FCC SAR Report

Report No.	**:**	**SESF1410132&1410133**
Client	**:**	**Qualcomm Atheros, Inc.**
Address	**:**	**1700 Technology Drive, San Jose, CA 95110**
Product	**:**	**802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card**
Brand	**:**	**Qualcomm Atheros**
Model	**:**	**QCNFA34AC**
FCC ID	**:**	**PPD-QCNFA34AC**
IC ID	**:**	**4104A- QCNFA34AC**
Standards	**:**	**FCC 47 CFR Part 2 (2.1093)/ IEEE C95.1:1992 / IEEE 1528-2013/ IEEE 1528a-2005 / KDB 865664 D01 v01r03/ KDB 248227 D01 v01r02/ KDB 447498 D01 v05r02 / KDB 616217 D04 v01r01**
Test Date	**:**	**December 01st, 2014~December 04th, 2014**

Statement of Compliance:

The SAR values measured for the test sample are below the maximum recommended level of 1.6W/kg averaged over any 1g tissue according to FCC Acknowledge Data Base/ FCC 47CFR Part 2 (2.1093)/ IEEE Std.1528-2013.

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

Prepared By: ______________

Leo Chen

Approved By: ______________

Miro Chueh

Testing Laboratory
2877

Release Version

Report No.	Issue Date	Description
SESF1410132&1410133	2014-12-05	Initial release

Contents

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported SAR_{1-g}(W/kg)
DTS	2.4GHz WIFI	0.561
	5.8GHz WIFI	1.18
UNII	5.2GHz WIFI	1.18
	5.3GHz WIFI	1.24
	5.6GHz WIFI	1.37
DSS	Bluetooth	0.094
Highest Simultaneous Transmission SAR		Body
DTS+DSS		1.283
UNII+DSS		1.469

2. Description of Equipment under Test

Product Name	802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card
Model No.	QCNFA34AC
Brand Name	Qualcomm Atheros
EUT Configuration	SKU1: NFA344(2T2R) / SKU2: NFA345(1T2R)
Antenna Type	PIFA
Antenna Peak Gain	2400- 2500MHz: 0.95dBi 5150- 5850MHz: 1.55dBi
Device Category	Portable
RF Exposure Environment	Uncontrolled
Bluetooth	
Bluetooth Frequency	2402~2480MHz
Channel separation	1MHz
Modulation technology	BT-LE (GFSK) for DTS
Wi-Fi	
Tx Rate	802.11b: up to 11Mbps, 802.11a/g: up to 54Mbps 802.11n : up to 400Mbps, 802.11ac: up to 866.7Mbps
Wi-Fi Frequency	**For 15.247:** 2.4GHz: 2.412 ~ 2.462GHz, 5GHz: 5.745 ~ 5.825GHz
	For 15.407: 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.72GHz
Channel Separation	**For 15.247(2.4GHz):** 11 for 802.11b, 802.11g, 802.11n (HT20), 802.11n_256QAM(BW20) 7 for 802.11n (HT40), 802.11n_256QAM(BW40)
	For 15.247(5GHz): 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
	For 15.407: 20 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 10 for 802.11n (HT40), 802.11ac (VHT40) 5 for 802.11ac (VHT80)

Note:

Antenna information,

Manufacturer	Part Number
HongLin Electronics Co., Ltd	Tx1 Antenna: DC33001DB00 / Tx2 Antenna: DC33001DB10
LUXSHARE-ICT	Tx1 Antenna: DC33001D900 / Tx2 Antenna: DC33001D910

3. General Information

Host Details,

Host Manufacture	Host Type	Host Model
Lenovo	Notebook Computer	Lenovo Yoga 3 14xxxx; 80JHxxxx; 80KQxxxx The "x" can be 0- 9, A- Z, a-z, any symbol or blank for marketing use only

Our Lab,

Test Site	Cerpass Technology (Suzhou) Co.,Ltd
Test Site Location	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China

4. Basic restrictions and Standards

4.1. Test Standards

1. IEEE 1528-2013
2. FCC KDB Publication 447498 D01 General RF Exposure Guidance v05r02
3. FCC KDB Publication 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
4. FCC KDB Publication 616217 D04 SAR for laptop and tablets v01r01
5. FCC KDB Publication 248227 D01 SAR measurement for 802 11 a b g v01r02

4.2. Environment Condition

Item	Target	Measured
Ambient Temperature(℃)	18~25	21.5±2
Temperature of Simulant(℃)	20~22	21±2
Relative Humidity(%RH)	30~70	52

4.3. RF Exposure Limits

Human Exposure	Basic restrictions for electric, magnetic and electromagnetic fields. (Unit in mW/g or W/kg)
Spatial Peak SAR[1](Head and Body)	1.60
Spatial Average SAR[2](Whole Body)	0.08
Spatial Peak SAR[3](Arms and Legs)	4.00

Notes:

1. The Spatial Peak value of the SAR averaged over any 1gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

2. The Spatial Average value of the SAR averaged over the whole body.

3. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over appropriate averaging time.

5. DASY5 Measurement System

DASY5 Measurement System

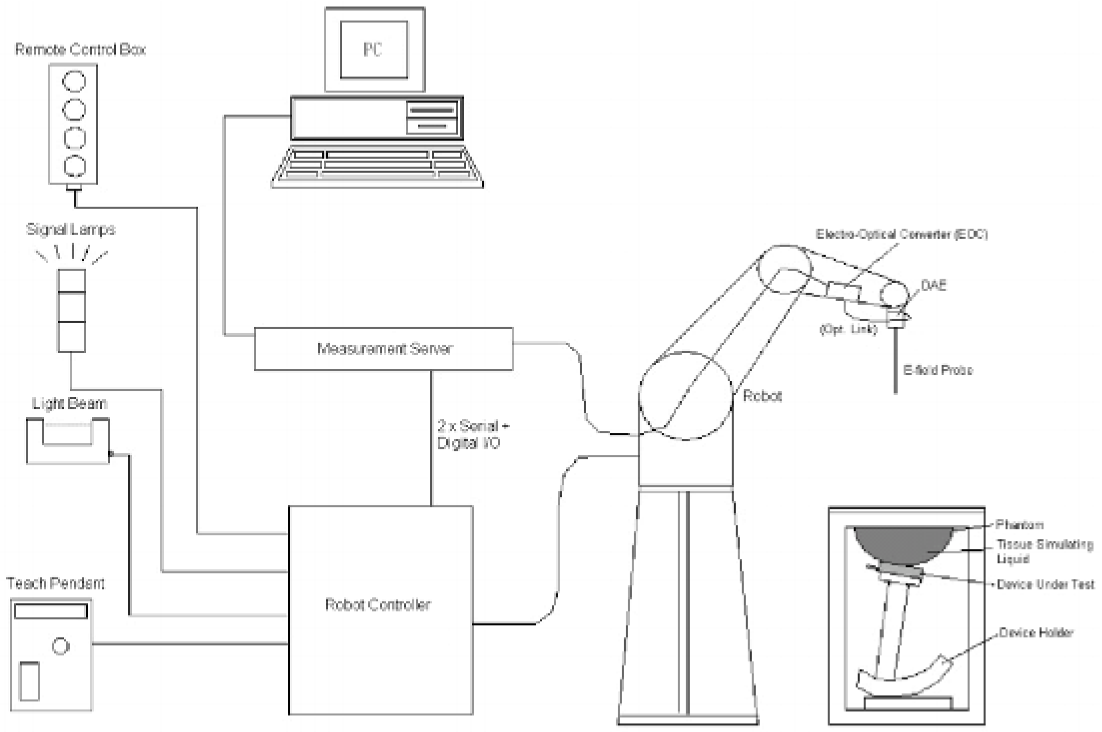


Figure 2.1 SPEAG DASY5 System Configurations

The DASY5 system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic(DAE)attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter(ECO)performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows 7
- DASY5 software
- Remove control with teach pendant additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

5.1. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}} \cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}} \frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

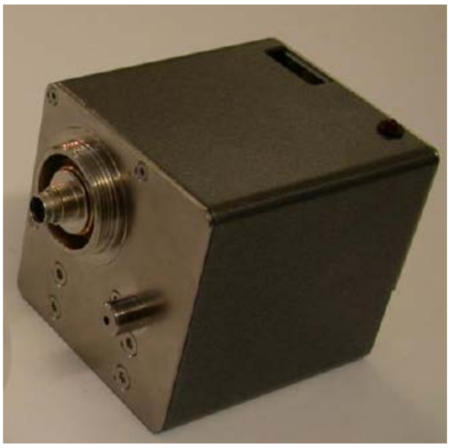
5.2. DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.
SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D**.**

Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
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: ± 0.2 dB (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%.	

5.3. Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.
Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



5.4. Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

5.5. Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

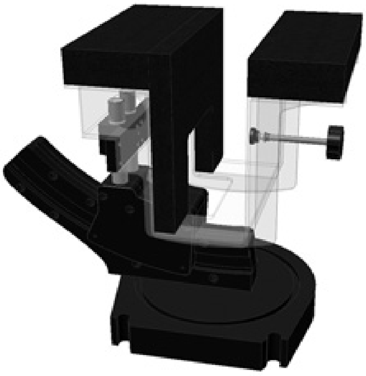
5.6. Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.	

5.7. SAM Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas: ■ Left head ■ Right head ■ Flat phantom	
The ELI4 Phantom also is a fiberglass shell phantom with 2mm shell thickness. It has 30 liters filling volume, and with a dimension of 600mm for major ellipse axis, 400mm for minor axis. It is intended for compliance testing of handheld and body-mounted wireless devices in frequency range of 30 MHz to 6GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.	
The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.	

5.8. Device Holder

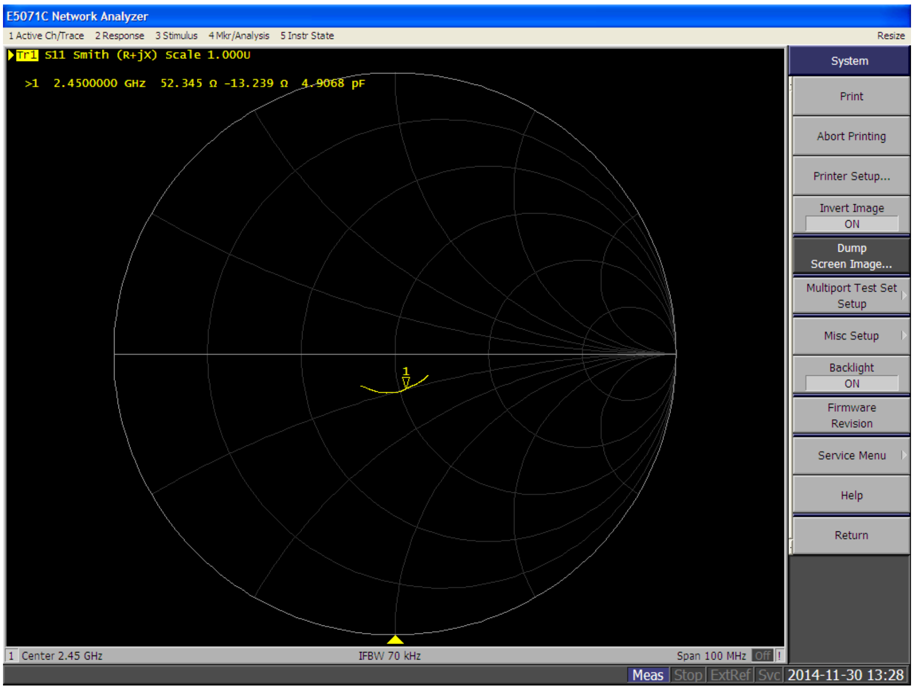
The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).Thus the device needs no repositioning when changing the angles. The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.	
The laptop extension is lightweight and made of POM, acrylic glass and foam. It fits easily on upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.	

5.9. Test Equipment List

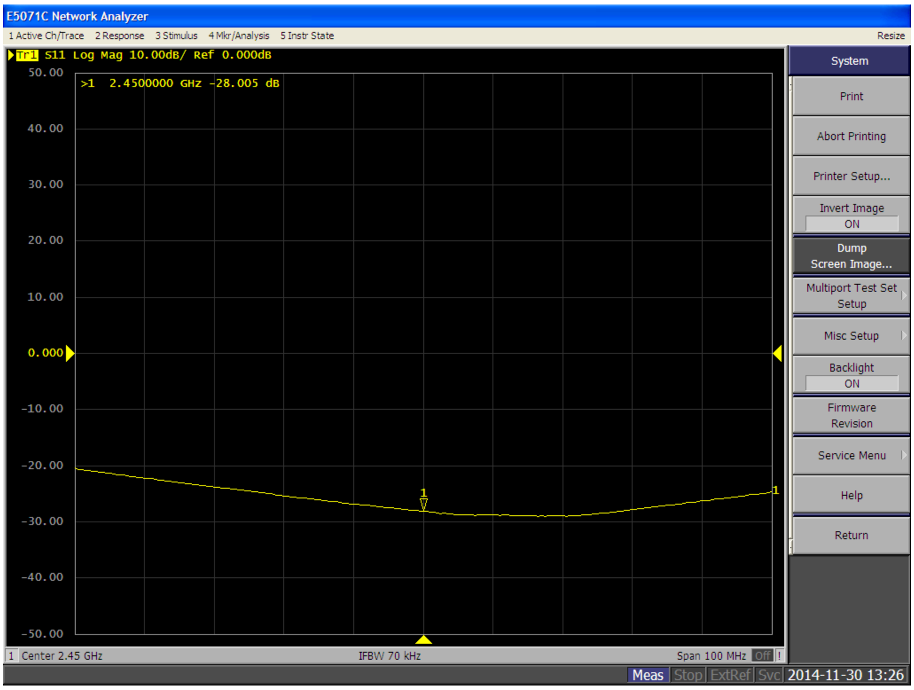
Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Stäubli Robot TX60L	Stäubli	TX60L	5P6VA1/A/01	only once
Robot Controller	Stäubli	CS8C	5P6VA1/C/01	only once
Dipole Validation Kits	Speag	D2450V2	914	2015.06.06
Dipole Validation Kits	Speag	D5GHzV2	1156	2015.06.19
SAM ELI Phantom	Speag	SAM	1211	N/A
Laptop Holder	Speag	SM LH1 001CD	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	1379	2015.05.18
E-Field Probe	Speag	EX3DV4	3927	2015.05.22
SAR Software	Speag	DASY5	V5.2 Build 162	N/A
Power Amplifier	Mini-Circuit	ZVA-183W-S+	MN136701248	2015.09.03
Directional Coupler	Agilent	772D	MY52180104	2015.09.03
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23
Vector Network	Agilent	E5071C	MY4631693	2015.01.15
Signal Generator	R&S	SML	103287	2015.03.09
Power Meter	BONN	BLWA0830-160/100/40D	76659	2015.11.10
AUG Power Sensor	R&S	NRP-Z91	100384	2015.03.09

5.10. Annul Internal Check of Impedance and Return Loss

2450MHz Body calibrated impedance 52.051Ω; measured impedance: 52.345Ω (within 5Ω)

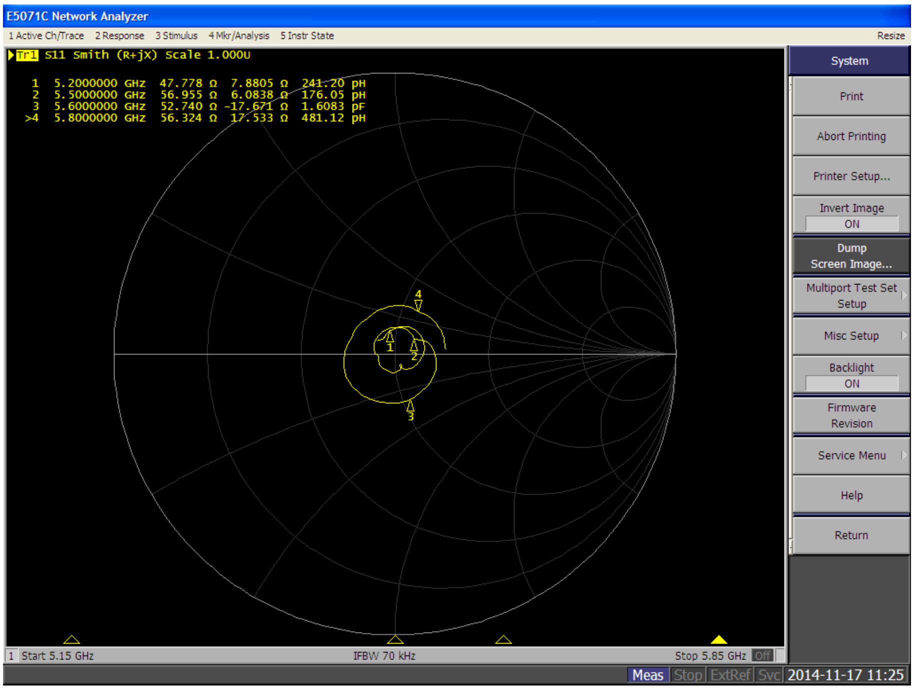


2450MHz Body calibrated return loss: -28.024 dB; Measured return loss: -28.005dB (within 20%)



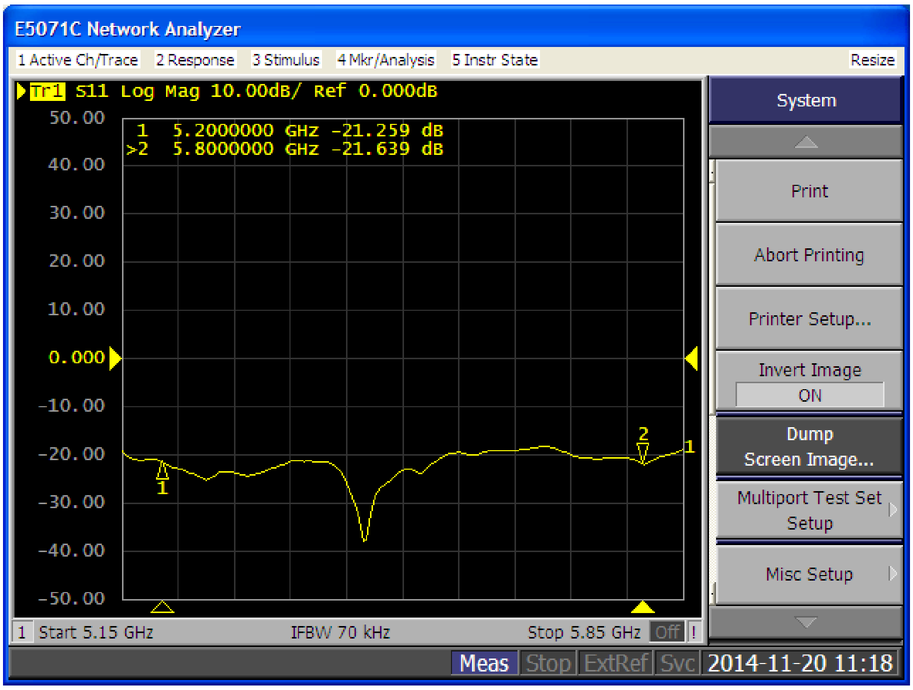
5200MHz Body calibrated impedance 49.105Ω; measured impedance: 47.778Ω (within 5Ω)

5800MHz Body calibrated impedance 58.912Ω; measured impedance: 56.324Ω (within 5Ω)



5200MHz Body calibrated return loss: -25.074 dB; Measured return loss: -21.259dB (within 20%)

5800MHz Body calibrated return loss: -21.232 dB; Measured return loss: -21.639dB (within 20%)



6. The SAR Measurement Procedure

6.1. System Performance Check

6.1.1 Purpose

1. To verify the simulating liquids are valid for testing.
2. To verify the performance of testing system is valid for testing.

6.1.2 Tissue Dielectric Parameters for Head and Body Phantoms

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
850	41.5	0.92	55.2	0.99
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
5200	36.0	4.66	**49.0**	**5.30**
5600	35.5	5.07	**48.5**	**5.77**
5800	35.3	5.27	**48.2**	**6.00**

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

6.1.3 Tissue Calibration Result

■ The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY5 Dielectric Assessment Kit and Agilent Vector Network Analyzer E5071C.

Body Tissue Simulant Measurement

Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
2450MHz	Reference result ± 5% window	52.7 50.07 to 55.34	1.95 1.85 to 2.05	N/A
	01-12-2014	52.72	1.94	21.0
5200MHz	Reference result ± 5% window	49.0 46.55 to 51.45	5.30 5.035 to 5.565	N/A
	02-12-2014	49.09	5.28	21.0
5600MHz	Reference result ± 5% window	48.5 46.075 to 50.925	5.77 5.48 to 6.06	N/A
	03-12-2014	48.49	5.75	21.0
5800MHz	Reference result ± 5% window	48.2 45.79 to 50.61	6.00 5.7 to 6.3	N/A
	04-12-2014	48.23	5.99	21.0

■ Refer to KDB 865664 D01 v01r03, The depth of body tissue-equivalent liquid in a phantom must be ≥ 15.0 cm with ≤ ± 0.5 cm variation for SAR measurements ≤ 3 GHz and ≥ 10.0 cm with ≤ ± 0.5 cm variation for measurements > 3 GHz.

6.1.4 System Performance Check Procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and the system performance check. They are read-only document files and destined as fully defined but unmeasured masks, so the finished system performance check must be saved under a different name. The system performance check document requires the SAM Twin Phantom or ELI4 Phantom, so the phantom must be properly installed in your system. (User defined measurement procedures can be created by opening a new document or editing an existing document file). Before you start the system performance check, you need only to tell the system with which components (probe, medium, and device) you are performing the system performance check; the system will take care of all parameters.

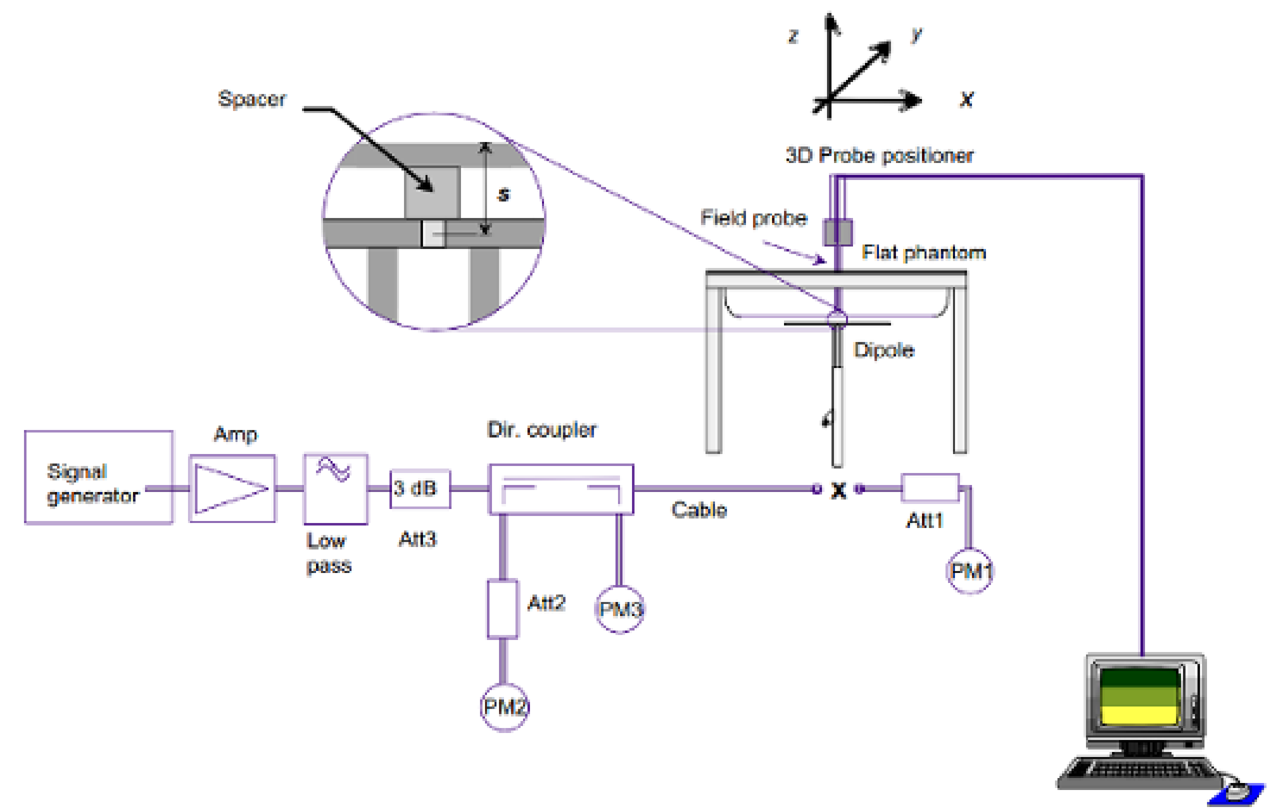
■ **The Power Reference Measurement and Power Drift Measurement** jobs are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the Dipole output power. If it is too high (above ±0.2 dB), the system performance check should be repeated;

■ **The Surface Check** job 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). In that case it is better to abort the system performance check and stir the liquid;

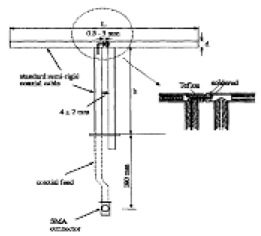
■ **The Area Scan** job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable;

■ **The Zoom Scan** job measures the field in a volume around the peak SAR value assessed in the previous Area Scan job (for more information see the application note on SAR evaluation). If the system performance check gives reasonable results. The dipole input power(forward power) was 250mW, 1 g and 10 g spatial average SAR values normalized to 1W dipole input power give reference data for comparisons and it's equal to 10x(dipole forward power). The next sections analyze the expected uncertainties of these values, as well as additional checks for further information or troubleshooting.

6.1.5 System Performance Check Setup



6.1.6 Validation Dipoles

The dipoles use is based on the IEEE Std.1528-2013 and FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03standard, and is complied with mechanical and electrical specifications in line with the requirements of both EN62209-1 and EN62209-2. The table below provides details for the mechanical and electrical specifications for the dipoles.	

6.1.7 Result of System Performance Check: Valid Result

System Performance Check at 2450MHz, 5200MHz, 5600MHz and 5800MHz for Body.

Validation Dipole: D2450V2-SN 914

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
2450 MHz	Reference result ± 10% window	51.5 46.35 to 56.65	23.9 21.51 to 26.29	21.0
	01-12-2014	51.2	23.4	

Validation Dipole: D5GHzV2-SN1156

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5200MHz	Reference result ± 10% window	73.7 66.33 to 81.07	20.6 18.54 to 22.66	21.0
	02-12-2014	74.5	20.9	
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5600MHz	Reference result ± 10% window	82.8 74.52 to 91.08	22.9 20.61 to 25.19	21.0
	03-12-2014	84	23.3	
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5800MHz	Reference result ± 10% window	73.1 65.79 to 80.41	20.1 18.09 to 22.11	21.0
	04-12-2014	72.4	20.2	

Note: All SAR values are normalized to 1W forward power.

6.2. Test Requirements

6.2.1 Test Procedures

Step 1 Setup a Connection

First, engineer should record the conducted power before the test. Then establish a call in handset at the maximum power level with a base station simulator via air interface, or make the EUT estimate by itself in testing band. Place the EUT to the specific test location. After the testing, must export SAR test data by SEMCAD. Then writing down the conducted power of the EUT into the report, also the SAR values tested.

Step 2 Power Reference Measurements

To measure the local E-field value at a fixed location which value will be taken as a reference value for calculating a possible power drift.

Step 3 Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01v01r01

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2}\cdot\delta\cdot\ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 4 Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 v01r03

<table>
<tr><td colspan="3"></td><td>$\leq$ 3 GHz</td><td>$>$ 3 GHz</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>$\leq$ 2 GHz: $\leq$ 8 mm
2 – 3 GHz: $\leq$ 5 mm*</td><td>3 – 4 GHz: $\leq$ 5 mm*
4 – 6 GHz: $\leq$ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>$\leq$ 5 mm</td><td>3 – 4 GHz: $\leq$ 4 mm
4 – 5 GHz: $\leq$ 3 mm
5 – 6 GHz: $\leq$ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>$\leq$ 4 mm</td><td>3 – 4 GHz: $\leq$ 3 mm
4 – 5 GHz: $\leq$ 2.5 mm
5 – 6 GHz: $\leq$ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>$\geq$ 30 mm</td><td>3 – 4 GHz: $\geq$ 28 mm
4 – 5 GHz: $\geq$ 25 mm
5 – 6 GHz: $\geq$ 22 mm</td></tr>
<tr><td colspan="5">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 <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is $\leq$ 1.4 W/kg, $\leq$ 8 mm, $\leq$ 7 mm and $\leq$ 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.</td></tr>
</table>

Step 5 Power Drift Measurements

Repetition of the E-field measurement at the fixed location mentioned in Step 1 to make sure the two results differ by less than ± 0.2 dB.

6.2.2 Test Channel

Mode		GHz	Channel	Turbo Channel	"Default Test Channels"			
					§15.247		UNII	
					802.11b	802.11g		
802.11 b/g		2.412	1#		√	∇		
		2.437	6	6	√	∇		
		2.462	11#		√	∇		
802.11a	UNII	5.18	36				√	
		5.20	40	42 (5.21 GHz)				*
		5.22	44					*
		5.24	48	50 (5.25 GHz)			√	
		5.26	52				√	
		5.28	56	58 (5.29 GHz)				*
		5.30	60					*
		5.32	64				√	
		5.500	100	Unknown				*
		5.520	104				√	
		5.540	108					*
		5.560	112					*
		5.580	116				√	
		5.600	120					*
		5.620	124				√	
		5.640	128					*
		5.660	132					*
		5.680	136				√	
		5.700	140					*
	UNII or §15.247	5.745	149		√		√	
		5.765	153	152 (5.76 GHz)		*		*
		5.785	157		√			*
		5.805	161	160 (5.80 GHz)		*	√	
	§15.247	5.825	165		√			

Table 1: "Default Test Channels"

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

1. Per KDB 248227 D01v01r02, SAR is not required for 802.11g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

2. SAR is not required for Channels 12 and 13, if the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels.

7. Wi-Fi/Bluetooth SAR Exclusion and Results

7.1. Maximum Tune-up Conducted Average Power

<NFA344_2T2R SKU1 for sum of two chains> (Unite: dBm)

Ch.	Freq(MHz)	11b	11g	HT20/VHT20	HT40/VHT40
1	2412	23.5	19.0	17.0	--
3	2422	23.5	22.5	22.5	15.5
6	2437	23.5	22.5	22.5	20.5
9	2452	23.5	22.5	22.5	14.5
11	2462	23.5	18.5	17.0	--

Ch.	Freq(MHz)	11a	HT20	VHT20
36	5180	15.5	15.0	15.0
38	5200	16.0	15.5	15.5
44	5220	16.0	15.5	15.5
48	5240	16.0	15.5	15.5
52	5260	19.5	19.5	19.5
56	5280	15.0	15.5	15.5
60	5300	15.0	15.5	15.5
64	5320	13.0	12.0	12.0
100	5500	13.0	12.0	12.0
104	5520	19.5	19.5	19.5
108	5540	19.5	19.5	19.5
112	5560	19.5	19.5	19.5
116	5580	19.5	19.5	19.5
120	5600	19.5	19.5	19.5
124	5620	19.5	19.5	19.5
128	5640	19.5	19.5	19.5
132	5660	19.5	19.5	19.5
136	5680	19.5	19.5	19.5
140	5700	12.0	12.0	12.0
144	5720	19.5	19.5	19.5
149	5745	19.5	19.5	19.5
153	5765	19.5	19.5	19.5
157	5785	19.5	19.5	19.5
161	5805	19.5	19.5	19.5
165	5825	19.5	19.5	19.5

Ch.	Freq(MHz)	HT40	VHT40
54	5270	19.0	19.0
62	5310	15.0	14.5
102	5510	12.5	12.5
110	5550	19.0	19.0
118	5590	19.0	19.0
126	5630	19.0	19.0
134	5670	18.0	18.0
142	5710	19.0	19.0
151	5755	19.0	19.0
159	5795	19.0	19.0

Ch.	Freq(MHz)	VHT80
42	5210	14.0
58	5290	14.5
106	5530	15.5
122	5610	19.5
138	5690	19.5
155	5775	19.5

<NFA344_2T2R SKU1 for single chain> (Unite: dBm)

Ch.	Freq(MHz)	11b	11g	HT20/VHT20	HT40/VHT40
1	2412	20.5	16.0	14.0	--
3	2422	20.5	19.5	19.5	12.5
6	2437	20.5	19.5	19.5	17.5
9	2452	20.5	19.5	19.5	11.5
11	2462	20.5	15.5	14.0	--

Ch.	Freq(MHz)	11a	HT20	VHT20
36	5180	12.5	12.0	12.0
38	5200	13.0	12.5	12.5
44	5220	13.0	12.5	12.5
48	5240	13.0	12.5	12.5
52	5260	16.5	16.5	16.5
56	5280	12.0	12.5	12.5
60	5300	12.0	12.5	12.5
64	5320	10.0	9.0	9.0
100	5500	10.0	9.0	9.0
104	5520	16.5	16.5	16.5
108	5540	16.5	16.5	16.5
112	5560	16.5	16.5	16.5
116	5580	16.5	16.5	16.5
120	5600	16.5	16.5	16.5
124	5620	16.5	16.5	16.5
128	5640	16.5	16.5	16.5
132	5660	16.5	16.5	16.5
136	5680	16.5	16.5	16.5
140	5700	9.0	9.0	9.0
144	5720	16.5	16.5	16.5
149	5745	16.5	16.5	16.5
153	5765	16.5	16.5	16.5
157	5785	16.5	16.5	16.5
161	5805	16.5	16.5	16.5
165	5825	16.5	16.5	16.5

Ch.	Freq(MHz)	HT40	VHT40
54	5270	16.0	16.0
62	5310	12.0	11.5
102	5510	9.5	9.5
110	5550	16.0	16.0
118	5590	16.0	16.0
126	5630	16.0	16.0
134	5670	15.0	15.0
142	5710	16.0	16.0
151	5755	16.0	16.0
159	5795	16.0	16.0

Ch.	Freq(MHz)	VHT80
42	5210	11.0
58	5290	11.5
106	5530	12.5
122	5610	16.5
138	5690	16.5
155	5775	16.5

Note: Two chains have the same tune-up power declared by client.

Mode	GFSK	8DPSK	LE
Bluetooth	11	7.5	1.5

<NFA345_1T2R SKU2> (Unite: dBm)

Ch.	Freq(MHz)	11b	11g	HT20	HT40
1	2412	20.0	20.0	19.5	--
3	2422	20.5	19.5	19.5	16.0
6	2437	20.5	19.5	19.5	18.5
9	2452	20.5	19.5	19.5	16.0
11	2462	20.5	19.5	19.0	--

Ch.	Freq(MHz)	11a	HT20	VHT20
36	5180	15.0	15.0	15.0
38	5200	15.0	15.0	15.0
44	5220	15.0	15.0	15.0
48	5240	15.0	15.0	15.0
52	5260	17.0	17.0	17.0
56	5280	17.0	17.0	17.0
60	5300	17.0	17.0	17.0
64	5320	16.0	16.0	16.0
100	5500	14.5	14.5	14.5
104	5520	17.0	17.0	17.0
108	5540	17.0	17.0	17.0
112	5560	17.0	17.0	17.0
116	5580	17.0	17.0	17.0
120	5600	17.0	17.0	17.0
124	5620	17.0	17.0	17.0
128	5640	17.0	17.0	17.0
132	5660	17.0	17.0	17.0
136	5680	17.0	17.0	17.0
140	5700	13.0	13.0	13.0
144	5725	17.0	17.0	17.0
149	5745	17.0	17.0	17.0
153	5765	17.0	17.0	17.0
157	5785	17.0	17.0	17.0
161	5805	17.0	17.0	17.0
165	5825	17.0	17.0	17.0

Ch.	Freq(MHz)	HT40	VHT40
54	5270	16.0	16.0
62	5310	14.5	14.5
102	5510	11.5	12.5
110	5550	16.0	16.0
118	5590	16.0	16.0
126	5630	16.0	16.0
134	5670	15.0	15.0
142	5710	16.0	16.0
151	5755	16.0	16.0
159	5795	16.0	16.0

Ch.	Freq(MHz)	VHT80
42	5210	12.0
58	5290	12.0
106	5530	11.5
122	5610	16.0
138	5690	16.0
155	5775	16.0

Mode	GFSK	8DPSK	LE
Bluetooth	11	7.5	1.5

7.2. Measured Conducted Average Power

<NFA344_2T2R SKU1 for sum of two chains> (Unite: dBm)

Configurations	Mode Channel / Frequency (MHz)			
<SKU1> 2.4GHz WLAN Average Power (Main+ Aux=SUM)	802.11b			
	1/2412	6/2437	11/2462	
	20.31+19.90=23.12	20.42+20.32=23.38	20.63+20.26=23.46	
	802.11g			
	1/2412	6/2437	11/2462	
	16.08+15.67=18.89	19.14+18.92=22.04	15.83+14.22=18.11	
	802.11n(HT20)			
	1/2412	6/2437	11/2462	
	13.74+14.02=16.89	18.82+18.98=21.91	13.84+14.06=16.96	
	802.11n(HT40)			
	3/2422	6/2437	9/2452	
	12.31+12.19=15.26	17.42+17.30=20.37	11.32+11.12=14.23	
	802.11ac(VHT20)			
	1/2412	6/2437	11/2462	
	14.03+13.89=16.97	18.84+18.74=21.80	13.93+13.79=16.87	
	802.11ac(VHT40)			
	3/2422	6/2437	9/2452	
	12.41+12.21=15.32	17.39+17.45=20.43	11.27+11.13=14.21	
<SKU1> 5.2GHz WLAN Average Power (Main+ Aux=SUM)	802.11a			
	36/5180	40/5200	44/5220	48/5240
	12.23+12.15=15.20	12.92+12.88=15.91	12.91+12.95=15.94	12.94+12.96=15.96
	802.11n(HT20)			
	36/5180	40/5200	44/5220	48/5240
	11.89+11.79=14.85	12.47+11.95=15.23	12.31+11.94=15.14	12.23+11.97=15.11
	802.11ac(VHT20)			
	36/5180	40/5200	44/5220	48/5240
	11.95+11.87=14.92	12.14+12.32=15.24	12.11+12.21=15.17	12.15+12.01=15.09
	802.11ac(VHT80)			
	42/5210			
	10.91+10.75=13.84			

Configurations	Mode							
	Channel / Frequency (MHz)							
<SKU1> 5.3GHz WLAN Average Power (Main+ Aux=SUM)	802.11a							
	52/5260		56/5280		60/5300		64/5320	
	16.31+16.25=19.29		11.93+11.93=14.94		11.96+11.92=14.95		9.82+9.78=12.81	
	802.11n(HT20)							
	52/5260		56/5280		60/5300		64/5320	
	16.29+16.25=19.28		12.31+12.25=15.29		12.38+12.28=15.34		8.92+8.80=11.87	
	802.11n(HT40)							
	54/5270				62/5310			
	15.93+15.83=18.89				11.81+11.75=14.79			
	802.11ac(VHT20)							
	52/5260		56/5280		60/5300		64/5320	
	16.24+16.16=19.21		12.48+12.34=15.42		12.27+12.17=15.23		8.86+8.80=11.84	
	802.11ac(VHT40)							
	54/5270				62/5310			
	15.73+15.77=18.76				11.24+11.26=14.26			
	802.11ac(VHT80)							
	58/5290							
	11.31+11.13=14.23							
<SKU1> 5.6GHz WLAN Average Power (Main+ Aux=SUM)	802.11a							
	100/5500	104/5520	108/5540	112/5560	116/5580	124/5620	136/5680	140/5700
	9.93+9.83 =12.89	16.26+16.06 =19.17	16.06+15.96 =19.02	16.19+16.21 =19.21	16.23+16.17 =19.21	16.27+16.19 =19.24	16.11+16.05 =19.09	8.96+8.80 =11.89
	802.11n(HT20)							
	100/5500	104/5520	108/5540	112/5560	116/5580	124/5620	136/5680	140/5700
	8.81+8.71 =11.77	16.21+16.11 =19.17	16.06+15.94 =19.01	16.13+16.15 =19.15	16.06+16.10 =19.09	15.87+15.89 =18.89	16.03+16.07 =19.06	8.98+8.90 =11.95
	802.11n(HT40)							
	102/5510				134/5670			
	9.39+9.31=12.36				14.97+14.97=17.98			
	802.11ac(VHT20)							
	100/5500	104/5520	108/5540	112/5560	116/5580	124/5620	136/5680	140/5700
	8.89+8.73 =11.82	16.16+16.08 =19.13	16.08+15.94 =19.02	16.17+16.13 =19.16	16.21+16.11 =19.17	16.22+16.22 =19.23	16.10+16.06 =19.09	8.83+8.73 =11.79
	802.11ac(VHT40)							
	102/5510				134/5670			
	9.33+9.21=12.28				14.87+14.81=17.85			
	802.11ac(VHT80)							
	106/5530				138/5690			
	12.26+12.18=15.23				16.16+16.10=19.14			

<table>
<tr><td rowspan="2">Configurations</td><td colspan="10">Mode</td></tr>
<tr><td colspan="10">Channel / Frequency (MHz)</td></tr>
<tr><td rowspan="21"><SKU1>
5.8GHz WLAN
Average Power
(Main+ Aux=SUM)</td><td colspan="10">802.11a</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">16.19+16.11
=19.16</td><td colspan="2">16.11+15.99
=19.06</td><td colspan="2">16.12+16.12
=19.13</td><td colspan="2">16.09+16.11
=19.11</td><td colspan="2">16.43+16.37
=19.41</td></tr>
<tr><td colspan="10">802.11n(HT20)</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">15.97+15.93
=18.96</td><td colspan="2">15.83+15.73
=18.79</td><td colspan="2">16.11+16.05
=19.09</td><td colspan="2">16.09+16.03
=19.07</td><td colspan="2">16.19+16.23
=19.22</td></tr>
<tr><td colspan="10">802.11n(HT40)</td></tr>
<tr><td colspan="5">151/5755</td><td colspan="5">159/5795</td></tr>
<tr><td colspan="5">15.98+15.98=18.99</td><td colspan="5">15.96+15.88=18.93</td></tr>
<tr><td colspan="10">802.11ac(VHT20)</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">16.07+16.07
=19.08</td><td colspan="2">16.06+16.00
=19.04</td><td colspan="2">16.12+16.08
=19.11</td><td colspan="2">16.03+15.99
=19.02</td><td colspan="2">16.09+16.05
=19.08</td></tr>
<tr><td colspan="10">802.11ac(VHT40)</td></tr>
<tr><td colspan="5">151/5755</td><td colspan="5">159/5795</td></tr>
<tr><td colspan="5">15.73+15.73=18.74</td><td colspan="5">15.91+15.85=18.89</td></tr>
<tr><td colspan="10">802.11ac(VHT80)</td></tr>
<tr><td colspan="10">155/5775</td></tr>
<tr><td colspan="10">15.96+15.96=18.97</td></tr>
</table>

<NFA345_1T2R SKU2> (Unite: dBm)

<table>
<tr><td rowspan="2">Configurations</td><td colspan="12">Mode</td></tr>
<tr><td colspan="12">Channel / Frequency (MHz)</td></tr>
<tr><td rowspan="12"><SKU2>
2.4GHz WLAN
Average Power
(Main)</td><td colspan="12">802.11b</td></tr>
<tr><td colspan="4">1/2412</td><td colspan="4">6/2437</td><td colspan="4">11/2462</td></tr>
<tr><td colspan="4">19.66</td><td colspan="4">20.44</td><td colspan="4">20.31</td></tr>
<tr><td colspan="12">802.11g</td></tr>
<tr><td colspan="4">1/2412</td><td colspan="4">6/2437</td><td colspan="4">11/2462</td></tr>
<tr><td colspan="4">19.78</td><td colspan="4">19.32</td><td colspan="4">19.01</td></tr>
<tr><td colspan="12">802.11n(HT20)</td></tr>
<tr><td colspan="4">1/2412</td><td colspan="4">6/2437</td><td colspan="4">11/2462</td></tr>
<tr><td colspan="4">19.12</td><td colspan="4">19.07</td><td colspan="4">18.74</td></tr>
<tr><td colspan="12">802.11n(HT40)</td></tr>
<tr><td colspan="4">3/2422</td><td colspan="4">6/2437</td><td colspan="4">9/2452</td></tr>
<tr><td colspan="4">15.76</td><td colspan="4">18.17</td><td colspan="4">15.73</td></tr>
<tr><td rowspan="13"><SKU2>
5.2GHz WLAN
Average Power
(Main)</td><td colspan="12">802.11a</td></tr>
<tr><td colspan="3">36/5180</td><td colspan="3">40/5200</td><td colspan="3">44/5220</td><td colspan="3">48/5240</td></tr>
<tr><td colspan="3">14.79</td><td colspan="3">14.66</td><td colspan="3">14.51</td><td colspan="3">14.63</td></tr>
<tr><td colspan="12">802.11n(HT20)</td></tr>
<tr><td colspan="3">36/5180</td><td colspan="3">40/5200</td><td colspan="3">44/5220</td><td colspan="3">48/5240</td></tr>
<tr><td colspan="3">14.76</td><td colspan="3">14.51</td><td colspan="3">14.43</td><td colspan="3">14.45</td></tr>
<tr><td colspan="12">802.11ac(VHT20)</td></tr>
<tr><td colspan="3">36/5180</td><td colspan="3">40/5200</td><td colspan="3">44/5220</td><td colspan="3">48/5240</td></tr>
<tr><td colspan="3">14.73</td><td colspan="3">14.59</td><td colspan="3">14.51</td><td colspan="3">14.48</td></tr>
<tr><td colspan="6">12.91</td><td colspan="6">14.51</td></tr>
<tr><td colspan="12">802.11ac(VHT80)</td></tr>
<tr><td colspan="12">42/5210</td></tr>
<tr><td colspan="12">11.79</td></tr>
</table>

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<tr><td rowspan="2">Configurations</td><td colspan="8">Mode</td></tr>
<tr><td colspan="8">Channel / Frequency (MHz)</td></tr>
<tr><td rowspan="18"><SKU2>
5.3GHz WLAN
Average Power
(Main)</td><td colspan="8">802.11a</td></tr>
<tr><td colspan="2">52/5260</td><td colspan="2">56/5280</td><td colspan="2">60/5300</td><td colspan="2">64/5320</td></tr>
<tr><td colspan="2">16.73</td><td colspan="2">16.98</td><td colspan="2">16.64</td><td colspan="2">15.83</td></tr>
<tr><td colspan="8">802.11n(HT20)</td></tr>
<tr><td colspan="2">52/5260</td><td colspan="2">56/5280</td><td colspan="2">60/5300</td><td colspan="2">64/5320</td></tr>
<tr><td colspan="2">16.66</td><td colspan="2">16.96</td><td colspan="2">16.81</td><td colspan="2">15.78</td></tr>
<tr><td colspan="8">802.11n(HT40)</td></tr>
<tr><td colspan="4">54/5270</td><td colspan="4">62/5310</td></tr>
<tr><td colspan="4">15.47</td><td colspan="4">14.07</td></tr>
<tr><td colspan="8">802.11ac(VHT20)</td></tr>
<tr><td colspan="2">52/5260</td><td colspan="2">56/5280</td><td colspan="2">60/5300</td><td colspan="2">64/5320</td></tr>
<tr><td colspan="2">19.63</td><td colspan="2">16.91</td><td colspan="2">16.9</td><td colspan="2">15.84</td></tr>
<tr><td colspan="8">802.11ac(VHT40)</td></tr>
<tr><td colspan="4">54/5270</td><td colspan="4">62/5310</td></tr>
<tr><td colspan="4">14.36</td><td colspan="4">14.21</td></tr>
<tr><td colspan="8">802.11ac(VHT80)</td></tr>
<tr><td colspan="8">58/5290</td></tr>
<tr><td colspan="8">11.76</td></tr>
<tr><td rowspan="18"><SKU2>
5.6GHz WLAN
Average Power
(Main)</td><td colspan="8">802.11a</td></tr>
<tr><td>100/5500</td><td>104/5520</td><td>108/5540</td><td>112/5560</td><td>116/5580</td><td>124/5620</td><td>136/5680</td><td>140/5700</td></tr>
<tr><td>14.12</td><td>17.00</td><td>16.87</td><td>16.76</td><td>16.98</td><td>16.96</td><td>16.97</td><td>12.87</td></tr>
<tr><td colspan="8">802.11n(HT20)</td></tr>
<tr><td>100/5500</td><td>104/5520</td><td>108/5540</td><td>112/5560</td><td>116/5580</td><td>124/5620</td><td>136/5680</td><td>140/5700</td></tr>
<tr><td>14.27</td><td>17.00</td><td>16.84</td><td>16.75</td><td>16.79</td><td>16.92</td><td>16.82</td><td>12.91</td></tr>
<tr><td colspan="8">802.11n(HT40)</td></tr>
<tr><td colspan="4">102/5510</td><td colspan="4">134/5670</td></tr>
<tr><td colspan="4">11.42</td><td colspan="4">14.89</td></tr>
<tr><td colspan="8">802.11ac(VHT20)</td></tr>
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<tr><td>14.09</td><td>17.00</td><td>16.87</td><td>16.73</td><td>16.95</td><td>16.93</td><td>16.94</td><td>12.93</td></tr>
<tr><td colspan="8">802.11ac(VHT40)</td></tr>
<tr><td colspan="4">102/5510</td><td colspan="4">134/5670</td></tr>
<tr><td colspan="4">11.39</td><td colspan="4">14.77</td></tr>
<tr><td colspan="8">802.11ac(VHT80)</td></tr>
<tr><td colspan="4">106/5530</td><td colspan="4">138/5690</td></tr>
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<tr><td rowspan="2">Configurations</td><td colspan="10">Mode</td></tr>
<tr><td colspan="10">Channel / Frequency (MHz)</td></tr>
<tr><td rowspan="19"><SKU2>
5.8GHz WLAN
Average Power
(Main)</td><td colspan="10">802.11a</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">16.95</td><td colspan="2">16.86</td><td colspan="2">16.87</td><td colspan="2">16.83</td><td colspan="2">16.92</td></tr>
<tr><td colspan="10">802.11n(HT20)</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">16.95</td><td colspan="2">16.84</td><td colspan="2">16.73</td><td colspan="2">16.89</td><td colspan="2">16.81</td></tr>
<tr><td colspan="10">802.11n(HT40)</td></tr>
<tr><td colspan="5">151/5755</td><td colspan="5">159/5795</td></tr>
<tr><td colspan="5">15.96</td><td colspan="5">15.93</td></tr>
<tr><td colspan="10">802.11ac(VHT20)</td></tr>
<tr><td colspan="2">149/5745</td><td colspan="2">153/5765</td><td colspan="2">157/5785</td><td colspan="2">161/5805</td><td colspan="2">165/5825</td></tr>
<tr><td colspan="2">16.92</td><td colspan="2">16.91</td><td colspan="2">16.97</td><td colspan="2">16.89</td><td colspan="2">16.94</td></tr>
<tr><td colspan="10">802.11ac(VHT40)</td></tr>
<tr><td colspan="5">151/5755</td><td colspan="5">159/5795</td></tr>
<tr><td colspan="5">15.83</td><td colspan="5">15.76</td></tr>
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<tr><td colspan="10">155/5775</td></tr>
<tr><td colspan="10">15.84</td></tr>
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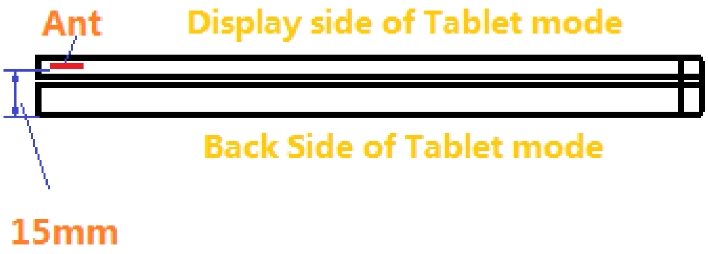
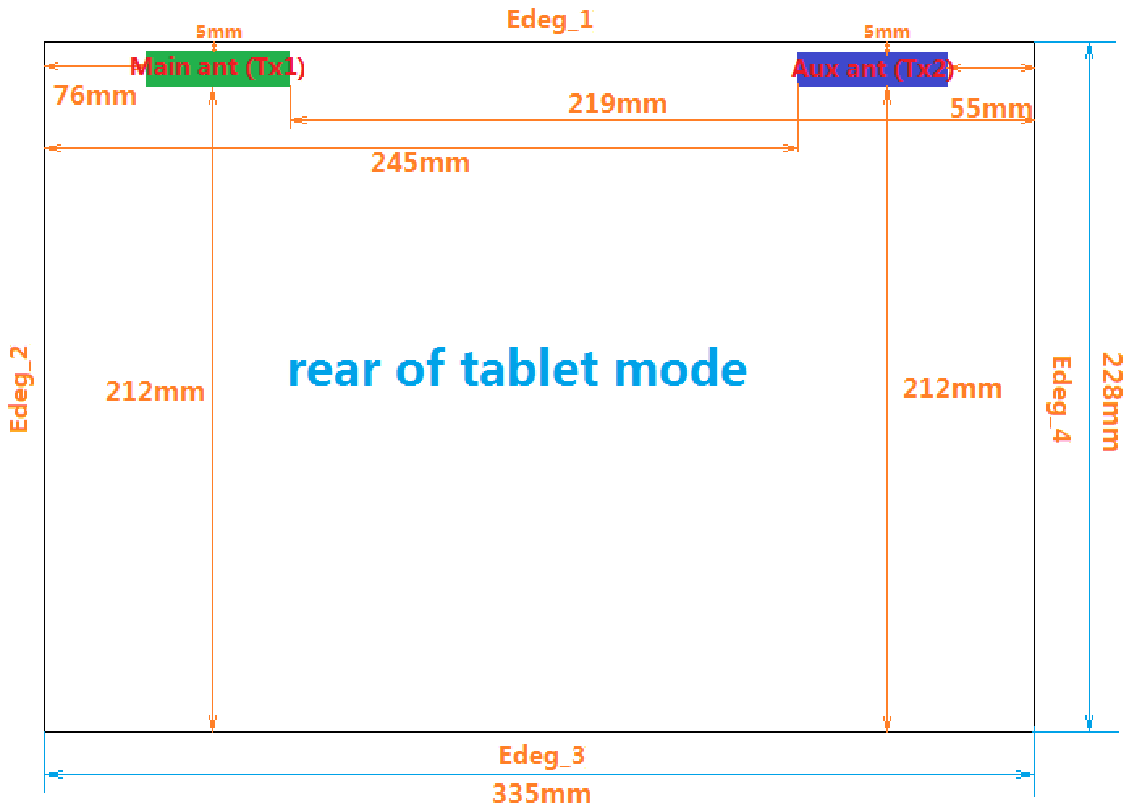
7.3. Antenna Location





Antenna	Antenna Distance to Edges(mm)				
	Back	Edge_1	Edge_2	Edge_3	Edge_4
Main(Tx1)	15	5	76	212	219
Aux(Tx2)	15	5	245	212	55

7.4. SAR exclusion

Per FCC KDB 447498 D01v05r02 for 100MHz~6GHz:

1) The SAR exclusion threshold for distances<50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel(mW)}}{\text{Test Separation Distance(mm)}} \times \sqrt{\text{Frequency(GHz)}} \leq 3.0 \quad \text{for 1-g SAR}$$

2) At test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:

a. [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50mm)·(f (MHz)/150)] mW, at 100 MHz to 1500 MHz

b. [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

Test Mode	Test Separation (mm)	Thresholds (mW)	Max. Tune-up power(dBm)	Max. Tune-up power(mW)	SAR Test (Y/N)
2.45GHz WIFI	5	10	23.5	223.87	Y
	15	29	23.5	223.87	Y
5.2GHz WIFI	5	7	18.0	63.10	Y
	15	20	18.0	63.10	Y
5.3GHz WIFI	5	7	19.5	89.13	Y
	15	20	19.5	89.13	Y
5.6GHz WIFI	5	6	19.5	89.13	Y
	15	19	19.5	89.13	Y
5.8GHz WIFI	5	6	19.5	89.13	Y
	15	19	19.5	89.13	Y
Bluetooth	5	10	10	10	Y
	15	29	10	10	N

Note: Refer to the formula above and the Max. Tune-up power, EUT SAR test is not required for test separation >50mm.

7.5. Required Edges for SAR Testing

Test Mode	Antenna	Back	Edge_1	Edge_2	Edge_3	Edge_4
2.45GHz WIFI	Main	Yes	Yes	No	No	No
	Aux	Yes	Yes	No	No	No
5.2GHz WIFI	Main	Yes	Yes	No	No	No
	Aux	Yes	Yes	No	No	No
5.3GHz WIFI	Main	Yes	Yes	No	No	No
	Aux	Yes	Yes	No	No	No
5.6GHz WIFI	Main	Yes	Yes	No	No	No
	Aux	Yes	Yes	No	No	No
5.8GHz WIFI	Main	Yes	Yes	No	No	No
	Aux	Yes	Yes	No	No	No
Bluetooth	Main	N/A	N/A	N/A	N/A	N/A
	Aux	No	Yes	No	No	No

7.6. Estimated SAR

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05r02, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is≤1.6W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05r02 4.3.2 2, the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$Estimated\ SAR = \frac{\sqrt{f(GHz)}}{7.5} * \frac{(Max\ Power\ of\ channel, mW)}{Min.\ Separation, mm}$$

Bluetooth

Mode	Test Position	Frequency	Maximum Power	Separation Distance	Estimated SAR
Bluetooth	Tablet	[MHz]	[dBm]	[mm]	[W/kg]
	Body-Back	2480	11	15	0.176

7.7. SAR Test Results Summary

■ **WLAN 2.4GHz**

Plot No.	Tx Mode	Band	Mode	Test Position	Ant.	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	2x2	802.11b	CCK	Edge_1	main	0	1	2412	20.5	20.31	1.01	-0.11	0.417	0.421
	2x2	802.11b	CCK	Edge_1	aux	0	1	2412	20.5	19.90	1.03	-0.11	0.340	0.350
01	2x2	802.11b	CCK	Edge_1	main	0	6	2437	20.5	20.42	1.00	0.03	0.559	0.561
	2x2	802.11b	CCK	Edge_1	aux	0	6	2437	20.5	20.32	1.01	0.03	0.426	0.430
	2x2	802.11b	CCK	Edge_1	main	0	11	2462	20.5	20.63	0.99	0.04	0.449	0.446
	2x2	802.11b	CCK	Edge_1	aux	0	11	2462	20.5	20.26	1.01	0.04	0.415	0.420
	2x2	802.11b	CCK	Back	main	0	6	2437	20.5	20.42	1.00	0.02	0.141	0.142
	2x2	802.11a	VHT20	Edge_1	main	0	6	2437	19.5	18.84	1.04	0.14	0.24	0.248
	1x1	802.11b	CCK	Edge_1	main	0	1	2412	20.0	19.66	1.02	0.16	0.375	0.381
	1x1	802.11b	CCK	Edge_1	main	0	6	2437	20.5	20.44	1.00	0.09	0.492	0.493
	1x1	802.11b	CCK	Edge_1	main	0	11	2462	20.5	20.31	1.01	0.01	0.497	0.502
	1x1	802.11b	CCK	Back	main	0	11	2462	20.5	20.31	1.01	0.05	0.0862	0.0870

Note:

1. According to KDB 248227, when the extrapolated maximum peak SAR for the maximum output power channel is <= 1.6 W/kg and the 1g averaged SAR is <= 0.8 W/kg, WLAN SAR testing for other channels is not required.
2. SAR testing for 802.11g/n is not required when its maximum power is less than 1/4 dB higher than 802.11b.
3. SAR testing for 802.11n is not required when its maximum power is less than 1/4 dB higher than 802.11a.
4. According to April 2013 TCB Workshop, 802.11ac SAR testing is not required when its maximum power is less than 1/4 dB higher than 802.11a. 802.11ac SAR is required for the highest 802.11a configuration in each 5 GHz band and each exposure condition.
5. Secondary peak 1-g SAR is within 2dB of the peak SAR, and 1-g SAR of the highest peak is within 2 dB of the SAR limit, so aux antenna SAR has been tested and listed above per KDB 865664 D01 v01r03.
6. The 1Tx mode characteristic of SKU 2(NFA345) can only transmit power at main chain.

WLAN 5.2GHz

Plot No.	Tx mode	Band	Mode	Test Position	Ant.	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	2x2	802.11a	OFDM	Edge_1	main	0	36	5180	12.5	12.23	1.02	0.02	0.547	0.559
	2x2	802.11a	OFDM	Edge_1	aux	0	36	5180	12.5	12.15	1.03	0.02	0.547	0.563
	2x2	802.11a	OFDM	Edge_1	main	0	40	5200	13.0	12.92	1.01	0.03	0.816	0.821
	2x2	802.11a	OFDM	Edge_1	main	0	48	5240	13.0	12.94	1.00	0.14	1.12	1.13
	2x2	802.11a	OFDM	Back	main	0	48	5240	13.0	12.94	1.00	0.03	0.0619	0.0622
	2x2	802.11ac	VHT20	Edge_1	main	0	36	5180	12.0	11.95	1.00	0.00	0.513	0.515
	2x2	802.11ac	VHT20	Edge_1	main	0	40	5200	12.5	12.14	1.03	0.00	0.769	0.792
	2x2	802.11ac	VHT20	Edge_1	main	0	48	5240	12.5	12.15	1.03	0.00	0.982	1.010
	1x1	802.11a	OFDM	Edge_1	main	0	36	5180	15.0	14.79	1.01	0.00	1.11	1.13
	1x1	802.11a	OFDM	Edge_1	main	0	40	5200	15.0	14.66	1.02	0.00	1.13	1.16
02	1x1	802.11a	OFDM	Edge_1	main	0	48	5240	15.0	14.63	1.03	0.11	1.14	1.17
	1x1	802.11a*	OFDM	Edge_1	main	0	48	5240	15.0	14.63	1.03	0.09	1.12	1.15
	1x1	802.11a	OFDM	Back	main	0	48	5240	15.0	14.63	1.03	0.13	0.055	0.056
	1x1	802.11ac	VHT20	Edge_1	main	0	36	5180	15.0	14.73	1.02	0.00	0.97	0.99
	1x1	802.11ac	VHT20	Edge_1	main	0	40	5200	15.0	14.59	1.03	0.00	1.01	1.04
	1x1	802.11ac	VHT20	Edge_1	main	0	48	5240	15.0	14.48	1.04	0.00	1.03	1.07

Note:

1. According to KDB 248227, when the extrapolated maximum peak SAR for the maximum output power channel is <= 1.6 W/kg and the 1g averaged SAR is <= 0.8 W/kg, WLAN SAR testing for other channels is not required.
2. SAR testing for 802.11g/n is not required when its maximum power is less than 1/4 dB higher than 802.11b.
3. SAR testing for 802.11n is not required when its maximum power is less than 1/4 dB higher than 802.11a.
4. According to April 2013 TCB Workshop, 802.11ac SAR testing is not required when its maximum powe14.6614.78914r is less than 1/4 dB higher than 802.11a. 802.11ac SAR is required for the highest 802.11a configuration in each 5 GHz band and each exposure condition.
5. *: Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required.
6. The 1Tx mode characteristic of SKU 2 can only transmit power at main chain.
7. Secondary peak 1-g SAR is within 2dB of the peak SAR, and 1-g SAR of the highest peak is within 2 dB of the SAR limit, so aux antenna SAR has been tested and listed above per KDB 865664 D01 v01r03.
8. The 1Tx mode characteristic of SKU 2(NFA345) can only transmit power at main chain.

■ WLAN 5.3GHz

Plot No.	Tx Mode	Band	Mode	Test Position	Ant.	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
03	2x2	802.11a	OFDM	Edge_1	main	0	52	5260	16.5	16.31	1.01	0.04	1.23	1.24
	2x2	802.11a*	OFDM	Edge_1	main	0	52	5260	16.5	16.31	1.01	0.06	1.22	1.23
	2x2	802.11a	OFDM	Edge_1	main	0	56	5280	12.0	11.93	1.01	0.00	0.563	0.566
	2x2	802.11a	OFDM	Edge_1	main	0	60	5300	12.0	11.96	1.00	0.00	0.549	0.551
	2x2	802.11a	OFDM	Back	main	0	52	5260	16.5	16.31	1.01	-0.07	0.0586	0.0593
	2x2	802.11ac	VHT20	Edge_1	main	0	52	5260	16.5	16.24	1.02	0.00	1.11	1.13
	2x2	802.11ac	VHT20	Edge_1	main	0	56	5280	12.5	12.48	1.00	0.00	0.576	0.58
	2x2	802.11ac	VHT20	Edge_1	main	0	60	5300	12.5	12.27	1.02	0.00	0.564	0.57
	1x1	802.11a	OFDM	Edge_1	main	0	52	5260	17.0	16.73	1.02	0.00	1.1	1.12
	1x1	802.11a	OFDM	Edge_1	main	0	56	5280	17.0	16.98	1.00	0.00	1.12	1.12
	1x1	802.11a	OFDM	Edge_1	main	0	60	5300	17.0	16.64	1.02	0.09	0.996	1.018
	1x1	802.11a	OFDM	Back	main	0	56	5280	17.0	16.98	1.00	-0.13	0.0683	0.0684
	1x1	802.11ac	VHT20	Edge_1	main	0	52	5260	17.0	19.63	0.87	0.05	1.07	0.93
	1x1	802.11ac	VHT20	Edge_1	main	0	56	5280	17.0	16.91	1.01	0.00	1.09	1.10
	1x1	802.11ac	VHT20	Edge_1	main	0	60	5300	17.0	16.9	1.01	0.03	0.934	0.939

Note:

1. According to KDB 248227, when the extrapolated maximum peak SAR for the maximum output power channel is <= 1.6 W/kg and the 1g averaged SAR is <= 0.8 W/kg, WLAN SAR testing for other channels is not required.

2. SAR testing for 802.11g/n is not required when its maximum power is less than 1/4 dB higher than 802.11b.

3. SAR testing for 802.11n is not required when its maximum power is less than 1/4 dB higher than 802.11a.

4. According to April 2013 TCB Workshop, 802.11ac SAR testing is not required when its maximum power is less than 1/4 dB higher than 802.11a. 802.11ac SAR is required for the highest 802.11a configuration in each 5 GHz band and each exposure condition.

5. The average power of Ch.60 is higher than “Default Test Channel” Ch.64, so Ch.60 has been chosen test.

6. *: Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required.

7. Secondary peak 1-g SAR is within 2dB of the peak SAR, and 1-g SAR of the highest peak is within 2 dB of the SAR limit, so aux antenna SAR has been tested and listed above per KDB 865664 D01 v01r03.

8. The 1Tx mode characteristic of SKU 2(NFA345) can only transmit power at main chain.

■ **WLAN 5.6GHz**

Plot No.	Tx Mode	Band	Mode	Test Position	Ant.	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
04	2x2	802.11a	OFDM	Edge_1	main	0	104	5520	16.5	16.26	1.01	-0.10	1.35	1.37
	2x2	802.11a*	OFDM	Edge_1	main	0	104	5520	16.5	16.26	1.01	-0.03	1.33	1.35
	2x2	802.11a	OFDM	Edge_1	main	0	116	5580	16.5	16.23	1.02	0.00	1.23	1.25
	2x2	802.11a	OFDM	Edge_1	main	0	124	5620	16.5	16.27	1.01	-0.04	0.898	0.911
	2x2	802.11a	OFDM	Edge_1	main	0	136	5680	16.5	16.11	1.02	0.00	1.09	1.12
	2x2	802.11a	OFDM	Back	main	0	104	5520	16.5	16.26	1.01	0.11	0.0889	0.0902
	2x2	802.11ac	VHT20	Edge_1	main	0	104	5520	16.5	16.16	1.02	0.11	1.33	1.36
	2x2	802.11ac	VHT20	Edge_1	main	0	116	5580	16.5	16.08	1.03	0.03	1.2	1.23
	2x2	802.11ac	VHT20	Edge_1	main	0	124	5620	16.5	16.22	1.02	0.07	0.934	0.950
	2x2	802.11ac	VHT20	Edge_1	main	0	136	5680	16.5	16.10	1.02	0.05	1.11	1.14
	1x1	802.11a	OFDM	Edge_1	main	0	104	5520	17.0	17.00	1.00	0.06	1.32	1.32
	1x1	802.11a	OFDM	Edge_1	main	0	116	5580	17.0	16.98	1.00	0.00	1.3	1.30
	1x1	802.11a	OFDM	Edge_1	main	0	124	5620	17.0	16.96	1.00	0.05	1.1	1.10
	1x1	802.11a	OFDM	Edge_1	main	0	136	5680	17.0	16.97	1.00	0.00	1.18	1.18
	1x1	802.11a	OFDM	Back	main	0	104	5520	17.0	17.00	1.00	0.05	0.097	0.097
	1x1	802.11ac	VHT20	Edge_1	main	0	104	5520	17.0	17.00	1.00	0.00	1.14	1.14
	1x1	802.11ac	VHT20	Edge_1	main	0	116	5580	17.0	16.95	1.00	0.00	1.09	1.09
	1x1	802.11ac	VHT20	Edge_1	main	0	124	5620	17.0	16.93	1.00	0.11	1.03	1.03
	1x1	802.11ac	VHT20	Edge_1	main	0	136	5680	17.0	16.94	1.00	-0.12	1.06	1.06

Note:

1. According to KDB 248227, when the extrapolated maximum peak SAR for the maximum output power channel is <= 1.6 W/kg and the 1g averaged SAR is <= 0.8 W/kg, WLAN SAR testing for other channels is not required.

2. SAR testing for 802.11g/n is not required when its maximum power is less than 1/4 dB higher than 802.11b.

3. SAR testing for 802.11n is not required when its maximum power is less than 1/4 dB higher than 802.11a.

4. According to April 2013 TCB Workshop, 802.11ac SAR testing is not required when its maximum power is less than 1/4 dB higher than 802.11a. 802.11ac SAR is required for the highest 802.11a configuration in each 5 GHz band and each exposure condition.

5. *: Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required.

6. Secondary peak 1-g SAR is within 2dB of the peak SAR, and 1-g SAR of the highest peak is within 2 dB of the SAR limit, so aux antenna SAR has been tested and listed above per KDB 865664 D01 v01r03.

7. The 1Tx mode characteristic of SKU 2 (NFA345) can only transmit power at main chain.

■ WLAN 5.8GHz

Plot No.	Tx Mode	Band	Mode	Test Position	Ant.	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	2x2	802.11a	OFDM	Edge_1	main	0	149	5745	16.5	16.19	1.02	0.12	0.785	0.800
	2x2	802.11a	OFDM	Edge_1	aux	0	149	5745	16.5	16.11	1.02	0.12	0.539	0.552
	2x2	802.11a	OFDM	Edge_1	main	0	157	5785	16.5	16.12	1.02	0.03	0.712	0.729
	2x2	802.11a	OFDM	Edge_1	main	0	165	5825	16.5	16.43	1.00	0.01	0.791	0.794
	2x2	802.11a	OFDM	Edge_1	aux	0	165	5825	16.5	16.37	1.01	0.01	0.511	0.5151
	2x2	802.11a	OFDM	Back	main	0	165	5825	16.5	16.43	1.00	0.02	0.0567	0.0569
	2x2	802.11ac	VHT20	Edge_1	main	0	157	5785	16.5	16.12	1.02	0.02	0.735	0.752
	1x1	802.11a	OFDM	Edge_1	main	0	149	5745	17.0	16.95	1.00	0.03	1.12	1.12
	1x1	802.11a	OFDM	Edge_1	main	0	157	5785	17.0	16.87	1.01	0.09	0.873	0.880
	1x1	802.11a	OFDM	Edge_1	main	0	165	5825	17.0	16.92	1.00	0.04	0.85	0.85
05	1x1	802.11ac	VHT20	Edge_1	main	0	149	5745	17.0	16.92	1.00	-0.16	1.17	1.18
	1x1	802.11ac*	VHT20	Edge_1	main	0	149	5745	17.0	16.92	1.00	0.06	1.14	1.15
	1x1	802.11ac	VHT20	Edge_1	main	0	157	5785	17.0	16.97	1.00	0.07	0.841	0.842
	1x1	802.11ac	VHT20	Edge_1	main	0	165	5825	17.0	16.94	1.00	0.00	0.751	0.754
	1x1	802.11ac	VHT20	Back	main	0	149	5745	17.0	16.92	1.00	-0.02	0.0731	0.0734

Note:

1. According to KDB 248227, when the extrapolated maximum peak SAR for the maximum output power channel is <= 1.6 W/kg and the 1g averaged SAR is <= 0.8 W/kssg, WLAN SAR testing for other channels is not required.
2. SAR testing for 802.11g/n is not required when its maximum power is less than 1/4 dB higher than 802.11b.
3. SAR testing for 802.11n is not required when its maximum power is less than 1/4 dB higher than 802.11a.
4. According to April 2013 TCB Workshop, 802.11ac SAR testing is not required when its maximum power is less than 1/4 dB higher than 802.11a. 802.11ac SAR is required for the highest 802.11a configuration in each 5 GHz band and each exposure condition.
5. *: Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg. If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required.
6. Secondary peak 1-g SAR is within 2dB of the peak SAR, and 1-g SAR of the highest peak is within 2 dB of the SAR limit, so aux antenna SAR has been tested and listed above per KDB 865664 D01 v01r03.
7. The 1Tx mode characteristic of SKU 2(NFA345) can only transmit power at main chain.

■ Bluetooth

Plot No.	EUT SKU	Band	Mode	Test Position	Dist. mm	Ch.	Fre.	Max. Tune-up Power(dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift(dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	1	Bluetooth	GFSK	Edge_1	0	39	2441	11.0	9.87	1.11	0.07	0.089	0.099
	2	Bluetooth	GFSK	Edge_1	0	39	2441	11.0	9.92	1.11	-0.11	0.093	0.103

8. Simultaneous Transmission Analysis

8.1. Max. Simultaneous SAR

■ **WLAN1 + WLAN2 (Main Ant+ Aux Ant)**

According to SAR test data, all pairs of the peak SAR location Ri>170mm. Therefore, based on antenna separation distances and the hot spot distributions that simultaneous SAR does not need to be considered for the MIMO mode, refer to the draft KDB 248227 D01 SAR meas for IEEE 802 11 transmitters DR02-41929 section 6.1.

■ **WLAN+ Bluetooth**

No.	Configurations	Test Position	WLAN SAR(W/kg)	BT SAR(W/kg)	∑ SAR(W/kg)
1	<EUT SKU1> WLAN(DTS) + BT(DSS)	Body-Back	0.0569	0.176	0.233
		Body-Edge_1	0.800	0.099	0.899
		Body-Edge_2	0.4	0.4	0.8
		Body-Edge_3	0.4	0.4	0.8
		Body-Edge_4	0.4	0.4	0.8
2	<EUT SKU1> WLAN(UNII) + BT(DSS)	Body-Back	0.0902	0.176	0.266
		Body-Edge_1	1.37	0.099	**1.469**
		Body-Edge_2	0.4	0.4	0.8
		Body-Edge_3	0.4	0.4	0.8
		Body-Edge_4	0.4	0.4	0.8
3	<EUT SKU2> WLAN(DTS) + BT(DSS)	Body-Back	0.087	0.176	0.263
		Body-Edge_1	1.18	0.103	**1.283**
		Body-Edge_2	0.4	0.4	0.8
		Body-Edge_3	0.4	0.4	0.8
		Body-Edge_4	0.4	0.4	0.8
4	<EUT SKU2> WLAN(UNII) + BT(DSS)	Body-Back	0.097	0.176	0.273
		Body-Edge_1	1.32	0.103	1.423
		Body-Edge_2	0.4	0.4	0.8
		Body-Edge_3	0.4	0.4	0.8
		Body-Edge_4	0.4	0.4	0.8

Note: An estimated SAR of 0.4 W/kg was used to determine simultaneous transmission SAR for test separation distances >50mm per 447498 D01v05r02.

8.2. Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v05r02.

9. Measurement Uncertainty

Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std.Unc. (1g)	Std. nc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±6.0%	N	1	1	1	±6.0%	±6.0%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Modulation Response	±2.4%	R	$\sqrt{3}$	1	1	±1.4%	±1.4%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max.SAR Eval.	±2.0%	R	$\sqrt{3}$	1	1	±1.2%	±1.2%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Power Scalingp	±0%	R	$\sqrt{3}$	0	0	±0%	±0%	∞
Phantom and Setup								
Phantom Uncertainty	±6.1%	R	$\sqrt{3}$	1	1	±3.5%	±3.5%	∞
SAR correction	±1.9%	R	$\sqrt{3}$	1	0.84	±1.1%	±0.9%	∞
Liquid Conductivity (mea.)DAK	±2.5%	R	$\sqrt{3}$	0.78	0.71	±1.1%	±1.0%	∞
Liquid Permittivity (mea.)DAK	±2.5%	R	$\sqrt{3}$	0.26	0.26	±0.3%	±0.4%	∞
Temp. unc. –ConductivityBB	±3.4%	R	$\sqrt{3}$	0.78	0.71	±1.5%	±1.4%	∞
Temp. unc. – PermittivityBB	±0.4%	R	$\sqrt{3}$	0.23	0.26	±0.1%	±0.1%	∞
Combined Std. Uncertainty						±11.2%	±11.1%	361
Expanded STD Uncertainty(k=2)						**±22.3%**	**±22.2%**	

DASY5 Uncertainty Budget, according to IEEE 1528/2011 and IEC 62209-1/2011(0.3-3GHz)

Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std.Unc. (1g)	Std. nc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±6.55%	N	1	0	0			
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±2.0%	R	$\sqrt{3}$	1	1	±1.2%	±1.2%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Modulation Response[m]	±2.4%	R	$\sqrt{3}$	1	1	±1.4%	±1.4%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Probe Positioning	±6.7%	R	$\sqrt{3}$	1	1	±3.9%	±3.9%	∞
Max.SAR Eval.	±2.0%	R	$\sqrt{3}$	1	1	±1.2%	±1.2%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Power Scaling[p]	±0%	R	$\sqrt{3}$	0	0	±0%	±0%	∞
Phantom and Setup								
Phantom Uncertainty	±6.6%	R	$\sqrt{3}$	1	1	±3.8%	±3.8%	∞
SAR correction	±1.9%	R	$\sqrt{3}$	1	0.84	±1.1%	±0.9%	∞
Liquid Conductivity (mea.)[DAK]	±2.5%	R	$\sqrt{3}$	0.78	0.71	±1.1%	±1.0%	∞
Liquid Permittivity (mea.)[DAK]	±2.5%	R	$\sqrt{3}$	0.26	0.26	±0.3%	±0.4%	∞
Temp. unc. –Conductivity[BB]	±3.4%	R	$\sqrt{3}$	0.78	0.71	±1.5%	±1.4%	∞
Temp. unc. – Permittivity[BB]	±0.4%	R	$\sqrt{3}$	0.23	0.26	±0.1%	±0.1%	∞
Combined Std. Uncertainty						±12.3%	±12.2%	748
Expanded STD Uncertainty(Coverage factor=2)						**±24.6%**	**±24.5%**	

DASY5 Uncertainty Budget, according to IEEE 1528/2011 and IEC 62209-1/2011(3-6GHz)

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APPENDIX A. SAR System Verification Data

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

Date/Time: 01/12/2014

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=250mW, dist=10mm, f=2450 MHz

DUT: Dipole 2450 MHz D2450V2; Type: SA AAD 245 BB

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; σ = 1.94 S/m; εr = 52.72; ρ = 1000 kg/m3

Phantom section: Flat Section ; Meas. Ambient Temp (celsius) -22℃; Input power-250mW

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.63, 7.63, 7.63); Calibrated: 2014/5/23;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/ Pin=250mW, dist=10mm, f=2450MHz/Area Scan (4x6x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 10.4 W/kg

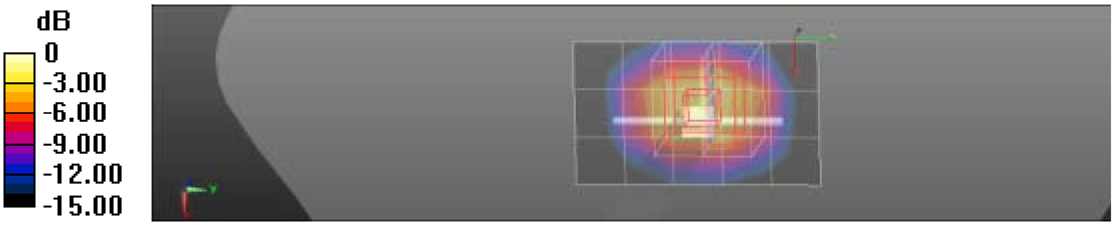
Configuration/Dipole Calibration for Body Tissue/ Pin=250mW, dist=10mm, f=2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 89.29 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.85 W/kg

Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

Date/Time: 02/12/2014

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5200 MHz

DUT: Dipole 5200MHz D5GHzV2; Type: SA AAD 510 BB

Communication System: CW; Frequency: 5200 MHz

Medium parameters used: f = 5200 MHz; σ = 5.28 S/m; εr = 49.09; ρ = 1000 kg/m3

Phantom section: Flat Section ; Meas. Ambient Temp (celsius) -22℃; Input power-100mW

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.61, 4.61, 4.61); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 18.9 W/kg

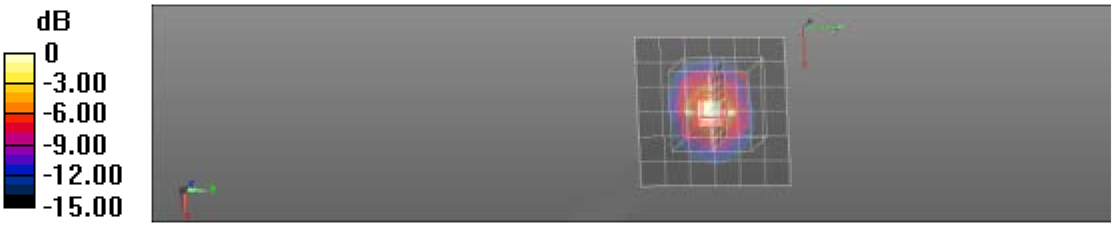
Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 40.72 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 31.1 W/kg

SAR(1 g) = 7.45 W/kg; SAR(10 g) = 2.09 W/kg

Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 19.0 W/kg = 12.79 dBW/kg

Date/Time: 03/12/2014

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5600 MHz

DUT: Dipole 5600MHz D5GHzV2; Type: SA AAD 510 BB

Communication System: CW; Frequency: 5600 MHz

Medium parameters used: f = 5600 MHz; σ = 5.75 S/m; εr = 48.49; ρ = 1000 kg/m3

Phantom section: Flat Section ; Meas. Ambient Temp (celsius) -22℃; Input power-100mW

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.23, 4.23, 4.23); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 21.0 W/kg

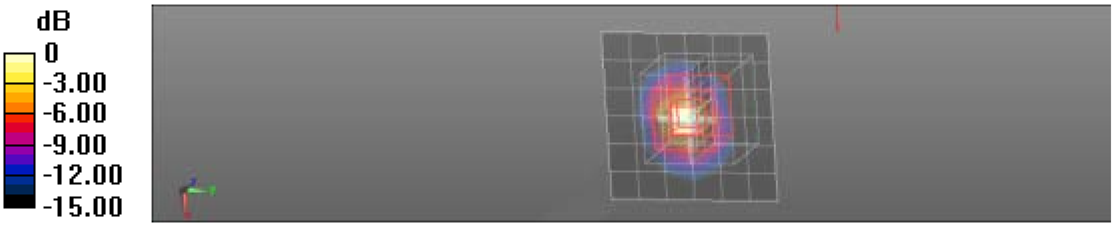
Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 41.87 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 38.0 W/kg

SAR(1 g) = 8.4 W/kg; SAR(10 g) = 2.33 W/kg

Maximum value of SAR (measured) = 22.0 W/kg



0 dB = 22.0 W/kg = 13.42 dBW/kg

Date/Time: 04/12/2014

Test Laboratory: Cerpass Lab

Dipole Calibration for Body Tissue Pin=100mW, dist=10mm, f=5800 MHz

DUT: Dipole 5800MHz D5GHzV2; Type: SA AAD 510 BB

Communication System: CW; Frequency: 5800 MHz

Medium parameters used: f = 5800 MHz; σ = 5.99 S/m; εr = 48.23; ρ = 1000 kg/m3

Phantom section: Flat Section ; Meas. Ambient Temp (celsius) -22℃; Input power-100mW

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.25, 4.25, 4.25); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 18.9 W/kg

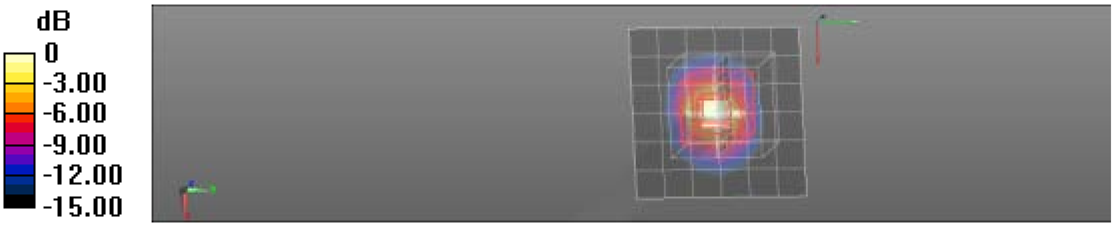
Configuration/Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 37.25 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 34.2 W/kg

SAR(1 g) = 7.24 W/kg; SAR(10 g) = 2.02 W/kg

Maximum value of SAR (measured) = 19.4 W/kg



0 dB = 19.4 W/kg = 12.88 dBW/kg

APPENDIX B. SAR measurement Data

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

Date/Time: 01/12/2014

Test Laboratory: Cerpass Lab

DUT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card; Type: NFA344

Procedure Name: 802.11b 2437MHz Mid Body-Worn_Tablet_Edge 1_2Tx CDD_0mm_SKU 1

Communication System Band: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.928 S/m; εr = 52.738; ρ = 1000 kg/m3, Phantom section: Flat Section ; Tissue Temp(celsius)- 21℃

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(7.63, 7.63, 7.63); Calibrated: 2014/5/23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: SAM (30deg probe tilt) with CRP v5.0; Type: QD000P40CD
- Measurement SW: DASY52, Version 52.8 (8);

Configuration/802.11b 2437MHz Mid Body-Worn_Tablet_Edge 1_2Tx CDD_0mm_SKU 1/Area Scan (6x21x1): Measurement grid: dx=12mm, dy=12mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.690 W/kg

Configuration/802.11b 2437MHz Mid Body-Worn_Tablet_Edge 1_2Tx CDD_0mm_SKU 1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 11.89 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.866 W/kg

SAR(1 g) = 0.426 W/kg; SAR(10 g) = 0.218 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.647 W/kg

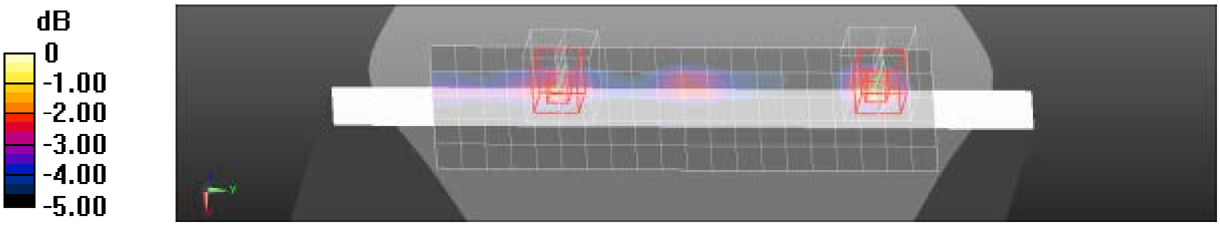
Configuration/802.11b 2437MHz Mid Body-Worn_Tablet_Edge 1_2Tx CDD_0mm_SKU 1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 11.89 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.559 W/kg; SAR(10 g) = 0.262 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.866 W/kg



0 dB = 0.866 W/kg = -0.62 dBW/kg

Date/Time: 02/12/2014

Test Laboratory: Cerpass Lab

DUT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card; Type: NFA345

Procedure Name: 802.11a 5240MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2

Communication System Band: 802.11a (20MHz); Frequency: 5240 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): f = 5240 MHz; σ = 5.368 S/m; εr = 49.062; ρ = 1000 kg/m3, Phantom section: Flat Section ; Tissue Temp(celsius)- 21℃

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.61, 4.61, 4.61); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- Measurement SW: DASY52, Version 52.8 (8);

Configuration/802.11a 5240MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2/Area Scan (7x13x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 2.22 W/kg

Configuration/802.11a 5240MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 0.8480 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 5.25 W/kg

SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.283 W/kg

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 2.51 W/kg

0 dB = 2.51 W/kg = 4.00 dBW/kg

Date/Time: 02/12/2014

Test Laboratory: Cerpass Lab
DUT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card; Type: NFA344
Procedure Name: 802.11a 5260MHz Body-Worn_Tablet-Edge1_2Tx CDD_0mm_SKU 1
Communication System Band: 802.11a (20MHz); Frequency: 5260 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.391 S/m; εr = 48.996; ρ = 1000 kg/m3
Phantom section: Flat Section ; Tissue Temp(celsius)- 21 ℃
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration:

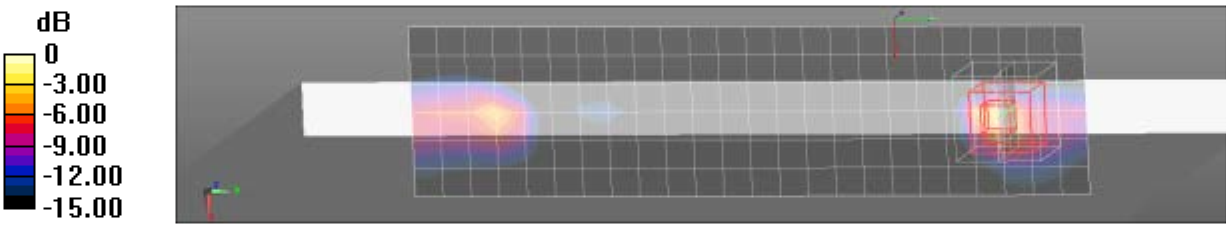
- Probe: EX3DV4 - SN3927; ConvF(4.61, 4.61, 4.61); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- Measurement SW: DASY52, Version 52.8 (8);

Configuration/802.11a 5260MHz Body-Worn_Tablet-Edge 1_2Tx CDD_0mm_SKU 1/Area Scan (7x25x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.12 W/kg

Configuration/802.11a 5260MHz Body-Worn_Tablet-Edge 1_2Tx CDD_0mm_SKU 1/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm
Reference Value = 1.876 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 5.62 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.296 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.79 W/kg



0 dB = 2.79 W/kg = 4.46 dBW/kg

Date/Time: 03/12/2014

Test Laboratory: Cerpass Lab
DUT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card; Type: NFA344
Procedure Name: 802.11a 5520MHz Body-Worn_Tablet-Edge 1_2Tx CDD_0mm_SKU 1
Communication System Band: 802.11a (20MHz); Frequency: 5520 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5520 MHz; σ = 5.673 S/m; εr = 48.582; ρ = 1000 kg/m3
Phantom section: Flat Section ; Tissue Temp(celsius)- 21 ℃
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration:

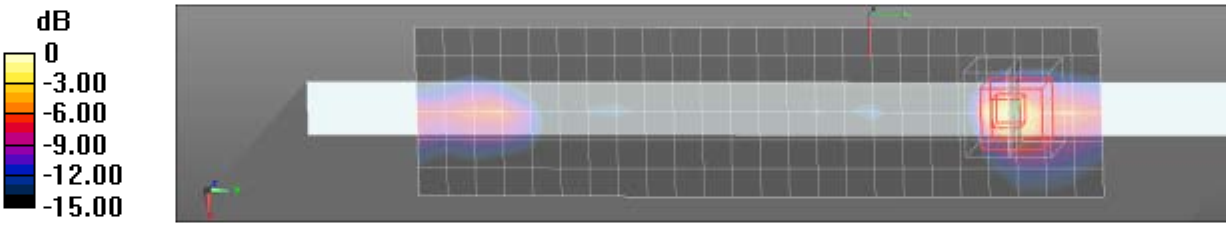
- Probe: EX3DV4 - SN3927; ConvF(4.3, 4.3, 4.3); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- Measurement SW: DASY52, Version 52.8 (8);

Configuration/802.11a 5520MHz Body-Worn_Tablet-Edge 1_2Tx CDD_0mm_SKU 1/Area Scan (7x25x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.72 W/kg

Configuration/802.11a 5520MHz Body-Worn_Tablet-Edge 1_2Tx CDD_0mm_SKU 1/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm
Reference Value = 2.548 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 6.40 W/kg
SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.336 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 3.06 W/kg



0 dB = 3.06 W/kg = 4.86 dBW/kg

Date/Time: 04/12/2014

Test Laboratory: Cerpass Lab
DUT: 802.11 a/b/g/n/ac+ BT 4.1 M.2 Type Card; Type: NFA345
Procedure Name: 802.11ac(20MHz) 5745MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2
Communication System Band: 802.11ac(20MHz); Frequency: 5745 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.936 S/m; εr = 48.277; ρ = 1000 kg/m3
Phantom section: Flat Section ; Tissue Temp(celsius)- 21 ℃
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)
DASY5 Configuration:

- Probe: EX3DV4 - SN3927; ConvF(4.25, 4.25, 4.25); Calibrated: 2014/5/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1379; Calibrated: 2014/5/19
- Phantom: ELI v5.0; Type: QDOVA002AA
- Measurement SW: DASY52, Version 52.8 (8);

Configuration/802.11ac(20MHz) 5745MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2/Area Scan (7x13x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.02 W/kg

Configuration/802.11ac(20MHz) 5745MHz Body-Worn_Tablet-Edge 1_Main_0mm_SKU 2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm
Reference Value = 1.683 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 5.78 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.291 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.65 W/kg

0 dB = 2.65 W/kg = 4.23 dBW/kg

APPENDIX C. Calibration Data for Probe, Dipole and DAE

Please refer to attached files.

APPENDIX D. Photographs of EUT and Setup

Please refer to attached files.