Intermec Technologies Corporation

Model: 1000CP03S

Evaluated to the following SAR Specifications:

FCC 2.1093: 2012
Health Safety Code 6:2009

Report No. INMC0746.2

Report Prepared By

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

SAR Evaluation Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Evaluation

Last Date of Test: January 5, 2012
Intermec Technologies Corporation
Model: 1000CP03S

Applicable Standards			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
SAR Evaluation	FCC 2.1093:2012	FCC OET 65C:2001	**Pass**
		IEEE Std 1528:2003	
		FCC KDB 447498 D01 v04	
		FCC KDB 941225 D01 v02, and D03	
		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	0.246	0.787	**1.6**	General Population Uncontrolled
AWS	0.568	0.780		
PCS	0.408	0.765		

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

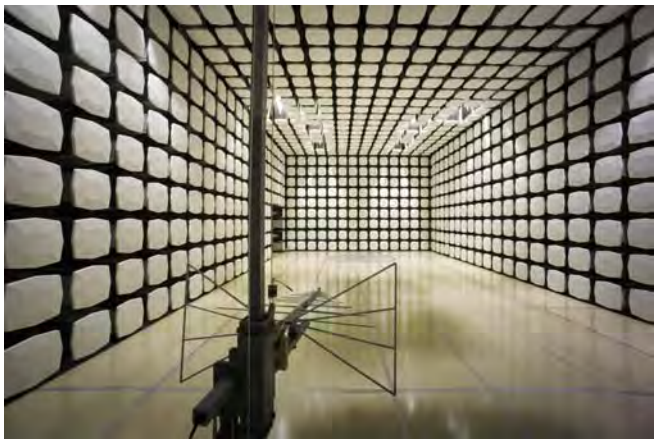
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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:	550 Second St. SE
City, State, Zip:	Cedar Rapids, IA 52401-2023
Test Requested By:	Stu Adams
Model:	1000CP03S
First Date of Test:	December 28, 2011
Last Date of Test:	January 5, 2012
Receipt Date of Samples:	December 21, 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 the Model 1000CP03S handheld computer containing two radio modules, the Intermec Model RC12 and the Sierra Wireless MC8355, 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 MC8355 radio module is a WWAN radio supporting both UMTS and CDMA operation. Its frequency range:

UMTS
- 824.2 – 848.8 MHz (GPRS, EDGE)
- 826.4 – 846.6 MHz (WCDMA, HSDPA, HSUPA)
- 1850.2 – 1909.8 MHz (GPRS, EDGE)
- 1852.4 – 1907.5 MHz (WCDMA, HSDPA, HSUPA)
- 1712.4 – 1752.6 MHz (WCDMA)

CDMA (EVDO Rev A
- 824.7 – 848.31 MHz
- 1851.25 – 1908.8 MHz

The closest spacing between the WWAN antenna and the 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 WWAN 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 wrist/arm in a holster. The wrist holster is specially designed for airline baggage handlers to have their hands free, but still be able to scan bar-codes. The only Intermec approved accessory for body worn operation for the EUT is this wrist holster. The EUT can only fit in the holster with the top end of the unit pointing towards the hand and the keypad facing up away from the arm. The wrist holster is constructed

with a 12mm spacer on the left side to provide greater spacing between the WWAN antenna and the body.

No snap-on accessories can be connected to the EUT while it is in the wrist holster.

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. This evaluation will be used to support a Class 2 Permissive Change authorization of FCC ID: EHA-1000CP01SX1. The following changes have been made: the barcode scanner in the previously certified Model 1000CP01S has been slightly repositioned so that it points straight out, instead of tilted downward, resulting in the new Model 1000CP03S (subject of this SAR evaluation). A new holster has been developed for use with Model 1000CP03S that is worn on the wrist / forearm.

Prior to the SAR evaluation of the wrist holster, a non-PBA KDB inquiry was made to the FCC to confirm that a body phantom and body tissue equivalent liquids could be used. The FCC agreed with the proposal (see KDB tracking #758326). SAR measurements of the head configurations that produced the highest SAR in the original filing were also made (see KDB 178919 D01 Permissive Change Policy v05r01, Item #5b).

Scope

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

The CDMA portion of the WWAN radio was evaluated under a separate SAR evaluation report.

Regarding the UMTS portion of the WWAN 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 UMTS portion of the EUT.

CONFIGURATION 1 INMC0746

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	1000CP03S	187U1191613
Wrist Holster	Taylor Made	TM-CCN70-WS-SW - T5, Revision B	None
Battery	Intermec Technologies Corporation	1000AB01	09861106238
Battery	Intermec Technologies Corporation	1000AB01	15961103148
Battery	Intermec Technologies Corporation	1000AB01	07561106119

CONFIGURATION 2 INMC0746

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	1000CP03S	187U1191613
Battery	Intermec Technologies Corporation	1000AB01	09861106238
Battery	Intermec Technologies Corporation	1000AB01	15961103148
Battery	Intermec Technologies Corporation	1000AB01	07561106119

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	12/28/11	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	01/05/12	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: GSM/GPRS Mobile Test A.13.12 and WCDMA Mobile Test A.17.10. 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.

GPRS and EDGE

Per FCC KDB 941225 D03, "SAR must be measured according to these maximum output conditions"

- Maximum output power is verified on the High, Middle, and Low channels
- When multiple slots can be used, the device should be tested to account for the maximum source-based time-averaged output power. Measure GMSK and 8PSK modulations for both one and two time slots.
- When measuring EDGE or EGPRS modes, GMSK modulation should be used to minimize measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK

Results of the power measurement procedure are tabulated on the following pages.

WCDMA, HSDPA, HSUPA

Per FCC KDB 941225 D01 V02, measurements for WCDMA, HSDPA, and HSUPA were made according to the procedures in section section 5.2 of 3GPP2 TS 34.121.

- Maximum output power is verified on the High, Middle, and Low channels
- Use the appropriate RMC or AMR with TPC (transmit power control) set to all "1"s for WCDMA/HSDPA or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Maximum output power for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) should be measured
- Voice mode is measured using a 12.2 kbps RMC with TPC bits configured to all "1"s.
- 12.2 kbps AMR is measured with a 3.4 kbps SRB (signaling radio bearer)
- HSPA is measured with HS-DPCCH, E-DPCCH and E-DPDCH all enabled and a 12.2 kbps RMC. FRC is configured according to HS-DPCCH Sub-Test 1 using H-set 1 and QPSK.

The results are tabulated on the following pages.

The Agilent 8960 test set was configured as follows:

WCDMA Rel99

- Set a Test Mode 1 loop back with a 12.2 kbps Reference Measurement Channel (RMC).
- Set and send continuously Up power control commands to the EUT.

HSDPA Rel 6

- Use the "34.121 Preset Call Configs" within the Agilent 8960 which provide the required settings per the defined tables.
- Establish a Test Mode 1 loop back with both 12.2 kbps RMC channel and a Fixed Reference Channel (FRC) using H-Set 1 and QPSK
- Send continuously Up power control commands to the EUT.
- Repeat measurements for HSDPA Subtest 2, 3 and 4

HSUPA Rel 6

- Use the "34.121 Preset Call Configs" within the Agilent 8960 which provide the required settings per the defined tables.
- Use UL RMC 12.2 kbps and FRC H-Set 1 and QPSK, Test Mode 1 loop back.
- Set the Absolute Grant for HSPA Subtest 1 according to the defined tables.
- Set the EUT power to be at least 5 dB lower than the maximum output power
- Send power control bits to give one TPC_cmd = +1 command to the EUT. If the EUT doesn't send any E-DPCH data with decreased E-TFCI within 500 ms, then repeat this process until the decreased E-TFCI is reported.
- Confirm that the E-TFCI transmitted by the EUT is equal to the target E-TFCI in the defined table. If the E-TFCI transmitted by the EUT is not equal to the target E-TFCI, then send power control bits to give one TPC_cmd = -1 command to the EUT. If the EUT sends any E-DPCH data with decreased E-TFCI within 500ms, send new power control bits to give one TPC_cmd = -1 command to the EUT. Then confirm that the E-TFCI transmitted by the EUT is equal to the target E-TFCI in the defined table
- Repeat measurements for HSUPA Subtest 2, 3, 4 and 5.

NORTHWEST EMC

Output Power

XMit 2011.01.18

EUT:	1000CP03S			Work Order:	INMC0746
Serial Number:	187U1191613			Date:	12/28/11
Customer:	Intermec Technologies Corporation			Temperature:	24
Attendees:	None			Humidity:	45%
Project:				Barometric Pres.:	29.98"
Tested by:	Rod Peloquin	EUT Power	Battery	Job Site:	EV12

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

COMMENTS

Conducted output power

DEVIATIONS FROM TEST STANDARD

None

Configuration #	2	Signature

GPRS / 1 slot / GMSK (CS-4)		
Band	Channel	Power BAP
Cellular	128	32.57
	190	32.53
	251	32.60
PCS	512	29.49
	661	29.31
	810	29.18

GPRS / 2 slot / GMSK (CS-4)		
Band	Channel	Power BAP
Cellular	128	32.33
	190	32.29
	251	32.42
PCS	512	29.25
	661	29.04
	810	28.96

E-GPRS / 1 slot / GMSK (MCS-4)		
Band	Channel	Power BAP
Cellular	128	32.57
	190	32.52
	251	32.60
PCS	512	29.70
	661	29.54
	810	29.42

E-GPRS / 2 slot / GMSK (MCS-4)		
Band	Channel	Power BAP
Cellular	128	32.39
	190	32.40
	251	32.41
PCS	512	29.36
	661	29.17
	810	29.09

NORTHWEST
EMC

Output Power

XMit 2011.01.18

EUT:	1000CP03S			**Work Order:**	INMC0746
Serial Number:	187U1191613			**Date:**	12/28/11
Customer:	Intermec Technologies Corporation			**Temperature:**	24
Attendees:	None			**Humidity:**	45%
Project:				**Barometric Pres.:**	29.98"
Tested by:	Rod Peloquin	**EUT Power**	Battery	**Job Site:**	EV12

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

COMMENTS

Conducted output power

DEVIATIONS FROM TEST STANDARD

None

Configuration #	2	*Signature*

3GPP Release Version	Mode	Cellular Band MAP (dBm)			Sub-Test (See Table)
		4132	4183	4233	
99	WCDMA	24.04	24.15	24.32	
6	HSDPA	23.51	23.52	23.68	1
6		23.38	23.48	23.71	2
6		22.92	23.11	23.27	3
6		22.92	22.96	23.32	4
6	HSUPA	23.26	23.34	23.69	1
6		22.08	22.00	22.13	2
6		21.93	22.44	22.38	3
6		22.43	22.38	22.87	4
6		22.97	23.01	23.32	5

3GPP Release Version	Mode	PCS Band MAP (dBm)			Sub-Test (See Table)
		9262	9400	9538	
99	WCDMA	24.33	24.54	24.08	
6	HSDPA	23.75	24.01	23.70	1
6		24.00	23.94	23.52	2
6		23.38	23.39	23.00	3
6		23.37	23.40	23.03	4
6	HSUPA	23.79	23.23	22.77	1
6		22.50	22.40	22.03	2
6		22.38	22.81	22.21	3
6		22.17	23.03	22.92	4
6		23.19	23.47	23.24	5

3GPP Release Version	Mode	AWS Band MAP (dBm)			Sub-Test (See Table)
		1312	1427	1513	
99	WCDMA	24.18	24.28	24.01	
6	HSDPA	23.75	23.50	23.45	1
6		23.78	23.71	23.53	2
6		23.28	23.40	23.13	3
6		23.27	22.99	22.79	4
6	HSUPA	23.23	23.43	22.98	1
6		22.10	22.14	21.72	2
6		22.49	22.31	21.98	3
6		22.78	22.19	22.42	4
6		23.34	23.05	22.82	5

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 within 24 hours of 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:	MSL900	Work Order:	INMC0746
Serial Number:	SAT	Date:	12/27/2011
Customer:	Intermec Technologies Corporation	Temperature (°C):	22.8
Attendees:	None	Humidity:	34.8%
Project:	None	Barometric Pres. (mb):	1023.4
Tested by:	Jennifer Herrett	Power: None	Job Site: Cal Lab

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

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: MSL900 **Liquid Temperature (°C): 23**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	54.896	1.013	55.200	0.970	0.55	-4.44

700.0	56.3	0.884
705.0	56.2	0.889
710.0	56.2	0.894
715.0	56.1	0.898
720.0	56.1	0.903
725.0	56.0	0.908
730.0	56.0	0.912
735.0	55.9	0.917
740.0	55.9	0.922
745.0	55.8	0.926
750.0	55.8	0.931
755.0	55.7	0.936
760.0	55.7	0.940
765.0	55.6	0.945
770.0	55.6	0.950
775.0	55.5	0.955
780.0	55.5	0.959
785.0	55.4	0.964
790.0	55.4	0.969
795.0	55.3	0.974
800.0	55.3	0.979
805.0	55.2	0.983
810.0	55.2	0.988
815.0	55.1	0.993
820.0	55.1	0.998
825.0	55.0	1.003
830.0	55.0	1.008
835.0	54.9	1.013
840.0	54.8	1.018
845.0	54.8	1.023
850.0	54.8	1.028
855.0	54.7	1.034
860.0	54.7	1.038
865.0	54.6	1.044
870.0	54.6	1.049
875.0	54.5	1.054
880.0	54.5	1.059
885.0	54.4	1.065
890.0	54.4	1.070
895.0	54.3	1.075
900.0	54.3	1.080
905.0	54.2	1.086
910.0	54.2	1.090
915.0	54.2	1.095
920.0	54.1	1.100
925.0	54.1	1.105
930.0	54.0	1.110
935.0	54.0	1.115
940.0	54.0	1.120
945.0	53.9	1.125
950.0	53.9	1.130
955.0	53.9	1.136
960.0	53.8	1.141
965.0	53.8	1.146
970.0	53.7	1.151
975.0	53.7	1.156
980.0	53.6	1.161
985.0	53.6	1.166
990.0	53.6	1.171
995.0	53.5	1.176
1000.0	53.5	1.181
1005.0	53.4	1.186
1010.0	53.4	1.191
1015.0	53.3	1.197
1020.0	53.3	1.202
1025.0	53.2	1.207
1030.0	53.2	1.211
1035.0	53.2	1.217
1040.0	53.1	1.221
1045.0	53.1	1.226
1050.0	53.0	1.232
1055.0	53.0	1.237
1060.0	53.0	1.242
1065.0	52.9	1.247
1070.0	52.9	1.253
1075.0	52.9	1.258
1080.0	52.8	1.263
1085.0	52.8	1.269
1090.0	52.7	1.274
1095.0	52.7	1.280
1100.0	52.7	1.286
1105.0	52.6	1.291
1110.0	52.6	1.296
1115.0	52.5	1.302
1120.0	52.5	1.307
1125.0	52.4	1.312
1130.0	52.4	1.317
1135.0	52.4	1.323
1140.0	52.3	1.328
1145.0	52.3	1.333
1150.0	52.2	1.338
1155.0	52.2	1.343
1160.0	52.2	1.348
1165.0	52.1	1.353
1170.0	52.1	1.358
1175.0	52.0	1.364
1180.0	52.0	1.368
1185.0	52.0	1.374
1190.0	51.9	1.379
1195.0	51.9	1.384
1200.0	51.9	1.390

NORTHWEST
EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL900			Work Order:	INMC0746
Serial Number:	SAT			Date:	12/29/2011
Customer:	Intermec Technologies Corporation			Temperature (°C):	22.1
Attendees:	None			Humidity:	40.6
Project:	None			Barometric Pres. (mb):	1020.1
Tested by:	Jennifer Herrett and Khanh Tran	Power:	None	Job Site:	Cal Lab

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

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: MSL900 — Liquid Temperature (°C): 22.4

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	54.317	1.004	55.200	0.970	1.60	-3.51

700.0	55.8	0.871
705.0	55.7	0.876
710.0	55.7	0.881
715.0	55.6	0.886
720.0	55.6	0.891
725.0	55.5	0.895
730.0	55.4	0.900
735.0	55.4	0.905
740.0	55.3	0.909
745.0	55.3	0.914
750.0	55.2	0.919
755.0	55.2	0.924
760.0	55.1	0.928
765.0	55.1	0.933
770.0	55.0	0.938
775.0	55.0	0.943
780.0	54.9	0.948
785.0	54.8	0.952
790.0	54.8	0.958
795.0	54.7	0.963
800.0	54.7	0.968
805.0	54.6	0.973
810.0	54.6	0.978
815.0	54.5	0.983
820.0	54.5	0.988
825.0	54.4	0.993
830.0	54.4	0.998
835.0	54.3	1.004
840.0	54.3	1.009
845.0	54.2	1.014
850.0	54.2	1.019
855.0	54.1	1.024
860.0	54.1	1.029
865.0	54.0	1.035
870.0	54.0	1.040
875.0	53.9	1.045
880.0	53.9	1.050
885.0	53.8	1.055
890.0	53.8	1.060
895.0	53.7	1.065
900.0	53.7	1.070
905.0	53.7	1.076
910.0	53.6	1.080
915.0	53.6	1.085
920.0	53.5	1.091
925.0	53.5	1.096
930.0	53.4	1.101
935.0	53.4	1.106
940.0	53.4	1.111
945.0	53.3	1.116
950.0	53.3	1.121
955.0	53.2	1.127
960.0	53.2	1.132
965.0	53.1	1.137
970.0	53.1	1.143
975.0	53.0	1.148
980.0	53.0	1.152
985.0	53.0	1.158
990.0	52.9	1.163
995.0	52.9	1.168
1000.0	52.8	1.173
1005.0	52.8	1.178
1010.0	52.7	1.184
1015.0	52.7	1.189
1020.0	52.6	1.194
1025.0	52.6	1.198
1030.0	52.5	1.204
1035.0	52.5	1.209
1040.0	52.5	1.214
1045.0	52.4	1.218
1050.0	52.4	1.224
1055.0	52.3	1.229
1060.0	52.3	1.234
1065.0	52.2	1.239
1070.0	52.2	1.244
1075.0	52.2	1.250
1080.0	52.1	1.255
1085.0	52.1	1.261
1090.0	52.0	1.267
1095.0	52.0	1.272
1100.0	52.0	1.278
1105.0	51.9	1.284
1110.0	51.9	1.289
1115.0	51.8	1.295
1120.0	51.8	1.300
1125.0	51.7	1.305
1130.0	51.7	1.311
1135.0	51.6	1.316
1140.0	51.6	1.321
1145.0	51.5	1.327
1150.0	51.5	1.332
1155.0	51.5	1.337
1160.0	51.4	1.342
1165.0	51.4	1.347
1170.0	51.3	1.353
1175.0	51.3	1.358
1180.0	51.3	1.363
1185.0	51.2	1.368
1190.0	51.2	1.373
1195.0	51.1	1.379
1200.0	51.1	1.384

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL1900	Work Order:	INMC0746
Serial Number:	SAN	Date:	12/30/2011
Customer:	Intermec Technologies Corporation	Temperature (°C):	22.4
Attendees:	None	Humidity:	41.7
Project:	None	Barometric Pres. (mb):	1008.20
Tested by:	Jennifer Herrett and Khanh Tran	Power: None	Job Site: Cal Lab

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

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: HSL1900 Liquid Temperature (°C): 22

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	38.088	1.423	40.000	1.400	4.78	-1.67
1600.0	39.5	1.124				
1612.5	39.4	1.136				
1625.0	39.4	1.149				
1637.5	39.3	1.162				
1650.0	39.3	1.175				
1662.5	39.2	1.188				
1675.0	39.1	1.200				
1687.5	39.1	1.212				
1700.0	39.0	1.224				
1712.5	38.9	1.236				
1725.0	38.9	1.248				
1737.5	38.8	1.260				
1750.0	38.8	1.272				
1762.5	38.7	1.284				
1775.0	38.7	1.297				
1787.5	38.6	1.310				
1800.0	38.6	1.323				
1812.5	38.5	1.337				
1825.0	38.4	1.350				
1837.5	38.4	1.363				
1850.0	38.3	1.375				
1862.5	38.3	1.388				
1875.0	38.2	1.400				
1887.5	38.1	1.412				
1900.0	38.1	1.423				
1912.5	38.0	1.436				
1925.0	38.0	1.448				
1937.5	37.9	1.460				
1950.0	37.9	1.473				
1962.5	37.9	1.486				
1975.0	37.8	1.499				
1987.5	37.8	1.513				
2000.0	37.7	1.526				

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	MSL1900			Work Order:	INMC0746
Serial Number:	SAO			Date:	01/03/2012
Customer:	Intermec Technologies Corporation			Temperature (°C):	23
Attendees:	None			Humidity:	39
Project:	None			Barometric Pres. (mb):	1027.20
Tested by:	Jennifer Herrett and Khanh Tran	Power:	None	Job Site:	Cal Lab

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: MSL1900 **Liquid Temperature (°C): 22.1**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	53.259	1.533	53.300	1.520	0.08	-0.87

1600.0	54.3	1.201
1612.5	54.3	1.215
1625.0	54.3	1.228
1637.5	54.2	1.243
1650.0	54.2	1.257
1662.5	54.1	1.271
1675.0	54.1	1.284
1687.5	54.0	1.297
1700.0	53.9	1.312
1712.5	53.9	1.325
1725.0	53.9	1.338
1737.5	53.8	1.352
1750.0	53.8	1.365
1762.5	53.7	1.378
1775.0	53.7	1.392
1787.5	53.7	1.406
1800.0	53.6	1.421
1812.5	53.6	1.435
1825.0	53.5	1.450
1837.5	53.5	1.464
1850.0	53.4	1.479
1862.5	53.4	1.493
1875.0	53.3	1.507
1887.5	53.3	1.520
1900.0	53.3	1.533
1912.5	53.2	1.547
1925.0	53.2	1.560
1937.5	53.2	1.574
1950.0	53.1	1.587
1962.5	53.1	1.601
1975.0	53.1	1.616
1987.5	53.0	1.632
2000.0	53.0	1.647

Tissue - Equivalent Liquid

EUT:	MSL1900			Work Order:	INMC0746
Serial Number:	SAO			Date:	01/04/2012
Customer:	Intermec Technologies Corporation			Temperature (°C):	22
Attendees:	None			Humidity:	35.5
Project:	None			Barometric Pres. (mb):	1024.00
Tested by:	Jennifer Herrett	Power:	None	Job Site:	Cal Lab

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature Jennifer Herrett

Tissue: MSL1900 **Liquid Temperature (°C): 22.4**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	53.174	1.526	53.300	1.520	0.24	-0.38
1600.0	54.2	1.197				
1612.5	54.2	1.211				
1625.0	54.1	1.224				
1637.5	54.1	1.238				
1650.0	54.1	1.252				
1662.5	54.0	1.265				
1675.0	53.9	1.279				
1687.5	53.9	1.292				
1700.0	53.8	1.307				
1712.5	53.8	1.319				
1725.0	53.7	1.334				
1737.5	53.7	1.347				
1750.0	53.7	1.360				
1762.5	53.6	1.373				
1775.0	53.6	1.386				
1787.5	53.6	1.400				
1800.0	53.5	1.414				
1812.5	53.5	1.428				
1825.0	53.4	1.442				
1837.5	53.4	1.457				
1850.0	53.3	1.472				
1862.5	53.3	1.486				
1875.0	53.2	1.500				
1887.5	53.2	1.513				
1900.0	53.2	1.526				
1912.5	53.1	1.539				
1925.0	53.1	1.551				
1937.5	53.1	1.565				
1950.0	53.1	1.578				
1962.5	53.0	1.592				
1975.0	53.0	1.606				
1987.5	53.0	1.622				
2000.0	52.9	1.637				

Tissue - Equivalent Liquid

EUT:	HSL1750			Work Order:	INMC0746
Serial Number:	SAP			Date:	01/04/2012
Customer:	Intermec Technologies Corporation			Temperature (°C):	24.4
Attendees:	None			Humidity:	35.4
Project:	None			Barometric Pres. (mb):	1021.4
Tested by:	Ethan Schoonover	Power:	None	Job Site:	Cal Lab

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: HSL1750 **Liquid Temperature (°C): 21.6**

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1800	40.049	1.375	40.000	1.400	-0.12	1.82
1400.0	41.8	1.007				
1425.0	41.7	1.028				
1450.0	41.6	1.051				
1475.0	41.5	1.073				
1500.0	41.4	1.096				
1525.0	41.3	1.120				
1550.0	41.2	1.144				
1575.0	41.0	1.167				
1600.0	40.9	1.190				
1625.0	40.8	1.213				
1650.0	40.7	1.235				
1675.0	40.6	1.258				
1700.0	40.5	1.283				
1725.0	40.3	1.306				
1750.0	40.2	1.329				
1775.0	40.1	1.352				
1800.0	40.0	1.375				
1825.0	40.0	1.398				
1850.0	39.9	1.422				
1875.0	39.8	1.446				
1900.0	39.7	1.469				

Tissue - Equivalent Liquid

EUT:	MSL1750			Work Order:	INMC0746
Serial Number:	SAQ			Date:	01/04/2012
Customer:	Intermec Technologies Corporation			Temperature (°C):	24.4
Attendees:	None			Humidity:	35.4
Project:	None			Barometric Pres. (mb):	1021.4
Tested by:	Ethan Schoonover	Power:	None	Job Site:	Cal Lab

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: MSL1750 Liquid Temperature (°C): 21.8

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1800	53.184	1.471	53.300	1.520	0.22	3.25
1400.0	54.5	1.087				
1425.0	54.4	1.109				
1450.0	54.4	1.132				
1475.0	54.3	1.155				
1500.0	54.2	1.178				
1525.0	54.1	1.203				
1550.0	54.0	1.228				
1575.0	54.0	1.253				
1600.0	53.8	1.278				
1625.0	53.7	1.301				
1650.0	53.7	1.325				
1675.0	53.6	1.351				
1700.0	53.5	1.377				
1725.0	53.4	1.401				
1750.0	53.3	1.425				
1775.0	53.2	1.447				
1800.0	53.2	1.471				
1825.0	53.1	1.495				
1850.0	53.1	1.521				
1875.0	53.0	1.548				
1900.0	53.0	1.573				

NORTHWEST EMC

Tissue - Equivalent Liquid

SAR 2011.02.21

EUT:	HSL900	Work Order:	INMC0746
Serial Number:	SAS	Date:	01/05/2012
Customer:	Intermec Technologies Corporation	Temperature (°C):	22.4
Attendees:	None	Humidity:	38.1
Project:	None	Barometric Pres. (mb):	1030.40
Tested by:	Jennifer Herrett	Power: None	Job Site: Cal Lab

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

Configuration #	None	Signature

Tissue: HSL900 Liquid Temperature (°C): 22

	Actual Values		Target Values		Deviation (%)	
Frequency (GHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
835	42.280	0.898	41.500	0.900	-1.88	0.18

700.0	44.1	0.770
705.0	44.0	0.775
710.0	43.9	0.780
715.0	43.9	0.785
720.0	43.8	0.790
725.0	43.7	0.794
730.0	43.6	0.799
735.0	43.6	0.804
740.0	43.5	0.809
745.0	43.4	0.813
750.0	43.4	0.818
755.0	43.3	0.823
760.0	43.2	0.828
765.0	43.2	0.832
770.0	43.1	0.837
775.0	43.0	0.842
780.0	43.0	0.847
785.0	42.9	0.851
790.0	42.9	0.856
795.0	42.8	0.860
800.0	42.7	0.865
805.0	42.7	0.870
810.0	42.6	0.875
815.0	42.5	0.880
820.0	42.5	0.884
825.0	42.4	0.889
830.0	42.3	0.893
835.0	42.3	0.898
840.0	42.2	0.903
845.0	42.2	0.908
850.0	42.1	0.913
855.0	42.0	0.917
860.0	42.0	0.922
865.0	41.9	0.927
870.0	41.9	0.932
875.0	41.8	0.937
880.0	41.7	0.941
885.0	41.7	0.946
890.0	41.6	0.951
895.0	41.6	0.955
900.0	41.5	0.960
905.0	41.5	0.965
910.0	41.4	0.969
915.0	41.4	0.974
920.0	41.3	0.979
925.0	41.3	0.984
930.0	41.2	0.989
935.0	41.1	0.994
940.0	41.1	0.999
945.0	41.0	1.004
950.0	41.0	1.009
955.0	40.9	1.014
960.0	40.9	1.018
965.0	40.8	1.023
970.0	40.8	1.028
975.0	40.7	1.032
980.0	40.7	1.037
985.0	40.6	1.042
990.0	40.5	1.046
995.0	40.5	1.051
1000.0	40.4	1.055
1005.0	40.4	1.060
1010.0	40.4	1.065
1015.0	40.3	1.070
1020.0	40.2	1.074
1025.0	40.2	1.079
1030.0	40.2	1.084
1035.0	40.1	1.089
1040.0	40.1	1.094
1045.0	40.0	1.099
1050.0	40.0	1.103
1055.0	39.9	1.109
1060.0	39.9	1.113
1065.0	39.8	1.119
1070.0	39.8	1.124
1075.0	39.7	1.129
1080.0	39.6	1.134
1085.0	39.6	1.139
1090.0	39.5	1.143
1095.0	39.5	1.148
1100.0	39.4	1.153
1105.0	39.4	1.157
1110.0	39.3	1.162
1115.0	39.3	1.167
1120.0	39.2	1.171
1125.0	39.2	1.175
1130.0	39.1	1.180
1135.0	39.1	1.184
1140.0	39.1	1.188
1145.0	39.0	1.193
1150.0	39.0	1.197
1155.0	38.9	1.202
1160.0	38.9	1.206
1165.0	38.8	1.211
1170.0	38.8	1.215
1175.0	38.7	1.220
1180.0	38.7	1.225
1185.0	38.7	1.230
1190.0	38.6	1.235
1195.0	38.6	1.240
1200.0	38.5	1.245

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.”

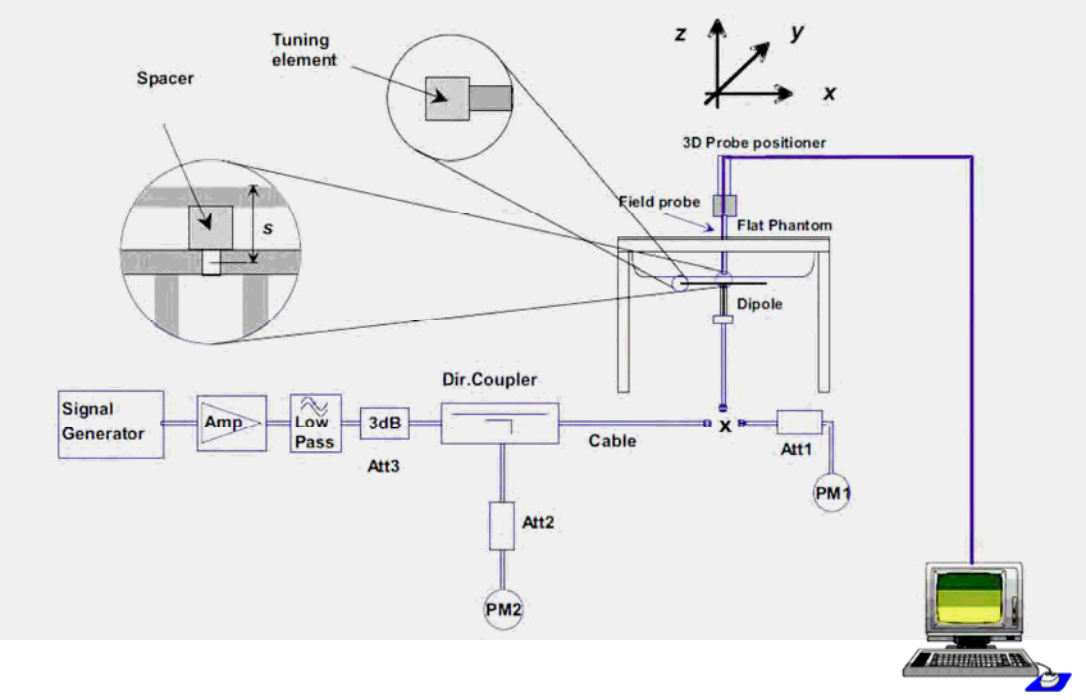
Test Description

Within 24 hours of a measurement, 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

System Verification

EUT:	System Verifications	**Work Order:**	INMC0746
Serial Number:	Various	**Date:**	See Data Sheets
Customer:	Intermec Technologies Corporation	**Temperature:**	See Data Sheets
Attendees:	None	**Humidity:**	See Data Sheets
Project:		**Barometric Pres.:**	See Data Sheets
Tested by:	Ethan Schoonover	**Job Site:**	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02, and D03 FCC KDB 648474 D01 V01r05
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	NA	Signature

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
12/27/2011	MSL900 835MHz	20.00	10.00	0.94	0.65	9.43	6.48	9.93	6.51	-5.04	-0.46	
12/29/2011	MSL900 835MHz	20.00	10.00	0.98	0.65	9.79	6.47	9.93	6.51	-1.41	-0.61	
12/30/2012	HSL1900 1900MHz	20.00	10.00	4.19	2.17	41.90	21.70	39.70	20.50	5.54	5.85	
1/3/2012	HSL1900 1900MHz	20.00	10.00	4.20	2.19	42.00	21.90	39.70	20.50	5.79	6.83	
1/4/2012	MSL1900 1900MHz	20.05	9.89	4.26	2.25	42.11	22.24	39.70	20.50	6.08	8.50	
1/5/2012	MSL1750 1750MHz	20.00	10.00	3.67	1.97	36.70	19.70	38.40	20.10	-4.43	-1.99	
1/5/2012	MSL1750 1750MHz	20.00	10.00	3.67	1.97	36.70	19.70	37.60	20.20	-2.39	-2.48	
1/6/2012	HSL900 835MHz	10.00	100.00	0.10	0.07	9.80	6.60	9.28	6.08	5.60	8.55	

Room Temprature (°C):	24.9	Humidity (%):	32	Test Date:	12/27/11
Liquid Temprature (°C):	23.6	Barometric Pressure (mb):	1023.8	Tested by:	Jennifer Herrett and Khanh Tran

MSL900 System Check_835MHz 12-27-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4D108

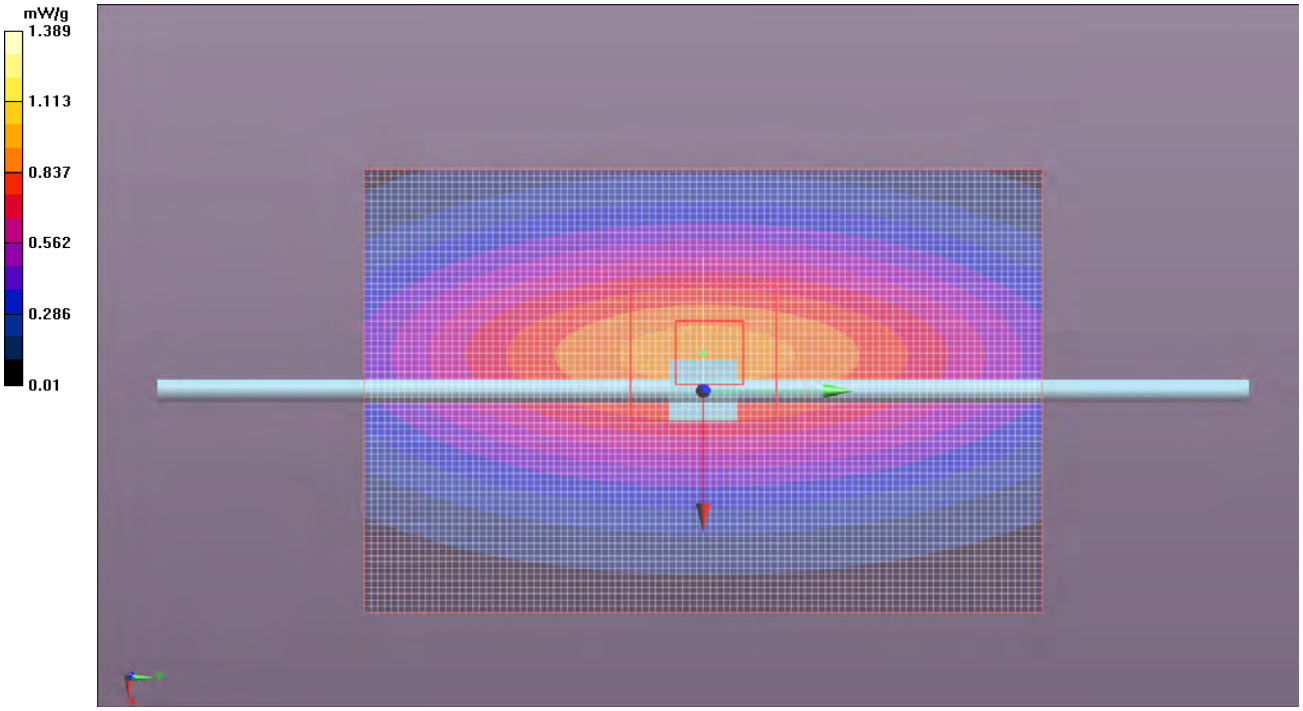
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB
Medium parameters used: σ = 1.01306 mho/m, ε = 54.8958; ρ = 1000 kg/m^3 , Medium parameters used: f = 835 MHz; σ = 1.013 mho/m; ε = 54.896; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 37.030 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.235 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.426 W/kg
SAR(1 g) = 0.983 mW/g; SAR(10 g) = 0.648 mW/g
Maximum value of SAR (measured) = 0.988 mW/g

System Check/System Check/Area Scan (71x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.984 mW/g



Room Temprature (°C):	23	**Humidity (%):**	41.6	**Test Date:**	12/29/11
Liquid Temprature (°C):	22.4	**Barometric Pressure (mb):**	1020.1	**Tested by:**	Jennifer Herrett and Khanh Tran

MSL900 System Check_835MHz 12-29-11

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4D108

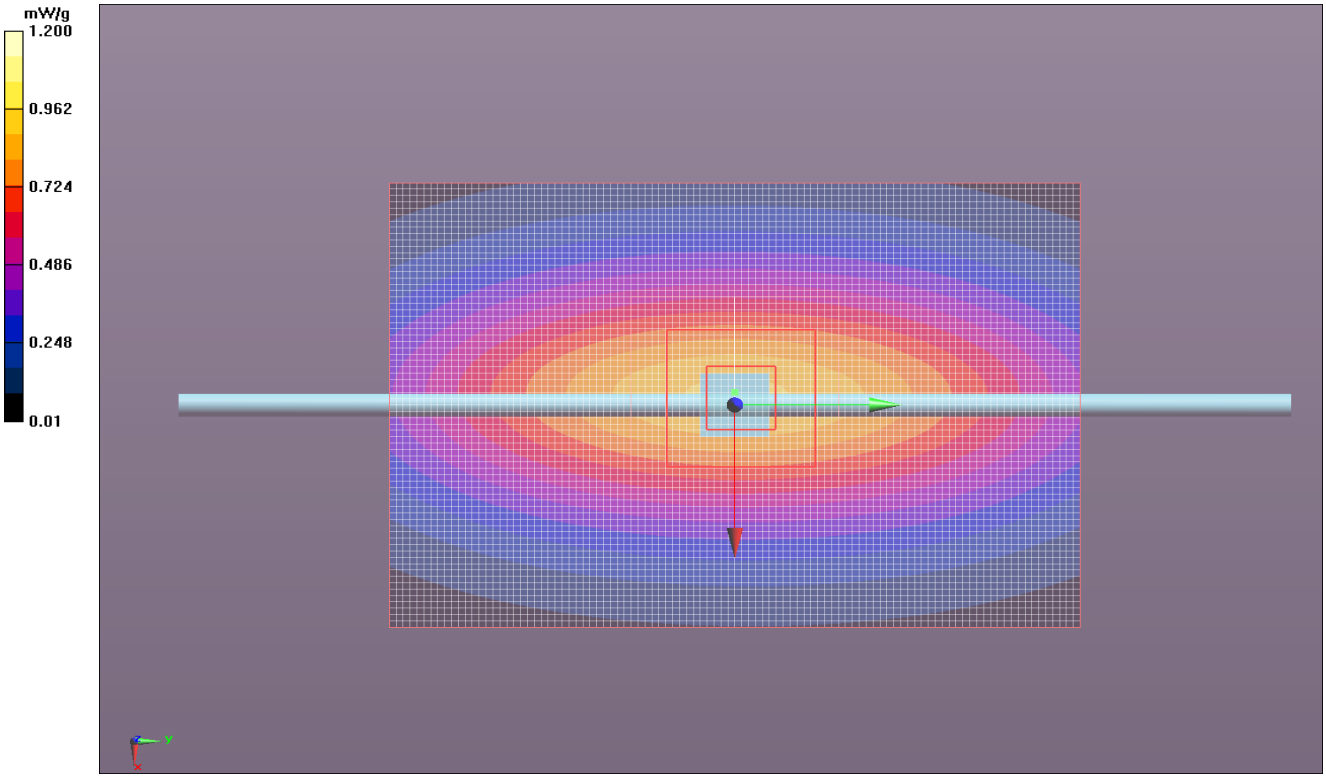
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB
Medium parameters used: σ = 1.004 mho/m, ε_r = 54.3166; ρ = 1000 kg/m^3 , Medium parameters used: f = 835 MHz; σ = 1.004 mho/m; ε_r = 54.317; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 34.579 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.715 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.419 W/kg
SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.647 mW/g
Maximum value of SAR (measured) = 0.981 mW/g

System Check/System Check/Area Scan (71x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.984 mW/g



Room Temprature (°C):	23	Humidity (%):	41.7	Test Date:	12/30/11
Liquid Temprature (°C):	22	Barometric Pressure (mb):	1008.2	Tested by:	Jennifer Herrett and Khanh Tran

HSL1900 System Check_1900MHz 12-30-11

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

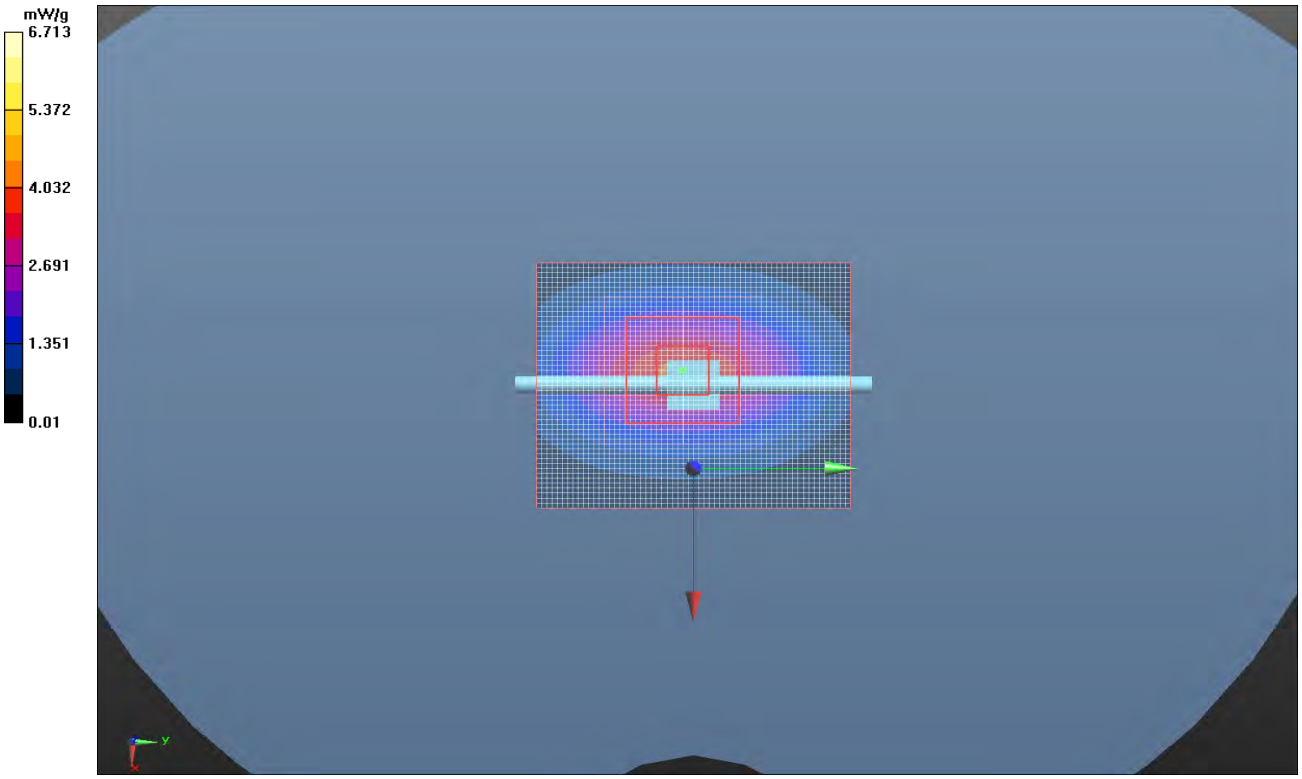
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1900 MHz; σ = 1.423 mho/m; ε = 38.087; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.42336 mho/m, ε = 38.0875; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.137 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 7.933 W/kg
SAR(1 g) = 4.19 mW/g; SAR(10 g) = 2.17 mW/g
Maximum value of SAR (measured) = 4.165 mW/g

System Check/System Check/Area Scan (51x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.154 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 68.673 V/m



Room Temprature (°C):	23.1	Humidity (%):	30.5	Test Date:	01/03/12
Liquid Temprature (°C):	22.5	Barometric Pressure (mb):	1027.2	Tested by:	Jennifer Herrett

HSL1900 System Check_1900MHz 1-3-12

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN5d131

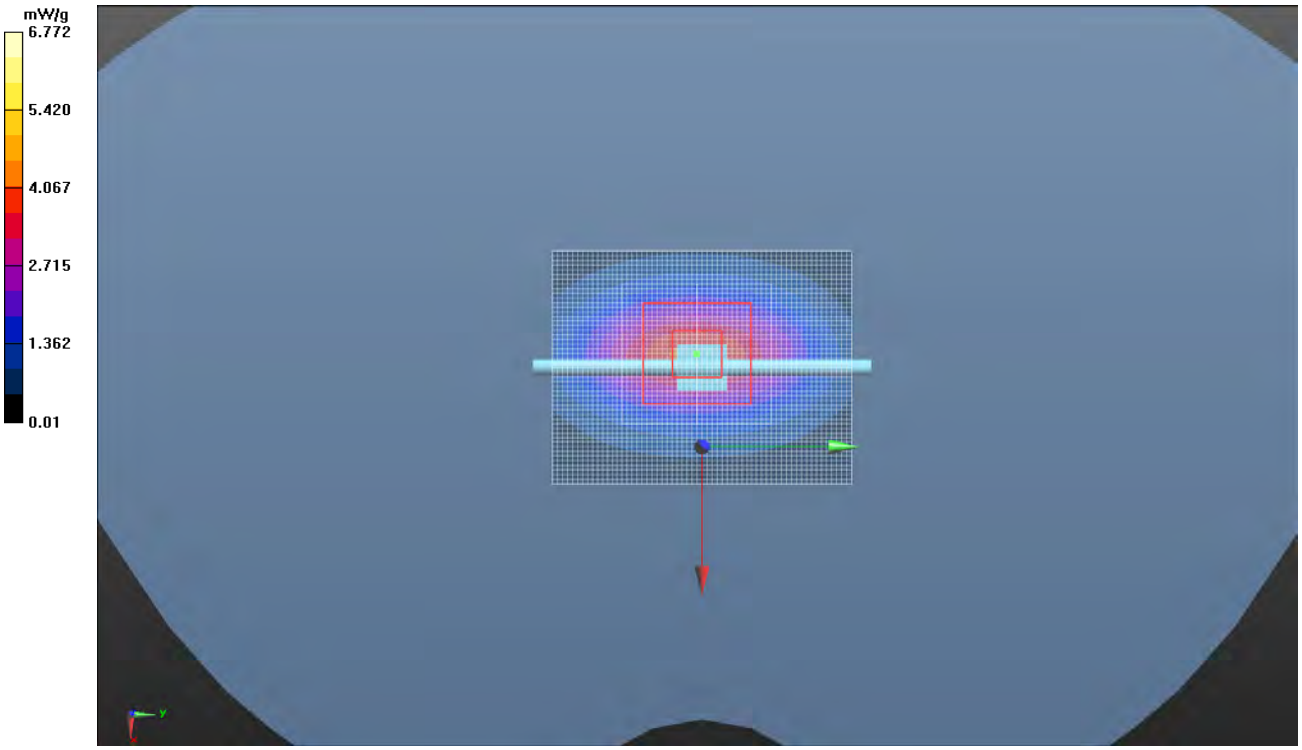
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1900 MHz; σ = 1.429 mho/m; ε = 38.061; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.42928 mho/m, ε = 38.0612; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.519 V/m; Power Drift = 0.00019 dB
Peak SAR (extrapolated) = 7.871 W/kg
SAR(1 g) = 4.2 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 4.177 mW/g

System Check/System Check/Area Scan (51x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.213 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 68.831 V/m



Room Temprature (°C):	23.1	**Humidity (%):**	37.2	**Test Date:**	01/04/12
Liquid Temprature (°C):	22.7	**Barometric Pressure (mb):**	1024	**Tested by:**	Jennifer Herrett

MSL1900 System Check_1900MHz 1-4-12b

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

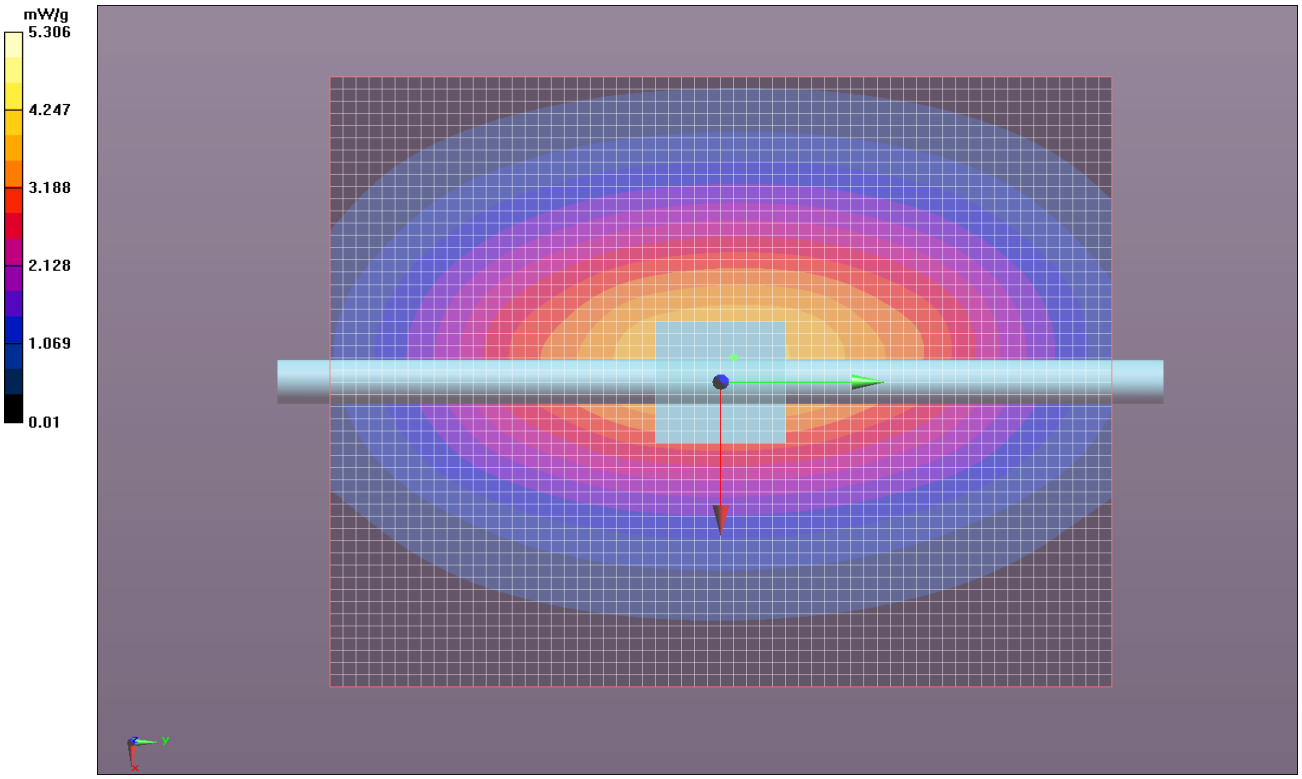
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1900 MHz; σ = 1.526 mho/m; ε = 53.174; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.52571 mho/m, ε = 53.1738; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Area Scan (51x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.331 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.713 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 7.741 W/kg
SAR(1 g) = 4.26 mW/g; SAR(10 g) = 2.25 mW/g
Maximum value of SAR (measured) = 4.277 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 58.970 V/m



Room Temprature (°C):	23.3	**Humidity (%):**	38.9	**Test Date:**	01/05/12
Liquid Temprature (°C):	23	**Barometric Pressure (mb):**	1028.9	**Tested by:**	Jennifer Herrett

MSL1750 System Check_1750MHz 1-5-12

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1040

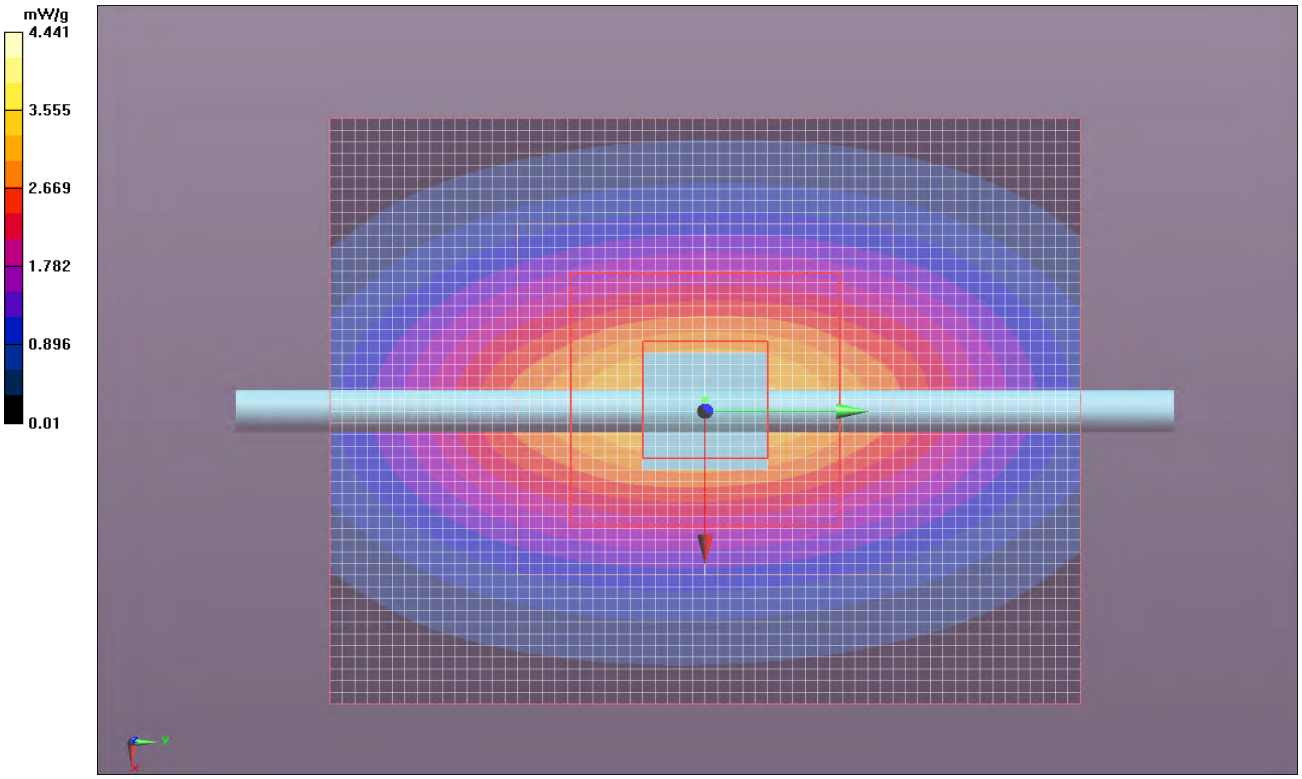
Communication System: CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Communication System PAR: 0 dB
Medium parameters used: σ = 1.42515 mho/m, ε = 53.3256; ρ = 1000 kg/m^3 , Medium parameters used: f = 1750 MHz; σ = 1.425 mho/m; ε = 53.326; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 55.820 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.417 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 6.569 W/kg
SAR(1 g) = 3.67 mW/g; SAR(10 g) = 1.97 mW/g
Maximum value of SAR (measured) = 3.711 mW/g

System Check/System Check/Area Scan (51x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 3.729 mW/g



Room Temprature (°C):	23.7	Humidity (%):	38.4	Test Date:	01/05/12
Liquid Temprature (°C):	23	Barometric Pressure (mb):	1028.9	Tested by:	Jennifer Herrett

HSL1750 System Check_1750MHz 1-5-12

DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:1040

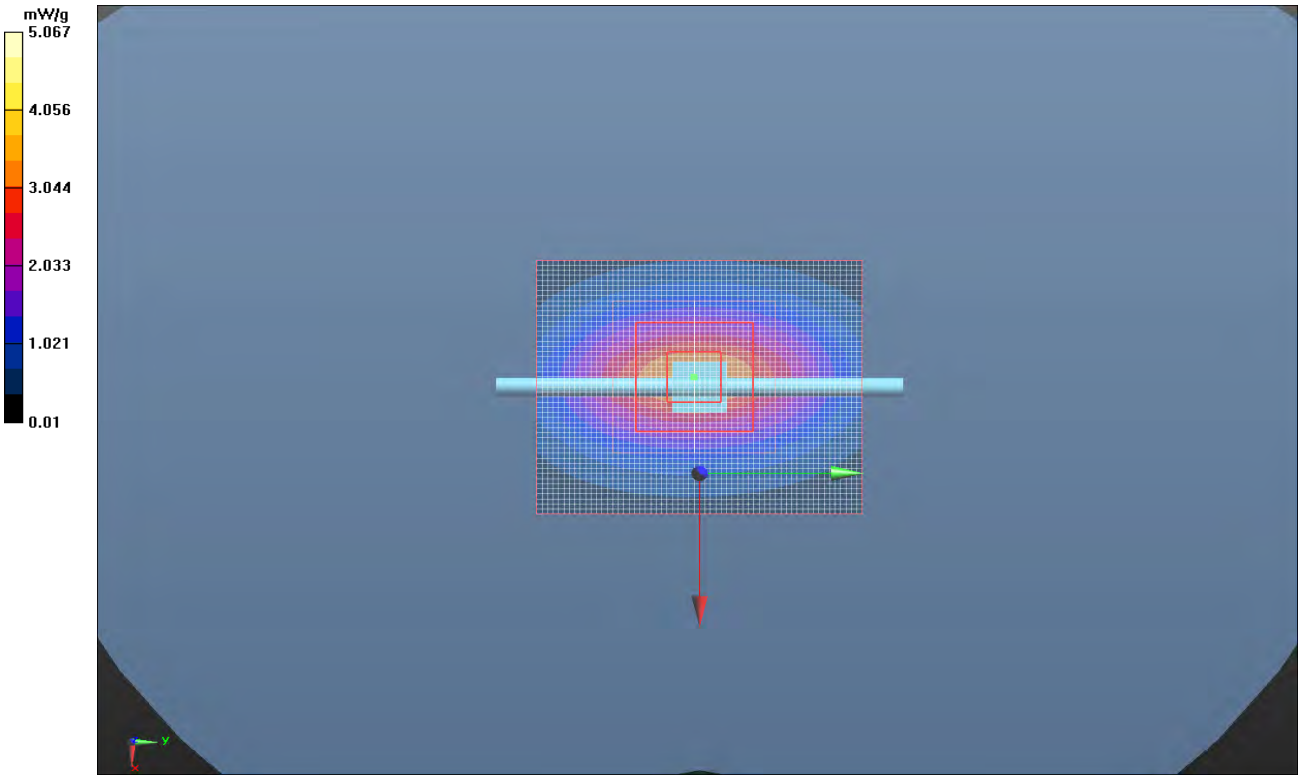
Communication System: CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1750 MHz; σ = 1.329 mho/m; ε = 40.235; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.32889 mho/m, ε = 40.2353; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.777 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 6.495 W/kg
SAR(1 g) = 3.56 mW/g; SAR(10 g) = 1.9 mW/g
Maximum value of SAR (measured) = 3.550 mW/g

System Check/System Check/Area Scan (51x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 3.547 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 61.746 V/m



NORTHWEST EMC	SAR TEST DATA				SAR 2011.02.07
Room Temprature (°C):	22.8	Humidity (%):	31.5	Test Date:	01/06/12
Liquid Temprature (°C):	22.2	Barometric Pressure (mb):	1028.1	Tested by:	Ethan Schoonover

HSL900 System Check_835MHz 1-6-12

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4D108

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ε_r = 42.28; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0.898403 mho/m, ε_r = 42.2796; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

System Check/System Check/Area Scan (71x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.101 mW/g

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.454 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.139 W/kg
SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.099 mW/g

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 9.500 V/m

Date/Time: 1/6/2012 3:13:50 PM

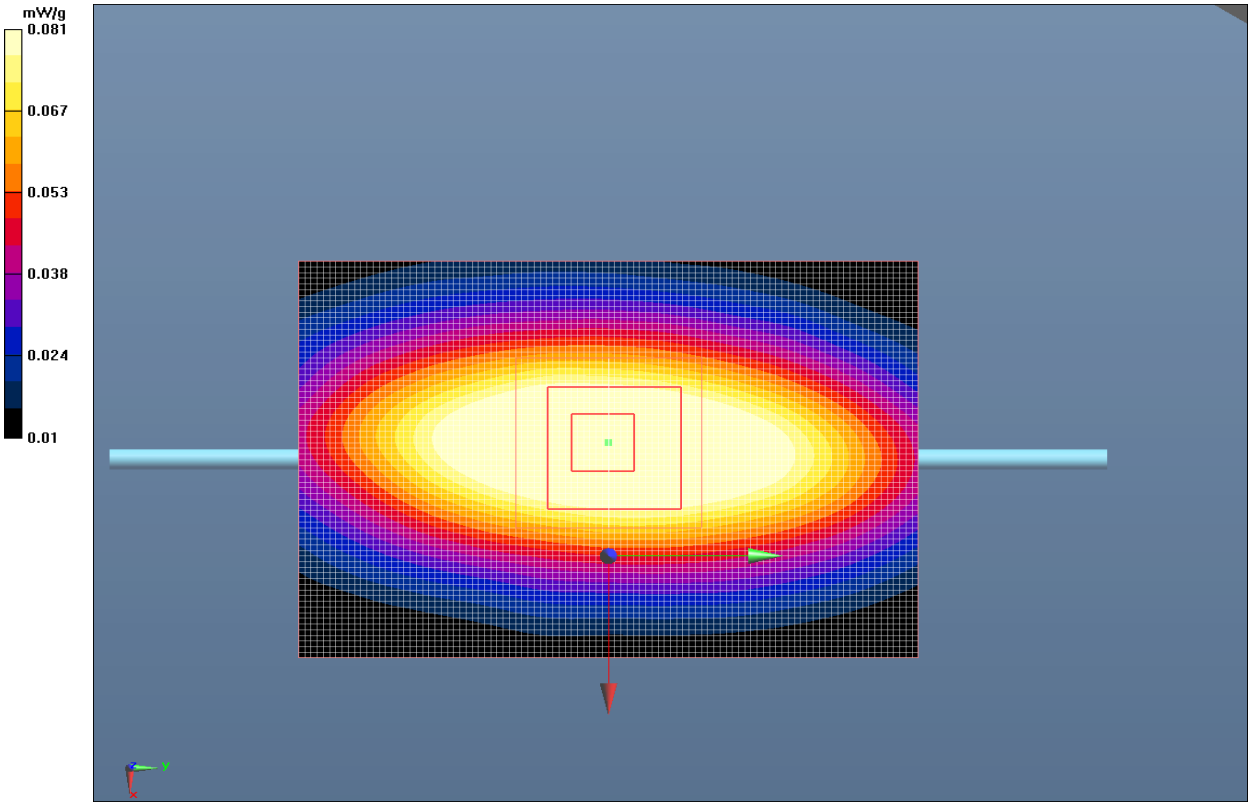
Test Laboratory: Northwest EMC Inc.

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4D108

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ε_r = 42.28; 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



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 wrist/arm in a holster. The wrist holster is specially designed for airline baggage handlers to have their hands free, but still be able to scan bar-codes. The only Intermec approved accessory for body worn operation for the EUT is this wrist holster. The EUT can only fit in the holster with the top end of the unit pointing towards the hand and the keypad facing up away from the arm.

No snap-on accessories can be connected to the EUT while it is in the wrist holster.

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

Prior to this SAR evaluation, a non-PBA KDB inquiry was made to the FCC to confirm that a body phantom and body tissue equivalent liquids could be used for the evaluation of the wrist holster on three sides (left, right, back). The FCC agreed with the proposal (see KDB tracking #758326). SAR measurements of the head configurations that produced the highest SAR in the original filing were also made (see KDB 178919 D01 Permissive Change Policy v05r01, Item #5b).

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: GSM/GPRS Mobile Test A.13.12 and WCDMA Mobile Test A.17.10. 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.

NORTHWEST EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	Work Order:	INMC0746
Serial Number:	187U1191613	Date:	See Data Sheets
Customer:	Intermec Technologies Corporation	Temperature:	See Data Sheets
Attendees:	None	Humidity:	See Data Sheets
Project:	None	Barometric Pres.:	See Data Sheets
Tested by:	Ethan Schoonover	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02, and D03 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*

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Head	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	None	Left-Cheek	0.02	0.246	28
	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	None	Left-Tilt	0.0092	0.198	29

Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/04/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Ethan Schoonover

Test 28 1-4-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 836.52 MHz;Communication System PAR: 0 dB
Medium parameters used: σ = 0.898403 mho/m, ε_r = 42.2796; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.9 mho/m; ε_r = 42.258; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Left/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 14.832 V/m

Head - Left/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.577 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.174 mW/g

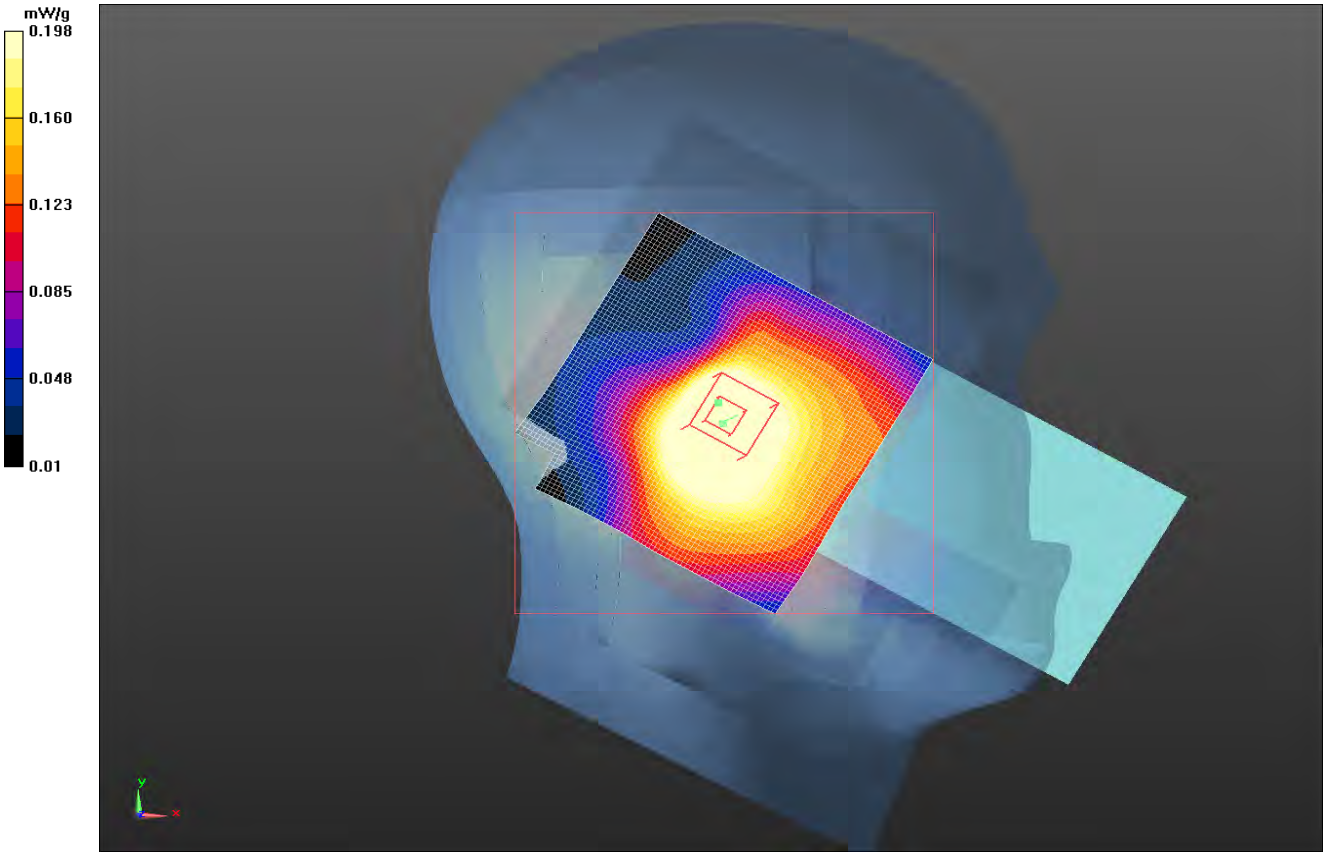
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.276 mW/g

Head - Left/Cheek - Mid/Reference scan (51x91x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.327 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) = 0.278 mW/g



Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/04/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Ethan Schoonover

Test 29 1-4-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 836.52 MHz;Communication System PAR: 0 dB
Medium parameters used: σ = 0.898403 mho/m, ε_r = 42.2796; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.9 mho/m; ε_r = 42.258; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Left/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 13.496 V/m

Head - Left/Tilt - Mid/Reference scan (51x91x1): Measurement grid: dx=30mm, dy=30mm

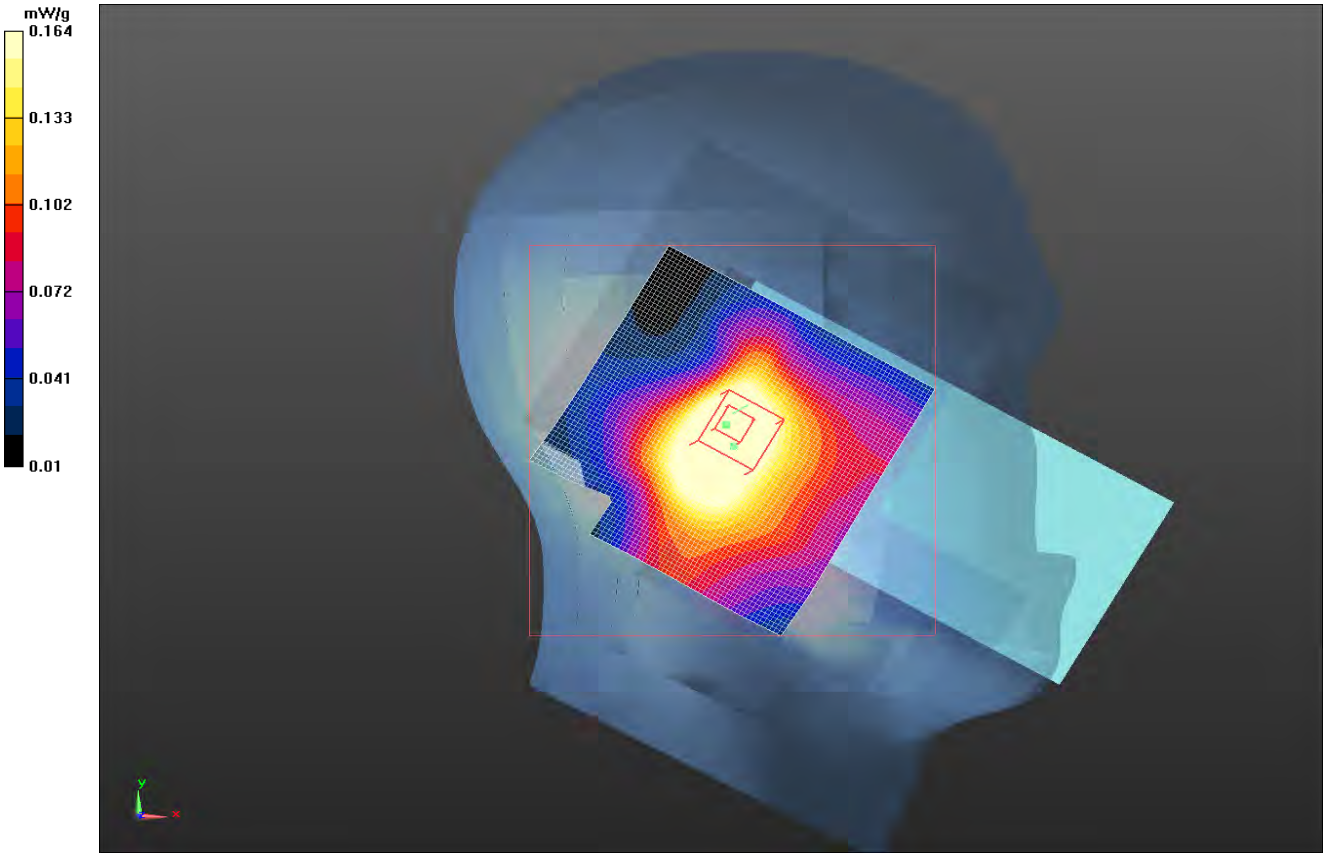
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.231 mW/g

Head - Left/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.197 V/m; Power Drift = 0.0092 dB
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.137 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.225 mW/g

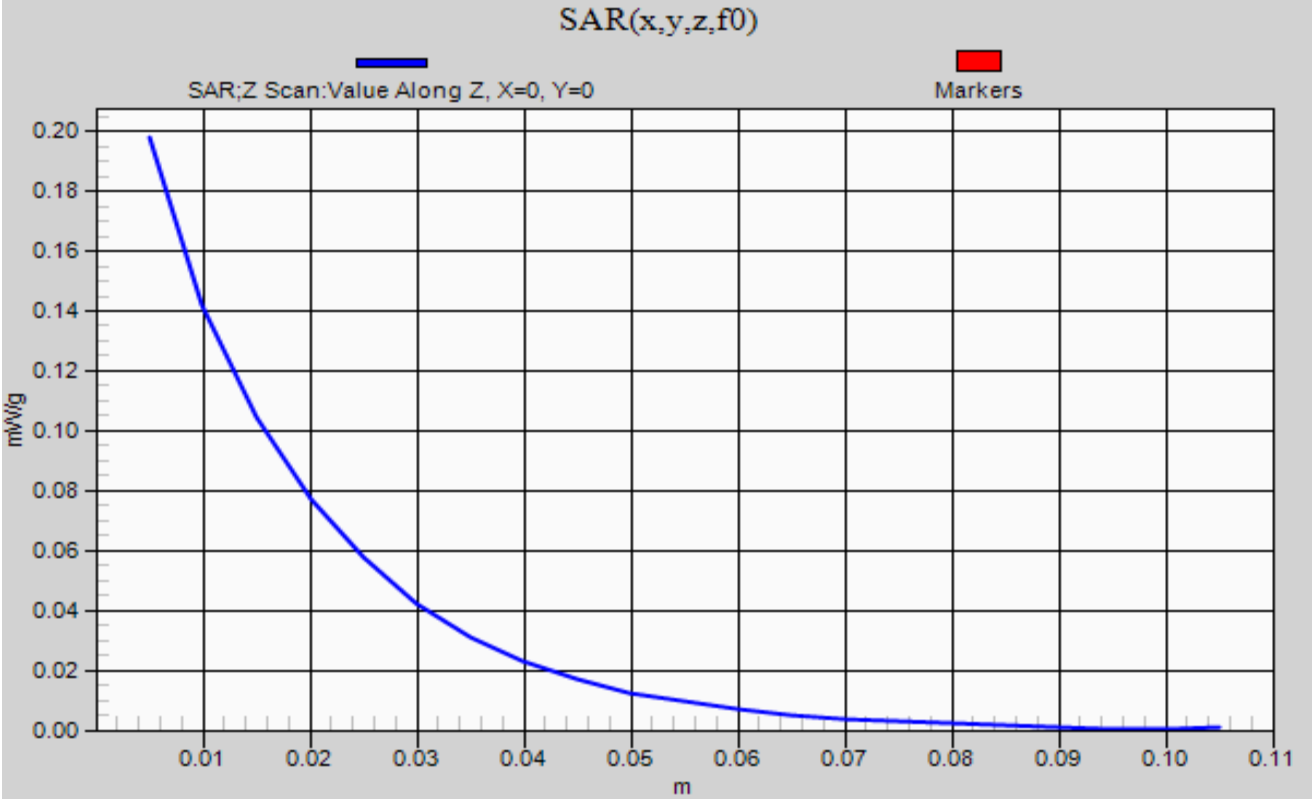
Head - Left/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.237 mW/g



NORTHWEST EMC	SAR TEST DATA				SAR 2011.02.07
Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/04/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Ethan Schoonover

Test # 28



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	**Work Order:**	INMC0746
Serial Number:	187U1191613	**Date:**	See Data Sheets
Customer:	Intermec Technologies Corporation	**Temperature:**	See Data Sheets
Attendees:	None	**Humidity:**	See Data Sheets
Project:	None	**Barometric Pres.:**	See Data Sheets
Tested by:	Jennifer Herrett and Khanh Tran	**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, and D03 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	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Body-Worn Accessory	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Body	Cellular	836.6	190	GPRS / 1 slot	GMSK (CS-4)	Wrist Holster	None	Left	0.09	0.637	13
	Cellular	836.6	190	GPRS / 1 slot	GMSK (CS-4)	Wrist Holster	None	Back	0.09	0.234	14
	Cellular	836.6	190	GPRS / 1 slot	GMSK (CS-4)	Wrist Holster	None	Right	-0.44	0.231	15
	Cellular	836.6	4183	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Left	-0.08	0.787	16
	Cellular	836.6	4183	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Back	-0.06	0.267	17
	Cellular	836.6	4183	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Right	0.06	0.277	18

Room Temprature (°C):	23.4	Humidity (%):	38.2	Test Date:	12/28/11
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1015.4	Tested by:	Jennifer Herrett and Khanh Tran

Test 13 12-28-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: GPRS and Edge; Communication System Band: GSM 850; Frequency: 836.6 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.015 mho/m; ε_r = 54.881; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.01306 mho/m, ε_r = 54.8958; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.783 mW/g

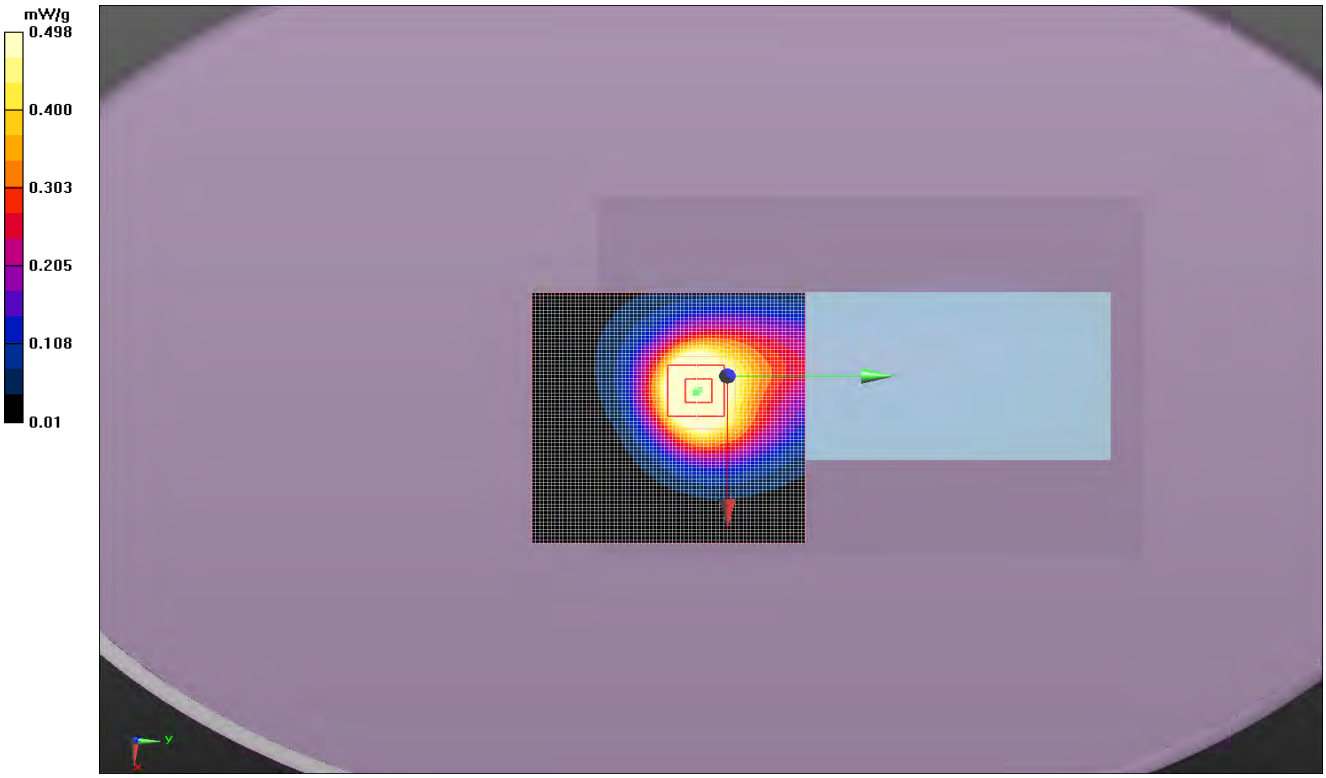
Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 22.145 V/m

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.773 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.021 W/kg
SAR(1 g) = 0.637 mW/g; SAR(10 g) = 0.381 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.813 mW/g

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

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.817 mW/g



Room Temprature (°C):	23.4	Humidity (%):	38.2	Test Date:	12/28/11
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1015.4	Tested by:	Jennifer Herrett and Khanh Tran

Test 14 12-28-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: GPRS and Edge; Communication System Band: GSM 850; Frequency: 836.6 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.015 mho/m; ε_r = 54.881; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.01306 mho/m, ε_r = 54.8958; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.257 mW/g

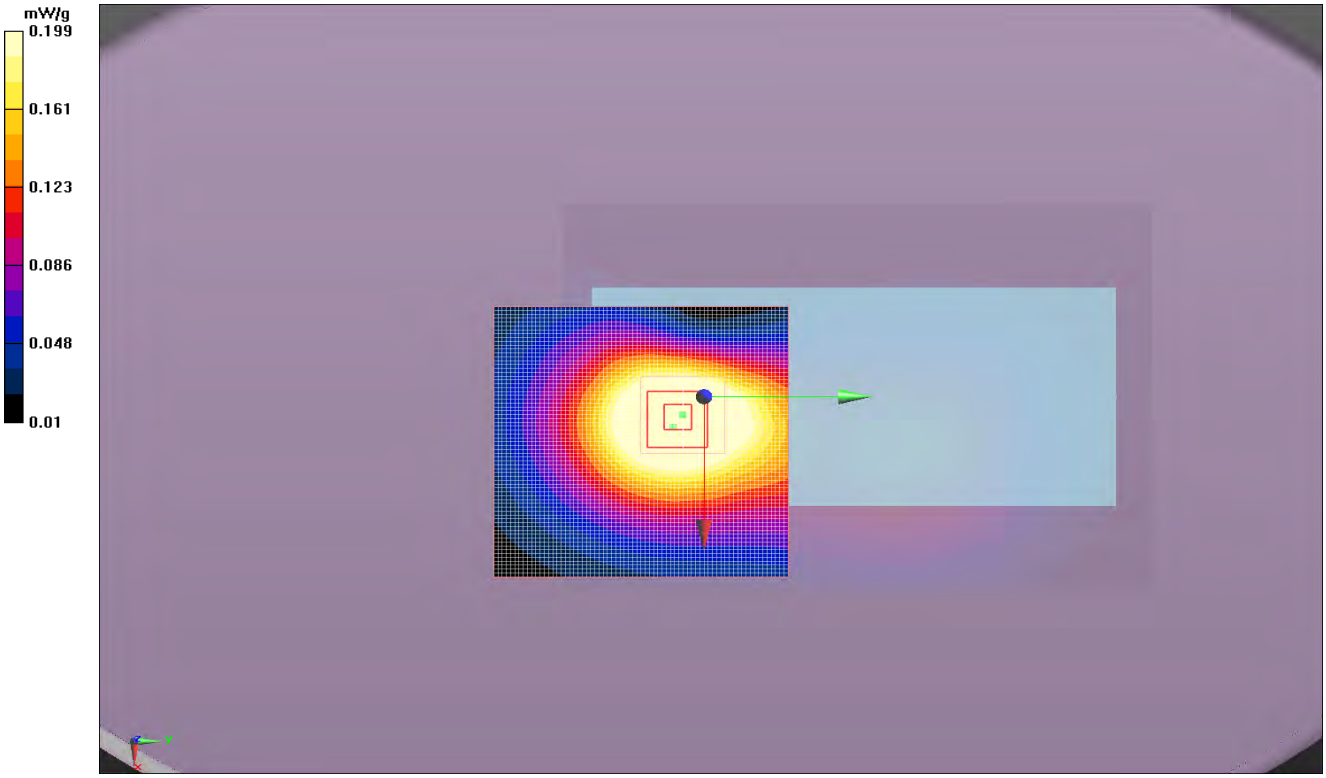
Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 14.011 V/m

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.607 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.306 W/kg
SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.167 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.263 mW/g

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

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.265 mW/g



Room Temprature (°C):	21.7	Humidity (%):	39.3	Test Date:	12/29/11
Liquid Temprature (°C):	21.7	Barometric Pressure (mb):	1020.1	Tested by:	Jennifer Herrett and Khanh Tran

Test 15 12-29-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: GPRS and Edge; Communication System Band: GSM 850; Frequency: 836.6 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.006 mho/m; ε_r = 54.303; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.004 mho/m, ε_r = 54.3166; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.275 mW/g

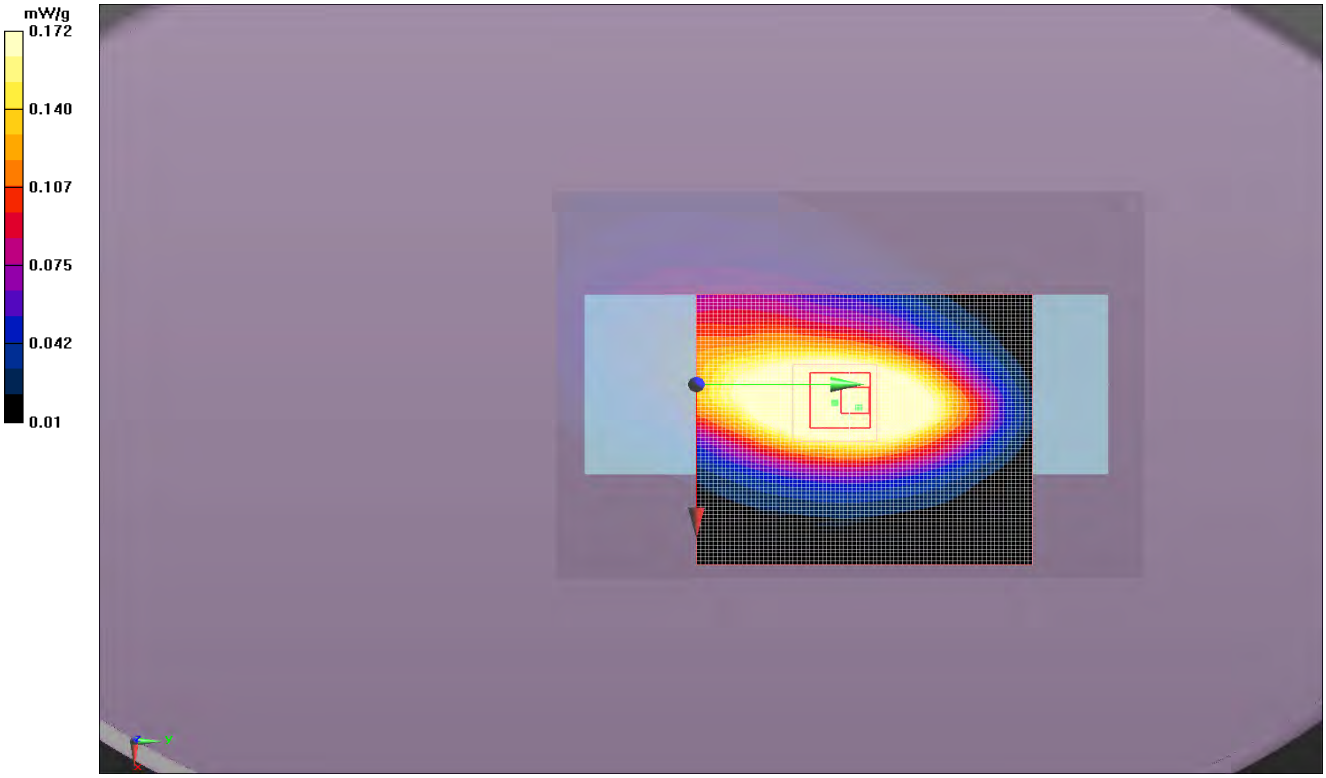
Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 13.081 V/m

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.950 V/m; Power Drift = -0.44 dB
Peak SAR (extrapolated) = 0.327 W/kg
SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.160 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.270 mW/g

Body/Body - Mid/Area scan (71x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.249 mW/g



Room Temprature (°C):	22.3	Humidity (%):	38.8	Test Date:	12/28/11
Liquid Temprature (°C):	22.3	Barometric Pressure (mb):	1015.4	Tested by:	Jennifer Herrett and Khanh Tran

Test 16 12-28-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 836.52 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 836.52 MHz; σ = 1.015 mho/m; ε_r = 54.882; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.01306 mho/m, ε_r = 54.8958; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.003 mW/g

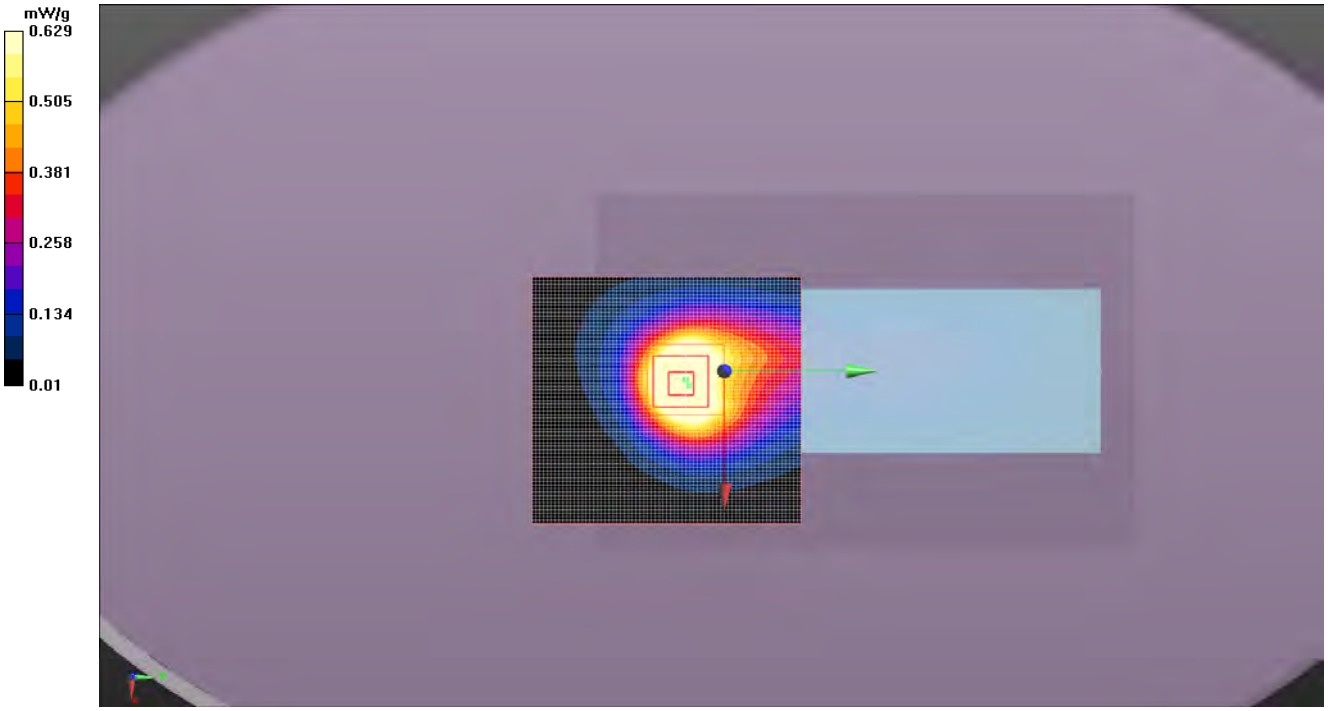
Body/Body - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.971 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.966 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.295 W/kg
SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.457 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.941 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 22.869 V/m



Room Temprature (°C):	22.7	Humidity (%):	39.3	Test Date:	12/29/11
Liquid Temprature (°C):	21.7	Barometric Pressure (mb):	1020.1	Tested by:	Jennifer Herrett and Khanh Tran

Test 17 12-29-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 836.6 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.006 mho/m; ε_r = 54.303; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.004 mho/m, ε_r = 54.3166; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.330 mW/g

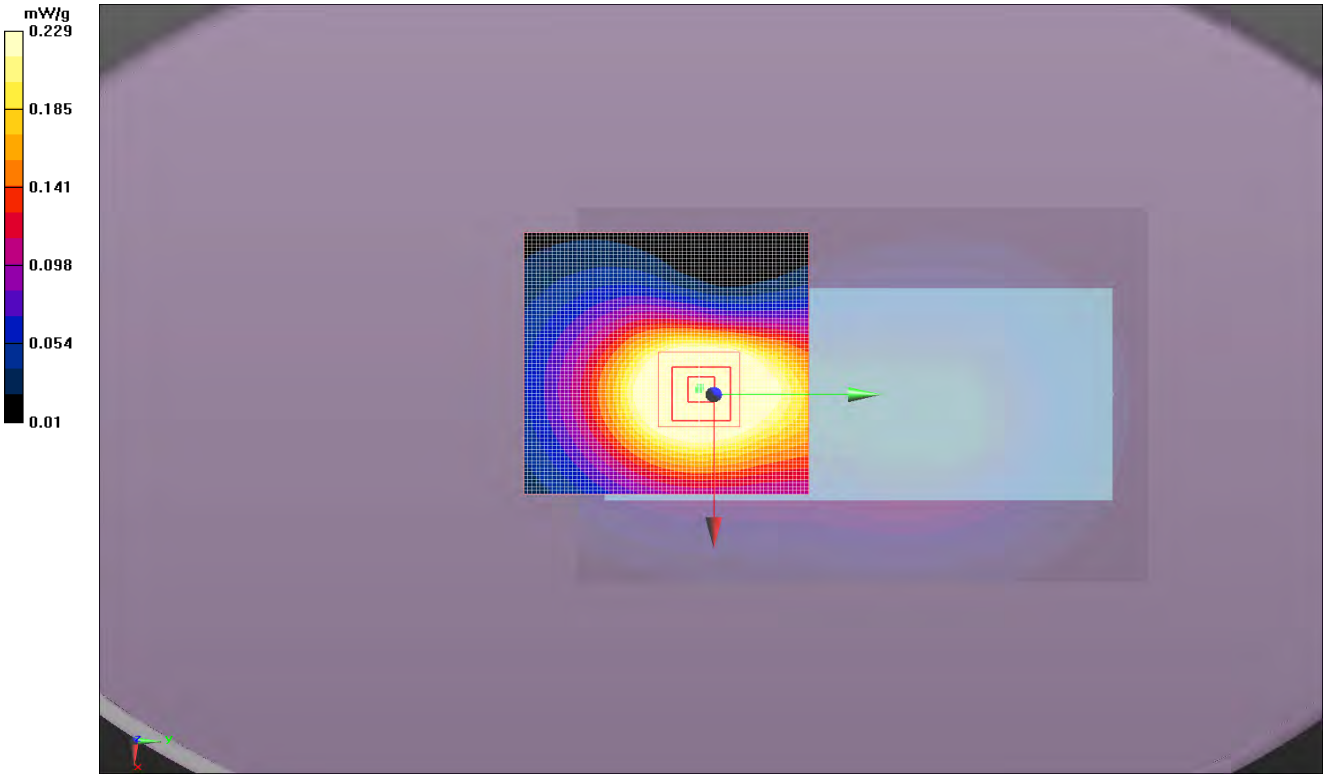
Body/Body - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.310 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.988 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.192 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.300 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 15.084 V/m



Room Temprature (°C):	21.7	Humidity (%):	39.3	Test Date:	12/29/11
Liquid Temprature (°C):	21.7	Barometric Pressure (mb):	1020.1	Tested by:	Jennifer Herrett and Khanh Tran

Test 18 12-29-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 836.6 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.006 mho/m; ε_r = 54.303; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.004 mho/m, ε_r = 54.3166; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.324 mW/g

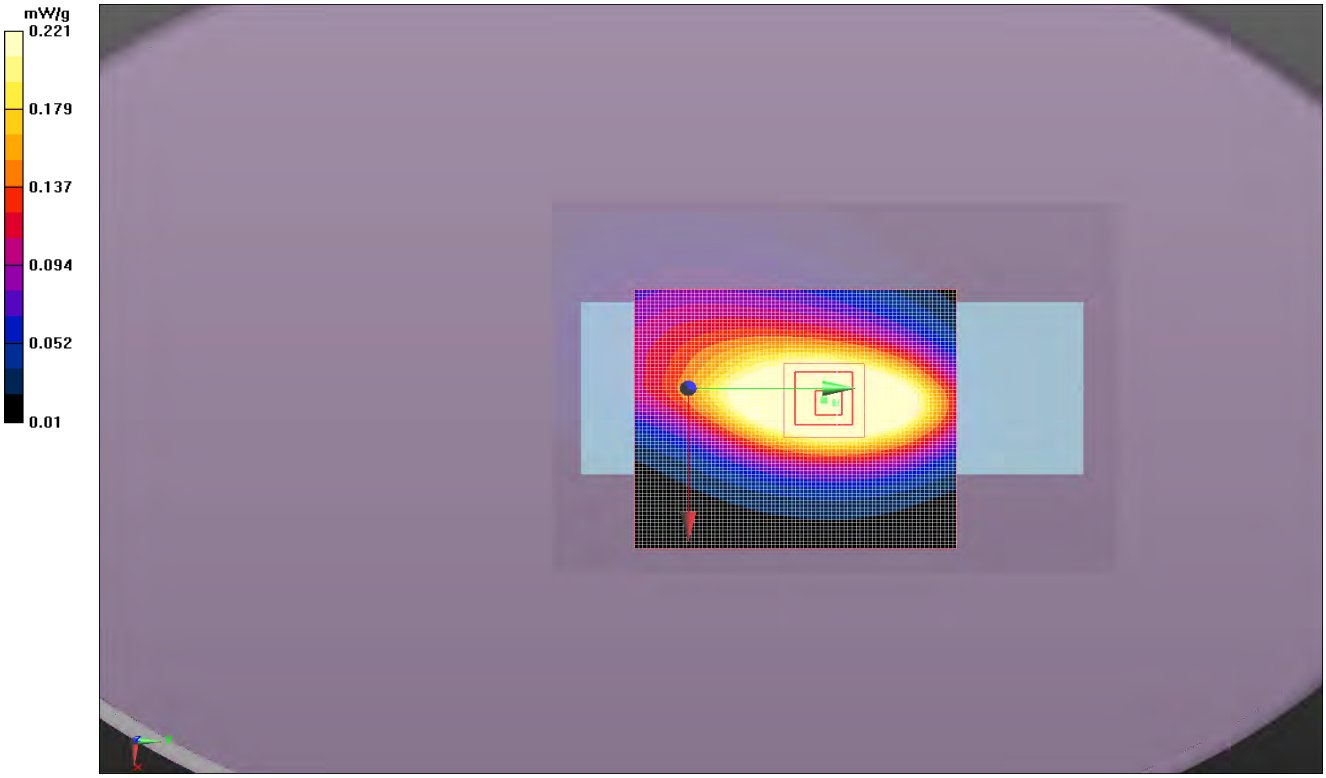
Body/Body - Mid/Area scan (71x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.319 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.372 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.388 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.190 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.319 mW/g

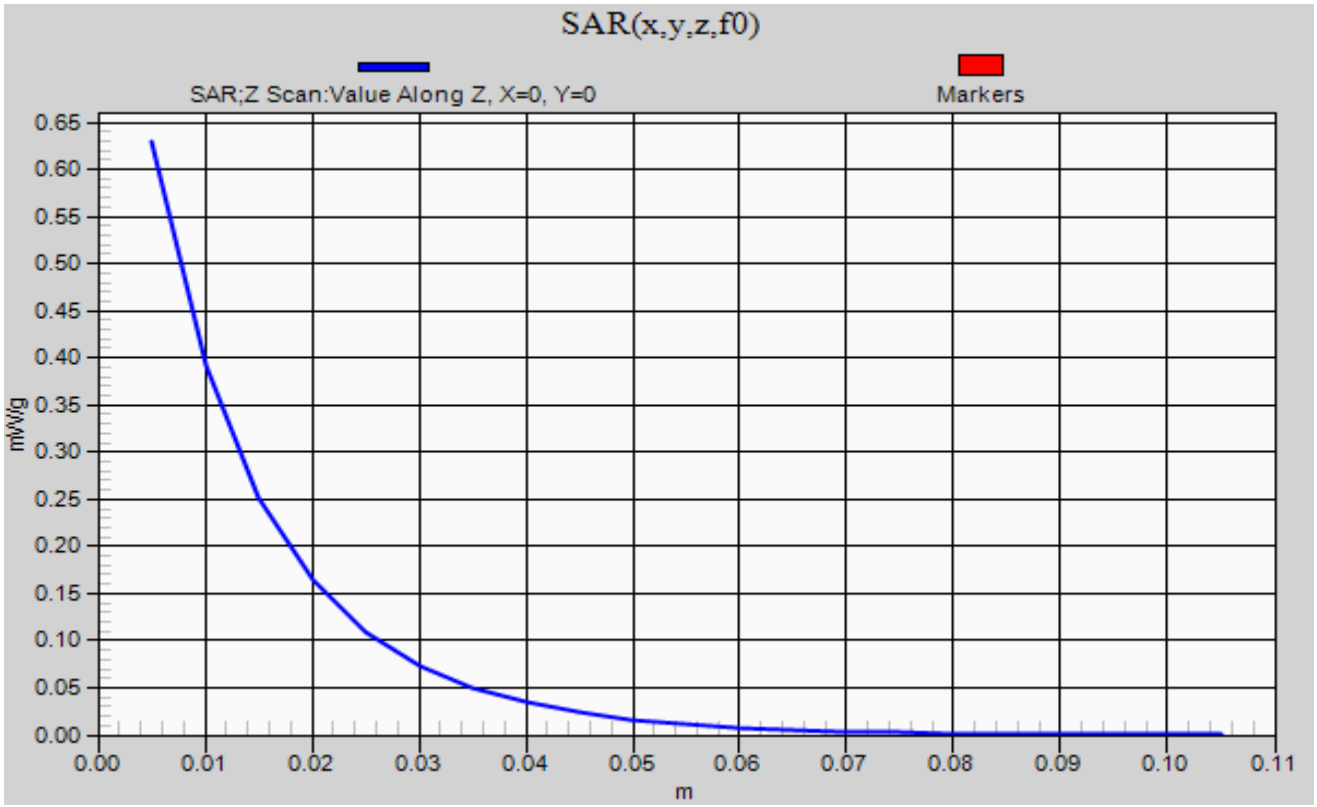
Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 14.830 V/m



Room Temprature (°C):	22.3	Humidity (%):	38.8	Test Date:	12/28/11
Liquid Temprature (°C):	22.3	Barometric Pressure (mb):	1015.4	Tested by:	Jennifer Herrett and Khanh Tran

Test 16 12-28-11

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 187U1191613



NORTHWEST EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	Work Order:	INMC0746
Serial Number:	187U1191613	Date:	See Data Sheets
Customer:	Intermec Technologies Corporation	Temperature:	See Data Sheets
Attendees:	None	Humidity:	See Data Sheets
Project:	None	Barometric Pres.:	See Data Sheets
Tested by:	Jennifer Herrett and Khanh Tran	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 248227 D01 V01r02 FCC KDB 648474 D01 V01r05 FCC 865664
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	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Head	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	None	Left-Cheek	-0.04	0.408	30
	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	None	Left-Tilt	0.07	0.334	31

Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/03/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Jennifer Herrett and Khanh Tran

Test 30 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.411 mho/m; ε_r = 38.137; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.40561 mho/m, ε_r = 38.1569; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Left/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.232 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.408 mW/g; SAR(10 g) = 0.248 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.481 mW/g

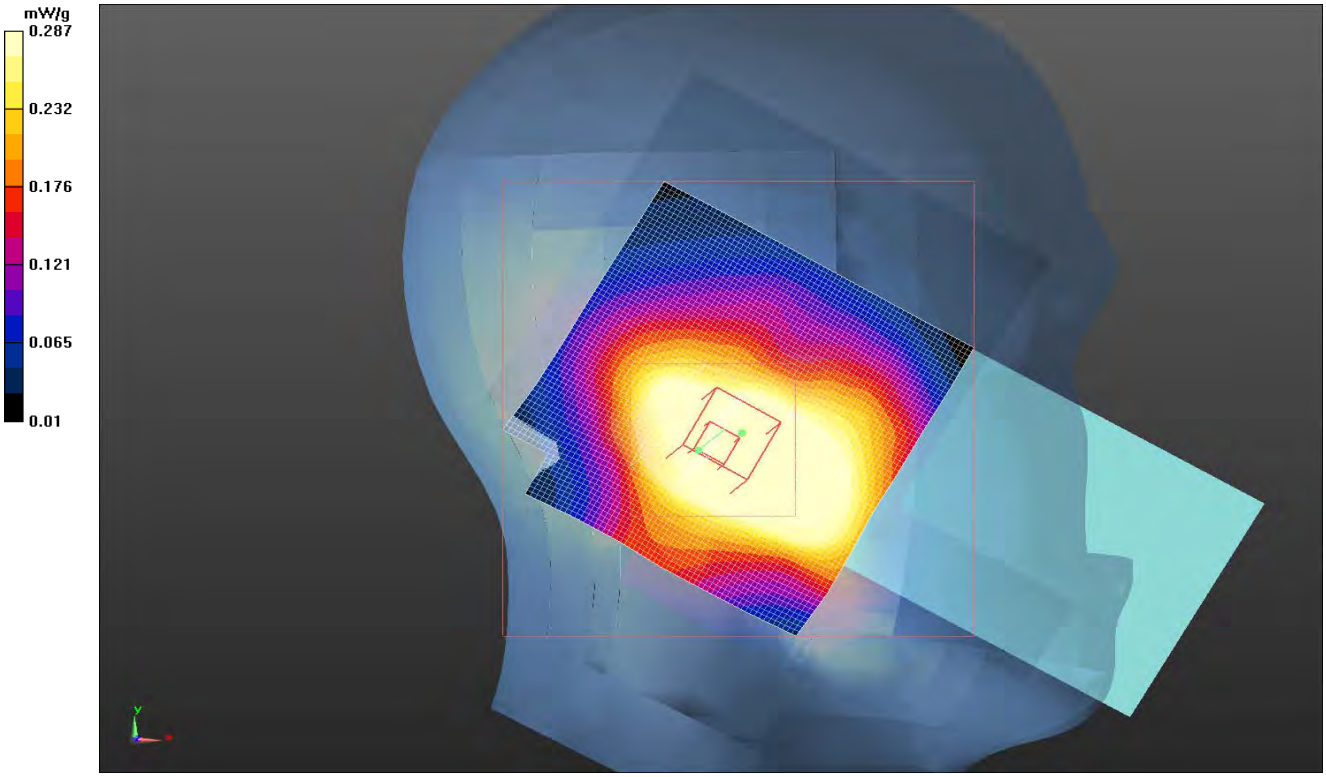
Head - Left/Cheek - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.468 mW/g

Head - Left/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 14.262 V/m

Head - Left/Cheek - Mid/Reference scan (51x91x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.416 mW/g



Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/03/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Jennifer Herrett and Khanh Tran

Test 31 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.411 mho/m; ε_r = 38.137; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.40561 mho/m, ε_r = 38.1569; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Left/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.391 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.571 W/kg
SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.199 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.402 mW/g

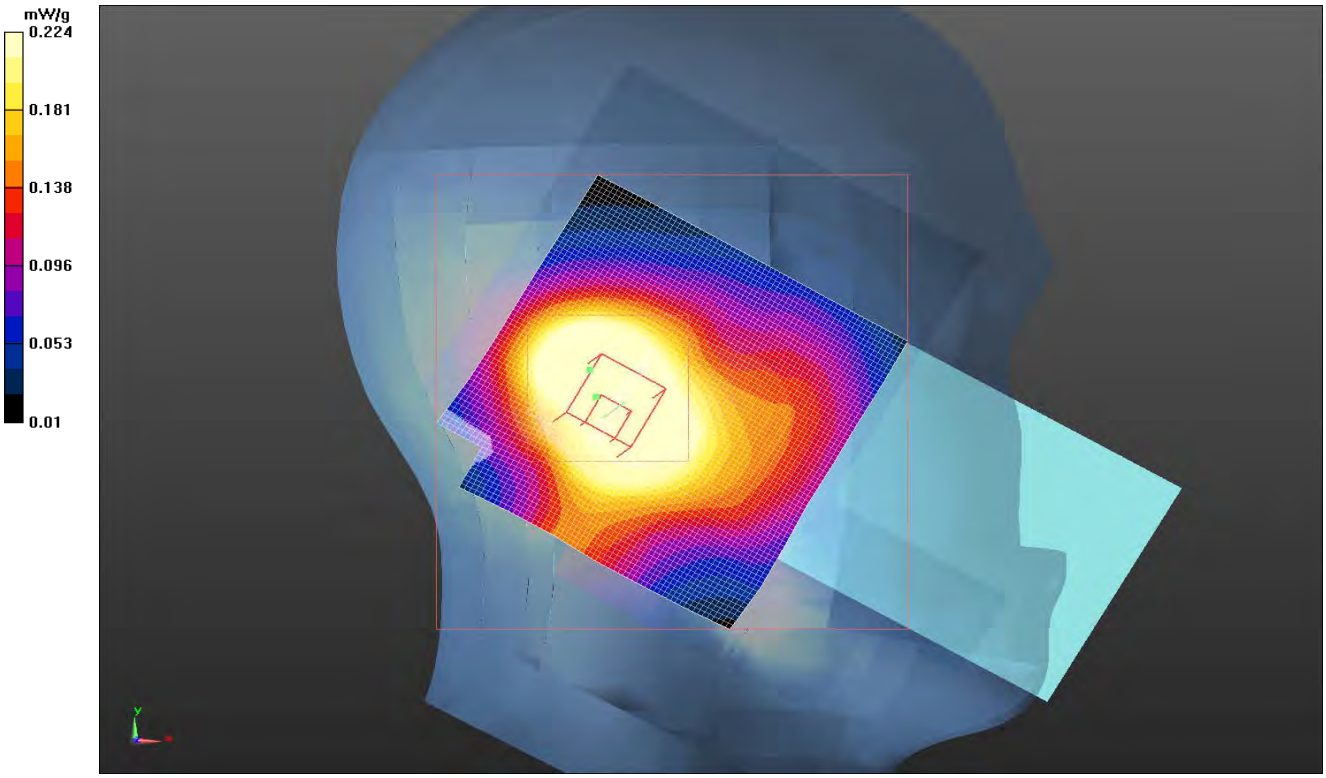
Head - Left/Tilt - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.387 mW/g

Head - Left/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 12.597 V/m

Head - Left/Tilt - Mid/Reference scan (51x91x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.317 mW/g

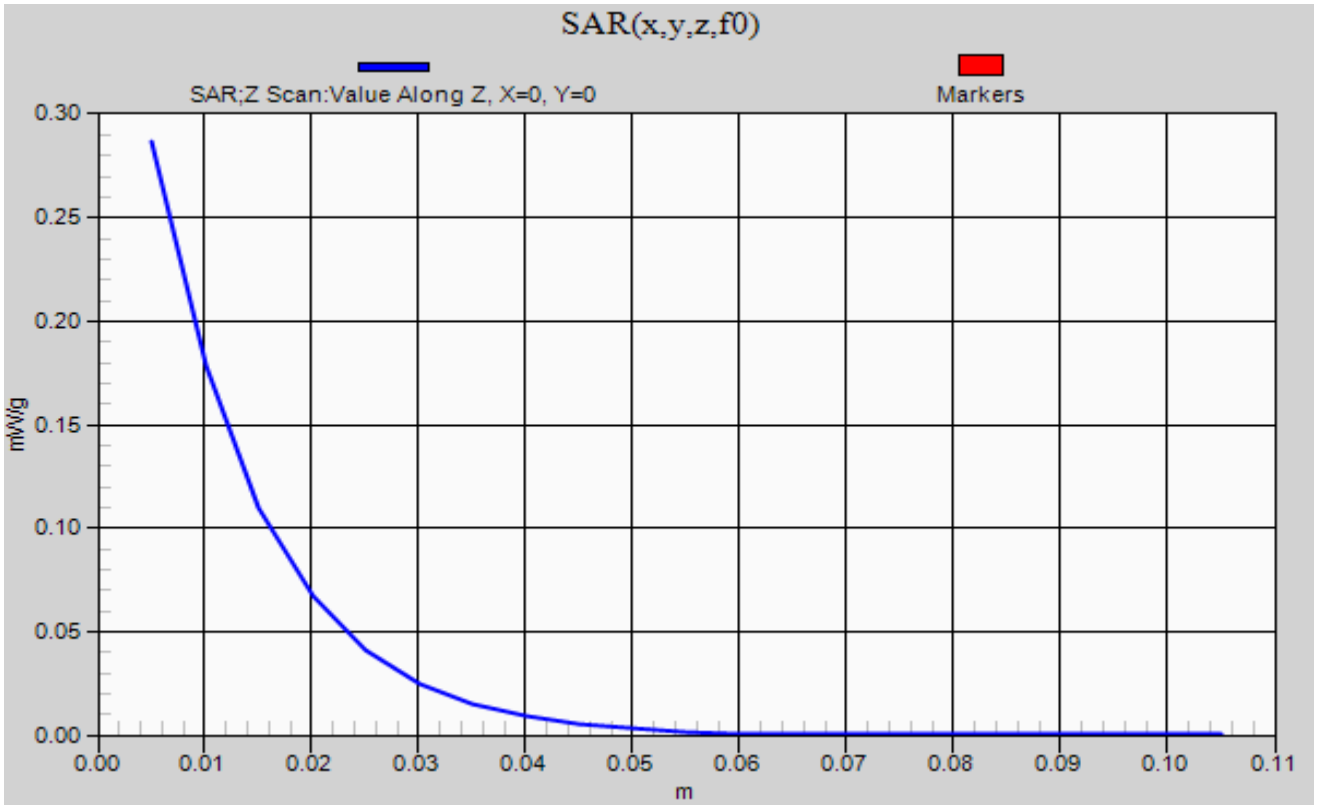


SAR TEST DATA

Room Temprature (°C):	23	Humidity (%):	39	Test Date:	01/03/12
Liquid Temprature (°C):	22.4	Barometric Pressure (mb):	1026.3	Tested by:	Jennifer Herrett and Khanh Tran

Test 30 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134



NORTHWEST
EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	**Work Order:**	INMC0746
Serial Number:	187U1191613	**Date:**	See Data Sheets
Customer:	Intermec Technologies Corporation	**Temperature:**	See Data Sheets
Attendees:	None	**Humidity:**	See Data Sheets
Project:	None	**Barometric Pres.:**	See Data Sheets
Tested by:	Jennifer Herrett, Ethan Schoonover and Khanh Tran	**Job Site:**	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02, and D03 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	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Body-Worn Accessory	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Body	PCS	1880	661	E-GPRS / 1 slot	GMSK (MCS-4)	Wrist Holster	None	Left	0.0034	0.567	19
	PCS	1880	661	E-GPRS / 1 slot	GMSK (MCS-4)	Wrist Holster	None	Back	0.02	0.223	20
	PCS	1880	661	E-GPRS / 1 slot	GMSK (MCS-4)	Wrist Holster	None	Right	0.14	0.019	21
	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Left	0.06	0.765	22
	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Back	-0.06	0.648	23
	PCS	1880	9400	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Right	0.06	0.055	24

Room Temprature (°C):	22.9	**Humidity (%):**	40.7	**Test Date:**	01/03/12
Liquid Temprature (°C):	21.6	**Barometric Pressure (mb):**	1027.2	**Tested by:**	Ethan Schoonover

Test 19 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: GPRS and Edge; Communication System Band: PCS 1900; Frequency: 1880 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.512 mho/m; ε_r = 53.324; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.50696 mho/m, ε_r = 53.3411; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.054 mW/g

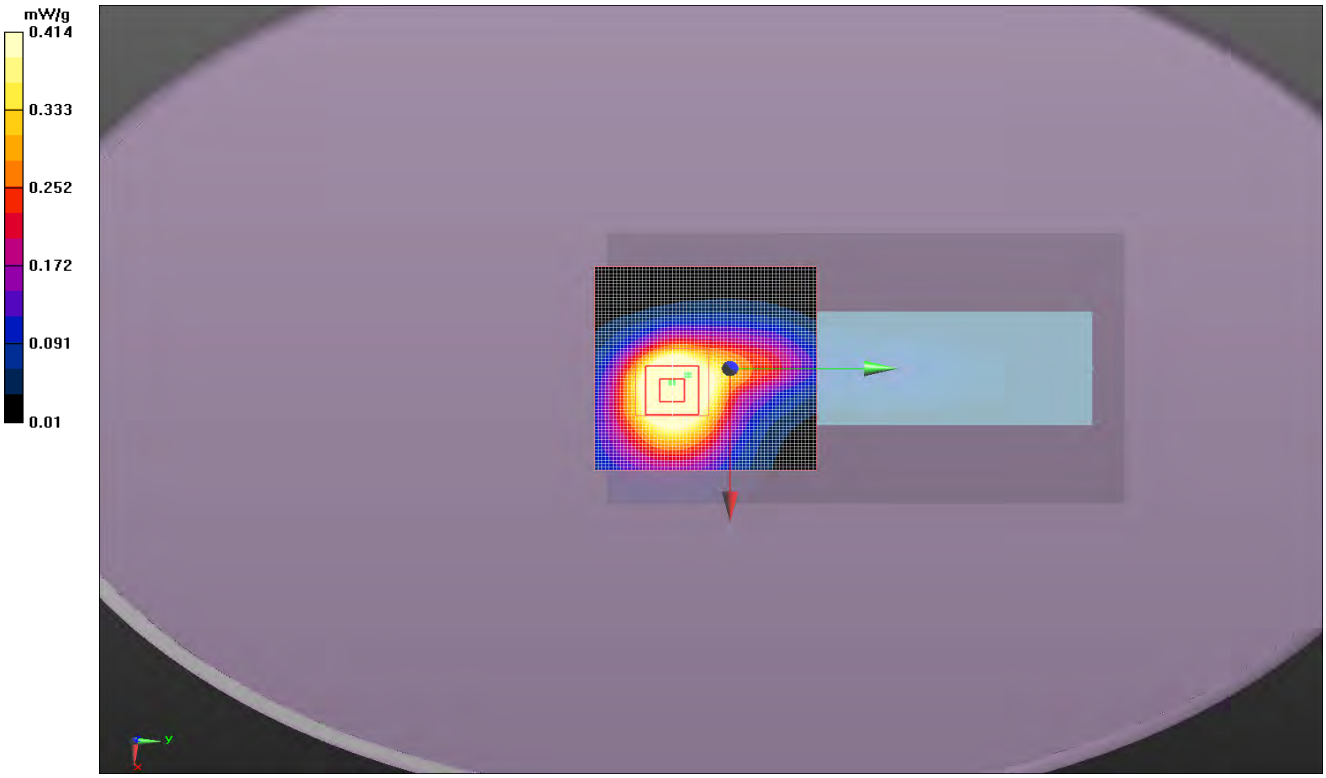
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.681 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.949 V/m; Power Drift = 0.0034 dB
Peak SAR (extrapolated) = 0.956 W/kg
SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.331 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.686 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 16.547 V/m



Room Temprature (°C):	22.9	Humidity (%):	40.5	Test Date:	01/03/12
Liquid Temprature (°C):	21.6	Barometric Pressure (mb):	1027.2	Tested by:	Ethan Schoonover

Test 20 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: GPRS and Edge; Communication System Band: PCS 1900; Frequency: 1880 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.512 mho/m; ε_r = 53.324; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.50696 mho/m, ε_r = 53.3411; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x81x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.260 mW/g

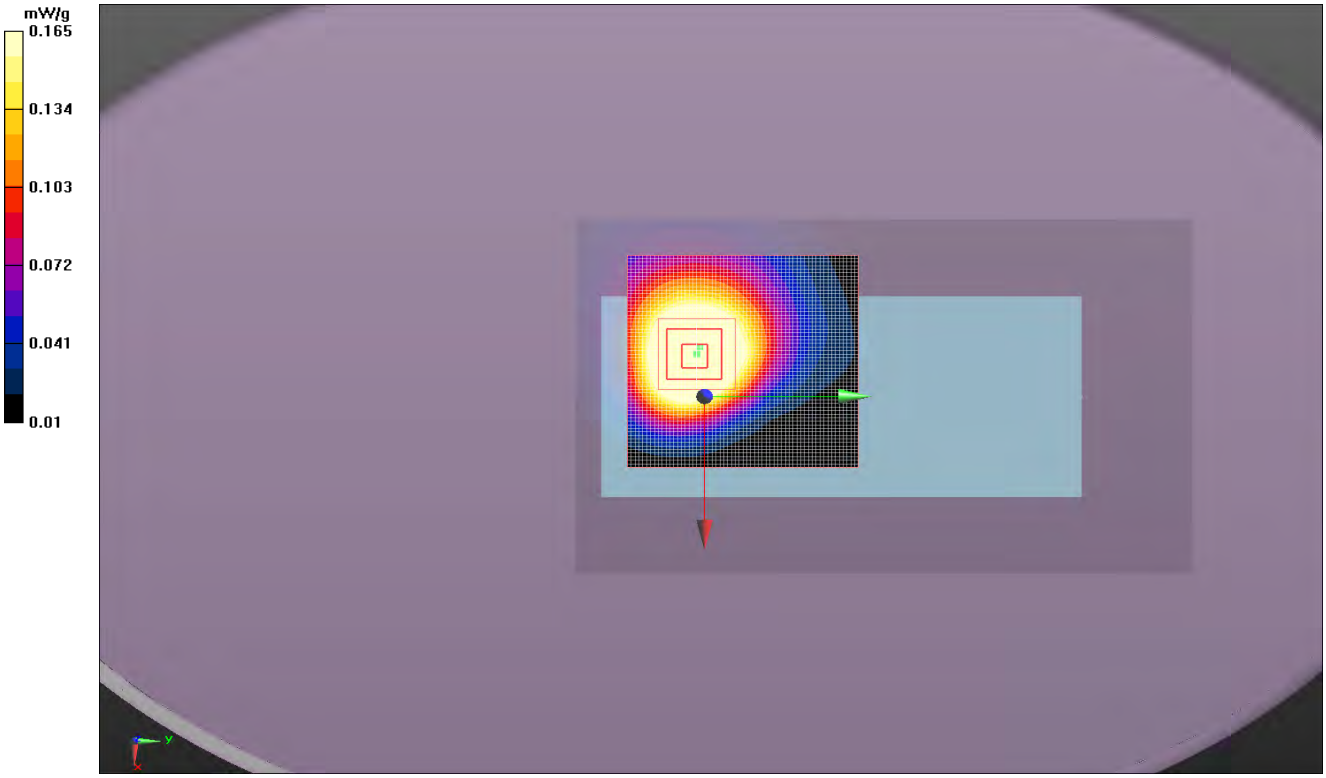
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.267 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.322 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.139 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.265 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 10.436 V/m



Room Temprature (°C):	24	Humidity (%):	37	Test Date:	01/03/12
Liquid Temprature (°C):	21.4	Barometric Pressure (mb):	1027.2	Tested by:	Ethan Schoonover

Test 21 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: GPRS and Edge; Communication System Band: PCS 1900; Frequency: 1880 MHz;Communication System PAR: 9.2 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.512 mho/m; ε_r = 53.324; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.50696 mho/m, ε_r = 53.3411; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.018 mW/g

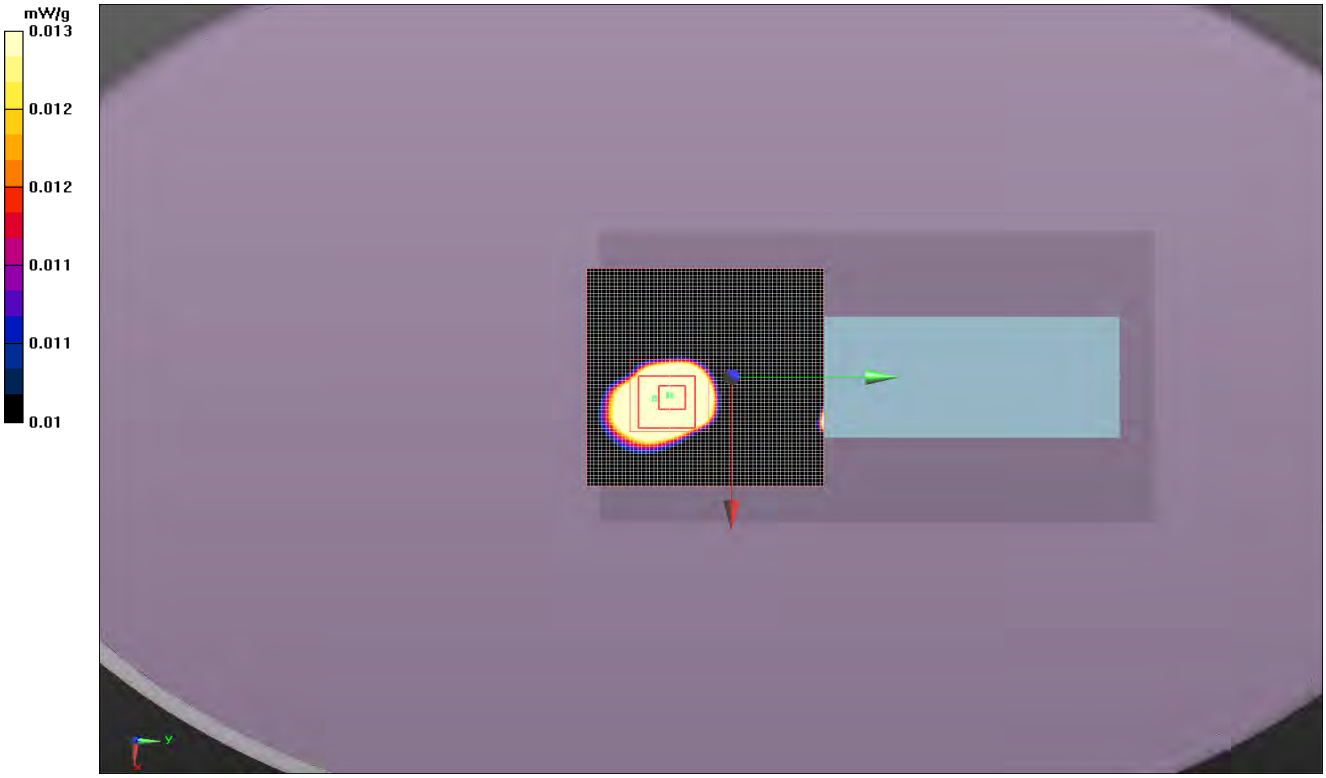
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.021 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.769 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.032 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.011 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.023 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 2.969 V/m



Room Temprature (°C):	22.6	Humidity (%):	40.7	Test Date:	01/03/12
Liquid Temprature (°C):	20.8	Barometric Pressure (mb):	1027.2	Tested by:	Jennifer Herrett and Khanh Tran

Test 22a 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 51.14; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.57 mho/m, ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

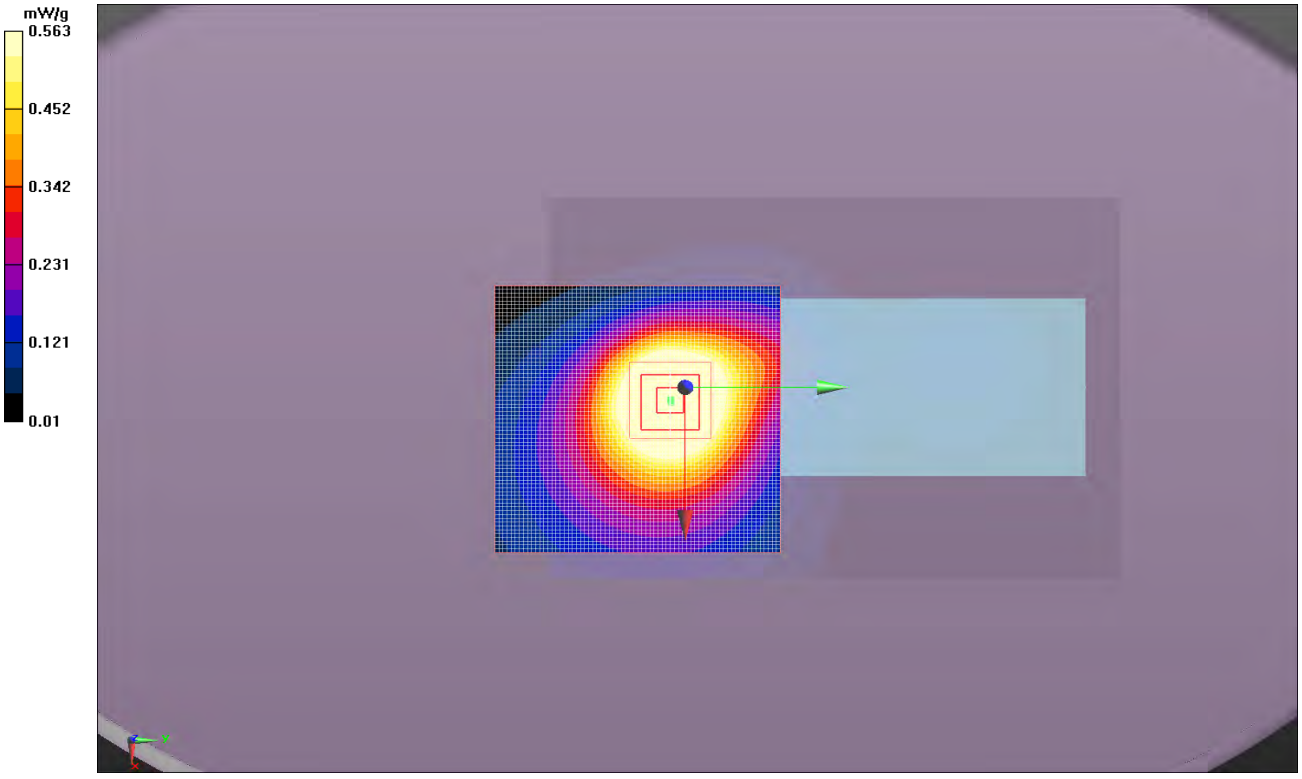
Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.761 mW/g

Body/Body - Mid/Area scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.892 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.951 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.240 W/kg
SAR(1 g) = 0.765 mW/g; SAR(10 g) = 0.476 mW/g
Maximum value of SAR (measured) = 0.906 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 18.935 V/m



Room Temprature (°C):	23.1	Humidity (%):	44.1	Test Date:	01/03/12
Liquid Temprature (°C):	20.6	Barometric Pressure (mb):	1027.2	Tested by:	Ethan Schoonover

Test 23 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.512 mho/m; ε_r = 53.324; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.50696 mho/m, ε_r = 53.3411; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x81x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.786 mW/g

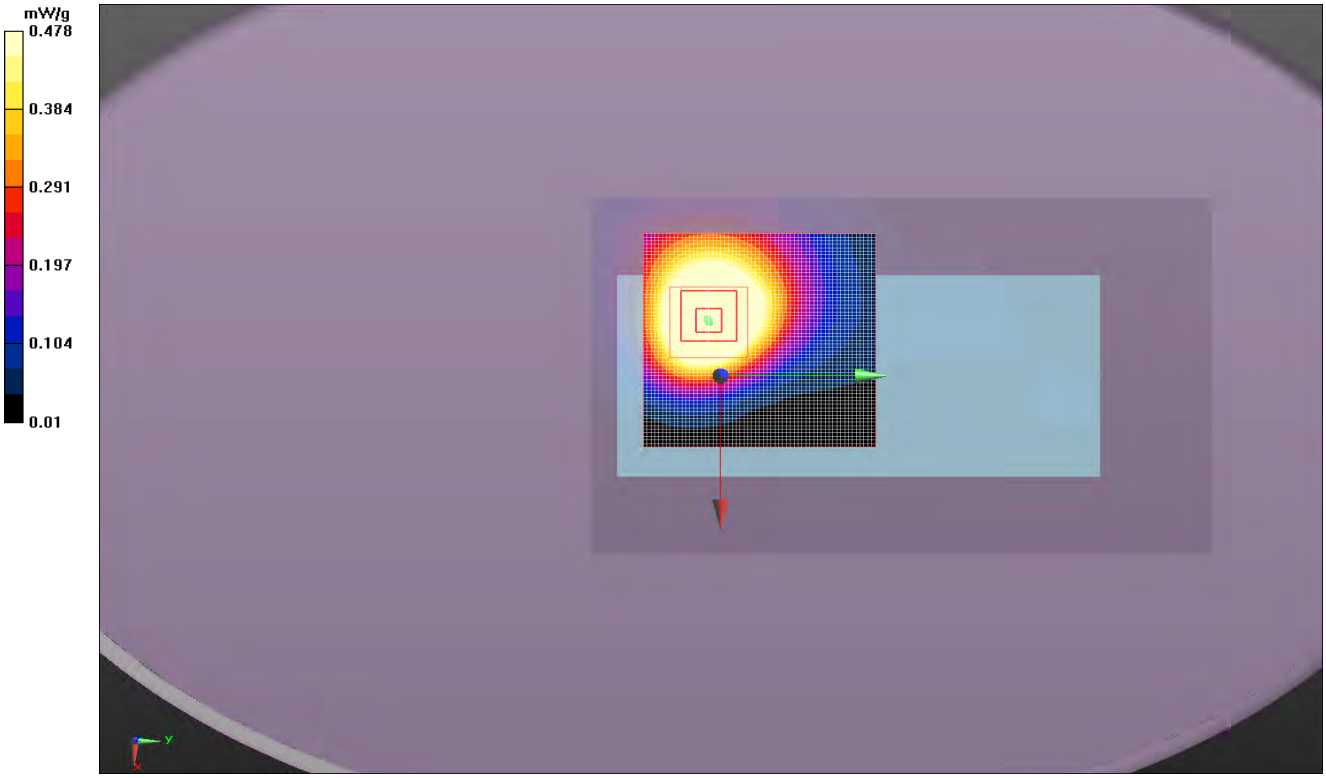
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.769 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.299 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.058 W/kg
SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.403 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.771 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 17.770 V/m



Room Temprature (°C):	23	**Humidity (%):**	36.8	**Test Date:**	01/03/12
Liquid Temprature (°C):	22.4	**Barometric Pressure (mb):**	1026.3	**Tested by:**	Jennifer Herrett and Khanh Tran

Test 24 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 51.14; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.57 mho/m, ε_r = 51.14; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

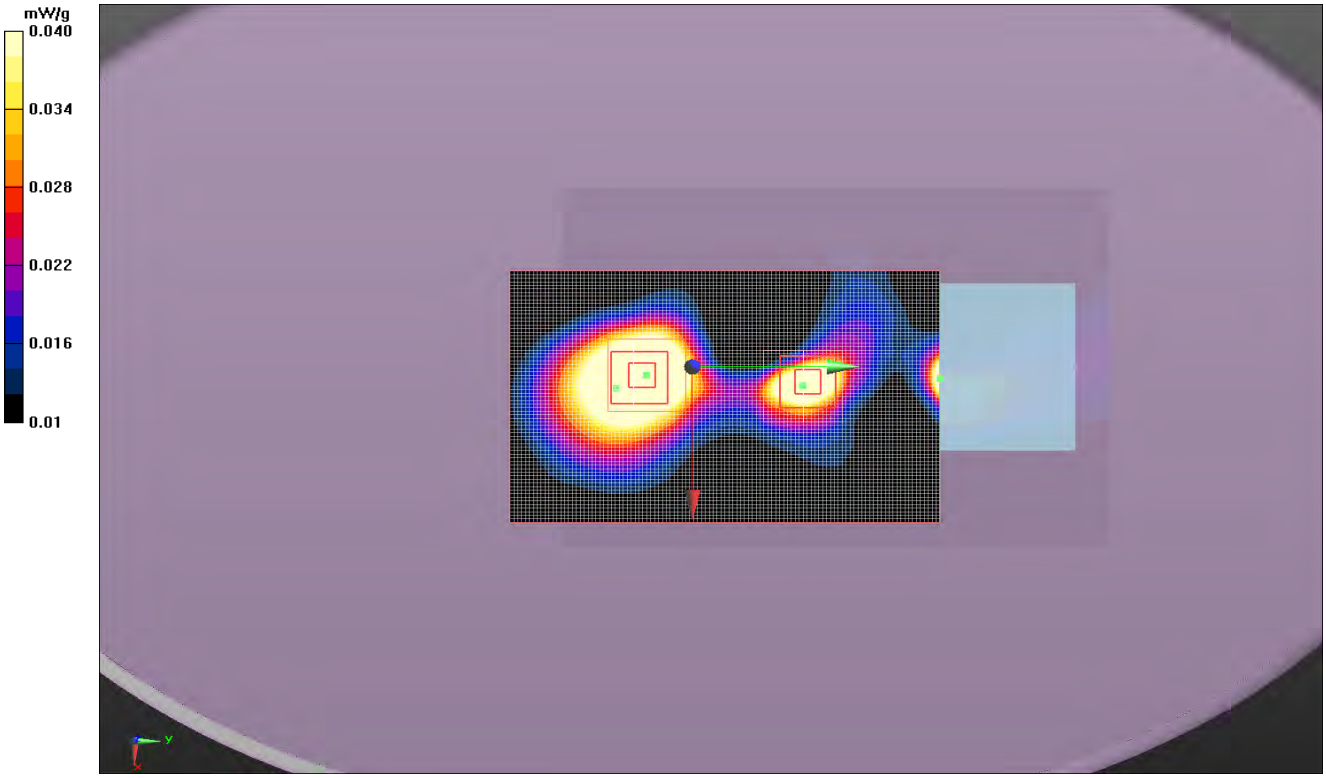
Body/Body - Mid/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.500 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.068 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.022 mW/g
Maximum value of SAR (measured) = 0.047 mW/g

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm
Maximum value of SAR (interpolated) = 0.060 mW/g

Body/Body - Mid/Area scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.069 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.500 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.066 mW/g

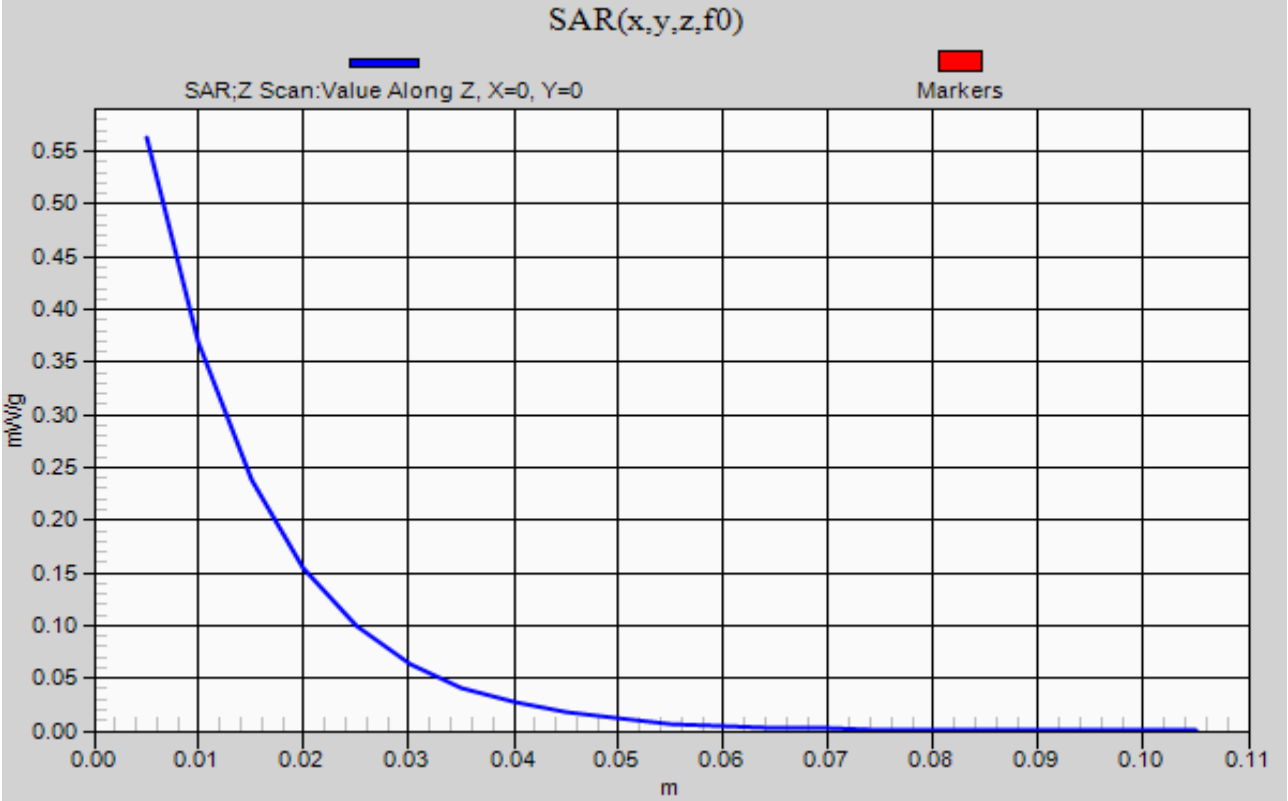
Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 5.030 V/m



Room Temprature (°C):	22.6	Humidity (%):	40.7	Test Date:	01/03/12
Liquid Temprature (°C):	20.8	Barometric Pressure (mb):	1027.2	Tested by:	Jennifer Herrett and Khanh Tran

Test 22 1-3-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134



NORTHWEST EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	Work Order:	INMC0746
Serial Number:	187U1191613	Date:	See Data Sheets
Customer:	Intermec Technologies Corporation	Temperature:	See Data Sheets
Attendees:	None	Humidity:	See Data Sheets
Project:	None	Barometric Pres.:	See Data Sheets
Tested by:	Ethan Schoonover	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 248227 D01 V01r02 FCC KDB 648474 D01 V01r05 FCC 865664
Health Safety Code 6:2009	RSS-102, Issue 4:2010

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	1	Signature

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Head	AWS	1735.4	1427	WCDMA / Test Loop 1	12.2 kbps RMC	None	Right-Cheek	0.003	0.568	32
	AWS	1735.4	1427	WCDMA / Test Loop 1	12.2 kbps RMC	None	Right-Tilt	0.18	0.495	33

Room Temprature (°C):	25.1	Humidity (%):	41	Test Date:	01/04/12
Liquid Temprature (°C):	22	Barometric Pressure (mb):	1029	Tested by:	Ethan Schoonover

Test 32 1-4-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1735.4 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1735.4 MHz; σ = 1.315 mho/m; ε_r = 40.297; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.30565 mho/m, ε_r = 40.341; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Right/Cheek - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.783 V/m; Power Drift = 0.0026 dB
Peak SAR (extrapolated) = 1.002 W/kg
SAR(1 g) = 0.568 mW/g; SAR(10 g) = 0.298 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.697 mW/g

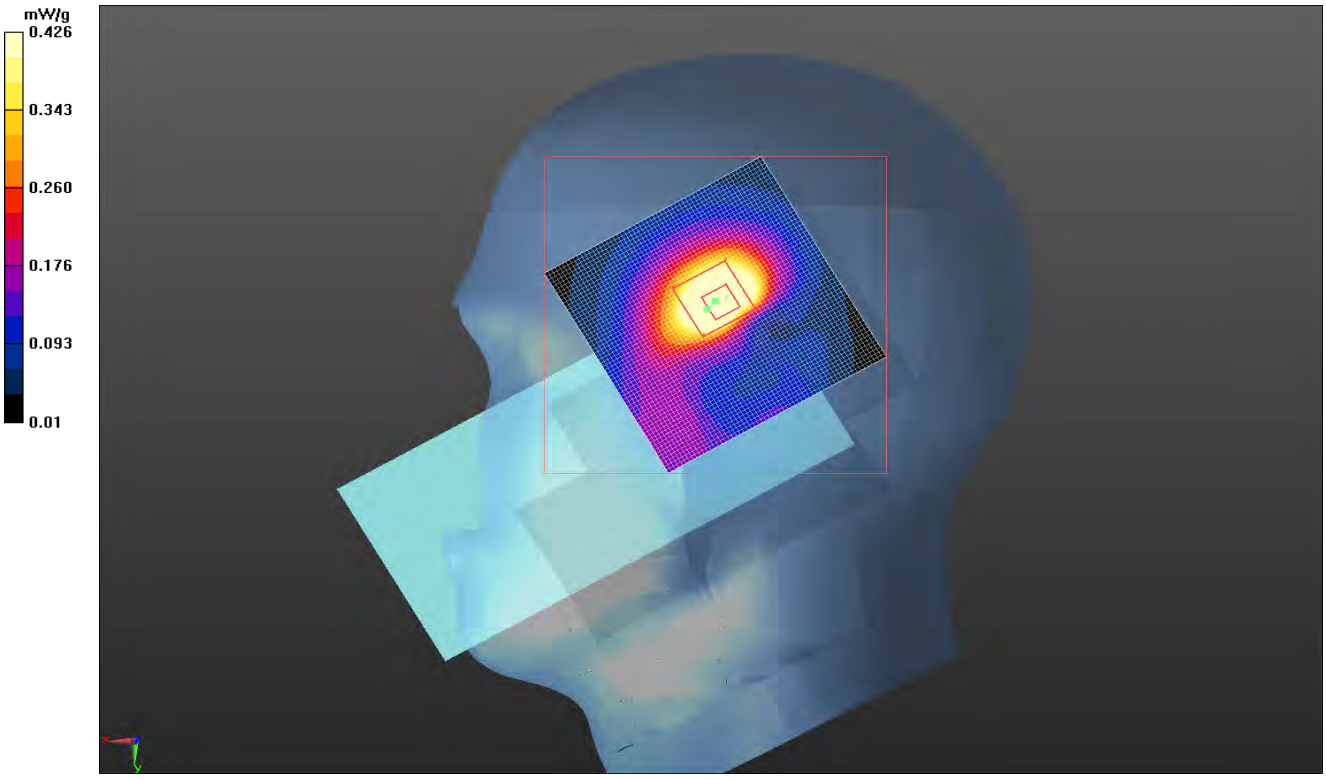
Head - Right/Cheek - Mid/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.415 mW/g

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

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.731 mW/g

Head - Right/Cheek - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 17.988 V/m



Room Temprature (°C):	25.1	Humidity (%):	41	Test Date:	01/04/12
Liquid Temprature (°C):	22	Barometric Pressure (mb):	1029	Tested by:	Ethan Schoonover

Test 33 1-4-12

DUT: Hand Held Computer; Type: 1000CP03S; Serial: 22021142134

Communication System: CW; Communication System Band: D1750 (1750.0 MHz); Frequency: 1735.4 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1735.4 MHz; σ = 1.315 mho/m; ε_r = 40.297; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.30565 mho/m, ε_r = 40.341; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Head - Right/Tilt - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.884 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.913 W/kg
SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.252 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.610 mW/g

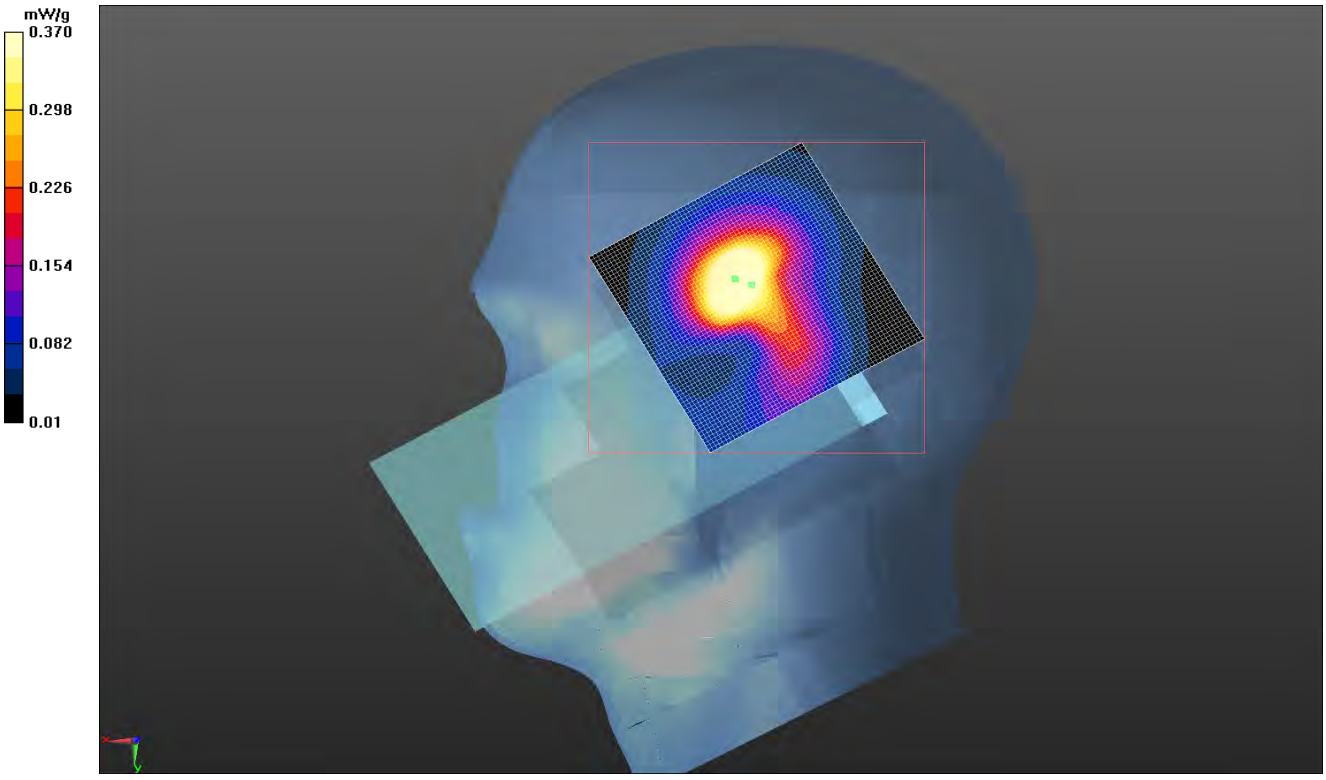
Head - Right/Tilt - Mid/Reference scan (41x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.350 mW/g

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

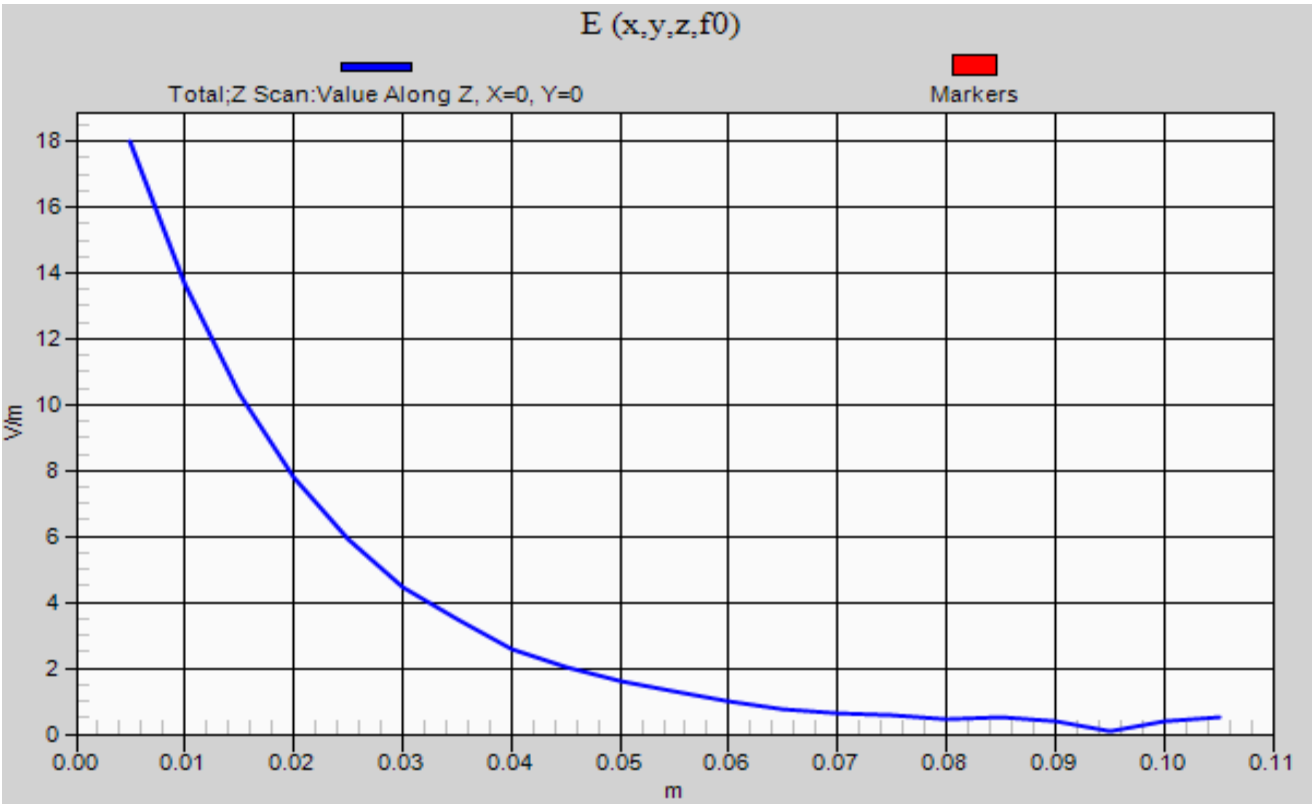
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.528 mW/g

Head - Right/Tilt - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 16.761 V/m



NORTHWEST EMC	SAR TEST DATA				SAR 2011.02.07
Room Temprature (°C):	25.1	Humidity (%):	41	Test Date:	01/04/12
Liquid Temprature (°C):	22	Barometric Pressure (mb):	1029	Tested by:	Ethan Schoonover

Test #32



NORTHWEST EMC

SAR TEST DATA

SAR 2011.02.07

EUT:	1000CP03S	Work Order:	INMC0746
Serial Number:	187U1191613	Date:	See Data Sheets
Customer:	Intermec Technologies Corporation	Temperature:	See Data Sheets
Attendees:	None	Humidity:	See Data Sheets
Project:	None	Barometric Pres.:	See Data Sheets
Tested by:	Ethan Schoonover	Job Site:	EV08

TEST SPECIFICATIONS	Test Method
FCC 2.1093:2012	FCC OET 65C:2001 IEEE Std 1528:2003 FCC KDB 447498 D01 v04 FCC KDB 941225 D01 v02, and D03 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

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate	Body-Worn Accessory	Audio Accessory	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Test #
Body	AWS	1735.4	1427	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Left	0.0097	0.780	25
	AWS	1735.4	1427	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Back	-0.05	0.678	26
	AWS	1735.4	1427	WCDMA / Test Loop 1	12.2 kbps RMC	Wrist Holster	None	Right	-0.05	0.084	27

Room Temprature (°C):	26.1	Humidity (%):	34.9	Test Date:	01/04/12
Liquid Temprature (°C):	21.3	Barometric Pressure (mb):	1029	Tested by:	Ethan Schoonover

Test 25 1-4-12

DUT: Hand Held Computer; Type: 1000CP035; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.553 mho/m; ε_r = 52.999; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.54804 mho/m, ε_r = 53.008; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.877 mW/g

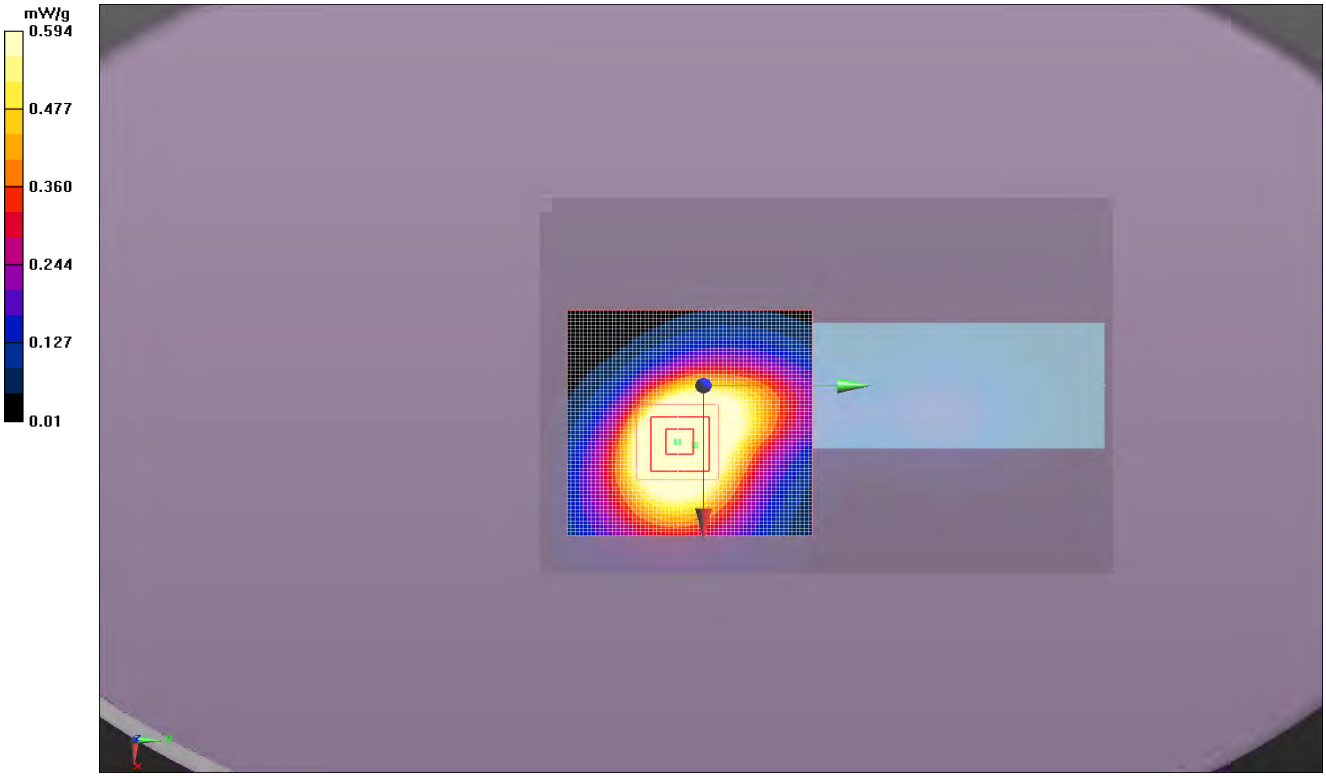
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.920 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.779 V/m; Power Drift = -0.0097 dB
Peak SAR (extrapolated) = 1.226 W/kg
SAR(1 g) = 0.780 mW/g; SAR(10 g) = 0.492 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.920 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 19.561 V/m



Room Temprature (°C):	26.1	**Humidity (%):**	34.9	**Test Date:**	01/04/12
Liquid Temprature (°C):	21.3	**Barometric Pressure (mb):**	1029	**Tested by:**	Ethan Schoonover

Test 26 1-4-12

DUT: Hand Held Computer; Type: 1000CP035; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.553 mho/m; ε_r = 52.999; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.54804 mho/m, ε_r = 53.008; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.734 mW/g

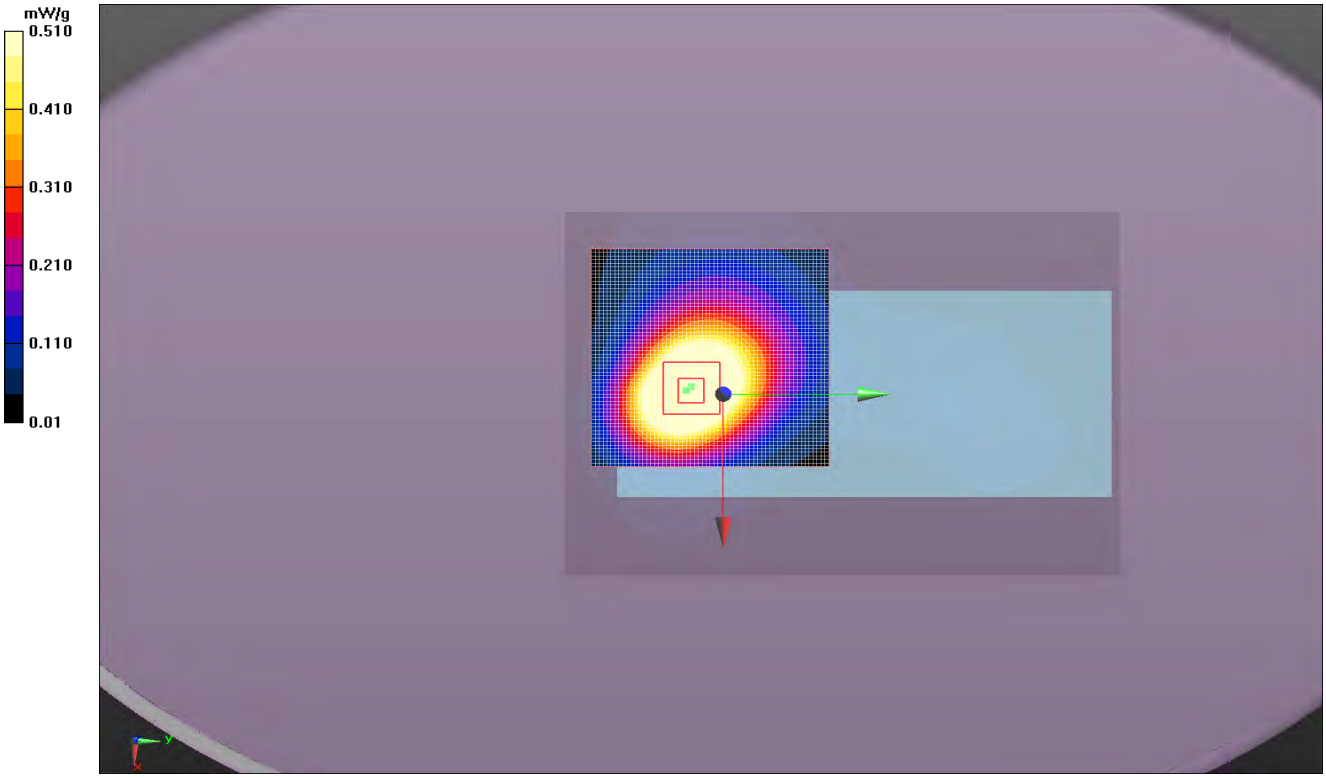
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.840 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.284 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.081 W/kg
SAR(1 g) = 0.678 mW/g; SAR(10 g) = 0.422 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.800 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 18.114 V/m



Room Temprature (°C):	23.8	**Humidity (%):**	42.1	**Test Date:**	01/04/12
Liquid Temprature (°C):	22.1	**Barometric Pressure (mb):**	1028	**Tested by:**	Ethan Schoonover

Test 27 1-4-12

DUT: Hand Held Computer; Type: 1000CP035; Serial: 22021142134

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.553 mho/m; ε_r = 52.999; ρ = 1000 kg/m^3 , Medium parameters used: σ = 1.54804 mho/m, ε_r = 53.008; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.4 (2829)

Body/Body - Mid/Zoom Scan 2 (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.835 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.099 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.039 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.073 mW/g

Body/Body - Mid/Reference scan (51x71x1): Measurement grid: dx=30mm, dy=30mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.098 mW/g

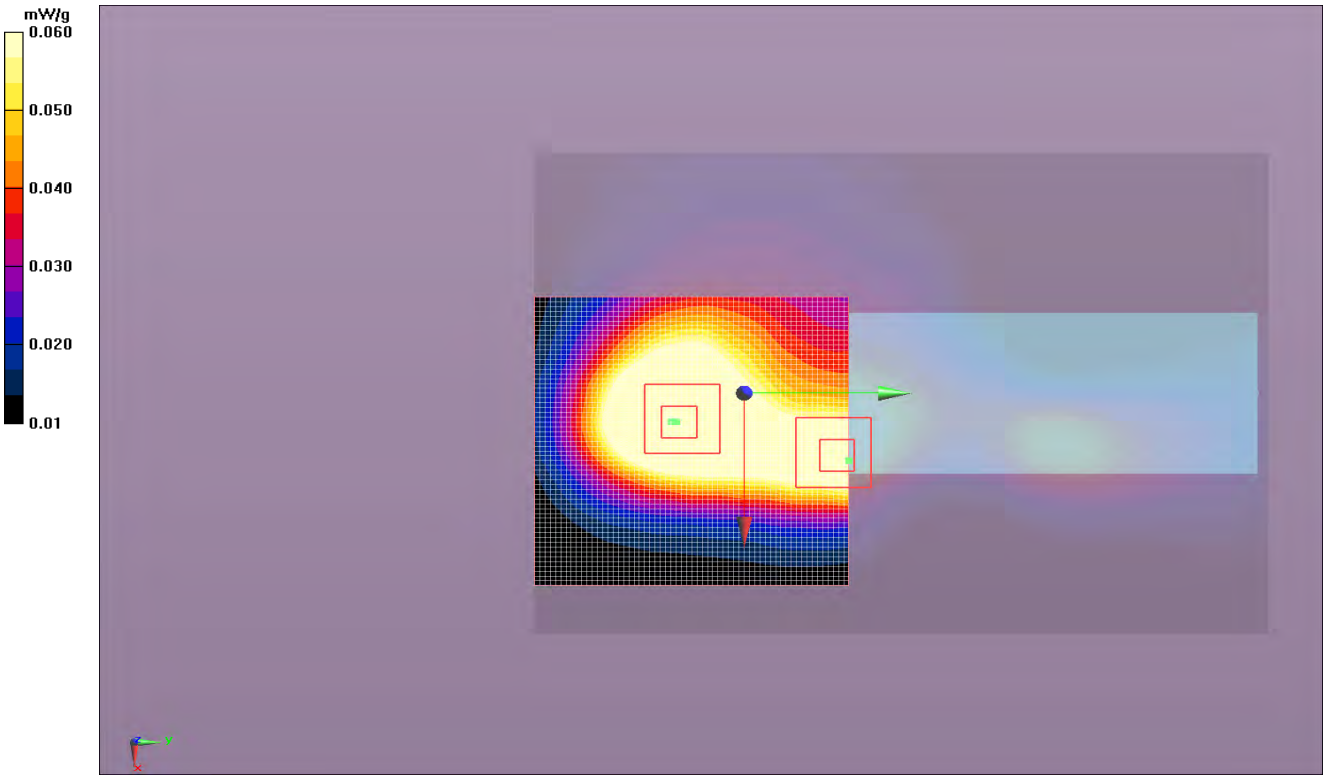
Body/Body - Mid/Area scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.103 mW/g

Body/Body - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.835 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.053 mW/g

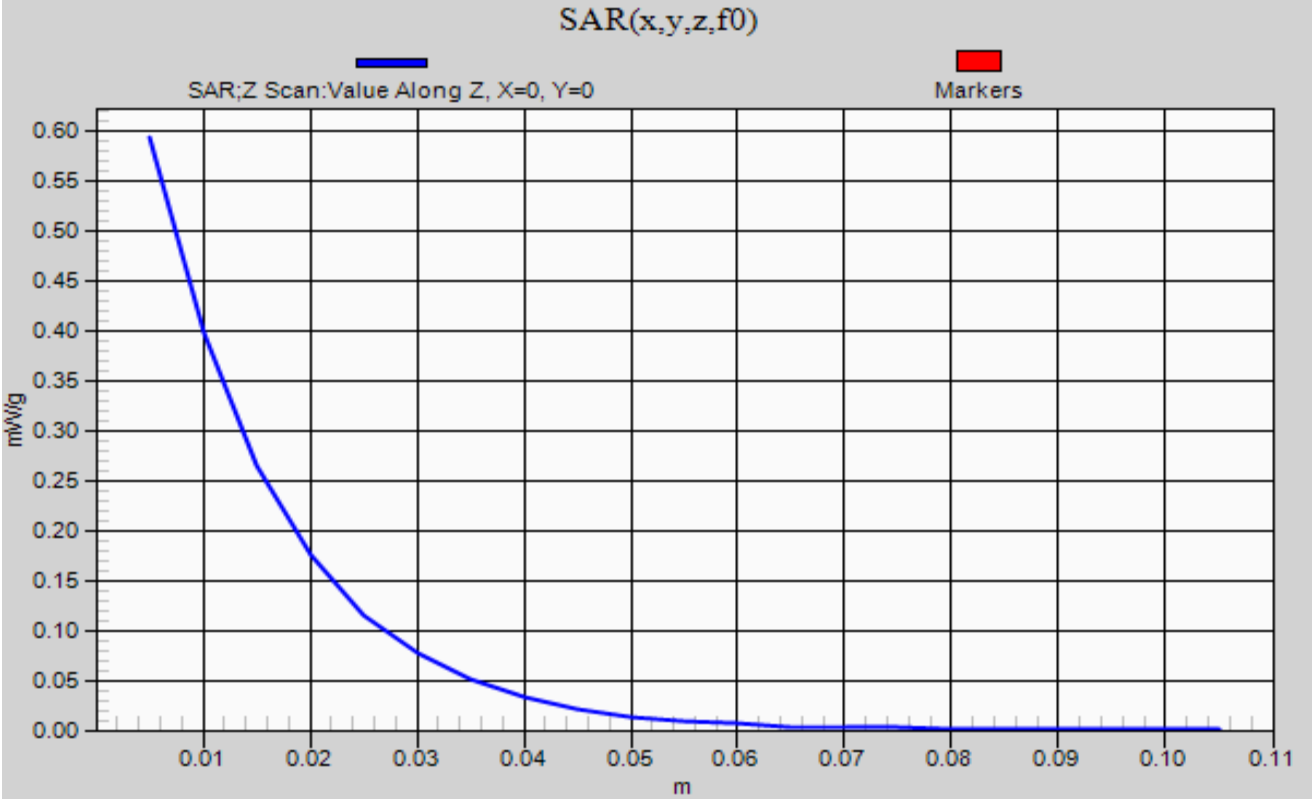
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.100 mW/g

Body/Body - Mid/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 6.206 V/m



NORTHWEST EMC	SAR TEST DATA				SAR 2011.02.07
Room Temprature (°C):	26.1	Humidity (%):	34.9	Test Date:	01/04/12
Liquid Temprature (°C):	21.3	Barometric Pressure (mb):	1029	Tested by:	Ethan Schoonover

Test #25

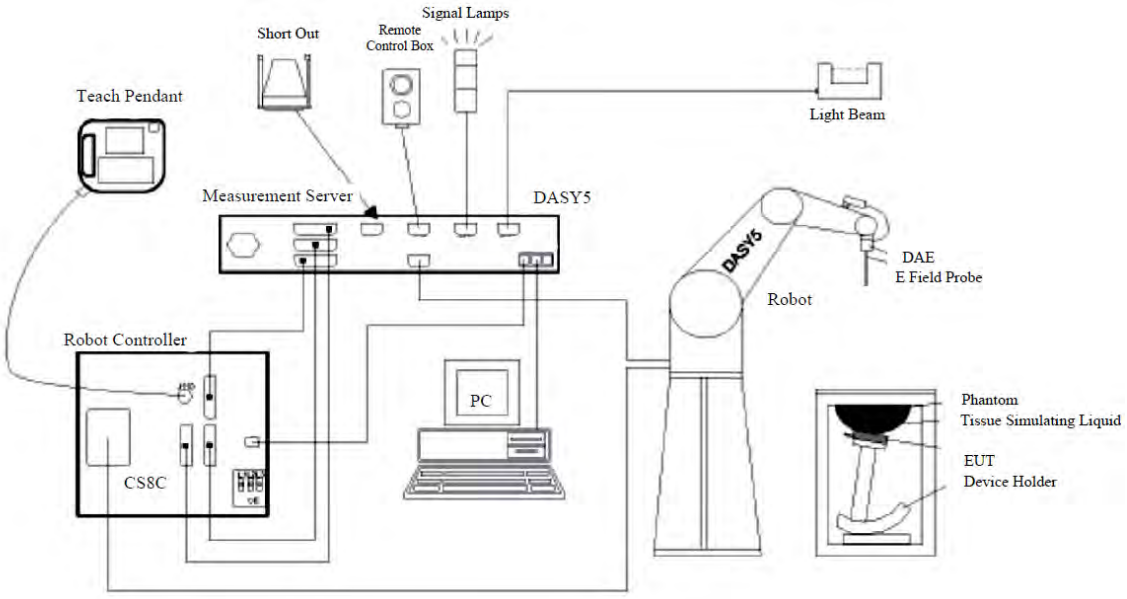


SAR Measurement System

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:



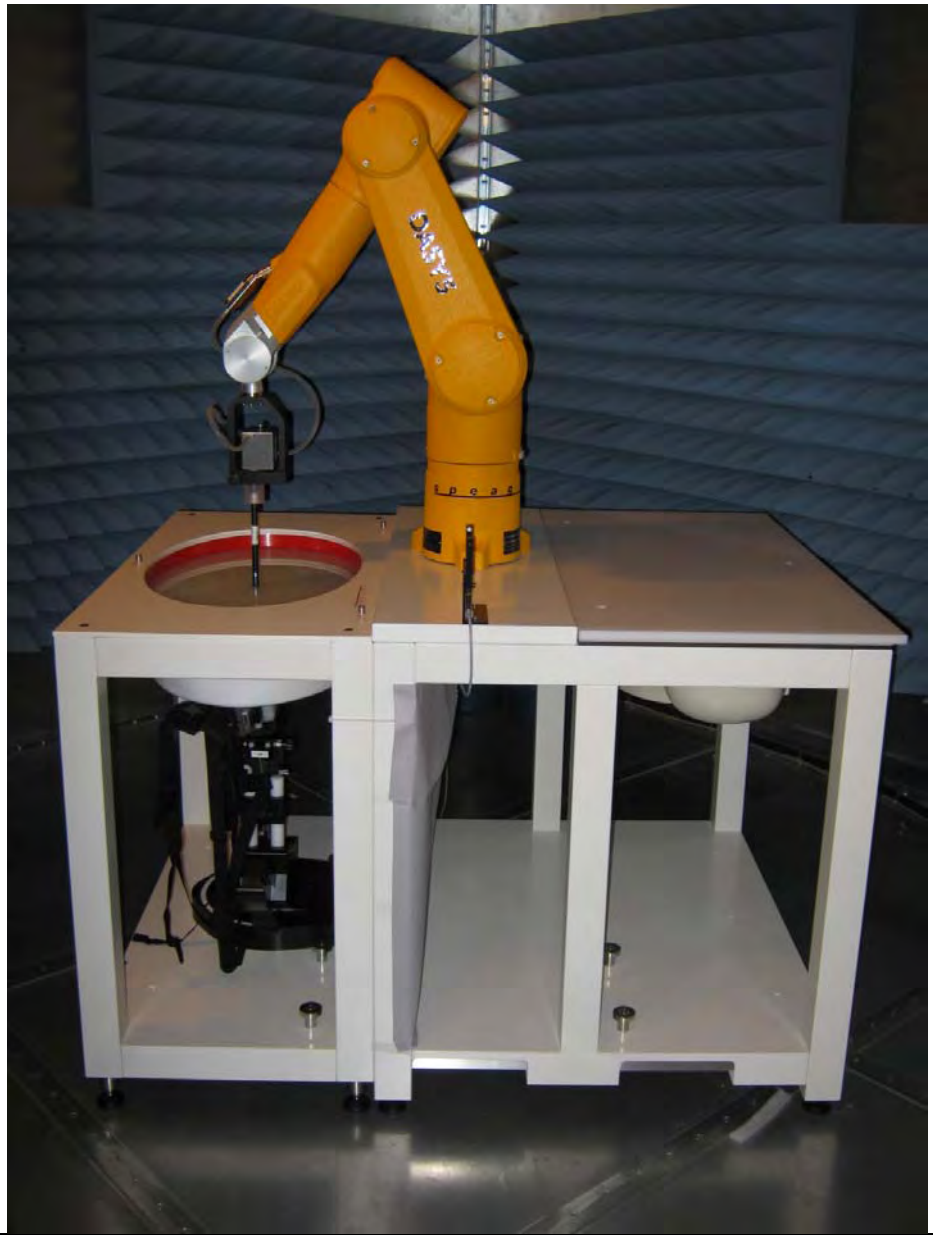
- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) 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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Wireless Communication Test Set	Agilent	E5515C	BSV	NCR	0 mo
Humidity Temperature Meter	Omegaette	HH311	DTY	3/29/2011	24 mo
Humidity Temperature Meter	Omegaette	HH311	DTX	3/29/2011	24 mo
adband Amplifier, SMA, 800-2000 M	Mini Circuits	ZHL-5W-2G-S+	TRZ	NCR	0 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0 mo
Power Sensor	Agilent	E9300H	SQO	6/6/2011	24 mo
Power Meter	Agilent	N1913A	SQR	6/6/2011	24 mo
Dielectric Probe Kit	Agilent	85070E	IPP	9/8/2010	24 mo
Network Analyzer	Hewlett Packard	N5230A	NAD	8/3/2011	12 mo
Antenna, Dipole 1900MHz SAR	SPEAG	D1900v2	ADO	12/6/2011	12 mo
Antenna, Dipole 1750MHz SAR	SPEAG	D835V2	ADN	12/6/2011	12 mo
Antenna, Dipole 835MHz SAR	SPEAG	D835V2	ADK	12/2/2011	12 mo
Device Holder	SPEAG	N/A	SAW	NCR	0 mo
Body Solution	SPEAG	MSL 900	SAT	Within 24 of hours of a measurement	
Head Solution	SPEAG	HSL 900	SAS		
Body Solution	SPEAG	MSL 1900	SAO		
Head Solution	SPEAG	HSL 1900	SAN		
DASY5 Measurement Server	Staeubli	DAYS5	SAK	NCR	0 mo
Robot Chasis and power Supply	Staeubli	N/A	SAJ	NCR	0 mo
Robot Controller	Staeubli	CS8C	SAI	NCR	0 mo
DAE	SPEAG	SD 000 D04 EJ	SAH	11/8/2011	12 mo
SAR Probe	SPEAG	ES3DV3	SAF	9/20/2011	12 mo
Light Beam Unit	SPEAG	SE UKS 030 AA	SAD	NCR	0 mo
Phantom, 2mm Oval ELI4 (Body)	SPEAG	QD OVA 001 BB	SAC	NCR	0 mo
Phantom, Twin SAM (Head)	SPEAG	QD 000 P40 CC	SAB	NCR	0 mo
Robot Arm	Staeubli	TX60LSPEAG	SAA	NCR	0 mo

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

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
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_Sep11

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3246

Calibration procedure(s) QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: September 20, 2011

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 20, 2011

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
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

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 affect 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.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *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: September 20, 2011

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]	1.40	1.22	1.17	± 10.1 %
DCP (mV)[B]	99.4	101.1	101.0	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	120.2	±2.2 %
			Y	0.00	0.00	1.00	110.0	
			Z	0.00	0.00	1.00	107.5	
10021	GSM-FDD (TDMA, GMSK)	9.20	X	28.97	99.5	29.1	139.8	±1.4 %
			Y	25.81	99.5	28.0	146.6	
			Z	27.59	99.9	28.9	105.6	

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 max. deviation from linear response applying rectangular 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) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.08	6.08	6.08	0.80	1.31	± 12.0 %
900	41.5	0.97	5.95	5.95	5.95	0.80	1.20	± 12.0 %
1750	40.1	1.37	5.25	5.25	5.25	0.80	1.26	± 12.0 %
1900	40.0	1.40	5.04	5.04	5.04	0.80	1.20	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

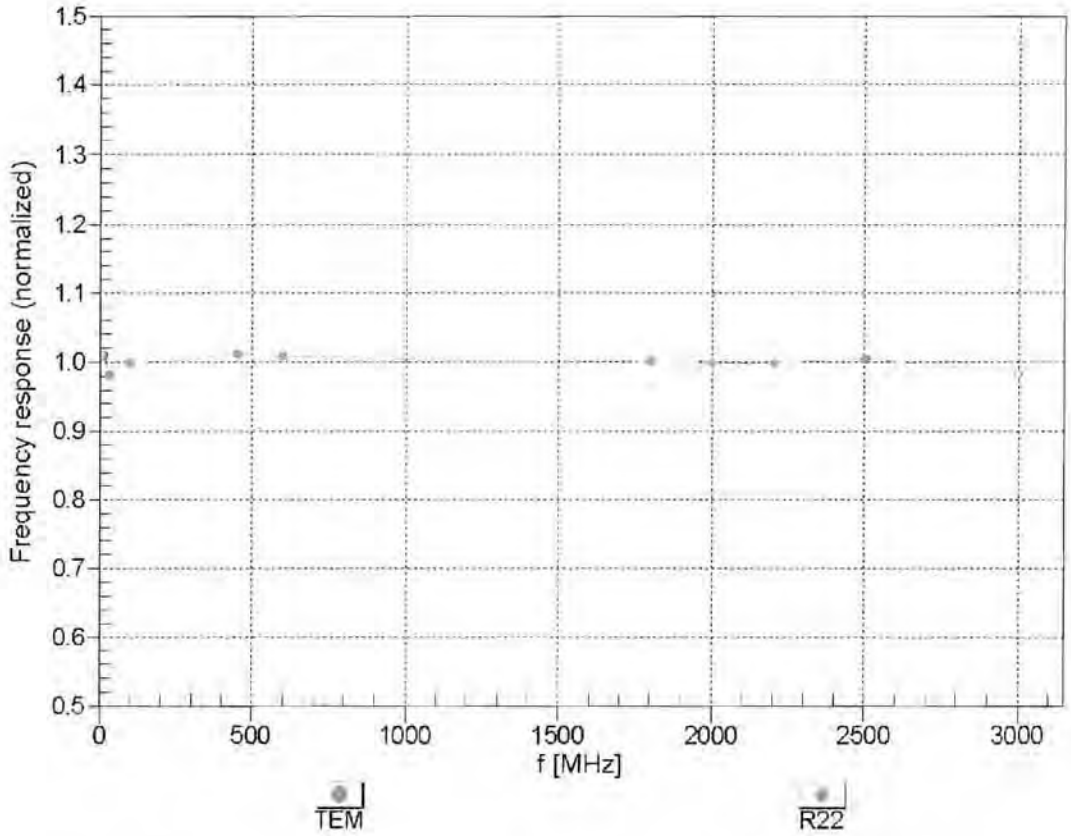
DASY/EASY - Parameters of Probe: ES3DV3- SN:3246

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.01	7.01	7.01	0.08	1.00	± 13.4 %
835	55.2	0.97	6.16	6.16	6.16	0.80	1.37	± 12.0 %
900	55.0	1.05	6.06	6.06	6.06	0.80	1.00	± 12.0 %
1750	53.4	1.49	4.82	4.82	4.82	0.80	1.31	± 12.0 %
1900	53.3	1.52	4.61	4.61	4.61	0.80	1.29	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

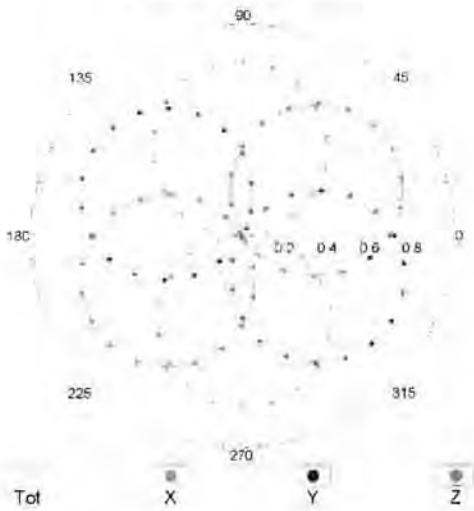
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



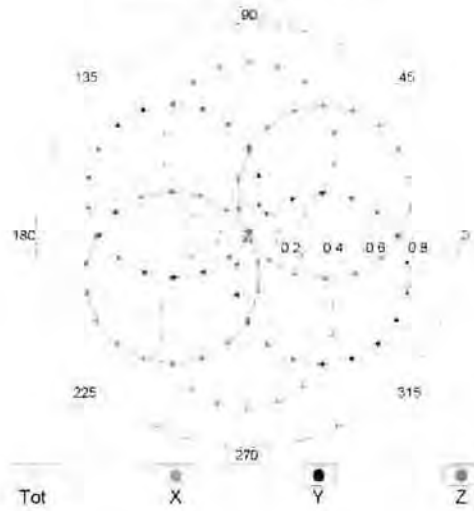
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

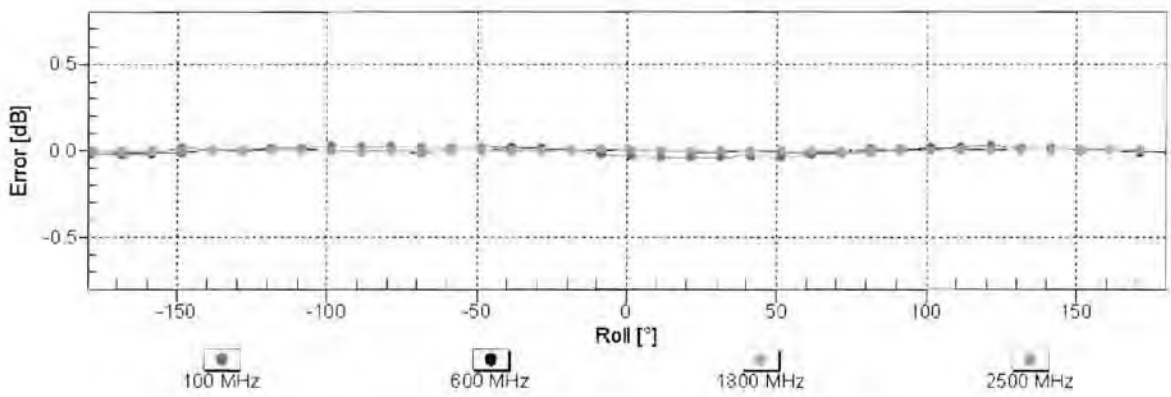
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



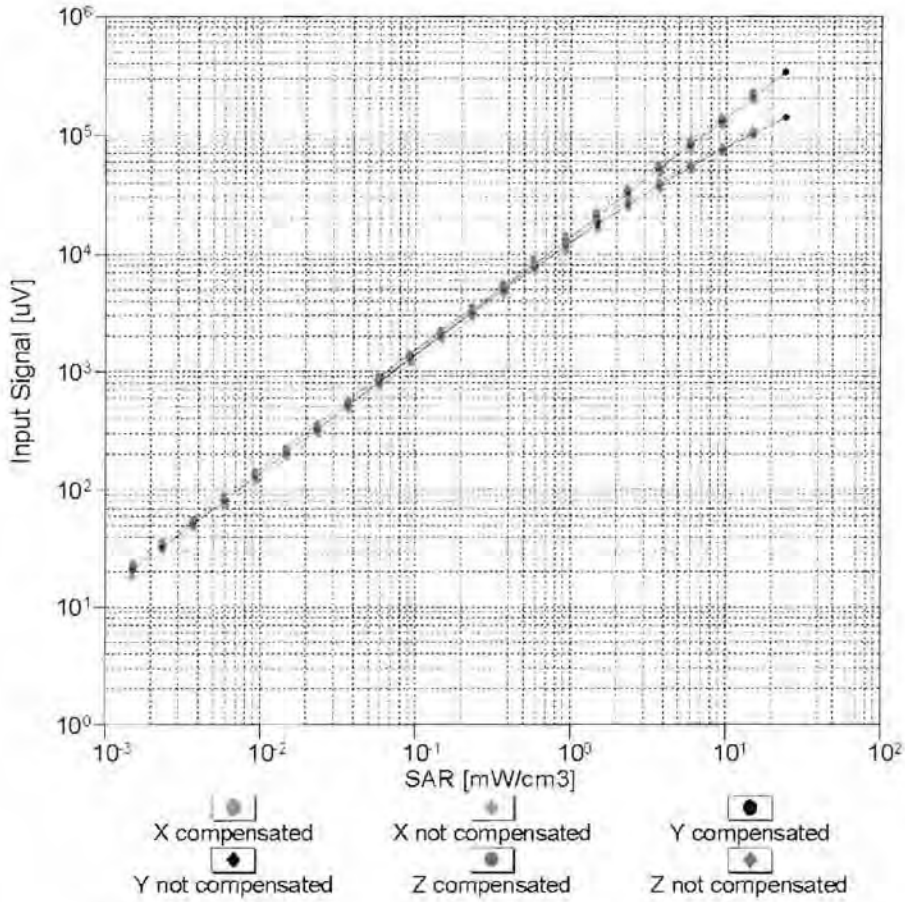
f=1800 MHz,R22

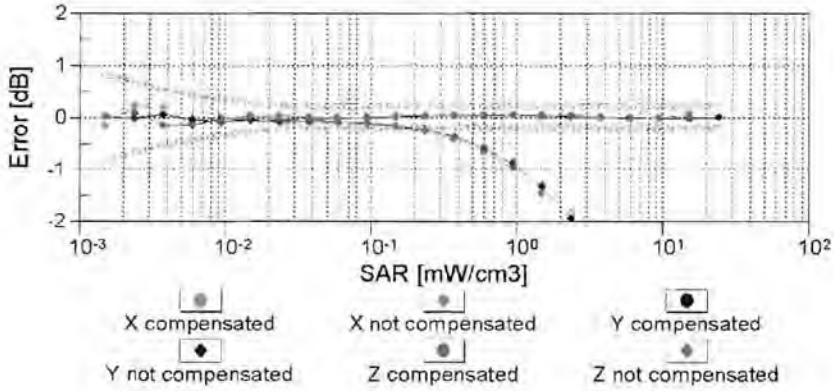




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)

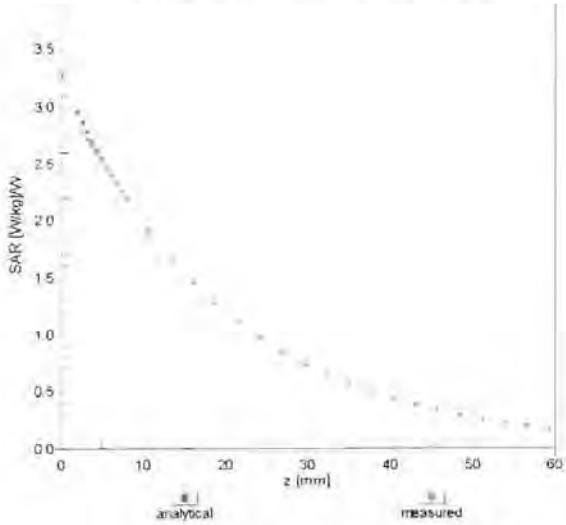




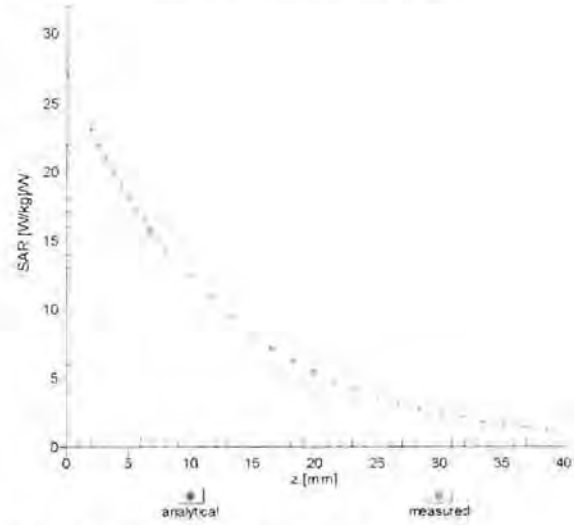
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (M_convF)

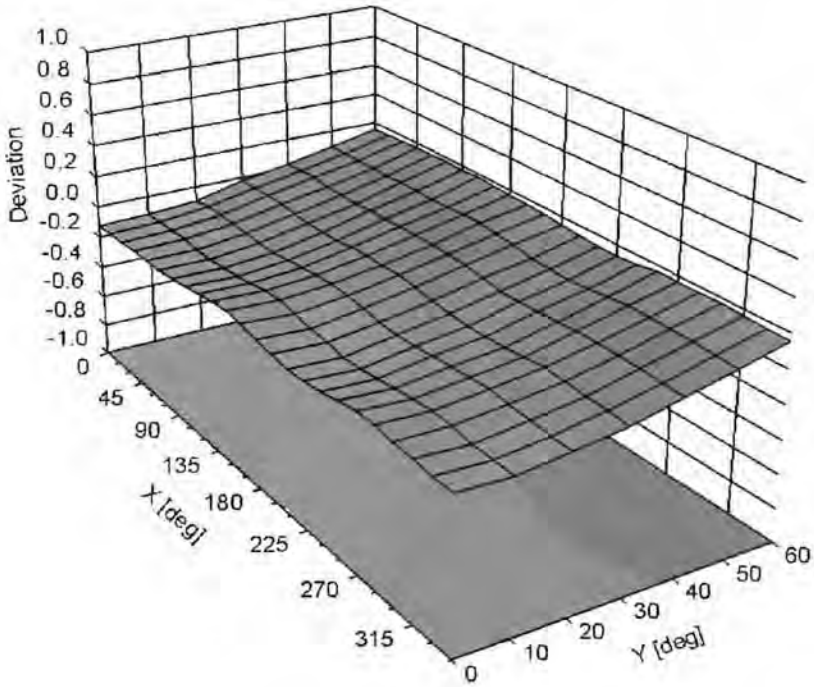


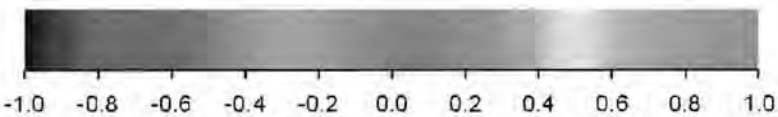
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

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

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 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

ADO

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
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_Dec11

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d131

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: December 06, 2011

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: December 7, 2011

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	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	39.5 ± 6 %	1.44 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**40.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.36 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.2 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	53.5 ± 6 %	1.54 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.5 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.38 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.8 Ω + 6.0 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.1 Ω + 6.3 jΩ
Return Loss	- 23.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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

Date: 06.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

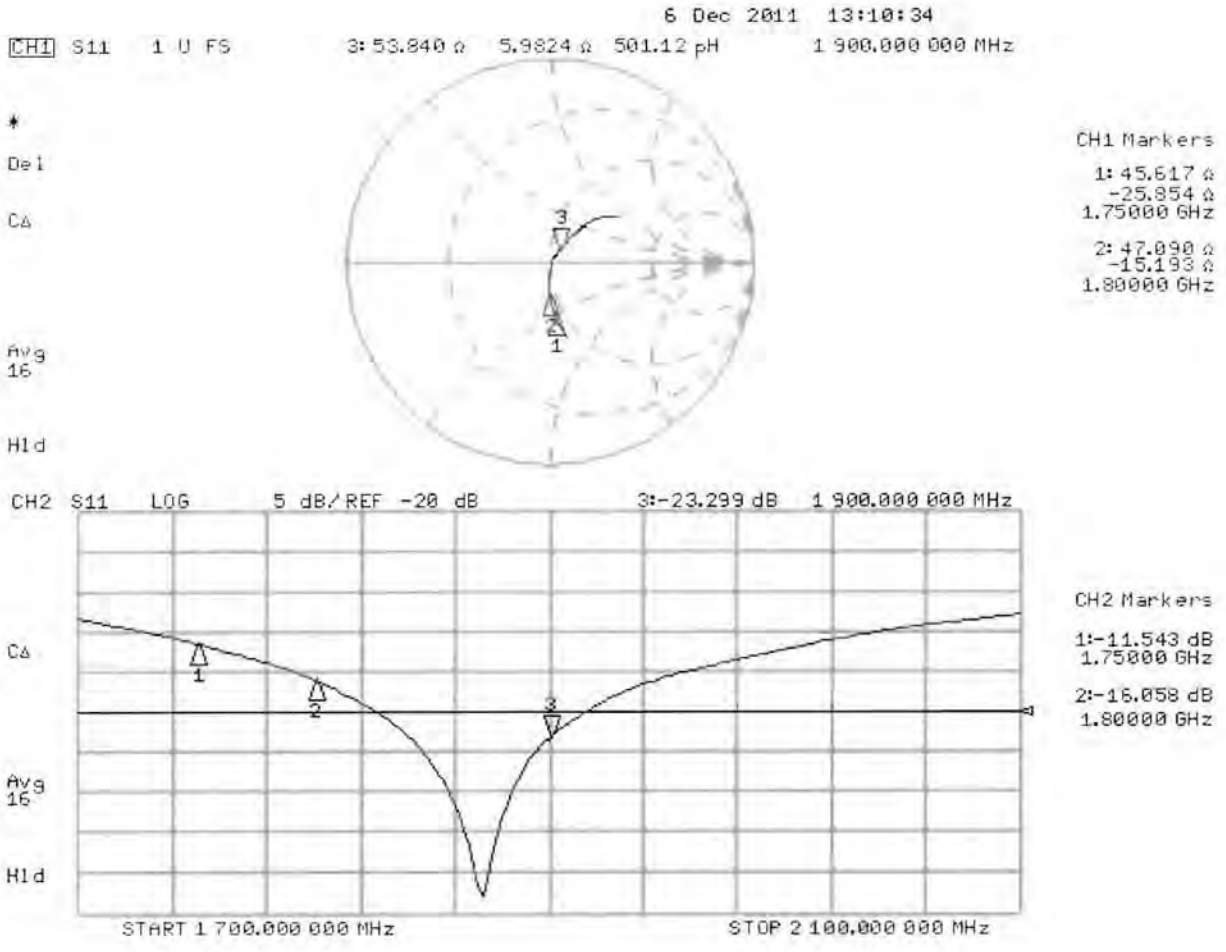
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.238 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.9380
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.36 mW/g
Maximum value of SAR (measured) = 12.840 mW/g

0 dB = 12.840mW/g = 22.17 dB mW/g

Impedance Measurement Plot for Head TSL



Date: 05.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

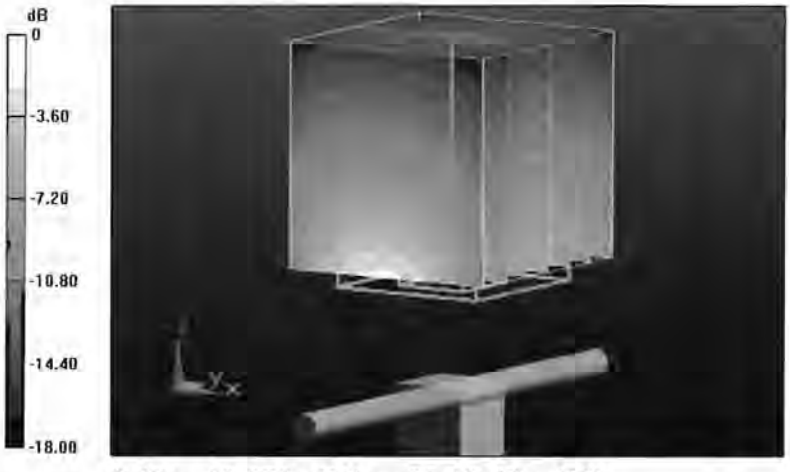
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.54 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

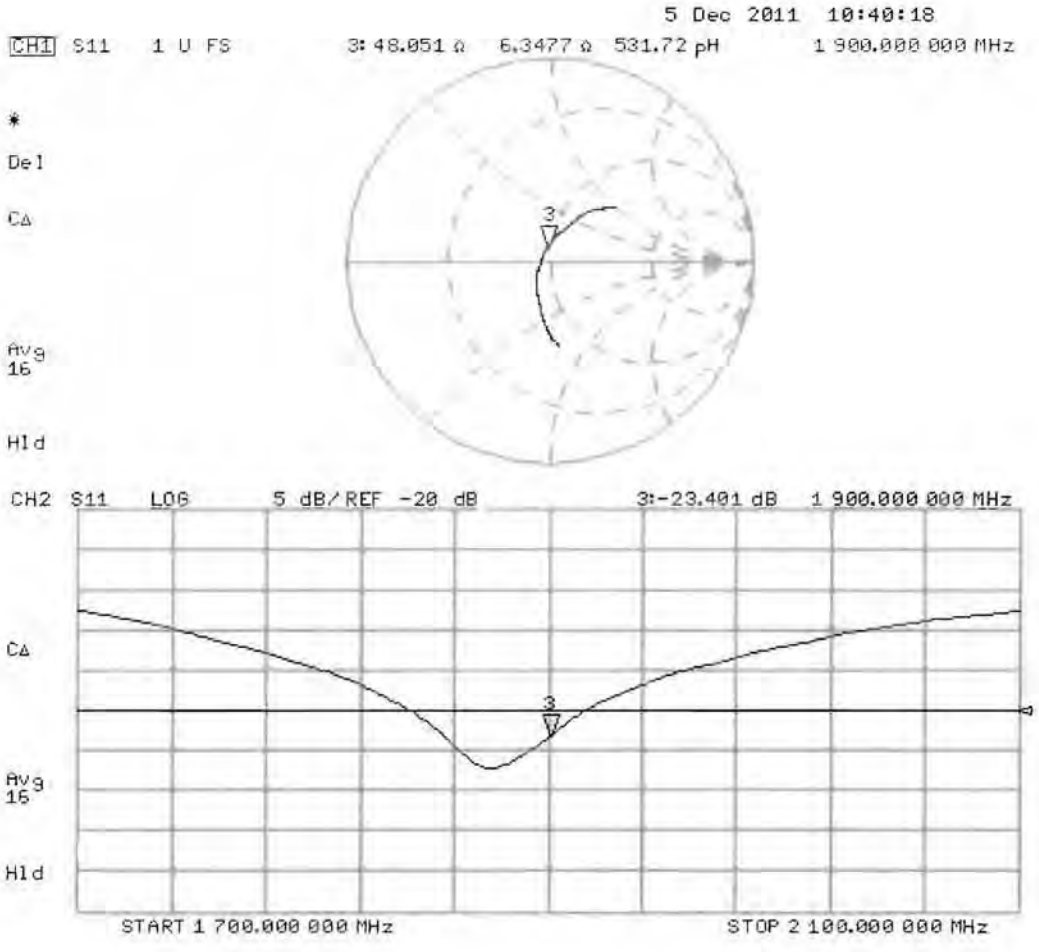
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.899 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 17.7320
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.38 mW/g
Maximum value of SAR (measured) = 12.867 mW/g



0 dB = 12.870mW/g = 22.19 dB mW/g

Impedance Measurement Plot for Body TSL



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
S Swiss Calibration Service

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Accreditation No.: **SCS 108**

Client **Northwest EMC**

Certificate No: **D835V2-4d108_Dec11**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d108
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	December 02, 2011

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: December 5, 2011

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	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	41.5 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.28 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.08 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	53.3 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.42 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.25 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.0 Ω - 1.8 jΩ
Return Loss	- 29.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω - 4.5 jΩ
Return Loss	- 26.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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

Date: 02.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

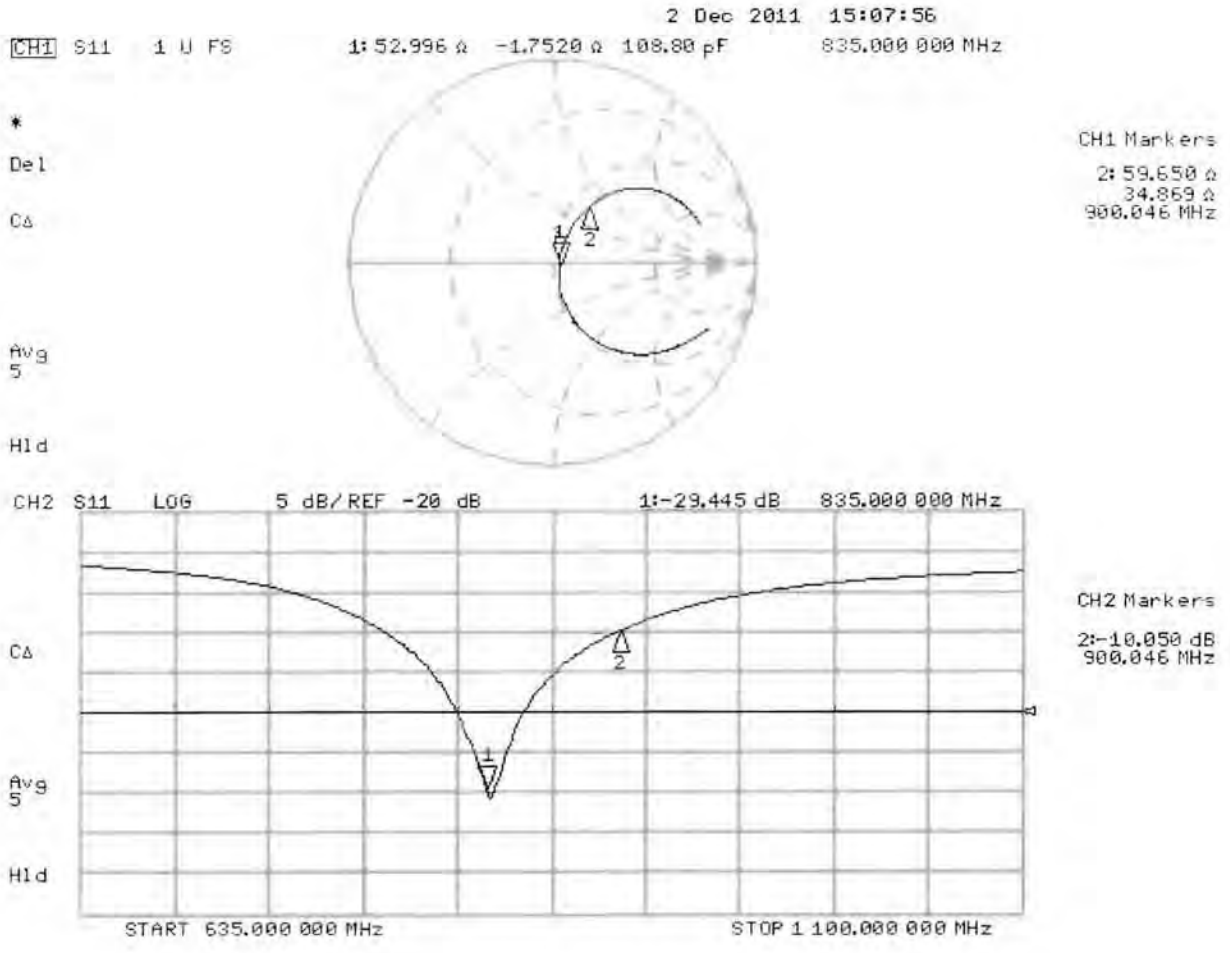
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (8x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.226 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.4020
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.709 mW/g

0 dB = 2.710mW/g = 8.66 dB mW/g

Impedance Measurement Plot for Head TSL



Date: 02.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

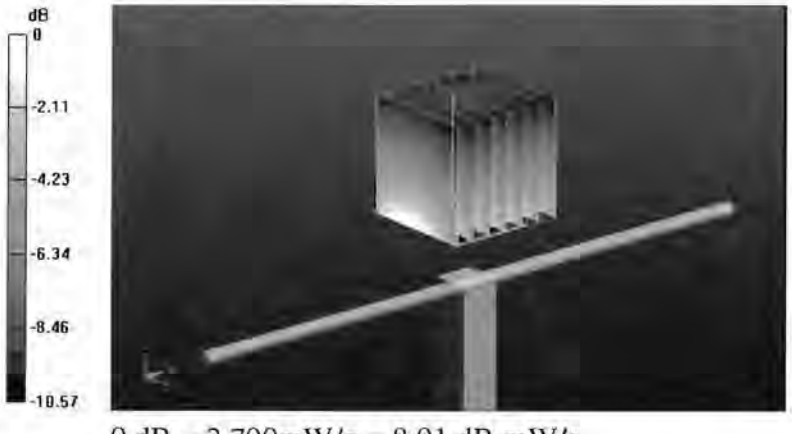
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.99 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

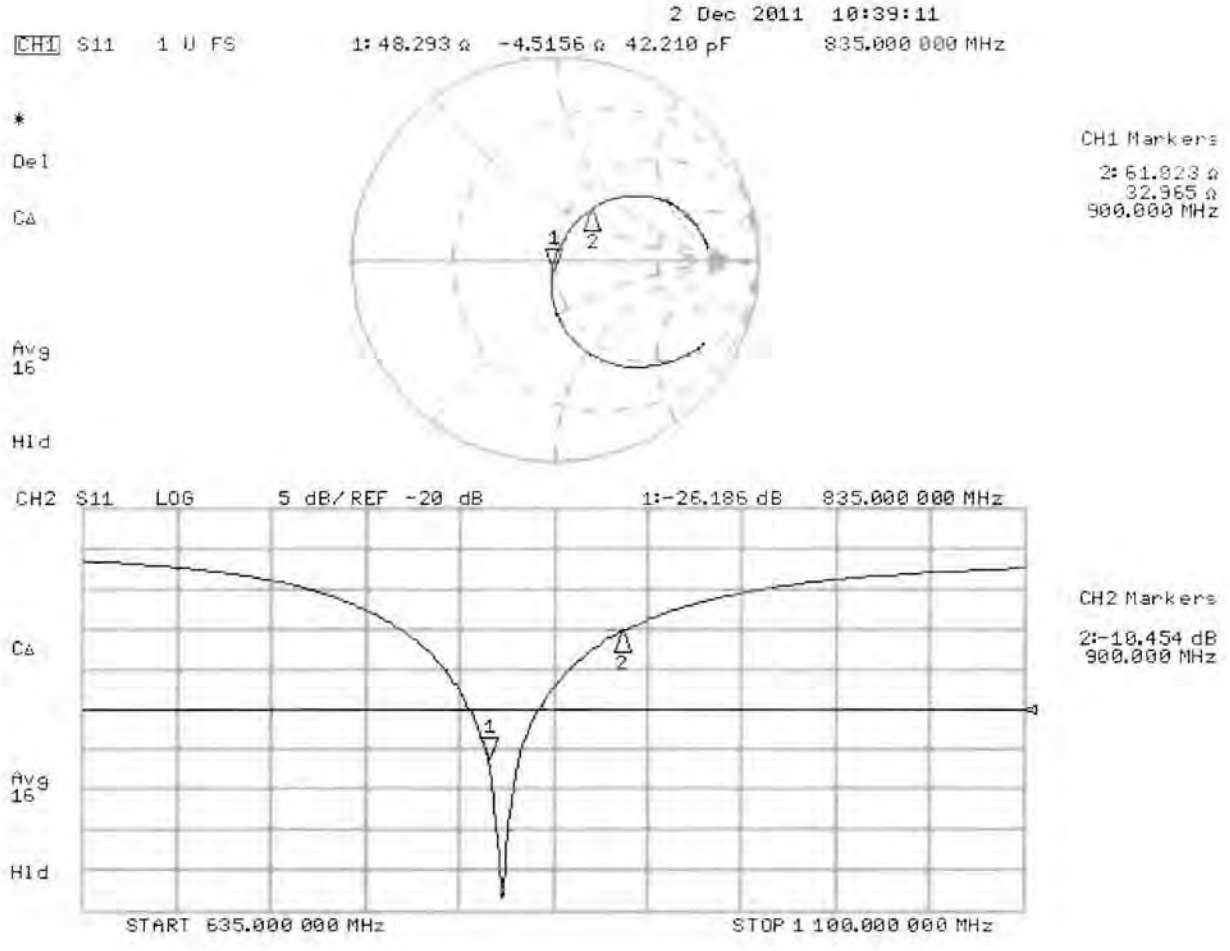
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.468 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.4850
SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.790 mW/g



0 dB = 2.790mW/g = 8.91 dB mW/g

Impedance Measurement Plot for Body TSL



ADN

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
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: D1750V2-1040_Dec11

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1040

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: December 06, 2011

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: December 7, 2011

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	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.35 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.15 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**36.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.85 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**19.5 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	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.7 ± 6 %	1.45 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.22 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**37.6 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.99 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.5 Ω + 0.8 jΩ
Return Loss	- 35.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.6 Ω + 0.9 jΩ
Return Loss	- 26.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.219 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	December 02, 2009

Date: 06.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1040

Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.35 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

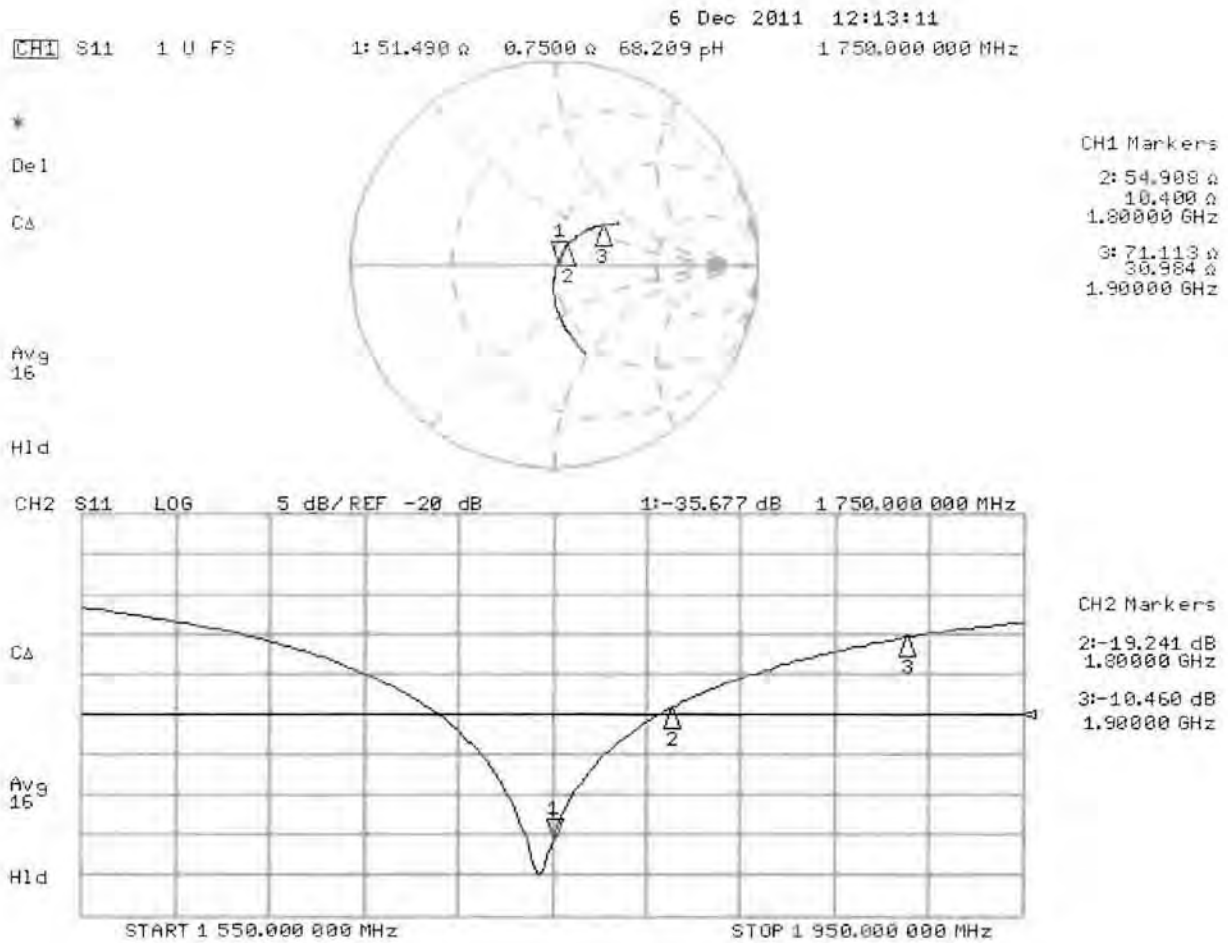
- Probe: ES3DV3 - SN3205; ConvF(5.22, 5.22, 5.22); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.874 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 16.5290
SAR(1 g) = 9.15 mW/g; SAR(10 g) = 4.85 mW/g
Maximum value of SAR (measured) = 11.375 mW/g

0 dB = 11.380mW/g = 21.12 dB mW/g

Impedance Measurement Plot for Head TSL



Date: 05.12.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1040

Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.45 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

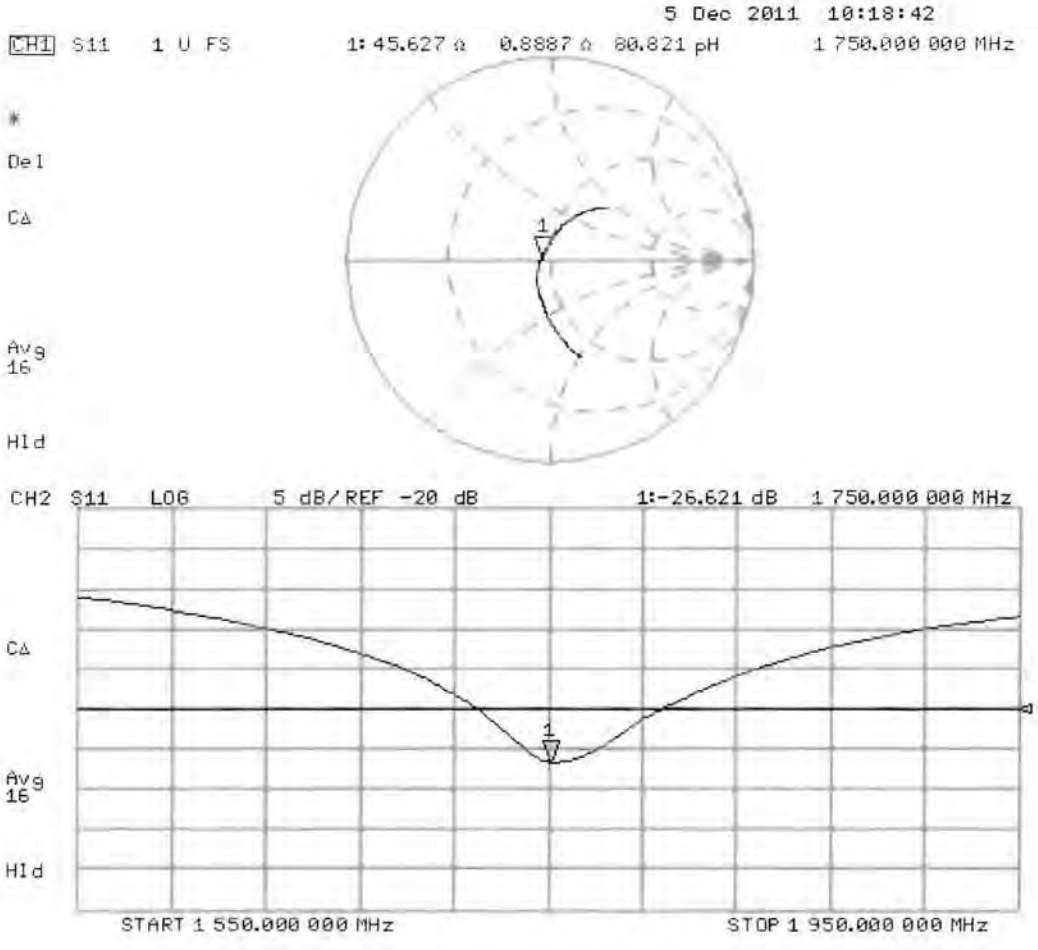
- Probe: ES3DV3 - SN3205; ConvF(4.85, 4.85, 4.85); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.464 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 15.7190
SAR(1 g) = 9.22 mW/g; SAR(10 g) = 4.99 mW/g
Maximum value of SAR (measured) = 11.596 mW/g

0 dB = 11.600mW/g = 21.29 dB mW/g

Impedance Measurement Plot for Body TSL



EUT Photos

Keypad Side

Right Side

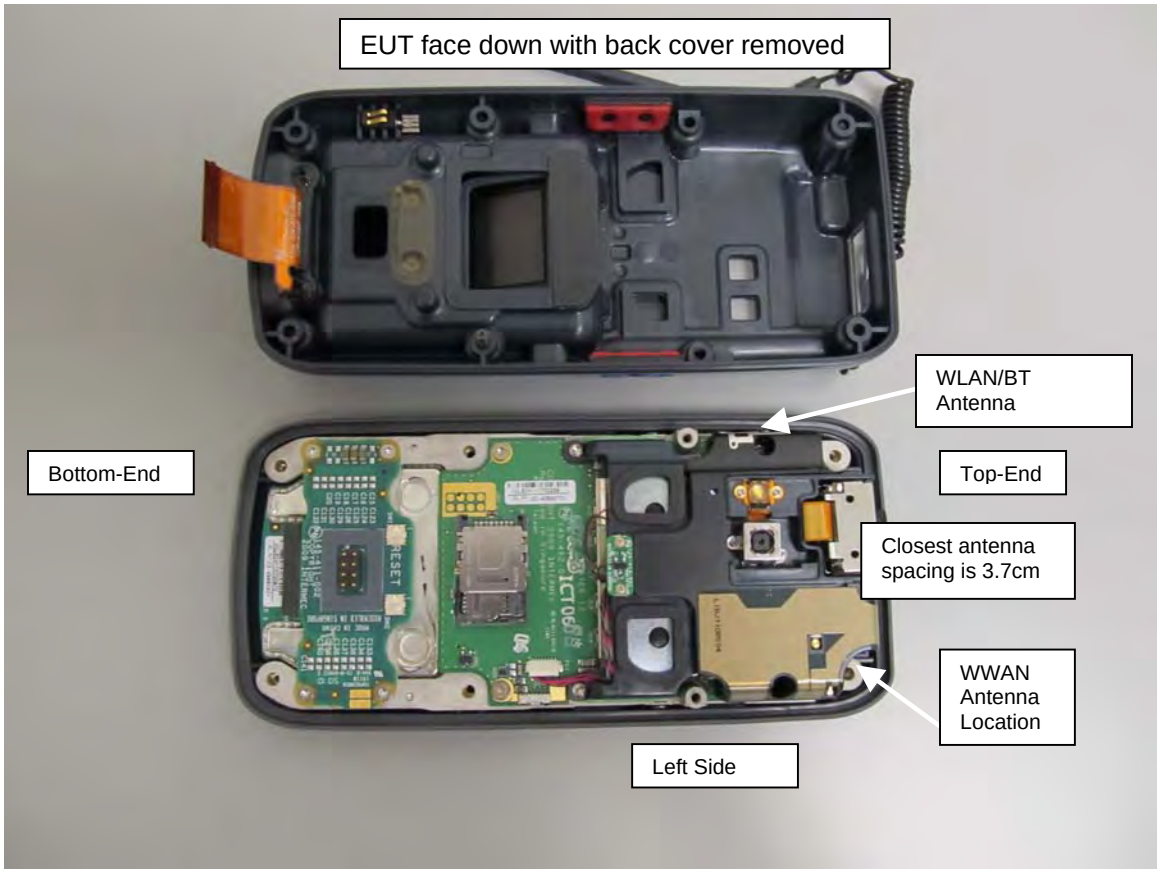
Left Side

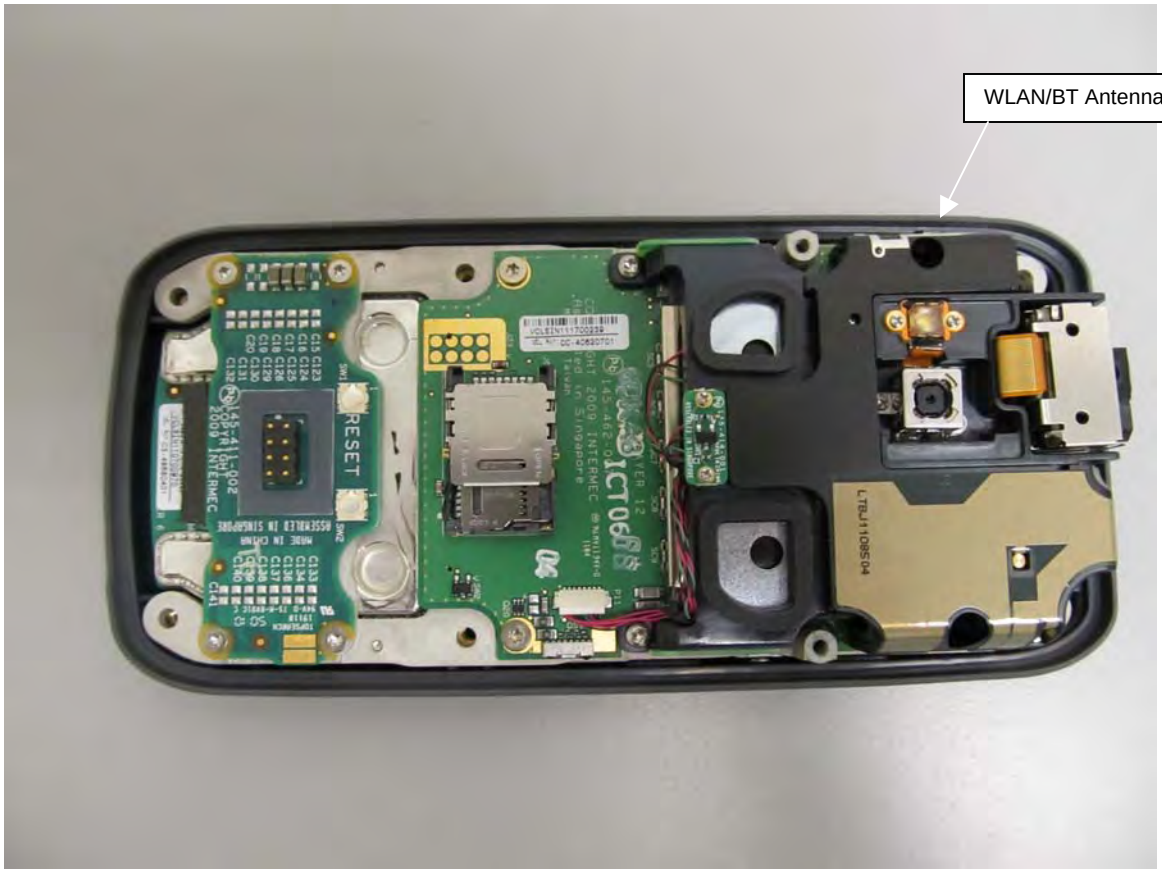
Top-end

Bottom-end

Back Side

Back side – battery cover removed


EUT face down with back cover removed
WLAN/BT Antenna
Bottom-End
Top-End
Closest antenna spacing is 3.7cm
WWAN Antenna Location
Left Side


WLAN/BT Antenna
RESET

Wrist Holster – Right Side

Wrist Holster – Left Side

Constructed with a 12mm spacer on the left side to provide greater spacing between the WWAN antenna and the body.

Wrist Holster

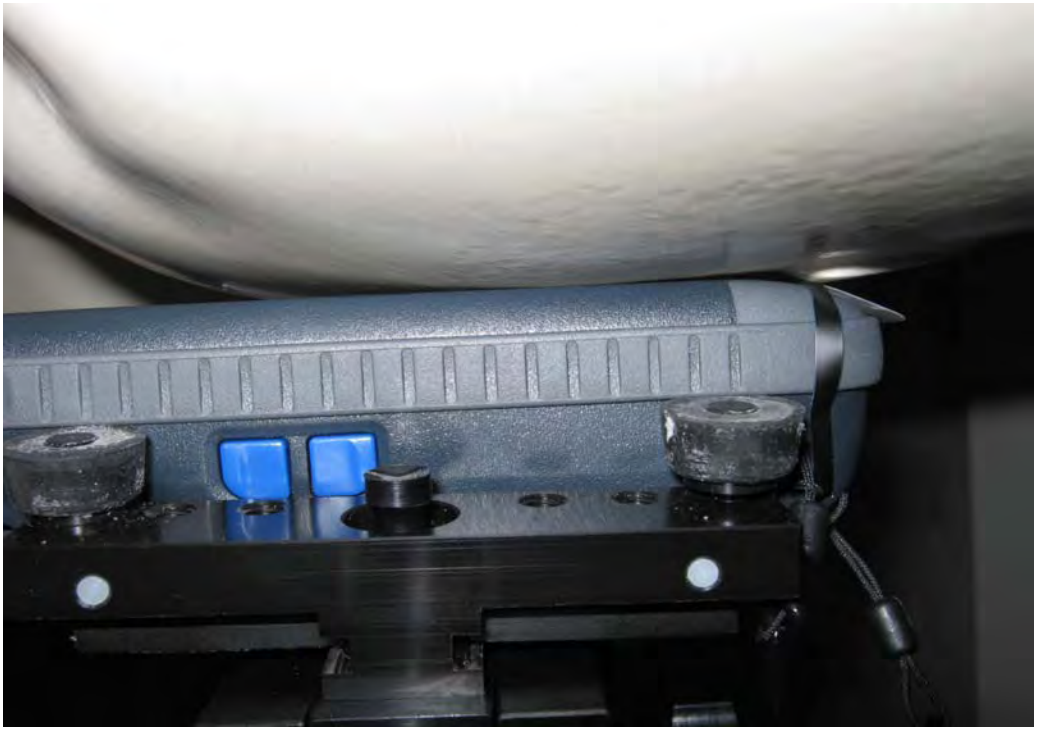
Wrist Holster

Wrist Holster

Wrist Holster

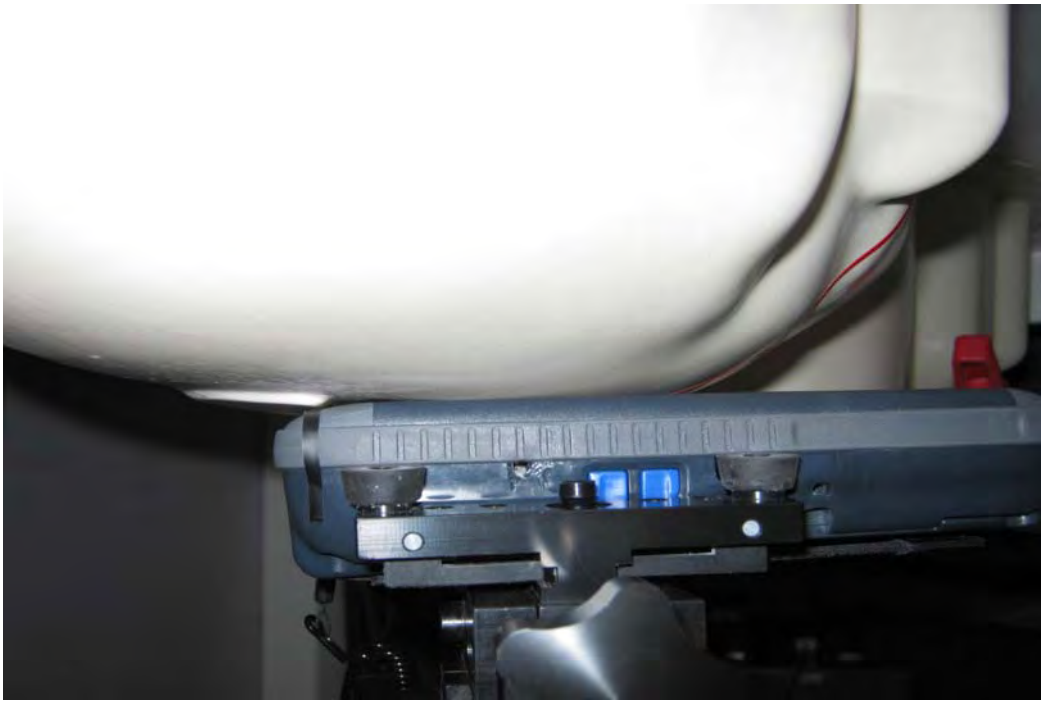
Battery 1000AB01

Left Cheek



Left Tilt

Right Cheek



Right Tilt

Back - Wrist Holster

Back - Wrist Holster

Left Side of Wrist Holster with 12mm Spacer

Left Side of Wrist Holster with 12mm Spacer

Right Side of Wrist Holster

Right Side of Wrist Holster