Date of Issue: August 26, 2016

Report No .: C160630R01-SF

ANSI/IEEE Std. C95.1-1992 In accordance with the requirements of SAR Report and Order: ET Docket 93-62 ; FCC 47 CFR Part 2 ( 2.1093)

# SAR TEST REPORT

For

Product Name: Xiaoyi Mirror-less Camera Brand Name: YI Model No.: YI-M1 Series Model: N/A FCC ID: 2AFIB-DCM116 Test Report Number: C160630R01-SF

**Issued for** 

Shanghai Xiaoyi Technology Co., Ltd. 6F,Building E,No.2889,Jinke Road,Shanghai,China

Issued by

**Compliance Certification Services Inc.** 

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Page 1 of 35

Report No .: C160630R01-SF

# **Revision History**

| Revision | REPORT NO.    | Date            | Page<br>Revise | Contents |
|----------|---------------|-----------------|----------------|----------|
| Original | C160630R01-SF | August 26, 2016 | N/A            | N/A      |

# Compliance Certification Services(KunShan)Inc.Date of Issue: August 26, 2016Report No .: C160630

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### **TABLE OF CONTENTS**

| 1.  | CERTIFICATE OF COMPLIANCE (SAR EVALUATION)                   | 4  |  |  |  |  |
|-----|--|----|--|--|--|--|
| 2.  | EUT DESCRIPTION  | 5  |  |  |  |  |
|     | 2.1 MAXIMUM RF OUTPUT POWER WITH TEST CHANNEL                | 6  |  |  |  |  |
|     | 2.2 STATEMENT OF COMPLIANCE                                  | 7  |  |  |  |  |
| 3.  | REQUIREMENTS FOR COMPLIANCE TESTING DEFINED BY THE FCC OR IC | 8  |  |  |  |  |
| 4.  | TEST METHODOLOGY   | 8  |  |  |  |  |
| 5.  | TEST CONFIGURATION   | 8  |  |  |  |  |
| 6.  | DOSIMETRIC ASSESSMENT SETUP                                  | 9  |  |  |  |  |
|     | 6.1 MEASUREMENT SYSTEM DIAGRAM                               | 10 |  |  |  |  |
|     | 6.2 SYSTEM COMPONENTS  | 11 |  |  |  |  |
| 7.  | EVALUATION PROCEDURES  | 14 |  |  |  |  |
| 8.  | MEASUREMENT UNCERTAINTY                                      | 18 |  |  |  |  |
| 9.  | EXPOSURE LIMIT   | 19 |  |  |  |  |
| 10. | MEASUREMENT RESULTS  | 20 |  |  |  |  |
|     | 10.1 TEST LIQUIDS CONFIRMATION                               | 20 |  |  |  |  |
|     | 10.2 LIQUID MEASUREMENT RESULTS                              | 21 |  |  |  |  |
|     | 10.3 SYSTEM PERFORMANCE CHECK                                | 22 |  |  |  |  |
|     | 10.4 EUT TUNE-UP PROCEDURES AND TEST MODE                    | 24 |  |  |  |  |
|     | 10.5 STANDALONE SAR TEST EXCLUSION                           | 25 |  |  |  |  |
|     | 10.6 SAR TEST CONFIGURATIONS                                 | 26 |  |  |  |  |
|     | 10.7 ANTENNA LOCATION  | 27 |  |  |  |  |
|     | 10.8 BODY TEST EXCLUSION THRESHOLDS                          | 28 |  |  |  |  |
|     | 10.9 SAR MEASUREMENT RESULTS                                 | 29 |  |  |  |  |
|     | 10.10 REPEATED SAR MEASUREMENT                               | 30 |  |  |  |  |
| EQ  | UIPMENT LIST & CALIBRATION STATUS                            | 31 |  |  |  |  |
| 11. | FACILITIES   | 32 |  |  |  |  |
| 12. | REFERENCES   | 32 |  |  |  |  |
| Ар  | pendix A: DUT and SAR Test setup                             | 33 |  |  |  |  |
| Ар  | pendix B: Plots of Performance Check                         | 33 |  |  |  |  |
| Ар  | Appendix C: DASY Calibration Certificate                     |    |  |  |  |  |
| Ар  | Appendix D: Plots of HIGHEST SAR Test Result                 |    |  |  |  |  |

Compliance Certification Services (KunShan)Inc.Date of Issue: August 26, 2016Report No .: C16063

Report No .: C160630R01-SF

# **1. CERTIFICATE OF COMPLIANCE (SAR EVALUATION)**

| Product Name:   | Xiaoyi Mirror-less Camera   |  |  |  |  |
|---|---|--|--|--|--|
| Brand Name:   | YI  |  |  |  |  |
| Model Name.:  | YI-M1   |  |  |  |  |
| Series Model:   | N/A   | N/A                                      |  |  |  |
| Device Category:  | PORTABLE DEVICES  |  |  |  |  |
| Exposure Category:  | GENERAL POPULATION/L  | GENERAL POPULATION/UNCONTROLLED EXPOSURE |  |  |  |
| Date of Test:   | August 24, 2016   |  |  |  |  |
| Applicant:  | Shanghai Xiaoyi Technology Co., Ltd.<br>6F,Building E,No.2889,Jinke Road,Shanghai,China |  |  |  |  |
| Manufacturer:   | Shanghai Xiaoyi Technology Co., Ltd.<br>6F,Building E,No.2889,Jinke Road,Shanghai,China |  |  |  |  |
| Application Type:   | Certification   |  |  |  |  |
| AP  | PLICABLE STANDARDS A  | ND TEST PROCEDURES                       |  |  |  |
| STANDARDS AND   | TEST PROCEDURES   | TEST RESULT                              |  |  |  |
| KDB 86  | 5664 D01  | No non-compliance noted                  |  |  |  |
|   | Deviation from Applicable Standard  |  |  |  |  |
| None  |   |  |  |  |  |
| The device was tested by Compliance Certification Services Inc. in accordance with the measurement nethods 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. |   |  |  |  |  |

Approved by:

Jeff fang

Jeff.fang **RF** Manager Compliance Certification Services Inc.

Tested by:

Matt.Yao Test Engineer Compliance Certification Services Inc.

Report No .: C160630R01-SF

# 2. EUT DESCRIPTION

| Product Name:   | Xiaoyi Mirror-less Camera                     |  |
|---|---|--|
| Brand Name:   | YI  |  |
| Model Name.:  | YI-M1   |  |
| Series Model:   | N/A   |  |
| FCC ID:   | 2AFIB-DCM116                                  |  |
| Device Category:  | Production unit                               |  |
| Frequency Range:WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHzBluetooth: 2402 MHz ~ 2480 MHz |   |  |
| Modulation Technique: 802.11b/g/n HT20<br>Bluetooth:4.0                             |   |  |
| Antenna Specification:  | on: WIFI&Bluetooth: PCB Antenna               |  |
| Accessories:  | Battery (rating):<br>Capacitance: 900mAh,8.8V |  |
| Operating Mode:   | : Maximum continuous output                   |  |

# 2.1 MAXIMUM RF OUTPUT POWER WITH TEST CHANNEL

CCSRF

| Band / Mode   | Average Power(dBm) |
|---------------|--------------------|
| Dallu / Would | BLE4.0, GFSK       |
| Bluetooth     | 4                  |
|               |                    |

| Band / Mode   | Channel | SISO Average Power<br>(dBm) |
|---------------|---------|-----------------------------|
|               | 1       | 16                          |
| 802.11b       | 6       | 16                          |
|               | 11      | 16                          |
|               | 1       | 13                          |
| 802.11g       | 6       | 13                          |
|               | 11      | 13                          |
|               | 1       | 13                          |
| 802.11n 20MHz | 6       | 13                          |
|               | 11      | 13                          |

Date of Issue: August 26, 2016

### 2.2 STATEMENT OF COMPLIANCE

The maximum results of Specific Absorption Rate (SAR) found during testing for **Shanghai Xiaoyi Technology Co.**, **Ltd.**, **YI-M1**, are as follows.

|                 | Frequency | Highest SAR Summary |  |  |
|-----------------|-----------|---------------------|--|--|
| Equipment Class | Rand      | Body                |  |  |
|                 | Banu      | 1g SAR (W/kg)       |  |  |
| DTS 2.4GHz WLAN |           | 1.181               |  |  |

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

# 3. REQUIREMENTS FOR COMPLIANCE TESTING DEFINED BY THE FCC OR IC

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 W/Kg for an uncontrolled environment and 8.0 W/Kg for an occupational/controlled environment as recommended by the FCC 47 CFR Part 2 (2.1093).

# 4. TEST METHODOLOGY

The Specific Absorption Rate (SAR) testing specification, method and procedure for this device is in accordance with the following standards:

K FCC 47 CFR Part 2 ( 2.1093)

ANSI/IEEE C95.1-1992

X IEEE 1528-2013

X IEC62209-2:2010

KDB 447498 D01v06 General RF Exposure Guidance

KDB 865664 D01v01r04 Measurement 100 MHz to 6 GHz

KDB 865664 D02 v01r02 RF Exposure Reporting

🔀 KDB 248227 D01v02r02 🛛 802 11 Wi-Fi SAR

# 5. TEST CONFIGURATION

During WLAN SAR testing EUT is configured with the WLAN continuous TX tool, and the transmission duty factor was monitored on the spectrum analyzer with zero-span setting

For WLAN SAR testing. WLAN engineering test software installed on the EUT can provide continuous transmitting RF signal.

Duty cycle Form

| Band   | Mode          | Duty cycle(100%) |
|--------|---------------|------------------|
|        | Bluetooth     | 60               |
| 24011- | 802.11b       | 90               |
| 2.4GHZ | 802.11g       | 60               |
|        | 802.11n 20MHz | 60               |

Page 8 of 35

# 6. DOSIMETRIC ASSESSMENT SETUP

LESR

These measurements were performed with the automated near-field scanning system DASY 5 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9 m), which positions the probes with a positional repeatability of better than  $\pm$  0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the E-field PROBE EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in [7] with accuracy of better than  $\pm$ 10%. The spherical isotropy was evaluated with the procedure described in [8] and found to be better than  $\pm$ 0.25 dB. IEEE1528 and CENELEC EN 62209.

| Ingredients         | Frequency<br>(MHz) |       |       |      |       |       |       |      |      |      |
|---------------------|--------------------|-------|-------|------|-------|-------|-------|------|------|------|
| (% by weight)       | 4                  | 50    | 8     | 35   | 9     | 15    | 19    | 00   | 24   | 50   |
| Tissue Type         | Head               | Body  | Head  | Body | Head  | Body  | Head  | Body | Head | Body |
| Water               | 38.56              | 51.16 | 41.45 | 52.4 | 41.05 | 56.0  | 54.9  | 40.4 | 62.7 | 73.2 |
| Salt (NaCl)         | 3.95               | 1.49  | 1.45  | 1.4  | 1.35  | 0.76  | 0.18  | 0.5  | 0.5  | 0.04 |
| Sugar               | 56.32              | 46.78 | 56.0  | 45.0 | 56.5  | 41.76 | 0.0   | 58.0 | 0.0  | 0.0  |
| HEC                 | 0.98               | 0.52  | 1.0   | 1.0  | 1.0   | 1.21  | 0.0   | 1.0  | 0.0  | 0.0  |
| Bactericide         | 0.19               | 0.05  | 0.1   | 0.1  | 0.1   | 0.27  | 0.0   | 0.1  | 0.0  | 0.0  |
| Triton X-100        | 0.0                | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 36.8 | 0.0  |
| DGBE                | 0.0                | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 44.92 | 0.0  | 0.0  | 26.7 |
| Dielectric Constant | 43.42              | 58.0  | 42.54 | 56.1 | 42.0  | 56.8  | 39.9  | 54.0 | 39.8 | 52.5 |
| Conductivity (S/m)  | 0.85               | 0.83  | 0.91  | 0.95 | 1.0   | 1.07  | 1.42  | 1.45 | 1.88 | 1.78 |

### The following table gives the recipes for tissue simulating liquids.

Simulating Liquids for 5 GHz, Manufactured by SPEAG

| Ingredients        | (% by weight) |
|--------------------|---------------|
| Water              | 78            |
| Mineral oil        | 11            |
| Emulsifiers        | 9             |
| Additives and Salt | 2             |

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

### 6.1 MEASUREMENT SYSTEM DIAGRAM



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

- A standard high precision 6-axis robot (St"aubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing validating the proper functioning of the system.

Page 10 of 35

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

# 6.2 SYSTEM COMPONENTS



Date of Issue: August 26, 2016

Report No .: C160630R01-SF

**Dimensions:** Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) 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%.



Interior of probe

### SAM Twin Phantom

### **Construction:**

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50360 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.

### Shell Thickness: 2 ±0.2 mm

Filling Volume: Approx. 25 liters

Height: 850mm; Length: 1000mm; Width: Dimensions: 750mm

### SAM Phantom (ELI4 v4.0)

### **Description Construction:**

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is supported by software version DASY4/DASY5.5 and higher and is compatible with all SPEAG dosimetric probes and dipoles

Shell Thickness: Filling Volume: Dimensions: Minor axis:

 $2.0 \pm 0.2$  mm (sagging: <1%) Approx. 25 liters Major ellipse axis: 600 mm 400 mm 500mm



Page 12 of 35



Report No .: C160630R01-SF

### Device Holder for SAM Twin Phantom

**Construction:** In combination with the Twin SAM Phantom, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, and flat phantom).



### System Validation Kits for SAM Twin Phantom

**Construction:** Symmetrical dipole with I/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor.

Frequency: 900,1800,2450,5800 MHz

**ReTune loss:** > 20 dB at specified validation position

**Power capability:** > 100 W (f < 1GHz); > 40 W (f > 1GHz)

### Dimensions:

D835V2: dipole length: 161 mm; overall height: 340 mm D1800V2: dipole length: 72.5 mm; overall height: 300 mm D1900V2: dipole length: 67.7 mm; overall height: 300 mm D2450V2: dipole length: 51.5 mm; overall height: 290 mm D5GHzV2: dipole length: 20.6 mm; overall height: 300mm



### System Validation Kits for ELI4 phantom

**Construction:** Symmetrical dipole with I/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor.

Frequency: 900, 1800, 2450, 5800 MHz

**ReTune loss:** > 20 dB at specified validation position

**Power capability:** > 100 W (f < 1GHz); > 40 W (f > 1GHz)

Dimensions:

D835V2: dipole length: 161 mm; overall height: 340 mm D1800V2: dipole length: 72.5 mm; overall height: 300 mm D1900V2: dipole length: 67.7 mm; overall height: 300 mm D2450V2: dipole length: 51.5 mm; overall height: 290 mm D5GHzV2: dipole length: 20.6 mm; overall height: 300 mm



Page 13 of 35

Report No .: C160630R01-SF

# 7. EVALUATION PROCEDURES

### **DATA EVALUATION**

The DASY 5 post processing software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

| Probe parameters:  | - Sensitivity             | Norm <sub>i</sub> , a <sub>i0</sub> , a <sub>i1</sub> , a <sub>i2</sub> |
|--------------------|---------------------------|---|
|                    | - Conversion factor       | ConvF <sub>i</sub>  |
|                    | - Diode compression point | dcp <sub>i</sub>  |
| Device parameters: | - Frequency               | f   |
|                    | - Crest factor            | cf  |
| Media parameters:  | - Conductivity            | σ   |
|                    | - Density                 | ρ   |

These parameters must be set correctly in the software. They can be found in the component documents or be imported into the software from the configuration files issued for the DASY 5 components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with

= Compensated signal of channel i(i = x, y, z)Vi = Input signal of channel i U (i = x, y, z)= Crest factor of exciting field (DASY 5 parameter) cf  $dcp_i$  = Diode compression point (DASY 5 parameter)

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

$$E_i = \sqrt{\frac{V_i}{Norm_i \bullet ConvF}}$$

H-field probes:

$$H_i = \sqrt{Vi} \cdot \frac{a_{i10} + a_{i11}f + a_{i12}f^2}{f}$$

= Compensated signal of channel i(i = x, y, z)with Vi

> *Norm*<sub>i</sub> = Sensor sensitivity of channel i (i = x, y, z) $\mu$ V/(V/m)<sup>2</sup> for E0field Probes

ConvF

= Sensitivity enhancement in solution

= Sensor sensitivity factors for H-field probes aii

f = Carrier frequency (GHz)

= Electric field strength of channel i in V/m Ei

= Magnetic field strength of channel i in A/m Hi

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

 $E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$ 

Page 14 of 35

Report No .: C160630R01-SF

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

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g

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

 $\sigma$  = conductivity in [mho/m] or [Siemens/m]

 $\rho$  = equivalent tissue density in g/cm<sup>3</sup>

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

The power flow density is calculated assuming the excitation field as a free space field.

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

with  $P_{pwe}$  = Equivalent power density of a plane wave in mW/cm<sup>2</sup>

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

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

Report No .: C160630R01-SF

### SAR EVALUATION PROCEDURES

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

### • Power Reference Measurement

The reference and drift jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

### • 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 finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY 5 software can find the maximum locations even in relatively coarse grids. The scan area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the area scan's property sheet is brought-up, grid was at to 15 mm by 15 mm and can be edited by a user.

### • 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 default zoom scan measures  $5 \times 5 \times 7$  points within a cube whose base faces are centered around the maximum found in a preceding area scan job within the same procedure. If the preceding Area Scan job indicates more then one maximum, the number of Zoom Scans has to be enlarged accordingly (The default number inserted is 1).

### • Power Drift measurement

The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. In the properties of the Drift job, the user can specify a limit for the drift and have DASY 5 software stop the measurements if this limit is exceeded.

### • Z-Scan

The Z Scan job measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. A user can anchor the grid to the current probe location. As with any other grids, the local Z-axis of the anchor location establishes the Z-axis of the grid.

Report No .: C160630R01-SF

### SPATIAL PEAK SAR EVALUATION

The procedure for spatial peak SAR evaluation has been implemented according to the IEEE1529 standard. It can be conducted for 1 g and 10 g.

The DASY 5 system allows evaluations that combine measured data and robot positions, such as:

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

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

### Extrapolation

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

Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Cube Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 5x5x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1 g and 10 g cubes.

### **Boundary effect**

For measurements in the immediate vicinity of a phantom surface, the field coupling effects between the probe and the boundary influence the probe characteristics. Boundary effect errors of different dosimetric probe types have been analyzed by measurements and using a numerical probe model. As expected, both methods showed an enhanced sensitivity in the immediate vicinity of the boundary. The effect strongly depends on the probe dimensions and disappears with increasing distance from the boundary. The sensitivity can be approximately given as:

$$S \approx S_o + S_b exp(-\frac{z}{a})cos(\pi \frac{z}{\lambda})$$

Since the decay of the boundary effect dominates for small probes ( $a <<\lambda$ ), the cos-term can be omitted. Factors *Sb* (parameter Alpha in the DASY 5 software) and *a* (parameter Delta in the DASY 5 software) are assessed during probe calibration and used for numerical compensation of the boundary effect. Several simulations and measurements have confirmed that the compensation is valid for different field and boundary configurations.

This simple compensation procedure can largely reduce the probe uncertainty near boundaries. It works well as long as:

- the boundary curvature is small
- the probe axis is angled less than 30\_ to the boundary normal
- the distance between probe and boundary is larger than 25% of the probe diameter
- the probe is symmetric (all sensors have the same offset from the probe tip)

Since all of these requirements are fulfilled in a DASY 5 system, the correction of the probe boundary effect in the vicinity of the phantom surface is performed in a fully automated manner via the measurement data extraction during post processing.

Report No .: C160630R01-SF

# 8. MEASUREMENT UNCERTAINTY

LESRF

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04, when the highest measured 1g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

Report No .: C160630R01-SF

# 9. EXPOSURE LIMIT

(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.

**<u>Population/Uncontrolled Environments</u>** are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

<u>Occupational/Controlled Environments</u> 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

### MEASUREMENT RESULTS 10.

#### 10.1 **TEST LIQUIDS CONFIRMATION**

### SIMULATED TISSUE LIQUID PARAMETER CONFIRMATION

The dielectric parameters were checked prior to assessment using the SPEAG DAK3.5 dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

### IEEE SCC-34/SC-2 P1528 RECOMMENDED TISSUE DIELECTRIC PARAMETERS

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 and extrapolated according to the head parameters specified in P1528

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

( $\varepsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho$  = 1000 kg/m<sup>3</sup>)

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

### **10.2 LIQUID MEASUREMENT RESULTS**

The following table show the measuring results for simulating liquid:

| Liquid Type | Liquid<br>Temp. (°C) | Parameters      | Target | Measured | Deviation<br>(%) | Limited<br>(%) | Measured Date |
|-------------|----------------------|-----------------|--------|----------|------------------|----------------|---------------|
| Body2450    | 21.5                 | Permitivity(ε ) | 52.70  | 51.71    | -1.88            | ± 5            | 2016 9 24     |
|             | 21.5                 | Conductivity(σ) | 1.95   | 1.98     | 1.49             | ± 5            | 2016-8-24     |

### **10.3 SYSTEM PERFORMANCE CHECK**

The system performance check is performed prior to any usage of the system in order to guarantee reproducible results. The system performance check verifies that the system operates within its specifications of  $\pm 10\%$ . The system performance check results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

### SYSTEM PERFORMANCE CHECK MEASUREMENT CONDITIONS

- The measurements were performed in the flat section of the SAM twin phantom filled with head and body simulating liquid of the following parameters.
- The DASY5 system withan E-fileld probe EX3DV4 SN: 3798 was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15 mm (below 1 GHz) and 10 mm (above 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 10mm was aligned with the dipole.
- Special 7x7x7 fine cube was chosen for cube integration (dx= 5 mm, dy= 5 mm, dz= 5 mm).
- Distance between probe sensors and phantom surface was set to 2 mm.
- The dipole less than 3G input power was 250mW±3%.
- The dipole above than 3G input power was 100mW±3%.
- The results are normalized to 1 W input power.





- Note: For SAR testing, less than 3G the liquid depth is 15cm shown above
- Note: For SAR testing, above than 3G the liquid depth is 10cm shown above

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

### SYSTEM PERFORMANCE CHECK RESULTS

LERF

| Liquid Type | Ambient<br>Temp. (°<br>C) | Liquid<br>Temp. (°C) | Input<br>Power<br>(W) | Measured<br>SAR1g<br>(W/Kg) | 1W<br>Target<br>SAR <sub>1g</sub> (W/Kg) | 1W<br>Normalized<br>SAR1g(W/Kg) | Deviatio<br>n<br>(%) | Limite<br>d (%) | Date      |
|-------------|---------------------------|----------------------|-----------------------|-----------------------------|--|---------------------------------|----------------------|-----------------|-----------|
| Body2450    | 22                        | 21.5                 | 0.25                  | 12.70                       | 49.20                                    | 50.80                           | 3.25                 | ± 10            | 2016-8-24 |

Report No .: C160630R01-SF

### **10.4 EUT TUNE-UP PROCEDURES AND TEST MODE**

### Conducted output power(dBm):

### **General Note:**

- 1 Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.
- 2 Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
  - 1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
  - 2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.
- 3 For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured.

| Mode                          | Channel | Frequence<br>(MHZ) | Chain0 Target<br>power(dBm) | Turn up<br>tolerance<br>(dBm) | Maximum<br>Turn up<br>power (dBm) | Average<br>power<br>(dBm) |
|-------------------------------|---------|--------------------|-----------------------------|-------------------------------|-----------------------------------|---------------------------|
|                               | 1       | 2412               | 15                          | ±1                            | 16                                | 15.92                     |
| 802.11 b                      | 6       | 2437               | 15                          | ±1                            | 16                                | 15.65                     |
|                               | 11      | 2462               | 15                          | ±1                            | 16                                | 15.48                     |
|                               | 1       | 2412               | 12                          | ±1                            | 13                                | 12.92                     |
| 802.11 g                      | 6       | 2437               | 12                          | ±1                            | 13                                | 12.53                     |
|                               | 11      | 2462               | 12                          | ±1                            | 13                                | 12.50                     |
|                               | 1       | 2412               | 12                          | ±1                            | 13                                | 12.61                     |
| 802.11 n<br>20МН <del>7</del> | 6       | 2437               | 12                          | ±1                            | 13                                | 12.42                     |
| 2010112                       | 11      | 2462               | 12                          | ±1                            | 13                                | 12.75                     |

### WLAN 2.4G Chain0

### Bluetooth

| Band   | Mode         | Channel | Frequency | Averaged<br>Power<br>(dBm) | Maximum<br>Turn up<br>power<br>(dBm) |
|--------|--------------|---------|-----------|----------------------------|--------------------------------------|
|        |              | 0       | 2402      | 3.71                       | 4                                    |
| 2.4GHz | Bluetooth LE | 39      | 2441      | 3.71                       | 4                                    |
|        |              | 78      | 2480      | 3.64                       | 4                                    |

Report No .: C160630R01-SF

## **10.5 STANDALONE SAR TEST EXCLUSION**

According to KDB447498 D01:The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances*  $\leq$  50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,

*mm*)]  $\cdot [\sqrt{f_{(GHz)}}] \le 3.0$  for 1-g SAR and  $\le 7.5$  for 10-g extremity SAR, where

- f<sub>(GHz)</sub> is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation25
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below
- If the test separation distance (antenna-user) is < 5mm, 5mm is used for excluded SAR calculation</li>

|      | Wireless Interface            | Wireless InterfaceBluetoothum power (dBm)4n rated power (mW)2.512Antenna to user (mm)5Frequency(GHz)2.480 |  |  |  |  |
|------|-------------------------------|---|--|--|--|--|
| Т    | une-up Maximum power (dBm)    | 4   |  |  |  |  |
| Tun  | e-up Maximum rated power (mW) | 2.512   |  |  |  |  |
|      | Antenna to user (mm)          | 5   |  |  |  |  |
| Body | Frequency(GHz)                | 2.480   |  |  |  |  |
|      | SAR exclusion threshold       | 0.791   |  |  |  |  |

Per KDB 447498 D01 exclusion thresholds is 0.791 < 3, Bluetooth RF exposure evaluation is not required.

### **10.6 SAR TEST CONFIGURATIONS**

### **Body Exposure 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 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.



**Illustration for Body Worn Position** 

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

### **10.7 ANTENNA LOCATION**



Device dimensions for Tablet mode (H x W x D): 110x 65 mm

| Antennas                |                       | Wireless Interface       |
|-------------------------|-----------------------|--------------------------|
| Bluetooth &WLAN Antenna |                       | WLAN 2.4GHz<br>Bluetooth |
| Main Antenna            |                       | WLAN+ Bluetooth          |
| Test Mode               |                       |                          |
| IFFF 802 11             | hission mode(802 11b) |                          |

Chain0 means Main Antenna.

Report No .: C160630R01-SF

### **10.8 BODY TEST EXCLUSION THRESHOLDS**

The following SAR test exclusion Thresholds based on KDB 447498 D01 General RF Exposure Guidance v06 4.3.1

|  | Wireless Interface      | WLAN          |
|--|-------------------------|---------------|
| Exposuro                               |                         | 802.11 b Main |
| Position                               | Maximum power           | 16            |
|  | Maximum rated power(mW) | 39.81         |
|  | Antenna to user (mm)    | 11            |
| Rear                                   | SAR exclusion threshold | 21.08         |
| Rear<br>Right                          | SAR testing required?   | Yes           |
|  | Antenna to user (mm)    | 6             |
| Right                                  | SAR exclusion threshold | 11.50         |
|  | SAR testing required?   | Yes           |
|  | Antenna to user (mm)    | 90            |
| Left                                   | SAR exclusion threshold | 496.00        |
|  | SAR testing required?   | No            |
|  | Antenna to user (mm)    | 3             |
| Тор                                    | SAR exclusion threshold | 5.75          |
|  | SAR testing required?   | Yes           |
|  | Antenna to user (mm)    | 61            |
| Bottom                                 | SAR exclusion threshold | 206           |
| Rear<br>Right<br>Left<br>Top<br>Bottom | SAR testing required?   | 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 D01v06, 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 D01v06, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
- 4. Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation* distances ≤ 50 mm are determined by:
  - [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]  $\cdot [\sqrt{f(GHz)}] \le 3.0$  for 1-g SAR and  $\le 7.5$  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 < 50 mm distance, we just calculate mW of the exclusion threshold value (3.0) to do compare.
  - This formula is [3.0] /  $[\sqrt{f(GHz)}]$  [(*min. test separation distance, mm*)] = exclusion threshold of mW.
- 5. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
- a) [Threshold at 50 mm in step 1) + (test separation distance 50 mm)·( f(MHz)/150)] mW, at 100 MHz to 1500 MHz b) [Threshold at 50 mm in step 1) + (test separation distance 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
- When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according to 5) in section</li>
  4.1 is applied to determine SAR test exclusion.

Report No .: C160630R01-SF

# **10.9 SAR MEASUREMENT RESULTS**

### Note:

- Per KDB 447498 D01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  a. 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.
- b. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor 2. Per KDB 447498 D01, for each exposure position, if the highest output channel reported SAR ≤0.8W/kg, other
- 2. Per KDB 447496 D01, for each exposure position, if the highest output channel reported SAR solowing, other channels SAR testing is not necessary.
- 3. Per KDB 447498 D01, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq$  0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq$  100 MHz
  - $\cdot$   $\leq$  0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

### 2.4GHz Standalone SAR Results for Test Records

| Band           | Mode    | Test<br>Position | Dist.<br>(mm) | Freq.<br>(MHZ) | max<br>Power<br>(dBm) | Tune-Up<br>Limit<br>(dBm) | Scaling<br>Factor | Power<br>Drift (dB) | Duty<br>Cycle<br>Factor | SAR1g<br>(mW/g) | Scaled<br>SAR1g<br>(mW/g) |
|----------------|---------|------------------|---------------|----------------|-----------------------|---------------------------|-------------------|---------------------|-------------------------|-----------------|---------------------------|
| WLAN<br>2.4Ghz | 802.11b | Rear             | 0             | 2412           | 15.92                 | 16                        | 1.019             | -0.12               | 1.11                    | 0.158           | 0.179                     |
| WLAN<br>2.4Ghz | 802.11b | Right            | 0             | 2412           | 15.92                 | 16                        | 1.019             | -0.07               | 1.11                    | 0.441           | 0.499                     |
| WLAN<br>2.4Ghz | 802.11b | Тор              | 0             | 2412           | 15.92                 | 16                        | 1.019             | 0.02                | 1.11                    | 1.01            | 1.143                     |
| WLAN<br>2.4Ghz | 802.11b | Тор              | 0             | 2437           | 15.65                 | 16                        | 1.084             | 0.04                | 1.11                    | 0.912           | 1.098                     |
| WLAN<br>2.4Ghz | 802.11b | Тор              | 0             | 2462           | 15.48                 | 16                        | 1.127             | 0.06                | 1.11                    | 0.943           | 1.181                     |

Remark: SAR is not required for the following 2.4 GHz OFDM conditions.

1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.

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

The highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. So 2.4 GHz OFDM mode is not require.

### **Repeated SAR Test Records for 2.4GHz**

| Band        | Mode    | Dist.<br>(mm) | Freq.<br>(MHZ) | max<br>Power<br>(dBm) | Tune-Up<br>Limit<br>(dBm) | Scaling<br>Factor | Power<br>Drift (dB) | Duty<br>Cycle<br>Factor | SAR1g<br>(mW/g) | Scaled<br>SAR1g<br>(mW/g) |
|-------------|---------|---------------|----------------|-----------------------|---------------------------|-------------------|---------------------|-------------------------|-----------------|---------------------------|
| WLAN 2.4Ghz | 802.11b | Тор           | 2462           | 15.48                 | 16                        | 1.127             | -0.10               | 1.11                    | 0.938           | 1.175                     |

### **10.10 REPEATED SAR MEASUREMENT**

Note:

- 1. Per KDB 865664 D01v01,for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\ge$  0.8W/Kg
- 2. Per KDB 865664 D01v01,if the ratio of largest to smallest SAR for the original and first repeated measurement is ≤1.2 and the measured SAR <1.45W/Kg,only one repeated measurement is required.
- 3. The ratio is the difference in percentage between original and repeated measured SAR.

| Band        | Mode    | Test<br>Position | Freq<br>(MHZ) | Original<br>Measured<br>SAR1g<br>(mW/g) | 1st<br>Repeated<br>SAR1g<br>(mW/g) | Ratio | Original<br>Measured<br>SAR1g<br>(mW/g) | 2nd<br>Repeated<br>SAR1g<br>(mW/g) | Ratio |
|-------------|---------|------------------|---------------|---|------------------------------------|-------|---|------------------------------------|-------|
| WLAN 2.4GHz | 802.11b | Тор              | 2462          | 0.943                                   | 0.938                              | 1.005 |   |                                    |       |

Compliance Certification Services (KunShan) Inc. Date of Issue: August 26, 2016 Report No .: C16063

Report No .: C160630R01-SF

# **EQUIPMENT LIST & CALIBRATION STATUS**

| Name of Equipment               | Manufacturer | Type/Model    | Serial Number   | Last<br>Calibration | Calibration<br>Due |
|---------------------------------|--------------|---------------|-----------------|---------------------|--------------------|
| РC                              | HP           | Core(rm)3.16G | CZCO48171H      | N/A                 | N/A                |
| Signal Generator                | Agilent      | E8257C        | US37101915      | 11/20/2015          | 11/19/2016         |
| S-Parameter Network<br>Analyzer | Agilent      | E5071B        | MY42301382      | 03/02/2016          | 03/01/2017         |
| Power Meter                     | Anritsu      | ML2495A       | 1445010         | 03/02/2016          | 03/01/2017         |
| Peak & Average sensor           | Anritsu      | MA2411B       | 1339220         | 03/02/2016          | 03/01/2017         |
| E-field PROBE                   | SPEAG        | EX3DV4        | 3798            | 07/27/2016          | 07/26/2017         |
| DAE                             | SPEAG        | DEA4          | 1245            | 07/26/2016          | 07/25/2017         |
| DIPOLE 2450MHZ<br>ANTENNA       | SPEAG        | D2450V2       | 817             | 05/31/2016          | 05/28/2019         |
| DUMMY PROBE                     | SPEAG        | DP_2          | SPDP2001AA      | N/A                 | N/A                |
| SAM PHANTOM<br>(ELI4 v4.0)      | SPEAG        | QDOVA001BB    | 1102            | N/A                 | N/A                |
| Twin SAM Phantom                | SPEAG        | QD000P40CD    | 1609            | N/A                 | N/A                |
| ROBOT                           | SPEAG        | TX60          | F10/5E6AA1/A101 | N/A                 | N/A                |
| ROBOT KRC                       | SPEAG        | CS8C          | F10/5E6AA1/C101 | N/A                 | N/A                |
| LIQUID CALIBRATION<br>KIT       | ANTENNESSA   | 41/05 OCP9    | 00425167        | N/A                 | N/A                |

# **11. FACILITIES**

ILIRF

All measurement facilities used to collect the measurement data are located at

No.10, Weiye Rd., Innovation Park, Eco & Tec. Development Part, Kunshan City, Jiangsu Province, China.

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Report No .: C160630R01-SF

# APPENDIX A: DUT AND SAR TEST SETUP

# **APPENDIX B: PLOTS OF PERFORMANCE CHECK**

The plots are showing as followings.

Date of Issue: August 26, 2016

Report No .: C160630R01-SF

Test Laboratory: Compliance Certification Services Inc. Date: 8/24/2016 SystemPerformanceCheck-Body D2450 DUT: Dipole 2450 MHz ; Type: D24500V2; Serial: 817 Communication System; UID 0. CW: Communication System Band; D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2450 MHz;  $\sigma$  = 1.979 S/m;  $\epsilon_r$  = 51.707;  $\rho$  = 1000 kg/m<sup>3</sup> Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007) DASY Configuration: Probe: EX3DV4 - SN3798; ConvF(7.07, 7.07, 7.07); Calibrated: 7/27/2016; • Sensor-Surface: 2mm (Mechanical Surface Detection) • Electronics: DAE4 Sn1245; Calibrated: 7/26/2016 • Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx • DASY52 52.8.8(1222); • SEMCAD X Version 14.6.10 (7331) •

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (9x10x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 17.1 W/kg

System Performance Check at Frequencies above 1 GHz/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 98.29 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 26.2 W/kg SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.84 W/kg Maximum value of SAR (measured) = 19.5 W/kg



# **APPENDIX C: DASY CALIBRATION CERTIFICATE**

The DASY Calibration Certificates are showing in the file named Appendix C DASY Calibration Certificate.

# APPENDIX D: PLOTS OF SAR TEST RESULT

The plots are showing in the file named Appendix D: Plots of SAR Test Result.

END REPORT