FCC SAR REPORT

Report No.: JYTSZ-R14-2400076

Applicant: TECNO MOBILE LIMITED

Address of Applicant: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: AE11

Trade mark TECNO

FCC ID: 2ADYY-YYS-AE11

Applicable standards: FCC 47 CFR Part 2.1093

Date of Test: 01 Aug., 2024 ~ 03 Aug., 2024

Test Result: Maximum Reported 1-g SAR (W/kg)
Head: 1.159 Body: 1.189 Hotspot: 1.189

Project by:	Eric Wang ***Project Engineer***	***Date:***	*03 Sep, 2024*
Reviewed by:	Peter Zhang ***Senior Engineer***	***Date:***	*03 Sep, 2024*
Approved by:	James Wei ***Manager***	***Date:***	*03 Sep, 2024*

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2 Version

Version No.	Date	Description
00	*03 Sep, 2024*	*Original*

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4 SAR Results Summary

This report is revised according to the JYTSZ-R14-2400021 report, FCC ID: 2ADYY-AE11 issued by JianYan Testing Group Shenzhen Co., Ltd. Differences: FCC ID: 2ADYY-YYS-AE11 is in FCC ID: 2ADYY-AE11 models based on the change T6601/T6602/T6603/C3929/F6201/F6202/F6204/F6205/C3259/C3217/L3211 components of value, and changes the NFC antenna and LTE CA_7C and LTE CA_41C bands are added by software, so need to spot-check Worst Case mode, add LTE CA_7C, LTE CA_41C test.

The maximum results of Specific Absorption Rate (SAR) found during test as below:
<Highest Reported standalone SAR Summary>

Exposure Position	Frequency Band	Reported 1-g SAR (W/kg)	Equipment Class	Highest Reported 1-g SAR (W/kg)
Head	GSM 850	0.170	PCE	1.159
	PCS 1900	0.869		
	WCDMA Band II	0.710		
	WCDMA Band IV	0.723		
	WCDMA Band V	0.123		
	LTE Band 2	0.655		
	LTE Band 5	0.194		
	LTE Band 7	0.448		
	LTE Band 12 & Band17	0.163		
	LTE Band 13	0.175		
	LTE Band 41 & Band 38	0.485		
	LTE Band 42	0.818		
	LTE Band 66 & Band 4	0.850		
	NR n5	0.176		
	NR n7	1.159		
	NR n12	0.109		
	NR n41&n38	1.017		
	NR n66	0.568		
	NR n77 (3450MHz~3550MHz) &n78 (3450MHz~3550MHz)	0.319		
	NR n77 (3550MHz~3700MHz) &n78 (3550MHz~3700MHz)	0.320		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.452		
	WLAN 2.4 GHz	0.260	DTS	
	Bluetooth	0.011	DSS	
	WLAN 5.2 GHz	0.173	NII	
	WLAN 5.3 GHz	0.086		
	WLAN 5.6 GHz	0.119		
	WLAN 5.8 GHz	0.212		
Body (10 mm Gap)	GSM 850	1.189	PCE	1.189
	PCS 1900	0.673		
	WCDMA Band II	0.163		
	WCDMA Band IV	0.159		
	WCDMA Band V	0.631		

	LTE Band 2	0.182		
	LTE Band 5	0.680		
	LTE Band 7	0.138		
	LTE Band 12 & Band17	0.535		
	LTE Band 13	0.511		
	LTE Band 41 & Band 38	0.173		
	LTE Band 42	0.329		
	LTE Band 66 & Band 4	0.216		
	NR n5	0.643		
	NR n7	0.340		
	NR n12	0.485		
	NR n41&n38	0.368		
	NR n66	0.193		
	NR n77 (3450MHz~3550MHz) &n78 (3450MHz~3550MHz)	0.110		
	NR n77 (3550MHz~3700MHz) &n78 (3550MHz~3700MHz)	0.081		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.099		
	WLAN 2.4GHz	0.329	DTS	
	Bluetooth	0.007	DSS	
	WLAN 5.2 GHz	0.036	NII	
	WLAN 5.3 GHz	0.019		
	WLAN 5.6 GHz	0.043		
	WLAN 5.8 GHz	0.048		
Hotspot (10 mm Gap)	GSM 850	1.189	PCE	1.189
	PCS 1900	0.933		
	WCDMA Band II	0.271		
	WCDMA Band IV	0.275		
	WCDMA Band V	0.631		
	LTE Band 2	0.524		
	LTE Band 5	0.680		
	LTE Band 7	0.689		
	LTE Band 12 & Band17	0.535		
	LTE Band 13	0.511		
	LTE Band 41 & Band 38	0.310		
	LTE Band 42	0.329		
	LTE Band 66 & Band 4	0.310		
	NR n5	0.643		
	NR n7	1.057		
	NR n12	0.485		
	NR n41&n38	1.097		
	NR n66	0.331		
	NR n77 (3450MHz~3550MHz)	0.110		

	&n78 (3450MHz~3550MHz)			
	NR n77 (3550MHz~3700MHz) &n78 (3550MHz~3700MHz)	0.090		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.136		
	WLAN 2.4 GHz	0.329	DTS	
	Bluetooth	0.010	DSS	
	WLAN 5.2 GHz	0.063	NII	
	WLAN 5.8 GHz	0.124		

<Highest Reported simultaneous SAR Summary>

Exposure Position	Frequency Band	Reported 1-g SAR (W/kg)	Equipment Class	Highest Reported Simultaneous Transmission 1-g SAR (W/kg)
Right Cheek	EN-DC7A_n41A	1.308	PCE	1.582
	2.4G MIMO	0.274	DTS	
	NFC	0.000	DXX	

Note:

1. The highest simultaneous transmission is scalar summation of Reported standalone SAR per FCC KDB 690783 D01 v01r03, and scalar SAR summation of all possible simultaneous transmission scenarios are < 1.6W/kg.
2. This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedures specified in IEC/IEEE 62209-1528:2020.
3. For DFS operation type is slaver device without radar detection function, 5.3GHz WLAN and 5.6GHz WLAN does not support hotspot mode.
4. For FDD-LTE Band 17 is full covered by FDD-LTE Band 12, so only FDD-LTE Band 12 was tested.
5. For FDD-LTE Band 4 is full covered by FDD-LTE Band 66, so only FDD-LTE Band 66 was tested.
6. For TDD-LTE Band 38 is full covered by TDD-LTE Band 41, so only FDD-LTE Band 41 was tested.
7. For NR n38 is full covered by NR n41, so only NR n41 was tested.
8. For NR n78 is full covered by NR n77, so only NR n77 was tested.

5 General Information

5.1 Client Information

Applicant:	TECNO MOBILE LIMITED
Address of Applicant:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	TECNO MOBILE LIMITED
Address of Manufacturer:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address of Factory:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

5.2 General Description of EUT

Product Name:	Mobile Phone			
Model No.:	AE11			
Category of device	Portable device			
Operation Frequency:	GSM:	GSM850: 824.2~848.8 MHz	PCS 1900: 1850.2~1909.8 MHz	
	WCDMA:	Band II: 1852.4~1907.6 MHz	Band V: 826.4~846.6 MHz	
		Band IV: 1712.4~1752.6 MHz		
	LTE:	Band 2:1850MHz~1910MHz	Band 4:1710MHz~1755MHz	
		Band 5:824MHz~849MHz	Band 7: 2500MHz~2570MHz	
		Band 12: 699MHz~716MHz	Band 13: 777MHz~787MHz	
		Band 17: 704MHz~716MHz	Band 38: 2570MHz~2620MHz	
		Band 41: 2496MHz~2690MHz	Band 42:3450MHz~3550MHz	
		Band 66:1710MHz~1780MHz		
	LTE CA(UL):	CA_7C, CA_41C		
	5G NR	n5: 824MHz~849MHz	n7: 2500MHz~2570MHz	
		n12: 699-716MHz	n38: 2570MHz~2620MHz	
		n41: 2496MHz~2690MHz	n66:1710MHz~1780MHz	
		n77: 3450MHz~3550MHz	n77: 35500MHz~3700MHz	
		n77: 3700MHz~3980MHz	n78: 3450MHz~3550MHz	
		n78: 3550MHz~3700MHz	n78: 3700MHz~3800MHz	
	Wi-Fi:	2412MHz~2462MHz	5150MHz-5250MHz	
		5250MHz-5350MHz	5470MHz-5725MHz	
		5725MHz-5850MHz		
	Bluetooth: 2402 MHz ~ 2480 MHz			
	NFC:13.56MHz			
Modulation technology:	GSM:	☒Voice(GMSK)	☒GPRS(GMSK)	☒EGPRS(GMSK, 8PSK)
	WCDMA:	☒RMC(QPSK)	☒HSUPA(QPSK)	☒HSDPA(QPSK,16QAM)
	LTE:	☒QPSK	☒16QAM	☒64QAM
	5G NR：	☒CP-OFDM(QPSK,16QAM,64QAM,256QAM)		
		☒DFT-s-OFDM(π/2 -BPSK,QPSK,16QAM,64QAM,256QAM)		

	Wi-Fi:	☒802.11b(DSSS)	☒802.11a/g/n/ac/ax (OFDM)	
	Bluetooth:	☒BDR(GFSK)	☒EDR(π/4-DQPSK, 8DPSK)	☒LE(GFSK)
	NFC:	☒ASK		
	SA: NR n5, n7,n12, n38, n41,n66, n77, n78			
	CA: CA_N78C, CA_n78A_n78A, CA_N41C, CA_N41A_N41A, CA_N41A_N78A (Only supports downlink CA)			
	NSA(EN-DC): DC_2A_n7A, DC_5A_n7A, DC_7A_n7A, DC_66A_n7A, DC_7A_n5A, DC_4A_n38A, DC_5A_n38A, DC_66A_n38A, DC_4A_n41A, DC_5A_n41A, DC_41A_n41A, DC_66A_n41A, DC_2A_n66A, DC_5A_n66A, DC_7A_n66A, DC_66A_n66A, DC_2A_n78A, DC_4A_n78A, DC_5A_n78A, DC_7A_n78A, DC_38A_n78A, DC_41A_n78A, DC_66A_n78A, DC_5A_n77A, DC_7A_n77A, DC_41A_n77A, DC_66A_n77A EN-DC with LTE 2CA : DC_7C_n78A, DC_41C_n78A, DC_7C_n77A, DC_41C_n77A, DC_41C_n41A, , DC_7A-7A_n78A, DC_2A-7A_n78, DC_2A-66A_n78, DC_5A-7A_n78A (LTE Band 7C and 41C only supports downlink) EN-DC with LTE 3CA: DC_2A-7C_n78 (LTE Band 7C only supports downlink)			
Antenna Type:	Internal Antenna			
Antenna Gain:	GSM 850:	ANT3 Unflip: 7.03 dBi	ANT3 Flip: -11.78 dBi	
	PCS1900:	ANT5 Unflip: -2.10 dBi	ANT5 Flip: -6.81 dBi	
	WCDMA band II:	ANT5 Unflip: -0.3 dBi	ANT5 Flip: -6.13 dBi	
	WCDMA band IV:	ANT5 Unflip: -0.3 dBi	ANT5 Flip: -6.13 dBi	
	WCDMA band V:	ANT3 Unflip: -7.03 dBi	ANT3 Flip: -11.78 dBi	
	LTE band 2:	ANT5 Unflip: -0.3 dBi	ANT5 Flip: -6.13 dBi	
		EN–DC ANT0 Unflip: -4.63 dBi	EN–DC ANT0 Flip: -6.93 dBi	
	LTE band 4:	ANT5 Unflip: -0.3 dBi	ANT5 Flip: -6.13 dBi	
		EN–DC ANT0 Unflip: -4.63 dBi	EN–DC ANT0 Flip: -6.93 dBi	
	LTE band 5:	ANT3 Unflip: -7.03 dBi	ANT3 Flip: -11.78 dBi	
	LTE band 7:	ANT5 Unflip: -3.0 dBi	ANT5 Flip: -3.19 dBi	
		EN–DC ANT0 Unflip: -2.97 dBi	EN–DC ANT0 Flip: -4.29 dBi	
	LTE band 12:	ANT3 Unflip: -4.93 dBi	ANT3 Flip: -11.17 dBi	
	LTE band 13:	ANT3 Unflip: -5.73 dBi	ANT3 Flip: -10.88 dBi	
	LTE band 17:	ANT3 Unflip: -4.93 dBi	ANT3 Flip: -11.17 dBi	
	LTE band 38:	ANT5 Unflip: -3.0 dBi	ANT5 Flip: -3.19 dBi	
		EN–DC ANT0 Unflip: -2.97 dBi	EN–DC ANT0 Flip: -4.29 dBi	
	LTE band 41:	ANT5 Unflip: -3.0 dBi	ANT5 Flip: -3.19 dBi	
		EN–DC ANT0 Unflip: -2.97	EN–DC ANT0 Flip: -4.29 dBi	

		dBi	
	LTE band 42:	ANT6 Unflip: -1.10 dBi	ANT6 Flip: -0.91 dBi
	LTE band 66:	ANT5 Unflip: -0.3 dBi	ANT5 Flip: -6.13 dBi
		EN–DC ANT0 Unflip: -4.63 dBi	EN–DC ANT0 Flip: -6.93 dBi
	n5:	ANT3 Unflip: -7.03 dBi	ANT3 Flip: -11.78 dBi
	n7:	ANT5 Unflip: -3.00 dBi	ANT5 Flip: -3.19 dBi
	n12:	ANT3 Unflip: -4.93 dBi	ANT3 Flip: -11.17 dBi
	n38:	ANT5 Unflip: -3.00 dBi	ANT5 Flip: -3.19 dBi
	n41:	ANT5 Unflip: -3.00 dBi	ANT5 Flip: -3.19 dBi
	n66:	ANT5 Unflip: -0.30 dBi	ANT5 Flip: -6.13 dBi
	n77:	ANT6 Unflip: -1.10 dBi	ANT6 Flip: -0.91 dBi
	n78:	ANT6 Unflip: -1.10 dBi	ANT6 Flip: -0.91 dBi
	2.4G Wi-Fi:	ANT 4 Unflip: -1.59 dB	ANT 4 Flip: -3.15 dBi
		ANT 12 Unflip: -3.6 dBi	ANT 12 Flip: -4.0 dBi
	5G Wi-Fi:	ANT 4 Unflip : -3.47 dB	ANT 4 Flip : -3.13 dBi
		ANT 12 Unflip : -0.32 dBi	ANT 12 Flip : -3.13 dBi
	Bluetooth:	ANT 12 Unflip:-3.6 dBi	ANT 12 Flip: -4.0 dBi
(E)GPRS Class:	(E)GPRS Class: 12		
DFS Operation Type:	☐ Master Device ☐ Slaver Device with Radar detection function ☒ Slaver Device without Radar detection function		
Dimensions (L*W*H):	Unflip: 170 mm (L)× 74 mm (W)× 8 mm (H) Flip: 85 mm (L)× 74 mm (W)×16 mm (H)		
Accessories information:	Adapter: Model: U700TSA Input: AC100-240V, 50/60Hz, 2.0A Output: DC 5.0V, 3.0A 15.0W or 5.0-10.0V, 7.0A MAX or 11.0V, 6.4A MAX or 4.0-20.0V, 3.5A 70.0W MAX		Rechargeable Li-ion Polymer Battery DC3.91V, 3410mAh & Rechargeable Li-ion Polymer Battery DC3.91V, 1180mAh Headset: Support headset

5.3 Maximum RF Output Power

Mode	Average Power (dBm)	
	GSM 850	PCS 1900
GSM (Voice)	32.59	29.45
GPRS (1 TX Slot)	32.51	29.42
GPRS (2 TX Slots)	31.79	28.68
GPRS (3 TX Slots)	30.08	26.85
GPRS (4 TX Slots)	29.03	25.81
EGPRS (1 TX Slot)	27.17	25.94
EGPRS (2 TX Slots)	26.12	24.91
EGPRS (3 TX Slots)	23.94	22.69
EGPRS (4 TX Slots)	22.82	21.52

Mode	Average Power (dBm)		
	WCDMA Band II	WCDMA Band IV	WCDMA Band V
AMR 12.2 kbps	22.37	22.69	23.07
RMC 12.2 kbps	22.33	22.65	23.04
HSDPA Sub-test 1	22.35	22.68	23.08
HSDPA Sub-test 2	21.80	22.15	22.57
HSDPA Sub-test 3	21.83	22.20	22.61
HSDPA Sub-test 4	21.80	22.15	22.58
HSUPA Sub-test 1	20.28	20.83	21.06
HSUPA Sub-test 2	20.80	21.33	21.56
HSUPA Sub-test 3	21.33	21.64	22.10
HSUPA Sub-test 4	20.35	20.86	21.10
HSUPA Sub-test 5	22.34	22.66	23.08

Mode	Average Power (dBm)							
	LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 41	LTE Band 42	LTE Band 66
BW/1.4 MHz	22.87	23.53	/	23.58	/	/	/	23.06
BW/3.0 MHz	23.01	23.63	/	23.65	/	/	/	23.15
BW/5.0 MHz	23.15	23.76	22.37	23.79	23.51	22.48	22.65	23.32
BW/10 MHz	23.04	23.67	22.24	23.65	23.44	22.43	22.47	23.19
BW/15 MHz	23.00	/	22.23	/	/	22.39	22.39	23.14
BW/20 MHz	23.02	/	22.29	/	/	22.38	22.37	23.24

ENDC ANT 0:

Mode	Average Power (dBm)			
	LTE Band 2	LTE Band 7	LTE Band 41	LTE Band 66
BW/1.4 MHz	19.99	/	/	20.20
BW/3.0 MHz	19.91	/	/	20.08
BW/5.0 MHz	20.01	19.31	19.71	20.31
BW/10 MHz	19.80	19.16	19.61	20.17
BW/15 MHz	19.80	19.07	19.57	20.09
BW/20 MHz	19.79	19.14	19.48	20.20

Mode	Average Power (dBm)							
	NR n5	NR n7	NR n12	NR n41	NR n66	NR Band n77 3450-3550	NR Band n77 3550-3700	NR Band n77 3700-3980
BW/10MHz	23.13	22.61	23.31	25.68	22.90	26.43	26.28	26.30
BW/15MHz	23.16	22.58	23.25	25.61	22.89	26.44	26.21	26.24
BW/20MHz	23.10	22.59	/	25.65	22.92	26.56	26.20	26.23
BW/30MHz	/	/	/	25.62	22.88	26.52	26.29	26.32
BW/40MHz	/	/	/	25.57	/	26.47	26.10	26.38
BW/50MHz	/	/	/	25.61	/	26.57	26.21	26.43
BW/60MHz	/	/	/	25.58	/	26.48	26.21	26.39
BW/80MHz	/	/	/	25.61	/	26.48	26.39	26.50
BW/90MHz	/	/	/	25.58	/	26.35	26.38	26.40
BW/100MHz	/	/	/	25.51	/	26.27	26.26	26.36

ANT 12:

WLAN 2.4 GHz Band Average Power (dBm)					
Mode/Band	b	g	n (HT-20)	ax20	ax40
WLAN 2.4GHz	16.64	13.88	14.22	11.18	11.05

ANT 4:

WLAN 2.4 GHz Band Average Power (dBm)					
Mode/Band	b	g	n (HT-20)	ax20	ax40
WLAN 2.4GHz	16.64	13.59	12.75	9.42	9.31

ANT12:

WLAN 5.2 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.2GHz	12.55	13.21	10.98	10.56	11.20	11.05	10.75	13.61	14.11

ANT4:

WLAN 5.2 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.2GHz	12.40	11.93	9.62	9.06	9.90	9.72	9.39	12.41	12.50

ANT12:

WLAN 5.3 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.3GHz	13.13	12.86	11.06	11.06	10.73	10.58	11.02	13.74	13.48

ANT4:

WLAN 5.3 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.3GHz	12.30	11.93	9.84	10.37	10.31	9.94	10.45	13.23	12.74

ANT12:

WLAN 5.6 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.6GHz	12.40	11.71	9.87	9.64	9.51	10.01	10.82	12.75	13.07

ANT4:

WLAN 5.6 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.6GHz	13.12	13.05	10.59	11.39	11.01	10.74	11.69	14.03	13.59

ANT12:

WLAN 5.8 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.8GHz	12.61	11.39	9.48	9.18	9.32	9.67	9.37	12.39	12.22

ANT4:

WLAN 5.8 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax20	ax40	ax80	n 20	n 40
WLAN 5.8GHz	12.94	13.15	11.32	11.14	11.41	11.60	11.22	14.4	13.86

Bluetooth Average Power (dBm)							
Mode/Band	1 Mbps (GFSK)	2 Mbps (π/4DQPSK)	3 Mbps (8DPSK)	BLE PHY 1M	BLE PHY 2M	BLE Coded PHY S=2	BLE Coded PHY S=8
Bluetooth	8.25	7.80	8.18	3.34	3.31	3.40	3.34

NFC Band Average Power (dBm)	
Mode/Band	ASK
NFC	-57.67

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021.

5.4 Environment of Test Site

Temperature:	18°C ~25 °C
Humidity:	35%~75% RH
Atmospheric Pressure:	1010 mbar

5.5 Test Sample Plan

Sample Number	Used for Test Items
SZR142400021-2	SAR
***Remark**: JianYan Testing Group Shenzhen Co., Ltd. is only responsible for the test project data of the above samples, and will keep the above samples for a month.*	

5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Test Location

JianYan Testing Group Shenzhen Co., Ltd.
No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community,Xinqiao Street, Bao'an District, Shenzhen, Guangdong,People's Republic of China.
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Email: info-JYTee@lets.com, Website: http://jyt.lets.com

6 Introduction

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:

$$SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right) = \frac{d}{dt}\left(\frac{dU}{\rho dv}\right)$$

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

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength. However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 RF Exposure Limits

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

7.3 RF Exposure Limits

SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
SPATIAL PEAK SAR Brain	1.6	8.0
SPATIAL AVERAGE SAR Whole Body	0.08	0.4
SPATIAL PEAK SAR Hands, Feet, Ankles, Wrists	4.0	20

Note:

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

8 SAR Measurement System

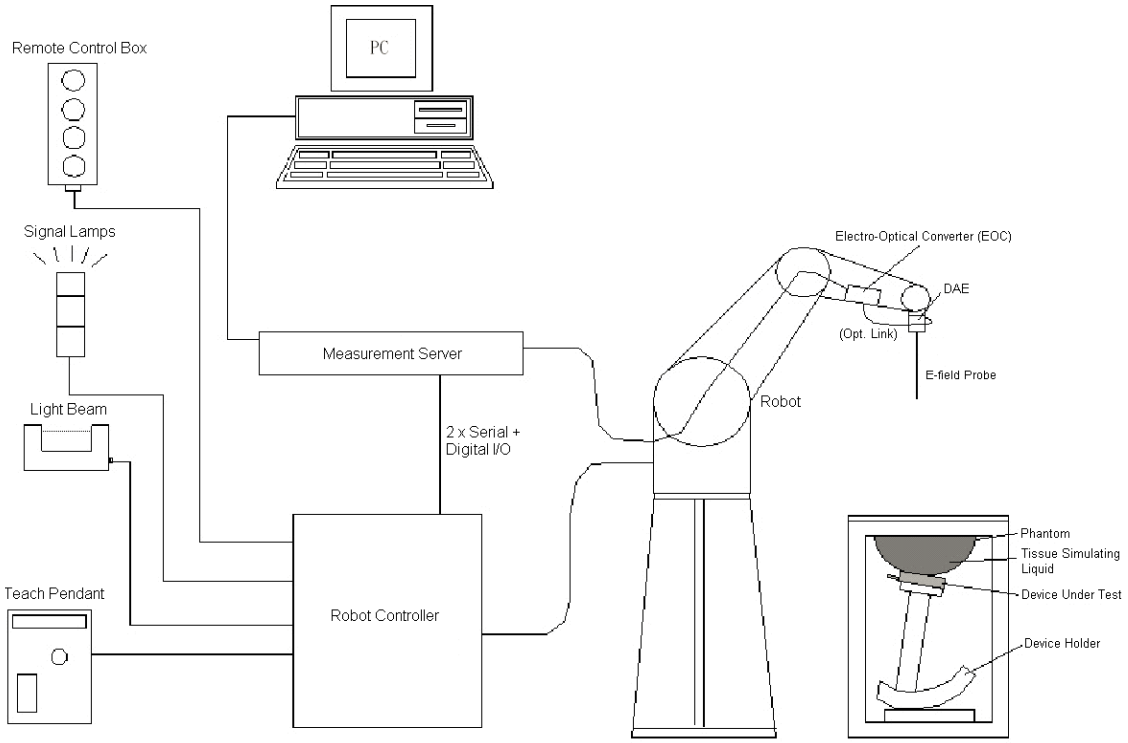

Fig. 8.1 SPEAG DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Component details are described in the following sub-sections.

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

- **E-Field Probe Specification**
  <EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency Directivity	10 MHz to 6 GHz; Linearity: ± 0.2 dB ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μW/g to 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 330 mm (Tip: 20mm) Tip diameter: 2.5 mm (Body: 12mm) Typical distance from probe tip to dipole centers: 1 mm

Fig. 8.2 Photo of E-Field Probe

- **E-Field Probe Calibration**
  Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (Norm X, Norm Y and Norm Z), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix E of this report.

8.2 Data Acquisition Electronics (DAE)

The Data acquisition electronics (DAE) consists 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 and 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 input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig. 8.3 Photo of DAE

8.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX60L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; nobelt drives)
- Jerk-free straight movements
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)

Fig. 8.4 Photo of Robot

8.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY 5: 400MHz, Intel Celeron), chip-disk (DASY5: 128 MB), RAM (DASY5: 128 MB). 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 the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

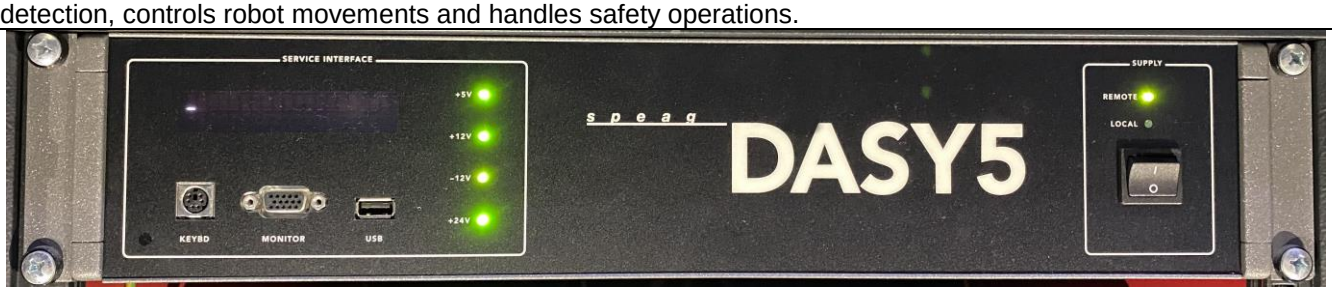

Fig. 8.5 Photo of Server for DASY5

8.5 Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

Fig. 8.6 Photo of Light Beam

8.6 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume **Dimensions**	Approx. 25 liters Length: 1000mm; Width: 500mm; Height: adjustable feet
Measurement Areas	Left Head, Right Head, Flat phantom

Fig. 8.7 Photo of SAM Twin Phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI4 Phantom >

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209-2 and all known tissue simulating liquids.
ELI4 has been optimized regarding its performance and can be integrated into a SPEAG standard phantom table. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points
The phantom can be used with the following tissue simulating liquids:

- Water-sugar based liquids can be left permanently in the phantom. Always cover the liquid if the system is not in use; otherwise the parameters will change due to water evaporation.
- DGBE based liquids should be used with care. As DGBE is a softener for most plastics, the liquid should be taken out of the phantom and the phantom should be dried when the system is not in use (desirable at least once a week).
- Do not use other organic solvents without previously testing the phantom resistiveness

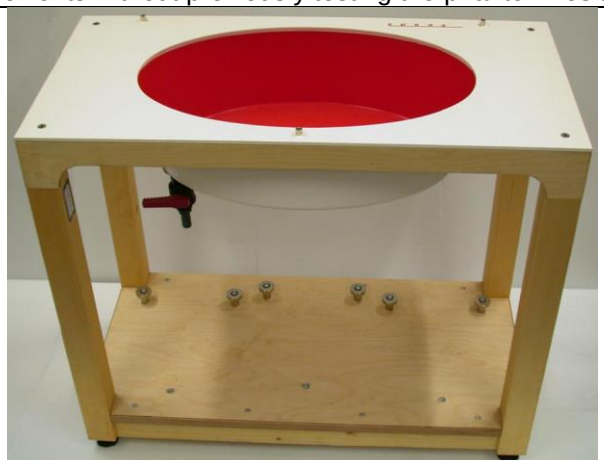

Fig.8.8 Photo of ELI4 Phantom

8.7 Device Holder

<Device Holder for SAM Twin 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 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 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 different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center 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-low POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 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.

Fig. 8.9 Photo of Device Holder

8.8 Data storage and Evaluation

- **Data Storage**

  The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verifications of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

  The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

- **Data Evaluation**

  The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe Parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion	$ConvF_i$
	- Diode compression point	dcp_i
Device Parameters:	- Frequency	f
	- Crest	cf
Media Parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

With V_i = compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp^i = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated:

E- Field Probes: $E_i = \sqrt{\frac{v_i}{Norm_i \cdot ConvF}}$

H-Field Probes: $H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$

With V_i = compensated signal of channel i, (i = x, y, z)
$Norm_i$ = senor sensitivity of channel i, (i = x, y, z), μV/ $(V/m)^2$
ConvF = sensitivity enhancement in solution
a_{ij} = sensor sensitivity factors for H-field probes
f = carrier frequency (GHz)
E_i = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

With SAR = local specific absorption rate in mW/g
E_{tot} = total field strength in V/m
σ = conductivity in (mho/m) or (Siemens/m)
ρ = equipment tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

8.9 Test Equipment List

Manufacturer	Equipment Description	Model	Management Number	Cal. Information	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	WXJ023-1	06.08.2022	06.07.2025
SPEAG	2450MHz System Validation Kit	D2450V2	WXJ023-3	06.06.2022	06.05.2025
SPEAG	2600MHz System Validation Kit	D2600V2	WXJ023-4	10.28.2021	10.27.2024
SPEAG	Data Acquisition Electronics	DAE4	WXJ021-1	03.26.2024	03.25.2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	WXJ022	03.20.2024	03.19.2025
SPEAG	DASY 52 Measurement Software	DASY 52	Version 52.10.4.1527	N.C.R	N.C.R
SPEAG	DASY 52 File Conversion Software	SEMCAD X	Version 14.6.14 (7501)	N.C.R	N.C.R
SPEAG	Robot Controller	CS8Cspeag-TX60	WXG021-1	N.C.R	N.C.R
SPEAG	Phantom	Twin SAM Phantom	WXG021-4	N.C.R	N.C.R
SPEAG	Phantom	ELI V5.0	WXG021-5	N.C.R	N.C.R
SPEAG	Phone Positioner	N/A	WXG021-6	N.C.R	N.C.R
St?ubli	Robot	TX60Lspeag	WXG021-3	N.C.R	N.C.R
KEYSIGHT	UXM 5G Wireless Test Platform	E7515B	WXJ008-6	09.25.2023	09.24.2024
R&S	Broadband radio communication tester	CMW500	WXJ008-3	06.13.2023	06.12.2024
Anritsu	Universal Radio Communication Analyzer	MT8820C	WXJ008-5	01.10.2023	01.09.2025
R&S	Universal Radio Communication Tester	CMU200	WXJ008-2	12.27.2023	12.26.2025
KEYSIGHT	Network Analyzer	E5071C	WXJ091	12.27.2023	12.26.2024
KEYSIGHT	EPM Series Power Meter	N1914A	WXJ075	06.11.2024	06.10.2025
KEYSIGHT	E-Series Power Sensor	E9300H	WXJ075-1	06.11.2024	06.10.2025
KEYSIGHT	E-Series Power Sensor	E9300H	WXJ075-2	06.11.2024	06.10.2025
KEYSIGHT	Signal Generator	N5173B	WXJ006-3	09.25.2023	09.24.2024
Huber Suhner	RF Cable	SUCOFLEX	WXG008-13	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	WXG008-14	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	WXG008-15	See Note 3	
Weinschel	Attenuator	23-3-34	WXG008-16	See Note 3	
Anritsu	Directional Coupler	MP654A	WXG008-17	See Note 3	
SPEAG	Dielectric Assessment Kit	3.5 Probe	WXG008-7	See Note 4	
SPEAG	DAK Measurement Software	DAK	Version: DAK 3.5	N.C.R	
TXC	Broadband Amplifier	BBA018000	WXG008-11	See Note 5	

Note:

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
4. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Speag.
5. In system check we need to monitor the level on the spectrum analyzer, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1 W input power according to the ratio of 1 W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the spectrum analyzer is critical and we do have calibration for it
6. Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
7. N.C.R means No Calibration Requirement.

9 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 9.1, for body SAR testing, the liquid height from the center of the flat phantom to liquid top surface is larger than 15 cm, which is shown in Fig. 9.2.

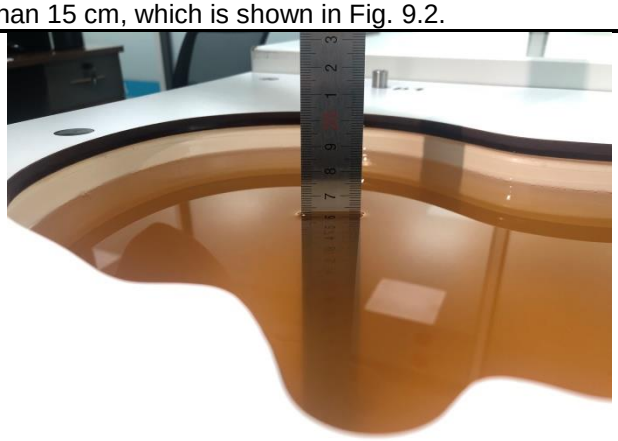

Fig. 9.1 Photo of Liquid Height for Head SAR

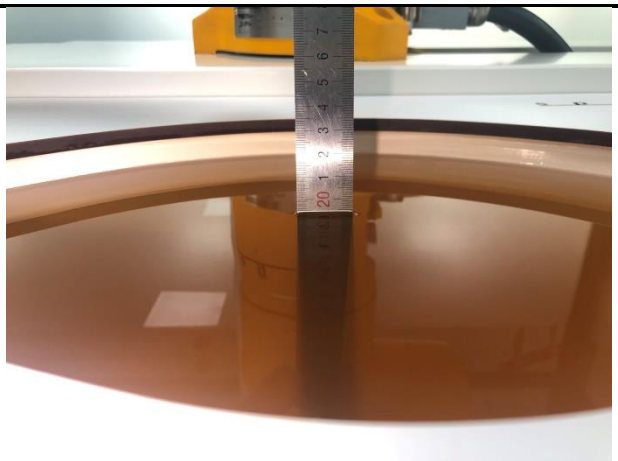

Fig. 9.2 Photo of Liquid Height for Body SAR

The relative permittivity and conductivity of the tissue material should be within ±5% of the values given in the table below recommended by the FCC OET 65 supplement C and RSS 102 Issue 5.

Target Frequency (MHz)	εr	σ(S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800-2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5800	35.3	5.27

(εr = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

The dielectric parameters of liquids were verified prior to the SAR evaluation using a Speag Dielectric Probe Kit and an Agilent Network Analyzer.
The following table shows the measuring results for simulating liquid.

Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (εr)	Conductivity Target(σ)	Permittivity Target(εr)	Delta (σ)%	Delta (εr)%	Limit (%)	Date (mm/dd/yy)
835	22.4	0.90	41.32	0.90	41.50	0.00	-0.43	±5	08.01.2024
2450	22.7	1.78	38.90	1.80	39.20	-1.11	-0.77	±5	08.03.2024
2600	22.7	1.94	38.71	1.96	39.00	-1.02	-0.75	±5	08.03.2024

10 SAR System Verification

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

- **Purpose of System Performance check**
  The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

- **System Setup**

In the simplified setup for system evaluation, the EUT 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:

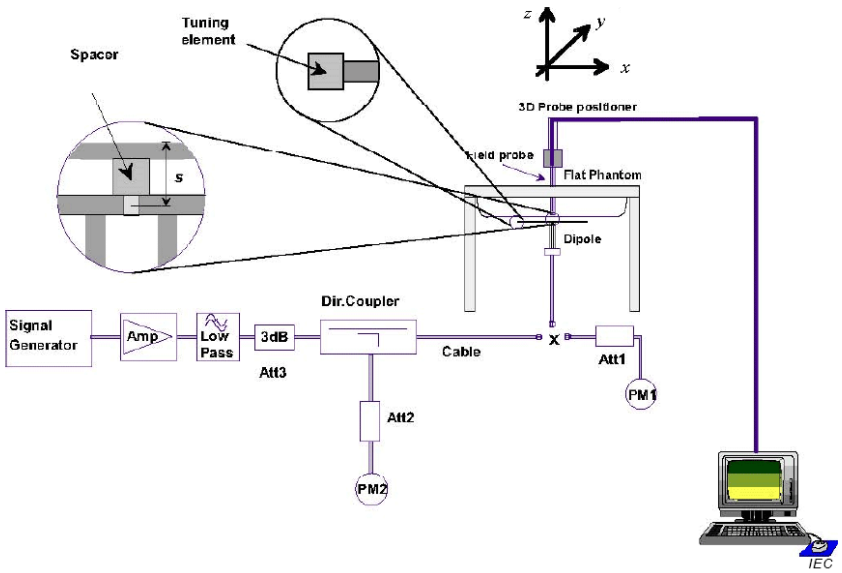

Fig.10.1 System Verification Setup Diagram

Fig.10.2 Photo of Dipole setup

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- **System Verification Results**
  Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10%. The table as below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix C of this report.

Date (mm/dd/yy)	Frequency (MHz)	Power fed onto dipole (mW)	Measured 1g SAR (W/kg)	Normalized to1W 1g SAR (W/kg)	1W Target 1g SAR (W/kg)	Deviation (%)
08.01.2024	835	80	0.831	10.39	9.6	8.23
08.03.2024	2450	40	2.170	54.25	53.4	1.59
08.03.2024	2600	40	2.240	56.00	55.3	1.27

11 EUT Testing Position

This EUT was tested in sixteen different positions. They are right cheek/right tilted/left cheek/left tilted for head, Front/Back/Left Side/Right Side/Top Side/Bottom Side of the unflip EUT with phantom 10 mm gap, Front/Back/Left Side/Right Side/Top Side/Bottom Side of the flip EUT with phantom 5 mm gap, as illustrated below, please refer to Appendix B for the test setup photos.

11.1 Handset Reference Points

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

Fig.11.1 Illustration for Front, Back and Side of SAM Phantom

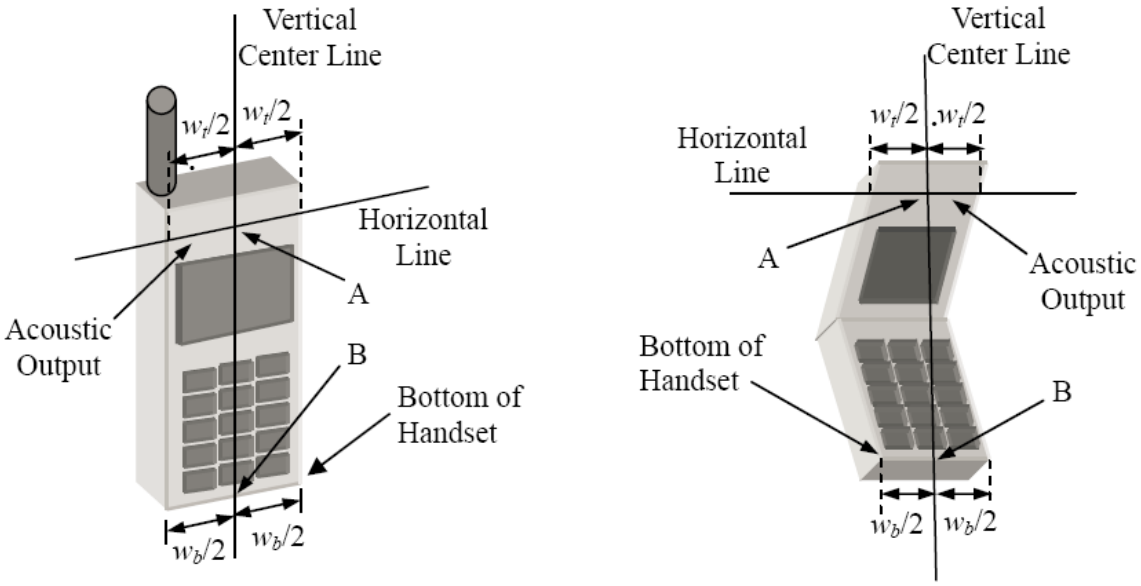


Fig. 11.2 Illustration for Handset Vertical and Horizontal Reference Lines

11.2 Positioning for Cheek / Touch

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

Fig. 11.3 Illustration for Cheek Position

11.3 Positioning for Ear / 15o Tilt

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

Fig.11.4 Illustration for Tilted Position

11.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR locations identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

11.5 Body Worn Accessory Configurations

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 10 mm or holster surface and the flat phantom to 0 mm.

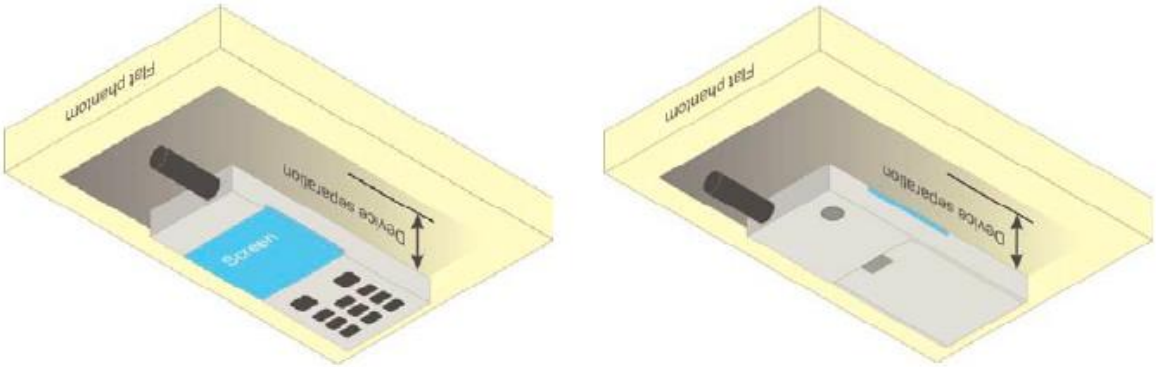


Fig.11.5 Illustration for Body Worn Position

11.6 Wireless Router (Hotspot) Configurations

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

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. Therefore, SAR must be evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

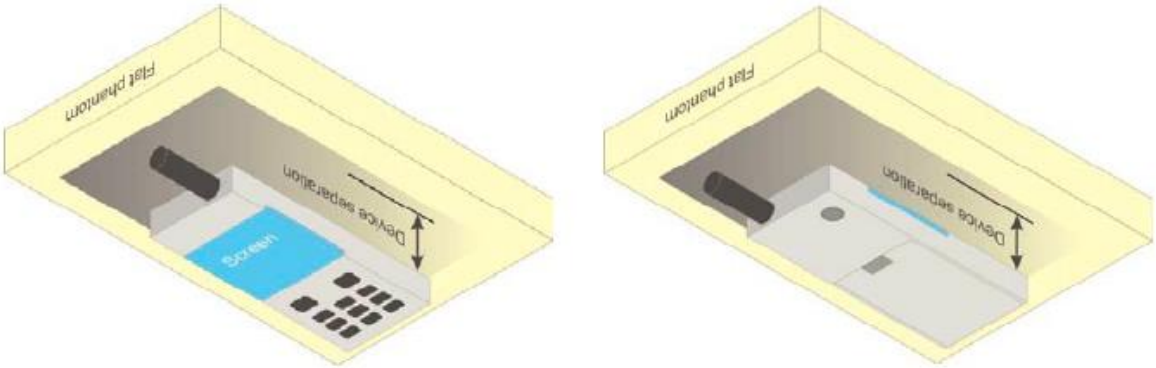


Fig.11.6 Illustration for Hotspot Position

11.7 LTE CA additional specification

The device supports intra-band contiguous uplink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

a) Intra-band carrier aggregation requirements for uplink.

The possible uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0.

SAR test procedure for intra-band contiguous UL LTE CA is as below:
1) Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05
–UL PCC configuration is determined by the required test channel
–SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.
2) SAR for UL CA is required in each exposure condition and frequency band combination
3) For this device , as the maximum output for Intra-band uplink LTE CA is ≤ standalone LTE mode (without CA),
- PCC is configured according to the highest standalone SAR configuration tested.
- SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC
4) When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)
5)UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

E-UTRA CA Band	E-UTRA Band	Uplink(UL) operating band	Downlink(DL) operating band	Duplex Mode
		BS receive/ UE transmit	BS transmit/ UE receive	
		F_{UL_low}-F_{UL_high}	F_{DL_low} –F_{DL_high}	
CA_7	7	2500MHz~2570MHz	2620MHz ~2690MHz	FDD
CA_41	41	2535MHz~2655MHz	2535MHz~2655MHz	TDD

12 Measurement Procedures

The measurement procedures are as below:

<Conducted power measurement>

- For WWAN power measurement, use base station simulator to configure EUT WWAN transition in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- Read the WWAN RF power level from the base station simulator.
- For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
- Connect EUT RF port through RF cable to the power meter or spectrum analyzer, and measure WLAN/BT output power.

<Conducted power measurement>

- Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- Place the EUT in positions as Appendix B demonstrates.
- Set scan area, grid size and other setting on the DASY software.
- Measure SAR results for the highest power channel on each testing position.
- Find out the largest SAR result on these testing positions of each band.
- Measure SAR results for other channels in worst SAR testing position if the Reported SAR or highest power channel is larger than 0.8 W/kg.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Area scan
- Zoom scan
- Power drift measurement

12.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a “cube” measurement. The measured volume must include the 1g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- Extraction of the measured data (grid and values) from the Zoom Scan.
- Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).
- Generation of a high-resolution mesh within the measured volume.
- Interpolation of all measured values form the measurement grid to the high-resolution grid
- Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- Calculation of the averaged SAR within masses of 1g and 10g.

12.2 Power Reference Measurement

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

12.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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 *reported* 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.

12.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD post-processor scan combine and subsequently superpose these measurement data to calculating the multiband SAR.

12.5 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1g and 10g cubes, the extrapolation distance should not be larger than 5 mm.

12.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

13 Conducted RF Output Power

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021.

Uplink CA power

CA_7C								
PCC Channel	SCC Channel	Bandwidth (MHz)	Modulation	PCC		SCC		Average Power (dBm)
				RB Size	RB Offset	RB Size	RB Offset	
20850	21048	20+20	QPSK	1	99	0	0	20.28
21100	20902			1	99	0	0	20.27
21350	21152			1	99	0	0	20.21

CA_41C								
PCC Channel	SCC Channel	Bandwidth (MHz)	Modulation	PCC		SCC		Average Power (dBm)
				RB Size	RB Offset	RB Size	RB Offset	
40140	40338	20+20	QPSK	1	99	0	0	20.69
40640	40692			1	99	0	0	20.32
41140	40942			1	99	0	0	20.33

14 Exposure Positions Consideration

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021

15 SAR Test Results Summary

15.1 Standalone Head SAR Data

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021

➢ The Worst Case of Head SAR (NR n7(20MHz) DFT-BPSK)

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
1	NR n7/25@12	5	Right Cheek	512000	2560	Unflip	22.89	-0.06	23.0	**0.986**	1.026	1.012
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**						

➢ FDD-LTE Band 7(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
	Band7/1RB#49	5	Right Cheek	20850	2510	Unflip	22.29	0.16	22.5	0.427	1.05	0.448
2	Band7C/1RB#49 CA	5	Right Cheek	20850	2510	Unflip	20.28	-0.02	20.5	**0.276**	1.052	0.290
	Band7/1RB#49	5	Right Tilted	20850	2510	Unflip	22.29	-0.03	22.5	0.219	1.05	0.230
	Band7/1RB#49	5	Left Cheek	20850	2510	Unflip	22.29	0.20	22.5	0.074	1.05	0.078
	Band7/1RB#49	5	Left Tilted	20850	2510	Unflip	22.29	0.04	22.5	0.032	1.05	0.033
	Band7/50%RB#24	5	Right Cheek	20850	2510	Unflip	21.21	0.01	21.5	0.312	1.069	0.334
	Band7/50%RB#24	5	Right Tilted	20850	2510	Unflip	21.21	-0.10	21.5	0.203	1.069	0.217
	Band7/50%RB#24	5	Left Cheek	20850	2510	Unflip	21.21	-0.12	21.5	0.066	1.069	0.071
	Band7/50%RB#24	5	Left Tilted	20850	2510	Unflip	21.21	-0.11	21.5	0.021	1.069	0.022
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**						

➢ TDD-LTE Band41(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR_{1g} (W/kg)
	Band41/1RB#99	5	Right Cheek	41490	2680	Unflip	22.38	0.03	22.5	0.270	1.028	1.008	0.280
	Band41/1RB#99	5	Right Tilted	41490	2680	Unflip	22.38	0.15	22.5	0.372	1.028	1.008	0.385
3	Band41C/1RB#99 CA	5	Right Tilted	41490	2680	Unflip	20.33	-0.07	21.0	**0.239**	1.167	1.008	0.281
	Band41/1RB#99	5	Left Cheek	41490	2680	Unflip	22.38	0.02	22.5	0.087	1.028	1.008	0.090
	Band41/1RB#99	5	Left Tilted	41490	2680	Unflip	22.38	-0.08	22.5	0.096	1.028	1.008	0.099
	Band41/50%RB#49	5	Right Cheek	41490	2680	Unflip	21.36	-0.15	21.5	0.265	1.033	1.008	0.276
	Band41/50%RB#49	5	Right Tilted	41490	2680	Unflip	21.36	-0.17	21.5	0.331	1.033	1.008	0.345
	Band41/50%RB#49	5	Left Cheek	41490	2680	Unflip	21.36	0.08	21.5	0.075	1.033	1.008	0.078
	Band41/50%RB#49	5	Left Tilted	41490	2680	Unflip	21.36	-0.01	21.5	0.086	1.033	1.008	0.090
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**							

Note:

1. Per KDB 447498 D04v01, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
2. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg.
3. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
4. Per KDB 248227 D01v02r02, for 802.11b DSSS , when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in that exposure configuration.

5. Per KDB 248227 D01v02r02, OFDM SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. Cuz the maximum output power specified for OFDM and DSSS are 25.12mW(14.0dBm) and 50.12 mW(17.0dBm), the scaled SAR would be 0.260×(25.12/50.12)=0.130W/Kg<1.2 W/kg, therefore, SAR is not required for OFDM.
6. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination
7. Highlight part of test data means repeated test.
8. *: Due the antenna location and antenna performance results the SAR value lower than the lowest system limit, then we show “<0.001 W/Kg” in the report.

15.2 Standalone Body SAR

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021

➢ The Worst Case of Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
4	GPRS850/4 slots	3	Back	128	824.2	Flip	5mm	29.43	0.13	29.5	**1.040**	1.016	1.057
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**							

➢ FDD-LTE Band 7(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
	Band7/1RB#49	5	Front	20850	2510	Unflip	10mm	22.29	0.00	22.5	0.055	1.050	0.058
	Band7/1RB#49	5	Back	20850	2510	Unflip	10mm	22.29	-0.02	22.5	0.066	1.050	0.070
5	Band7C/1RB#99 CA	5	Back	20850	2510	Unflip	10mm	20.28	0.01	20.5	**0.065**	1.052	0.069
	Band7/50%RB#24	5	Front	20850	2510	Unflip	10mm	21.21	-0.04	21.5	0.049	1.069	0.052
	Band7/50%RB#24	5	Back	20850	2510	Unflip	10mm	21.21	-0.02	21.5	0.062	1.069	0.066
	Band7/1RB#49	5	Front	20850	2510	Flip	5mm	22.29	0.17	22.5	0.131	1.050	0.138
6	Band7C/1RB#99 CA	5	Front	20850	2510	Flip	5mm	20.28	-0.04	20.5	**0.108**	1.052	0.114
	Band7/1RB#49	5	Back	20850	2510	Flip	5mm	22.29	-0.13	22.5	0.023	1.050	0.024
	Band7/50%RB#24	5	Front	20850	2510	Flip	5mm	21.21	0.11	21.5	0.116	1.069	0.124
	Band7/50%RB#24	5	Back	20850	2510	Flip	5mm	21.21	0.03	21.5	0.021	1.069	0.022
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**							

➢ TDD-LTE Band 41(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR_{1g} (W/kg)
	Band41/1RB#99	5	Front	41490	2680	Unflip	10mm	22.38	0.16	22.5	0.044	1.028	1.008	0.045
	Band41/1RB#99	5	Back	41490	2680	Unflip	10mm	22.38	0.00	22.5	0.058	1.028	1.008	0.060
7	Band41C/1RB#99 CA	5	Back	41490	2680	Unflip	10mm	20.33	0.01	20.5	**0.047**	1.040	1.008	0.049
	Band41/50%RB#49	5	Front	41490	2680	Unflip	10mm	21.36	-0.03	21.5	0.036	1.033	1.008	0.037
	Band41/50%RB#49	5	Back	41490	2680	Unflip	10mm	21.36	0.16	21.5	0.047	1.033	1.008	0.049
	Band41/1RB#99	5	Front	41490	2680	Flip	5mm	22.38	0.06	22.5	0.133	1.028	1.008	0.138
8	Band41C/1RB#99 CA	5	Front	41490	2680	Flip	5mm	20.31	-0.07	20.5	**0.078**	1.045	1.008	0.082
	Band41/1RB#99	5	Back	41490	2680	Flip	5mm	22.38	-0.02	22.5	0.025	1.028	1.008	0.026
	Band41/50%RB#49	5	Front	41490	2680	Flip	5mm	21.36	-0.04	21.5	0.118	1.033	1.008	0.123
	Band41/50%RB#49	5	Back	41490	2680	Flip	5mm	21.36	0.02	21.5	0.022	1.033	1.008	0.023
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**								

Note:

1. Body-worn SAR testing was performed at 10mm separation, and this distance is determined by the handset manufacturer that there will be body-worn accessories that users may acquire at the time of equipment certification, to enable users to purchase aftermarket body-worn accessories with the required minimum separation.
2. Per KDB 941225 D06v02r01, when the same wireless modes and device transmission configurations are required for testing body-worn accessories and hotspot mode, it is not necessary to test body-worn accessory SAR for the same device orientation if the test separation distance for hotspot mode is more conservative than that used for body-worn accessories.

3. Body-worn exposure conditions are intended to voice call operations, therefore GSM voice call is selected to be tested.
4. Per KDB 648474 D04v01r03, when the *Reported* SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
5. The WLAN SAR perform the front and back position, due considered the simultaneous SAR for body-worn.
6. Per KDB 447498 D04v01, for each exposure position, if the highest output channel Reported SAR ≤0.8W/kg, other channels SAR testing is not necessary.
7. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥0.8W/kg.
8. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
9. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
10. Highlight part of test data means repeated test.
11. *: Due the antenna location and antenna performance results the SAR value lower than the lowest system limit, then we show “<0.001 W/Kg” in the report.

15.3 Body SAR in Hotspot Mode

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021

➢ The Worst Case of Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
4	GPRS850/4 slots	3	Back	128	824.2	Flip	5mm	29.43	0.13	29.5	**1.040**	1.016	1.057
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**1.6 W/kg (mW/g) Averaged over 1g**					

➢ FDD-LTE Band 7(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)
	Band7/1RB#49	5	Front	20850	2510	Unflip	10mm	22.29	0.00	22.5	0.055	1.050	0.058
	Band7/1RB#49	5	Back	20850	2510	Unflip	10mm	22.29	-0.02	22.5	0.066	1.050	0.070
	Band7C/1RB#99 CA	5	Back	20850	2510	Unflip	10mm	20.28	0.01	20.5	0.065	1.052	0.069
	Band7/1RB#49	5	Left	20850	2510	Unflip	10mm	22.29	-0.02	22.5	0.136	1.050	0.143
9	Band7C/1RB#99 CA	5	Left	20850	2510	Unflip	10mm	20.28	-0.18	20.5	**0.096**	1.052	0.101
	Band7/1RB#49	5	Top	20850	2510	Unflip	10mm	22.29	0.08	22.5	0.024	1.050	0.025
	Band7/50%RB#24	5	Front	20850	2510	Unflip	10mm	21.21	-0.04	21.5	0.049	1.069	0.052
	Band7/50%RB#24	5	Back	20850	2510	Unflip	10mm	21.21	-0.02	21.5	0.062	1.069	0.066
	Band7/50%RB#24	5	Left	20850	2510	Unflip	10mm	21.21	0.11	21.5	0.118	1.069	0.126
	Band7/50%RB#24	5	Top	20850	2510	Unflip	10mm	21.21	-0.19	21.5	0.020	1.069	0.021
	Band7/1RB#49	5	Front	20850	2510	Flip	5mm	22.29	0.17	22.5	0.131	1.050	0.138
	Band7C/1RB#99 CA	5	Back	20850	2510	Flip	5mm	20.28	-0.04	20.5	0.108	1.052	0.114
	Band7/1RB#49	5	Back	20850	2510	Flip	5mm	22.29	-0.13	22.5	0.023	1.050	0.024
	Band7/1RB#49	5	Left	20850	2510	Flip	5mm	22.29	0.08	22.5	0.656	1.050	0.689
10	Band7C/1RB#99 CA	5	Left	20850	2510	Flip	5mm	20.28	0.01	20.5	**0.433**	1.052	0.456
	Band7/1RB#49	5	Bottom	20850	2510	Flip	5mm	22.29	-0.03	22.5	0.062	1.050	0.065
	Band7/50%RB#24	5	Front	20850	2510	Flip	5mm	21.21	0.11	21.5	0.116	1.069	0.124
	Band7/50%RB#24	5	Back	20850	2510	Flip	5mm	21.21	0.03	21.5	0.021	1.069	0.022
	Band7/50%RB#24	5	Left	20850	2510	Flip	5mm	21.21	-0.19	21.5	0.578	1.069	0.618
	Band7/50%RB#24	5	Bottom	20850	2510	Flip	5mm	21.21	-0.05	21.5	0.053	1.069	0.057
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**1.6 W/kg (mW/g) Averaged over 1g**					

➢ TDD-LTE Band 41(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Form Factor	Spacing	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR_{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR_{1g} (W/kg)
	Band41/1RB#99	5	Front	41490	2680	Unflip	10mm	22.38	0.16	22.5	0.044	1.028	1.008	0.045
	Band41/1RB#99	5	Back	41490	2680	Unflip	10mm	22.38	0.00	22.5	0.058	1.028	1.008	0.060
	Band41C/1RB#99 CA	5	Back	41490	2680	Unflip	10mm	20.33	0.01	20.5	0.047	1.040	1.008	0.049
	Band41/1RB#99	5	Left	41490	2680	Unflip	10mm	22.38	0.08	22.5	0.068	1.028	1.008	0.070
11	Band41C/1RB#99 CA	5	Left	41490	2680	Unflip	10mm	20.33	0.03	20.5	**0.055**	1.040	1.008	0.058
	Band41/1RB#99	5	Top	41490	2680	Unflip	10mm	22.38	-0.13	22.5	0.027	1.028	1.008	0.028
	Band41/50%RB#49	5	Front	41490	2680	Unflip	10mm	21.36	-0.03	21.5	0.036	1.033	1.008	0.037
	Band41/50%RB#49	5	Back	41490	2680	Unflip	10mm	21.36	0.16	21.5	0.047	1.033	1.008	0.049
	Band41/50%RB#49	5	Left	41490	2680	Unflip	10mm	21.36	0.00	21.5	0.059	1.033	1.008	0.061
	Band41/50%RB#49	5	Top	41490	2680	Unflip	10mm	21.36	-0.05	21.5	0.025	1.033	1.008	0.026

	Band41/1RB#99	5	Front	41490	2680	Flip	5mm	22.38	0.06	22.5	0.133	1.028	1.008	0.138
	Band41C/1RB#99 CA	5	Front	41490	2680	Flip	5mm	20.31	-0.07	20.5	0.078	1.045	1.008	0.082
	Band41/1RB#99	5	Back	41490	2680	Flip	5mm	22.38	-0.02	22.5	0.025	1.028	1.008	0.026
	Band41/1RB#99	5	Left	41490	2680	Flip	5mm	22.38	0.00	22.5	0.238	1.028	1.008	0.247
12	Band41C/1RB#99 CA	5	Left	41490	2680	Flip	5mm	20.31	0.07	20.5	**0.190**	1.045	1.008	0.200
	Band41/1RB#99	5	Bottom	41490	2680	Flip	5mm	22.38	-0.10	22.5	0.063	1.028	1.008	0.065
	Band41/50%RB#49	5	Front	41490	2680	Flip	5mm	21.36	-0.04	21.5	0.118	1.033	1.008	0.123
	Band41/50%RB#49	5	Back	41490	2680	Flip	5mm	21.36	0.02	21.5	0.022	1.033	1.008	0.023
	Band41/50%RB#49	5	Left	41490	2680	Flip	5mm	21.36	0.18	21.5	0.214	1.033	1.008	0.223
	Band41/50%RB#49	5	Bottom	41490	2680	Flip	5mm	21.36	-0.07	21.5	0.056	1.033	1.008	0.058
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**1.6 W/kg (mW/g) Averaged over 1g**								

Note:

1. Per KDB 447498 D04v01, for each exposure position, if the highest output channel Reported SAR ≤0.8W/kg, other channels SAR testing is not necessary.
2. Additional WLAN SAR testing was performed for simultaneous transmission analysis.
3. For Hotspot SAR testing, per KDB 941225 D06v02r01, for EUT dimension ≥ 9cm*5cm, the test distance is 10mm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
4. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥0.8W/kg.
5. Per KDB 648474 D04v01r03, when the Reported SAR for a body-worn accessory measured without a headset connected to the handset is > 1.2 W/kg, SAR testing with a headset connected to the handset is required.
6. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel.
7. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
8. Highlight part of test data means repeated test.
9. *: Due the antenna location and antenna performance results the SAR value lower than the lowest system limit, then we show “<0.001 W/Kg” in the report.

15.4 Spot-Cheek SAR measurement

Band/ Mode	Test Position	CH.	Freq. (MHz)	Reported SAR (W/kg)		
				Original	Spot-Cheek Value	Ratio (%)
NR n7/25@12	Right Cheek	512000	2560	1.159	1.026	-12.96
GPRS850/4 slots	Back	128	824.2	1.189	1.057	-12.49
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population				**1.6 W/kg (mW/g) Averaged over 1g**		

Note.

1. Original Reported SAR is the worst-case SAR results based on which reported in the original FCC ID filing. Per Spot-Cheek plan, the ratio of *original* and *Spot-Cheek Value* should be ≤ ±20%.

15.5 Repeated SAR measurement

Please refer to FCC ID: 2ADYY-AE11, report No. JYTSZ-R14-2400021

15.6 Multi-Band Simultaneous Transmission Considerations

➢ **Simultaneous Transmission Capabilities**

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown in below Figure and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

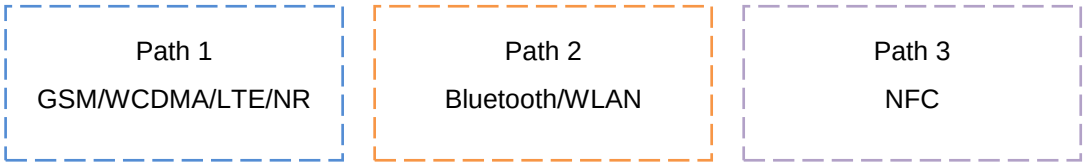


Fig.15.1 Simultaneous Transmission Paths

➢ **Simultaneous Transmission Procedures**

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D04v01, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤ 1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D04v01 Appendix E, E.1), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$SAR_{est} = 1.6 \cdot P_{ant} / P_{th} \text{ [W/kg]}.$$

Mode	Max. Power (dBm)	Max. Power (mW)	Exposure Position	Estimated SAR (W/kg)
NFC	-57.67	0.000002	Head	0.000
			Body	0.000
			Hotspot	0.000

Note:

1. Per KDB 447498 D04v01 section 2.1.2: 1-mW Test Exemption, P_{th} =1mW.

➢ **Multi-Band simultaneous Transmission Consideration**

	Position	Applicable Combination
Simultaneous Transmission Consideration	Head	WWAN (Voice) + WLAN 2.4 GHz+ NFC
		WWAN (Voice) + 5.2GHz/5.3GHz/5.6GHz/5.8GHz + Bluetooth+ NFC
	Body	WWAN (Data) + WLAN 2.4 GHz+ NFC
		WWAN (Data) + 5.2GHz/5.3GHz/5.6GHz/5.8GHz + Bluetooth+ NFC
	Hotspot	WWAN (Data) + WLAN 2.4 GHz+ NFC
		WWAN (Data) + 5.2GHz//5.8GHz + Bluetooth+ NFC

Note:

1. WLAN 2.4GHz Band and Bluetooth cannot transmit simultaneously.
2. WLAN 2.4GHz Band and WLAN 5.2GHz Band, WLAN 5.3GHz Band, WLAN 5.6GHz Band, WLAN 5.8GHz Band cannot transmit simultaneously
3. GSM/WCDMA/LTE shares the same antenna, and cannot transmit simultaneously.
4. For 5GNR EN-DC mode, the simultaneous transmission analysis is used standalone SAR at total power level to show compliance.
5. The Report SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D04v01, simultaneous transmission SAR is compliant if,
   i. Scalar SAR summation < 1.6 W/kg.
   ii. SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan If SPLSR ≤ 0.04, simultaneously transmission SAR

measurement is not necessary

iii. Simultaneously transmission SAR measurement, and the Reported multi-band SAR < 1.6 W/kg

15.7 SAR Simultaneous Transmission Analysis

➢ **Simultaneous Transmission**

Spacing and Position			Standalone SAR_{1g} (W/kg)					Σ SAR_{1g} (W/kg)
			LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 66	NR n7	Max EN-DC
0mm	Head	Right Cheek	0.018	0.149	0.148	0.108	1.159	1.308
		Right Tilted	0.004	0.054	0.107	0.061	0.673	0.780
		Left Cheek	0.054	0.194	0.239	0.125	0.303	0.542
		Left Tilted	0.032	0.069	0.342	0.074	0.181	0.523
10mm	Body-worn	Front	0.007	0.293	0.119	0.015	0.120	0.413
		Back	0.007	0.324	0.155	0.018	0.157	0.481
	Hotspot	Front	0.007	0.293	0.119	0.015	0.120	0.413
		Back	0.007	0.324	0.155	0.018	0.157	0.481
		Left	0.000	0.166	0.000	0.000	0.290	0.456
		Right	0.010	0.000	0.187	0.024	0.000	0.187
		Top	0.003	0.000	0.069	0.015	0.060	0.130
		Bottom	0.000	0.159	0.000	0.000	0.000	0.159
5mm	Body-worn	Front	0.032	0.127	0.243	0.064	0.364	0.364
		Back	0.002	0.680	0.139	0.011	0.068	0.068
	Hotspot	Front	0.032	0.127	0.243	0.064	0.364	0.606
		Back	0.002	0.680	0.139	0.011	0.068	0.748
		Left	0.000	0.256	0.000	0.000	1.057	1.313
		Right	0.031	0.000	0.502	0.054	0.000	0.502
		Top	0.000	0.000	0.000	0.000	0.000	0.000
		Bottom	0.017	0.237	0.100	0.009	0.000	0.420

Spacing and Position			Standalone SAR_{1g} (W/kg)					ΣSAR_{1g} (W/kg)
			LTE Band 5	LTE Band 7	LTE Band 41	LTE Band 66(4)	NR n41(n38)	Max EN-DC
0mm	Head	Right Cheek	0.149	0.148	0.065	0.108	1.017	1.166
		Right Tilted	0.054	0.107	0.058	0.061	0.753	0.814
		Left Cheek	0.194	0.239	0.144	0.125	0.190	0.384
		Left Tilted	0.069	0.342	0.121	0.074	0.150	0.270
10mm	Body- worn	Front	0.293	0.119	0.019	0.015	0.126	0.420
		Back	0.324	0.155	0.023	0.018	0.149	0.473
	Hotspot	Front	0.293	0.119	0.019	0.015	0.126	0.420
		Back	0.324	0.155	0.023	0.018	0.149	0.473
		Left	0.166	0.000	0.000	0.000	0.288	0.454
		Right	0.000	0.187	0.030	0.024	0.000	0.030
		Top	0.000	0.069	0.012	0.015	0.057	0.072
		Bottom	0.159	0.000	0.000	0.000	0.000	0.159
5mm	Body- worn	Front	0.127	0.243	0.062	0.064	0.368	0.368
		Back	0.680	0.139	0.031	0.011	0.074	0.074
	Hotspot	Front	0.127	0.243	0.062	0.064	0.368	0.495
		Back	0.680	0.139	0.031	0.011	0.074	0.754
		Left	0.256	0.000	0.000	0.000	1.097	1.353
		Right	0.000	0.502	0.053	0.054	0.000	0.054
		Top	0.000	0.000	0.000	0.000	0.000	0.000
		Bottom	0.237	0.100	0.025	0.009	0.189	0.426

Spacing and Position			Standalone SAR_{1g} (W/kg)					ΣSAR_{1g} (W/kg)
			LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 66	NR n66	Max EN-DC
0mm	Head	Right Cheek	0.018	0.149	0.148	0.108	0.568	0.717
		Right Tilted	0.004	0.054	0.107	0.061	0.148	0.255
		Left Cheek	0.054	0.194	0.239	0.125	0.269	0.508
		Left Tilted	0.032	0.069	0.342	0.074	0.076	0.418
10mm	Body- worn	Front	0.007	0.293	0.119	0.015	0.092	0.385
		Back	0.007	0.324	0.155	0.018	0.102	0.425
	Hotspot	Front	0.007	0.293	0.119	0.015	0.092	0.385
		Back	0.007	0.324	0.155	0.018	0.102	0.425
		Left	0.000	0.166	0.000	0.000	0.180	0.346
		Right	0.010	0.000	0.187	0.024	0.000	0.187
		Top	0.003	0.000	0.069	0.015	0.052	0.122
		Bottom	0.000	0.159	0.000	0.000	0.000	0.159
5mm	Body- worn	Front	0.032	0.127	0.243	0.064	0.193	0.436
		Back	0.002	0.680	0.139	0.011	0.076	0.756
	Hotspot	Front	0.032	0.127	0.243	0.064	0.193	0.436
		Back	0.002	0.680	0.139	0.011	0.076	0.756
		Left	0.000	0.256	0.000	0.000	0.331	0.587
		Right	0.031	0.000	0.502	0.054	0.000	0.502
		Top	0.000	0.000	0.000	0.000	0.000	0.000
		Bottom	0.017	0.237	0.100	0.009	0.102	0.339

Spacing and Position			Standalone SAR_{1g} (W/kg)						Σ SAR_{1g} (W/kg)
			LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 41(38)	LTE Band 66(4)	NR n77(n78)	Max EN-DC
0mm	Head	Right Cheek	0.655	0.149	0.148	0.065	0.108	0.452	1.107
		Right Tilted	0.153	0.054	0.107	0.058	0.061	0.201	0.354
		Left Cheek	0.273	0.194	0.239	0.144	0.125	0.327	0.600
		Left Tilted	0.075	0.069	0.342	0.121	0.074	0.128	0.470
10mm	Body- worn	Front	0.098	0.293	0.119	0.019	0.015	0.035	0.329
		Back	0.077	0.324	0.155	0.023	0.018	0.066	0.389
	Hotspot	Front	0.098	0.293	0.119	0.019	0.015	0.035	0.329
		Back	0.077	0.324	0.155	0.023	0.018	0.066	0.389
		Left	0.134	0.166	0.000	0.000	0.000	0.014	0.180
		Right	0.000	0.000	0.187	0.030	0.024	0.000	0.187
		Top	0.020	0.000	0.069	0.012	0.015	0.013	0.082
		Bottom	0.000	0.159	0.000	0.000	0.000	0.000	0.159
5mm	Body- worn	Front	0.182	0.127	0.243	0.062	0.064	0.110	0.110
		Back	0.053	0.680	0.139	0.031	0.011	0.019	0.019
	Hotspot	Front	0.182	0.127	0.243	0.062	0.064	0.110	0.353
		Back	0.053	0.680	0.139	0.031	0.011	0.019	0.698
		Left	0.524	0.256	0.000	0.000	0.000	0.136	0.659
		Right	0.000	0.000	0.502	0.053	0.054	0.000	0.502
		Top	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Bottom	0.039	0.237	0.100	0.025	0.009	0.027	0.265

Spacing and Position			Max Standalone SAR_{1g} (W/kg)					Σ SAR_{1g} (W/kg)	
			1	2	4	5	6	1+2+6	1+4+5+6
			MAX WWAN	2.4G MIMO	5G MIMO	BT	NFC		
0mm	Head	Right Cheek	1.308	0.218	0.211	0.000	0.000	1.526	1.519
		Right Tilted	0.860	0.134	0.088	0.000	0.000	0.994	0.948
		Left Cheek	0.600	0.242	0.375	0.005	0.000	0.842	0.98
		Left Tilted	0.523	0.260	0.168	0.011	0.000	0.783	0.702
10mm	Body-worn	Front	0.480	0.065	0.062	0.007	0.000	0.545	0.549
		Back	0.606	0.034	0.018	0.000	0.000	0.64	0.624
	Hotspot	Front	0.480	0.065	0.062	0.007	0.000	0.545	0.549
		Back	0.606	0.034	0.015	0.000	0.000	0.64	0.621
		Left	0.676	0.062	0.029	0.000	0.000	0.738	0.705
		Right	0.187	0.004	0.008	0.004	0.000	0.191	0.199
		Top	0.215	0.046	0.011	0.003	0.000	0.261	0.229
		Bottom	0.251	0.000	0.000	0.000	0.000	0.251	0.251
5mm	Body-worn	Front	0.673	0.329	0.060	0.000	0.000	1.002	0.733
		Back	1.189	0.078	0.008	0.000	0.000	1.267	1.197
	Hotspot	Front	0.673	0.329	0.060	0.005	0.000	1.002	0.738
		Back	1.189	0.078	0.008	0.000	0.000	1.267	1.197
		Left	1.353	0.229	0.124	0.000	0.000	1.582	1.477
		Right	0.502	0.017	0.010	0.005	0.000	0.519	0.517
		Top	0.000	0.147	0.018	0.000	0.000	0.147	0.018
		Bottom	0.438	0.216	0.027	0.010	0.000	0.654	0.475

➢ **Simultaneous Transmission Conclusion**

The above numerical summed SAR results for all the case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D04v01.

15.8 Measurement Uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEC/IEEE 62209-1528:2020 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

15.9 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested. Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

16 Reference

[1]. FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2]. ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3]. IEC/IEEE 62209-1528:2020, “Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices –Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)”, October 2020

[4]. SPEAG DASY52 System Handbook

[5]. FCC KDB 248227 D01 v02r02, “SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS”, October 2015

[6]. FCC KDB 447498 D04 v01, “RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES”, November 2021

[7]. FCC KDB 648474 D04 v01r03, “SAR EVALUATION CONSIDERATIONS FOR WIRELESS HANDSETS”, October 2015

[8]. FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, October 2015

[9]. FCC KDB 941225 D05 v02r05, “SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES”, Dec 2015

[10]. FCC KDB 941225 D06 v02r01, " SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES", October 2015

[11]. FCC KDB 865664 D01 v01r04, “SAR MEASUREMENT REQUIREMENTS FOR 100 MHz TO 6 GHz”, August 2015

Appendix A: Plots of SAR System Check

Test Laboratory: JYTSZ Date: 08.01.2024

DUT: Dipole 835 MHz; Type: D835V2; Serial: SN:4D154

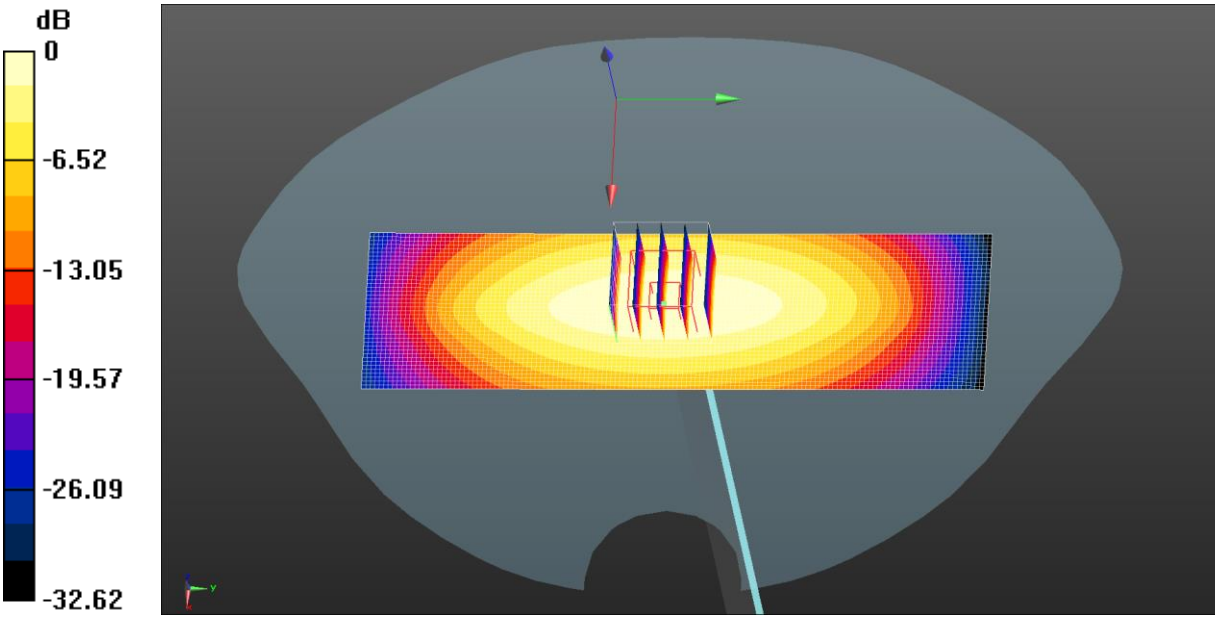
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.90 S/m; ε_r = 41.323; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(9.85, 9.85, 9.85) @ 835 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at Frequency835 MHz Head Tissue/d=15mm, Pin=80 mW, dist=1.4mm (EX-Probe)/Area Scan (41x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.15 W/kg

System Performance Check at Frequency835 MHz Head Tissue/d=15mm, Pin=80 mW, dist=1.4mm (EX-Probe)/Zoom Scan (7x7x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.93 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.831 W/kg; SAR(10 g) = 0.532 W/kg
Smallest distance from peaks to all points 3 dB below = 17.2 mm
Ratio of SAR at M2 to SAR at M1 = 61.9%
Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.15 W/kg = 0.59 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: SN:910

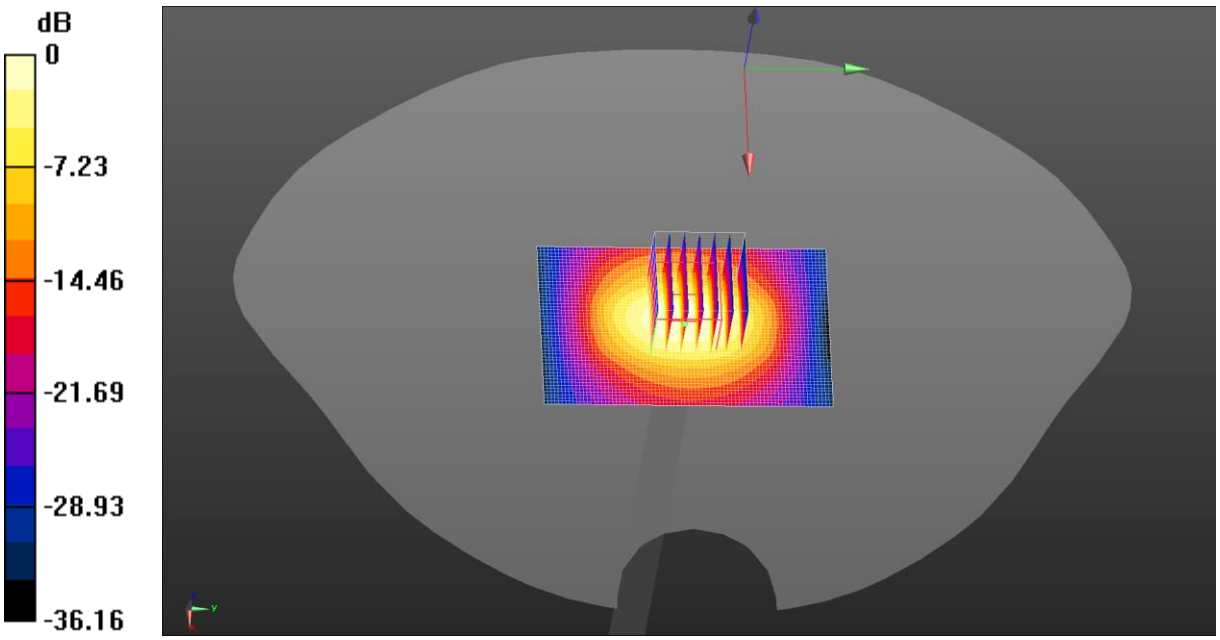
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.779 S/m; ε_r = 38.901; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2450 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at Frequency2450 MHz Head Tissue/d=10mm, Pin=40 mW, dist=1.4mm (EX-Probe)/Area Scan (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 3.65 W/kg

System Performance Check at Frequency2450 MHz Head Tissue/d=10mm, Pin=40 mW, dist=1.4mm (EX-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.65 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 4.55 W/kg
SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 49%
Maximum value of SAR (measured) = 3.48 W/kg



0 dB = 3.65 W/kg = 5.63 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: SN:1114

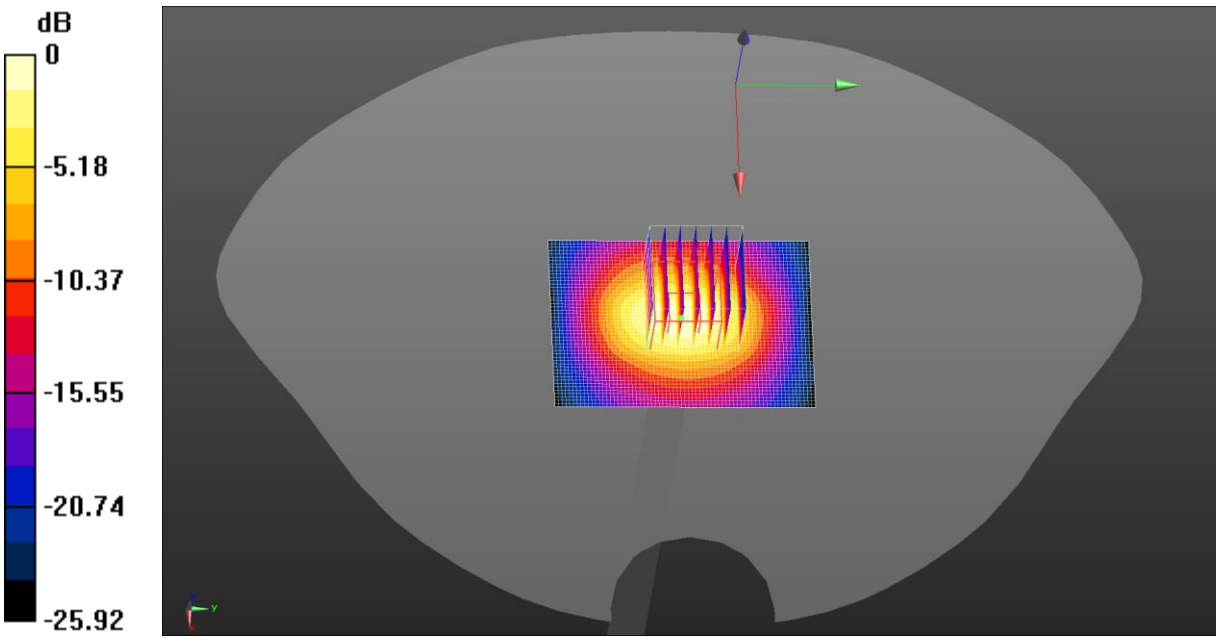
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.943 S/m; ε_r = 38.71; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2600 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at Frequency2600 MHz Head Tissue/d=10mm, Pin=40 mW, dist=1.4mm (EX-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.67 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.81 W/kg
SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.000 W/kg
Smallest distance from peaks to all points 3 dB below = 8.9 mm
Ratio of SAR at M2 to SAR at M1 = 47.4%
Maximum value of SAR (measured) = 3.70 W/kg

System Performance Check at Frequency2600 MHz Head Tissue/d=10mm, Pin=40 mW, dist=1.4mm (EX-Probe)/Area Scan (51x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.23 W/kg



0 dB = 3.70 W/kg = 5.69 dBW/kg

Appendix B: Plots of SAR Test Data

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, NR (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.895 S/m; ε_r = 38.757; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

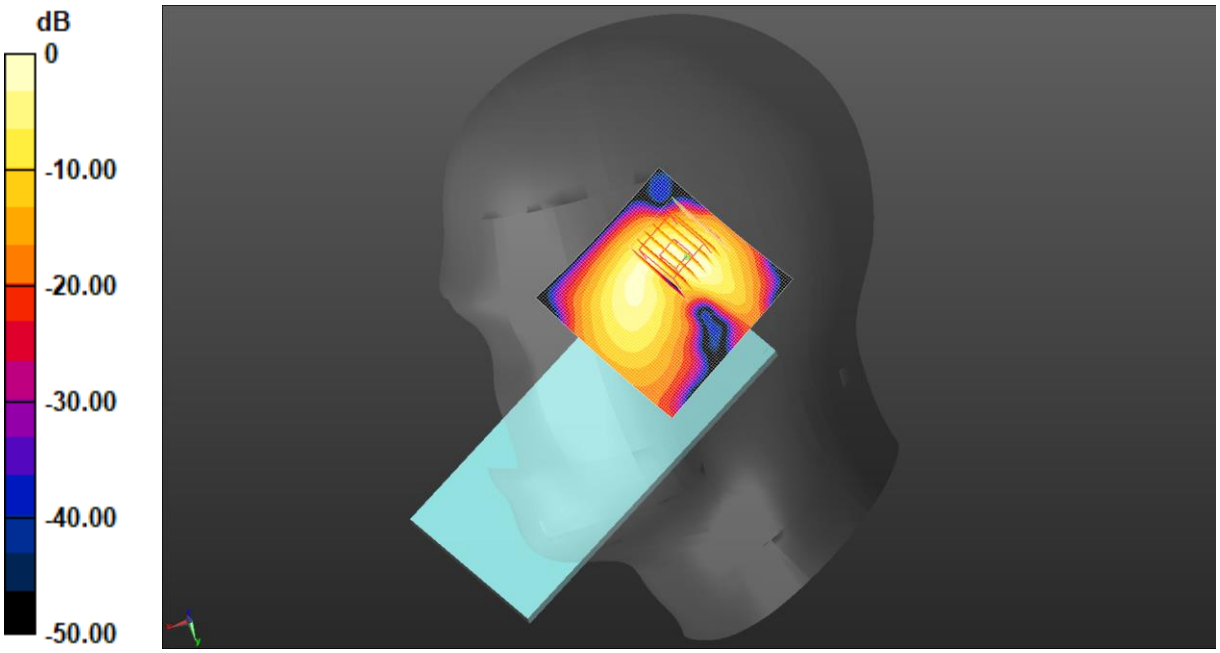
- Probe: EX3DV4 - SN7601; ConvF(7.6, 7.6, 7.6) @ 2560 MHz; Calibrated: 01.29.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 11.27.2023
- Phantom: SAM-Twin; Type: QD 000 P40 CD; Serial: 1885
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

NR n7 50%RB(20MHz) Right Cheek/High Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.64 W/kg

NR n7 50%RB(20MHz) Right Cheek/High Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.359 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 0.986 W/kg; SAR(10 g) = 0.369 W/kg
Smallest distance from peaks to all points 3 dB below = 5.7 mm
Ratio of SAR at M2 to SAR at M1 = 40%
Maximum value of SAR (measured) = 1.73 W/kg



0 dB = 1.64 W/kg = 2.16 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-Fdd(USA) 1RB QPSK (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2510 MHz; σ = 1.868 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

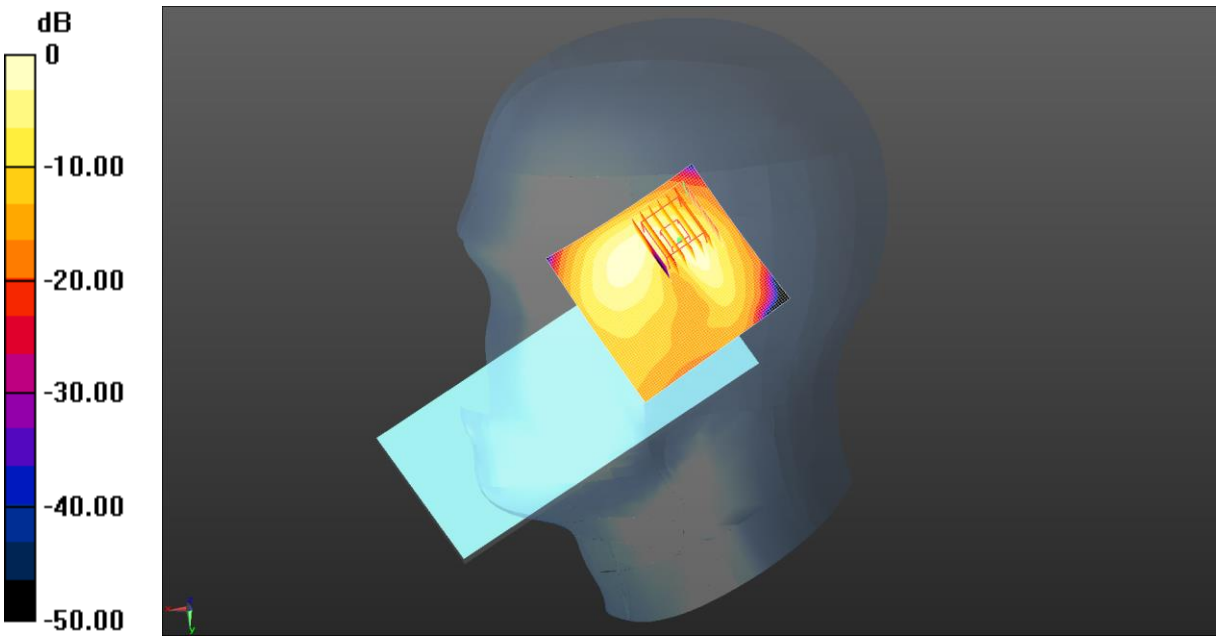
- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 7C 1RB(20MHz) Right Cheek/Low Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.352 W/kg

LTE Band 7C 1RB(20MHz) Right Cheek/Low Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.696 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.628 W/kg
SAR(1 g) = 0.276 W/kg; SAR(10 g) = 0.111 W/kg
Smallest distance from peaks to all points 3 dB below = 5.1 mm
Ratio of SAR at M2 to SAR at M1 = 47.1%
Maximum value of SAR (measured) = 0.487 W/kg



0 dB = 0.352 W/kg = -4.53 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-TDD(USA) 20MHz 1RB QPSK (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59956
Medium parameters used (interpolated): f = 2680 MHz; σ = 1.931 S/m; ε_r = 38.715; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

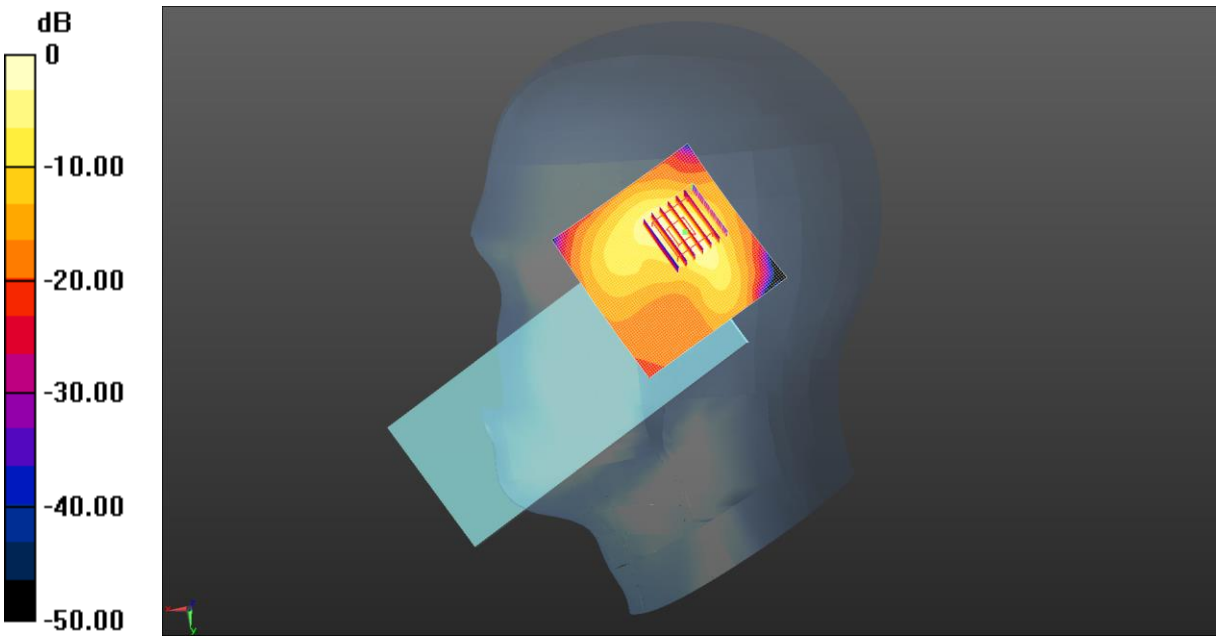
- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2680 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 41C 1RB(20MHz) Right Tilted/High Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.370 W/kg

LTE Band 41C 1RB(20MHz) Right Tilted/High Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.989 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.550 W/kg
SAR(1 g) = 0.239 W/kg; SAR(10 g) = 0.094 W/kg
Smallest distance from peaks to all points 3 dB below = 6.1 mm
Ratio of SAR at M2 to SAR at M1 = 46.8%
Maximum value of SAR (measured) = 0.411 W/kg



0 dB = 0.370 W/kg = -4.32 dBW/kg

Test Laboratory: JYTSZ Date: 08.01.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

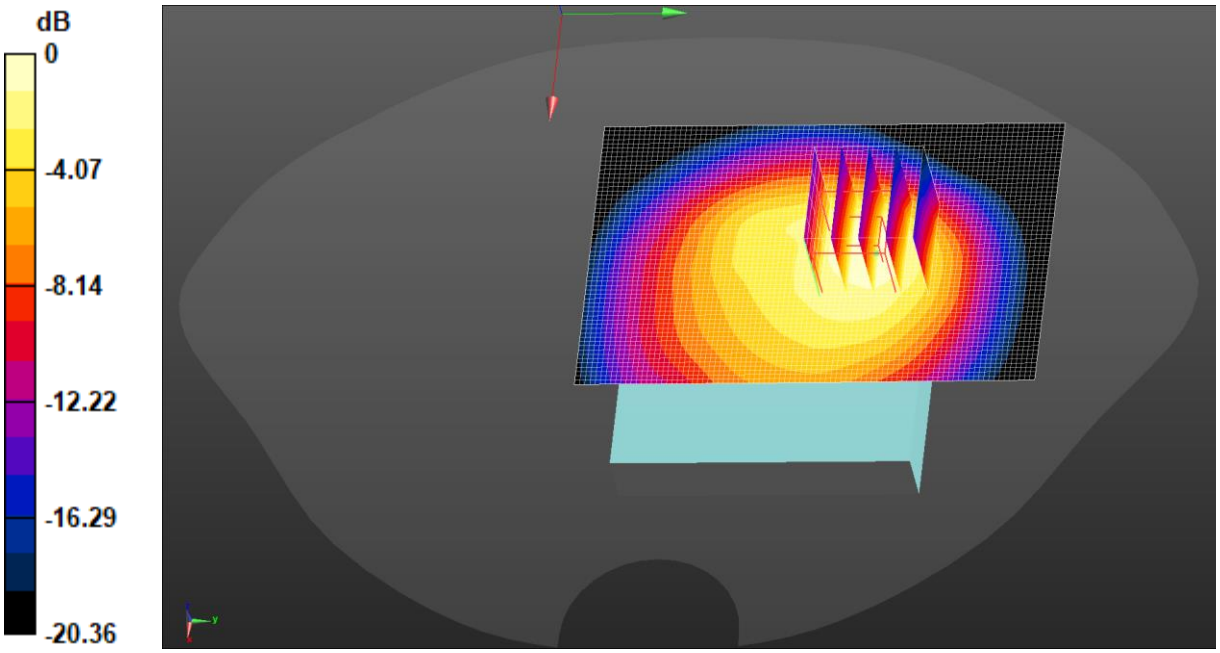
Communication System: UID 0, GPRS(4 Slots) (0); Frequency: 824.2 MHz;Duty Cycle: 1:1.99986
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.898 S/m; ε_r = 41.362; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7601; ConvF(10.3, 10.3, 10.3) @ 824.2 MHz; Calibrated: 01.29.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1373; Calibrated: 11.27.2023
- Phantom: SAM-Twin; Type: QD 000 P40 CD; Serial: 1885
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

GPRS 850 4Slots Body Back/Low Channel/Area Scan (61x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.54 W/kg

GPRS 850 4Slots Body Back/Low Channel/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.35 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 2.36 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.588 W/kg
Smallest distance from peaks to all points 3 dB below = 9.1 mm
Ratio of SAR at M2 to SAR at M1 = 47.4%
Maximum value of SAR (measured) = 1.63 W/kg



Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-Fdd(USA) 1RB QPSK (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2510 MHz; σ = 1.868 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

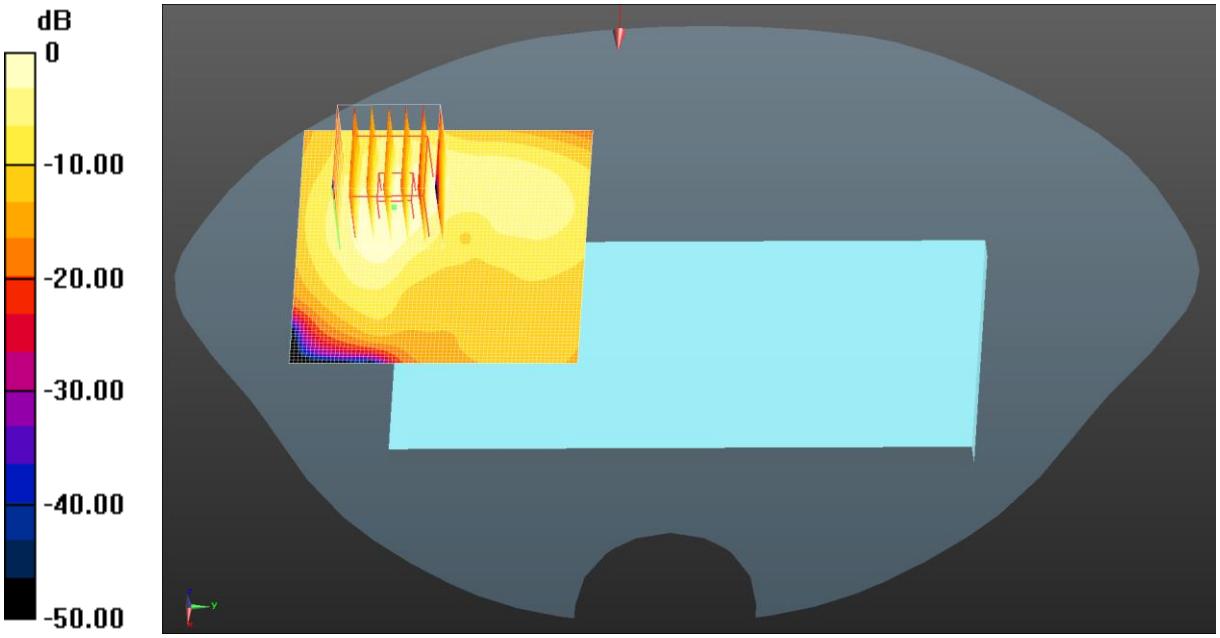
- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 7C 1RB(20MHz) Body Back/Low Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0973 W/kg

LTE Band 7C 1RB(20MHz) Body Back/Low Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.400 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.130 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.031 W/kg
Smallest distance from peaks to all points 3 dB below = 9.4 mm
Ratio of SAR at M2 to SAR at M1 = 51%
Maximum value of SAR (measured) = 0.105 W/kg



0 dB = 0.0973 W/kg = -10.12 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-Fdd(USA) 1RB QPSK (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2510 MHz; σ = 1.868 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

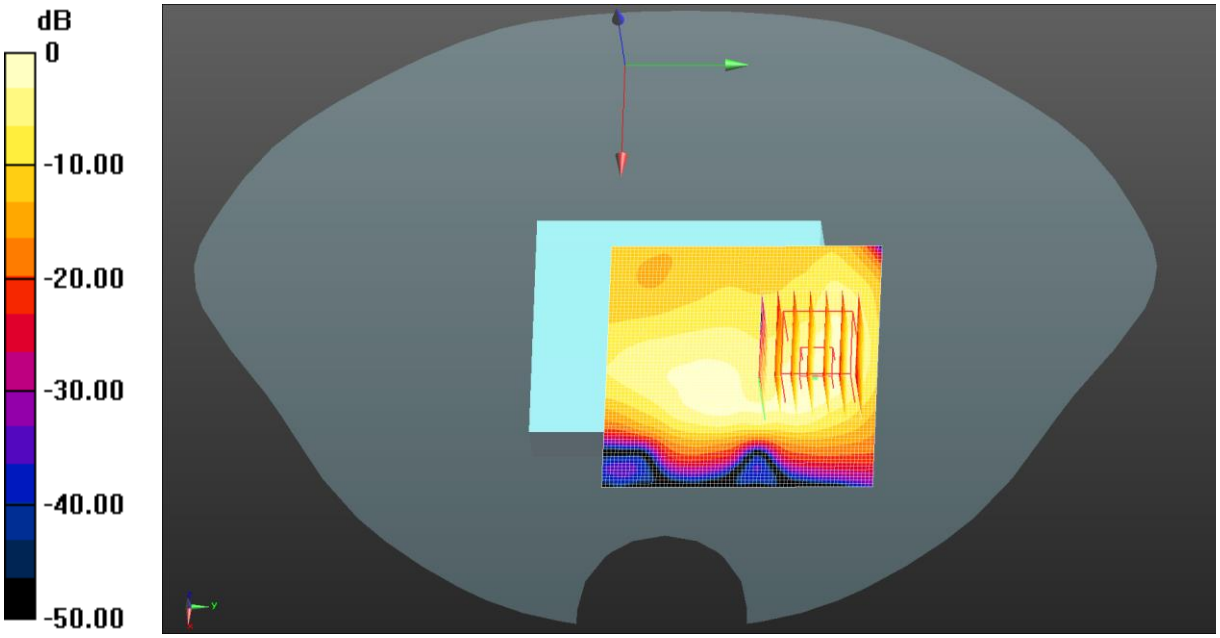
- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 7C 1RB(20MHz) Closed Front/Low Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.156 W/kg

LTE Band 7C 1RB(20MHz) Closed Front/Low Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.257 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.046 W/kg
Smallest distance from peaks to all points 3 dB below = 7.3 mm
Ratio of SAR at M2 to SAR at M1 = 47.7%
Maximum value of SAR (measured) = 0.187 W/kg



0 dB = 0.156 W/kg = -8.06 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-TDD(USA) 20MHz 1RB QPSK (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59956
Medium parameters used (interpolated): f = 2680 MHz; σ = 1.931 S/m; ε_r = 38.715; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

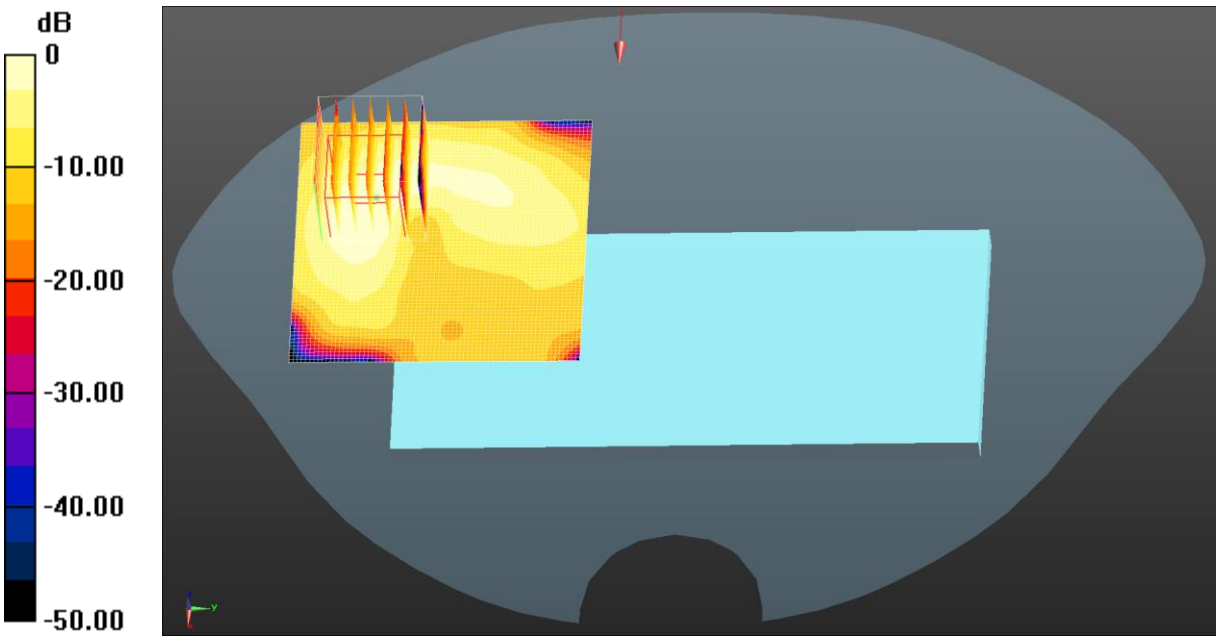
- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2680 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 41C 1RB(20MHz) Body Back/High Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0728 W/kg

LTE Band 41C 1RB(20MHz) Body Back/High Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.479 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0960 W/kg
SAR(1 g) = 0.047 W/kg; SAR(10 g) = 0.021 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (> 15 mm)
Ratio of SAR at M2 to SAR at M1 = 48.6%
Maximum value of SAR (measured) = 0.0763 W/kg



0 dB = 0.0728 W/kg = -11.38 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-TDD(USA) 20MHz 1RB QPSK (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59956
Medium parameters used (interpolated): f = 2680 MHz; σ = 1.931 S/m; ε_r = 38.715; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

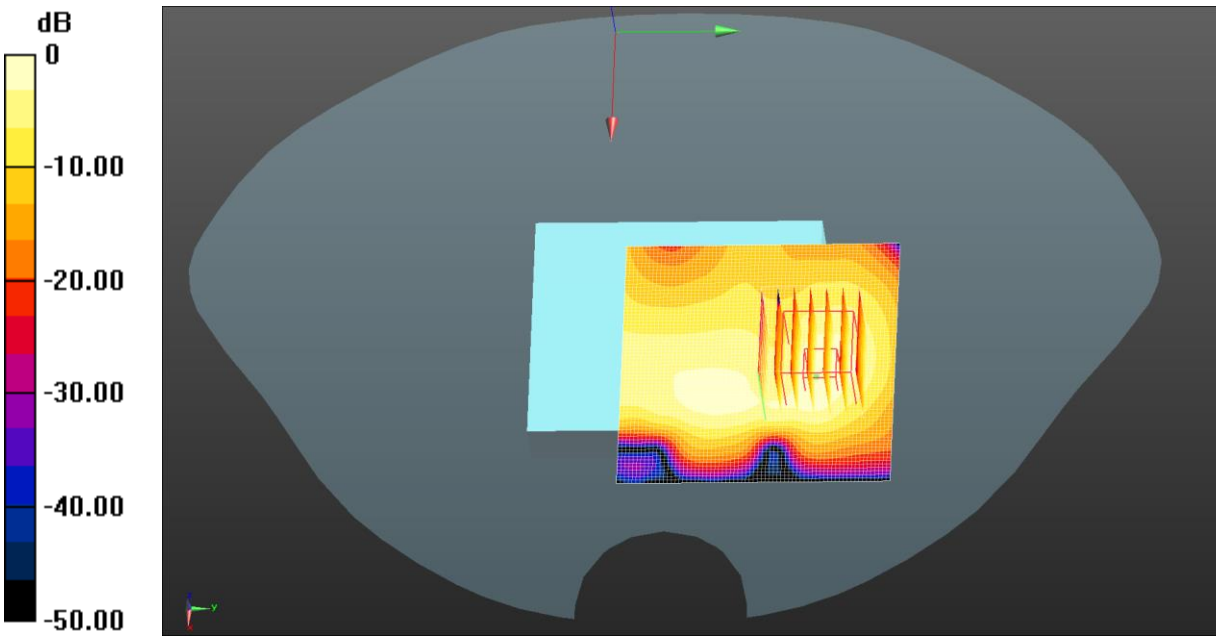
- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2680 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 41C 1RB(20MHz) Closed Front/High Channel/Area Scan (71x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.136 W/kg

LTE Band 41C 1RB(20MHz) Closed Front/High Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.215 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.034 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 48%
Maximum value of SAR (measured) = 0.131 W/kg



0 dB = 0.136 W/kg = -8.67 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-Fdd(USA) 1RB QPSK (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2510 MHz; σ = 1.868 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

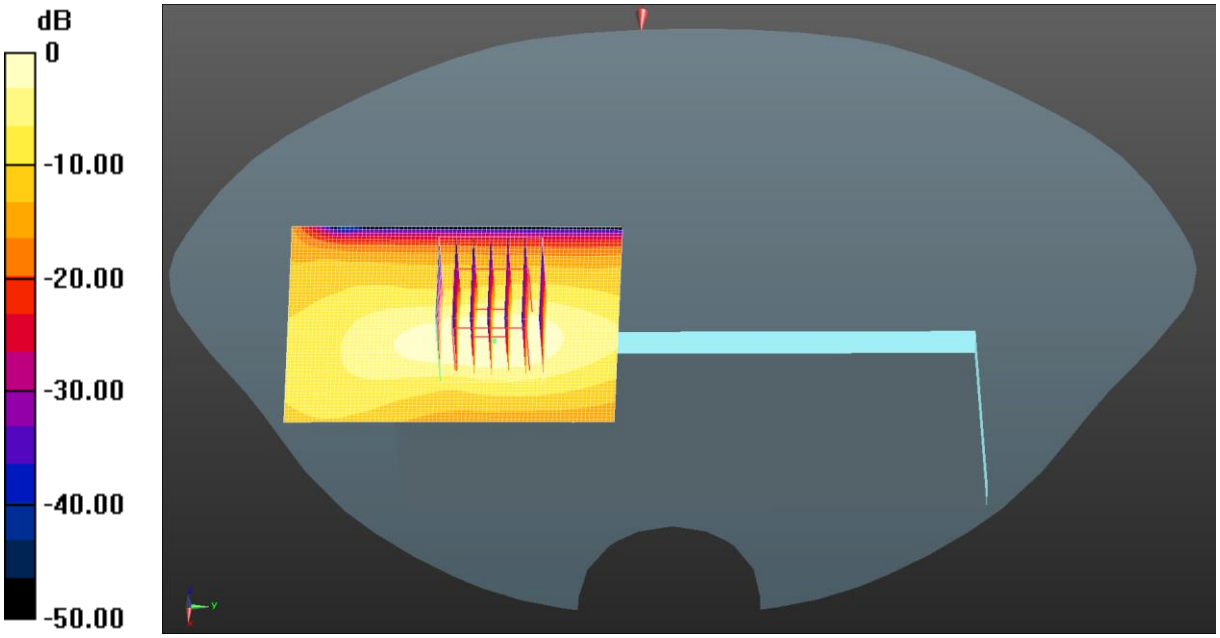
- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 7C 1RB(20MHz) Body Left/Low Channel/Area Scan (61x81x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.157 W/kg

LTE Band 7C 1RB(20MHz) Body Left/Low Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.984 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.204 W/kg
SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.045 W/kg
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 47.7%
Maximum value of SAR (measured) = 0.162 W/kg



0 dB = 0.157 W/kg = -8.03 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-Fdd(USA) 1RB QPSK (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2510 MHz; σ = 1.868 S/m; ε_r = 38.789; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

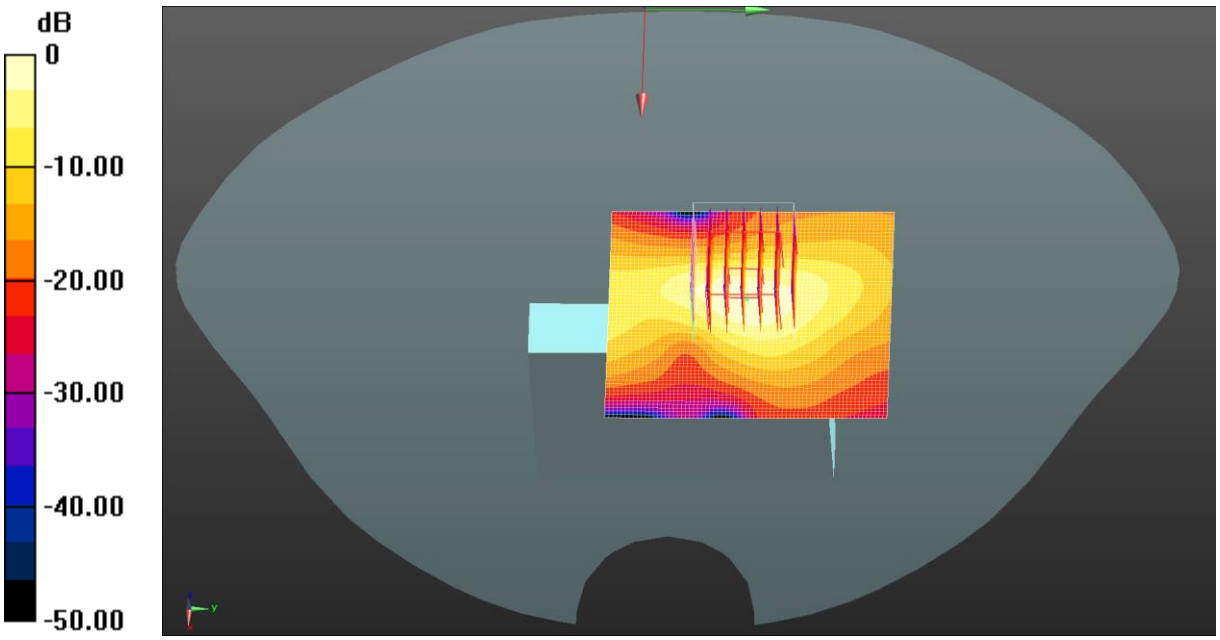
- Probe: EX3DV4 - SN3924; ConvF(7.59, 7.59, 7.59) @ 2510 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 7C 1RB(20MHz) Closed Left/Low Channel/Area Scan (61x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.621 W/kg

LTE Band 7C 1RB(20MHz) Closed Left/Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.906 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.433 W/kg; SAR(10 g) = 0.161 W/kg
Smallest distance from peaks to all points 3 dB below = 6 mm
Ratio of SAR at M2 to SAR at M1 = 42.7%
Maximum value of SAR (measured) = 0.841 W/kg



0 dB = 0.621 W/kg = -2.07 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-TDD(USA) 20MHz 1RB QPSK (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59956
Medium parameters used (interpolated): f = 2680 MHz; σ = 1.931 S/m; ε_r = 38.715; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

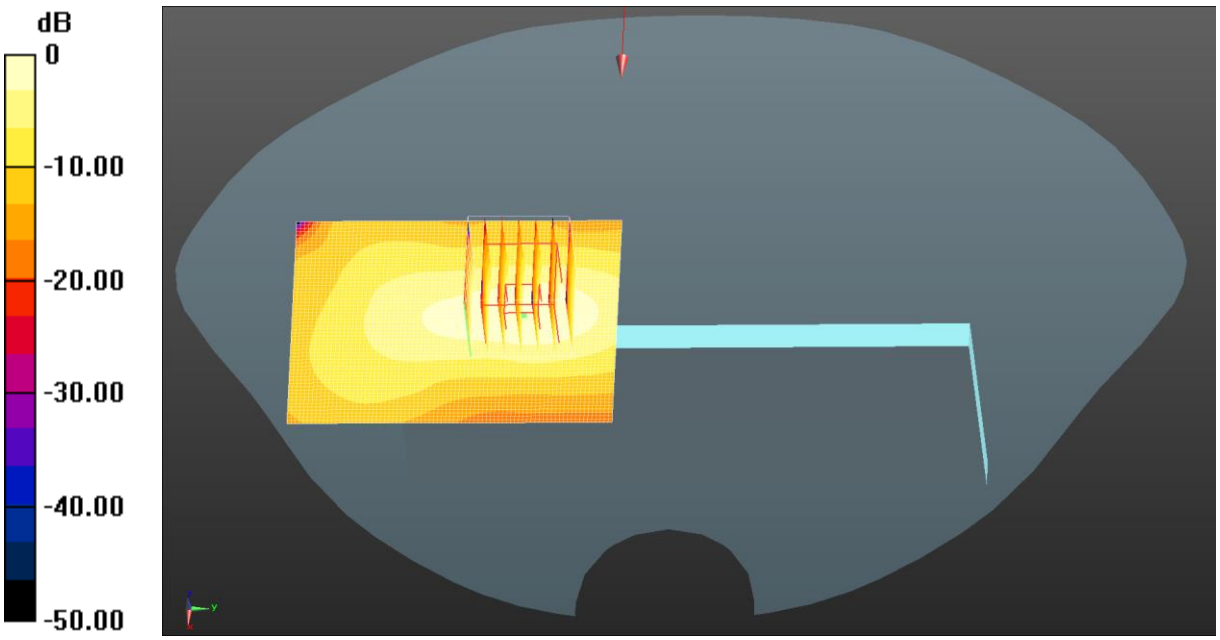
- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2680 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 41C 1RB(20MHz) Body Left/High Channel/Area Scan (61x81x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0923 W/kg

LTE Band 41C 1RB(20MHz) Body Left/High Channel/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.428 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.027 W/kg
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (> 15 mm)
Ratio of SAR at M2 to SAR at M1 = 48.3%
Maximum value of SAR (measured) = 0.0915 W/kg



0 dB = 0.0923 W/kg = -10.35 dBW/kg

Test Laboratory: JYTSZ Date: 08.03.2024

DUT: Mobile Phone; Type: AE11; Serial: SZR142400021-2

Communication System: UID 0, LTE-TDD(USA) 20MHz 1RB QPSK (0); Frequency: 2680 MHz;Duty Cycle: 1:1.59956
Medium parameters used (interpolated): f = 2680 MHz; σ = 1.931 S/m; ε_r = 38.715; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

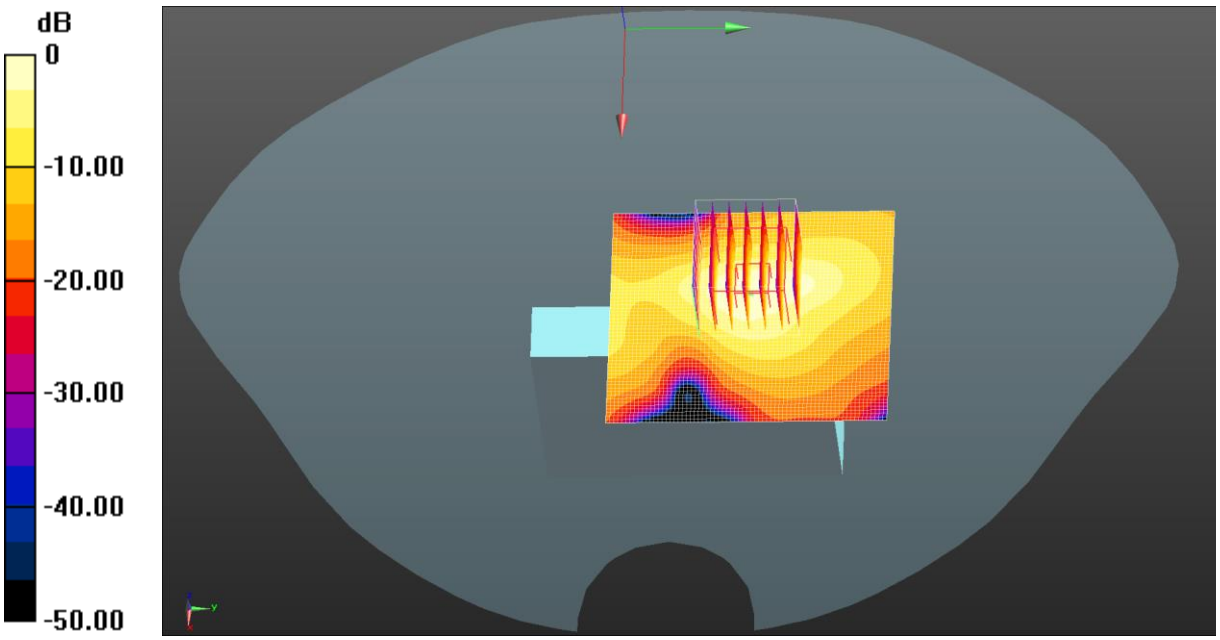
- Probe: EX3DV4 - SN3924; ConvF(7.41, 7.41, 7.41) @ 2680 MHz; Calibrated: 03.20.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1452; Calibrated: 03.26.2024
- Phantom: SAM 5.0; Type: QD000P40CD; Serial: TP:1765
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

LTE Band 41C 1RB(20MHz) Closed Left/High Channel/Area Scan (61x71x1):

Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.324 W/kg

LTE Band 41C 1RB(20MHz) Closed Left/High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.454 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.425 W/kg
SAR(1 g) = 0.190 W/kg; SAR(10 g) = 0.080 W/kg
Smallest distance from peaks to all points 3 dB below = 7 mm
Ratio of SAR at M2 to SAR at M1 = 46.9%
Maximum value of SAR (measured) = 0.334 W/kg



0 dB = 0.324 W/kg = -4.89 dBW/kg

------End of Report------