SAR TEST REPORT

Test Report No. : 10636726H-J-R3

Applicant	:	**Panasonic Mobile Communications Development of Europe Ltd**
Type of Equipment	:	**Digital Camera**
Model No.	:	**DMC-CM1**
FCC ID	:	**UCE314062A**
Test regulation	:	**FCC47CFR 2.1093**
Test Result	:	**Complied**

Reported SAR(1g) Value

The highest reported SAR(1g)

WLAN 11b/g/n	Head	: 0.234W/kg
	Body	: 0.058W/kg
WLAN 11a/n/ac	Head	: 0.152W/kg
	Body	: 0.181W/kg

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers SAR technical requirements. It does not cover administrative issues such as Manual or non-SAR test related Requirements. (if applicable)
7. This report is a revised version of 10636726H-J-R2. 10636726H-J-R2 is replaced with this report.

Date of test: January 20 to 29, 2015

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This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
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REVISION HISTORY

Original Test Report No.: 10636726H-J

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10636726H-J	February 20, 2015	-	-
1	10636726H-J-R1	March 5, 2015	P.4	Correction of rating
1	10636726H-J-R1	March 5, 2015	P.6	Correction of KDB procedures
1	10636726H-J-R1	March 5, 2015	P.17	Correction of column "Result" for IEEE802.11n-40 MCS0 (5510MHz) in the table
1	10636726H-J-R1	March 5, 2015	P.26	Addition of below explanatory note for testing "According to KDB 941225 D06 Hotspot SAR procedure, test separation of Body-worn for WLAN is 10mm since the test separation distance (10mm) for hotspot mode is more conservative than Body-worn test(15mm)."
2	10636726H-J-R2	March 9, 2015	P.9, 20	Correction of explanatory note for software
3	10636726H-J-R3	March 19, 2015	P.6	Correction of KDB941225D06 version
3	10636726H-J-R3	March 19, 2015	P.162, 164-167	Addition of word "Ear Reference Point" in SAR Setup Photo

CONTENTS PAGE

SECTION 1: Customer information **4**
SECTION 2: Equipment under test (E.U.T.) **4**
2.1 Identification of E.U.T. 4
2.2 Product description 4
SECTION 3 : Test standard information **6**
3.1 Test Specification 6
3.2 Procedure 6
3.3 Exposure limit 7
3.4 Test Location 7
SECTION 4 : Test result **8**
4.1 Stand-alone SAR result 8
SECTION 5 : Description of the operating mode **9**
5.1 Output power operating modes 9
5.2 Output power measurement results 10
5.3 SAR testing operating modes 19
5.4 Confirmation after SAR testing 21
SECTION 6 SAR test exclusion considerations **22**
6.1 Standalone SAR test exclusion considerations 22
SECTION 7: Description of the Body setup **24**
7.1 Test position for Head setup 24
7.2 Test position for Body setup 26
SECTION 8 : Test surrounding **27**
8.1 Measurement uncertainty 27
SECTION 9 : Measurement results **29**
9.1 WLAN Head SAR (2.4G) 29
9.2 WLAN Body SAR (2.4G) 30
9.3 WLAN Head SAR (5G) 31
9.4 WLAN Body SAR (5G) 33
SECTION 10 Test instruments **36**
APPENDIX 1 : SAR Measurement data **37**
1. Evaluation procedure 37
2. Measurement data Head 2.4GHz 38
3. Measurement data Body 2.4GHz 42
4. Measurement data Head 5.2GHz 48
5. Measurement data Head 5.3GHz 52
6. Measurement data Head 5.6GHz 56
7. Measurement data Head 5.8GHz 60
8. Measurement data Body 5.2GHz 64
9. Measurement data Body 5.3GHz 70
10. Measurement data Body 5.6GHz 76
11. Measurement data Body 5.8GHz 82
APPENDIX2 : System Check **88**
1. System check result Head 2450MHz 88
2. System check result Body 2450MHz 91
3. System Check Dipole (D2450V2,S/N:713) 94
4. System check result Head 5200MHz 104
5. System check result Body 5200MHz 107
6. System check result Head 5300MHz 110
7. System check result Body 5300MHz 113
8. System check result Head 5600MHz 116
9. System check result Body 5600MHz 119
10. System check result Head 5800MHz 122
11. System check result Body 5800MHz 125
12. System Check Dipole (D5GHzV2,S/N:1039) 128
13. System check uncertainty 144
APPENDIX 3 : System specifications **146**
1. Configuration and peripherals 146
2. Specifications 147
3. Dosimetric E-Field Probe Calibration (EX3DV4, S/N: 3922) 151
APPENDIX 4: Photographs of test setup **162**
1. Photographs of EUT 162
2. Antenna position 163
3. Photographs of setup 164

SECTION 1: Customer information

Company Name	:	Panasonic Mobile Communications Development of Europe Ltd
Address	:	Willoughby Road, Bracknell Berkshire RG12 8FP, UK
Telephone Number	:	+44 (0) 1344 706774
Facsimile Number	:	+44 (0) 1344 706796
Contact Person	:	Andrew James

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Camera
Model No.	:	DMC-CM1
Serial No.	:	004401221416155
Rating	:	AC120V/60Hz (AC Adaptor) DC3.8V (Battery)
Option Battery	:	None
Body-worn Accessary	:	Typical Earphone
Receipt Date of Sample	:	January 7, 2015
Country of Mass-production	:	China
Condition of EUT	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product description

General Specification

Power Supply (radio part input)	:	Cellular PA: 3.0V-4.2V (Depend on Battery voltage) Cellular other RF part: 1.3V, 1.8V, 2.05V, 2.7V (Regulated voltage) WLAN 5GHz Front-end module: 3.0V-4.2V (Depend on Battery voltage) WLAN/BT other RF part: 1.3V, 1.8V, 3.0V (Regulated voltage)
Clock frequency(ies) in the system	:	2.26GHz (Max) See below table for other clock frequencies

Frequency	Device
32.768kHz	MSM8974AB
32.768kHz (X'tal)	BUYD2206
27.0MHz	TC358764AXBG, XO2-256-64UCBGA, BUYD2206
48.0MHz (X'tal)	WCN3680
24.0MHz	MSM8974AB, Sub Camera
19.2MHz	WTR1625L, MSM8974AB
19.2MHz (X'tal)	PM8941
9.6MHz	WCD9320
72MHz	Main Camera
27.12MHz	NFC IC

Hardware / Software version	:	Rev. PR / QRCT Version 3.0.32.0

Radio Specification

	IEEE802.11b	IEEE802.11g/n (20 M band)	IEEE802.11a/n/ac (20 M band)	IEEE802.11n/ac (40 M band)	IEEE802.11ac (80 M band)
Frequency of operation	2412-2462MHz	2412-2462MHz	5180-5240MHz 5260-5320MHz 5500-5700MHz 5745-5825MHz	5190-5230MHz 5270-5310MHz 5510-5670MHz 5755-5795MHz	5210MHz 5290MHz 5530-5610MHz 5775MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK)		OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM)
Channel spacing	5MHz		20MHz	40MHz	80MHz
Antenna type	Monopole				
Antenna Connector type	Spring type				
Antenna Gain	2.4GHz: -5.40dBi W52: -3.0dBi, W53: -3.5dBi, W56: -1.5dBi, W58: -1.8dBi				

	Bluetooth Ver.4.0 with EDR function	GSM	W-CDMA	LTE
Frequency of operation	2402-2480MHz	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz	[Up Link] Band II: 1850 – 1910MHz Band IV: 1710 – 1755MHz Band V: 824 – 849MHz Band VII: 2500 – 2570MHz Band X VII: 704 – 716MHz [Down Link] Band II: 1930 – 1990MHz Band IV: 2110 – 2155MHz Band V: 869 – 894MHz Band VII: 2620 – 2690MHz Band X VII: 734 – 746MHz
Type of modulation	BT: FHSS (GFSK, π/4-DQPSK, 8-DPSK) LE: GFSK	GMSK , 8PSK	QPSK	QPSK, 16QAM
Channel spacing	BT: 1MHz, LE: 2MHz	200kHz	200kHz	100kHz
Antenna type	Monopole	Monopole	Main: Monopole Sub: Monopole	
Antenna Connector type	Spring type	Spring type	Main: Spring type Sub: Spring type	
Antenna Gain	-5.40dBi	GSM850: -0.9dBi PCS: 0.5dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi	Band II: 0.5dBi Band IV: 0.6dBi Band V: -0.9dBi Band VII: -0.2dBi Band X VII: -1.5dBi

	NFC	GPS/GLONASS
Frequency of operation	13.56MHz	GPS: 1575.42MHz GLONASS: 1597.55-1605.89MHz
Type of modulation	ASK	GPS: BPSK GLONASS: BPSK
Channel spacing	-	GLONASS: 0.5625MHz
Antenna type	Loop	Monopole
Antenna Connector type	Spring type	Spring type
Antenna Gain	N/A	-2.9dBi

*This test report applies for WLAN (IEEE802.11b/11g/11a/11n-20/11ac-20/11n-40/11ac-40/11ac-80), Bluetooth, and Bluetooth (Low Energy).

SECTION 3 : Test standard information

3.1 Test Specification

Title : **FCC47CFR 2.1093**
Radiofrequency radiation exposure evaluation: portable devices.
: **IEEE Std 1528-2003:**
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices.

: **Published RF exposure KDB procedures**

☑	**KDB447498D01(v05r02)**	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
☐	**KDB447498D02(v02)**	SAR Measurement Procedures for USB Dongle Transmitters
☑	**KDB648474D04(v01r02)**	SAR Evaluation Considerations for Wireless Handsets
☑	**KDB941225D01(v03)**	3G SAR Measurement Procedures
☑	**KDB941225D05(v02r03)**	SAR for LTE Devices
☑	**KDB941225D06(v02r01)**	SAR test procedures for devices incorporating SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
☐	**KDB941225D07(v01r01)**	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
☐	**KDB616217D04(v01r01)**	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☑	**KDB865664D01(v01r03)**	SAR Measurement Requirements for 100MHz to 6 GHz
☑	**KDB248227D01(v01r02)**	SAR Measurement Procedures for 802.11a//b/g Transmitters

Reference
[1]SPEAG uncertainty document (AN 15-7/AN19-17) for DASY 5 System from SPEAG (Schmid & Partner Engineering AG).
[2] IEEE Std 1528-2013: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
(The reference for Uncertainty in SAR correction for deviations in permittivity and conductivity, in clause E.3.2.)

3.2 Procedure

Transmitter	**WLAN**
Test Procedure	Published RF exposure KDB procedures
	SAR
Category	FCC47CFR 2.1093
Note: UL Japan, Inc. 's SAR Work Procedures 13-EM-W0429 and 13-EM-W0430	

3.3 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE
SPATIAL PEAK(averaged over any 1g of tissue) LIMIT
1.6 W/kg

3.4 Test Location

*Shielded room for SAR testings
UL Japan, Inc. Ise EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

SECTION 4 : Test result

4.1 Stand-alone SAR result

Reported SAR

Measured SAR is scaled to the maximum tune-up tolerance limit by the following formulas.
Reported SAR= Maximum tune-up tolerance limit [mW] / Measured power [mW] · Measured SAR [W/kg]
Maximum tune-up tolerance limit is by the specification from a customer.

Head SAR

Mode	Frequency	Measured power [mW]*1	Maximum tune-up tolerance limit [mW]	Measured SAR [W/kg]	Reported SAR [W/kg]
WLAN 11b	2412MHz	17.70	25.12	0.165	0.234
WLAN 11a	5825MHz	16.33	16.98	0.146	0.152
Bluetooth	Exemption *2				

Body-worn and Body (Hotspot) SAR

Mode	Frequency	Measured power [mW]*1	Maximum tune-up tolerance limit [mW]	Measured SAR [W/kg]	Reported SAR [W/kg]
WLAN 11b	2412MHz	17.70	25.12	0.041	0.058
WLAN 11a	5500MHz	16.33	16.98	0.174	0.181
Bluetooth	Exemption *2				

Note

*1 The sample used by the SAR test is within the tune-up tolerance but not more than 2 dB lower than the maximum tune-up tolerance limit. That is, measured power is included the tune-up tolerance range.
*2 SAR test is not required according with Section 6.

WLAN / Bluetooth Maximum tune-up tolerance limit

Mode	Maximum tune-up tolerance limit [dBm]	Maximum tune-up tolerance limit [mW]
WLAN 11b	14.0	25.12
WLAN 11g	12.8	19.05
WLAN 11n (2.4G)	11.7	14.79
WLAN 11a/n 20BW	12.3	16.98
WLAN 11ac 20BW	12.0	15.85
WLAN 11n 40BW	9.9	9.77
WLAN 11ac 40BW	8.6	7.24
WLAN 11ac 80BW	8.9	7.76
Bluetooth BDR EDR	8.2	6.61
Bluetooth LE	1.8	1.51

SECTION 5 : Description of the operating mode

5.1 Output power operating modes

Mode	Frequency Band	Test Frequency	Modulation
IEEE802.11b	2412-2462MHz	2412MHz (1ch) 2437MHz (6ch) 2462MHz (11ch)	DSSS (DBPSK.DQPSK.CCK)
IEEE802.11g	2412-2462MHz	2412MHz (1ch) 2437MHz (6ch) 2462MHz (11ch)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
IEEE802.11n20 (2.4G)	2412-2462MHz	2412MHz (1ch) 2437MHz (6ch) 2462MHz (11ch)	
IEEE802.11a	5180-5240MHz	All channels	
	5260-5320MHz	All channels	
	5500-5700MHz	All channels	
	5745-5825MHz	All channels	
IEEE802.11n20 (5G)	5180-5240MHz	All channels	
	5260-5320MHz	All channels	
	5500-5700MHz	All channels	
	5745-5825MHz	All channels	
IEEE802.11ac20	5180-5240MHz	All channels	
	5260-5320MHz	All channels	
	5500-5700MHz	All channels	
	5745-5825MHz	All channels	
IEEE802.11n40 (5G)	5190-5230MHz	All channels	
	5270-5310MHz	All channels	
	5510-5670MHz	All channels	
	5755-5795MHz	All channels	
IEEE802.11ac40	5190-5230MHz	All channels	
	5270-5310MHz	All channels	
	5510-5670MHz	All channels	
	5755-5795MHz	All channels	
IEEE802.11ac80 (5G)	5210MHz 5290MHz 5530-5610MHz 5775MHz	All channels	

Setting

WLAN
*The power value of the EUT was set for testing as follows (setting value might be different from product specification value);
Power settings: [WLAN] 11b:13dBm, 11g:12dBm, 11n-20(2.4G):11dBm, 11a:12dBm
11n-20(5G):12dBm, 11n-40(5G):11dBm, 11ac-20:12dBm, 11ac-40:10dBm, 11ac-80:10dBm
Software: QRCT
Version: 3.0.32.0
*This setting of software is the worst case.
Any conditions under the normal use do not exceed the condition of setting.
In addition, end users cannot change the settings of the output power of the product.

5.2 Output power measurement results

1) WLAN (11b/g/n (2.4G))

[IEEE802.11b] Rate Check

Rate [Mbps]	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
1.0	2412	2.05	0.39	10.04	12.48	17.70
2.0	2412	2.04	0.39	10.04	12.47	17.66
5.5	2412	2.04	0.39	10.04	12.47	17.66
11.0	2412	2.03	0.39	10.04	12.46	17.62

:Worst data rate

IEEE802.11b 1Mbps

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
1	2412	2.05	0.39	10.04	12.48	17.70
6	2437	1.94	0.39	10.04	12.37	17.26
11	2462	1.89	0.39	10.04	12.32	17.06

:SAR test channel

[IEEE802.11g] Rate Check

Rate [Mbps]	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
6.0	2412	1.04	0.39	10.04	11.47	14.03
9.0	2412	1.02	0.39	10.04	11.45	13.96
12.0	2412	1.01	0.39	10.04	11.44	13.93
18.0	2412	1.00	0.39	10.04	11.43	13.90
24.0	2412	0.99	0.39	10.04	11.42	13.87
36.0	2412	0.99	0.39	10.04	11.42	13.87
48.0	2412	1.00	0.39	10.04	11.43	13.90
54.0	2412	0.99	0.39	10.04	11.42	13.87

:Worst data rate

IEEE802.11g 6Mbps

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
1	2412	1.04	0.39	10.04	11.47	14.03
6	2437	0.92	0.39	10.04	11.35	13.65
11	2462	0.86	0.39	10.04	11.29	13.46

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

[IEEE802.11n-20] Rate Check

Rate [Mbps]	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	2412	-0.11	0.39	10.04	10.32	10.76
MCS1	2412	-0.13	0.39	10.04	10.30	10.72
MCS2	2412	-0.12	0.39	10.04	10.31	10.74
MCS3	2412	-0.12	0.39	10.04	10.31	10.74
MCS4	2412	-0.13	0.39	10.04	10.30	10.72
MCS5	2412	-0.12	0.39	10.04	10.31	10.74
MCS6	2412	-0.14	0.39	10.04	10.29	10.69
MCS7	2412	-0.12	0.39	10.04	10.31	10.74

:Worst data rate

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
1	2412	-0.11	0.39	10.04	10.32	10.76
6	2437	-0.15	0.39	10.04	10.28	10.67
11	2462	-0.25	0.39	10.04	10.18	10.42

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

2) WLAN (11a/n/ac (5G))
5.2GHz

[IEEE802.11a] Rate Check

Rate [Mbps]	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
6.0	5220	1.43	0.57	10.09	12.09	16.18
9.0	5220	1.41	0.57	10.09	12.07	16.11
12.0	5220	1.38	0.57	10.09	12.04	16.00
18.0	5220	1.39	0.57	10.09	12.05	16.03
24.0	5220	1.38	0.57	10.09	12.04	16.00
36.0	5220	1.38	0.57	10.09	12.04	16.00
48.0	5220	1.39	0.57	10.09	12.05	16.03
54.0	5220	1.38	0.57	10.09	12.04	16.00

:Worst data rate

IEEE802.11a 6Mbps

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	1.50	0.57	10.09	12.16	16.44
40	5200	1.51	0.57	10.09	12.17	16.48
44	5220	1.43	0.57	10.09	12.09	16.18
48	5240	1.49	0.57	10.09	12.15	16.41

:SAR test channel

[IEEE802.11n-20] Rate Check

Rate [Mbps]	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	5220	1.39	0.57	10.09	12.05	16.03
MCS1	5220	1.38	0.57	10.09	12.04	16.00
MCS2	5220	1.38	0.57	10.09	12.04	16.00
MCS3	5220	1.38	0.57	10.09	12.04	16.00
MCS4	5220	1.37	0.57	10.09	12.03	15.96
MCS5	5220	1.37	0.57	10.09	12.03	15.96
MCS6	5220	1.38	0.57	10.09	12.04	16.00
MCS7	5220	1.37	0.57	10.09	12.03	15.96

:Worst data rate

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	1.48	0.57	10.09	12.14	16.37
40	5200	1.49	0.57	10.09	12.15	16.41
44	5220	1.39	0.57	10.09	12.05	16.03
48	5240	1.50	0.57	10.09	12.16	16.44

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

[IEEE802.11ac-20] Rate Check

Rate	Freq. [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	5220	1.33	0.57	10.09	11.99	15.81
MCS1	5220	1.32	0.57	10.09	11.98	15.78
MCS2	5220	1.32	0.57	10.09	11.98	15.78
MCS3	5220	1.32	0.57	10.09	11.98	15.78
MCS4	5220	1.32	0.57	10.09	11.98	15.78
MCS5	5220	1.32	0.57	10.09	11.98	15.78
MCS6	5220	1.31	0.57	10.09	11.97	15.74
MCS7	5220	1.31	0.57	10.09	11.97	15.74
MCS8	5220	1.30	0.57	10.09	11.96	15.70

:Worst data rate

IEEE802.11ac-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
36	5180	1.34	0.57	10.09	12.00	15.85
40	5200	1.32	0.57	10.09	11.98	15.78
44	5220	1.33	0.57	10.09	11.99	15.81
48	5240	1.28	0.57	10.09	11.94	15.63

[IEEE802.11n-40] Rate Check

Rate	Freq. [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	5190	-0.82	0.57	10.09	9.84	9.64
MCS1	5190	-0.84	0.57	10.09	9.82	9.59
MCS2	5190	-0.86	0.57	10.09	9.80	9.55
MCS3	5190	-0.93	0.57	10.09	9.73	9.40
MCS4	5190	-0.95	0.57	10.09	9.71	9.35
MCS5	5190	-0.94	0.57	10.09	9.72	9.38
MCS6	5190	-0.90	0.57	10.09	9.76	9.46
MCS7	5190	-0.92	0.57	10.09	9.74	9.42

:Worst data rate

IEEE802.11n-40 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
38	5190	-0.82	0.57	10.09	9.84	9.64
46	5230	-0.81	0.57	10.09	9.85	9.66

[IEEE802.11ac-40] Rate Check

Rate	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	5190	-2.06	0.57	10.09	8.60	7.24
MCS1	5190	-2.09	0.57	10.09	8.57	7.19
MCS2	5190	-2.13	0.57	10.09	8.53	7.13
MCS3	5190	-2.12	0.57	10.09	8.54	7.14
MCS4	5190	-2.12	0.57	10.09	8.54	7.14
MCS5	5190	-2.13	0.57	10.09	8.53	7.13
MCS6	5190	-2.10	0.57	10.09	8.56	7.18
MCS7	5190	-2.11	0.57	10.09	8.55	7.16
MCS8	5190	-2.10	0.57	10.09	8.56	7.18
MCS9	5190	-2.08	0.57	10.09	8.58	7.21

:Worst data rate

IEEE802.11ac-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
38	5190	-2.06	0.57	10.09	8.60	7.24
46	5230	-2.11	0.57	10.09	8.55	7.16

[IEEE802.11ac-80] Rate Check

Rate	Freq. [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
MCS0	5210	-2.06	0.57	10.09	8.60	7.24
MCS1	5210	-2.09	0.57	10.09	8.57	7.19
MCS2	5210	-2.09	0.57	10.09	8.57	7.19
MCS3	5210	-2.08	0.57	10.09	8.58	7.21
MCS4	5210	-2.07	0.57	10.09	8.59	7.23
MCS5	5210	-2.09	0.57	10.09	8.57	7.19
MCS6	5210	-2.10	0.57	10.09	8.56	7.18
MCS7	5210	-2.10	0.57	10.09	8.56	7.18
MCS8	5210	-2.09	0.57	10.09	8.57	7.19
MCS9	5210	-2.09	0.57	10.09	8.57	7.19

:Worst data rate

IEEE802.11ac-80 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
42	5210	-2.06	0.57	10.09	8.60	7.24

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

5.3GHz

IEEE802.11a 6Mbps

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
52	5260	1.53	0.58	10.09	12.20	16.60
56	5280	1.49	0.58	10.09	12.16	16.44
60	5300	1.53	0.58	10.09	12.20	16.60
64	5320	1.55	0.58	10.09	12.22	16.67

:SAR test channel

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
52	5260	1.52	0.58	10.09	12.19	16.56
56	5280	1.48	0.58	10.09	12.15	16.41
60	5300	1.46	0.58	10.09	12.13	16.33
64	5320	1.46	0.58	10.09	12.13	16.33

IEEE802.11ac-20 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
52	5260	1.31	0.58	10.09	11.98	15.78
56	5280	1.30	0.58	10.09	11.97	15.74
60	5300	1.31	0.58	10.09	11.98	15.78
64	5320	1.29	0.58	10.09	11.96	15.70

IEEE802.11n-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
54	5270	-0.80	0.58	10.09	9.87	9.71
62	5310	-0.79	0.58	10.09	9.88	9.73

IEEE802.11ac-40 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
54	5270	-2.07	0.58	10.09	8.60	7.24
62	5310	-2.09	0.58	10.09	8.58	7.21

IEEE802.11ac-80 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
58	5290	-2.08	0.58	10.09	8.59	7.23

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

5.6GHz

IEEE802.11a 6Mbps

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.45	0.59	10.09	12.13	16.33
104	5520	1.33	0.59	10.09	12.01	15.89
108	5540	1.41	0.59	10.09	12.09	16.18
112	5560	1.43	0.59	10.09	12.11	16.26
116	5580	1.24	0.59	10.09	11.92	15.56
120	5600	1.26	0.59	10.09	11.94	15.63
124	5620	1.30	0.59	10.09	11.98	15.78
128	5640	1.32	0.59	10.09	12.00	15.85
132	5660	1.31	0.59	10.09	11.99	15.81
136	5680	1.35	0.59	10.09	12.03	15.96
140	5700	1.31	0.59	10.09	11.99	15.81

:SAR test channel

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.43	0.59	10.09	12.11	16.26
104	5520	1.34	0.59	10.09	12.02	15.92
108	5540	1.40	0.59	10.09	12.08	16.14
112	5560	1.41	0.59	10.09	12.09	16.18
116	5580	1.24	0.59	10.09	11.92	15.56
120	5600	1.23	0.59	10.09	11.91	15.52
124	5620	1.27	0.59	10.09	11.95	15.67
128	5640	1.30	0.59	10.09	11.98	15.78
132	5660	1.32	0.59	10.09	12.00	15.85
136	5680	1.33	0.59	10.09	12.01	15.89
140	5700	1.31	0.59	10.09	11.99	15.81

IEEE802.11ac-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
100	5500	1.28	0.59	10.09	11.96	15.70
104	5520	1.19	0.59	10.09	11.87	15.38
108	5540	1.24	0.59	10.09	11.92	15.56
112	5560	1.20	0.59	10.09	11.88	15.42
116	5580	1.14	0.59	10.09	11.82	15.21
120	5600	1.12	0.59	10.09	11.80	15.14
124	5620	1.12	0.59	10.09	11.80	15.14
128	5640	1.14	0.59	10.09	11.82	15.21
132	5660	1.20	0.59	10.09	11.88	15.42
136	5680	1.27	0.59	10.09	11.95	15.67
140	5700	1.29	0.59	10.09	11.97	15.74

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

IEEE802.11n-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
102	5510	-0.83	0.59	10.09	9.85	9.66
110	5550	-0.83	0.59	10.09	9.85	9.66
118	5590	-0.96	0.59	10.09	9.72	9.38
126	5630	-1.04	0.59	10.09	9.64	9.20
134	5670	-1.17	0.59	10.09	9.51	8.93

IEEE802.11ac-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
102	5510	-2.11	0.59	10.09	8.57	7.19
110	5550	-2.08	0.59	10.09	8.60	7.24
118	5590	-2.10	0.59	10.09	8.58	7.21
126	5630	-2.16	0.59	10.09	8.52	7.11
134	5670	-2.17	0.59	10.09	8.51	7.10

IEEE802.11ac-80 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
106	5530	-2.00	0.59	10.09	8.68	7.38
122	5610	-2.01	0.59	10.09	8.67	7.36

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

5.8GHz

IEEE802.11a 6Mbps

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
149	5745	1.20	0.60	10.08	11.88	15.42
153	5765	1.32	0.60	10.08	12.00	15.85
157	5785	1.21	0.60	10.08	11.89	15.45
161	5805	1.35	0.60	10.08	12.03	15.96
165	5825	1.45	0.60	10.08	12.13	16.33

:SAR test channel

IEEE802.11n-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
149	5745	1.21	0.60	10.08	11.89	15.45
153	5765	1.30	0.60	10.08	11.98	15.78
157	5785	1.20	0.60	10.08	11.88	15.42
161	5805	1.33	0.60	10.08	12.01	15.89
165	5825	1.41	0.60	10.08	12.09	16.18

IEEE802.11ac-20 MCS0

Ch	Frequency [MHz]	P/M Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
149	5745	1.19	0.60	10.08	11.87	15.38
153	5765	1.28	0.60	10.08	11.96	15.70
157	5785	1.22	0.60	10.08	11.90	15.49
161	5805	1.29	0.60	10.08	11.97	15.74
165	5825	1.32	0.60	10.08	12.00	15.85

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

IEEE802.11n-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
151	5755	-1.11	0.60	10.08	9.57	9.06
159	5795	-1.12	0.60	10.08	9.56	9.04

IEEE802.11ac-40 MCS0

Ch	Frequency [MHz]	P/M Reading AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
151	5755	-2.12	0.60	10.08	8.56	7.18
159	5795	-2.11	0.60	10.08	8.57	7.19

IEEE802.11ac-80 MCS0

Ch	Frequency [MHz]	Reading [dBm] AVG	Cable Loss [dB]	Atten. [dB]	Result [dBm] AVG	Result [mW] AVG
155	5775	-1.99	0.60	10.08	8.69	7.40

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

5.3 SAR testing operating modes

The operating mode for SAR testing was decided by the output power

1) SAR measurement for WLAN

Decision of SAR test channel
The operating mode for SAR testing was decided by the output power

Mode		GHz	Channel	"Default Test Channel"			
				FCC 15.247		UNII	
				802.11b	802.11g		
802.11 b/g/n20		2.412	1	√	Δ		
		2.437	6	√	Δ		
		2.462	11	√	Δ		
802.11a/n/ac	UNII	5.18	36			√	
		5.20	40				*
		5.22	44				*
		5.24	48			√	
		5.26	52			√	
		5.28	56				*
		5.30	60				*
		5.32	64			√	
		5.50	100				*
		5.52	104			√	
		5.54	108				*
		5.56	112				*
		5.58	116			√	
		5.60	120				*
		5.62	124			√	
		5.64	128				*
		5.66	132				*
		5.68	136			√	
		5.70	140				*
	UNII or FCC 15.247	5.745	149	√		√	
		5.765	153		*		*
		5.785	157	√			*
		5.805	161		*	√	
	FCC 15.247	5.825	165	√			

√ = "default test channels"
* = Possible 802.11a channels with maximum average output > the "default test channels"
Δ = Possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"
= when output power is reduced for channel 1 and/or 11 to meet restricted band requirements the highest output channels closest to each of these channels should be tested

Mode	Test Frequency	Modulation	Crest factor	Note
IEEE802.11b	2412MHz(1ch)	DBPSK(1Mbps)	1	*2
IEEE802.11g IEEE802.11n20 (2.4G)	Not required			*1
IEEE802.11a	5200MHz(40ch)	BPSK(6Mbps)	1	*2
	5320MHz(64ch)	BPSK(6Mbps)	1	*2
	5500MHz(100ch)	BPSK(6Mbps)	1	*3
	5825MHz(165ch)	BPSK(6Mbps)	1	*2
IEEE802.11n20 (5G) IEEE802.11n40 (5G) IEEE802.11ac20 IEEE802.11ac40 IEEE802.11ac80	Not required			*4
Bluetooth Bluetooth Low Energy	Not required			*5

WLAN/Bluetooth/Bluetooth Low Energy

*The power value of the EUT was set for testing as follows (setting value might be different from product specification value);

Power settings: [WLAN] 11b:13dBm, 11g:12dBm, 11n-20(2.4G):11dBm, 11a:12dBm
11n-20(5G):12dBm, 11n-40(5G):11dBm, 11ac-20:12dBm, 11ac-40:10dBm, 11ac-80:10dBm
[Bluetooth BDR EDR] 9
[Bluetooth Low Energy] 0dBm

Software: QRCT
Version: 3.0.32.0
*This setting of software is the worst case.
Any conditions under the normal use do not exceed the condition of setting.
In addition, end users cannot change the settings of the output power of the product.

*1 The 11b mode was maximum average power. According to KDB248227D01, the 11g/n20 SAR is not required for other mode because the maximum average output power for other mode is less than 1/4dB higher than that measured 11b mode.
*2 The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
*3 The other channel was not required since maximum average output power channel SAR value is less than 0.4W/kg.
*4 The 11a mode was maximum average power. According to KDB248227D01, the 11n and 11ac SAR is not required for other mode because the maximum average output power for other mode is less than that measured 11a mode.
*5 Bluetooth / Bluetooth Low Energy test were not required according with Section 6

5.4 Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%.The verification of power drift during the SAR test is that DASY5 system calculates the power drift by measuring the e-filed at the same location at beginning and the end of the scan measurement for each test position.

DASY5 system calculation Power drift value[dB] =20log(Ea)/(Eb)
Before SAR testing : Eb[V/m]
After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5%
X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

from E-filed relations with power.
p=E^2/η=E^2/
Therefore, The correlation of power and the E-filed
XdB=10log(P)=10log(E)^2=20log(E)

Therefore,
The calculated power drift of DASY5 System must be the less than +/-0.212dB.

SECTION 6 SAR test exclusion considerations

6.1 Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation
The result is rounded to one decimal place for comparison
The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Bluetooth BDR EDR

Band	Standalone SAR tested	Positiom	Mode	Upper frequency of band *1	Maximum tune-up tolerance limit *5	Min distance *2	Calculation of exclusion *3
Bluetooth	☐	Front	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	5 [mm]	2.2
Bluetooth	☐	Rear	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	5 [mm]	2.2
Bluetooth	☐	Top	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	5 [mm]	2.2
Bluetooth	☐	Left	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	5 [mm]	2.2
Bluetooth	☐	Right	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	5 [mm]	2.2

Bluetooth Low Energy

Band	Standalone SAR tested	Positiom	Mode	Upper frequency of band *1	Maximum tune-up tolerance limit *5	Min distance *2	Calculation of exclusion *3
Bluetooth	☐	Front	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	5 [mm]	0.6
Bluetooth	☐	Rear	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	5 [mm]	0.6
Bluetooth	☐	Top	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	5 [mm]	0.6
Bluetooth	☐	Left	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	5 [mm]	0.6
Bluetooth	☐	Right	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	5 [mm]	0.6

2) At 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following.
a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Bluetooth BDR EDR

Band	Standalone SAR tested	Positiom	Mode	Upper frequency of band *1	Maximum tune-up tolerance limit *5	Min distance *2	Calculation of threshold*4
Bluetooth	☐	Bottom	3DH5	2480 [MHz] (79ch)	8.2 [dBm] 6.61 [mW] 7 [mW]*6	122 [mm]	815 [mW]

Bluetooth Low Energy

Band	Standalone SAR tested	Positiom	Mode	Upper frequency of band *1	Maximum tune-up tolerance limit *5	Min distance *2	Calculation of threshold*4
Bluetooth	☐	Bottom	BTLE	2480 [MHz] (39ch)	1.8 [dBm] 1.51 [mW] 2 [mW]*6	122 [mm]	815 [mW]

*1 The upper frequency of the frequency band was used in order to calculate standalone SAR test exclusion considerations.
*2 When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. Refer to Appendix 4.
*3 [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0
If it is Calculation of exclusion ≤ 3.0 standalone SAR test is excluded.
*4 $[(3\cdot 50)/(\sqrt{f_{(GHz)}})]$ + (test separation distance - 50 mm)·(f(MHz)/150)] mW at > 100 MHz and ≤ 1500 MHz
$[(3\cdot 50)/(\sqrt{f_{(GHz)}})]$ + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
If it is maximum tune-up tolerance limit < Threshold, standalone SAR test is excluded.
*5 Maximum tune-up tolerance limit is by the specification from a customer.
*6 Maximum tune-up tolerance limit(mW) is rounded to one decimal place.

SECTION 7: Description of the setup

7.1 Test position for Head setup

i)Procedure for SAR testing

The EUT was tested in accordance with KDB447498D01 (Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies)

ii)Test mode

WLAN 2.4G	**Data transmission mode (11b)**
WLAN 5G	**Data transmission mode (11a)**

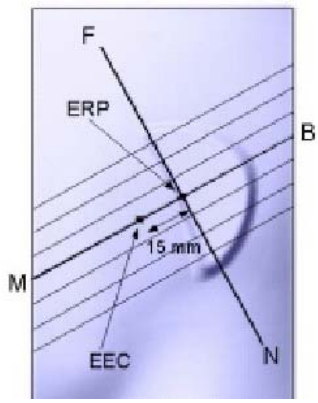
iii)Test position

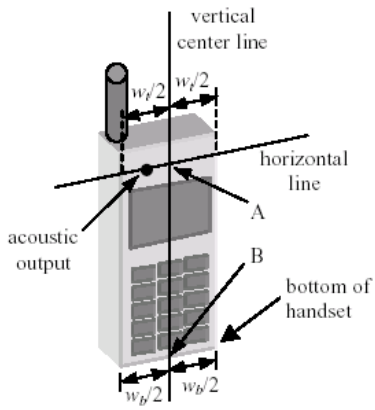
No.	Phantom	Position	WLAN	
			Tested	Antenna
1	Left	Cheek	☑	Fixed
2	Left	Tilt	☑	Fixed
3	Right	Cheek	☑	Fixed
4	Right	Tilt	☑	Fixed

Initial ear position

A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom.

The device should be positioned parallel to the "N-F" line defined along the base of the ear spacer that contains the "ear reference point". The "test device reference point" is aligned to the "ear reference point" on the head phantom and the "vertical centerline" is aligned to the "phantom reference plane".





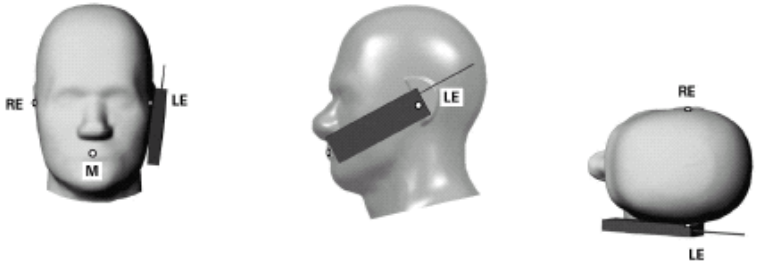
Cheek position

The device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line.

This test position is established:

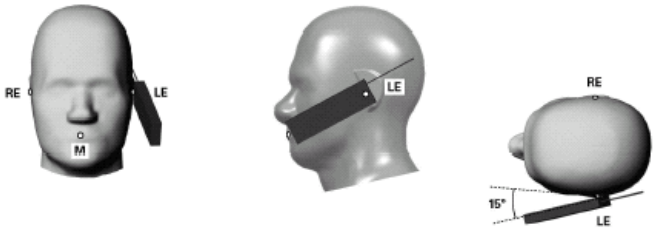
i) When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.

ii) (or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.



Tilt position

If the earpiece of the handset is not in full contact with the phantom's ear spacer and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer. Otherwise the handset should be moved away from the cheek perpendicular to the line passes through both "ear reference points" for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the "test device reference point" by 15°. After the tilt, it is then moved back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously.



<Antenna position>

The EUT has an antenna which can be extended and retracted. The test was performed with two conditions, Extended Antenna and Retracted Antenna.

7.2 Test position for Body-worn and Body (Hotspot) setup

i) Procedure for SAR testing

-The tested procedure was performed according to the KDB447498 D01 (Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies)
According to KDB 941225 D06 Hotspot SAR procedure, test separation of Body-worn for WLAN is 10mm since the test separation distance (10mm) for hotspot mode is more conservative than Body-worn test(15mm).

ii) Test mode

WLAN 2.4G	**Data transmission mode (11b)**
WLAN 5G	**Data transmission mode (11a)**

iii) Test position

No.	Position	Test Distance *1	WLAN	
			Tested	Antenna
1	Front	10mm	☑	Fixed
2	Rear	10mm	☑	Fixed
3	Top	10mm	☑	Fixed
4	Bottom	10mm	☑	Fixed
5	Right	10mm	☑	Fixed
6	Left	10mm	☑	Fixed

*1 Test distance is request from customer.

SECTION 8 : Test surrounding

8.1 Measurement uncertainty

This measurement uncertainty budget is suggested by IEEE Std 1528(2013)[2] and determined by Schmid & Partner Engineering AG (DASY5 Uncertainty Budget[1]). Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01 Section 2.8.1., when the highest measured SAR(1g) within a frequency band is < 1.5W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std.1528 (2013) is not required in SAR reports submitted for equipment approval.
<0.3 – 3GHz range>

Error Description	Uncertainty value ± %		Probability distribution	divisor	(ci) 1g	Standard Uncertainty (1g)		vi or veff
Measurement System								
Probe calibration	±	6.00	Normal	1	1	±	6.00	∞
Axial isotropy of the probe	±	4.7	Rectangular	√3	0.7	±	1.9	∞
Spherical isotropy of the probe	±	9.6	Rectangular	√3	0.7	±	3.9	∞
Boundary effects	±	1.0	Rectangular	√3	1	±	0.6	∞
Probe linearity	±	4.7	Rectangular	√3	1	±	2.7	∞
Detection limit	±	1.0	Rectangular	√3	1	±	0.6	∞
Modulation response	±	2.4	Rectangular	√3	1	±	1.4	∞
Readout electronics	±	0.3	Normal	1	1	±	0.3	∞
Response time	±	0.8	Rectangular	√3	1	±	0.5	∞
Integration time	±	2.6	Rectangular	√3	1	±	1.5	∞
RF ambient Noise	±	3.0	Rectangular	√3	1	±	1.7	∞
RF ambient Reflections	±	3.0	Rectangular	√3	1	±	1.7	∞
Probe Positioner	±	0.4	Rectangular	√3	1	±	0.2	∞
Probe positioning	±	2.9	Rectangular	√3	1	±	1.7	∞
Max.SAR Eval.	±	2.0	Rectangular	√3	1	±	1.2	∞
Test Sample Related								
Device positioning	±	2.9	Normal	1	1	±	2.9	9
Device holder uncertainty	±	3.6	Normal	1	1	±	3.6	9
Power drift	±	5.0	Rectangular	√3	1	±	2.9	∞
Power Scaling	+	0.0	Rectangular	√3	1	±	0.0	∞
Phantom and Setup								
Phantom uncertainty	±	6.1	Rectangular	√3	1	±	3.5	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	±	1.9	Normal	1	1	±	1.9	∞
Liquid conductivity (target.)	±	5.0	Rectangular	√3	0.78	±	2.3	∞
Liquid conductivity (meas.)	+	3.4	Rectangular	1	0.78	+	2.7	∞
Liquid permittivity (target.)	±	5.0	Rectangular	√3	0.23	+	0.7	
Liquid permittivity (meas.)	-	4.7	Rectangular	1	0.23	-	1.1	∞
Liquid conductivity - temp.unc (below 2deg.C.)	±	5.2	Rectangular	√3	0.78	±	2.3	∞
Liquid permittivity - temp.unc (below 2deg.C.)	±	0.8	Rectangular	√3	0.23	±	0.1	∞
Combined Standard Uncertainty						±	**11.855**	
Expanded Uncertainty (k=2)						±	**23.7**	

*. Table of uncertainties are listed for ISO/IEC 17025.

<3 – 6GHz range >

Error Description	Uncertai value ±	Probability distribution	divisor	(ci) 1g	Standard (1g)	vi or veff
Measurement System						
Probe calibration	± 6.55	Normal	1	1	± 6.55	∞
Axial isotropy of the probe	± 4.7	Rectangular	√3	0.7	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	√3	0.7	± 3.9	∞
Boundary effects	± 2.0	Rectangular	√3	1	± 1.2	∞
Probe linearity	± 4.7	Rectangular	√3	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	√3	1	± 0.6	∞
Modulation response	± 2.4	Rectangular	√3	1	± 1.4	∞
Readout electronics	± 0.3	Normal	1	1	± 0.3	∞
Response time	± 0.8	Rectangular	√3	1	± 0.5	∞
Integration time	± 2.6	Rectangular	√3	1	± 1.5	∞
RF ambient Noise	± 3.0	Rectangular	√3	1	± 1.7	∞
RF ambient Reflections	± 3.0	Rectangular	√3	1	± 1.7	∞
Probe Positioner	± 0.8	Rectangular	√3	1	± 0.5	∞
Probe positioning	± 6.7	Rectangular	√3	1	± 3.9	∞
Max.SAR Eval.	± 4.0	Rectangular	√3	1	± 2.3	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	39
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	9
Power drift	± 5.0	Rectangular	√3	1	± 2.9	∞
Power Scaling	+ 0.0	Rectangular	√3	1	± 0.0	∞
Phantom and Setup						
Phantom uncertainty	± 6.6	Rectangular	√3	1	± 3.8	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	± 1.9	Normal	1	1	± 1.9	∞
Liquid conductivity (target.)	± 5.0	Rectangular	√3	0.78	± 2.3	∞
Liquid conductivity (meas.)	- 3.4	Rectangular	1	0.78	- 2.7	∞
Liquid permittivity (target.)	± 5.0	Rectangular	√3	0.23	+ 0.7	
Liquid permittivity (meas.)	- 4.2	Rectangular	1	0.23	- 1.0	∞
Liquid conductivity - temp.unc (below 2deg.C.)	± 2.4	Rectangular	√3	0.78	± 1.1	∞
Liquid permittivity - temp.unc (below 2deg.C.)	± 0.8	Rectangular	√3	0.23	± 0.1	∞
Combined Standard Uncertainty					± **12.742**	
Expanded Uncertainty (k=2)					± **25.5**	

*. Table of uncertainties are listed for ISO/IEC 17025.

SECTION 9 : Measurement results

9.1 WLAN Head SAR (2.4G)

(1)Method of measurement

Step.1 The searching for the worst position.
The test was performed at the worst conducted power transmit rate and channel.

Note:
1)The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
2) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.
When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS											
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
-	-	-	-	-	2000	εr	40.0	-	-	-	*1
						σ [mho/m]	1.40	-	-	-	
29-Jan	24	35	HSL 2450	23.5	2412	εr	39.3	39.2	-0.2	+/-5	*2
						σ [mho/m]	1.77	1.78	0.5	+/-5	
29-Jan	24	35	HSL 2450	23.5	2450	εr	39.2	39.2	-0.1	+/-5	*1
						σ [mho/m]	1.80	1.82	1.1	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.
*2 The dielectric parameters should be linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

(3)Result of Head SAR

2.4GHz Band

HEAD SAR MEASUREMENT RESULTS												
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions		Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Position	Separation [mm]			
Step.1 Position searching												
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Left	Cheek	0	**0.165**	**1.419**	**0.234**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Left	Tilt	0	**0.106**	**1.419**	**0.150**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Right	Cheek	0	**0.054**	**1.419**	**0.077**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Right	Tilt	0	**0.055**	**1.419**	**0.078**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

9.2 WLAN Body SAR (2.4G)

(1)Method of measurement

Step.1 The searching for the worst position.
The test was performed at the worst conducted power transmit rate and channel.

Note:
1)The other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
2) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.
When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS											
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
-	-	-	-	-	2000	εr	53.3	-	-	-	*1
						σ [mho/m]	1.52	-	-	-	
20-Jan	24	42	MSL 2450	23.5	2412	εr	52.8	50.3	-4.7	+/-5	*2
						σ [mho/m]	1.91	1.97	3.4	+/-5	
20-Jan	24	42	MSL 2450	23.5	2450	εr	52.7	50.2	-4.8	+/-5	*1
						σ [mho/m]	1.95	2.02	3.7	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.
*2 The dielectric parameters should be linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

(3)Result of Body SAR

2.4GHz Band

BODY SAR MEASUREMENT RESULTS												
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions		Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Position	Separation [mm]			
Step.1 Position searching												
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Front	10	**0.022**	**1.419**	**0.031**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Rear	10	**0.022**	**1.419**	**0.031**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Top	10	**0.041**	**1.419**	**0.058**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Bottom	10	**0.00146**	**1.419**	**0.00207**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Right	10	**0.00847**	**1.419**	**0.0120**
1	2412	11b 1Mbps	12.48	17.70	14.00	25.12	Flat	Left	10	**0.020**	**1.419**	**0.028**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

9.3 WLAN Head SAR (5G)

(1)Method of measurement

Step.1 The searching for the worst position.
The test was performed at the worst conducted power transmit rate and channel.

Note:
1) For 5500-5700MHz band, the other channel was not required since maximum average output power channel SAR value is less than 0.4W/kg.
2) For 5180-5240MHz band, 5260-5320MHz and 5745-5825MHz band, the other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.
When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS

Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
-	-	-	-	-	3000	εr	52.0	-	-	-	*1
						σ [mho/m]	2.73	-	-	-	
27-Jan	24	36	HBBL 3.5-5.8	23.5	5200	εr	36.0	35.5	-1.4	+/-5	*2
						σ [mho/m]	4.66	4.50	-3.4	+/-5	
27-Jan	24	36	HBBL 3.5-5.8	23.5	5320	εr	35.9	35.6	-0.6	+/-5	*2
						σ [mho/m]	4.78	4.81	0.7	+/-5	
28-Jan	24	35	HBBL 3.5-5.8	23.5	5500	εr	35.6	35.2	-1.2	+/-5	*2
						σ [mho/m]	4.96	4.90	-1.3	+/-5	
28-Jan	24	35	HBBL 3.5-5.8	23.5	5800	εr	35.3	34.5	-2.3	+/-5	*1
						σ [mho/m]	5.27	5.25	-0.3	+/-5	
28-Jan	24	35	HBBL 3.5-5.8	23.5	5825	εr	35.3	34.7	-1.6	+/-5	*2
						σ [mho/m]	5.30	5.26	-0.8	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.
*2 The dielectric parameters should be linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

(3)Result of Head SAR

5.2GHz Band

HEAD SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Left	Fixed	Cheek	0	**0.066**	**1.030**	**0.068**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Left	Fixed	Tilt	0	**0.014**	**1.030**	**0.014**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Right	Fixed	Cheek	0	**0.018**	**1.030**	**0.019**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Right	Fixed	Tilt	0	**0.013**	**1.030**	**0.013**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.3GHz Band

HEAD SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Left	Fixed	Cheek	0	**0.050**	**1.019**	**0.051**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Left	Fixed	Tilt	0	**0.046**	**1.019**	**0.047**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Right	Fixed	Cheek	0	**0.012**	**1.019**	**0.012**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Right	Fixed	Tilt	0	**0.021**	**1.019**	**0.021**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.6GHz Band

HEAD SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Left	Fixed	Cheek	0	**0.088**	**1.040**	**0.092**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Left	Fixed	Tilt	0	**0.076**	**1.040**	**0.079**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Right	Fixed	Cheek	0	**0.055**	**1.040**	**0.057**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Right	Fixed	Tilt	0	**0.074**	**1.040**	**0.077**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.8GHz Band

HEAD SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Left	Fixed	Cheek	0	**0.146**	**1.040**	**0.152**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Left	Fixed	Tilt	0	**0.104**	**1.040**	**0.108**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Right	Fixed	Cheek	0	**0.108**	**1.040**	**0.112**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Right	Fixed	Tilt	0	**0.077**	**1.040**	**0.080**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

9.4 WLAN Body SAR (5G)

(1)Method of measurement

Step.1 The searching for the worst position.
The test was performed at the worst conducted power transmit rate and channel.

Note:
1) For 5500-5700MHz band, the other channel was not required since maximum average output power channel SAR value is less than 0.4W/kg.
2) For 5180-5240MHz band, 5260-5320MHz and 5745-5825MHz band, the other channel was not required since maximum average output power channel SAR value is less than 0.8W/kg.
3) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.
When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

(2)Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the DAK dielectric probe kit.
The dielectric parameters measurement is reported in each correspondent section.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS

Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
-	-	-	-	-	3000	εr	52.0	-	-	-	*1
						σ [mho/m]	2.73	-	-	-	
21-Jan	24	40	MBBL 3.5-5.8	23.5	5200	εr	49.0	46.9	-4.2	+/-5	*2
						σ [mho/m]	5.30	5.43	2.5	+/-5	
22-Jan	24	42	MBBL 3.5-5.8	23.5	5320	εr	48.9	47.5	-2.9	+/-5	*2
						σ [mho/m]	5.44	5.32	-2.2	+/-5	
22-Jan	24	42	MBBL 3.5-5.8	23.5	5500	εr	48.6	47.2	-2.8	+/-5	*2
						σ [mho/m]	5.65	5.63	-0.3	+/-5	
23-Jan	24	38	MBBL 3.5-5.8	23.5	5800	εr	48.2	47.0	-2.4	+/-5	*1
						σ [mho/m]	6.00	5.97	-0.5	+/-5	
23-Jan	24	38	MBBL 3.5-5.8	23.5	5825	εr	48.2	46.9	-2.6	+/-5	*2
						σ [mho/m]	6.03	5.92	-1.9	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.
*2 The dielectric parameters should be linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

(3)Result of Body SAR

5.2GHz Band

BODY SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Front	10	**0.054**	**1.030**	**0.056**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Rear	10	**0.00699**	**1.030**	**0.00720**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Top	10	**0.025**	**1.030**	**0.026**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Bottom	10	**0.000**	**1.030**	**0.000**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Right	10	**0.000**	**1.030**	**0.000**
40	5200	11a 6Mbps	12.17	16.48	12.30	16.98	Flat	Fixed	Left	10	**0.019**	**1.030**	**0.020**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.3GHz Band

BODY SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Front	10	**0.077**	**1.019**	**0.078**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Rear	10	**0.000**	**1.019**	**0.000**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Top	10	**0.040**	**1.019**	**0.041**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Bottom	10	**0.000**	**1.019**	**0.000**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Right	10	**0.000**	**1.019**	**0.000**
64	5320	11a 6Mbps	12.22	16.67	12.30	16.98	Flat	Fixed	Left	10	**0.024**	**1.019**	**0.024**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.6GHz Band

BODY SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Front	10	**0.174**	**1.040**	**0.181**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Rear	10	**0.00773**	**1.040**	**0.00804**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Top	10	**0.076**	**1.040**	**0.079**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Bottom	10	**0.000**	**1.040**	**0.000**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Right	10	**0.000**	**1.040**	**0.000**
100	5500	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Left	10	**0.076**	**1.040**	**0.079**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

5.8GHz Band

BODY SAR MEASUREMENT RESULTS													
Frequency		Modulation	Measured power		Maximum tune-up tolerance limit		Phantom Section	EUT Set-up Conditions			Measured SAR(1g) [W/kg]	Scaled factor	Reported SAR(1g) *1 [W/kg]
Channel	[MHz]		[dBm]	[mW]	[dBm]	[mW]		Antenna	Position	Separation [mm]			
Step.1 Position searching													
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Front	10	**0.117**	**1.040**	**0.122**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Rear	10	**0.00857**	**1.040**	**0.00891**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Top	10	**0.049**	**1.040**	**0.051**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Bottom	10	**0.000**	**1.040**	**0.000**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Right	10	**0.000**	**1.040**	**0.000**
165	5825	11a 6Mbps	12.13	16.33	12.30	16.98	Flat	Fixed	Left	10	**0.057**	**1.040**	**0.059**

*1 Reported SAR= Scaled factor * Measured SAR [W/kg]
Where Scaled factor: Maximum tune-up tolerance limit [mW] / Measured power [mW]

SECTION 10 Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MOS-37	Digital thermometer	LKM electronic	DTM3000	-	SAR	2014/07/06 * 12
MDPK-03	Dielectric assessment kit	Schmid&Partner Engineering AG	DAK-3.5	0008	SAR	2014/03/04 * 12
COTS-MSAR-04	Dielectric assessment kit	Schmid&Partner Engineering AG	DAK		SAR	-
MPM-15	Power Meter	Agilent	N1914A	MY53060017	SAR	2014/06/20 * 12
MPSE-20	Power sensor	Agilent	N8482H	MY53050001	SAR	2014/06/20 * 12
MPSE-21	Power sensor	Agilent	N8482H	MY52460010	SAR	2014/07/02 * 12
MHDC-22	Directional Coupler	Agilent	87300B	14893A	SAR	Pre Check
MRFA-24	Pre Amplifier	R&K	R&K CGA020M602-2633R	B30550	SAR	2014/06/19 * 12
MSG-13	Signal Generator	Rohde & Schwarz	SMA 100A	103764	SAR	2014/06/19 * 12
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	SAR(D2450)	2013/09/10 * 24
MRENT-113	Dipole Antenna	Schmid&Partner Engineering AG	D5GHzV2	1039	SAR(D5G)	2014/05/13 * 12
MDAE-03	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	1372	SAR	2014/06/18 * 12
MPB-09	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3922	SAR	2014/06/13 * 12
MPSAM-03	SAM Phantom	Schmid&Partner Engineering AG	QD000P40CD	1764	SAR	2014/06/03 * 12
MPF-03	2mm Oval Flat Phantom	Schmid&Partner Engineering AG	QDOVA001BB	1203	SAR	2014/06/03 * 12
MDH-03	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-31	Thermo-Hygrometer	Custom	CTH-201	3101	SAR	2014/07/06 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY5	-	SAR	-
MRBT-04	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F13/5PP1A1/A/01	SAR	2014/06/23 * 12

The expiration date of the calibration is the end of the expired month.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

APPENDIX 1 : SAR Measurement data

1. Evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 15 mm x 15 mm, 12 mm x 12 mm or 10mm x 10mm. Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan), a volume of 30mm x 30mm x 30mm or more was assessed by measuring 7 x 7 x 7 points at least for below 3GHz and a volume of 28 mm x 28mm x 22.5mm or more was assessed by measuring 8 x 8 x 6(ratio step method (*1)) points at least for 5GHz band.

And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1mm(EX3DV4) away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes.
This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the E-field at the same location as in Step 1.

***1. Ratio step method parameters used;**
The first measurement point: 2mm from the phantom surface, the initial grid separation: 2mm, subsequent graded grid ratio: 1.5
These parameters comply with the requirement of the KDB 865664D01.

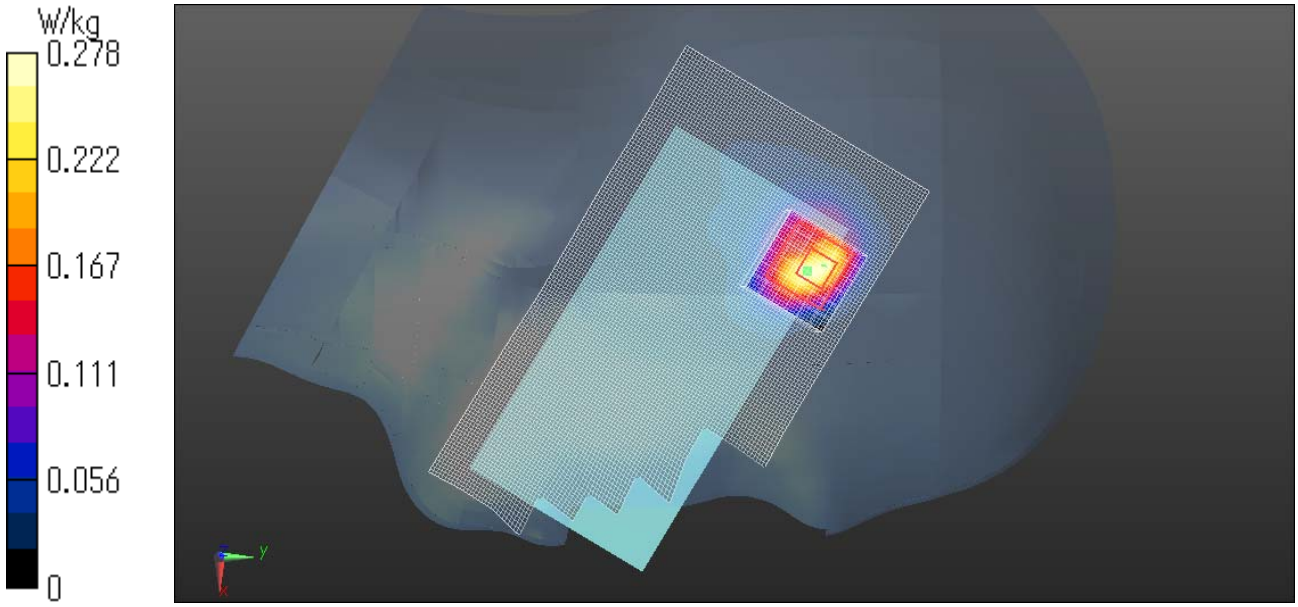
2. Measurement data Head 2.4GHz

WLAN 2.4GHz_11b_1Mbps_2412MHz_Left cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.778 S/m; ε_r = 39.188; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.273 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.36 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.447 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.278 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

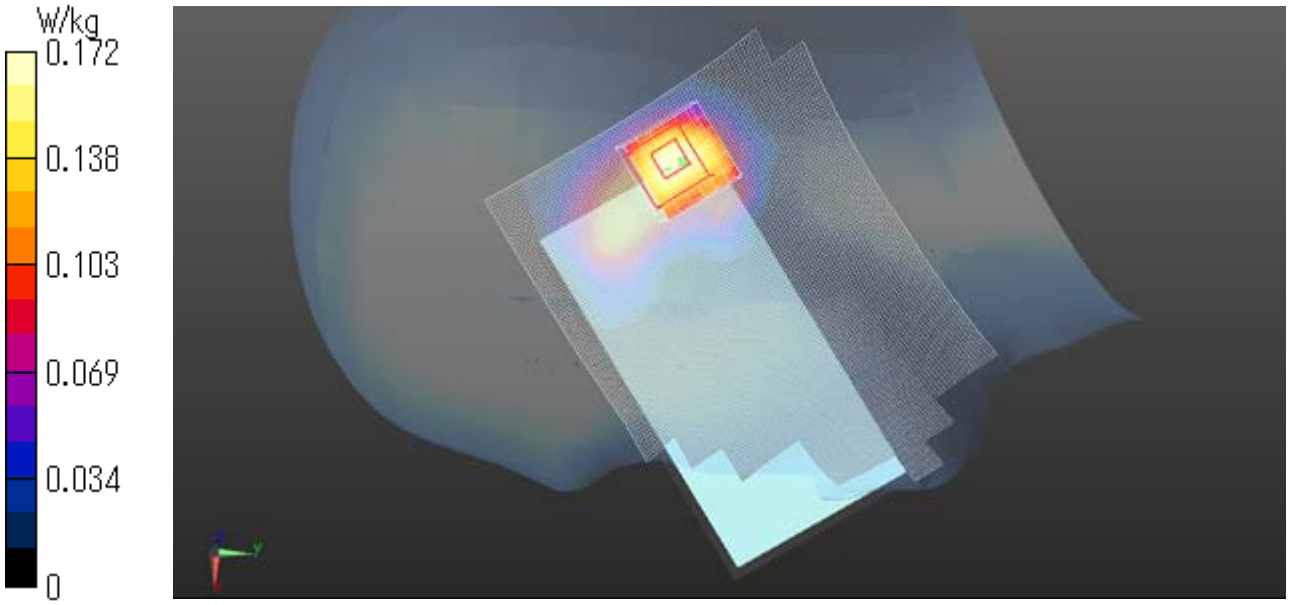


WLAN 2.4GHz_11b_1Mbps_2412MHz_Left tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.778 S/m; ε_r = 39.188; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.163 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.588 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.172 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

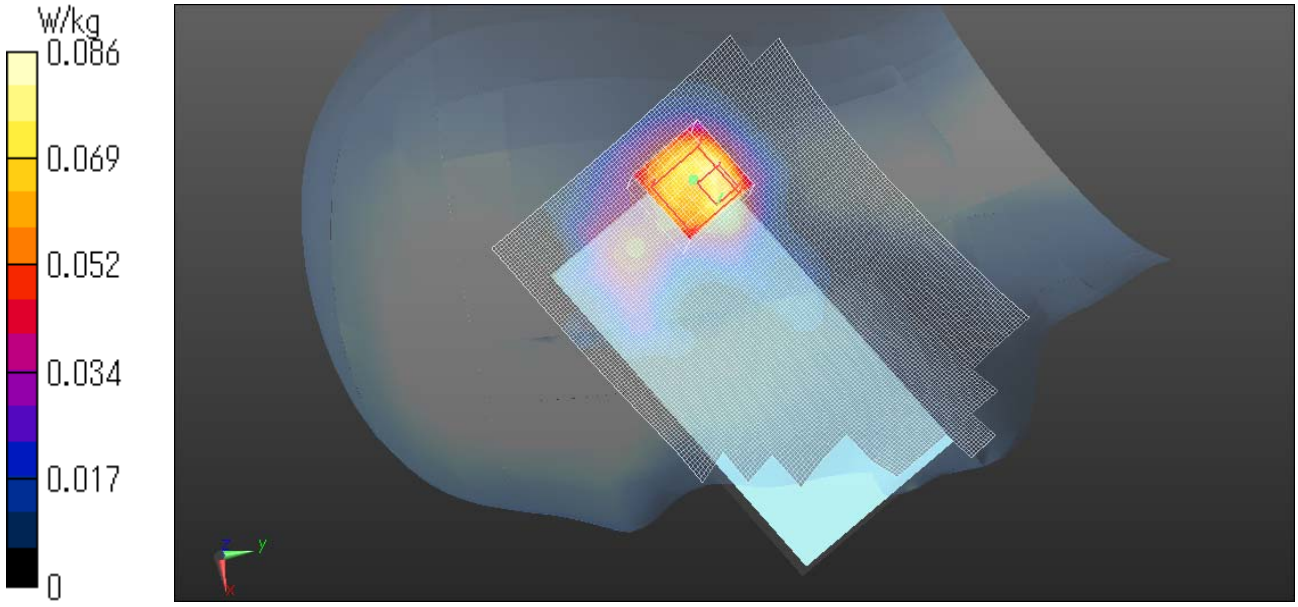


WLAN 2.4GHz_11b_1Mbps_2412MHz_Right cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.778 S/m; ε_r = 39.188; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0769 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.104 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.027 W/kg
Maximum value of SAR (measured) = 0.0860 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

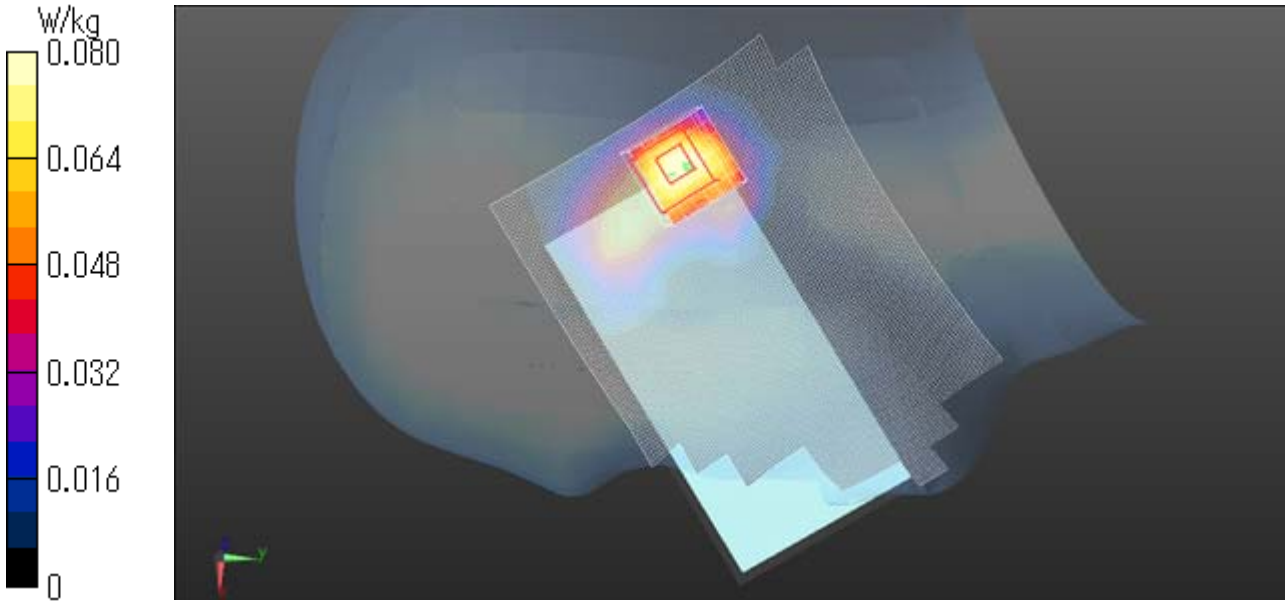


WLAN 2.4GHz_11b_1Mbps_2412MHz_Right tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.778 S/m; ε_r = 39.188; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0833 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.811 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.027 W/kg
Maximum value of SAR (measured) = 0.0799 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



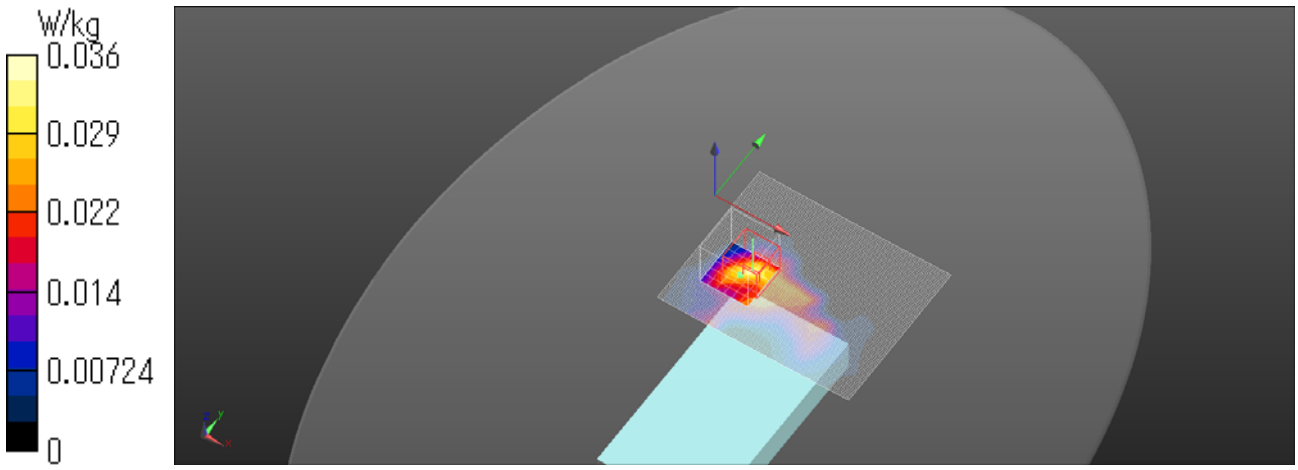
3. Measurement data Body 2.4GHz

WLAN 11b 1Mbps Front 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0308 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.677 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.0500 W/kg
SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.010 W/kg
Maximum value of SAR (measured) = 0.0362 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

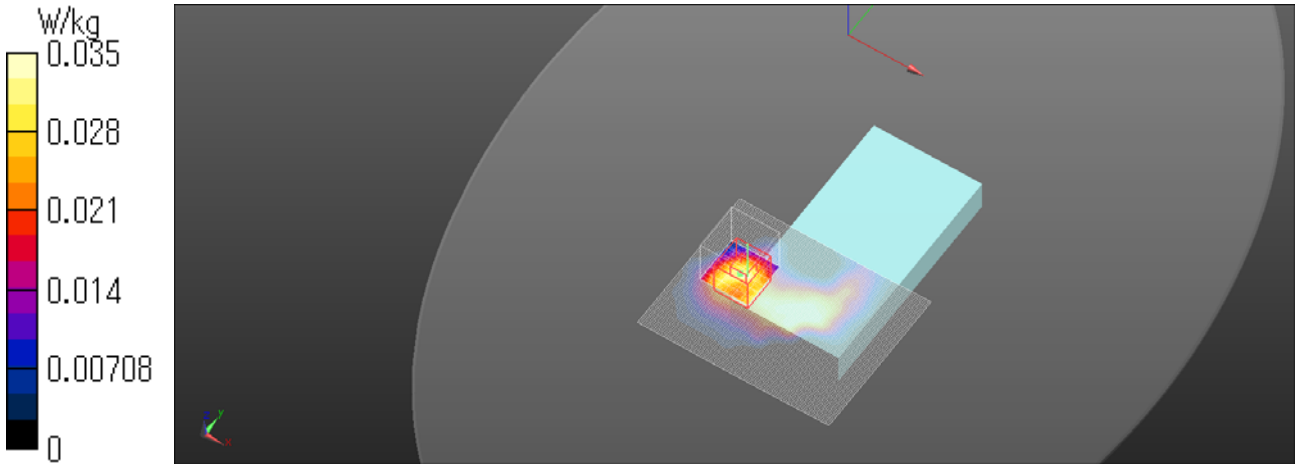


WLAN 11b 1Mbps Rear 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0425 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.144 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.0480 W/kg
SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.010 W/kg
Maximum value of SAR (measured) = 0.0354 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

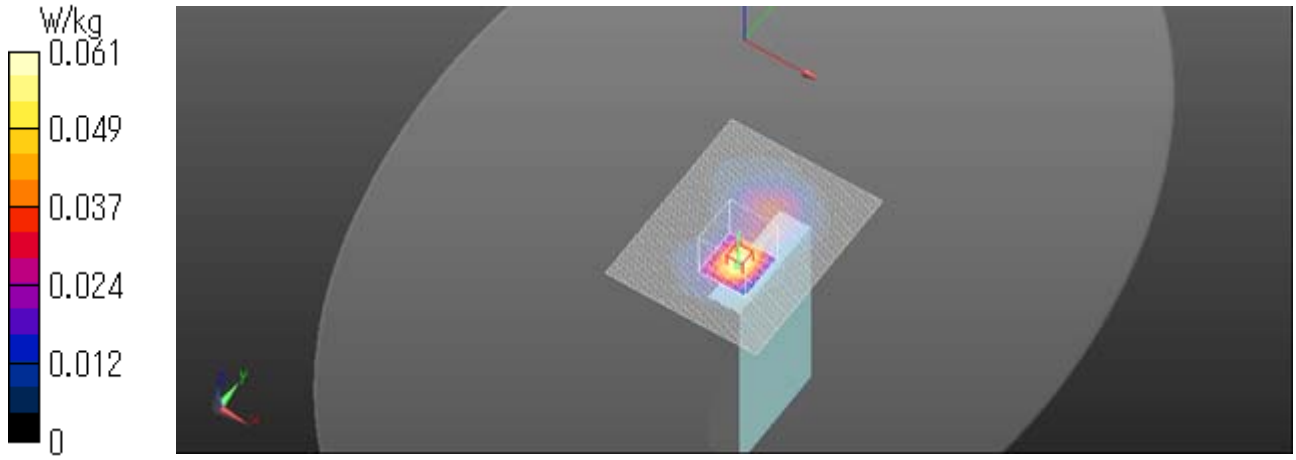


WLAN 11b 1Mbps Top 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0636 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.650 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.0820 W/kg
SAR(1 g) = 0.041 W/kg
Maximum value of SAR (measured) = 0.0609 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

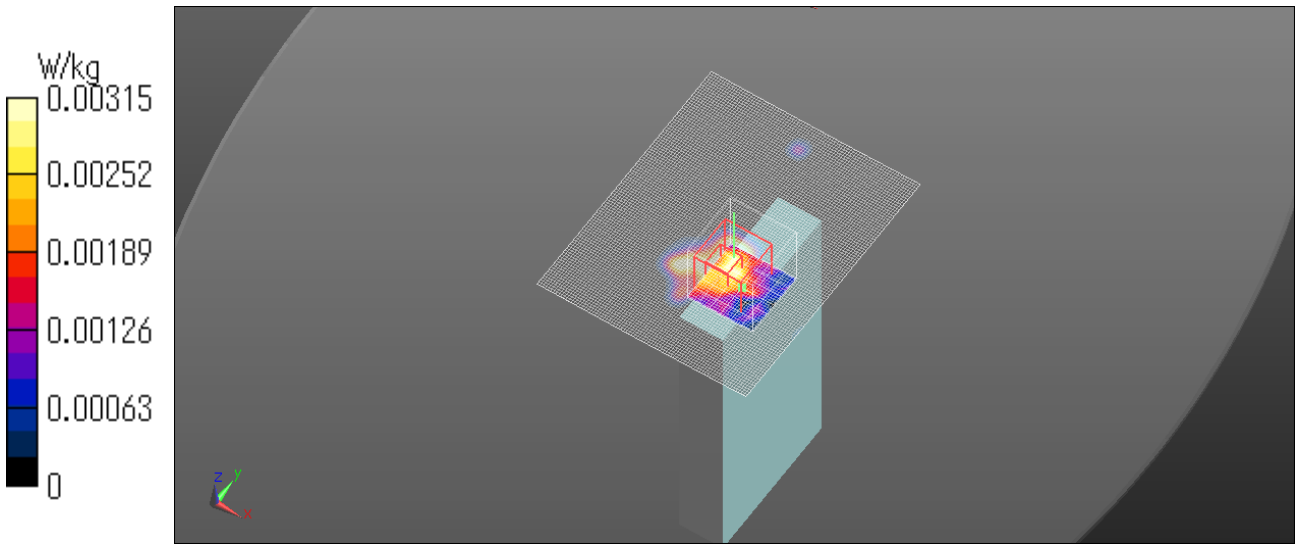


WLAN 11b 1Mbps Bottom 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.00510 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.4560 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.00667 W/kg
SAR(1 g) = 0.00146 W/kg
Maximum value of SAR (measured) = 0.00315 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

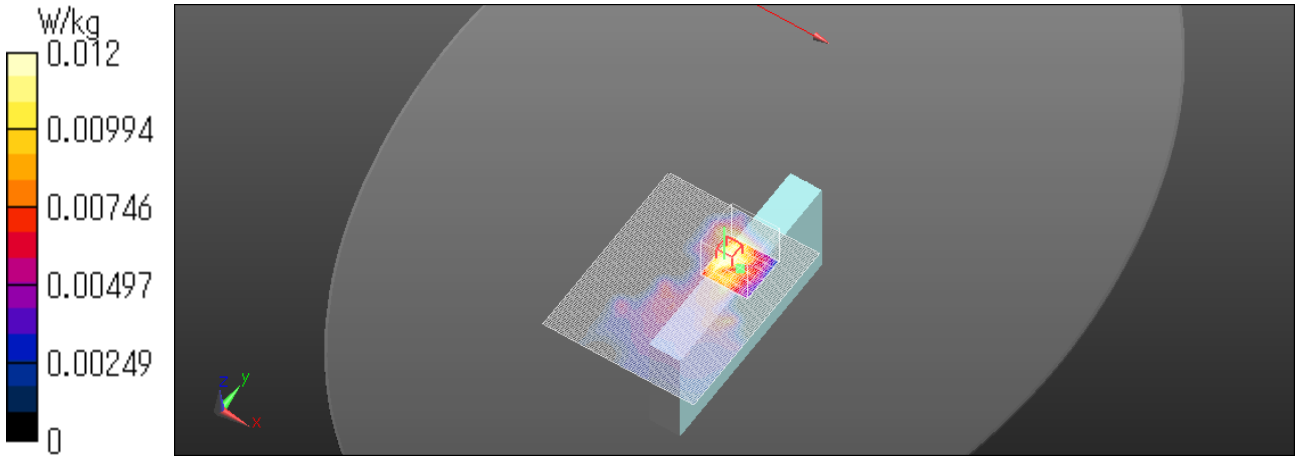


WLAN 11b 1Mbps Right 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0160 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.159 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.0240 W/kg
SAR(1 g) = 0.00847 W/kg
Maximum value of SAR (measured) = 0.0124 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



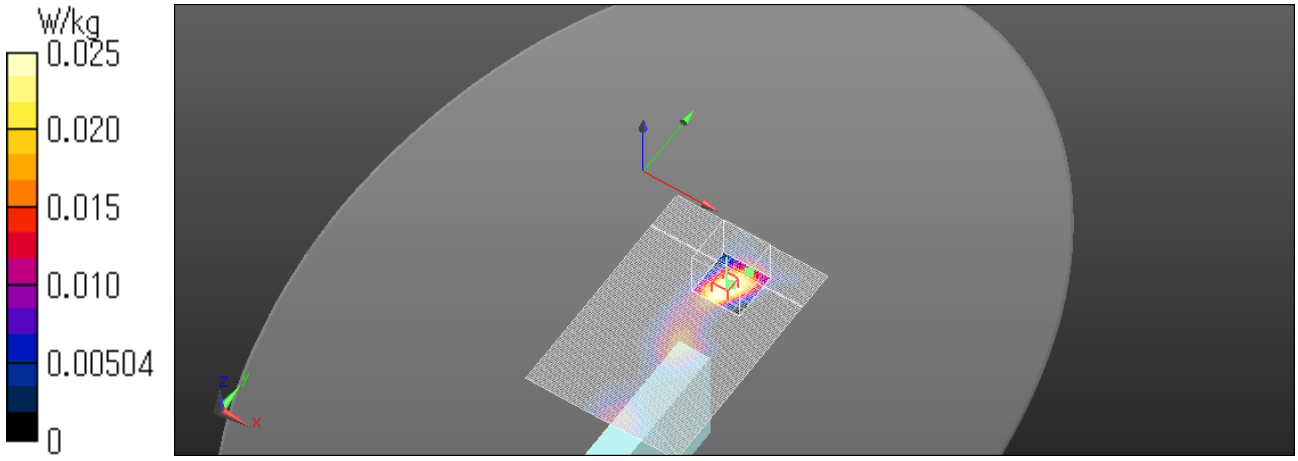
WLAN 11b 1Mbps Left 10mm 2412MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11b/g/n; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.974 S/m; ε_r = 50.289; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.36, 7.36, 7.36); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0359 W/kg

Area Scan 2 (81x21x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0252 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.874 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.0410 W/kg
SAR(1 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.0319 W/kg

Date: 2015/01/20
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



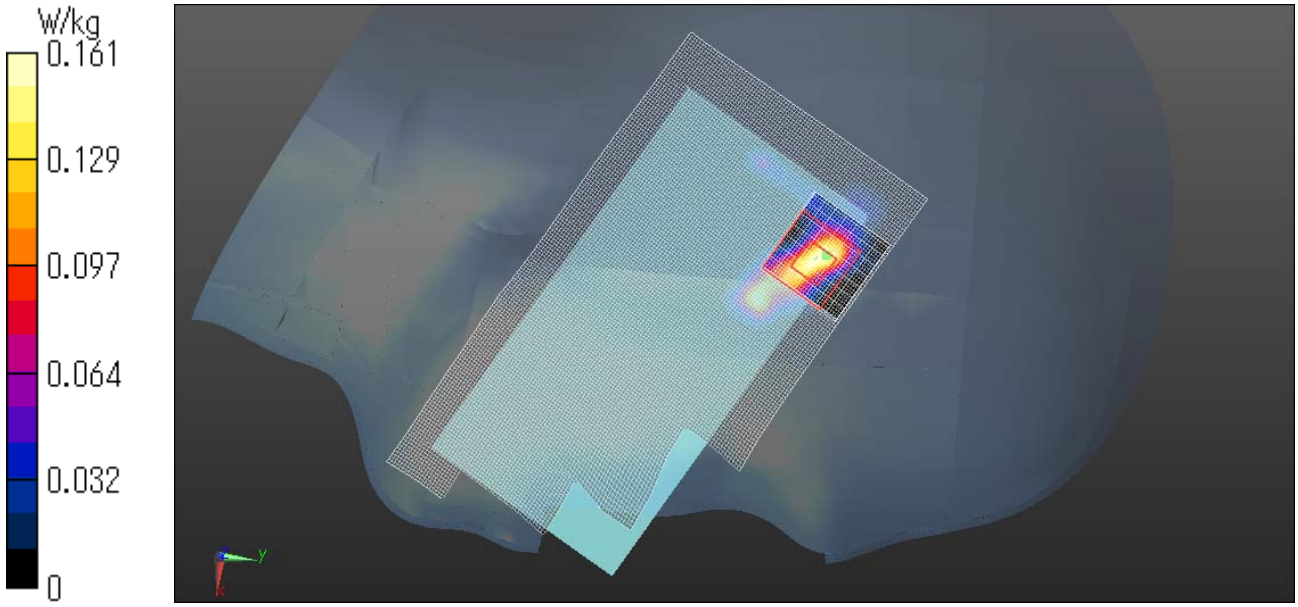
4. Measurement data Head 5.2GHz

WLAN 5.2GHz_11a_6Mbps_5200MHz_Left cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.503 S/m; ε_r = 35.494; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(5.35, 5.35, 5.35); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.180 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.468 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.312 W/kg
SAR(1 g) = 0.066 W/kg; SAR(10 g) = 0.017 W/kg
Maximum value of SAR (measured) = 0.161 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

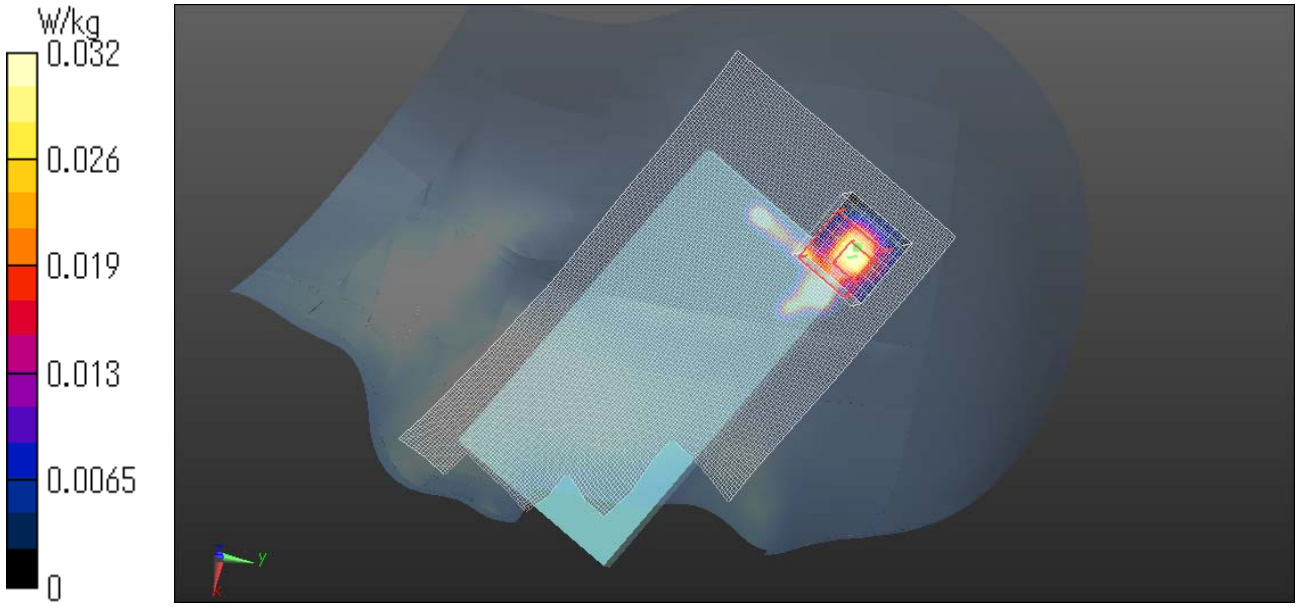


WLAN 5.2GHz_11a_6Mbps_5200MHz_Left tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.503 S/m; ε_r = 35.494; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(5.35, 5.35, 5.35); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.101 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.858 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.00446 W/kg
Maximum value of SAR (measured) = 0.0325 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

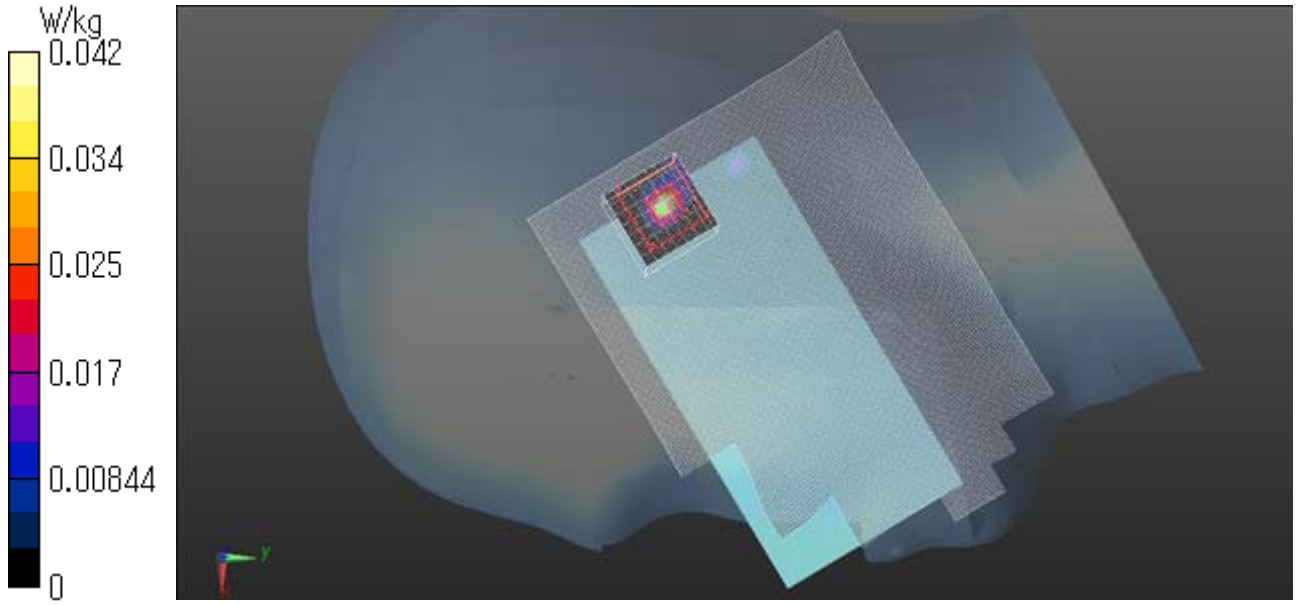


WLAN 5.2GHz_11a_6Mbps_5200MHz_Right cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.503 S/m; ε_r = 35.494; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(5.35, 5.35, 5.35); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0377 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.369 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.286 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.00238 W/kg
Maximum value of SAR (measured) = 0.0422 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

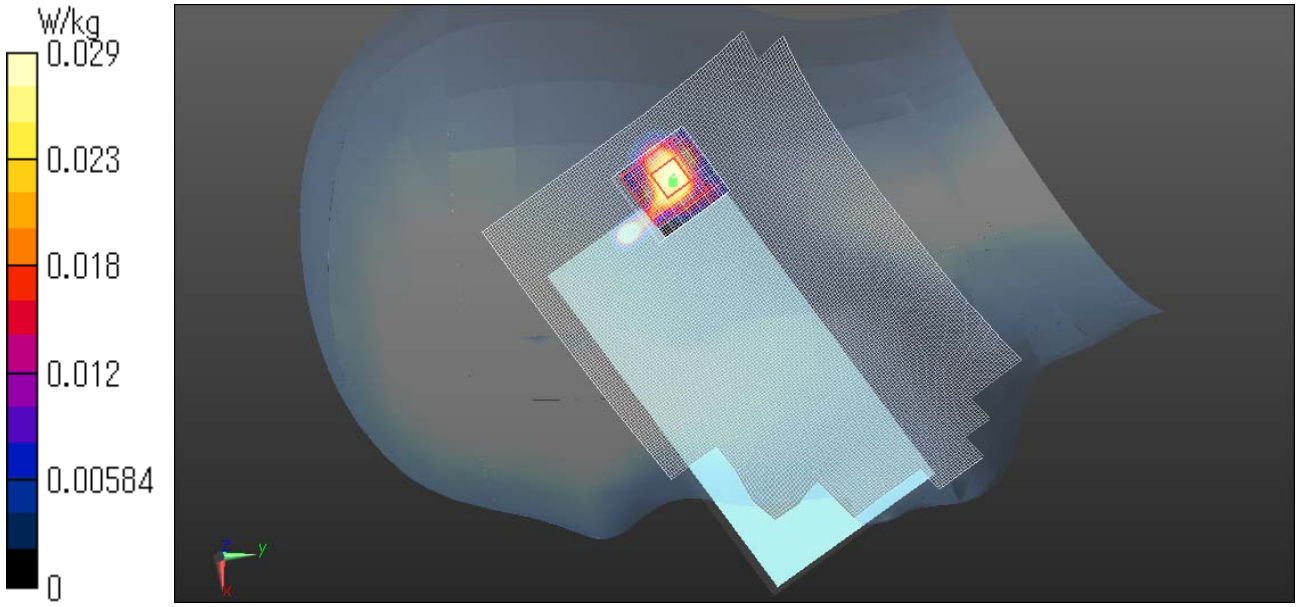


WLAN 5.2GHz_11a_6Mbps_5200MHz_Right tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.503 S/m; ε_r = 35.494; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(5.35, 5.35, 5.35); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0720 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.003 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00463 W/kg
Maximum value of SAR (measured) = 0.0292 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



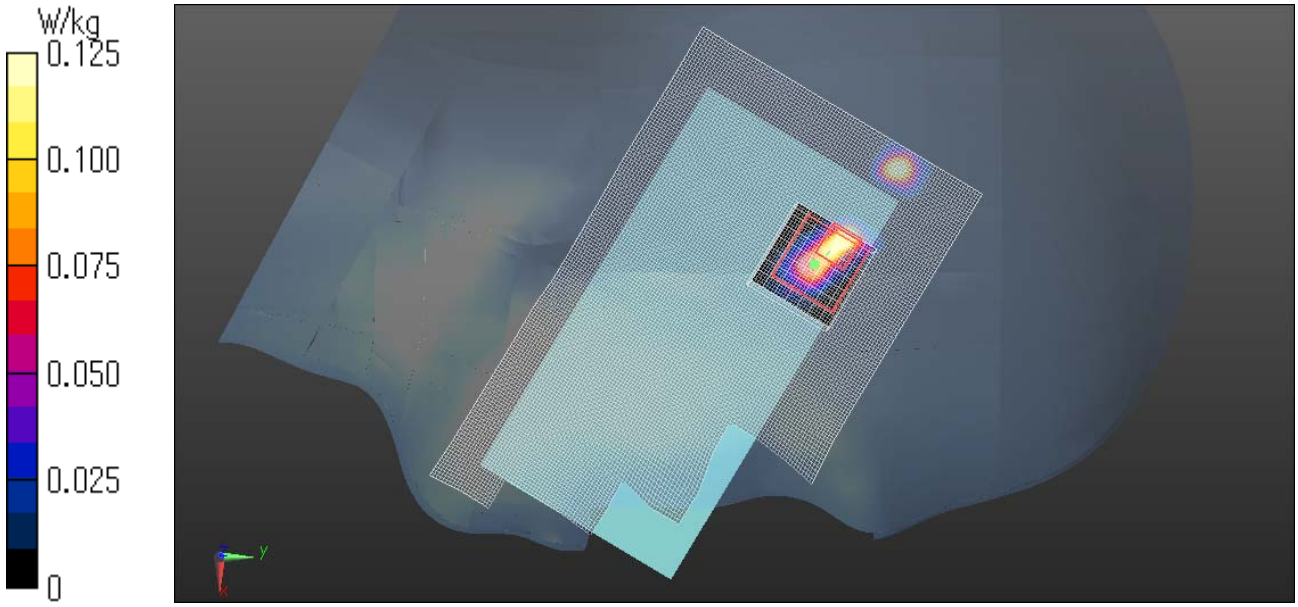
5. Measurement data Head 5.3GHz

WLAN 5.3GHz_11a_6Mbps_5320MHz_Left cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.813 S/m; ε_r = 35.642; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.94, 4.94, 4.94); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.222 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.109 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.050 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.125 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

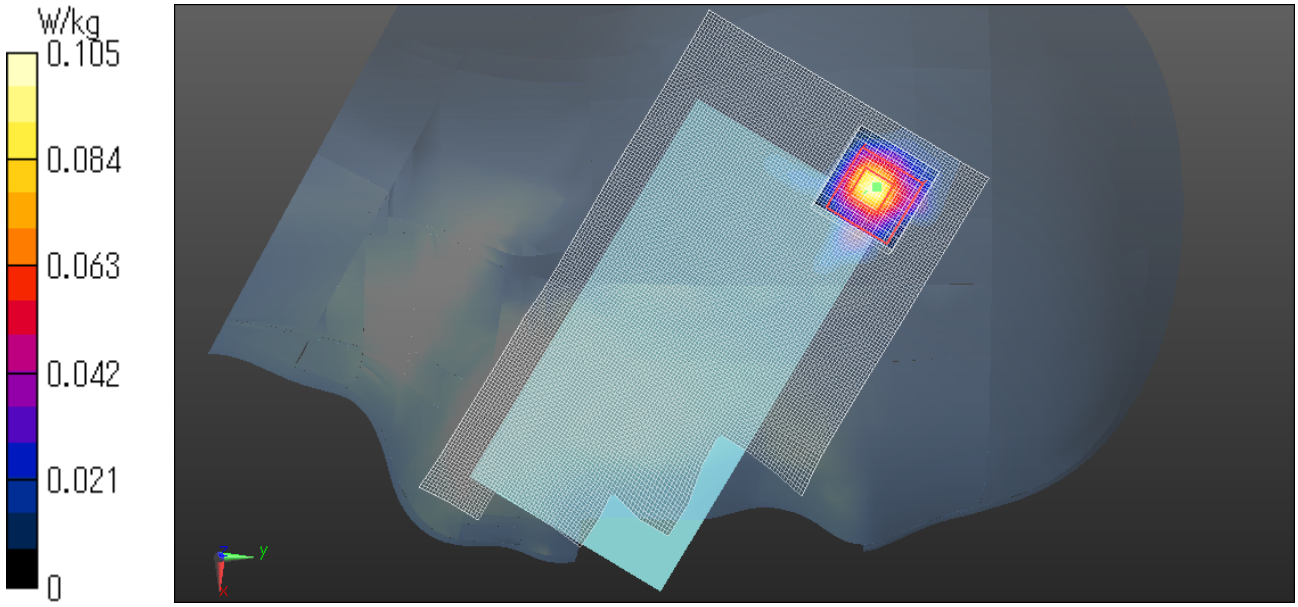


WLAN 5.3GHz_11a_6Mbps_5320MHz_Left tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.813 S/m; ε_r = 35.642; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.94, 4.94, 4.94); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.103 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.963 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.105 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

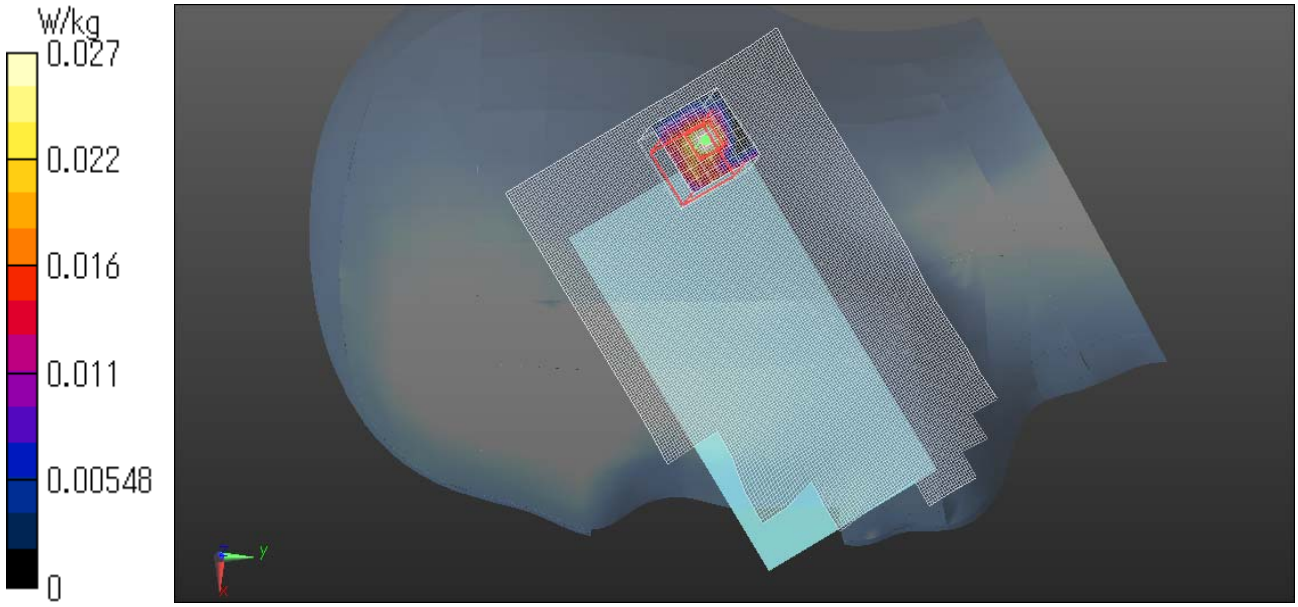


WLAN 5.3GHz_11a_6Mbps_5320MHz_Right cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.813 S/m; ε_r = 35.642; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.94, 4.94, 4.94); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0187 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.152 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00393 W/kg
Maximum value of SAR (measured) = 0.0274 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

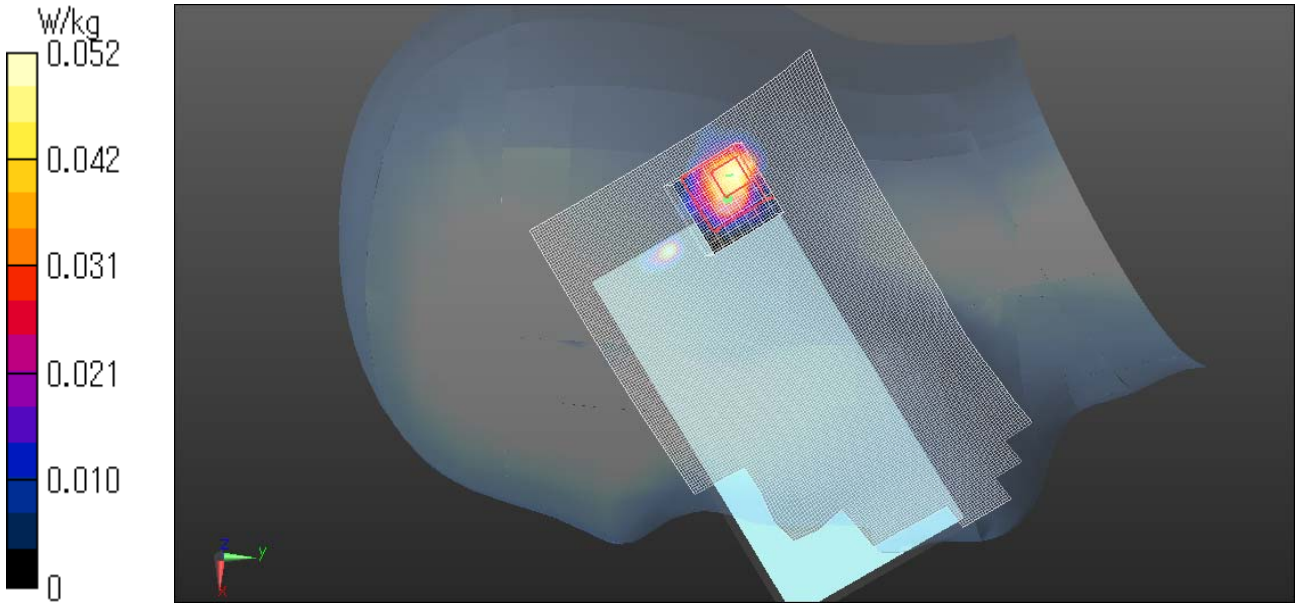


WLAN 5.3GHz_11a_6Mbps_5320MHz_Right tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.813 S/m; ε_r = 35.642; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.94, 4.94, 4.94); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0899 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.761 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.00657 W/kg
Maximum value of SAR (measured) = 0.0524 W/kg

Date: 2015/01/27
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



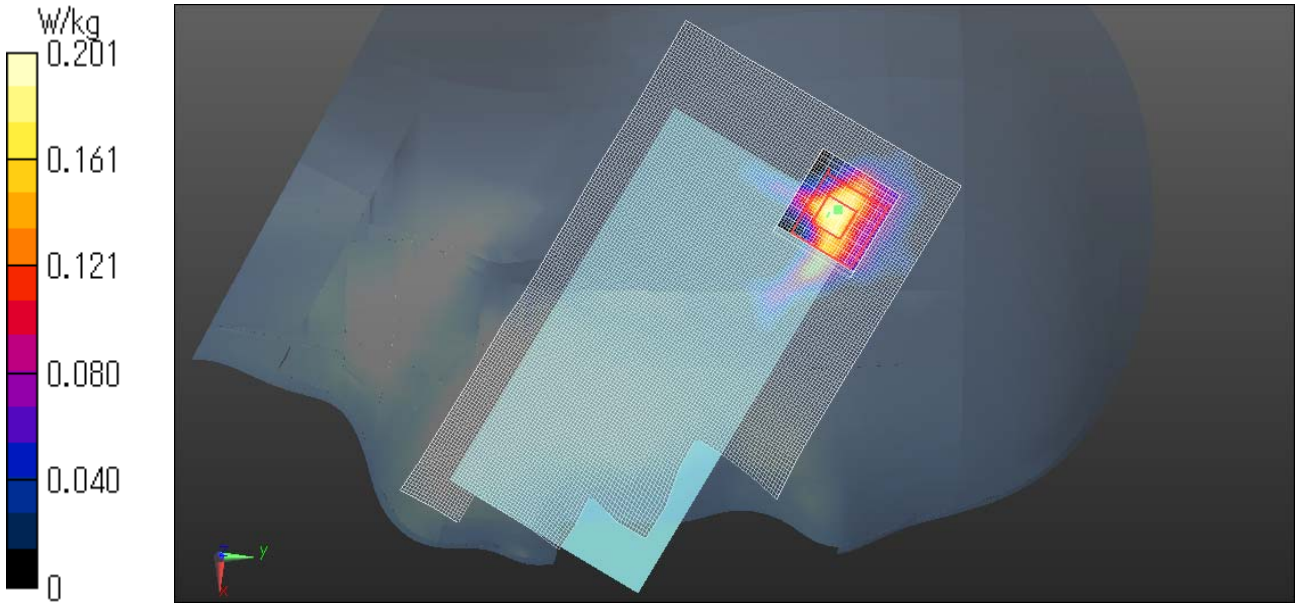
6. Measurement data Head 5.6GHz

WLAN 5.6GHz_11a_6Mbps_5500MHz_Left cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.895 S/m; ε_r = 35.205; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.76, 4.76, 4.76); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.235 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.941 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.370 W/kg
SAR(1 g) = 0.088 W/kg; SAR(10 g) = 0.028 W/kg
Maximum value of SAR (measured) = 0.201 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

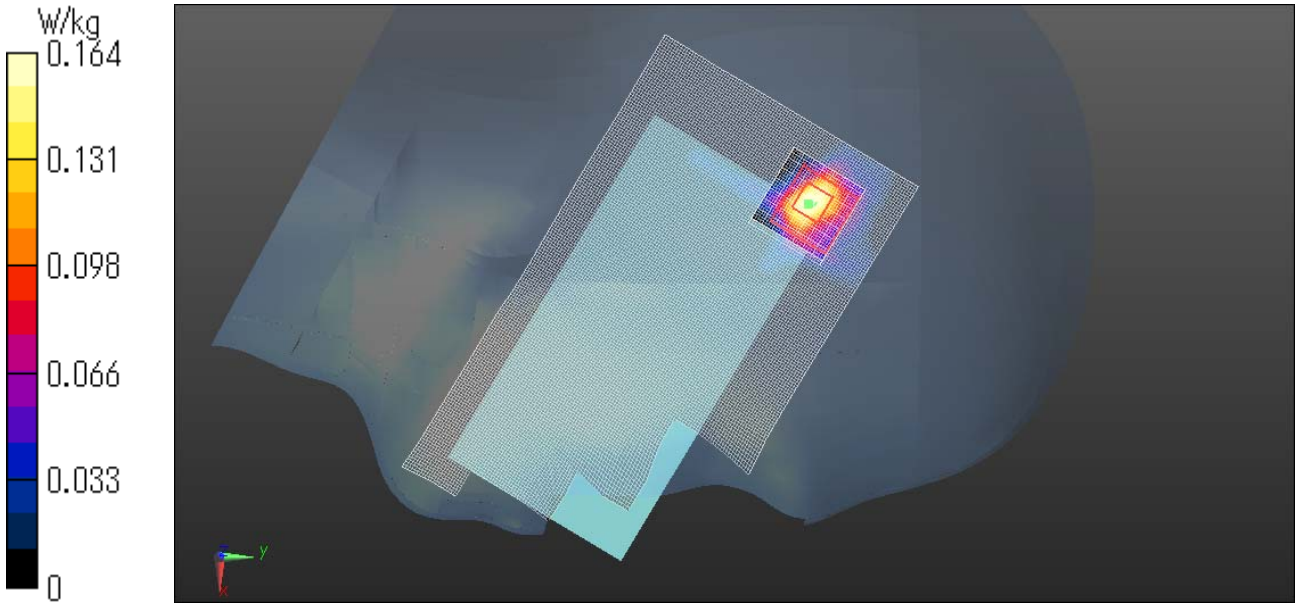


WLAN 5.6GHz_11a_6Mbps_5500MHz_Left tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.895 S/m; ε_r = 35.205; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.76, 4.76, 4.76); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.203 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.206 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.359 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.024 W/kg
Maximum value of SAR (measured) = 0.164 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

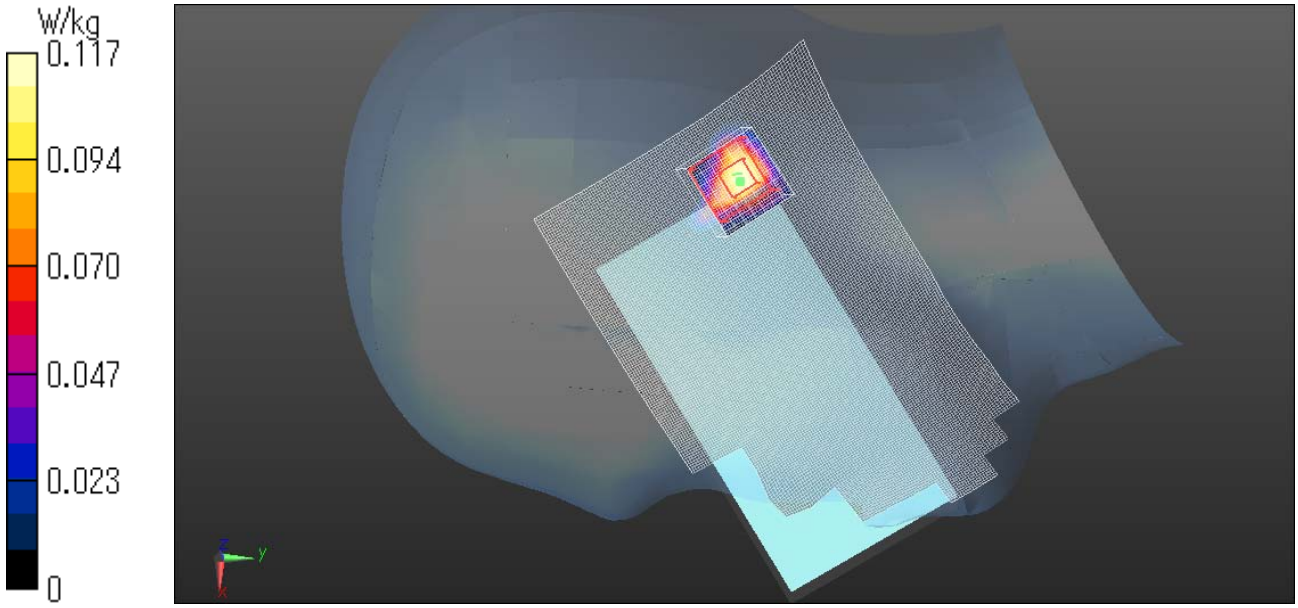


WLAN 5.6GHz_11a_6Mbps_5500MHz_Right cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.895 S/m; ε_r = 35.205; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.76, 4.76, 4.76); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.254 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.168 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.212 W/kg
SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.018 W/kg
Maximum value of SAR (measured) = 0.117 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

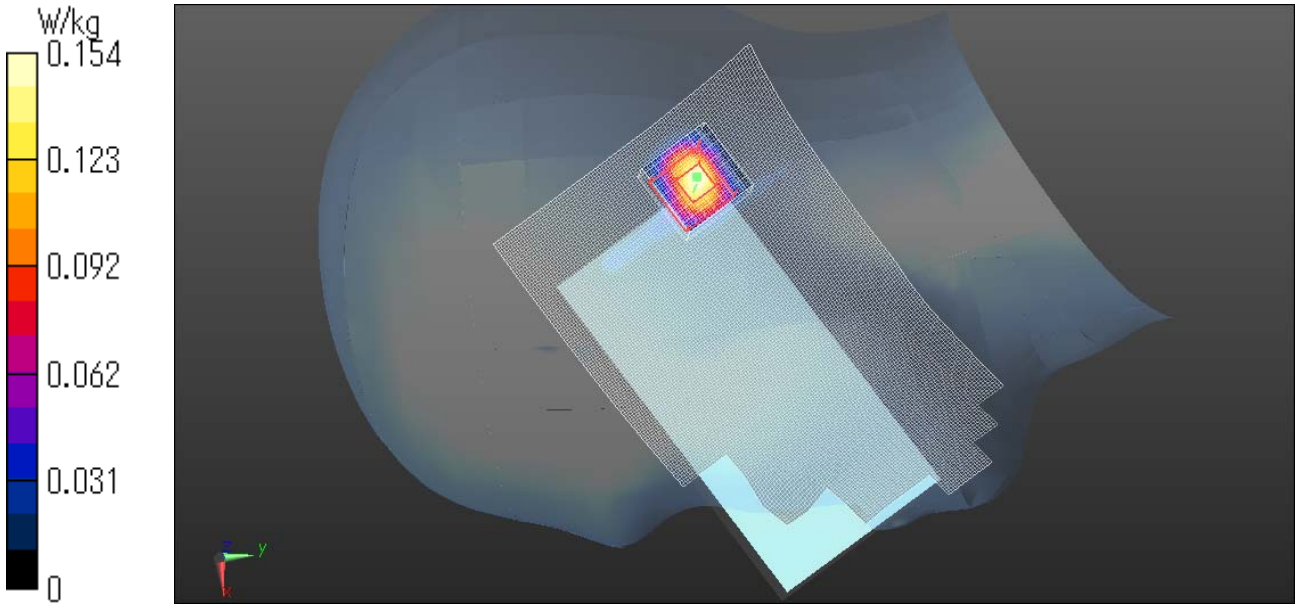


WLAN 5.6GHz_11a_6Mbps_5500MHz_Right tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.895 S/m; ε_r = 35.205; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.76, 4.76, 4.76); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.167 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.846 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.284 W/kg
SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.154 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



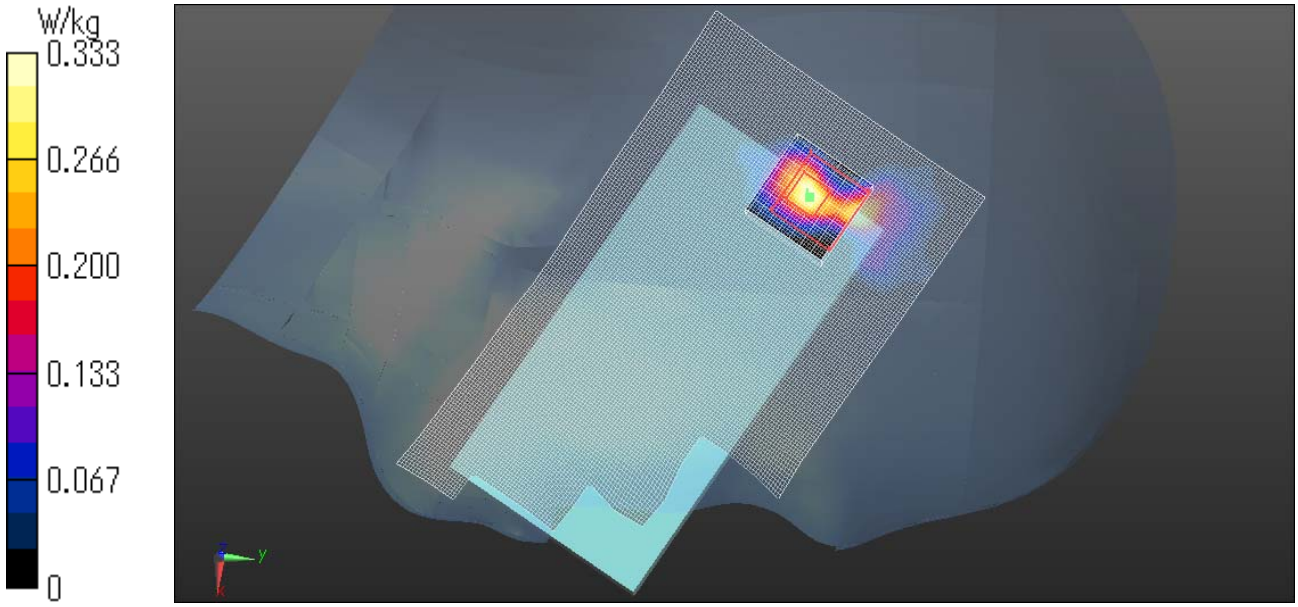
7. Measurement data Head 5.8GHz

WLAN 5.8GHz_11a_6Mbps_5825MHz_Left cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.258 S/m; ε_r = 34.692; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.56, 4.56, 4.56); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.364 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 8.268 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.639 W/kg
SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.039 W/kg
Maximum value of SAR (measured) = 0.333 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

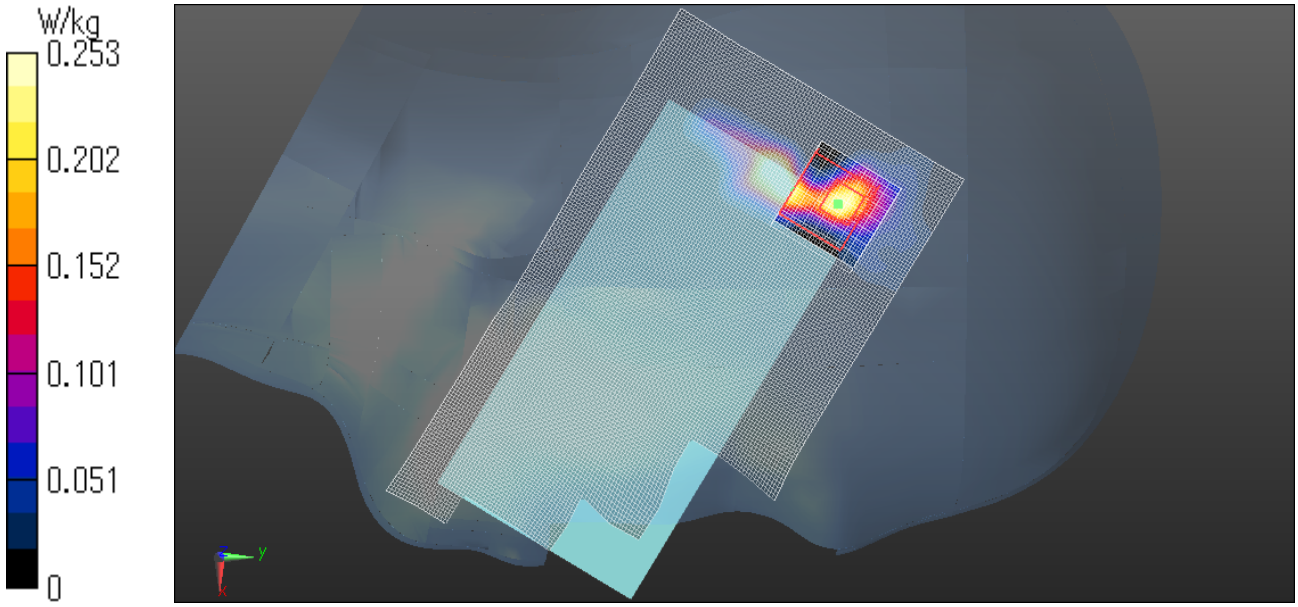


WLAN 5.8GHz_11a_6Mbps_5825MHz_Left tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.258 S/m; ε_r = 34.692; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.56, 4.56, 4.56); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.287 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.156 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.492 W/kg
SAR(1 g) = 0.104 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.253 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

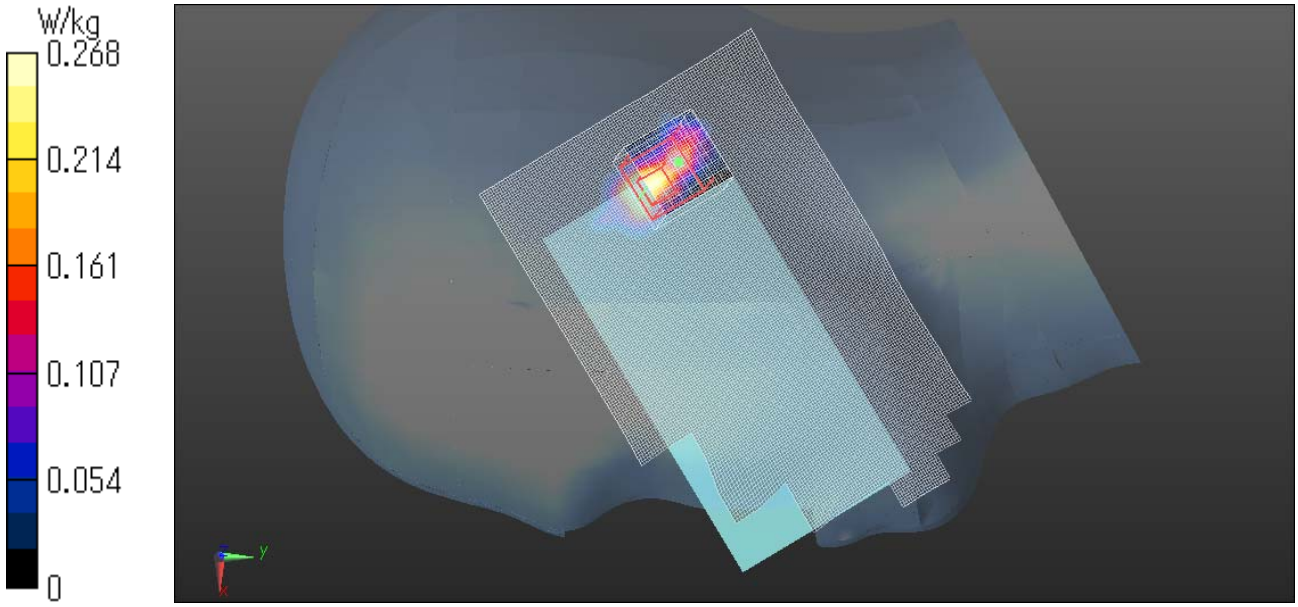


WLAN 5.8GHz_11a_6Mbps_5825MHz_Right cheek
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.258 S/m; ε_r = 34.692; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.56, 4.56, 4.56); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.343 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.282 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.028 W/kg
Maximum value of SAR (measured) = 0.268 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

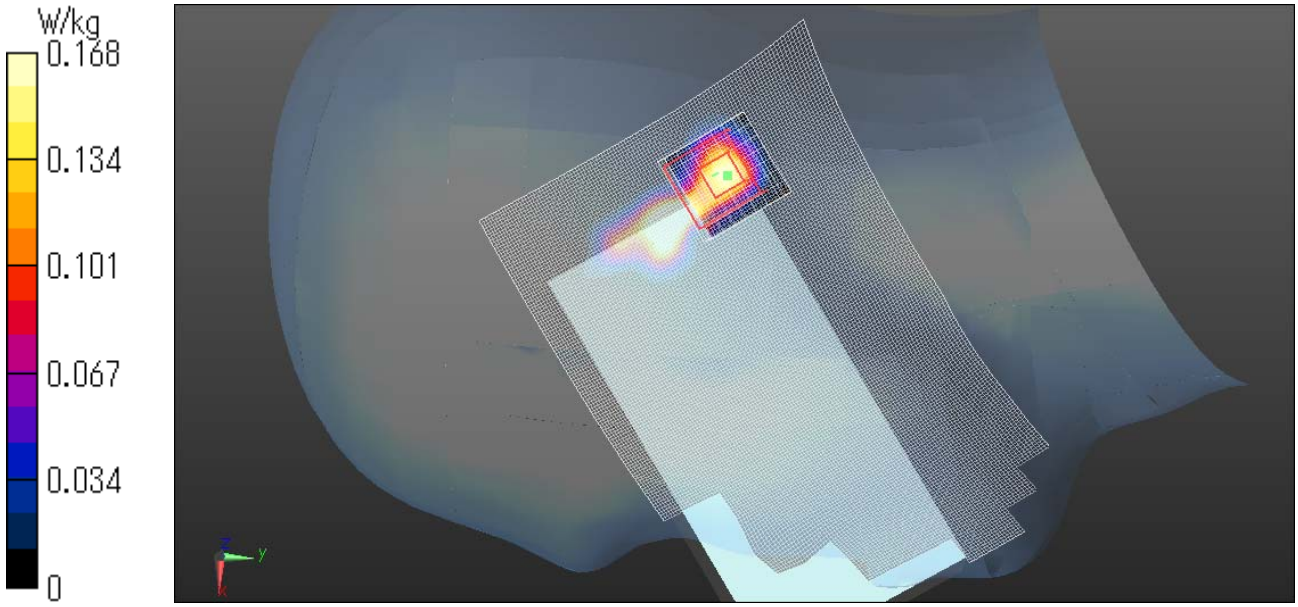


WLAN 5.8GHz_11a_6Mbps_5825MHz_Right tilt
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.258 S/m; ε_r = 34.692; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.56, 4.56, 4.56); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (111x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.273 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.089 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.168 W/kg

Date: 2015/01/28
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



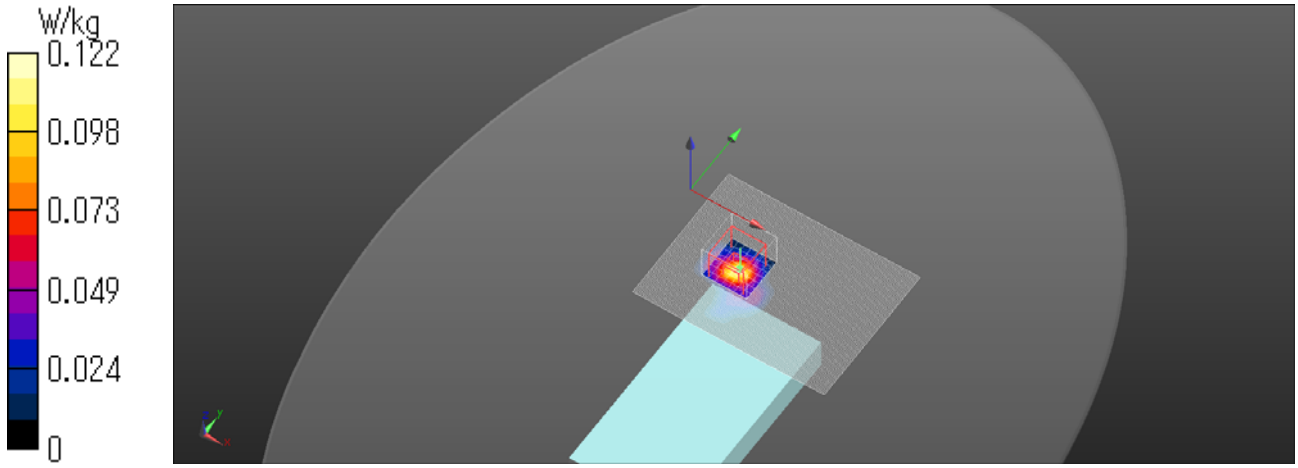
8. Measurement data Body 5.2GHz

WLAN 11a 6Mbps Front 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.125 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.981 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.212 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.016 W/kg
Maximum value of SAR (measured) = 0.122 W/kg

Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

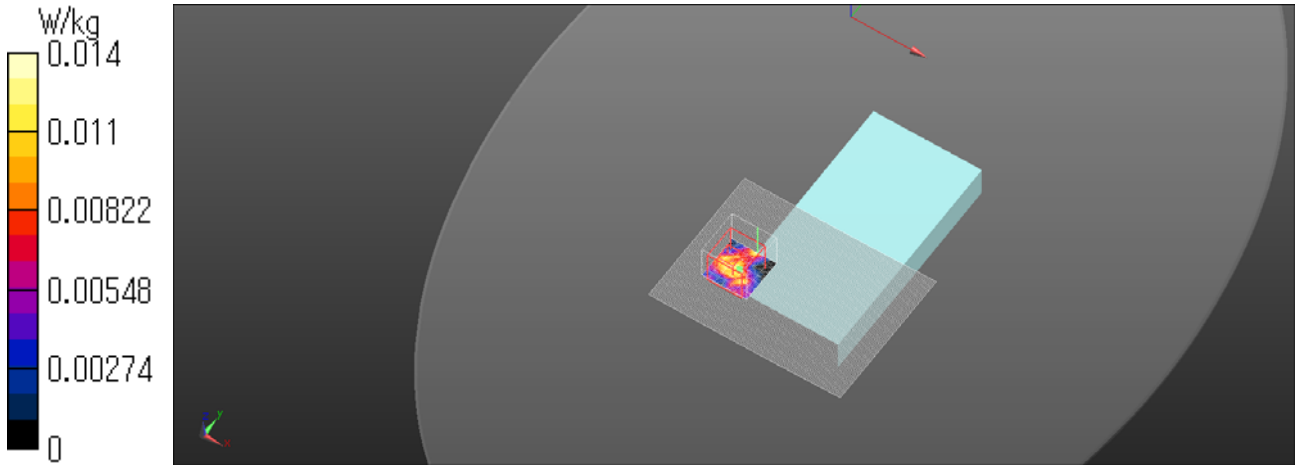


WLAN 11a 6Mbps Rear 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.00948 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.396 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.00699 W/kg; SAR(10 g) = 0.00174 W/kg
Maximum value of SAR (measured) = 0.0137 W/kg

Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



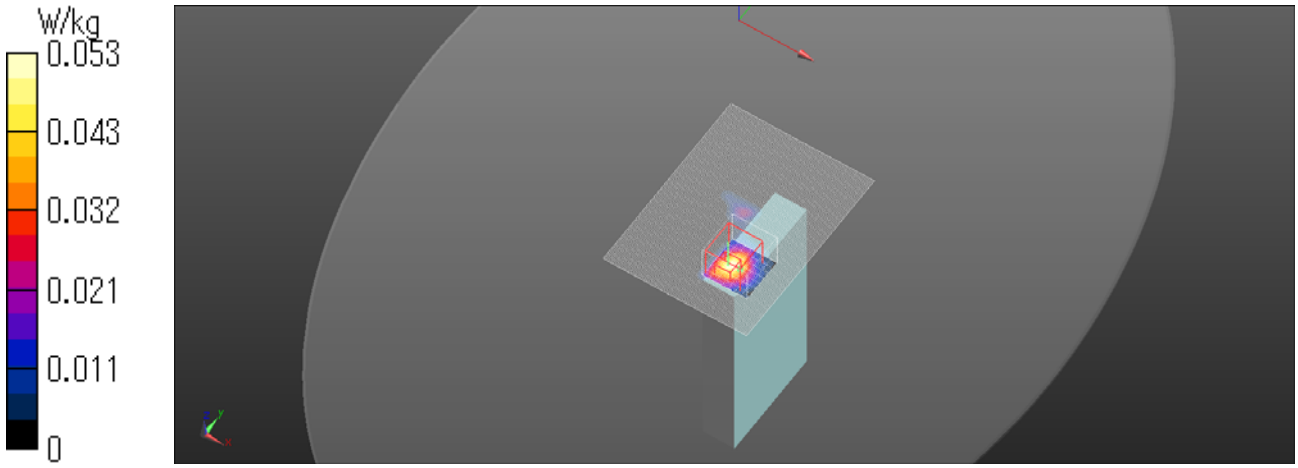
WLAN 11a 6Mbps Top 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0971 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.079 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.291 W/kg
SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.00806 W/kg

Maximum value of SAR (measured) = 0.0534 W/kg

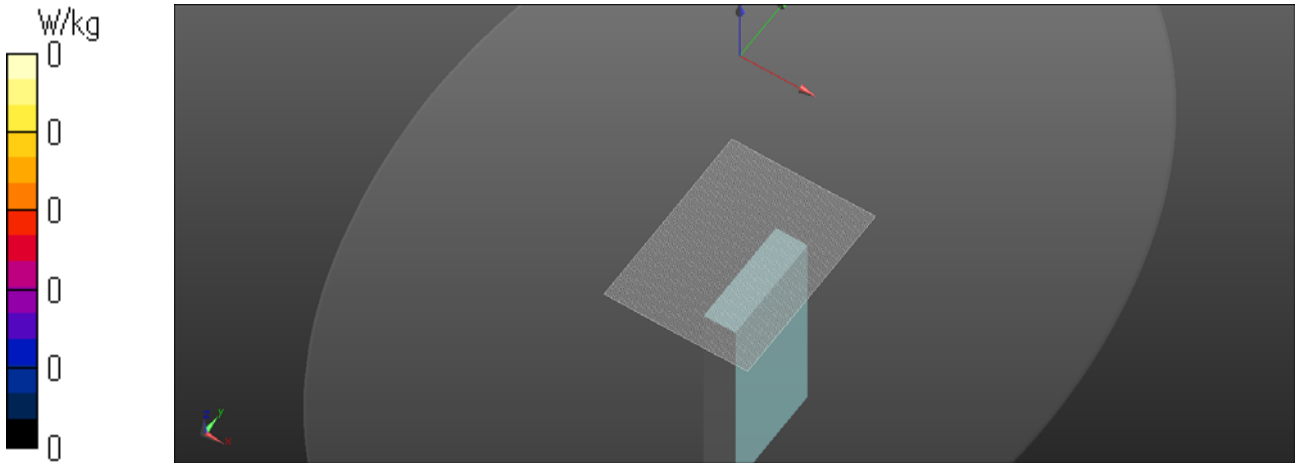
Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Bottom 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

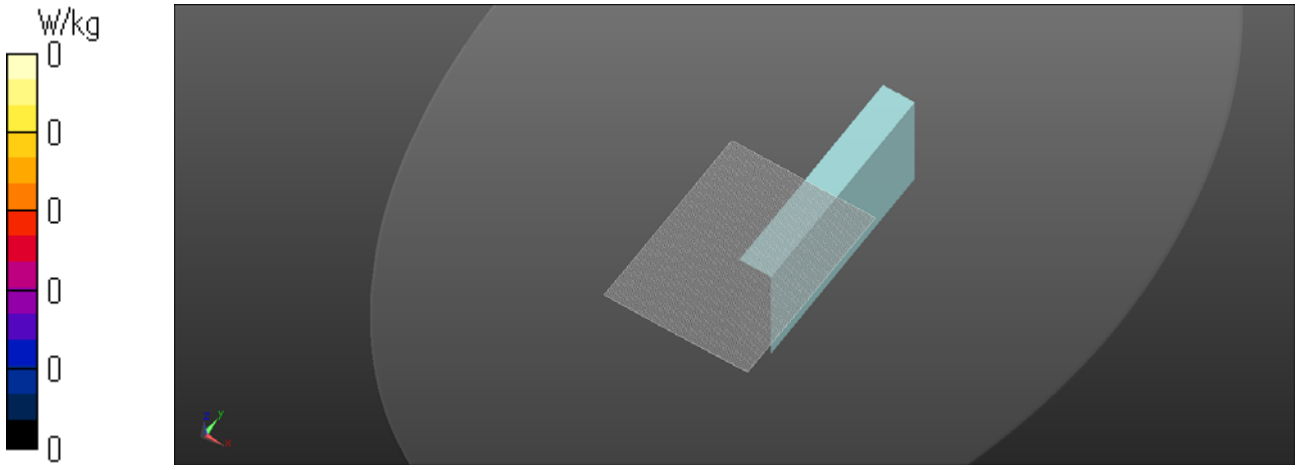
Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Right 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



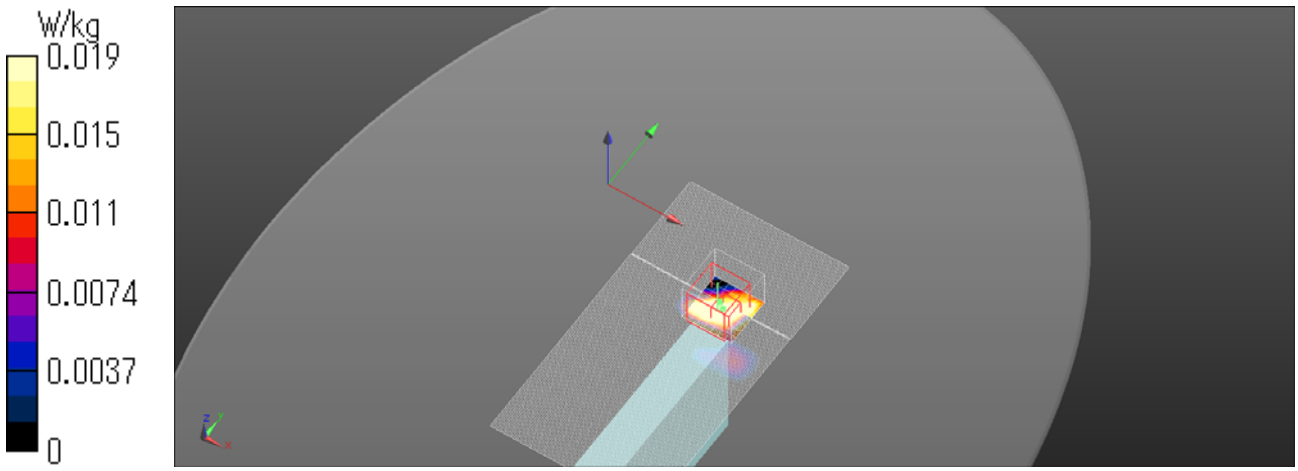
WLAN 11a 6Mbps Left 10mm 5200MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.433 S/m; ε_r = 46.921; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.42, 4.42, 4.42); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0323 W/kg

Area Scan 2 (91x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0185 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.324 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.270 W/kg
SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.00579 W/kg
Maximum value of SAR (measured) = 0.0280 W/kg

Date: 2015/01/21
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



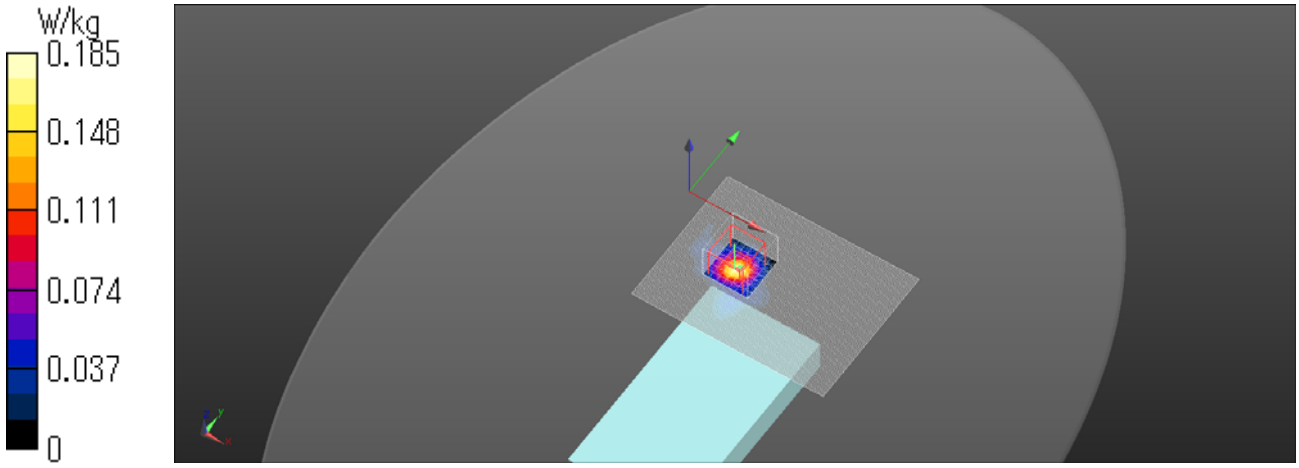
9. Measurement data Body 5.3GHz

WLAN 11a 6Mbps Front 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.190 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.277 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.317 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.022 W/kg
Maximum value of SAR (measured) = 0.185 W/kg

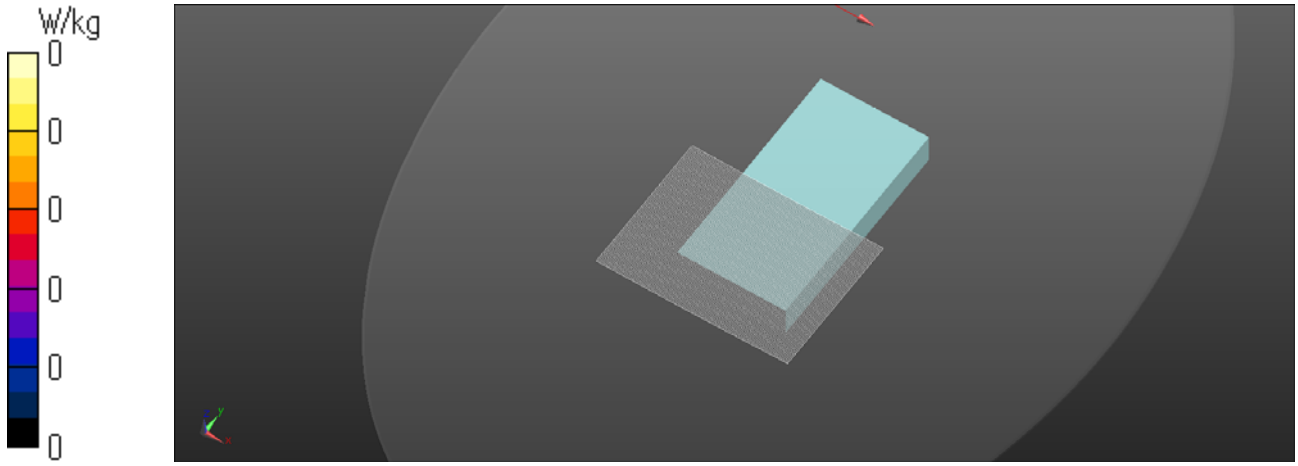
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Rear 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



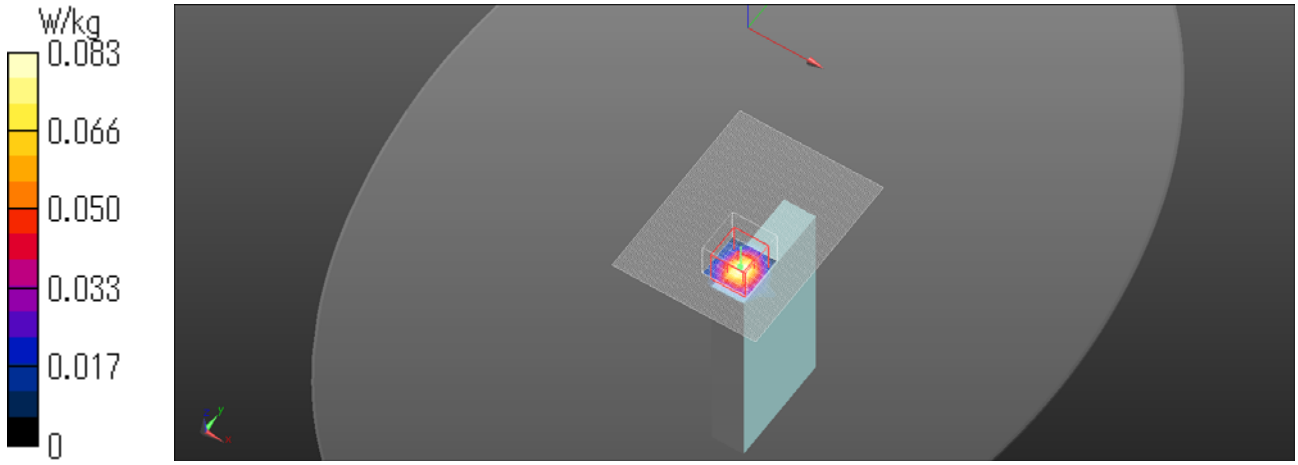
WLAN 11a 6Mbps Top 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.124 W/kg

Zoom Scan (8x8x7)/Cube : Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.183 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.040 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.0828 W/kg

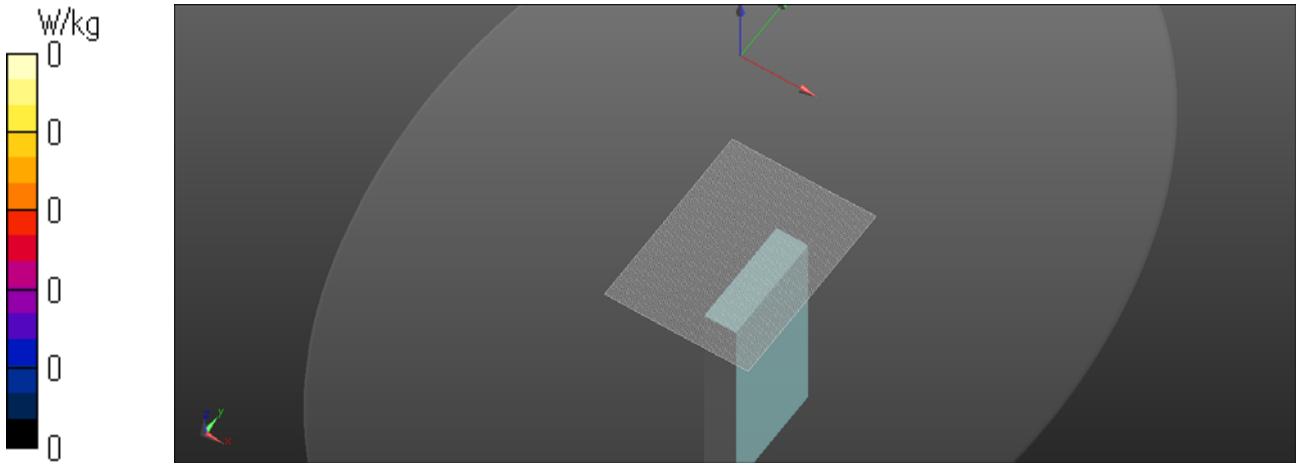
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Bottom 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

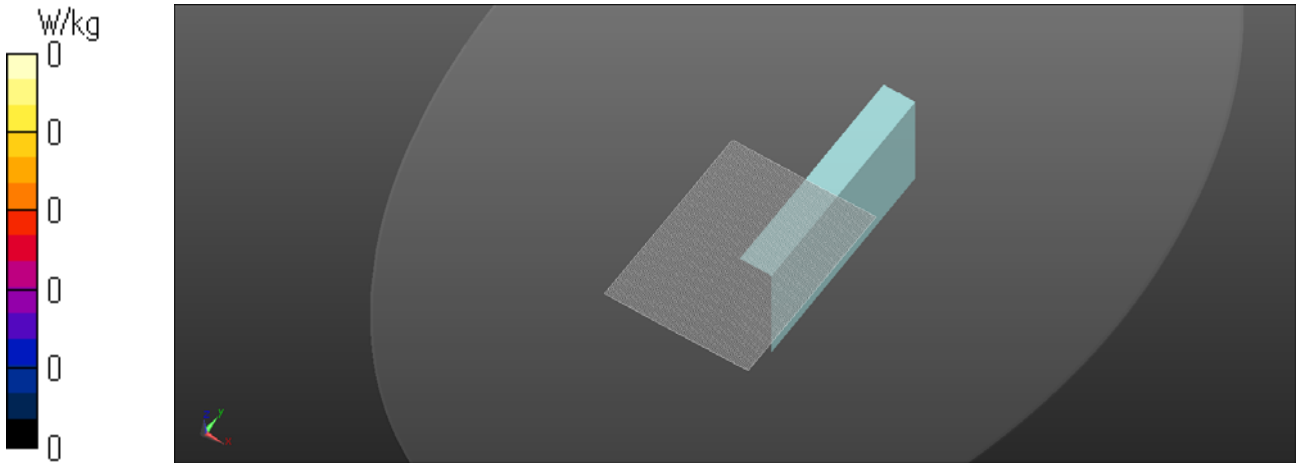
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Right 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

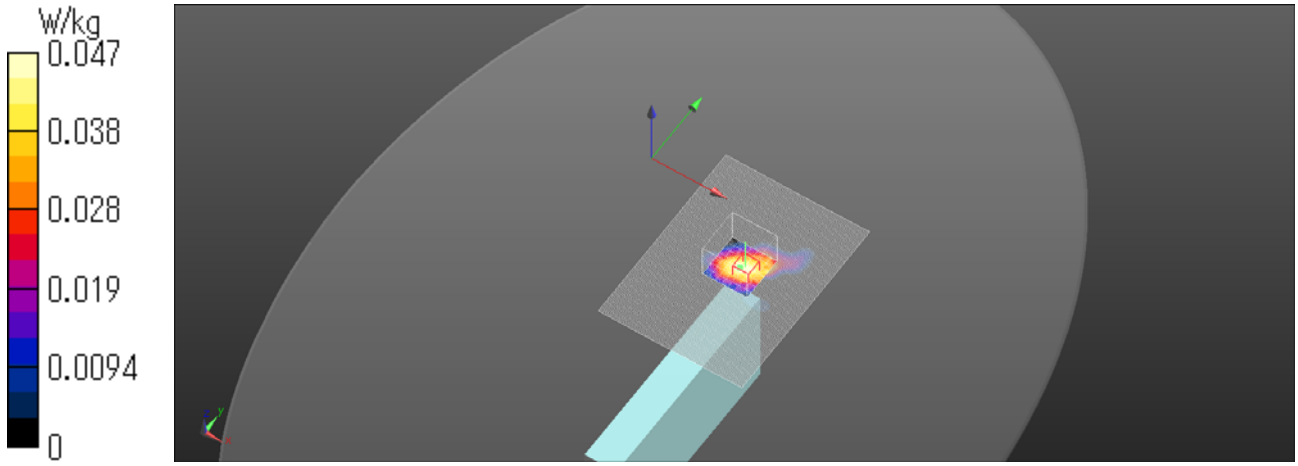


WLAN 11a 6Mbps Left 10mm 5320MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5320 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.32 S/m; ε_r = 47.454; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0499 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.294 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.315 W/kg
SAR(1 g) = 0.024 W/kg
Maximum value of SAR (measured) = 0.0470 W/kg

Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

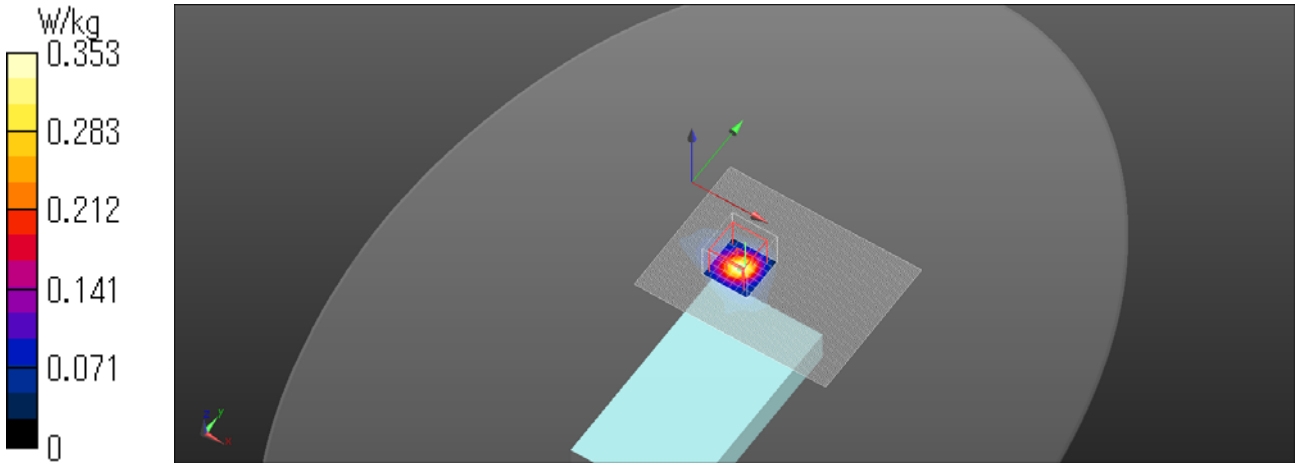


10. Measurement data Body 5.6GHz

WLAN 11a 6Mbps Front 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.89, 3.89, 3.89); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.374 W/kg

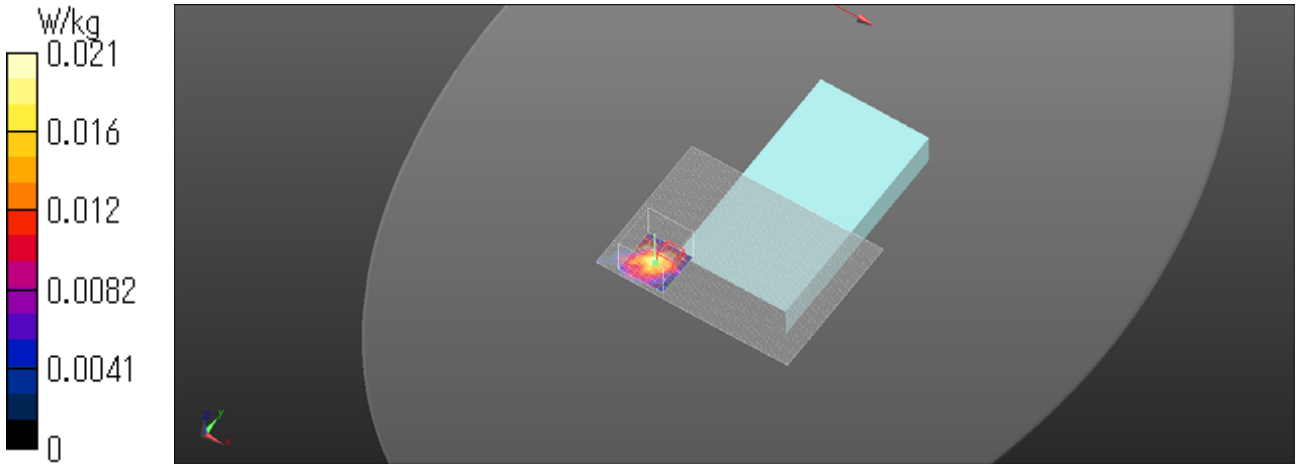
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 9.040 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.674 W/kg
SAR(1 g) = 0.174 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.353 W/kg
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Rear 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.89, 3.89, 3.89); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0205 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.790 V/m; Power Drift = -0.03
Peak SAR (extrapolated) = 0.101 W/kg
SAR(1 g) = 0.00773 W/kg
Maximum value of SAR (measured) = 0.0202 W/kg
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

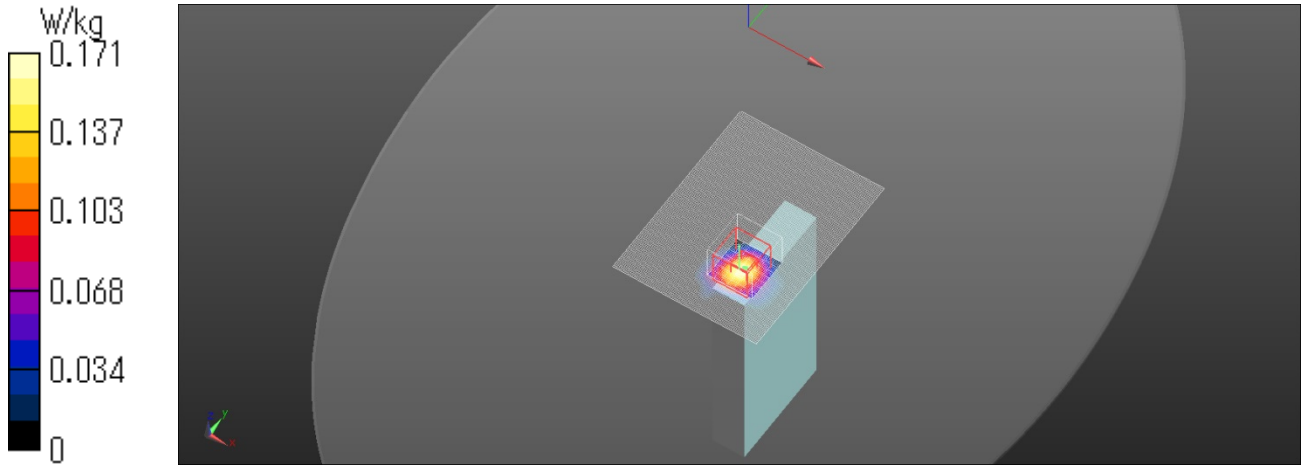


WLAN 11a 6Mbps Top 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.89, 3.89, 3.89); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.182 W/kg

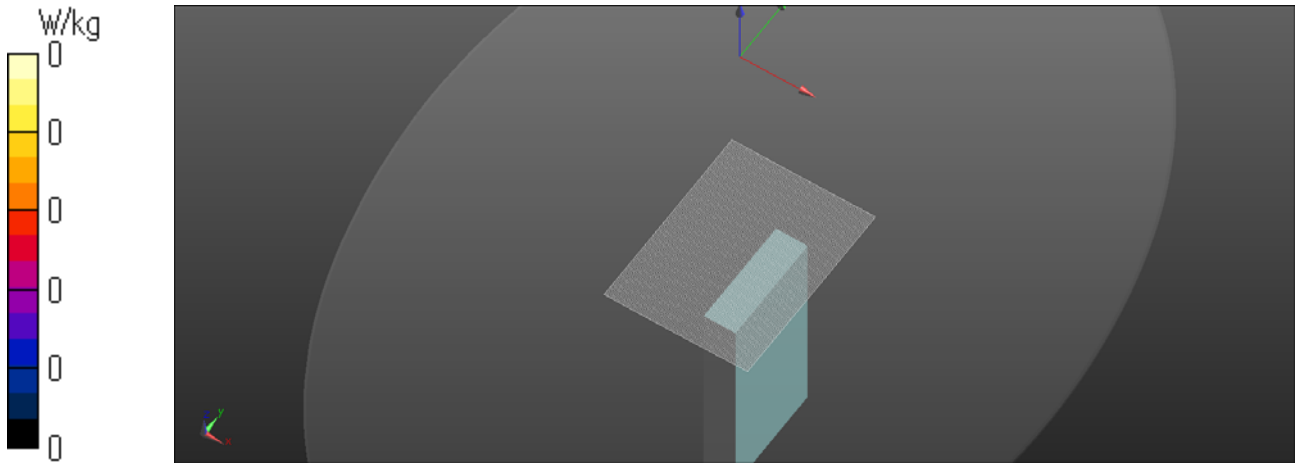
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.077 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.025 W/kg

Maximum value of SAR (measured) = 0.171 W/kg
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



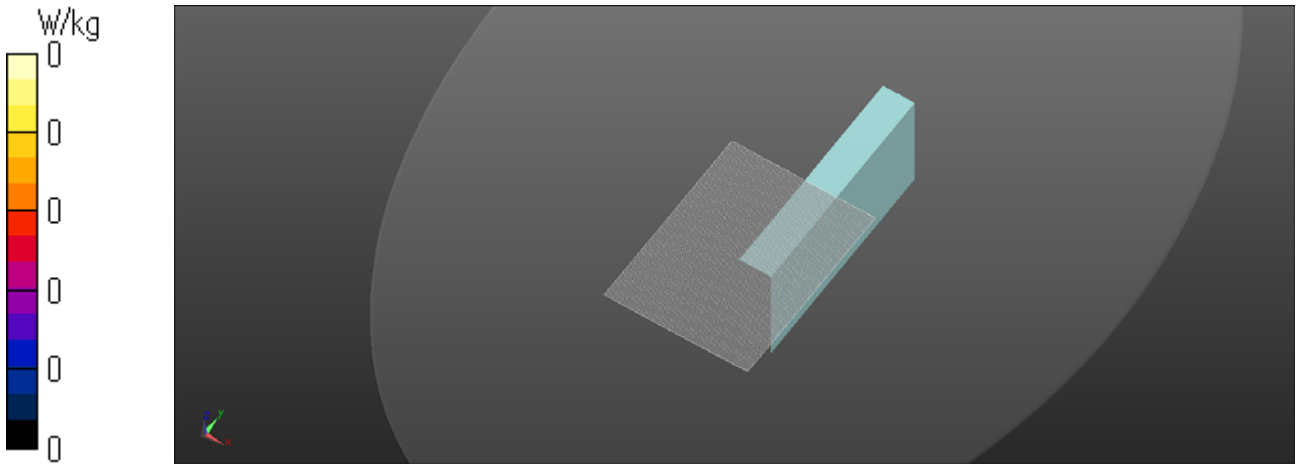
WLAN 11a 6Mbps Bottom 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.89, 3.89, 3.89); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



WLAN 11a 6Mbps Right 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.89, 3.89, 3.89); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg
Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

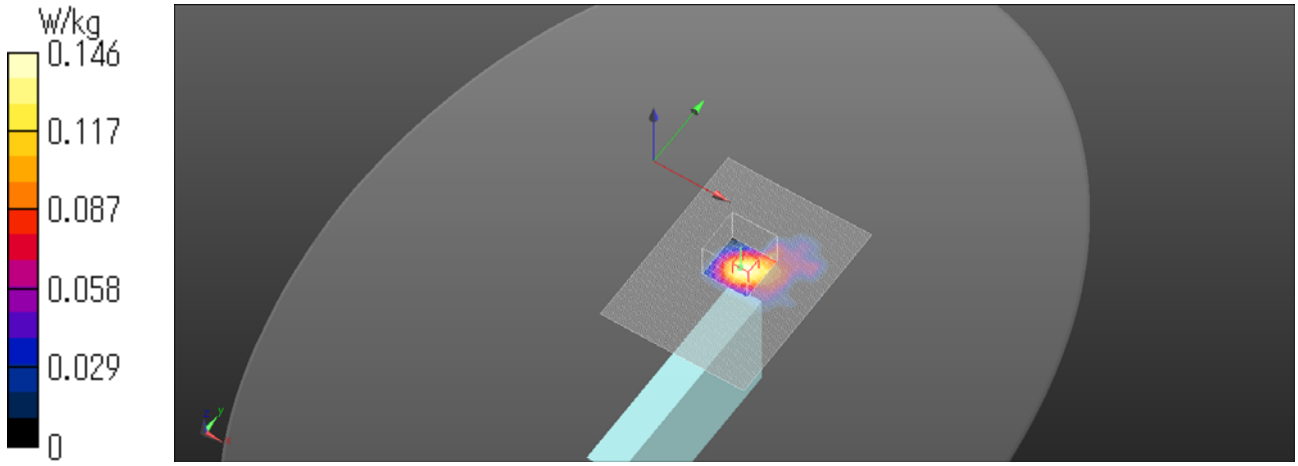


WLAN 11a 6Mbps Left 10mm 5500MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.632 S/m; ε_r = 47.228; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(4.15, 4.15, 4.15); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.188 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.820 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.256 W/kg
SAR(1 g) = 0.076 W/kg
Maximum value of SAR (measured) = 0.146 W/kg

Date: 2015/01/22
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



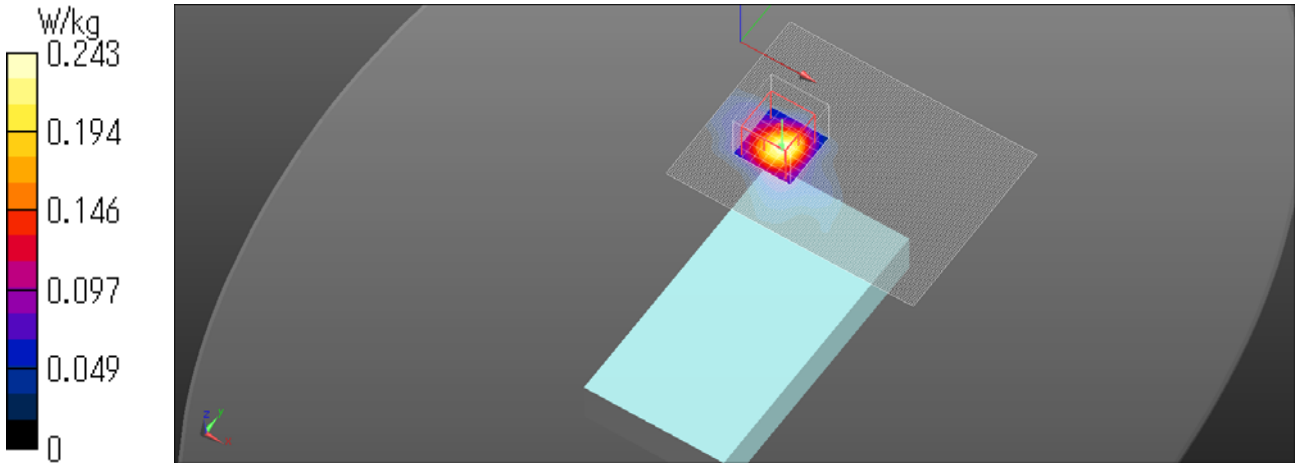
11. Measurement data Body 5.8GHz

WLAN 11a 6Mbps Front 10mm 5825MHz
Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.240 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.080 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.467 W/kg
SAR(1 g) = 0.117 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.243 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



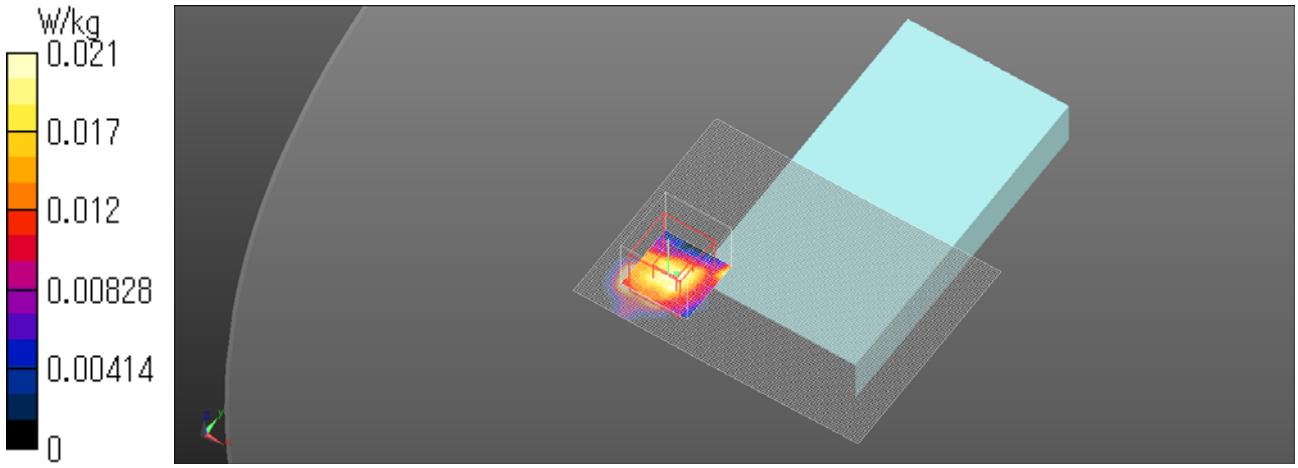
WLAN 11a 6Mbps Rear 10mm 5825MHz

Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (121x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0589 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.096 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.00857 W/kg; SAR(10 g) = 0.00336 W/kg
Maximum value of SAR (measured) = 0.0207 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



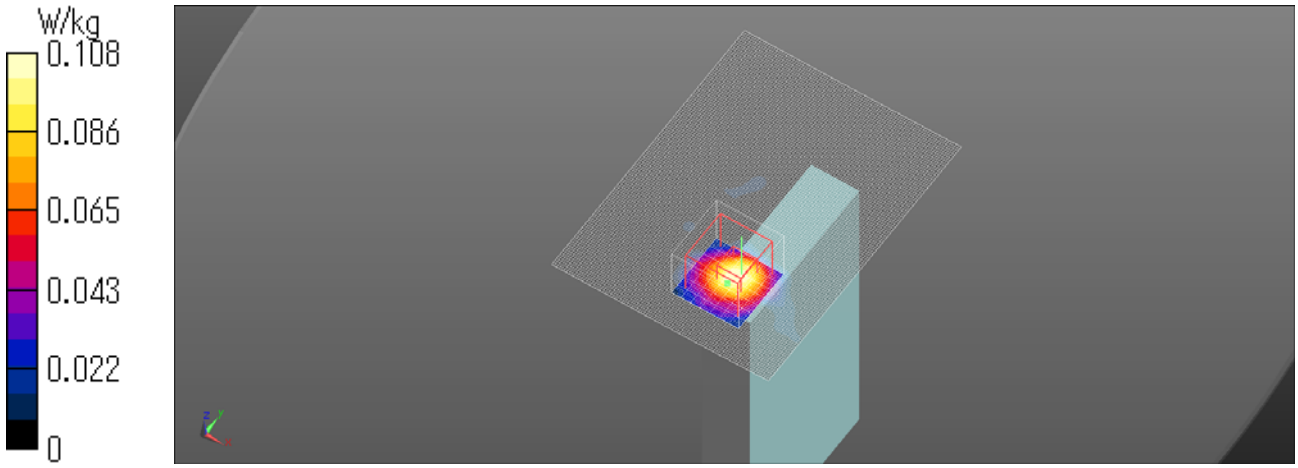
WLAN 11a 6Mbps Top 10mm 5825MHz

Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.167 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.561 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.366 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.017 W/kg
Maximum value of SAR (measured) = 0.108 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

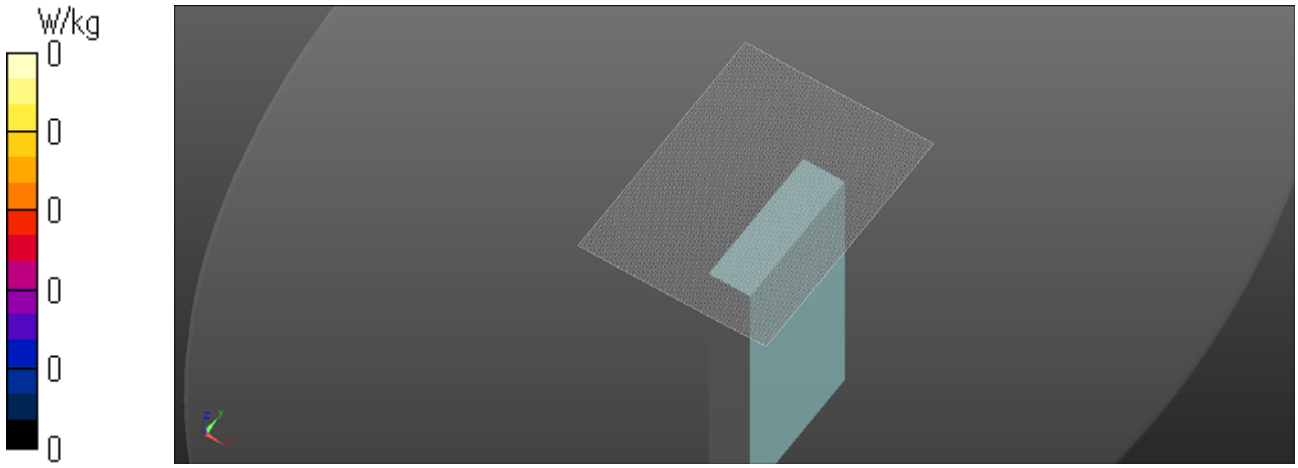


WLAN 11a 6Mbps Bottom 10mm 5825MHz

Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

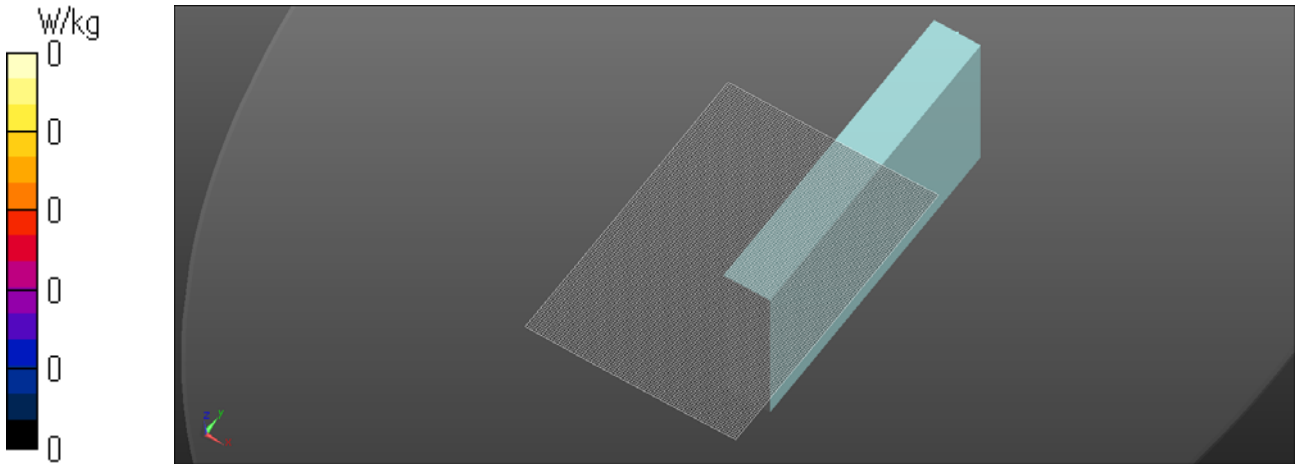


WLAN 11a 6Mbps Right 10mm 5825MHz

Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



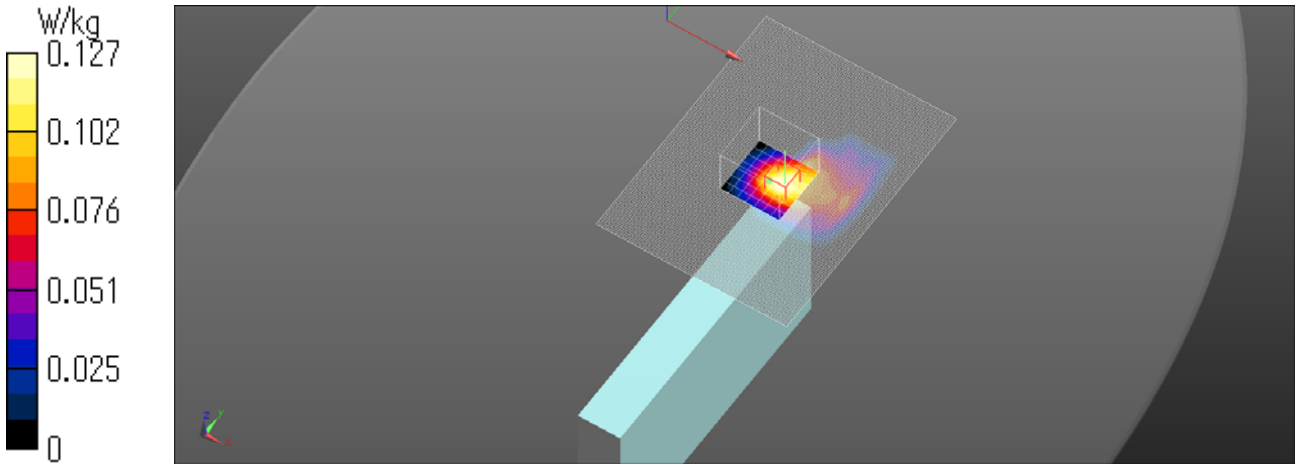
WLAN 11a 6Mbps Left 10mm 5825MHz

Communication System: UID 0, WLAN (0); Communication System Band: 11a; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.916 S/m; ε_r = 46.932; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(3.98, 3.98, 3.98); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: ELI v5.0 TP1207 (30deg probe tilt); Type: QDOVA002AA; Serial: TP:1207
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.239 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.725 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.365 W/kg
SAR(1 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.127 W/kg

Date: 2015/01/23
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



APPENDIX2 : System Check

1. System check result Head 2450MHz

(1) Simulated Tissue Liquid Parameter confirmation

DIELECTRIC PARAMETERS MEASUREMENT RESULTS											
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
29-Jan	24	35	HSL 2450	23.5	2450	εr	39.2	39.2	-0.1	+/-5	*1
						σ [mho/m]	1.80	1.82	1.1	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.

(2) System check result (for IEEE1528)

SYSTEM CHECK							
Date	Frequency [MHz]	SAR 1g [W/kg]		Target Value(1W)	Deviation [%]	Limit [%]	Remark
		Forward Power Measured	Conversion 1W Calculation				
29-Jan	2450.00	13.60	54.40	52.40	3.8	+/-10	*2

*2 The taget value is the parameter defined in IEEE1528

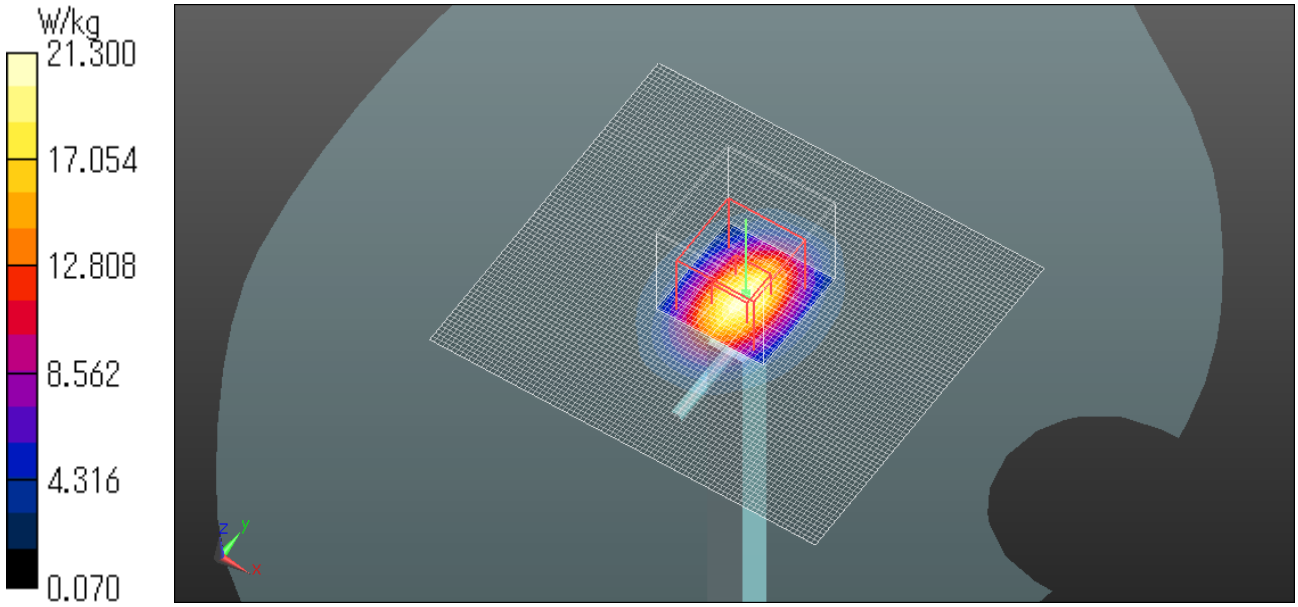
Head 2450MHz System Check DATA / Dipole2450MHz / Forward Conducted Power : 250mW

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.819 S/m; ε_r = 39.16; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.2 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.6 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 30.1 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.1 W/kg
Maximum value of SAR (measured) = 21.3 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.

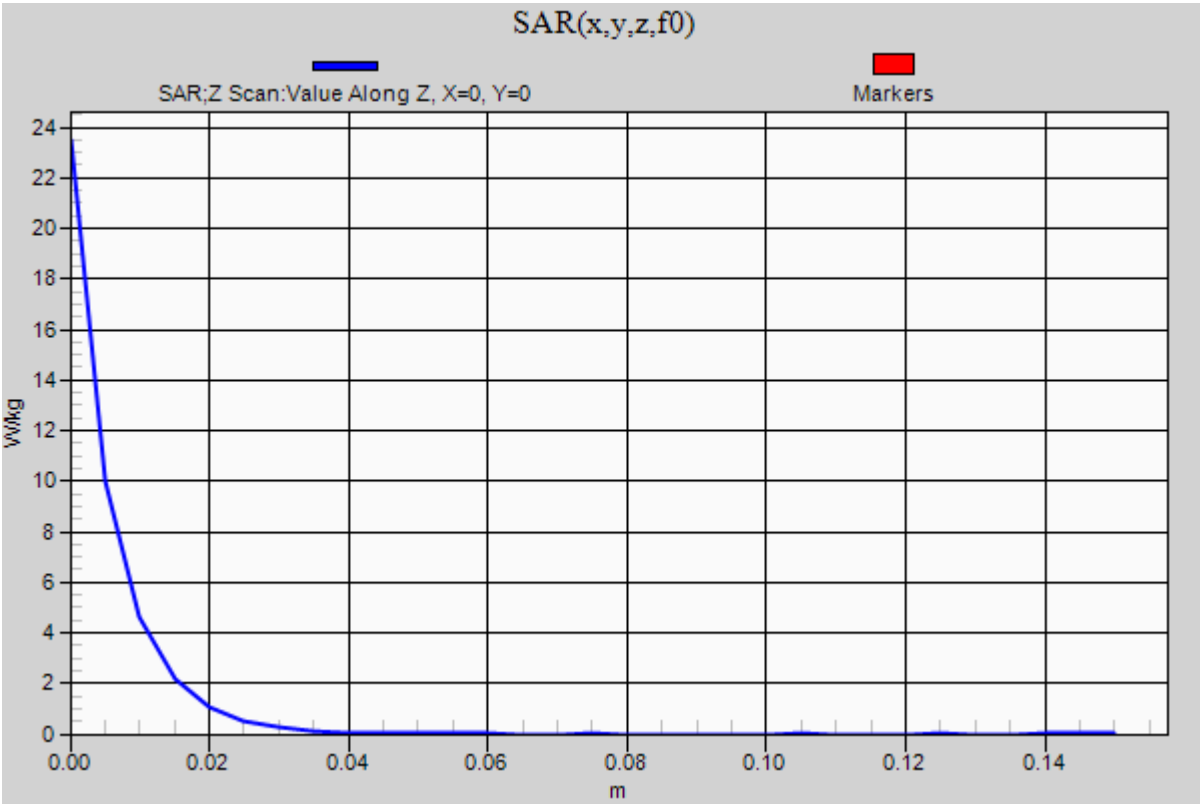


Head 2450MHz System Check DATA / Dipole2450MHz / Forward Conducted Power : 250mW

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.819 S/m; ε_r = 39.16; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration
Probe: EX3DV4 - SN3922; ConvF(7.29, 7.29, 7.29); Calibrated: 2014/06/13;
Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn1372; Calibrated: 2014/06/18
Phantom: SAM Twin TP1762 (30deg probe tilt) with CRP v5.0; Type: QD000P40CD; Serial: TP:1762
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 23.5 W/kg

Date: 2015/01/29
Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



2. System check result Body 2450MHz

(1) Simulated Tissue Liquid Parameter confirmation

DIELECTRIC PARAMETERS MEASUREMENT RESULTS											
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
20-Jan	24	42	MSL 2450	23.5	2450	εr	52.7	50.2	-4.8	+/-5	*1
						σ [mho/m]	1.95	2.02	3.7	+/-5	

εr: Relative Permittivity / σ : Coductivity
*1 The Target value is a parameter defined in KDB 865664D01.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS											
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value	Measured	Deviation [%]	Limit [%]	Remark
20-Jan	24	42	MSL 2450	23.5	2450	εr	52.2	50.2	-3.9	+/-6	*2 *3
						σ [mho/m]	2.00	2.02	1.2	+/-6	

εr: Relative Permittivity / σ : Coductivity
*2 The target value is the calibrated dipole Body TSL parameters. (D2450V2 SN:713, Measured Body TSL parameters)
*3 The limit is for deviation provided by manufacture.

(2) System check result (for calibration by manufacture)

SYSTEM CHECK							
Date	Frequency [MHz]	SAR 1g [W/kg]					
		Forward Power Measured	Conversion 1W Calculation	Target Value(1W)	Deviation [%]	Limit [%]	Remark
20-Jan	2450.00	12.40	49.60	50.40	-1.6	+/-10	*4

*4 The taget value is the parameter defined in SAR for nominal Body TSL parameters in manufacturer calibrated dipole (D2450V2 SN:713)
Please refer to " SAR result with Body TSL of Appendix 2 3. System Check Dipole (D2450V2 SN:713)".