NORTHWEST EMC

Intel Corporation

SKL21-SDS

SAR Evaluation Report # INTE5622

Evaluated to the following SAR specification:

FCC 2.1093:2015

WWAN Radio

NVLAP Lab Code: 200630-0

CERTIFICATE OF TEST

NORTHWEST EMC
2015-07-22

Last Date of Test: July 22, 2015
Intel Corporation
Model: SKL21-SDS

WWAN Radio

Applicable Standard

Test Description	Specification	Test Method	Pass/Fail
SAR Evaluation	FCC 2.1093:2015	IEEE Std 1528:2013 FCC KDB 447498 D01 v05r02 FCC KDB 941225 D01 v03, D05 v02r03 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03, D02 v01r01	Pass

Highest SAR Values:

Frequency Bands	Body (W/kg) 1g	Limit (W/kg) 1g	Exposure Environment
LTE Band 2	0.28	1.6	General Population
LTE Band 4	0.26		
LTE Band 5	0.34		
LTE Band 7	0.38		
LTE Band 13	0.24		
LTE Band 17	0.41		
CLR 850	0.17		
PCS 1900	0.18		
AWS 1700	0.16		

Deviations From Test Standards

None

Approved By:

Donald Facteau, IT Manager

REVISION HISTORY

NORTHWEST EMC
REV 2014.10.14

Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

NORTHWEST EMC
REV 2015.2.19

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIP / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

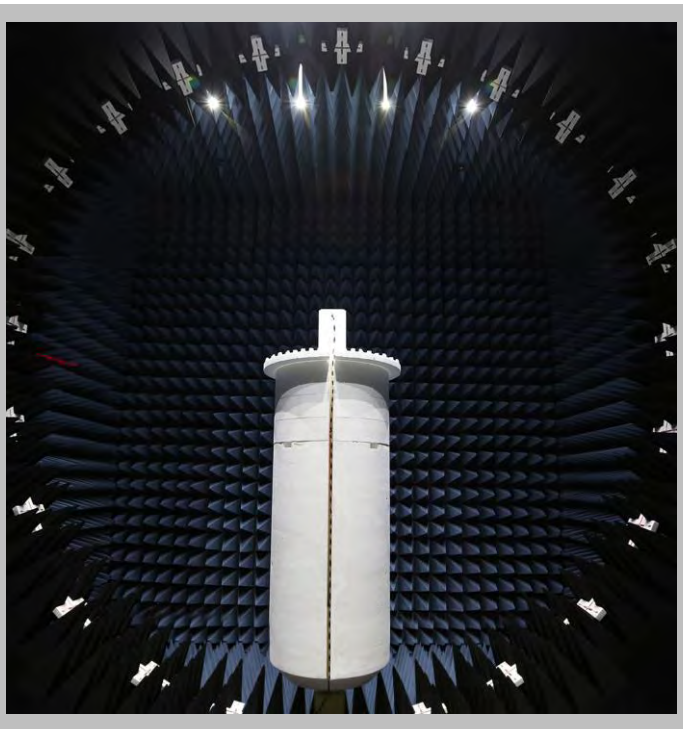
SCOPE

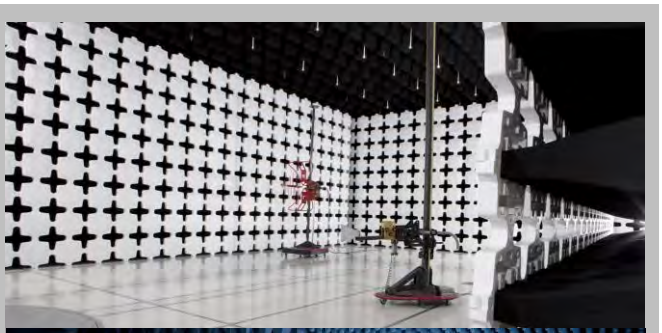
For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/
http://gsi.nist.gov/global/docs/cabs/designations.html

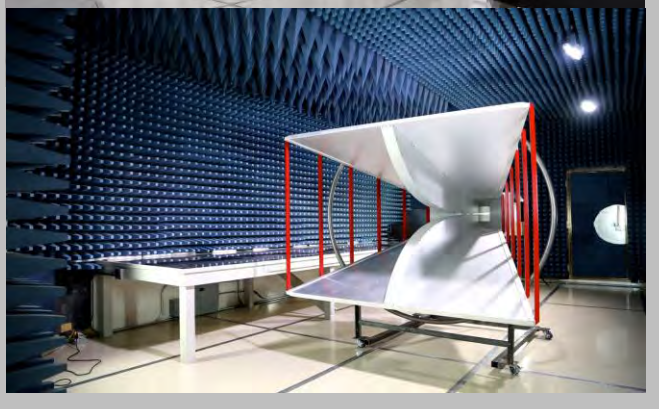
FACILITIES

REV 2015.2.19

California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 9801 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-*2*	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157







PRODUCT DESCRIPTION

NORTHWEST EMC 2014-12-10

Client and Equipment Under Test (EUT) Information

Company Name:	Intel Corporation
Address:	5200 NE Elam Young Pkwy
City, State, Zip:	Hillsboro, OR 97124
Test Requested By:	Mike Lowe
Model:	SKL21-SDS
First Date of Test:	July 20, 2015
Last Date of Test:	July 22, 2015
Receipt Date of Samples:	July 17, 2015
Equipment Design Stage:	Production
Equipment Condition:	No Damage

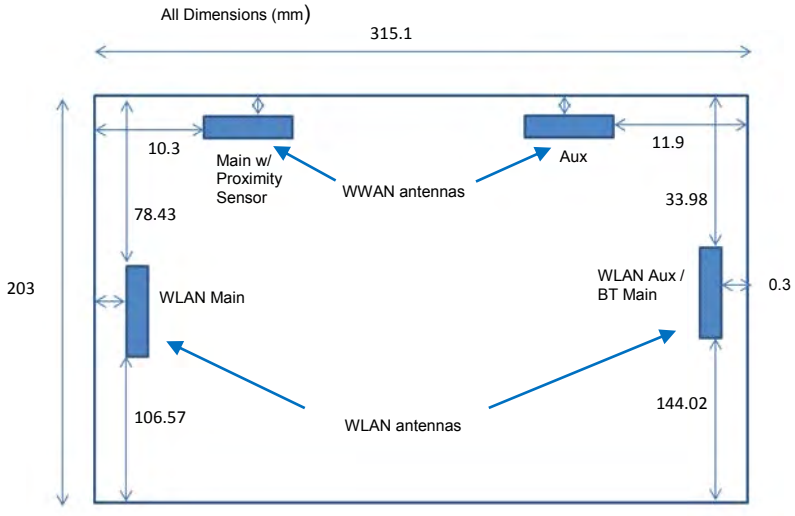
Information Provided by the Party Requesting the Test

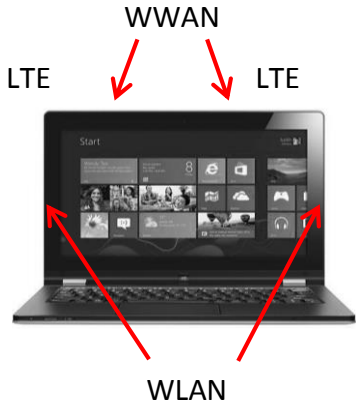
Functional Description of the EUT (Equipment Under Test):

The EUT is the Model SKL21-SDS 2-in-1 computer containing a NFC radio. Previously certified WWAN (FCC ID: RYQ-NF2) and WLAN / Bluetooth (FCC ID: PD97265NG) modular radios are installed. The WWAN radio is the subject of this SAR evaluation.

The WWAN radio is 3G / 4G device operating in the CLR 850, PCS 1900, and AWS 1700 bands; and LTE 2, 4, 5, 7, 13, and 17 bands.

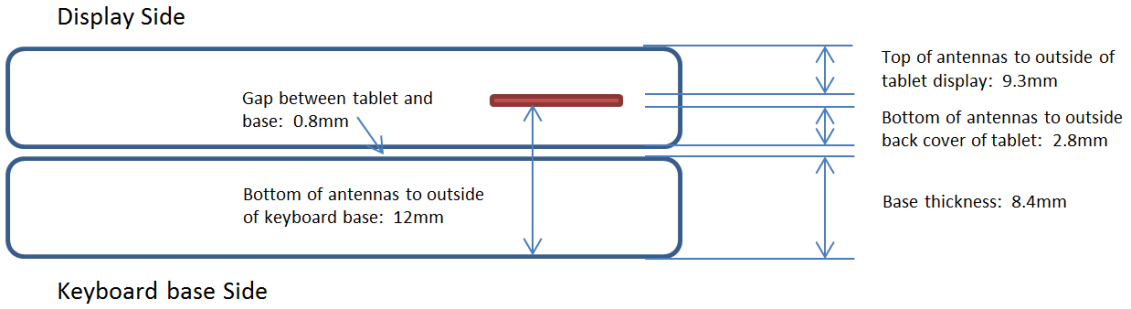
The WWAN antennas are monopole antennas that are integral to the computer. The main antenna can transmit and receive and has a peak gain of -1.9 dBi below 1 GHz, and 3.9 dBi above 1 GHz. The auxiliary antenna can only receive. The main antenna is co-located with a proximity sensor. Once the sensor is triggered, the output power is lowered for all WWAN bands. SAR testing was performed at the trigger distance minus 1mm for the lower (triggered) output power level.

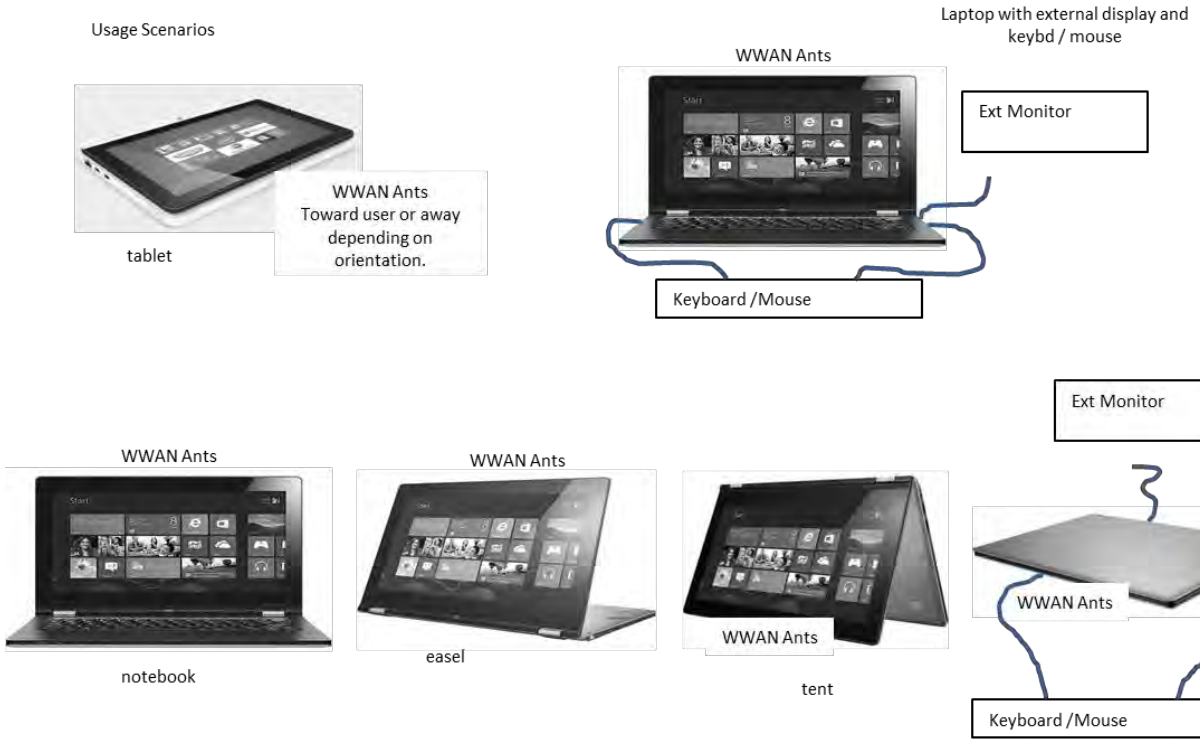




Tablet Mode

Antenna Placement for Z Stack-up





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Testing Requirements

Test Locations

After a review of the usage scenarios displayed above, any of the edges or the back side could be placed in contact with the user's torso during normal operation. This is true with the keyboard folded under the display ("thick tablet mode") or removed from the display ("tablet" or "tent mode").

The diagonal screen size is greater than 20cm (7.9) inches therefore KDB 941225 is not applicable. There is no usage model for operation near the head. There are no authorized accessories to wear the device on the body. When used in "tablet mode", only the tablet configurations anticipated by KDB 616217 are applicable. The front surface of the tablet is excluded from SAR testing per Section 4.3 of KDB 616217 D04 v01r01.

The WWAN Main antenna is closest to the left side of the display. The back side of the display can be used next to the torso. Since they are all close to the WWAN Main antenna, the top and left edges as well as the back side adjacent to the antenna were tested. Each of these positions were tested with the keyboard removed from the display ("tablet" or "tent mode") because this configuration provides the closest distance between the WWAN antenna and the user. There is no metal in the keyboard in the area near the WWAN main antenna when the keyboard is folded under the display, so there is no reason to test the "thick tablet mode". Please see the discussion above regarding usage scenarios.

The bottom and right edges are more than 20cm from the WWAN transmit antenna so they are excluded from SAR testing.

Simultaneous Transmission SAR Test Exclusion

All the radios can transmit simultaneously. KDB 447498 D01 v05r02, Section 4.3.2 provides the guidance for determining SAR test exclusion thresholds for simultaneous transmission conditions:

> "When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. When the sum is greater than the SAR limit, the SAR to peak location separation ratio procedures described below may be applied to determine if simultaneous transmission SAR test exclusion applies."

First, the estimated standalone SAR must be calculated for those radios that were excluded per section 4.3.1. In this case, the Bluetooth radio was excluded from standalone SAR:

> "(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;
>
> where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR."

Using the formula above, the estimated stand-alone SAR for the Bluetooth radio was calculated:

Radio	Conducted Output Power[1] (mW)	Maximum Duty Cycle	Test Separation (mm)	Transmit Frequency (GHz)	Estimated Standalone SAR (W/kg)
Bluetooth BR/EDR	3	0.77	2.30	2.45	0.210
Bluetooth LE	2	1	2.30	2.45	0.181

Note 1: Output power values are found in the AT4 Wireless Reports # 41273RRF.001 and # 41273RRF.002

Next, all the measured and estimated SAR values for the simultaneously transmitting radios are summed.

Antenna Pair (Ant 1, Ant 2, Ant 3)	SAR from Ant 1 (W/kg)	SAR from Ant 2 (W/kg)	SAR from Ant 3 (W/kg)	Sum (W/kg)
WLAN DTS Ant Main[1], WWAN, BT Ant[2]	1.09	0.41	0.21	1.71
WLAN NII Ant Main[1], WWAN, BT Ant[2]	0.72	0.41	0.21	1.34
WLAN DTS Ant Aux[1], WWAN, BT Ant[2]	0.39	0.41	0.21	1.01
WLAN NII Ant Aux[1], WWAN, BT Ant[2]	0.93	0.41	0.21	1.55
BT Ant[2], WWAN	0.21	0.41	---	0.62
BT Ant[2], WLAN DTS Ant Main[1]	0.21	1.09	---	1.30
BT Ant[2], WLAN NII Ant Main[1]	0.21	0.72	---	0.93

Note 1: Reported SAR values for the WLAN radio are found in NWEMC Test Report # INTE5597
Note 2: Estimated Stand-alone SAR. See previous calculation

The sum of the 1-g SAR from the simultaneous transmitting WWAN, WLAN, and Bluetooth antennas is greater than the SAR limit. Therefore, the SAR to peak location separation ratio procedures must be followed.
KDB 447498 D01 v05r02, Section 4.3.2 states:

> " The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by (SAR1 + SAR2)1.5/Ri, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion….SAR1 and SAR2 are the highest reported or estimated SAR for each antenna in the pair, and Ri is the separation distance between the peak SAR locations for the antenna pair in mm. The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance according to the enlarged zoom scan and volume scan post-processing procedures in KDB 865664"

KDB 616217 D04 v01r01, Section 4.3 states:

> "SAR test exclusion must be determined separately for the back surface and each edge, according to the simultaneous transmission requirements for each exposure position, which may involve antennas transmitting simultaneously on adjacent or multiple edges. When antennas on adjacent edges are considered for SAR to peak location separation ratio test exclusion, the peak SAR locations reported by the SAR measurement system referencing different physical phantom and device locations should not be used. The peak location separation must be determined manually with respect to a common origin on the device; for example, with respect to the same physical edge location of the tablet and reference point on the phantom."

PRODUCT DESCRIPTION

The highest SAR for both the WLAN and WWAN radios was measured on the back positions in the “tablet” or “tent mode”. The back position was used as the common origin on the device for the following simultaneous SAR test exclusion calculations:

Antenna Pair (Ant 1, Ant 2)	SAR from Ant 1 (W/kg)	SAR from Ant 2 (W/kg)	Separation Distance (mm)	Exclusion Threshold	Spec
WLAN Ant Main[1], WWAN	1.09	0.41	63	0.029	<=0.04
WLAN Ant Aux[1], WWAN	0.93	0.41	216	0.007	<=0.04
BT Ant[2], WWAN	0.21	0.41	216	0.002	<=0.04
BT Ant[2], WLAN Ant Main[1]	0.21	1.09	290	0.005	<=0.04

Note 1: Reported SAR values for the WLAN radio are found in NWEMC Test Report # INTE5597
Note 2: Estimated Stand-alone SAR. See previous calculation

The WLAN and WWAN antennas are excluded from simultaneous SAR testing.

Testing Objective:

To demonstrate compliance with the SAR requirements of FCC 2.1093.

Scope

The stand-alone SAR evaluation and proximity sensor testing documented in this report is for the WWAN portion of the EUT.

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INTE5622- 1

Software/Firmware Running during test	
Description	**Version**
Windows 10 Pro Technical Review	Beta

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Tablet	Intel Corporation	SKL21-SDS	IASY515S0017

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Adapter (Monitor)	Samsung	A2514_DPN	CN07BN4400591BSK28F1LV008
Monitor	Samsung	S22C300H	Z6S5HCLF400052R
Optical Mouse	Microsoft	1113	None
AC/DC Adapter (Tablet/Base)	Delta Electronics	ADP-45GE AA	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.6m	No	AC/DC Adapter (Monitor)	AC Mains
DC Power	Unknown	1.5m	Yes	Monitor	AC/DC Adapter (Monitor)
HDMI to mDP	Unknown	2.9m	No	Tablet	Monitor
USB (Mouse)	No	1.8m	Yes	Mouse	Tablet/Base
AC Power	No	0.4m	No	AC/DC Adapter (Tablet/Base)	AC Mains
DC Power	No	1.8m	Yes	Tablet	AC/DC Adapter (Tablet/Base)

CONFIGURATIONS

NORTHWEST EMC 2014-12-10

Configuration INTE5622- 3

Software/Firmware Running during test	
Description	**Version**
Windows 10 Pro Technical Review	Beta

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Tablet	Intel Corporation	SKL21-SDS	IASY515S0046

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Adapter (Monitor)	Samsung	A2514_DPN	CN07BN4400591BSK28F1LV008
Monitor	Samsung	S22C300H	Z6S5HCLF400052R
Optical Mouse	Microsoft	1113	None
AC/DC Adapter (Tablet/Base)	Delta Electronics	ADP-45GE AA	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.6m	No	AC/DC Adapter (Monitor)	AC Mains
DC Power	Unknown	1.5m	Yes	Monitor	AC/DC Adapter (Monitor)
HDMI to mDP	Unknown	2.9m	No	Tablet	Monitor
USB (Mouse)	No	1.8m	Yes	Mouse	Tablet/Base
AC Power	No	0.4m	No	AC/DC Adapter (Tablet/Base)	AC Mains
DC Power	No	1.8m	Yes	Tablet	AC/DC Adapter (Tablet/Base)

MODIFICATIONS

NORTHWEST EMC
2014-12-10

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	7/20/2015	Proximity Testing	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	7/22/2015	SAR Evaluation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

TISSUE – EQUIVALENT LIQUID DESCRIPTION

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 the start of testing using the SPEAG DAKS:200 dielectric assessment kit. The dielectric measurements were made across the frequency range of the liquid. The attached data sheets show that the dielectric parameters of the liquid were within the required 5% tolerances.

Target values of dielectric parameters

Per KDB 865664 D01 v01r01, Appendix A.1:

"The head tissue dielectric parameters recommended by IEEE Std 1528-2003 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 1528 are derived from tissue dielectric parameters computed from the 4-Cole-Cole equations described above and extrapolated according to the head parameters specified in 1528."

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)

TISSUE – EQUIVALENT LIQUID DESCRIPTION

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 for below 3.0 GHz are based upon the following formulations as found in IEEE 1528: 2003, Annex 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

Above 2.5 GHz, the SPEAG formulations for the body are based upon IEC 62209-2:2010, Table E.1:

Frequency (MHz)	**4 000**	**5 000**	**5 200**	**5 800**	**6 000**
Recipe source number	4	4	1	1	4
Ingredients (% by weight)					
Deionised water	56	56	65,53	65,53	56
Tween					
Oxidised mineral oil	44	44			44
Diethylenglycol monohexylether			17,24	17,24	
Triton X-100			17,24	17,24	
Diacetin					
DGBE					
NaCl					
Additives and salt					

TISSUE – EQUIVALENT LIQUID

NORTHWEST EMC
WSTE.2013.09.09

Date:	07/22/2015	Temperature:	24.8°C
Tissue:	Body, MSL2600, 2600MHz	Liquid Temperature:	22.1°C
Tested By:	Luke Richardson	Relative Humidity:	41.1%
Job Site:	EV08	Bar. Pressure:	1012 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
2600	50.45	2.24	52.47	2.21	3.85	-1.36

Frequency (MHz)	Relative Permittivity	Conductivity
2000	52.67	1.424
2025	52.56	1.458
2050	52.47	1.492
2100	52.36	1.555
2125	52.29	1.589
2175	52.19	1.656
2200	52.13	1.686
2250	51.96	1.75
2275	51.87	1.776
2325	51.6	1.833
2350	51.48	1.864
2400	51.16	1.927
2425	51.06	1.964
2475	50.83	2.041
2500	50.75	2.083
2550	50.62	2.158
2575	50.5	2.198
2600	50.45	2.24
2625	50.37	2.28
2650	50.3	2.316
2700	49.96	2.358
2725	49.87	2.386
2775	49.6	2.454
2800	49.51	2.486
2850	49.25	2.554
2875	49.12	2.593
2925	48.9	2.671
2950	48.77	2.705
2975	48.65	2.744

TISSUE – EQUIVALENT LIQUID

Date:	07/23/2015	Temperature:	23.3°C
Tissue:	Body, MSL1900, 1900MHz	Liquid Temperature:	22.1°C
Tested By:	Luke Richardson	Relative Humidity:	42%
Job Site:	EV08	Bar. Pressure:	1019.5 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1900	54.12	1.519	53.3	1.52	-1.54	0.07

Frequency (MHz)	Relative Permittivity	Conductivity
1700	54.74	1.31
1700	54.74	1.31
1700	54.74	1.31
1700	54.74	1.31
1725	54.68	1.342
1725	54.68	1.342
1725	54.68	1.342
1750	54.6	1.369
1750	54.6	1.369
1750	54.6	1.369
1750	54.6	1.369
1775	54.55	1.396
1775	54.55	1.396
1775	54.55	1.396
1800	54.47	1.42
1800	54.47	1.42
1800	54.47	1.42
1825	54.4	1.441
1825	54.4	1.441
1825	54.4	1.441
1825	54.4	1.441
1850	54.31	1.466
1850	54.31	1.466
1850	54.31	1.466
1875	54.21	1.492
1900	54.12	1.519

TISSUE – EQUIVALENT LIQUID

NORTHWEST EMC
WSTE.2013.09.09

Date:	07/24/2015	Temperature:	24.7°C
Tissue:	Body, MSL1750, 1800MHz	Liquid Temperature:	21.5°C
Tested By:	Luke Richardson	Relative Humidity:	37%
Job Site:	EV08	Bar. Pressure:	1017 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
1800	52.34	1.513	53.3	1.52	1.8	0.46

Frequency (MHz)	Relative Permittivity	Conductivity
1700	52.81	1.4
1700	52.81	1.4
1700	52.81	1.4
1700	52.81	1.4
1700	52.81	1.4
1700	52.81	1.4
1700	52.81	1.4
1725	52.69	1.428
1725	52.69	1.428
1725	52.69	1.428
1725	52.69	1.428
1725	52.69	1.428
1725	52.69	1.428
1725	52.69	1.428
1750	52.58	1.454
1750	52.58	1.454
1750	52.58	1.454
1750	52.58	1.454
1750	52.58	1.454
1750	52.58	1.454
1750	52.58	1.454
1775	52.46	1.482
1800	52.34	1.513

TISSUE – EQUIVALENT LIQUID

NORTHWEST EMC
WSTE.2013.09.09

Date:	07/24/2015	Temperature:	23.8°C
Tissue:	Body, MSL750, 750MHz	Liquid Temperature:	22.1°C
Tested By:	Carl Engholm	Relative Humidity:	50%
Job Site:	EV08	Bar. Pressure:	1017 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
750	53.49	1.008	55.531	0.963	3.68	-4.67

Frequency (MHz)	Relative Permittivity	Conductivity
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
700	54.17	0.959
725	53.83	0.984
750	53.49	1.008

TISSUE – EQUIVALENT LIQUID

NORTHWEST EMC
WSTE.2013.09.09

Date:	07/27/2015	Temperature:	24°C
Tissue:	Body, MSL750, 750MHz	Liquid Temperature:	21.6°C
Tested By:	Luke Richardson	Relative Humidity:	44%
Job Site:	EV08	Bar. Pressure:	1023.8 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
750	54.8	0.948	55.531	0.963	1.32	1.56

Frequency (MHz)	Relative Permittivity	Conductivity
700	55.37	0.9
700	55.37	0.9
700	55.37	0.9
700	55.37	0.9
725	55.08	0.925
725	55.08	0.925
725	55.08	0.925
750	54.8	0.948
775	54.52	0.972
775	54.52	0.972
775	54.52	0.972
800	54.32	0.997
800	54.32	0.997
800	54.32	0.997
825	53.96	1.024
825	53.96	1.024
825	53.96	1.024
825	53.96	1.024
850	53.7	1.049
850	53.7	1.049
850	53.7	1.049
875	53.43	1.075

TISSUE – EQUIVALENT LIQUID

NORTHWEST EMC
WSTE.2013.09.09

Date:	07/27/2015	Temperature:	24.1°C
Tissue:	Body, MSL900, 900MHz	Liquid Temperature:	21.9°C
Tested By:	Luke Richardson	Relative Humidity:	41%
Job Site:	EV08	Bar. Pressure:	1022 mb

TEST SPECIFICATION

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
900	56.54	1.055	55.0	1.05	-2.8	-0.48

Frequency (MHz)	Relative Permittivity	Conductivity
800	57.36	0.955
800	57.36	0.955
800	57.36	0.955
800	57.36	0.955
800	57.36	0.955
800	57.36	0.955
800	57.36	0.955
825	57.21	0.98
825	57.21	0.98
825	57.21	0.98
825	57.21	0.98
825	57.21	0.98
825	57.21	0.98
825	57.21	0.98
850	56.97	1.004
850	56.97	1.004
850	56.97	1.004
850	56.97	1.004
850	56.97	1.004
850	56.97	1.004
850	56.97	1.004
875	56.76	1.029
900	56.54	1.055

SAR SYSTEM VERIFICATION DESCRIPTION

NORTHWEST EMC
WSSV.2013.09.09

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.”

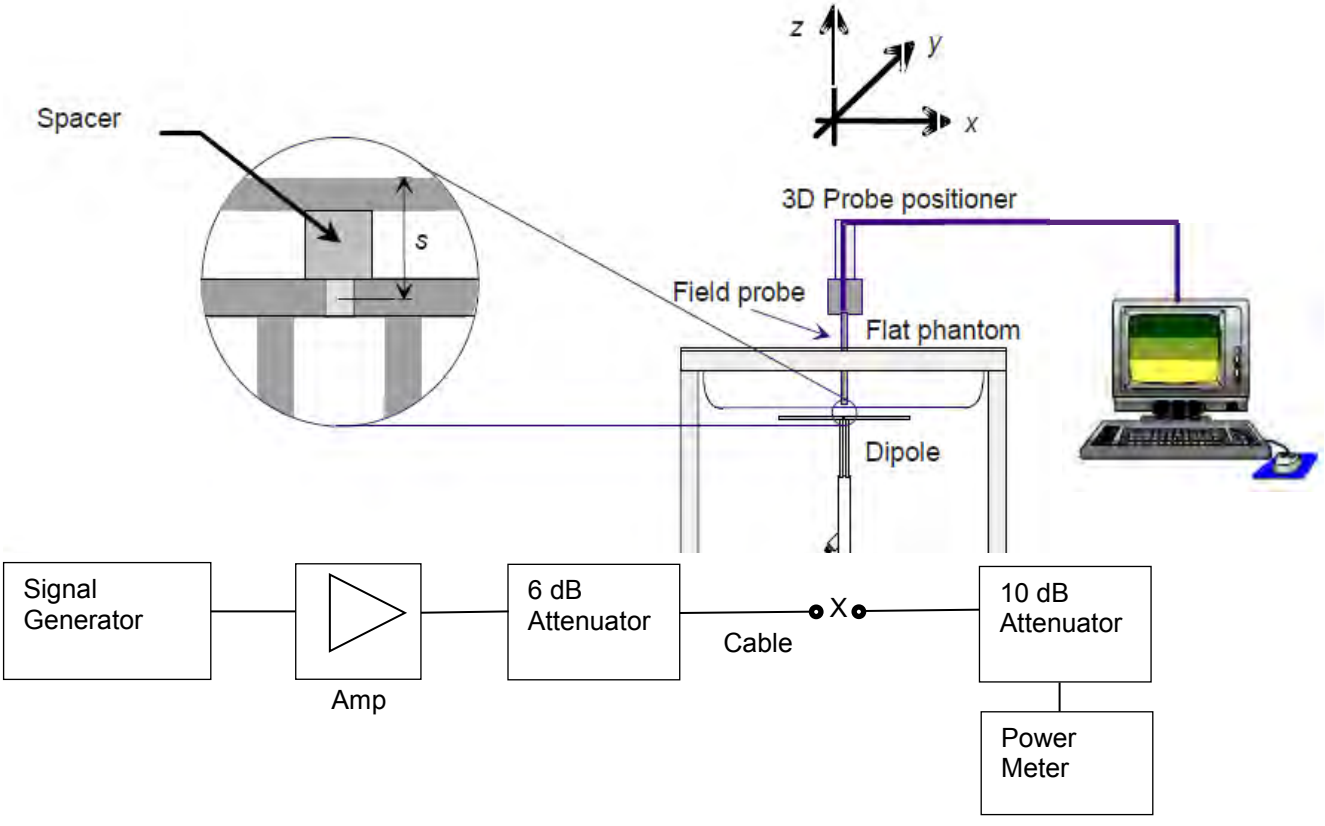
TEST DESCRIPTION

Within 24 hours of a measurement, then every 72 hours thereafter, 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 (X). 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.



SAR SYSTEM VERIFICATION

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 IEEE Std 1528:2013

RESULTS

Date	Liquid part number and frequency	Conducted Power into the Dipole (dBm)	Correction Factor	Measured		Normalized to 1W		Target (Normalized to 1W) Get from Dipole Calibration Certificate		% Difference	
				1g	10g	1g	10g	1g	10g	1g	10g
7/22/2015	MSL 2600(2600 MHz)	19.90	10.23	5.91	2.64	60.46	27.01	56.00	24.90	7.96	8.47
7/23/2015	MSL 1900 (1900 MHz)	20.02	9.95	4.18	2.21	41.59	21.99	40.40	21.40	2.95	2.76
7/24/2015	MSL 1750(1750 MHz)	19.70	10.72	3.30	1.77	35.38	18.97	37.80	20.40	-6.40	-7.01
7/24/2015	MSL 750(750 MHz)	20.00	10.00	0.94	0.63	9.35	6.26	8.85	5.88	5.65	6.46
7/27/2015	MSL 750(750 MHz)	20.00	10.00	0.95	0.63	9.50	6.34	8.85	5.88	7.34	7.82
7/27/2015	MSL 900 (835 MHz)	20.00	10.00	1.00	0.67	10.00	6.72	9.56	6.31	4.60	6.50

SAR SYSTEM VERIFICATION

Tested By:	Luke Richardson	Room Temperature (°C):	24.1°C
Date:	7/22/2015	Liquid Temperature (°C):	22.4°C
Configuration:	Body	Humidity (%RH):	40.4%
		Bar. Pressure (mb):	1017.3 mb

MSL2600 System Check 7-22-15
DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:ADR
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2600 MHz; σ = 2.24 S/m; ε_r = 50.445; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

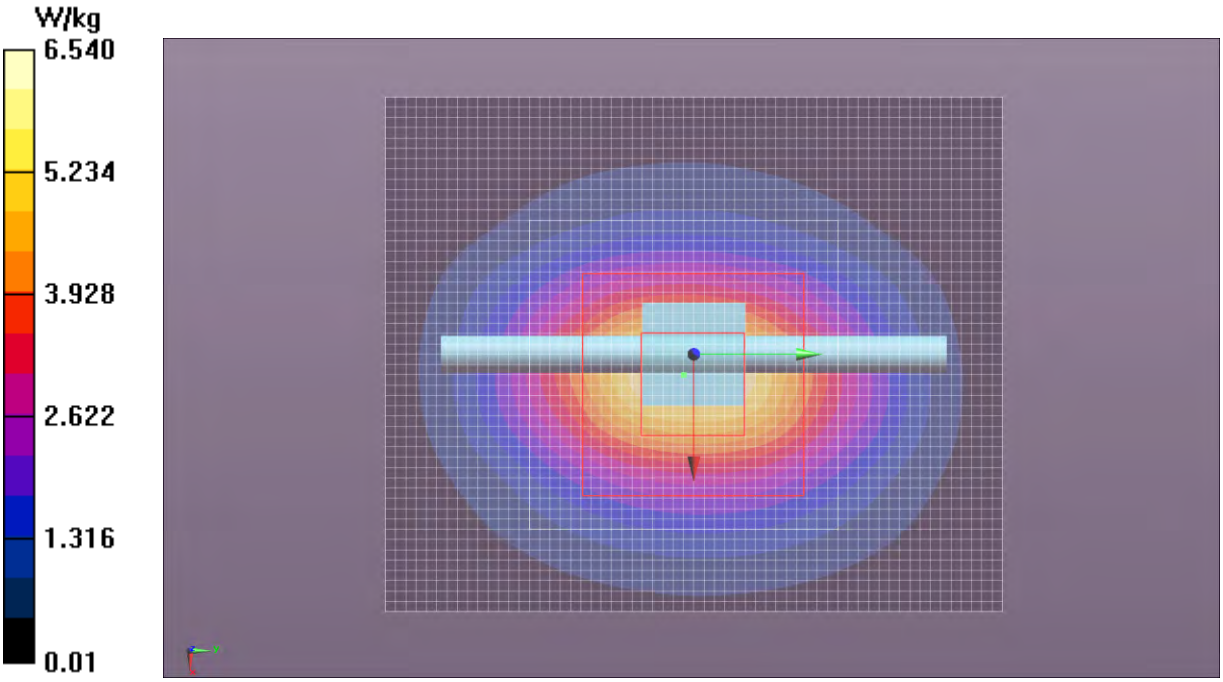
System Check/System Check/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.17 W/kg

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 54.05 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.70 V/m; Power Drift = -0.22 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 5.91 W/kg; SAR(10 g) = 2.64 W/kg
Maximum value of SAR (measured) = 5.92 W/kg
Maximum value of SAR (measured) = 6.54 W/kg

Approved By

MSL2600 System Check 7-22-15



SAR SYSTEM VERIFICATION

Tested By:	Luke Richardson	Room Temperature (°C):	24.8°C
Date:	7/23/2015	Liquid Temperature (°C):	22.1°C
Configuration:	Body	Humidity (%RH):	37.1%
		Bar. Pressure (mb):	1014.9 mb

MSL1900 System Check 7-23-15
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:ADO
Communication System: UID 10000, CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.519 S/m; ε_r = 54.123; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

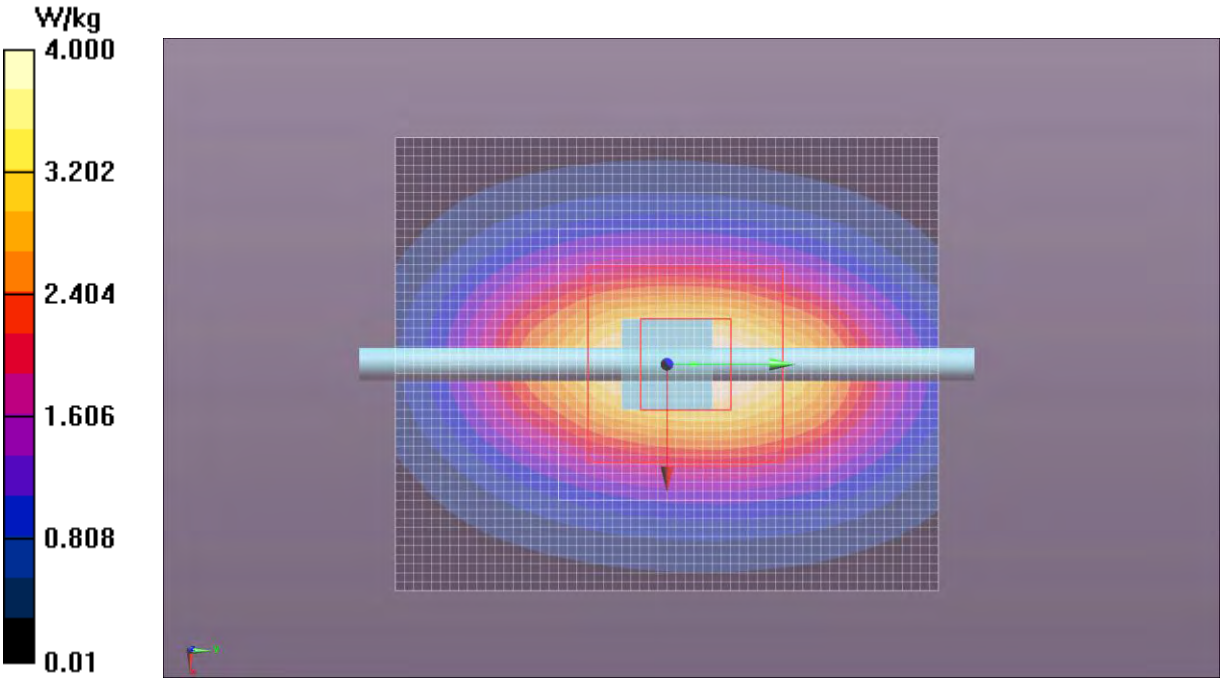
System Check/System Check/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 4.12 W/kg

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.43 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 7.51 W/kg
SAR(1 g) = 4.18 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 4.22 W/kg

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 51.63 V/m
Maximum value of SAR (measured) = 4.05 W/kg

Approved By

MSL1900 System Check 7-23-15



SAR SYSTEM VERIFICATION

Tested By:	Luke Richardson	Room Temperature (°C):	24.1°C
Date:	7/24/2015	Liquid Temperature (°C):	22°C
Configuration:	Body	Humidity (%RH):	40.5%
		Bar. Pressure (mb):	1019.2 mb

MSL1750 System Check, 7-24-15
DUT: Dipole 1750 MHz D1750V2; Type: D1750V2; Serial: D1750V2 - SN:ADN
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3 , Medium parameters used: f = 1750 MHz; σ = 1.454 S/m; ε_r = 52.585; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

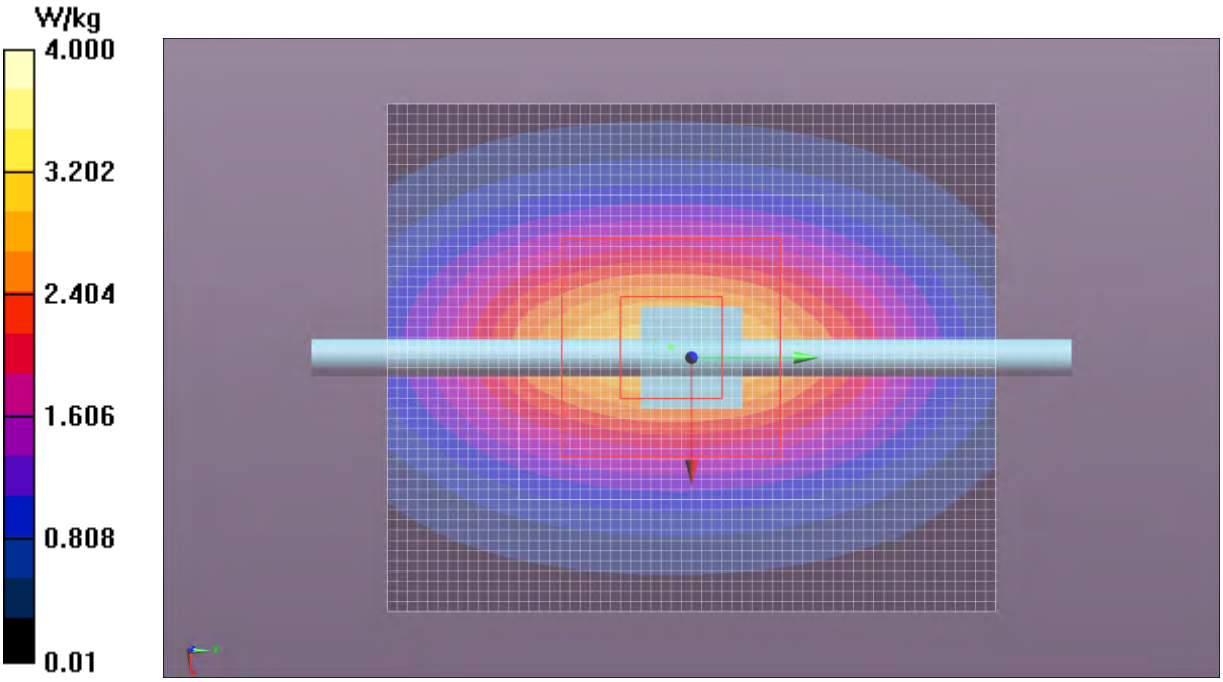
System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 50.27 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.31 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 5.85 W/kg
SAR(1 g) = 3.3 W/kg; SAR(10 g) = 1.77 W/kg
Maximum value of SAR (measured) = 3.34 W/kg

System Check/System Check/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 3.38 W/kg
Maximum value of SAR (measured) = 3.67 W/kg

Approved By

MSL1750 System Check, 7-24-15



SAR SYSTEM VERIFICATION

Tested By:	Carl Engholm	Room Temperature (°C):	23.9°C
Date:	7/24/2015	Liquid Temperature (°C):	22.2°C
Configuration:	Body	Humidity (%RH):	41%
		Bar. Pressure (mb):	1017 mb

MSL750 System Check, 7-24-15
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:ADQ
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3 , Medium parameters used: f = 750 MHz; σ = 1.008 S/m; ε_r = 53.491; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

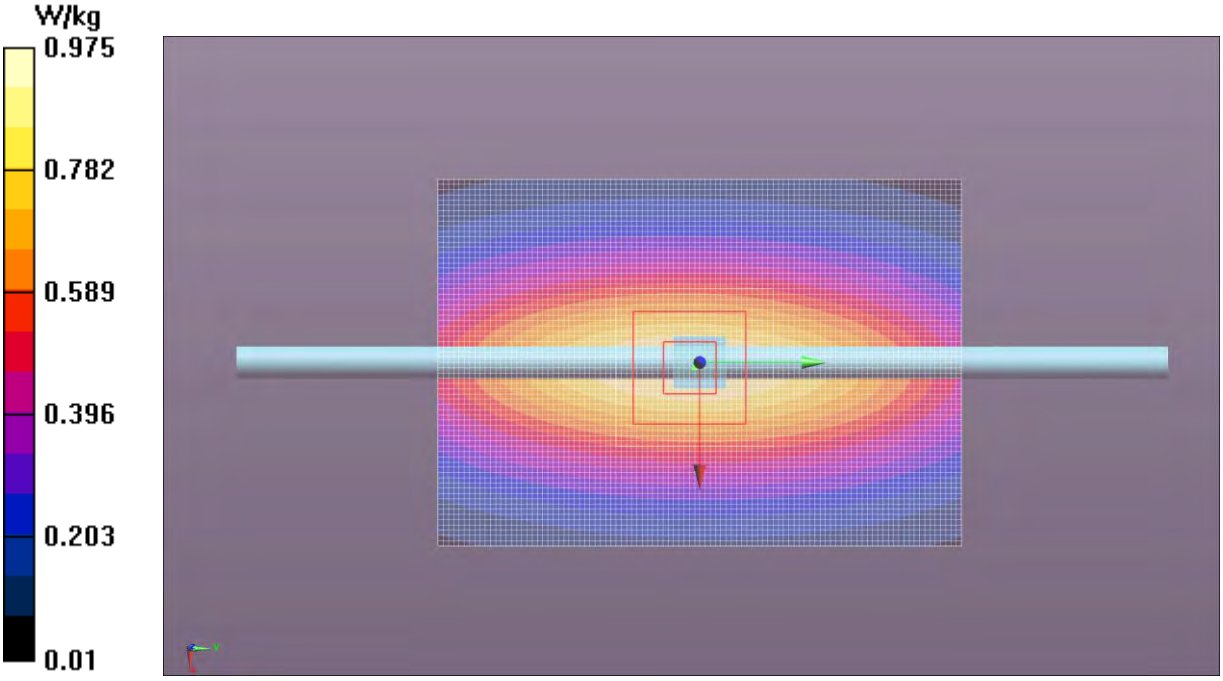
System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 31.11 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.67 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.935 W/kg; SAR(10 g) = 0.626 W/kg
Maximum value of SAR (measured) = 0.934 W/kg

System Check/System Check/Area Scan (71x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.935 W/kg
Maximum value of SAR (measured) = 0.975 W/kg

Approved By

MSL750 System Check, 7-24-15



SAR SYSTEM VERIFICATION

Tested By:	Luke Richardson	Room Temperature (°C):	23.9°C
Date:	7/27/2015	Liquid Temperature (°C):	21.8°C
Configuration:	Body	Humidity (%RH):	43.7%
		Bar. Pressure (mb):	1022.8 mb

MSL750 System Check 7-27-15
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:ADQ
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3 , Medium parameters used: f = 750 MHz; σ = 0.948 S/m; ε_r = 54.798; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

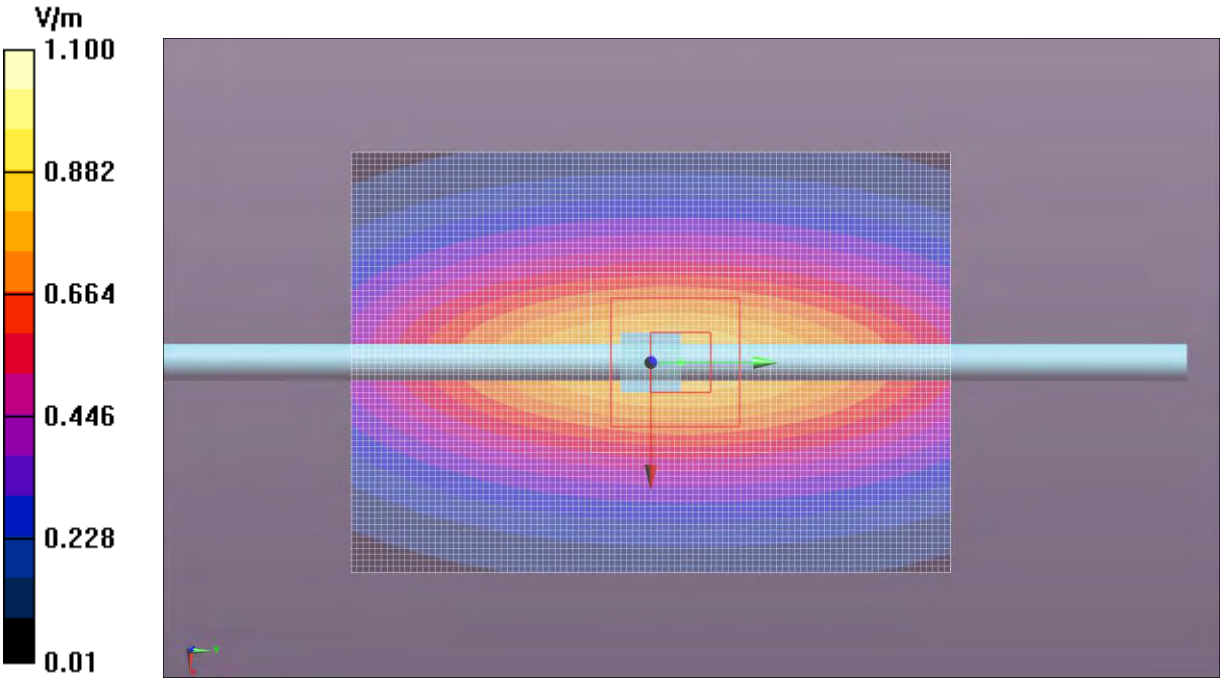
System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 31.77 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.80 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.950 W/kg; SAR(10 g) = 0.634 W/kg
Maximum value of SAR (measured) = 0.953 W/kg

System Check/System Check/Area Scan (71x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.947 W/kg
Maximum value of SAR (measured) = 0.956 W/kg

Approved By

MSL750 System Check 7-27-15



SAR SYSTEM VERIFICATION

Tested By:	Carl Engholm	Room Temperature (°C):	24.4°C
Date:	7/27/2015	Liquid Temperature (°C):	21.9°C
Configuration:	Body	Humidity (%RH):	42%
		Bar. Pressure (mb):	1022 mb

MSL900 System Check_835MHz, 7-27-15
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:ADK
Communication System: UID 10000, CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3 , Medium parameters used (interpolated): f = 835 MHz; σ = 0.99 S/m; ε_r = 57.118; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 32.52 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.09 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 1 W/kg; SAR(10 g) = 0.672 W/kg

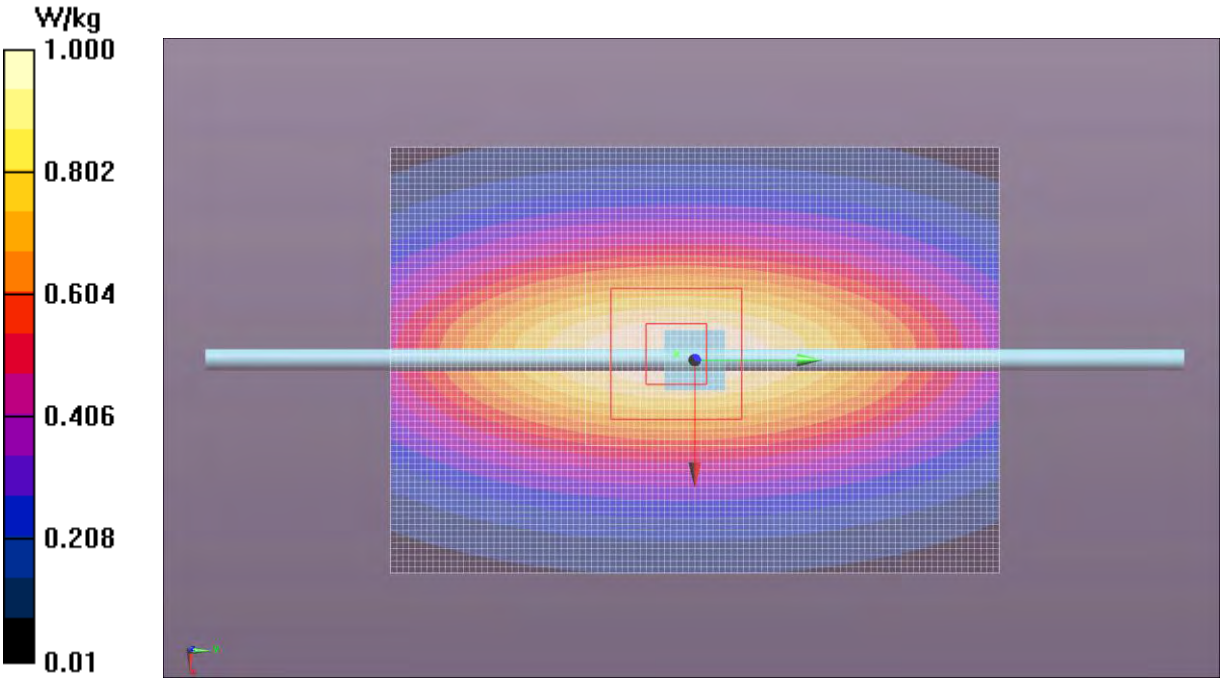
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.01 W/kg

System Check/System Check/Area Scan (71x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.01 W/kg
Maximum value of SAR (measured) = 1.05 W/kg

Approved By

MSL900 System Check_835MHz, 7-27-15



OUTPUT POWER TESTING DESCRIPTION

NORTHWEST EMC
WSTD.2013.09.09

The conducted output power was measured for all frequency bands as described below. The transmit antenna is co-located with a proximity sensor. Once the sensor is triggered, the output power is lowered for all bands. Conducted output power measurements were made for the normal full power (high power) conditions.

GPRS and EDGE

Per FCC KDB 941225 D01 v03, the conducted output power was measured at the low, middle and high channels in each band. A Rohde & Schwarz CMU200 Universal Radio Communication Test Set was used to control the EUT. The following applications were installed on the test set: V5.21. This provided all the necessary tools to operate the EUT in the prescribed manner without any difficulties or equipment limitations.

Per FCC KDB 941225 D01 v03, 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.

Per FCC KDB 941225 D01 v03, "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

The results of the output power measurements are tabulated on the following pages.

WCDMA, HSDPA, HSUPA

Per FCC KDB 941225 D01 v03, the conducted output power was measured at the low, middle and high channels in each band. A Rohde & Schwarz CMU200 Universal Radio Communication Test Set was used to control the EUT. The following applications were installed on the test set: WCDMA V5.22a. This provided all the necessary tools to operate the EUT in the prescribed manner without any difficulties or equipment limitations.

Per FCC KDB 941225 D01 v03, 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.

Per FCC KDB 941225 D01 v03, measurements for WCDMA, HSDPA, and HSUPA were made according to the procedures in section section 5.2 of 3GPP 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 results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report.

OUTPUT POWER TESTING DESCRIPTION

The R&S CMU200 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 TPC to “all 1’s”.

HSDPA Rel 6

- Followed the R&S App Note 1CM72_2E “Operational Guide for HSDPA Test Setup According to 3GPP TS 34.121” and used the R&S provided saved configuration recall files as noted below which provide the required settings per the defined tables.
- Establish a CS call in 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.
- Measurements were made for HSDPA Subtest 1, 2, 3 and 4 by utilizing the following R&S provided saved configuration files:
    - For subtest 1, HSDPATx1.sav
    - For subtest 2, HSDPATx2.sav
    - For subtest 3, HSDPATx3.sav
    - For subtest 4, HSDPATx4.sav

HSUPA Rel 6

- Followed the R&S App Note 1CM73_5E “Measurement on 3GPP Rel-6 TS 34.121 UE’s Transmitter Characteristics and Performance Tests with R&S CMU200” and used the R&S provided saved configuration recall files which provide the required settings per the defined tables.
- Measurements were made for HSDPA Subtest 1, 2, 3 and 4 by utilizing the following R&S provided saved configuration files:
    - For subtest 1, HSUPATx1.sav
    - For subtest 2, HSUPATx2.sav
    - For subtest 3, HSUPATx3.sav
    - For subtest 4, HSUPATx4.sav
- Established a CS call with UL RMC 12.2 kbps, loop back Test Mode 1, and HSDPA to E-DCH.
- Set the EUT power to be at least 5 dB lower than the maximum output power
- Set Inner Loop Power Control utilizing Power Control Algorithm 2
- Send power control bits of one TPC_cmd = +1 command to the UE. The received E-TFCI is checked for 150ms. If the UE does not send decreased E-TFCI within 150ms ms, then repeat this process until the decreased E-TFCI is reported.
- Confirm that the E-TFCI transmitted by the EU 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 UE. If the UE 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 UE. Then confirm that the E-TFCI transmitted by the UE is equal to the target E-TFCI in the defined table
- Measurement was made for HSDPA Subtest 5 by utilizing the R&S provided saved configuration HSUPATx5.save
    - A PS call was established, with TPC Pattern Set 1 configured as Closed Loop, and TPC pattern Set 5 configured for “all 1”.

The results of the output power measurements are tabulated on the following pages.

OUTPUT POWER TESTING DESCRIPTION

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LTE

Per FCC KDB 941225 D05 v02r03 the conducted output power was measured at the low, middle and high channels in each LTE band. An Anritsu test set, Model MT8820C, was used to control the EUT. The following applications were installed on the test set: "LTE 22.54 #009". This provided all the necessary tools to operate the EUT in the prescribed manner without any difficulties or equipment limitations.

Per FCC KDB 941225 D05 v02r03, among the channels required for normal testing, SAR must be measured on the highest conducted output channel (highlighted in the following pages). Section 4.2 specifies when SAR evaluation for the other required channels is necessary.

Per FCC KDB 941225 D05 v02r03, conducted output power measurements for LTE were made according to the procedures in section 4.1.

- All available channel bandwidths are to be measured (1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz)
- Maximum output power was verified on the High, Middle, and Low channels
- QPSK measurements were taken with
    - QPSK with 1 resource block allocation made at the low, middle, and upper offsets
    - QPSK with 50% resource blocks made in the low, middle, and upper offsets
    - QPSK with 100% resource blocks
- Higher order modulation(s (16-QAM) were measured with
    - 1 resource block allocation made at the low, middle, and upper offsets
    - 50% resource blocks made in the low, middle, and upper offsets
    - 100% resource blocks

The Anritsu MT8820C test set was configured as follows:

- The maximum power was set by selecting one of the following protocols
    - Max power QPSK 1 RB
    - Max power QPSK Partial RB
    - Max power QPSK Full RB
    - Max power 16QAM 1 RB
    - Max power 16QAM Partial RB
    - Max power 16QAM Full RB

The results of the output power measurements are tabulated on the following pages.

OUTPUT POWER

EUT:	SKL21-SDS	Work Order:	INTE5622
Serial Number:	IASY515S0017	Date:	7/2/2015
Customer:	Intel Corporation	Temperature:	23.5°C
Attendees:	Mike Lowe	Relative Humidity:	42%
Customer Project:	None	Bar. Pressure:	1005 mb
Tested By:	Luke Richardson	Job Site:	EV03
Power:	230VAC/50Hz	Configuration:	INTE5622-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	IEEE Std 1528:2003 FCC KDB 941225 D01 v03, D05 v02r03

COMMENTS

Conducted output power.

DEVIATIONS FROM TEST STANDARD

None

Conducted Burst Average Power for GPRS:

GPRS / 1 slot / GMSK (CS-4)		
Band	**Channel**	**Power BAP**
Cellular GSM850	128	31.8
	190	32.2
	251	32.2
PCS 1900	512	30.2
	661	30.3
	810	30.0

GPRS / 2 slot / GMSK (CS-4)		
Band	**Channel**	**Power BAP**
Cellular GSM850	128	31.7
	190	32.0
	251	32.0
PCS 1900	512	30.1
	661	30.2
	810	29.9

Conducted Burst Average Power for E-GPRS:

E-GPRS / 1 slot / GMSK (MCS-4)		
Band	**Channel**	**Power BAP**
Cellular GSM850	128	31.8
	190	32.1
	251	32.0
PCS 1900	512	30.2
	661	30.3
	810	30.0

E-GPRS / 2 slot / GMSK (MCS-4)		
Band	**Channel**	**Power BAP**
Cellular GSM850	128	31.7
	190	32.0
	251	32.0
PCS 1900	512	30.1
	661	30.2
	810	29.9

OUTPUT POWER

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Conducted Output Power for 3GPP Band V:

3GPP Release Version	Mode	Cellular Band V		
		4132	4183	4233
		824.4	836.6	846.6
99	WCDMA	23.0	22.9	23.0
5	HSDPA Sub-Test 1	22.9	22.8	22.9
5	HSDPA Sub-Test 2	21.5	21.3	21.6
5	HSDPA Sub-Test 3	20.8	20.7	20.8
5	HSDPA Sub-Test 4	20.4	20.3	20.3
6	HSUPA Sub-Test 1	22.3	22.1	22.2
6	HSUPA Sub-Test 2	20.5	21.1	21.3
6	HSUPA Sub-Test 3	21.4	22.0	22.1
6	HSUPA Sub-Test 4	20.7	21.4	21.6
6	HSUPA Sub-Test 5	22.1	22.0	22.1

Conducted Output Power for 3GPP Band II:

3GPP Release Version	Mode	PCS Band II		
		9262	9400	9538
		1852.4	1880	1907.6
99	WCDMA	22.4	22.5	22.2
5	HSDPA Sub-Test 1	22.2	22.4	22.1
5	HSDPA Sub-Test 2	20.8	21.0	20.8
5	HSDPA Sub-Test 3	20.2	20.3	20.1
5	HSDPA Sub-Test 4	19.9	20.0	19.8
6	HSUPA Sub-Test 1	21.8	21.8	21.6
6	HSUPA Sub-Test 2	19.9	20.9	20.7
6	HSUPA Sub-Test 3	20.9	21.7	21.5
6	HSUPA Sub-Test 4	20.2	21.1	20.9
6	HSUPA Sub-Test 5	21.6	21.7	21.6

OUTPUT POWER

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Conducted Output Power for 3GPP Band IV:

3GPP Release Version	Mode	AWS Band IV		
		1312	1427	1513
		1712.4	1735.4	1752.6
99	WCDMA	22.6	22.4	22.4
5	HSDPA Sub-Test 1	22.6	22.5	22.4
5	HSDPA Sub-Test 2	21.0	21.0	20.9
5	HSDPA Sub-Test 3	20.5	20.4	20.3
5	HSDPA Sub-Test 4	20.1	20.0	19.9
6	HSUPA Sub-Test 1	22.0	21.8	21.7
6	HSUPA Sub-Test 2	20.2	20.9	20.9
6	HSUPA Sub-Test 3	21.2	21.8	21.7
6	HSUPA Sub-Test 4	20.4	21.2	21.1
6	HSUPA Sub-Test 5	21.8	21.8	21.7

OUTPUT POWER

EUT:	SKL21-SDS	Work Order:	INTE5622
Serial Number:	IASY515S0017	Date:	7/2/2015
Customer:	Intel Corporation	Temperature:	23.5°C
Attendees:	Mike Lowe	Relative Humidity:	42%
Customer Project:	None	Bar. Pressure:	1005 mb
Tested By:	Luke Richardson	Job Site:	EV03
Power:	110VAC/60Hz	Configuration:	INTE5622-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	IEEE Std 1528:2003 FCC KDB 941225 D01 v03, D05 v02r03

COMMENTS

Conducted output power for FCC bands 2,4,5,7,13,and 17.

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Pass

Tested By

OUTPUT POWER

Conducted Power (Average)

Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
20 MHz	Low (18700)	1860	QPSK	1	0	22.72
				1	49	22.41
				1	99	22.24
				50	0	22.03
				50	24	21.78
				50	49	21.75
				100	0	21.9
			16-QAM	1	0	22.1
				1	49	21.8
				1	99	21.65
				50	0	20.91
				50	24	20.7
				50	49	20.7
				100	0	20.8
	Mid (18900)	1880	QPSK	1	0	23.04
				1	49	22.64
				1	99	22.43
				50	0	22
				50	24	21.8
				50	49	21.79
				100	0	21.93
			16-QAM	1	0	22.1
				1	49	21.85
				1	99	21.64
				50	0	20.88
				50	24	20.68
				50	49	20.66
				100	0	20.74
	High (19100)	1900	QPSK	1	0	22.24
				1	49	22.58
				1	99	22.45
				50	0	21.99
				50	24	21.74
				50	49	21.61
				100	0	21.81
			16-QAM	1	0	22.4
				1	49	21.74
				1	99	21.6
				50	0	21.05
				50	24	20.59
				50	49	20.56
				100	0	20.85

OUTPUT POWER

Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
15 MHz	Low (18675)	1857.5	QPSK	1	0	22.78
				1	37	22.5
				1	74	22.44
				36	0	21.95
				36	18	21.82
				36	37	21.82
				75	0	21.91
			16-QAM	1	0	22.22
				1	37	21.97
				1	74	21.91
				36	0	20.89
				36	18	20.7
				36	37	20.67
				75	0	20.8
	Mid (18900)	1880	QPSK	1	0	23.24
				1	37	22.65
				1	74	22.79
				36	0	22.25
				36	18	21.97
				36	37	22.04
				75	0	22.16
			16-QAM	1	0	22.68
				1	37	22.14
				1	74	22.23
				36	0	21.17
				36	18	20.89
				36	37	20.83
				75	0	20.92
	High (19125)	1902.5	QPSK	1	0	23.09
				1	37	22.65
				1	74	22.33
				36	0	22
				36	18	21.75
				36	37	21.7
				75	0	21.88
			16-QAM	1	0	22.27
				1	37	21.96
				1	74	21.7
				36	0	20.91
				36	18	20.67
				36	37	20.59
				75	0	20.71

OUTPUT POWER

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Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Low (18650)	1855	QPSK	1	0	22.88
				1	24	22.64
				1	49	22.45
				25	0	21.82
				25	12	21.79
				25	24	21.7
				50	0	21.79
			16-QAM	1	0	22.05
				1	24	21.9
				1	49	21.82
				25	0	20.76
				25	12	20.65
				25	24	20.64
				50	0	20.71
	Mid (18900)	1880	QPSK	1	0	23.07
				1	24	22.82
				1	49	22.69
				25	0	22
				25	12	21.89
				25	24	21.85
				50	0	21.9
			16-QAM	1	0	22.28
				1	24	22.09
				1	49	21.95
				25	0	20.9
				25	12	20.75
				25	24	20.73
				50	0	20.86
	High (19150)	1905	QPSK	1	0	22.86
				1	24	22.61
				1	49	22.43
				25	0	21.83
				25	12	21.7
				25	24	21.64
				50	0	21.72
			16-QAM	1	0	22.11
				1	24	21.88
				1	49	21.66
				25	0	20.71
				25	12	20.63
				25	24	20.54
				50	0	20.68

OUTPUT POWER

Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Mid 18900)	1880	QPSK	1	0	22.9
				1	12	22.92
				1	24	22.72
				12	0	21.95
				12	6	21.88
				12	11	21.89
				25	0	21.88
			16-QAM	1	0	22.16
				1	12	22.02
				1	24	21.93
				12	0	20.87
				12	6	20.84
				12	11	20.84
				25	0	20.88
	High (19195)	1909.5	QPSK	1	0	22.66
				1	12	22.6
				1	24	22.39
				12	0	21.75
				12	6	21.63
				12	11	21.62
				25	0	21.71
			16-QAM	1	0	21.91
				1	12	21.67
				1	24	21.58
				12	0	20.69
				12	6	20.5
				12	11	20.53
				25	0	20.58
	Mid 18900)	1880	QPSK	1	0	22.9
				1	12	22.92
				1	24	22.72
				12	0	21.95
				12	6	21.88
				12	11	21.89
				25	0	21.88
			16-QAM	1	0	22.16
				1	12	22.02
				1	24	21.93
				12	0	20.87
				12	6	20.84
				12	11	20.84
				25	0	20.88

OUTPUT POWER

Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
3 MHz	Low (18615)	1851.5	QPSK	1	0	22.71
				1	7	22.69
				1	14	22.62
				8	0	21.77
				8	4	21.73
				8	7	21.69
				15	0	21.72
			16-QAM	1	0	21.9
				1	7	21.88
				1	14	21.8
				8	0	20.78
				8	4	20.7
				8	7	20.7
				15	0	20.7
	Mid (18900)	1880	QPSK	1	0	22.92
				1	7	22.88
				1	14	22.83
				8	0	21.97
				8	4	21.92
				8	7	21.9
				15	0	21.92
			16-QAM	1	0	22.1
				1	7	22.09
				1	14	21.99
				8	0	20.93
				8	4	20.86
				8	7	20.9
				15	0	20.92
	High (19185)	1908.5	QPSK	1	0	22.69
				1	7	22.67
				1	14	22.52
				8	0	21.7
				8	4	21.66
				8	7	21.68
				15	0	21.73
			16-QAM	1	0	21.89
				1	7	21.78
				1	14	21.7
				8	0	20.73
				8	4	20.65
				8	7	20.64
				15	0	20.64

OUTPUT POWER

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Band 2 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
1.4MHz	Low (18607)	1850.7	QPSK	1	0	22.7
				1	2	22.65
				1	5	22.63
				3	0	22.61
				3	1	22.54
				3	2	22.43
				6	0	21.75
			16-QAM	1	0	21.91
				1	2	21.92
				1	5	21.9
				3	0	21.69
				3	1	21.65
				3	2	21.69
				6	0	20.75
	Mid (18900)	1880	QPSK	1	0	22.97
				1	2	22.87
				1	5	22.9
				3	0	22.94
				3	1	22.94
				3	2	22.9
				6	0	21.95
			16-QAM	1	0	22.22
				1	2	22.17
				1	5	22.17
				3	0	21.91
				3	1	21.86
				3	2	21.9
				6	0	20.97
	High (19193)	1909.3	QPSK	1	0	22.66
				1	2	22.6
				1	5	22.6
				3	0	22.68
				3	1	22.65
				3	2	22.62
				6	0	21.71
			16-QAM	1	0	21.85
				1	2	21.8
				1	5	21.7
				3	0	21.66
				3	1	21.66
				3	2	21.6
				6	0	20.71

OUTPUT POWER

Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
20 MHz	Low (20050)	1720	QPSK	1	0	23.0
				1	49	22.7
				1	99	22.6
				50	0	22.3
				50	24	22.1
				50	49	22.0
				100	0	22.2
			16-QAM	1	0	22.4
				1	49	22.2
				1	99	21.9
				50	0	21.1
				50	24	21.0
				50	49	20.8
				100	0	21.0
	Mid (20175)	1732.5	QPSK	1	0	23.2
				1	49	22.6
				1	99	22.7
				50	0	22.4
				50	24	22.1
				50	49	22.1
				100	0	22.2
			16-QAM	1	0	22.6
				1	49	22.1
				1	99	22.0
				50	0	21.3
				50	24	21.0
				50	49	20.9
				100	0	21.1
	High (20300)	1745	QPSK	1	0	23.4
				1	49	22.6
				1	99	22.5
				50	0	22.4
				50	24	22.0
				50	49	22.0
				100	0	22.2
			16-QAM	1	0	22.7
				1	49	22.1
				1	99	21.9
				50	0	21.2
				50	24	20.9
				50	49	20.9
				100	0	21.0

OUTPUT POWER

Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
15 MHz	Low (20025)	1717.5	QPSK	1	0	23.2
				1	37	22.8
				1	74	22.7
				36	0	22.4
				36	18	22.5
				36	37	22.2
				75	0	22.3
			16-QAM	1	0	22.6
				1	37	22.3
				1	74	22.2
				36	0	21.3
				36	18	21.1
				36	37	21.0
				75	0	21.1
	Mid (20175)	1732.5	QPSK	1	0	23.3
				1	37	22.7
				1	74	23.1
				36	0	22.4
				36	18	22.2
				36	37	22.2
				75	0	22.3
			16-QAM	1	0	22.8
				1	37	22.3
				1	74	22.4
				36	0	21.3
				36	18	21.1
				36	37	21.0
				75	0	21.2
	High (20325)	1747.5	QPSK	1	0	23.4
				1	37	22.9
				1	74	22.7
				36	0	22.4
				36	18	22.1
				36	37	22.1
				75	0	22.3
			16-QAM	1	0	22.7
				1	37	22.2
				1	74	22.2
				36	0	21.2
				36	18	21.0
				36	37	21.0
				75	0	21.1

OUTPUT POWER

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Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Low (20000)	1715	QPSK	1	0	23.3
				1	24	23.1
				1	49	23.1
				25	0	22.4
				25	12	22.2
				25	24	22.2
				50	0	22.3
			16-QAM	1	0	22.6
				1	24	22.3
				1	49	22.3
				25	0	21.2
				25	12	21.2
				25	24	21.1
				50	0	21.2
	Mid (20175)	1732.5	QPSK	1	0	23.3
				1	24	22.8
				1	49	22.8
				25	0	22.3
				25	12	22.2
				25	24	22.2
				50	0	22.2
			16-QAM	1	0	22.6
				1	24	22.3
				1	49	22.3
				25	0	21.1
				25	12	21.0
				25	24	21.0
				50	0	21.1
	High (20350)	1750	QPSK	1	0	23.1
				1	24	22.9
				1	49	22.8
				25	0	22.1
				25	12	22.1
				25	24	22.0
				50	0	22.1
			16-QAM	1	0	22.4
				1	24	22.2
				1	49	22.1
				25	0	21.0
				25	12	21.0
				25	24	20.9
				50	0	21.0

OUTPUT POWER

Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Low (19975)	1712.5	QPSK	1	0	23.1
				1	12	23.0
				1	24	23.0
				12	0	22.3
				12	6	22.2
				12	11	22.2
				25	0	22.2
			16-QAM	1	0	22.4
				1	12	22.3
				1	24	22.3
				12	0	21.2
				12	6	21.1
				12	11	21.1
				25	0	21.1
	Mid (20175)	1732.5	QPSK	1	0	23.1
				1	12	23.0
				1	24	22.9
				12	0	22.2
				12	6	22.2
				12	11	22.2
				25	0	22.1
			16-QAM	1	0	22.4
				1	12	22.3
				1	24	22.2
				12	0	21.1
				12	6	21.1
				12	11	21.0
				25	0	21.2
	High (20375)	1752.5	QPSK	1	0	23.0
				1	12	22.8
				1	24	22.6
				12	0	22.1
				12	6	22.1
				12	11	22.1
				25	0	22.1
			16-QAM	1	0	22.2
				1	12	22.1
				1	24	22.1
				12	0	21.1
				12	6	21.0
				12	11	21.0
				25	0	21.0

OUTPUT POWER

Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
3 MHz	Low (19965)	1711.5	QPSK	1	0	23.1
				1	7	23.1
				1	14	23.0
				8	0	22.3
				8	4	22.2
				8	7	22.2
				15	0	22.3
			16-QAM	1	0	22.4
				1	7	22.3
				1	14	22.3
				8	0	21.2
				8	4	21.2
				8	7	21.2
				15	0	21.2
	Mid (20175)	1732.5	QPSK	1	0	23.0
				1	7	23.0
				1	14	23.0
				8	0	22.2
				8	4	22.1
				8	7	22.1
				15	0	22.2
			16-QAM	1	0	22.3
				1	7	22.3
				1	14	22.2
				8	0	21.1
				8	4	21.0
				8	7	21.0
				15	0	21.1
	High (20384)	1753.4	QPSK	1	0	22.9
				1	7	22.8
				1	14	22.6
				8	0	22.1
				8	4	22.1
				8	7	22.1
				15	0	22.1
			16-QAM	1	0	22.2
				1	7	22.1
				1	14	22.1
				8	0	21.0
				8	4	21.0
				8	7	21.0
				15	0	21.0

OUTPUT POWER

Band 4 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
1.4MHz	Low (19957)	1710.7	QPSK	1	0	23.1
				1	2	23.1
				1	5	23.1
				3	0	23.2
				3	1	23.2
				3	2	23.2
				6	0	22.3
			16-QAM	1	0	22.4
				1	2	22.4
				1	5	22.3
				3	0	22.2
				3	1	22.2
				3	2	22.2
				6	0	21.3
	Mid (20175)	1732.5	QPSK	1	0	23.1
				1	2	23.1
				1	5	23.0
				3	0	23.1
				3	1	23.0
				3	2	23.1
				6	0	22.1
			16-QAM	1	0	22.4
				1	2	22.3
				1	5	22.3
				3	0	22.1
				3	1	22.1
				3	2	22.1
				6	0	21.1
	High (20392)	1754.2	QPSK	1	0	22.9
				1	2	22.7
				1	5	22.7
				3	0	22.8
				3	1	22.8
				3	2	22.8
				6	0	22.1
			16-QAM	1	0	22.2
				1	2	22.2
				1	5	22.2
				3	0	22.0
				3	1	22.0
				3	2	22.0
				6	0	21.1

OUTPUT POWER

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Band 5 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Low (20450)	829	QPSK	1	0	23.5
				1	24	23.3
				1	49	23.2
				25	0	22.4
				25	12	22.4
				25	24	22.4
				50	0	22.4
			16-QAM	1	0	22.7
				1	24	22.5
				1	49	22.4
				25	0	21.4
				25	12	21.3
				25	24	21.3
				50	0	21.4
	Mid (20525)	836.5	QPSK	1	0	23.2
				1	24	23.2
				1	49	23.0
				25	0	22.3
				25	12	22.2
				25	24	22.1
				50	0	22.2
			16-QAM	1	0	22.4
				1	24	22.4
				1	49	22.1
				25	0	21.2
				25	12	21.1
				25	24	21.1
				50	0	21.2
	High (20600)	844	QPSK	1	0	23.1
				1	24	23.1
				1	49	22.9
				25	0	22.2
				25	12	22.1
				25	24	22.1
				50	0	22.2
			16-QAM	1	0	22.3
				1	24	22.3
				1	49	22.1
				25	0	21.1
				25	12	21.1
				25	24	21.1
				50	0	21.1

OUTPUT POWER

Band 5 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Low (20425)	826.5	QPSK	1	0	23.4
				1	12	23.3
				1	24	23.2
				12	0	22.5
				12	6	22.4
				12	11	22.4
				25	0	22.4
			16-QAM	1	0	22.5
				1	12	22.5
				1	24	22.4
				12	0	21.4
				12	6	21.4
				12	11	21.3
				25	0	21.3
	Mid (20525)	836.5	QPSK	1	0	23.2
				1	12	23.2
				1	24	23.1
				12	0	22.3
				12	6	22.2
				12	11	22.2
				25	0	22.3
			16-QAM	1	0	22.4
				1	12	22.4
				1	24	22.2
				12	0	21.3
				12	6	21.2
				12	11	21.2
				25	0	21.2
	High (20625)	846.5	QPSK	1	0	23.1
				1	12	23.1
				1	24	23.0
				12	0	22.2
				12	6	22.2
				12	11	22.2
				25	0	22.2
			16-QAM	1	0	22.3
				1	12	22.3
				1	24	22.1
				12	0	21.2
				12	6	21.1
				12	11	21.1
				25	0	21.2

OUTPUT POWER

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Band 5 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
3 MHz	Low (20415)	825.6	QPSK	1	0	23.4
				1	7	23.4
				1	14	23.3
				8	0	22.4
				8	4	22.4
				8	7	22.4
				15	0	22.4
			16-QAM	1	0	22.5
				1	7	22.5
				1	14	22.5
				8	0	21.5
				8	4	21.4
				8	7	21.4
				15	0	21.4
	Mid (20525)	836.5	QPSK	1	0	23.3
				1	7	23.2
				1	14	23.1
				8	0	22.3
				8	4	22.3
				8	7	22.3
				15	0	22.2
			16-QAM	1	0	22.4
				1	7	22.4
				1	14	22.3
				8	0	21.3
				8	4	21.3
				8	7	21.3
				15	0	21.2
	High (20635)	847.5	QPSK	1	0	23.1
				1	7	23.1
				1	14	23.1
				8	0	22.2
				8	4	22.2
				8	7	22.2
				15	0	22.2
			16-QAM	1	0	22.2
				1	7	22.2
				1	14	22.2
				8	0	21.2
				8	4	21.2
				8	7	21.2
				15	0	21.1

OUTPUT POWER

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Band 5 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
1.4MHz	Low (20407)	824.7	QPSK	1	0	23.4
				1	2	23.4
				1	5	23.4
				3	0	23.5
				3	1	23.4
				3	2	23.4
				6	0	22.5
			16-QAM	1	0	22.6
				1	2	22.6
				1	5	22.6
				3	0	22.4
				3	1	22.4
				3	2	22.4
				6	0	21.5
	Mid (20525)	836.5	QPSK	1	0	23.3
				1	2	23.2
				1	5	23.2
				3	0	23.2
				3	1	23.2
				3	2	23.2
				6	0	22.3
			16-QAM	1	0	22.4
				1	2	22.4
				1	5	22.4
				3	0	22.2
				3	1	22.2
				3	2	22.2
				6	0	21.3
	High (20643)	848.3	QPSK	1	0	23.1
				1	2	23.1
				1	5	23.1
				3	0	23.2
				3	1	23.2
				3	2	23.2
				6	0	22.2
			16-QAM	1	0	22.3
				1	2	22.3
				1	5	22.3
				3	0	22.2
				3	1	22.1
				3	2	22.2
				6	0	21.3

OUTPUT POWER

Band 7 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
20 MHz	Low (20890)	2514	QPSK	1	0	24.1
				1	49	23.4
				1	99	23.3
				50	0	22.9
				50	24	22.5
				50	49	22.6
				100	0	22.8
			16-QAM	1	0	23.2
				1	49	22.5
				1	99	22.5
				50	0	22.0
				50	24	21.5
				50	49	21.6
				100	0	21.8
	Mid (21020)	2527	QPSK	1	0	23.6
				1	49	23.2
				1	99	23.1
				50	0	22.8
				50	24	22.5
				50	49	22.5
				100	0	22.7
			16-QAM	1	0	22.9
				1	49	22.5
				1	99	22.2
				50	0	21.9
				50	24	21.5
				50	49	21.5
				100	0	21.7

OUTPUT POWER

Band 7 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
15 MHz	Low (20865)	2511.5	QPSK	1	0	23.9
				1	37	23.2
				1	74	23.4
				36	0	22.9
				36	18	22.6
				36	37	22.6
				75	0	22.7
			16-QAM	1	0	23.1
				1	37	22.5
				1	74	22.6
				36	0	21.9
				36	18	21.6
				36	37	21.6
				75	0	21.8
	Mid (21045)	2529.5	QPSK	1	0	23.8
				1	37	23.2
				1	74	23.2
				36	0	22.9
				36	18	22.6
				36	37	22.6
				75	0	22.8
			16-QAM	1	0	23.1
				1	37	22.6
				1	74	22.6
				36	0	21.9
				36	18	21.7
				36	37	21.7
				75	0	21.8
	High (21375)	2562.5	QPSK	1	0	23.7
				1	37	23.1
				1	74	23.3
				36	0	22.8
				36	18	22.5
				36	37	22.5
				75	0	22.7
			16-QAM	1	0	23.0
				1	37	22.4
				1	74	22.6
				36	0	21.8
				36	18	21.6
				36	37	21.6
				75	0	21.8

OUTPUT POWER

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Band 7 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Low (20840)	2509	QPSK	1	0	23.8
				1	24	23.4
				1	49	23.4
				25	0	22.6
				25	12	22.5
				25	24	22.5
				50	0	22.6
			16-QAM	1	0	23.0
				1	24	22.6
				1	49	22.6
				25	0	21.8
				25	12	21.6
				25	24	21.6
				50	0	21.7
	Mid (21070)	2532	QPSK	1	0	23.9
				1	24	23.6
				1	49	23.6
				25	0	22.8
				25	12	22.6
				25	24	22.6
				50	0	22.7
			16-QAM	1	0	23.1
				1	24	22.8
				1	49	22.7
				25	0	21.9
				25	12	21.6
				25	24	21.6
				50	0	21.7
	High (21400)	2565	QPSK	1	0	23.6
				1	24	23.3
				1	49	23.3
				25	0	22.7
				25	12	22.5
				25	24	22.6
				50	0	22.6
			16-QAM	1	0	22.9
				1	24	22.6
				1	49	22.7
				25	0	21.7
				25	12	21.5
				25	24	21.6
				50	0	21.7

OUTPUT POWER

Band 7 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Low (20815)	2506.5	QPSK	1	0	23.4
				1	12	23.3
				1	24	23.2
				12	0	22.5
				12	6	22.4
				12	11	22.4
				25	0	22.5
			16-QAM	1	0	22.6
				1	12	22.5
				1	24	22.4
				12	0	21.6
				12	6	21.5
				12	11	21.5
				25	0	21.6
	Mid (21095)	2534.5	QPSK	1	0	23.5
				1	12	23.4
				1	24	23.3
				12	0	22.7
				12	6	22.6
				12	11	22.5
				25	0	22.5
			16-QAM	1	0	22.7
				1	12	22.7
				1	24	22.5
				12	0	21.7
				12	6	21.6
				12	11	21.6
				25	0	21.7
	High (21425)	2567.5	QPSK	1	0	23.5
				1	12	23.4
				1	24	23.4
				12	0	22.6
				12	6	22.5
				12	11	22.5
				25	0	22.5
			16-QAM	1	0	22.6
				1	12	22.5
				1	24	22.5
				12	0	21.6
				12	6	21.6
				12	11	21.6
				25	0	21.6

OUTPUT POWER

Band 13 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Mid (23230)	782	QPSK	1	0	22.2
				1	24	22.2
				1	49	21.8
				25	0	21.5
				25	12	21.4
				25	24	21.4
				50	0	21.4
			16-QAM	1	0	21.3
				1	24	21.4
				1	49	20.9
				25	0	20.4
				25	12	20.3
				25	24	20.3
				50	0	20.3

OUTPUT POWER

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Band 13 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Low (23205)	779.5	QPSK	1	0	22.3
				1	12	22.4
				1	24	22.3
				12	0	21.4
				12	6	21.4
				12	11	21.4
				25	0	21.4
			16-QAM	1	0	21.5
				1	12	21.5
				1	24	21.4
				12	0	20.3
				12	6	20.3
				12	11	20.3
				25	0	20.3
	Mid (23230)	782	QPSK	1	0	22.3
				1	12	22.4
				1	24	22.3
				12	0	21.4
				12	6	21.4
				12	11	21.3
				25	0	21.3
			16-QAM	1	0	21.5
				1	12	21.5
				1	24	21.4
				12	0	20.3
				12	6	20.3
				12	11	20.2
				25	0	20.2
	High (23255)	784.5	QPSK	1	0	22.4
				1	12	22.3
				1	24	22.2
				12	0	21.4
				12	6	21.4
				12	11	21.3
				25	0	21.3
			16-QAM	1	0	21.5
				1	12	21.5
				1	24	21.4
				12	0	20.3
				12	6	20.3
				12	11	20.2
				25	0	20.2

OUTPUT POWER

NORTHWEST EMC
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Band 17 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
10 MHz	Low (23780)	709	QPSK	1	0	22.80
				1	24	22.80
				1	49	22.60
				25	0	22.00
				25	12	21.90
				25	24	21.90
				50	0	21.90
			16-QAM	1	0	22.00
				1	24	22.10
				1	49	22.00
				25	0	21.00
				25	12	20.90
				25	24	20.90
				50	0	20.90
	Mid (23790)	710	QPSK	1	0	22.80
				1	24	22.80
				1	49	22.60
				25	0	21.90
				25	12	21.90
				25	24	21.90
				50	0	21.00
			16-QAM	1	0	22.00
				1	24	22.10
				1	49	21.90
				25	0	20.90
				25	12	20.90
				25	24	20.90
				50	0	20.90
	High (23800)	711	QPSK	1	0	22.74
				1	24	22.80
				1	49	22.71
				25	0	21.90
				25	12	21.88
				25	24	21.85
				50	0	21.90
			16-QAM	1	0	22.00
				1	24	22.04
				1	49	21.80
				25	0	21.00
				25	12	20.95
				25	24	20.90
				50	0	20.95

OUTPUT POWER

Band 17 Bandwidth	Channel	Channel Frequency	Modulation	RB Allocation	RB start	Power
5 MHz	Low (23755)	706.5	QPSK	1	0	22.79
				1	12	22.74
				1	24	22.67
				12	0	21.95
				12	6	21.93
				12	11	21.94
				25	0	21.92
			16-QAM	1	0	22.00
				1	12	22.00
				1	24	22.00
				12	0	21.00
				12	6	21.00
				12	11	20.90
				25	0	20.90
	Midn (23790)	710	QPSK	1	0	22.72
				1	12	22.76
				1	24	22.70
				12	0	21.90
				12	6	21.87
				12	11	21.86
				25	0	21.89
			16-QAM	1	0	21.98
				1	12	21.97
				1	24	21.90
				12	0	20.98
				12	6	20.90
				12	11	20.88
				25	0	20.90
	High (23825)	713.5	QPSK	1	0	22.70
				1	12	22.75
				1	24	22.64
				12	0	21.90
				12	6	21.86
				12	11	21.85
				25	0	21.88
			16-QAM	1	0	22.01
				1	12	21.98
				1	24	21.91
				12	0	20.97
				12	6	20.92
				12	11	20.92
				25	0	20.95

TEST RESULTS

Test Configurations

Test Locations

Per FCC KDB 447498, section 4.3.1, Item #1 the top and left edges as well as the back side adjacent to the antenna were tested. Each of these positions was tested with the keyboard removed from the display ("tablet" or "tent mode").

The bottom and right edges are more than 20cm from the WWAN transmit antenna so they are excluded from SAR testing. The front surface of the tablet is excluded from SAR testing per Section 4.3 of KDB 616217.

Simultaneous Transmission SAR Test Exclusion

Per FCC KDB 447498, section 4.3.2, the radios were evaluated for simultaneous transmission SAR test exclusion. The SAR to peak location separation ratio was evaluated for each pair of simultaneous transmitting antennas. The WLAN and WWAN antennas are excluded from simultaneous SAR testing (see the Product Description section of this report for more details).

Operating Mode

All testing was performed with the EUT configured in a worst – case configuration and operating mode to produce the highest SAR levels. The transmit antenna is co-located with a proximity sensor. Once the sensor is triggered, the output power is lowered for all bands. SAR testing was performed at the trigger distance minus 1mm for the lower (triggered) output power level.

A Rohde & Schwarz CMU200 test set, was used to control the EUT for the GPRS, EDGE, WCDMA, HSDPA, and HSUPA modes. An Anritsu test set, Model MT8820C, was used to control the EUT for the LTE modes (see the Output Power section of this report for more details regarding instrument settings).

The WWAN radio operated continuously at nearly 100% duty cycle at the maximum rated power.

Summary

The following tables summarize the measured SAR values.

Per FCC KDB 941225, among the channels required for normal testing, SAR must be measured on the channel with the highest conducted output power. When the SAR measured on the highest output channel is >0.8 W/kg, SAR evaluation for the other required test channels is necessary.

Also, when the measured SAR is >0.8 W/kg, SAR measurement variability is assessed per FCC KDB 865664 D01 v01r03, Section 2.8.1.

SAR TEST DATA – LTE BAND 2

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 2	1880	18900	QPSK 1RB offset 0	20MHz	Tablet	Top	4mm	0.01	0.13	0.07	1
Body	LTE Band 2	1880	18900	QPSK 1RB offset 0	20Mhz	Tablet	Back	4mm	-0.02	0.28	0.15	2a
Body	LTE Band 2	1880	18900	QPSK 1RB offset 0	20MHz	Tablet	Left	4mm	0.00	0.04	0.02	3
Body	LTE Band 2	1860	18700	QPSK 50 RB offset 0	20MHz	Tablet	Top	4mm	0.04	0.11	0.07	4
Body	LTE Band 2	1860	18700	QPSK 50 RB offset 0	20MHz	Tablet	Back	4mm	0.06	0.22	0.12	5a
Body	LTE Band 2	1860	18700	QPSK 50 RB offset 0	20MHz	Tablet	Left	4mm	0.00	0.03	0.02	6

SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	23.3
Date:	7/24/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	42.1
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.5
Comments:	None		

Test 1
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.497 S/m; ε_r = 54.191; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.101 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.47 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.213 W/kg
SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.070 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.153 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

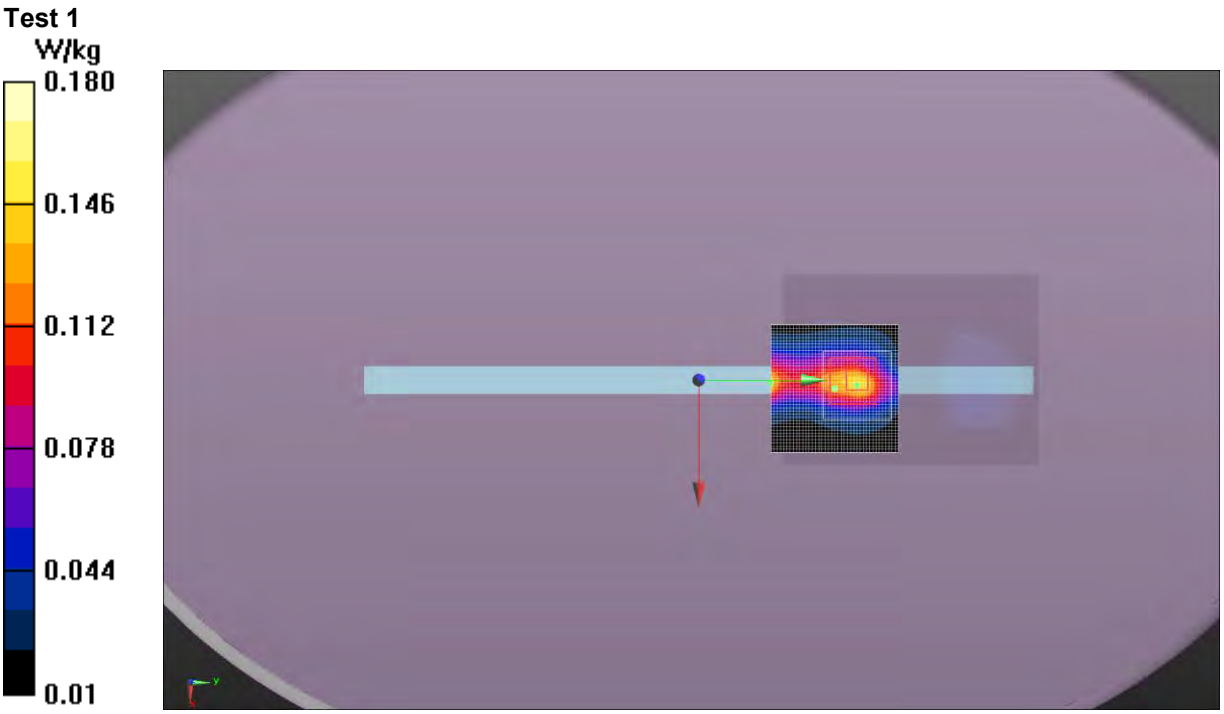
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.149 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 7.926 V/m
Maximum value of SAR (measured) = 0.0940 W/kg

Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	24
Date:	7/24/2015	Liquid Temperature (°C):	22
Serial Number:	IASY515S0017	Humidity (%RH):	42.9
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.6
Comments:	None		

Test 2a
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.497 S/m; ε_r = 54.191; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

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

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.02 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.504 W/kg
SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.153 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.359 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

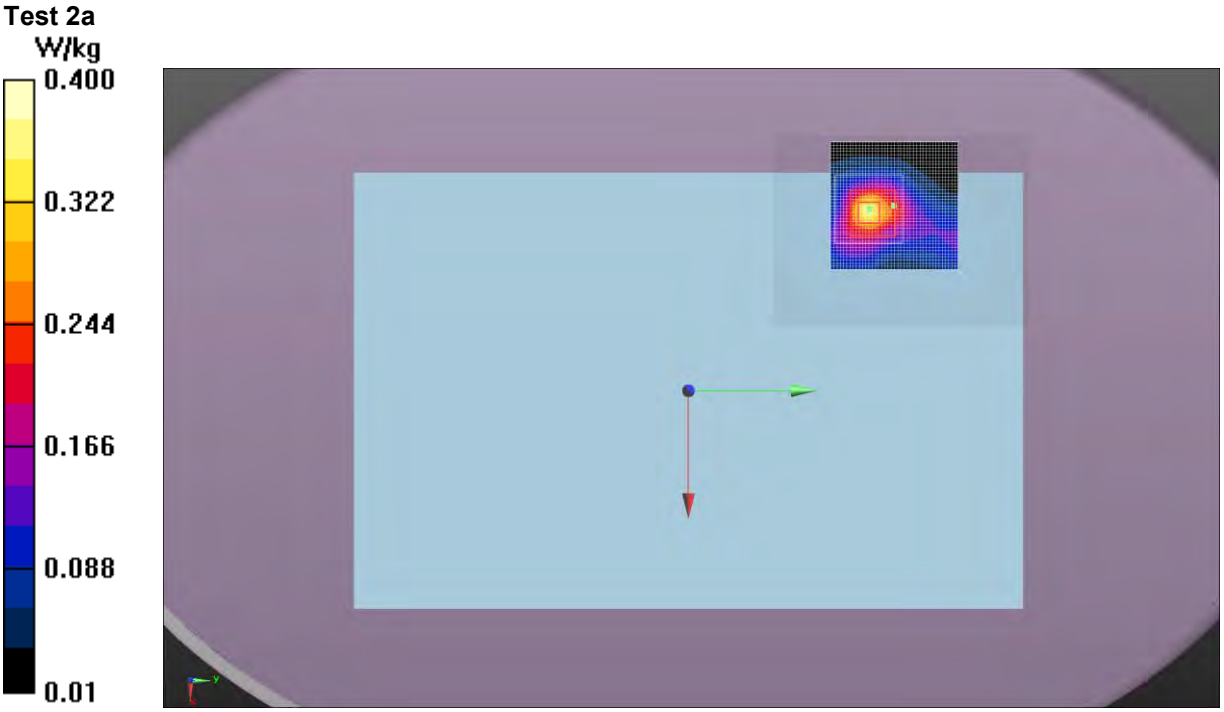
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.366 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 11.89 V/m
Maximum value of SAR (measured) = 0.212 W/kg

Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	24.6
Date:	7/24/2015	Liquid Temperature (°C):	22
Serial Number:	IASY515S0017	Humidity (%RH):	40.1
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019
Comments:	None		

Test 3
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1860 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1860 MHz; σ = 1.476 S/m; ε_r = 54.271; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0309 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.691 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.0550 W/kg
SAR(1 g) = 0.036 W/kg; SAR(10 g) = 0.022 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0435 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

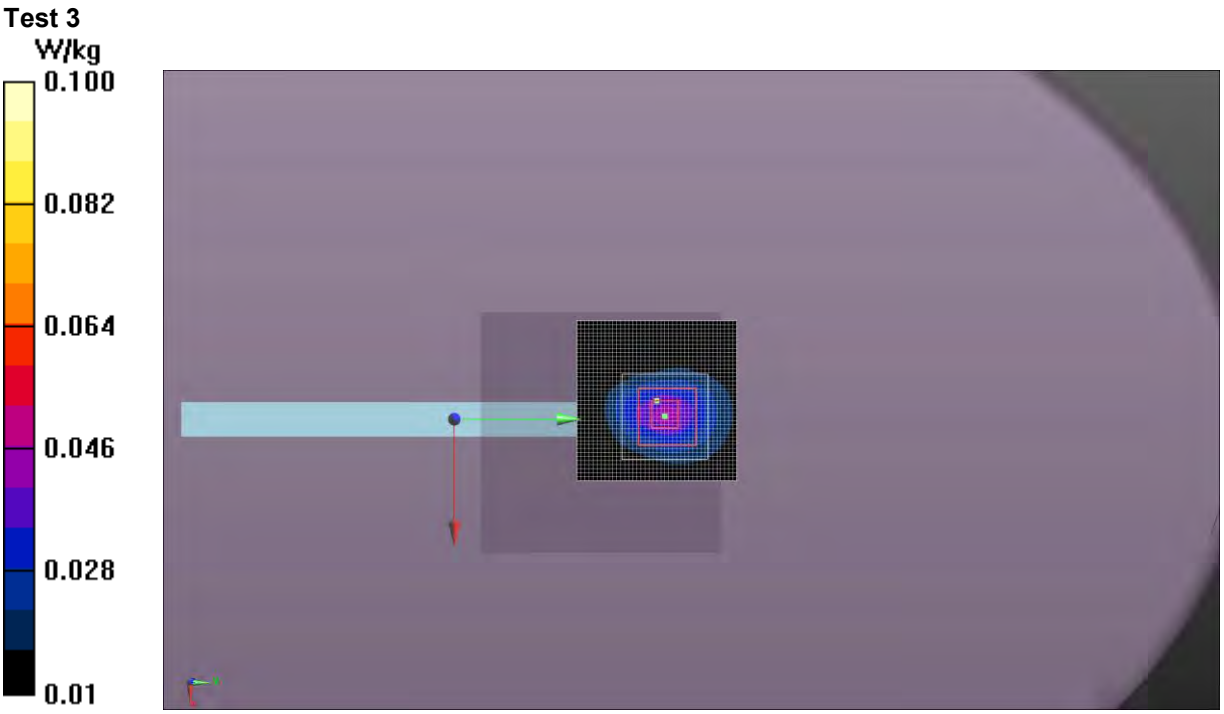
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0427 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.691 V/m; Power Drift = not measured

Info: Interpolated medium parameters used for SAR evaluation.

Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	24
Date:	7/24/2015	Liquid Temperature (°C):	21.9
Serial Number:	IASY515S0017	Humidity (%RH):	42.7
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.4
Comments:	None		

Test 4
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1860 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1860 MHz; σ = 1.476 S/m; ε_r = 54.271; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0838 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.13 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.186 W/kg
SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.066 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.140 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

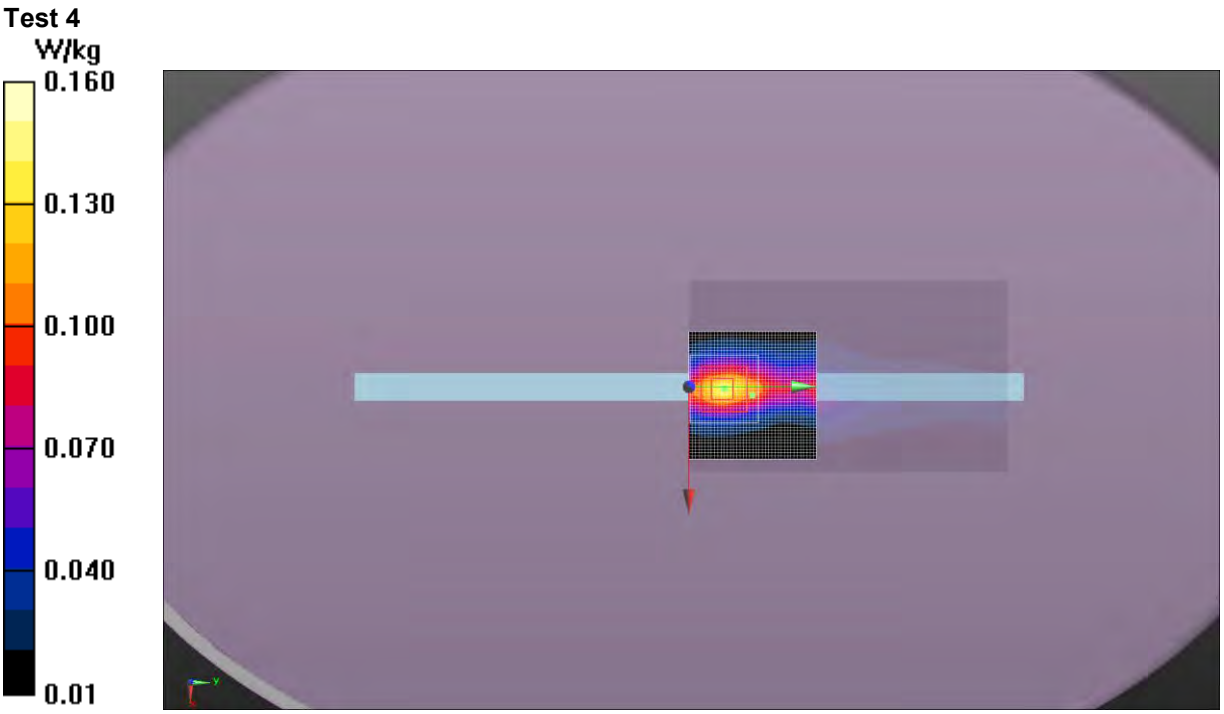
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.141 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 7.631 V/m
Maximum value of SAR (measured) = 0.0860 W/kg

Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	22.3
Date:	7/24/2015	Liquid Temperature (°C):	21.9
Serial Number:	IASY515S0017	Humidity (%RH):	44.1
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.3
Comments:	None		

Test 5a
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1860 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1860 MHz; σ = 1.476 S/m; ε_r = 54.271; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.155 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.95 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.118 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.271 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

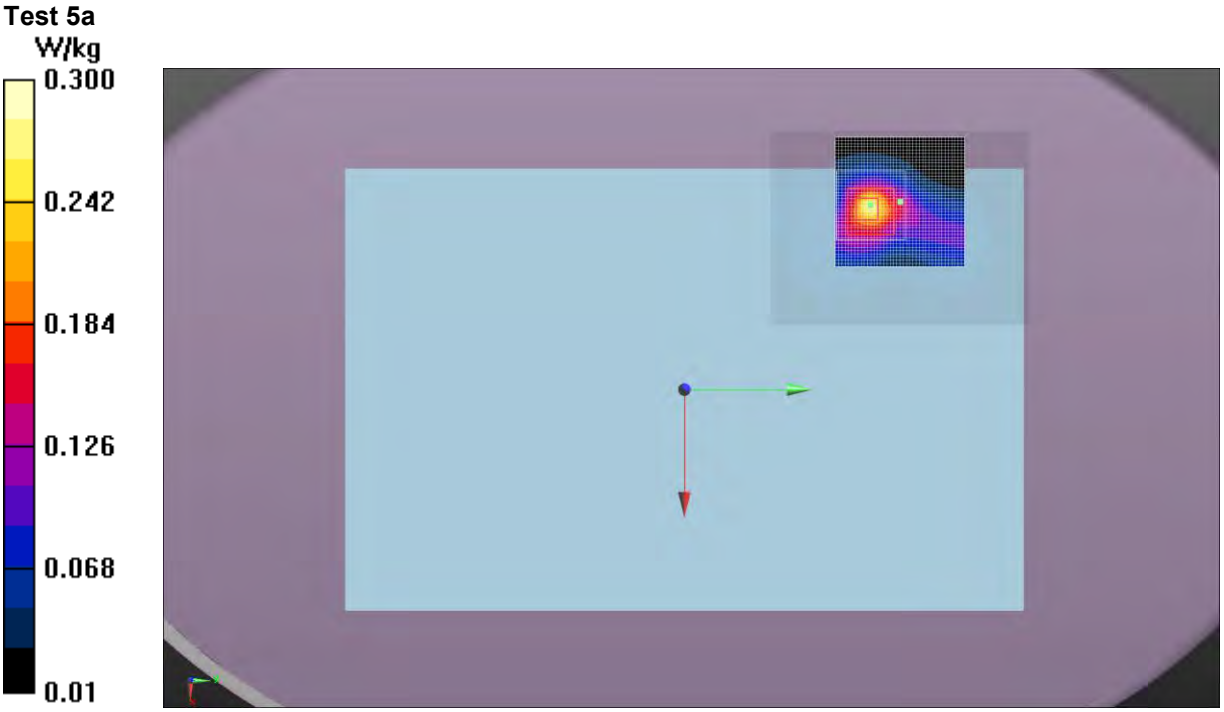
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.280 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 10.53 V/m
Maximum value of SAR (measured) = 0.164 W/kg

Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Tested By:	Luke Richardson	Room Temperature (°C):	24.3
Date:	7/24/2015	Liquid Temperature (°C):	22
Serial Number:	IASY515S0017	Humidity (%RH):	40.8
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.2
Comments:	None		

Test 6
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1860 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1860 MHz; σ = 1.476 S/m; ε_r = 54.271; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0228 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.110 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.0440 W/kg
SAR(1 g) = 0.029 W/kg; SAR(10 g) = 0.018 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0352 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

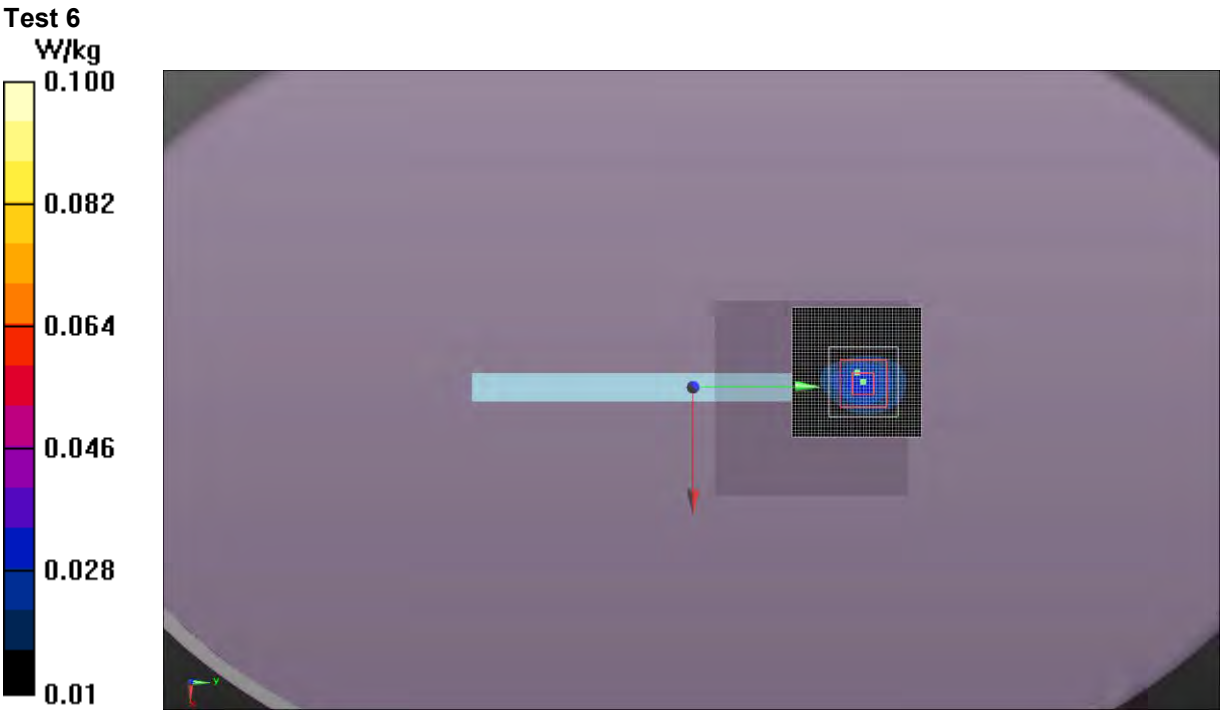
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0319 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.110 V/m; Power Drift = not measured

Info: Interpolated medium parameters used for SAR evaluation.

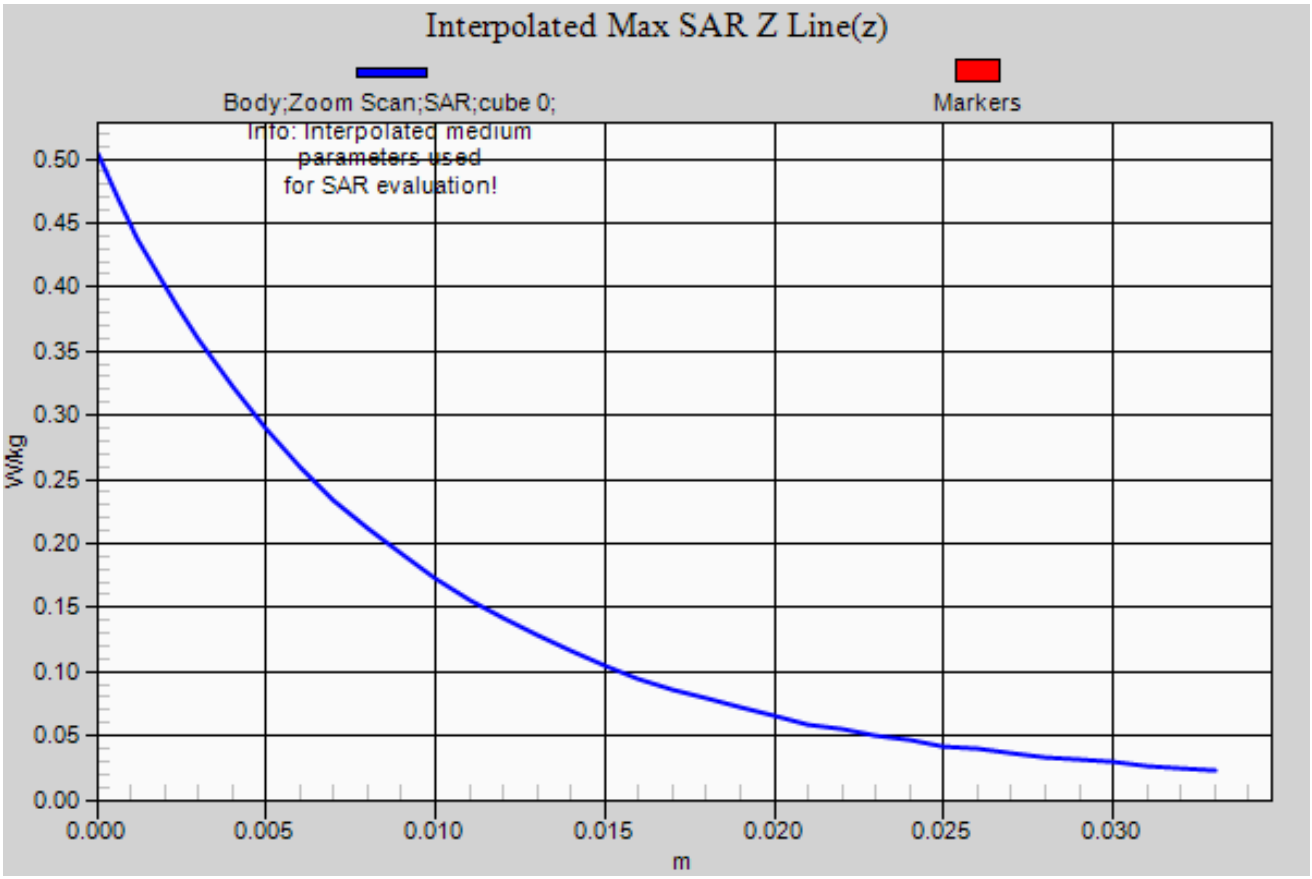
Approved By

SAR TEST DATA – LTE BAND 2



SAR TEST DATA – LTE BAND 2

Test 2a – Z Scan



SAR TEST DATA LTE BAND 4

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 4	1745	20300	QPSK 1RB offset 0	20MHz	Tablet	Top	4mm	-0.03	0.14	0.08	13
Body	LTE Band 4	1745	20300	QPSK 1RB offset 0	20MHz	Tablet	Back	4mm	-0.03	0.26	0.14	14
Body	LTE Band 4	1745	20300	QPSK 1RB offset 0	20MHz	Tablet	Left	4mm	0.00	0.01	0.01	15
Body	LTE Band 4	1745	20300	QPSK 50RB offset 0	20MHz	Tablet	Top	4mm	-0.03	0.10	0.06	16
Body	LTE Band 4	1745	20300	QPSK 50RB offset 0	20MHz	Tablet	Back	4mm	-0.04	0.21	0.11	17
Body	LTE Band 4	1745	20300	QPSK 50RB offset 0	20MHz	Tablet	Left	4mm	0.00	0.01	0.01	18

SAR TEST DATA LTE BAND 4

Tested By:	Carl Engholm	Room Temperature (°C):	24.7
Date:	7/24/2015	Liquid Temperature (°C):	21.5
Serial Number:	IASY515S0017	Humidity (%RH):	37
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017
Comments:	None		

Test 13
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.120 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.13 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.222 W/kg
SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.077 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.165 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

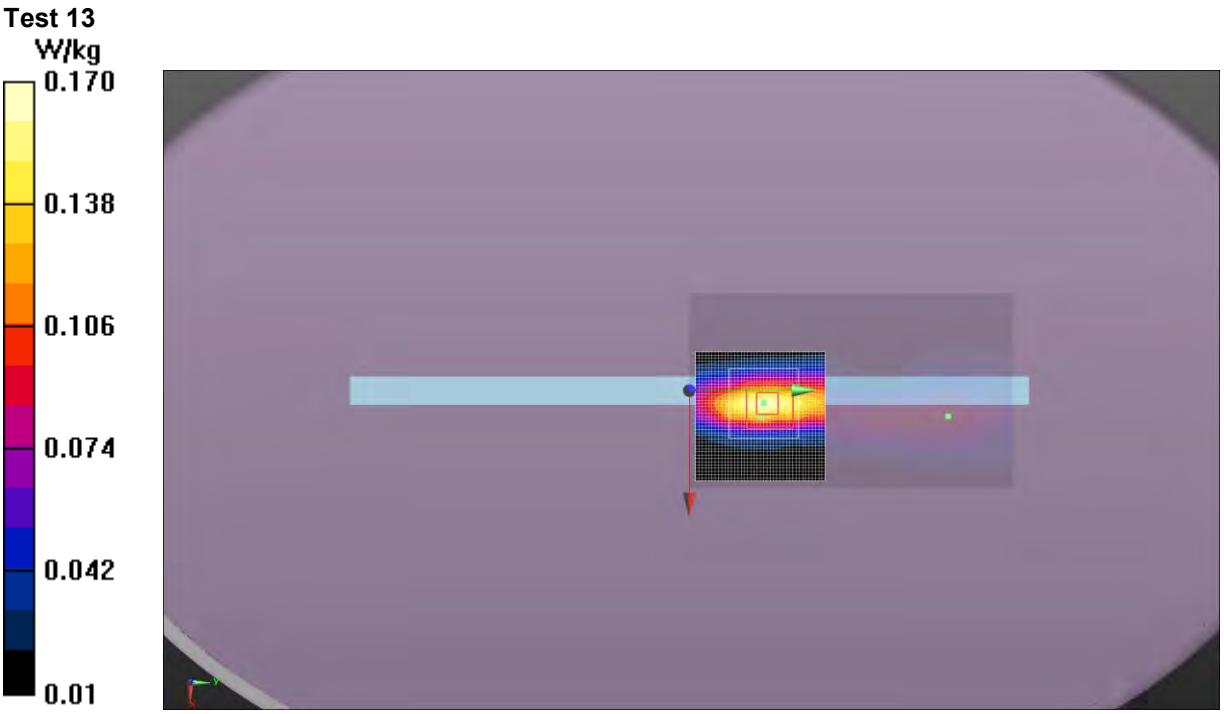
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.163 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 8.322 V/m
Maximum value of SAR (measured) = 0.100 W/kg

Approved By

SAR TEST DATA LTE BAND 4



SAR TEST DATA LTE BAND 4

Tested By:	Carl Engholm	Room Temperature (°C):	24.7
Date:	7/24/2015	Liquid Temperature (°C):	21.5
Serial Number:	IASY515S0017	Humidity (%RH):	37
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017
Comments:	None		

Test 14
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

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

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.70 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.140 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.327 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

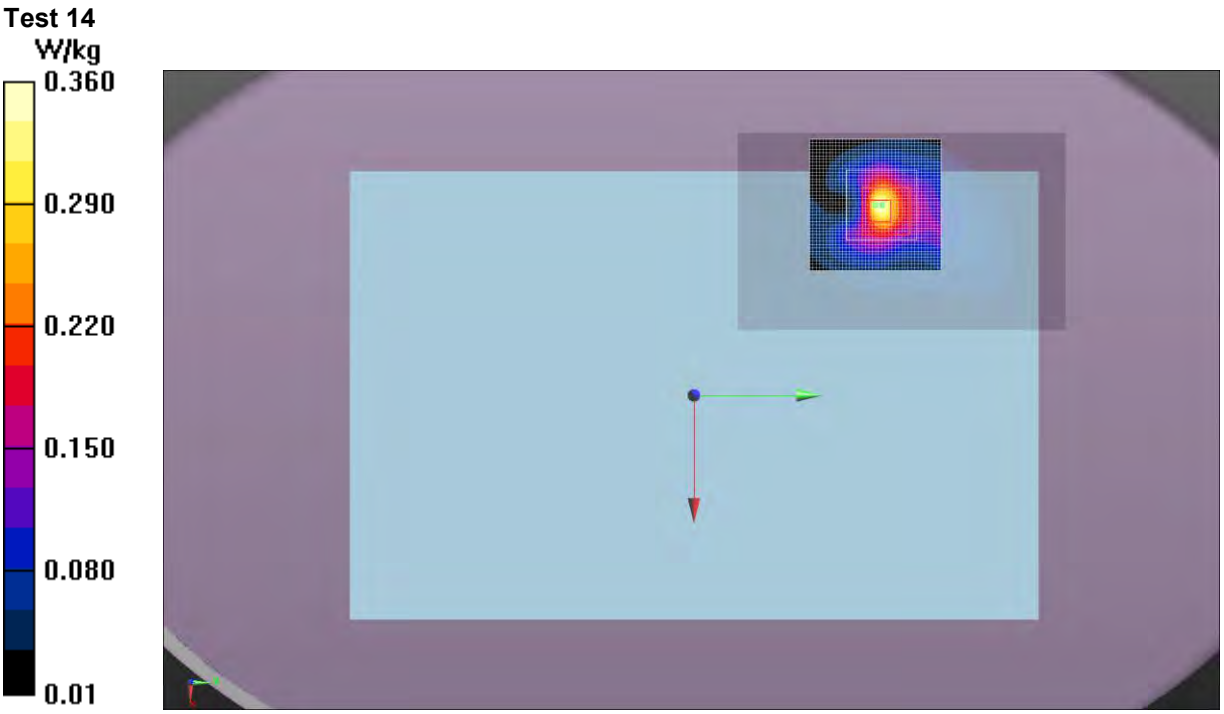
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.355 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 11.68 V/m
Maximum value of SAR (measured) = 0.198 W/kg

Approved By

SAR TEST DATA LTE BAND 4



SAR TEST DATA LTE BAND 4

Tested By:	Luke Richardson	Room Temperature (°C):	24.8
Date:	7/24/2015	Liquid Temperature (°C):	21.5
Serial Number:	IASY515S0017	Humidity (%RH):	38.4
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017.4
Comments:	None		

Test 15
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0133 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.344 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.0170 W/kg
SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00862 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0144 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

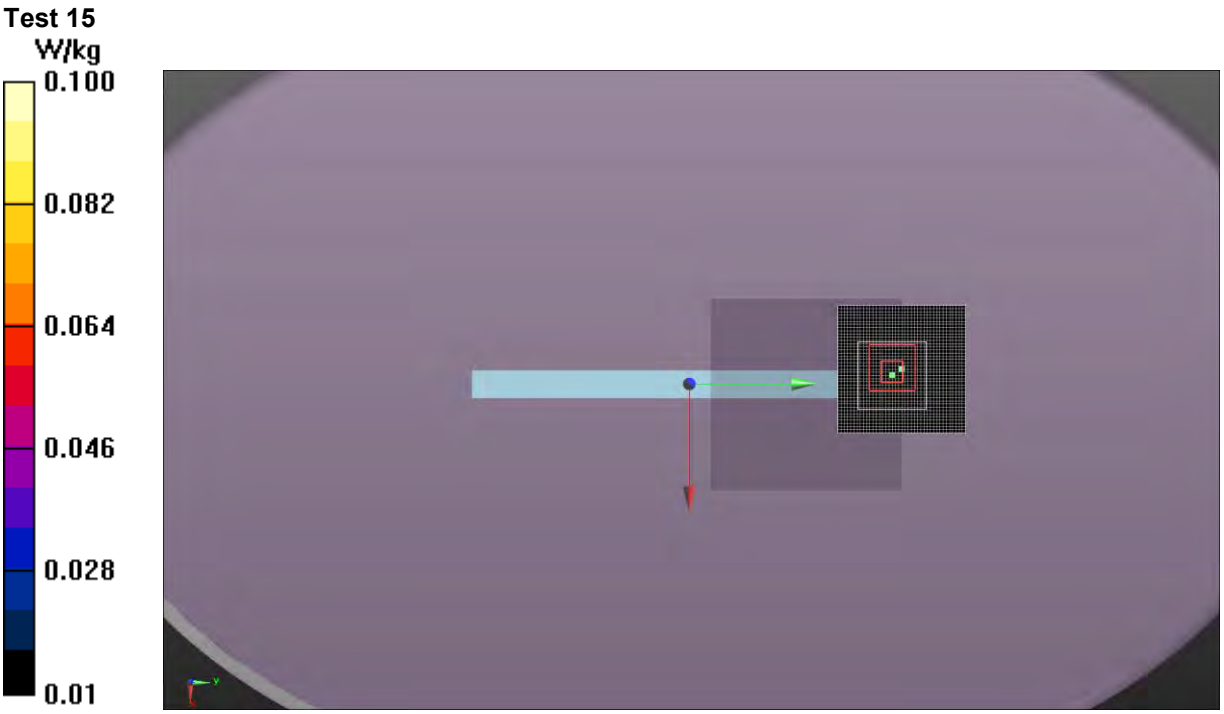
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0148 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.344 V/m; Power Drift = not measured

Info: Interpolated medium parameters used for SAR evaluation.

Approved By

SAR TEST DATA LTE BAND 4



SAR TEST DATA LTE BAND 4

Tested By:	Carl Engholm	Room Temperature (°C):	24.6
Date:	7/24/2015	Liquid Temperature (°C):	21.6
Serial Number:	IASY515S0017	Humidity (%RH):	38
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017
Comments:	None		

Test 16
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0850 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.826 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.171 W/kg
SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.061 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.127 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.128 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 7.314 V/m
Maximum value of SAR (measured) = 0.0775 W/kg

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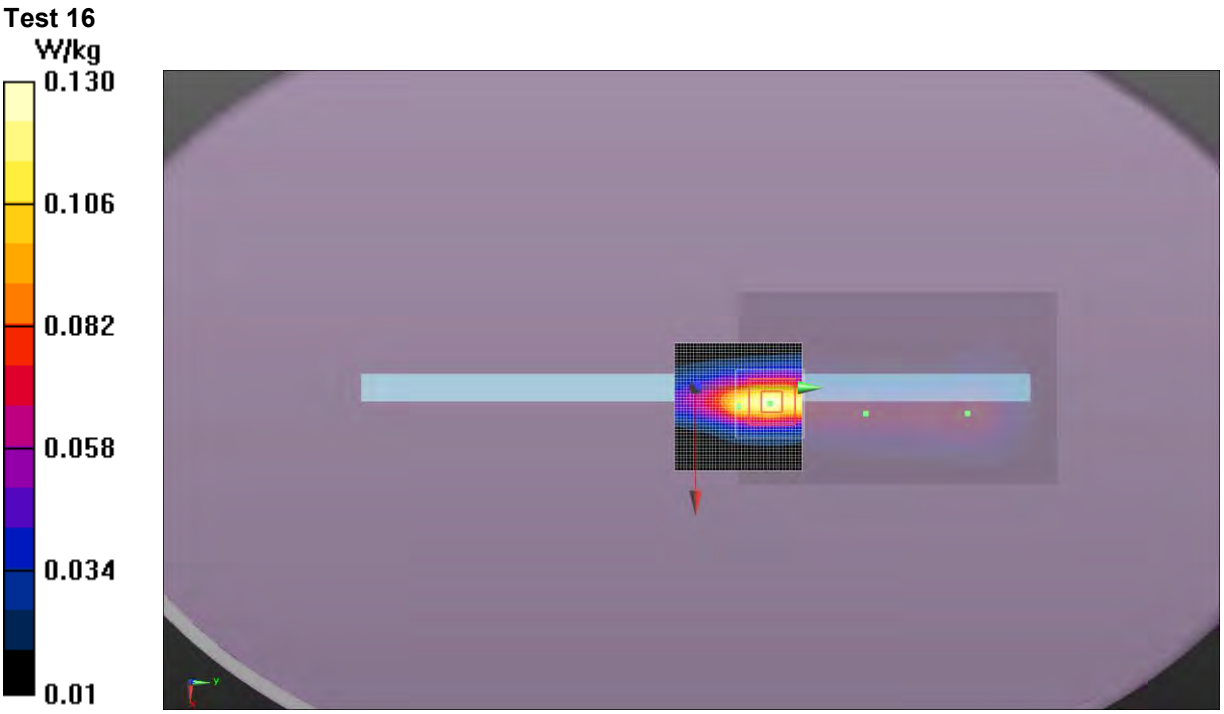
SAR TEST DATA LTE BAND 4



SAR TEST DATA LTE BAND 4

Tested By:	Luke Richardson	Room Temperature (°C):	24.9
Date:	7/24/2015	Liquid Temperature (°C):	21.7
Serial Number:	IASY515S0017	Humidity (%RH):	36.4
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017.4
Comments:	None		

Test 17
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.223 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.09 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.375 W/kg
SAR(1 g) = 0.212 W/kg; SAR(10 g) = 0.113 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.266 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

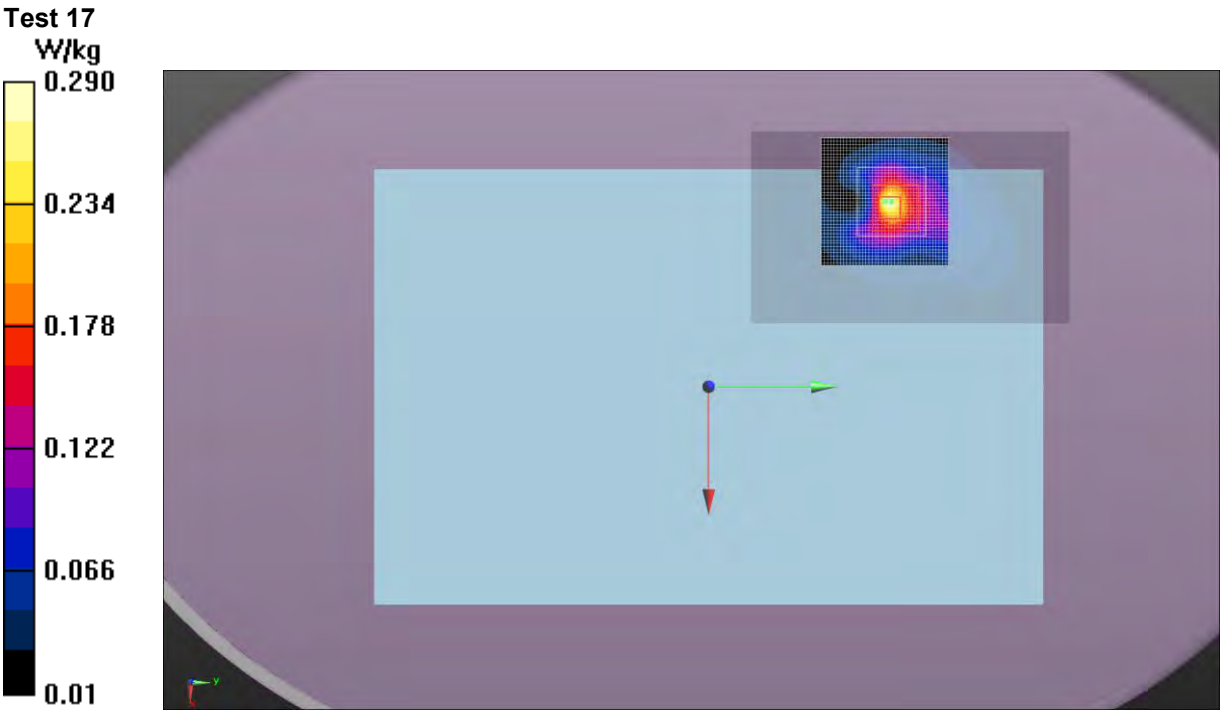
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.282 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 10.48 V/m
Maximum value of SAR (measured) = 0.159 W/kg

Approved By

SAR TEST DATA LTE BAND 4



SAR TEST DATA LTE BAND 4

Tested By:	Luke Richardson	Room Temperature (°C):	24.7
Date:	7/24/2015	Liquid Temperature (°C):	21.6
Serial Number:	IASY515S0017	Humidity (%RH):	38.6
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017.4
Comments:	None		

Test 18
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.449 S/m; ε_r = 52.606; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0108 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.823 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.0590 W/kg
SAR(1 g) = 0.0091 W/kg; SAR(10 g) = 0.006 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0292 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

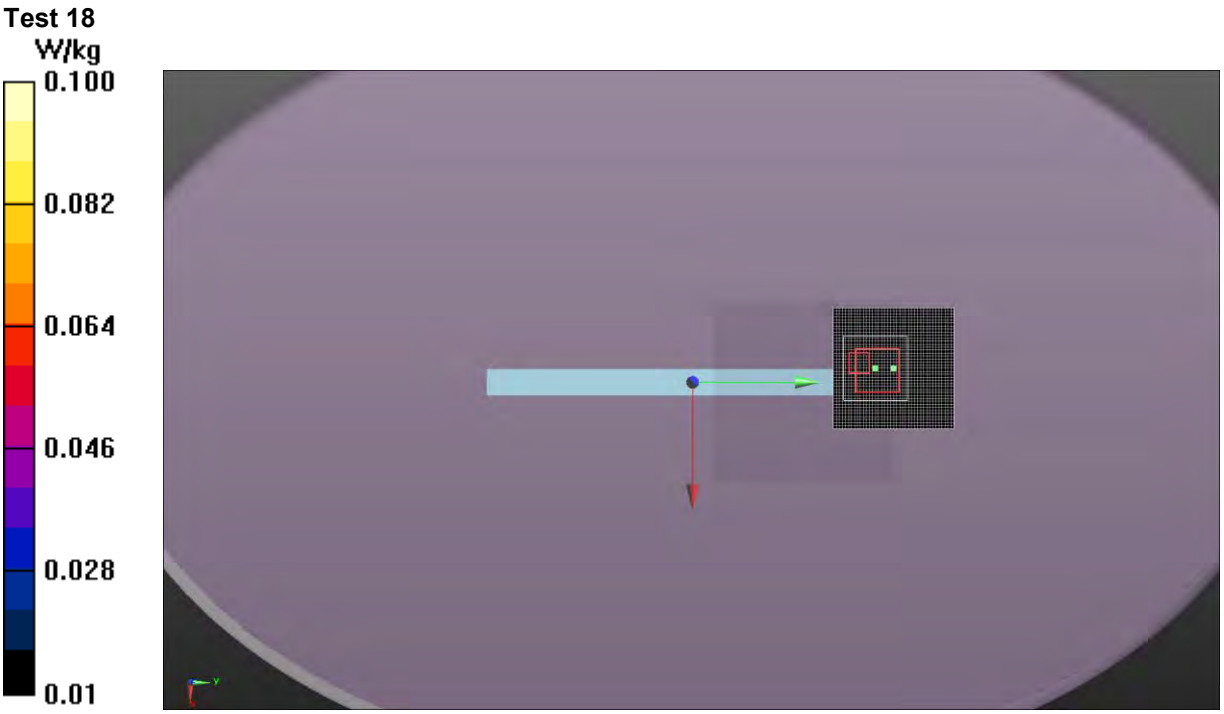
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0112 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.823 V/m; Power Drift = not measured

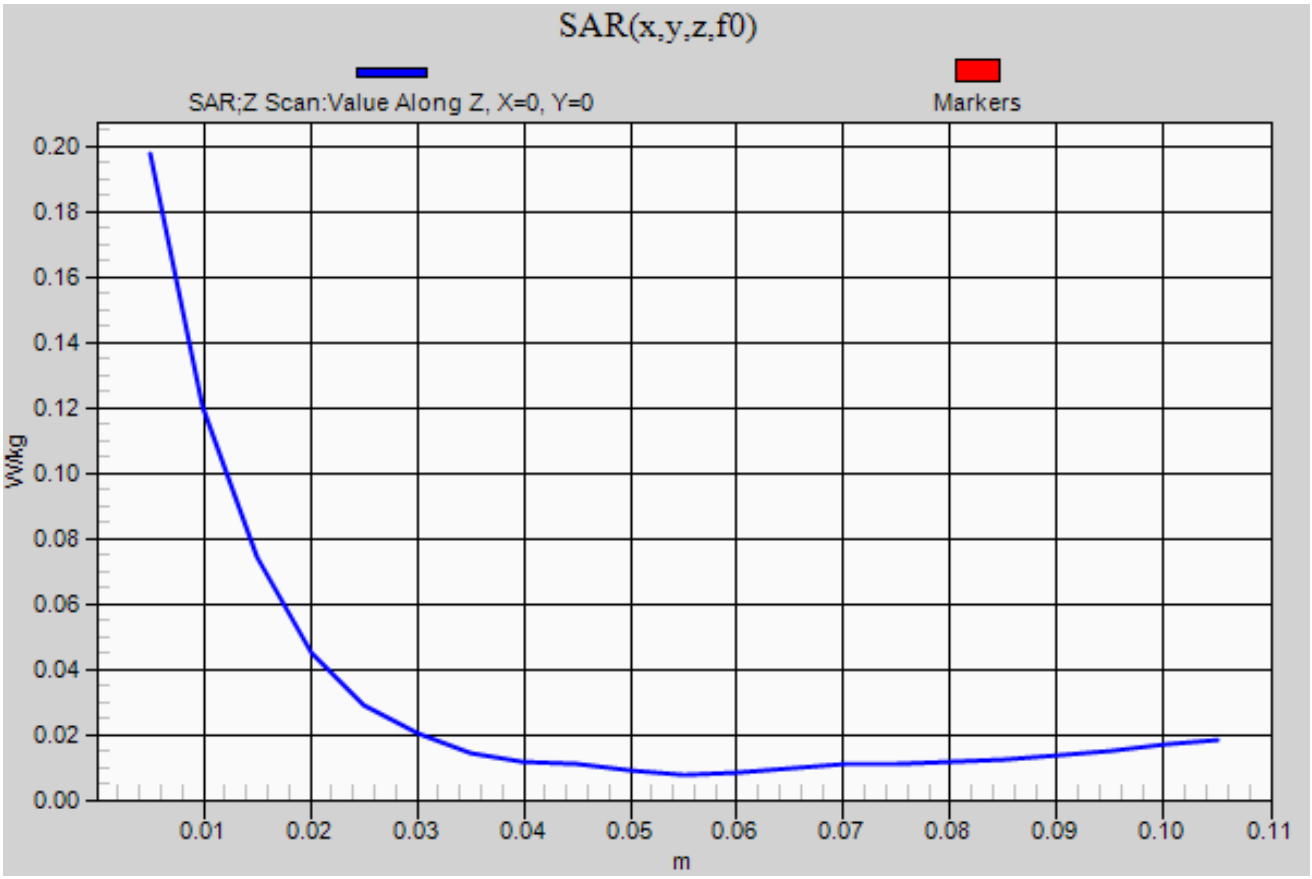
Info: Interpolated medium parameters used for SAR evaluation.

Approved By

SAR TEST DATA LTE BAND 4



Test 14 – Z Scan



SAR TEST DATA LTE BAND 5

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 5	829	20450	QPSK 1RB offset 0	10MHz	Tablet	Top	4mm	-0.02	0.26	0.14	25
Body	LTE Band 5	829	20450	QPSK 1RB offset 0	10MHz	Tablet	Back	4mm	-0.05	0.34	0.21	26
Body	LTE Band 5	829	20450	QPSK 1RB offset 0	10MHz	Tablet	Left	4mm	N/A	0.01	0.01	27
Body	LTE Band 5	829	20450	QPSK 25RB offset 0	10MHz	Tablet	Top	4mm	-0.01	0.22	0.12	28
Body	LTE Band 5	829	20450	QPSK 25RB offset 0	10MHz	Tablet	Back	4mm	0.04	0.29	0.18	29
Body	LTE Band 5	829	20450	QPSK 25RB offset 0	10MHz	Tablet	Left	4mm	N/A	0.01	0.01	30

SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	24.1
Date:	7/27/2015	Liquid Temperature (°C):	21.9
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 25
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.142 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.99 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.502 W/kg
SAR(1 g) = 0.265 W/kg; SAR(10 g) = 0.139 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.342 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

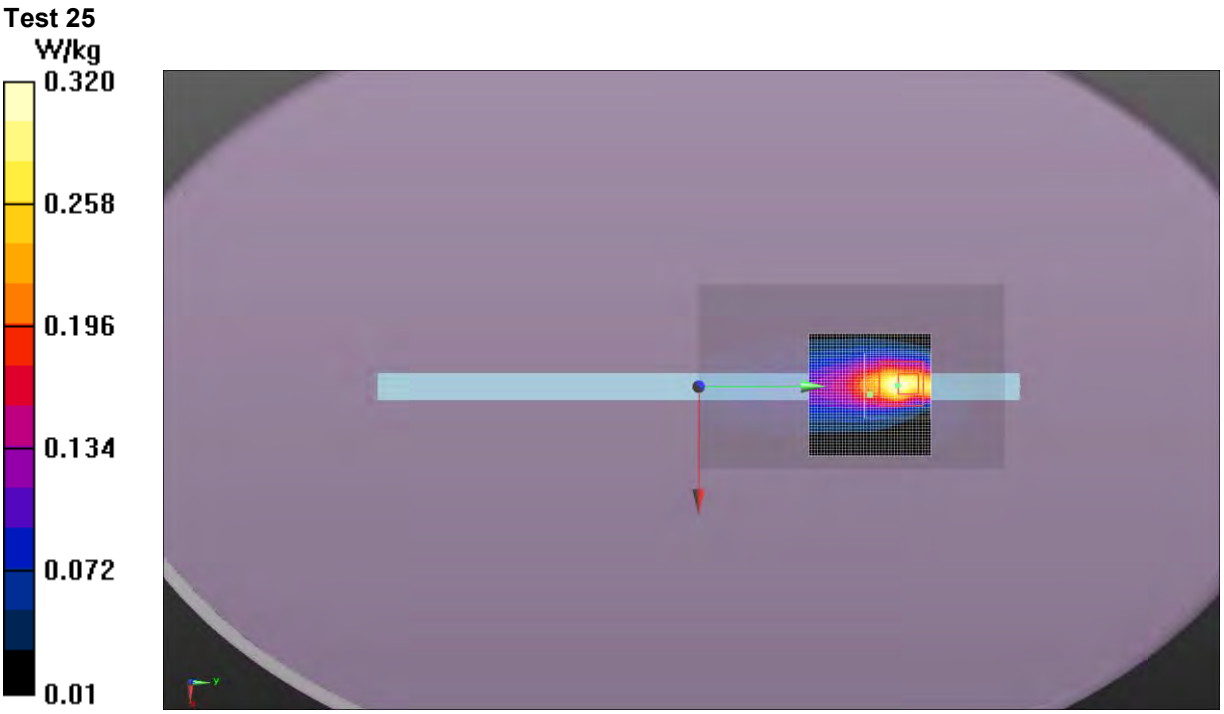
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.317 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 13.93 V/m
Maximum value of SAR (measured) = 0.191 W/kg

Approved By

SAR TEST DATA LTE BAND 5



SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	23.9
Date:	7/27/2015	Liquid Temperature (°C):	21.8
Serial Number:	IASY515S0017	Humidity (%RH):	40
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 26
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.362 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.08 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.341 W/kg; SAR(10 g) = 0.206 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.407 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

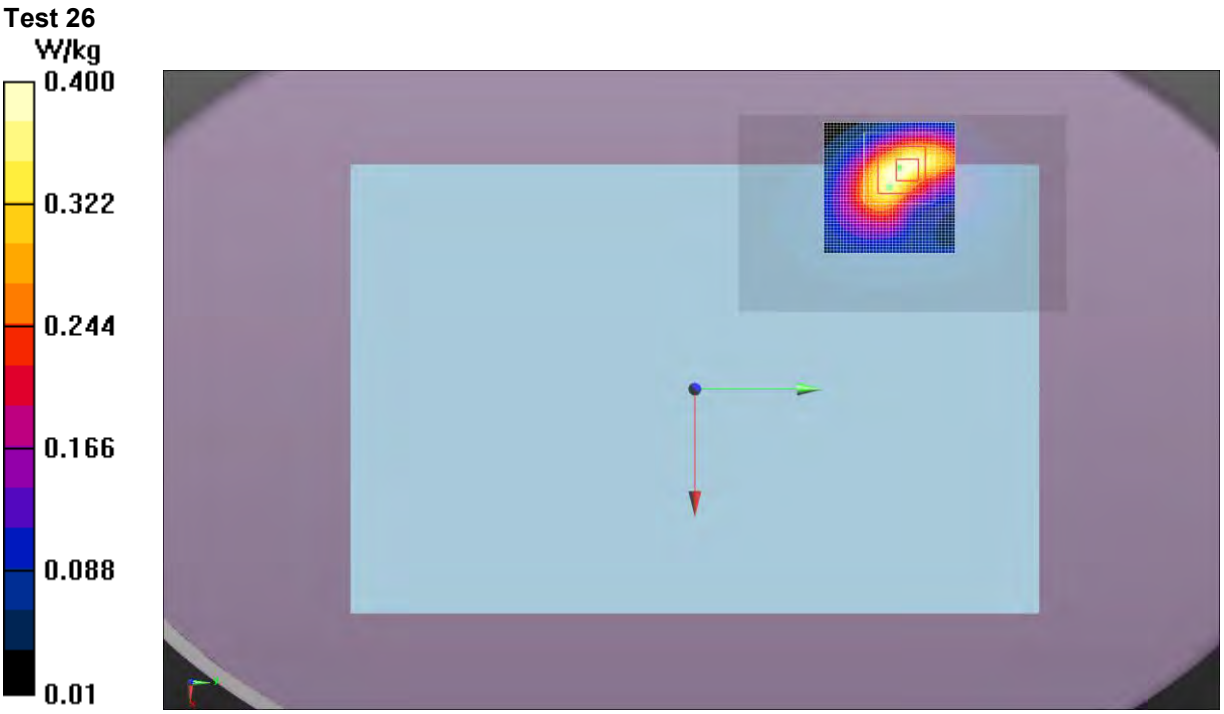
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.402 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 16.45 V/m
Maximum value of SAR (measured) = 0.266 W/kg

Approved By

SAR TEST DATA LTE BAND 5



SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	23.8
Date:	7/27/2015	Liquid Temperature (°C):	21.8
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 27
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0217 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

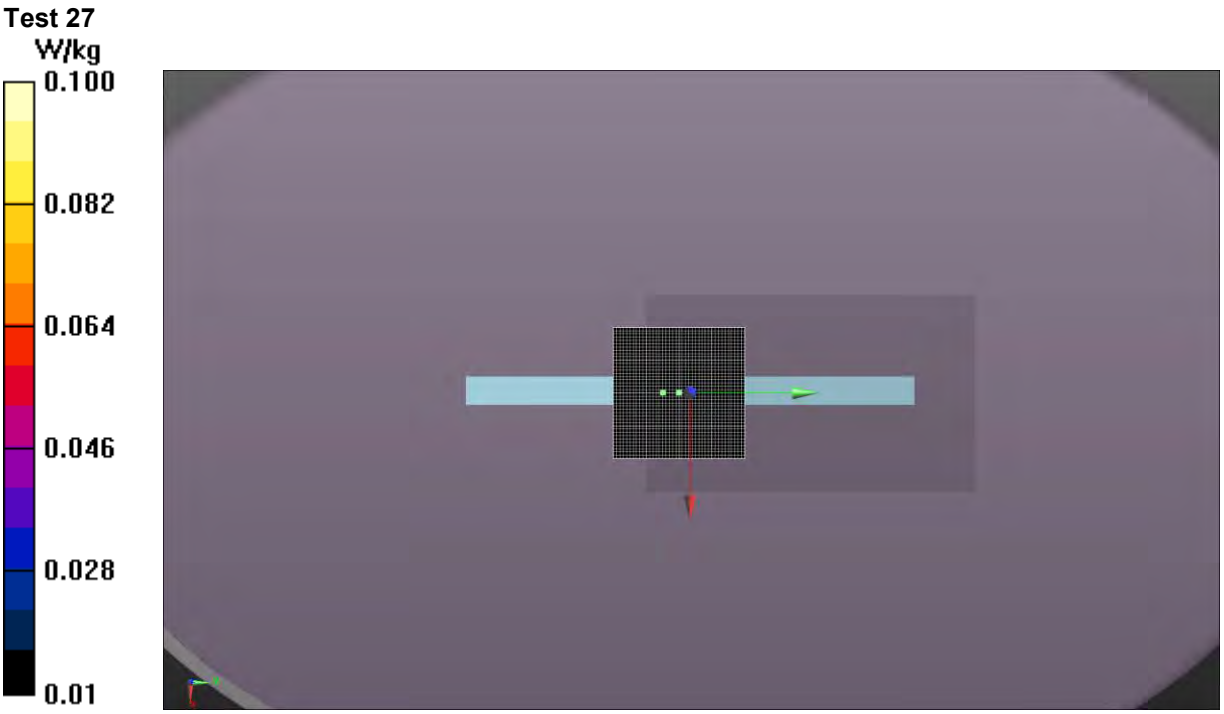
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0149 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0144 W/kg

Approved By

SAR TEST DATA LTE BAND 5



SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	24.1
Date:	7/27/2015	Liquid Temperature (°C):	21.9
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 28
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.117 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.23 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.222 W/kg; SAR(10 g) = 0.116 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.287 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

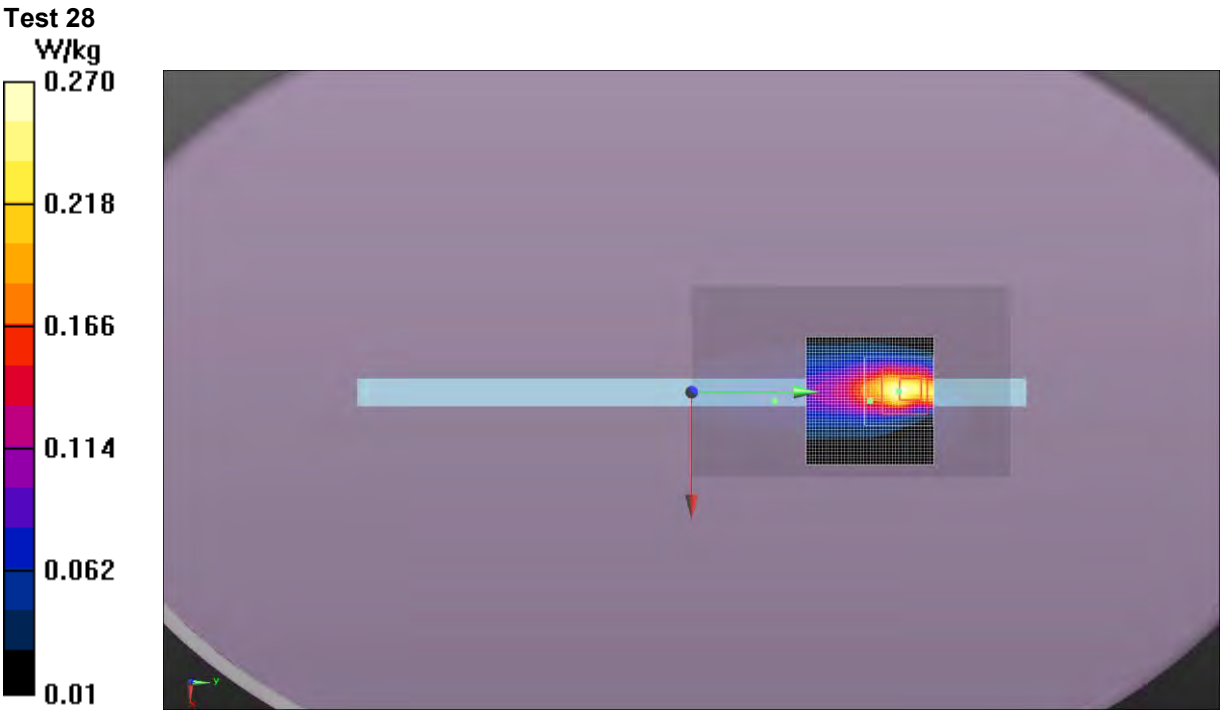
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.263 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 12.60 V/m
Maximum value of SAR (measured) = 0.156 W/kg

Approved By

SAR TEST DATA LTE BAND 5



SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	23.9
Date:	7/27/2015	Liquid Temperature (°C):	21.8
Serial Number:	IASY515S0017	Humidity (%RH):	40
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 29
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.304 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.51 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.469 W/kg
SAR(1 g) = 0.294 W/kg; SAR(10 g) = 0.176 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.352 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

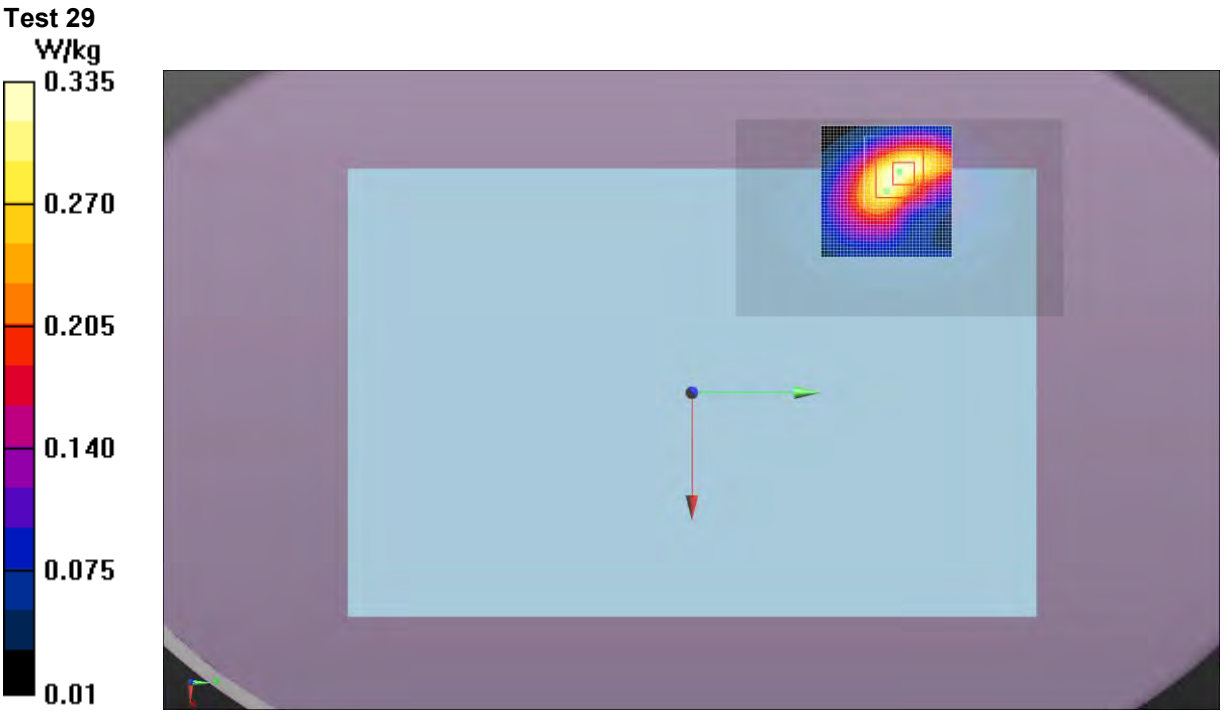
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.335 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 15.29 V/m
Maximum value of SAR (measured) = 0.230 W/kg

Approved By

SAR TEST DATA LTE BAND 5



SAR TEST DATA LTE BAND 5

Tested By:	Carl Engholm	Room Temperature (°C):	23.8
Date:	7/27/2015	Liquid Temperature (°C):	21.8
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022
Comments:	None		

Test 30
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 829 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 829 MHz; σ = 0.984 S/m; ε_r = 57.176; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0118 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

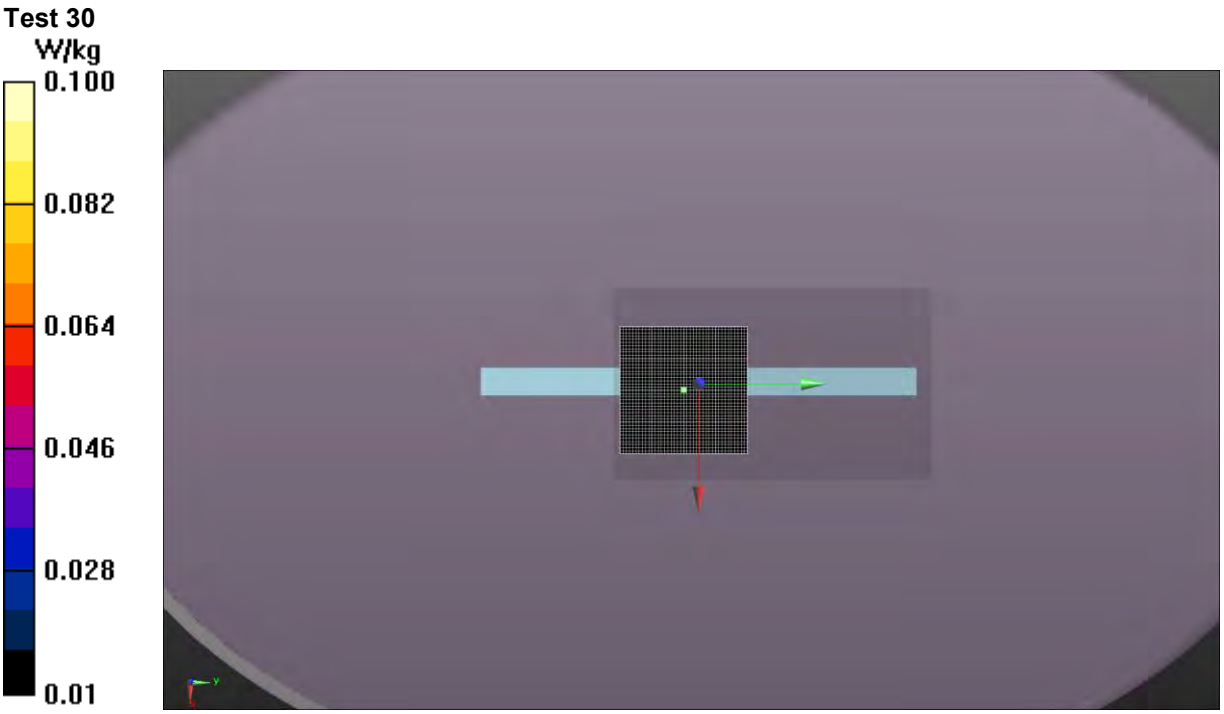
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0119 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

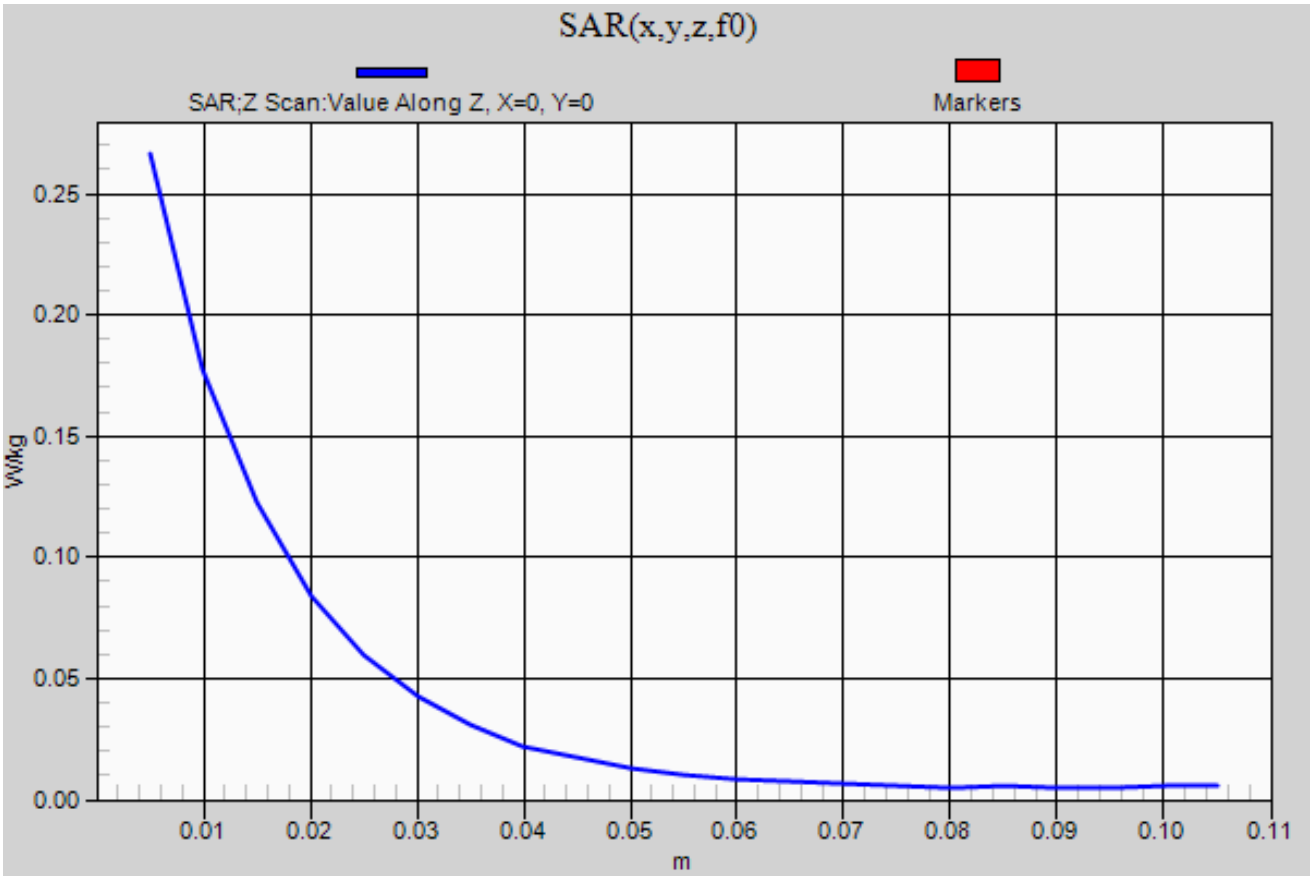
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0113 W/kg

Approved By

SAR TEST DATA LTE BAND 5



Test 26 – Z Scan



SAR TEST DATA LTE BAND 7

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 7	2514	20890	QPSK 1RB offset 0	20MHz	Tablet	Top	6mm	0.11	0.16	0.09	37
Body	LTE Band 7	2514	20890	QPSK 1RB offset 0	20MHz	Tablet	Back	6mm	0.15	0.38	0.17	38
Body	LTE Band 7	2514	20890	QPSK 1RB offset 0	20MHz	Tablet	Left	6mm	-0.08	0.08	0.05	39
Body	LTE Band 7	2514	20890	QPSK 50 RB offset 0	20MHz	Tablet	Top	6mm	-0.11	0.11	0.06	40
Body	LTE Band 7	2514	20890	QPSK 50 RB offset 0	20MHz	Tablet	Back	6mm	0.10	0.28	0.13	41
Body	LTE Band 7	2514	20890	QPSK 50 RB offset 0	20MHz	Tablet	Left	6mm	0.19	0.06	0.04	42

SAR TEST DATA LTE BAND 7

Tested By:	Carl Engholm	Room Temperature (°C):	24.8
Date:	7/22/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1012
Comments:	None		

Test 37
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.807 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.315 W/kg
SAR(1 g) = 0.161 W/kg; SAR(10 g) = 0.087 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.201 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.216 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

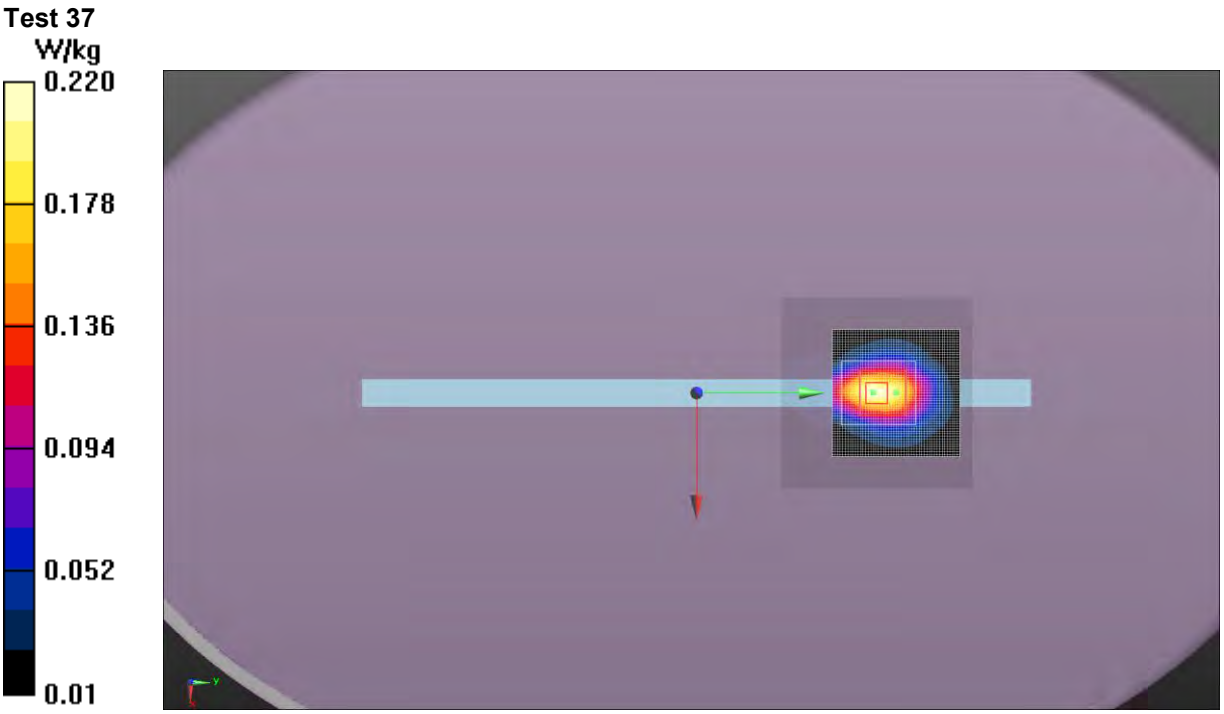
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 7.147 V/m

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0864 W/kg
Maximum value of SAR (measured) = 0.108 W/kg

Approved By

SAR TEST DATA LTE BAND 7



SAR TEST DATA LTE BAND 7

Tested By:	Carl Engholm	Room Temperature (°C):	25
Date:	7/22/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	39
Configuration:	INTE5622-1	Bar. Pressure (mb):	1012
Comments:	None		

Test 38
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.07 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.826 W/kg
SAR(1 g) = 0.379 W/kg; SAR(10 g) = 0.173 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.485 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.435 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

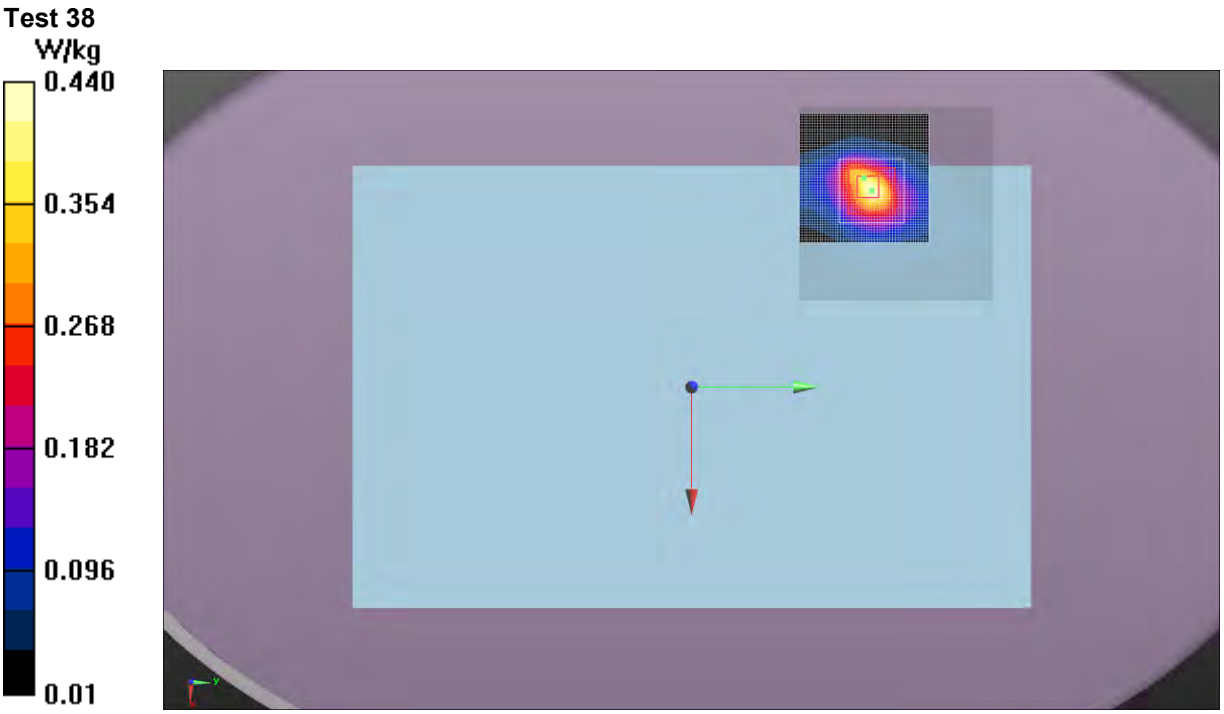
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 11.03 V/m

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.408 W/kg
Maximum value of SAR (measured) = 0.256 W/kg

Approved By

SAR TEST DATA LTE BAND 7



SAR TEST DATA LTE BAND 7

Tested By:	Luke Richardson	Room Temperature (°C):	24.1
Date:	7/23/2015	Liquid Temperature (°C):	22
Serial Number:	IASY515S0017	Humidity (%RH):	42.3
Configuration:	INTE5622-1	Bar. Pressure (mb):	1015.5
Comments:	None		

Test 39
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.646 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.129 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.048 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0901 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0914 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

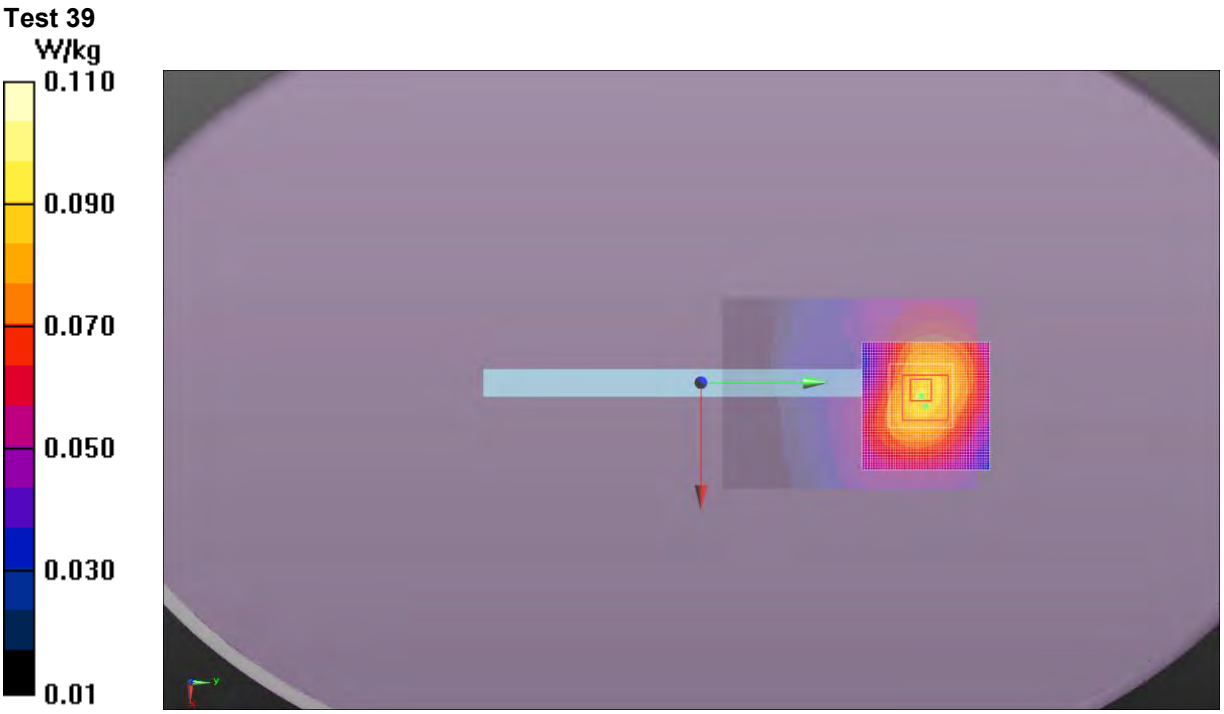
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 4.916 V/m

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0857 W/kg
Maximum value of SAR (measured) = 0.0509 W/kg

Approved By

SAR TEST DATA LTE BAND 7



SAR TEST DATA LTE BAND 7

Tested By:	Carl Engholm	Room Temperature (°C):	24.8
Date:	7/22/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	41
Configuration:	INTE5622-1	Bar. Pressure (mb):	1012
Comments:	None		

Test 40
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.454 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.063 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.146 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.143 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

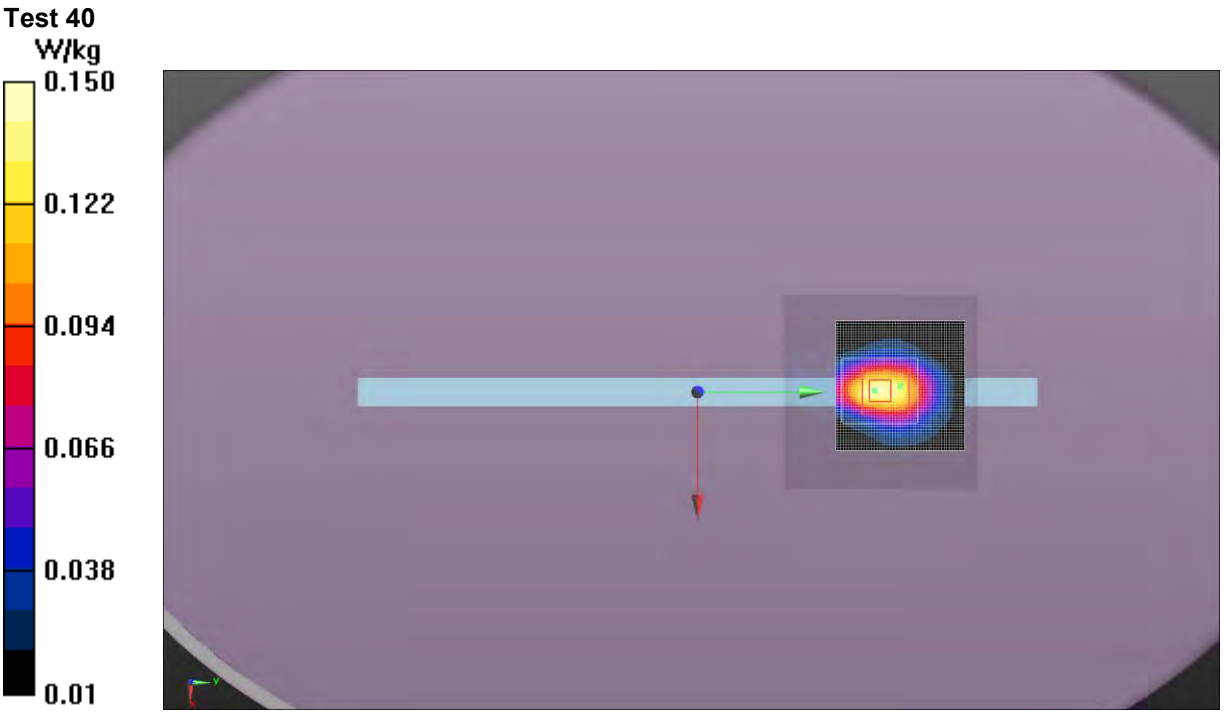
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.992 V/m

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0651 W/kg
Maximum value of SAR (measured) = 0.0756 W/kg

Approved By

SAR TEST DATA LTE BAND 7



SAR TEST DATA LTE BAND 7

Tested By:	Carl Engholm	Room Temperature (°C):	25
Date:	7/22/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	39
Configuration:	INTE5622-1	Bar. Pressure (mb):	1012
Comments:	None		

Test 41
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.12 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.607 W/kg
SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.132 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.365 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.327 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

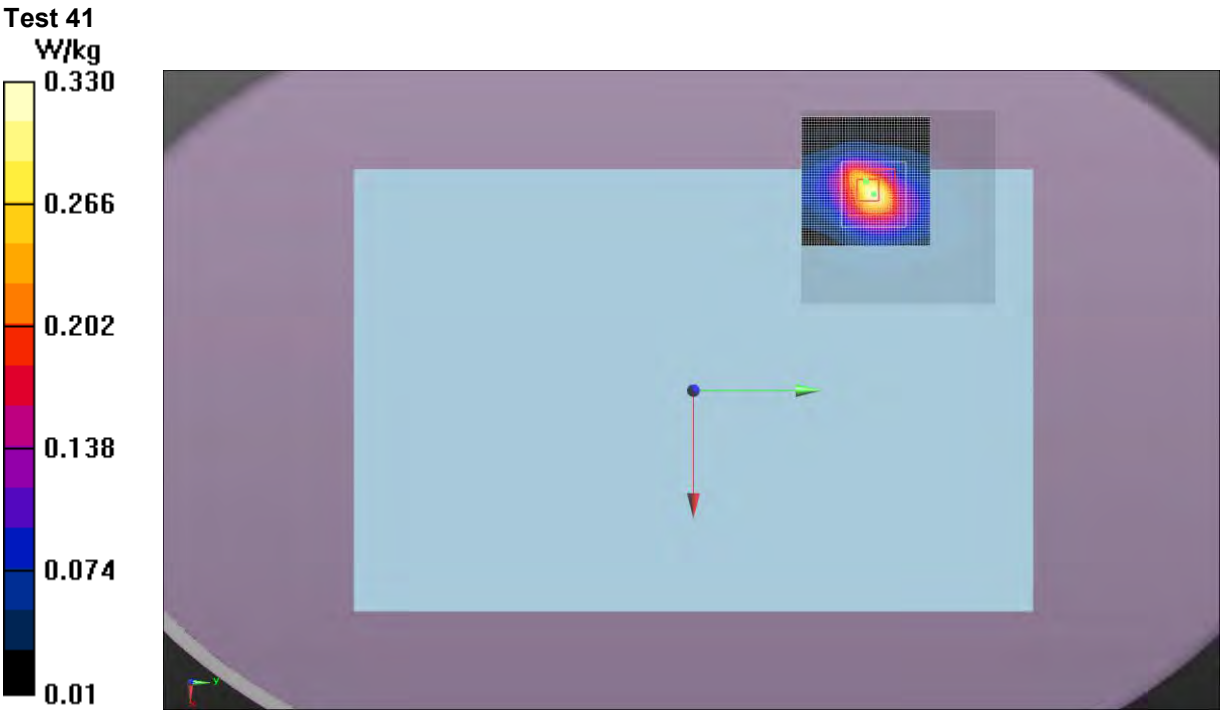
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 9.490 V/m

Body/Body/Reference scan (31x31x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.299 W/kg
Maximum value of SAR (measured) = 0.190 W/kg

Approved By

SAR TEST DATA LTE BAND 7



SAR TEST DATA LTE BAND 7

Tested By:	Luke Richardson	Room Temperature (°C):	23.7
Date:	7/23/2015	Liquid Temperature (°C):	22.3
Serial Number:	IASY515S0017	Humidity (%RH):	42.9
Configuration:	INTE5622-1	Bar. Pressure (mb):	1015.5
Comments:	None		

Test 42
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D2600 (2600.0 MHz); Frequency: 2514 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2514 MHz; σ = 2.105 S/m; ε_r = 50.722; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.886 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.108 W/kg
SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.038 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0748 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0769 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

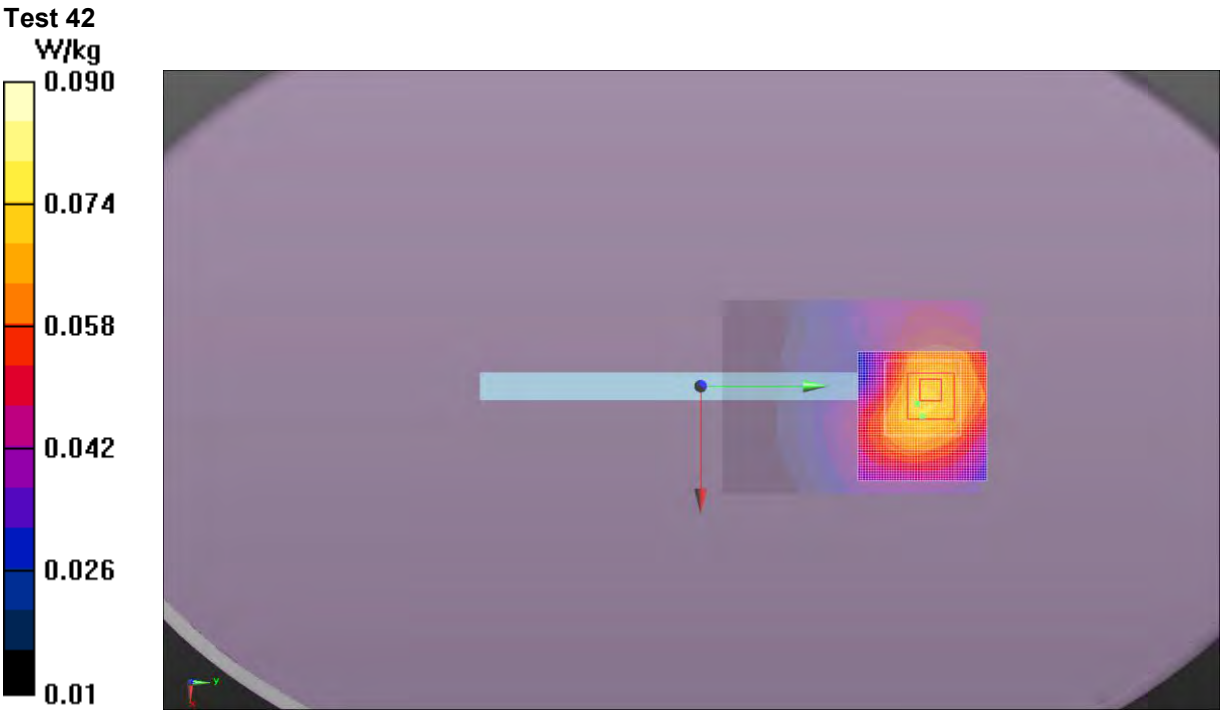
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 4.563 V/m

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

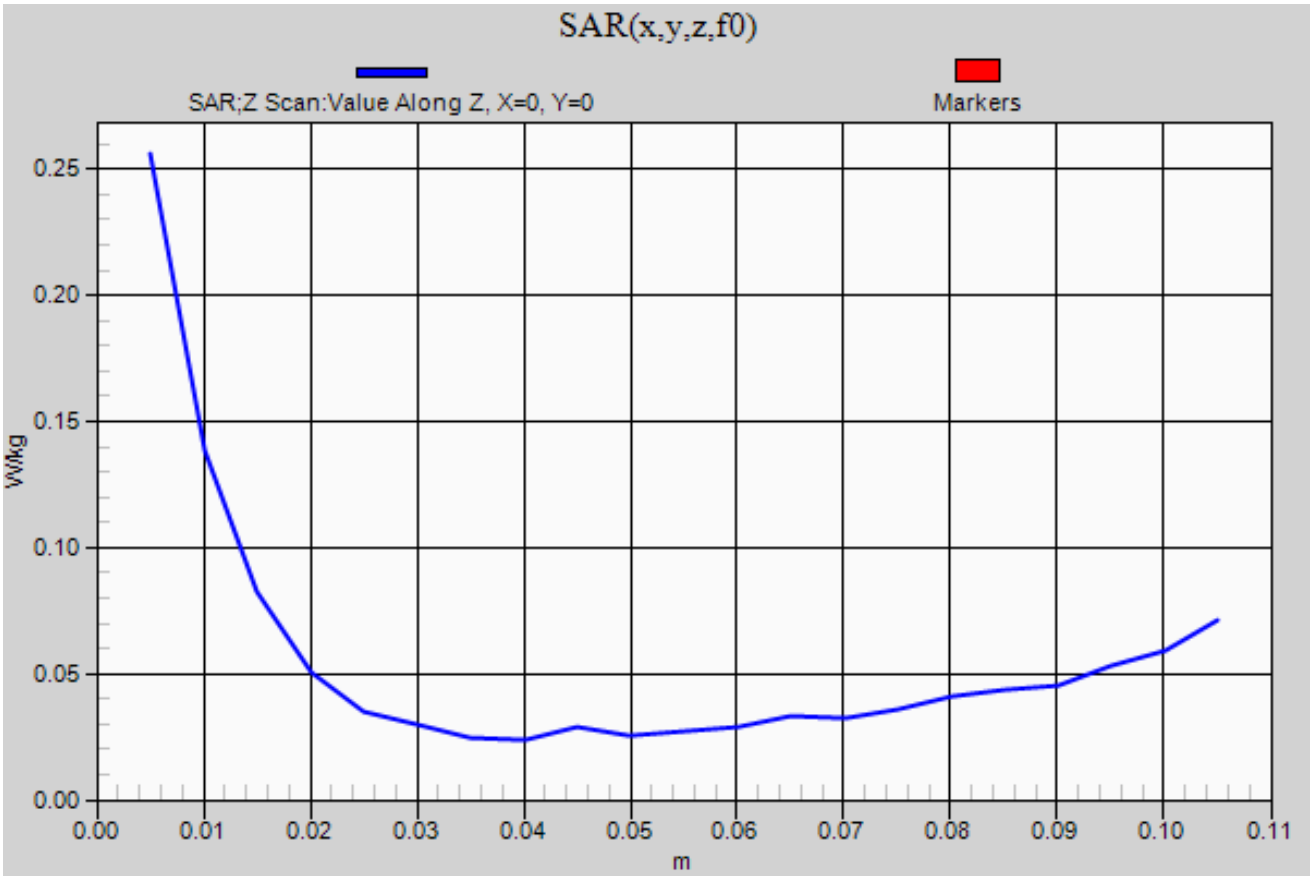
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0691 W/kg
Maximum value of SAR (measured) = 0.0438 W/kg

Approved By

SAR TEST DATA LTE BAND 7



Test 38 – Z Scan



SAR TEST DATA – LTE BAND 13

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 13	782	23230	QPSK 1RB offset 24	10MHz	Tablet	Top	5mm	-0.03	0.20	0.11	49
Body	LTE Band 13	782	23230	QPSK 1RB offset 24	10MHz	Tablet	Back	5mm	0.00	0.24	0.15	50
Body	LTE Band 13	782	23230	QPSK 1RB offset 24	10MHz	Tablet	Left	5mm	0.00	0.01	0.00	51
Body	LTE Band 13	782	23230	QPSK 25RB offset 0	10MHz	Tablet	Top	5mm	-0.04	0.16	0.09	52
Body	LTE Band 13	782	23230	QPSK 25RB offset 0	10MHz	Tablet	Back	5mm	-0.01	0.20	0.12	53
Body	LTE Band 13	782	23230	QPSK 25RB offset 0	10MHz	Tablet	Left	5mm	0.00	0.01	0.00	54

SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	24
Date:	7/27/2015	Liquid Temperature (°C):	21.6
Serial Number:	IASY515S0017	Humidity (%RH):	44
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 49
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.119 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.54 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.398 W/kg
SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.106 W/kg

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

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

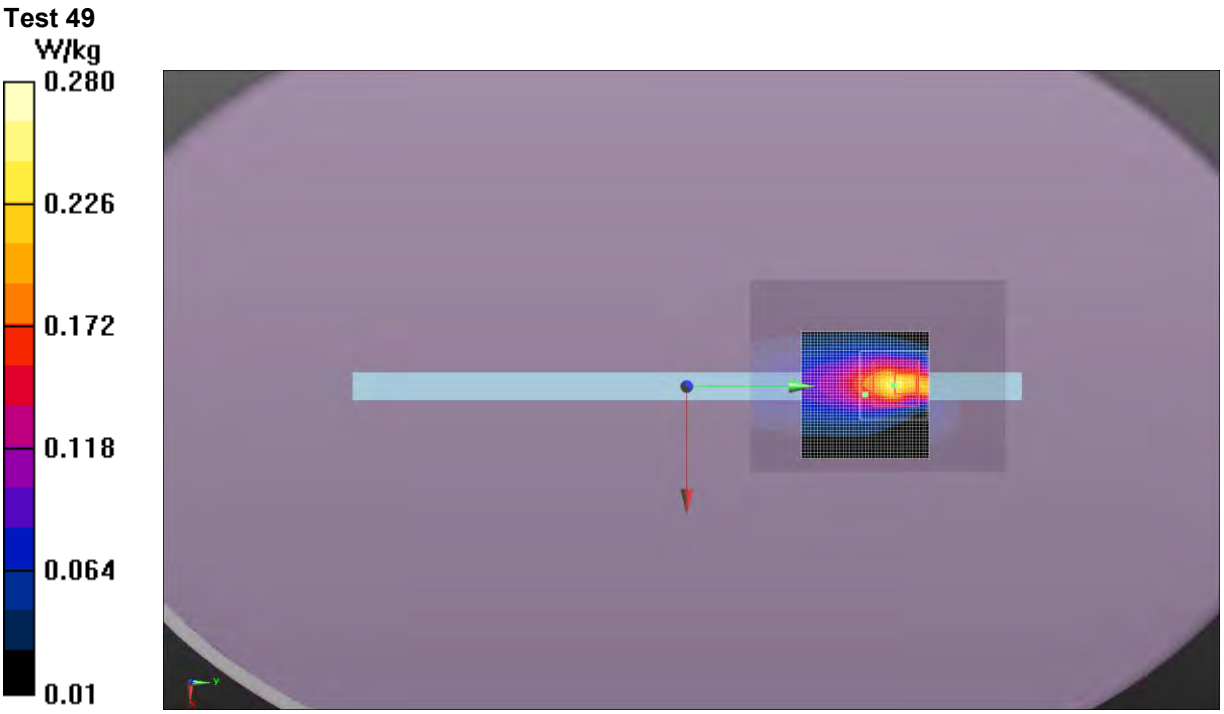
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.239 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 11.92 V/m
Maximum value of SAR (measured) = 0.139 W/kg

Approved By

SAR TEST DATA – LTE BAND 13



SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	23.6
Date:	7/27/2015	Liquid Temperature (°C):	21.5
Serial Number:	IASY515S0017	Humidity (%RH):	44.8
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 50
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.276 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.51 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.396 W/kg
SAR(1 g) = 0.242 W/kg; SAR(10 g) = 0.146 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.292 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

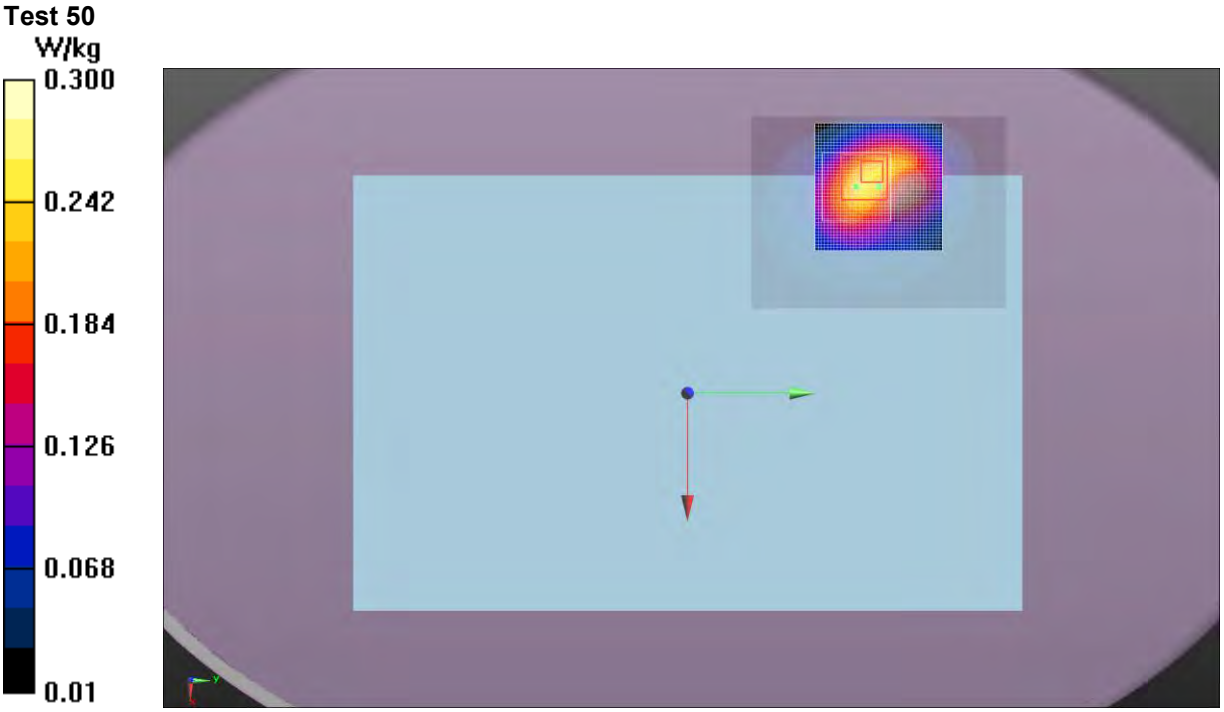
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.290 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 13.44 V/m
Maximum value of SAR (measured) = 0.177 W/kg

Approved By

SAR TEST DATA – LTE BAND 13



SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	24.3
Date:	7/27/2015	Liquid Temperature (°C):	21.6
Serial Number:	IASY515S0017	Humidity (%RH):	43.7
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 51
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0103 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.035 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.00939 W/kg
SAR(1 g) = 0.00691 W/kg; SAR(10 g) = 0.00477 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.00805 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

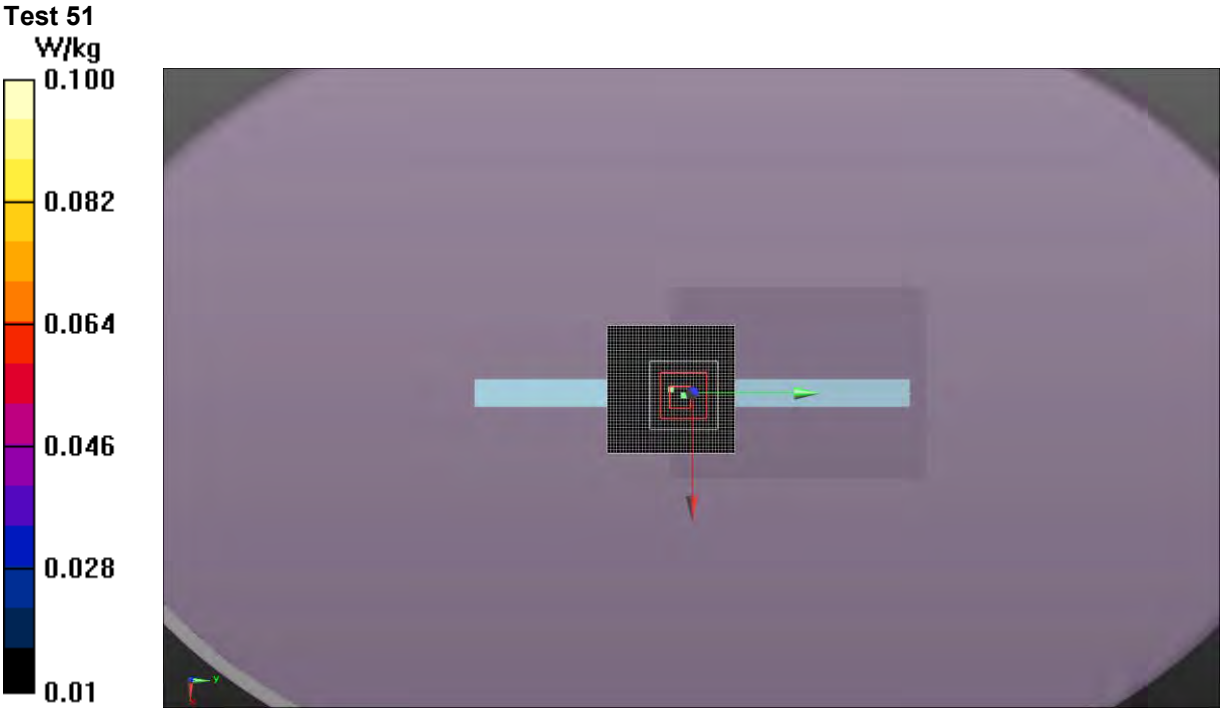
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00800 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.035 V/m; Power Drift = not measured

Info: Interpolated medium parameters used for SAR evaluation.

Approved By

SAR TEST DATA – LTE BAND 13



SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	24.1
Date:	7/27/2015	Liquid Temperature (°C):	21.7
Serial Number:	IASY515S0017	Humidity (%RH):	42.9
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 52
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.102 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.59 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.086 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.215 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

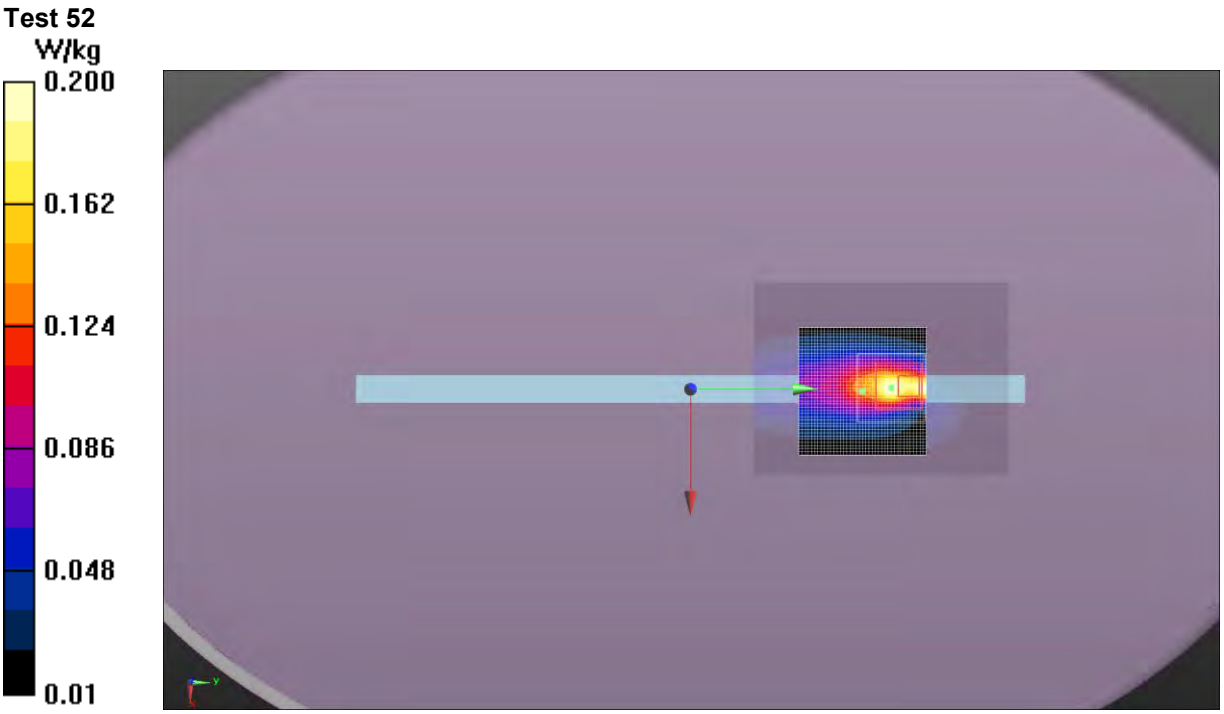
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.203 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 10.66 V/m
Maximum value of SAR (measured) = 0.111 W/kg

Approved By

SAR TEST DATA – LTE BAND 13



SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	23.8
Date:	7/27/2015	Liquid Temperature (°C):	21.5
Serial Number:	IASY515S0017	Humidity (%RH):	43.8
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 53
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.225 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.09 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.205 W/kg; SAR(10 g) = 0.124 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.248 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

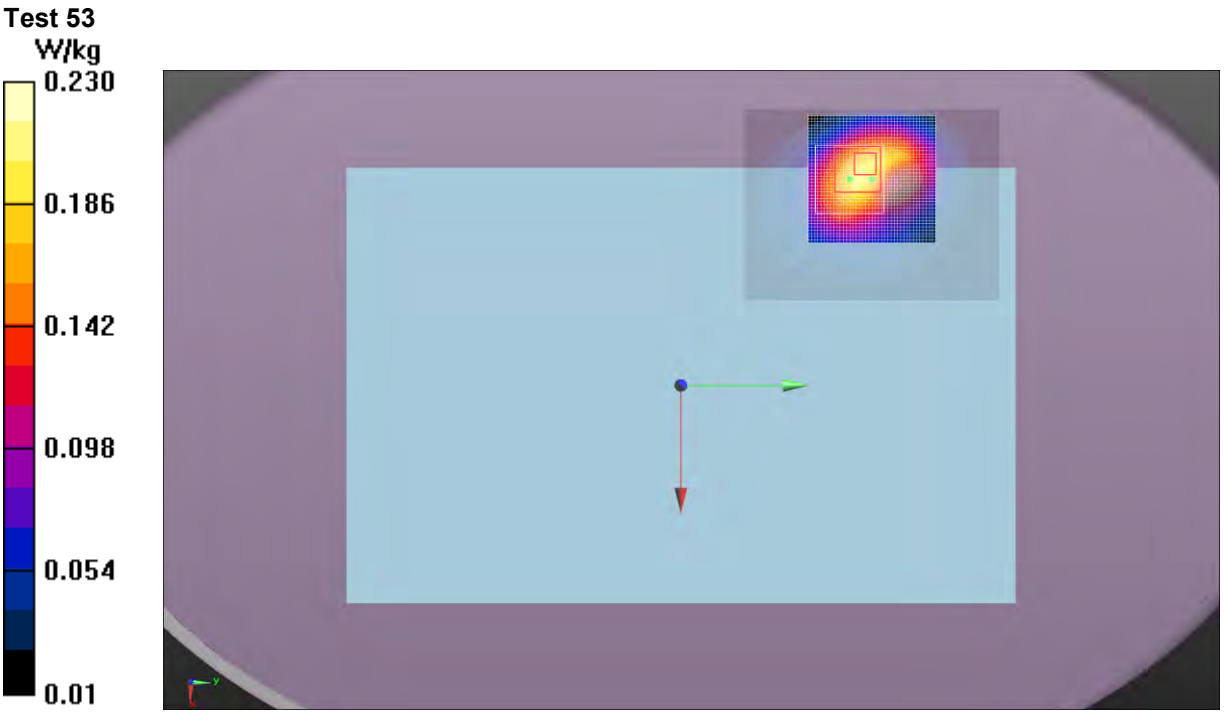
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.243 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 12.34 V/m
Maximum value of SAR (measured) = 0.149 W/kg

Approved By

SAR TEST DATA – LTE BAND 13



SAR TEST DATA – LTE BAND 13

Tested By:	Luke Richardson	Room Temperature (°C):	24.1
Date:	7/27/2015	Liquid Temperature (°C):	21.6
Serial Number:	IASY515S0017	Humidity (%RH):	44.2
Configuration:	INTE5622-1	Bar. Pressure (mb):	1022.8
Comments:	None		

Test 54
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 782 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.979 S/m; ε_r = 54.465; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0108 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.859 V/m; Power Drift = not measured
Peak SAR (extrapolated) = 0.00834 W/kg
SAR(1 g) = 0.00617 W/kg; SAR(10 g) = 0.00431 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.00717 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

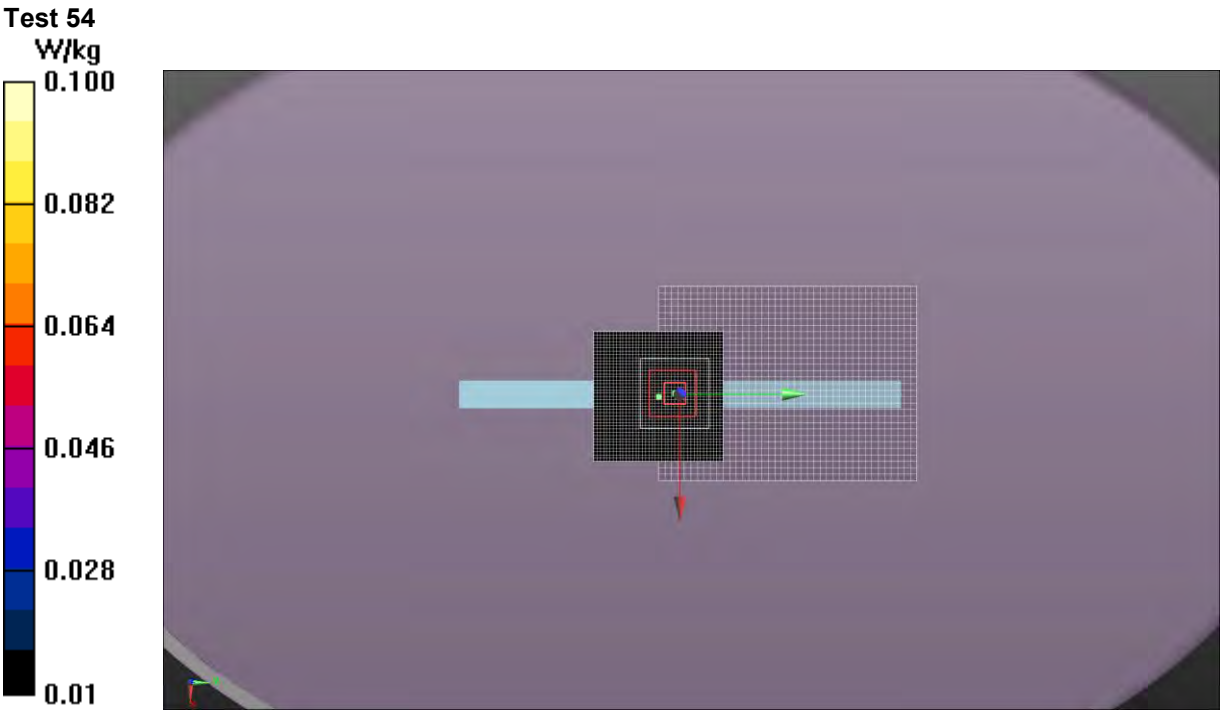
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00721 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.859 V/m; Power Drift = not measured

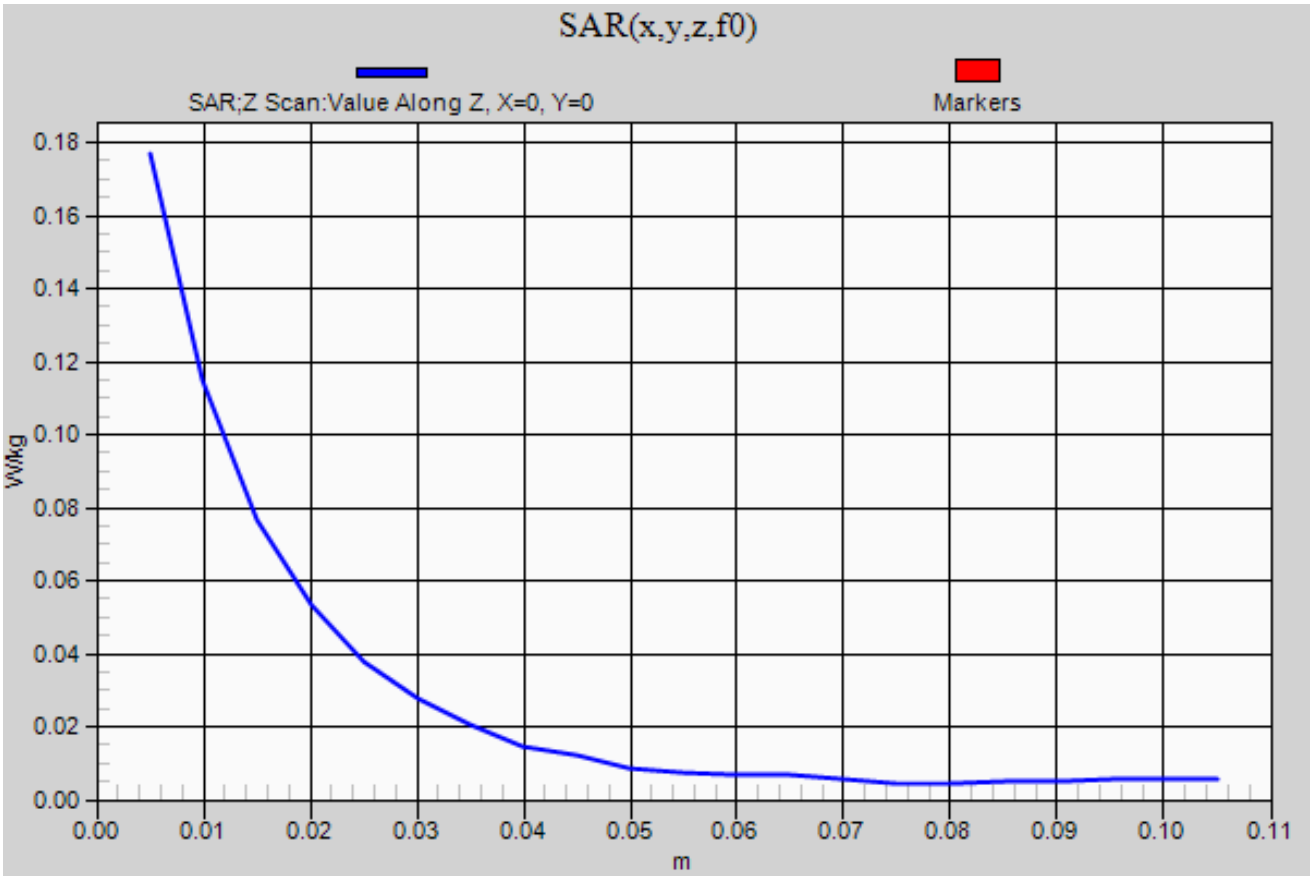
Info: Interpolated medium parameters used for SAR evaluation.

Approved By

SAR TEST DATA – LTE BAND 13



Test 50 – Z Scan



SAR TEST DATA – LTE BAND 17

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Transmit Mode and Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Bandwidth	Mode	EUT Position	Spacing	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	LTE Band 17	709	23780	QPSK 1RB offset 0	10MHz	Tablet	Top	4mm	0.04	0.39	0.19	61
Body	LTE Band 17	709	23780	QPSK 1RB offset 0	10MHz	Tablet	Back	4mm	0.07	0.41	0.24	62
Body	LTE Band 17	709	23780	QPSK 1RB offset 0	10MHz	Tablet	Left	4mm	N/A	0.03	0.03	63
Body	LTE Band 17	709	23780	QPSK 25RB offset 0	10MHz	Tablet	Top	4mm	-0.04	0.32	0.16	64
Body	LTE Band 17	709	23780	QPSK 25RB offset 0	10MHz	Tablet	Back	4mm	0.03	0.32	0.20	65
Body	LTE Band 17	709	23780	QPSK 25RB offset 0	10MHz	Tablet	Left	4mm	N/A	0.02	0.02	66

SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	23.8
Date:	7/24/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	50
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017
Comments:	None		

Test 61
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x61x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.196 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.27 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.880 W/kg
SAR(1 g) = 0.393 W/kg; SAR(10 g) = 0.190 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.546 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

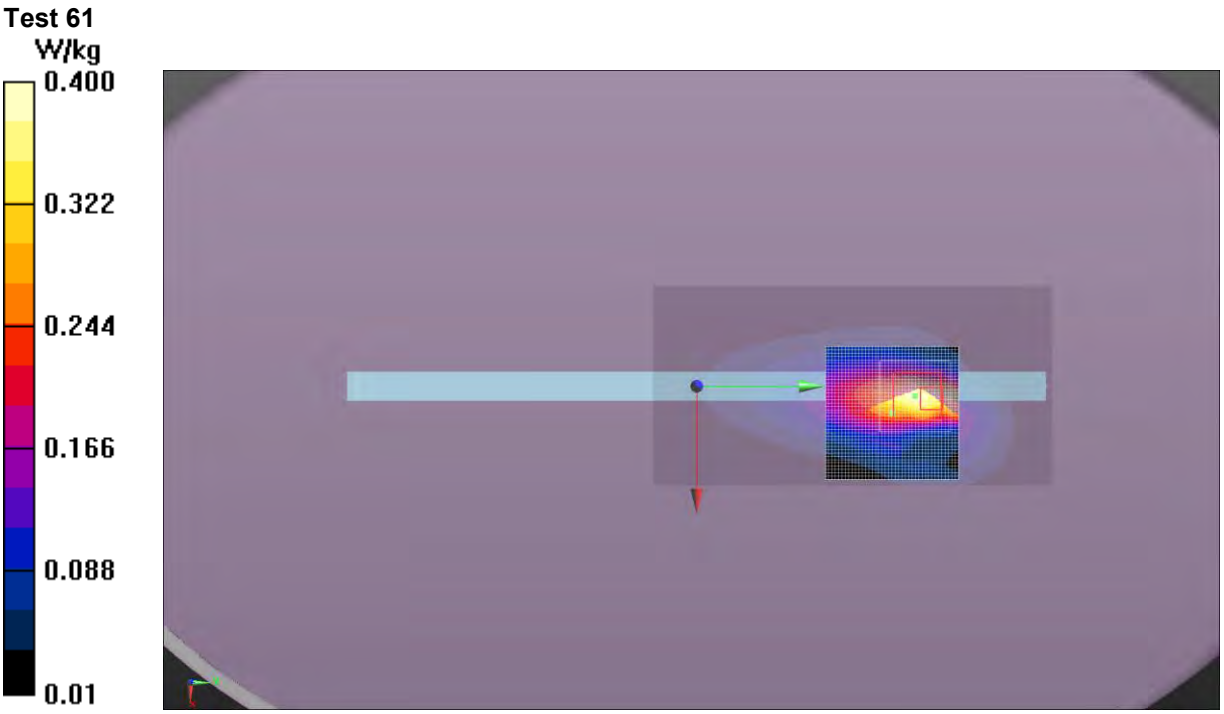
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.388 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 16.38 V/m
Maximum value of SAR (measured) = 0.260 W/kg

Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	22
Date:	7/25/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	48
Configuration:	INTE5622-1	Bar. Pressure (mb):	1018
Comments:	None		

Test 62
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

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

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.23 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.245 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.501 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

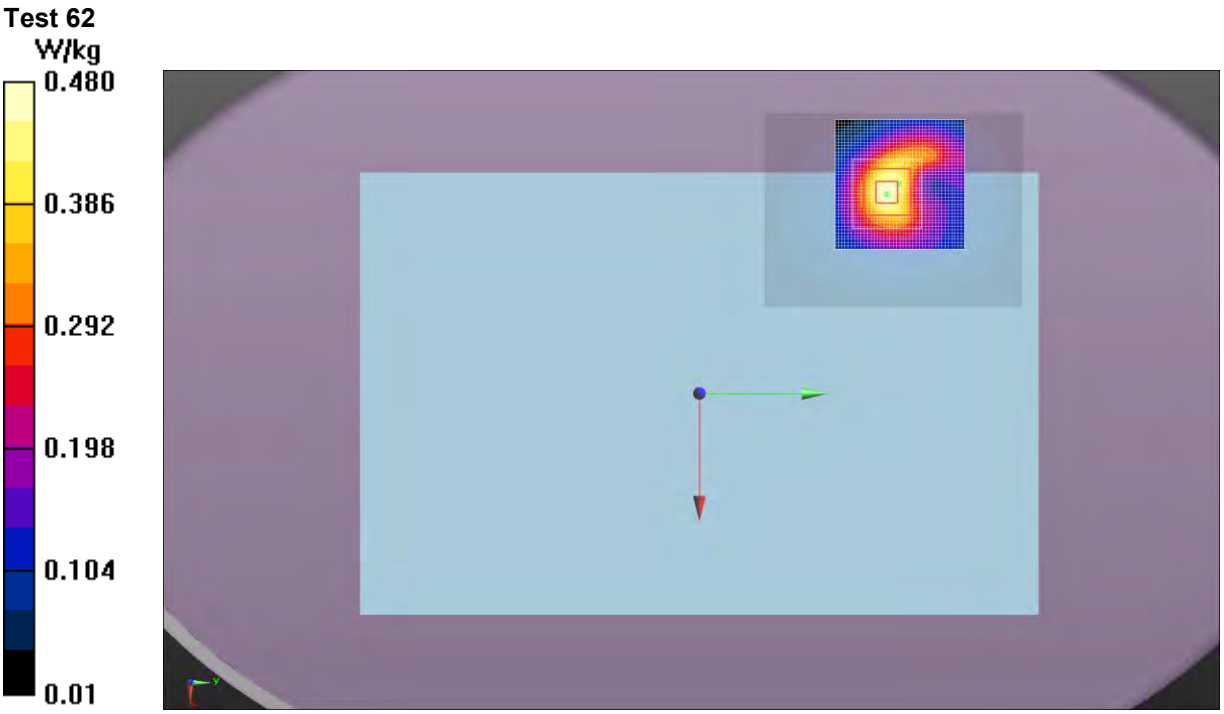
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.471 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 17.84 V/m
Maximum value of SAR (measured) = 0.308 W/kg

Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	22.3
Date:	7/25/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	40
Configuration:	INTE5622-1	Bar. Pressure (mb):	1018
Comments:	None		

Test 63
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0291 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

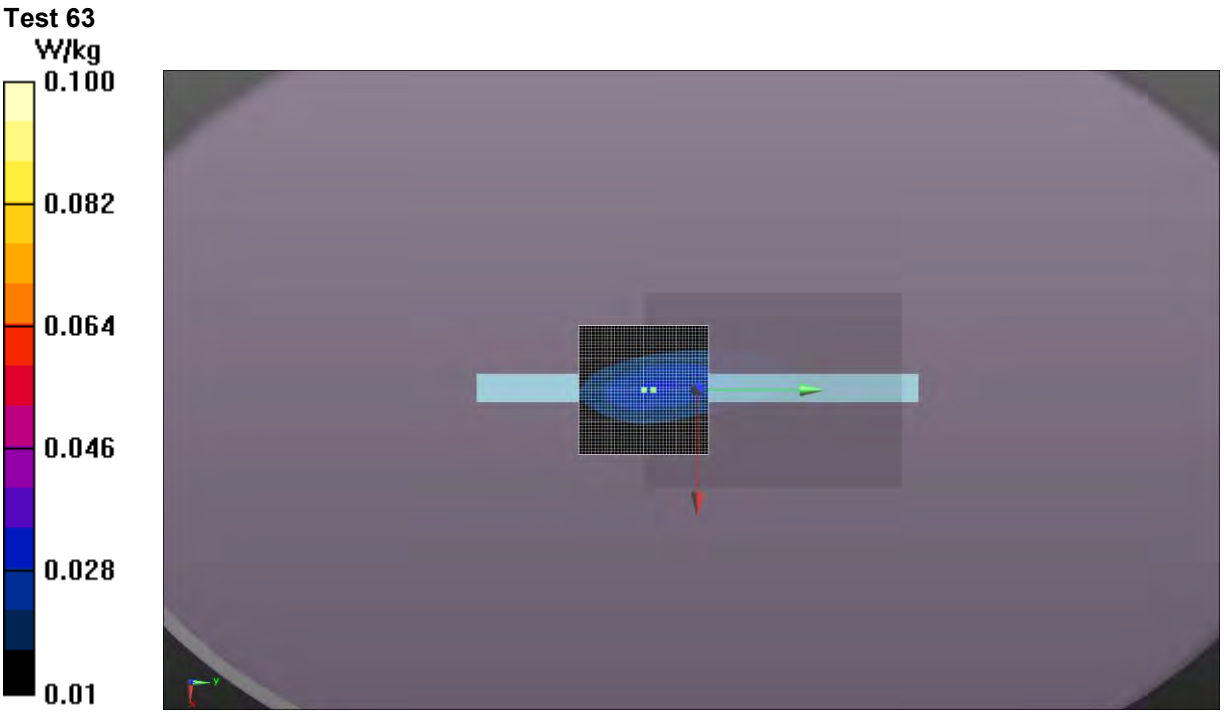
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0296 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0290 W/kg

Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	23.8
Date:	7/24/2015	Liquid Temperature (°C):	22.1
Serial Number:	IASY515S0017	Humidity (%RH):	50
Configuration:	INTE5622-1	Bar. Pressure (mb):	1017
Comments:	None		

Test 64
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x61x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.181 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.83 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.718 W/kg
SAR(1 g) = 0.321 W/kg; SAR(10 g) = 0.162 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.433 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

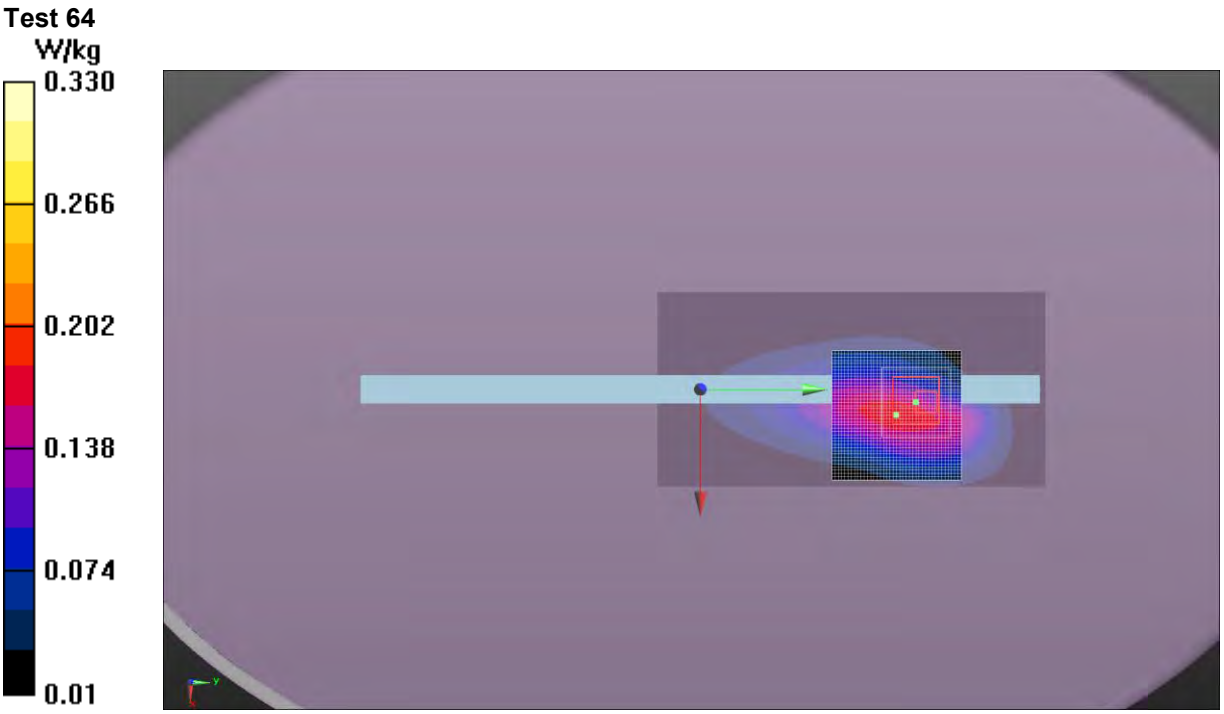
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.327 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 15.02 V/m
Maximum value of SAR (measured) = 0.218 W/kg

Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	22
Date:	7/25/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	48
Configuration:	INTE5622-1	Bar. Pressure (mb):	1018
Comments:	None		

Test 65
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.391 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.78 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.532 W/kg
SAR(1 g) = 0.325 W/kg; SAR(10 g) = 0.195 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.388 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

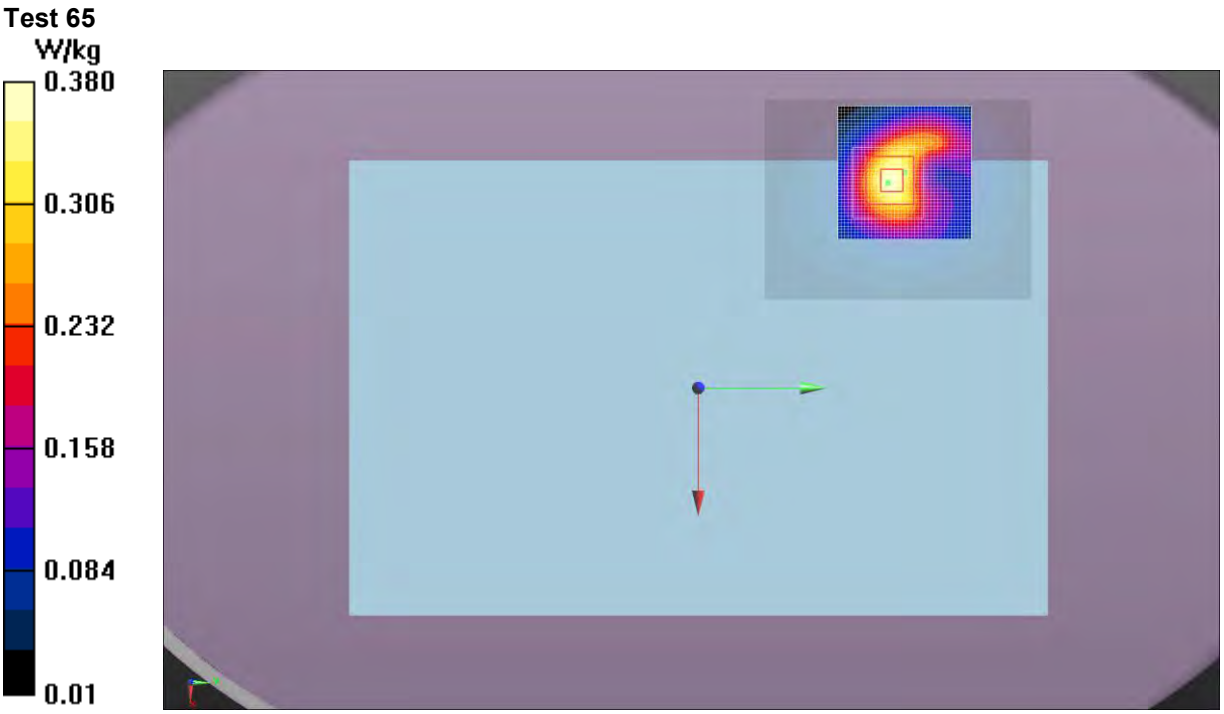
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.375 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 15.86 V/m
Maximum value of SAR (measured) = 0.244 W/kg

Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Tested By:	Carl Engholm	Room Temperature (°C):	22.3
Date:	7/25/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	40
Configuration:	INTE5622-1	Bar. Pressure (mb):	1018
Comments:	None		

Test 66
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 709 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 709 MHz; σ = 0.968 S/m; ε_r = 54.049; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0215 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

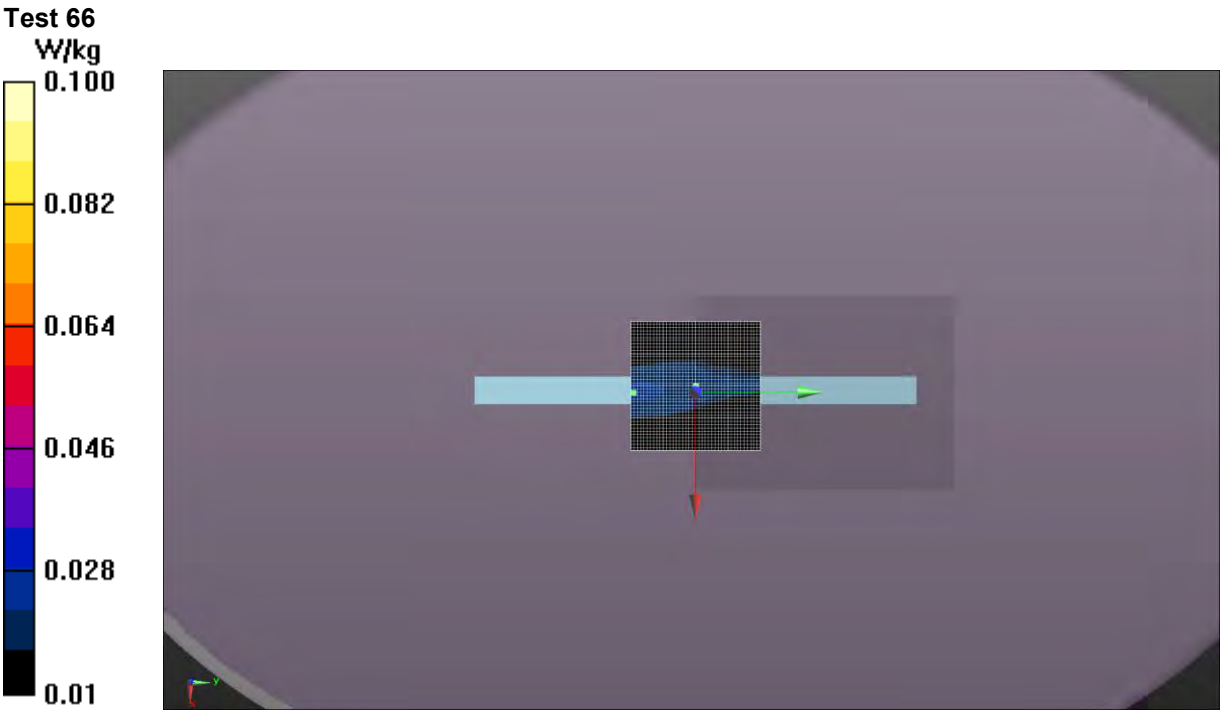
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0235 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0227 W/kg

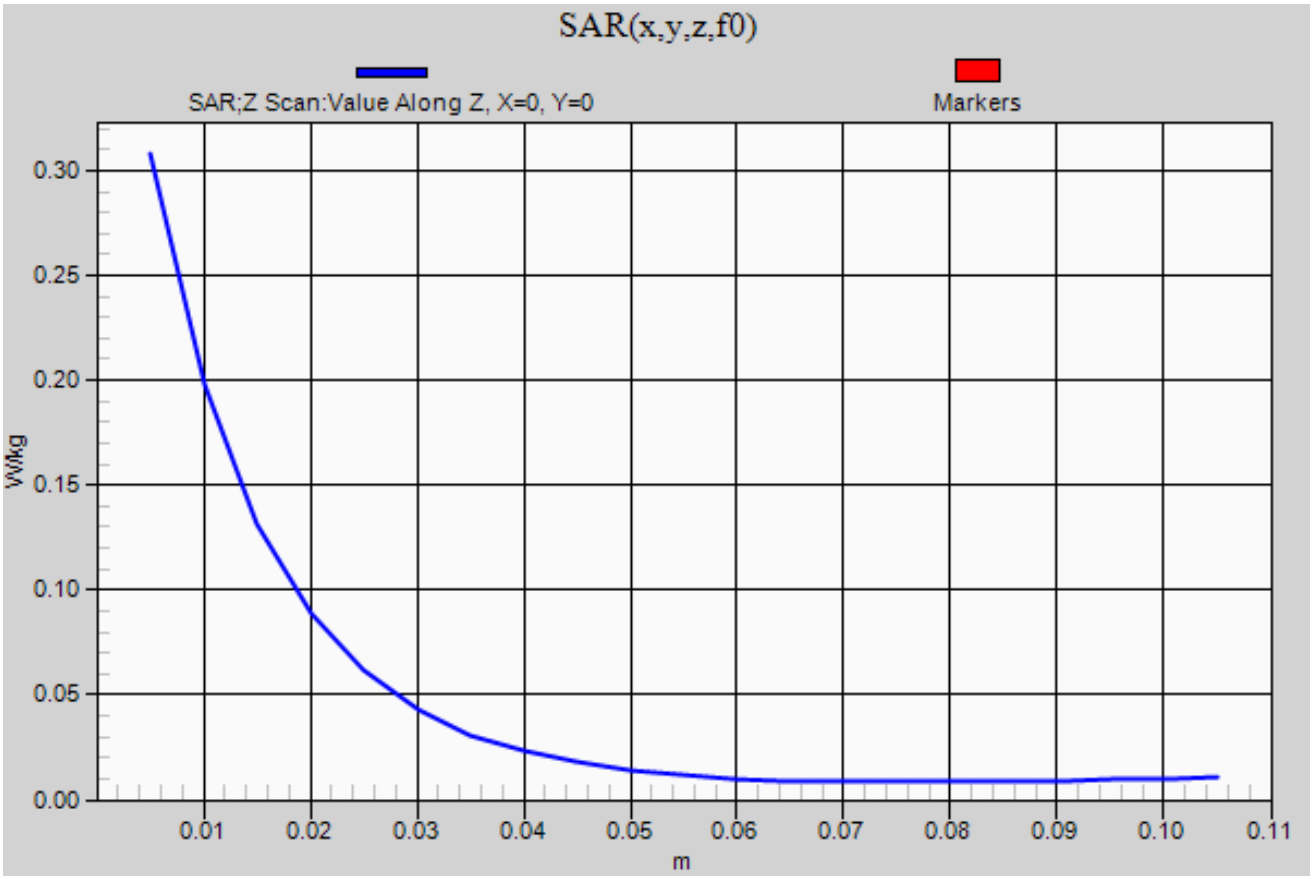
Approved By

SAR TEST DATA – LTE BAND 17



SAR TEST DATA – LTE BAND 17

Test 62 – Z Scan



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate (Mbps)	Distance	Mode	EUT Position	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	Cellular	824.2	128	GPRS	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Top	0.15	0.10	0.05	85
Body	Cellular	824.2	128	GPRS	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Left	N/A	0.00	0.00	86
Body	Cellular	824.2	128	GPRS	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Back	-0.03	0.12	0.07	87
Body	Cellular	846.6	4233	WCDMA	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Top	-0.13	0.15	0.08	88a
Body	Cellular	846.6	4233	WCDMA	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Left	N/A	0.01	0.01	89a
Body	Cellular	846.6	4233	WCDMA	GPRS / 1 slot / GMSK (CS-4)	4 mm	Tablet	Back	0.00	0.17	0.10	90a

CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24.4
Date:	8/5/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	39.2
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.4
Comments:	None		

Test 85
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 824.2 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 825 MHz; σ = 0.97 S/m; ε_r = 57.218; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm
Maximum value of SAR (interpolated) = 0.0448 W/kg

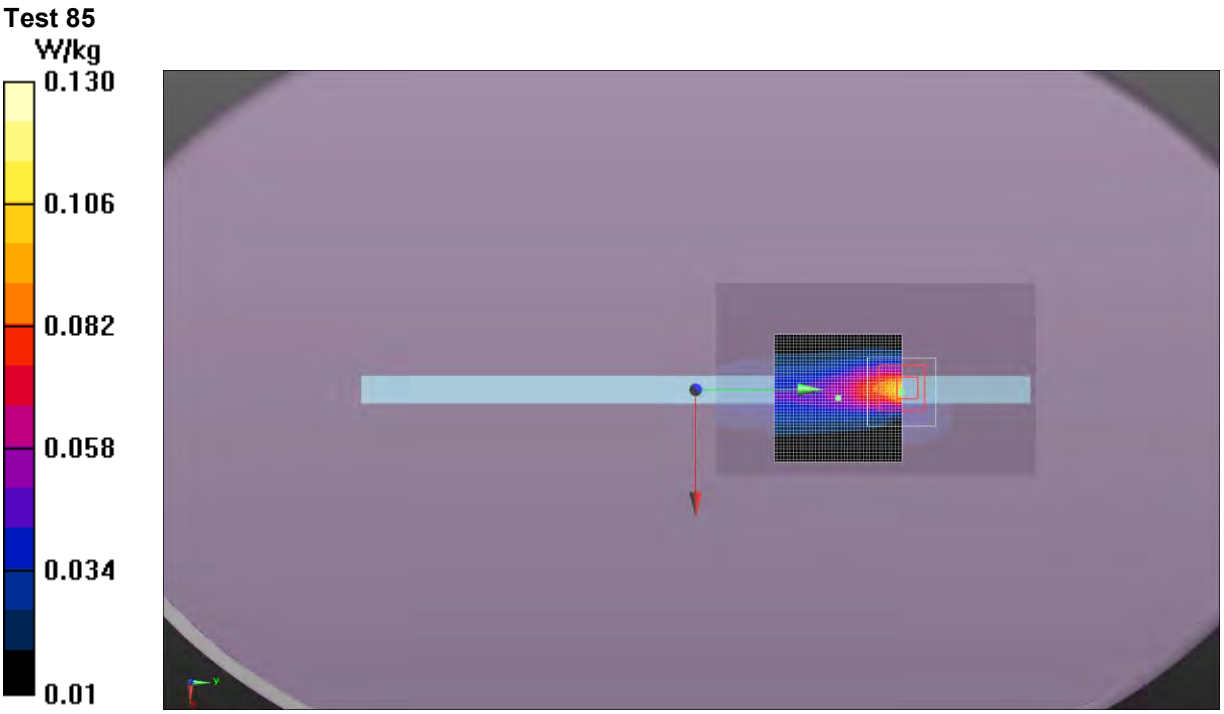
Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.33 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.179 W/kg
SAR(1 g) = 0.095 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.116 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.107 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 8.431 V/m
Maximum value of SAR (measured) = 0.0690 W/kg

Luke Richardson
Approved By

CLR 850 TEST DATA



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24.4
Date:	8/5/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	37.7
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.4
Comments:	None		

Test 86
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 824.2 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 825 MHz; σ = 0.97 S/m; ε_r = 57.218; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

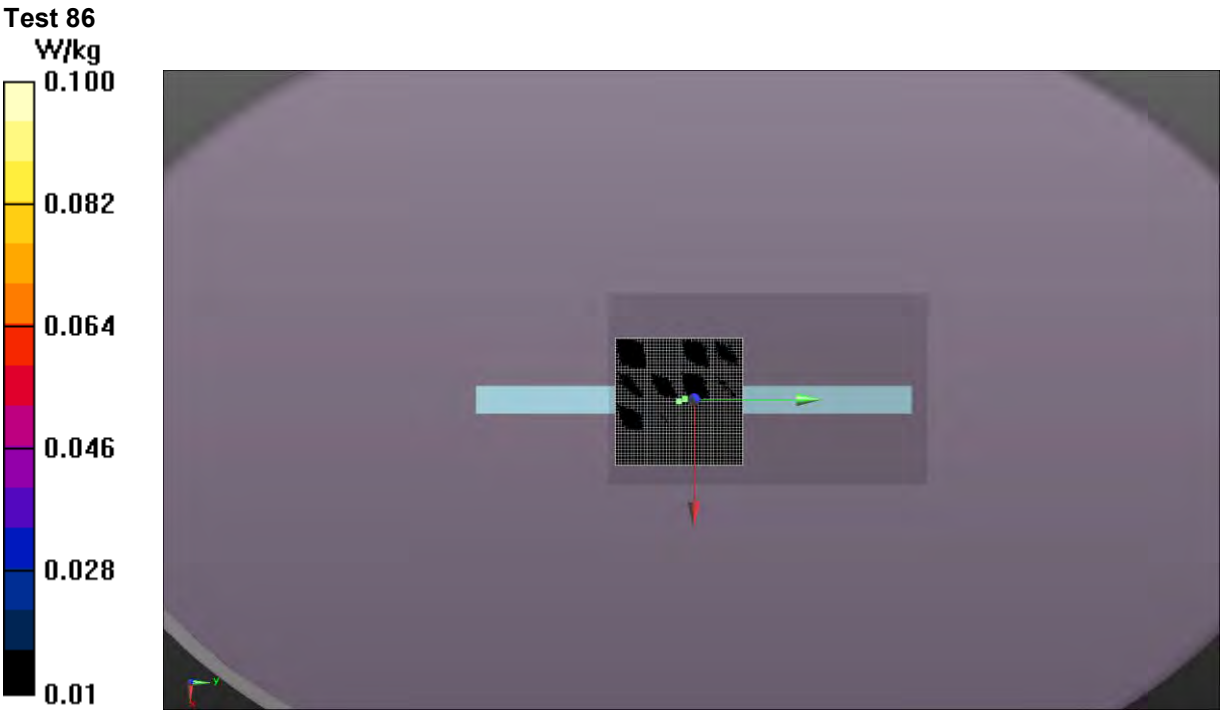
Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm
Maximum value of SAR (interpolated) = 0.00425 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.00412 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.00402 W/kg

Approved By

CLR 850 TEST DATA



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24.4
Date:	8/5/2015	Liquid Temperature (°C):	21.2
Serial Number:	IASY515S0017	Humidity (%RH):	37.3
Configuration:	INTE5622-1	Bar. Pressure (mb):	1019.4
Comments:	None		

Test 87
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 824.2 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 825 MHz; σ = 0.97 S/m; ε_r = 57.218; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm
Maximum value of SAR (interpolated) = 0.128 W/kg

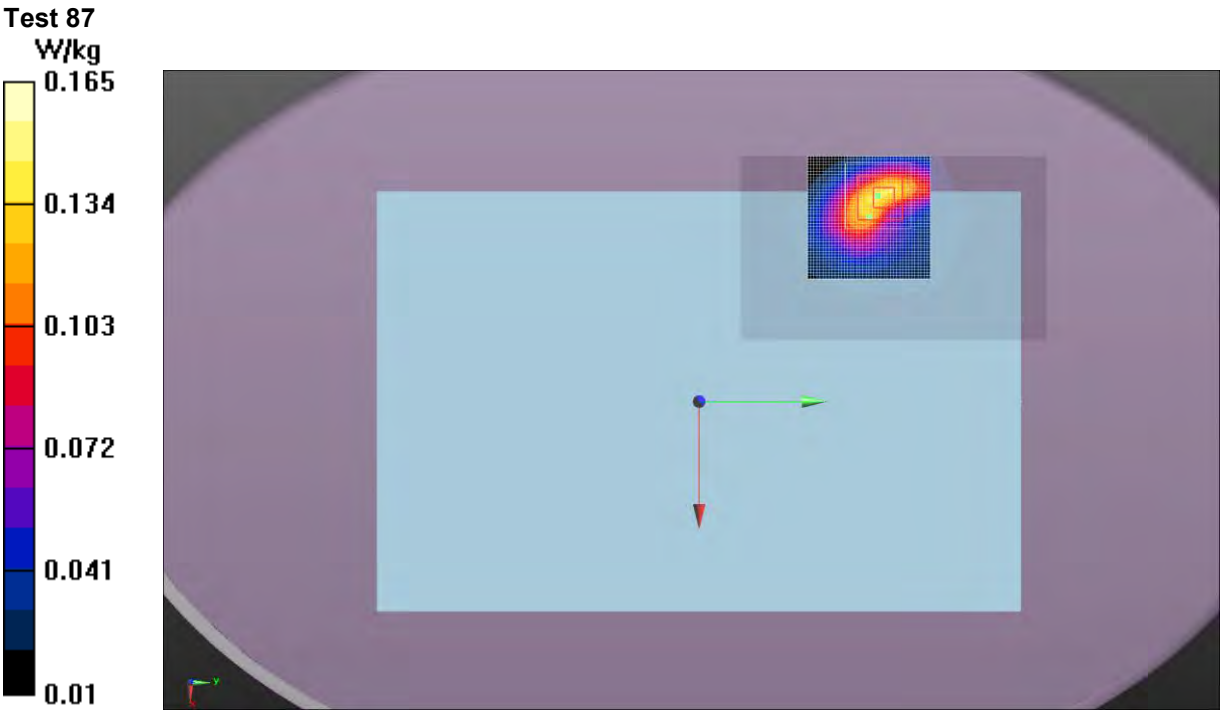
Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.46 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.119 W/kg; SAR(10 g) = 0.073 W/kg
Maximum value of SAR (measured) = 0.141 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.138 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 9.845 V/m
Maximum value of SAR (measured) = 0.0940 W/kg

Approved By

CLR 850 TEST DATA



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.2
Date:	8/10/2015	Liquid Temperature (°C):	20.7
Serial Number:	IASY515S0046	Humidity (%RH):	40.7
Configuration:	INTE5622-3	Bar. Pressure (mb):	1012
Comments:	None		

Test 88a
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 846.6 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.959 S/m; ε_r = 55.833; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0779 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.66 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.154 W/kg; SAR(10 g) = 0.083 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.191 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

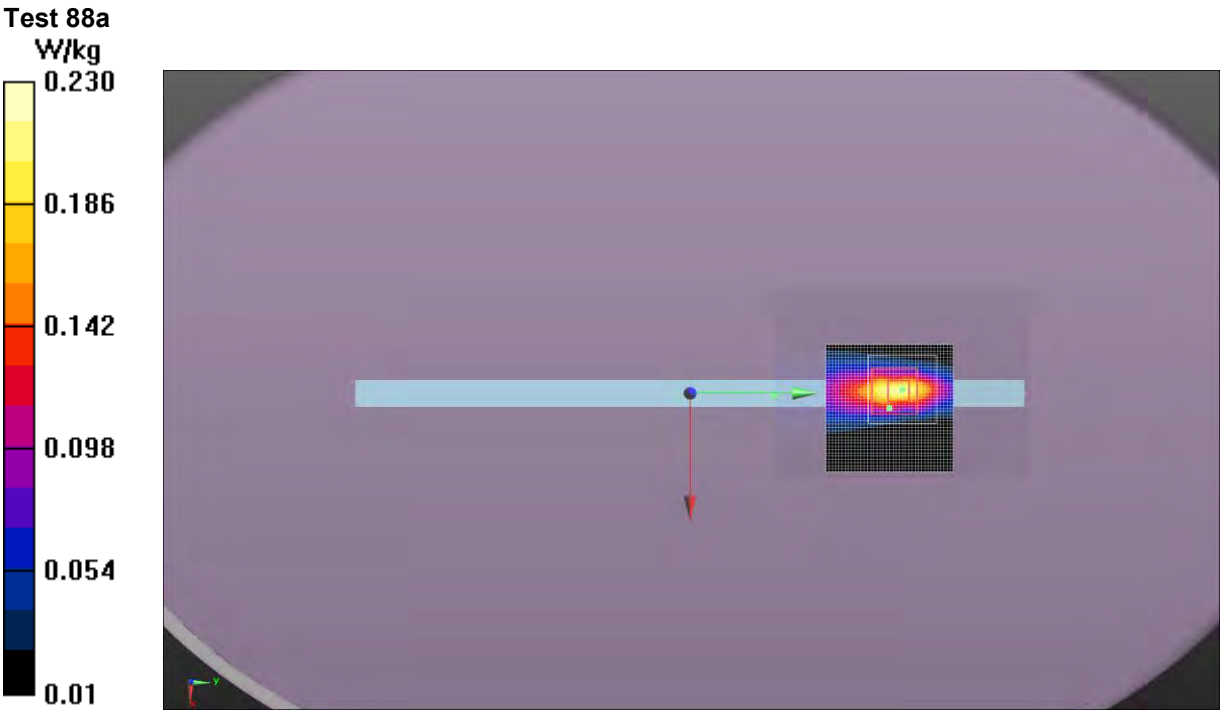
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.216 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 10.79 V/m
Maximum value of SAR (measured) = 0.112 W/kg

Approved By

CLR 850 TEST DATA



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.5
Date:	8/10/2015	Liquid Temperature (°C):	20.4
Serial Number:	IASY515S0046	Humidity (%RH):	38.9
Configuration:	INTE5622-3	Bar. Pressure (mb):	1012
Comments:			

Test 89a
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 846.6 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.959 S/m; ε_r = 55.833; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00353 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

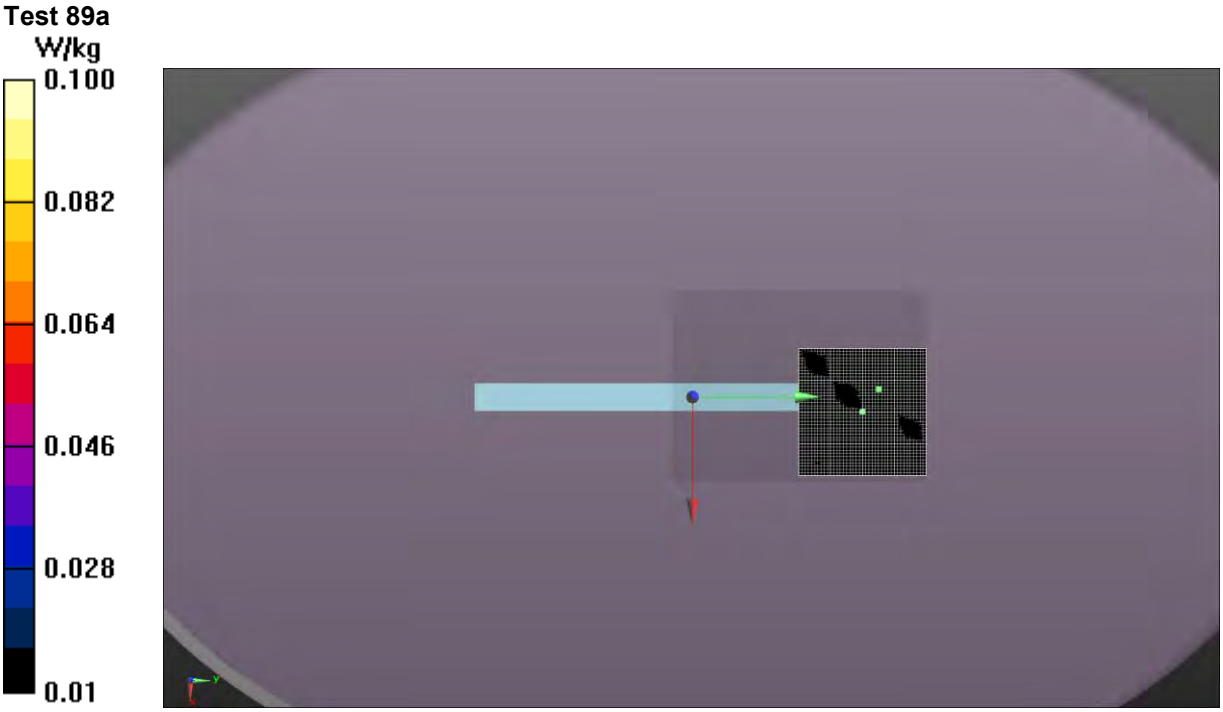
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00561 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.00490 W/kg

Luke Richardson
Approved By

CLR 850 TEST DATA



CLR 850 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.6
Date:	8/10/2015	Liquid Temperature (°C):	20.5
Serial Number:	IASY515S0046	Humidity (%RH):	39.4
Configuration:	INTE5622-3	Bar. Pressure (mb):	1012
Comments:			

Test 90a
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 846.6 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.959 S/m; ε_r = 55.833; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.122 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.85 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.278 W/kg
SAR(1 g) = 0.171 W/kg; SAR(10 g) = 0.102 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.197 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

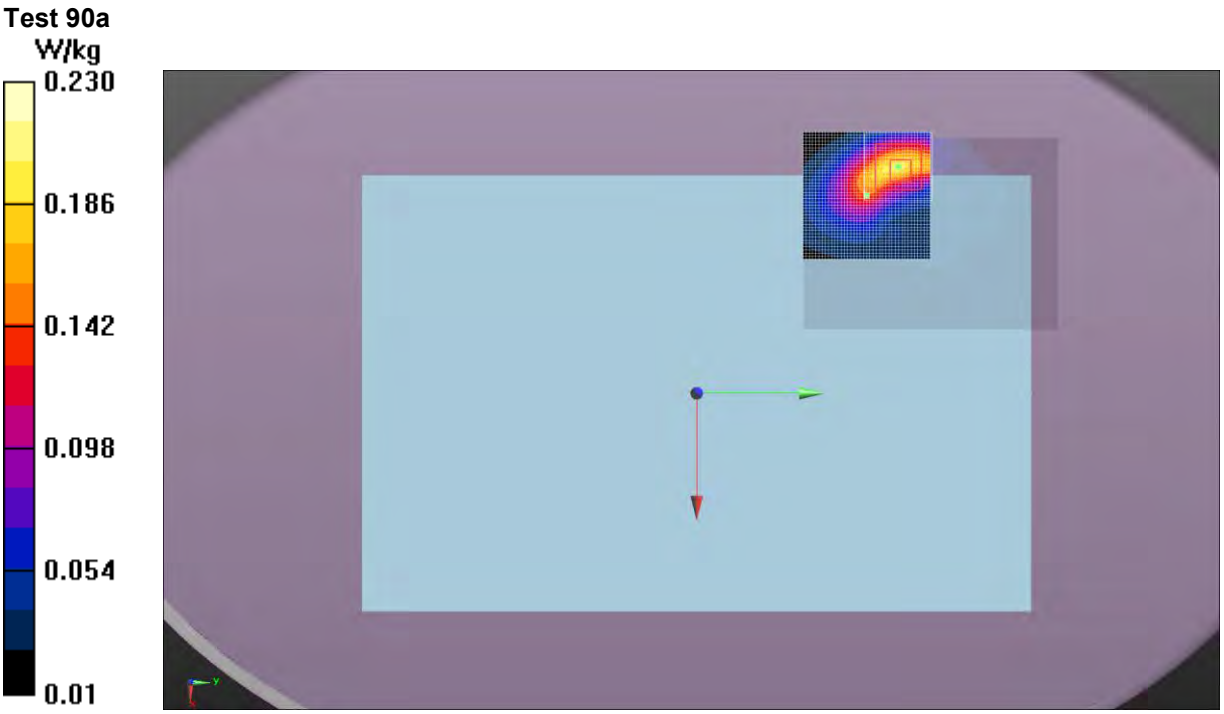
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.194 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

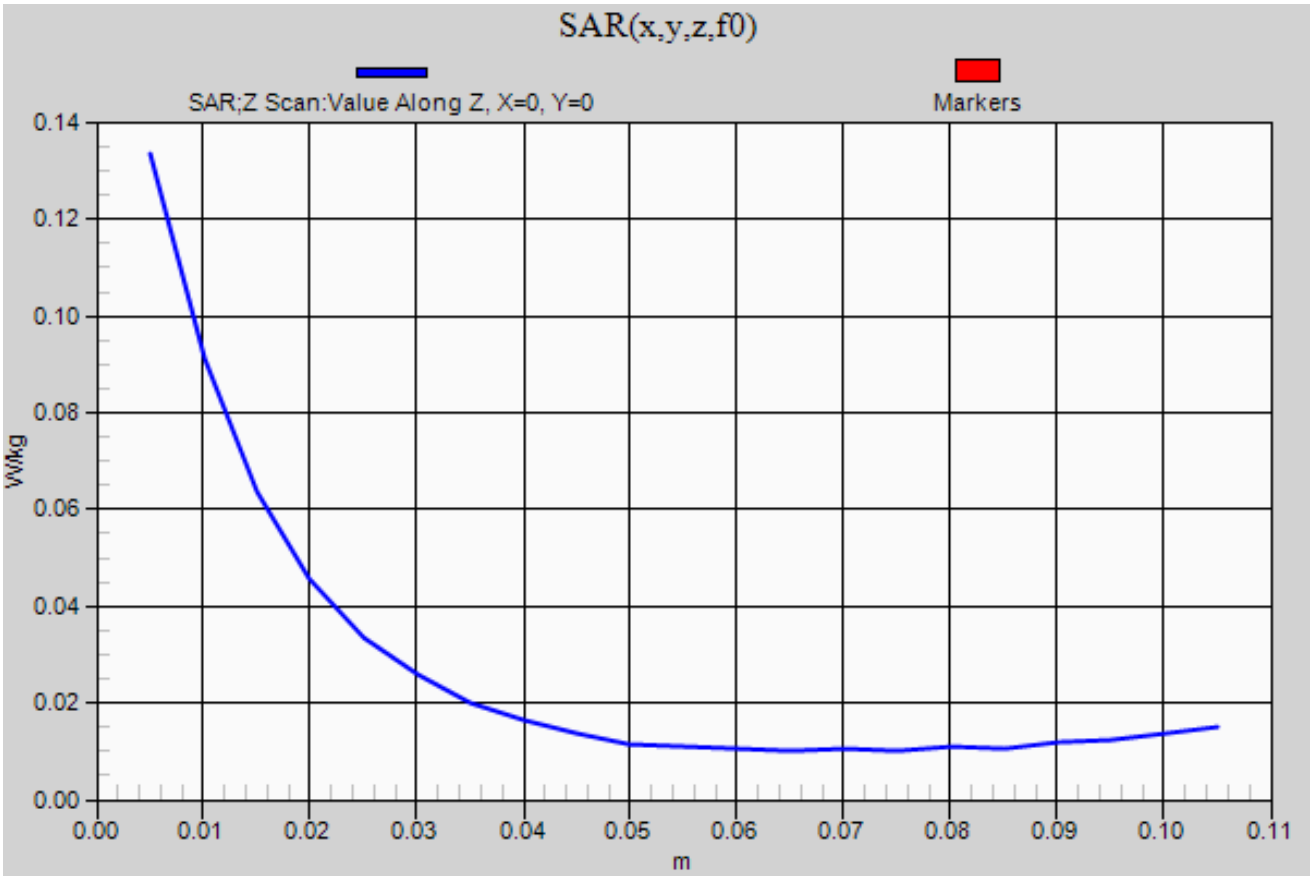
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 11.80 V/m
Maximum value of SAR (measured) = 0.134 W/kg

Luke Richardson
Approved By

CLR 850 TEST DATA



Test 90a – Z Scan



AWS 1700 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate (Mbps)	Distance	Mode	EUT Position	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	AWS	1735.4	1312	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Top	-0.07	0.16	0.08	103
Body	AWS	1735.4	1312	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Left	N/A	0.00	0.00	104
Body	AWS	1735.4	1312	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Back	-0.08	0.13	0.08	105

AWS 1700 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24.2
Date:	8/10/2015	Liquid Temperature (°C):	20.5
Serial Number:	IASY515S0046	Humidity (%RH):	45.2
Configuration:	INTE5562-3	Bar. Pressure (mb):	1013.4
Comments:	None		

Test 103
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1735.4 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1735.4 MHz; σ = 1.491 S/m; ε_r = 51.715; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.102 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.98 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.155 W/kg; SAR(10 g) = 0.084 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.196 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

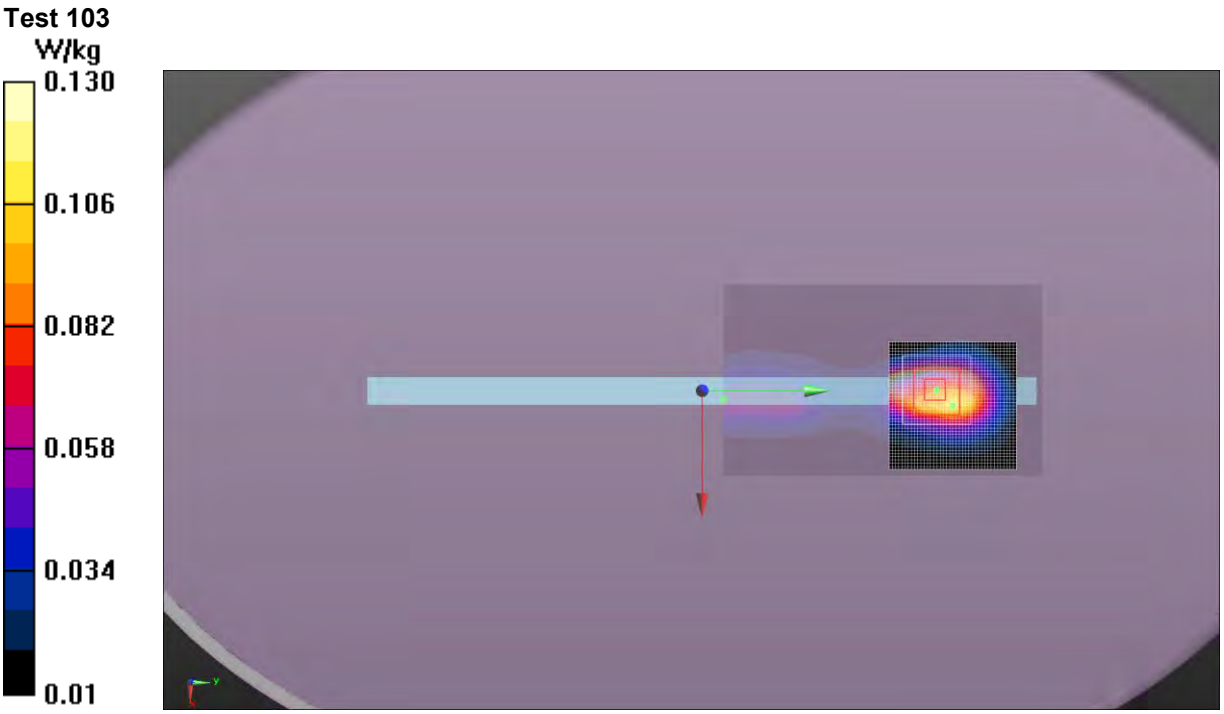
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.206 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 8.642 V/m
Maximum value of SAR (measured) = 0.111 W/kg

Approved By

AWS 1700 TEST DATA



AWS 1700 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24
Date:	8/10/2015	Liquid Temperature (°C):	20.7
Serial Number:	IASY515S0046	Humidity (%RH):	45.3
Configuration:	INTE5562-3	Bar. Pressure (mb):	1013.4
Comments:	None		

Test 104
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1735.4 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1735.4 MHz; σ = 1.491 S/m; ε_r = 51.715; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00408 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

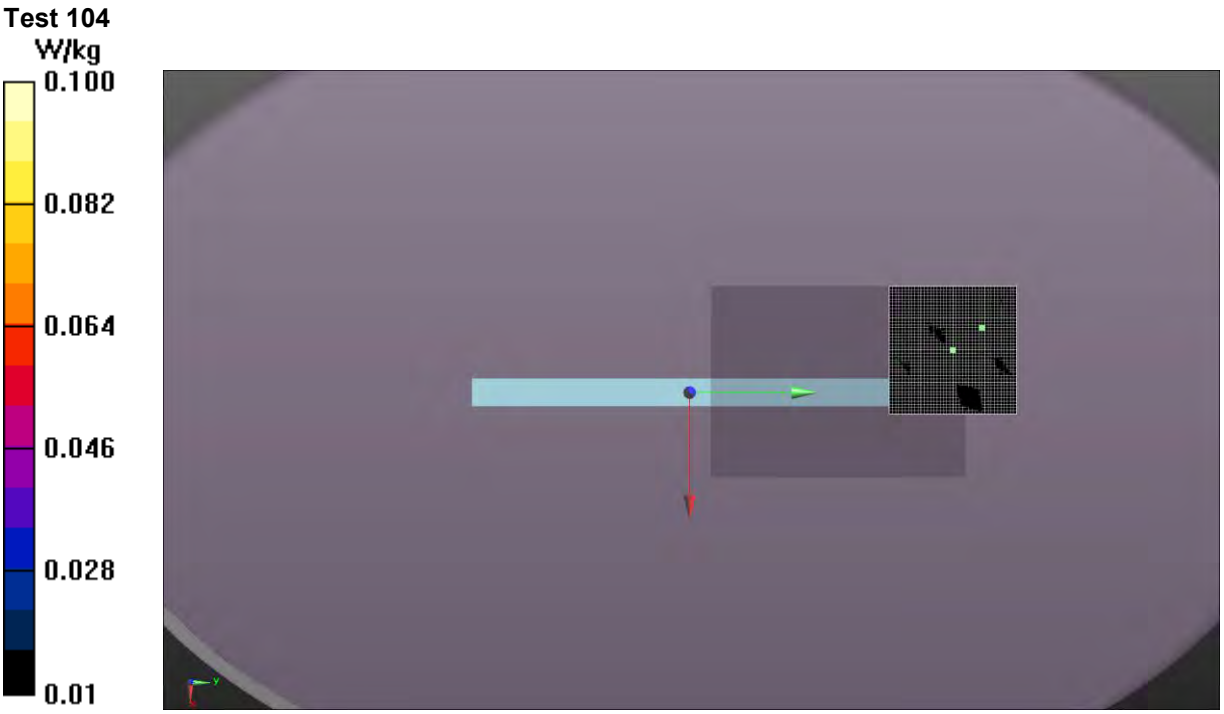
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.00429 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.00428 W/kg

Approved By

AWS 1700 TEST DATA



AWS 1700 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	23.8
Date:	8/10/2015	Liquid Temperature (°C):	20.5
Serial Number:	IASY515S0046	Humidity (%RH):	46
Configuration:	INTE5562-3	Bar. Pressure (mb):	1013.4
Comments:	None		

Test 105
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1750 (1750.0 MHz); Frequency: 1735.4 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1735.4 MHz; σ = 1.491 S/m; ε_r = 51.715; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.147 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.31 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.210 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.081 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.153 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

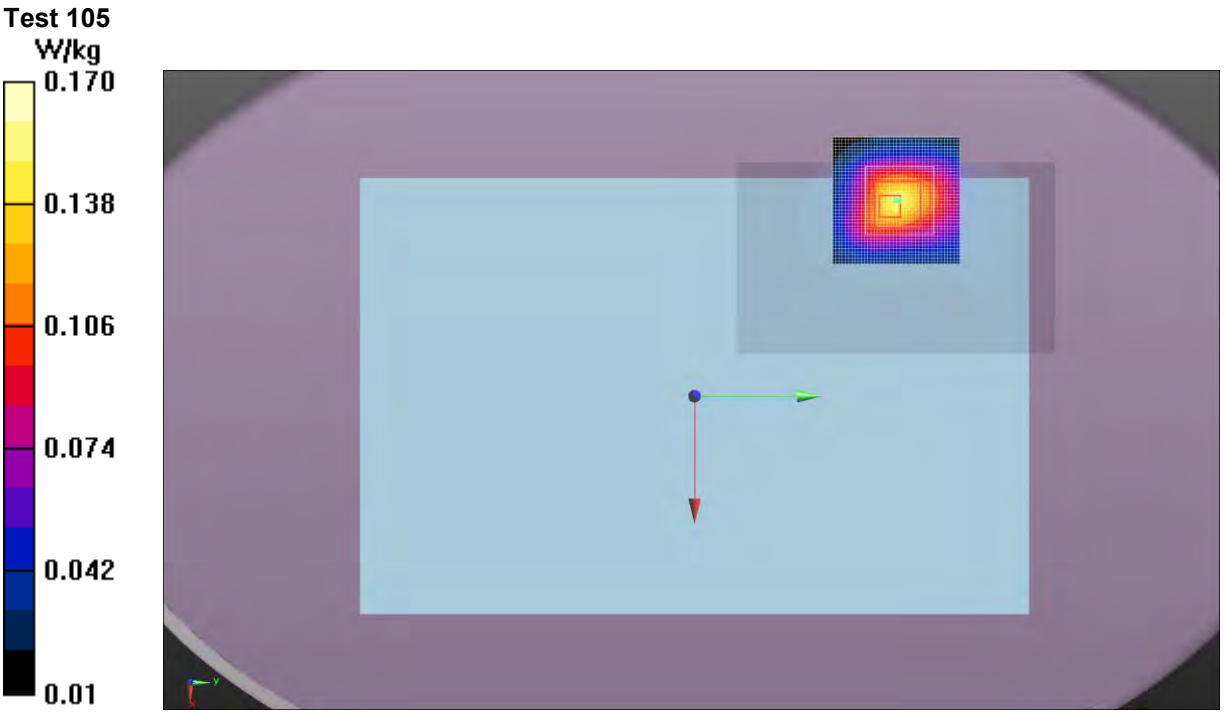
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.151 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 7.875 V/m
Maximum value of SAR (measured) = 0.0925 W/kg

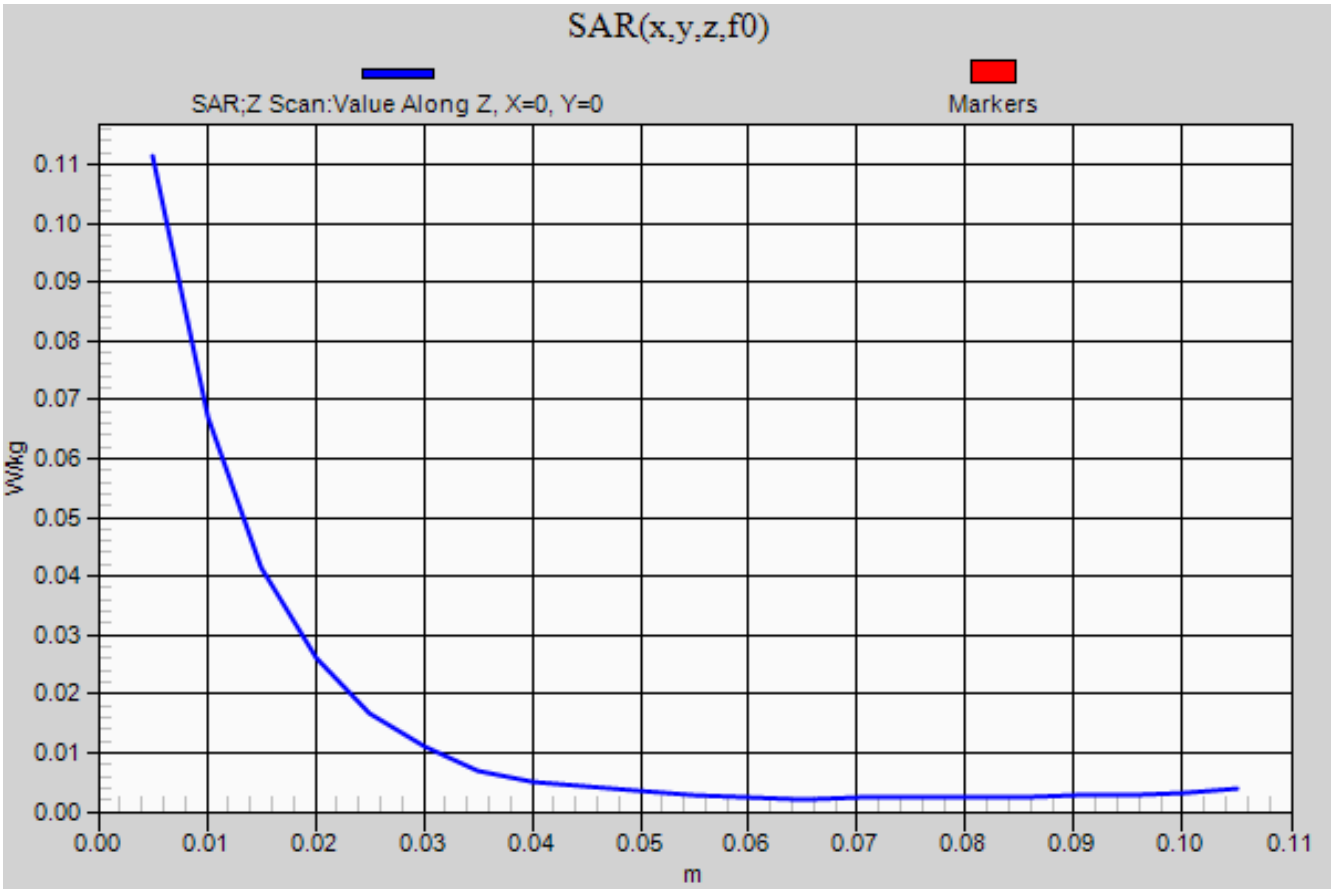
Luke Richardson
Approved By

AWS 1700 TEST DATA



AWS 1700 TEST DATA

Test 103 – Z Scan



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

EUT:	SKL21-SDS	Work Order:	INTE5622
Customer:	Intel Corporation	Job Site:	EV08
Attendees:	Mike Lowe	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2015	FCC KDB 447498 D01 v05r02 FCC KDB 616217 D04 v01r01 FCC KDB 865664 D01 v01r03 FCC KDB 865664 D02 v01r01 FCC KDB 941225 D01 v03, D05 v02r03 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Transmit Mode	Data Rate (Mbps)	Distance	Mode	EUT Position	Power Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Test #
Body	PCS	1880	661	E-GPRS	1 slot / GMSK (MCS-4)	4 mm	Tablet	Top	0.06	0.06	0.03	97
Body	PCS	1880	661	E-GPRS	1 slot / GMSK (MCS-4)	4 mm	Tablet	Left	0.33	0.01	0.01	98
Body	PCS	1880	661	E-GPRS	1 slot / GMSK (MCS-4)	4 mm	Tablet	Back	0.08	0.14	0.08	99
Body	PCS	1880	9400	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Top	N/A	0.02	0.02	100
Body	PCS	1880	9400	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Left	0.16	0.09	0.05	101
Body	PCS	1880	9400	WCDMA	12.2 kbps RMC / Test Loop 1	4 mm	Tablet	Back	-0.01	0.18	0.10	102

PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	24.2
Date:	8/4/2015	Liquid Temperature (°C):	20.9
Serial Number:	IASY515S0017	Humidity (%RH):	38.8
Configuration:	INTE5562-1	Bar. Pressure (mb):	1014.2
Comments:	None		

Test 97
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.494 S/m; ε_r = 54.016; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0753 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.364 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.060 W/kg; SAR(10 g) = 0.033 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0757 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

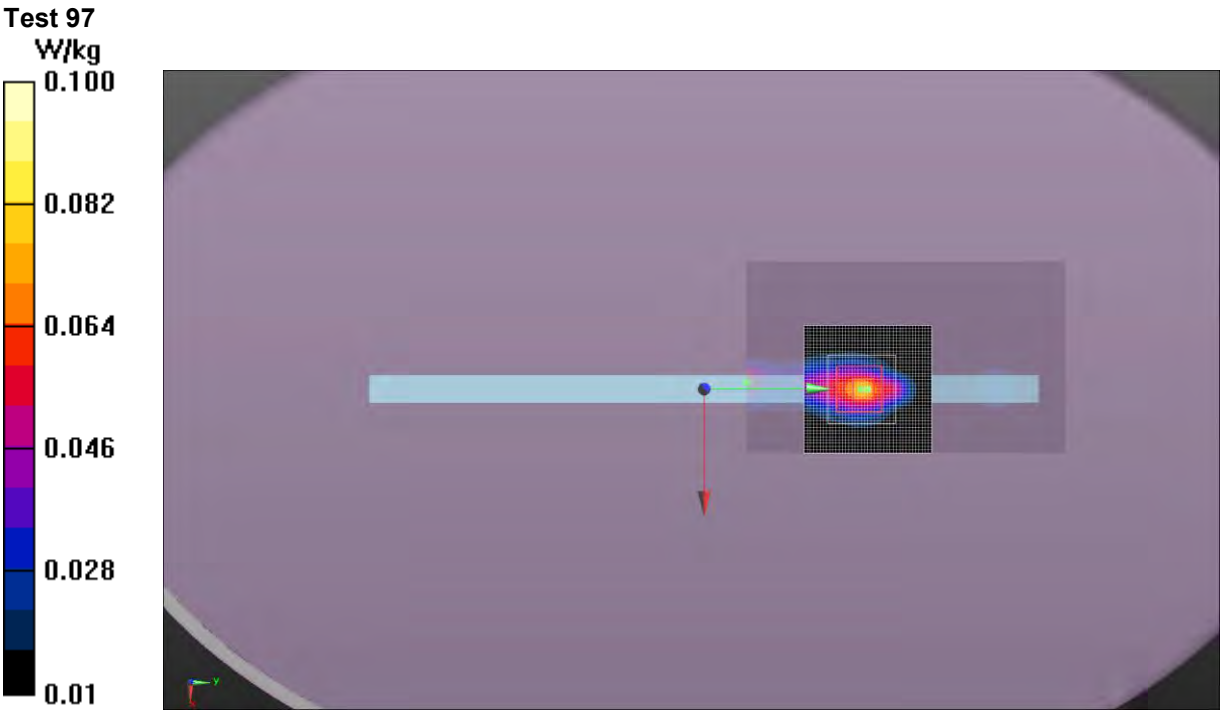
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0777 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.546 V/m
Maximum value of SAR (measured) = 0.0460 W/kg

Approved By

PCS 1900 TEST DATA



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	23.9
Date:	8/4/2015	Liquid Temperature (°C):	20.9
Serial Number:	IASY515S0017	Humidity (%RH):	39.3
Configuration:	INTE5562-1	Bar. Pressure (mb):	1014.8
Comments:	None		

Test 98
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.494 S/m; ε_r = 54.016; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0159 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.083 V/m; Power Drift = 0.33 dB
Peak SAR (extrapolated) = 0.0180 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00632 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0126 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

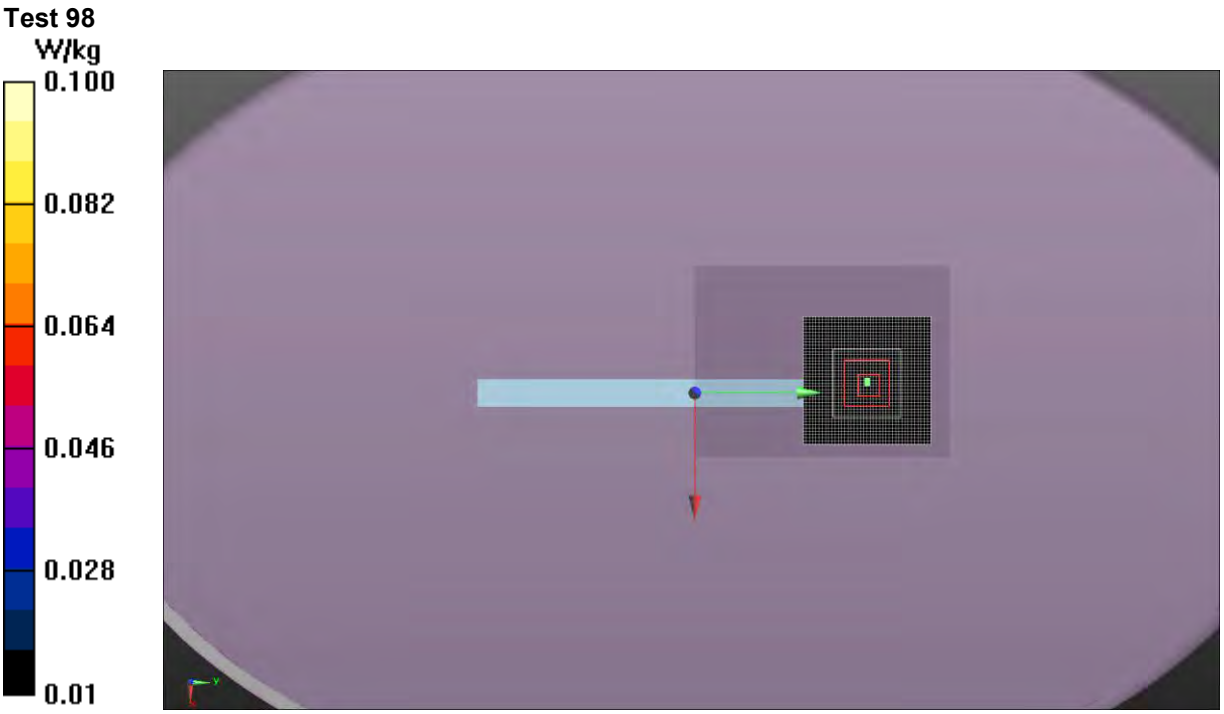
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0127 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 2.337 V/m
Maximum value of SAR (measured) = 0.00816 W/kg

Approved By

PCS 1900 TEST DATA



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.7
Date:	8/4/2015	Liquid Temperature (°C):	20.9
Serial Number:	IASY515S0017	Humidity (%RH):	35.7
Configuration:	INTE5562-1	Bar. Pressure (mb):	1014.8
Comments:	None		

Test 99
DUT: SKL21-SDS; Type: Table/ Computer; Serial: IASY515S0017
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.494 S/m; ε_r = 54.016; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.167 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.88 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.248 W/kg
SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.077 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.166 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

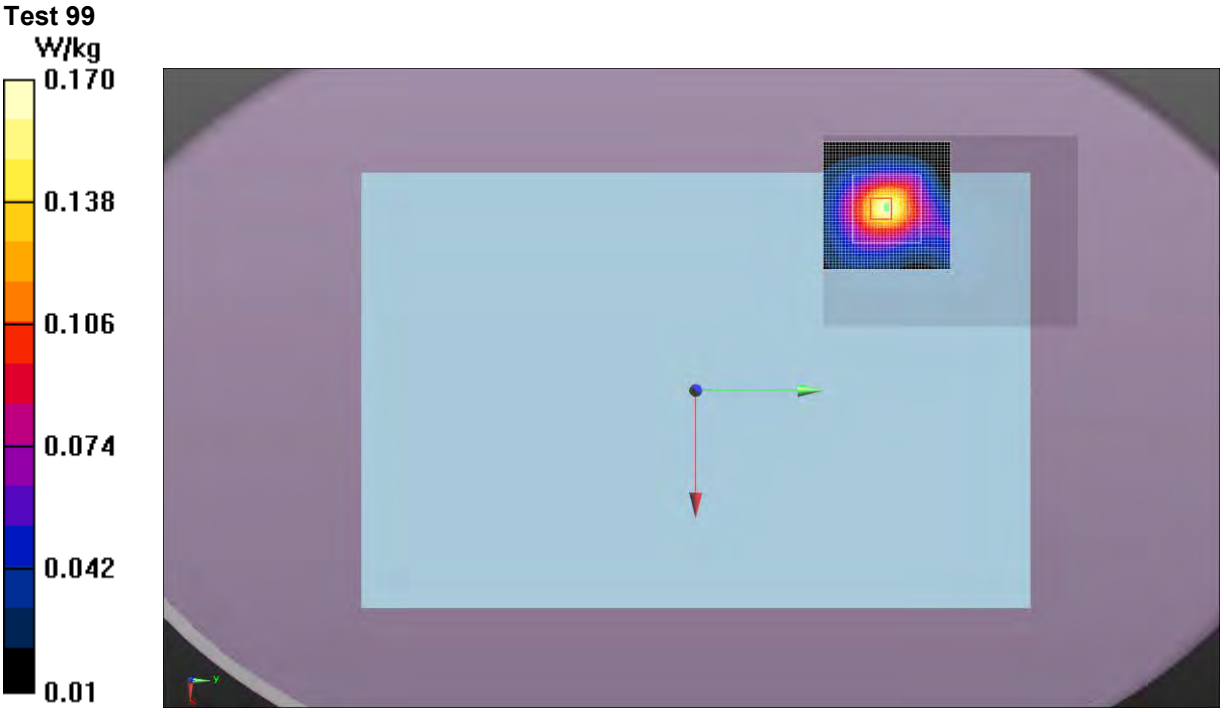
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.166 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 8.222 V/m
Maximum value of SAR (measured) = 0.101 W/kg

Luke Richardson
Approved By

PCS 1900 TEST DATA



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	23
Date:	8/7/2015	Liquid Temperature (°C):	21.3
Serial Number:	IASY515S0046	Humidity (%RH):	40.4
Configuration:	INTE5562-3	Bar. Pressure (mb):	1010.1
Comments:	None		

Test 100
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.517 S/m; ε_r = 55.466; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0124 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

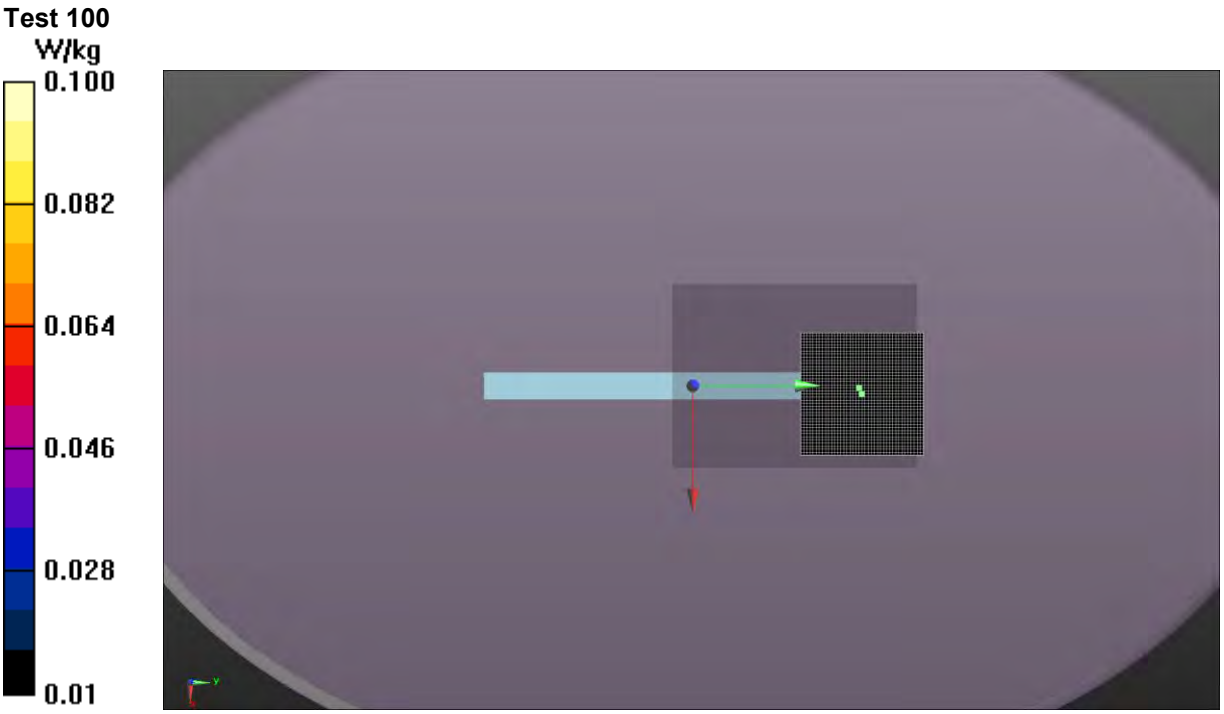
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0165 W/kg

Body/Body/Area scan (5x5x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0157 W/kg

Luke Richardson
Approved By

PCS 1900 TEST DATA



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.9
Date:	8/7/2015	Liquid Temperature (°C):	21.4
Serial Number:	IASY515S0046	Humidity (%RH):	40.1
Configuration:	INTE5562-3	Bar. Pressure (mb):	1010
Comments:	None		

Test 101
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.517 S/m; ε_r = 55.466; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0847 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.807 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.092 W/kg; SAR(10 g) = 0.053 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.111 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

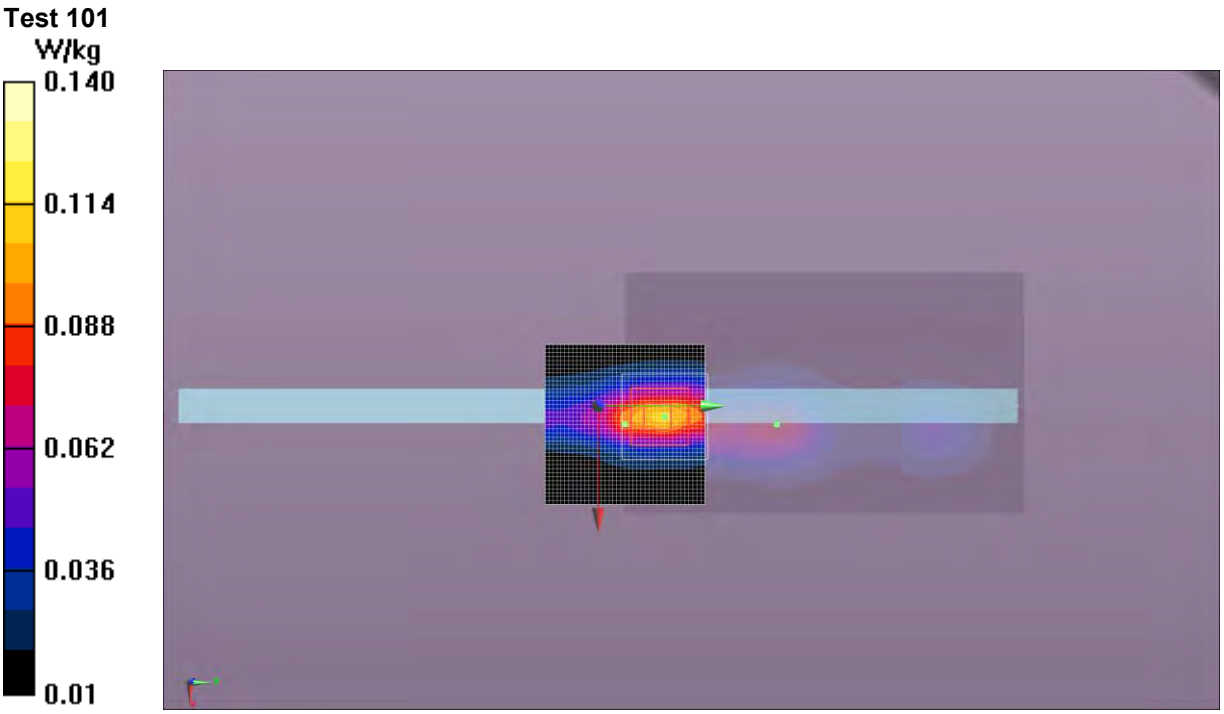
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.109 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 6.654 V/m
Maximum value of SAR (measured) = 0.0672 W/kg

Approved By

PCS 1900 TEST DATA



PCS 1900 TEST DATA

NORTHWEST EMC
WSTD.2013.09.09

Tested By:	Luke Richardson	Room Temperature (°C):	22.6
Date:	8/7/2015	Liquid Temperature (°C):	21
Serial Number:	IASY515S0046	Humidity (%RH):	39.8
Configuration:	INTE5562-3	Bar. Pressure (mb):	1011.7
Comments:	None		

Test 102
DUT: SKL21-SDS; Type: Tablet/ Computer; Serial: IASY515S0046
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1880 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.517 S/m; ε_r = 55.466; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.158 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.74 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.321 W/kg
SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.101 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.227 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

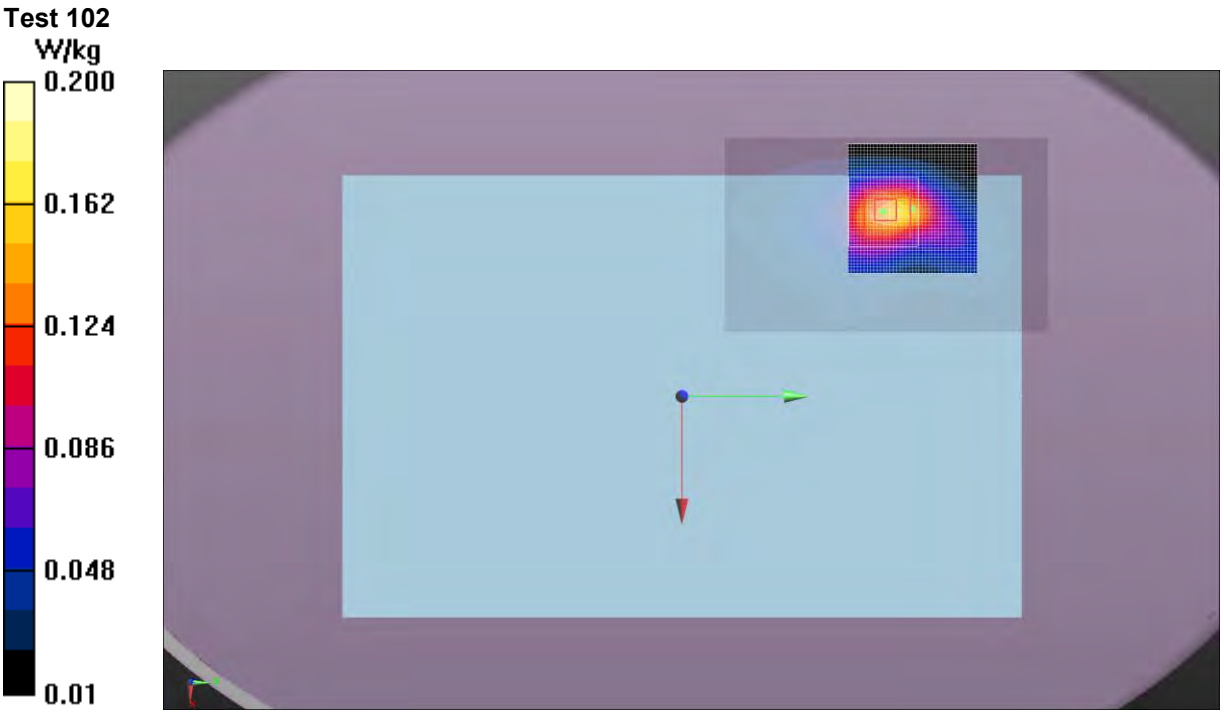
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.238 W/kg

Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

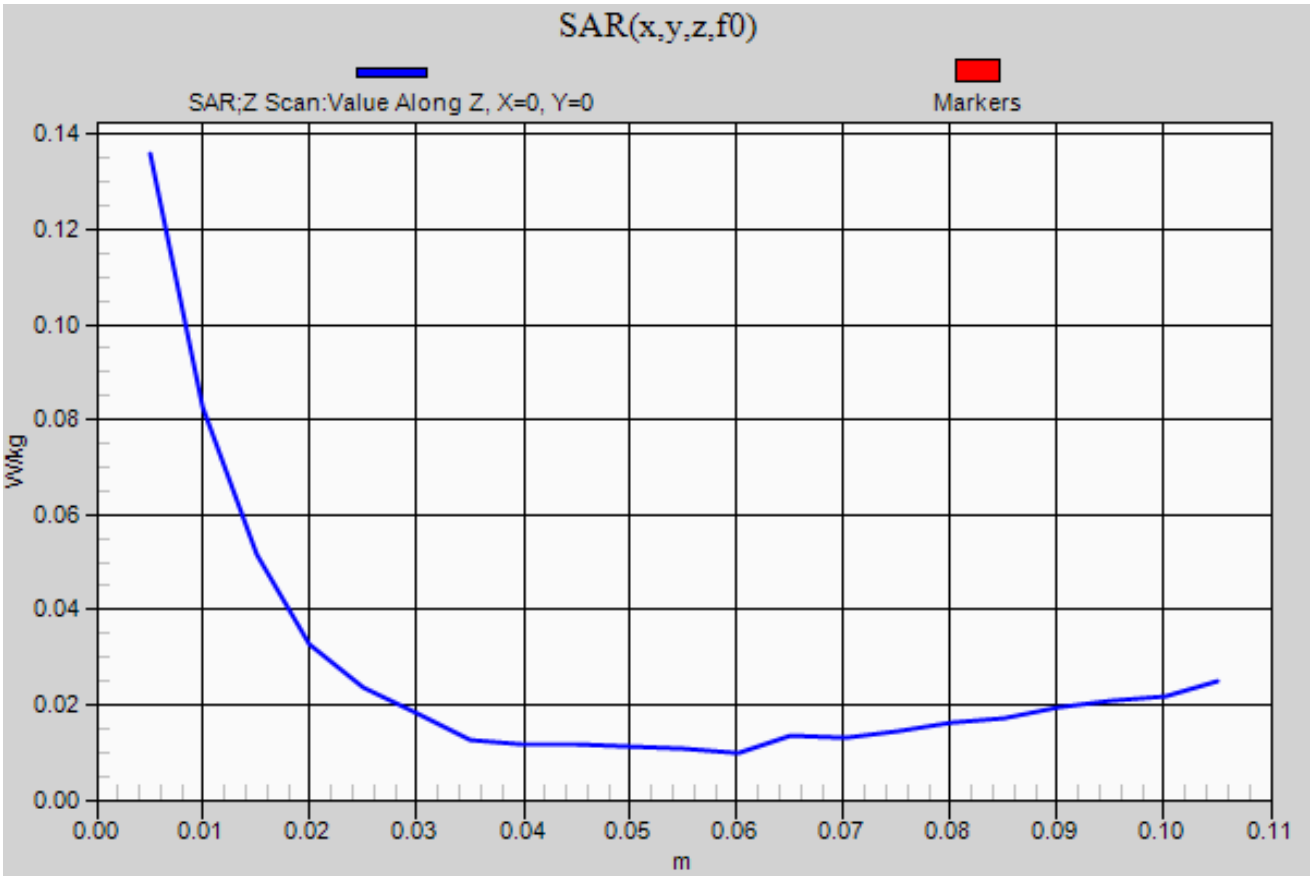
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 9.467 V/m
Maximum value of SAR (measured) = 0.136 W/kg

Luke Richardson
Approved By

PCS 1900 TEST DATA



Test 102 – Z Scan



PROXIMITY SENSOR TESTING DESCRIPTION

NORTHWEST EMC
2014-12-10

Determining Proximity Sensor Triggering Distances

The WWAN portion of the EUT contains a proximity sensor. Once the sensor is triggered, the output power is lowered for all WWAN bands. Following the procedures of KDB 616217 D04 v01r01, Section 6, the proximity sensor triggering distances were determined for the back surface and individual edges of the tablet that were subject to SAR testing. For the proximity testing, the EUT's output power was set to operate at its normal maximum output power. The EUT was positioned below the flat phantom filled with the tissue-equivalent medium appropriate for the frequency band investigated.

The distance versus conducted output power level was recorded for both trigger distances (approaching the phantom and separating from the phantom). Both the tablet and tent configurations were evaluated for each frequency band. Levels were recorded +/- 5mm around the trigger points using the following procedure:

1. Move the EUT towards the phantom 5 mm past trigger point or until it touches the phantom – whichever happens first
    a. Even if trigger point + 5mm isn't touching the phantom, continue to phantom to confirm the power stay's reduced.
2. Move the EUT away from the phantom 10 mm past the trigger point

Determining Antenna and Proximity Sensor Coverage

Per KDB 616217 D04 v01r01, Section 6, the procedures for determining antenna and proximity sensor coverage do not apply when the antenna and sensor are collocated, and the peak SAR location is overlapping with the sensor.

The transmit antenna is co-located with a proximity sensor. The peak SAR location is overlapping with the sensor location. Therefore, no additional evaluations were made for lateral sensor coverage.

Determining Tablet Tilt Angle influences to Proximity Sensor Triggering

Per KDB 616217 D04 v01r01, Section 6, it must be verified that the transmitter does not resume to normal full power when the tablet is tilted with respect to an edge while maintaining the sensor triggering distance. These conditions must be verified for a range of tilt angles to determine if triggering distance should be further reduced to maintain triggering.

Using the trigger distance that was found previously, the tilt angle versus conducted output power level was recorded for the side edge of the tablet that were subject to SAR testing. As determined above, the operating mode / frequency band that resulted in the smallest sensor triggering distance was used.

1. Test just the edges around the antenna (within 50mm of antenna); position the edge perpendicular to the phantom at the smallest trigger distance found above (including distance for back edge).
2. Vary the tilt by +/- 45 degrees in 10 degree increments and confirm that the trigger is not released.
3. If it is released, position the edge 1mm closer and repeat.
4. Repeat steps 2 and 3 until the trigger is not released. That becomes the smallest trigger distance. The SAR test separation distance is equal to the smallest trigger distance minus 1mm.

SAR Testing Relationship to the Trigger Distance

Per KDB 616217 D04 v01r01, Section 6, the smallest sensor triggering distance as determined from the normal and tilt position evaluations described above, minus 1mm, must be used as the test separation distance for SAR testing.

SAR measurements were made at the low power level using the trigger distance minus 1mm. All WWAN bands were evaluated using the channel / operating mode that produced the highest conducted output power for each band.

The results of the proximity sensor evaluation are tabulated on the following pages.

PROXIMITY SENSOR TESTING

NORTHWEST EMC 2014-12-10

EUT:	SKL21-SDS	Work Order:	INTE5622
Serial Number:	IASY515S0017	Date:	07/20/2015
Customer:	Intel Corporation	Temperature:	22.3°C
Attendees:	Mike Lowe	Relative Humidity:	32.1%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Luke Richardson and Ethan Schoonover	Job Site:	EV08
Power:	110VAC/60Hz	Configuration:	INTE5562-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 2.1093:2014	FCC KDB 616217 D04 v01r01

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Summary of Trigger Distances for Worst Case SAR Location – Tent (Laptop) / Back
Used for SAR Testing at +/- 1mm the Trigger Distance

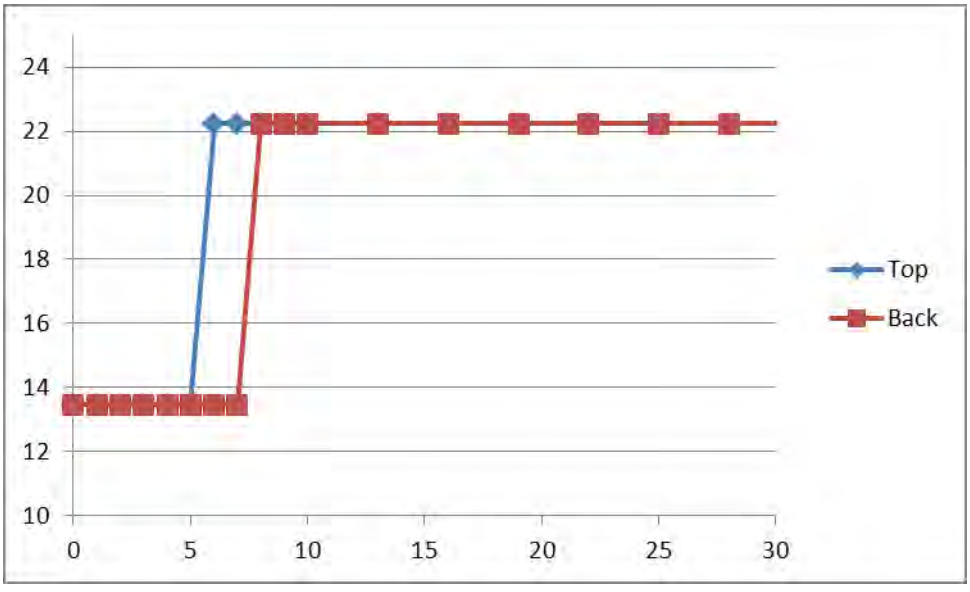
		Moving Towards Phantom	Moving Away From Phantom	Trigger Released During Tilt
		mm	mm	
LTE Band 2 & PCS 1900	1900 MHz	5	6	No
LTE Band 4 & AWS 1700	1720 MHz	5	6	No
LTE Band 5 & CLR 850	836.5 MHz	5	6	No
LTE Band 7	2514 MHz	7	8	No
LTE Band 13	782 MHz	6	6	No
LTE Band 17	709 MHz	5	5	No

Tested By

PROXIMITY SENSOR TESTING

LTE Band 2 20MHz High (1900MHz) QPSK 1 RB 0 offset

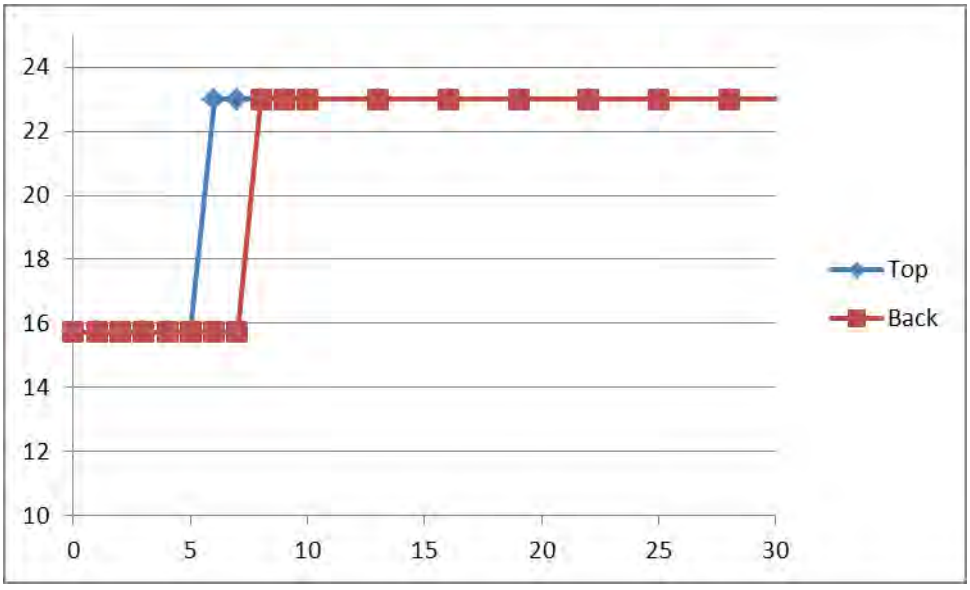
Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	13.47	13.47
1	13.47	13.47
2	13.47	13.47
3	13.47	13.47
4	13.47	13.47
5	13.47	13.47
6	22.24	13.47
7	22.24	13.47
8	22.24	22.24
9	22.24	22.24
10	22.24	22.24
13	22.24	22.24
16	22.24	22.24
19	22.24	22.24
22	22.24	22.24
25	22.24	22.24
28	22.24	22.24
31	22.24	22.24



PROXIMITY SENSOR TESTING

LTE Band 4 20MHz Low (1720MHz) QPSK 1 RB 0 offset

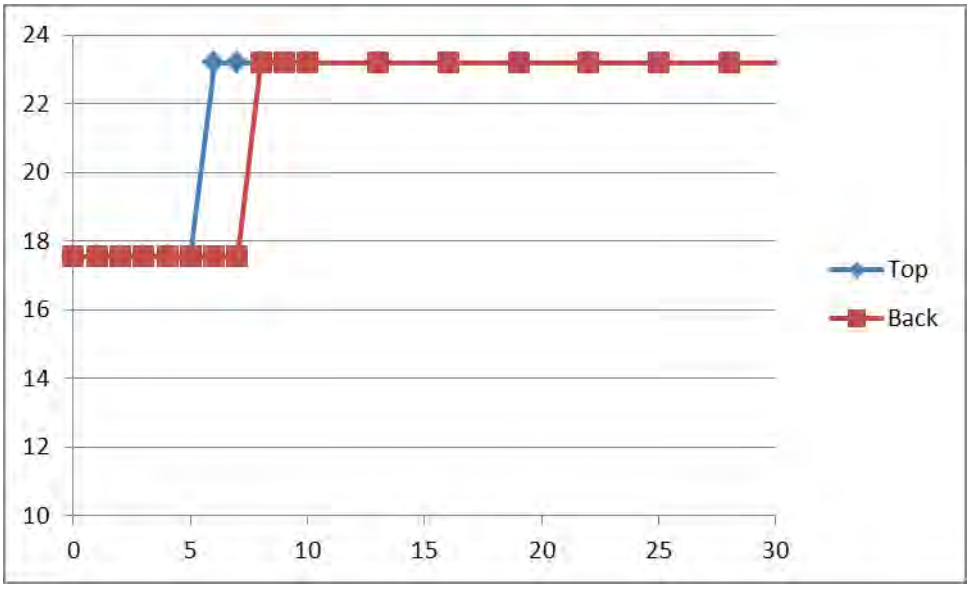
Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	15.73	15.73
1	15.73	15.73
2	15.73	15.73
3	15.73	15.73
4	15.73	15.73
5	15.73	15.73
6	23	15.73
7	23	15.73
8	23	23
9	23	23
10	23	23
13	23	23
16	23	23
19	23	23
22	23	23
25	23	23
28	23	23
31	23	23



PROXIMITY SENSOR TESTING

LTE Band 5 10MHz Mid (836.5MHz) QPSK 1 RB 0 offset

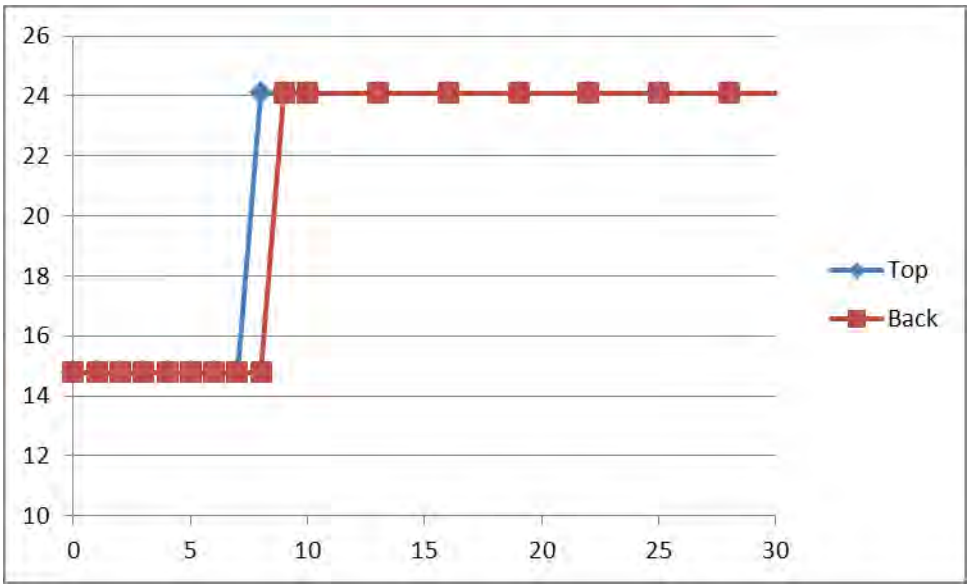
Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	17.55	17.55
1	17.55	17.55
2	17.55	17.55
3	17.55	17.55
4	17.55	17.55
5	17.55	17.55
6	23.2	17.55
7	23.2	17.55
8	23.2	23.2
9	23.2	23.2
10	23.2	23.2
13	23.2	23.2
16	23.2	23.2
19	23.2	23.2
22	23.2	23.2
25	23.2	23.2
28	23.2	23.2
31	23.2	23.2



PROXIMITY SENSOR TESTING

LTE Band 7 20MHz Low (2514MHz) QPSK 1 RB 0 offset

Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	14.79	14.79
1	14.79	14.79
2	14.79	14.79
3	14.79	14.79
4	14.79	14.79
5	14.79	14.79
6	14.79	14.79
7	14.79	14.79
8	24.1	14.79
9	24.1	24.1
10	24.1	24.1
13	24.1	24.1
16	24.1	24.1
19	24.1	24.1
22	24.1	24.1
25	24.1	24.1
28	24.1	24.1
31	24.1	24.1

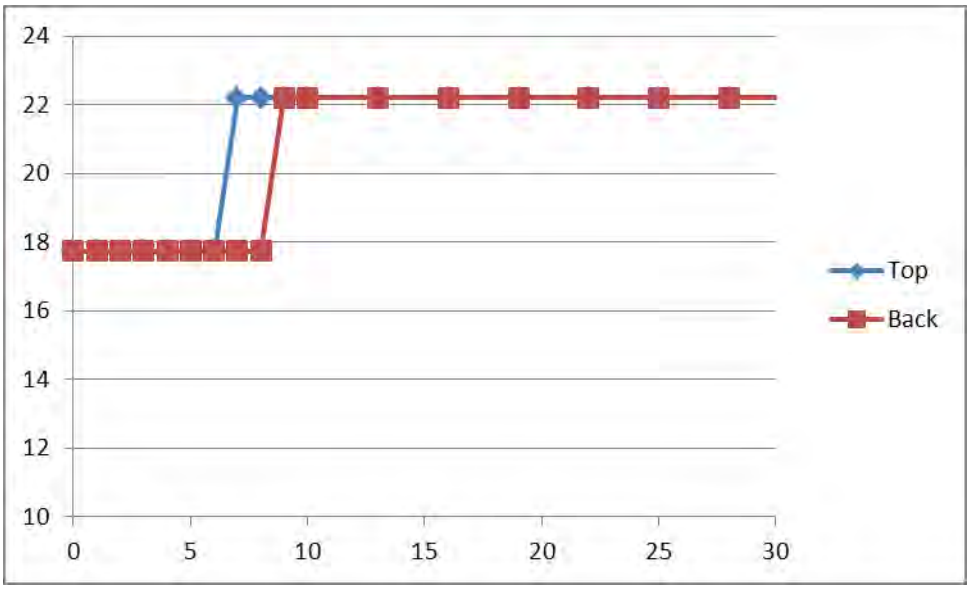


PROXIMITY SENSOR TESTING

NORTHWEST EMC 2014-12-10

LTE Band 13 10MHz Mid (782MHz) QPSK 1 RB 24 offset

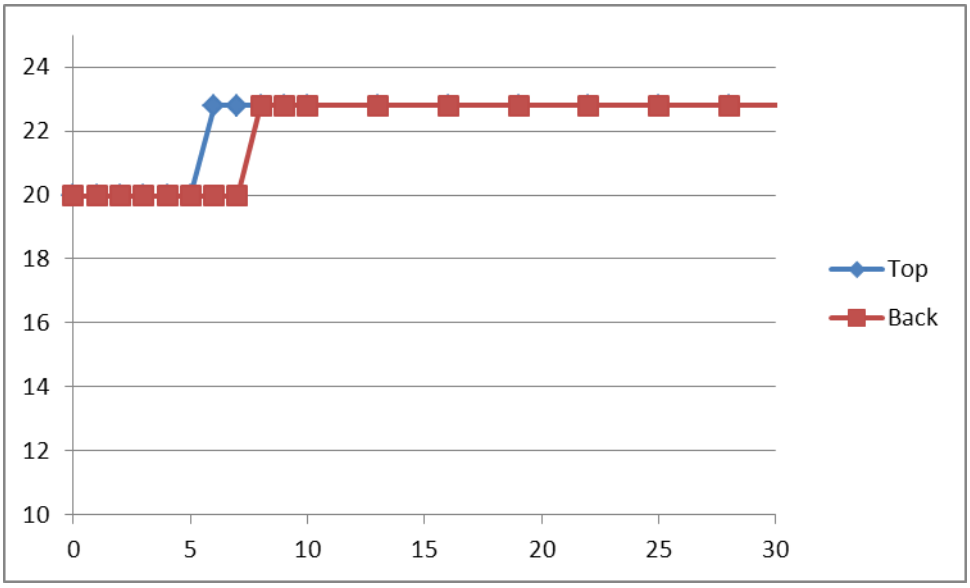
Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	17.73	17.73
1	17.73	17.73
2	17.73	17.73
3	17.73	17.73
4	17.73	17.73
5	17.73	17.73
6	17.73	17.73
7	22.2	17.73
8	22.2	17.73
9	22.2	22.2
10	22.2	22.2
13	22.2	22.2
16	22.2	22.2
19	22.2	22.2
22	22.2	22.2
25	22.2	22.2
28	22.2	22.2
31	22.2	22.2



PROXIMITY SENSOR TESTING

LTE Band 17 10MHz Low (709MHz) QPSK 1 RB 0 offset

Distance	Output Power (dBm) - Moving Towards Phantom	
	Tablet	
mm	Top	Back
0	19.97	19.97
1	19.97	19.97
2	19.97	19.97
3	19.97	19.97
4	19.97	19.97
5	19.97	19.97
6	22.8	19.97
7	22.8	19.97
8	22.8	22.8
9	22.8	22.8
10	22.8	22.8
13	22.8	22.8
16	22.8	22.8
19	22.8	22.8
22	22.8	22.8
25	22.8	22.8
28	22.8	22.8
31	22.8	22.8

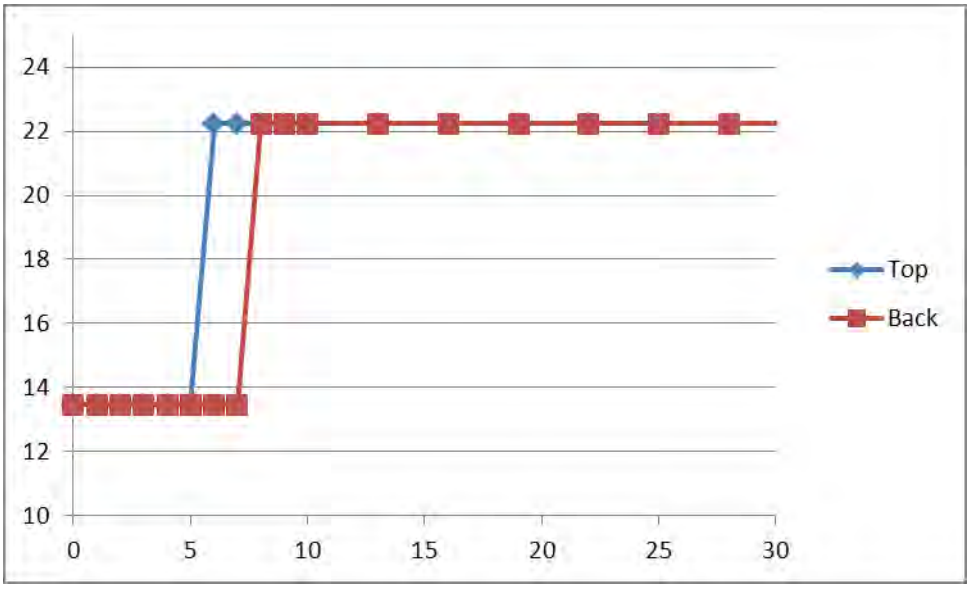


PROXIMITY SENSOR TESTING

NORTHWEST EMC 2014-12-10

LTE Band 2 20MHz High (1900MHz) QPSK 1 RB 0 offset

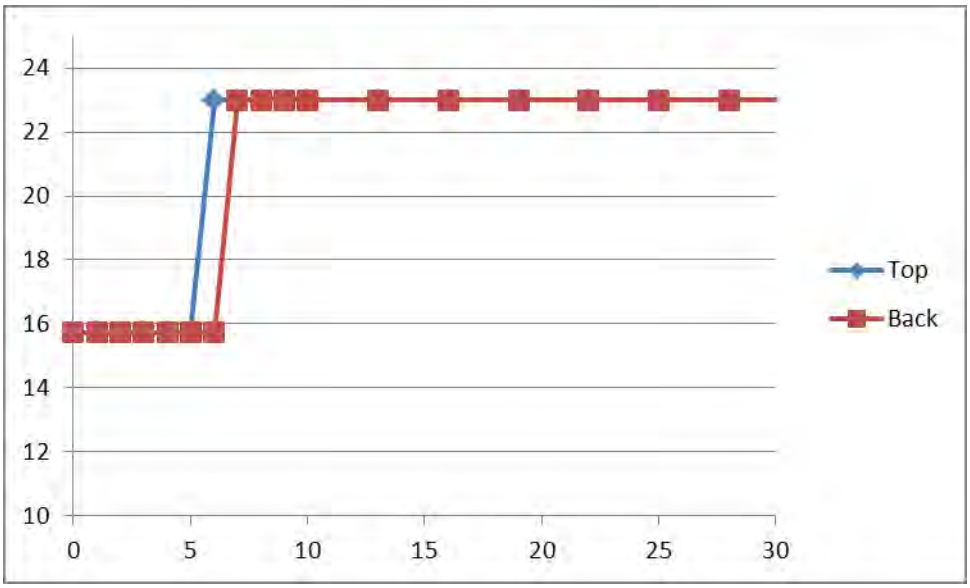
Distance	Output Power (dBm) - Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	13.47	13.47
1	13.47	13.47
2	13.47	13.47
3	13.47	13.47
4	13.47	13.47
5	13.47	13.47
6	22.24	13.47
7	22.24	13.47
8	22.24	22.24
9	22.24	22.24
10	22.24	22.24
13	22.24	22.24
16	22.24	22.24
19	22.24	22.24
22	22.24	22.24
25	22.24	22.24
28	22.24	22.24
31	22.24	22.24



PROXIMITY SENSOR TESTING

LTE Band 4 20MHz Low (1720MHz) QPSK 1 RB 0 offset

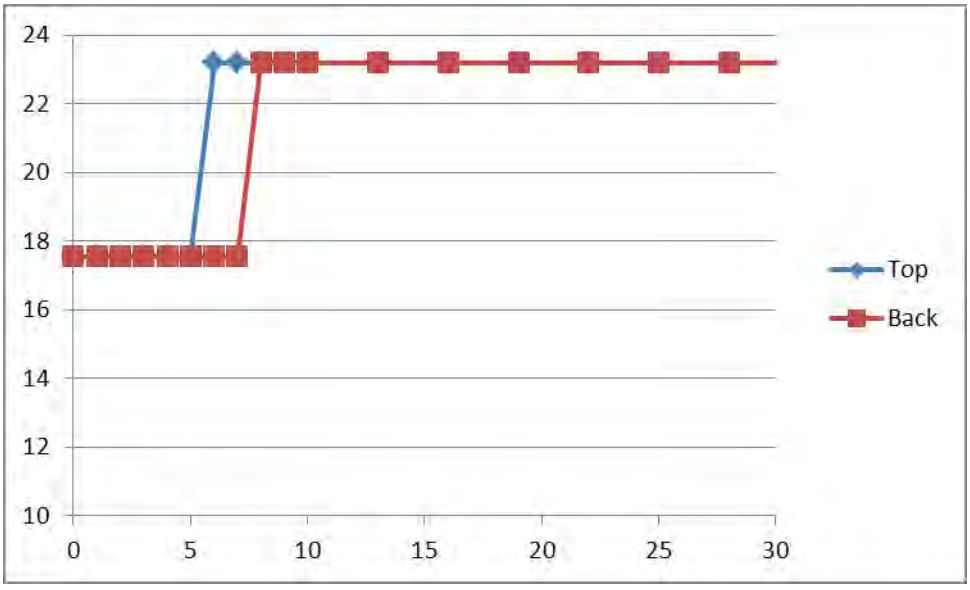
Distance	Output Power (dBm) - Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	15.73	15.73
1	15.73	15.73
2	15.73	15.73
3	15.73	15.73
4	15.73	15.73
5	15.73	15.73
6	23	15.73
7	23	23
8	23	23
9	23	23
10	23	23
13	23	23
16	23	23
19	23	23
22	23	23
25	23	23
28	23	23
31	23	23



PROXIMITY SENSOR TESTING

LTE Band 5 10MHz Mid (836.5MHz) QPSK 1 RB 0 offset

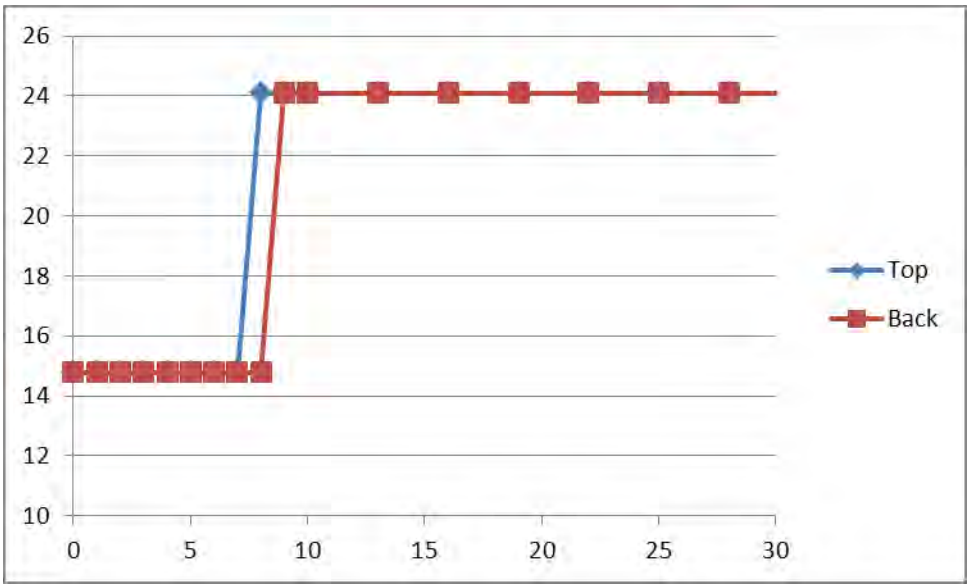
Distance	Output Power (dBm) - Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	17.55	17.55
1	17.55	17.55
2	17.55	17.55
3	17.55	17.55
4	17.55	17.55
5	17.55	17.55
6	23.2	17.55
7	23.2	17.55
8	23.2	23.2
9	23.2	23.2
10	23.2	23.2
13	23.2	23.2
16	23.2	23.2
19	23.2	23.2
22	23.2	23.2
25	23.2	23.2
28	23.2	23.2
31	23.2	23.2



PROXIMITY SENSOR TESTING

LTE Band 7 20MHz Low (2514MHz) QPSK 1 RB 0 offset

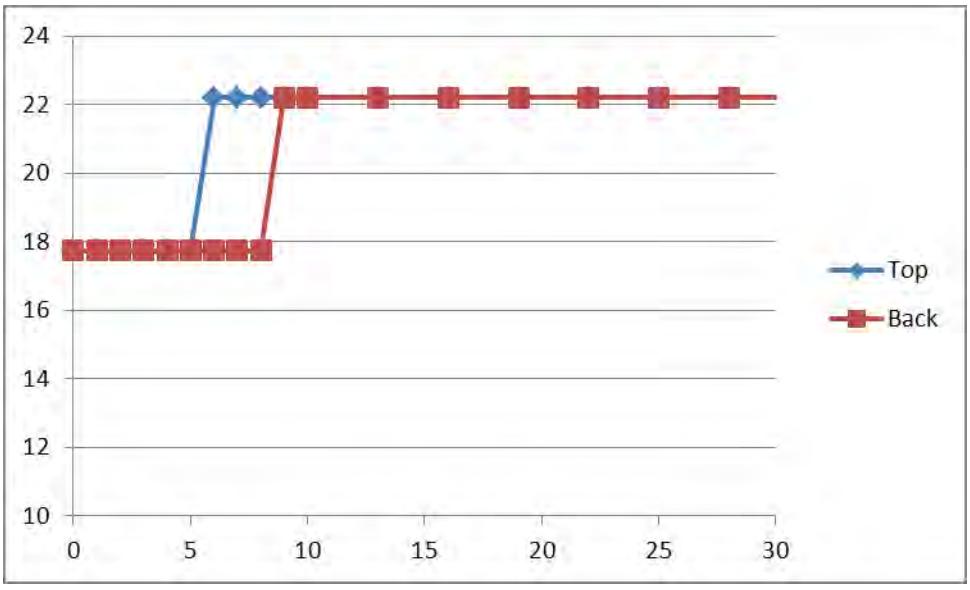
Distance	Output Power (dBm) – Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	14.79	14.79
1	14.79	14.79
2	14.79	14.79
3	14.79	14.79
4	14.79	14.79
5	14.79	14.79
6	14.79	14.79
7	14.79	14.79
8	24.1	14.79
9	24.1	24.1
10	24.1	24.1
13	24.1	24.1
16	24.1	24.1
19	24.1	24.1
22	24.1	24.1
25	24.1	24.1
28	24.1	24.1
31	24.1	24.1



PROXIMITY SENSOR TESTING

LTE Band 13 10MHz Mid (782MHz) QPSK 1 RB 24 offset

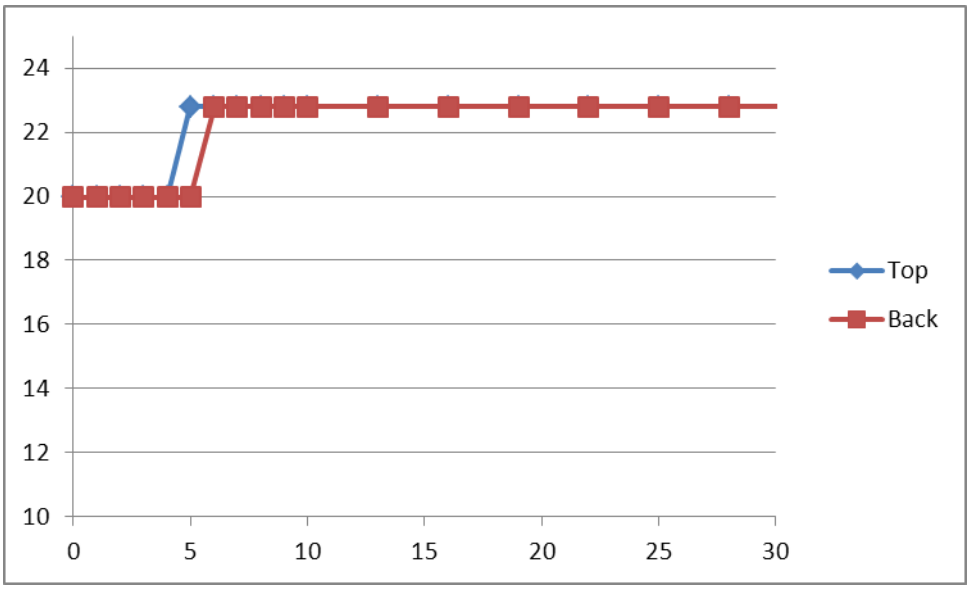
Distance	Output Power (dBm) - Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	17.73	17.73
1	17.73	17.73
2	17.73	17.73
3	17.73	17.73
4	17.73	17.73
5	17.73	17.73
6	22.2	17.73
7	22.2	17.73
8	22.2	17.73
9	22.2	22.2
10	22.2	22.2
13	22.2	22.2
16	22.2	22.2
19	22.2	22.2
22	22.2	22.2
25	22.2	22.2
28	22.2	22.2
31	22.2	22.2



PROXIMITY SENSOR TESTING

LTE Band 17 10MHz Low (709MHz) QPSK 1 RB 0 offset

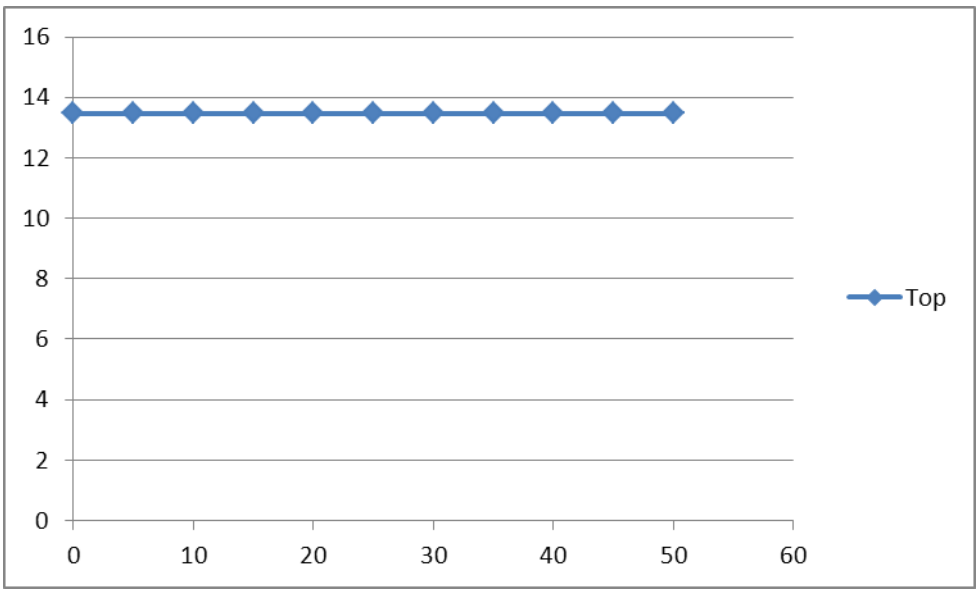
Distance	Output Power (dBm) - Moving Away From Phantom	
	Tablet	
mm	Top	Back
0	19.97	19.97
1	19.97	19.97
2	19.97	19.97
3	19.97	19.97
4	19.97	19.97
5	22.8	19.97
6	22.8	22.8
7	22.8	22.8
8	22.8	22.8
9	22.8	22.8
10	22.8	22.8
13	22.8	22.8
16	22.8	22.8
19	22.8	22.8
22	22.8	22.8
25	22.8	22.8
28	22.8	22.8
31	22.8	22.8



PROXIMITY SENSOR TESTING

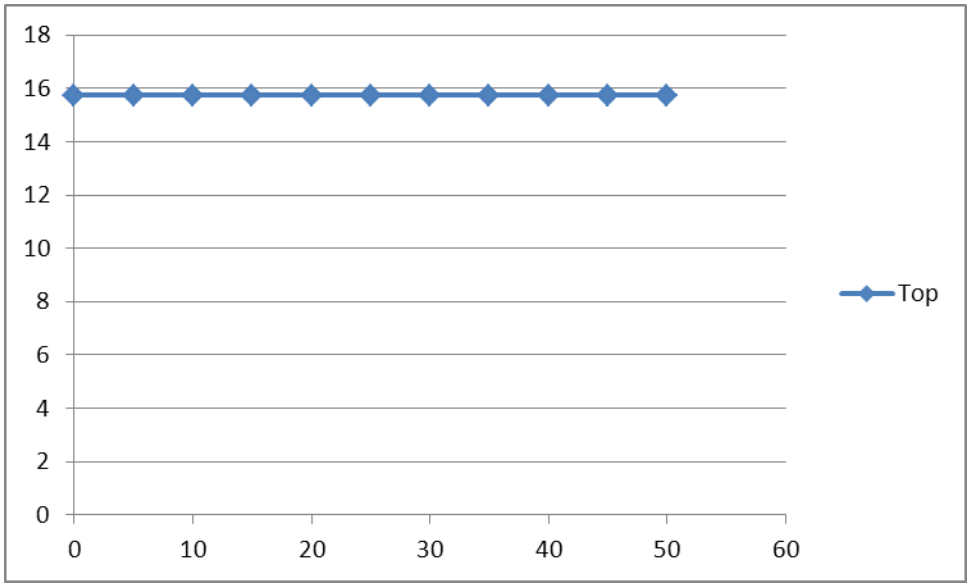
LTE Band 2 20MHz High (1900MHz) QPSK 1 RB 0 offset

	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	13.47
5	13.47
10	13.47
15	13.47
20	13.47
25	13.47
30	13.47
35	13.47
40	13.47
45	13.47
50	13.47



LTE Band 4 20MHz Low (1720MHz) QPSK 1 RB 0 offset

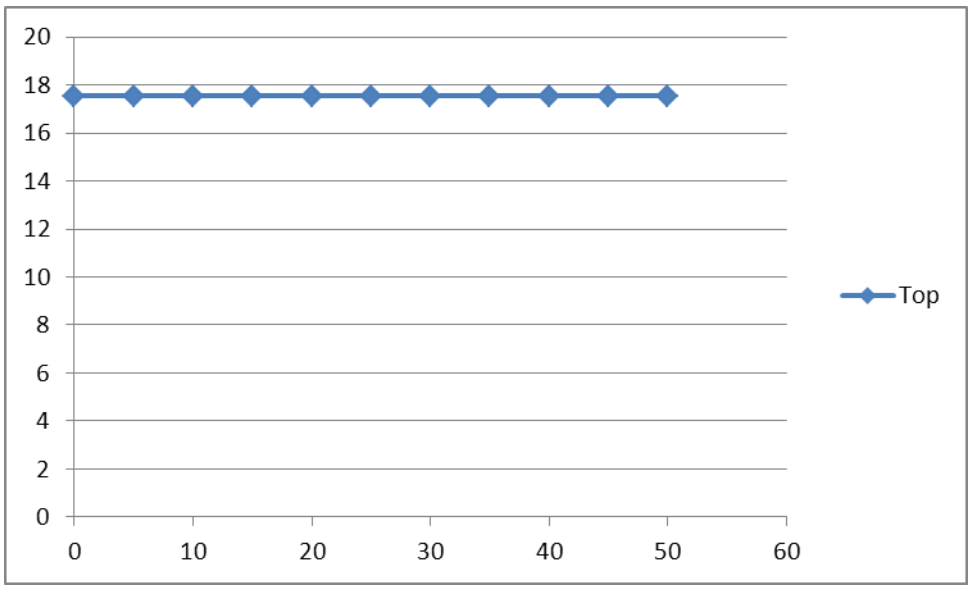
	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	15.73
5	15.73
10	15.73
15	15.73
20	15.73
25	15.73
30	15.73
35	15.73
40	15.73
45	15.73
50	15.73



PROXIMITY SENSOR TESTING

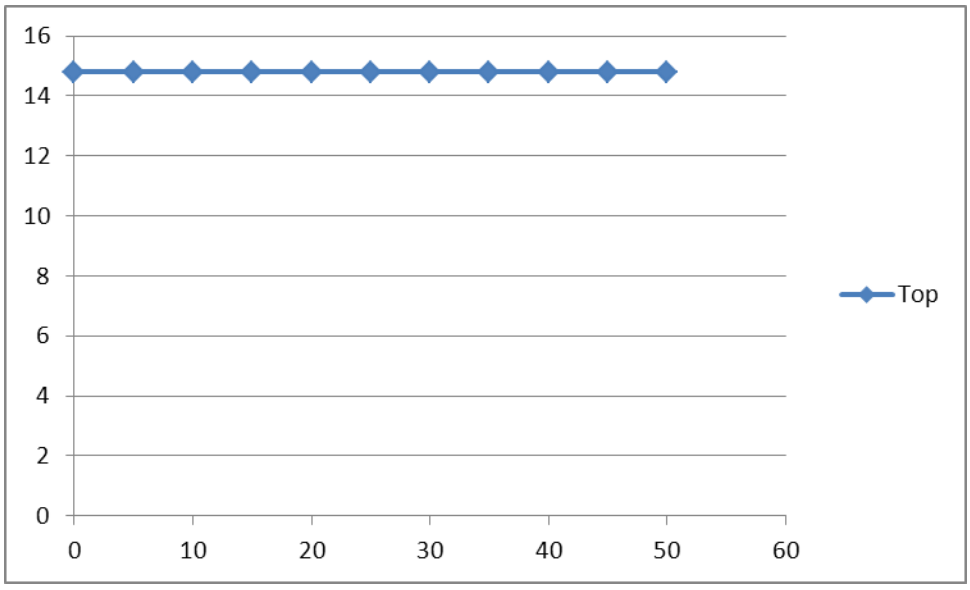
LTE Band 5 10MHz Mid (836.5MHz) QPSK 1 RB 0 offset

	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	17.55
5	17.55
10	17.55
15	17.55
20	17.55
25	17.55
30	17.55
35	17.55
40	17.55
45	17.55
50	17.55



LTE Band 7 20MHz Low (2514MHz) QPSK 1 RB 0 offset

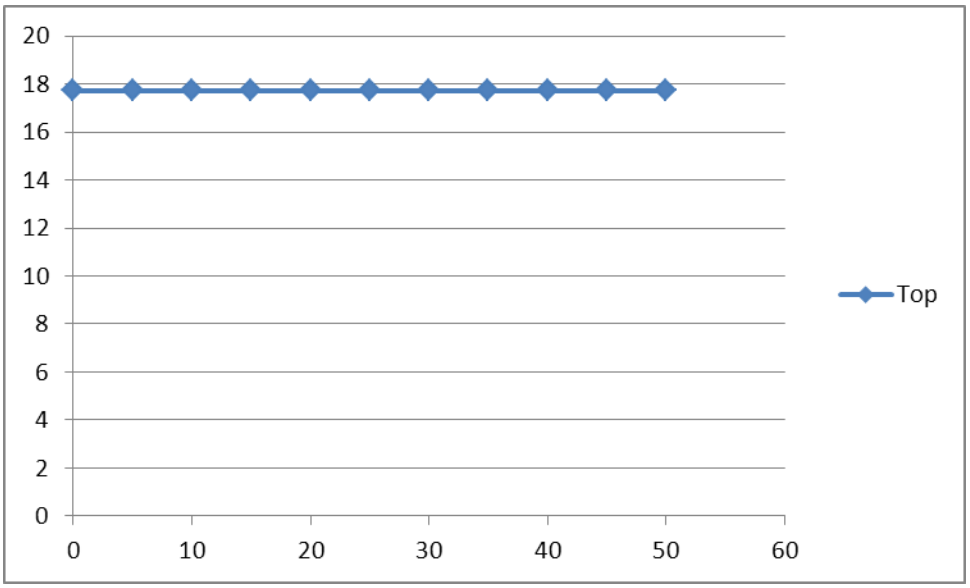
	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	14.79
5	14.79
10	14.79
15	14.79
20	14.79
25	14.79
30	14.79
35	14.79
40	14.79
45	14.79
50	14.79



PROXIMITY SENSOR TESTING

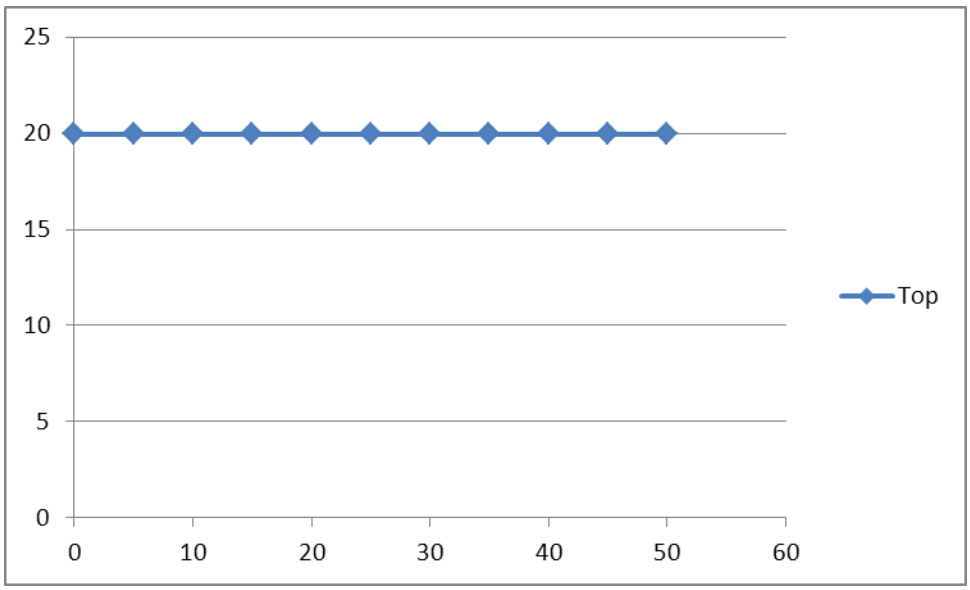
LTE Band 13 10MHz Mid (782MHz) QPSK 1 RB 24 offset

	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	17.73
5	17.73
10	17.73
15	17.73
20	17.73
25	17.73
30	17.73
35	17.73
40	17.73
45	17.73
50	17.73



LTE Band 17 10MHz Low (709MHz) QPSK 1 RB 0 offset

	(dBm) Moving Away
Angle	Tablet
Degrees	Top
0	19.97
5	19.97
10	19.97
15	19.97
20	19.97
25	19.97
30	19.97
35	19.97
40	19.97
45	19.97
50	19.97



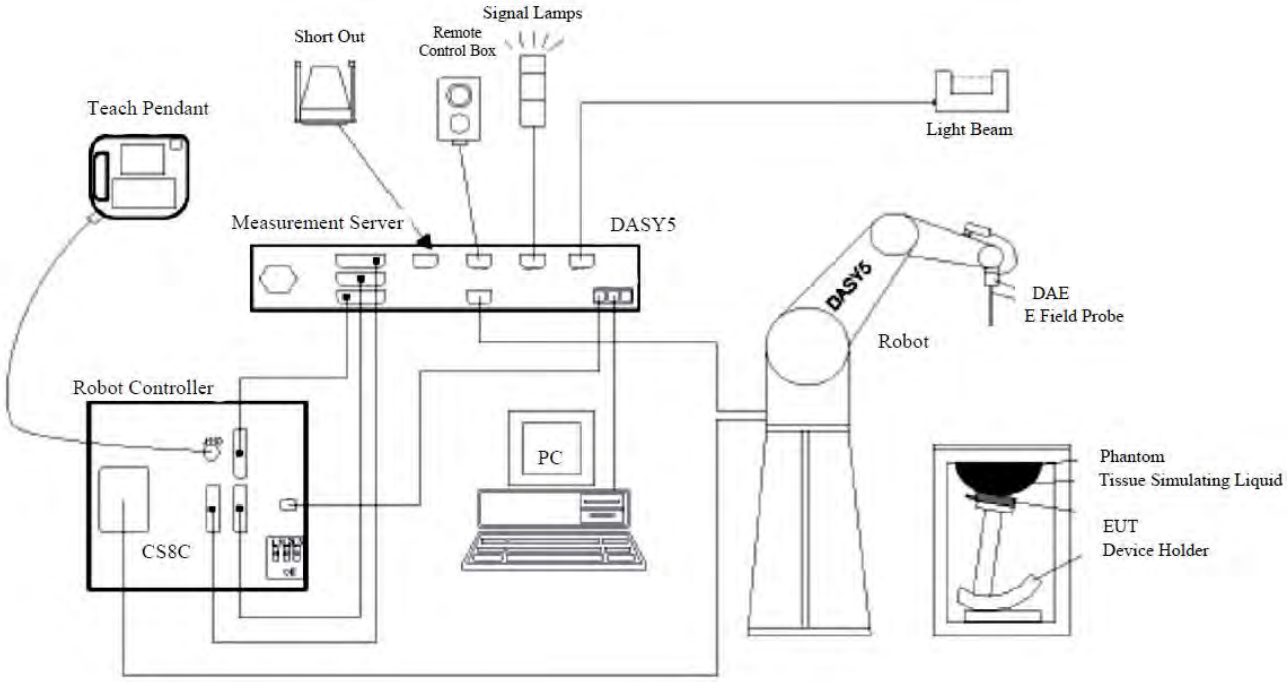
SYSTEM AND TEST SITE DESCRIPTION

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.

SYSTEM AND TEST SITE DESCRIPTION

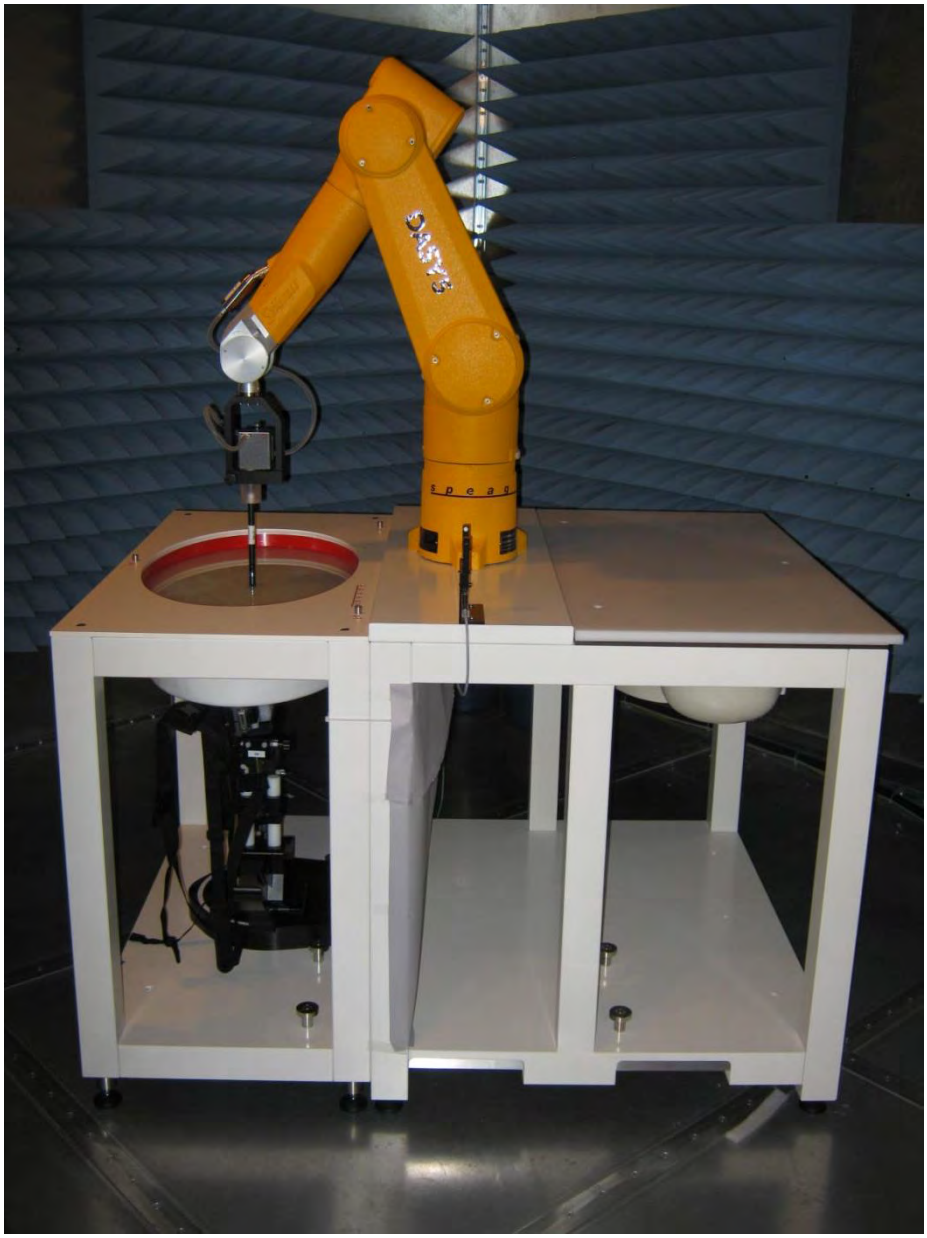
WSTD.2013.09.09

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

NORTHWEST EMC
WSEQ.13.09.09

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Amplifier	Mini Circuits	ZHL-5W-2G-S+	TRZ	NCR [1]	0 mo
Amplifier	Mini Circuits	ZVE-3W-83+	TTA	NCR [1]	0 mo
Antenna, Dipole 2600MHz SAR	SPEAG	D2600V2	ADR	08/11/2015	12 mo
Antenna, Dipole 750MHz SAR	SPEAG	D750V3	ADQ	07/15/2015	12 mo
Antenna, Dipole 1750MHz SAR	SPEAG	D1750v2	ADN	11/04/2014	12 mo
Antenna, Dipole 1900MHz SAR	SPEAG	D1900v2	ADO	11/03/2014	12 mo
Antenna, Dipole 900 MHz SAR	SPEAG	D900V2	ADP	11/03/2014	12 mo
Body Solution	SPEAG	MSL 900	SAT	At start of testing	
Body Solution	SPEAG	MSL 1750	SAQ	At start of testing	
Body Solution	SPEAG	MSL 1900	SAO	At start of testing	
Body Solution	Northwest EMC	MSL 750	SAZ	At start of testing	
Body Solution	Northwest EMC	MSL 2600	SBA	At start of testing	
DAE	SPEAG	SD 000 D04 EJ	SAH	11/03/2014	12 mo
DASY5 Measurement Server	Staeubli	DAYS5	SAK	11/01/2013	36 mo
Device Holder	SPEAG	N/A	SAW	NCR	0 mo
Dielectric Assessment Kit	SPEAG	DAKS:200	IPR	03/06/2014	36 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
Power Meter	Agilent	N1913A	SQR	10/30/2014	12 mo
Power Sensor	Agilent	E9300H	SQO	10/30/2014	12 mo
Radio Communication Analyzer	Anritsu	MT8820C	AFK	NCR	0 mo
RF Vector Signal Generator (FOR REFERENCE ONLY) with associated cables and attenuators	Agilent	V2920A	TIH	NCR [1]	0 mo
Robot Arm	Staeubli	TX60LSPEAG	SAA	NCR	0 mo
Robot Chassis and Power Supply	Staeubli	N/A	SAJ	NCR	0 mo
Robot Controller	Staeubli	CS8C	SAI	NCR	0 mo
SAR Probe	SPEAG	ES3DV3	SAF	11/07/2014	12 mo
SAR Probe	SPEAG	EX3DV4	SAG	11/10/2014	12 mo
Thermometer	Omega Engineering, Inc.	HH311	DUI	01/26/2015	36 mo
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0 mo

Note 1: The output of the signal generator / amplifier is verified with the calibrated power meter listed above.

MEASUREMENT UNCERTAINTY

MEASUREMENT UNCERTAINTY BUDGETS 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	

MEASUREMENT UNCERTAINTY

MEASUREMENT UNCERTAINTY BUDGETS PER IEEE 1528:2003

3000-6000 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)	6.55	normal	1	1	1	6.6	6.6	∞
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	2.0	rectangular	1.732	1	1	1.2	1.2	∞
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	0.8	rectangular	1.732	1	1	0.5	0.5	∞
Probe positioner with respect to phantom shell	9.9	rectangular	1.732	1	1	5.7	5.7	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	4.0	rectangular	1.732	1	1	2.3	2.3	∞
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				13.2	12.7	330
Expanded Measurement Uncertainty (95% Confidence/		normal (k=2)				26.5	25.4	

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_Nov14

CALIBRATION CERTIFICATE

Object: D1750V2 - SN: 1040

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: November 04, 2014

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	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 5, 2014

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

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S Swiss Calibration Service

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Accreditation No.: SCS 108

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 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
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) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
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	39.4 ± 6 %	1.38 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	9.53 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**37.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.1 W/kg ± 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	52.2 ± 6 %	1.50 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	9.55 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**37.8 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.4 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.7 Ω + 1.6 jΩ
Return Loss	- 35.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.6 Ω + 1.2 jΩ
Return Loss	- 28.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.215 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

DASY5 Validation Report for Head TSL

Date: 04.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

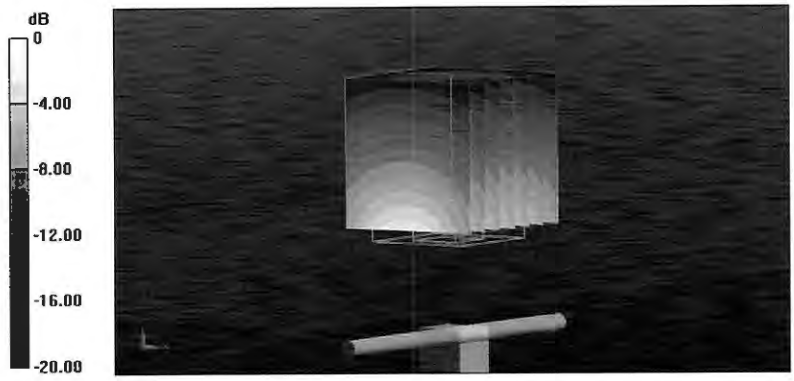
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.38 S/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.23, 5.23, 5.23); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

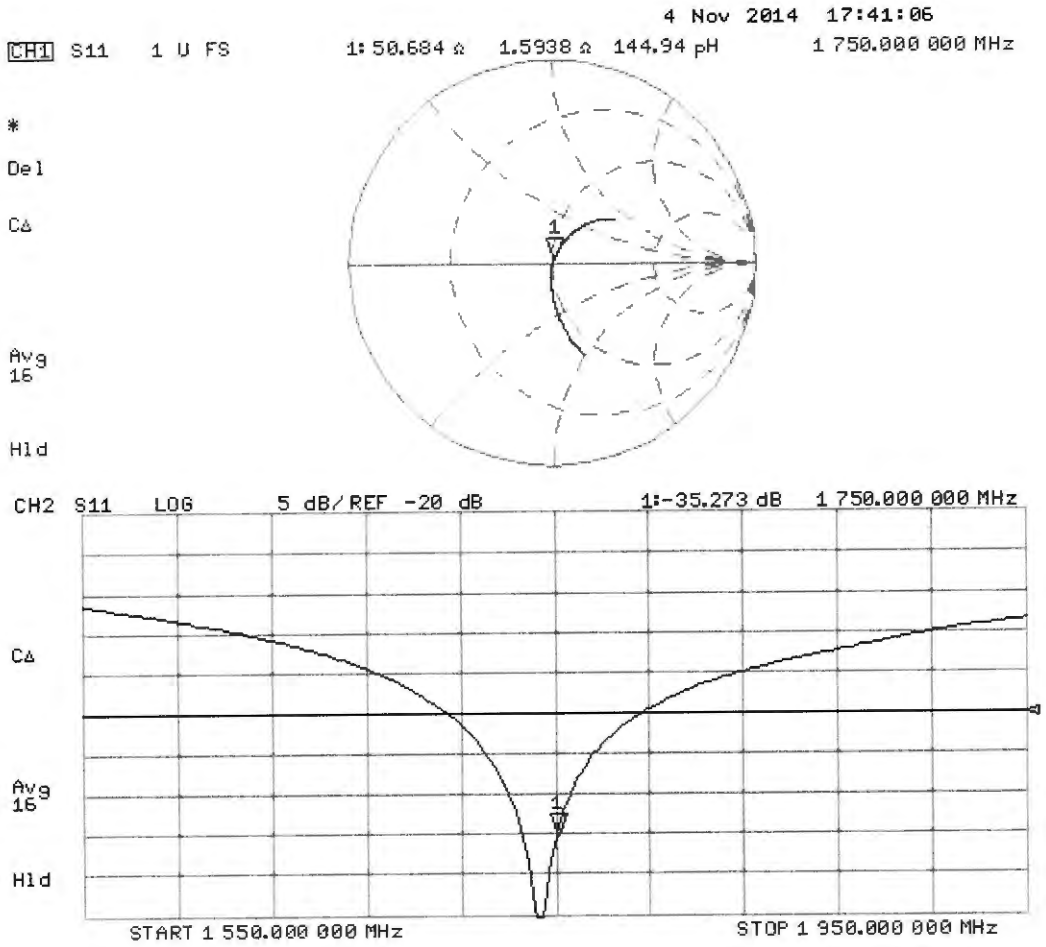
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.61 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.53 W/kg; SAR(10 g) = 5.06 W/kg
Maximum value of SAR (measured) = 12.0 W/kg



0 dB = 12.0 W/kg = 10.79 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 04.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

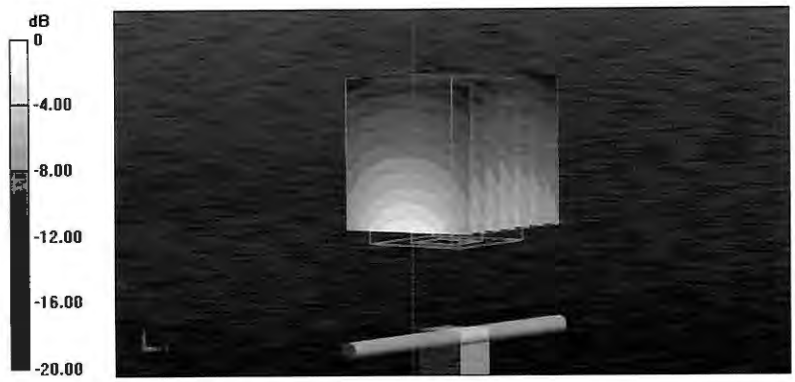
Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.5 S/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.89, 4.89, 4.89); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

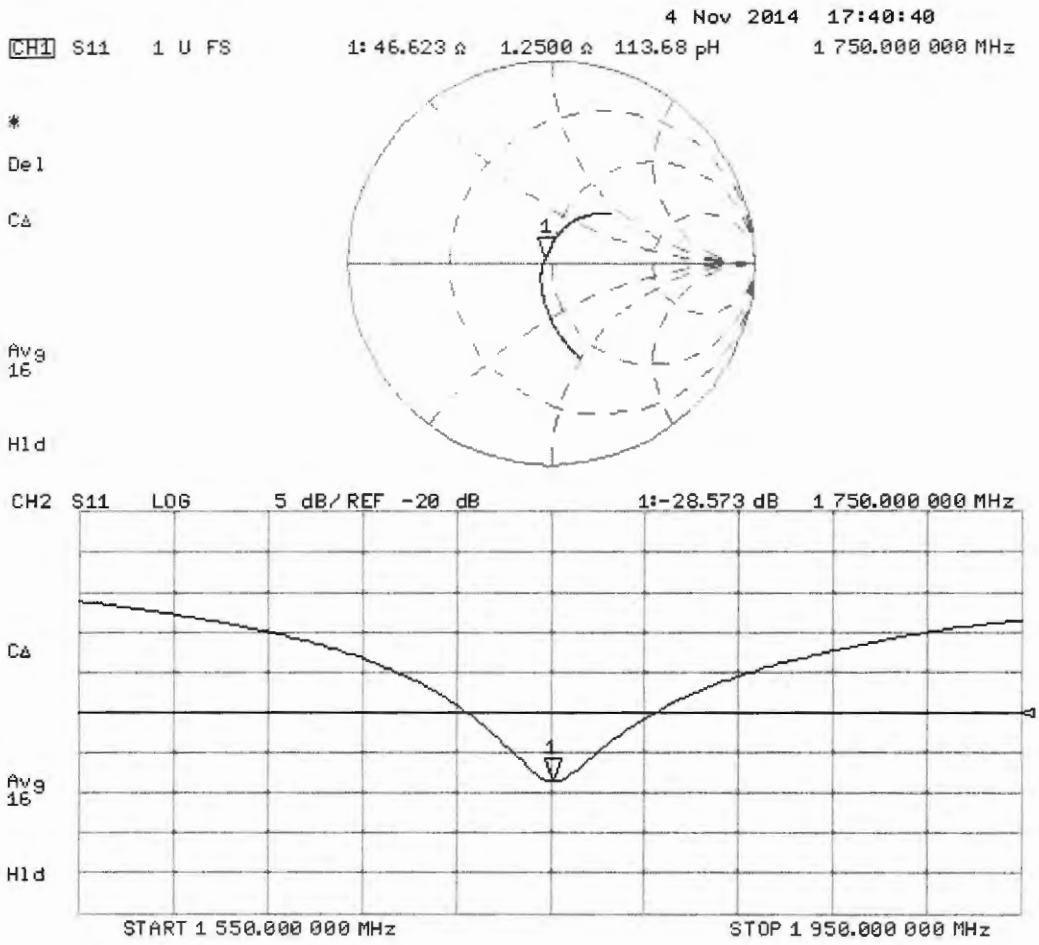
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.13 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 9.55 W/kg; SAR(10 g) = 5.12 W/kg
Maximum value of SAR (measured) = 12.1 W/kg



0 dB = 12.1 W/kg = 10.83 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Northwest EMC**

Certificate No: D1900V2-5d131_Nov14

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d131
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	November 03, 2014

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	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 3, 2014

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Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

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 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
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) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
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	40.1 ± 6 %	1.39 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	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.6 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.3 W/kg ± 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	53.3 ± 6 %	1.52 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	10.1 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**40.4 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.36 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω + 5.5 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω + 6.8 jΩ
Return Loss	- 22.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.204 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

DASY5 Validation Report for Head TSL

Date: 03.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

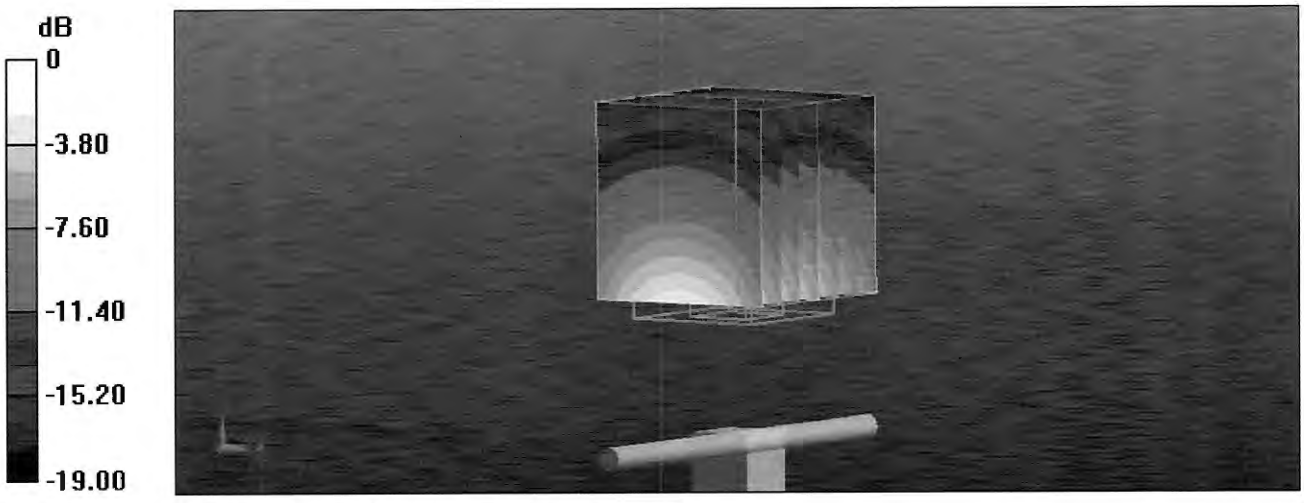
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.39 S/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.06, 5.06, 5.06); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

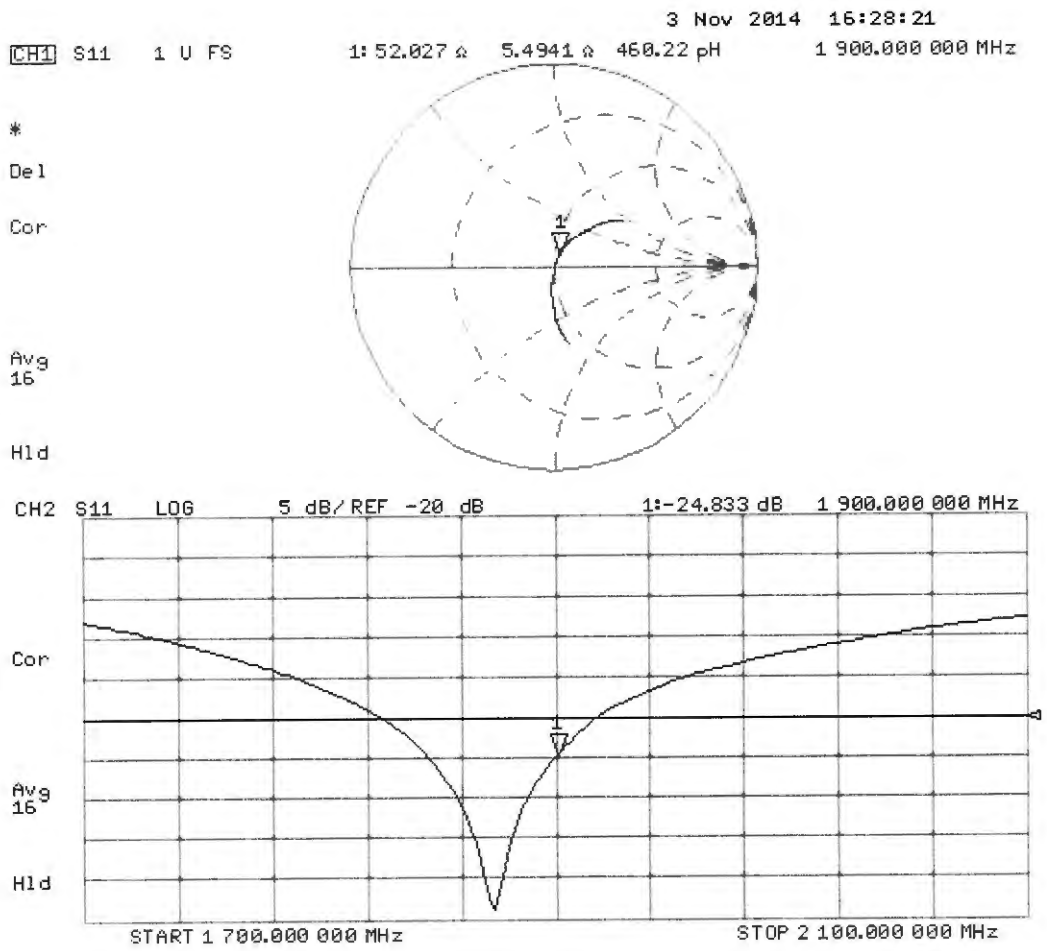
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.02 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.3 W/kg
Maximum value of SAR (measured) = 12.9 W/kg



0 dB = 12.9 W/kg = 11.11 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 03.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

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

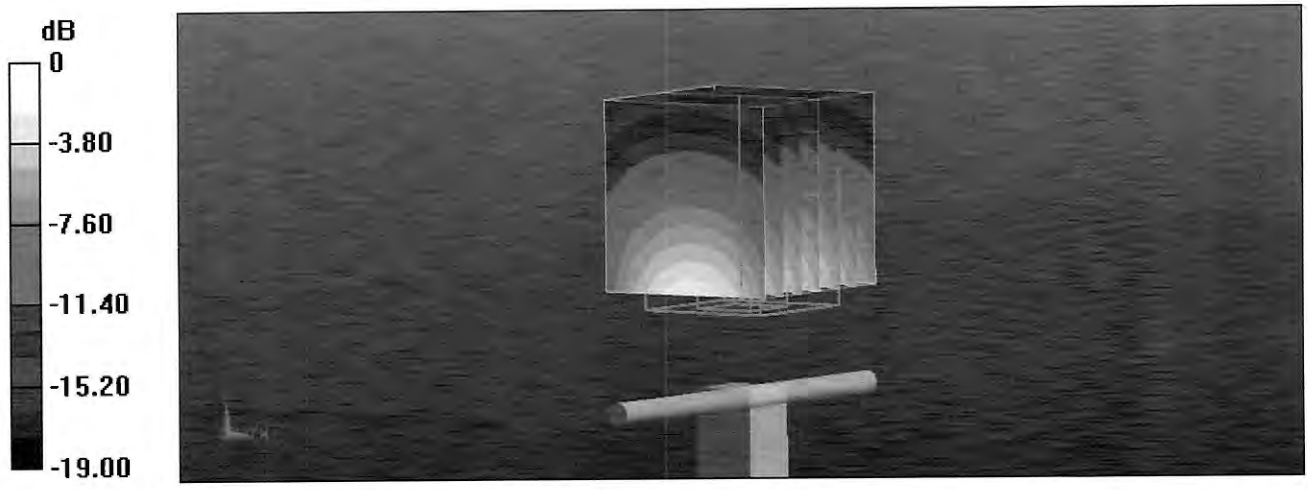
Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.52 S/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.76, 4.76, 4.76); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

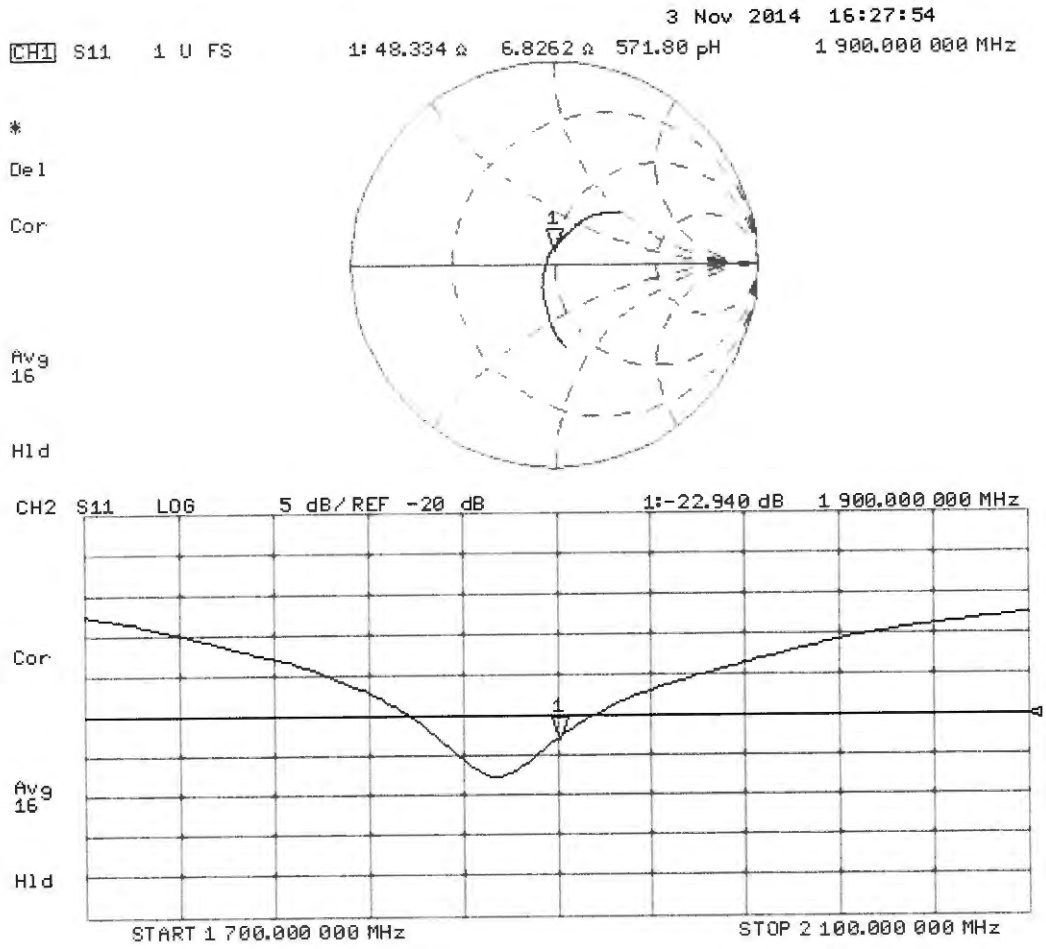
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.88 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.36 W/kg
Maximum value of SAR (measured) = 12.6 W/kg



0 dB = 12.6 W/kg = 11.00 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Northwest EMC**

Certificate No: D900V2-1d106_Nov14

CALIBRATION CERTIFICATE

Object	D900V2 - SN: 1d106
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	November 03, 2014

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	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-13 (No. ES3-3205_Dec13)	Dec-14
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 7, 2014

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

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Accreditation No.: SCS 108

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 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
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) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	900 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	0.97 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.0 ± 6 %	0.93 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	2.57 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**10.6 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.65 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.75 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.0	1.05 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.3 ± 6 %	1.03 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	2.69 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**10.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.75 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**7.07 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.0 Ω - 5.7 jΩ
Return Loss	- 24.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.4 Ω - 7.9 jΩ
Return Loss	- 20.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.412 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	September 22, 2009

DASY5 Validation Report for Head TSL

Date: 03.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 1d106

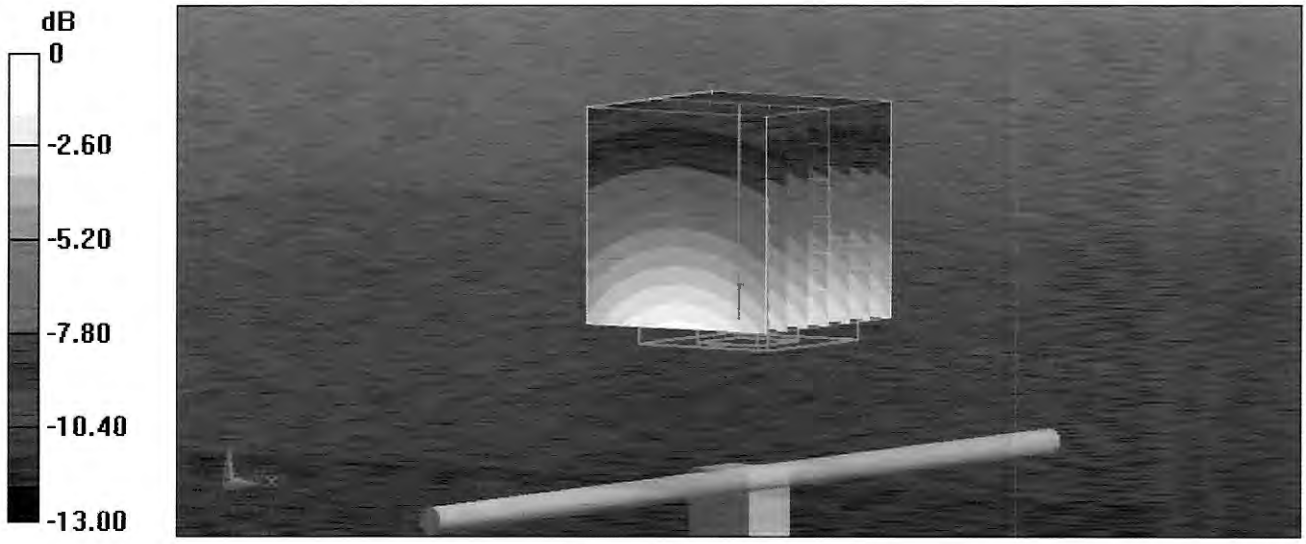
Communication System: UID 0 - CW; Frequency: 900 MHz
Medium parameters used: f = 900 MHz; σ = 0.93 S/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.09, 6.09, 6.09); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

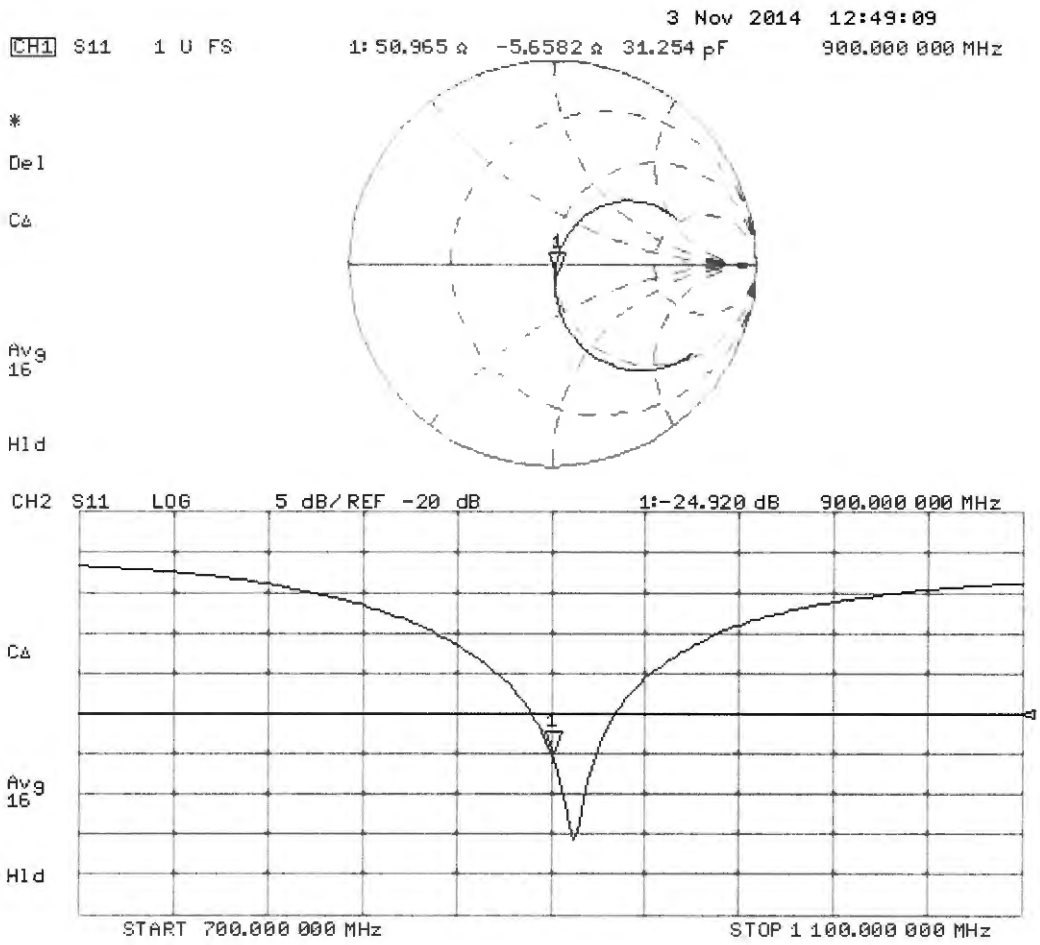
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.77 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.85 W/kg
SAR(1 g) = 2.57 W/kg; SAR(10 g) = 1.65 W/kg
Maximum value of SAR (measured) = 3.02 W/kg



0 dB = 3.02 W/kg = 4.80 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 03.11.2014

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 1d106

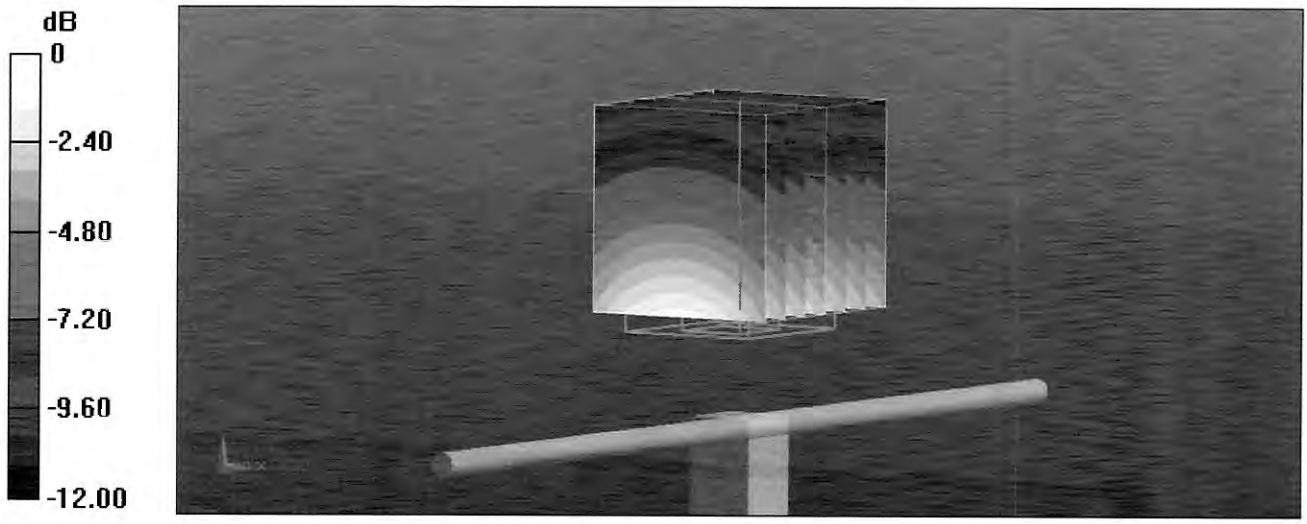
Communication System: UID 0 - CW; Frequency: 900 MHz
Medium parameters used: f = 900 MHz; σ = 1.03 S/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.98, 5.98, 5.98); Calibrated: 30.12.2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

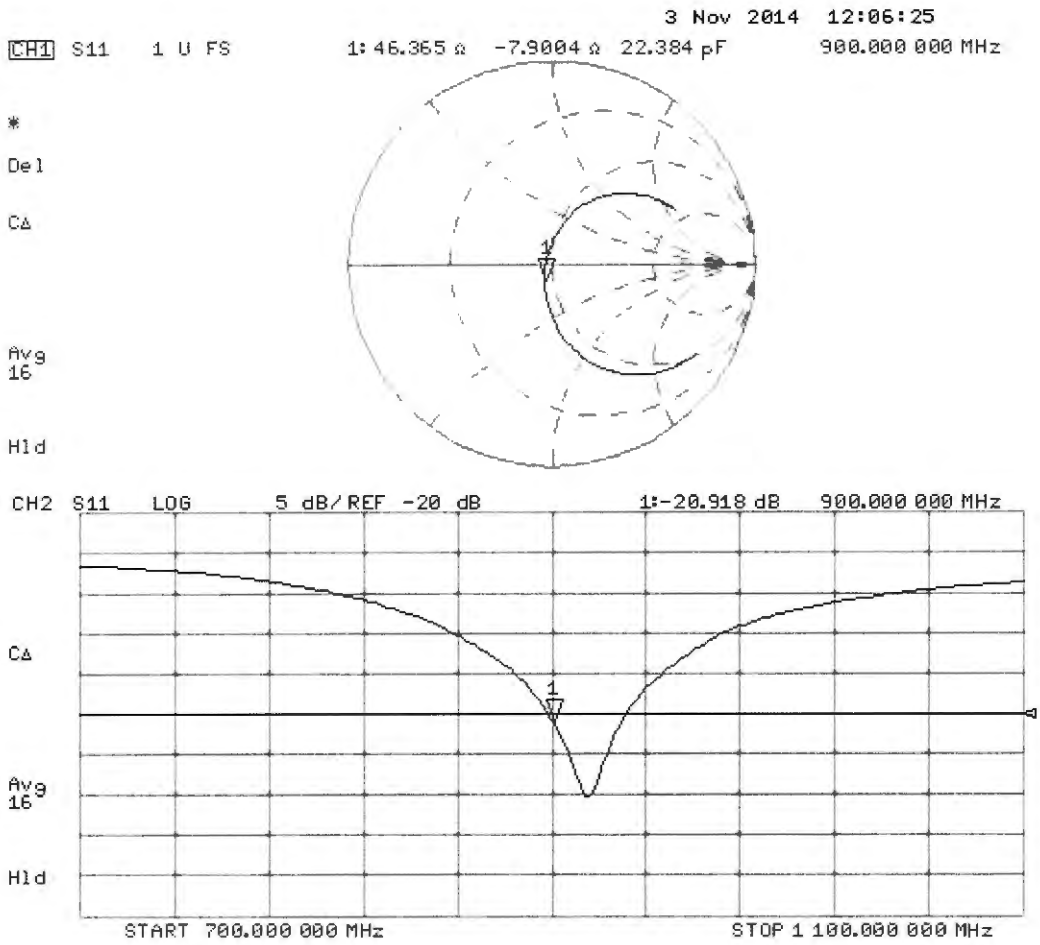
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.08 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.97 W/kg
SAR(1 g) = 2.69 W/kg; SAR(10 g) = 1.75 W/kg
Maximum value of SAR (measured) = 3.15 W/kg



0 dB = 3.15 W/kg = 4.98 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Nortwest EMC**

Certificate No: D750V3-1094_Jul13

CALIBRATION CERTIFICATE

Object: D750V3 - SN: 1094

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: July 04, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

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-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 4, 2013

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Accreditation No.: SCS 108

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.0 ± 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	2.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.61 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.68 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.1 ± 6 %	0.98 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	2.25 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.85 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.49 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.88 W/kg ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.8 Ω - 0.4 jΩ
Return Loss	- 28.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.4 Ω - 2.7 jΩ
Return Loss	- 31.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.033 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 11, 2013

DASY5 Validation Report for Head TSL

Date: 04.07.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1094

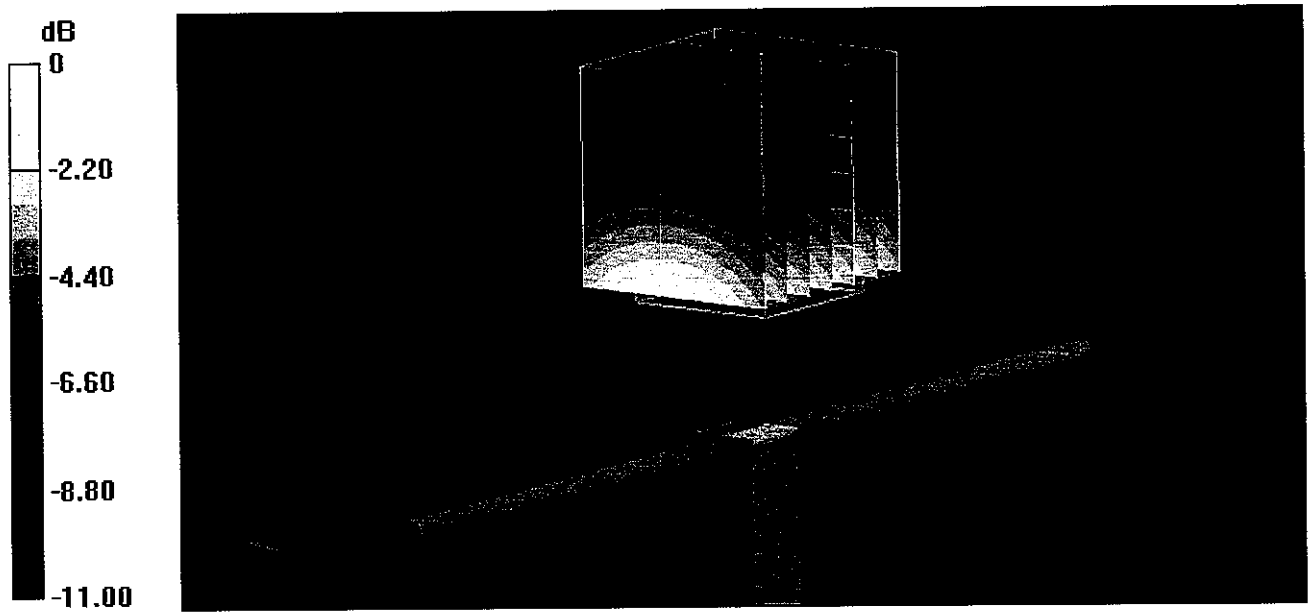
Communication System: UID 0 - CW ; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.9 S/m; ε_r = 42; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.28, 6.28, 6.28); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

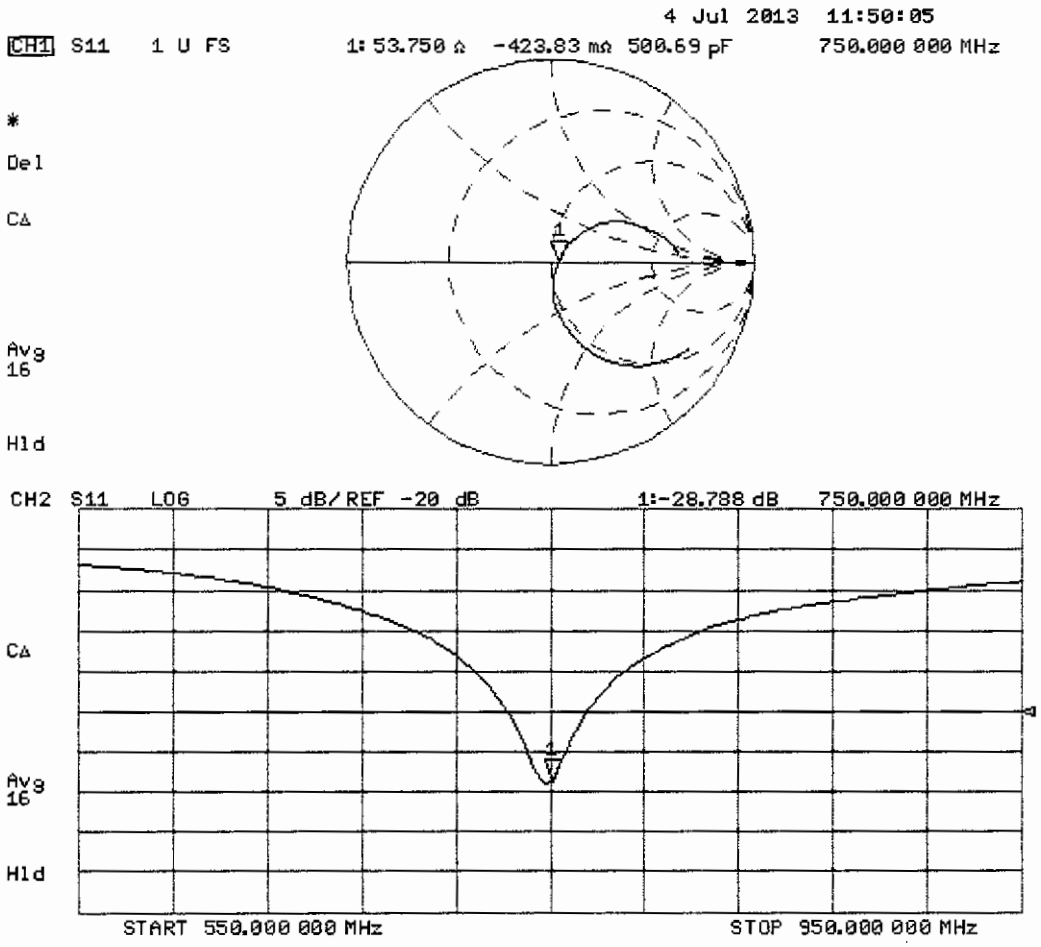
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.310 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.43 W/kg
Maximum value of SAR (measured) = 2.53 W/kg



0 dB = 2.53 W/kg = 4.03 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 04.07.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1094

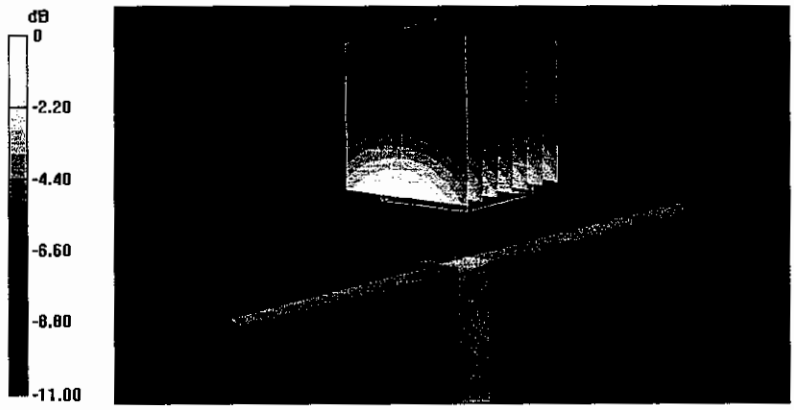
Communication System: UID 0 - CW ; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; $\sigma = 0.98$ S/m; $\varepsilon_r = 55.1$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.11, 6.11, 6.11); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

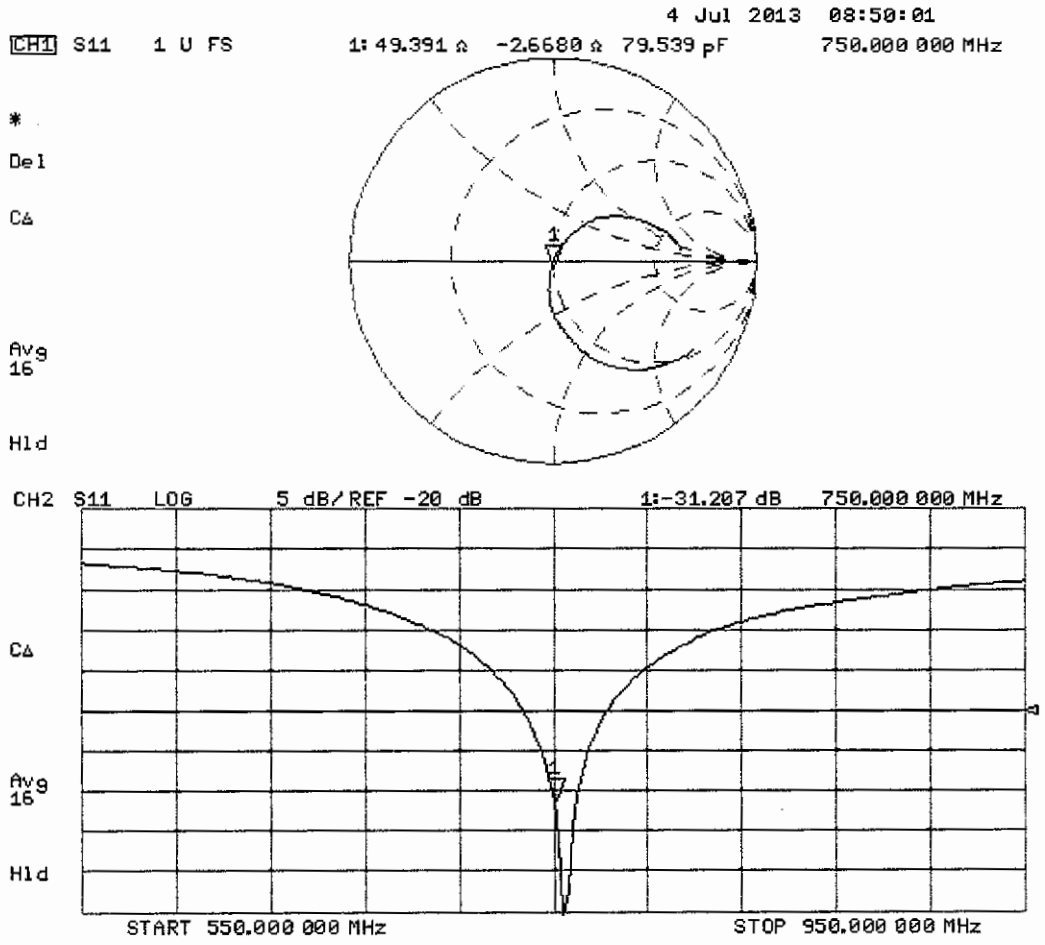
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.310 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.25 W/kg; SAR(10 g) = 1.49 W/kg
Maximum value of SAR (measured) = 2.60 W/kg



0 dB = 2.60 W/kg = 4.15 dBW/kg

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Northwest EMC**

Certificate No: D2600V2-1068_Aug13

CALIBRATION CERTIFICATE

Object	D2600V2 - SN: 1068
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 30, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

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-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 30, 2013

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Accreditation No.: SCS 108

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) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.2 ± 6 %	1.97 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	14.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**57.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.46 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.6 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.1 ± 6 %	2.21 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	14.3 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**56.0 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.31 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.9 W/kg ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.0 Ω - 5.5 jΩ
Return Loss	- 24.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.8 Ω - 4.4 jΩ
Return Loss	- 22.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 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	July 17, 2013

DASY5 Validation Report for Head TSL

Date: 30.08.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1068

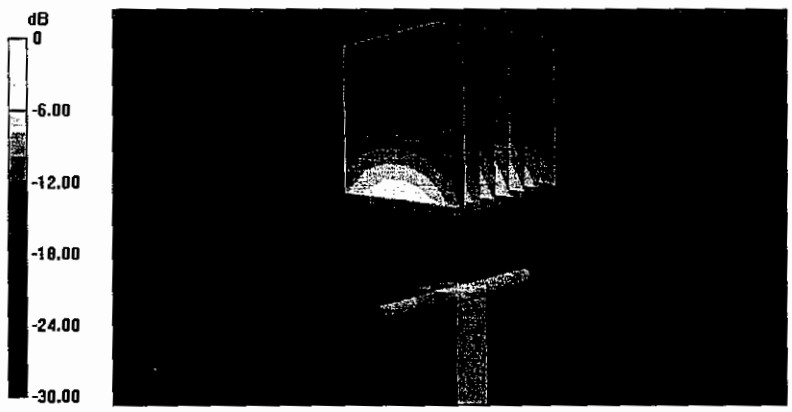
Communication System: UID 0 - CW ; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 1.97 S/m; ε_r = 37.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

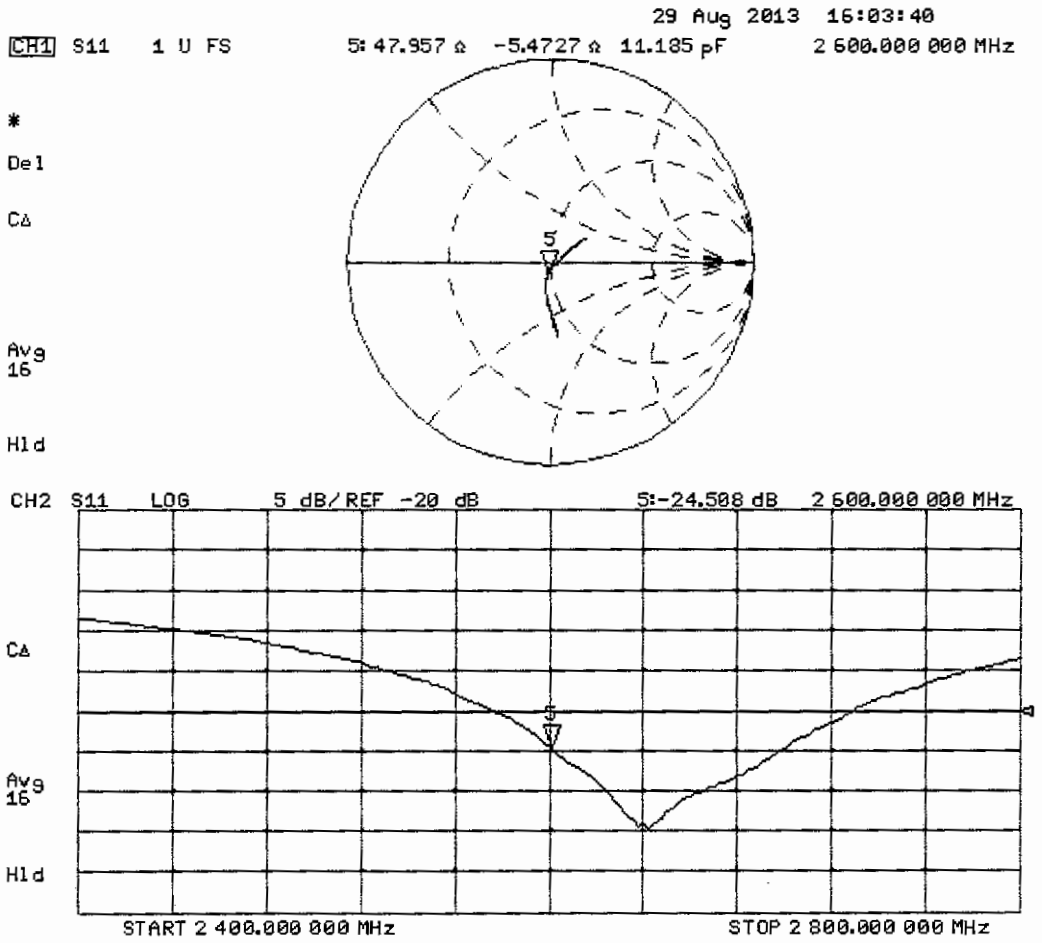
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.7 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 30.9 W/kg
SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.46 W/kg
Maximum value of SAR (measured) = 18.7 W/kg



0 dB = 18.7 W/kg = 12.72 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 30.08.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1068

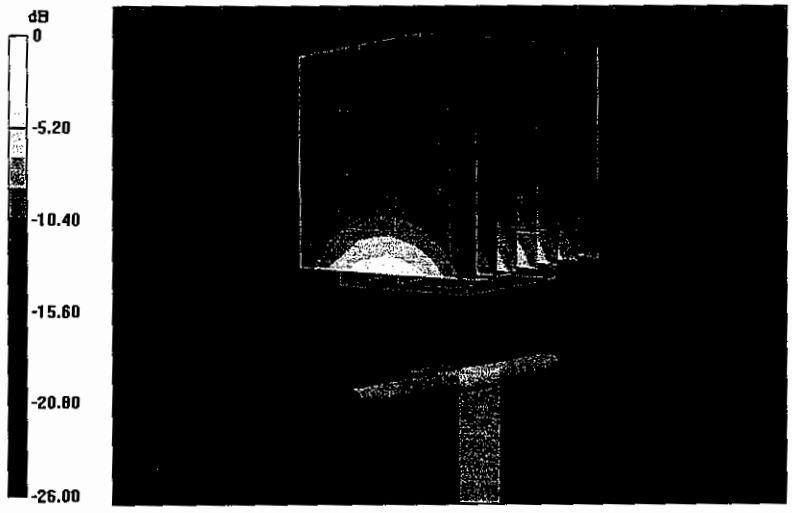
Communication System: UID 0 - CW ; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.21 S/m; ε_r = 50.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.32, 4.32, 4.32); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

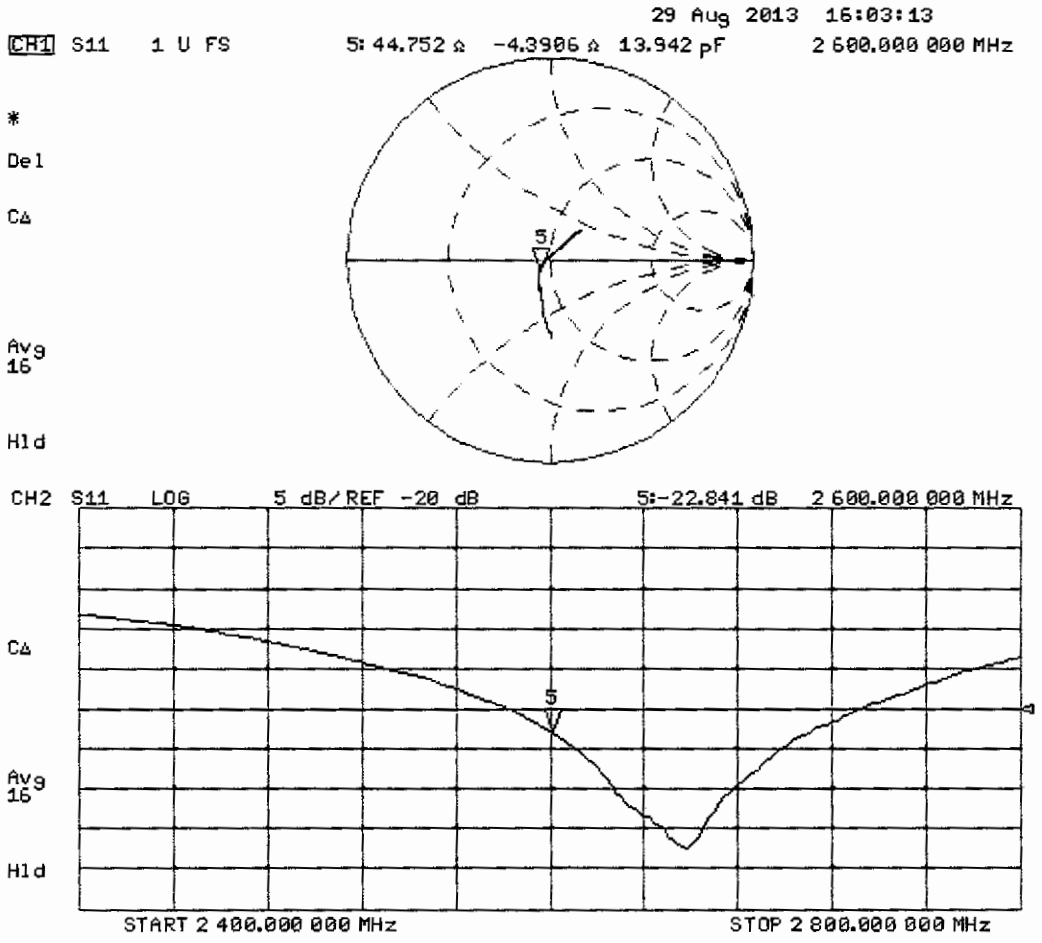
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.390 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.31 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg

Impedance Measurement Plot for Body TSL



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

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Accreditation No.: SCS 108

Client Northwest EMC

Certificate No: ES3-3246_Nov14

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3246

Calibration procedure(s): QA CAL-01.v9, QA CAL-12.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: November 7, 2014

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	03-Apr-14 (No. 217-01911)	Apr-15
Power sensor E4412A	MY41498087	03-Apr-14 (No. 217-01911)	Apr-15
Reference 3 dB Attenuator	SN: S5054 (3c)	03-Apr-14 (No. 217-01915)	Apr-15
Reference 20 dB Attenuator	SN: S5277 (20x)	03-Apr-14 (No. 217-01919)	Apr-15
Reference 30 dB Attenuator	SN: S5129 (30b)	03-Apr-14 (No. 217-01920)	Apr-15
Reference Probe ES3DV2	SN: 3013	30-Dec-13 (No. ES3-3013_Dec13)	Dec-14
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

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

Issued: November 10, 2014

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

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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, D	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
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
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; Dx,y,z; VRx,y,z: A, B, C, D* 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.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3246

Manufactured: May 5, 2009
Calibrated: November 7, 2014

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]	1.42	1.19	1.19	± 10.1 %
DCP (mV)[B]	102.3	101.8	103.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	196.0	±3.8 %
		Y	0.0	0.0	1.0		207.5	
		Z	0.0	0.0	1.0		201.9	

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 [G]	Depth [G] (mm)	Unct. (k=2)
750	41.9	0.89	6.40	6.40	6.40	0.31	1.89	± 12.0 %
835	41.5	0.90	6.20	6.20	6.20	0.35	1.75	± 12.0 %
900	41.5	0.97	6.06	6.06	6.06	0.32	1.84	± 12.0 %
1750	40.1	1.37	5.28	5.28	5.28	0.47	1.57	± 12.0 %
1900	40.0	1.40	5.04	5.04	5.04	0.67	1.28	± 12.0 %

[C] Frequency validity above 300 MHz 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. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[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.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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

Calibration Parameter Determined in Body Tissue Simulating Media

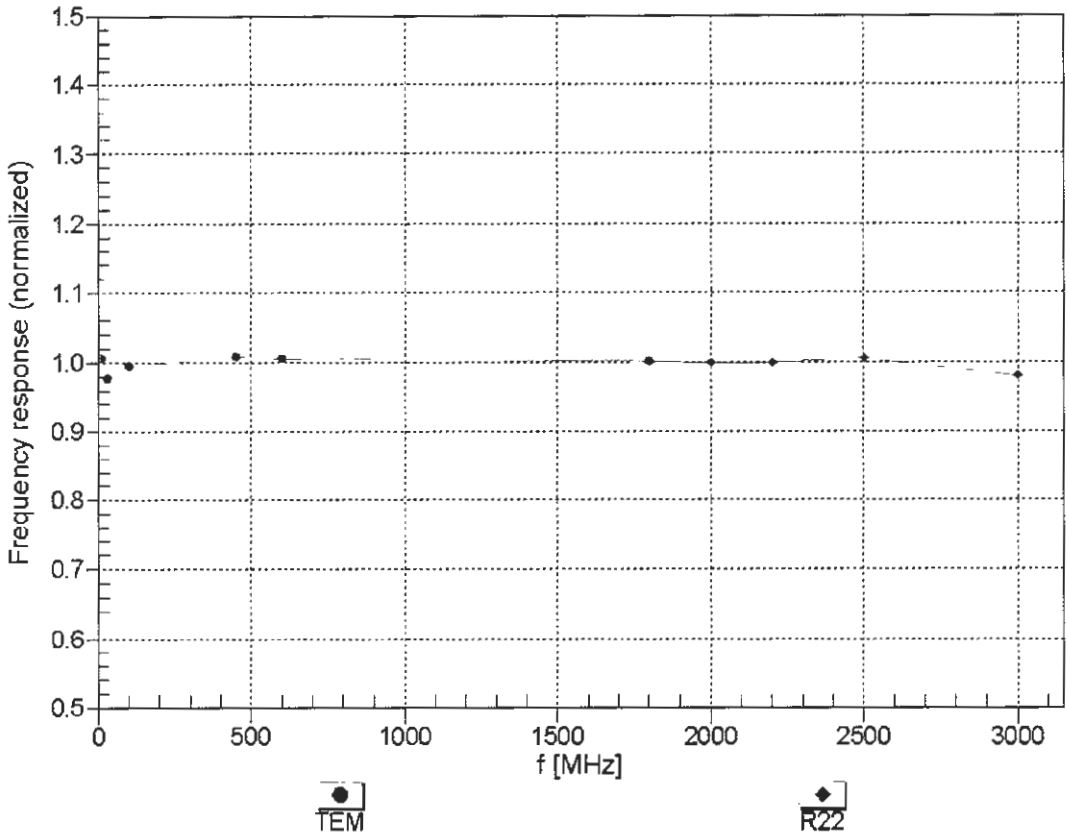
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unct. (k=2)
450	56.7	0.94	7.34	7.34	7.34	0.13	1.80	± 13.3 %
750	55.5	0.96	6.17	6.17	6.17	0.63	1.29	± 12.0 %
835	55.2	0.97	6.19	6.19	6.19	0.40	1.66	± 12.0 %
900	55.0	1.05	6.07	6.07	6.07	0.63	1.28	± 12.0 %
1750	53.4	1.49	4.97	4.97	4.97	0.43	1.75	± 12.0 %
1900	53.3	1.52	4.70	4.70	4.70	0.44	1.59	± 12.0 %

[C] Frequency validity above 300 MHz 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. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[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.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

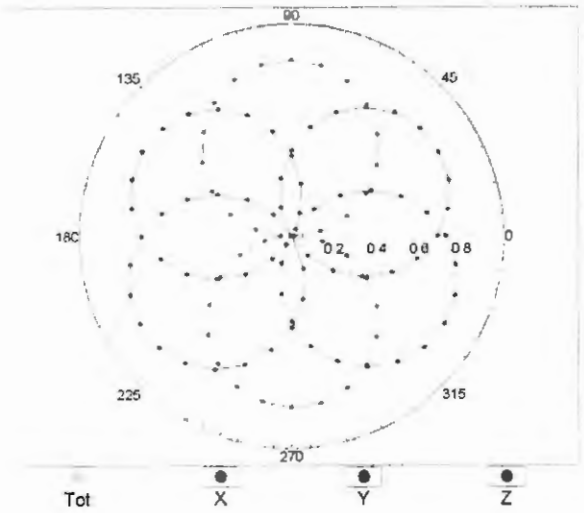
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



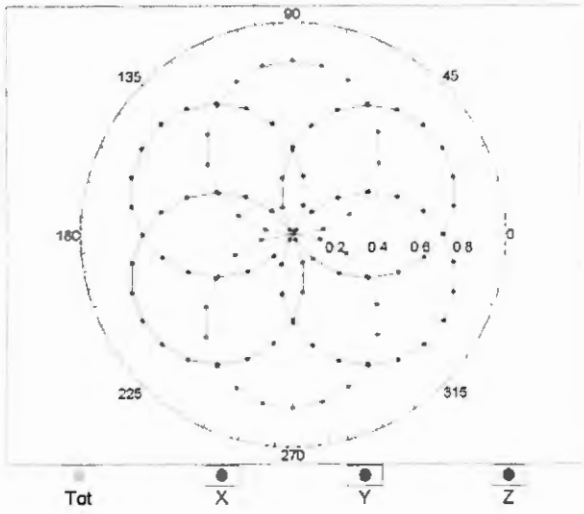
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

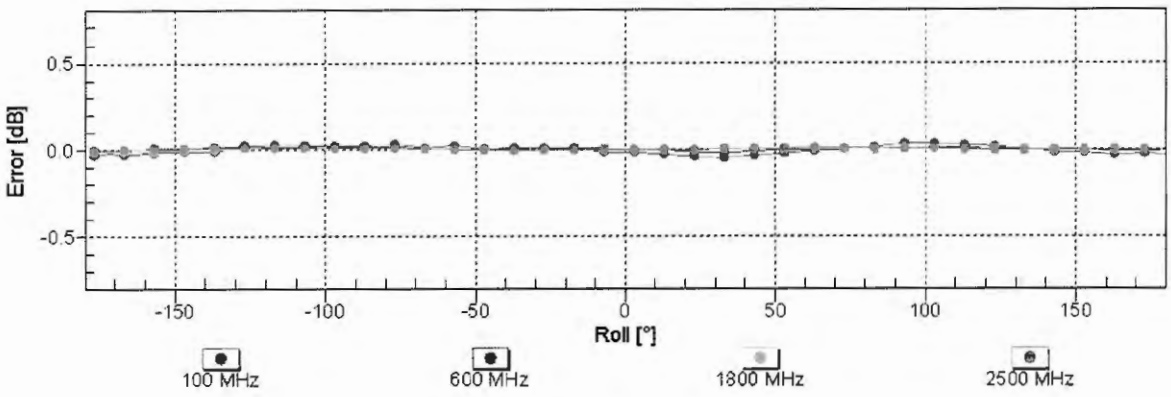
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

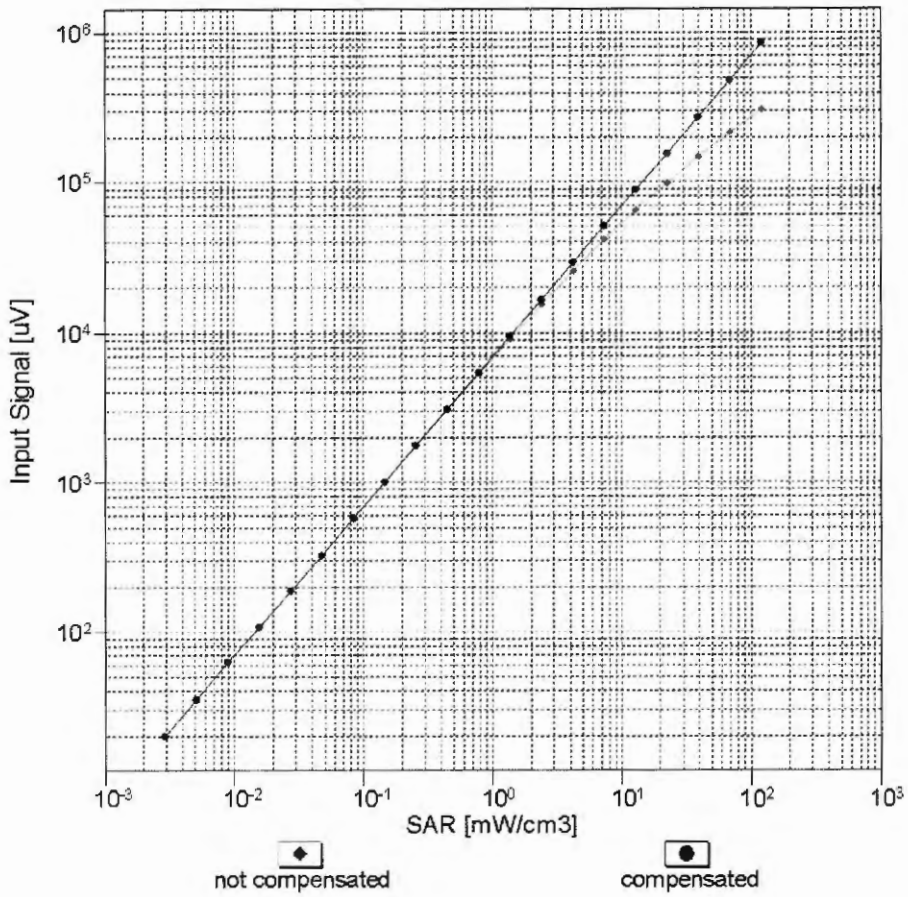


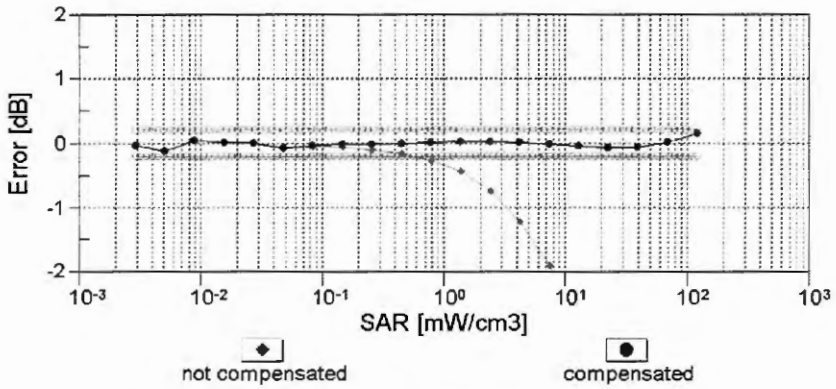


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

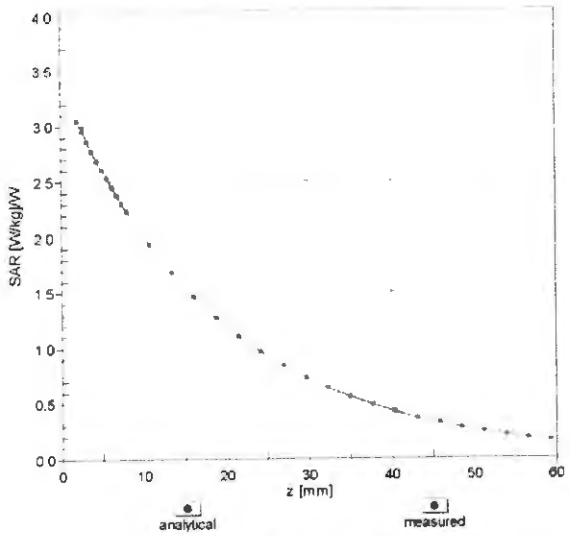




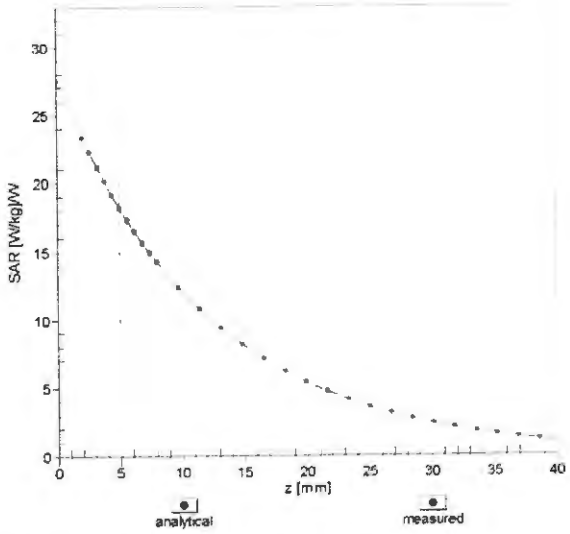
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

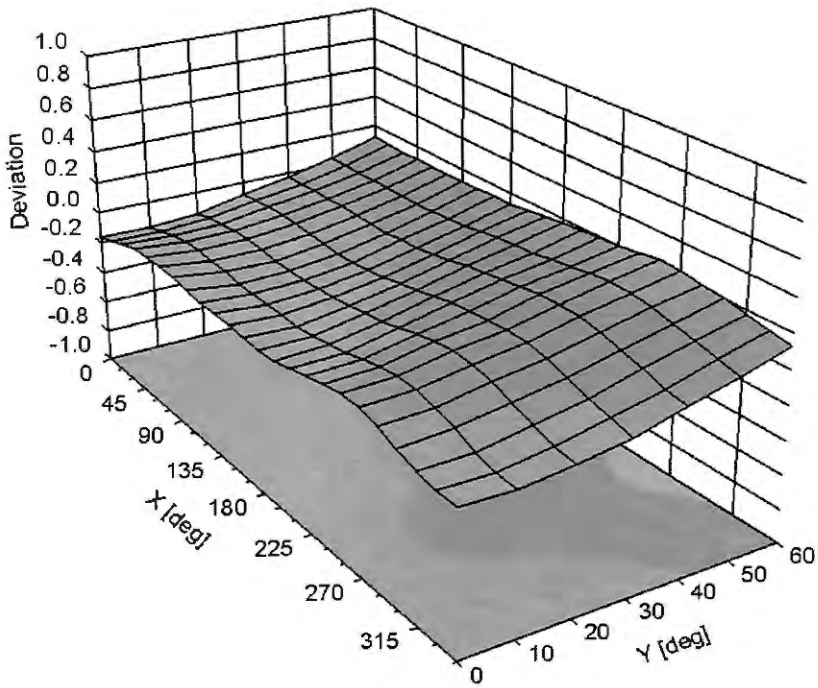


f = 1900 MHz,WGLS R22 (H_convF)



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 (°)	-7
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

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Accreditation No.: SCS 108

Client **Northwest EMC**

Certificate No: EX3-3746_Nov14

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3746

Calibration procedure(s): QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: November 10, 2014

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	03-Apr-14 (No. 217-01911)	Apr-15
Power sensor E4412A	MY41498087	03-Apr-14 (No. 217-01911)	Apr-15
Reference 3 dB Attenuator	SN: S5054 (3c)	03-Apr-14 (No. 217-01915)	Apr-15
Reference 20 dB Attenuator	SN: S5277 (20x)	03-Apr-14 (No. 217-01919)	Apr-15
Reference 30 dB Attenuator	SN: S5129 (30b)	03-Apr-14 (No. 217-01920)	Apr-15
Reference Probe ES3DV2	SN: 3013	30-Dec-13 (No. ES3-3013_Dec13)	Dec-14
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 10, 2014

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

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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, D	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
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
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; Dx,y,z; VRx,y,z: A, B, C, D* 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.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe EX3DV4

SN:3746

Manufactured: March 26, 2010
Calibrated: November 10, 2014

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3746

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.49	0.46	0.50	± 10.1 %
DCP (mV)[B]	98.2	100.7	97.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	157.3	±2.7 %
		Y	0.0	0.0	1.0		153.5	
		Z	0.0	0.0	1.0		157.4	

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: EX3DV4 - SN:3746

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 [G]	Depth [G] (mm)	Unct. (k=2)
2450	39.2	1.80	6.83	6.83	6.83	0.28	1.15	± 12.0 %
2550	39.1	1.91	6.59	6.59	6.59	0.37	0.92	± 12.0 %
5200	36.0	4.66	4.92	4.92	4.92	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.74	4.74	4.74	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.47	4.47	4.47	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.37	4.37	4.37	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.35	4.35	4.35	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz 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. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[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.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3746

Calibration Parameter Determined in Body Tissue Simulating Media

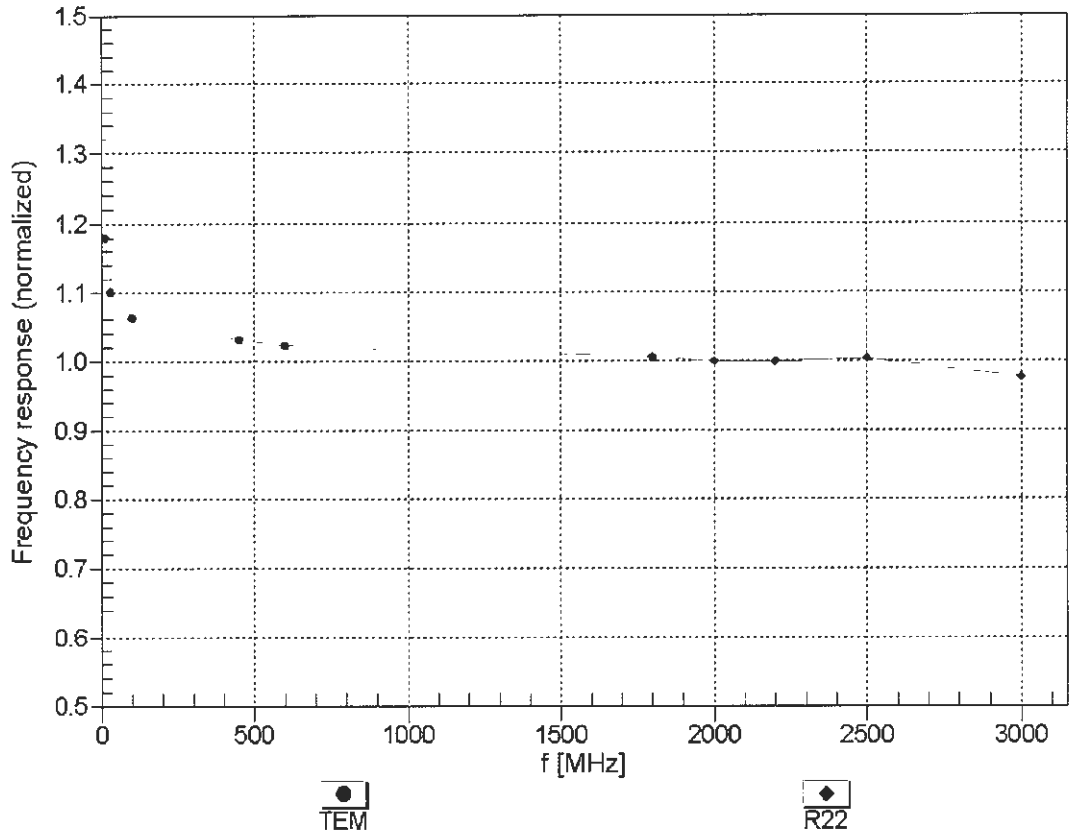
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unct. (k=2)
2450	52.7	1.95	7.06	7.06	7.06	0.80	0.57	± 12.0 %
2550	52.6	2.09	6.82	6.82	6.82	0.76	0.59	± 12.0 %
5200	49.0	5.30	4.31	4.31	4.31	0.45	1.90	± 13.1 %
5300	48.9	5.42	4.13	4.13	4.13	0.45	1.90	± 13.1 %
5500	48.6	5.65	3.81	3.81	3.81	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.74	3.74	3.74	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.06	4.06	4.06	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz 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. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[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.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

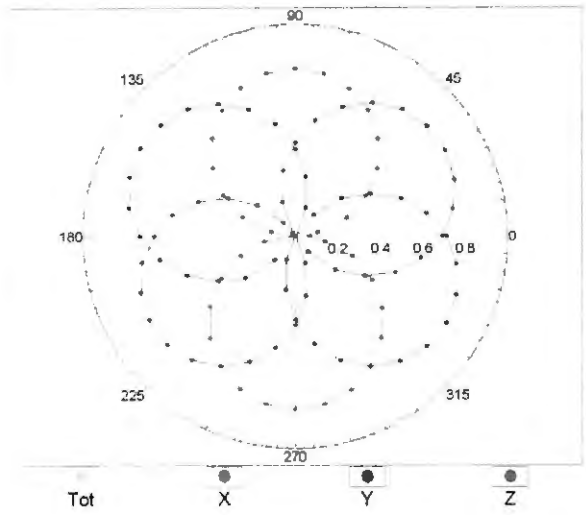
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



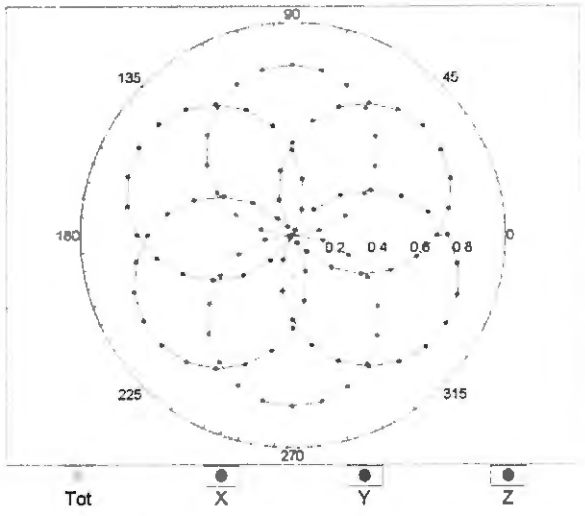
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

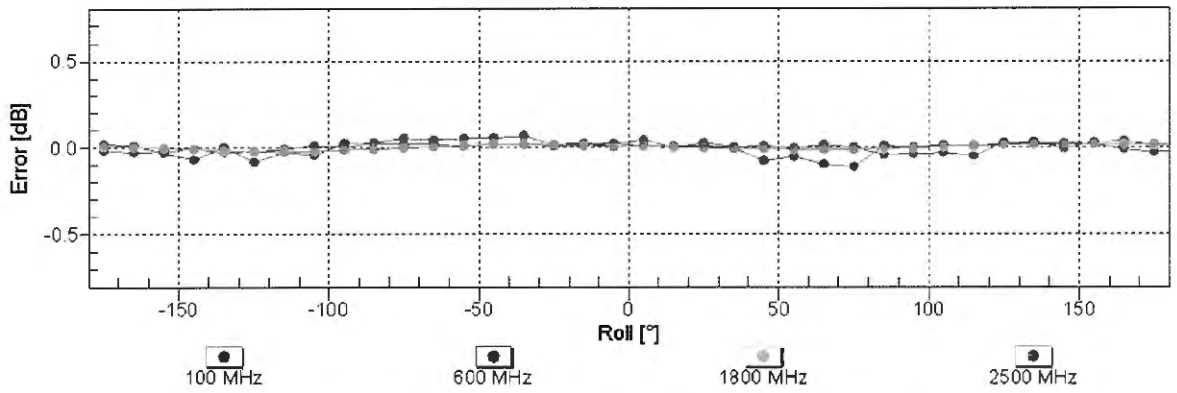
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

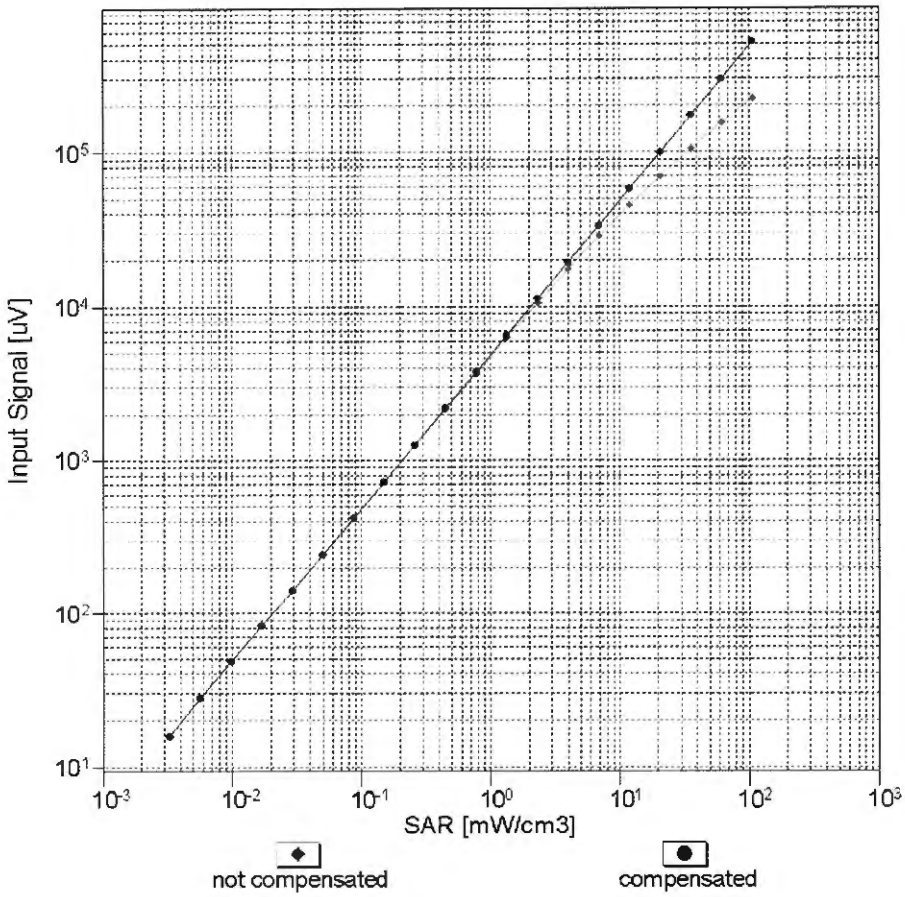


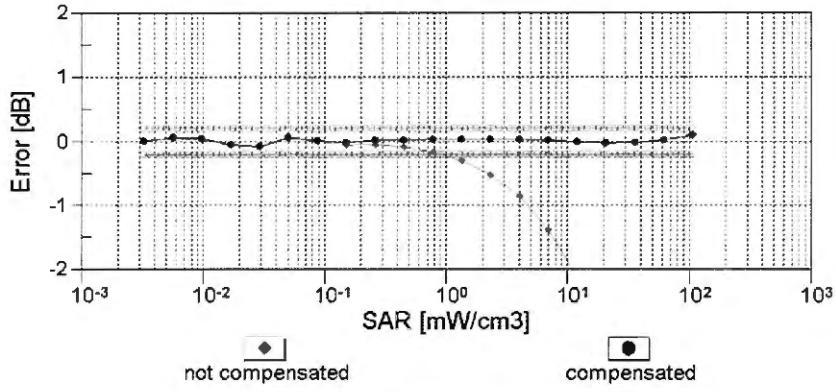


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

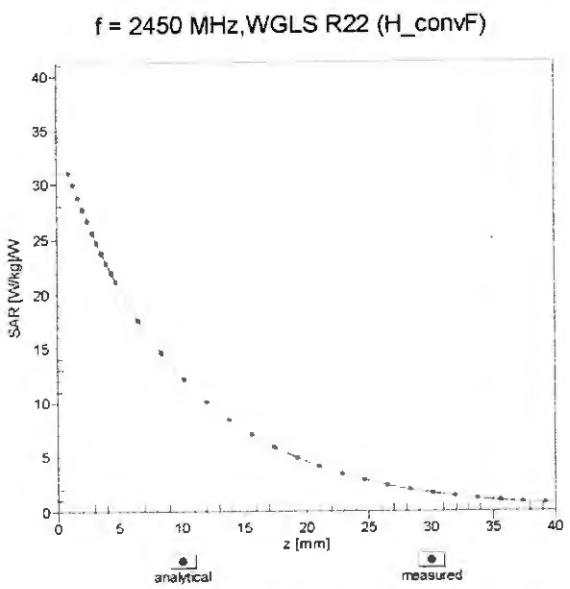
(TEM cell , f_{eval}= 1900 MHz)

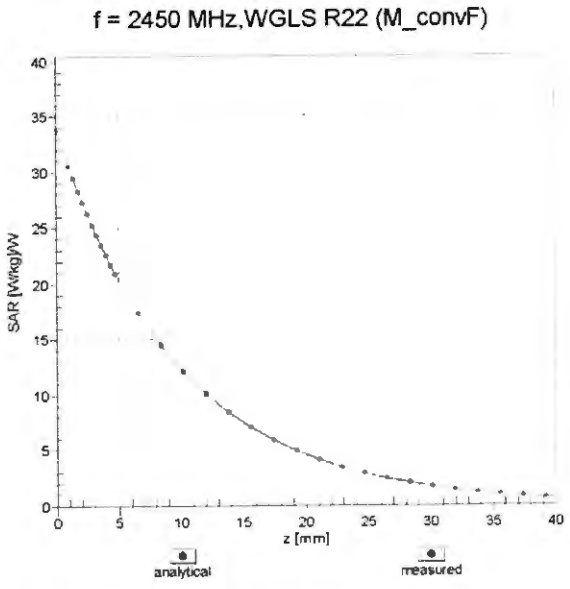




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

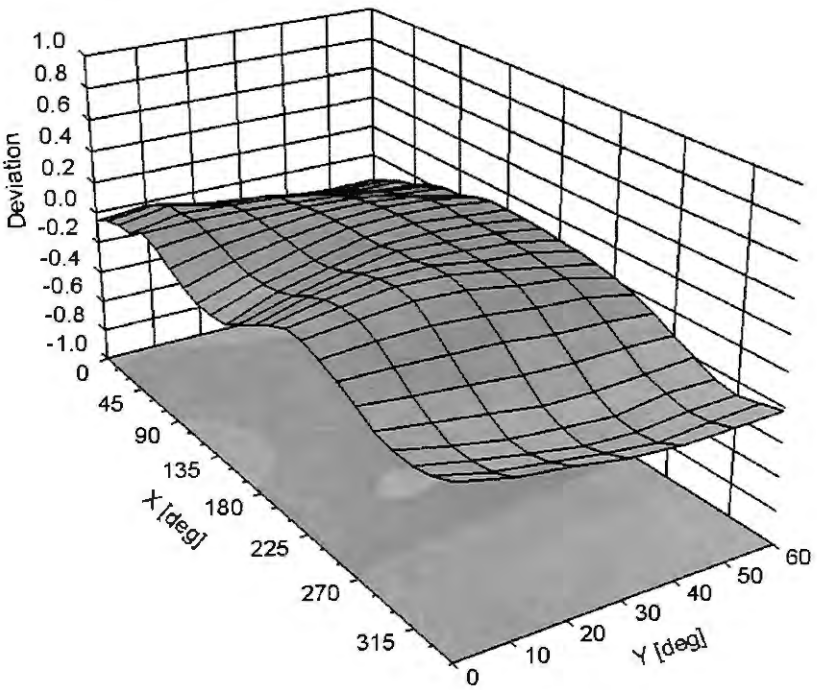
Conversion Factor Assessment

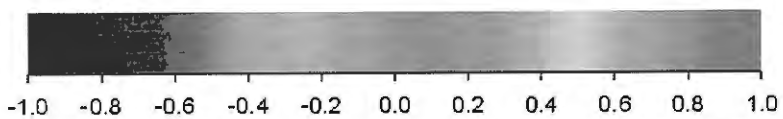




Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3746

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-135
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm