Intermec Technologies Corporation

Model: 1000CP01C

Evaluated to the following SAR Specifications:

FCC 2.1093: 2011
Health Safety Code 6:2009

Report No. INMC0683

Report Prepared By

NORTHWEST EMC

www.nwemc.com
1-888-EMI-CERT

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SAR Evaluation Report

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Evaluation

Last Date of Test: February 20, 2011
Intermec Technologies Corporation
Model: 1000CP01C

Applicable Standards			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
SAR Evaluation	FCC 2.1093:2011	FCC OET 65C:2001	**Pass**
		IEEE Std 1528:2003	
		FCC KDB 447498 D01 v04	
		FCC KDB 941225 D01 v02	
		FCC KDB 648474 D01 v01r05	
	Health Safety Code 6:2009	RSS-102, Issue 4:2010	**Pass**

Highest SAR Values				
Frequency Band	**Head 1g (W/kg)**	**Body 1g (W/kg)**	**Limit 1g (W/kg)**	**Exposure Environment**
Cellular	0.482	0.505	**1.6**	General Population Uncontrolled
PCS	0.379	1.100		

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

Approved By:

Don Facteau, IS Manager

NVLAP Lab Code: 200630-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Accreditations and Authorizations

FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)*

CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

Accreditations and Authorizations

VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-1784, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017).

GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/

Northwest EMC Locations

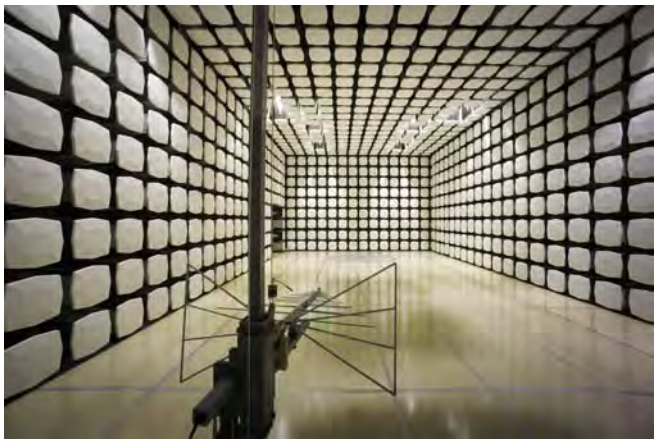
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796



Party Requesting the Test

Company Name:	Intermec Technologies Corporation
Address:	6001 36th Avenue West
City, State, Zip:	Everett, WA 98203-1264
Test Requested By:	Wayne Rieger
Model:	1000CP01C
First Date of Test:	February 8, 2011
Last Date of Test:	February 20, 2011
Receipt Date of Samples:	February 7, 2011
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test)

The EUT is a handheld computer containing two radio modules, the Intermec Model RC12 and the Sierra Wireless MC5728V, each with their own integral antenna.

The Intermec Model RC12 radio module is an 802.11a/b/g/n – Bluetooth radio. It is not capable of 40 MHz channel operation. The 802.11a/b/g/n and Bluetooth radios share the same antenna, but cannot transmit simultaneously. The frequency range of the 802.11a/b/g/n radio:

- 2412 – 2462 MHz
- 5180 – 5320 MHz
- 5500 – 5700 MHz
- 5745 – 5825 MHz

The frequency range of the Bluetooth radio:

- 2402 – 2480 MHz

The Sierra Wireless MC5728V radio module is a CDMA (EVDO Rev A) radio. Its frequency range:

- 824.7 – 848.31 MHz
- 1851.25 – 1908.8 MHz

The closest spacing between the CDMA antenna and 802.11a/b/g/n antenna is 3.7cm. The 802.11a/b/g/n antenna is on the right side of the handheld computer and the CDMA antenna is on the left side.

In normal operation, the EUT can be held in the hand, or next to the head like a cellular handset, or worn on the body. The only Intermec approved accessory for body worn operation is a holster that contains metal. The EUT can only fit in the holster with the top end of the unit pointing down. The holster cup can be attached to the holster belt with either the keypad facing the user, or the side facing the user. In no case can the back of the EUT face the user.

An optional snap-on audio accessory is available. It connects to the bottom end of the unit and provides a standard audio jack for connection of a VR10 headset.

The EUT is powered by a lithium-ion battery, Model 1000AB01.

Overview of the SAR Evaluation

Objective

To demonstrate compliance with the SAR requirements of FCC 2.1093 and Canada's Health Safety Code 6.

Scope

The 802.11a/b/g/n – Bluetooth radio was evaluated under a separate SAR evaluation report.

Regarding the CDMA radio:

KDB 648474 D01 is the FCC's Policy for SAR evaluation of handsets with multiple transmitters and antennas. It states:

> "*Routine SAR evaluation with respect to Section 2.1093 of the rules is required for licensed transmitter to show compliance;*"

The SAR evaluation documented in this report is for the CDMA portion of the EUT.

CONFIGURATION 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies	1000CP01C	24411047064

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Battery	Intermec Technologies	1000AB01	16961001722
Battery	Intermec Technologies	1000AB01	16961001720
Battery	Intermec Technologies	1000AB01	19691001924
Headset	Intermec Technologies	VR10	A351000021
Standard Audio Snap-On	Intermec Technologies	225-771-001	N/A
Holster Cup	Intermec Technologies	X11183-V1-R1	N/A
Y-Belt	Intermec Technologies	X11148-V2	N/A

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	2/8/2011	SAR Evaluation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	2/20/2010	SAR Evaluation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Per FCC KDB 941225, the conducted output power was measured at the low, middle and high channels in each band. An Agilent 8960 test set, Model E5515C, was used to control the EUT. The following applications were installed on the test set: CDMA200 Mobile Test Rev B.17.08, and EVDO Term Test Rev A.12.08. This provided all the necessary tools to operate the EUT in the prescribed manner without any difficulties or equipment limitations.

Per KDB 648474, among the channels required for normal testing, SAR must be measured on the highest conducted output channel (highlighted in the following pages). When the SAR measured on the highest output channel is < 0.8 W/kg, SAR evaluation for the other required channels is unnecessary.

1XRTT

Per FCC KDB 941225, measurements for 1XRTT were made according to the procedures in section 4.4.5.2 of 3GPP2C.S0011/TIA-98-E. Results for steps 3, 4, and 10 of the power measurement procedure are tabulated on the following pages. SO55 was measured with power control bits in “All Up” condition; TDSO/SO32 was measured with power control bits in the “Bits Hold” condition.

The Agilent 8960 test set was configured as follows:

Cell Info > Cell Parameters > System ID (SID) > 16420
    Network ID (NID) > 65535
Protocol Rev > 6 (IS-2000-0)
Radio Config (RC) > See attached data sheet
FCH Service Option (SO) Setup > See attached data sheet
Traffic Data Rate > Full (9.6kbps)
TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
    R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
Rvs Power Ctrl > Active bits (SO32)
Rvs Power Ctrl > All Up bits (Maximum TxPout) (SO55)
Call Params
    Cell Power > set to -104 dBm/1.23 MHz (SO55)
    Cell Power > Start at -86 dBm/1.23 MHz , then decrease until max power is reached (SO32)

EVDO Rev 0

Per FCC KDB 941225, measurements for EVDO Rev 0 were made according to the procedures in section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866. The results are tabulated on the following pages.

The Agilent 8960 test set was configured as follows:

RTAP Settings

Call Control:
    Generator Info > Channel Data Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
Call Parms:
    Cell Power > Set to -105.5 dBm/1.23 MHz
    Application Config > Enhanced Test Application Protocol > RTAP
    RTAP Rate > 153.6 kbps
    Protocol Rel > 0 (1xEV-DO)
Rvs Power Ctrl > All Up bits (Maximum TxPout)

FTAP Settings

Call Control:
Generator Info > Channel Data Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
Call Parms:
Cell Power > Set to -105.5 dBm/1.23 MHz
Application Config > Enhanced Test Application Protocol > FTAP
FTAP Rate > 307.2 kbps (2 slot, QPSK)
Protocol Rel > 0 (1xEV-DO)
Rvs Power Ctrl > All Up bits (Maximum TxPout)

EVDO Rev A

For EVDO Rev A mode, measurements were made according to the procedures in section 4.3.4 of 3GPP2 C.S0033-A. The results are tabulated on the following pages.

The Agilent 8960 test set was configured as follows:

RETAP Settings

Call Parms:
Cell Power > Set to -60 dBm/1.23 MHz
Protocol Rev > A (1xEV-DO-A)
Application Config > Enhanced Test Application Protocol > RETAP
R-Data Pkt Size > 4096
Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
Call Control:
PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0):
Generator Info > Channel Data Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
ACK R-Data After > Subpacket 0 (All ACK)
Rvs Power Ctrl > All Up bits (Maximum TxPout)

FETAP Settings

Call Parms:
Cell Power > Set to -60 dBm/1.23 MHz
Protocol Rev > A (1xEV-DO-A)
Application Config > Enhanced Test Application Protocol > FETAP
F-Traffic Format > 4 (1024, 2, 128) Canonical (307.2k, QPSK)
Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
Call Control:
PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0):
Generator Info > Channel Data Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
ACK R-Data After > Subpacket 0 (All ACK)
Rvs Power Ctrl > All Up bits (Maximum TxPout)

NORTHWEST EMC

Output Power

XMit 2011.01.18

EUT:	1000CP01C	Work Order:	INMC0683
Serial Number:	24411047064	Date:	02/08/11
Customer:	Intermec Technologies Corporation	Temperature:	24.2
Attendees:	None	Humidity:	37%
Project:		Barometric Pres.:	1031.6
Tested by:	Rod Peloquin	Job Site:	EV08
EUT Power	Battery		

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001

COMMENTS

Conducted output power

DEVIATIONS FROM TEST STANDARD

None

Configuration #	1	Signature

CDMA 1XRTT

Band	Channel	Frequency (MHz)	Radio Configuration (RC)	Service Option (SO)	Conducted Power (Average) dBm	W
Cellular	1013	824.7	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	23.94	0.248
				SO32 (FCH+SCH)	23.99	0.251
				S032(FCH)	23.88	0.244
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	23.94	0.248
	384	836.52	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	24.05	0.254
				SO32 (FCH+SCH)	22.92	0.196
				S032(FCH)	23.63	0.231
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	24.09	0.256
	777	848.31	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	23.80	0.240
				SO32 (FCH+SCH)	23.75	0.237
				S032(FCH)	23.46	0.222
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	23.86	0.243
PCS	25	1851.25	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	24.34	0.272
				SO32 (FCH+SCH)	23.68	0.233
				S032(FCH)	23.76	0.238
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	24.20	0.263
	600	1880	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	24.38	0.274
				SO32 (FCH+SCH)	24.10	0.257
				S032(FCH)	24.30	0.269
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	24.37	0.274
	1175	1908.75	RC3 (Fwd3, Rvs3)	SO55 (Loopback)	24.35	0.272
				SO32 (FCH+SCH)	23.94	0.248
				S032(FCH)	23.80	0.240
			RC1(Fwd1, Rvs1)	SO55 (Loopback)	24.17	0.261

NORTHWEST EMC

Output Power

XMit 2011.01.18

EUT:	1000CP01C			Work Order:	INMC0683
Serial Number:	24411047064			Date:	02/08/11
Customer:	Intermec Technologies Corporation			Temperature:	24.2
Attendees:	None			Humidity:	37%
Project:				Barometric Pres.:	1031.6
Tested by:	Rod Peloquin	EUT Power	Battery	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001

COMMENTS

Conducted output power

DEVIATIONS FROM TEST STANDARD

None

Configuration #	1	Signature

EVDO Rev 0

Band	Channel	Frequency (MHz)	FTAP Rate (kbps)	RTAP Rate (kbps)	Conducted Power (Average) dBm	W
Cellular	1013	824.70	307.2 (2 slot, QPSK)	153.6	24.05	0.254
	384	836.52			24.08	0.256
	777	848.31			23.94	0.247
PCS	25	1851.25			24.28	0.268
	600	1880.00			24.27	0.267
	1175	1908.75			24.2	0.263

EVDO Rev A

Band	Channel	Frequency (MHz)	FETAP-Traffic Format (kbps)	RETAP-Data Payload Size	Conducted Power (Average) dBm	W
Cellular	1013	824.70	307.2 (QPSK/ACK channel is transmitted at all the slots)	4096	24.05	0.254
	384	836.52			24.14	0.259
	777	848.31			24.08	0.255
PCS	25	1851.25			24.2	0.262
	600	1880.00			24.39	0.274
	1175	1908.75			24.2	0.262

Characterization of tissue-equivalent liquid dielectric properties

Per IEEE 1528: 2003, Section 5.2.2, the permittivity and conductivity of the tissue material should be measured at least within 24 hours of any full-compliance test. The measured values must be within +/- 5% of the target values. The temperature variation in the liquid during SAR measurements must be within +/- 2 degrees C of that recorded when the dielectric properties were measured.

The dielectric parameters of the tissue-equivalent liquids were measured prior to testing using the HP85070E dielectric probe kit. The dielectric measurements were made at 50 MHz intervals. The attached data sheets show that the dielectric parameters of the liquid were within the required 5% tolerances.

Target values of dielectric parameters

Per FCC OET 65C, Appendix C:

"The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528."

Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

Composition of Ingredients for Liquid Tissue Phantoms

Northwest EMC uses tissue-equivalent liquids prepared by SPEAG and confirmed by them to be within +/- 5% from the target values. Their recipes are based upon the following formulations as found in FCC OET 65C, Appendix C:

"The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation."

Ingredients (% by weight)	**Frequency (MHz)**									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99^{+}% Pure Sodium Chloride Sugar: 98^{+}% Pure Sucrose
Water: De-ionized, 16 MΩ^{+} resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99^{+}% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/9/11
Customer:	Intermec	Temperature (°C):	24.5
Attendees:	none	Humidity:	40.8
Project:		Barometric Pres. (mb):	1032.1
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Head **Liquid Temperature (°C): 22**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	42.057	0.884	41.500	0.900	-1.34	1.80

700.0	43.8	0.758
705.0	43.7	0.763
710.0	43.6	0.768
715.0	43.6	0.772
720.0	43.5	0.777
725.0	43.4	0.782
730.0	43.4	0.786
735.0	43.3	0.791
740.0	43.2	0.795
745.0	43.2	0.800
750.0	43.1	0.804
755.0	43.0	0.809
760.0	43.0	0.813
765.0	42.9	0.818
770.0	42.9	0.823
775.0	42.8	0.828
780.0	42.7	0.832
785.0	42.7	0.837
790.0	42.6	0.842
795.0	42.5	0.847
800.0	42.5	0.851
805.0	42.4	0.856
810.0	42.4	0.861
815.0	42.3	0.866
820.0	42.2	0.870
825.0	42.2	0.874
830.0	42.1	0.880
835.0	42.1	0.884
840.0	42.0	0.889
845.0	41.9	0.893
850.0	41.9	0.898
855.0	41.8	0.903
860.0	41.8	0.908
865.0	41.7	0.912
870.0	41.6	0.917
875.0	41.6	0.922
880.0	41.5	0.926
885.0	41.5	0.931
890.0	41.4	0.936
895.0	41.3	0.940
900.0	41.3	0.945
905.0	41.2	0.949
910.0	41.2	0.955
915.0	41.1	0.959
920.0	41.0	0.964
925.0	41.0	0.968
930.0	40.9	0.974
935.0	40.9	0.978
940.0	40.8	0.983
945.0	40.8	0.987
950.0	40.7	0.992
955.0	40.7	0.997
960.0	40.6	1.001
965.0	40.6	1.006
970.0	40.5	1.011
975.0	40.5	1.015
980.0	40.4	1.020
985.0	40.4	1.025
990.0	40.3	1.029
995.0	40.2	1.034
1000.0	40.2	1.039
1005.0	40.1	1.043
1010.0	40.1	1.048
1015.0	40.0	1.052
1020.0	40.0	1.057
1025.0	39.9	1.061
1030.0	39.9	1.066
1035.0	39.8	1.070
1040.0	39.8	1.075
1045.0	39.7	1.079
1050.0	39.7	1.084
1055.0	39.6	1.089
1060.0	39.6	1.093
1065.0	39.5	1.097
1070.0	39.5	1.102
1075.0	39.4	1.106
1080.0	39.4	1.111
1085.0	39.3	1.115
1090.0	39.3	1.120
1095.0	39.2	1.124
1100.0	39.2	1.128
1105.0	39.1	1.133
1110.0	39.1	1.136
1115.0	39.1	1.141
1120.0	39.0	1.145
1125.0	39.0	1.149
1130.0	38.9	1.154
1135.0	38.9	1.158
1140.0	38.9	1.163
1145.0	38.8	1.168
1150.0	38.8	1.173
1155.0	38.8	1.178
1160.0	38.7	1.184
1165.0	38.7	1.189
1170.0	38.6	1.194
1175.0	38.6	1.199
1180.0	38.5	1.204
1185.0	38.5	1.209
1190.0	38.4	1.214
1195.0	38.4	1.219
1200.0	38.3	1.224

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/10/11
Customer:	Intermec	Temperature (°C):	25.2
Attendees:	none	Humidity:	31.5
Project:		Barometric Pres. (mb):	1025.6
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Head **Liquid Temperature (°C): 21.7**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	40.259	0.892	41.500	0.900	2.99	0.94

700.0	42.0	0.768
705.0	42.0	0.773
710.0	41.9	0.778
715.0	41.8	0.782
720.0	41.7	0.787
725.0	41.7	0.791
730.0	41.6	0.796
735.0	41.5	0.801
740.0	41.5	0.806
745.0	41.4	0.810
750.0	41.3	0.815
755.0	41.3	0.820
760.0	41.2	0.824
765.0	41.1	0.828
770.0	41.1	0.833
775.0	41.0	0.837
780.0	41.0	0.842
785.0	40.9	0.847
790.0	40.8	0.851
795.0	40.8	0.856
800.0	40.7	0.860
805.0	40.7	0.865
810.0	40.6	0.869
815.0	40.5	0.874
820.0	40.5	0.878
825.0	40.4	0.883
830.0	40.3	0.887
835.0	40.3	0.892
840.0	40.2	0.896
845.0	40.1	0.900
850.0	40.1	0.905
855.0	40.0	0.909
860.0	39.9	0.914
865.0	39.9	0.919
870.0	39.8	0.924
875.0	39.7	0.929
880.0	39.7	0.933
885.0	39.6	0.938
890.0	39.6	0.942
895.0	39.5	0.947
900.0	39.5	0.951
905.0	39.4	0.956
910.0	39.3	0.961
915.0	39.3	0.965
920.0	39.2	0.970
925.0	39.2	0.974
930.0	39.1	0.979
935.0	39.1	0.983
940.0	39.0	0.988
945.0	39.0	0.992
950.0	38.9	0.996
955.0	38.9	1.001
960.0	38.8	1.005
965.0	38.7	1.010
970.0	38.7	1.014
975.0	38.6	1.018
980.0	38.6	1.023
985.0	38.5	1.027
990.0	38.5	1.031
995.0	38.4	1.035
1000.0	38.4	1.040
1005.0	38.3	1.045
1010.0	38.2	1.049
1015.0	38.2	1.054
1020.0	38.1	1.058
1025.0	38.1	1.063
1030.0	38.0	1.067
1035.0	38.0	1.072
1040.0	37.9	1.076
1045.0	37.9	1.081
1050.0	37.8	1.085
1055.0	37.8	1.089
1060.0	37.7	1.094
1065.0	37.7	1.098
1070.0	37.6	1.103
1075.0	37.6	1.107
1080.0	37.5	1.111
1085.0	37.5	1.116
1090.0	37.5	1.120
1095.0	37.4	1.124
1100.0	37.4	1.129
1105.0	37.3	1.133
1110.0	37.3	1.138
1115.0	37.2	1.142
1120.0	37.2	1.147
1125.0	37.1	1.152
1130.0	37.1	1.156
1135.0	37.1	1.160
1140.0	37.0	1.165
1145.0	37.0	1.169
1150.0	36.9	1.174
1155.0	36.9	1.178
1160.0	36.8	1.182
1165.0	36.8	1.187
1170.0	36.7	1.192
1175.0	36.7	1.196
1180.0	36.6	1.201
1185.0	36.6	1.205
1190.0	36.5	1.209
1195.0	36.5	1.214
1200.0	36.4	1.218

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/11/11
Customer:	Intermec	Temperature (°C):	21.7
Attendees:	none	Humidity:	38.8
Project:		Barometric Pres. (mb):	1021.7
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Head **Liquid Temperature (°C): 20.3**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	41.700	0.884	41.500	0.900	-0.48	1.75

700.0	43.5	0.759
705.0	43.4	0.763
710.0	43.3	0.768
715.0	43.2	0.773
720.0	43.2	0.777
725.0	43.1	0.782
730.0	43.0	0.786
735.0	43.0	0.792
740.0	42.9	0.796
745.0	42.8	0.801
750.0	42.8	0.805
755.0	42.7	0.810
760.0	42.6	0.814
765.0	42.6	0.819
770.0	42.5	0.823
775.0	42.5	0.828
780.0	42.4	0.833
785.0	42.3	0.838
790.0	42.3	0.842
795.0	42.2	0.846
800.0	42.1	0.852
805.0	42.1	0.856
810.0	42.0	0.860
815.0	41.9	0.865
820.0	41.9	0.870
825.0	41.8	0.875
830.0	41.8	0.880
835.0	41.7	0.884
840.0	41.6	0.889
845.0	41.6	0.894
850.0	41.5	0.898
855.0	41.4	0.903
860.0	41.4	0.908
865.0	41.3	0.912
870.0	41.3	0.916
875.0	41.2	0.921
880.0	41.2	0.926
885.0	41.1	0.930
890.0	41.1	0.935
895.0	41.0	0.940
900.0	40.9	0.944
905.0	40.9	0.949
910.0	40.8	0.954
915.0	40.8	0.959
920.0	40.7	0.964
925.0	40.7	0.969
930.0	40.6	0.974
935.0	40.6	0.979
940.0	40.5	0.983
945.0	40.4	0.988
950.0	40.4	0.993
955.0	40.3	0.998
960.0	40.3	1.002
965.0	40.2	1.007
970.0	40.2	1.012
975.0	40.1	1.017
980.0	40.1	1.022
985.0	40.0	1.026
990.0	40.0	1.031
995.0	39.9	1.036
1000.0	39.9	1.040
1005.0	39.8	1.044
1010.0	39.7	1.049
1015.0	39.7	1.054
1020.0	39.6	1.059
1025.0	39.6	1.063
1030.0	39.5	1.068
1035.0	39.5	1.073
1040.0	39.4	1.077
1045.0	39.4	1.081
1050.0	39.3	1.086
1055.0	39.3	1.091
1060.0	39.2	1.095
1065.0	39.2	1.100
1070.0	39.1	1.105
1075.0	39.1	1.110
1080.0	39.0	1.114
1085.0	39.0	1.119
1090.0	38.9	1.123
1095.0	38.9	1.128
1100.0	38.8	1.132
1105.0	38.8	1.138
1110.0	38.7	1.142
1115.0	38.7	1.146
1120.0	38.6	1.151
1125.0	38.6	1.156
1130.0	38.6	1.160
1135.0	38.5	1.165
1140.0	38.5	1.170
1145.0	38.4	1.175
1150.0	38.4	1.179
1155.0	38.3	1.184
1160.0	38.3	1.188
1165.0	38.2	1.193
1170.0	38.2	1.198
1175.0	38.1	1.202
1180.0	38.1	1.207
1185.0	38.0	1.211
1190.0	38.0	1.215
1195.0	37.9	1.220
1200.0	37.9	1.224

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL1900	Work Order:	INMC0683
Serial Number:	SAN	Date:	2/12/11
Customer:	Intermec	Temperature (°C):	23.3
Attendees:	none	Humidity:	35.9
Project:		Barometric Pres. (mb):	1011.8
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Head **Liquid Temperature (°C): 21.1**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	40.600	1.423	40.000	1.400	-1.50	-1.64
1600.0	41.9	1.115				
1612.5	41.9	1.128				
1625.0	41.8	1.139				
1637.5	41.8	1.152				
1650.0	41.7	1.164				
1662.5	41.7	1.177				
1675.0	41.6	1.190				
1687.5	41.6	1.204				
1700.0	41.5	1.217				
1712.5	41.5	1.230				
1725.0	41.4	1.244				
1737.5	41.4	1.257				
1750.0	41.3	1.270				
1762.5	41.2	1.282				
1775.0	41.2	1.295				
1787.5	41.1	1.308				
1800.0	41.1	1.321				
1812.5	41.0	1.334				
1825.0	40.9	1.347				
1837.5	40.9	1.360				
1850.0	40.8	1.373				
1862.5	40.8	1.386				
1875.0	40.7	1.398				
1887.5	40.7	1.411				
1900.0	40.6	1.423				
1912.5	40.5	1.436				
1925.0	40.5	1.449				
1937.5	40.4	1.462				
1950.0	40.4	1.474				
1962.5	40.3	1.487				
1975.0	40.3	1.501				
1987.5	40.3	1.514				
2000.0	40.2	1.528				

NORTHWEST EMC

SAR 2011.02.21

Tissue - Equivalent Liquid

EUT:	MSL1900	Work Order:	INMC0683
Serial Number:	SAO	Date:	2/14/11
Customer:	Intermec	Temperature (°C):	22.9
Attendees:	none	Humidity:	36.7
Project:		Barometric Pres. (mb):	1008
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Body **Liquid Temperature (°C): 20.9**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	53.493	1.459	53.300	1.520	-0.36	4.04
1600.0	54.6	1.135				
1612.5	54.5	1.148				
1625.0	54.5	1.161				
1637.5	54.5	1.175				
1650.0	54.4	1.188				
1662.5	54.4	1.202				
1675.0	54.4	1.216				
1687.5	54.4	1.229				
1700.0	54.3	1.242				
1712.5	54.3	1.254				
1725.0	54.2	1.267				
1737.5	54.2	1.280				
1750.0	54.1	1.293				
1762.5	54.0	1.307				
1775.0	54.0	1.322				
1787.5	53.9	1.337				
1800.0	53.9	1.352				
1812.5	53.8	1.367				
1825.0	53.8	1.382				
1837.5	53.8	1.395				
1850.0	53.7	1.409				
1862.5	53.7	1.421				
1875.0	53.6	1.433				
1887.5	53.6	1.445				
1900.0	53.5	1.459				
1912.5	53.4	1.472				
1925.0	53.4	1.487				
1937.5	53.3	1.503				
1950.0	53.3	1.518				
1962.5	53.3	1.533				
1975.0	53.2	1.549				
1987.5	53.2	1.562				
2000.0	53.2	1.577				

NORTHWEST EMC

SAR 2011.02.21

Tissue - Equivalent Liquid

EUT:	HSL1900	Work Order:	INMC0683
Serial Number:	SAN	Date:	2/15/11
Customer:	Intermec	Temperature (°C):	23.5
Attendees:	none	Humidity:	38.5
Project:		Barometric Pres. (mb):	1002.9
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Head **Liquid Temperature (°C): 21.6**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	39.887	1.381	40.000	1.400	0.28	1.39
1600.0	41.2	1.082				
1612.5	41.2	1.095				
1625.0	41.1	1.107				
1637.5	41.0	1.119				
1650.0	41.0	1.132				
1662.5	41.0	1.145				
1675.0	40.9	1.158				
1687.5	40.9	1.171				
1700.0	40.9	1.183				
1712.5	40.8	1.195				
1725.0	40.7	1.206				
1737.5	40.7	1.217				
1750.0	40.6	1.230				
1762.5	40.5	1.242				
1775.0	40.4	1.256				
1787.5	40.4	1.269				
1800.0	40.3	1.283				
1812.5	40.3	1.296				
1825.0	40.2	1.310				
1837.5	40.2	1.322				
1850.0	40.1	1.335				
1862.5	40.1	1.346				
1875.0	40.0	1.357				
1887.5	40.0	1.368				
1900.0	39.9	1.381				
1912.5	39.8	1.393				
1925.0	39.8	1.406				
1937.5	39.7	1.420				
1950.0	39.6	1.433				
1962.5	39.6	1.447				
1975.0	39.6	1.461				
1987.5	39.5	1.474				
2000.0	39.5	1.486				

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL1900	Work Order:	INMC0683
Serial Number:	SAO	Date:	2/15/11
Customer:	Intermec	Temperature (°C):	23.5
Attendees:	none	Humidity:	38.5
Project:		Barometric Pres. (mb):	1002.9
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Body **Liquid Temperature (°C): 21.6**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	53.431	1.454	53.300	1.520	-0.25	4.33

1600.0	54.5	1.133
1612.5	54.4	1.146
1625.0	54.4	1.159
1637.5	54.3	1.173
1650.0	54.3	1.186
1662.5	54.3	1.200
1675.0	54.3	1.215
1687.5	54.3	1.228
1700.0	54.2	1.241
1712.5	54.2	1.253
1725.0	54.1	1.265
1737.5	54.1	1.278
1750.0	54.0	1.291
1762.5	54.0	1.305
1775.0	53.9	1.319
1787.5	53.8	1.334
1800.0	53.8	1.349
1812.5	53.8	1.363
1825.0	53.7	1.378
1837.5	53.7	1.391
1850.0	53.6	1.404
1862.5	53.6	1.417
1875.0	53.5	1.429
1887.5	53.5	1.441
1900.0	53.4	1.454
1912.5	53.4	1.468
1925.0	53.3	1.483
1937.5	53.3	1.497
1950.0	53.2	1.512
1962.5	53.2	1.527
1975.0	53.2	1.541
1987.5	53.2	1.556
2000.0	53.1	1.570

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL1900	Work Order:	INMC0683
Serial Number:	SAN	Date:	2/16/11
Customer:	Intermec	Temperature (°C):	23.5
Attendees:	none	Humidity:	41.7
Project:		Barometric Pres. (mb):	1002.5
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Head **Liquid Temperature (°C): 20.7**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	39.880	1.382	40.000	1.400	0.30	1.27

1600.0	41.2	1.084
1612.5	41.2	1.096
1625.0	41.1	1.108
1637.5	41.0	1.121
1650.0	41.0	1.134
1662.5	41.0	1.147
1675.0	40.9	1.160
1687.5	40.9	1.173
1700.0	40.8	1.185
1712.5	40.8	1.197
1725.0	40.7	1.208
1737.5	40.7	1.220
1750.0	40.6	1.232
1762.5	40.5	1.245
1775.0	40.4	1.258
1787.5	40.4	1.271
1800.0	40.3	1.285
1812.5	40.3	1.299
1825.0	40.2	1.312
1837.5	40.2	1.325
1850.0	40.1	1.337
1862.5	40.1	1.348
1875.0	40.0	1.360
1887.5	39.9	1.371
1900.0	39.9	1.382
1912.5	39.8	1.395
1925.0	39.7	1.408
1937.5	39.7	1.422
1950.0	39.6	1.436
1962.5	39.6	1.449
1975.0	39.6	1.463
1987.5	39.5	1.476
2000.0	39.5	1.489

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/17/11
Customer:	Intermec	Temperature (°C):	21.5
Attendees:	none	Humidity:	37.3
Project:		Barometric Pres. (mb):	1008.3
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Head **Liquid Temperature (°C): 21.4**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	41.507	0.880	41.500	0.900	-0.02	2.25

700.0	43.2	0.754
705.0	43.1	0.759
710.0	43.1	0.763
715.0	43.0	0.768
720.0	42.9	0.773
725.0	42.9	0.777
730.0	42.8	0.782
735.0	42.7	0.787
740.0	42.7	0.792
745.0	42.6	0.796
750.0	42.5	0.801
755.0	42.5	0.806
760.0	42.4	0.810
765.0	42.4	0.815
770.0	42.3	0.820
775.0	42.2	0.824
780.0	42.2	0.829
785.0	42.1	0.833
790.0	42.0	0.838
795.0	42.0	0.843
800.0	41.9	0.847
805.0	41.9	0.852
810.0	41.8	0.857
815.0	41.7	0.862
820.0	41.7	0.866
825.0	41.6	0.871
830.0	41.6	0.875
835.0	41.5	0.880
840.0	41.5	0.884
845.0	41.4	0.889
850.0	41.3	0.893
855.0	41.3	0.898
860.0	41.2	0.903
865.0	41.2	0.907
870.0	41.1	0.912
875.0	41.0	0.917
880.0	41.0	0.922
885.0	40.9	0.926
890.0	40.9	0.931
895.0	40.8	0.936
900.0	40.8	0.940
905.0	40.7	0.945
910.0	40.6	0.950
915.0	40.6	0.954
920.0	40.5	0.959
925.0	40.5	0.964
930.0	40.4	0.969
935.0	40.4	0.973
940.0	40.3	0.978
945.0	40.2	0.983
950.0	40.2	0.987
955.0	40.1	0.992
960.0	40.1	0.996
965.0	40.0	1.001
970.0	40.0	1.006
975.0	39.9	1.010
980.0	39.9	1.015
985.0	39.8	1.019
990.0	39.8	1.024
995.0	39.7	1.029
1000.0	39.7	1.033
1005.0	39.6	1.038
1010.0	39.6	1.043
1015.0	39.5	1.047
1020.0	39.5	1.052
1025.0	39.4	1.056
1030.0	39.4	1.061
1035.0	39.3	1.066
1040.0	39.3	1.070
1045.0	39.2	1.075
1050.0	39.2	1.079
1055.0	39.1	1.084
1060.0	39.0	1.089
1065.0	39.0	1.094
1070.0	38.9	1.098
1075.0	38.9	1.102
1080.0	38.8	1.107
1085.0	38.8	1.112
1090.0	38.7	1.116
1095.0	38.7	1.121
1100.0	38.7	1.126
1105.0	38.6	1.130
1110.0	38.6	1.135
1115.0	38.5	1.139
1120.0	38.5	1.144
1125.0	38.4	1.149
1130.0	38.4	1.153
1135.0	38.3	1.157
1140.0	38.3	1.162
1145.0	38.2	1.167
1150.0	38.2	1.171
1155.0	38.1	1.176
1160.0	38.1	1.181
1165.0	38.1	1.185
1170.0	38.0	1.190
1175.0	38.0	1.195
1180.0	37.9	1.199
1185.0	37.9	1.203
1190.0	37.8	1.208
1195.0	37.8	1.213
1200.0	37.7	1.217

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL1900	Work Order:	INMC0683
Serial Number:	SAO	Date:	2/18/11
Customer:	Intermec	Temperature (°C):	22.7
Attendees:	none	Humidity:	39.7
Project:		Barometric Pres. (mb):	1012.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Body **Liquid Temperature (°C): 21.6**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	53.398	1.507	53.300	1.520	-0.18	0.83
1600.0	54.4	1.194				
1612.5	54.4	1.208				
1625.0	54.3	1.222				
1637.5	54.3	1.235				
1650.0	54.2	1.250				
1662.5	54.2	1.264				
1675.0	54.1	1.277				
1687.5	54.1	1.292				
1700.0	54.0	1.305				
1712.5	54.0	1.318				
1725.0	53.9	1.331				
1737.5	53.8	1.344				
1750.0	53.8	1.357				
1762.5	53.7	1.369				
1775.0	53.7	1.381				
1787.5	53.6	1.392				
1800.0	53.6	1.404				
1812.5	53.5	1.415				
1825.0	53.5	1.427				
1837.5	53.5	1.438				
1850.0	53.4	1.450				
1862.5	53.4	1.463				
1875.0	53.4	1.477				
1887.5	53.4	1.492				
1900.0	53.4	1.507				
1912.5	53.4	1.525				
1925.0	53.3	1.543				
1937.5	53.3	1.561				
1950.0	53.3	1.579				
1962.5	53.2	1.596				
1975.0	53.2	1.613				
1987.5	53.1	1.629				
2000.0	53.0	1.645				

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/18/11
Customer:	Intermec	Temperature (°C):	22.3
Attendees:	none	Humidity:	37.2
Project:		Barometric Pres. (mb):	1013.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Head **Liquid Temperature (°C): 21**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	41.121	0.873	41.500	0.900	0.91	2.95

700.0	42.8	0.751
705.0	42.8	0.755
710.0	42.7	0.759
715.0	42.6	0.764
720.0	42.6	0.768
725.0	42.5	0.773
730.0	42.4	0.777
735.0	42.4	0.782
740.0	42.3	0.787
745.0	42.2	0.791
750.0	42.2	0.796
755.0	42.1	0.801
760.0	42.0	0.805
765.0	42.0	0.810
770.0	41.9	0.814
775.0	41.8	0.819
780.0	41.8	0.823
785.0	41.7	0.828
790.0	41.6	0.832
795.0	41.6	0.837
800.0	41.5	0.841
805.0	41.5	0.846
810.0	41.4	0.850
815.0	41.4	0.855
820.0	41.3	0.859
825.0	41.2	0.864
830.0	41.2	0.869
835.0	41.1	0.873
840.0	41.1	0.878
845.0	41.0	0.883
850.0	40.9	0.888
855.0	40.9	0.893
860.0	40.8	0.897
865.0	40.8	0.902
870.0	40.7	0.907
875.0	40.6	0.912
880.0	40.6	0.916
885.0	40.5	0.921
890.0	40.5	0.926
895.0	40.4	0.931
900.0	40.3	0.935
905.0	40.3	0.940
910.0	40.2	0.944
915.0	40.2	0.949
920.0	40.1	0.953
925.0	40.1	0.958
930.0	40.0	0.962
935.0	39.9	0.967
940.0	39.9	0.971
945.0	39.8	0.976
950.0	39.8	0.981
955.0	39.7	0.986
960.0	39.7	0.990
965.0	39.6	0.995
970.0	39.6	0.999
975.0	39.5	1.004
980.0	39.5	1.008
985.0	39.4	1.013
990.0	39.4	1.018
995.0	39.3	1.022
1000.0	39.2	1.027
1005.0	39.2	1.031
1010.0	39.1	1.036
1015.0	39.1	1.041
1020.0	39.0	1.045
1025.0	39.0	1.050
1030.0	38.9	1.055
1035.0	38.9	1.058
1040.0	38.8	1.063
1045.0	38.8	1.068
1050.0	38.7	1.072
1055.0	38.7	1.077
1060.0	38.6	1.081
1065.0	38.6	1.086
1070.0	38.6	1.090
1075.0	38.5	1.094
1080.0	38.5	1.099
1085.0	38.4	1.104
1090.0	38.4	1.108
1095.0	38.3	1.113
1100.0	38.3	1.118
1105.0	38.2	1.122
1110.0	38.2	1.127
1115.0	38.2	1.132
1120.0	38.1	1.136
1125.0	38.1	1.141
1130.0	38.0	1.146
1135.0	38.0	1.151
1140.0	37.9	1.156
1145.0	37.9	1.161
1150.0	37.8	1.166
1155.0	37.8	1.170
1160.0	37.7	1.175
1165.0	37.7	1.180
1170.0	37.6	1.185
1175.0	37.6	1.189
1180.0	37.5	1.194
1185.0	37.5	1.198
1190.0	37.4	1.202
1195.0	37.4	1.207
1200.0	37.4	1.211

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL900	Work Order:	INMC0683
Serial Number:	SAT	Date:	2/19/11
Customer:	Intermec	Temperature (°C):	22.3
Attendees:	none	Humidity:	37.2
Project:		Barometric Pres. (mb):	1013.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Body **Liquid Temperature (°C): 21**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	55.797	0.999	55.200	0.970	-1.08	-2.96

700.0	57.1	0.874
705.0	57.0	0.878
710.0	57.0	0.882
715.0	57.0	0.886
720.0	56.9	0.890
725.0	56.9	0.894
730.0	56.8	0.898
735.0	56.8	0.902
740.0	56.7	0.906
745.0	56.7	0.911
750.0	56.6	0.915
755.0	56.5	0.919
760.0	56.5	0.923
765.0	56.4	0.928
770.0	56.4	0.932
775.0	56.3	0.937
780.0	56.3	0.941
785.0	56.2	0.946
790.0	56.1	0.951
795.0	56.1	0.956
800.0	56.0	0.961
805.0	56.0	0.967
810.0	56.0	0.972
815.0	55.9	0.977
820.0	55.9	0.982
825.0	55.9	0.988
830.0	55.8	0.993
835.0	55.8	0.999
840.0	55.8	1.004
845.0	55.7	1.008
850.0	55.7	1.014
855.0	55.7	1.018
860.0	55.6	1.023
865.0	55.6	1.028
870.0	55.6	1.033
875.0	55.5	1.037
880.0	55.5	1.042
885.0	55.4	1.046
890.0	55.4	1.051
895.0	55.3	1.056
900.0	55.3	1.060
905.0	55.2	1.065
910.0	55.2	1.069
915.0	55.1	1.074
920.0	55.1	1.078
925.0	55.0	1.083
930.0	55.0	1.087
935.0	54.9	1.093
940.0	54.8	1.098
945.0	54.8	1.103
950.0	54.8	1.108
955.0	54.7	1.114
960.0	54.7	1.119
965.0	54.6	1.125
970.0	54.6	1.129
975.0	54.5	1.135
980.0	54.5	1.140
985.0	54.4	1.145
990.0	54.4	1.151
995.0	54.4	1.156
1000.0	54.3	1.161
1005.0	54.3	1.166
1010.0	54.3	1.171
1015.0	54.2	1.177
1020.0	54.2	1.181
1025.0	54.2	1.186
1030.0	54.1	1.191
1035.0	54.1	1.195
1040.0	54.0	1.200
1045.0	54.0	1.204
1050.0	53.9	1.209
1055.0	53.9	1.213
1060.0	53.8	1.217
1065.0	53.8	1.222
1070.0	53.8	1.227
1075.0	53.7	1.231
1080.0	53.7	1.237
1085.0	53.7	1.242
1090.0	53.6	1.248
1095.0	53.6	1.253
1100.0	53.5	1.258
1105.0	53.5	1.265
1110.0	53.5	1.270
1115.0	53.4	1.276
1120.0	53.4	1.281
1125.0	53.3	1.287
1130.0	53.3	1.293
1135.0	53.3	1.298
1140.0	53.2	1.304
1145.0	53.2	1.310
1150.0	53.2	1.315
1155.0	53.1	1.321
1160.0	53.1	1.326
1165.0	53.1	1.332
1170.0	53.0	1.338
1175.0	53.0	1.343
1180.0	52.9	1.348
1185.0	52.9	1.354
1190.0	52.8	1.359
1195.0	52.8	1.364
1200.0	52.8	1.369

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/19/11
Customer:	Intermec	Temperature (°C):	22.3
Attendees:	none	Humidity:	37.2
Project:		Barometric Pres. (mb):	1013.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Head **Liquid Temperature (°C): 21**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	41.031	0.873	41.500	0.900	1.13	2.95

700.0	42.8	0.751
705.0	42.7	0.755
710.0	42.7	0.759
715.0	42.6	0.764
720.0	42.5	0.768
725.0	42.5	0.772
730.0	42.4	0.776
735.0	42.3	0.780
740.0	42.3	0.784
745.0	42.2	0.788
750.0	42.1	0.792
755.0	42.0	0.797
760.0	42.0	0.801
765.0	41.9	0.805
770.0	41.8	0.810
775.0	41.7	0.815
780.0	41.7	0.819
785.0	41.6	0.824
790.0	41.5	0.829
795.0	41.5	0.833
800.0	41.4	0.838
805.0	41.3	0.843
810.0	41.3	0.848
815.0	41.2	0.853
820.0	41.2	0.859
825.0	41.1	0.863
830.0	41.1	0.868
835.0	41.0	0.873
840.0	41.0	0.879
845.0	40.9	0.883
850.0	40.9	0.888
855.0	40.8	0.893
860.0	40.8	0.897
865.0	40.7	0.902
870.0	40.7	0.906
875.0	40.6	0.911
880.0	40.6	0.915
885.0	40.5	0.919
890.0	40.5	0.924
895.0	40.4	0.928
900.0	40.3	0.932
905.0	40.3	0.937
910.0	40.2	0.941
915.0	40.1	0.945
920.0	40.1	0.949
925.0	40.0	0.954
930.0	39.9	0.958
935.0	39.9	0.962
940.0	39.8	0.967
945.0	39.8	0.972
950.0	39.7	0.976
955.0	39.6	0.981
960.0	39.6	0.986
965.0	39.5	0.991
970.0	39.5	0.996
975.0	39.4	1.001
980.0	39.4	1.005
985.0	39.3	1.010
990.0	39.3	1.015
995.0	39.2	1.020
1000.0	39.2	1.024
1005.0	39.1	1.029
1010.0	39.1	1.034
1015.0	39.1	1.038
1020.0	39.0	1.043
1025.0	39.0	1.047
1030.0	38.9	1.051
1035.0	38.9	1.055
1040.0	38.8	1.059
1045.0	38.7	1.064
1050.0	38.7	1.067
1055.0	38.6	1.071
1060.0	38.6	1.075
1065.0	38.5	1.079
1070.0	38.5	1.084
1075.0	38.4	1.088
1080.0	38.4	1.092
1085.0	38.3	1.097
1090.0	38.3	1.102
1095.0	38.3	1.106
1100.0	38.2	1.111
1105.0	38.2	1.116
1110.0	38.1	1.121
1115.0	38.1	1.126
1120.0	38.0	1.131
1125.0	38.0	1.136
1130.0	37.9	1.141
1135.0	37.9	1.146
1140.0	37.8	1.150
1145.0	37.8	1.156
1150.0	37.7	1.160
1155.0	37.7	1.165
1160.0	37.7	1.170
1165.0	37.6	1.175
1170.0	37.6	1.180
1175.0	37.5	1.184
1180.0	37.5	1.189
1185.0	37.4	1.193
1190.0	37.4	1.197
1195.0	37.3	1.202
1200.0	37.3	1.206

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0683
Serial Number:	SAS	Date:	2/21/11
Customer:	Intermec	Temperature (°C):	22.3
Attendees:	none	Humidity:	37.2
Project:		Barometric Pres. (mb):	1013.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: Head **Liquid Temperature (°C): 21**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	42.725	0.905	41.500	0.900	-2.95	-0.53

700.0	44.5	0.777
705.0	44.4	0.781
710.0	44.3	0.786
715.0	44.3	0.791
720.0	44.2	0.795
725.0	44.2	0.800
730.0	44.1	0.804
735.0	44.0	0.809
740.0	43.9	0.813
745.0	43.9	0.818
750.0	43.8	0.822
755.0	43.7	0.827
760.0	43.7	0.831
765.0	43.6	0.836
770.0	43.5	0.840
775.0	43.5	0.845
780.0	43.4	0.850
785.0	43.3	0.854
790.0	43.2	0.859
795.0	43.2	0.864
800.0	43.1	0.869
805.0	43.1	0.874
810.0	43.0	0.879
815.0	42.9	0.884
820.0	42.9	0.889
825.0	42.8	0.894
830.0	42.8	0.899
835.0	42.7	0.905
840.0	42.7	0.910
845.0	42.6	0.915
850.0	42.6	0.920
855.0	42.5	0.925
860.0	42.5	0.930
865.0	42.4	0.935
870.0	42.4	0.940
875.0	42.3	0.945
880.0	42.3	0.949
885.0	42.2	0.954
890.0	42.1	0.959
895.0	42.1	0.963
900.0	42.0	0.968
905.0	42.0	0.972
910.0	41.9	0.977
915.0	41.9	0.981
920.0	41.8	0.986
925.0	41.7	0.990
930.0	41.7	0.995
935.0	41.6	0.999
940.0	41.6	1.004
945.0	41.5	1.008
950.0	41.5	1.013
955.0	41.4	1.017
960.0	41.3	1.022
965.0	41.3	1.027
970.0	41.2	1.032
975.0	41.2	1.037
980.0	41.1	1.041
985.0	41.1	1.046
990.0	41.0	1.051
995.0	40.9	1.056
1000.0	40.9	1.061
1005.0	40.8	1.066
1010.0	40.8	1.070
1015.0	40.7	1.075
1020.0	40.7	1.080
1025.0	40.6	1.085
1030.0	40.6	1.089
1035.0	40.5	1.094
1040.0	40.5	1.098
1045.0	40.4	1.103
1050.0	40.4	1.107
1055.0	40.3	1.112
1060.0	40.3	1.116
1065.0	40.2	1.121
1070.0	40.2	1.125
1075.0	40.2	1.129
1080.0	40.1	1.134
1085.0	40.1	1.139
1090.0	40.0	1.144
1095.0	40.0	1.148
1100.0	39.9	1.153
1105.0	39.9	1.158
1110.0	39.8	1.163
1115.0	39.8	1.168
1120.0	39.7	1.173
1125.0	39.7	1.178
1130.0	39.6	1.183
1135.0	39.6	1.188
1140.0	39.5	1.193
1145.0	39.5	1.198
1150.0	39.4	1.203
1155.0	39.4	1.208
1160.0	39.3	1.213
1165.0	39.3	1.218
1170.0	39.2	1.223
1175.0	39.2	1.228
1180.0	39.1	1.232
1185.0	39.1	1.237
1190.0	39.0	1.242
1195.0	39.0	1.247
1200.0	39.0	1.251

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL900	Work Order:	INMC0683
Serial Number:	SAT	Date:	2/21/11
Customer:	Intermec	Temperature (°C):	22.3
Attendees:	none	Humidity:	37.2
Project:		Barometric Pres. (mb):	1013.4
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093: 2011	FCC OET 65C: 2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: Body **Liquid Temperature (°C): 21**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	55.544	1.000	55.200	0.970	-0.62	-3.13

700.0	56.8	0.874
705.0	56.7	0.878
710.0	56.7	0.883
715.0	56.7	0.888
720.0	56.6	0.892
725.0	56.6	0.897
730.0	56.5	0.901
735.0	56.5	0.906
740.0	56.4	0.910
745.0	56.4	0.915
750.0	56.3	0.920
755.0	56.3	0.924
760.0	56.2	0.928
765.0	56.2	0.933
770.0	56.1	0.938
775.0	56.1	0.942
780.0	56.0	0.947
785.0	56.0	0.951
790.0	55.9	0.956
795.0	55.9	0.961
800.0	55.8	0.965
805.0	55.8	0.970
810.0	55.7	0.975
815.0	55.7	0.980
820.0	55.7	0.985
825.0	55.6	0.990
830.0	55.6	0.995
835.0	55.5	1.000
840.0	55.5	1.006
845.0	55.4	1.011
850.0	55.4	1.017
855.0	55.4	1.022
860.0	55.3	1.027
865.0	55.3	1.032
870.0	55.2	1.038
875.0	55.2	1.042
880.0	55.2	1.047
885.0	55.1	1.052
890.0	55.1	1.058
895.0	55.0	1.063
900.0	55.0	1.067
905.0	55.0	1.072
910.0	54.9	1.077
915.0	54.9	1.081
920.0	54.8	1.086
925.0	54.8	1.090
930.0	54.7	1.095
935.0	54.7	1.099
940.0	54.6	1.104
945.0	54.6	1.109
950.0	54.6	1.113
955.0	54.5	1.118
960.0	54.5	1.123
965.0	54.4	1.128
970.0	54.4	1.133
975.0	54.3	1.138
980.0	54.3	1.143
985.0	54.2	1.148
990.0	54.2	1.153
995.0	54.1	1.158
1000.0	54.1	1.164
1005.0	54.0	1.168
1010.0	54.0	1.174
1015.0	54.0	1.179
1020.0	53.9	1.184
1025.0	53.9	1.189
1030.0	53.8	1.194
1035.0	53.8	1.199
1040.0	53.7	1.204
1045.0	53.7	1.210
1050.0	53.7	1.215
1055.0	53.6	1.219
1060.0	53.6	1.224
1065.0	53.6	1.229
1070.0	53.5	1.234
1075.0	53.5	1.239
1080.0	53.5	1.244
1085.0	53.4	1.250
1090.0	53.4	1.254
1095.0	53.4	1.259
1100.0	53.3	1.264
1105.0	53.3	1.270
1110.0	53.3	1.275
1115.0	53.2	1.280
1120.0	53.2	1.285
1125.0	53.1	1.290
1130.0	53.1	1.296
1135.0	53.1	1.302
1140.0	53.0	1.307
1145.0	53.0	1.313
1150.0	52.9	1.319
1155.0	52.9	1.324
1160.0	52.8	1.330
1165.0	52.8	1.336
1170.0	52.7	1.341
1175.0	52.7	1.346
1180.0	52.7	1.352
1185.0	52.6	1.357
1190.0	52.6	1.363
1195.0	52.5	1.368
1200.0	52.5	1.374

Requirement

Per IEEE 1528, Section 8.2.1, “System checks are performed prior to compliance tests and the results must always be within ± 10% of the target value corresponding to the test frequency, liquid, and the source used. The target values are 1 g or 10 g averaged SAR values measured on systems having current system validation and calibration status, and using the system check setup as shown in Figure 14. These target values should be determined using a standard source.”

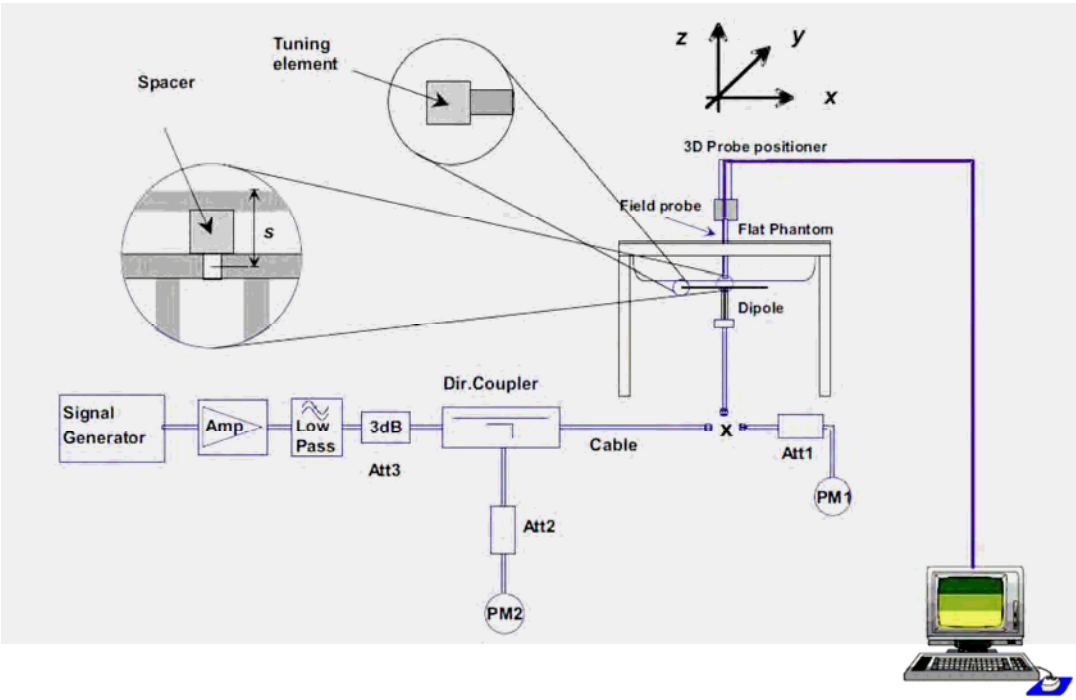
Test Description

Prior to testing every day, Northwest EMC used the system validation kit (calibrated reference dipole) to test whether the system was operating within its specifications. The validation was performed in the indicated bands by making SAR measurements of the reference dipole with the phantom filled with the tissue-equivalent liquid. First, a signal generator and power amplifier were used to produce a 100mW level as measured with a power meter at the antenna terminals of the dipole. Then, the reference dipole was positioned below the bottom of the phantom and centered with its axis parallel to the longest side of the phantom. A low loss and low relative permittivity spacer was used to establish the correct distance between the center axis of the reference dipole and the liquid.

For the reference dipoles, the spacing distance s is given by:

s = 15mm, +/- 0.2mm for 300MHz ≤ f ≥ 1000 MHz:
s = 10mm, +/- 0.2mm for 1000MHz ≤ f ≥ 6000MHz

The measured 1 g and 10 g spatial average SAR values were normalized to a 1W dipole input power for comparison to the calibration data. The results are summarized in the attached table. The deviation is less than 10% in all cases, indicating that the system performance check was within tolerance.



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP01CO	Work Order:	INMC0683
Serial Number:	24411047084	Date:	See Data Sheets
Customer:	Intermec Technologies	Temperature:	See Data Sheets
Attendees:	None	Humidity:	See Data Sheets
Project:	INMC0570	Barometric Pres.:	See Data Sheets
Tested by:	Jennifer Herrett	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #		Signature Jennifer Herrett

Date	Liquid part number and frequency	Conducted Power into the Dipole (dBm)	Correction Factor	1g Measured	10g Measured	1g Normalized to 1W	10g Normalized to 1W	Target 1g (Normalized to 1W) - Get from Dipole cal cert	Target 10g (Normalized to 1W) - Get from Dipole cal cert	% difference 1g	% difference 10 g	Comments
2/9/2011	HSL900 835MHz	20.0	10.0	0.967	0.641	9.67	6.41	9.64	6.29	**0.31**	**1.91**	
2/10/2011	HSL900 835MHz	20.0	10.0	1.000	0.664	10.00	6.64	9.64	6.29	**3.73**	**5.56**	
2/10/2011	MSL900 835MHz	20.0	10.0	0.909	0.604	9.09	6.04	9.93	6.51	**-8.46**	**-7.22**	
2/11/2011	HSL900 835MHz	20.0	10.0	0.959	0.636	9.59	6.36	9.64	6.29	**-0.52**	**1.11**	
2/12/2011	HSL1900 1900MHz	19.5	11.2	3.390	1.740	38.04	19.52	40.2	20.9	**-5.38**	**-6.59**	
2/14/2011	MSL1900 1900MHz	20.0	10.0	3.780	1.960	37.80	19.60	39.9	21	**-5.26**	**-6.67**	
2/15/2011	MSL1900 1900 MHz	20.0	10.0	4.190	2.180	41.90	21.80	39.9	21	**5.01**	**3.81**	
2/16/2011	HSL1900 1900MHz	20.0	10.0	4.050	2.090	40.50	20.90	40.2	20.9	**0.75**	**0.00**	
2/17/2011	HSL900 835MHz	20.0	10.0	0.986	0.655	9.86	6.55	9.64	6.29	**2.28**	**4.13**	
2/18/2011	MSL1900 1900MHz	20.0	10.0	4.240	2.200	42.40	22.00	39.9	21	**6.27**	**4.76**	
2/18/2011	HSL900 835MHz	20.0	10.0	0.988	0.655	9.88	6.55	9.64	6.29	**2.49**	**4.13**	
2/19/2011	MSL900 835MHz	20.0	10.0	1.000	0.660	10.00	6.60	9.93	6.51	**0.70**	**1.38**	
2/19/2011	HSL900 835MHz	20.0	10.0	0.957	0.634	9.57	6.34	9.64	6.29	**-0.73**	**0.79**	

Room Temprature (°C):	23.1	**Humidity (%):**	40.3	**Test Date:**	02/09/11
Liquid Temprature (°C):	21.4	**Barometric Pressure (mb):**	1034.8	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-9-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.884 mho/m; ε = 42.057; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.883813 mho/m, ε = 42.0572; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

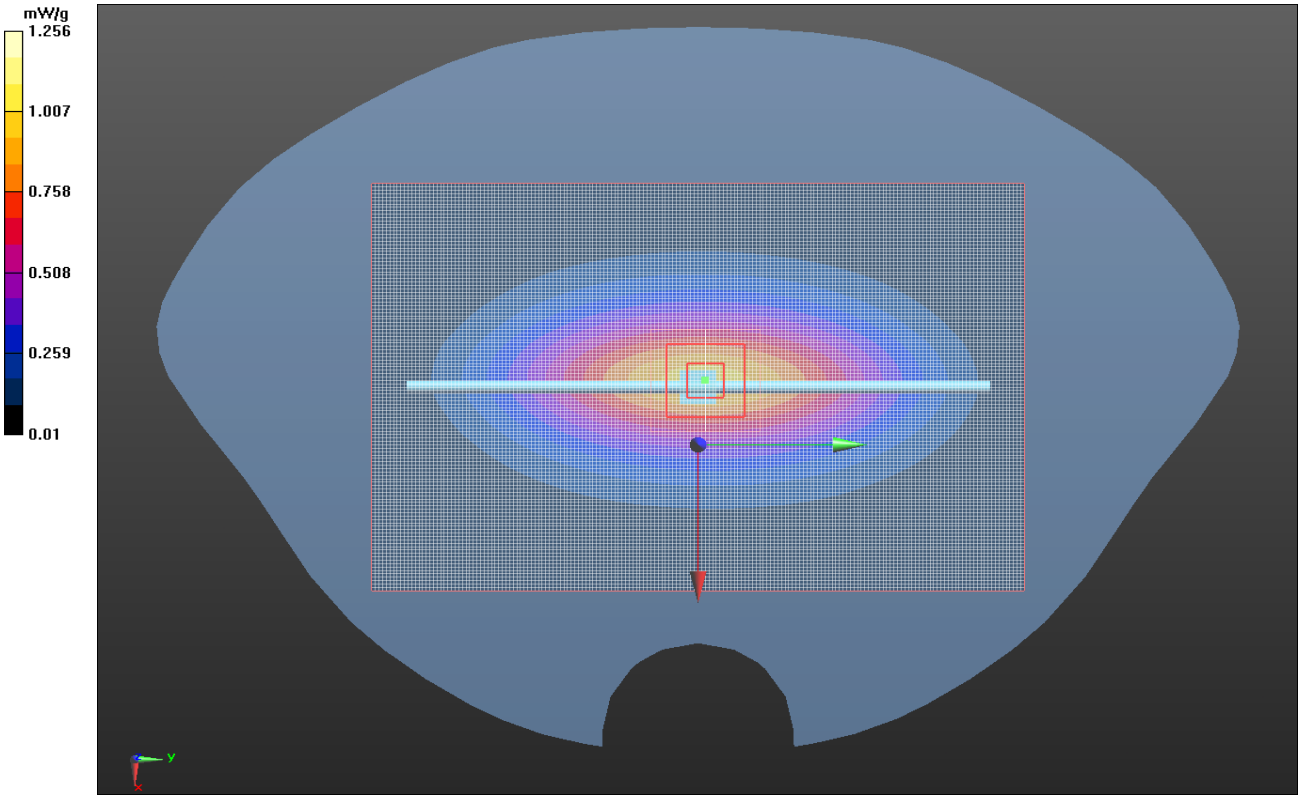
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 5mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.397 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.380 W/kg
SAR(1 g) = 0.967 mW/g; SAR(10 g) = 0.641 mW/g
Maximum value of SAR (measured) = 1.048 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 37.690 V/m

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.973 mW/g



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	23.7	**Humidity (%):**	32	**Test Date:**	02/10/11
Liquid Temprature (°C):	21.5	**Barometric Pressure (mb):**	1025.5	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-10-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.892 mho/m; ε = 40.258; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.891561 mho/m, ε = 40.2585; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

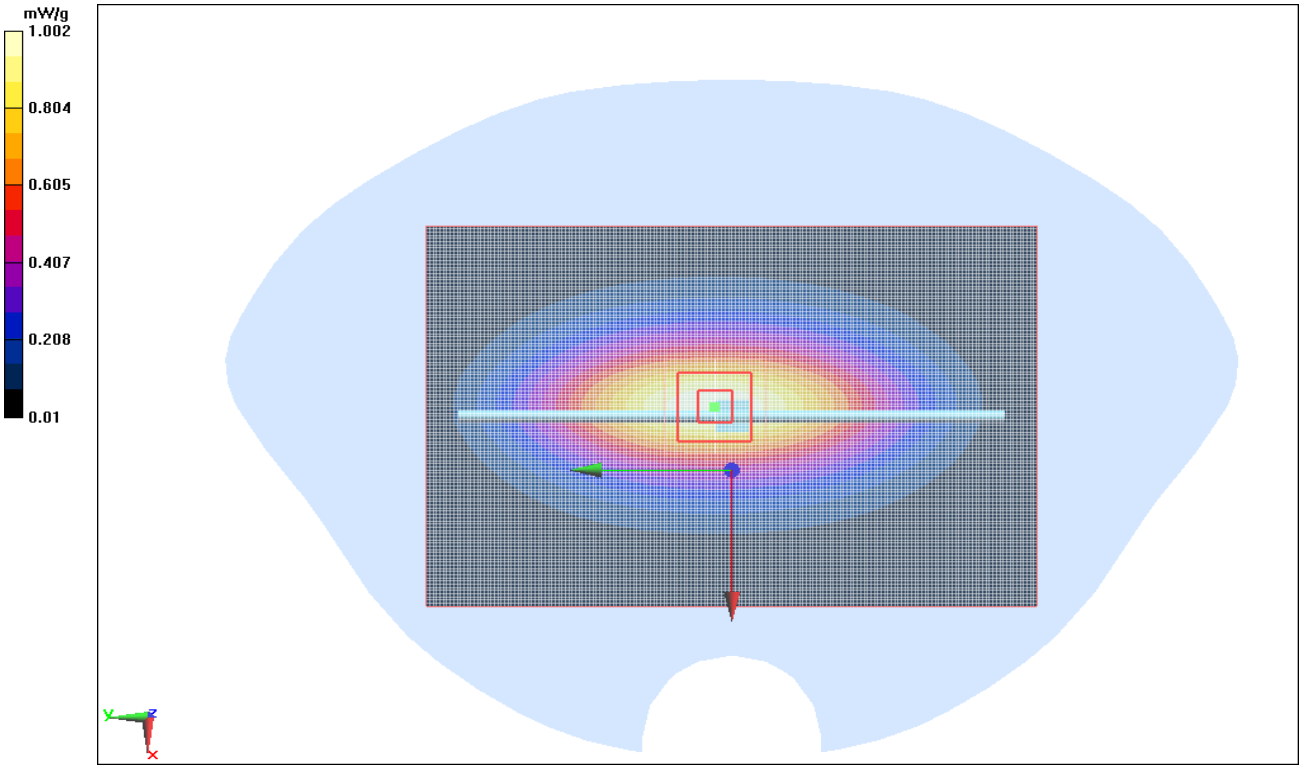
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 5mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.423 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.424 W/kg
SAR(1 g) = 1 mW/g; SAR(10 g) = 0.664 mW/g
Maximum value of SAR (measured) = 1.084 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 38.282 V/m

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.002 mW/g



Room Temprature (°C):	24.6	**Humidity (%):**	40.7	**Test Date:**	02/10/11
Liquid Temprature (°C):	22	**Barometric Pressure (mb):**	1026	**Tested by:**	Jennifer Herrett

MSL900 System Check_835MHz 2-10-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.892 mho/m; ε = 40.258; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.891561 mho/m, ε = 40.2585; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

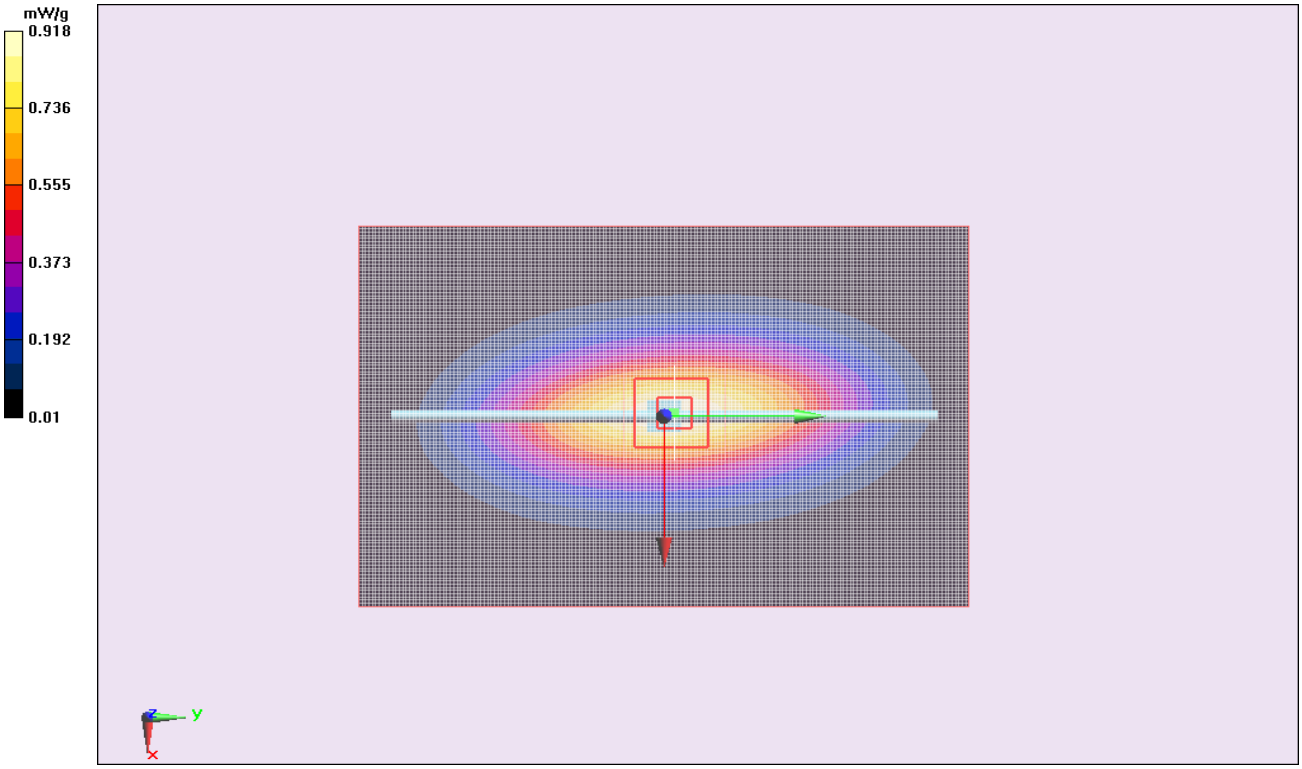
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 5mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.965 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.285 W/kg
SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.604 mW/g
Maximum value of SAR (measured) = 0.984 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 35.838 V/m

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.918 mW/g



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	21.8	**Humidity (%):**	36.4	**Test Date:**	02/11/11
Liquid Temprature (°C):	21.4	**Barometric Pressure (mb):**	1022.1	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-11-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.884 mho/m; ε = 41.7; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.884189 mho/m, ε = 41.7001; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

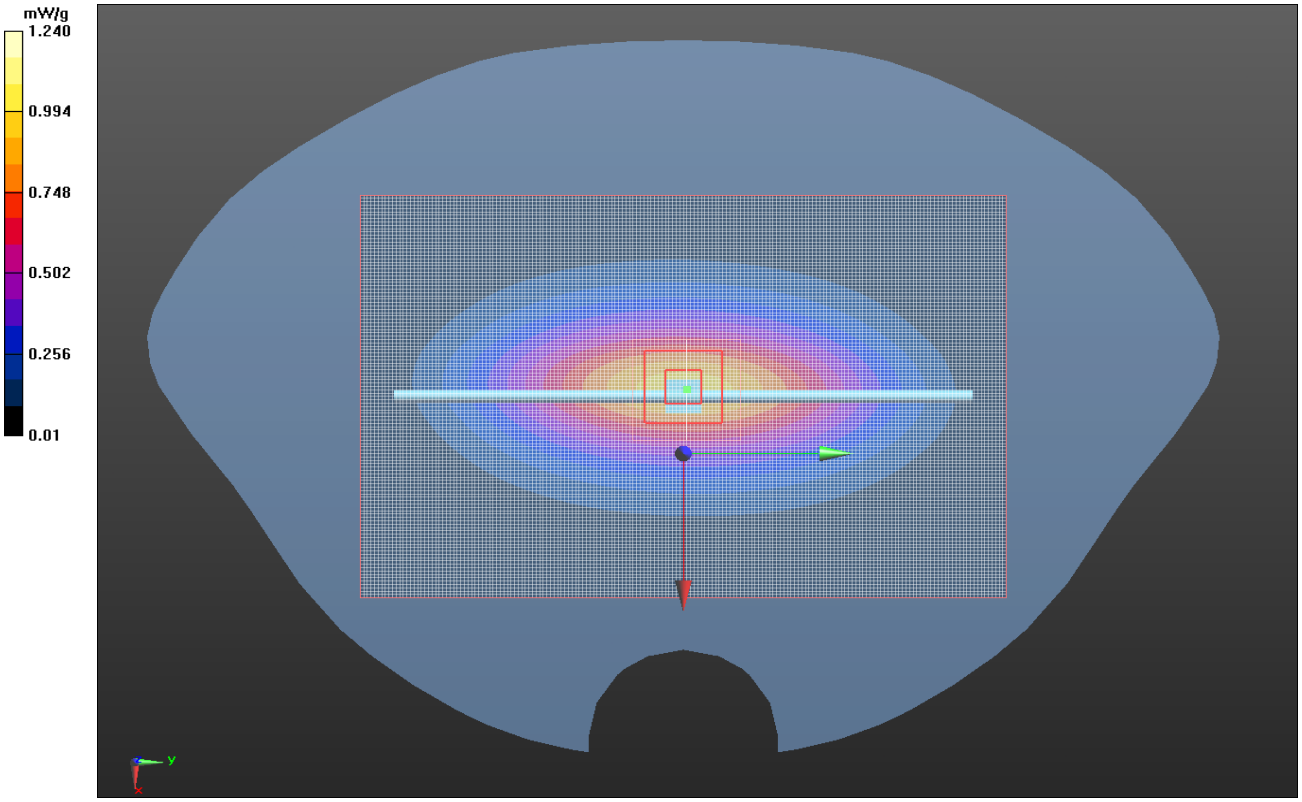
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 5mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.659 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.365 W/kg
SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.636 mW/g
Maximum value of SAR (measured) = 1.038 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 37.443 V/m

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.966 mW/g



Room Temprature (°C):	23	**Humidity (%):**	38	**Test Date:**	02/12/11
Liquid Temprature (°C):	22	**Barometric Pressure (mb):**	1020	**Tested by:**	Jennifer Herrett

HSL1900 System Check

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d131

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.423 mho/m; ε = 40.609; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.4232 mho/m, ε = 40.6086; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

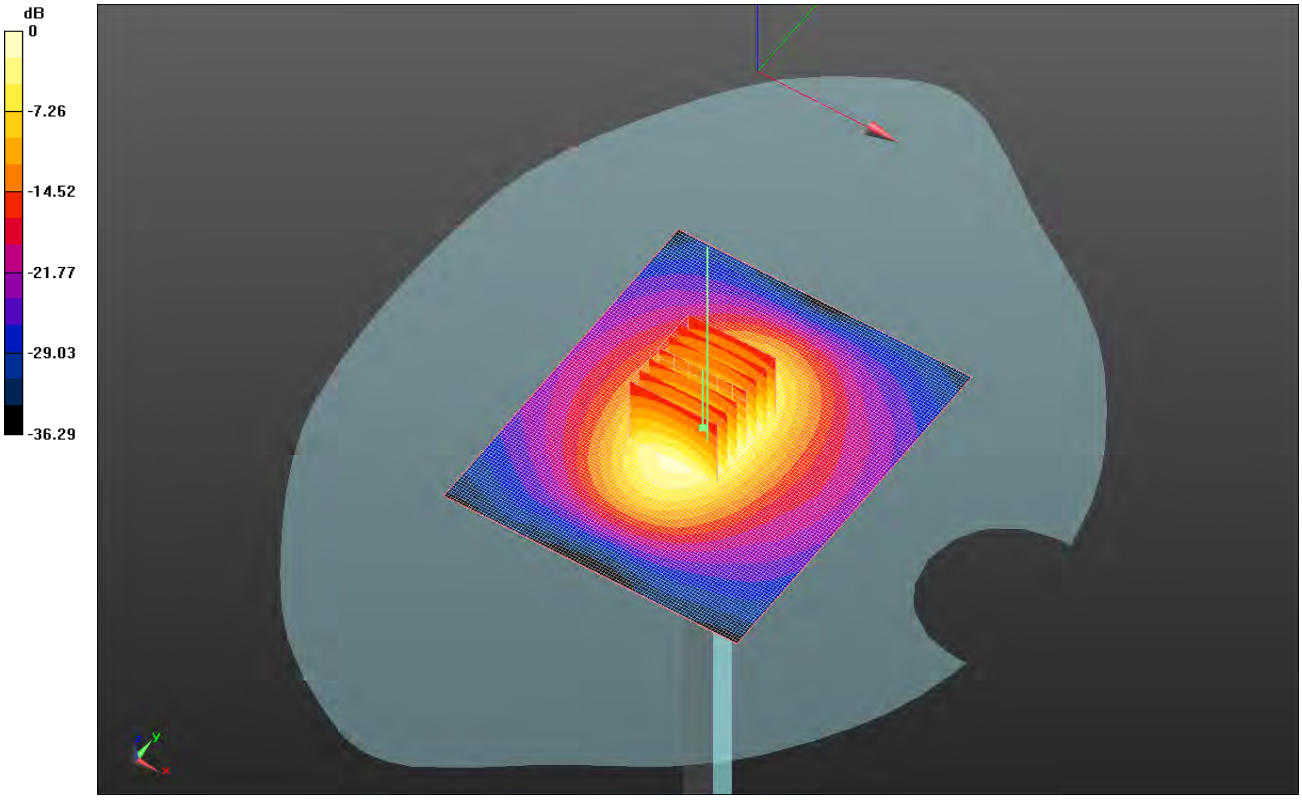
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.454 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 6.550 W/kg
SAR(1 g) = 3.39 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 3.331 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 58.478 V/m

System Check/System Check/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 3.375 mW/g



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	22.1	**Humidity (%):**	44.2	**Test Date:**	02/14/11
Liquid Temprature (°C):	20.9	**Barometric Pressure (mb):**	1002.5	**Tested by:**	Jennifer Herrett

MSL1900 System Check 2-14-11

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d131

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.459 mho/m; ε = 53.493; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.45856 mho/m, ε = 53.4933; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

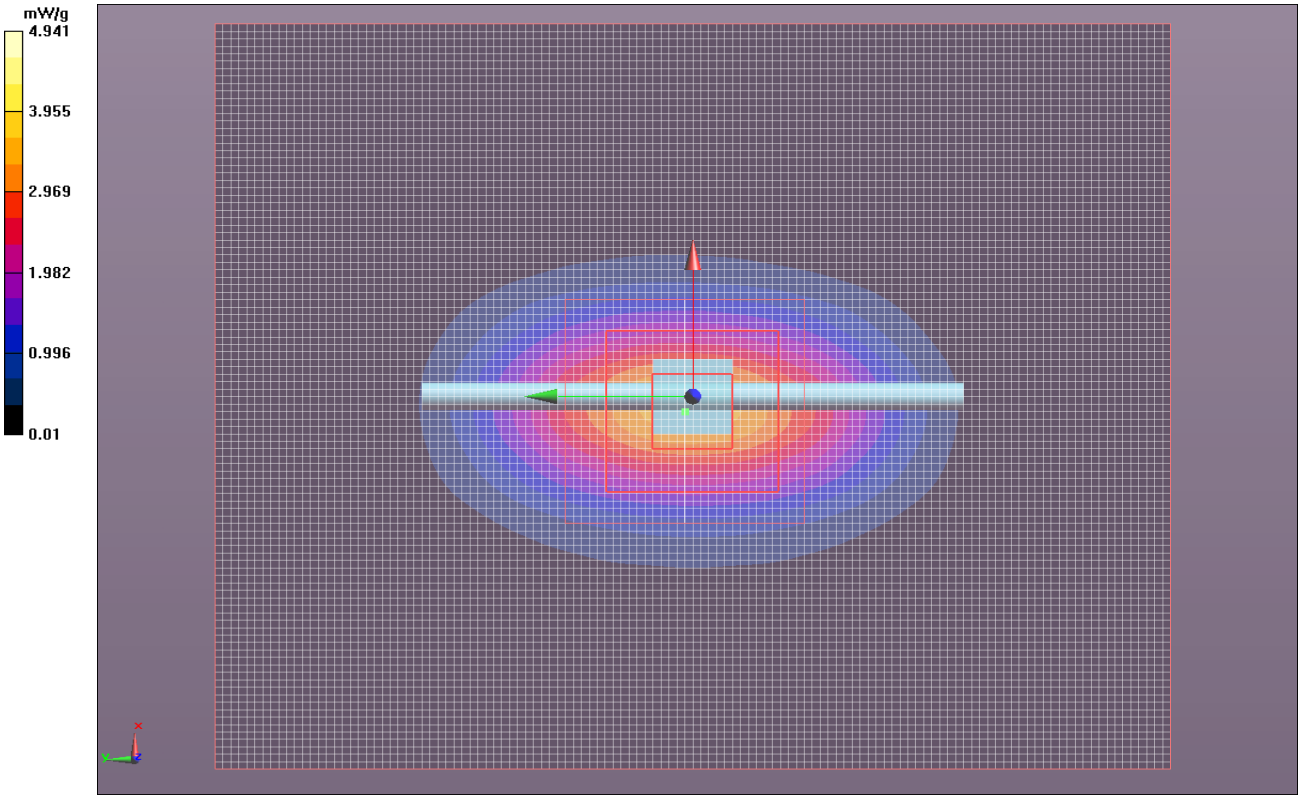
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 3.801 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.793 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 7.132 W/kg
SAR(1 g) = 3.78 mW/g; SAR(10 g) = 1.96 mW/g
Maximum value of SAR (measured) = 3.772 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 58.206 V/m



Room Temprature (°C):	23.7	**Humidity (%):**	39.6	**Test Date:**	02/15/11
Liquid Temprature (°C):	21.6	**Barometric Pressure (mb):**	1002	**Tested by:**	Jennifer Herrett

MSL1900 System Check_2-15-11

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:xxx

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.454 mho/m; ε = 53.431; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.45416 mho/m, ε = 53.4309; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

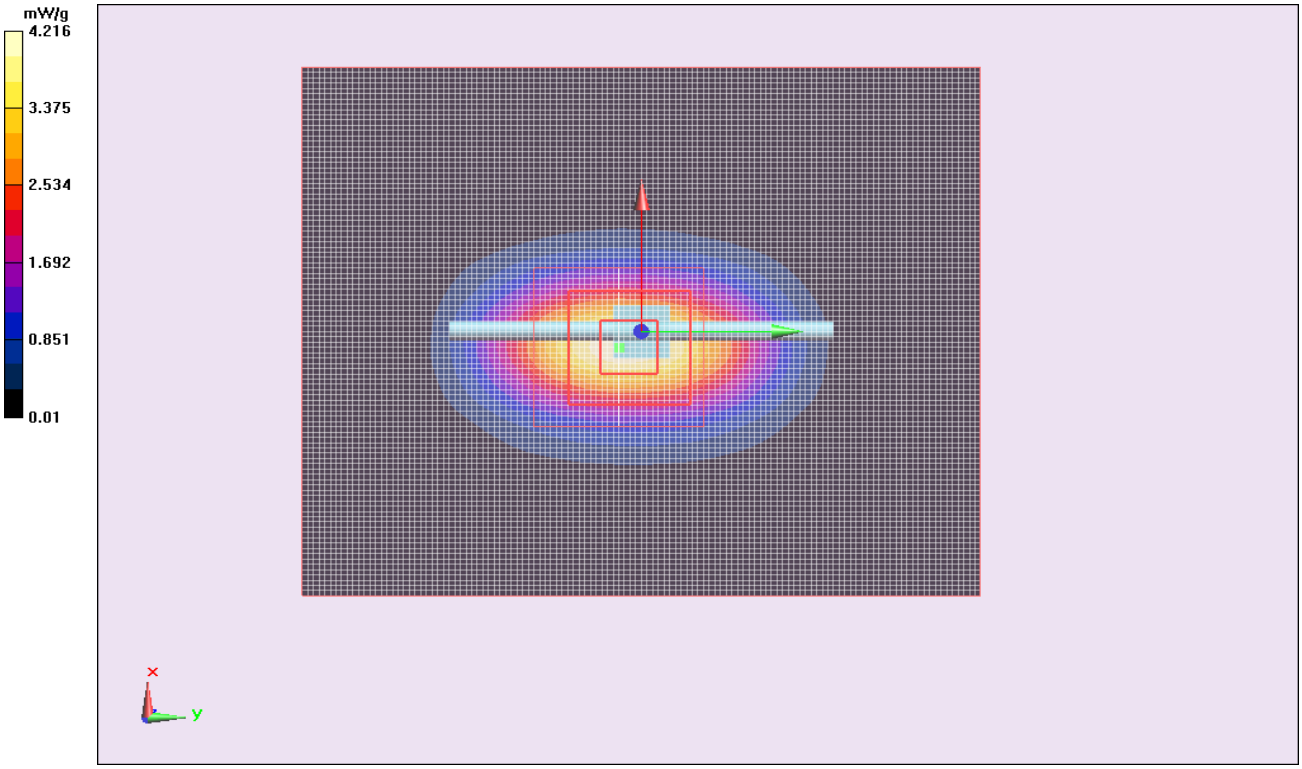
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.216 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.419 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 7.896 W/kg
SAR(1 g) = 4.19 mW/g; SAR(10 g) = 2.18 mW/g
Maximum value of SAR (measured) = 4.181 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 62.677 V/m



SAR TEST DATA

Room Temprature (°C):	24.4	**Humidity (%):**	40.6	**Test Date:**	02/16/11
Liquid Temprature (°C):	22.1	**Barometric Pressure (mb):**	1002	**Tested by:**	Jennifer Herrett

HSL1900 System Check_2-16-11

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:xxx

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε = 39.887; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.38048 mho/m, ε = 39.8866; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

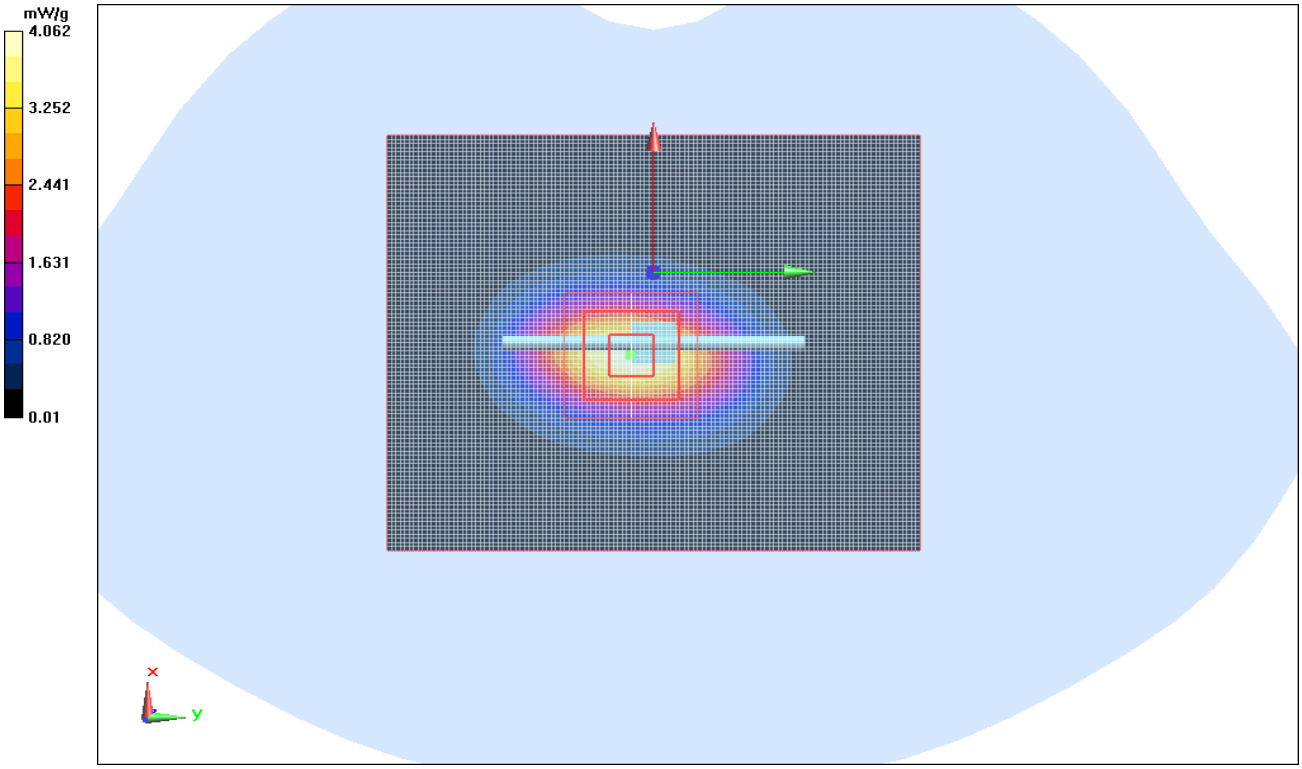
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.062 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.629 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 7.811 W/kg
SAR(1 g) = 4.05 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 4.017 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 50.599 V/m



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SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	22.3	**Humidity (%):**	34.6	**Test Date:**	02/17/11
Liquid Temprature (°C):	22.1	**Barometric Pressure (mb):**	1007.7	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-17-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε = 41.507; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.879697 mho/m, ε = 41.5068; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

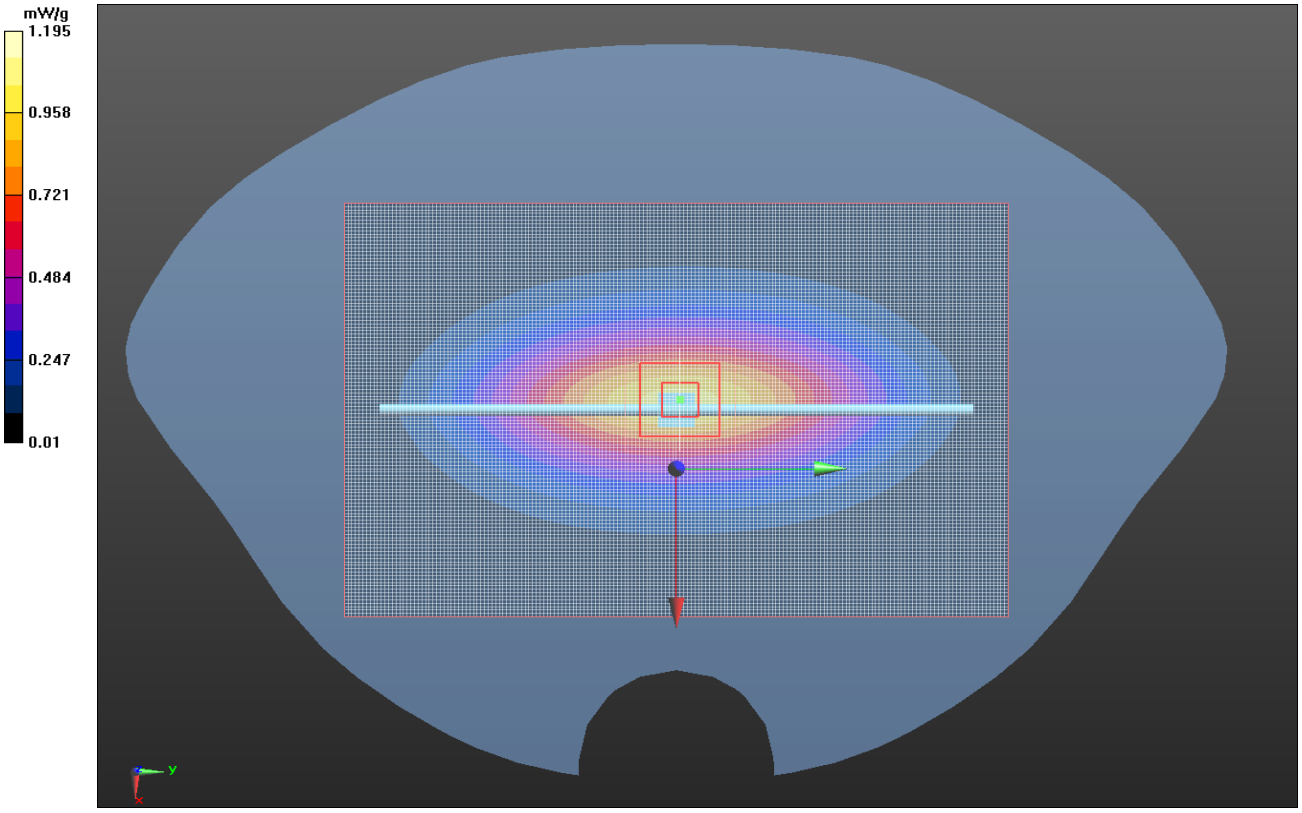
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.988 V/m; Power Drift = -0.00052 dB
Peak SAR (extrapolated) = 1.413 W/kg
SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.655 mW/g
Maximum value of SAR (measured) = 0.992 mW/g

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.995 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 36.861 V/m



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	22.3	**Humidity (%):**	35	**Test Date:**	02/18/11
Liquid Temprature (°C):	21.5	**Barometric Pressure (mb):**	1009.7	**Tested by:**	Jennifer Herrett

MSL1900 System Check 2-18-11

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:1040

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.507 mho/m; ε = 53.398; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.50742 mho/m, ε = 53.3981; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

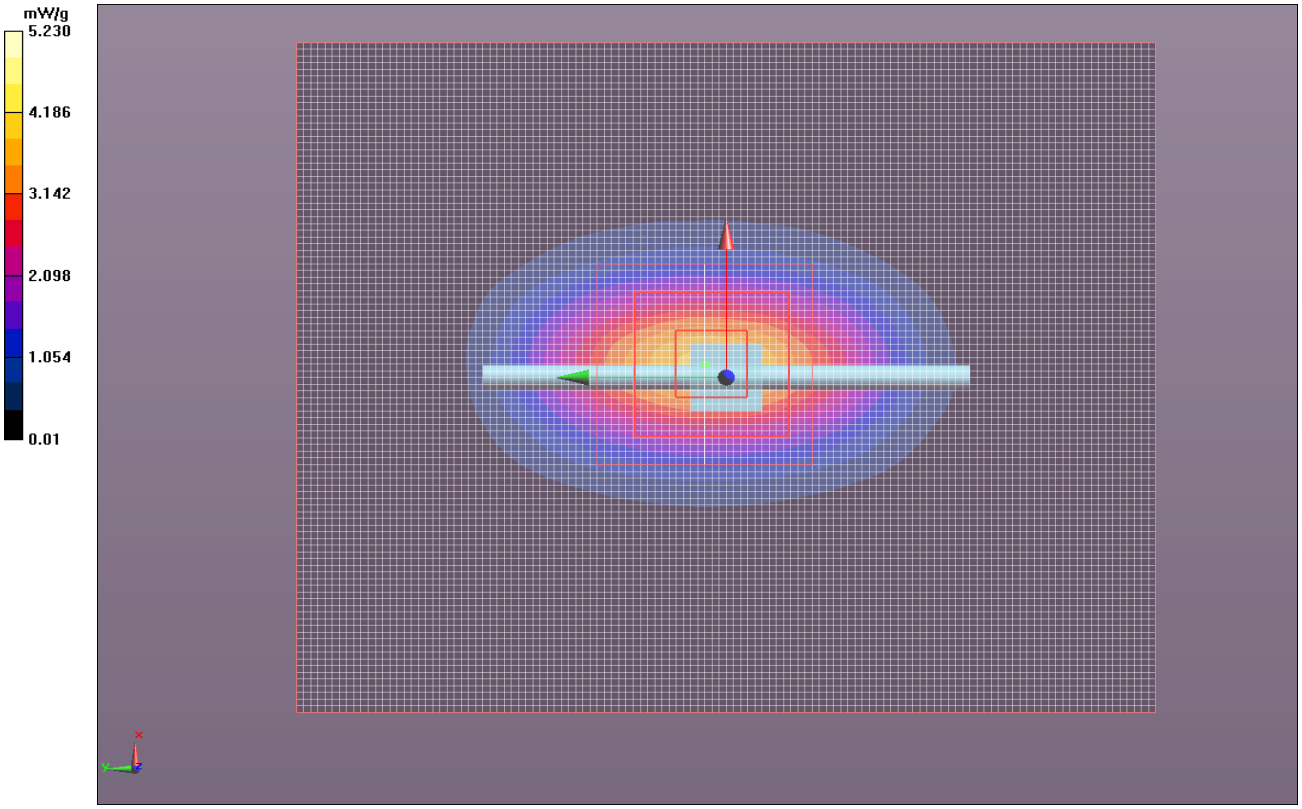
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.316 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.723 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 8.023 W/kg
SAR(1 g) = 4.24 mW/g; SAR(10 g) = 2.2 mW/g
Maximum value of SAR (measured) = 4.232 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 58.905 V/m



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	22.7	**Humidity (%):**	36.6	**Test Date:**	02/18/11
Liquid Temprature (°C):	21.9	**Barometric Pressure (mb):**	1010.2	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-18-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.873 mho/m; ε = 41.121; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.873463 mho/m, ε = 41.1209; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

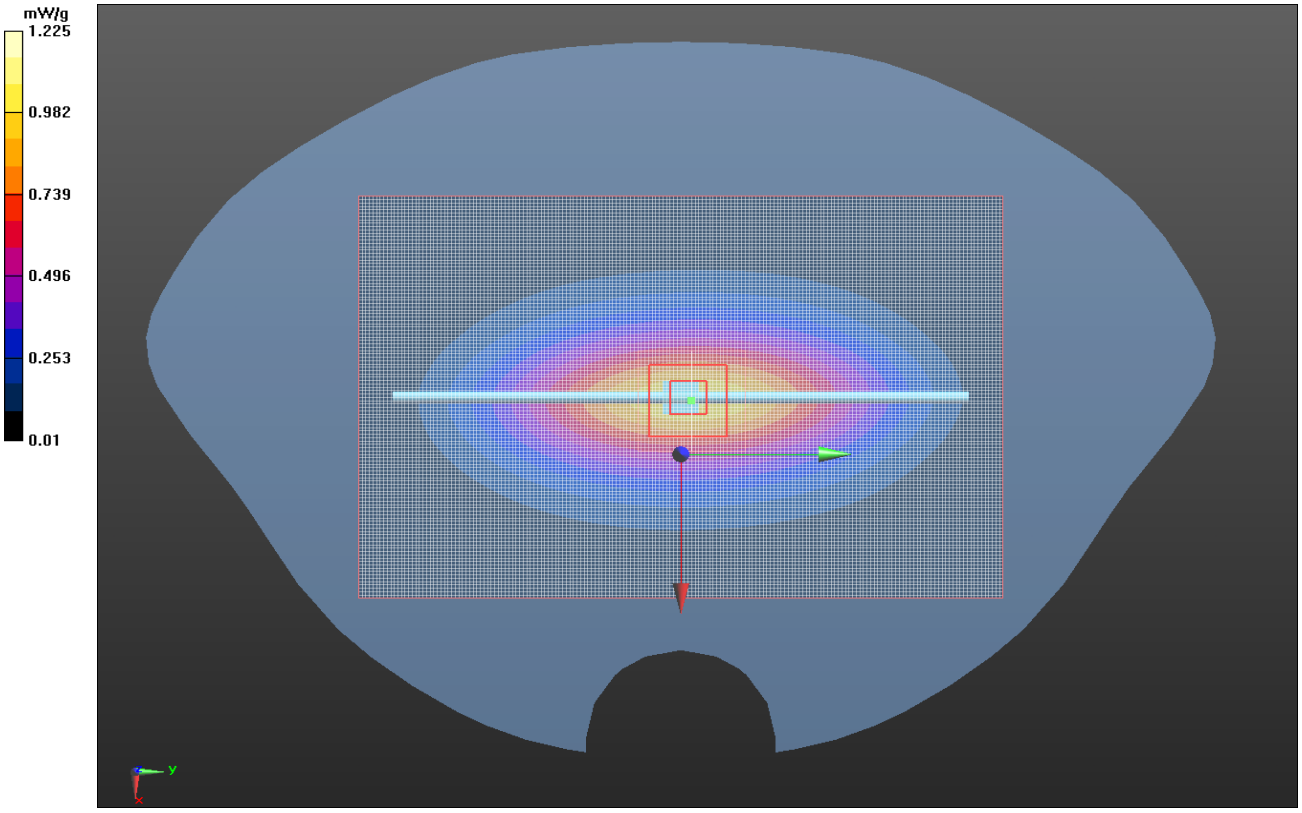
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 34.953 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.421 W/kg
SAR(1 g) = 0.988 mW/g; SAR(10 g) = 0.655 mW/g
Maximum value of SAR (measured) = 0.989 mW/g

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.998 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 37.451 V/m



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	23.2	**Humidity (%):**	34	**Test Date:**	02/19/11
Liquid Temprature (°C):	22.7	**Barometric Pressure (mb):**	1010.4	**Tested by:**	Jennifer Herrett

MSL900 System Check_835MHz 2-19-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108x

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.999 mho/m; ε = 55.797; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.998721 mho/m, ε = 55.7969; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

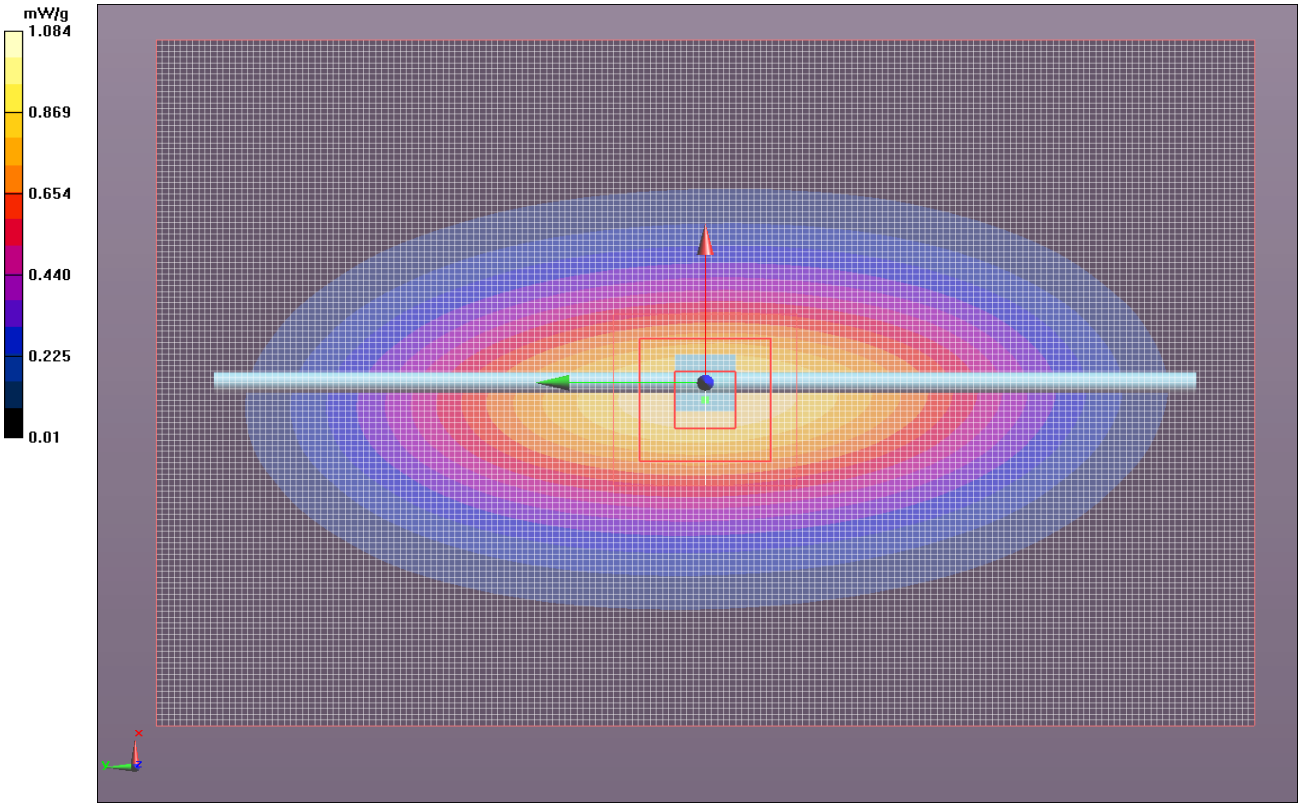
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.1, 6.1, 6.1); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.014 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 32.943 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.057 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.462 W/kg
SAR(1 g) = 1 mW/g; SAR(10 g) = 0.660 mW/g
Maximum value of SAR (measured) = 1.004 mW/g



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EMC

SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	23	**Humidity (%):**	34.5	**Test Date:**	02/19/11
Liquid Temprature (°C):	22.5	**Barometric Pressure (mb):**	1010	**Tested by:**	Jennifer Herrett

HSL900 System Check_835MHz 2-19-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.873 mho/m; ε = 41.031; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.873417 mho/m, ε = 41.0308; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

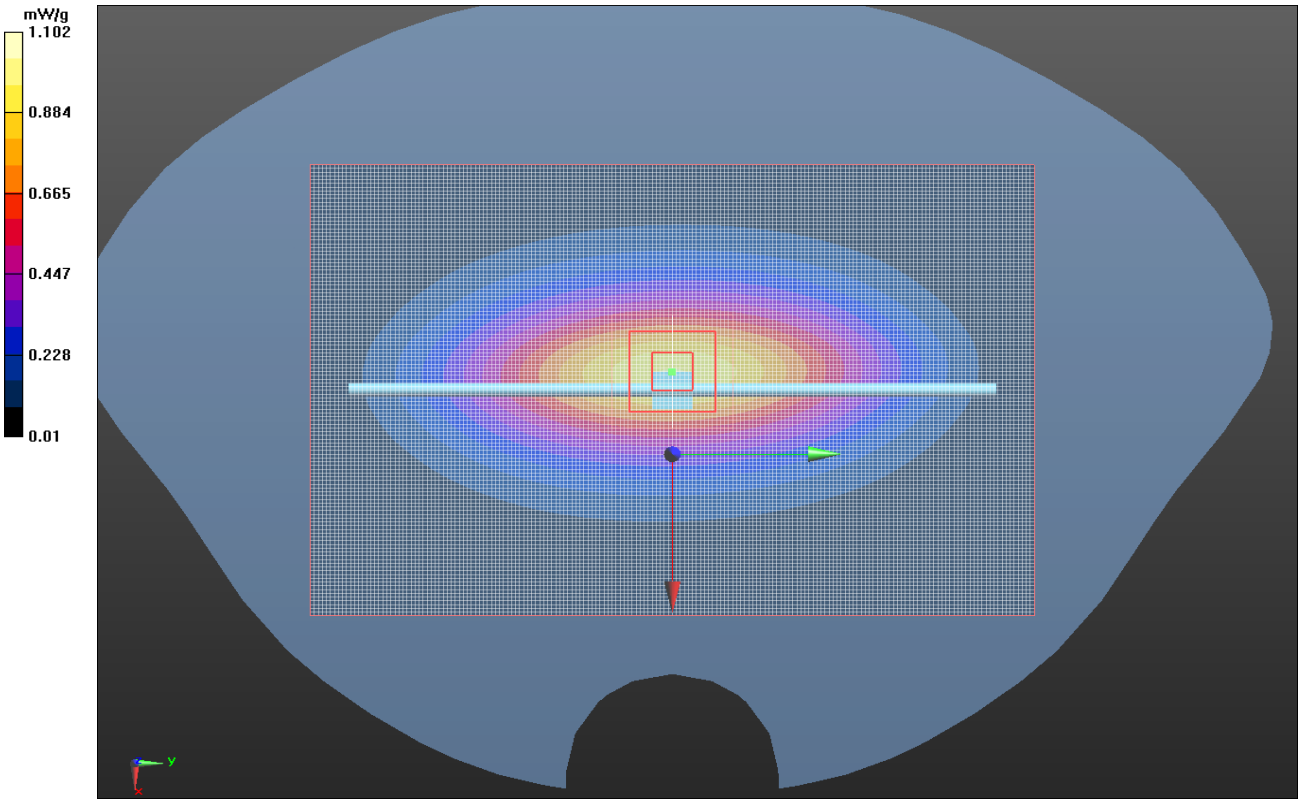
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.843 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.366 W/kg
SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.634 mW/g
Maximum value of SAR (measured) = 0.963 mW/g

System Check/System Check/Area Scan (121x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.960 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 35.519 V/m



Test Configurations

In normal operation, the EUT can be held in the hand, or next to the head like a cellular handset, or worn on the body. The only Intermec approved accessory for body worn operation is a holster that contains metal. The EUT can only fit in the holster with the top end of the unit pointing down. The holster cup can be attached to the holster belt with either the keypad facing the user, or the side facing the user. In no case can the back of the EUT face the user. For body worn operation, the keypad side was tested. The holster provides 1.5 mm spacing from the keypad side to the flat phantom.

The CDMA antenna is on the left side of the EUT. The closest portion of the antenna is more than 5 cm from the right side of the unit. So for body worn operation, in addition to the keypad side, the left side was also tested. The holster provides 1.2 mm spacing from the left side to the flat phantom.

An optional snap-on audio accessory is available. It connects to the bottom end of the unit and provides a standard audio jack for connection of a VR10 headset. Measurements were made with and without the headset. Measured SAR increased slightly with the headset so all body configurations were tested with the headset.

The EUT is powered by a lithium-ion battery, Model 1000AB01. It was fully charged before each SAR evaluation.

Per KDB 648474, among the channels required for normal testing, SAR must be measured on the highest conducted output power channel in each band (see highlighted values in the Output Power section of this report). When the SAR measured on the highest output channel is < 0.8 W/kg, SAR evaluation for the other required channels is unnecessary.

All testing was performed with the EUT configured in a worst-case configuration and operating mode to produce the highest SAR levels. An Agilent 8960 test set, Model E5515C, was used to control the EUT. The following applications were installed on the test set: CDMA200 Mobile Test Rev B.17.08, and EVDO Term Test Rev A.12.08. This provided all the necessary tools to operate the EUT in the prescribed manner without any difficulties or equipment limitations.

Summary

The following tables summarize the measured SAR values.

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SAR TEST DATA

SAR 2011.02.07

EUT:	**1000CP01C**	**Work Order:**	**INMC0681**
Serial Number:	**24411047084**	**Date:**	**See Data Sheets**
Customer:	**Intermec Technologies**	**Temperature:**	**See Data Sheets**
Attendees:	**None**	**Humidity:**	**See Data Sheets**
Project:	**INMC0570**	**Barometric Pres.:**	**See Data Sheets**
Tested by:	**Jennifer Herrett**	**Job Site:**	**EV08**

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	**1**	*Signature* Jennifer Herrett

Test Configuration	Form	Transmit Frequency	Transmit Channel	Transmit Mode	Data Rate (kbps)	Side	EUT Position	Start Power (Conducted)	SAR Drift During Test (dB)	1g SAR Level	Test #
Head	A1	836.52	384	RC3 (Fwd 3, Rvs 3) SO55 (Loopback)	9.6	Left	Cheek	24.05	0.06	0.248	1
							Tilt	24.05	0.17	0.238	2
	A1	836.52	384	RC3 (Fwd 3, Rvs 3) SO55 (Loopback)		Right	Cheek	24.05	-0.08	0.419	3
							Tilt	24.05	0.17	0.381	4
	A1	836.52	384	EV-DO Rev. A	FETAP: 307.2 RETAP: 4096 payload	Left	Cheek	24.14	0.12	0.272	5
							Tilt	24.14	0.03	0.281	6
	A1	836.52	384	EV-DO Rev. A		Right	Cheek	24.14	-0.19	0.482	7
							Tilt	24.14	0.07	0.475	8

Room Temprature (°C):	24.5	Humidity (%):	40.9	Test Date:	02/09/11
Liquid Temprature (°C):	22	Barometric Pressure (mb):	1032	Tested by:	Jennifer Herrett

Test 1

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084
Communication System: CW; Frequency: 836.52 MHz
Medium parameters used: σ = 0.883813 mho/m, ε_r = 42.0572; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.885 mho/m; ε_r =
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Left/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 14.934 V/m

Head - Left/Cheek - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

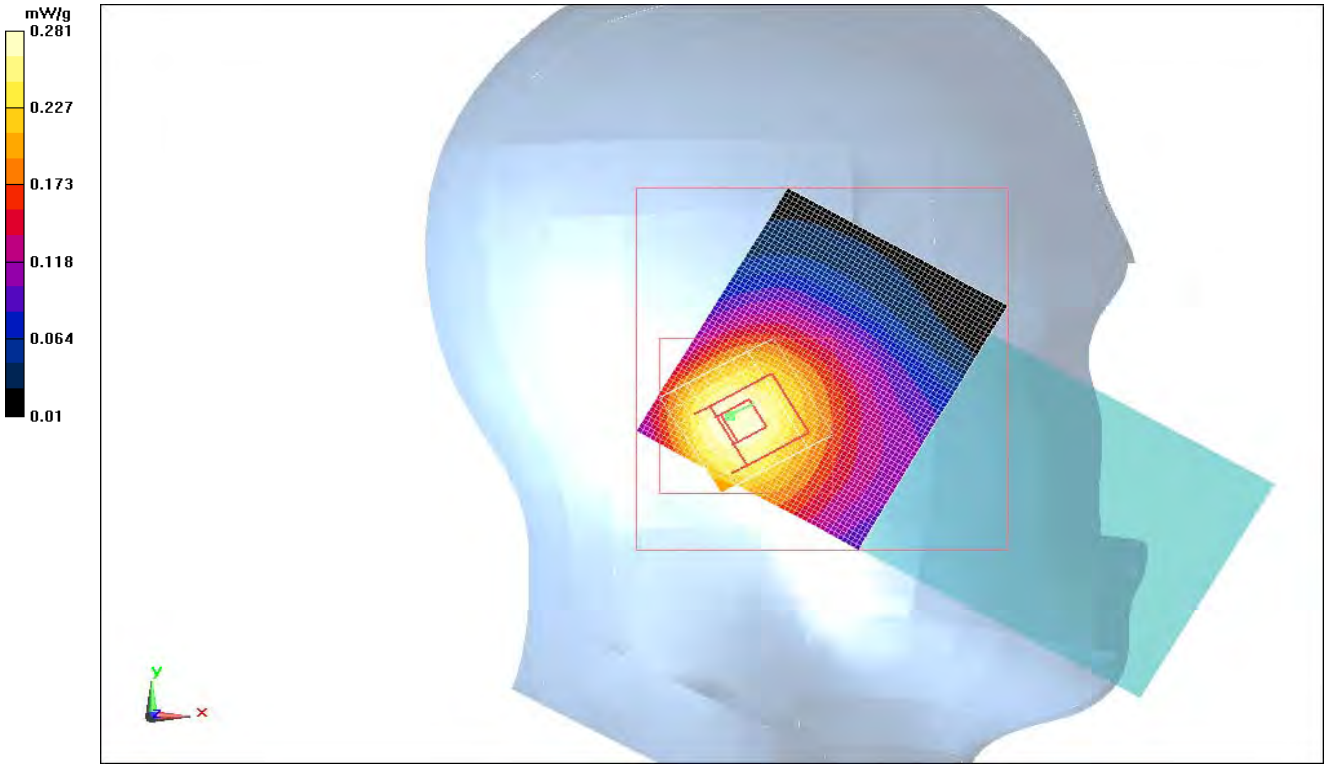
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 4.080 mW/g

Head - Left/Cheek - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.282 mW/g

Head - Left/Cheek - Mid/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.489 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.173 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.281 mW/g



Room Temprature (°C):	24.7	**Humidity (%):**	31.1	**Test Date:**	02/09/11
Liquid Temprature (°C):	21.6	**Barometric Pressure (mb):**	1032	**Tested by:**	Jennifer Herrett

Test 2

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.885 mho/m; ε_r = 42.038; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.883813 mho/m, ε_r = 42.0572; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Left/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.271 mW/g

Head - Left/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of Total (measured) = 14.649 V/m

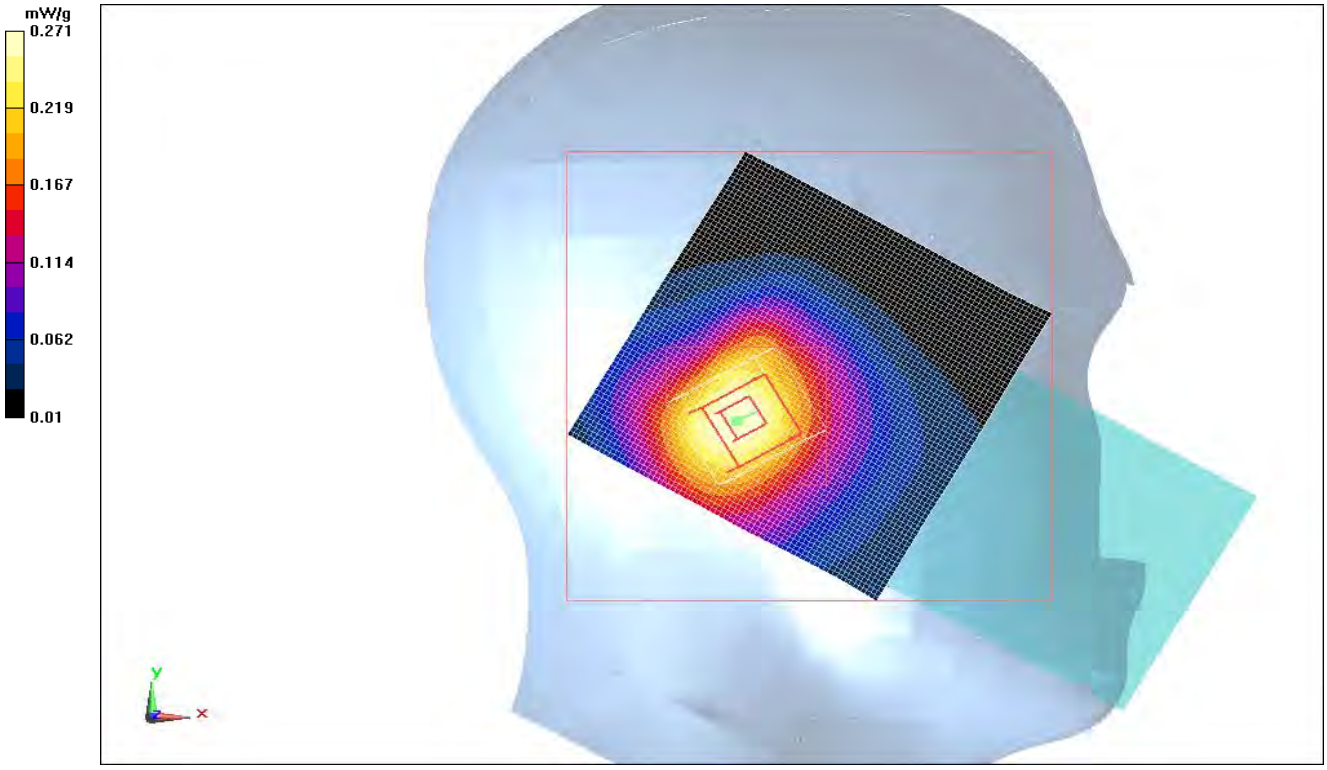
Head - Left/Tilt - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 4.468 mW/g

Head - Left/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.787 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.341 W/kg
SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.161 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.274 mW/g



Room Temprature (°C):	21.7	**Humidity (%):**	37.8	**Test Date:**	02/09/11
Liquid Temprature (°C):	20.5	**Barometric Pressure (mb):**	1033	**Tested by:**	Jennifer Herrett

Test 3

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used: σ = 0.883813 mho/m, ε_r = 42.0572; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.885 mho/m; ε_r = 42.038; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 19.677 V/m

Head - Right/Cheek - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

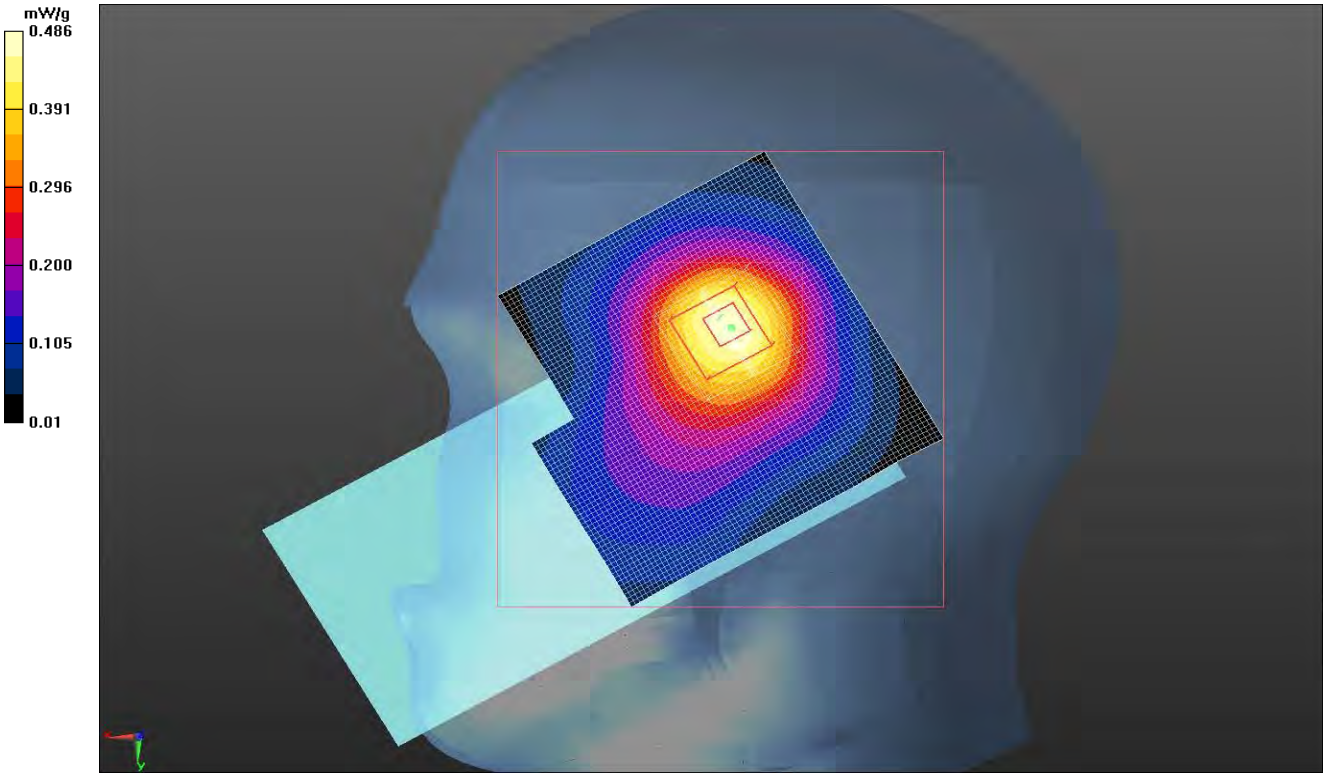
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.441 mW/g

Head - Right/Cheek - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.486 mW/g

Head - Right/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.034 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.592 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.281 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.483 mW/g



NORTHWEST EMC	SAR TEST DATA				SAR 2011.02.07
Room Temprature (°C):	23.9	**Humidity (%):**	42.4	**Test Date:**	02/11/11
Liquid Temprature (°C):	21	**Barometric Pressure (mb):**	1032	**Tested by:**	Jennifer Herrett

Test 4

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.885 mho/m; ε = 42.038; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.883813 mho/m, ε = 42.0572; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.426 mW/g

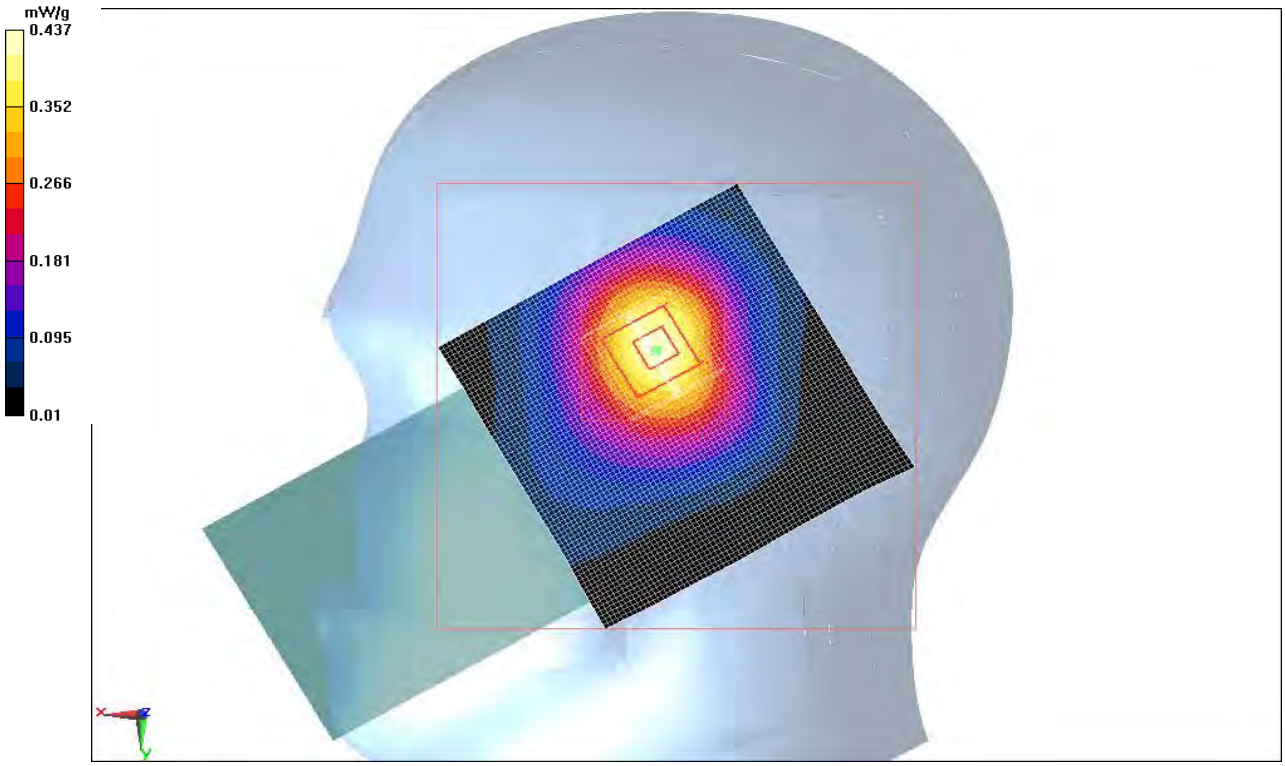
Head - Right/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 18.923 V/m

Head - Right/Tilt - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 2.587 mW/g

Head - Right/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.131 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.381 mW/g; SAR(10 g) = 0.256 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.437 mW/g



Room Temprature (°C):	21.7	**Humidity (%):**	38.8	**Test Date:**	02/10/11
Liquid Temprature (°C):	20.3	**Barometric Pressure (mb):**	1022	**Tested by:**	Jennifer Herrett

Test 5

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used: σ = 0.884189 mho/m, ε_r = 41.7001; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.886 mho/m; ε_r = 41.681; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Left/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 15.753 V/m

Head - Left/Cheek - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

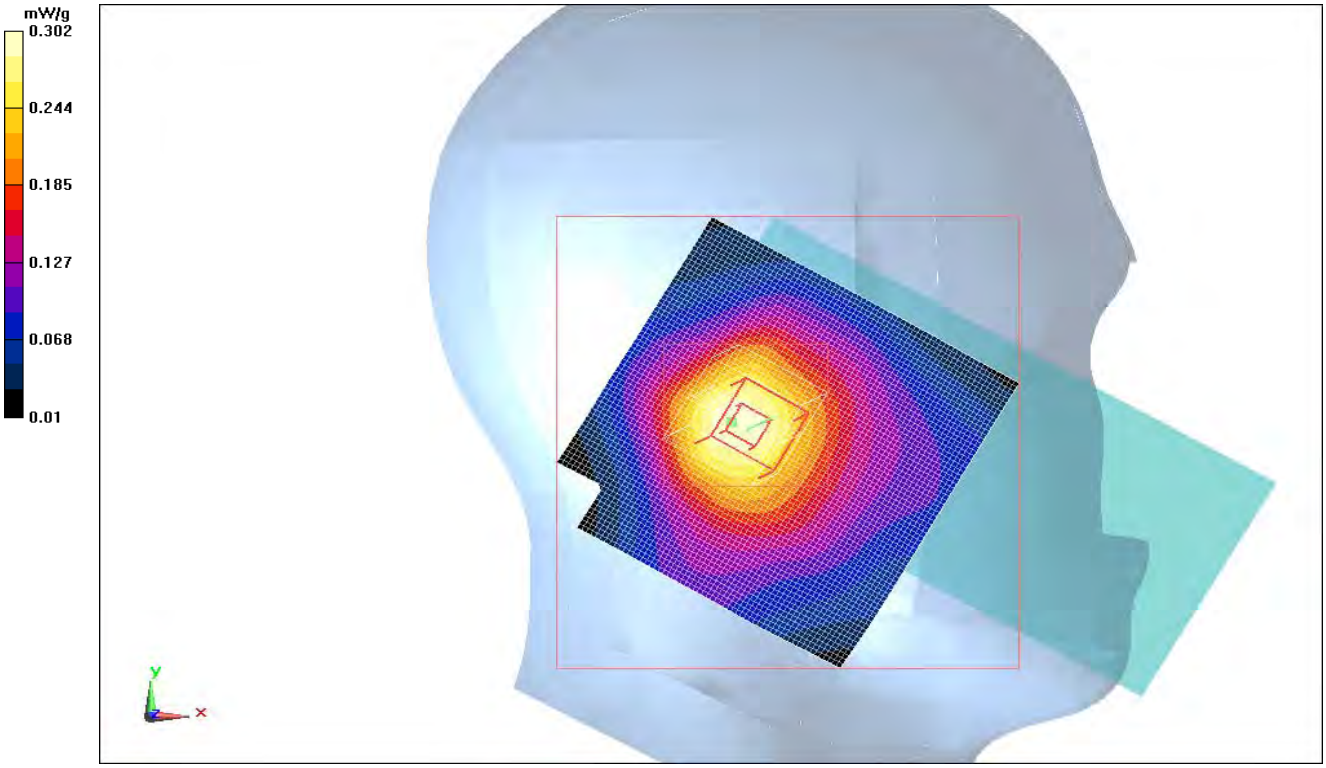
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.291 mW/g

Head - Left/Cheek - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.302 mW/g

Head - Left/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.852 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.359 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.191 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.305 mW/g



Room Temprature (°C):	22.7	**Humidity (%):**	41.2	**Test Date:**	02/11/11
Liquid Temprature (°C):	21.2	**Barometric Pressure (mb):**	1021	**Tested by:**	Jennifer Herrett

Test 6

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.886 mho/m; ε_r = 41.681; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.884189 mho/m, ε_r = 41.7001; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Left/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.315 mW/g

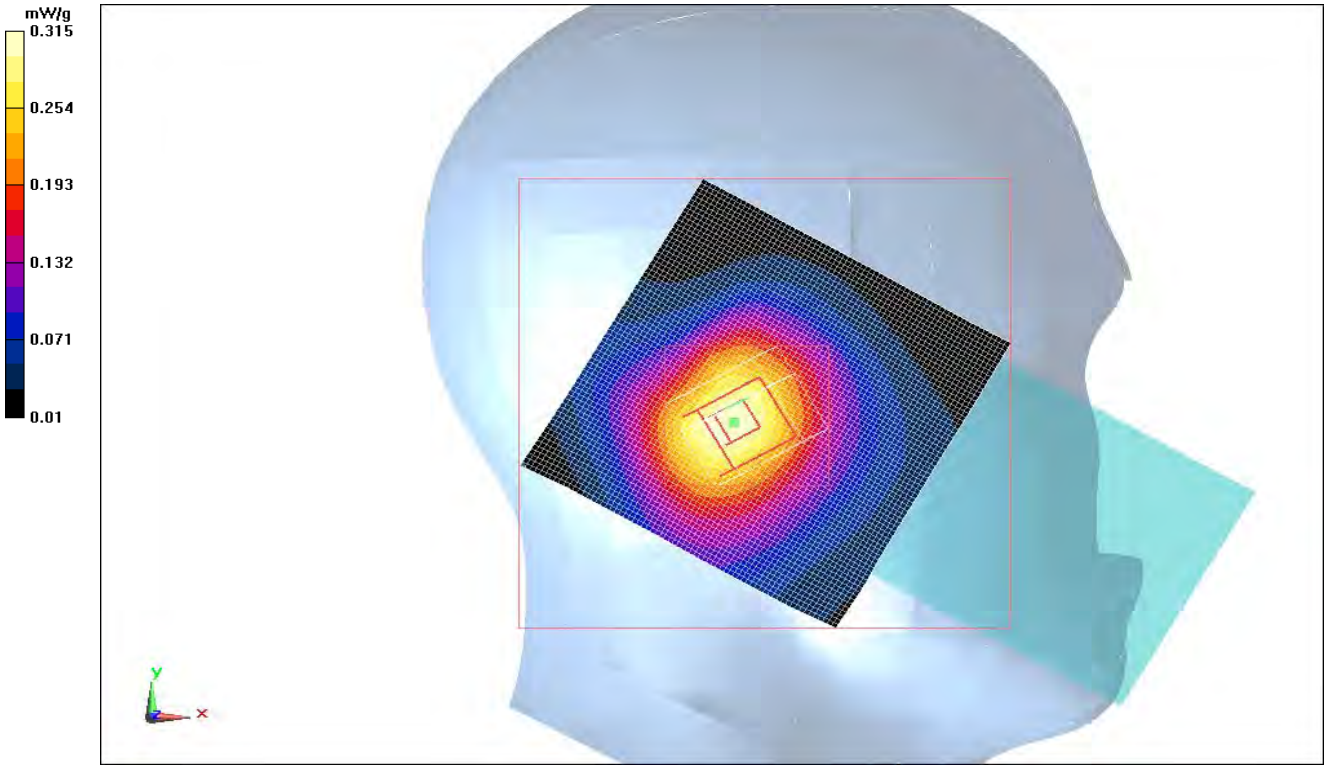
Head - Left/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 15.943 V/m

Head - Left/Tilt - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.336 mW/g

Head - Left/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.946 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.190 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.323 mW/g



Room Temprature (°C):	25.2	**Humidity (%):**	31.5	**Test Date:**	02/10/11
Liquid Temprature (°C):	21.7	**Barometric Pressure (mb):**	1026	**Tested by:**	Jennifer Herrett

Test 7

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used: σ = 0.884189 mho/m, ε_r = 41.7001; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.886 mho/m; ε_r = 41.681; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 21.154 V/m

Head - Right/Cheek - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

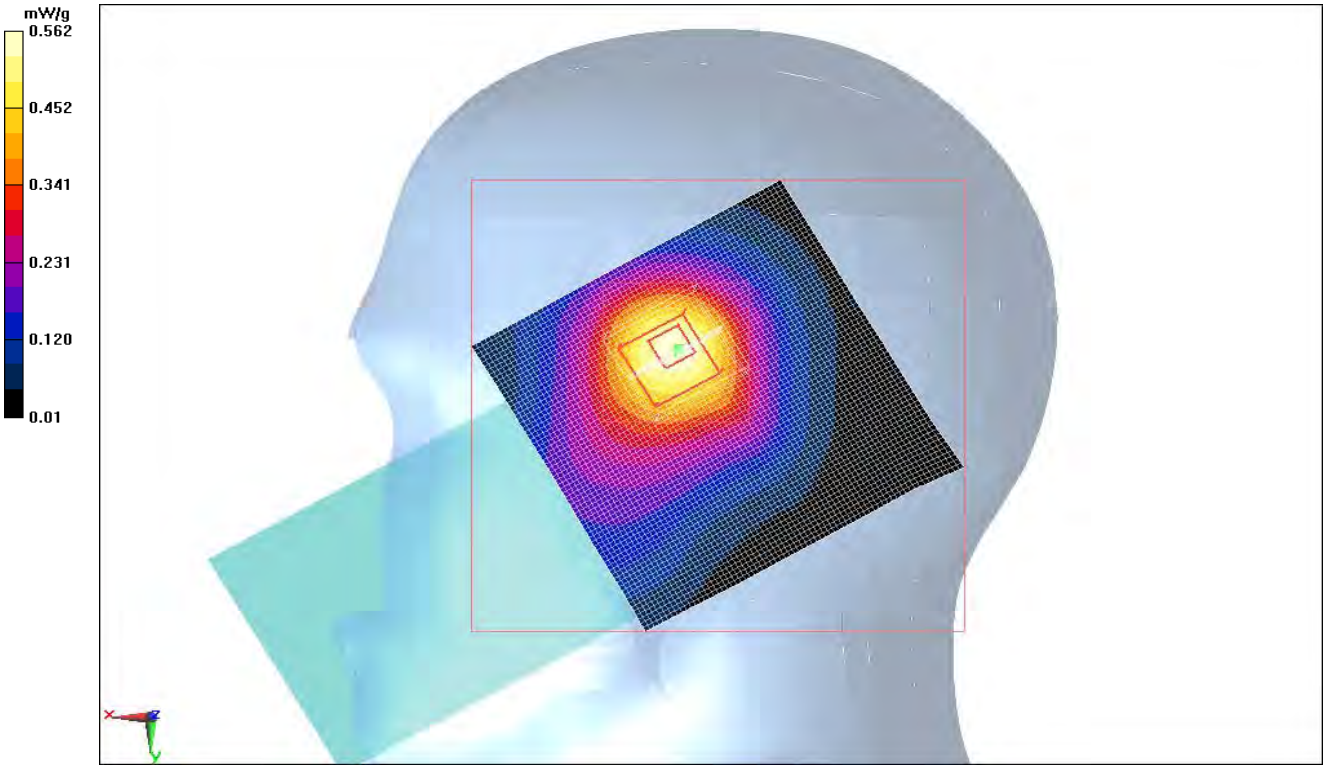
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.512 mW/g

Head - Right/Cheek - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.562 mW/g

Head - Right/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.893 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.678 W/kg
SAR(1 g) = 0.482 mW/g; SAR(10 g) = 0.322 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.560 mW/g



Room Temprature (°C):	22.3	Humidity (%):	38.8	Test Date:	02/10/11
Liquid Temprature (°C):	20.7	Barometric Pressure (mb):	1022	Tested by:	Jennifer Herrett

Test 4 RevA Cellular band Head-right

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084

Communication System: CW; Frequency: 836.52 MHz
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.886 mho/m; ε_r = 41.681; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.04, 6.04, 6.04); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

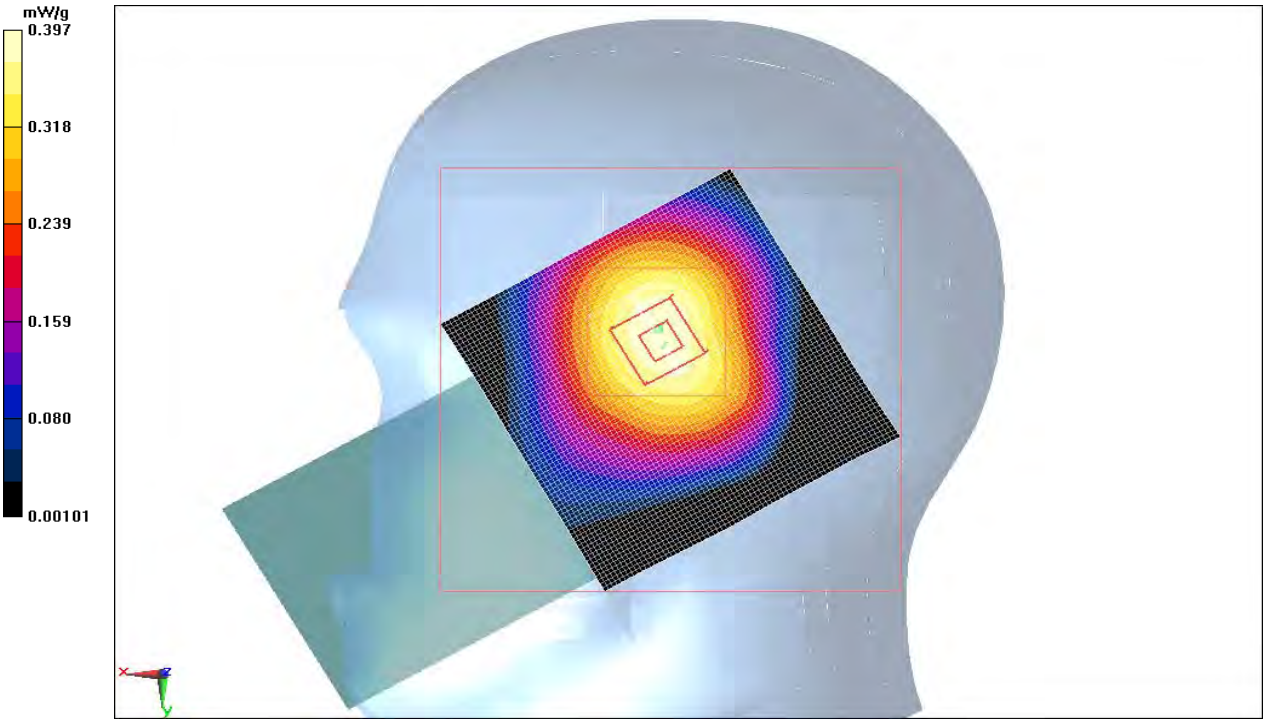
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.543 mW/g

Head - Right/Tilt - Mid/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.553 mW/g

Head - Right/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.086 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.685 W/kg
SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.322 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.541 mW/g



NORTHWEST
EMC

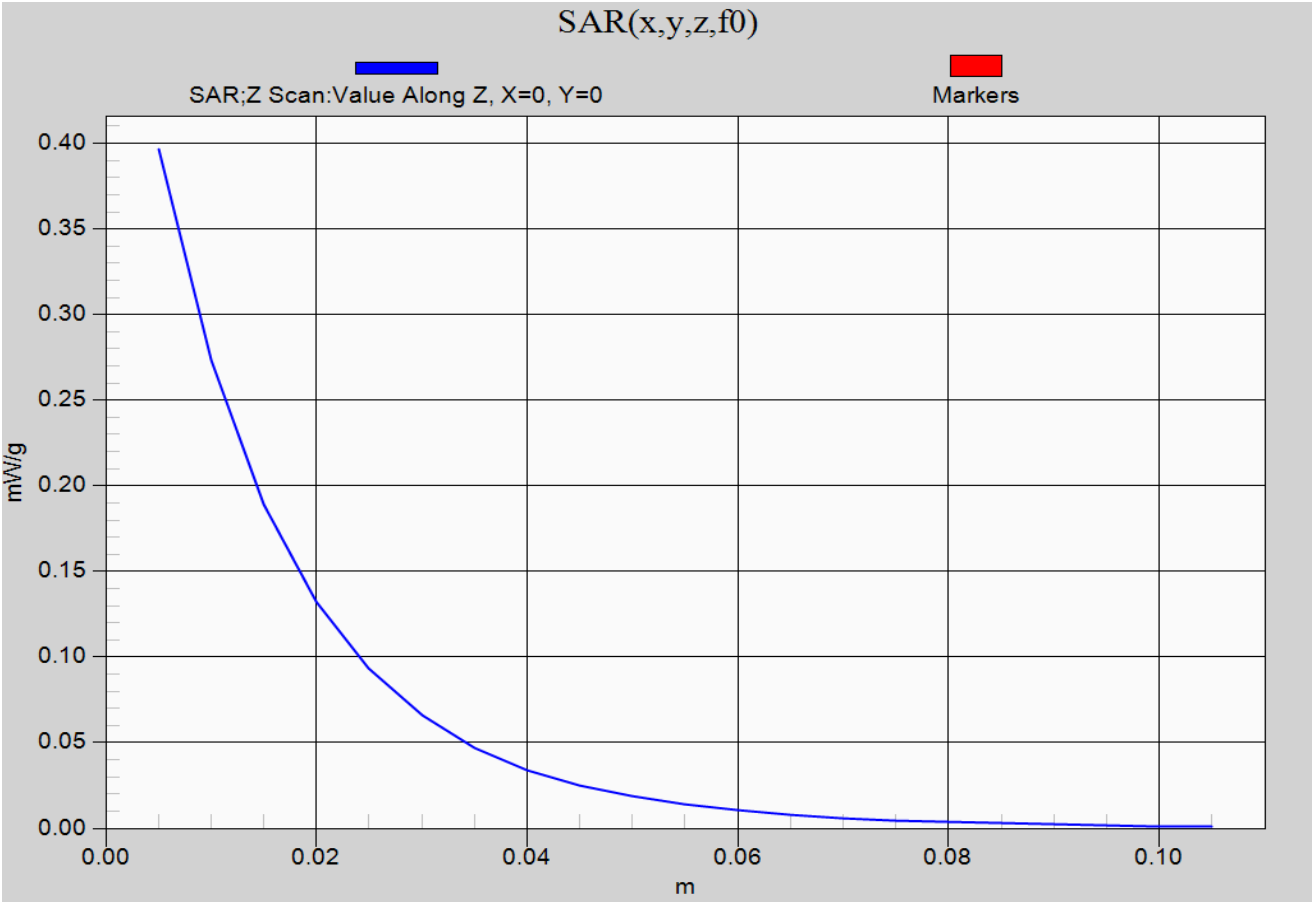
SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	25.2	Humidity (%):	31.5	Test Date:	02/10/11
Liquid Temprature (°C):	21.7	Barometric Pressure (mb):	1026	Tested by:	Jennifer Herrett

Test 7

DUT: 1000CP01C; CN70; Type: Handheld Computer; Serial: 24411047084



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	**1000CP01C**	**Work Order:**	**INMC0683**
Serial Number:	**24411047084**	**Date:**	**See Data Sheets**
Customer:	**Intermec Technologies**	**Temperature:**	**See Data Sheets**
Attendees:	**None**	**Humidity:**	**See Data Sheets**
Project:	**INMC0570**	**Barometric Pres.:**	**See Data Sheets**
Tested by:	**Jennifer Herrett**	**Job Site:**	**EV08**

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	**1**	*Signature* Jennifer Herrett

Test Configuration	Form	Transmit Frequency	Transmit Channel	Transmit Mode	Data Rate (kbps)	Body Worn Accessory	Audio Accesssory	EUT Position	Start Power (Conducted)	SAR Drift During Test (dB)	1g SAR Level	Test #
Body	A1	836.52	384	EV-DO Rev. 0	FTAP: 307.2 RTAP: 153.6	Holster	VR10 Headset	Right	24.05	0.04	0.080	1
								Front	24.05	0.16	0.205	2
								Left	24.05	-0.07	0.505	3
				EV-DO Rev. A	FETAP: 307.2 RETAP: 4096 Payload	Holster	VR10 Headset	Left	24.14	0.31	0.379	5

Room Temprature (°C):	22.8	**Humidity (%):**	41	**Test Date:**	02/11/11
Liquid Temprature (°C):	21.5	**Barometric Pressure (mb):**	1020	**Tested by:**	Jennifer Herrett

Test 1 RevA Cellular band Body a

DUT: 1000CP01C Handheld Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.004 mho/m; ε_r = 56.247; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.0037 mho/m, ε_r = 56.2474; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.1, 6.1, 6.1); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body/Reference scan (31x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.095 mW/g

Body/Body/Area scan (51x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.085 mW/g

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.664 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.059 mW/g
Maximum value of SAR (measured) = 0.089 mW/g

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 8.249 V/m

Body/Body/Zoom Scan 2 (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.664 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.188 W/kg
SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.138 mW/g

Room Temprature (°C):	24.1	**Humidity (%):**	38	**Test Date:**	02/11/11
Liquid Temprature (°C):	22	**Barometric Pressure (mb):**	1020	**Tested by:**	Jennifer Herrett

Test 2 RevA Cellular band Body a

DUT: 1000CP01C Handheld Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.004 mho/m; ε_r = 56.247; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.0037 mho/m, ε_r = 56.2474; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.1, 6.1, 6.1); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

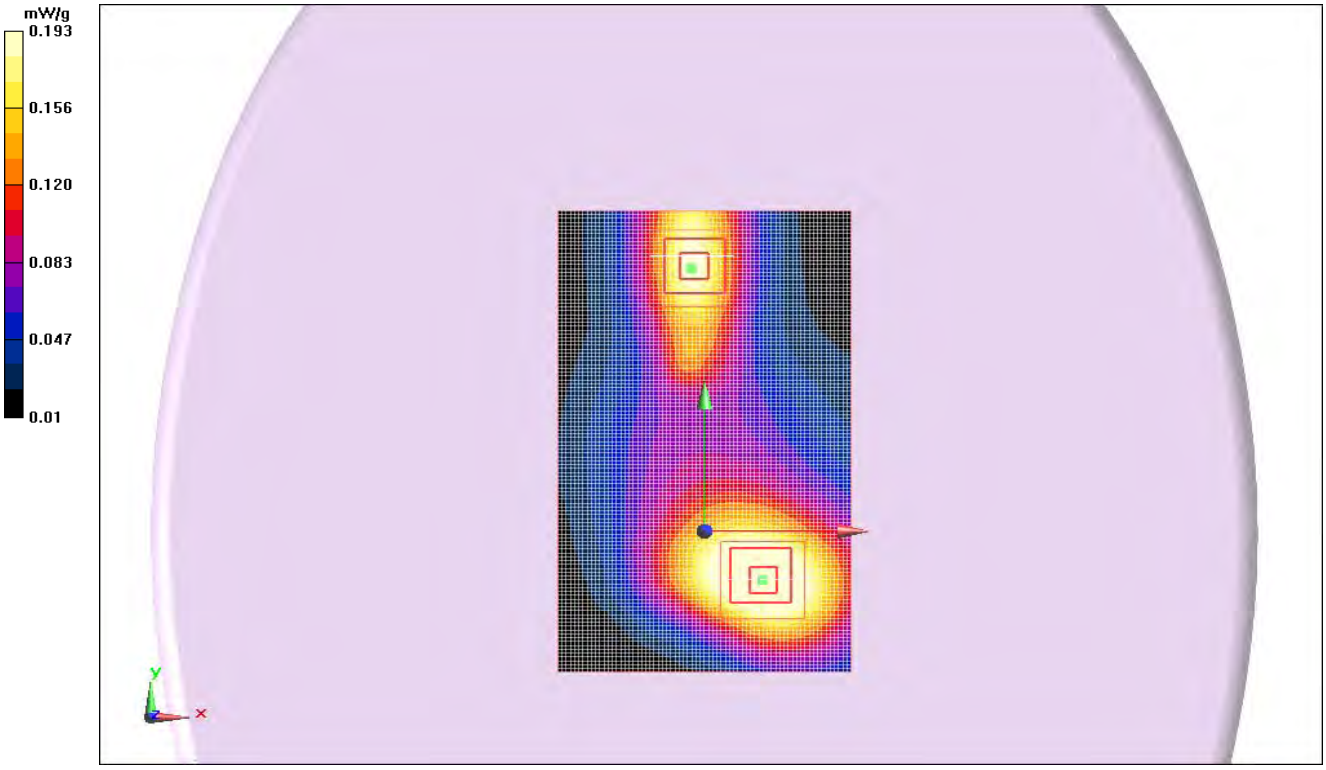
Body/Body/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.215 mW/g

Body/Body/Area scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.235 mW/g

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.407 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.142 mW/g
Maximum value of SAR (measured) = 0.233 mW/g

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 13.025 V/m

Body/Body/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.407 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.193 mW/g



Room Temprature (°C):	23.2	**Humidity (%):**	42	**Test Date:**	02/11/11
Liquid Temprature (°C):	21.8	**Barometric Pressure (mb):**	1020	**Tested by:**	Jennifer Herrett

Test 3 RevA Cellular band Body a

DUT: 1000CP01C Handheld Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.004 mho/m; ε_r = 56.247; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.0037 mho/m, ε_r = 56.2474; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.1, 6.1, 6.1); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

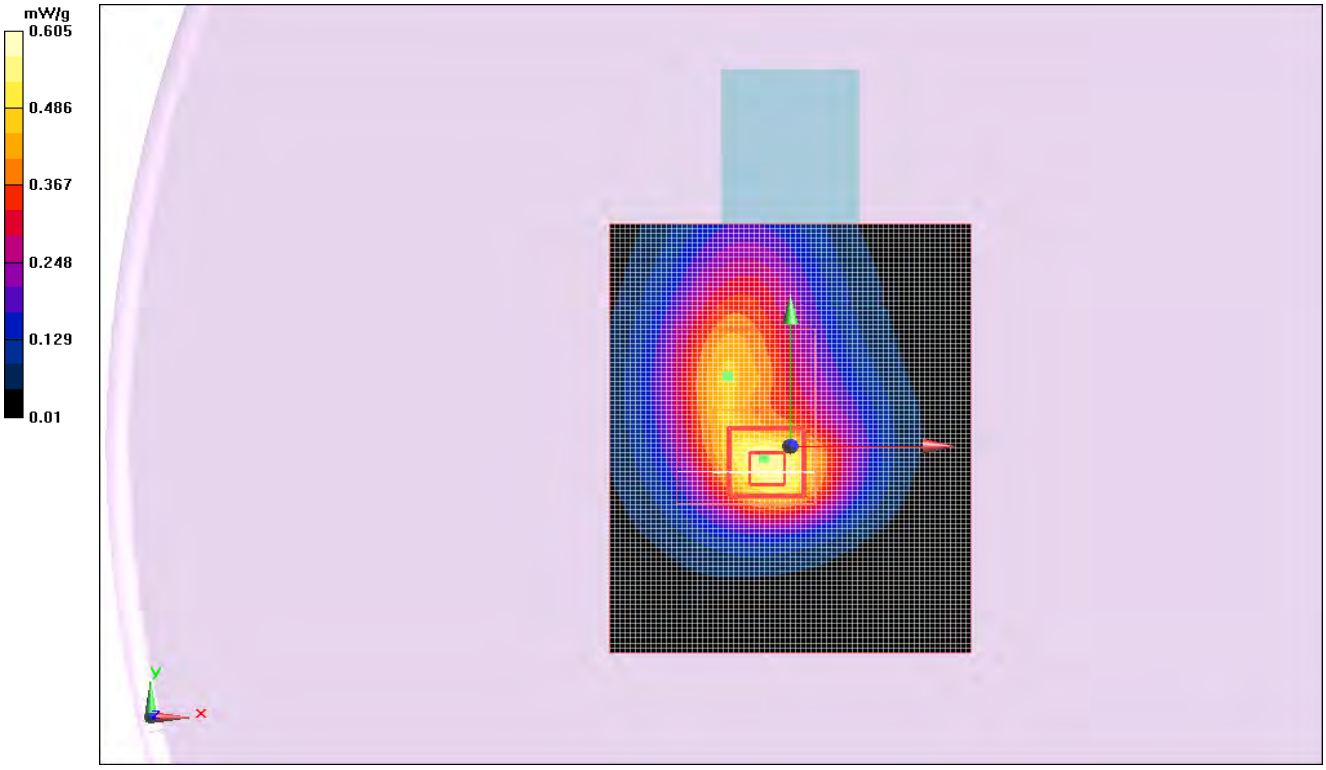
Body/Body/Reference scan (31x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.512 mW/g

Body/Body/Area scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.562 mW/g

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.905 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.789 W/kg
SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.312 mW/g
Maximum value of SAR (measured) = 0.605 mW/g

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 19.119 V/m

Body/Body/Zoom Scan 2 (9x12x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.905 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.305 mW/g
Maximum value of SAR (measured) = 0.575 mW/g



Room Temprature (°C):	22.3	**Humidity (%):**	37.3	**Test Date:**	02/12/11
Liquid Temprature (°C):	21.8	**Barometric Pressure (mb):**	1016	**Tested by:**	Jennifer Herrett

Test 5

DUT: 1000CP01C Handheld Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.999 mho/m; ε_r = 55.797; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.998721 mho/m, ε_r = 55.7969; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(6.1, 6.1, 6.1); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

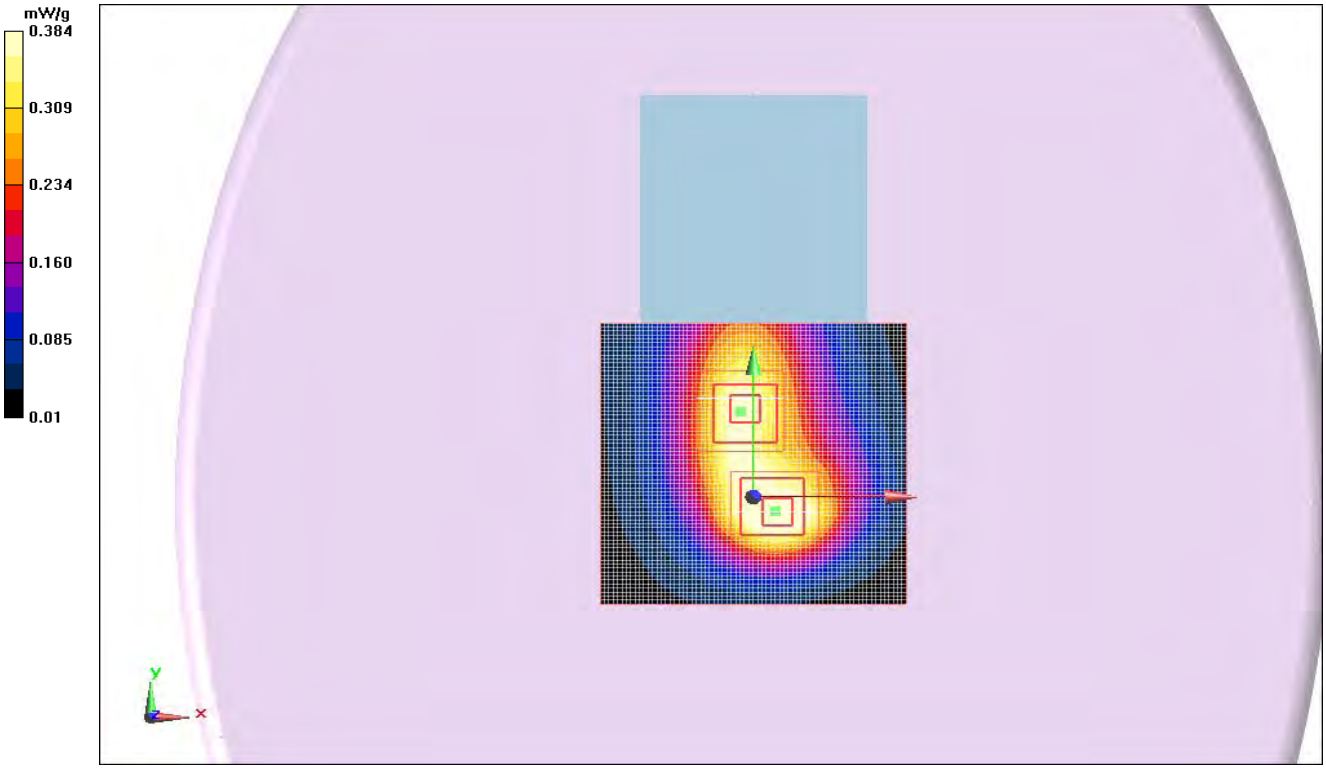
Body/Body/Reference scan (51x91x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.415 mW/g

Body/Body/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.467 mW/g

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.674 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.568 W/kg
SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.240 mW/g
Maximum value of SAR (measured) = 0.451 mW/g

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 17.097 V/m

Body/Body/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.674 V/m; Power Drift = -0.31 dB
Peak SAR (extrapolated) = 0.482 W/kg
SAR(1 g) = 0.327 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



NORTHWEST
EMC

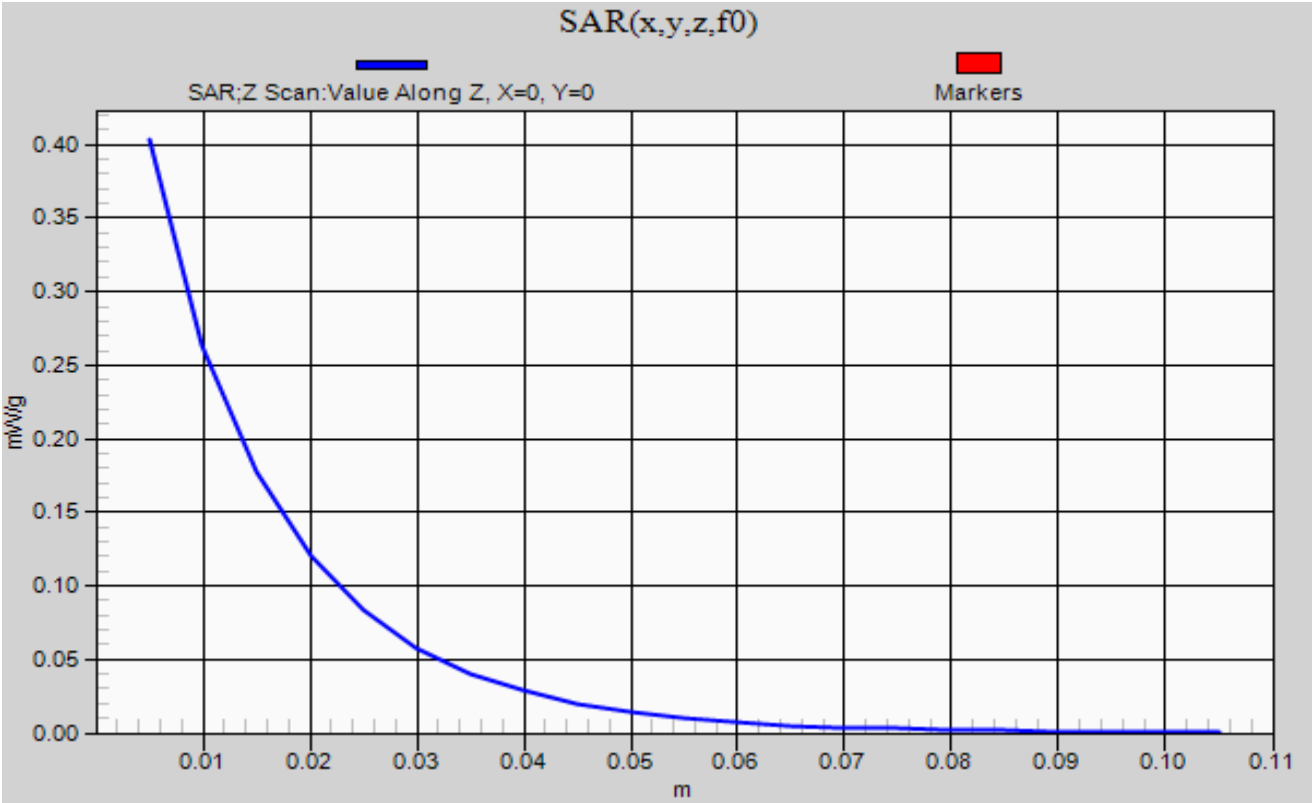
SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	23.2	Humidity (%):	42	Test Date:	02/11/11
Liquid Temprature (°C):	21.8	Barometric Pressure (mb):	1020	Tested by:	Jennifer Herrett

Test 3 RevA Cellular band Body a

DUT: 1000CP01C Handheld Computer; Type: CN70; Serial: 24411047084



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	**1000CP01C**	**Work Order:**	**INMC0683**
Serial Number:	**24411047084**	**Date:**	**See Data Sheets**
Customer:	**Intermec Technologies**	**Temperature:**	**See Data Sheets**
Attendees:	**None**	**Humidity:**	**See Data Sheets**
Project:	**INMC0570**	**Barometric Pres.:**	**See Data Sheets**
Tested by:	**Jennifer Herrett**	**Job Site:**	**EV08**

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	**1**	*Signature* Jennifer Herrett

Test Configuration	Form	Transmit Frequency	Transmit Channel	Transmit Mode	Data Rate (kbps)	Side	EUT Position	Start Power (Conducted)	SAR Drift During Test (dB)	1g SAR Level	Test #
Head	A1	1880	600	RC3 (Fwd 3, Rvs 3) SO55 (Loopback)	9.6	Left	Cheek	24.28	-0.44	0.197	17
							Tilt	24.28	0.07	0.174	18
	A1	1880	600	RC3 (Fwd 3, Rvs 3) SO55 (Loopback)		Right	Cheek	24.28	0.17	0.379	19
							Tilt	24.28	0.04	0.251	20
	A1	1880	600	EV-DO Rev. A	FETAP: 307.2 RETAP: 4096 payload	Left	Cheek	24.39	1.91	0.193	21
							Tilt	24.39	0.1	0.186	22
	A1	1880	600	EV-DO Rev. A		Right	Cheek	24.39	1.45	0.333	23
							Tilt	24.39	0.15	0.279	24

Room Temprature (°C):	23.6	**Humidity (%):**	42.3	**Test Date:**	02/13/11
Liquid Temprature (°C):	21.1	**Barometric Pressure (mb):**	1016	**Tested by:**	Jennifer Herrett

Test 17

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

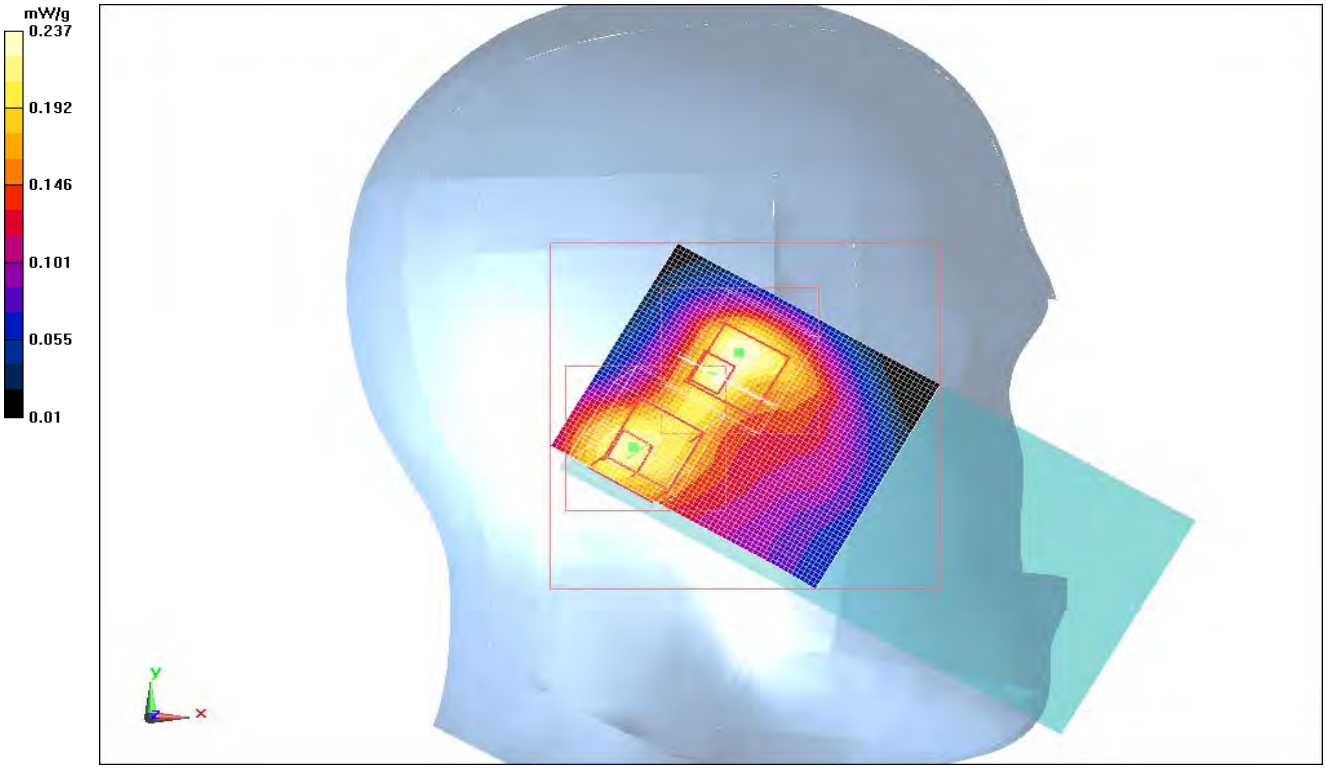
Head - Left/Cheek/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 9.740 V/m

Head - Left/Cheek/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.062 V/m; Power Drift = -0.44 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.237 mW/g

Head - Left/Cheek/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.062 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.246 mW/g

Head - Left/Cheek/Reference scan (31x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.832 mW/g

Head - Left/Cheek/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.240 mW/g



Room Temprature (°C):	23.4	**Humidity (%):**	43.3	**Test Date:**	02/13/11
Liquid Temprature (°C):	21.2	**Barometric Pressure (mb):**	1009	**Tested by:**	Jennifer Herrett

Test 18

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

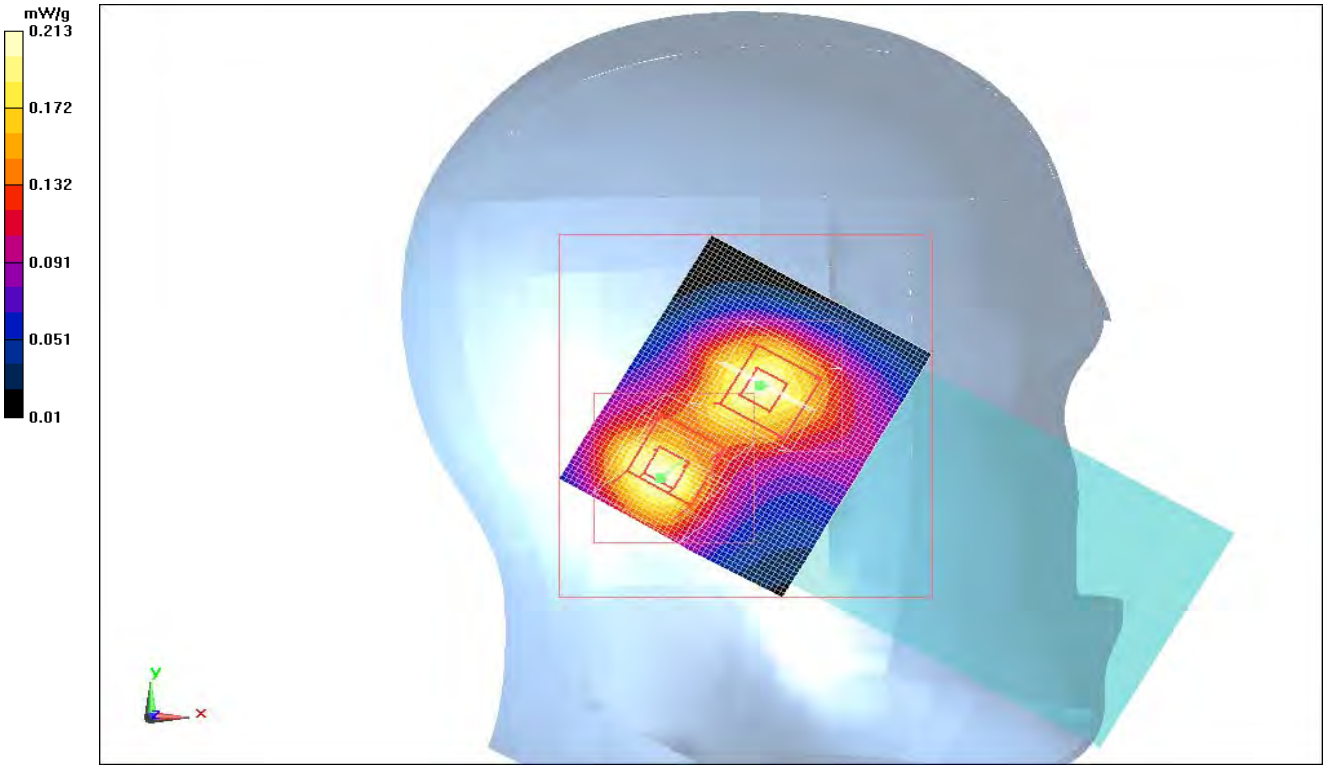
Head - Left/Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.760 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.306 W/kg
SAR(1 g) = 0.175 mW/g; SAR(10 g) = 0.099 mW/g
Maximum value of SAR (measured) = 0.213 mW/g

Head - Left/Tilt/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 9.283 V/m

Head - Left/Tilt/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.760 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.210 mW/g

Head - Left/Tilt/Reference scan (31x51x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.200 mW/g

Head - Left/Tilt/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.207 mW/g



Room Temprature (°C):	23	**42.6**	40	**Test Date:**	02/13/11
Liquid Temprature (°C):	21.2	**1009**	1010	**Tested by:**	Jennifer Herrett

Test 19

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

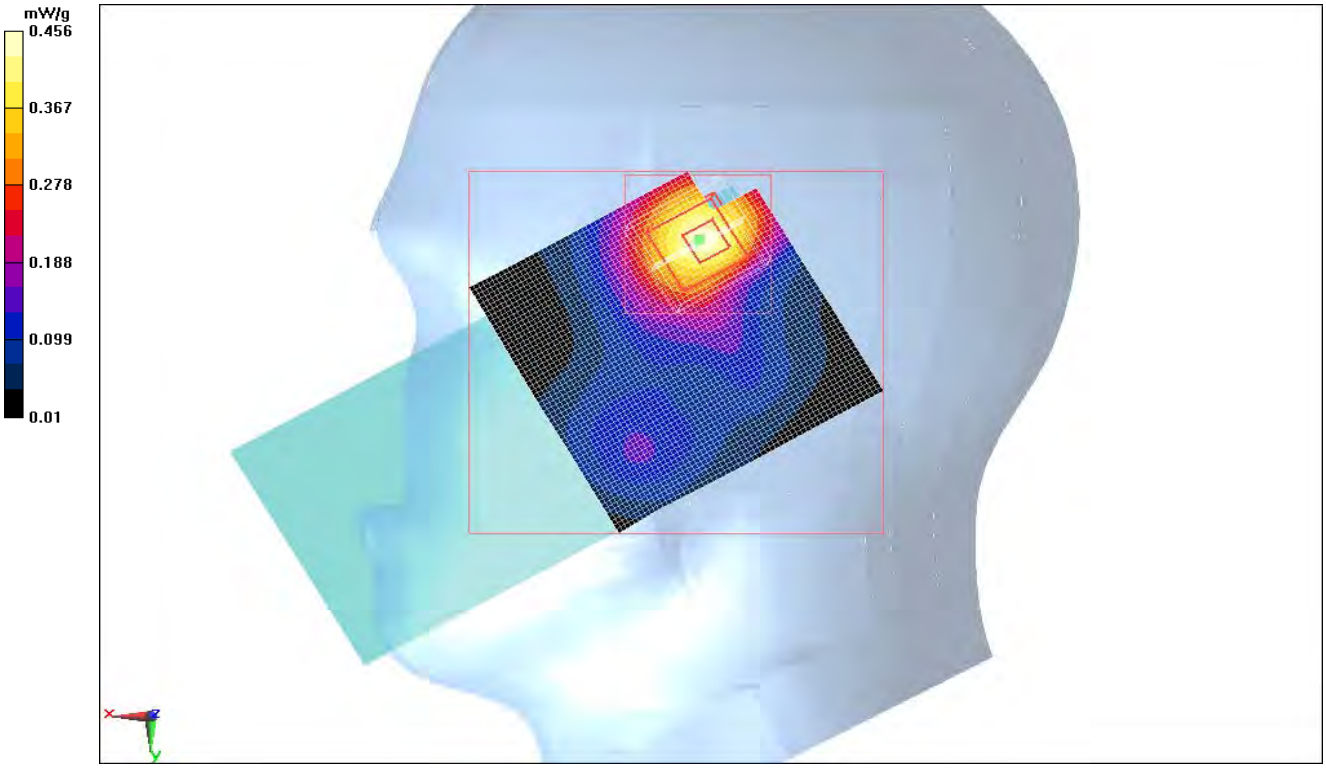
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Cheek/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 13.407 V/m

Head - Right/Cheek/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.538 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.639 W/kg
SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.222 mW/g
Maximum value of SAR (measured) = 0.456 mW/g

Head - Right/Cheek/Reference scan (31x51x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 7.384 mW/g

Head - Right/Cheek/Area scan (81x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.441 mW/g



Room Temprature (°C):	22.9	**Humidity (%):**	43.1	**Test Date:**	02/13/11
Liquid Temprature (°C):	21.2	**Barometric Pressure (mb):**	1009	**Tested by:**	Jennifer Herrett

Test 20

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

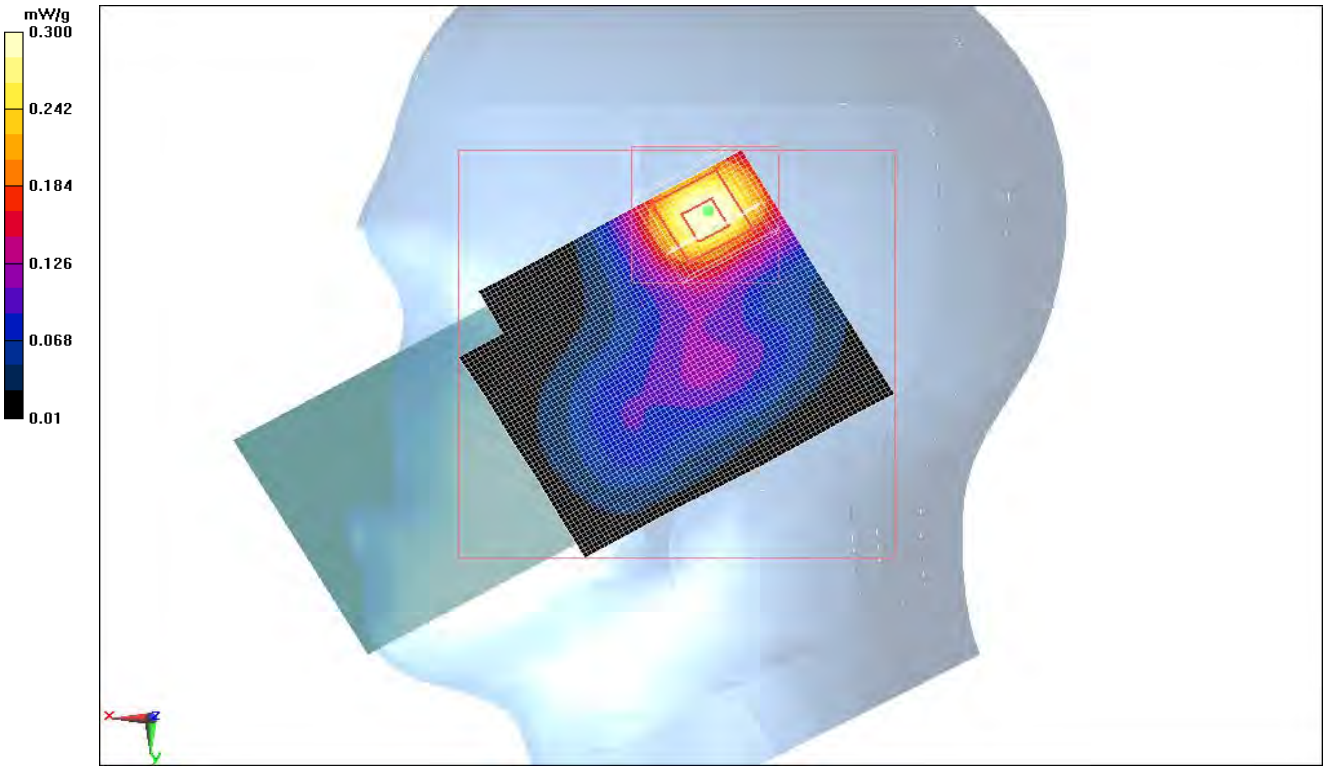
Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.781 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.418 W/kg
SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.148 mW/g
Maximum value of SAR (measured) = 0.300 mW/g

Head - Right/Tilt/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 11.349 V/m

Head - Right/Tilt/Reference scan (41x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 2.726 mW/g

Head - Right/Tilt/Area scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.310 mW/g



Room Temprature (°C):	23.3	**Humidity (%):**	35.9	**Test Date:**	02/12/11
Liquid Temprature (°C):	21.1	**Barometric Pressure (mb):**	1012	**Tested by:**	Jennifer Herrett

Test 21

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

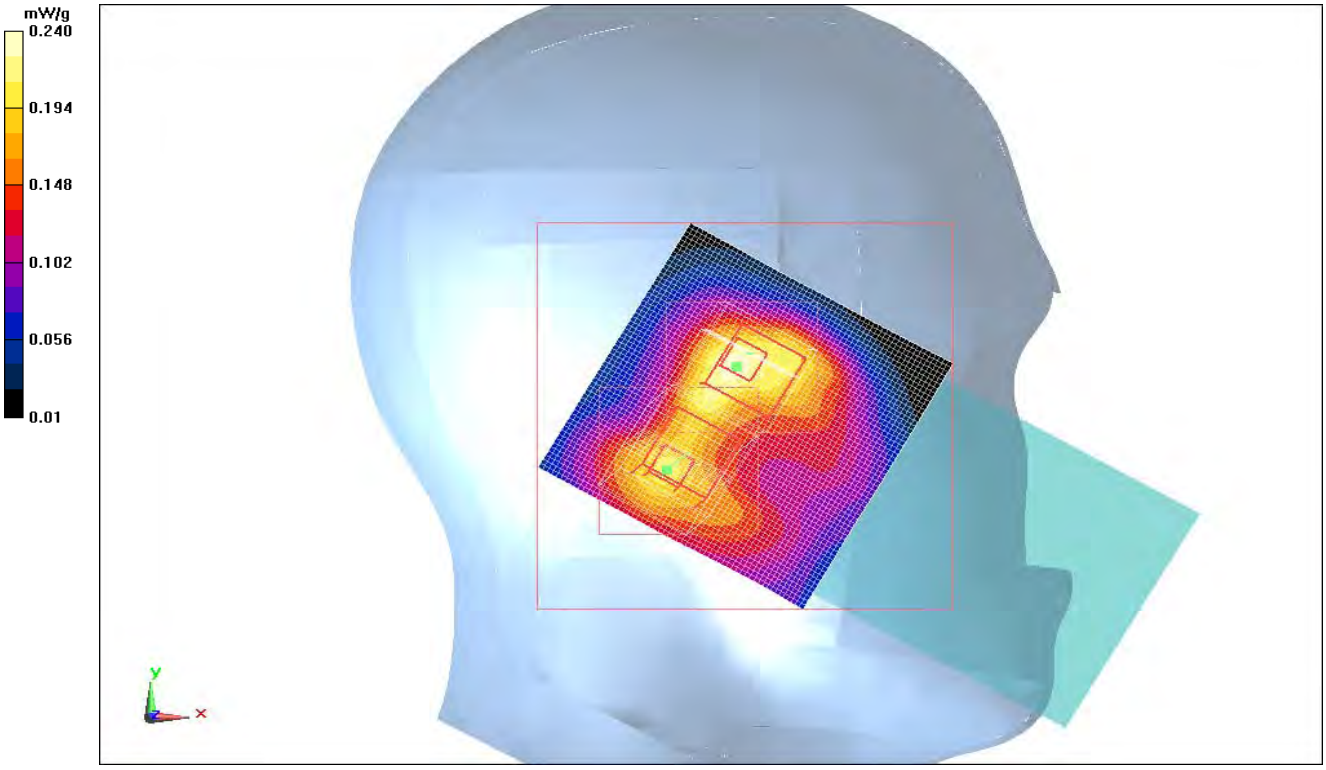
Head - Left/Cheek/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 10.443 V/m

Head - Left/Cheek/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.252 V/m; Power Drift = 1.50 dB
Peak SAR (extrapolated) = 0.282 W/kg
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.205 mW/g

Head - Left/Cheek/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.252 V/m; Power Drift = 1.91 dB
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.228 mW/g

Head - Left/Cheek/Reference scan (51x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 1.043 mW/g

Head - Left/Cheek/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.237 mW/g



Room Temprature (°C):	23.4	**Humidity (%):**	39.4	**Test Date:**	02/12/11
Liquid Temprature (°C):	20.9	**Barometric Pressure (mb):**	1013	**Tested by:**	Jennifer Herrett

Test 22

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

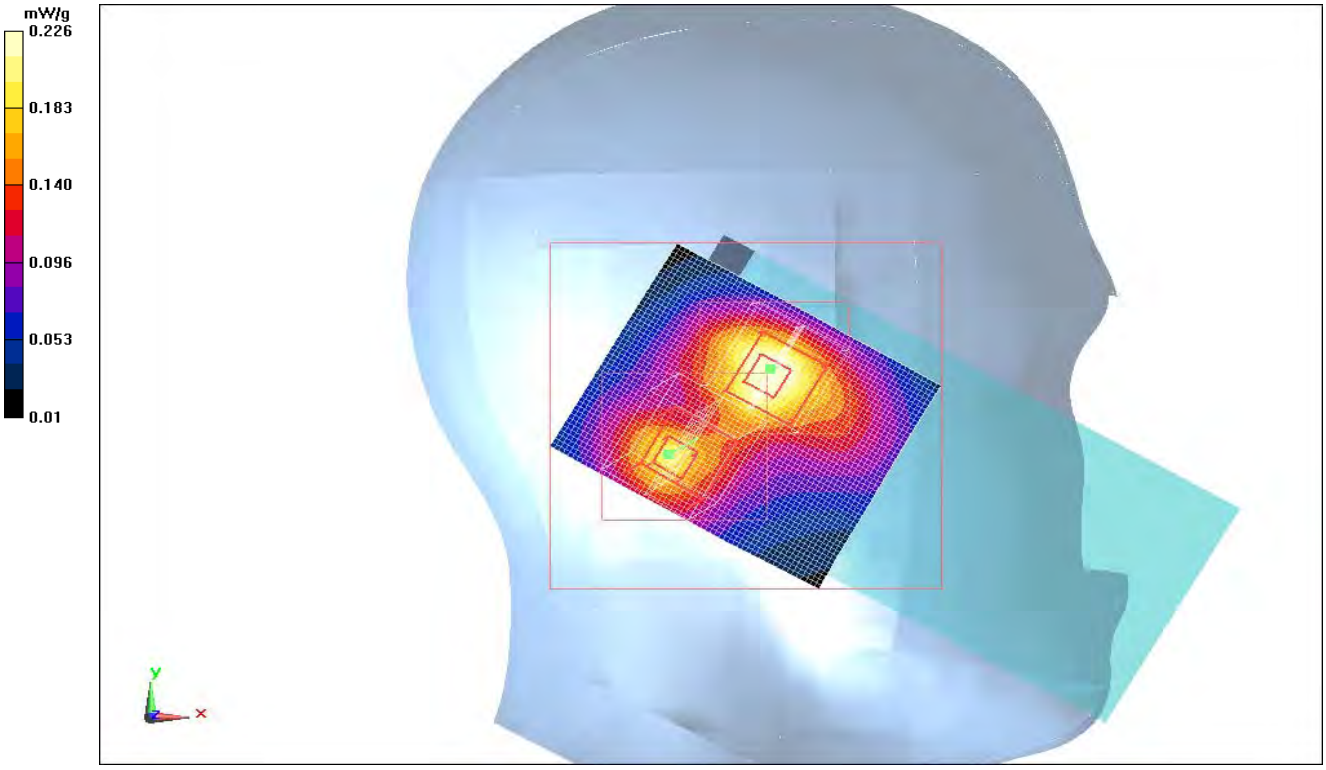
Head - Left/Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.616 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.226 mW/g

Head - Left/Tilt/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 9.608 V/m

Head - Left/Tilt/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.616 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.279 W/kg
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.194 mW/g

Head - Left/Tilt/Reference scan (41x61x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.204 mW/g

Head - Left/Tilt/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.235 mW/g



Room Temprature (°C):	23.5	Humidity (%):	34.9	Test Date:	02/12/11
Liquid Temprature (°C):	21	Barometric Pressure (mb):	1016	Tested by:	Jennifer Herrett

Test 23

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

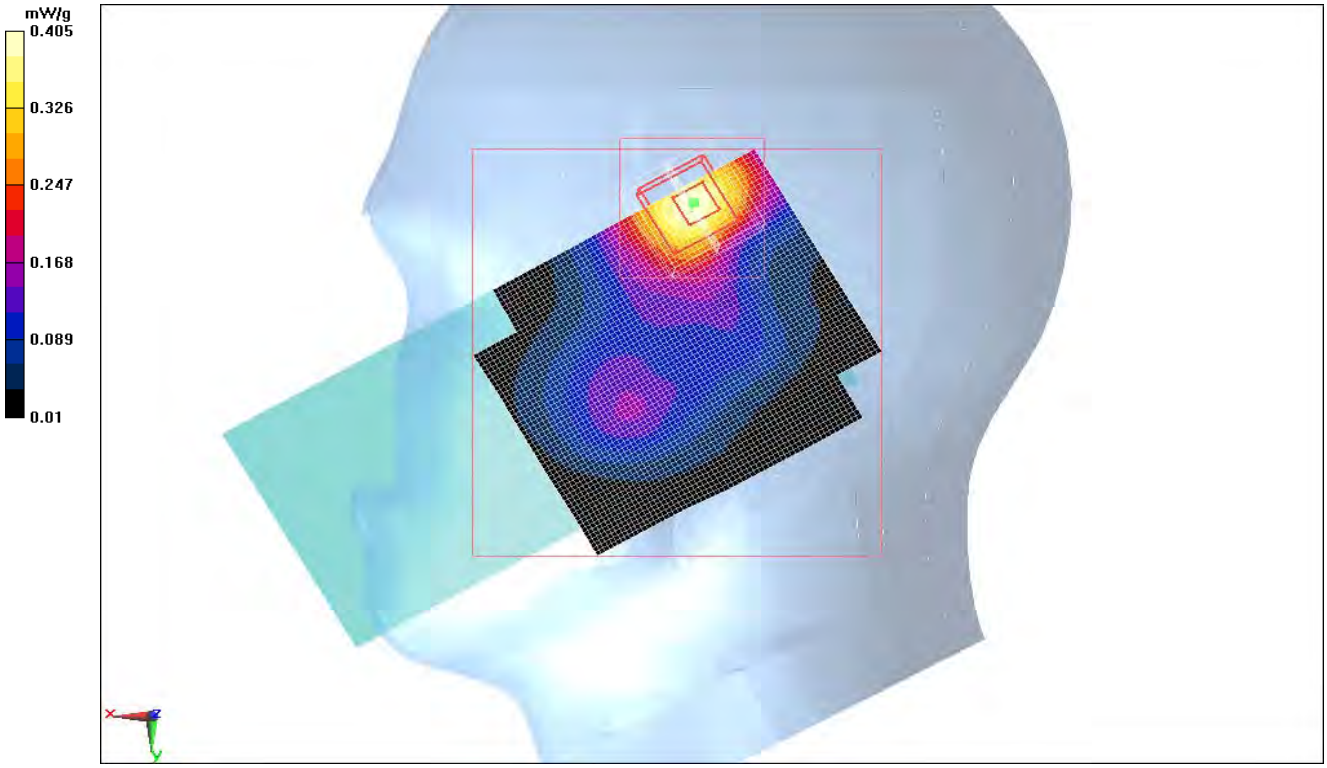
Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Cheek/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 13.011 V/m

Head - Right/Cheek/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.531 V/m; Power Drift = 1.45 dB
Peak SAR (extrapolated) = 0.578 W/kg
SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.192 mW/g
Maximum value of SAR (measured) = 0.405 mW/g

Head - Right/Cheek/Reference scan (51x51x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 3.180 mW/g

Head - Right/Cheek/Area scan (81x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.404 mW/g



Room Temprature (°C):	23.3	**Humidity (%):**	38.5	**Test Date:**	02/12/11
Liquid Temprature (°C):	21.1	**Barometric Pressure (mb):**	1017	**Tested by:**	Jennifer Herrett

Test 24

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: SAM with CRP; Type: SAM; Serial: 1598
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Head - Right/Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.053 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.487 W/kg
SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.339 mW/g

Head - Right/Tilt/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

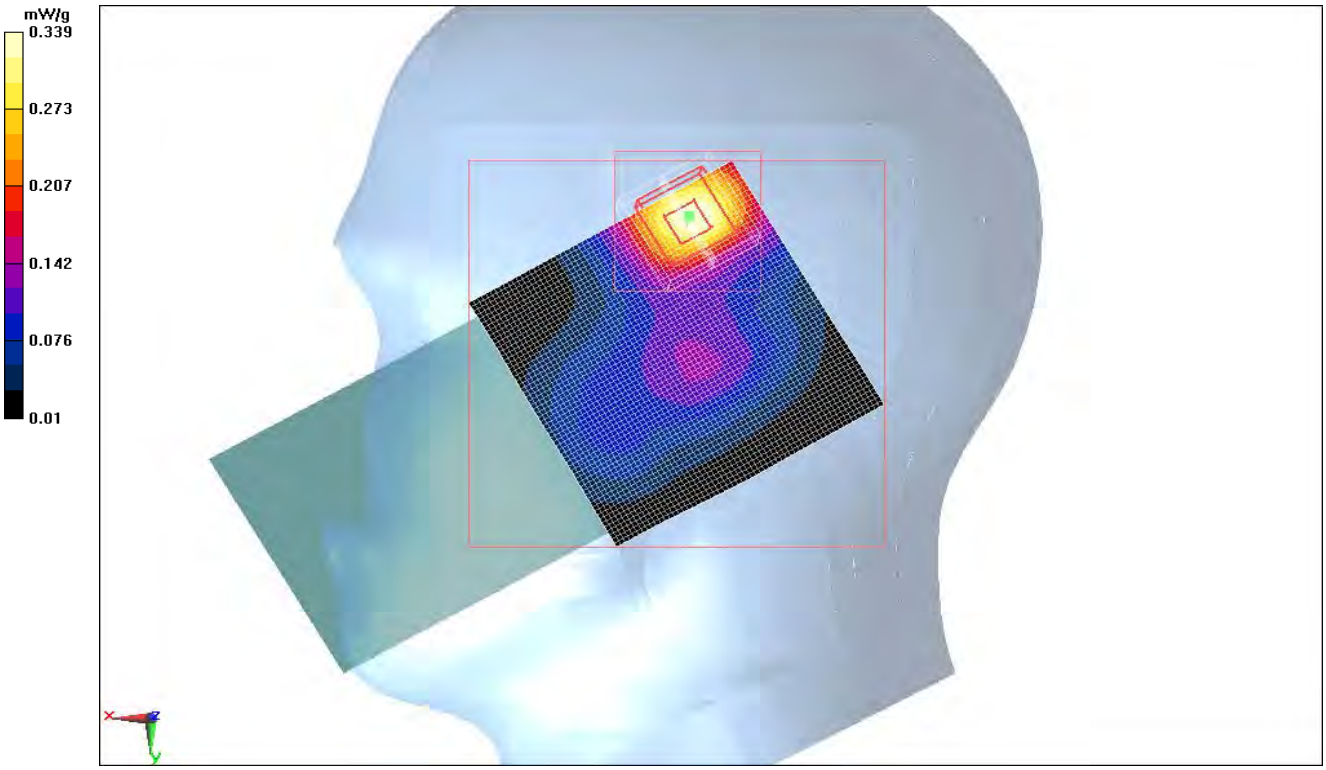
Maximum value of Total (measured) = 12.023 V/m

Head - Right/Tilt/Reference scan (41x61x1): Measurement grid: dx=30mm, dy=30mm

Maximum value of SAR (interpolated) = 2.253 mW/g

Head - Right/Tilt/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.341 mW/g



NORTHWEST
EMC

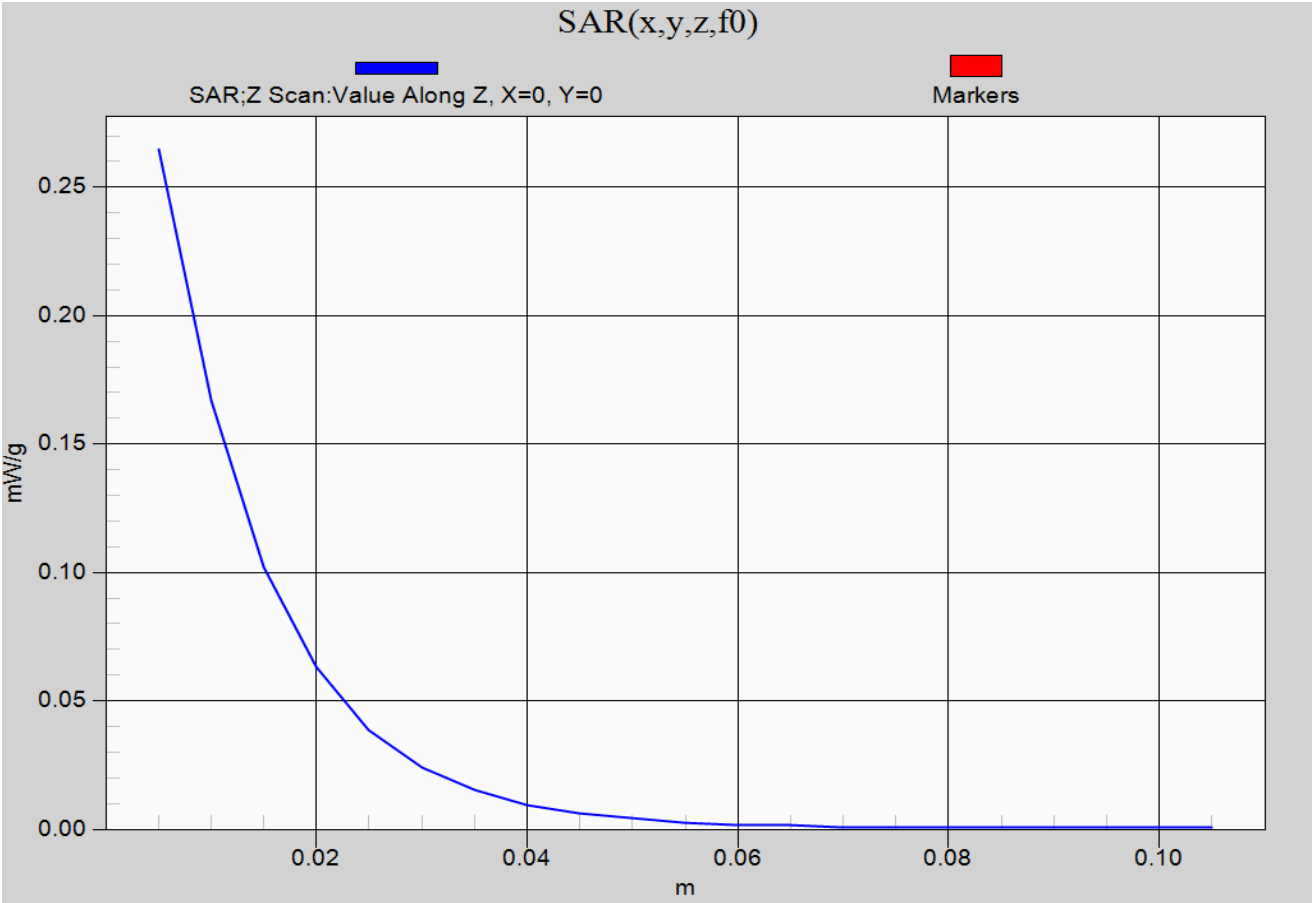
SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	23	**42.6**	40	**Test Date:**	02/13/11
Liquid Temprature (°C):	21.2	**1009**	1010	**Tested by:**	Jennifer Herrett

Test 19

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	**1000CP01C**	**Work Order:**	**INMC0683**
Serial Number:	**24411047084**	**Date:**	**See Data Sheets**
Customer:	**Intermec Technologies**	**Temperature:**	**See Data Sheets**
Attendees:	**None**	**Humidity:**	**See Data Sheets**
Project:	**INMC0570**	**Barometric Pres.:**	**See Data Sheets**
Tested by:	**Jennifer Herrett**	**Job Site:**	**EV08**

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2011	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	**1**	*Signature* Jennifer Herrett

Test Configuration	Form	Transmit Frequency	Transmit Channel	Transmit Mode	Data Rate (kbps)	Body Worn Accessory	Audio Accesssory	EUT Position	Start Power (Conducted)	SAR Drift During Test (dB)	1g SAR Level	Test #
Body	A1	1851.25	25	EV-DO Rev 0	FTAP: 307.2 RTAP: 153.6	Holster	VR10 Headset	Right	24.28	-0.07	0.110	14
		1851.25	25	EV-DO Rev 0				Front	24.28	0.04	0.307	15
		1851.25	25	EV-DO Rev 0				Left	24.28	0.0085	1.100	16
		1880	600	EV-DO Rev A	FETAP: 307.2 RETAP: 4096 Payload			Left	24.39	0.03	0.906	18
		1880	600	EV-DO Rev 0	FTAP: 307.2 RTAP: 153.6	Holster	VR10 Headset	Left	24.27	-0.07	0.698	32
		1908.75	1175	EV-DO Rev 0				Left	24.2	-0.17	0.853	33

Room Temprature (°C):	22.5	**Humidity (%):**	43.8	**Test Date:**	02/13/11
Liquid Temprature (°C):	20.8	**Barometric Pressure (mb):**	1016	**Tested by:**	Jennifer Herrett

Test 14

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1851.25 MHz
Medium parameters used: σ = 1.4232 mho/m, ε_r = 40.6086; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.423 mho/m; ε_r = 40.609; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ES3DV3 - SN3246; ConvF(5.02, 5.02, 5.02); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

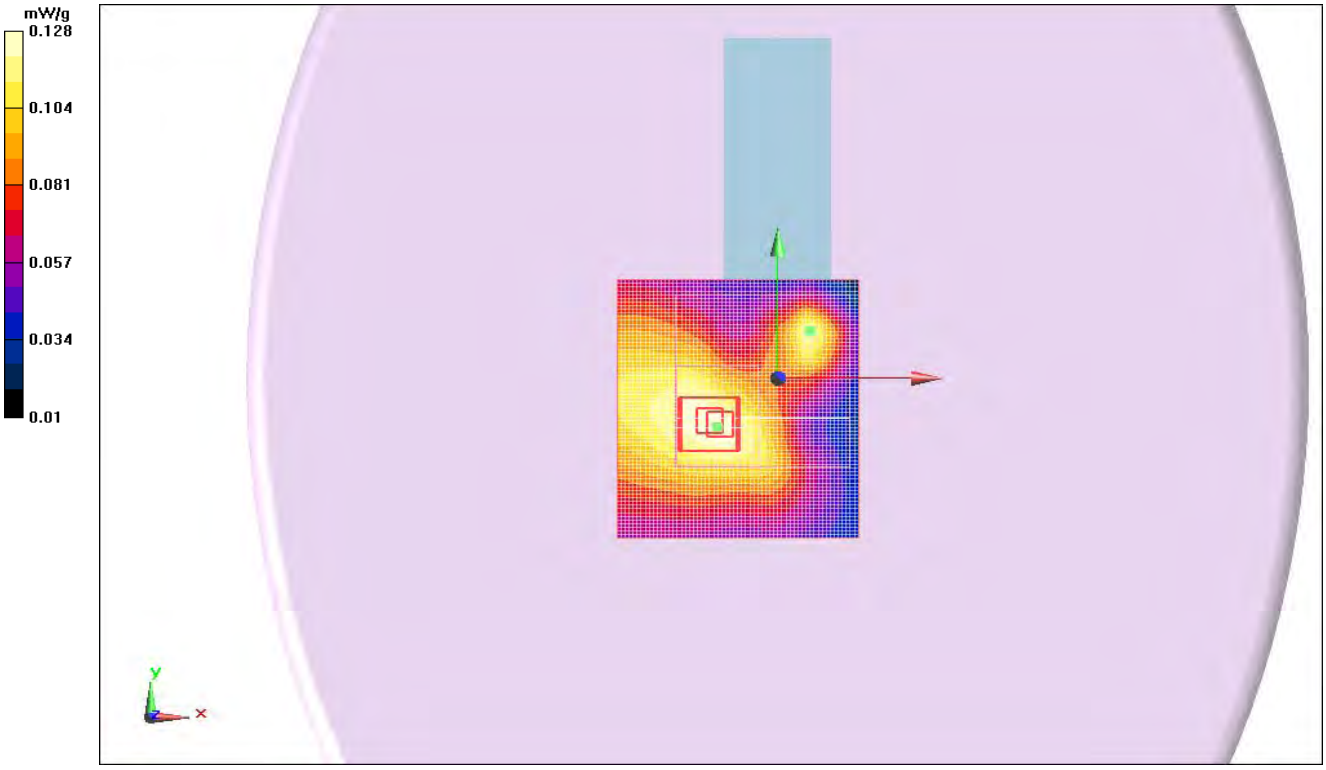
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 7.540 V/m

Body/Body/Zoom Scan 2 (14x15x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.524 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.173 W/kg
SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.128 mW/g

Body/Body/Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.524 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.174 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.129 mW/g

Body/Body/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.130 mW/g

Body/Body/Area scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.125 mW/g



Room Temprature (°C):	23.1	**Humidity (%):**	43.5	**Test Date:**	02/13/11
Liquid Temprature (°C):	20.8	**Barometric Pressure (mb):**	1013	**Tested by:**	Jennifer Herrett

Test 15

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1851.25 MHz
Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

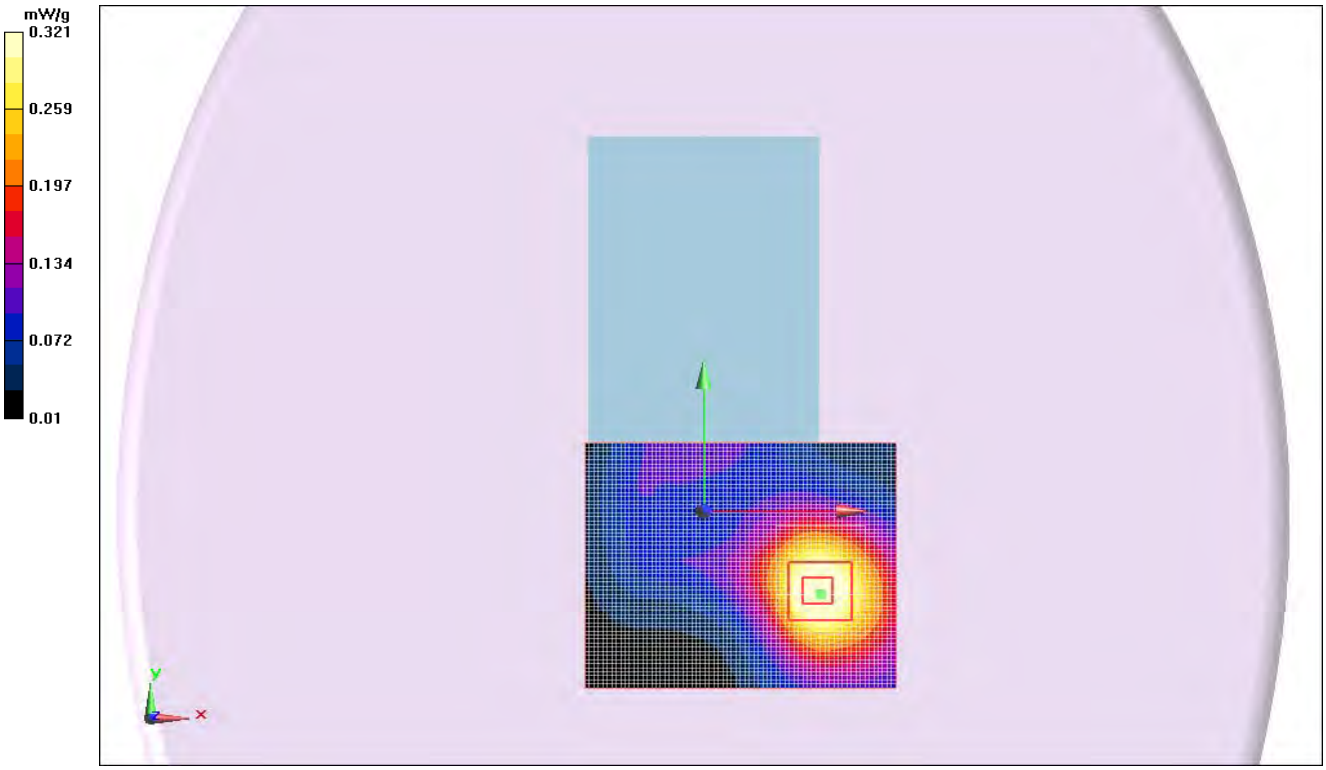
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 12.590 V/m

Body/Body/Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.348 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.307 mW/g; SAR(10 g) = 0.189 mW/g
Maximum value of SAR (measured) = 0.362 mW/g

Body/Body/Reference scan (41x81x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Body/Body/Area scan (71x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.357 mW/g



Room Temprature (°C):	22.9	**Humidity (%):**	39.9	**Test Date:**	02/13/11
Liquid Temprature (°C):	20.8	**Barometric Pressure (mb):**	1017	**Tested by:**	Jennifer Herrett

Test 16

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1851.25 MHz
Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

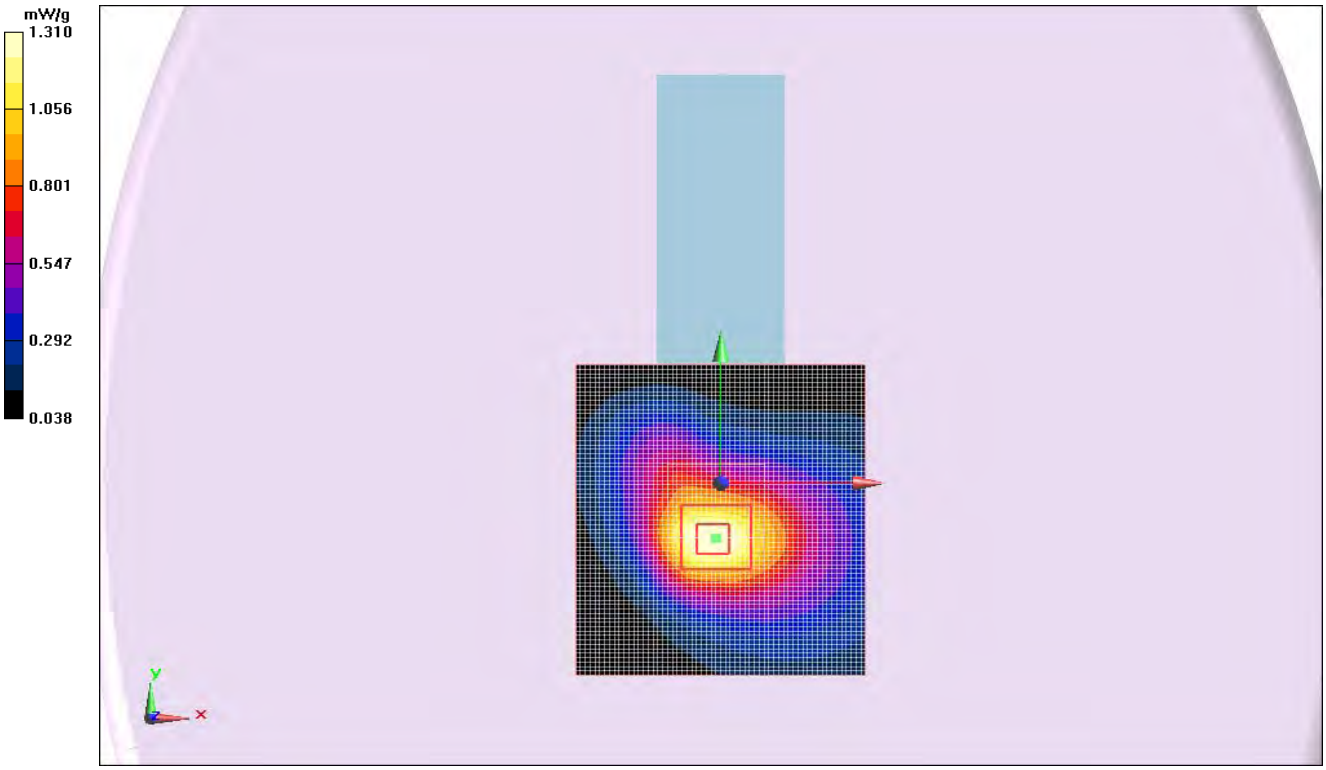
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 23.777 V/m

Body/Body/Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.428 V/m; Power Drift = 0.0085 dB
Peak SAR (extrapolated) = 1.780 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.678 mW/g
Maximum value of SAR (measured) = 1.310 mW/g

Body/Body/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.056 mW/g

Body/Body/Area scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.316 mW/g



Room Temprature (°C):	22	**Humidity (%):**	37.3	**Test Date:**	02/13/11
Liquid Temprature (°C):	20.8	**Barometric Pressure (mb):**	1018	**Tested by:**	Jennifer Herrett

Test 18

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: σ = 1.47184 mho/m, ε_r = 53.5958; ρ = 1000 kg/m^3 , Medium parameters used: f = 1900 MHz; σ = 1.472 mho/m; ε_r = 53.596; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

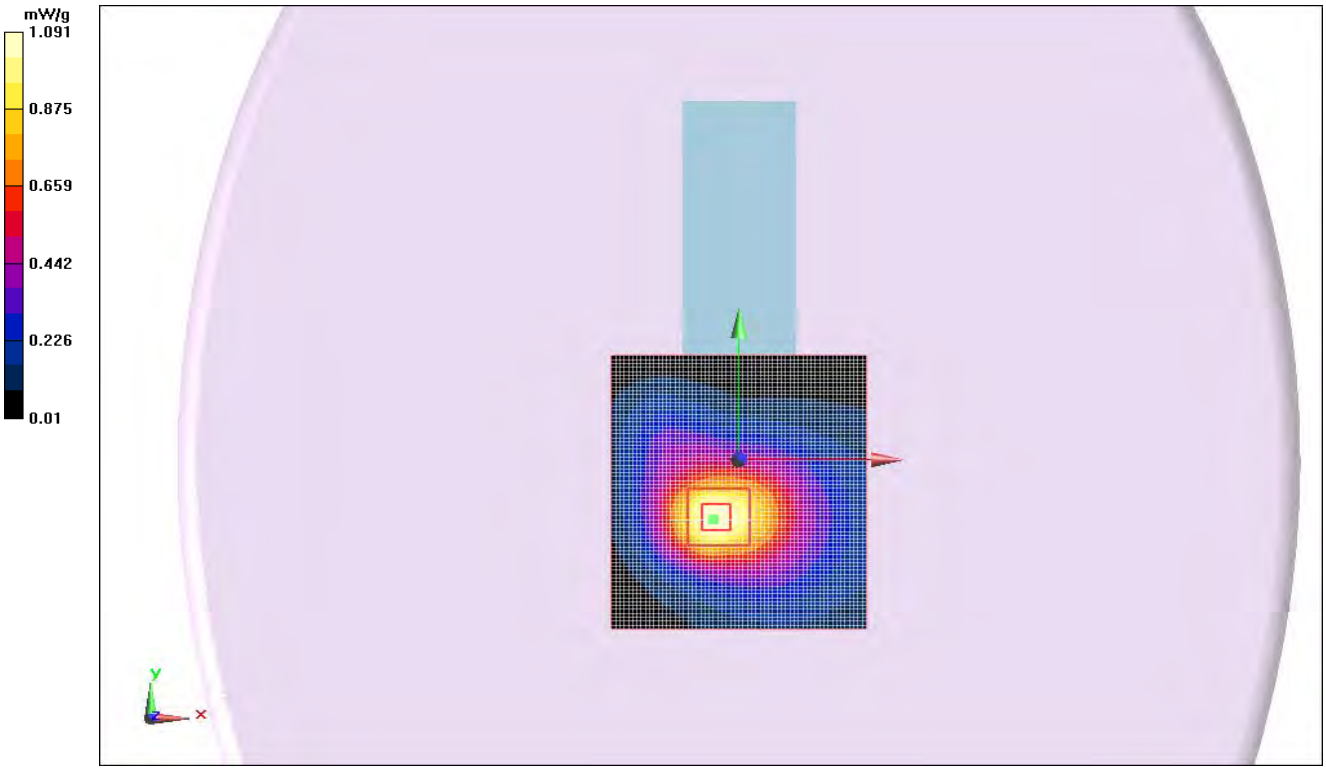
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 21.603 V/m

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.372 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.488 W/kg
SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.548 mW/g
Maximum value of SAR (measured) = 1.091 mW/g

Body/Body/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.909 mW/g

Body/Body/Area scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.119 mW/g



Room Temprature (°C):	23.3	**Humidity (%):**	35.2	**Test Date:**	02/17/11
Liquid Temprature (°C):	22.3	**Barometric Pressure (mb):**	1009	**Tested by:**	Jennifer Herrett

Test 32

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.445 mho/m; ε_r = 53.39; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.445 mho/m, ε_r = 53.39; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

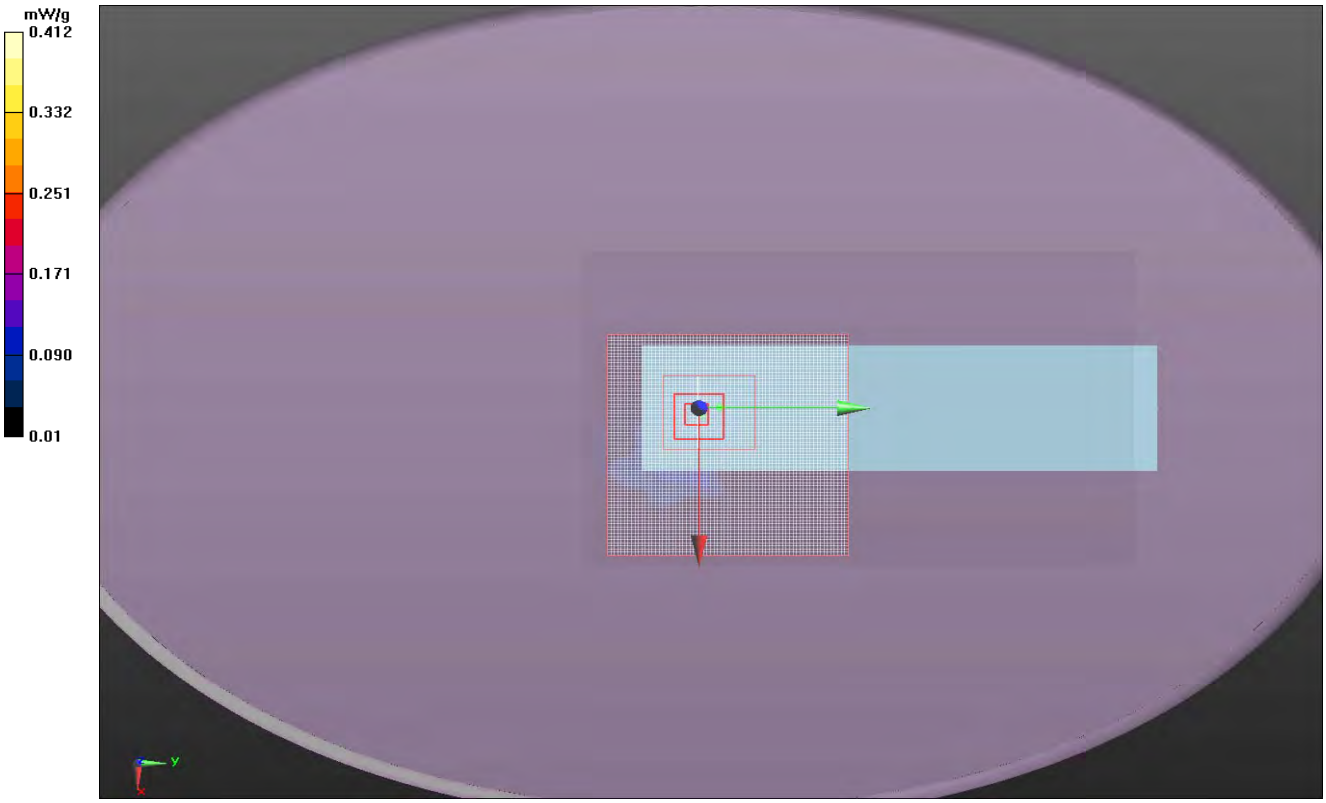
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body - Mid/Reference scan (51x81x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.174 mW/g

Body/Body - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.178 mW/g

Body/Body - Mid/Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.571 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.133 W/kg
SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.427 mW/g
Maximum value of SAR (measured) = 0.829 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 16.891 V/m



Room Temprature (°C):	21.6	**Humidity (%):**	35.2	**Test Date:**	02/17/11
Liquid Temprature (°C):	21.5	**Barometric Pressure (mb):**	1009	**Tested by:**	Jennifer Herrett

Test 33

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

Communication System: CW; Frequency: 1908.75 MHz
Medium parameters used: f = 1908.75 MHz; σ = 1.475 mho/m; ε_r = 53.25; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.475 mho/m, ε_r = 53.25; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

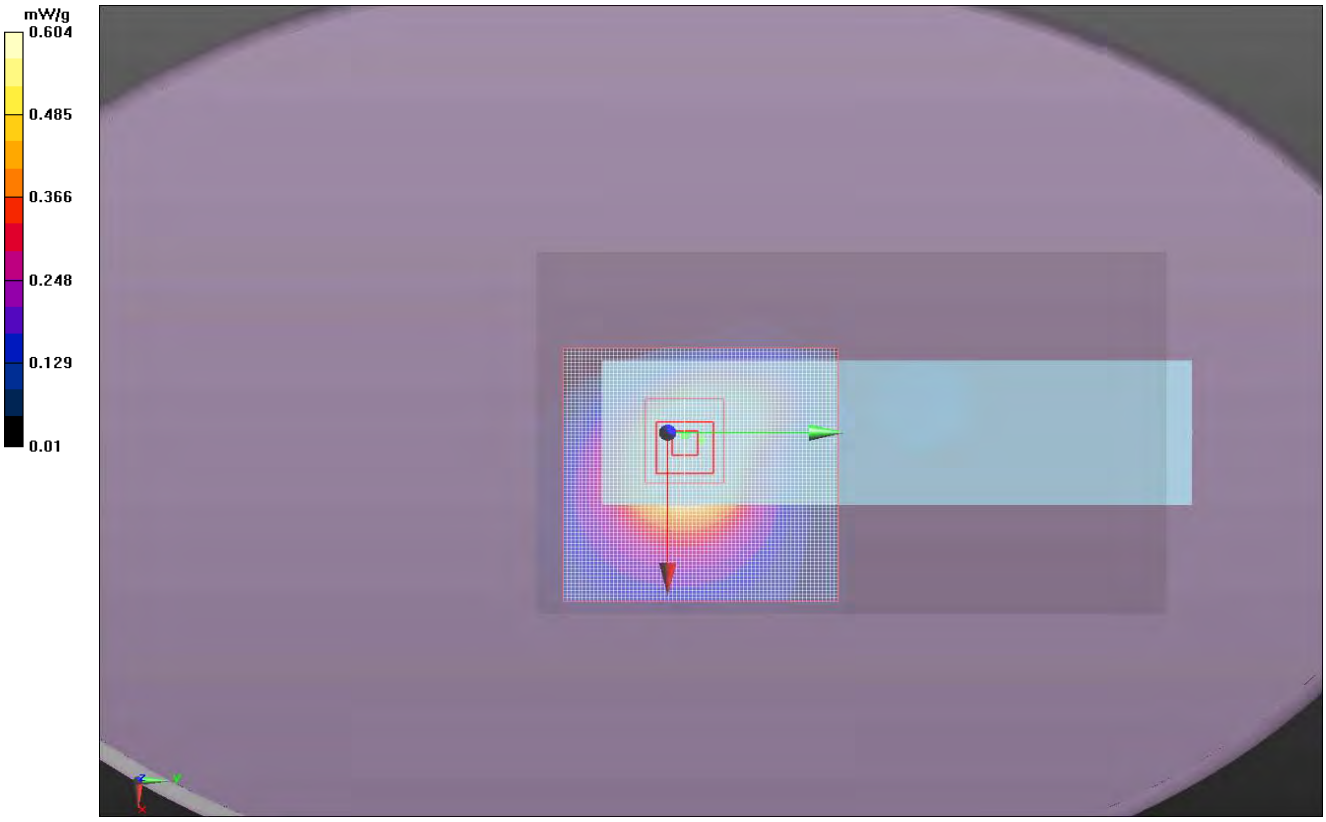
Probe: ES3DV3 - SN3246; ConvF(4.63, 4.63, 4.63); Calibrated: 11/11/2010
Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1237; Calibrated: 11/10/2010
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1096
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Body/Body - High/Reference scan (51x81x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.956 mW/g

Body/Body - High/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.047 mW/g

Body/Body - High/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 20.230 V/m

Body/Body - High/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.332 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.404 W/kg
SAR(1 g) = 0.853 mW/g; SAR(10 g) = 0.522 mW/g
Maximum value of SAR (measured) = 1.014 mW/g



NORTHWEST
EMC

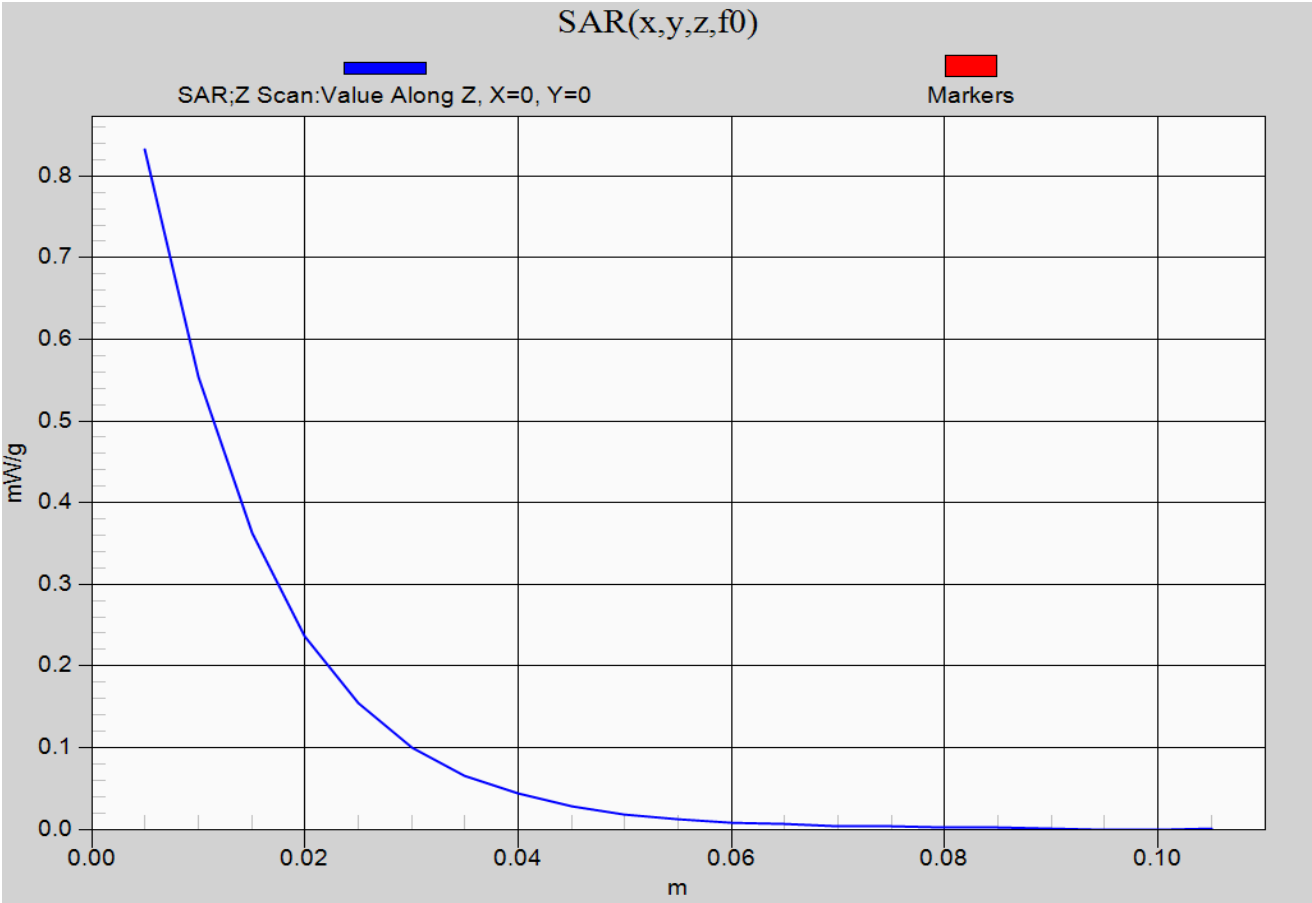
SAR TEST DATA

SAR 2011.02.07

Room Temprature (°C):	22.9	Humidity (%):	39.9	Test Date:	02/13/11
Liquid Temprature (°C):	20.8	Barometric Pressure (mb):	1017	Tested by:	Jennifer Herrett

Test 16

DUT: 1000CP01C Hand Held Computer; Type: CN70; Serial: 24411047084

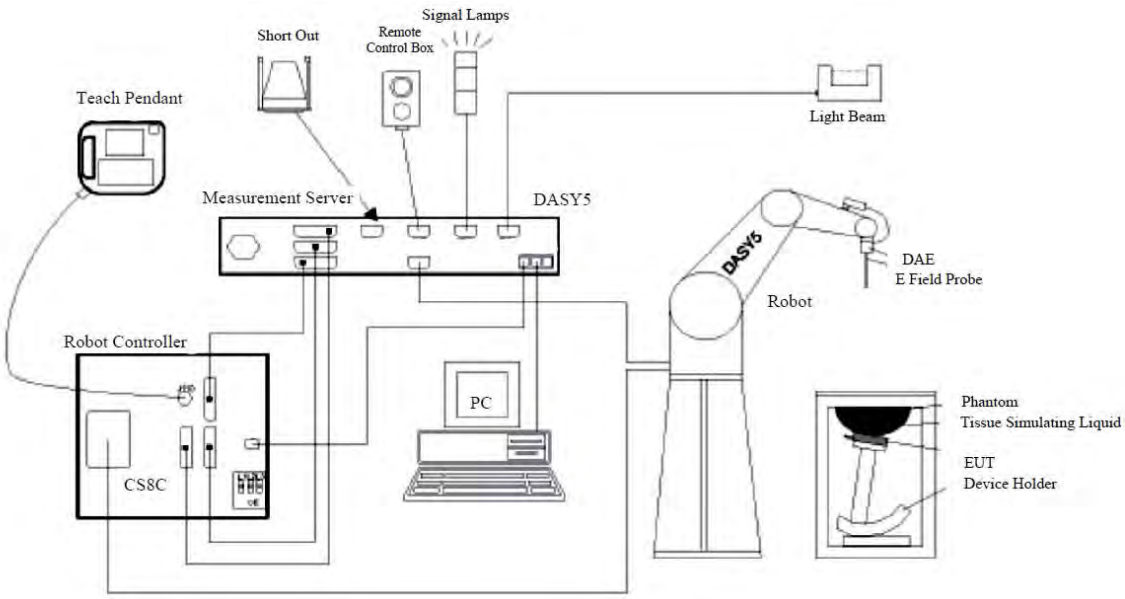


SAR Measurement System

Schmid & Partner Engineering AG, DASY52

Northwest EMC selected the leader in SAR evaluation systems to provide the measurement tools for this evaluation. SPEAG's DASY52 is the fastest and most accurate scanner on the market. It is fully compatible with all world-wide standards for transmitters operating at the ear or within 20cm of the body. It provides full compatibility with IEC 62209-1, IEC 62209-2, IEEE 1528 as well as national adaptations such as FCC OET-65c and Korean Std. MIC #2000-93

The DASY52 system for performing compliance tests consists of the following items:



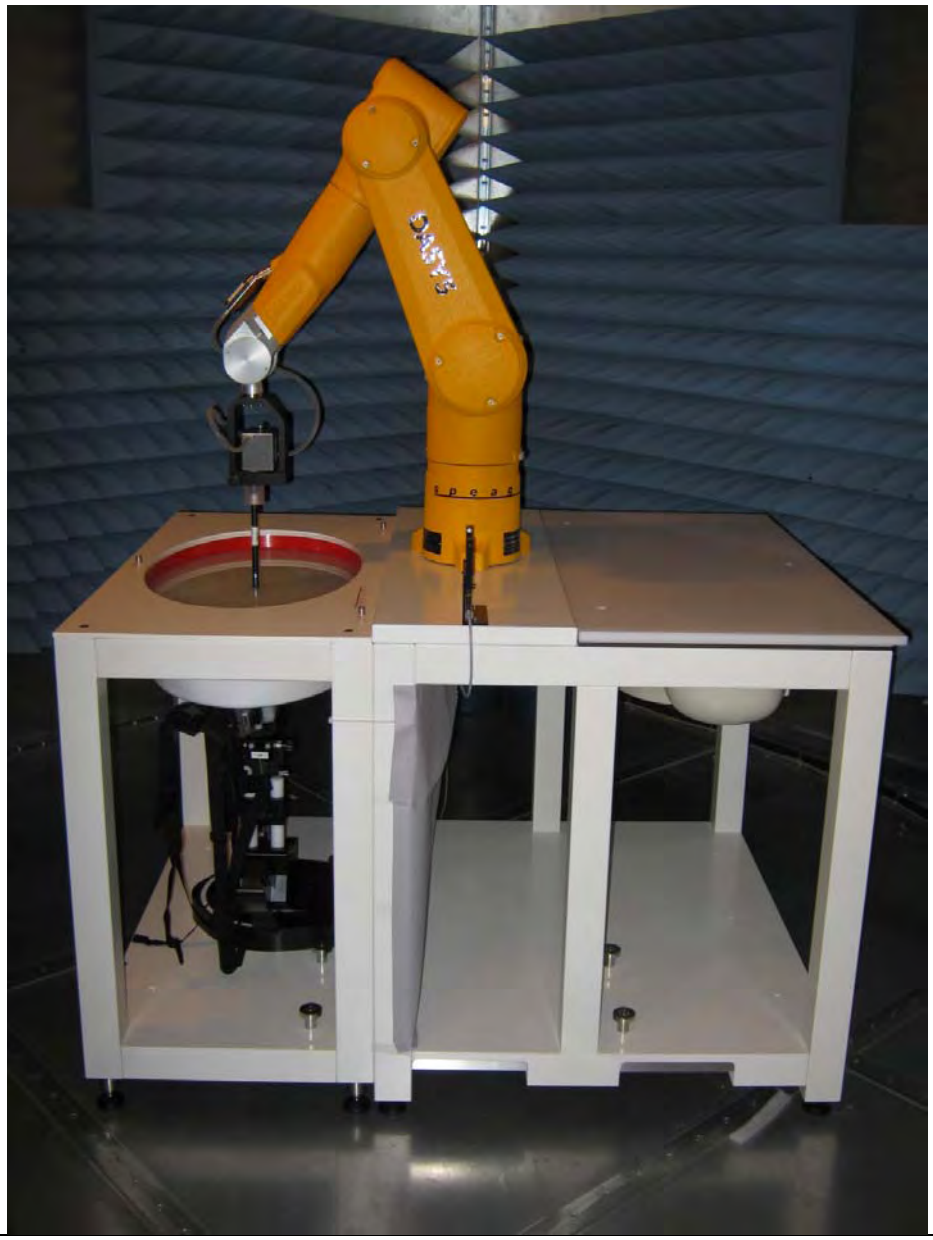
- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom, oval flat phantom, device holder, tissue simulating liquids, and validation dipole kits.

Test Site

Northwest EMC, Lab EV08

The SAR measurement system is located in a semi-anechoic chamber. This provides an ambient free environment that also eliminates reflections.

The chamber is 12 ft wide by 16 ft long x 8 ft high. A dedicated HVAC unit provides +/- 1 degree C temperature control.



Test Equipment List

Description	Manufacturer	Model	ID	Last Cal.	Interval
SAR Measurement System	SPEAG	DASY52 SAR TX60L	SAA	see below	
Robot and power Supply	Staeubli	N/A	SAJ	NCR	0
DASY5 Measurement Server	Staeubli	DAYS5	SAK	NCR	0
Robot Controller	Staeubli	CS8C	SAI	11/11/2010	12
DASY5 Computer System	Hewlett Packard	N/A	SAX	NCR	0
DAE	SPEAG	SD 000 D04 EJ	SAH	11/11/2010	12
Light Beam Unit	SPEAG	SE UKS 030 AA	SAD	NCR	0
Phantom, 2mm Oval ELI4 (Body)	SPEAG	QD OVA 001 BB	SAC	NCR	0
Phantom, Twin SAM (Head)	SPEAG	QD 000 P40 CC	SAB	NCR	0
Device Holder	SPEAG	N/A	SAW	NCR	0
SAR Probe	SPEAG	ES3DV3	SAF	11/11/2010	12
Validation Dipole 835 MHz	SPEAG	D835V2	ADK	10/19/2010	12
Validation Dipole 1900 MHz	SPEAG	D1900V2	ADO	11/24/2010	12
Body Solution	SPEAG	MSL 900	SAT	Before the first test, then every 24 hours	
Head Solution	SPEAG	HSL 900	SAS		
Body Solution	SPEAG	MSL 1900	SAO		
Head Solution	SPEAG	HSL 1900	SAN		
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	16
Power Meter	Gigatronics	8651A	SPM	1/7/2010	16
Network Analyzer	Agilent	N5230A	NAD	9/8/2010	13
Dielectric Probe Kit	Agilent	85070E	IPP	9/8/2010	13
RF Amplifier	Mini Circuits	ZHL-5W-2G-S+	TRZ	NCR	0
Wireless Test Set	Agilent Technologies	E5515C	R00011	NCR	0
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
Humidity Temperature Meter	Omegaette	HH311	DTX	10/4/2010	12
Spectrum Analyzer - reference only	Hewlett-Packard	8593E	AAN	NCR	0

Measurement Uncertainty Budget per IEEE 1528:2003

300 – 3000 MHz range

Uncertainty Component	Tolerance (+/- %)	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	u_i (1g) (+/-%)	u_i (10g) (+/-%)	v_i
Measurement System								
Probe calibration (k=1)	5.5	normal	1	1	1	5.5	5.5	∞
Axial isotropy	4.7	rectangular	1.732	0.707	0.707	1.9	1.9	∞
Hemispherical isotropy	9.6	rectangular	1.732	0.707	0.707	3.9	3.9	∞
Boundary effect	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Linearity	4.7	rectangular	1.732	1	1	2.7	2.7	∞
System detection limits	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Readout electronics	0.3	normal	1	1	1	0.3	0.3	∞
Response time	0.8	rectangular	1.732	1	1	0.5	0.5	∞
Integration time	2.6	rectangular	1.732	1	1	1.5	1.5	∞
RF ambient conditions - noise	1.7	rectangular	1.732	1	1	1.0	1.0	∞
RF Ambient Reflections	0.0	rectangular	1.732	1	1	0.0	0.0	∞
Probe positioner mechanical tolerance	0.4	rectangular	1.732	1	1	0.2	0.2	∞
Probe positioner with respect to phantom shell	2.9	rectangular	1.732	1	1	1.7	1.7	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Test Sample Related								
Device Positioning	2.9	normal	1	1	1	2.9	2.9	145
Device Holder	3.6	normal	1	1	1	3.6	3.6	5
Power Drift	5.0	rectangular	1.732	1	1	2.9	2.9	∞
Phantom and tissue parameters								
Phantom Uncertainty - shell thickness tolerances	4.0	rectangular	1.732	1	1	2.3	2.3	∞
Liquid conductivity - deviation from target values	5.0	rectangular	1.732	0.64	0.43	1.8	1.2	∞
Liquid conductivity - measurement uncertainty	6.5	normal	1	0.64	0.43	4.2	2.8	∞
Liquid permittivity - deviation from target values	5.0	rectangular	1.732	0.6	0.49	1.7	1.4	∞
Liquid permittivity - measurement uncertainty	3.2	normal	1	0.6	0.49	1.9	1.6	∞
Combined Standard Uncertainty		RSS				11.2	10.6	387
Expanded Measurement Uncertainty (95% Confidence/		normal (k=2)				22.5	21.2	

Probe Calibration

Please see attached calibration data

SAF

NWEMC Equipment ID: SAF

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Northwest EMC**

Certificate No: **ES3-3246_Nov10**

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3246
Calibration procedure(s)	QA CAL-01.v6, QA CAL-12.v6, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date.	November 11, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by.	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: November 11, 2010

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

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ES3DV3

SN:3246

Manufactured: May 5, 2009
Calibrated: November 11, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 SN:3246

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.20	1.23	1.35	± 10.1%
DCP (mV)[B]	104.0	99.5	96.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	148.7	± 2.6 %
			Y	0.00	0.00	1.00	148.9	
			Z	0.00	0.00	1.00	115.9	
10021	GSM-FDD (TDMA, GMSK)	9.20	X	3.88	71.01	17.64	85.2	± 3.7 %
			Y	9.08	82.29	21.95	92.0	
			Z	10.21	84.31	22.94	99.0	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).

[B] Numerical linearization parameter: uncertainty not required.

[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 SN:3246

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth	Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	6.04	6.04	6.04	0.62	1.57	± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	6.06	6.06	6.06	0.99	1.10	± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.21	5.21	5.21	0.72	0.90	± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	5.02	5.02	5.02	0.82	0.95	± 11.0%

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

DASY/EASY - Parameters of Probe: ES3DV3 SN:3246

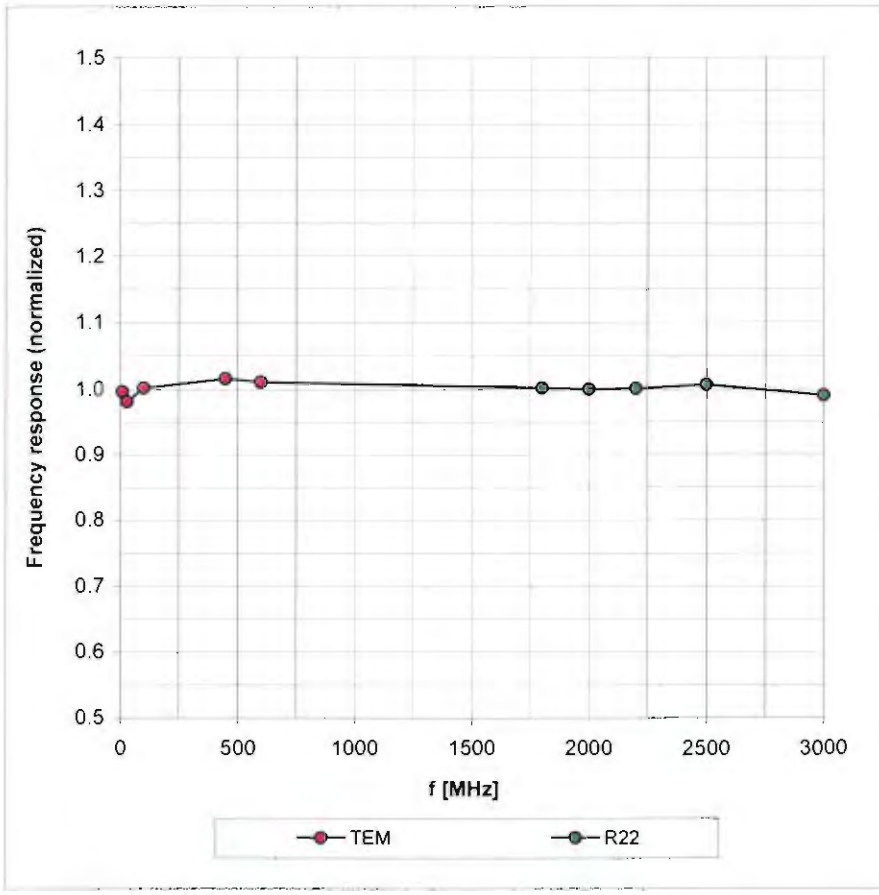
Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth	Unc (k=2)
450	± 50 / ± 100	56.7 ± 5%	0.94 ± 5%	7.00	7.00	7.00	0.07	1.00	± 13.3%
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	6.10	6.10	6.10	0.99	1.20	± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	6.01	6.01	6.01	0.99	1.18	± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.85	4.85	4.85	0.98	0.95	± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.63	4.63	4.63	0.84	1.00	± 11.0%

[C] The validity of ± 100 MHz only applies for DASY v4 4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band

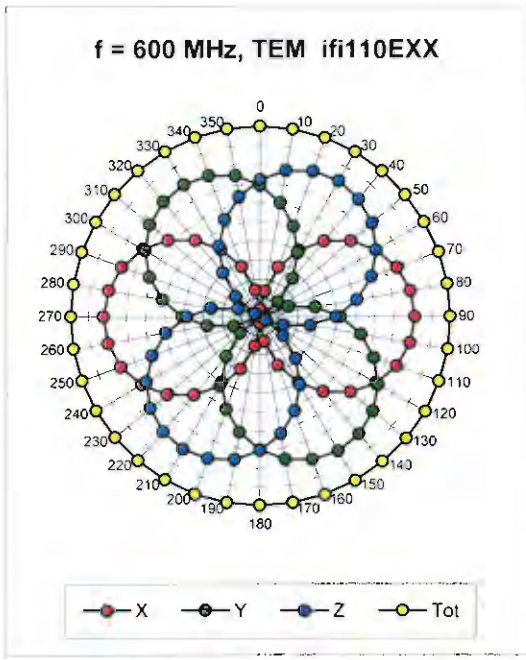
Frequency Response of E-Field

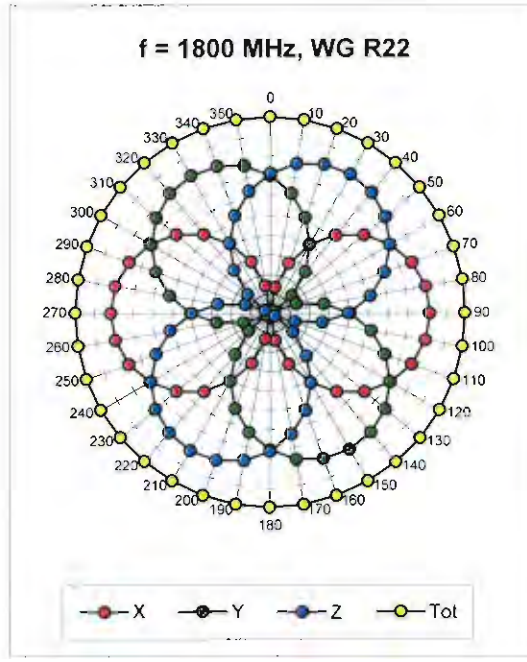
(TEM-Cell:ifi110 EXX, Waveguide: R22)

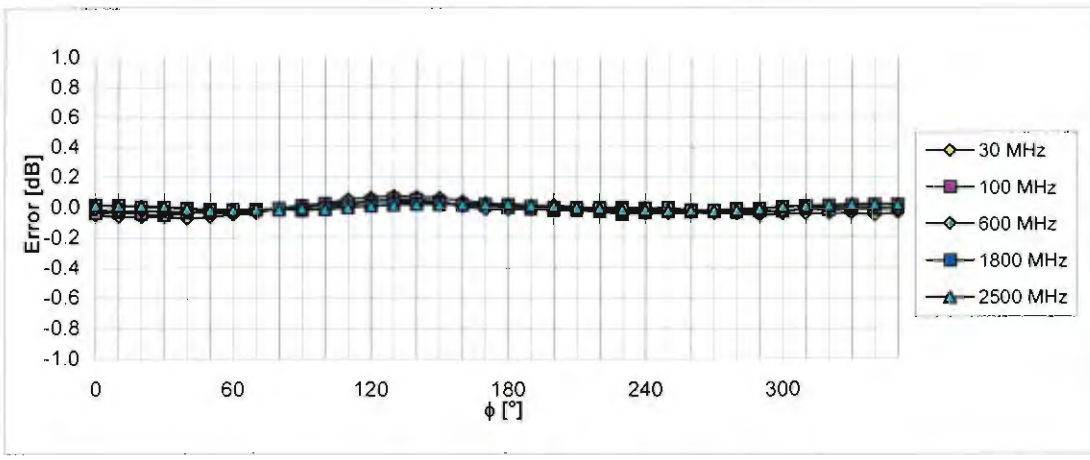


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



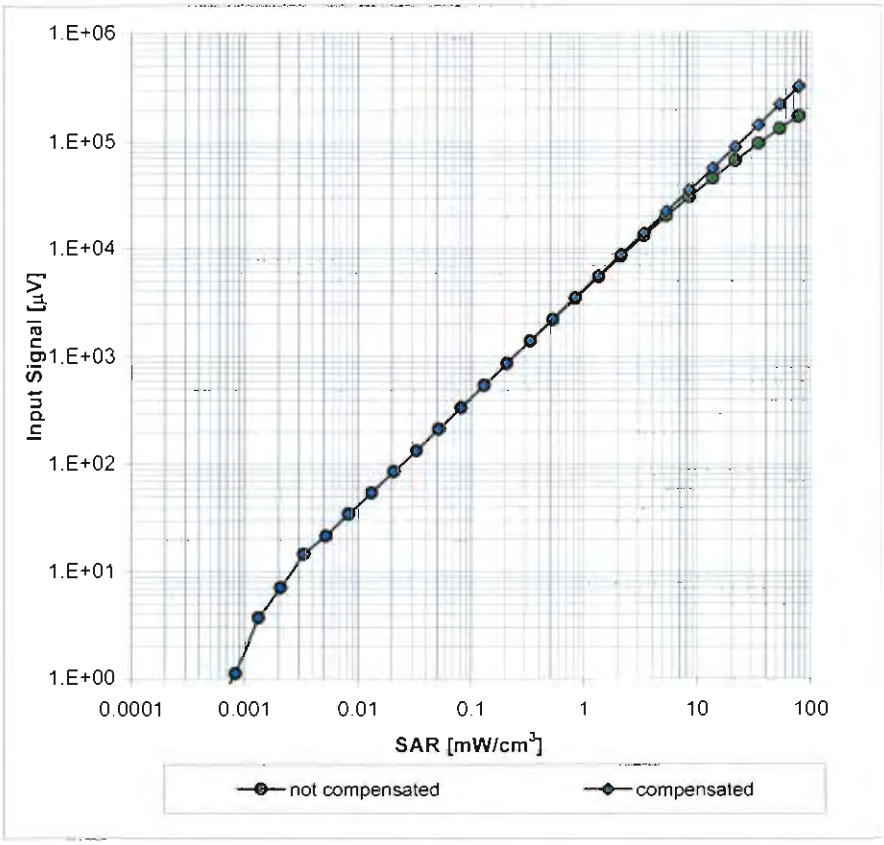


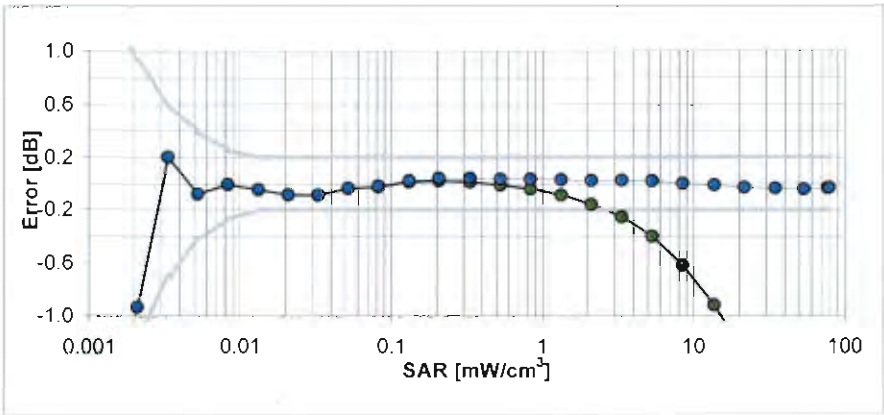


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

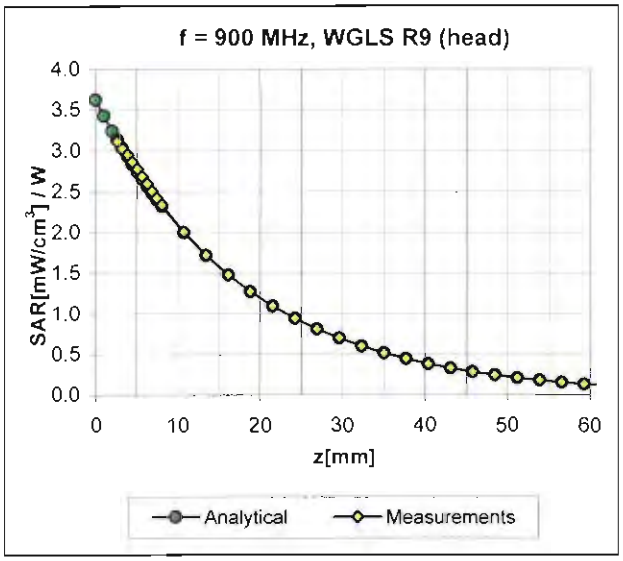
(Waveguide R22, f = 1800 MHz)

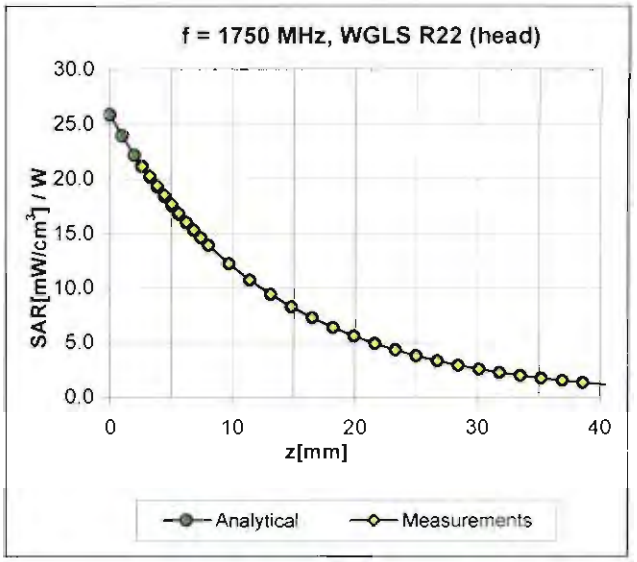




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

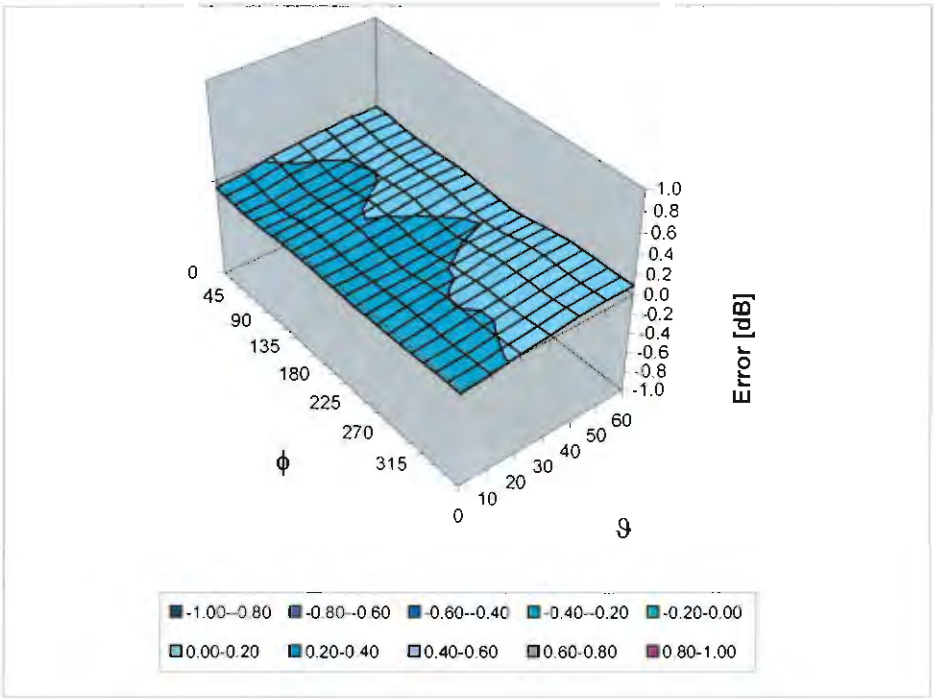
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4.0 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Dipole Calibration

Please see attached calibration data

ADK

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Northwest EMC**

Certificate No: **D835V2-4d108_Oct10**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d108
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	October 19, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 19, 2010

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.3 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 mW / g
SAR normalized	normalized to 1W	9.60 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.64 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.57 mW / g
SAR normalized	normalized to 1W	6.28 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.29 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.4 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.53 mW / g
SAR normalized	normalized to 1W	10.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.93 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.65 mW / g
SAR normalized	normalized to 1W	6.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.51 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.8 Ω - 3.2 jΩ
Return Loss	- 28.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.0 Ω - 4.4 jΩ
Return Loss	- 26.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.396 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 26, 2010

DASY5 Validation Report for Head TSL

Date/Time: 18.10.2010 12:32:33

Test Laboratory: SPEAG, Zurich, Switzerland

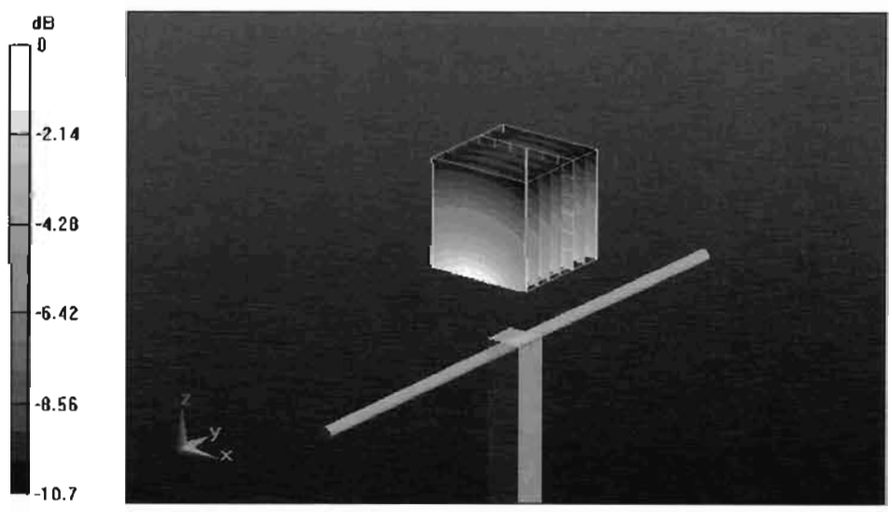
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

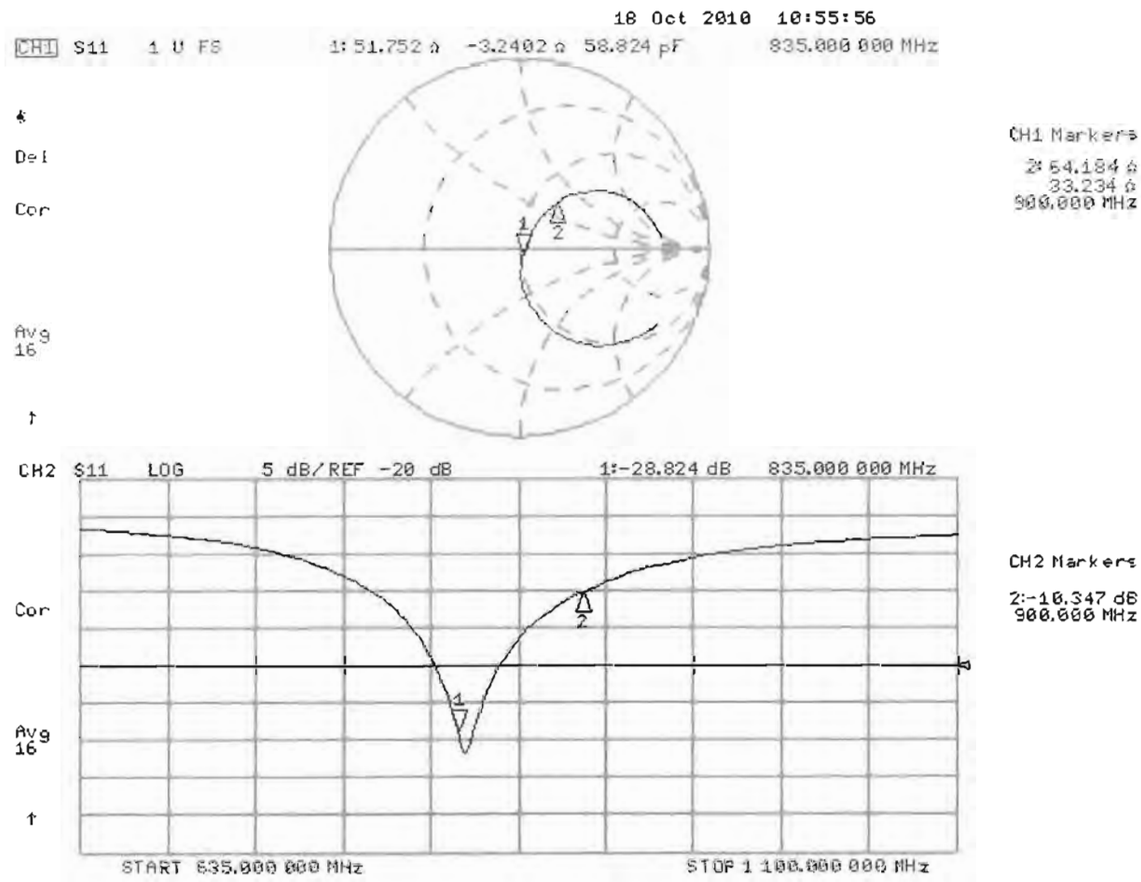
- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.1 V/m; Power Drift = 0.000575 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.77 mW/g



0 dB = 2.77mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 19.10.2010 11:59:09

Test Laboratory: SPEAG, Zurich, Switzerland

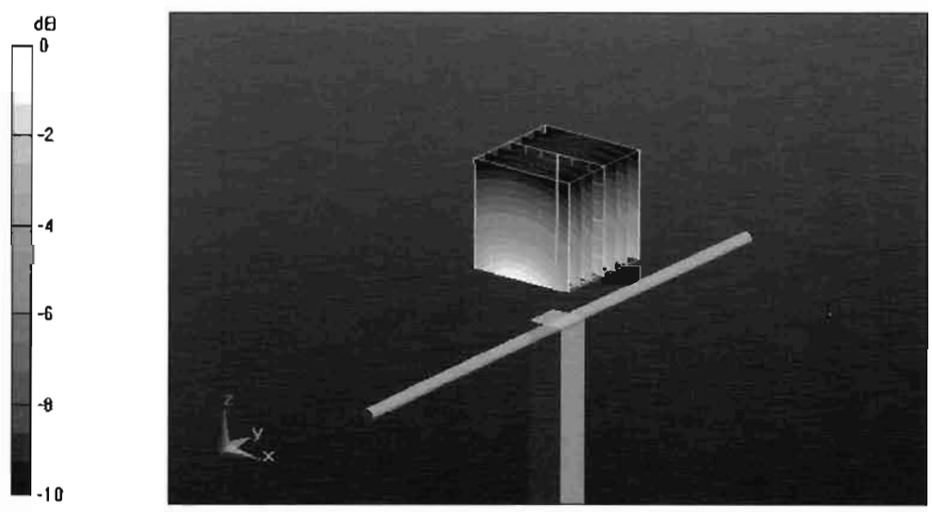
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d108

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 0.99 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

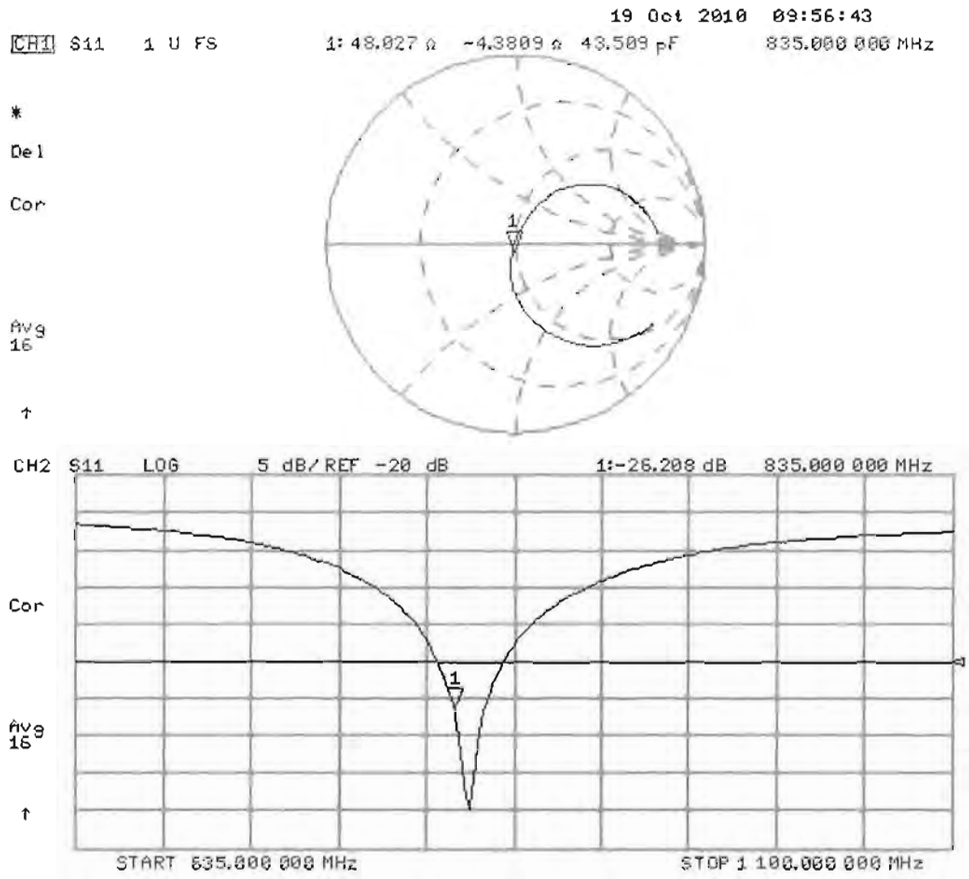
- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.4 V/m; Power Drift = 0.0047 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.94 mW/g



0 dB = 2.94mW/g

Impedance Measurement Plot for Body TSL



ADO

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Northwest EMC**

Certificate No: **D1900V2-5d131_Nov10**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d131
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	November 24, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 25, 2010

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.3 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR normalized	normalized to 1W	40.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**40.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.23 mW / g
SAR normalized	normalized to 1W	20.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.9 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.8 ± 6 %	1.52 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR normalized	normalized to 1W	40.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**39.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.25 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.0 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.7 Ω + 6.5 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.1 Ω + 6.9 jΩ
Return Loss	- 22.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.206 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 14, 2010

DASY5 Validation Report for Head TSL

Date/Time: 10.11.2010 16:31:30

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d131

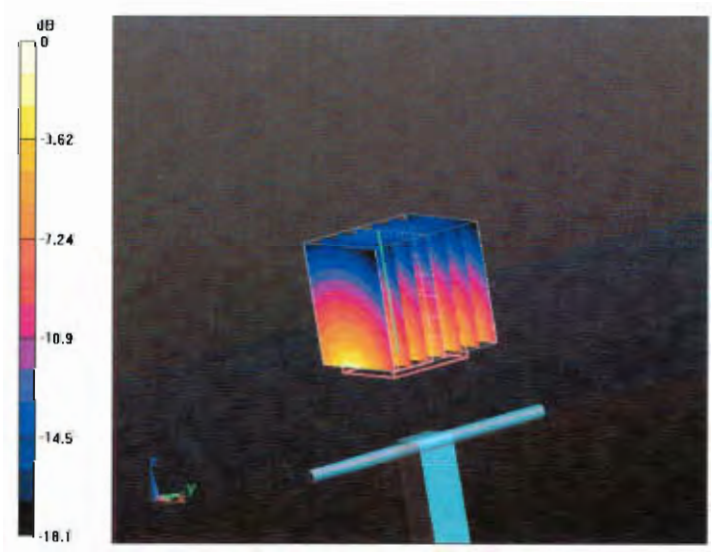
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

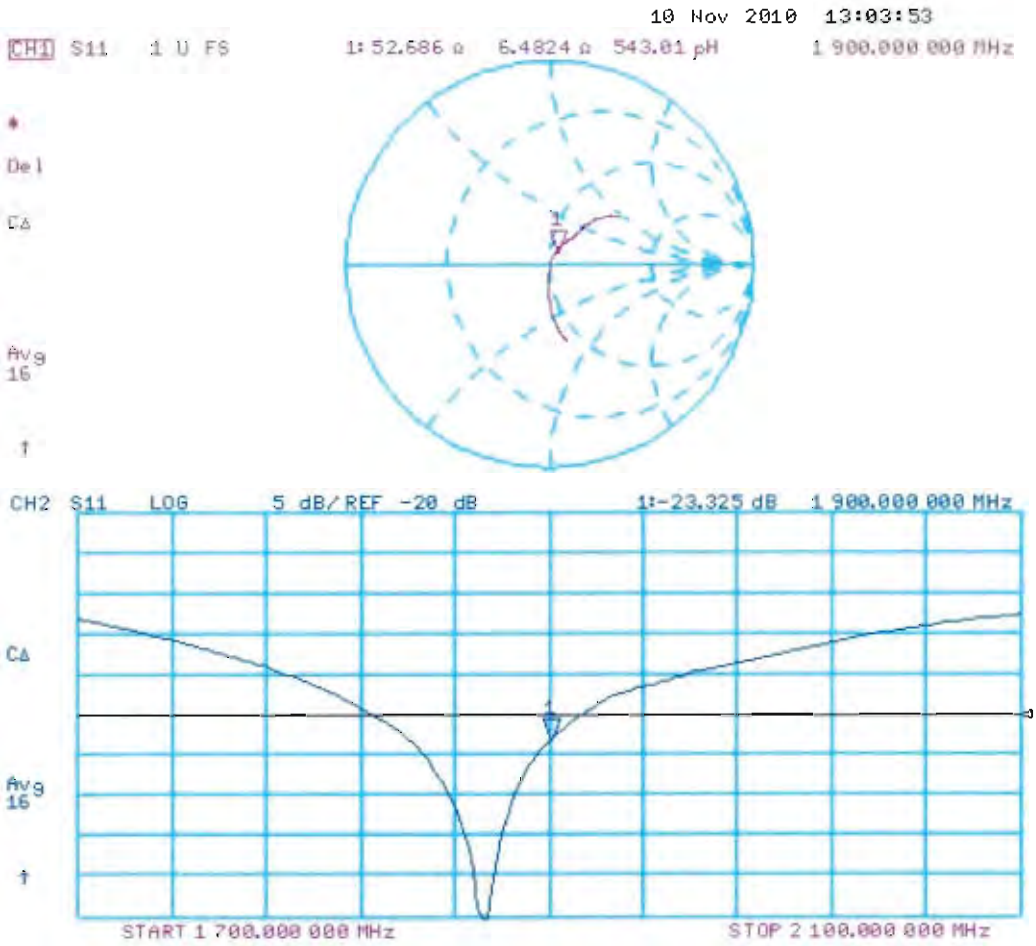
Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.1 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.23 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 24.11.2010 12:48:29

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d131

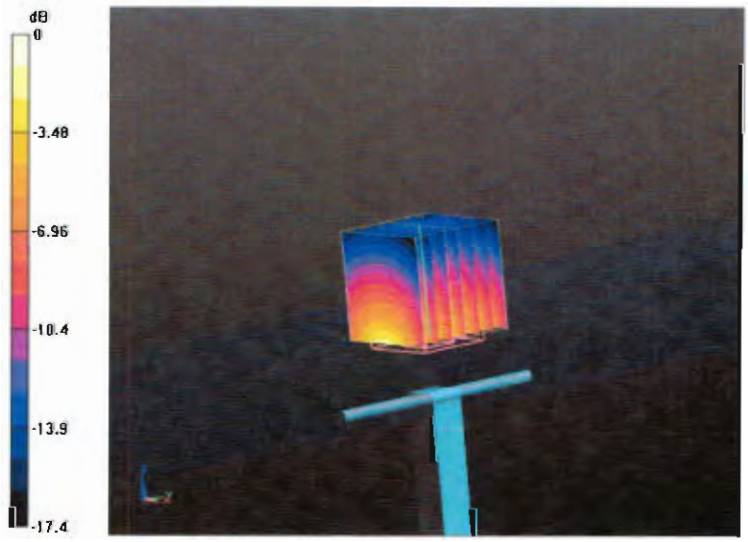
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

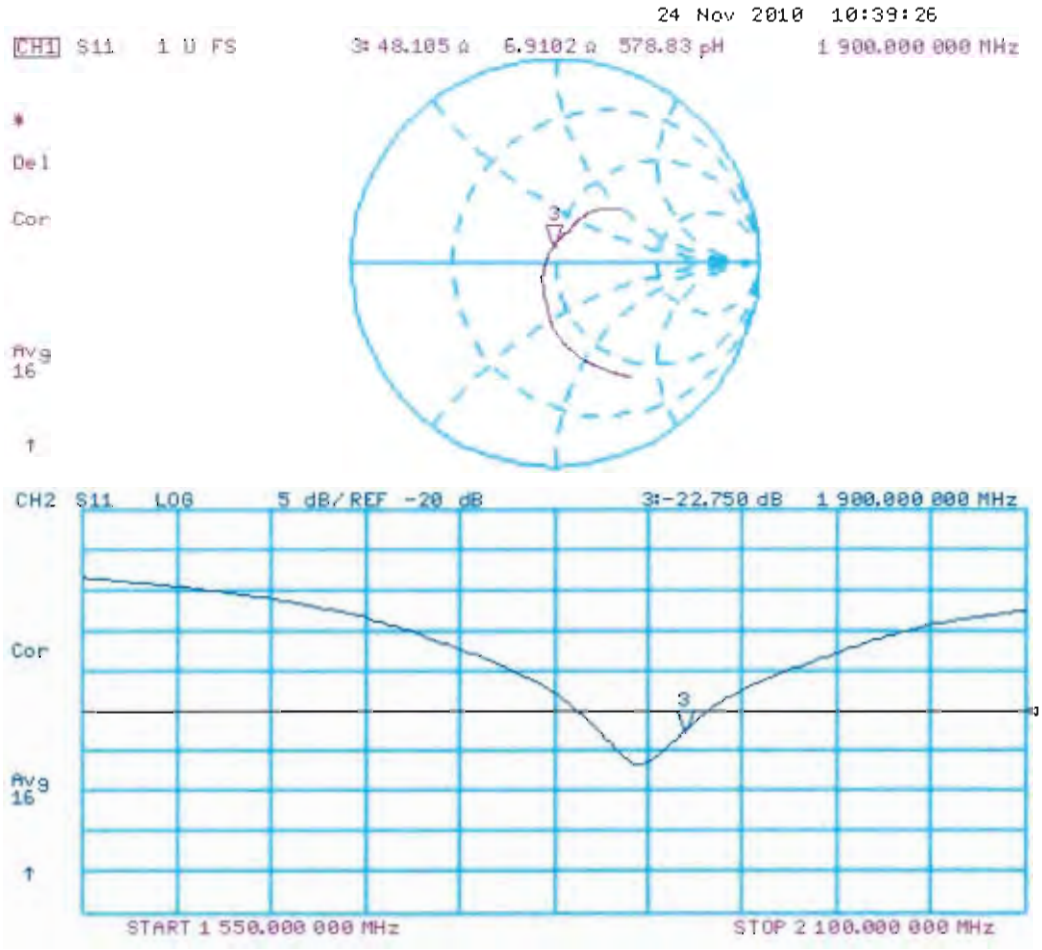
DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.7 V/m; Power Drift = -0.00519 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.25 mW/g
Maximum value of SAR (measured) = 12.3 mW/g



0 dB = 12.3mW/g

Impedance Measurement Plot for Body TSL