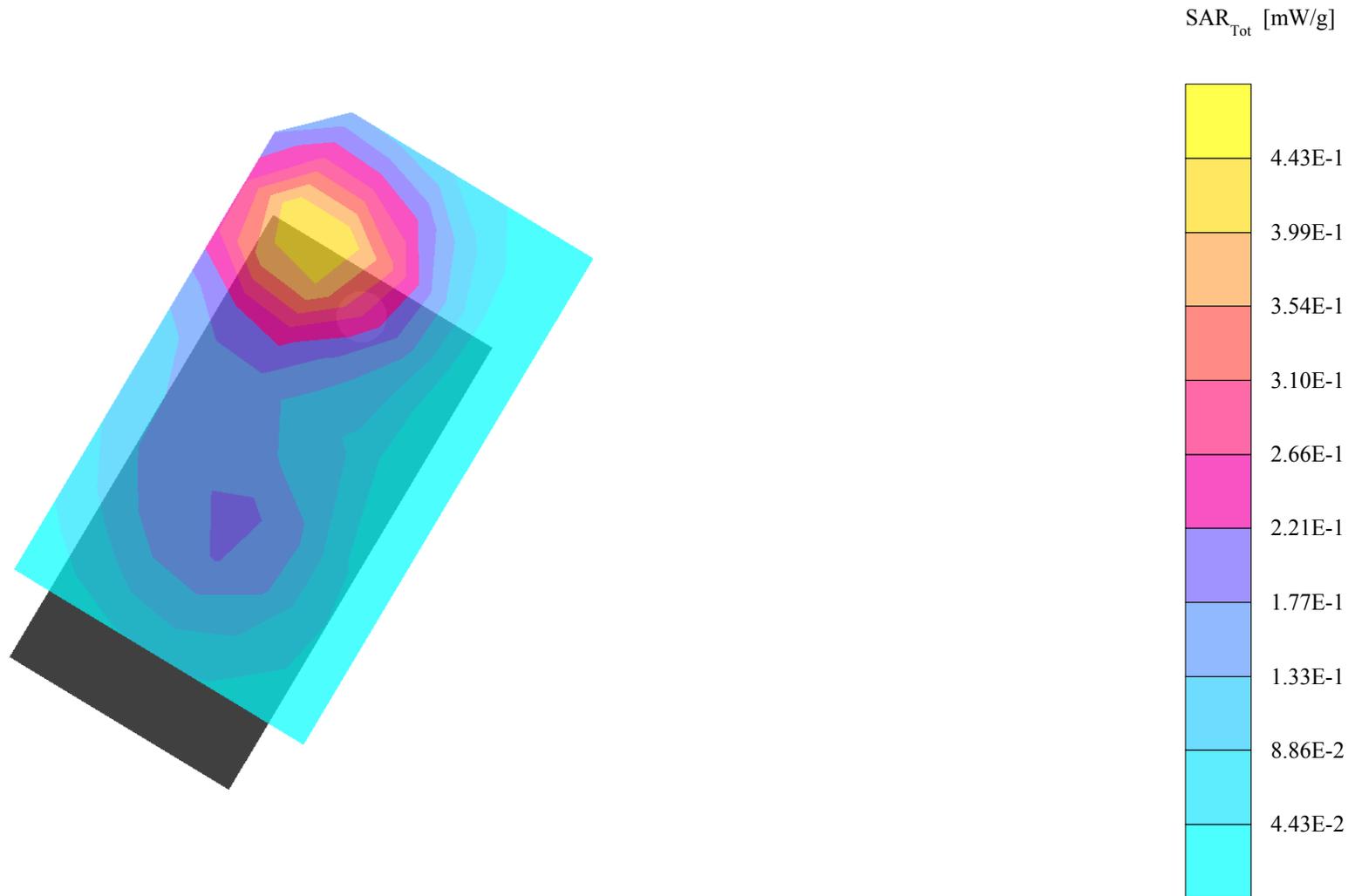
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0

Powerdrift: 0.05 dB

PY7A1022013-,S/N:695146-0 ;frequency 1880MHz(ch661), Left Hand Side,Cheek

(90°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature

24°C,and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1880 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.140 mW/g, SAR (10g): 0.0855 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.17 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1880MHz(ch661),Front side Phone Position+15mm

distance from flat cection pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1880 MHz

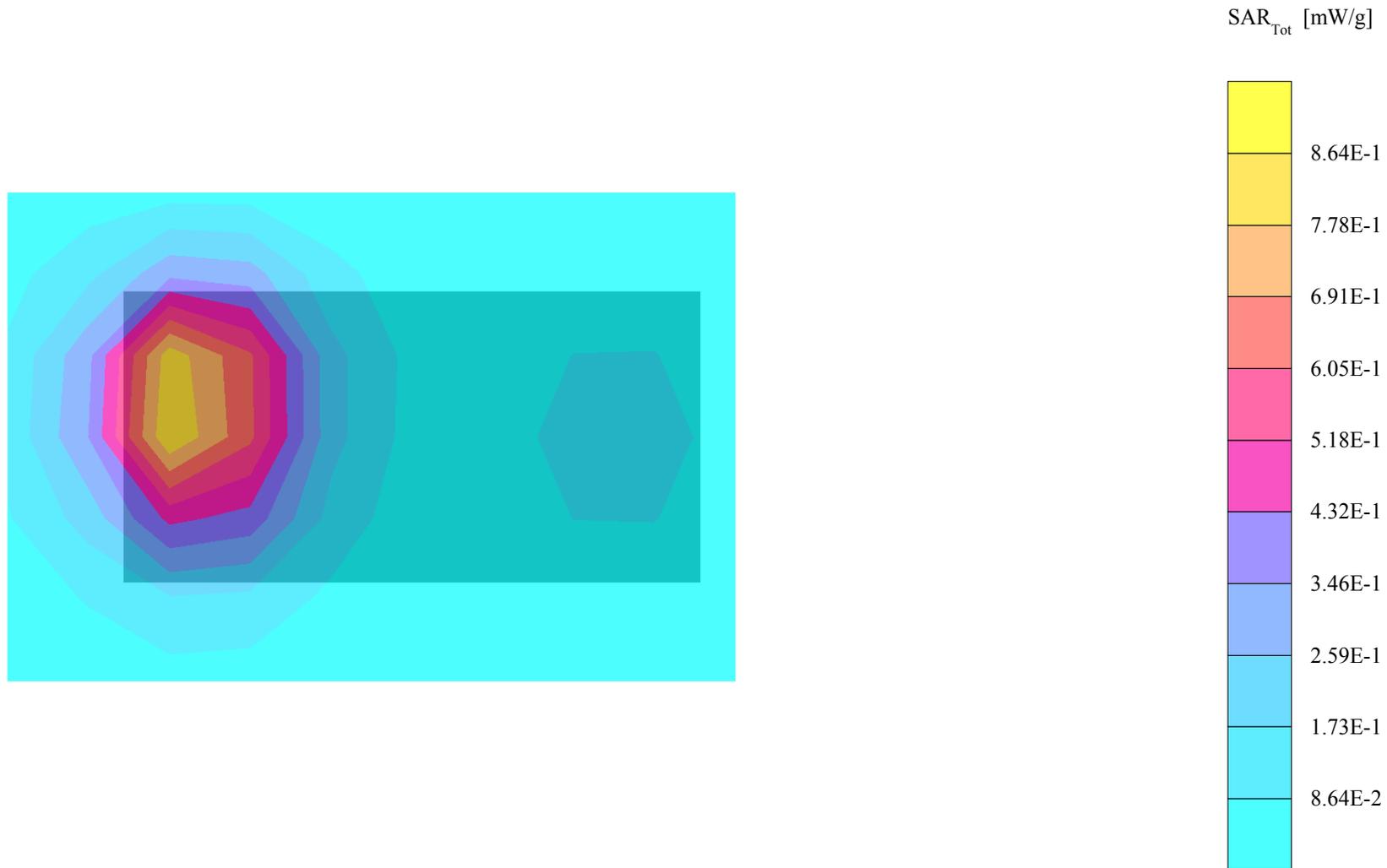
Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 4.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.867 mW/g, SAR (10g): 0.479 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.12 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1880MHz(ch661),Back side Phone Position+15mm
distance from flat Section pantom,meas.Power=29dBm,Nom.Power=29dBm;Data Communicaton
measurement;ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1880 MHz

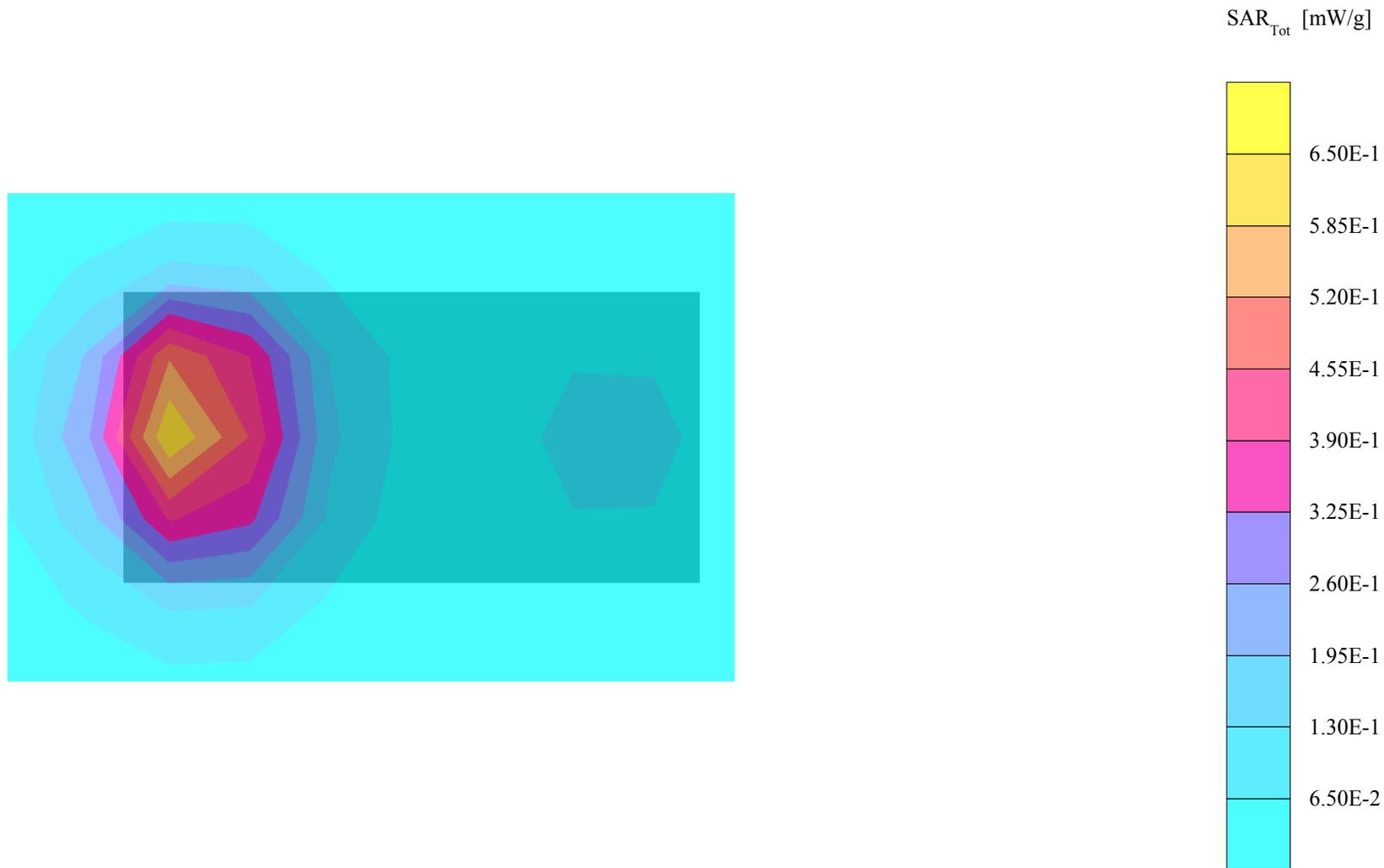
Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.608 mW/g, SAR (10g): 0.333 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: 0.00 dB

PY7A1022013-,S/N:695146-0 ;frequency 1880MHz(ch661),Back side Phone Position+15mm distance from flat cection pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm; Blue Tooth Measurement;ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1880 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.654 mW/g, SAR (10g): 0.359 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.12 dB

PY7A1022013-,S/N:695146-0 ;frequency 1880MHz(ch661),Back side Phone Position+15mm

distance from flat cection pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (105°,301°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

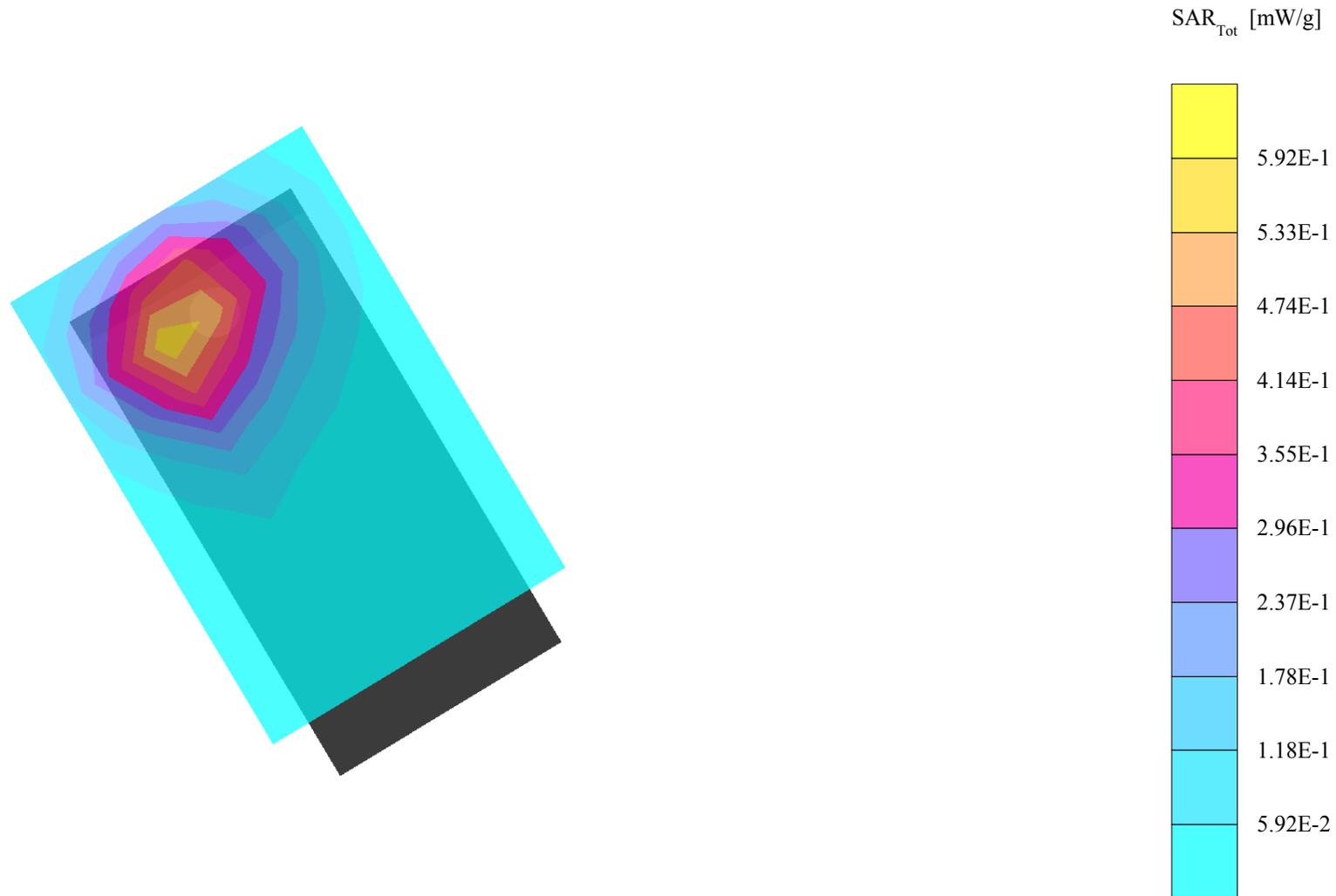
Cube 5x5x7: SAR (1g): 0.524 mW/g, SAR (10g): 0.284 mW/g, (Worst-case extrapolation)

Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0

Powerdrift: -0.06 dB

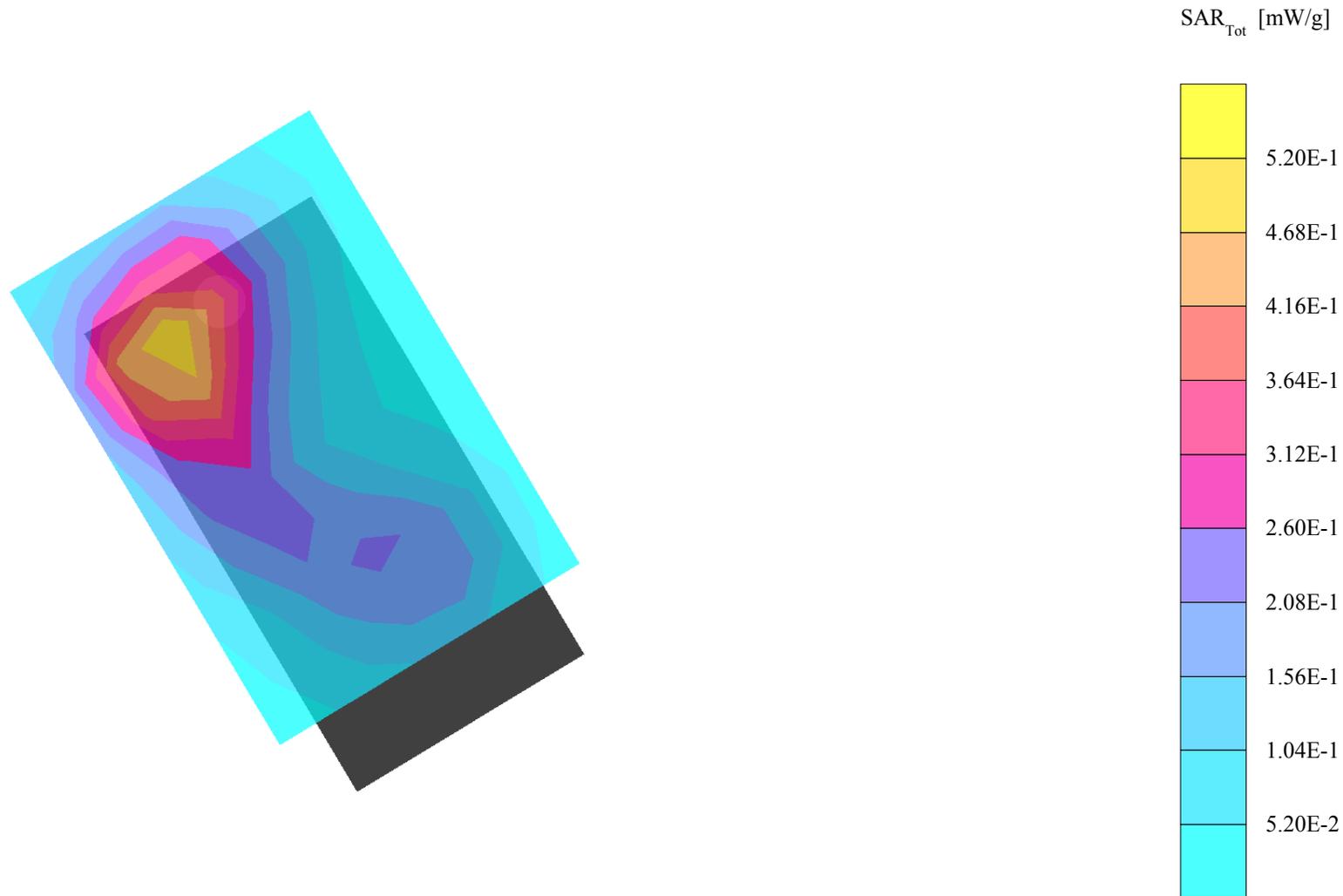
PY7A1022013-,S/N:695146-0 ;frequevcy 1850MHz(ch512), Right Hand Side,Tilt

(105°) Phone Position, meas. Power=30.5dBm, Nom.Power=30.5dBm; ambien temprature 24C°,and humidity 29%,Date:050519



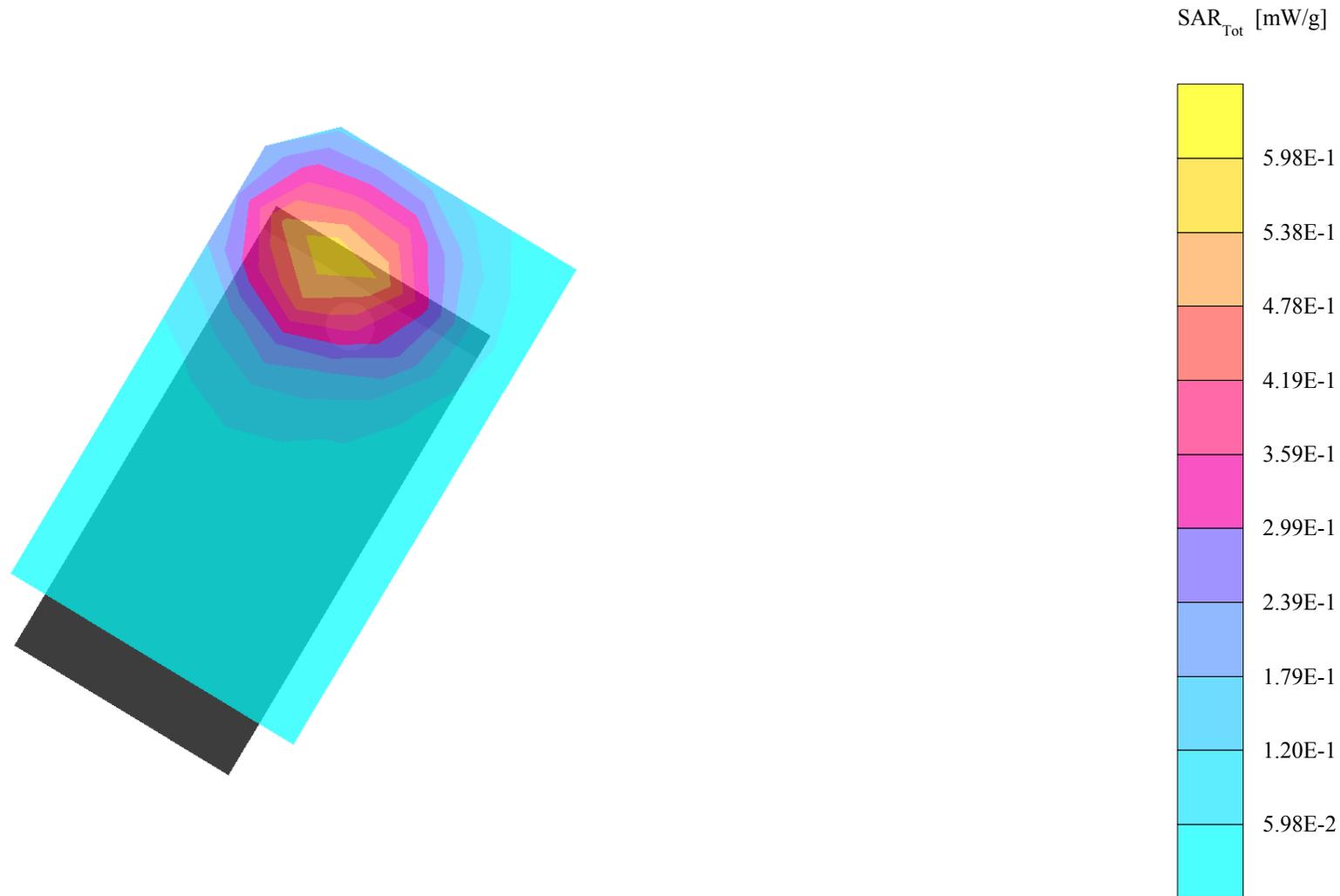
PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (90°,301°); Frequency: 1850 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cube 5x5x7: SAR (1g): 0.500 mW/g, SAR (10g): 0.266 mW/g, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 10.0
Powerdrift: -0.06 dB
PY7A1022013-,S/N:695146-0 ;frequevcy 1850MHz(ch512), Right Hand Side,Cheek
(90°) Phone Position, meas. Power=30.5dBm, Nom.Power=30.5dBm; ambien temprature
24(c-degree)and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (105°,59°); Frequency: 1850 MHz
Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³
Cubes (2): SAR (1g): 0.561 mW/g ± 0.01 dB, SAR (10g): 0.312 mW/g ± 0.01 dB, (Worst-case extrapolation)
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0
Powerdrift: -0.00 dB
PY7A1022013-,S/N:695146-0 ;frequency 1850MHz(ch512), Left Hand Side,Tilt
(105°) Phone Position, meas. Power=30.5dBm, Nom.Power=30.5dBm; ambien temprature
24°C,and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Left Hand Section; Position: (90°,59°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.433 mW/g, SAR (10g): 0.238 mW/g, (Worst-case extrapolation)

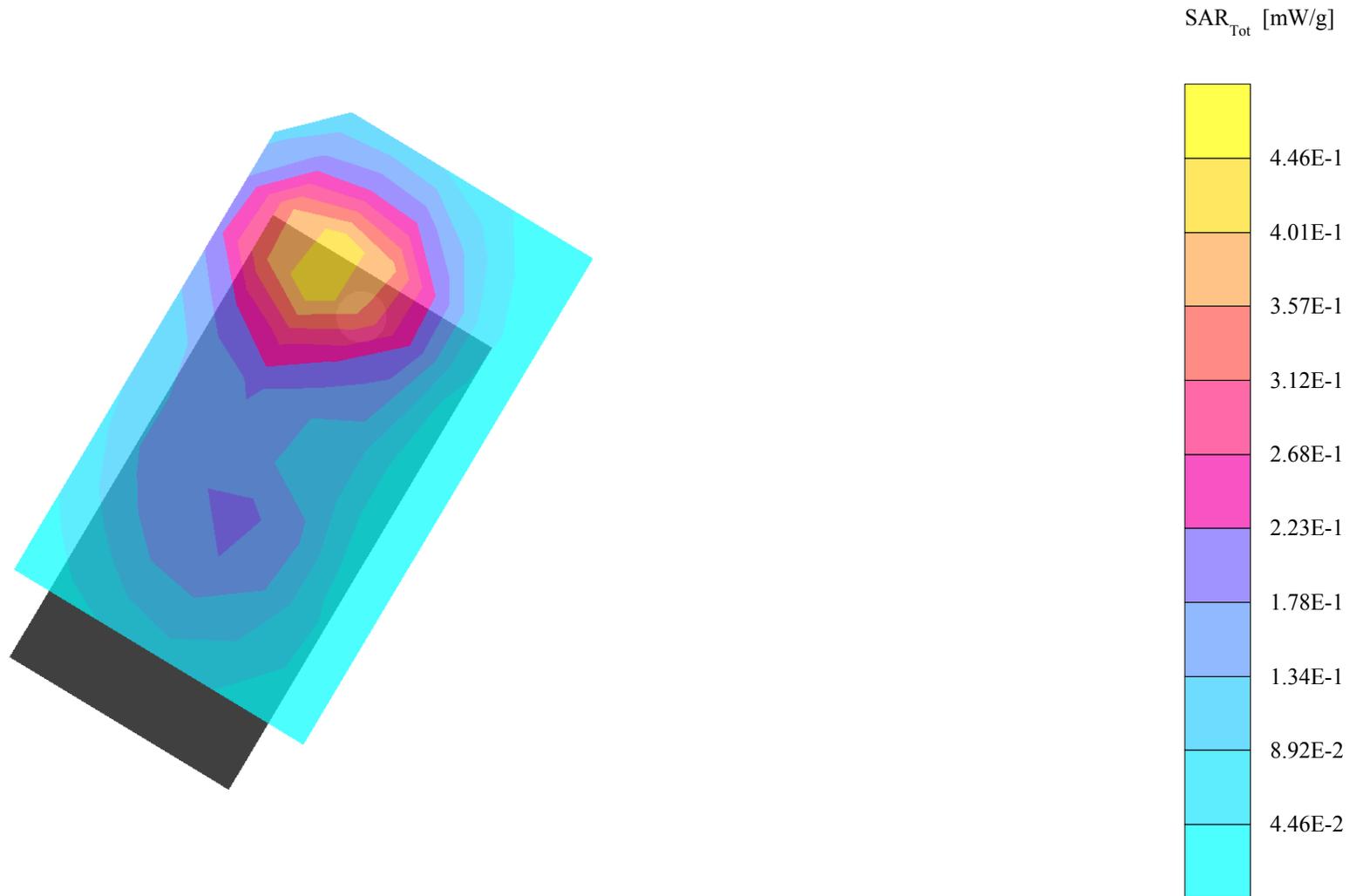
Coarse: Dx = 11.0, Dy = 11.0, Dz = 11.0

Powerdrift: -0.05 dB

PY7A1022013-,S/N:695146-0 ;frequency 1850MHz(ch512), Left Hand Side,Cheek

(90°) Phone Position, meas. Power=30.5dBm, Nom.Power=30.5dBm; ambien temprature

24°C,and humidity 29%,Date:050519



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.135 mW/g, SAR (10g): 0.0824 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.10 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1850MHz(ch512),Front side Phone Position+15mm

distance from flat cection pantom, meas. Power=30.5dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1850 MHz

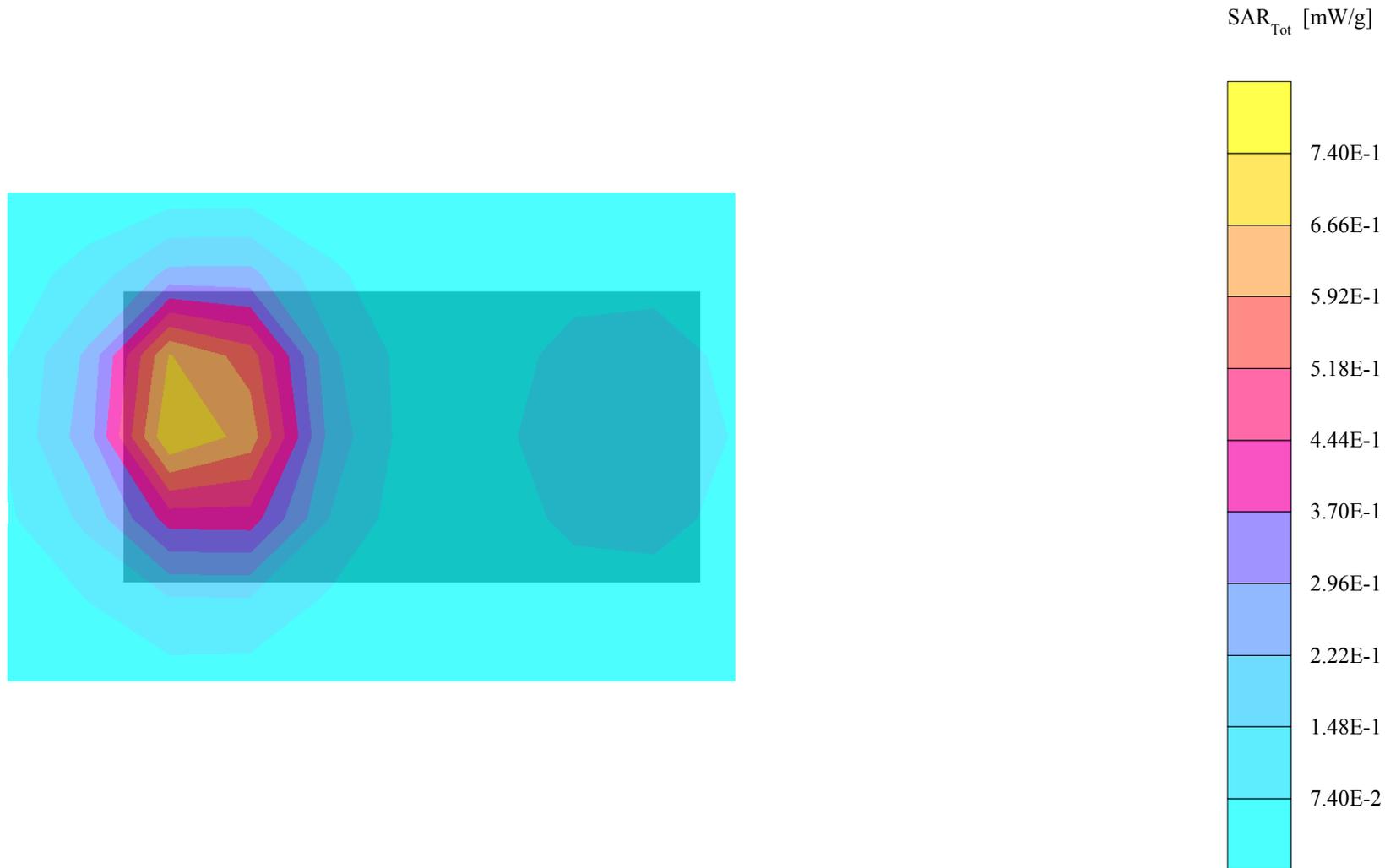
Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 4.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.767 mW/g, SAR (10g): 0.424 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.12 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1850MHz(ch512),Back side Phone Position+15mm
distance from flat Section pantom,meas.Power=29dBm,Nom.Power=29dBm;Data Communicaton
measurement;ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.560 mW/g, SAR (10g): 0.314 mW/g, (Worst-case extrapolation)

Coarse: Dx = 14.0, Dy = 14.0, Dz = 10.0

Powerdrift: -0.08 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1850MHz(ch512),Back side Phone Position+!5mm

distance from flat cection pantom, meas. Power=30.5dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



D1900 V2

SAM 4 Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 1.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 3.72 mW/g, SAR (10g): 1.92 mW/g, (Worst-case extrapolation)

Coarse: Dx = 17.0, Dy = 17.0, Dz = 17.0

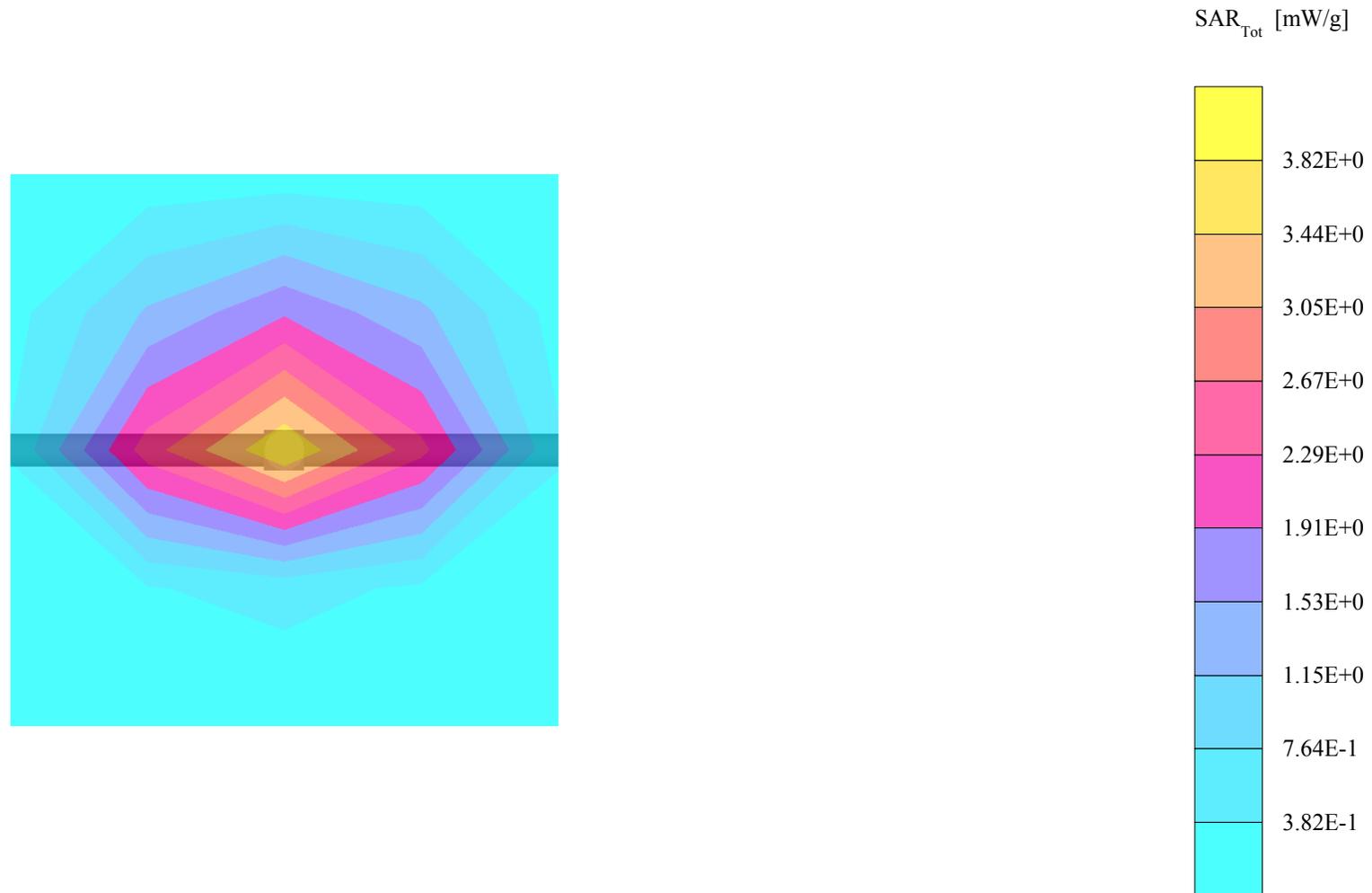
Powerdrift: 0.01 dB

P=100mW, d=10mm, 1900MHz dipol D1900V2 s/n 5d002

Target values: 1g mass 38.3 mW/g, 10g mass 20.1 mW/g

Measured values: 1g mass 37.2mW/g(-2.8%), 10g mass 19.1mW/g(-4.5%)

LIQUID'S Temperature 22C, Ambeint Temperature 24C ,humidity 50%



PY7A1022013

SAM 4 Phantom; Flat Section; Position: (270°,90°); Frequency: 1880 MHz

Probe: ET3DV6 - SN1582; ConvF(4.68,4.68,4.68); Crest factor: 8.0; Muscle 1900: $\sigma = 1.54$ mho/m $\epsilon_r = 51.5$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.654 mW/g, SAR (10g): 0.359 mW/g, (Worst-case extrapolation)

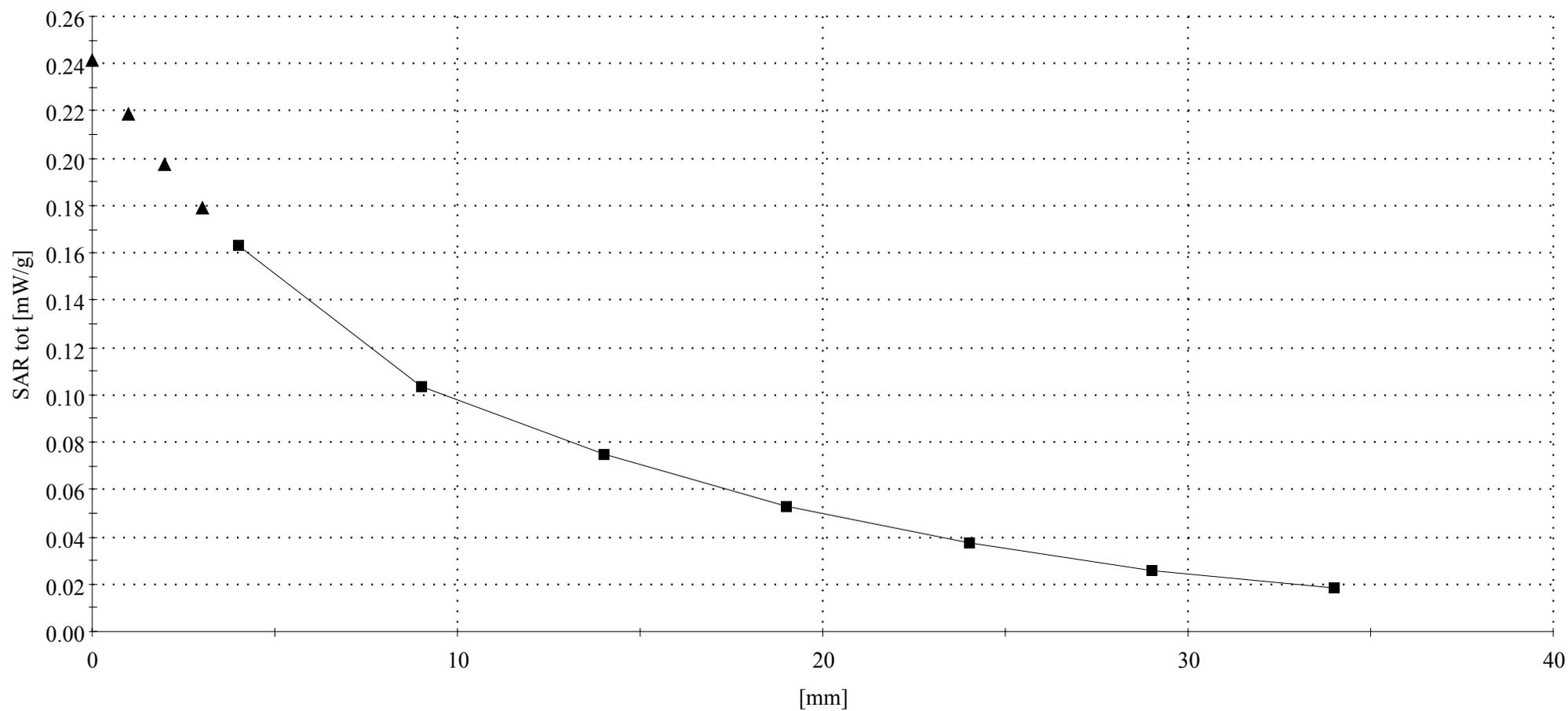
Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: -0.12 dB

PY7A1022013-,S/N:695146-0 ;frequency 1880MHz(ch661),Back side Phone Position+15mm

distance from flat section pantom, meas. Power=30.3dBm, Nom.Power=30.5dBm;

ambien temprature 23°C,and humidity 50%,Date:050523



PY7A1022013

SAM 4 Phantom; Righ Hand Section; Position: (105°,301°); Frequency: 1850 MHz

Probe: ET3DV6 - SN1582; ConvF(5.17,5.17,5.17); Crest factor: 8.0; Head 1900MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 39.3$ $\rho = 1.00$ g/cm³

Cube 5x5x7: SAR (1g): 0.549 mW/g, SAR (10g): 0.298 mW/g, (Worst-case extrapolation)

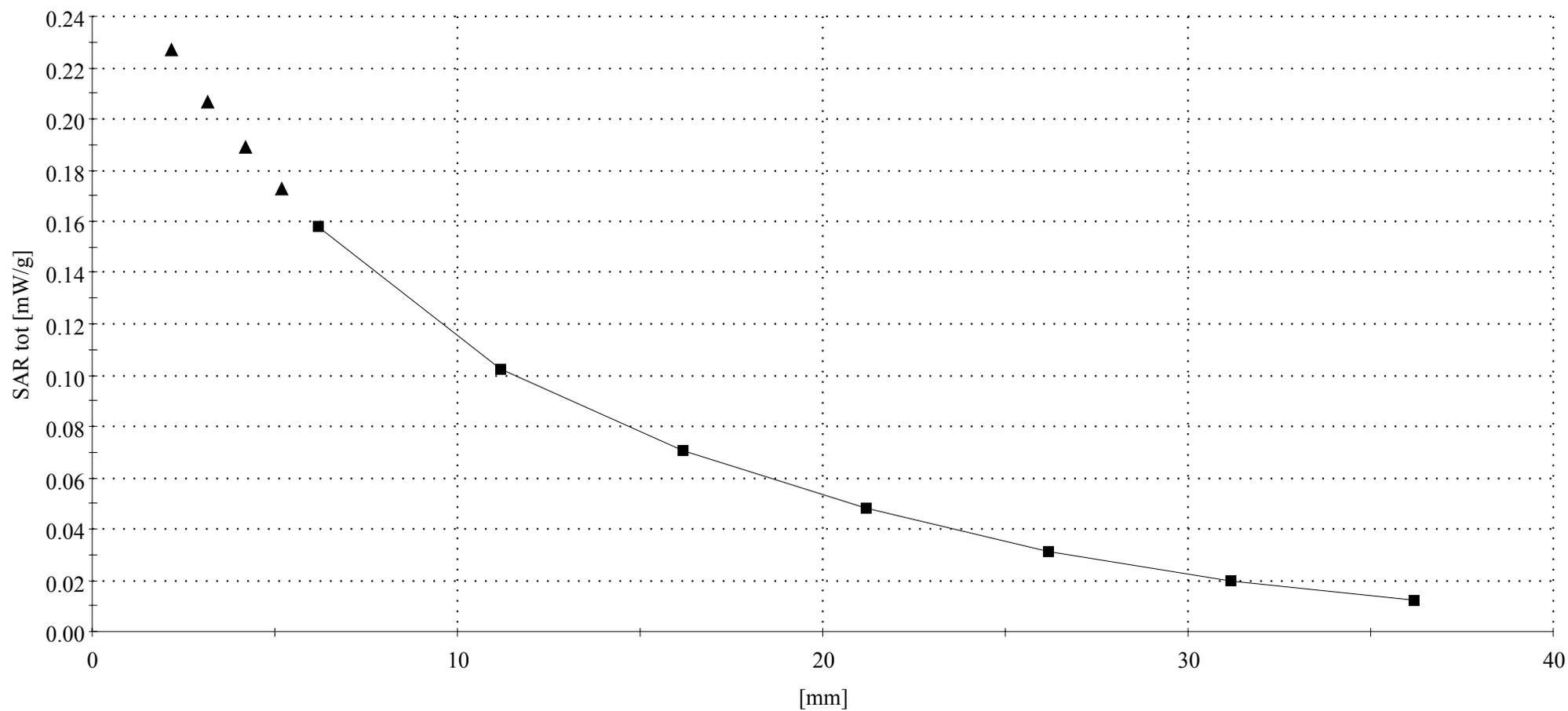
Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: -0.04 dB

PY7A1022013-,S/N:695146-0 ;frequevcy 1880MHz(ch661), Right Hand Side,Tilt

(105°) Phone Position, meas. Power=30.3dBm, Nom.Power=30.5dBm; ambien temprature

24°Cand humidity 29%,Date:050519



**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse de l'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The **Swiss Accreditation Service** is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Sony Ericsson Lund**

Certificate No: **ET3-1582_Mar05**

CALIBRATION CERTIFICATE

Object

ET3DVG - SN:1582

Calibration procedure(s)

**QA CAL-01_v5
Calibration procedure for dosimetric E-field probes**

Calibration date:

March 16, 2005

Condition of the calibrated item

In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-04 (METAS, No. 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-00388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-04 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-04 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN: 3013	7-Jan-05 (SPEAG, No. ES3-3013_Jan05)	Jan-06
DAE4	SN: 617	19-Jan-05 (SPEAG, No. DAE4-617_Jan05)	Jan-06

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov 05

Calibrated by:

Nico Vetterli

Laboratory Technician

Signature

Approved by:

Katja Pokovic

Technical Manager

Issued: March 16, 2005

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.