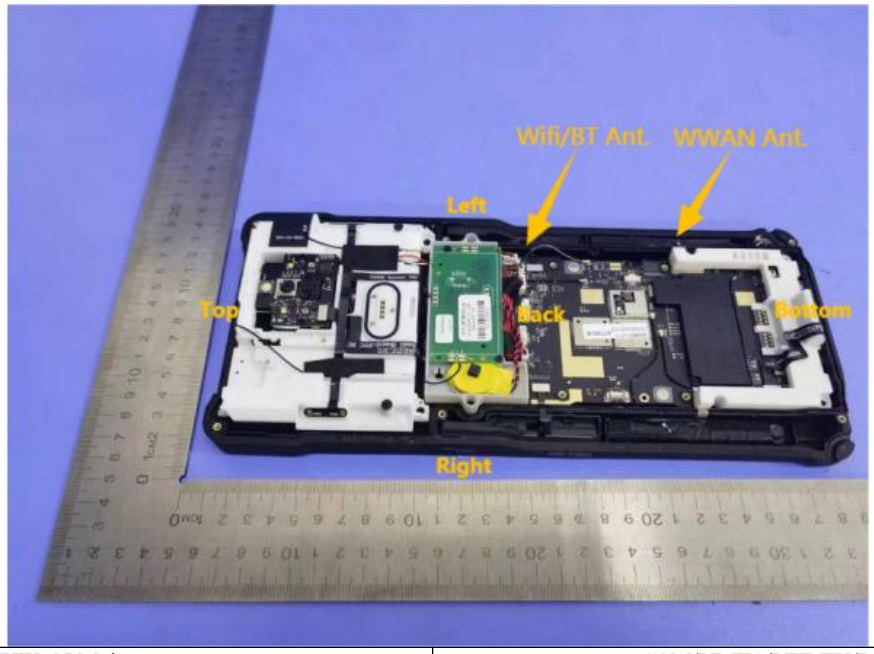
9. Exposure Position Consideration

9.1. EUT Antenna Information

Antenna information:



WWAN Main Antenna	GSM/UMTS/LTE TX/RX
WLAN/BT Antenna	WLAN/BT TX/RX

Note:
1) Per KDB648474 D04,10-g extremity SAR is not required when Body-Worn mode 1-g reported SAR<1.2W/Kg.
2) According to the KDB941225 D06 Hot Spot SAR v02, the edges with less than 25 mm distance to the antennas need to be tested for SAR.

Distance of The Antenna to the EUT surface and edge (mm)						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	<25	<25	<25	105	205	70
BT/WLAN	<25	<25	<25	105	120	155

9.2. Test Position Consideration

Test Positions						
Mode	Front Side	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
WWAN	Yes	Yes	Yes	No	No	No
WIFI/BT	Yes	Yes	Yes	No	No	No

10. SAR Test Results Summary

10.1. Hotspot 1g SAR Data

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
WCDMA Band II	RMC	Front	9538	1907.6	21.08	21.50	1.201	0.384	1.102	**0.423**	1.60
		Back	9538	1907.6	21.08	21.50	0.213	0.132	1.102	0.145	
		Left	9538	1907.6	21.08	21.50	-1.220	0.105	1.102	0.116	
WCDMA Band IV	RMC	Front	1513	1752.6	21.81	22.00	-1.104	0.256	1.045	**0.268**	
		Back	1513	1752.6	21.81	22.00	1.200	0.094	1.045	0.098	
		Left	1513	1752.6	21.81	22.00	2.310	0.085	1.045	0.089	
WCDMA Band IV	RMC	Front	4183	836.6	22.85	23.00	1.520	0.211	1.035	**0.218**	
		Back	4183	836.6	22.85	23.00	2.330	0.087	1.035	0.090	
		Left	4183	836.6	22.85	23.00	-4.120	0.077	1.035	0.080	
2.4G WIFI	802.11b	Front	11	2462	18.96	19.00	1.001	0.790	1.009	**0.797**	
		Back	11	2462	18.96	19.00	2.014	0.345	1.009	0.348	
		Left	11	2462	18.96	19.00	0.441	0.211	1.009	0.213	
5G WIFI U-NII-1	802.11ac	Front	44	5220	16.67	17.00	-0.930	0.588	1.079	**0.634**	
		Back	44	5220	16.67	17.00	0.110	0.412	1.079	0.445	
		Left	44	5220	16.67	17.00	1.204	0.204	1.079	0.220	
5G WIFI U-NII-2a	802.11ac	Front	52	5260	16.32	16.50	-0.390	0.397	1.042	**0.414**	
		Back	52	5260	16.32	16.50	-1.005	0.215	1.042	0.224	
		Left	52	5260	16.32	16.50	2.034	0.103	1.042	0.107	
5G WIFI U-NII-2c	802.11n	Front	110	5550	16.20	16.50	-3.570	0.522	1.072	**0.560**	
		Back	110	5550	16.20	16.50	-0.210	0.415	1.072	0.445	
		Left	110	5550	16.20	16.50	1.005	0.308	1.072	0.330	
5G WIFI U-NII-3	802.11n	Front	159	5795	16.43	16.50	2.620	0.194	1.016	**0.197**	
		Back	159	5795	16.43	16.50	1.028	0.160	1.016	0.163	
		Left	159	5795	16.43	16.50	2.004	0.098	1.016	0.100	

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
LTE Band 2	QPSK (20MHz)	Front	18700	1860.0	1	99	21.47	21.50	0.600	0.560	1.007	**0.564**	1.60
					50	50	20.29	20.50	0.512	0.505	1.050	0.530	
		Back	18700	1860.0	1	99	21.47	21.50	0.115	0.412	1.007	0.415	
					50	50	20.29	20.50	0.121	0.401	1.050	0.421	
		Left	18700	1860.0	1	99	21.47	21.50	-0.102	0.311	1.007	0.313	
					50	50	20.29	20.50	1.025	0.298	1.050	0.313	
LTE Band 4	QPSK (20MHz)	Front	20050	1720.0	1	0	22.02	22.50	-1.750	0.343	1.117	**0.383**	
					50	0	21.02	21.50	1.115	0.331	1.117	0.370	
		Back	20050	1720.0	1	0	22.02	22.50	0.051	0.209	1.117	0.233	
					50	0	21.02	21.50	0.951	0.204	1.117	0.228	
		Left	20050	1720.0	1	0	22.02	22.50	0.855	0.110	1.117	0.123	
					50	0	21.02	21.50	1.091	0.107	1.117	0.120	
LTE Band 5	QPSK (10MHz)	Front	20525	836.5	1	0	22.53	23.00	0.590	0.381	1.114	**0.424**	
					25	12	21.63	22.00	-2.004	0.377	1.089	0.411	
		Back	20525	836.5	1	0	22.53	23.00	4.500	0.272	1.114	0.303	
					25	12	21.63	22.00	-2.014	0.259	1.089	0.282	
		Left	20525	836.5	1	0	22.53	23.00	1.520	0.172	1.114	0.192	
					25	12	21.63	22.00	-0.004	0.171	1.089	0.186	
LTE Band 7	QPSK (20MHz)	Front	21100	2535.0	1	49	21.31	21.50	-3.100	0.166	1.045	**0.173**	
					50	50	20.29	20.50	1.125	0.152	1.050	0.160	
		Back	21100	2535.0	1	49	21.31	21.50	0.220	0.144	1.045	0.150	
					50	50	20.29	20.50	0.336	0.132	1.050	0.139	
		Left	21100	2535.0	1	49	21.31	21.50	0.304	0.121	1.045	0.126	
					50	50	20.29	20.50	0.111	0.119	1.050	0.125	
LTE Band 12	QPSK (10MHz)	Front	23095	707.5	1	24	22.85	23.00	2.700	0.128	1.035	**0.132**	
					25	12	21.86	22.00	2.110	0.126	1.033	0.130	
		Back	23095	707.5	1	24	22.85	23.00	-1.004	0.114	1.035	0.118	
					25	12	21.86	22.00	4.010	0.110	1.033	0.114	
		Left	23095	707.5	1	24	22.85	23.00	2.001	0.095	1.035	0.098	
					25	12	21.86	22.00	3.144	0.081	1.033	0.084	

Band	Mode	Test Position with 10 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
LTE Band 13	QPSK (10MHz)	Front	23230	782.0	1	49	22.98	23.00	1.712	0.148	1.005	**0.149**	1.60
					25	0	21.96	22.00	0.228	0.133	1.009	0.134	
		Back	23230	782.0	1	49	22.98	23.00	-0.147	0.129	1.005	0.130	
					25	0	21.96	22.00	2.954	0.121	1.009	0.122	
		Left	23230	782.0	1	49	22.98	23.00	2.554	0.110	1.005	0.111	
					25	0	21.96	22.00	-0.227	0.098	1.009	0.099	
LTE Band 17	QPSK (10MHz)	Front	23800	711.0	1	24	22.86	23.00	0.950	0.184	1.033	**0.190**	
					25	12	21.89	22.00	0.220	0.177	1.026	0.182	
		Back	23800	711.0	1	24	22.86	23.00	1.400	0.169	1.033	0.175	
					25	12	21.89	22.00	0.009	0.162	1.026	0.166	
		Left	23800	711.0	1	24	22.86	23.00	-1.400	0.144	1.033	0.149	
					25	12	21.89	22.00	0.299	0.141	1.026	0.145	
LTE Band 25	QPSK (20MHz)	Front	26365	1882.5	1	0	21.72	22.00	-0.760	0.370	1.067	**0.395**	
					50	0	20.44	20.50	0.123	0.366	1.014	0.371	
		Back	26365	1882.5	1	0	21.72	22.00	0.885	0.251	1.067	0.268	
					50	0	20.44	20.50	3.201	0.243	1.014	0.246	
		Left	26365	1882.5	1	0	21.72	22.00	-0.220	0.119	1.067	0.127	
					50	0	20.44	20.50	-2.610	0.110	1.014	0.112	
LTE Band 26	QPSK (15MHz)	Front	26765	821.5	1	0	22.61	23.00	-3.480	0.400	1.094	**0.438**	
					38	0	21.65	22.00	2.030	0.390	1.084	0.423	
		Back	26765	821.5	1	0	22.61	23.00	-1.180	0.262	1.094	0.287	
					38	0	21.65	22.00	-1.030	0.255	1.084	0.276	
		Left	26765	821.5	1	0	22.61	23.00	-1.080	0.119	1.094	0.130	
					38	0	21.65	22.00	2.230	0.115	1.084	0.125	
LTE Band 41	QPSK (20MHz)	Front	41490	2680.0	1	99	21.40	21.50	2.060	0.300	1.023	**0.307**	
					50	0	20.40	20.50	-1.550	0.271	1.023	0.277	
		Back	41490	2680.0	1	99	21.40	21.50	2.300	0.202	1.023	0.207	
					50	0	20.40	20.50	-1.122	0.181	1.023	0.185	
		Left	41490	2680.0	1	99	21.40	21.50	3.060	0.106	1.023	0.108	
					50	0	20.40	20.50	-0.350	0.099	1.023	0.101	
LTE Band 66	QPSK (20MHz)	Front	132072	1720.0	1	49	22.01	22.50	-1.370	0.673	1.119	**0.753**	
					50	0	20.87	21.00	1.002	0.655	1.030	0.675	
		Back	132072	1720.0	1	49	22.01	22.50	2.058	0.512	1.119	0.573	
					50	0	20.87	21.00	-0.230	0.510	1.030	0.525	
		Left	132072	1720.0	1	49	22.01	22.50	1.002	0.410	1.119	0.459	
					50	0	20.87	21.00	3.051	0.400	1.030	0.412	
LTE Band 71	QPSK (20MHz)	Front	133222	673.0	1	0	23.17	23.50	1.300	0.601	1.079	**0.648**	
					50	0	22.09	22.50	1.006	0.585	1.099	0.643	
		Back	133222	673.0	1	0	23.17	23.50	-1.095	0.550	1.079	0.593	
					50	0	22.09	22.50	3.008	0.533	1.099	0.586	
		Left	133222	673.0	1	0	23.17	23.50	3.140	0.320	1.079	0.345	
					50	0	22.09	22.50	2.111	0.315	1.099	0.346	

10.2. Front-of-face 1g SAR Data

Band	Mode	Test Position with 25 mm	CH.	Freq. (MHz)	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
WCDMA Band II	RMC	Front	9538	1907.6	21.08	21.50	2.005	0.073	1.102	0.080	1.60
WCDMA Band IV	RMC	Front	1513	1752.6	21.81	22.00	1.023	0.066	1.045	0.069	
WCDMA Band V	RMC	Front	4183	836.6	22.85	23.00	-0.123	0.085	1.035	0.088	
2.4G WIFI	802.11b	Front	11	2462	18.96	19.00	1.125	0.094	1.009	0.095	
5G WIFI U-NII-1	802.11ac	Front	44	5220	16.67	17.00	-1.001	0.091	1.079	0.098	
5G WIFI U-NII-2a	802.11ac	Front	52	5260	16.32	16.50	-2.580	0.098	1.042	0.102	
5G WIFI U-NII-2c	802.11n	Front	110	5550	16.20	16.50	1.550	0.082	1.072	0.088	
5G WIFI U-NII-3	802.11n	Front	159	5795	16.43	16.50	-1.500	0.108	1.016	0.110	

Band	Mode	Test Position with 25 mm	CH.	Freq. (MHz)	RB allocation	RB offset	Ave. Power (dBm)	Tune-Up Limit (dBm)	Power Drift (%)	Meas. SAR1g (W/kg)	Scaling Factor	Reported SAR1g (W/kg)	Limit (W/Kg)
LTE Band 2	QPSK (20MHz)	Front	18700	1860.0	1	99	21.47	21.50	1.380	0.089	1.007	**0.090**	1.60
					50	50	20.29	20.50	0.512	0.085	1.050	0.089	
LTE Band 4	QPSK (20MHz)	Front	20050	1720.0	1	0	22.02	22.50	-0.350	0.051	1.117	**0.057**	
					50	0	21.02	21.50	1.115	0.050	1.117	0.056	
LTE Band 5	QPSK (10MHz)	Front	20525	836.5	1	0	22.53	23.00	4.500	0.072	1.114	**0.080**	
					25	12	21.63	22.00	-2.004	0.071	1.089	0.077	
LTE Band 7	QPSK (20MHz)	Front	21100	2535.0	1	49	21.31	21.50	-2.740	0.080	1.045	**0.084**	
					50	50	20.29	20.50	1.110	0.077	1.050	0.081	
LTE Band 12	QPSK (10MHz)	Front	23095	707.5	1	24	22.85	23.00	1.960	0.083	1.035	**0.086**	
					25	12	21.86	22.00	1.002	0.079	1.033	0.082	
LTE Band 13	QPSK (10MHz)	Front	23230	782.0	1	49	22.98	23.00	1.180	0.117	1.005	**0.118**	
					25	0	21.96	22.00	0.228	0.108	1.009	0.109	
LTE Band 17	QPSK (10MHz)	Front	23800	711.0	1	24	22.86	23.00	1.400	0.059	1.033	**0.061**	
					25	12	21.89	22.00	0.299	0.055	1.026	0.056	
LTE Band 25	QPSK (20MHz)	Front	26365	1882.5	1	0	21.72	22.00	-1.480	0.122	1.067	**0.130**	
					50	0	20.44	20.50	-2.610	0.120	1.014	0.122	
LTE Band 26	QPSK (15MHz)	Front	26765	821.5	1	0	22.61	23.00	-1.080	0.131	1.094	**0.143**	
					38	0	21.65	22.00	2.030	0.129	1.084	0.140	
LTE Band 41	QPSK (20MHz)	Front	41490	2680.0	1	99	21.40	21.50	3.040	0.112	1.023	**0.115**	
					50	0	20.40	20.50	-0.520	0.100	1.023	0.102	
LTE Band 66	QPSK (20MHz)	Front	132072	1720.0	1	49	22.01	22.50	-0.920	0.087	1.119	**0.097**	
					50	0	20.87	21.00	3.051	0.085	1.030	0.088	
LTE Band 71	QPSK (20MHz)	Front	133222	673.0	1	0	23.17	23.50	1.380	0.090	1.079	**0.097**	
					50	0	22.09	22.50	0.220	0.087	1.099	0.096	

Note:

1. Per KDB 447498 D01 v06, 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 447498 D01 v06, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor=10^[(tune-up limit power(dBm) - Ave.power power (dBm))/10], where tune-up limit is the maximum rated power among all production units.
   Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.
4. Per KDB865664D01 v01r04 perform a second repeated measurement only the ratio of largest to smallest SAR for the original and first repeated measurement is >1.20 or when the original or repeated measurement is ≥ 1.45W/kg.
5. Perform a second measurement only if the original, first and second repeated measurement is ≥1.5w/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurement is >1.20.

10.3. Simultaneous Transmission Conclusion

Multi-Band Simultaneous Transmission Considerations

According to FCC KDB Publication 447498 D01v05r02, 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.

Simultaneous Transmission Paths

Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v05r02, 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 D01v05r02 4.3.2.2), the following equation must be used to estimate the standalone 1g SAR and 10g extremity SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5(18.75)} \cdot \frac{\text{Max. power of channel, mW}}{\text{Min. Separation Distance, mm}}$$

Mode	Max. tune-up Power (dBm)	Exposure Position	Body-worn	Front-of-face
		Test Distance (mm)	10	25
BT	9.00	Estimated SAR (W/kg)	0.167	0.067

Note:

1. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm according is applied to determine estimated SAR.
2. (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
3. Both Body & Front-of-face exposure require 1-g SAR.

Simultaneous Transmission Possibilities

The Simultaneous Transmission Possibilities of this device are as below:

NO.	Configuration	Body-worn	Front-of-face
1	WWAN+WIFI(2.4g)	Yes	Yes
2	WWAN+WIFI(5g)	Yes	Yes
3	WWAN+BT	Yes	Yes

10.4. SAR Simultaneous Transmission Analysis

Body-worn

Band	Test Position	Scaled SAR				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
		Body-Worn	WIFI 2.4G	WIFI 5 G	BT					
WCDMA Band II	Front	0.423	0.797	0.634	0.167	**1.220**	1.057	0.590	N/A	N/A
	Back	0.145	0.348	0.445	0.167	0.493	0.590	0.312	N/A	N/A
	Left	0.116	0.213	0.330	0.167	0.329	0.446	0.283	N/A	N/A
WCDMA Band IV	Front	0.268	0.797	0.634	0.167	1.065	0.902	0.435	N/A	N/A
	Back	0.098	0.348	0.445	0.167	0.446	0.543	0.265	N/A	N/A
	Left	0.089	0.213	0.330	0.167	0.302	0.419	0.256	N/A	N/A
WCDMA Band V	Front	0.218	0.797	0.634	0.167	1.015	0.852	0.385	N/A	N/A
	Back	0.090	0.348	0.445	0.167	0.438	0.535	0.257	N/A	N/A
	Left	0.080	0.213	0.330	0.167	0.293	0.410	0.247	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 2 QPSK (20MHz)	Front	1	0.564	0.797	0.634	0.167	**1.361**	1.198	0.731	N/A	N/A
		50	0.530	0.797	0.634	0.167	1.327	1.164	0.697	N/A	N/A
	Back	1	0.415	0.348	0.445	0.167	0.763	0.860	0.582	N/A	N/A
		50	0.421	0.348	0.445	0.167	0.769	0.866	0.588	N/A	N/A
	Left	1	0.313	0.213	0.330	0.167	0.526	0.643	0.480	N/A	N/A
		50	0.313	0.213	0.330	0.167	0.526	0.643	0.480	N/A	N/A
LTE Band 4 QPSK (20MHz)	Front	1	0.383	0.797	0.634	0.167	1.180	1.017	0.550	N/A	N/A
		50	0.370	0.797	0.634	0.167	1.167	1.004	0.537	N/A	N/A
	Back	1	0.233	0.348	0.445	0.167	0.581	0.678	0.400	N/A	N/A
		50	0.228	0.348	0.445	0.167	0.576	0.673	0.395	N/A	N/A
	Left	1	0.123	0.213	0.330	0.167	0.336	0.453	0.290	N/A	N/A
		50	0.120	0.213	0.330	0.167	0.333	0.450	0.287	N/A	N/A
LTE Band 5 QPSK (10MHz)	Front	1	0.424	0.797	0.634	0.167	1.221	1.058	0.591	N/A	N/A
		25	0.411	0.797	0.634	0.167	1.208	1.045	0.578	N/A	N/A
	Back	1	0.303	0.348	0.445	0.167	0.651	0.748	0.470	N/A	N/A
		25	0.282	0.348	0.445	0.167	0.630	0.727	0.449	N/A	N/A
	Left	1	0.192	0.213	0.330	0.167	0.405	0.522	0.359	N/A	N/A
		25	0.186	0.213	0.330	0.167	0.399	0.516	0.353	N/A	N/A
LTE Band 7 QPSK (20MHz)	Front	1	0.173	0.797	0.634	0.167	0.970	0.807	0.340	N/A	N/A
		50	0.160	0.797	0.634	0.167	0.957	0.794	0.327	N/A	N/A
	Back	1	0.150	0.348	0.445	0.167	0.498	0.595	0.317	N/A	N/A
		50	0.139	0.348	0.445	0.167	0.487	0.584	0.306	N/A	N/A
	Left	1	0.126	0.213	0.330	0.167	0.339	0.456	0.293	N/A	N/A
		50	0.125	0.213	0.330	0.167	0.338	0.455	0.292	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 12 QPSK (10MHz)	Front	1	0.132	0.797	0.634	0.167	0.929	0.766	0.299	N/A	N/A
		25	0.130	0.797	0.634	0.167	0.927	0.764	0.297	N/A	N/A
	Back	1	0.118	0.348	0.445	0.167	0.466	0.563	0.285	N/A	N/A
		25	0.114	0.348	0.445	0.167	0.462	0.559	0.281	N/A	N/A
	Left	1	0.098	0.213	0.330	0.167	0.311	0.428	0.265	N/A	N/A
		25	0.084	0.213	0.330	0.167	0.297	0.414	0.251	N/A	N/A
LTE Band 13 QPSK (10MHz)	Front	1	0.149	0.797	0.634	0.167	0.946	0.783	0.316	N/A	N/A
		25	0.134	0.797	0.634	0.167	0.931	0.768	0.301	N/A	N/A
	Back	1	0.130	0.348	0.445	0.167	0.478	0.575	0.297	N/A	N/A
		25	0.122	0.348	0.445	0.167	0.470	0.567	0.289	N/A	N/A
	Left	1	0.111	0.213	0.330	0.167	0.324	0.441	0.278	N/A	N/A
		25	0.099	0.213	0.330	0.167	0.312	0.429	0.266	N/A	N/A

LTE Band 17 QPSK (10MHz)	Front	1	0.190	0.797	0.634	0.167	0.987	0.824	0.357	N/A	N/A
		25	0.182	0.797	0.634	0.167	0.979	0.816	0.349	N/A	N/A
	Back	1	0.175	0.348	0.445	0.167	0.523	0.620	0.342	N/A	N/A
		25	0.166	0.348	0.445	0.167	0.514	0.611	0.333	N/A	N/A
	Left	1	0.149	0.213	0.330	0.167	0.362	0.479	0.316	N/A	N/A
		25	0.145	0.213	0.330	0.167	0.358	0.475	0.312	N/A	N/A
LTE Band 25 QPSK (20MHz)	Front	1	0.395	0.797	0.634	0.167	1.192	1.029	0.562	N/A	N/A
		50	0.371	0.797	0.634	0.167	1.168	1.005	0.538	N/A	N/A
	Back	1	0.268	0.348	0.445	0.167	0.616	0.713	0.435	N/A	N/A
		50	0.246	0.348	0.445	0.167	0.594	0.691	0.413	N/A	N/A
	Left	1	0.127	0.213	0.330	0.167	0.340	0.457	0.294	N/A	N/A
		50	0.112	0.213	0.330	0.167	0.325	0.442	0.279	N/A	N/A
LTE Band 26 QPSK (15MHz)	Front	1	0.438	0.797	0.634	0.167	1.235	1.072	0.605	N/A	N/A
		38	0.423	0.797	0.634	0.167	1.220	1.057	0.590	N/A	N/A
	Back	1	0.287	0.348	0.445	0.167	0.635	0.732	0.454	N/A	N/A
		38	0.276	0.348	0.445	0.167	0.624	0.721	0.443	N/A	N/A
	Left	1	0.130	0.213	0.330	0.167	0.343	0.460	0.297	N/A	N/A
		38	0.125	0.213	0.330	0.167	0.338	0.455	0.292	N/A	N/A
LTE Band 41 QPSK (20MHz)	Front	1	0.307	0.797	0.634	0.167	1.104	0.941	0.474	N/A	N/A
		50	0.277	0.797	0.634	0.167	1.074	0.911	0.444	N/A	N/A
	Back	1	0.207	0.348	0.445	0.167	0.555	0.652	0.374	N/A	N/A
		50	0.185	0.348	0.445	0.167	0.533	0.630	0.352	N/A	N/A
	Left	1	0.108	0.213	0.330	0.167	0.321	0.438	0.275	N/A	N/A
		50	0.101	0.213	0.330	0.167	0.314	0.431	0.268	N/A	N/A
LTE Band 66 QPSK (20MHz)	Front	1	0.753	0.797	0.634	0.167	**1.550**	1.387	0.920	N/A	N/A
		50	0.675	0.797	0.634	0.167	1.472	1.309	0.842	N/A	N/A
	Back	1	0.573	0.348	0.445	0.167	0.921	1.018	0.740	N/A	N/A
		50	0.525	0.348	0.445	0.167	0.873	0.970	0.692	N/A	N/A
	Left	1	0.459	0.213	0.330	0.167	0.672	0.789	0.626	N/A	N/A
		50	0.412	0.213	0.330	0.167	0.625	0.742	0.579	N/A	N/A
LTE Band 71 QPSK (20MHz)	Front	1	0.648	0.797	0.634	0.167	1.445	1.282	0.815	N/A	N/A
		50	0.643	0.797	0.634	0.167	1.440	1.277	0.810	N/A	N/A
	Back	1	0.593	0.348	0.445	0.167	0.941	1.038	0.760	N/A	N/A
		50	0.586	0.348	0.445	0.167	0.934	1.031	0.753	N/A	N/A
	Left	1	0.345	0.213	0.330	0.167	0.558	0.675	0.512	N/A	N/A
		50	0.346	0.213	0.330	0.167	0.559	0.676	0.513	N/A	N/A

Front-of-face

Band	Test Position	Scaled SAR				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
		Body-Worn	WIFI 2.4G	WIFI 5 G	BT					
WCDMA Band II	Front	0.080	0.095	0.110	0.067	0.175	0.190	0.147	N/A	N/A
WCDMA Band IV	Front	0.069	0.095	0.110	0.067	0.164	0.179	0.136	N/A	N/A
WCDMA Band V	Front	0.088	0.095	0.110	0.067	0.183	**0.198**	0.155	N/A	N/A

Band	Test Position	RB allocation	Scaled				Σ SAR (W/kg) Body-Worn+ WIFI 2.4G	Σ SAR (W/kg) Body-Worn+ WIFI 5 G	Σ SAR (W/kg) Body-Worn+ BT	SPLSR	Remark
			Body-Worn	WIFI 2.4G	WIFI 5 G	Bluetooth					
LTE Band 2 QPSK (20MHz)	Front	1	0.090	0.095	0.110	0.067	0.185	0.200	0.157	N/A	N/A
		50	0.089	0.095	0.110	0.067	0.184	0.199	0.156	N/A	N/A
LTE Band 4 QPSK (20MHz)	Front	1	0.057	0.095	0.110	0.067	0.152	0.167	0.124	N/A	N/A
		50	0.056	0.095	0.110	0.067	0.151	0.166	0.123	N/A	N/A
LTE Band 5 QPSK (10MHz)	Front	1	0.080	0.095	0.110	0.067	0.175	0.190	0.147	N/A	N/A
		25	0.077	0.095	0.110	0.067	0.172	0.187	0.144	N/A	N/A

LTE Band 7 QPSK (20MHz)	Front	1	0.084	0.095	0.110	0.067	0.179	0.194	0.151	N/A	N/A
		50	0.081	0.095	0.110	0.067	0.176	0.191	0.148	N/A	N/A
LTE Band 12 QPSK (10MHz)	Front	1	0.086	0.095	0.110	0.067	0.181	0.196	0.153	N/A	N/A
		25	0.082	0.095	0.110	0.067	0.177	0.192	0.149	N/A	N/A
LTE Band 13 QPSK (10MHz)	Front	1	0.118	0.095	0.110	0.067	0.213	0.228	0.185	N/A	N/A
		25	0.109	0.095	0.110	0.067	0.204	0.219	0.176	N/A	N/A
LTE Band 17 QPSK (10MHz)	Front	1	0.061	0.095	0.110	0.067	0.156	0.171	0.128	N/A	N/A
		25	0.056	0.095	0.110	0.067	0.151	0.166	0.123	N/A	N/A
LTE Band 25 QPSK (20MHz)	Front	1	0.130	0.095	0.110	0.067	0.225	0.240	0.197	N/A	N/A
		50	0.122	0.095	0.110	0.067	0.217	0.232	0.189	N/A	N/A
LTE Band 26 QPSK (15MHz)	Front	1	0.143	0.095	0.110	0.067	0.238	**0.253**	0.210	N/A	N/A
		38	0.140	0.095	0.110	0.067	0.235	0.250	0.207	N/A	N/A
LTE Band 41 QPSK (20MHz)	Front	1	0.115	0.095	0.110	0.067	0.210	0.225	0.182	N/A	N/A
		50	0.102	0.095	0.110	0.067	0.197	0.212	0.169	N/A	N/A
LTE Band 66 QPSK (20MHz)	Front	1	0.097	0.095	0.110	0.067	0.192	0.207	0.164	N/A	N/A
		50	0.088	0.095	0.110	0.067	0.183	0.198	0.155	N/A	N/A
LTE Band 71 QPSK (20MHz)	Front	1	0.097	0.095	0.110	0.067	0.192	0.207	0.164	N/A	N/A
		50	0.096	0.095	0.110	0.067	0.191	0.206	0.163	N/A	N/A

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 measured volumetric simultaneous SAR summation is not required per FCC KDB Publication 447498 D01v05r02.

10.5. Measurement Uncertainty (450MHz-3GHz)

UNCERTAINTY EVALUATION FOR HEADSET SAR									
Uncertainty Component	Description	Uncertainty Value(%)	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. 1g(%)	Std. Unc. 10g(%)	v
Measurement system									
Probe calibration	7.2.1	5.8	N	1	1	1	5.8	5.8	∞
Axial isotropy	7.2.1.1	3.5	R	$\sqrt{3}$	$(1-C_p)^{1/2}$	$(1-C_p)^{1/2}$	1.43	1.43	∞
Hemispherical isotropy	7.2.1.1	5.9	R	$\sqrt{3}$	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
Boundary Effects	7.2.1.4	1.00	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.1.2	4.70	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	7.2.1.2	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation Response	7.2.1.3	3	N	1	1	1	3.00	3.00	∞
Readout Electronics	7.2.1.5	0.5	N	1	1	1	0.50	0.50	∞
Response Time	7.2.1.6	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	7.2.1.7	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF Ambient Conditions-Noise	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Conditions-Reflection	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioned mechanical Tolerance	7.2.2.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.2.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation interpolation and integration algorithms for Max.SAR evaluation	7.2.4	2.3	R	1	1	1	1.33	1.33	∞
Test sample related									
Test sample positioning	7.2.2.4.4	2.6	N	1	1	1	2.60	2.60	∞
Device holder uncertainty	7.2.2.4.2 7.2.2.4.3	3	N	1	1	1	3.00	3.00	∞
output power variation-SAR drift measurement	7.2.3.6	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	7.2.5	2	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and tissue parameters									
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
uncertainty in SAR correction for deviation (in permittivity and conductivity)	7.2.6	2	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid conductivity -measurement uncertainty	7.2.3.3	4	N	1	0.23	0.26	0.92	1.04	∞
Liquid permittivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid permittivity measurement uncertainty	7.2.3.4	5	N	1	0.23	0.26	1.15	1.30	∞
Combined standard uncertainty			RSS				10.83	10.54	
Expanded uncertainty (95%CONFIDENCEINTERVAL			k				21.26	21.08	

UNCERTAINTY FOR PERFORMANCE CHECK									
Uncertainty Component	Description	Uncertainty Value(%)	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. 1g(%)	Std. Unc. 10g(%)	v
Measurement system									
Probe calibration	7.2.1	5.8	N	1	1	1	5.8	5.8	∞
Axial isotropy	7.2.1.1	3.5	R	$\sqrt{3}$	$(1-C_p)^{1/2}$	$(1-C_p)^{1/2}$	1.43	1.43	∞
Hemispherical isotropy	7.2.1.1	5.9	R	$\sqrt{3}$	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
Boundary Effects	7.2.1.4	1.00	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	7.2.1.2	4.70	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	7.2.1.2	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation Response	7.2.1.3	3	N	1	1	1	0.00	0.00	∞
Readout Electronics	7.2.1.5	0.5	N	1	1	1	0.50	0.50	∞
Response Time	7.2.1.6	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	7.2.1.7	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF Ambient Conditions-Noise	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Conditions-Reflection	7.2.3.7	3	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioned mechanical Tolerance	7.2.2.1	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	7.2.2.3	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Extrapolation interpolation and integration algorithms for Max.SAR evaluation	7.2.4	2.3	R	1	1	1	1.33	1.33	∞
Dipole									
Deviation of experimental source from numerical source		4	N	1	1	1	4.00	4.00	∞
Input power and SAR drift measurement	7.2.3.6	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Dipole axis to liquid distance		2	R	$\sqrt{3}$	1	1			∞
Phantom and tissue parameters									
Phantom uncertainty (shape and thickness tolerances)	7.2.2.2	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
uncertainty in SAR correction for deviation (in permittivity and conductivity)	7.2.6	2	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid conductivity -measurement uncertainty	7.2.3.3	4	N	1	0.23	0.26	0.92	1.04	∞
Liquid permittivity (temperature uncertainty)	7.2.3.5	2.5	N	1	0.78	0.71	1.95	1.78	∞
Liquid permittivity measurement uncertainty	7.2.3.4	5	N	1	0.23	0.26	1.15	1.30	∞
Combined standard uncertainty			RSS				10.15	10.05	
Expanded uncertainty (95%CONFIDENCEINTERVAL			k				20.29	20.10	

10.6. Test Equipment List

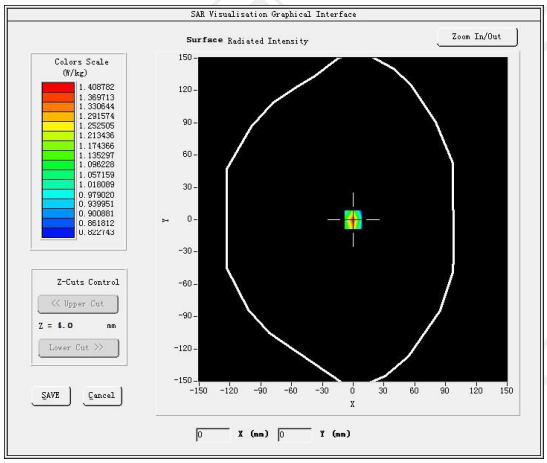
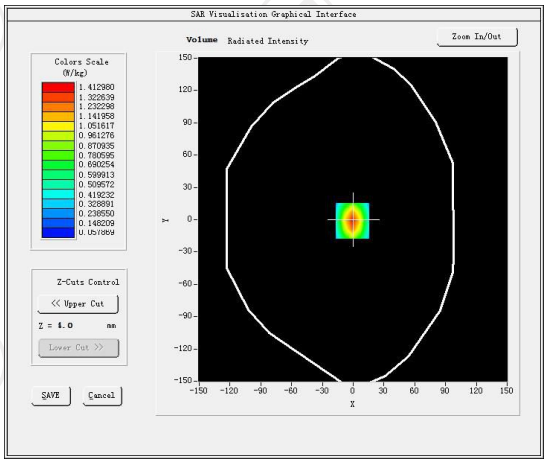
Test Equipment	Manufacturer	Model	Serial Number	Calibration	
				Calibration Date (D.M.Y)	Calibration Due (D.M.Y)
PC	Lenovo	H3050	N/A	N/A	N/A
Signal Generator	Angilent	N5182A	MY47070282	Jun. 08, 2022	Jun. 07, 2023
Multimeter	Keithley	Multimeter 2000	4078275	Jun. 08, 2022	Jun. 07, 2023
Network Analyzer	Agilent	8753E	US38432457	Jun. 08, 2022	Jun. 07, 2023
Wireless Communication Test Set	R & S	CMU200	111382	Jun. 08, 2022	Jun. 07, 2023
Wideband Radio Communication Tester	R&S	CMW500	114220	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	E4418B	GB43312526	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	E4416A	MY45101555	Jun. 08, 2022	Jun. 07, 2023
Power Meter	Agilent	N1912A	MY50001018	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9301A	MY41497725	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9327A	MY44421198	Jun. 08, 2022	Jun. 07, 2023
Power Sensor	Agilent	E9323A	MY53070005	Jun. 08, 2022	Jun. 07, 2023
Power Amplifier	PE	PE15A4019	112342	N/A	N/A
Directional Coupler	Agilent	722D	MY52180104	N/A	N/A
Attenuator	Chensheng	FF779	134251	N/A	N/A
E-Field PROBE	MVG	SSE2	SN 36/20 EPGO346	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 750	MVG	SID750	SN 16/15 DIP 0G750-368	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 835	MVG	SID835	SN 16/15 DIP 0G835-369	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 1800	MVG	SID 1800	SN 16/15 DIP 1G800-371	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 1900	MVG	SID1900	SN 16/15 DIP 1G900-372	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 2450	MVG	SID 2450	SN 16/15 DIP 2G450-374	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 2600	MVG	SID 2600	SN 16/15 DIP 2G600-375	Jun. 05, 2022	Jun. 04, 2023
DIPOLE 5200-5800	MVG	SID 5000	SN 13/14 WGA32	May 15, 2022	May 14, 2023
Limesar Dielectric Probe	MVG	SCLMP	SN 19/15 OCPG71	Jun. 05, 2022	Jun. 04, 2023
Communication Antenna	MVG	ANTA59	SN 39/14 ANTA59	N/A	N/A
Mobile Phone Position Device	MVG	MSH101	SN 19/15 MSH101	N/A	N/A
Dummy Probe	MVG	DP66	SN 13/15 DP66	N/A	N/A
SAM PHANTOM	MVG	SAM120	SN 19/15 SAM120	N/A	N/A
PHANTOM TABLE	MVG	TABP101	SN 19/15 TABP101	N/A	N/A
Robot TABLE	MVG	TABP61	SN 19/15 TABP61	N/A	N/A
6 AXIS ROBOT	KUKA	KR6-R900	501822	N/A	N/A

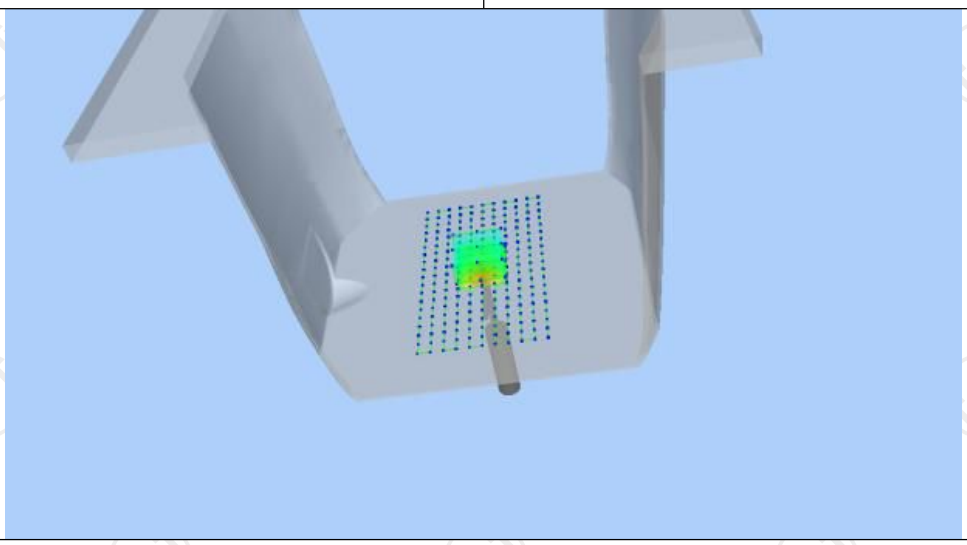
Note: *1.N/A means this equipment no need to calibrate*
2.Each Time means this device need to calibrate every use time
3. The dipole was not damaged properly repaired.
4. The measured SAR deviates from the calibrated SAR value by less than 10%
5. The most recent return-loss result meets the required 20 dB minimum return-loss requirement
6. The most recent measurement of the real or imaginary parts of the impedance deviates by less than 5 Ω from the previous measurement.

11. System Check Results

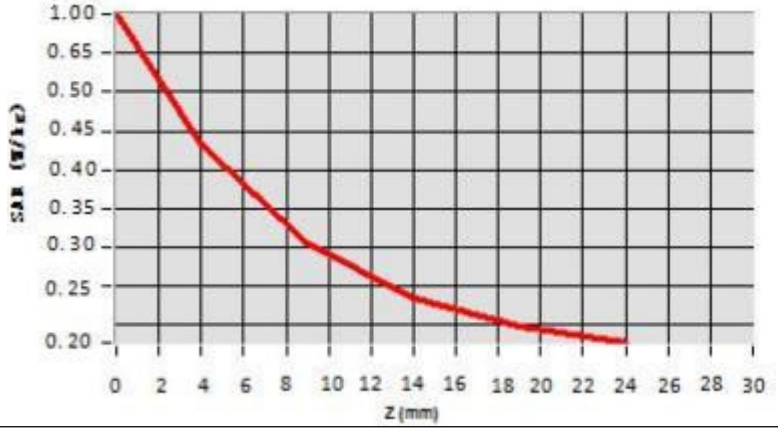
Date of measurement: 10/10/2022 Test mode: 750 (Body)
Product Description: Validation
Dipole Model: SID750
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	1.78
Frequency (MHz)	750.000000
Relative permittivity (real part)	55.381166
Relative permittivity (imaginary part)	20.148160
Conductivity (S/m)	0.921243
Variation (%)	-0.150000
SAR 10g (W/Kg)	0.600414
SAR 1g (W/Kg)	0.870441

SURFACE SAR	**VOLUME SAR**
	



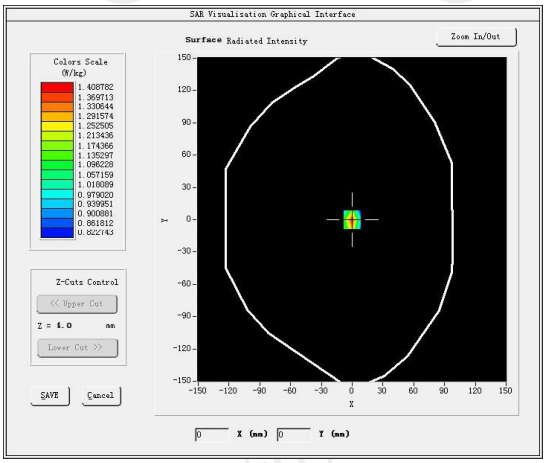
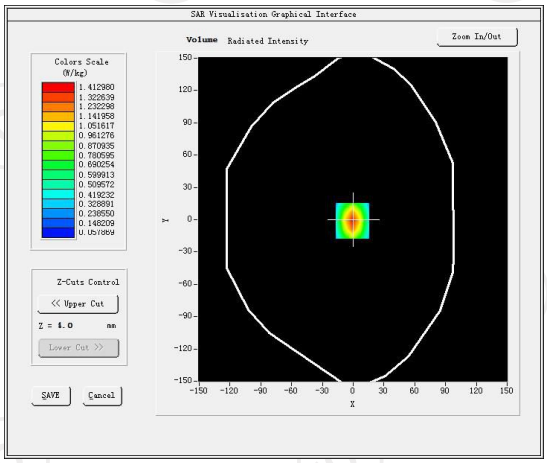
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.014	0.4420	0.3029	0.2419	0.2240

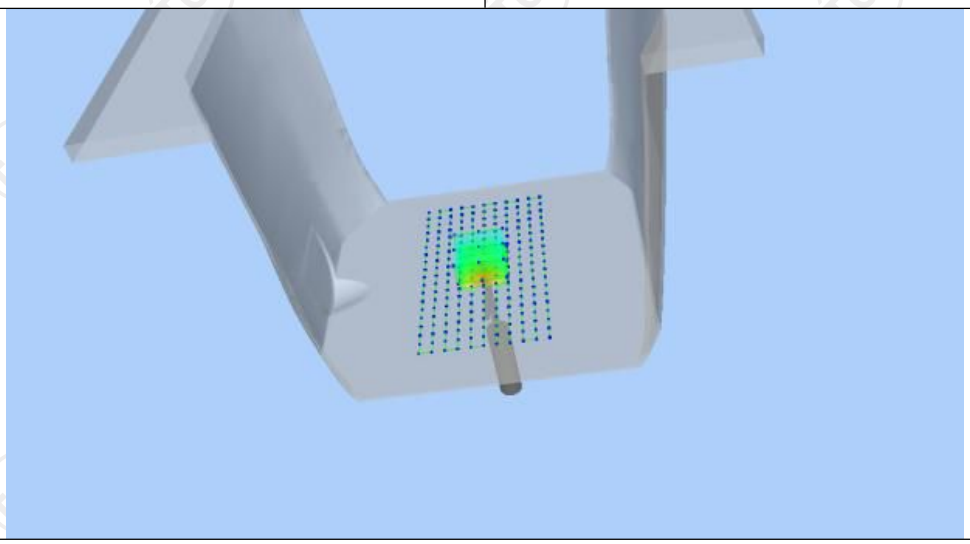


Hot spot position

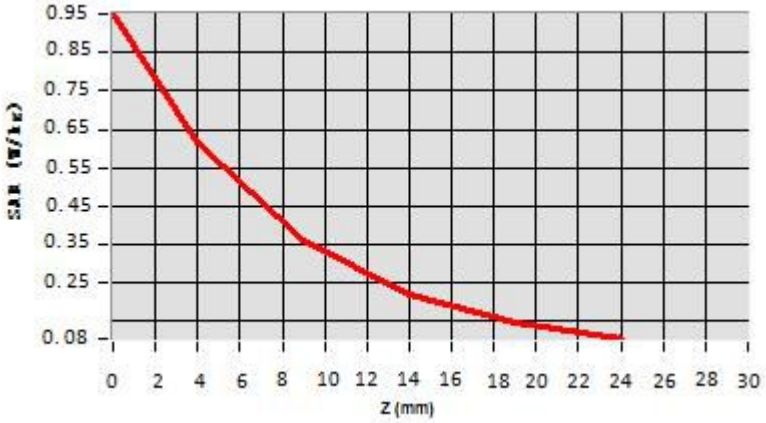
Date of measurement: 10/10/2022 Test mode: 835 (Body)
Product Description: Validation
Dipole Model: SID835
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	8.0
Probe Conversion factor	1.86
Frequency (MHz)	835.000000
Relative permittivity (real part)	55.242077
Relative permittivity (imaginary part)	21.378187
Conductivity (S/m)	0.938883
Variation (%)	-0.150000
SAR 10g (W/Kg)	**0.630123**
SAR 1g (W/Kg)	**0.950446**

SURFACE SAR	**VOLUME SAR**
	



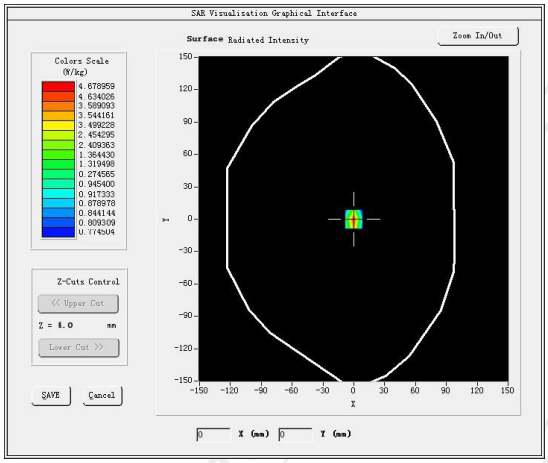
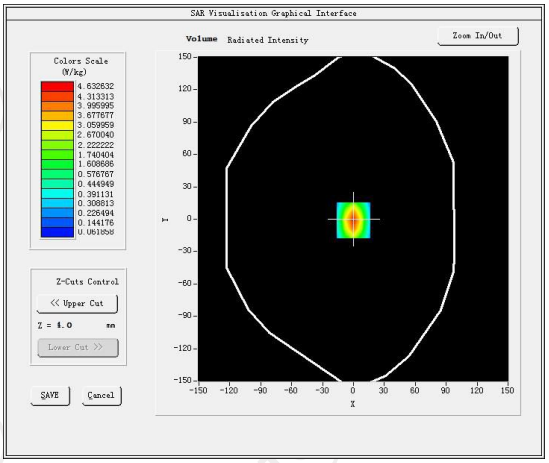
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.9625	0.6022	0.3594	0.2202	0.0725

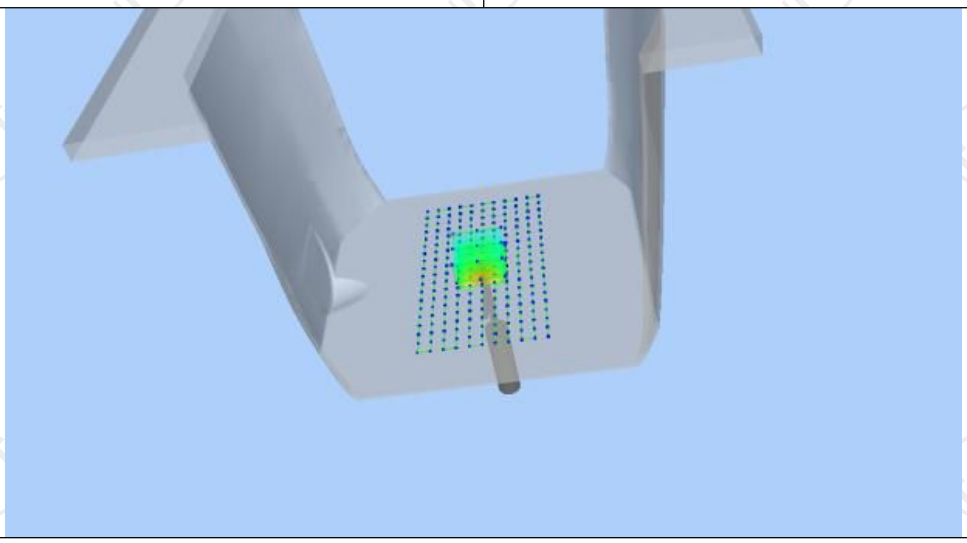


Hot spot position

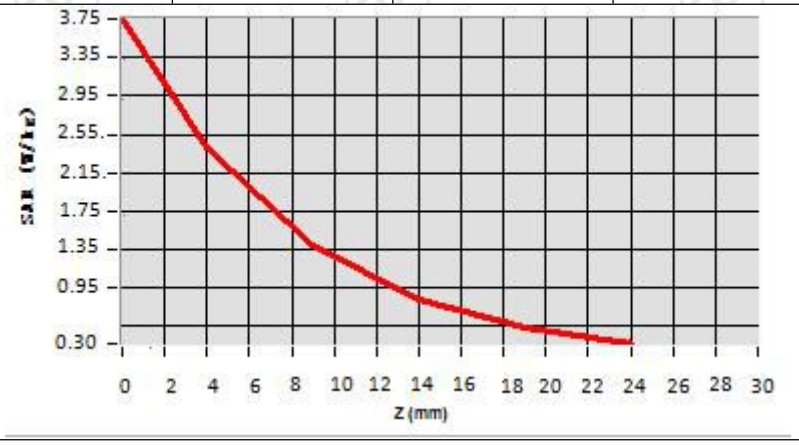
Date of measurement: 10/11/2022 Test mode: 1800MHz (Body)
Product Description: Validation
Dipole Model: SID1800
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.16
Frequency (MHz)	1800.000000
Relative permittivity (real part)	53.292699
Relative permittivity (imaginary part)	15.200000
Conductivity (S/m)	1.530000
Variation (%)	3.050000
SAR 10g (W/Kg)	**2.046187**
SAR 1g (W/Kg)	**3.779347**

SURFACE SAR	**VOLUME SAR**
	



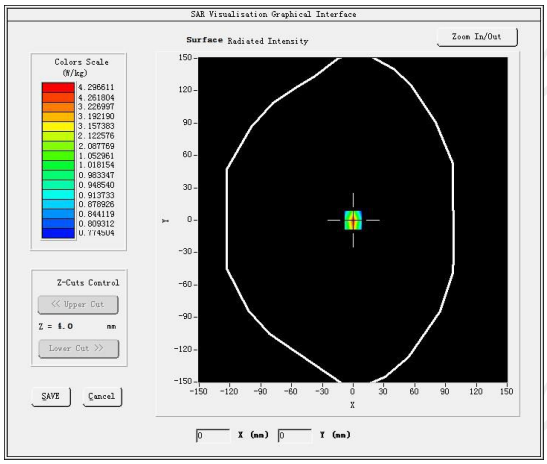
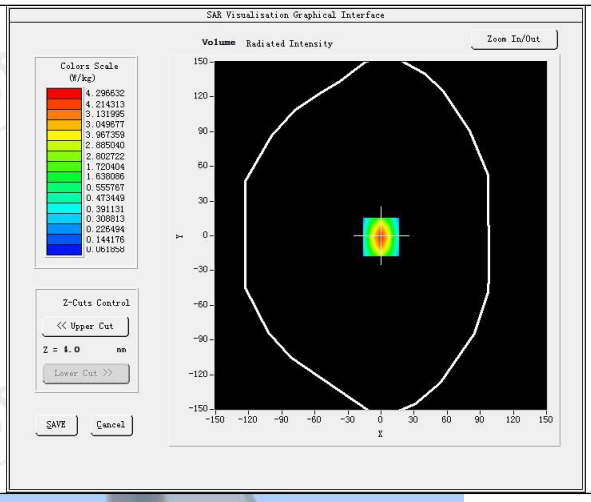
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	3.7545	2.4524	1.3520	0.8214	0.5525

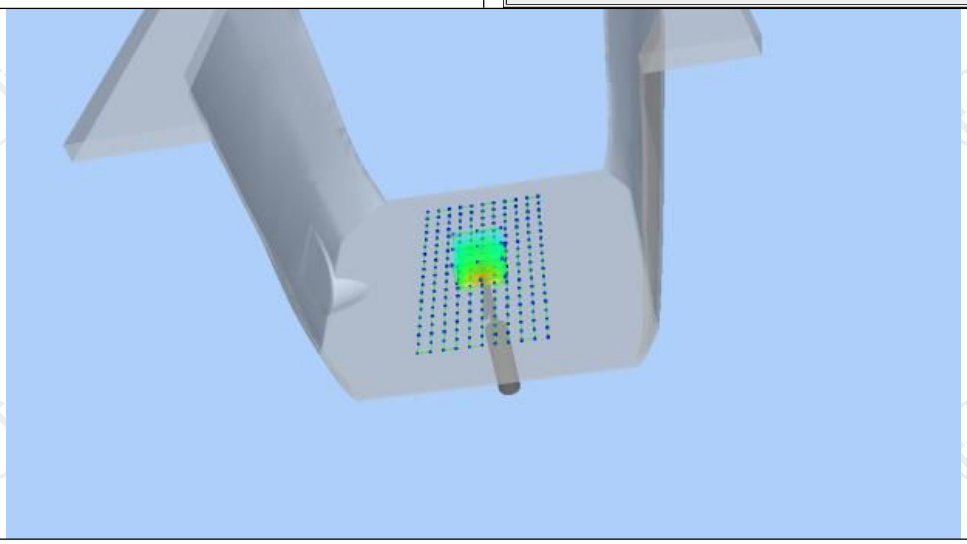


Hot spot position

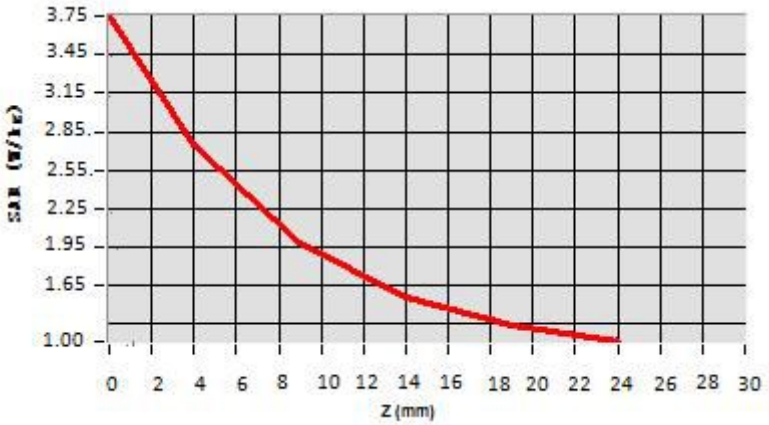
Date of measurement: 10/11/2022 Test mode: 1900MHz (Body)
Product Description: Validation
Dipole Model: SID1900
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	8.0
Probe Conversion factor	2.32
Frequency (MHz)	1900.000000
Relative permittivity (real part)	52.230999
Relative permittivity (imaginary part)	14.329440
Conductivity (S/m)	1.580354
Variation (%)	1.250000
SAR 10g (W/Kg)	**1.990255**
SAR 1g (W/Kg)	**3.770412**

SURFACE SAR	**VOLUME SAR**
	



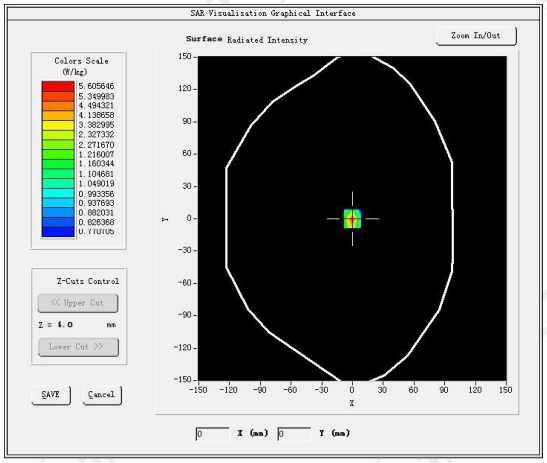
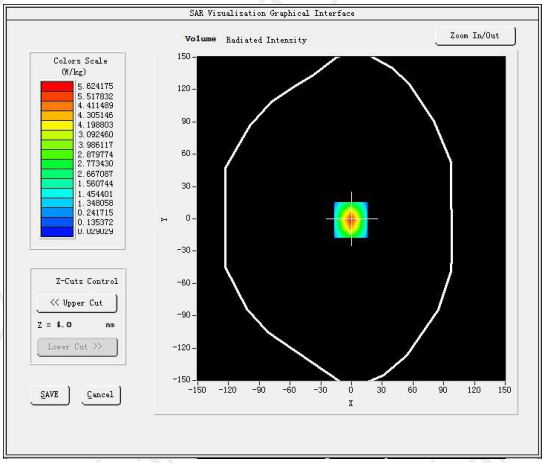
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	3.7752	2.7154	1.9525	1.5694	0.9014

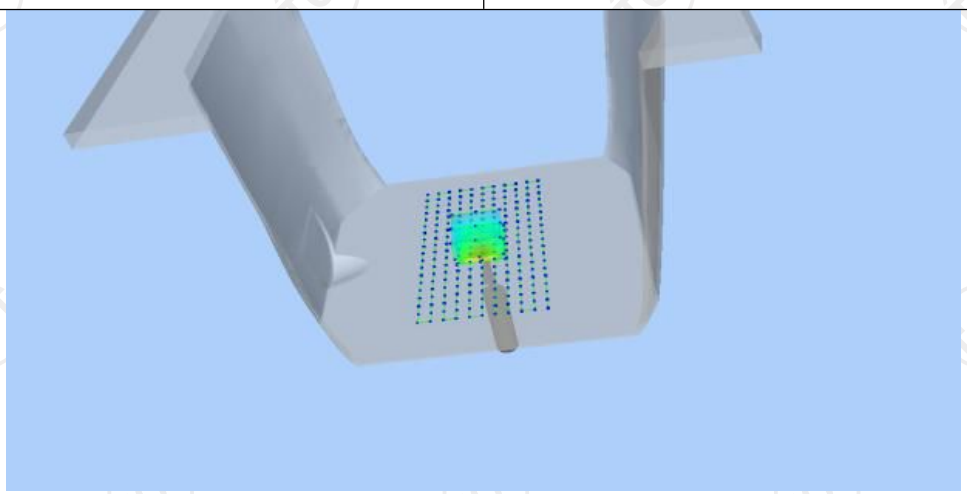


Hot spot position

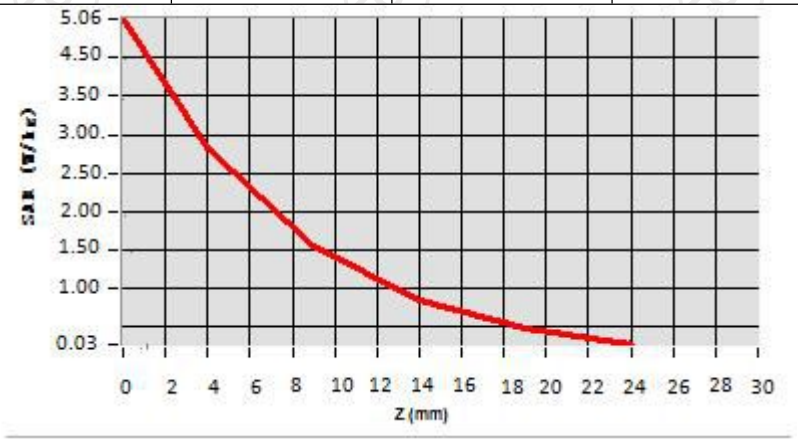
Date of measurement: 10/12/2022 Test mode: 2450MHz (Body)
Product Description: Validation
Dipole Model: SID2450
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.37
Frequency (MHz)	2450.000000
Relative permittivity (real part)	51.921199
Relative permittivity (imaginary part)	14.930150
Conductivity (S/m)	2.012159
Variation (%)	-0.230000
SAR 10g (W/Kg)	**2.415669**
SAR 1g (W/Kg)	**5.070368**

SURFACE SAR	**VOLUME SAR**
	



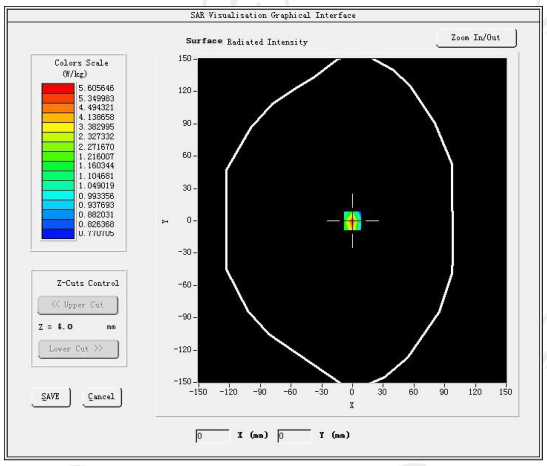
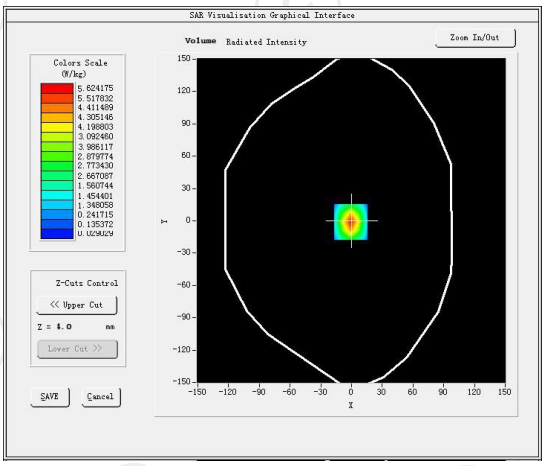
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.0622	2.7984	1.5251	0.8352	0.4200

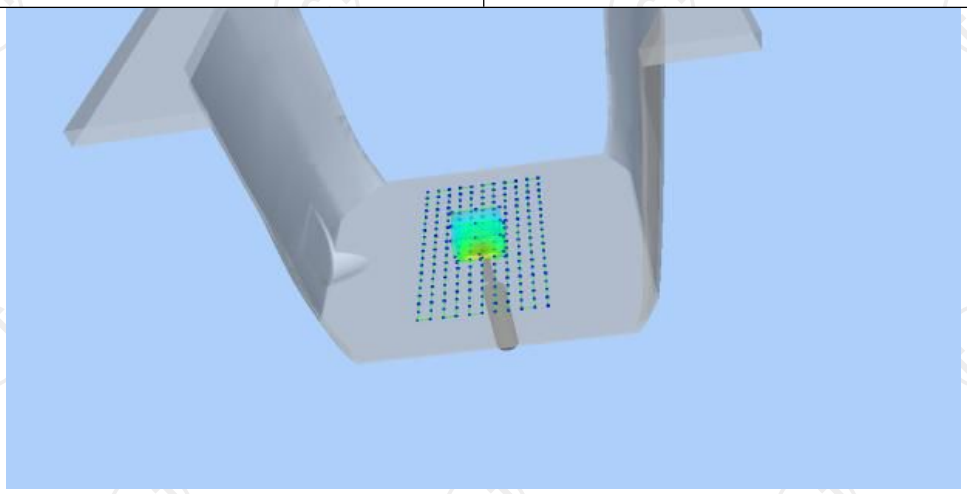


Hot spot position

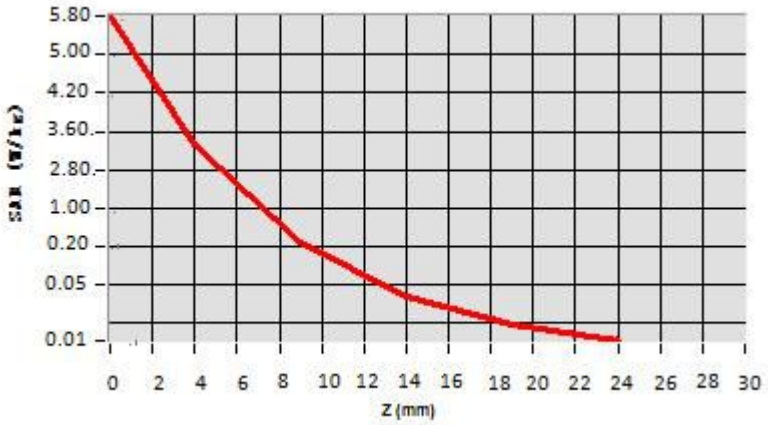
Date of measurement: 10/12/2022 Test mode: 2600MHz (Body)
Product Description: Validation
Dipole Model: SID2600
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.23
Frequency (MHz)	2600.000000
Relative permittivity (real part)	51.830887
Relative permittivity (imaginary part)	14.935214
Conductivity (S/m)	2.134821
Variation (%)	-1.800000
SAR 10g (W/Kg)	**2.381277**
SAR 1g (W/Kg)	**5.365098**

SURFACE SAR	**VOLUME SAR**
	



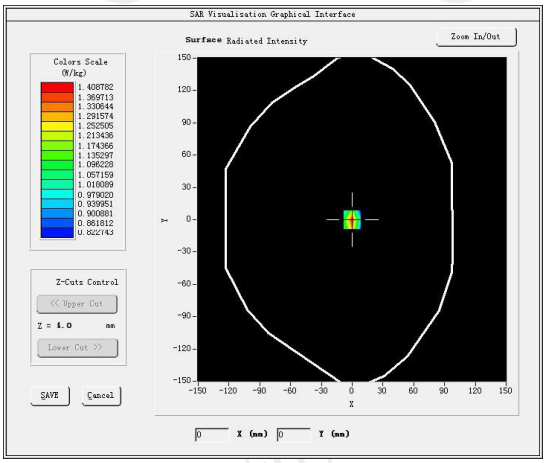
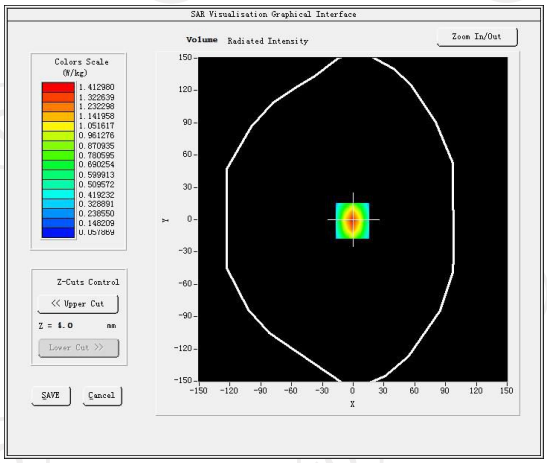
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.7721	3.2210	0.1937	0.0321	0.0203

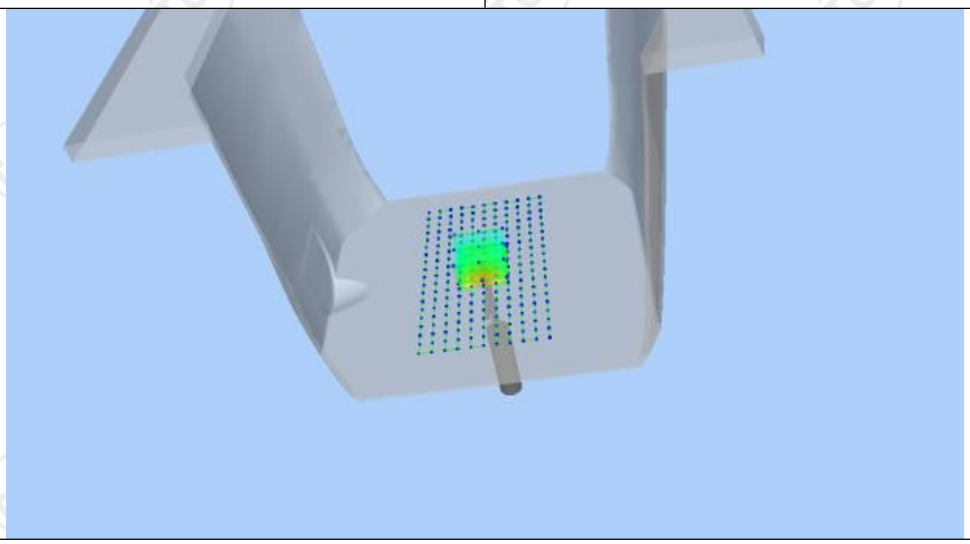


Hot spot position

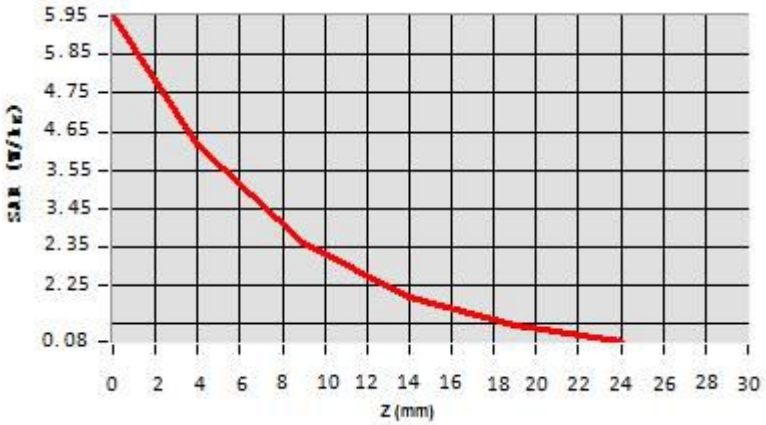
Date of measurement: 10/13/2022 Test mode: 5200 (Body)
Product Description: Validation
Dipole Model: SID5000
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.08
Frequency (MHz)	5200.000000
Relative permittivity (real part)	49.522077
Relative permittivity (imaginary part)	21.378187
Conductivity (S/m)	5.403883
Variation (%)	-3.140000
SAR 10g (W/Kg)	**5.690123**
SAR 1g (W/Kg)	**15.901446**

SURFACE SAR	**VOLUME SAR**
	



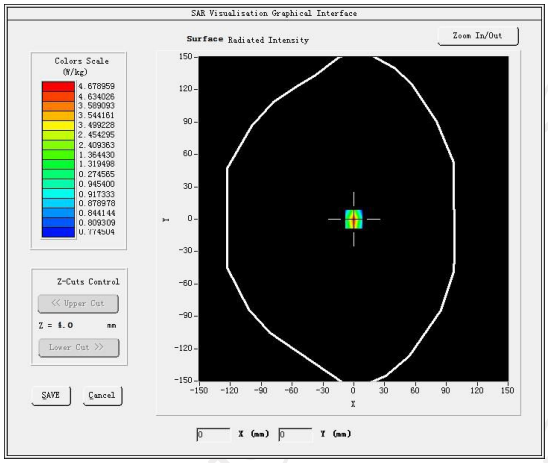
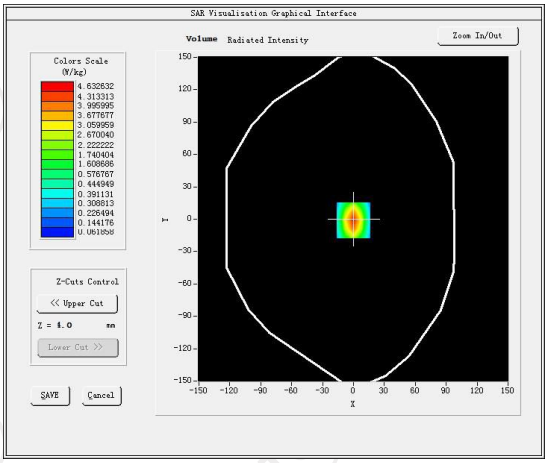
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.9525	0.6022	0.3594	0.2202	0.0725

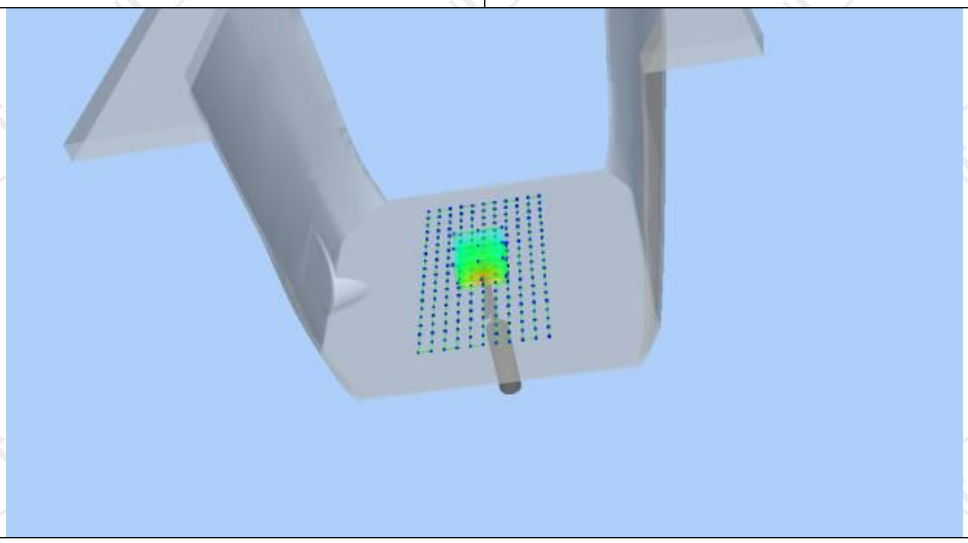


Hot spot position

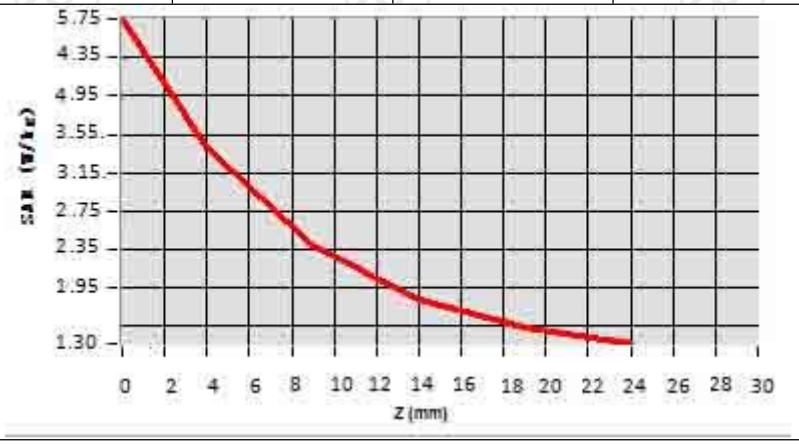
Date of measurement: 10/13/2022 Test mode: 5400MHz (Body)
Product Description: Validation
Dipole Model: SID5000
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	1.99
Frequency (MHz)	5400.000000
Relative permittivity (real part)	47.962699
Relative permittivity (imaginary part)	15.200000
Conductivity (S/m)	5.510000
Variation (%)	0.450000
SAR 10g (W/Kg)	**5.843387**
SAR 1g (W/Kg)	**16.640247**

SURFACE SAR	**VOLUME SAR**
	



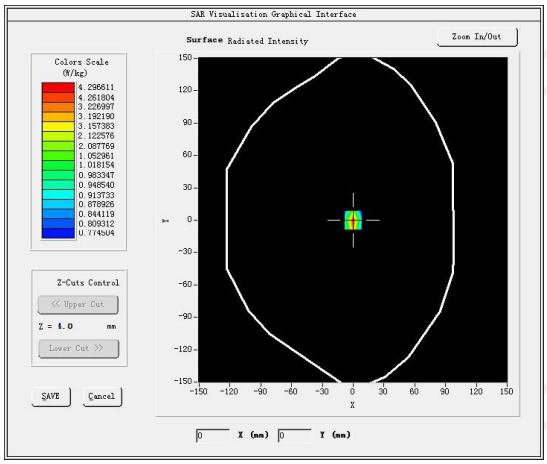
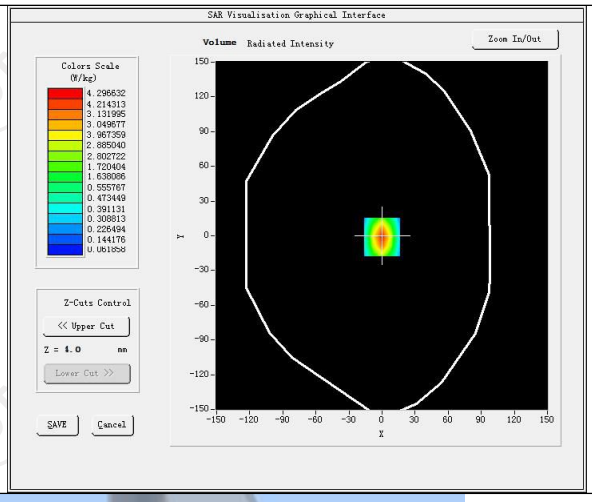
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.7545	2.4524	1.3520	0.8214	0.5525

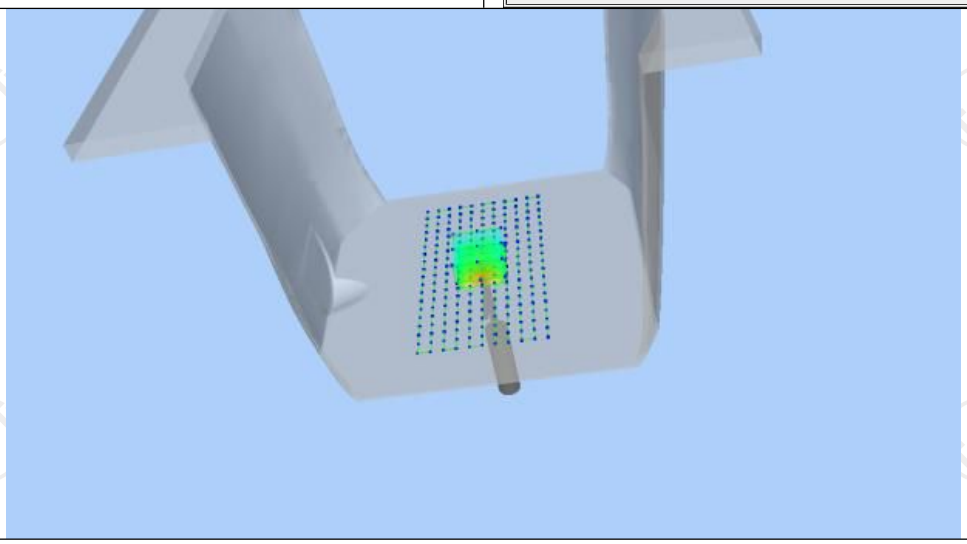


Hot spot position

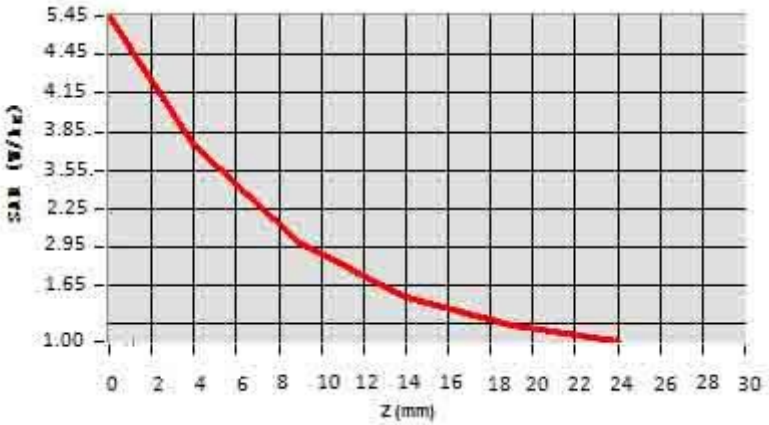
Date of measurement: 10/13/2022 Test mode: 5600MHz (Body)
Product Description: Validation
Dipole Model: SID5000
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.12
Frequency (MHz)	5600.000000
Relative permittivity (real part)	49.759999
Relative permittivity (imaginary part)	14.329440
Conductivity (S/m)	5.970354
Variation (%)	1.410000
SAR 10g (W/Kg)	**5.997255**
SAR 1g (W/Kg)	**17.380112**

SURFACE SAR	**VOLUME SAR**
	



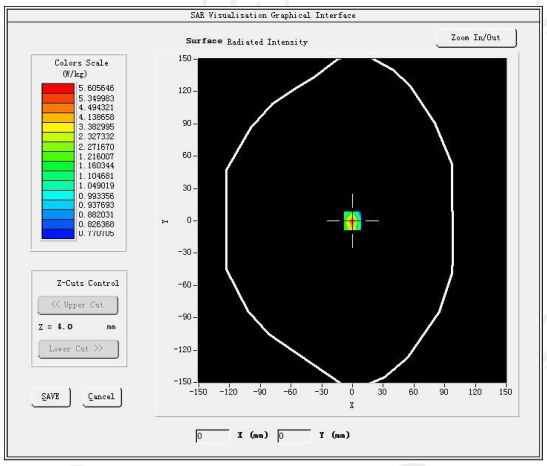
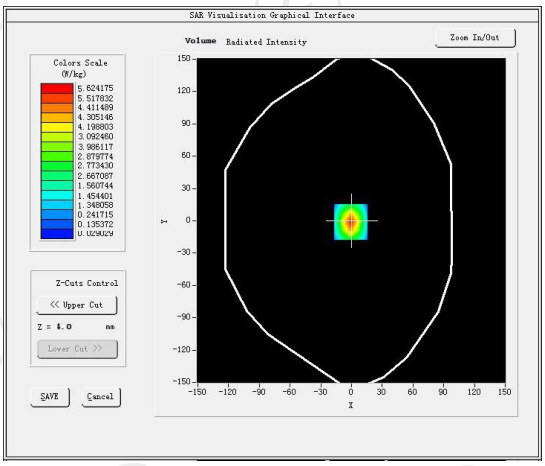
Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.4532	2.7154	1.9525	1.5694	0.9014

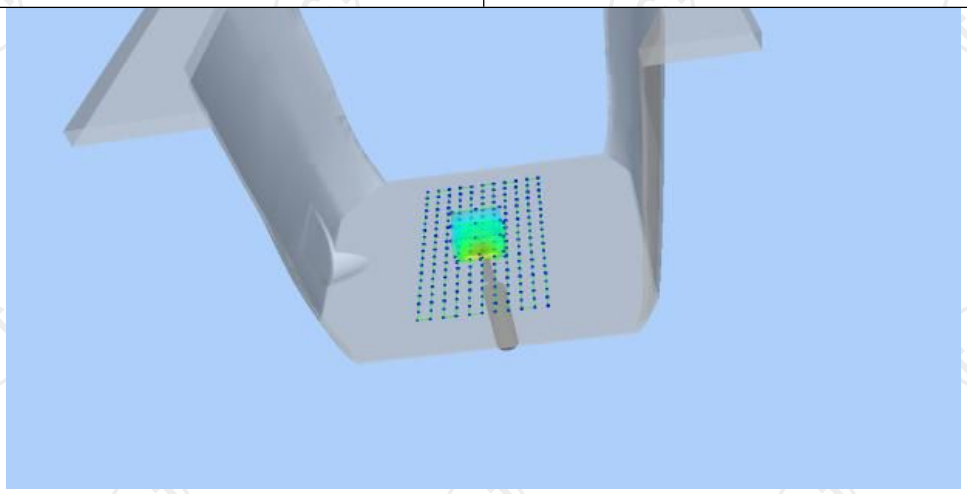


Hot spot position

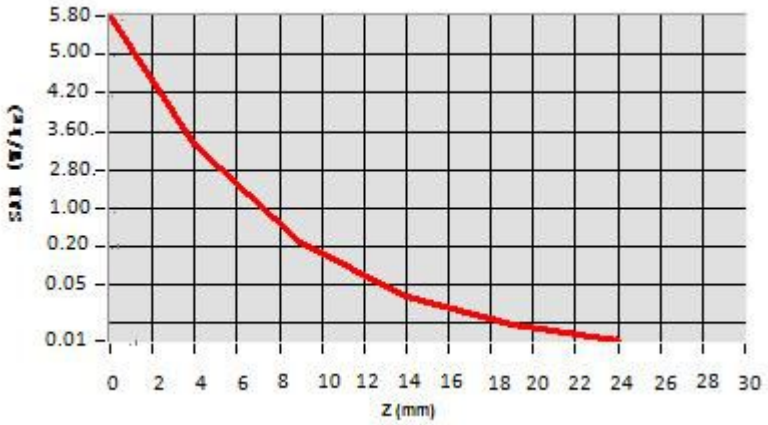
Date of measurement: 10/13/2022 Test mode: 5800MHz (Body)
Product Description: Validation
Dipole Model: SID5000
E-Field Probe: SSE2 (SN 36/20 EPGO346)

Phantom	Validation plane
Input Power	100mW
Crest Factor	1.0
Probe Conversion factor	2.13
Frequency (MHz)	5800.000000
Relative permittivity (real part)	47.593887
Relative permittivity (imaginary part)	14.935214
Conductivity (S/m)	5.954821
Variation (%)	-1.420000
SAR 10g (W/Kg)	**6.150177**
SAR 1g (W/Kg)	**18.124098**

SURFACE SAR	**VOLUME SAR**
	



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	5.7721	3.2210	0.1937	0.0321	0.0203



Hot spot position

12. SAR Test Data

WCDMA Band II-Body

SAR Measurement at Band 2 (1900) (Body, Validation Plane)

Date of measurement: 11/10/2022

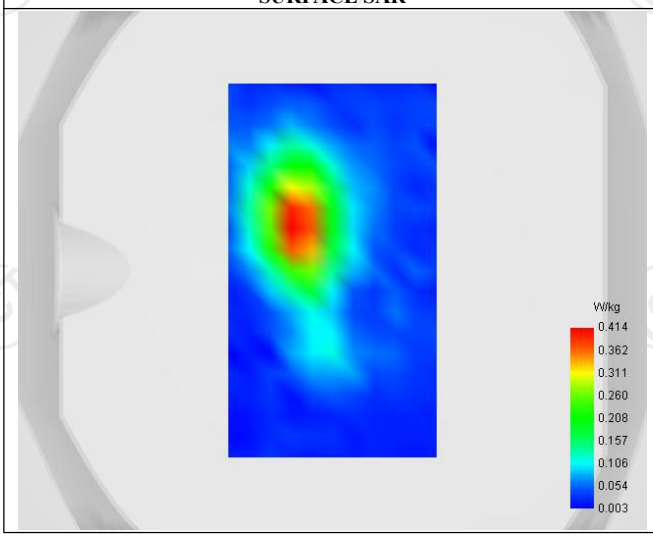
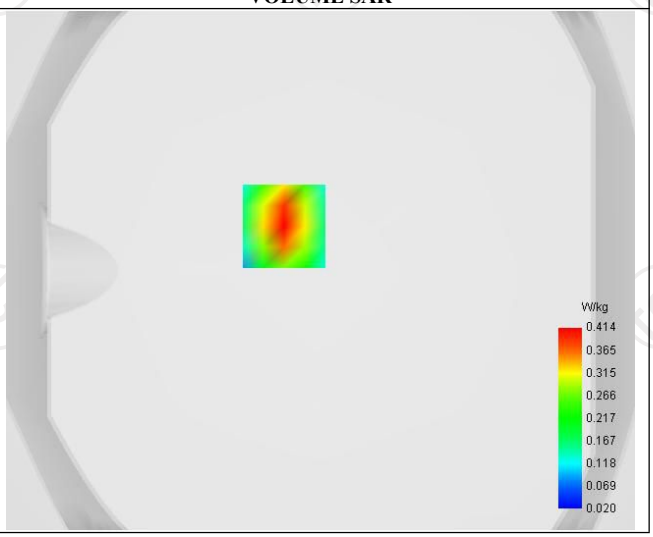
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.32
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 2 (1900)
Channels	Higher (9538)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	1907.600
Relative permitivity (real part)	53.241
Relative permitivity (imaginary part)	14.329
Conductivity (S/m)	1.570

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

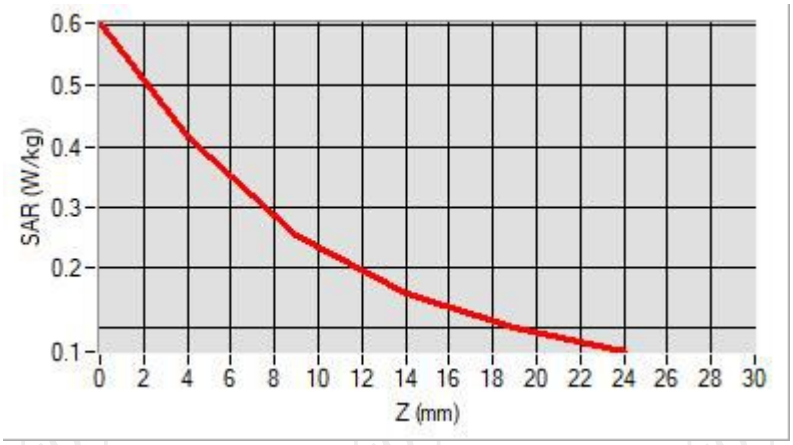
Maximum location: X=-14.00, Y=17.00 ; SAR Peak: 0.60 W/kg

D. SAR 1g & 10g

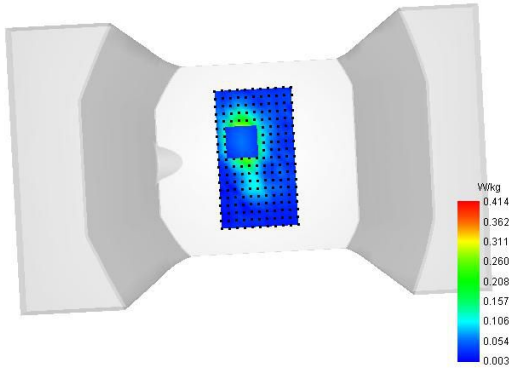
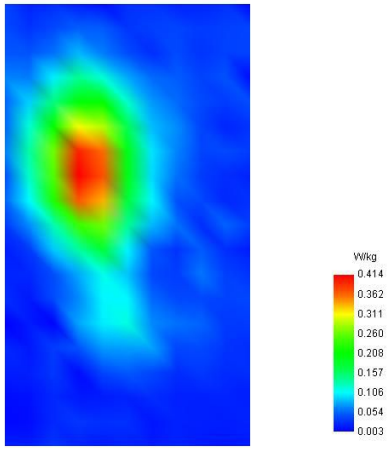
SAR 10g (W/Kg)	0.217
SAR 1g (W/Kg)	0.384
Variation (%)	1.201
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.604	0.414	0.254	0.157	0.099



F. 3D Image

3D screen shot	Hot spot position
	

WCDMA Band II-Front-of-face

SAR Measurement at Band 2 (1900) (Body, Validation Plane)

Date of measurement: 11/10/2022

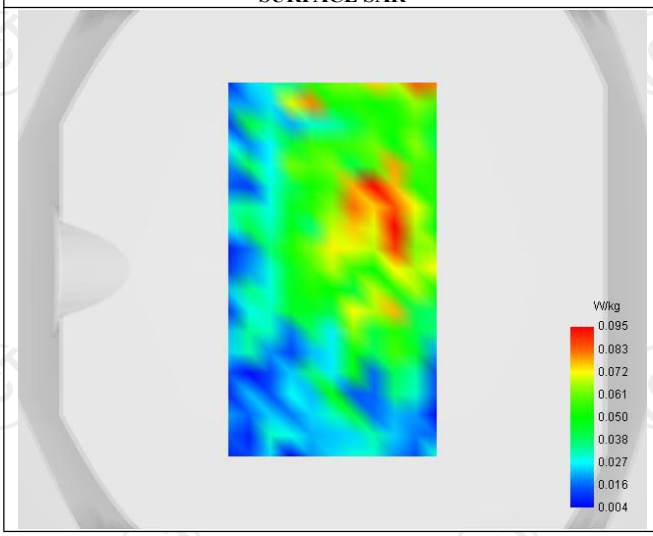
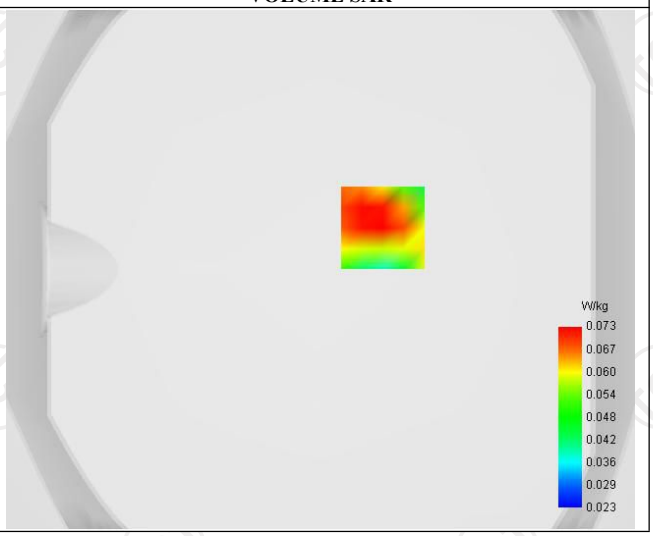
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.32
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 2 (1900)
Channels	Higher (9538)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	1907.600
Relative permitivity (real part)	53.241
Relative permitivity (imaginary part)	14.329
Conductivity (S/m)	1.570

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=24.00, Y=16.00 ; SAR Peak: 0.10 W/kg

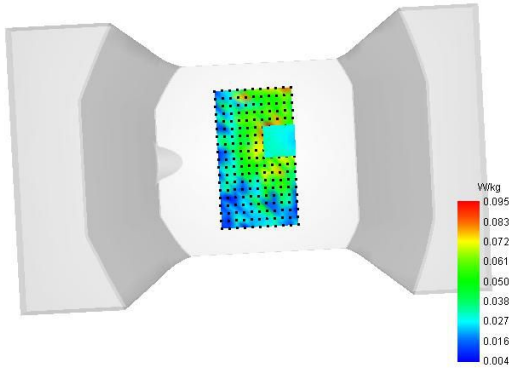
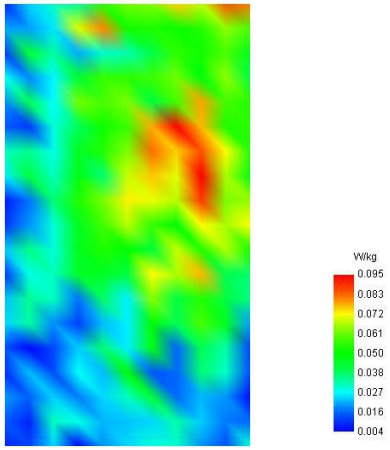
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.057
SAR 1g (W/Kg)	0.073
Variation (%)	2.005
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.082	0.073	0.061	0.049	0.038

F. 3D Image

3D screen shot	Hot spot position
	

WCDMA Band IV-Body

SAR Measurement at Band 4 (1700) (Body, Validation Plane)

Date of measurement: 11/10/2022

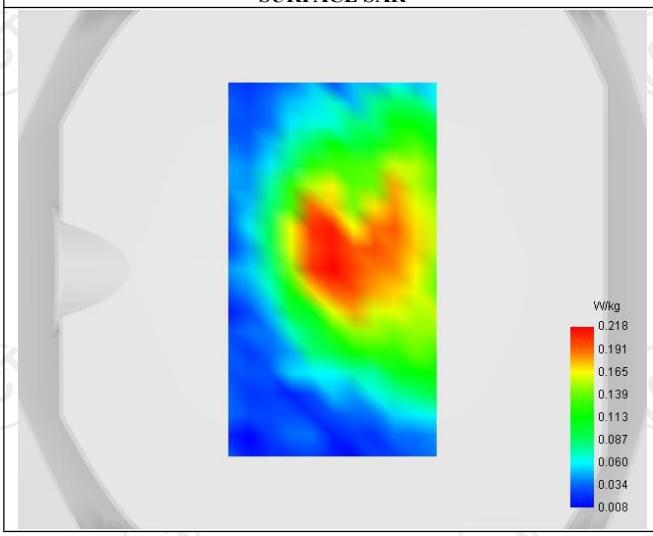
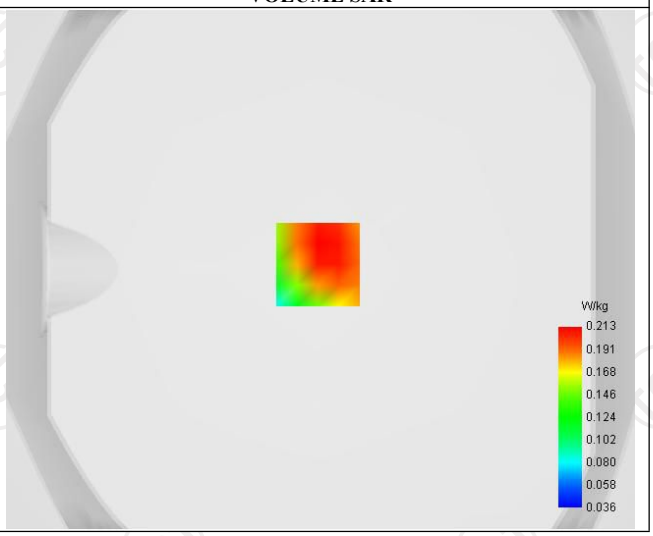
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.16
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 4 (1700)
Channels	Higher (1513)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	1752.600
Relative permitivity (real part)	54.620
Relative permitivity (imaginary part)	14.781
Conductivity (S/m)	1.512

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

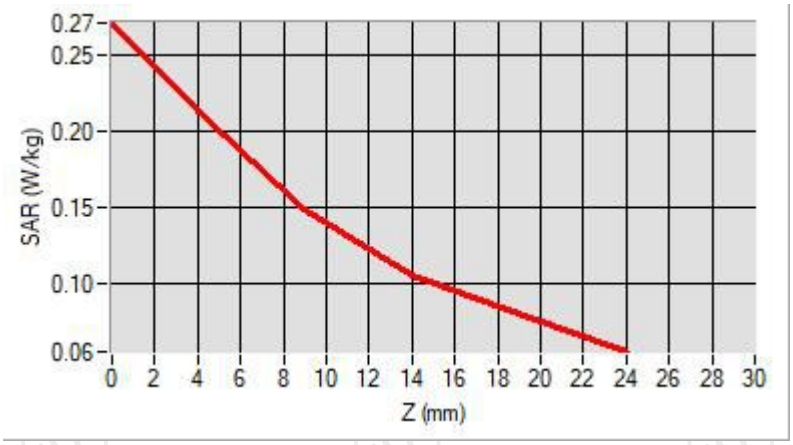
Maximum location: X=-1.00, Y=2.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

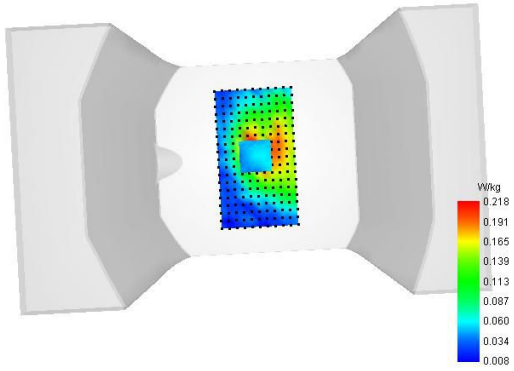
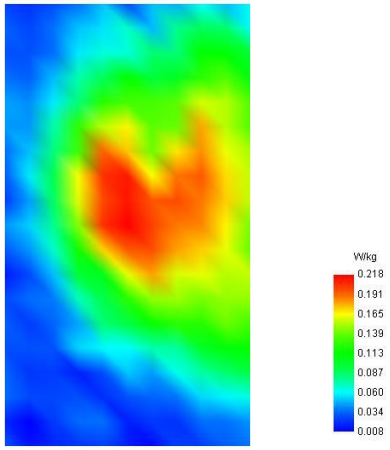
SAR 10g (W/Kg)	0.185
SAR 1g (W/Kg)	0.256
Variation (%)	-1.104
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.271	0.213	0.148	0.105	0.080



F. 3D Image

3D screen shot	Hot spot position
	

WCDMA Band IV-Front-of-face

SAR Measurement at Band 4 (1700) (Body, Validation Plane)

Date of measurement: 11/10/2022

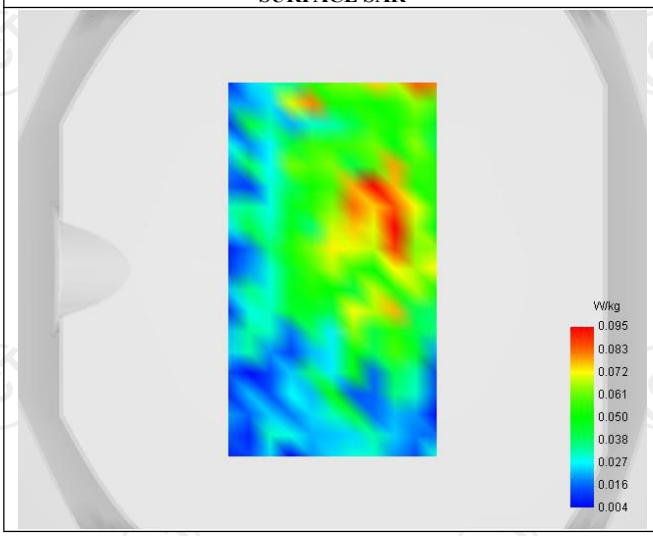
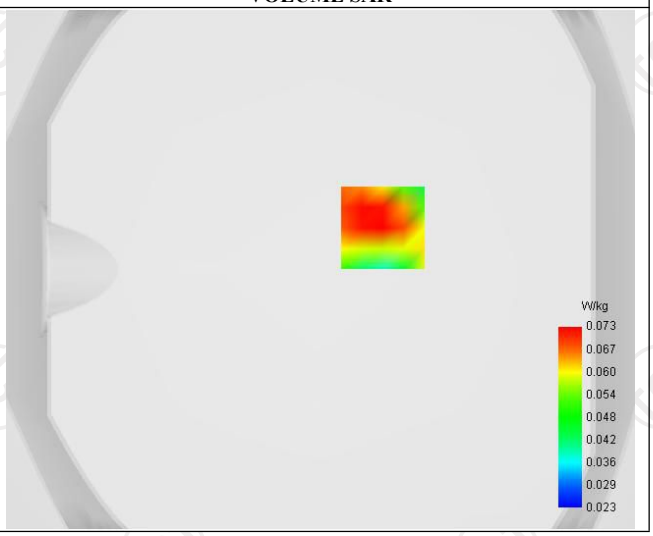
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.16
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 4 (1700)
Channels	Higher (1513)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	1752.600
Relative permitivity (real part)	54.620
Relative permitivity (imaginary part)	14.781
Conductivity (S/m)	1.512

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=24.00, Y=16.00 ; SAR Peak: 0.10 W/kg

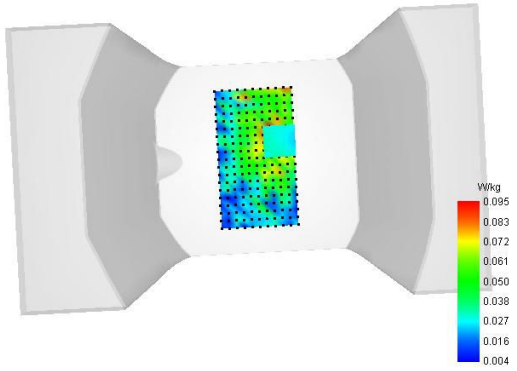
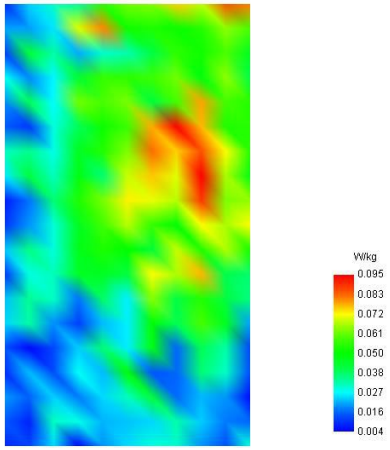
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.050
SAR 1g (W/Kg)	0.066
Variation (%)	1.023
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.082	0.073	0.061	0.049	0.038

F. 3D Image

3D screen shot	Hot spot position
	

WCDMA Band V-Body

SAR Measurement at Band 5 (850) (Body, Validation Plane)

Date of measurement: 10/10/2022

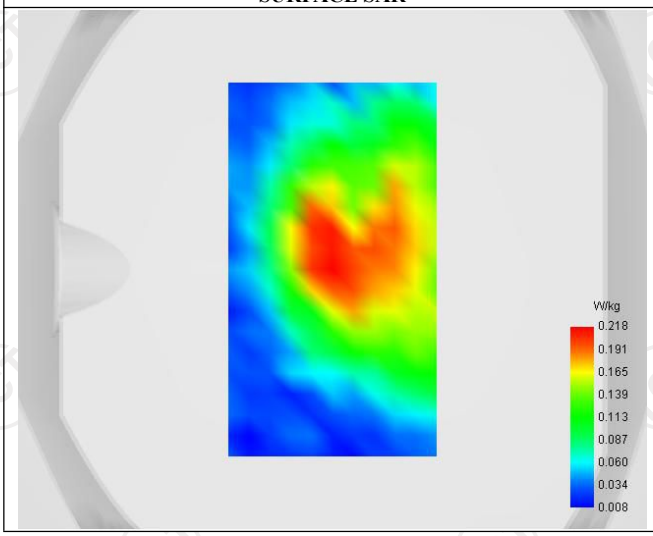
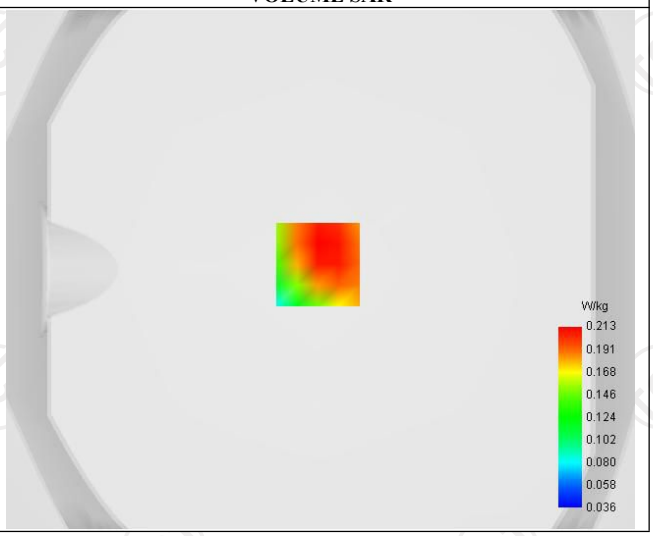
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	1.86
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 5 (850)
Channels	Middle (4183)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	836.600
Relative permitivity (real part)	55.242
Relative permitivity (imaginary part)	21.378
Conductivity (S/m)	0.939

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

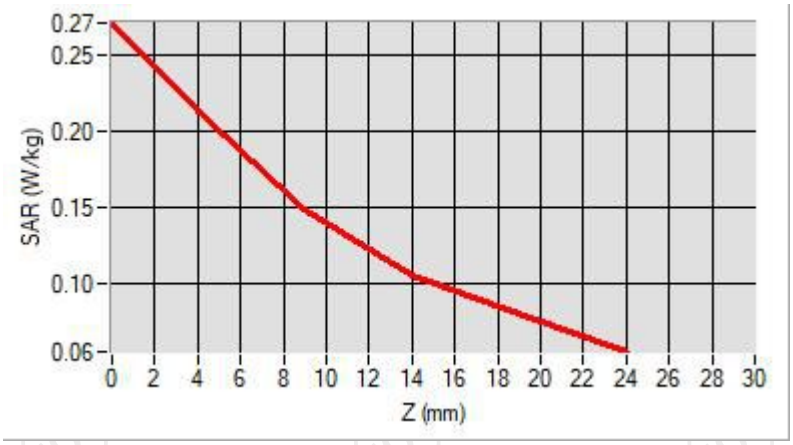
Maximum location: X=-1.00, Y=2.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

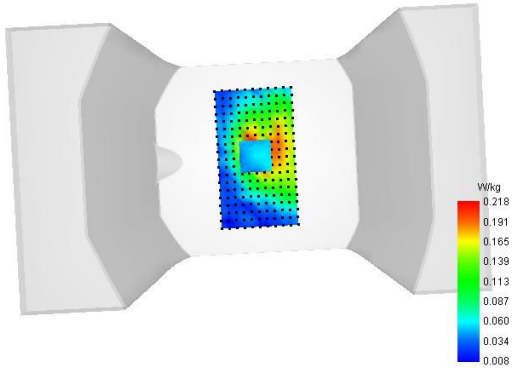
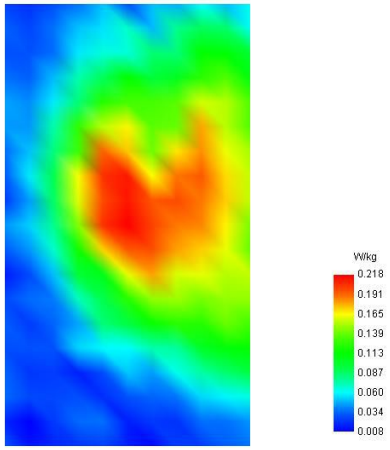
SAR 10g (W/Kg)	0.145
SAR 1g (W/Kg)	0.211
Variation (%)	1.520
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.271	0.213	0.148	0.105	0.080



F. 3D Image

3D screen shot	Hot spot position
	

WCDMA Band V-Front-of-face

SAR Measurement at Band 5 (850) (Body, Validation Plane)

Date of measurement: 10/10/2022

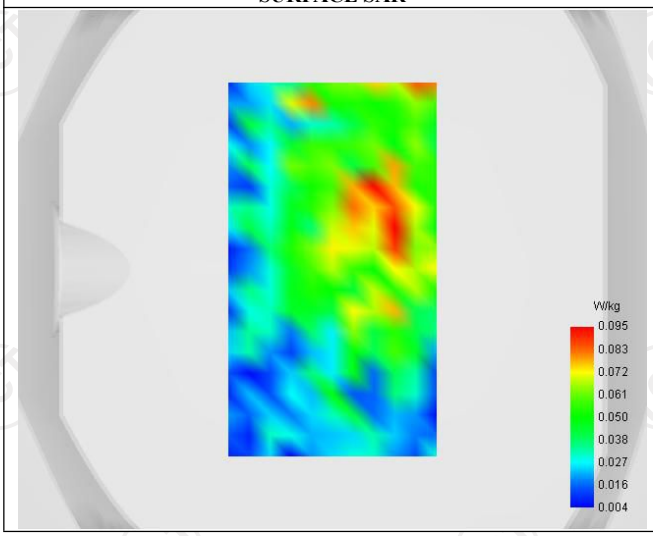
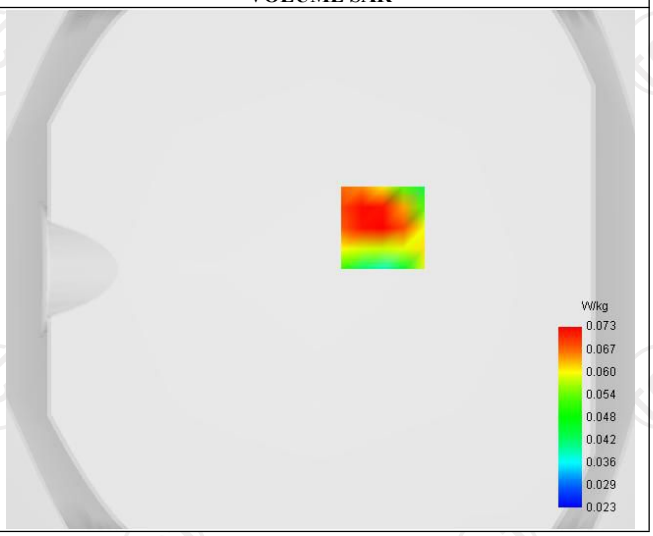
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	1.86
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 5 (850)
Channels	Middle (4183)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Frequency (MHz)	836.600
Relative permitivity (real part)	55.242
Relative permitivity (imaginary part)	21.378
Conductivity (S/m)	0.939

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=24.00, Y=16.00 ; SAR Peak: 0.10 W/kg

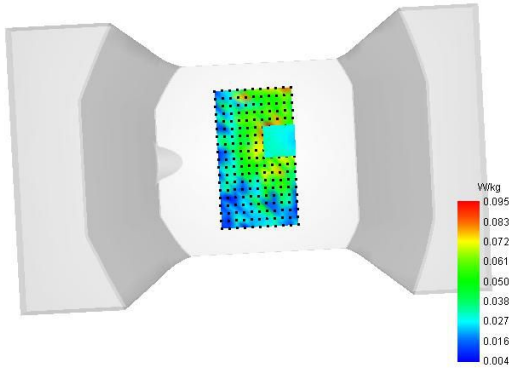
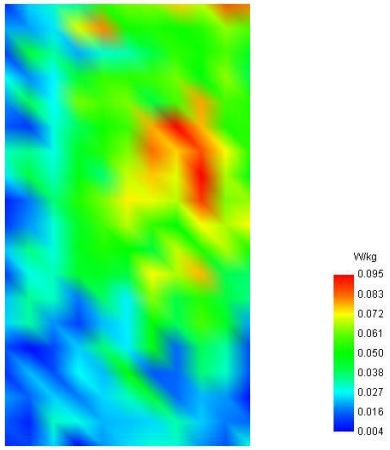
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.070
SAR 1g (W/Kg)	0.085
Variation (%)	-0.123
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.082	0.073	0.061	0.049	0.038

F. 3D Image

3D screen shot	Hot spot position
	

LTE Band 2-Body

SAR Measurement at LTE band 2 (Body, Validation Plane)

Date of measurement: 11/10/2022

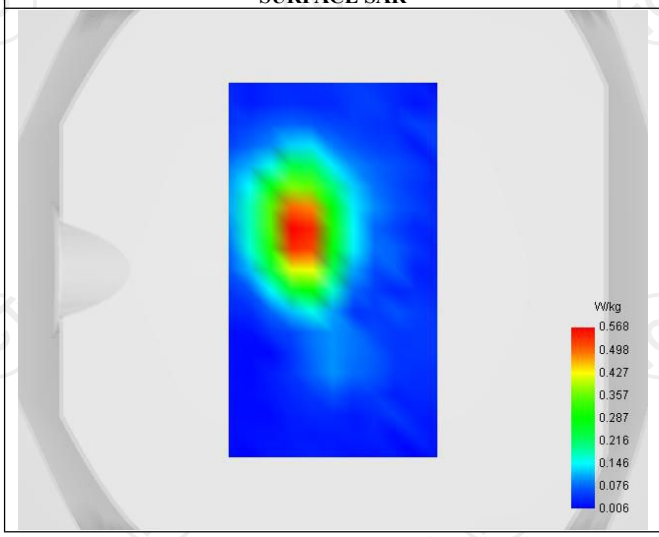
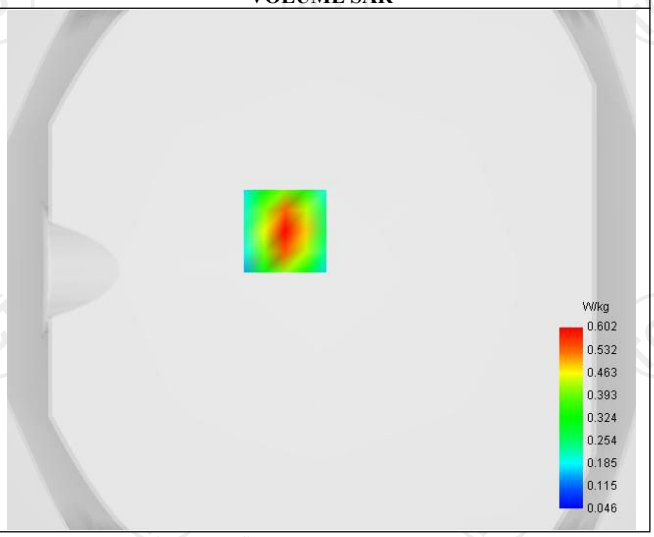
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.32
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels	Lower (18700)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	99
RB size	1

B. Permitivity

Frequency (MHz)	1851.090
Relative permitivity (real part)	53.270
Relative permitivity (imaginary part)	14.791
Conductivity (S/m)	1.551

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-14.00, Y=15.00 ; SAR Peak: 0.97 W/kg

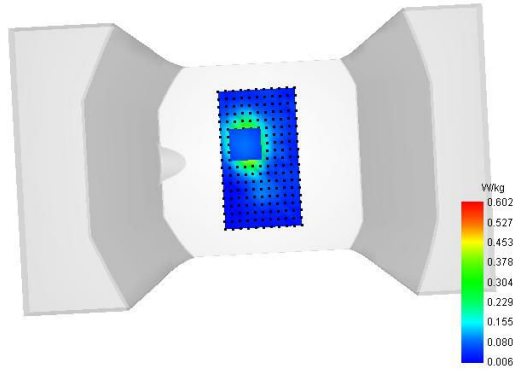
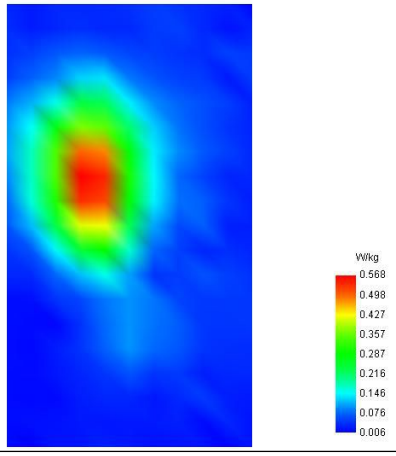
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.303
SAR 1g (W/Kg)	0.560
Variation (%)	0.600
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.964	0.602	0.330	0.191	0.125

F. 3D Image

3D screen shot	Hot spot position
	

LTE Band 2-Front-of-face

SAR Measurement at LTE band 2 (Body, Validation Plane)

Date of measurement: 11/10/2022

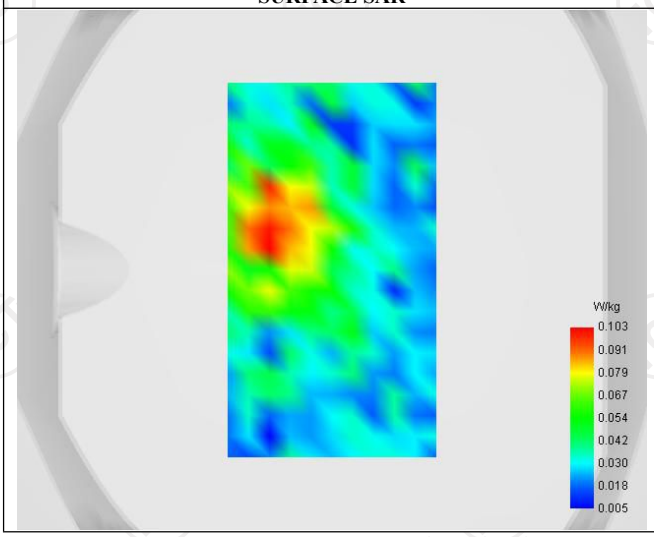
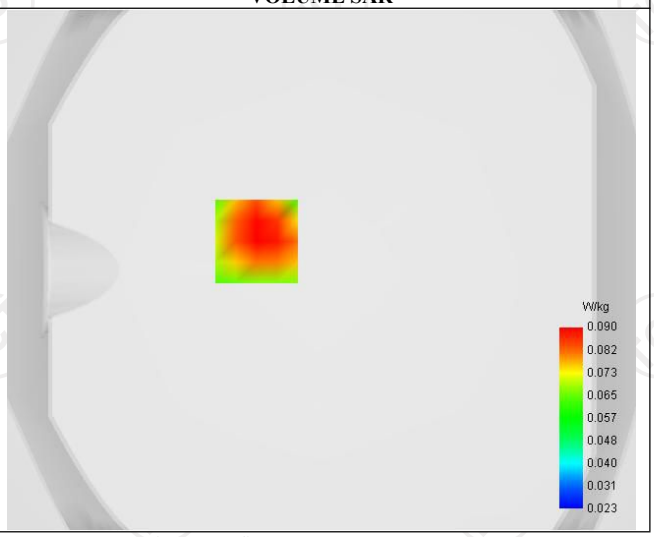
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.32
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels	Lower (18700)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	99
RB size	1

B. Permitivity

Frequency (MHz)	1851.090
Relative permitivity (real part)	53.270
Relative permitivity (imaginary part)	14.791
Conductivity (S/m)	1.551

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-25.00, Y=11.00 ; SAR Peak: 0.14 W/kg

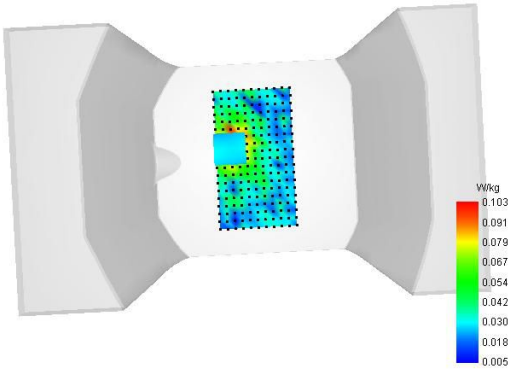
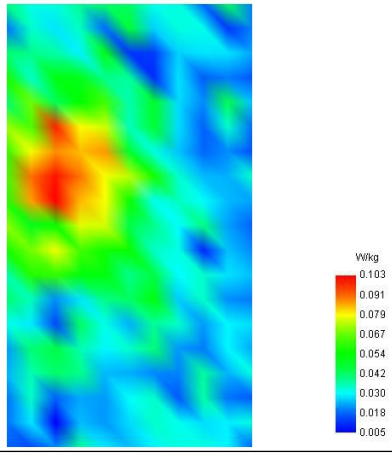
D. SAR 1g & 10g

SAR 10g (W/Kg)	0.059
SAR 1g (W/Kg)	0.089
Variation (%)	1.380
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.137	0.090	0.055	0.038	0.031

F. 3D Image

3D screen shot	Hot spot position
	

LTE Band 4-Body

SAR Measurement at LTE band 4 (Body, Validation Plane)

Date of measurement: 11/10/2022

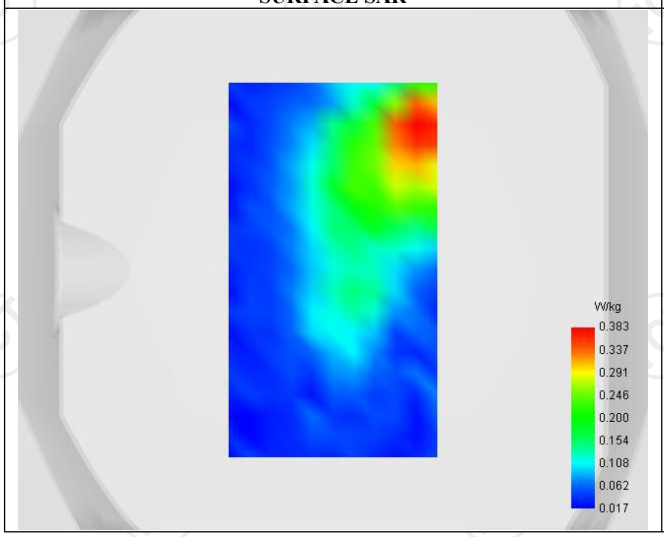
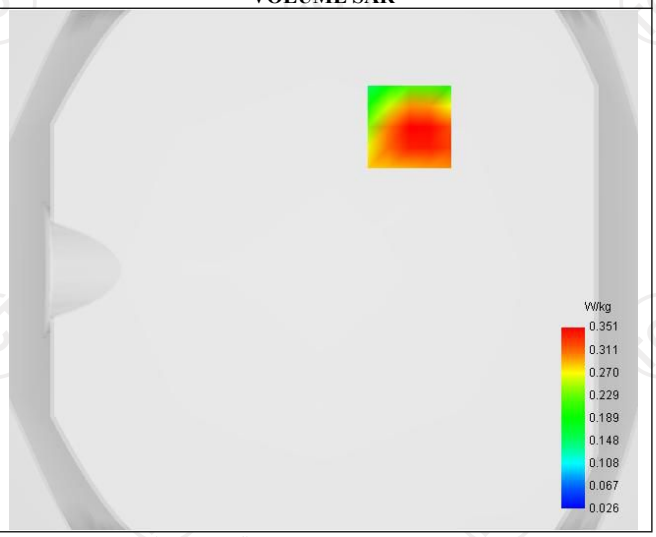
A. Experimental conditions.

Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.16
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels	Lower (20050)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	0
RB size	1

B. Permitivity

Frequency (MHz)	1744.990
Relative permitivity (real part)	54.624
Relative permitivity (imaginary part)	15.411
Conductivity (S/m)	1.513

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

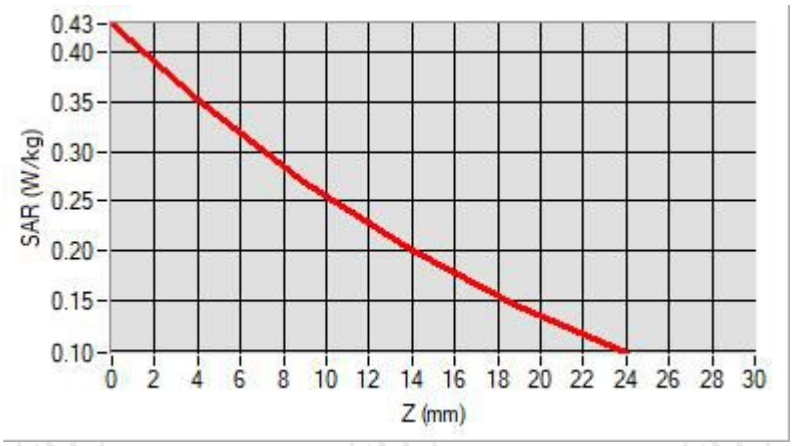
Maximum location: X=33.00, Y=55.00 ; SAR Peak: 0.44 W/kg

D. SAR 1g & 10g

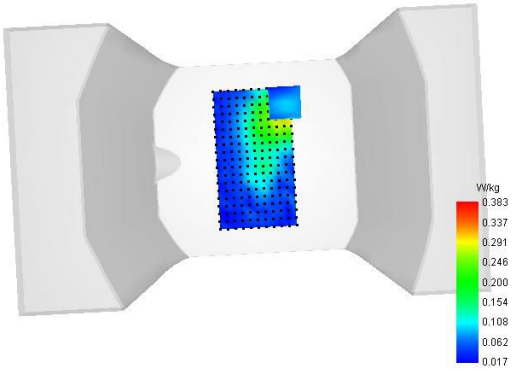
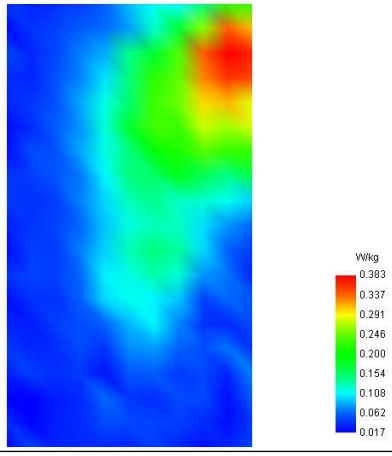
SAR 10g (W/Kg)	0.235
SAR 1g (W/Kg)	0.343
Variation (%)	-1.750
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.429	0.351	0.268	0.200	0.143



F. 3D Image

3D screen shot	Hot spot position
	

LTE Band 4-Front-of-face

SAR Measurement at LTE band 4 (Body, Validation Plane)

Date of measurement: 11/10/2022

A. Experimental conditions.

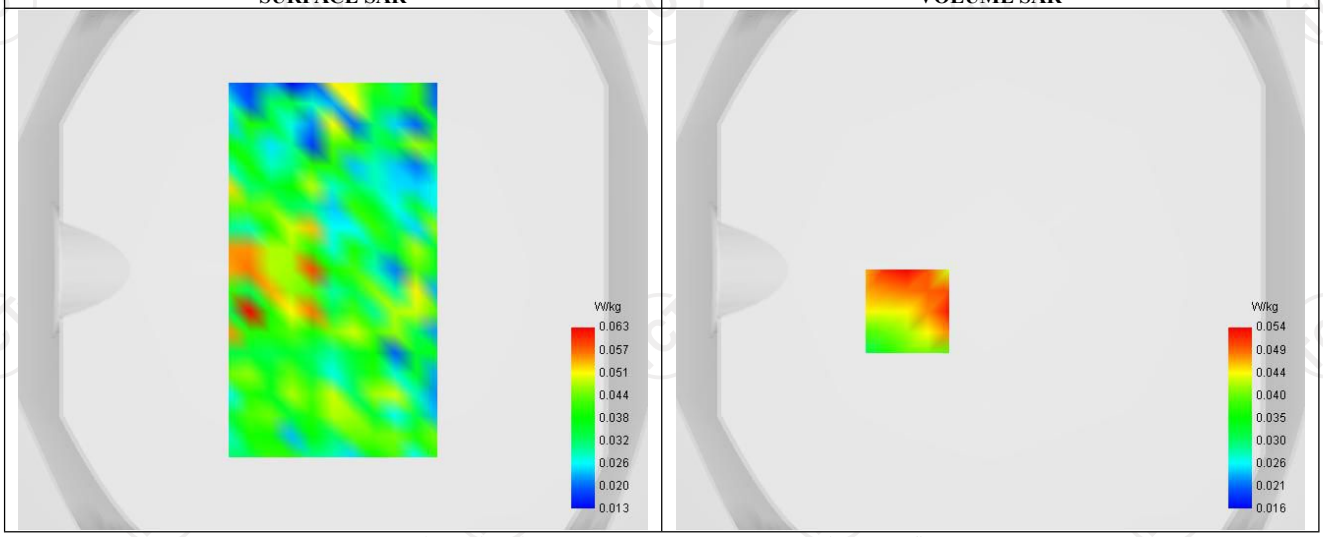
Probe	SSE2 (SN 36/20 EPGO346)
ConvF	2.16
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels	Lower (20050)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	0
RB size	1

B. Permitivity

Frequency (MHz)	1744.990
Relative permitivity (real part)	54.624
Relative permitivity (imaginary part)	15.411
Conductivity (S/m)	1.513

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR



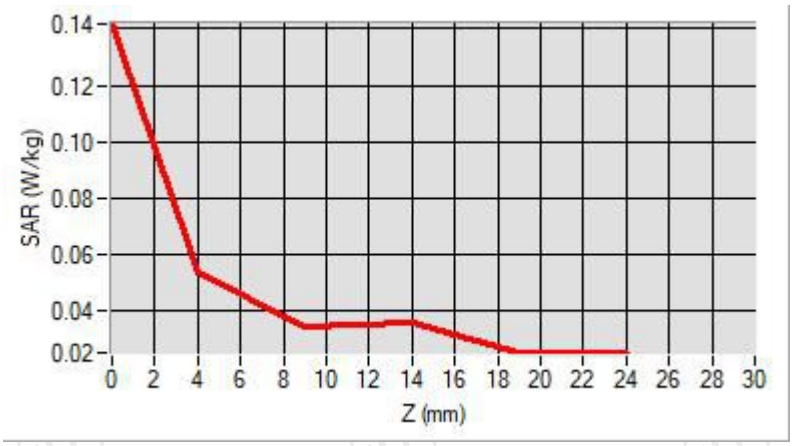
Maximum location: X=-32.00, Y=-16.00 ; SAR Peak: 0.07 W/kg

D. SAR 1g & 10g

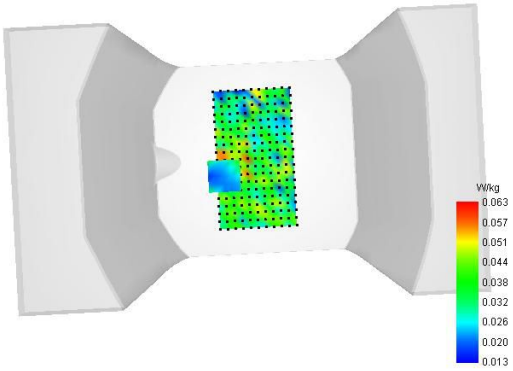
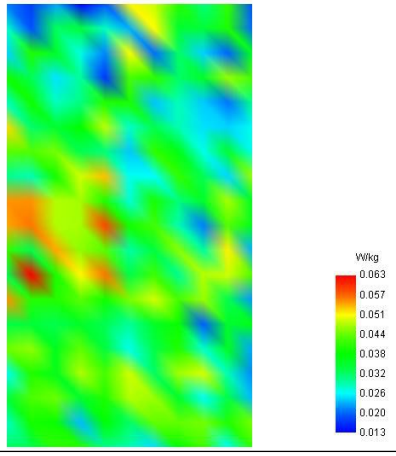
SAR 10g (W/Kg)	0.039
SAR 1g (W/Kg)	0.051
Variation (%)	-0.350
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.142	0.054	0.034	0.036	0.025



F. 3D Image

3D screen shot	Hot spot position
	

LTE Band 5-Body

SAR Measurement at LTE band 5 (Body, Validation Plane)

Date of measurement: 10/10/2022

A. Experimental conditions.

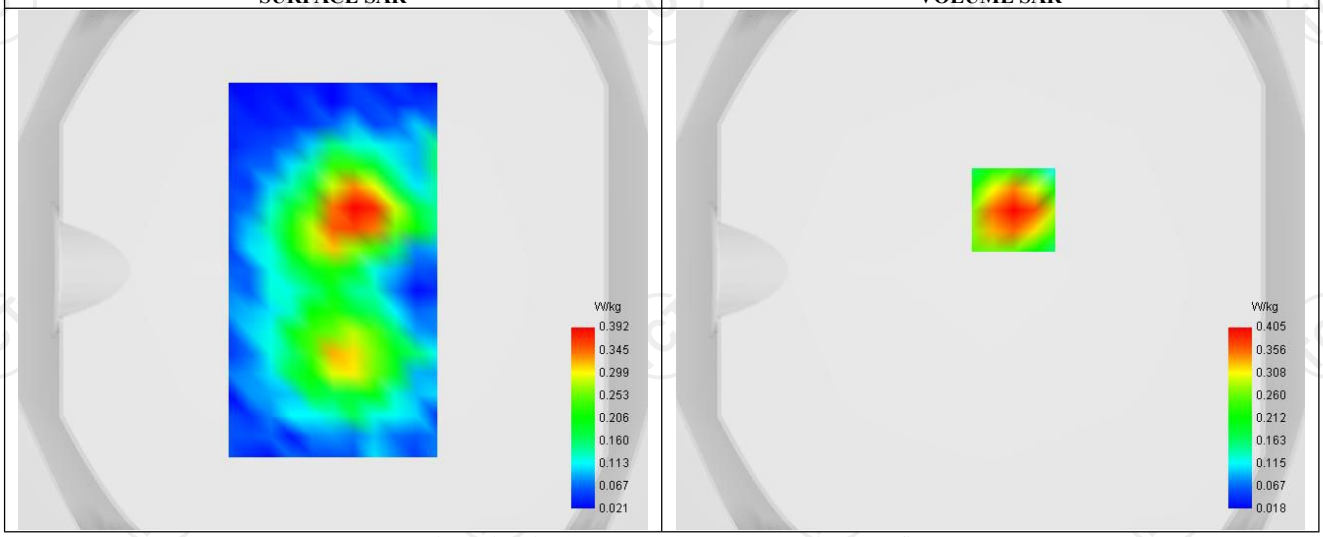
Probe	SSE2 (SN 36/20 EPGO346)
ConvF	1.86
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels	Middle (20252)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	0
RB size	1

B. Permitivity

Frequency (MHz)	836.500
Relative permitivity (real part)	55.242
Relative permitivity (imaginary part)	21.378
Conductivity (S/m)	0.939

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR



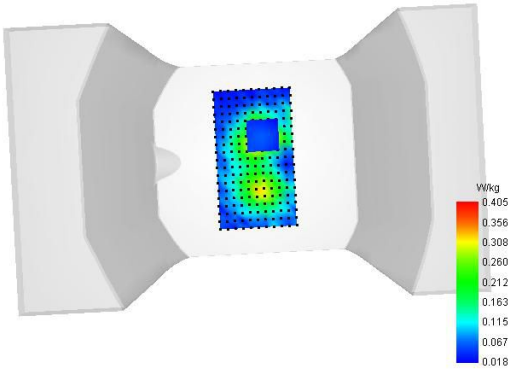
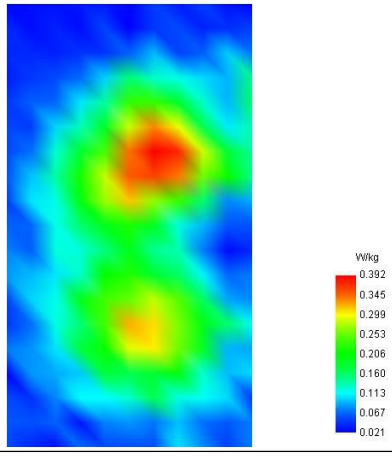
Maximum location: X=9.00, Y=23.00 ; SAR Peak: 0.63 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.216
SAR 1g (W/Kg)	0.381
Variation (%)	0.590
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.634	0.405	0.229	0.136	0.090

F. 3D Image

3D screen shot	Hot spot position