SAR TEST REPORT

Test Report No. : 13395143H-G-R1

Applicant	:	**Panasonic Corporation of North America**
Type of Equipment	:	**Body Worn Camera**
Model No.	:	**WV-BWC4000**
FCC ID	:	**ACJ9TAWV-BWC4000**
Test regulation	:	**FCC47CFR 2.1093**
Test Result	:	**Complied (Refer to SECTION 4)**
Reported SAR(1g) Value		**The highest reported SAR(1g)** Body : 0.17 W/kg

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3. This sample tested is in compliance with the limits of the above regulation.
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7. The all test items in this test report are conducted by UL Japan, Inc. Ise EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
9. The information provided from the customer for this report is identified in Section 1.
10. This report is a revised version of 13395143H-G. 13395143H-G is replaced with this report.

Date of test: July 1 to 8, 2020

Representative test engineer:

Yutaka Yoshida
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Approved by :

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Leader
Consumer Technology Division

CERTIFICATE 5107.02

☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".

REVISION HISTORY

Original Test Report No.: 13395143H-G

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13395143H-G	August 3, 2020	-	-
1	13395143H-G-R1	September 11, 2020	P9	Corrected clause 4.3
1	13395143H-G-R1	September 11, 2020	P14	Corrected Output Power for BLE and 11b
1	13395143H-G-R1	September 11, 2020	P39 (original page)	Deleted SECTION13: Simultaneous Transmission SAR Analysis

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation
AC	Alternating Current
AFH	Adaptive Frequency Hopping
AM	Amplitude Modulation
Amp, AMP	Amplifier
ANSI	American National Standards Institute
Ant, ANT	Antenna
AP	Access Point
Atten., ATT	Attenuator
AV	Average
BPSK	Binary Phase-Shift Keying
BR	Bluetooth Basic Rate
BT	Bluetooth
BT LE	Bluetooth Low Energy
BW	BandWidth
Cal Int	Calibration Interval
CCK	Complementary Code Keying
Ch., CH	Channel
CISPR	Comite International Special des Perturbations Radioelectriques
CW	Continuous Wave
DBPSK	Differential BPSK
DC	Direct Current
DFS	Dynamic Frequency Selection
DQPSK	Differential QPSK
DSSS	Direct Sequence Spread Spectrum
EDR	Enhanced Data Rate
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power
EMC	ElectroMagnetic Compatibility
EMI	ElectroMagnetic Interference
EN	European Norm
ERP, e.r.p.	Effective Radiated Power
EU	European Union
EUT	Equipment Under Test
Fac.	Factor
FCC	Federal Communications Commission
FHSS	Frequency Hopping Spread Spectrum
FM	Frequency Modulation
Freq.	Frequency
GFSK	Gaussian Frequency-Shift Keying
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
Hori.	Horizontal
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IF	Intermediate Frequency
ILAC	International Laboratory Accreditation Conference
ISED	Innovation, Science and Economic Development Canada
ISO	International Organization for Standardization
JAB	Japan Accreditation Board
LAN	Local Area Network
LIMS	Laboratory Information Management System
MCS	Modulation and Coding Scheme
MRA	Mutual Recognition Arrangement
NIST	National Institute of Standards and Technology
NS	No signal detect.
NSA	Normalized Site Attenuation
NVLAP	National Voluntary Laboratory Accreditation Program
OBW	Occupied Band Width
OFDM	Orthogonal Frequency Division Multiplexing
P/M	Power meter
PCB	Printed Circuit Board
PER	Packet Error Rate
PHY	Physical Layer
PK	Peak
PN	Pseudo random Noise
PRBS	Pseudo-Random Bit Sequence
PSD	Power Spectral Density
QAM	Quadrature Amplitude Modulation
QP	Quasi-Peak
QPSK	Quadri-Phase Shift Keying
RBW	Resolution Band Width
RDS	Radio Data System
RE	Radio Equipment
RF	Radio Frequency
RMS	Root Mean Square
Rx	Receiving
SA, S/A	Spectrum Analyzer
SG	Signal Generator
SVSWR	Site-Voltage Standing Wave Ratio
TR	Test Receiver
Tx	Transmitting
VBW	Video BandWidth
Vert.	Vertical
WLAN	Wireless LAN

CONTENTS PAGE

SECTION1: Customer information **5**
SECTION2: Equipment under test (EUT) **5**
2.1 Identification of EUT 5
2.2 Product description 6
SECTION3: Test standard information **7**
3.1 Test Specification 7
3.2 Procedure 7
3.3 Additions or deviations to standard 7
3.4 Exposure limit 8
3.5 SAR 8
3.6 Test Location 8
SECTION4: Test result **9**
4.1 Result 9
4.2 Stand-alone SAR result 9
4.3 Simultaneous transmission SAR result 9
SECTION5: Tune-up tolerance information and software information **10**
SECTION6: RF Exposure Conditions (Test Configurations) **13**
6.1 Summary of the distance between antenna and surface of EUT 13
6.2 SAR test exclusion considerations according to KDB447498 D01 14
SECTION7: Description of the Body setup **16**
7.1 Procedure for SAR test position determination 16
7.2 Test position for Body setup 16
SECTION8: Description of the operating mode **17**
8.1 Output Power and SAR test required 17
SECTION9: Test surrounding **22**
9.1 Measurement uncertainty 22
SECTION10: Parameter Check **23**
10.1 For SAR system check 24
10.2 For SAR measurement 25
SECTION11: System Check confirmation **26**
SECTION12: Measured and Reported (Scaled) SAR Results **27**
12.1 Result of Body SAR of WLAN 2.4GHz Band 29
12.2 Result of Body SAR of BLE 31
12.3 Result of Body SAR of WLAN 5.3GHz Band 32
12.4 Result of Body SAR of WLAN 5.5GHz Band 34
12.5 Result of Body SAR of WLAN 5.8GHz Band 36
12.6 Repeated measurement 38
SECTION13: Test instruments **39**
APPENDIX 1 : System Check **40**
APPENDIX 2 : SAR Measurement data **50**
APPENDIX 3 : System specifications **95**
APPENDIX 4 : Photographs of test setup **145**

SECTION1: Customer information

Applicant

Company Name	Panasonic Corporation of North America	
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E-mail	virangelo.lontoc@us.panasonic.com	Ben.Botros@us.panasonic.com

Manufacturer

Company Name	Panasonic i-PRO Sensing Solutions Co., Ltd.
Address	1-62, 4-chome, Minoshima, Hakata-ku, Fukuoka 812-8531 Japan
Telephone Number	+81-80-3358-7203
Contact Person	Koji Yamasaki

*Remarks:
Panasonic Corporation of North America designates Panasonic i-PRO Sensing Solutions Co., Ltd. as manufacturer of the product (Body Worn Camera).

The information provided from the customer is as follows;
- Applicant, Type of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT) other than the Receipt Date
- SECTION 5: Tune-up tolerance information and software information

* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2.

SECTION2: Equipment under test (EUT)

2.1 Identification of EUT

<Information of the EUT>

Type	:	Body Worn Camera
Model Number	:	WV-BWC4000
Serial Number	:	50
Rating	:	DC 3 V to DC 4.15 V < Rechargeable Li-ion Battery Pack > Model: WV-BWC40B1 Nominal Voltage: DC 3.6 V Rated Capacity: 2670mAh, 9.6Wh
Body-worn accessory	:	6 types of compatible holders: - Magnet Mount Kit (ARB-BWC3MNT-MAG) - MOLLE Vest Dock (ARB-BWC3MNT-MOLLE) - Anti-tilt Dock with Spring Clamp (ARB-BWC3MNT-CLAMP) - Leather Belt Clip (ARB-BWC3BLTCLIP) - Leather Belt Loop (ARB-BWC3BLTLOOP) - Tag on garment/vest mount dock (ARB-BWCVESTMNT)
Receipt Date	:	June 1, 2020
Country of Mass-production	:	Japan
Condition	:	Production prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Modification	:	No Modification by the test lab

2.2 Product description

Model: WV-BWC4000 (referred to as the EUT in this report) is a Body Worm Camera.

Radio Specification

Specification of Wireless LAN (IEEE802.11b/g/a/n-20/n-40/11ac-20/11ac-40/11ac-80)

Type of radio	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)
Equipment Type	Transceiver				
Frequency of operation	2412 MHz - 2462 MHz	2412 MHz - 2462 MHz	5280 MHz - 5320 MHz 5500 MHz - 5580 MHz 5660 MHz - 5720 MHz 5745 MHz - 5825 MHz	5310 MHz 5510 MHz - 5550 MHz 5670 MHz - 5710 MHz 5755 MHz - 5795 MHz	5530 MHz 5690 MHz 5775 MHz
Type of modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (64QAM, 16QAM, QPSK, BPSK)	OFDM (64QAM, 16QAM, QPSK, BPSK, 256QAM(IEEE802.11ac only))		
Channel spacing	5 MHz		20 MHz	40 MHz	80 MHz
Bandwidth	20MHz		20 MHz	40 MHz	80 MHz
Antenna type	2.4 GHz: FPC Antenna 5 GHz: Pattern Antenna				
Antenna Gain	2.4 GHz: 1.5 dBi 5 GHz: 4 dBi				
Operating temperature range	-20 deg. C. to +50 deg. C.				

Specification of Bluetooth (Low Energy: LE)

	Bluetooth
Equipment Type	Transceiver
Frequency of operation	2402 MHz -2480 MHz
Type of modulation	GFSK
Bandwidth & Channel spacing	Bandwidth : 1 MHz Channel spacing : 2 MHz
Antenna type	FPC Antenna
Antenna Gain	1.5 dBi
Operating temperature range	-20 deg. C. to +50 deg. C.

SECTION3: Test standard information

3.1 Test Specification

Title : **FCC47CFR 2.1093**
Radiofrequency radiation exposure evaluation: portable devices.

: **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.

: **Published RF exposure KDB procedures**

☑	**KDB447498D01(v06)**	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
☐	**KDB447498D02(v02r01)**	SAR Measurement Procedures for USB Dongle Transmitters
☐	**KDB648474D04(v01r03)**	SAR Evaluation Considerations for Wireless Handsets
☐	**KDB941225D01(v03r01)**	3G SAR Measurement Procedures
☐	**KDB941225D05(v02r05)**	SAR Evaluation Considerations for LTE Devices
☐	**KDB941225D06(v02r01)**	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities (Hot Spot SAR)
☐	**KDB941225D07(v01r02)**	SAR Evaluation Procedures for UMPC Mini-Tablet Devices
☐	**KDB616217D04(v01r02)**	SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
☑	**KDB865664D01(v01r04)**	SAR Measurement Requirements for 100MHz to 6 GHz
☑	**KDB248227D01(v02r02)**	SAR Guidance for 802.11(Wi-Fi) Transmitters

Reference
[1]SPEAG uncertainty document (AN 15-7/AN19-17) for DASY 5 System from SPEAG (Schmid & Partner Engineering AG).
[2]IEC62209-2:2010+AMD1:2019 CSV

3.2 Procedure

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

3.3 Additions or deviations to standard

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 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

3.5 SAR

Specific Absorption Rate (SAR): The time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ), as shown in the following equation:

$$\mathrm{SAR} = \frac{\mathrm{d}}{\mathrm{dt}}\left(\frac{\mathrm{dW}}{\mathrm{dm}}\right) = \frac{\mathrm{d}}{\mathrm{dt}}\left(\frac{\mathrm{dW}}{\rho \mathrm{dV}}\right)$$

SAR is expressed in units of watts per kilogram (W/kg) or equivalently milliwatts per gram (mW/g).

SAR is related to the E-field at a point by the following equation:

$$\mathrm{SAR} = \frac{\sigma |\mathrm{E}|^2}{\rho}$$

where
σ = conductivity of the tissue (S/m)
ρ = mass density of the tissue (kg/m3)
E = rms E-field strength (V/m)

3.6 Test Location

UL Japan, Inc. Ise EMC Lab.
Shielded room for SAR testings
*A2LA Certificate Number: 5107.02 / FCC Test Firm Registration Number: 199967 / ISED Lab Company Number: 2973C
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

SECTION4: Test result

4.1 Result

Complied
Highest values at each band are listed next section.

4.2 Stand-alone SAR result

Reported SAR

Measured SAR is scaled to the maximum tune-up tolerance limit and the maximum duty by the following formulas.
Reported SAR= Measured SAR [W/kg] * Scaled factor * Duty Scaled factor
Maximum tune-up tolerance limit is by the specification from a customer.

* Scaled factor = Maximum tune-up tolerance limit [mW] / Measured power [mW]
* Duty Scaled factor = 1 / Duty(%) / 100

Body SAR

Mode	Freq. (MHz)	Power (dBm)		Scaled factor	Duty(%)	Duty Scaled factor	1-g SAR (W/kg)	
		Tune-up upper Power	Measured average Power				Meas.	Reported
BLE	2402	6.00	5.29	1.18	43.60	2.29	0.000472	0.001
WLAN11b	2462	18.00	16.98	1.26	99.00	1.01	0.136	0.174
WLAN11a	5280	12.00	12.00	1.00	93.60	1.07	0.101	0.108
WLAN11a	5580	12.00	11.89	1.03	93.60	1.07	0.085	0.093
WLAN11a	5825	12.00	11.21	1.20	93.60	1.07	0.102	0.131

Note(s):

The sample used by the SAR test is not more than 2 dB lower than the maximum tune-up tolerance limit. That is, measured power is included the tune-up tolerance range.

*Details are shown at section 12.

4.3 Simultaneous transmission SAR result

N/A

WLAN 2.4GHz, WLAN 5GHz and BLE do not transmit simultaneously.

SECTION5: Tune-up tolerance information and software information

Maximum tune-up tolerance limit

Mode	Band	Maximum tune-up tolerance limit [dBm]	Maximum tune-up tolerance limit [mW]
BLE	2.4GHz	6.00	3.98
WLAN 11b	2.4GHz	18.00	63.10
WLAN 11g	2.4GHz	12.00	15.85
WLAN 11n20	2.4GHz	12.00	15.85
WLAN 11a	5GHz	12.00	15.85
WLAN 11n20	5GHz	12.00	15.85
WLAN 11n40	5GHz	11.50	14.13
WLAN 11ac20	5GHz	12.00	15.85
WLAN 11ac40	5GHz	11.50	14.13
WLAN 11ac80	5GHz	10.50	11.22

Maximum tune-up tolerance limit is defined by a customer as duty100%.

Software setting

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

Power settings: <WLAN>
See Table 1
<BLE>
6 dBm (Same as production model)

Software: Teraterm, Version 4.93

*This setting of software is the worst case.
The test was performed with condition that obtained the maximum average power (Burst) in pre-check.
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.

[Table 1: Power settings]

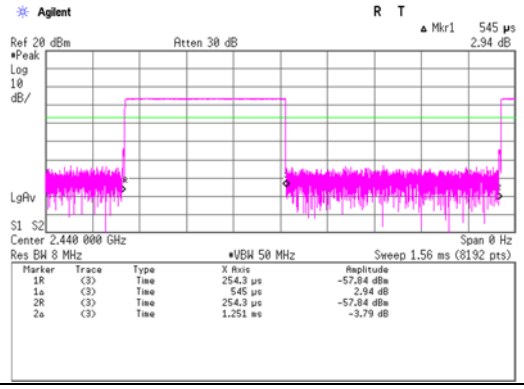
Mode	Power (max) [dBm]
11b	18
11g	12
11n-20	12

Mode	Power (max) [dBm]		
	5.3 GHz Band	5.5 GHz Band	5.8 GHz Band
11a	12	12	12
11n-20 / ac-20	12	12	12
11n-40 / ac-40	11.5	11.5	11.5
11ac-80	10.5	10.5	10.5

Duty cycle confirmation

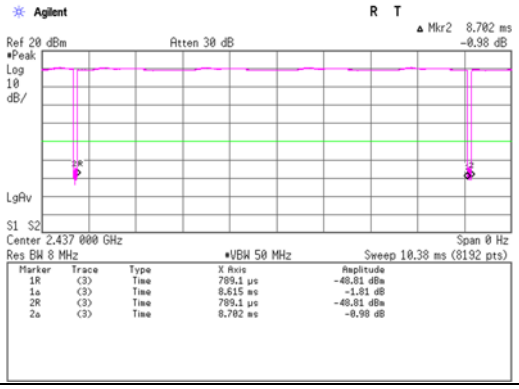
BLE

Tx on / (Tx on + Tx off) = 0.436
Tx on / (Tx on + Tx off) * 100 = 43.6 %
Duty factor = 10 * log (1.251 / 0.545) = 3.61 dB



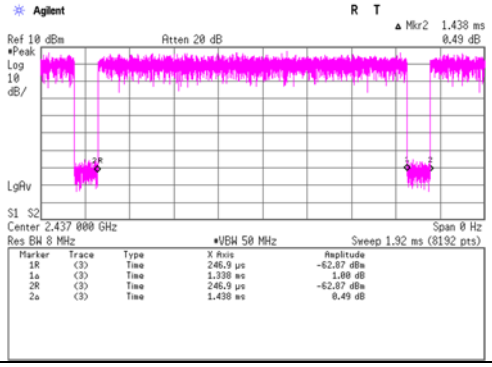
11b 1Mbps

Tx on / (Tx on + Tx off) = 0.990
Tx on / (Tx on + Tx off) * 100 = 99.0 %
Duty factor = 10 * log (8.702 / 8.615) = 0.04 dB



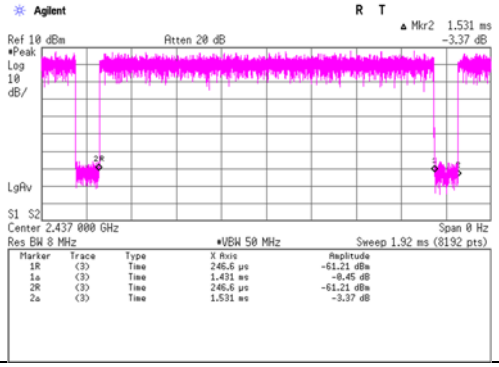
11g 6 Mbps

Tx on / (Tx on + Tx off) = 0.935
Tx on / (Tx on + Tx off) * 100 = 93.5 %
Duty factor = 10 * log (1.531 / 1.431) = 0.29 dB



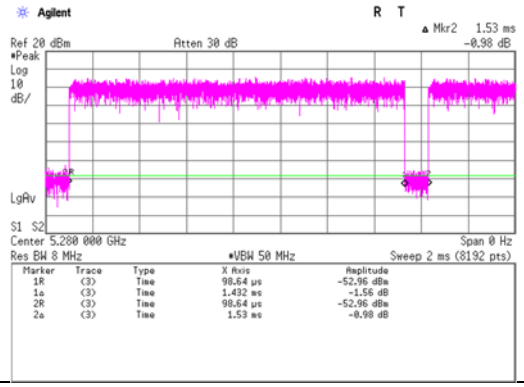
11n-20 MCS 0

Tx on / (Tx on + Tx off) = 0.930
Tx on / (Tx on + Tx off) * 100 = 93.0 %
Duty factor = 10 * log (1.438 / 1.338) = 0.31 dB



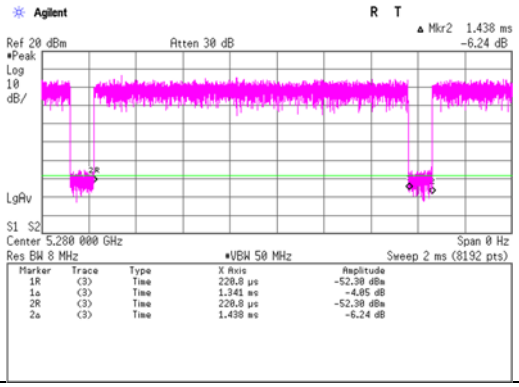
11a 6 Mbps

Tx on / (Tx on + Tx off) = 0.936
Tx on / (Tx on + Tx off) * 100 = 93.6 %
Duty factor = 10 * log (1.53 / 1.432) = 0.29 dB



11n20 MCS0

Tx on / (Tx on + Tx off) = 0.933
Tx on / (Tx on + Tx off) * 100 = 93.3 %
Duty factor = 10 * log (1.438 / 1.341) = 0.30 dB

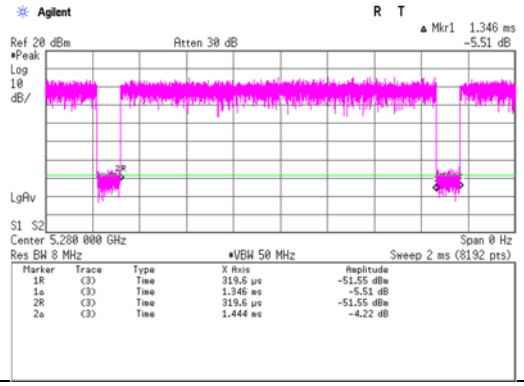


11ac20 MCS0

Tx on / (Tx on + Tx off) = 0.932

Tx on / (Tx on + Tx off) * 100 = 93.2 %

Duty factor = 10 * log (1.444 / 1.346) = 0.31 dB

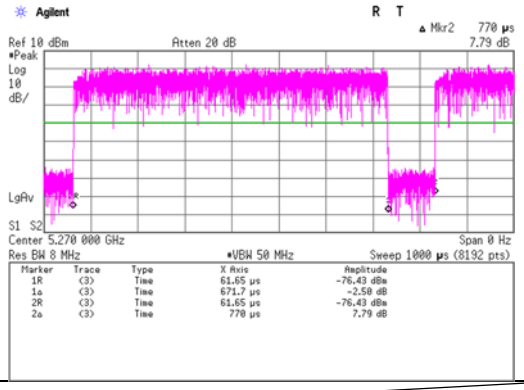


11ac40 MCS0

Tx on / (Tx on + Tx off) = 0.872

Tx on / (Tx on + Tx off) * 100 = 87.2 %

Duty factor = 10 * log (0.77 / 0.6717) = 0.59 dB

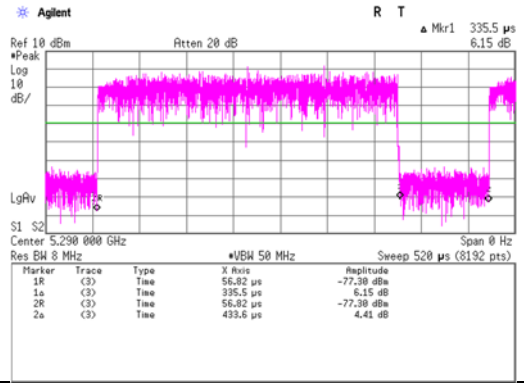


11ac80 MCS0

Tx on / (Tx on + Tx off) = 0.774

Tx on / (Tx on + Tx off) * 100 = 77.4 %

Duty factor = 10 * log (0.4336 / 0.3355) = 1.11 dB



SECTION6: RF Exposure Conditions (Test Configurations)

6.1 Summary of the distance between antenna and surface of EUT

Test position	Distance	
	Antenna for WLAN 2.4GHz/BLE	Antenna for WLAN 5GHz
Front	1.7 mm	9.1 mm
Rear	22.7 mm	16.5 mm
Left	3.8 mm	10.3 mm
Right	59.4 mm	59.6 mm
Top	18.3 mm	33.3 mm
Bottom	50.3 mm	50.6 mm

*Details are shown in appendix 4

6.2 SAR test exclusion considerations according to KDB447498 D01

The following is based on KDB447498D01.
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

1. The upper frequency of the frequency band was used in order to calculate standalone SAR test exclusion considerations.
2. Power and distance are rounded to the nearest mW and mm before calculation
3. The result is rounded to one decimal place for comparison
4. 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. When the separation of antenna to EUT's surfaces and edges are ≤ 50 mm, the separation distance used for the SAR exclusion calculations is 5 mm.
5. "N/A" displayed on below exclusion calculation means not applicable this formula since distance between antenna and surface is > 50 mm.

When the calculated threshold value by a numerical formula above-mentioned in the following table is 3.0 or less, SAR test is excluded.

SAR exclusion calculations for antenna <50mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Calculated Threshold Value					
			dBm	mW	Frot	Rear	Left	Right	Top	Bottom
For WLAN2.4G/BLE	BLE	2480	6.00	4	1.3 -EXEMPT-	1.3 -EXEMPT-	1.3 -EXEMPT-	N/A	1.3 -EXEMPT-	N/A
For WLAN2.4G/BLE	11b	2462	18.00	63	19.8 -MEASURE-	19.8 -MEASURE-	19.8 -MEASURE-	N/A	19.8 -MEASURE-	N/A
For WLAN5G	11a	5320	12.00	16	7.3 -MEASURE-	7.3 -MEASURE-	7.3 -MEASURE-	N/A	7.3 -MEASURE-	N/A
For WLAN5G	11a	5720	12.00	16	7.6 -MEASURE-	7.6 -MEASURE-	7.6 -MEASURE-	N/A	7.6 -MEASURE-	N/A
For WLAN5G	11a	5825	12.00	16	7.7 -MEASURE-	7.7 -MEASURE-	7.7 -MEASURE-	N/A	7.7 -MEASURE-	N/A

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) [(3·50)/(√f(GHz))) + (test separation distance - 50 mm)·(f(MHz)/150)] mW at > 100 MHz and ≤ 1500 MHz

b) [(3·50)/(√f(GHz))) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

1. The upper frequency of the frequency band was used in order to calculate standalone SAR test exclusion considerations.
2. Power and distance are rounded to the nearest mW and mm before calculation
3. "N/A" displayed on below exclusion calculation means not applicable this formula since distance between antenna and surface is < 50 mm.

When output power is less than the calculated threshold value by a numerical formula above-mentioned in the following table, SAR test is excluded.

SAR exclusion calculations for antenna >50mm from the user

Antenna	Tx Interface	Frequency (MHz)	Output Power		Calculated Threshold Value					
			dBm	mW	Frot	Rear	Left	Right	Top	Bottom
For WLAN2.4G/BLE	BLE	2480	6.00	4	N/A	N/A	N/A	189.3 mW -EXEMPT-	N/A	98.3 mW -EXEMPT-
For WLAN2.4G/BLE	11b	2462	18.00	63	N/A	N/A	N/A	189.6 mW -EXEMPT-	N/A	98.6 mW -EXEMPT-
For WLAN5G	11a	5320	12.00	16	N/A	N/A	N/A	161 mW -EXEMPT-	N/A	71 mW -EXEMPT-
For WLAN5G	11a	5720	12.00	16	N/A	N/A	N/A	158.7 mW -EXEMPT-	N/A	68.7 mW -EXEMPT-
For WLAN5G	11a	5825	12.00	16	N/A	N/A	N/A	158.2 mW -EXEMPT-	N/A	68.2 mW -EXEMPT-

SECTION7: Description of the Body setup

7.1 Procedure for SAR test position determination

-The tested procedure was performed according to the KDB 447498 D01 (Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies).

7.2 Test position for Body setup

No.	Position	Test distance	WLAN	Bluetooth
			Tested	Tested
1	Front	0mm	☐	☐
2	Rear *1	0mm	☑	☑ *2
3	Left	0mm	☐	☐
4	Right	0mm	☐	☐
5	Top	0mm	☐	☐
7	Bottom	0mm	☐	☐

*1 This product is used in combination with various compatible holders. The product and compatible holders are set in according to the instruction manual and they are worn on the limited part of a human body.

When this product is used, only the Rear side touches the human body through the compatible holder, so the other test positions than Rear was excluded from SAR testing.
In addition, SAR testing without compatible holders was also performed as a conservative test.

*2 Further tested to needed in Canada (RSS-102).

SECTION8: Description of the operating mode

8.1 Output Power and SAR test required

According to KDB248227D01, the initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

1. The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
2. If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
3. If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
4. When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

Wi-Fi 2.4GHz (DTS Band)

SISO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Tune-up upper Power (dBm)	Measured average Power (dBm)	Initial test configuration	Note(s)
2.4	11b	1 Mbps	1	2412	18.00	17.08	Yes	
			6	2437	18.00	16.77		
			11	2462	18.00	16.98		
	11g	6 Mbps	1	2412	12.00	11.14		2
			6	2437	12.00	11.35		2
			11	2462	12.00	10.81		2
	11n20	MCS0	1	2412	12.00	10.52		2
			6	2437	12.00	10.80		2
			11	2462	12.00	10.46		2

MIMO

N/A

Note(s):

1. Provided higher maximum output power is not specified for the other channels, channels 1, 6 and 11 are used to configure DSSS and OFDM channels for SAR measurements; otherwise, the closest adjacent channel with the highest maximum output power specified for production units should be tested instead of channels 1, 6 or 11.
2. When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
3. Initial SAR test channel was chosen. (shaded blue frame)

Bluetooth

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Tune-up upper Pow er (dBm)	Measured average Pow er (dBm)	SAR Test (Yes/No)	Note(s)
2.4	LE	-	37	2402	6.0	5.33	Yes	
			17	2440	6.0	5.24		
			39	2480	6.0	4.68		

Note(s):

SAR test channel was chosen. (shaded blue frame)

Wi-Fi 5GHz (U-NII-1 and U-NII-2A Bands)

SISO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Measured average Power (dBm)	Tune-up upper Power (dBm)	SAR Test (Yes/No)	Note(s)
					Main Ant Tx	Main Ant Tx		
5.3 (U-NII-2A)	802.11a	6 Mbps	56	5280	12.00	12.0	Yes	
			60	5300	11.88			
			64	5320	11.85			
	802.11n (HT20)	MCS0	56	5280	11.50	12.0	No	1
			60	5300	11.50			
			64	5320	11.56			
	802.11n (HT40)	MCS0	62	5310	11.23	11.5	No	1
	802.11ac (VHT20)	MCS0	56	5280	11.60	12.0	No	1
			60	5300	11.61			
			64	5320	11.50			
	802.11ac (VHT40)	MCS0	62	5310	11.25	11.5	No	1

MIMO (continued)

N/A

Note(s):

1. Output Power and SAR measurement is not required for 802.11n HT20/HT40 /11ac VHT20/VHT40 channels when the specified tune-up tolerances for 802.11a are lower than 802.11n HT20/HT40 /11ac VHT20/VHT40 and the measured SAR is ≤ 1.2 W/Kg.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected.
3. When the specified maximum output power is the same for both UNII band I and UNII band 2A, begin SAR measurement in UNII band 2A; and if the highest *reported* SAR for UNII band 2A is
   - ≤ 1.2 W/kg, SAR is not required for UNII band I
   - > 1.2 W/kg, both bands should be tested independently for SAR.
4. According to KDB248227D01, SAR test channel was chosen. (shaded blue frame)

Wi-Fi 5GHz (U-NII-2C Band)

SISO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Measured average Power (dBm)	Tune-up upper Power (dBm)	SAR Test (Yes/No)	Note(s)
5.5 (U-NII-2C)	802.11a	6 Mbps	100	5500	11.80	12.0	Yes	
			116	5580	11.89			
			140	5700	11.65			
			144	5720	11.63			
	802.11n (HT20)	MCS0	100	5500	11.54	12.0	No	1
			116	5580	11.54			
			140	5700	11.22			
			144	5720	11.16			
	802.11n (HT40)	MCS0	102	5510	11.10	11.5	No	1
			110	5550	11.19			
			134	5670	10.95			
			142	5710	10.96			
	802.11ac (VHT20)	MCS0	102	5510	11.44	12.0	No	1
			110	5550	11.45			
			134	5670	11.41			
			142	5710	11.28			
	802.11ac (VHT40)	MCS0	100	5500	11.11	11.5	No	1
			116	5580	11.18			
			140	5700	10.91			
			144	5720	10.96			
	802.11ac (VHT80)	MCS0	106	5530	10.15	10.5	No	1
			138	5690	10.04			

MIMO (continued)

N/A

Note(s):

1. Output Power and SAR measurement is not required for 802.11n HT20/HT40 /11ac VHT20/VHT40 channels when the specified tune-up tolerances for 802.11a are lower than 802.11n HT20/HT40 /11ac VHT20/VHT40 and the measured SAR is ≤ 1.2 W/Kg.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected.
3. SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

Wi-Fi 5GHz (U-NII-3 Band)

SISO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Measured average Power (dBm)	Tune-up upper Power (dBm)	SAR Test (Yes/No)	Note(s)
5.8 (U-NII-3)	802.11a	6 Mbps	149	5745	11.31	12.0	Yes	
			157	5785	11.33			
			165	5825	11.21			
	802.11n (HT20)	MCS0	149	5745	10.96	12.0	No	1
			157	5785	10.84			
			165	5825	10.72			
	802.11ac (VHT20)	MCS0	149	5745	10.87	12.0	No	1
			157	5785	10.85			
			165	5825	10.73			
	802.11n (HT40)	MCS0	151	5755	10.74	11.5	No	1
			159	5795	10.44			
	802.11ac (VHT40)	MCS0	151	5755	10.71	11.5	No	1
			159	5795	10.54			
	802.11ac (VHT80)	MCS0	155	5775	9.57	10.5	No	1

MIMO

N/A

Note(s):

1. Output Power and SAR measurement is not required for 802.11n HT20/HT40 /11ac VHT20/VHT40 channels when the specified tune-up tolerances for 802.11a are lower than 802.11n HT20/HT40 /11ac VHT20/VHT40 and the measured SAR is ≤ 1.2 W/Kg.
2. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel with the largest bandwidth and lowest data rate is selected.
3. SAR test channel was chosen according to KDB248227D01. (shaded blue frame)

SECTION9: Test surrounding

9.1 Measurement uncertainty

This measurement uncertainty budget is suggested by IEEE Std 1528(2013) and IEC62209-2:2010+AMD1:2019 CSV, and determined by Schmid & Partner Engineering AG (DASY5/6 Uncertainty Budget). Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz 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.

<Body>

Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std.Unc. (10g)
Measurement System							
Probe Calibration	± 6.55 %	N	1	1	1	±6.55%	±6.55%
Axial Isotropy	± 4.7 %	R	√3	0.7	0.7	±1.9%	±1.9%
Hemispherical Isotropy	± 9.6 %	R	√3	0.7	0.7	±3.9%	±3.9%
Linearity	± 4.7 %	R	√3	1	1	±2.7%	±2.7%
Modulation Response	± 2.4 %	R	√3	1	1	±1.4%	±1.4%
System Detection Limits	± 1.0 %	R	√3	1	1	±0.6%	±0.6%
Boundary Effects	± 2.0 %	R	√3	1	1	±1.2%	±1.2%
Readout Electronics	± 0.3 %	N	1	1	1	±0.3%	±0.3%
Response Time	± 0.8 %	R	√3	1	1	±0.5%	±0.5%
Integration Time	± 2.6 %	R	√3	1	1	±1.5%	±1.5%
RF Ambient Noise	± 3.0 %	R	√3	1	1	±1.7%	±1.7%
RF Ambient Reflections	± 3.0 %	R	√3	1	1	±1.7%	±1.7%
Probe Positioner	± 0.04 %	R	√3	1	1	±0.0%	±0.0%
Probe Positioning	± 0.8 %	R	√3	1	1	±0.5%	±0.5%
Post-processing	± 4.0 %	R	√3	1	1	±2.3%	±2.3%
Test Sample Related							
Device Holder	± 3.6 %	N	1	1	1	±3.6%	±3.6%
Test sample Positioning	± 2.9 %	N	1	1	1	±2.9%	±2.9%
Power Scaling	± 0.0 %	R	√3	1	1	±0.0%	±0.0%
Power Drift	± 5.0 %	R	√3	1	1	±2.9%	±2.9%
Phantom and Setup							
Phantom Uncertainty	± 7.6 %	R	√3	1	1	±4.4%	±4.4%
SAR correction	± 1.9 %	N	1	1	0.84	±1.9%	±1.6%
Liquid Conductivity (mea.)	+ 2.1 %	N	1	0.78	0.71	±1.6%	±1.5%
Liquid Permittivity (mea.)	- 4.4 %	N	1	0.23	0.26	±1.0%	±1.2%
Temp. unc. - Conductivity	± 3.4 %	R	√3	0.78	0.71	±1.5%	±1.4%
Temp. unc. - Permittivity	± 0.4 %	R	√3	0.23	0.26	±0.1%	±0.1%
Combined Std. Uncertainty						±12.1%	±12.0%
Expanded STD Uncertainty (κ =2)						±24.1%	±24.0%

Note: This uncertainty budget for validation is worst-case.
Table of uncertainties are listed for ISO/IEC 17025.

SECTION10: Parameter Check

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

According to KDB865664 D01, +/- 5% tolerances are required for εr and σ and then below table which is the target value of the simulated tissue liquid is quoted from KDB865664 D01.

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

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

The dielectric parameters are linearly interpolated between the closest pair of target frequencies to determine the applicable dielectric parameters corresponding to the device test frequency.

10.1 For SAR system check

DIELECTRIC PARAMETERS MEASUREMENT RESULTS													
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Target [σ]	Target [εr]	Measure [σ]	Measure [εr]	Deviation σ [%]	Deviation εr [%]	Limiit [%]	Remark
2020/7/1	23.0	45.0	HBBL600-10000	23.4	2450.0	1.80	39.2	1.82	39.0	1.2	-0.4	+-5	
2020/7/2	23.0	45.0	HBBL600-10000	23.7	2450.0	1.80	39.2	1.83	39.3	1.6	0.3	+-5	
2020/7/6	21.0	45.0	HBBL600-10000	20.2	5250.0	4.71	35.9	4.69	35.5	-0.3	-1.3	+-5	
2020/7/7	21.5	45.0	HBBL600-10000	21.0	5600.0	5.07	35.5	4.96	35.2	***-2.0***	-1.0	+-5	
2020/7/8	21.0	45.0	HBBL600-10000	20.2	5800.0	5.27	35.3	5.31	33.8	0.8	***-4.4***	+-5	

σ : Conductivity / εr: Relative Permittivity

Correlation confirmation with measured TSL parameters of the calibration certificate of system check dipoles (Refer to Appendix 3)

+/- 6% limit for deviation provided by manufacture tolerances are required for εr and σ and then below table which is the target value of the simulated tissue liquid is quoted from data measured TSL parameters of dipole calibration.

Freq [MHz]	Model,S/N	Head	
		ε	σ
2450	D2450,713	37.9	1.86
5250	D5GHV2,1020	34.8	4.49
5600	D5GHV2,1020	34.3	4.84
5800	D5GHV2,1020	34	5.05

DIELECTRIC PARAMETERS MEASUREMENT RESULTS													
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Target [σ]	Target [εr]	Measure [σ]	Measure [εr]	Deviation σ [%]	Deviation εr [%]	Limiit [%]	Remark
2020/7/1	23.0	45.0	HBBL600-10000	23.4	2450.0	1.86	37.9	1.82	39.0	-2.1	***3.0***	+/-6	
2020/7/2	23.0	45.0	HBBL600-10000	23.7	2450.0	1.80	39.2	1.83	39.3	1.6	0.3	+/-6	
2020/7/6	21.0	45.0	HBBL600-10000	20.2	5250.0	4.49	34.8	4.69	35.5	4.5	1.9	+/-6	
2020/7/7	21.5	45.0	HBBL600-10000	21.0	5600.0	4.84	34.3	4.96	35.2	2.5	2.5	+/-6	
2020/7/8	21.0	45.0	HBBL600-10000	20.2	5800.0	5.05	34	5.31	33.8	***5.1***	-0.7	+/-6	

σ : Conductivity / εr: Relative Permittivity

10.2 For SAR measurement

DIELECTRIC PARAMETERS MEASUREMENT RESULTS													
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Target [σ]	Target [εr]	Measure [σ]	Measure [εr]	Deviation σ [%]	Deviation εr [%]	Limiit [%]	Remark
2020/7/1	23.0	45.0	HBBL600-10000	23.7	2412.0	1.77	39.27	1.80	39.1	1.7	-0.4	+-5	
2020/7/1	23.0	45.0	HBBL600-10000	23.7	2437.0	1.79	39.22	1.81	39.1	1.5	-0.4	+-5	
2020/7/1	23.0	45.0	HBBL600-10000	23.7	2462.0	1.81	39.19	1.83	39.0	0.9	-0.4	+-5	
2020/7/2	23.0	45.0	HBBL600-10000	23.7	2402.0	1.76	39.29	1.78	39.4	1.4	0.4	+-5	
2020/7/6	21.0	45.0	HBBL600-10000	20.2	5280.0	4.74	35.89	4.76	35.4	0.4	-1.3	+-5	
2020/7/7	21.5	45.0	HBBL600-10000	21.0	5580.0	5.04	35.55	4.95	35.2	-1.8	-0.9	+-5	
2020/7/8	21.0	45.0	HBBL600-10000	20.2	5745.0	5.21	35.36	5.32	33.9	***2.1***	-4.3	+-5	
2020/7/8	21.0	45.0	HBBL600-10000	20.2	5785.0	5.26	35.32	5.34	33.8	1.6	***-4.4***	+-5	
2020/7/8	21.0	45.0	HBBL600-10000	20.2	5825.0	5.30	35.27	5.31	33.8	0.3	-4.0	+-5	

σ : Conductivity / εr: Relative Permittivity

SECTION11: System Check confirmation

The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm ± 0.5 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm ± 0.5 cm for measurements > 3 GHz.
The DASY system with an E-Field Probe was used for the measurements.
The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom).
The standard measuring distance was 10 mm (above 1GHz to 6GHz) and 15 mm (below 1GHz) from dipole center to the simulating liquid surface.
The coarse grid with a grid spacing of 12 mm (1GHz to 3GHz) and15 mm (below 1GHz) was aligned with the dipole.
For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
Distance between probe sensors and phantom surface was set to 3 mm.
For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
The dipole input power (forward power) was 100 mW(For 5GHz band) or 250 mW(For other band).
The results are normalized to 1 W input power.

Target Value

Freq [MHz]	Model,S/N	Head	
		(SPEAG) 1g [W/kg]	(SPEAG) 10g[W/kg]
2450	D2450,713	54.80	25.40
5250	D5GHV2,1020	82.20	23.50
5600	D5GHV2,1020	85.00	24.20
5800	D5GHV2,1020	81.50	23.00

The target(reference) SAR values can be obtained from the calibration certificate of system validation dipoles(Refer to Appendix 2). The target SAR values are SAR measured value in the calibration certificate scaled to 1W.

Date Tested	Test Freq	Model,S/N	T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %
					Zoom Scan	Normalize to 1 W		
2020/7/1	2450	D2450,713	Head	1g	13.80	55.2	54.80	0.7
				10g	6.33	25.3	25.40	-0.3
2020/7/2	2450	D2450,713	Head	1g	13.60	54.4	54.80	-0.7
				10g	6.23	24.92	25.40	-1.9
2020/7/6	5250	D5GHV2,1020	Head	1g	8.74	87.4	82.20	6.3
				10g	2.48	24.80	23.50	5.5
2020/7/7	5600	D5GHV2,1020	Head	1g	8.78	87.80	85.00	3.3
				10g	2.45	24.50	24.20	1.2
2020/7/8	5800	D5GHV2,1020	Head	1g	8.52	85.20	81.50	4.5
				10g	2.38	23.80	23.00	3.5

SECTION12: Measured and Reported (Scaled) SAR Results

WLAN SAR Test Reduction criteria are as follows

- **KDB 248227 D01 (SAR Guidance for 802.11(Wi-Fi) Transmitters):**

SAR test reduction for 802.11 WLAN transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.
The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
    - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
    - When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.
    - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the *initial test position*, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the *initial test position*.

SAR Test Reduction criteria(excluding WLAN) are as follows

KDB 447498 D01 (General RF Exposure Guidance):

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ✧ ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ✧ ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ✧ ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

- According to Notice 2016-DRS001 based on the IEEE1528 and IEC 62209 requirements, the low, mid and high frequency channels for the configuration with the highest SAR value must be tested regardless of the SAR value measured.
- When reported SAR value is exceed 1.2W/kg(if any), device holder perturbation verification is required; however, since distance between device holder and antenna of EUT is enough, it was not conducted.
- Reported SAR= Measured SAR [W/kg] · Scaled factor
  * Scaled factor = Maximum tune-up tolerance limit [mW] / Measured power [mW]
- Maximum tune-up tolerance limit is by the specification from a customer.

Note: Measured value is rounded round off to three decimal places

12.1 Result of Body SAR of WLAN 2.4GHz Band

ARB-BWC3MNT-MAG

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.045	0.056	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

ARB-BWC3MNT-MOLLE

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.090	0.112	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

ARB-BWC3MNT-CLAMP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.021	0.026	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

ARB-BWC3BLTCLIP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.099	0.124	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			
Rear tilt	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.072	0.090	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

ARB-BWC3BLTLOOP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.042	0.052	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

ARB-BWCVESTMNT

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.081	0.101	
			6	2437	18.00	16.77	1.33	99.00	1.01			
			11	2462	18.00	16.98	1.26	99.00	1.01			

Without compatible holder

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11b	1	2412	18.00	17.08	1.24	99.00	1.01	0.100	0.125	
			6	2437	18.00	16.77	1.33	99.00	1.01	0.123	0.165	
			11	2462	18.00	16.98	1.26	99.00	1.01	0.136	0.174	

1) When KDB447498D01 SAR test exclusion applies to the OFDM configuration.
2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Maximum tune-up tolerance limit		Maximum tune-up tolerance limit		OFDM scaled factor	Position	DSSS Reported SAR value [W/kg]	OFDM Estimated SAR value [W/kg]	Exclusion limit [W/kg]	**Standalone SAR request**
DSSS		OFDM							
[dBm]	[mW]	[dBm]	[mW]						
18.00	63.10	12.00	15.85	0.251	Rear	0.174	0.044	< 1.2	**No**

Note(s):

- OFDM scaled factor = Maximum tune-up tolerance limit of OFDM [mW] / Maximum tune-up tolerance limit of DSSS [mW]
- Estimated SAR of OFDM= Reported SAR of DSSS[W/kg] · OFDM scaled factor

12.2 Result of Body SAR of BLE

ARB-BWC3MNT-MAG

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	0.0000321	0.0000859	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

ARB-BWC3MNT-MOLLE

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	0.0000229	0.0000613	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

ARB-BWC3MNT-CLAMP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	Not detect	-	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

ARB-BWC3BLTCLIP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	0.000472	0.001263	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			
Rear tilt	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	Not detect	-	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

ARB-BWC3BLTLOOP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	0.000041	0.000109	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

ARB-BWCVESTMNT

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	Not detect	-	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

Without compatible holder

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty factor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	LE	37	2402	6.00	5.33	1.167	43.6	2.294	Not detect	-	
			17	2440	6.00	5.24	1.191	43.6	2.294			
			39	2480	6.00	4.68	1.355	43.6	2.294			

"Not detect" means that SAR Peak was not detected in Area Scan.

12.3 Result of Body SAR of WLAN 5.3GHz Band

ARB-BWC3MNT-MAG

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.058	0.062	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

ARB-BWC3MNT-MOLLE

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.054	0.058	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

ARB-BWC3MNT-CLAMP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.018	0.019	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

ARB-BWC3BLTCLIP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.026	0.028	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			
Rear tilt	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.023	0.025	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

ARB-BWC3BLTLOOP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.024	0.026	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

ARB-BWC3VESTMNT

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.082	0.088	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

Without compatible holder

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	56	5280	12.00	12.00	1.00	93.60	1.07	0.101	0.108	
			60	5300	12.00	11.88	1.03	93.60	1.07			
			64	5320	12.00	11.85	1.04	93.60	1.07			

1) When KDB447498D01 SAR test exclusion applies to the OFDM configuration.
2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Maximum tune-up tolerance limit		Maximum tune-up tolerance limit		OFDM scaled factor	Position	DSSS Reported SAR value [W/kg]	OFDM Estimated SAR value [W/kg]	Exclusion limit [W/kg]	**Standalone SAR request**
DSSS		OFDM							
[dBm]	[mW]	[dBm]	[mW]						
18.00	63.10	12.00	15.85	0.251	Rear	0.174	0.044	< 1.2	**No**

Note(s):

- OFDM scaled factor = Maximum tune-up tolerance limit of OFDM [mW] / Maximum tune-up tolerance limit of DSSS [mW]
- Estimated SAR of OFDM= Reported SAR of DSSS[W/kg] · OFDM scaled factor

12.4 Result of Body SAR of WLAN 5.5GHz Band

ARB-BWC3MNT-MAG

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.067	0.073	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

ARB-BWC3MNT-MOLLE

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.059	0.065	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

ARB-BWC3MNT-CLAMP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.039	0.043	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

ARB-BWC3BLTCLIP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.027	0.030	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			
Rear tilt	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.023	0.025	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

ARB-BWC3BLTLOOP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.032	0.035	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

ARB-BWC3VESTMNT

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.080	0.088	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

Without compatible holder

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	100	5500	12.00	11.80	1.05	93.60	1.07			
			116	5580	12.00	11.89	1.03	93.60	1.07	0.085	0.093	
			140	5700	12.00	11.65	1.08	93.60	1.07			
			144	5720	12.00	11.63	1.09	93.60	1.07			

12.5 Result of Body SAR of WLAN 5.8GHz Band

ARB-BWC3MNT-MAG

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.089	0.111	
			165	5825	12.00	11.21	1.20	93.60	1.07			

ARB-BWC3MNT-MOLLE

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.052	0.065	
			165	5825	12.00	11.21	1.20	93.60	1.07			

ARB-BWC3MNT-CLAMP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.046	0.057	
			165	5825	12.00	11.21	1.20	93.60	1.07			

ARB-BWC3BLTCLIP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.030	0.037	
			165	5825	12.00	11.21	1.20	93.60	1.07			
Rear tilt	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.028	0.035	
			165	5825	12.00	11.21	1.20	93.60	1.07			

ARB-BWC3BLTLOOP

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.032	0.040	
			165	5825	12.00	11.21	1.20	93.60	1.07			

ARB-BWC3VESTMNT

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)		Scaled factor	Duty [%]	Duty facor	1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power				Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07			
			157	5785	12.00	11.33	1.17	93.60	1.07	0.085	0.106	
			165	5825	12.00	11.21	1.20	93.60	1.07			

Without compatible holder

Test Position	Dist. (mm)	Mode	Ch #.	Freq. (MHz)	Power (dBm)					1-g SAR (W/kg)		Plot No.
					Tune-up upper Power	Measured average Power	Scaled factor	Duty [%]	Duty facor	Meas.	Reported	
Rear	0	802.11a	149	5745	12.00	11.31	1.17	93.60	1.07	0.100	0.125	
			157	5785	12.00	11.33	1.17	93.60	1.07	0.102	0.127	
			165	5825	12.00	11.21	1.20	93.60	1.07	0.102	0.131	

12.6 Repeated measurement

According to KDB865664 D1.
1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) 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).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Wireless Technologies	Test Configuration				Mode	Ch #.	Freq. (MHz)	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio	Plot No.
	Transmit Antenna	Exposure	Position	Dist. (mm)				Original	Repeated		
BLE	for WLAN2.4G/BLE	Body	Rear	0	LE	37	2402	0.000472	N/A	N/A	-
Wi-Fi 2.4 GHz	for WLAN2.4G/BLE	Body	Rear	0	802.11b 1Mbps	1	2412	0.136	N/A	N/A	-
Wi-Fi 5.3 GHz	for WLAN5G	Body	Rear	0	802.11a 6Mbps	56	5280	0.101	N/A	N/A	-
Wi-Fi 5.5 GHz	for WLAN5G	Body	Rear	0	802.11a 6Mbps	116	5580	0.085	N/A	N/A	-
Wi-Fi 5.8 GHz	for WLAN5G	Body	Rear	0	802.11a 6Mbps	165	5825	0.102	N/A	N/A	-

Note(s):
N/A: Repeated Measurement is not required since the original highest measured SAR for all band is < 0.80 W/kg.

SECTION13: Test instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	SAR(D2450)	2019/09/09 * 12
MDA-08	Dipole Antenna	Schmid&Partner Engineering AG	D5GHzV2	1020	SAR(D5G)	2019/11/19 * 12
COTS-MSAR-03	Dasy5	Schmid&Partner Engineering AG	DASY5	-	SAR	Pre Check
MHBBL600-10000	Head Simulating Liquid	Schmid&Partner Engineering AG	SL AAH U16 BC	-	SAR	Pre Check
MNA-03	Vector Reflectometer	Copper Mountain Technologies	PLANAR R140	0030913	SAR	2020/04/22 * 12
MDPK-03	Dielectric assessment kit	Schmid&Partner Engineering AG	DAK-3.5	0008	SAR	2020/04/28 * 12
MOS-37	Digital thermometer	LKM electronic	DTM3000	-	SAR	2019/07/3 * 12
COTS-MSAR-04	Dielectric assessment	Schmid&Partner Engineering AG	DAK	-	SAR	Pre Check
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	509	SAR	2019/07/08 * 12
MPSAM-02	SAM Phantom	Schmid&Partner Engineering AG	QD000P40CB	1333	SAR	2020/05/21 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-33	Thermo-Hygrometer	CUSTOM	CTH-201	3301	SAR	2019/07/03 * 12
MRBT-02	SAR robot	Schmid&Partner Engineering AG	TX60 Lspeag	F10/5E3LA1/A/01	SAR	2020/04/26 * 12
MRENT-S12	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE4	554	SAR	2020/04/23 * 12
MRENT-S09	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3803	SAR	2020/04/28 * 12
MPM-15	Power Meter	Keysight Technologies Inc	N1914A	MY53060017	SAR	2020/06/10 * 12
MPSE-20	Power sensor	Agilent	N8482H	MY53050001	SAR	2020/06/10 * 12
MRFA-24	Pre Amplifier	R&K	R&K CGA020M602-	B30550	SAR	2020/06/10 * 12
MSG-10	Signal Generator	Agilent	N5181A	MY47421098	SAR	2019/11/25 * 12
MAT-78	Attenuator	Telegrartner	J01156A0011	0042294119	SAR	Pre Check
MPSE-24	Power sensor	Anritsu Limited	MA24106A	1026164	SAR	2019/08/02 * 12
MPSE-25	Power sensor	Anritsu Limited	MA24106A	1031504	SAR	2019/08/02 * 12
COTS-MPSE-02	Software for MA24106A	Anritsu Limited	Anritsu PowerXpert	-	SAR	Pre Check
MHDC-12	Dual Directional Coupler	Hewlett Packard	772D	2839A0016	SAR(2-18GHz)	Pre Check

***1) This test equipment was used for the tests before the expiration date of the calibration.**
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.

SAR room is checked before every testing and ambient noise is <0.012W/kg

APPENDIX 1 : System Check

20200701 2450MHz System Check

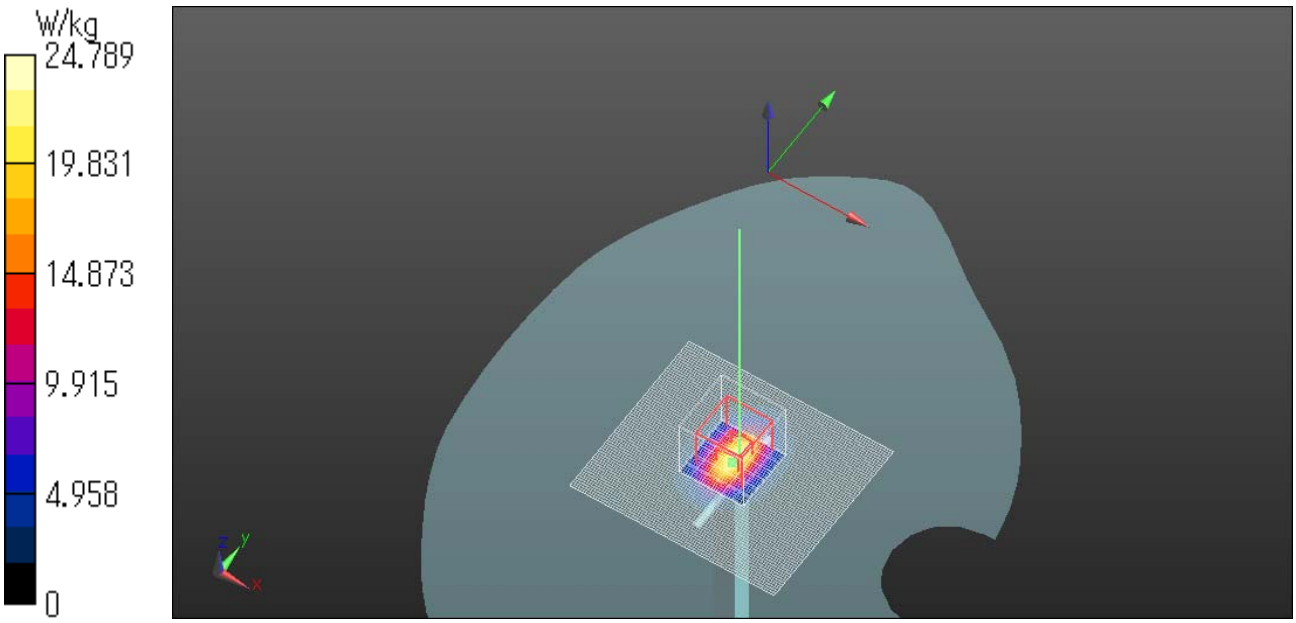
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); ; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.821 S/m; ε_r = 39.034; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2450 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

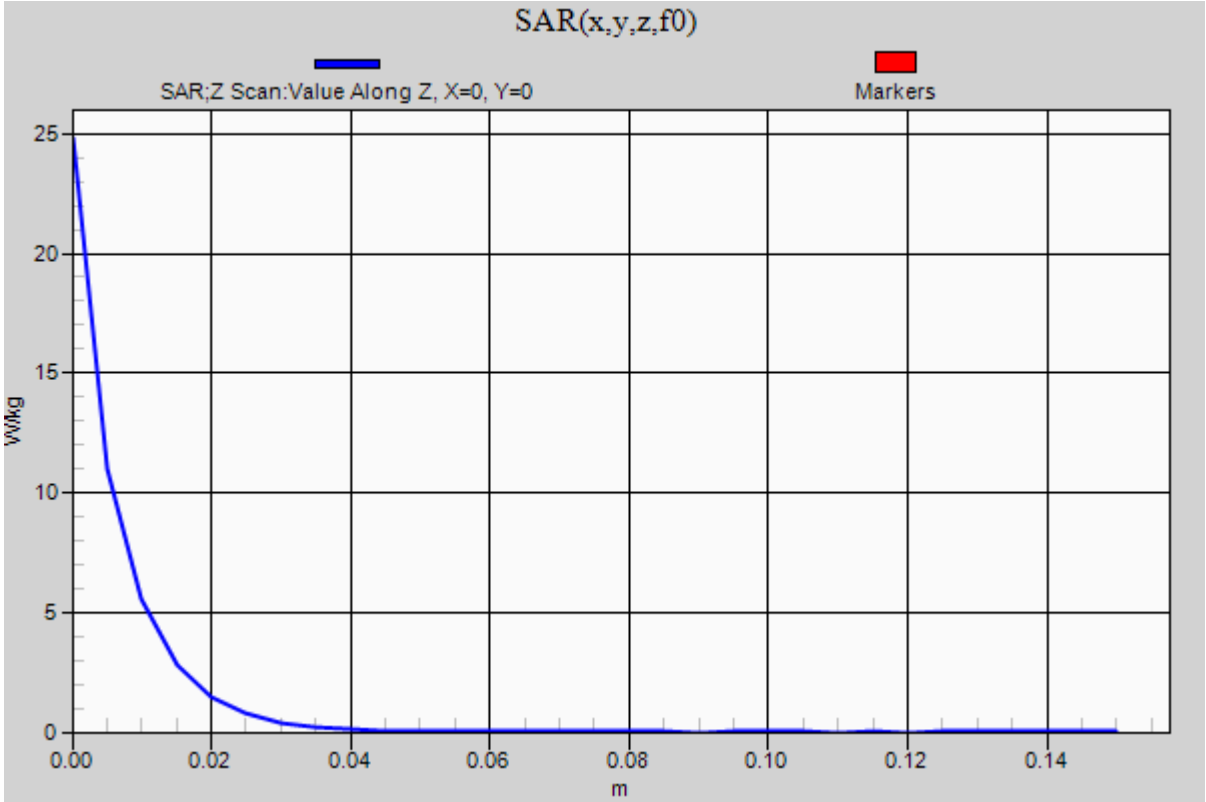
Pin/250mW/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.3 W/kg

Pin/250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 29.5 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.33 W/kg
Smallest distance from peaks to all points 3 dB below = 8.5 mm
Ratio of SAR at M2 to SAR at M1 = 47.5%
Maximum value of SAR (measured) = 23.3 W/kg

Pin/250mW/Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 24.8 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01




SAR(x,y,z,f0)
SAR;Z Scan:Value Along Z, X=0, Y=0
Markers
W/kg
25
20
15
10
5
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

20200702 2450MHz System Check

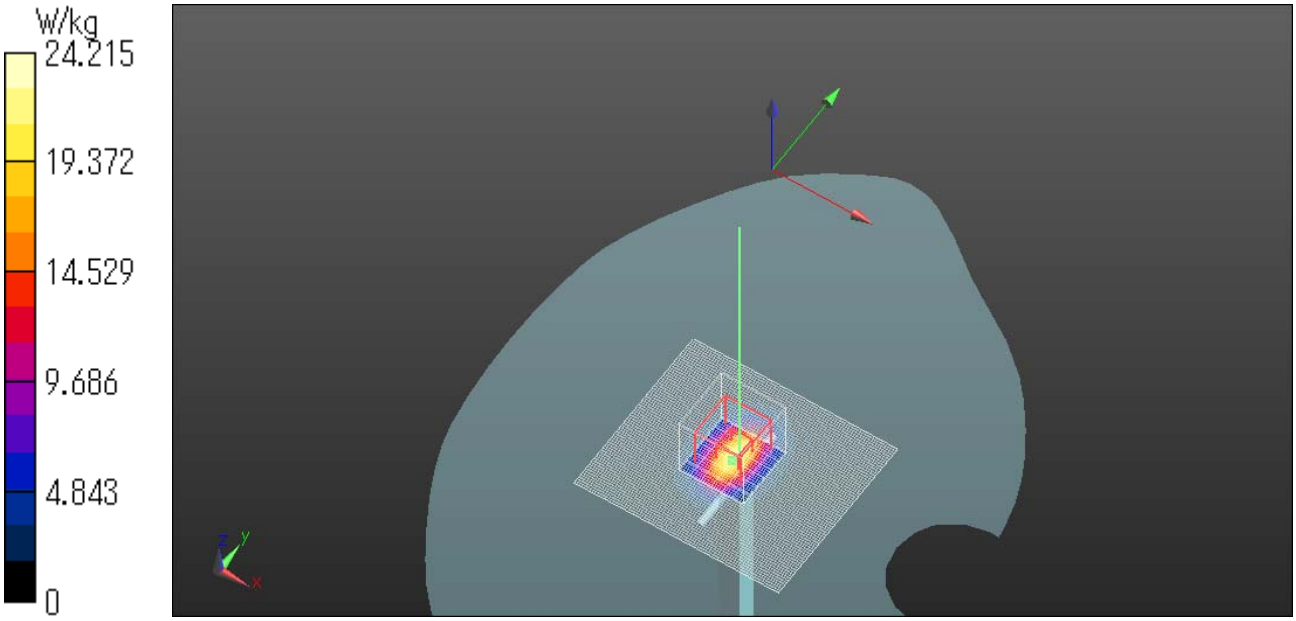
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); ; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.828 S/m; ε_r = 39.308; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2450 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

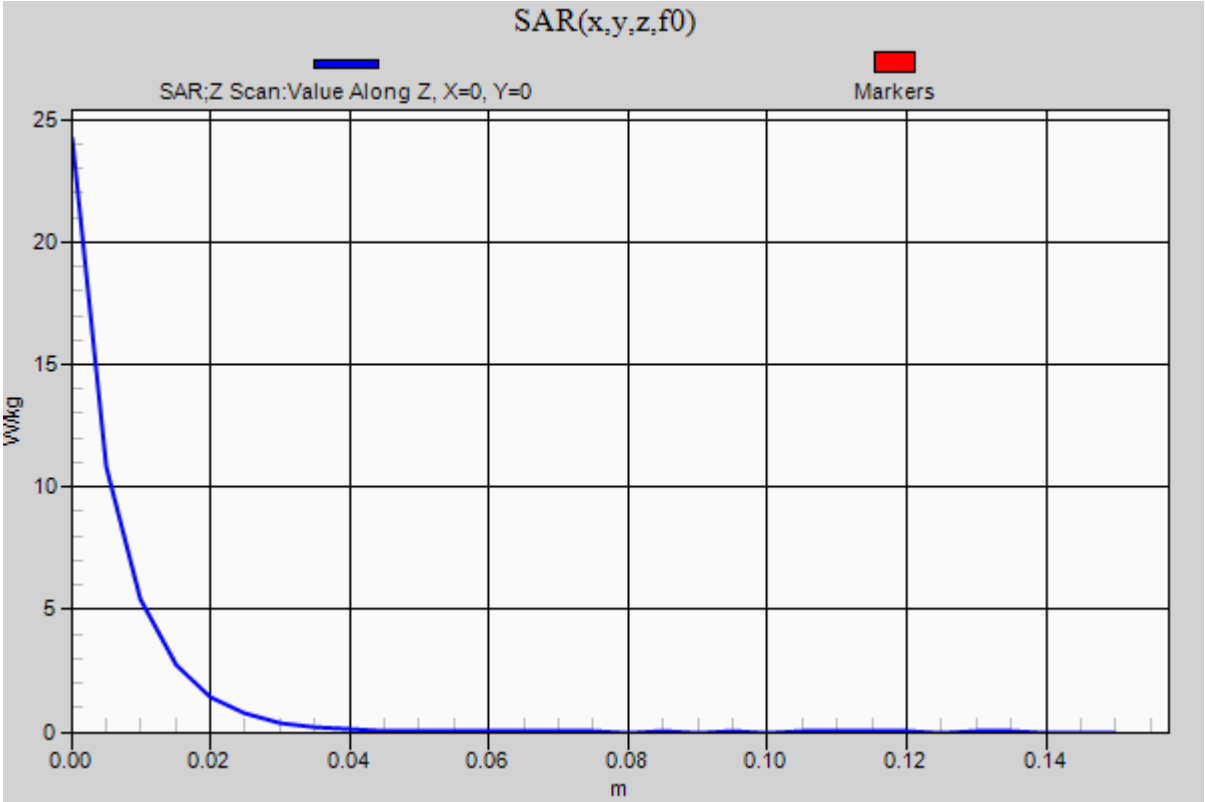
Pin/250mW/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.4 W/kg

Pin/250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.0 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.23 W/kg
Smallest distance from peaks to all points 3 dB below = 8.5 mm
Ratio of SAR at M2 to SAR at M1 = 47.7%
Maximum value of SAR (measured) = 22.8 W/kg

Pin/250mW/Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 24.2 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02




SAR(x,y,z,f0)
SAR;Z Scan:Value Along Z, X=0, Y=0
Markers
W/kg
25
20
15
10
5
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

20200706 5250MHz System Check

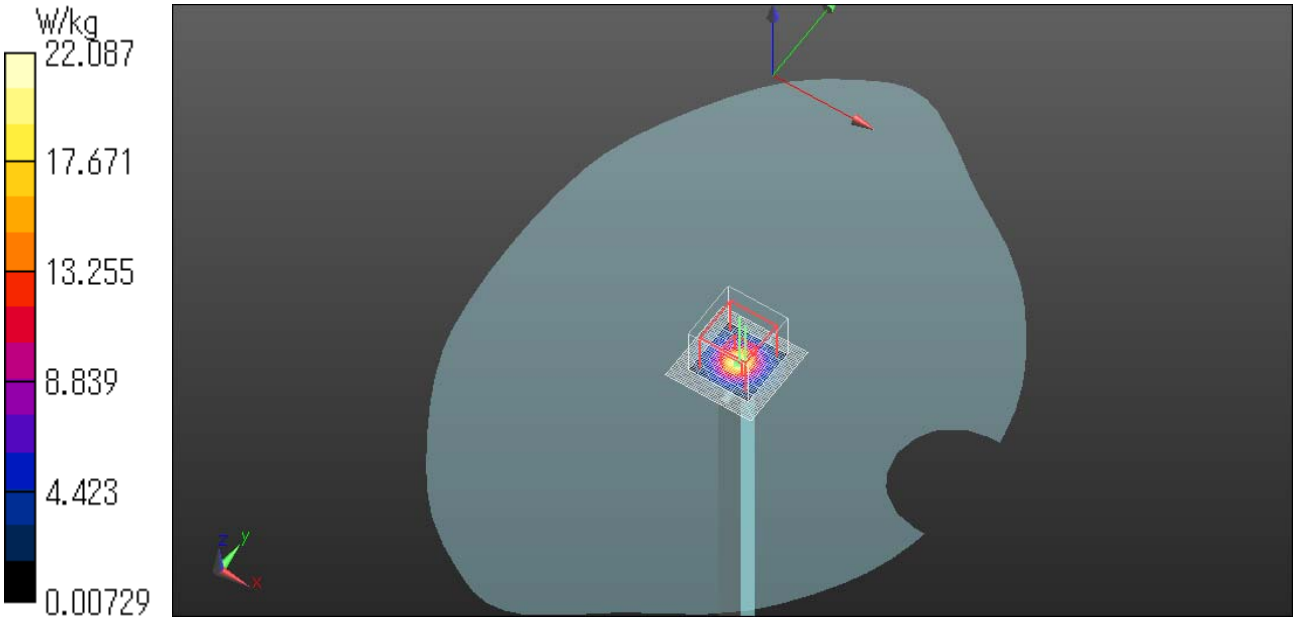
Communication System: UID 0, #CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); ; Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.69 S/m; ε_r = 35.477; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5250 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

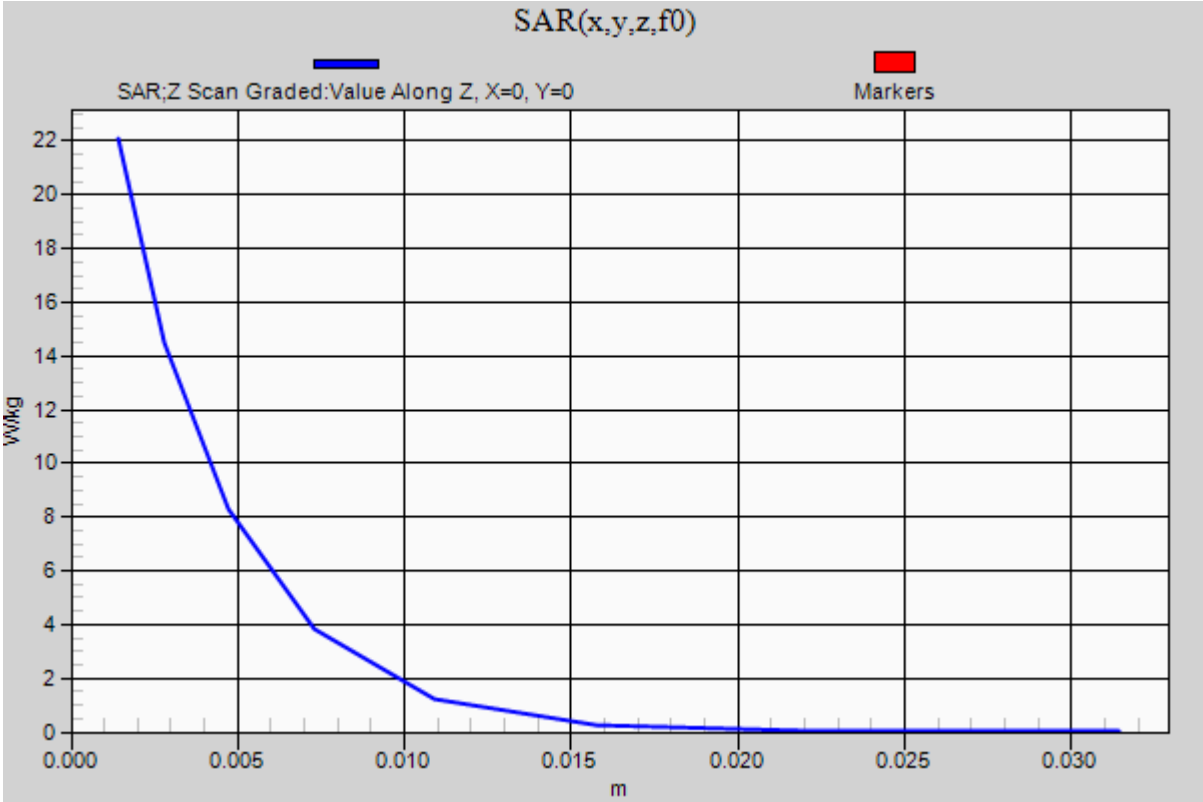
Pin/100mW START - Find Maximum/Area Scan (41x41x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 22.2 W/kg

Pin/100mW/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 75.14 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 34.3 W/kg
SAR(1 g) = 8.74 W/kg; SAR(10 g) = 2.48 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66.3%
Maximum value of SAR (measured) = 20.2 W/kg

Pin/100mW/Z Scan Graded (1x1x8): Measurement grid: dx=20mm, dy=20mm, dz=1.4mm
Maximum value of SAR (measured) = 22.1 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06




SAR(x,y,z,f0)
SAR;Z Scan Graded:Value Along Z, X=0, Y=0
Markers
W/kg
22
20
18
16
14
12
10
8
6
4
2
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

20200707 5600MHz System Check

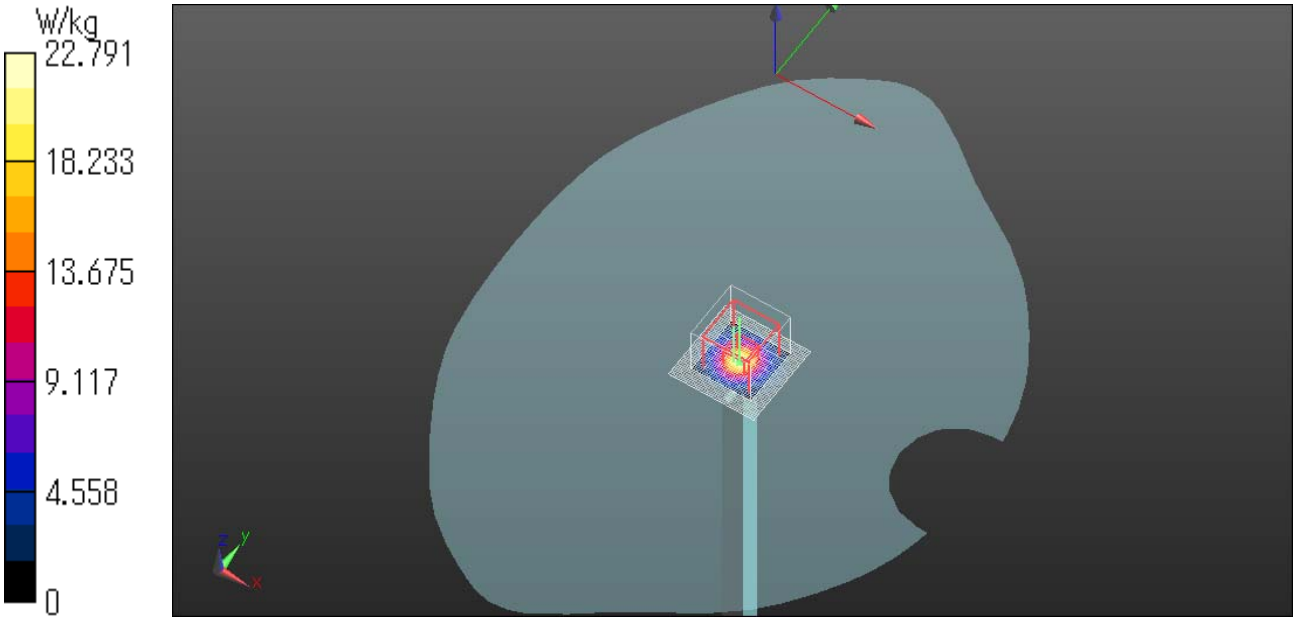
Communication System: UID 0, #CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); ; Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.962 S/m; ε_r = 35.17; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5600 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

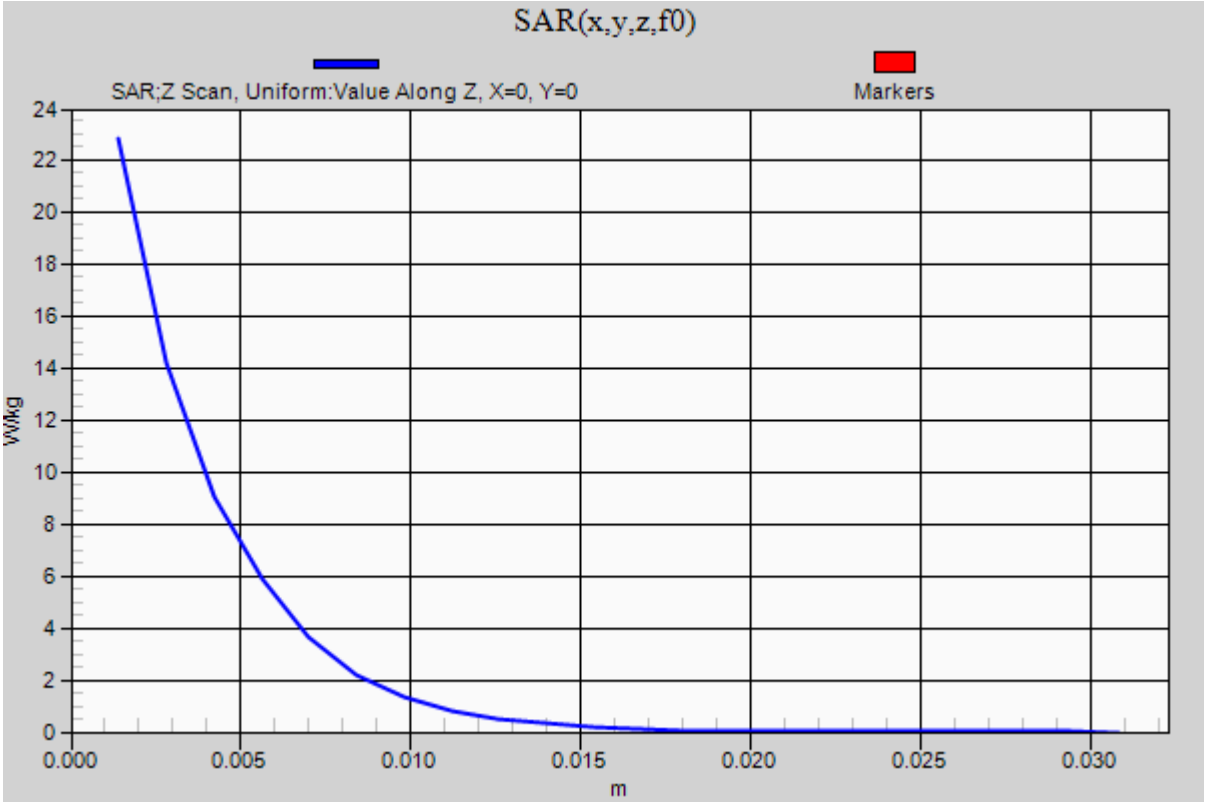
Pin/100mW START - Find Maximum/Area Scan (41x41x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 23.0 W/kg

Pin/100mW/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 74.83 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 38.8 W/kg
SAR(1 g) = 8.78 W/kg; SAR(10 g) = 2.45 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 62.5%
Maximum value of SAR (measured) = 21.1 W/kg

Pin/100mW/Z Scan, Uniform (1x1x22): Measurement grid: dx=20mm, dy=20mm, dz=1.4mm
Maximum value of SAR (measured) = 22.8 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07




SAR(x,y,z,f0)
SAR;Z Scan, Uniform:Value Along Z, X=0, Y=0
Markers
W/kg
24
22
20
18
16
14
12
10
8
6
4
2
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

20200708 5800MHz System Check

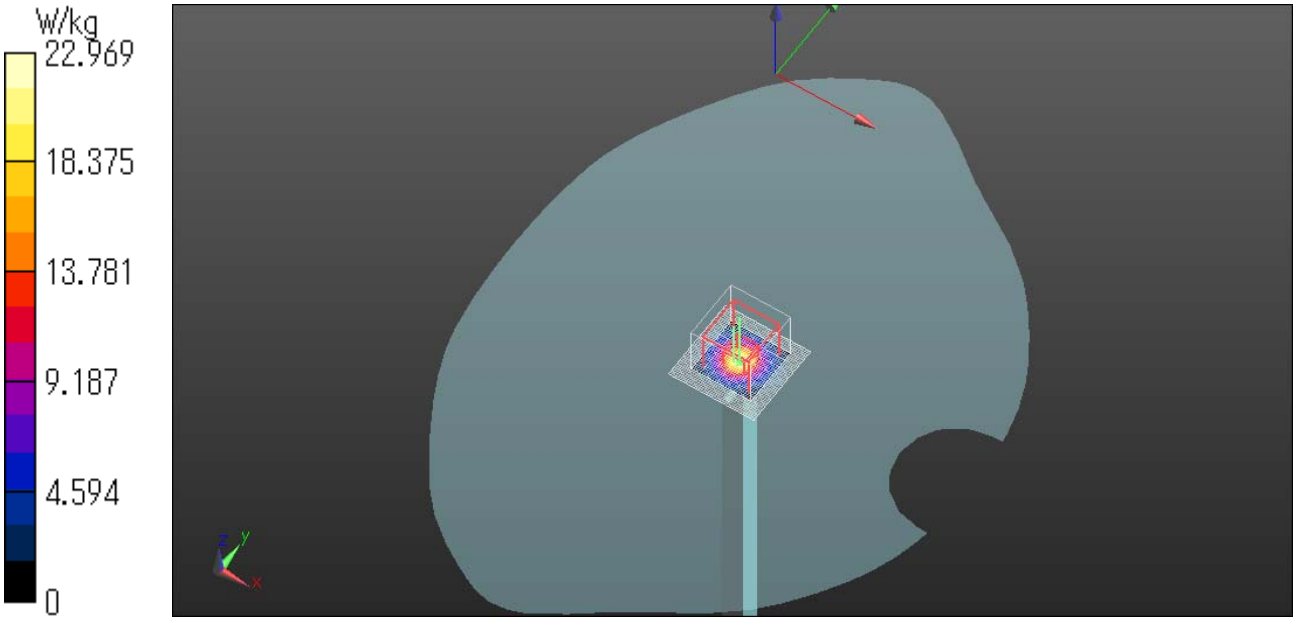
Communication System: UID 0, #CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); ; Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.31 S/m; ε_r = 33.763; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5800 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

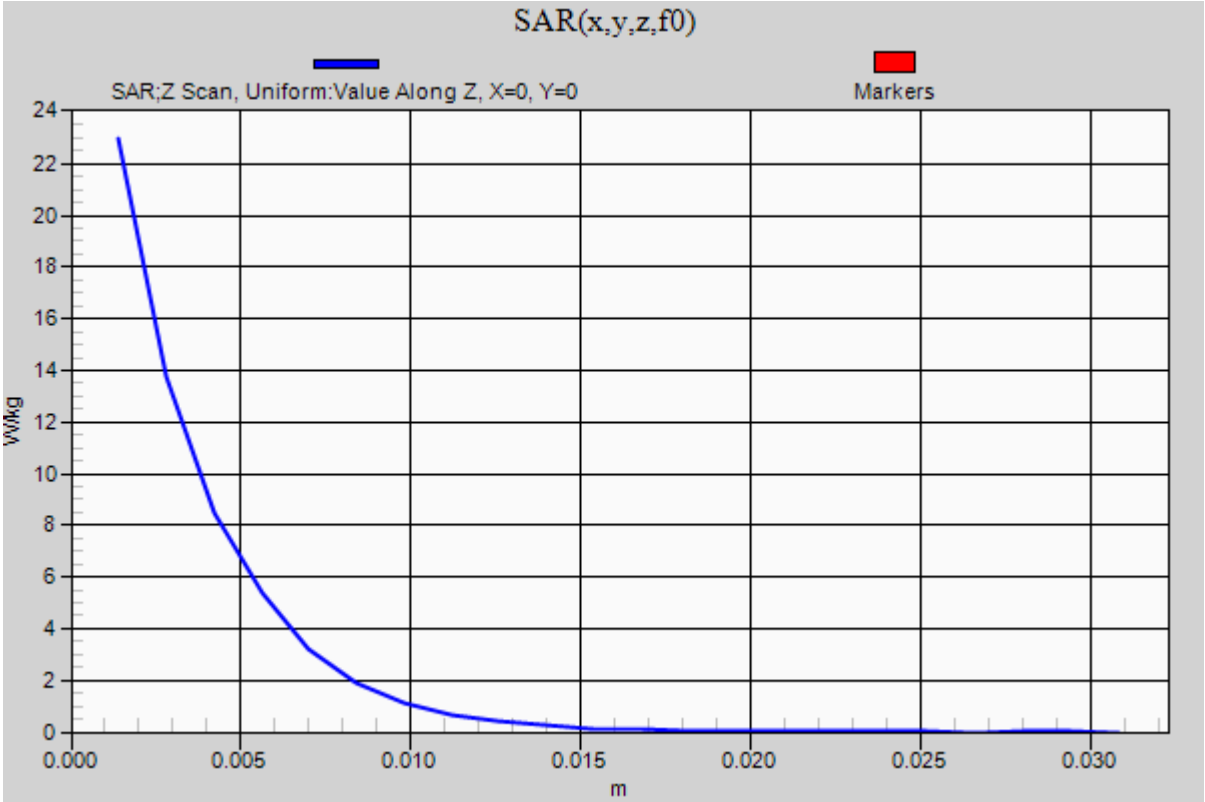
Pin/100mW START - Find Maximum/Area Scan (41x41x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 22.5 W/kg

Pin/100mW/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 71.78 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 40.3 W/kg
SAR(1 g) = 8.52 W/kg; SAR(10 g) = 2.38 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 59.9%
Maximum value of SAR (measured) = 21.5 W/kg

Pin/100mW/Z Scan, Uniform (1x1x22): Measurement grid: dx=20mm, dy=20mm, dz=1.4mm
Maximum value of SAR (measured) = 23.0 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08




SAR(x,y,z,f0)
SAR;Z Scan, Uniform:Value Along Z, X=0, Y=0
Markers
W/kg
24
22
20
18
16
14
12
10
8
6
4
2
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

APPENDIX 2 : SAR Measurement data

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.

***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.

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

Measurement data

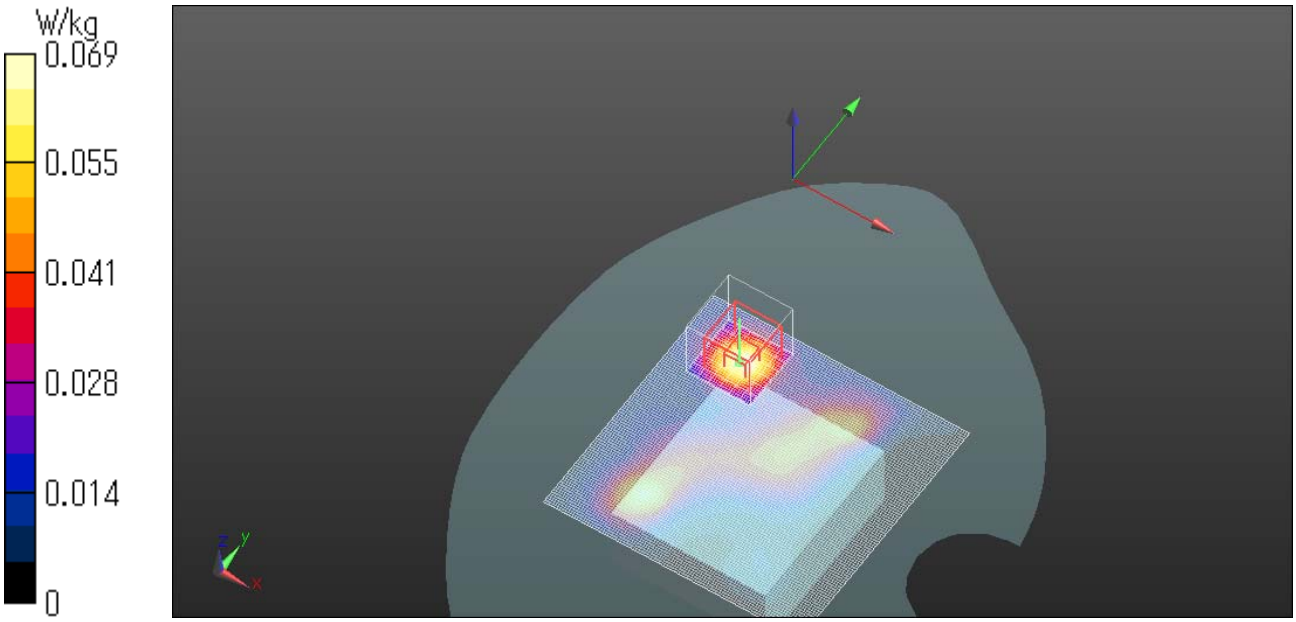
WLAN11b/Rear 0mm 2412MHz _ARB-BWC3MNT-MAG

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0690 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.380 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.0860 W/kg
SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.022 W/kg
Ratio of SAR at M2 to SAR at M1 = 54.4%
Maximum value of SAR (measured) = 0.0688 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



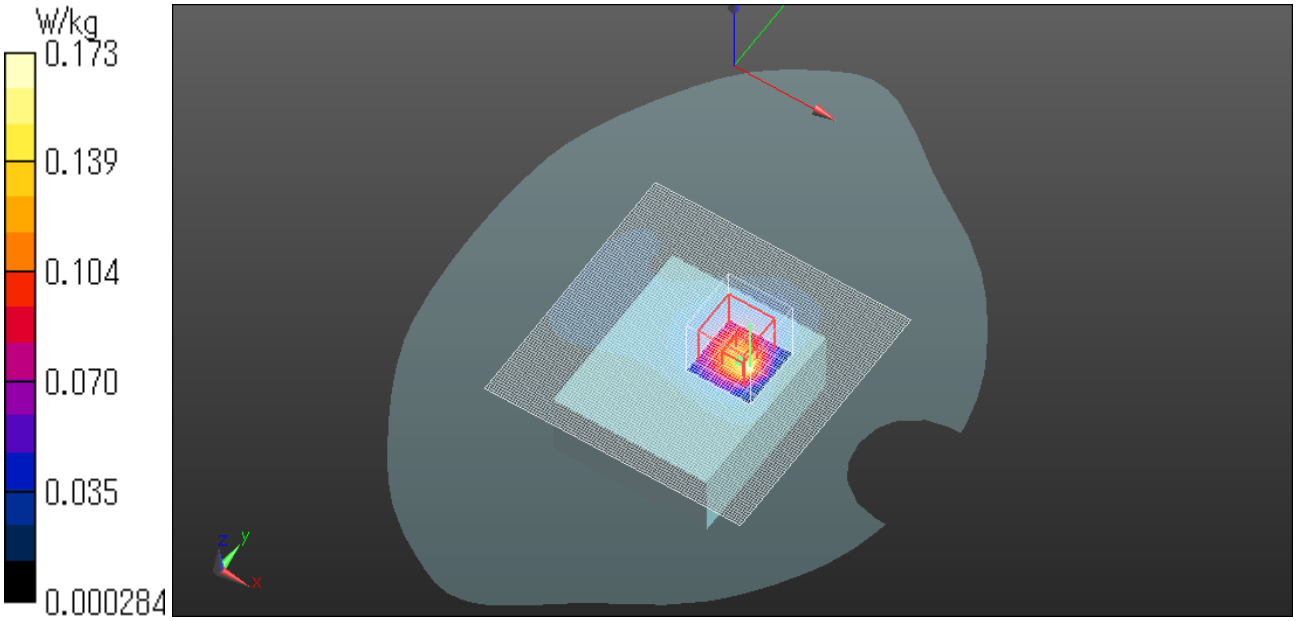
WLAN11b/Rear 0mm 2412MHz _ARB-BWC3MNT-MOLLE

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.132 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.201 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.044 W/kg
Smallest distance from peaks to all points 3 dB below = 6.7 mm
Ratio of SAR at M2 to SAR at M1 = 30.5%
Maximum value of SAR (measured) = 0.173 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



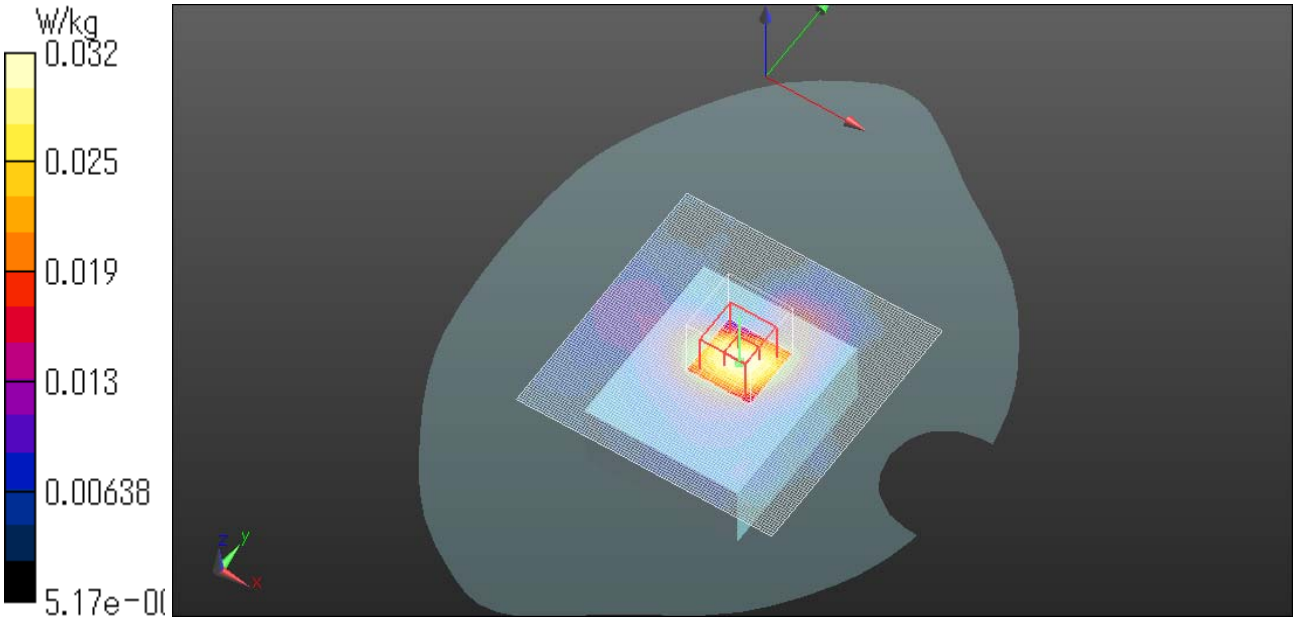
WLAN 11b/Rear 0mm 2412MHz _ARB-BWC3MNT-CLAMP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0335 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.426 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.0410 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.011 W/kg
Ratio of SAR at M2 to SAR at M1 = 50.4%
Maximum value of SAR (measured) = 0.0317 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear 0mm 2412MHz __ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

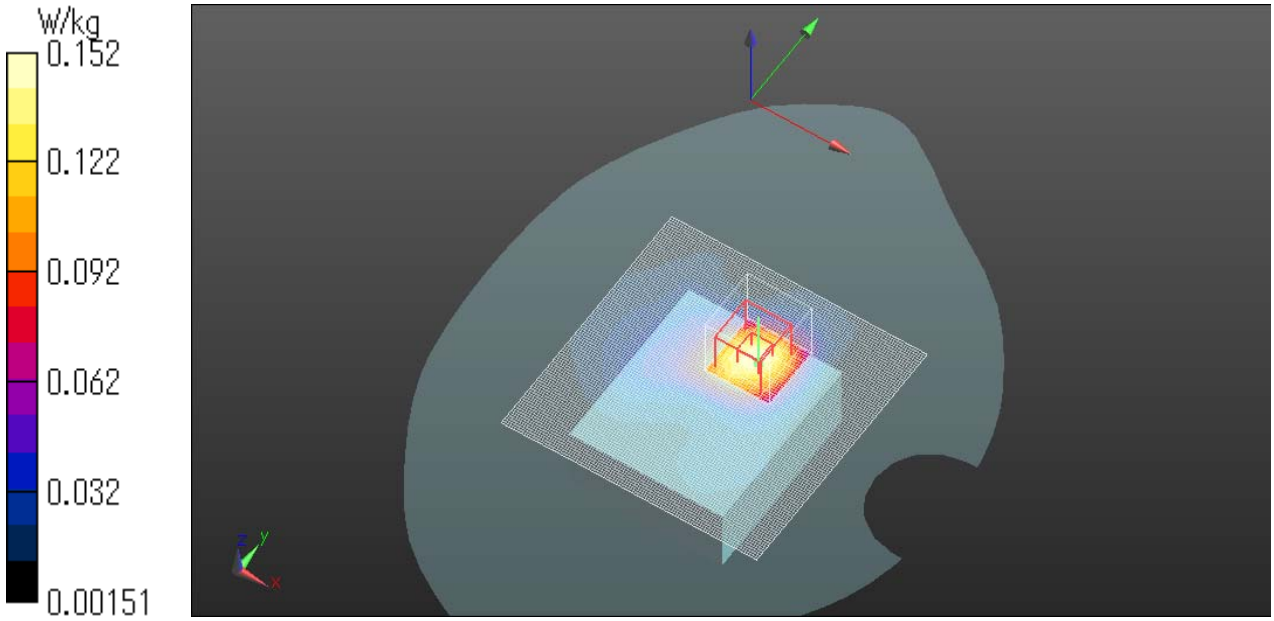
WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.152 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.318 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.099 W/kg; SAR(10 g) = 0.056 W/kg
Smallest distance from peaks to all points 3 dB below = 17.1 mm
Ratio of SAR at M2 to SAR at M1 = 52.2%

Maximum value of SAR (measured) = 0.152 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear tilt 0mm 2412MHz _ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

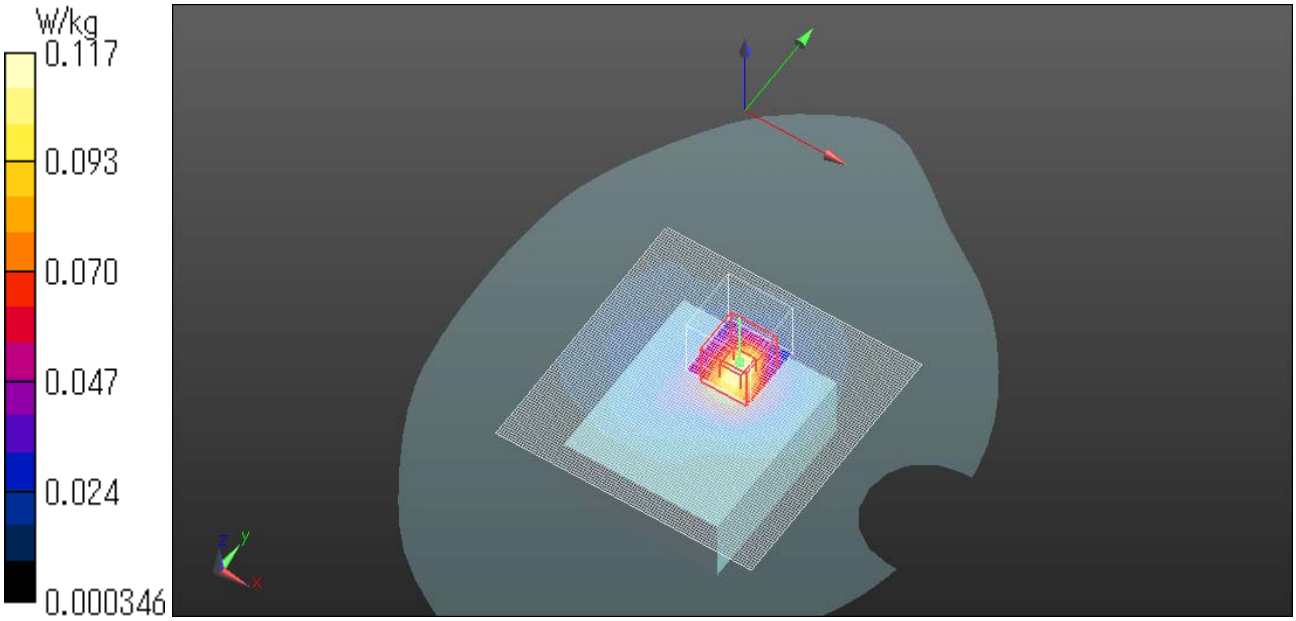
WLAN 11b/Rear tilt 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.108 W/kg

WLAN 11b/Rear tilt 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.218 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.036 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 44.5%

Maximum value of SAR (measured) = 0.117 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear 0mm 2412MHz _ARB-BWC3BLTLOOP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

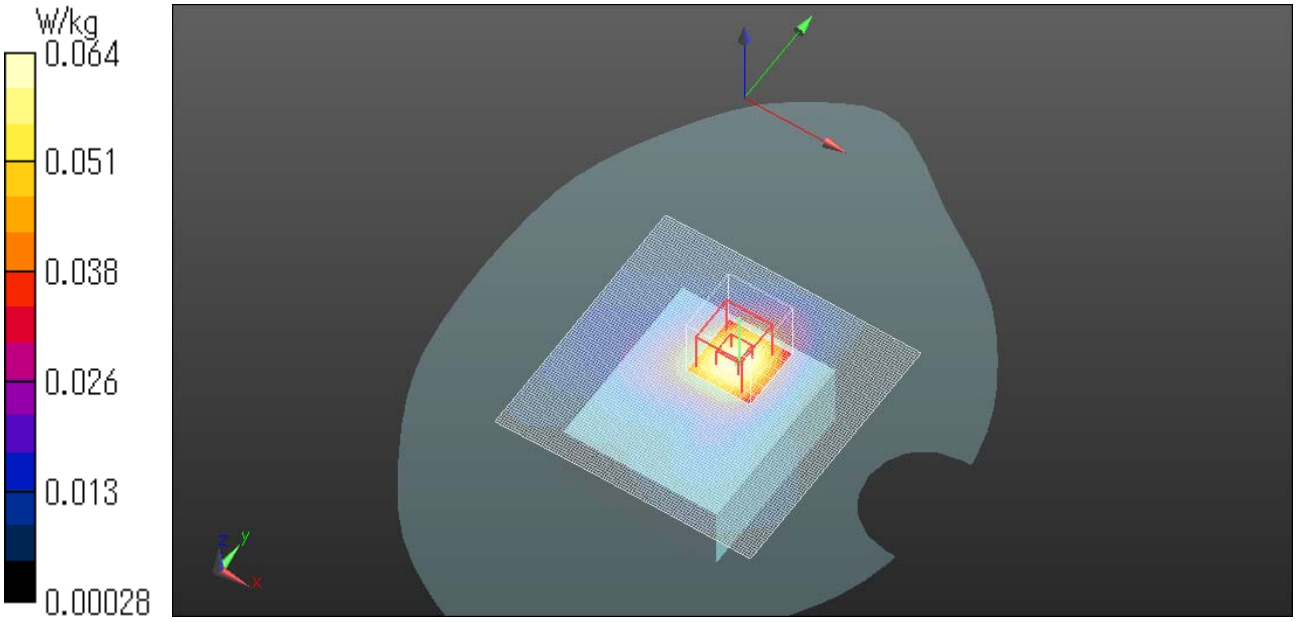
WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0668 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.271 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.0790 W/kg
SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.024 W/kg
Ratio of SAR at M2 to SAR at M1 = 50%

Maximum value of SAR (measured) = 0.0640 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear 0mm 2412MHz _ARB-BWCVESTMNT

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

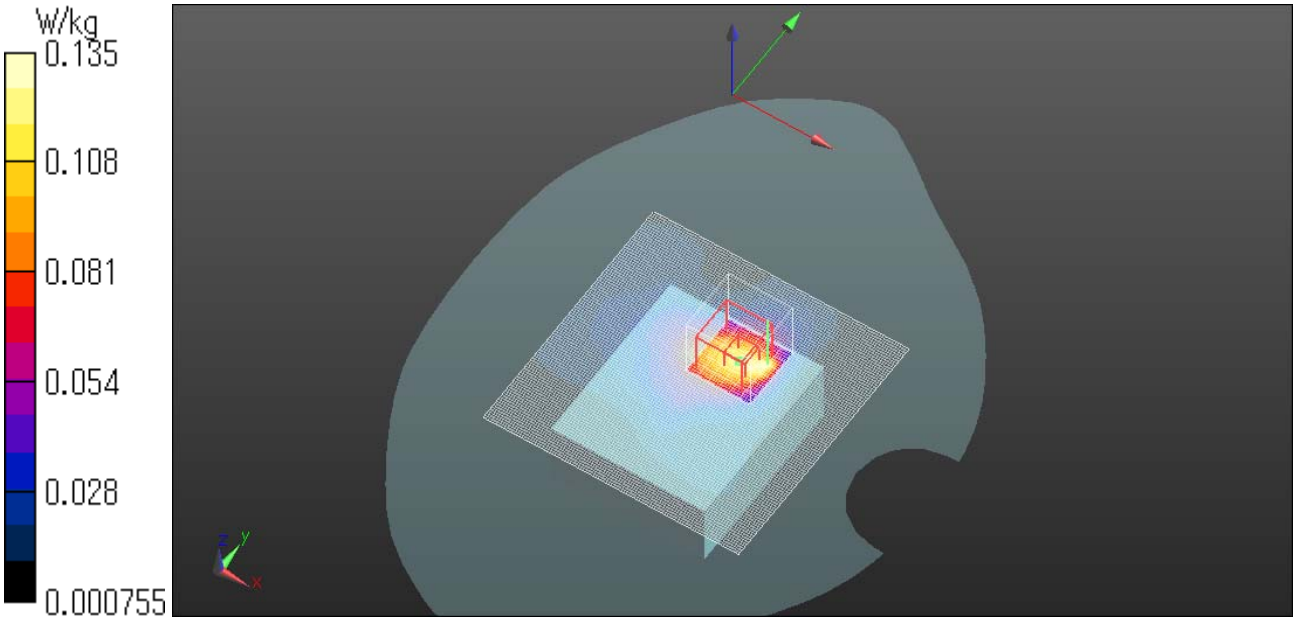
WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.130 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.676 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.081 W/kg; SAR(10 g) = 0.044 W/kg
Smallest distance from peaks to all points 3 dB below = 5 mm
Ratio of SAR at M2 to SAR at M1 = 30.9%

Maximum value of SAR (measured) = 0.135 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



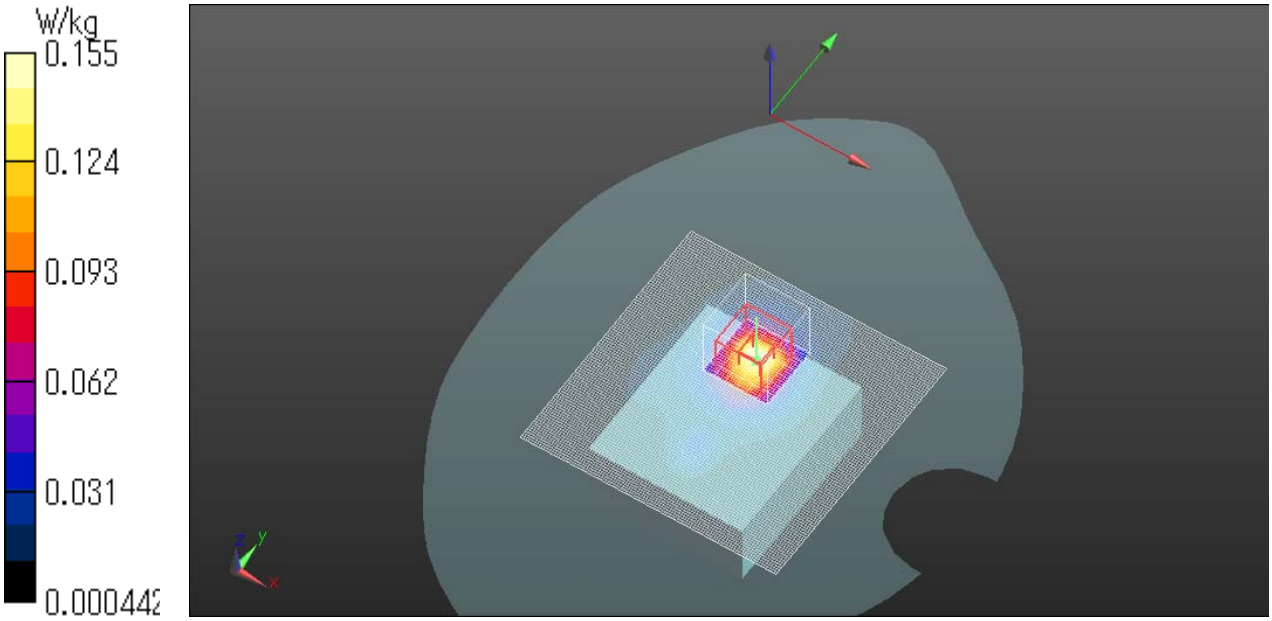
WLAN 11b/Rear 0mm 2412MHz_without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.796 S/m; ε_r = 39.098; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2412 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11b/Rear 0mm 2412MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.169 W/kg

WLAN 11b/Rear 0mm 2412MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.881 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.049 W/kg
Smallest distance from peaks to all points 3 dB below = 9.8 mm
Ratio of SAR at M2 to SAR at M1 = 54.6%
Maximum value of SAR (measured) = 0.155 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear 0mm 2437MHz_without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.814 S/m; ε_r = 39.053; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2437 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

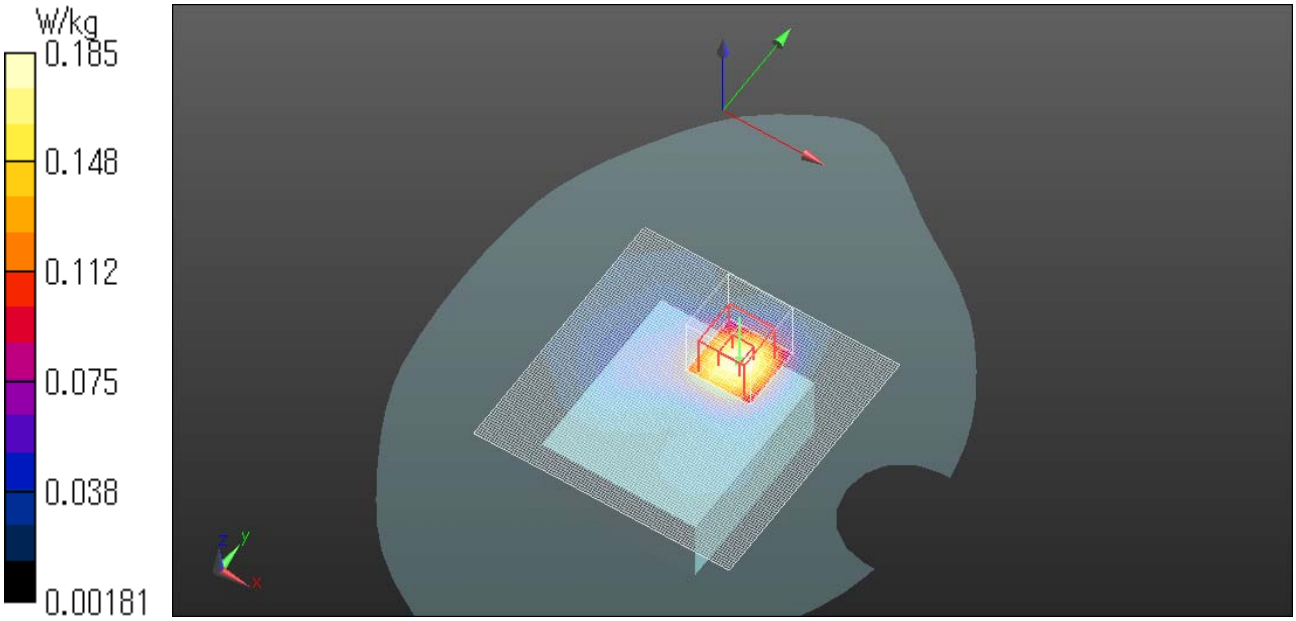
WLAN 11b/Rear 0mm 2437MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.196 W/kg

WLAN 11b/Rear 0mm 2437MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.58 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.069 W/kg
Smallest distance from peaks to all points 3 dB below = 17 mm
Ratio of SAR at M2 to SAR at M1 = 53.3%

Maximum value of SAR (measured) = 0.185 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



WLAN 11b/Rear 0mm 2462MHz_without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11b/g/n (2.4G); ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.829 S/m; ε_r = 39.017; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2462 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

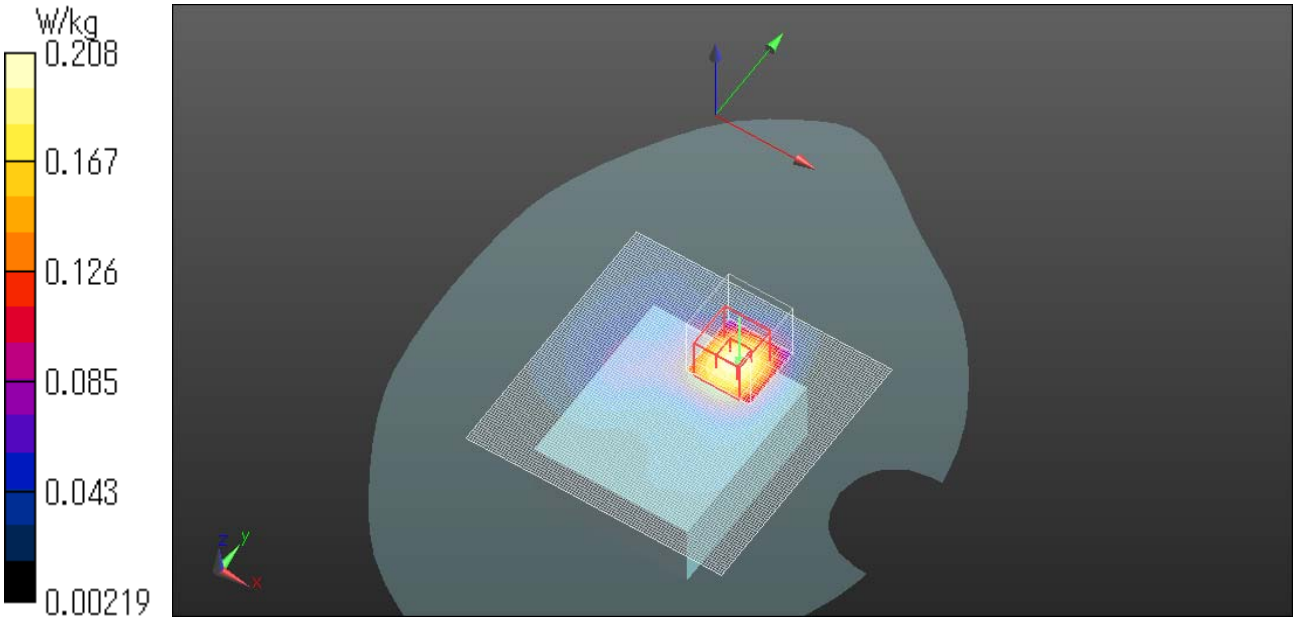
WLAN 11b/Rear 0mm 2462MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.216 W/kg

WLAN 11b/Rear 0mm 2462MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.03 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.076 W/kg
Smallest distance from peaks to all points 3 dB below = 16.6 mm
Ratio of SAR at M2 to SAR at M1 = 51.8%

Maximum value of SAR (measured) = 0.208 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.4 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/01



BLE/Rear 0mm 2402MHz _ARB-BWC3MNT-MAG

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

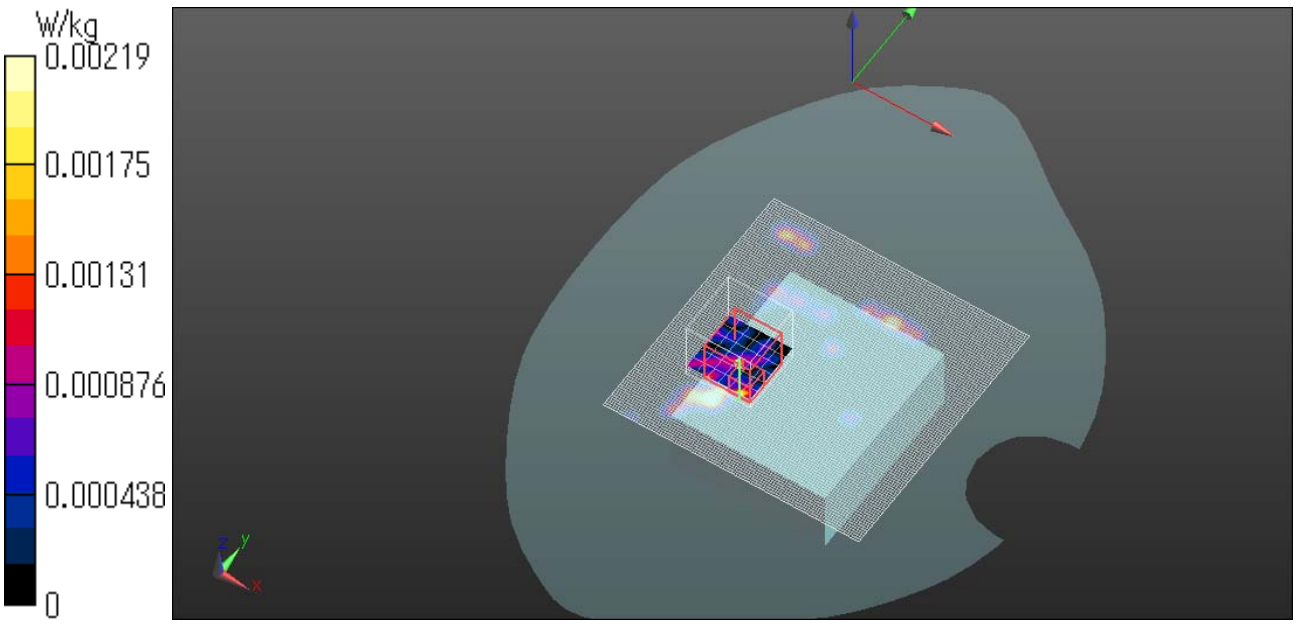
BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.00307 W/kg

BLE/Rear 0mm 2402MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.9570 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.00219 W/kg
SAR(1 g) = 3.21e-005 W/kg; SAR(10 g) = 8.98e-006 W/kg
Ratio of SAR at M2 to SAR at M1 = 81.7%

Maximum value of SAR (measured) = 0.00219 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



BLE/Rear 0mm 2402MHz _ARB-BWC3MNT-MOLLE

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

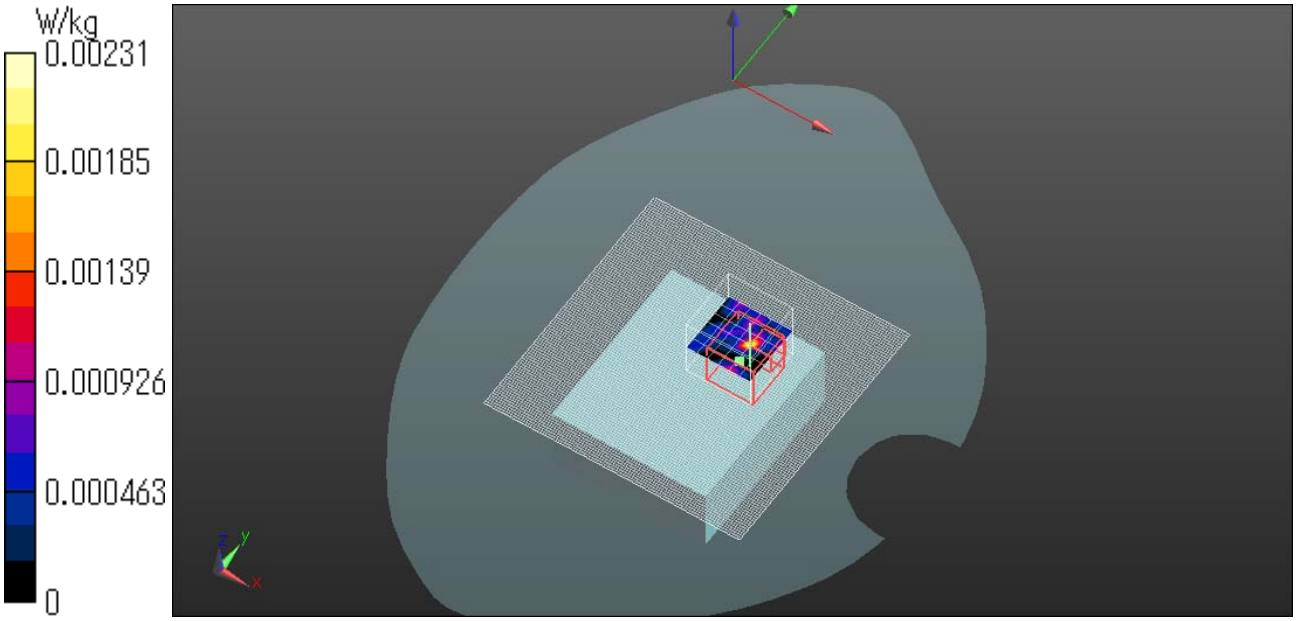
BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.00138 W/kg

BLE/Rear 0mm 2402MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.7030 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.00157 W/kg
SAR(1 g) = 2.29e-005 W/kg; SAR(10 g) = 3.66e-006 W/kg
Ratio of SAR at M2 to SAR at M1 = 45.8%

Maximum value of SAR (measured) = 0.00231 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



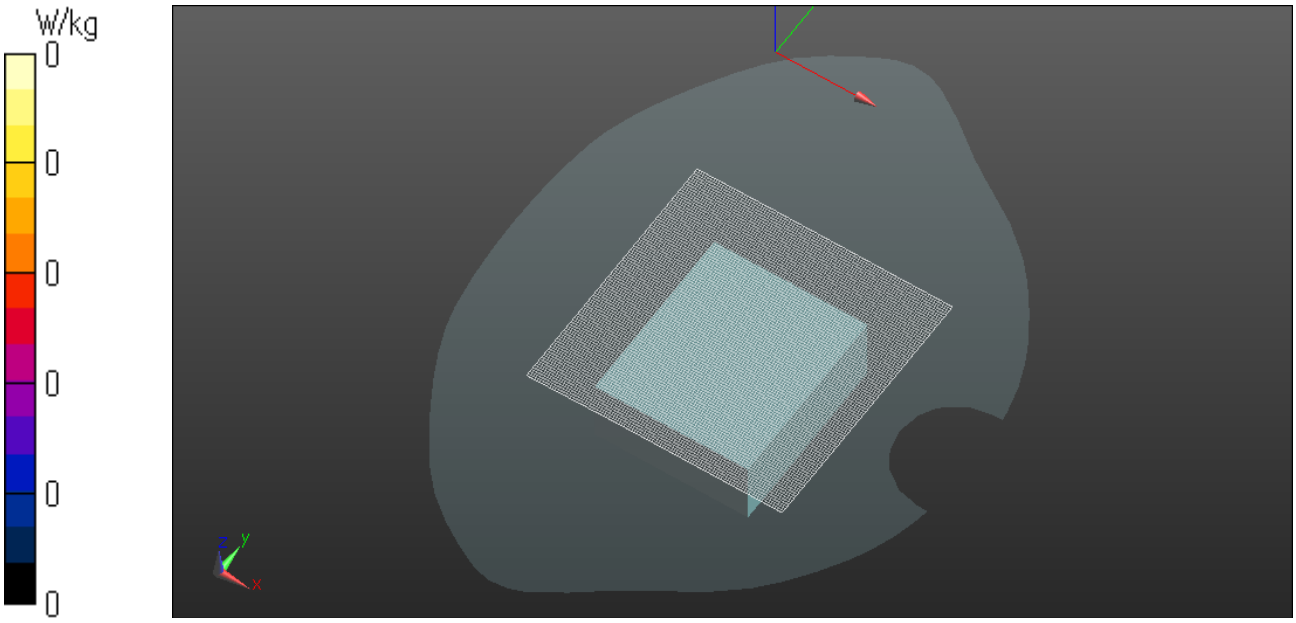
BLE/Rear 0mm 2402MHz _ARB-BWC3MNT-CLAMP

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



BLE/Rear 0mm 2402MHz _ARB-BWC3BLTCLIP

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

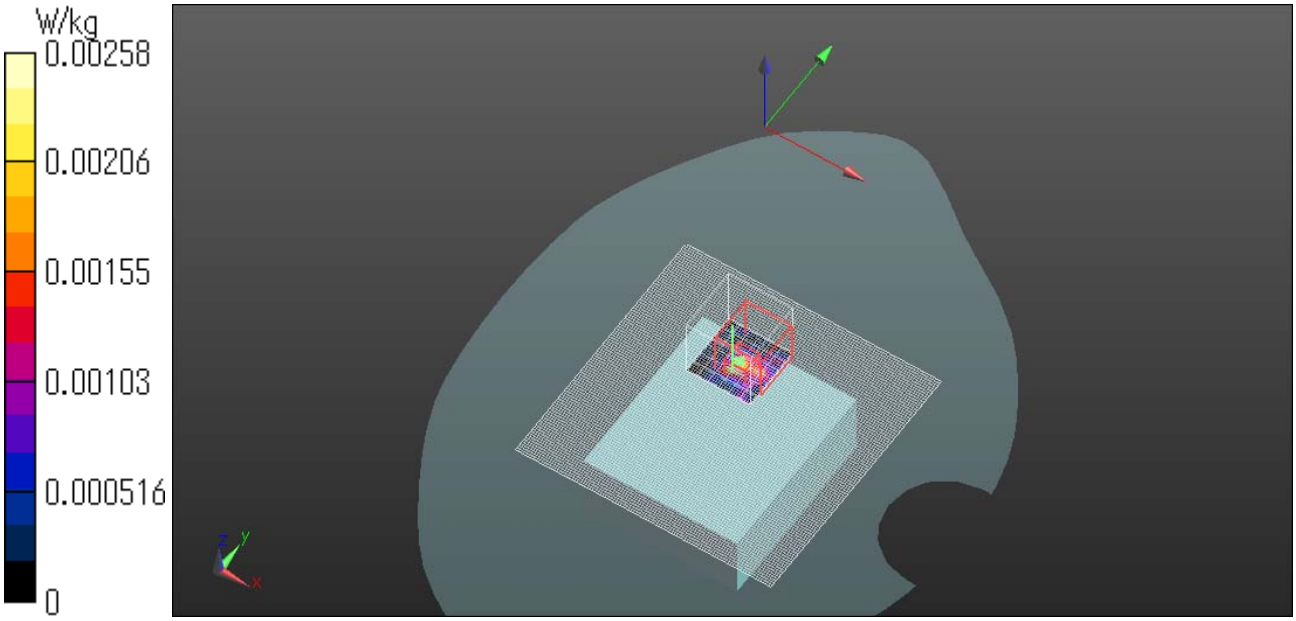
BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.00287 W/kg

BLE/Rear 0mm 2402MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.9650 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.00464 W/kg
SAR(1 g) = 0.000472 W/kg; SAR(10 g) = 8.34e-005 W/kg
Ratio of SAR at M2 to SAR at M1 = 32%

Maximum value of SAR (measured) = 0.00258 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



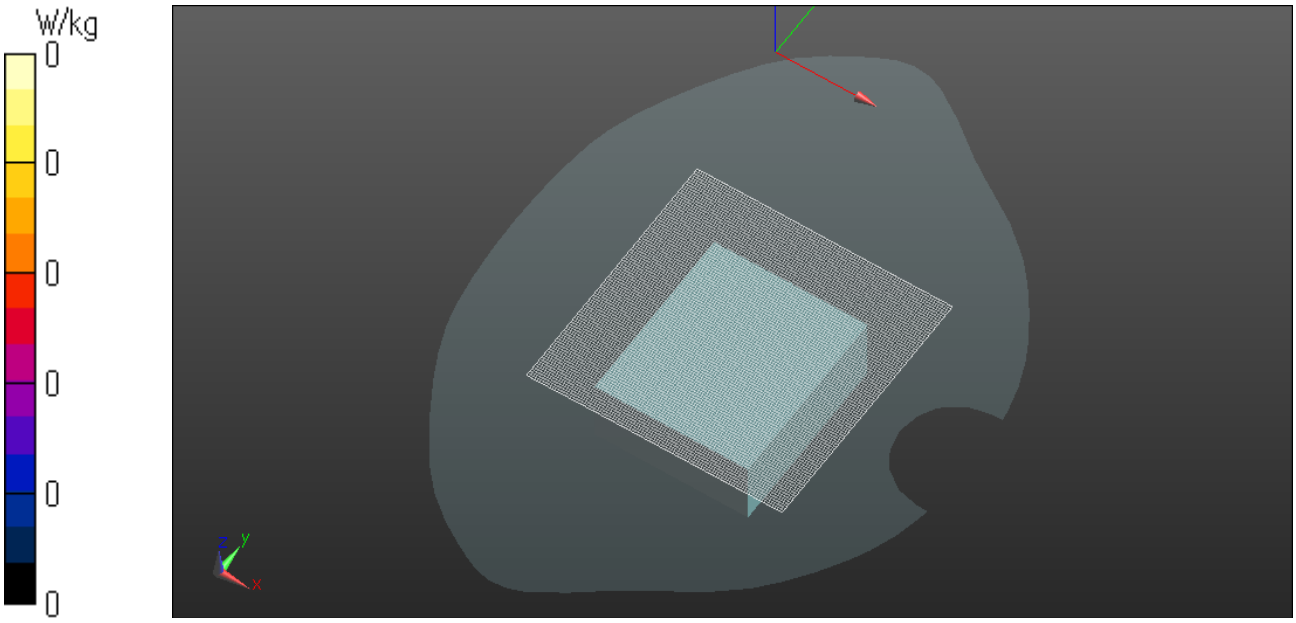
BLE/Rear tilt 0mm 2402MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

BLE/Rear tilt 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



BLE/Rear 0mm 2402MHz _ARB-BWC3BLTLOOP

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

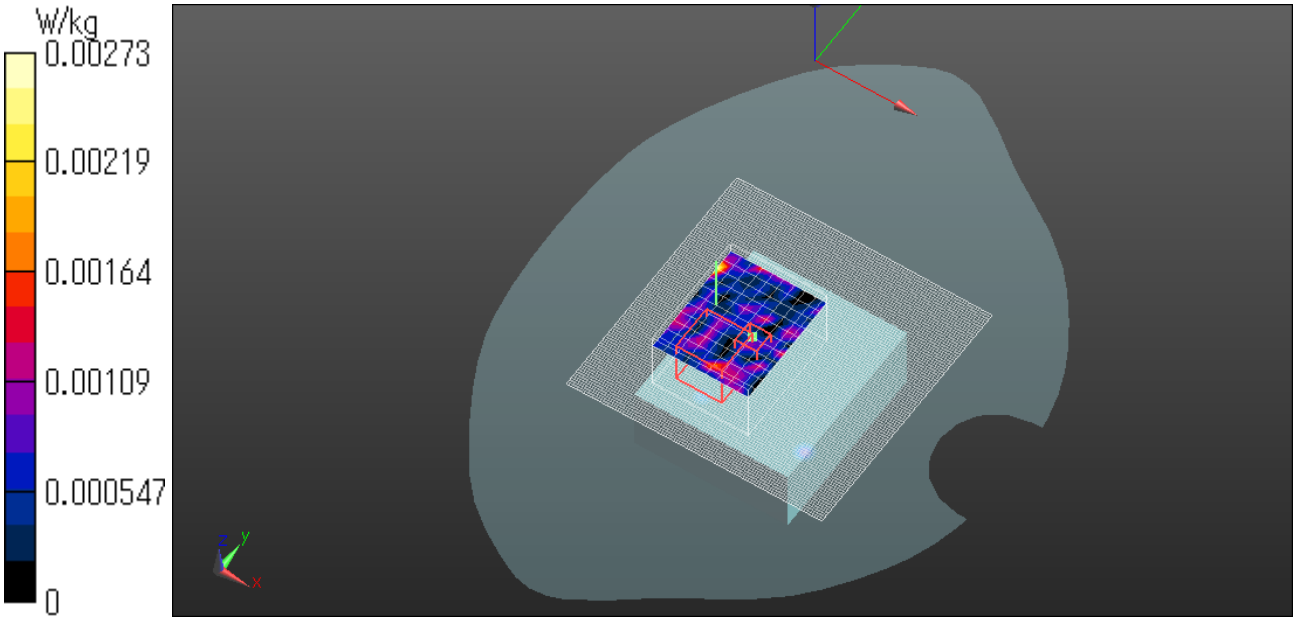
BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.00190 W/kg

BLE/Rear 0mm 2402MHz/Zoom Scan (7x7x7) (10x12x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.7590 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.00273 W/kg
SAR(1 g) = 4.08e-005 W/kg; SAR(10 g) = 1.08e-005 W/kg
Ratio of SAR at M2 to SAR at M1 = 49.8%

Maximum value of SAR (measured) = 0.00273 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



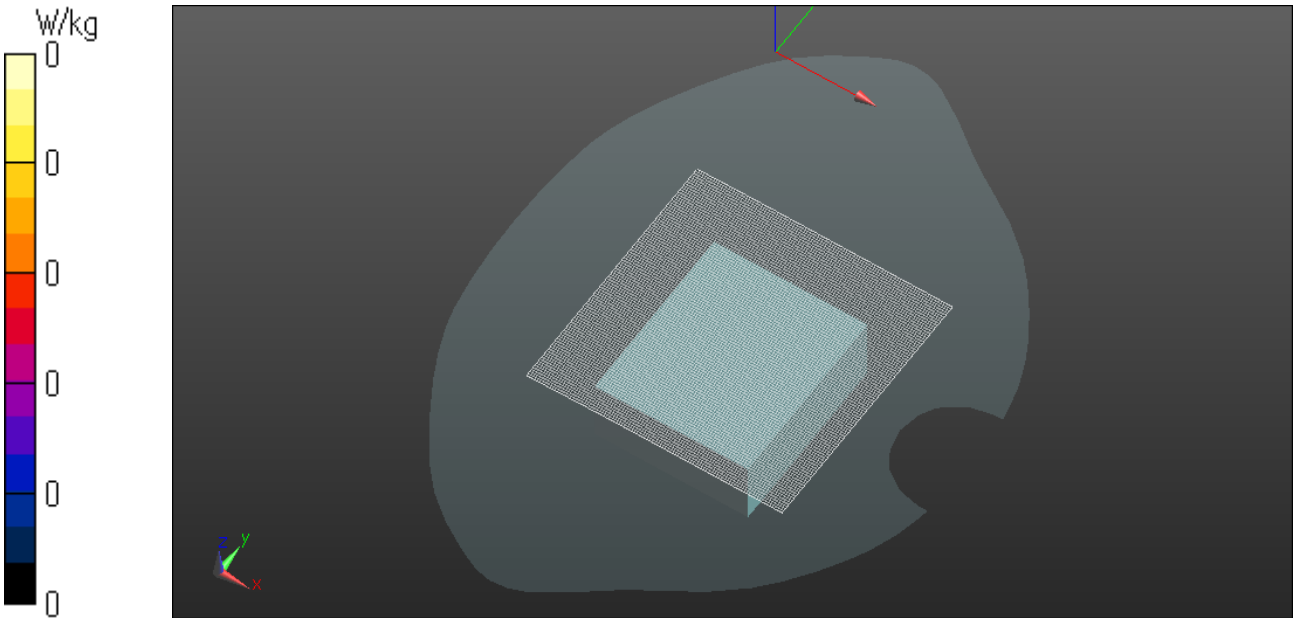
BLE/Rear 0mm 2402MHz _ARB-BWCVESTMNT

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



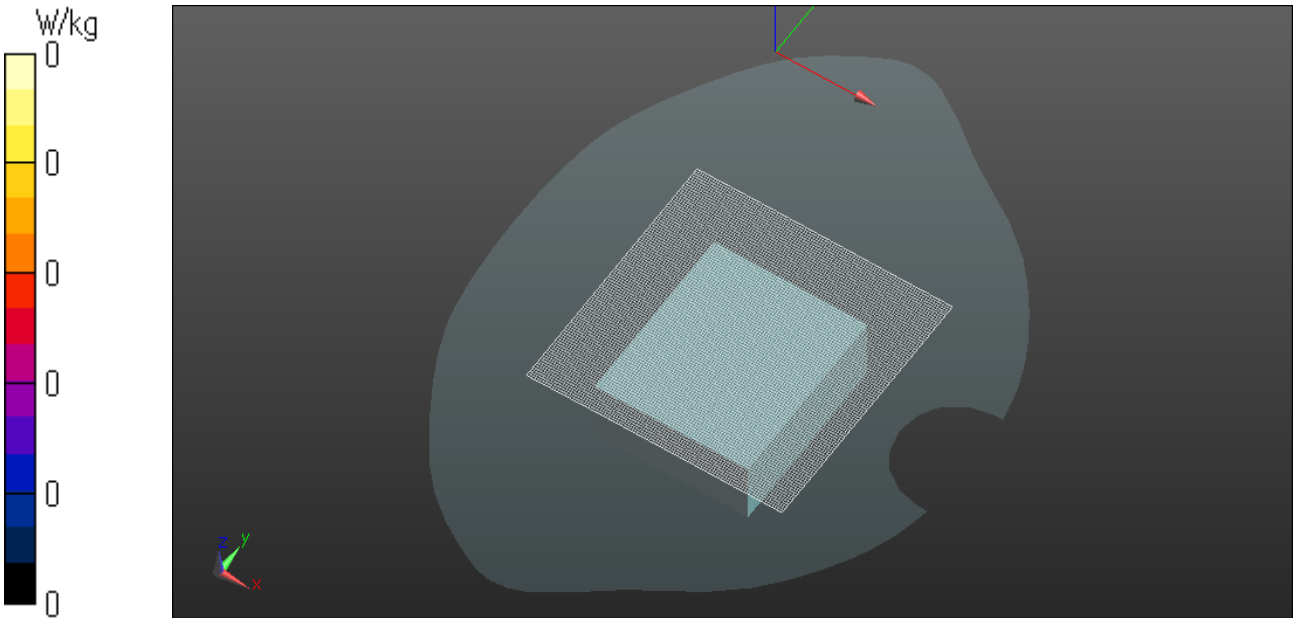
BLE/Rear 0mm 2402MHz _without compatible holder

Communication System: UID 0, #Bluetooth (0); Communication System Band: Bluetooth; ; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.782 S/m; ε_r = 39.437; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(7.16, 7.16, 7.16) @ 2402 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

BLE/Rear 0mm 2402MHz/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0 W/kg

Ambient Temp. : 23.0 degree.C. Liquid Temp.; 23.7 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/02



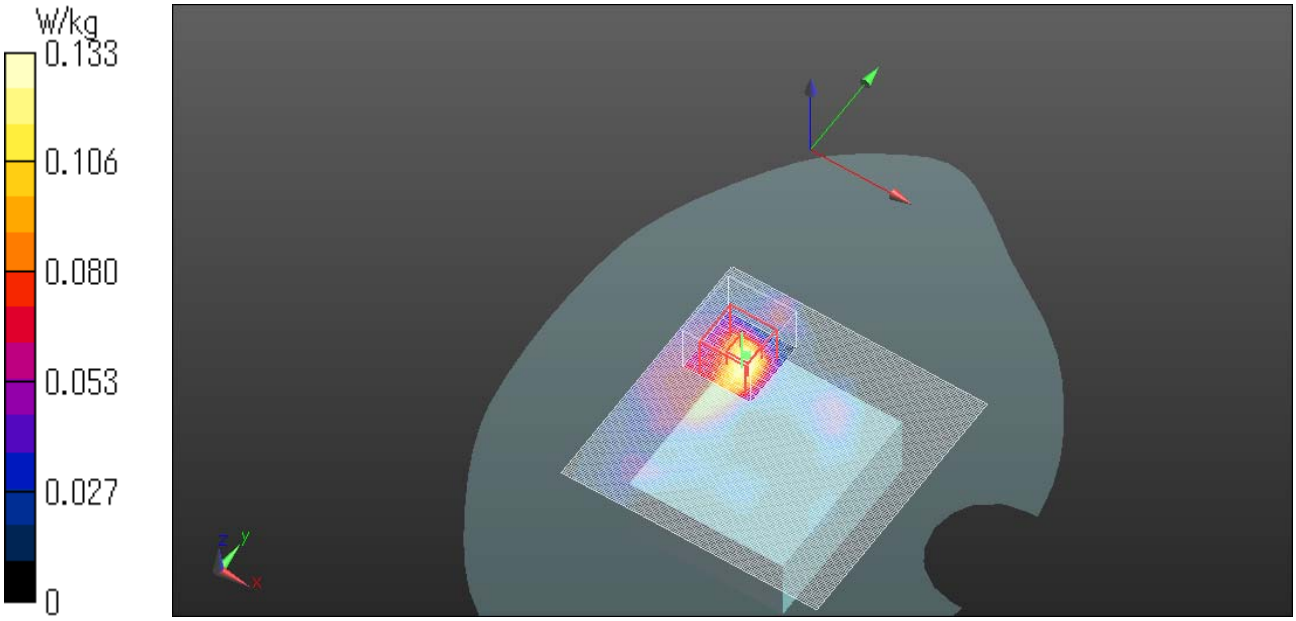
WLAN 11a/Rear 0mm 5280MHz_ARB-BWC3MNT-MAG

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.138 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.900 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.203 W/kg
SAR(1 g) = 0.058 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below = 9.9 mm
Ratio of SAR at M2 to SAR at M1 = 63%
Maximum value of SAR (measured) = 0.133 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



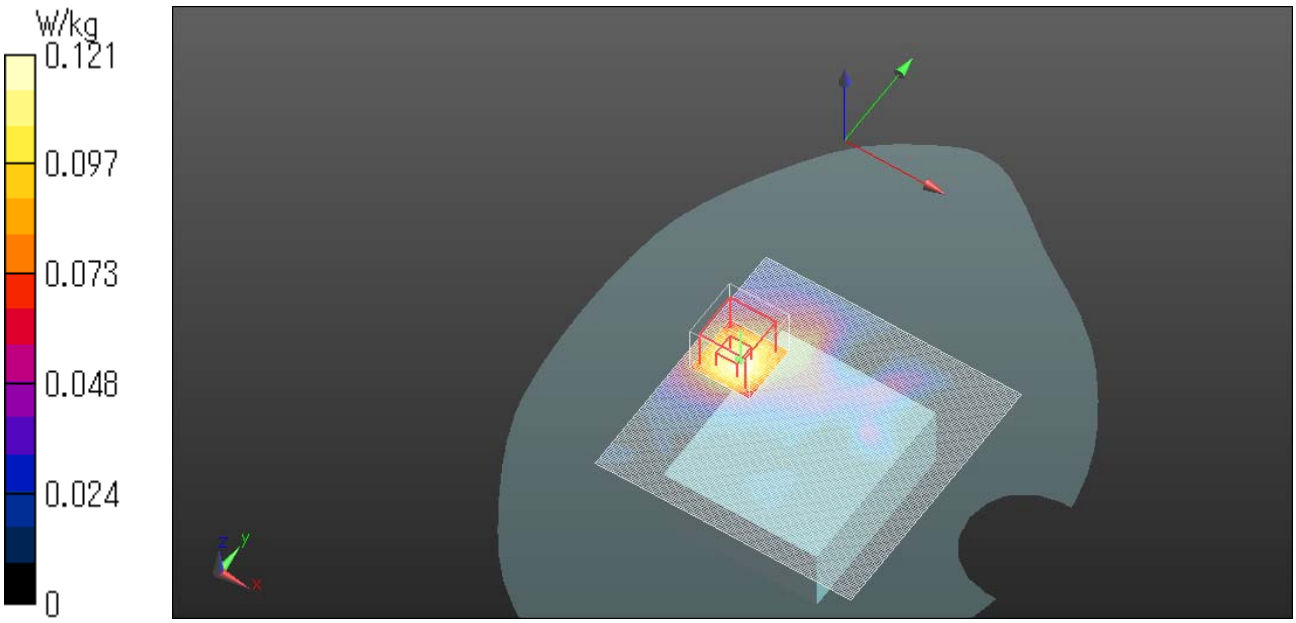
WLAN 11a/Rear 0mm 5280MHz_ARB-BWC3MNT-MOLLE

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.127 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.598 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.022 W/kg
Smallest distance from peaks to all points 3 dB below = 15.9 mm
Ratio of SAR at M2 to SAR at M1 = 62.3%
Maximum value of SAR (measured) = 0.121 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



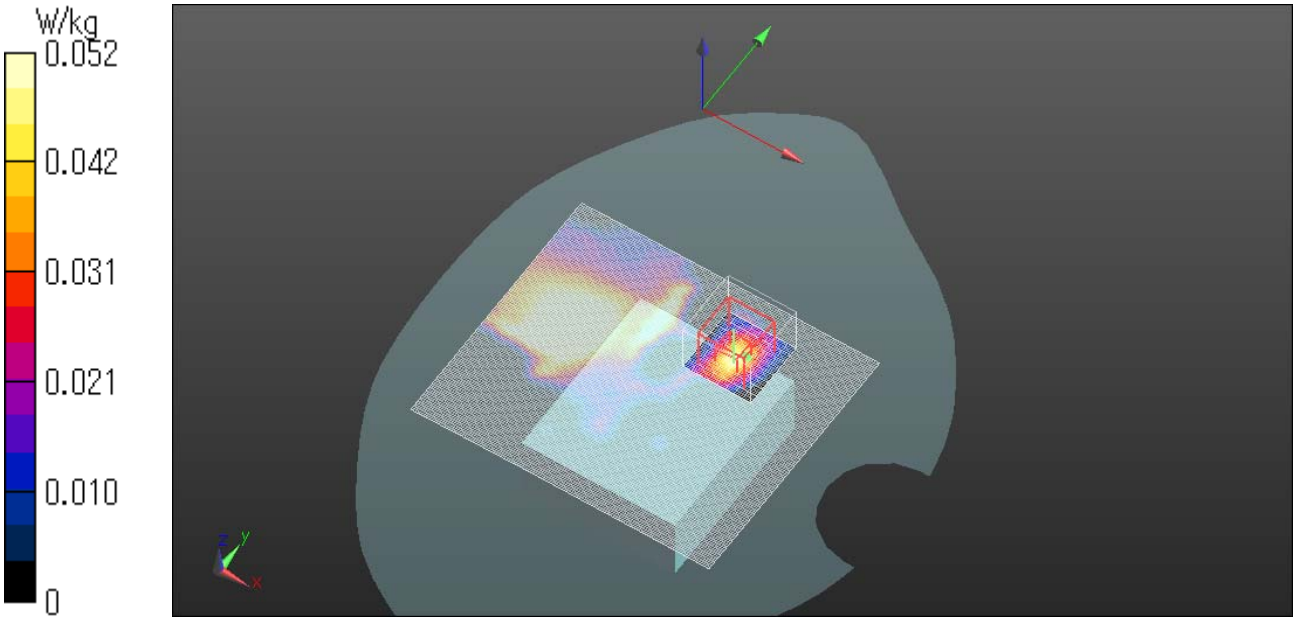
WLAN 11a/Rear 0mm 5280MHz_ARB-BWC3MNT-CLAMP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.121 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.330 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.117 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.00544 W/kg
Ratio of SAR at M2 to SAR at M1 = 54.2%
Maximum value of SAR (measured) = 0.0520 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



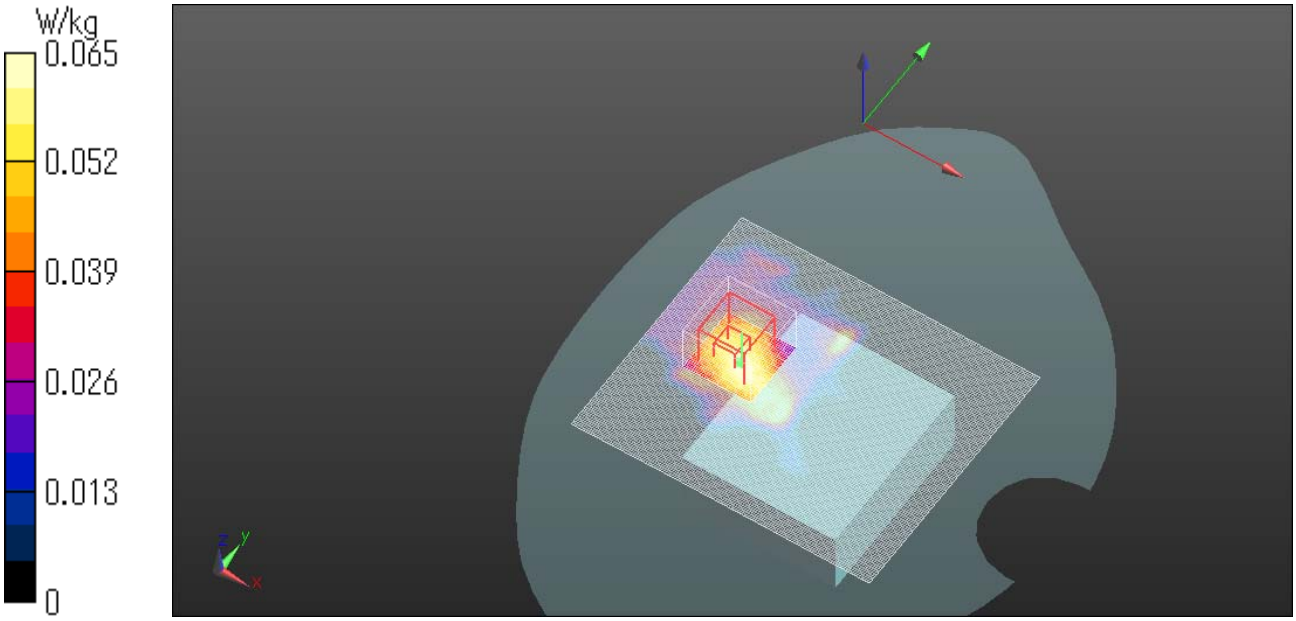
WLAN 11a/Rear 0mm 5280MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0669 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.889 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0960 W/kg
SAR(1 g) = 0.026 W/kg; SAR(10 g) = 0.011 W/kg
Ratio of SAR at M2 to SAR at M1 = 61.7%
Maximum value of SAR (measured) = 0.0654 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



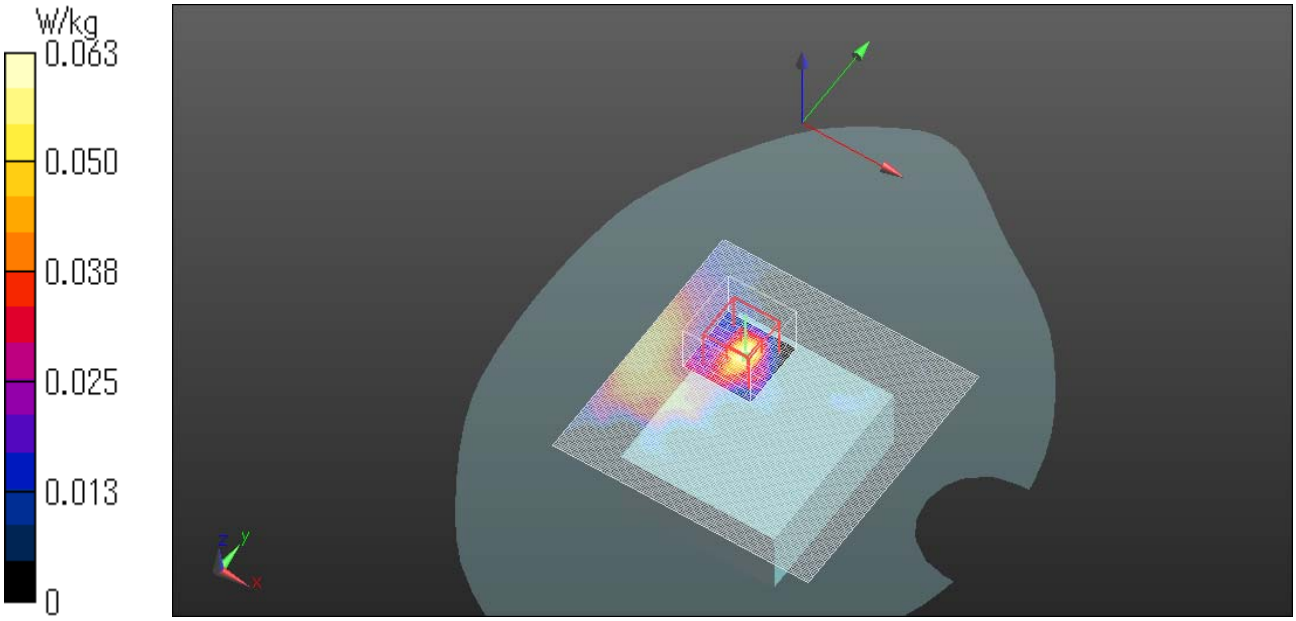
WLAN 11a/Rear tilt 0mm 5280MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear tilt 0mm 5280MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0740 W/kg

WLAN 11a/Rear tilt 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.028 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.116 W/kg
SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.00688 W/kg
Ratio of SAR at M2 to SAR at M1 = 61.6%
Maximum value of SAR (measured) = 0.0627 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



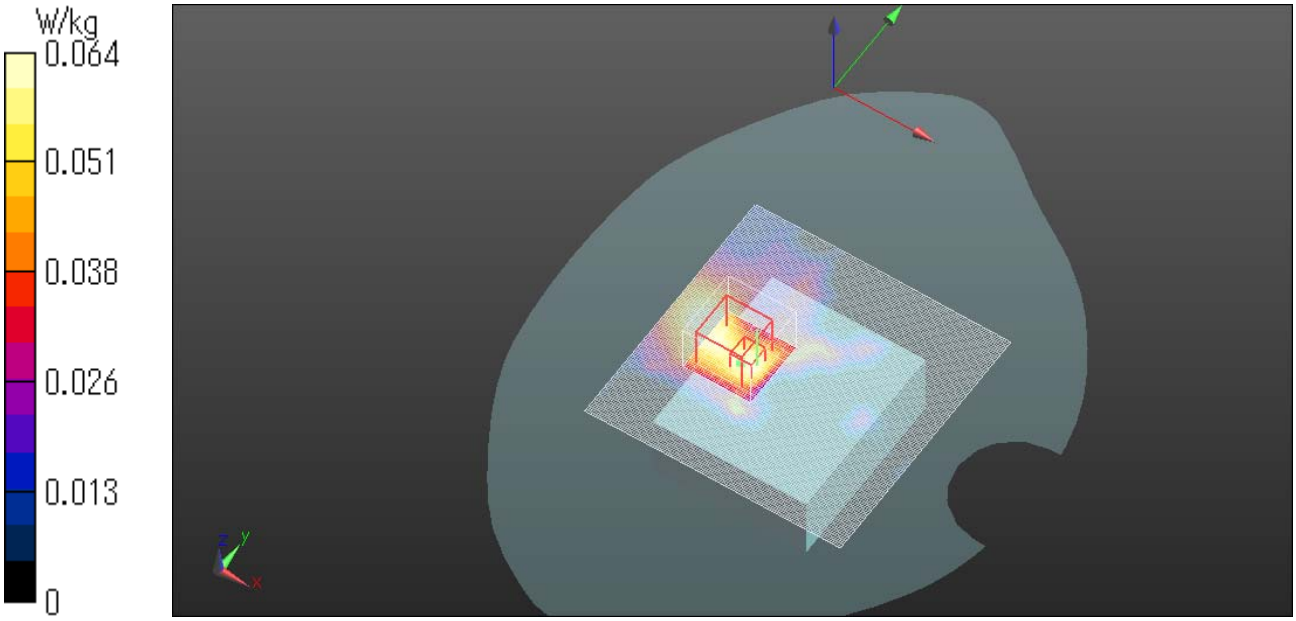
WLAN 11a/Rear 0mm 5280MHz_ARB-BWC3BLTLOOP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0695 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.996 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.125 W/kg
SAR(1 g) = 0.024 W/kg; SAR(10 g) = 0.00959 W/kg
Ratio of SAR at M2 to SAR at M1 = 64%
Maximum value of SAR (measured) = 0.0641 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



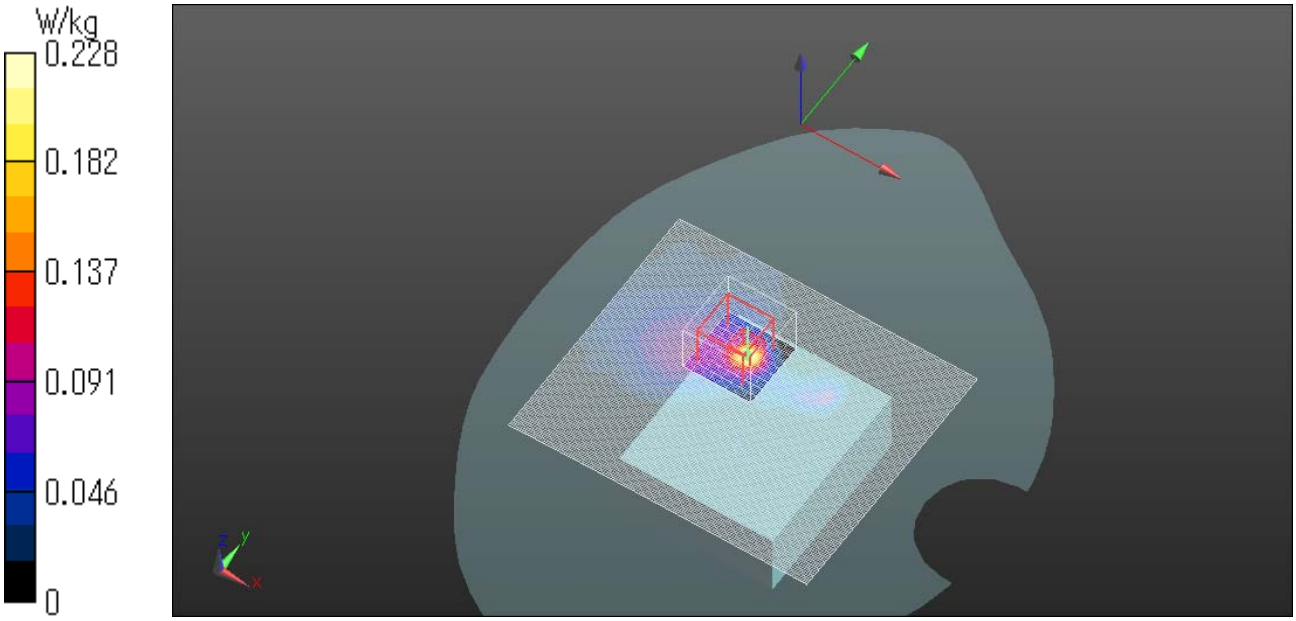
WLAN 11a/Rear 0mm 5280MHz_ARB-BWCVESTMNT

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.242 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.846 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.374 W/kg
SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below = 5.7 mm
Ratio of SAR at M2 to SAR at M1 = 59.3%
Maximum value of SAR (measured) = 0.228 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



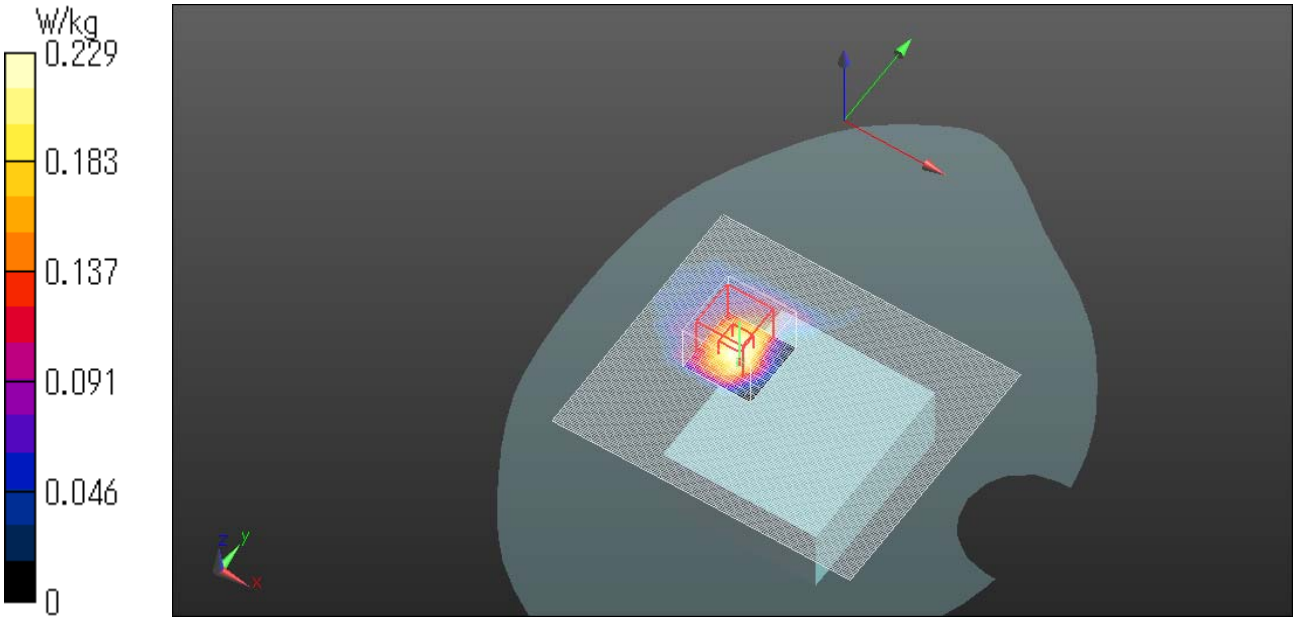
WLAN 11a/Rear 0mm 5280MHz_Without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W52 53); ; Duty Cycle: 1:1
Medium parameters used: f = 5280 MHz; σ = 4.755 S/m; ε_r = 35.438; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.75, 4.75, 4.75) @ 5280 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5280MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.249 W/kg

WLAN 11a/Rear 0mm 5280MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.238 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.363 W/kg
SAR(1 g) = 0.101 W/kg; SAR(10 g) = 0.039 W/kg
Smallest distance from peaks to all points 3 dB below = 10.4 mm
Ratio of SAR at M2 to SAR at M1 = 61.8%
Maximum value of SAR (measured) = 0.229 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/06



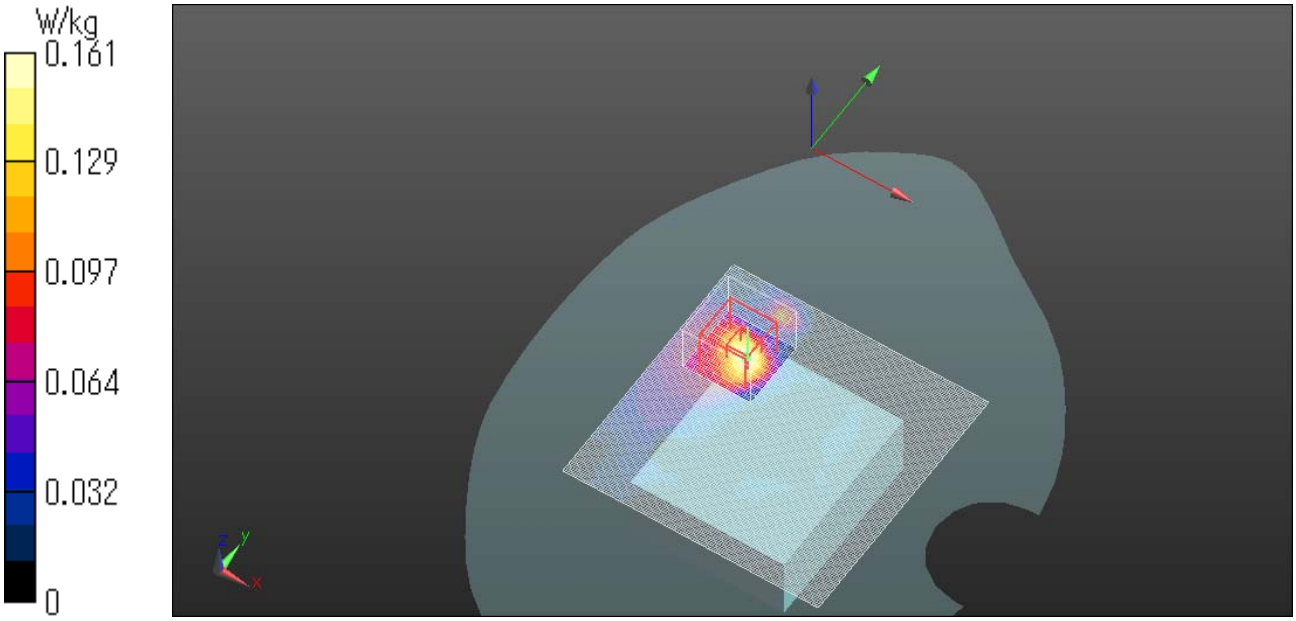
WLAN 11a/Rear 0mm 5580MHz_ARB-BWC3MNT-MAG

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.158 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.459 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.524 W/kg
SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.023 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 62.2%
Maximum value of SAR (measured) = 0.161 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



WLAN 11a/Rear 0mm 5580MHz_ARB-BWC3MNT-MOLLE

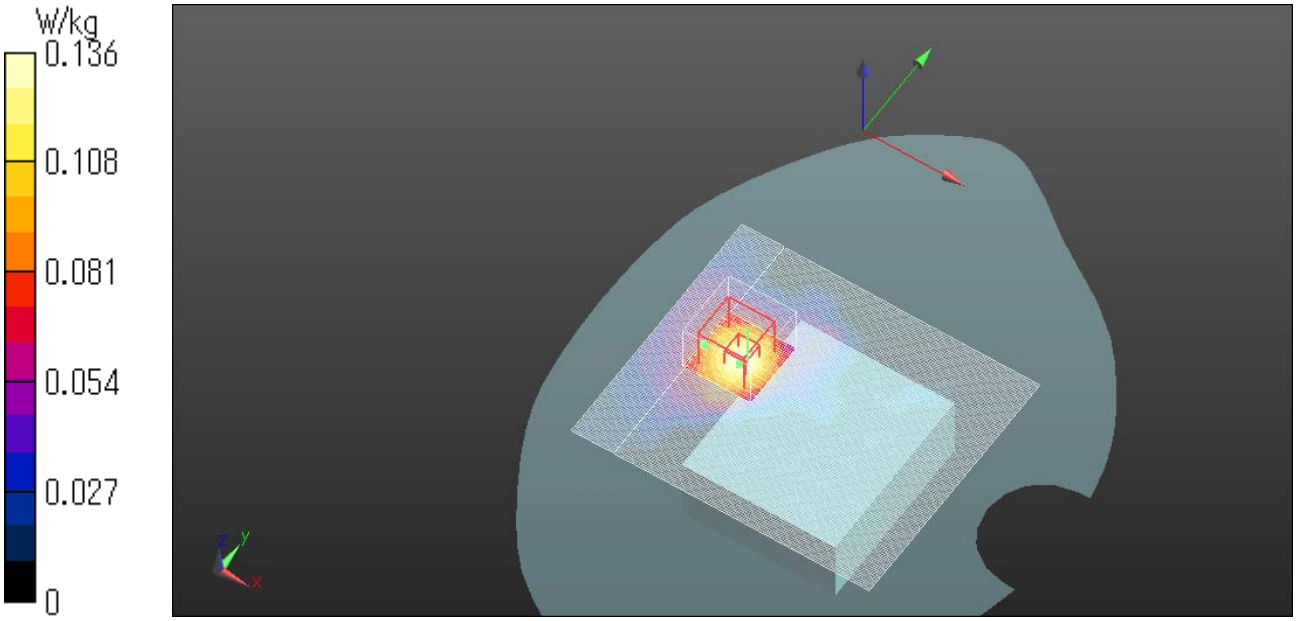
Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.134 W/kg

WLAN 11a/Rear 0mm 5580MHz/Area Scan 2 (21x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0845 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.709 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.024 W/kg
Smallest distance from peaks to all points 3 dB below = 14.4 mm
Ratio of SAR at M2 to SAR at M1 = 60.4%
Maximum value of SAR (measured) = 0.136 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



WLAN 11a/Rear 0mm 5580MHz_ARB-BWC3MNT-CLAMP

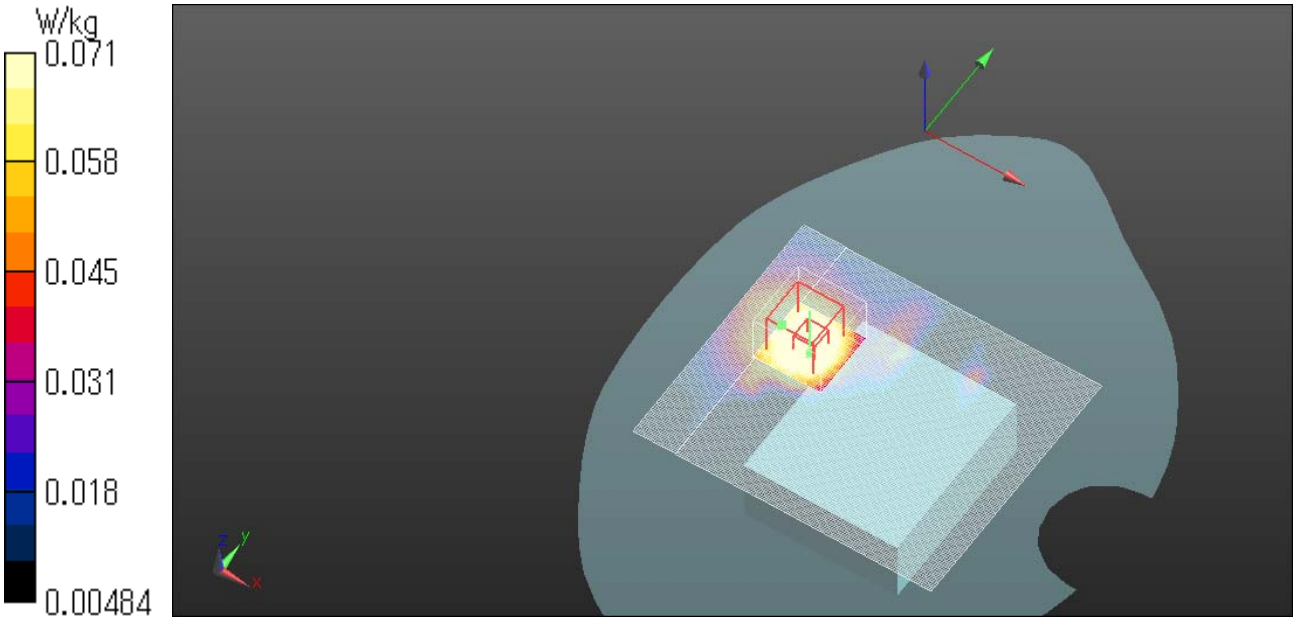
Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0906 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.626 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.016 W/kg
Ratio of SAR at M2 to SAR at M1 = 64.3%
Maximum value of SAR (measured) = 0.0957 W/kg

WLAN 11a/Rear 0mm 5580MHz/Area Scan 2 (21x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0710 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



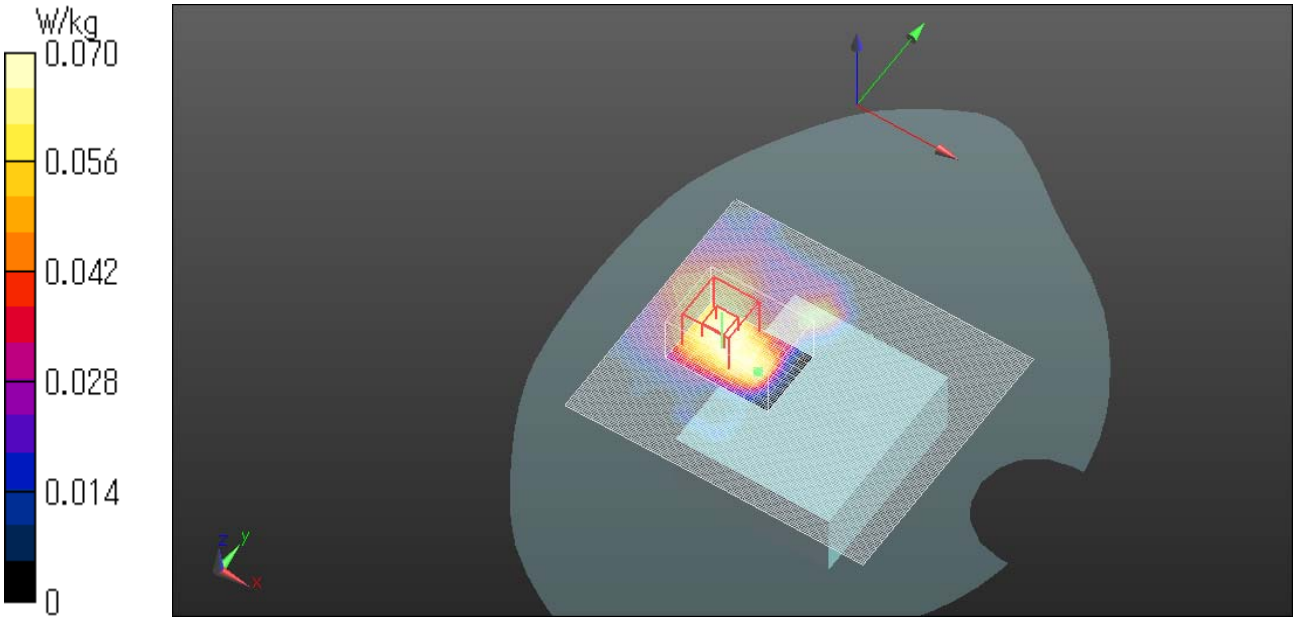
WLAN 11a/Rear 0mm 5580MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0811 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (13x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.698 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.027 W/kg; SAR(10 g) = 0.011 W/kg
Ratio of SAR at M2 to SAR at M1 = 60%
Maximum value of SAR (measured) = 0.0699 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



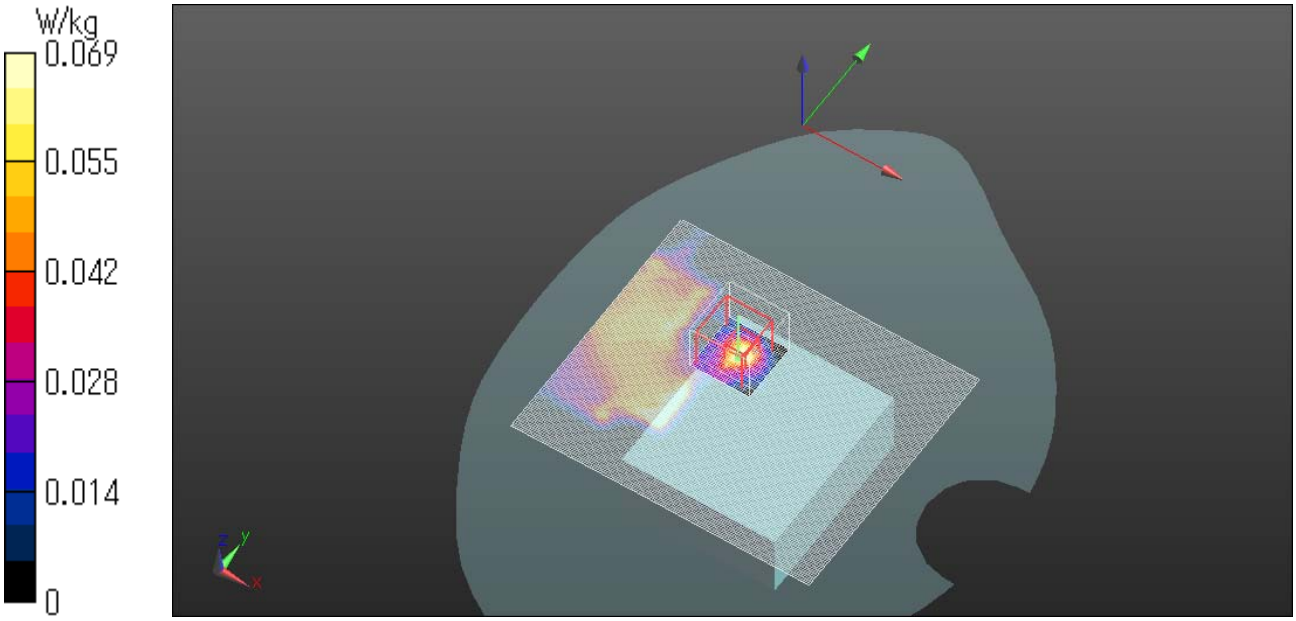
WLAN 11a/Rear tilt 0mm 5580MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear tilt 0mm 5580MHz/Area Scan (141x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.146 W/kg

WLAN 11a/Rear tilt 0mm 5580MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.169 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.00596 W/kg
Ratio of SAR at M2 to SAR at M1 = 48.2%
Maximum value of SAR (measured) = 0.0692 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



WLAN 11a/Rear 0mm 5580MHz_ARB-BWC3BLTLOOP

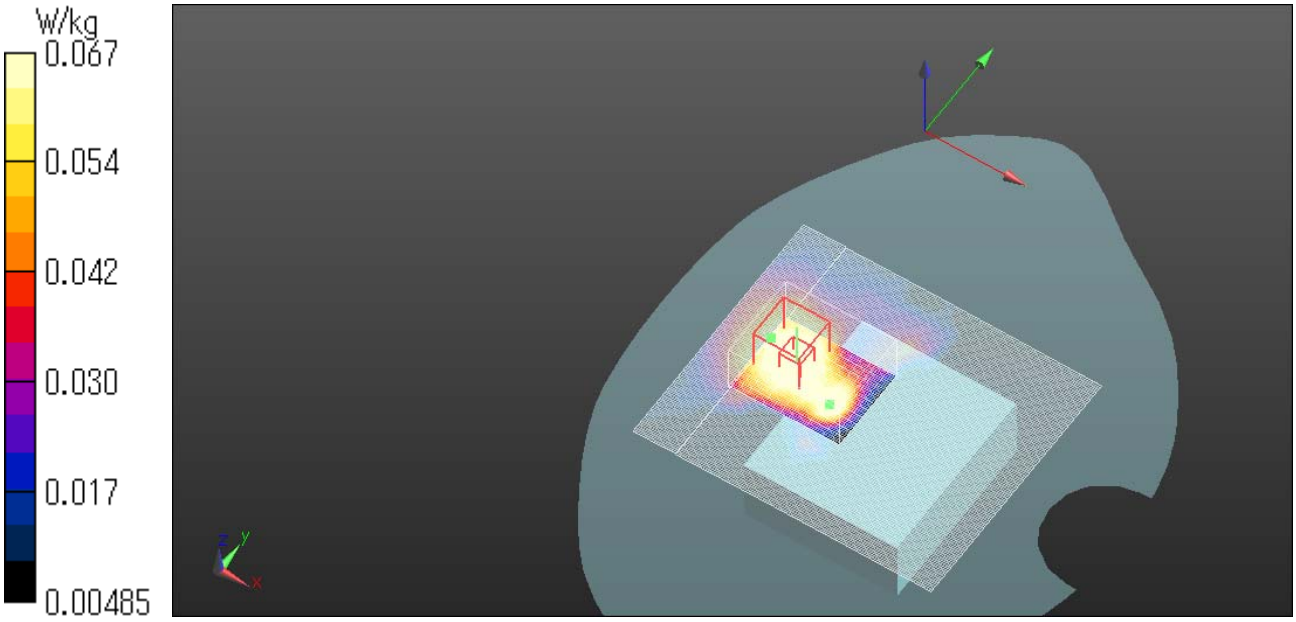
Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0921 W/kg

WLAN 11a/Rear 0mm 5580MHz/Area Scan 2 (21x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0668 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (14x11x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.459 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.140 W/kg
SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.014 W/kg
Ratio of SAR at M2 to SAR at M1 = 57.2%
Maximum value of SAR (measured) = 0.0829 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



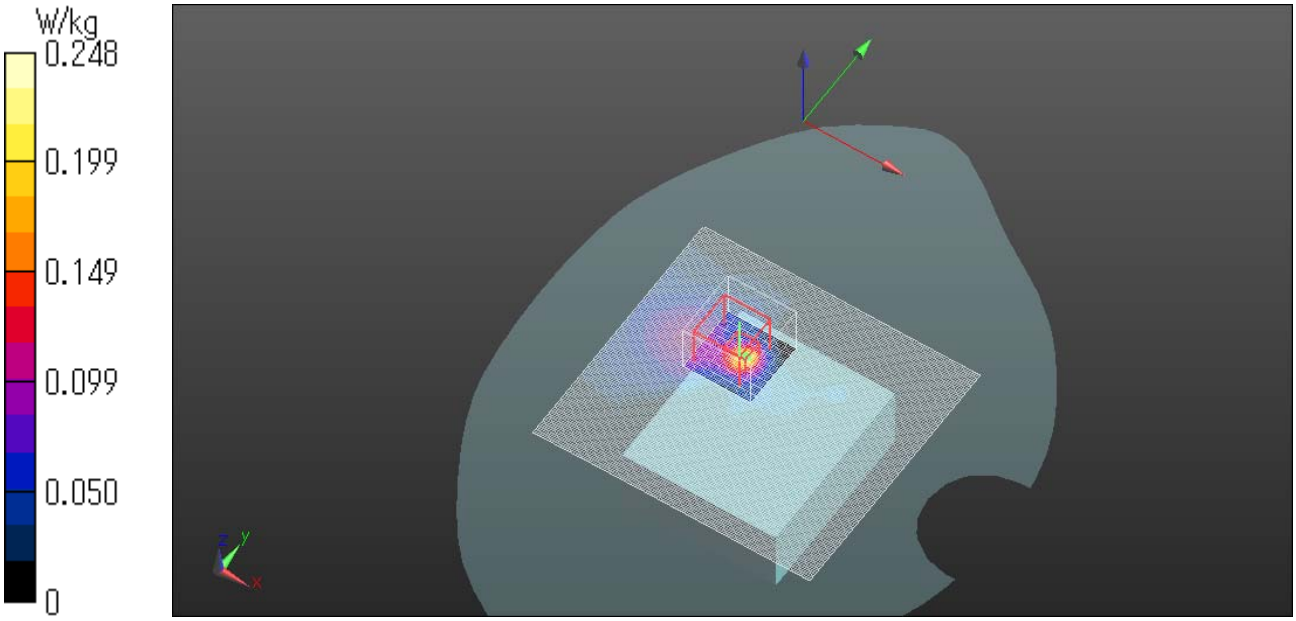
WLAN 11a/Rear 0mm 5580MHz_ARB-BWCVESTMNT

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (131x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.192 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.832 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.409 W/kg
SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below = 5.8 mm
Ratio of SAR at M2 to SAR at M1 = 57.6%
Maximum value of SAR (measured) = 0.248 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



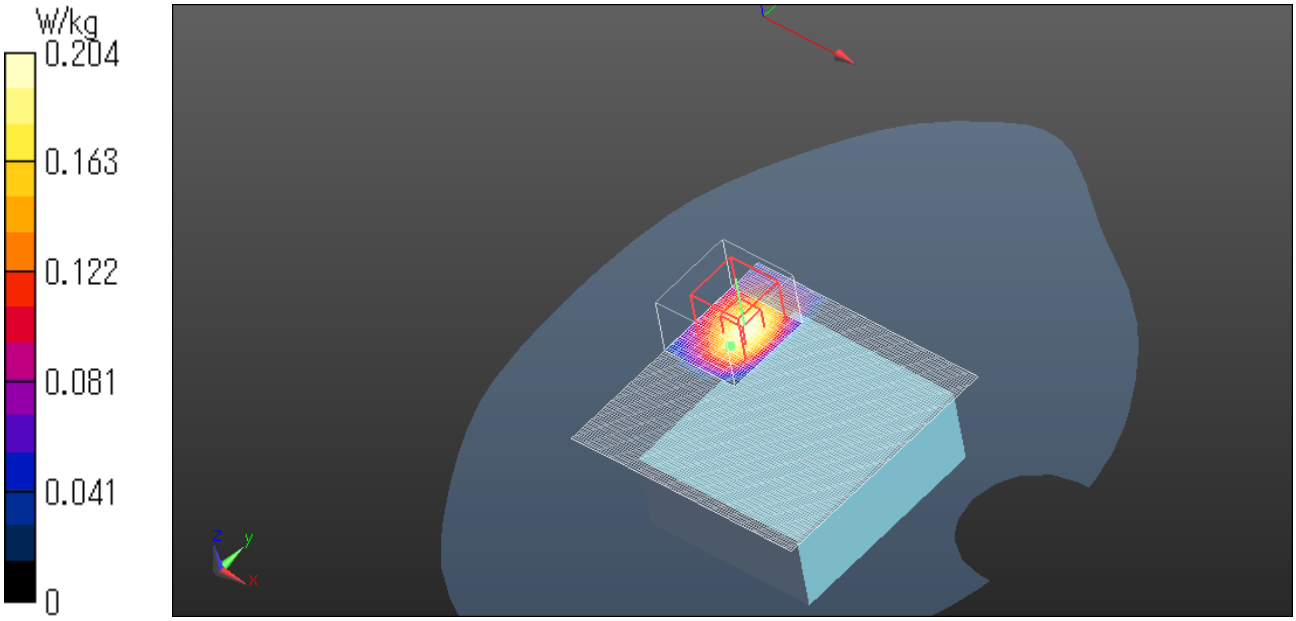
WLAN 11a/Rear 0mm 5580MHz_Without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W56); ; Duty Cycle: 1:1
Medium parameters used: f = 5580 MHz; σ = 4.953 S/m; ε_r = 35.248; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.47, 4.47, 4.47) @ 5580 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5580MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.243 W/kg

WLAN 11a/Rear 0mm 5580MHz/Zoom Scan (7x7x7) (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.805 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.033 W/kg
Smallest distance from peaks to all points 3 dB below = 12.8 mm
Ratio of SAR at M2 to SAR at M1 = 57.2%
Maximum value of SAR (measured) = 0.204 W/kg

Ambient Temp. : 21.5 degree.C. Liquid Temp.; 21.0 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/07



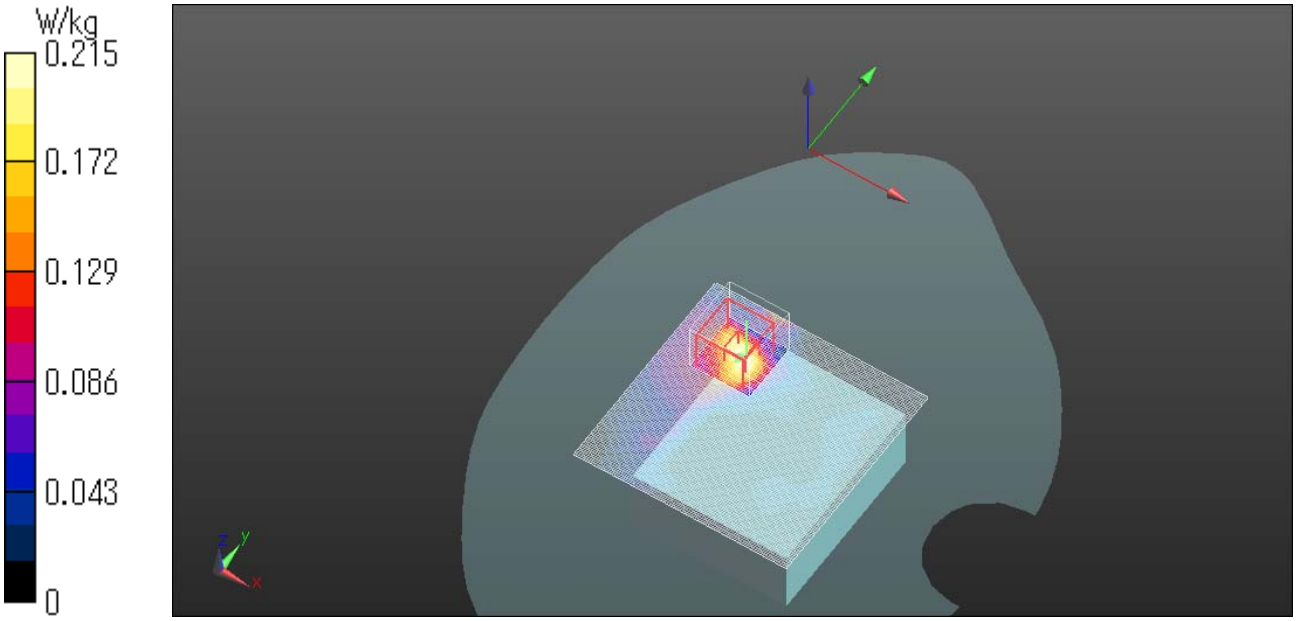
WLAN 11a/Rear 0mm 5785MHz_ARB-BWC3MNT-MAG

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.220 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.072 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.031 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 57.4%
Maximum value of SAR (measured) = 0.215 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



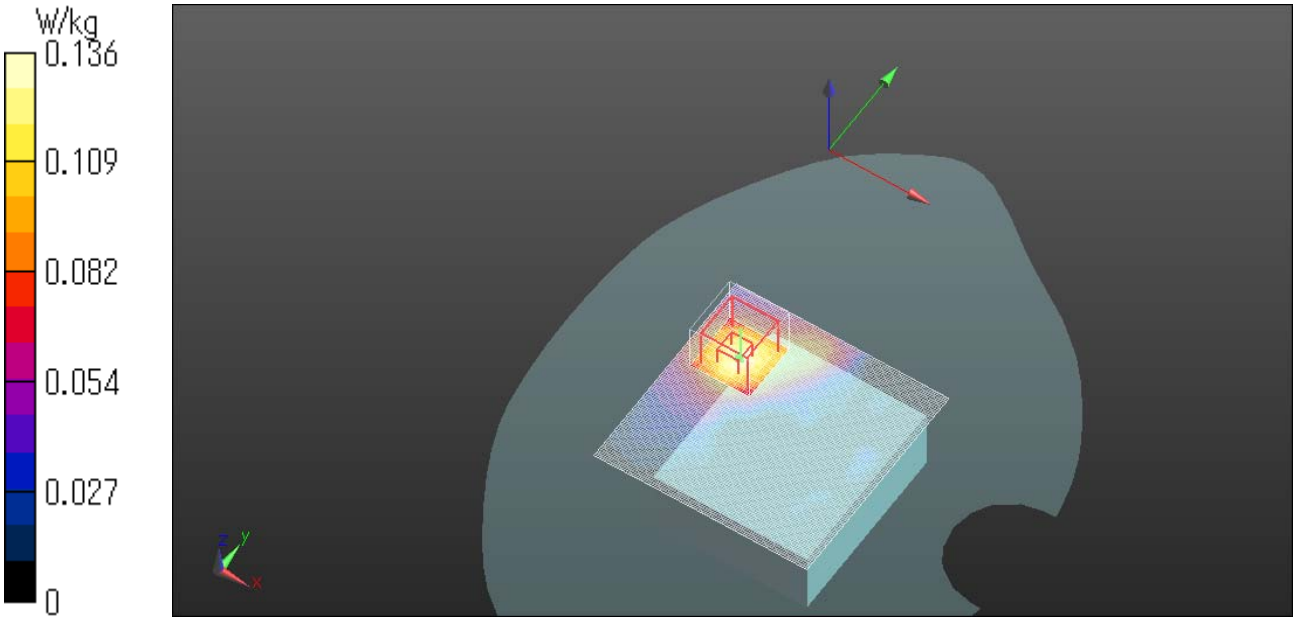
WLAN 11a/Rear 0mm 5785MHz_ARB-BWC3MNT-MOLLE

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.143 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.616 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.256 W/kg
SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below = 14.9 mm
Ratio of SAR at M2 to SAR at M1 = 54.8%
Maximum value of SAR (measured) = 0.136 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



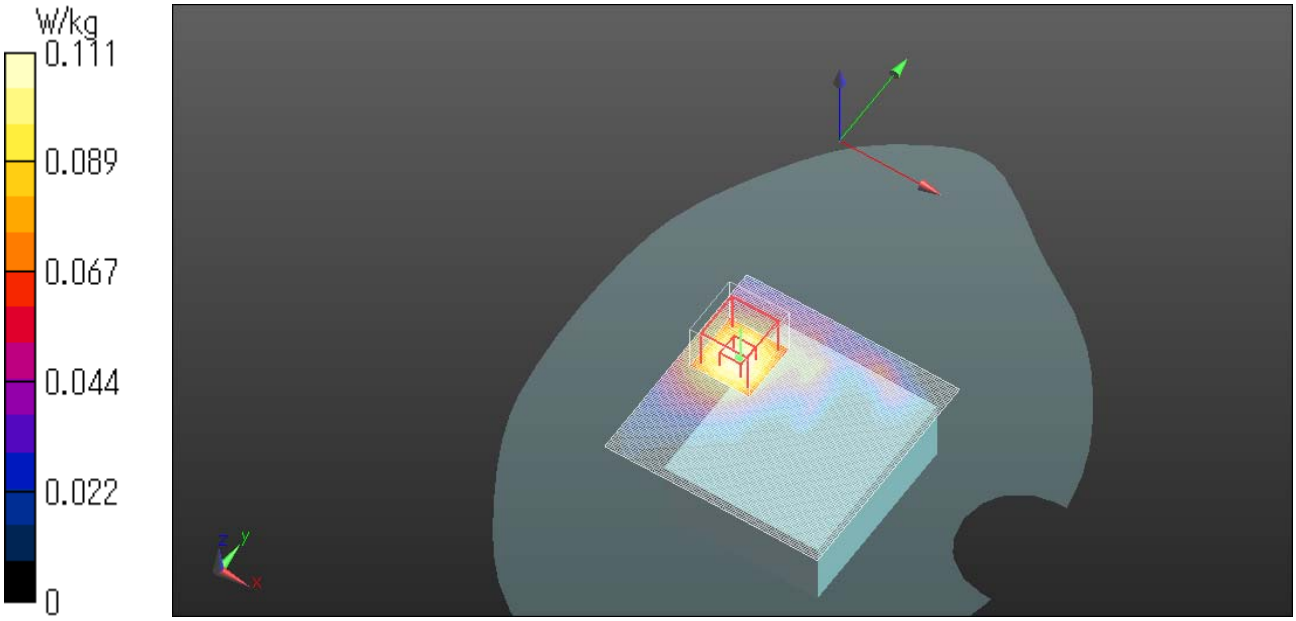
WLAN 11a/Rear 0mm 5785MHz_ARB-BWC3MNT-CLAMP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.122 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.247 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.020 W/kg
Ratio of SAR at M2 to SAR at M1 = 60.3%
Maximum value of SAR (measured) = 0.111 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



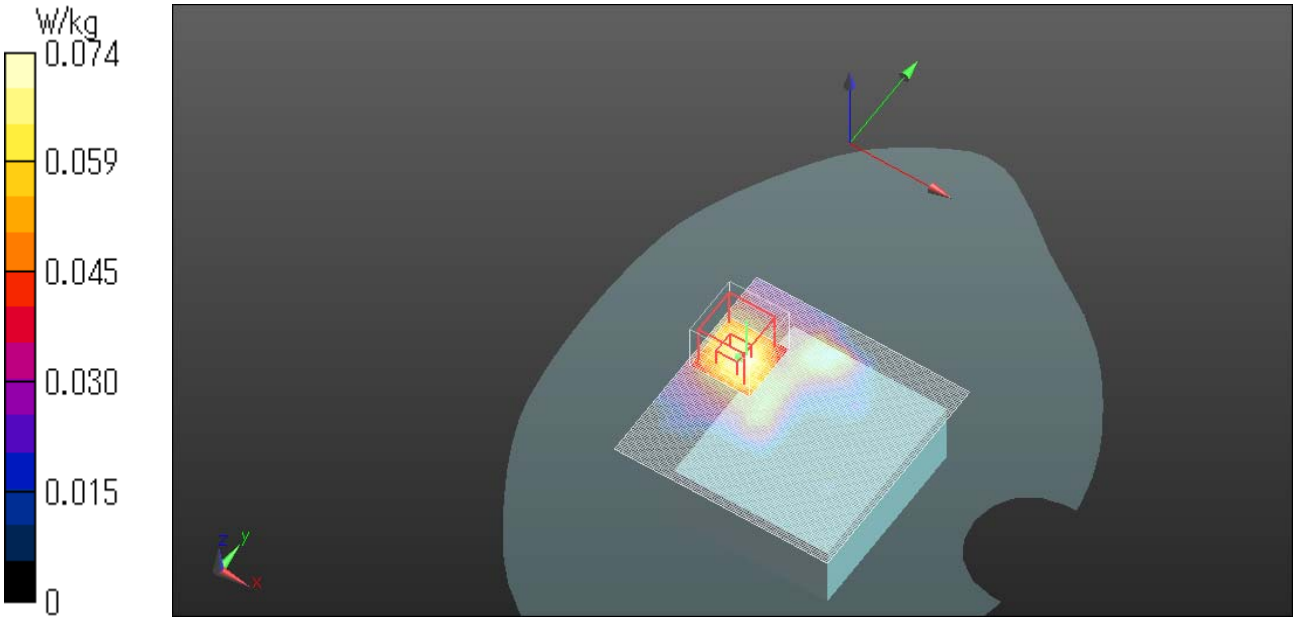
WLAN 11a/Rear 0mm 5785MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0758 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.073 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.030 W/kg; SAR(10 g) = 0.012 W/kg
Ratio of SAR at M2 to SAR at M1 = 44.7%
Maximum value of SAR (measured) = 0.0743 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



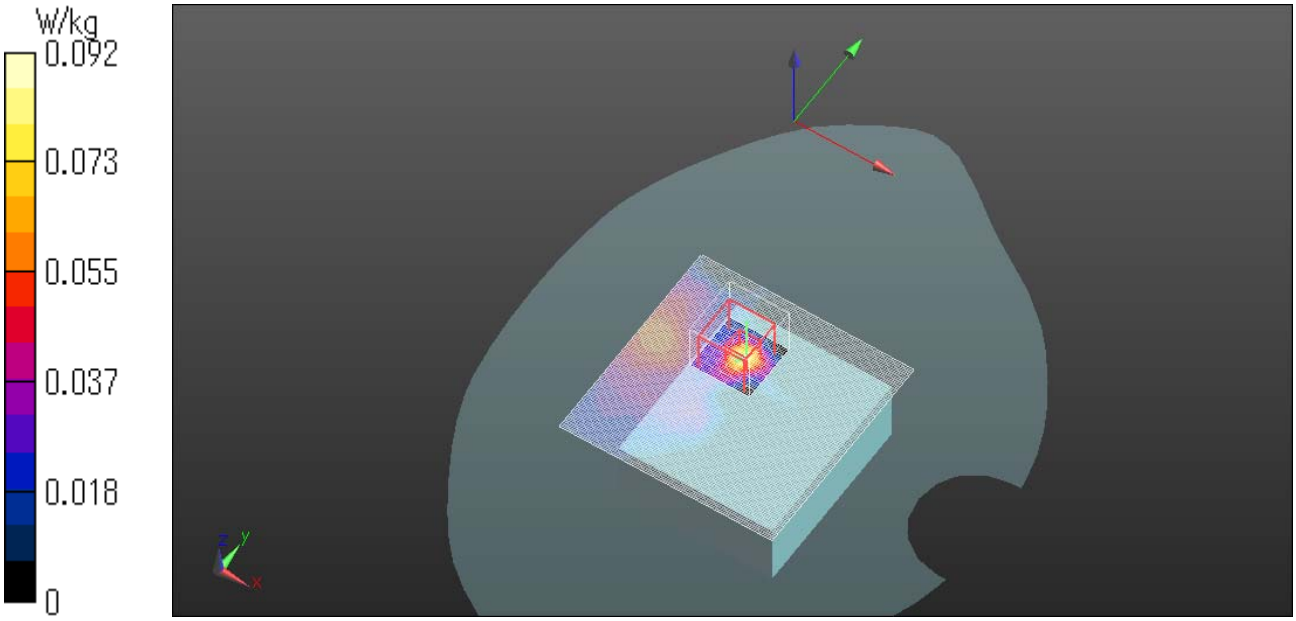
WLAN 11a/Rear tilt 0mm 5785MHz_ARB-BWC3BLTCLIP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear tilt 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0984 W/kg

WLAN 11a/Rear tilt 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.381 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.00758 W/kg
Ratio of SAR at M2 to SAR at M1 = 54.4%
Maximum value of SAR (measured) = 0.0915 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



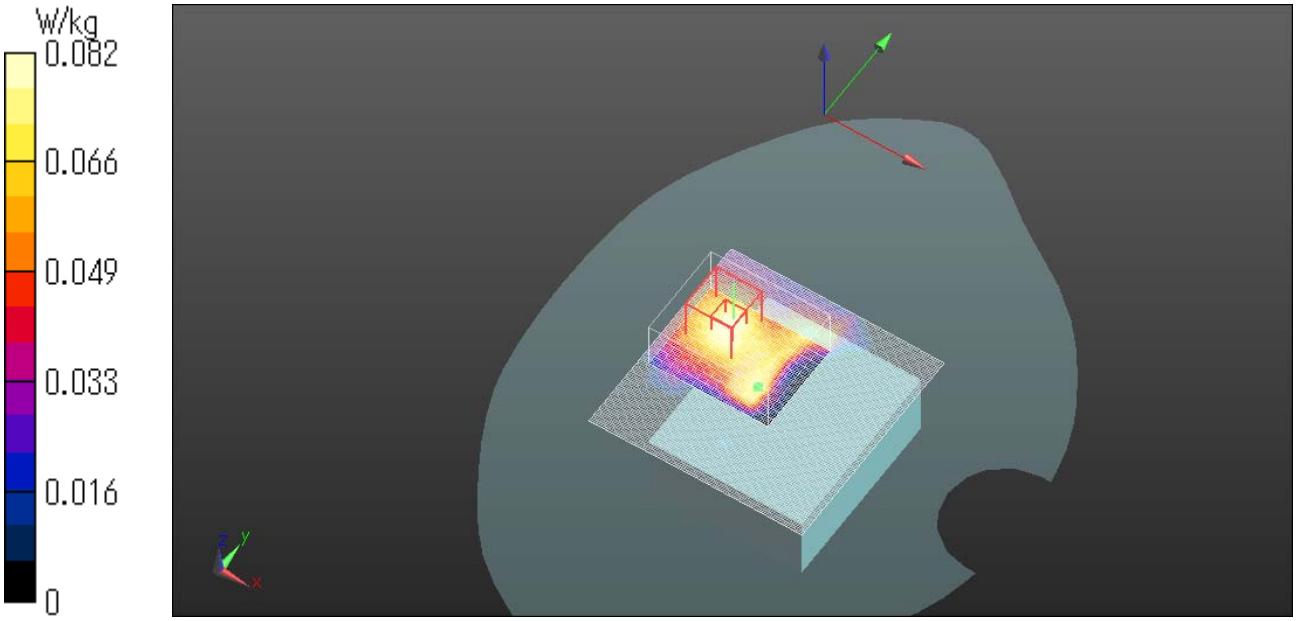
WLAN 11a/Rear 0mm 5785MHz_ARB-BWC3BLTLOOP

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.119 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (15x12x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.177 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.147 W/kg
SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.013 W/kg
Ratio of SAR at M2 to SAR at M1 = 58.1%
Maximum value of SAR (measured) = 0.0821 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



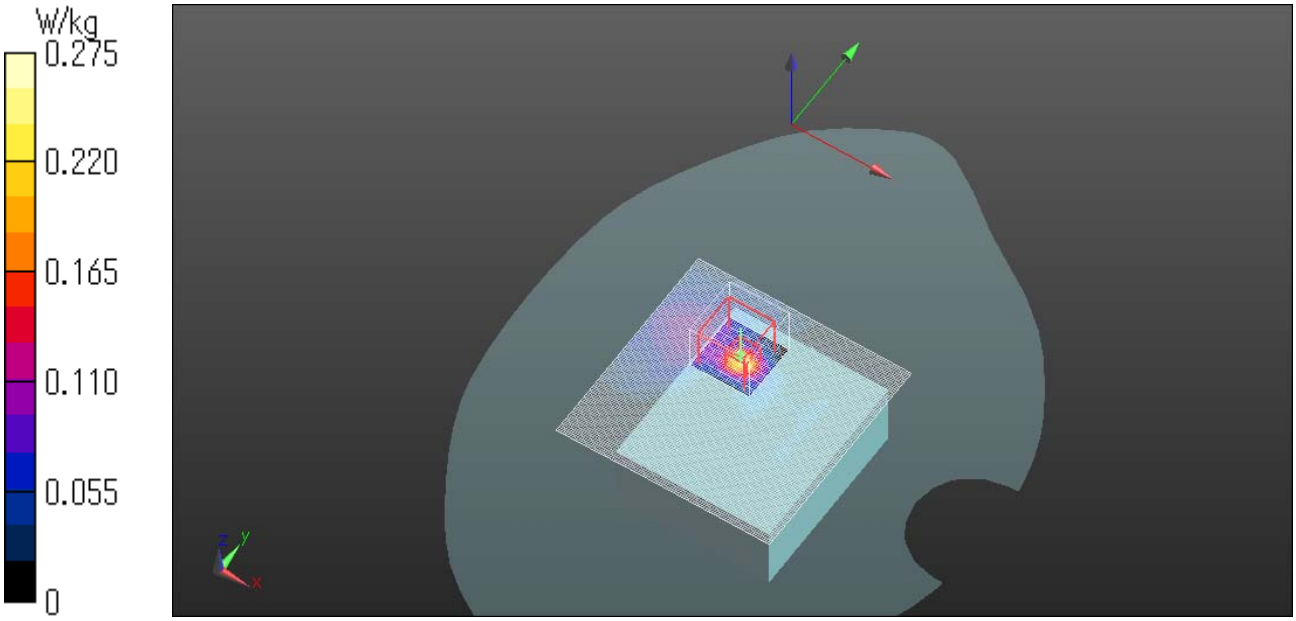
WLAN 11a/Rear 0mm 5785MHz_ARB-BWCVESTMNT

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.214 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.281 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.691 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below = 5.8 mm
Ratio of SAR at M2 to SAR at M1 = 58%
Maximum value of SAR (measured) = 0.275 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



WLAN 11a/Rear 0mm 5745MHz_Without compatible holder

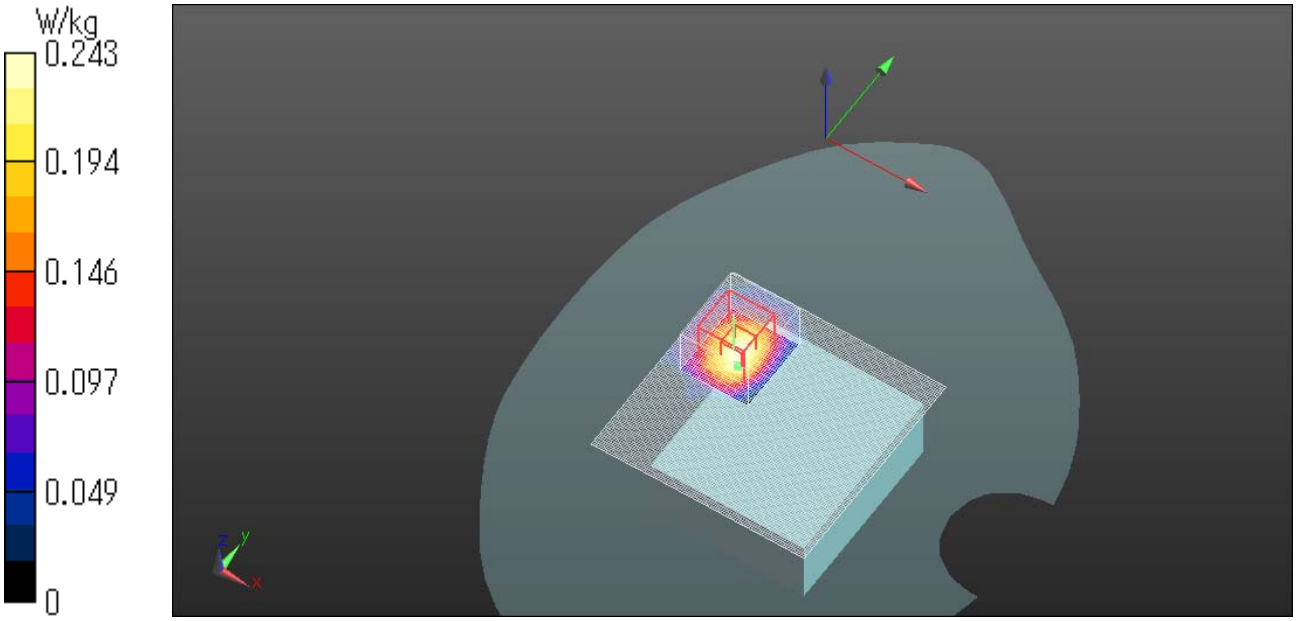
Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used (extrapolated): f = 5745 MHz; σ = 5.322 S/m; ε_r = 33.856; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.46, 4.46, 4.46) @ 5745 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5745MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.287 W/kg

WLAN 11a/Rear 0mm 5745MHz/Zoom Scan (7x7x7) (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.295 V/m; Power Drift = -0.21 dB
Peak SAR (extrapolated) = 0.411 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.039 W/kg
Smallest distance from peaks to all points 3 dB below = 13 mm
Ratio of SAR at M2 to SAR at M1 = 57%

Maximum value of SAR (measured) = 0.243 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



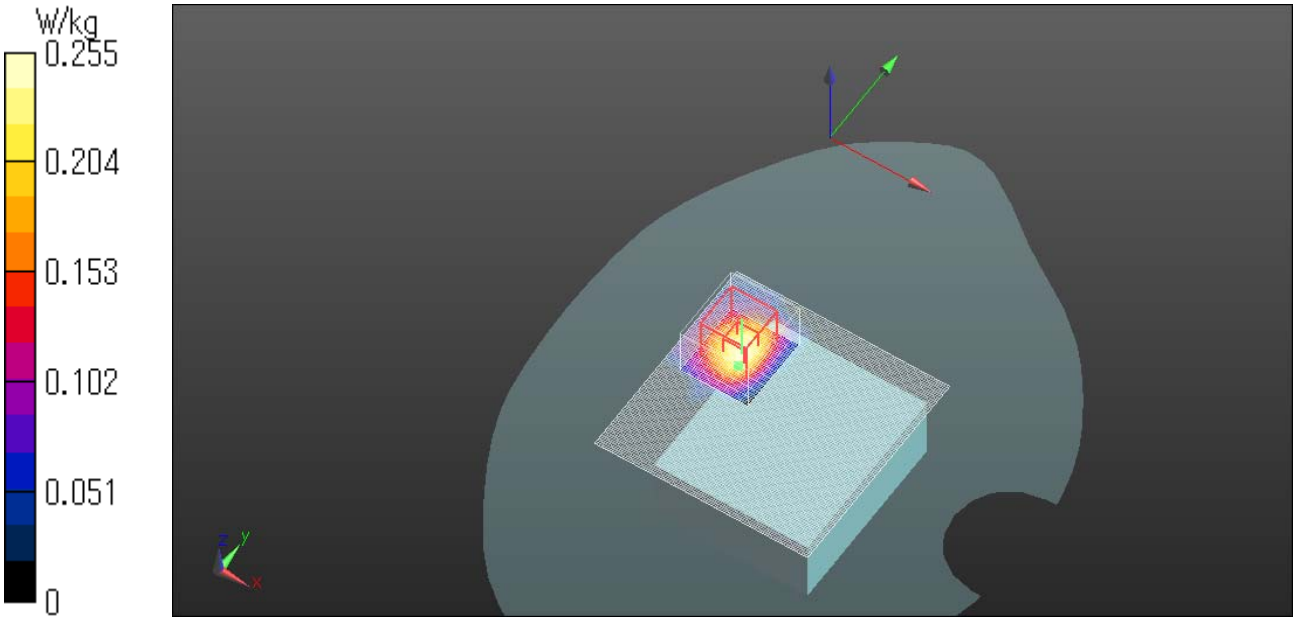
WLAN 11a/Rear 0mm 5785MHz_Without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.341 S/m; ε_r = 33.77; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5785 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5785MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.294 W/kg

WLAN 11a/Rear 0mm 5785MHz/Zoom Scan (7x7x7) (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.281 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.040 W/kg
Smallest distance from peaks to all points 3 dB below = 10.4 mm
Ratio of SAR at M2 to SAR at M1 = 57.2%
Maximum value of SAR (measured) = 0.255 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



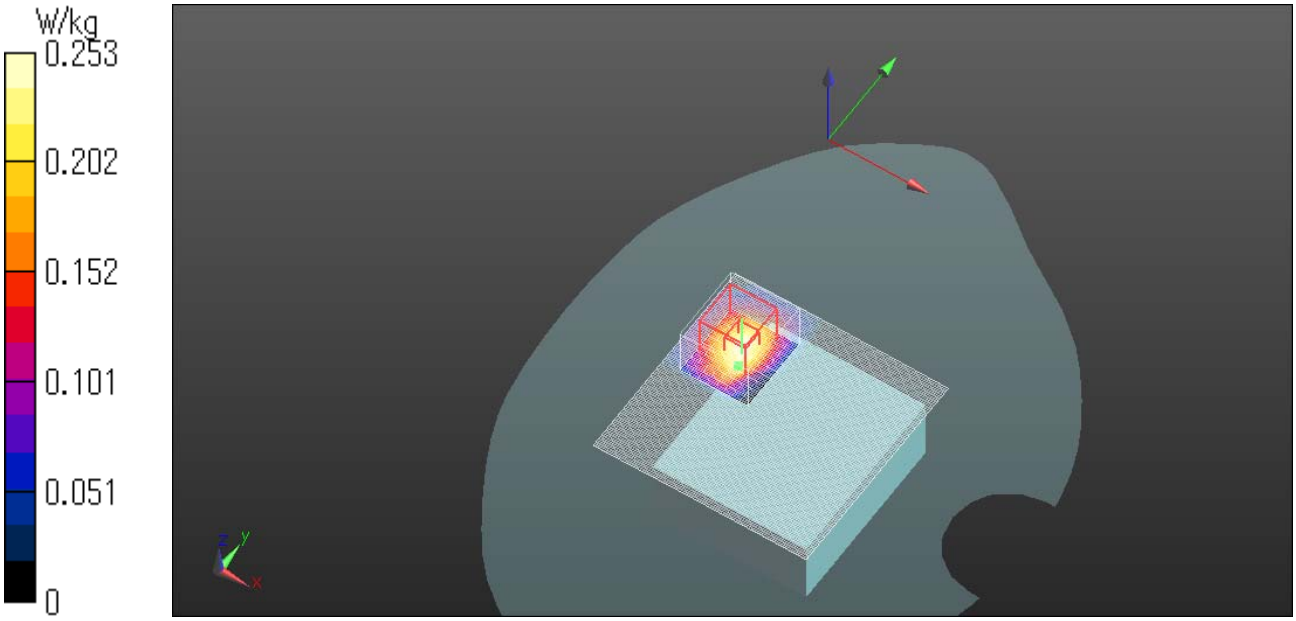
WLAN 11a/Rear 0mm 5825MHz_Without compatible holder

Communication System: UID 0, #WLAN 11a/b/g/n (0); Communication System Band: 11a/n (W58); ; Duty Cycle: 1:1
Medium parameters used: f = 5825 MHz; σ = 5.313 S/m; ε_r = 33.844; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY5 Configuration
Probe: EX3DV4 - SN3803; ConvF(4.41, 4.41, 4.41) @ 5825 MHz;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn554;
Phantom: SAM (30deg probe tilt) with CRP v4.0; Type: QD000P40CB;Serial: TP:1333
Measurement SW: DASY52, Version 52.10 (3);SEMCAD X Version 14.6.13 (7474)

WLAN 11a/Rear 0mm 5825MHz/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.280 W/kg

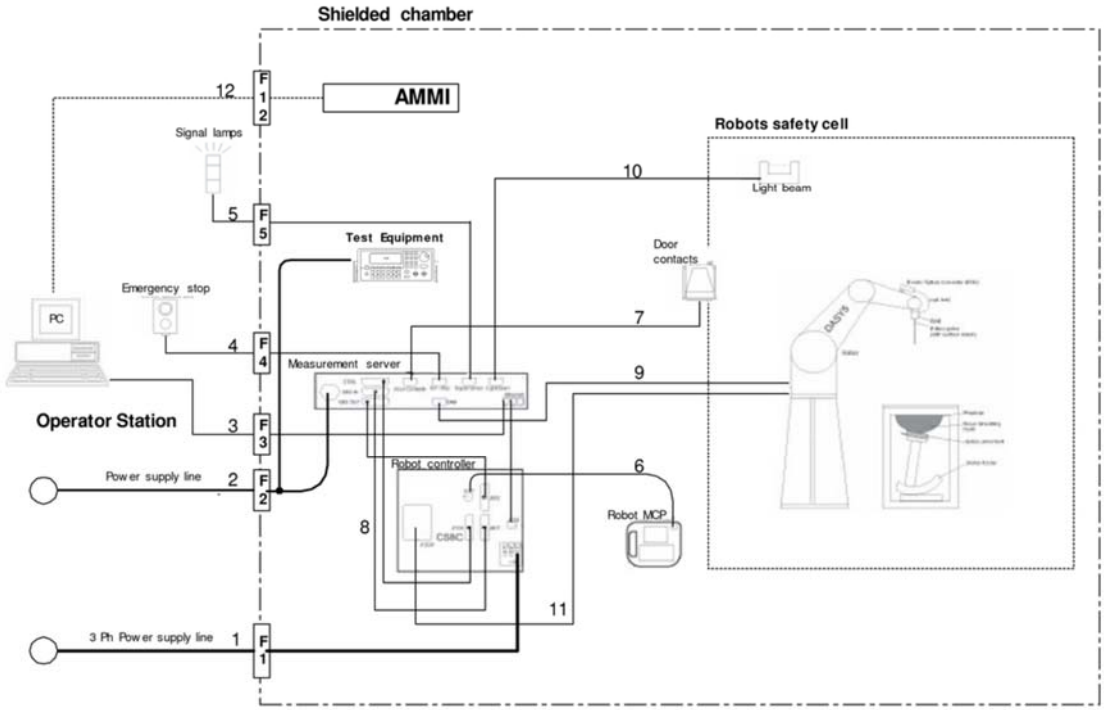
WLAN 11a/Rear 0mm 5825MHz/Zoom Scan (7x7x7) (9x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.957 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.040 W/kg
Smallest distance from peaks to all points 3 dB below = 11.2 mm
Ratio of SAR at M2 to SAR at M1 = 55%
Maximum value of SAR (measured) = 0.253 W/kg

Ambient Temp. : 21.0 degree.C. Liquid Temp.; 20.2 degree.C.
Liquid temp. is kept within the 2 degree.C. during the test.
Date: 2020/07/08



APPENDIX 3 : System specifications

Configuration and peripherals



The DASY5 system for performing compliance tests consist of the following items:
Our system is DASY6; however, it behaves as DASY5.

a) A standard high precision 6-axis robot (Stäubli RX family) with controller and software.
An arm extension for accommodating the data acquisition electronics (DAE).

b) An isotropic field probe optimized and calibrated for the targeted measurement.

c) A data acquisition electronic (DAE), which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

d) The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection.
The EOC is connected to the measurement server.

e) The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

f) The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

g) A computer running Windows 10 or 7 and the DASY5/6 software.

h) Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.

i) The phantom, the device holder and other accessories according to the targeted measurement.

Specifications

a)Robot TX60L

Number of Axes	:	6
Nominal Load	:	2 kg
Maximum Load	:	5kg
Reach	:	920mm
Repeatability	:	+/-0.03mm
Control Unit	:	CS8c
Programming Language	:	VAL3
Weight	:	52.2kg
Manufacture	:	Stäubli Robotics

b)E-Field Probe

Model	:	EX3DV4
Construction	:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycol ether)
Frequency	:	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	:	+/-0.3 dB in HSL (rotation around probe axis) +/-0.5 dB in tissue material (rotation normal probe axis)
Dynamic Range	:	10uW/g to > 100 mW/g;Linearity +/-0.2 dB(noise: typically < 1uW/g)
Dimensions	:	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	:	Highprecision dosimetric measurement in any exposure scenario (e.g., very strong gradient fields).Only probe which enables compliance testing for frequencies up to 6GHz with precision of better 30%.
Manufacture	:	Schmid & Partner Engineering AG

EX3DV4 E-field Probe

c)Data Acquisition Electronic (DAE4)

Features	:	Signal amplifier, multiplexer, A/D converter and control logic Serial optical link for communication with DASY5 embedded system (fully remote controlled) Two step probe touch detector for mechanical surface detection and emergency robot stop
Measurement Range	:	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset voltage	:	< 5 µV (with auto zero)
Input Resistance	:	200 MΩ
Input Bias Current	:	< 50 fA
Battery Power	:	> 10 h of operation (with two 9.6 V NiMH accus)
Dimension	:	60 x 60 x 68 mm
Manufacture	:	Schmid & Partner Engineering AG

d)Electro-Optic Converter (EOC)

Version	:	EOC 61
Description	:	for TX60 robot arm, including proximity sensor
Manufacture	:	Schmid & Partner Engineering AG

e)DASY5 Measurement server

Features	:	Intel ULV Celeron 400MHz 128MB chip disk and 128MB RAM 16 Bit A/D converter for surface detection system Vacuum Fluorescent Display Robot Interface Serial link to DAE (with watchdog supervision) Door contact port (Possibility to connect a light curtain) Emergency stop port (to connect the remote control) Signal lamps port Light beam port Three Ethernet connection ports Two USB 2.0 Ports Two serial links Expansion port for future applications
Dimensions (L x W x H)	:	440 x 241 x 89 mm
Manufacture	:	Schmid & Partner Engineering AG

f) Light Beam Switches

Version	:	LB5
Dimensions (L x H)	:	110 x 80 mm
Thickness	:	12 mm
Beam-length	:	80 mm
Manufacture	:	Schmid & Partner Engineering AG

g)Software

Item	:	Dosimetric Assessment System DASY5
Type No.	:	SD 000 401A, SD 000 402A
Software version No.	:	DASY52, Version 52.6 (1)
Manufacture / Origin	:	Schmid & Partner Engineering AG

h)Robot Control Unit

Weight	:	70 Kg
AC Input Voltage	:	selectable
Manufacturer	:	Stäubli Robotics

i)Phantom and Device Holder

Phantom

Type	:	SAM Twin Phantom V4.0
Description	:	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.
Material	:	Vinylester, glass fiber reinforced (VE-GF)
Shell Material	:	Fiberglass
Thickness	:	2.0 +/-0.2 mm
Dimensions	:	Length: 1000 mm Width: 500 mm Height: adjustable feet
Volume	:	Approx. 25 liters
Manufacture	:	Schmid & Partner Engineering AG

Type	:	2mm Flat phantom ELI4.0 or 5
Description	:	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is supported by software version DASY4.5 and higher and is compatible with all SPEAG dosimetric probes and dipoles.
Material	:	Vinylester, glass fiber reinforced (VE-GF)
Shell Thickness	:	2.0 ± 0.2 mm (sagging: <1%)
Filling Volume	:	approx. 30 liters
Dimensions	:	Major ellipse axis: 600 mm Minor axis: 400 mm
Manufacture	:	Schmid & Partner Engineering AG

Device Holder

In combination with the Twin SAM Phantom V4.0/V4.0c or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).

Material : POM

Laptio Extensions kit

Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM, ELI4 Phantoms.

Material : POM, Acrylic glass, Foam

Urethane

For this measurement, the urethane foam was used as device holder.

j)Simulated Tissues (Liquid)

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

Product identifier

Trade name	Broad Band Tissue Simulation Liquid HBBL600-10000V6, MBBL600-6000V6, HU16B, MU16B
Manufacturer/Supplier	Schmid & Partner Engineering AG

Declarable components:

CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28-0000	**Ethanediol** STOT RE 2, H373; Acute Tox. 4, H302	< 5.2%
CAS: 68608-26-4 EINECS: 271-781-5 Reg.nr.: 01-2119527859-22-0000	**Sodium petroleum sulfonate** Eye Irrit. 2, H319	< 2.9%
CAS: 107-41-5 EINECS: 203-489-0 Reg.nr.: 01-2119539582-35-0000	**Hexylene Glycol / 2-Methyl-pentane-2,4-diol** Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.9%
CAS: 68920-66-1 NLP: 500-236-9 Reg.nr.: 01-2119489407-26-0000	**Alkoxylated alcohol, > C_{16}** Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.0%

System Check Dipole SAR Calibration Certificate -Dipole 2450MHz (D2450V2 S/N: 713)

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

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

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

Accreditation No.: SCS 0108

Client UL Japan (KYCOM)

Certificate No: D2450V2-713_Sep19

CALIBRATION CERTIFICATE

Object: D2450V2 - SN:713

Calibration procedure(s): QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: September 09, 2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Reference Probe EX3DV4	SN: 7349	29-May-19 (No. EX3-7349_May19)	May-20
DAE4	SN: 601	30-Apr-19 (No. DAE4-601_Apr19)	Apr-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 13, 2019

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

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

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Servizio svizzero di taratura
S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.5 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.1 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.7 ± 6 %	2.04 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**51.6 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.18 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.3 W/kg ± 16.5 % (k=2)**

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Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.5 Ω + 1.6 jΩ
Return Loss	- 28.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.6 Ω + 4.0 jΩ
Return Loss	- 27.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.159 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 09.09.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:713

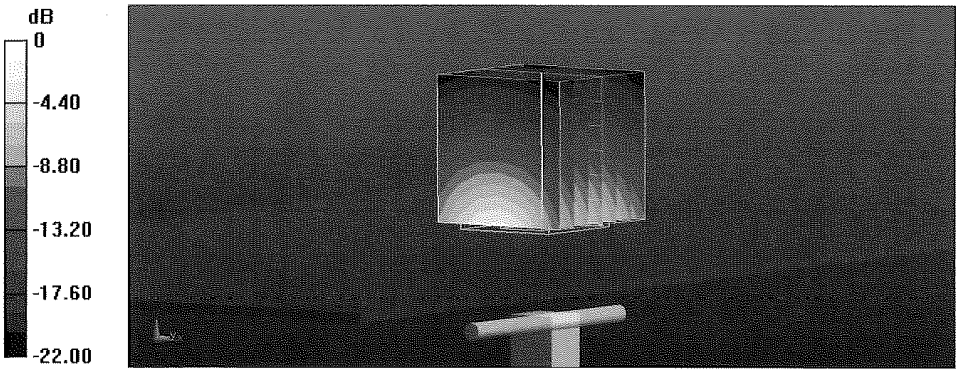
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; ε_r = 37.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.9, 7.9, 7.9) @ 2450 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 118.4 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 27.2 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.35 W/kg
Maximum value of SAR (measured) = 22.5 W/kg



0 dB = 22.5 W/kg = 13.52 dBW/kg

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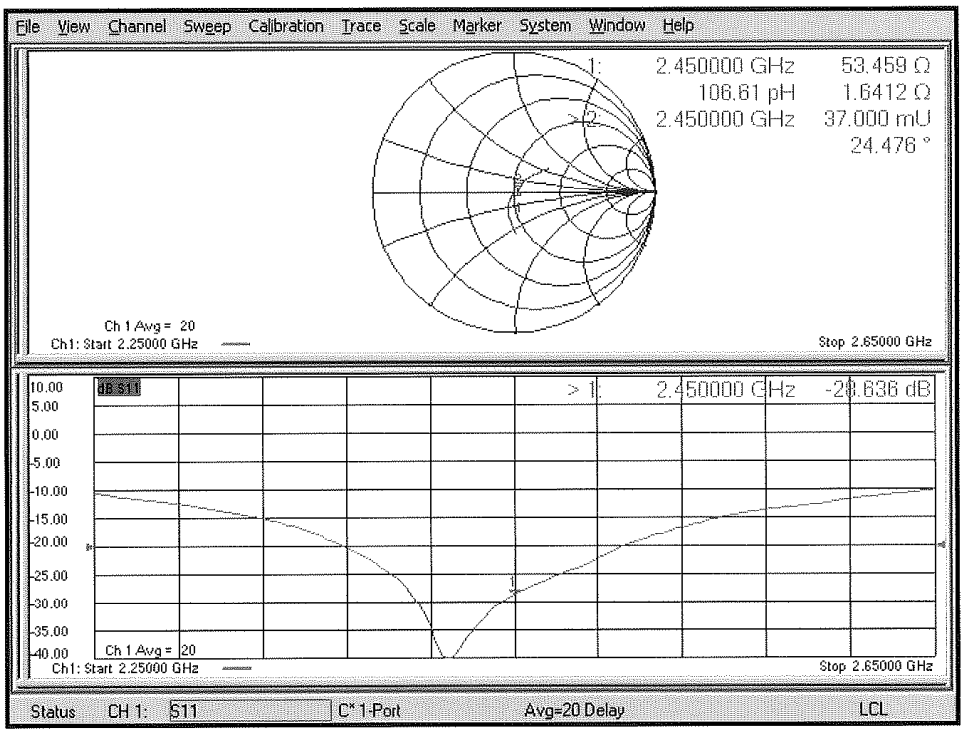
Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 09.09.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:713

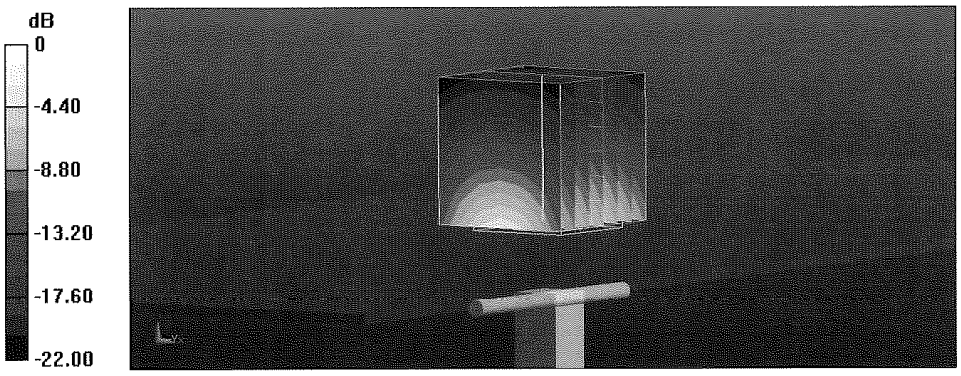
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.04 S/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.94, 7.94, 7.94) @ 2450 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.7 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 26.6 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.18 W/kg
Maximum value of SAR (measured) = 21.9 W/kg



0 dB = 21.9 W/kg = 13.40 dBW/kg

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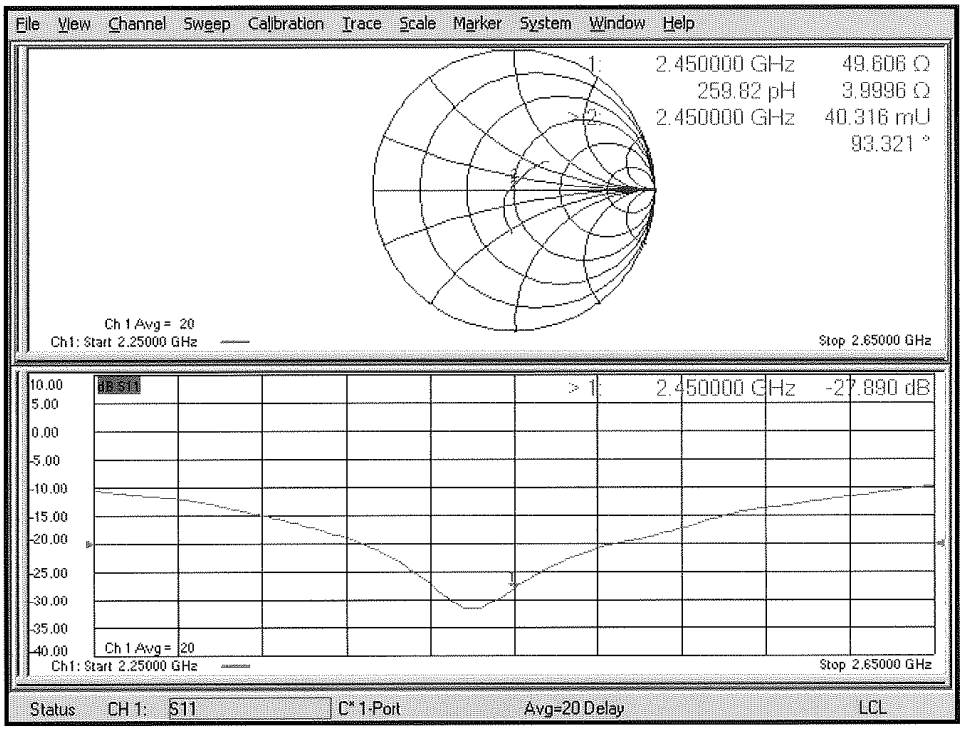
Impedance Measurement Plot for Body TSL



System Check Dipole SAR Calibration Certificate -DipoleD5GHz (D5GHzV2 S/N: 1020)

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Accreditation No.: SCS 0108

Client UL Japan (KYCOM)

Certificate No: D5GHzV2-1020_Nov19

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN:1020
Calibration procedure(s)	QA CAL-22.v4 Calibration Procedure for SAR Validation Sources between 3-6 GHz
Calibration date:	November 19, 2019

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Reference Probe EX3DV4	SN: 3503	25-Mar-19 (No. EX3-3503_Mar19)	Mar-20
DAE4	SN: 601	30-Apr-19 (No. DAE4-601_Apr19)	Apr-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 20, 2019

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

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.3
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.8 ± 6 %	4.49 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 W/kg ± 19.5 % (k=2)**

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Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.3 ± 6 %	4.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.50 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**84.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.9 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	5.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.7 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.7 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.0 ± 6 %	5.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.67 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	5.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**80.3 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.0 ± 6 %	6.26 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.65 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.11 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.9 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.9 Ω - 8.1 jΩ
Return Loss	- 21.9 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.7 Ω - 3.0 jΩ
Return Loss	- 25.5 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	57.2 Ω + 1.4 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	51.0 Ω - 6.1 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	54.8 Ω - 2.4 jΩ
Return Loss	- 25.9 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.7 Ω + 2.0 jΩ
Return Loss	- 22.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 18.11.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1020

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5250 MHz; σ = 4.49 S/m; ε_r = 34.8; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 4.84 S/m; ε_r = 34.3; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 5.05 S/m; ε_r = 34; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

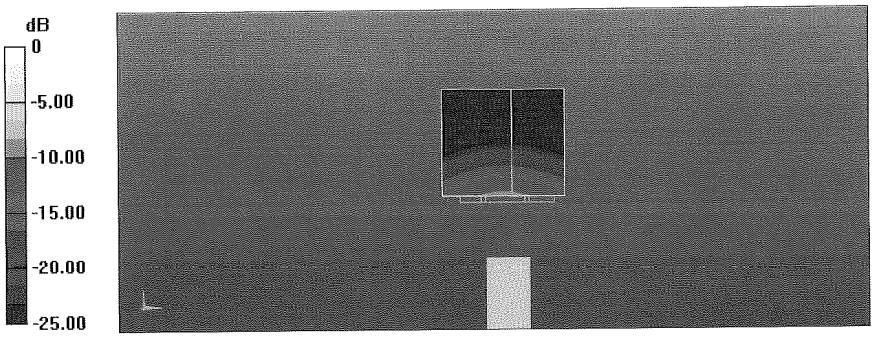
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.4, 5.4, 5.4) @ 5250 MHz, ConvF(4.95, 4.95, 4.95) @ 5600 MHz, ConvF(4.96, 4.96, 4.96) @ 5800 MHz; Calibrated: 25.03.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 77.97 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 8.22 W/kg; SAR(10 g) = 2.35 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 70.3%
Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 77.98 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 31.8 W/kg
SAR(1 g) = 8.50 W/kg; SAR(10 g) = 2.42 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 67.6%
Maximum value of SAR (measured) = 20.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 74.30 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 32.6 W/kg
SAR(1 g) = 8.15 W/kg; SAR(10 g) = 2.3 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 65.3%
Maximum value of SAR (measured) = 19.8 W/kg



0 dB = 19.8 W/kg = 12.97 dBW/kg

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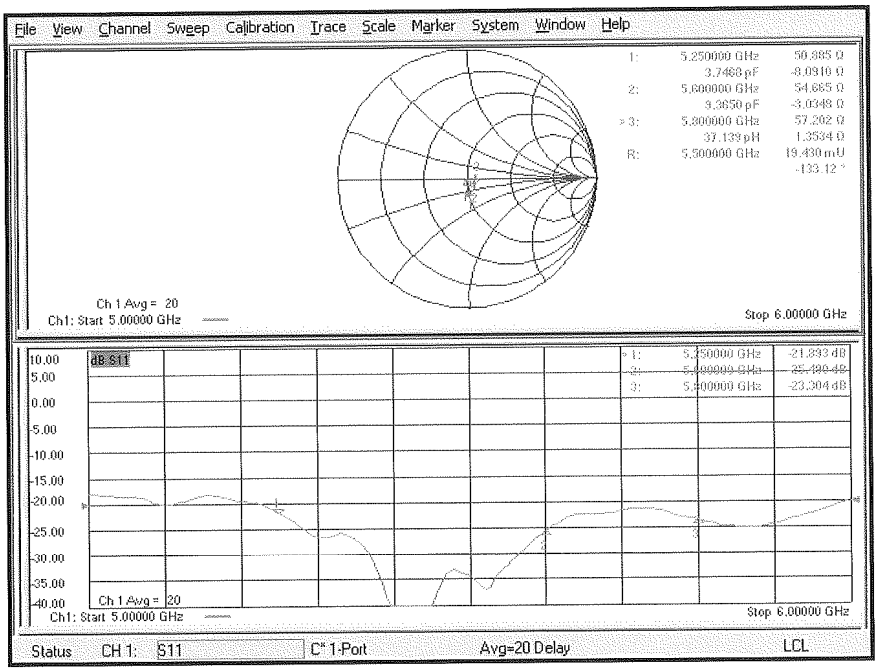
Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 19.11.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1020

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5250 MHz; σ = 5.51 S/m; ε_r = 47; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 5.99 S/m; ε_r = 46.4; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 6.26 S/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

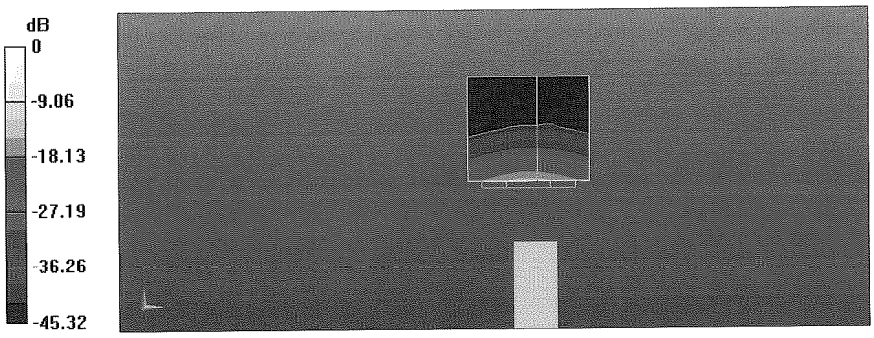
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.26, 5.26, 5.26) @ 5250 MHz, ConvF(4.74, 4.74, 4.74) @ 5600 MHz, ConvF(4.62, 4.62, 4.62) @ 5800 MHz; Calibrated: 25.03.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.82 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 29.7 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.14 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66.8%
Maximum value of SAR (measured) = 18.0 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.78 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 34.8 W/kg
SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.24 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 63.5%
Maximum value of SAR (measured) = 19.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.62 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 33.7 W/kg
SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.11 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 62.9%
Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 18.0 W/kg = 12.56 dBW/kg

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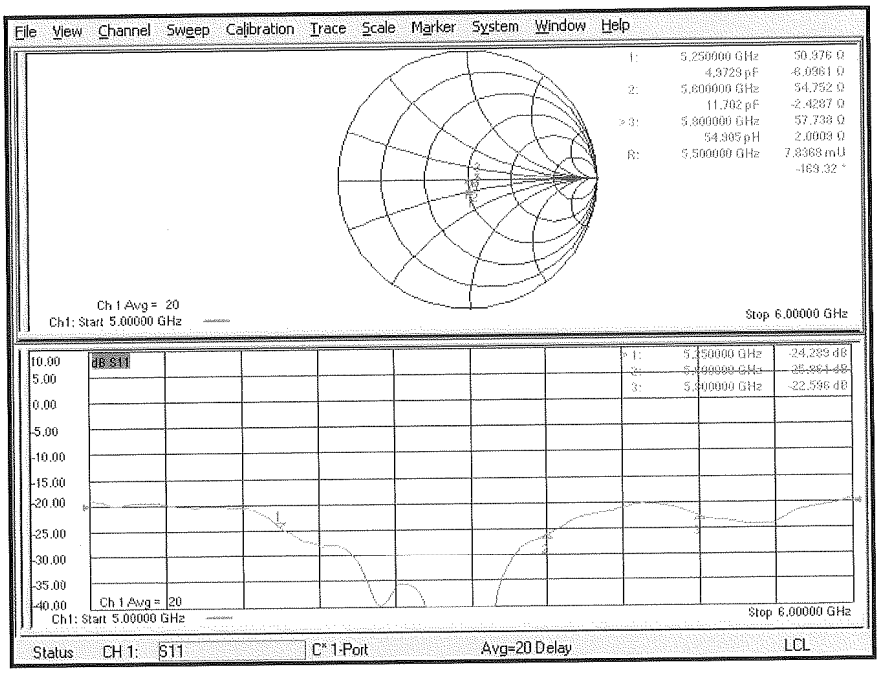
Impedance Measurement Plot for Body TSL



Dosimetric E-Field Probe Calibration Certificate (EX3DV4, S/N: 3803)

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

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **RCC**

Certificate No: **EX3-3803_Apr20**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3803
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date:	April 28, 2020

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: CC2552 (20x)	31-Mar-20 (No. 217-03106)	Apr-21
DAE4	SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ES3DV2	SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

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

Issued: April 28, 2020

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

Calibration Laboratory of
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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

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

EX3DV4 – SN:3803 April 28, 2020

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3803

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)[A]	0.49	0.49	0.48	± 10.1 %
DCP (mV)[B]	104.8	100.0	100.5	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	156.9	± 3.0 %	± 4.7 %
		Y	0.00	0.00	1.00		166.6		
		Z	0.00	0.00	1.00		154.6		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	20.00	91.19	20.98	10.00	60.0	± 2.9 %	± 9.6 %
		Y	20.00	89.26	19.77		60.0		
		Z	20.00	92.11	21.29		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	20.00	92.64	20.47	6.99	80.0	± 1.7 %	± 9.6 %
		Y	20.00	90.51	18.97		80.0		
		Z	20.00	95.62	21.82		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	20.00	95.72	20.48	3.98	95.0	± 1.1 %	± 9.6 %
		Y	20.00	90.96	17.52		95.0		
		Z	20.00	101.94	23.30		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	20.00	100.03	21.12	2.22	120.0	± 1.2 %	± 9.6 %
		Y	20.00	88.86	15.15		120.0		
		Z	20.00	111.23	26.00		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	1.72	67.87	15.63	1.00	150.0	± 3.2 %	± 9.6 %
		Y	1.40	65.38	13.87		150.0		
		Z	1.74	68.52	15.93		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	2.29	69.20	16.34	0.00	150.0	± 1.3 %	± 9.6 %
		Y	1.92	66.50	14.86		150.0		
		Z	2.31	69.49	16.58		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	3.05	71.22	18.99	3.01	150.0	± 1.5 %	± 9.6 %
		Y	2.37	67.39	17.56		150.0		
		Z	2.86	70.74	19.01		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	3.41	67.10	15.79	0.00	150.0	± 2.2 %	± 9.6 %
		Y	3.29	66.39	15.35		150.0		
		Z	3.56	67.80	16.20		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.70	65.54	15.49	0.00	150.0	± 4.2 %	± 9.6 %
		Y	4.61	65.27	15.33		150.0		
		Z	4.67	65.51	15.54		150.0		

Note: For details on UID parameters see Appendix

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

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4– SN:3803 April 28, 2020

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3803

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	39.0	287.25	34.68	12.61	0.44	5.06	0.91	0.33	1.01
Y	34.9	265.48	36.57	8.21	0.47	5.06	0.00	0.37	1.01
Z	37.3	277.65	35.51	10.77	0.28	5.09	0.80	0.29	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	4.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

EX3DV4– SN:3803 April 28, 2020

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3803

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
450	43.5	0.87	9.88	9.88	9.88	0.15	1.30	± 13.3 %
600	42.7	0.88	9.39	9.39	9.39	0.09	1.20	± 13.3 %
750	41.9	0.89	9.15	9.15	9.15	0.61	0.84	± 12.0 %
835	41.5	0.90	9.07	9.07	9.07	0.50	0.80	± 12.0 %
900	41.5	0.97	8.90	8.90	8.90	0.55	0.82	± 12.0 %
1450	40.5	1.20	8.43	8.43	8.43	0.35	0.80	± 12.0 %
1640	40.2	1.31	8.11	8.11	8.11	0.42	0.86	± 12.0 %
1750	40.1	1.37	8.08	8.08	8.08	0.31	0.86	± 12.0 %
1900	40.0	1.40	7.81	7.81	7.81	0.36	0.86	± 12.0 %
1950	40.0	1.40	7.66	7.66	7.66	0.35	0.86	± 12.0 %
2300	39.5	1.67	7.42	7.42	7.42	0.31	0.94	± 12.0 %
2450	39.2	1.80	7.16	7.16	7.16	0.31	0.94	± 12.0 %
2600	39.0	1.96	6.98	6.98	6.98	0.41	0.90	± 12.0 %
3500	37.9	2.91	6.63	6.63	6.63	0.30	1.30	± 13.1 %
3700	37.7	3.12	6.44	6.44	6.44	0.35	1.30	± 13.1 %
5200	36.0	4.66	4.85	4.85	4.85	0.40	1.80	± 13.1 %
5250	35.9	4.71	4.75	4.75	4.75	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.61	4.61	4.61	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.47	4.47	4.47	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.46	4.46	4.46	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.41	4.41	4.41	0.40	1.80	± 13.1 %
5850	35.1	5.32	4.37	4.37	4.37	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4– SN:3803 April 28, 2020

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3803

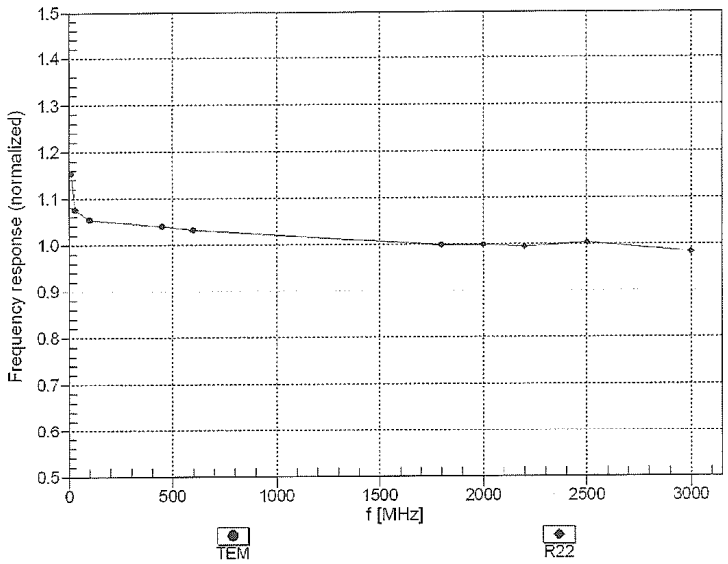
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
450	56.7	0.94	9.91	9.91	9.91	0.08	1.30	± 13.3 %
600	56.1	0.95	9.35	9.35	9.35	0.10	1.20	± 13.3 %
750	55.5	0.96	9.19	9.19	9.19	0.47	0.89	± 12.0 %
835	55.2	0.97	8.92	8.92	8.92	0.46	0.88	± 12.0 %
1640	53.7	1.42	7.79	7.79	7.79	0.44	0.86	± 12.0 %
1750	53.4	1.49	7.59	7.59	7.59	0.40	0.86	± 12.0 %
1900	53.3	1.52	7.38	7.38	7.38	0.43	0.86	± 12.0 %
2300	52.9	1.81	7.21	7.21	7.21	0.40	0.95	± 12.0 %
2450	52.7	1.95	7.10	7.10	7.10	0.32	0.90	± 12.0 %
2600	52.5	2.16	6.93	6.93	6.93	0.33	0.90	± 12.0 %
3500	51.3	3.31	6.30	6.30	6.30	0.40	1.35	± 13.1 %
3700	51.0	3.55	6.14	6.14	6.14	0.40	1.35	± 13.1 %
5250	48.9	5.36	4.22	4.22	4.22	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.77	3.77	3.77	0.50	1.90	± 13.1 %
5750	48.3	5.94	3.97	3.97	3.97	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.95	3.95	3.95	0.50	1.90	± 13.1 %
5850	48.1	6.06	3.84	3.84	3.84	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4– SN:3803 April 28, 2020

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



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

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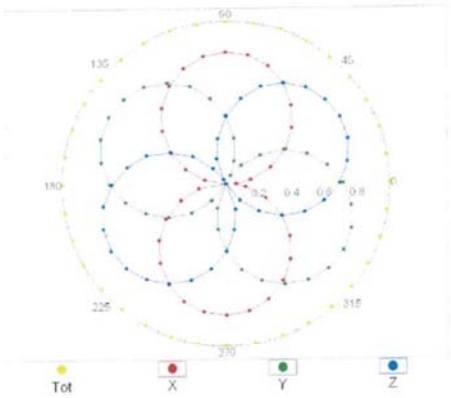
EX3DV4– SN:3803

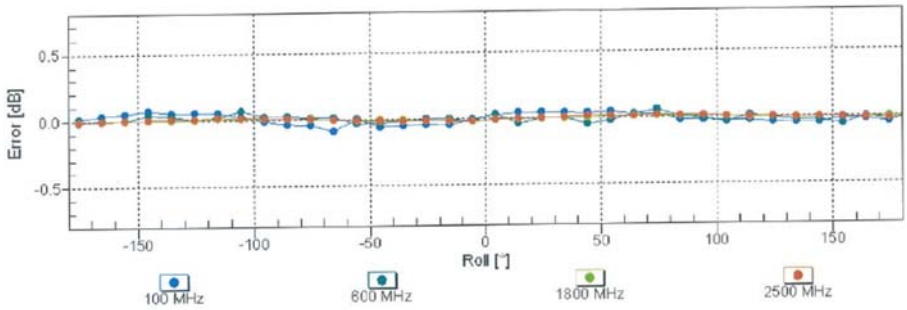
April 28, 2020

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



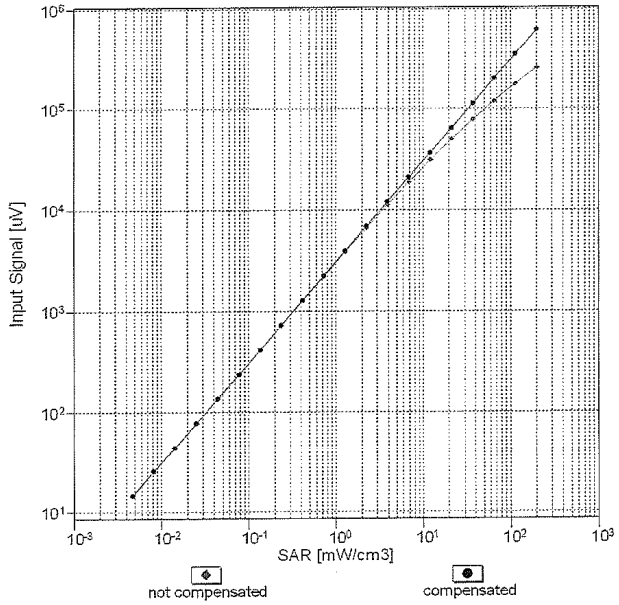
f=1800 MHz,R22

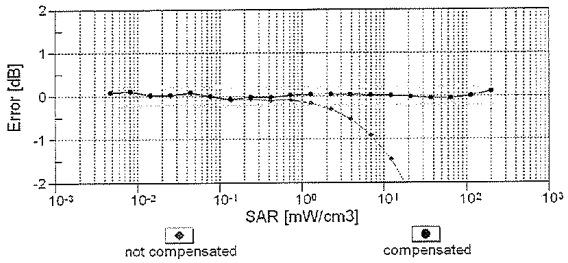


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4– SN:3803 April 28, 2020

Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)





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

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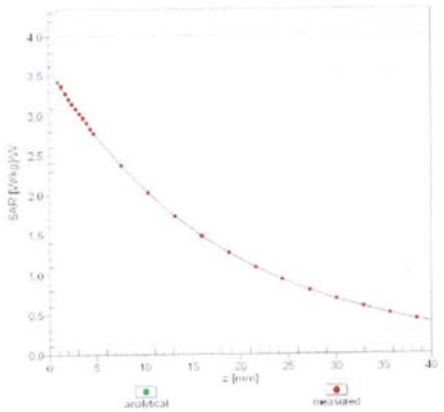
EX3DV4– SN:3803

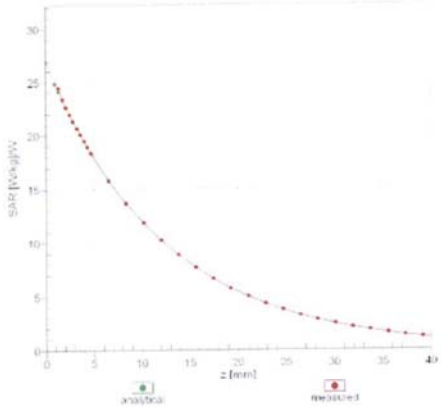
April 28, 2020

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

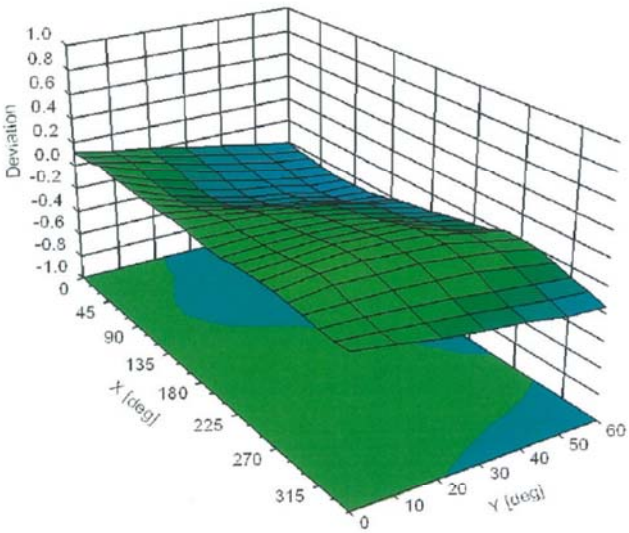


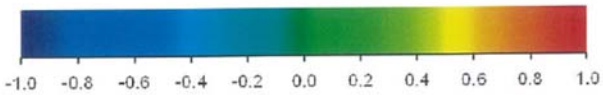
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

Certificate No: EX3-3803_Apr20 Page 10 of 22

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc[E] (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %

10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %

EX3DV4– SN:3803 April 28, 2020

10300	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM,AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3	WiMAX	14.57	± 9.6 %
10311	AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAA	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAA	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	± 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	± 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	± 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	± 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	± 9.6 %
10396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	± 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 %
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	WLAN	8.53	± 9.6 %
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	± 9.6 %
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	± 9.6 %
10406	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %
10410	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAA	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAD	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAA	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAA	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %

10463	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %
10488	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %
10489	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10501	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %
10503	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	± 9.6 %
10517	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10518	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %

EX3DV4– SN:3803 April 28, 2020

10528	AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8.43	± 9.6 %
10532	AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10546	AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc)	WLAN	8.35	± 9.6 %
10547	AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
10548	AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
10550	AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc dc)	WLAN	8.38	± 9.6 %
10551	AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dc)	WLAN	8.50	± 9.6 %
10552	AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
10553	AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc dc)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc dc)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10585	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10586	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10588	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10589	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10590	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10591	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	± 9.6 %
10592	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10593	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10595	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc)	WLAN	8.74	± 9.6 %

EX3DV4– SN:3803 April 28, 2020

10596	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc)	WLAN	8.71	± 9.6 %
10597	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.72	± 9.6 %
10598	AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc)	WLAN	8.50	± 9.6 %
10599	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10601	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9.6 %
10602	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9.6 %
10603	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc)	WLAN	9.03	± 9.6 %
10604	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
10605	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
10606	AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10607	AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
10611	AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10612	AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623	AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10626	AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc)	WLAN	8.71	± 9.6 %
10629	AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8.80	± 9.6 %
10635	AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc)	WLAN	9.11	± 9.6 %
10646	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAE	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAE	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAE	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAA	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAA	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAA	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAA	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAA	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAA	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %

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10672	AAA	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %
10673	AAA	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
10674	AAA	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10675	AAA	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	± 9.6 %
10676	AAA	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10677	AAA	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
10678	AAA	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	± 9.6 %
10679	AAA	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	± 9.6 %
10680	AAA	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	± 9.6 %
10681	AAA	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAA	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10684	AAA	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	± 9.6 %
10685	AAA	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAA	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	± 9.6 %
10687	AAA	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8.45	± 9.6 %
10688	AAA	IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN	8.29	± 9.6 %
10689	AAA	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAA	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAA	IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	± 9.6 %
10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAA	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAA	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAA	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAA	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10710	AAA	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.29	± 9.6 %
10711	AAA	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAA	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAA	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAA	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	± 9.6 %
10715	AAA	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAA	IEEE 802.11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	± 9.6 %
10717	AAA	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAA	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	± 9.6 %
10719	AAA	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAA	IEEE 802.11ax (80MHz, MCS1, 90pc dc)	WLAN	8.87	± 9.6 %
10721	AAA	IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAA	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAA	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10724	AAA	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
10725	AAA	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAA	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAA	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %
10728	AAA	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
10729	AAA	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
10730	AAA	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
10731	AAA	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10732	AAA	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAA	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAA	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 %
10735	AAA	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %

EX3DV4– SN:3803 April 28, 2020

10736	AAA	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 %
10737	AAA	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAA	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 %
10739	AAA	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAA	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	± 9.6 %
10741	AAA	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 %
10742	AAA	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	± 9.6 %
10743	AAA	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAA	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	± 9.6 %
10745	AAA	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 %
10746	AAA	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	± 9.6 %
10747	AAA	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6 %
10748	AAA	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAA	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	± 9.6 %
10750	AAA	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAA	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAA	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAA	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAA	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAA	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10756	AAA	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAA	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAA	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAA	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAA	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAA	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAA	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAA	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAA	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAA	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10766	AAA	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAB	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10777	AAB	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	AAB	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10780	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %

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EX3DV4– SN:3803 April 28, 2020

10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAC	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAC	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAC	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAC	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAC	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAC	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10834	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 %
10835	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 9.6 %
10839	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAC	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10860	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10861	AAC	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10863	AAC	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAC	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10865	AAC	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10866	AAC	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10868	AAC	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %

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10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAA	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAA	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAA	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAA	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAA	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAA	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAA	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAA	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAA	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAA	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAA	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAA	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAA	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAA	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAA	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAA	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAA	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAA	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAA	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAA	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAA	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAA	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10922	AAA	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAA	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAA	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAA	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAA	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAA	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAA	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10929	AAA	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAA	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAA	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAA	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAA	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAA	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAA	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAA	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAA	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAA	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAA	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAA	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAA	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAA	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10946	AAA	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAA	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAA	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAA	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAA	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAA	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %

EX3DV4– SN:3803 April 28, 2020

10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAA	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %

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

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System check uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents and is given in the following Table.

Repeatability Budget for System Check

<0.3 – 3GHz range Body>

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1g	Standard (1g)	vi or veff
Measurement System						
Probe calibration	± 1.8	Normal	1	1	± 1.8	∞
Axial isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Spherical isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Boundary effects	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe linearity	± 0.0	Rectangular	√3	1	± 0.0	∞
Detection limit	± 0.0	Rectangular	√3	1	± 0.0	∞
Modulation response	± 0.0	Rectangular	√3	1	± 0.0	∞
Readout electronics	± 0.0	Normal	1	1	± 0.0	∞
Response time	± 0.0	Rectangular	√3	1	± 0.0	∞
Integration time	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Noise	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Reflections	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe Positioner	± 0.4	Rectangular	√3	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	√3	1	± 1.7	∞
Max.SAR Eval.	± 0.0	Rectangular	√3	1	± 0.0	∞
Test Sample Related						
Deviation of wxp.dipole	± 0.0	Rectangular	√3	1	± 0.0	∞
Dipole Axis to Liquid Distance	± 2.0	Rectangular	√3	1	± 1.2	∞
Input power and SAR drift meas.	± 3.4	Rectangular	√3	1	± 2.0	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	√3	1	± 2.3	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	± 1.9	Rectangular	√3	1	± 1.1	∞
Liquid conductivity (meas.)	± 5.0	Normal	1	0.78	+ 3.9	∞
Liquid permittivity (meas.)	± 5.0	Normal	1	0.26	- 1.3	∞
Liquid conductivity - temp.unc (below 2deg.C.)	± 1.7	Rectangular	√3	0.78	± 0.8	∞
Liquid permittivity - temp.unc (below 2deg.C.)	± 0.3	Rectangular	√3	0.23	± 0.0	∞
Combined Standard Uncertainty					± **5.945**	
Expanded Uncertainty (k=2)					± **11.9**	

<3 – 6GHz range Body>

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1g	Standard (1g)	vi or veff
Measurement System						
Probe calibration	± 1.8	Normal	1	1	± 1.8	∞
Axial isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Spherical isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Boundary effects	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe linearity	± 0.0	Rectangular	√3	1	± 0.0	∞
Detection limit	± 0.0	Rectangular	√3	1	± 0.0	∞
Modulation response	± 0.0	Rectangular	√3	1	± 0.0	∞
Readout electronics	± 0.0	Normal	1	1	± 0.0	∞
Response time	± 0.0	Rectangular	√3	1	± 0.0	∞
Integration time	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Noise	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Reflections	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe Positioner	± 0.8	Rectangular	√3	1	± 0.5	∞
Probe positioning	± 6.7	Rectangular	√3	1	± 3.9	∞
Max.SAR Eval.	± 0.0	Rectangular	√3	1	± 0.0	∞
Test Sample Related						
Deviation of wxp.dipole	± 0.0	Rectangular	√3	1	± 0.0	∞
Dipole Axis to Liquid Distance	± 2.0	Rectangular	√3	1	± 1.2	∞
Input power and SAR drift meas.	± 3.4	Rectangular	√3	1	± 2.0	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	√3	1	± 2.3	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	± 1.9	Rectangular	√3	1	± 1.1	∞
Liquid conductivity (meas.)	± 5.0	Normal	1	0.78	+ 3.9	∞
Liquid permittivity (meas.)	± 5.0	Normal	1	0.26	- 1.3	∞
Liquid conductivity - temp.unc (below 2deg.C.)	± 1.7	Rectangular	√3	0.78	± 0.8	∞
Liquid permittivity - temp.unc (below 2deg.C.)	± 0.3	Rectangular	√3	0.23	± 0.0	∞
Combined Standard Uncertainty					± **6.906**	
Expanded Uncertainty (k=2)					± **13.8**	