



TEST REPORT

No. 24B01N003176-001-SAR

For

TCL Communication Ltd.

GSM/UMTS/LTE mobile phone

Model Name: T626K

With

Hardware Version: 05

Software Version: v3LA8

FCC ID: 2ACCJB232

Issued Date: 2025-02-20

Designation Number: CN1210

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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REPORT HISTORY

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1. Summary of Test Report

1.1. Test Items

Description:	GSM/UMTS/LTE mobile phone
Model Name:	T626K
Applicant's Name:	TCL Communication Ltd.
Manufacturer's Name:	TCL Communication Ltd.

1.2. Test Standards

ANSI C95.1:1992, IEEE Std 1528:2013

1.3. Test Result

Pass. Please refer to "12. Summary of Test Results"

1.4. Testing Location

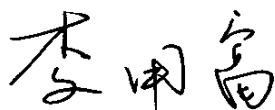
Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

1.5. Project Data

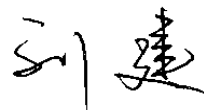
Testing Start Date: 2025-01-17

Testing End Date: 2025-02-09

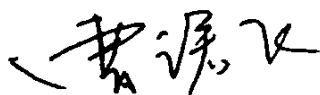
1.6. Signature



Li Yongfu
(Prepared this test report)



Liu Jian
(Reviewed this test report)



Cao Junfei
(Approved this test report)

2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for TCL Communication Ltd. GSM/UMTS/LTE mobile phone T626K are as follows:

Table 2.1: Highest Reported SAR

Equipment Class	Frequency Bands	1g SAR (W/kg)			10g SAR (W/kg)
		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Extremity (Separation 0mm)
PCE	GSM 850	1.07	0.93	0.38	/
	GSM 1900	1.10	1.14	0.35	/
	WCDMA Band 2	0.25	0.96	0.43	/
	WCDMA Band 4	0.23	1.08	0.51	/
	WCDMA Band 5	0.95	0.70	0.37	/
	LTE Band 2	0.17	1.01	0.50	3.19
	LTE Band 7	0.25	0.65	0.34	/
	LTE Band 12/17	0.78	0.27	0.20	/
	LTE Band 13	0.69	0.31	0.26	/
	LTE Band 26/5	0.70	0.44	0.22	/
	LTE Band 66/4	0.20	1.08	0.48	/
	LTE Band 41/38	0.18	0.48	0.21	/
DSS	Bluetooth	0.15	0.04	0.02	/
DTS	WLAN 2.4GHz	0.84	0.42	0.18	/
NII	WLAN 5GHz	1.12	0.93	0.52	1.42
Maximum Simultaneous Transmission SAR		1.39	1.39	1.05	3.19

This device is in compliance with Specific Absorption Rate (SAR) for general population/ uncontrolled exposure limits (1.6 W/kg for Head/Body 1g SAR, 4.0 W/kg for Extremity 10g SAR) specified in ANSI C95.1:1992.

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report.

The highest reported SAR value is obtained at the case of (**Table 2.1**), Head value is **1.12 W/kg (1g)**, Hotspot value is **1.14 W/kg (1g)**, Body-worn value is **0.52 W/kg (1g)** and Extremity SAR value is **3.19 W/kg (10g)**.

3. Client Information

3.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Ting Wang
Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091

3.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Ting Wang
Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091

4. Equipment under Test (EUT) and Ancillary Equipment (AE)

4.1. About EUT

Description:	GSM/UMTS/LTE mobile phone
Model Name:	T626K
Condition of EUT as received:	No obvious damage in appearance
Frequency Bands:	GSM 850/900/1800/1900, WCDMA Band 1/2/4/5/8, LTE Band 1/2/3/4/5/7/8/12/13/17/20/26/28/38/40/41/66, Bluetooth, WLAN 2.4GHz/5GHz, NFC
Tested Tx Frequency:	824 – 849MHz (GSM 850)
	1850 – 1910MHz (GSM 1900)
	1850 – 1910MHz (WCDMA Band 2)
	1710 – 1755MHz (WCDMA Band 4)
	824 – 849MHz (WCDMA Band 5)
	1850 – 1910MHz (LTE Band 2)
	1710 – 1755MHz (LTE Band 4)
	824 – 849MHz (LTE Band 5)
	2500 – 2570MHz (LTE Band 7)
	799 – 716MHz (LTE Band 12)
	777 – 787MHz (LTE Band 13)
	704 – 716MHz (LTE Band 17)
	814 – 849MHz (LTE Band 26)
	2570 – 2620MHz (LTE Band 38)
	2496 – 2690MHz (LTE Band 41)
	1710 – 1780MHz (LTE Band 66)
	2402 – 2480MHz (Bluetooth)
	2412 – 2462MHz (WLAN 2.4GHz)
	5150 – 5850MHz (WLAN 5GHz)
	13.56MHz (NFC)
GPRS/EDGE Multislot Class:	12
GPRS Capability Class:	B
Dual Transfer Mode (DTM)	Not support
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support
Product Dimensions:	Long 167.68mm; Wide 75.56mm; Height 7.85mm; Overall Diagonal 178.20mm
Note: 1. LTE Band 40 be disabled by software. 2. This device WLAN 5GHz U-NII-2A and U-NII-2C don't support hotspot operation.	

3. This device support the receiver detection mechanism, the main purpose is to minimize triggering associated with power reduction scenarios by receiver detection mechanisms and provide enhanced user experience. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G and WLAN antennas accordingly.

*Since the information of samples in this report is provided by the client, the laboratory is not responsible for the authenticity of sample information.

4.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Receipt Date
UT01aa	355077160000294	05	v3LA8	2024-12-25
UT02aa	355077160000302	05	v3LA8	2024-12-25
UT04aa	355077160000617	05	v3LA8	2024-12-25

*EUT ID: is used to identify the test sample in the lab internally.

Note: It is performed to test SAR with the UT04aa, and conducted power with the UT01aa & UT02aa.

4.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacturer
AE1	Battery	TLp050B9	Guangdong Fenghua New Energy Co., Ltd.
AE2	Battery	TLp050B7	Dongguan Veken Battery CO., LTD.
AE3	Headset	01.07.12.00065	Guangdong Wivtak Technology Co., Ltd.

*AE ID: is used to identify the test sample in the lab internally.

Note: The device has two types of batteries. We perform the SAR measurement with AE1 battery and Spot check test with AE2 battery.

5. Test Methodology

5.1. Applicable Limit Regulations

ANSI C95.1:1992 IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

5.2. Applicable Measurement Standards

IEEE Std 1528:2013 Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Experimental Techniques.

KDB 447498 D01 General RF Exposure Guidance v06 RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices

KDB 648474 D04 Handset SAR v01r03 SAR Evaluation Considerations for Wireless Handsets.

KDB 941225 D01 SAR test for 3G devices v03r01 SAR Measurement Procedures for 3G Devices

KDB 941225 D05 SAR for LTE Devices v02r05 SAR Evaluation Considerations for LTE Devices

KDB 941225 D06 Hot Spot SAR v02r01 SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

KDB 941225 D07 UMPC Mini Tablet v01r02 SAR Evaluation Procedures for UMPC Mini-Tablet Devices

KDB 248227 D01 802.11 Wi-Fi SAR v02r02 SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters.

KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04 SAR Measurement Requirements for 100 MHz to 6 GHz

KDB 865664 D02 RF Exposure Reporting v01r02 RF Exposure Compliance Reporting and Documentation Considerations

TCB workshop April 2019; RF Exposure Procedures (Tissue Simulating Liquids)

6. Specific Absorption Rate (SAR)

6.1. 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.

6.2. 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)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c \left(\frac{\delta T}{\delta t} \right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

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

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7. Tissue Simulating Liquids

7.1. Targets for tissue simulating liquid

Table 7.1: Targets for tissue simulating liquid

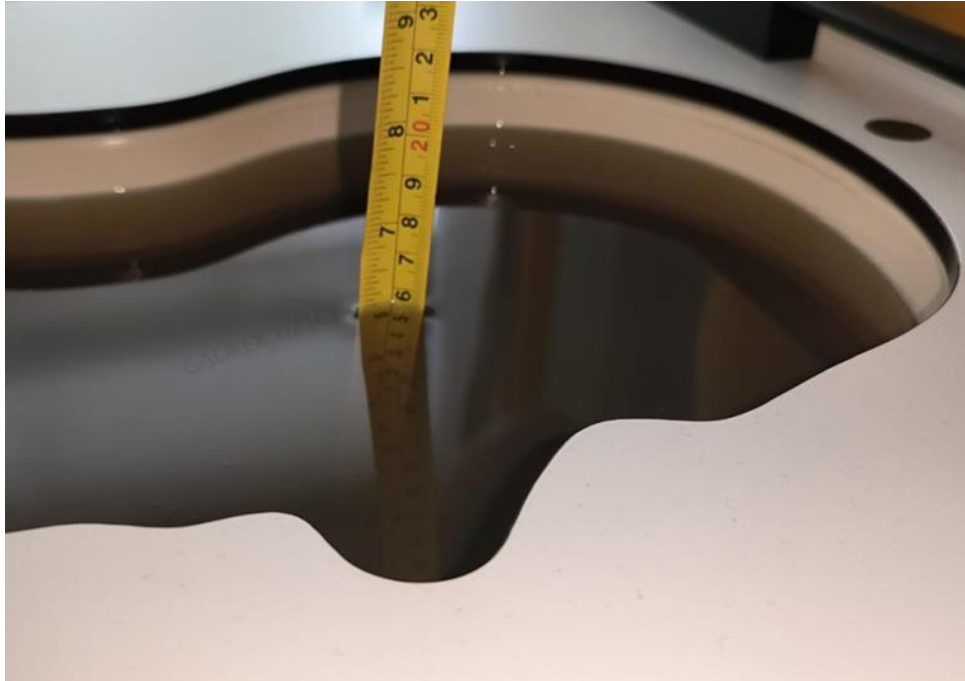
Frequency (MHz)	Liquid Type	Conductivity (σ)	$\pm 5\%$ Range	Permittivity (ϵ)	$\pm 5\%$ Range
13	Head	0.75	0.72~0.78	55.0	52.3~57.7
750	Head	0.89	0.85~0.93	42.0	39.9~44.1
835	Head	0.90	0.86~0.95	41.5	39.4~43.6
1750	Head	1.37	1.30~1.44	40.1	38.1~42.1
1900	Head	1.40	1.33~1.47	40.0	38.0~42.0
2450	Head	1.80	1.71~1.89	39.2	37.2~41.2
2550	Head	1.91	1.81~2.01	39.1	37.1~41.0
5250	Head	4.71	4.47~4.95	35.9	34.1~37.7
5600	Head	5.07	4.82~5.32	35.5	33.8~37.3
5750	Head	5.22	4.96~5.48	35.4	33.6~37.1

7.2. Dielectric Performance

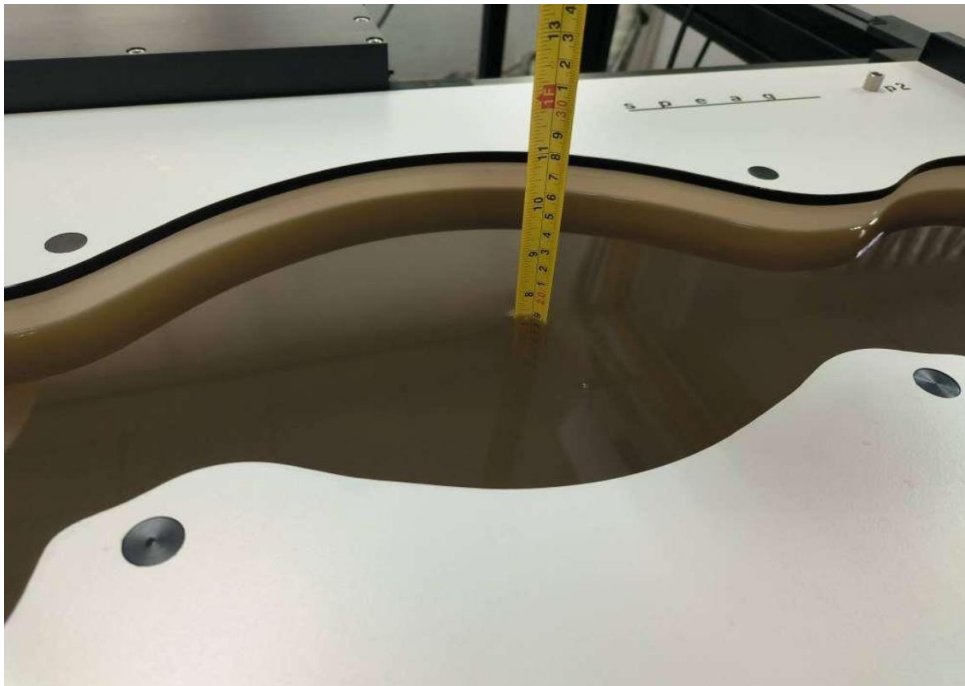
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Frequency (MHz)	Conductivity σ (S/m)	Drift (%)	Permittivity ϵ	Drift (%)
2025-02-09	13	0.779	3.87	54.37	-1.15
2025-01-17	750	0.908	2.02	41.46	-1.29
2025-01-18	835	0.891	-1.00	42.35	2.05
2025-01-25	1750	1.355	-1.09	41.09	2.47
2025-02-05	1750	1.381	0.80	39.63	-1.17
2025-01-22	1900	1.414	1.00	39.72	-0.70
2025-02-02	1900	1.429	2.07	39.03	-2.43
2025-01-24	2450	1.832	1.78	38.54	-1.68
2025-01-20	2550	1.948	1.99	38.30	-2.05
2025-01-26	5250	4.826	2.46	34.84	-2.95
2025-01-26	5600	5.205	2.66	34.37	-3.18
2025-01-26	5750	5.112	-2.07	36.18	2.20

Note: The liquid temperature is 22.0°C.



Picture 7.1 Liquid depth in the Head Phantom (0.6GHz - 7.5GHz)

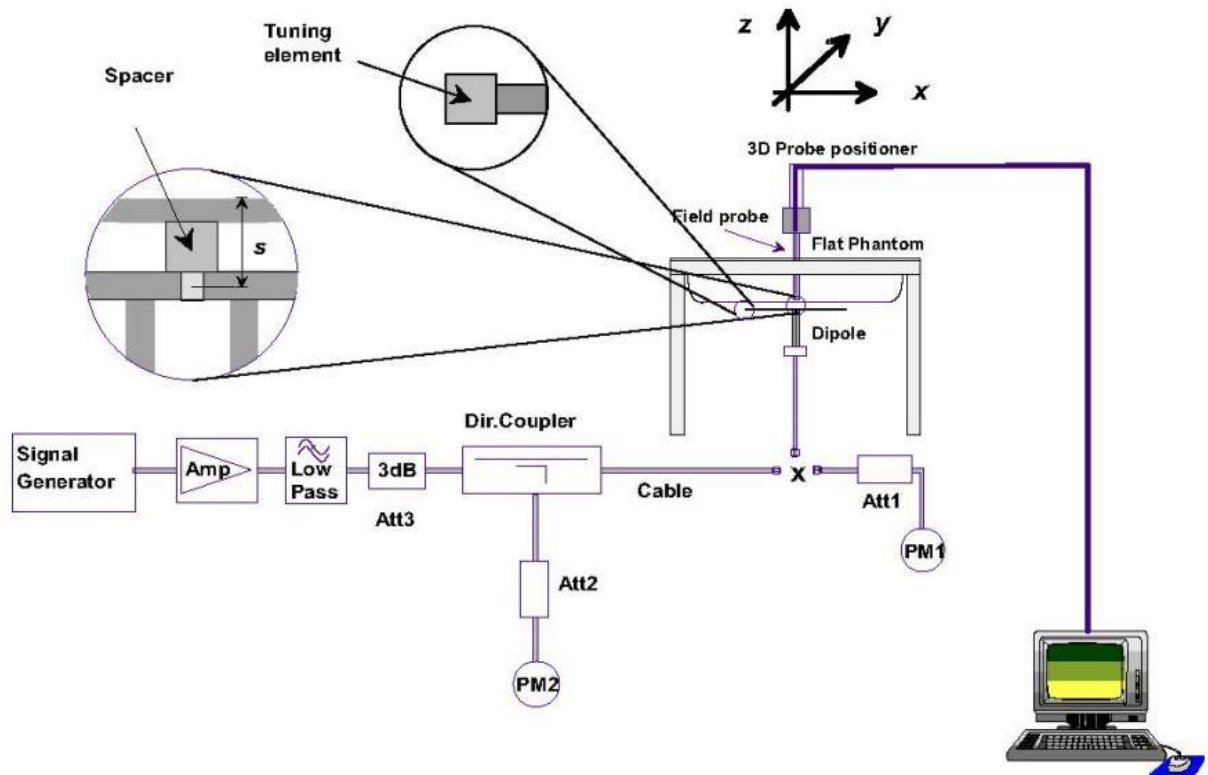


Picture 7.2 Liquid depth in the Flat Phantom (0.6GHz - 7.5GHz)

8. System verification

8.1. System Setup

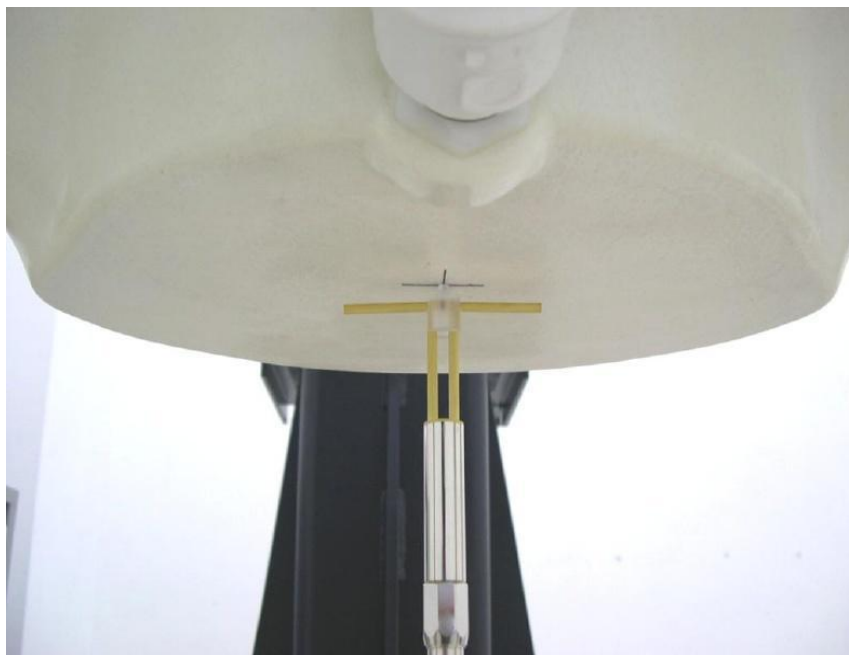
In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



Picture 8.1 System Setup for System Evaluation

For the dipole below 6GHz, the output power on dipole port must be calibrated to 17 dBm (50mW) before dipole is connected.

For the dipole above 6GHz, the output power on dipole port must be calibrated to 14 dBm (25mW) before dipole is connected.



Picture 8.2 Photo of Dipole Setup

8.2. System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

Table 8.1: System Verification of Head

Measurement Date	Frequency (MHz)	Target value (W/kg)		Measured value (W/kg)				Deviation (%)	
				/		Normalize to 1W			
		1 g	10 g	1 g	10 g	1 g	10 g	1 g	10 g
2025-02-09	13	0.466	0.287	0.484	0.292	0.484	0.292	3.86	1.74
2025-01-17	750	8.48	5.62	0.437	0.286	8.74	5.72	3.07	1.78
2025-01-18	835	9.59	6.40	0.459	0.313	9.18	6.26	-4.28	-2.19
2025-01-25	1750	36.30	19.60	1.75	0.963	35.00	19.26	-3.58	-1.73
2025-02-05	1750	36.30	19.60	1.86	0.994	37.20	19.88	2.48	1.43
2025-01-22	1900	39.70	20.90	2.04	1.06	40.80	21.20	2.77	1.44
2025-02-02	1900	39.70	20.90	2.08	1.09	41.60	21.80	4.79	4.31
2025-01-24	2450	52.70	24.80	2.70	1.26	54.00	25.20	2.47	1.61
2025-01-20	2550	55.00	25.00	2.88	1.30	57.60	26.00	4.73	4.00
2025-01-26	5250	79.70	22.80	4.11	1.17	82.20	23.40	3.14	2.63
2025-01-26	5600	82.60	23.60	4.25	1.20	85.00	24.00	2.91	1.69
2025-01-26	5750	78.50	22.10	3.76	1.07	75.20	21.40	-4.20	-3.17

9. Measurement Procedures

9.1. Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in picture 9.1.

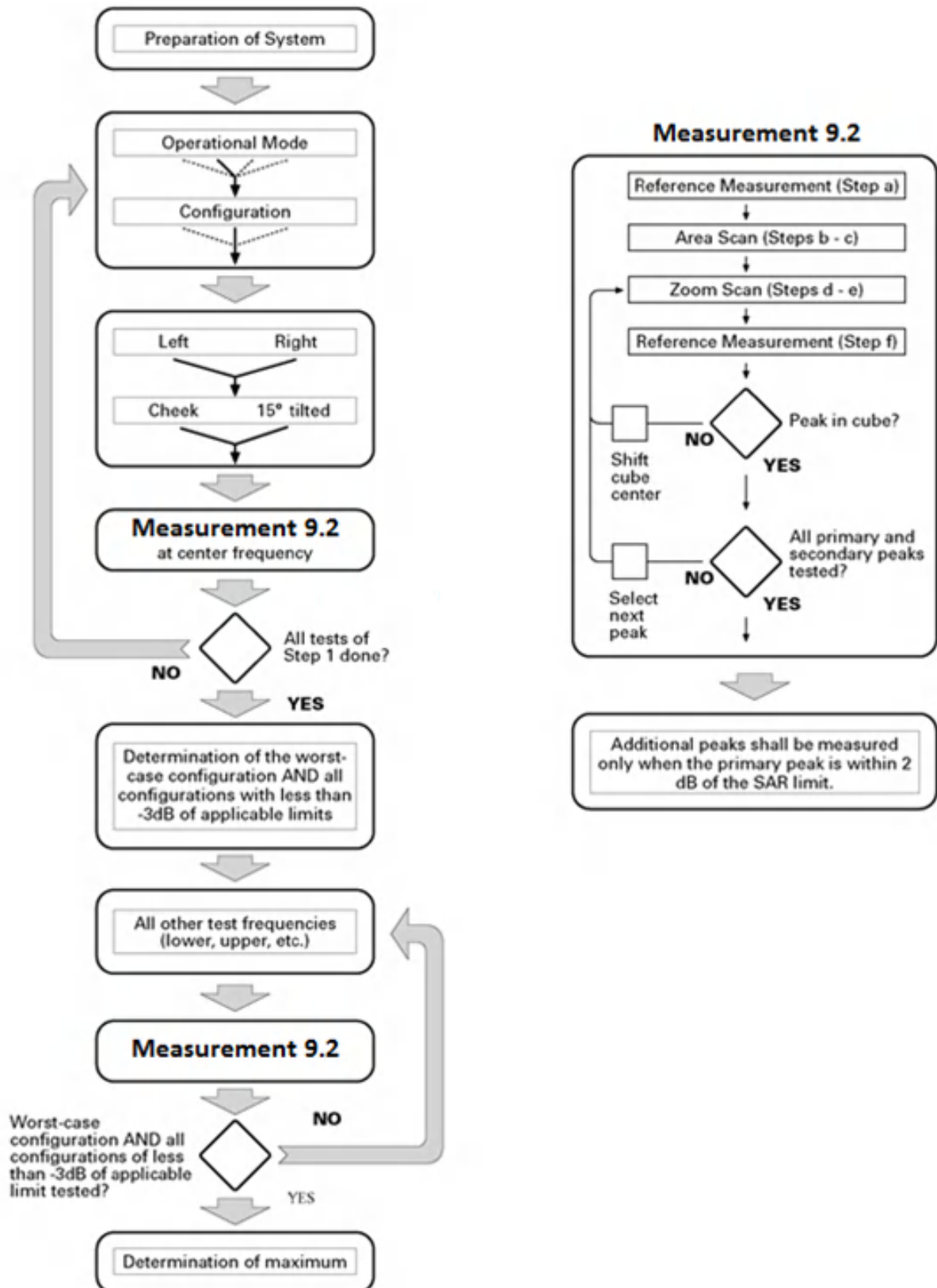
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the center of the transmit frequency band (f_c) for:

- a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in annex D),
- b) all configurations for each device position in a), e.g., antenna extended and retracted, and
- c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

If more than three frequencies need to be tested according to 11.1 (i.e., $N_C > 3$), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 9.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

Step 3: Examine all data to determine the highest value of the peak spatial-average SAR found in Steps 1 to 2.



Picture 9.1 Block diagram of the tests to be performed

9.2. General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
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 $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
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 1 st 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 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 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.				

9.3. WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & DPDCH_n), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

For Release 5 HSDPA Data Devices:

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs}	CM/dB
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/25	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

For Release 6 HSPA Data Devices

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs}	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (dB)	MPR (dB)	AG Index	E-TFCI
1	11/15	15/15	64	11/15	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	1.0	0.0	21	81

9.4. SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Anristu MT8820C. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the Anristu MT8820C. It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

1) 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 among 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.

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

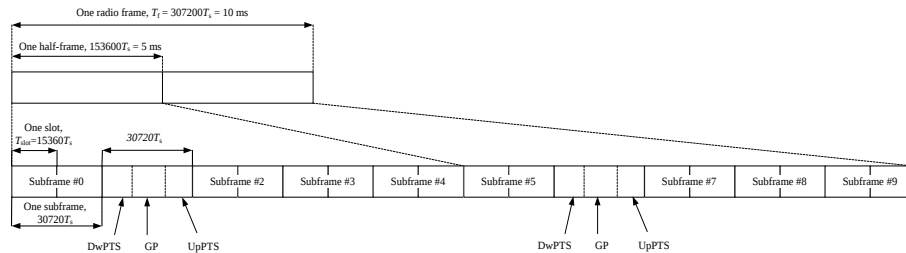
For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured 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.

9.5. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.



Frame structure type 2

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle

Calculated Duty Cycle = Extended cyclic prefix in uplink x (Ts) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

Where:

$T_s = 1/(15000 \times 2048) \text{ seconds}$

9.6. Bluetooth & WLAN Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. 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 that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

9.7. Power Drift

To control the output power stability during the SAR test, DASY5 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Section 12 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10. Conducted Output Power

Summary of power level – WWAN antenna

Receiver on (Head)	Receiver off + Hotspot on (Hotspot)	Receiver off + Hotspot off (Body-worn / Extremity)
Power Level A1	Power Level B1	Power Level C1

Summary of power level – Bluetooth/WLAN antenna

/	Receiver on (Head)	Receiver off + Hotspot on (Hotspot)	Receiver off + Hotspot off (Body-worn / Extremity)
Stand-alone	Power Level D1	Power Level E1	Power Level F1
WLAN/Bluetooth + WWAN	Power Level D2	Power Level E2	Power Level F2

10.1. GSM Measurement result

Table 10.1: The conducted power measurement results for GSM/GPRS/EDGE

Ant.1 - GSM 850 Power Level A1

GSM 850 Speech	Conducted Power (dBm)			Tune up (dBm)	/			
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)					
	31.04	31.10	31.15	32.0				
GPRS/EDGE 850 (GMSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)			Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)
1 Txslot	31.08	31.11	31.21	32.0	-9.03	22.05	22.08	22.18
2 Txslots	28.09	28.07	28.13	29.0	-6.02	22.07	22.05	22.11
3 Txslots	26.27	26.25	26.37	27.0	-4.26	22.01	21.99	22.11
4 Txslots	24.95	24.93	25.04	26.0	-3.01	21.94	21.92	22.03
EDGE 850 (8PSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)			Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)
1 Txslot	24.88	25.16	25.18	26.0	-9.03	15.85	16.13	16.15
2 Txslots	22.01	22.27	22.32	23.0	-6.02	15.99	16.25	16.30
3 Txslots	19.92	20.18	20.31	21.0	-4.26	15.66	15.92	16.05
4 Txslots	18.31	18.51	18.62	20.0	-3.01	15.30	15.50	15.61

Ant.1 - GSM 850 Power Level B1/C1

GSM 850 Speech	Conducted Power (dBm)			Tune up (dBm)	/			
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)					
	32.90	32.88	32.97	33.5				
GPRS/EDGE 850 (GMSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)			Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)
1 Txslot	32.91	32.94	33.06	33.5	-9.03	23.88	23.91	24.03
2 Txslots	32.17	32.16	32.30	33.0	-6.02	26.15	26.14	26.28
3 Txslots	30.41	30.39	30.51	31.5	-4.26	26.15	26.13	26.25
4 Txslots	29.26	29.21	29.34	30.5	-3.01	26.25	26.20	26.33
EDGE 850 (8PSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)			Ch.251 (848.8MHz)	Ch.190 (836.6MHz)	Ch.128 (824.2MHz)
1 Txslot	26.89	26.98	27.14	28.0	-9.03	17.86	17.95	18.11
2 Txslots	25.94	26.12	26.17	27.0	-6.02	19.92	20.10	20.15
3 Txslots	23.93	24.14	24.28	25.0	-4.26	19.67	19.88	20.02
4 Txslots	22.87	22.94	23.04	24.0	-3.01	19.86	19.93	20.03

Ant.1 - GSM 1900 Power Level A1

GSM 1900 Speech	Conducted Power (dBm)			Tune up (dBm)	/			
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)					
	26.24	26.40	26.62	27.0				
GPRS/EDGE 1900 (GMSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)			Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)
1 Txslot	26.26	26.47	26.64	27.0	-9.03	17.23	17.44	17.61
2 Txslots	23.30	23.41	23.44	24.0	-6.02	17.28	17.39	17.42
3 Txslots	21.65	21.70	21.66	22.0	-4.26	17.39	17.44	17.40
4 Txslots	20.45	20.43	20.39	21.0	-3.01	17.44	17.42	17.38
EDGE 1900 (8PSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)			Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)
1 Txslot	22.98	22.74	22.47	23.5	-9.03	13.95	13.71	13.44
2 Txslots	19.92	19.68	19.46	20.5	-6.02	13.90	13.66	13.44
3 Txslots	17.71	17.54	17.37	18.5	-4.26	13.45	13.28	13.11
4 Txslots	16.15	15.93	15.76	17.0	-3.01	13.14	12.92	12.75

Ant.1 - GSM 1900 Power Level B1/C1

GSM 1900 Speech	Conducted Power (dBm)			Tune up (dBm)	/			
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)					
	27.45	27.73	27.96	29.0				
GPRS/EDGE 1900 (GMSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)			Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)
1 Txslot	27.48	27.77	28.00	29.0	-9.03	18.45	18.74	18.97
2 Txslots	27.28	27.51	27.74	28.5	-6.02	21.26	21.49	21.72
3 Txslots	25.20	25.25	25.33	26.0	-4.26	20.94	20.99	21.07
4 Txslots	24.23	24.27	24.29	25.0	-3.01	21.22	21.26	21.28
EDGE 1900 (8PSK)	Measured timeslot-averaged output Power (dBm)			Tune up (dBm)	Calculation (dB)	Source-based time-Averaged output Power (dBm)		
	Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)			Ch.810 (1909.8MHz)	Ch. 661 (1880MHz)	Ch.512 (1850.2MHz)
1 Txslot	25.71	25.46	25.25	26.5	-9.03	16.68	16.43	16.22
2 Txslots	24.53	24.42	24.04	25.5	-6.02	18.51	18.40	18.02
3 Txslots	21.52	21.38	20.98	22.0	-4.26	17.26	17.12	16.72
4 Txslots	20.28	19.98	19.75	21.0	-3.01	17.27	16.97	16.74

10.2. WCDMA Measurement result

Table 10.2: The conducted power measurement results WCDMA

Ant.0 - WCDMA Band 2 Power Level A1

WCDMA Band 2		Conducted Power (dBm)			Tune up (dBm)
		Ch. 9538 (1907.6MHz)	Ch. 9400 (1880.0MHz)	Ch. 9262 (1852.4MHz)	
RMC	12.2kbps RMC	23.41	23.45	23.51	24.5
HSUPA	Sub - Test 1	20.00	20.02	20.11	21.5
	Sub - Test 2	20.05	20.11	20.19	21.5
	Sub - Test 3	20.52	20.55	20.64	22.0
	Sub - Test 4	19.03	19.08	19.12	20.5
	Sub - Test 5	21.47	21.54	21.68	23.0
HSDPA	Sub - Test 1	22.52	22.56	22.63	23.5
	Sub - Test 2	22.57	22.61	22.68	23.5
	Sub - Test 3	22.00	22.03	22.15	23.0
	Sub - Test 4	22.05	22.07	22.18	23.0
DC-HSDPA	Sub - Test 1	22.51	22.56	22.63	23.5
	Sub - Test 2	22.57	22.58	22.68	23.5
	Sub - Test 3	22.01	22.01	22.14	23.0
	Sub - Test 4	22.02	22.09	22.20	23.0

Ant.0 - WCDMA Band 2 Power Level B1

WCDMA Band 2		Conducted Power (dBm)			Tune up (dBm)
		Ch. 9538 (1907.6MHz)	Ch. 9400 (1880.0MHz)	Ch. 9262 (1852.4MHz)	
RMC	12.2kbps RMC	19.97	20.04	20.09	21.0
HSUPA	Sub - Test 1	17.67	17.60	17.70	19.0
	Sub - Test 2	17.76	17.70	17.74	19.0
	Sub - Test 3	18.11	18.04	18.14	19.5
	Sub - Test 4	16.74	16.63	16.77	18.0
	Sub - Test 5	19.06	19.06	19.08	20.0
HSDPA	Sub - Test 1	20.04	20.02	20.14	20.5
	Sub - Test 2	20.12	20.11	20.17	20.5
	Sub - Test 3	19.56	19.53	19.66	20.0
	Sub - Test 4	19.59	19.52	19.68	20.0
DC-HSDPA	Sub - Test 1	20.10	20.06	20.10	20.5
	Sub - Test 2	20.15	20.08	20.19	20.5
	Sub - Test 3	19.61	19.57	19.64	20.0
	Sub - Test 4	19.62	19.54	19.71	20.0

Ant.0 - WCDMA Band 2 Power Level C1

WCDMA Band 2		Conducted Power (dBm)			Tune up (dBm)
		Ch. 9538 (1907.6MHz)	Ch. 9400 (1880.0MHz)	Ch. 9262 (1852.4MHz)	
RMC	12.2kbps RMC	20.61	20.58	20.63	21.5
HSUPA	Sub - Test 1	18.14	18.11	18.19	19.5
	Sub - Test 2	18.25	18.22	18.28	19.5
	Sub - Test 3	18.57	18.54	18.63	20.0
	Sub - Test 4	17.23	17.16	17.30	18.5
	Sub - Test 5	19.57	19.54	19.59	20.5
HSDPA	Sub - Test 1	20.57	20.52	20.64	21.0
	Sub - Test 2	20.64	20.61	20.68	21.0
	Sub - Test 3	20.08	20.03	20.14	20.5
	Sub - Test 4	20.11	20.05	20.19	20.5
DC-HSDPA	Sub - Test 1	20.58	20.55	20.61	21.0
	Sub - Test 2	20.61	20.61	20.69	21.0
	Sub - Test 3	20.08	20.06	20.12	20.5
	Sub - Test 4	20.13	20.05	20.19	20.5

Ant.0 - WCDMA Band 4 Power Level A1

WCDMA Band 4		Conducted Power (dBm)			Tune up (dBm)
		Ch. 1513 (1752.6MHz)	Ch. 1413 (1732.6MHz)	Ch. 1312 (1712.4MHz)	
RMC	12.2kbps RMC	23.04	23.05	23.11	24.0
HSUPA	Sub - Test 1	19.88	19.93	19.99	21.0
	Sub - Test 2	19.94	19.98	20.05	21.0
	Sub - Test 3	20.27	20.32	20.41	21.5
	Sub - Test 4	19.82	19.85	19.92	21.0
	Sub - Test 5	21.33	21.35	21.42	22.5
HSDPA	Sub - Test 1	22.26	22.32	22.38	23.0
	Sub - Test 2	22.31	22.39	22.45	23.0
	Sub - Test 3	21.75	21.80	21.88	22.5
	Sub - Test 4	21.81	21.85	21.92	22.5
DC-HSDPA	Sub - Test 1	22.24	22.31	22.42	23.0
	Sub - Test 2	22.28	22.38	22.43	23.0
	Sub - Test 3	21.73	21.78	21.86	22.5
	Sub - Test 4	21.77	21.84	21.92	22.5

Ant.0 - WCDMA Band 4 Power Level B1/C1

WCDMA Band 4		Conducted Power (dBm)			Tune up (dBm)
		Ch. 1513 (1752.6MHz)	Ch. 1413 (1732.6MHz)	Ch. 1312 (1712.4MHz)	
RMC	12.2kbps RMC	20.71	20.81	20.83	21.5
HSUPA	Sub - Test 1	18.35	18.42	18.47	19.5
	Sub - Test 2	18.41	18.49	18.54	19.5
	Sub - Test 3	18.88	18.93	18.97	20.0
	Sub - Test 4	17.40	17.44	17.50	18.5
	Sub - Test 5	19.75	19.84	19.89	20.5
HSDPA	Sub - Test 1	20.37	20.43	20.46	21.0
	Sub - Test 2	20.45	20.51	20.57	21.0
	Sub - Test 3	19.72	19.75	19.81	20.5
	Sub - Test 4	19.76	19.78	19.85	20.5
DC-HSDPA	Sub - Test 1	20.37	20.42	20.45	21.0
	Sub - Test 2	20.42	20.51	20.55	21.0
	Sub - Test 3	19.71	19.78	19.80	20.5
	Sub - Test 4	19.79	19.77	19.86	20.5

Ant.1 - WCDMA Band 5 Power Level A1

WCDMA Band 5		Conducted Power (dBm)			Tune up (dBm)
		Ch. 4233 (846.6MHz)	Ch .4183 (836.6MHz)	Ch. 4132 (826.4MHz)	
RMC	12.2kbps RMC	22.29	22.22	22.24	24.0
HSUPA	Sub - Test 1	19.51	19.43	19.48	21.0
	Sub - Test 2	19.61	19.49	19.52	21.0
	Sub - Test 3	20.03	19.95	19.94	21.5
	Sub - Test 4	18.55	18.43	18.55	20.0
	Sub - Test 5	21.17	20.93	20.99	22.5
HSDPA	Sub - Test 1	22.12	22.00	22.06	23.0
	Sub - Test 2	22.23	22.15	22.13	23.0
	Sub - Test 3	21.62	21.54	21.56	22.5
	Sub - Test 4	21.67	21.60	21.69	22.5
DC-HSDPA	Sub - Test 1	22.05	22.02	22.04	23.0
	Sub - Test 2	22.19	22.16	22.11	23.0
	Sub - Test 3	21.54	21.51	21.65	22.5
	Sub - Test 4	21.71	21.62	21.71	22.5

Ant.1 - WCDMA Band 5 Power Level B1/C1

WCDMA Band 5		Conducted Power (dBm)			Tune up (dBm)
		Ch. 4233 (846.6MHz)	Ch .4183 (836.6MHz)	Ch. 4132 (826.4MHz)	
RMC	12.2kbps RMC	23.43	23.32	23.35	25.0
HSUPA	Sub - Test 1	20.53	20.44	20.47	22.0
	Sub - Test 2	20.64	20.51	20.55	22.0
	Sub - Test 3	21.02	20.93	20.98	22.5
	Sub - Test 4	19.56	19.42	19.51	21.0
	Sub - Test 5	22.14	21.94	21.98	23.5
HSDPA	Sub - Test 1	23.10	23.03	23.06	24.0
	Sub - Test 2	23.22	23.15	23.10	24.0
	Sub - Test 3	22.61	22.54	22.58	23.5
	Sub - Test 4	22.70	22.62	22.66	23.5
DC-HSDPA	Sub - Test 1	23.06	23.06	23.04	24.0
	Sub - Test 2	23.23	23.13	23.09	24.0
	Sub - Test 3	22.58	22.55	22.62	23.5
	Sub - Test 4	22.68	22.60	22.69	23.5

10.3. LTE Measurement result

According to April 2015 TCB workshop, SAR Test exclusion can be applied for testing overlapping LTE Bands as follows:

- a) The maximum out power, including tolerance, for the smaller band must be $\leq$ the larger band to qualify for SAR test exclusion.
- b) The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

LTE Band 4 (1710-1755MHz) is covered by LTE Band 66 (1710-1780MHz)

LTE Band 5 (824-849MHz) is covered by LTE Band 26 (818-849MHz)

LTE Band 17 (704-716MHz) is covered by LTE Band 12 (799-716MHz)

LTE Band 38 (2570-2620MHz) is covered by LTE Band 41 (2496-2690MHz)

Ant.0 - LTE Band 7 Power Level A1/B1

Bandwidth	Number of RBs	Frequency	QPSK	16QAM	64QAM	QPSK Tune-up	16QAM Tune-up	64QAM Tune-up
5MHz	1RB-High (24)	2567.5	22.32	21.55	20.42	24.0	23.0	22.0
		2535.0	22.11	21.36	20.31			
		2502.5	22.17	21.33	20.38			
	1RB-Middle (12)	2567.5	22.50	21.75	20.80			
		2535.0	22.30	21.62	20.59			
		2502.5	22.54	21.68	20.50			
	1RB-Low (0)	2567.5	22.26	21.53	20.46			
		2535.0	22.07	21.27	20.27			
		2502.5	22.12	21.32	20.15			
	12RB-High (13)	2567.5	21.47	20.45	19.42	23.0	22.0	21.0
		2535.0	21.19	20.23	19.19			
		2502.5	21.24	20.30	19.22			
	12RB-Middle (6)	2567.5	21.50	20.46	19.45			
		2535.0	21.27	20.27	19.22			
		2502.5	21.30	20.27	19.23			
	12RB-Low (0)	2567.5	21.39	20.41	19.38			
		2535.0	21.22	20.20	19.17			
		2502.5	21.24	20.23	19.18			
	25RB (0)	2567.5	21.40	20.45	19.39			
		2535.0	21.23	20.23	19.16			
		2502.5	21.24	20.25	19.18			
10MHz	1RB-High (49)	2565.0	22.49	21.71	20.65	24.0	23.0	22.0
		2535.0	22.22	21.32	20.42			
		2505.0	22.27	21.54	20.41			
	1RB-Middle (24)	2565.0	22.49	21.74	20.67			
		2535.0	22.34	21.51	20.48			
		2505.0	22.34	21.62	20.58			
	1RB-Low (0)	2565.0	22.31	21.55	20.49	23.0	22.0	21.0
		2535.0	22.15	21.39	20.21			
		2505.0	22.21	21.35	20.41			
	25RB-High (25)	2565.0	21.57	20.57	19.54			
		2535.0	21.26	20.27	19.25			
		2505.0	21.36	20.37	19.29			
	25RB-Middle (12)	2565.0	21.48	20.52	19.44			
		2535.0	21.28	20.31	19.21			
		2505.0	21.35	20.36	19.30			
	25RB-Low (0)	2565.0	21.46	20.45	19.43			
		2535.0	21.26	20.25	19.21			
		2505.0	21.29	20.30	19.27			
	50RB (0)	2565.0	21.47	20.51	19.42			
		2535.0	21.28	20.33	19.22			
		2505.0	21.28	20.39	19.26			
15MHz	1RB-High (74)	2562.5	22.41	21.68	20.40	24.0	23.0	22.0
		2535.0	22.14	21.40	20.38			
		2507.5	22.19	21.44	20.33			
	1RB-Middle (37)	2562.5	22.43	21.76	20.52			
		2535.0	22.23	21.40	20.29			
		2507.5	22.30	21.60	20.34			
	1RB-Low (0)	2562.5	22.17	21.45	20.44	23.0	22.0	21.0
		2535.0	22.05	21.34	20.27			
		2507.5	22.09	21.31	20.25			
	36RB-High (38)	2562.5	21.56	20.52	19.52			
		2535.0	21.28	20.25	19.22			
		2507.5	21.32	20.34	19.30			
	36RB-Middle (19)	2562.5	21.50	20.49	19.25			
		2535.0	21.28	20.29	19.28			
		2507.5	21.32	20.35	19.33			
	36RB-Low (0)	2562.5	21.40	20.37	19.22			
		2535.0	21.25	20.22	19.18			
		2507.5	21.30	20.29	19.27			
	75RB (0)	2562.5	21.49	20.51	19.44			
		2535.0	21.25	20.25	19.18			
		2507.5	21.32	20.31	19.26			
20MHz	1RB-High (99)	2560.0	22.60	21.75	20.87	24.0	23.0	22.0
		2535.0	22.40	21.70	20.53			
		2510.0	22.36	21.63	20.60			
	1RB-Middle (50)	2560.0	22.81	22.09	20.97			
		2535.0	22.57	21.83	20.84			
		2510.0	22.78	22.02	20.79			
	1RB-Low (0)	2560.0	22.31	21.50	20.62	23.0	22.0	21.0
		2535.0	22.21	21.51	20.41			
		2510.0	22.29	21.58	20.57			
	50RB-High (50)	2560.0	21.88	20.88	19.86			
		2535.0	21.56	20.63	19.60			
		2510.0	21.77	20.74	19.77			
	50RB-Middle (25)	2560.0	21.81	20.84	19.85			
		2535.0	21.65	20.66	19.64			
		2510.0	21.70	20.72	19.69			
	50RB-Low (0)	2560.0	21.76	20.76	19.73			
		2535.0	21.55	20.54	19.50			
		2510.0	21.65	20.70	19.62			
	100RB (0)	2560.0	21.88	20.85	19.85			
		2535.0	21.56	20.61	19.54			
		2510.0	21.67	20.70	19.66			

Ant.0 - LTE Band 7 Power Level C1

Bandwidth	Number of RBs	Frequency	QPSK	16QAM	64QAM	QPSK Tune-up	16QAM Tune-up	64QAM Tune-up
5MHz	1RB-High (24)	2567.5	18.91	19.21	19.13	20.5	20.5	20.5
		2535.0	18.67	18.96	18.90			
		2502.5	18.75	19.08	18.99			
	1RB-Middle (12)	2567.5	19.14	19.50	19.35			
		2535.0	18.93	19.24	19.19			
		2502.5	19.08	19.37	19.28			
	1RB-Low (0)	2567.5	18.82	19.19	19.02			
		2535.0	18.67	18.96	18.84			
		2502.5	18.69	19.03	18.95			
	12RB-High (13)	2567.5	19.05	19.05	19.09	20.5	20.5	20.5
		2535.0	18.83	18.79	18.83			
		2502.5	18.89	18.88	18.94			
	12RB-Middle (6)	2567.5	19.10	19.07	19.12			
		2535.0	18.84	18.84	18.89			
		2502.5	18.92	18.90	18.96			
	12RB-Low (0)	2567.5	19.02	18.99	19.06			
		2535.0	18.78	18.80	18.78			
		2502.5	18.85	18.82	18.90			
	25RB (0)	2567.5	19.06	19.03	19.07			
		2535.0	18.82	18.79	18.82			
		2502.5	18.91	18.86	18.89			
10MHz	1RB-High (49)	2565.0	19.04	19.34	19.29	20.5	20.5	20.5
		2535.0	18.83	19.12	19.03			
		2505.0	18.83	19.17	19.03			
	1RB-Middle (24)	2565.0	19.06	19.40	19.27			
		2535.0	18.87	19.18	19.07			
		2505.0	18.92	19.23	19.14			
	1RB-Low (0)	2565.0	18.89	19.17	19.00	20.5	20.5	20.5
		2535.0	18.75	19.13	18.93			
		2505.0	18.83	19.14	19.04			
	25RB-High (25)	2565.0	19.12	19.13	19.11			
		2535.0	18.90	18.85	18.87			
		2505.0	18.91	18.90	18.91			
	25RB-Middle (12)	2565.0	19.06	19.08	19.05			
		2535.0	18.86	18.84	18.86			
		2505.0	18.94	18.94	18.92			
	25RB-Low (0)	2565.0	19.01	19.02	19.02			
		2535.0	18.84	18.79	18.80			
		2505.0	18.90	18.89	18.90			
	50RB (0)	2565.0	19.03	19.05	19.07			
		2535.0	18.83	18.87	18.88			
		2505.0	18.91	18.89	18.91			
15MHz	1RB-High (74)	2562.5	19.07	19.42	19.20	20.5	20.5	20.5
		2535.0	18.80	19.10	18.98			
		2507.5	18.83	19.23	19.14			
	1RB-Middle (37)	2562.5	19.00	19.32	19.13			
		2535.0	18.80	19.09	19.02			
		2507.5	18.90	19.20	19.05			
	1RB-Low (0)	2562.5	18.75	19.12	18.98	20.5	20.5	20.5
		2535.0	18.71	19.02	18.87			
		2507.5	18.76	19.08	19.00			
	36RB-High (38)	2562.5	19.16	19.13	19.15			
		2535.0	18.91	18.87	18.88			
		2507.5	18.96	18.93	18.98			
	36RB-Middle (19)	2562.5	19.05	19.02	19.05			
		2535.0	18.87	18.85	18.85			
		2507.5	18.91	18.95	18.95			
	36RB-Low (0)	2562.5	18.99	18.94	18.99			
		2535.0	18.82	18.81	18.80			
		2507.5	18.91	18.87	18.88			
	75RB (0)	2562.5	19.03	19.03	19.06			
		2535.0	18.86	18.84	18.83			
		2507.5	18.91	18.91	18.90			
20MHz	1RB-High (99)	2560.0	18.87	19.14	19.18	20.5	20.5	20.5
		2535.0	18.58	18.97	18.81			
		2510.0	18.62	18.93	18.91			
	1RB-Middle (50)	2560.0	19.00	19.27	19.19			
		2535.0	18.87	19.10	19.07			
		2510.0	18.93	19.14	19.16			
	1RB-Low (0)	2560.0	18.52	18.88	18.87	20.5	20.5	20.5
		2535.0	18.50	18.83	18.67			
		2510.0	18.54	18.91	18.81			
	50RB-High (50)	2560.0	19.04	19.08	19.09			
		2535.0	18.85	18.85	18.88			
		2510.0	18.94	18.92	18.99			
	50RB-Middle (25)	2560.0	18.98	19.02	19.00			
		2535.0	18.85	18.84	18.92			
		2510.0	18.90	18.91	18.95			
	50RB-Low (0)	2560.0	18.94	18.95	18.96			
		2535.0	18.74	18.73	18.77			
		2510.0	18.84	18.84	18.88			
	100RB (0)	2560.0	18.98	19.00	19.01			
		2535.0	18.82	18.78	18.81			
		2510.0	18.91	18.90	18.92			

Ant.1 - LTE Band 12 Power Level A1/B1/C1

Bandwidth	Number of RBs	Frequency	QPSK	16QAM	64QAM	QPSK Tune-up	16QAM Tune-up	64QAM Tune-up
1.4MHz	1RB-High (5)	715.3	23.42	22.61	21.68	24.5	23.5	22.5
		707.5	23.36	22.61	21.52			
		699.7	23.43	22.63	21.68			
	1RB-Middle (3)	715.3	23.50	22.69	21.74			
		707.5	23.50	22.60	21.73			
		699.7	23.56	22.78	21.76			
	1RB-Low (0)	715.3	23.34	22.54	21.60			
		707.5	23.40	22.57	21.58			
		699.7	23.35	22.59	21.62			
	3RB-High (3)	715.3	23.44	22.46	21.62			
		707.5	23.51	22.46	21.61			
		699.7	23.48	22.52	21.63			
	3RB-Middle (1)	715.3	23.60	22.49	21.68			
		707.5	23.49	22.47	21.67			
		699.7	23.53	22.57	21.71			
	3RB-Low (0)	715.3	23.52	22.45	21.62			
		707.5	23.47	22.47	21.70			
		699.7	23.48	22.46	21.72			
	6RB (0)	715.3	22.51	21.67	20.57	23.5	22.5	21.5
		707.5	22.52	21.65	20.55			
		699.7	22.48	21.66	20.55			
3MHz	1RB-High (14)	714.5	23.42	22.57	21.65	24.5	23.5	22.5
		707.5	23.44	22.65	21.59			
		700.5	23.44	22.64	21.75			
	1RB-Middle (7)	714.5	23.63	22.79	21.82			
		707.5	23.49	22.81	21.85			
		700.5	23.70	22.72	21.90			
	1RB-Low (0)	714.5	23.36	22.65	21.77	23.5	22.5	21.5
		707.5	23.42	22.61	21.73			
		700.5	23.41	22.65	21.66			
	8RB-High (7)	714.5	22.45	21.57	20.55			
		707.5	22.45	21.59	20.52			
		700.5	22.43	21.65	20.56			
	8RB-Middle (4)	714.5	22.46	21.58	20.64			
		707.5	22.45	21.64	20.56			
		700.5	22.50	21.62	20.60			
	8RB-Low (0)	714.5	22.48	21.64	20.56			
		707.5	22.43	21.56	20.61			
		700.5	22.42	21.58	20.56			
	15RB (0)	714.5	22.51	21.55	20.56			
		707.5	22.46	21.49	20.50			
		700.5	22.48	21.55	20.51			
5MHz	1RB-High (24)	713.5	23.32	22.55	21.59	24.5	23.5	22.5
		707.5	23.37	22.62	21.64			
		701.5	23.40	22.75	21.65			
	1RB-Middle (12)	713.5	23.54	22.86	21.77			
		707.5	23.56	22.65	21.76			
		701.5	23.52	22.72	21.97			
	1RB-Low (0)	713.5	23.25	22.58	21.43	23.5	22.5	21.5
		707.5	23.32	22.56	21.53			
		701.5	23.30	22.54	21.57			
	12RB-High (13)	713.5	22.43	21.46	20.58			
		707.5	22.49	21.54	20.63			
		701.5	22.46	21.49	20.53			
	12RB-Middle (6)	713.5	22.48	21.60	20.64			
		707.5	22.49	21.56	20.59			
		701.5	22.49	21.55	20.58			
	12RB-Low (0)	713.5	22.53	21.59	20.60			
		707.5	22.45	21.43	20.50			
		701.5	22.49	21.51	20.57			
	25RB (0)	713.5	22.56	21.54	20.58			
		707.5	22.52	21.57	20.54			
		701.5	22.48	21.51	20.56			
10MHz	1RB-High (49)	711.0	23.55	22.63	21.73	24.5	23.5	22.5
		707.5	23.56	22.82	21.81			
		704.0	23.56	22.78	21.85			
	1RB-Middle (24)	711.0	23.56	22.77	21.61			
		707.5	23.64	22.73	21.77			
		704.0	23.62	22.94	21.87			
	1RB-Low (0)	711.0	23.42	22.68	21.59	23.5	22.5	21.5
		707.5	23.48	22.72	21.67			
		704.0	23.41	22.65	21.57			
	25RB-High (25)	711.0	22.49	21.47	20.52			
		707.5	22.58	21.61	20.61			
		704.0	22.68	21.73	20.75			
	25RB-Middle (12)	711.0	22.61	21.69	20.63			
		707.5	22.58	21.65	20.62			
		704.0	22.61	21.67	20.64			
	25RB-Low (0)	711.0	22.58	21.55	20.54			
		707.5	22.54	21.63	20.57			
		704.0	22.66	21.71	20.68			
	50RB (0)	711.0	22.55	21.57	20.57			
		707.5	22.62	21.66	20.61			
		704.0	22.68	21.72	20.72			

Ant.1 - LTE Band 13 Power Level A1/B1/C1

Bandwidth	Number of RBs	Frequency	QPSK	16QAM	64QAM	QPSK Tune-up	16QAM Tune-up	64QAM Tune-up
5MHz	1RB-High (24)	784.5	23.19	22.34	21.26	24.5	23.5	22.5
		782.0	23.15	22.45	21.29			
		779.5	23.18	22.44	21.39			
	1RB-Middle (12)	784.5	23.53	22.71	21.74			
		782.0	23.51	22.90	21.63			
		779.5	23.49	22.80	21.85			
	1RB-Low (0)	784.5	23.17	22.45	21.26			
		782.0	23.16	22.35	21.40			
		779.5	23.16	22.41	21.28			
	12RB-High (13)	784.5	22.31	21.28	20.41	23.5	22.5	21.5
		782.0	22.33	21.30	20.38			
		779.5	22.37	21.37	20.40			
	12RB-Middle (6)	784.5	22.40	21.35	20.50			
		782.0	22.39	21.39	20.53			
		779.5	22.39	21.37	20.48			
	12RB-Low (0)	784.5	22.34	21.30	20.39			
		782.0	22.34	21.32	20.40			
		779.5	22.34	21.32	20.37			
	25RB (0)	784.5	22.40	21.31	20.39			
		782.0	22.36	21.31	20.43			
		779.5	22.35	21.32	20.37			
10MHz	1RB-High (49)	782.0	23.25	22.51	21.41	24.5	23.5	22.5
	1RB-Middle (24)	782.0	23.43	22.64	21.64			
	1RB-Low (0)	782.0	23.25	22.41	21.53			
	25RB-High (25)	782.0	22.38	21.39	20.45	23.5	22.5	21.5
	25RB-Middle (12)	782.0	22.39	21.40	20.45			
	25RB-Low (0)	782.0	22.35	21.36	20.43			
	50RB (0)	782.0	22.39	21.38	20.45			

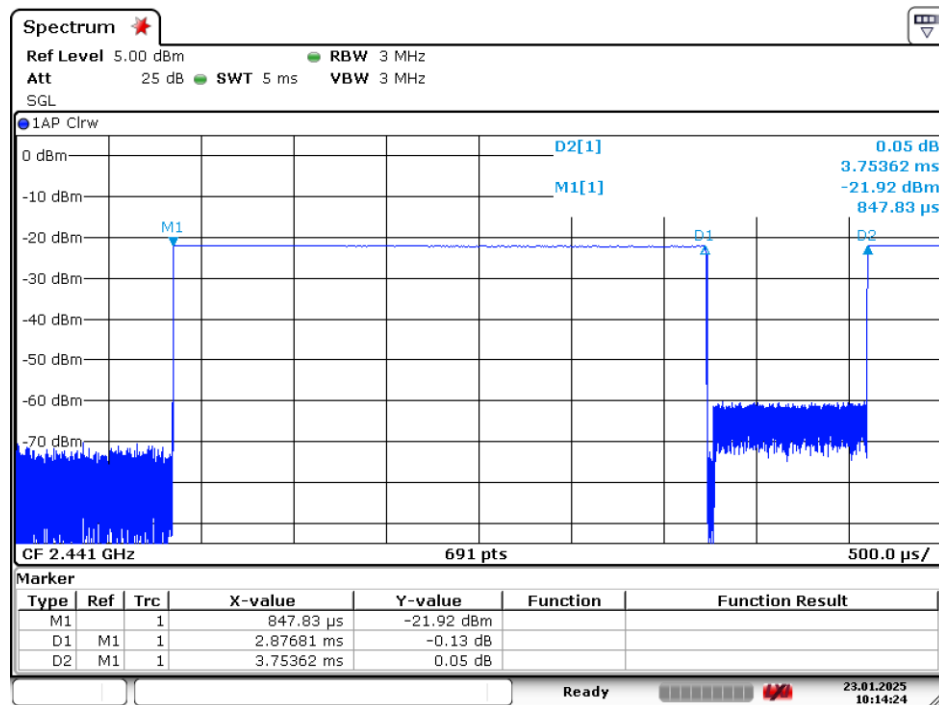
10.4. Bluetooth and WLAN Measurement result

Table 10.4: The conducted Power measurement results for Bluetooth

Ant.2 - Bluetooth Power Level D1/D2/E1/E2/F1/F2

Mode	Channel	Frequency (MHz)	Averaged Power (dBm)	Tune up (dBm)
GFSK	0	2402.0	10.05	11.0
	39	2441.0	9.86	11.0
	78	2480.0	10.45	11.0
EDR2M-4_DQPSK	0	2402.0	9.33	11.0
	39	2441.0	9.12	11.0
	78	2480.0	9.37	11.0
EDR3M-8DPSK	0	2402.0	9.34	11.0
	39	2441.0	9.12	11.0
	78	2480.0	9.36	11.0
BLE(1M)	0	2402.0	-4.01	-1.0
	19	2440.0	-3.35	-1.0
	39	2480.0	-3.28	-1.0
BLE(2M)	1	2404.0	-3.96	-1.0
	19	2440.0	-3.46	-1.0
	38	2478.0	-3.30	-1.0

Duty factor plot



Date: 23.JAN.2025 10:14:24

$$\text{Duty cycle} = \text{on time} / \text{total time} = (2.87681 / 3.75362) * 100\% = 76.64\%$$

Table 10.5: The conducted Power measurement results for WLAN 2.4GHz
Ant.2 - WLAN 2.4GHz Power Level D1

Mode	Channel	Frequency (MHz)	Averaged Power (dBm)	Tune up (dBm)
802.11b	1	2412.0	16.26	17.5
	6	2437.0	16.77	17.5
	11	2462.0	16.58	17.5
802.11g	1	2412.0	16.24	17.5
	6	2437.0	16.65	17.5
	11	2462.0	16.28	17.5
802.11n(20MHz)	1	2412.0	14.30	15.5
	6	2437.0	16.06	17.0
	11	2462.0	10.45	11.5
802.11n(40MHz)	3	2422.0	13.79	14.5
	6	2437.0	14.99	16.0
	9	2452.0	10.14	11.5

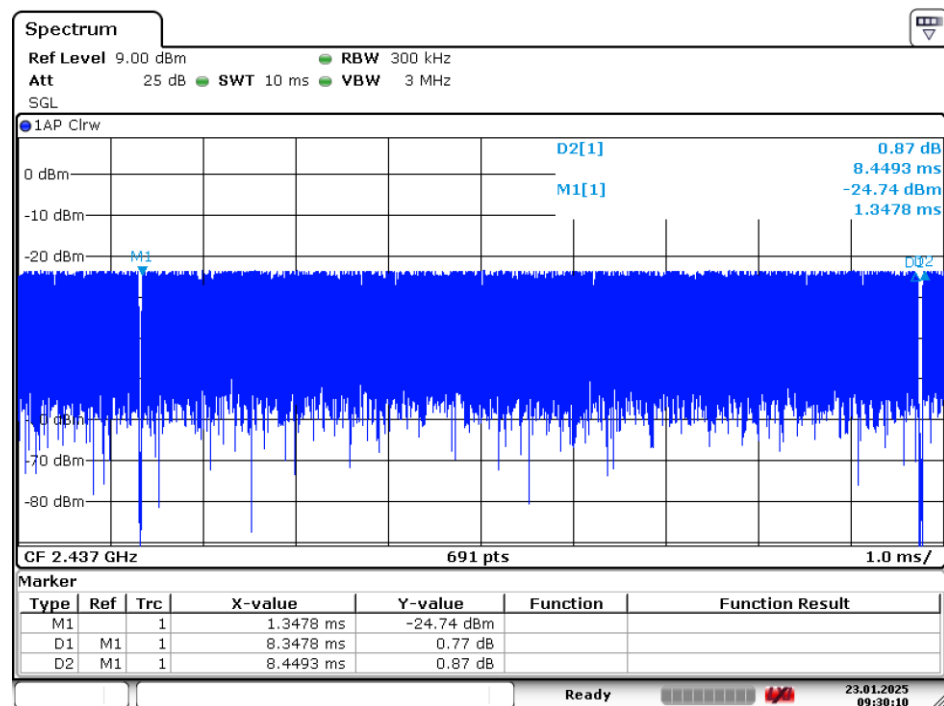
Ant.2 - WLAN 2.4GHz Power Level D2

Mode	Channel	Frequency (MHz)	Averaged Power (dBm)	Tune up (dBm)
802.11b	1	2412.0	13.24	14.5
	6	2437.0	13.75	14.5
	11	2462.0	13.56	14.5
802.11g	1	2412.0	13.22	14.5
	6	2437.0	13.63	14.5
	11	2462.0	13.26	14.5
802.11n(20MHz)	1	2412.0	11.28	12.5
	6	2437.0	13.04	14.0
	11	2462.0	7.43	8.5
802.11n(40MHz)	3	2422.0	10.77	11.5
	6	2437.0	11.97	13.0
	9	2452.0	7.12	8.5

Ant.2 - WLAN 2.4GHz Power Level E1/E2/F1/F2

Mode	Channel	Frequency (MHz)	Averaged Power (dBm)	Tune up (dBm)
802.11b	1	2412.0	17.53	19.0
	6	2437.0	18.04	19.0
	11	2462.0	17.85	19.0
802.11g	1	2412.0	17.51	19.0
	6	2437.0	17.92	19.0
	11	2462.0	17.55	19.0
802.11n(20MHz)	1	2412.0	15.57	17.0
	6	2437.0	17.33	18.5
	11	2462.0	11.72	13.0
802.11n(40MHz)	3	2422.0	15.06	16.0
	6	2437.0	16.26	17.5
	9	2452.0	11.41	13.0

Duty factor plot



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$$\text{Duty cycle} = \text{on time} / \text{total time} = (8.3478 / 8.4493) * 100\% = 98.80\%$$

Table 10.6: The conducted Power measurement results for WLAN 5GHz
Ant.2 - WLAN 5GHz Power Level D1

Mode	U-NII	Channel	Frequency [MHz]	Averaged Power [dBm]	Tune up [dBm]
802.11a	U-NII-1	36	5180.0	15.58	17.0
		40	5200.0	15.46	17.0
		44	5220.0	15.66	17.0
		48	5240.0	15.79	17.0
	U-NII-2A	52	5260.0	15.59	17.0
		56	5280.0	15.68	17.0
		60	5300.0	15.72	17.0
		64	5320.0	15.70	17.0
	U-NII-2C	100	5500.0	13.89	15.5
		116	5580.0	13.87	15.5
		124	5620.0	14.27	15.5
		132	5660.0	13.63	15.5
	U-NII-3	140	5700.0	13.67	15.5
		149	5745.0	14.93	16.5
		157	5785.0	14.92	16.5
		165	5825.0	14.98	16.5
802.11n-20MHz	U-NII-1	36	5180.0	14.51	16.0
		40	5200.0	14.54	16.0
		44	5220.0	14.64	16.0
		48	5240.0	14.70	16.0
	U-NII-2A	52	5260.0	14.66	16.0
		56	5280.0	14.71	16.0
		60	5300.0	14.73	16.0
		64	5320.0	14.68	16.0
	U-NII-2C	100	5500.0	13.30	14.5
		116	5580.0	13.19	14.5
		124	5620.0	13.21	14.5
		132	5660.0	12.99	14.5
	U-NII-3	140	5700.0	13.13	14.5
		149	5745.0	14.27	15.5
		157	5785.0	14.30	15.5
		165	5825.0	14.38	15.5
802.11n-40MHz	U-NII-1	38	5190.0	13.71	15.5
		46	5230.0	13.78	15.5
	U-NII-2A	54	5270.0	13.81	15.5
		62	5310.0	13.79	15.5
	U-NII-2C	102	5510.0	12.42	14.0
		110	5550.0	12.43	14.0
		126	5630.0	12.39	14.0
		134	5670.0	12.22	14.0
	U-NII-3	151	5755.0	13.21	15.0
		159	5795.0	13.17	15.0
802.11ac-20MHz	U-NII-1	36	5180.0	13.99	15.5
		40	5200.0	14.13	15.5
		44	5220.0	13.98	15.5
		48	5240.0	14.11	15.5
	U-NII-2A	52	5260.0	14.22	15.5
		56	5280.0	14.21	15.5
		60	5300.0	14.18	15.5
		64	5320.0	14.14	15.5
	U-NII-2C	100	5500.0	12.85	14.0
		116	5580.0	12.76	14.0
		124	5620.0	12.79	14.0
		132	5660.0	12.79	14.0
	U-NII-3	140	5700.0	12.67	14.0
		149	5745.0	13.84	15.0
		157	5785.0	13.83	15.0
		165	5825.0	13.95	15.0
802.11ac-40MHz	U-NII-1	38	5190.0	13.85	15.5
		46	5230.0	13.94	15.5
	U-NII-2A	54	5270.0	14.00	15.5
		62	5310.0	13.92	15.5
	U-NII-2C	102	5510.0	12.59	14.0
		110	5550.0	12.57	14.0
		126	5630.0	12.52	14.0
		134	5670.0	12.43	14.0
	U-NII-3	151	5755.0	13.27	15.0
		159	5795.0	13.39	15.0
802.11ac-80MHz	U-NII-1	42	5210.0	13.94	15.5
	U-NII-2A	58	5290.0	14.08	15.5
	U-NII-2C	106	5530.0	12.62	14.0
		122	5610.0	12.64	14.0
	U-NII-3	155	5775.0	13.40	15.0

Ant.2 - WLAN 5GHz Power Level D2

Mode	U-NII	Channel	Frequency [MHz]	Averaged Power [dBm]	Tune up [dBm]
802.11a	U-NII-1	36	5180.0	11.63	13.0
		40	5200.0	11.51	13.0
		44	5220.0	11.71	13.0
		48	5240.0	11.74	13.0
	U-NII-2A	52	5260.0	11.64	13.0
		56	5280.0	11.73	13.0
		60	5300.0	12.07	13.0
		64	5320.0	11.69	13.0
	U-NII-2C	100	5500.0	10.84	12.5
		116	5580.0	10.92	12.5
		124	5620.0	11.32	12.5
		132	5660.0	10.68	12.5
	U-NII-3	140	5700.0	10.72	12.5
		149	5745.0	10.96	12.5
802.11n-20MHz	U-NII-1	36	5180.0	10.56	12.0
		40	5200.0	10.59	12.0
		44	5220.0	10.69	12.0
		48	5240.0	10.75	12.0
	U-NII-2A	52	5260.0	10.71	12.0
		56	5280.0	10.76	12.0
		60	5300.0	10.78	12.0
		64	5320.0	10.73	12.0
	U-NII-2C	100	5500.0	10.35	11.5
		116	5580.0	10.24	11.5
		124	5620.0	10.26	11.5
		132	5660.0	10.04	11.5
	U-NII-3	140	5700.0	10.18	11.5
		149	5745.0	10.32	11.5
802.11n-40MHz	U-NII-1	38	5190.0	9.76	11.5
		46	5230.0	9.83	11.5
	U-NII-2A	54	5270.0	9.86	11.5
		62	5310.0	9.84	11.5
	U-NII-2C	102	5510.0	9.47	11.0
		110	5550.0	9.48	11.0
		126	5630.0	9.44	11.0
		134	5670.0	9.27	11.0
	U-NII-3	151	5755.0	9.26	11.0
		159	5795.0	9.22	11.0
802.11ac-20MHz	U-NII-1	36	5180.0	10.04	11.5
		40	5200.0	10.18	11.5
		44	5220.0	10.03	11.5
		48	5240.0	10.16	11.5
	U-NII-2A	52	5260.0	10.27	11.5
		56	5280.0	10.26	11.5
		60	5300.0	10.23	11.5
		64	5320.0	10.19	11.5
	U-NII-2C	100	5500.0	9.90	11.0
		116	5580.0	9.81	11.0
		124	5620.0	9.84	11.0
		132	5660.0	9.84	11.0
	U-NII-3	140	5700.0	9.72	11.0
		149	5745.0	9.89	11.0
802.11ac-40MHz	U-NII-1	38	5190.0	9.90	11.5
		46	5230.0	9.99	11.5
	U-NII-2A	54	5270.0	10.05	11.5
		62	5310.0	9.97	11.5
	U-NII-2C	102	5510.0	9.64	11.0
		110	5550.0	9.62	11.0
		126	5630.0	9.57	11.0
		134	5670.0	9.48	11.0
	U-NII-3	151	5755.0	9.32	11.0
		159	5795.0	9.44	11.0
802.11ac-80MHz	U-NII-1	42	5210.0	10.01	11.5
	U-NII-2A	58	5290.0	10.13	11.5
	U-NII-2C	106	5530.0	9.67	11.0
		122	5610.0	9.69	11.0
	U-NII-3	155	5775.0	9.45	11.0

Ant.2 - WLAN 5GHz Power Level E1

Mode	U-NII	Channel	Frequency [MHz]	Averaged Power [dBm]	Tune up [dBm]
802.11a	U-NII-1	36	5180.0	17.46	19.0
		40	5200.0	17.34	19.0
		44	5220.0	17.54	19.0
		48	5240.0	17.57	19.0
	U-NII-3	149	5745.0	17.29	19.0
		157	5785.0	17.30	19.0
		165	5825.0	17.36	19.0
802.11n-20MHz	U-NII-1	36	5180.0	16.39	18.0
		40	5200.0	16.42	18.0
		44	5220.0	16.52	18.0
		48	5240.0	16.58	18.0
	U-NII-3	149	5745.0	16.65	18.0
		157	5785.0	16.68	18.0
		165	5825.0	16.76	18.0
802.11n-40MHz	U-NII-1	38	5190.0	15.59	17.5
		46	5230.0	15.66	17.5
	U-NII-3	151	5755.0	15.59	17.5
		159	5795.0	15.55	17.5
802.11ac-20MHz	U-NII-1	36	5180.0	15.87	17.5
		40	5200.0	16.01	17.5
		44	5220.0	15.86	17.5
		48	5240.0	15.99	17.5
	U-NII-3	149	5745.0	16.22	17.5
		157	5785.0	16.21	17.5
		165	5825.0	16.33	17.5
802.11ac-40MHz	U-NII-1	38	5190.0	15.73	17.5
		46	5230.0	15.82	17.5
	U-NII-3	151	5755.0	15.65	17.5
		159	5795.0	15.77	17.5
802.11ac-80MHz	U-NII-1	42	5210.0	15.82	17.5
	U-NII-3	155	5775.0	15.78	17.5

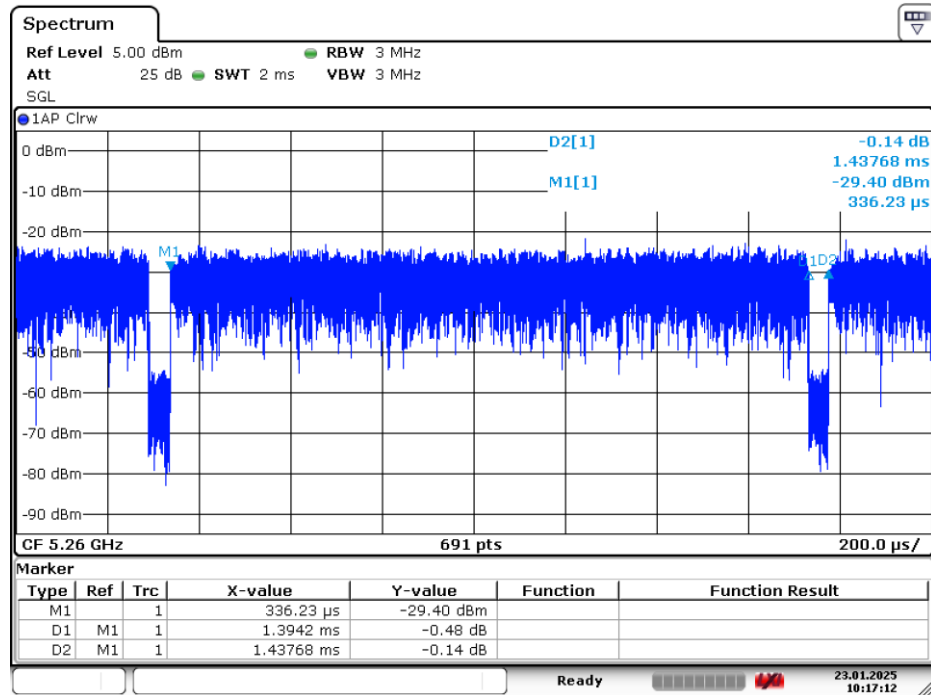
Ant.2 - WLAN 5GHz Power Level E2

Mode	U-NII	Channel	Frequency [MHz]	Averaged Power [dBm]	Tune up [dBm]
802.11a	U-NII-1	36	5180.0	15.58	17.0
		40	5200.0	15.46	17.0
		44	5220.0	15.66	17.0
		48	5240.0	15.79	17.0
	U-NII-3	149	5745.0	14.39	16.0
		157	5785.0	14.35	16.0
		165	5825.0	14.42	16.0
802.11n-20MHz	U-NII-1	36	5180.0	14.51	16.0
		40	5200.0	14.54	16.0
		44	5220.0	14.64	16.0
		48	5240.0	14.70	16.0
	U-NII-3	149	5745.0	13.75	15.0
		157	5785.0	13.88	15.0
		165	5825.0	13.89	15.0
802.11n-40MHz	U-NII-1	38	5190.0	13.71	15.5
		46	5230.0	13.78	15.5
	U-NII-3	151	5755.0	12.76	14.5
		159	5795.0	12.62	14.5
802.11ac-20MHz	U-NII-1	36	5180.0	13.99	15.5
		40	5200.0	14.13	15.5
		44	5220.0	13.98	15.5
		48	5240.0	14.11	15.5
	U-NII-3	149	5745.0	13.33	14.5
		157	5785.0	13.30	14.5
		165	5825.0	13.37	14.5
802.11ac-40MHz	U-NII-1	38	5190.0	13.85	15.5
		46	5230.0	13.94	15.5
	U-NII-3	151	5755.0	12.79	14.5
		159	5795.0	12.98	14.5
802.11ac-80MHz	U-NII-1	42	5210.0	13.94	15.5
	U-NII-3	155	5775.0	12.96	14.5

Ant.2 - WLAN 5GHz Power Level F1/F2

Mode	U-NII	Channel	Frequency [MHz]	Averaged Power [dBm]	Tune up [dBm]
802.11a	U-NII-1	36	5180.0	17.46	19.0
		40	5200.0	17.34	19.0
		44	5220.0	17.54	19.0
		48	5240.0	17.57	19.0
	U-NII-2A	52	5260.0	17.47	19.0
		56	5280.0	17.56	19.0
		60	5300.0	17.60	19.0
		64	5320.0	17.52	19.0
	U-NII-2C	100	5500.0	17.17	19.0
		116	5580.0	17.25	19.0
		124	5620.0	17.65	19.0
		132	5660.0	17.01	19.0
	U-NII-3	140	5700.0	17.05	19.0
		149	5745.0	17.29	19.0
		157	5785.0	17.30	19.0
		165	5825.0	17.36	19.0
802.11n-20MHz	U-NII-1	36	5180.0	16.39	18.0
		40	5200.0	16.42	18.0
		44	5220.0	16.52	18.0
		48	5240.0	16.58	18.0
	U-NII-2A	52	5260.0	16.54	18.0
		56	5280.0	16.59	18.0
		60	5300.0	16.61	18.0
		64	5320.0	16.56	18.0
	U-NII-2C	100	5500.0	16.68	18.0
		116	5580.0	16.57	18.0
		124	5620.0	16.59	18.0
		132	5660.0	16.37	18.0
	U-NII-3	140	5700.0	16.51	18.0
		149	5745.0	16.65	18.0
		157	5785.0	16.68	18.0
		165	5825.0	16.76	18.0
802.11n-40MHz	U-NII-1	38	5190.0	15.59	17.5
		46	5230.0	15.66	17.5
	U-NII-2A	54	5270.0	15.69	17.5
		62	5310.0	15.67	17.5
	U-NII-2C	102	5510.0	15.80	17.5
		110	5550.0	15.81	17.5
		126	5630.0	15.77	17.5
		134	5670.0	15.60	17.5
	U-NII-3	151	5755.0	15.59	17.5
		159	5795.0	15.55	17.5
802.11ac-20MHz	U-NII-1	36	5180.0	15.87	17.5
		40	5200.0	16.01	17.5
		44	5220.0	15.86	17.5
		48	5240.0	15.99	17.5
	U-NII-2A	52	5260.0	16.10	17.5
		56	5280.0	16.09	17.5
		60	5300.0	16.06	17.5
		64	5320.0	16.02	17.5
	U-NII-2C	100	5500.0	16.23	17.5
		116	5580.0	16.14	17.5
		124	5620.0	16.17	17.5
		132	5660.0	16.17	17.5
	U-NII-3	140	5700.0	16.05	17.5
		149	5745.0	16.22	17.5
		157	5785.0	16.21	17.5
		165	5825.0	16.33	17.5
802.11ac-40MHz	U-NII-1	38	5190.0	15.73	17.5
		46	5230.0	15.82	17.5
	U-NII-2A	54	5270.0	15.88	17.5
		62	5310.0	15.80	17.5
	U-NII-2C	102	5510.0	15.97	17.5
		110	5550.0	15.95	17.5
		126	5630.0	15.90	17.5
		134	5670.0	15.81	17.5
	U-NII-3	151	5755.0	15.65	17.5
		159	5795.0	15.77	17.5
802.11ac-80MHz	U-NII-1	42	5210.0	15.82	17.5
	U-NII-2A	58	5290.0	15.96	17.5
	U-NII-2C	106	5530.0	16.00	17.5
		122	5610.0	16.02	17.5
	U-NII-3	155	5775.0	15.78	17.5

Duty factor plot

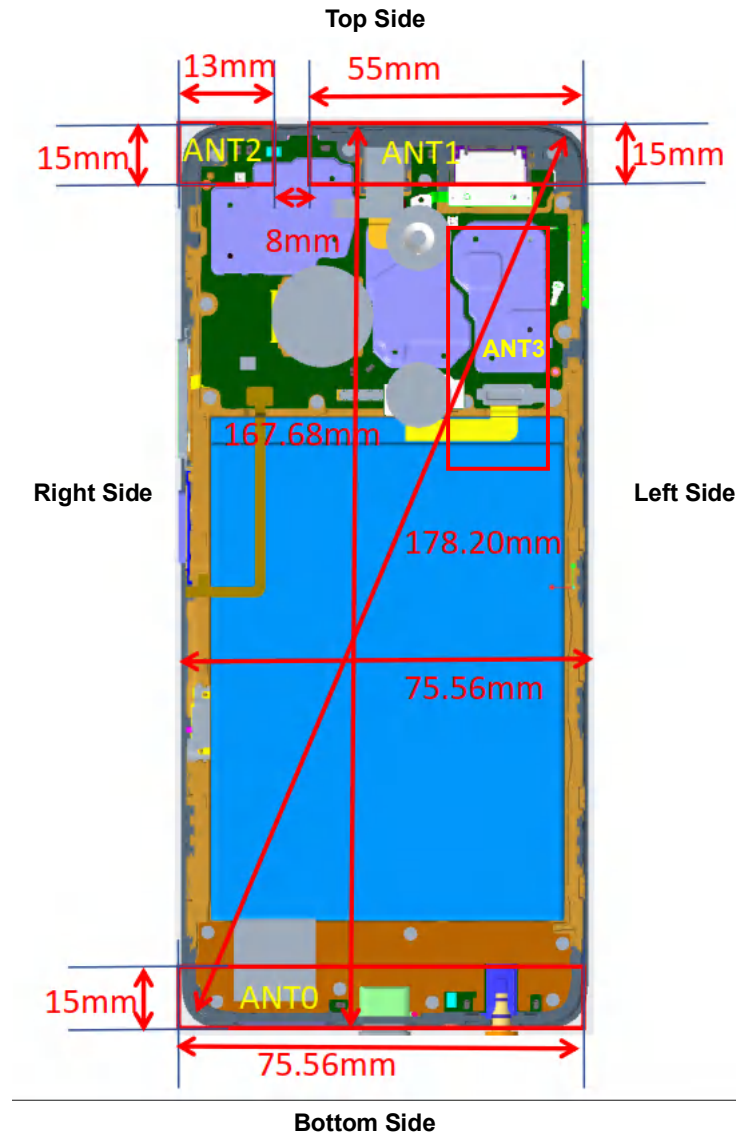


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$$\text{Duty cycle} = \text{on time} / \text{total time} = (1.3942 / 1.43768) * 100\% = 96.98\%$$

11. Simultaneous TX SAR Considerations

11.1. Transmit Antenna Position and Size



Picture 11.1 Antenna Locations (Back View)

Antenna	Frequency Bands
Ant 0	TX: WCDMA Band 1/2/4, LTE Band 1/2/3/4/7/38/40/41/66
Ant 1	TX: GSM 850/900/1800/1900, WCDMA Band 5/8, LTE Band 5/8/12/13/17/20/26/28
Ant 2	GPS, BT, WLAN 2.4GHz/5GHz
Ant 3	NFC

11.2. SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR, the edges with less than 25mm distance to the antennas need to be tested for SAR.

SAR measurement positions						
Antenna	Front	Rear	Left Side	Right Side	Top Side	Bottom Side
0	Yes	Yes	Yes	Yes	No	Yes
1	Yes	Yes	Yes	Yes	Yes	No
2	Yes	Yes	No	Yes	Yes	No
3	Yes	Yes	Yes	Yes	Yes	Yes

11.3. Evaluation of Simultaneous

No.	RF Exposure Conditions	Simultaneous Transmission Configuration
1	Head / Hotspot / Body-worn	WLAN 5GHz + Bluetooth
2		WWAN + WLAN 2.4GHz
3		WWAN + WLAN 5GHz
4		WWAN + Bluetooth
5		WWAN + WLAN 5GHz + Bluetooth
6	Extremity	WLAN 5GHz + Bluetooth + NFC
7		WWAN + WLAN 2.4GHz + NFC
8		WWAN + WLAN 5GHz + NFC
9		WWAN + Bluetooth + NFC
10		WWAN + WLAN 5GHz + Bluetooth + NFC

Table 11.1: Maximum Simultaneous Transmission SAR

<i>I</i>	Position	Sum (W/kg)
Highest reported SAR value for Head	Right Tilt (GSM 1900 + WLAN 5GHz + Bluetooth)	1.39
	Right Tilt (GSM 1900 + Bluetooth)	1.10
Highest reported SAR value for Hotspot	Top Side (GSM 1900 + WLAN 5GHz + Bluetooth)	1.39
	Top Side (GSM 1900 + Bluetooth)	1.16
Highest reported SAR value for Body-worn	Rear Side (WCDMA Band 4 + WLAN 5GHz + Bluetooth)	1.05
	Rear Side (WCDMA Band 4 + Bluetooth)	0.53
Highest reported SAR value for Extremity	Bottom Side (LTE Band 2 + WLAN 5GHz + Bluetooth + NFC)	3.19
	Bottom Side (LTE Band 2 + Bluetooth)	3.19

Note: The test positions of above tables are for the worse case that has been evaluated.

Conclusion:

According to the above tables, the sum of reported SAR values is less than limit. So the simultaneous transmission SAR with volume scans is not required.

12. Summary of Test Results

According to the client's decision rule in the test registration form, which is "based on the measurement results as the basis of the conformity statement", the test conclusion of this report meets the limit requirements.

The calculated SAR is obtained by the following formula:

$$\text{Calculated SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where P_{Target} is the power of manufacturing upper limit;

P_{Measured} is the measured power in chapter 10.

General Note:

1. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

a. WLAN 5GHz U-NII-2A and U-NII-2C tested the product specific 10g SAR since it has no hotspot mode.

b. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.

2. The device support dual SIMs, SIM1 was used for the all configuration SAR testing and SIM2 test the worst case SAR of SIM1.

3. B2 (Battery): TLp050B7 - Dongguan Veken Battery CO., LTD.

Duty Cycle

Mode	Duty Cycle
GPRS	1:2 / 1:4 / 1:8.3
WCDMA	1:1
FDD_LTE	1:1
TDD_LTE	1:1.58
Bluetooth	1:1.3
WLAN 2.4GHz	1:1.01
WLAN 5GHz	1:1.03

12.1. Testing Environment

Temperature:	18°C~25°C
Relative humidity:	30%~70%
Ambient noise & Reflection:	< 0.012 W/kg

12.2. Test Results

Table 12.1: GSM 850 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	GSM 850	128	824.2	GPRS(1TX)	Left Cheek	0mm	\	\	31.21	32.00	0.726	0.87	0.469	0.56	0.02
1	A1	Head	GSM 850	128	824.2	GPRS(1TX)	Left Tilt	0mm	\	\	31.21	32.00	0.583	0.70	0.328	0.39	-0.01
1	A1	Head	GSM 850	128	824.2	GPRS(1TX)	Right Cheek	0mm	\	1	31.21	32.00	0.891	1.07	0.608	0.73	-0.07
1	A1	Head	GSM 850	128	824.2	GPRS(1TX)	Right Tilt	0mm	\	\	31.21	32.00	0.739	0.89	0.413	0.50	0.05
1	A1	Head	GSM 850	251	848.8	GPRS(1TX)	Left Cheek	0mm	\	\	31.08	32.00	0.685	0.85	0.409	0.51	0.08
1	A1	Head	GSM 850	190	836.6	GPRS(1TX)	Left Cheek	0mm	\	\	31.11	32.00	0.704	0.86	0.450	0.55	0.02
1	A1	Head	GSM 850	251	848.8	GPRS(1TX)	Right Cheek	0mm	\	\	31.08	32.00	0.825	1.02	0.499	0.62	0.12
1	A1	Head	GSM 850	190	836.6	GPRS(1TX)	Right Cheek	0mm	\	\	31.11	32.00	0.868	1.07	0.584	0.72	0.03
1	B1	Hotspot	GSM 850	190	836.6	GPRS(4TX)	Front	10mm	\	\	29.34	30.50	0.322	0.42	0.196	0.26	-0.15
1	B1	Hotspot	GSM 850	190	836.6	GPRS(4TX)	Rear	10mm	\	\	29.34	30.50	0.629	0.82	0.344	0.45	-0.19
1	B1	Hotspot	GSM 850	190	836.6	GPRS(4TX)	Left	10mm	\	\	29.34	30.50	0.359	0.47	0.241	0.31	0.07
1	B1	Hotspot	GSM 850	190	836.6	GPRS(4TX)	Right	10mm	\	\	29.34	30.50	0.105	0.14	0.068	0.09	0.02
1	B1	Hotspot	GSM 850	190	836.6	GPRS(4TX)	Top	10mm	\	\	29.34	30.50	0.400	0.52	0.190	0.25	-0.17
1	B1	Hotspot	GSM 850	251	848.8	GPRS(4TX)	Rear	10mm	\	2	29.26	30.50	0.700	0.93	0.399	0.53	-0.09
1	B1	Hotspot	GSM 850	128	824.2	GPRS(4TX)	Rear	10mm	\	\	29.21	30.50	0.512	0.69	0.295	0.40	-0.05
1	C1	Body-Worn	GSM 850	190	836.6	GPRS(4TX)	Front	15mm	\	\	29.34	30.50	0.212	0.28	0.152	0.20	0.03
1	C1	Body-Worn	GSM 850	190	836.6	GPRS(4TX)	Rear	15mm	\	\	29.34	30.50	0.294	0.38	0.179	0.23	0.05

Table 12.2: GSM 1900 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	GSM 1900	512	1850.2	GPRS(1TX)	Left Cheek	0mm	\	\	26.64	27.00	0.545	0.59	0.285	0.31	-0.03
1	A1	Head	GSM 1900	512	1850.2	GPRS(1TX)	Left Tilt	0mm	\	\	26.64	27.00	0.647	0.70	0.336	0.37	0.02
1	A1	Head	GSM 1900	512	1850.2	GPRS(1TX)	Right Cheek	0mm	\	\	26.64	27.00	0.599	0.65	0.320	0.35	0.12
1	A1	Head	GSM 1900	512	1850.2	GPRS(1TX)	Right Tilt	0mm	\	\	26.64	27.00	0.765	0.83	0.398	0.43	0.05
1	A1	Head	GSM 1900	810	1909.8	GPRS(1TX)	Right Tilt	0mm	\	3	26.26	27.00	0.924	1.10	0.468	0.55	0.03
1	A1	Head	GSM 1900	661	1880.0	GPRS(1TX)	Right Tilt	0mm	\	\	26.47	27.00	0.807	0.91	0.404	0.46	0.07
1	A1	Head	GSM 1900	810	1909.8	GPRS(1TX)	Right Tilt	0mm	SIM2	\	26.26	27.00	0.911	1.08	0.457	0.54	-0.04
1	B1	Hotspot	GSM 1900	512	1850.2	GPRS(2TX)	Front	10mm	\	\	27.74	28.50	0.250	0.30	0.130	0.15	-0.03
1	B1	Hotspot	GSM 1900	512	1850.2	GPRS(2TX)	Rear	10mm	\	\	27.74	28.50	0.597	0.71	0.297	0.35	0.18
1	B1	Hotspot	GSM 1900	512	1850.2	GPRS(2TX)	Left	10mm	\	\	27.74	28.50	0.062	0.07	0.034	0.04	-0.13
1	B1	Hotspot	GSM 1900	512	1850.2	GPRS(2TX)	Right	10mm	\	\	27.74	28.50	<0.01	<0.01	<0.01	<0.01	\
1	B1	Hotspot	GSM 1900	512	1850.2	GPRS(2TX)	Top	10mm	\	\	27.74	28.50	0.834	0.99	0.398	0.47	-0.05
1	B1	Hotspot	GSM 1900	810	1909.8	GPRS(2TX)	Top	10mm	\	4	27.28	28.50	0.863	1.14	0.456	0.60	-0.07
1	B1	Hotspot	GSM 1900	661	1880.0	GPRS(2TX)	Top	10mm	\	\	27.51	28.50	0.681	0.86	0.336	0.42	0.11
1	B1	Hotspot	GSM 1900	810	1909.8	GPRS(2TX)	Top	10mm	SIM2	\	27.28	28.50	0.850	1.13	0.448	0.59	-0.03
1	B1	Hotspot	GSM 1900	810	1909.8	GPRS(2TX)	Top	10mm	B2	\	27.28	28.50	0.713	0.94	0.367	0.49	0.06
1	C1	Body-Worn	GSM 1900	512	1850.2	GPRS(2TX)	Front	15mm	\	\	27.74	28.50	0.126	0.15	0.070	0.08	0.03
1	C1	Body-Worn	GSM 1900	512	1850.2	GPRS(2TX)	Rear	15mm	\	\	27.74	28.50	0.290	0.35	0.168	0.20	-0.09

Table 12.3: WCDMA Band 2 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	WCDMA Band 2	9262	1852.4	RMC	Left Cheek	0mm	\	\	23.51	24.50	0.194	0.24	0.118	0.15	0.07
0	A1	Head	WCDMA Band 2	9262	1852.4	RMC	Left Tilt	0mm	\	\	23.51	24.50	0.152	0.19	0.096	0.12	-0.02
0	A1	Head	WCDMA Band 2	9262	1852.4	RMC	Right Cheek	0mm	\	5	23.51	24.50	0.196	0.25	0.130	0.16	-0.01
0	A1	Head	WCDMA Band 2	9262	1852.4	RMC	Right Tilt	0mm	\	\	23.51	24.50	0.122	0.15	0.075	0.09	0.14
0	B1	Hotspot	WCDMA Band 2	9262	1852.4	RMC	Front	10mm	\	\	20.09	21.00	0.228	0.28	0.154	0.19	-0.10
0	B1	Hotspot	WCDMA Band 2	9262	1852.4	RMC	Rear	10mm	\	\	20.09	21.00	0.518	0.64	0.328	0.40	-0.02
0	B1	Hotspot	WCDMA Band 2	9262	1852.4	RMC	Left	10mm	\	\	20.09	21.00	0.120	0.15	0.075	0.09	0.19
0	B1	Hotspot	WCDMA Band 2	9262	1852.4	RMC	Right	10mm	\	\	20.09	21.00	0.061	0.07	0.039	0.05	-0.07
0	B1	Hotspot	WCDMA Band 2	9262	1852.4	RMC	Bottom	10mm	\	6	20.09	21.00	0.777	0.96	0.452	0.56	-0.04
0	B1	Hotspot	WCDMA Band 2	9538	1852.4	RMC	Bottom	10mm	\	\	19.97	21.00	0.707	0.90	0.415	0.53	-0.12
0	B1	Hotspot	WCDMA Band 2	9400	1852.4	RMC	Bottom	10mm	\	\	20.04	21.00	0.764	0.95	0.447	0.56	-0.02
0	C1	Body-Worn	WCDMA Band 2	9262	1852.4	RMC	Front	15mm	\	\	20.63	21.50	0.174	0.21	0.107	0.13	0.06
0	C1	Body-Worn	WCDMA Band 2	9262	1852.4	RMC	Rear	15mm	\	\	20.63	21.50	0.352	0.43	0.226	0.28	0.02

Table 12.4: WCDMA Band 4 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	WCDMA Band 4	1312	1712.4	RMC	Left Cheek	0mm	\	\	23.11	24.00	0.124	0.15	0.078	0.10	0.01
0	A1	Head	WCDMA Band 4	1312	1712.4	RMC	Left Tilt	0mm	\	\	23.11	24.00	0.090	0.11	0.057	0.07	0.01
0	A1	Head	WCDMA Band 4	1312	1712.4	RMC	Right Cheek	0mm	\	7	23.11	24.00	0.184	0.23	0.122	0.15	0.02
0	A1	Head	WCDMA Band 4	1312	1712.4	RMC	Right Tilt	0mm	\	\	23.11	24.00	0.103	0.13	0.063	0.08	0.12
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Front	10mm	\	\	20.83	21.50	0.277	0.32	0.167	0.19	0.15
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Rear	10mm	\	\	20.83	21.50	0.782	0.91	0.436	0.51	-0.09
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Left	10mm	\	\	20.83	21.50	0.125	0.15	0.072	0.08	-0.09
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Right	10mm	\	\	20.83	21.50	0.079	0.09	0.049	0.06	0.04
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Bottom	10mm	\	8	20.83	21.50	0.924	1.08	0.536	0.63	-0.19
0	B1	Hotspot	WCDMA Band 4	1513	1752.6	RMC	Rear	10mm	\	\	20.71	21.50	0.723	0.87	0.411	0.49	-0.13
0	B1	Hotspot	WCDMA Band 4	1413	1732.6	RMC	Rear	10mm	\	\	20.81	21.50	0.754	0.88	0.427	0.50	0.11
0	B1	Hotspot	WCDMA Band 4	1513	1752.6	RMC	Bottom	10mm	\	\	20.71	21.50	0.885	1.06	0.469	0.56	-0.05
0	B1	Hotspot	WCDMA Band 4	1413	1732.6	RMC	Bottom	10mm	\	\	20.81	21.50	0.914	1.07	0.482	0.56	0.13
0	C1	Body-Worn	WCDMA Band 4	1312	1712.4	RMC	Front	15mm	\	\	20.83	21.50	0.165	0.19	0.102	0.12	0.09
0	C1	Body-Worn	WCDMA Band 4	1312	1712.4	RMC	Rear	15mm	\	\	20.83	21.50	0.441	0.51	0.279	0.33	-0.08
0	C1	Body-Worn	WCDMA Band 4	1312	1712.4	RMC	Rear	15mm	SIM2	\	20.83	21.50	0.432	0.50	0.270	0.32	0.05

Table 12.5: WCDMA Band 5 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	WCDMA Band 5	4233	846.6	RMC	Left Cheek	0mm	\	\	22.29	24.00	0.405	0.60	0.304	0.45	0.01
1	A1	Head	WCDMA Band 5	4233	846.6	RMC	Left Tilt	0mm	\	\	22.29	24.00	0.394	0.58	0.259	0.38	0.06
1	A1	Head	WCDMA Band 5	4233	846.6	RMC	Right Cheek	0mm	\	\	22.29	24.00	0.557	0.83	0.384	0.57	-0.02
1	A1	Head	WCDMA Band 5	4233	846.6	RMC	Right Tilt	0mm	\	\	22.29	24.00	0.531	0.79	0.328	0.49	0.03
1	A1	Head	WCDMA Band 5	4183	836.6	RMC	Right Cheek	0mm	\	\	22.22	24.00	0.603	0.91	0.419	0.63	0.11
1	A1	Head	WCDMA Band 5	4132	826.4	RMC	Right Cheek	0mm	\	9	22.24	24.00	0.636	0.95	0.439	0.66	0.04
1	B1	Hotspot	WCDMA Band 5	4233	846.6	RMC	Front	10mm	\	\	23.43	25.00	0.256	0.37	0.154	0.22	0.05
1	B1	Hotspot	WCDMA Band 5	4233	846.6	RMC	Rear	10mm	\	10	23.43	25.00	0.491	0.70	0.285	0.41	0.19
1	B1	Hotspot	WCDMA Band 5	4233	846.6	RMC	Left	10mm	\	\	23.43	25.00	0.253	0.36	0.167	0.24	-0.17
1	B1	Hotspot	WCDMA Band 5	4233	846.6	RMC	Right	10mm	\	\	23.43	25.00	0.099	0.14	0.065	0.09	0.11
1	B1	Hotspot	WCDMA Band 5	4233	846.6	RMC	Top	10mm	\	\	23.43	25.00	0.337	0.48	0.165	0.24	0.17
1	C1	Body-Worn	WCDMA Band 5	4233	846.6	RMC	Front	15mm	\	\	23.43	25.00	0.162	0.23	0.117	0.17	0.07
1	C1	Body-Worn	WCDMA Band 5	4233	846.6	RMC	Rear	15mm	\	\	23.43	25.00	0.259	0.37	0.159	0.23	-0.11

Table 12.6: LTE Band 2 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	LTE Band 2	18700	1860.0	1RB50	Left Cheek	0mm	\	\	22.86	24.00	0.113	0.15	0.074	0.10	-0.14
0	A1	Head	LTE Band 2	18900	1880.0	50RB0	Left Cheek	0mm	\	\	21.86	23.00	0.092	0.12	0.060	0.08	0.06
0	A1	Head	LTE Band 2	18700	1860.0	1RB50	Left Tilt	0mm	\	\	22.86	24.00	0.096	0.12	0.064	0.08	-0.15
0	A1	Head	LTE Band 2	18900	1880.0	50RB0	Left Tilt	0mm	\	\	21.86	23.00	0.081	0.10	0.054	0.07	-0.09
0	A1	Head	LTE Band 2	18700	1860.0	1RB50	Right Cheek	0mm	\	11	22.86	24.00	0.128	0.17	0.084	0.11	0.01
0	A1	Head	LTE Band 2	18900	1880.0	50RB0	Right Cheek	0mm	\	\	21.86	23.00	0.103	0.13	0.066	0.09	0.06
0	A1	Head	LTE Band 2	18700	1860.0	1RB50	Right Tilt	0mm	\	\	22.86	24.00	0.066	0.09	0.044	0.06	0.01
0	A1	Head	LTE Band 2	18900	1880.0	50RB0	Right Tilt	0mm	\	\	21.86	23.00	0.055	0.07	0.037	0.05	0.12
0	B1	Hotspot	LTE Band 2	18700	1860.0	1RB50	Front	10mm	\	\	20.78	22.00	0.243	0.32	0.151	0.20	-0.05
0	B1	Hotspot	LTE Band 2	18900	1880.0	50RB0	Front	10mm	\	\	20.85	22.00	0.266	0.35	0.164	0.21	-0.15
0	B1	Hotspot	LTE Band 2	18700	1860.0	1RB50	Rear	10mm	\	\	20.78	22.00	0.527	0.70	0.309	0.41	-0.10
0	B1	Hotspot	LTE Band 2	18900	1880.0	50RB0	Rear	10mm	\	\	20.85	22.00	0.536	0.70	0.315	0.41	-0.10
0	B1	Hotspot	LTE Band 2	18700	1860.0	1RB50	Left	10mm	\	\	20.78	22.00	0.138	0.18	0.076	0.10	0.07
0	B1	Hotspot	LTE Band 2	18900	1880.0	50RB0	Left	10mm	\	\	20.85	22.00	0.145	0.19	0.083	0.11	-0.08
0	B1	Hotspot	LTE Band 2	18700	1860.0	1RB50	Right	10mm	\	\	20.78	22.00	0.060	0.08	0.035	0.05	0.01
0	B1	Hotspot	LTE Band 2	18900	1880.0	50RB0	Right	10mm	\	\	20.85	22.00	0.067	0.09	0.039	0.05	-0.15
0	B1	Hotspot	LTE Band 2	18700	1860.0	1RB50	Bottom	10mm	\	\	20.78	22.00	0.749	0.99	0.428	0.57	-0.09
0	B1	Hotspot	LTE Band 2	18900	1880.0	50RB0	Bottom	10mm	\	12	20.85	22.00	0.776	1.01	0.447	0.58	-0.09
0	B1	Hotspot	LTE Band 2	19100	1900.0	1RB50	Bottom	10mm	\	\	20.75	22.00	0.726	0.97	0.420	0.56	-0.16
0	B1	Hotspot	LTE Band 2	18900	1880.0	1RB50	Bottom	10mm	\	\	20.74	22.00	0.743	0.99	0.429	0.57	0.14
0	B1	Hotspot	LTE Band 2	19100	1900.0	50RB0	Bottom	10mm	\	\	20.68	22.00	0.705	0.96	0.408	0.55	0.05
0	B1	Hotspot	LTE Band 2	18700	1860.0	50RB0	Bottom	10mm	\	\	20.80	22.00	0.748	0.99	0.429	0.57	0.16
0	B1	Hotspot	LTE Band 2	18900	1880.0	100RB	Bottom	10mm	\	\	20.77	22.00	0.754	1.00	0.433	0.57	-0.13
0	C1	Body-Worn	LTE Band 2	18700	1860.0	1RB50	Front	15mm	\	\	21.93	23.00	0.179	0.23	0.114	0.15	-0.07
0	C1	Body-Worn	LTE Band 2	18900	1880.0	50RB0	Front	15mm	\	\	21.98	23.00	0.199	0.25	0.124	0.16	-0.19
0	C1	Body-Worn	LTE Band 2	18700	1860.0	1RB50	Rear	15mm	\	\	21.93	23.00	0.368	0.47	0.224	0.29	-0.09
0	C1	Body-Worn	LTE Band 2	18900	1880.0	50RB0	Rear	15mm	\	\	21.98	23.00	0.392	0.50	0.249	0.31	0.02
0	C1	Extremity	LTE Band 2	18700	1860.0	1RB50	Bottom	0mm	\	13	21.93	23.00	4.990	6.38	2.470	3.16	0.03
0	C1	Extremity	LTE Band 2	19100	1900.0	1RB50	Bottom	0mm	\	\	21.86	23.00	4.970	6.46	2.450	3.19	0.04
0	C1	Extremity	LTE Band 2	18900	1880.0	1RB50	Bottom	0mm	\	\	21.90	23.00	4.920	6.34	2.430	3.13	0.03
0	C1	Extremity	LTE Band 2	18900	1880.0	50RB0	Bottom	0mm	\	\	21.98	23.00	4.930	6.24	2.460	3.11	0.08
0	C1	Extremity	LTE Band 2	19100	1900.0	50RB0	Bottom	0mm	\	\	21.88	23.00	4.870	6.30	2.410	3.12	0.04
0	C1	Extremity	LTE Band 2	18700	1860.0	50RB0	Bottom	0mm	\	\	21.94	23.00	4.910	6.27	2.420	3.09	0.14
0	C1	Extremity	LTE Band 2	18900	1880.0	100RB	Bottom	0mm	\	\	21.95	23.00	4.970	6.33	2.450	3.12	0.06
0	C1	Extremity	LTE Band 2	19100	1900.0	1RB50	Bottom	0mm	SIM2	\	21.86	23.00	4.950	6.44	2.430	3.16	0.10
0	C1	Extremity	LTE Band 2	19100	1900.0	1RB50	Bottom	0mm	B2	\	21.86	23.00	4.930	6.41	2.400	3.12	-0.07

Table 12.7: LTE Band 7 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	LTE Band 7	21350	2560.0	1RB50	Left Cheek	0mm	\	14	22.81	24.00	0.191	0.25	0.104	0.14	0.02
0	A1	Head	LTE Band 7	21350	2560.0	50RB50	Left Cheek	0mm	\	\	21.88	23.00	0.142	0.18	0.076	0.10	-0.17
0	A1	Head	LTE Band 7	21350	2560.0	1RB50	Left Tilt	0mm	\	\	22.81	24.00	0.090	0.12	0.047	0.06	0.08
0	A1	Head	LTE Band 7	21350	2560.0	50RB50	Left Tilt	0mm	\	\	21.88	23.00	0.069	0.09	0.036	0.05	0.06
0	A1	Head	LTE Band 7	21350	2560.0	1RB50	Right Cheek	0mm	\	\	22.81	24.00	0.091	0.12	0.055	0.07	-0.01
0	A1	Head	LTE Band 7	21350	2560.0	50RB50	Right Cheek	0mm	\	\	21.88	23.00	0.067	0.09	0.039	0.05	0.04
0	A1	Head	LTE Band 7	21350	2560.0	1RB50	Right Tilt	0mm	\	\	22.81	24.00	0.088	0.12	0.046	0.06	-0.13
0	A1	Head	LTE Band 7	21350	2560.0	50RB50	Right Tilt	0mm	\	\	21.88	23.00	0.066	0.09	0.035	0.05	0.03
0	B1	Hotspot	LTE Band 7	21350	2560.0	1RB50	Front	10mm	\	\	22.81	24.00	0.274	0.36	0.146	0.19	-0.18
0	B1	Hotspot	LTE Band 7	21350	2560.0	50RB50	Front	10mm	\	\	21.88	23.00	0.209	0.27	0.112	0.14	0.07
0	B1	Hotspot	LTE Band 7	21350	2560.0	1RB50	Rear	10mm	\	\	22.81	24.00	0.444	0.58	0.230	0.30	0.16
0	B1	Hotspot	LTE Band 7	21350	2560.0	50RB50	Rear	10mm	\	\	21.88	23.00	0.338	0.44	0.174	0.23	0.03
0	B1	Hotspot	LTE Band 7	21350	2560.0	1RB50	Left	10mm	\	\	22.81	24.00	0.179	0.24	0.098	0.13	0.04
0	B1	Hotspot	LTE Band 7	21350	2560.0	50RB50	Left	10mm	\	\	21.88	23.00	0.141	0.18	0.075	0.10	-0.07
0	B1	Hotspot	LTE Band 7	21350	2560.0	1RB50	Right	10mm	\	\	22.81	24.00	0.079	0.10	0.042	0.06	0.10
0	B1	Hotspot	LTE Band 7	21350	2560.0	50RB50	Right	10mm	\	\	21.88	23.00	0.052	0.07	0.029	0.04	0.06
0	B1	Hotspot	LTE Band 7	21350	2560.0	1RB50	Bottom	10mm	\	15	22.81	24.00	0.496	0.65	0.263	0.35	-0.02
0	B1	Hotspot	LTE Band 7	21350	2560.0	50RB50	Bottom	10mm	\	\	21.88	23.00	0.383	0.50	0.195	0.25	0.06
0	C1	Body-Worn	LTE Band 7	21350	2560.0	1RB50	Front	15mm	\	\	19.00	20.50	0.157	0.22	0.087	0.12	0.09
0	C1	Body-Worn	LTE Band 7	21350	2560.0	50RB50	Front	15mm	\	\	19.04	20.50	0.122	0.17	0.068	0.10	-0.17
0	C1	Body-Worn	LTE Band 7	21350	2560.0	1RB50	Rear	15mm	\	\	19.00	20.50	0.244	0.34	0.136	0.19	-0.01
0	C1	Body-Worn	LTE Band 7	21350	2560.0	50RB50	Rear	15mm	\	\	19.04	20.50	0.186	0.26	0.104	0.15	-0.10

Table 12.8: LTE Band 12 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	LTE Band 12	23095	707.5	1RB24	Left Cheek	0mm	\	\	23.64	24.50	0.479	0.58	0.335	0.41	-0.17
1	A1	Head	LTE Band 12	23060	704.0	25RB25	Left Cheek	0mm	\	\	22.68	23.50	0.396	0.48	0.278	0.34	-0.10
1	A1	Head	LTE Band 12	23095	707.5	1RB24	Left Tilt	0mm	\	\	23.64	24.50	0.376	0.46	0.241	0.29	-0.09
1	A1	Head	LTE Band 12	23060	704.0	25RB25	Left Tilt	0mm	\	\	22.68	23.50	0.307	0.37	0.199	0.24	0.05
1	A1	Head	LTE Band 12	23095	707.5	1RB24	Right Cheek	0mm	\	16	23.64	24.50	0.638	0.78	0.410	0.50	0.03
1	A1	Head	LTE Band 12	23060	704.0	25RB25	Right Cheek	0mm	\	\	22.68	23.50	0.533	0.64	0.342	0.41	0.06
1	A1	Head	LTE Band 12	23095	707.5	1RB24	Right Tilt	0mm	\	\	23.64	24.50	0.523	0.64	0.300	0.37	-0.13
1	A1	Head	LTE Band 12	23060	704.0	25RB25	Right Tilt	0mm	\	\	22.68	23.50	0.432	0.52	0.248	0.30	-0.16
1	B1	Hotspot	LTE Band 12	23095	707.5	1RB24	Front	10mm	\	\	23.64	24.50	0.135	0.16	0.098	0.12	0.12
1	B1	Hotspot	LTE Band 12	23060	704.0	25RB25	Front	10mm	\	\	22.68	23.50	0.113	0.14	0.082	0.10	0.12
1	B1	Hotspot	LTE Band 12	23095	707.5	1RB24	Rear	10mm	\	\	23.64	24.50	0.214	0.26	0.128	0.16	-0.17
1	B1	Hotspot	LTE Band 12	23060	704.0	25RB25	Rear	10mm	\	\	22.68	23.50	0.179	0.22	0.105	0.13	-0.06
1	B1	Hotspot	LTE Band 12	23095	707.5	1RB24	Left	10mm	\	17	23.64	24.50	0.224	0.27	0.160	0.20	-0.12
1	B1	Hotspot	LTE Band 12	23060	704.0	25RB25	Left	10mm	\	\	22.68	23.50	0.176	0.21	0.118	0.14	0.11
1	B1	Hotspot	LTE Band 12	23095	707.5	1RB24	Right	10mm	\	\	23.64	24.50	0.115	0.14	0.077	0.09	-0.08
1	B1	Hotspot	LTE Band 12	23060	704.0	25RB25	Right	10mm	\	\	22.68	23.50	0.094	0.11	0.062	0.07	0.07
1	B1	Hotspot	LTE Band 12	23095	707.5	1RB24	Top	10mm	\	\	23.64	24.50	0.094	0.11	0.048	0.06	0.18
1	B1	Hotspot	LTE Band 12	23060	704.0	25RB25	Top	10mm	\	\	22.68	23.50	0.087	0.11	0.043	0.05	-0.09
1	C1	Body-Worn	LTE Band 12	23095	707.5	1RB24	Front	15mm	\	\	23.64	24.50	0.148	0.18	0.107	0.13	-0.04
1	C1	Body-Worn	LTE Band 12	23060	704.0	25RB25	Front	15mm	\	\	22.68	23.50	0.123	0.15	0.089	0.11	-0.13
1	C1	Body-Worn	LTE Band 12	23095	707.5	1RB24	Rear	15mm	\	\	23.64	24.50	0.162	0.20	0.129	0.16	-0.05
1	C1	Body-Worn	LTE Band 12	23060	704.0	25RB25	Rear	15mm	\	\	22.68	23.50	0.139	0.17	0.100	0.12	-0.15

Note: SAR for LTE Band 17 is covered by LTE Band 12 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

Table 12.9: LTE Band 13 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	LTE Band 13	23230	782.0	1RB24	Left Cheek	0mm	\	\	23.43	24.50	0.471	0.60	0.324	0.41	-0.14
1	A1	Head	LTE Band 13	23230	782.0	25RB12	Left Cheek	0mm	\	\	22.39	23.50	0.372	0.48	0.256	0.33	0.16
1	A1	Head	LTE Band 13	23230	782.0	1RB24	Left Tilt	0mm	\	\	23.43	24.50	0.338	0.43	0.219	0.28	0.08
1	A1	Head	LTE Band 13	23230	782.0	25RB12	Left Tilt	0mm	\	\	22.39	23.50	0.264	0.34	0.172	0.22	0.02
1	A1	Head	LTE Band 13	23230	782.0	1RB24	Right Cheek	0mm	\	18	23.43	24.50	0.537	0.69	0.361	0.46	-0.04
1	A1	Head	LTE Band 13	23230	782.0	25RB12	Right Cheek	0mm	\	\	22.39	23.50	0.427	0.55	0.286	0.37	-0.12
1	A1	Head	LTE Band 13	23230	782.0	1RB24	Right Tilt	0mm	\	\	23.43	24.50	0.467	0.60	0.269	0.34	-0.14
1	A1	Head	LTE Band 13	23230	782.0	25RB12	Right Tilt	0mm	\	\	22.39	23.50	0.367	0.47	0.211	0.27	0.11
1	B1	Hotspot	LTE Band 13	23230	782.0	1RB24	Front	10mm	\	\	23.43	24.50	0.135	0.17	0.099	0.13	-0.05
1	B1	Hotspot	LTE Band 13	23230	782.0	25RB12	Front	10mm	\	\	22.39	23.50	0.104	0.13	0.076	0.10	0.16
1	B1	Hotspot	LTE Band 13	23230	782.0	1RB24	Rear	10mm	\	19	23.43	24.50	0.239	0.31	0.135	0.17	0.02
1	B1	Hotspot	LTE Band 13	23230	782.0	25RB12	Rear	10mm	\	\	22.39	23.50	0.178	0.23	0.103	0.13	-0.08
1	B1	Hotspot	LTE Band 13	23230	782.0	1RB24	Left	10mm	\	\	23.43	24.50	0.204	0.26	0.135	0.17	0.03
1	B1	Hotspot	LTE Band 13	23230	782.0	25RB12	Left	10mm	\	\	22.39	23.50	0.163	0.21	0.107	0.14	0.09
1	B1	Hotspot	LTE Band 13	23230	782.0	1RB24	Right	10mm	\	\	23.43	24.50	0.108	0.14	0.072	0.09	-0.02
1	B1	Hotspot	LTE Band 13	23230	782.0	25RB12	Right	10mm	\	\	22.39	23.50	0.087	0.11	0.057	0.07	-0.01
1	B1	Hotspot	LTE Band 13	23230	782.0	1RB24	Top	10mm	\	\	23.43	24.50	0.135	0.17	0.066	0.08	-0.05
1	B1	Hotspot	LTE Band 13	23230	782.0	25RB12	Top	10mm	\	\	22.39	23.50	0.104	0.13	0.051	0.07	0.10
1	C1	Body-Worn	LTE Band 13	23230	782.0	1RB24	Front	15mm	\	\	23.43	24.50	0.146	0.19	0.105	0.13	0.04
1	C1	Body-Worn	LTE Band 13	23230	782.0	25RB12	Front	15mm	\	\	22.39	23.50	0.116	0.15	0.083	0.11	0.04
1	C1	Body-Worn	LTE Band 13	23230	782.0	1RB24	Rear	15mm	\	\	23.43	24.50	0.203	0.26	0.152	0.19	-0.01
1	C1	Body-Worn	LTE Band 13	23230	782.0	25RB12	Rear	15mm	\	\	22.39	23.50	0.160	0.21	0.119	0.15	0.03

Table 12.10: LTE Band 26 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
1	A1	Head	LTE Band 26	26775	822.5	1RB37	Left Cheek	0mm	\	\	22.99	23.50	0.439	0.49	0.306	0.34	0.03
1	A1	Head	LTE Band 26	26775	822.5	36RB38	Left Cheek	0mm	\	\	23.05	23.50	0.422	0.47	0.236	0.26	-0.06
1	A1	Head	LTE Band 26	26775	822.5	1RB37	Left Tilt	0mm	\	\	22.99	23.50	0.361	0.41	0.221	0.25	0.11
1	A1	Head	LTE Band 26	26775	822.5	36RB38	Left Tilt	0mm	\	\	23.05	23.50	0.352	0.39	0.171	0.19	0.05
1	A1	Head	LTE Band 26	26775	822.5	1RB37	Right Cheek	0mm	\	20	22.99	23.50	0.618	0.70	0.428	0.48	0.02
1	A1	Head	LTE Band 26	26775	822.5	36RB38	Right Cheek	0mm	\	\	23.05	23.50	0.601	0.67	0.329	0.36	0.01
1	A1	Head	LTE Band 26	26775	822.5	1RB37	Right Tilt	0mm	\	\	23.05	23.50	0.557	0.62	0.336	0.37	0.03
1	A1	Head	LTE Band 26	26775	822.5	36RB38	Right Tilt	0mm	\	\	22.99	23.50	0.554	0.62	0.262	0.29	-0.02
1	B1	Hotspot	LTE Band 26	26775	822.5	1RB37	Front	10mm	\	\	23.95	24.50	0.206	0.23	0.124	0.14	0.05
1	B1	Hotspot	LTE Band 26	26775	822.5	36RB38	Front	10mm	\	\	23.08	23.50	0.156	0.17	0.096	0.11	0.03
1	B1	Hotspot	LTE Band 26	26775	822.5	1RB37	Rear	10mm	\	21	23.95	24.50	0.385	0.44	0.225	0.26	-0.04
1	B1	Hotspot	LTE Band 26	26775	822.5	36RB38	Rear	10mm	\	\	23.08	23.50	0.309	0.34	0.174	0.19	0.09
1	B1	Hotspot	LTE Band 26	26775	822.5	1RB37	Left	10mm	\	\	23.95	24.50	0.221	0.25	0.145	0.16	0.02
1	B1	Hotspot	LTE Band 26	26775	822.5	36RB38	Left	10mm	\	\	23.08	23.50	0.174	0.19	0.114	0.13	-0.15
1	B1	Hotspot	LTE Band 26	26775	822.5	1RB37	Right	10mm	\	\	23.95	24.50	0.086	0.10	0.056	0.06	0.03
1	B1	Hotspot	LTE Band 26	26775	822.5	36RB38	Right	10mm	\	\	23.08	23.50	0.070	0.08	0.046	0.05	0.17
1	B1	Hotspot	LTE Band 26	26775	822.5	1RB37	Top	10mm	\	\	23.95	24.50	0.293	0.33	0.137	0.16	0.11
1	B1	Hotspot	LTE Band 26	26775	822.5	36RB38	Top	10mm	\	\	23.08	23.50	0.236	0.26	0.109	0.12	0.08
1	C1	Body-Worn	LTE Band 26	26775	822.5	1RB37	Front	15mm	\	\	23.95	24.50	0.137	0.16	0.099	0.11	0.01
1	C1	Body-Worn	LTE Band 26	26775	822.5	36RB38	Front	15mm	\	\	23.08	23.50	0.106	0.12	0.077	0.08	0.10
1	C1	Body-Worn	LTE Band 26	26775	822.5	1RB37	Rear	15mm	\	\	23.95	24.50	0.190	0.22	0.115	0.13	0.14
1	C1	Body-Worn	LTE Band 26	26775	822.5	36RB38	Rear	15mm	\	\	23.08	23.50	0.144	0.16	0.086	0.09	0.11

Note: SAR for LTE Band 5 is covered by LTE Band 26 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

Table 12.11: LTE Band 66 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	LTE Band 66	132072	1720.0	1RB50	Left Cheek	0mm	\	\	23.14	24.50	0.085	0.12	0.053	0.07	-0.15
0	A1	Head	LTE Band 66	132072	1720.0	50RB50	Left Cheek	0mm	\	\	22.18	23.50	0.070	0.10	0.044	0.06	-0.07
0	A1	Head	LTE Band 66	132072	1720.0	1RB50	Left Tilt	0mm	\	\	23.14	24.50	0.067	0.09	0.043	0.06	-0.11
0	A1	Head	LTE Band 66	132072	1720.0	50RB50	Left Tilt	0mm	\	\	22.18	23.50	0.056	0.08	0.035	0.05	-0.07
0	A1	Head	LTE Band 66	132072	1720.0	1RB50	Right Cheek	0mm	\	22	23.14	24.50	0.148	0.20	0.098	0.13	0.17
0	A1	Head	LTE Band 66	132072	1720.0	50RB50	Right Cheek	0mm	\	\	22.18	23.50	0.110	0.15	0.066	0.09	0.03
0	A1	Head	LTE Band 66	132072	1720.0	1RB50	Right Tilt	0mm	\	\	23.14	24.50	0.066	0.09	0.040	0.05	0.15
0	A1	Head	LTE Band 66	132072	1720.0	50RB50	Right Tilt	0mm	\	\	22.18	23.50	0.055	0.07	0.033	0.04	-0.17
0	B1	Hotspot	LTE Band 66	132072	1720.0	1RB50	Front	10mm	\	\	20.57	22.00	0.223	0.31	0.135	0.19	-0.15
0	B1	Hotspot	LTE Band 66	132072	1720.0	50RB50	Front	10mm	\	\	20.63	22.00	0.230	0.32	0.141	0.19	-0.04
0	B1	Hotspot	LTE Band 66	132072	1720.0	1RB50	Rear	10mm	\	\	20.57	22.00	0.612	0.85	0.347	0.48	0.04
0	B1	Hotspot	LTE Band 66	132072	1720.0	50RB50	Rear	10mm	\	\	20.63	22.00	0.617	0.85	0.350	0.48	0.10
0	B1	Hotspot	LTE Band 66	132072	1720.0	1RB50	Left	10mm	\	\	20.57	22.00	0.099	0.14	0.055	0.08	-0.13
0	B1	Hotspot	LTE Band 66	132072	1720.0	50RB50	Left	10mm	\	\	20.63	22.00	0.106	0.15	0.061	0.08	-0.04
0	B1	Hotspot	LTE Band 66	132072	1720.0	1RB50	Right	10mm	\	\	20.57	22.00	0.058	0.08	0.037	0.05	0.17
0	B1	Hotspot	LTE Band 66	132072	1720.0	50RB50	Right	10mm	\	\	20.63	22.00	0.059	0.08	0.037	0.05	-0.12
0	B1	Hotspot	LTE Band 66	132072	1720.0	1RB50	Bottom	10mm	\	\	20.57	22.00	0.760	1.06	0.403	0.56	0.11
0	B1	Hotspot	LTE Band 66	132072	1720.0	50RB50	Bottom	10mm	\	\	20.63	22.00	0.766	1.05	0.408	0.56	-0.16
0	B1	Hotspot	LTE Band 66	132572	1770.0	1RB50	Rear	10mm	\	\	20.55	22.00	0.584	0.82	0.320	0.45	0.05
0	B1	Hotspot	LTE Band 66	132322	1745.0	1RB50	Rear	10mm	\	\	20.47	22.00	0.563	0.80	0.297	0.42	0.10
0	B1	Hotspot	LTE Band 66	132572	1770.0	50RB50	Rear	10mm	\	\	20.43	22.00	0.579	0.83	0.305	0.44	-0.03
0	B1	Hotspot	LTE Band 66	132322	1745.0	50RB50	Rear	10mm	\	\	20.36	22.00	0.545	0.80	0.283	0.41	0.02
0	B1	Hotspot	LTE Band 66	132072	1720.0	100RB	Rear	10mm	\	\	20.55	22.00	0.568	0.79	0.300	0.42	-0.08
0	B1	Hotspot	LTE Band 66	132572	1770.0	1RB50	Bottom	10mm	\	23	20.55	22.00	0.772	1.08	0.447	0.62	-0.04
0	B1	Hotspot	LTE Band 66	132322	1745.0	1RB50	Bottom	10mm	\	\	20.47	22.00	0.731	1.04	0.389	0.55	0.07
0	B1	Hotspot	LTE Band 66	132572	1770.0	50RB50	Bottom	10mm	\	\	20.43	22.00	0.747	1.07	0.400	0.56	0.12
0	B1	Hotspot	LTE Band 66	132322	1745.0	50RB50	Bottom	10mm	\	\	20.36	22.00	0.722	1.05	0.387	0.57	0.13
0	B1	Hotspot	LTE Band 66	132072	1720.0	100RB	Bottom	10mm	\	\	20.55	22.00	0.748	1.04	0.396	0.55	-0.07
0	C1	Body-Worn	LTE Band 66	132072	1720.0	1RB50	Front	15mm	\	\	20.57	22.00	0.135	0.19	0.084	0.12	0.16
0	C1	Body-Worn	LTE Band 66	132072	1720.0	50RB50	Front	15mm	\	\	20.63	22.00	0.136	0.19	0.085	0.12	-0.01
0	C1	Body-Worn	LTE Band 66	132072	1720.0	1RB50	Rear	15mm	\	\	20.57	22.00	0.347	0.48	0.219	0.30	0.01
0	C1	Body-Worn	LTE Band 66	132072	1720.0	50RB50	Rear	15mm	\	\	20.63	22.00	0.345	0.47	0.207	0.28	-0.16

Note: SAR for LTE Band 4 is covered by LTE Band 66 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

Table 12.12: LTE Band 41 SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
0	A1	Head	LTE Band 41	41055	2636.5	1RB50	Left Cheek	0mm	\	24	23.00	24.00	0.144	0.18	0.078	0.10	0.07
0	A1	Head	LTE Band 41	41055	2636.5	50RB50	Left Cheek	0mm	\	\	21.95	23.00	0.118	0.15	0.062	0.08	0.04
0	A1	Head	LTE Band 41	41055	2636.5	1RB50	Left Tilt	0mm	\	\	23.00	24.00	0.068	0.09	0.034	0.04	-0.14
0	A1	Head	LTE Band 41	41055	2636.5	50RB50	Left Tilt	0mm	\	\	21.95	23.00	0.056	0.07	0.028	0.04	-0.01
0	A1	Head	LTE Band 41	41055	2636.5	1RB50	Right Cheek	0mm	\	\	23.00	24.00	0.067	0.08	0.033	0.04	-0.05
0	A1	Head	LTE Band 41	41055	2636.5	50RB50	Right Cheek	0mm	\	\	21.95	23.00	0.055	0.07	0.032	0.04	0.10
0	A1	Head	LTE Band 41	41055	2636.5	1RB50	Right Tilt	0mm	\	\	23.00	24.00	0.058	0.07	0.031	0.04	0.16
0	A1	Head	LTE Band 41	41055	2636.5	50RB50	Right Tilt	0mm	\	\	21.95	23.00	0.052	0.07	0.028	0.04	-0.09
0	B1	Hotspot	LTE Band 41	41055	2636.5	1RB50	Front	10mm	\	\	23.00	24.00	0.207	0.26	0.111	0.14	0.14
0	B1	Hotspot	LTE Band 41	41055	2636.5	50RB50	Front	10mm	\	\	21.95	23.00	0.174	0.22	0.094	0.12	-0.02
0	B1	Hotspot	LTE Band 41	41055	2636.5	1RB50	Rear	10mm	\	25	23.00	24.00	0.384	0.48	0.194	0.24	-0.04
0	B1	Hotspot	LTE Band 41	41055	2636.5	50RB50	Rear	10mm	\	\	21.95	23.00	0.310	0.39	0.160	0.20	0.19
0	B1	Hotspot	LTE Band 41	41055	2636.5	1RB50	Left	10mm	\	\	23.00	24.00	0.146	0.18	0.076	0.10	0.10
0	B1	Hotspot	LTE Band 41	41055	2636.5	50RB50	Left	10mm	\	\	21.95	23.00	0.112	0.14	0.059	0.08	-0.03
0	B1	Hotspot	LTE Band 41	41055	2636.5	1RB50	Right	10mm	\	\	23.00	24.00	0.046	0.06	0.022	0.03	-0.09
0	B1	Hotspot	LTE Band 41	41055	2636.5	50RB50	Right	10mm	\	\	21.95	23.00	0.046	0.06	0.019	0.02	0.18
0	B1	Hotspot	LTE Band 41	41055	2636.5	1RB50	Bottom	10mm	\	\	23.00	24.00	0.316	0.40	0.157	0.20	-0.05
0	B1	Hotspot	LTE Band 41	41055	2636.5	50RB50	Bottom	10mm	\	\	21.95	23.00	0.255	0.32	0.127	0.16	0.07
0	C1	Body-Worn	LTE Band 41	41055	2636.5	1RB50	Front	15mm	\	\	23.00	24.00	0.145	0.18	0.077	0.10	0.11
0	C1	Body-Worn	LTE Band 41	41055	2636.5	50RB50	Front	15mm	\	\	21.95	23.00	0.113	0.14	0.062	0.08	0.16
0	C1	Body-Worn	LTE Band 41	41055	2636.5	1RB50	Rear	15mm	\	\	23.00	24.00	0.163	0.21	0.088	0.11	0.04
0	C1	Body-Worn	LTE Band 41	41055	2636.5	50RB50	Rear	15mm	\	\	21.95	23.00	0.121	0.15	0.065	0.08	-0.06

Note: SAR for LTE Band 38 is covered by LTE Band 41 due to similar frequency range, same maximum tune-up limit and same channel bandwidth.

Table 12.13: Bluetooth SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Duty Cycle %	Duty Cycle Scaling Factor	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
2	D1/D2	Head	Bluetooth	78	2480.0	GFSK	Left Cheek	0mm	\	26	10.45	11.00	76.64	1.30	0.105	0.15	0.054	0.08	-0.07
2	D1/D2	Head	Bluetooth	78	2480.0	GFSK	Left Tilt	0mm	\	\	10.45	11.00	76.64	1.30	0.073	0.11	0.041	0.06	0.19
2	D1/D2	Head	Bluetooth	78	2480.0	GFSK	Right Cheek	0mm	\	\	10.45	11.00	76.64	1.30	<0.01	<0.01	<0.01	<0.01	\
2	D1/D2	Head	Bluetooth	78	2480.0	GFSK	Right Tilt	0mm	\	\	10.45	11.00	76.64	1.30	<0.01	<0.01	<0.01	<0.01	\
2	E1/E2	Hotspot	Bluetooth	78	2480.0	GFSK	Front	10mm	\	\	10.45	11.00	76.64	1.30	0.014	0.02	0.008	0.01	0.18
2	E1/E2	Hotspot	Bluetooth	78	2480.0	GFSK	Rear	10mm	\	27	10.45	11.00	76.64	1.30	0.027	0.04	0.014	0.02	0.17
2	E1/E2	Hotspot	Bluetooth	78	2480.0	GFSK	Right	10mm	\	\	10.45	11.00	76.64	1.30	0.013	0.02	0.006	0.01	-0.08
2	E1/E2	Hotspot	Bluetooth	78	2480.0	GFSK	Top	10mm	\	\	10.45	11.00	76.64	1.30	0.013	0.02	0.006	0.01	-0.18
2	F1/F2	Body-Worn	Bluetooth	78	2480.0	GFSK	Front	15mm	\	\	10.45	11.00	76.64	1.30	0.006	0.01	0.003	0.01	0.19
2	F1/F2	Body-Worn	Bluetooth	78	2480.0	GFSK	Rear	15mm	\	\	10.45	11.00	76.64	1.30	0.012	0.02	0.006	0.01	-0.04

Table 12.14: WLAN 2.4GHz SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Duty Cycle %	Duty Cycle Scaling Factor	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
2	D1	Head	WLAN 2.4GHz	6	2437.0	802.11b	Left Cheek	0mm	\	28	16.77	17.50	98.80	1.01	0.705	0.84	0.368	0.44	0.02
2	D1	Head	WLAN 2.4GHz	6	2437.0	802.11b	Left Tilt	0mm	\	\	16.77	17.50	98.80	1.01	0.528	0.63	0.267	0.32	-0.01
2	D1	Head	WLAN 2.4GHz	6	2437.0	802.11b	Right Cheek	0mm	\	\	16.77	17.50	98.80	1.01	0.276	0.33	0.167	0.20	0.03
2	D1	Head	WLAN 2.4GHz	6	2437.0	802.11b	Right Tilt	0mm	\	\	16.77	17.50	98.80	1.01	0.230	0.27	0.124	0.15	0.02
2	D1	Head	WLAN 2.4GHz	11	2462.0	802.11b	Left Cheek	0mm	\	\	16.58	17.50	98.80	1.01	0.672	0.84	0.354	0.44	0.01
2	D2	Head	WLAN 2.4GHz	6	2437.0	802.11b	Left Cheek	0mm	\	\	13.75	14.50	98.80	1.01	0.380	0.46	0.188	0.23	-0.02
2	D2	Head	WLAN 2.4GHz	6	2437.0	802.11b	Left Tilt	0mm	\	\	13.75	14.50	98.80	1.01	0.285	0.34	0.136	0.16	0.03
2	D2	Head	WLAN 2.4GHz	6	2437.0	802.11b	Right Cheek	0mm	\	\	13.75	14.50	98.80	1.01	0.149	0.18	0.085	0.10	0.12
2	D2	Head	WLAN 2.4GHz	6	2437.0	802.11b	Right Tilt	0mm	\	\	13.75	14.50	98.80	1.01	0.124	0.15	0.063	0.08	0.05
2	E1/E2	Hotspot	WLAN 2.4GHz	6	2437.0	802.11b	Front	10mm	\	\	18.04	19.00	98.80	1.01	0.244	0.31	0.134	0.17	-0.09
2	E1/E2	Hotspot	WLAN 2.4GHz	6	2437.0	802.11b	Rear	10mm	\	29	18.04	19.00	98.80	1.01	0.336	0.42	0.174	0.22	-0.04
2	E1/E2	Hotspot	WLAN 2.4GHz	6	2437.0	802.11b	Right	10mm	\	\	18.04	19.00	98.80	1.01	0.324	0.41	0.170	0.21	-0.07
2	E1/E2	Hotspot	WLAN 2.4GHz	6	2437.0	802.11b	Top	10mm	\	\	18.04	19.00	98.80	1.01	0.146	0.18	0.071	0.09	-0.19
2	F1/F2	Body-Worn	WLAN 2.4GHz	6	2437.0	802.11b	Front	15mm	\	\	18.04	19.00	98.80	1.01	0.122	0.15	0.069	0.09	0.07
2	F1/F2	Body-Worn	WLAN 2.4GHz	6	2437.0	802.11b	Rear	15mm	\	\	18.04	19.00	98.80	1.01	0.141	0.18	0.078	0.10	-0.19

Note:

1. According to the KDB 248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.
2. 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 until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
3. According to the KDB 248227 D01, the reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.
4. SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Table 12.16: NFC SAR Values

ANT	Power Level	RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Model/RB	Test Position	Distance	Note	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
3	\	Extremity	NFC	\	13.56	\	Front	0mm	\	\	\	\	<0.01	\	<0.01	\	\
3	\	Extremity	NFC	\	13.56	\	Rear	0mm	\	\	\	\	<0.01	\	<0.01	\	\
3	\	Extremity	NFC	\	13.56	\	Left	0mm	\	\	\	\	<0.01	\	<0.01	\	\
3	\	Extremity	NFC	\	13.56	\	Right	0mm	\	\	\	\	<0.01	\	<0.01	\	\
3	\	Extremity	NFC	\	13.56	\	Top	0mm	\	\	\	\	<0.01	\	<0.01	\	\
3	\	Extremity	NFC	\	13.56	\	Bottom	0mm	\	\	\	\	<0.01	\	<0.01	\	\

13. 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 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 ($\sim 10\%$ 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 .

Table 13.1: SAR Measurement Variability

Antenna	Power Level	RF Exposure Conditions	Frequency Band	Frequency		Mode/RB	Test Position	Distance	Original	1 st Repeated	Ratio	2 nd Repeated
				Ch.	MHz				SAR (W/kg)	SAR (W/kg)		SAR (W/kg)
1	A1	Head	GSM 850	128	824.2	GPRS(1TX)	Right Cheek	0mm	0.891	0.870	1.02	/
1	A1	Head	GSM 1900	810	1909.8	GPRS(1TX)	Right Tilt	0mm	0.924	0.901	1.03	/
1	B1	Hotspot	GSM 1900	810	1909.8	GPRS(2TX)	Top	10mm	0.863	0.845	1.02	/
0	B1	Hotspot	WCDMA Band 4	1312	1712.4	RMC	Bottom	10mm	0.924	0.896	1.03	/
0	C1	Extremity	LTE Band 2	18700	1860.0	1RB50	Bottom	0mm	2.470	2.380	1.04	/
2	D1	Head	U-NII-2A	64	5320.0	802.11a	Left Cheek	0mm	0.805	0.788	1.02	/

14. Measurement Uncertainty

14.1. Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	11.0	N	2	1	1	5.5	5.5	∞
2	Axial isotropy	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	4.3	4.3	∞
3	Hemispherical isotropy	B	9.6	R	$\sqrt{3}$	1	1	4.8	4.8	∞
4	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	Modulation response	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
8	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
9	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
10	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
11	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Probe positioned mech. restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
14	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
15	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
16	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
17	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
18	Power scaling	B	0	R	$\sqrt{3}$	1	1	0	0	∞
19	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
20	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
21	Algorithm for correcting SAR for deviations in permittivity and conductivity	B	1.9	N	1	1	0.84	1.9	1.6	∞
22	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
23	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	9
24	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
25	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	9
Combined standard uncertainty, $u_c = \sqrt{\sum_{i=1}^{25} c_i^2 u_i^2}$								11.2	11.0	95.5
Expanded uncertainty (Confidence interval of 95 %), $u_e = 2u_c$								22.4	22.0	

14.2. Measurement Uncertainty for Normal SAR Tests (3GHz~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	13.1	N	2	1	1	6.55	6.55	∞
2	Axial isotropy	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	4.3	4.3	∞
3	Hemispherical isotropy	B	9.6	R	$\sqrt{3}$	1	1	4.8	4.8	∞
4	Boundary effect	B	1.1	R	$\sqrt{3}$	1	1	0.6	0.6	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
7	modulation response	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
8	Readout electronics	B	1.0	N	1	1	1	1.0	1.0	∞
9	Response time	B	0.0	R	$\sqrt{3}$	1	1	0.0	0.0	∞
10	Integration time	B	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
11	RF ambient conditions-noise	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	RF ambient conditions-reflection	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Probe positioned mech. Restrictions	B	0.35	R	$\sqrt{3}$	1	1	0.2	0.2	∞
14	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
15	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
16	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	5
17	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
18	Power scaling	B	0	R	$\sqrt{3}$	1	1	0	0	∞
19	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
20	Phantom uncertainty	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
21	Algorithm for correcting SAR for deviations in permittivity and conductivity	B	1.9	N	1	1	0.84	1.9	1.6	∞
22	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
23	Liquid conductivity (meas.)	A	1.3	N	1	0.64	0.43	0.83	0.56	9
24	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
25	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	0.96	0.78	9
Combined standard uncertainty, $u_c = \sqrt{\sum_{i=1}^{25} c_i^2 u_i^2}$								11.7	11.6	95.5
Expanded uncertainty (Confidence interval of 95 %), $u_e = 2u_c$								23.4	23.2	

15. Main Test Instruments

Table 15.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	E5071C	MY46103759	2024-11-12	One year
02	Dielectric probe	85070E	MY44300317	/	/
03	Power meter	E4418B	MY50000366	2024-12-09	One year
04	Power sensor	E9304A	MY50000188	2024-12-09	One year
05	Power meter	NRP	102603	2024-12-17	One year
06	Power sensor	NRP-Z51	102211	2024-12-17	One year
07	Signal Generator	E8257D	MY47461211	2025-01-10	One year
08	Amplifier	VTL5400	0404	/	/
09	DAE	DAE4	1790	2024-06-06	One year
10	E-field Probe	EX3DV4	7683	2024-07-03	One year
11	Dipole Validation Kit	CLA13	1039	2023-08-18	Three years
12	Dipole Validation Kit	D750V3	1163	2022-08-22	Three years
13	Dipole Validation Kit	D835V2	4d057	2024-09-26	Three years
14	Dipole Validation Kit	D1750V2	1152	2022-08-22	Three years
15	Dipole Validation Kit	D1900V2	5d088	2024-09-26	Three years
16	Dipole Validation Kit	D2450V2	873	2024-09-26	Three years
17	Dipole Validation Kit	D2550V2	1010	2024-04-23	Three years
18	Dipole Validation Kit	D5GHzV2	1238	2022-08-17	Three years
19	BTS	E5515C	GB46110722	2025-01-11	One year
20	BTS	MT8820C	6201341853	2024-03-22	One year
21	BTS	CMW500	152499	2024-07-12	One year
22	Thermometer	51II	99250045	2024-11-21	One year
23	Software	DASY5	/	/	/

ANNEX A: Graph Results

GSM 850 Head

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.881$ S/m; $\epsilon_r = 42.483$; $\rho = 1000$ kg/m³

Communication System: UID 0, 1 slot GPRS (0) Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Right Cheek Low/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.49 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 28.83 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.69 W/kg

SAR(1 g) = 0.891 W/kg; SAR(10 g) = 0.608 W/kg

Maximum value of SAR (measured) = 1.19 W/kg

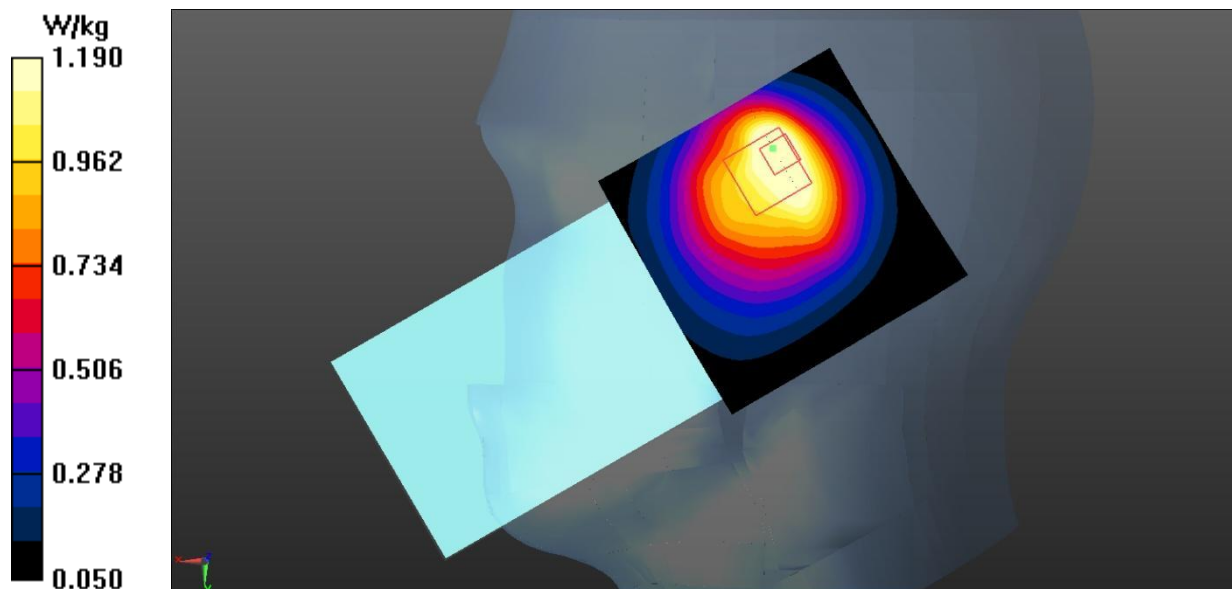


Fig.1 GSM 850 Head

GSM 850 Body

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.904$ S/m; $\epsilon_r = 41.188$; $\rho = 1000$ kg/m³

Communication System: UID 0, 4 slot GPRS (0) Frequency: 848.8 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Rear Side High/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.874 W/kg

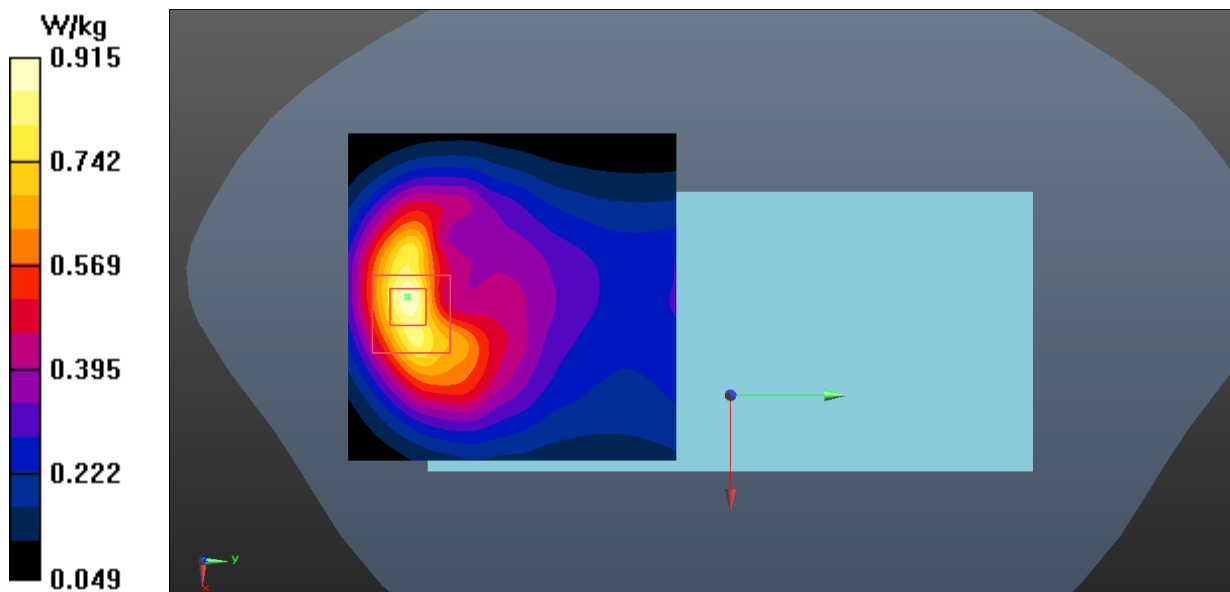
Rear Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 18.23 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.700 W/kg; SAR(10 g) = 0.399 W/kg

Maximum value of SAR (measured) = 0.915 W/kg

**Fig.2 GSM 850 Body**

GSM 1900 Head

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.438$ S/m; $\epsilon_r = 38.989$; $\rho = 1000$ kg/m³

Communication System: UID 0, 1 slot GPRS (0) Frequency: 1909.8 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Right Cheek High/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.14 W/kg

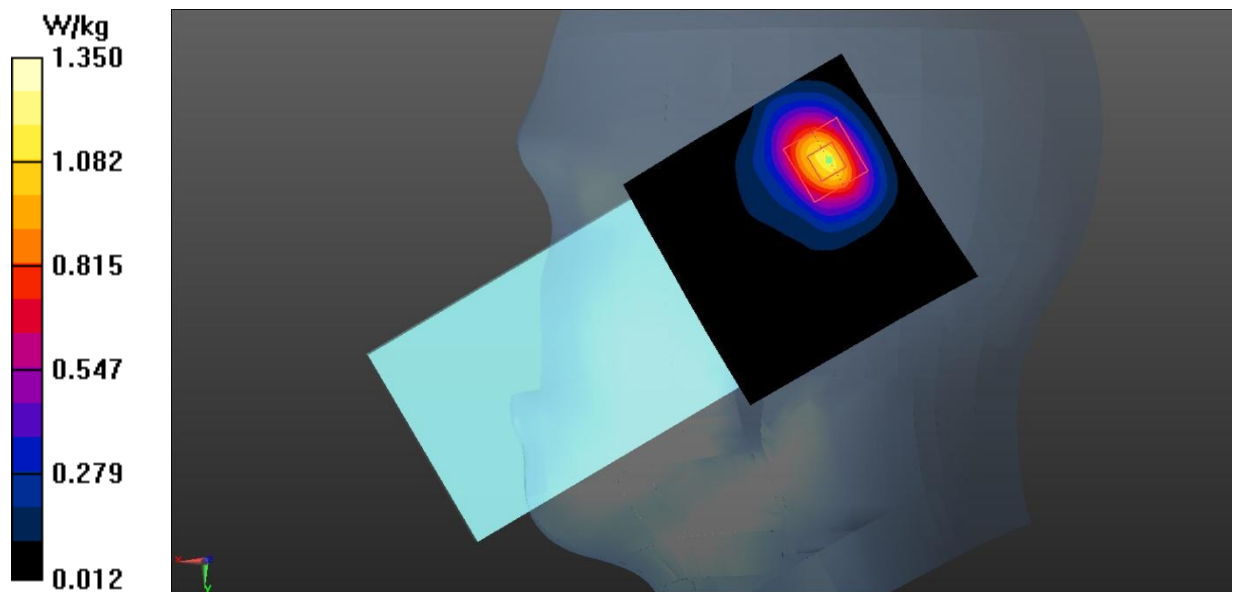
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 16.17 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.70 W/kg

SAR(1 g) = 0.924 W/kg; SAR(10 g) = 0.468 W/kg

Maximum value of SAR (measured) = 1.35 W/kg

**Fig.3 GSM 1900 Head**

GSM 1900 Body

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.438$ S/m; $\epsilon_r = 38.989$; $\rho = 1000$ kg/m³

Communication System: UID 0, 2 slot GPRS (0) Frequency: 1909.8 MHz Duty Cycle: 1:4

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Top Side High/Area Scan (41x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.23 W/kg

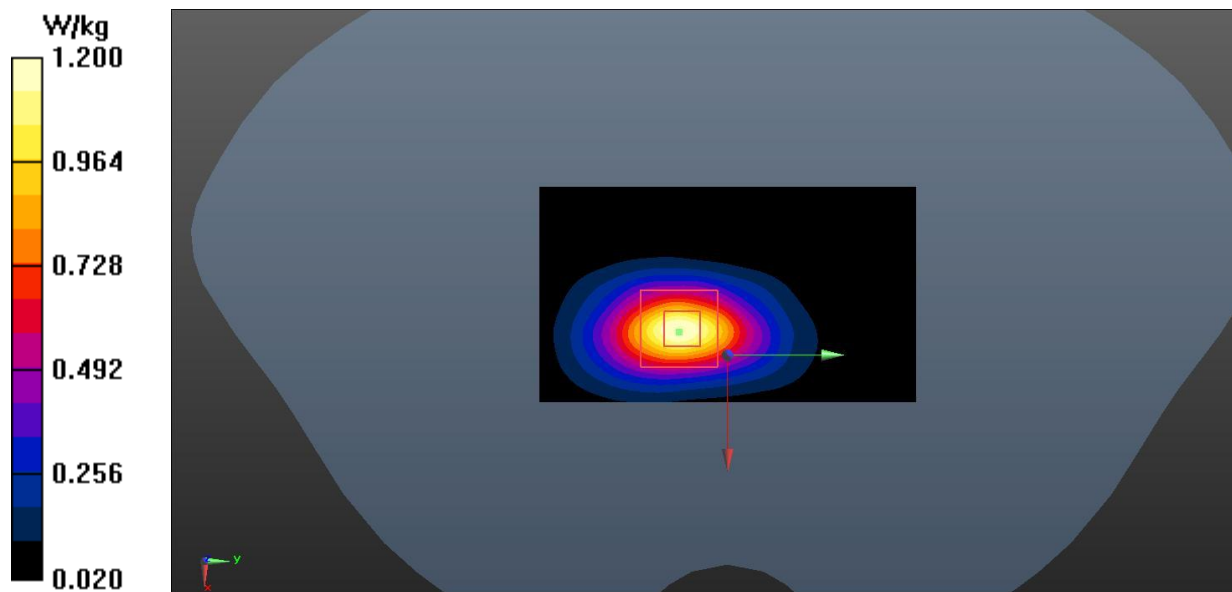
Top Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 15.72 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.49 W/kg

SAR(1 g) = 0.863 W/kg; SAR(10 g) = 0.456 W/kg

Maximum value of SAR (measured) = 1.20 W/kg

**Fig.4 GSM 1900 Body**

WCDMA Band 2 Head

Date: 2025-01-22

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.372$ S/m; $\epsilon_r = 39.908$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Right Cheek Low/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.256 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.921 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.278 W/kg

SAR(1 g) = 0.196 W/kg; SAR(10 g) = 0.130 W/kg

Maximum value of SAR (measured) = 0.236 W/kg

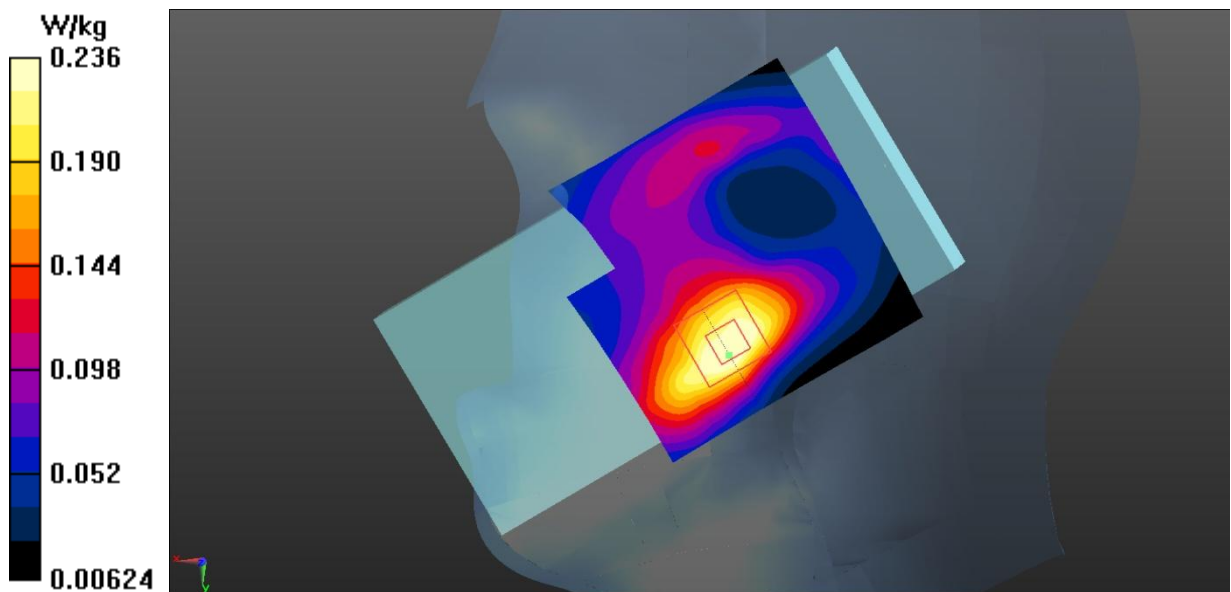


Fig.5 WCDMA Band 2 Head

WCDMA Band 2 Body

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.214$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Bottom Side Low/Area Scan (41x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.04 W/kg

Bottom Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 16.94 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.777 W/kg; SAR(10 g) = 0.452 W/kg

Maximum value of SAR (measured) = 1.03 W/kg

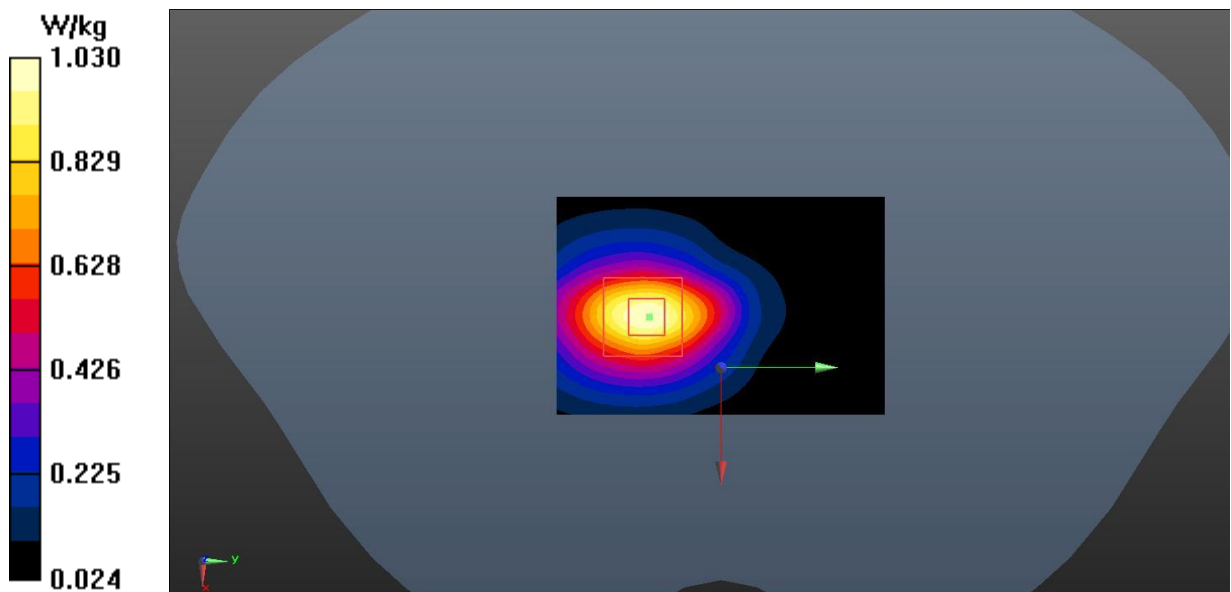


Fig.6 WCDMA Band 2 Body

WCDMA Band 4 Head

Date: 2025-01-25

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.322$ S/m; $\epsilon_r = 41.234$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 1712.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

Right Cheek Low/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.232 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.062 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.122 W/kg

Maximum value of SAR (measured) = 0.228 W/kg

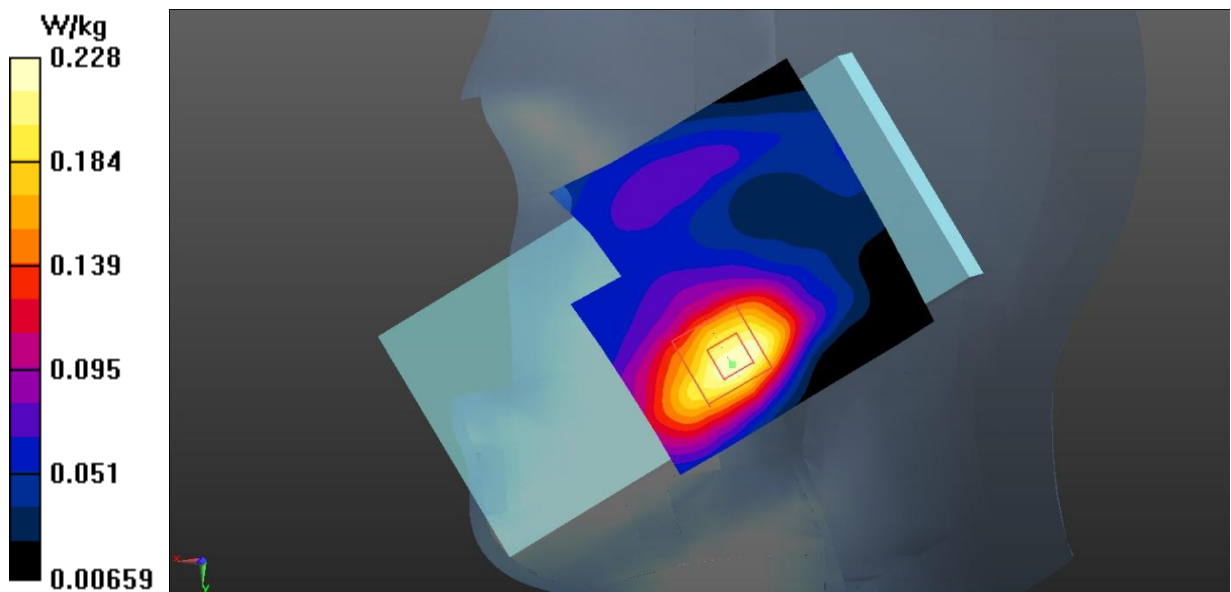


Fig.7 WCDMA Band 4 Head

WCDMA Band 4 Body

Date: 2025-02-05

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.348$ S/m; $\epsilon_r = 39.781$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 1712.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

Bottom Side Low/Area Scan (41x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.24 W/kg

Bottom Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 19.14 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.924 W/kg; SAR(10 g) = 0.536 W/kg

Maximum value of SAR (measured) = 1.22 W/kg

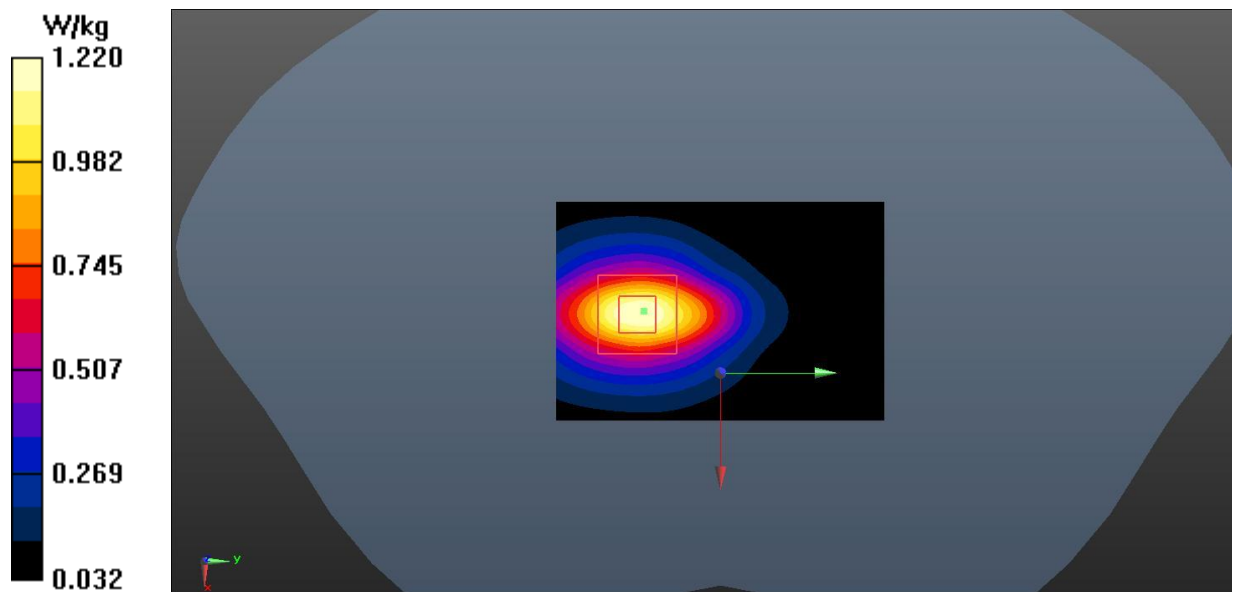


Fig.8 WCDMA Band 4 Body

WCDMA Band 5 Head

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.883$ S/m; $\epsilon_r = 42.456$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 826.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Right Cheek Low/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.00 W/kg

Right Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 24.35 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.636 W/kg; SAR(10 g) = 0.439 W/kg

Maximum value of SAR (measured) = 0.885 W/kg

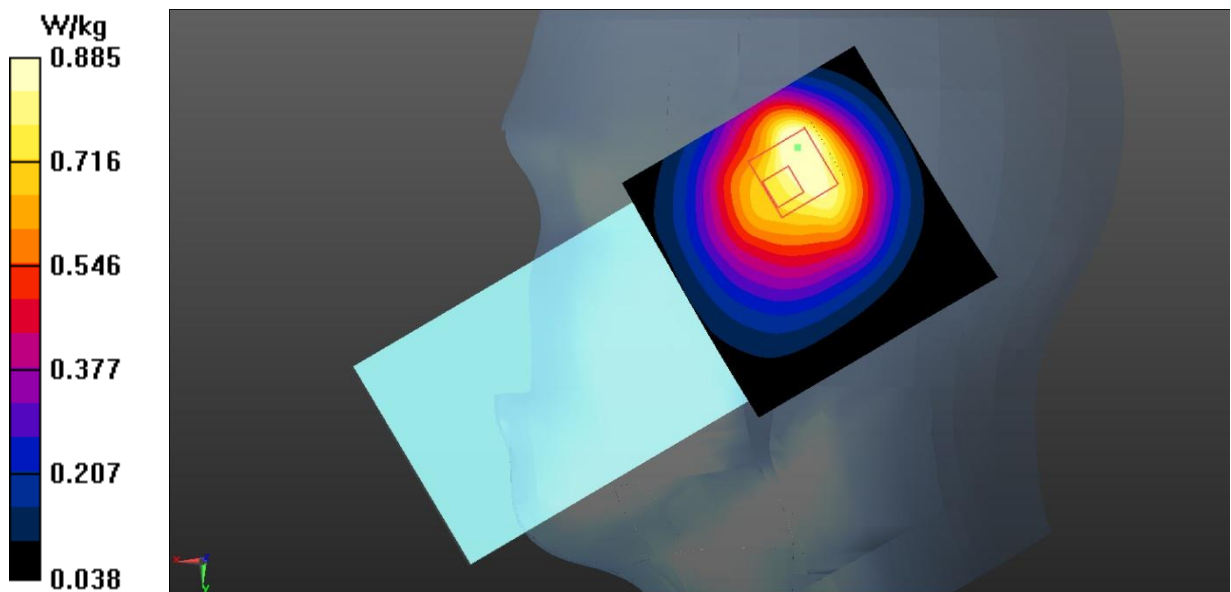


Fig.9 WCDMA Band 5 Head

WCDMA Band 5 Body

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.902$ S/m; $\epsilon_r = 42.214$; $\rho = 1000$ kg/m³

Communication System: UID 0, WCDMA (0) Frequency: 846.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Rear Side High/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.705 W/kg

Rear Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 15.39 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.890 W/kg

SAR(1 g) = 0.491 W/kg; SAR(10 g) = 0.285 W/kg

Maximum value of SAR (measured) = 0.700 W/kg

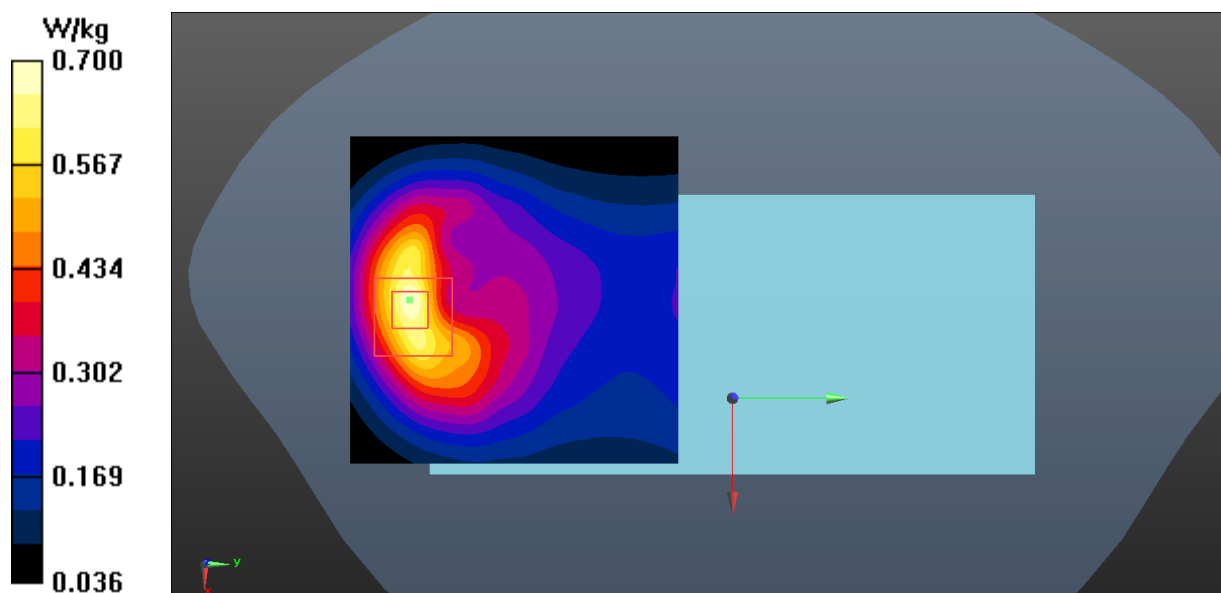


Fig.10 WCDMA Band 5 Body

LTE Band 2 Head

Date: 2025-01-22

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.379$ S/m; $\epsilon_r = 39.878$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1860 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Right Cheek Low 1RB50/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.167 W/kg

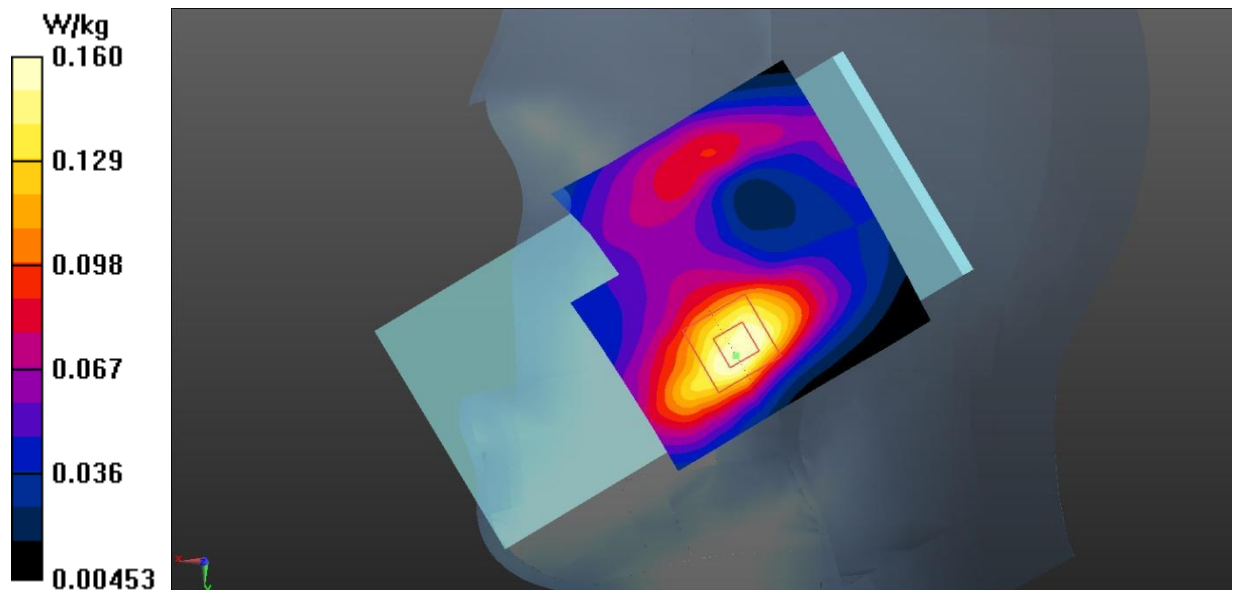
Right Cheek Low 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.519 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.188 W/kg

SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.084 W/kg

Maximum value of SAR (measured) = 0.160 W/kg

**Fig.11 LTE Band 2 Head**

LTE Band 2 Body

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.411 \text{ S/m}$; $\epsilon_r = 39.106$; $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE_FDD (0) Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Bottom Side Middle 50RB0/Area Scan (41x71x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 1.06 W/kg

Bottom Side Middle 50RB0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.93 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.776 W/kg; SAR(10 g) = 0.447 W/kg

Maximum value of SAR (measured) = 1.03 W/kg

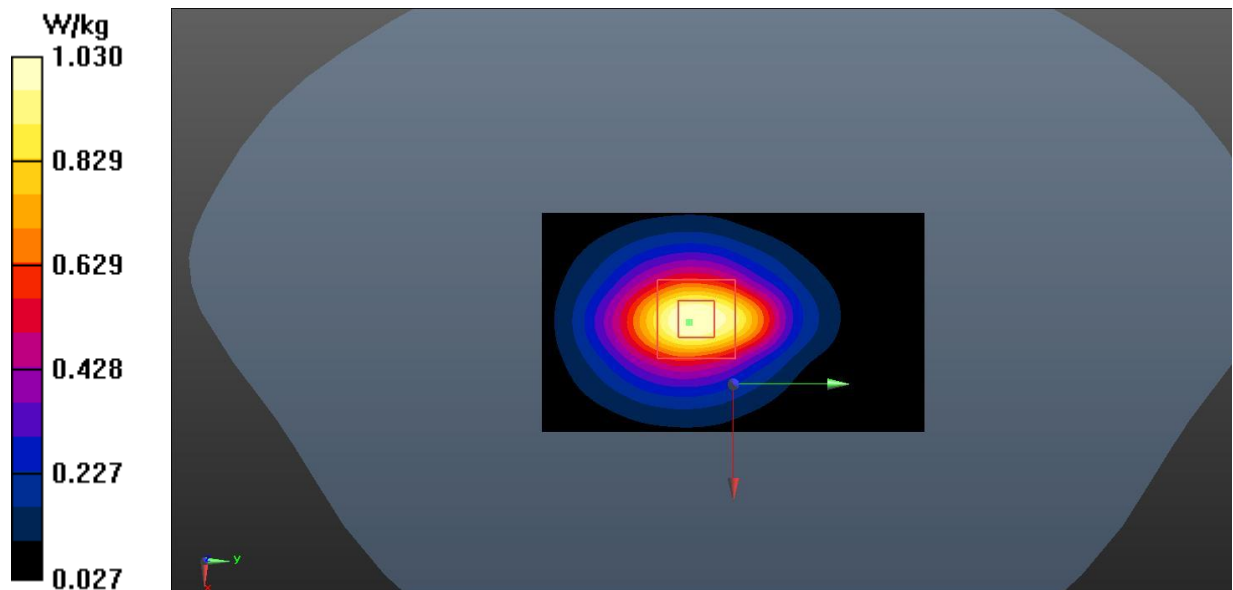


Fig.12 LTE Band 2 Body

LTE Band 2 Extremity

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.394$ S/m; $\epsilon_r = 39.184$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1860 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

Bottom Side Low 1RB50/Area Scan (41x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 8.37 W/kg

Bottom Side Low 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 59.95 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 9.54 W/kg

SAR(1 g) = 4.99 W/kg; SAR(10 g) = 2.47 W/kg

Maximum value of SAR (measured) = 7.53 W/kg

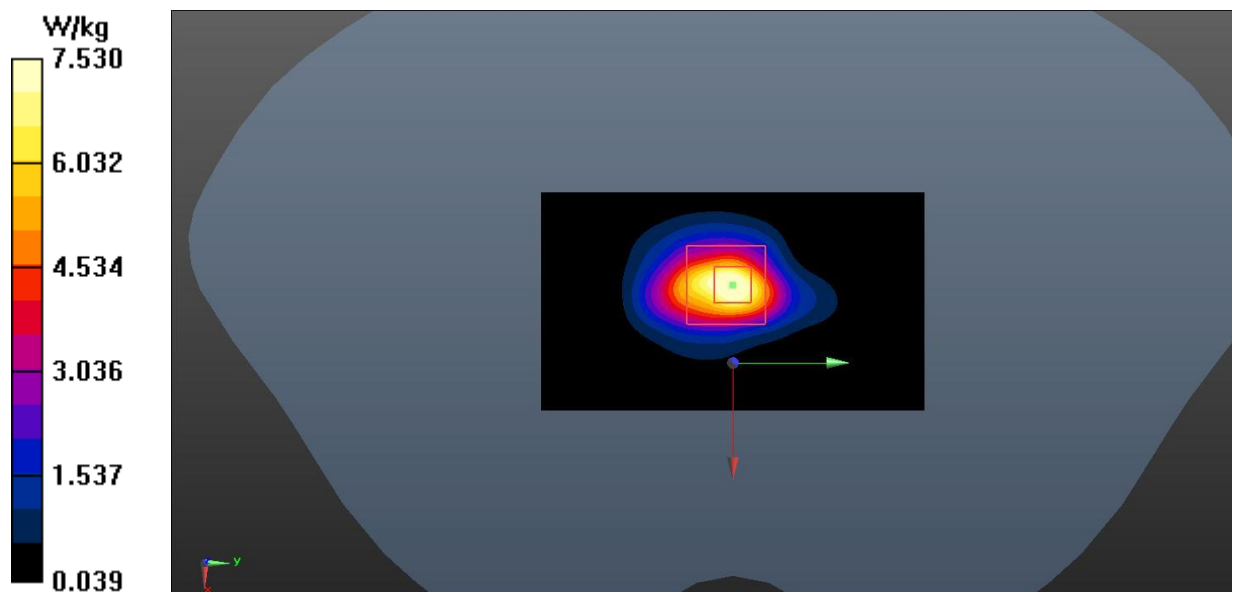


Fig.13 LTE Band 2 Extremity

LTE Band 7 Head

Date: 2025-01-20

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 38.269$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.93, 7.55, 7.39)

Left Cheek High 1RB50/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.275 W/kg

Left Cheek High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.287 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.104 W/kg

Maximum value of SAR (measured) = 0.256 W/kg

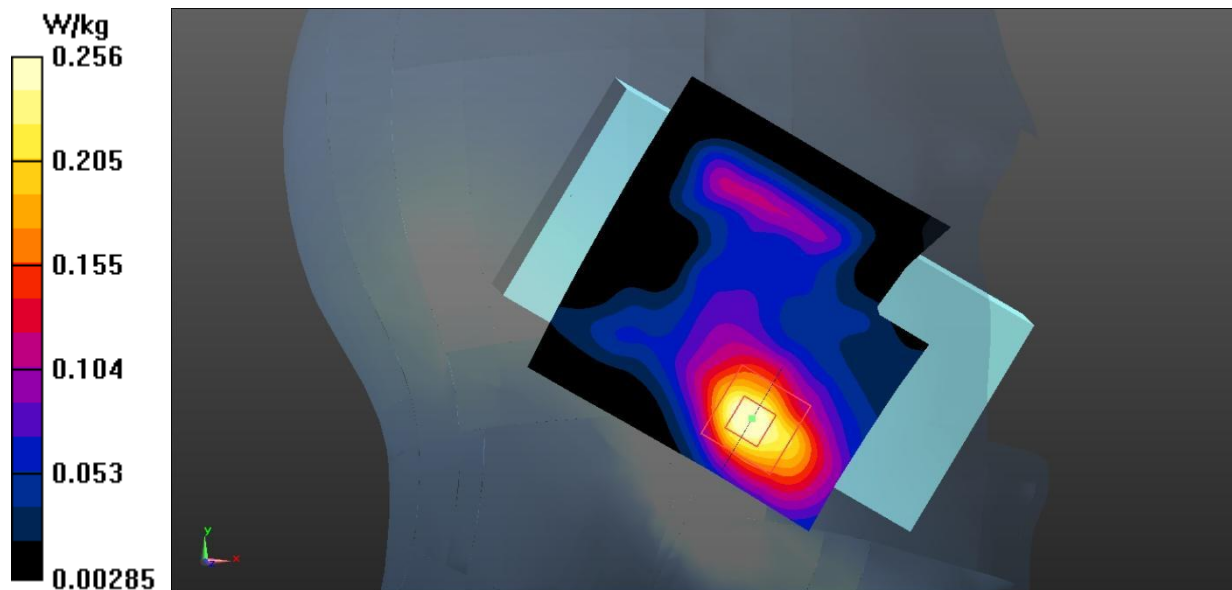


Fig.14 LTE Band 7 Head

LTE Band 7 Body

Date: 2025-01-20

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 38.269$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.93, 7.55, 7.39)

Bottom Side High 1RB50/Area Scan (61x111x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.739 W/kg

Bottom Side High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.73 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.904 W/kg

SAR(1 g) = 0.496 W/kg; SAR(10 g) = 0.263 W/kg

Maximum value of SAR (measured) = 0.702 W/kg

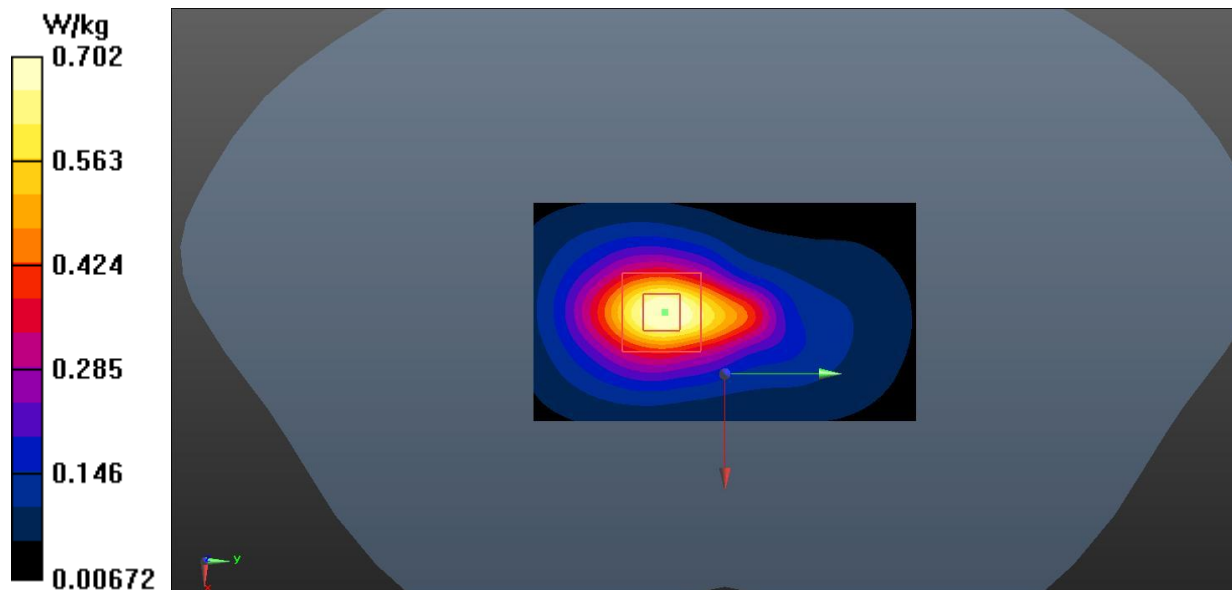


Fig.15 LTE Band 7 Body

LTE Band 12 Head

Date: 2025-01-17

Electronics: DAE4 Sn1790

Medium: Head 750MHz

Medium parameters used: $f = 708 \text{ MHz}$; $\sigma = 0.881 \text{ S/m}$; $\epsilon_r = 41.967$; $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Right Cheek Middle 1RB24/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 1.02 W/kg

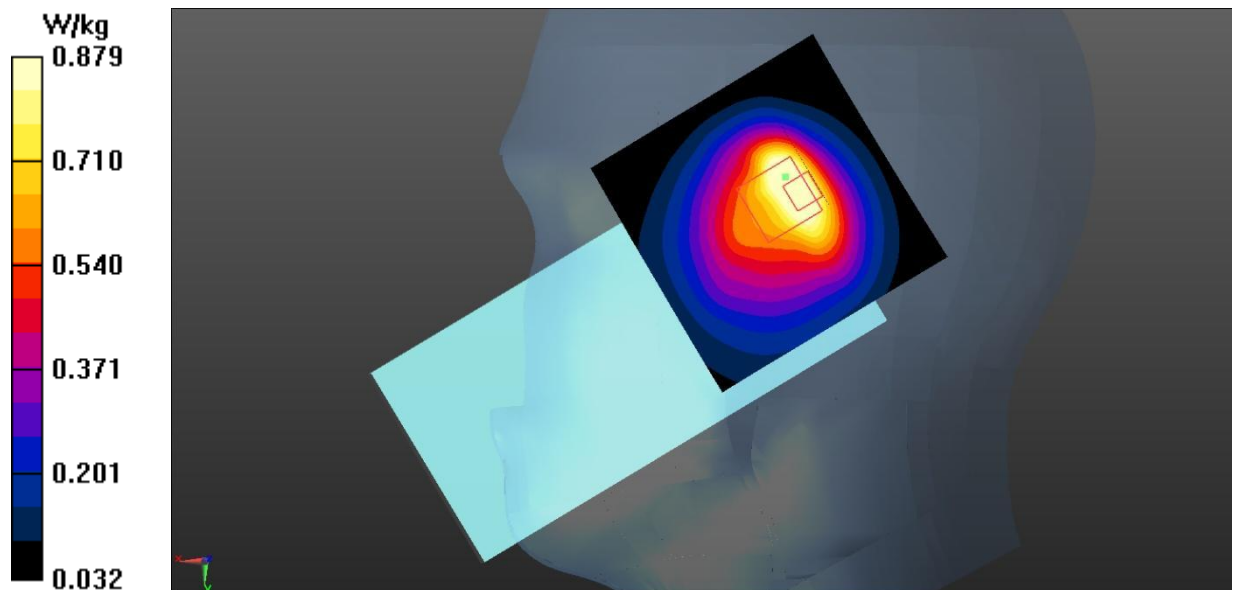
Right Cheek Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.876 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 0.638 W/kg; SAR(10 g) = 0.410 W/kg

Maximum value of SAR (measured) = 0.879 W/kg

**Fig.16 LTE Band 12 Head**

LTE Band 12 Body

Date: 2025-01-17

Electronics: DAE4 Sn1790

Medium: Head 750MHz

Medium parameters used: $f = 708 \text{ MHz}$; $\sigma = 0.881 \text{ S/m}$; $\epsilon_r = 41.967$; $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Left Side Middle 1RB24/Area Scan (41x101x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.278 W/kg

Left Side Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.33 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.314 W/kg

SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.160 W/kg

Maximum value of SAR (measured) = 0.273 W/kg

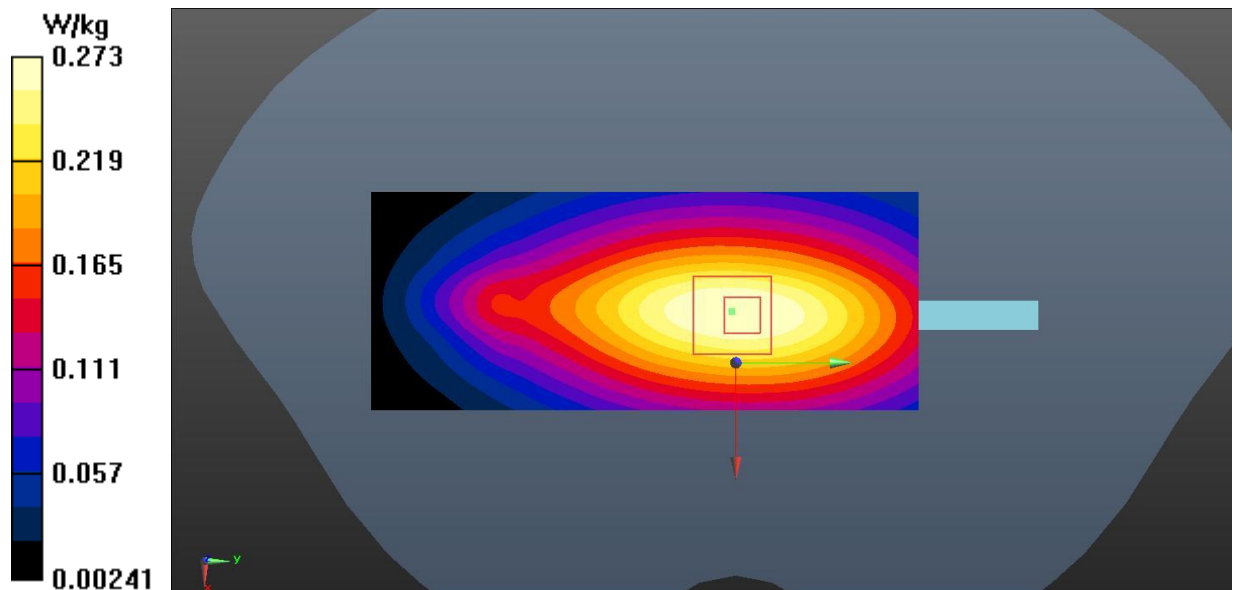


Fig.17 LTE Band 12 Body

LTE Band 13 Head

Date: 2025-01-17

Electronics: DAE4 Sn1790

Medium: Head 750MHz

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.928 \text{ S/m}$; $\epsilon_r = 41.08$; $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Right Cheek Middle 1RB24/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.879 W/kg

Right Cheek Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.11 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.537 W/kg ; SAR(10 g) = 0.361 W/kg

Maximum value of SAR (measured) = 0.729 W/kg

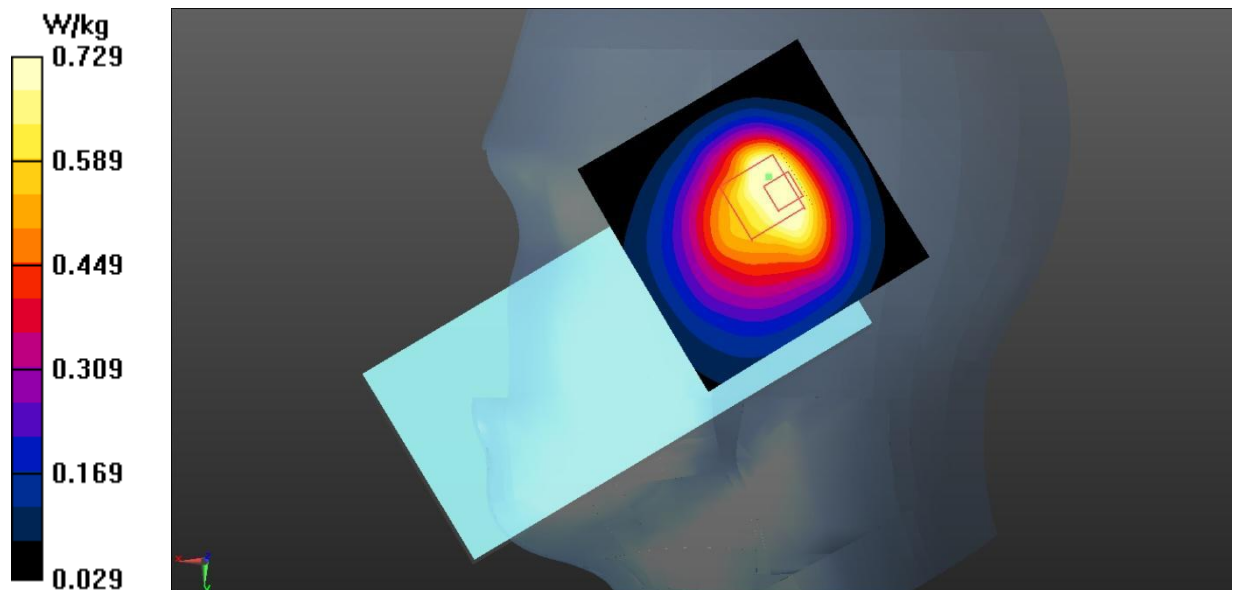


Fig.18 LTE Band 13 Head

LTE Band 13 Body

Date: 2025-01-17

Electronics: DAE4 Sn1790

Medium: Head 750MHz

Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.928 \text{ S/m}$; $\epsilon_r = 41.08$; $\rho = 1000 \text{ kg/m}^3$

Communication System: UID 0, LTE_FDD (0) Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Rear Side Middle 1RB24/Area Scan (71x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.306 W/kg

Rear Side Middle 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.25 V/m ; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.567 W/kg

SAR(1 g) = 0.239 W/kg ; SAR(10 g) = 0.135 W/kg

Maximum value of SAR (measured) = 0.328 W/kg

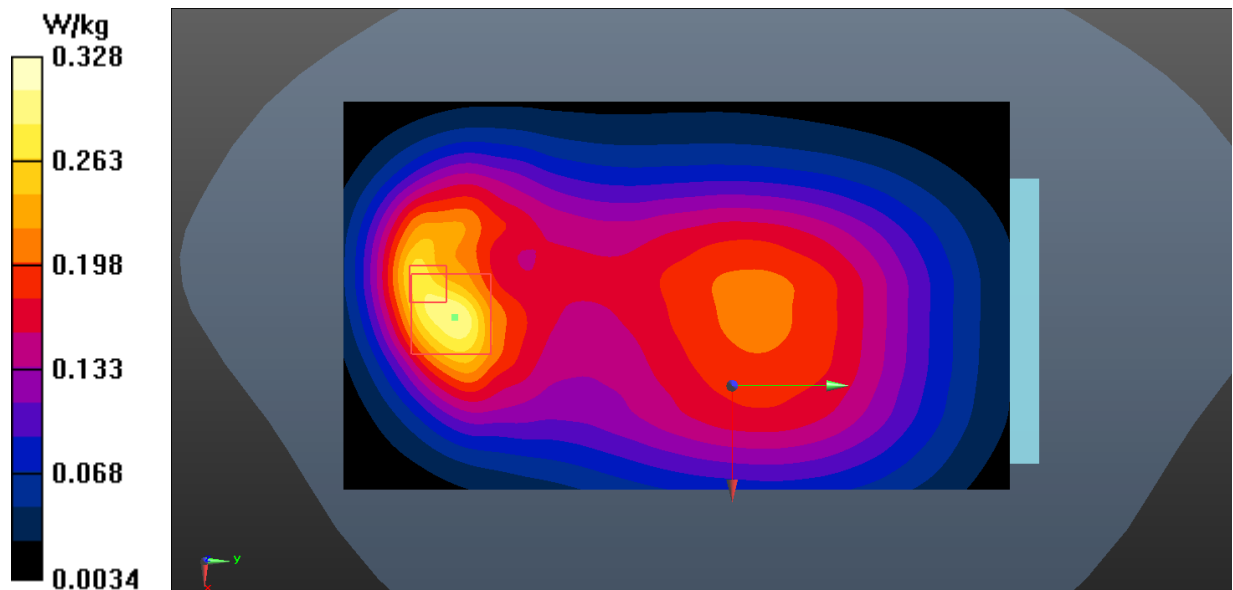


Fig.19 LTE Band 13 Body

LTE Band 26 Head

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 822.5$ MHz; $\sigma = 0.88$ S/m; $\epsilon_r = 42.503$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 822.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Right Cheek Low 1RB37/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.972 W/kg

Right Cheek Low 1RB37/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 24.07 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.618 W/kg; SAR(10 g) = 0.428 W/kg

Maximum value of SAR (measured) = 0.856 W/kg

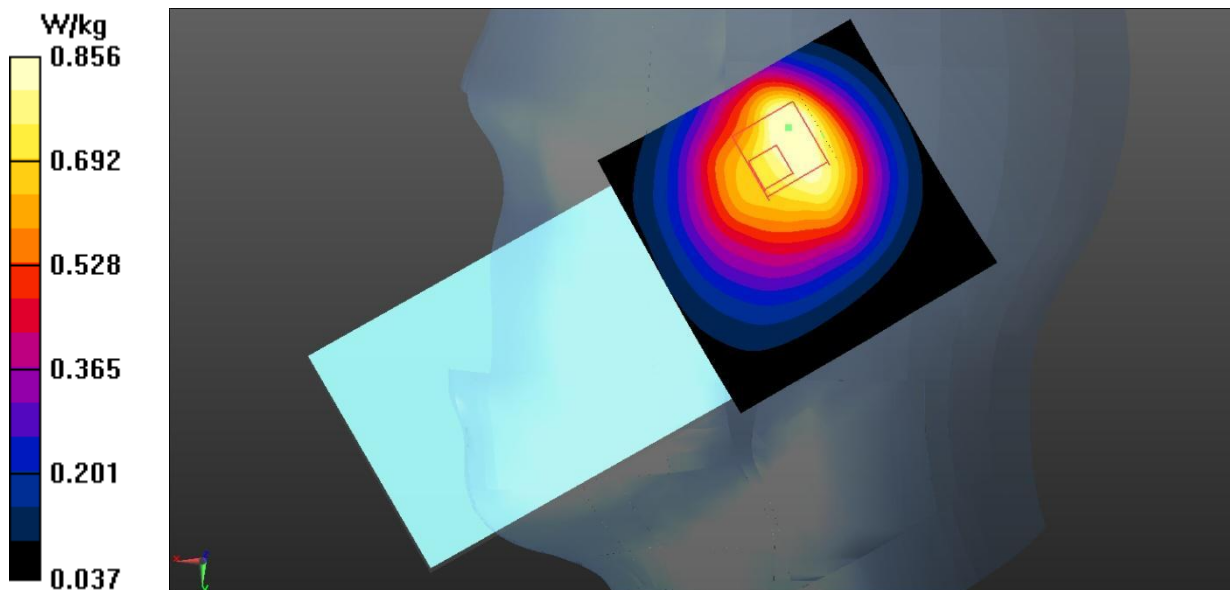


Fig.20 LTE Band 26 Head

LTE Band 26 Body

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 822.5$ MHz; $\sigma = 0.88$ S/m; $\epsilon_r = 42.503$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 822.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

Rear Side Low 1RB37/Area Scan (71x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.503 W/kg

Rear Side Low 1RB37/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.53 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.682 W/kg

SAR(1 g) = 0.385 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 0.538 W/kg

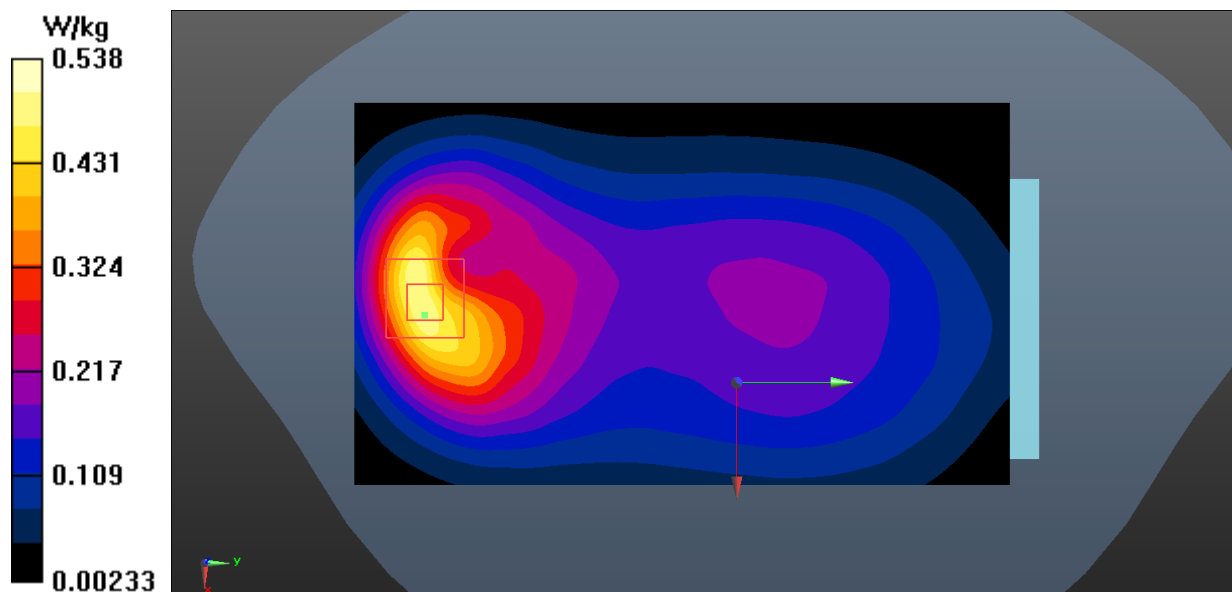


Fig.21 LTE Band 26 Body

LTE Band 66 Head

Date: 2025-01-25

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used: $f = 1720$ MHz; $\sigma = 1.329$ S/m; $\epsilon_r = 41.204$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1720 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

Right Cheek Low 1RB50/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.203 W/kg

Right Cheek Low 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 3.615 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.216 W/kg

SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.098 W/kg

Maximum value of SAR (measured) = 0.180 W/kg

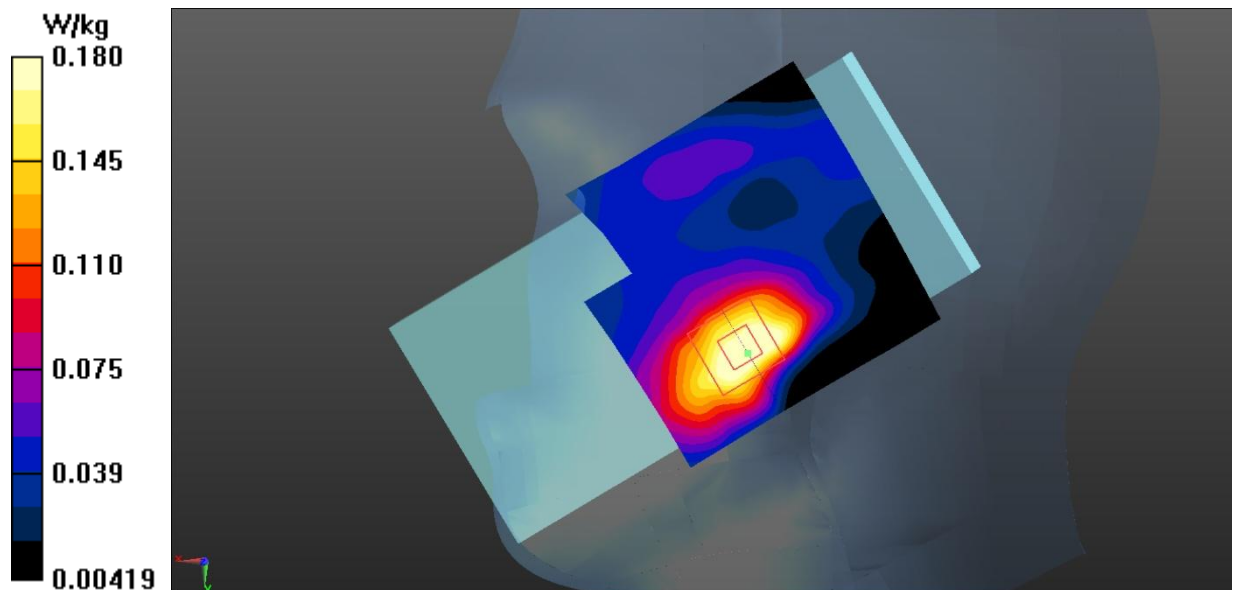


Fig.22 LTE Band 66 Head

LTE Band 66 Body

Date: 2025-02-05

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 39.556$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

Bottom Side High 1RB50/Area Scan (41x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 1.05 W/kg

Bottom Side High 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 22.99 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.772 W/kg; SAR(10 g) = 0.447 W/kg

Maximum value of SAR (measured) = 1.03 W/kg

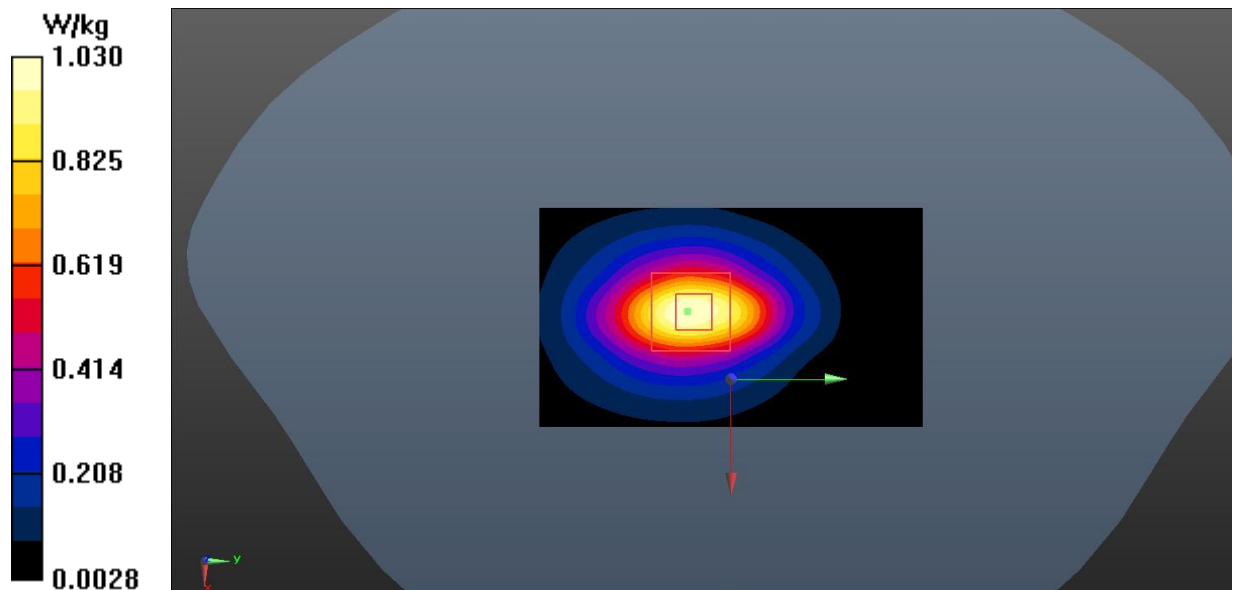


Fig.23 LTE Band 66 Body

LTE Band 41 Head

Date: 2025-01-20

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used (interpolated): $f = 2636.5$ MHz; $\sigma = 2.049$ S/m; $\epsilon_r = 38.017$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_TDD (0) Frequency: 2636.5 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7683 ConvF (7.93, 7.55, 7.39)

Left Cheek M-High 1RB50/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm
Maximum value of SAR (interpolated) = 0.218 W/kg

Left Cheek M-High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.479 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.255 W/kg

SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.078 W/kg

Maximum value of SAR (measured) = 0.197 W/kg

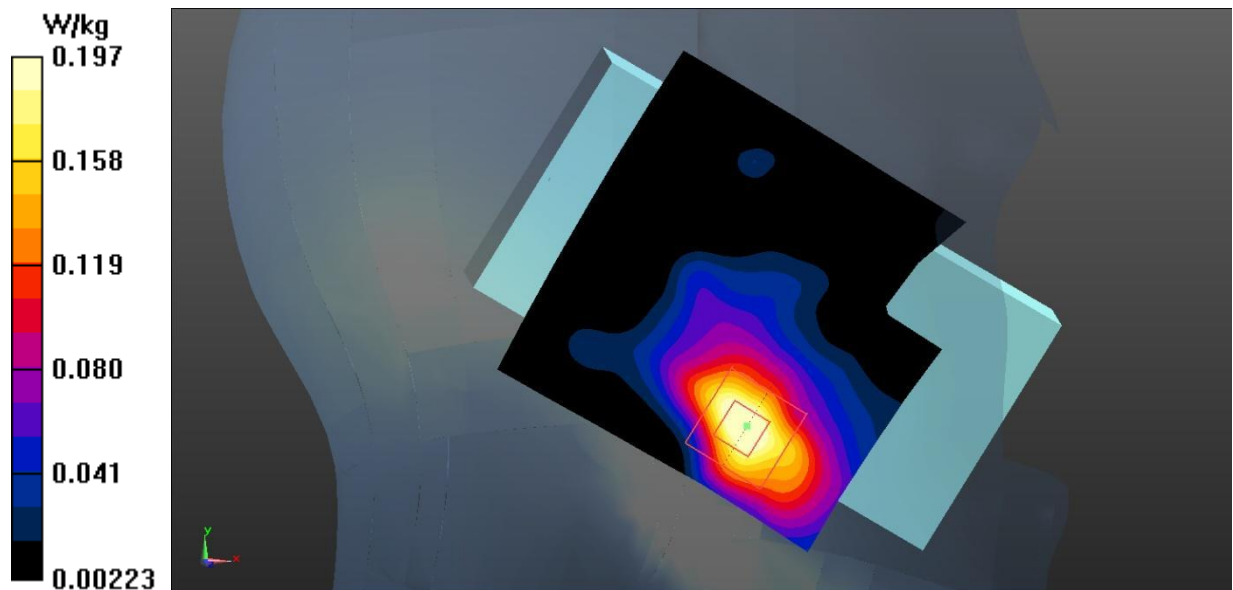


Fig.24 LTE Band 41 Head

LTE Band 41 Body

Date: 2025-01-20

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used (interpolated): $f = 2636.5$ MHz; $\sigma = 2.049$ S/m; $\epsilon_r = 38.017$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_TDD (0) Frequency: 2636.5 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

Rear Side M-High 1RB50/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.566 W/kg

Rear Side M-High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 3.734 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.980 W/kg

SAR(1 g) = 0.384 W/kg; SAR(10 g) = 0.194 W/kg

Maximum value of SAR (measured) = 0.544 W/kg

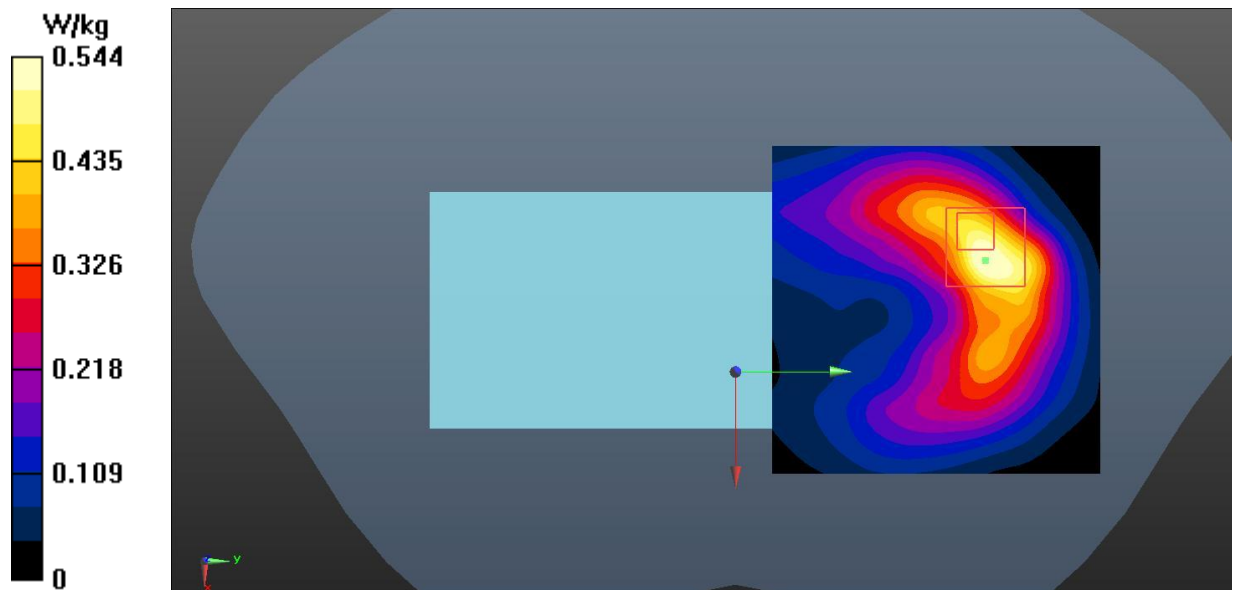


Fig.25 LTE Band 41 Body

Bluetooth Head

Date: 2025-01-24

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used: $f = 2480$ MHz; $\sigma = 1.866$ S/m; $\epsilon_r = 38.444$; $\rho = 1000$ kg/m³

Communication System: UID 0, BT (0) Frequency: 2480 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

Left Cheek Ch.78/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.252 W/kg

Left Cheek Ch.78/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.481 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.312 W/kg

SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.054 W/kg

Maximum value of SAR (measured) = 0.145 W/kg

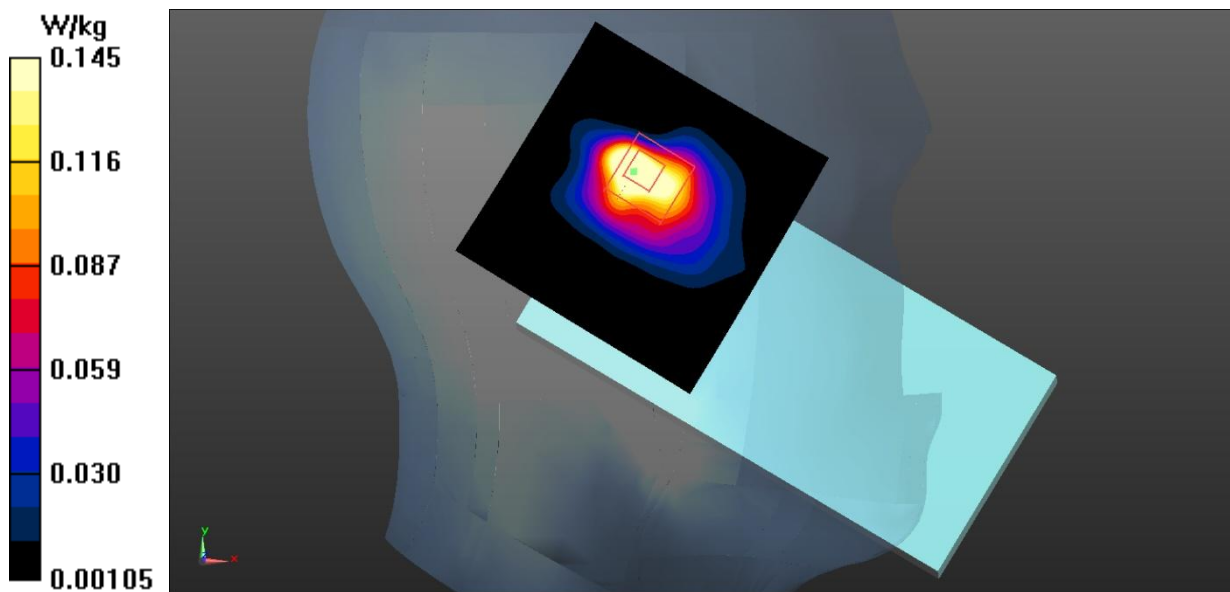


Fig.26 Bluetooth Head

Bluetooth Body

Date: 2025-01-24

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used: $f = 2480$ MHz; $\sigma = 1.866$ S/m; $\epsilon_r = 38.444$; $\rho = 1000$ kg/m³

Communication System: UID 0, BT (0) Frequency: 2480 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

Rear Side Ch.78/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.0398 W/kg

Rear Side Ch.78/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 1.767 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.0530 W/kg

SAR(1 g) = 0.027 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.0393 W/kg

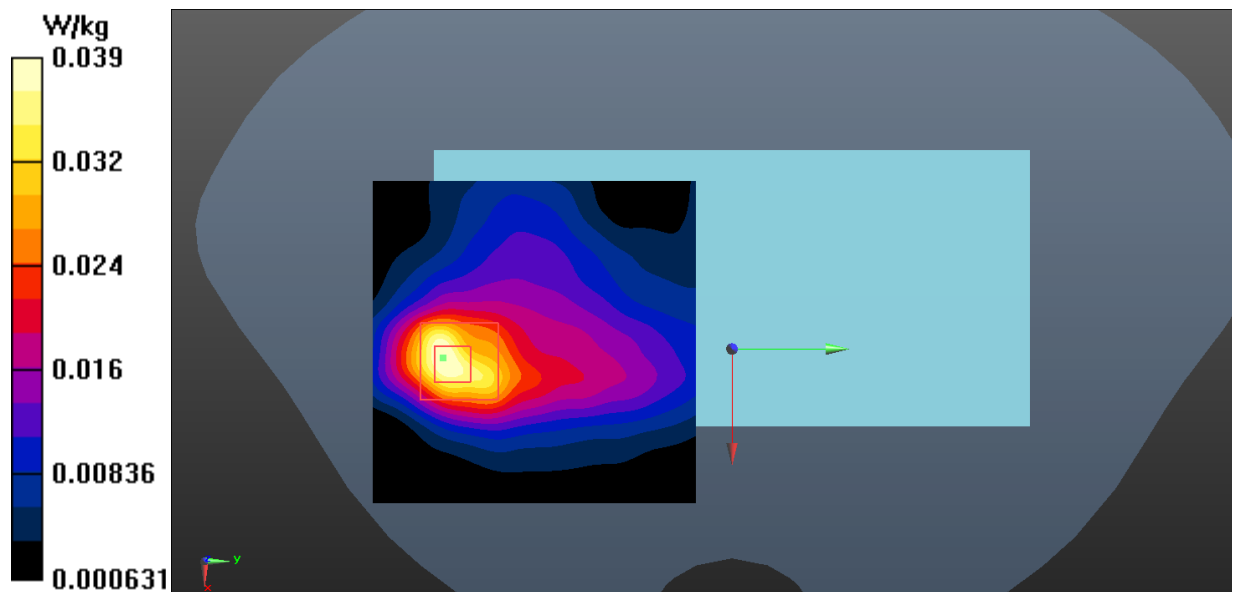


Fig.27 Bluetooth Body

WLAN 2.4GHz Head

Date: 2025-01-24

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.817$ S/m; $\epsilon_r = 38.586$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN (0) Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

Left Cheek Ch.6/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.31 W/kg

Left Cheek Ch.6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.430 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.705 W/kg; SAR(10 g) = 0.368 W/kg

Maximum value of SAR (measured) = 1.03 W/kg

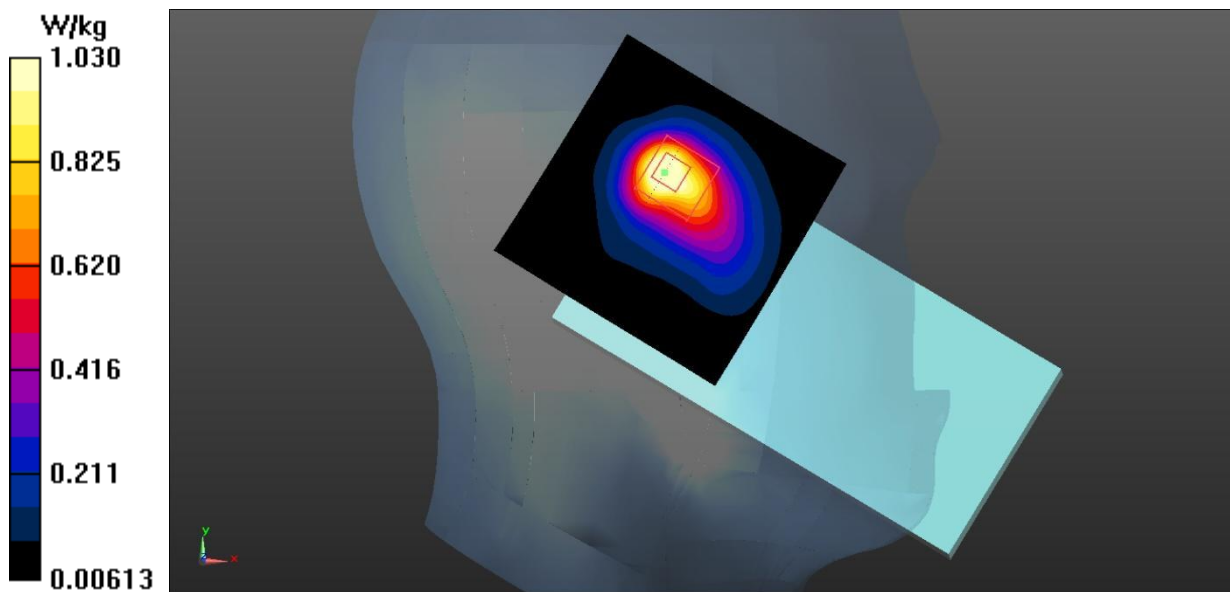


Fig.28 WLAN 2.4GHz Head

WLAN 2.4GHz Body

Date: 2025-01-24

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.817$ S/m; $\epsilon_r = 38.586$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN (0) Frequency: 2437 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

Rear Side Ch.6/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.464 W/kg

Rear Side Ch.6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.849 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.673 W/kg

SAR(1 g) = 0.336 W/kg; SAR(10 g) = 0.174 W/kg

Maximum value of SAR (measured) = 0.500 W/kg

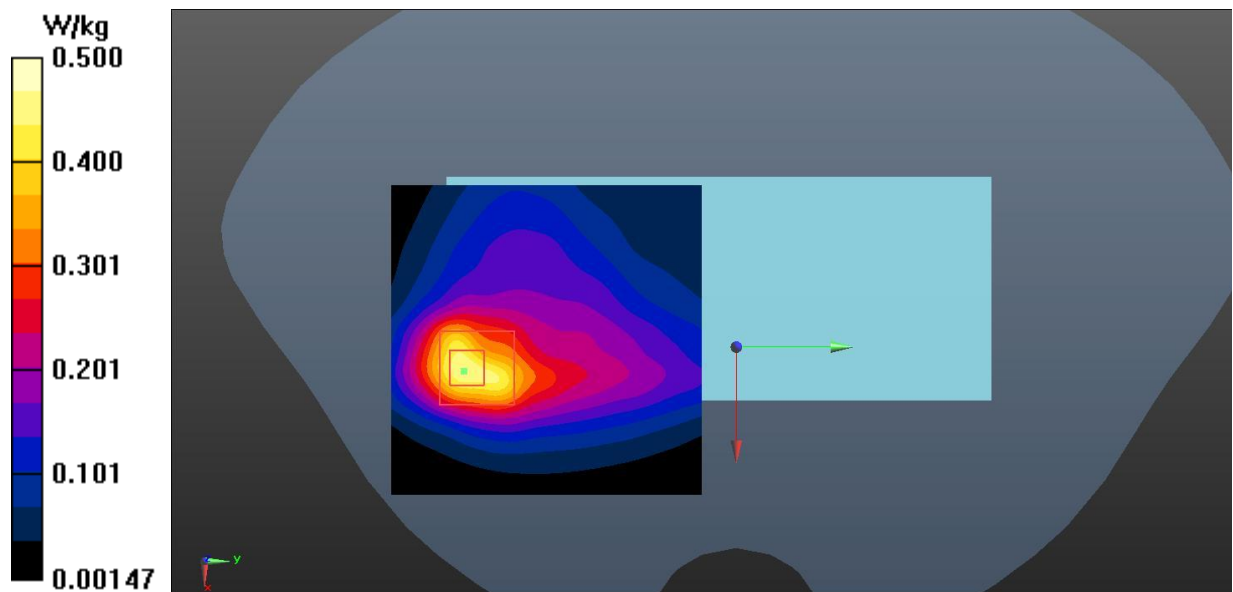


Fig.29 WLAN 2.4GHz Body

WLAN 5GHz Head

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5250MHz

Medium parameters used: $f = 5320$ MHz; $\sigma = 4.921$ S/m; $\epsilon_r = 34.653$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN 5G (0) Frequency: 5320 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (6.03, 5.73, 5.62)

Left Cheek Ch.64/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.55 W/kg

Left Cheek Ch.64/Zoom Scan (8x8x21)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 3.992 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.99 W/kg

SAR(1 g) = 0.805 W/kg; SAR(10 g) = 0.274 W/kg

Maximum value of SAR (measured) = 1.43 W/kg

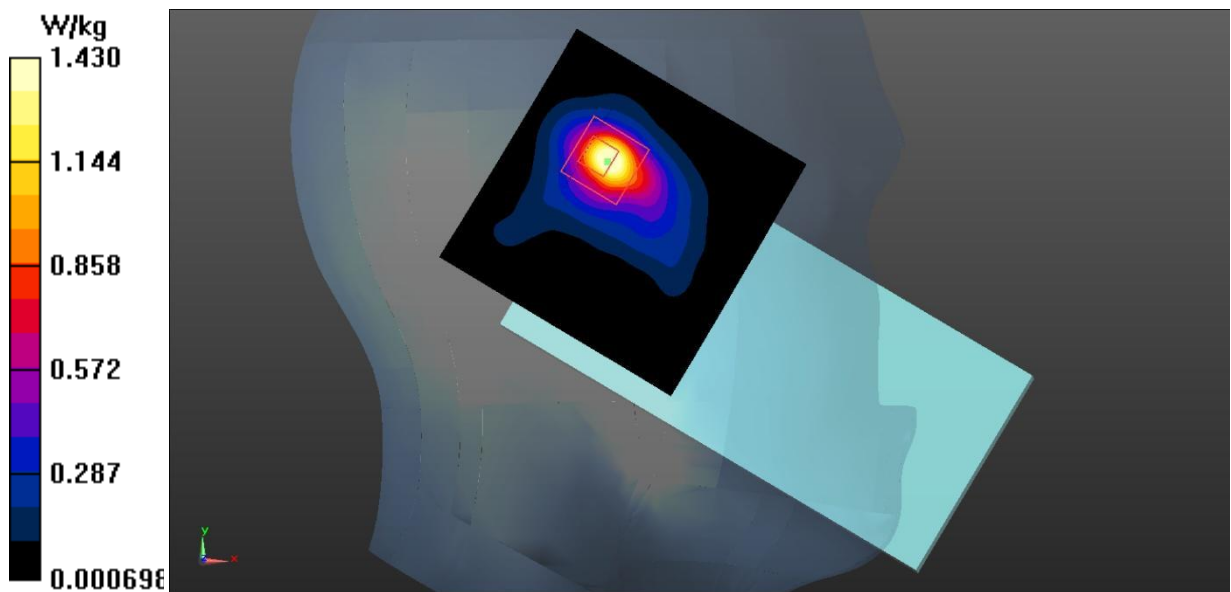


Fig.30 WLAN 5GHz Head

WLAN 5GHz Body

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5750MHz

Medium parameters used (interpolated): $f = 5825$ MHz; $\sigma = 5.213$ S/m; $\epsilon_r = 35.981$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN 5G (0) Frequency: 5825 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (5.53, 5.26, 5.15)

Rear Side Ch.165/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.22 W/kg

Rear Side Ch.165/Zoom Scan (8x8x21)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 1.059 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 0.617 W/kg; SAR(10 g) = 0.193 W/kg

Maximum value of SAR (measured) = 1.19 W/kg

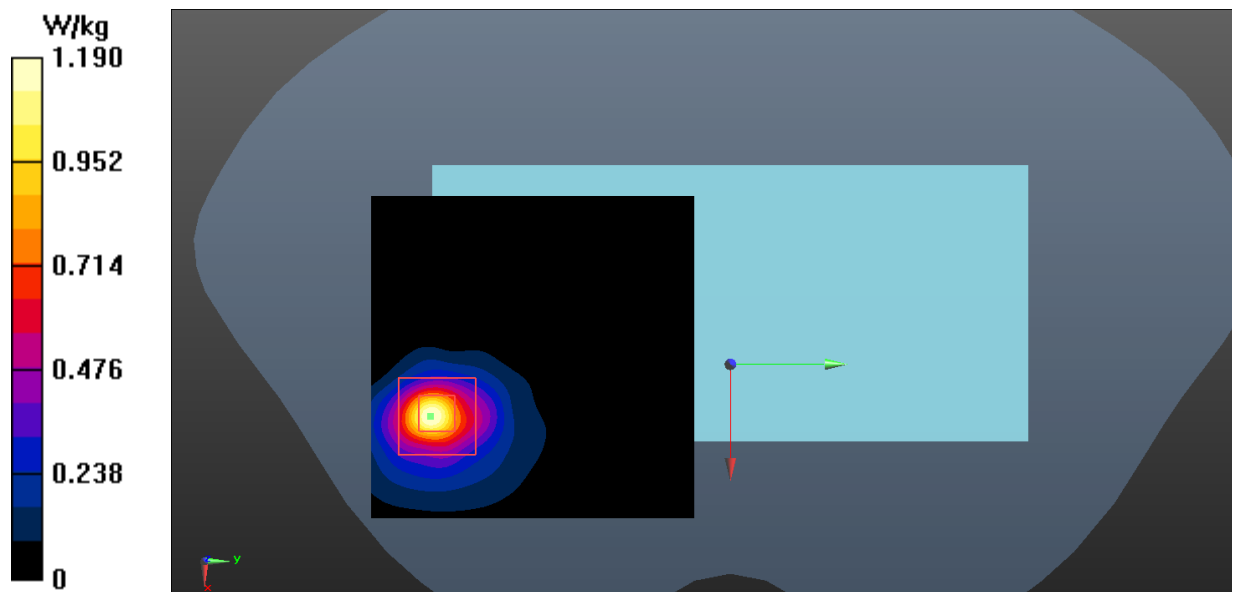


Fig.31 WLAN 5GHz Body

WLAN 5GHz Extremity

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5600MHz

Medium parameters used: $f = 5620$ MHz; $\sigma = 5.232$ S/m; $\epsilon_r = 34.315$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN 5G (0) Frequency: 5620 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (5.46, 5.19, 5.09)

Top Side Ch.124/Area Scan (61x111x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 5.17 W/kg

Top Side Ch.124/Zoom Scan (8x8x21)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.886 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 18.7 W/kg

SAR(1 g) = 3.89 W/kg; SAR(10 g) = 1.01 W/kg

Maximum value of SAR (measured) = 9.46 W/kg

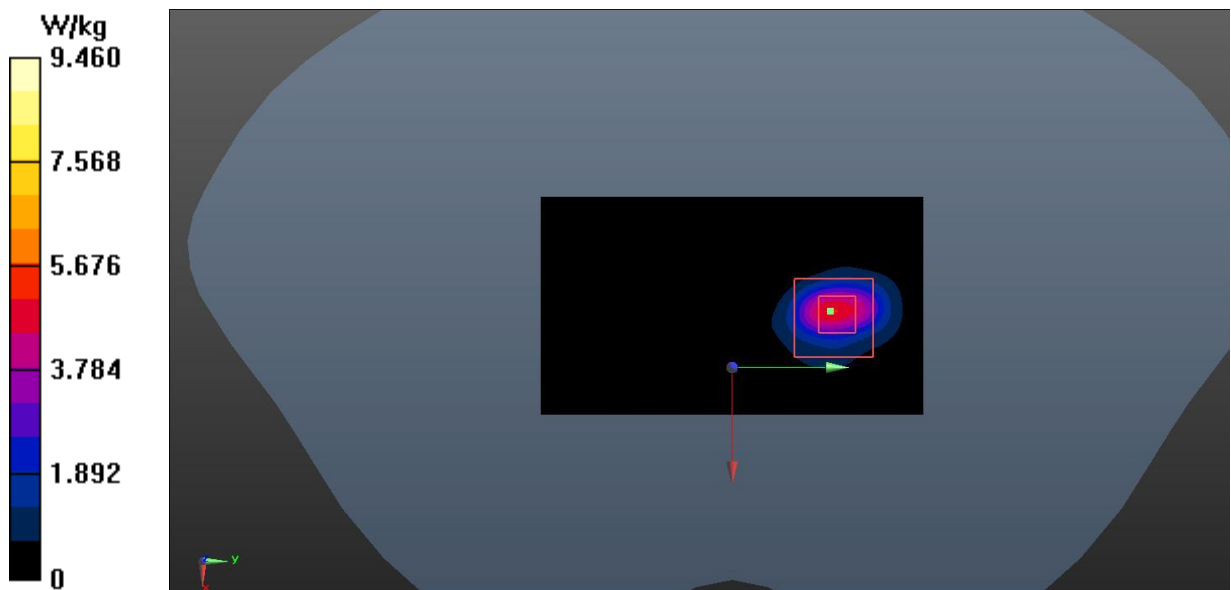


Fig.32 WLAN 5GHz Extremity

ANNEX B: System Verification Results

13MHz

Date: 2025-02-09

Electronics: DAE4 Sn1790

Medium: Head 13MHz

Medium parameters used (interpolated): $f = 13 \text{ MHz}$; $\sigma = 0.779 \text{ S/m}$; $\epsilon_r = 54.365$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 13 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (18.80, 15.39, 15.39)

System Check/Area Scan (61x81x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 24.83 V/m ; Power Drift = 0.09 dB

SAR(1 g) = 0.476 W/kg ; SAR(10 g) = 0.288 W/kg

Maximum value of SAR (interpolated) = 0.722 W/kg

System Check/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.83 V/m ; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.849 W/kg

SAR(1 g) = 0.484 W/kg ; SAR(10 g) = 0.292 W/kg

Maximum value of SAR (measured) = 0.734 W/kg

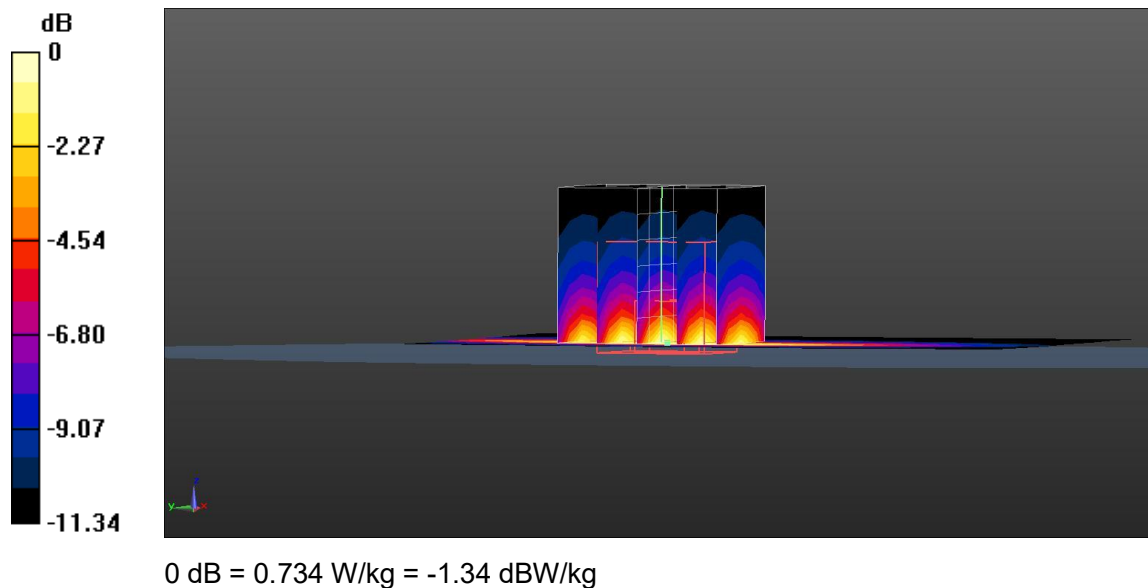


Fig.B.1. Validation 13MHz 1W

750MHz

Date: 2025-01-17

Electronics: DAE4 Sn1790

Medium: Head 750MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.908 \text{ S/m}$; $\epsilon_r = 41.464$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

System Validation/Area Scan (81x161x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 23.56 V/m; Power Drift = 0.12 dB

SAR(1 g) = 0.425 W/kg; SAR(10 g) = 0.478 W/kg

Maximum value of SAR (interpolated) = 0.677 W/kg

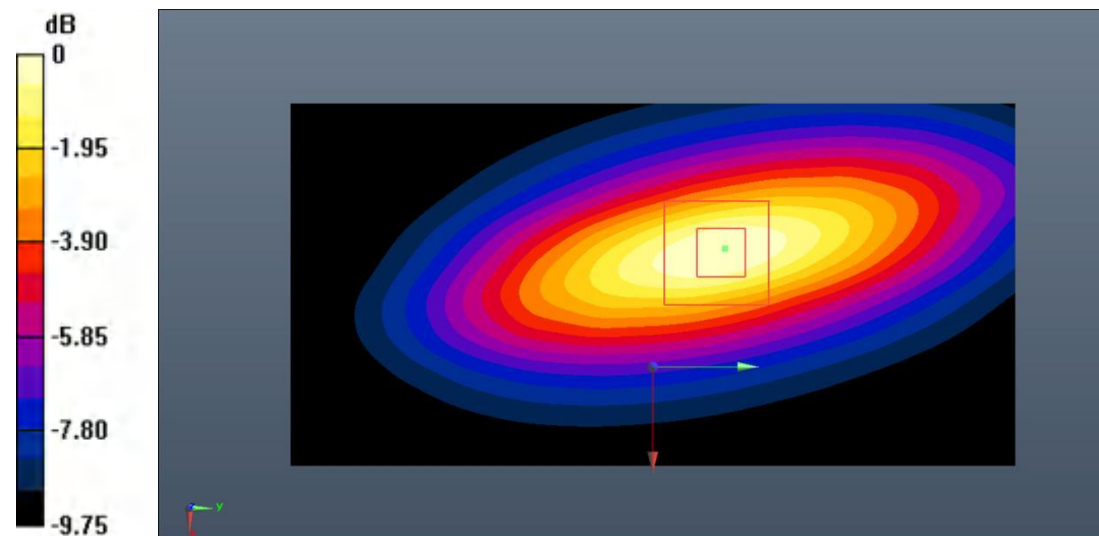
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.56 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.848 W/kg

SAR(1 g) = 0.437 W/kg; SAR(10 g) = 0.286 W/kg

Maximum value of SAR (measured) = 0.685 W/kg



0 dB = 0.685 W/kg = -1.64 dB W/kg

Fig.B.2. Validation 750MHz 50mW

835MHz

Date: 2025-01-18

Electronics: DAE4 Sn1790

Medium: Head 900MHz

Medium parameters used (interpolated): $f = 835$ MHz; $\sigma = 0.891$ S/m; $\epsilon_r = 42.353$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.40, 9.70, 9.40)

System Validation/Area Scan (91x161x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 27.78 V/m; Power Drift = -0.11 dB

SAR(1 g) = 0.467 W/kg; SAR(10 g) = 0.319 W/kg

Maximum value of SAR (interpolated) = 0.792 W/kg

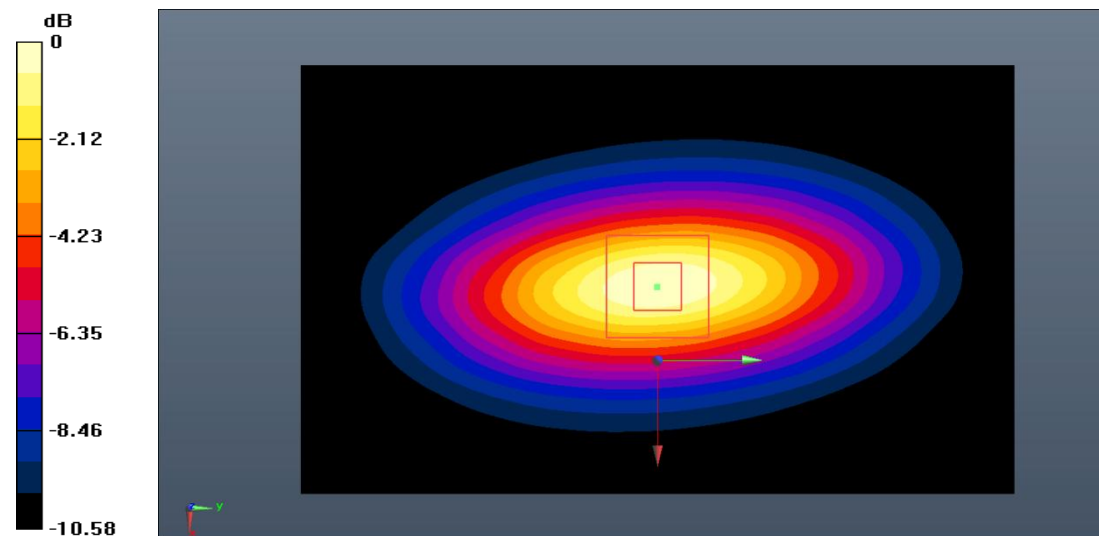
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 27.78 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.941 W/kg

SAR(1 g) = 0.459 W/kg; SAR(10 g) = 0.313 W/kg

Maximum value of SAR (measured) = 0.785 W/kg



0 dB = 0.785 W/kg = -1.05 dB W/kg

Fig.B.3. Validation 835MHz 50mW

1750MHz

Date: 2025-01-25

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used: $f = 1750 \text{ MHz}$; $\sigma = 1.355 \text{ S/m}$; $\epsilon_r = 41.087$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

System Validation/Area Scan (81x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 35.45 V/m; Power Drift = -0.06 dB

SAR(1 g) = 1.79 W/kg; SAR(10 g) = 0.981 W/kg

Maximum value of SAR (interpolated) = 2.72 W/kg

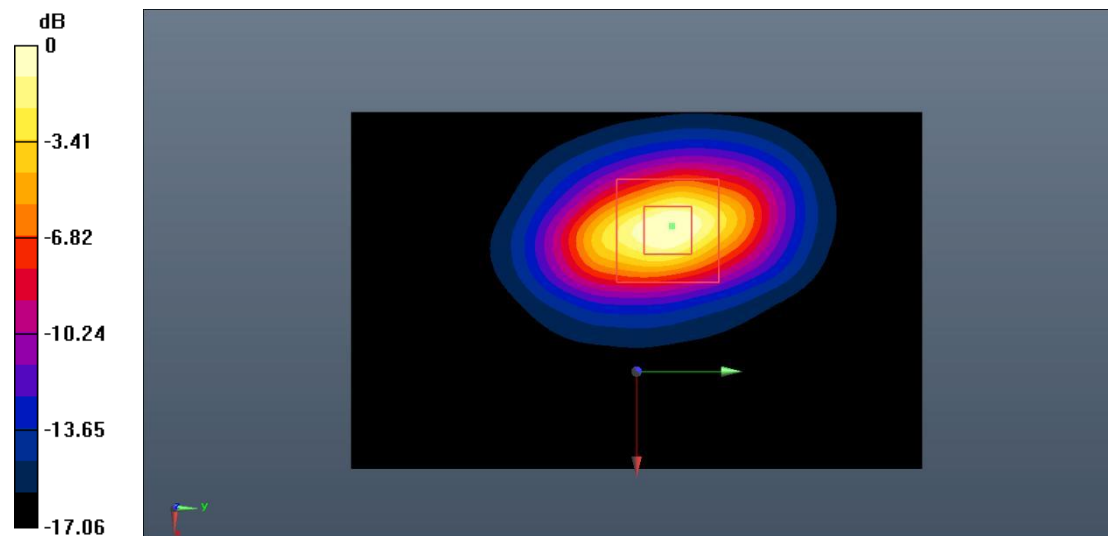
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.45 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 4.27 W/kg

SAR(1 g) = 1.75 W/kg; SAR(10 g) = 0.963 W/kg

Maximum value of SAR (measured) = 2.68 W/kg



0 dB = 2.68 W/kg = 4.28 dB W/kg

Fig.B.4. Validation 1750MHz 50mW

1750MHz

Date: 2025-02-05

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.381$ S/m; $\epsilon_r = 39.634$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.60, 8.19, 8.02)

System Validation/Area Scan (81x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 40.52 V/m; Power Drift = 0.08 dB

SAR(1 g) = 1.83 W/kg; SAR(10 g) = 0.989 W/kg

Maximum value of SAR (interpolated) = 2.83 W/kg

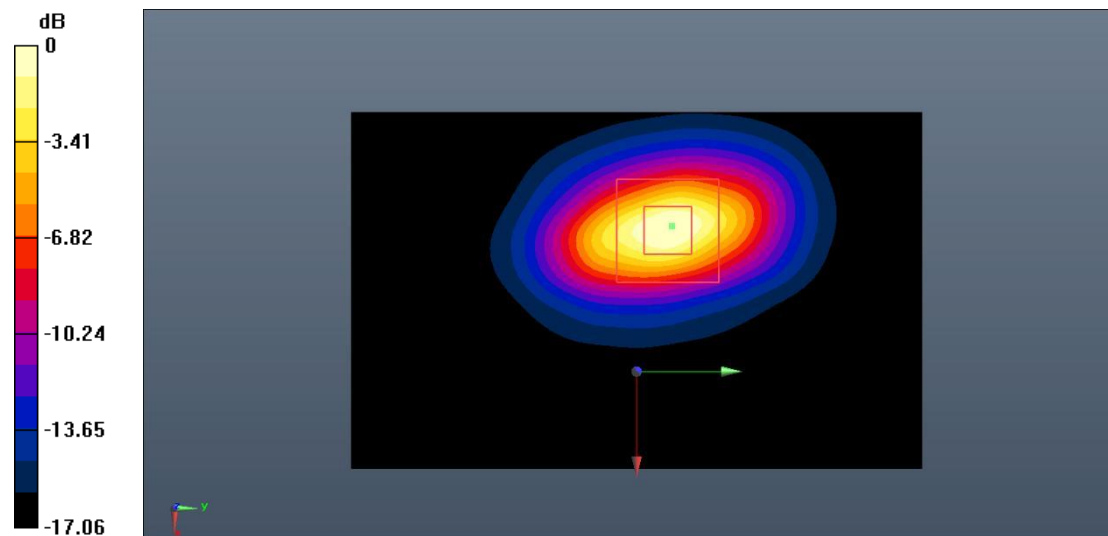
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 40.52 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 4.74 W/kg

SAR(1 g) = 1.86 W/kg; SAR(10 g) = 0.994 W/kg

Maximum value of SAR (measured) = 2.89 W/kg



0 dB = 2.89 W/kg = 4.61 dB W/kg

Fig.B.5. Validation 1750MHz 50mW

1900MHz

Date: 2025-01-22

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.414 \text{ S/m}$; $\epsilon_r = 39.722$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

System Validation/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 42.47 V/m; Power Drift = 0.15 dB

SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1.03 W/kg

Maximum value of SAR (interpolated) = 3.42 W/kg

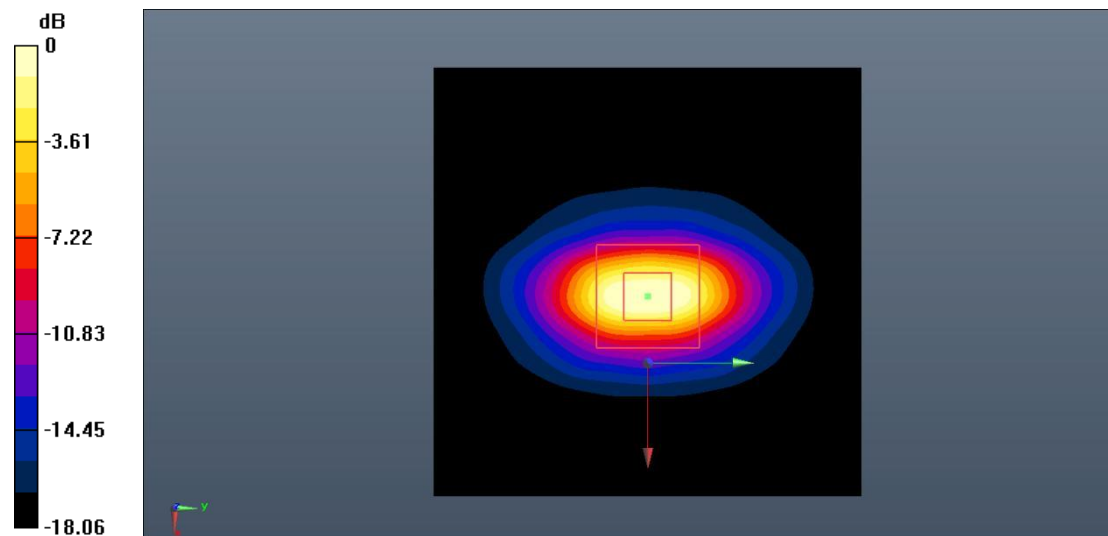
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 42.47 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 5.23 W/kg

SAR(1 g) = 2.04 W/kg; SAR(10 g) = 1.06 W/kg

Maximum value of SAR (measured) = 3.49 W/kg



0 dB = 3.49 W/kg = 5.43 dB W/kg

Fig.B.6. Validation 1900MHz 50mW

1900MHz

Date: 2025-02-02

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.429 \text{ S/m}$; $\epsilon_r = 39.028$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.37, 7.96, 7.80)

System Validation/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 45.39 V/m; Power Drift = 0.04 dB

SAR(1 g) = 2.02 W/kg; SAR(10 g) = 1.05 W/kg

Maximum value of SAR (interpolated) = 3.56 W/kg

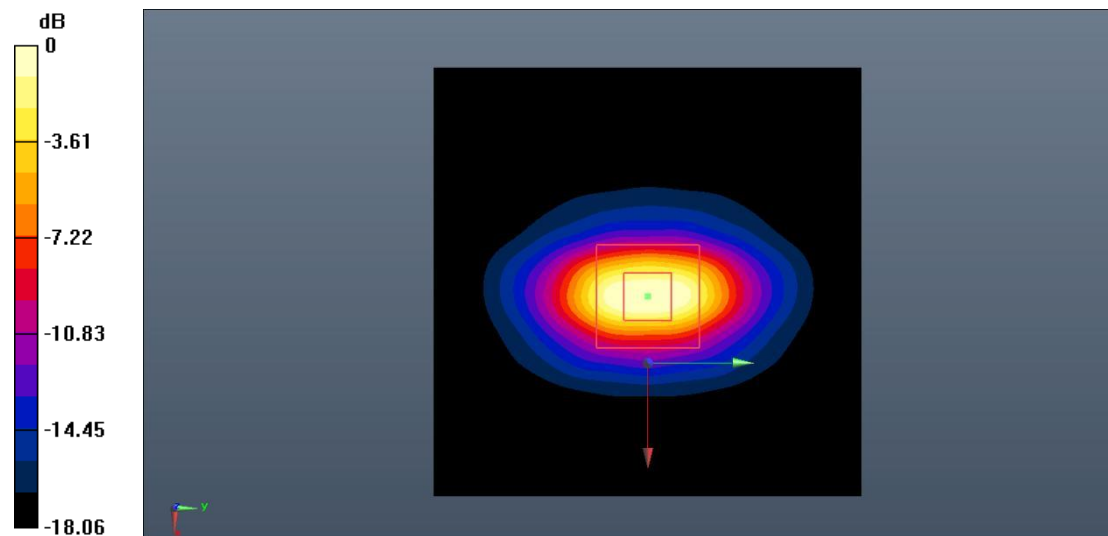
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 45.39 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 5.68 W/kg

SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.09 W/kg

Maximum value of SAR (measured) = 3.63 W/kg



0 dB = 3.63 W/kg = 5.60 dB W/kg

Fig.B.7. Validation 1900MHz 50mW

2450MHz

Date: 2025-01-24

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.832$ S/m; $\epsilon_r = 38.543$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

System Validation/Area Scan (81x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 49.18 V/m; Power Drift = 0.07 dB

SAR(1 g) = 2.61 W/kg; SAR(10 g) = 1.23 W/kg

Maximum value of SAR (interpolated) = 5.22 W/kg

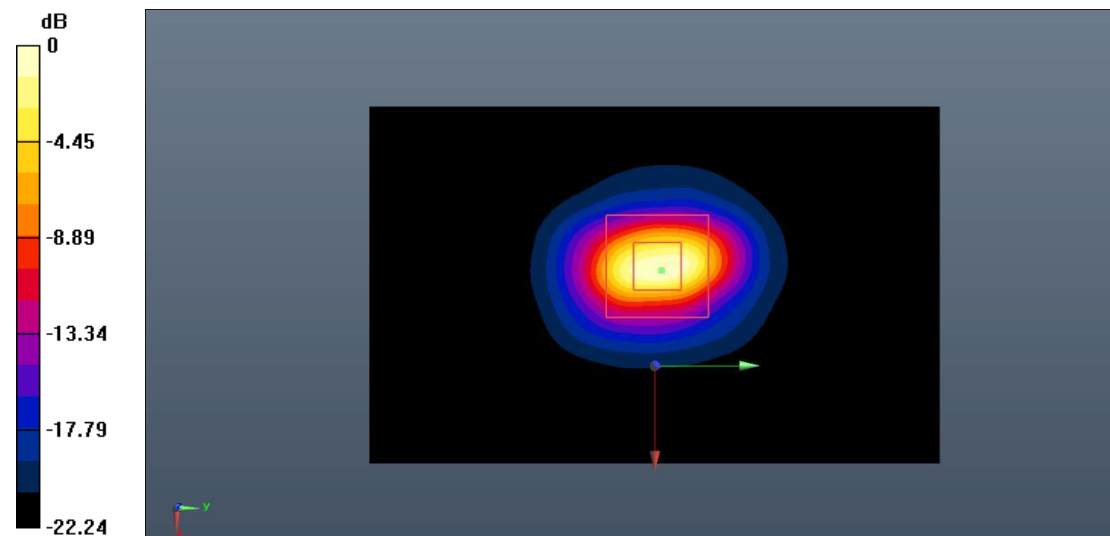
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 49.18 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 7.23 W/kg

SAR(1 g) = 2.70 W/kg; SAR(10 g) = 1.26 W/kg

Maximum value of SAR (measured) = 5.31 W/kg



0 dB = 5.31 W/kg = 7.25 dB W/kg

Fig.B.8. Validation 2450MHz 50mW

2550MHz

Date: 2025-01-20

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2550$ MHz; $\sigma = 1.948$ S/m; $\epsilon_r = 38.302$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 2550 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (7.87, 7.49, 7.34)

System Validation/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 52.42 V/m; Power Drift = 0.14 dB

SAR(1 g) = 2.82 W/kg; SAR(10 g) = 1.28 W/kg

Maximum value of SAR (interpolated) = 6.15 W/kg

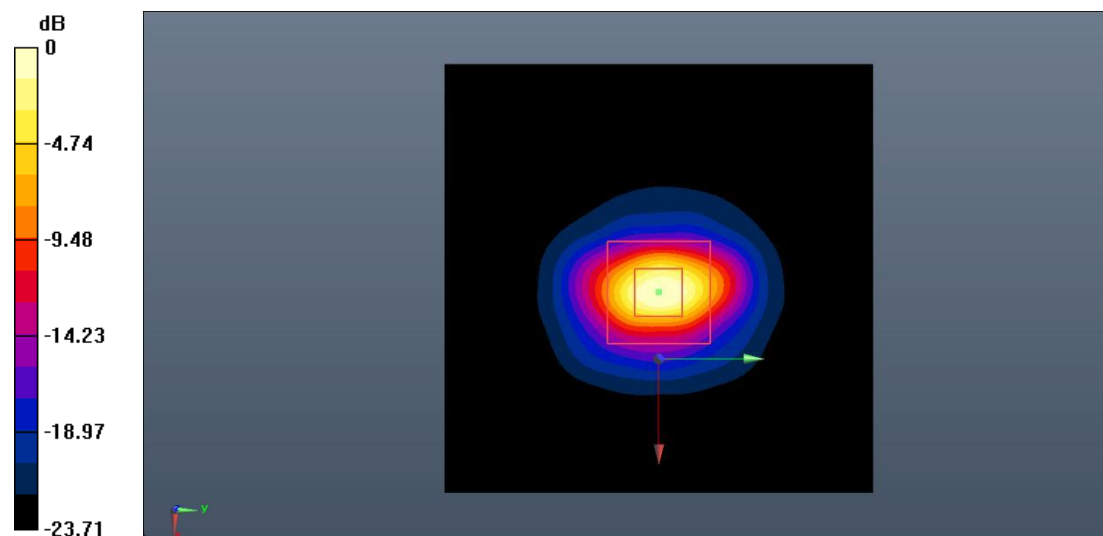
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 52.42 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 8.48 W/kg

SAR(1 g) = 2.88 W/kg; SAR(10 g) = 1.30 W/kg

Maximum value of SAR (measured) = 6.23 W/kg



0 dB = 6.23 W/kg = 7.94 dB W/kg

Fig.B.9. Validation 2550MHz 50mW

5250MHz

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5250MHz

Medium parameters used: $f = 5250 \text{ MHz}$; $\sigma = 4.826 \text{ S/m}$; $\epsilon_r = 34.842$; $\rho = 1000 \text{ kg/m}^3$

Communication System: CW Frequency: 5250 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (6.03, 5.73, 5.62)

System Validation/Area Scan (61x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 32.52 V/m; Power Drift = 0.13 dB

SAR(1 g) = 4.06 W/kg; SAR(10 g) = 1.14 W/kg

Maximum value of SAR (interpolated) = 10.6 W/kg

System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 32.52 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 4.11 W/kg; SAR(10 g) = 1.17 W/kg

Maximum value of SAR (measured) = 10.8 W/kg



Fig.B.10. Validation 5250MHz 50mW

5600MHz

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5600MHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.205$ S/m; $\epsilon_r = 34.369$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 5600 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (5.46, 5.19, 5.09)

System Validation/Area Scan (61x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 34.59 V/m; Power Drift = 0.03 dB

SAR(1 g) = 4.19 W/kg; SAR(10 g) = 1.17 W/kg

Maximum value of SAR (interpolated) = 10.9 W/kg

System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 34.59 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 4.25 W/kg; SAR(10 g) = 1.20 W/kg

Maximum value of SAR (measured) = 11.2 W/kg

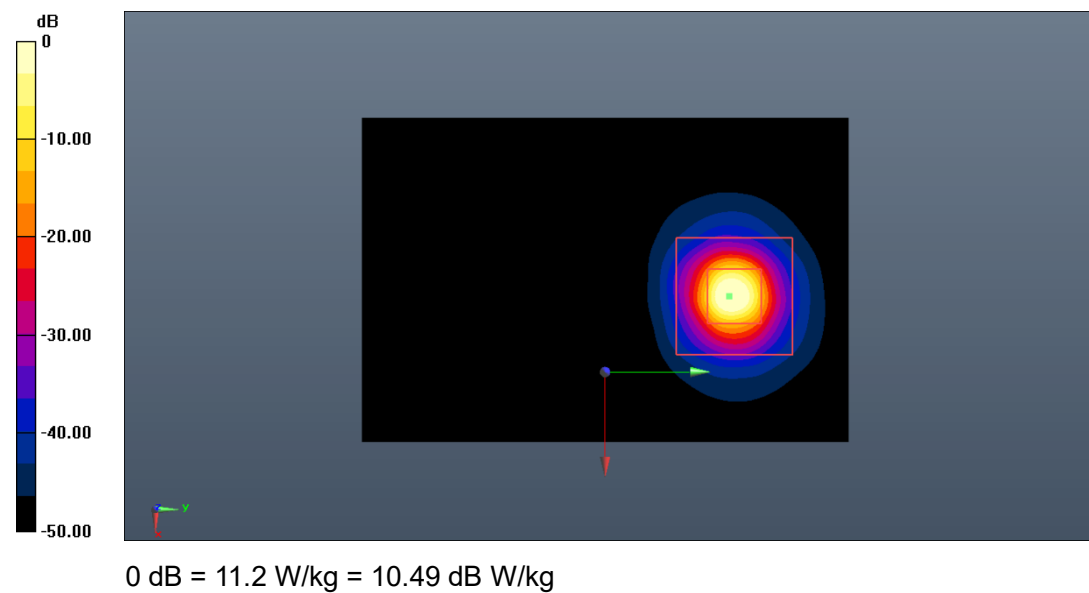


Fig.B.11. Validation 5600MHz 50mW

5750MHz

Date: 2025-01-26

Electronics: DAE4 Sn1790

Medium: Head 5750MHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.112$ S/m; $\epsilon_r = 36.184$; $\rho = 1000$ kg/m³

Communication System: CW Frequency: 5750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (5.53, 5.26, 5.15)

System Validation/Area Scan (61x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Reference Value = 30.24 V/m; Power Drift = -0.08 dB

SAR(1 g) = 3.85 W/kg; SAR(10 g) = 1.11 W/kg

Maximum value of SAR (interpolated) = 10.3 W/kg

System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 30.24 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 14.5 W/kg

SAR(1 g) = 3.76 W/kg; SAR(10 g) = 1.07 W/kg

Maximum value of SAR (measured) = 10.1 W/kg

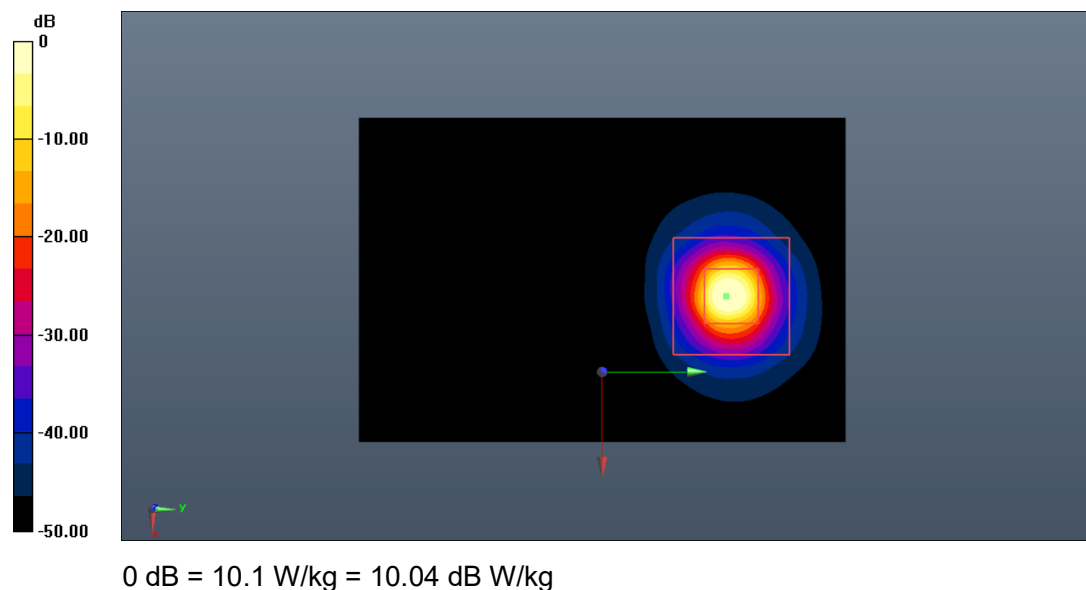
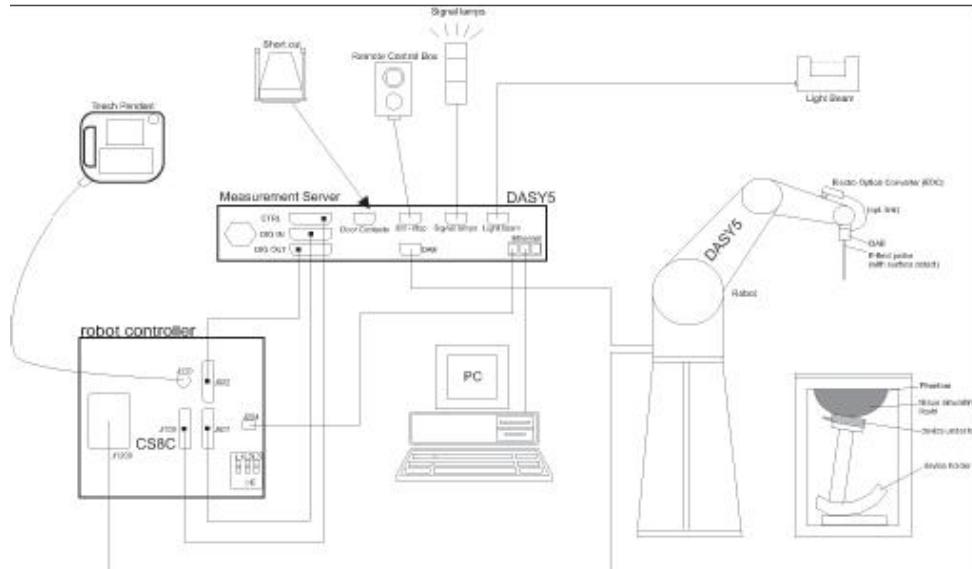


Fig.B.12. Validation 5750MHz 50mW

ANNEX C: SAR Measurement Setup

C.1. Measurement Set-up

DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



Picture C.1 SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (Stäubli TX=RX family) 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 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.

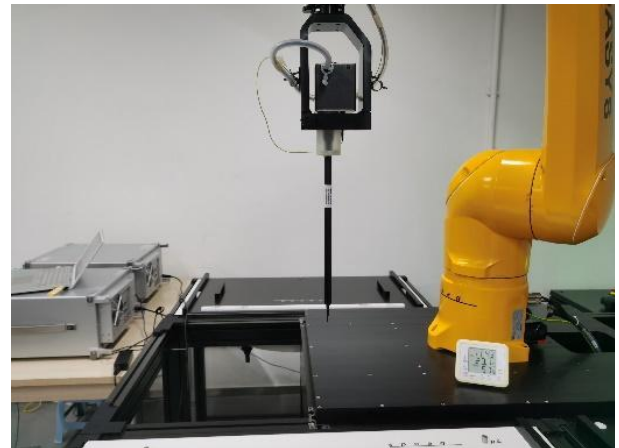
C.2. DASY E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 OR DASY8 software reads the reflection during a software approach and looks for the maximum using 2nd order curve fitting. The approach is stopped at reaching the maximum.

Probe Specifications:	
Model:	EX3DV4
Frequency Range:	10 MHz - 6.0 GHz
Calibration:	In head simulating tissue at Frequencies from 750 up to 5750 MHz
Linearity:	± 0.2 dB (30 MHz to 6 GHz)
Dynamic Range:	10 mW/kg - 100 W/kg
Probe Length:	337 mm
Probe Tip Length:	20 mm
Body Diameter:	12 mm
Tip Diameter:	2.5 mm
Tip-Center:	1 mm
Application:	SAR Dosimetry Testing / Compliance tests of mobile phones / Dosimetry in strong gradient fields



Picture C.2: Near-field Probe



Picture C.3: E-field Probe

C.3. E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm²) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equate to 1 mW/cm².

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C \frac{\Delta T}{\Delta t}$$

Where:

Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

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

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m³).

C.4. Other Test Equipment

C.4.1. Data Acquisition Electronics (DAE)

The data acquisition electronics 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 the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Picture C.4: DAE

C.4.2. Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX90L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are 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 synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Picture C.5: DASY 5



Picture C.6: DASY 8

C.4.3. Measurement Server

The Measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5:128MB), RAM (DASY5:128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY 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 pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.



Picture C.7: Server for DASY 5



Picture C.8: Server for DASY 8

C.4.4. Device Holder for Phantom

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

The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

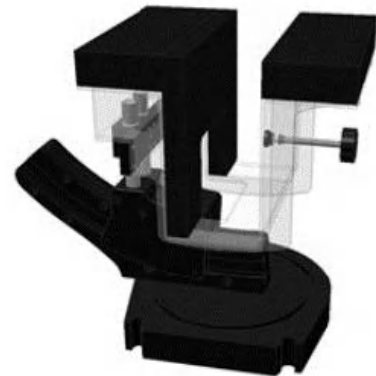
The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.



Picture C.9: Device Holder



Picture C.10: Laptop Extension Kit

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to represent the 90th percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness: 2 ± 0.2 mm
 Filling Volume: Approx. 25 liters
 Dimensions: 810 x 1000 x 500 mm (H x L x W)
 Available: Special

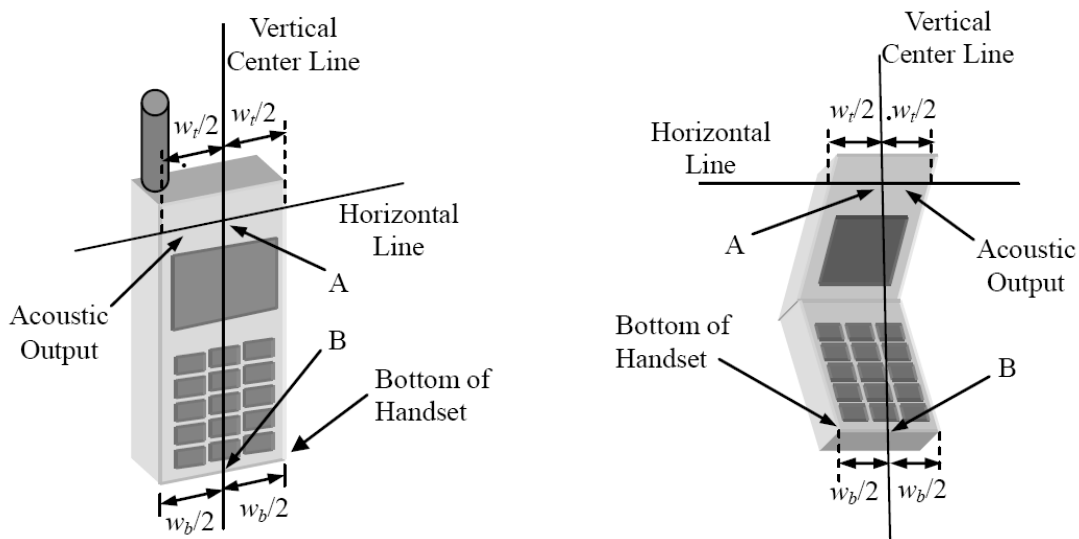


Picture C.11: SAM Twin Phantom

ANNEX D: Position of the wireless device in relation to the phantom

D.1. General considerations

This standard specifies two handset test positions against the head phantom – the “cheek” position and the “tilt” position.



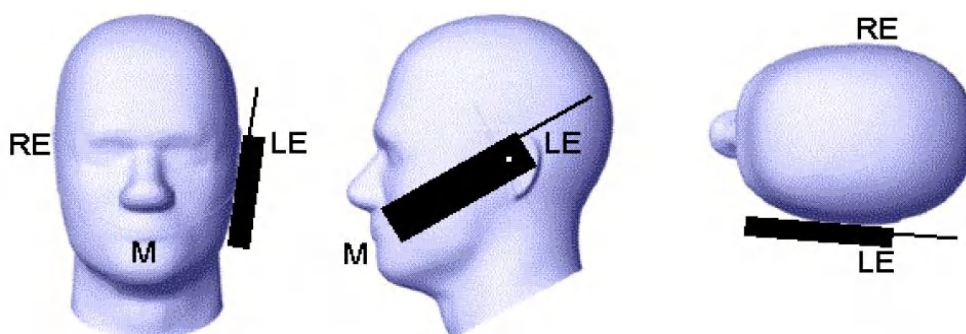
w_t Width of the handset at the level of the acoustic

w_b Width of the bottom of the handset

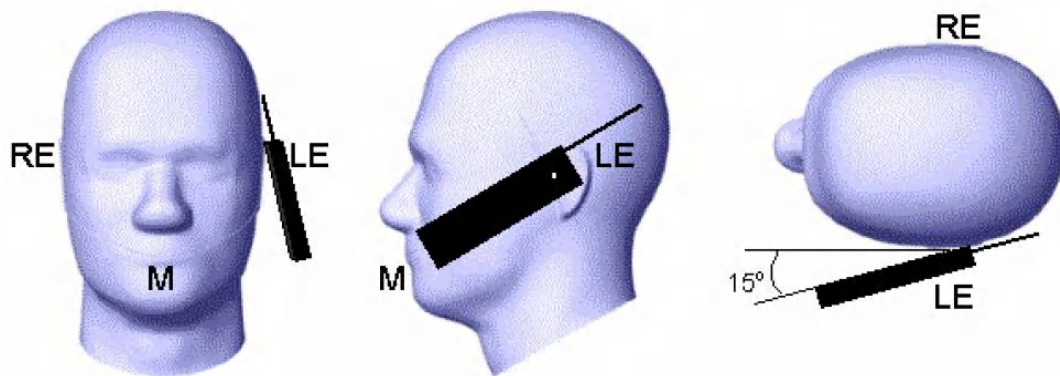
A Midpoint of the width w_t of the handset at the level of the acoustic output

B Midpoint of the width w_b of the bottom of the handset

Picture D.1-a Typical “fixed” case handset Picture D.1-b Typical “clam-shell” case handset



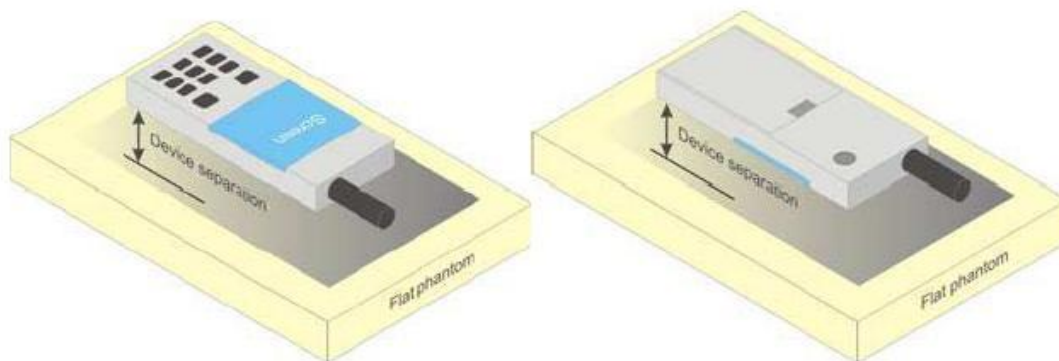
Picture D.2 Cheek position of the wireless device on the left side of SAM



Picture D.3 Tilt position of the wireless device on the left side of SAM

D.2. Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.

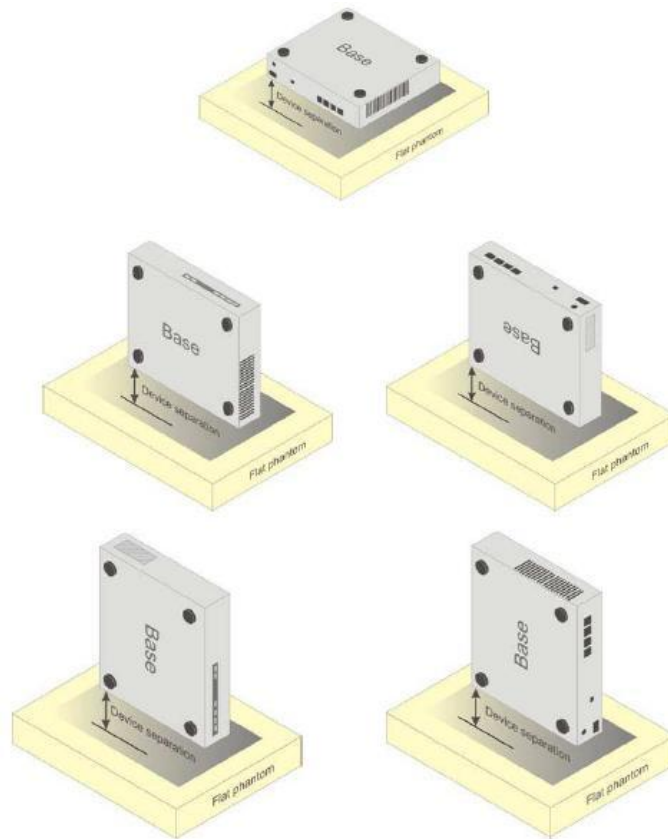


Picture D.4 Test positions for body-worn devices

D.3. Desktop device

A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture 8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.



Picture D.5 Test positions for desktop devices

D.4. DUT Setup Photos



Picture D.6 Specific Absorption Rate Test Layout

ANNEX E: Equivalent Media Recipes

The liquid used for the frequency range of 700-6000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

Table E.1: Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	1750	1900	2450	2600	5200	5800
Water	41.45	55.242	55.242	58.79	58.79	65.53	66.10
Sugar	56.0	/	/	/	/	/	/
Salt	1.45	0.306	0.306	0.06	0.06		
Preventol	0.1	/	/	/	/	17.24	16.95
Cellulose	1.0	/	/	/	/	17.24	16.95
Glycol Monobutyl	/	44.452	44.452	41.15	41.15	/	/
Diethylenglycol monohexylether	/	/	/	/	/	/	/
Triton X-100	/	/	/	/	/	/	/
Dielectric Parameters Target Value	$\epsilon=41.5$ $\sigma=0.90$	$\epsilon=40.08$ $\sigma=1.37$	$\epsilon=40.0$ $\sigma=1.40$	$\epsilon=39.20$ $\sigma=1.80$	$\epsilon=39.01$ $\sigma=1.96$	$\epsilon=35.99$ $\sigma=4.66$	$\epsilon=35.30$ $\sigma=5.27$

Note: There is a little adjustment respectively for 750, 5300 and 5600, based on the recipe of closest frequency in table E.1

ANNEX F: System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

Table F.1: System Validation

Probe SN.	Liquid name (MHz)	Validation date	Frequency point	CW Validation	Modulation Signal Validation		
					Modulation Type	Duty Factor	PAR
7683	Head 750	2024-08-08	750MHz	Pass	N/A	N/A	N/A
7683	Head 835	2024-08-08	835MHz	Pass	GMSK	Pass	N/A
7683	Head 1750	2024-08-08	1750MHz	Pass	N/A	N/A	N/A
7683	Head 1900	2024-08-08	1900MHz	Pass	GMSK	Pass	N/A
7683	Head 2450	2024-08-20	2450MHz	Pass	OFDM/TDD	Pass	Pass
7683	Head 2550	2024-08-20	2550MHz	Pass	TDD	Pass	N/A
7683	Head 3500	2024-08-19	3500MHz	Pass	TDD	Pass	N/A
7683	Head 3700	2024-08-19	3700MHz	Pass	TDD	Pass	N/A
7683	Head 3900	2024-08-19	3900MHz	Pass	TDD	Pass	N/A
7683	Head 5250	2024-08-21	5250MHz	Pass	OFDM	N/A	Pass
7683	Head 5600	2024-08-21	5600MHz	Pass	OFDM	N/A	Pass
7683	Head 5750	2024-08-21	5750MHz	Pass	OFDM	N/A	Pass

**ANNEX G: DAE Calibration Certificate****DAE4 - SN:1790 (2024-06-06)**

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client : **SAICT**Certificate No: **24J02Z000295****CALIBRATION CERTIFICATE**Object **DAE4 - SN: 1790**Calibration Procedure(s) **FF-Z11-002-01
Calibration Procedure for the Data Acquisition Electronics
(DAEx)**Calibration date: **June 06, 2024**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
-------------------	------	--	-----------------------

Process Calibrator 753	1971018	12-Jun-23 (CTTL, No.J23X05436)	Jun-24
------------------------	---------	--------------------------------	--------

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 09, 2024

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: cmf@caict.ac.cn <http://www.caict.ac.cn>

Glossary:

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.



Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2117
E-mail: emf@caict.ac.cn <http://www.caict.ac.cn>

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = $6.1\mu\text{V}$, full range = $-100\dots+300\text{ mV}$

Low Range: 1LSB = 61nV , full range = $-1\dots\dots+3\text{mV}$

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	$404.649 \pm 0.15\% (k=2)$	$404.367 \pm 0.15\% (k=2)$	$404.501 \pm 0.15\% (k=2)$
Low Range	$4.00172 \pm 0.7\% (k=2)$	$3.99527 \pm 0.7\% (k=2)$	$3.98609 \pm 0.7\% (k=2)$

Connector Angle

Connector Angle to be used in DASY system	$305.5^\circ \pm 1^\circ$
---	---------------------------

ANNEX H: Probe Calibration Certificate

EX3DV4 - SN:7683 (2024-07-03)

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SAICT**
Shenzhen

Certificate No. **EX-7683_Jul24**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7683**

Calibration procedure(s) **QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,
QA CAL-25.v8
Calibration procedure for dosimetric E-field probes**

Calibration date **July 03, 2024**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3) °C and humidity < 70%.
Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
OCP DAK-3.5 (weighted)	SN: 1249	05-Oct-23 (OCP-DAK3.5-1249_Oct23)	Oct-24
OCP DAK-12	SN: 1016	05-Oct-23 (OCP-DAK12-1016_Oct23)	Oct-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
DAE4	SN: 660	23-Feb-24 (No. DAE4-660_Feb24)	Feb-25
Reference Probe EX3DV4	SN: 7349	03-Jun-24 (No. EX3-7349_Jun24)	Jun-25

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-24)	In house check: Jun-26
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-24)	In house check: Jun-26
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

	Name	Function	Signature
Calibrated by	Joanna Lieshaj	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Issued: July 03, 2024

Calibration Laboratory of
Schmid & Partner
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Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; V_{Rx,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical Isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

EX3DV4 - SN:7683

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Parameters of Probe: EX3DV4 - SN:7683

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 msV^{-2}	T2 msV^{-1}	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
x	10.8	77.56	33.12	2.58	0.00	4.90	0.27	0.00	1.00
y	13.0	94.75	33.73	3.67	0.00	4.92	0.51	0.00	1.00
z	11.7	84.47	33.28	2.66	0.00	4.90	0.28	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	70.6°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3–4 mm for an Area Scan job.

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Parameters of Probe: EX3DV4 - SN:7683

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
13	55.0	0.75	18.80	15.39	15.39	0.00	1.25	±13.3%
750	41.9	0.89	10.40	9.90	9.70	0.34	1.27	±11.0%
900	41.5	0.97	9.93	9.45	9.26	0.34	1.27	±11.0%
1640	40.2	1.31	8.55	8.13	7.97	0.35	1.27	±11.0%
1750	40.1	1.37	8.60	8.19	8.02	0.35	1.27	±11.0%
1900	40.0	1.40	8.37	7.96	7.80	0.35	1.27	±11.0%
2100	39.8	1.49	8.41	8.01	7.84	0.36	1.27	±11.0%
2300	39.5	1.67	8.14	7.75	7.59	0.36	1.27	±11.0%
2450	39.2	1.80	7.87	7.49	7.34	0.36	1.27	±11.0%
2600	39.0	1.96	7.93	7.55	7.39	0.36	1.27	±11.0%
3300	38.2	2.71	7.14	6.80	6.66	0.37	1.27	±13.1%
3500	37.9	2.91	7.20	6.85	6.71	0.37	1.27	±13.1%
3700	37.7	3.12	7.08	6.74	6.60	0.37	1.27	±13.1%
3900	37.5	3.32	6.96	6.62	6.49	0.38	1.27	±13.1%
4100	37.2	3.53	6.87	6.54	6.40	0.38	1.27	±13.1%
4400	36.9	3.84	6.68	6.35	6.22	0.38	1.27	±13.1%
4600	36.7	4.04	6.74	6.41	6.28	0.38	1.27	±13.1%
4800	36.4	4.25	6.61	6.29	6.16	0.39	1.27	±13.1%
4950	36.3	4.40	6.59	6.27	6.14	0.37	1.27	±13.1%
5250	35.9	4.71	6.03	5.73	5.62	0.34	1.27	±13.1%
5600	35.5	5.07	5.46	5.19	5.09	0.30	1.27	±13.1%
5800	35.3	5.27	5.53	5.26	5.15	0.28	1.27	±13.1%

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. Therefore, the uncertainty stated is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

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Parameters of Probe: EX3DV4 - SN:7683

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc ^H (k = 2)
6500	34.5	6.07	5.99	5.70	5.58	0.20	1.27	±18.6%

^C Frequency validity at 6.5 GHz is -600/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

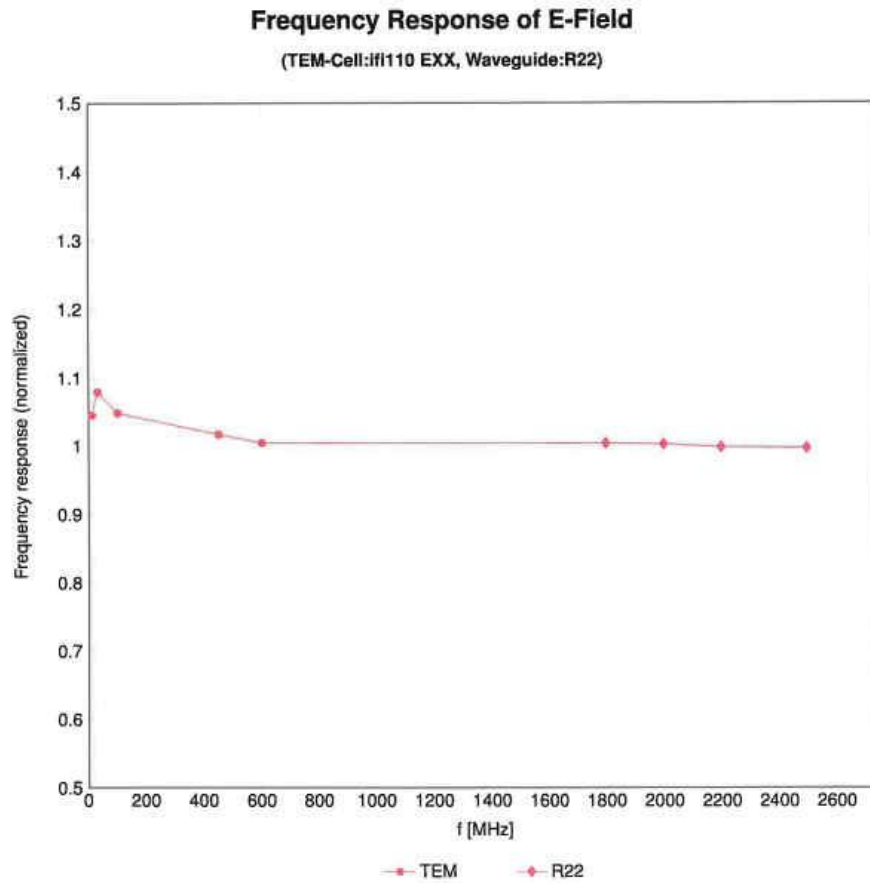
^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–8 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

^H The stated uncertainty is the total calibration uncertainty (k = 2) of Norm-ConvF. Therefore, the uncertainty stated is equivalent to the uncertainty component with the symbol CF in Table 9 of IEC/IEEE 62209-1528:2020.

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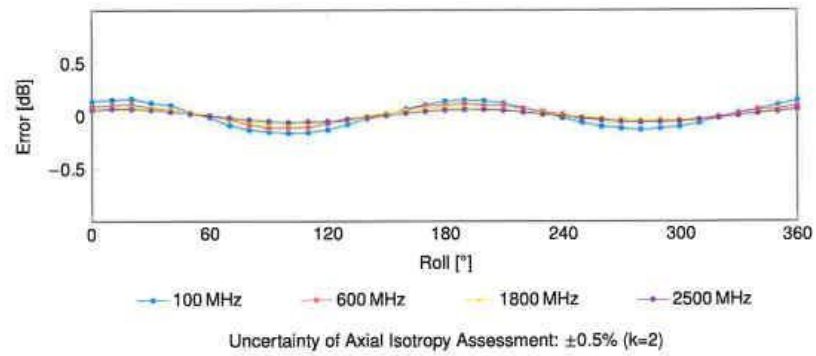
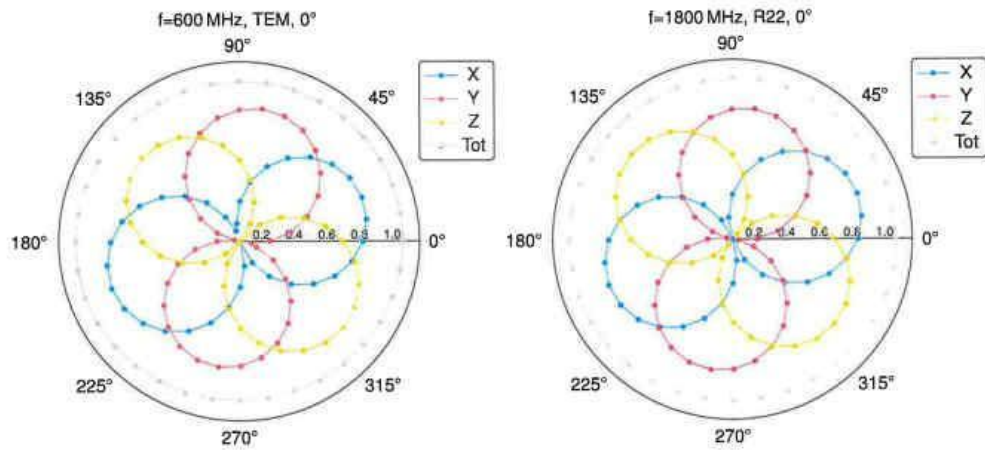


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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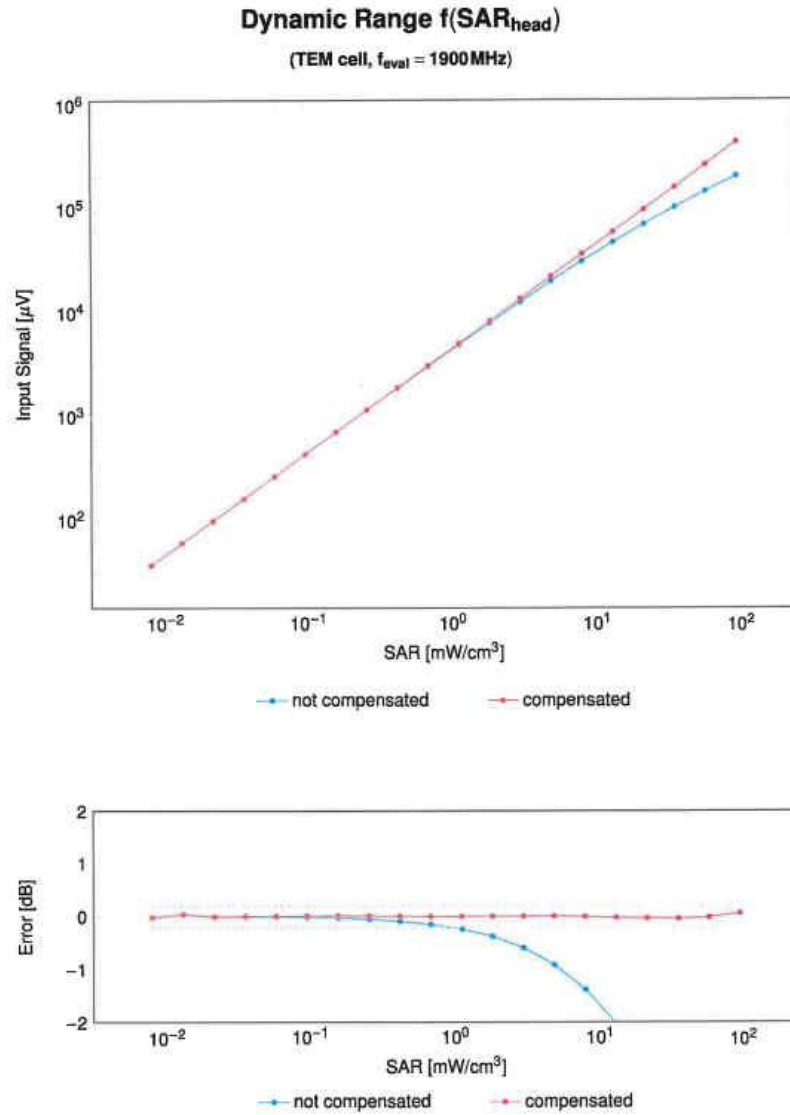
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Receiving Pattern (ϕ), $\theta = 0^\circ$



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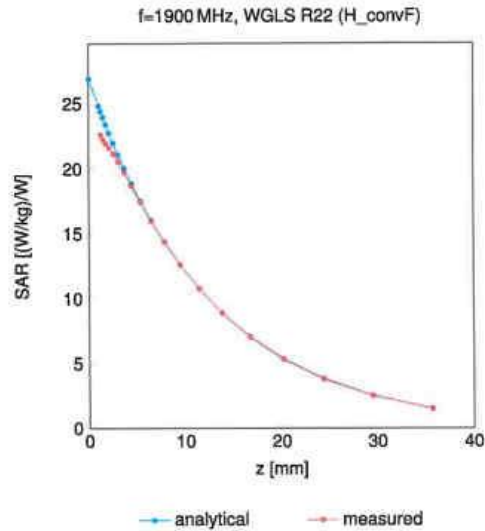


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

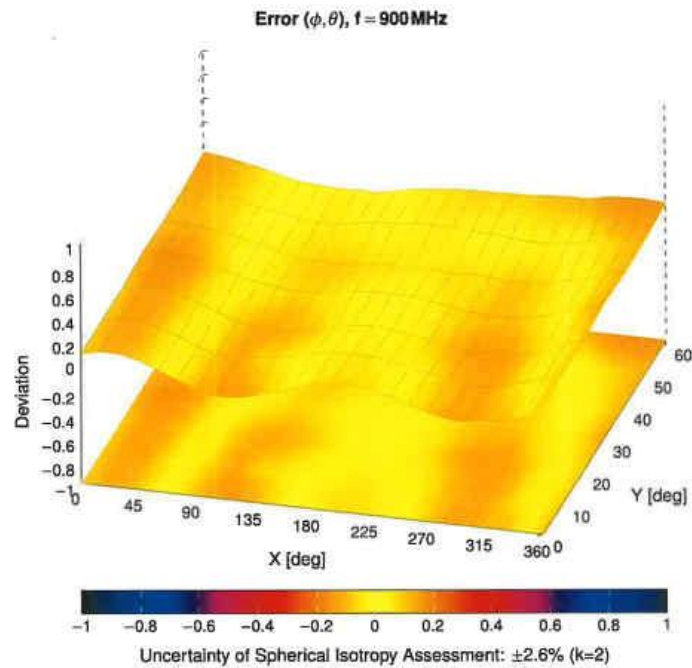
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Conversion Factor Assessment



Deviation from Isotropy in Liquid





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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10225	CAC	UMTS-FDD (HSPA+)	WCDMA	5.97	±9.6
10226	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	±9.6
10227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6
10228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±9.6
10229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10231	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	±9.6
10232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10233	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10234	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	±9.6
10235	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10236	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10237	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	±9.6
10238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	±9.6
10241	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	±9.6
10242	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	±9.6
10243	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	±9.6
10244	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10245	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	±9.6
10246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	±9.6
10247	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	±9.6
10248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±9.6
10249	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	±9.6
10250	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	±9.6
10251	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	±9.6
10252	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	±9.6
10253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±9.6
10254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	±9.6
10255	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	±9.6
10256	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	±9.6
10257	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	±9.6
10258	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6
10259	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	±9.6
10260	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6
10261	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±9.6
10262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±9.6
10263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±9.6
10264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	±9.6
10265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10266	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	±9.6
10267	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.6
10268	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10269	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	±9.6
10270	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	±9.6
10274	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	±9.6
10275	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	±9.6
10277	CAA	PHS (QPSK)	PHS	11.81	±9.6
10278	CAA	PHS (QPSK, BW 884 MHz, Roll-off 0.5)	PHS	11.81	±9.6
10279	CAA	PHS (QPSK, BW 884 MHz, Roll-off 0.38)	PHS	12.18	±9.6
10290	AAB	CDMA2000, RC1, SQ55, Full Rate	CDMA2000	3.91	±9.6
10291	AAB	CDMA2000, RC3, SQ55, Full Rate	CDMA2000	3.46	±9.6
10292	AAB	CDMA2000, RC3, SQ32, Full Rate	CDMA2000	3.39	±9.6
10293	AAB	CDMA2000, RC3, SQ3, Full Rate	CDMA2000	3.50	±9.6
10295	AAB	CDMA2000, RC1, SQ3, 1/8th Rate 25 fr.	CDMA2000	12.49	±9.6
10297	AAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	±9.6
10298	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	±9.6
10299	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	±9.6
10300	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10301	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC)	WiMAX	12.03	±9.6
10302	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC, 3 CTRL symbols)	WiMAX	12.57	±9.6
10303	AAA	IEEE 802.16e WiMAX (31:15, 5 ms, 10 MHz, 64QAM, PUSC)	WiMAX	12.52	±9.6
10304	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, 64QAM, PUSC)	WiMAX	11.86	±9.6
10305	AAA	IEEE 802.16e WiMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols)	WiMAX	15.24	±9.6
10306	AAA	IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols)	WiMAX	14.67	±9.6



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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10541	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.46	±9.6
10542	AAD	IEEE 802.11ac WiFi (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.65	±9.6
10543	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
10544	AAD	IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.47	±9.6
10545	AAD	IEEE 802.11ac WiFi (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10546	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.35	±9.6
10547	AAD	IEEE 802.11ac WiFi (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.49	±9.6
10548	AAD	IEEE 802.11ac WiFi (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.37	±9.6
10550	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.38	±9.6
10551	AAD	IEEE 802.11ac WiFi (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.50	±9.6
10552	AAD	IEEE 802.11ac WiFi (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.42	±9.6
10553	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.45	±9.6
10554	AAE	IEEE 802.11ac WiFi (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.48	±9.6
10555	AAE	IEEE 802.11ac WiFi (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
10556	AAE	IEEE 802.11ac WiFi (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.50	±9.6
10557	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.52	±9.6
10558	AAE	IEEE 802.11ac WiFi (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.61	±9.6
10560	AAE	IEEE 802.11ac WiFi (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.73	±9.6
10561	AAE	IEEE 802.11ac WiFi (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.56	±9.6
10562	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.69	±9.6
10563	AAE	IEEE 802.11ac WiFi (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.77	±9.6
10564	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	±9.6
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	±9.6
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	±9.6
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	±9.6
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	±9.6
10570	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.30	±9.6
10571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10572	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10587	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10588	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10589	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10590	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10591	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)	WLAN	8.63	±9.6
10592	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10593	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS2, 90pc duty cycle)	WLAN	8.64	±9.6
10594	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10595	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)	WLAN	8.74	±9.6
10596	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS5, 90pc duty cycle)	WLAN	8.71	±9.6
10597	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
10598	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
10599	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)	WLAN	8.79	±9.6
10600	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10601	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)	WLAN	8.82	±9.6
10602	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)	WLAN	8.94	±9.6
10603	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)	WLAN	9.03	±9.6
10604	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±9.6
10605	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)	WLAN	8.97	±9.6
10606	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10607	AAD	IEEE 802.11ac WiFi (20 MHz, MCS0, 90pc duty cycle)	WLAN	8.64	±9.6
10608	AAD	IEEE 802.11ac WiFi (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.77	±9.6



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10609	AAD	IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
10610	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.78	±9.6
10611	AAD	IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10612	AAD	IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10613	AAD	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.94	±9.6
10614	AAD	IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
10615	AAD	IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10616	AAD	IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.82	±9.6
10617	AAD	IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAD	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.58	±9.6
10619	AAD	IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAD	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAD	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAD	IEEE 802.11ac WiFi (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.65	±9.6
10623	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAD	IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.95	±9.6
10625	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.95	±9.6
10626	AAD	IEEE 802.11ac WiFi (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAD	IEEE 802.11ac WiFi (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10628	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.71	±9.6
10629	AAD	IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAD	IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAD	IEEE 802.11ac WiFi (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.81	±9.6
10632	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10633	AAD	IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.83	±9.6
10634	AAD	IEEE 802.11ac WiFi (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAE	IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAE	IEEE 802.11ac WiFi (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAE	IEEE 802.11ac WiFi (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.86	±9.6
10639	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAE	IEEE 802.11ac WiFi (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.98	±9.6
10641	AAE	IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAE	IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAE	IEEE 802.11ac WiFi (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.89	±9.6
10644	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAE	IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)	WLAN	9.11	±9.6
10646	AAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10647	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.95	±9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	±9.6
10652	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	±9.6
10653	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	±9.6
10654	AAE	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	±9.6
10655	AAF	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	±9.6
10658	AAB	Pulse Waveform (200Hz, 10%)	Test	10.00	±9.6
10659	AAB	Pulse Waveform (200Hz, 20%)	Test	8.99	±9.6
10660	AAB	Pulse Waveform (200Hz, 40%)	Test	3.98	±9.6
10661	AAB	Pulse Waveform (200Hz, 60%)	Test	2.22	±9.6
10662	AAB	Pulse Waveform (200Hz, 80%)	Test	0.97	±9.6
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	±9.6
10671	AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	WLAN	9.09	±9.6
10672	AAC	IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.57	±9.6
10673	AAC	IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	±9.6
10674	AAC	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10675	AAC	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.6
10676	AAC	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10677	AAC	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.6
10678	AAC	IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9.6
10679	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
10680	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.80	±9.6
10681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.62	±9.6
10682	AAC	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10683	AAC	IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10684	AAC	IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.26	±9.6
10685	AAC	IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10686	AAC	IEEE 802.11ax (20 MHz, MCS3, 99pc duty cycle)	WLAN	8.28	±9.6



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10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.45	±9.6
10688	AAC	IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	±9.6
10689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.55	±9.6
10690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10691	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.25	±9.6
10692	AAC	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
10693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
10694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
10695	AAC	IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.78	±9.6
10696	AAC	IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.91	±9.6
10697	AAC	IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.81	±9.6
10698	AAC	IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.89	±9.6
10699	AAC	IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.82	±9.6
10700	AAC	IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.73	±9.6
10701	AAC	IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.86	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.70	±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 90pc duty cycle)	WLAN	8.68	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.68	±9.6
10707	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.32	±9.6
10708	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10710	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.29	±9.6
10711	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.39	±9.6
10712	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.67	±9.6
10713	AAC	IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.33	±9.6
10714	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.26	±9.6
10715	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.45	±9.6
10716	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.30	±9.6
10717	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
10718	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.24	±9.6
10719	AAC	IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.81	±9.6
10720	AAC	IEEE 802.11ax (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.87	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.76	±9.6
10722	AAC	IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.55	±9.6
10723	AAC	IEEE 802.11ax (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10724	AAC	IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10726	AAC	IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.72	±9.6
10727	AAC	IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.66	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.65	±9.6
10729	AAC	IEEE 802.11ax (80 MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6
10730	AAC	IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle)	WLAN	8.67	±9.6
10731	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10732	AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.46	±9.6
10733	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.40	±9.6
10734	AAC	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.25	±9.6
10735	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.33	±9.6
10736	AAC	IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.27	±9.6
10737	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.36	±9.6
10738	AAC	IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.42	±9.6
10739	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.29	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.48	±9.6
10741	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.40	±9.6
10742	AAC	IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle)	WLAN	8.43	±9.6
10743	AAC	IEEE 802.11ax (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.94	±9.6
10744	AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle)	WLAN	9.16	±9.6
10745	AAC	IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.93	±9.6
10746	AAC	IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle)	WLAN	9.11	±9.6
10747	AAC	IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle)	WLAN	9.04	±9.6
10748	AAC	IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle)	WLAN	8.93	±9.6
10749	AAC	IEEE 802.11ax (160 MHz, MCS6, 90pc duty cycle)	WLAN	8.90	±9.6
10750	AAC	IEEE 802.11ax (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.79	±9.6
10751	AAC	IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10752	AAC	IEEE 802.11ax (160 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6

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10753	AAC	IEEE 802.11ax (160 MHz, MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
10754	AAC	IEEE 802.11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	±9.6
10755	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.64	±9.6
10756	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.77	±9.6
10757	AAC	IEEE 802.11ax (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.77	±9.6
10758	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.69	±9.6
10759	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.58	±9.6
10760	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)	WLAN	8.49	±9.6
10761	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.58	±9.6
10762	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.49	±9.6
10763	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.53	±9.6
10764	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.54	±9.6
10765	AAC	IEEE 802.11ax (160 MHz, MCS10, 99pc duty cycle)	WLAN	8.54	±9.6
10766	AAC	IEEE 802.11ax (160 MHz, MCS11, 99pc duty cycle)	WLAN	8.51	±9.6
10767	AAG	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	±9.6
10768	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10770	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10772	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6
10773	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9.6
10774	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10775	AAF	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10776	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	±9.6
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
10780	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10781	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10782	AAE	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	±9.6
10783	AAG	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10784	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6
10785	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	±9.6
10786	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
10787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6
10788	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10789	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	±9.6
10790	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10791	AAG	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	±9.6
10792	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	±9.6
10793	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	±9.6
10794	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	±9.6
10796	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10797	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	±9.6
10798	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10799	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10801	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10802	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	±9.6
10803	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10805	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	±9.6
10809	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10810	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10812	AAF	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10817	AAG	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10818	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	±9.6
10820	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	±9.6
10821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10822	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10823	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	±9.6
10824	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	±9.6
10825	AAF	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10827	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	±9.6
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	±9.6



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10829	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
10830	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	±9.6
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.6
10832	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.6
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10834	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6
10835	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
10837	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
10839	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10840	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
10841	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	±9.6
10844	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10846	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10854	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10856	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	±9.6
10858	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10859	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10860	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10861	AAF	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6
10863	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10865	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10866	AAF	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	±9.6
10868	AAF	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	±9.6
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.88	±9.6
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	±9.6
10873	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10874	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.6
10877	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.6
10878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10879	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±9.6
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	±9.6
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.6
10884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9.6
10885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.6
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
10891	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	±9.6
10892	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10897	AAE	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.6
10898	AAC	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10900	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10901	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10902	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10904	AAC	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10907	AAE	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
10908	AAC	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10909	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10910	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6



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10911	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10912	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10914	AAC	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	±9.6
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10918	AAE	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10919	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
10923	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10925	AAC	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10932	AAC	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10936	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	±9.6
10940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
10945	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	±9.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	±9.6
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	±9.6
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	±9.6
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	±9.6
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	±9.6
10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	±9.6
10960	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	±9.6
10961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±9.6
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
10963	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	±9.6
10964	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	±9.6
10965	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	±9.6
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9.6
10967	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.6
10968	AAD	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	±9.6
10972	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	±9.6
10973	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±9.6
10974	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	±9.6
10978	AAA	ULLA BDR	ULLA	1.16	±9.6
10979	AAA	ULLA HDR4	ULLA	8.58	±9.6
10980	AAA	ULLA HDR8	ULLA	10.32	±9.6
10981	AAA	ULLA HDRp4	ULLA	3.19	±9.6
10982	AAA	ULLA HDRp8	ULLA	3.43	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10983	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10986	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10988	AAB	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	±9.6
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±9.6
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	±9.6
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±9.6
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	±9.6
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	±9.6
11013	AAB	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11014	AAB	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAB	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAB	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAB	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAB	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAB	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAB	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAB	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAB	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026	AAB	IEEE 802.11be (320 MHz, MCS0, 99pc duty cycle)	WLAN	8.39	±9.6

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ANNEX I: Dipole Calibration Certificate

CLA13 Dipole

Calibration Laboratory of
Schmid & Partner
Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accreditation No.: **SCS 0108**

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Client **SAICT**
 Shenzhen

Certificate No. **CLA13-1039_Aug23**

CALIBRATION CERTIFICATE

Object **CLA13 - SN: 1039**

Calibration procedure(s) **QA CAL-15.v10**
Calibration Procedure for SAR Validation Sources below 700 MHz

Calibration date: **August 18, 2023**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z91	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Reference Probe EX3DV4	SN: 3877	06-Jan-23 (No. EX3-3877_Jan23)	Jan-24
DAE4	SN: 654	27-Jan-23 (No. DAE4-654_Jan23)	Jan-24
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter NRP2	SN: 107193	08-Nov-21 (in house check Dec-22)	In house check: Dec-24
Power sensor NRP-Z91	SN: 100922	15-Dec-09 (in house check Dec-22)	In house check: Dec-24
Power sensor NRP-Z91	SN: 100418	01-Jan-04 (in house check Dec-22)	In house check: Dec-24
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-22)	In house check: Jun-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by:	Name Aldonia Georgiadou	Function Laboratory Technician	Signature 
Approved by:	Sven Kühn	Technical Manager	

Issued: August 18, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: CLA13-1039_Aug23

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