



FCC SAR TEST REPORT

Report No.: STS2008206H01

Issued for

Acer India Pvt Ltd.

Embassy Heights 6th Floor, No,13 Magrath Road, (Next to Hosmat Hospital)Bengaluru,560025,India

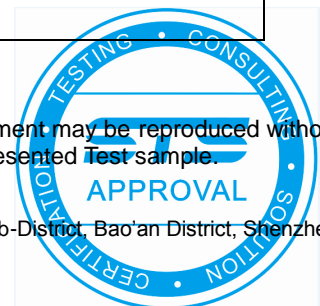
| | |
|------------------------------|-----------------------------|
| Product Name: | Tablet PC |
| Brand Name: | Acer |
| Model Name: | Acer One 10 T8-129L |
| Series Model: | Acer_One_10_T8-129L |
| FCC ID: | 2AMY3-ACERT8129L |
| Test Standard: | ANSI/IEEE Std. C95.1 |
| | FCC 47 CFR Part 2 (2.1093) |
| | IEEE 1528: 2013 |
| Max. Report SAR (1g): | Body:0.536 W/kg |

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Test Report Certification

Applicant's name : Acer India Pvt Ltd.
Address : Embassy Heights 6th Floor, No,13 Magrath Road, (Next to Hosmat Hospital)Bengaluru,560025,India
Manufacture's Name..... : HUNAN GREATWALL COMPUTER SYSTEM CO., LTD
Address : HUNAN GREATWALL INDUSTRIAL PARK, TIANYI SCIENCE AND TECHNOLOGY CITY, XIANGYUN MIDDLE ROAD, TIANYUAN DISTRICT, ZHUZHOU, HUNAN PROVINCE, CHINA

Product description

Product name : Tablet PC
Brand name : Acer
Model name : Acer One 10 T8-129L
Series Model..... : Acer_One_10_T8-129L

Standards..... : ANSI/IEEE Std. C95.1-1992
 FCC 47 CFR Part 2 (2.1093)
 IEEE 1528: 2013

The device was tested by Shenzhen STS Test Services Co., Ltd. in accordance with the measurement methods and procedures specified in KDB 865664 The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of Test..... :
Date (s) of performance of tests..... : 16 Jun. 2020
Date of Issue..... : 17 Jun. 2020
Test Result..... : **Pass**

Testing Engineer : *Aaron Bu.*

 (Aaron Bu)

Technical Manager : *Sean she*

 (Sean she)

Authorized Signatory : *Vita Li*

 (Vita Li)





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Revision History

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| 00 | 17 Jun. 2020 | STS2008206H01 | ALL | Initial Issue |

Note: **Format version** of the report -V01





1. General Information

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

1.1 EUT Description

| | | | |
|---|--|-----------------|-------------|
| Product Name | Tablet PC | | |
| Brand Name | Acer | | |
| Model Name | Acer One 10 T8-129L | | |
| Series Model | Acer_One_10_T8-129L | | |
| Model Difference | All models above are identical in interior structure, electrical circuits and components, just model names and memory chip models are different for the marketing requirement. | | |
| Adapter | Input: 100-240Vac,50/60Hz,0.5A Output: DC 5.0V, 2.0A | | |
| Device Category | Portable | | |
| Product stage | Production unit | | |
| RF Exposure Environment | General Population / Uncontrolled | | |
| Hardware Version | N/A | | |
| Software Version | N/A | | |
| Frequency Range | 5GHz WLAN IEEE 802.11a/n/ac (20MHz): 5180MHz to 5240MHz, 5745MHz to 5825MHz 5GHz WLAN IEEE 802.11n/ac (40MHz): 5190MHz to 5230MHz, 5755MHz to 5795MHz 5GHz WLAN IEEE 802.11ac (80MHz): 5210MHz, 5775MHz | | |
| Max. Reported SAR(1g): (Limit:1.6W/kg) | Band | Mode | Body (W/kg) |
| | NII | 5.2G WLAN ANT A | 0.526 |
| | NII | 5.8G WLAN ANT A | 0.370 |
| FCC Equipment Class | Unlicensed National Information Infrastructure TX (NII) | | |
| Operating Mode: | 802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM | | |
| Antenna Specification: | WLAN: PIFA Antenna | | |
| Hotspot Mode: | Not Support | | |
| DTM Mode: | Not Support | | |
| Note: | 1. Bluetooth SAR was estimated 2. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power | | |



1.2 Test Environment

Ambient conditions in the SAR laboratory:

| Items | Required |
|------------------|----------|
| Temperature (°C) | 18-25 |
| Humidity (%RH) | 30-70 |

1.3 Test Factory

ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration No.: 625569

IC Registration No.: 12108A

A2LA Certificate No.: 4338.01





2. Test Standards and Limits

| No. | Identity | Document Title |
|-----|-------------------------------------|---|
| 1 | 47 CFR Part 2 | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations |
| 2 | ANSI/IEEE Std. C95.1-1992 | IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz |
| 3 | IEEE Std. 1528-2013 | Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques |
| 4 | FCC KDB 447498 D01 v06 | Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies |
| 5 | FCC KDB 865664 D01 v01r04 | SAR Measurement 100 MHz to 6 GHz |
| 6 | FCC KDB 865664 D02 v01r02 | RF Exposure Reporting |
| 7 | FCC KDB 648474 D04 v01r03 | SAR Evaluation Considerations for Wireless Handsets |
| 8 | FCC KDB 248227 D01 Wi-Fi SAR v02r02 | SAR Considerations for 802.11 Devices |
| 9 | FCC KDB 616217 D04 v01r02 | SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers |

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

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.4 | 8.0 | 20.0 |

(B). Limits for General Population/Uncontrolled Exposure (W/kg)

| Whole-Body | Partial-Body | Hands, Wrists, Feet and Ankles |
|------------|--------------|--------------------------------|
| 0.08 | 1.6 | 4.0 |

NOTE: Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational/Controlled Environments:

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

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE

PARTIAL BODY LIMIT

1.6 W/kg

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

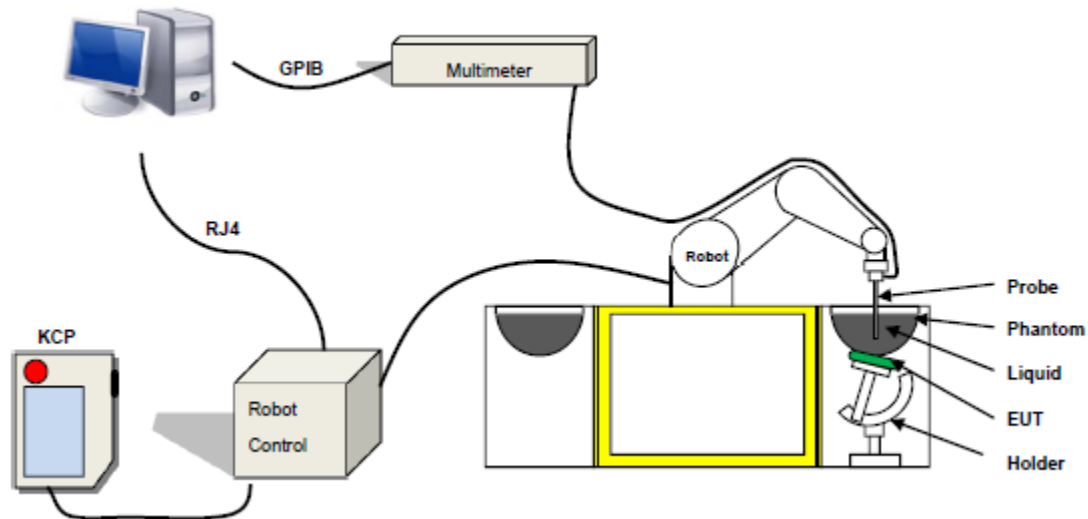
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue,
ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2 SAR System

MVG SAR System Diagram:



COMOSAR is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The COMOSAR system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The Open SAR software computes the results to give a SAR value in a 1g or 10g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 41/18 EPG0334 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 450 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°



Figure 1-MVG COMOSAR Dosimetric E field Dipole

3.2.2 Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.

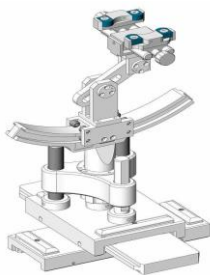
SN 32/14 SAM115



SN 32/14 SAM116



3.2.3 Device Holder



The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.



4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Head Tissue

| Frequency (MHz) | cellulose | DGBE | HEC | NaCl | Preventol | Sugar | X100 | Water | Conductivity | Permittivity |
|-----------------|-----------|------|-----|------|-----------|-------|-------|-------|--------------|--------------|
| | % | % | % | % | % | % | % | % | σ | ϵ_r |
| 750 | 0.2 | / | / | 1.4 | 0.2 | 57.0 | / | 41.1 | 0.89 | 41.9 |
| 835 | 0.2 | / | / | 1.4 | 0.2 | 57.9 | / | 40.3 | 0.90 | 41.5 |
| 900 | 0.2 | / | / | 1.4 | 0.2 | 57.9 | / | 40.3 | 0.97 | 41.5 |
| 1800 | / | 44.5 | / | 0.3 | / | / | 30.45 | 55.2 | 1.4 | 40.0 |
| 1900 | / | 44.5 | / | 0.3 | / | / | 30.45 | 55.2 | 1.4 | 40.0 |
| 2000 | / | 44.5 | / | 0.3 | / | / | / | 55.2 | 1.4 | 40.0 |
| 2450 | / | 44.9 | / | 0.1 | / | / | / | 55.0 | 1.80 | 39.2 |
| 2600 | / | 45.0 | / | 0.1 | / | / | / | 54.9 | 1.96 | 39.0 |

Body Tissue

| Frequency (MHz) | cellulose | DGBE | HEC | NaCl | Preventol | Sugar | X100 | Water | Conductivity | Permittivity |
|-----------------|-----------|------|-----|------|-----------|-------|-------|-------|--------------|--------------|
| | % | % | % | % | % | % | % | % | σ | ϵ_r |
| 750 | 0.2 | / | / | 0.9 | 0.1 | 47.2 | / | 51.7 | 0.96 | 55.5 |
| 835 | 0.2 | / | / | 0.9 | 0.1 | 48.2 | / | 50.8 | 0.97 | 55.2 |
| 900 | 0.2 | / | / | 0.9 | 0.1 | 48.2 | / | 50.8 | 1.05 | 55.0 |
| 1800 | / | 29.4 | / | 0.4 | / | / | 30.45 | 70.2 | 1.52 | 53.3 |
| 1900 | / | 29.4 | / | 0.4 | / | / | 30.45 | 70.2 | 1.52 | 53.3 |
| 2000 | / | 29.4 | / | 0.4 | / | / | / | 70.2 | 1.52 | 53.3 |
| 2450 | / | 31.3 | / | 0.1 | / | / | / | 68.6 | 1.95 | 52.7 |
| 2600 | / | 31.7 | / | 0.1 | / | / | / | 68.2 | 2.16 | 52.3 |

| Tissue dielectric parameters for head and body phantoms | | | | |
|---|--------------|------|----------|------|
| Frequency | ϵ_r | | σ | |
| | S/m | | | |
| | Head | Body | Head | Body |
| 300 | 45.3 | 58.2 | 0.87 | 0.92 |
| 450 | 43.5 | 56.7 | 0.87 | 0.94 |
| 900 | 41.5 | 55.0 | 0.97 | 1.05 |
| 1450 | 40.5 | 54.0 | 1.20 | 1.30 |
| 1800 | 40.0 | 53.3 | 1.40 | 1.52 |
| 2450 | 39.2 | 52.7 | 1.80 | 1.95 |
| 3000 | 38.5 | 52.0 | 2.40 | 2.73 |
| 5800 | 35.3 | 48.2 | 5.27 | 6.00 |

**LIQUID MEASUREMENT RESULTS**

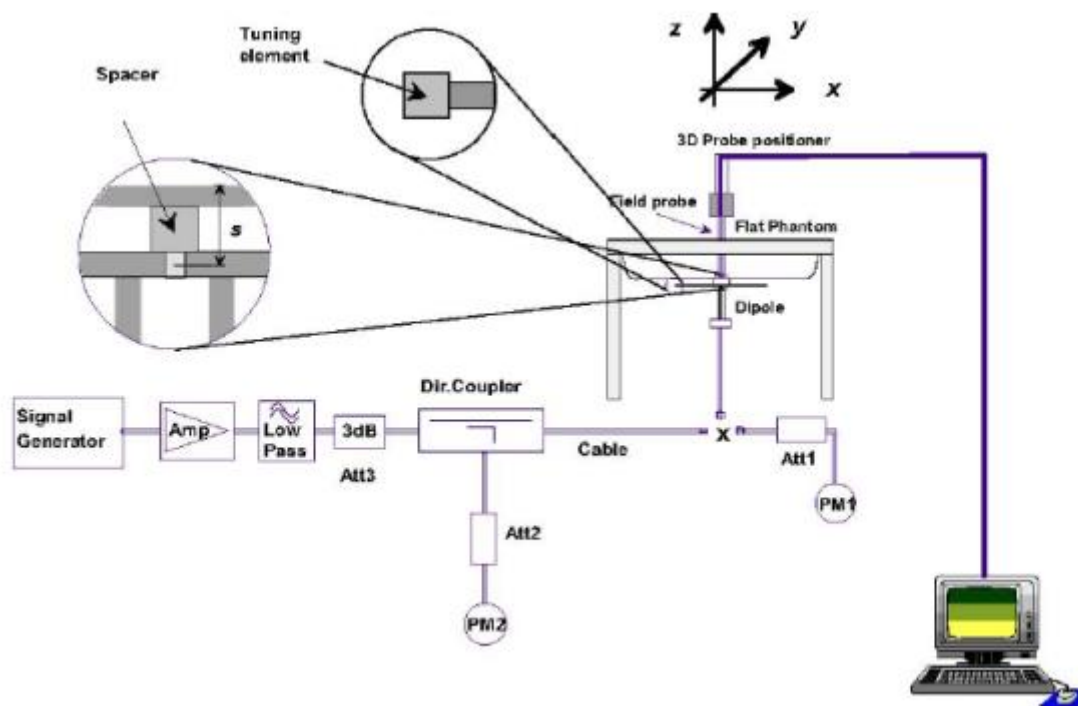
| Date | Ambient condition | | Body Simulating Liquid | | Parameters | Target | Measured | Deviation [%] | Limited [%] |
|------------|-------------------|--------------|------------------------|------------|---------------|--------|----------|---------------|-------------|
| | Temp. [°C] | Humidity [%] | Frequency | Temp. [°C] | | | | | |
| 2020-06-16 | 23.0 | 57 | 5200 MHz | 22.8 | Permittivity: | 49.0 | 48.7 | -0.61 | ±5 |
| | | | | | Conductivity: | 5.30 | 5.21 | -1.70 | ±5 |
| 2020-06-16 | 23.0 | 57 | 5800 MHz | 22.8 | Permittivity: | 48.2 | 48.91 | 1.47 | ±5 |
| | | | | | Conductivity: | 6.00 | 6.08 | 1.33 | ±5 |



5. SAR System Validation

5.1 Validation System

Each MVG system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the MVG software, enable the user to conduct the system performance check and system validation. System kit includes a dipole, and dipole device holder. The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system validation setup is shown as below.



5.2 Validation Result

Comparing to the original SAR value provided by MVG, the validation data should be within its specification of 10 %.

| Freq.(MHz) | Power(mW) | Tested Value (W/Kg) | Normalized SAR (W/kg/W) | Target (W/Kg/W) | Tolerance (%) | Date |
|------------|-----------|---------------------|-------------------------|-----------------|---------------|------------|
| 5200 Body | 100 | 15.805 | 158.05 | 159 | -0.60 | 2020-06-16 |
| 5800 Body | 100 | 18.204 | 182.04 | 181.2 | 0.46 | 2020-06-16 |

Note:

1. The tolerance limit of System validation $\pm 10\%$.
2. The dipole input power (forward power) was 100 mW.
3. The results are normalized to 1 W input power.



6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:

The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

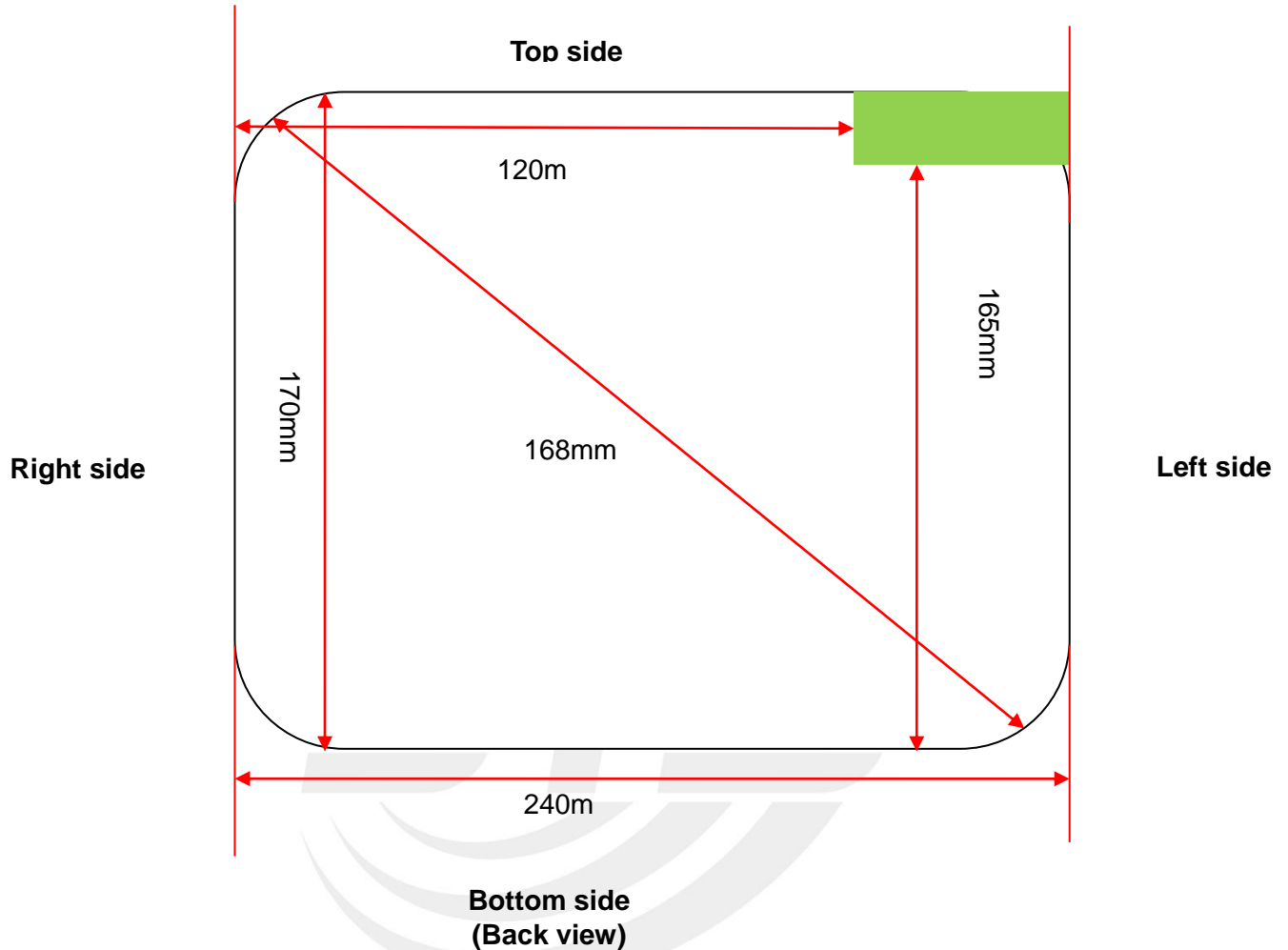
➤ Area Scan & Zoom Scan

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below.

When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7. EUT Antenna Location Sketch

It is a Tablet PC, support 5G WIFI mode.



 WLAN Antenna

Note 1: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.



7.1 SAR test exclusion consider table

According with FCC KDB 447498 D01, appendix A, <SAR test exclusion thresholds for 100MHz ~ 6GHz and ≤50mm> table, this device SAR test configurations consider as following:

| Band | Test position configurations | | | | |
|------|------------------------------|------------|-----------|----------|-------------|
| | Back | Right edge | Left edge | Top edge | Bottom edge |
| WLAN | <5mm | 120mm | <5mm | <5mm | 165mm |
| | Yes | No | Yes | Yes | No |

Note:

1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. per KDB 447498 D01, standalone SAR test exclusion threshold is applied; if the distance of the antenna to the user is <5mm, 5mm is user to determine SAR exclusion threshold
4. per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distance ≤50mm are determined by:

$$[(\text{max power of channel, including tune-up tolerance, Mw}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \leq 3.0$$
for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, f(GHz) is the RF channel transmit frequency in GHz. Power and distance are rounded to the nearest mW and mm before calculation. The result is rounded to one decimal place for comparison
For <50mm distance, we just calculate mW of the exclusion threshold value(3.0)to do compare
5. per KDB 447498 D01, at 100 MHz to 6GHz and for test separation distances >50mm, the SAR test exclusion threshold is determined according to the following
 - a) [threshold at 50mm in step 1]+(test separation distance -50mm)*(f (MHz)/150)]mW, at 100 MHz to 1500 MHz
 - b) [threshold at 50mm in step1]+(test separation distance -50mm) *10]mW at > 1500MHz and ≤6GHz
6. Per KDB 447498 D02, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/ HSUPA/DC-HSDPA output power is <0.25db higher than RMC 12.2Kbps, or reported SAR with RMC 12.2kbps setting is ≤1.2W/Kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
7. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion 8. for each frequency band ,testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 1/4db higher than those measured at the lower data rate than 11b mode ,thus the SAR can be excluded.

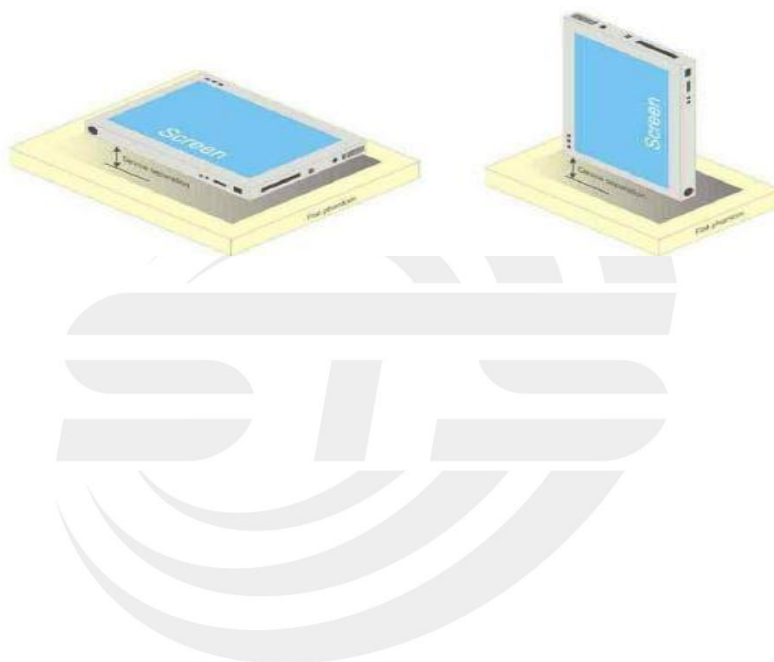
8. EUT Test Position

This EUT was tested in Front Face and Rear Face.

8.1 Define Two Imaginary Lines on the Handset

Body-worn Position Conditions:

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative *test separation distance* configuration may be used to support both SAR conditions. When the *reported SAR* for a body-worn accessory, measured without a headset connected to the handset, is $> 1.2 \text{ W/kg}$, the highest *reported SAR* configuration for that wireless mode and frequency band should be repeated for the body-worn accessory with a headset attached to the handset.





9. Uncertainty

9.1 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEEE 1528: 2013. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Uncertainty Component | Tol (+-%) | Prob. Dist. | Div. | Ci (1g) | Ci (10g) | 1g Ui (+-%) | 10g Ui (+-%) | vi |
|---|-----------|-------------|------------|--------------|--------------|-------------|--------------|----|
| Measurement System | | | | | | | | |
| Probe calibration | 5.831 | N | 1 | 1 | 1 | 5.83 | 5.83 | ∞ |
| Axial Isotropy | 0.695 | R | $\sqrt{3}$ | $\sqrt{0.5}$ | $\sqrt{0.5}$ | 0.28 | 0.28 | ∞ |
| Hemispherical Isotropy | 1.045 | R | $\sqrt{3}$ | $\sqrt{0.5}$ | $\sqrt{0.5}$ | 0.43 | 0.43 | ∞ |
| Boundary effect | 1.0 | R | $\sqrt{3}$ | 1 | 1 | 0.58 | 0.58 | ∞ |
| Linearity | 0.685 | R | $\sqrt{3}$ | 1 | 1 | 0.40 | 0.40 | ∞ |
| System detection limits | 1.0 | R | $\sqrt{3}$ | 1 | 1 | 0.58 | 0.58 | ∞ |
| Modulation response | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.73 | 1.73 | ∞ |
| Readout Electronics | 0.021 | N | 1 | 1 | 1 | 0.021 | 0.021 | ∞ |
| Response Time | 0 | R | $\sqrt{3}$ | 1 | 1 | 0 | 0 | ∞ |
| Integration Time | 1.4 | R | $\sqrt{3}$ | 1 | 1 | 0.81 | 0.81 | ∞ |
| RF ambient conditions-Noise | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.73 | 1.73 | ∞ |
| RF ambient conditions-reflections | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.73 | 1.73 | ∞ |
| Probe positioner mechanical tolerance | 1.4 | R | $\sqrt{3}$ | 1 | 1 | 0.81 | 0.81 | ∞ |
| Probe positioning with respect to phantom shell | 1.4 | R | $\sqrt{3}$ | 1 | 1 | 0.81 | 0.81 | ∞ |
| Post-processing | 2.3 | R | $\sqrt{3}$ | 1 | 1 | 1.33 | 1.33 | ∞ |
| Test sample Related | | | | | | | | |
| Test sample positioning | 2.6 | N | 1 | 1 | 1 | 2.6 | 2.6 | ∞ |
| Device holder uncertainty | 3 | N | 1 | 1 | 1 | 3 | 3 | ∞ |
| SAR drift measurement | 5 | R | $\sqrt{3}$ | 1 | 1 | 2.89 | 2.89 | ∞ |
| SAR scaling | 5 | R | $\sqrt{3}$ | 1 | 1 | 2.89 | 2.89 | ∞ |
| Phantom and tissue parameters | | | | | | | | |
| Phantom uncertainty (shape and thickness uncertainty) | 4 | R | $\sqrt{3}$ | 1 | 1 | 2.31 | 2.31 | ∞ |
| Uncertainty in SAR correction for deviations in permittivity and conductivity | 1.9 | N | 1 | 1 | 0.84 | 1.90 | 1.60 | ∞ |
| Liquid conductivity (temperature uncertainty) | 2.5 | R | $\sqrt{3}$ | 0.78 | 0.71 | 1.13 | 1.02 | ∞ |
| Liquid conductivity (measured) | 4 | N | 1 | 0.78 | 0.71 | 3.12 | 2.84 | M |
| Liquid permittivity (temperature uncertainty) | 2.5 | R | $\sqrt{3}$ | 0.23 | 0.26 | 0.33 | 0.38 | ∞ |
| Liquid permittivity (measured) | 5 | N | 1 | 0.23 | 0.26 | 1.15 | 1.30 | M |
| Combined Standard Uncertainty | | RSS | | | | 9.79 | 9.59 | |
| Expanded Uncertainty (95% Confidence interval) | | K=2 | | | | 19.58 | 19.18 | |



9.2 System validation Uncertainty

| Uncertainty Component | Tol (+-%) | Prob. Dist. | Div. | Ci (1g) | Ci (10g) | 1g Ui (+-%) | 10g Ui (+-%) | vi |
|---|-----------|-------------|------------|---------|----------|-------------|--------------|----|
| Measurement System | | | | | | | | |
| Probe calibration | 5.831 | N | 1 | 1 | 1 | 5.83 | 5.83 | ∞ |
| Axial Isotropy | 0.695 | R | $\sqrt{3}$ | 1 | 1 | 0.40 | 0.40 | ∞ |
| Hemispherical Isotropy | 1.045 | R | $\sqrt{3}$ | 0 | 0 | 0.00 | 0.00 | ∞ |
| Boundary effect | 1.0 | R | $\sqrt{3}$ | 1 | 1 | 0.58 | 0.58 | ∞ |
| Linearity | 0.685 | R | $\sqrt{3}$ | 1 | 1 | 0.40 | 0.40 | ∞ |
| System detection limits | 1.0 | R | $\sqrt{3}$ | 1 | 1 | 0.58 | 0.58 | ∞ |
| Modulation response | 3.0 | R | $\sqrt{3}$ | 0 | 0 | 0.00 | 0.00 | ∞ |
| Readout Electronics | 0.021 | N | 1 | 1 | 1 | 0.021 | 0.021 | ∞ |
| Response Time | 0.0 | R | $\sqrt{3}$ | 0 | 0 | 0.00 | 0.00 | ∞ |
| Integration Time | 1.4 | R | $\sqrt{3}$ | 0 | 0 | 0.00 | 0.00 | ∞ |
| RF ambient conditions-Noise | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.73 | 1.73 | ∞ |
| RF ambient conditions-reflections | 3.0 | R | $\sqrt{3}$ | 1 | 1 | 1.73 | 1.73 | ∞ |
| Probe positioner mechanical tolerance | 1.4 | R | $\sqrt{3}$ | 1 | 1 | 0.81 | 0.81 | ∞ |
| Probe positioning with respect to phantom shell | 1.4 | R | $\sqrt{3}$ | 1 | 1 | 0.81 | 0.81 | ∞ |
| Post-Processing | 2.3 | R | $\sqrt{3}$ | 1 | 1 | 1.33 | 1.33 | ∞ |
| System validation source | | | | | | | | |
| Deviation of experimental dipole from numerical dipole | 5.0 | N | 1 | 1 | 1 | 5.00 | 5.00 | ∞ |
| Input power and SAR drift measurement | 5.0 | R | $\sqrt{3}$ | 1 | 1 | 2.89 | 2.89 | ∞ |
| Other source contribution Uncertainty | 2.0 | R | $\sqrt{3}$ | 1 | 1 | 1.15 | 1.15 | ∞ |
| Phantom and set-up | | | | | | | | |
| Phantom uncertainty (shape and thickness uncertainty) | 4.0 | R | $\sqrt{3}$ | 1 | 1 | 2.31 | 2.31 | ∞ |
| Uncertainty in SAR correction for deviations in permittivity and conductivity | 1.9 | N | 1 | 1 | 0.84 | 1.90 | 1.60 | ∞ |
| Liquid conductivity (temperature uncertainty) | 2.5 | R | $\sqrt{3}$ | 0.78 | 0.71 | 1.13 | 1.02 | ∞ |
| Liquid conductivity (measured) | 4 | N | 1 | 0.78 | 0.71 | 3.12 | 2.84 | M |
| Liquid permittivity (temperature uncertainty) | 2.5 | R | $\sqrt{3}$ | 0.23 | 0.26 | 0.33 | 0.38 | ∞ |
| Liquid permittivity (measured) | 5 | N | 1 | 0.23 | 0.26 | 1.15 | 1.30 | M |
| Combined Standard Uncertainty | | RSS | | | | 9.718 | 9.517 | |
| Expanded Uncertainty (95% Confidence interval) | | K=2 | | | | 19.44 | 19.04 | |



10. Conducted Power Measurement

10.1 Test Result

WLAN (5.2Gband)

| Mode | Channel Number | Frequency (MHz) | Average Power (dBm) |
|-----------------|----------------|-----------------|---------------------|
| 802.11a | 36 | 5180 | 12.067 |
| | 40 | 5200 | 9.67 |
| | 48 | 5240 | 10.042 |
| 802.11 n-HT20 | 36 | 5180 | 11.465 |
| | 40 | 5200 | 9.417 |
| | 48 | 5240 | 10.077 |
| 802.11 n-HT40 | 38 | 5190 | 11.017 |
| | 46 | 5230 | 9.392 |
| 802.11 ac-VHT20 | 36 | 5180 | 10.379 |
| | 40 | 5200 | 11.344 |
| | 48 | 5240 | 9.546 |
| 802.11 ac-VHT40 | 38 | 5190 | 9.797 |
| | 46 | 5230 | 10.498 |
| 802.11 ac-VHT80 | 42 | 5210 | 9.143 |

WLAN (5.8Gband)

| Mode | Channel Number | Frequency (MHz) | Average Power (dBm) |
|------------------|----------------|-----------------|---------------------|
| 802.11a | 149 | 5745 | 11.399 |
| | 157 | 5785 | 10.729 |
| | 165 | 5825 | 10.915 |
| 802.11 n20-HT0 | 149 | 5745 | 10.849 |
| | 157 | 5785 | 10.648 |
| | 165 | 5825 | 11.034 |
| 802.11 n40-HT0 | 151 | 5755 | 11.056 |
| | 159 | 5795 | 9.625 |
| 802.11 ac20-VHT0 | 149 | 5745 | 10.987 |
| | 157 | 5785 | 10.922 |
| | 165 | 5825 | 10.57 |
| 802.11 ac40-VHT0 | 151 | 5755 | 11.011 |
| | 159 | 5795 | 11.328 |
| 802.11 ac80-VHT0 | 155 | 5775 | 9.697 |



10.2 Tune-up Power

WLAN (5.2Gband)

| Mode | Test channel | WLAN(AVG) |
|------------------|--------------|-----------|
| 802.11a | Low | 12±1dBm |
| | Mid | 9±1dBm |
| | High | 10±1dBm |
| 802.11 n20-HT0 | Low | 11±1dBm |
| | Mid | 9±1dBm |
| | High | 10±1dBm |
| 802.11 n40-HT0 | Low | 11±1dBm |
| | High | 9±1dBm |
| 802.11 ac20-VHT0 | Low | 10±1dBm |
| | Mid | 11±1dBm |
| | High | 9±1dBm |
| 802.11 ac40-VHT0 | Low | 9±1dBm |
| | High | 10±1dBm |
| 802.11 ac80-VHT0 | / | 9±1dBm |

WLAN (5.8Gband)

| Mode | Test channel | WLAN(AVG) |
|------------------|--------------|-----------|
| 802.11a | Low | 11±1dBm |
| | Mid | 10±1dBm |
| | High | 10±1dBm |
| 802.11 n20-HT0 | Low | 10±1dBm |
| | Mid | 10±1dBm |
| | High | 11±1dBm |
| 802.11 n40-HT0 | Low | 11±1dBm |
| | High | 9±1dBm |
| 802.11 ac20-VHT0 | Low | 10±1dBm |
| | Mid | 10±1dBm |
| | High | 10±1dBm |
| 802.11 ac40-VHT0 | Low | 11±1dBm |
| | High | 11±1dBm |
| 802.11 ac80-VHT0 | / | 9±1dBm |

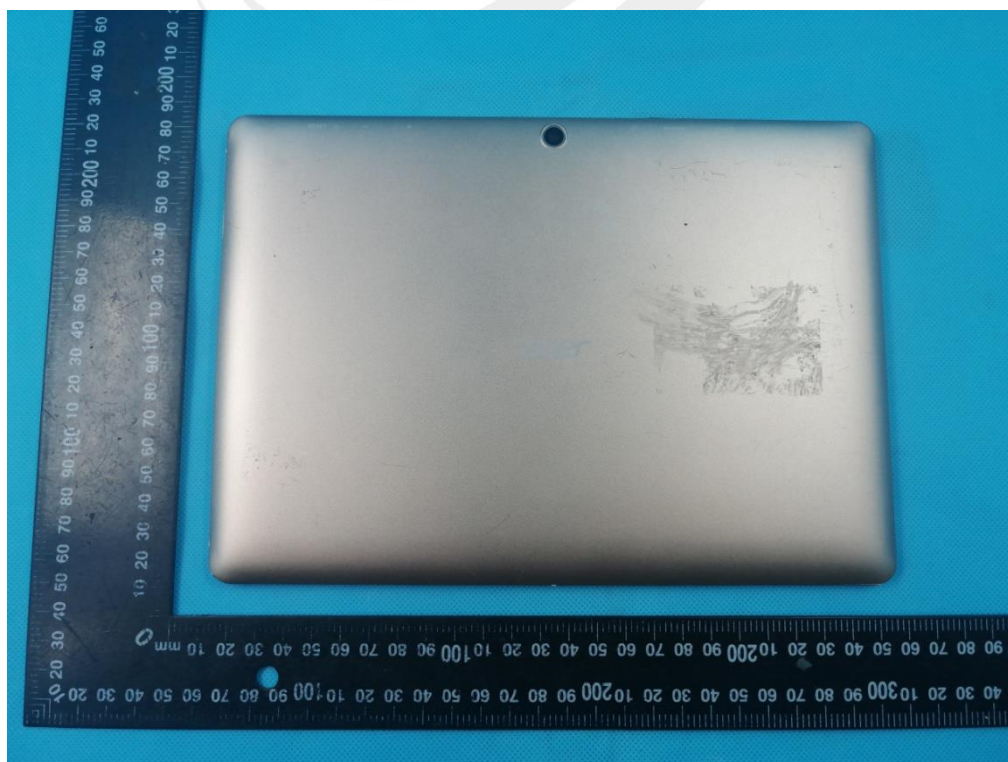
11. EUT and Test Setup Photo

11.1 EUT Photo

Front side



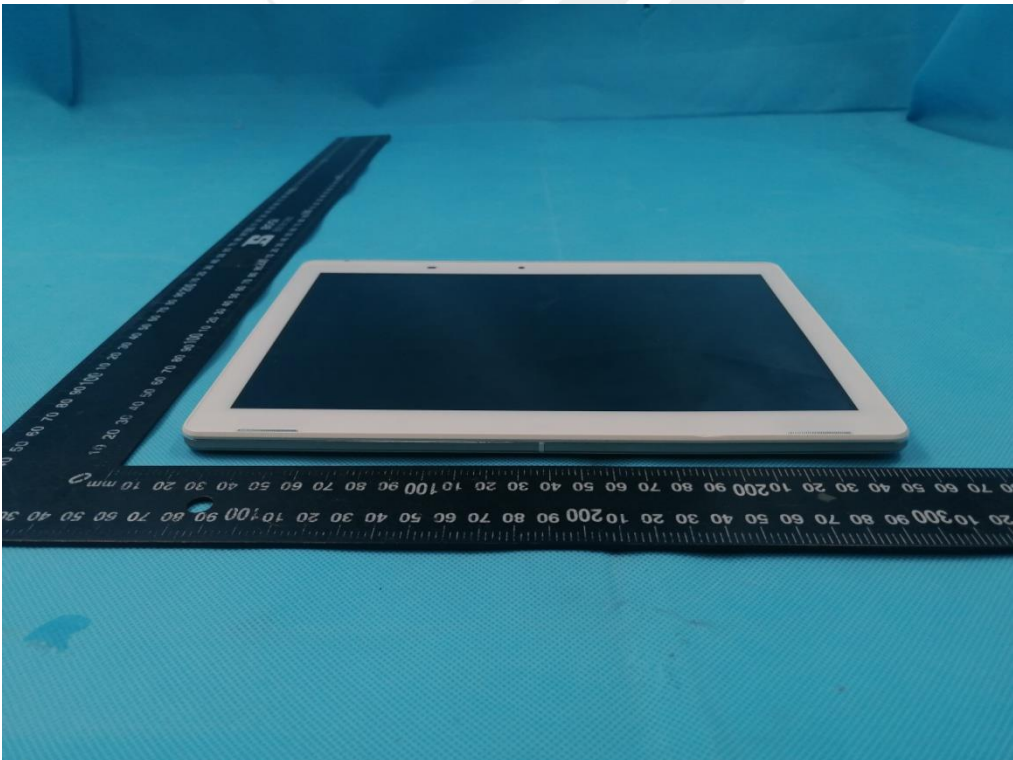
Back side



Top Edge



Bottom Edge



Left Edge



Right Edge



11.2 Setup Photo

Body Left(separation distance is 0mm)



Top Edge(separation distance is 0mm)





Back Edge(separation distance is 0mm)



Liquid depth (15 cm)





12. SAR Result Summary

12.1 Body-worn and Hotspot SAR

| Band | Mode | Test Position | Ch.. | Result 1g (W/Kg) | Power Drift(%) | Max.Turn-up Power(dBm) | Meas.Output Power(dBm) | Duty cycle (%) | Scaled SAR (W/Kg) | Meas. No. |
|-----------|----------|---------------|------|------------------|----------------|------------------------|------------------------|----------------|-------------------|-----------|
| 5.2G WLAN | 802.11 a | Back side | 36 | 0.433 | -1.09 | 13.00 | 12.07 | 100 | 0.536 | 1 |
| | | Left Edge | 36 | 0.284 | 2.69 | 13.00 | 12.07 | 100 | 0.352 | / |
| | | Top Edge | 36 | 0.178 | -3.65 | 13.00 | 12.07 | 100 | 0.221 | / |

| Band | Mode | Test Position | Ch. | Result 1g (W/Kg) | Power Drift(%) | Max.Turn-up Power(dBm) | Meas.Output Power(dBm) | Duty cycle (%) | Scaled SAR (W/Kg) | Meas. No. |
|-----------|---------|---------------|-----|------------------|----------------|------------------------|------------------------|----------------|-------------------|-----------|
| 5.8G WLAN | 802.11a | Back side | 149 | 0.322 | -1.38 | 12.00 | 11.40 | 100 | 0.370 | 2 |
| | | Left Edge | 149 | 0.278 | 3.90 | 12.00 | 11.40 | 100 | 0.319 | / |
| | | Top Edge | 149 | 0.185 | 1.76 | 12.00 | 11.40 | 100 | 0.212 | / |

Note:

- The test separation of all above table is 0mm.
- Per KDB 447498 D01v05r01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - For WWAN: Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor



13. Equipment List

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last Calibration | Calibrated Until |
|---------------------------------------|--------------|---------------------|--------------------------|------------------|------------------|
| 2450MHzDipole | MVG | SID2450 | SN 30/14 DIP2G450-335 | 2019.07.14 | 2020.08.14 |
| Waveguide | SATIMO | SWG5500 | SN 13/14 WGA32 | 2017.08.15 | 2020.08.14 |
| E-Field Probe | MVG | SSE2 | SN 41/18 EPGO334 | 2020.06.03 | 2021.06.02 |
| Dielectric Probe Kit | MVG | SCLMP | SN 32/14 OCPG67 | 2019.11.25 | 2020.11.24 |
| Antenna | MVG | ANTA3 | SN 07/13 ZNTA52 | N/A | N/A |
| Phantom1 | MVG | SAM | SN 32/14 SAM115 | N/A | N/A |
| Phantom2 | MVG | SAM | SN 32/14 SAM116 | N/A | N/A |
| Phone holder | MVG | N/A | SN 32/14 MSH97 | N/A | N/A |
| Laptop holder | MVG | N/A | SN 32/14 LSH29 | N/A | N/A |
| Attenuator | Agilent | 99899 | DC-18GHz | N/A | N/A |
| Directional coupler | Narda | 4226-20 | 3305 | N/A | N/A |
| Network Analyzer | Agilent | 8753ES | US38432810 | 2019.10.11 | 2020.10.10 |
| Multi Meter | Keithley | Multi Meter 2000 | 4050073 | 2019.10.11 | 2020.10.10 |
| Signal Generator | Agilent | N5182A | MY50140530 | 2019.10.09 | 2020.10.08 |
| Wireless Communication Test Set | Agilent | 8960-E5515C | MY48360751 | 2019.10.09 | 2020.10.08 |
| Wireless Communication Test Set | R&S | CMW500 | 117239 | 2019.10.09 | 2020.10.08 |
| Power Amplifier | DESAY | ZHL-42W | 9638 | 2019.10.09 | 2020.10.08 |
| Power Meter | R&S | NRP | 100510 | 2019.10.16 | 2020.10.15 |
| Power Meter | Agilent | E4419B | QB43312265 | 2019.10.12 | 2020.10.11 |
| Power Sensor | R&S | NRP-Z11 | 101919 | 2019.10.12 | 2020.10.11 |
| Power Sensor | HP | E9300A | US39210170 | 2019.10.09 | 2020.10.08 |
| Temperature hygrometer | SuWei | SW-108 | N/A | 2019.10.13 | 2020.10.12 |
| Thermograph | Elitech | RC-4 | S/N EF7176501537 | 2019.10.11 | 2020.10.10 |

Note:

Per KDB 865664 D01, Dipole SAR Validation Verification, STS LAB has adopted 3 years calibration intervals. On an annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole
2. System validation with specific dipole is within 10% of calibrated value
Return-loss in within 20% of calibrated measurement

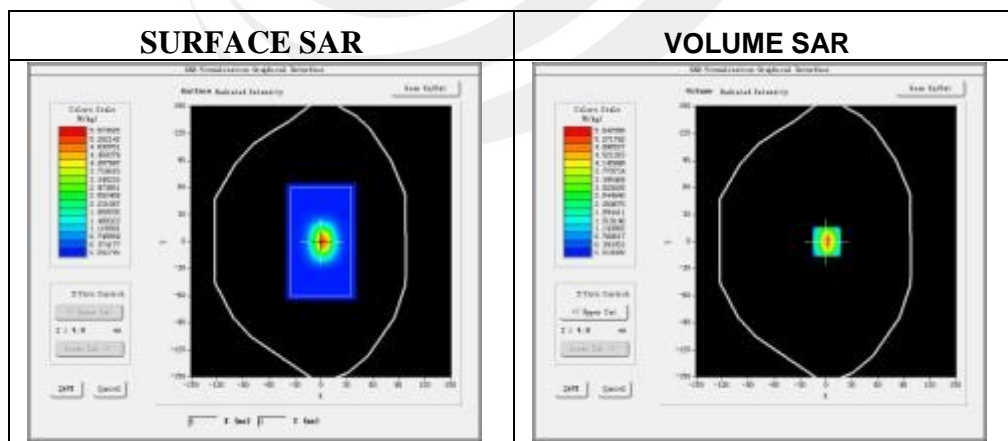
Appendix A. System Validation Plots

System Performance Check Data (5200MHz Body)

Type: Phone measurement (Complete)
 Area scan resolution: dx=8mm, dy=8mm
 Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
 Date of measurement: 2020-06-16

Experimental conditions.

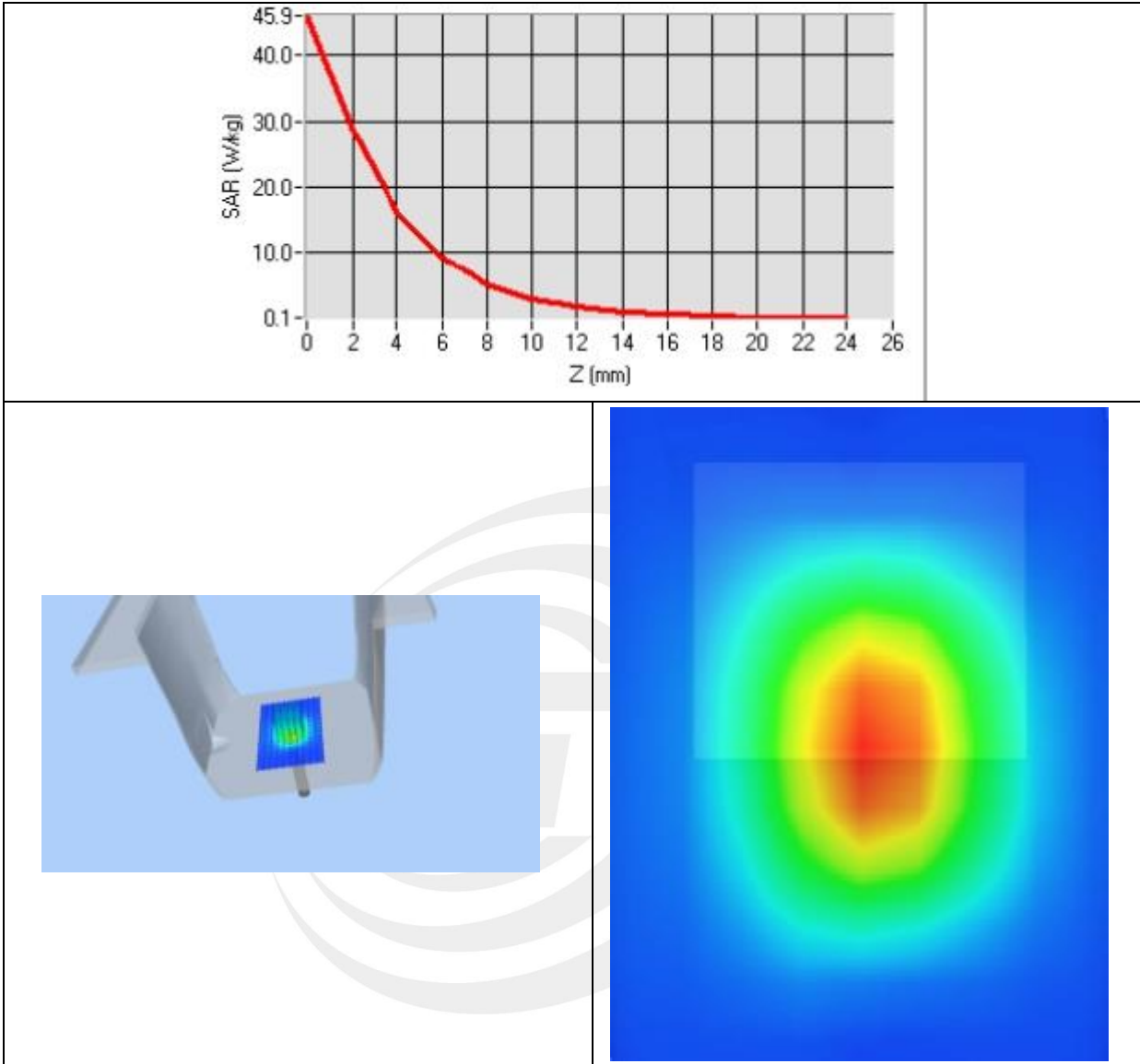
| | |
|-----------------------|------------------|
| Device Position | Validation plane |
| Band | 5200 MHz |
| Channels | - |
| Signal | CW |
| Frequency (MHz) | 5200 |
| Relative permittivity | 48.7 |
| Conductivity (S/m) | 5.21 |
| Power drift (%) | -0.61 |
| Probe | SN 41/18 EPGO334 |
| ConvF | 1.92 |
| Crest factor: | 1:1 |



Maximum location: X=7.00, Y=2.00

| | |
|----------------|-----------|
| SAR 10g (W/Kg) | 5.754573 |
| SAR 1g (W/Kg) | 15.868254 |

Z Axis Scan



System Performance Check Data (5800MHz Body)

Type: Dipole measurement (Complete)

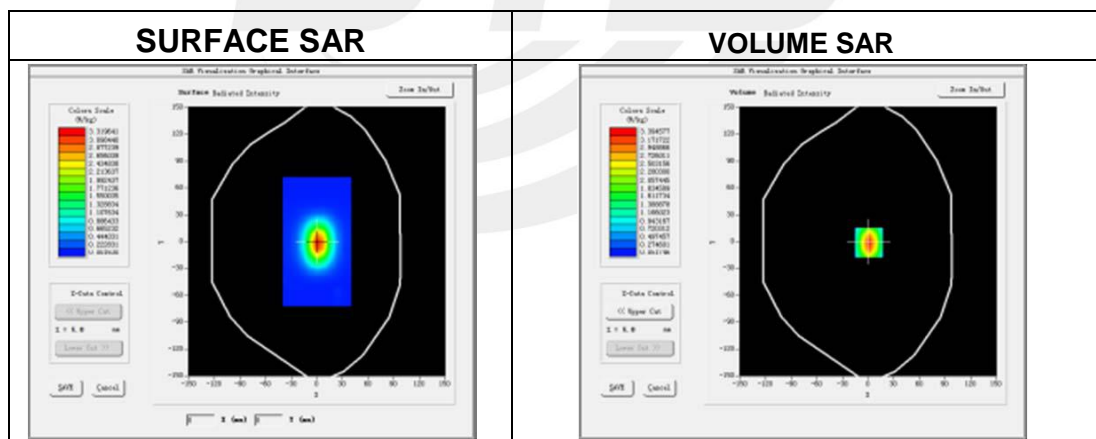
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2020-06-16

Experimental conditions.

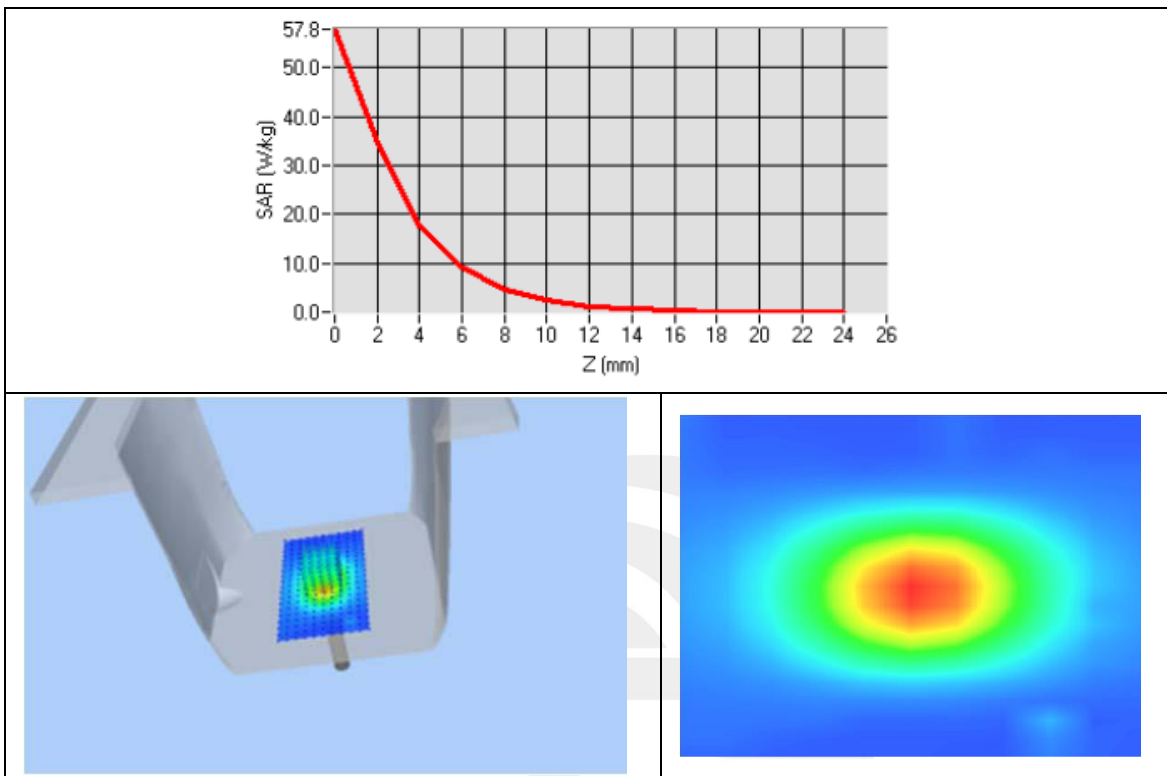
| | |
|-----------------------|------------------|
| Device Position | Validation plane |
| Band | 5800 MHz |
| Channels | - |
| Signal | CW |
| Frequency (MHz) | 5800 |
| Relative permittivity | 48.91 |
| Conductivity (S/m) | 6.08 |
| Power drift (%) | 1.47 |
| Probe | SN 41/18 EPGO334 |
| ConvF | 2.16 |
| Crest factor: | 1:1 |



Maximum location: X=7.00, Y=2.00

| | |
|----------------|-----------|
| SAR 10g (W/Kg) | 6.165448 |
| SAR 1g (W/Kg) | 18.354458 |

Z Axis Scan



Appendix B. SAR Test Plots

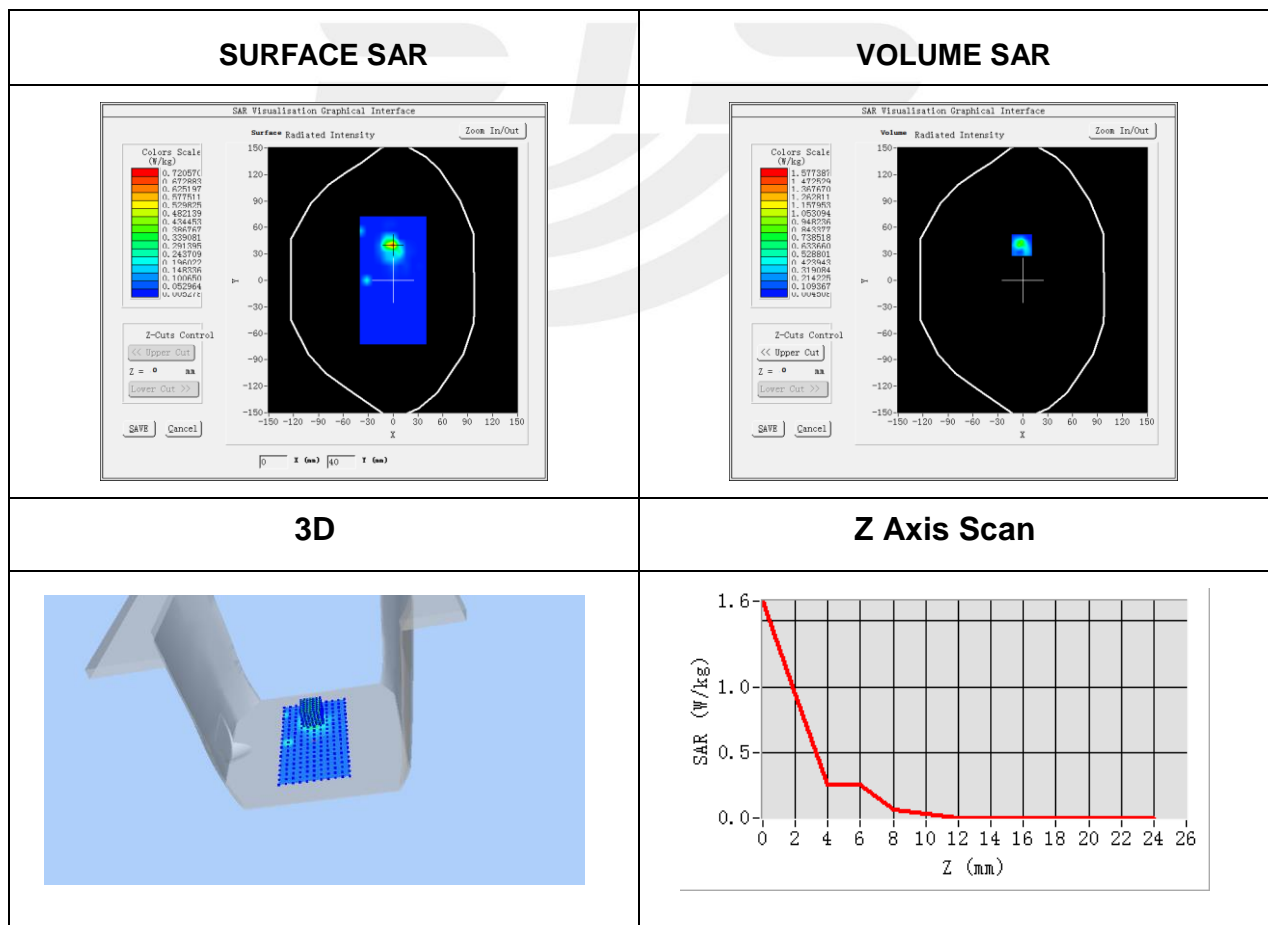
Plot 1: DUT: Tablet PC; EUT Model: Acer One 10 T8-129L

| | |
|-----------------------------------|--|
| Test Date | 2020-06-16 |
| Probe | SN 41/18 EPGO334 |
| ConvF | 1.92 |
| Area Scan | dx=8mm dy=8mm, h= 5.00 mm |
| Zoom Scan | 7x7x12,dx=4mm dy=4mm dz=2mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm |
| Phantom | Validation plane |
| Device Position | Body back |
| Band | IEEE 802.11ac ISM |
| Signal | IEEE802.ac (Crest factor: 1.0) |
| Frequency (MHz) | 5180 |
| Relative permittivity (real part) | 48.7 |
| Conductivity (S/m) | 5.21 |
| Variation (%) | 1.980000 |

Maximum location: X=-1.00, Y=40.00

SAR Peak: 1.82 W/kg

| | |
|----------------|----------|
| SAR 10g (W/Kg) | 0.107566 |
| SAR 1g (W/Kg) | 0.432783 |



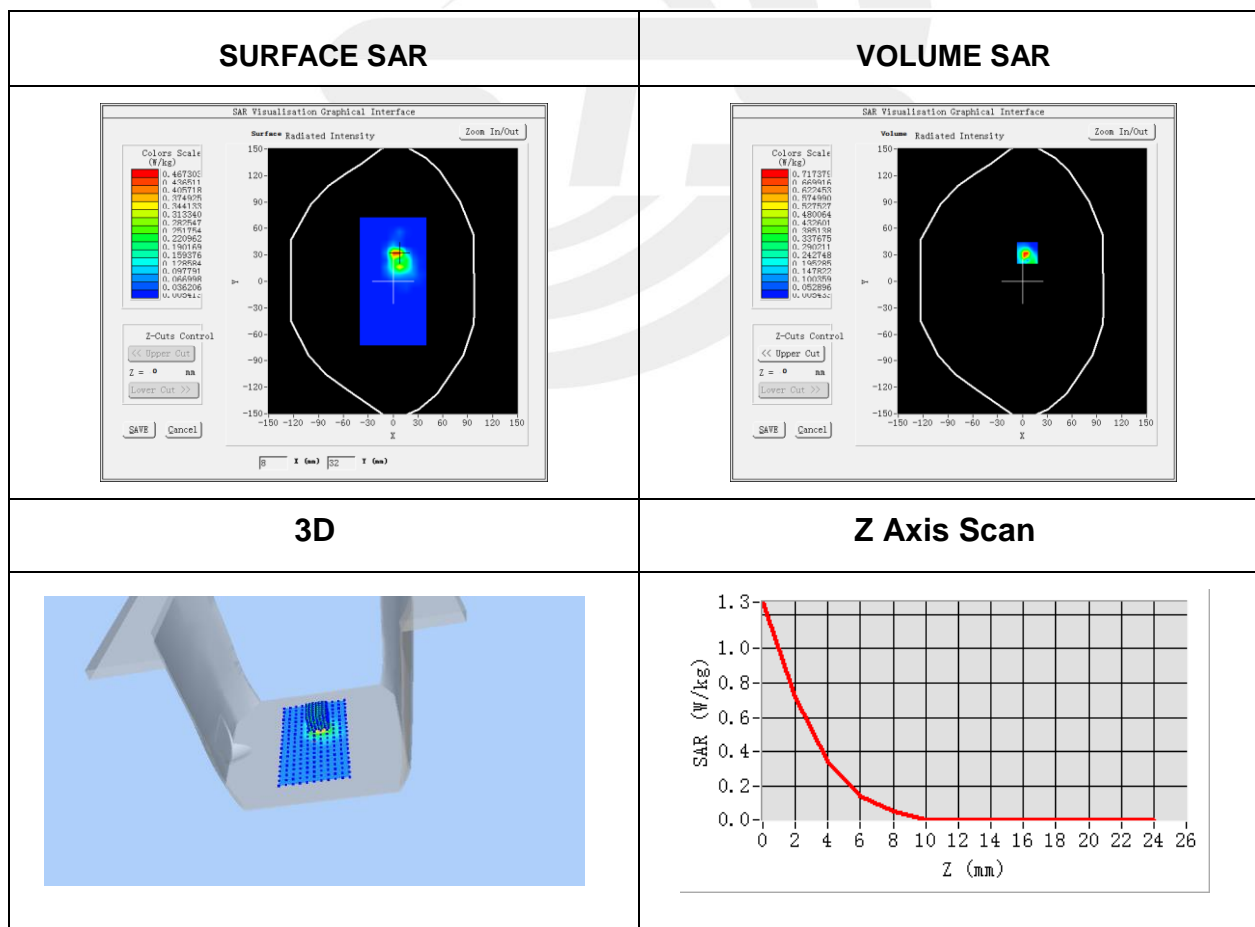
Plot 2: DUT: Tablet PC; EUT Model: Acer One 10 T8-129L

| | |
|-----------------------------------|---|
| Test Date | 2020-06-16 |
| Probe | SN 41/18 EPGO334 |
| ConvF | 1.92 |
| Area Scan | dx=8mm dy=8mm, h= 5.00 mm |
| Zoom Scan | 7x7x12,dx=4mm dy=4mm dz=2mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm |
| Phantom | Validation plane |
| Device Position | Body back |
| Band | IEEE 802.11a ISM |
| Signal | IEEE802.a (Crest factor: 1.0) |
| Frequency (MHz) | 5745 |
| Relative permittivity (real part) | 48.91 |
| Conductivity (S/m) | 6.08 |
| Variation (%) | -0.78 |

Maximum location: X=6.00, Y=32.00

SAR Peak: 1.51 W/kg

| | |
|----------------|----------|
| SAR 10g (W/Kg) | 0.078504 |
| SAR 1g (W/Kg) | 0.321568 |



Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.



※※※※END OF THE REPORT※※※※

