中国认可
国际互认
检测
TESTING
CNAS L4963

SAR TEST REPORT

Report No. 2017SAR315

FCC ID:	HD5-EDA700
Applicant:	Honeywell International Inc. Honeywell Sensing & Productivity Solutions
Product:	Tablet
Model:	EDA70-0
HW Version:	IDH53_MB_V2.0.0
SW Version:	209.01.00.0002
Issue Date:	2017-07-12

Prepared by: Chen Qiang **Reviewed by:** Yin Xiaoming **Approved by:** Sun Guangxu (Technical Manager)

Remark: This report details the results of the testing carried out on the samples specified in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. The report shall not be reproduced except in full, without written approval of the Company.

Standards

Applicable Limit Regulations	**ANSI/IEEE C95.1-2005** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields. 3 kHz to 300 GHz
	ANSI/IEEE C95.3-2002 Recommended Practice For Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to such Fields. 100 kHz-300 GHz
Applicable Standards	**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
	KDB865664 D01v01r04: SAR Measurement 100 MHz to 6 GHz
	KDB865664 D02v01r02: Exposure Reporting
	KDB447498 D01v06: General RF Exposure Guidance
	KDB648474 D03v01r04: Handset Wireless Chargers Battery Covers
	KDB648474 D04v01r03: Handset SAR
	KDB248227 D01v02r02: 802 11 Wi-Fi SAR
	KDB941225 D01v03r01: 3G SAR Procedures
	KDB941225 D05v02r05: SAR for LTE Devices
	KDB941225 D06v02: Hotspot Mode

Conclusion

Localized Specific Absorption Rate (SAR) of this equipment has been measured in all cases requested by the relevant standards above. Maximum localized SAR is below exposure limits as well.

Change History

Version	Change Contents	Author	Date
V1.0	First edition	Chen Qiang	2017-06-27
V2.0	Remove IC Standard. Remove BT&WiFi simultaneous	Chen Qiang	2017-07-12

Note: The last version will be invalid automatically while the new version is issued.

CONTENTS:

STANDARDS **2**

CONCLUSION **2**

CHANGE HISTORY **3**

1. STATEMENT OF COMPLIANCE **6**

2. ADMINISTRATIVE INFORMATION **7**

2.1 PROJECT INFORMATION 7
2.2 TEST LABORATORY INFORMATION 7
2.3 TEST ENVIRONMENT 7

3. CLIENT INFORMATION **8**

3.1 APPLICANT INFORMATION 8
3.2 MANUFACTURER INFORMATION 8

4. EQUIPMENT UNDER TEST (EUT) AND ACCESSORY EQUIPMENT (AE) **9**

4.1 INFORMATION OF EUT 9
4.2 IDENTIFICATION OF EUT 10
4.3 IDENTIFICATION OF AE 10

5. OPERATIONAL CONDITIONS DURING TEST **11**

5.1 GENERAL DESCRIPTION OF TEST PROCEDURES 11
5.5 BLUETOOTH TEST CONFIGURATION 11
5.6 WI-FI TEST CONFIGURATION 12

6. SAR MEASUREMENTS SYSTEM CONFIGURATION **15**

6.1 SAR MEASUREMENT SET-UP 15
6.2 DASY5 E-FIELD PROBE SYSTEM 16
6.2.1 Ex3DV4 Probe Specification *16*
6.2.2 E-field Probe Calibration *17*
6.3 OTHER TEST EQUIPMENT 18
6.3.1 Device Holder for Transmitters *18*
6.3.2 Phantom *18*
6.4 SCANNING PROCEDURE 19
6.5 DATA STORAGE AND EVALUATION 21
6.5.1 Data Storage *21*
6.5.2 Data Evaluation by SEMCAD *21*
6.6 SYSTEM CHECK 23
6.7 EQUIVALENT TISSUES 24

7. SUMMARY OF TEST RESULTS **25**

7.1 CONDUCTED OUTPUT POWER MEASUREMENT **25**

7.1.1 SUMMARY 25

7.1.2 CONDUCTED POWER RESULTS 25

7.2 TEST RESULTS 28

7.2.1. DIELECTRIC PERFORMANCE 28
7.2.2. SYSTEM CHECK RESULTS 29
7.2.3 SCALING FACTOR CALCULATION 30
7.2.4 TEST RESULTS 31
7.2.4.1 Summary of Measurement Results (WiFi) 31
7.2.4.2 Summary of Measurement Results (WiFi) 32
7.2.4.3 Summary of Measurement Results (WiFi) 32
7.2.4.4 Summary of Measurement Results (WiFi) 33
7.2.4.5 Summary of Measurement Results (WiFi) 34
7.2.4.6 Summary of Measurement Results (WiFi) 34
7.2.4.7 Summary of Measurement Results (WiFi) 35
7.2.4.8 Summary of Measurement Results (WiFi) 36
7.2.4.9 Summary of Measurement Results (WiFi) 36
7.2.5 MAXIMUM SAR 38

8. TEST EQUIPMENTS UTILIZED 39

9. MEASUREMENT UNCERTAINTY 40

ANNEX A: DETAILED TEST RESULTS 42

ANNEX A.1 SYSTEM CHECK RESULTS 42

ANNEX A.2 GRAPH RESULT 48

ANNEX B: CALIBRATION CERTIFICATE 66

ANNEX B.1 PROBE CALIBRATION CERTIFICATE 66

ANNEX B.2 DAE4 CALIBRATION CERTIFICATE 90

ANNEX B.3 D2450V2 CALIBRATION CERTIFICATE 93

ANNEX B.4 D5GHZV2 CALIBRATION CERTIFICATE 101

ANNEX C: TEST LAYOUT 115

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Honeywell International Inc. Honeywell Sensing & Productivity Solutions Tablet EDA70-0** are as follows.

Highest standalone SAR Summary:

Exposure Position	Frequency Band	Maximum reported 1g SAR (W/kg)	Highest reported 1g SAR (W/kg)
Body-worn (0mm)	802.11b	0.372	0.604
	802.11a band1	0.298	
	802.11a band2	0.410	
	802.11a band3	0.604	
	802.11a band4	0.253	
	802.11n band1	0.281	
	802.11n band2	0.429	
	802.11n band3	0.542	
	802.11n band4	0.267	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits(1.6W/kg) specified in FCC 47 CFR part 2(2.1093) and ANSI/IEEE C95.1-2005,and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

2. Administrative Information

2.1 Project Information

Date of start test	2017-06-12
Date of end test:	2017-06-16

2.2 Test Laboratory Information

Company:	Shanghai Tejet Communications Technology Co., Ltd Testing Center
Address:	Room 6205-6208, Building 6, No.399 Cailun Rd. Zhangjiang Hi-Tech Park, Shanghai, China
Post Code:	210203
Tel:	+86-21-61650880
Fax:	+86-21-61650881
Website:	www.tejet.cn

2.3 Test Environment

Temperature:	20℃～25 ℃
Relative Humidity:	20%～70%

3. Client Information

3.1 Applicant information

Company Name:	Honeywell International Inc. Honeywell Sensing & Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
City:	/
Postal Code:	/
Country:	/
Telephone:	/
Fax:	

3.2 Manufacturer Information

Company Name:	Honeywell International Inc. Honeywell Sensing & Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
City:	/
Postal Code:	/
Country:	/
Telephone:	/
Fax:	

4. Equipment Under Test (EUT) and Accessory Equipment (AE)

4.1 Information of EUT

Device Type	Portable device	
Product	Tablet	
Model	EDA70-0	
Type	Identical Prototype	
Exposure Category	Uncontrolled environment / general population	
Device operation configuration:		
Operating Mode(s):	802.11b/g	
	802.11a/n（20M）(40M)	
Antenna Type:	Internal antenna	
Operating Frequency Range(s):	Band	Tx(MHz)
	802.11b/g	2412～2462
	802.11a/n(20M)5.2G	5180～5240
	802.11a/n(40M)5.2G	5190～5230
	802.11a/n(20M)5.3G	5260～5320
	802.11a/n(40M)5.3G	5270～5310
	802.11a/n(20M)5.6G	5500～5700
	802.11a/n(40M)5.6G	5510～5670
	802.11a/n(20M)5.8G	5745～5825
	802.11a/n(40M)5.8G	5755～5795
EUT size	length, width：21.2cm*11.5cm	diagonal length：22.8cm
Size of display	length, width: 15.6cm *8.8cm	diagonal length：17.6cm

4.2 Identification of EUT

EUT ID	SN or IMEI	HW Version	SW Version	Received Date
TN03	17141B051C	IDH53_MB_V2.0.0	209.01.00.0002	2017-06-08

*EUT ID: identify the test sample in the lab internally.

4.3 Identification of AE

AE ID*	Description
AE1	Battery
AE2	Travel Adaptor

AE1

Model	BAT-EDA50US
Manufacturer	Honeywell International Inc.
Capacitance	4000mAh
Nominal Voltage	3.8V

AE2

Model	ADS-12B-06 05010E
Manufacturer	SHENZHEN HONOR ELECTRONIC Co., Ltd
Length of DC line	0cm with USB connector

*AE ID: identify the test sample in the lab internally.

5. Operational Conditions during Test

5.1 General description of test procedures

A communication link is set up with a system simulator by air link， and a call is established. The absolute radio frequency channel is allocated to low, middle and high respectively in the case of each band. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMU200, and the EUT is set to maximum output power by CMU200. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

5.5 Bluetooth Test Configuration

The Bluetooth transmitter of the device under test can be excluded from stand-alone and simultaneous SAR evaluation, per the requirements from FCC KDB 648474, as follows:

1. The separation between the Bluetooth antenna and the main antenna is 19.5cm
2. The maximum conducted output power of Bluetooth is 5dBm=3.16mW<P（max）=19mW
   According to FCC KDB648474, stand along SAR and Simultaneous Transmission SAR are not required.
   According to FCC KDB447498v06, Apppendix A

Appendix A

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

For 2450MHz，10mm test distance, P（max）=19mW

For Simultaneous Transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05 based on the formula below.

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm

Bluetooth	Turn-up Maximum Power(dBm)	Body-worn 0mm gap
Estimated SAR(W/kg)	5.0	0.164

According to FCC KDB447498v06, Apppendix D

For 2450MHz，0mm test distance ,SAR1g（BT）=0.164W/Kg

5.6 Wi-Fi Test Configuration

The Wi-Fi is set to different data rate and channels by the software.

According to KDB248227 D01 802.11 Wi-Fi SAR v02r02

SAR is measured using the highest measured maximum output power channel for the initial test configuration (see 5.3.2 and 5.3.3). SAR measurement and test reduction for the remaining 802.11 modes and test channels are determined according to measured or specified maximum output power and reported SAR of the initial measurements. The general test reduction and SAR measurement approaches are summarized in the following:

a) The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures (see Clause 4).

b) For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, an “initial test configuration” (see 5.3.2) is first determined for each standalone and aggregated frequency band according to the maximum output power and tune-up tolerance specified for production units.

1) When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

2) SAR is measured for OFDM configurations using the initial test configuration procedures (see 5.3.3). Additional frequency band specific SAR test reduction may be considered for individual frequency bands (see 5.2.2 and 5.3.1).

3) Depending on the reported SAR of the highest maximum output power channel tested in

the initial test configuration, SAR test reduction may apply to subsequent highest output channels in the initial test configuration to reduce the number of SAR measurements.

c) The Initial test configuration does not apply to DSSS. The 2.4 GHz band SAR test requirements (see 3.1) and 802.11b DSSS procedures (see 5.2.1) are used to establish the transmission configurations required for SAR measurement.

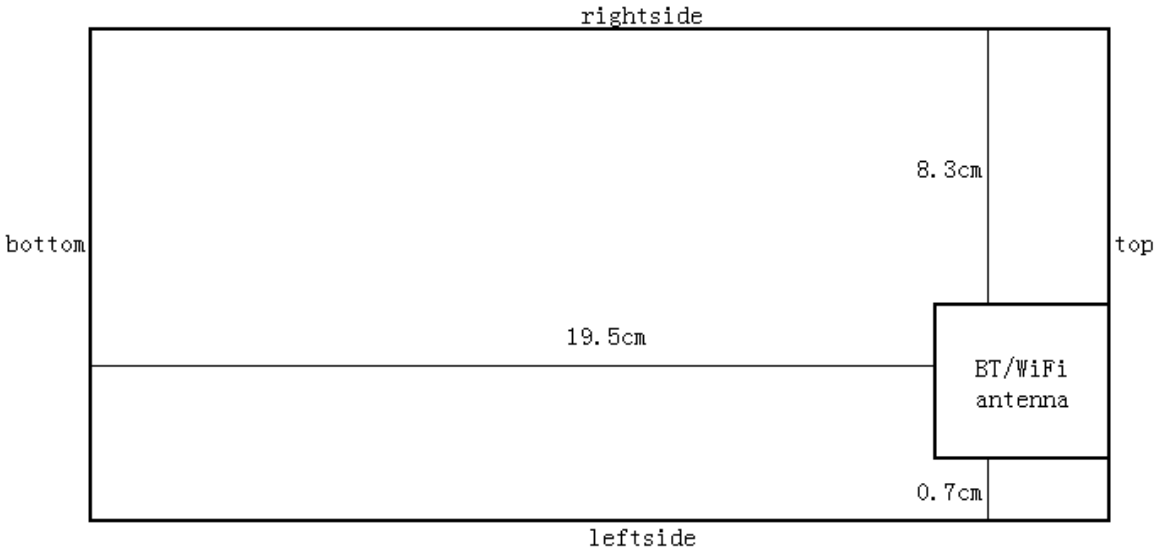
d) An “initial test position” (see 5.1) is applied to further reduce the number of SAR tests for devices operating in next to the ear, UMPC mini-tablet or hotspot mode exposure configurations that require multiple test positions.

1) SAR is measured for 802.11b according to the 2.4 GHz DSSS procedure (see 5.2.1) using the exposure condition established by the initial test position.

2) SAR is measured for 2.4 GHz and 5 GHz OFDM configurations using the initial test configuration.

e) The Initial test position does not apply to devices that require a fixed exposure test position. SAR is measured in a fixed exposure test position for these devices in 802.11b according to the 2.4 GHz DSSS procedure (see 5.2.1) or in 2.4 GHz and 5 GHz OFDM configurations using the initial test configuration procedures (see 5.3.3).

f) The “subsequent test configuration” (see 5.3.4) procedures are applied to determine if additional SAR measurements are required for the remaining OFDM transmission modes that have not been tested in the initial test configuration. SAR test exclusion is determined according to reported SAR in the initial test configuration and maximum output power specified or measured for these other OFDM configurations.



Picture of antennas

SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge.

Band	Position for test (yes or n/a)					
	Top	Bottom	Left side	Right side	Front	Back
WLAN	yes	n/a 19.5cm	yes	n/a 8.3cm	yes	yes

.

Front—toward phantom

Back---towards ground

6. SAR Measurements system configuration

6.1 SAR Measurement set-up

The DASY5 system for performing compliance tests consists of the following items:

·A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
·An isotropic _field probe optimized and calibrated for the targeted measurement.
·A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
·The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
·The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
·The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
·A computer running WinXP and the DASY5 software.
·Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
·The generic twin phantom enabling the testing of left-hand and right-hand usage.
·The device holder for handheld mobile phones.
·Tissue simulating liquid mixed according to the given recipes.
·System validation dipoles allowing to validate the proper functioning of the system.

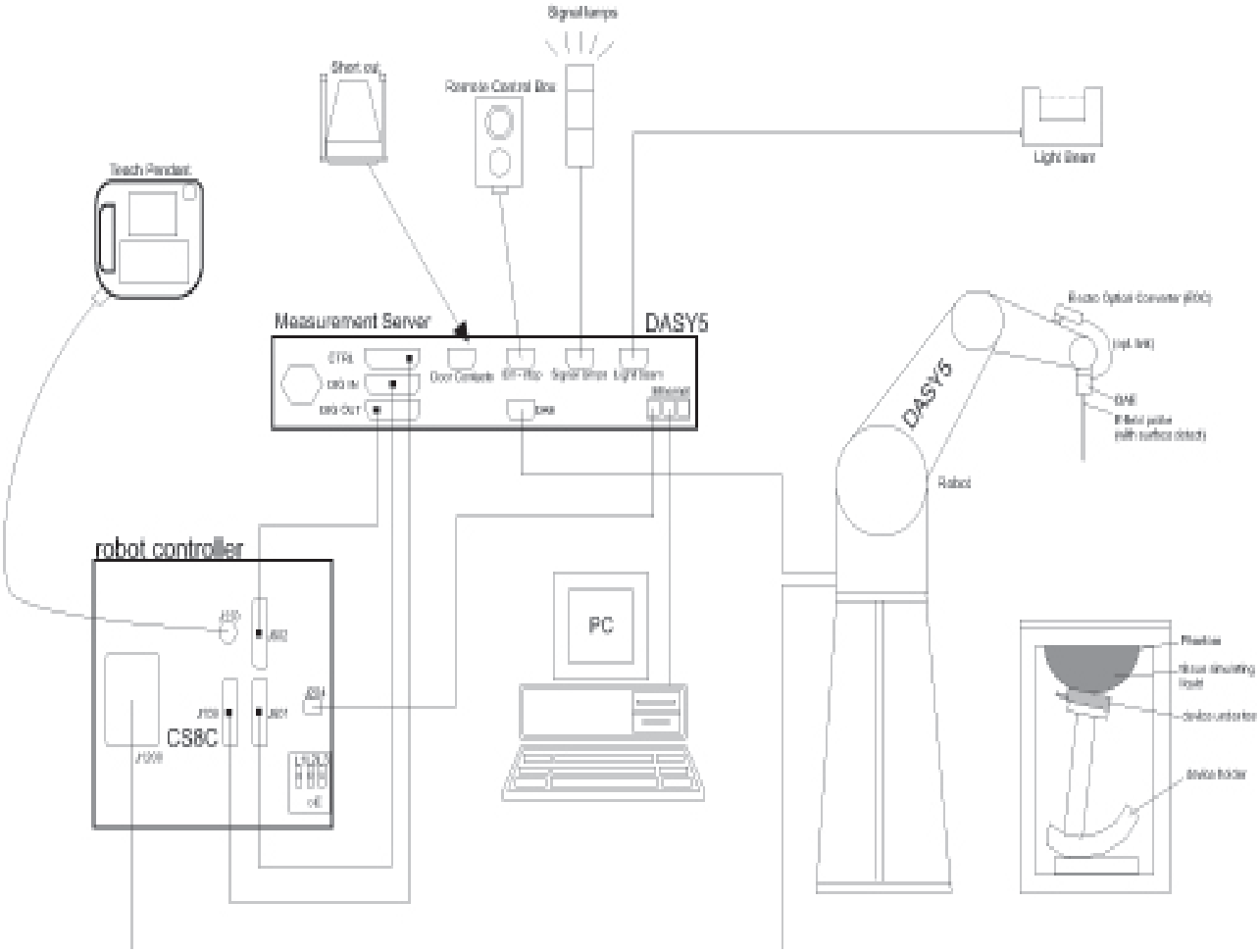


Figure 5-1 SAR Lab Test Measurement Set-up

6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

6.2.1 Ex3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 850 and HSL 1750 Additional CF for other liquids and frequencies upon request
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 to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 µW/g)

Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 5-2.Ex3DV4 E-field Probe

Figure 5-3. Ex3DV4 E-field probe

6.2.2 E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

6.3 Other Test Equipment

6.3.1 Device Holder for Transmitters

The DASY5 device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

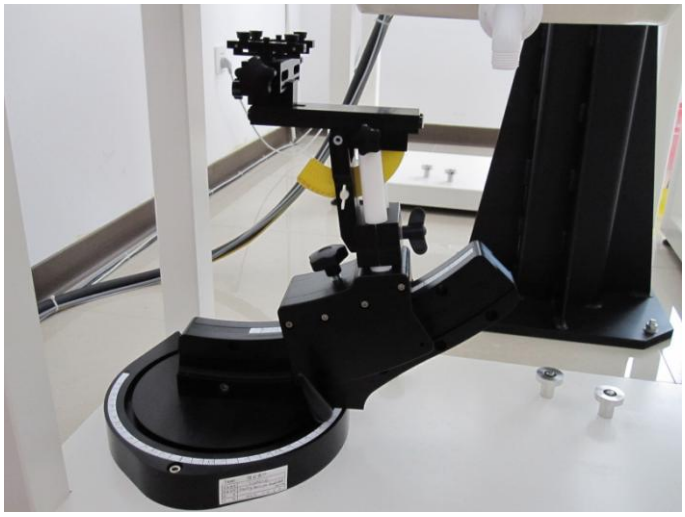


Figure 5-4.Device Holder

6.3.2 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. 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 the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 x 500 mm (H x L x W)

Aailable Special

Figure 5-5.Generic Twin Phantom

6.4 Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

• The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ±5%.

• The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

• Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

• Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan. Zoom scan parameters extracted from FCC KDB 865665 D01V01R04 SAR measurement 100MHz to 6GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

• Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

• maximum search
• extrapolation
• boundary correction
• peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard ·s method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances

are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.

They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

• A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

6.5 Data Storage and Evaluation

6.5.1 Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

6.5.2 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	

- Density

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.
The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f_2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)

[mV/(V/m)^2] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \quad) \square \ / (\ \cdot 1000)$$

with ***SAR*** = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

□ = conductivity in [mho/m] or [Siemens/m]

□ = equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm2

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

6.6 System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the 6.2.1 and6.2.2

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).
System check is performed regularly on all frequency bands where tests are performed with the DASY 5 system.

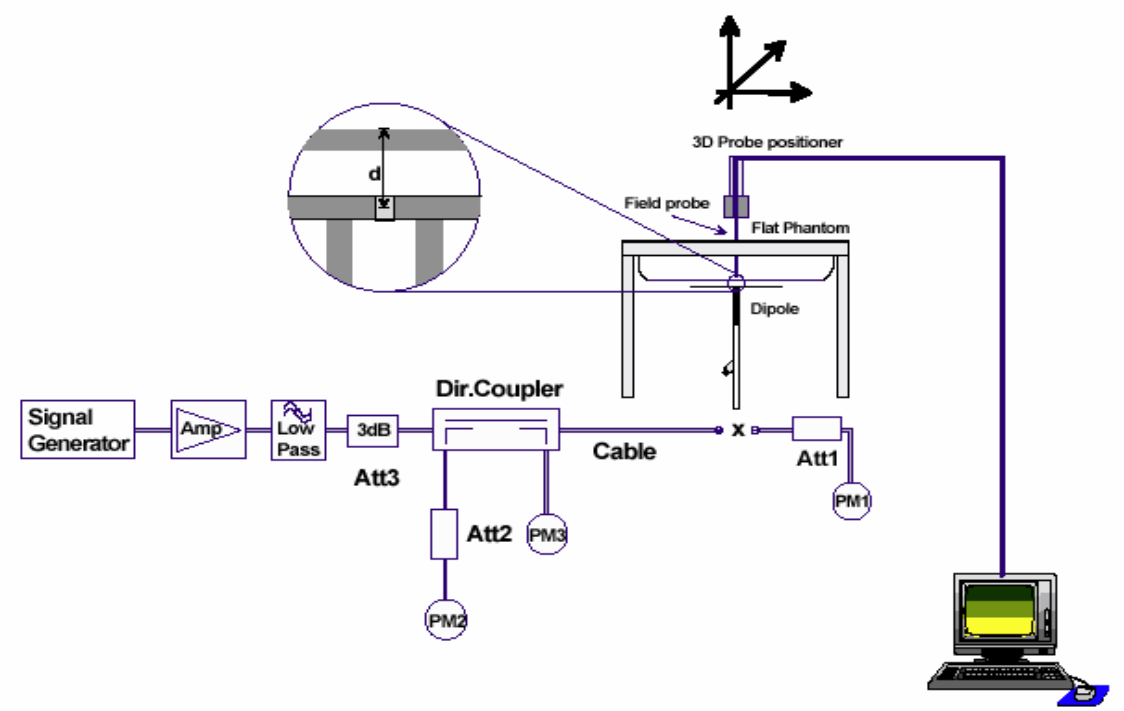


Figure 5-6. System Check Set-up

6.7 Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

MIXTURE%	FREQUENCY(body)2450MHz
Water	70
Glycol monobutyl	30
Salt	0
Dielectric Parameters Target Value	f=2450MHz ε=52.7 σ=1.95
MIXTURE%	FREQUENCY(body)5250/5600/5750MHz
Water	75.48
Triton X-100	12.26
Diethylenglycol monohexylether	12.26
Dielectric Parameters Target Value	f=5250MHz ε=48.9 σ=5.36 f=5600MHz ε=48.5 σ=5.77 f=5750MHz ε=48.3 σ=5.94

7. Summary of Test Results

7.1 Conducted Output Power Measurement

7.1.1 Summary

The DUT is tested using CMU200/MT8820C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.
Conducted output power was measured using an integrated RF connector and attached RF cable.
This result contains conducted output power for the EUT.

7.1.2 Conducted Power Results

For Bluetooth maximum conducted power is 5dBm

Wi-Fi
Average Conducted Power

Channel\Freq.(MHz)		Maximum Conducted Out Power(dBm)	
		802.11b	802.11g
1	2412	12.11	11.85
6	2437	11.84	11.93
11	2462	11.90	11.90

Channel\dFreq.(MHz)		Maximum Conducted Out Power(dBm)	
		802.11a	802.11n-HT20
36	5180	9.83	9.91
44	5220	9.94	10.02
48	5240	9.98	10.13
52	5260	10.12	10.17
60	5300	9.81	9.87
64	5320	9.83	9.93
100	5500	9.91	10.03
120	5600	10.04	10.05
140	5700	10.21	9.80
149	5745	10.07	10.09
157	5785	10.20	10.23
165	5825	10.07	10.11

Channel\Freq.(MHz)		Maximum Conducted Out Power(dBm)
		802.11n-HT40
38	5190	7.95
46	5230	8.03
54	5270	8.16
62	5310	7.86
102	5510	7.80
118	5590	8.01
134	5670	8.22
151	5755	8.19
159	5795	7.88

The maximum conducted output power of Wi-Fi is 16dBm=39.81mW>P(max)=19mW..
So stand alone SAR is required.
1.Per KDB 248227D01v02.，choose the highest output power channel to test SAR and determine further SAR exclution.
2. Per KDB 248227D01v02.，In the 2.4GHz band,separate SAR procedure are applied to DSSS and OFDM conditions:
1) When KDB Pubication 447498 SAR test exclution applied to the OFDM configuration.
2) When the highest reported SAR for DSSS is adjusted by the radio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤1.2W/kg.

SAR of WLAN should be tested on 802.11b 1Mbps.

band	Freq(MHz)	Duty cycle	Duty cycle factor
802.11b	2412	97.50%	1.026
	2437	97.50%	1.026
	2462	97.50%	1.026
802.11g	2412	87.20%	1.147
	2437	87.20%	1.147
	2462	87.20%	1.147
802.11a	5180	98.70%	1.013
	5220	98.70%	1.013
	5240	98.70%	1.013
	5260	98.70%	1.013
	5300	98.70%	1.013
	5320	98.70%	1.013
	5500	98.70%	1.013
	5600	98.70%	1.013
	5700	98.70%	1.013
	5745	98.70%	1.013
	5785	98.70%	1.013
	5825	98.70%	1.013

802.11n-HT20	5180	98.46%	1.016
	5220	98.46%	1.016
	5240	98.46%	1.016
	5260	98.46%	1.016
	5300	98.46%	1.016
	5320	98.46%	1.016
	5500	98.46%	1.016
	5600	98.46%	1.016
	5700	98.46%	1.016
	5745	98.46%	1.016
	5785	98.46%	1.016
	5825	98.46%	1.016
802.11n-HT40.	5190	96.95%	1.031
	5230	96.95%	1.031
	5270	96.95%	1.031
	5310	96.95%	1.031
	5510	96.95%	1.031
	5590	96.95%	1.031
	5670	96.95%	1.031
	5755	96.95%	1.031
	5795	96.95%	1.031

7.2 Test Results

7.2.1. Dielectric Performance

Dielectric Performance of Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters εr	σ(s/m)	temp ℃
2450MHz (body)	Target value 5% window	52.7 50.06-55.33	1.95 1.85 -2.05	/
	Measurement value 2017-06-14	52.02	1.94	21.8
5250MHz (body)	Target value 5% window	48.9 46.46-51.35	5.36 5.09-5.63	/
	Measurement value 2017-06-12	47.75	5.29	21.8
	Measurement value 2017-06-13	47.82	5.31	21.9
5600MHz (body)	Target value 5% window	48.5 46.08-50.93	5.77 5.48-6.06	/
	Measurement value 2017-06-13	47.72	5.62	21.8
5750MHz (body)	Target value 5% window	48.3 45.89-50.72	5.94 5.64-6.24	/
	Measurement value 2017-06-16	47.64	5.86	21.9

7.2.2. System Check Results

System Check for tissue simulation liquid

Frequency	Description	SAR(W/kg)		Targeted SAR1g（W/kg）	Normalized SAR1g（W/kg）	Deviation（%）
		10g	1g			
2450MHz (body)	Recommended result ±10% window	5.99 5.39-6.59	12.7 11.43-13.97	/	/	/
	Measurement value 2017-06-14（250mW）	5.88	12.6	51.2	50.4	-1.56
5250MHz (body)	Recommended result ±10% window	2.12 1.91-2.33	7.52 6.77-8.27	/	/	/
	Measurement value 2017-06-12（100mW）	2.11	7.55	75.4	75.5	0.13
	Measurement value 2017-06-12（100mW）	2.13	7.59	75.4	75.9	0.66
	Measurement value 2017-06-13（100mW）	2.12	7.57	75.4	75.7	0.40
5600MHz (body)	Recommended result ±10% window	2.27 2.04-2.50	8.00 7.20-8.80	/	/	/
	Measurement value 2017-06-13（100mW）	2.29	8.11	80.2	81.1	1.12
5750MHz (body)	Recommended result ±10% window	2.09 1.88-2.30	7.44 6.70-8.18	/	/	/
	Measurement value 2017-06-16（100mW）	2.12	7.47	74.6	74.7	0.13

Note: 1. the graph results see ANNEX B.1.

2 .Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

7.2.3 Scaling Factor Calculation

Operation Mode	Channel	Output Power(dBm)	Turn-up Limt (dBm)	Duty Cycle Factor	Scaling Factor
WiFi802.11b	1	12.11	12.5	1.026	1.094
	6	11.84	12.5	1.026	1.164
	11	11.90	12.5	1.026	1.148
WiFi802.11g	1	11.85	12.5	1.147	1.161
	6	11.93	12.5	1.147	1.140
	11	11.90	12.5	1.147	1.148
WiFi802.11a	36	9.83	10.5	1.013	1.167
	44	9.94	10.5	1.013	1.138
	48	9.98	10.5	1.013	1.127
	52	10.12	10.5	1.013	1.091
	60	9.81	10.5	1.013	1.172
	64	9.83	10.5	1.013	1.167
	100	9.91	10.5	1.013	1.146
	120	10.04	10.5	1.013	1.112
	140	10.21	10.5	1.013	1.069
	149	10.07	10.5	1.013	1.104
	157	10.20	10.5	1.013	1.072
	165	10.07	10.5	1.013	1.104
WiFi802.11n-HT20	36	9.91	10.5	1.016	1.146
	44	10.02	10.5	1.016	1.117
	48	10.13	10.5	1.016	1.089
	52	10.17	10.5	1.016	1.079
	60	9.87	10.5	1.016	1.156
	64	9.93	10.5	1.016	1.140
	100	10.03	10.5	1.016	1.114
	120	10.05	10.5	1.016	1.109
	140	9.80	10.5	1.016	1.175
	149	10.09	10.5	1.016	1.099
	157	10.23	10.5	1.016	1.064
	165	10.11	10.5	1.016	1.094
WiFi802.11n-HT40	38	7.95	8.5	1.031	1.135
	46	8.03	8.5	1.031	1.114
	54	8.16	8.5	1.031	1.081
	62	7.86	8.5	1.031	1.159
	102	7.80	8.5	1.031	1.175
	118	8.01	8.5	1.031	1.119
	134	8.22	8.5	1.031	1.067
	151	8.19	8.5	1.031	1.074

Note: for LTE power tolerance, only QPSK modulation mode was provide here.

7.2.4 Test Results

7.2.4.1 Summary of Measurement Results (WiFi)

SAR Values (802.11b)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	1	0.273	1.026	1.094	0.306	
back	1	**0.331**	1.026	1.094	**0.372**	max
top	1	0.266	1.026	1.094	0.299	
left side	1	0.154	1.026	1.094	0.173	
back	6	0.276	1.026	1.164	0.330	
back	11	0.276	1.026	1.148	0.325	
back	11	0.257	1.147	1.148	0.338	802.11g

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.2 Summary of Measurement Results (WiFi)

SAR Values (802.11a band 1)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	48	0.166	1.013	1.127	0.190	
back	48	**0.261**	1.013	1.127	**0.298**	max
top	48	0.230	1.013	1.127	0.263	
left side	48	0.025	1.013	1.127	0.029	
back	36	0.220	1.013	1.167	0.260	

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.3 Summary of Measurement Results (WiFi)

SAR Values (802.11a band 2)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	52	0.194	1.013	1.091	0.214	
back	52	0.318	1.013	1.091	0.351	
top	52	0.272	1.013	1.091	0.301	
left side	52	0.248	1.013	1.091	0.274	

back	64	**0.347**	1.013	1.167	**0.410**	max

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.4 Summary of Measurement Results (WiFi)

SAR Values (802.11a band 3)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	100	0.434	1.013	1.146	0.504	
back	100	**0.520**	1.013	1.146	**0.604**	max
top	100	0.385	1.013	1.146	0.447	
left side	100	0.408	1.013	1.146	0.474	
front	120	0.328	1.013	1.112	0.369	
front	140	0.179	1.013	1.069	0.194	

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.5 Summary of Measurement Results (WiFi)

SAR Values (802.11a band 4)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	157	**0.233**	1.013	1.072	**0.253**	max
back	157	0.181	1.013	1.072	0.197	
top	157	0.065	1.013	1.072	0.071	
left side	157	0.172	1.013	1.072	0.187	
front	149	0.188	1.013	1.104	0.210	
front	165	0.200	1.013	1.104	0.224	

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.6 Summary of Measurement Results (WiFi)

SAR Values (802.11n band 1)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	48	0.168	1.016	1.089	0.186	
back	48	**0.254**	1.016	1.089	**0.281**	max
top	48	0.222	1.016	1.089	0.246	

left side	48	0.026	1.016	1.089	0.029	
back	36	0.197	1.016	1.146	0.229	
back	46	0.168	1.031	1.114	0.193	40M

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.7 Summary of Measurement Results (WiFi)

SAR Values (802.11n band 2)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	52	0.206	1.016	1.079	0.226	
back	52	0.322	1.016	1.079	0.353	
top	52	0.276	1.016	1.079	0.303	
left side	52	0.263	1.016	1.079	0.288	
back	64	**0.370**	1.016	1.140	**0.429**	max
back	54	0.213	1.031	1.081	0.237	40M

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.8 Summary of Measurement Results (WiFi)

SAR Values (802.11n band 3)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	100	0.459	1.016	1.114	0.520	
back	100	**0.479**	1.016	1.114	**0.542**	max
top	100	0.397	1.016	1.114	0.449	
left side	100	0.366	1.016	1.114	0.414	
back	120	0.345	1.016	1.109	0.389	
back	140	0.203	1.016	1.175	0.242	
back	134	0.148	1.031	1.067	0.163	40M

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.4.9 Summary of Measurement Results (WiFi)

SAR Values (802.11n band 4)

Test Case		Measurement Result(W/kg)	Duty Cycle Factor	Scaled Factor	Scaled 1g SAR(W/Kg)	Note
Different Test Position	Channel	1g SAR Average				
Test position of Body (Distance 0 mm)						
front	157	**0.247**	1.016	1.064	**0.267**	max
back	157	0.235	1.016	1.064	0.254	

top	157	0.064	1.016	1.064	0.069	
left side	157	0.202	1.016	1.064	0.218	
front	149	0.185	1.016	1.099	0.207	
front	165	0.196	1.016	1.094	0.218	
front	151	0.125	1.031	1.074	0.138	40M

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2.When the 1-g SAR for the mid-band channel or the channel with the highest output power satisfy thefollowing conditions, testing of the other channels in the band is not required. (Per KDB 447498 D01 General RF Exposure Guidance v06)

- ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg, when the transmission band is ≥ 200 MHz

7.2.5 Maximum SAR

Band	Worst Position		Channel	Reported 1g SAR (W/kg)
802.11b	body	back	1	0.372
802.11a band1	body	back	48	0.298
802.11a band2	body	back	64	0.410
802.11a band3	body	back	100	0.604
802.11a band4	body	front	157	0.253
802.11n band1	body	back	48	0.281
802.11n band2	body	back	64	0.429
802.11n band3	body	back	100	0.542
802.11n band4	body	front	157	0.267

General Judgment： PASS

8. Test Equipments Utilized

No.	Name	Type	S/N	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071E	MY46109425	Oct 28th, 2016	One year
02	Dielectric Probe Kit	Agilent 85070E	MY44300524	N/A	
03	Power meter	Agilent E4418B	MY50000852	Oct 28th, 2016	One year
04	Power sensor	Agilent E9200B	MY50300011	Oct 28th, 2016	One year
05	Power meter	Agilent E4419B	GB42420229	May 17th, 2017	One year
06	Power sensor	Agilent 8482A	MY41091903	May 17th, 2017	One year
07	Signal Generator	Agilent N5182A	MY49071248	Oct 28th, 2016	One year
08	Amplifier	ZHL-42W	QA1020005	N/A	
09	E-field Probe	EX3DV4	3717	Oct 19th, 2016	One year
10	E-field Probe	ES3DV3	3297	Oct 14th, 2016	One year
11	DAE	DAE4	1226	Sep 28th, 2016	One year
12	Validation Kit 2450MHz	D2450V2	845	Oct 12th, 2016	One year
13	Validation Kit 5GHz	D5GV2	1034	Oct 10th, 2016	One year

9. Measurement Uncertainty

No	Source of Uncertainty	Type	Uncertainty value ± %	Probability Distribution	Div.	c_i (1 g)	c_i (10 g)	Standard Unc ± %, (1 g)	Standard Unc ± %, (10 g)	v_i or v_{eff}
1	System repetivity	A	2.7	N	1	1	1	2.7	2.7	9
Measurement System										
2	Probe Calibration	B	5.9	N	1	1	1	5.9	5.9	∞
3	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
4	Boundary Effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection Limits	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	Readout Electronics	B	0.3	N	1	1	1	0.3	0.3	∞
8	Response Time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
9	Integration Time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
10	RF ambient conditions – noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	RF ambient conditions – reflections	B	0	R	$\sqrt{3}$	1	1	0	0	∞
12	Probe Positioner Mech. Restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
13	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
14	Post-Processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test Sample Related										

15	Test Sample Positioning	A	3.3	N	1	1	1	3.3	3.3	*71*
16	Device Holder Uncertainty	A	4.1	N	1	1	1	4.1	4.1	*5*
17	Drift of Output Power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Set-up										
18	Phantom Uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid Conductivity (target.)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid Conductivity (meas.)	A	2.06	N	1	0,64	0,43	1.7	1.4	*43*
21	Liquid Permittivity (target.)	B	5.0	R	$\sqrt{3}$	0,6	0,49	1.7	1.4	∞
22	Liquid Permittivity (meas.)	A	1.6	N	1	0,6	0,49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.54	10.34	
Expanded uncertainty (95 % confidence interval)		k=2						21.08	20.68	

ANNEX A: Detailed Test Results

Annex A.1 System Check Results

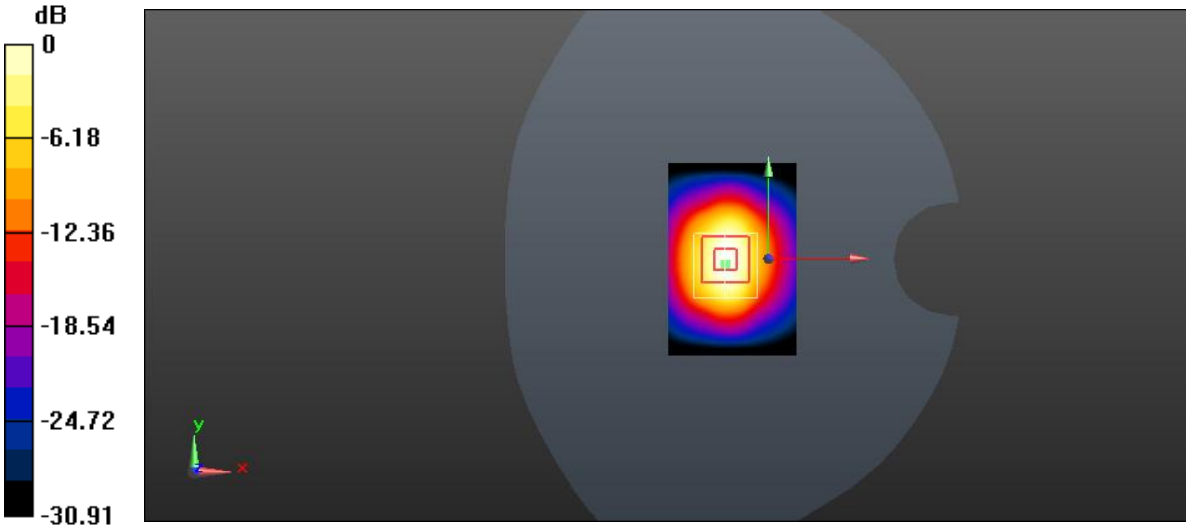
System check 2450 body

Date/Time: 14/06/2017 09:20:12
Communication System: UID 10000, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 2450 MHz; σ = 1.941 S/m; ε_r = 52.022; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528-2013)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.46, 4.46, 4.46); Calibrated: 14/10/2016;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450body/d=10mm, Pin=250 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.3 W/kg

2450body/d=10mm, Pin=250 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 67.342 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 26.2 W/kg
SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.88 W/kg
Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.3 W/kg = 12.12 dBW/kg

System check 5250body

Date/Time: 12/06/2017 08:12:12

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5250 MHz; σ = 5.288 S/m; ε_r = 47.745; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.47, 4.47, 4.47); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250body/d=10mm, Pin=100 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 14.9 W/kg

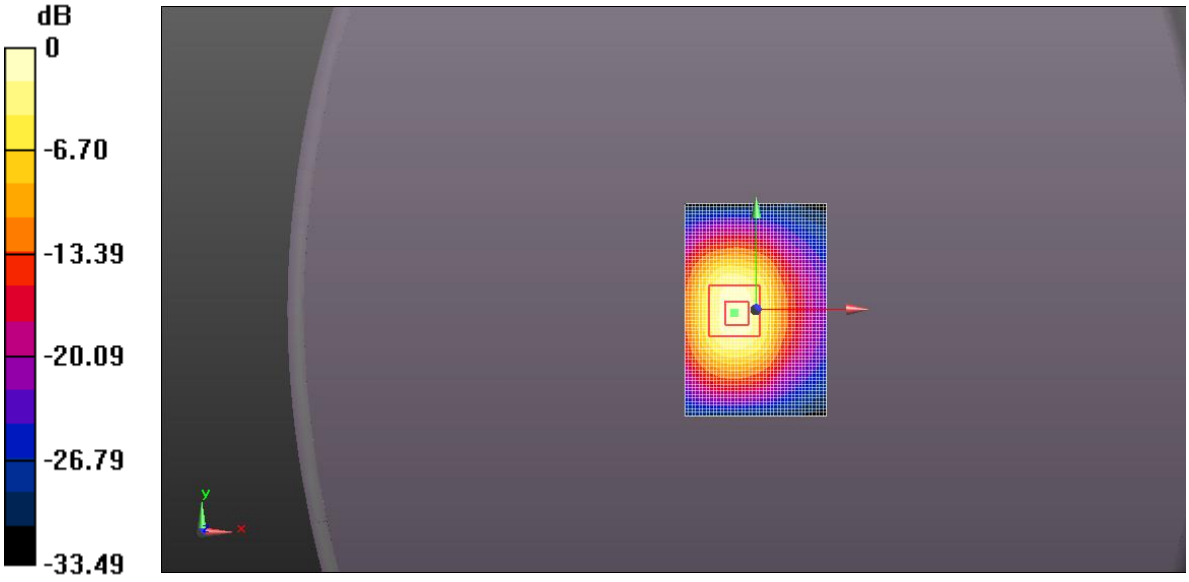
5250body/d=10mm, Pin=100 mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 57.463 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 25.7 W/kg

SAR(1 g) = 7.55 W/kg; SAR(10 g) = 2.11W/kg

Maximum value of SAR (measured) = 14.8 W/kg



0 dB = 14.8 W/kg = 11.69 dBW/kg

System check 5250body

Date/Time: 12/06/2017 21:42:15

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5250 MHz; σ = 5.288 S/m; ε_r = 47.745; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.19, 4.19, 4.19); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250body/d=10mm, Pin=100 mW/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.5 W/kg

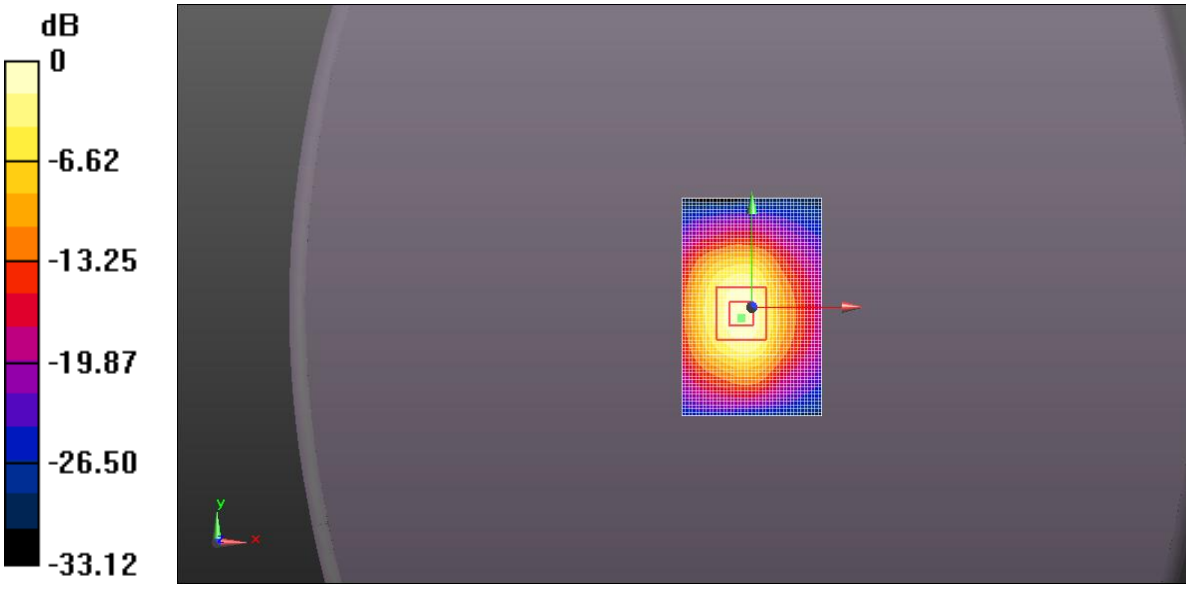
5250body/d=10mm, Pin=100 mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 56.424 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.7 W/kg

SAR(1 g) = 7.59 W/kg; SAR(10 g) = 2.13 W/kg

Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg = 11.76 dBW/kg

System check 5250body

Date/Time: 13/06/2017 10:05:21

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5250 MHz; σ = 5.316 S/m; ε_r = 47.817; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.19, 4.19, 4.19); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5250body/d=10mm, Pin=100 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.2 W/kg

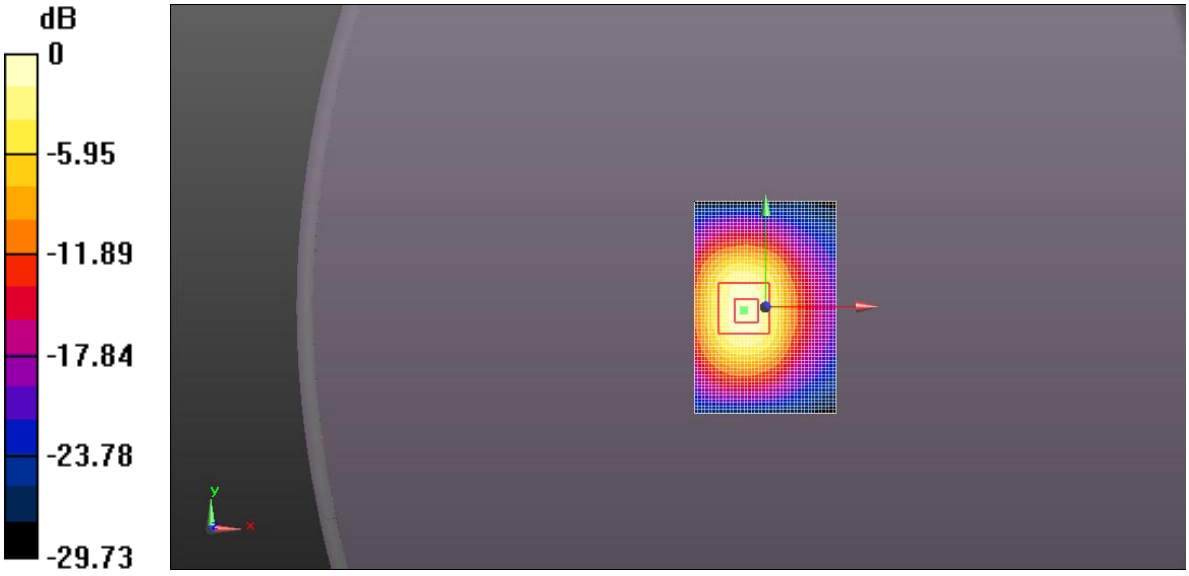
5250body/d=10mm, Pin=100 mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 56.854 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 25.6 W/kg

SAR(1 g) = 7.57 W/kg; SAR(10 g) = 2.12 W/kg

Maximum value of SAR (measured) = 14.9 W/kg



0 dB = 14.9 W/kg = 11.73 dBW/kg

System check 5600body

Date/Time: 13/06/2017 12:31:31

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5600 MHz; σ = 5.615 S/m; ε_r = 47.715; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.68, 3.68,3.68); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5600body/d=10mm, Pin=100 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 18.1 W/kg

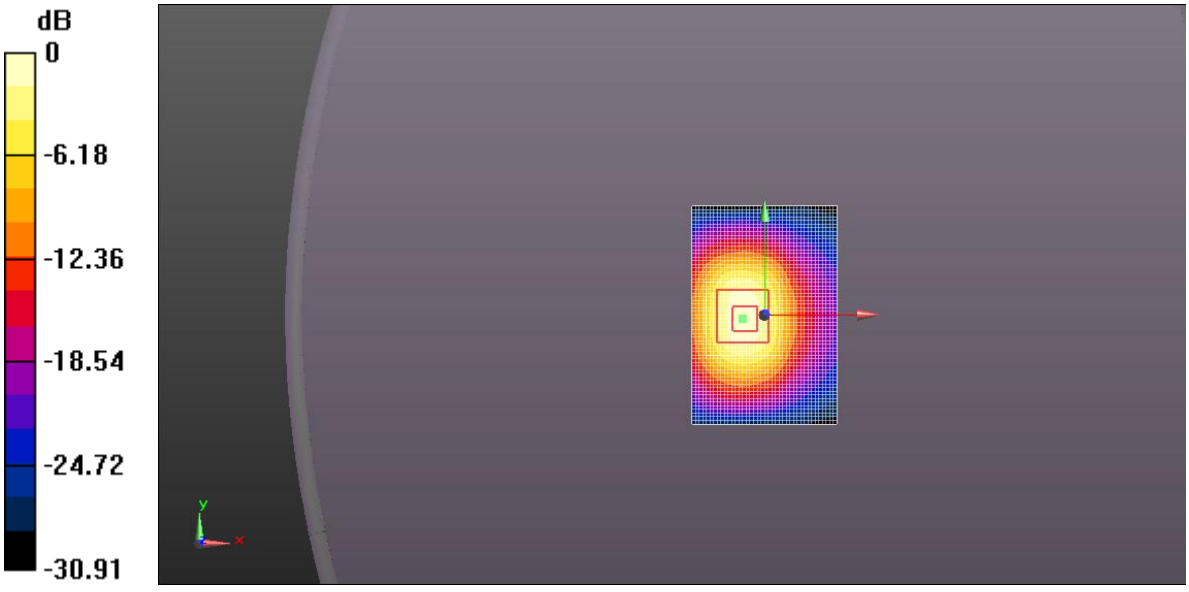
5600body/d=10mm, Pin=100 mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 62.028 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 34.3 W/kg

SAR(1 g) = 8.11 W/kg; SAR(10 g) = 2.29 W/kg

Maximum value of SAR (measured) = 18.6 W/kg



0 dB = 18.6 W/kg = 12.70 dBW/kg

System check 5750body

Date/Time: 16/06/2017 10:38:31

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 5750 MHz; σ = 5.861 S/m; ε_r = 47.642; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.83, 3.83, 3.83); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5750body/d=10mm, Pin=100 mW/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.1 W/kg

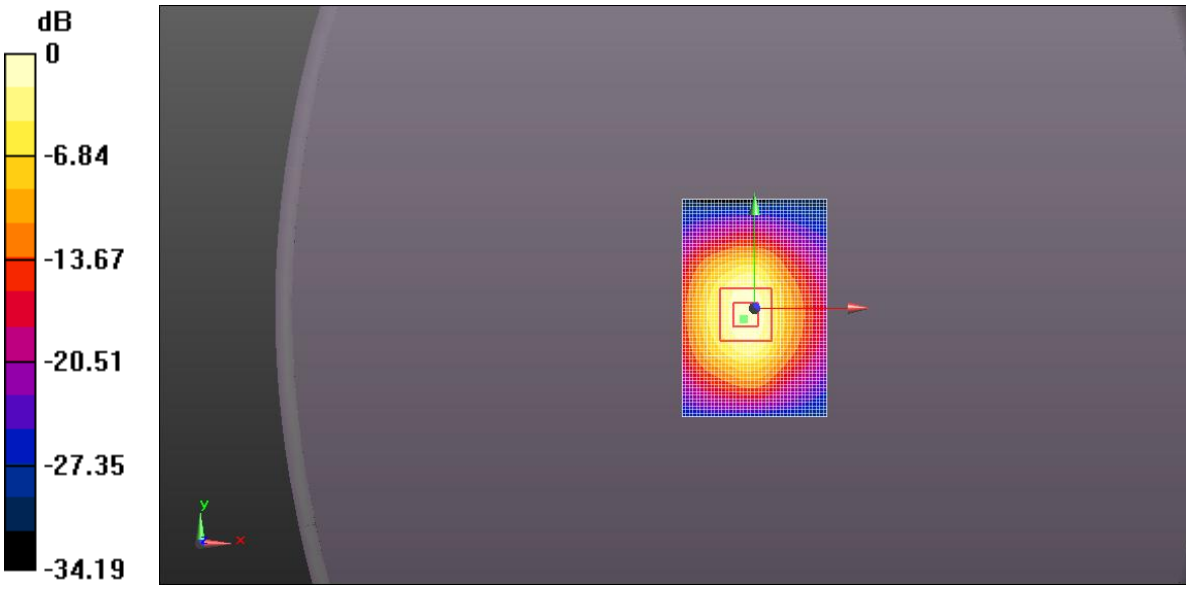
5750body/d=10mm, Pin=100 mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 53.132 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 27.8 W/kg

SAR(1 g) = 7.47 W/kg; SAR(10 g) = 2.12 W/kg

Maximum value of SAR (measured) = 15.1 W/kg



0 dB = 15.1 W/kg = 11.79 dBW/kg

Annex A.2 Graph Result

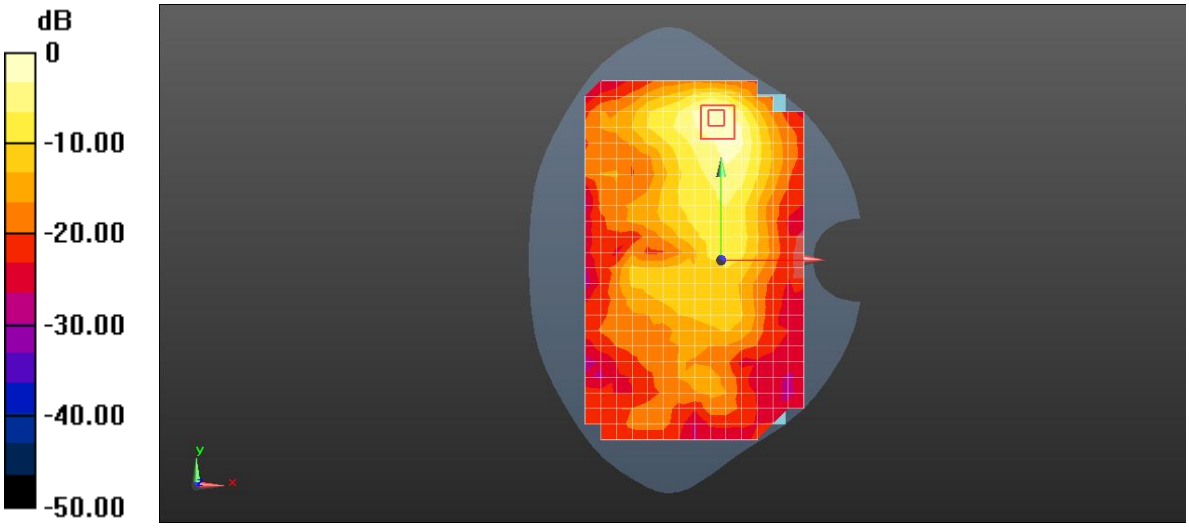
802.11b Data Rate: 1 Mbps back CH1

Date/Time: 14/06/2017 12:47:02
Communication System: UID 0, 802.11b/g/n 2.45GHz (0); Communication System Band: 2.4G; Frequency: 2412 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 2412 MHz; σ = 1.874 S/m; ε_r = 51.963; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528-2013)
DASY5 Configuration:

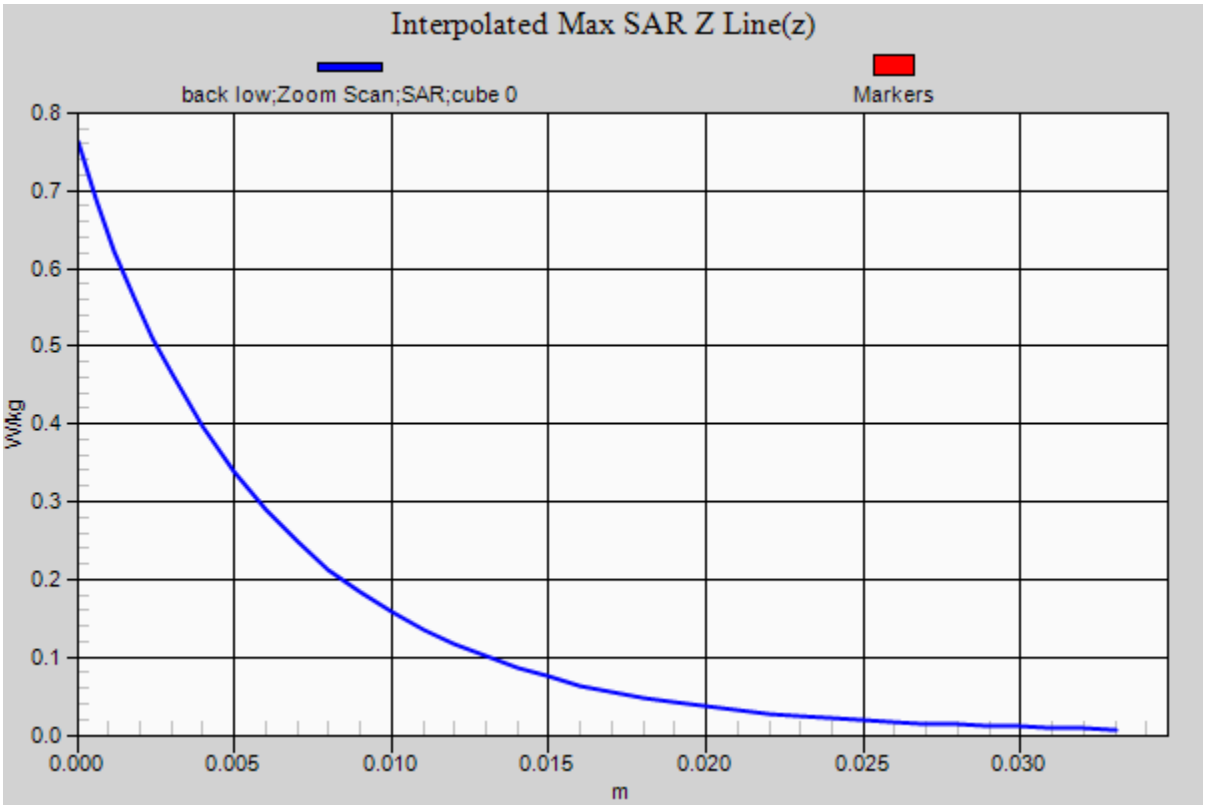
- Probe: ES3DV3 - SN3297; ConvF(4.46, 4.46, 4.46); Calibrated: 14/10/2016;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.371 W/kg

body/back low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.990 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.763 W/kg
SAR(1 g) = 0.331 W/kg; SAR(10 g) = 0.147 W/kg
Maximum value of SAR (measured) = 0.466 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg


Interpolated Max SAR Z Line(z)
back low;Zoom Scan;SAR;cube 0
Markers
W/kg
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

802.11a Data Rate: 6 Mbps back CH48

Date/Time: 12/06/2017 10:06:40

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.2G; Frequency: 5240 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5240 MHz; σ = 5.363 S/m; ε_r = 47.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.47, 4.47, 4.47); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.689 W/kg

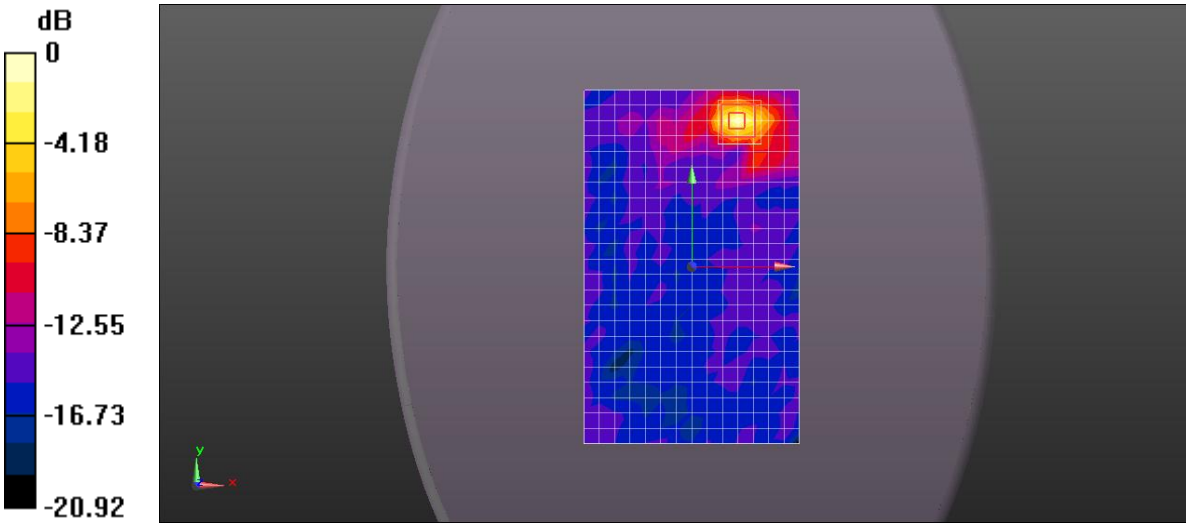
body/back low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.556 V/m; Power Drift = -0.1 dB

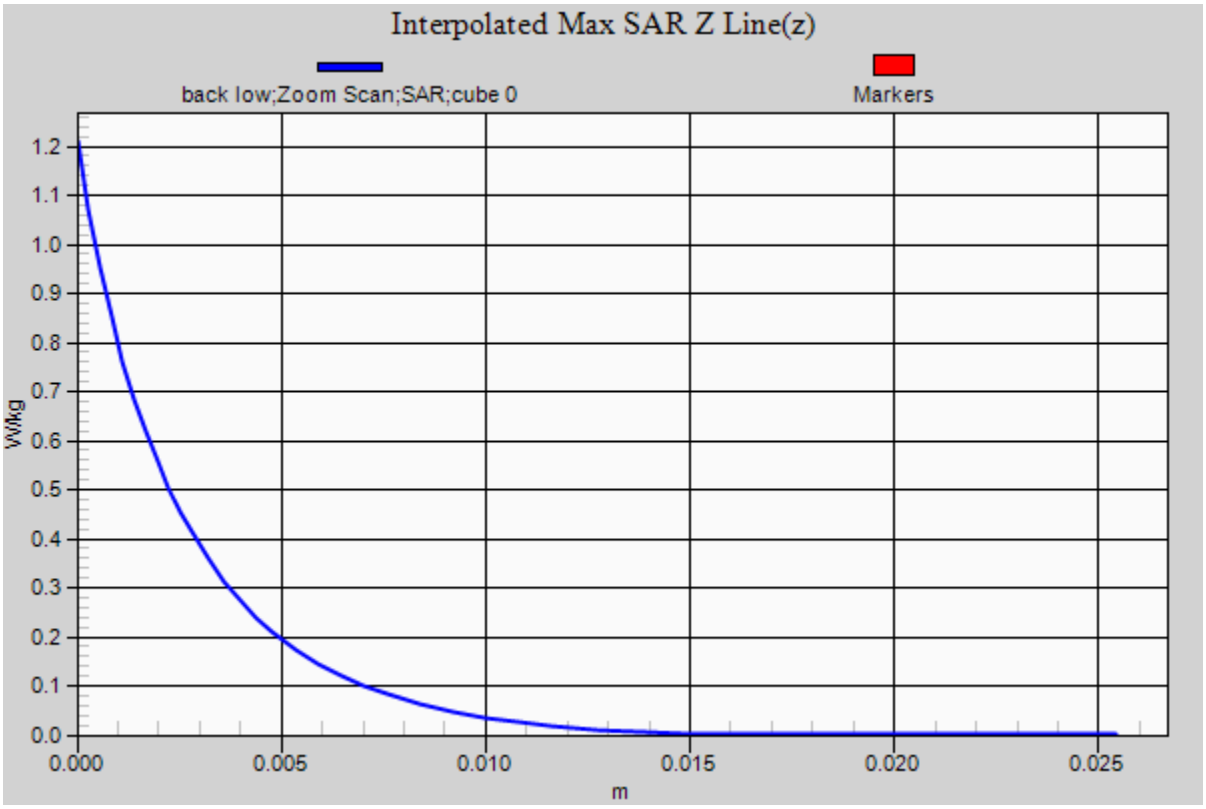
Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.079 W/kg

Maximum value of SAR (measured) = 0.671 W/kg



0 dB = 0.689 W/kg = -1.62 dBW/kg


Interpolated Max SAR Z Line(z)
back low;Zoom Scan;SAR;cube 0
Markers
W/kg
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11a Data Rate: 6 Mbps back CH64

Date/Time: 12/06/2017 22:32:36

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.3G; Frequency: 5320 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5320 MHz; σ = 5.478 S/m; ε_r = 47.514; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.19, 4.19, 4.19); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low 2/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.776 W/kg

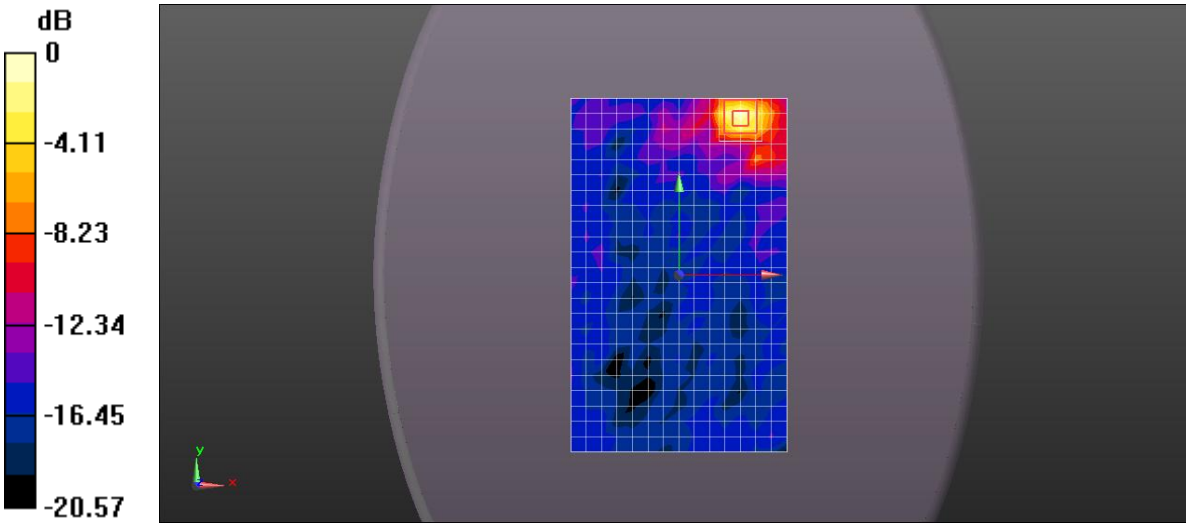
body/back low 2/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.855 V/m; Power Drift = -0.17 dB

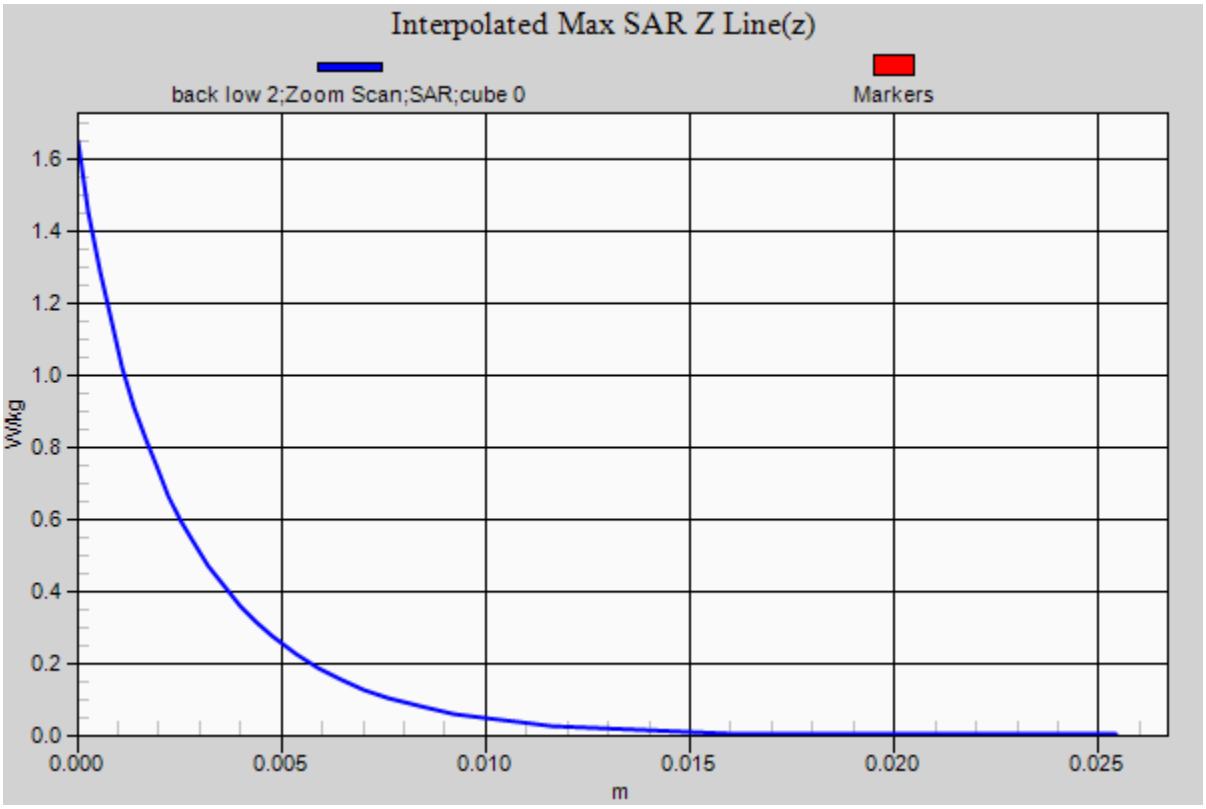
Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.347 W/kg; SAR(10 g) = 0.109 W/kg

Maximum value of SAR (measured) = 0.893 W/kg



0 dB = 0.776 W/kg = -1.10 dBW/kg


Interpolated Max SAR Z Line(z)
back low 2;Zoom Scan;SAR;cube 0
Markers
W/kg
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11a Data Rate: 6 Mbps back CH100

Date/Time: 13/06/2017 13:46:03

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.6G; Frequency: 5500 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5500 MHz; σ = 5.733 S/m; ε_r = 47.072; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.9, 3.9, 3.9); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.23 W/kg

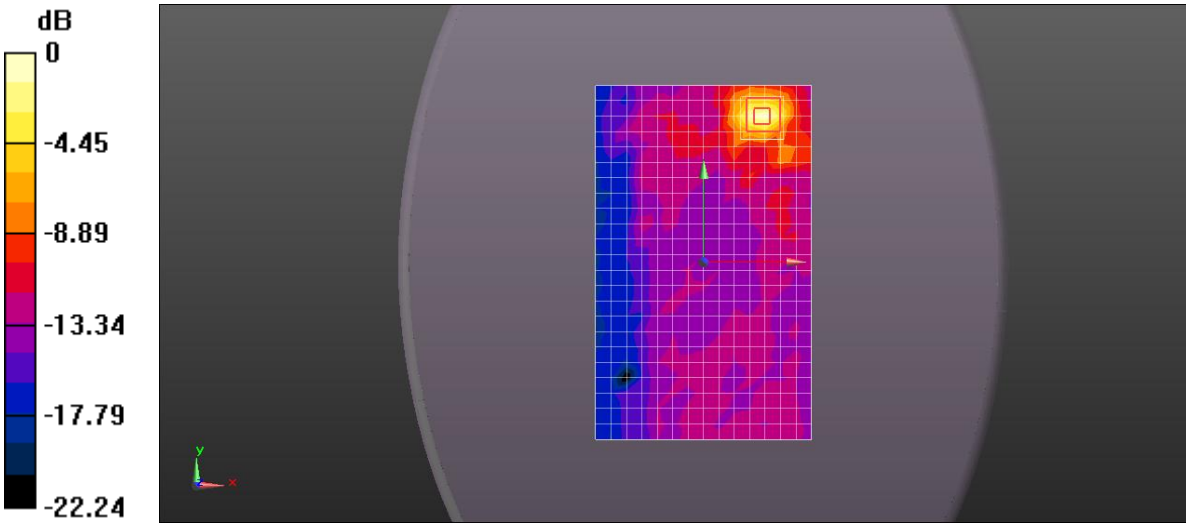
body/back low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.958 V/m; Power Drift = -0.05 dB

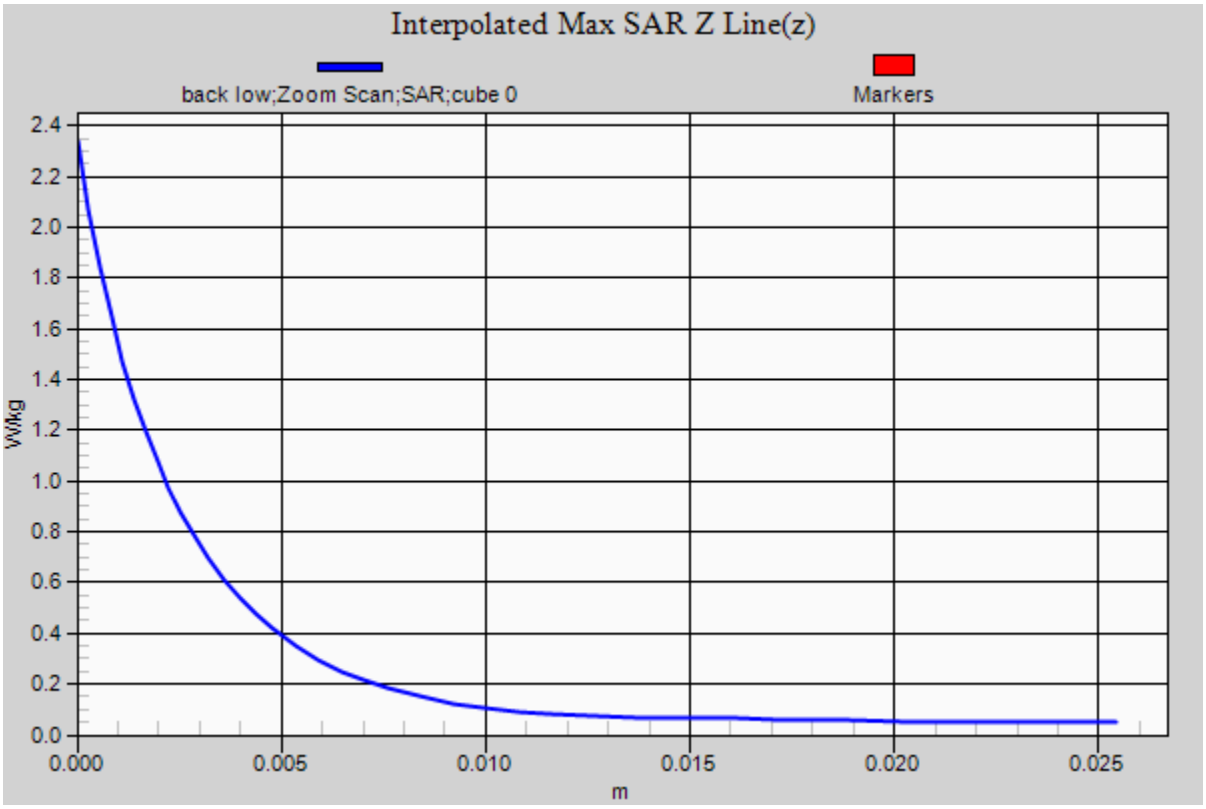
Peak SAR (extrapolated) = 2.34 W/kg

SAR(1 g) = 0.520 W/kg; SAR(10 g) = 0.184 W/kg

Maximum value of SAR (measured) = 1.25 W/kg



0 dB = 1.23 W/kg = 0.92 dBW/kg


Interpolated Max SAR Z Line(z)
back low;Zoom Scan;SAR;cube 0
Markers
W/kg
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11a Data Rate: 6 Mbps front CH157

Date/Time: 16/06/2017 20:39:15

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.8G; Frequency: 5785 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5785 MHz; σ = 6.15 S/m; ε_r = 46.36; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.83, 3.83, 3.83); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/front low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.507 W/kg

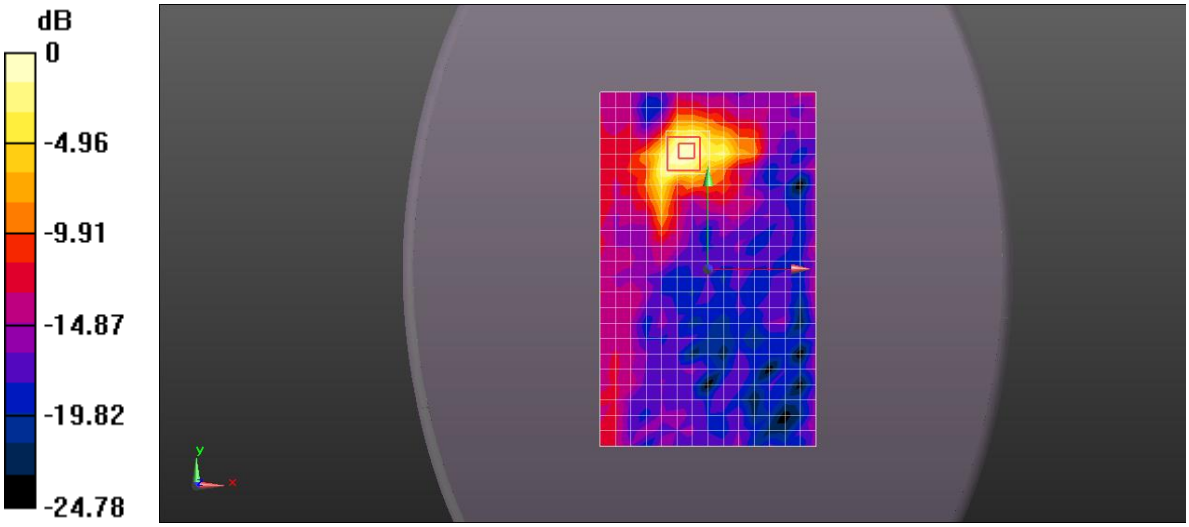
body/front low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.450 V/m; Power Drift = -0.13 dB

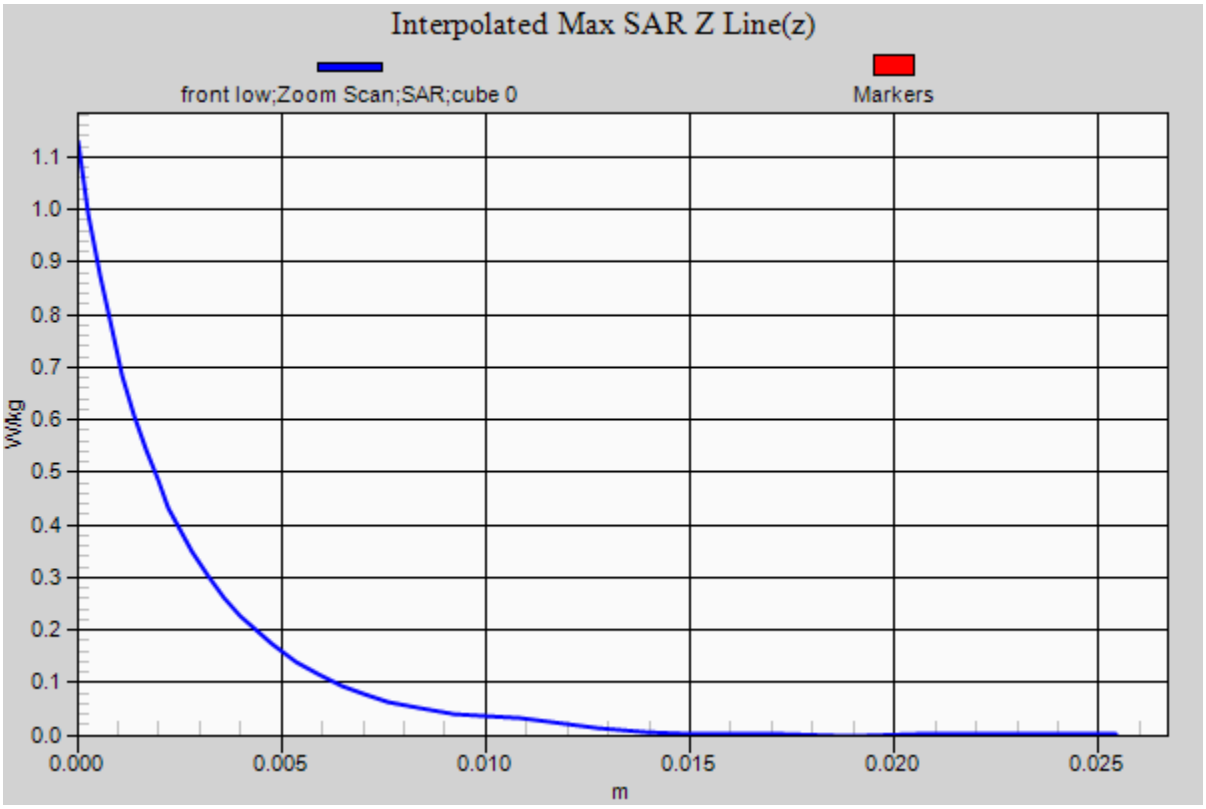
Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.600 W/kg



0 dB = 0.507 W/kg = -2.95 dBW/kg


Interpolated Max SAR Z Line(z)
front low;Zoom Scan;SAR;cube 0
Markers
W/kg
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11n(20MHz) Data Rate:MCS0 back CH48

Date/Time: 12/06/2017 14:03:28

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.2G; Frequency: 5240 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5240 MHz; σ = 5.363 S/m; ε_r = 47.736; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.47, 4.47, 4.47); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.652 W/kg

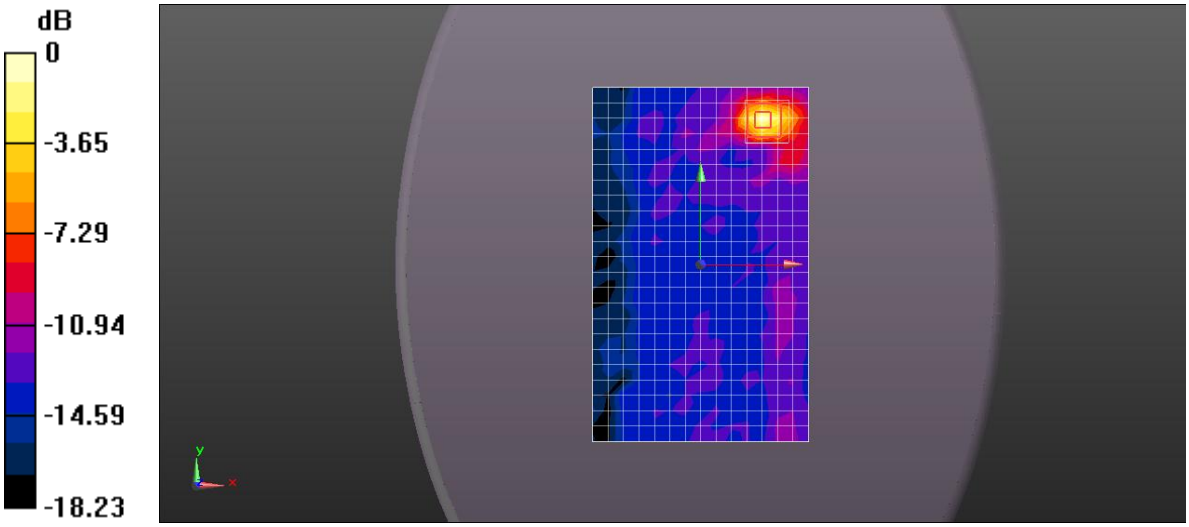
body/back low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.147 V/m; Power Drift = -0.14 dB

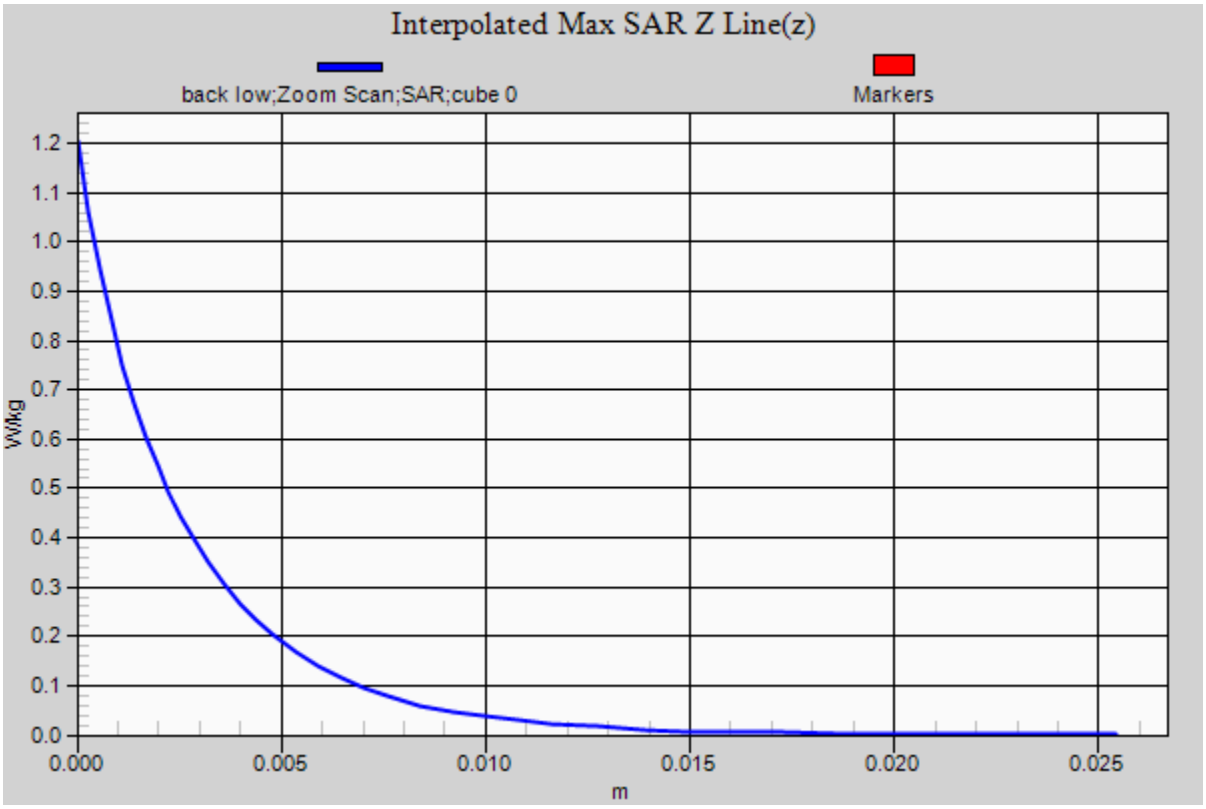
Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.254 W/kg; SAR(10 g) = 0.078 W/kg

Maximum value of SAR (measured) = 0.648 W/kg



0 dB = 0.652 W/kg = -1.86 dBW/kg


Interpolated Max SAR Z Line(z)
back low;Zoom Scan;SAR;cube 0
Markers
W/kg
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11n(20MHz) Data Rate:MCS0 back CH64

Date/Time: 13/06/2017 11:35:00

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.3G; Frequency: 5320 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5320 MHz; σ = 5.478 S/m; ε_r = 47.514; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(4.19, 4.19, 4.19); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low 2/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.701 W/kg

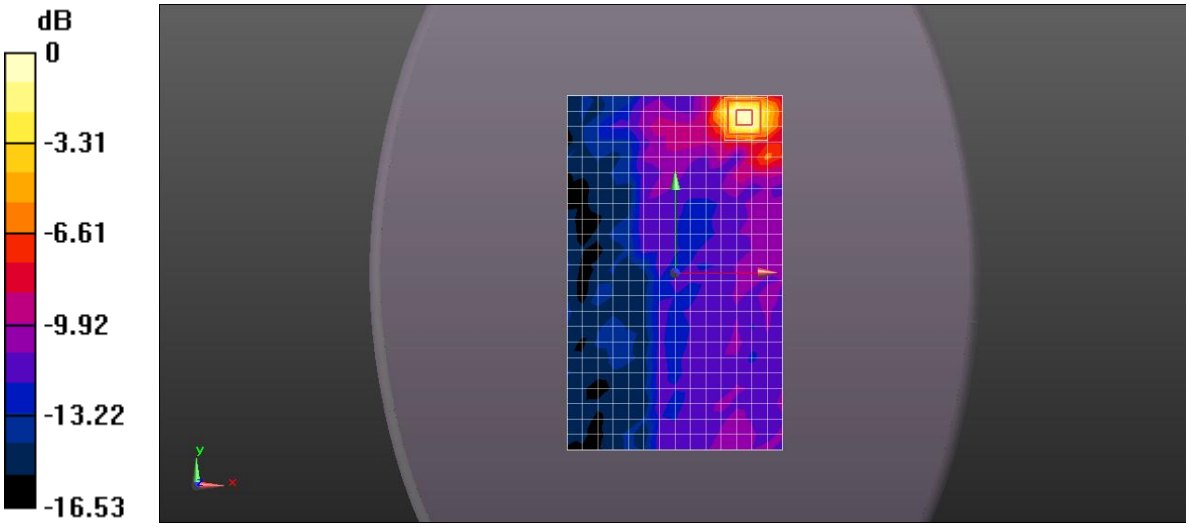
body/back low 2/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 3.012 V/m; Power Drift = -0.09 dB

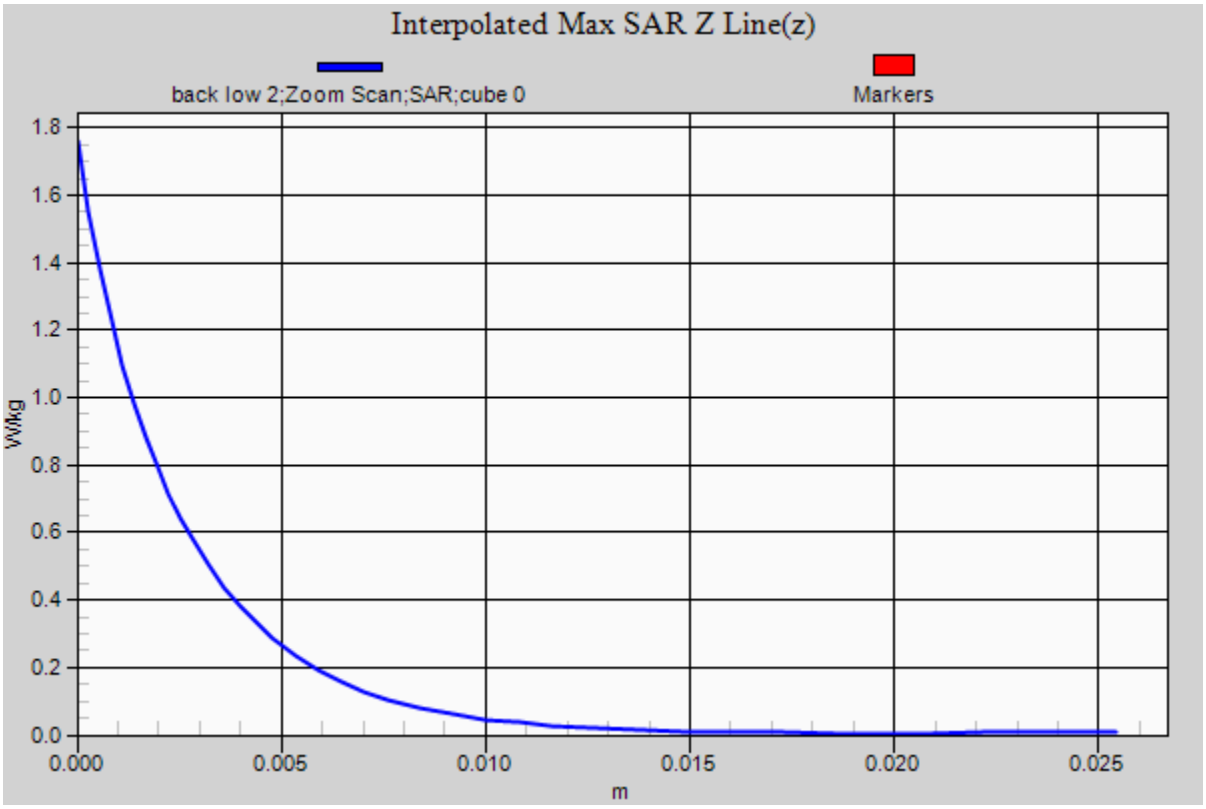
Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.118 W/kg

Maximum value of SAR (measured) = 0.947 W/kg



0 dB = 0.701 W/kg = -1.55 dBW/kg


Interpolated Max SAR Z Line(z)
back low 2;Zoom Scan;SAR;cube 0
Markers
W/kg
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11n(20MHz) Data Rate:MCS0 back CH100

Date/Time: 13/06/2017 16:40:42

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.6G; Frequency: 5500 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5500 MHz; σ = 5.733 S/m; ε_r = 47.072; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.9, 3.9, 3.9); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/back low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.12 W/kg

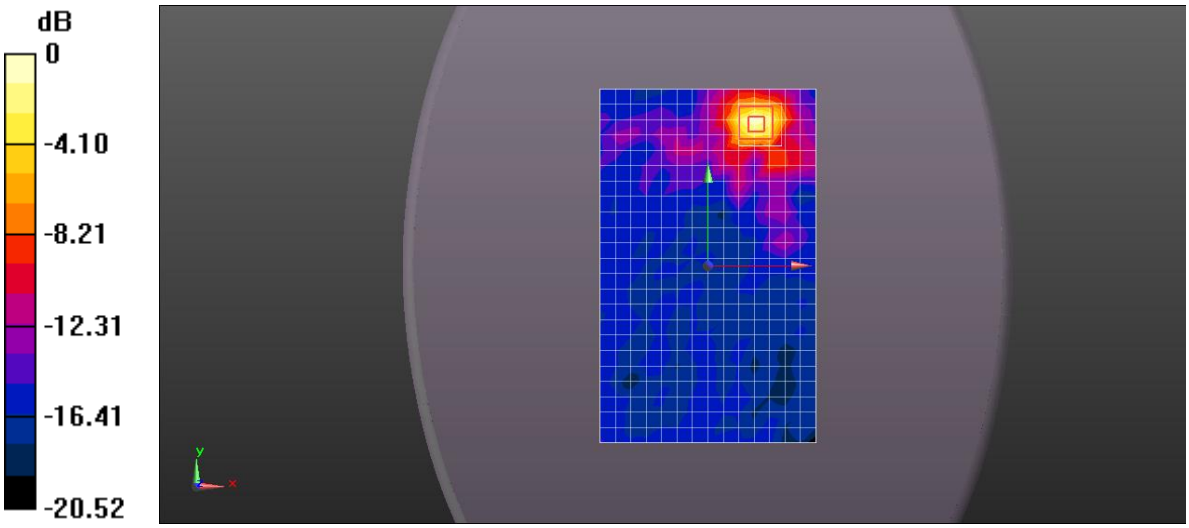
body/back low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.466 V/m; Power Drift = -0.16 dB

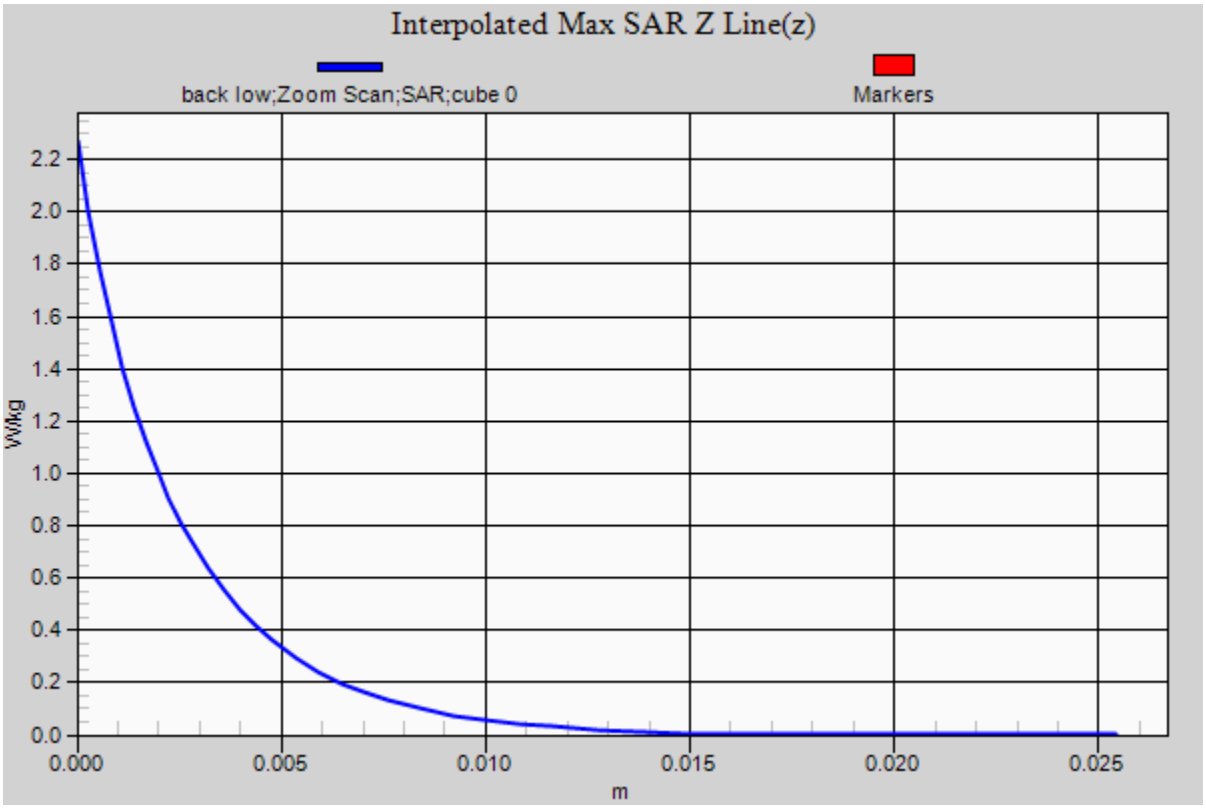
Peak SAR (extrapolated) = 2.27 W/kg

SAR(1 g) = 0.479 W/kg; SAR(10 g) = 0.152 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.12 W/kg = 0.50 dBW/kg


Interpolated Max SAR Z Line(z)
back low;Zoom Scan;SAR;cube 0
Markers
W/kg
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m

802.11n(20MHz) Data Rate:MCS0 front CH157

Date/Time: 16/06/2017 19:43:22

Communication System: UID 0, 802.11a/n 5G (0); Communication System Band: 5.8G; Frequency: 5785 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 5785 MHz; σ = 6.15 S/m; ε_r = 46.36; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528-2013)

DASY5 Configuration:

- Probe: EX3DV4 - SN3717; ConvF(3.83, 3.83, 3.83); Calibrated: 19/10/2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 28/09/2016
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

body/front low/Area Scan (15x24x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.480 W/kg

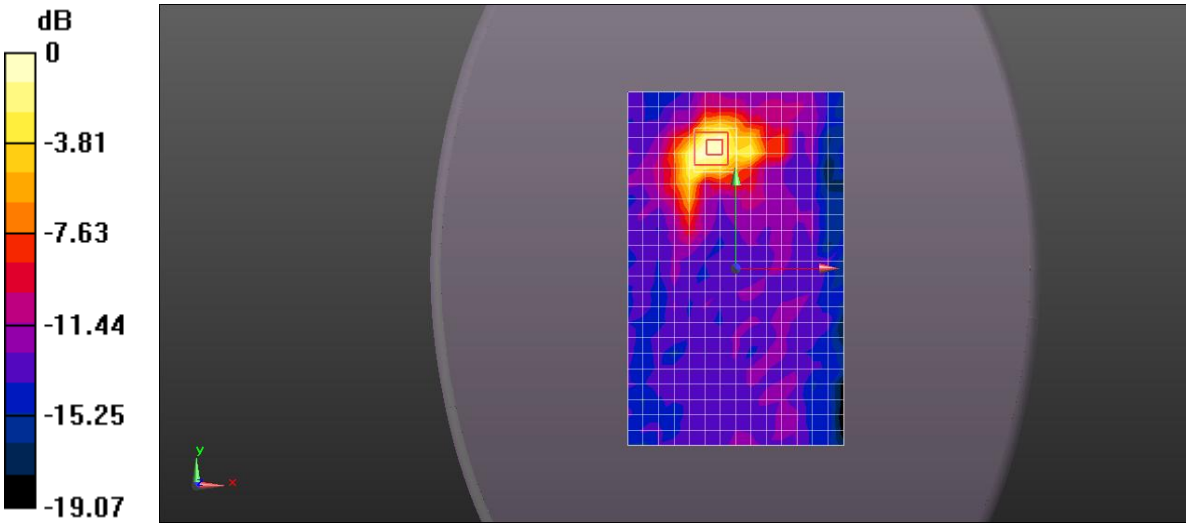
body/front low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.856 V/m; Power Drift = 0.15 dB

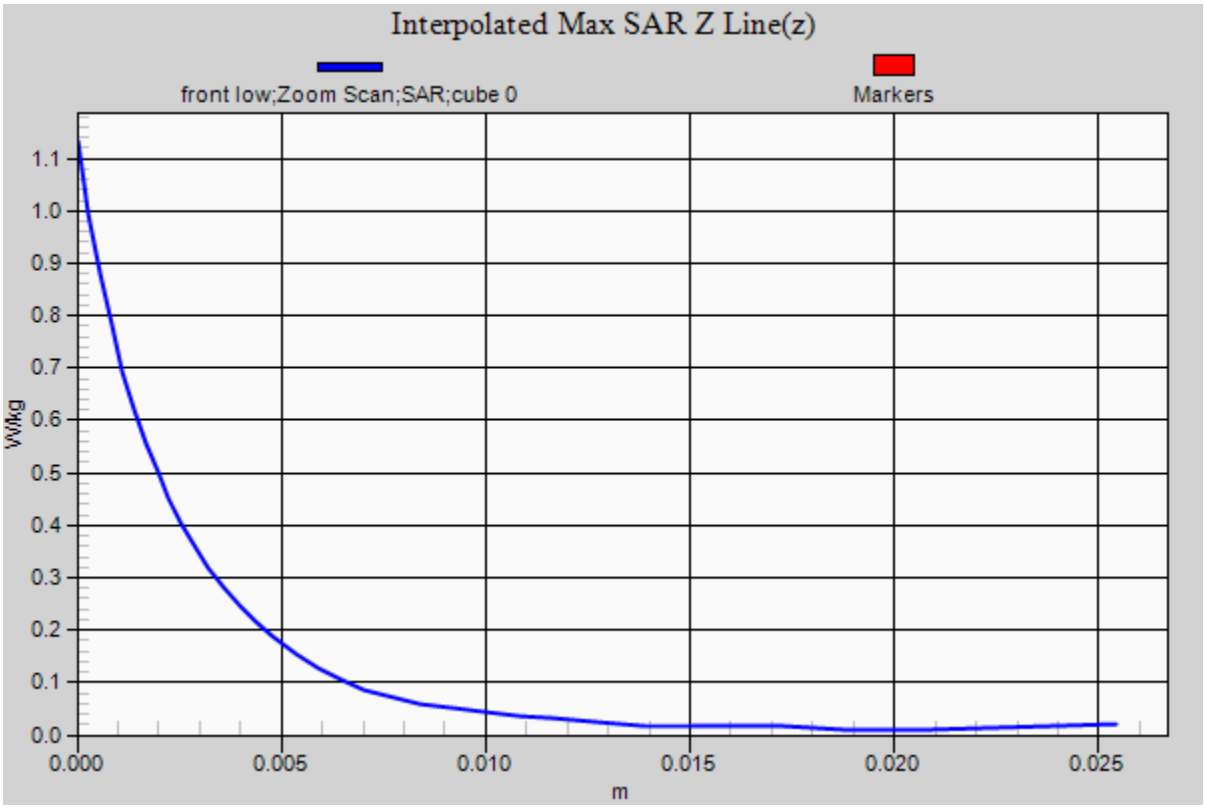
Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.247 W/kg; SAR(10 g) = 0.091 W/kg

Maximum value of SAR (measured) = 0.612 W/kg



0 dB = 0.480 W/kg = -3.19 dBW/kg


Interpolated Max SAR Z Line(z)
front low;Zoom Scan;SAR;cube 0
Markers
W/kg
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
m