Specific Absorption Rate (SAR) Test Report
for
Philips Consumer Communications
on the
TDMA/AMPS Cellular Phone
Model: TCD588

Test Report: J20004218A
Date of Report: March 10, 2000

NVLAP Laboratory Code 200201-0
Accredited for testing to FCC Parts 15

Tested by:	Ollie Moyrong	
Reviewed by:	David Chernomordik	

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1 JOB DESCRIPTION

1.1 Client Information

The EUT has been tested at the request of

Company: Philips Consumer Communications
1000 West Maude Avenue
Sunnyvale, California 94086-2810

Name of contact: Yaron-Oren Pines
US Telephone: (408) 617-5960
US Fax: (408) 617-5960

1.2 Equipment under test (EUT)

Product Descriptions:

Equipment	AMPS/TDMA Cellular Radio Telephone		
Trade Name	Philips	Model No.	TCD588
FCC ID	M7VTCD588	S/N No.	Not Labeled
Category	Portable	RF Exposure	Uncontrolled Environment
Frequency Band (uplink)	AMPS: 824-849 MHz TDMA: 1850-1909.9 MHz	System	AMPS TDMA

EUT Antenna Description			
Type	Monopole	Configuration	Fixed
Dimensions	22 mm (L)	Gain	0
Location	Right, Top		

Use of Product : Voice communications

Manufacturer: SAME as above.

Production is planned: [X] Yes, [ ] No

EUT receive date: 3/7/99

EUT received condition: Good condition prototype

Test start date: 3/7/00

Test end date: 3/9/00

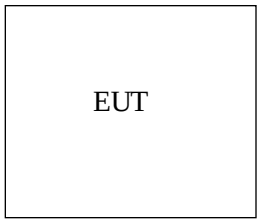
1.3 Test plan reference

FCC rule part 2.1093, FCC Docket 96-326 & Supplement C to OET Bulletin 65

1.4 System test configuration

1.4.1 System block diagram & Support equipment

The diagram shown below details test configuration of the equipment under test .



S:	Shielded	**U:**	Unshielded	**F:**	With Ferrite Core

Support equipment					
Equp. #	**Equipment**	**Manufacturer**	**Model #**	**S/N #**	**FCC ID**
None					

1.4.2 Test Position

The EUT was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in C95.1 (1992) and Supplement C of OET 65 (1998). The EUT was placed in the intended use position, i.e. CENELEC 80° position. This position is defined by a reference plane and a line. The reference plane of the head is given by three points, the auditory canal opening of both ears and center of the closed mouth. The reference line of the EUT is defined by the line which connects the center of the ear piece with the center of the bottom of the case and lies on the surface of the case facing the phantom. The reference line of the EUT lies in the reference plane of the head. The center of the ear piece of the EUT is place at the entry of the auditory canal. The angle between the reference line of the phone and the line connecting both auditory canal openings is 80°. Please refer to figure 1 below for the position details:

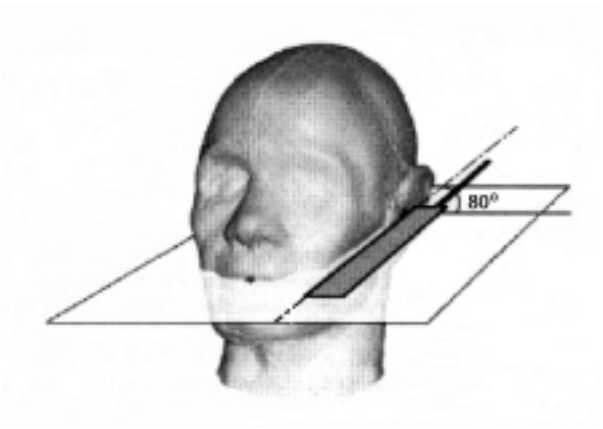


Figure 1: Intended use position

1.4.3 Test Condition

During tests, the worst case data (max. RF coupling) was determined with following conditions:

EUT Antenna	Extended	Orientation	N/A
Usage	Left-Hand and Right –Hand	Distance between antenna axis at the joint and the liquid surface:	18.4 mm
Simulating human hand	Not Used	EUT Battery	Fully Charged
Power output	25.8-27.1 dBm antenna port at AMPS mode (Maximum)		

The spatial peak SAR values were accessed for lowest, middle and highest operating channels defined by the manufacturer. Tests were performed at AMPS mode and TDMA mode.

Antenna port power measurement was performed, with the HP 435A power meter, before and after the SAR tests to ensure that the EUT operated at the highest power level.

1.5 Modifications required for compliance

No modifications were implemented by Intertek Testing Services.

1.6 Additions, deviations and exclusions from standards

No additions, deviations or exclusions have been made from standard.

2 SAR EVALUATION

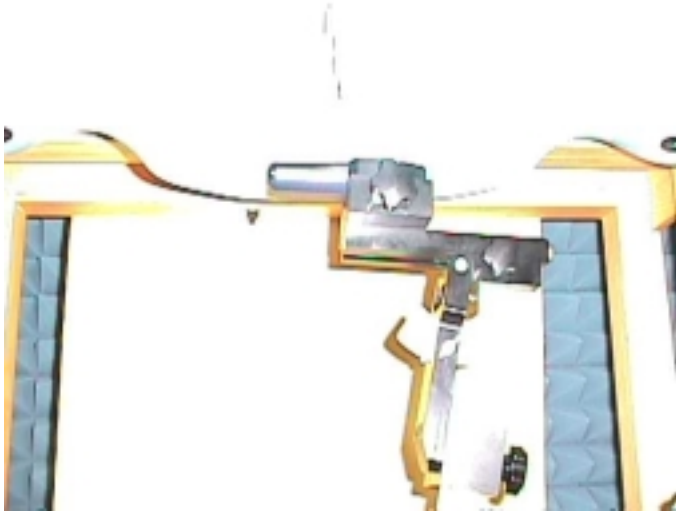
2.1 SAR Limits

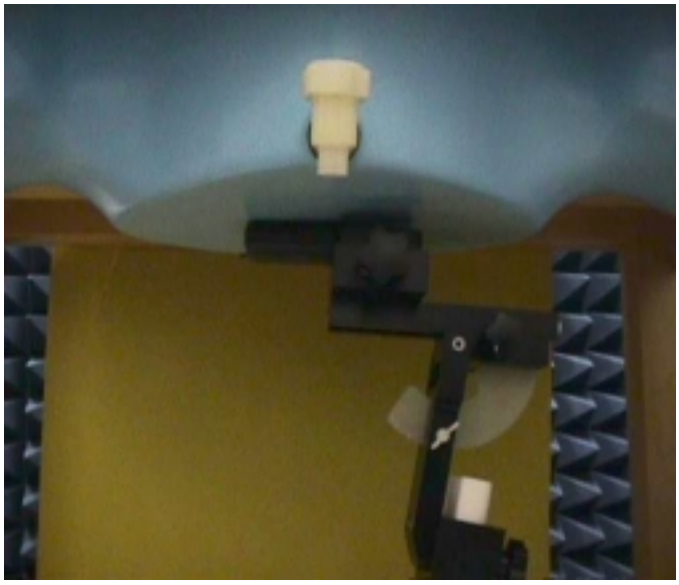
The following FCC limits for SAR apply to devices operate in General Population/Uncontrolled Exposure environment:

EXPOSURE (General Population/Uncontrolled Exposure environment)	SAR (W/kg)
Average over the whole body	0.08
Spatial Peak (1g)	1.60
Spatial Peak for hands, wrists, feet and ankles (10g)	4.00

2.2 Configuration Photographs

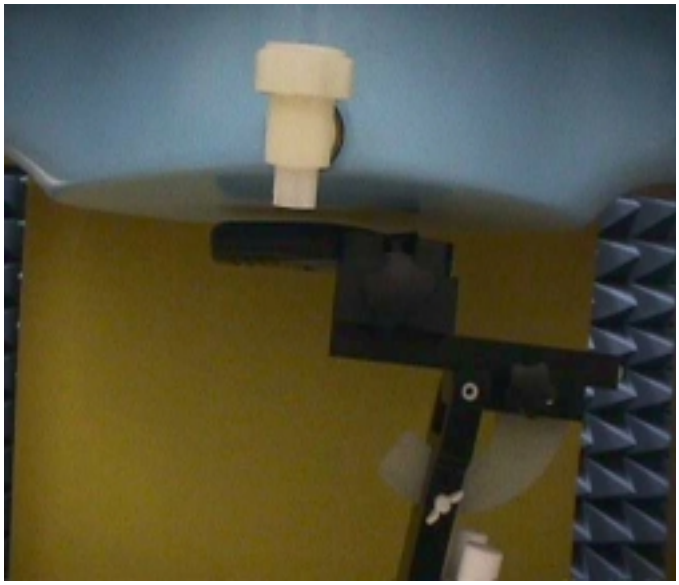
Worst-Case SAR measurement





2.3 Configuration Photographs - Continued

Worst-Case SAR measurement



2.4 Configuration Photographs

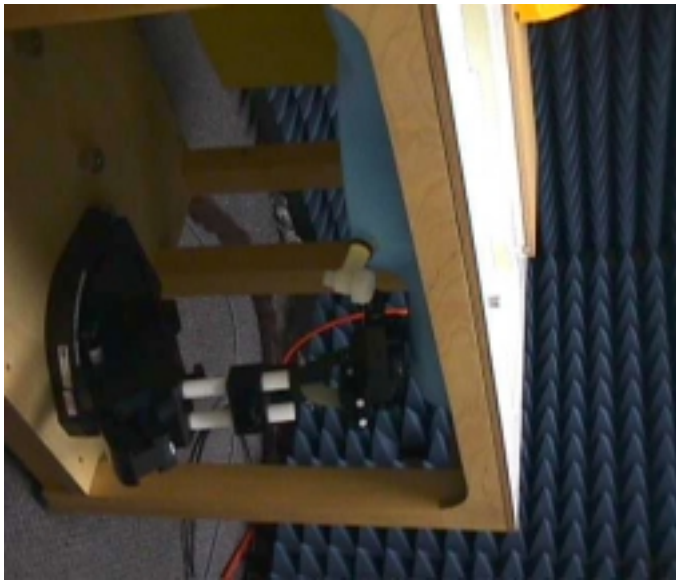
Worst-Case SAR measurement

2.5 Configuration Photographs

Worst-Case SAR measurement

2.6 Configuration Photographs

Worst-Case SAR measurement



2.7 System Verification

Prior to the assessment, the system was verified to the ±5% of the specifications by using the system validation kit. The validation was performed at 900 MHz.

Validation kit	Targeted SAR_{1g} (mW/g)	Measured SAR_{1g} (mW/g)
D900V2, S/N #: 013	3.92	3.86

2.8 Evaluation Procedures

The SAR evaluation was performed with the following procedures:

a. SAR was measured at a fixed location above the ear point and used as a reference value for the assessing the power drop.

b. The SAR distribution at the exposed side of the head was measured at a distance of 4.0 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 20 mm x 20 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

c. Around this point, a volume of 32 mm x 32 mm x 34 mm was assessed by measuring 5 x 5 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

   I) The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measurement point is 1.6 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in Z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   ii) The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3-D spline interpolation algorithm. The 3-D spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y and z directions). The volume was integrated with the trapezoidal algorithm. 1000 points (10 x 10 x 10) were interpolated to calculate the average.

   iii) All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

d. Re-measurement of the SAR value at the same location as in step a. above. If the value changed by more than 5 %, the evaluation was repeated.

2.9 Test Results

The results on the following page(s) were obtained when the device was tested in the condition described in this report. Detail measurement data and plots which reveal information about the location of the maximum SAR with respect to the device, are reported in Appendix A.

Trade Name:	Philips	**Model No.:**	TCD588
Serial No.:	Not Labeled	**Test Engineer:**	Ollie Moyrong

TEST CONDITIONS			
Ambient Temperature	23 °C	Relative Humidity	55 %
Test Signal Source	Test Mode	Signal Modulation	CW
Output Power Before SAR Test	25.6 to 27.1 dBm (AMPS)	Output Power After SAR Test	25.6 to 27.1 Dbm (AMPS)
Test Duration	23 Min.	Number of Battery Change	1

EUT Position: Left Hand, 80º					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
824	AMPS	1	Extended	1.20	1
836.5	AMPS	1	Extended	1.41	2
849	AMPS	1	Extended	1.38	3

EUT Position: Left Hand, 2 Points Touching Phantom					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
824	AMPS	1	Extended	1.14	4

EUT Position: Right Hand, 80º					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
836.5	AMPS	1	Extended	1.00	5

EUT Position: Left Hand, 80º					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
1850	TDMA	1	Extended	0.689	6
1880	TDMA	1	Extended	0.620	7
1910	TDMA	1	Extended	0.315	8

Continued:

EUT Position: Left Hand, 2 Points Touching Phantom					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
1880	TDMA	1	Extended	0.442	9

EUT Position: Right Hand, 80º					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
1850	TDMA	1	Extended	0.199	10

EUT Position: Middle, Front Side Touching Phantom					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
824	AMPS	1	Extended	1.87	11
836.5	AMPS	1	Extended	1.44	12
849	AMPS	1	Extended	1.11	13

EUT Position: Middle, Back Side Touching Phantom					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
824	AMPS	1	Extended	1.87	14
836.5	AMPS	1	Extended	1.44	15
849	AMPS	1	Extended	1.11	16

EUT Position: Middle, Back Side, 7mm away from Phantom					
Channel MHz	Operating Mode	Duty Cycle ratio	Antenna Position	Measured SAR_{1g} (mW/g)	Plot Number
824	AMPS	1	Extended	1.17	17
836.5	AMPS	1	Extended	0.970	18
849	AMPS	1	Extended	0.788	19

Note: a) Worst case data were reported
b) Duty cycle factor included in the measured SAR data
c) Uncertainty of the system is not included
d) Test was repeated at worst case frequency found in Right hand usage configuration.

3.0 EQUIPMENT

3.1 Equipment List

The Specific Absorption Rate (SAR) tests were performed with the SPEAG model DASY 3 automated near-field scanning system which is package optimized for dosimetric evaluation of mobile radios [3].

The following major equipment/components were used for the SAR evaluations:

SAR Measurement System			
EQUIPMENT	SPECIFICATIONS	S/N #	CAL. DATE
Robot	**Stäubi RX60L**	597412-01	N/A
	Repeatability: ± 0.025mm Accuracy: 0.806×10^{-3} degree Number of Axes: 6		
E-Field Probe	**ET3DV5**	1333	03/18/99
	Frequency Range: 10 MHZ to 6 GHz Linearity: ± 0.2 dB Directivity: ± 0.1 dB in brain tissue		
Data Acquisition	**DAE3**	317	N/A
	Measurement Range: 1µV to >200mV Input offset Voltage: < 1µV (with auto zero) Input Resistance: 200 M		
Phantom	**Generic Twin V3.0**	N/A	N/A
	Type: Generic Twin, Homogenous Shell Material: Fiberglass Thickness: 2 ± 0.1 mm Capacity: 20 liter Ear spacer: 4 mm (between EUT ear piece and tissue simulating liquid)		
Simulated Tissue	**Mixture**	N/A	04/12/99
	Please see section 6.2 for details		
Power Meter	**HP** 435A w/ 8481H sensor	1312A01255	02/1/99
	Frequency Range: 100kHz to 18 GHz Power Range: 300µW to 3W		

3.2 Brain Tissue Simulating Liquid

Ingredient	**Frequency** (800 – 900 MHz)
Water	40.3 %
Sugar	56.0 %
Salt	2.5 %
HEC	1.0 %
Bactericide	0.2 %

The dielectric parameters were verified prior to assessment using the HP 85070A dielectric probe kit and the HP 8753C network Analyzer. The dielectric parameters were:

Frequency (MHZ)	$_r$ *	*(mho/m)	**(kg/m$^{3)}$
900	41.9± 5%	0.835 ± 10%	1000

* *worst case uncertainty of the HP 85070A dielectric probe kit*
** *worst case assumption*

3.3 E-Field Probe Calibration

Probes were calibrated by the manufacturer in the TEM cell ifi 110. To ensure consistency, a strict protocol was followed. The conversion factor (ConF) between this calibration and the measurement in the tissue simulation solution was performed by comparison with temperature measurement and computer simulations. Probe calibration factors are included in Appendix C.

3.4 Measurement Uncertainty

The uncertainty budget has been determined for the DASY3 measurement system according to the NIS81 [5] and the NIST 1297 [6] documents and is given in the following table. The extended uncertainty (K=2) was assessed to be 23.5 %

UNCERTAINTY BUDGET				
Uncertainty Description	**Error**	**Distrib.**	**Weight**	**Std.Dev.**
Probe Uncertainty				
Axial isotropy	±0.2 dB	U-shape	0.5	±2.4 %
Spherical isotropy	±0.4 dB	U-shape	0.5	±4.8 %
Isotropy from gradient	±0.5 dB	U-shape	0	
Spatial resolution	±0.5 %	Normal	1	±0.5 %
Linearity error	±0.2 dB	Rectang.	1	±2.7 %
Calibration error	±3.3 %	Normal	1	±3.3 %
SAR Evaluation Uncertainty				
Data acquisition error	±1 %	Rectang.	1	±0.6 %
ELF and RF disturbances	±0.25 %	Normal	1	±0.25 %
Conductivity assessment	±10 %	Rectang.	1	±5.8 %
Spatial Peak SAR Evaluation Uncertainty				
Extrapol boundary effect	±3 %	Normal	1	±3 %
Probe positioning error	±0.1 mm	Normal	1	±1 %
Integrat. And cube orient	±3 %	Normal	1	±3 %
Cube shape inaccuracies	±2 %	Rectang.	1	±1.2 %
Device positioning	±6 %	Normal	1	±6 %
Combined Uncertanties				**±11.7 %**

3.5 Measurement Traceability

All measurements described in this report are traceable to National Institute of Standards and Technology (NIST) standards or appropriate national standards.

4.0 WARNING LABEL INFORMATION - USA

See attached users manual.

5.0 REFERENCES

[1] ANSI, *ANSI/IEEE C95.1-1991: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 Ghz*, The Institute of electrical and Electronics Engineers, Inc., New York, NY 10017, 1992

[2] Federal Communications Commission, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", OET Bulletin 65, FCC, Washington, D.C. 20554, 1997

[3] Thomas Schmid, Oliver Egger, and Niels Kuster, "Automated E-field scanning system for dosimetric assessments", *IEEE Transaction on Microwave Theory and Techniques*, vol. 44, pp. 105-113, Jan. 1996.

[4] Niels Kuster, Ralph Kastle, and Thomas Schmid, "Dosimetic evaluation of mobile communications equipment with know precision", IEICE Transactions on Communications, vol. E80-B, no. 5, pp.645-652, May 1997.

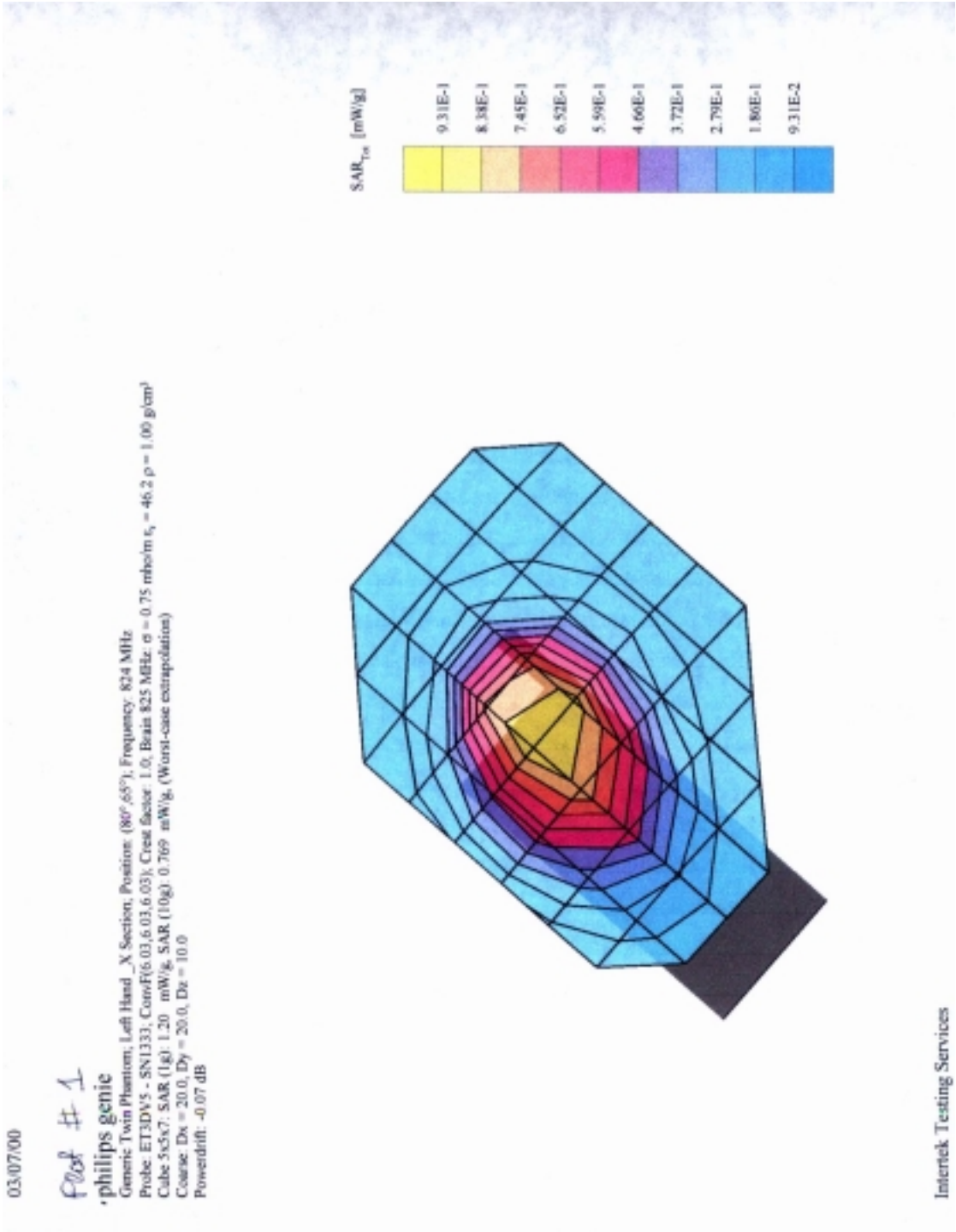
[5] NIS81, NAMAS, "The treatment of uncertainty in EMC measurement", Tech. Rep., NAMAS Executive, National Physical Laboratory, Teddinton, Middlesex, England, 1994.

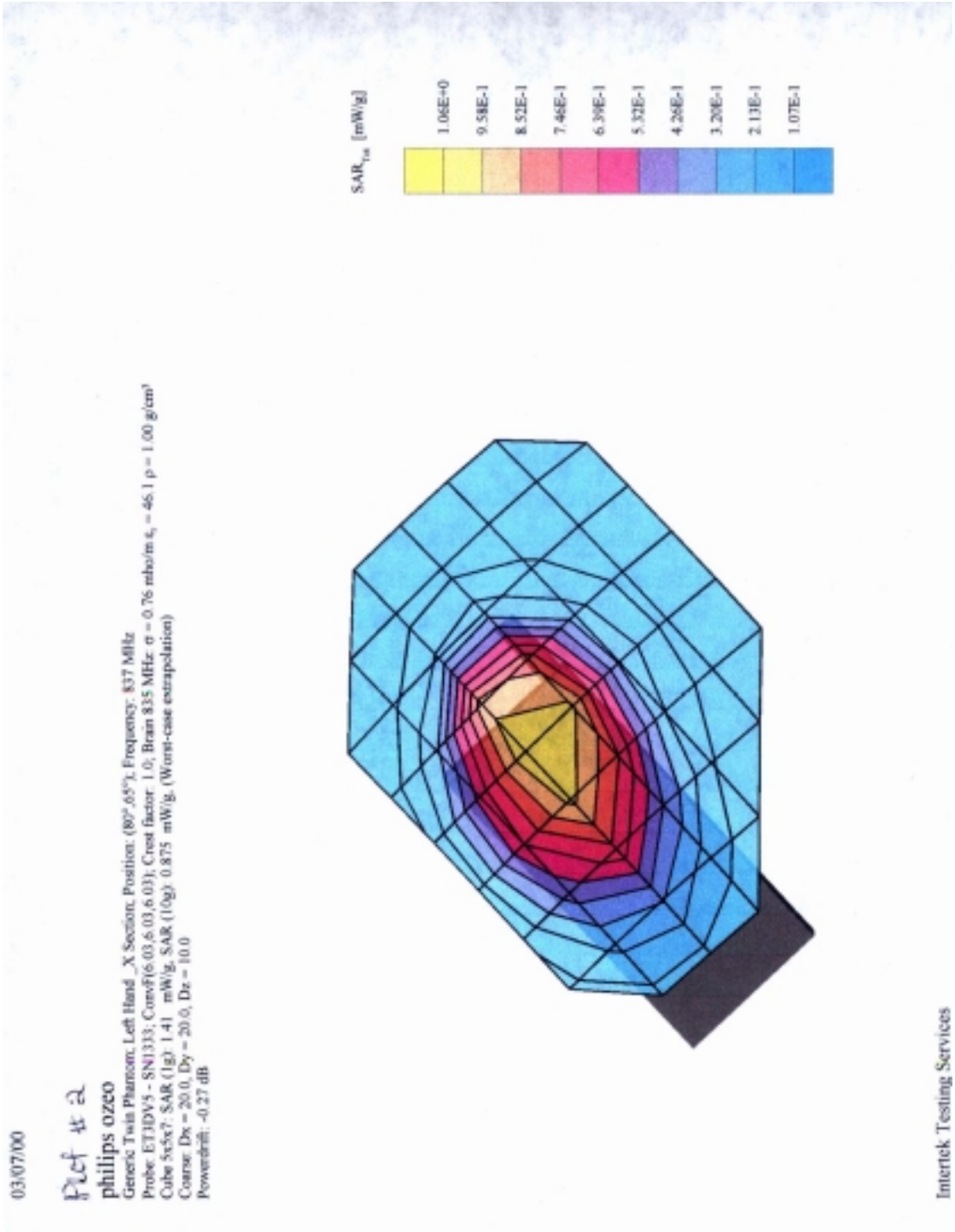
[6] Barry N. Tayor and Chris E. Kuyatt, "Guidelines for evaluating and expressing the uncertainty of NIST measurement results", Tech. Rep., National Institude of Standards and Technology, 1994.

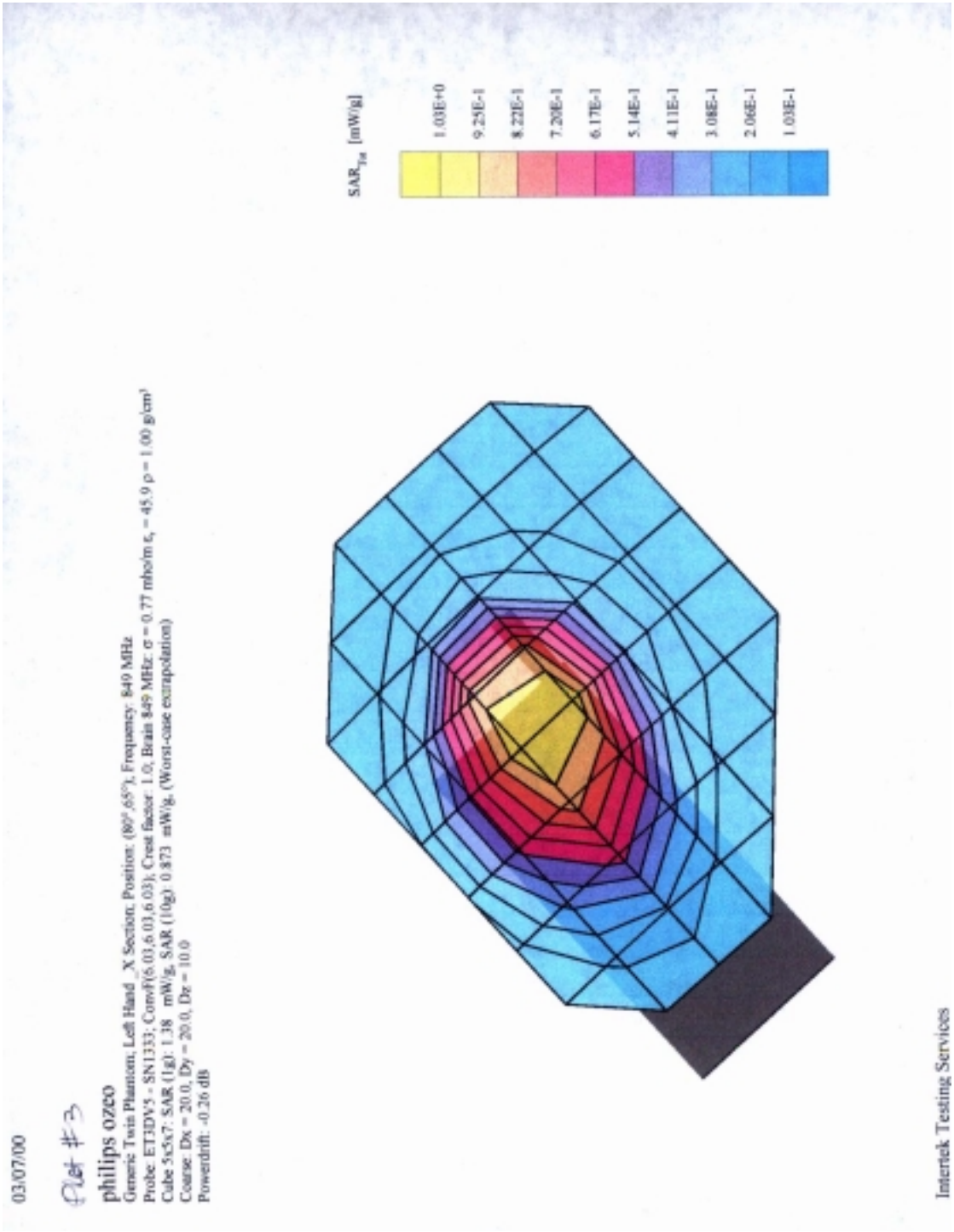
APPENDIX A - SAR EVALUATION DATA

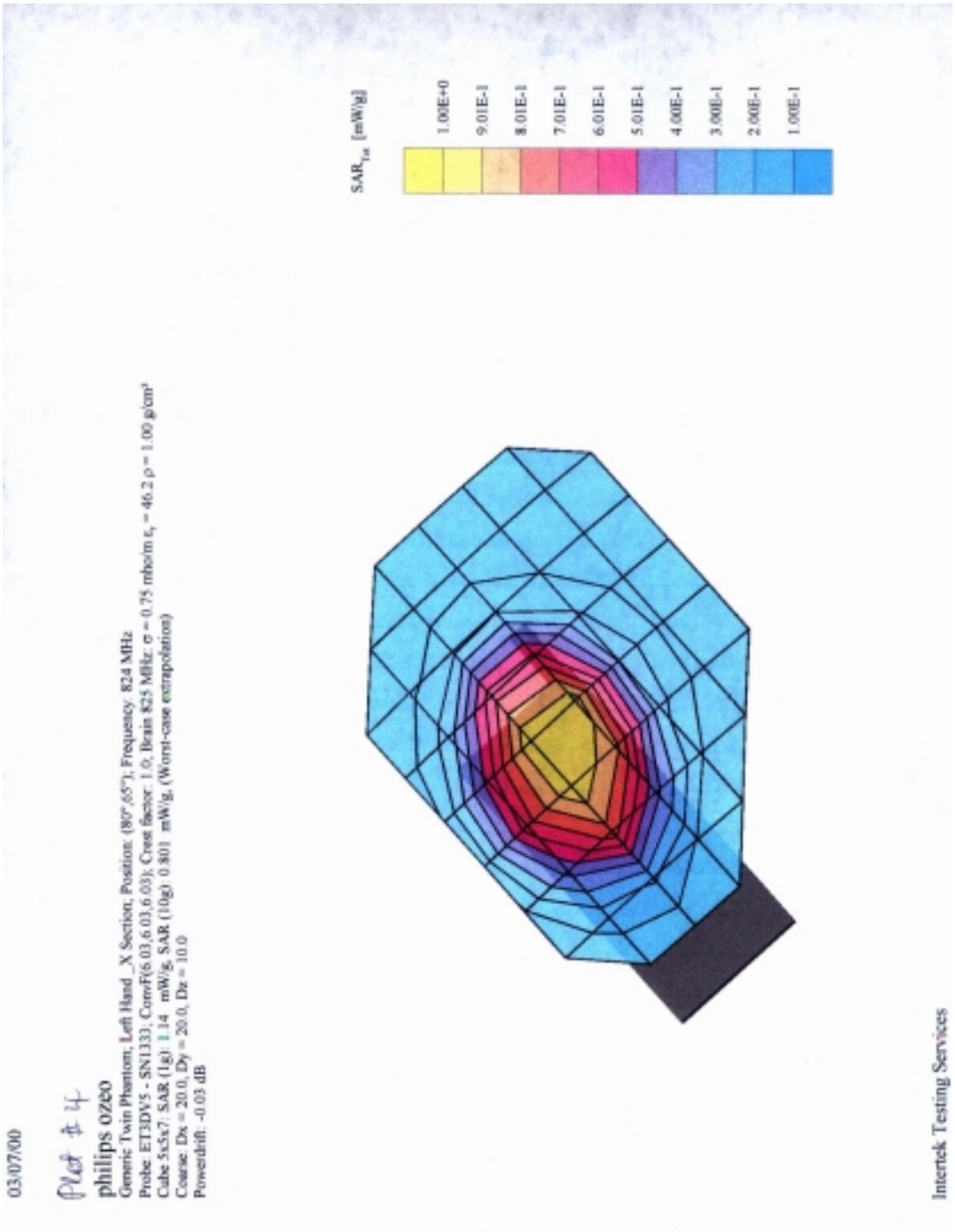
Please note that the graphical visualization of the phone position onto the SAR distribution gives only limited information on the current distribution of the device, since the curvature of the head results in graphical distortion. Full information can only be obtained either by H-field scans in free space or SAR evaluation with a flat phantom.

Powerdrift is the measurement of power drift of the device over one complete SAR scan.


03/07/00
Plot # 1
philips genie
Generic Twin Phantom; Left Hand_X Section; Position: (80°,65°); Frequency: 824 MHz
Probe: ET3DV5 - SN1333; ConvF(6.03,6.03,6.03); Crest factor: 1.0; Brain 825 MHz: σ = 0.75 mho/m ε_r = 46.2 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.20 mW/g, SAR (10g): 0.769 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.07 dB
SAR_Tot [mW/g]
9.31E-1
8.38E-1
7.45E-1
6.52E-1
5.59E-1
4.66E-1
3.72E-1
2.79E-1
1.86E-1
9.31E-2
Intertek Testing Services


03/07/00
Ref # 2
philips ozeo
Generic Twin Phantom; Left Hand _X Section; Position: (80°,65°); Frequency: 837 MHz
Probe: ET3DV5 - SN1333; ConvF(6.03,6.03,6.03); Crest factor: 1.0; Brain 835 MHz: σ = 0.76 mho/m, ε_r = 46.1 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.41 mW/g, SAR (10g): 0.875 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.27 dB
SAR_Tot [mW/g]
1.06E+0
9.58E-1
8.52E-1
7.46E-1
6.39E-1
5.32E-1
4.26E-1
3.20E-1
2.13E-1
1.07E-1
Intertek Testing Services


03/07/00
Plot #3
philips ozeo
Generic Twin Phantom, Left Hand _X Section, Position: (86°,65°), Frequency: 849 MHz
Probe: ET3DV5 - SN1333; ConvF(6.03,6.03,6.03); Crest factor: 1.0; Brain 849 MHz: σ = 0.77 mho/m εr = 45.9 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.38 mW/g, SAR (10g): 0.873 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.26 dB
SAR_Tot [mW/g]
1.03E+0
9.25E-1
8.22E-1
7.20E-1
6.17E-1
5.14E-1
4.11E-1
3.08E-1
2.06E-1
1.03E-1
Intertek Testing Services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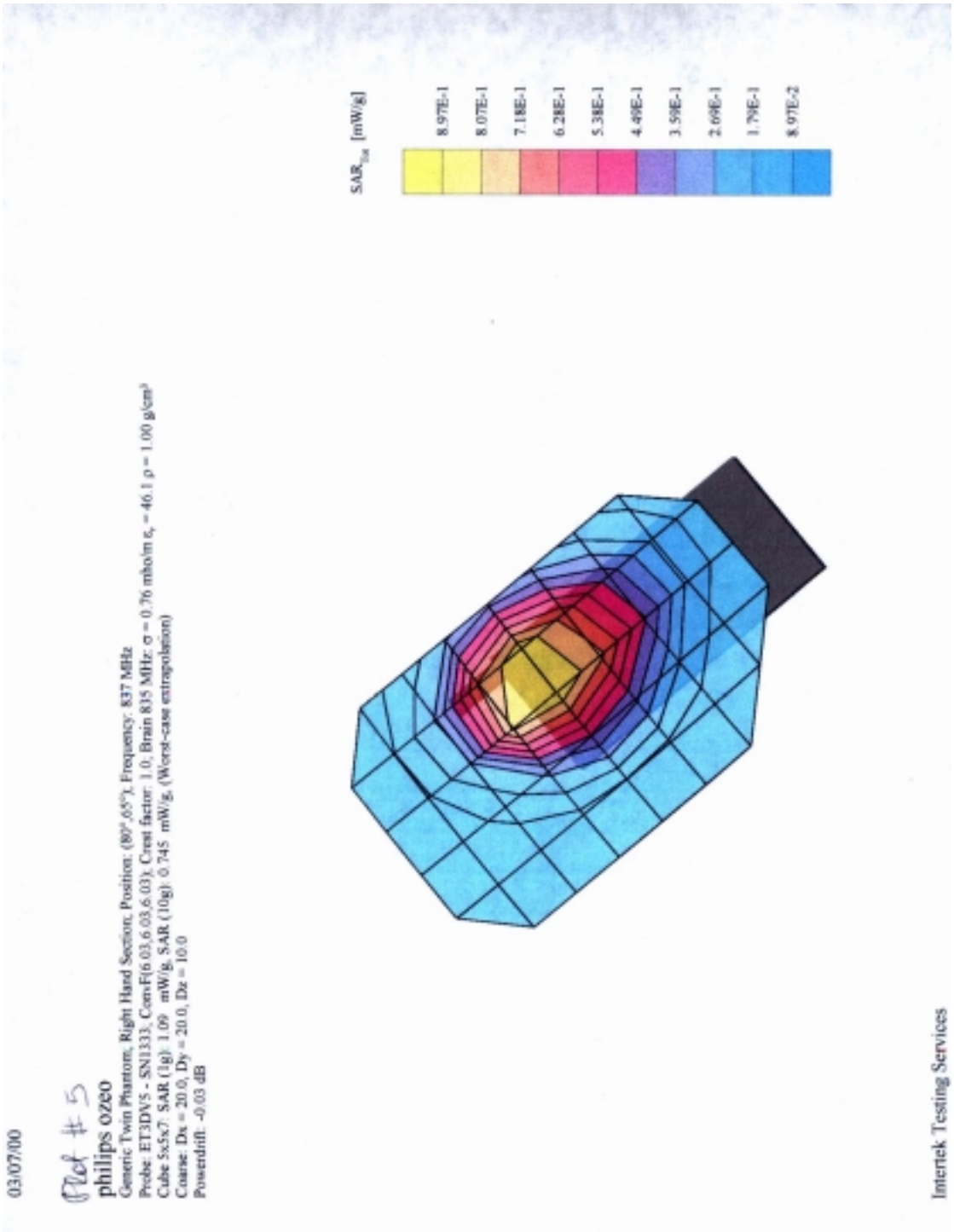
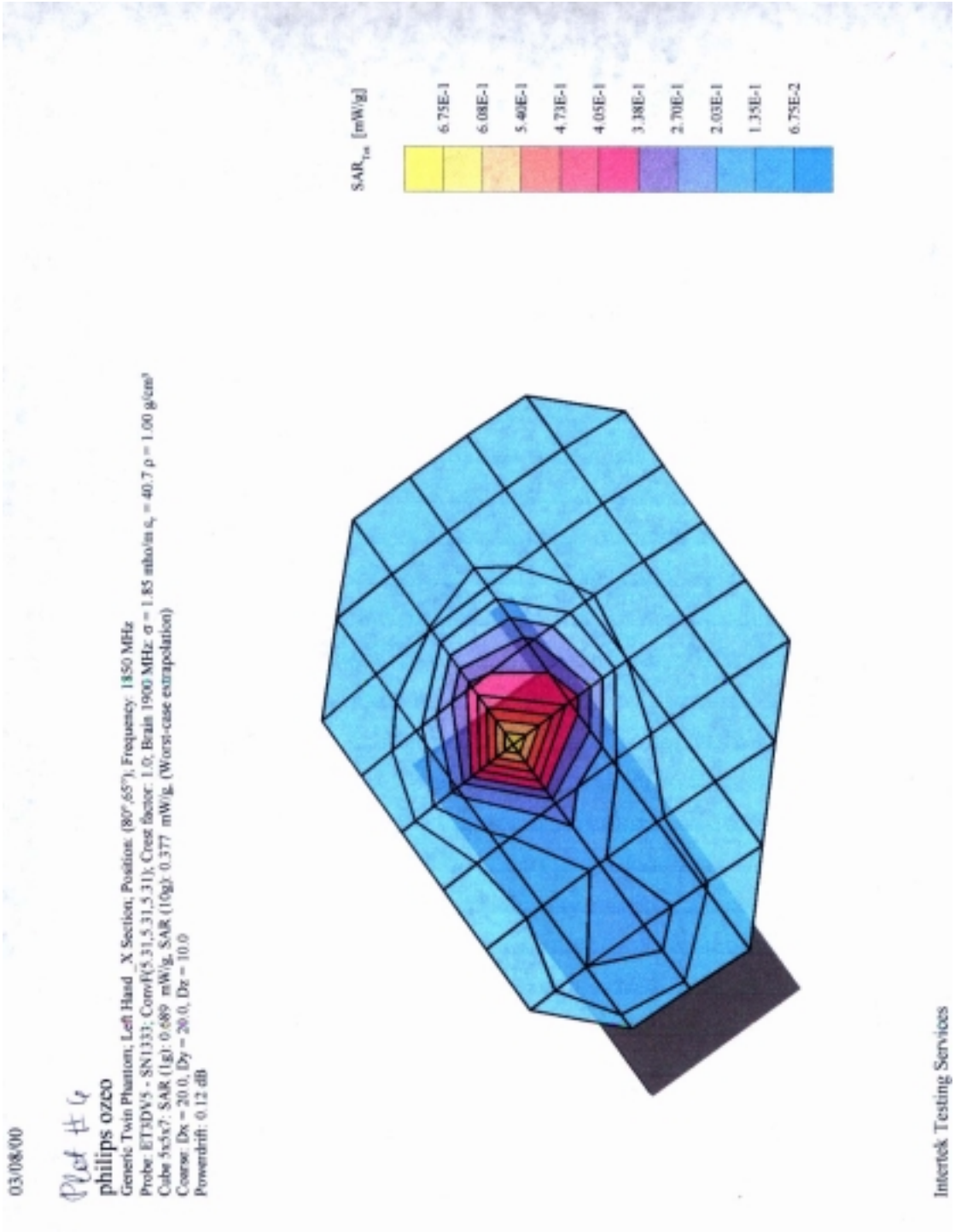
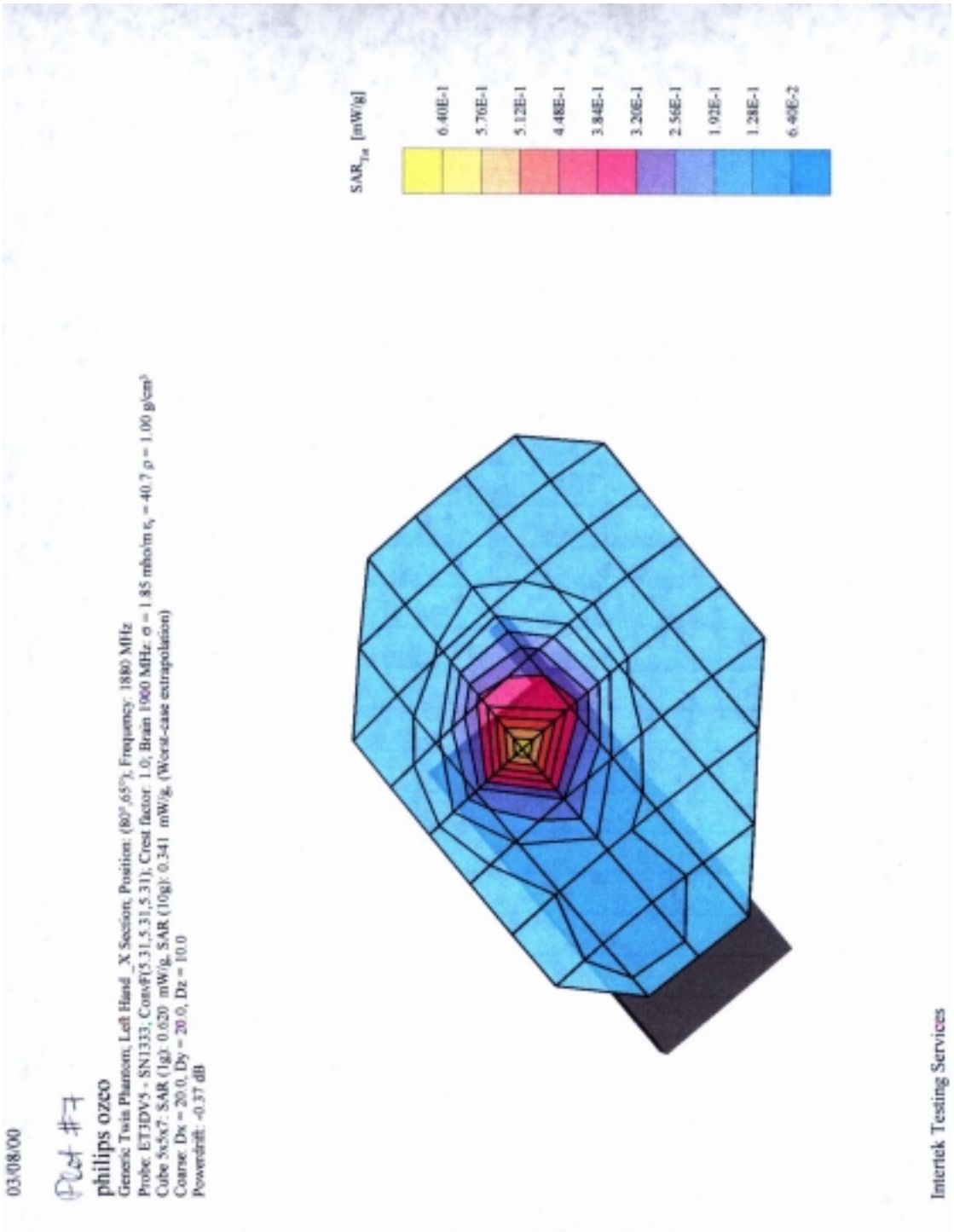
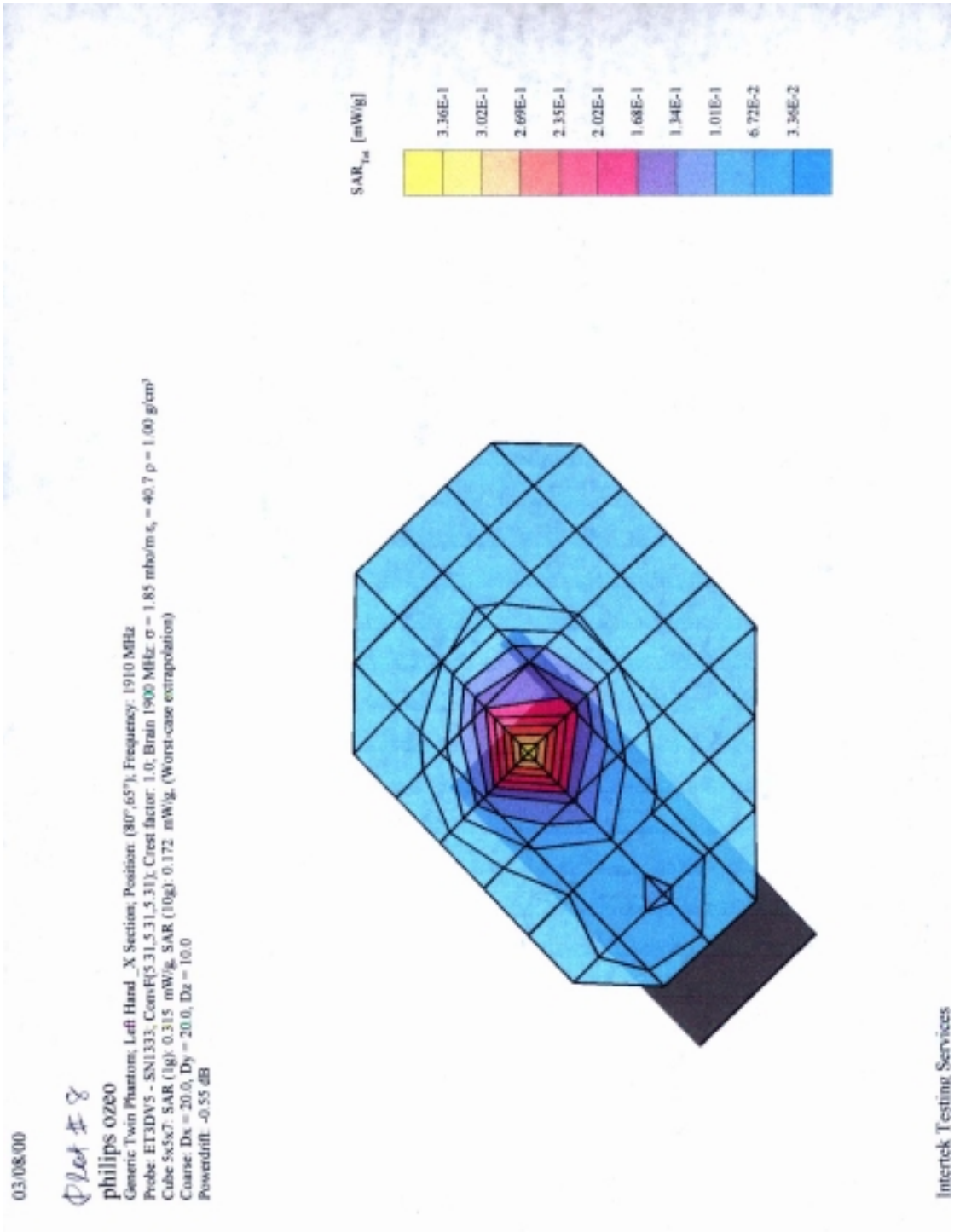
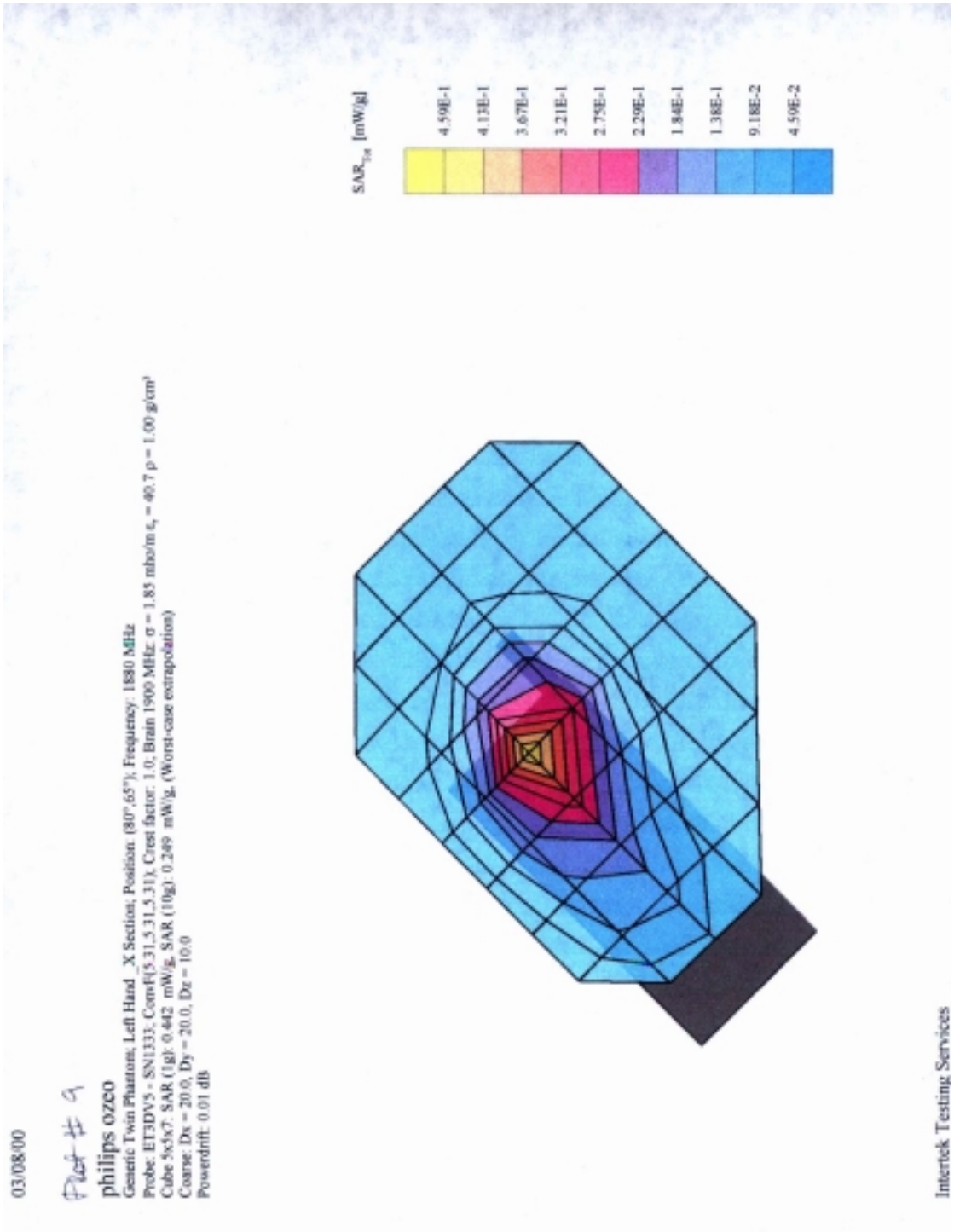
Plot # 4
philips 0260
Generic Twin Phantom; Left Hand_X Section; Position: (80°,65°); Frequency: 824 MHz
Probe: ET3DV5 - SN1133; ConvF(6.03,6.03,6.03); Crest factor: 1.0; Brain 825 MHz: σ = 0.75 mho/m εr = 46.2 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.14 mW/g, SAR (10g): 0.801 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.03 dB
SAR_Tot [mW/g]
1.00E+0
9.01E-1
8.01E-1
7.01E-1
6.01E-1
5.01E-1
4.00E-1
3.00E-1
2.00E-1
1.00E-1
Intertek Testing Services

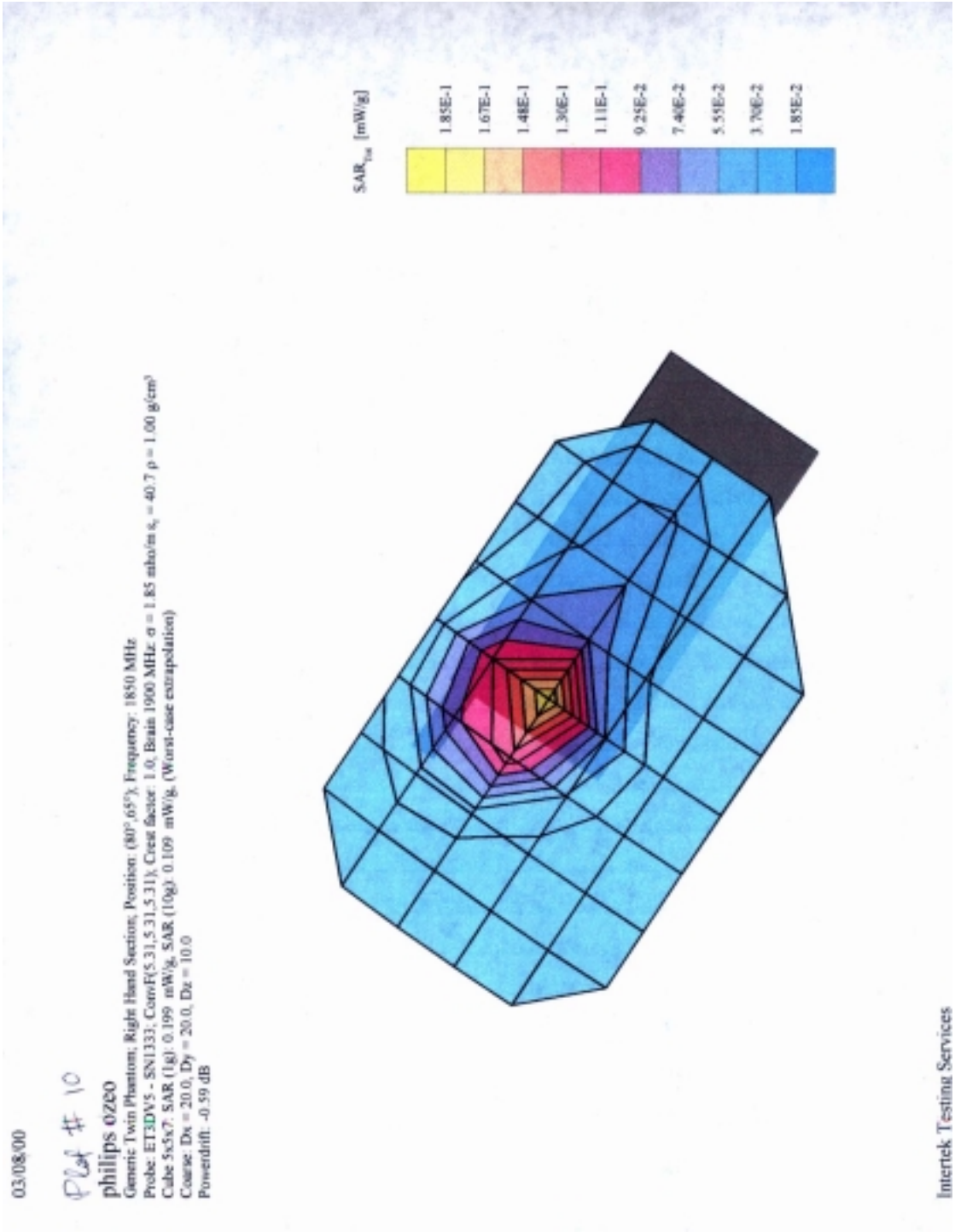

03/07/00
Plot # 5
philips ozeo
Generic Twin Phantom; Right Hand Section; Position: (80°,65°); Frequency: 837 MHz
Probe: ET3DV5 - SN1333; ConvF(6.03,6.03,6.03); Crest factor: 1.0; Brain 835 MHz: σ = 0.76 mho/m εr = 46.1 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.09 mW/g, SAR (10g): 0.745 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.03 dB
SAR10g [mW/g]
8.97E-1
8.07E-1
7.18E-1
6.28E-1
5.38E-1
4.49E-1
3.59E-1
2.69E-1
1.79E-1
8.97E-2
Intertek Testing Services

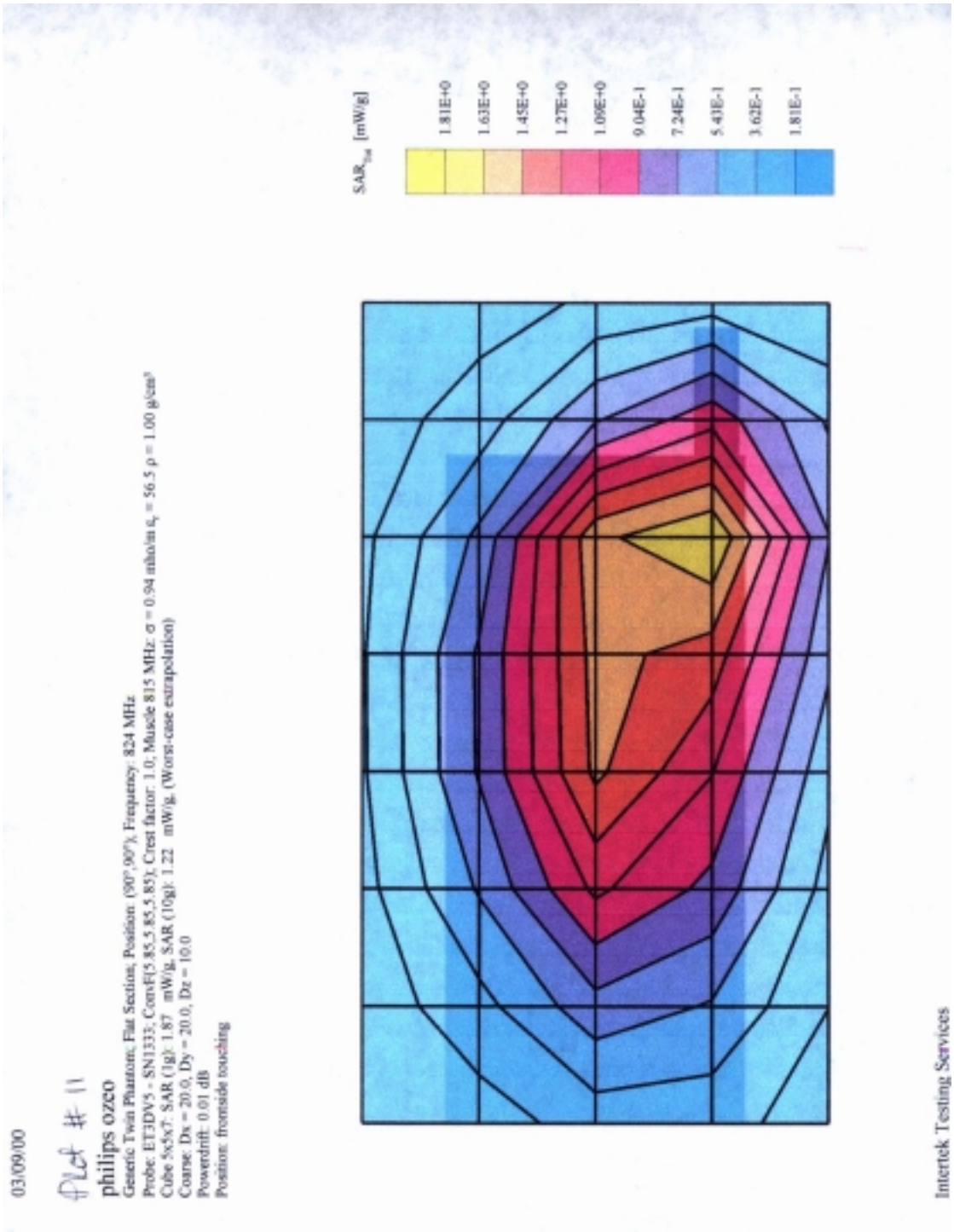

03/08/00
philips ozco
Generic Twin Phantom; Left Hand _X Section; Position: (80°,65°); Frequency: 1850 MHz
Probe: ET3DV5 - SN1333; ConvF(5.31,5.31,5.31); Crest factor: 1.0; Brain 1900 MHz: σ = 1.85 mho/m ε_r = 40.7 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.689 mW/g, SAR (10g): 0.377 mW/g (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.12 dB
SAR_Tot [mW/g]
6.75E-1
6.08E-1
5.40E-1
4.73E-1
4.05E-1
3.38E-1
2.70E-1
2.03E-1
1.35E-1
6.75E-2
Intertek Testing Services

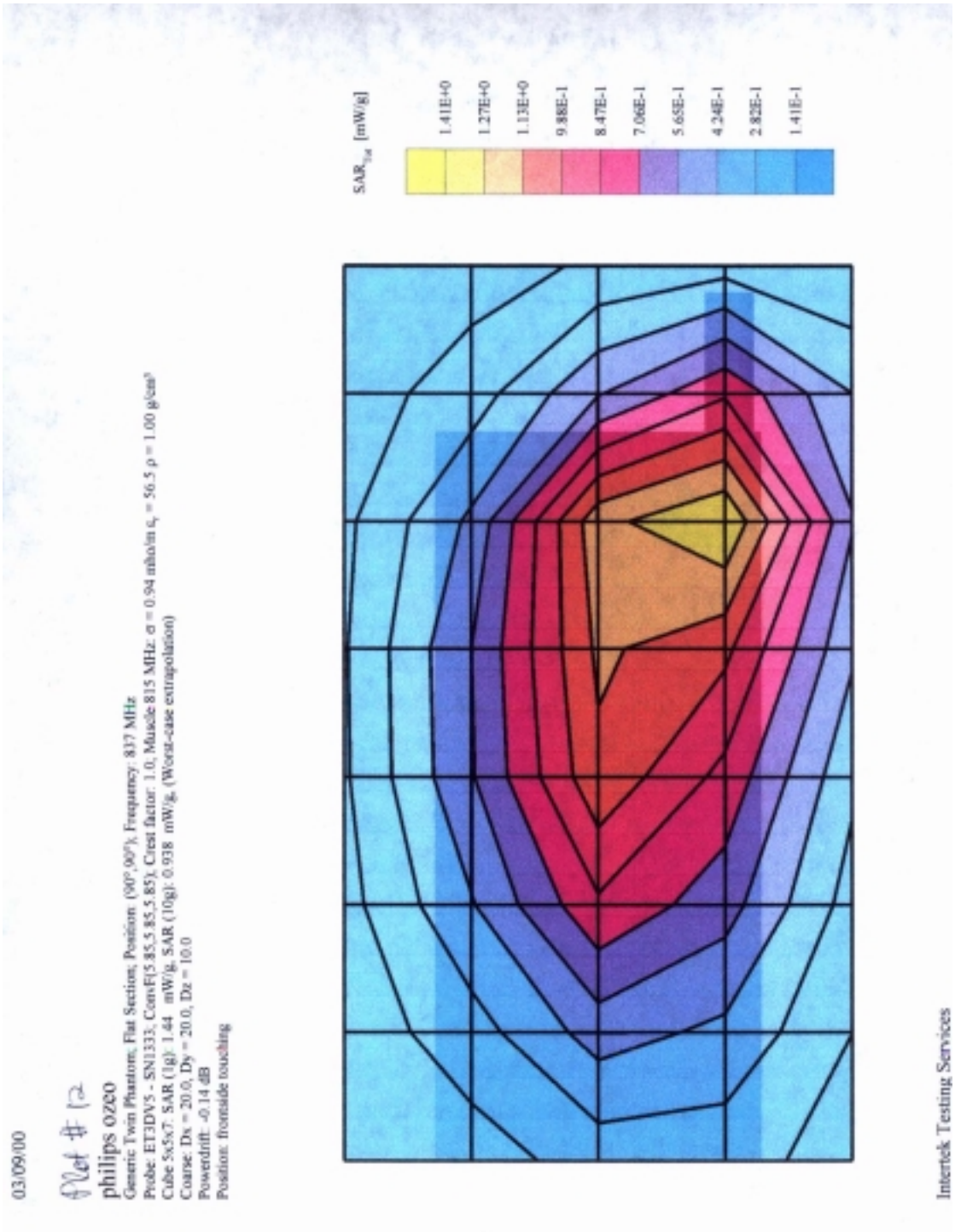

03/08/00
Plot #7
philips ozco
Generic Twin Phantom, Left Hand_X Section, Position: (80°,65°), Frequency: 1880 MHz
Probe: ET3DV5 - SN1333; Conv(5.31,5.31,5.31); Crest factor: 1.0; Brain 1900 MHz: σ = 1.85 mho/m εr = 40.7 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.620 mW/g, SAR (10g): 0.341 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.37 dB
SAR_Tot [mW/g]
6.40E-1
5.76E-1
5.12E-1
4.48E-1
3.84E-1
3.20E-1
2.56E-1
1.92E-1
1.28E-1
6.40E-2
Intertek Testing Services

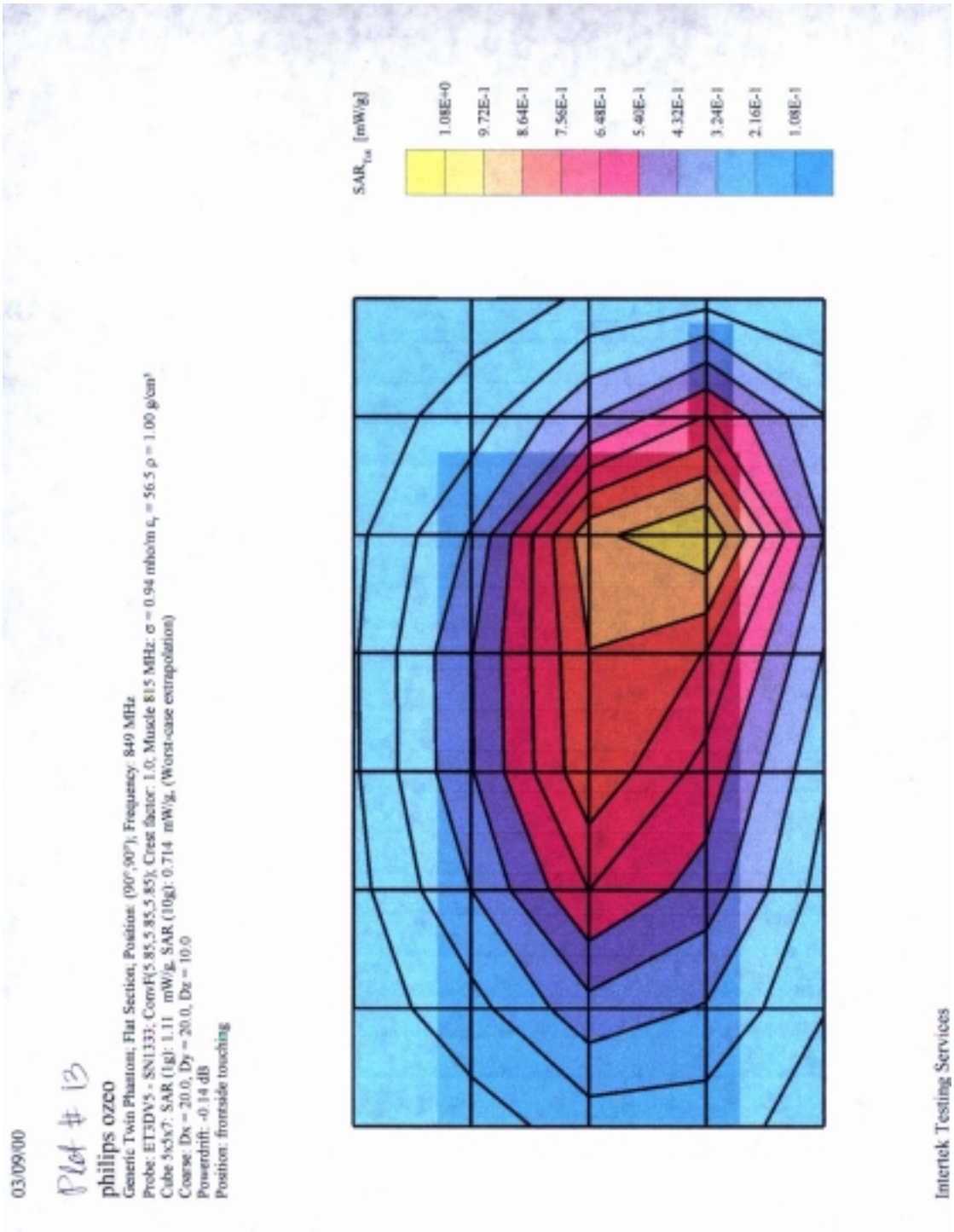

03/08/00
Plot # 8
philips ozeo
Generic Twin Phantom; Left Hand _X Section; Position: (90°,65°); Frequency: 1910 MHz
Probe: ET3DV5 - SN1333; ConvF(5.31,5.31,5.31); Crest factor: 1.0; Brain 1900 MHz: σ = 1.85 mho/m ε_r = 40.7 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.315 mW/g, SAR (10g): 0.172 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.55 dB
SAR_Tot [mW/g]
3.36E-1
3.02E-1
2.69E-1
2.35E-1
2.02E-1
1.68E-1
1.34E-1
1.01E-1
6.72E-2
3.36E-2
Intertek Testing Services

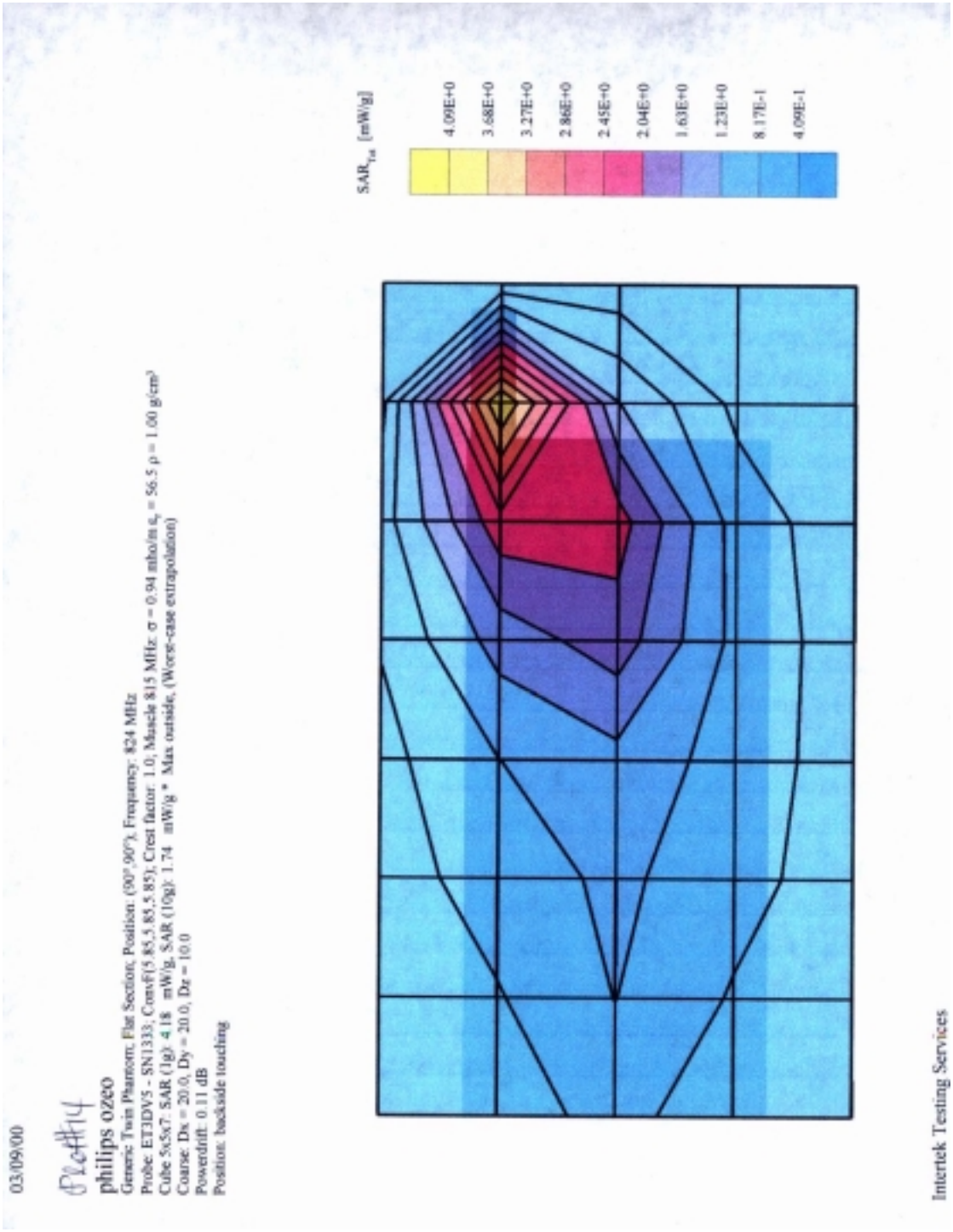

03/08/00
Plot # 9
philips ozeo
Generic Twin Phantom; Left Hand _X Section; Position: (30°,65°); Frequency: 1880 MHz
Probe: ET3DV5 - SN1333; ConvF(5.31,5.31,5.31); Crest factor: 1.0; Brain 1900 MHz: σ = 1.85 mho/m εr = 40.7 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.442 mW/g, SAR (10g): 0.249 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.01 dB
SAR_Tot [mW/g]
4.59E-1
4.13E-1
3.67E-1
3.21E-1
2.75E-1
2.29E-1
1.84E-1
1.38E-1
9.18E-2
4.59E-2
Intertek Testing Services

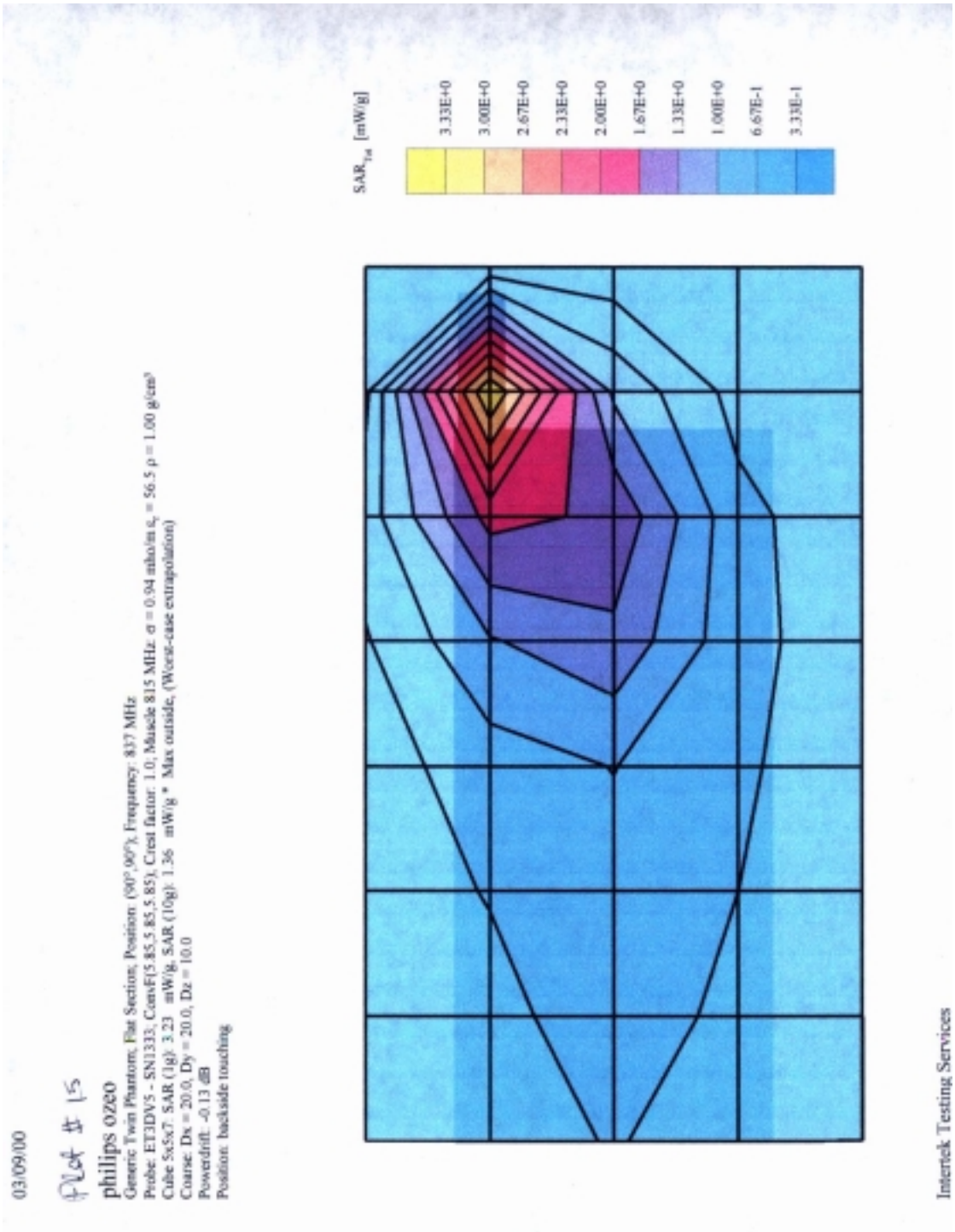

03/08/00
Plot # 10
philips 0ZE0
Generic Twin Phantom; Right Hand Section; Position: (80°,65°); Frequency: 1850 MHz
Probe: ET3DV5 - SN1333; ConvF(5.31,5.31,5.31); Crest factor: 1.0; Brain 1900 MHz: σ = 1.85 mho/m ε_r = 40.7 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.199 mW/g, SAR (10g): 0.109 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.59 dB
SAR_1g [mW/g]
1.85E-1
1.67E-1
1.48E-1
1.30E-1
1.11E-1
9.25E-2
7.40E-2
5.55E-2
3.70E-2
1.85E-2
Intertek Testing Services

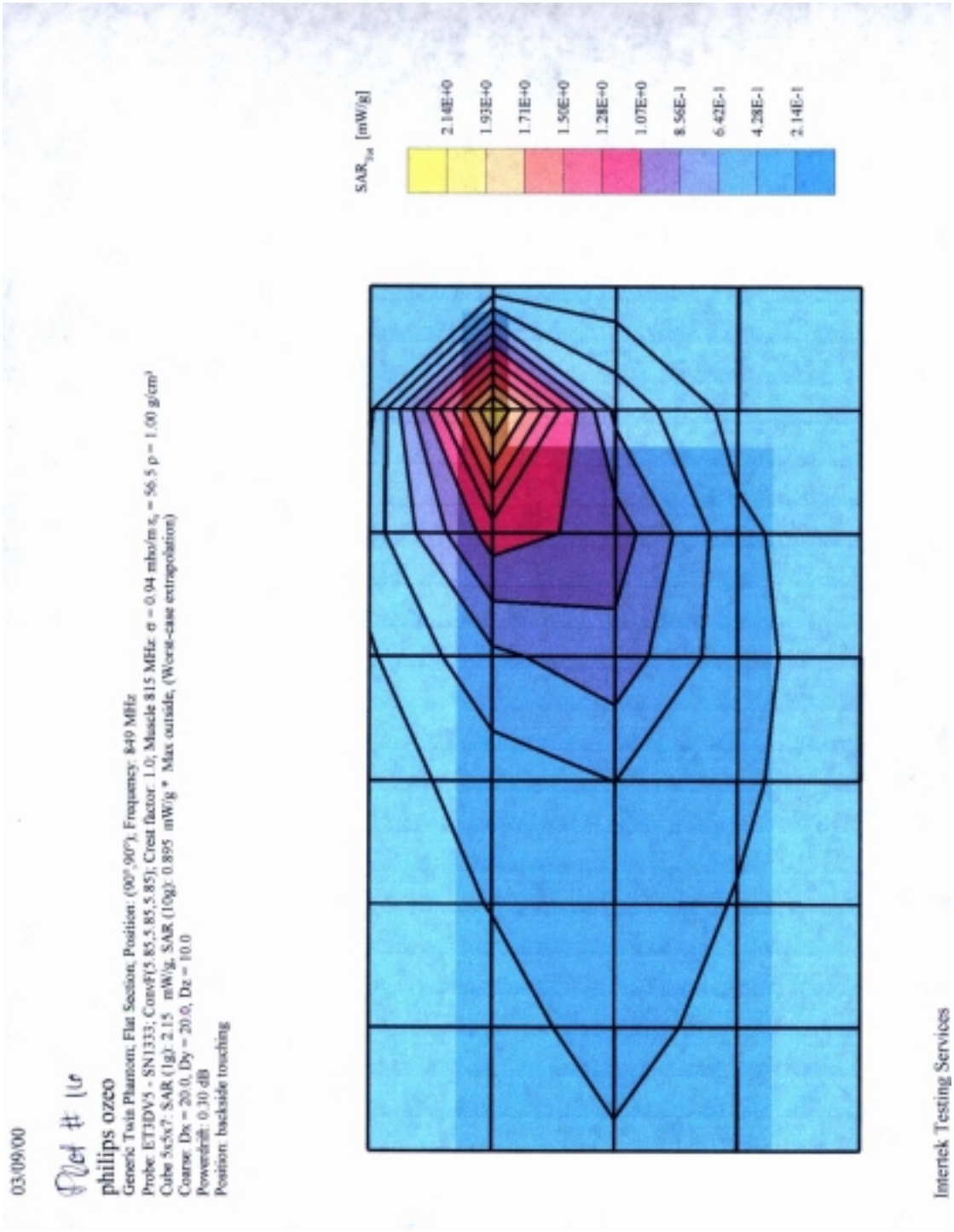

03/09/00
Plot # 11
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 824 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.87 mW/g, SAR (10g): 1.22 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.01 dB
Position: frontside touching
SAR[Total] [mW/g]
1.81E+0
1.63E+0
1.45E+0
1.27E+0
1.09E+0
9.04E-1
7.24E-1
5.43E-1
3.62E-1
1.81E-1
Intertek Testing Services

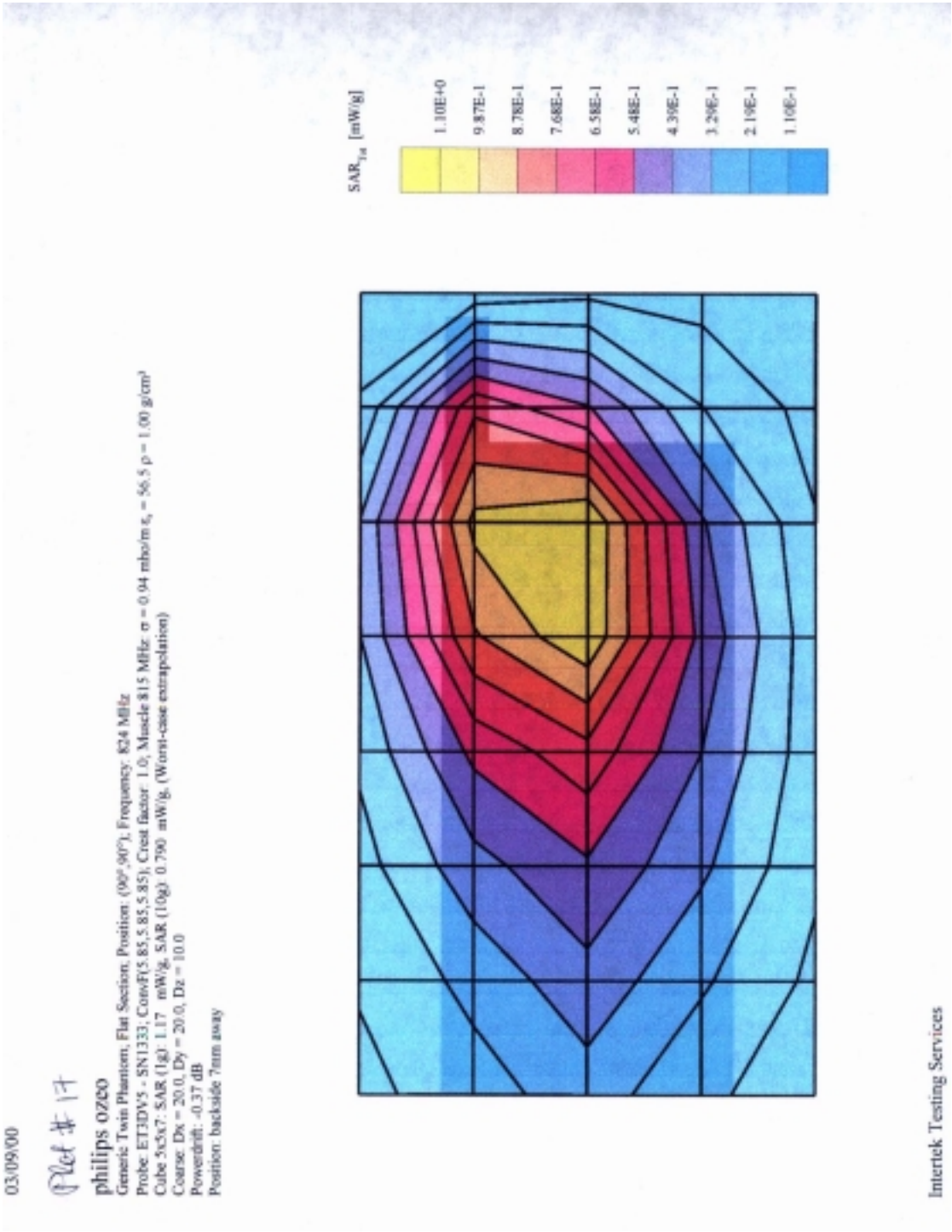

03/09/00
Ref # 12
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 837 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.44 mW/g, SAR (10g): 0.938 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift -0.14 dB
Position: frontside touching
SAR [mW/g]
1.41E+0
1.27E+0
1.13E+0
9.88E-1
8.47E-1
7.06E-1
5.65E-1
4.24E-1
2.82E-1
1.41E-1
Intertek Testing Services

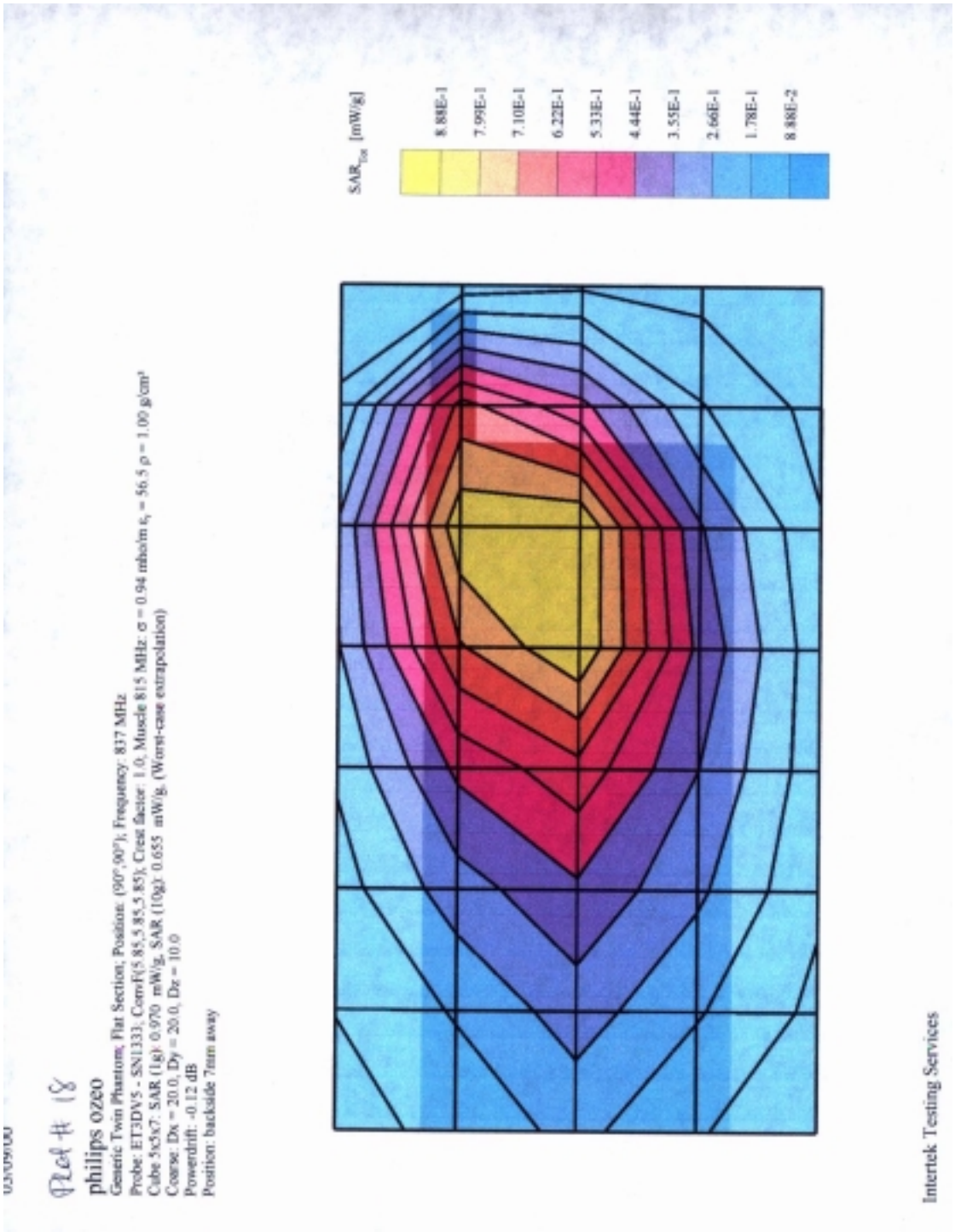

03/09/00
Plot # 13
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 849 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.11 mW/g, SAR (10g): 0.714 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.14 dB
Position: frontside touching
SAR1m [mW/g]
1.08E+0
9.72E-1
8.64E-1
7.56E-1
6.48E-1
5.40E-1
4.32E-1
3.24E-1
2.16E-1
1.08E-1
Intertek Testing Services

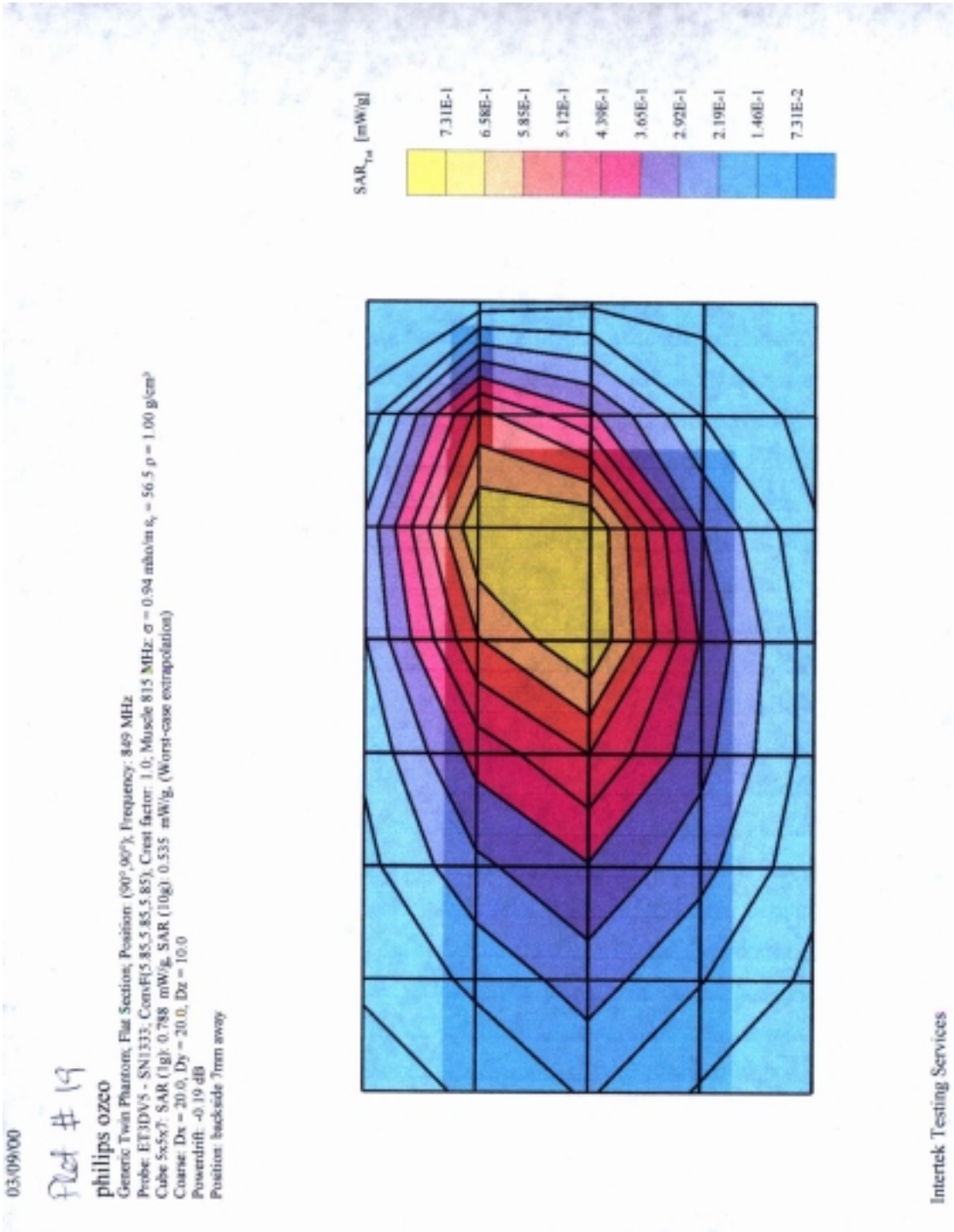

03/09/00
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 824 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m ε_r = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 4.18 mW/g, SAR (10g): 1.74 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.11 dB
Position: backside touching
SAR_Tot [mW/g]
4.09E+0
3.68E+0
3.27E+0
2.86E+0
2.45E+0
2.04E+0
1.63E+0
1.23E+0
8.17E-1
4.09E-1
Intertek Testing Services


03/09/00
Plot # 15
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 837 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 3.23 mW/g, SAR (10g): 1.36 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.13 dB
Position: backside touching
SAR_Tot [mW/g]
3.33E+0
3.00E+0
2.67E+0
2.33E+0
2.00E+0
1.67E+0
1.33E+0
1.00E+0
6.67E-1
3.33E-1
Intertek Testing Services


03/09/00
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 849 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 2.15 mW/g, SAR (10g): 0.895 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.30 dB
Position: backside touching
SAR10g [mW/g]
2.14E+0
1.93E+0
1.71E+0
1.50E+0
1.28E+0
1.07E+0
8.56E-1
6.42E-1
4.28E-1
2.14E-1
Intertek Testing Services


03/09/00
Ref # 17
philips 0200
Generic Twin Phantom, Flat Section, Position: (90°,90°), Frequency: 824 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m ε_r = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 1.17 mW/g, SAR (10g): 0.790 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.37 dB
Position: backside 7mm away
SAR_1g [mW/g]
1.10E+0
9.87E-1
8.78E-1
7.68E-1
6.58E-1
5.48E-1
4.39E-1
3.29E-1
2.19E-1
1.10E-1
Intertek Testing Services


03/09/00
Ref # 18
philips ozeo
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 837 MHz
Probe: ET3DV5 - SN1133; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m εr = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.970 mW/g, SAR (10g): 0.655 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.12 dB
Position: backside 7mm away
SARtot [mW/g]
8.88E-1
7.99E-1
7.10E-1
6.22E-1
5.33E-1
4.44E-1
3.55E-1
2.66E-1
1.78E-1
8.88E-2
Intertek Testing Services


03/09/00
Plot # 19
philips ozco
Generic Twin Phantom; Flat Section; Position: (90°,90°); Frequency: 849 MHz
Probe: ET3DV5 - SN1333; ConvF(5.85,5.85,5.85); Crest factor: 1.0; Muscle 815 MHz: σ = 0.94 mho/m ε_r = 56.5 ρ = 1.00 g/cm³
Cube 5x5x7: SAR (1g): 0.788 mW/g, SAR (10g): 0.535 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.19 dB
Position: backside 7mm away
SAR_Tot [mW/g]
7.31E-1
6.58E-1
5.85E-1
5.12E-1
4.39E-1
3.65E-1
2.92E-1
2.19E-1
1.46E-1
7.31E-2
Intertek Testing Services

APPENDIX B - E-FIELD PROBE CALIBRATION DATA

See attached pages.