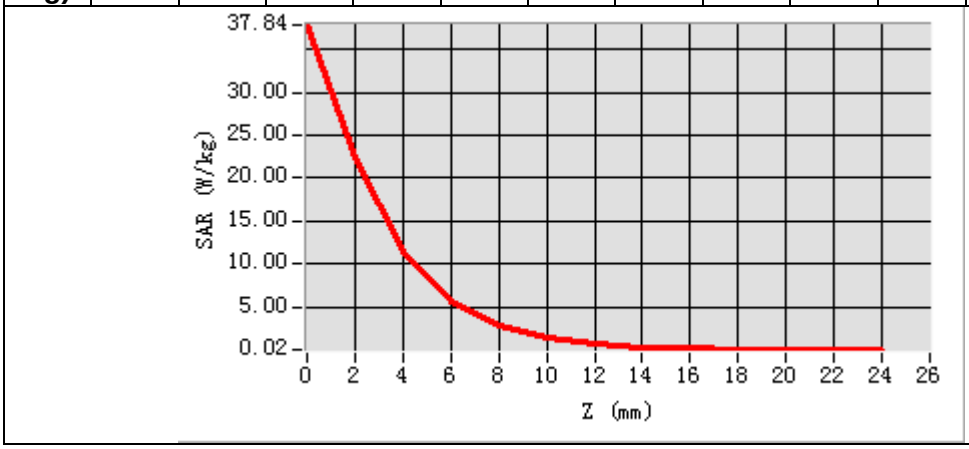
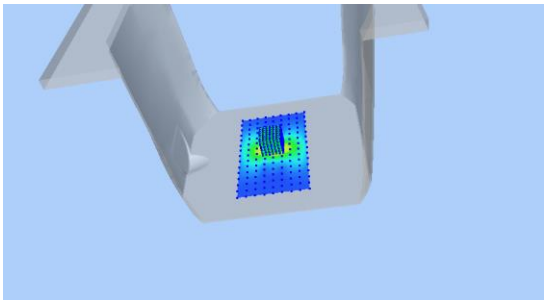
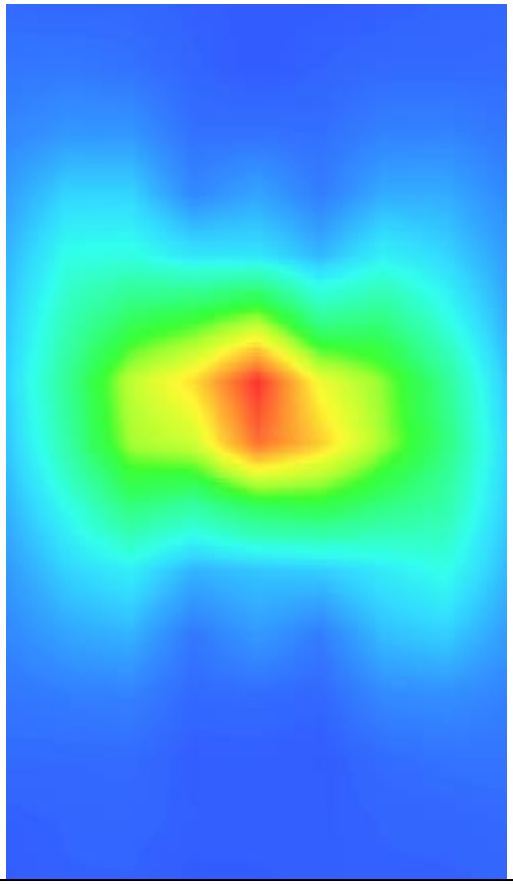
Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	37.8358	22.3234	11.3793	5.6682	2.8232	1.4055	0.7132	0.3651	0.1858	0.1013	0.0545	0.0312



3D screen shot	Hot spot position
	

MEASUREMENT 8

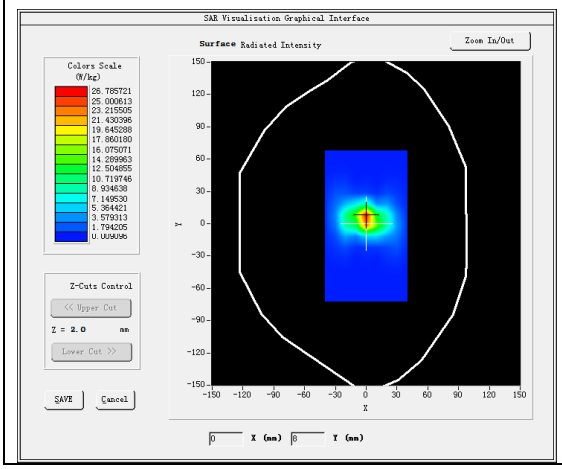
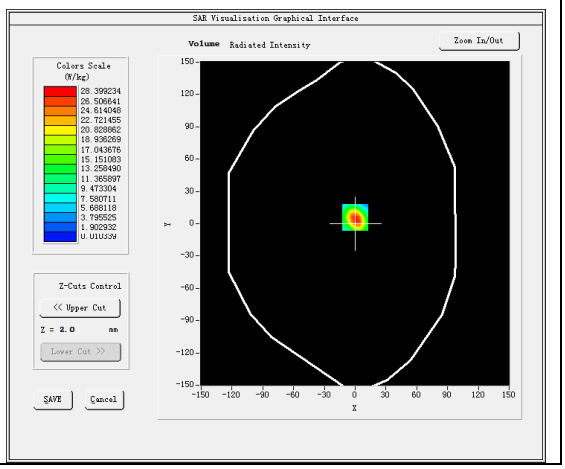
Date of measurement: 26/7/2021

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5800
Channels	Middle
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

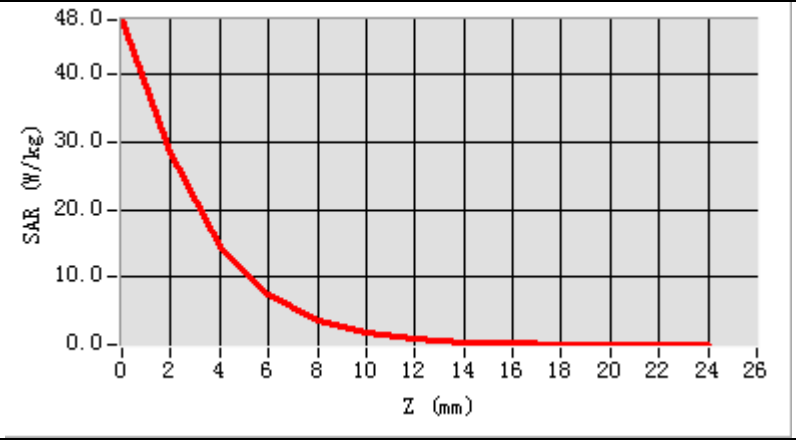
Frequency (MHz)	5800.000000
Relative permittivity (real part)	35.976461
Relative permittivity (imaginary part)	16.398912
Conductivity (S/m)	5.284094
Variation (%)	-0.890000

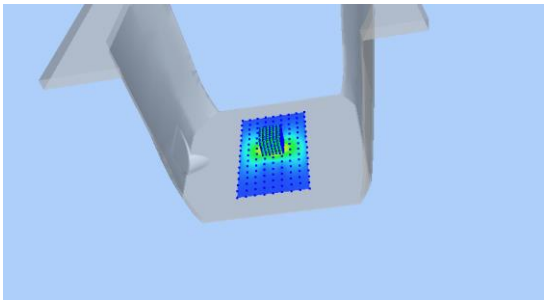
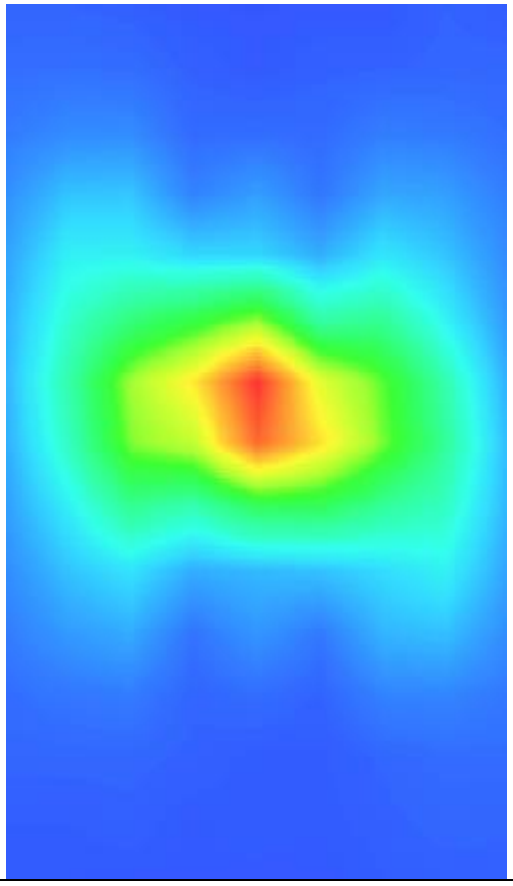
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=6.00
SAR Peak: 50.97 W/kg

SAR 10g (W/Kg)	6.284634
SAR 1g (W/Kg)	17.942625

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	48.0321	28.3992	14.4531	7.2934	3.6495	1.8203	0.9244	0.4665	0.2494	0.1382	0.0726	0.0491



3D screen shot	Hot spot position
	

13. Appendix C. Plots of High SAR Measurement

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MEASUREMENT 1

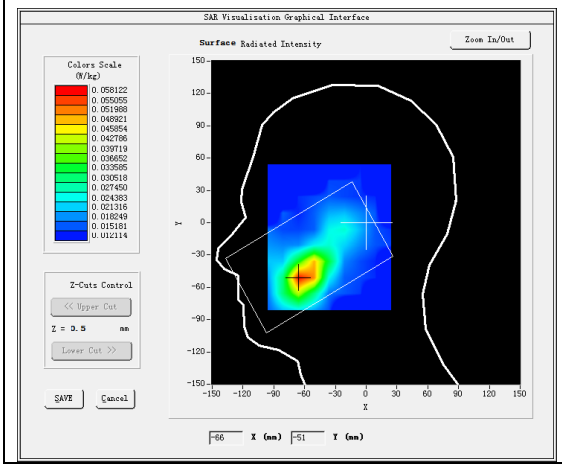
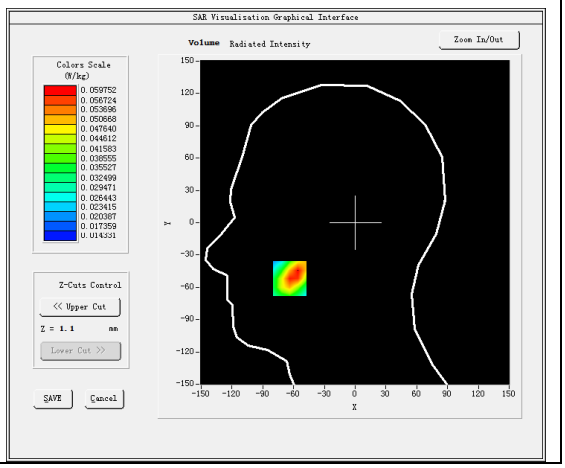
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 2.0)

B. SAR Measurement Results

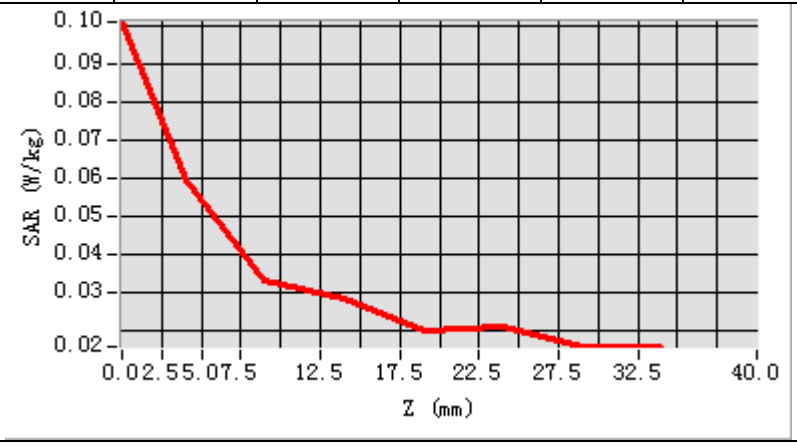
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.593426
Relative permittivity (imaginary part)	19.743965
Conductivity (S/m)	0.917436
Variation (%)	-4.560000

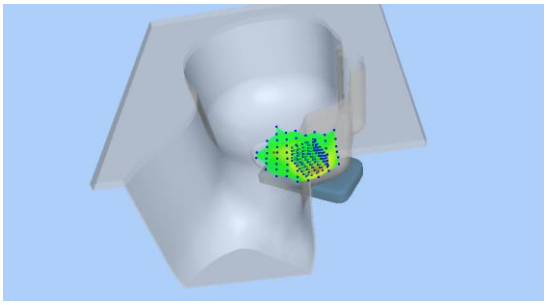
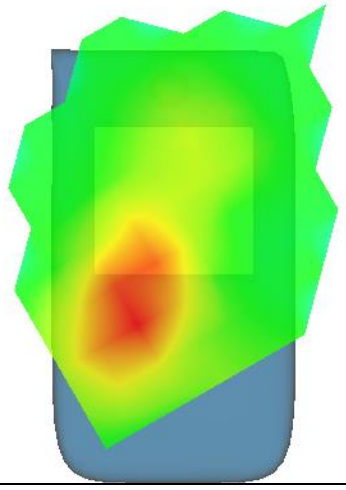
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-64.00, Y=-52.00
SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.037277
SAR 1g (W/Kg)	0.058040

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1010	0.0598	0.0332	0.0286	0.0203	0.0211	0.0163



3D screen shot	Hot spot position
	

MEASUREMENT 2

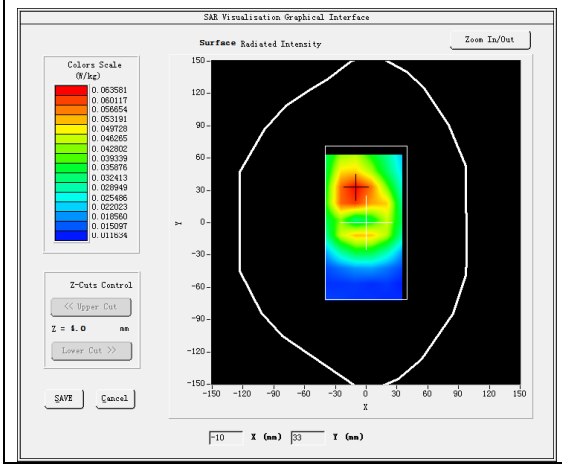
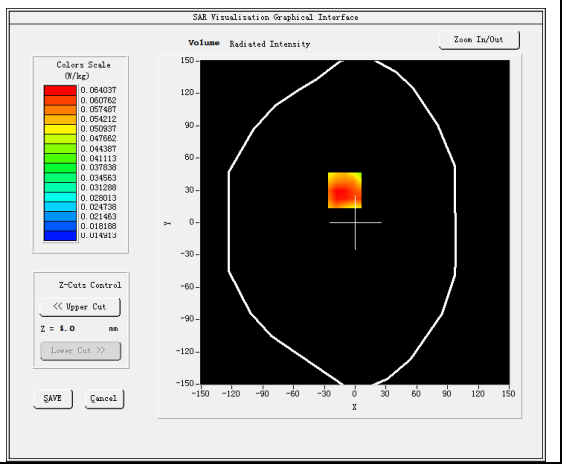
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 2.0)

B. SAR Measurement Results

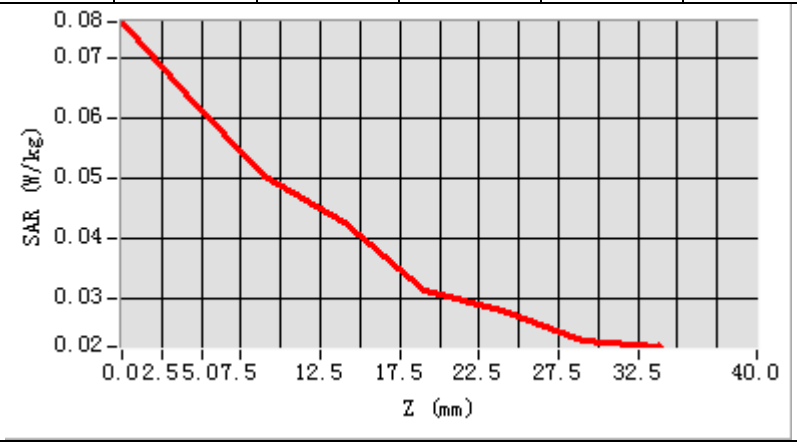
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.593426
Relative permittivity (imaginary part)	19.743965
Conductivity (S/m)	0.917436
Variation (%)	2.330000

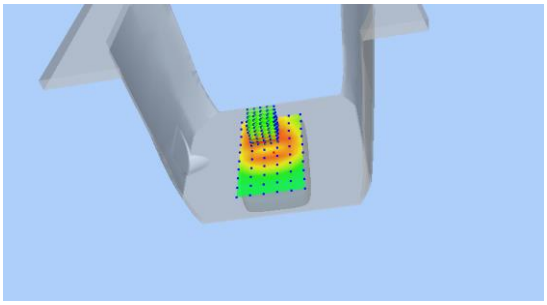
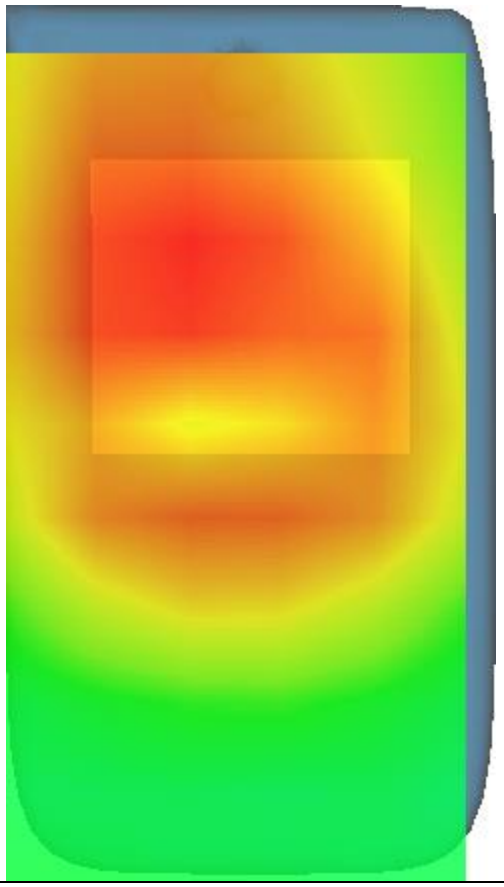
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=30.00
SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.048408
SAR 1g (W/Kg)	0.063142

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0761	0.0640	0.0506	0.0429	0.0315	0.0281	0.0230



3D screen shot	Hot spot position
	

MEASUREMENT 3

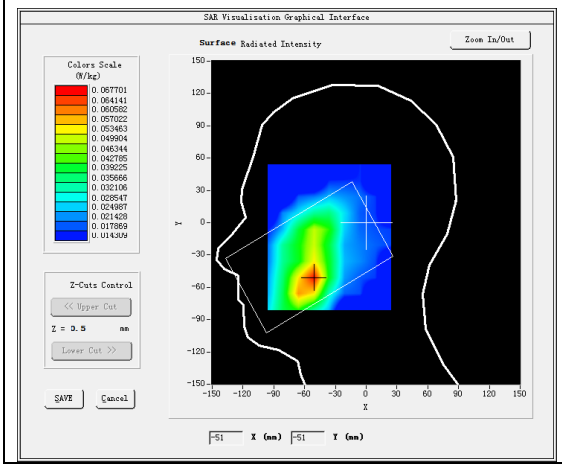
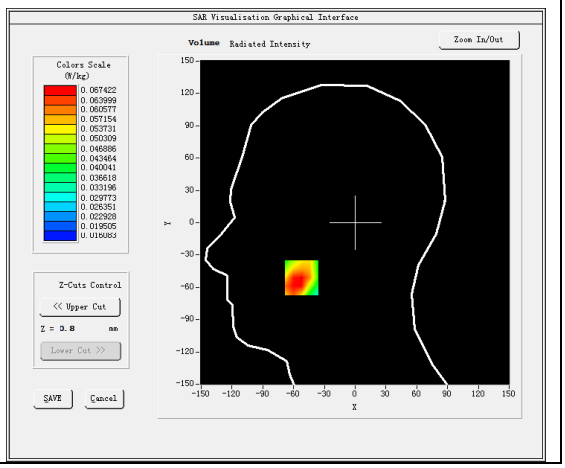
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 4.0)

B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	3.630000

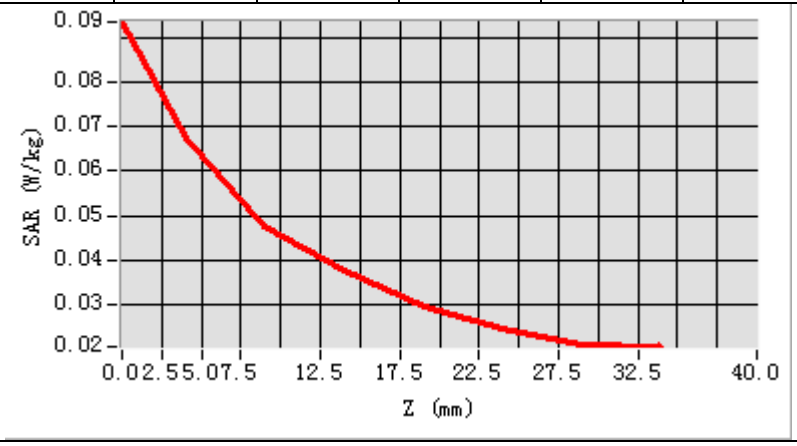
SURFACE SAR	VOLUME SAR
	

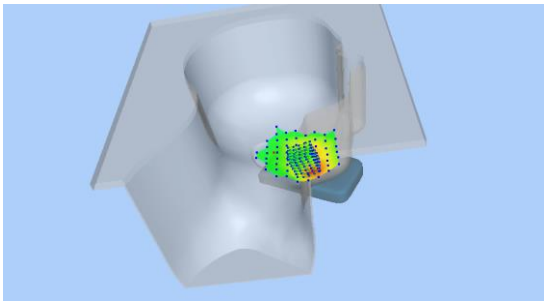
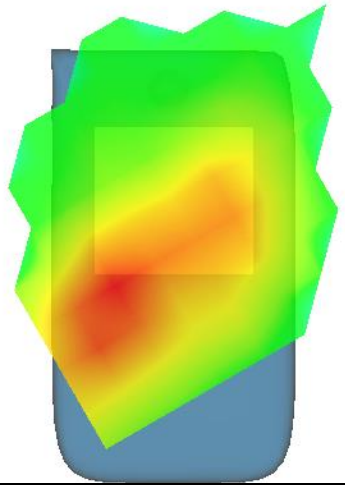
Maximum location: X=-52.00, Y=-51.00

SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.047081
SAR 1g (W/Kg)	0.069517

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0937	0.0674	0.0476	0.0374	0.0296	0.0244	0.0206



3D screen shot	Hot spot position
	

MEASUREMENT 4

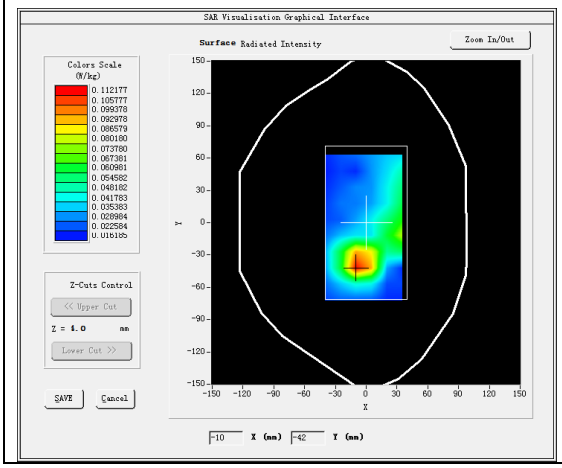
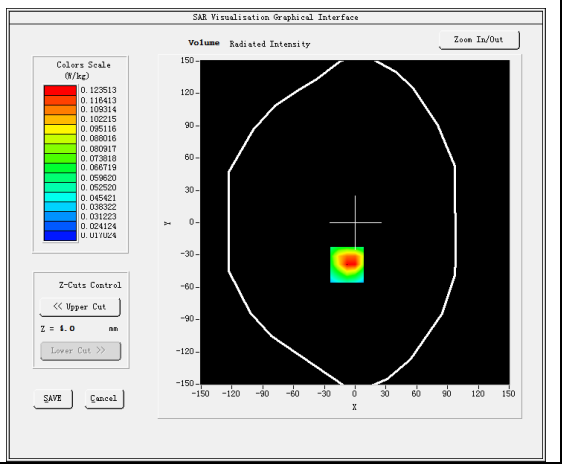
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels	Middle
Signal	TDMA (Crest factor: 4.0)

B. SAR Measurement Results

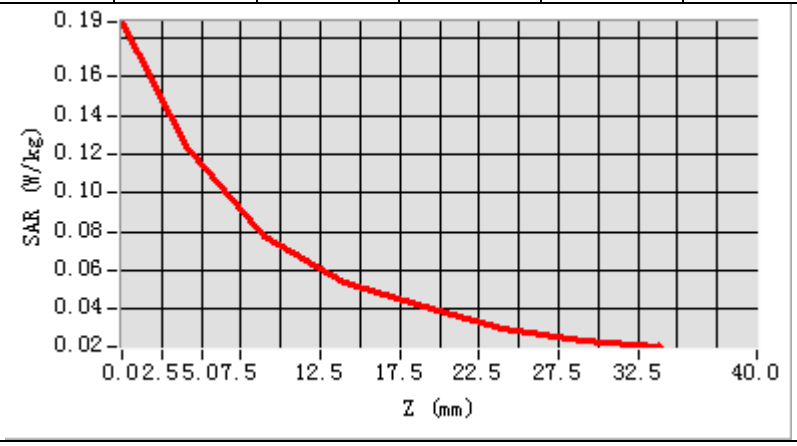
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	-1.120000

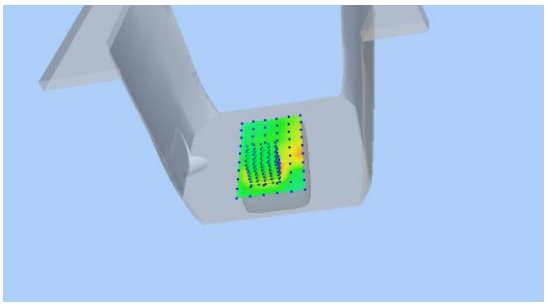
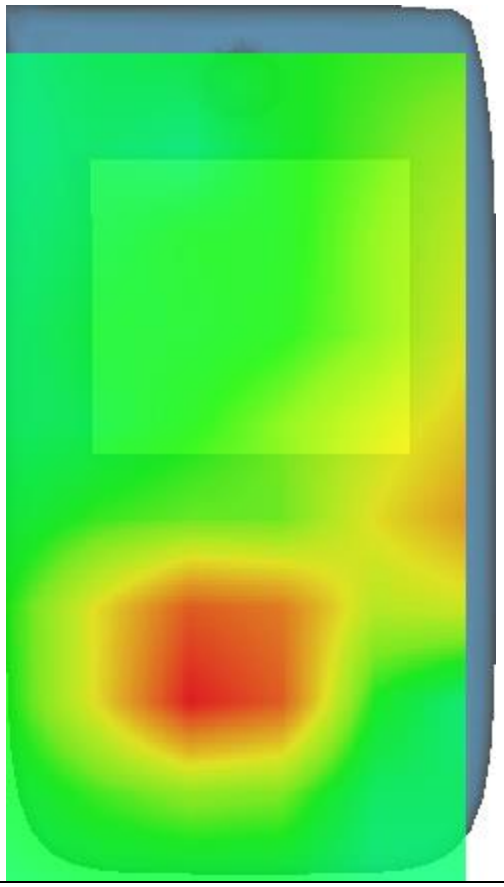
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=-39.00
SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.071961
SAR 1g (W/Kg)	0.126429

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1881	0.1235	0.0771	0.0539	0.0411	0.0302	0.0237



3D screen shot	Hot spot position
	

MEASUREMENT 5

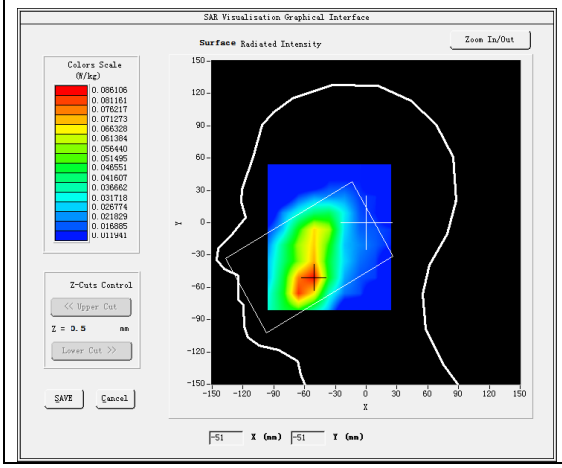
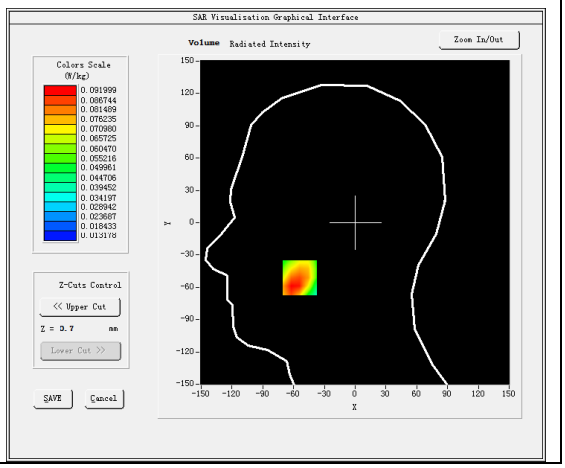
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band2_WCDMA1900
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

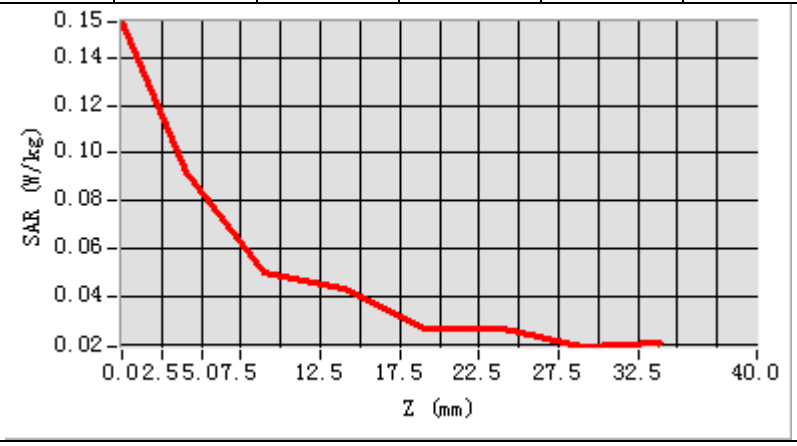
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	-3.590000

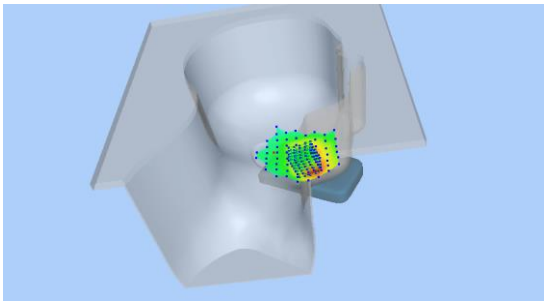
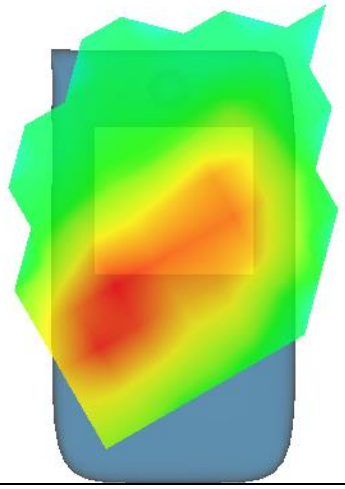
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-54.00, Y=-51.00
SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.058865
SAR 1g (W/Kg)	0.091619

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1548	0.0920	0.0500	0.0432	0.0268	0.0264	0.0190



3D screen shot	Hot spot position
	

MEASUREMENT 6

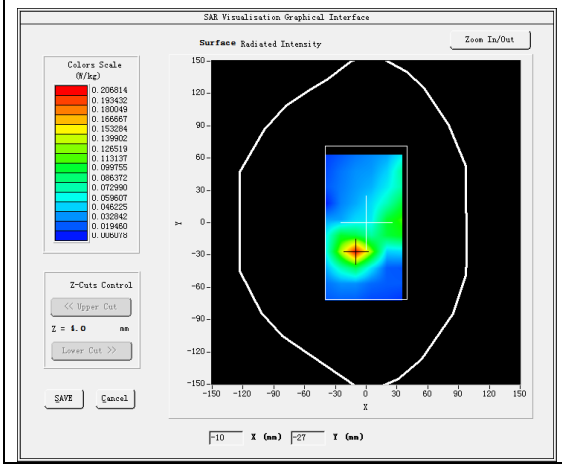
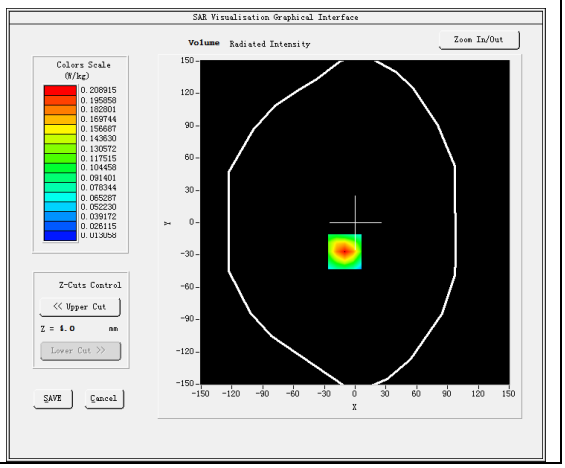
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	Band2_WCDMA1900
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

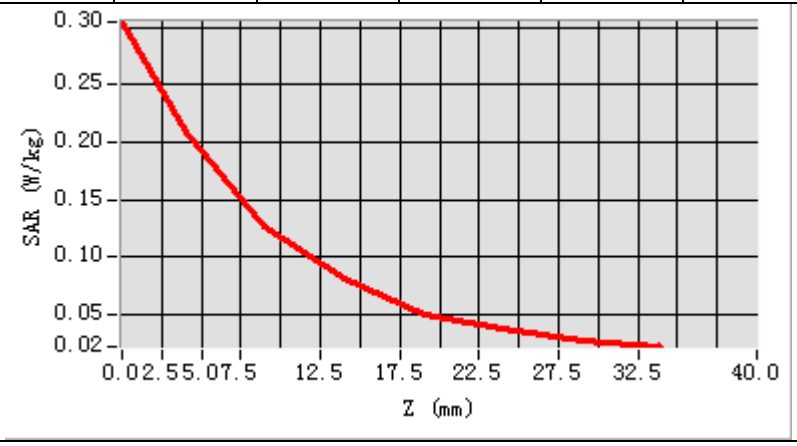
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	-0.610000

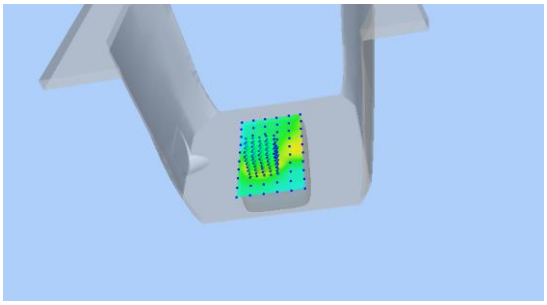
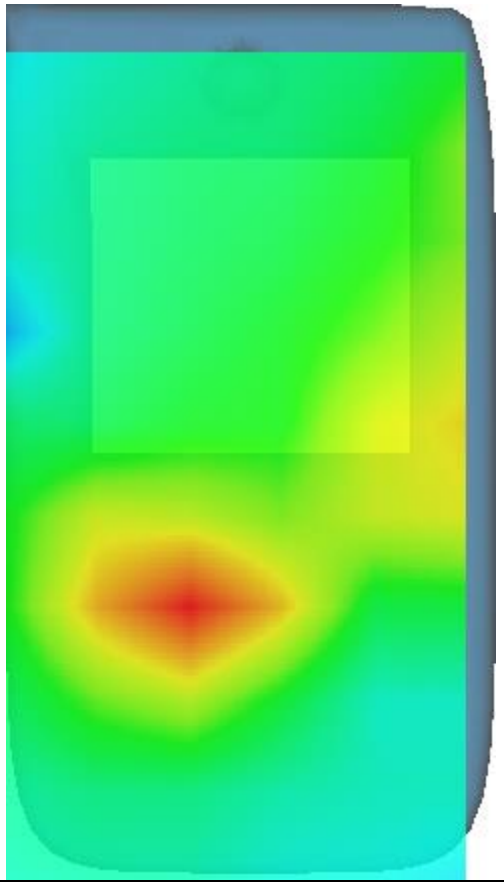
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-27.00
SAR Peak: 0.30 W/kg

SAR 10g (W/Kg)	0.110284
SAR 1g (W/Kg)	0.197173

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.3045	0.2089	0.1276	0.0820	0.0495	0.0373	0.0267



3D screen shot	Hot spot position
	

MEASUREMENT 7

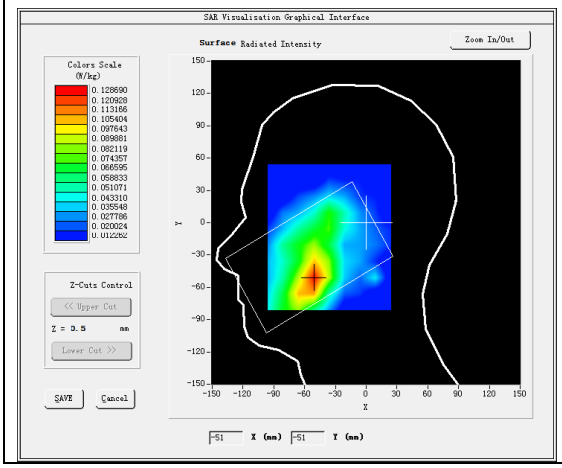
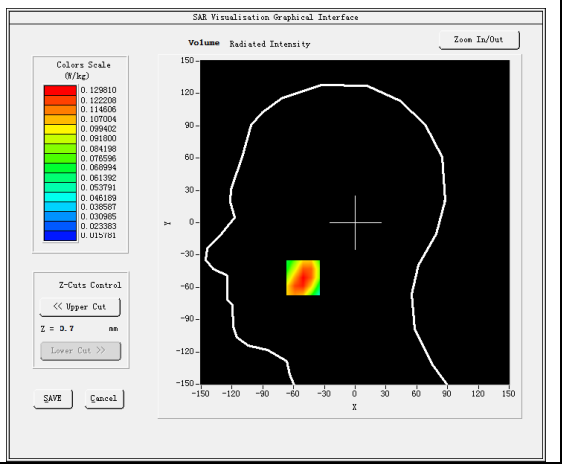
Date of measurement: 30/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band4_WCDMA1700
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

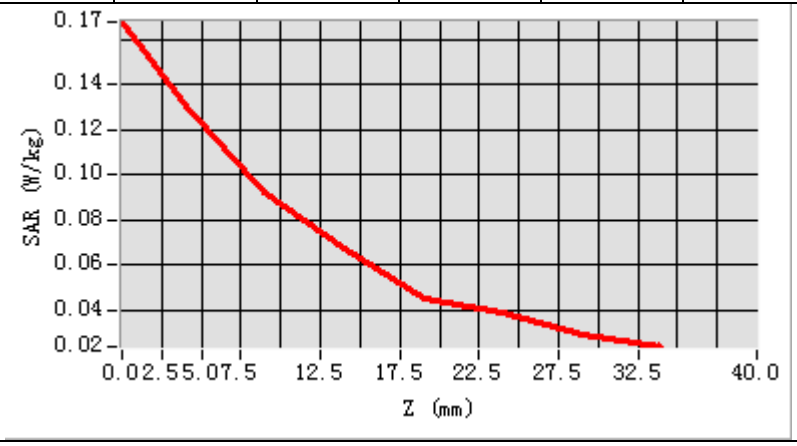
Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.818581
Relative permittivity (imaginary part)	13.905746
Conductivity (S/m)	1.338042
Variation (%)	-4.620000

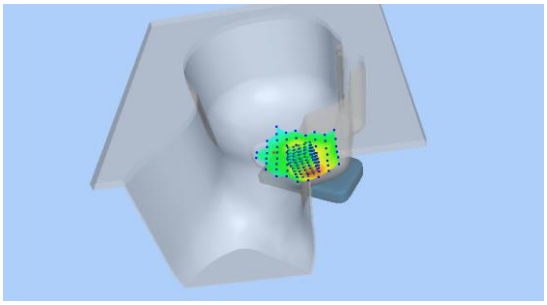
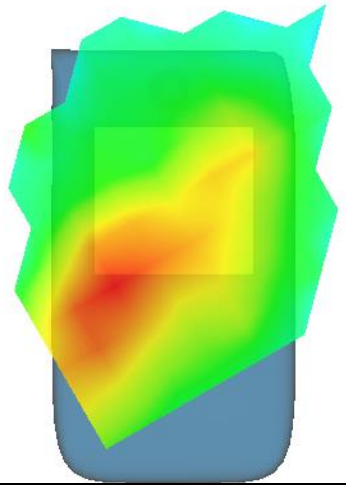
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-51.00, Y=-51.00
SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)	0.082351
SAR 1g (W/Kg)	0.123748

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1676	0.1298	0.0918	0.0672	0.0453	0.0385	0.0289



3D screen shot	Hot spot position
	

MEASUREMENT 8

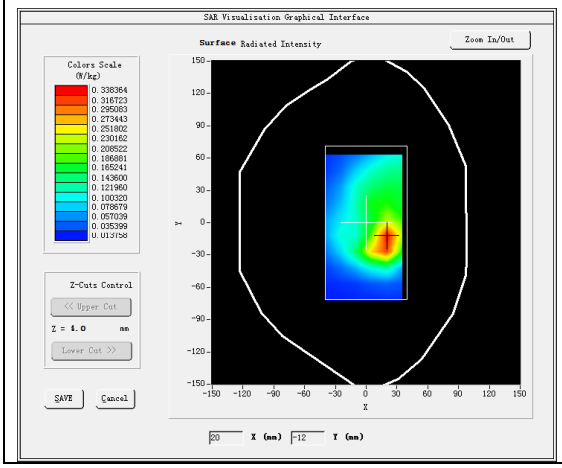
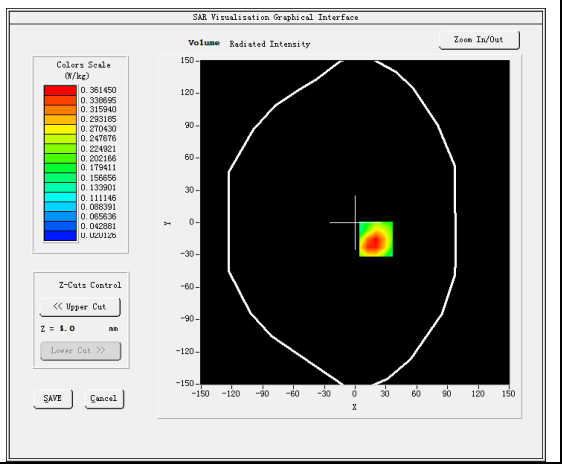
Date of measurement: 30/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	Band4_WCDMA1700
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

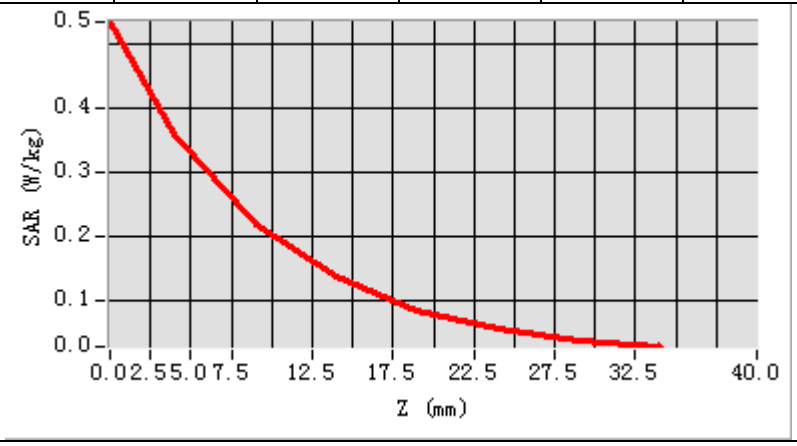
Frequency (MHz)	1732.600000
Relative permittivity (real part)	39.818581
Relative permittivity (imaginary part)	13.905746
Conductivity (S/m)	1.338042
Variation (%)	-3.000000

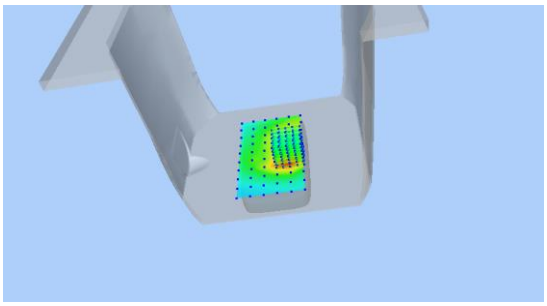
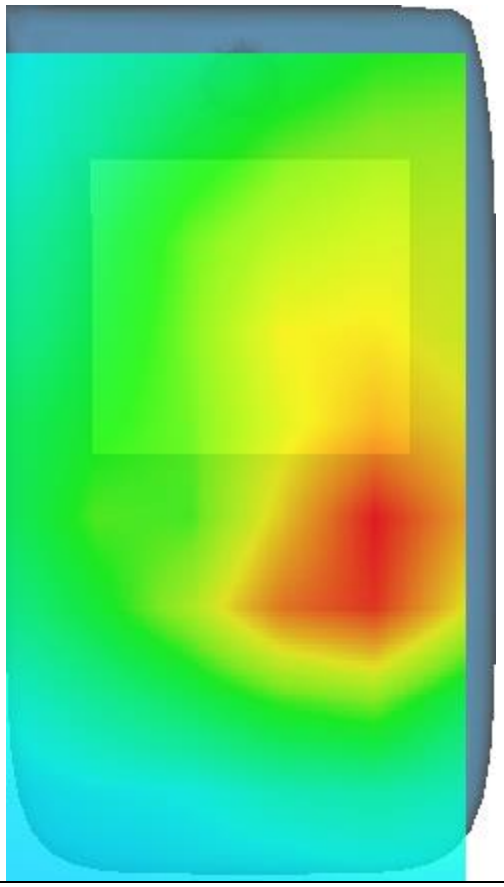
SURFACE SAR	VOLUME SAR
	

Maximum location: X=20.00, Y=-15.00
SAR Peak: 0.57 W/kg

SAR 10g (W/Kg)	0.198369
SAR 1g (W/Kg)	0.354668

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.5358	0.3614	0.2179	0.1366	0.0844	0.0568	0.0386



3D screen shot	Hot spot position
	

MEASUREMENT 9

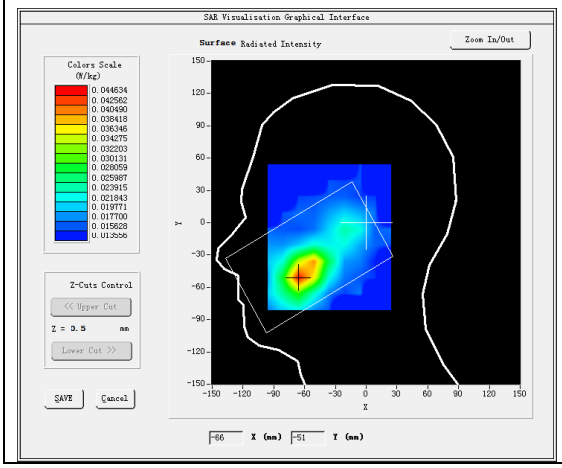
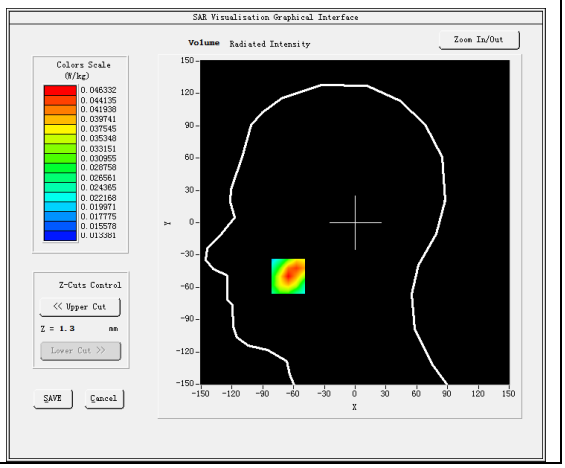
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	Band5_WCDMA850
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

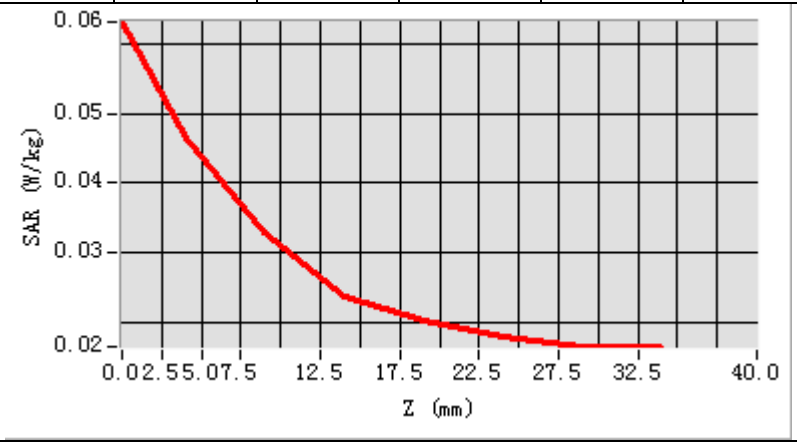
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.593426
Relative permittivity (imaginary part)	19.743965
Conductivity (S/m)	0.917436
Variation (%)	-2.170000

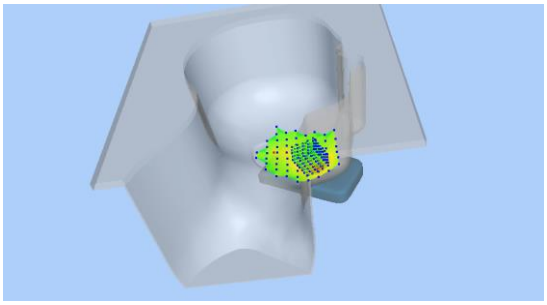
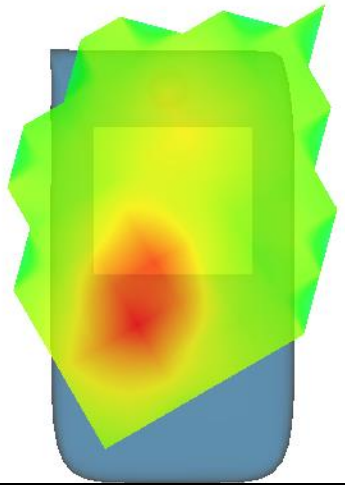
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-65.00, Y=-50.00
SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.031063
SAR 1g (W/Kg)	0.045697

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0632	0.0463	0.0330	0.0238	0.0203	0.0179	0.0165



3D screen shot	Hot spot position
	

MEASUREMENT 10

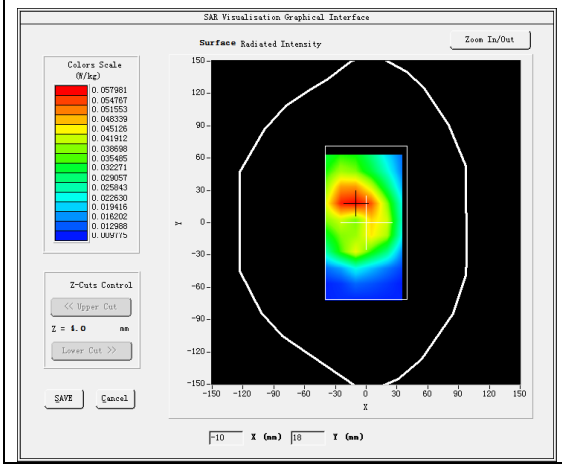
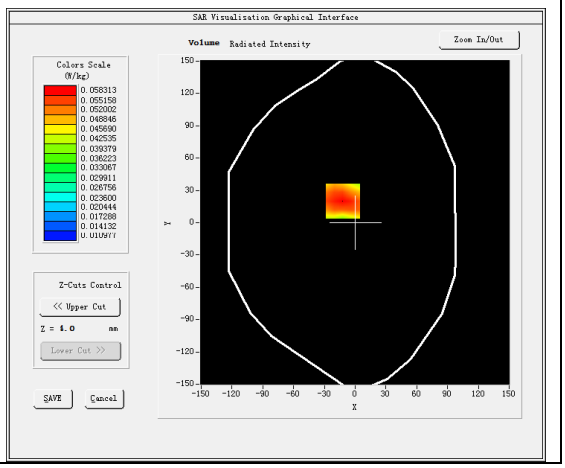
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	Band5_WCDMA850
Channels	Middle
Signal	WCDMA (Crest factor: 1.0)

B. SAR Measurement Results

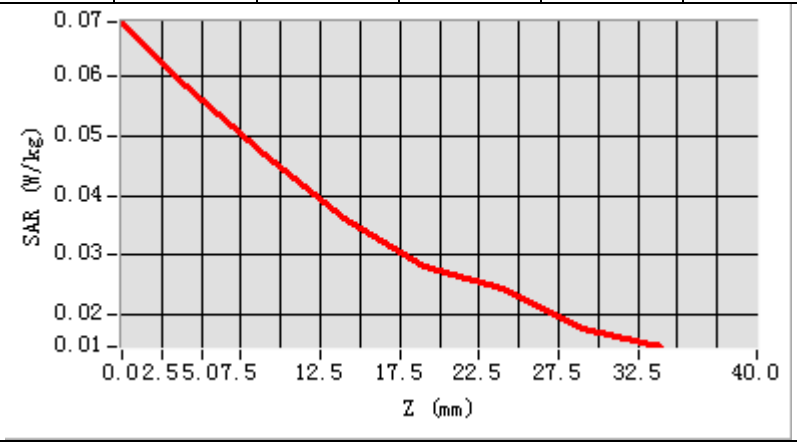
Frequency (MHz)	836.400000
Relative permittivity (real part)	42.593426
Relative permittivity (imaginary part)	19.743965
Conductivity (S/m)	0.917436
Variation (%)	1.190000

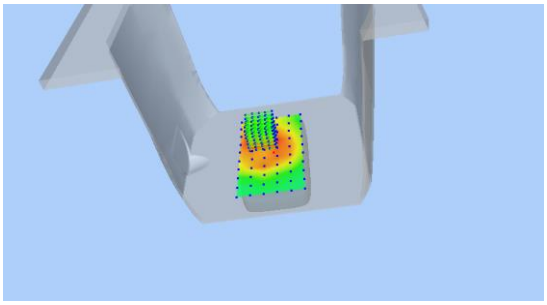
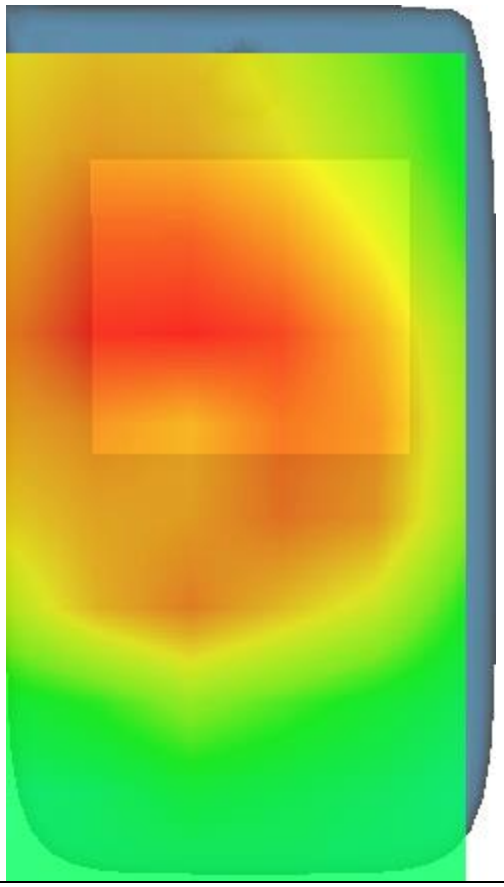
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-12.00, Y=20.00
SAR Peak: 0.07 W/kg

SAR 10g (W/Kg)	0.043462
SAR 1g (W/Kg)	0.056926

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0692	0.0583	0.0470	0.0362	0.0280	0.0244	0.0175



3D screen shot	Hot spot position
	

MEASUREMENT 11

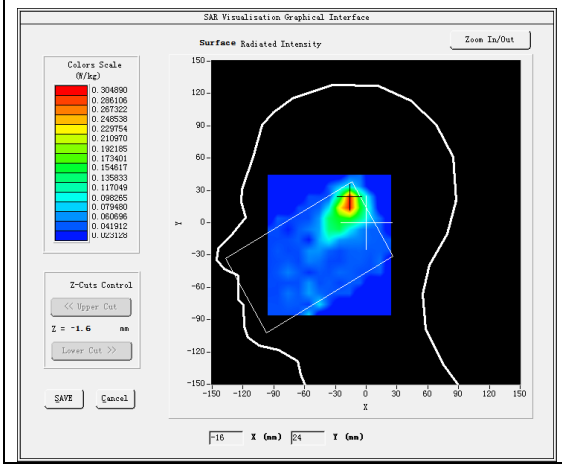
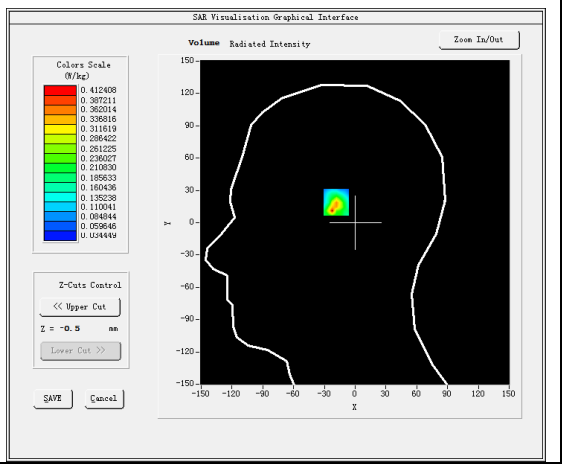
Date of measurement: 21/7/2021

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.654324
Relative permittivity (imaginary part)	16.295177
Conductivity (S/m)	4.707496
Variation (%)	0.270000

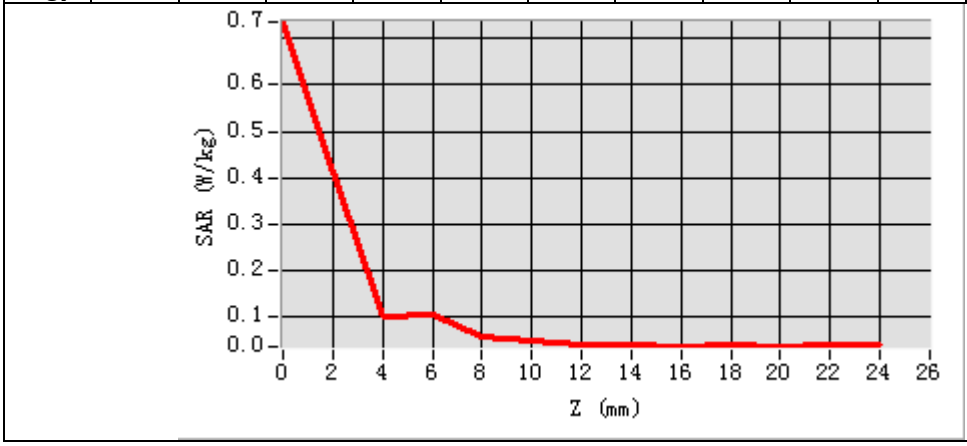
SURFACE SAR	VOLUME SAR
	

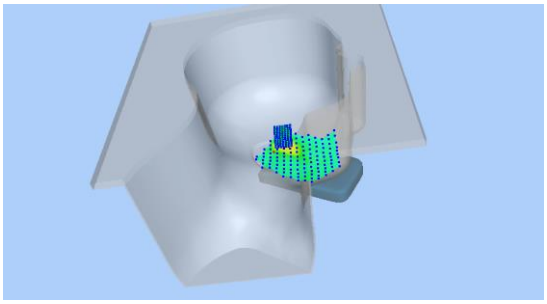
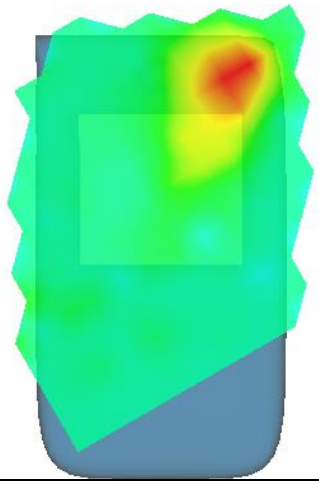
Maximum location: X=-16.00, Y=21.00

SAR Peak: 1.16 W/kg

SAR 10g (W/Kg)	0.134811
SAR 1g (W/Kg)	0.330959

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.7349	0.4124	0.1000	0.1083	0.0569	0.0495	0.0420	0.0418	0.0386	0.0437	0.0372	0.0420



3D screen shot	Hot spot position
	

MEASUREMENT 12

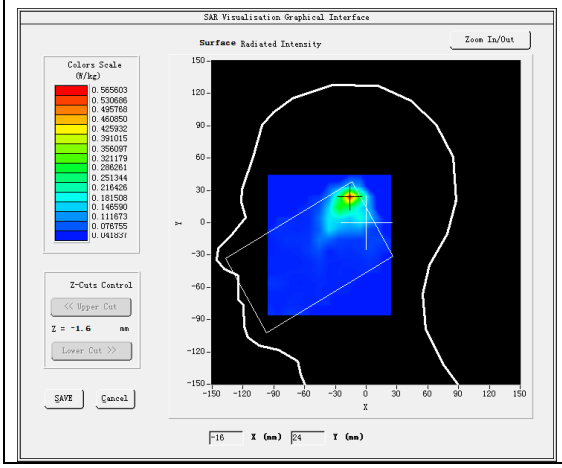
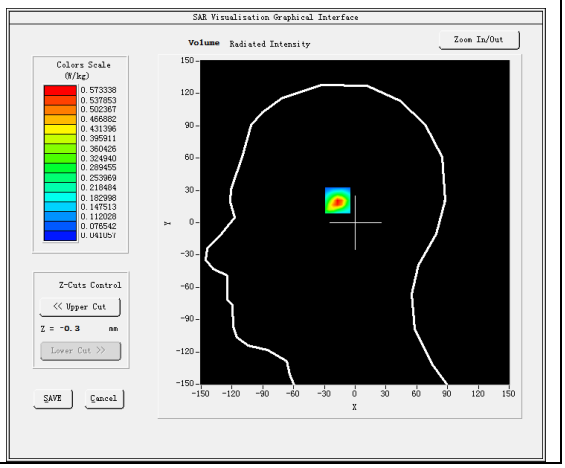
Date of measurement: 26/7/2021

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)

B. SAR Measurement Results

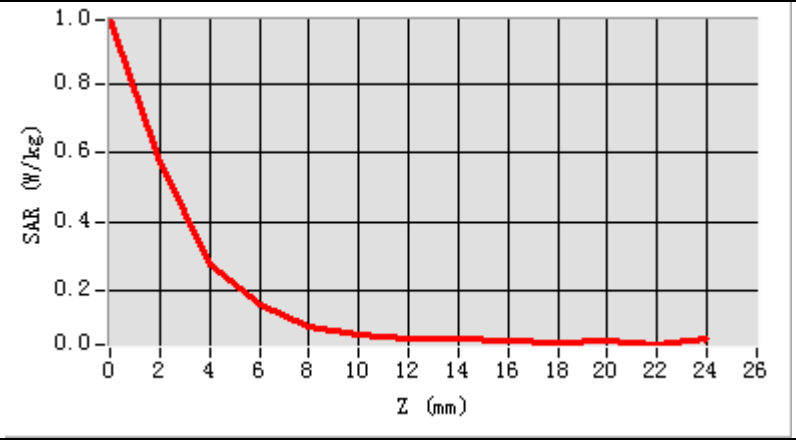
Frequency (MHz)	5785.000000
Relative permittivity (real part)	36.052410
Relative permittivity (imaginary part)	16.274469
Conductivity (S/m)	5.230434
Variation (%)	1.730000

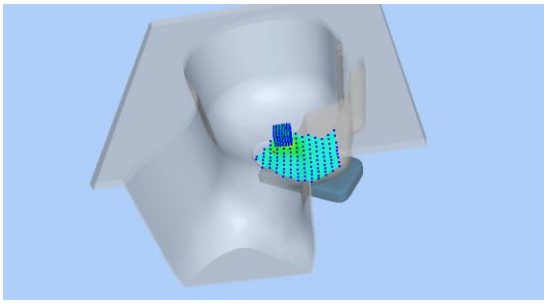
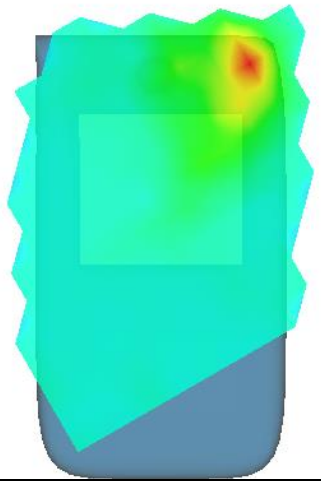
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-16.00, Y=24.00
SAR Peak: 1.68 W/kg

SAR 10g (W/Kg)	0.188847
SAR 1g (W/Kg)	0.538107

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.9858	0.5733	0.2732	0.1599	0.0958	0.0697	0.0599	0.0582	0.0555	0.0471	0.0546	0.0420



3D screen shot	Hot spot position
	

MEASUREMENT 13

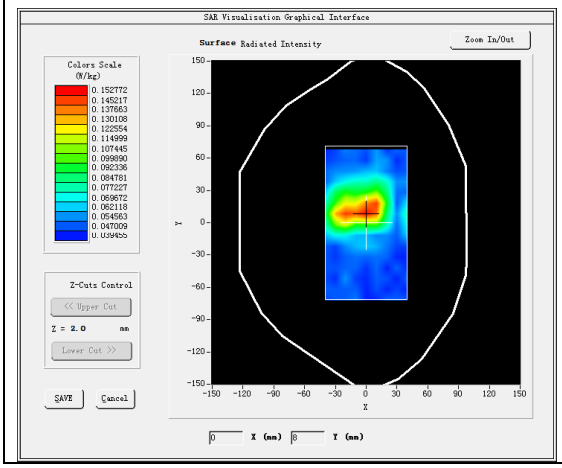
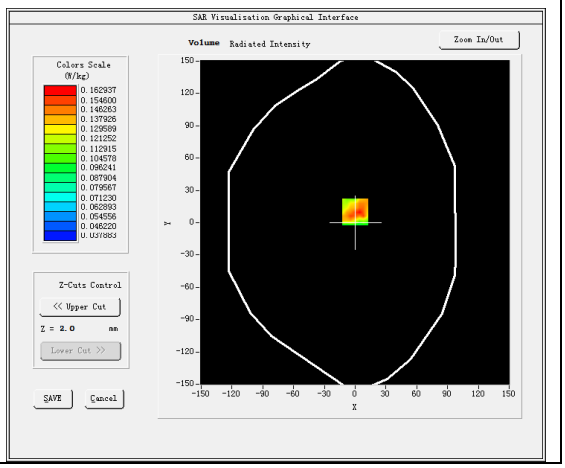
Date of measurement: 26/7/2021

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)

B. SAR Measurement Results

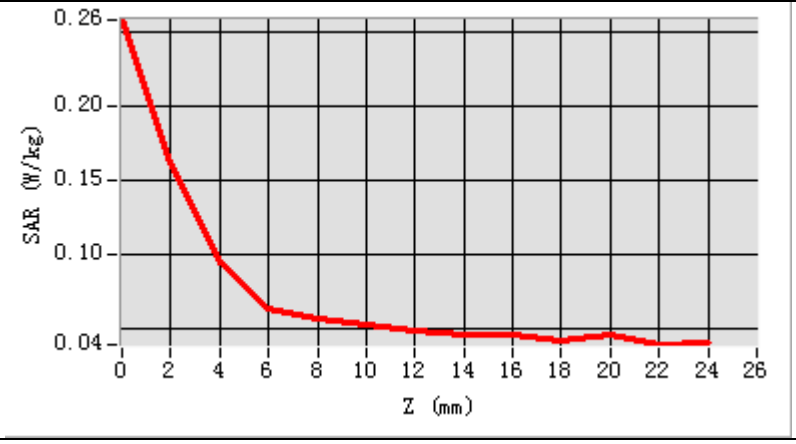
Frequency (MHz)	5785.000000
Relative permittivity (real part)	36.052410
Relative permittivity (imaginary part)	16.274469
Conductivity (S/m)	5.230434
Variation (%)	0.650000

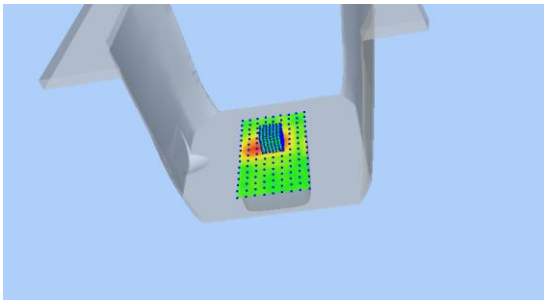
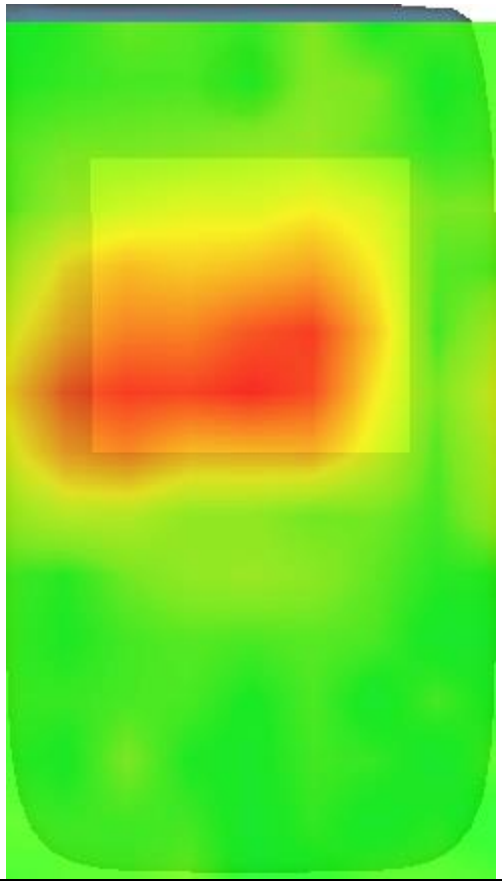
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=10.00
SAR Peak: 0.28 W/kg

SAR 10g (W/Kg)	0.070968
SAR 1g (W/Kg)	0.110980

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.2586	0.1629	0.0947	0.0637	0.0574	0.0538	0.0490	0.0467	0.0467	0.0418	0.0470	0.0397



3D screen shot	Hot spot position
	

MEASUREMENT 14

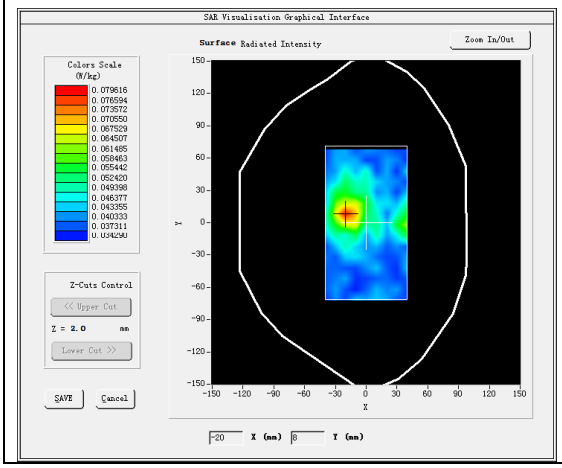
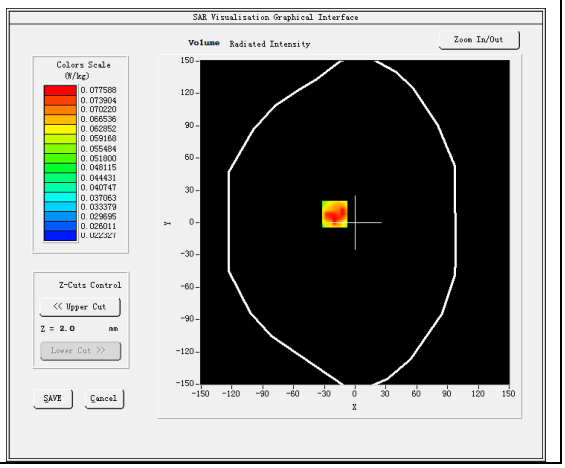
Date of measurement: 21/7/2021

A. Experimental conditions.

Area Scan	dx=10mm dy=10mm, h= 2.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.11a (Crest factor: 1.0)

B. SAR Measurement Results

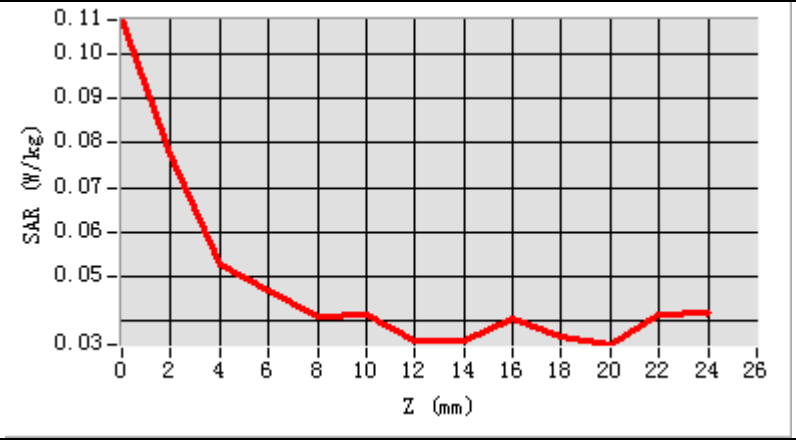
Frequency (MHz)	5200.000000
Relative permittivity (real part)	36.654324
Relative permittivity (imaginary part)	16.295177
Conductivity (S/m)	4.707496
Variation (%)	4.510000

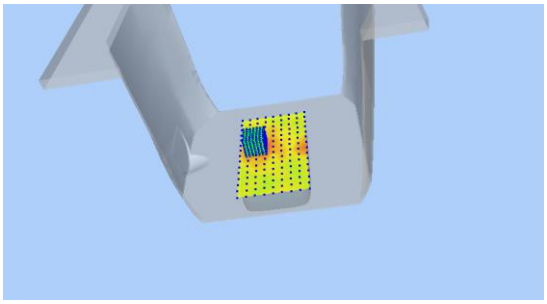
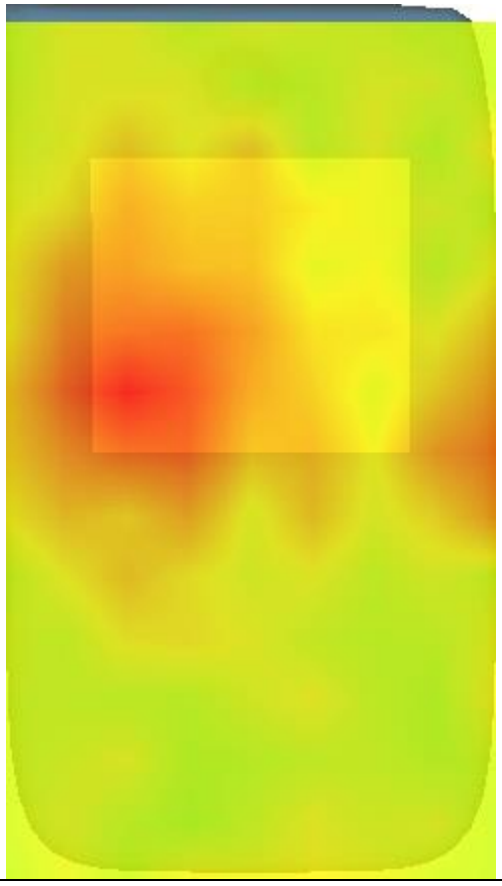
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-20.00, Y=8.00
SAR Peak: 0.12 W/kg

SAR 10g (W/Kg)	0.047960
SAR 1g (W/Kg)	0.061230

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.1076	0.0776	0.0528	0.0471	0.0413	0.0415	0.0358	0.0358	0.0408	0.0367	0.0348	0.0415



3D screen shot	Hot spot position
	

MEASUREMENT 15

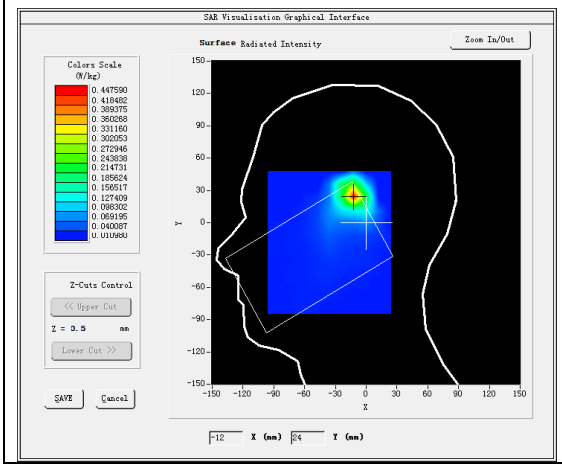
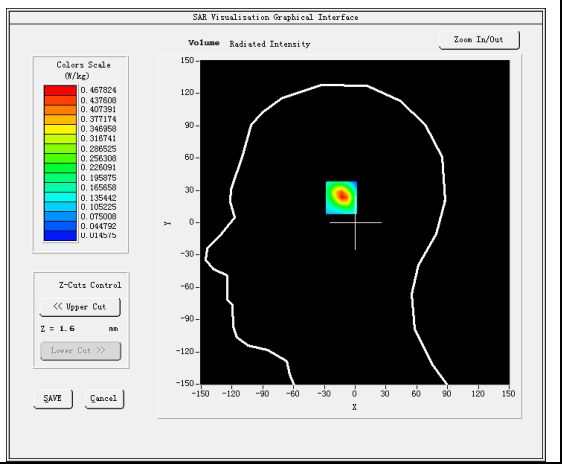
Date of measurement: 1/8/2021

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11b ISM
Channels	Middle
Signal	IEEE802.11b (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.945240
Relative permittivity (imaginary part)	12.995441
Conductivity (S/m)	1.759438
Variation (%)	-4.570000

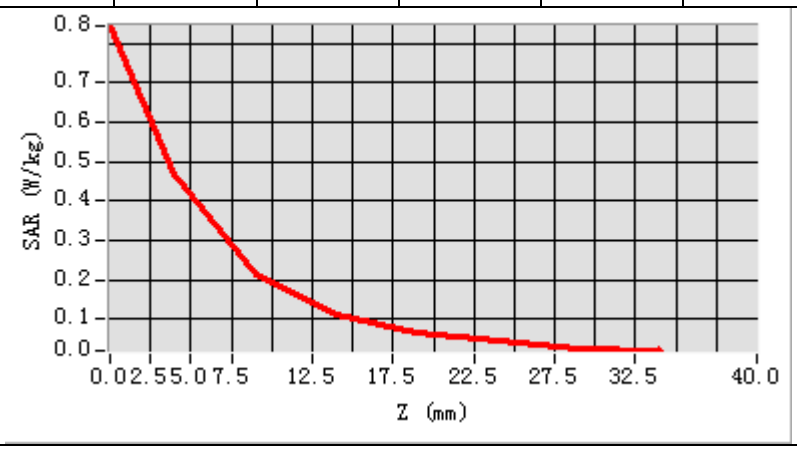
SURFACE SAR	VOLUME SAR
	

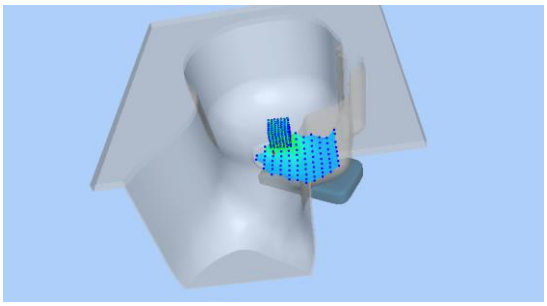
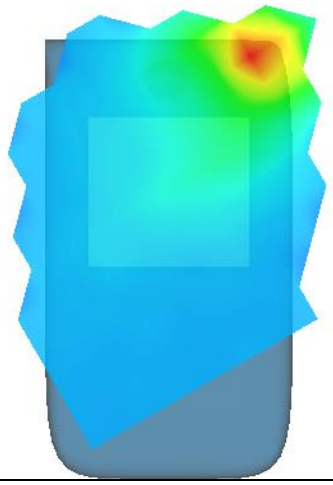
Maximum location: X=-12.00, Y=25.00

SAR Peak: 0.84 W/kg

SAR 10g (W/Kg)	0.183592
SAR 1g (W/Kg)	0.419040

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8442	0.4678	0.2139	0.1117	0.0670	0.0454	0.0274



3D screen shot	Hot spot position
	

MEASUREMENT 16

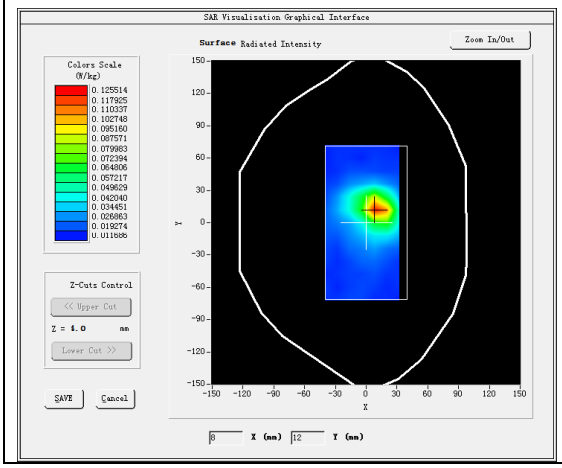
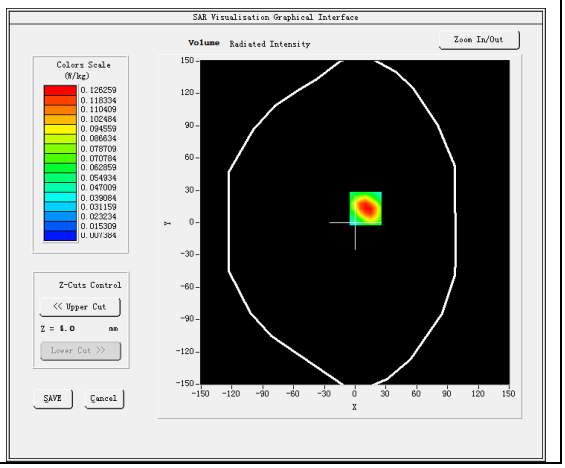
Date of measurement: 1/8/2021

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11b ISM
Channels	Middle
Signal	IEEE802.11b (Crest factor: 1.0)

B. SAR Measurement Results

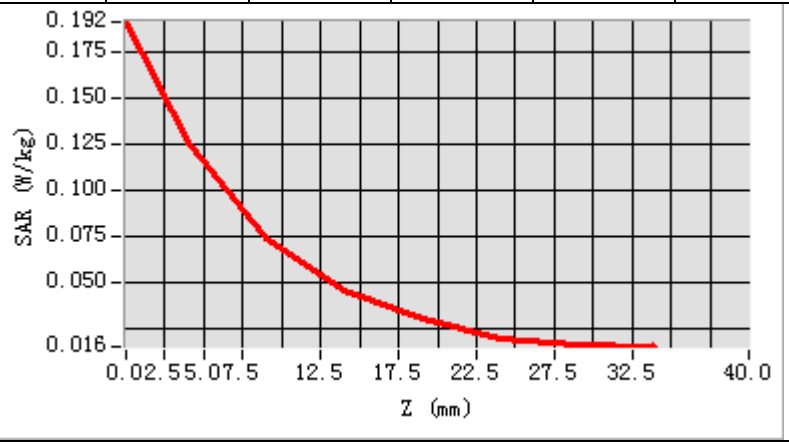
Frequency (MHz)	2437.000000
Relative permittivity (real part)	40.945240
Relative permittivity (imaginary part)	12.995441
Conductivity (S/m)	1.759438
Variation (%)	-0.420000

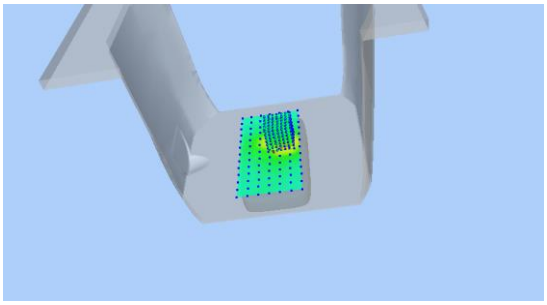
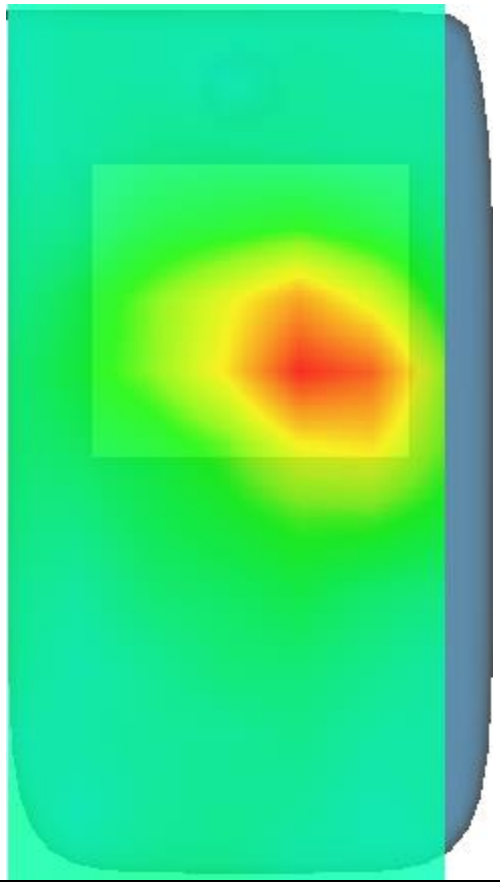
SURFACE SAR	VOLUME SAR
	

Maximum location: X=10.00, Y=13.00
SAR Peak: 0.19 W/kg

SAR 10g (W/Kg)	0.065727
SAR 1g (W/Kg)	0.120044

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1916	0.1263	0.0745	0.0457	0.0306	0.0195	0.0170



3D screen shot	Hot spot position
	

MEASUREMENT 17

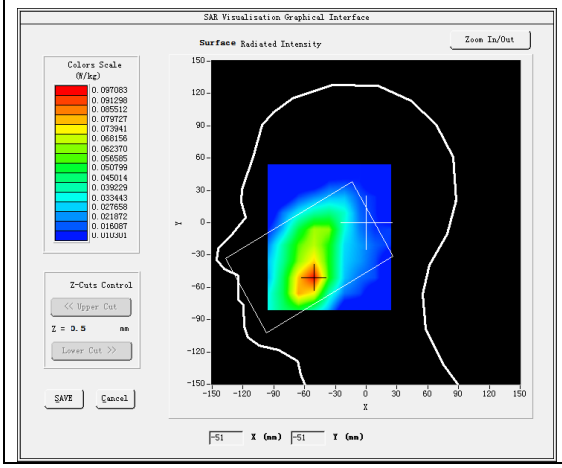
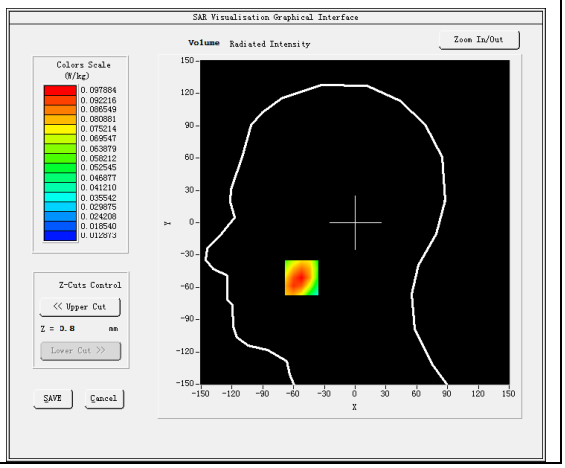
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 2
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

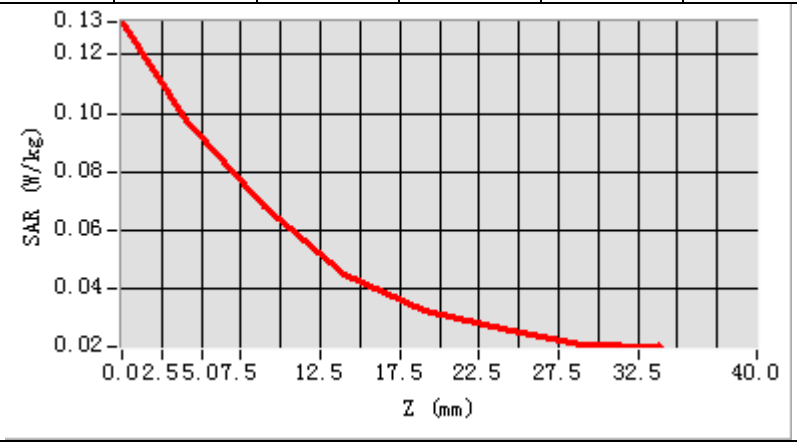
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	0.130000

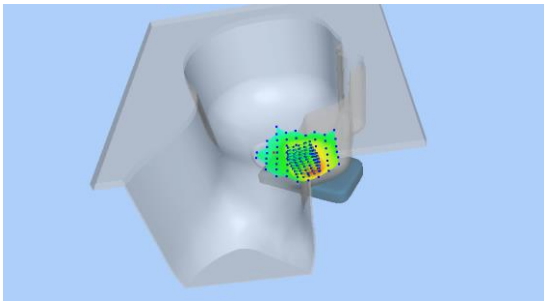
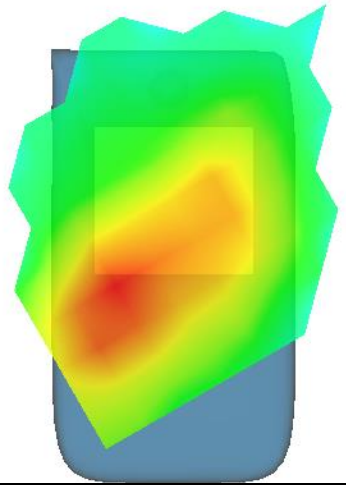
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.061798
SAR 1g (W/Kg)	0.095008

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1312	0.0979	0.0679	0.0450	0.0328	0.0263	0.0212



3D screen shot	Hot spot position
	

MEASUREMENT 18

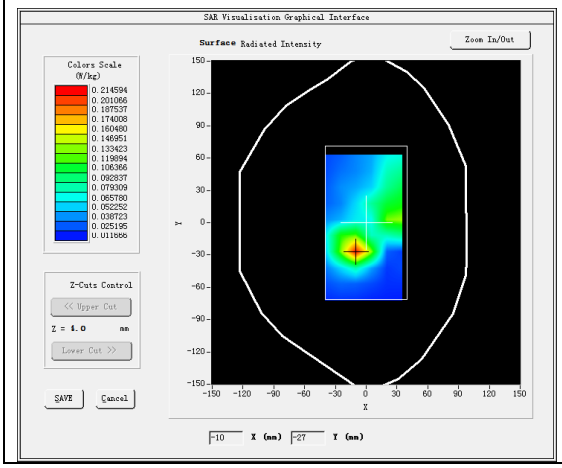
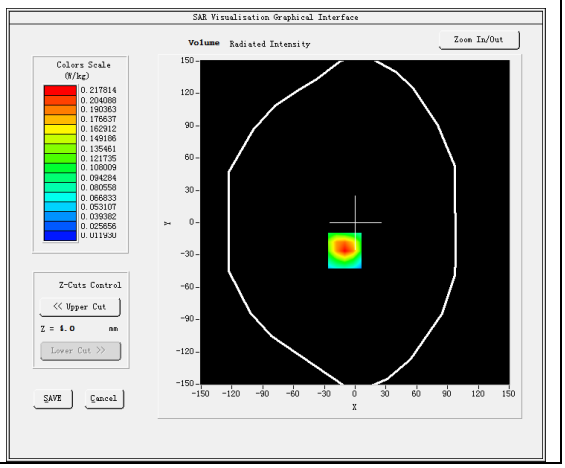
Date of measurement: 19/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

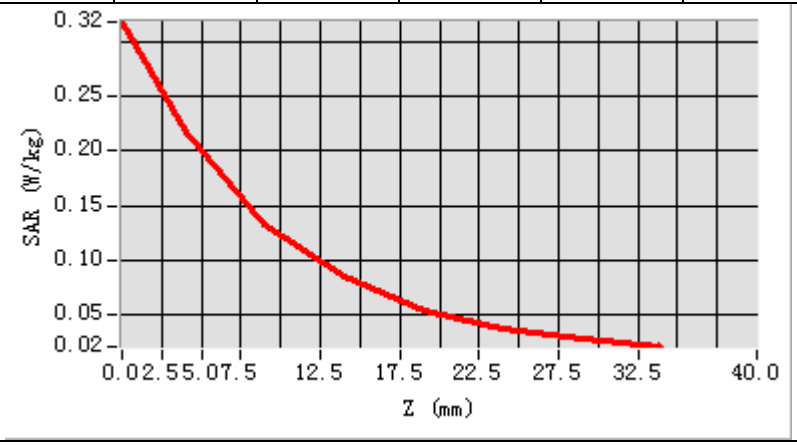
Frequency (MHz)	1880.000000
Relative permittivity (real part)	38.526512
Relative permittivity (imaginary part)	13.733387
Conductivity (S/m)	1.434376
Variation (%)	-2.220000

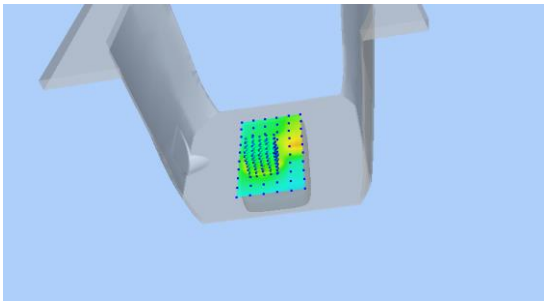
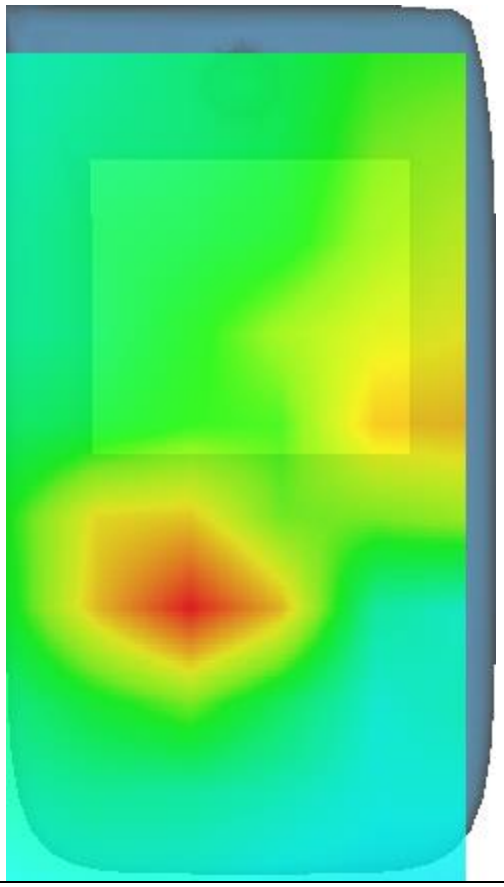
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-26.00
SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.115482
SAR 1g (W/Kg)	0.210730

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.3185	0.2178	0.1330	0.0849	0.0534	0.0381	0.0281



3D screen shot	Hot spot position
	

MEASUREMENT 19

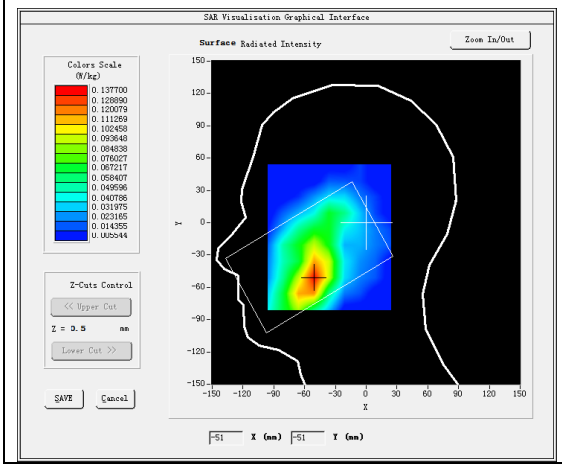
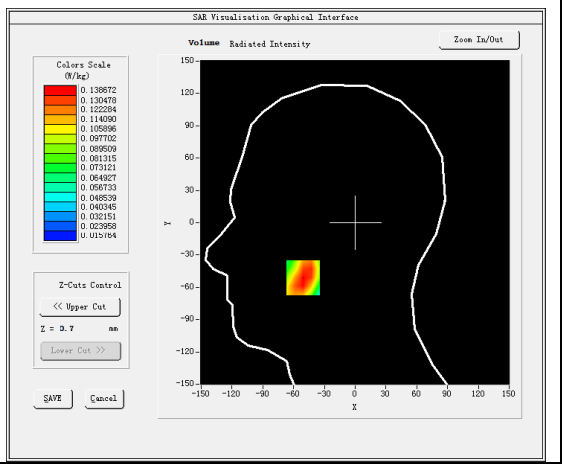
Date of measurement: 30/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 4
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

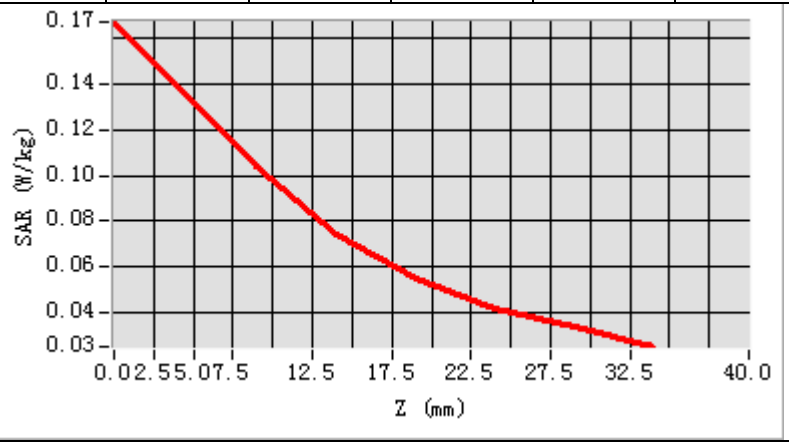
Frequency (MHz)	1732.500000
Relative permittivity (real part)	39.826481
Relative permittivity (imaginary part)	13.890596
Conductivity (S/m)	1.336970
Variation (%)	2.330000

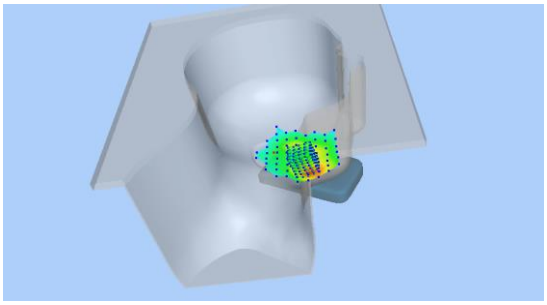
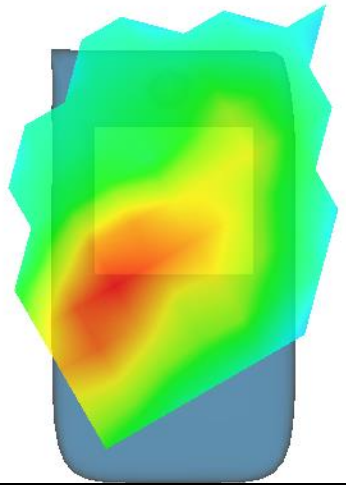
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-51.00, Y=-51.00
SAR Peak: 0.18 W/kg

SAR 10g (W/Kg)	0.089328
SAR 1g (W/Kg)	0.132149

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1671	0.1387	0.1042	0.0743	0.0546	0.0420	0.0342



3D screen shot	Hot spot position
	

MEASUREMENT 20

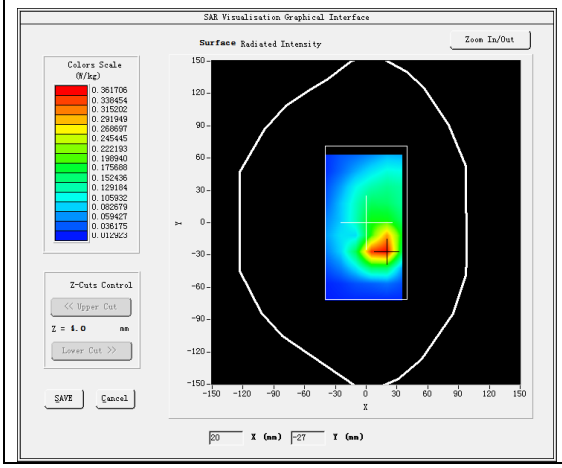
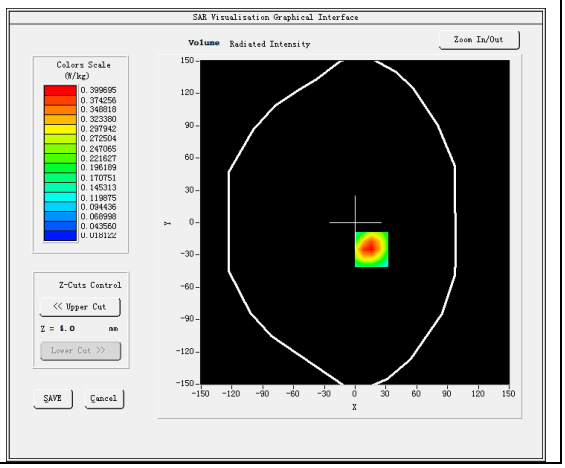
Date of measurement: 30/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

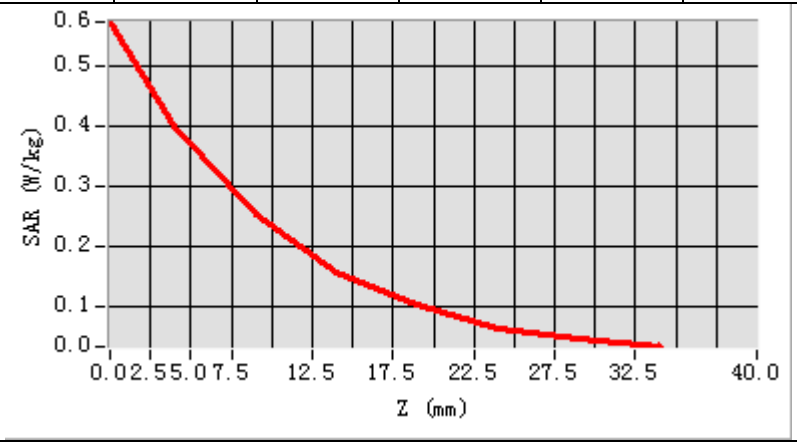
Frequency (MHz)	1732.500000
Relative permittivity (real part)	39.826481
Relative permittivity (imaginary part)	13.890596
Conductivity (S/m)	1.336970
Variation (%)	1.060000

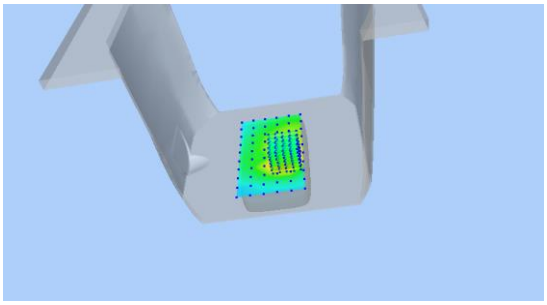
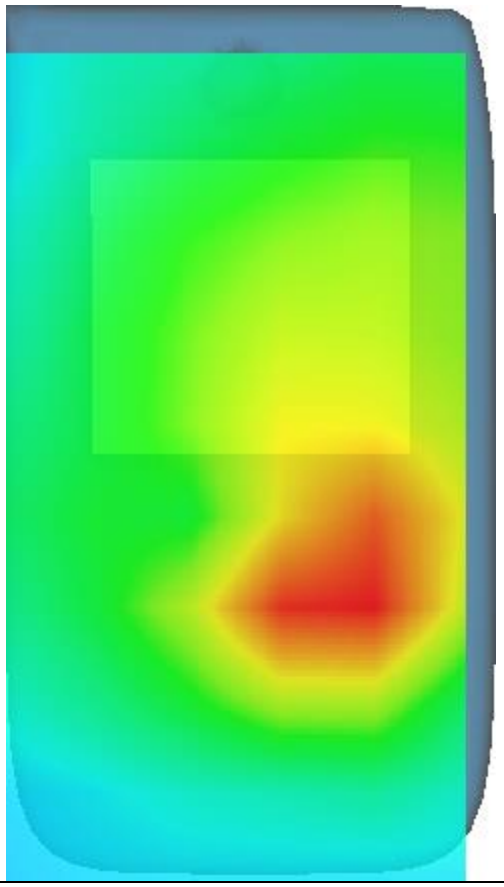
SURFACE SAR	VOLUME SAR
	

Maximum location: X=16.00, Y=-25.00
SAR Peak: 0.60 W/kg

SAR 10g (W/Kg)	0.218221
SAR 1g (W/Kg)	0.383697

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.5736	0.3997	0.2520	0.1570	0.1032	0.0634	0.0453



3D screen shot	Hot spot position
	

MEASUREMENT 21

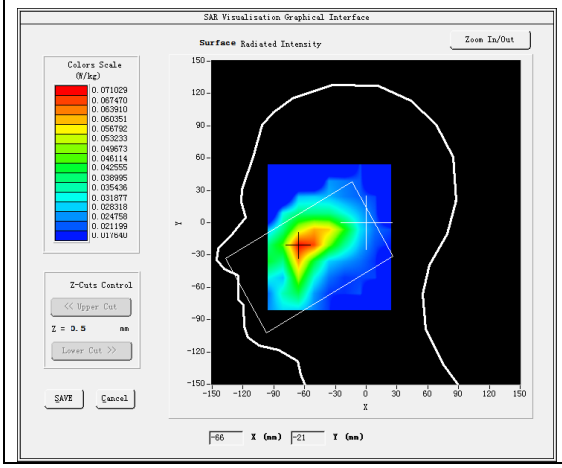
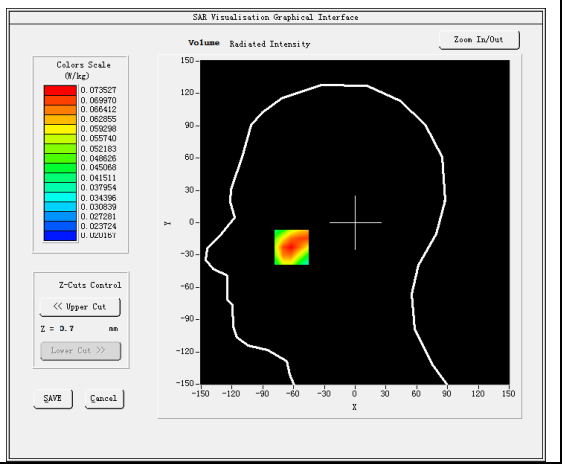
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 5
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

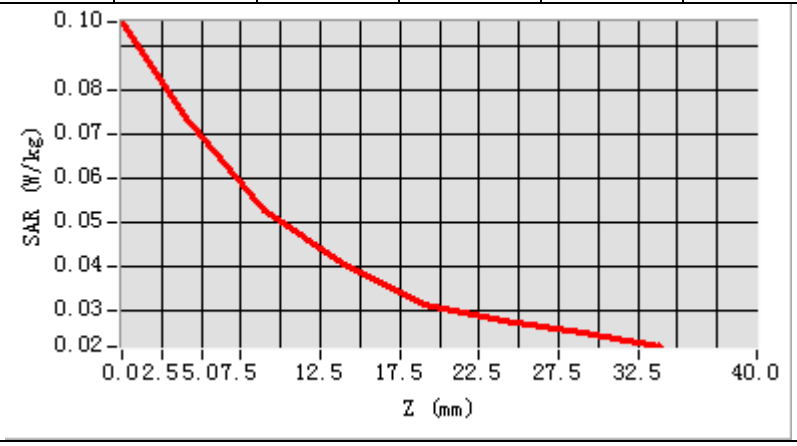
Frequency (MHz)	836.500000
Relative permittivity (real part)	42.596016
Relative permittivity (imaginary part)	19.742624
Conductivity (S/m)	0.917484
Variation (%)	2.830000

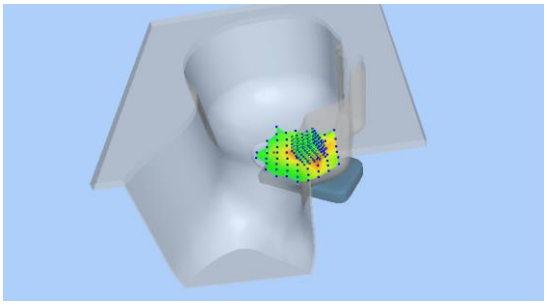
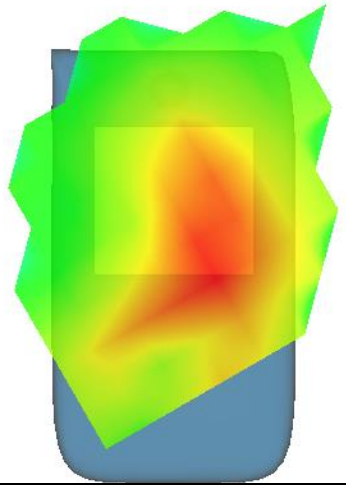
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-62.00, Y=-22.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.049407
SAR 1g (W/Kg)	0.070381

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0955	0.0735	0.0528	0.0405	0.0313	0.0277	0.0251



3D screen shot	Hot spot position
	

MEASUREMENT 22

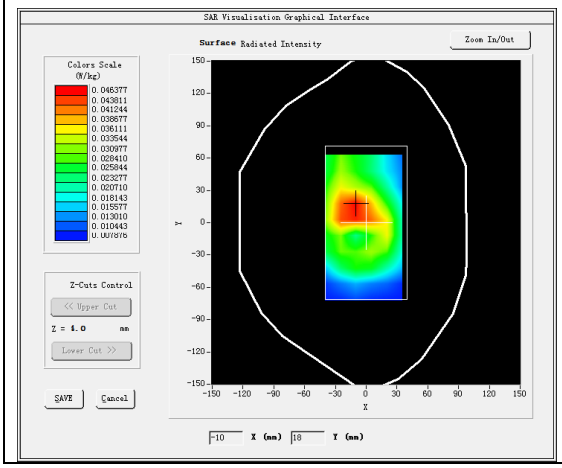
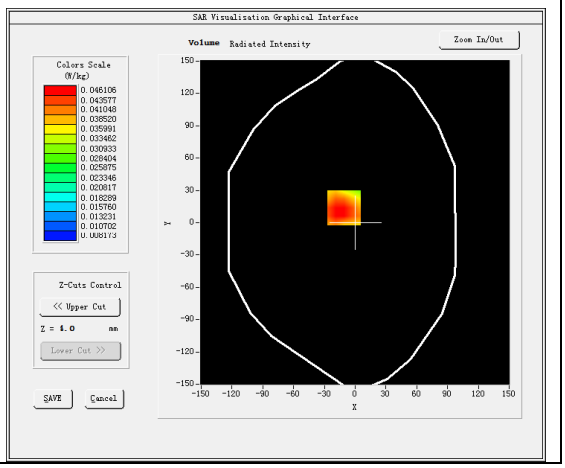
Date of measurement: 2/8/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

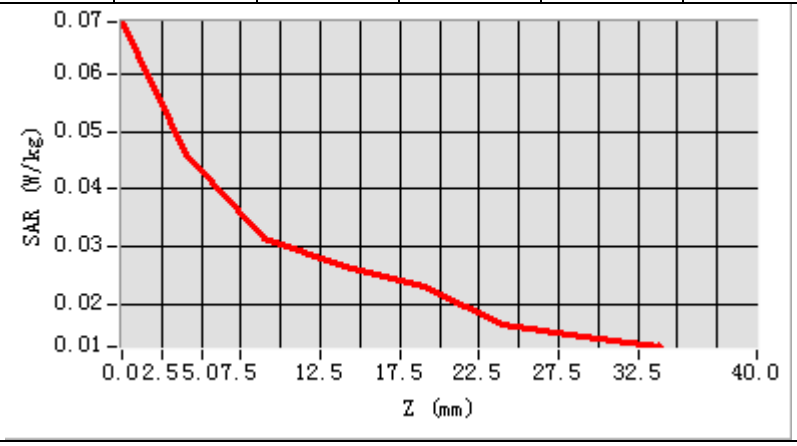
Frequency (MHz)	836.500000
Relative permittivity (real part)	42.596016
Relative permittivity (imaginary part)	19.742624
Conductivity (S/m)	0.917484
Variation (%)	-0.710000

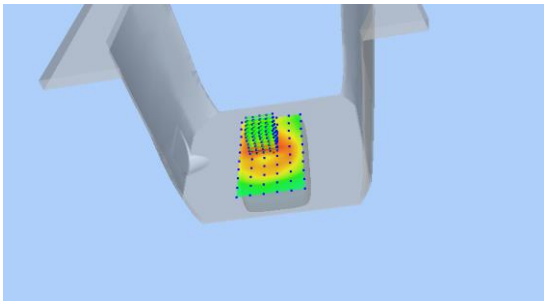
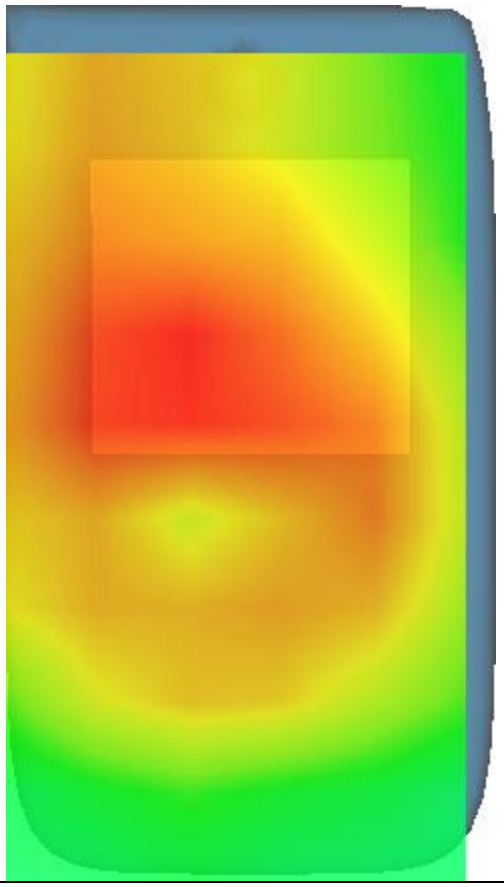
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-11.00, Y=14.00
SAR Peak: 0.06 W/kg

SAR 10g (W/Kg)	0.034346
SAR 1g (W/Kg)	0.046259

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0689	0.0461	0.0315	0.0265	0.0232	0.0164	0.0146



3D screen shot	Hot spot position
	

MEASUREMENT 23

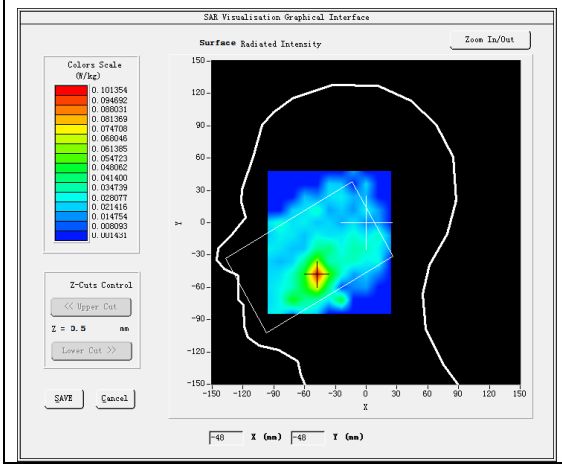
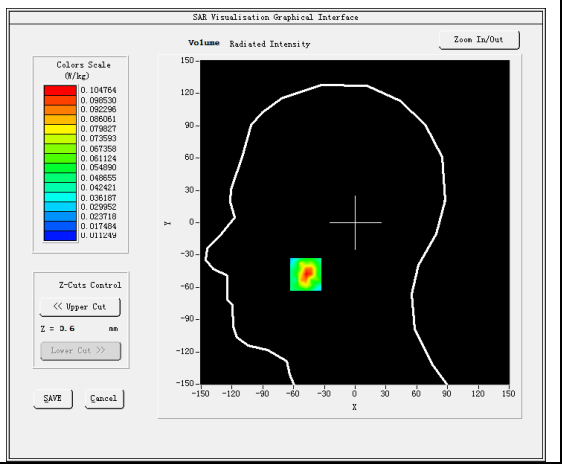
Date of measurement: 6/8/2021

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 7
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

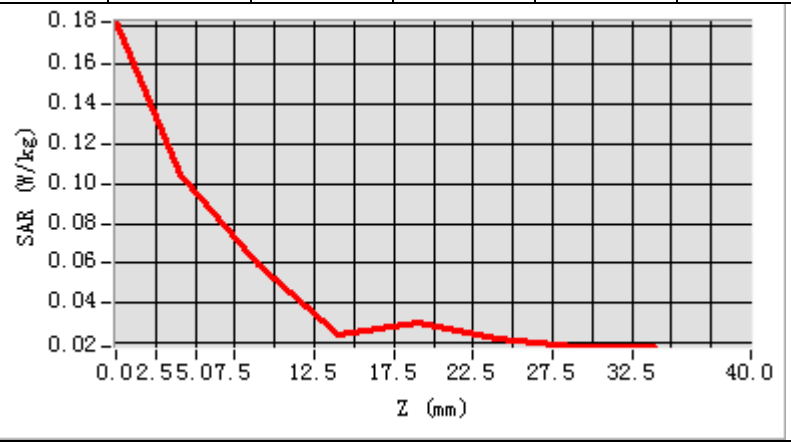
Frequency (MHz)	2535.000000
Relative permittivity (real part)	40.199814
Relative permittivity (imaginary part)	13.783051
Conductivity (S/m)	1.941113
Variation (%)	2.560000

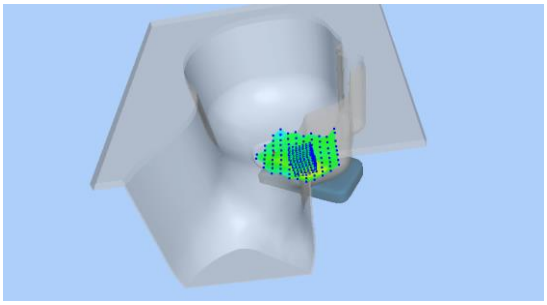
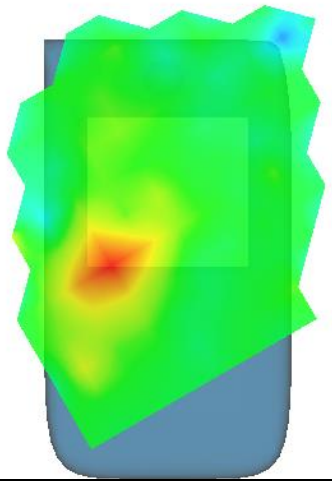
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-48.00, Y=-48.00
SAR Peak: 0.19 W/kg

SAR 10g (W/Kg)	0.051152
SAR 1g (W/Kg)	0.094589

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1816	0.1048	0.0590	0.0242	0.0302	0.0224	0.0183



3D screen shot	Hot spot position
	

MEASUREMENT 24

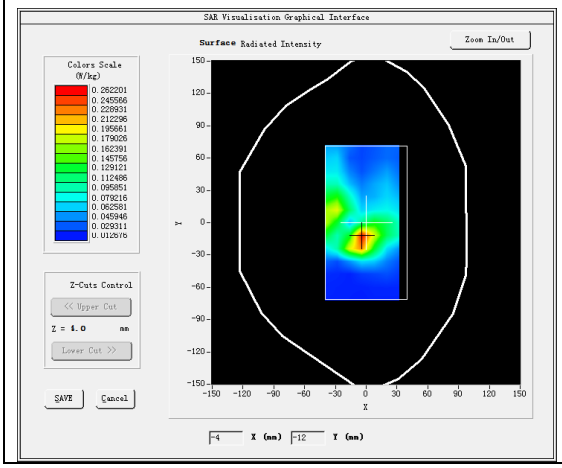
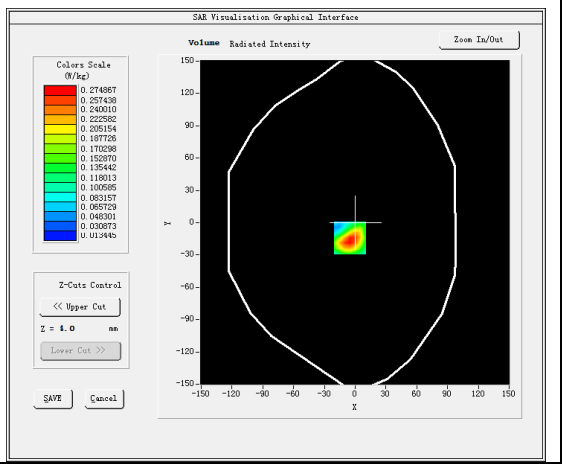
Date of measurement: 6/8/2021

A. Experimental conditions.

Area Scan	dx=12mm dy=12mm, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 7
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

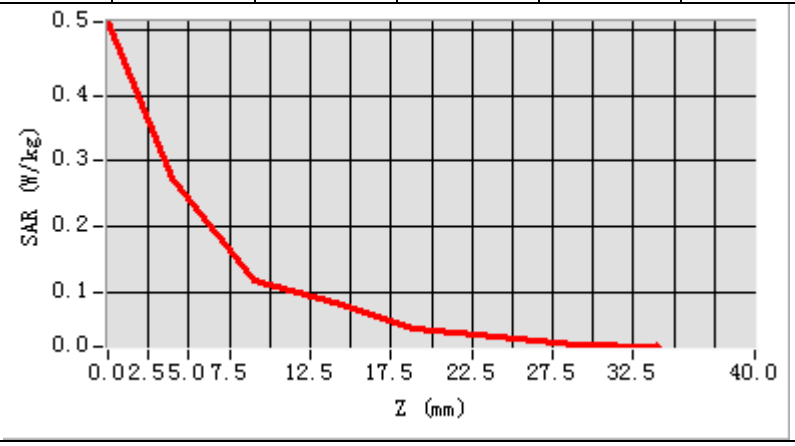
Frequency (MHz)	2535.000000
Relative permittivity (real part)	40.199814
Relative permittivity (imaginary part)	13.783051
Conductivity (S/m)	1.941113
Variation (%)	-2.910000

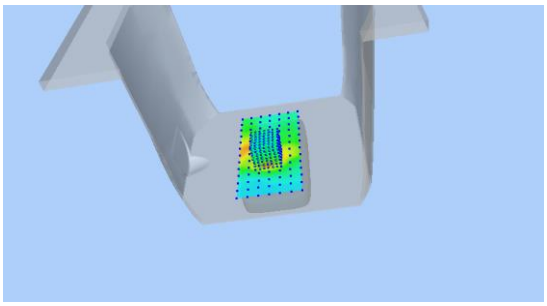
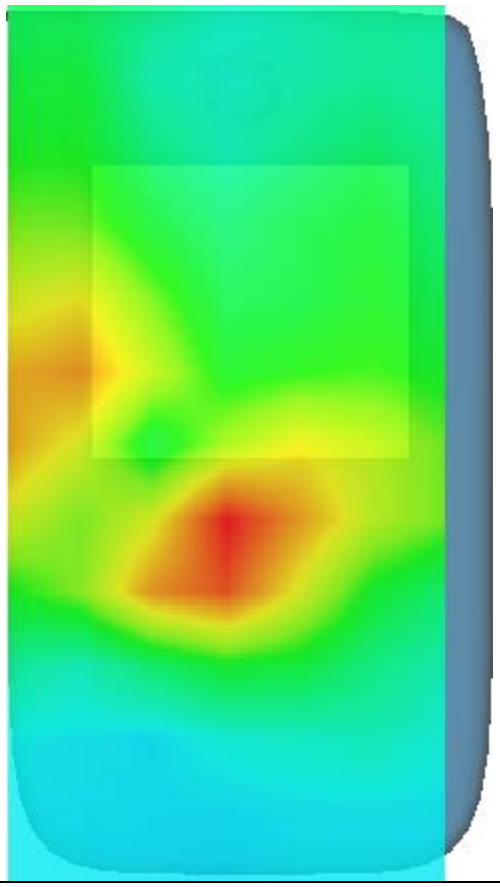
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-5.00, Y=-14.00
SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	0.128508
SAR 1g (W/Kg)	0.259671

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.5124	0.2749	0.1189	0.0834	0.0448	0.0334	0.0201



3D screen shot	Hot spot position
	

MEASUREMENT 25

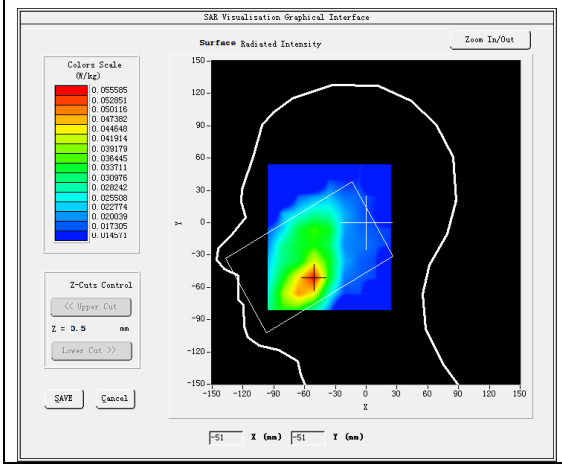
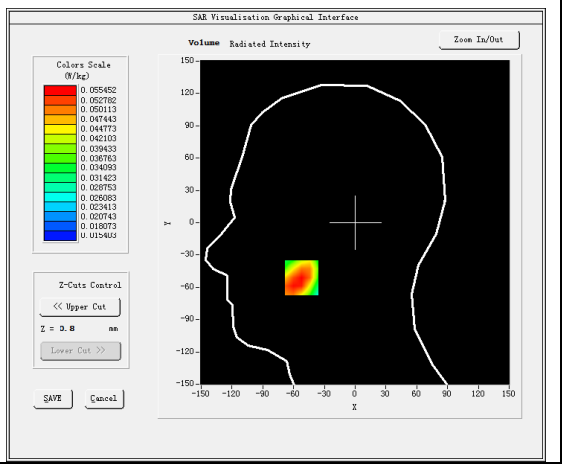
Date of measurement: 22/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 12
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

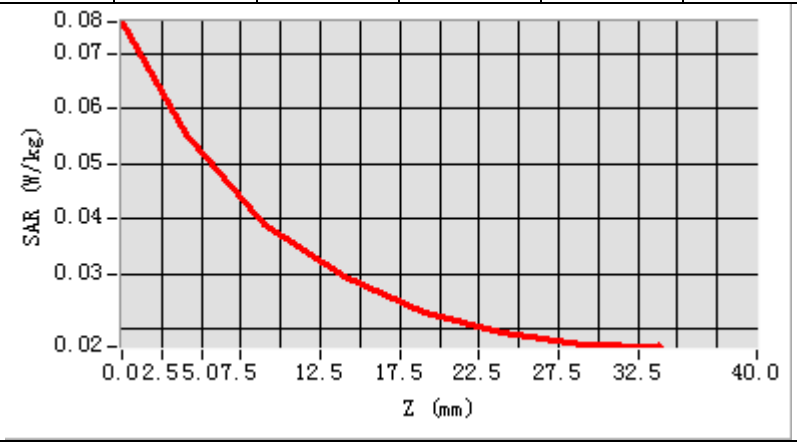
Frequency (MHz)	707.500000
Relative permittivity (real part)	41.766384
Relative permittivity (imaginary part)	21.763632
Conductivity (S/m)	0.855432
Variation (%)	2.370000

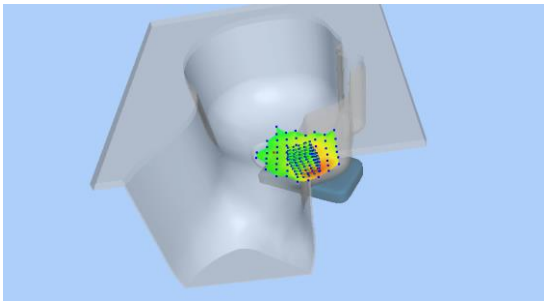
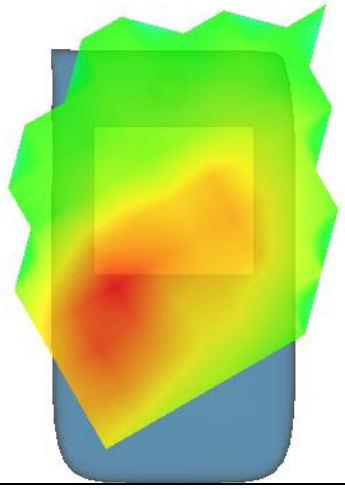
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-52.00, Y=-51.00
SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.037172
SAR 1g (W/Kg)	0.055078

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0757	0.0555	0.0389	0.0296	0.0229	0.0194	0.0171



3D screen shot	Hot spot position
	

MEASUREMENT 26

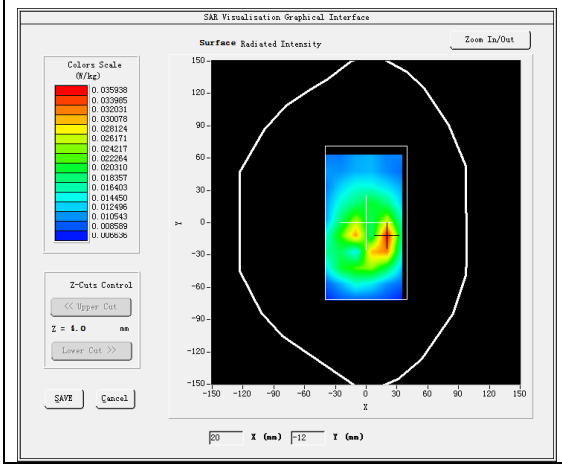
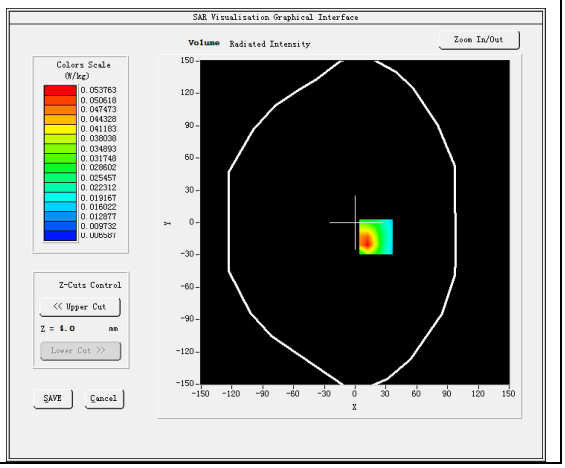
Date of measurement: 22/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 12
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	707.500000
Relative permittivity (real part)	41.766384
Relative permittivity (imaginary part)	21.763632
Conductivity (S/m)	0.855432
Variation (%)	0.860000

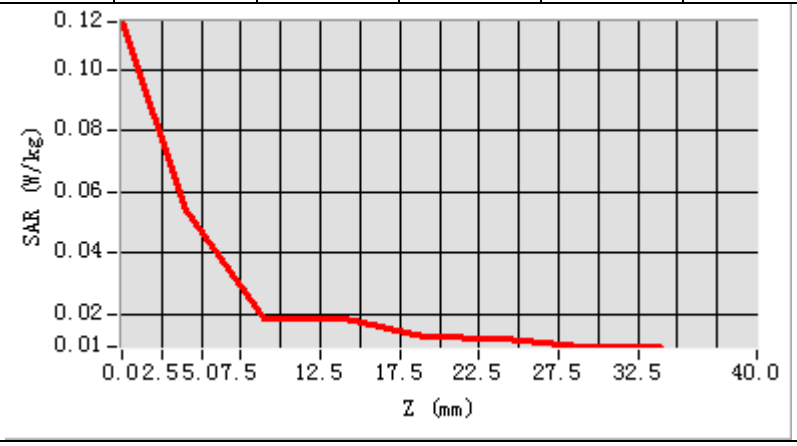
SURFACE SAR	VOLUME SAR
	

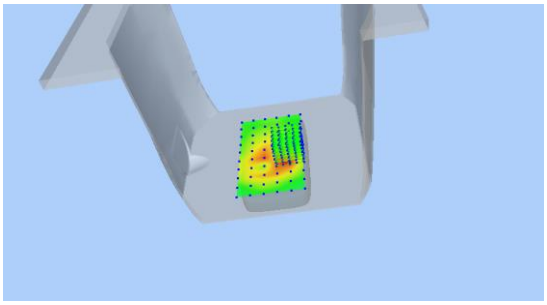
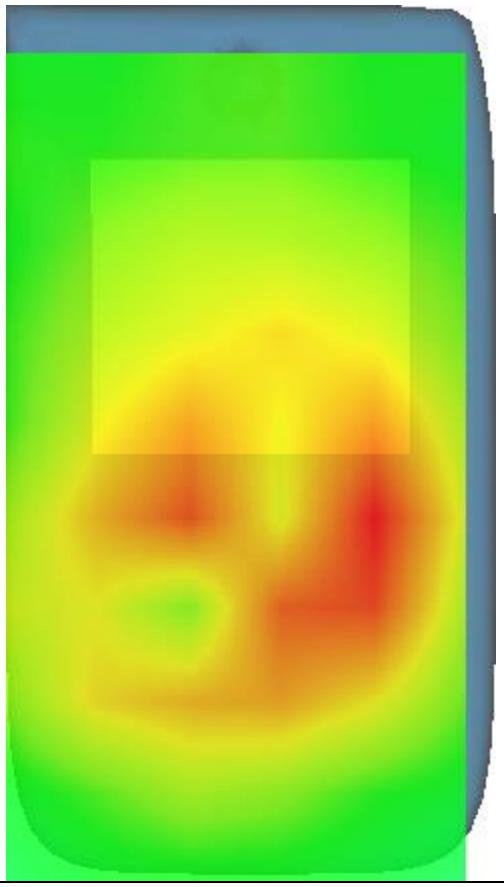
Maximum location: X=20.00, Y=-13.00

SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.028992
SAR 1g (W/Kg)	0.050594

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1156	0.0538	0.0186	0.0181	0.0127	0.0119	0.0092



3D screen shot	Hot spot position
	

MEASUREMENT 27

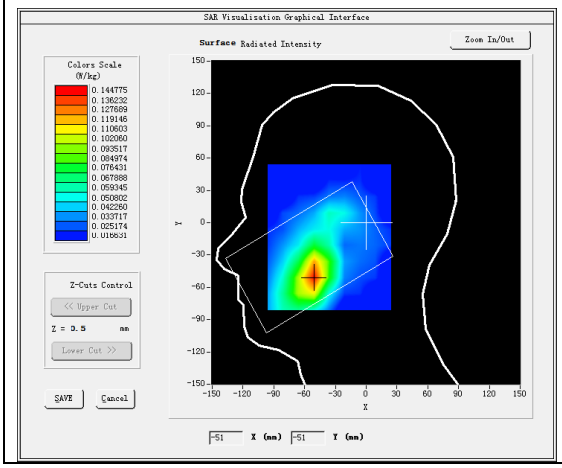
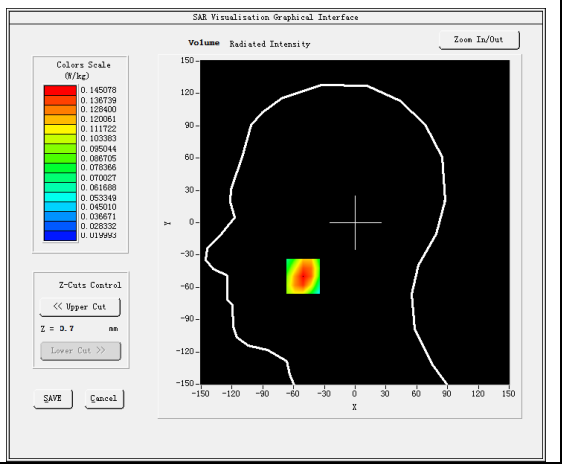
Date of measurement: 22/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 17
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

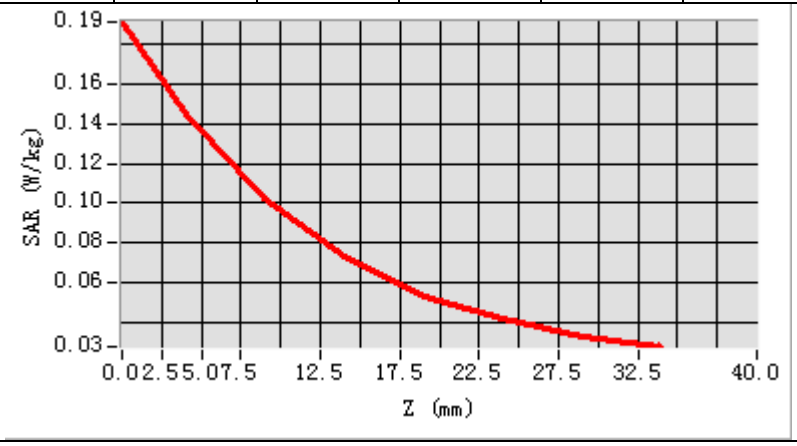
Frequency (MHz)	710.000000
Relative permittivity (real part)	41.751034
Relative permittivity (imaginary part)	21.704081
Conductivity (S/m)	0.856105
Variation (%)	3.300000

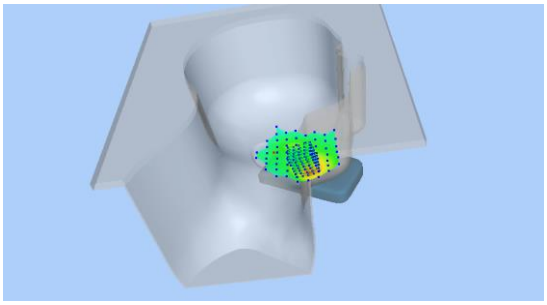
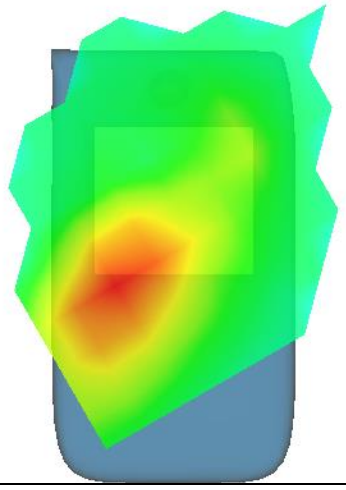
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-51.00, Y=-50.00
SAR Peak: 0.20 W/kg

SAR 10g (W/Kg)	0.039167
SAR 1g (W/Kg)	0.065171

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1910	0.1451	0.1026	0.0738	0.0533	0.0416	0.0329



3D screen shot	Hot spot position
	

MEASUREMENT 28

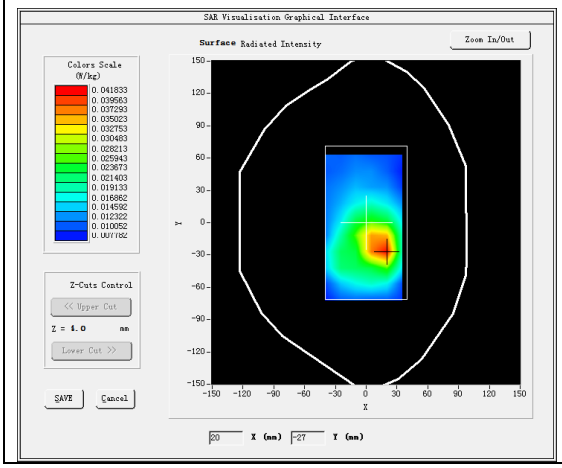
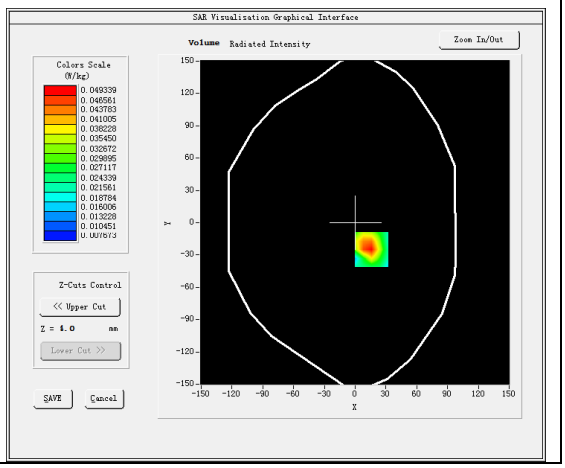
Date of measurement: 22/7/2021

A. Experimental conditions.

Area Scan	dx=15mm dy=15mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body
Band	LTE band 17
Channels	Middle
Signal	LTE (Crest factor: 1.0)

B. SAR Measurement Results

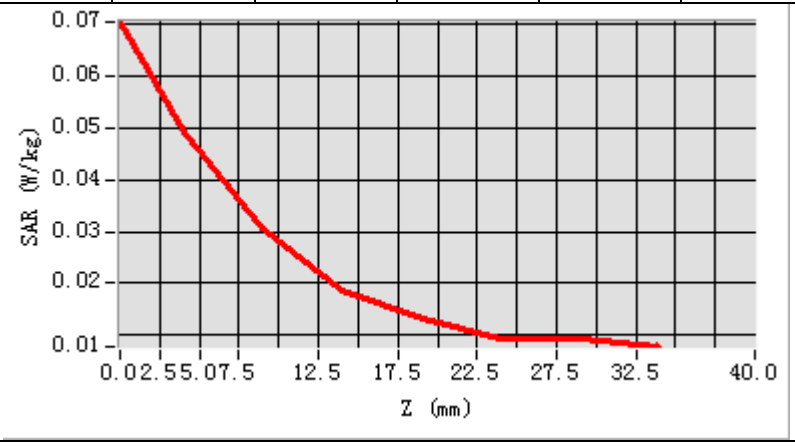
Frequency (MHz)	710.000000
Relative permittivity (real part)	41.751034
Relative permittivity (imaginary part)	21.704081
Conductivity (S/m)	0.856105
Variation (%)	-2.790000

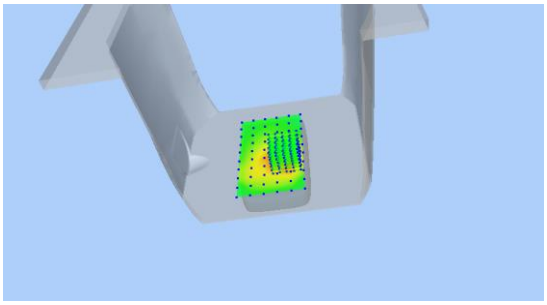
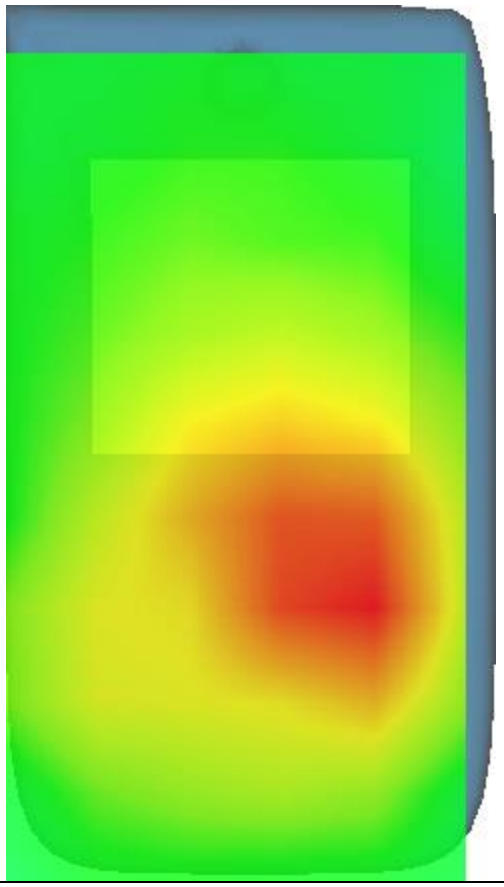
SURFACE SAR	VOLUME SAR
	

Maximum location: X=16.00, Y=-25.00
SAR Peak: 0.10 W/kg

SAR 10g (W/Kg)	0.027857
SAR 1g (W/Kg)	0.051002

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0705	0.0493	0.0307	0.0186	0.0134	0.0094	0.0094



3D screen shot	Hot spot position
	

14. Appendix D. Calibration Certificate

Table of contents
E Field Probe - SN 08/16 EPGO287
750 MHz Dipole - SN 03/15 DIP 0G750-355
835 MHz Dipole - SN 03/15 DIP 0G835-347
1800 MHz Dipole - SN 03/15 DIP 1G800-349
1900 MHz Dipole - SN 03/15 DIP 1G900-350
2450 MHz Dipole - SN 03/15 DIP 2G450-352
2600 MHz Dipole - SN 03/15 DIP 2G600-356
5000-6000 MHz Dipole - SN 13/14 WGA 33

COMOSAR E-Field Probe Calibration Report

Ref : ACR.60.1.21.MVGB.A

SHENZHEN NTEK TESTING TECHNOLOGY CO., LTD.

BUILDING E, FENDA SCIENCE PARK, SANWEI COMMUNITY, XIXIANG STREET,
BAO'AN DISTRICT, SHENZHEN GUANGDONG, CHINA

MVG COMOSAR DOSIMETRIC E-FIELD PROBE

SERIAL NO.: SN 08/16 EPGO287

Calibrated at MVG

Z.I. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE - FRANCE

Calibration date: 03/01/2021

Accreditations #2-6789 and #2-6814
Scope available on www.cofrac.fr

Summary:

This document presents the method and results from an accredited COMOSAR E-Field Probe calibration performed at MVG, using the CALIPROBE test bench, for use with a MVG COMOSAR system only. The test results covered by accreditation are traceable to the International System of Units (SI).

COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.60.1.21.MVGB.A

	Name	*Function*	*Date*	*Signature*
Prepared by :	Jérôme Luc	Technical Manager	3/1/2021	
Checked by :	Jérôme Luc	Technical Manager	3/1/2021	
Approved by :	Yann Toutain	Laboratory Director	3/1/2021	Yann Toutain 2021.03.01 13:07:12 +01'00'

	Customer Name
Distribution :	SHENZHEN NTEK TESTING TECHNOLOGY CO., LTD.

Issue	*Name*	*Date*	*Modifications*
A	Jérôme Luc	3/1/2021	Initial release

TABLE OF CONTENTS

1 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	SN 08/16 EPGO287
Product Condition (new / used)	Used
Frequency Range of Probe	0.15 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.211 MΩ Dipole 2: R2=0.199 MΩ Dipole 3: R3=0.199 MΩ

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

MVG's COMOSAR E field Probes are built in accordance to the IEEE 1528, FCC KDB865664 D01, CENELEC EN62209 and CEI/IEC 62209 standards.

Figure 1 – *MVG COMOSAR Dosimetric E field Dipole*

Probe Length	330 mm
Length of Individual Dipoles	2 mm
Maximum external diameter	8 mm
Probe Tip External Diameter	2.5 mm
Distance between dipoles / probe extremity	1 mm

3 MEASUREMENT METHOD

The IEEE 1528, FCC KDB865664 D01, CENELEC EN62209 and CEI/IEC 62209 standards provide recommended practices for the probe calibrations, including the performance characteristics of interest and methods by which to assess their affect. All calibrations / measurements performed meet the fore mentioned standards.

3.1 LINEARITY

The evaluation of the linearity was done in free space using the waveguide, performing a power sweep to cover the SAR range 0.01W/kg to 100W/kg.

3.2 SENSITIVITY

The sensitivity factors of the three dipoles were determined using a two step calibration method (air and tissue simulating liquid) using waveguides as outlined in the standards.

3.3 LOWER DETECTION LIMIT

The lower detection limit was assessed using the same measurement set up as used for the linearity measurement. The required lower detection limit is 10 mW/kg.

3.4 ISOTROPY

The axial isotropy was evaluated by exposing the probe to a reference wave from a standard dipole with the dipole mounted under the flat phantom in the test configuration suggested for system validations and checks. The probe was rotated along its main axis from 0 to 360 degrees in 15-degree steps. The hemispherical isotropy is determined by inserting the probe in a thin plastic box filled with tissue-equivalent liquid, with the plastic box illuminated with the fields from a half wave dipole. The dipole is rotated about its axis (0°–180°) in 15° increments. At each step the probe is rotated about its axis (0°–360°).

3.1 BOUNDARY EFFECT

The boundary effect is defined as the deviation between the SAR measured data and the expected exponential decay in the liquid when the probe is oriented normal to the interface. To evaluate this effect, the liquid filled flat phantom is exposed to fields from either a reference dipole or waveguide. With the probe normal to the phantom surface, the peak spatial average SAR is measured and compared to the analytical value at the surface.

The boundary effect uncertainty can be estimated according to the following uncertainty approximation formula based on linear and exponential extrapolations between the surface and d_{be} + d_{step} along lines that are approximately normal to the surface:

$$\mathrm{SAR}_{\mathrm{uncertainty}}[\%] = \delta\mathrm{SAR}_{be} \frac{(d_{be} + d_{step})^2}{2d_{step}} \frac{\left(e^{-d_{be}/(\delta/2)}\right)}{\delta/2} \quad \text{for } (d_{be} + d_{step}) < 10 \text{ mm}$$

where

$\mathrm{SAR}_{\mathrm{uncertainty}}$	is the uncertainty in percent of the probe boundary effect
d_{be}	is the distance between the surface and the closest *zoom-scan* measurement point, in millimetre
Δ_{step}	is the separation distance between the first and second measurement points that are closest to the phantom surface, in millimetre, assuming the boundary effect at the second location is negligible
δ	is the minimum penetration depth in millimetres of the head tissue-equivalent liquids defined in this standard, i.e., $\delta \approx 14$ mm at 3 GHz;
$\Delta\mathrm{SAR}_{be}$	in percent of SAR is the deviation between the measured SAR value, at the distance d_{be} from the boundary, and the analytical SAR value.

The measured worst case boundary effect SARuncertainty[%] for scanning distances larger than 4mm is 1.0% Limit ,2%).

4 MEASUREMENT UNCERTAINTY

The guidelines outlined in the IEEE 1528, OET 65 Bulletin C, CENELEC EN50361 and CEI/IEC 62209 standards were followed to generate the measurement uncertainty associated with an E-field probe calibration using the waveguide technique. All uncertainties listed below represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2, traceable to the Internationally Accepted Guides to Measurement Uncertainty.

Uncertainty analysis of the probe calibration in waveguide					
ERROR SOURCES	**Uncertainty value (%)**	**Probability Distribution**	**Divisor**	**ci**	**Standard Uncertainty (%)**
Expanded uncertainty 95 % confidence level k = 2					14 %

5 CALIBRATION MEASUREMENT RESULTS

Calibration Parameters	
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

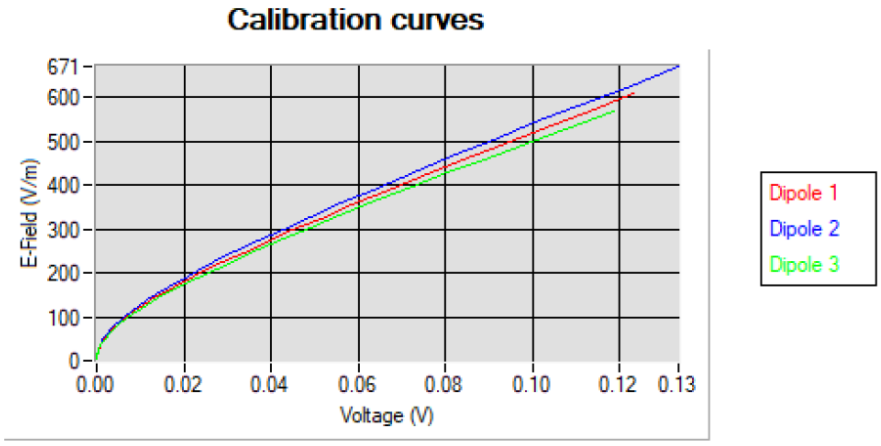
5.1 SENSITIVITY IN AIR

Normx dipole 1 (μV/(V/m)^2)	Normy dipole 2 (μV/(V/m)^2)	Normz dipole 3 (μV/(V/m)^2)
0.72	0.66	0.77

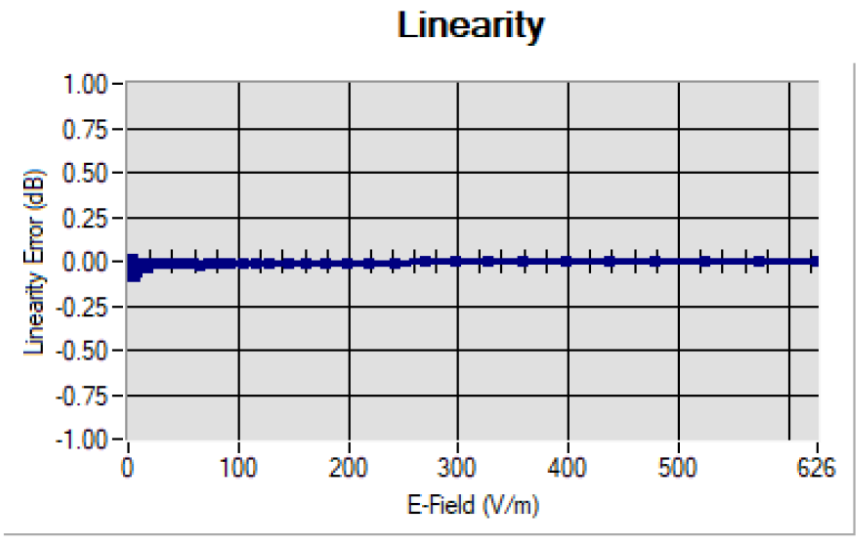
DCP dipole 1 (mV)	DCP dipole 2 (mV)	DCP dipole 3 (mV)
107	110	110

Calibration curves ei=f(V) (i=1,2,3) allow to obtain E-field value using the formula:

$$E = \sqrt{E_1^{\,2} + E_2^{\,2} + E_3^{\,2}}$$



5.2 LINEARITY



Linearity:+/-1.90% (+/-0.08dB)

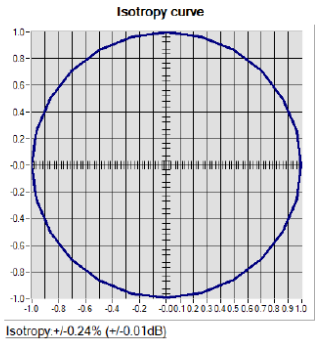
5.3 SENSITIVITY IN LIQUID

Liquid	Frequency (MHz +/- 100MHz)	ConvF
HL750	750	1.49
HL850	835	1.50
HL900	900	1.61
HL1800	1800	1.73
HL1900	1900	1.91
HL2000	2000	1.97
HL2300	2300	1.92
HL2450	2450	1.98
HL2600	2600	1.87
HL3300	3300	1.79
HL3500	3500	1.85
HL3700	3700	1.79
HL3900	3900	2.07
HL4200	4200	2.21
HL4600	4600	2.25
HL4900	4900	2.05
HL5200	5200	1.80
HL5400	5400	2.05
HL5600	5600	2.16
HL5800	5800	2.07

LOWER DETECTION LIMIT: 8mW/kg

5.4 ISOTROPY

HL1800 MHz



Isotropy +/-0.24% (+/-0.01dB)