FCC SAR Test Report

Applicant:	Simgo Asset Acquisition Corp – D/B/A StratusX
EUT Description:	MIFI
Model:	AI740
Brand:	stratusX
FCC ID:	2BBUC-AI740
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2023/09/14
Date of Test:	2023/09/15 to 2023/09/25
Date of Issue:	2023/10/11

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

Approved By: **Reviewed By:**

Revision History

Rev.	Issue Date	Description	Revised by
01	2023/10/11	Original	

Contents

1 Statement of Compliance

Band	Highest SAR(W/kg)
	Hotspot (1g)
GSM850	0.71
GSM1900	0.60
WCDMA Band II	1.05
WCDMA Band IV	1.13
WCDMA Band V	1.03
LTE Band 2	0.93
LTE Band 4	1.05
LTE Band 5	**1.26**
LTE Band 17	0.63
WI-FI (2.4GHz)	0.04
Highest Simultaneous Transmission SAR (W/kg)	
Scenario	**Hotspot (1g)**
Summed SAR	1.27

2 Guidance Applied

FCC 47CFR §2.1093
ANSI/IEEE C95.1-1992
IEEE 1528-2013
FCC KDB 941225 D01 3G SAR Measurement Procedures v03r01
FCC KDB 941225 D05 SAR for LTE Devices v02r05
FCC KDB 941225 D06 Hotspot Mode SAR v02r01
FCC KDB 248227 D01 SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
FCC KDB 447498 D01 General RF Exposure Guidance v06
FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
FCC KDB 865664 D02 RF Exposure Reporting v01r02

3 Lab Information

3.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

3.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC-Designation No.: CN1353
Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory.
Designation Number: CN1353.

ISED-CAB identifier: CN0152
Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

3.3 Ambient Condition

Temperature: 18°C~25°C
Relative humidity: 30%~75%

4 Client Information

4.1 Applicant

Applicant:	Simgo Asset Acquisition Corp – D/B/A StratusX
Address:	251 Little Falls Rd - Wilmington DE 19808

4.2 Manufacturer

Applicant:	Shenzhen Qingyu Technical Development Ltd
Address:	Shenzhen Banan Songgang Juleyuan Baifulou# 104

5 EUT Information

Model Name	AI740		
EUT Description:	MIFI		
Trade Mark	stratusX		
FCC ID	2BBUC-AI740		
SN	AX30203, AX30205		
Software Version	StratusX_user_20230727103904_5bd0760ce2		
Hardware Version	A1740_MB_P2		
Device Operating Configurations:			
Band	Tx Frequency(MHz)	Operating mode	
GSM850	824~849	GSM Class: B Multi-Slot Class: 12 GMSK, 8PSK	
GSM1900	1850~1910		
WCDMA Band II	1850~1910	RMC HSDPA HSUPA	
WCDMA Band IV	1710~1755		
WCDMA Band V	824~849		
LTE Band 2	1850 ~1910	QPSK 16QAM	
LTE Band 4	1710~1755		
LTE Band 5	824~849		
LTE Band 17	704~716		
Wi-Fi 2.4G	2412~2462	802.11b/g/n	
Antenna Type:	☐ External, ☒ Integrated		
Battery Information:	Model:	E105570	
	Normal Voltage:	+3.7V	
	Rated capacity:	5000mAh	
	Manufacturer:	Shenzhen B&K Rechargeable Battery,Inc.	
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user manual for more detailed description.			

5.1 Antenna Locations

The detailed antenna location information can refer to Appendix D.

Note:
1) SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hotspot Mode.

According to the distance between antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing							
Antenna	Exposure Conditions	Front	Back	Left	Right	Top	Bottom
Main	Hotspot	Yes	Yes	Yes	No	No	Yes
WIFI	Hotspot	Yes	Yes	No	Yes	Yes	No

Table 1： EUT Sides for SAR Test

6 RF Exposure Limits

Human Exposure	Uncontrolled Environment General Population (W/kg) or (mW/g)	Controlled Environment Occupational (W/kg) or (mW/g)
Spatial Peak SAR[1] (Brain/Trunk)	1.6	8.0
Spatial Average SAR[2] (Whole Body)	0.08	0.4
Spatial Peak SAR[3] (Hands/Feet/Ankle/Wrist)	4.0	20.0

Note:

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

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

3, The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

7 Introduction

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.

7.1 SAR Definition

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):

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

Where:

σ is the conductivity of the tissue material (S/m)

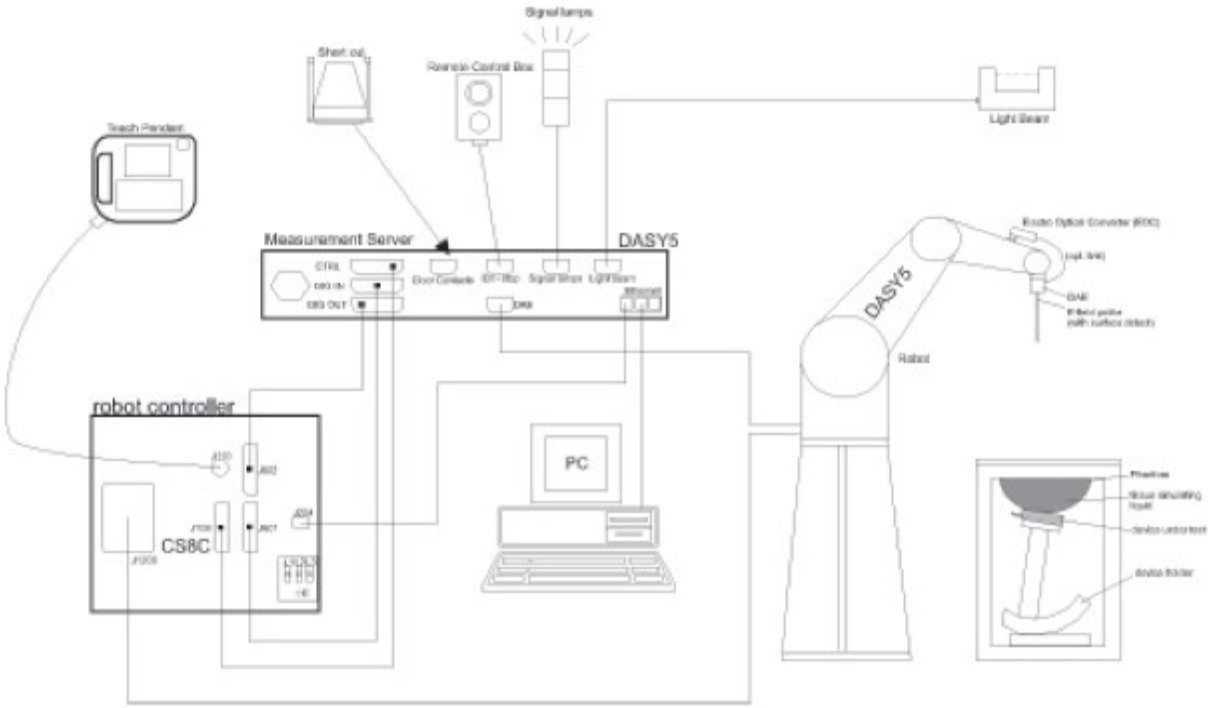
ρ is the mass density of the tissue material (kg/m^3)

E is the RMS electrical field strength (V/m)

8 SAR Measurements System

8.1 The SAR Measurement Set-up

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Windows and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

8.2 Measurement procedure

8.2.1 Power reference measurement

The Power Reference Measurement and Power Drift Measurement jobs are useful jobs for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.2.2 Area scan

Measurement procedures for evaluating SAR from wireless handsets typically start with a coarse measurement grid to determine the approximate location of the local peak SAR values. This is known as the area-scan procedure. In addition, identify the positions of any local maxima with SAR values within 2 dB of the maximum value, and that will not be within the zoom scan of other peaks. Additional zoom scans shall be measured for such peaks only when the primary peak is within 2 dB of the SAR compliance limit.

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.2.3 Zoom Scan

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

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz.

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

8.2.4 Power Drift Measurement

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power 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 that must remain within a maximum variation of ±5%.

9 Test Equipment list

Manufacturer	Equipment Name	Model	Serial Number	Calibration Date	Due Date of calibration
SPEAG	Twin Phantom	SAM2	1359	NCR	NCR
SPEAG	E-Field Probe	EX3DV4	7812	2023/05/16	2024/05/15
SPEAG	Data Acquisition Electronics	DAE4	799	2023/03/27	2024/03/26
SPEAG	System Validation Kits	D750V3	1231	2023/05/04	2026/05/03
SPEAG	System Validation Kits	D835V2	4d302	2023/02/06	2026/02/05
SPEAG	System Validation Kits	D1750V2	1115	2023/03/23	2026/03/22
SPEAG	System Validation Kits	D1900V2	512	2023/03/24	2026/03/23
SPEAG	System Validation Kits	D2450V2	1099	2023/02/02	2026/02/01
SPEAG	Dielectric parameter probes	DAK3.5	1341	2023/05/08	2024/05/07
Anritsu	Radio Communication Analyzer	MT8821C	6262170463	2023/04/08	2024/04/07
R&S	Signal Generator	SMR20	101691	2023/04/08	2024/04/07
R&S	AVG Power Sensor	NRP-Z21	101651	2023/04/08	2024/04/07
R&S	AVG Power Sensor	NRP-Z21	104189	2023/04/08	2024/04/07
海斯迪克	Thermometer	TP300	TOWE-EQ-SR-023	2023/03/22	2024/03/21
上海冰禹流体技术有限公司	Temperature and Humidity Indicator	HTC-1	TOWE-EQ-SR-025	2023/06/01	2024/05/31
Talent Microwave	Directional Coupler	TC-05180-10S	220420003	NCR	NCR
QiJi	Amplifier	YX28982301	TOWE-EQ-SR-020	NCR	NCR
QiJi	Amplifier	YX28982302	TOWE-EQ-SR-021	NCR	NCR

Note:

1. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged or repaired during the interval.

10 SAR measurement variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 or 2 W/kg (1-g or 10-g respectively); steps2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 or 3.6W/kg (~ 10% from the 1-g or 10-g respective SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20

11 Description of Test Position

11.1 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of
devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often
do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01 procedures. The “Portable Hotspot” feature on the handset was not activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12 System Verification

12.1 Tissue Verification

The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. The temperature variation of the Tissue Simulate Liquids was 22±2°C, the liquid depth of the ear reference point or the flat phantom was at least 15 cm (which is shown in Figure 12-1/12-2).

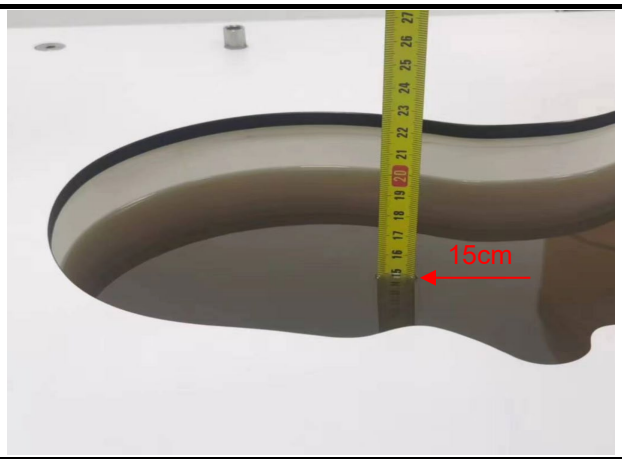


Figure 12-1 Liquid depth in the Head Phantom

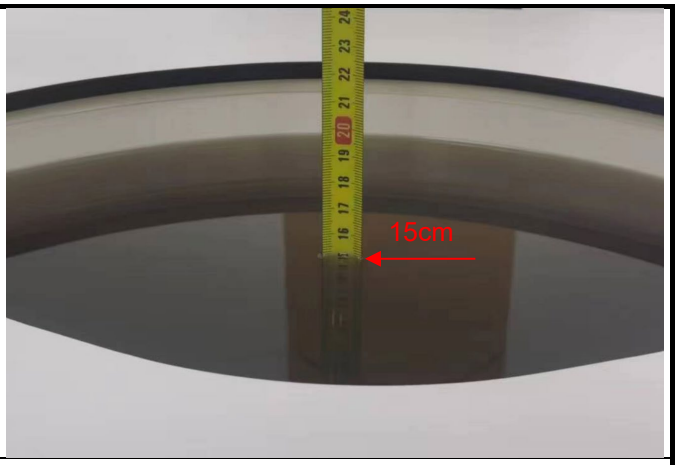


Figure 12-2 Liquid depth in the Flat Phantom

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Target Tissue		Measured Tissue		Deviation (Limit ±5%)		Date
			Permittivity ε_r	Conductivity σ(S/m)	Permittivity ε_r	Conductivity σ(S/m)	$\Delta\varepsilon_r$	Δσ	
750	Head	21.8	41.90	0.89	42.615	0.897	1.71%	0.83%	2023/9/20
835	Head	22.0	41.50	0.90	42.428	0.893	2.24%	-0.78%	2023/9/21
1750	Head	22.3	40.10	1.37	41.059	1.351	2.39%	-1.39%	2023/9/19
1900	Head	22.1	40.00	1.40	40.655	1.366	1.64%	-2.43%	2023/9/15
1900	Head	22.3	40.00	1.40	40.408	1.380	1.02%	-1.43%	2023/9/22
2450	Head	22.1	39.20	1.80	40.068	1.800	2.21%	0.00%	2023/9/25

Table 2： Measurement Tissue Parameters

12.2 SAR System Check

Prior to SAR assessment, a SAR system Check measurement was performed to see if the measured SAR was within ±10% from the target SAR values. The System Performance Check Setup in Figure 12-3.

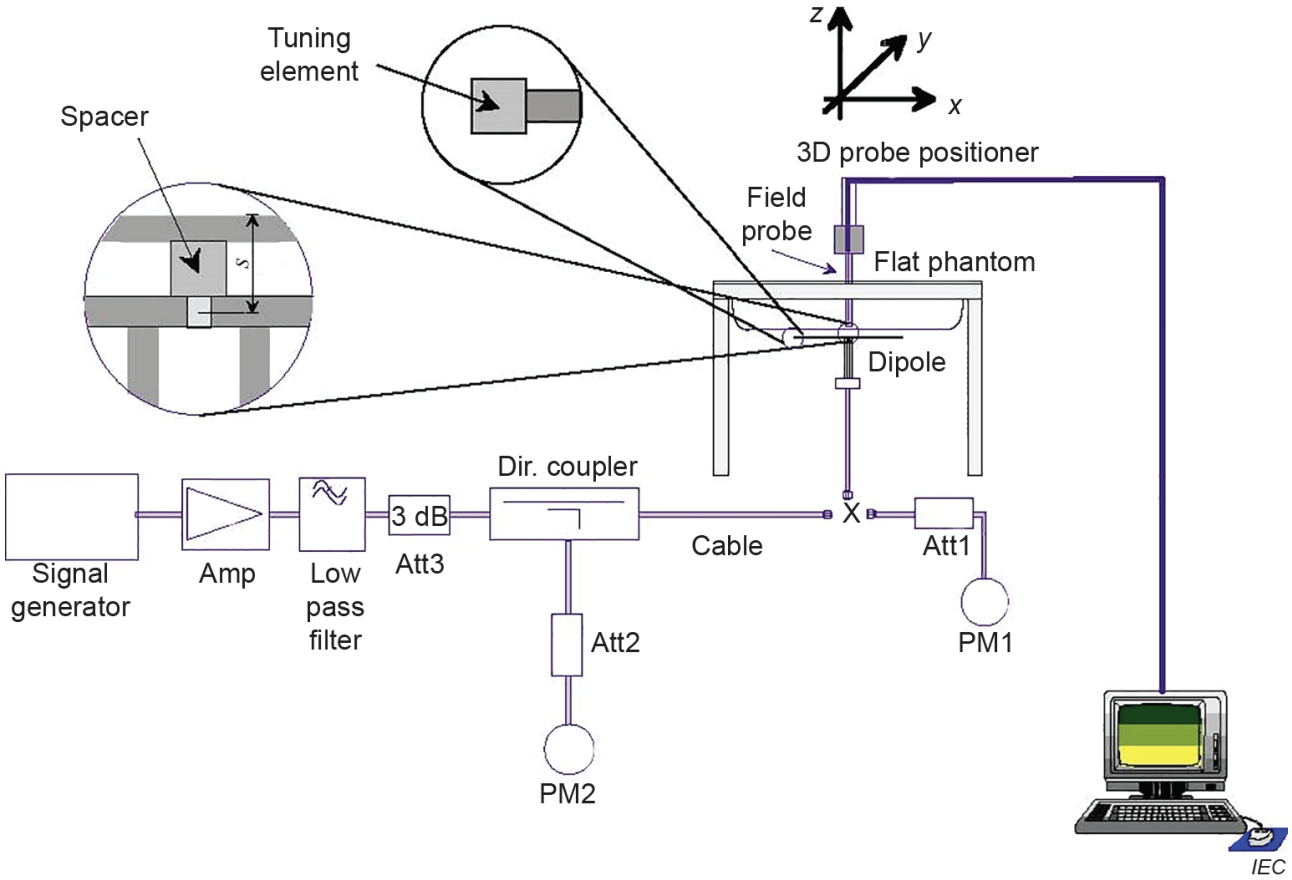


Figure 12-3 System Performance Check Setup

12.2.1 System Check Result

Frequency (MHz)	Tissue Type	Dipole	S/N	Target SAR (1W)		Measured SAR (250mW)		Measured SAR (normalized to 1W)		Deviation (Limit ±10%)		Date
				1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	Δ1g	Δ10g	
750	Head	D750V3	1231	8.67	5.67	2.11	1.40	8.44	5.60	-2.65%	-1.23%	2023/9/20
835	Head	D835V2	4d302	9.78	6.37	2.44	1.60	9.76	6.40	-0.20%	0.47%	2023/9/21
1750	Head	D1750V2	1115	36.90	19.50	9.77	5.21	39.08	20.84	5.91%	6.87%	2023/9/19
1900	Head	D1900V2	512	39.40	20.50	10.40	5.43	41.60	21.72	5.58%	5.95%	2023/9/15
1900	Head	D1900V2	512	39.40	20.50	10.60	5.50	42.40	22.00	7.61%	7.32%	2023/9/22
2450	Head	D2450V2	1099	51.40	23.90	14.00	6.53	56.00	26.12	8.95%	9.29%	2023/9/25

Table 3： SAR System Check Result

12.2.2 Detailed System Check Result

Please see the Appendix A

13 SAR General Measurement Procedures

13.1 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

13.2 SAR Measurement Conditions for GSM

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

13.3 SAR Measurement Conditions for UMTS

13.3.1 Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1’s” for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

13.3.2 Body SAR Measurements

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple $DPDCH_n$ configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spearing code or $DPDCH_n$, for the highest reported SAR configuration in 12.2 kbps RMC.

13.3.3 SAR Measurements with Rel. 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using and FRC with H-SET 1 in Sub-test and a 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to release 6 HSPA test procedures. 8.4.5 SAR Measurement with Rel.6 HSUPA The 3G SAR test Reduction Procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, Using H-Set 1 and QPSK for FRC and a 12.2kbps RMC configured in Test Loop Mode 1 and Power Control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

13.3.4 SAR Measurements with Rel. 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

13.4 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C/MT8821C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

13.4.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

13.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth/Transmission bandwidth						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3
256QAM	≥1						5

13.4.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

13.4.4 Largest channel bandwidth standalone SAR test requirements

A. QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

B. QPSK with 50% RB allocation

The procedures required for 1 RB allocation in A are applied to measure the SAR for QPSK with 50% RB allocation.

C. QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in A and B are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

D. Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in A, B, and C to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

13.4.5 Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in 13.4.4 to determine the channels and RB configurations that need SAR testing, then only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration, or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

13.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01 for more details.

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

For WiFi SAR testing, a communication link is set up with some command for WiFi mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Per KDB248227 D01, a minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

13.5.1 Initial Test Position Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
2. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
3. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

13.5.2 Initial Test Configuration Procedure

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to reported SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.

13.5.3 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency Band and aggregated Band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position on procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg for 1g SAR and ≤ 3.0 W/kg for 10g SAR, no additional SAR tests for the subsequent test configurations are required.

13.5.4 2.4 GHz SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

A) 802.11b DSSS SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1. When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS is that exposure configuration.

2. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

B) 2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of of KDB248227 D01). 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.

C) SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

14 Conducted Power

14.1 Conducted Power of GSM

GSM 850										
Burst Output Power(dBm)						Division Factors	Frame-Average Output Power(dBm)			
Channel		128	190	251	Tune up		128	190	251	Tune up
GPRS/EGPRS (GMSK)	1 TX Slot	32.08	32.17	32.11	33.00	-9.03	23.05	23.14	23.08	23.97
	2 TX Slots	31.92	32.06	32.02	33.00	-6.02	25.90	26.04	26.00	26.98
	3 TX Slots	31.75	31.91	31.90	32.50	-4.26	27.49	27.65	27.64	28.24
	4 TX Slots	31.57	31.75	31.74	32.50	-3.01	28.56	28.74	28.73	**29.49**
EGPRS (8PSK)	1 TX Slot	25.55	25.55	25.83	27.00	-9.03	16.52	16.52	16.80	17.97
	2 TX Slots	25.34	25.47	25.73	27.00	-6.02	19.32	19.45	19.71	20.98
	3 TX Slots	25.17	25.31	25.59	26.50	-4.26	20.91	21.05	21.33	22.24
	4 TX Slots	25.02	25.10	25.47	26.50	-3.01	22.01	22.09	22.46	23.49

GSM 1900										
Burst Output Power(dBm)						Division Factors	Frame-Average Output Power(dBm)			
Channel		512	661	810	Tune up		512	661	810	Tune up
GPRS/EGPRS (GMSK)	1 TX Slot	29.94	29.65	29.70	31.00	-9.03	20.91	20.62	20.67	21.97
	2 TX Slots	29.79	29.55	29.59	31.00	-6.02	23.77	23.53	23.57	24.98
	3 TX Slots	29.63	29.40	29.45	30.50	-4.26	25.37	25.14	25.19	26.24
	4 TX Slots	29.30	29.31	29.27	30.50	-3.01	26.29	26.30	26.26	**27.49**
EGPRS (8PSK)	1 TX Slot	25.67	25.59	25.44	27.00	-9.03	16.64	16.56	16.41	17.97
	2 TX Slots	25.55	25.48	25.34	27.00	-6.02	19.53	19.46	19.32	20.98
	3 TX Slots	25.33	25.30	25.16	26.50	-4.26	21.07	21.04	20.90	22.24
	4 TX Slots	25.07	25.01	24.91	26.50	-3.01	22.06	22.00	21.90	23.49

Note:

The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:

The duty cycle “X” of different time slots as below:

1 TX slot is 1/8

2 TX slots is 2/8

3 TX slots is 3/8

4 TX slots is 4/8

Based on the calculation formula: Frame-averaged power = Burst averaged power + 10*1og(X)

So Time slot average factor is as follows：

Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot) – 9.03

Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots) – 6.02

Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots) – 4.26

Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01

14.2 Conducted Power of UMTS

WCDMA Band II					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.20	23.36	23.34	24.00
HSDPA	Subtest 1	22.21	22.26	22.44	23.00
	Subtest 2	21.83	21.88	21.94	22.50
	Subtest 3	21.70	21.86	21.83	22.50
	Subtest 4	21.76	21.83	21.87	22.50
HSUPA	Subtest 1	21.56	21.53	21.54	22.50
	Subtest 2	21.09	20.86	21.37	22.00
	Subtest 3	20.23	20.57	21.09	22.00
	Subtest 4	21.65	21.76	21.79	22.50
	Subtest 5	22.20	22.30	22.39	23.00

WCDMA Band IV					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	23.45	23.46	23.44	24.00
HSDPA	Subtest 1	22.26	22.16	22.29	23.00
	Subtest 2	21.89	21.81	21.86	22.50
	Subtest 3	21.78	21.80	21.75	22.50
	Subtest 4	21.74	21.82	21.78	22.50
HSUPA	Subtest 1	21.79	21.44	22.16	22.50
	Subtest 2	21.15	20.61	21.21	22.00
	Subtest 3	20.45	20.23	20.29	22.00
	Subtest 4	21.13	21.63	21.75	22.50
	Subtest 5	22.35	22.14	22.23	23.00

WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	23.00	23.14	22.97	24.00
HSDPA	Subtest 1	21.86	22.04	21.92	23.00
	Subtest 2	21.58	21.64	21.52	22.50
	Subtest 3	21.44	21.54	21.42	22.50
	Subtest 4	21.32	21.52	21.40	22.50
HSUPA	Subtest 1	21.84	21.34	21.07	22.50
	Subtest 2	20.78	20.96	20.81	22.00
	Subtest 3	20.07	20.71	20.83	22.00
	Subtest 4	21.41	21.42	21.34	22.50
	Subtest 5	21.89	22.05	21.86	23.00

14.3 Conducted Power of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	23.22	23.34	23.17	24.00
		1	2	23.45	23.50	23.19	24.00
		1	5	23.28	23.20	23.23	24.00
		3	0	22.72	22.65	22.60	24.00
		3	2	22.79	22.82	22.66	24.00
		3	3	22.76	22.65	22.58	24.00
		6	0	22.29	22.14	22.20	23.50
	16QAM	1	0	22.56	22.65	22.63	23.50
		1	2	22.82	22.73	22.73	23.50
		1	5	22.80	22.64	22.66	23.50
		3	0	21.90	21.83	21.72	23.50
		3	2	21.81	21.79	21.72	23.50
		3	3	21.81	21.73	21.80	23.50
		6	0	21.30	21.25	21.17	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	23.31	23.32	23.31	24.00
		1	7	23.11	23.18	23.17	24.00
		1	14	23.18	23.42	23.31	24.00
		8	0	21.79	21.73	21.67	23.50
		8	4	21.69	21.71	21.68	23.50
		8	7	21.77	21.82	21.71	23.50
		15	0	22.24	22.25	22.25	23.50
	16QAM	1	0	22.68	22.67	22.63	23.50
		1	7	22.52	22.61	22.61	23.50
		1	14	22.50	22.70	22.68	23.50
		8	0	20.74	20.73	20.65	22.00
		8	4	20.69	20.71	20.77	22.00
		8	7	20.86	20.69	20.53	22.00
		15	0	21.33	21.26	21.23	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	23.24	23.32	23.20	24.00
		1	13	23.48	23.31	23.48	24.00
		1	24	23.15	23.46	23.17	24.00
		12	0	21.71	21.73	21.56	23.50
		12	6	21.77	21.73	21.67	23.50
		12	13	21.67	21.70	21.64	23.50
		25	0	22.23	22.19	22.30	23.50
	16QAM	1	0	22.63	22.80	22.57	23.50
		1	13	23.10	22.90	22.89	23.50
		1	24	22.63	22.85	22.48	23.50
		12	0	20.76	20.81	20.63	22.00
		12	6	20.93	20.78	20.78	22.00
		12	13	20.53	20.77	20.73	22.00
		25	0	21.34	21.31	21.28	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	23.41	23.37	23.40	24.00
		1	25	23.30	23.34	23.34	24.00
		1	49	23.30	23.38	23.48	24.00
		25	0	21.71	21.83	21.80	23.50
		25	13	21.59	21.81	21.70	23.50
		25	25	21.71	21.83	21.68	23.50
		50	0	22.18	22.35	22.26	23.50
	16QAM	1	0	22.68	22.81	22.64	23.50
		1	25	22.77	22.72	22.93	23.50
		1	49	22.47	22.72	22.77	23.50
		25	0	20.76	20.90	20.69	22.00
		25	13	20.64	20.87	20.81	22.00
		25	25	20.75	20.80	20.75	22.00
		50	0	21.24	21.24	21.29	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	23.47	23.49	23.43	24.00
		1	38	23.29	23.31	23.25	24.00
		1	74	23.31	23.31	23.31	24.00
		36	0	21.70	21.78	21.81	23.50
		36	18	21.58	21.77	21.80	23.50
		36	39	21.71	21.77	21.80	23.50
		75	0	22.20	22.29	22.23	23.50
	16QAM	1	0	22.75	22.95	23.05	23.50
		1	38	22.60	22.67	22.75	23.50
		1	74	22.61	22.71	22.47	23.50
		36	0	20.70	20.76	20.68	22.00
		36	18	20.69	20.78	20.79	22.00
		36	39	20.65	20.87	20.80	22.00
		75	0	21.29	21.39	21.27	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	23.39	23.45	23.47	24.00
		1	50	**23.42**	**23.50**	**23.48**	24.00
		1	99	23.28	23.49	23.17	24.00
		50	0	21.59	21.80	21.73	23.50
		50	25	21.61	21.73	21.71	23.50
		50	50	**21.69**	**21.83**	**21.75**	23.50
		100	0	22.16	**22.33**	22.29	23.50
	16QAM	1	0	22.67	22.81	22.90	23.50
		1	50	22.79	22.75	22.53	23.50
		1	99	22.51	22.78	22.66	23.50
		50	0	20.78	20.87	20.94	22.00
		50	25	20.75	20.78	20.77	22.00
		50	50	20.72	20.77	20.73	22.00
		100	0	21.25	21.41	21.26	22.00

LTE Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	23.05	23.09	23.22	24.00
		1	2	23.23	23.25	23.34	24.00
		1	5	22.94	23.01	23.13	24.00
		3	0	22.51	22.61	22.72	24.00
		3	2	22.55	22.55	22.70	24.00
		3	3	22.44	22.50	22.67	24.00
		6	0	21.96	22.10	22.25	23.00
	16QAM	1	0	22.56	22.48	22.56	23.00
		1	2	22.57	22.48	22.76	23.00
		1	5	22.32	22.60	22.58	23.00
		3	0	21.59	21.62	21.86	23.00
		3	2	21.49	21.68	22.01	23.00
		3	3	21.30	21.68	21.74	23.00
		6	0	21.01	21.15	21.21	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19965	20175	20385	
3MHz	QPSK	1	0	23.13	23.18	23.35	24.00
		1	7	23.07	23.03	23.17	24.00
		1	14	23.15	23.23	23.40	24.00
		8	0	21.47	21.62	21.72	23.00
		8	4	21.55	21.56	21.72	23.00
		8	7	21.51	21.58	21.75	23.00
		15	0	22.08	22.03	22.18	23.00
	16QAM	1	0	22.45	22.64	22.91	23.00
		1	7	22.46	22.46	22.40	23.00
		1	14	22.43	22.68	22.56	23.00
		8	0	20.48	20.62	20.73	22.00
		8	4	20.59	20.69	20.75	22.00
		8	7	20.66	20.73	20.73	22.00
		15	0	21.13	21.13	21.30	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	23.17	23.27	23.33	24.00
		1	13	23.15	23.14	23.30	24.00
		1	24	23.34	23.27	23.26	24.00
		12	0	21.73	21.60	21.75	23.00
		12	6	21.55	21.54	21.73	23.00
		12	13	21.60	21.71	21.75	23.00
		25	0	22.16	22.18	22.26	23.00
	16QAM	1	0	22.56	22.55	22.58	23.00
		1	13	22.65	22.73	22.64	23.00
		1	24	22.66	22.59	22.65	23.00
		12	0	20.72	20.72	20.83	22.00
		12	6	20.52	20.68	20.87	22.00
		12	13	20.69	20.80	20.85	22.00
		25	0	21.29	21.20	21.21	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	23.41	23.24	23.44	24.00
		1	25	23.15	23.09	23.43	24.00
		1	49	23.35	23.25	23.33	24.00
		25	0	21.69	21.60	21.78	23.00
		25	13	21.64	21.58	21.72	23.00
		25	25	21.53	21.60	21.76	23.00
		50	0	21.97	22.18	22.20	23.00
	16QAM	1	0	22.64	22.89	22.70	23.00
		1	25	22.85	22.58	22.54	23.00
		1	49	22.74	22.79	22.66	23.00
		25	0	20.66	20.63	20.84	22.00
		25	13	20.55	20.74	20.79	22.00
		25	25	20.61	20.71	20.79	22.00
		50	0	21.10	21.21	21.28	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	23.23	23.35	23.45	24.00
		1	38	23.13	23.09	23.31	24.00
		1	74	23.37	23.23	23.45	24.00
		36	0	21.62	21.54	21.78	23.00
		36	18	21.61	21.49	21.64	23.00
		36	39	21.68	21.70	21.74	23.00
		75	0	22.08	22.23	22.24	23.00
	16QAM	1	0	22.54	22.74	22.76	23.00
		1	38	22.25	22.62	22.61	23.00
		1	74	22.57	22.69	22.83	23.00
		36	0	20.79	20.62	20.77	22.00
		36	18	20.63	20.47	20.72	22.00
		36	39	20.82	20.72	20.81	22.00
		75	0	21.15	21.22	21.24	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	23.29	23.28	23.26	24.00
		1	50	**23.40**	**23.42**	**23.39**	24.00
		1	99	23.36	23.19	23.37	24.00
		50	0	21.72	21.68	21.70	23.00
		50	25	21.57	21.58	21.60	23.00
		50	50	**21.73**	**21.75**	**21.71**	23.00
		100	0	22.03	**22.21**	22.20	23.00
	16QAM	1	0	22.72	22.57	22.65	23.00
		1	50	22.60	22.55	22.60	23.00
		1	99	22.62	22.49	22.86	23.00
		50	0	20.79	20.77	20.81	22.00
		50	25	20.56	20.70	20.64	22.00
		50	50	20.64	20.70	20.69	22.00
		100	0	21.10	21.15	21.32	22.00

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20407	20525	20643	
1.4MHz	QPSK	1	0	23.80	23.67	23.38	24.50
		1	2	24.05	23.77	23.49	24.50
		1	5	24.00	23.74	23.58	24.50
		3	0	23.21	23.26	22.97	24.50
		3	2	23.26	23.26	23.08	24.50
		3	3	23.17	23.10	22.94	24.50
		6	0	22.83	22.78	22.40	23.50
	16QAM	1	0	23.20	23.05	22.80	23.50
		1	2	23.32	23.31	22.90	23.50
		1	5	23.35	22.99	22.57	23.50
		3	0	22.50	22.22	21.99	23.50
		3	2	22.39	22.36	21.88	23.50
		3	3	22.36	22.16	22.06	23.50
		6	0	21.80	21.67	21.39	22.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20415	20525	20635	
3MHz	QPSK	1	0	24.05	23.78	23.39	24.50
		1	7	23.76	23.76	23.41	24.50
		1	14	23.87	23.85	23.64	24.50
		8	0	22.52	22.20	21.96	23.50
		8	4	22.36	22.21	22.19	23.50
		8	7	22.34	22.14	22.07	23.50
		15	0	22.84	22.78	22.44	23.50
	16QAM	1	0	23.33	23.18	22.96	23.50
		1	7	23.19	22.99	23.05	23.50
		1	14	23.32	23.31	22.99	23.50
		8	0	21.38	21.12	20.76	22.50
		8	4	21.25	21.12	21.06	22.50
		8	7	21.32	21.03	21.14	22.50
		15	0	21.95	21.54	21.32	22.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20425	20525	20625	
5MHz	QPSK	1	0	23.83	23.75	23.51	24.50
		1	13	24.06	23.83	23.39	24.50
		1	24	23.91	23.84	23.61	24.50
		12	0	22.49	22.20	21.90	23.50
		12	6	22.41	22.25	21.95	23.50
		12	13	22.41	22.14	22.11	23.50
		25	0	22.91	22.71	22.48	23.50
	16QAM	1	0	23.17	23.04	23.06	23.50
		1	13	23.26	23.30	23.16	23.50
		1	24	23.14	23.24	22.91	23.50
		12	0	21.37	21.15	20.80	22.50
		12	6	21.26	21.13	20.82	22.50
		12	13	21.38	21.12	21.01	22.50
		25	0	21.88	21.66	21.45	22.50

Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	23.88	23.92	23.54	24.50
		1	25	**23.90**	**23.98**	**23.67**	24.50
		1	49	23.85	23.93	23.64	24.50
		25	0	22.36	22.31	22.19	23.50
		25	13	**22.40**	**22.42**	**22.21**	23.50
		25	25	22.37	22.29	22.17	23.50
		50	0	22.80	**22.81**	22.52	23.50
	16QAM	1	0	23.26	23.25	22.99	23.50
		1	25	23.48	23.05	22.96	23.50
		1	49	23.45	23.15	23.14	23.50
		25	0	21.28	21.18	21.19	22.50
		25	13	21.29	21.08	21.00	22.50
		25	25	21.31	21.15	20.98	22.50
		50	0	21.86	21.64	21.53	22.50

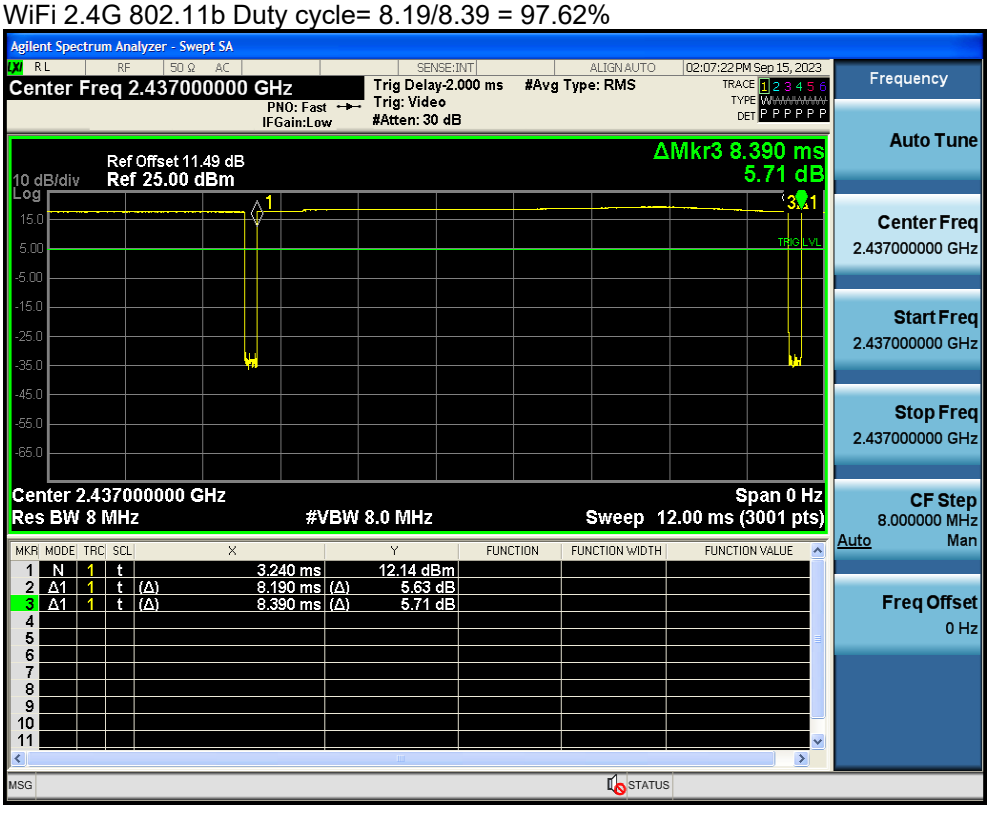
LTE Band 17				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23755	Channel 23790	Channel 23825	Tune up
5MHz	QPSK	1	0	22.69	22.81	22.84	24.00
		1	13	22.90	22.77	22.64	24.00
		1	24	22.82	22.96	22.71	24.00
		12	0	21.28	21.27	21.43	23.00
		12	6	21.26	21.27	21.27	23.00
		12	13	21.16	21.39	21.34	23.00
		25	0	21.53	21.78	21.73	23.00
	16QAM	1	0	21.96	22.36	21.89	23.00
		1	13	22.21	21.99	21.97	23.00
		1	24	21.80	22.08	22.11	23.00
		12	0	20.22	20.41	20.51	22.00
		12	6	20.27	20.40	20.46	22.00
		12	13	20.19	20.51	20.41	22.00
		25	0	20.58	20.81	20.86	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 23780	Channel 23790	Channel 23800	Tune up
10MHz	QPSK	1	0	22.90	22.85	22.80	24.00
		1	25	22.91	**22.95**	22.91	24.00
		1	49	22.71	22.79	22.89	24.00
		25	0	21.35	21.33	21.34	23.00
		25	13	21.39	**21.40**	21.36	23.00
		25	25	21.33	21.37	21.34	23.00
		50	0	21.79	21.80	21.69	23.00
	16QAM	1	0	22.44	22.09	22.09	23.00
		1	25	22.22	22.23	22.35	23.00
		1	49	22.14	22.15	22.23	23.00
		25	0	20.35	20.44	20.36	22.00
		25	13	20.32	20.39	20.40	22.00
		25	25	20.33	20.39	20.41	22.00
		50	0	20.80	20.73	20.70	22.00

14.4 Conducted Power of WiFi

WIFI 2.4G						
Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Average Power (dBm)	Tune up	SAR Test
802.11b	1	2412	1	10.25	11.00	No
	2	2417		11.64	13.00	No
	6	2437		**12.59**	13.00	Yes
	11	2462		12.58	13.00	No
802.11g	1	2412	6	9.32	10.50	No
	2	2417		10.15	12.00	No
	6	2437		11.43	12.00	No
	11	2462		11.41	12.00	No
802.11n 20M	1	2412	6.5	9.57	10.50	No
	2	2417		10.37	12.00	No
	6	2437		11.53	12.00	No
	11	2462		11.50	12.00	No

Duty cycle：

WiFi 2.4G 802.11b Duty cycle= 8.19/8.39 = 97.62%



15 SAR Data Summary

General Notes:

1) The Highest Reported SAR Plot refer to Appendix B.

2) Per KDB 447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1g or 10g SAR for the mid-band or highest output power channel is:

- ≤ 0.8W/kg for 1g or 2.0W/kg for 10g respectively, when the transmission band is ≤ 100MHz.
- ≤ 0.6 W/kg or 1.5 W/kg, for 1g or 10g respectively, when the transmission band is between 100 MHz and 200MHz.
- ≤ 0.4 W/kg or 1.0 W/kg, for 1g or 10g respectively, when the transmission band is ≥ 200MHz.

WiFi 2.4G Notes:

1) 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, SAR measurement is not required for 802.11g/n OFDM configurations

2) As the 802.11b highest reported SAR is smaller than 1.2 W/kg, and the tune-up of the other 802.11 modes are not higher than 802.11b, therefore the adjusted SAR is ≤ 1.2 W/kg for other 802.11 modes, SAR test for the other 802.11 modes is not required.

15.1 SAR Measurement Result of GSM850

Test NO.	Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm										
G01	Front side	GPRS 4TS	190/836.6	0.595	0.393	0.09	31.75	32.50	1.189	**0.707**
G02	Back side	GPRS 4TS	190/836.6	0.437	0.301	0.06	31.75	32.50	1.189	0.519
G03	Left side	GPRS 4TS	190/836.6	0.180	0.108	-0.12	31.75	32.50	1.189	0.214
G04	Bottom side	GPRS 4TS	190/836.6	0.224	0.143	0.16	31.75	32.50	1.189	0.266

Table 4： SAR of GSM850.

15.2 SAR Measurement Result of GSM1900

Test NO.	Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm										
G07	Front side	GPRS 4TS	661/1880	0.458	0.243	-0.14	29.31	30.50	1.315	**0.602**
G08	Back side	GPRS 4TS	661/1880	0.408	0.270	-0.13	29.31	30.50	1.315	0.537
G09	Left side	GPRS 4TS	661/1880	0.233	0.125	-0.15	29.31	30.50	1.315	0.306
G10	Bottom side	GPRS 4TS	661/1880	0.372	0.227	0.01	29.31	30.50	1.315	0.489

Table 5： SAR of GSM1900.

15.3 SAR Measurement Result of WCDMA Band II

Test NO.	Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm										
W01	Front side	RMC	9400/1880	0.769	0.448	0.14	23.36	24.00	1.159	0.891
W02	Back side	RMC	9400/1880	0.765	0.491	0.11	23.36	24.00	1.159	0.886
W03	Left side	RMC	9400/1880	0.362	0.217	-0.01	23.36	24.00	1.159	0.419
W06	Bottom side	RMC	9400/1880	0.661	0.402	-0.14	23.36	24.00	1.159	0.766
W07	Front side	RMC	9262/1852.4	0.870	0.508	-0.11	23.20	24.00	1.202	**1.046**
W08	Front side Repeated	RMC	9262/1852.4	0.837	0.501	0.04	23.20	24.00	1.202	1.006
W09	Front side	RMC	9538/1907.6	0.849	0.501	0.07	23.34	24.00	1.164	0.988
W10	Back side	RMC	9262/1852.4	0.734	0.466	-0.07	23.20	24.00	1.202	0.882
W11	Back side	RMC	9538/1907.6	0.557	0.335	0.03	23.34	24.00	1.164	0.648

Table 6： SAR of WCDMA Band II.

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Front side	9262/1852.4	0.870	0.837	1.04	N/A	N/A

15.4 SAR Measurement Result of WCDMA Band IV

Test NO.	Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm										
W14	Front side	RMC	1412/1732.4	0.952	0.571	-0.02	23.46	24.00	1.132	1.078
W15	Back side	RMC	1412/1732.4	0.729	0.407	-0.16	23.46	24.00	1.132	0.826
W16	Left side	RMC	1412/1732.4	0.237	0.139	0.08	23.46	24.00	1.132	0.268
W19	Bottom side	RMC	1412/1732.4	0.507	0.316	0.01	23.46	24.00	1.132	0.574
W20	Front side	RMC	1312/1712.4	0.976	0.578	0.04	23.45	24.00	1.135	1.108
W21	Front side	RMC	1513/1752.6	0.994	0.588	-0.06	23.44	24.00	1.138	**1.131**
W22	Front side Repeated	RMC	1513/1752.6	0.982	0.582	-0.07	23.44	24.00	1.138	1.117
W23	Back side	RMC	1312/1712.4	0.740	0.394	-0.16	23.45	24.00	1.135	0.840
W24	Back side	RMC	1513/1752.6	0.866	0.479	-0.01	23.44	24.00	1.138	0.985

Table 7： SAR of WCDMA Band IV.

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Front side	1513/1752.6	0.994	0.982	1.01	N/A	N/A

15.5 SAR Measurement Result of WCDMA Band V

Test NO.	Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm										
W24	Front side	RMC	4182/836.4	0.716	0.493	0.04	23.14	24.00	1.219	0.873
W25	Back side	RMC	4182/836.4	0.733	0.520	0.10	23.14	24.00	1.219	0.894
W26	Left side	RMC	4182/836.4	0.398	0.208	0.04	23.14	24.00	1.219	0.485
W29	Bottom side	RMC	4182/836.4	0.320	0.222	0.00	23.14	24.00	1.219	0.390
W30	Front side	RMC	4132/826.4	0.755	0.479	0.04	23.00	24.00	1.259	0.950
W31	Front side	RMC	4233/846.6	0.815	0.513	-0.05	22.97	24.00	1.268	**1.033**
W34	Front side Repeated	RMC	4233/846.6	0.774	0.514	-0.02	22.97	24.00	1.268	0.981
W32	Back side	RMC	4132/826.4	0.754	0.527	-0.01	23.00	24.00	1.259	0.949
W33	Back side	RMC	4233/846.6	0.726	0.517	-0.01	22.97	24.00	1.268	0.920

Table 8： SAR of WCDMA Band V.

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Front side	4233/846.6	0.815	0.774	1.05	N/A	N/A

15.6 SAR Measurement Result of LTE Band 2

Test NO.	Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm (1RB)											
L01	Front side	20	QPSK 1_50	18900/1880	0.829	0.482	-0.12	23.50	24.00	1.122	**0.930**
L02	Front side Repeated	20	QPSK 1_50	18900/1880	0.728	0.434	0.05	23.50	24.00	1.122	0.817
L03	Back side	20	QPSK 1_50	18900/1880	0.715	0.466	-0.02	23.50	24.00	1.122	0.802
L04	Left side	20	QPSK 1_50	18900/1880	0.377	0.238	-0.07	23.50	24.00	1.122	0.423
L07	Bottom side	20	QPSK 1_50	18900/1880	0.738	0.445	-0.10	23.50	24.00	1.122	0.828
L08	Front side	20	QPSK 1_50	18700/1860	0.779	0.466	0.04	23.42	24.00	1.143	0.890
L09	Front side	20	QPSK 1_50	19100/1900	0.798	0.464	-0.06	23.48	24.00	1.127	0.900
L10	Back side	20	QPSK 1_50	18700/1860	0.711	0.465	-0.03	23.42	24.00	1.143	0.813
L11	Back side	20	QPSK 1_50	19100/1900	0.554	0.304	0.09	23.48	24.00	1.127	0.624
L12	Bottom side	20	QPSK 1_50	18700/1860	0.566	0.339	-0.08	23.42	24.00	1.143	0.647
L13	Bottom side	20	QPSK 1_50	19100/1900	0.583	0.362	0.15	23.48	24.00	1.127	0.657
Hotspot 10mm (50%RB)											
L14	Front side	20	QPSK 50_50	18900/1880	0.616	0.360	-0.04	21.83	23.50	1.469	0.905
L15	Back side	20	QPSK 50_50	18900/1880	0.540	0.335	0.08	21.83	23.50	1.469	0.793
L16	Left side	20	QPSK 50_50	18900/1880	0.301	0.183	-0.01	21.83	23.50	1.469	0.442
L19	Bottom side	20	QPSK 50_50	18900/1880	0.490	0.304	0.07	21.83	23.50	1.469	0.720
L20	Front side	20	QPSK 50_50	18700/1860	0.605	0.356	-0.12	21.69	23.50	1.517	0.918
L21	Front side	20	QPSK 50_50	19100/1900	0.595	0.346	0.01	21.75	23.50	1.496	0.890
Hotspot 10mm (100%RB)											
L22	Front side	20	QPSK 100_0	18900/1880	0.623	0.364	-0.01	22.33	23.50	1.309	0.816
L23	Back side	20	QPSK 100_0	18900/1880	0.568	0.366	0.12	22.33	23.50	1.309	0.744
L24	Bottom side	20	QPSK 100_0	18900/1880	0.495	0.293	-0.13	22.33	23.50	1.309	0.648

Table 9： SAR of LTE Band 2.

15.7 SAR Measurement Result of LTE Band 4

Test NO.	Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm (1RB)											
L25	Front side	20	QPSK 1_50	20175/1732.5	0.812	0.487	-0.07	23.42	24.00	1.143	0.928
L26	Back side	20	QPSK 1_50	20175/1732.5	0.820	0.438	-0.17	23.42	24.00	1.143	0.937
L27	Left side	20	QPSK 1_50	20175/1732.5	0.365	0.230	-0.07	23.42	24.00	1.143	0.417
L30	Bottom side	20	QPSK 1_50	20175/1732.5	0.519	0.307	0.01	23.42	24.00	1.143	0.593
L31	Front side	20	QPSK 1_50	20050/1720	0.800	0.479	-0.03	23.40	24.00	1.148	0.919
L32	Front side	20	QPSK 1_50	20300/1745	0.899	0.525	-0.09	23.39	24.00	1.151	1.035
L42	Back side	20	QPSK 1_50	20050/1720	0.839	0.427	0.00	23.40	24.00	1.148	0.963
L43	Back side	20	QPSK 1_50	20300/1745	0.906	0.478	-0.16	23.39	24.00	1.151	1.043
L47	Back side Repeated	20	QPSK 1_50	20300/1745	0.916	0.481	-0.18	23.39	24.00	1.151	**1.054**
Hotspot 10mm (50%RB)											
L33	Front side	20	QPSK 50_50	20175/1732.5	0.678	0.398	-0.07	21.75	23.00	1.334	0.904
L34	Back side	20	QPSK 50_50	20175/1732.5	0.655	0.348	-0.18	21.75	23.00	1.334	0.873
L35	Left side	20	QPSK 50_50	20175/1732.5	0.142	0.087	0.05	21.75	23.00	1.334	0.189
L38	Bottom side	20	QPSK 50_50	20175/1732.5	0.402	0.237	0.07	21.75	23.00	1.334	0.536
L39	Front side	20	QPSK 50_50	20050/1720	0.638	0.382	-0.06	21.73	23.00	1.340	0.855
L40	Front side	20	QPSK 50_50	20300/1745	0.663	0.394	0.01	21.71	23.00	1.346	0.892
L45	Back side	20	QPSK 50_50	20050/1720	0.631	0.338	0.16	21.73	23.00	1.340	0.845
L46	Back side	20	QPSK 50_50	20300/1745	0.638	0.361	0.18	21.71	23.00	1.346	0.859
Hotspot 10mm (100%RB)											
L41	Front side	20	QPSK 100_0	20175/1732.5	0.671	0.398	0.00	22.21	23.00	1.199	0.805
L44	Back side	20	QPSK 100_0	20175/1732.5	0.596	0.321	0.03	22.21	23.00	1.199	0.715

Table 10：SAR of LTE Band 4.

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	20300/1745	0.906	0.916	1.01	N/A	N/A

15.8 SAR Measurement Result of LTE Band 5

Test NO.	Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm (1RB)											
L60	Front side	10	QPSK 1_25	20525/836.5	0.893	0.600	-0.09	23.98	24.50	1.127	1.007
L61	Back side	10	QPSK 1_25	20525/836.5	0.946	0.647	-0.02	23.98	24.50	1.127	1.066
L62	Left side	10	QPSK 1_25	20525/836.5	0.411	0.239	0.00	23.98	24.50	1.127	0.463
L65	Bottom side	10	QPSK 1_25	20525/836.5	0.414	0.288	-0.08	23.98	24.50	1.127	0.467
L66	Front side	10	QPSK 1_25	20450/829	0.941	0.606	-0.04	23.90	24.50	1.148	1.080
L67	Front side	10	QPSK 1_25	20600/844	1.040	0.675	0.15	23.67	24.50	1.211	**1.259**
L83	Front side Repeated	10	QPSK 1_25	20600/844	0.912	0.609	-0.05	23.67	24.50	1.211	1.104
L68	Back side	10	QPSK 1_25	20450/829	0.974	0.684	-0.06	23.90	24.50	1.148	1.118
L69	Back side	10	QPSK 1_25	20600/844	0.903	0.622	-0.09	23.67	24.50	1.211	1.093
Hotspot 10mm (50%RB)											
L72	Front side	10	QPSK 25_13	20525/836.5	0.761	0.494	0.02	22.42	23.50	1.282	0.976
L73	Back side	10	QPSK 25_13	20525/836.5	0.743	0.512	-0.08	22.42	23.50	1.282	0.953
L74	Left side	10	QPSK 25_13	20525/836.5	0.284	0.161	-0.12	22.42	23.50	1.282	0.364
L75	Bottom side	10	QPSK 25_13	20525/836.5	0.286	0.203	0.17	22.42	23.50	1.282	0.367
L76	Front side	10	QPSK 25_13	20450/829	0.697	0.455	0.03	22.40	23.50	1.288	0.898
L77	Front side	10	QPSK 25_13	20600/844	0.829	0.514	-0.02	22.21	23.50	1.346	1.116
L78	Back side	10	QPSK 25_13	20450/829	0.821	0.555	0.03	22.40	23.50	1.288	1.058
L79	Back side	10	QPSK 25_13	20600/844	0.668	0.469	0.16	22.21	23.50	1.346	0.899
Hotspot 10mm (50%RB)											
L80	Front side	10	QPSK 50_0	20525/836.5	0.702	0.463	-0.05	22.81	23.50	1.172	0.823
L81	Back side	10	QPSK 50_0	20525/836.5	0.733	0.508	0.02	22.81	23.50	1.172	0.859

Table 11：SAR of LTE Band 5.

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Front side	20600/844	1.040	0.912	1.14	N/A	N/A

15.9 SAR Measurement Result of LTE Band 17

Test NO.	Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm (1RB)											
L48	Front side	10	QPSK 1_25	23790/710	0.480	0.318	-0.10	22.95	24.00	1.274	0.611
L49	Back side	10	QPSK 1_25	23790/710	0.482	0.345	0.00	22.95	24.00	1.274	0.614
L50	Left side	10	QPSK 1_25	23790/710	0.301	0.180	-0.14	22.95	24.00	1.274	0.383
L53	Bottom side	10	QPSK 1_25	23790/710	0.493	0.339	0.00	22.95	24.00	1.274	**0.628**
Hotspot 10mm (50%RB)											
L54	Front side	10	QPSK 25_13	23790/710	0.364	0.247	-0.19	21.40	23.00	1.445	0.526
L55	Back side	10	QPSK 25_13	23790/710	0.369	0.252	0.02	21.40	23.00	1.445	0.533
L56	Left side	10	QPSK 25_13	23790/710	0.215	0.131	0.05	21.40	23.00	1.445	0.311
L59	Bottom side	10	QPSK 25_13	23790/710	0.381	0.266	-0.06	21.40	23.00	1.445	0.551

Table 12：SAR of LTE Band 17.

15.10 SAR Measurement Result of WIFI 2.4G

Test position	Mode	Ch./Freq. (MHz)	Date Rate	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Hotspot 10mm												
Front side	802.11b	6/2437	1M	0.006	0.001	0.14	97.62%	1.024	12.59	13.00	1.099	0.006
Back side	802.11b	6/2437	1M	0.016	0.007	-0.03	97.62%	1.024	12.59	13.00	1.099	0.018
Right side	802.11b	6/2437	1M	0.006	0.003	-0.05	97.62%	1.024	12.59	13.00	1.099	0.007
Top side	802.11b	6/2437	1M	0.032	0.015	-0.16	97.62%	1.024	12.59	13.00	1.099	**0.036**

Table 13：SAR of WIFI 2.4G.

16 Simultaneous Transmission Analysis

The Simultaneous Transmission Possibilities of this device are as below:

NO.	Simultaneous TX Combination	Hotspot
1	WWAN+WIFI 2.4G	Yes

Note:

1. The device does not support DTM function.
2. Per KDB 447498 D01, simultaneous transmission SAR is compliant if,
   i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
   ii) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (min. separation distance, mm), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04 for 1g SAR and SPLSR≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

16.1 Simultaneous Transmission SAR Summary

Band	Test position	SAR_{max} (W/kg)		Summed SAR
		Main Ant	WiFi 2.4G	
		1	2	1+2
GSM850	Front side	0.707	0.006	0.713
	Back side	0.519	0.018	0.537
	Left side	0.214	/	0.214
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.266	/	0.266
GSM1900	Front side	0.602	0.006	0.608
	Back side	0.537	0.018	0.555
	Left side	0.306	/	0.306
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.489	/	0.489
WCDMA B2	Front side	1.046	0.006	1.052
	Back side	0.886	0.018	0.904
	Left side	0.419	/	0.419
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.766	/	0.766
WCDMA B4	Front side	1.131	0.006	1.137
	Back side	0.985	0.018	1.003
	Left side	0.268	/	0.268
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.574	/	0.574
WCDMA B5	Front side	1.033	0.006	1.039
	Back side	0.949	0.018	0.967
	Left side	0.485	/	0.485
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.390	/	0.390
LTE B2	Front side	0.930	0.006	0.936
	Back side	0.813	0.018	0.831
	Left side	0.442	/	0.442
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.828	/	0.828
LTE B4	Front side	1.035	0.006	1.041
	Back side	1.054	0.018	1.072
	Left side	0.417	/	0.417
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.593	/	0.593
LTE B5	Front side	1.259	0.006	**1.265**
	Back side	1.118	0.018	1.136
	Left side	0.463	/	0.463
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.467	/	0.467
LTE B17	Front side	0.611	0.006	0.617
	Back side	0.614	0.018	0.632
	Left side	0.383	/	0.383
	Right side	/	0.007	0.007
	Top side	/	0.036	0.036
	Bottom side	0.628	/	0.628

17 Measurement Uncertainty

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

18 Calibration Certificate

Please see the Appendix C

19 Test Setup Photos

Please see the Appendix D

Appendix A: System Check Plots

Appendix B: SAR Test Plots

Appendix C: Calibration certificate

Appendix D: Test Setup Photos

--- The End ---