

NCL Calibration Laboratories

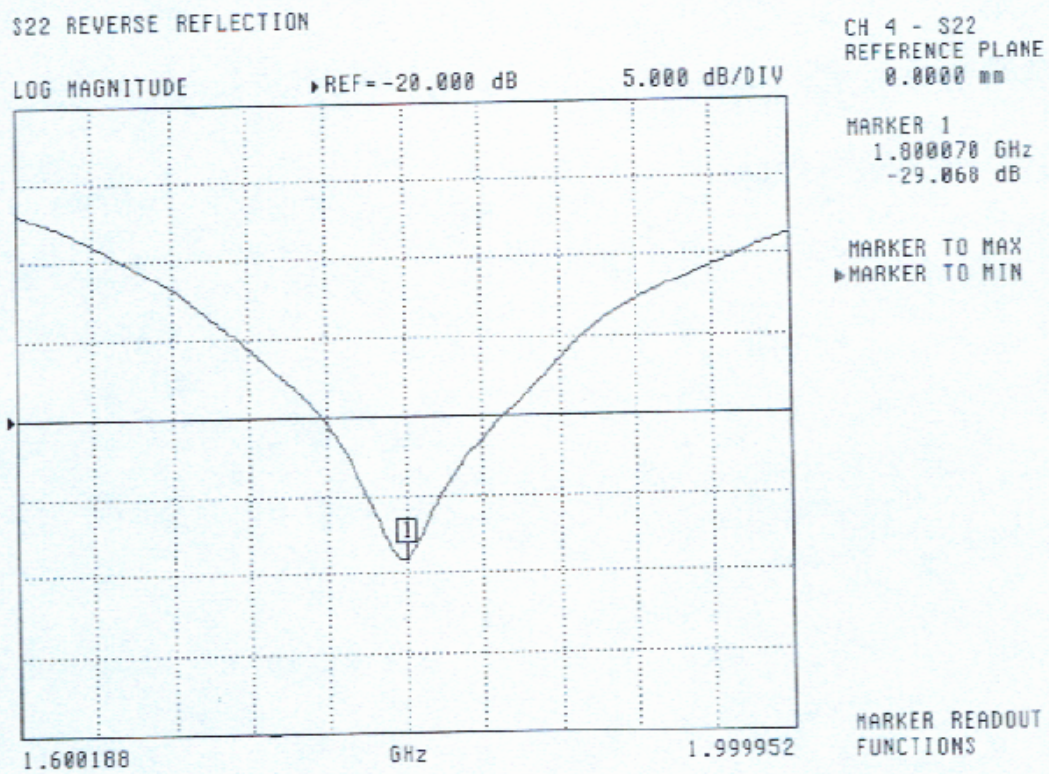
Division of APREL Laboratories.

Electrical Calibration

Test	Result
S11 R/L	-29.07 dB
SWR	1.072 U
Impedance	50.62 Ω

The Following Graphs are the results as displayed on the Vector Network Analyzer.

S11 Parameter Return Loss

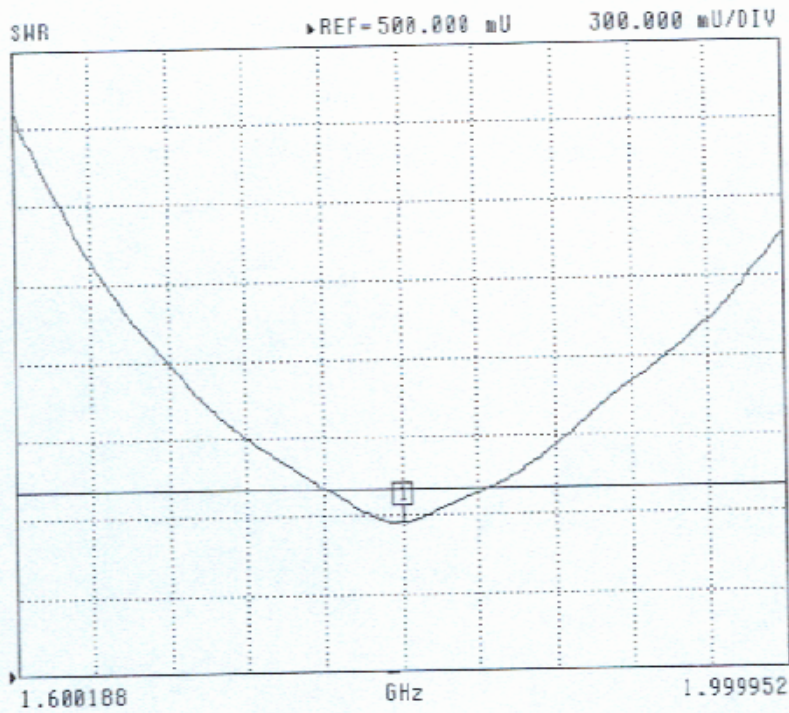


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SWR

S22 REVERSE REFLECTION



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 1
1.800070 GHz
1.072 U

MARKER TO MAX
▶ MARKER TO MIN

MARKER READOUT
FUNCTIONS

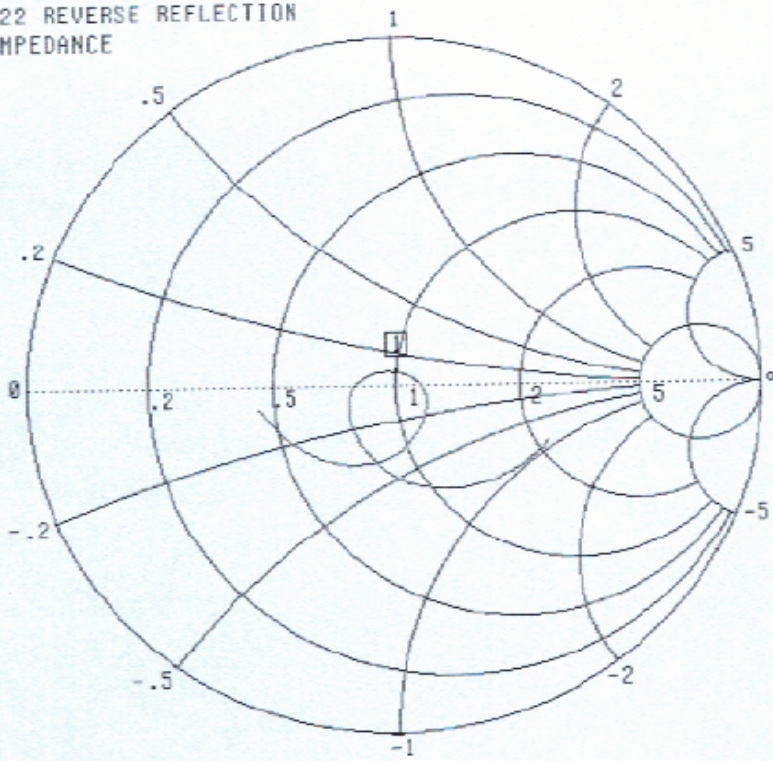
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Smith Chart Dipole Impedance

S22 REVERSE REFLECTION
IMPEDANCE



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 1
1.800070 GHz
50.624 Ω
3.543 j Ω

MARKER TO MAX
▶ MARKER TO MIN

MARKER READOUT
FUNCTIONS

1.600188 - 1.999952 GHz

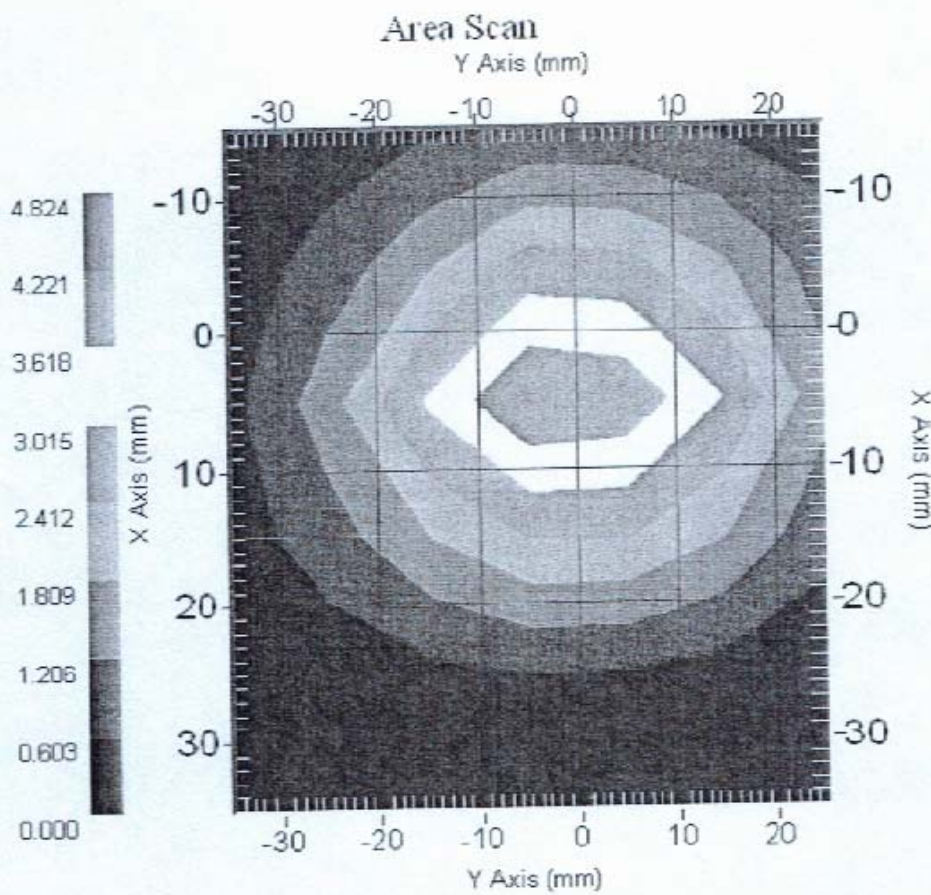
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System Validation Results Using the Electrically Calibrated Dipole

Head Tissue Frequency	1 Gram	10 Gram	Peak Above Feed Point
1800 MHz	38.81	20.01	71.56



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Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List

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APPENDIX D - TEST SYSTEM VERIFICATIONS SCANS

Liquid Measurement Result

2007-11-02

Simulant	Freq [MHz]	Parameters	Liquid Temp [°C]	Target Value	Measured Value	Deviation [%]	Limits [%]
Head	1900	ϵ	20	40	39.8	-0.5	± 5
		σ	20	1.4	1.39	-0.71	± 5
		1g SAR	20	39.7	37.8	-4.79	± 10

ϵ_r = relative permittivity, σ = conductivity and $\rho=1000\text{kg/m}^3$

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)**System Performance Check 1800 MHz****Dipole 1800 MHz; Type: D-1800-S-1; Serial: BCL-049**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1: 1
 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

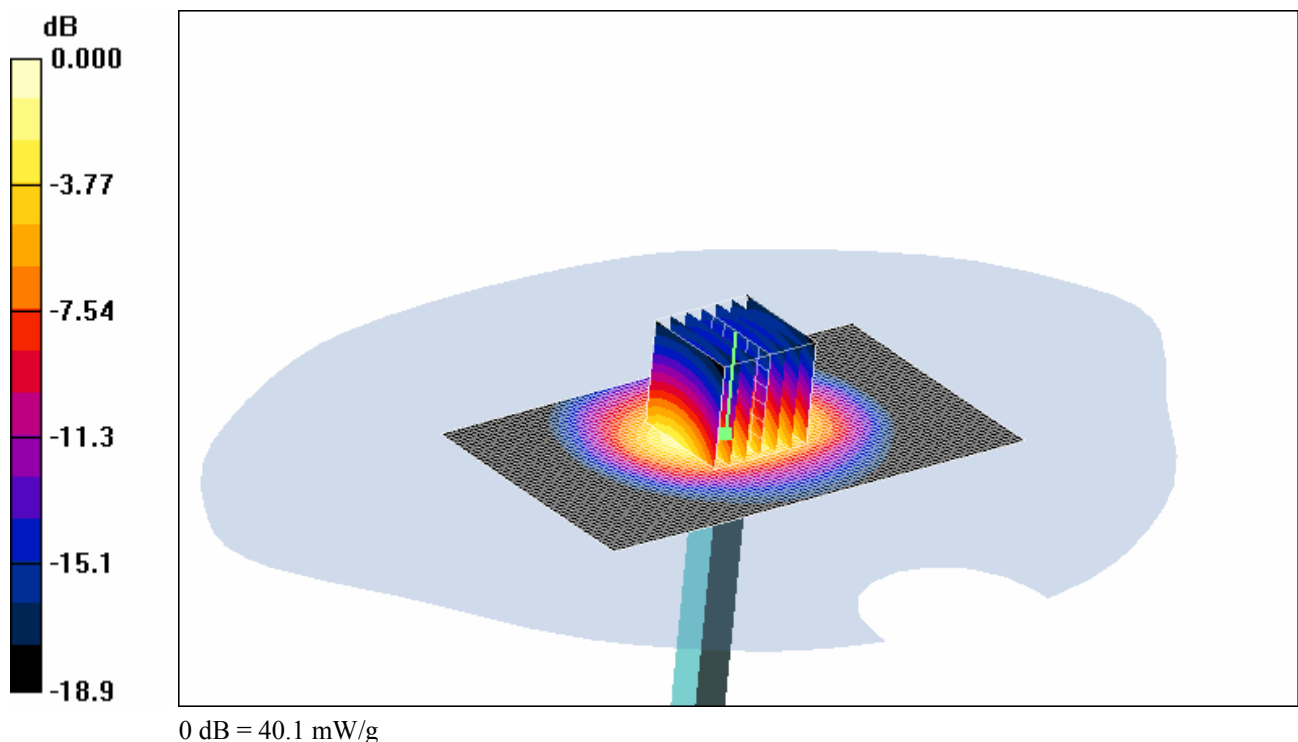
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(5.29, 5.29, 5.29); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

d=10mm, Pin=1W 2/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 39.5 mW/g

d=10mm, Pin=1W 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 161.3 V/m; Power Drift = -0.154 dB
 Peak SAR (extrapolated) = 40.4 W/kg

SAR(1 g) = 37.8 mW/g; SAR(10 g) = 16.9 mW/g
 Maximum value of SAR (measured) = 40.1 mW/g



APPENDIX E – EUT Scan Result

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

Left Head Tilt (Middle Channel)

Xingtel Xiamen Electronics Co., Ltd; Type: CL-3319/CL-3319 Dual/ CL-3319HS

Communication System: DECT; Frequency: 1924.99 MHz; Duty Cycle: 1:12

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(5.21, 5.21, 5.21); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Area Scan (121x81x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.05 mW/g

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Zoom Scan (7x7x7)/Cube 0:

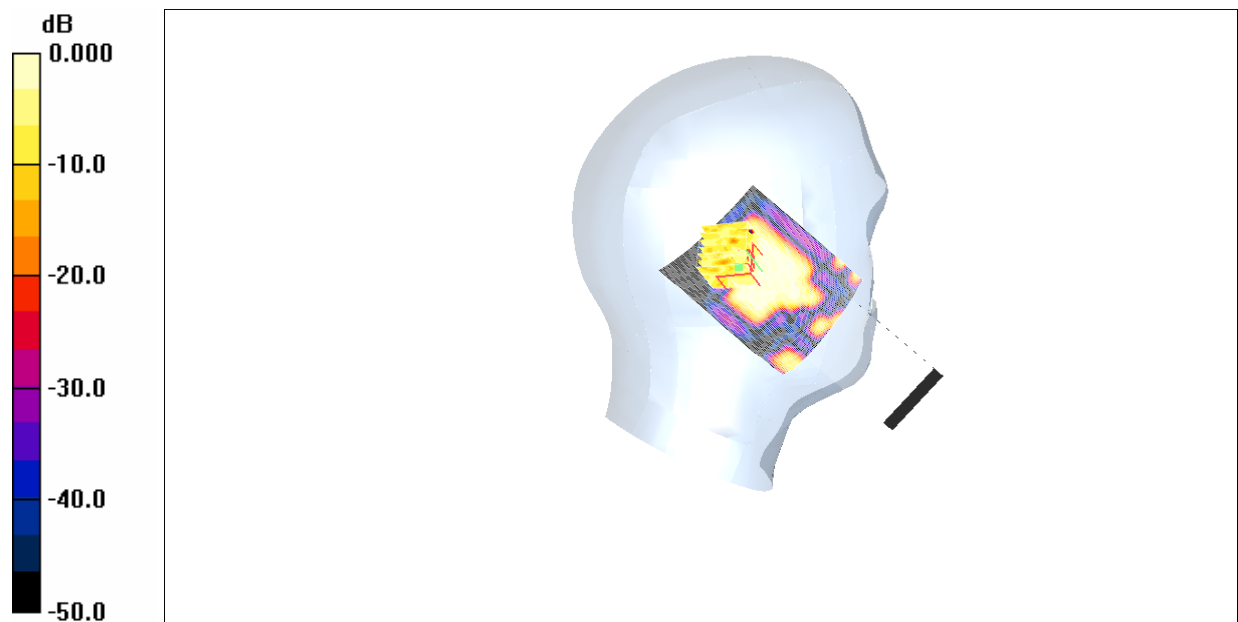
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.79 V/m; Power Drift = -0.637 dB

Peak SAR (extrapolated) = 0.009 W/kg

SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.0051 mW/g

Maximum value of SAR (measured) = 0.04 mW/g



0 dB = 0.04mW/g

Plot#1

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

Left Head Cheek (Middle Channel)

Xingtel Xiamen Electronics Co., Ltd; Type: CL-3319/CL-3319 Dual/ CL-3319HS

Communication System: DECT; Frequency: 1924.99 MHz; Duty Cycle: 1:12

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(5.21, 5.21, 5.21); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Area Scan (121x101x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0254 mW/g

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Zoom Scan (7x7x7)/Cube 0:

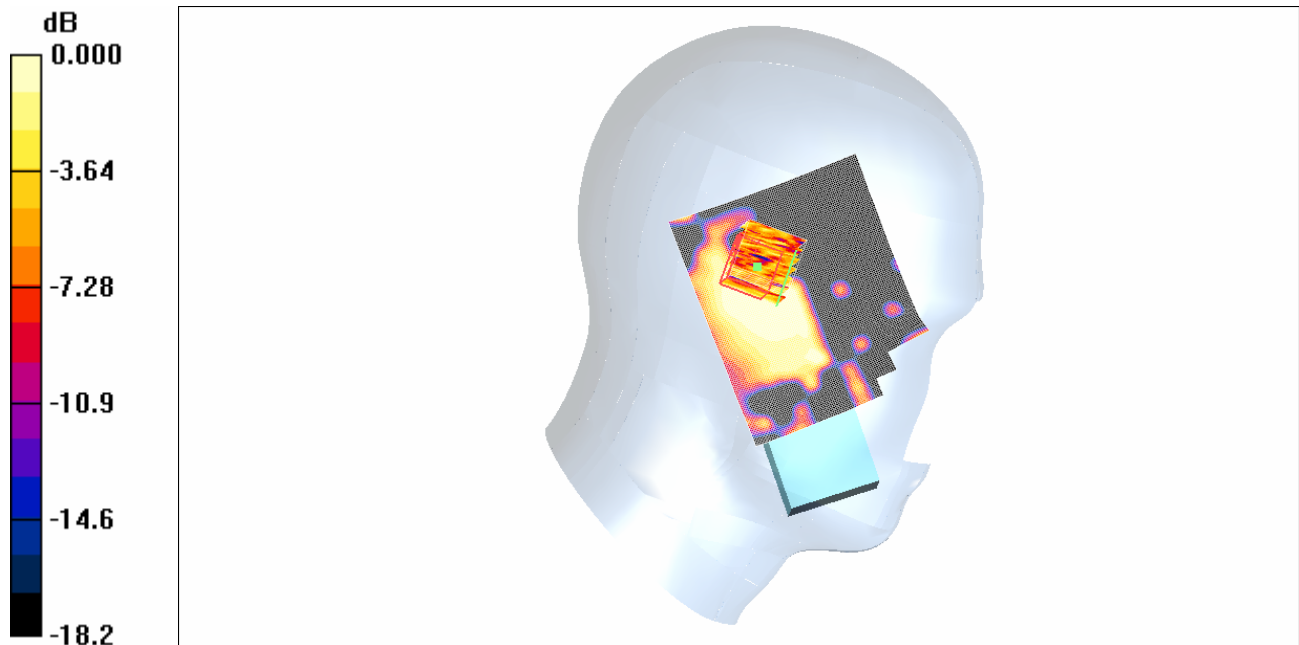
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.70 V/m; Power Drift = 0.381 dB

Peak SAR (extrapolated) = 0.025 W/kg

SAR(1 g) = 0.0241 mW/g; SAR(10 g) = 0.019 mW/g

Maximum value of SAR (measured) = 0.0244 mW/g



0 dB = 0.0244 mW/g

Plot#2

Test Laboratory: Bay Area Compliance Lab Corp.(BACL)

Right Head Tilt (Middle Channel)

Xingtel Xiamen Electronics Co., Ltd; Type: CL-3319/CL-3319 Dual/ CL-3319HS

Communication System: DECT; Frequency: 1924.99 MHz; Duty Cycle: 1:12

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³ Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(5.21, 5.21, 5.21); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Area Scan (101x121x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.07 mW/g

Xingtel Xiamen Electronics Co., Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Zoom Scan (7x7x7)/Cube 0:

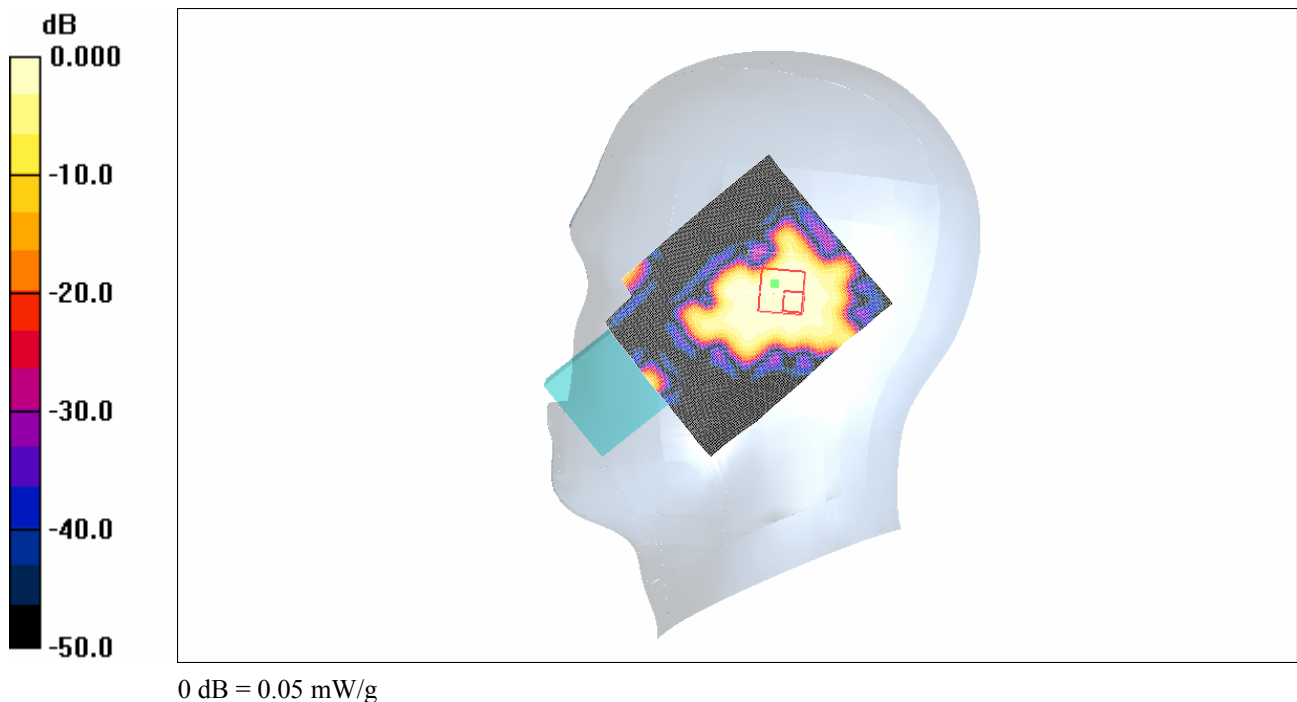
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.05 V/m; Power Drift = 0.112 dB

Peak SAR (extrapolated) = 0.018 W/kg

SAR(1 g) = 0.0464 mW/g; SAR(10 g) = 0.0174 mW/g

Maximum value of SAR (measured) = 0.05 mW/g



Plot#3

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

Right Head Touch (Middle Channel)

Xingtel Xiamen Electronics Co., Ltd; Type: CL-3319/CL-3319 Dual/ CL-3319HS

Communication System: DECT; Frequency: 1924.99 MHz; Duty Cycle: 1:12

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³ Phantom

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(5.21, 5.21, 5.21); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

Xingtel Xiamen Electronics Co.,Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Area Scan (101x141x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.07 mW/g

Xingtel Xiamen Electronics Co.,Ltd, model: CL-3319, CL3319Dual, CL-3319HS/Zoom Scan (7x7x7)/Cube 0:

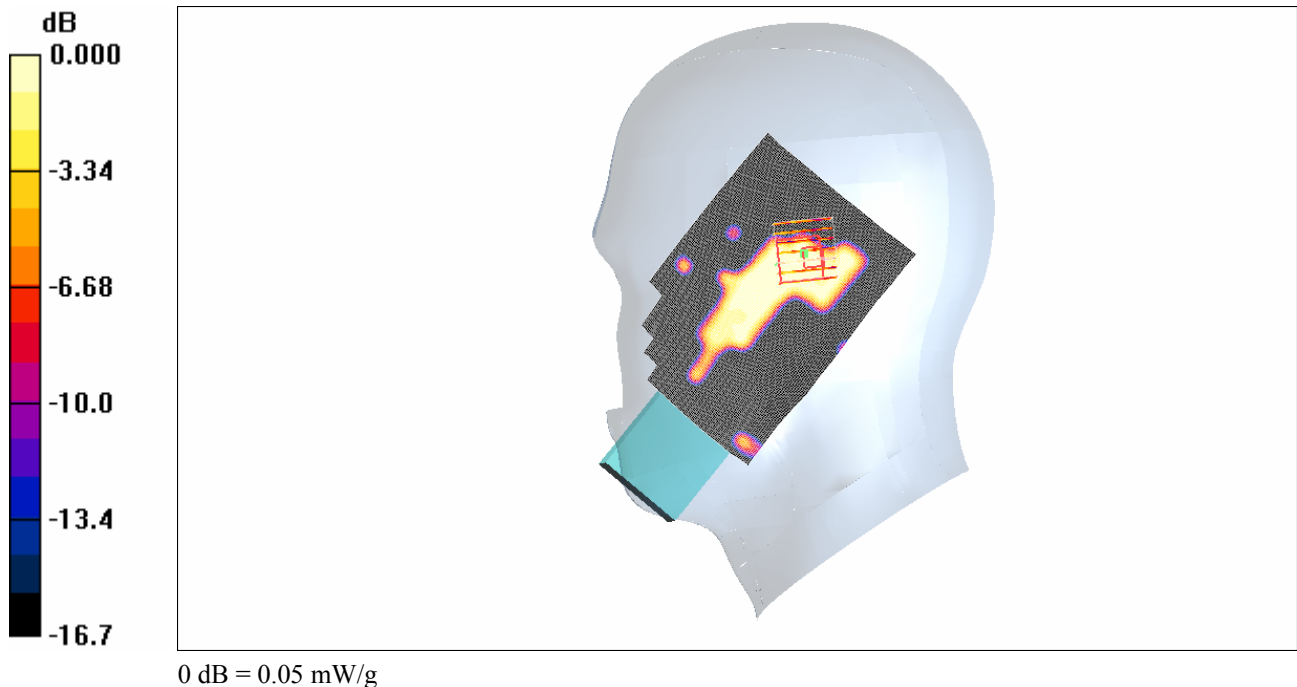
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.84 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 0.015 W/kg

SAR(1 g) = 0.0326 mW/g; SAR(10 g) = 0.0148 mW/g

Maximum value of SAR (measured) = 0.05 mW/g



Plot#4

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)

Back touching to flat phantom with headset (Middle Channel)

DUT: Xingtel Xiamen Electronics Co., Ltd; Type: CL-3319/CL-3319 Dual/ CL-3319HS

Communication System: DECT; Frequency: 1924.99 MHz; Duty Cycle: 1:12

Medium parameters used (extrapolated): $f = 1900$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.68, 4.68, 4.68); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/22/2006
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 161

Xingtel Xiamen Electronics Co.,Ltd, model: CL-3319, CL3319Dual, CL-3319HS 3 2/Area Scan (101x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.013 mW/g

Xingtel Xiamen Electronics Co.,Ltd, model: CL-3319, CL3319Dual, CL-3319HS 3 2/Zoom Scan (7x7x7)/Cube

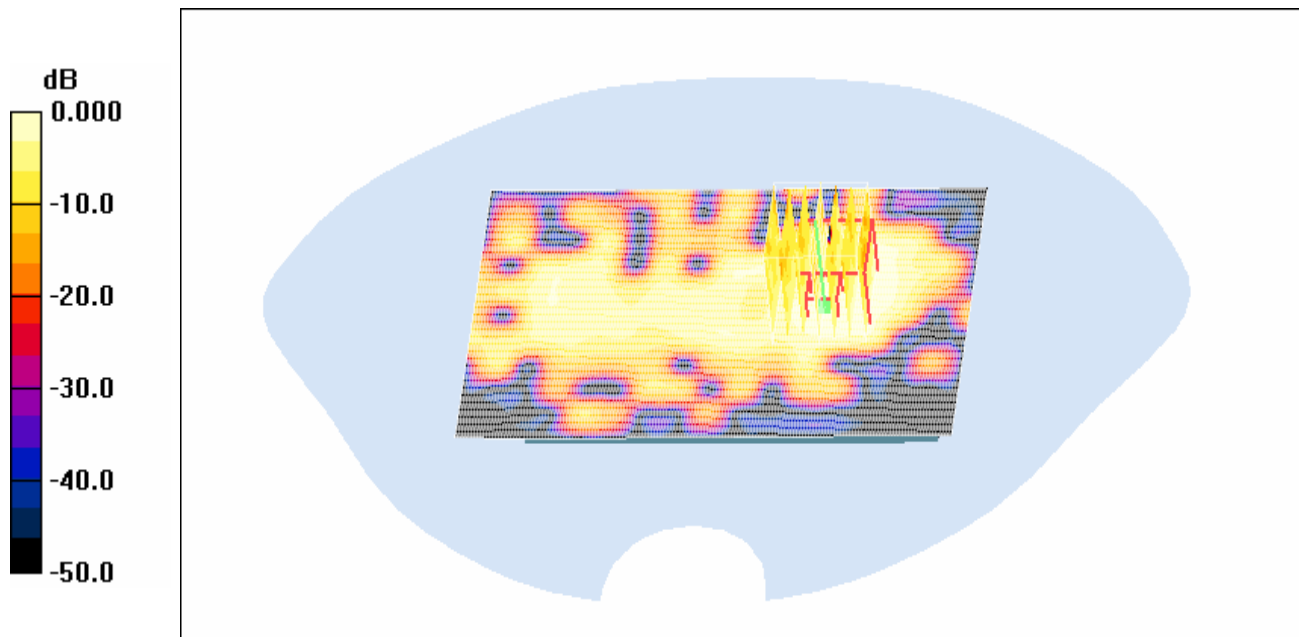
0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.12 V/m; Power Drift = -0.714 dB

Peak SAR (extrapolated) = 0.036 W/kg

SAR(1 g) = 0.010 mW/g; SAR(10 g) = 0.00462 mW/g

Maximum value of SAR (measured) = 0.011 mW/g



0 dB = 0.011 mW/g

Plot#5

APPENDIX F – CONDUCTED OUTPUT POWER MEASUREMENT

Provision Applicable

The measured peak output power should be greater and within 5% than EMI measurement.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Test equipment

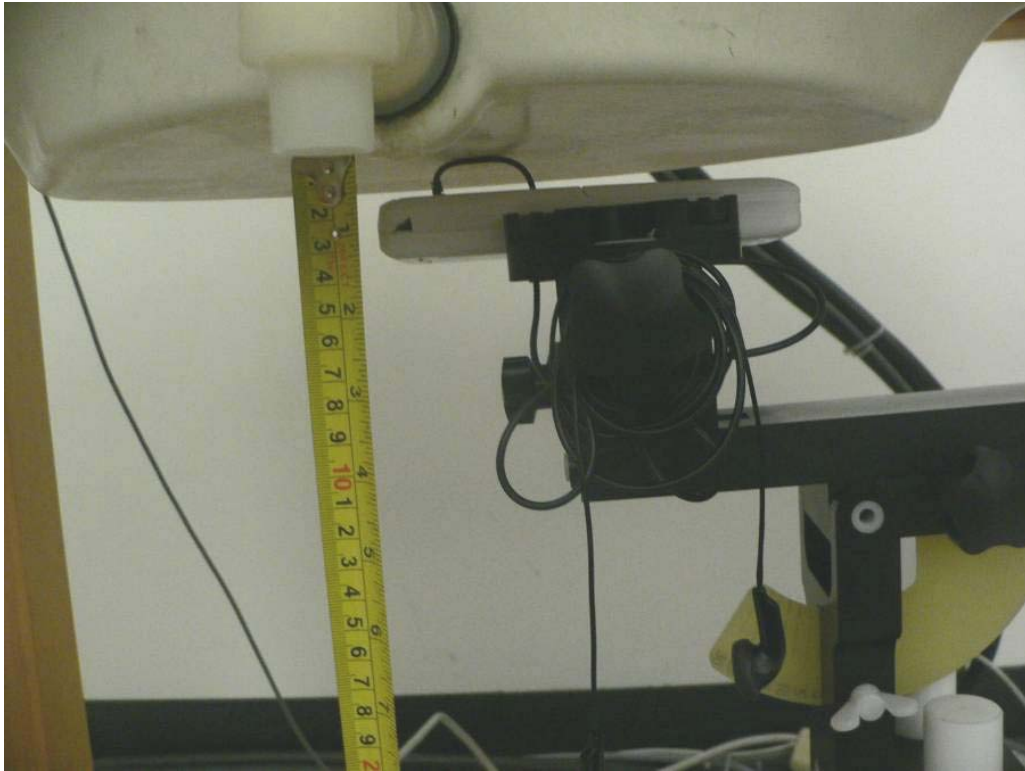
Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26

Test Results

Channel	Frequency (MHz)	Measured Output Power	
		(dBm)	(mW)
Middle	1924.992	19.62	91.62

APPENDIX G – EUT TEST POSITION PHOTOS

1.5 cm Body-worn Setup Photo with Headset (I)



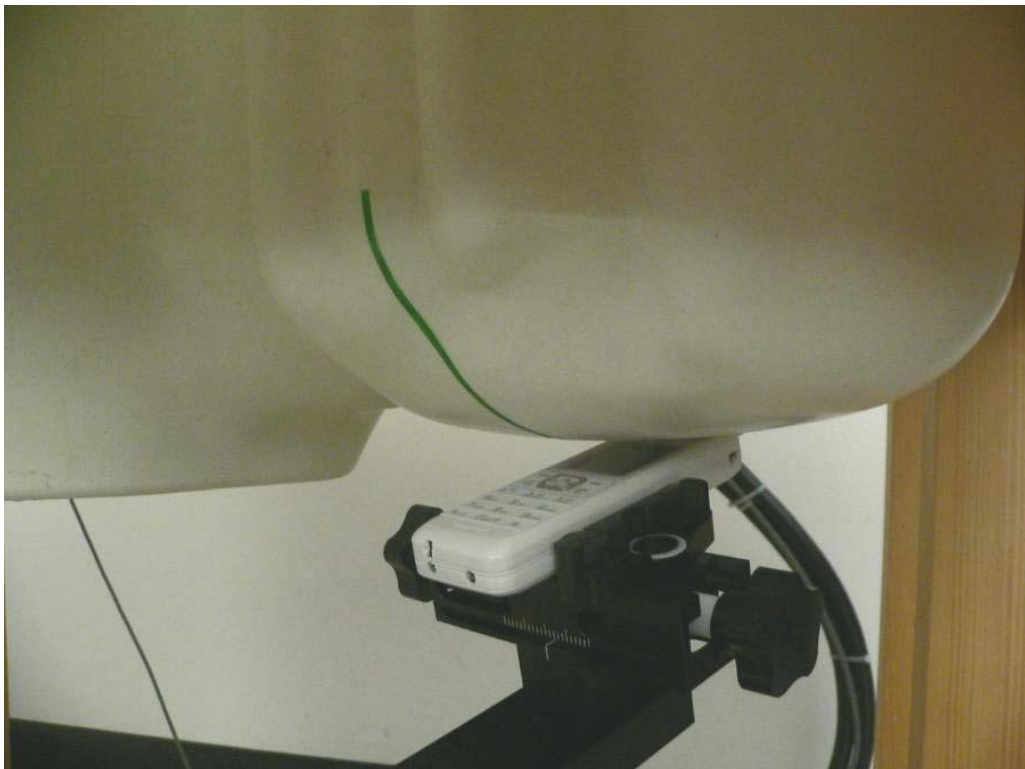
1.5 cm Body-worn Setup Photo with Headset (I)



Left Head Touch Setup Photo



Left Head Tilt Setup Photo



Right Head Touch Setup Photo



Right Head Tilt Setup Photo



APPENDIX H – EUT & ACCESSORIES PHOTOS

EUT - Top View



EUT - Bottom View



APPENDIX I - INFORMATIVE REFERENCES

- [1] Federal Communications Commission, "Report and order: Guidelines for evaluating the environmental effects of radiofrequency radiation", Tech. Rep. FCC 96-326, FCC, Washington, D.C. 20554, 1996.
- [2] David L. Means Kwok Chan, Robert F. Cleveland, "Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields", Tech. Rep., Federal Communication Commission, Office of Engineering & Technology, Washington, DC, 1997.
- [3] Thomas Schmid, Oliver Egger, and Niels Kuster, "Automated E-field scanning system for dosimetric assessments", IEEE Transactions on Microwave Theory and Techniques, vol. 44, pp. 105-113, Jan. 1996.
- [4] Niels Kuster, Ralph Kastle, and Thomas Schmid, "Dosimetric evaluation of mobile communications equipment with known precision", IEEE Transactions on Communications, vol. E80-B, no. 5, pp. 645-652, May 1997.
- [5] CENELEC, "Considerations for evaluating of human exposure to electromagnetic fields (EMFs) from mobile telecommunication equipment (MTE) in the frequency range 30MHz - 6GHz", Tech. Rep., CENELEC, European Committee for Electrotechnical Standardization, Brussels, 1997.
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- [7] Katja Pokovic, Thomas Schmid, and Niels Kuster, "Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies", in ICECOM '97, Dubrovnik, October 15-17, 1997, pp. 120-24.
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- [10] Klaus Meier, Ralf Kastle, Volker Hombach, Roger Tay, and Niels Kuster, "The dependence of EM energy absorption upon human head modeling at 1800 MHz", IEEE Transactions on Microwave Theory and Techniques, Oct. 1997, in press.
- [11] W. Gander, Computermathematik, Birkhaeuser, Basel, 1992.
- [12] W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second Edition, Cambridge University Press, 1992. Dosimetric Evaluation of Sample device, month 1998 9
- [13] NIS81 NAMAS, "The treatment of uncertainty in EMC measurement", Tech. Rep., NAMAS Executive, National Physical Laboratory, Teddington, Middlesex, England, 1994.
- [14] Barry N. Taylor and Christ E. Kuyatt, "Guidelines for evaluating and expressing the uncertainty of NIST measurement results", Tech. Rep., National Institute of Standards and Technology, 1994. Dosimetric Evaluation of Sample device, month 1998 10.

***** End of Report *****