中认信通
CHINA CERTIFICATION ICT CO.,LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

SAR TEST REPORT

Applicant: **Quanzhou Tesunho Electronics Co., Ltd**

Address: 2#, 5F E-19# Phase 2 Xunmei, Quanzhou, Fujian, China

FCC ID: **2AKS9TH288**

Product Name: **IP Trunking Radio**

Model Number: **TH-288**

Standard(s): **47 CFR Part 2(2.1093)**

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR231168706-20**

Date Of Issue: **2024-01-11**

Reviewed By: **Karl Gong** Karl Gong

Title: SAR Engineer

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
Tel: +86-769-82016888

SAR TEST RESULTS SUMMARY

Operation Frequency Bands	Highest Reported 1g SAR (W/kg)		Limits (W/kg)
	Head SAR(Face Up) (Gap 10mm)	Body SAR (Gap 0mm)	
WCDMA Band 2	0.66	0.69	**1.6**
WCDMA Band 4	0.75	0.67	
WCDMA Band 5	0.69	0.70	
LTE Band 2	0.57	0.62	
LTE Band 5	0.8	**0.74**	
LTE Band 12	0.31	0.20	
LTE Band 13	0.66	0.56	
LTE Band 14	0.81	0.67	
LTE Band 66&4	**0.98**	0.68	
LTE Band 71	0.19	0.11	
Maximum Simultaneous Transmission SAR			
Items	**Face Up (Gap 10mm)**	**Body SAR (Gap 0mm)**	**Limits**
Sum SAR(W/kg)	/	/	**1.6**
SPLSR	/	/	0.04
EUT Received Date:	2023/11/21		
Tested Date:	2023/12/21~2023/12/22		
Tested Result:	Pass		

Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR231168706-20	Original Report	2024-01-11

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Device Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Integral Antenna
Body-Worn Accessories:	Belt Clip
Operation modes:	WCDMA(R99 Data, HSDPA/HSUPA/DC-HSDPA/HSPA+), FDD-LTE
Frequency Band:	WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 4: 1710-1755 MHz(TX) ; 2110-2155 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) LTE Band 4: 1710-1755 MHz(TX) ; 2110-2155 MHz(RX) LTE Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 12: 699-716 MHz(TX); 729-746 MHz(RX) LTE Band 13: 777-787 MHz(TX); 746-756 MHz(RX) LTE Band 14: 788-798 MHz(TX); 758-768 MHz(RX) LTE Band 66: 1710-1780 MHz(TX) ; 2110-2180 MHz(RX) LTE Band 71: 663-698 MHz(TX) ; 617-652 MHz(RX)
Conducted RF Power:	WCDMA Band 2: 22.33 dBm WCDMA Band 4: 21.92 dBm WCDMA Band 5: 22.24 dBm LTE Band 2: 23.38 dBm LTE Band 4: 23.51dBm LTE Band 5: 23.79 dBm LTE Band 12: 24.06 dBm LTE Band 13: 23.38 dBm LTE Band 14: 23.61 dBm LTE Band 66: 23.41 dBm LTE Band 71: 23.18 dBm
Rated Input Voltage:	DC 3.6 V from Rechargeable Battery
Serial Number:	2DYH-1
Normal Operation:	Face Up and Body-worn

1.2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528-2013, the following FCC Published RF exposure KDB procedures:

KDB 447498 D01 General RF Exposure Guidance v06
KDB 648474 D04 Handset SAR v01r03
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 941225 D01 3G SAR Procedures v03r01
KDB 941225 D05 SAR for LTE Devices v02r05

TCB Workshop April 2019: RF Exposure Procedures

1.3 SAR Limits

FCC Limit

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	**1.60**	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

Population/Uncontrolled Environments are defined as locations where there is the exposure of individual 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).

General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg for 1g SAR applied to the EUT.

1.4 FACILITIES

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The test sites and measurement facilities used to collect data are located at:

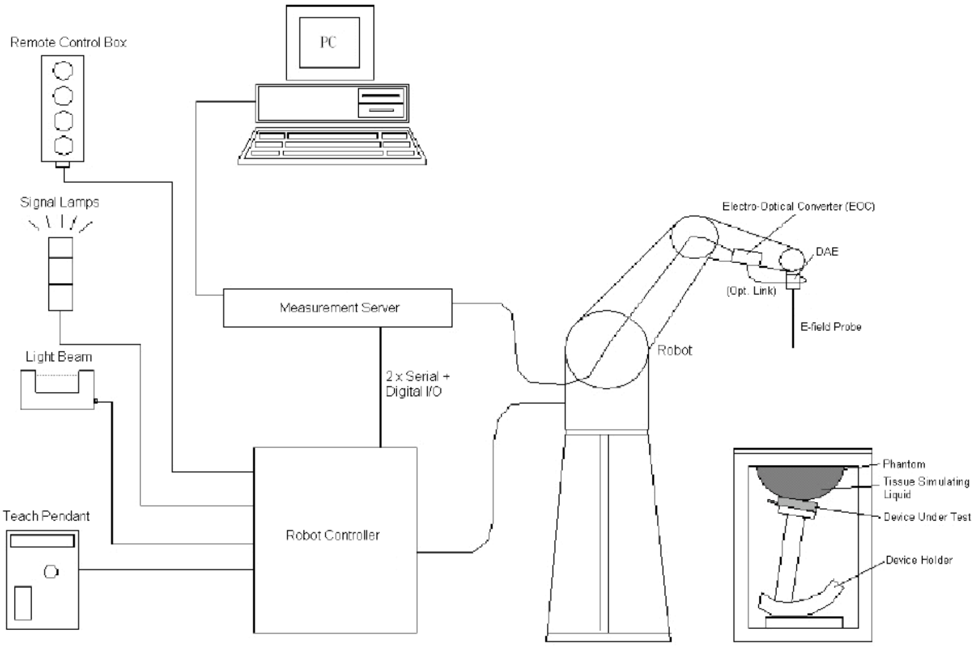
☒ SAR Lab 1	☐ SAR Lab 2

2. SAR MEASUREMENT SYSTEM

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:

DASY5 System Description

The DASY5 system 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 application, 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 Win7 professional operating system and the DASY52 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.

DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz Intel ULV Celeron, 128MB chip-disk and 128MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16 bit AD-converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized point out, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

Data Acquisition Electronics

The data acquisition electronics (DAE4) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of both the DAE4 as well as of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

ES3DV3 E-Field Probes

Frequency	10 MHz - 4 GHz Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones
Compatibility	DASY3, DASY4, DASY52, DASY6, DASY8 SAR, EASY6, EASY4/MRI

Calibration Frequency Points for ES3DV3 E-Field Probes SN: 3157 Calibrated: 2023/4/10

Calibration Frequency Point(MHz)	Frequency Range(MHz)		Conversion Factor		
	From	To	X	Y	Z
750 Head	650	850	6.48	6.48	6.48
900 Head	850	1000	6.25	6.25	6.25
1750 Head	1650	1850	5.38	5.38	5.38
1900 Head	1850	2000	5.18	5.18	5.18
2300 Head	2200	2400	4.96	4.96	4.96
2450 Head	2400	2550	4.74	4.74	4.74
2600 Head	2550	2700	4.52	4.52	4.52

SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6 mm). The phantom has three measurement areas:
_ Left Head
_ Right Head
_ Flat phantom

The phantom table for the DASY systems based on the robots have the size of 100 x 50 x 85 cm (L x W x H).
For easy dislocation these tables have fork lift cut outs at the bottom.
The bottom plate contains three pairs of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. Only one device holder is necessary if two phantoms are used (e.g., for different liquids)

A white cover is provided to cover the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on top of this phantom cover are possible. Three reference marks are provided on the phantom counter. These reference marks are used to teach the absolute phantom position relative to the robot.

Robots

The DASY5 system uses the high precision industrial robot. The robot offers the same features important for our application:
- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchrony motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

The above mentioned robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is contained on the CDs delivered along with the robot. Paper manuals are available upon request direct from Staubli.

SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are 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. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 15mm 2 step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

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

Step 3: Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm,with the side length of the 10g cube is 21.5mm.

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·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details. * When zoom scan is required and the <u>reported</u> SAR from the *area scan based 1-g SAR estimation* procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power Drift Measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement 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. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEC 62209-1:2016

Recommended Tissue Dielectric Parameters for Head liquid

Table A.3 – Dielectric properties of the head tissue-equivalent liquid

Frequency MHz	Relative permittivity ε_r	Conductivity (σ) S/m
300	45,3	0,87
450	43,5	0,87
750	*41,9*	*0,89*
835	41,5	0,90
900	41,5	0,97
1 450	40,5	1,20
1 500	*40,4*	*1,23*
1 640	*40,2*	*1,31*
1 750	*40,1*	*1,37*
1 800	40,0	1,40
1 900	40,0	1,40
2 000	40,0	1,40
2 100	*39,8*	*1,49*
2 300	*39,5*	*1,67*
2 450	39,2	1,80
2 600	*39,0*	*1,96*
3 000	38,5	2,40
3 500	*37,9*	*2,91*
4 000	*37,4*	*3,43*
4 500	*36,8*	*3,94*
5 000	*36,2*	*4,45*
5 200	*36,0*	*4,66*
5 400	*35,8*	*4,86*
5 600	*35,5*	*5,07*
5 800	*35,3*	*5,27*
6 000	*35,1*	*5,48*

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 MHz are provided (i.e. the values shown *in italics*). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.

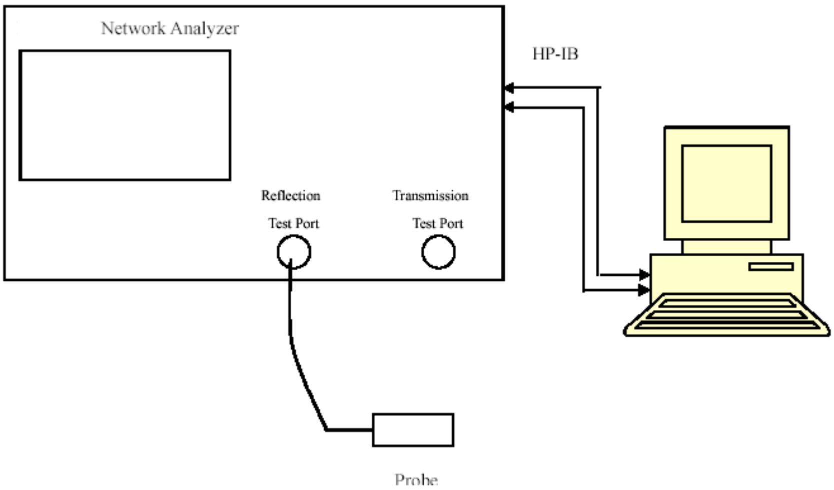
3. EQUIPMENT LIST AND CALIBRATION

3.1 Equipments List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52.10	N/A	NCR	NCR
DASY5 Measurement Server	DASY5 4.5.12	1567	NCR	NCR
Data Acquisition Electronics	DAE4	1493	2023/3/17	2024/3/16
E-Field Probe	ES3DV3	3157	2023/04/10	2024/04/09
Mounting Device	MD4HHTV5	BJPCTC0152	NCR	NCR
Twin SAM	Twin SAM V5.0	1412	NCR	NCR
Dipole, 750 MHz	D750V3	1230	2023/3/24	2026/3/23
Dipole, 1750 MHz	D1750V2	1200	2023/3/27	2026/3/26
Dipole, 1900 MHz	D1900V2	5d251	2023/3/27	2026/3/26
Simulated Tissue Liquid Head(500-9500 MHz)	HBBL600-10000V6	220420-2	Each Time	/
Network Analyzer	8753B	2828A00170	2023/10/17	2024/10/16
Dielectric assessment kit	1319	SM DAK 040 CA	NCR	NCR
MXG Vector Signal Generator	N5182B	MY51350144	2023/3/31	2024/3/30
Power Meter	EPM-441A/8484A	GB37481494	2023/3/31	2024/3/30
Pulse Power Sensor	MA2411A	10780	2023/8/4	2024/8/3
Power Amplifier	ZHL-5W-202-S+	416402204	NCR	NCR
Directional Coupler	441493	520Z	NCR	NCR
Attenuator	20dB, 100W	LN749	NCR	NCR
Attenuator	6dB, 150W	2754	NCR	NCR
Thermometer	DTM3000	3892	2023/3/31	2024/3/30
Radio Communication Analyzer	MT8820C	620118	2023/3/31	2024/3/30

4. SAR MEASUREMENT SYSTEM VERIFICATION

4.1 Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	Δσ (S/m)	
673	Simulated Tissue Liquid Head	43.213	0.846	42.31	0.88	2.13	-3.86	±5
680.5	Simulated Tissue Liquid Head	43.109	0.851	42.27	0.89	1.98	-4.38	±5
688	Simulated Tissue Liquid Head	42.937	0.858	42.23	0.89	1.67	-3.6	±5
704	Simulated Tissue Liquid Head	42.818	0.865	42.15	0.89	1.58	-2.81	±5
707.5	Simulated Tissue Liquid Head	42.765	0.872	42.13	0.89	1.51	-2.02	±5
711	Simulated Tissue Liquid Head	42.629	0.878	42.11	0.89	1.23	-1.35	±5
750	Simulated Tissue Liquid Head	42.429	0.883	41.9	0.89	1.26	-0.79	±5
782	Simulated Tissue Liquid Head	42.237	0.887	41.75	0.89	1.17	-0.34	±5
793	Simulated Tissue Liquid Head	42.175	0.893	41.7	0.9	1.14	-0.78	±5
826.4	Simulated Tissue Liquid Head	41.867	0.912	41.54	0.9	0.79	1.33	±5
836.5	Simulated Tissue Liquid Head	41.759	0.924	41.5	0.9	0.62	2.67	±5
836.6	Simulated Tissue Liquid Head	41.759	0.924	41.5	0.9	0.62	2.67	±5
846.6	Simulated Tissue Liquid Head	41.653	0.929	41.5	0.91	0.37	2.09	±5

**Liquid Verification above was performed on 2023/12/21.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	Δσ (S/m)	
1712.4	Simulated Tissue Liquid Head	41.003	1.331	40.13	1.35	2.18	-1.41	±5
1720	Simulated Tissue Liquid Head	40.966	1.336	40.13	1.35	2.08	-1.04	±5
1732.6	Simulated Tissue Liquid Head	40.857	1.348	40.12	1.36	1.84	-0.88	±5
1745	Simulated Tissue Liquid Head	40.746	1.352	40.1	1.37	1.61	-1.31	±5
1750	Simulated Tissue Liquid Head	40.691	1.357	40.1	1.37	1.47	-0.95	±5
1752.6	Simulated Tissue Liquid Head	40.583	1.361	40.09	1.37	1.23	-0.66	±5
1770	Simulated Tissue Liquid Head	40.377	1.373	40.06	1.38	0.79	-0.51	±5

**Liquid Verification above was performed on 2023/12/22.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	Δσ (S/m)	
1852.4	Simulated Tissue Liquid Head	39.815	1.389	40	1.4	-0.46	-0.79	±5
1860	Simulated Tissue Liquid Head	39.571	1.395	40	1.4	-1.07	-0.36	±5
1880	Simulated Tissue Liquid Head	39.367	1.409	40	1.4	-1.58	0.64	±5
1900	Simulated Tissue Liquid Head	39.242	1.421	40	1.4	-1.9	1.5	±5
1907.6	Simulated Tissue Liquid Head	39.097	1.425	40	1.4	-2.26	1.79	±5

**Liquid Verification above was performed on 2023/12/22.*

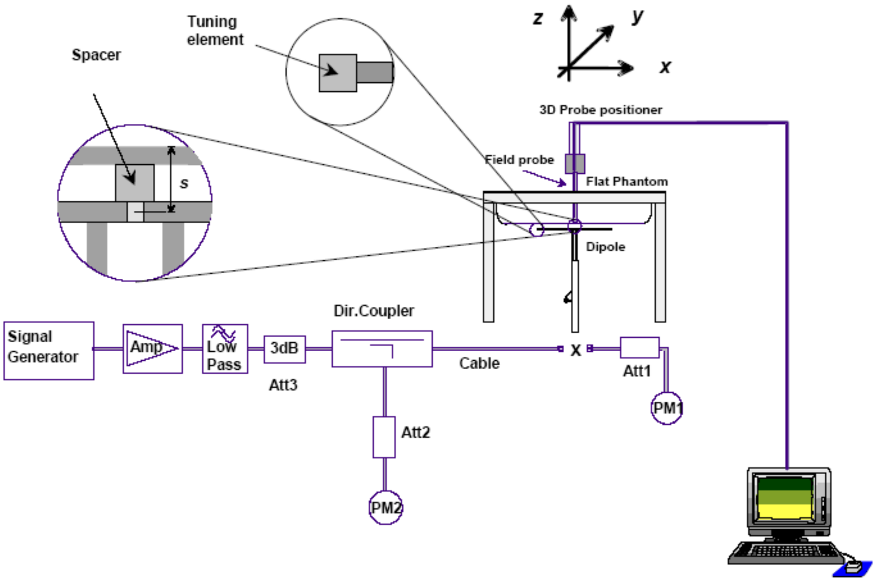
4.2 System Accuracy Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ±10%. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

a) s = 15 mm ± 0,2 mm for 300 MHz ≤ f ≤ 1 000 MHz;
b) s = 10 mm ± 0,2 mm for 1 000 MHz < f ≤ 3 000 MHz;
c) s = 10 mm ± 0,2 mm for 3 000 MHz < f ≤ 6 000 MHz.

System Verification Setup Block Diagram



System Accuracy Check Results

Date	Frequency Band	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/kg)	Delta (%)	Tolerance (%)
2023/12/21	750 MHz	Simulated Tissue Liquid Head	100	1g	0.885	8.85	8.49	4.24	±10
2023/12/22	1750 MHz	Simulated Tissue Liquid Head	100	1g	3.62	36.2	35.8	1.12	±10
2023/12/22	1900 MHz	Simulated Tissue Liquid Head	100	1g	3.74	37.4	38.9	-3.86	±10

*The SAR values above are normalized to 1 Watt forward power.

4.3 SAR SYSTEM VALIDATION DATA

System Performance 750 MHz was performed on 2023/12/21

DUT: D750V3; Type: 750 MHz; Serial: 1230

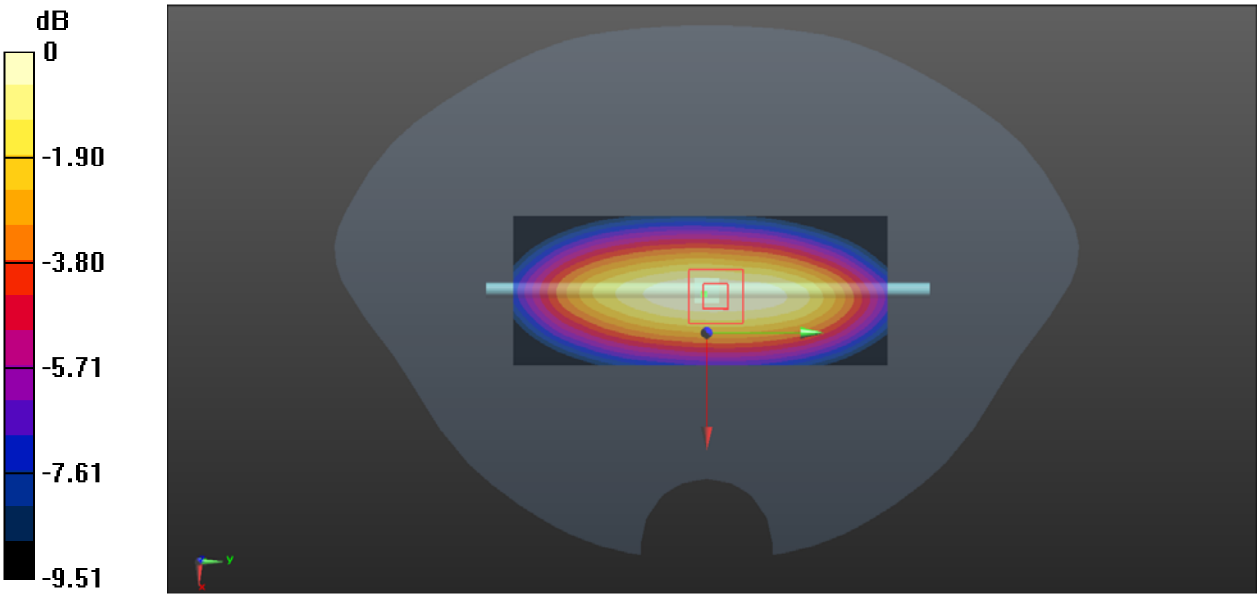
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.883 S/m; ε_r = 42.429; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3157; ConvF(6.48, 6.48, 6.48) @750 MHz; Calibrated: 2023/4/10
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1493; Calibrated: 2023/3/17
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.22 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 36.95 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.885 W/kg; SAR(10 g) = 0.581 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

System Performance 1750MHz was performed 2023/12/22

DUT: D1750V2; Type: 1750 MHz; Serial: 1200

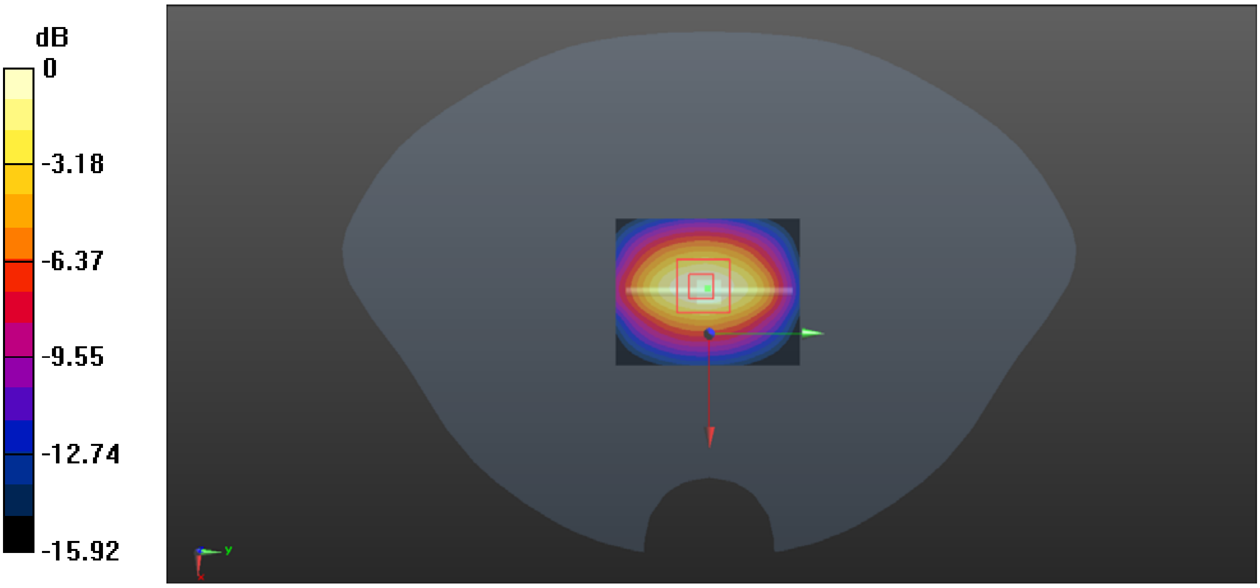
Communication System:CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.357 S/m; ε_r = 40.691; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3157; ConvF(5.38, 5.38, 5.38) @ 1750 MHz; Calibrated: 2023/4/10
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1493; Calibrated: 2023/3/17
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (5x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.84 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.76 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 6.96 W/kg
SAR(1 g) = 3.62 W/kg; SAR(10 g) = 1.89 W/kg
Maximum value of SAR (measured) = 5.88 W/kg



0 dB = 5.88 W/kg = 7.69 dBW/kg

System Performance 1900MHz was performed 2023/12/22

DUT: D1900V2; Type: 1900 MHz; Serial: 5d251

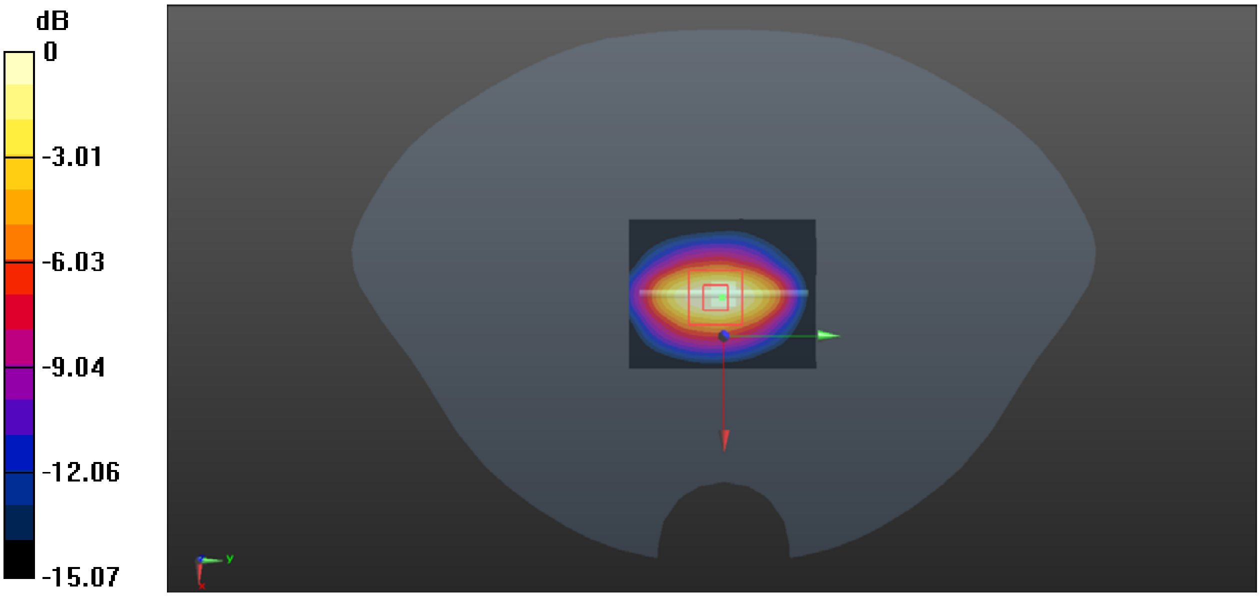
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.421 S/m; ε_r = 39.242; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3157; ConvF(5.18, 5.18, 5.18) @ 1900 MHz; Calibrated: 2023/4/10
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1493; Calibrated: 2023/3/17
- Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Area Scan (5x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.97 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.12 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 6.64 W/kg
SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.96 W/kg
Maximum value of SAR (measured) = 5.59 W/kg



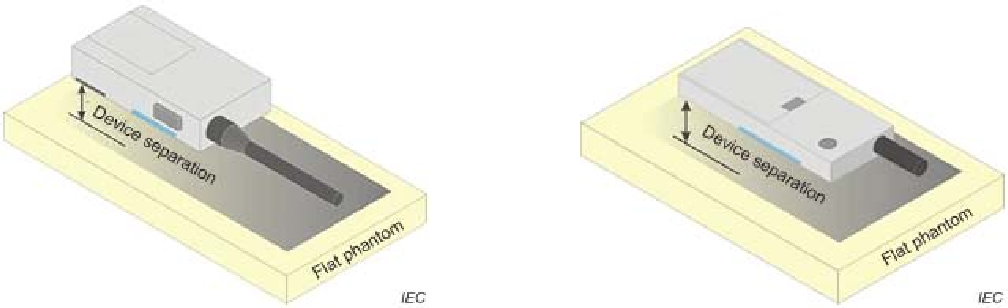
0 dB = 5.59 W/kg = 7.47 dBW/kg

5. EUT TEST STRATEGY AND METHODOLOGY

5.1 Test positions for Front-of-face configurations

A typical example of a front-of-face device is a two-way radio that is held at a close distance from the face of the user while transmitting.

When performing measurements against the flat phantom, the DUT-to-phantom separation distance may be set according to the following hierarchy.
a) Regulatory requirement: When there is a national regulatory requirement that specifies the DUT separation distance to the phantom, the DUT shall be positioned according to this requirement.
b) “Intended use distance” specified by the manufacturer: When there is no regulatory requirement, the intended use condition or distance specified by the manufacturer shall be used. This information shall be acquired from the user documentation accompanying the DUT.
c) Default separation distance: When there is neither a regulatory requirement nor an intended use distance specified by the manufacturer, the DUT shall be measured with each accessible face in direct contact with the surface of the phantom.



b) Two-way radios

Figure 10 – Test positions for front-of-face devices

5.2 Test positions for body-worn and other configurations

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

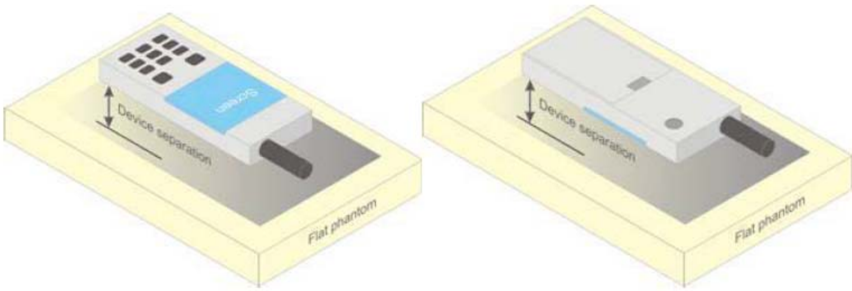


Figure 5 – Test positions for body-worn devices

5.3 Test Distance for SAR Evaluation

For Face Up mode(1g Head SAR), the EUT(Equipment Under Test) is set 10mm away from the phantom, the test distance is 10mm;
For Body Worn mode(1g Body SAR), the EUT(Equipment Under Test) is set directly against the phantom, the test distance is 0mm.

5.4 SAR Evaluation Procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the ear point or central position was used as a reference value for assessing the power drop. The SAR at this point is measured at the start of the test and then again at the end of the testing.

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

2) The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the “Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the averages.

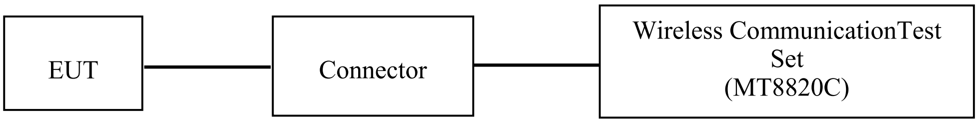
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

6. CONDUCTED OUTPUT POWER MEASUREMENT

6.1 Test Procedure

The RF output of the transmitter was connected to the input of the Wireless Communication Test Set through Connector.



WCDMA/LTE

6.2 Description of Test Configuration

EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in each operation mode.
Equipment Modifications:	No
EUT Exercise Software:	No

The maximum power was configured per 3GPP Standard for each operation modes as below setting:

WCDMA-Release 99

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β / βd	8/15

WCDMA HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Set ings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	1 /15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs=βhs/ βc	30/15			

WCDMA HSUPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	**1**	**2**		**4**	**5**
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30 15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs=βhs/ βc	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate k ps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCIs	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	

DC-HSDPA

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

HSPA+

Sub-test	β_c *(Note3)*	β_d	β_{HS} *(Note1)*	β_{ec}	β_{ed} *(2xSF2)* *(Note 4)*	β_{ed} *(2xSF4)* *(Note 4)*	CM (dB) *(Note 2)*	MPR (dB) *(Note 2)*	AG Index *(Note 4)*	E-TFCI *(Note 5)*	E-TFCI *(boost)*
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

6.2 Maximum Target Output Power

Max Target Power(dBm)			
Mode/Band	Channel		
	Low	Middle	High
WCDMA Band 2	22.4	22.4	22.4
HSDPA	22.4	22.4	22.4
HSUPA	22.1	22.1	22.1
DC-HSDPA	22.2	22.2	22.2
HSPA+	21.3	21.3	21.3
WCDMA Band 4	22	22	22
HSDPA	22	22	22
HSUPA	22	22	22
DC-HSDPA	22	22	22
HSPA+	21.8	21.8	21.8
WCDMA Band 5	22.3	22.3	22.3
HSDPA	22.3	22.3	22.3
HSUPA	21.4	21.4	21.4
DC-HSDPA	21.6	21.6	21.6
HSPA+	21.3	21.3	21.3
LTE Band 2	23.5	23.5	23.5
LTE Band 4	23.6	23.6	23.6
LTE Band 5	23.9	23.9	23.9
LTE Band 12	24.2	24.2	24.2
LTE Band 13	23.5	23.5	23.5
LTE Band 14	23.7	23.7	23.7
LTE Band 66	23.6	23.6	23.6
LTE Band 71	23.3	23.3	23.3

6.4 Test Results:

WCDMA:

WCDMA Band 2:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA R99	21.94	22.01	21.98
HSDPA Subtest 1	21.77	**22.33**	22.02
HSDPA Subtest 2	21.67	21.99	21.96
HSDPA Subtest 3	21.44	21.92	21.68
HSDPA Subtest 4	21.47	21.49	21.94
HSUPA Subtest 1	21.74	21.79	21.98
HSUPA Subtest 2	21.52	21.96	21.87
HSUPA Subtest 3	21.51	21.86	21.76
HSUPA Subtest 4	21.17	21.53	21.45
HSUPA Subtest 5	21.22	21.45	21.69
DC-HSDPA Subtest 1	21.64	21.57	21.66
DC-HSDPA Subtest 2	21.45	22.00	22.14
DC-HSDPA Subtest 3	21.43	21.81	21.65
DC-HSDPA Subtest 4	21.13	21.55	21.42
HSPA+ Subtest 1	20.97	21.15	21.12

WCDMA Band 4:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA R99	21.56	21.73	21.82
HSDPA Subtest 1	21.37	21.79	21.66
HSDPA Subtest 2	21.35	21.67	**21.92**
HSDPA Subtest 3	21.35	21.72	21.53
HSDPA Subtest 4	21.20	21.58	21.40
HSUPA Subtest 1	21.67	21.73	21.91
HSUPA Subtest 2	21.60	21.78	21.90
HSUPA Subtest 3	21.46	21.88	21.53
HSUPA Subtest 4	21.35	21.84	21.50
HSUPA Subtest 5	21.16	21.68	21.20
DC-HSDPA Subtest 1	21.71	21.92	21.81
DC-HSDPA Subtest 2	21.48	21.89	21.71
DC-HSDPA Subtest 3	21.35	21.45	21.76
DC-HSDPA Subtest 4	21.35	21.42	21.51
HSPA+ Subtest 1	21.15	21.66	21.42

WCDMA Band 5:

Test Mode	Conducted Average Output Power(dBm)		
	Lowest Channel	Middle Channel	Highest Channel
WCDMA R99	21.8	22.03	22.00
HSDPA Subtest 1	21.72	21.92	**22.24**
HSDPA Subtest 2	21.47	21.98	21.74
HSDPA Subtest 3	21.45	21.52	21.91
HSDPA Subtest 4	21.3	21.74	21.67
HSUPA Subtest 1	20.86	20.85	21.32
HSUPA Subtest 2	20.8	20.69	21.20
HSUPA Subtest 3	20.63	21.01	21.08
HSUPA Subtest 4	20.6	20.56	20.91
HSUPA Subtest 5	20.47	21.01	20.52
DC-HSDPA Subtest 1	21.13	21.49	21.51
DC-HSDPA Subtest 2	21.01	21.21	21.13
DC-HSDPA Subtest 3	20.86	21.20	20.96
DC-HSDPA Subtest 4	20.67	21.21	21.03
HSPA+ Subtest 1	20.7	20.95	21.18

Note:

1. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model 1.
2. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA/DC-HSDPA/HSPA+ when the maximum average output of each RF channel is less than ¼ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is < 75% of SAR limit.

LTE Band 2:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	23.29	23.28	23.13
		RB1#3	0	0	23.35	23.27	23.23
		RB1#5	0	0	**23.38**	23.11	23.24
		RB3#0	1	1	23.07	23.16	23.19
		RB3#3	1	1	23.22	23.28	23.03
		RB6#0	1	1	22.27	22.08	22.12
	16-QAM	RB1#0	1	1	22.33	22.05	22.2
		RB1#3	1	1	22.16	22.35	22.23
		RB1#5	2	2	22.12	22.03	22
		RB3#0	2	2	22.16	22.26	22.1
		RB3#3	2	2	22.14	22.23	22.19
		RB6#0	2	2	21.11	21.21	21.11
3M	QPSK	RB1#0	0	0	23.22	23.28	23.1
		RB1#8	0	0	23.15	23.18	23.09
		RB1#14	0	0	23.08	23.19	23.27
		RB6#0	1	1	22.02	22.2	22.01
		RB6#9	1	1	22.09	22.08	22.01
		RB15#0	1	1	22.06	22.06	21.99
	16-QAM	RB1#0	1	1	22.08	22.31	21.84
		RB1#8	1	1	21.89	22.24	21.9
		RB1#14	1	1	21.93	22.4	22
		RB6#0	2	2	21.24	21.15	21.04
		RB6#9	2	2	21.2	21.17	21.01
		RB15#0	2	2	21.07	21.27	21.13
5M	QPSK	RB1#0	0	0	23.3	23.11	23.19
		RB1#13	0	0	23.22	23.23	23.06
		RB1#24	0	0	23.21	23.22	23.18
		RB15#0	1	1	22.35	22.04	22.22
		RB15#10	1	1	22.24	22	22.2
		RB25#0	1	1	22.3	22.2	22.2
	16-QAM	RB1#0	1	1	21.85	22	22.31
		RB1#13	1	1	22.22	22.07	22.22
		RB1#24	1	1	22.08	22.13	22.29
		RB15#0	2	2	21	21.17	21.23
		RB15#10	2	2	21.16	21.09	21.04
		RB25#0	2	2	21.11	21.17	21.22

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	23.24	23.26	23.29
		RB1#25	0	0	23.19	23.23	23.18
		RB1#49	1	1	23.11	23.06	23.17
		RB25#0	1	1	22.13	22.02	22.04
		RB25#25	1	1	22.05	22.09	22.13
		RB50#0	1	1	22.07	22.13	22.2
	16-QAM	RB1#0	1	1	22.05	21.96	22.1
		RB1#25	1	1	21.96	22.14	22.38
		RB1#49	1	1	21.95	22.21	22.06
		RB25#0	2	2	21.1	21.16	21.15
		RB25#25	2	2	21.15	21.17	21.16
		RB50#0	2	2	21.17	21.12	21.13
15M	QPSK	RB1#0	0	0	23.31	23.04	22.98
		RB1#38	0	0	23.13	23.15	23.06
		RB1#74	1	1	23.12	23.08	22.92
		RB36#0	1	1	22.14	21.99	22.03
		RB36#39	1	1	22	22.21	22.12
		RB75#0	1	1	22.06	22.16	22.07
	16-QAM	RB1#0	1	1	21.96	22.01	21.73
		RB1#38	1	1	21.86	22.16	21.99
		RB1#74	2	2	21.9	22.17	21.86
		RB36#0	2	2	21.03	21.11	20.85
		RB36#39	2	2	20.96	21.2	21.06
		RB75#0	2	2	20.97	21.21	21.05
20M	QPSK	RB1#0	0	0	23.17	23.06	22.8
		RB1#50	0	0	23.25	23.08	22.96
		RB1#99	0	0	23.26	23.18	23.02
		RB50#0	1	1	22.47	22.38	22.15
		RB50#50	1	1	21.93	22.06	22.08
		RB100#0	1	1	22.05	22.05	22.06
	16-QAM	RB1#0	1	1	22.03	21.91	21.91
		RB1#50	1	1	22.03	22.15	21.98
		RB1#99	2	2	21.97	21.97	22.09
		RB50#0	2	2	21.08	21.06	20.89
		RB50#50	2	2	21.1	21.03	21.17
		RB100#0	2	2	21.09	20.95	21.12

LTE Band 4:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	23.27	23.28	23.22
		RB1#3	0	0	23.48	23.43	23.26
		RB1#5	0	0	23.44	23.33	23.38
		RB3#0	1	1	23.23	23.39	23.13
		RB3#3	1	1	23.19	23.28	23.18
		RB6#0	1	1	22.22	22.39	22.40
	16-QAM	RB1#0	1	1	22.34	22.34	22.16
		RB1#3	1	1	22.33	22.34	22.38
		RB1#5	1	1	22.31	22.33	22.29
		RB3#0	2	2	22.08	22.30	22.23
		RB3#3	2	2	22.23	22.27	22.27
		RB6#0	2	2	21.27	21.35	21.41
3M	QPSK	RB1#0	0	0	23.21	23.44	23.27
		RB1#8	0	0	23.22	23.32	23.18
		RB1#14	0	0	23.17	23.34	23.28
		RB6#0	1	1	22.18	22.34	22.16
		RB6#9	1	1	22.21	22.43	22.33
		RB15#0	1	1	22.20	22.40	22.24
	16-QAM	RB1#0	1	1	22.35	22.34	22.18
		RB1#8	1	1	22.09	22.37	22.24
		RB1#14	1	1	22.20	22.49	22.51
		RB6#0	2	2	21.28	21.32	21.03
		RB6#9	2	2	21.25	21.33	21.27
		RB15#0	2	2	21.29	21.49	21.18
5M	QPSK	RB1#0	0	0	23.20	23.29	23.21
		RB1#13	0	0	23.33	23.26	23.24
		RB1#24	0	0	23.25	23.26	**23.51**
		RB15#0	1	1	22.37	22.32	22.25
		RB15#10	1	1	22.22	22.35	22.54
		RB25#0	1	1	22.34	22.29	22.43
	16-QAM	RB1#0	1	1	22.34	22.41	22.26
		RB1#13	1	1	22.33	22.34	22.33
		RB1#24	1	1	22.54	22.23	22.53
		RB15#0	2	2	21.23	21.37	21.22
		RB15#10	2	2	21.31	21.36	21.52
		RB25#0	2	2	21.38	21.44	21.23

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	23.41	23.43	23.25
		RB1#25	0	0	23.47	23.35	23.20
		RB1#49	0	0	23.27	23.26	23.37
		RB25#0	1	1	22.24	22.31	22.21
		RB25#25	1	1	22.38	22.31	22.16
		RB50#0	1	1	22.35	22.46	22.18
	16-QAM	RB1#0	1	1	22.47	22.23	22.12
		RB1#25	1	1	22.42	22.37	22.15
		RB1#49	1	1	22.18	22.28	22.20
		RB25#0	2	2	21.29	21.26	21.13
		RB25#25	2	2	21.16	21.34	21.18
		RB50#0	2	2	21.20	21.37	21.16
15M	QPSK	RB1#0	0	0	23.29	23.21	23.24
		RB1#38	0	0	23.13	23.28	23.24
		RB1#74	0	0	23.40	23.33	23.38
		RB36#0	1	1	22.18	22.46	22.21
		RB36#39	1	1	22.35	22.42	22.23
		RB75#0	1	1	22.42	22.44	22.33
	16-QAM	RB1#0	1	1	22.08	22.35	22.32
		RB1#38	1	1	22.18	22.23	21.88
		RB1#74	1	1	22.31	22.23	22.01
		RB36#0	2	2	21.22	21.19	21.21
		RB36#39	2	2	21.18	21.41	21.14
		RB75#0	2	2	21.36	21.37	21.23
20M	QPSK	RB1#0	0	0	23.12	23.07	23.39
		RB1#50	0	0	23.06	23.34	23.08
		RB1#99	0	0	23.34	23.04	23.30
		RB50#0	1	1	22.24	22.23	22.22
		RB50#50	1	1	22.25	22.30	22.11
		RB100#0	1	1	22.10	22.25	22.14
	16-QAM	RB1#0	1	1	21.99	22.12	22.04
		RB1#50	1	1	22.09	22.40	22.00
		RB1#99	1	1	22.31	22.10	21.84
		RB50#0	2	2	21.07	21.07	21.26
		RB50#50	2	2	21.20	21.26	21.00
		RB100#0	2	2	21.17	21.17	21.04

LTE Band 5:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	22.99	22.55	22.4
		RB1#3	0	0	22.98	22.48	22.45
		RB1#5	0	0	22.86	22.55	22.41
		RB3#0	1	1	22.92	22.48	22.56
		RB3#3	1	1	22.84	22.4	22.33
		RB6#0	1	1	21.96	21.92	21.94
	16-QAM	RB1#0	1	1	22.12	21.41	21.4
		RB1#3	1	1	22.13	21.72	21.5
		RB1#5	1	1	21.95	21.68	21.46
		RB3#0	2	2	21.78	21.36	21.47
		RB3#3	2	2	21.4	21.64	21.38
		RB6#0	2	2	20.61	20.54	21.21
3M	QPSK	RB1#0	0	0	23.61	23.62	23.87
		RB1#8	0	0	23.48	23.43	23.48
		RB1#14	0	0	23.61	23.5	23.51
		RB6#0	1	1	22.54	22.69	22.58
		RB6#9	1	1	22.57	22.56	22.45
		RB15#0	1	1	22.53	22.6	22.49
	16-QAM	RB1#0	1	1	22.69	22.25	22.51
		RB1#8	1	1	22.4	22.47	22.37
		RB1#14	1	1	22.56	22.61	22.46
		RB6#0	2	2	21.59	21.47	21.48
		RB6#9	2	2	21.56	21.51	21.6
		RB15#0	2	2	21.43	21.53	21.42
5M	QPSK	RB1#0	0	0	23.57	23.47	23.64
		RB1#13	0	0	23.42	23.37	23.56
		RB1#24	0	0	23.34	23.43	23.53
		RB15#0	1	1	22.44	22.48	22.66
		RB15#10	1	1	22.47	22.62	22.47
		RB25#0	1	1	22.41	22.46	22.55
	16-QAM	RB1#0	1	1	22.47	22.59	22.52
		RB1#13	1	1	22.4	22.39	22.51
		RB1#24	1	1	22.45	22.54	22.28
		RB15#0	2	2	21.47	21.41	21.56
		RB15#10	2	2	21.51	21.56	21.42
		RB25#0	2	2	21.53	21.54	21.41

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	23.68	23.4	23.55
		RB1#25	0	0	23.73	23.56	**23.79**
		RB1#49	0	0	23.62	23.49	23.66
		RB25#0	1	1	22.68	22.66	22.74
		RB25#25	1	1	22.59	22.61	22.56
		RB50#0	1	1	22.57	22.53	22.66
	16-QAM	RB1#0	1	1	22.5	22.63	22.5
		RB1#25	1	1	22.52	22.59	22.82
		RB1#49	1	1	22.7	22.41	22.81
		RB25#0	2	2	21.63	21.64	21.63
		RB25#25	2	2	21.53	21.63	21.64
		RB50#0	2	2	21.66	21.64	21.53

LTE Band 12:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	23.81	23.79	23.96
		RB1#3	0	0	**24.06**	23.91	23.93
		RB1#5	0	0	23.85	23.85	23.93
		RB3#0	1	1	23.39	23.5	23.49
		RB3#3	1	1	23.46	23.52	23.66
		RB6#0	1	1	22.5	22.54	22.5
	16-QAM	RB1#0	1	1	22.73	22.64	22.93
		RB1#3	1	1	23.04	22.86	23.1
		RB1#5	1	1	22.91	23	23.16
		RB3#0	2	2	22.75	22.71	22.96
		RB3#3	2	2	22.9	22.99	22.79
		RB6#0	2	2	21.94	21.71	21.89
3M	QPSK	RB1#0	0	0	23.42	23.41	23.3
		RB1#8	0	0	23.35	23.35	23.37
		RB1#14	0	0	23.53	23.3	23.43
		RB6#0	1	1	22.26	22.35	22.34
		RB6#9	1	1	22.32	22.43	22.42
		RB15#0	1	1	22.33	22.36	22.31
	16-QAM	RB1#0	1	1	21.77	21.85	21.93
		RB1#8	1	1	21.89	21.86	21.95
		RB1#14	1	1	21.86	21.92	21.91
		RB6#0	2	2	20.8	20.78	21.02
		RB6#9	2	2	20.82	21.02	20.97
		RB15#0	2	2	20.81	20.96	20.99
5M	QPSK	RB1#0	0	0	23.26	23.05	23.02
		RB1#13	0	0	23.28	23.24	23.04
		RB1#24	0	0	23.23	23.06	23.12
		RB15#0	1	1	22.36	22.32	22.33
		RB15#10	1	1	22.26	22.34	22.25
		RB25#0	1	1	22.36	22.34	22.25
	16-QAM	RB1#0	1	1	21.91	21.83	22.04
		RB1#13	1	1	21.82	21.91	22.07
		RB1#24	1	1	21.96	21.7	21.93
		RB15#0	2	2	21	21.02	20.85
		RB15#10	2	2	20.95	20.95	21.02
		RB25#0	2	2	20.91	21	20.94

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	23.52	23.34	23.31
		RB1#25	0	0	23.57	23.43	23.46
		RB1#49	0	0	23.37	23.34	23.25
		RB25#0	1	1	22.45	22.38	22.3
		RB25#25	1	1	22.45	22.31	22.41
		RB50#0	1	1	22.36	22.28	22.31
	16-QAM	RB1#0	1	1	21.99	21.74	21.81
		RB1#25	1	1	22.08	22.03	21.98
		RB1#49	1	1	22.12	21.85	22
		RB25#0	2	2	20.89	21.04	21.03
		RB25#25	2	2	21.08	20.99	21
		RB50#0	2	2	20.97	21.03	20.9

LTE Band 13:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	22.79	/	23.19
		RB1#13	0	0	23.03	/	23.35
		RB1#24	0	0	23.02	/	23.23
		RB15#0	1	1	22.13	/	22.36
		RB15#10	1	1	22.17	/	22.24
		RB25#0	1	1	22.13	/	22.31
	16-QAM	RB1#0	1	1	22.02	/	22.16
		RB1#13	1	1	22.12	/	22.30
		RB1#24	1	1	22.06	/	22.45
		RB15#0	2	2	21.20	/	21.14
		RB15#10	2	2	21.26	/	21.35
		RB25#0	2	2	21.29	/	21.20
10M	QPSK	RB1#0	0	0	/	23.17	/
		RB1#25	0	0	/	23.17	/
		RB1#49	1	1	/	**23.38**	/
		RB25#0	1	1	/	22.46	/
		RB25#25	1	1	/	22.20	/
		RB50#0	1	1	/	22.32	/
	16-QAM	RB1#0	1	1	/	22.12	/
		RB1#25	1	1	/	21.98	/
		RB1#49	1	1	/	22.06	/
		RB25#0	2	2	/	21.13	/
		RB25#25	2	2	/	21.21	/
		RB50#0	2	2	/	21.20	/

LTE Band 14:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	23.53	/	23.48
		RB1#13	0	0	23.42	/	23.57
		RB1#24	0	0	23.57	/	23.35
		RB15#0	1	1	22.54	/	22.51
		RB15#10	1	1	22.69	/	22.49
		RB25#0	1	1	22.62	/	22.5
	16-QAM	RB1#0	1	1	22.37	/	22.65
		RB1#13	1	1	22.55	/	22.45
		RB1#24	1	1	22.58	/	22.52
		RB15#0	2	2	21.55	/	21.47
		RB15#10	2	2	21.45	/	21.58
		RB25#0	2	2	21.47	/	21.57
10M	QPSK	RB1#0	0	0	/	**23.61**	/
		RB1#25	0	0	/	23.53	/
		RB1#49	1	1	/	23.49	/
		RB25#0	1	1	/	22.56	/
		RB25#25	1	1	/	22.48	/
		RB50#0	1	1	/	22.47	/
	16-QAM	RB1#0	1	1	/	22.53	/
		RB1#25	1	1	/	22.69	/
		RB1#49	1	1	/	22.45	/
		RB25#0	2	2	/	21.44	/
		RB25#25	2	2	/	21.52	/
		RB50#0	2	2	/	21.48	/

LTE Band 66:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	RB1#0	0	0	22.83	22.73	23.22
		RB1#3	0	0	22.95	22.78	**23.41**
		RB1#5	0	0	22.81	22.86	23.33
		RB3#0	1	1	22.65	22.76	23.08
		RB3#3	1	1	22.64	22.81	23.28
		RB6#0	1	1	21.65	21.84	22.20
	16-QAM	RB1#0	1	1	21.68	21.82	22.39
		RB1#3	1	1	21.94	21.97	22.61
		RB1#5	1	1	21.61	21.84	22.47
		RB3#0	2	2	21.58	21.77	22.11
		RB3#3	2	2	21.68	21.72	22.32
		RB6#0	2	2	20.79	20.87	21.32
3M	QPSK	RB1#0	0	0	22.72	22.63	22.91
		RB1#8	0	0	22.51	22.60	23.10
		RB1#14	0	0	22.78	22.62	23.16
		RB6#0	1	1	21.67	21.83	22.21
		RB6#9	1	1	21.65	21.80	22.18
		RB15#0	1	1	21.67	21.81	22.24
	16-QAM	RB1#0	1	1	21.82	21.81	22.51
		RB1#8	1	1	21.91	21.60	22.46
		RB1#14	1	1	21.78	21.37	22.45
		RB6#0	2	2	20.90	20.74	21.38
		RB6#9	2	2	20.84	21.00	21.51
		RB15#0	2	2	20.54	20.98	21.38
5M	QPSK	RB1#0	0	0	22.71	22.83	23.24
		RB1#13	0	0	22.64	22.81	23.20
		RB1#24	0	0	22.61	22.66	23.27
		RB15#0	1	1	21.69	22.00	22.21
		RB15#10	1	1	21.68	21.91	22.31
		RB25#0	1	1	21.65	21.81	22.31
	16-QAM	RB1#0	1	1	21.51	21.98	22.03
		RB1#13	1	1	21.44	21.99	22.28
		RB1#24	1	1	21.57	21.92	22.08
		RB15#0	2	2	20.76	20.95	21.36
		RB15#10	2	2	20.80	20.97	21.35
		RB25#0	2	2	20.75	20.90	21.38

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	RB1#0	0	0	22.75	22.83	22.93
		RB1#25	0	0	23.01	23.10	23.37
		RB1#49	0	0	22.86	22.82	23.28
		RB25#0	1	1	21.74	22.09	22.19
		RB25#25	1	1	21.75	21.76	22.29
		RB50#0	1	1	21.79	21.79	22.25
	16-QAM	RB1#0	1	1	22.13	22.00	22.28
		RB1#25	1	1	22.81	22.27	22.69
		RB1#49	1	1	22.36	21.45	22.17
		RB25#0	2	2	20.69	21.13	21.30
		RB25#25	2	2	20.96	20.92	21.28
		RB50#0	2	2	20.87	21.02	21.18
15M	QPSK	RB1#0	0	0	22.44	22.77	22.90
		RB1#38	0	0	22.87	22.79	23.15
		RB1#74	0	0	22.84	22.65	23.22
		RB36#0	1	1	21.60	21.98	22.10
		RB36#39	1	1	21.92	21.82	22.15
		RB75#0	1	1	21.75	21.90	22.07
	16-QAM	RB1#0	1	1	21.98	21.76	22.35
		RB1#38	1	1	22.14	21.89	22.66
		RB1#74	1	1	22.05	20.98	22.23
		RB36#0	2	2	20.93	20.75	21.08
		RB36#39	2	2	21.05	20.79	21.21
		RB75#0	2	2	20.87	20.98	21.04
20M	QPSK	RB1#0	0	0	22.77	22.87	22.91
		RB1#50	0	0	22.85	22.95	23.08
		RB1#99	0	0	22.89	23.09	23.33
		RB50#0	1	1	22.35	22.39	22.51
		RB50#50	1	1	22.32	22.85	22.76
		RB100#0	1	1	22.33	22.76	22.58
	16-QAM	RB1#0	1	1	21.61	21.77	21.92
		RB1#50	1	1	21.84	21.80	22.26
		RB1#99	1	1	21.76	21.79	22.21
		RB50#0	2	2	20.79	20.86	21.02
		RB50#50	2	2	20.69	20.86	21.21
		RB100#0	2	2	20.77	20.84	20.94

LTE Band 71:

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	RB1#0	0	0	23.01	22.73	22.83
		RB1#13	0	0	23.14	22.9	22.87
		RB1#24	0	0	22.94	22.98	22.85
		RB15#0	1	1	22.05	21.72	22
		RB15#10	1	1	22.01	21.75	21.97
		RB25#0	1	1	22.03	21.74	21.93
	16-QAM	RB1#0	1	1	21.93	21.91	21.88
		RB1#13	1	1	21.98	21.83	22.03
		RB1#24	1	1	21.86	21.73	21.93
		RB15#0	2	2	20.96	20.75	21.01
		RB15#10	2	2	21.09	20.88	21.05
		RB25#0	2	2	21	20.87	20.91
10M	QPSK	RB1#0	0	0	23.06	23.12	23.06
		RB1#25	0	0	23.02	22.87	23.14
		RB1#49	0	0	23.17	23.1	23.1
		RB25#0	1	1	22.1	21.75	22
		RB25#25	1	1	22.05	21.84	22.16
		RB50#0	1	1	21.82	21.83	22.06
	16-QAM	RB1#0	1	1	21.77	21.69	21.69
		RB1#25	1	1	21.82	21.65	22.08
		RB1#49	1	1	21.9	21.87	21.89
		RB25#0	2	2	20.94	20.78	20.94
		RB25#25	2	2	20.93	20.89	21.11
		RB50#0	2	2	20.97	20.75	21.02
15M	QPSK	RB1#0	0	0	**23.18**	22.96	22.91
		RB1#38	0	0	23.07	22.85	22.89
		RB1#74	0	0	23.1	23.13	23.06
		RB36#0	1	1	21.89	21.89	21.85
		RB36#39	1	1	21.93	22.21	22.15
		RB75#0	1	1	21.84	21.94	22.03
	16-QAM	RB1#0	1	1	21.66	21.9	21.82
		RB1#38	1	1	21.63	21.87	22
		RB1#74	1	1	21.87	22.07	22.18
		RB36#0	2	2	20.9	20.89	21.02
		RB36#39	2	2	21.03	21.07	21.1
		RB75#0	2	2	21	21.14	21.13

Test Bandwidth	Test Modulation	Resource Block & RB offset	Target MPR	Meas MPR	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
20M	QPSK	RB1#0	0	0	22.96	22.94	22.73
		RB1#50	0	0	23.12	22.93	22.91
		RB1#99	0	0	23.15	23.06	23.02
		RB50#0	1	1	21.99	21.94	21.85
		RB50#50	1	1	21.96	22.15	22.07
		RB100#0	1	1	22.01	22.04	21.97
	16-QAM	RB1#0	1	1	21.97	21.85	21.57
		RB1#50	1	1	22.48	21.9	21.96
		RB1#99	1	1	22.22	22.05	22.02
		RB50#0	2	2	21.09	20.99	20.88
		RB50#50	2	2	20.97	21.12	21.1
		RB100#0	2	2	20.96	21.02	20.95

Note:

1. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
2. The MT8820C Radio Communication Analyzer is used for LTE output power measurements and SAR testing. Closed loop power control is used to keep the radio transmitters the max output power during the test.
3. KDB941225D05v02- SAR for higher order modulation 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

Antennas Location:

7. SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

7.1 SAR Test Data

Environmental Conditions

Temperature:	22.7~23.6℃	22.9~24.1℃
Relative Humidity:	49 %	52 %
ATM Pressure:	102.1 kPa	102.6 kPa
Test Date:	2023/12/21	2023/12/22

Testing was performed by Wen Chen, Leo Lu, Aixlee Li.

WCDMA Band 2:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	22.01	22.4	1.094	0.599	0.66	1#
	1907.6	RMC	/	/	/	/	/	/
Body Back With Belt(0mm)	1852.4	RMC	/	/	/	/	/	/
	1880	RMC	22.01	22.4	1.094	0.635	0.69	2#
	1907.6	RMC	/	/	/	/	/	/

WCDMA Band 4:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	1712.4	RMC	/	/	/	/	/	/
	1732.6	RMC	21.73	22	1.064	0.706	0.75	3#
	1752.6	RMC	/	/	/	/	/	/
Body Back With Belt(0mm)	1712.4	RMC	/	/	/	/	/	/
	1732.6	RMC	21.73	22	1.064	0.632	0.67	4#
	1752.6	RMC	/	/	/	/	/	/

WCDMA Band 5:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
					Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	22.03	22.3	1.064	0.646	0.69	5#
	846.6	RMC	/	/	/	/	/	/
Body Back With Belt(0mm)	826.4	RMC	/	/	/	/	/	/
	836.6	RMC	22.03	22.3	1.064	0.658	0.7	6#
	846.6	RMC	/	/	/	/	/	/

Note:

1. When the 1-g SAR is⩽ 0.8W/Kg, testing for other channels are optional.
2. The EUT transmit and receive through the same antenna while testing SAR.
3. The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement Channel) Configured in Test Loop Model.
4. KDB 941225 D01-Body SAR is not required for HSDPA/HSUPA/DC-HSDPA/HSPA+ when the maximum average output of each RF channel is less than ¼ dB higher than measured 12.2kbps RMC or the maximum SAR for 12.2kbps RMC is < 75% of SAR limit.
5. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.

LTE Band 2:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg), Limit=1.6W/kg			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.18	23.5	1.076	0.534	0.57	7#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.38	23.5	1.294	0.416	0.54	8#
Body Back With Belt(0mm)	1860	20	1RB	/	/	/	/	/	/
	1880	20	1RB	23.18	23.5	1.076	0.575	0.62	9#
	1900	20	1RB	/	/	/	/	/	/
	1880	20	50%RB	22.38	23.5	1.294	0.462	0.6	10#

LTE Band 5:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.56	23.9	1.081	0.742	0.8	11#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	22.66	23.9	1.33	0.594	0.79	12#
Body Back With Belt(0mm)	829	10	1RB	/	/	/	/	/	/
	836.5	10	1RB	23.56	23.9	1.081	0.684	0.74	13#
	844	10	1RB	/	/	/	/	/	/
	836.5	10	50%RB	22.66	23.9	1.33	0.528	0.7	14#

LTE Band 12:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.43	24.2	1.194	0.197	0.24	15#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.38	24.2	1.521	0.204	0.31	16#
Body Back With Belt(0mm)	704	10	1RB	/	/	/	/	/	/
	707.5	10	1RB	23.43	24.2	1.194	0.133	0.16	17#
	711	10	1RB	/	/	/	/	/	/
	707.5	10	50%RB	22.38	24.2	1.521	0.131	0.20	18#

LTE Band 13:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	782	10	1RB	23.38	23.5	1.028	0.646	0.66	19#
	782	10	50%RB	22.46	23.5	1.271	0.516	0.66	20#
Body Back With Belt(0mm)	782	10	1RB	23.38	23.5	1.028	0.532	0.55	21#
	782	10	50%RB	22.46	23.5	1.271	0.443	0.56	22#

LTE Band 14:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	793	10	1RB	23.61	23.7	1.021	0.789	0.81	23#
	793	10	50%RB	22.56	23.7	1.3	0.621	0.81	24#
	793	10	100%RB	22.47	23.7	1.327	0.554	0.74	25#
Body Back With Belt(0mm)	793	10	1RB	23.61	23.7	1.021	0.651	0.66	26#
	793	10	50%RB	22.56	23.7	1.3	0.516	0.67	27#

LTE Band 66&4:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	1720	20	1RB	22.89	23.6	1.178	0.828	0.98	28#
	1745	20	1RB	23.09	23.6	1.125	0.868	0.98	29#
	1770	20	1RB	23.33	23.6	1.064	0.824	0.88	30#
	1745	20	50%RB	22.85	23.6	1.189	0.663	0.79	31#
	1745	20	100%RB	22.76	23.6	1.213	0.647	0.78	32#
Body Back With Belt(0mm)	1720	20	1RB	/	/	/	/	/	/
	1745	20	1RB	23.09	23.6	1.125	0.606	0.68	33#
	1770	20	1RB	/	/	/	/	/	/
	1745	20	50%RB	22.85	23.6	1.189	0.464	0.55	34#

Note: The E-UTRA Operating Band 4 is a subset of band 66, and they are same in modulation type and rated output power, therefore, they were considered as one frequency band during SAR measurement, LTE Band 66 (the wide frequency range) was selected to test.

LTE Band 71:

EUT Position	Frequency (MHz)	Bandwidth (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)			
						Scaled Factor	Meas. SAR	Scaled SAR	Plot
Face Up (10mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	23.06	23.3	1.057	0.18	0.19	35#
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	22.15	23.3	1.303	0.143	0.19	36#
Body Back With Belt(0mm)	673	20	1RB	/	/	/	/	/	/
	680.5	20	1RB	23.06	23.3	1.057	0.105	0.11	37#
	688	20	1RB	/	/	/	/	/	/
	680.5	20	50%RB	22.15	23.3	1.303	0.083	0.11	38#

Note:

1. When the 1-g SAR is ≤ 0.8W/Kg, testing for other channels are optional.
2. SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02.
3. KDB941225D05-SAR for higher order modulation is required only when the highest maximum output power for the configuration in the higher order modulation is > 0.5 dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg
4. KDB941225D05-For QPSK with 100% RB allocation, when the reported SAR measured for the Highest output power channel is <1.45 W/kg, tests for the remaining required test channels are optional.
5. KDB941225D05- 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 are ≤ 0.8 W/kg.
6. KDB941225D05- 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 among RB offset the upper edge, middle and lower edge of each required test channel.
7. KDB941225D05- other channel bandwidths SAR test is required when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > 0.5 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.
8. Worst case SAR for 50% RB allocation is selected to be tested.

8. SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, 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 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Note: The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

The Highest Measured SAR Configuration in Each Frequency Band

Head(Face Up)

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
1750MHz (1650-1850MHz)	LTE Band 66	1745	Face Up	0.868	0.854	1.02

Body

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
/	/	/	/	/	/	/

Note:

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.
2. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
3. 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.

9. SAR Plots

Please Refer to the Attachment.

APPENDIX A MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.

Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	6.55	N	1	1	1	6.3	6.3
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambientconditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions– reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Post-processing	2.0	R	√3	1	1	1.2	1.2
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√3	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	√3	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.1	23.7

Measurement uncertainty evaluation for IEC62209-1 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	6.55	N	1	1	1	6.3	6.3
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambientconditions – noise	1.0	R	√3	1	1	0.6	0.6
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
RF ambient conditions– reflections	1.0	R	√3	1	1	0.6	0.6
Post-processing	2.0	R	√3	1	1	1.2	1.2
Test sample related							
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√3	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	√3	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.0	23.6

APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment.

APPENDIX C CALIBRATION CERTIFICATES

Please Refer to the Attachment.

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