

NCL Calibration Laboratories

Division of APREL Inc.

Calibration Results Summary

The following results relate the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 161.0 mm
 Height: 89.8 mm

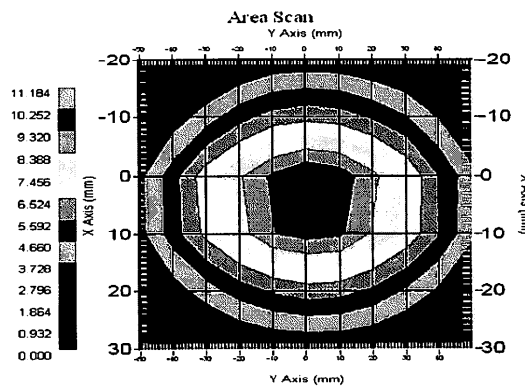
Electrical Specification 835MHz

Tissue Type	Return Loss:	Impedance:	SWR:
Head	-32.132	48.897	1.0621U
Body	-24.800	53.311	1.1206U

System Validation Results

Tissue	Frequency	1 Gram	10 Gram	Peak
Head	835 MHz	9.590	6.003	15.013
Body	835 MHz	9.981	6.006	15.013

835MHz



This page has been reviewed for content and attested to by signature within this document.

NCL Calibration Laboratories

Division of APREL Inc.

Introduction

This Calibration Report has been produced in line with the SSI Dipole Calibration Procedure SSI-TP-018-ALSAS. The results contained within this report are for Validation Dipole 180-00565. The calibration routine consisted of a three-step process. Step 1 was a mechanical verification of the dipole to ensure that it meets the mechanical specifications. Step 2 was an Electrical Calibration for the Validation Dipole, where the SWR, Impedance, and the Return loss were assessed. Step 3 involved a System Validation using the ALSAS-10U, along with APREL E-030 130 MHz to 26 GHz E-Field Probe Serial Number 215.

References

- o IEEE Standard 1528 (2003) including Amendment 1
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- o EN 62209-1 (2006)
Human Exposure to RF Fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures-Part 1: Procedure to measure the Specific Absorption Rate (SAR) for hand-held mobile wireless devices
- o IEC 62209-2 Ed. 1.0 (2010-03)
Human exposure to RF fields from hand-held and body-mounted wireless devices - Human models, instrumentation, and procedures - Part 2: specific absorption rate (SAR) for wireless communication devices (30 MHz - 6 GHz)
- o TP-D01-032-E020-V2 E-Field probe calibration procedure
- o D22-012-Tissue dielectric tissue calibration procedure
- o D28-002-Dipole procedure for validation of SAR system using a dipole
- o IEEE 1309 Draft Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9kHz to 40GHz

Conditions

Dipole 180-00564 was a recalibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 20 °C +/- 0.5°C

Dipole Calibration uncertainty

The calibration uncertainty for the dipole is made up of various parameters presented below.

Mechanical	1%
Positioning Error	1.22%
Electrical	1.7%
Tissue	2.2%
Dipole Validation	2.2%
TOTAL	8.32% (16.64% K=2)

This page has been reviewed for content and attested to by signature within this document.

NCL Calibration Laboratories

Division of APREL Inc.

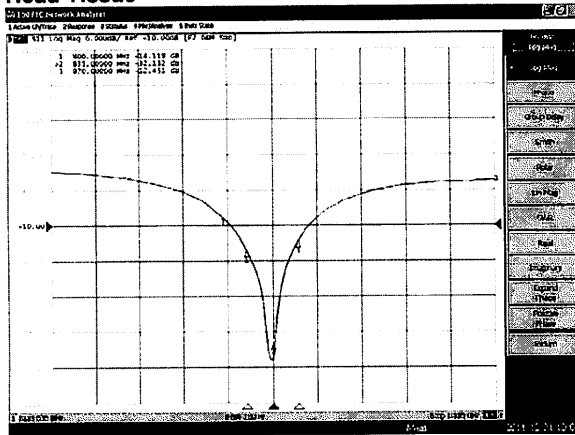
Electrical Calibration

Electrical Specification 835MHz

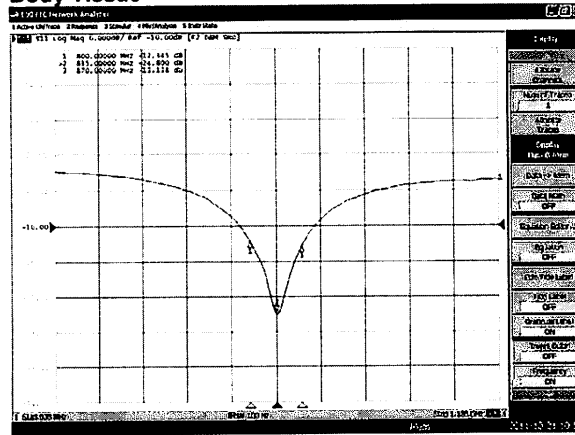
Tissue Type	Measured Epsilon	Measured Sigma
Head	41.09	0.89
Body	53.15	0.95

Forward Reflection

Head Tissue



Body Tissue



This page has been reviewed for content and attested to by signature within this document.

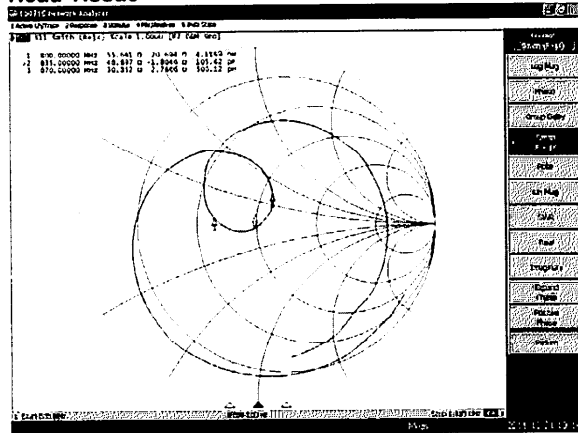
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Division of APREL Inc.

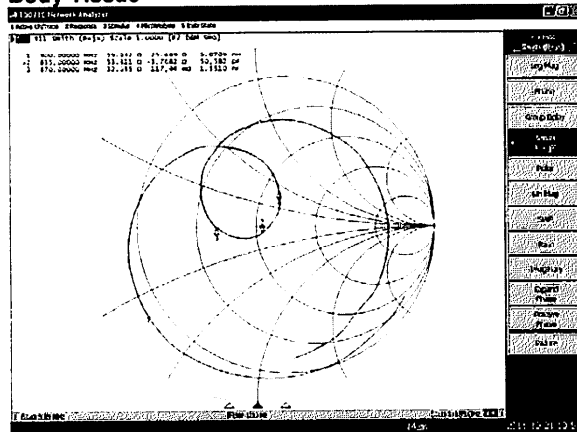
**Electrical Specification 835MHz
Impedance**

Tissue Type	Measured Epsilon	Measured Sigma
Head	41.09	0.89
Body	53.15	0.95

Head Tissue



Body Tissue



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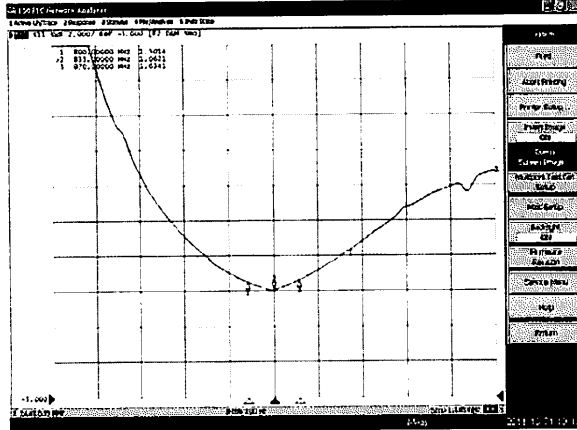
NCL Calibration Laboratories

Division of APREL Inc.

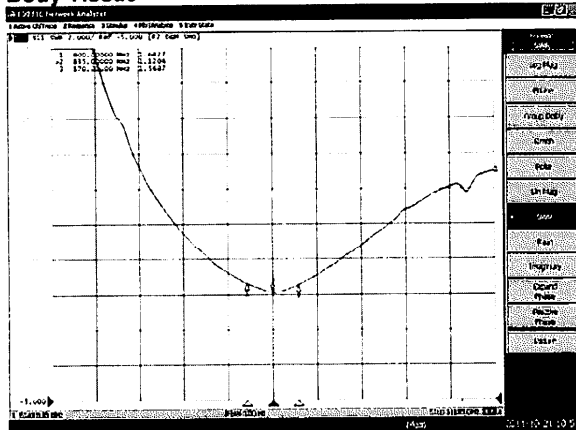
**Electrical Specification 835MHz
Standing Wave Ratio**

Tissue Type	Measured Epsilon	Measured Sigma
Head	41.09	0.89
Body	53.15	0.95

Head Tissue



Body Tissue



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NCL Calibration Laboratories

Division of APREL Inc.

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 May 2011.

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NCL CALIBRATION LABORATORIES

Calibration File No: DC-1385
Project Number: BAC-1900-dipole-cal-5627

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the **NCL CALIBRATION LABORATORIES** by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Validation Dipole
1900MHz Head & Body

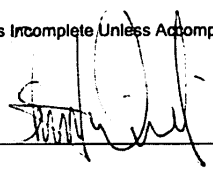
Manufacturer: APREL Laboratories
Part number: ALS-D-1900-S-2
Frequency: 1900MHz
Serial No: 210-00715

Customer: Bay Area Compliance

Calibrated: 24th October 2011
Released on: 27th October 2011

This Calibration Certificate is incomplete unless accompanied with the Calibration Results Summary

Released By: _____



NCL CALIBRATION LABORATORIES

303 Terry Fox Drive, Suite 102
Kanata, Ontario
CANADA K2K 3J1

Division of APREL
TEL: (613) 435-8300
FAX: (613) 435-8306

NCL Calibration Laboratories

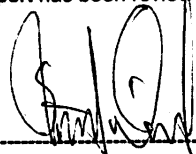
Division of APREL Inc.

Conditions


Dipole 210-00715 was a recalibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this device has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



C. Teodorian

Primary Measurement Standards

Instrument	Serial Number	Cal due date
Power meter Anritsu MA2408A	190025437	Nov.4, 2011
Power Sensor Anritsu MA2481D	103555	Nov 4, 2011
Attenuator HP 8495A (70dB)	1944A10711	Sept. 14, 2012
Network Analyzer Agilent E5071C	1334746J	Aug. 8, 2012

Secondary Measurement Standards

Signal Generator Agilent E4438C -506	MY55182336	June 7, 2012
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NCL Calibration Laboratories

Division of APREL Inc.

Calibration Results Summary

The following results relate the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

Length: 67.1 mm
 Height: 38.9 mm

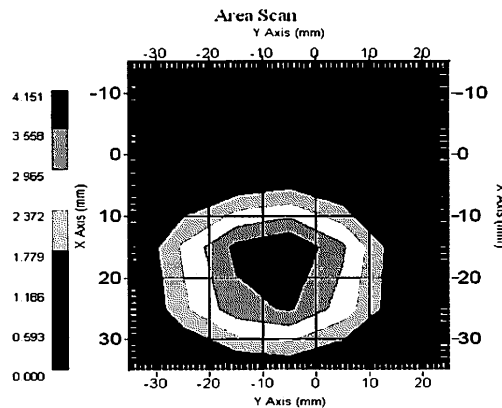
Electrical Specification 1900MHz

Tissue Type	Return Loss:	Impedance:	SWR:
Head	-28.634	46.965	1.0813U
Body	-23.129	47.664	1.1520U

System Validation Results

Tissue	Frequency	1 Gram	10 Gram	Peak
Head	1900 MHz	39.378	19.668	77.268
Body	1900 MHz	39.654	19.668	77.268

1900MHz



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NCL Calibration Laboratories

Division of APREL Inc.

Introduction

This Calibration Report has been produced in line with the SSI Dipole Calibration Procedure SSI-TP-018-ALSAS. The results contained within this report are for Validation Dipole 210-00716. The calibration routine consisted of a three-step process. Step 1 was a mechanical verification of the dipole to ensure that it meets the mechanical specifications. Step 2 was an Electrical Calibration for the Validation Dipole, where the SWR, Impedance, and the Return loss were assessed. Step 3 involved a System Validation using the ALSAS-10U, along with APREL E-030 130 MHz to 26 GHz E-Field Probe Serial Number 215.

References

- o IEEE Standard 1528 (2003) including Amendment 1
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- o EN 62209-1 (2006)
Human Exposure to RF Fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures-Part 1: Procedure to measure the Specific Absorption Rate (SAR) for hand-held mobile wireless devices
- o IEC 62209-2 Ed. 1.0 (2010-03)
Human exposure to RF fields from hand-held and body-mounted wireless devices - Human models, instrumentation, and procedures - Part 2: specific absorption rate (SAR) for wireless communication devices (30 MHz - 6 GHz)
- o TP-D01-032-E020-V2 E-Field probe calibration procedure
- o D22-012-Tissue dielectric tissue calibration procedure
- o D28-002-Dipole procedure for validation of SAR system using a dipole
- o IEEE 1309 Draft Standard for Calibration of Electromagnetic Field Sensors and Probes, Excluding Antennas, from 9kHz to 40GHz

Conditions

Dipole 210-00715 was a recalibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 20 °C +/- 0.5°C

Dipole Calibration uncertainty

The calibration uncertainty for the dipole is made up of various parameters presented below.

Mechanical	1%
Positioning Error	1.22%
Electrical	1.7%
Tissue	2.2%
Dipole Validation	2.2%
TOTAL	8.32% (16.64% K=2)

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NCL Calibration Laboratories

Division of APREL Inc.

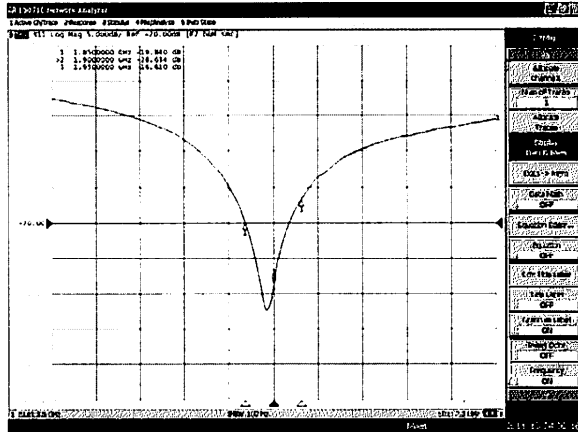
Electrical Calibration

Electrical Specification 1900MHz

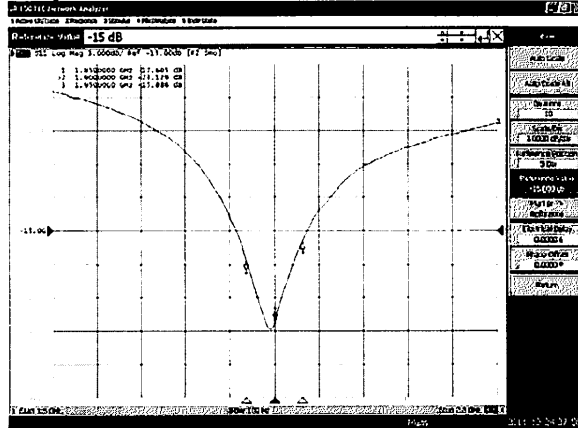
Forward Reflection

Tissue Type	Measured Epsilon	Measured Sigma
Head	38.12	1.41
Body	51.52	1.57

Head Tissue



Body Tissue



This page has been reviewed for content and attested to by signature within this document.

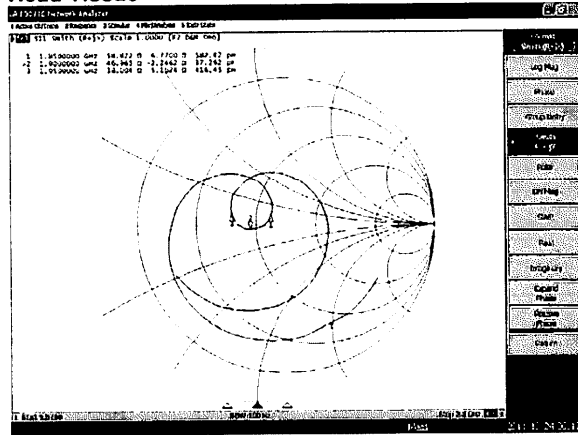
NCL Calibration Laboratories

Division of APREL Inc.

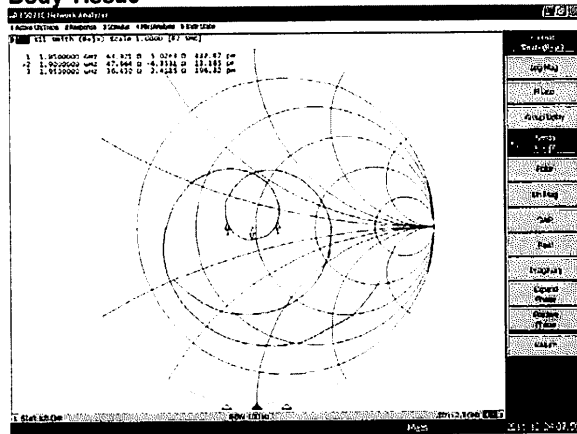
**Electrical Specification 1900MHz
Impedance**

Tissue Type	Measured Epsilon	Measured Sigma
Head	38.12	1.41
Body	51.52	1.57

Head Tissue



Body Tissue



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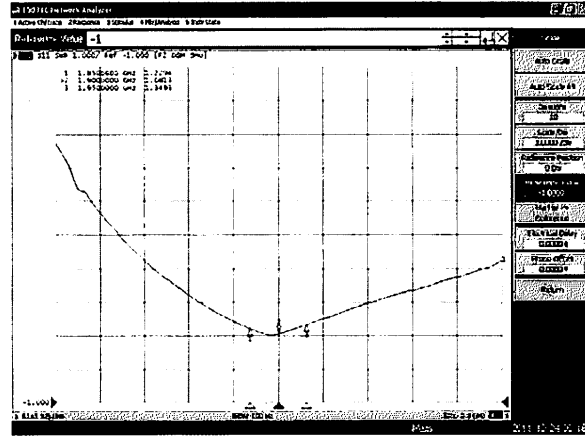
NCL Calibration Laboratories

Division of APREL Inc.

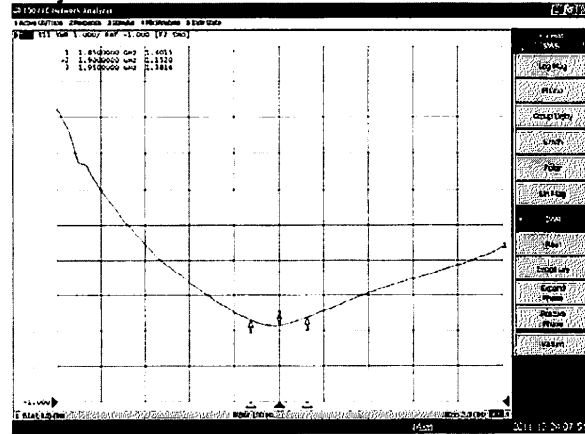
**Electrical Specification 1900MHz
Standing Wave Ratio**

Tissue Type	Measured Epsilon	Measured Sigma
Head	38.12	1.41
Body	51.52	1.57

Head Tissue



Body Tissue



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NCL Calibration Laboratories

Division of APREL Inc.

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 May 2011.

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NCL CALIBRATION LABORATORIES

Calibration File No: DC-1285
Project Number: BACL-dipole-cal-5612

CERTIFICATE OF CALIBRATION

It is certified that the equipment identified below has been calibrated in the
NCL CALIBRATION LABORATORIES by qualified personnel following recognized
procedures and using transfer standards traceable to NRC/NIST.

BACL Validation Dipole (Head & Body)

Manufacturer: APREL Laboratories

Part number: D-2450-S-1

Frequency: 2450 MHz

Serial No: BCL-141

Customer: Bay Area Compliance Laboratory

Calibrated: 25th July 2011
Released on: 27th July 2011

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: _____

NCL CALIBRATION LABORATORIES

Suite 102, 303 Terry Fox Dr.
Kanata, ONTARIO
CANADA K2K 3J1

Division of APREL Lab.
TEL: (613) 435-8300
FAX: (613) 432-8306

Kulk
8.19.2011

NCL Calibration Laboratories

Division of APREL Laboratories.

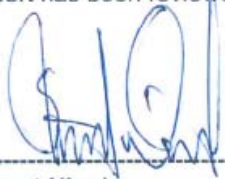
Conditions

Dipole BCL-141 was received from customer in good condition for re-calibration, SMA connector required cleaning prior to calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C

Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this device has been accurately conducted and that all information contained within this report has been reviewed for accuracy.



Stuart Nicol



C. Teodorian

Primary Measurement Standards

Instrument	Serial Number	Cal due date
Power meter Anritsu MA2408A	245025437	Nov.4, 2011
Power Sensor Anritsu MA2481D	103555	Nov 4, 2011
Attenuator HP 8495A (70dB) 1	944A10711	Sept. 14, 2011
Network Analyzer Anritsu MT8801C	MB11855	Feb. 8, 2012
Secondary Measurement Standards		
Signal Generator Agilent E4438C	-506 MY55182336	June 7, 2012

This page has been reviewed for content and attested to by signature within this document.

NCL Calibration Laboratories

Division of APREL Laboratories.

Calibration Results Summary

The following results relate the Calibrated Dipole and should be used as a quick reference for the user.

Mechanical Dimensions

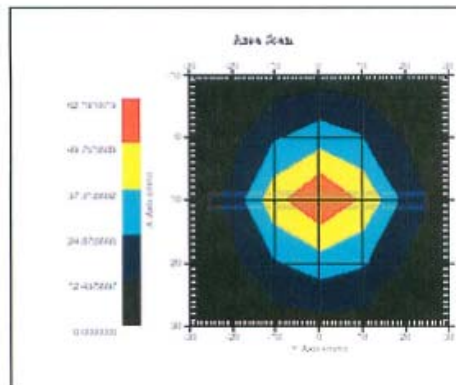
Length: 51.5 mm
Height: 30.4 mm

Electrical Specification 2450MHz

Tissue Type	Return Loss:	SWR:	Impedance:
Head	-29.565	1.076u	52.887
Body	-25.834	1.111u	55.110

System Validation Results

Tissue	Frequency	1 Gram	10 Gram	Peak
Head	2450MHz	54.075	24.19	113.98
Body	2450MHz	53.115	24.011	109.960



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NCL Calibration Laboratories

Division of APREL Laboratories.

Introduction

This Calibration Report has been produced in line with the SSI Dipole Calibration Procedure SSI-TP-018-ALSAS. The results contained within this report are for Validation Dipole BCL-141. The calibration routine consisted of a three-step process. Step 1 was a mechanical verification of the dipole to ensure that it meets the mechanical specifications. Step 2 was an Electrical Calibration for the Validation Dipole, where the SWR, Impedance, and the Return loss were assessed. Step 3 involved a System Validation using the ALSAS-10U, along with APREL E-020 130 MHz to 26 GHz E-Field Probe Serial Number 212.

References

- SSI-TP-018-ALSAS Dipole Calibration Procedure
- SSI-TP-016 Tissue Calibration Procedure
- IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"

Conditions

Dipole BCL-141 was received from customer in good condition for re-calibration, SMA connector required cleaning prior to calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 20 °C +/- 0.5°C

Dipole Calibration uncertainty

The calibration uncertainty for the dipole is made up of various parameters presented below.

Mechanical	1%
Positioning Error	1.22%
Electrical	1.7%
Tissue	2.2%
Dipole Validation	2.2%
TOTAL	8.32% (16.64% K=2)

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NCL Calibration Laboratories

Division of APREL Laboratories.

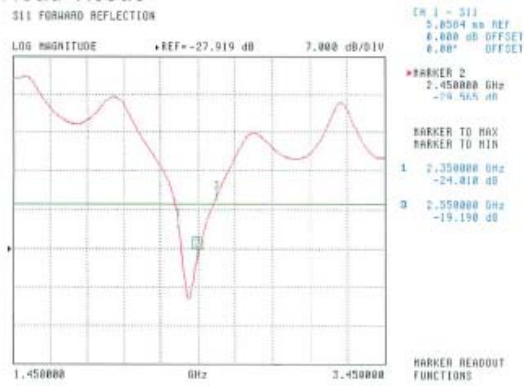
Tissue Type	Measured Epsilon	Measured Sigma
Head	38.06	1.86
Body	50.22	2.03

Electrical Calibration

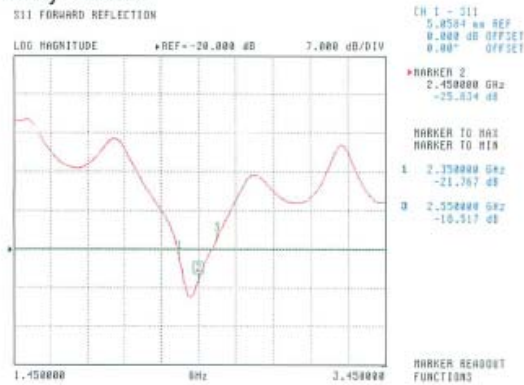
The Following Graphs are the results as displayed on the Vector Network Analyzer.

S11 Parameter Return Loss

Head Tissue



Body Tissue



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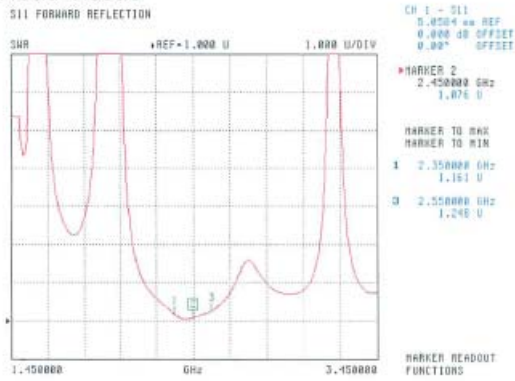
NCL Calibration Laboratories

Division of APREL Laboratories.

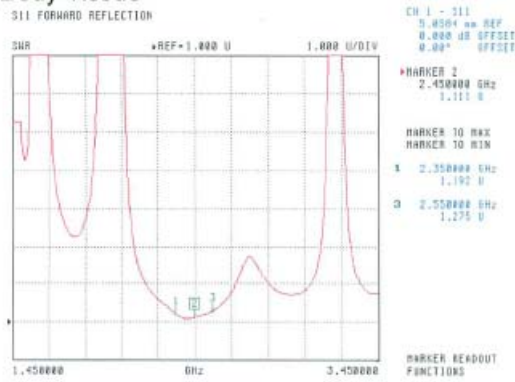
Tissue Type	Measured Epsilon	Measured Sigma
Head	38.06	1.86
Body	50.22	2.03

SWR

Head Tissue



Body Tissue



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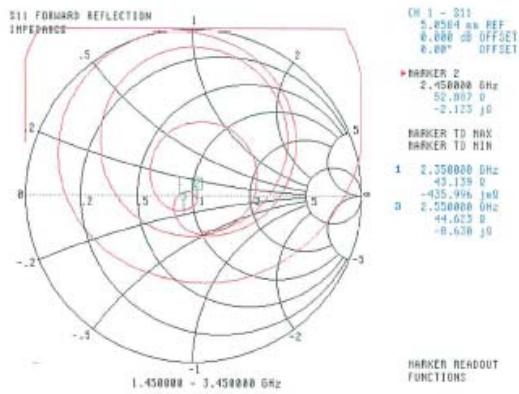
NCL Calibration Laboratories

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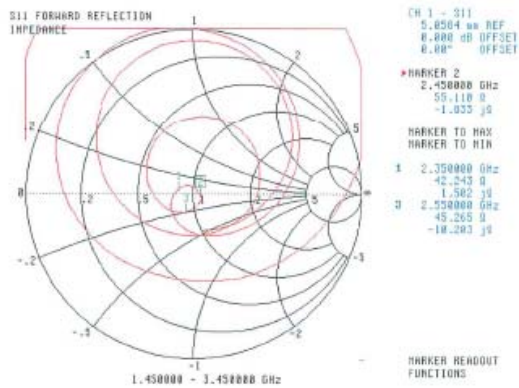
Tissue Type	Measured Epsilon	Measured Sigma
Head	38.06	1.86
Body	50.22	2.03

Smith Chart Dipole Impedance

Head Tissue



Body Tissue



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NCL Calibration Laboratories

Division of APREL Laboratories.

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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14 APPENDIX D - TEST SYSTEM VERIFICATIONS SCANS

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

System Performance Test (835MHz Body)

DUT: Dipole 835 MHz; Type: ALS-D-835-S-2; Serial: 180-00564

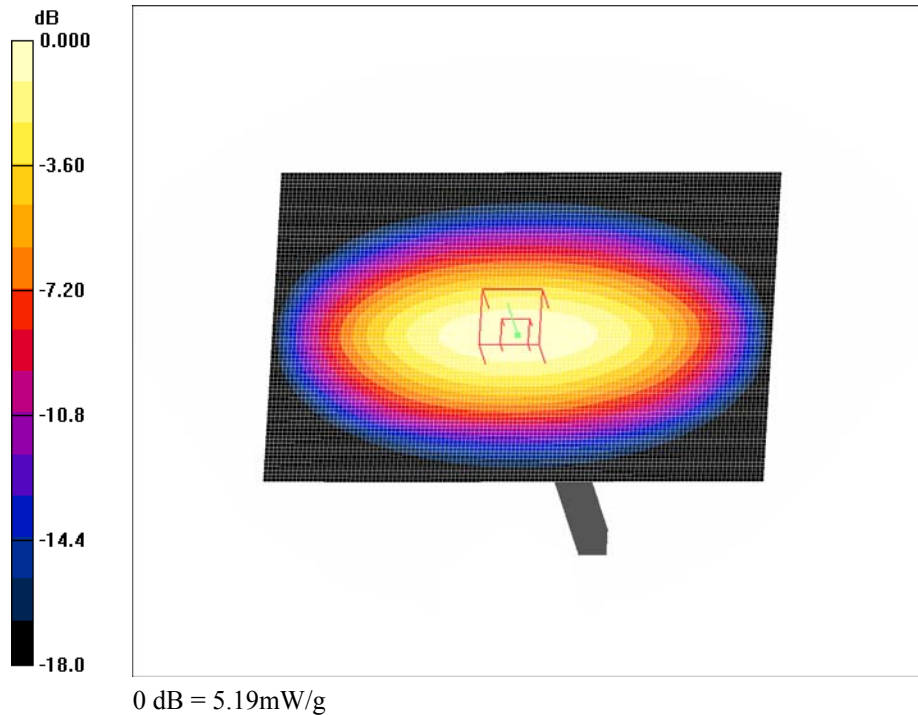
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 55.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.19, 6.19, 6.19); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

d =15 mm, Pin = 0.5W 2/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 5.05 mW/g

d =15 mm, Pin = 0.5W 2/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 73.2 V/m; Power Drift = -0.133 dB
 Peak SAR (extrapolated) = 7.03 W/kg
SAR(1 g) = 4.82 mW/g; SAR(10 g) = 3.13 mW/g
 Maximum value of SAR (measured) = 5.19 mW/g



835 MHz Body System Validation

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

System Performance Test (835MHz Head)

DUT: Dipole 835 MHz; Type: ALS-D-835-S-2; Serial: 180-00564

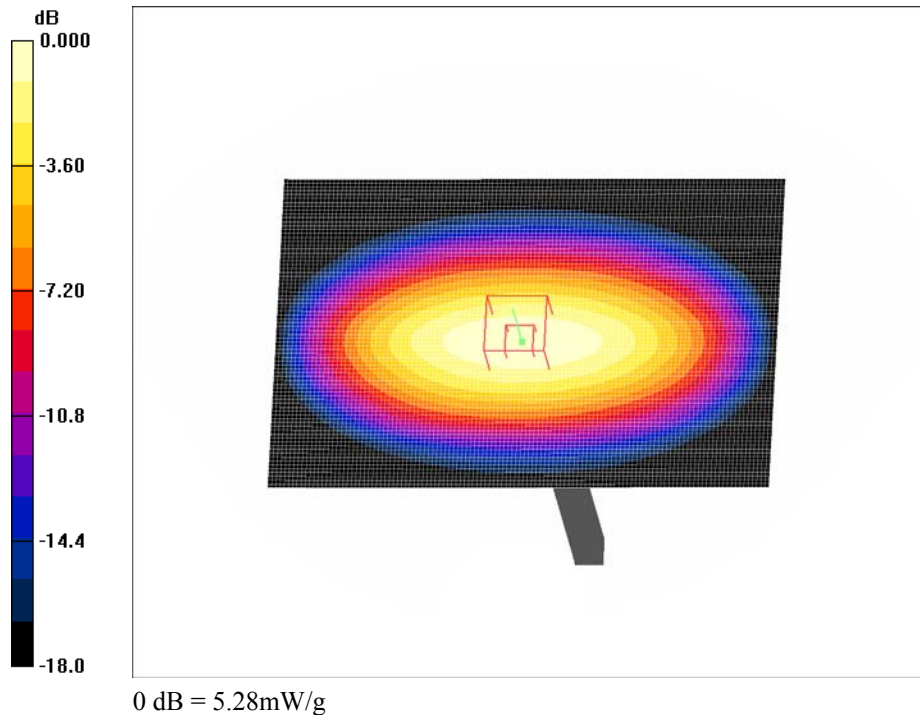
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 41.5$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.22, 6.22, 6.22); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

d =15 mm, Pin = 0.5W/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 5.15 mW/g

d =15 mm, Pin = 0.5W/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 76.5 V/m; Power Drift = -0.139 dB
 Peak SAR (extrapolated) = 7.21 W/kg
SAR(1 g) = 4.91 mW/g; SAR(10 g) = 3.28 mW/g
 Maximum value of SAR (measured) = 5.28 mW/g



835 MHz Head System Validation

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

System Performance Test (1900MHz Body)

DUT: Dipole 1900 MHz; Type: ALS-D-1900-S-2; Serial: 210-00715

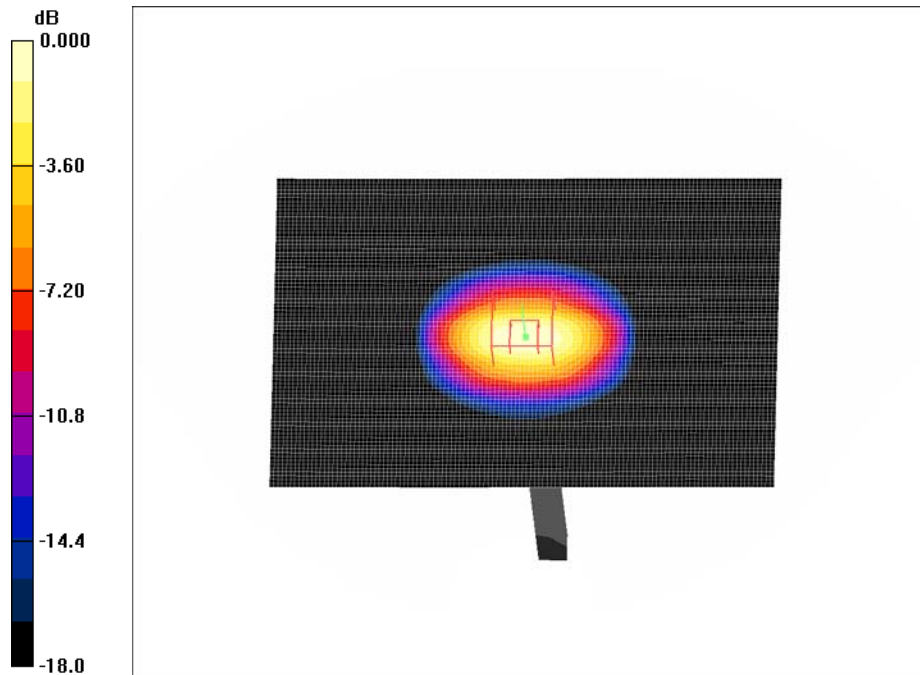
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.38, 4.38, 4.38); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

d =10 mm, Pin = 0.5W /Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 21.2 mW/g

d =10 mm, Pin = 0.5W /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 138.9 V/m; Power Drift = -0.281 dB
 Peak SAR (extrapolated) = 42.1 W/kg
SAR(1 g) = 19.6 mW/g; SAR(10 g) = 9.43 mW/g
 Maximum value of SAR (measured) = 22.0 mW/g



1900 MHz Body System Validation

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

System Performance Test (1900MHz Head)

DUT: Dipole 1900 MHz; Type: ALS-D-1900-S-2; Serial: 210-00715

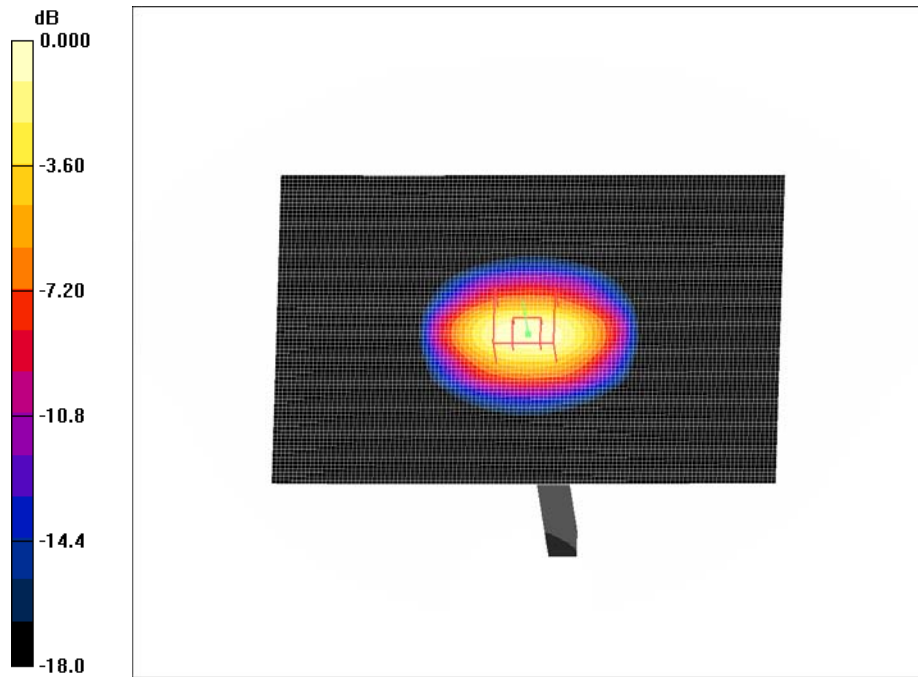
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.87, 4.87, 4.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

d =10 mm, Pin = 0.5W /Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 22.5 mW/g

d =10 mm, Pin = 0.5W /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 130.9 V/m; Power Drift = -0.257 dB
 Peak SAR (extrapolated) = 46.9 W/kg
SAR(1 g) = 20.5 mW/g; SAR(10 g) = 9.72 mW/g
 Maximum value of SAR (measured) = 23.7 mW/g



1900 MHz Head System Validation

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

System Performance Test (2450 MHz, Body Tissue)

Dipole 2450 MHz; Type: D-2450-S-1; Serial: SN: BCL-141

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(3.87, 3.87, 3.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

d =10 mm, Pin = 0.5W /Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 33.4 mW/g

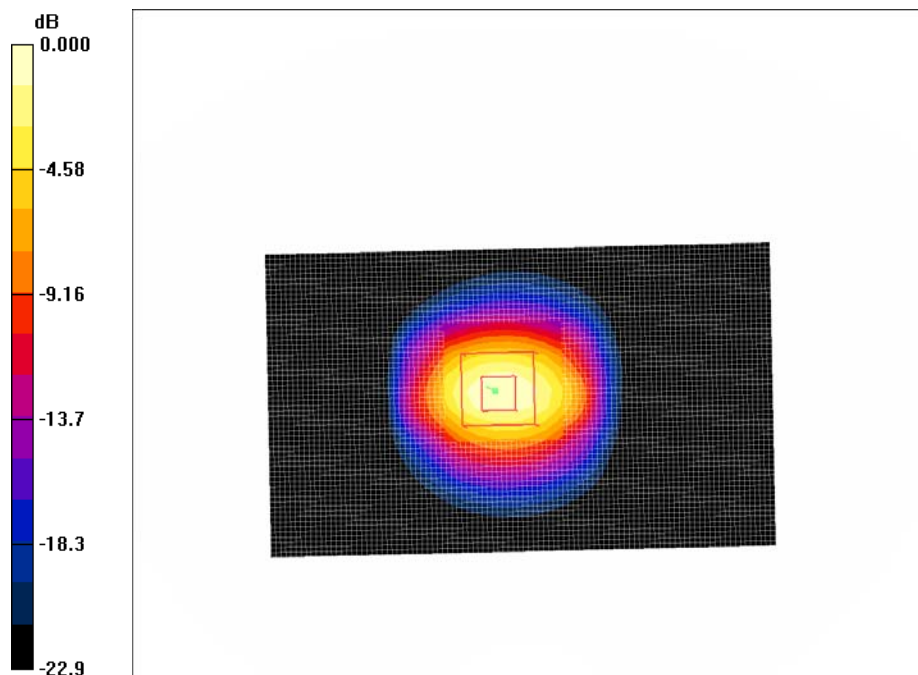
d =10 mm, Pin = 0.5W /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 120.9 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 57.5 W/kg

SAR(1 g) = 26.9 mW/g; SAR(10 g) = 12.3 mW/g

Maximum value of SAR (measured) = 30.9 mW/g



0 dB = 30.9 mW/g

2450 MHz Body System Validation

15 APPENDIX E – EUT SCAN RESULTS

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

EUT 1.5cm Separation to the Flat Phantom (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

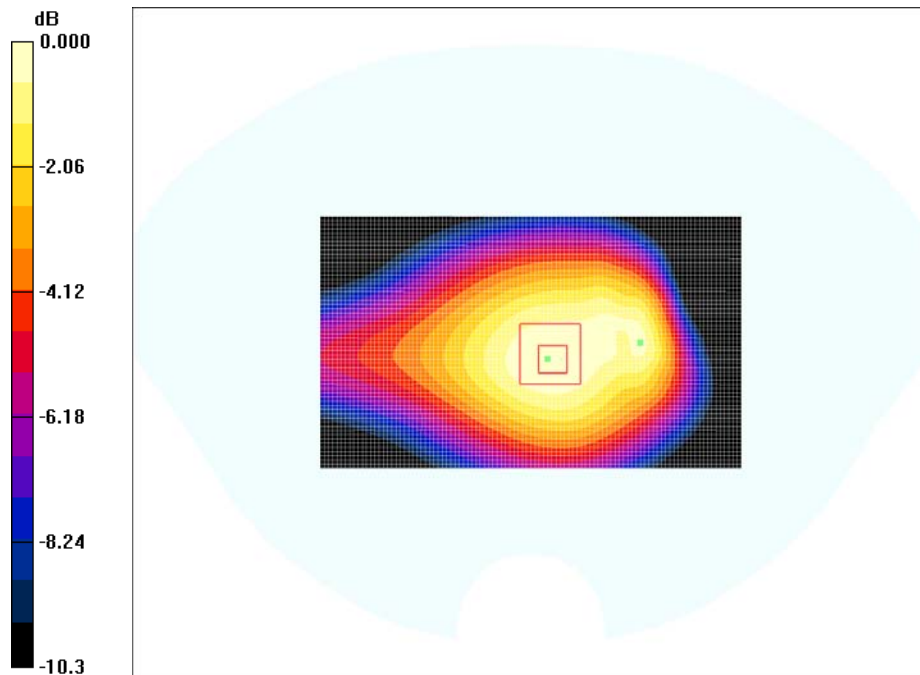
Communication System: GSM 850 2 Slot; Frequency: 824.2 MHz; Duty Cycle: 1:4.15
 Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 56$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.19, 6.19, 6.19); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

EUT 1.5cm Separation to the Flat Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.741 mW/g

EUT 1.5cm Separation to the Flat Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 27.6 V/m; Power Drift = 0.064 dB
 Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.494 mW/g
 Maximum value of SAR (measured) = 0.743 mW/g



#1

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

Right Head Touch (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

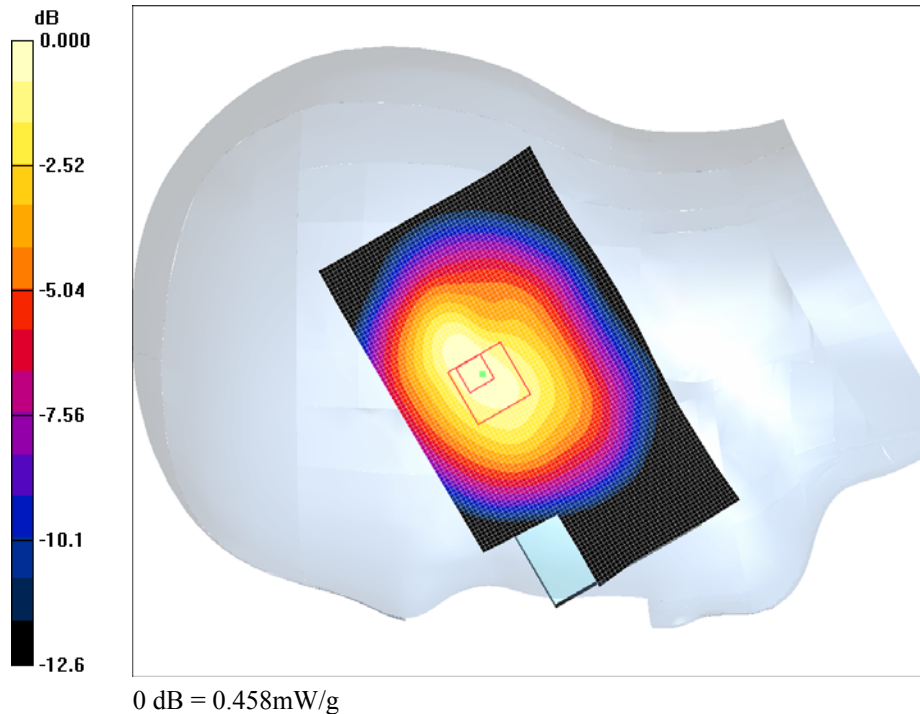
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 824.2 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 41.6$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.22, 6.22, 6.22); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Right Head Touch/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.453 mW/g

Right Head Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 16.5 V/m; Power Drift = -0.337 dB
 Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.427 mW/g; SAR(10 g) = 0.282 mW/g
 Maximum value of SAR (measured) = 0.458 mW/g



#2

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

Right Head Tilt (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

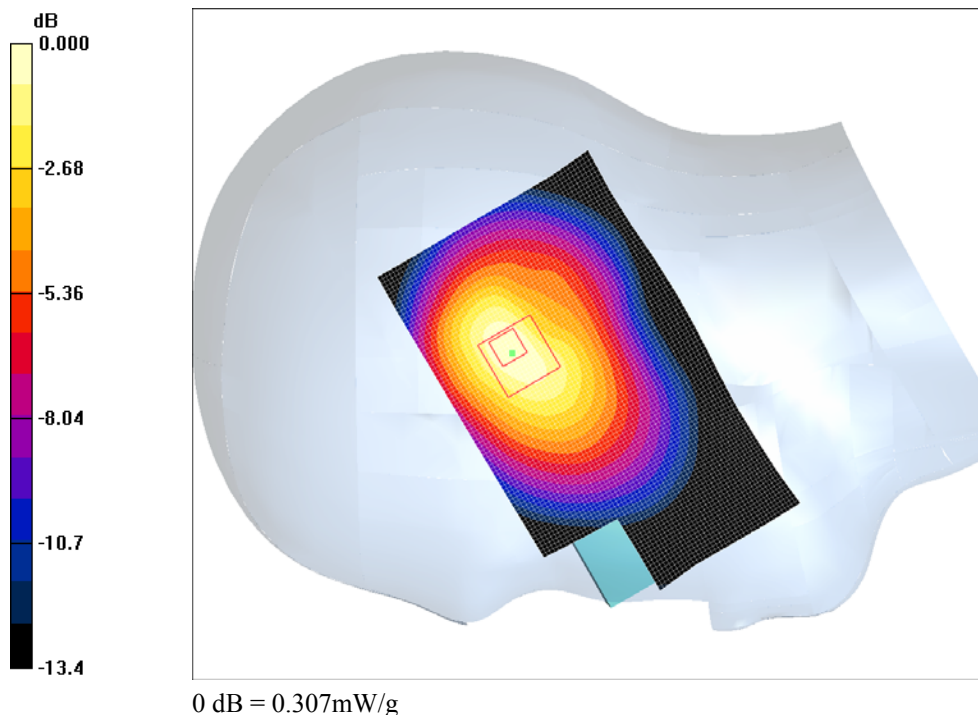
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.22, 6.22, 6.22); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Right Head Tilt/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.306 mW/g

Right Head Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 13.8 V/m; Power Drift = 0.145 dB
 Peak SAR (extrapolated) = 0.464 W/kg
SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.173 mW/g
 Maximum value of SAR (measured) = 0.307 mW/g



#3

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

Left Head Touch (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

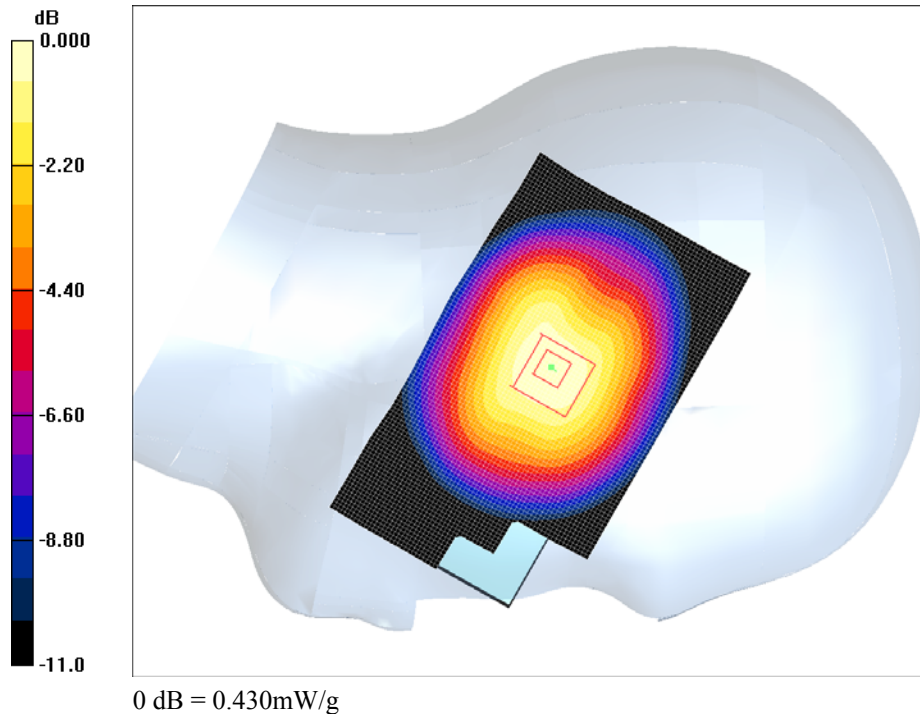
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 824.2 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 41.6$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.22, 6.22, 6.22); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Left Head Touch/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.433 mW/g

Left Head Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 15.6 V/m; Power Drift = -0.007 dB
 Peak SAR (extrapolated) = 0.543 W/kg
SAR(1 g) = 0.408 mW/g; SAR(10 g) = 0.294 mW/g
 Maximum value of SAR (measured) = 0.430 mW/g



#4

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

Left Head Tilt (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

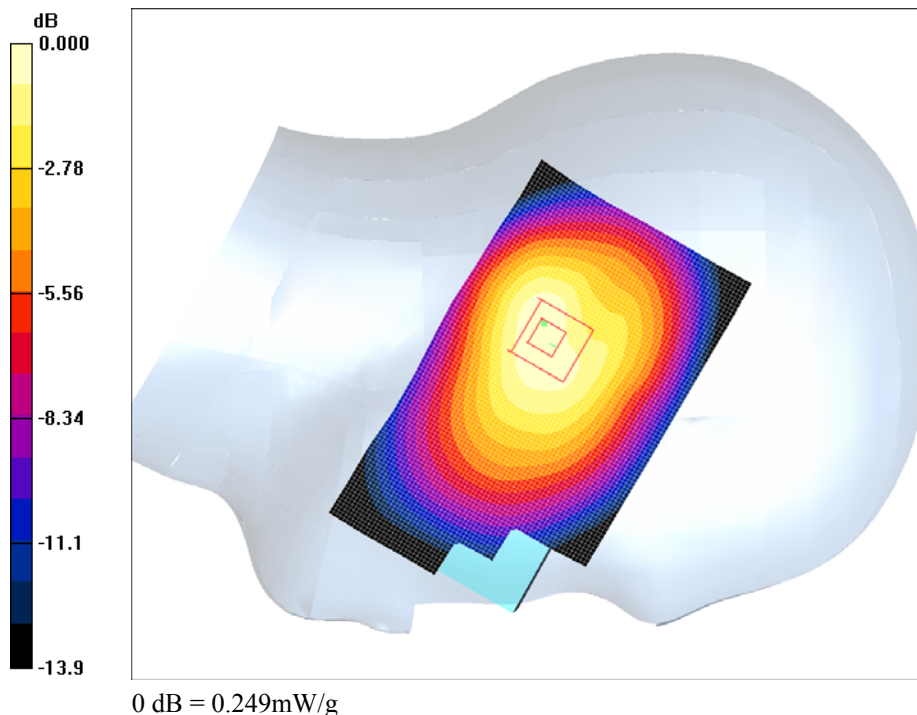
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(6.22, 6.22, 6.22); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Left Head Tilt/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.252 mW/g

Left Head Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 12.8 V/m; Power Drift = 0.138 dB
 Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.154 mW/g
 Maximum value of SAR (measured) = 0.249 mW/g



#5

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

EUT 1.5cm Separation to the Flat Phantom (Low Channel)

DUT: Italtcom Group; Type: Mobile Phone; Serial: R1205114-1

Communication System: PCS 1900 2 Slots; Frequency: 1850.2 MHz; Duty Cycle: 1:4.15

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 51.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.38, 4.38, 4.38); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

EUT 1.5cm Separation to the Flat Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.219 mW/g

EUT 1.5cm Separation to the Flat Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

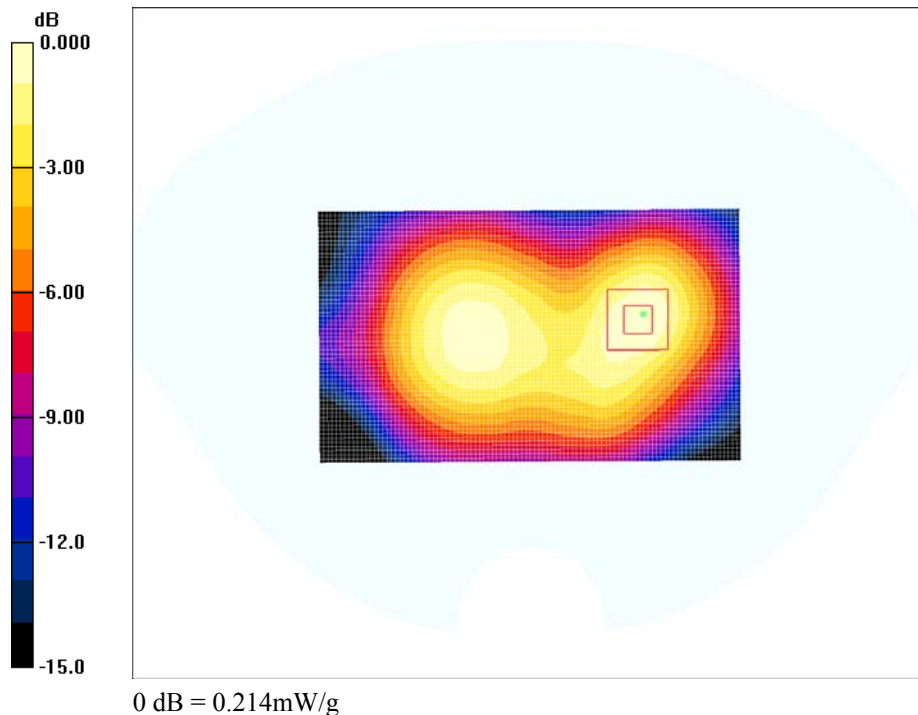
Reference Value = 9.91 V/m; Power Drift = -0.090 dB

Peak SAR (extrapolated) = 0.409 W/kg

Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.214 mW/g



#6

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

Right Head Touch (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

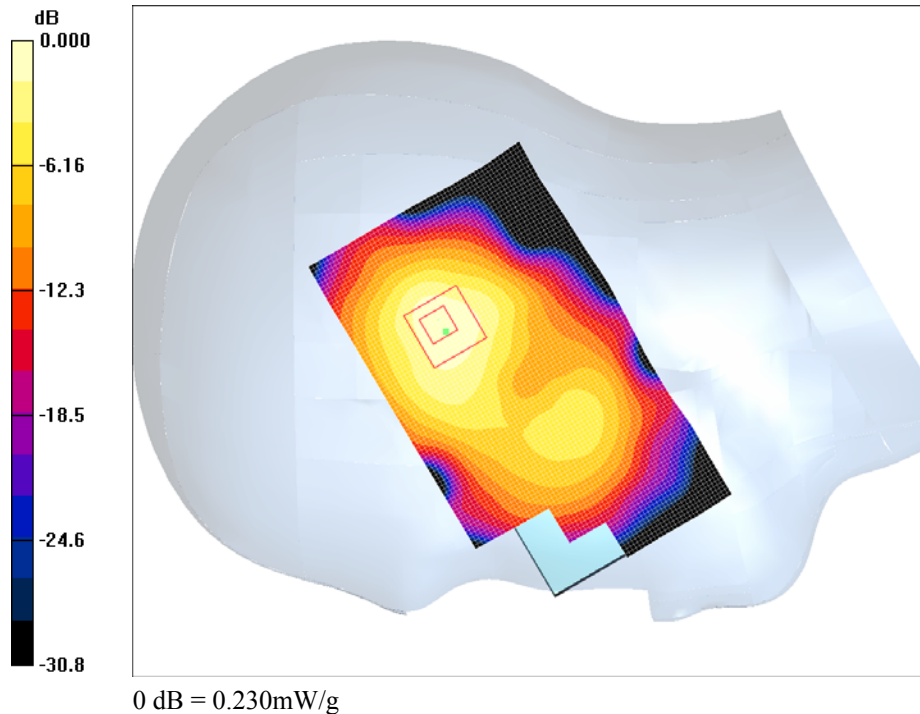
Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (extrapolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.35 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.87, 4.87, 4.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Right Head Touch/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.226 mW/g

Right Head Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 10.2 V/m; Power Drift = -0.037 dB
 Peak SAR (extrapolated) = 0.495 W/kg
SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.099 mW/g
 Maximum value of SAR (measured) = 0.230 mW/g



#7

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

Right Head Tilt (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

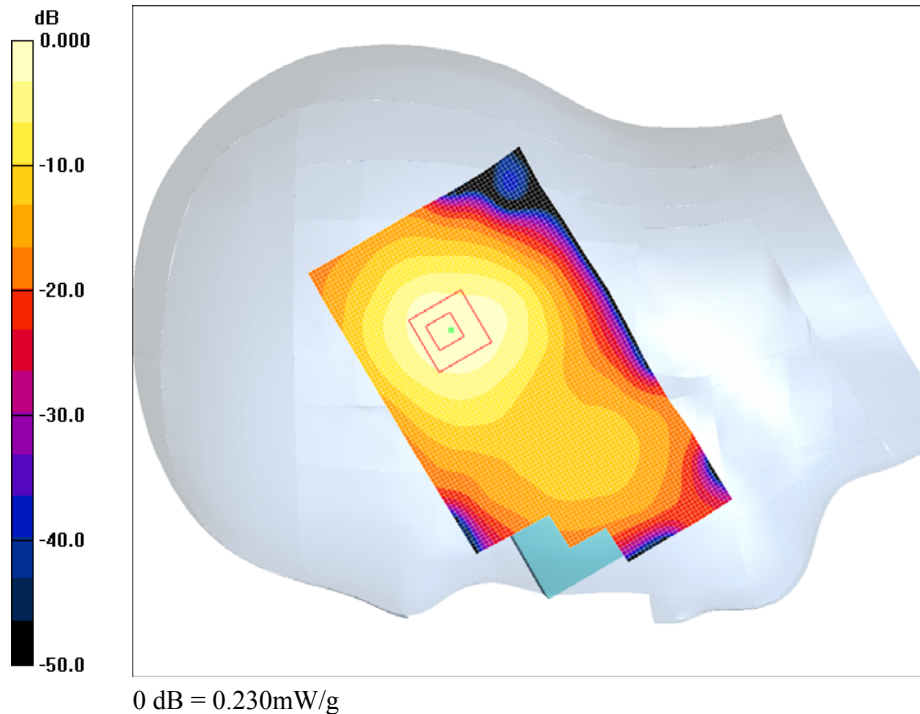
Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (extrapolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.35 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.87, 4.87, 4.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Right Head Tilt/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.241 mW/g

Right Head Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 11.0 V/m; Power Drift = 0.127 dB
 Peak SAR (extrapolated) = 0.456 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.101 mW/g
 Maximum value of SAR (measured) = 0.230 mW/g



#8

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

Left Head Touch (Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

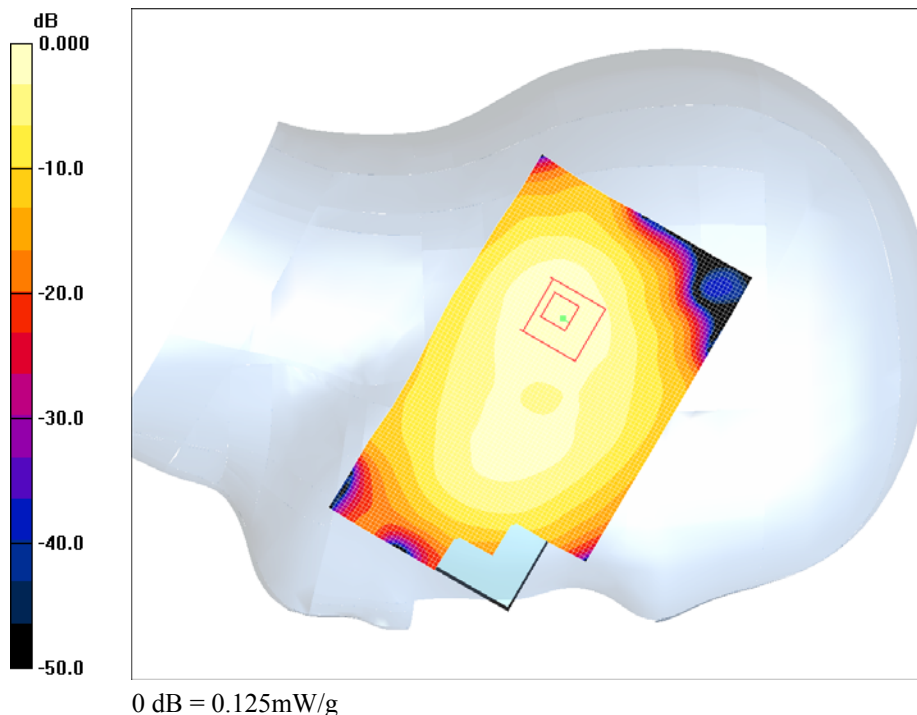
Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (extrapolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.35 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.87, 4.87, 4.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Left Head Touch/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.133 mW/g

Left Head Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 8.82 V/m; Power Drift = 0.133 dB
 Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.061 mW/g
 Maximum value of SAR (measured) = 0.125 mW/g



#9

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

Left Head Tilt (Low Channel)

DUT: Italtcom Group; Type: Mobile Phone; Serial: R1205114-1

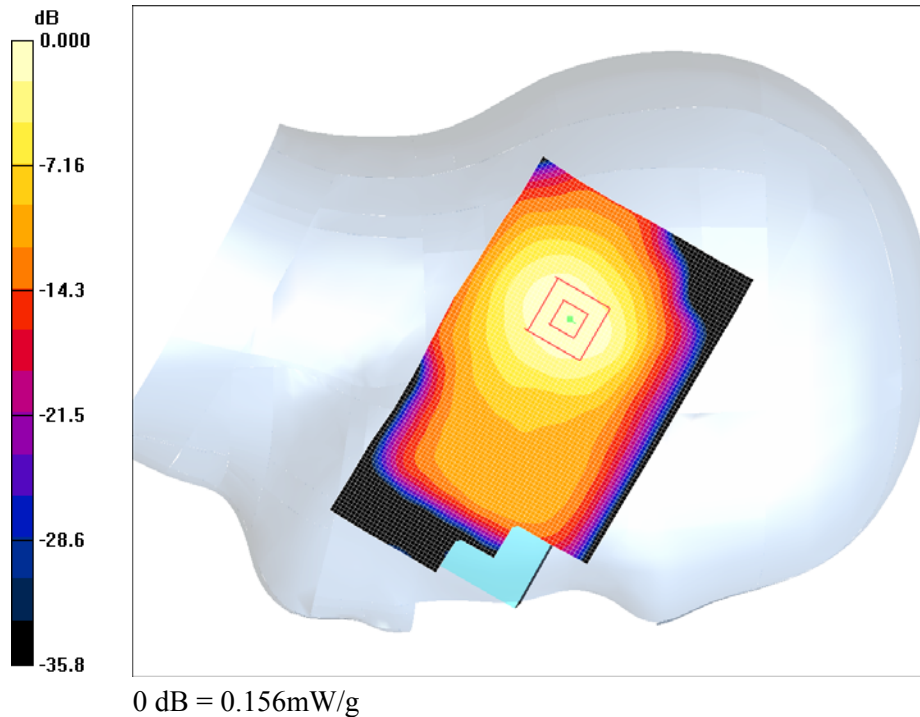
Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
 Medium parameters used (extrapolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.35 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(4.87, 4.87, 4.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Left Head Tilt/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.168 mW/g

Left Head Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 10.0 V/m; Power Drift = 0.104 dB
 Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.074 mW/g
 Maximum value of SAR (measured) = 0.156 mW/g



#10

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

Back Touch to the Phantom – 802.11b(Low Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

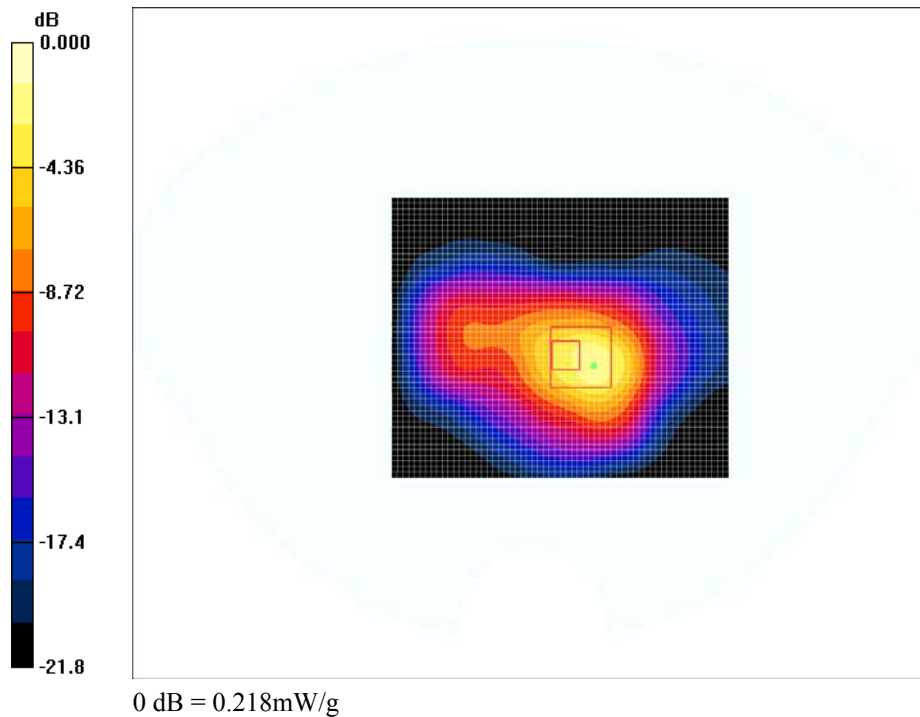
Communication System: 802.11B/G; Frequency: 2412 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 2412 \text{ MHz}$; $\sigma = 1.97 \text{ mho/m}$; $\epsilon_r = 50.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(3.87, 3.87, 3.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Back Touch to the Phantom/Area Scan (51x61x1): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$
 Maximum value of SAR (interpolated) = 0.243 mW/g

Back Touch to the Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 5.85 V/m; Power Drift = -0.145 dB
 Peak SAR (extrapolated) = 0.408 W/kg
SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.098 mW/g
 Maximum value of SAR (measured) = 0.218 mW/g



#11

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

Back Touch to the Phantom – 802.11b (Middle Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

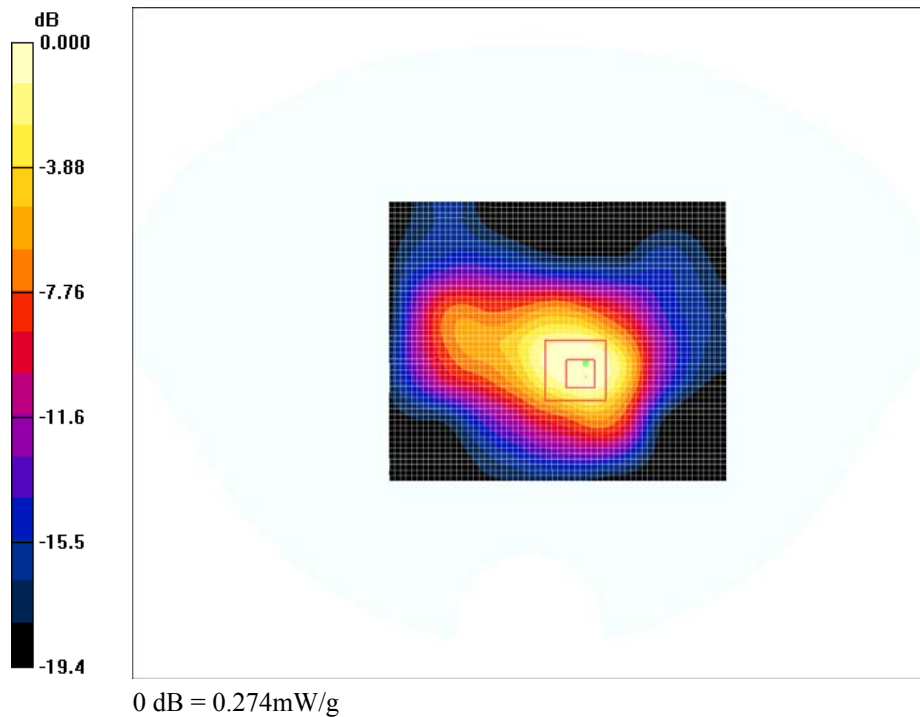
Communication System: 802.11B/G; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(3.87, 3.87, 3.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Back Touch to the Phantom/Area Scan (51x61x1): Measurement grid: dx=20mm, dy=20mm
 Maximum value of SAR (interpolated) = 0.327 mW/g

Back Touch to the Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.45 V/m; Power Drift = -0.312 dB
 Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.123 mW/g
 Maximum value of SAR (measured) = 0.274 mW/g



#12

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

Back Touch to the Phantom -802.11b (High Channel)

DUT: Italcom Group; Type: Mobile Phone; Serial: R1205114-1

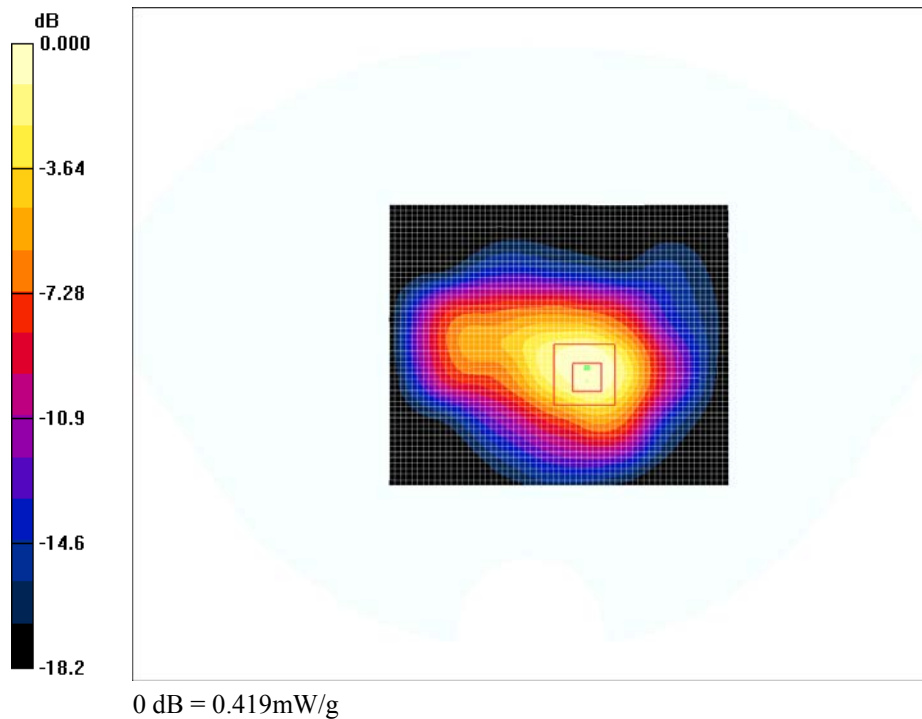
Communication System: 802.11B/G; Frequency: 2462 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 2462 \text{ MHz}$; $\sigma = 2.07 \text{ mho/m}$; $\epsilon_r = 50.5$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV2 - SN3019; ConvF(3.87, 3.87, 3.87); Calibrated: 8/25/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 3/16/2012
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 80; Post processing SW: SEMCAD, V1.8 Build 186

Back Touch to the Phantom/Area Scan (51x61x1): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$
 Maximum value of SAR (interpolated) = 0.318 mW/g

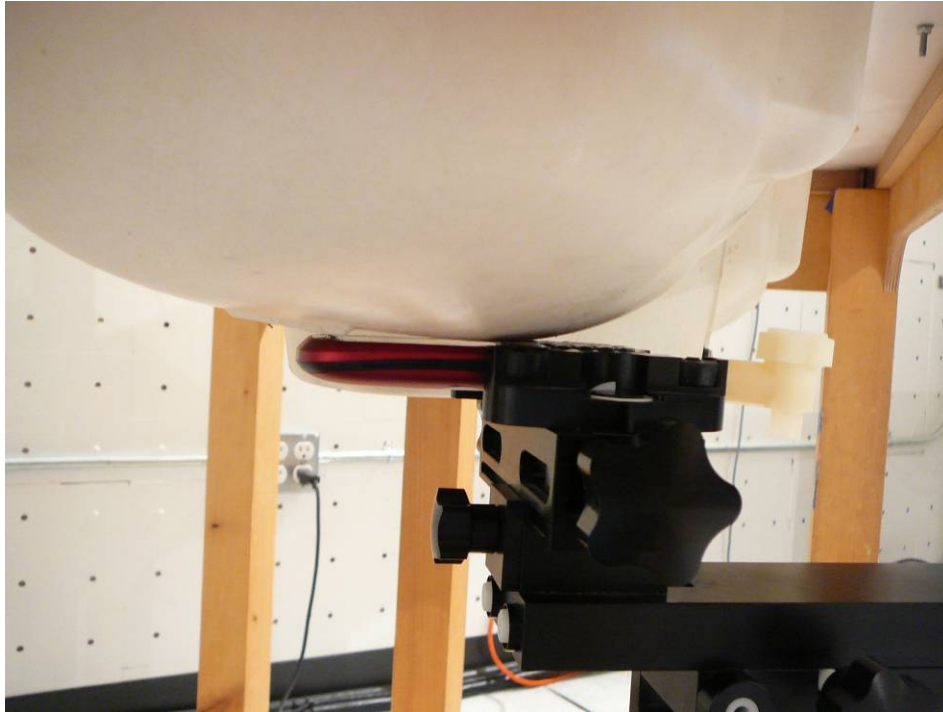
Back Touch to the Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 6.12 V/m; Power Drift = 0.07 dB
 Peak SAR (extrapolated) = 0.756 W/kg
SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.163 mW/g
 Maximum value of SAR (measured) = 0.419 mW/g



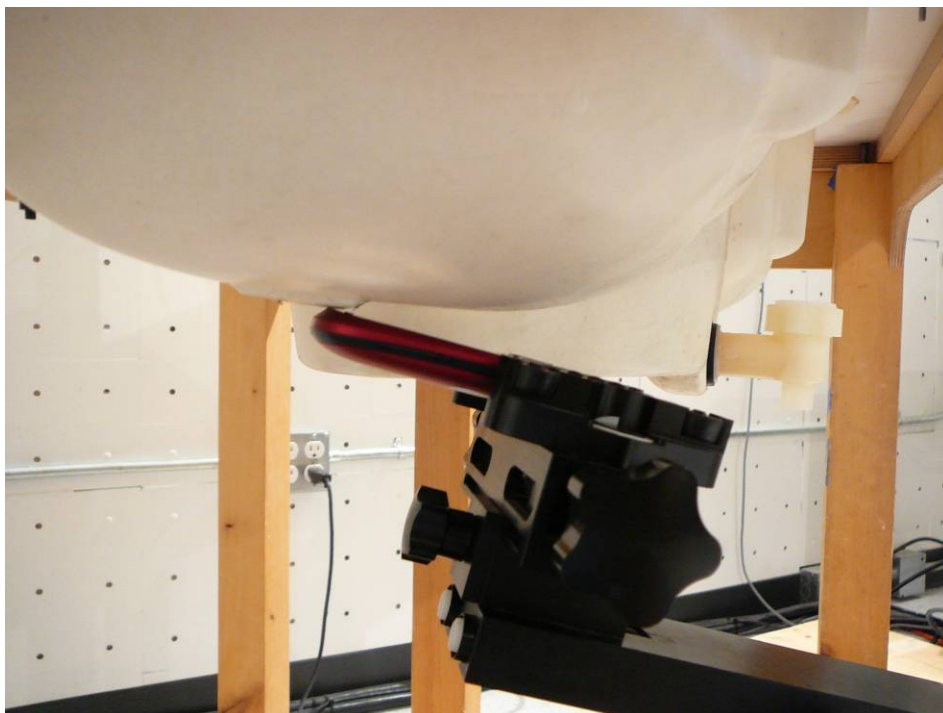
#13

16 APPENDIX F – TEST SETUP PHOTOS

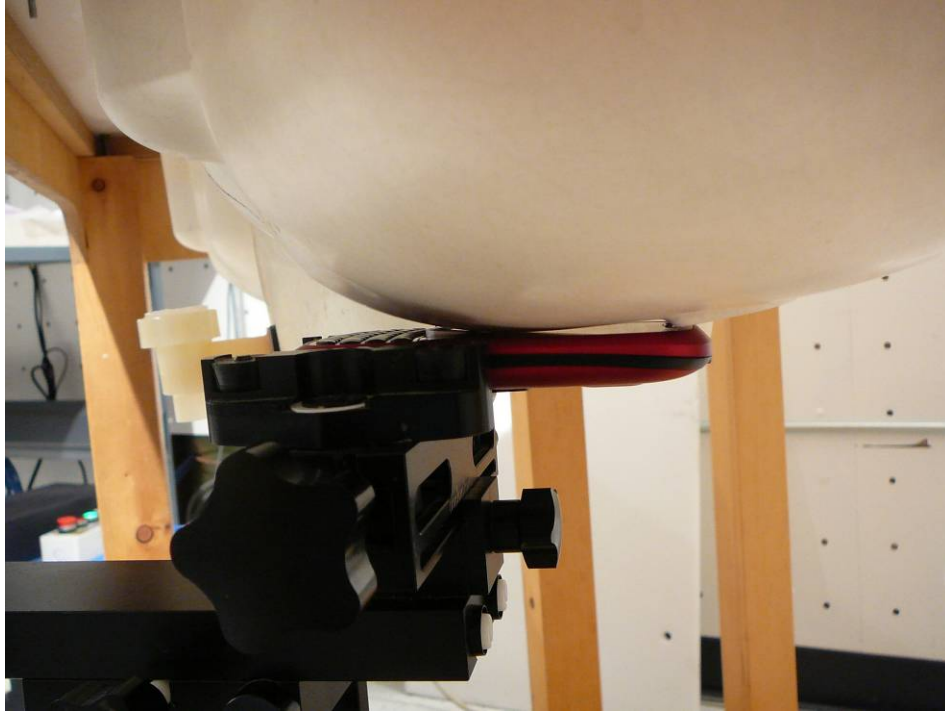
16.1 Right Head-Touch Setup Photo



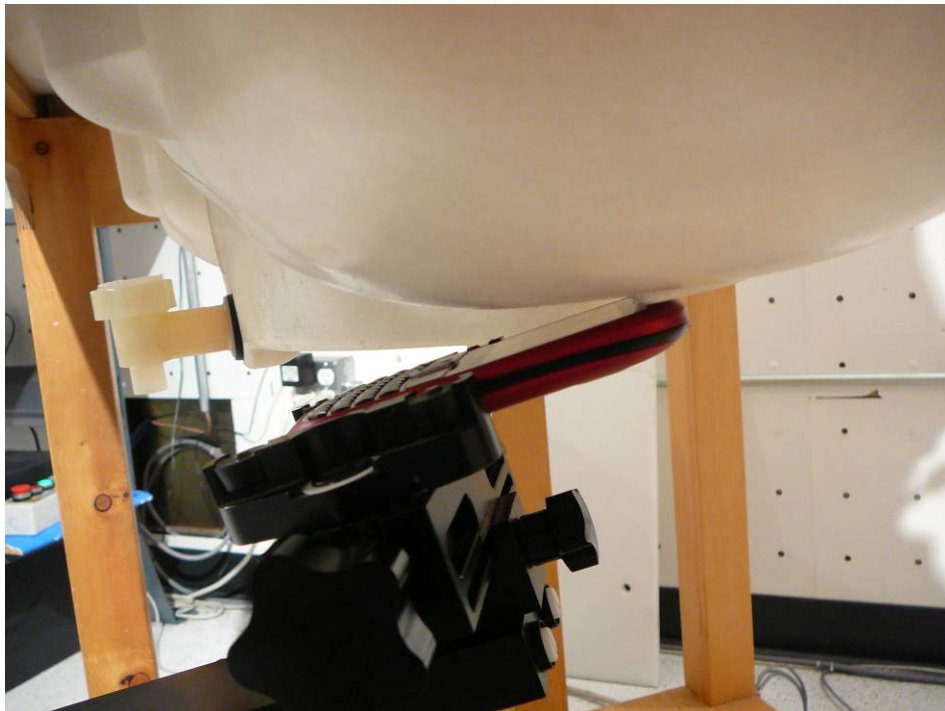
16.2 Right Head-Tilt Setup Photo



16.3 Left Head-Touch Setup Photo



16.4 Left Head-Tilt Setup Photo



16.5 1.5 cm Body Worn to the flat phantom with Headset Setup Photo



16.6 Back Touch to the flat phantom



17 APPENDIX H – EUT PHOTOS

17.1 EUT – Front View



17.2 EUT – Bottom View



17.3 EUT – Battery Compartment View



17.4 EUT – Battery View



17.5 EUT – Accessory Headset



18 APPENDIX H - INFORMATIVE REFERENCES

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