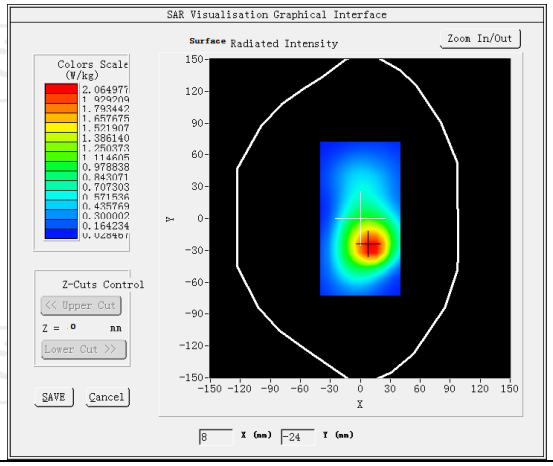
MEASUREMENT 2

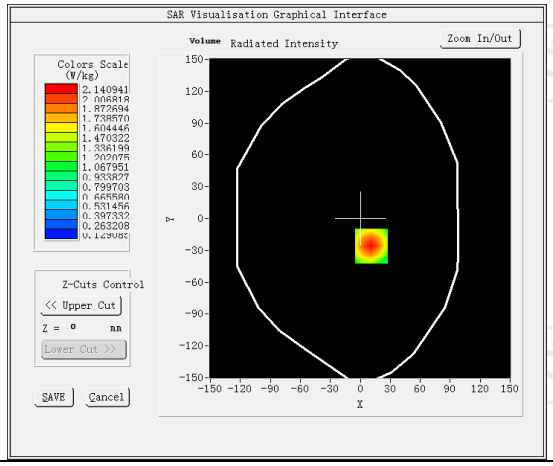
High Band SAR (Channel 20300): Date: 06/07/2023

Frequency (MHz)	1745.000000
Relative permittivity (real part)	40.115910
Relative permittivity (imaginary part)	14.136136
Conductivity (S/m)	1.360603
Variation (%)	-0.650000
Crest Factor	1.0
Probe Conversion factor	2.08
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 4(1 RB#49)

SURFACE SAR

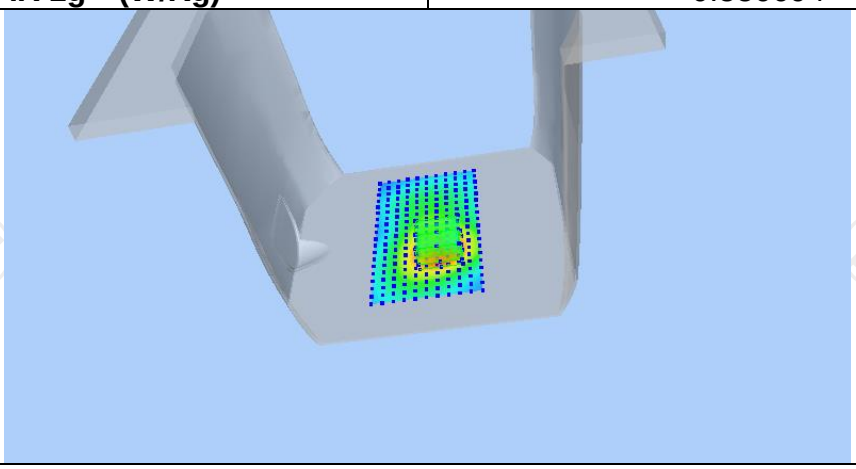


VOLUME SAR

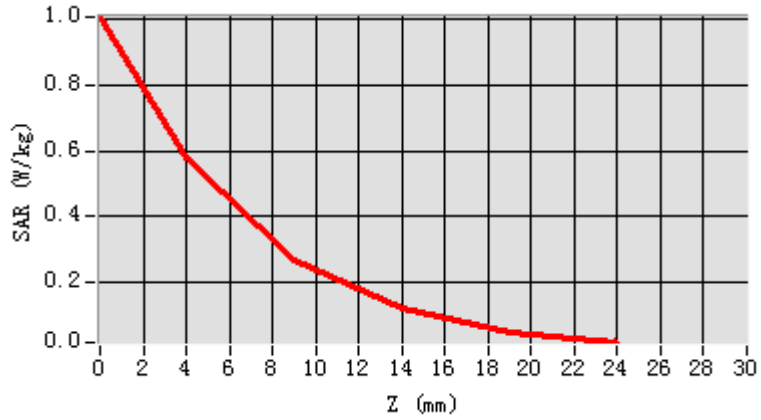


Maximum location: X=-23.00, Y=36.00 SAR Peak: 1.01 W/kg

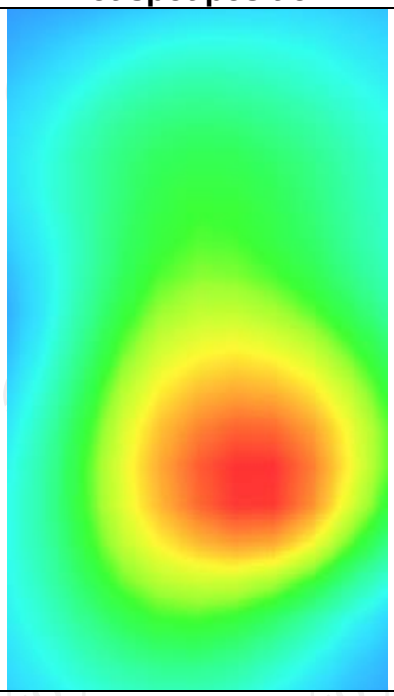
SAR 10g (W/Kg)	0.289505
SAR 1g (W/Kg)	0.556694



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0050	0.5801	0.2718	0.1204	0.0526



Hot spot position



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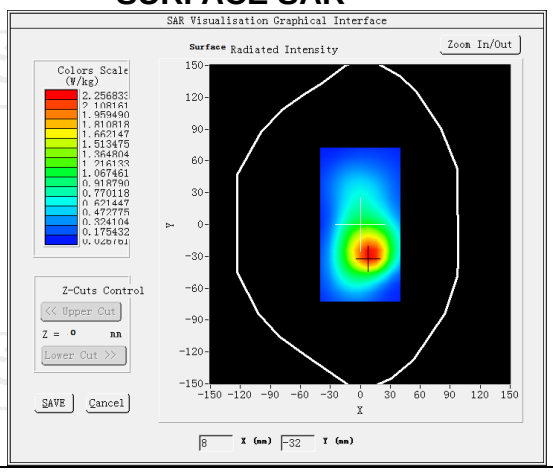
MEASUREMENT 3

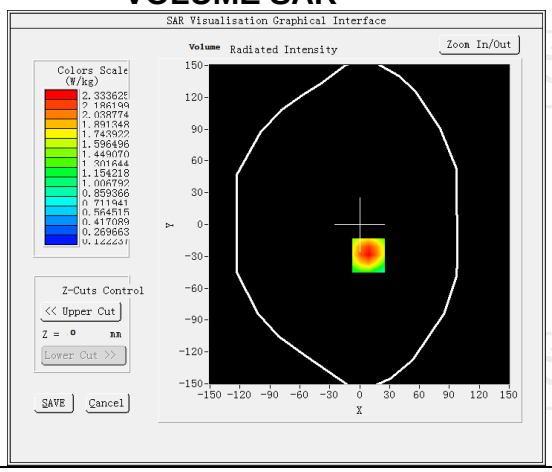
High Band SAR (Channel 20300): Date: 06/07/2023

Frequency (MHz)	1745.000000
Relative permittivity (real part)	40.115910
Relative permittivity (imaginary part)	14.136136
Conductivity (S/m)	1.360603
Variation (%)	0.910000
Crest Factor	1.0
Probe Conversion factor	2.08
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 4(1 RB#49)

SURFACE SAR

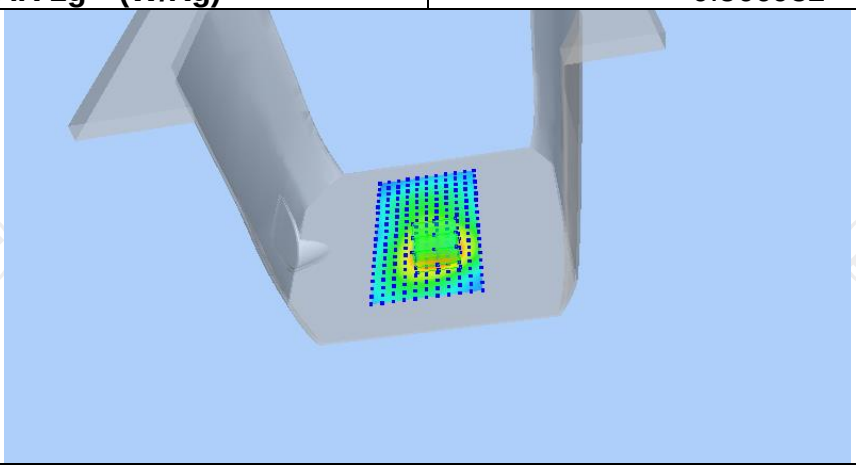


VOLUME SAR

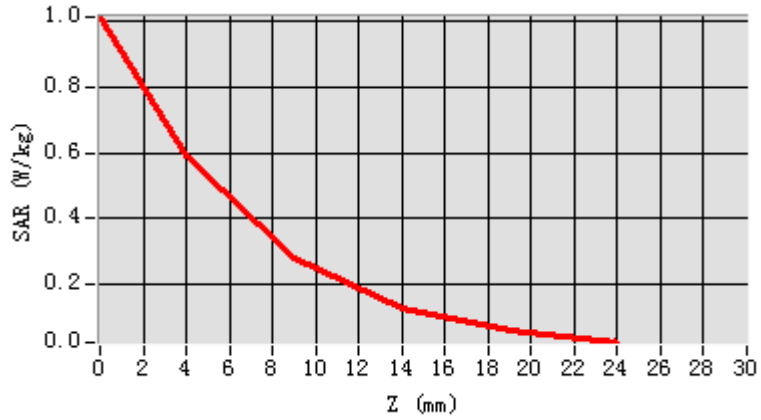


Maximum location: X=9.00, Y=-29.00 SAR Peak: 1.00 W/kg

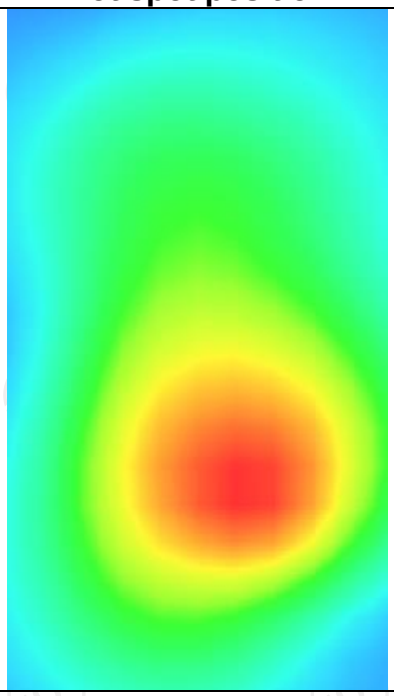
SAR 10g (W/Kg)	0.297565
SAR 1g (W/Kg)	0.566932



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0151	0.5893	0.2786	0.1246	0.0547



Hot spot position



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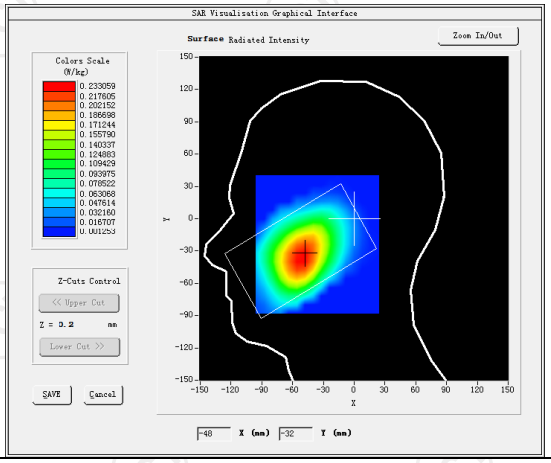
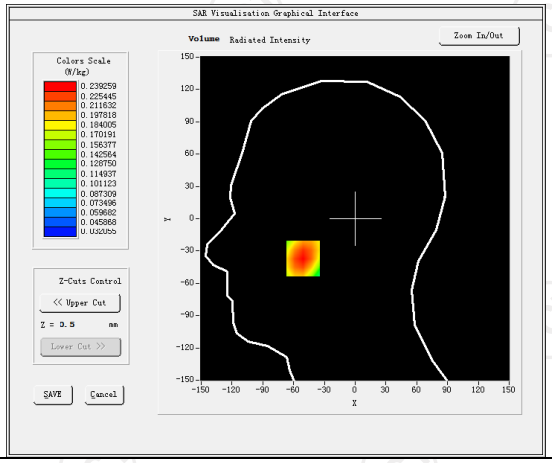
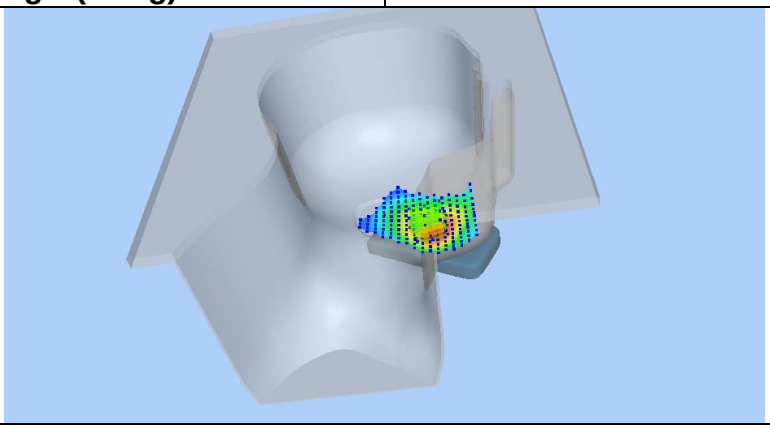
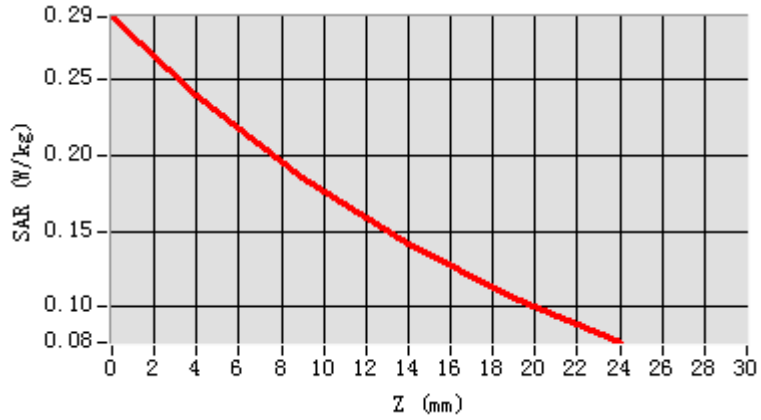
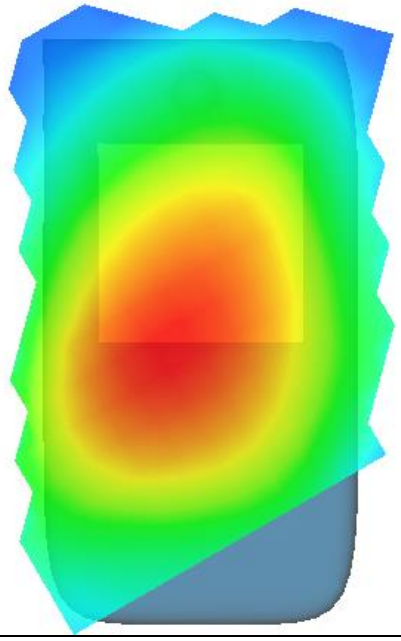
LTE Band 5

MEASUREMENT 1	
Middle Band SAR (Channel 20520):	Date: 06/02/2023
Frequency (MHz)	836.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	2.610000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 5(1 RB#24)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-51.00, Y=-37.00 SAR Peak: 0.29 W/kg	
SAR 10g (W/Kg)	0.163789
SAR 1g (W/Kg)	0.229156
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2913	0.2393	0.1850	0.1411	0.1058



Hot spot position



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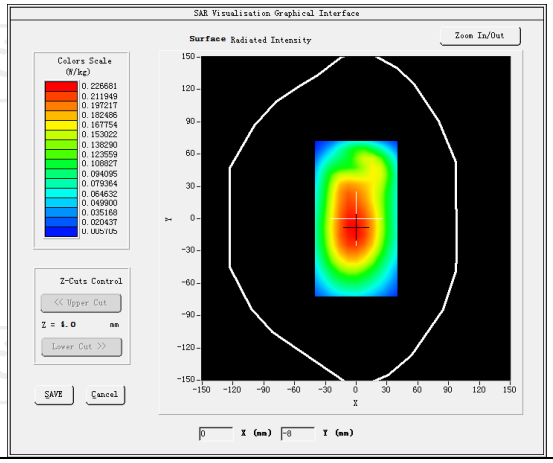
MEASUREMENT 2

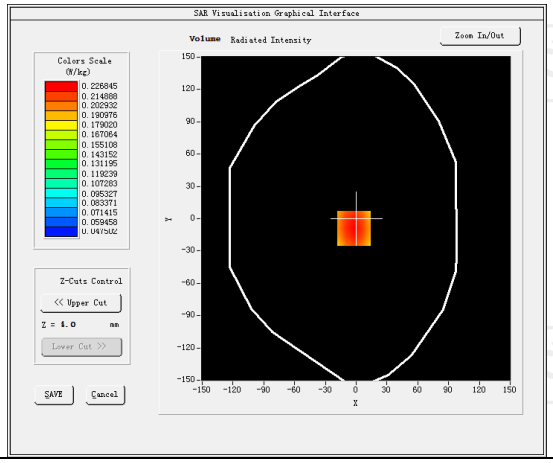
Middle Band SAR (Channel 20520): Date: 06/02/2023

Frequency (MHz)	836.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	-0.160000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 5(1 RB#24)

SURFACE SAR

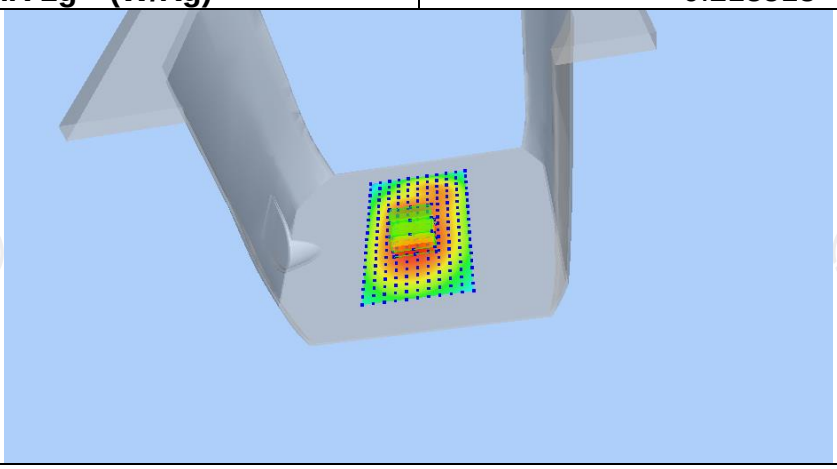


VOLUME SAR

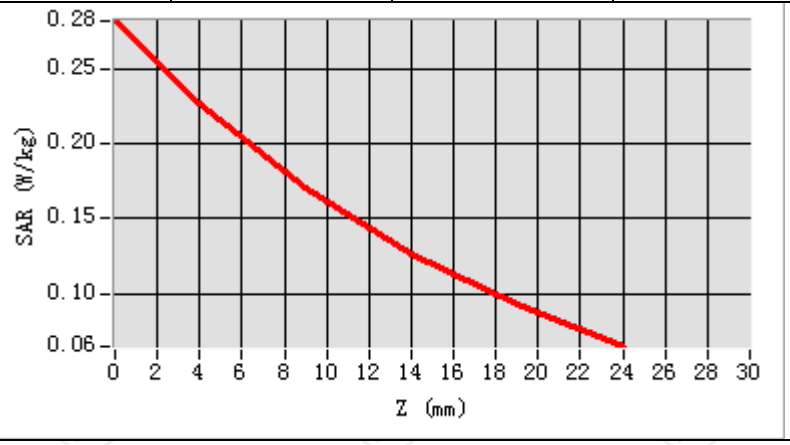


Maximum location: X=-2.00, Y=-9.00 SAR Peak: 0.28 W/kg

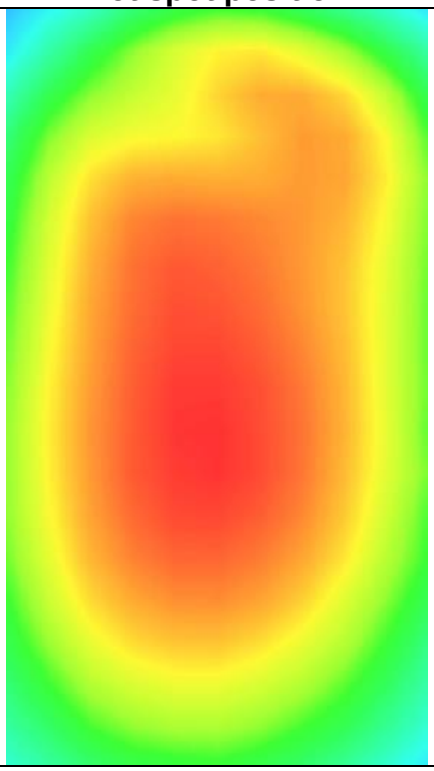
SAR 10g (W/Kg)	0.157407
SAR 1g (W/Kg)	0.218518



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2817	0.2268	0.1708	0.1268	0.0924



Hot spot position



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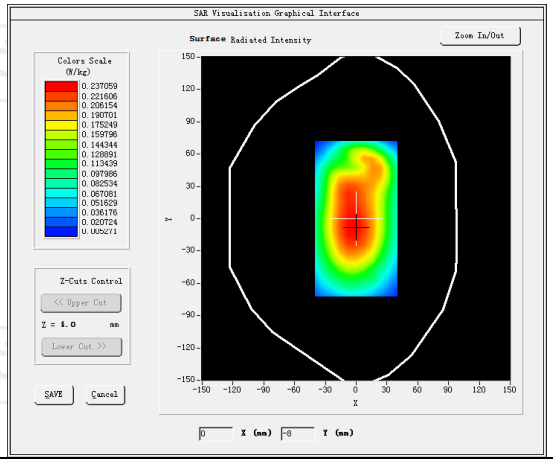
MEASUREMENT 3

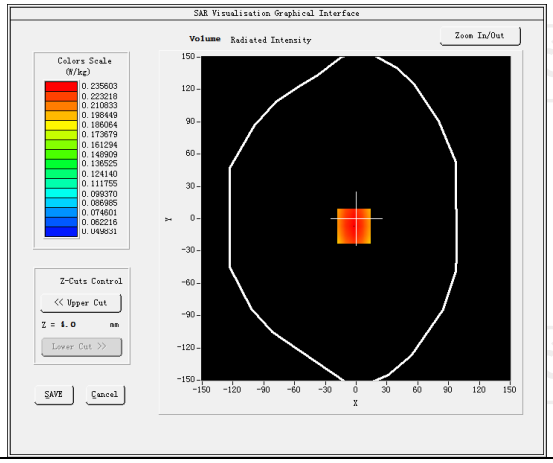
Middle Band SAR (Channel 20520): Date: 06/02/2023

Frequency (MHz)	836.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	-1.190000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open((hotspot 10mm)
Band	LTE band 5(1 RB#24)

SURFACE SAR

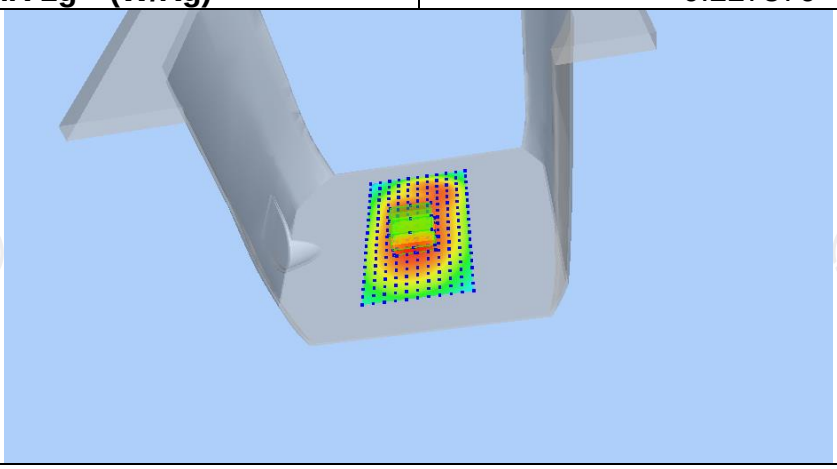


VOLUME SAR

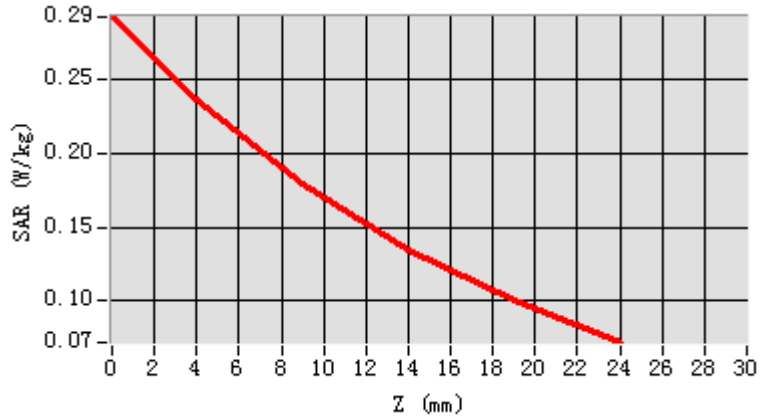


Maximum location: X=-2.00, Y=-7.00 SAR Peak: 0.29 W/kg

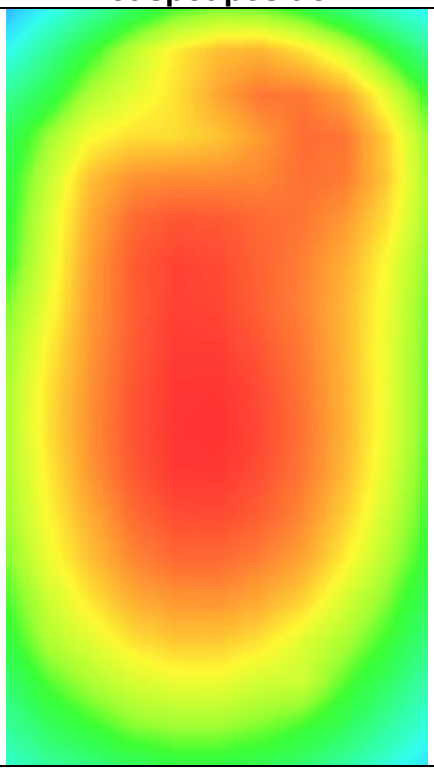
SAR 10g (W/Kg)	0.165419
SAR 1g (W/Kg)	0.227376



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2917	0.2356	0.1788	0.1345	0.1000



Hot spot position



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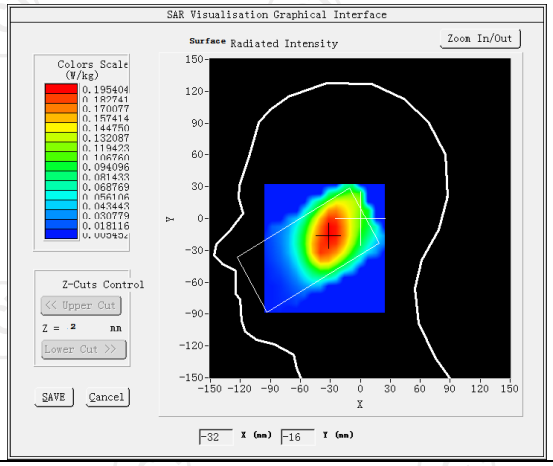
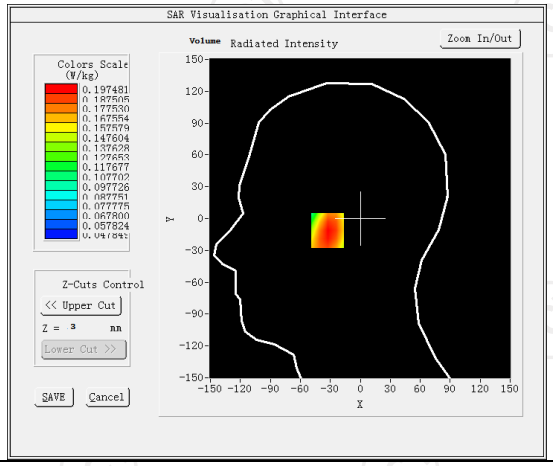
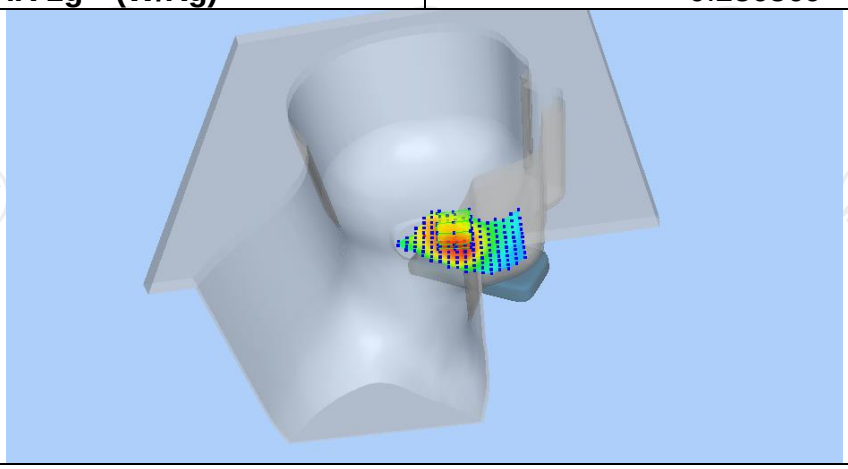
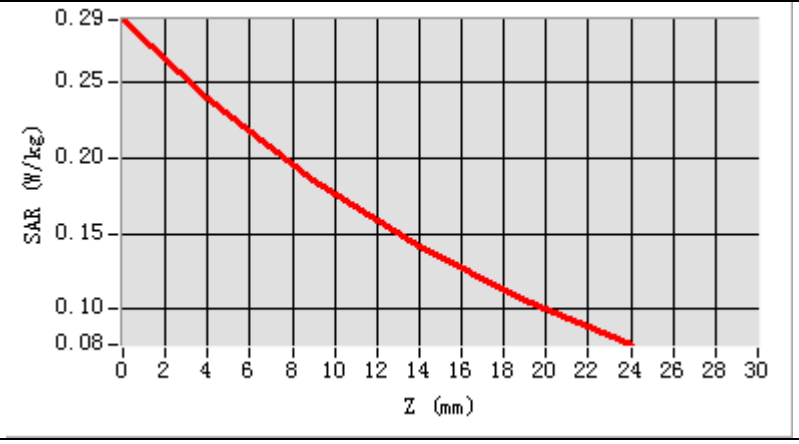
LTE Band 12

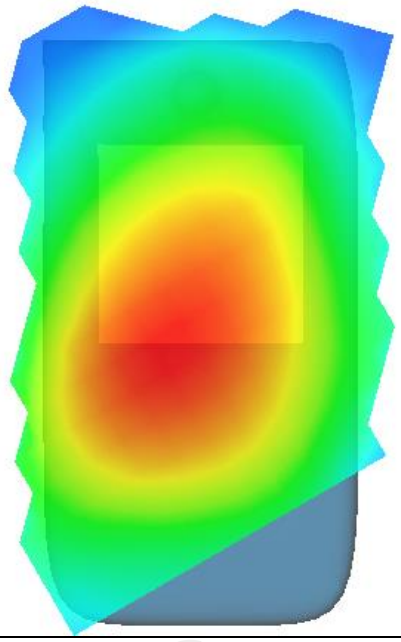
MEASUREMENT 1	
Middle Band SAR (Channel 23095):	Date: 05/30/2023
Frequency (MHz)	707.500000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary) part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	-1.570000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 12(1 RB#24)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-30.00, Y=-11.00 SAR Peak: 0.29 W/kg	
SAR 10g (W/Kg)	0.154117
SAR 1g (W/Kg)	0.236369



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2913	0.2393	0.1850	0.1411	0.1058



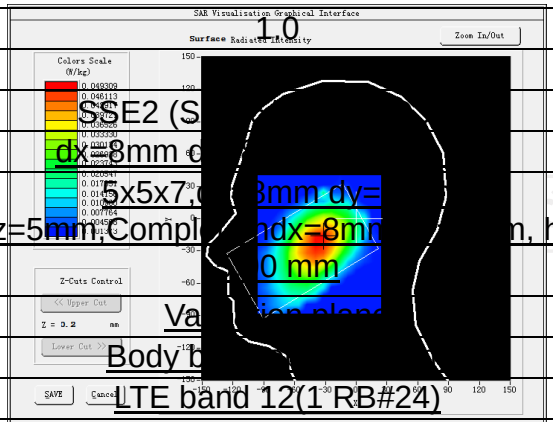
Hot spot position

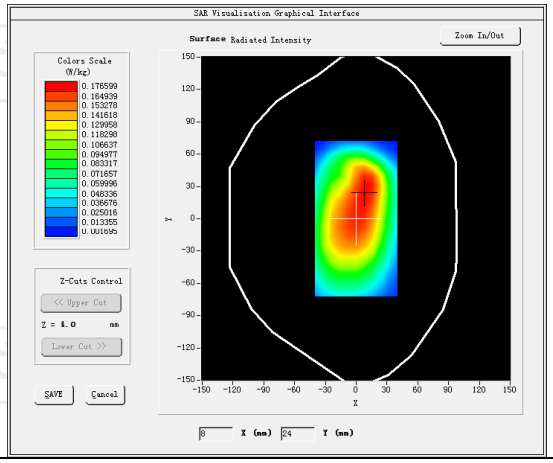
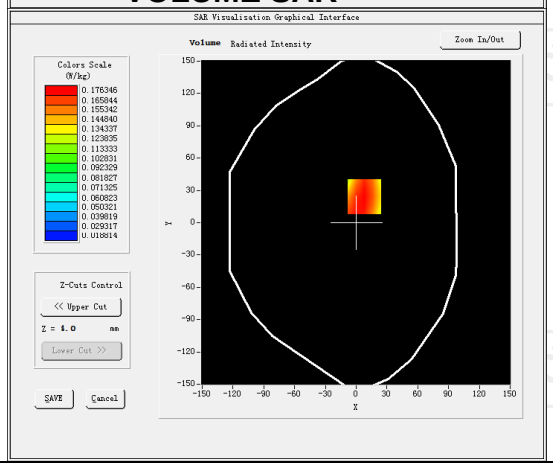


MEASUREMENT 2

Middle Band SAR (Channel 23095): Date: 05/30/2023

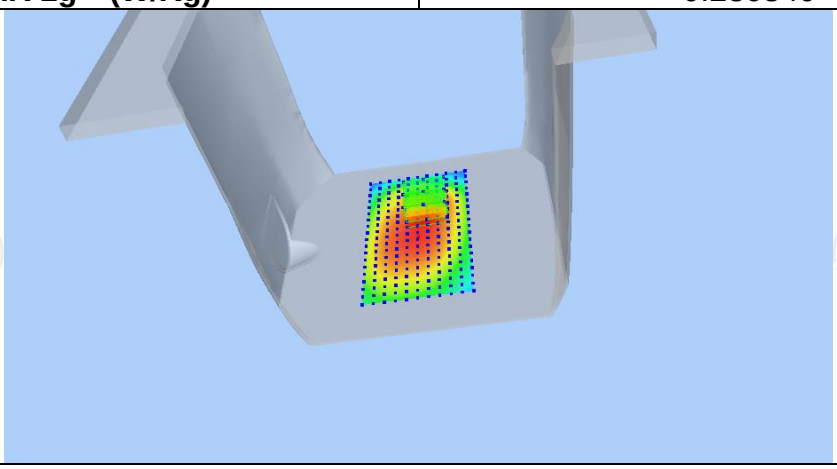
Frequency (MHz)	707.500000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	-2.820000
Crest Factor	1.0
Probe Conversion factor	[illegible]
E-Field Probe:	SSE2 (S[illegible]
Area Scan	dx=8mm d[illegible]
ZoomScan	5x5x7,[illegible]3mm dy=[illegible] dz=5mm,Compl[illegible]dx=8mm[illegible]m, h=[illegible]0 mm
Phantom	Va[illegible]
Device Position	Body b[illegible]
Band	LTE band 12(1 RB#24)



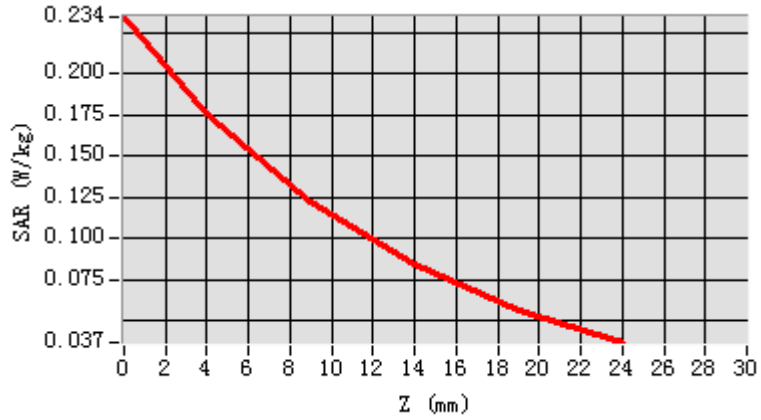
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=6.00, Y=14.00 SAR Peak: 0.47 W/kg

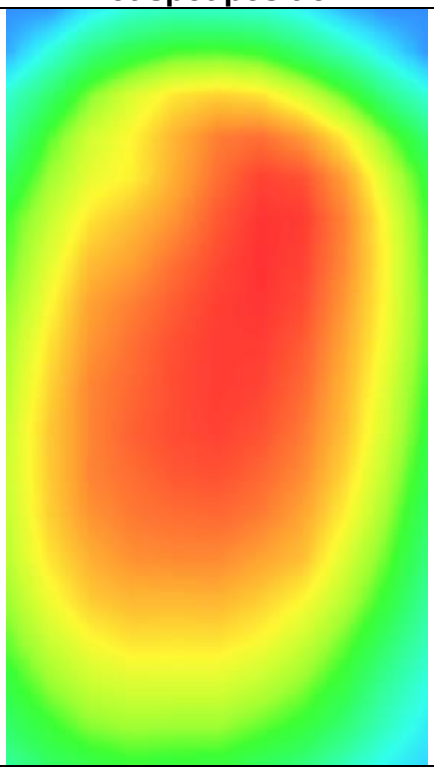
SAR 10g (W/Kg)	0.023666
SAR 1g (W/Kg)	0.280840



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2343	0.1763	0.1220	0.0836	0.0566



Hot spot position



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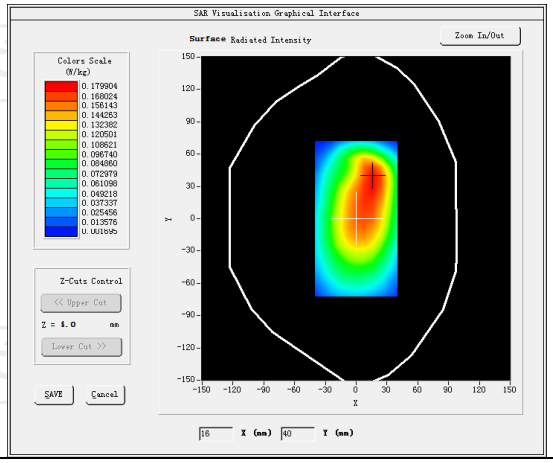
MEASUREMENT 3

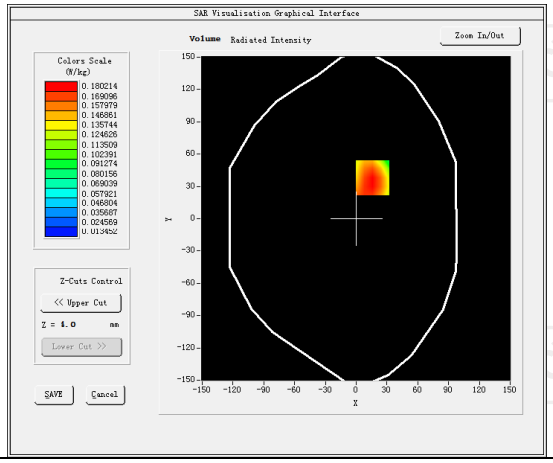
Middle Band SAR (Channel 23095): Date: 05/30/2023

Frequency (MHz)	707.500000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	0.060000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 12(1 RB#24)

SURFACE SAR

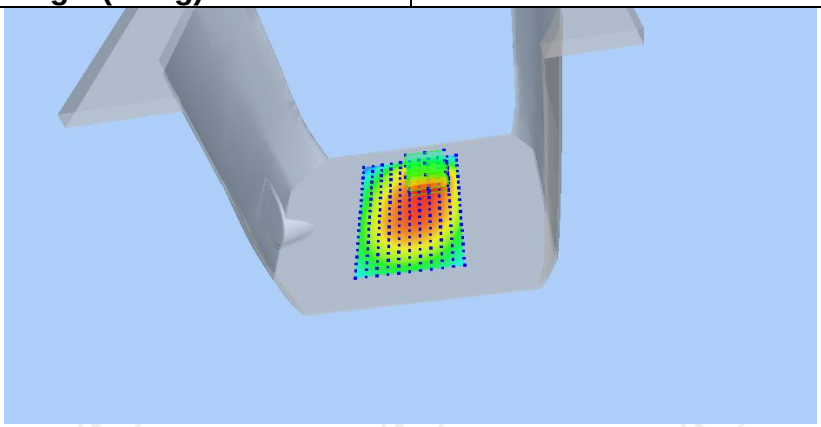


VOLUME SAR

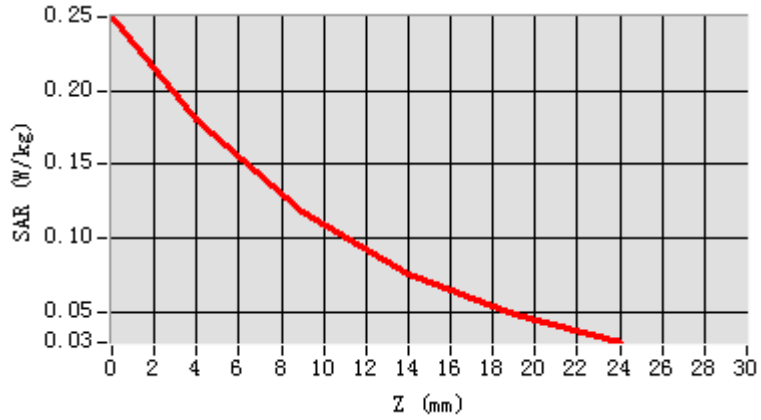


Maximum location: X=6.00, Y=28.00 SAR Peak: 0.15 W/kg

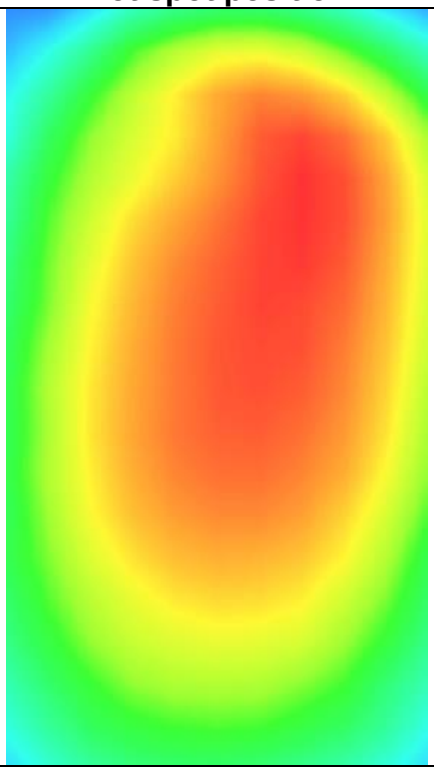
SAR 10g (W/Kg)	0.119621
SAR 1g (W/Kg)	0.382340



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2499	0.1801	0.1173	0.0758	0.0481



Hot spot position



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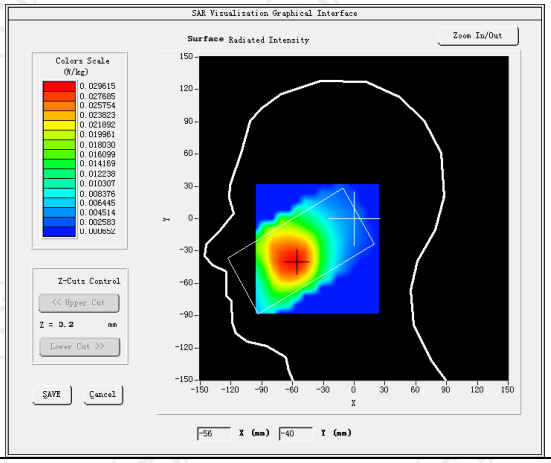
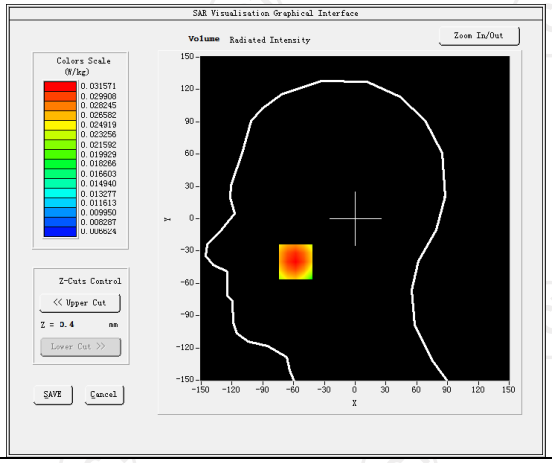
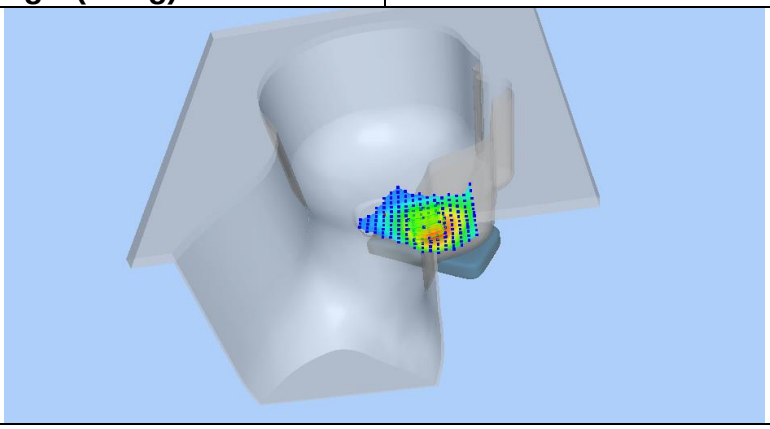
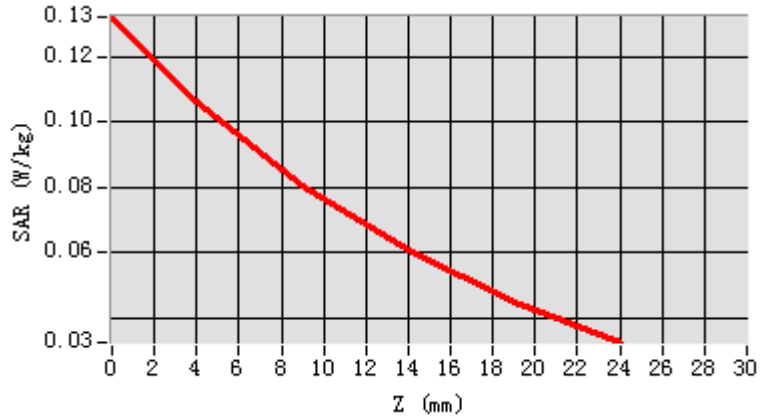
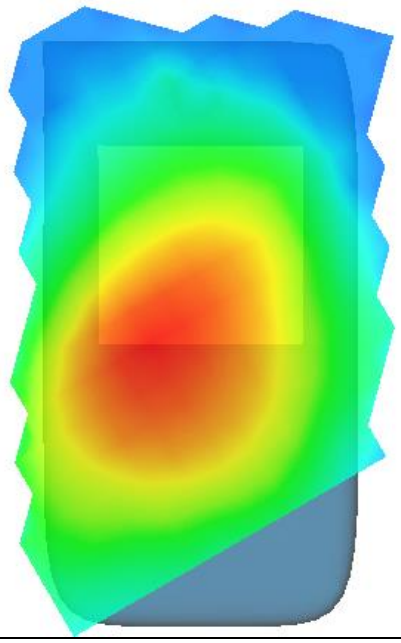
LTE Band 13

MEASUREMENT 1	
Middle Band SAR (Channel 23230):	Date: 05/30/2023
Frequency (MHz)	782.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	-1.460000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 13(25 RB#25)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-48.00, Y=-42.00 SAR Peak: 0.13 W/kg	
SAR 10g (W/Kg)	0.103470
SAR 1g (W/Kg)	0.122601
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1343	0.1070	0.0812	0.0610	0.0450



Hot spot position



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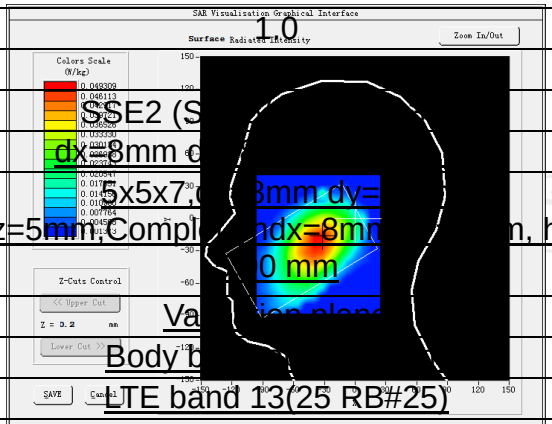
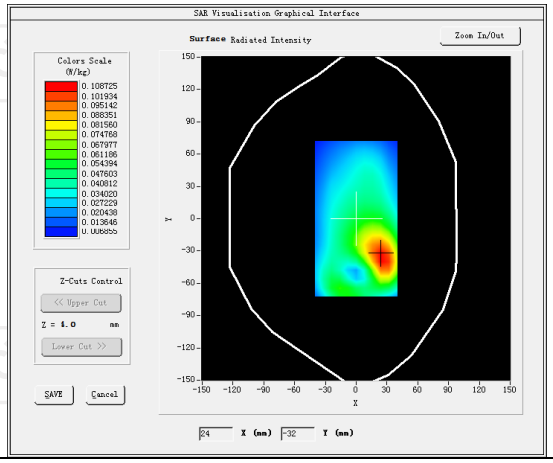
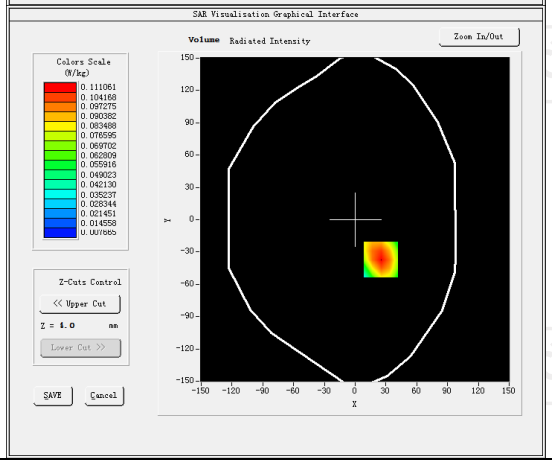
MEASUREMENT 2

Middle Band SAR (Channel 23230): Date: 05/30/2023

Frequency (MHz)	782.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	-1.810000
Crest Factor	1.0
Probe Conversion factor	[illegible]
E-Field Probe:	[illegible]SE2 (S[illegible]
Area Scan	dx=8mm d[illegible]
ZoomScan	5x5x7,[illegible]3mm dy=[illegible] dz=5mm,Compl[illegible]dx=8mm[illegible]m, h=[illegible]0 mm
Phantom	Va[illegible]
Device Position	Body b[illegible]
Band	LTE band 13(25 RB#25)
SURFACE SAR	**VOLUME SAR**

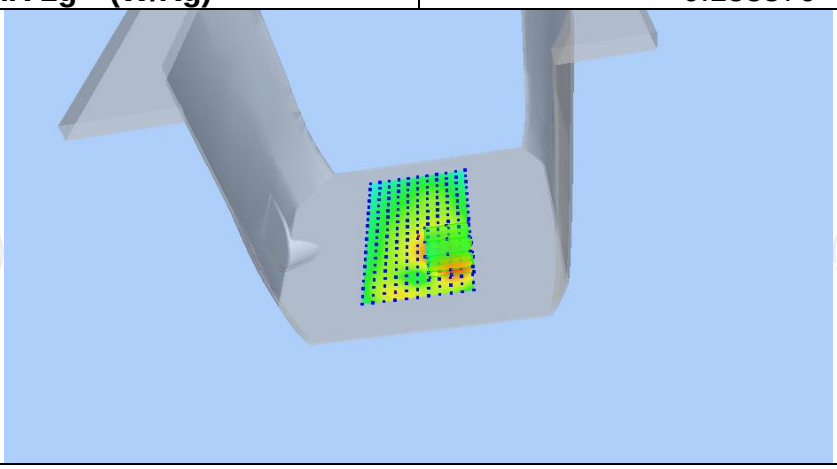




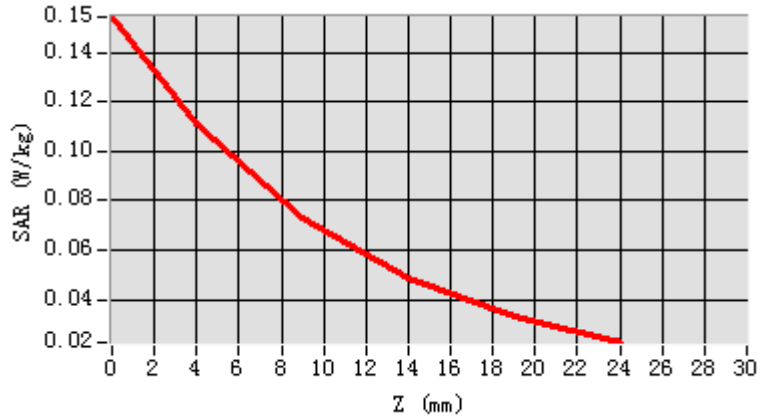


Maximum location: X=25.00, Y=-37.00 SAR Peak: 0.15 W/kg

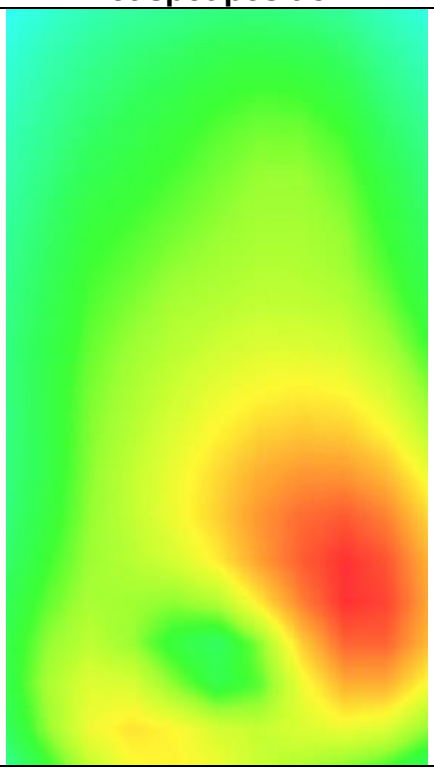
SAR 10g (W/Kg)	0.071030
SAR 1g (W/Kg)	0.153376



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1211	0.1120	0.0731	0.0490	0.0340



Hot spot position



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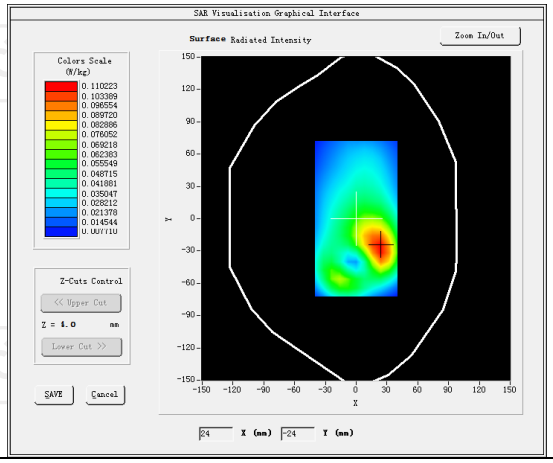
MEASUREMENT 3

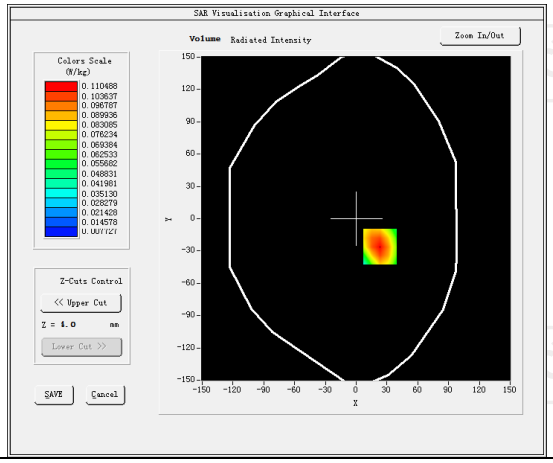
Middle Band SAR (Channel 23230): Date: 05/30/2023

Frequency (MHz)	782.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	-2.650000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 13(25 RB#25)

SURFACE SAR

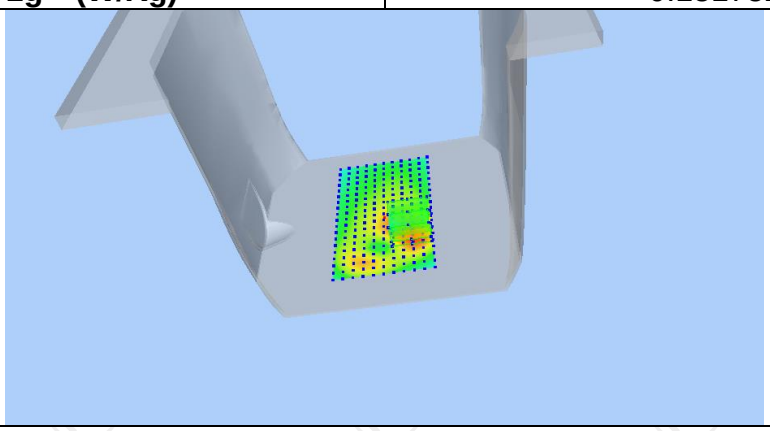


VOLUME SAR

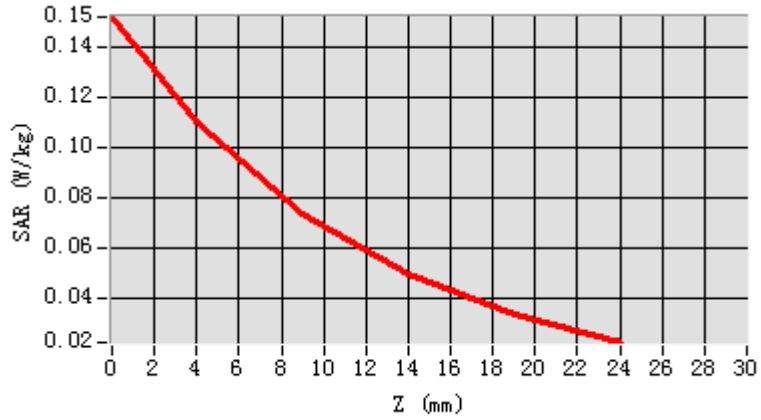


Maximum location: X=22.00, Y=-24.00 SAR Peak: 0.15 W/kg

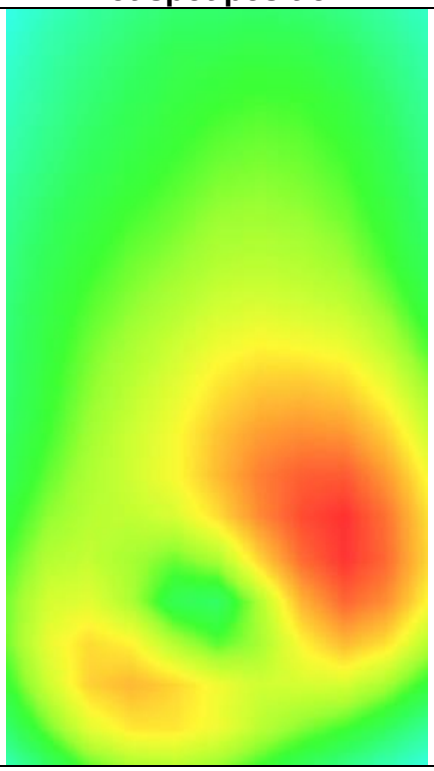
SAR 10g (W/Kg)	0.074531
SAR 1g (W/Kg)	0.151752



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1520	0.1110	0.0734	0.0492	0.0340



Hot spot position



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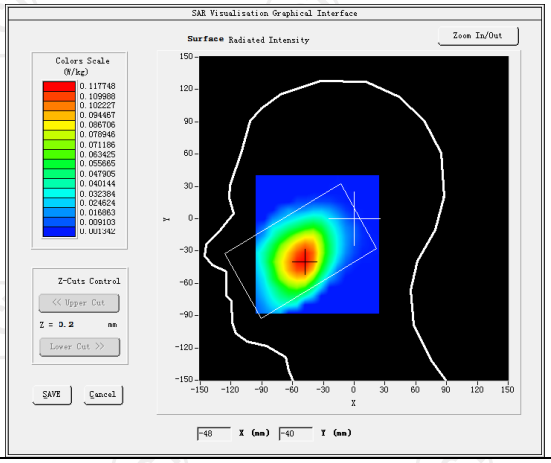
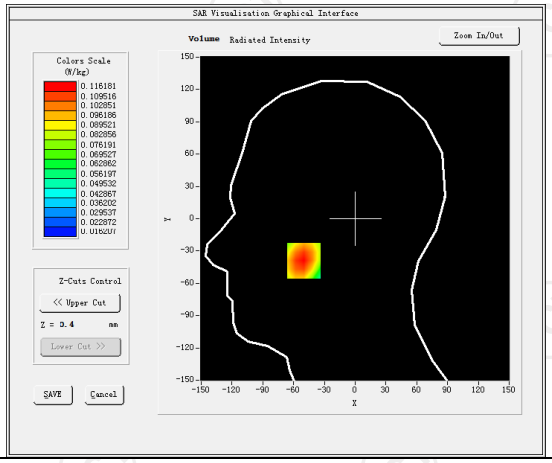
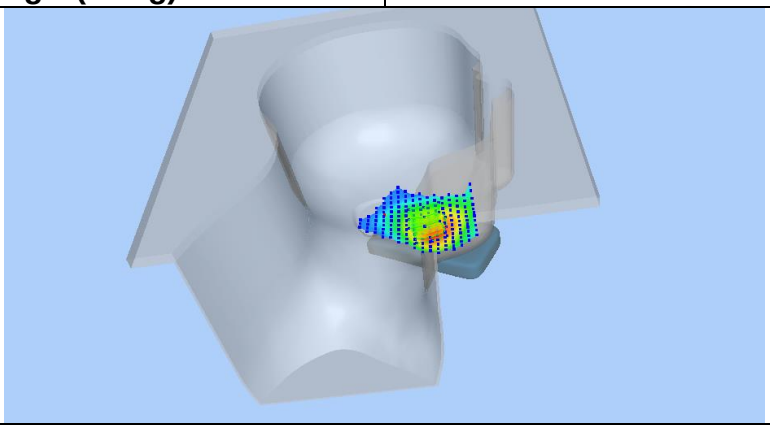
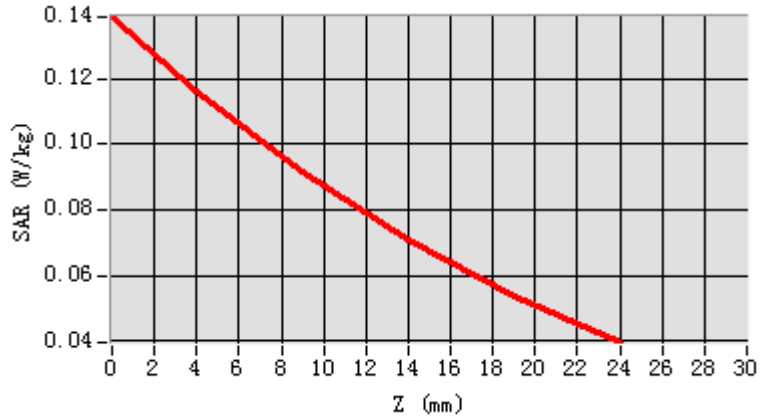
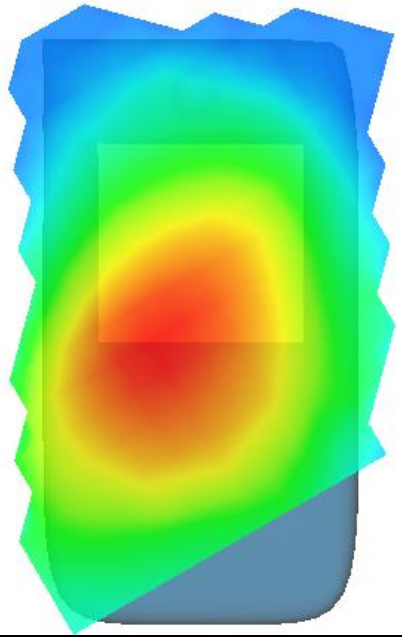
LTE Band 17

MEASUREMENT 1	
Middle Band SAR (Channel 23780):	Date: 05/30/2023
Frequency (MHz)	709.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	0.720000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 17(1 RB#24)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-50.00, Y=-39.00 SAR Peak: 0.14 W/kg	
SAR 10g (W/Kg)	0.081643
SAR 1g (W/Kg)	0.133733
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1390	0.1162	0.0916	0.0710	0.0539



Hot spot position



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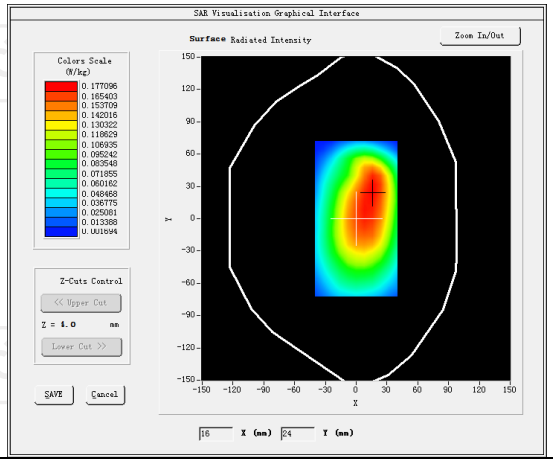
MEASUREMENT 2

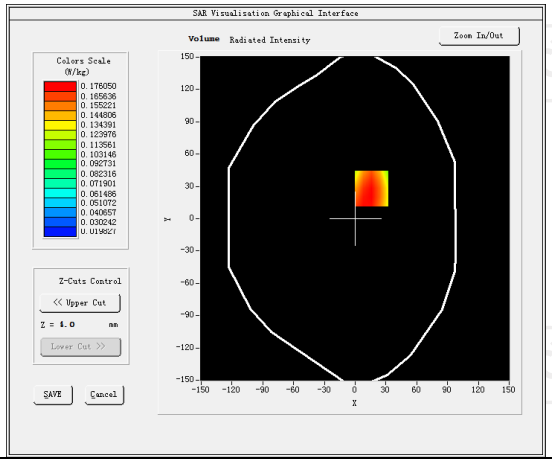
Middle Band SAR (Channel 23780): Date: 05/30/2023

Frequency (MHz)	709.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	0.290000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 17(1 RB#24)

SURFACE SAR

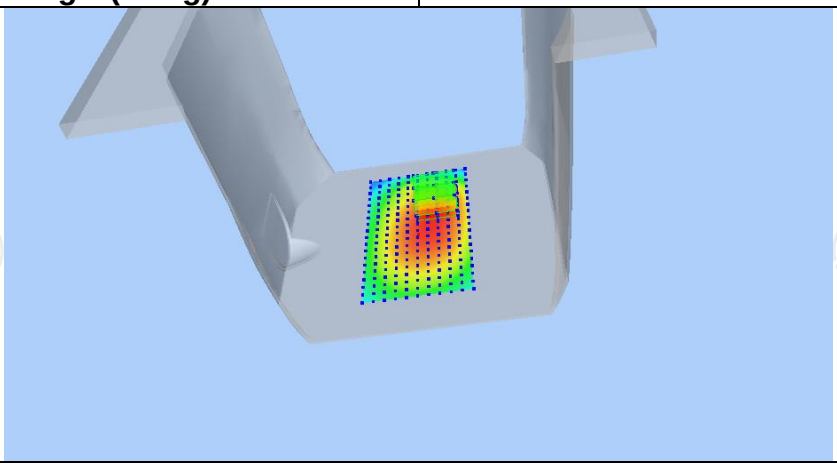


VOLUME SAR

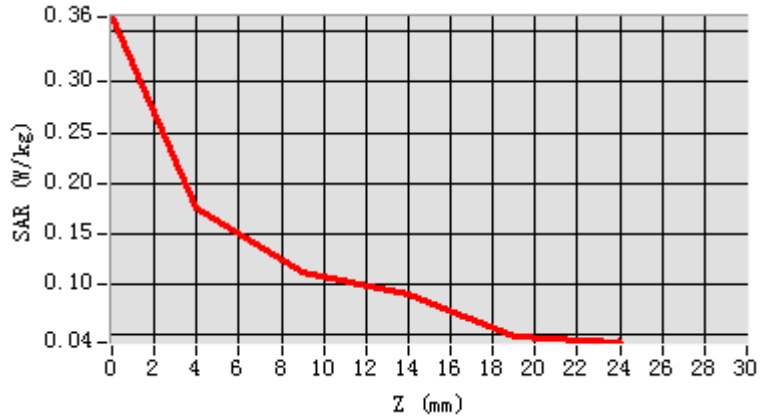


Maximum location: X=16.00, Y=28.00 SAR Peak: 0.23 W/kg

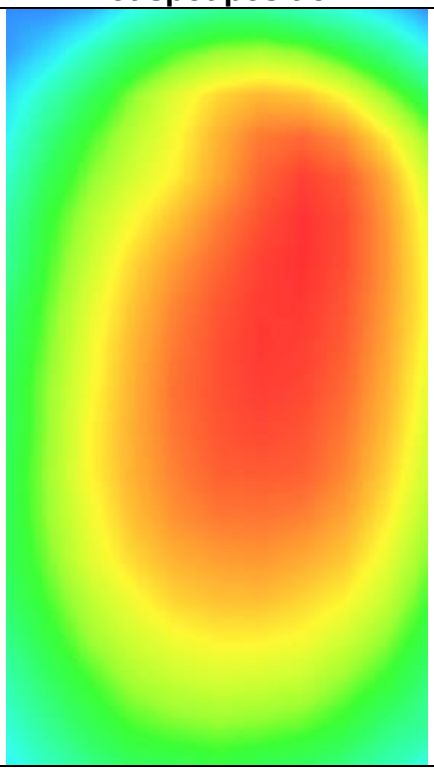
SAR 10g (W/Kg)	0.122715
SAR 1g (W/Kg)	0.180877



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3647	0.1761	0.1123	0.0891	0.0484



Hot spot position

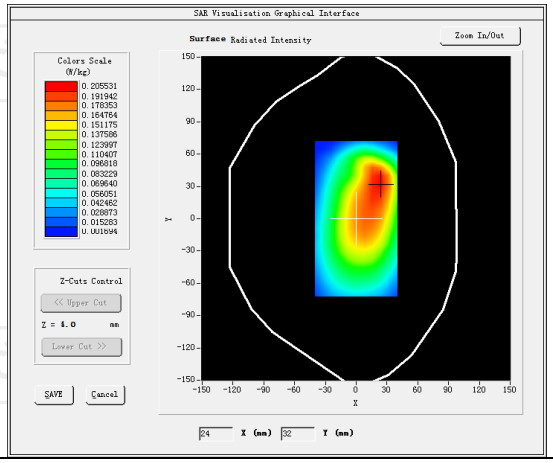


MEASUREMENT 3

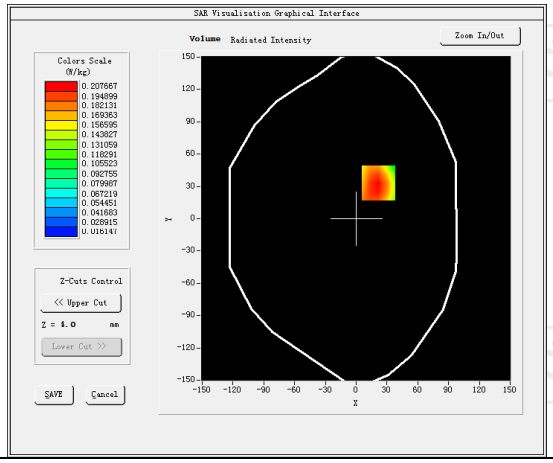
Middle Band SAR (Channel 23780): Date: 05/30/2023

Frequency (MHz)	709.000000
Relative permittivity (real part)	40.761260
Relative permittivity (imaginary part)	17.130904
Conductivity (S/m)	0.931220
Variation (%)	0.170000
Crest Factor	1.0
Probe Conversion factor	1.71
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back(hotspot 10mm)
Band	LTE band 17(1 RB#24)

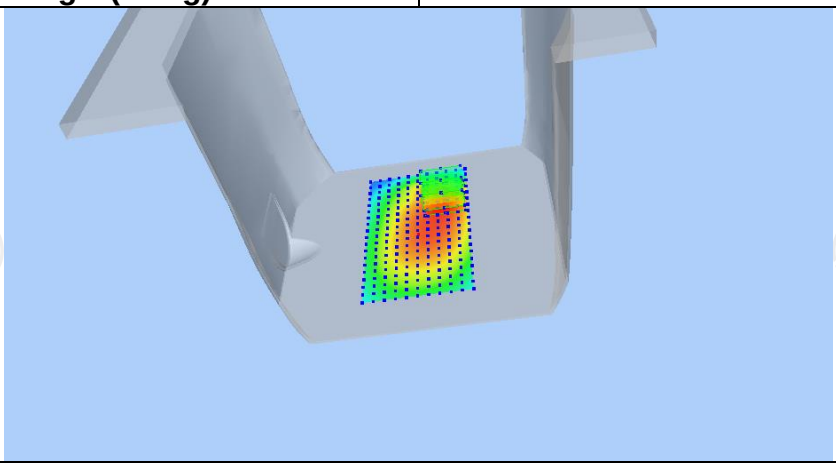
SURFACE SAR



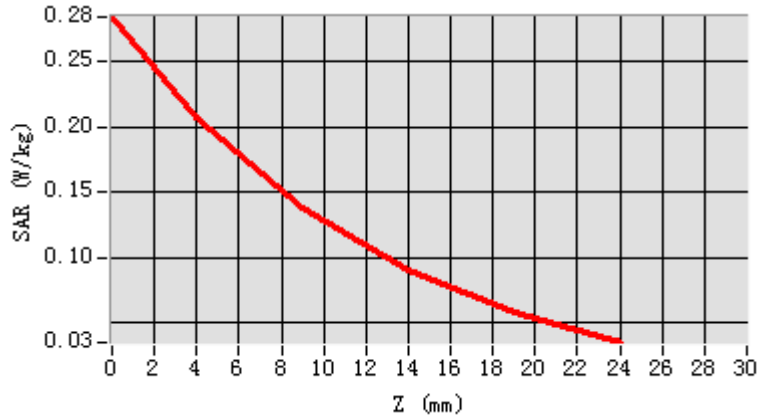
VOLUME SAR



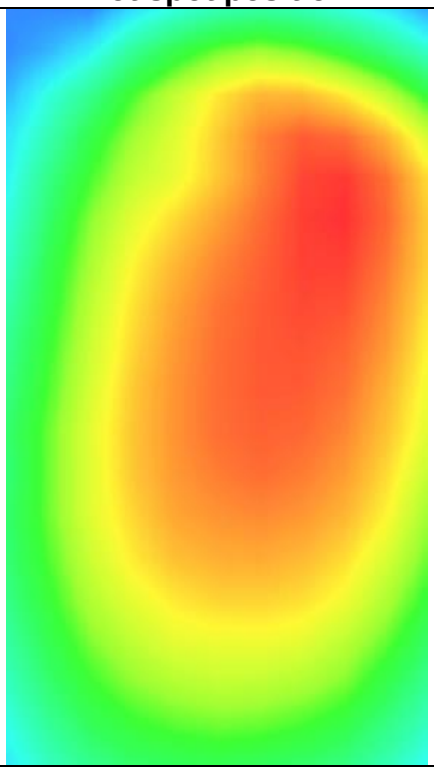
Maximum location: X=22.00, Y=33.00 SAR Peak: 0.29 W/kg	
SAR 10g (W/Kg)	0.138321
SAR 1g (W/Kg)	0.211390



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2842	0.2077	0.1378	0.0901	0.0578



Hot spot position



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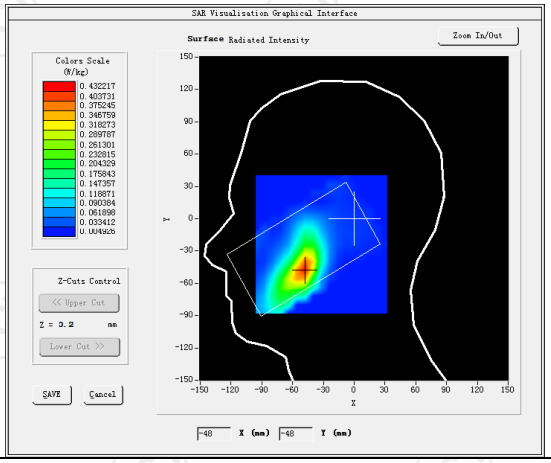
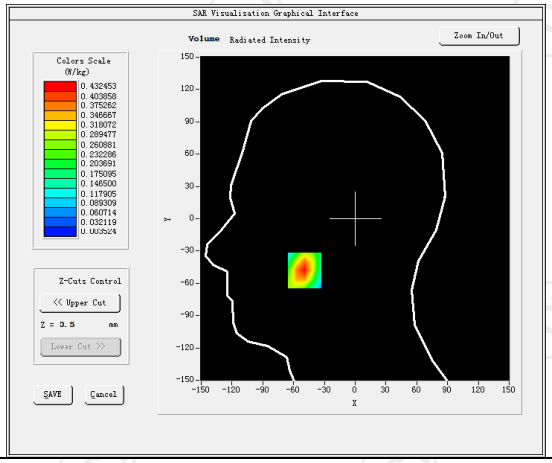
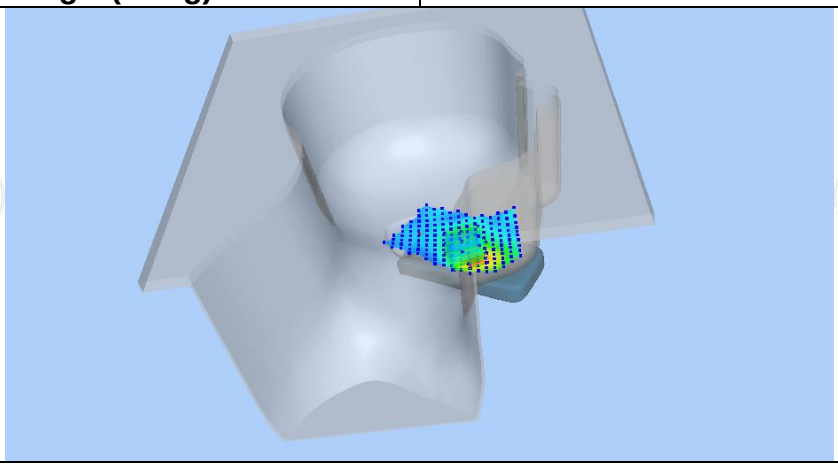
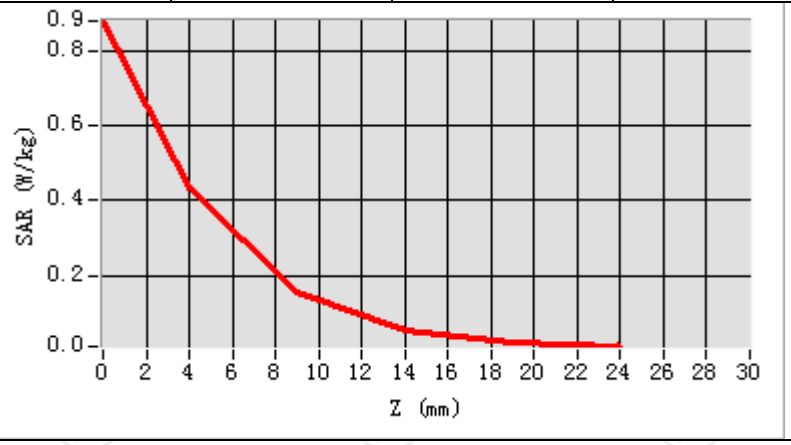
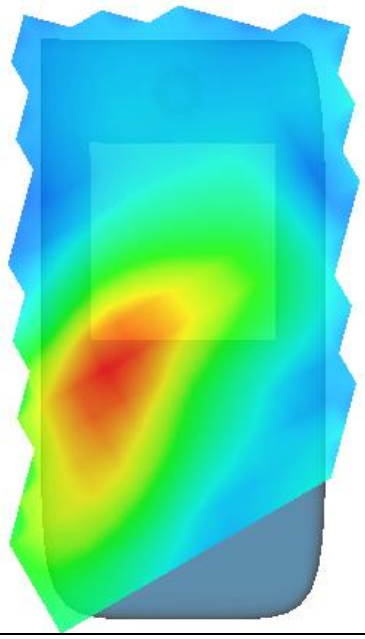
LTE Band 25

MEASUREMENT 1	
Lower Band SAR (Channel 26140):	Date: 06/13/2023
Frequency (MHz)	1860.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.390000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 25(50 RB#25)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-49.00, Y=-48.00 SAR Peak: 0.88 W/kg	
SAR 10g (W/Kg)	0.184588
SAR 1g (W/Kg)	0.420219
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8804	0.4325	0.1545	0.0508	0.0199



Hot spot position

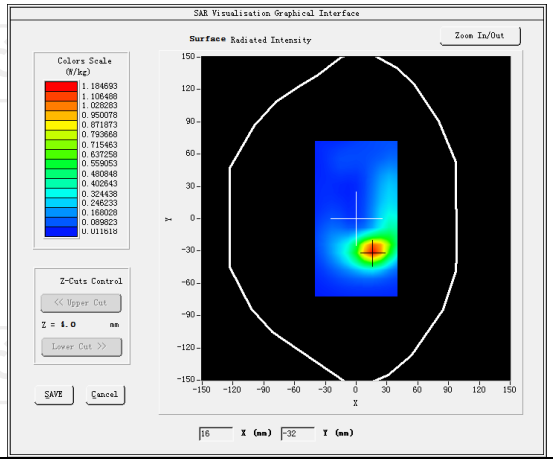


MEASUREMENT 2

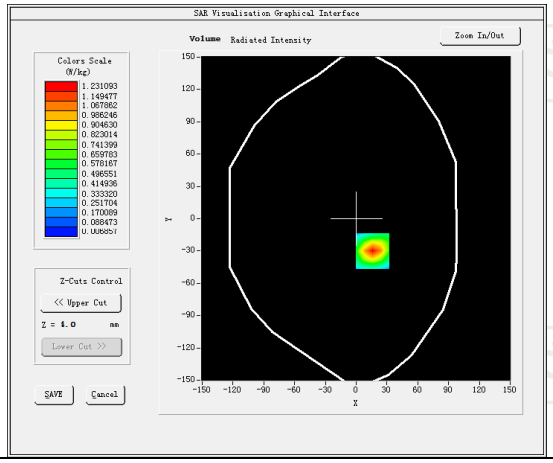
Lower Band SAR (Channel 26140): Date: 06/13/2023

Frequency (MHz)	1860.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.230000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 25(1 RB#0)

SURFACE SAR

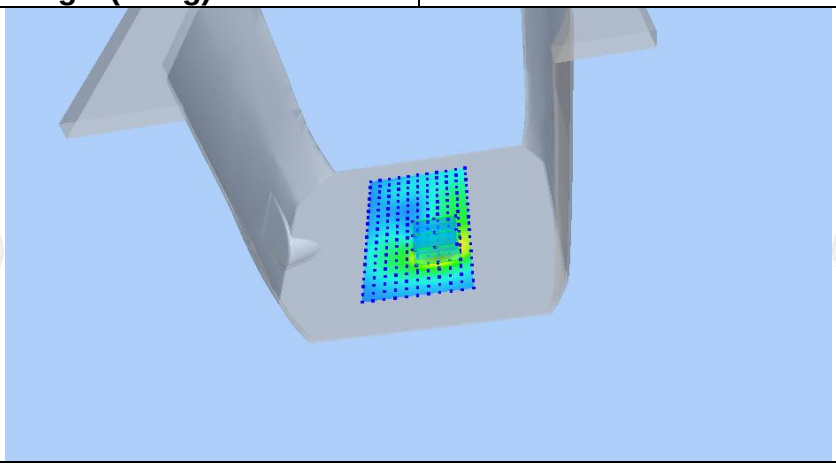


VOLUME SAR

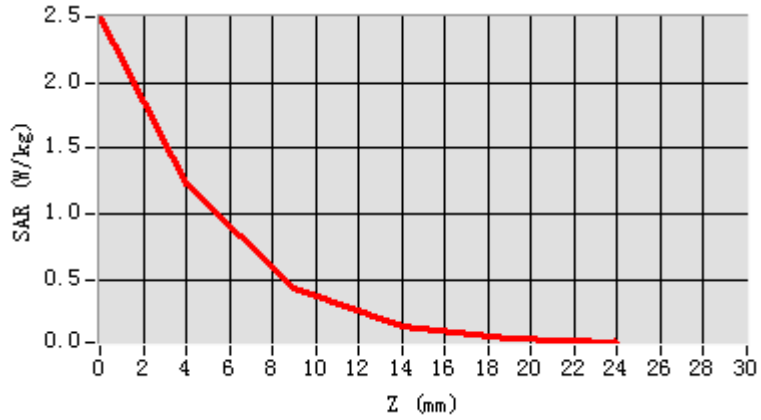


Maximum location: X=16.00, Y=-30.00 SAR Peak: 2.49 W/kg

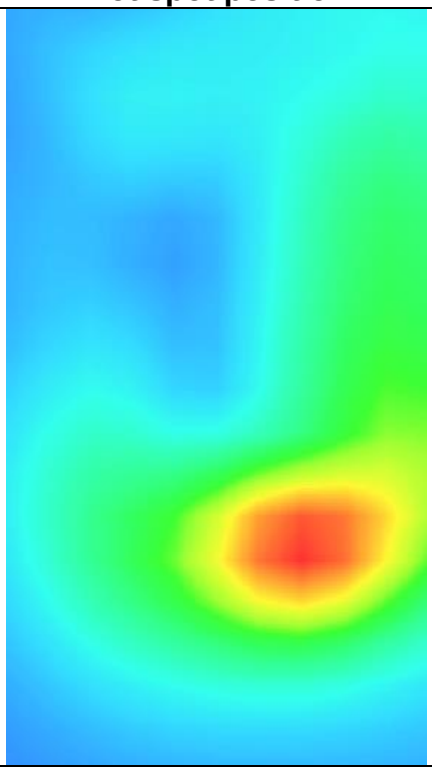
SAR 10g (W/Kg)	0.285495
SAR 1g (W/Kg)	0.429891



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.4978	1.2311	0.4399	0.1414	0.0507



Hot spot position



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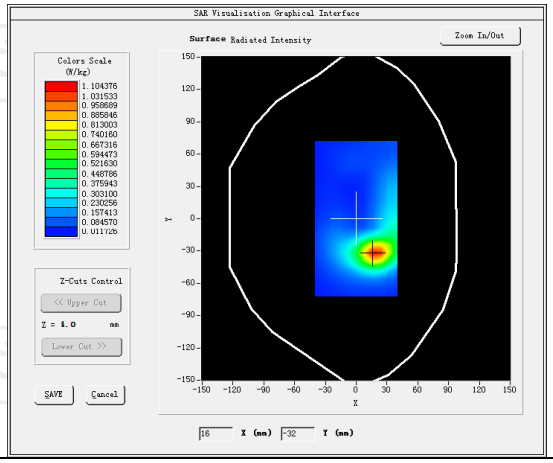
MEASUREMENT 3

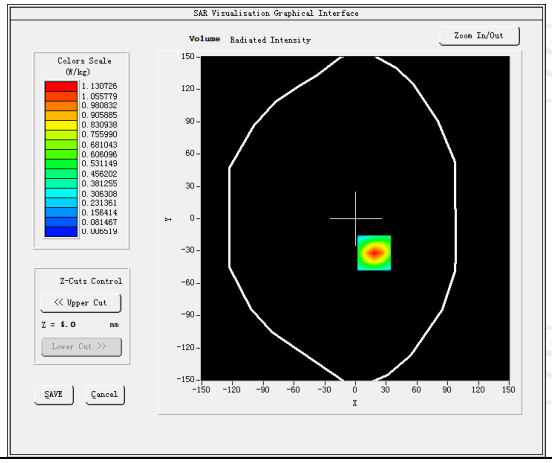
Lower Band SAR (Channel 26140): Date: 06/13/2023

Frequency (MHz)	1860.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.070000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 25(50 RB#25)

SURFACE SAR

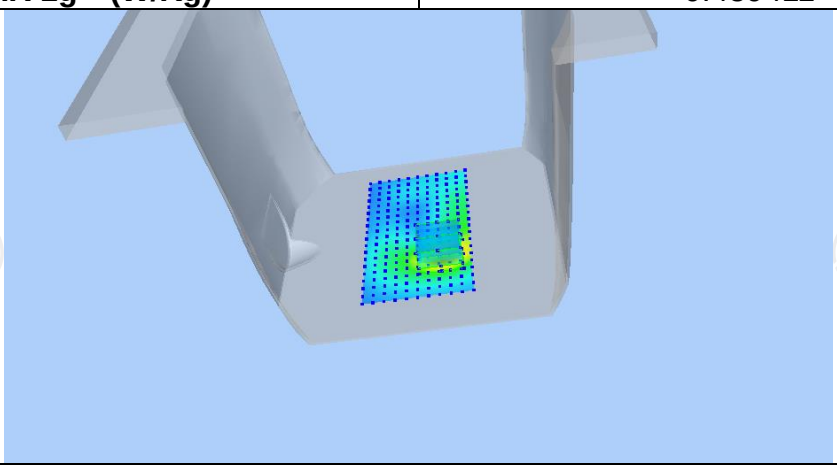


VOLUME SAR

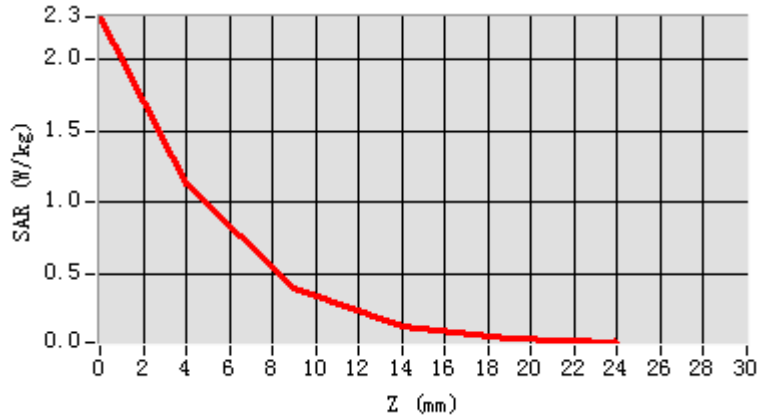


Maximum location: X=18.00, Y=-32.00 SAR Peak: 2.29 W/kg

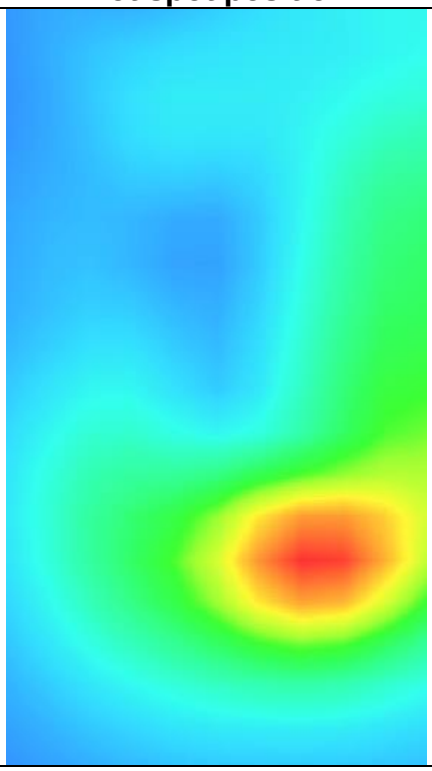
SAR 10g (W/Kg)	0.370208
SAR 1g (W/Kg)	0.459411



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.2975	1.1307	0.4031	0.1294	0.0466



Hot spot position



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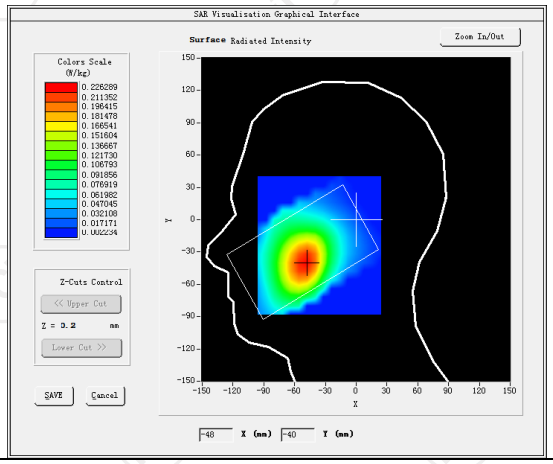
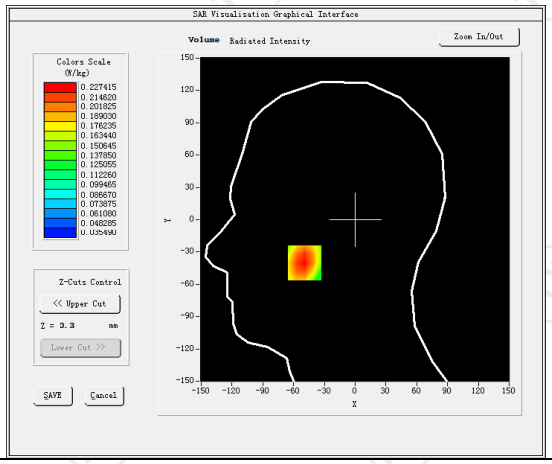
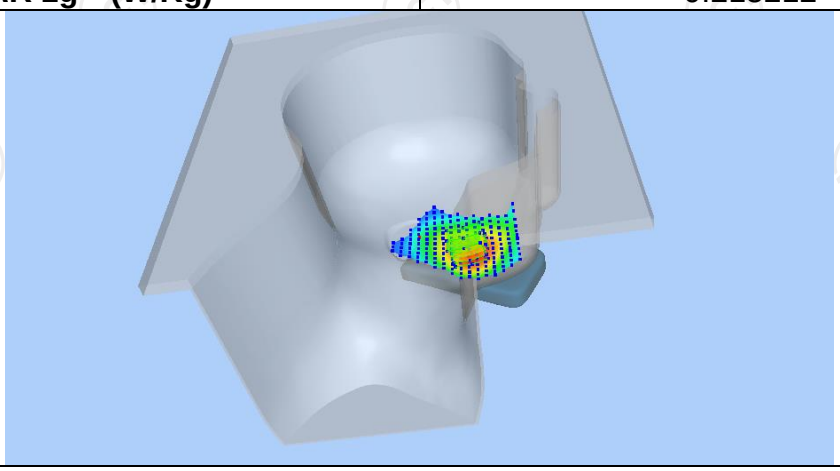
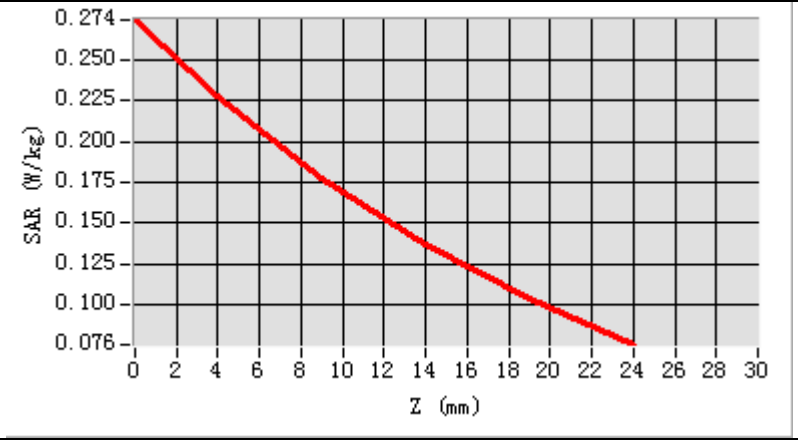
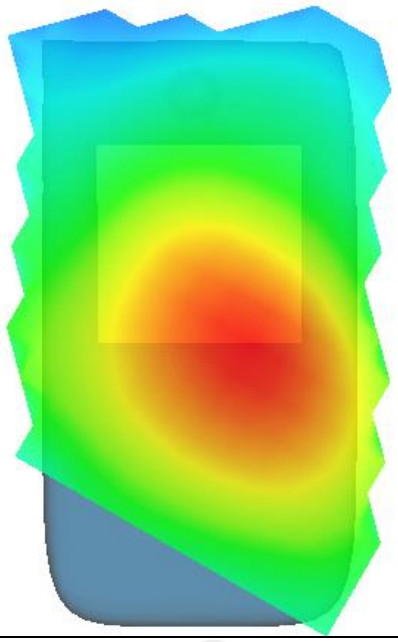
LTE Band 26-1

MEASUREMENT 1	
Lower Band SAR (Channel 26740):	Date: 06/02/2023
Frequency (MHz)	819.000000
Relative permittivity (real part)	41.751766
Relative permittivity (imaginary part)	20.633648
Conductivity (S/m)	0.895844
Variation (%)	1.320000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 26(1 RB#0)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-40.00, Y=-41.00 SAR Peak: 0.17 W/kg	
SAR 10g (W/Kg)	0.157551
SAR 1g (W/Kg)	0.215212
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2741	0.2262	0.1734	0.1371	0.1037



Hot spot position



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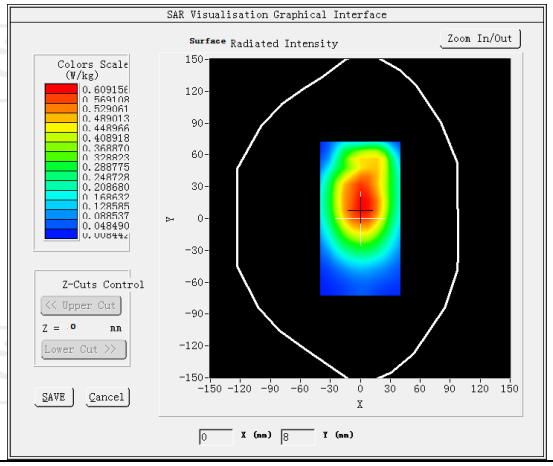
MEASUREMENT 2

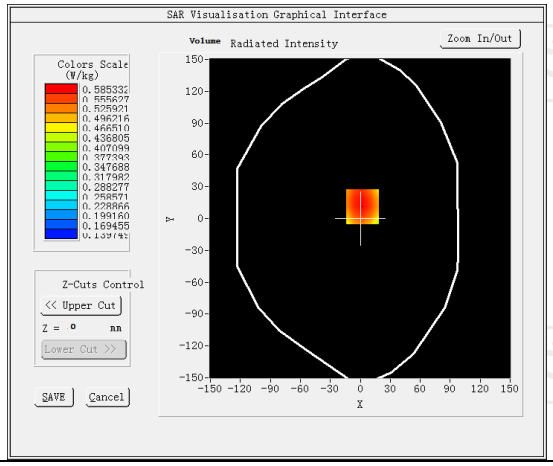
Lower Band SAR (Channel 26740): Date: 06/02/2023

Frequency (MHz)	819.000000
Relative permittivity (real part)	41.751766
Relative permittivity (imaginary part)	20.633648
Conductivity (S/m)	0.895844
Variation (%)	1.100000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 26(1 RB#0)

SURFACE SAR

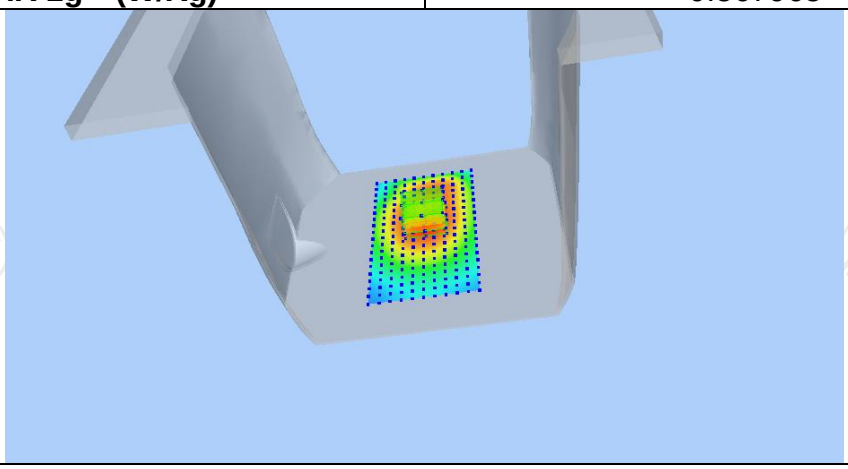


VOLUME SAR

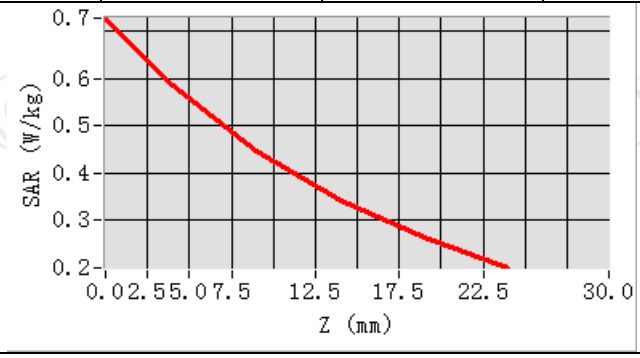


Maximum location: X=2.00, Y=11.00 SAR Peak: 0.74 W/kg

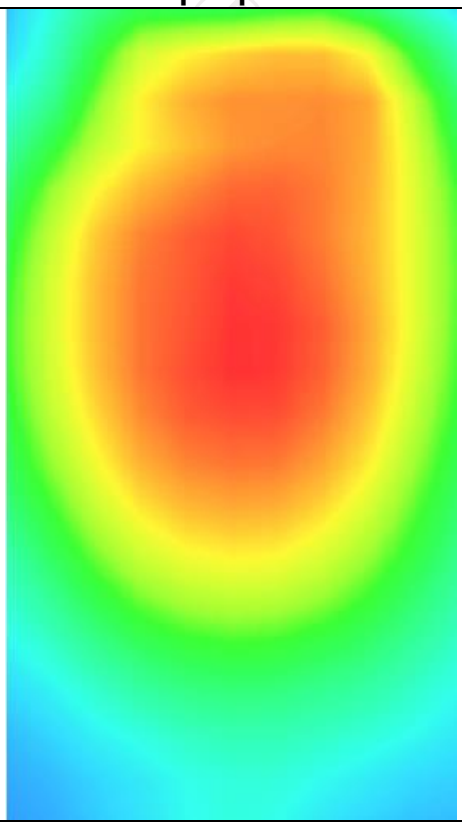
SAR 10g (W/Kg)	0.416492
SAR 1g (W/Kg)	0.567965



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7270	0.5853	0.4458	0.3411	0.2622



Hot spot position

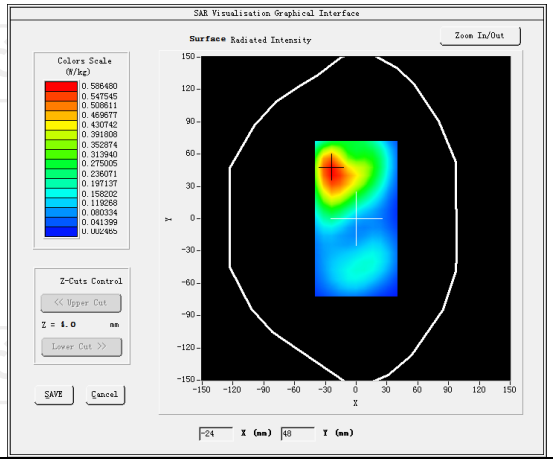


MEASUREMENT 3

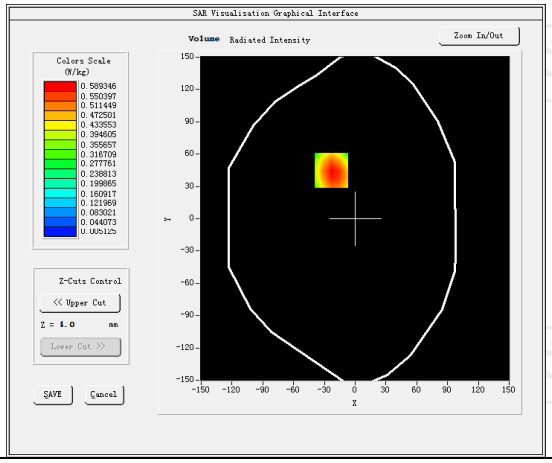
Lower Band SAR (Channel 26740): Date: 06/02/2023

Frequency (MHz)	819.000000
Relative permittivity (real part)	41.751766
Relative permittivity (imaginary part)	20.633648
Conductivity (S/m)	0.895844
Variation (%)	2.340000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 26(1 RB#0)

SURFACE SAR

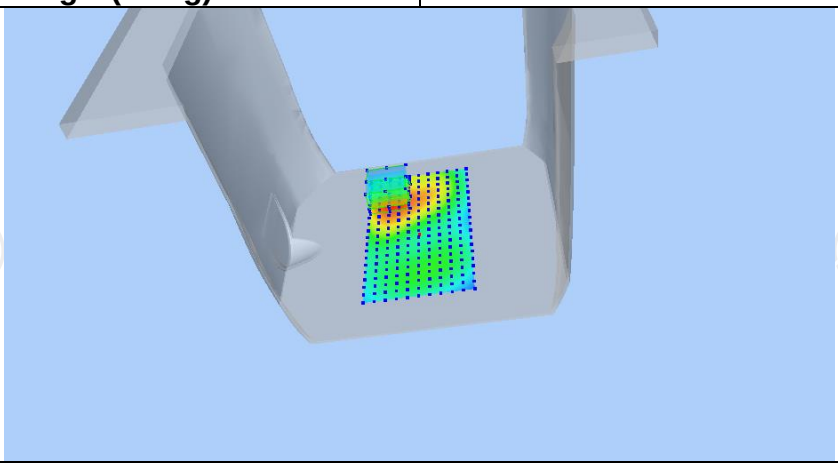


VOLUME SAR

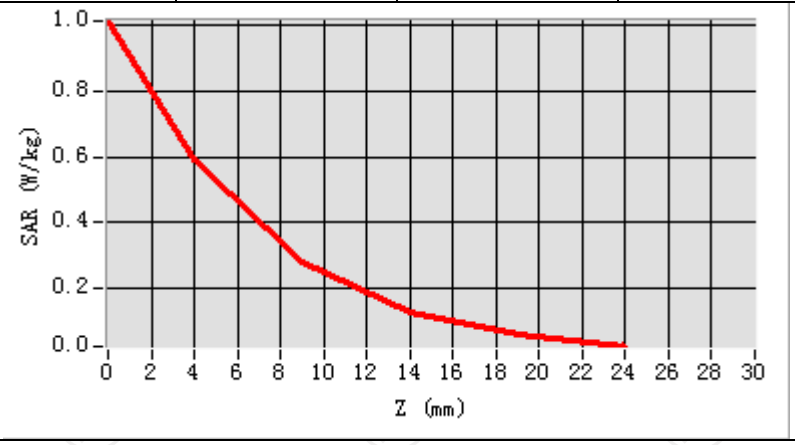


Maximum location: X=-21.00, Y=40.00 SAR Peak: 1.00 W/kg

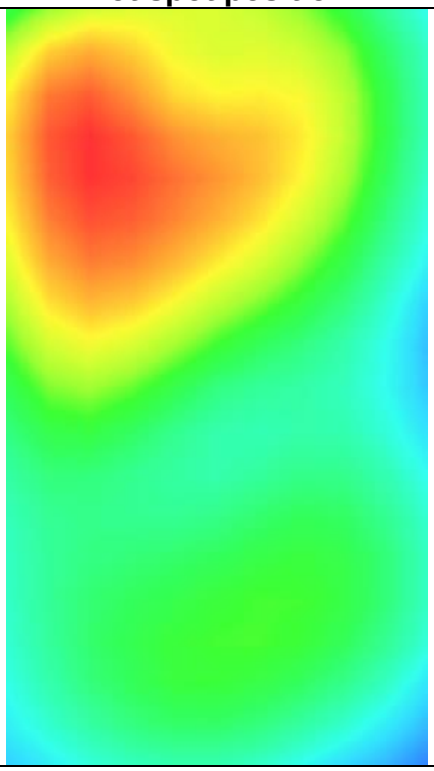
SAR 10g (W/Kg)	0.297565
SAR 1g (W/Kg)	0.496932



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0151	0.5893	0.2786	0.1246	0.0547



Hot spot position



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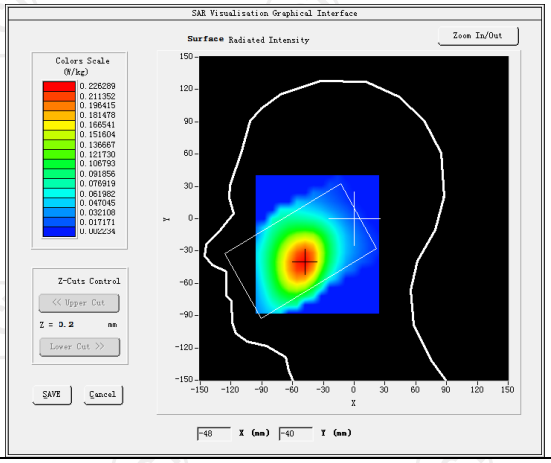
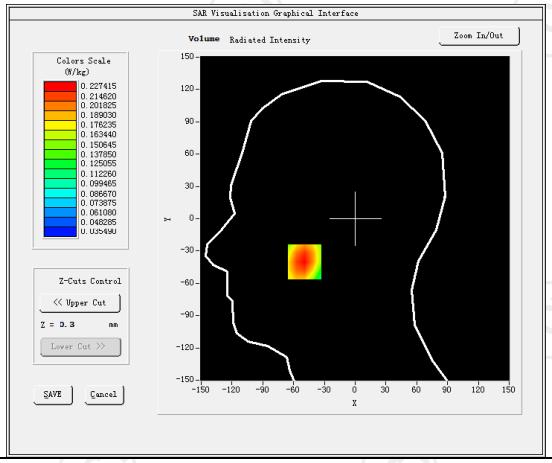
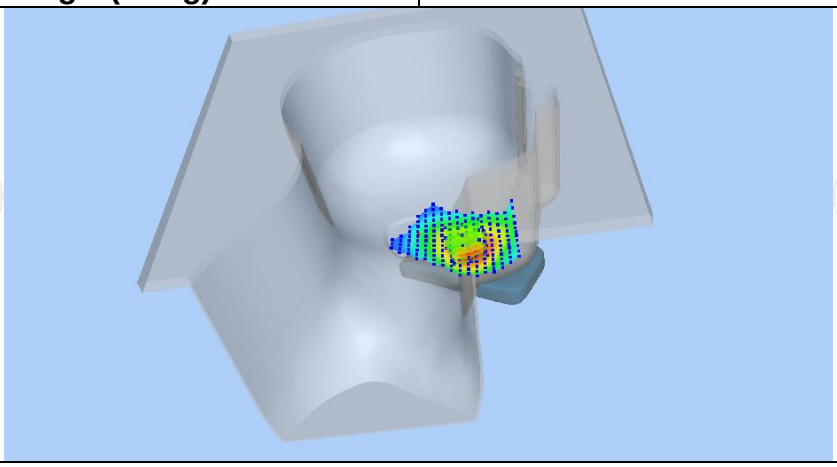
LTE Band 26-2

MEASUREMENT 1	
High Band SAR (Channel 26965):	Date: 06/02/2023
Frequency (MHz)	841.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	3.110000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 26(1 RB#0)
SURFACE SAR	**VOLUME SAR**

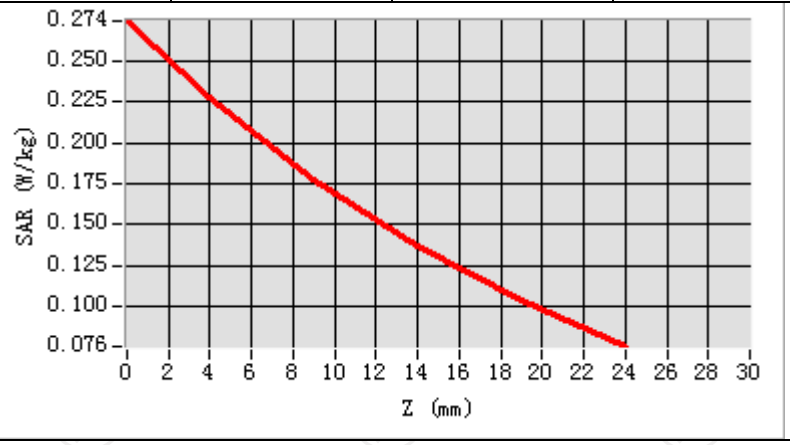




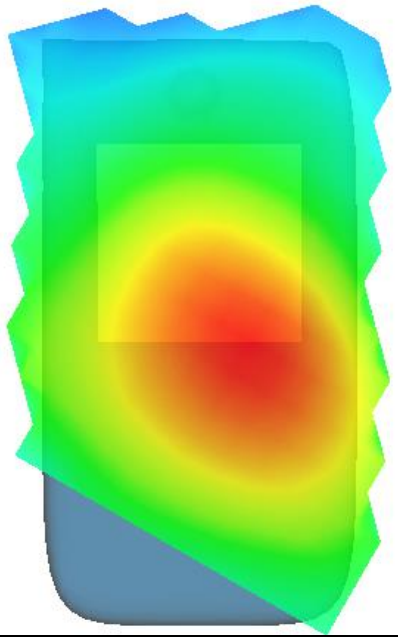
Maximum location: X=-40.00, Y=-41.00 SAR Peak: 0.17 W/kg	
SAR 10g (W/Kg)	0.157551
SAR 1g (W/Kg)	0.275212



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2741	0.2262	0.1734	0.1371	0.1037



Hot spot position

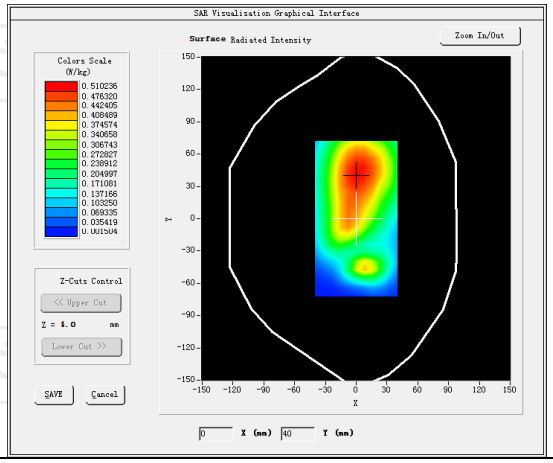


MEASUREMENT 2

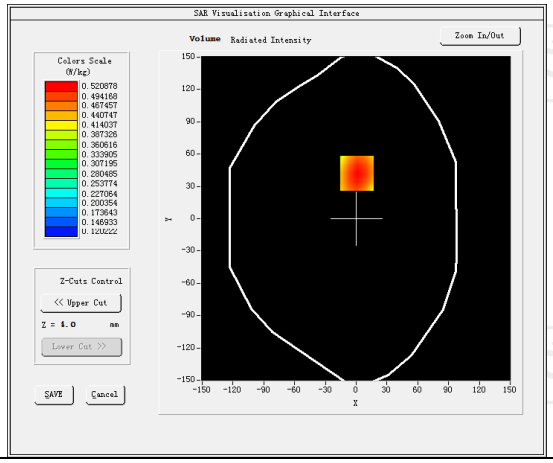
High Band SAR (Channel 26965): Date: 06/02/2023

Frequency (MHz)	841.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	2.200000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 26(1 RB#0)

SURFACE SAR

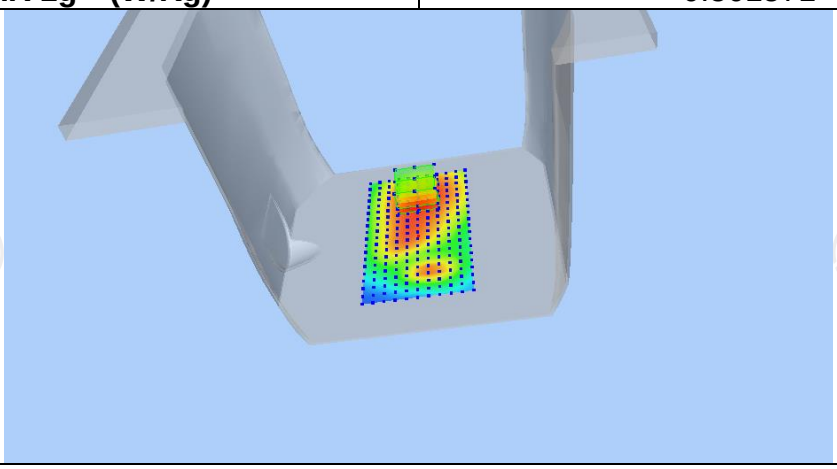


VOLUME SAR

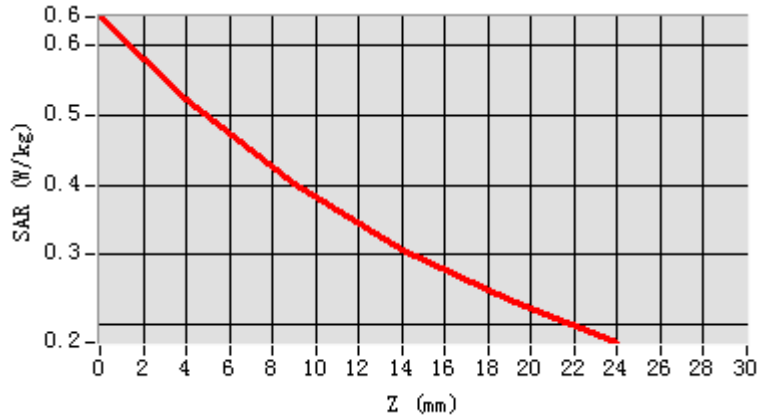


Maximum location: X=2.00, Y=32.00 SAR Peak: 0.52 W/kg

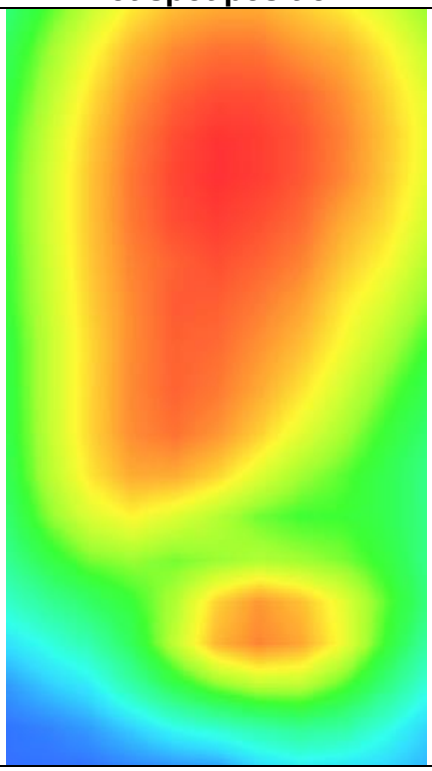
SAR 10g (W/Kg)	0.371244
SAR 1g (W/Kg)	0.501571



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6443	0.5218	0.4011	0.3054	0.2324



Hot spot position



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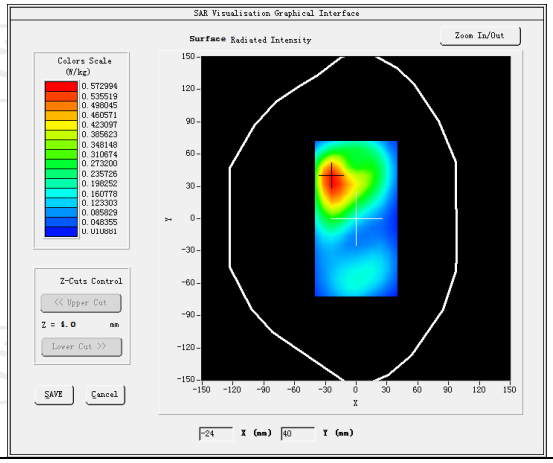
MEASUREMENT 3

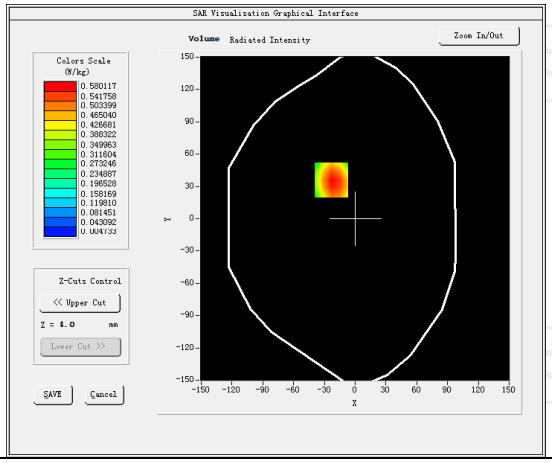
High Band SAR (Channel 26965): Date: 06/02/2023

Frequency (MHz)	841.500000
Relative permittivity (real part)	41.417760
Relative permittivity (imaginary part)	18.129852
Conductivity (S/m)	0.874923
Variation (%)	2.200000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 26(1 RB#0)

SURFACE SAR

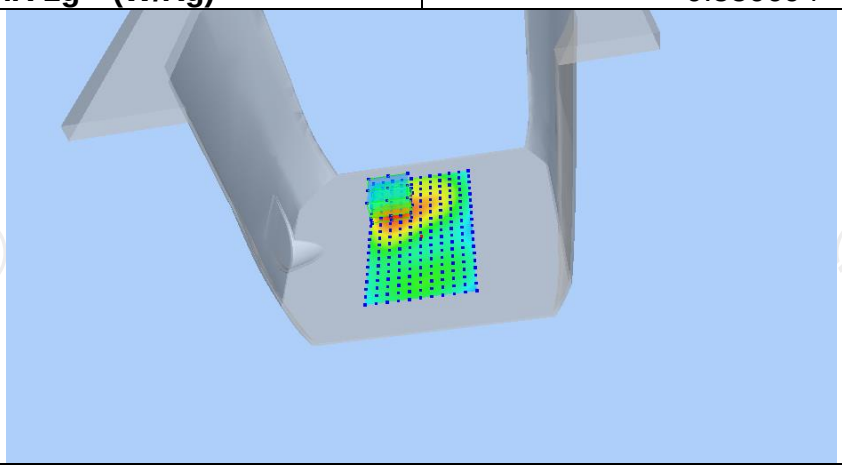


VOLUME SAR

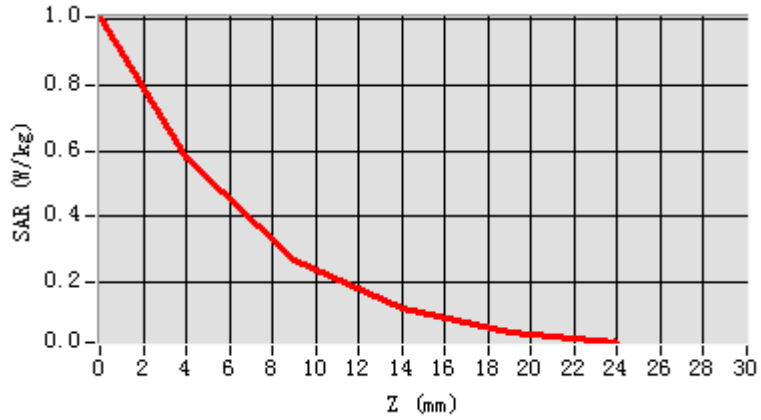


Maximum location: X=-23.00, Y=36.00 SAR Peak: 1.01 W/kg

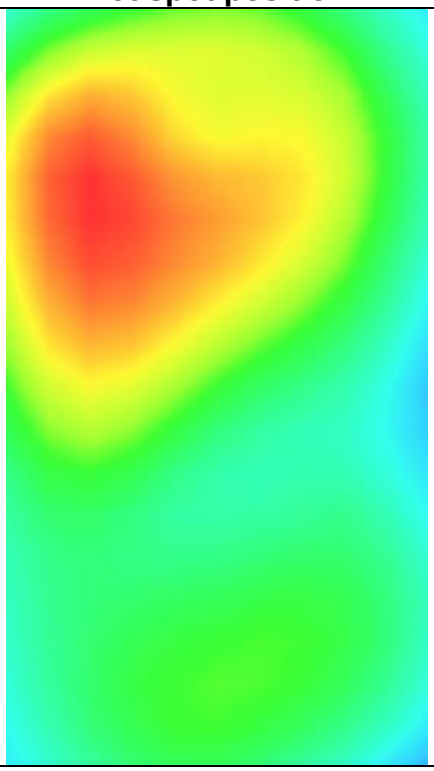
SAR 10g (W/Kg)	0.289505
SAR 1g (W/Kg)	0.556694



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0050	0.5801	0.2718	0.1204	0.0526



Hot spot position



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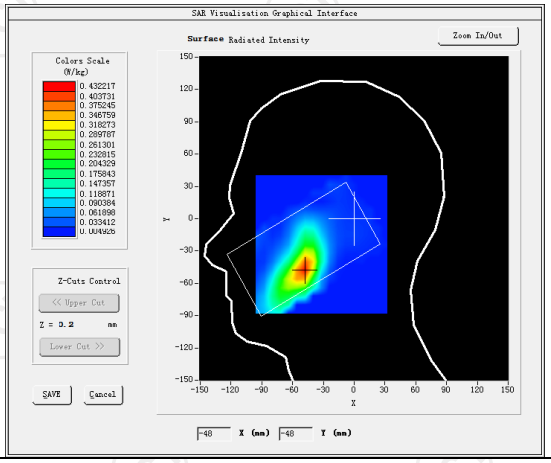
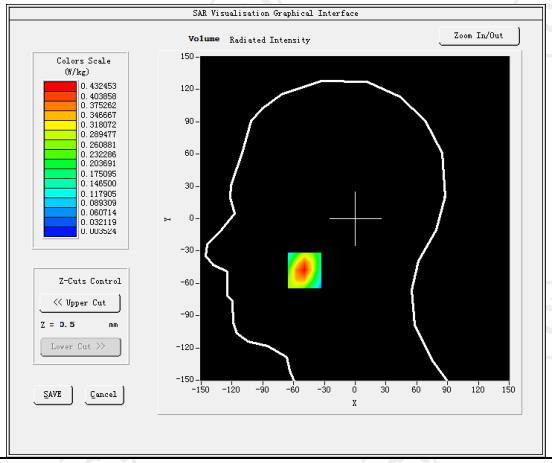
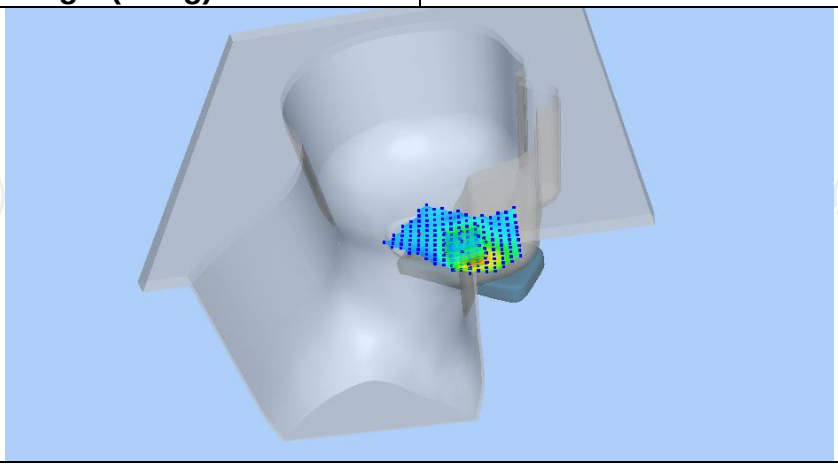
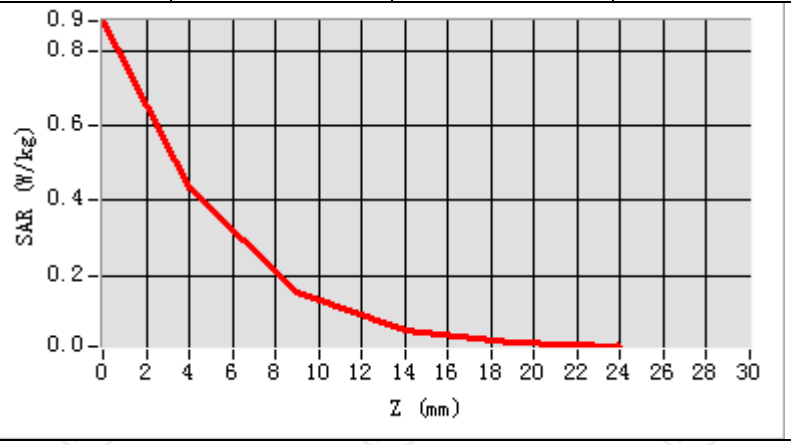
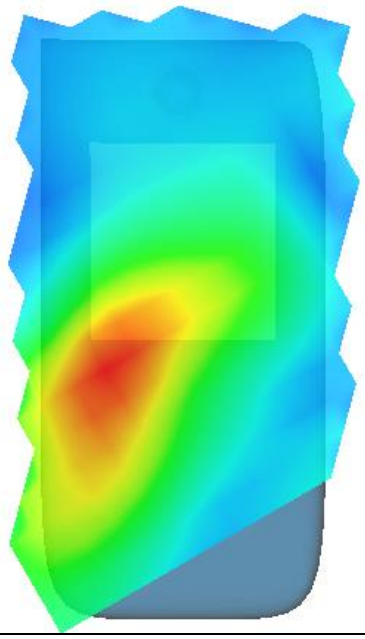
LTE Band 30

MEASUREMENT 1	
Low Band SAR (Channel 27710):	Date: 06/17/2023
Frequency (MHz)	2310.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.390000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 30(25 RB#0)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-49.00, Y=-48.00 SAR Peak: 0.88 W/kg	
SAR 10g (W/Kg)	0.184588
SAR 1g (W/Kg)	0.420219
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8804	0.4325	0.1545	0.0508	0.0199



Hot spot position

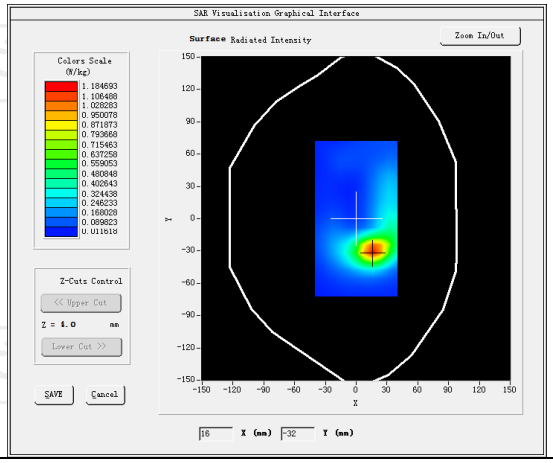


MEASUREMENT 2

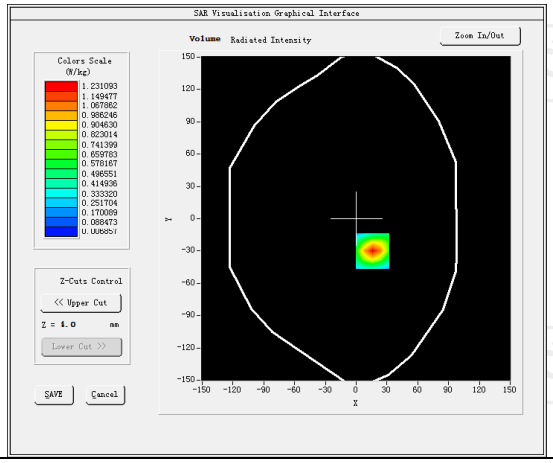
Low Band SAR (Channel 27710): Date: 06/17/2023

Frequency (MHz)	2310.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.230000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 30(25 RB#0)

SURFACE SAR

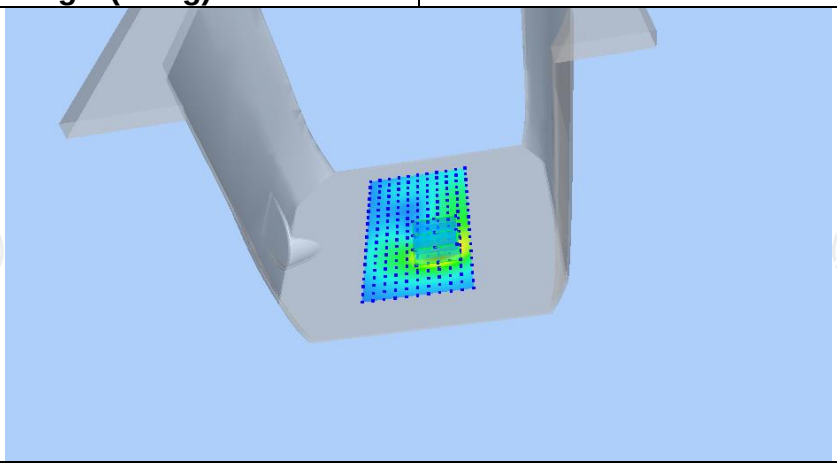


VOLUME SAR

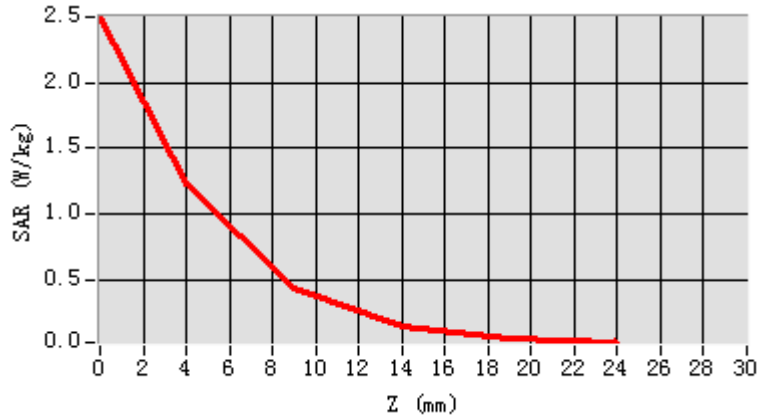


Maximum location: X=16.00, Y=-30.00 SAR Peak: 2.49 W/kg

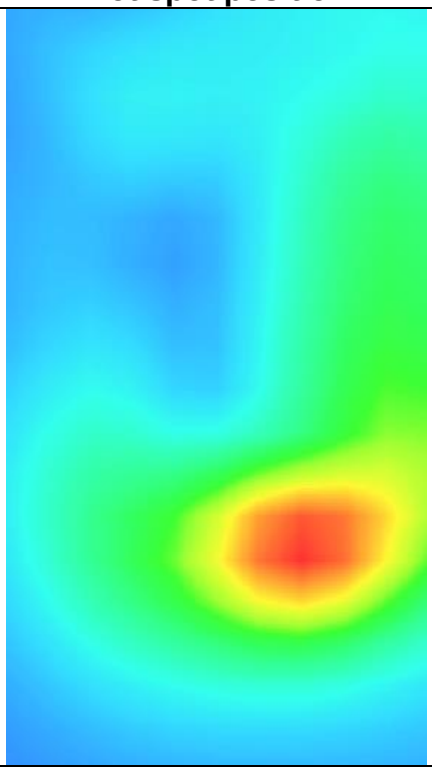
SAR 10g (W/Kg)	0.985495
SAR 1g (W/Kg)	0.429891



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.4978	1.2311	0.4399	0.1414	0.0507



Hot spot position



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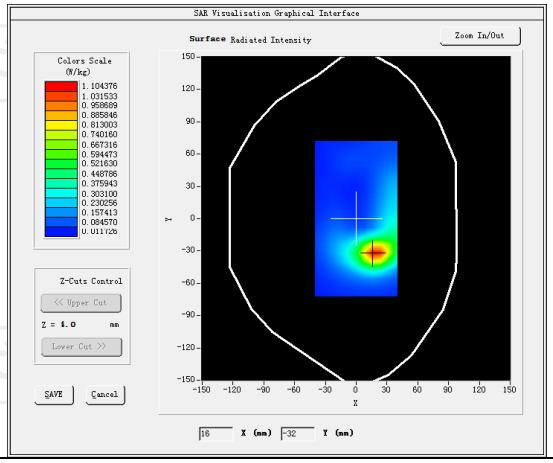
MEASUREMENT 3

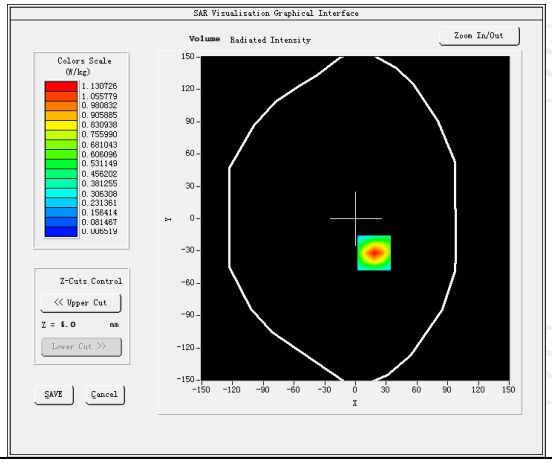
Low Band SAR (Channel 27710): Date: 06/17/2023

Frequency (MHz)	2310.000000
Relative permittivity (real part)	38.853477
Relative permittivity (imaginary part)	13.545489
Conductivity (S/m)	1.922567
Variation (%)	-0.070000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 7(25 RB#0)

SURFACE SAR

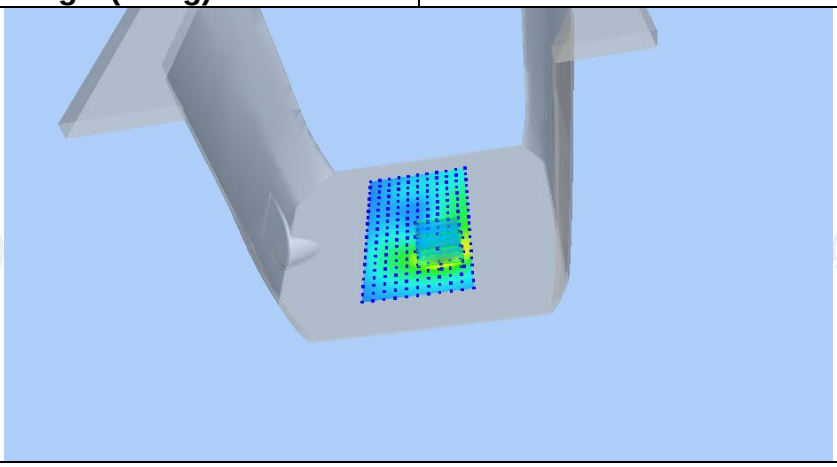


VOLUME SAR

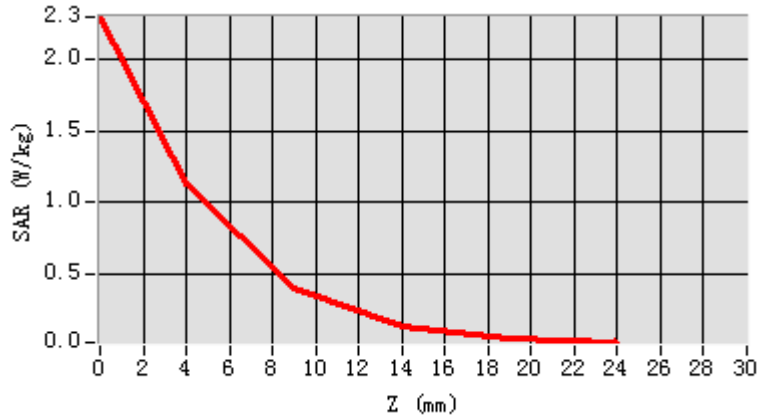


Maximum location: X=18.00, Y=-32.00 SAR Peak: 2.29 W/kg

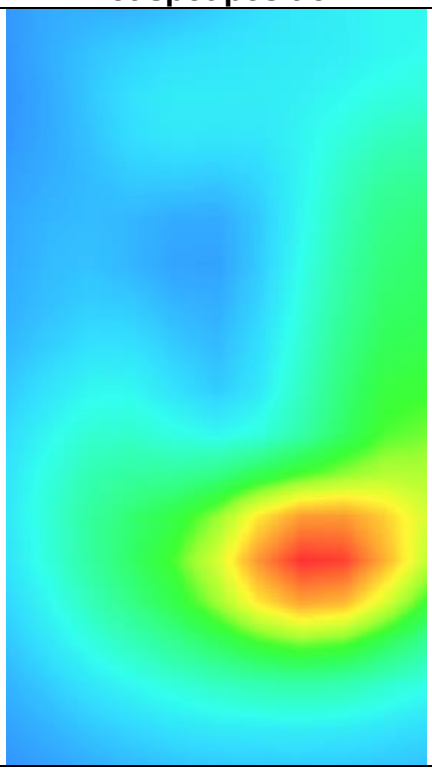
SAR 10g (W/Kg)	0.970208
SAR 1g (W/Kg)	0.459411



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.2975	1.1307	0.4031	0.1294	0.0466



Hot spot position



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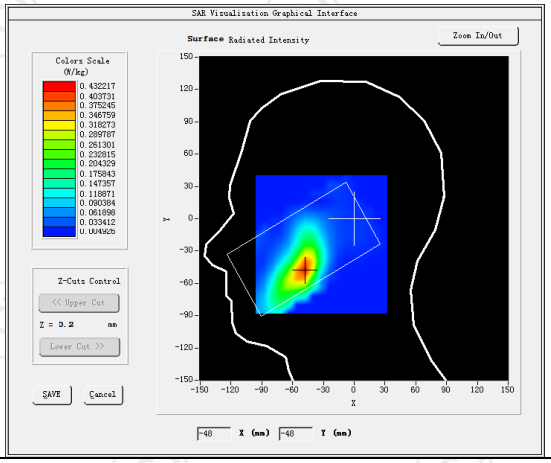
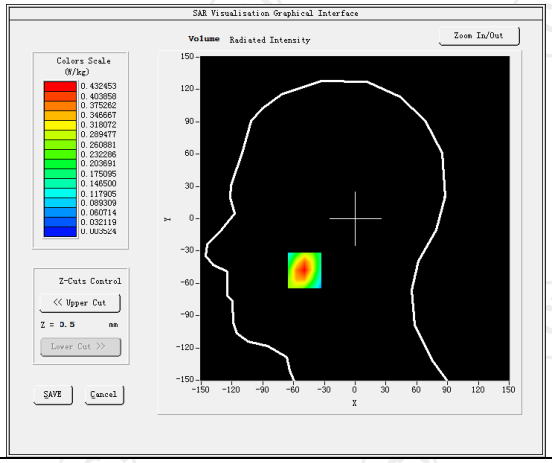
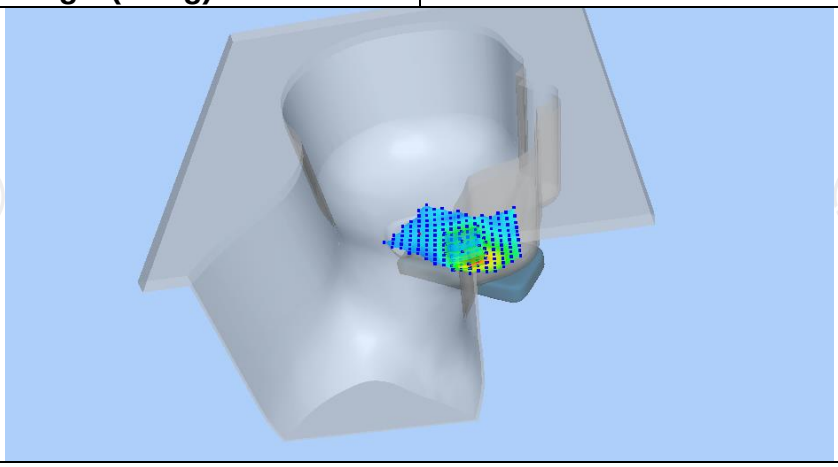
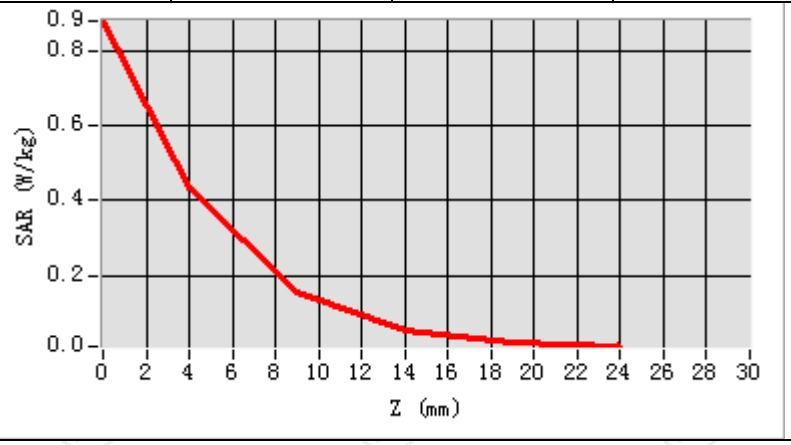
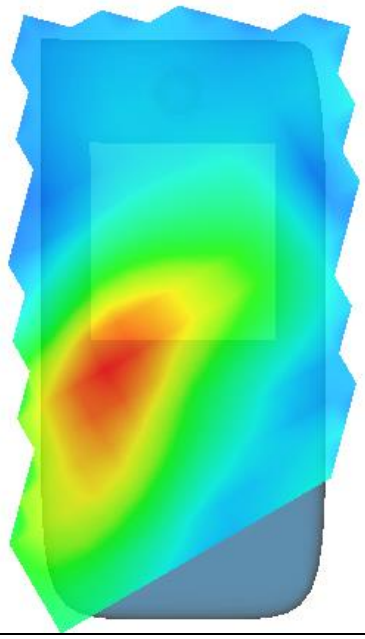
LTE Band 66

MEASUREMENT 1	
High Band SAR (Channel 132572):	Date: 06/07/2023
Frequency (MHz)	1770.000000
Relative permittivity (real part)	40.115910
Relative permittivity (imaginary part)	14.136136
Conductivity (S/m)	1.360603
Variation (%)	-2.810000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE band 66(1 RB#99)
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-49.00, Y=-48.00 SAR Peak: 0.88 W/kg	
SAR 10g (W/Kg)	0.184588
SAR 1g (W/Kg)	0.420219
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8804	0.4325	0.1545	0.0508	0.0199



Hot spot position



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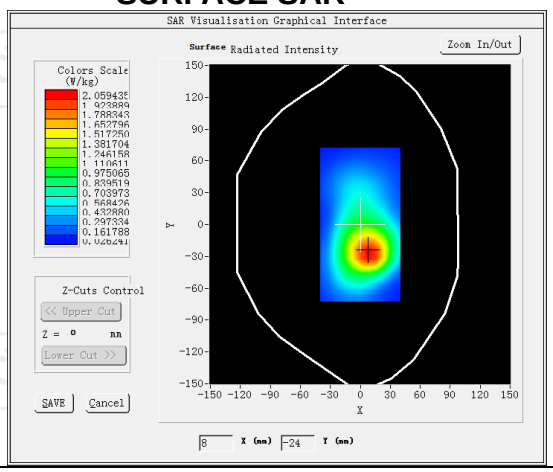
MEASUREMENT 2

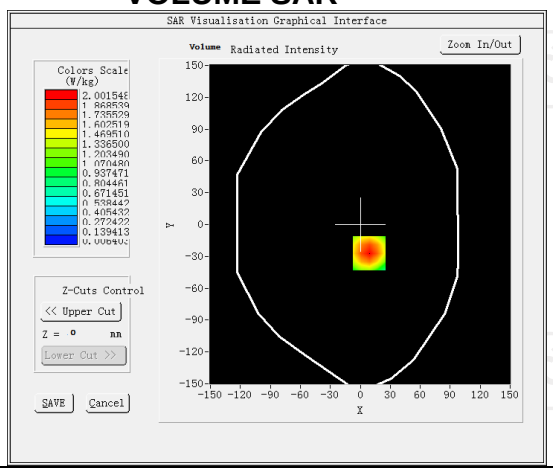
High Band SAR (Channel 132572): Date: 06/07/2023

Frequency (MHz)	1770.000000
Relative permittivity (real part)	40.115910
Relative permittivity (imaginary part)	14.136136
Conductivity (S/m)	1.360603
Variation (%)	-4.870000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	LTE band 66(1 RB#49)

SURFACE SAR

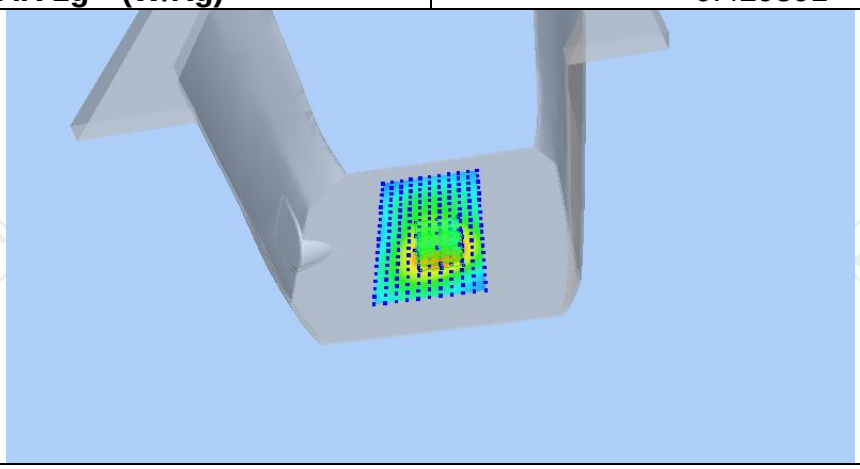


VOLUME SAR

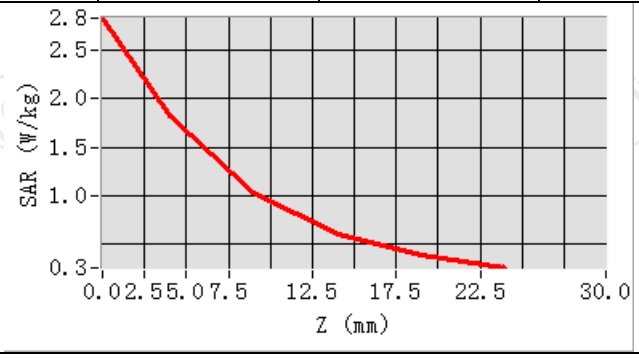


Maximum location: X=9.00, Y=-27.00 SAR Peak: 0.84W/kg

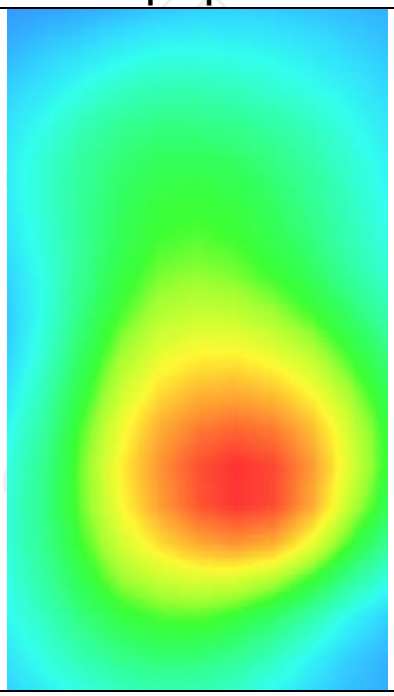
SAR 10g (W/Kg)	0.920140
SAR 1g (W/Kg)	0.429891



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.8300	1.8242	1.0400	0.6126	0.3918



Hot spot position



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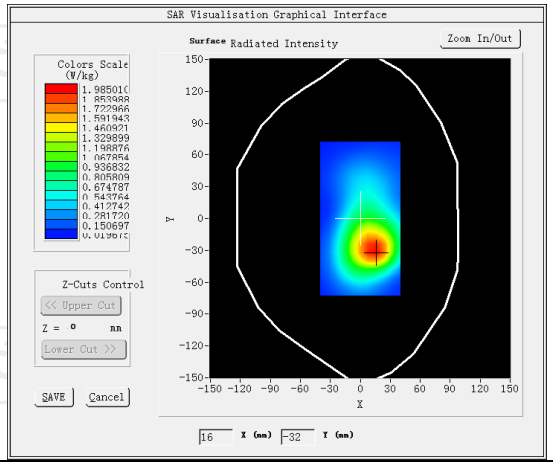
MEASUREMENT 3

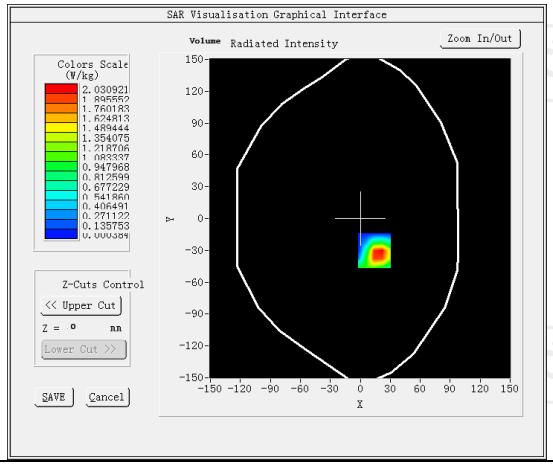
High Band SAR (Channel 132572): Date: 06/07/2023

Frequency (MHz)	1770.000000
Relative permittivity (real part)	40.115910
Relative permittivity (imaginary part)	14.136136
Conductivity (S/m)	1.360603
Variation (%)	-3.570000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(hotspot 10mm)
Band	LTE band 66(1 RB#49)

SURFACE SAR

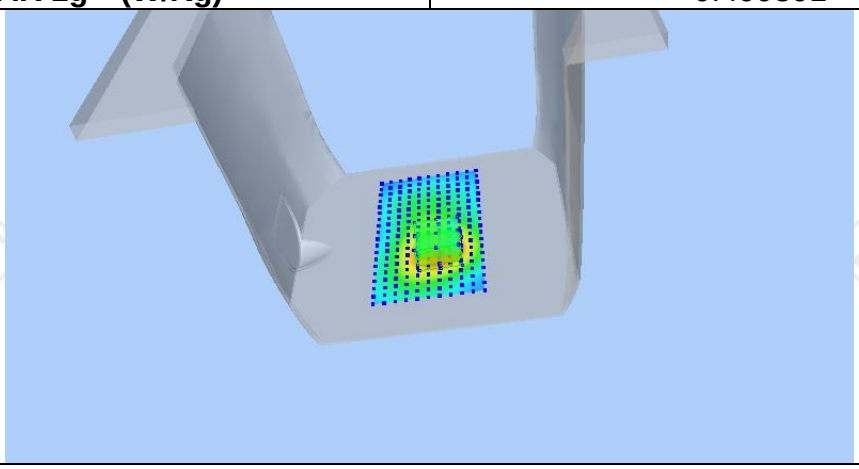


VOLUME SAR

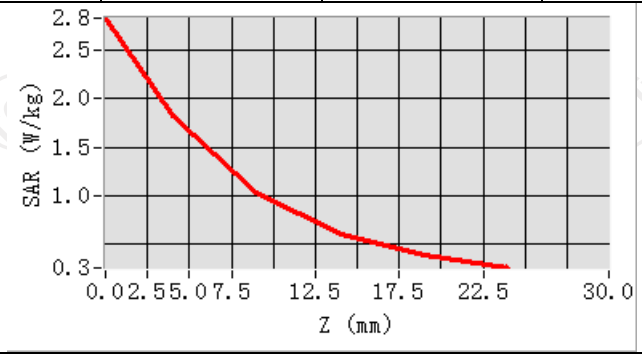


Maximum location: X=14.00, Y=-30.00 SAR Peak: 0.93W/kg

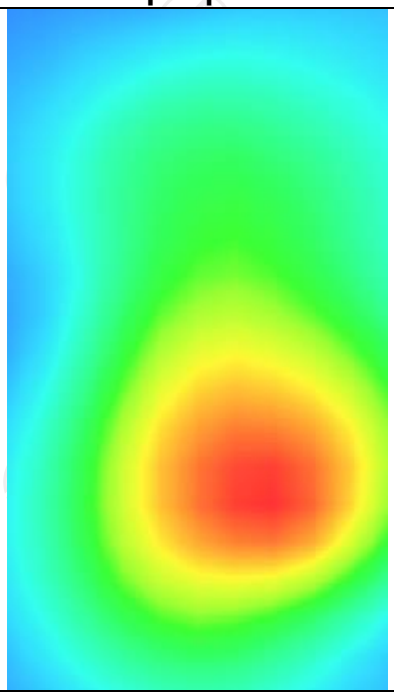
SAR 10g (W/Kg)	0.320140
SAR 1g (W/Kg)	0.499891



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	2.8300	1.8242	1.0400	0.6126	0.3918



Hot spot position



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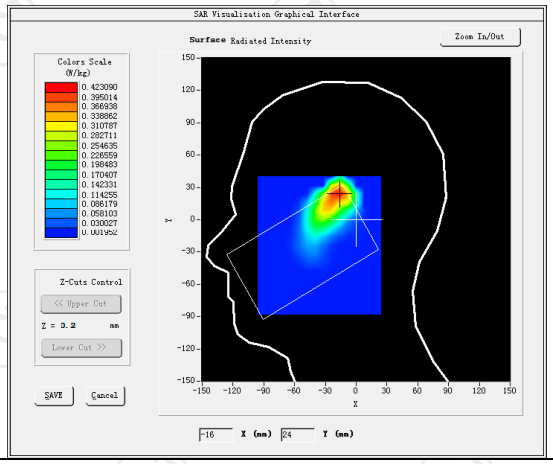
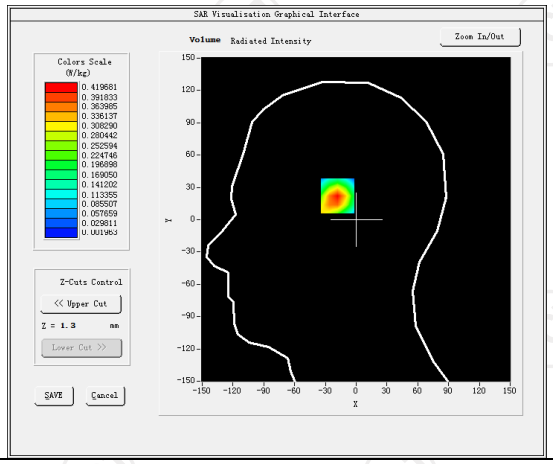
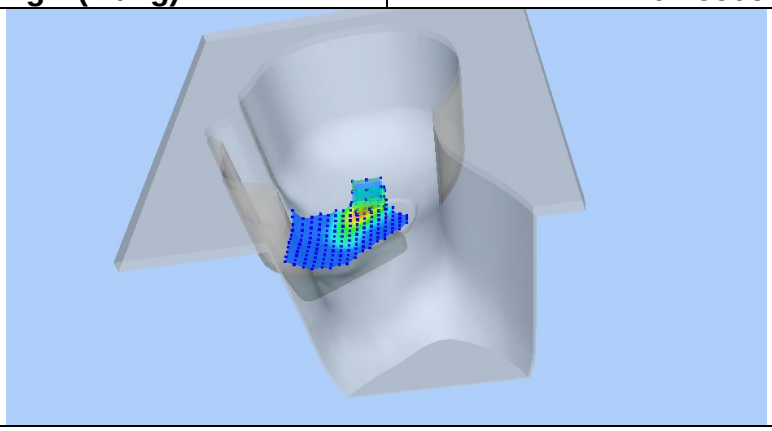
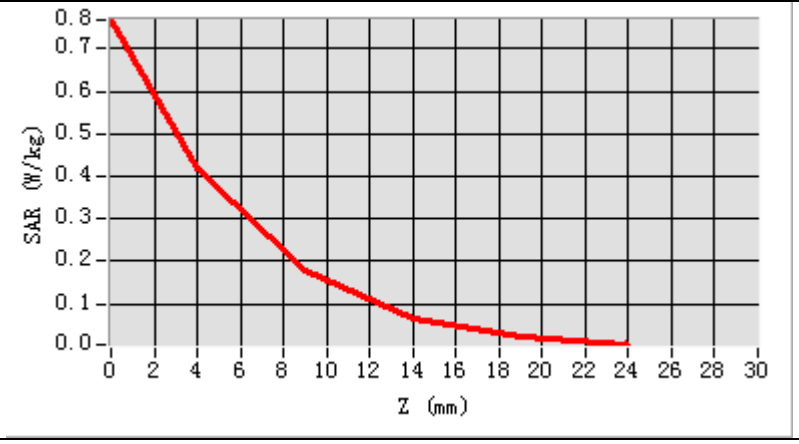
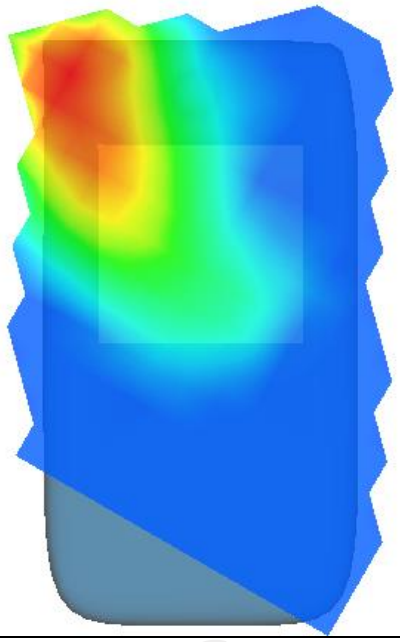
WLAN 2.4G

MEASUREMENT 1	
Low Band SAR (Channel 1):	Date: 06/17/2023
Frequency (MHz)	2412.000000
Relative permittivity (real part)	37.821613
Relative permittivity (imaginary part)	13.546980
Conductivity (S/m)	1.834111
Variation (%)	-1.360000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11b ISM
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-17.00, Y=24.00 SAR Peak: 0.78 W/kg	
SAR 10g (W/Kg)	0.080066
SAR 1g (W/Kg)	0.255053
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7682	0.4197	0.1767	0.0654	0.0210



Hot spot position

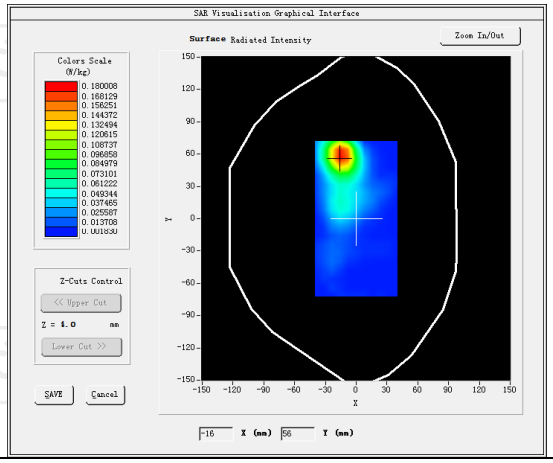


MEASUREMENT 2

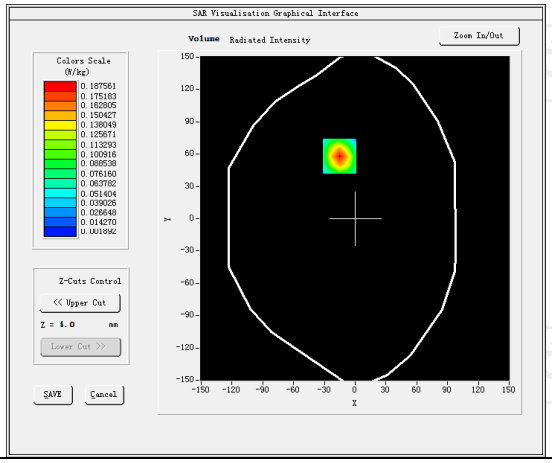
Low Band SAR (Channel 1): Date: 06/17/2023

Frequency (MHz)	2412.000000
Relative permittivity (real part)	37.821613
Relative permittivity (imaginary part)	13.546980
Conductivity (S/m)	1.834111
Variation (%)	2.120000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	IEEE 802.11b ISM

SURFACE SAR

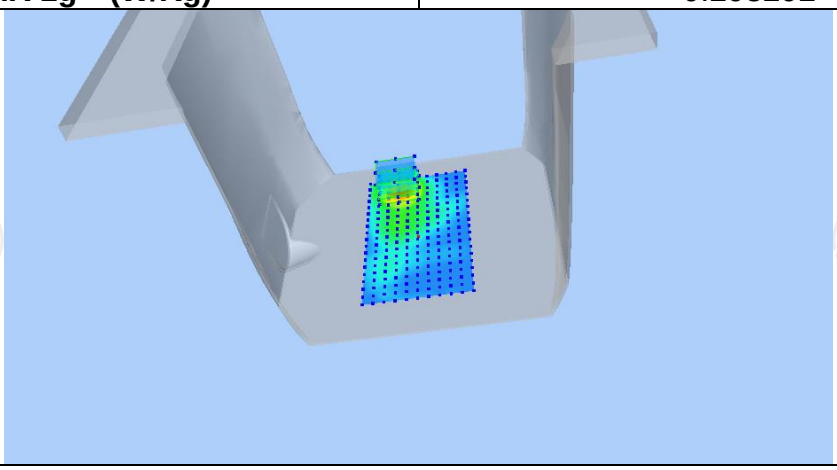


VOLUME SAR

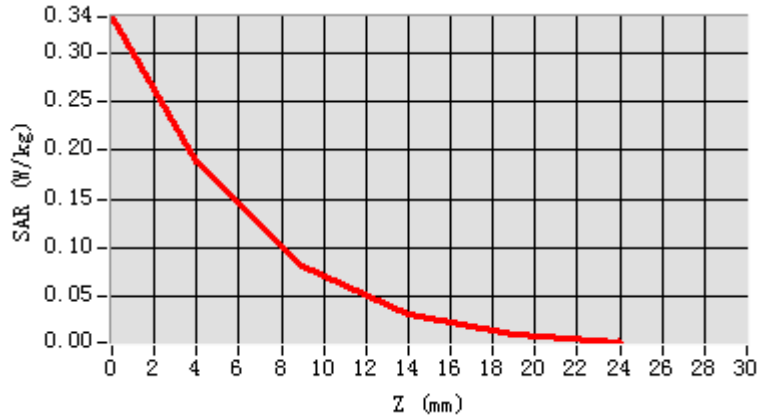


Maximum location: X=-15.00, Y=58.00 SAR Peak: 0.34 W/kg

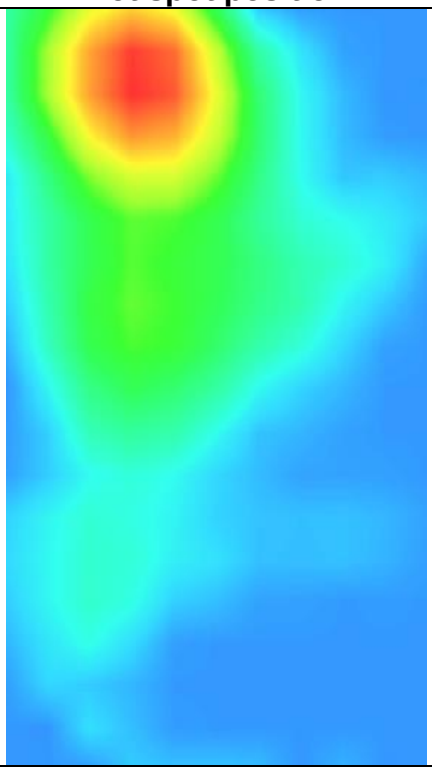
SAR 10g (W/Kg)	0.077530
SAR 1g (W/Kg)	0.293292



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3372	0.1876	0.0816	0.0317	0.0109



Hot spot position



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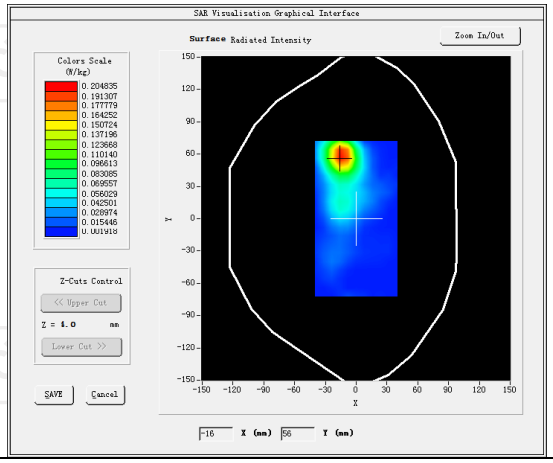
MEASUREMENT 3

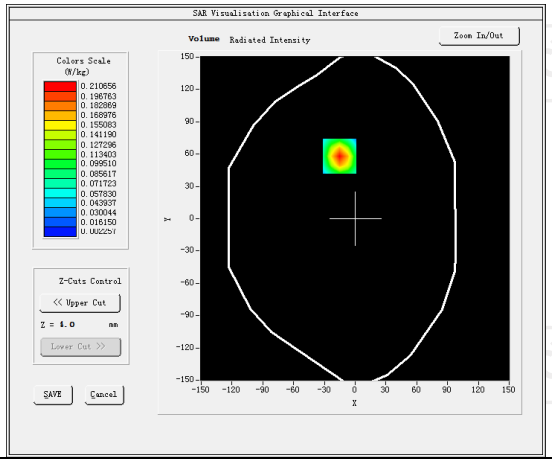
Low Band SAR (Channel 1): Date: 06/17/2023

Frequency (MHz)	2412.000000
Relative permittivity (real part)	37.821613
Relative permittivity (imaginary part)	13.546980
Conductivity (S/m)	1.834111
Variation (%)	-2.110000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	IEEE 802.11b ISM(hotspot)

SURFACE SAR

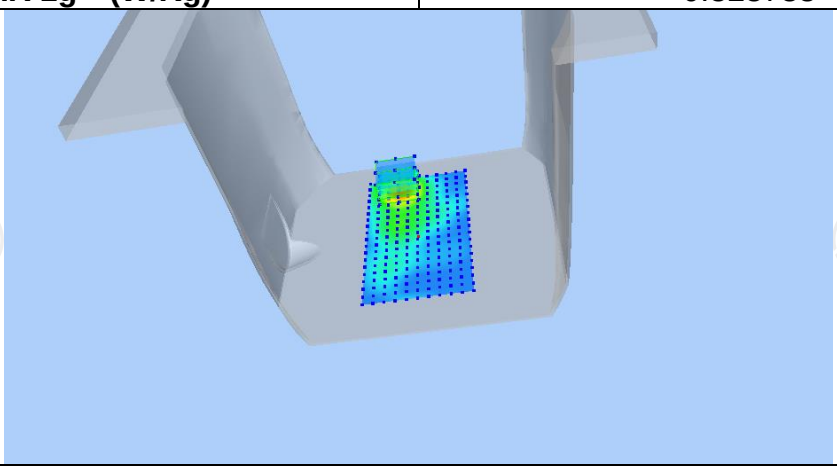


VOLUME SAR

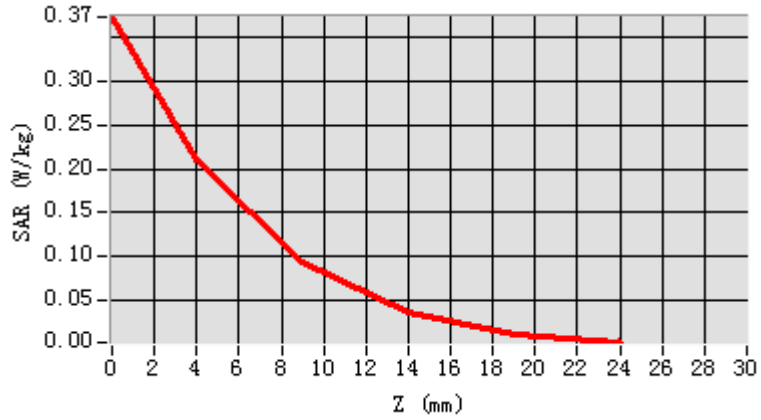


Maximum location: X=-15.00, Y=58.00 SAR Peak: 0.37 W/kg

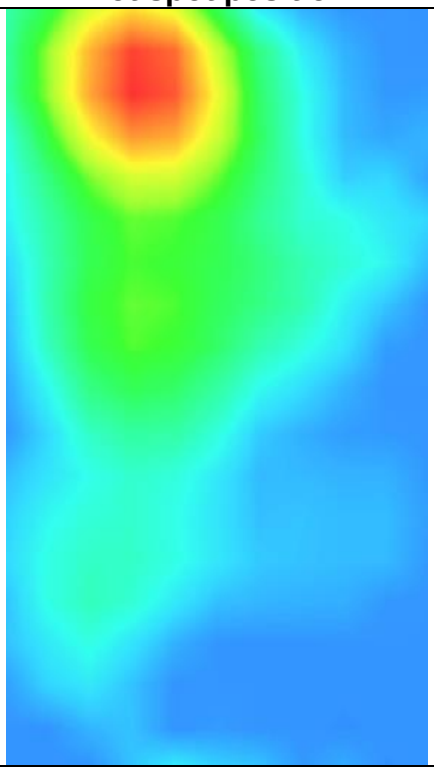
SAR 10g (W/Kg)	0.087182
SAR 1g (W/Kg)	0.323788



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3732	0.2107	0.0935	0.0368	0.0124



Hot spot position



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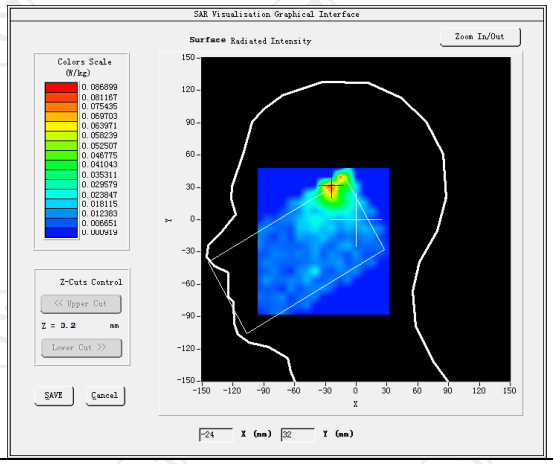
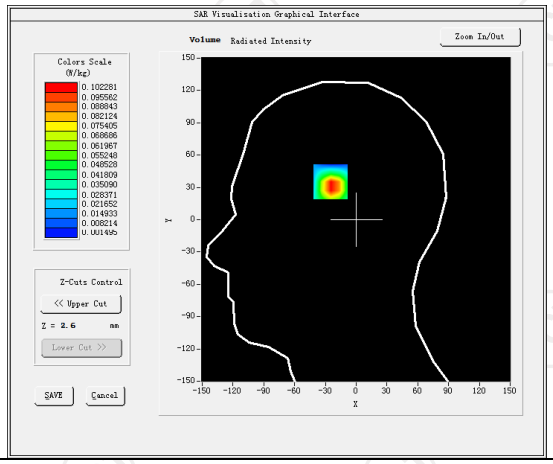
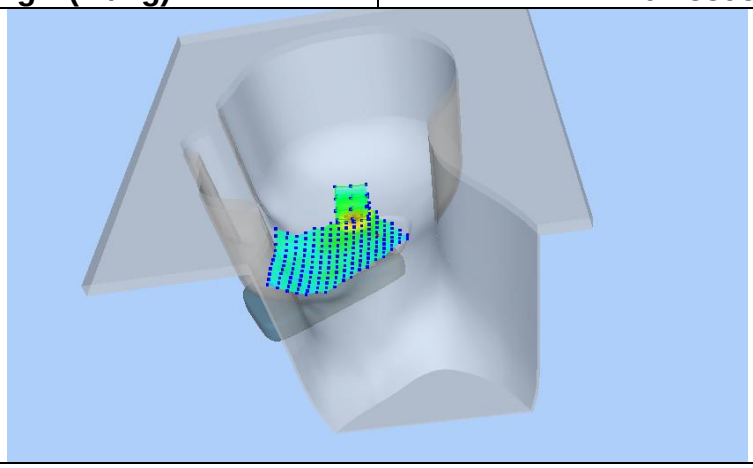
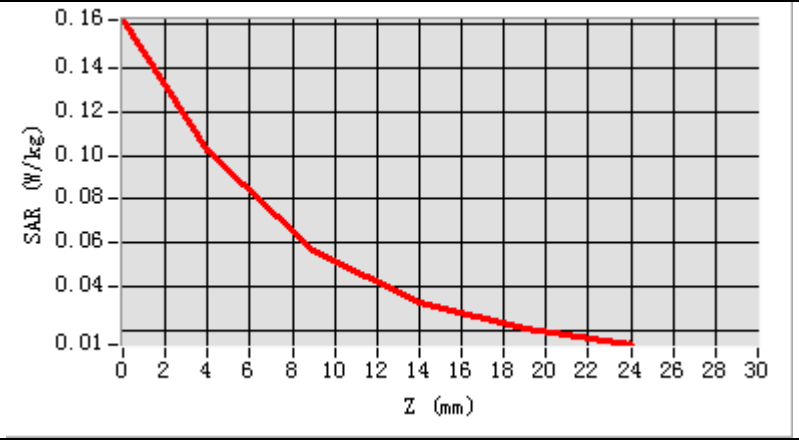
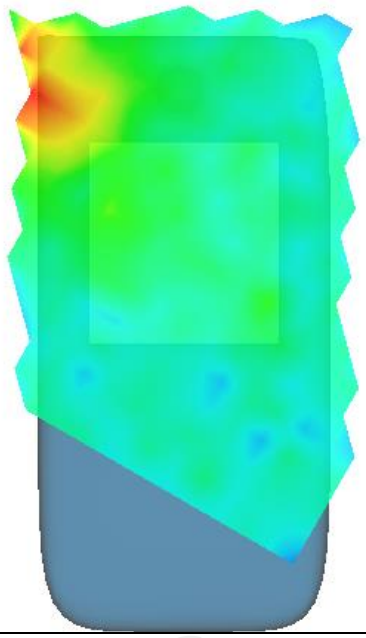
WLAN 5.2G

MEASUREMENT 1	
SAR (Channel 48):	Date: 06/28/2023
Frequency (MHz)	5240.000000
Relative permittivity (real part)	35.068832
Relative permittivity (imaginary part)	13.679428
Conductivity (S/m)	5.220788
Variation (%)	1.210000
Crest Factor	1.0
Probe Conversion factor	2.01
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11ac HT20 ISM
SURFACE SAR	**VOLUME SAR**
	
Maximum location: X=-25.00, Y=40.00 SAR Peak: 0.18 W/kg	
SAR 10g (W/Kg)	0.062740
SAR 1g (W/Kg)	0.133952
	

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1621	0.1032	0.0510	0.0347	0.0210



Hot spot position



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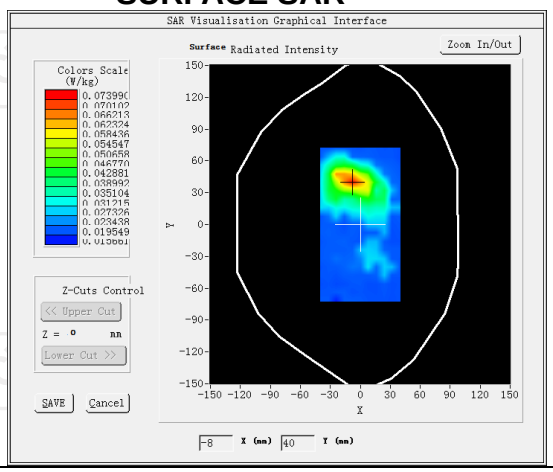
MEASUREMENT 2

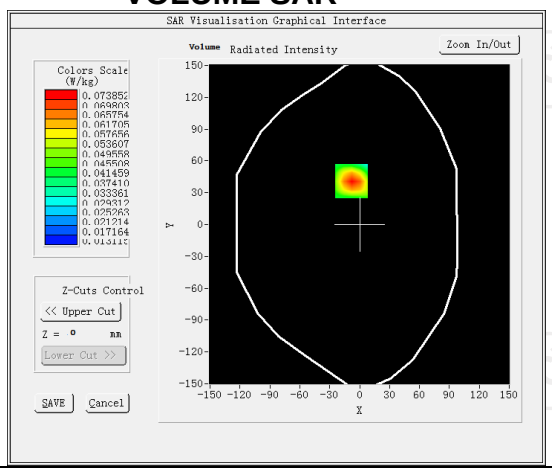
SAR (Channel 48): Date: 06/28/2023

Frequency (MHz)	5240.000000
Relative permittivity (real part)	35.068832
Relative permittivity (imaginary part)	13.679428
Conductivity (S/m)	5.220788
Variation (%)	-0.560000
Crest Factor	1.0
Probe Conversion factor	2.01
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	IEEE 802.11ac HT20 ISM

SURFACE SAR

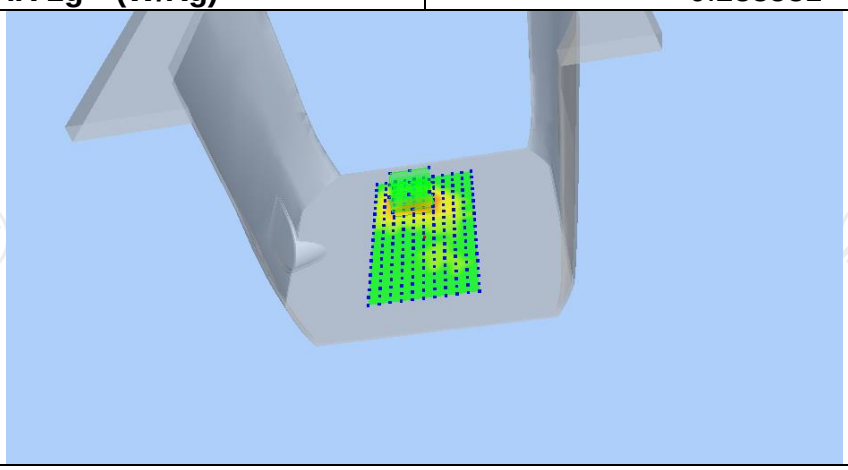


VOLUME SAR

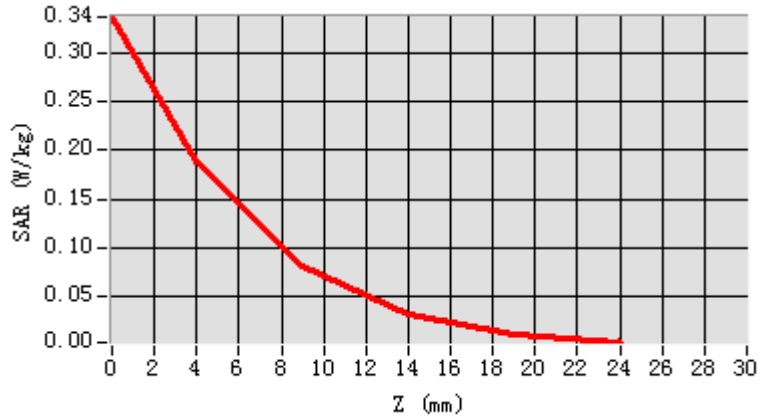


Maximum location: X=16.00, Y=63.00 SAR Peak: 0.10 W/kg

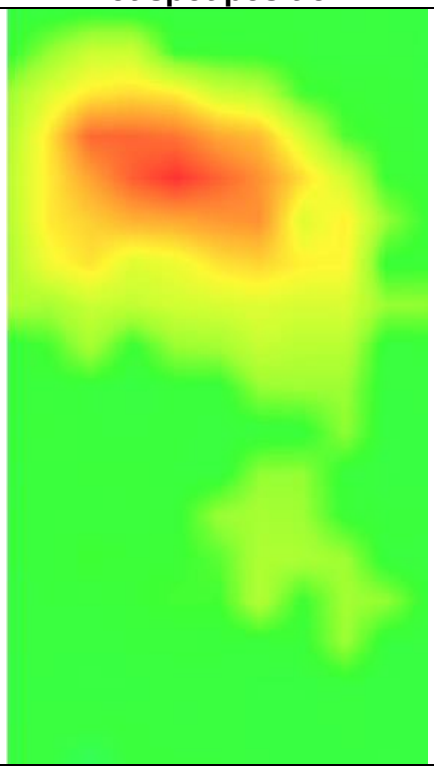
SAR 10g (W/Kg)	0.140642
SAR 1g (W/Kg)	0.238531



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3372	0.1876	0.0816	0.0317	0.0109



Hot spot position



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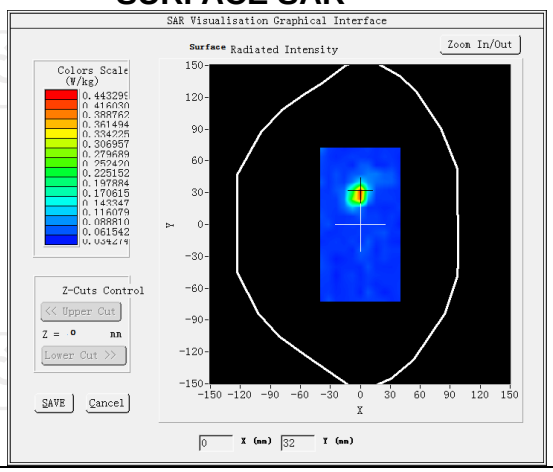
MEASUREMENT 3

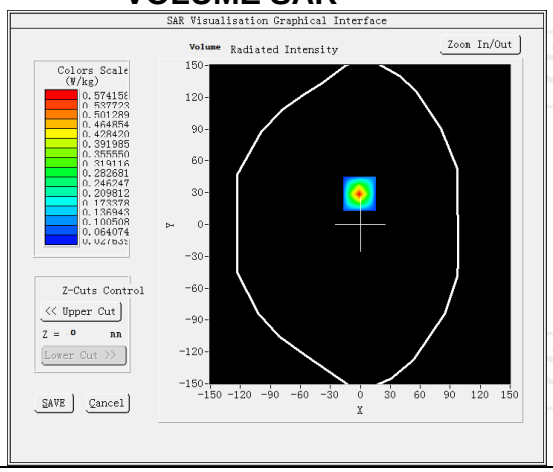
SAR (Channel 48): Date: 06/28/2023

Frequency (MHz)	5240.000000
Relative permittivity (real part)	35.068832
Relative permittivity (imaginary part)	13.679428
Conductivity (S/m)	5.220788
Variation (%)	-2.670000
Crest Factor	1.0
Probe Conversion factor	2.01
E-Field Probe:	SSE2 (SN 25/22 EPGO375)
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back-open(10mm)
Band	IEEE 802.11ac HT20 ISM(hotspot)

SURFACE SAR

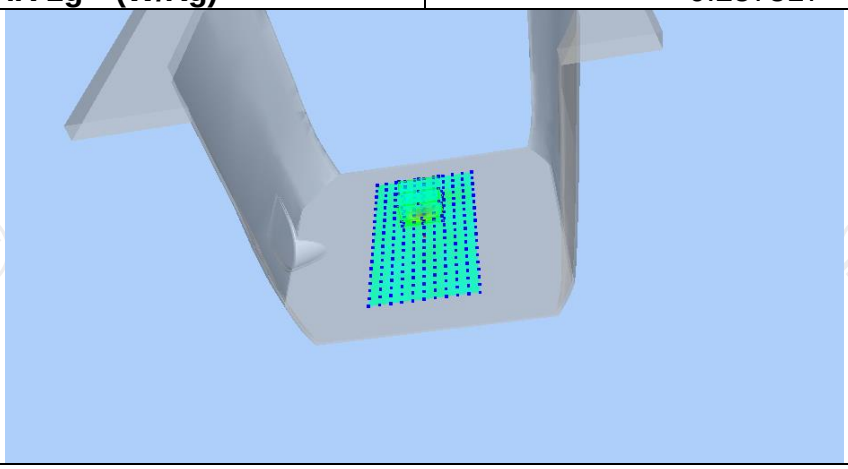


VOLUME SAR

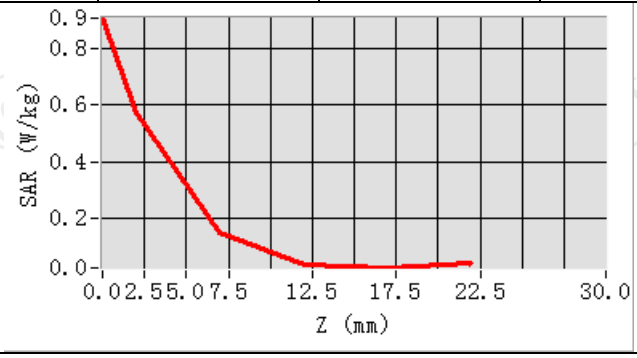


Maximum location: X=-1.00, Y=29.00 SAR Peak: 0.93 W/kg

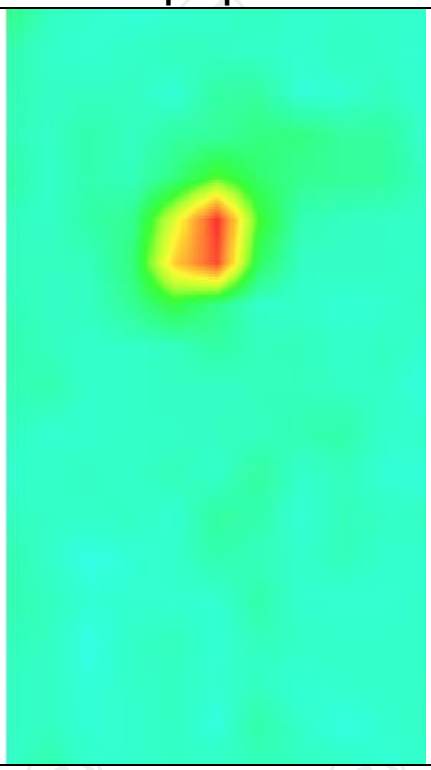
SAR 10g (W/Kg)	0.129222
SAR 1g (W/Kg)	0.257517



Z (mm)	0.00	2.00	7.00	12.00	17.00
SAR (W/Kg)	0.9068	0.5742	0.1505	0.0398	0.0276



Hot spot position



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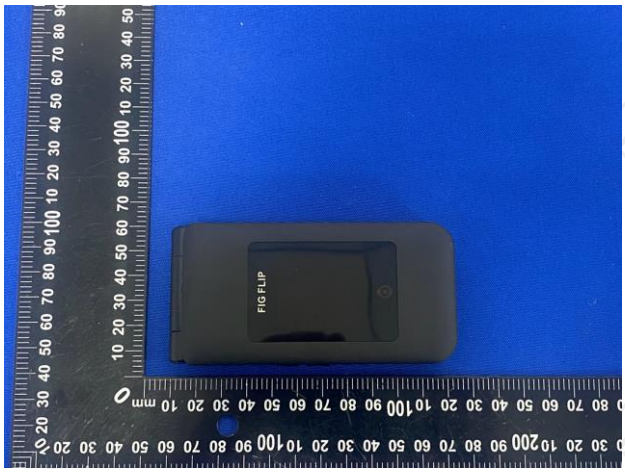
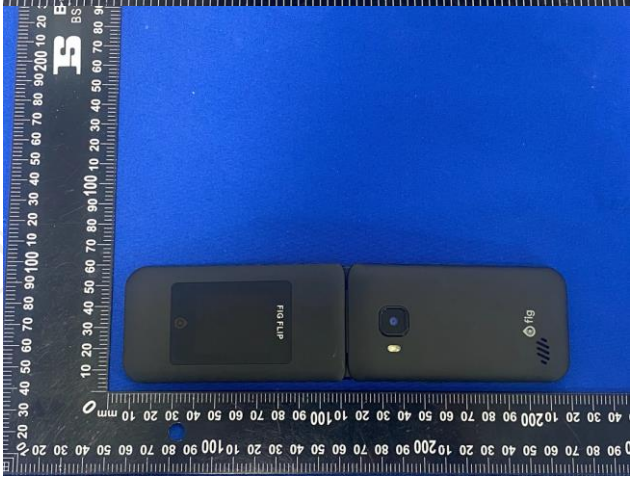
Appendix A: EUT Photos

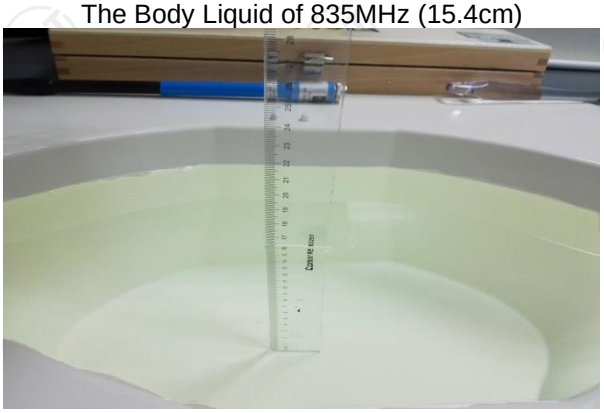




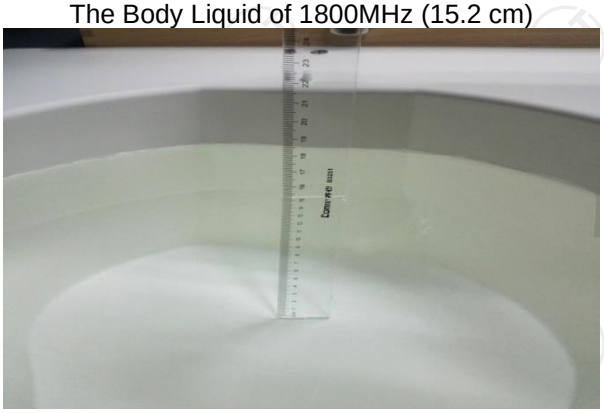
Liquid depth

The Body Liquid of 835MHz (15.4cm)

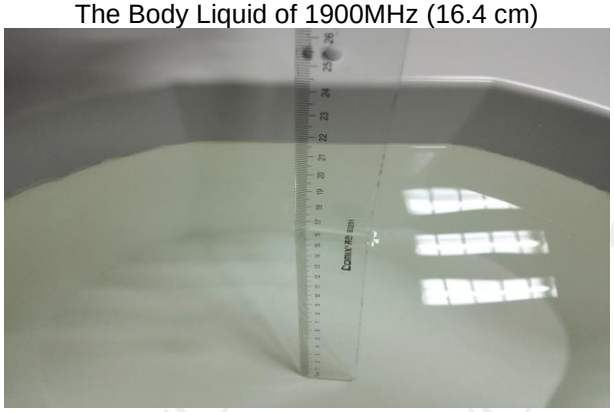
The Body Liquid of 1800MHz (15.2 cm)



The Body Liquid of 1900MHz (16.4 cm)



The Body Liquid of 2450MHz (15.3cm)



The Body Liquid of 5000-6000MHz (16.5cm)

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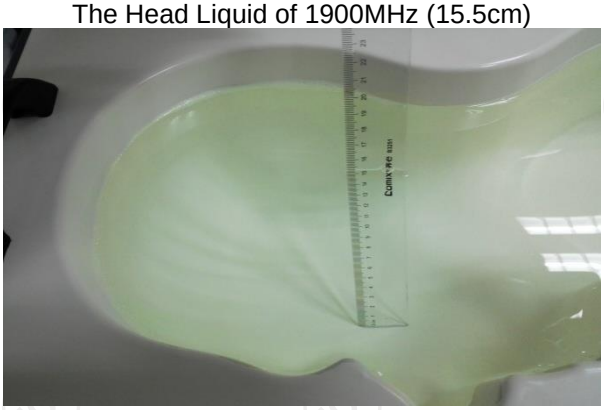
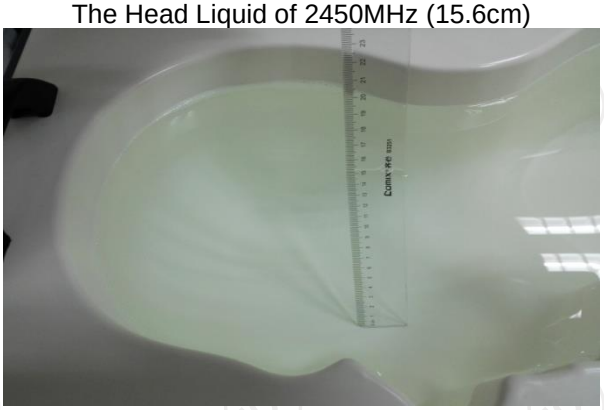
The Head Liquid of 1900MHz (15.5cm)

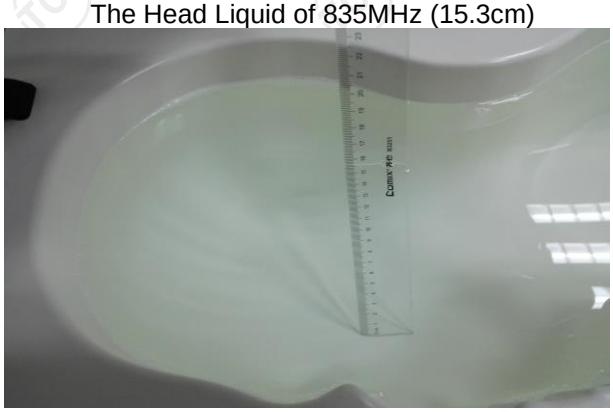
The Head Liquid of 2450MHz (15.6cm)



The Head Liquid of 835MHz (15.3cm)



The Head Liquid of 1800MHz (15.2cm)



The Body Liquid of 5000-6000MHz MHz (15.8cm)

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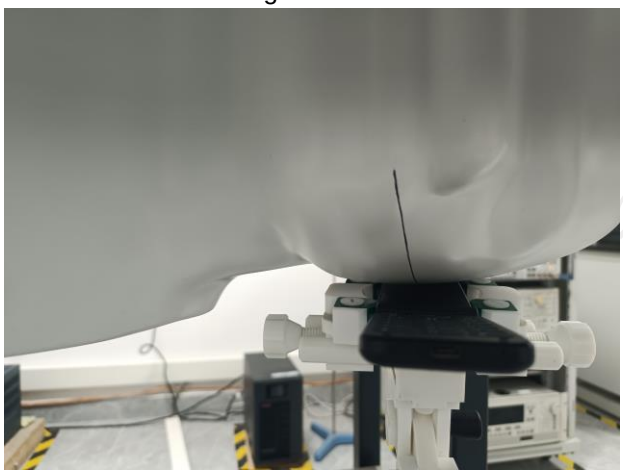
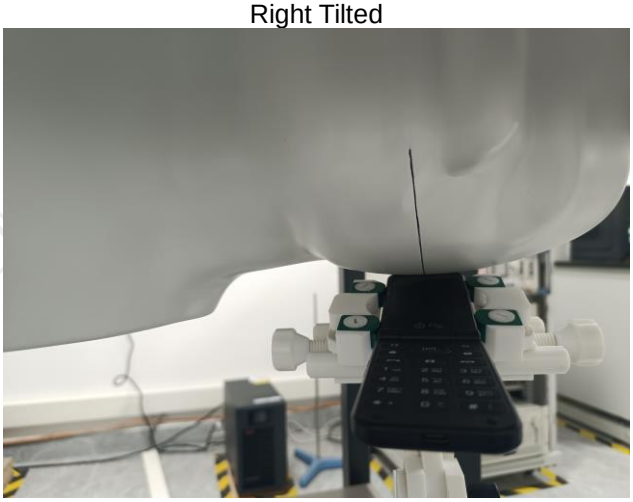
Appendix B: Test Setup Photos

Right Cheek

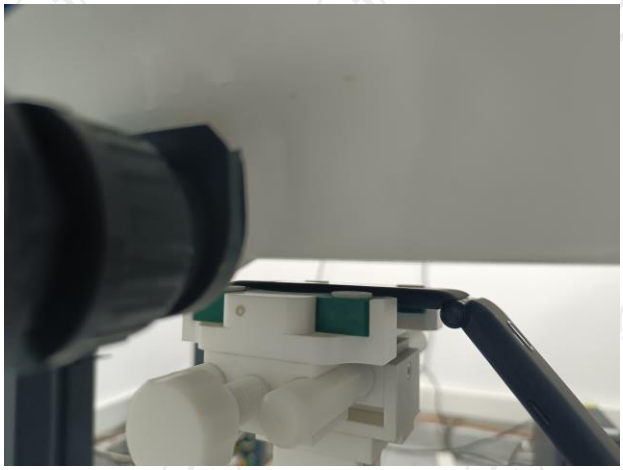
Right Tilted



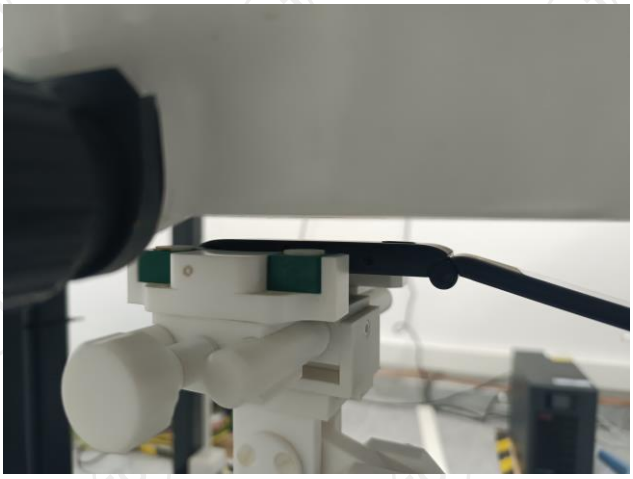
Left Cheek



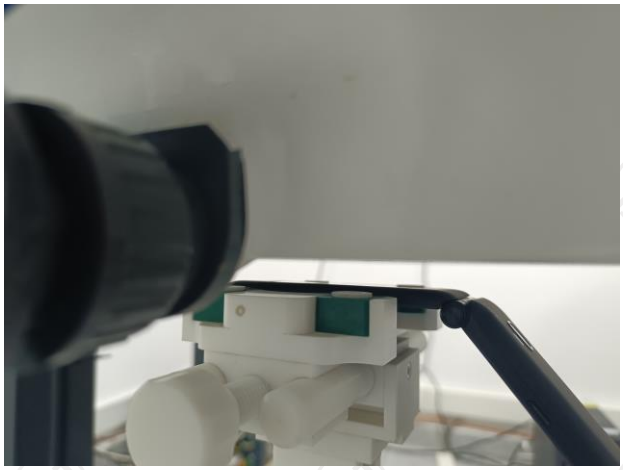
Left Tilted

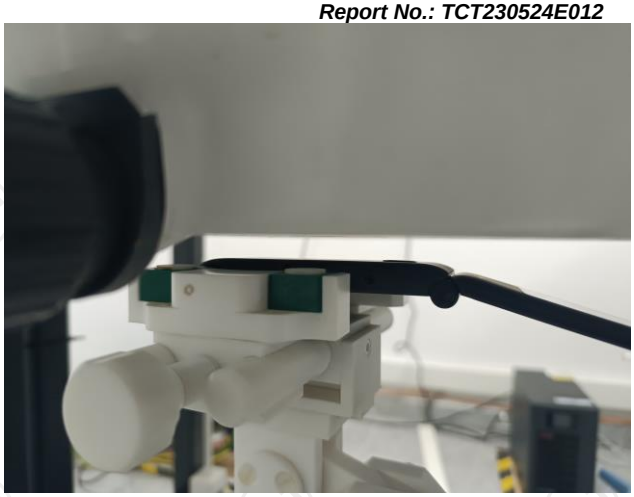


Body worn – Front open (10mm)



Body worn – Back open (10mm)


Hotspo Front open (10mm)


Hotspo Back open (10mm)

Hotspot Right open (10mm)

Hotspot Left open (10mm)

Hotspot Bottom open (10mm)

Appendix C: Probe Calibration Certificate

COMOSAR E-FIELD Probe

COMOSAR E-Field Probe Calibration Report

Ref : ACR.180.7.22.BES.B

SHENZHEN TONGCE TESTING LAB

2101 & 2201, ZHENCHANG FACTORY RENSHAN INDUSTRIAL ZONE, FUHAI SUBDISTRICT, BAO'AN DISTRICT SHENZHEN, GUANGDONG, 518103, PEOPLE'S REPUBLIC OF CHINA

MVG COMOSAR DOSIMETRIC E-FIELD PROBE

SERIAL NO.: SN 25/22 EPGO375

Calibrated at MVG

Z.I. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon

29280 PLOUZANE - FRANCE

Calibration date: 06/29/2023

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

The use of the Cofrac brand and the accreditation references is prohibited from any reproduction.

Summary:

This document presents the method and results from an accredited COMOSAR Dosimetric 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).

	Name	Function	Date	Signature
Prepared by :	Jérôme Le Gall	Measurement Responsible	6/30/2023	
Checked & approved by:	Jérôme Luc	Technical Manager	6/30/2023	
Authorized by:	Yann Toutain	Laboratory Director	7/05/2023	Yann TOUTAIN

	Customer Name
Distribution :	Shenzhen Tongce Testing Lab

Issue	Name	Date	Modifications
A	Jérôme Le Gall	6/30/2023	Initial release

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TABLE OF CONTENTS

1 Device Under Test 4
2 Product Description 4
2.1 General Information 4
3 Measurement Method 4
3.1 Linearity 4
3.2 Sensitivity 4
3.3 Lower Detection Limit 5
3.4 Isotropy 5
3.1 Boundary Effect 5
4 Measurement Uncertainty 6
5 Calibration Measurement Results 6
5.1 Sensitivity in air 6
5.2 Linearity 7
5.3 Sensitivity in liquid 8
5.4 Isotropy 9
6 List of Equipment 10

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1 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	SN 25/22 EPGO375
Product Condition (new / used)	New
Frequency Range of Probe	0.15 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.197 MΩ Dipole 2: R2=0.230 MΩ Dipole 3: R3=0.208 MΩ

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

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

Figure 1 – *MVG COMOSAR Dosimetric E field Probe*

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 IEC/IEEE 62209-1528 and FCC KDB865664 D01 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.

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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:

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

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 SAR uncertainty[%] for scanning distances larger than 4mm is 1.0% Limit ,2%).

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