

K.3. Proximity sensor clarification

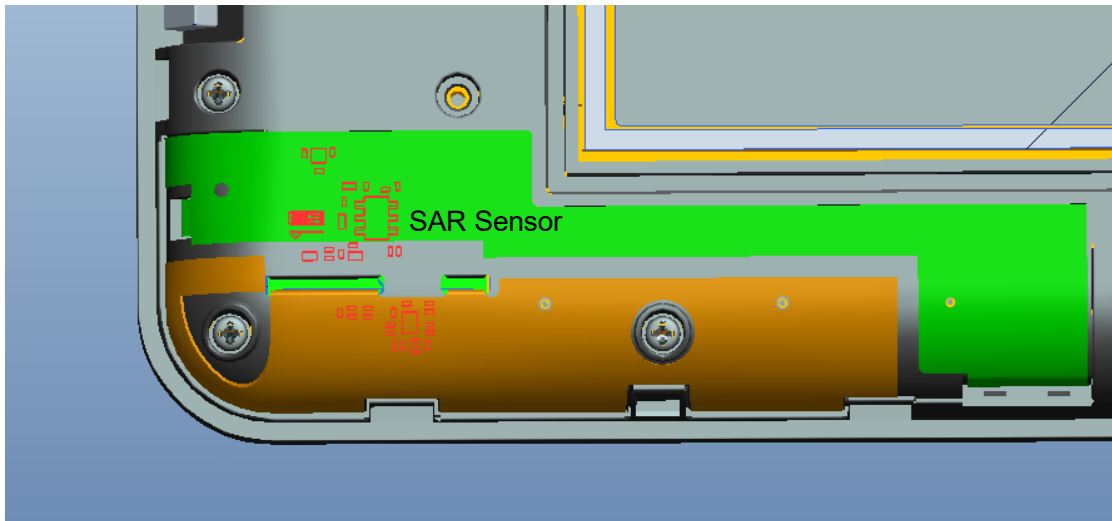


Figure K.2: The picture of the SAR sensor

K.3.1. Description of proximity sensor Techniques

The proximity sensor is triggered by capacitance changes due to objects in the vicinity of the sensing element.

Capacitive proximity sensor share metallic electrode with the SAR antenna testing. The metallic electrode and SAR sensor chip works as a sensor. As is shown in Figure K.2.

The proximity sensor or the power reduction cannot be intentionally or unintentionally turned-off by the user.

The expected capacitance trigger values are programmed in each device for each power back-off stage. Capacitance trigger value is C_1 . When a certain object or human body approaches the DUT, if the measured capacitance is lower than C_1 , proximity sensor is not triggered. If the measured capacitance is equal to C_1 or higher than C_1 , the power back-off is triggered.

There is a failure protection gear. If the SAR sensor fail, the detection of the SAR sensor signal is interrupted, it will jump to the failure protection gear to reduce power by a fixed maximum power reduction amplitude to ensure SAR compliance.

K.3.2. Power Reduction operation table

The phone use MTK platform, which have some special NVs for SAR related max power back off, These NVs are used to set a new max power limit based proximity information and call configuration. When human body is in proximity and is detected by sensor, a new max power limit is set using the values stored in the NV. If Base station requests the higher output power above the limit, the power control algorithm inside modem chip will limit the power up to the preset power limit. If base station requests a lower output power less than the limit, the out power is controlled by base station.

K.4. Proximity sensor coverage, distance and angle

Band	Test position	Sensor Trigger Distance range(DUT to Phantom)	Power reduction amount(dB)	Target Power level (dBm)
GSM850	Extremity SAR (Bottom/Back/Left)	held by hand 0mm	4	GPRS
				1 Txslot:28.5
				2 Txslot:27.5
				3 Txslot:26
				4 Txslot:25
				EGPRS
				1 Txslot:23.5
				2 Txslot:22
				3 Txslot:20
				4 Txslot:18.5
	Top side	ALL	0	GPRS
				1 Txslot:32.5
				2 Txslot:31.5
				3 Txslot:30
				4 Txslot:29
				EGPRS
				1 Txslot:27.5
				2 Txslot:26
				3 Txslot:24
				4 Txslot:22.5
	Back side	0<distance≤15mm	4	GPRS
				1 Txslot:28.5
				2 Txslot:27.5
				3 Txslot:26
4 Txslot:25				
EGPRS				
1 Txslot:23.5				
2 Txslot:22				
15mm<distance		0	GPRS	
			1 Txslot:32.5	
			2 Txslot:31.5	
			3 Txslot:30	
			4 Txslot:29	
			EGPRS	
1 Txslot:27.5				

				2 Txslot:26	
				3 Txslot:24	
				4 Txslot:22.5	
	Left side	0<distance≤15mm	4	4	GPRS
					1 Txslot:28.5
					2 Txslot:27.5
					3 Txslot:26
					4 Txslot:25
					EGPRS
		15mm<distance	0	0	GPRS
					1 Txslot:32.5
					2 Txslot:31.5
					3 Txslot:30
					4 Txslot:29
					EGPRS
	Bottom side	0<distance≤5mm	4	4	GPRS
					1 Txslot:28.5
					2 Txslot:27.5
					3 Txslot:26
					4 Txslot:25
					EGPRS
		5mm<distance	0	0	GPRS
					1 Txslot:32.5
					2 Txslot:31.5
3 Txslot:30					
4 Txslot:29					
EGPRS					
				1 Txslot:27.5	
				2 Txslot:26	
				3 Txslot:24	
				4 Txslot:22.5	

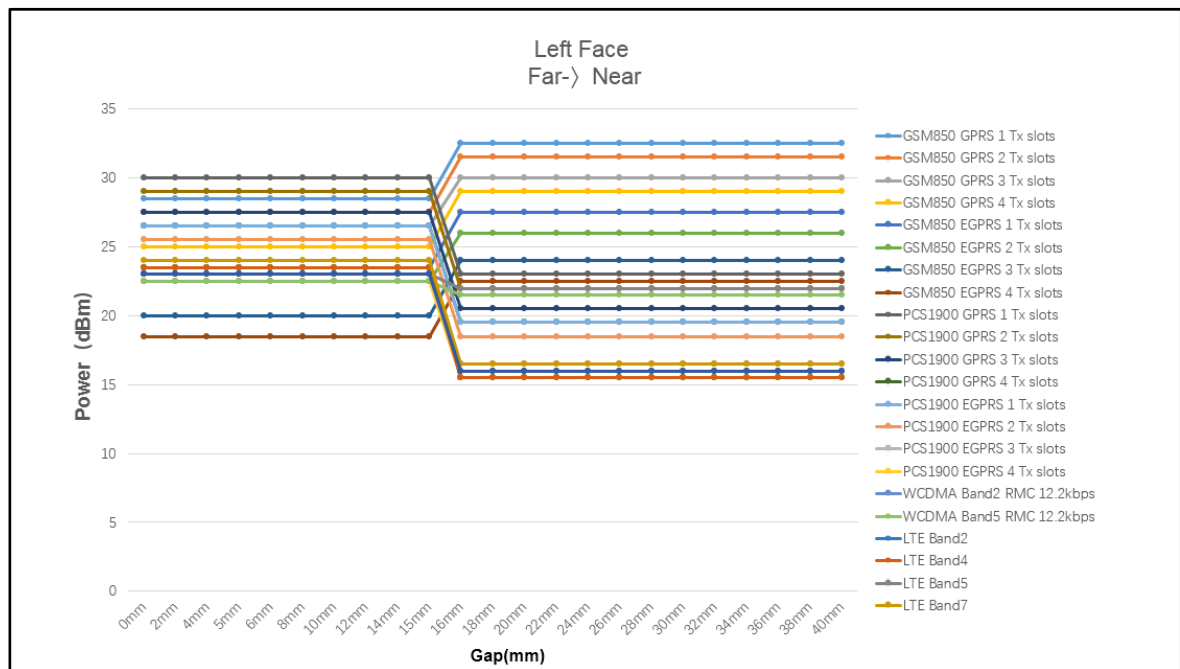
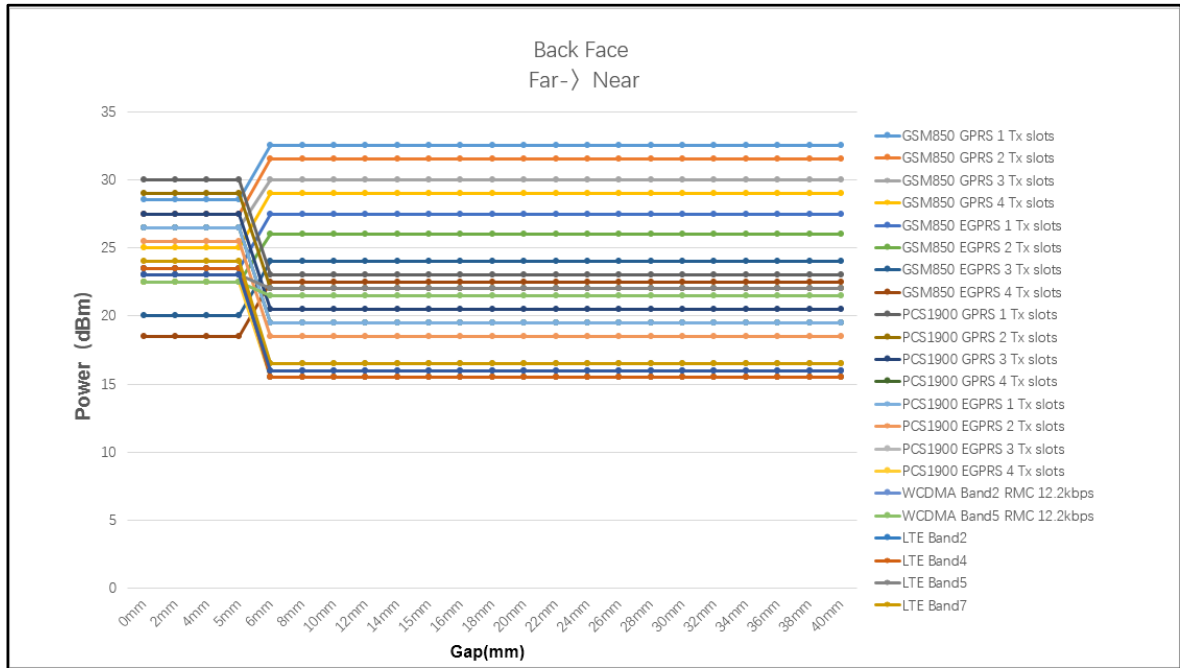
	Right side	ALL	0	GPRS 1 Txslot:32.5 2 Txslot:31.5 3 Txslot:30 4 Txslot:29 EGPS 1 Txslot:27.5 2 Txslot:26 3 Txslot:24 4 Txslot:22.5
	Front side	ALL	0	GPRS 1 Txslot:32.5 2 Txslot:31.5 3 Txslot:30 4 Txslot:29 EGPS 1 Txslot:27.5 2 Txslot:26 3 Txslot:24 4 Txslot:22.5
PCS1900	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7	GPRS 1 Txslot:23 2 Txslot:22 3 Txslot:20.5 4 Txslot:19.5
				EGPS 1 Txslot:19.5 2 Txslot:18.5 3 Txslot:16.5 4 Txslot:15.5
				GPRS 1 Txslot:30 2 Txslot:29 3 Txslot:27.5 4 Txslot:26.5
				EGPS 1 Txslot:26.5 2 Txslot:25.5 3 Txslot:23.5 4 Txslot:22.5
	Top side	ALL	0	GPRS 1 Txslot:23 2 Txslot:22
				EGPS 1 Txslot:19.5 2 Txslot:18.5 3 Txslot:16.5 4 Txslot:15.5
	Back side	0<distance≤15mm	7	GPRS 1 Txslot:23 2 Txslot:22
				EGPS 1 Txslot:19.5 2 Txslot:18.5 3 Txslot:16.5 4 Txslot:15.5

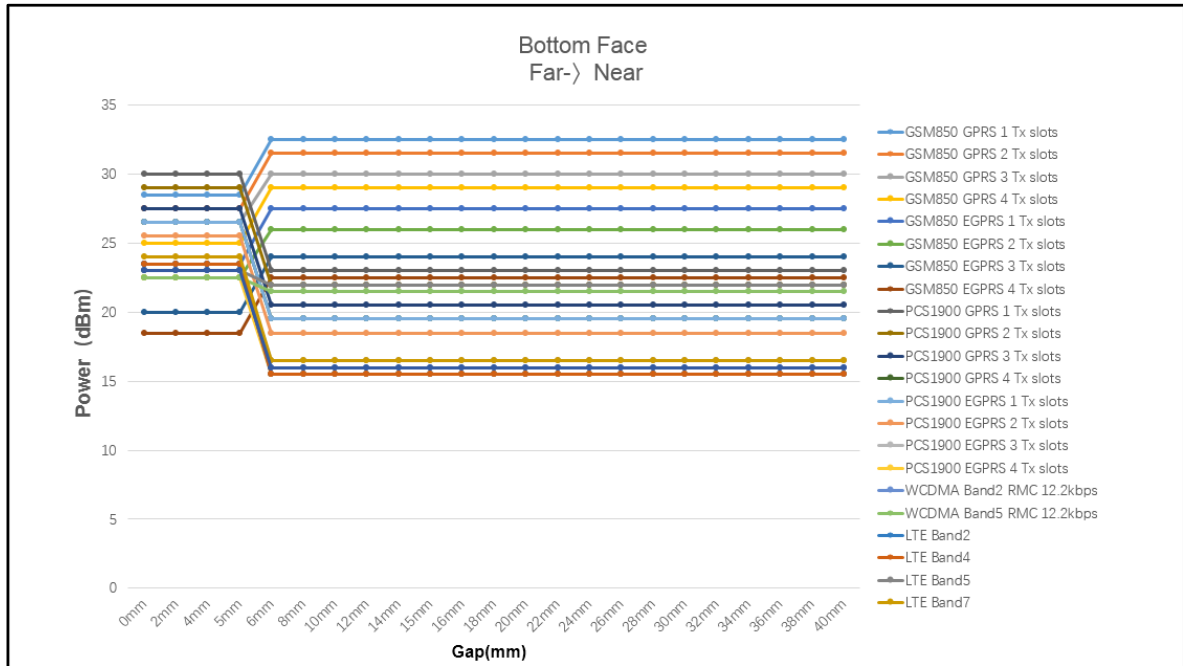
				3 Txslot:20.5	
				4 Txslot:19.5	
				EGPS	
				1 Txslot:19.5	
				2 Txslot:18.5	
				3 Txslot:16.5	
				4 Txslot:15.5	
				GPRS	
				1 Txslot:30	
				2 Txslot:29	
	15mm<distance	0			3 Txslot:27.5
					4 Txslot:26.5
					EGPS
					1 Txslot:26.5
					2 Txslot:25.5
					3 Txslot:23.5
					4 Txslot:22.5
					GPRS
					1 Txslot:23
					2 Txslot:22
Left side	0<distance≤15mm			3 Txslot:20.5	
				4 Txslot:19.5	
				EGPS	
				1 Txslot:19.5	
				2 Txslot:18.5	
	3 Txslot:16.5				
	4 Txslot:15.5				
	GPRS				
	1 Txslot:30				
	2 Txslot:29				
Left side	15mm<distance			3 Txslot:27.5	
				4 Txslot:26.5	
				EGPS	
				1 Txslot:26.5	
				2 Txslot:25.5	
	3 Txslot:23.5				
	4 Txslot:22.5				
	GPRS				
	1 Txslot:23				
	2 Txslot:22				
Bottom side	0<distance≤5mm			3 Txslot:20.5	
				4 Txslot:19.5	
				EGPS	

	5mm<distance	0	1 Txslot:19.5			
			2 Txslot:18.5			
			3 Txslot:16.5			
			4 Txslot:15.5			
			GPRS			
			1 Txslot:30			
			2 Txslot:29			
			3 Txslot:27.5			
			4 Txslot:26.5			
			EGPS			
			1 Txslot:26.5			
			2 Txslot:25.5			
			3 Txslot:23.5			
			4 Txslot:22.5			
			Right side	ALL	0	GPRS
						1 Txslot:30
	2 Txslot:29					
	3 Txslot:27.5					
	4 Txslot:26.5					
	EGPS					
	1 Txslot:26.5					
	2 Txslot:25.5					
	Front side	ALL	0	GPRS		
				1 Txslot:30		
2 Txslot:29						
3 Txslot:27.5						
4 Txslot:26.5						
EGPS						
1 Txslot:26.5						
2 Txslot:25.5						
WCDMA B2	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7	16		
	Top side	ALL	0	23		
Back side	0<distance≤15mm	7	16			
	15mm<distance	0	23			
Left side	0<distance≤15mm	7	16			
	15mm<distance	0	23			
Bottom side	0<distance≤5mm	7	16			
	5mm<distance	0	23			

	Right side	ALL	0	23
	Front side	ALL	0	23
WCDMA B5	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	1	21.5
	Top side	ALL	0	22.5
	Back side	0<distance≤15mm	1	21.5
		15mm<distance	0	22.5
	Left side	0<distance≤15mm	1	21.5
		15mm<distance	0	22.5
	Bottom side	0<distance≤5mm	1	21.5
		5mm<distance	0	22.5
	Right side	ALL	0	22.5
Front side	ALL	0	22.5	
LTE B2	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7.5	15.5
	Top side	ALL	0	23
	Back side	0<distance≤15mm	7.5	15.5
		15mm<distance	0	23
	Left side	0<distance≤15mm	7.5	15.5
		15mm<distance	0	23
	Bottom side	0<distance≤5mm	7.5	15.5
		5mm<distance	0	23
	Right side	ALL	0	23
Front side	ALL	0	23	
LTE B4	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7.5	15.5
	Top side	ALL	0	23
	Back side	0<distance≤15mm	7.5	15.5
		15mm<distance	0	23
	Left side	0<distance≤15mm	7.5	15.5
		15mm<distance	0	23
	Bottom side	0<distance≤5mm	7.5	15.5
		5mm<distance	0	23
	Right side	ALL	0	23
Front side	ALL	0	23	
LTE B5	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	1	22
	Top side	ALL	0	23
	Back side	0<distance≤15mm	1	22
		15mm<distance	0	23
	Left side	0<distance≤15mm	1	22
		15mm<distance	0	23
Bottom side	0<distance≤5mm	1	22	

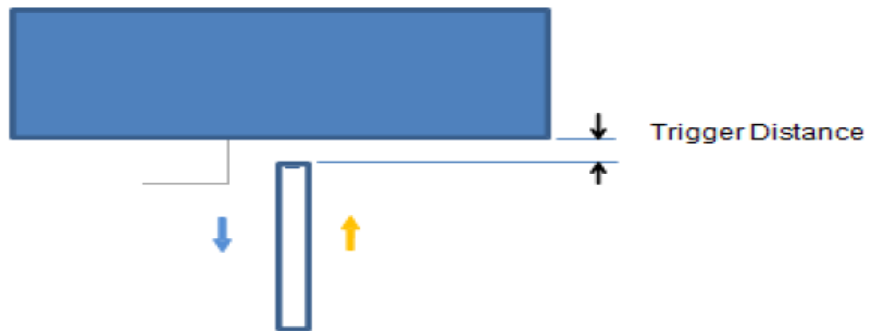
		5mm<distance	0	23
	Right side	ALL	0	23
	Front side	ALL	0	23
LTE B7	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7.5	16.5
	Top side	ALL	0	24
	Back side	0<distance≤15mm	7.5	16.5
		15mm<distance	0	24
	Left side	0<distance≤15mm	7.5	16.5
		15mm<distance	0	24
	Bottom side	0<distance≤5mm	7.5	16.5
		5mm<distance	0	24
	Right side	ALL	0	24
Front side	ALL	0	24	
LTE B38	Extremity SAR(Bottom/Back/Left)	held by hand 0mm	7	16
	Top side	ALL	0	23
	Back side	0<distance≤15mm	7	16
		15mm<distance	0	23
	Left side	0<distance≤15mm	7	16
		15mm<distance	0	23
	Bottom side	0<distance≤5mm	7	16
		5mm<distance	0	23
	Right side	ALL	0	23
Front side	ALL	0	23	





K.4.1. Procedures for determining proximity sensor triggering distances (Per KDB616217§6.2)

Per FCC KDB 616217 D04v01, the device was tested by the test lab to determine the proximity sensor triggering distances for the back side and each top side of the device. To ensure all production units are compliant, the smallest separation distance determined by the sensor triggering minus 1 mm, must be used as the test separation distance for SAR testing. These SAR tests are included in addition to the SAR tests for the device touching the SAR phantom with reduced power.



Picture: Proximity sensor triggering distances assessment (Tops)



Picture: Proximity sensor triggering distances assessment (Back)

Table: Summary of Trigger Distances

Liquid Type(MHz)	Trigger distance – bottom side		Trigger distance –back side		Trigger distance –left side	
	Moving toward phantom	Moving toward phantom	Moving from phantom	Moving from phantom	Moving toward phantom	Moving from phantom
835	5mm	5mm	15mm	15mm	15mm	15mm
1750	5mm	5mm	15mm	15mm	15mm	15mm
1900	5mm	5mm	15mm	15mm	15mm	15mm
2550	5mm	5mm	15mm	15mm	15mm	15mm

Note:

- 1) For Bottom side, based on the most conservative measured triggering distance of N mm, additional SAR test is required at (N-1) mm.
- 2) For Back side, based on the most conservative measured triggering distance of N mm, additional SAR test is required at (N-1) mm.
- 3) For Left side, based on the most conservative measured triggering distance of N mm, additional SAR test is required at (N-1) mm.

The proximity sensor is not triggered, when approaching from other sides (Front, Right, and TOP). Therefore, the proximity sensor coverage is not evaluated on these orientations.

K.4.2. Procedures for determining antenna and proximity sensor coverage (Per KDB616217 §6.3)

The proximity sensor and SAR antenna use same metallic electrode, so there is no spatial offset.

K.4.3. Procedures for determining device tilt angle influences to proximity sensor triggering (Per KDB616217 §6.4)

Per FCC KDB 616217 D04v01, the DUT was positioned directly below the flat phantom at the minimum measured trigger distance with each applicable top parallel to the base of the flat phantom for each band.

The EUT was rotated about each applicable top for angles up to +/- 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.

Picture: Proximity sensor tilt angle assessment

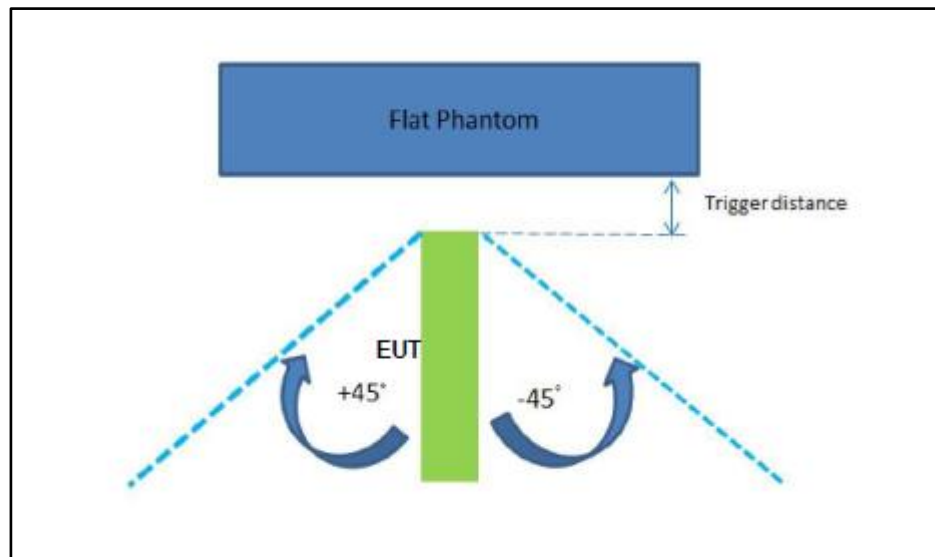


Table: Summary of Phone Tilt Angle Influence to Proximity Sensor Triggering

Band(MHz)	Minimum trigger distance Per KDB616217§ 6.2	Minimum trigger distance at which power reduction was maintained over ±45°	Power Reduction Status											
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°	
835	5mm	5mm	on	on	on	on	on	on	on	on	on	on	on	on
1750	5mm	5mm	on	on	on	on	on	on	on	on	on	on	on	on
1900	5mm	5mm	on	on	on	on	on	on	on	on	on	on	on	on
2550	5mm	5mm	on	on	on	on	on	on	on	on	on	on	on	on

K.4.4. Summary SAR test Plan for Proximity sensor power reduction

For Body SAR compliance, the device uses proximity sensor power reduction for some frequency bands of Main antenna and test positions. To ensure all production units are compliant, the smallest separation distance determined by the sensor triggering and sensor coverage for normal and tilt positions for each applicable side and top triggering conditions, minus 1 mm, is used as the test separation distance for SAR testing. These SAR tests are included in addition to the SAR tests for the device touching the SAR phantom with reduced power.

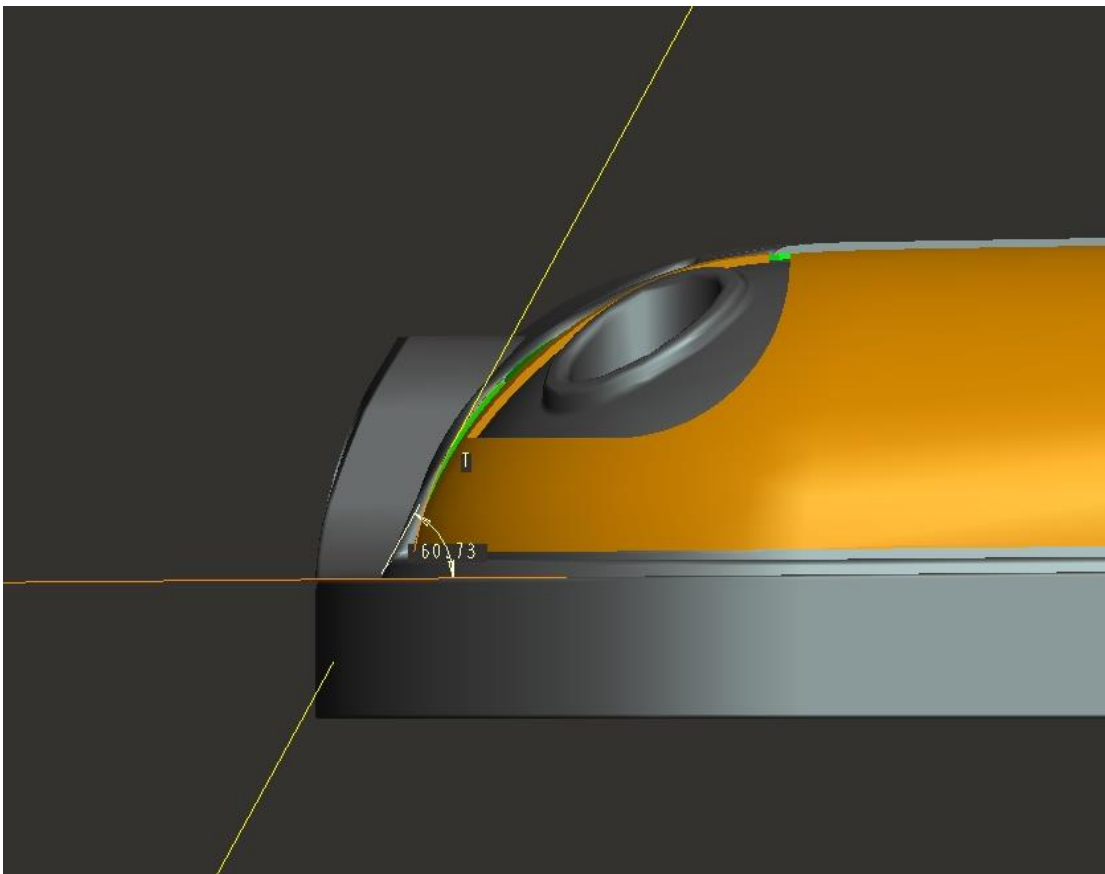
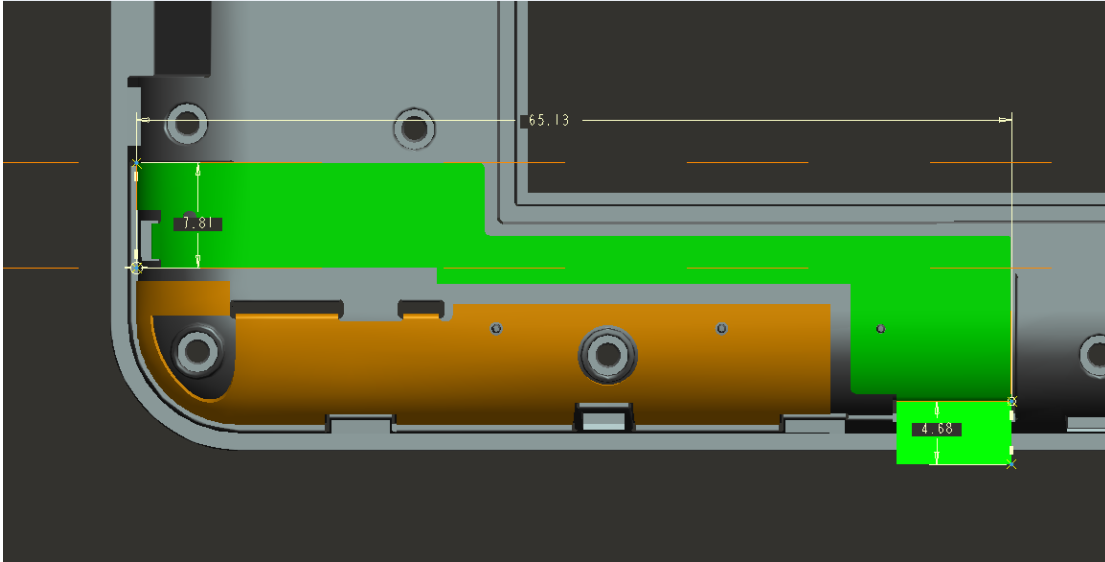
K.5. The distance between antenna and Curved Face

SAR antenna:

X: 65.13mm

Y: 7.81mm

α : 60.73°



ANNEX L: Sensor Triggering Data Summary

Per FCC KDB Publication 616217 D04, this device was tested by the manufacturer to determine the proximity sensor triggering distances for all applicable sides and edges of the device. The measured output power at distances within ± 5 mm of the triggering points (or until touching the phantom) is included for back side and each applicable edge per Step i) in Section 6.2 of the KDB. The technical descriptions in the filing contain the complete set of triggering data required by Section 6 of FCC KDB Publication 616217 D04.

To ensure all production units are compliant, it is necessary to test SAR at a distance 1 mm less than the smallest distance between the device and SAR phantom with the device at the maximum output power (without power reduction). These SAR tests are included in addition to the SAR tests for the device touching the SAR phantom (at the reduced output power level).

We tested the power and got the different proximity sensor triggering distances for rear, left and bottom side. The manufacturer has declared 15mm is the most conservative triggering distance for main antenna with rear side, 15mm distance for left side and 5mm distance for bottom side.

The operational description contains information explaining how this device remains compliant in the event of a sensor malfunction.

Main Antenna

Rear Side

Moving device toward the phantom:

Distance(mm)	20	19	18	17	16	15	14	13	12	11	10
Main Antenna	/	/	/	/	/	20.97	20.98	20.99	21.00	20.98	21.01

Moving device away from the phantom:

Distance(mm)	20	19	18	17	16	15	14	13	12	11	10
Main Antenna	23.94	24.00	23.99	23.98	23.96	/	/	/	/	/	/

Based on the most conservative measured triggering distance of 15 mm, additional SAR measurements were required at 14 mm from the Rear side for the above modes.

Left Side

Moving device toward the phantom:

Distance(mm)	20	19	18	17	16	15	14	13	12	11	10
Main Antenna	/	/	/	/	/	20.95	20.99	21.00	21.01	20.98	21.00

Moving device away from the phantom:

Distance(mm)	20	19	18	17	16	15	14	13	12	11	10
Main Antenna	23.96	24.00	23.97	23.98	23.95	/	/	/	/	/	/

Based on the most conservative measured triggering distance of 15 mm, additional SAR measurements were required at 14 mm from the left side for the above modes.



Bottom Side

Moving device toward the phantom:

Distance(mm)	10	9	8	7	6	5	4	3	2	1	0
Main Antenna	/	/	/	/	/	20.99	20.96	21.00	20.98	20.95	20.99

Moving device away from the phantom:

Distance(mm)	10	9	8	7	6	5	4	3	2	1	0
Main Antenna	24.00	20.96	23.97	23.99	24.00	/	/	/	/	/	/

Based on the most conservative measured triggering distance of 5 mm, additional SAR measurements were required at 4 mm from the bottom side for the above modes.

ANNEX M: Spot Check Test

As the test lab for MPH-MB003A from IDEMIA Identity and Security France, we, Shenzhen Academy of Information and Communications Technology, declare on our sole responsibility that, according to “Justification Letter” provided by applicant, only the Spot check test should be performed. The test results are as below.

M.1. Internal Identification of EUT used during the spot check test

EUT ID*	IMEI	HW Version	SW Version	Receipt Date
UT02aa	354520110403341	V01 (M32N)	V01	2022-08-23
UT05aa	354520110403648	V01 (M32N)	V01	2022-08-23

M.2. Measurement results

GSM 850 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
190	836.6	Body	Rear	24.98	26.0	0.784	0.99	1.08

GSM 1900 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
512	1850.2	Body	Rear	19.64	20.5	0.866	1.06	0.92

WCDMA Band 2 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
9262	1852.4	Body	Rear	23.55	24.0	0.864	0.96	1.25

WCDMA Band 5 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
4132	826.4	Body	Rear	22.03	22.5	0.904	1.01	1.15

LTE Band 2 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
18700	1860.0	Body	Rear	23.73	24.0	1.050	1.12	1.12

LTE Band 4 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
20300	1745.0	Body	Rear	23.51	24.0	0.916	1.03	1.21

LTE Band 5 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
20450	829.0	Body	Rear	22.25	23.0	0.749	0.89	1.30

LTE Band 7 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
21350	2560.0	Body	Left	15.93	16.5	0.672	0.77	1.24

LTE Band 38 SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
37850	2580.0	Body	Left	17.39	18.0	0.489	0.56	0.91

Bluetooth SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
39	2441.0	Body	Rear	9.71	10.0	0.023	0.03	0.02



WLAN 5GHz SAR Values

Frequency		Test Position		Conducted Power (dBm)	Max. tune-up Power (dBm)	SAR(1g) (W/kg)		
Ch.	MHz					Spot check data		Original data
						Measured SAR	Reported SAR	
149	5745.0	Body	Right	11.63	12.5	0.229	0.28	0.70

M.3. Graph Results for Spot Check

GSM850 Body

Date: 2022-9-17

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.879$ S/m; $\epsilon_r = 42.245$; $\rho = 1000$ kg/m³

Communication System: UID 0, GPRS 4Txslot (0) Frequency: 836.6 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Rear Side Middle/Area Scan (61x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.37 W/kg

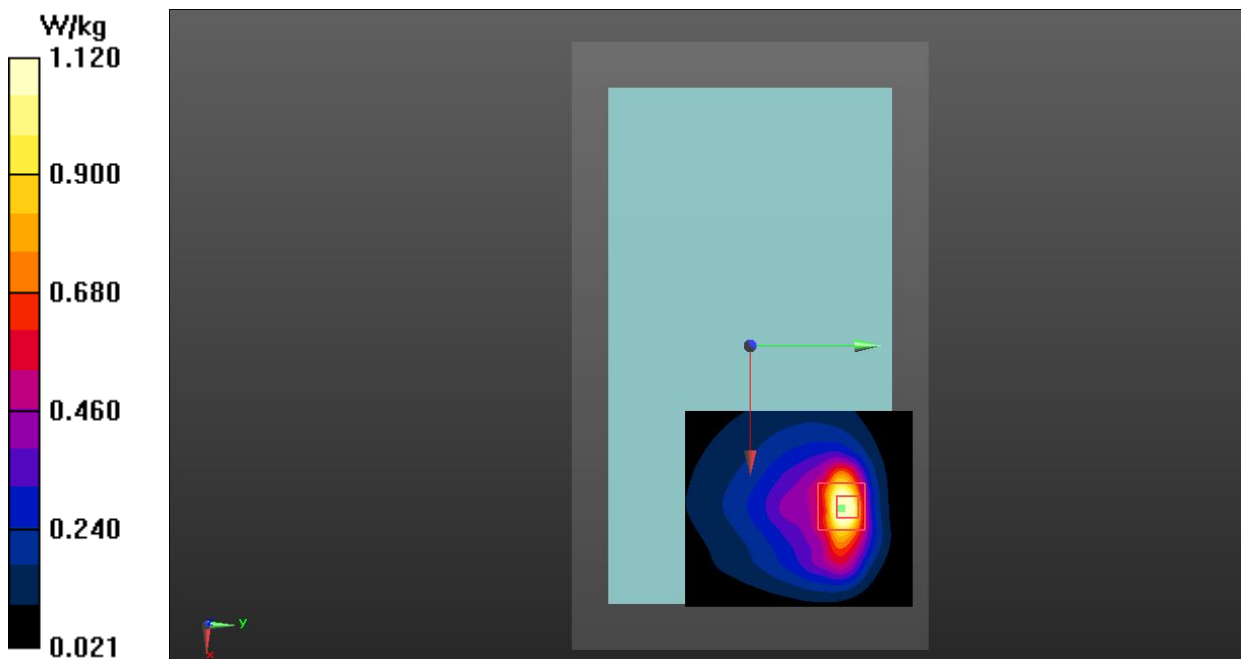
Rear Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.411 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.66 W/kg

SAR(1 g) = 0.784 W/kg; SAR(10 g) = 0.407 W/kg

Maximum value of SAR (measured) = 1.12 W/kg



GSM1900 Body

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.371$ S/m; $\epsilon_r = 39.723$; $\rho = 1000$ kg/m³

Communication System: UID 0, GPRS 4Txslot (0) Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.30 W/kg

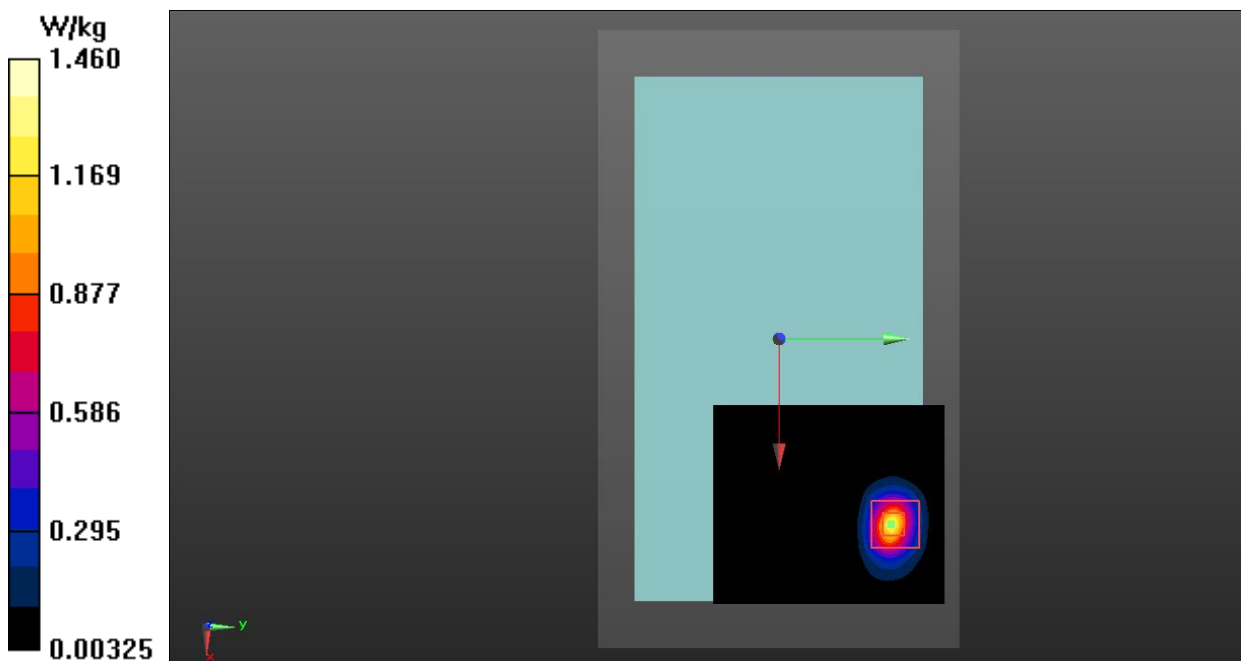
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.8590 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.93 W/kg

SAR(1 g) = 0.866 W/kg; SAR(10 g) = 0.353 W/kg

Maximum value of SAR (measured) = 1.46 W/kg



WCDMA Band 2 Body

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.373$ S/m; $\epsilon_r = 39.715$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.26 W/kg

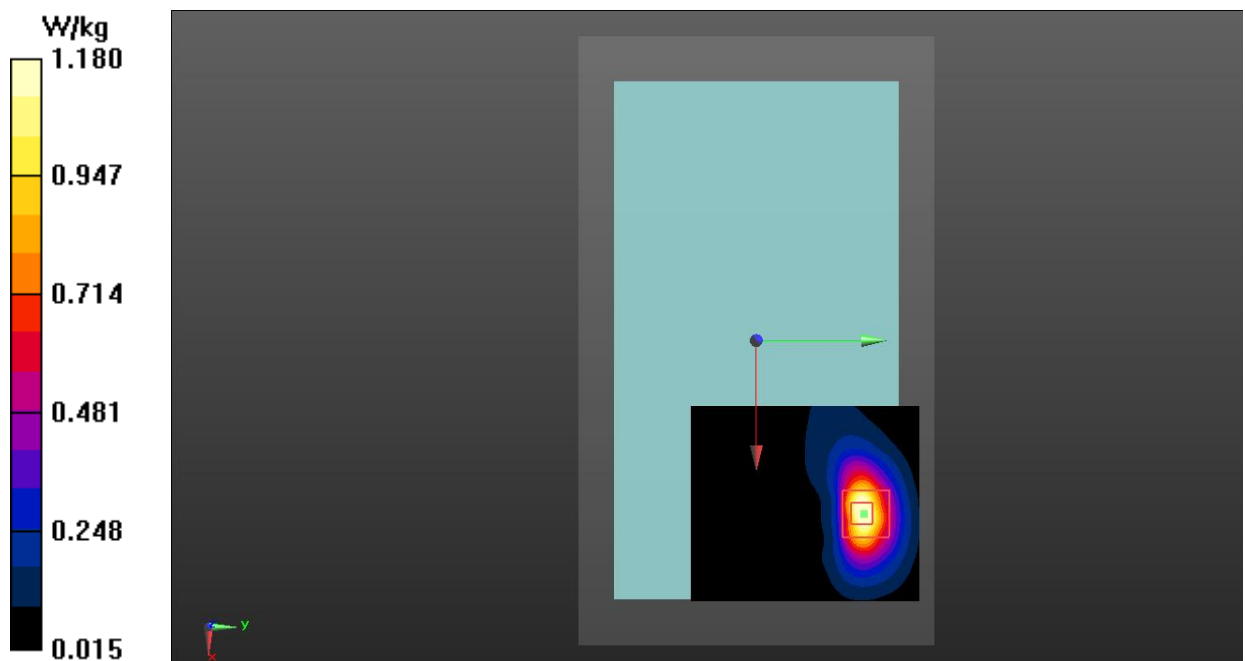
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.228 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.864 W/kg; SAR(10 g) = 0.461 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



WCDMA Band 5 Body

Date: 2022-9-17

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.87$ S/m; $\epsilon_r = 42.367$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.66 W/kg

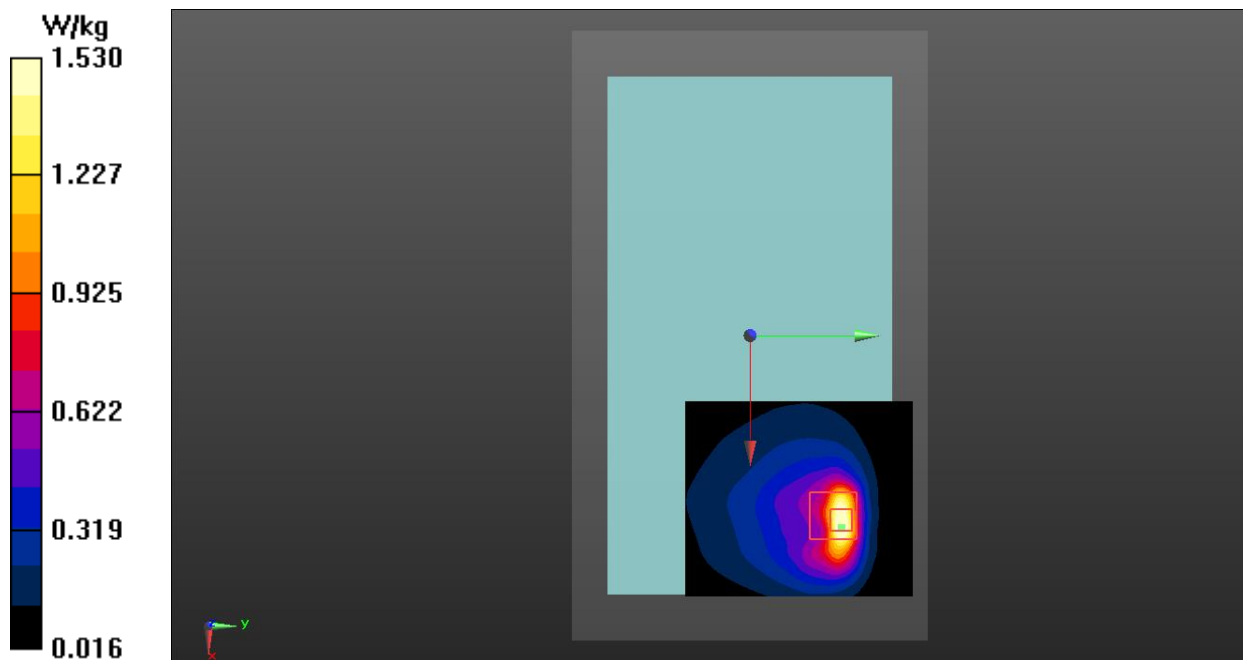
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.046 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 2.08 W/kg

SAR(1 g) = 0.904 W/kg; SAR(10 g) = 0.460 W/kg

Maximum value of SAR (measured) = 1.53 W/kg



LTE Band 2 Body

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.38$ S/m; $\epsilon_r = 39.685$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

Rear Side Low 1RB50/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

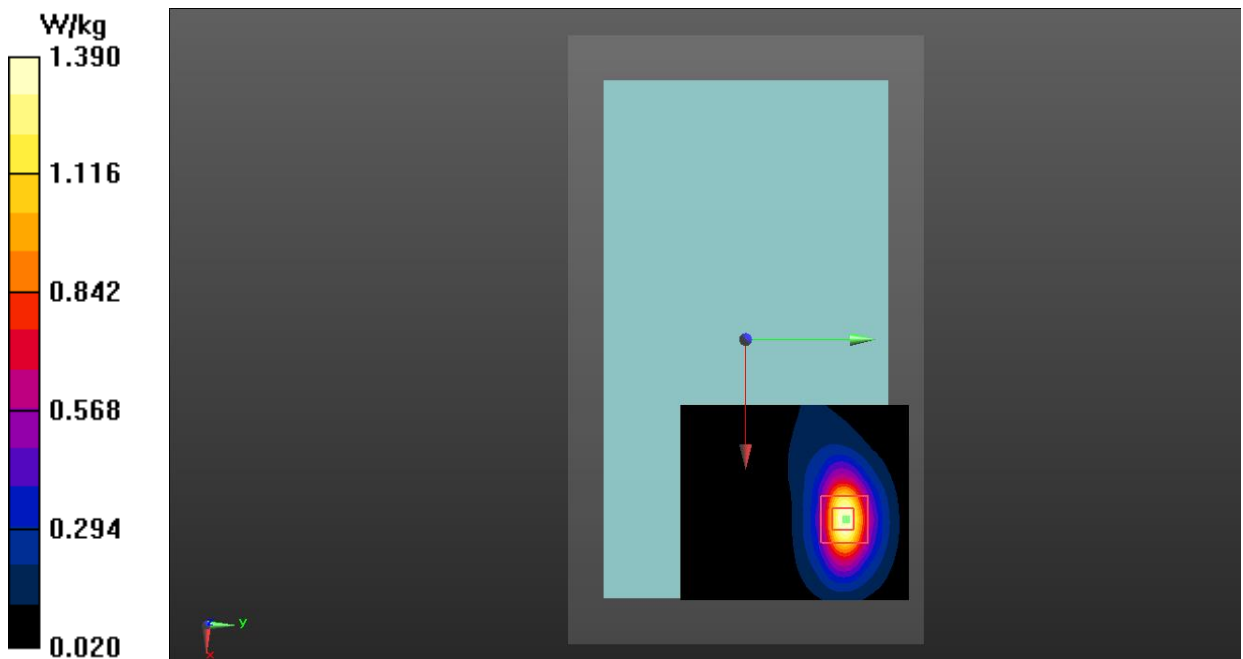
Rear Side Low 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.776 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.80 W/kg

SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.548 W/kg

Maximum value of SAR (measured) = 1.39 W/kg



LTE Band 4 Body

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used: $f = 1745$ MHz; $\sigma = 1.357$ S/m; $\epsilon_r = 40.593$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

Rear Side High 1RB50/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.38 W/kg

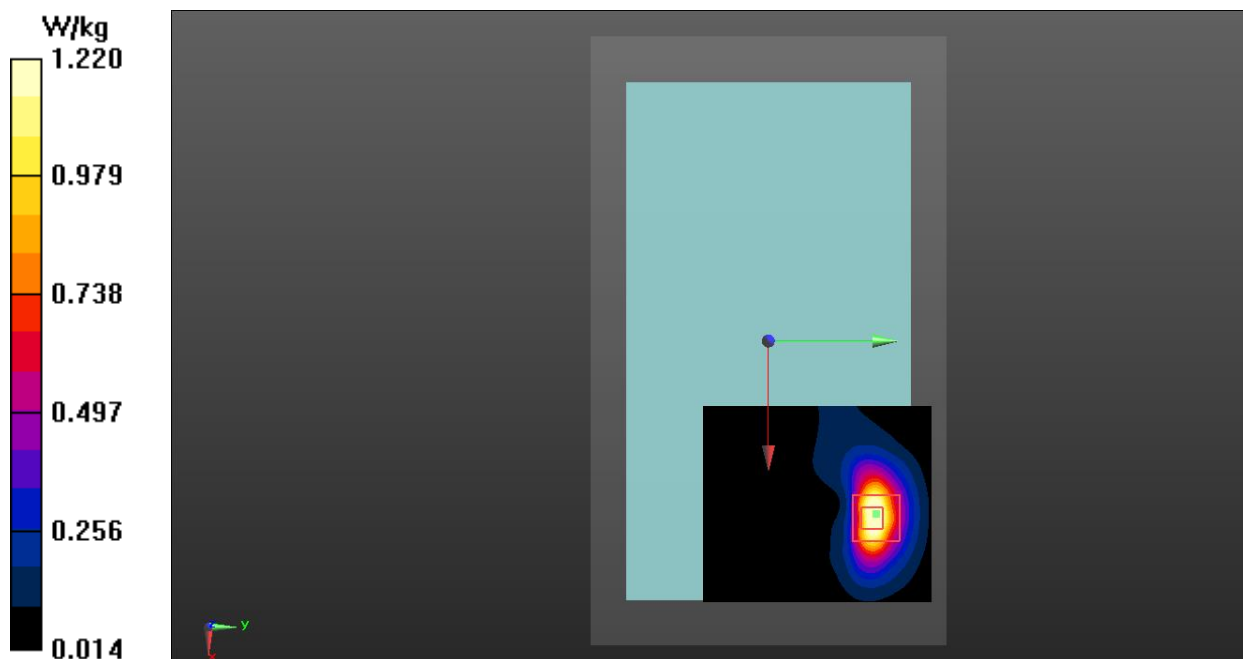
Rear Side High 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.428 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.916 W/kg; SAR(10 g) = 0.485 W/kg

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



LTE Band 5 Body

Date: 2022-9-17

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used (interpolated): $f = 829$ MHz; $\sigma = 0.873$ S/m; $\epsilon_r = 42.336$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 829 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

Rear Side Low 1RB24/Area Scan (61x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.07 W/kg

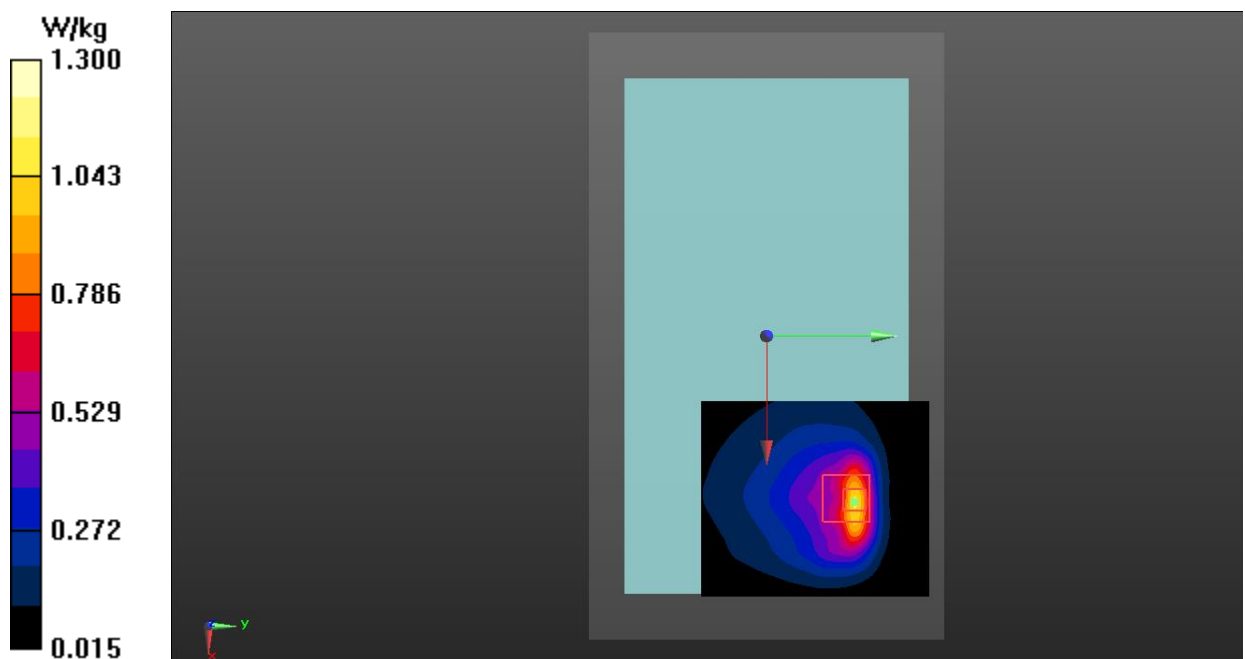
Rear Side Low 1RB24/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.590 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 0.749 W/kg; SAR(10 g) = 0.378 W/kg

Maximum value of SAR (measured) = 1.30 W/kg



LTE Band 7 Body

Date: 2022-9-20

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.949$ S/m; $\epsilon_r = 37.912$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

Left Side High 1RB50/Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.32 W/kg

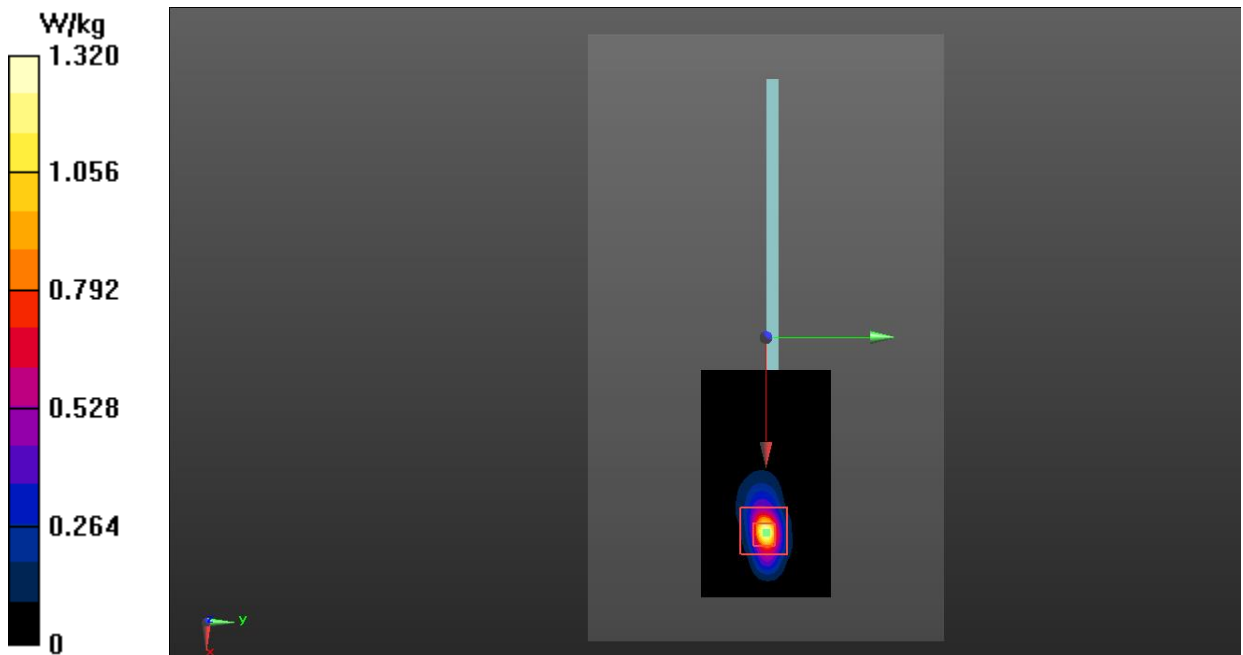
Left Side High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.507 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.79 W/kg

SAR(1 g) = 0.672 W/kg; SAR(10 g) = 0.235 W/kg

Maximum value of SAR (measured) = 1.32 W/kg



LTE Band 38 Body

Date: 2022-9-20

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used: $f = 2580$ MHz; $\sigma = 1.972$ S/m; $\epsilon_r = 37.846$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_TDD (0) Frequency: 2580 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7621 ConvF (7.93, 7.93, 7.93)

Left Side Low 50RB0/Area Scan (121x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.652 W/kg

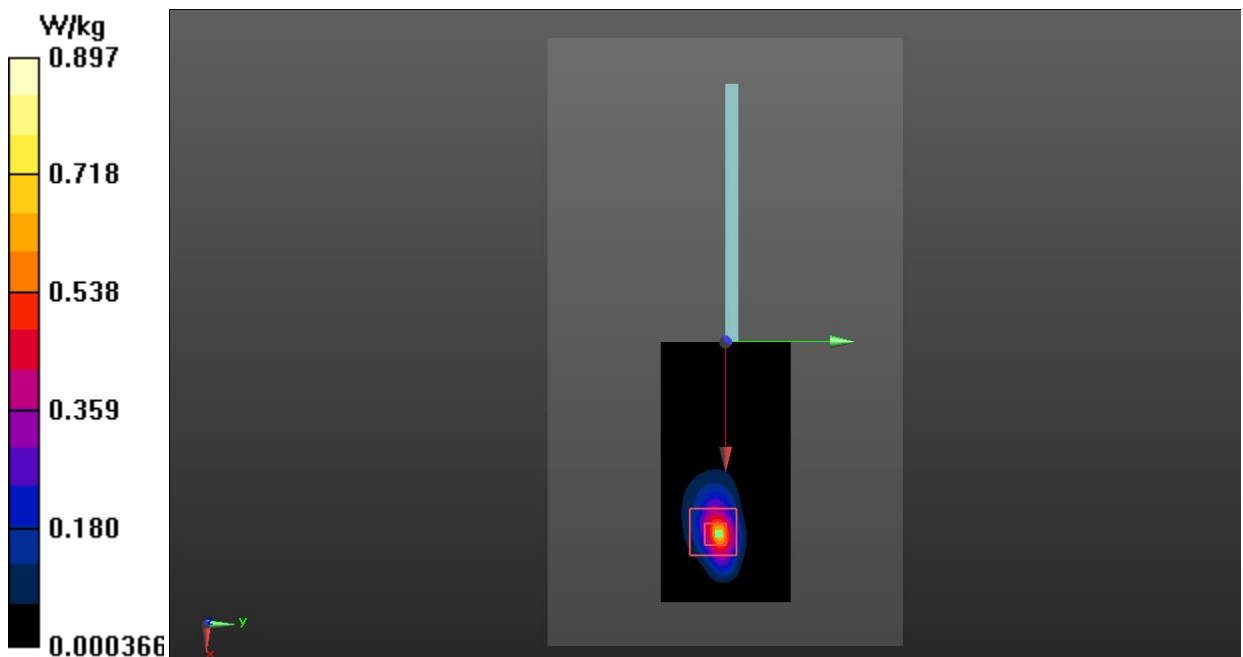
Left Side Low 50RB0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.613 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.489 W/kg; SAR(10 g) = 0.171 W/kg

Maximum value of SAR (measured) = 0.897 W/kg



Bluetooth Body

Date: 2022-10-18

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.833$ S/m; $\epsilon_r = 38.154$; $\rho = 1000$ kg/m³

Communication System: UID 0, BT (0) Frequency: 2441 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

Rear Side CH.39/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0264 W/kg

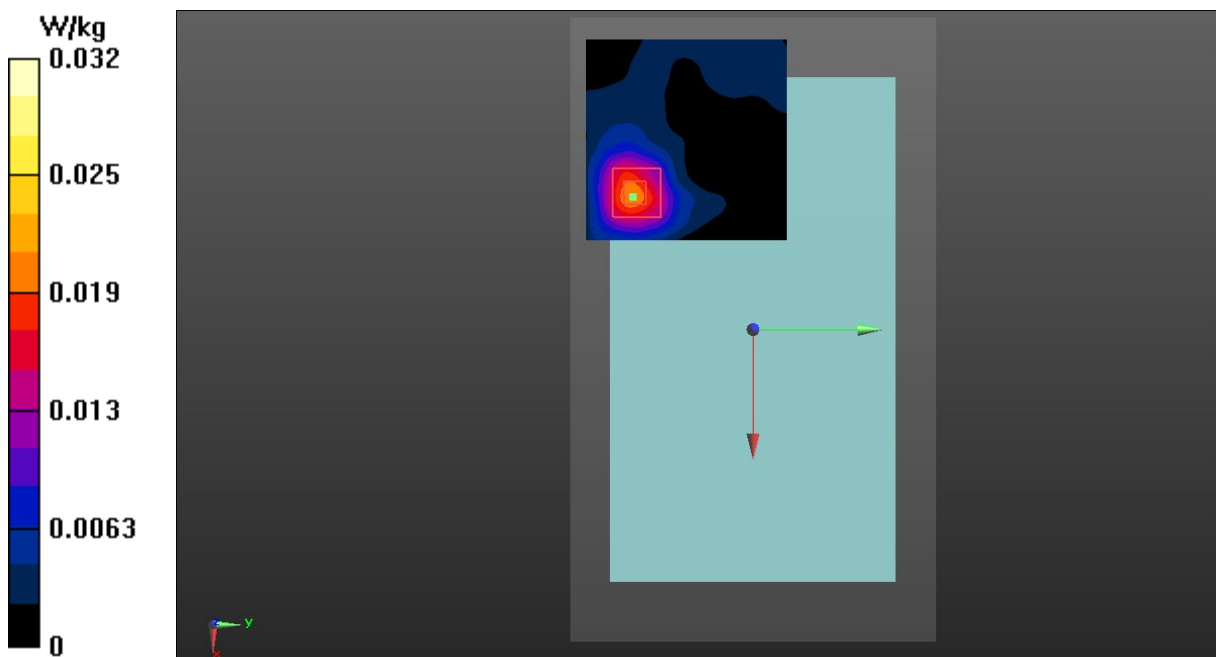
Rear Side CH.39/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.343 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.0630 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.007 W/kg

Maximum value of SAR (measured) = 0.0315 W/kg



WLAN 5GHz Body

Date: 2022-10-14

Electronics: DAE4 Sn786

Medium: Head 5750MHz

Medium parameters used (interpolated): $f = 5745$ MHz; $\sigma = 5.099$ S/m; $\epsilon_r = 36.296$; $\rho = 1000$ kg/m³

Communication System: UID 0, WiFi (0) Frequency: 5745 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

Right Side CH.149/Area Scan (111x61x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.666 W/kg

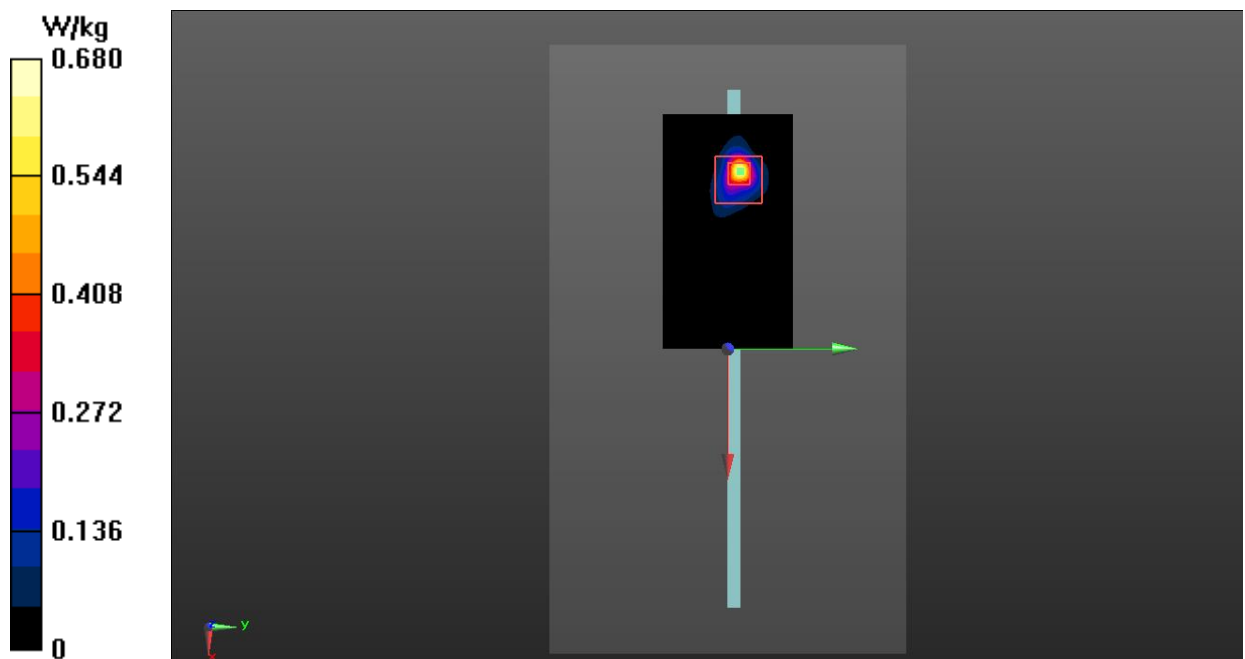
Right Side CH.149/Zoom Scan (8x8x21)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 1.007 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.049 W/kg

Maximum value of SAR (measured) = 0.680 W/kg



M.4. System Verification Results for Spot Check

835MHz

Date: 2022-9-17

Electronics: DAE4 Sn1527

Medium: Head 835MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.878 \text{ S/m}$; $\epsilon_r = 42.264$; $\rho = 1000 \text{ kg/m}^3$

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

Probe: EX3DV4 - SN7621 ConvF (11.12, 11.12, 11.12)

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

Reference Value = 64.567 V/m; Power Drift = -0.11 dB

SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.57 W/kg

Maximum value of SAR (interpolated) = 3.29 W/kg

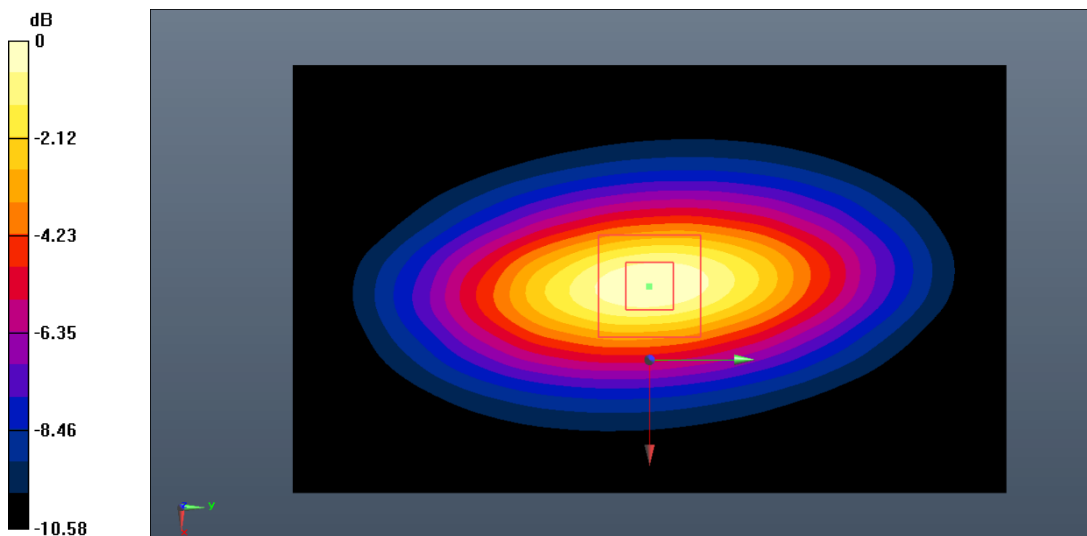
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 64.567 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 3.78 W/kg

SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 3.25 W/kg



0 dB = 3.25 W/kg = 5.12 dB W/kg

1750MHz

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1750MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.361$ S/m; $\epsilon_r = 40.573$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (9.22, 9.22, 9.22)

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

Reference Value = 78.415 V/m; Power Drift = -0.06 dB

SAR(1 g) = 8.96 W/kg; SAR(10 g) = 4.88 W/kg

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

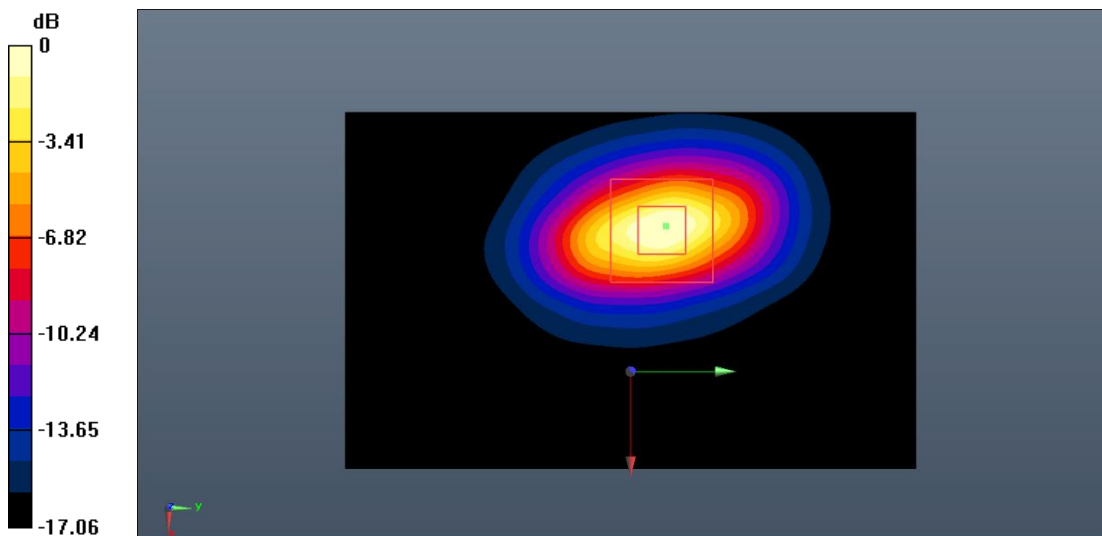
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 78.415 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 21.1 W/kg

SAR(1 g) = 8.75 W/kg; SAR(10 g) = 4.81 W/kg

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



0 dB = 10.6 W/kg = 10.25 dB W/kg

1900MHz

Date: 2022-9-19

Electronics: DAE4 Sn1527

Medium: Head 1900MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.415$ S/m; $\epsilon_r = 39.529$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (8.90, 8.90, 8.90)

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

Reference Value = 83.974 V/m; Power Drift = 0.13 dB

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.11 W/kg

Maximum value of SAR (interpolated) = 12.1 W/kg

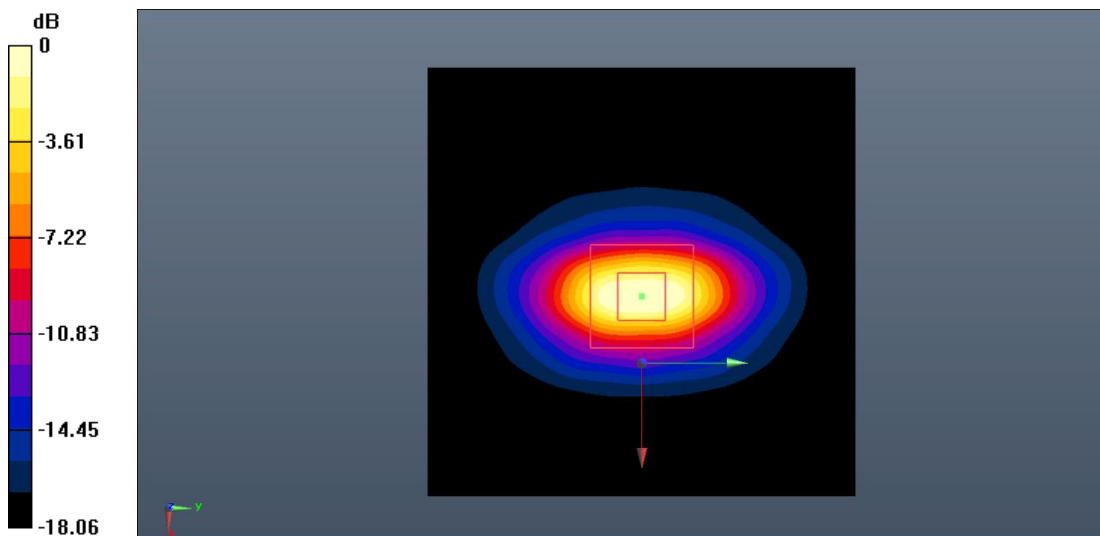
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 83.974 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 25.8 W/kg

SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.20 W/kg

Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg = 10.90 dB W/kg

2450MHz

Date: 2022-10-18

Electronics: DAE4 Sn1527

Medium: Head 2450MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.844$ S/m; $\epsilon_r = 38.124$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

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

Reference Value = 93.055 V/m; Power Drift = 0.02 dB

SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.12 W/kg

Maximum value of SAR (interpolated) = 15.6 W/kg

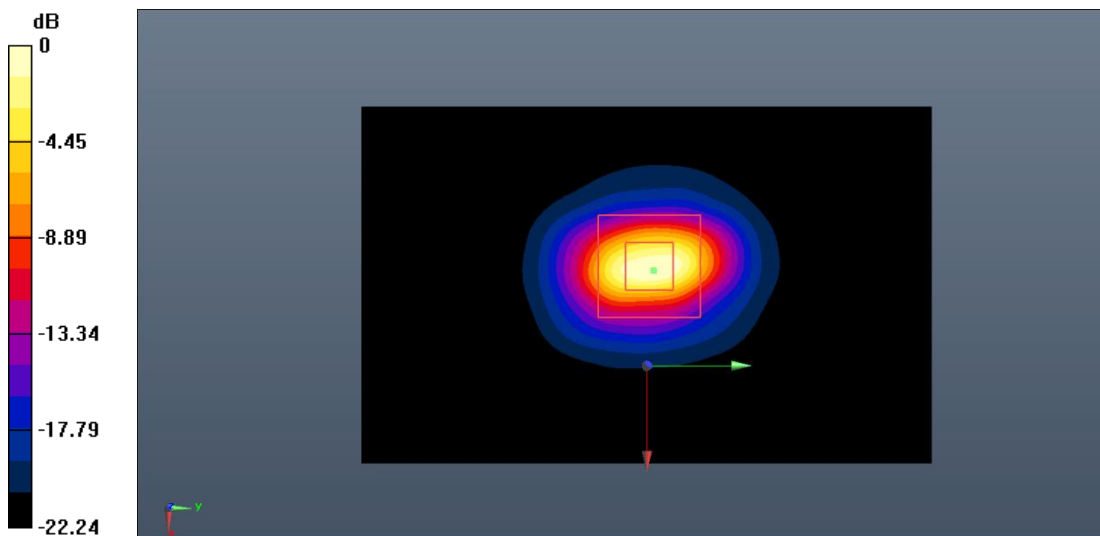
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.055 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 36.4 W/kg

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.19 W/kg

Maximum value of SAR (measured) = 15.8 W/kg



0 dB = 15.8 W/kg = 11.99 dB W/kg

2550MHz

Date: 2022-9-20

Electronics: DAE4 Sn1527

Medium: Head 2550MHz

Medium parameters used: $f = 2550$ MHz; $\sigma = 1.937$ S/m; $\epsilon_r = 37.945$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (8.17, 8.17, 8.17)

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

Reference Value = 95.123 V/m; Power Drift = 0.10 dB

SAR(1 g) = 14.0 W/kg; SAR(10 g) = 6.26 W/kg

Maximum value of SAR (interpolated) = 15.9 W/kg

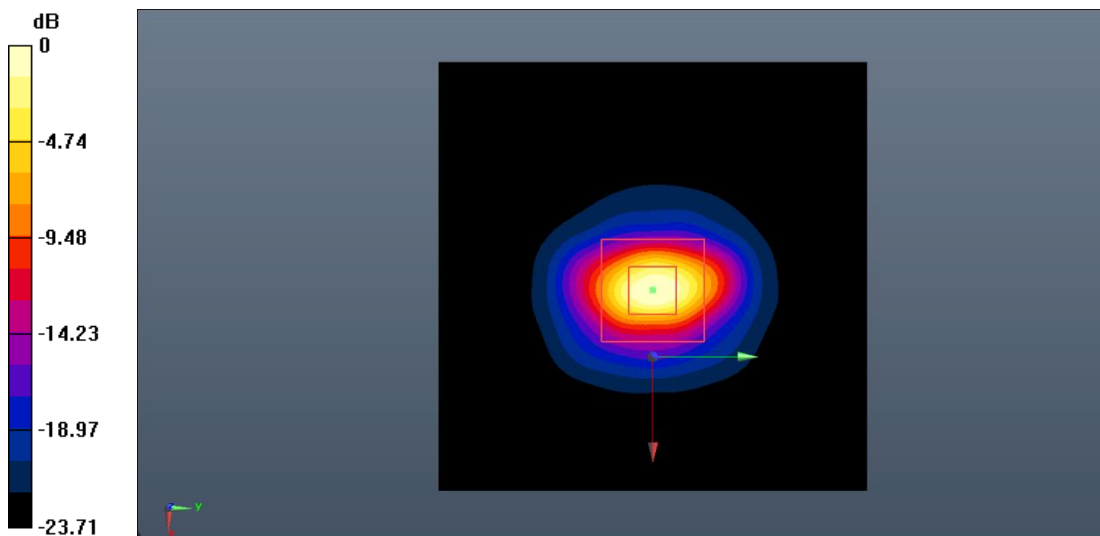
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.123 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 36.6 W/kg

SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.38 W/kg

Maximum value of SAR (measured) = 16.2 W/kg



0 dB = 16.2 W/kg = 12.10 dB W/kg

5750MHz

Date: 2022-10-14

Electronics: DAE4 Sn1527

Medium: Head 5750MHz

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.106$ S/m; $\epsilon_r = 36.282$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7621 ConvF (5.40, 5.40, 5.40)

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

Reference Value = 64.049 V/m; Power Drift = -0.08 dB

SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.19 W/kg

Maximum value of SAR (interpolated) = 9.88 W/kg

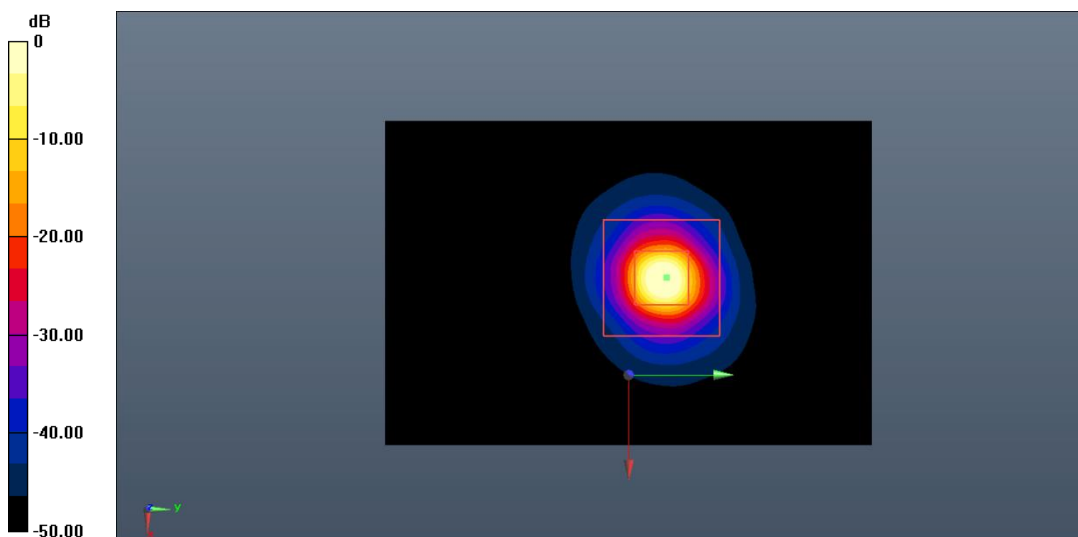
System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.049 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 24.1 W/kg

SAR(1 g) = 7.51 W/kg; SAR(10 g) = 2.15 W/kg

Maximum value of SAR (measured) = 9.83 W/kg



0 dB = 9.83 W/kg = 9.93 dB W/kg

ANNEX N: Second Spot Check Test

As the test lab for MPH-MB003A from IDEMIA Identity and Security France, we, Shenzhen Academy of Information and Communications Technology, declare on our sole responsibility that, according to “Product Change Description” provided by applicant, only the Spot check test should be performed. The test results are as below.

N.1. Internal Identification of EUT used during the spot check test

EUT ID*	IMEI	HW Version	SW Version	Receipt Date
UT03aa-1931	354520110568549	V01 (M32N)	V01	2023-11-24

N.2. Measurement results

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test Position	Distance	Note	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
Body	GSM850	190	836.6	GPRS(4TX)	Rear	0mm	Original data	24.98	26.00	0.854	1.08	0.426	0.54	-0.03
Body	GSM850	190	836.6	GPRS(4TX)	Rear	0mm	Spot check	24.98	26.00	0.793	1.00	0.392	0.50	0.05
Body	GSM1900	512	1850.2	GPRS(1TX)	Rear	0mm	Original data	19.64	20.50	0.866	1.06	0.353	0.43	-0.04
Body	GSM1900	512	1850.2	GPRS(1TX)	Rear	0mm	Spot check	19.64	20.50	0.978	1.19	0.400	0.49	0.09
Body	WCDMA Band 2	9262	1852.4	RMC	Rear	14mm	Original data	23.55	24.00	1.130	1.25	0.504	0.56	0.08
Body	WCDMA Band 2	9262	1852.4	RMC	Rear	14mm	Spot check	23.55	24.00	1.080	1.20	0.443	0.49	0.05
Body	WCDMA Band 5	4132	826.4	RMC	Rear	0mm	Original data	22.03	22.50	1.030	1.15	0.515	0.57	-0.12
Body	WCDMA Band 5	4132	826.4	RMC	Rear	0mm	Spot check	22.03	22.50	0.922	1.03	0.455	0.51	-0.01
Body	LTE Band 2	18700	1860	1RB50	Rear	14mm	Original data	23.73	24.00	1.170	1.25	0.619	0.66	0.01
Body	LTE Band 2	18700	1860	1RB50	Rear	14mm	Spot check	23.73	24.00	1.130	1.20	0.463	0.49	0.16
Body	LTE Band 4	20300	1745.0	1RB50	Rear	14mm	Original data	23.51	24.00	1.080	1.21	0.372	0.42	0.09
Body	LTE Band 4	20300	1745.0	1RB50	Rear	14mm	Spot check	23.51	24.00	0.821	0.92	0.347	0.39	0.13
Body	LTE Band 5	20450	829.0	1RB25	Rear	0mm	Original data	22.25	23.00	1.090	1.30	0.536	0.64	0.03
Body	LTE Band 5	20450	829.0	1RB25	Rear	0mm	Spot check	22.25	23.00	0.775	0.92	0.385	0.46	-0.02
Body	LTE Band 7	21350	2560.0	1RB50	Left	0mm	Original data	15.93	16.50	1.090	1.24	0.414	0.47	0.09
Body	LTE Band 7	21350	2560.0	1RB50	Left	0mm	Spot check	15.93	16.50	0.972	1.11	0.336	0.38	0.01
Body	LTE Band 38	37850	2580.0	1RB50	Left	0mm	Original data	17.39	18.00	0.795	0.91	0.306	0.35	0.03
Body	LTE Band 38	37850	2580.0	1RB50	Left	0mm	Spot check	17.39	18.00	0.729	0.84	0.225	0.26	0.09
Body	Bluetooth	39	2441.0	GFSK	Rear	0mm	Original data	9.71	10.50	0.023	0.03	0.007	0.01	0.07
Body	Bluetooth	39	2441.0	GFSK	Rear	0mm	Spot check	9.71	10.50	0.049	0.06	0.020	0.02	0.06
Body	WLAN 2.4GHz	6	2437.0	802.11b	Right	0mm	Original data	11.61	12.50	0.287	0.35	0.162	0.20	-0.19
Body	WLAN 2.4GHz	6	2437.0	802.11b	Right	0mm	Spot check	11.61	12.50	0.360	0.44	0.145	0.18	-0.08
Body	WLAN 5.8GHz	149	5745.0	802.11a	Right	0mm	Original data	11.63	12.50	0.572	0.70	0.146	0.18	0.07
Body	WLAN 5.8GHz	149	5745.0	802.11a	Right	0mm	Spot check	11.63	12.50	0.063	0.08	0.017	0.02	0.03

N.3. Graph Results for Spot Check

GSM 850 Body

Date: 2023-12-12

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 40.663$; $\rho = 1000$ kg/m³

Communication System: UID 0, 4 slot GPRS (0) Frequency: 836.6 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7683 ConvF (10.75, 10.75, 10.75)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.56 W/kg

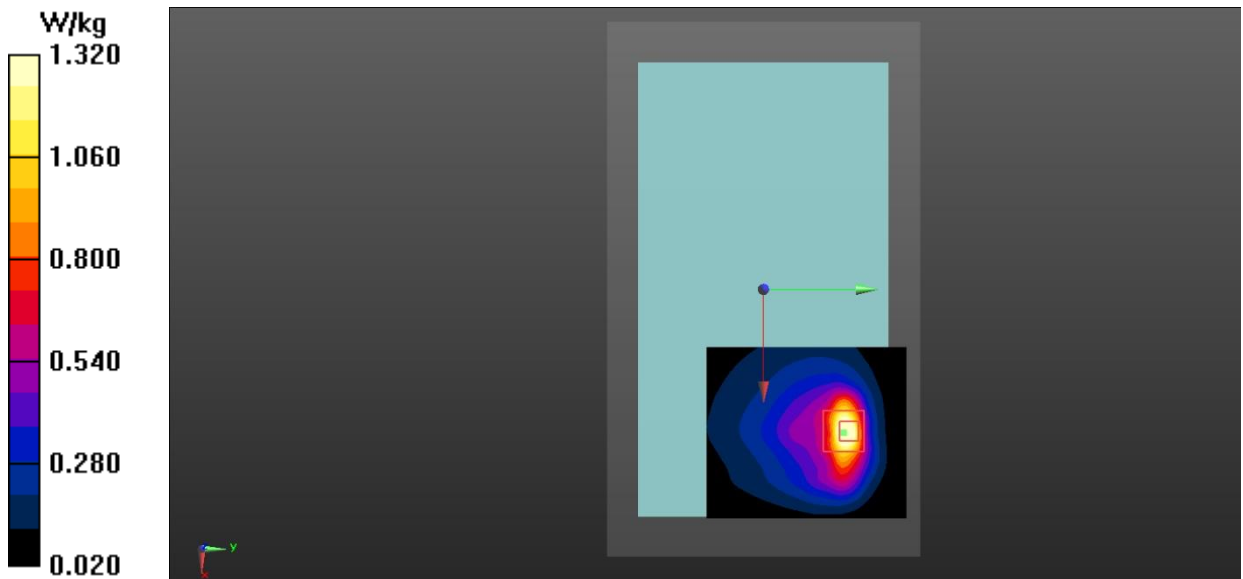
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 7.322 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.793 W/kg; SAR(10 g) = 0.392 W/kg

Maximum value of SAR (measured) = 1.32 W/kg



GSM 1900 Body

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.344$ S/m; $\epsilon_r = 40.738$; $\rho = 1000$ kg/m³

Communication System: UID 0, 4 slot GPRS (0) Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: EX3DV4 - SN7683 ConvF (8.55, 8.55, 8.55)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

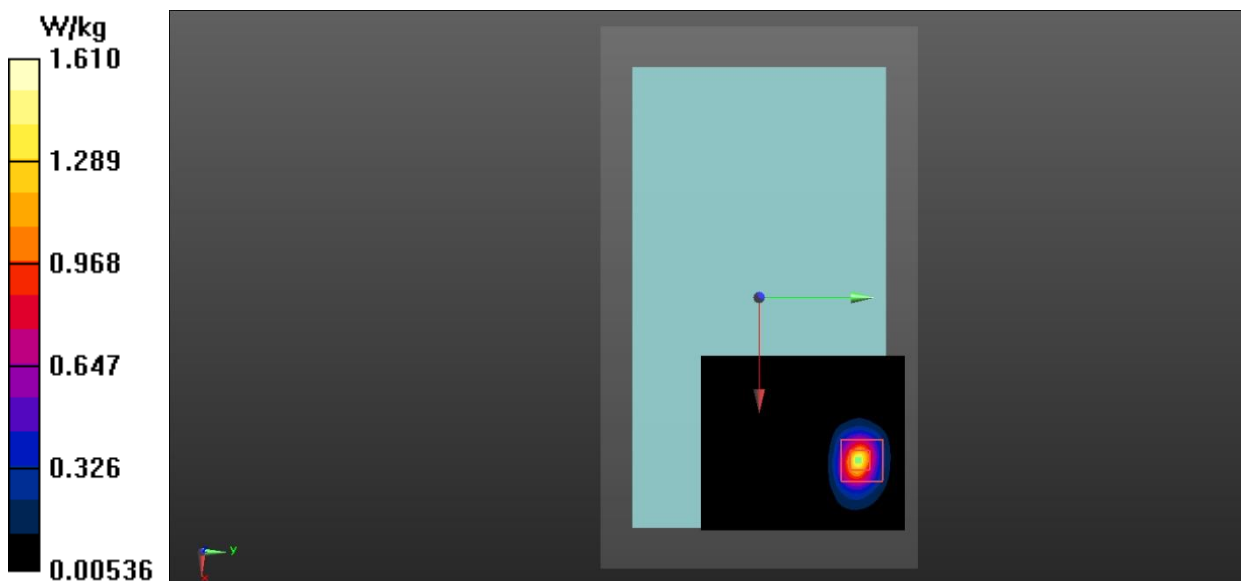
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.8810 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 0.978 W/kg; SAR(10 g) = 0.400 W/kg

Maximum value of SAR (measured) = 1.61 W/kg



WCDMA Band 2 Body

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.346$ S/m; $\epsilon_r = 40.73$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (8.55, 8.55, 8.55)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.60 W/kg

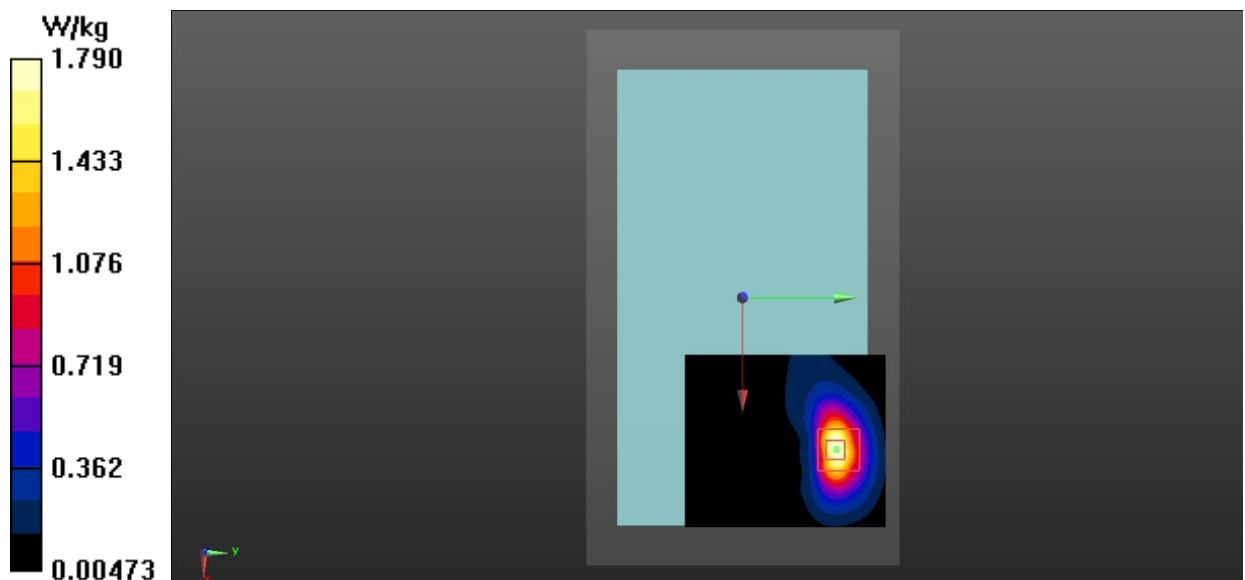
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.8170 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.44 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.443 W/kg

Maximum value of SAR (measured) = 1.79 W/kg



WCDMA Band 5 Body

Date: 2023-12-12

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.906$ S/m; $\epsilon_r = 40.786$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (10.75, 10.75, 10.75)

Rear Side Low/Area Scan (61x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.80 W/kg

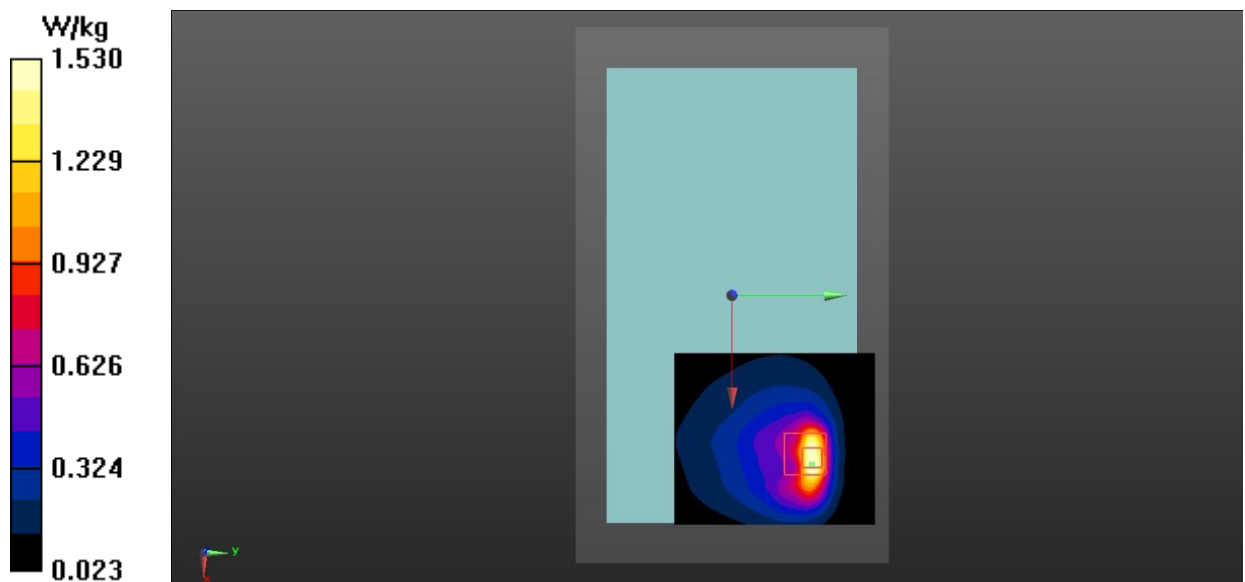
Rear Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 7.948 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 2.16 W/kg

SAR(1 g) = 0.922 W/kg; SAR(10 g) = 0.455 W/kg

Maximum value of SAR (measured) = 1.53 W/kg



LTE Band 2 Body

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.353$ S/m; $\epsilon_r = 40.701$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (8.55, 8.55, 8.55)

Rear Side Low 1RB50/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.65 W/kg

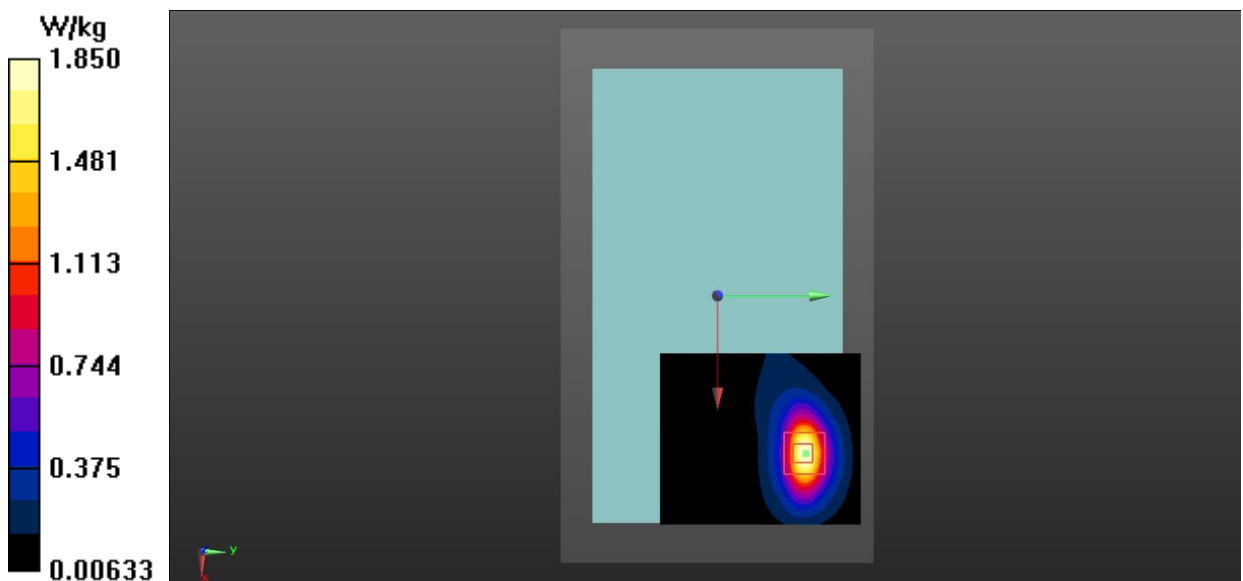
Rear Side Low 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.020 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 2.53 W/kg

SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.463 W/kg

Maximum value of SAR (measured) = 1.85 W/kg



LTE Band 4 Body

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used (interpolated): $f = 1745$ MHz; $\sigma = 1.353$ S/m; $\epsilon_r = 40.765$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (8.81, 8.81, 8.81)

Rear Side High 1RB50/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.13 W/kg

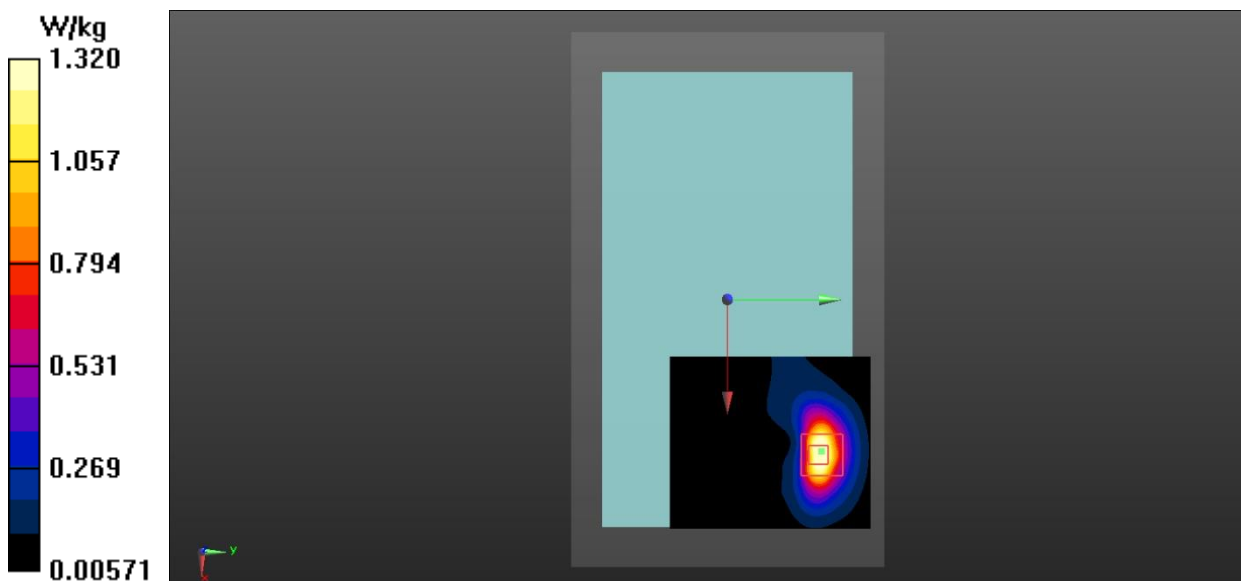
Rear Side High 1RB50/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.9510 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.821 W/kg; SAR(10 g) = 0.347 W/kg

Maximum value of SAR (measured) = 1.32 W/kg



LTE Band 5 Body

Date: 2023-12-12

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used (interpolated): $f = 829$ MHz; $\sigma = 0.909$ S/m; $\epsilon_r = 40.755$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_FDD (0) Frequency: 829 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (10.75, 10.75, 10.75)

Rear Side Low 1RB25/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.51 W/kg

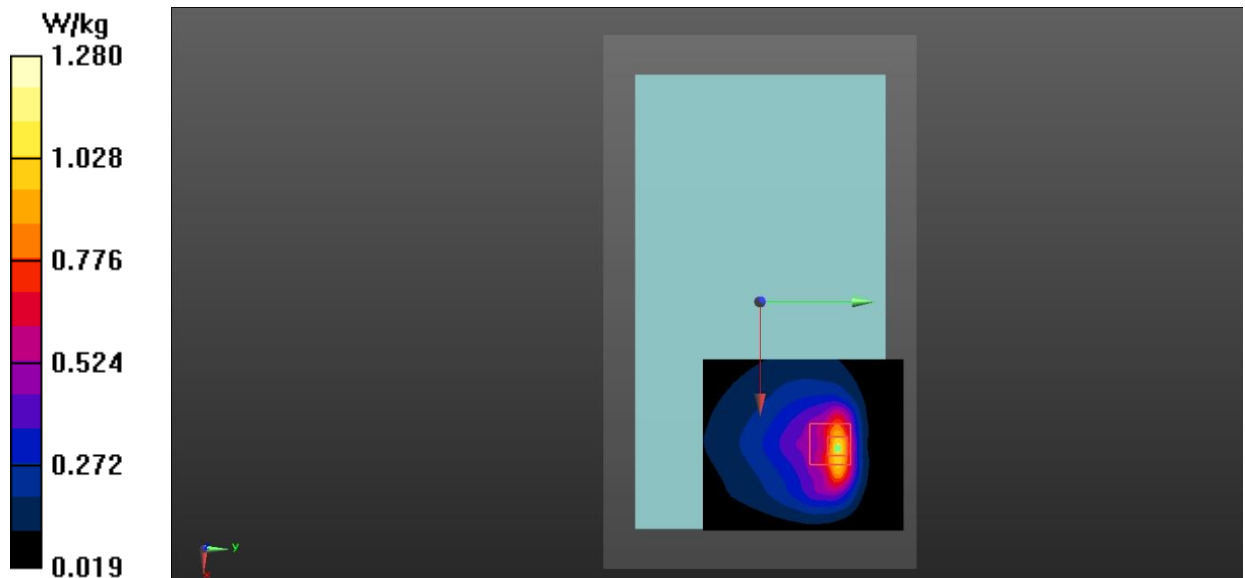
Rear Side Low 1RB25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.341 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.80 W/kg

SAR(1 g) = 0.775 W/kg; SAR(10 g) = 0.385 W/kg

Maximum value of SAR (measured) = 1.28 W/kg



LTE Band 7 Body

Date: 2023-12-15

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.908$ S/m; $\epsilon_r = 39.645$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (7.76, 7.76, 7.76)

Left Side High 1RB50/Area Scan (121x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.95 W/kg

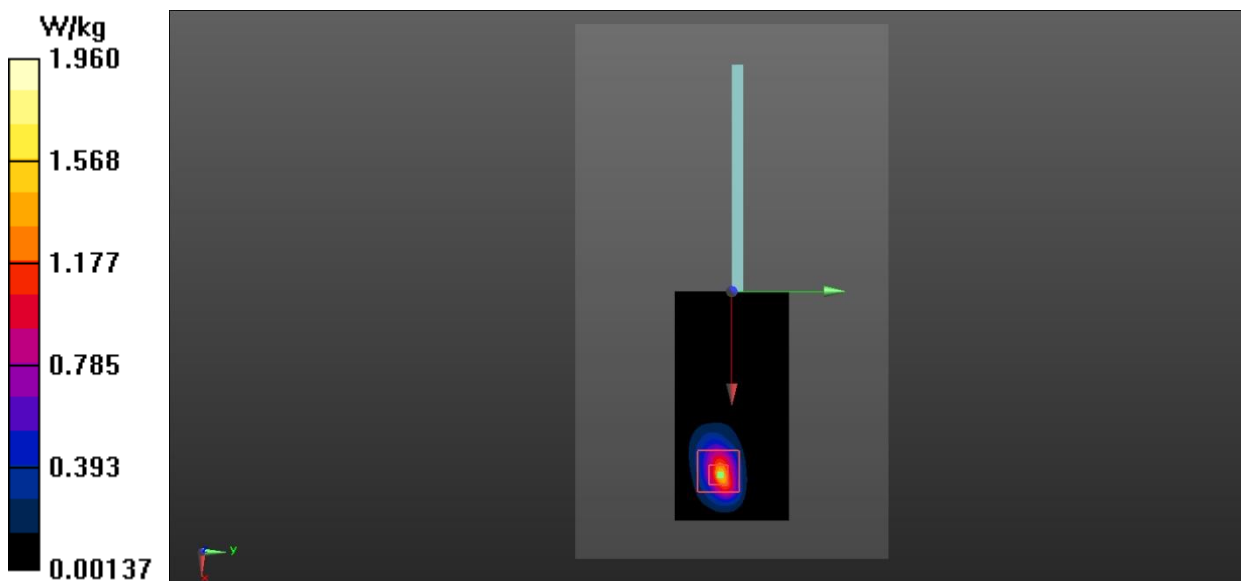
Left Side High 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.431 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.71 W/kg

SAR(1 g) = 0.972 W/kg; SAR(10 g) = 0.336 W/kg

Maximum value of SAR (measured) = 1.96 W/kg



LTE Band 38 Body

Date: 2023-12-15

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2580$ MHz; $\sigma = 1.931$ S/m; $\epsilon_r = 39.579$; $\rho = 1000$ kg/m³

Communication System: UID 0, LTE_TDD (0) Frequency: 2580 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7683 ConvF (7.76, 7.76, 7.76)

Left Side Low 1RB50/Area Scan (121x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.45 W/kg

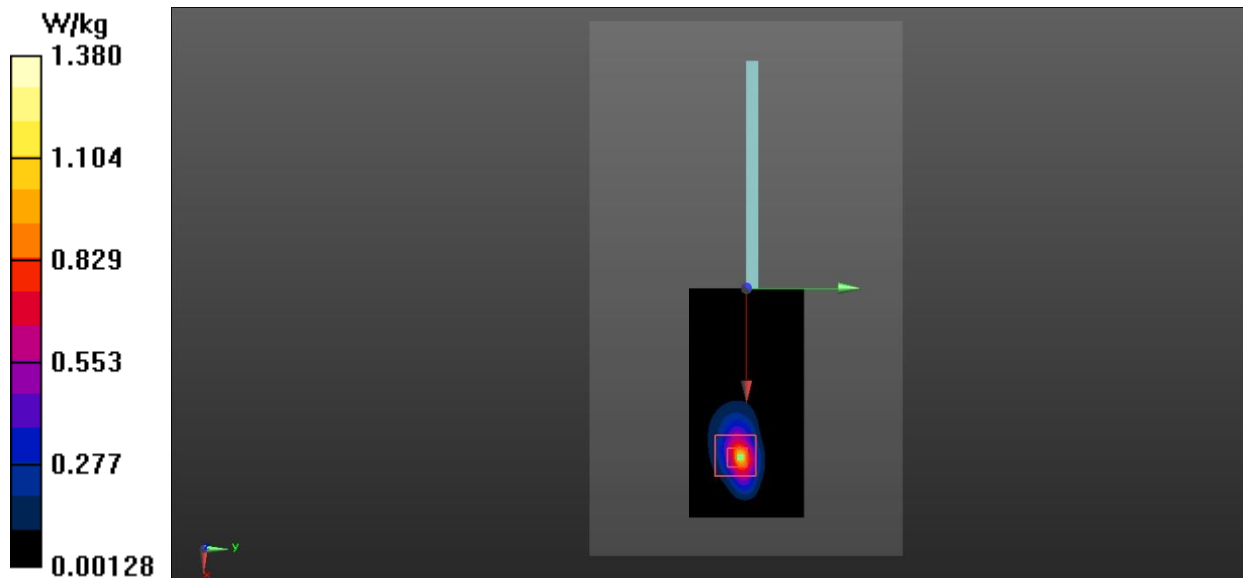
Left Side Low 1RB50/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.055 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 0.729 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 1.38 W/kg



Bluetooth Body

Date: 2023-12-25

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 38.598$; $\rho = 1000$ kg/m³

Communication System: UID 0, BT (0) Frequency: 2441 MHz Duty Cycle: 1:1

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

Rear Side Ch.39/Area Scan (91x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.0715 W/kg

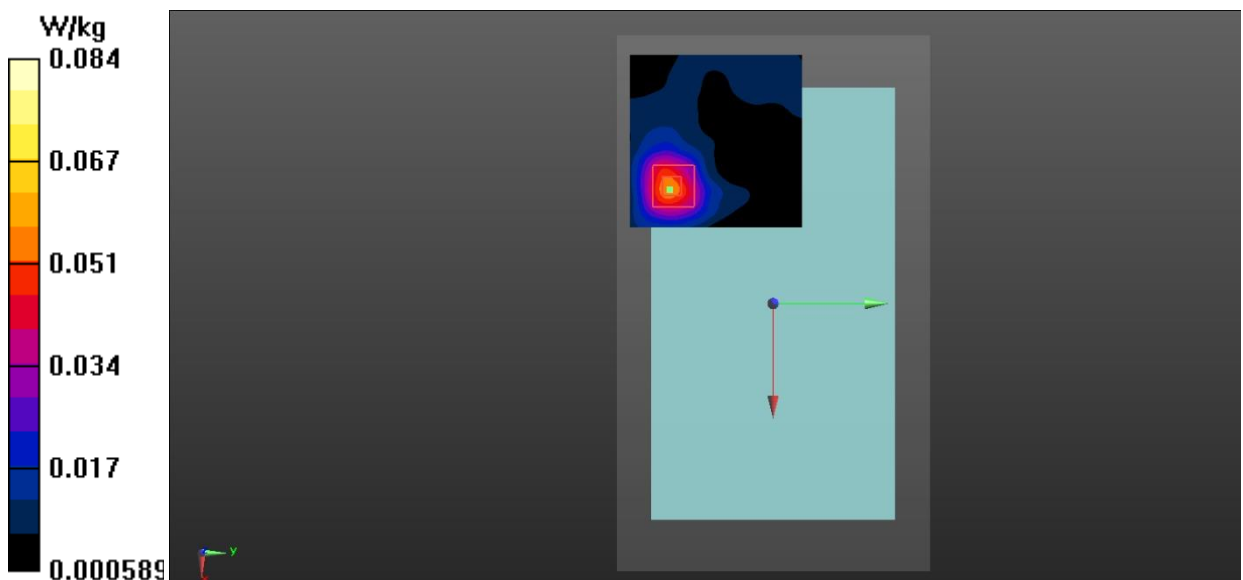
Rear Side Ch.39/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.186 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.120 W/kg

SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.020 W/kg

Maximum value of SAR (measured) = 0.0842 W/kg



WLAN 2.4GHz Body

Date: 2023-12-25

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.836$ S/m; $\epsilon_r = 38.61$; $\rho = 1000$ kg/m³

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

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

Right Side Ch.6/Area Scan (121x61x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.583 W/kg

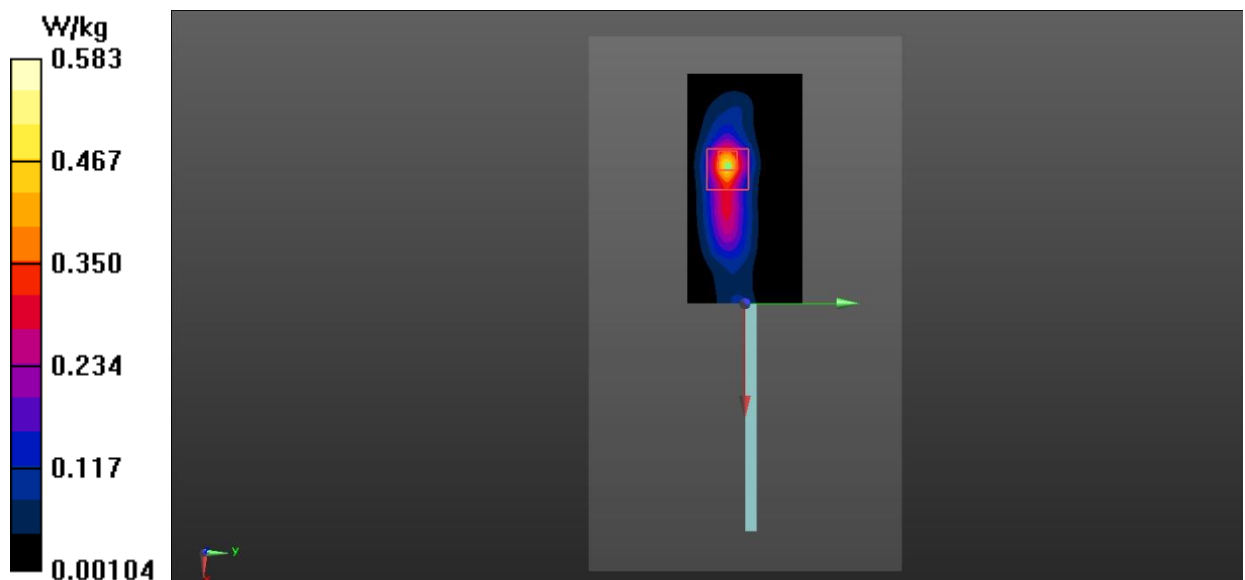
Right Side Ch.6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.338 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.832 W/kg

SAR(1 g) = 0.360 W/kg; SAR(10 g) = 0.145 W/kg

Maximum value of SAR (measured) = 0.583 W/kg



WLAN 5GHz Body

Date: 2023-12-25

Electronics: DAE4 Sn1790

Medium: Head 5750MHz

Medium parameters used (interpolated): $f = 5745$ MHz; $\sigma = 5.278$ S/m; $\epsilon_r = 34.946$; $\rho = 1000$ kg/m³

Communication System: UID 0, WLAN 5G (0) Frequency: 5745 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7683 ConvF (5.23, 5.23, 5.23)

Right Side Ch.149/Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

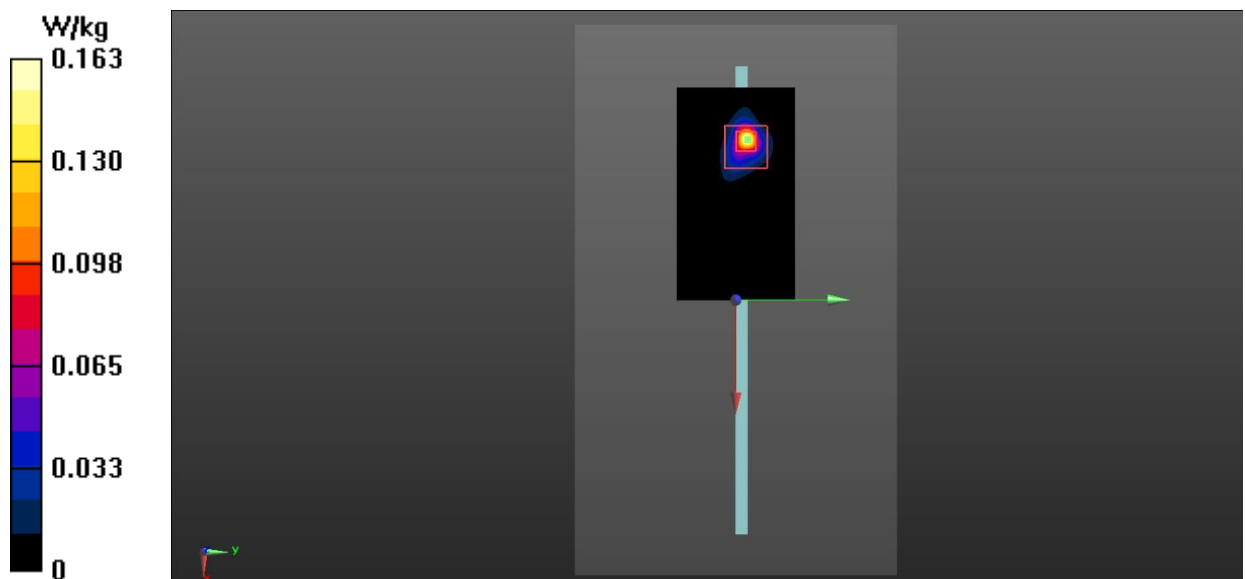
Right Side Ch.149/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 0.8410 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.308 W/kg

SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.017 W/kg

Maximum value of SAR (measured) = 0.163 W/kg



N.4. System Verification Results for Spot Check

835MHz

Date: 2023-12-12

Electronics: DAE4 Sn1790

Medium: Head 835MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.914 \text{ S/m}$; $\epsilon_r = 40.682$; $\rho = 1000 \text{ kg/m}^3$

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

Probe: EX3DV4 - SN7683 ConvF (10.75, 10.75, 10.75)

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

Reference Value = 65.847 V/m; Power Drift = 0.10 dB

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.58 W/kg

Maximum value of SAR (interpolated) = 3.70 W/kg

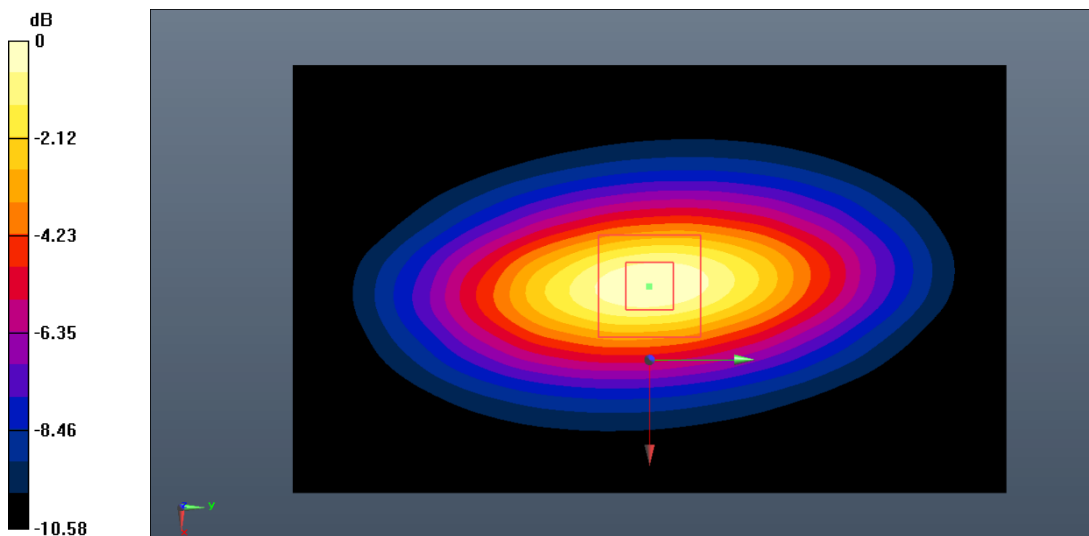
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 65.847 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 4.47 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 3.73 W/kg



0 dB = 3.73 W/kg = 5.72 dB W/kg

1750MHz

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1750MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.357$ S/m; $\epsilon_r = 40.745$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (8.81, 8.81, 8.81)

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

Reference Value = 77.182 V/m; Power Drift = 0.14 dB

SAR(1 g) = 8.72 W/kg; SAR(10 g) = 4.78 W/kg

Maximum value of SAR (interpolated) = 13.0 W/kg

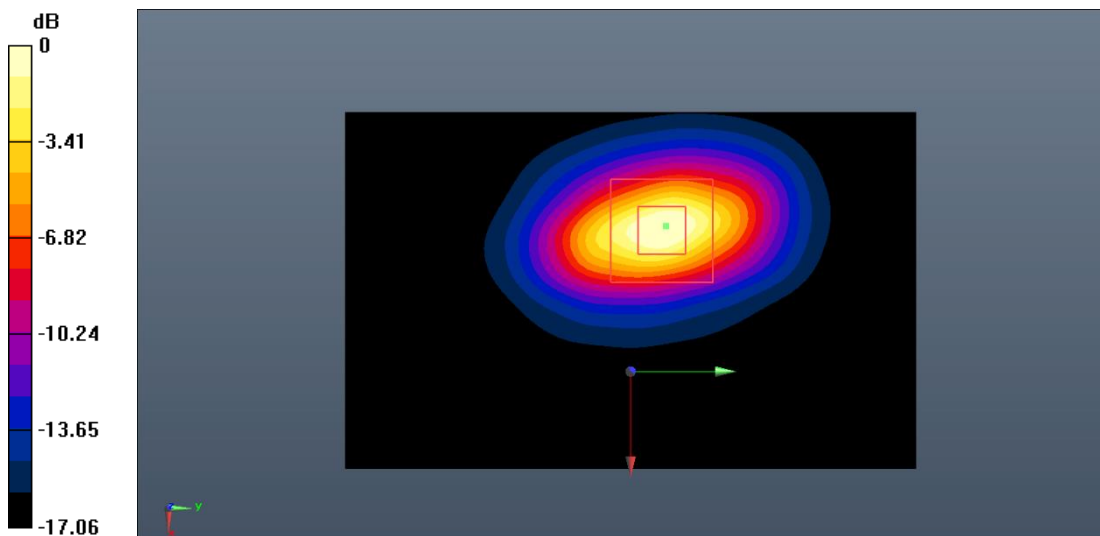
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 77.182 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 8.90 W/kg; SAR(10 g) = 4.88 W/kg

Maximum value of SAR (measured) = 13.2 W/kg



0 dB = 13.2 W/kg = 11.21 dB W/kg

1900MHz

Date: 2023-12-13

Electronics: DAE4 Sn1790

Medium: Head 1900MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40.544$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (8.55, 8.55, 8.55)

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

Reference Value = 86.119 V/m; Power Drift = -0.03 dB

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.15 W/kg

Maximum value of SAR (interpolated) = 15.9 W/kg

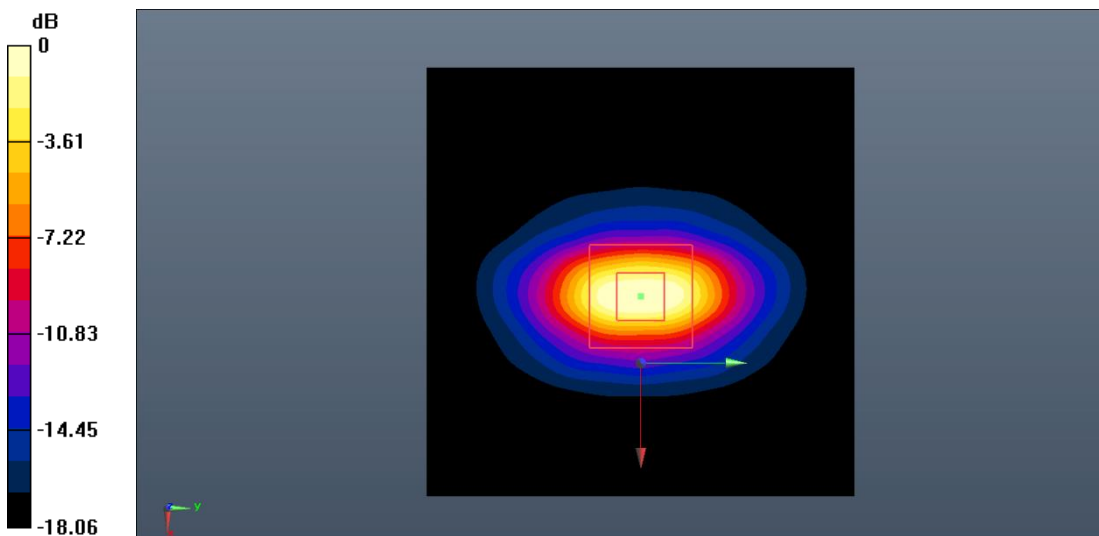
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 86.119 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 19.8 W/kg

SAR(1 g) = 9.87 W/kg; SAR(10 g) = 5.07 W/kg

Maximum value of SAR (measured) = 15.7 W/kg



0 dB = 15.7 W/kg = 11.96 dB W/kg

2450MHz

Date: 2023-12-25

Electronics: DAE4 Sn1790

Medium: Head 2450MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.851 \text{ S/m}$; $\epsilon_r = 38.567$; $\rho = 1000 \text{ kg/m}^3$

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

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

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

Reference Value = 96.144 V/m; Power Drift = 0.08 dB

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.09 W/kg

Maximum value of SAR (interpolated) = 21.9 W/kg

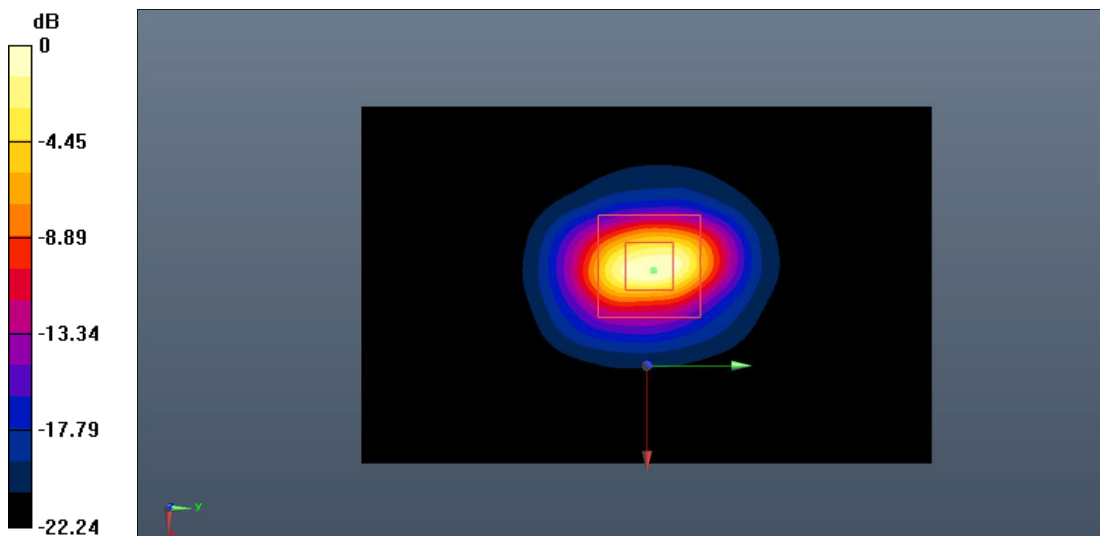
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.144 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 30.3 W/kg

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.22 W/kg

Maximum value of SAR (measured) = 22.2 W/kg



0 dB = 22.2 W/kg = 13.46 dB W/kg

2550MHz

Date: 2023-12-15

Electronics: DAE4 Sn1790

Medium: Head 2550MHz

Medium parameters used: $f = 2550$ MHz; $\sigma = 1.896$ S/m; $\epsilon_r = 39.678$; $\rho = 1000$ kg/m³

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

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

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

Reference Value = 93.736 V/m; Power Drift = -0.11 dB

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.32 W/kg

Maximum value of SAR (interpolated) = 22.2 W/kg

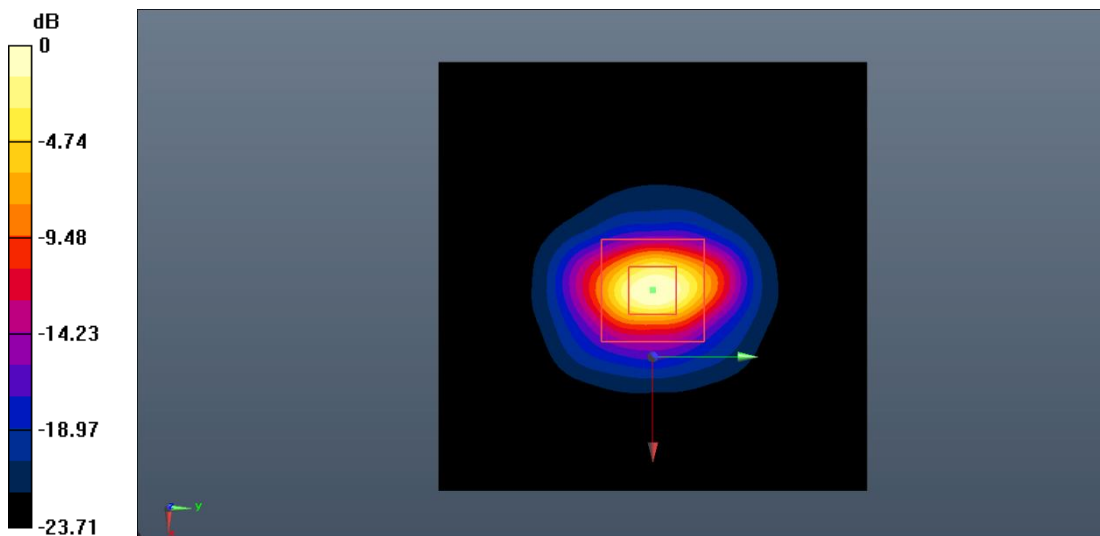
System Validation/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.736 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 29.2 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.19 W/kg

Maximum value of SAR (measured) = 21.8 W/kg



0 dB = 21.8 W/kg = 13.38 dB W/kg

5750MHz

Date: 2023-12-25

Electronics: DAE4 Sn1790

Medium: Head 5750MHz

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.285$ S/m; $\epsilon_r = 34.933$; $\rho = 1000$ kg/m³

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

Probe: EX3DV4 - SN7683 ConvF (5.23, 5.23, 5.23)

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

Reference Value = 66.786 V/m; Power Drift = 0.03 dB

SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (interpolated) = 18.6 W/kg

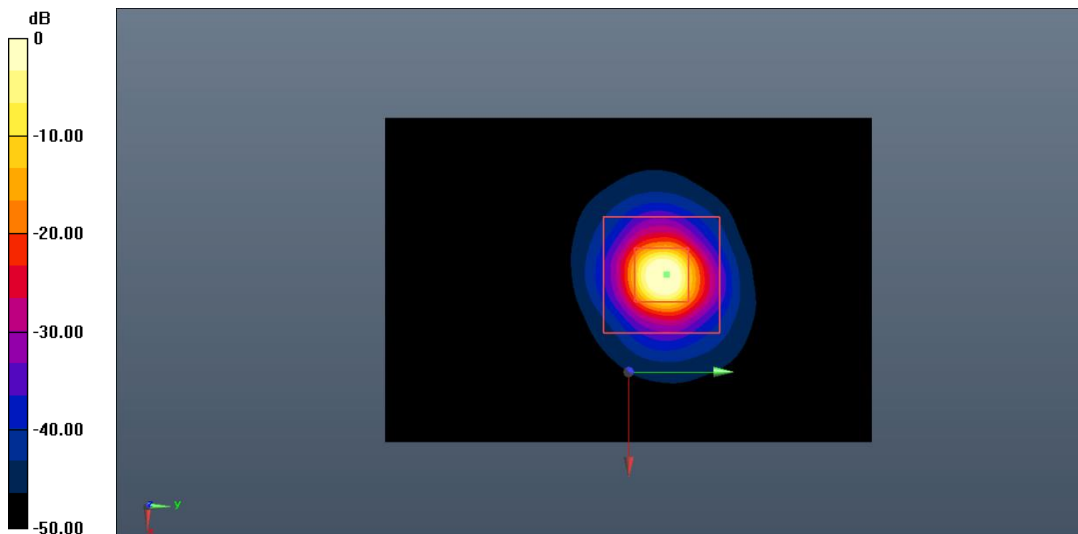
System Validation/Zoom Scan (8x8x21)/Cube0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.786 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 33.5 W/kg

SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.27 W/kg

Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg = 12.74 dB W/kg

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