



FCC SAR TEST REPORT

Report No: STS1512094H01

Issued for

Shanghai Merit Technology Corporation.

1058 Taogan road, Sheshan, Songjiang District, Shanghai, China.

Product Name:	8CH 2.4GHZ FHSS RADIO CONTROL SYSTEM
Brand Name:	MERITRC
Model No.:	MT-800
Series Model:	MR-800
	ANSI/IEEE Std. C95.1
Test Standard:	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. SAR (10g):	0.071 W/kg

Any reproduction of this document must be done in full. No single part of this document may be reprodupermission from STS, All Test Data Presented in this report is only applicable to presented Test sample.







Test Report Certification

Applicant's name: Shanghai Merit Technology Corporation.

Address 1058 Taogan road, Sheshan, Songjiang District, Shanghai, China.

Manufacture's Name: Shanghai Merit Technology Corporation.

Address 1058 Taogan road, Sheshan, Songjiang District, Shanghai, China.

Product description

Trademark: MERITRC Model and/or type reference : MT-800

Serial Model: MR-800

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..... 19 Dec. 2015

Date of Issue....: 21 Dec. 2015

Test Result..... Pass

Testing Engineer: Allen Chen

(Allen Chen)

Technical Manager:

Authorized Signatory:

(John Zou)

Houng lang

(Bovey Yang)







TABLE OF CONTENS

1. General Information	4
1.1 EUT Description	4
1.2 Test Environment	5
1.3 Test Facility	5
2. Test Standards And Limits	6
3. SAR Measurement System	7
3.1 Definition Of Specific Absorption Rate (SAR)	7
3.2 SAR System	7
3.2.1 Probe 3.2.2 Phantom	8 9
3.2.3 Device Holder	9
4. Tissue Simulating Liquids	10
4.1 Simulating Liquids Parameter Check	10
5. SAR System Validation	11
5.1 Validation System	11
5.2 Validation Result	11
6. SAR Evaluation Procedures	12
7. EUT Antenna Location Sketch	13
8. EUT Test Position	14
8.1 Define Two Imaginary Lines On The Handset	14
8.2 Hotspot mode exposure position condition	15
9. Uncertainty	16
9.1 Measurement Uncertainty	16
9.2 System validation Uncertainty	18
10. Conducted Power Measurement	20
10.1 Test Result:	20
10.2 Turn Power	20
11. EUT And Test Setup Photo	21
11.1 EUT Photo	21
11.2 Setup Photo	24
12. SAR Result Summary	27
13. Equipment List	28
Appendix A. System Validation Plots	29
Appendix B. SAR Test Plots	31
Appendix C. Probe Calibration And Dipole Calibration Report	32



1. General Information

1.1 EUT Description

Equipment	8CH 2.4GHZ FHSS RADIO CONTROL SYSTEM
Brand Name	MERITRC
Model No.	MT-800
Serial Model	MR-800
Model Difference	Only different in model name
Battery	DC 1.5V*4 cell "AA" alkaline battery
Hardware Version	N/A
Software Version	N/A
Frequency Range	2405~2455 MHz
Transmit Power(Average):	17.73dBm
Max. Reported SAR(10g):	0.071 W/kg
Operating Mode:	FHSS(GFSK)
Antenna Specification:	Dipole Antenna
Hotspot Mode:	Not Support
DTM Mode:	Not Support



1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required	Actual
Temperature (°C)	18-25	22~23
Humidity (%RH)	30-70	55~65

1.3 Test Facility

Shenzhen STS Test Services Co., Ltd.

Add.: 1/F, Building B, Zhuoke Science Park, No. 190, Chongqing Road, Fuyong,

Baoan District, Shenzhen, Guangdong, China

CNAS Registration No.: L7649 FCC Registration No.: 842334; IC Registration No.: 12108A-1





2. Test Standards And Limits

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General
		Rules and Regulations
		IEEE Standard for Safety Levels with Respect to Human
2	ANSI/IEEE Std. C95.1-1992	Exposure to Radio Frequency Electromagnetic Fields, 3
		kHz to 300 GHz
		Recommended Practice for Determining the Peak
3	IEEE Std. 1528-2013	Spatial-Average Specific Absorption Rate (SAR) in the
3		Human Head from Wireless Communications Devices:
		Measurement Techniques
	FOO KDD 447400 D04 ::05:00	Mobile and Portable Device RF Exposure Procedures and
4	FCC KDB 447498 D01 v05r02	Equipment Authorization Policies
5	FCC KDB 865664 D01 v01r03	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r01	RF Exposure Reporting
7	FCC KDB 248227 D01 Wi-Fi SAR v02	SAR Considerations for 802.11 Devices

(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

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 Hands, Wrists, Feet and Ankles LIMIT 4.0 W/kg; 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

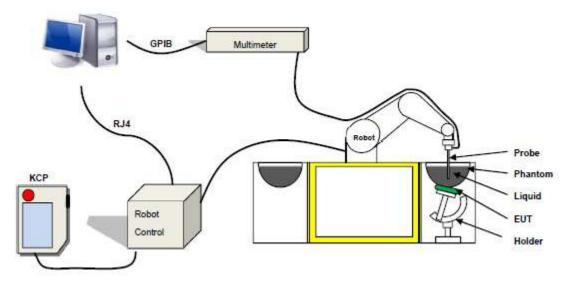
$$SAR = \frac{\sigma E^2}{\rho}$$

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

SATIMO 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 OpenSAR 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 17/14 EP221 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter :5 mm
- Distance between probe tip and sensor center: 2.7mm
- Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than +/- 1mm)
- Probe linearity: < 0.25 dB
- Axial Isotropy: < 0.25 dB
- Spherical Isotropy: < 0.25 dB
- Calibration range: 450MHz to 2600MHz for head & body simulating liquid. Angle between probe axis (evaluation axis) and suface normal line:less than 30°



Figure 1 – Satimo 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 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 \pm 0.5 mm would produce a SAR uncertainty of \pm 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.

LIQUID MEASUREMENT RESULTS

Date: Dec.19, 2015 Ambient condition: Temperature 22.0°C Relative humidity: 49%

Body Simulating Liquid Frequency Temp. [°C]			- .		D : 1: F0/1	Limited[%]	
		Parameters	Target	Measured	Deviation[%]		
2450 MHz	21.5	Permitivity:	52.7	52.41	-0.55	± 5	
		Conductivity:	1.95	1.93	-1.03	± 5	

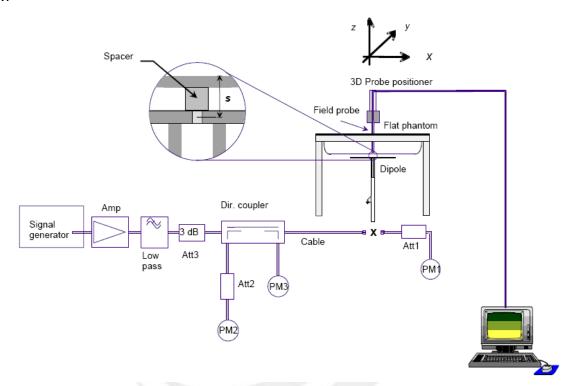




5.1 Validation System

Each SATIMO system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the SATIMO 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 SATIMO, the validation data should be within its specification of 10 %.

Ambient condition: Temperature 22.7°C Relative humidity: 49%

Freq.(MHz)	Power(mW)	Tested Value (W/Kg)	Normalized SAR (W/kg)	Target(W/Kg)	Tolerance(%)	Date
2450 Body	100	5.108	51.08	52.4	2.58	2015-12-19

Note: The tolerance limit of System validation ±10%.





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.

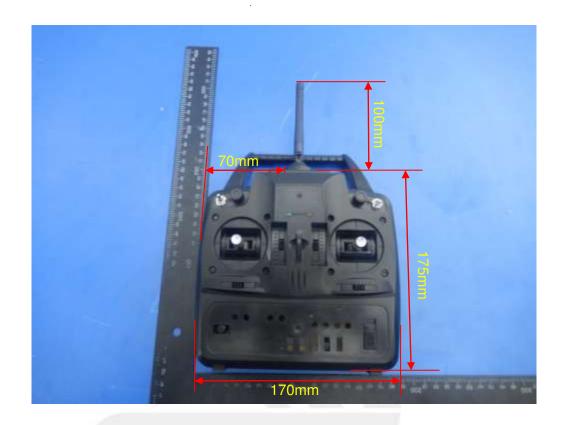
Area Scan& Zoom Scan

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



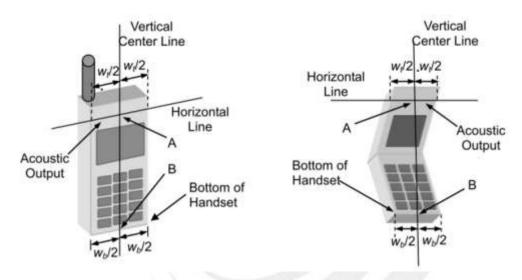


8. EUT Test Position

This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

8.1 Define Two Imaginary Lines On The Handset

- (1) The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.
- (2) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- (3) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



Cheek Position

- 1)To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- 2)To move the device towards the phantom with the ear piece aligned with the the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost



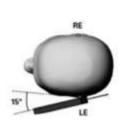
Title Position

- (1)To position the device in the "cheek" position described above.
- (2) While maintaining the device in the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until with the ear is lost.









Body-worn Position Conditions

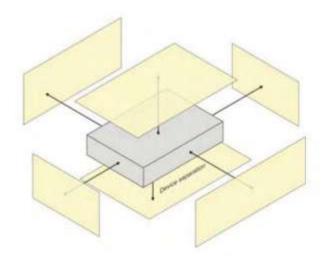
- (1) To position the EUT parallel to the phantom surface.
- (2) To adjust the EUT parallel to the flat phantom.
- (3) To adjust the distance between the EUT surface and the flat phantom to 5mm.





8.2 Hotspot mode exposure position condition

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing function, the relevant hand and body exposure condition are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surface and edges with a transmitting antenna located within 25 mm form that surface or edge. When form factor of a handset is smaller than 9cm x 5cm, a test separation distance of 5mm(instead of 10mm)is required for testing hotspot mode. When the separate distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration(surface).





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.

No		Т	Т		Т				1	1		
1 Probe calibration 5.8 N 1 1 1 1 5.8 5.8 2 Axial isotropy 3.5 R √3 (1-cp) ^{1/2} (1-cp) ^{1/2} 1.43 1.43 3 Hemispherical isotropy 5.9 R √3 √C₂ √C₂ 2.41 2.41 4 Boundary effect 1.0 R √3 1 1 0.58 0.58 5 Linearity 4.7 R √3 1 1 2.71 2.71 6 System Detection 1.0 R √3 1 1 0.58 0.58 7 Readout electronics 0.5 N 1 1 1 0.50 0.50 8 Response time 0 R √3 1 1 0.50 0.50 9 Integration time 1.4 R √3 1 1 0.81 0.81 10 Ambient noise 3.0 R √3 1 1 1.73 1.73 11 Ambient reflections 1.4 R √3 1 1 1.73 1.73 12 Probe positioner mech. restrictions 1.4 R √3 1 1 0.81 0.81 13 Probe positioner 0.7 R √3 1 1 0.81 0.81 14 Max.SAR valuation 1.0 R √3 1 1 0.6 0.6 15 Device positioning 2.6 N 1 1 1 0.6 0.6 16 Axial isotropy 3.5 R √3 1 1 0.81 0.81 17 Readout 1 1.73 1.73	NO	Source	Tol(%)					1gUi	10gUi	Veff		
2 Axial isotropy 3.5 R √3 (1-cp) ^{1/2} (1-cp) ^{1/2} 1.43 1.43 ∞ 3 Hemispherical isotropy 5.9 R √3 √C₀ √C₀ 2.41 2.41 ∞ 4 Boundary effect 1.0 R √3 1 1 0.58 0.58 ∞ 5 Linearity 4.7 R √3 1 1 0.58 0.58 ∞ 6 System Detection 1.0 R √3 1 1 0.58 0.58 ∞ 7 Readout electronics 0.5 N 1 1 1 0.50 0.50 ∞ 8 Response time 0 R √3 1 1 0.00 0.50 ∞ 9 Integration time 1.4 R √3 1 1 0.81 0.81 ∞ 10 Ambient noise 3.0 R √3 1 1 1.73 1.73 ∞ 11 Ambient reflections 1.4 R √3 1 1 0.81 0.81 ∞ 12 Probe positioner noise 1.4 R √3 1 1 0.81 0.81 ∞ 13 With respect to phantom shell 1.4 R √3 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.66 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 1 2.6 2.6 11	Mee	Masurement System										
3 Hemispherical sotropy 5.9 R	1	Probe calibration	5.8	N	1	1	1	5.8	5.8	8		
Solution Solution	2	Axial isotropy	3.5	R	√3	(1-cp) ^{1/2}	(1-cp) ^{1/2}	1.43	1.43	8		
5 Linearity 4.7 R √3 1 1 2.71 2.71 ∞ 6 System Detection limits 1.0 R √3 1 1 1 0.58 0.58 ∞ 7 Readout electronics 0.5 N 1 1 1 0.50 0.50 ∞ 8 Response time 0 R √3 1 1 0 0.81 0.81 ∞ 9 Integration time 1.4 R √3 1 1 0.81 0.81 ∞ 10 Ambient noise 3.0 R √3 1 1 1.73 1.73 ∞ 11 Ambient reflections 3.0 R √3 1 1 1 0.81 0.81 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 1 0.81 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 1 2.6 2.6 11	3	Hemispherical isotropy	5.9	R	√3	√Cp	√Cp	2.41	2.41	80		
6 System Detection 1.0	4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	8		
Readout electronics 0.5 N 1 1 1 0.50 0.50 ∞ 8 Response time 0 R √3 1 1 0 0 ∞ 9 Integration time 1.4 R √3 1 1 0.81 ∞ 10 Ambient noise 3.0 R √3 1 1 1.73 1.73 ∞ 11 Ambient reflections 3.0 R √3 1 1 1.73 1.73 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 0.81 ∞ 13 with respect to phantom shell 1.4 R √3 1 1 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	5	Linearity	4.7	R	√3	1	1	2.71	2.71	8		
7 electronics 0.5 N 1 1 0.50 0.50 ∞ 8 Response time 0 R √3 1 1 0.81 0.81 ∞ 9 Integration time 1.4 R √3 1 1 0.81 0.81 ∞ 10 Ambient noise 3.0 R √3 1 1 1.73 1.73 ∞ 11 Ambient reflections 3.0 R √3 1 1 1.73 1.73 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	6		1.0	R	√3	1	1	0.58	0.58	8		
9 Integration time 1.4 R √3 1 1 1 0.81 0.81 ∞ 10 Ambient noise 3.0 R √3 1 1 1 1.73 1.73 ∞ 11 Ambient reflections 3.0 R √3 1 1 1 1.73 1.73 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 1 0.81 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related	7		0.5	N	1	-1	1	0.50	0.50	8		
10 Ambient noise 3.0 R √3 1 1 1.73 1.73 ∞ 11 Ambient reflections 3.0 R √3 1 1 1 1.73 1.73 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 1 0.81 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	8	Response time	0	R	√3	1	1	0	0	8		
11 Ambient reflections 3.0 R √3 1 1 1.73 1.73 ∞ 12 Probe positioner mech. restrictions 1.4 R √3 1 1 0.81 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	9	Integration time	1.4	R	√3	1	1	0.81	0.81	8		
12 Probe positioner mech. restrictions 1.4 R √3 1 1 0.81 0.81 ∞ 13 Probe positioning with respect to phantom shell 1.4 R √3 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	10	Ambient noise	3.0	R	√3	1	1	1.73	1.73	8		
12 mech. restrictions 1.4 R √3 1 1 0.81 0.81 ∞	11	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	8		
13 with respect to phantom shell 1.4 R √3 1 1 0.81 0.81 ∞ 14 Max.SAR evaluation 1.0 R √3 1 1 0.6 0.6 ∞ Test sample related 15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	12	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	8		
Test sample related N 1 1 0.6 <	13	with respect to	1.4	R	√3	1	1	0.81	0.81	∞		
15 Device positioning 2.6 N 1 1 1 2.6 2.6 11	14	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞		
	Test s	ample related										
16 Device holder 3 N 1 1 1 30 30 7	15	Device positioning	2.6	N	1	1	1	2.6	2.6	11		
	16	Device holder	3	N	1	1	1	3.0	3.0	7		



17	Drift of output power	5.0	R	√3	1	1	2.89	2.89	∞	
Phant	Phantom and set-up									
18	Phantom uncertainty	4.0	R	√3	1	1	2.31	2.31	∞	
19	Liquid conductivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	5	
20	Liquid conductivity (meas)	4	N	1	0.23	0.26	0.92	1.04	5	
21	Liquid Permittivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	∞	
22	Liquid Permittivity (meas)	5.0	N	1	0.23	0.26	1.15	1.30	8	
Combined standard			RSS	$U_{c} = \sqrt{\sum_{i=1}^{n} C_{i}^{2} U_{i}^{2}}$			10.63%	10.54%		
Expar (P=95	nded uncertainty 5%)	U = k U_{C} ,k=2					21.26%	21.08%		



9.2 System validation Uncertainty

NO	Source	Tol(%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	1gUi	10gUi	Veff
Me	uenertSjelem								
1	Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
2	Axial isotropy	3.5	R	√3	(1-cp) ^{1/2}	(1-cp) ^{1/2}	1.43	1.43	∞
3	Hemispherical isotropy	5.9	R	√3	$\sqrt{C_p}$	√Cp	2.41	2.41	∞
4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
5	Linearity	4.7	R	√3	1	1	2.71	2.71	∞
6	System Detection limits	1.0	R	√3	1	1	0.58	0.58	∞
7	Modulation response	0	N	1	1	1	0	0	∞
8	Readout electronics	0.5	N	1	1	1	0.50	0.50	∞
9	Response time	0	R	√3	1	1	0	0	∞
10	Integration time	1.4	R	√3	1	1	0.81	0.81	∞
11	Ambient noise	3.0	R	√3	1	1	1.73	1.73	∞
12	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	∞
13	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	∞
14	Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
15	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞
Dipole	•								
16	Deviation of experimental source from	4	N	1	1	1	4.00	4.00	∞
17	Input power and SAR drit measurement	5	R	√3	1	1	2.89	2.89	∞



Page 19 of 32 Report No.: STS1512094H01

18	Dipole Axis to liquid Distance	2	R	√3	1	1			∞
Phant	om and set-up								
19	Phantom uncertainty	4.0	R	√3	1	1	2.31	2.31	∞
20	Uncertainty in SAR correction for deviation(in	2.0	N	1	1	0.84	2	1.68	8
21	Liquid conductivity (target)	2	N	1	1	0.84	2.00	1.68	∞
22	Liquid conductivity (temperature uncertainty)	2.5	N	1	0.78	0.71	1.95	1.78	5
23	Liquid conductivity (meas)	4	N	1	0.23	0.26	0.92	1.04	5
24	Liquid Permittivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	80
25	Liquid Permittivity (temperature uncertainty)	2.5	N	1	0.78	0.71	1.95	1.78	5
26	Liquid Permittivity (meas)	5.0	N	1	0.23	0.26	1.15	1.30	∞
Combined standard			RSS	$U_{C} = \sqrt{\sum_{i=1}^{n} C_{i}^{2} U_{i}^{2}}$		10.15%	10.05%		
	Expanded uncertainty $U=k\ U_C$,k=2				/	20.29%	20.10%		



10. Conducted Power Measurement

10.1 Test Result:

0.4011- 51100	Channel Number	Frequency (MHz)	Average Power (dBm)
2.4GHz FHSS	1	2405	13.665
	26	2430	13.515
	51	2455	13.565

10.2 Turn Power

		The Tune-up Maximum		Measured
Band	Mode	Power (Customer	Range	Maximum Output
		Declared)(dBm)		Power(dBm)
2.4GHz	FHSS	13±1	12~14	13.665

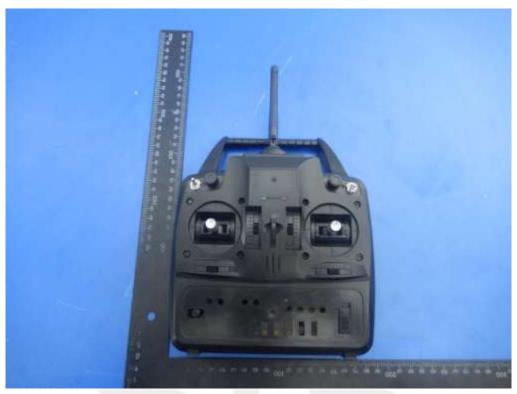


#

11. EUT And Test Setup Photo

11.1 EUT Photo





Back side





Top side



Bottom side







Left side



Right side





Body Back side



Body Left side





Body Right side



Body Bottom side









Liquid depth (15 cm)





Test Position	Channel	Frequency	Result 10g (W/Kg)	Power Drift(%)	Max.Turn -up Power(d Bm)	Meas.Output Power(dBm)	Duty cycle(%)	Scaled SAR (W/Kg)	Meas. No.
Back side	CH 1	2405	0.066	-0.04	14	13.665	100	0.071	1
Left side	CH 1	2405	0.037	-0.09	14	13.665	100	0.040	/
Right side	CH 1	2405	0.032	-0.55	14	13.665	100	0.035	/
Bottom side	CH 1	2405	0.018	-1.21	14	13.665	100	0.019	/





13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
2450MHzDipole	SATIMO	SID2450	SN 30/14 DIP2G450-335	2014.09.01	2017.08.31
E-Field Probe	SATIMO	SSE5	SN 17/14 EP221	2015.09.01	2016.08.31
Antenna	SATIMO	ANTA3	SN 07/13 ZNTA52	2014.09.01	2017.08.31
Waveguide	SATIMO	SWG5500	SN 13/14 WGA32	2014.09.01	2017.08.31
Phantom1	SATIMO	SAM	SN 32/14 SAM115	N/A	N/A
Phantom2	SATIMO	SAM	SN 32/14 SAM116	N/A	N/A
SAR TEST BENCH	SATIMO	GSM and WCDMA mobile phone POSITIONNIN G SYSTEM	SN 32/14 MSH97	N/A	N/A
SAR TEST BENCH	SATIMO	LAPTOP POSITIONNIN G SYSTEM	SN 32/14 LSH29	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 32/14 OCPG52	2015.09.01	2016.08.31
Multi Meter	Keithley	Multi Meter 2000	4050073	2015.11.20	2016.11.19
Signal Generator	Agilent	N5182A	MY50140530	2015.11.18	2016.11.17
Power Meter	R&S	NRP	100510	2015.10.25	2016.10.24
Power Sensor	R&S	NRP-Z11	101919	2015.10.24	2016.10.23
Power Sensor	R&S	NRP-Z21	103971	2015.12.12	2016.12.11
Network Analyzer	Agilent	5071C	EMY46103472	2015.12.12	2016.12.11
Attenuator 1	PE	PE7005-10	N/A	2015.10.25	2016.10.24
Attenuator 2	PE	PE7005-3	N/A	2015.10.24	2016.10.23
Attenuator 3	Woken	WK0602-XX	N/A	2015.12.12	2016.12.11
Dual Directional Coupler	Agilent	778D	50422	2015.11.18	2016.11.17



Appendix A. System Validation Plots

System Performance Check Data (2450MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm

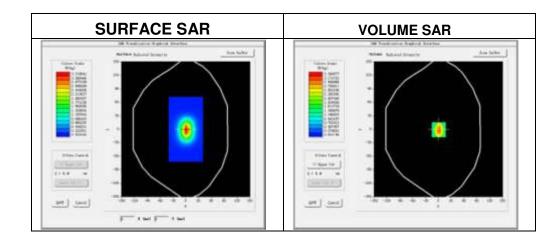
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2015-12-19

Measurement duration: 14 minutes 23 seconds

Experimental conditions.

Device Position	Validation plane		
Band	2450 MHz		
Channels	-		
Signal	CW		
Frequency (MHz)	2450		
Relative permittivity (real part)	52.41		
Relative permittivity	12.930000		
Conductivity (S/m)	1.93		
Power drift (%)	-1.200000		
Ambient Temperature	22.7°C		
Liquid Temperature	22.3°C		
Probe	SN 17/14 EP221		
ConvF	4.25		
Crest factor:	1:1		





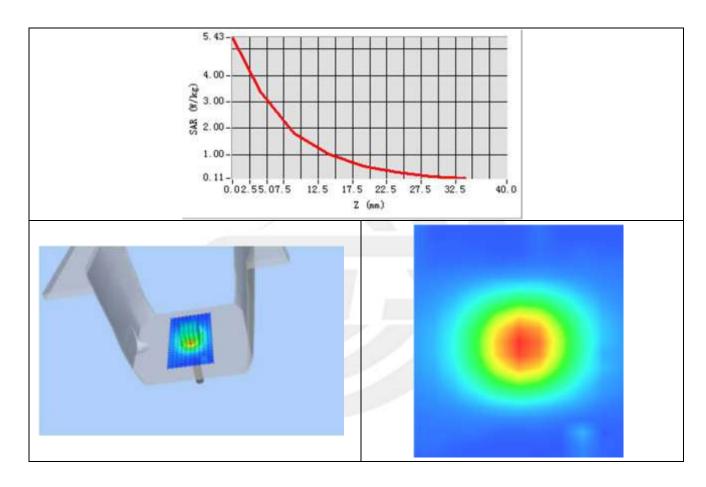




Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	2.536281
SAR 1g (W/Kg)	5.108165

Z Axis Scan





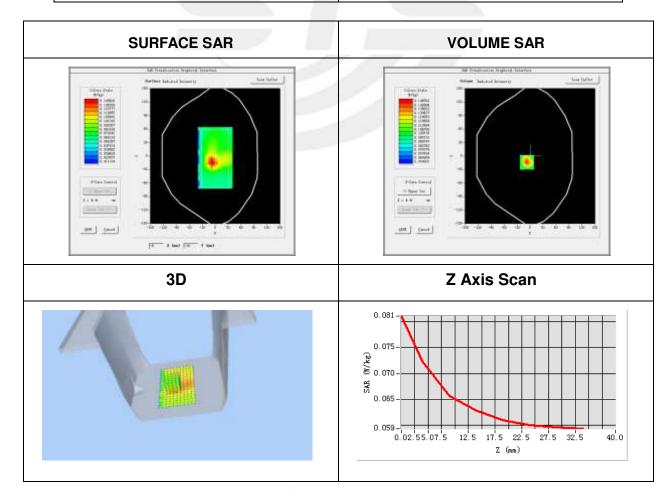
Appendix B. SAR Test Plots

Plot 1: DUT: 8CH 2.4GHZ FHSS RADIO CONTROL SYSTEM; EUT Model: MT-800

,
2015-12-19
SN 17/14 EP221
4.25
dx=8mm dy=8mm, h= 5.00 mm
5x5x7,dx=5mm dy=5mm dz=4mm, Complete/ndx=5mm dy=5mm, h= 5.00 mm
Validation plane
Body back side
2.4GHz FHSS
Low
IEEE802.b (Crest factor: 1.0)
2405
51.2
1.95
-0.04

Maximum location: X=7.00, Y=-64.00 SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.065907		
SAR 1g (W/Kg)	0.071780		





Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.

*****END OF THE REPORT***