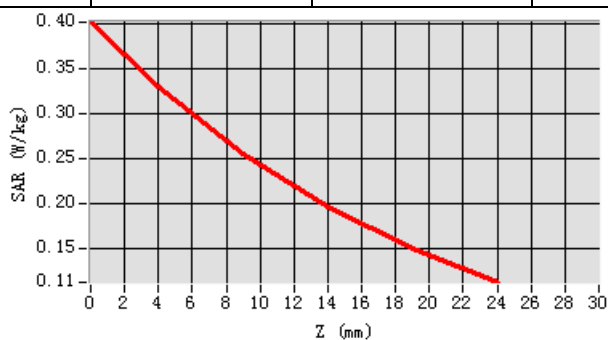
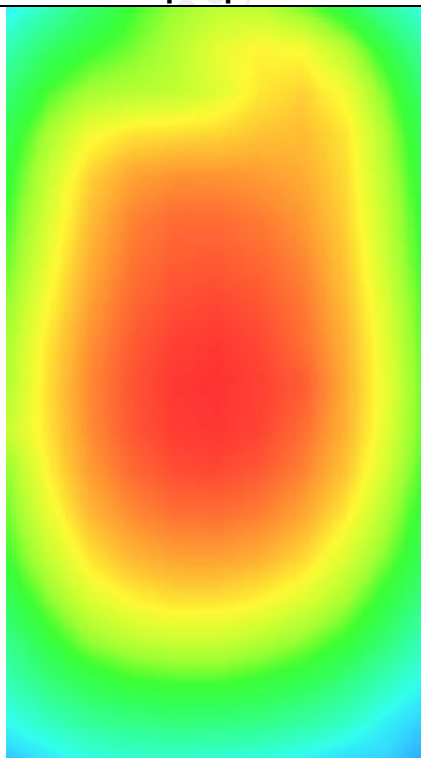


Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4019	0.3300	0.2561	0.1978	0.1515



Hot spot position



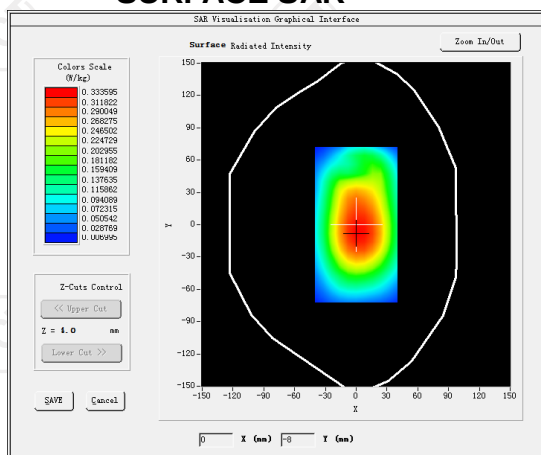
MEASUREMENT 3

Lower Band SAR (Channel 4132):

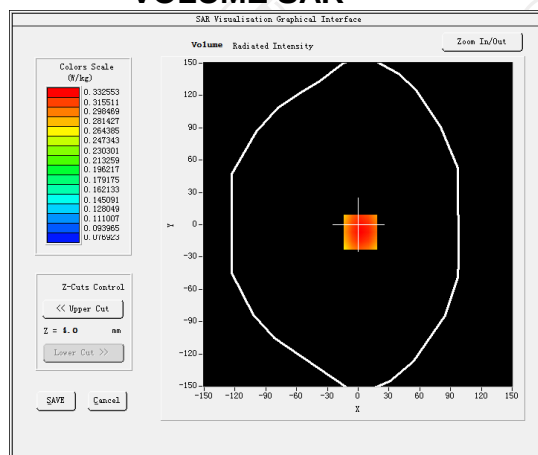
Date: 09/18/2020

Frequency (MHz)	826.400000
Relative permittivity (real part)	55.262927
Relative permittivity (imaginary part)	21.378266
Conductivity (S/m)	0.931230
Variation (%)	0.010000
Crest Factor:	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body back(10mm)</u>
Band	<u>BAND5 WCDMA850(hotspot)</u>

SURFACE SAR

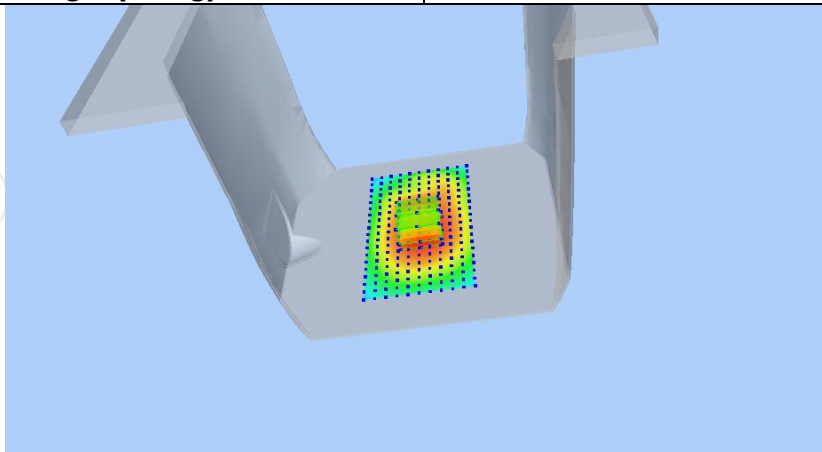


VOLUME SAR

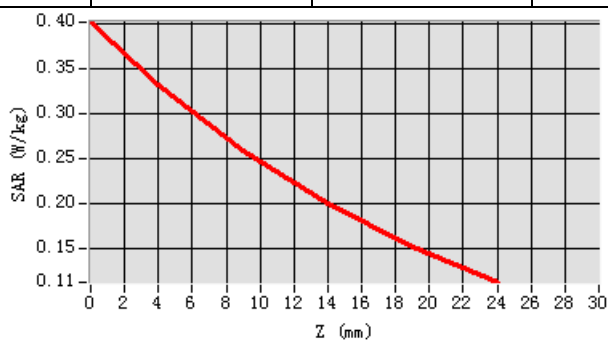


Maximum location: X=2.00, Y=-7.00 SAR Peak: 0.40 W/kg

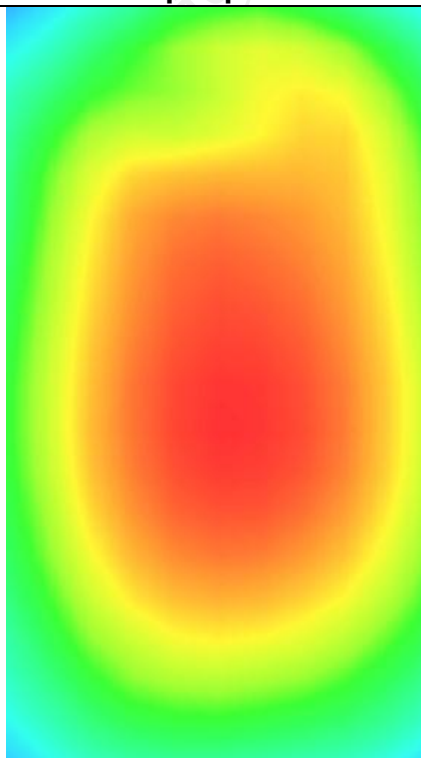
SAR 10g (W/Kg)	0.239471
SAR 1g (W/Kg)	0.321681



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4021	0.3326	0.2598	0.2008	0.1530



Hot spot position



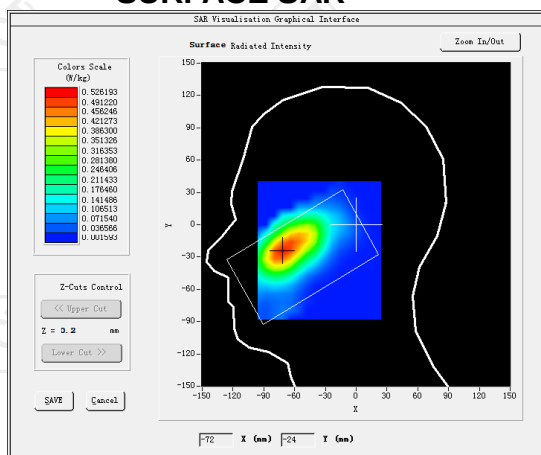
LTE Band 2

MEASUREMENT 1

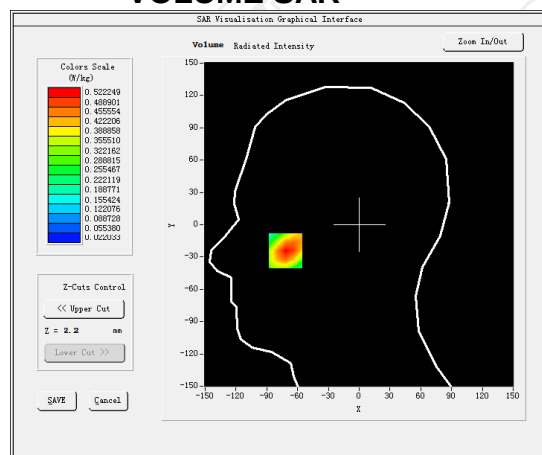
Lower Band SAR (Channel 18900): Date: 09/25/2020

Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.065208
Relative permittivity (imaginary part)	12.607628
Conductivity (S/m)	1.382108
Variation (%)	0.210000
Crest Factor	1.0
Probe Conversion factor	2.23
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 2 (1 RB#0)</u>

SURFACE SAR

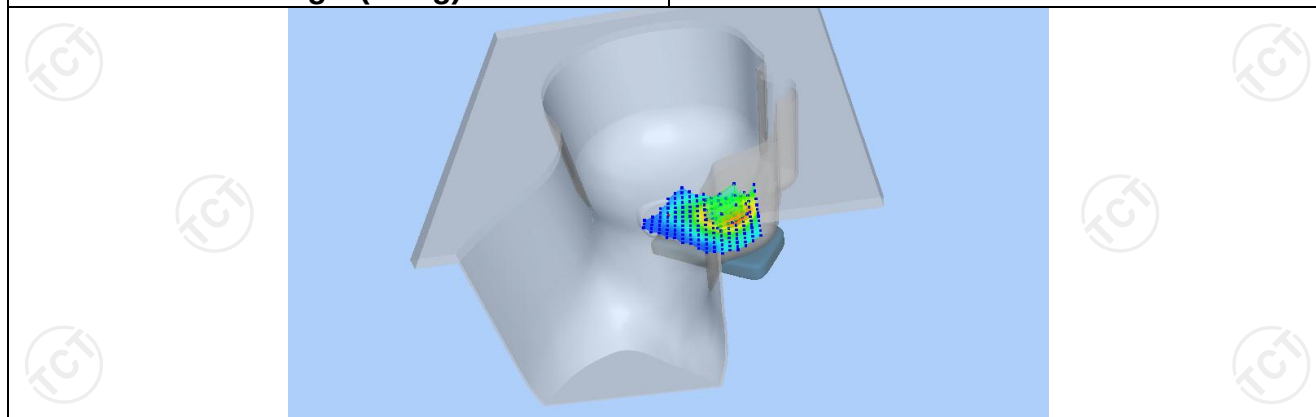


VOLUME SAR

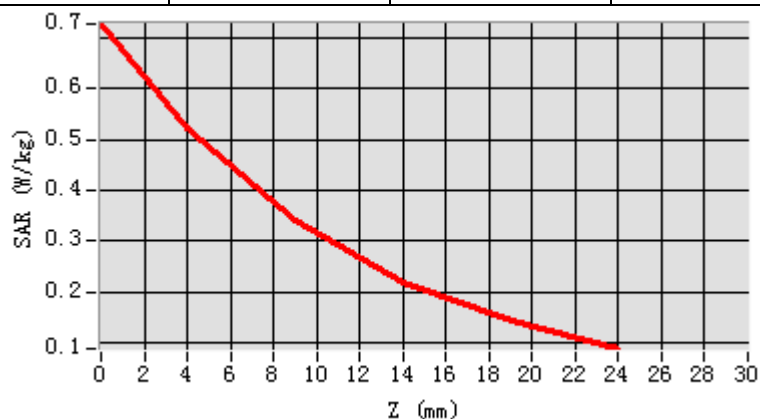


Maximum location: X=-22.00, Y=-21.00 SAR Peak: 0.40 W/kg

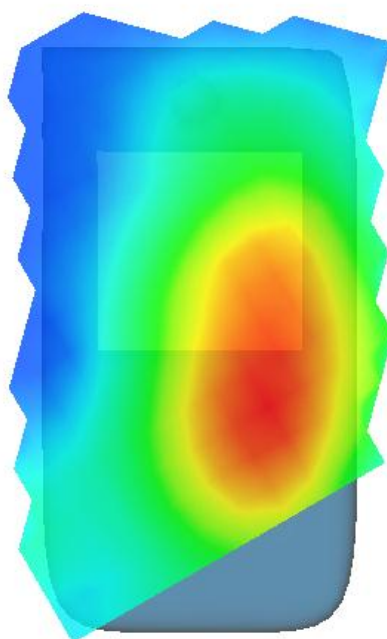
SAR 10g (W/Kg)	0.103810
SAR 1g (W/Kg)	0.293110



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6282	0.4222	0.3397	0.2201	0.1424



Hot spot position



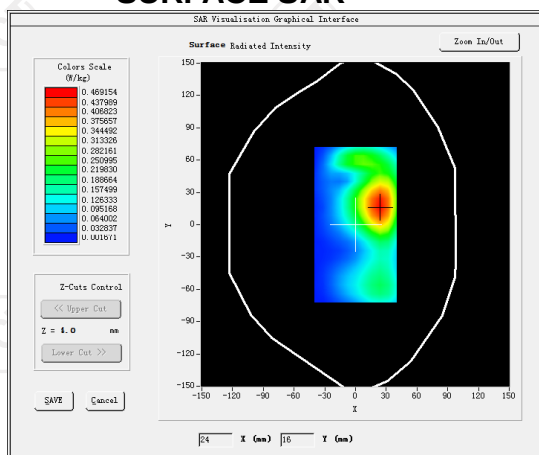
MEASUREMENT 2

Lower Band SAR (Channel 18900):

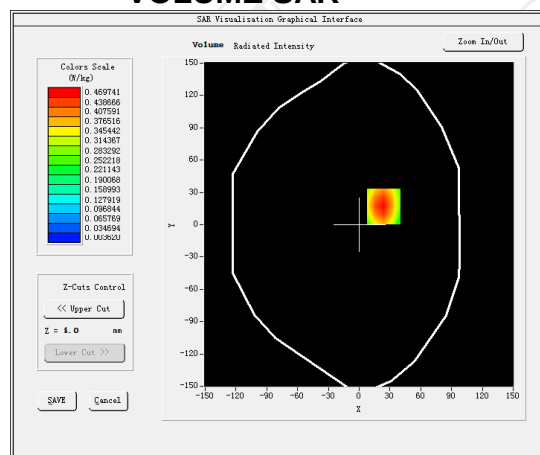
Date: 09/25/2020

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.291337
Relative permittivity (imaginary part)	14.232400
Conductivity (S/m)	1.531736
Variation (%)	0.170000
Crest Factor	1.0
Probe Conversion factor	2.32
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	LTE band 2 (1 RB#0)

SURFACE SAR

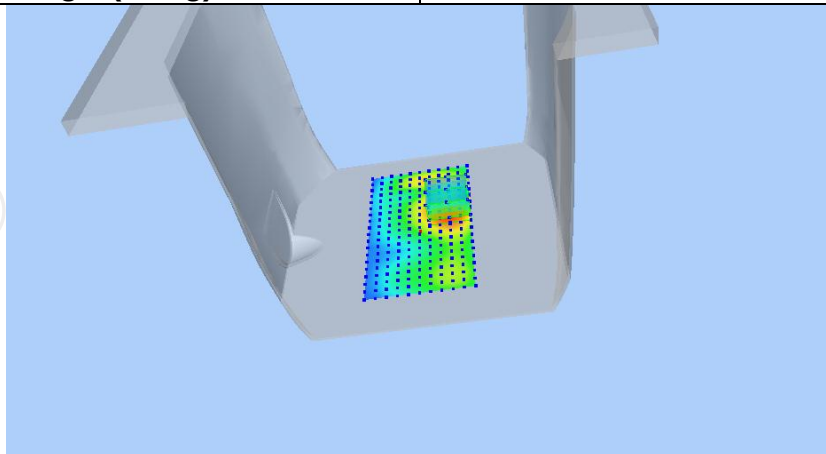


VOLUME SAR

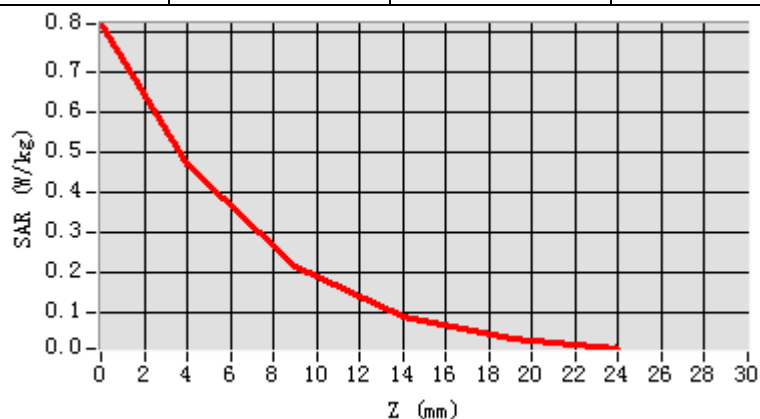


Maximum location: X=24.00, Y=17.00 SAR Peak: 0.51 W/kg

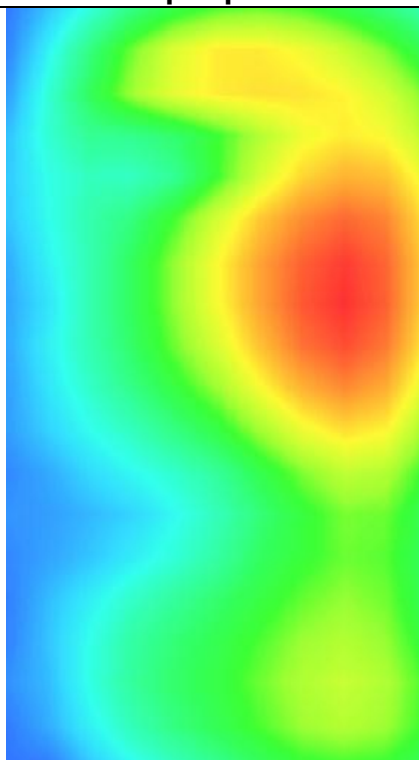
SAR 10g (W/Kg)	0.227129
SAR 1g (W/Kg)	0.440050



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8200	0.4342	0.2142	0.0900	0.0345



Hot spot position



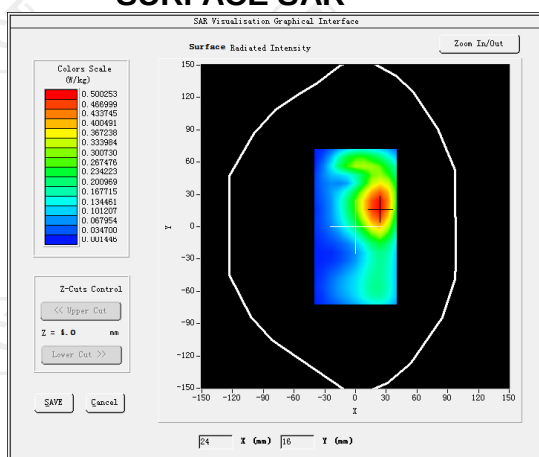
MEASUREMENT 3

Lower Band SAR (Channel 18900):

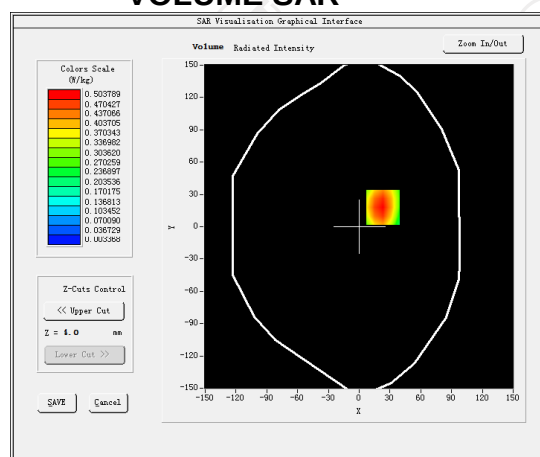
Date: 09/25/2020

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.291337
Relative permittivity (imaginary part)	14.232400
Conductivity (S/m)	1.531736
Variation (%)	-2.550000
Crest Factor	1.0
Probe Conversion factor	2.32
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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 2 (1 RB#0)

SURFACE SAR

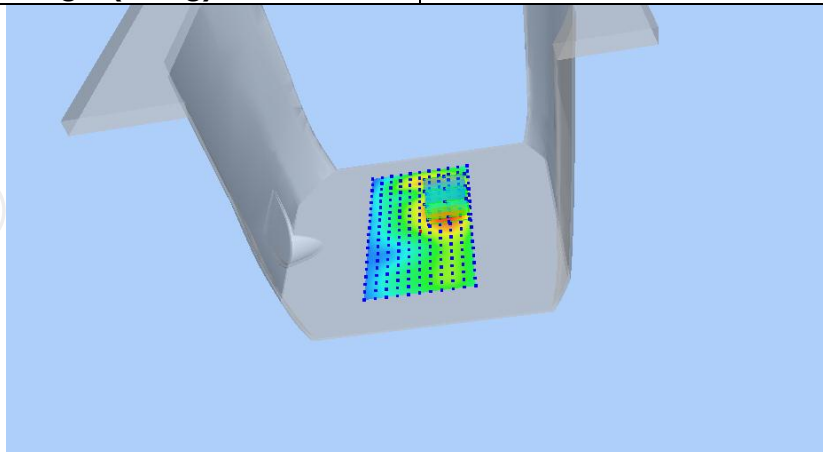


VOLUME SAR

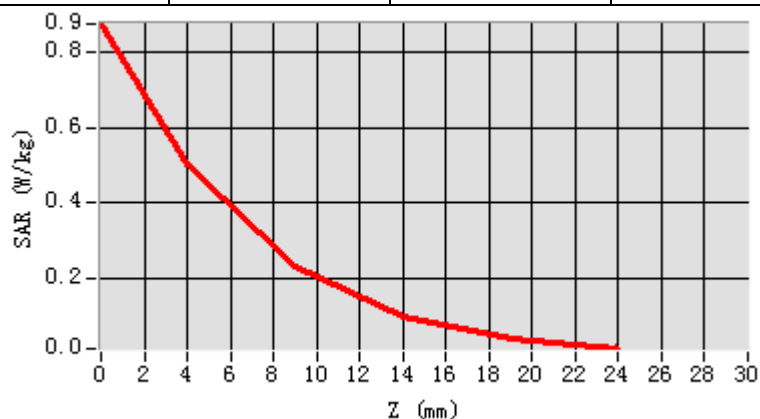


Maximum location: X=13.00, Y=17.00 SAR Peak: 0.70 W/kg

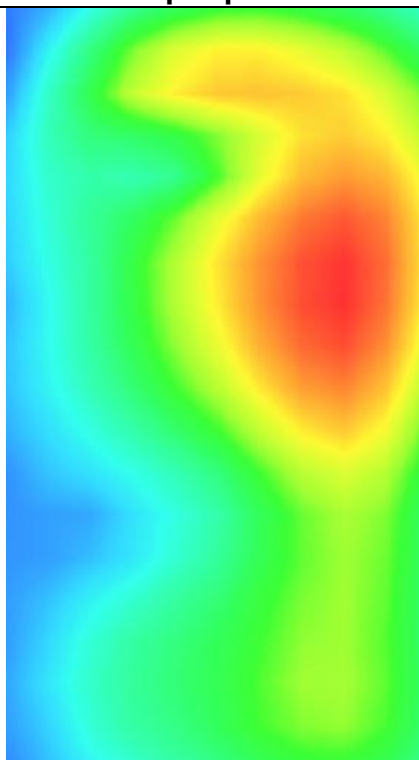
SAR 10g (W/Kg)	0.243211
SAR 1g (W/Kg)	0.482330



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8721	0.5112	0.1933	0.0877	0.0287



Hot spot position



LTE Band 4

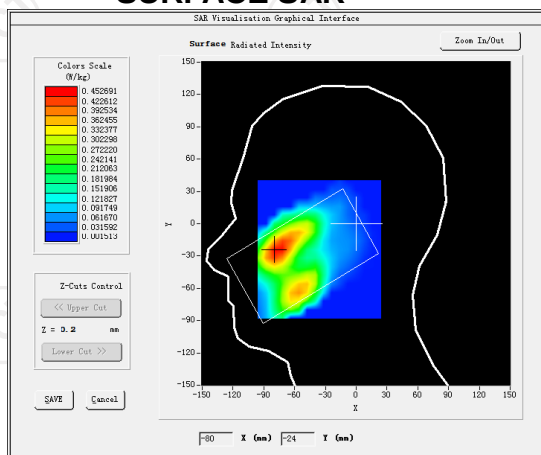
MEASUREMENT 1

Middle Band SAR (Channel 20175):

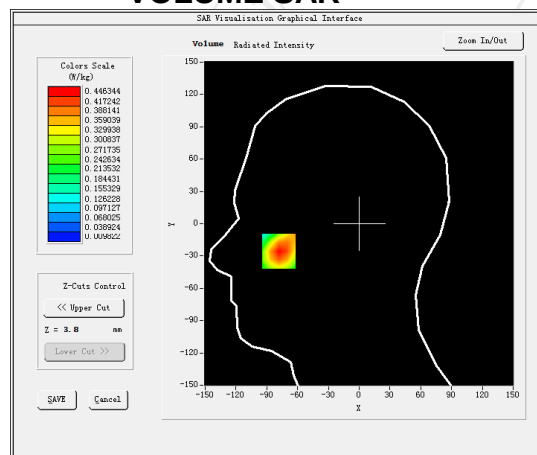
Date: 09/20/2020

Frequency (MHz)	1732.500000
Relative permittivity (real part)	39.101249
Relative permittivity (imaginary part)	12.468850
Conductivity (S/m)	1.350792
Variation (%)	-1.020000
Crest Factor	1.0
Probe Conversion factor	2.08
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm</u> <u>dz=5mm, Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 4(1 RB#0)</u>

SURFACE SAR



VOLUME SAR



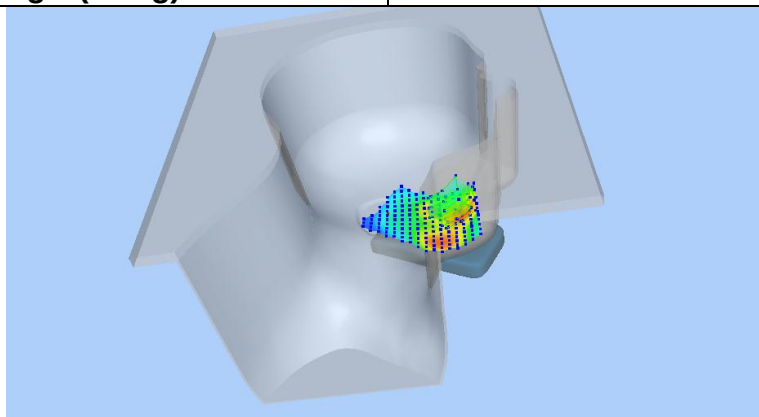
Maximum location: X=-67.00, Y=-15.00 SAR Peak: 0.51 W/kg

SAR 10g (W/Kg)

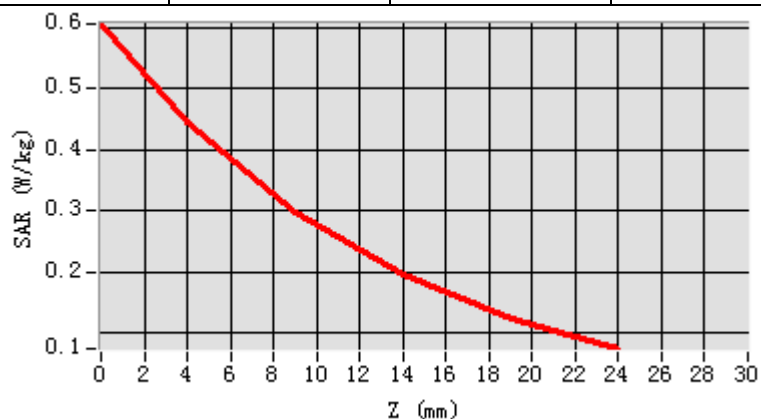
0.155039

SAR 1g (W/Kg)

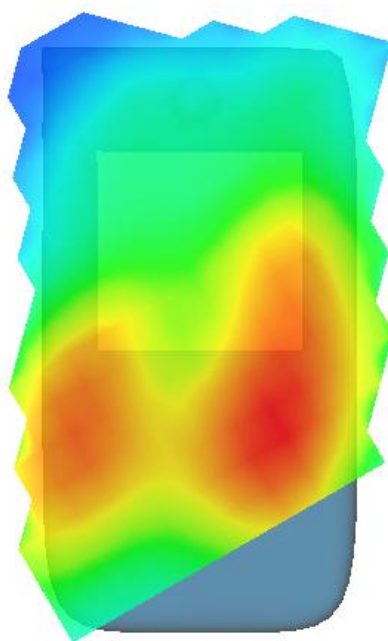
0.321117



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6064	0.4440	0.2912	0.1923	0.1315



Hot spot position



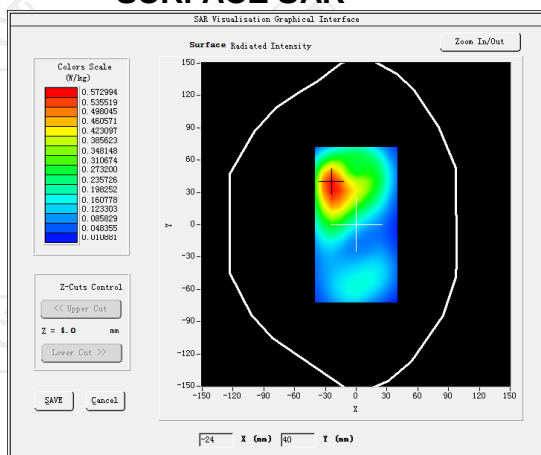
MEASUREMENT 2

Middle Band SAR (Channel 20175):

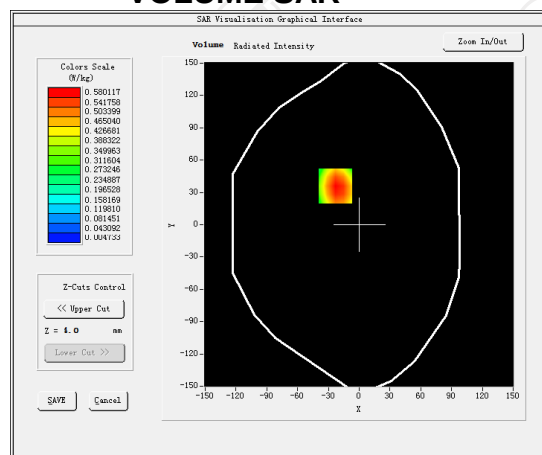
Date: 09/20/2020

Frequency (MHz)	1732.500000
Relative permittivity (real part)	53.321249
Relative permittivity (imaginary part)	12.468850
Conductivity (S/m)	1.502592
Variation (%)	0.210000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body back(10mm)</u>
Band	<u>LTE band 4(1 RB#0)</u>

SURFACE SAR

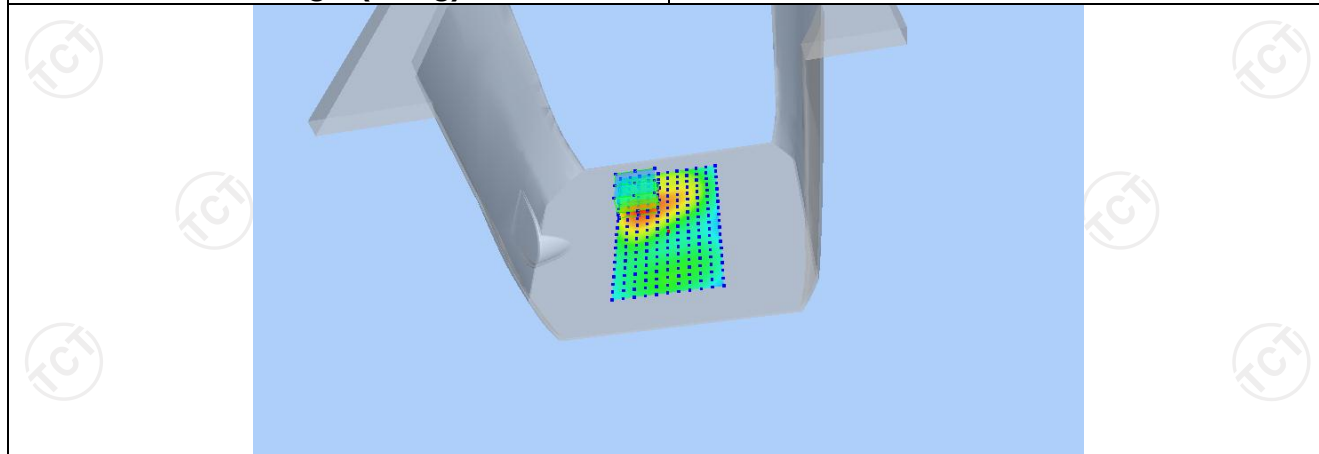


VOLUME SAR

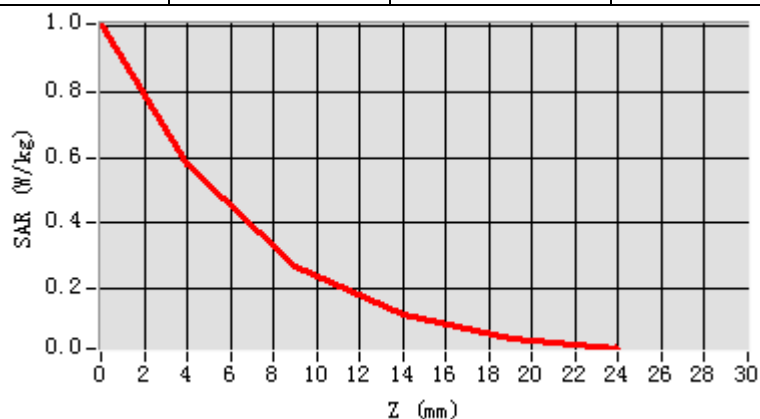


Maximum location: X=-23.00, Y=36.00 SAR Peak: 1.01 W/kg

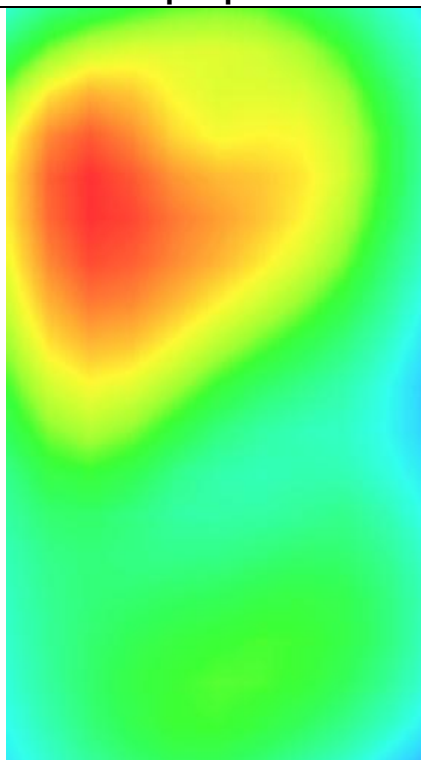
SAR 10g (W/Kg)	0.289505
SAR 1g (W/Kg)	0.556694



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



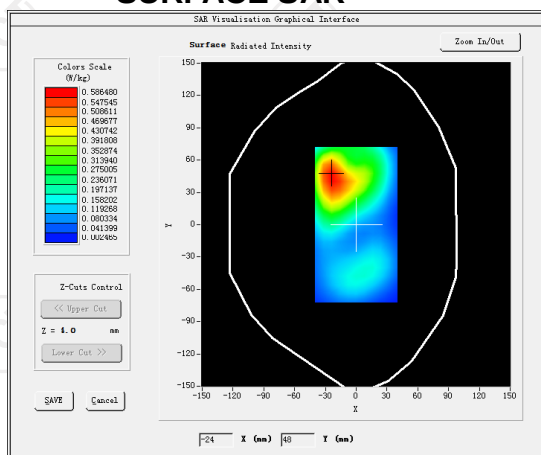
MEASUREMENT 3

Middle Band SAR (Channel 20175):

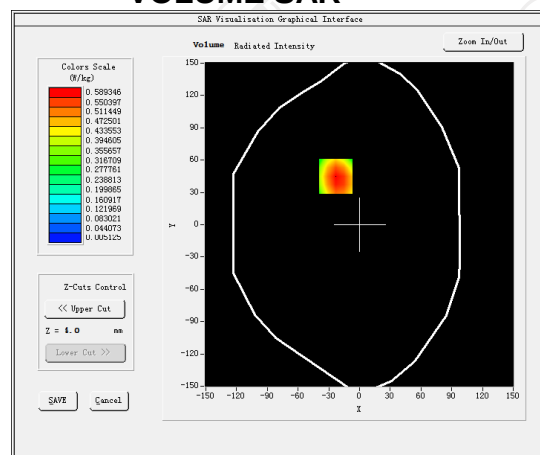
Date: 09/20/2020

Frequency (MHz)	1732.500000
Relative permittivity (real part)	53.321249
Relative permittivity (imaginary part)	12.468850
Conductivity (S/m)	1.502592
Variation (%)	0.910000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 4(1 RB#0)</u>

SURFACE SAR

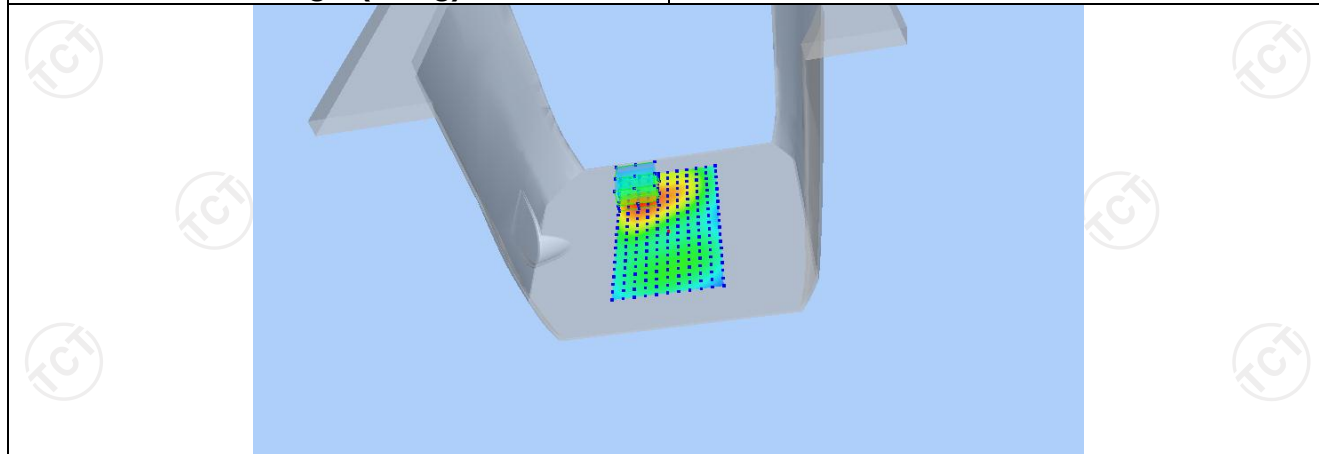


VOLUME SAR

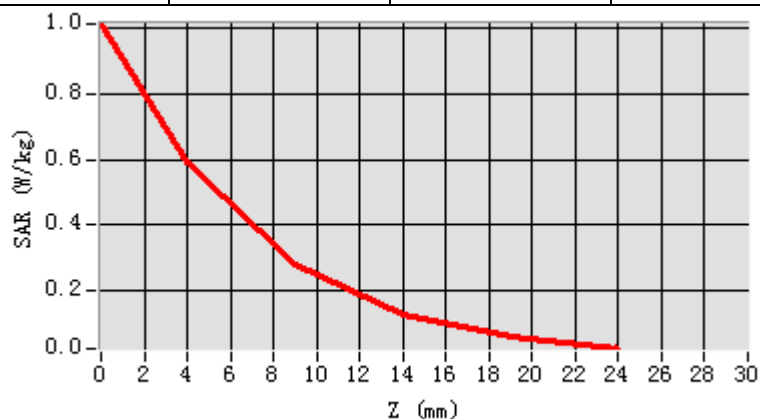


Maximum location: X=-21.00, Y=40.00 SAR Peak: 1.00 W/kg

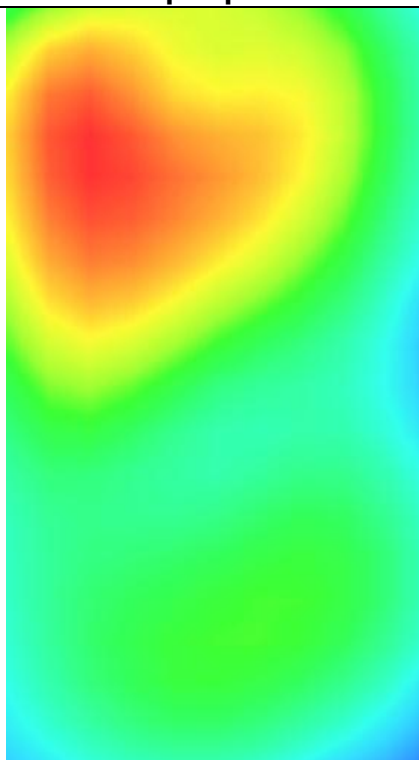
SAR 10g (W/Kg)	0.297565
SAR 1g (W/Kg)	0.566932



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



LTE Band 5

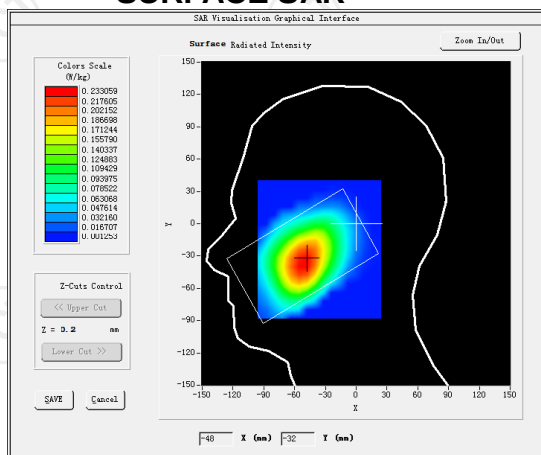
MEASUREMENT 1

High Band SAR (Channel 20600):

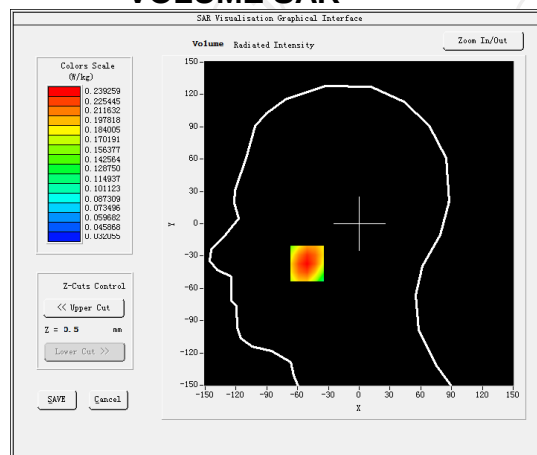
Date: 09/18/2020

Frequency (MHz)	844.000000
Relative permittivity (real part)	41.432976
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.862835
Variation (%)	1.690000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm</u> <u>dz=5mm, Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 5(1 RB#0)</u>

SURFACE SAR



VOLUME SAR



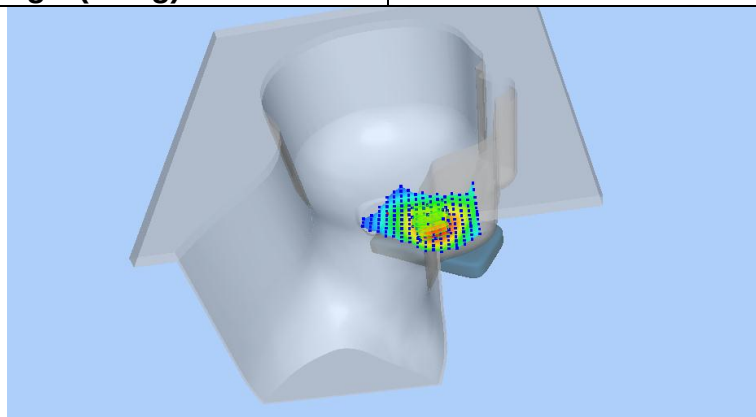
Maximum location: X=-51.00, Y=-37.00 SAR Peak: 0.29 W/kg

SAR 10g (W/Kg)

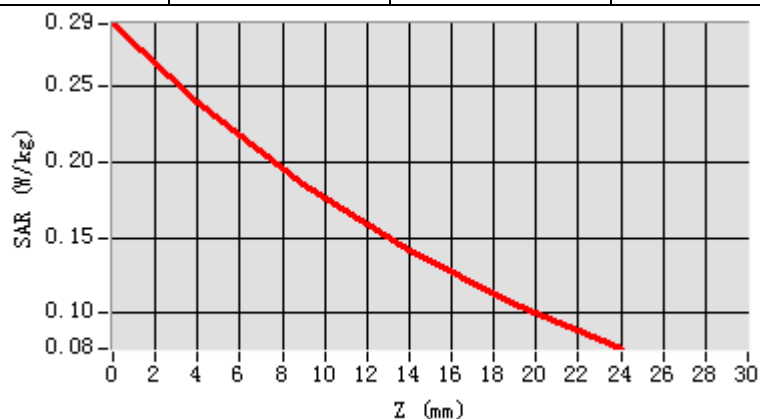
0.163789

SAR 1g (W/Kg)

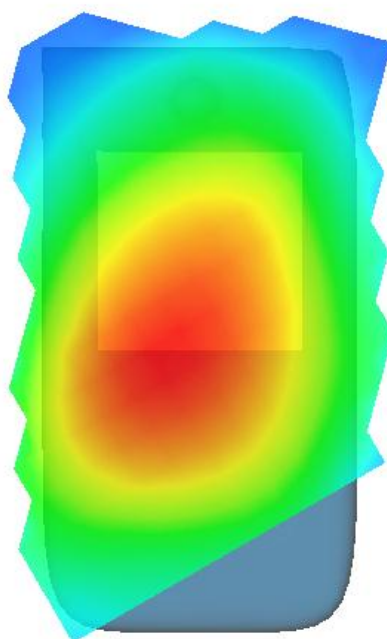
0.229156



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



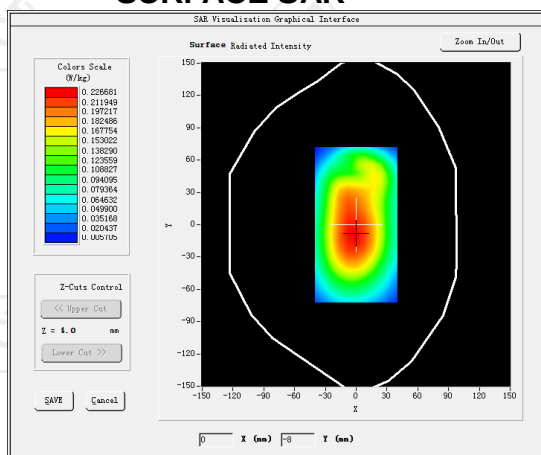
MEASUREMENT 2

High Band SAR (Channel 20600):

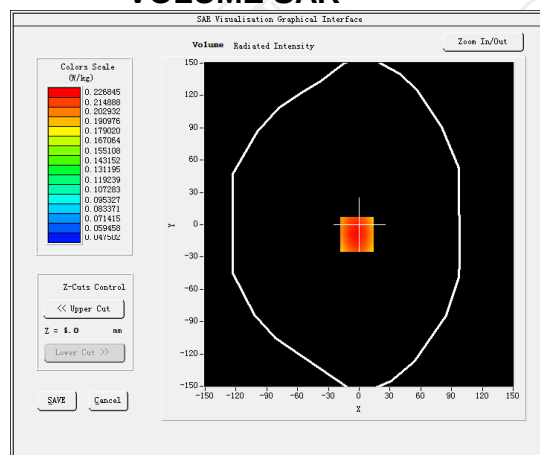
Date: 09/18/2020

Frequency (MHz)	844.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	-0.160000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body back(10mm)</u>
Band	<u>LTE band 5(1 RB#0)</u>

SURFACE SAR

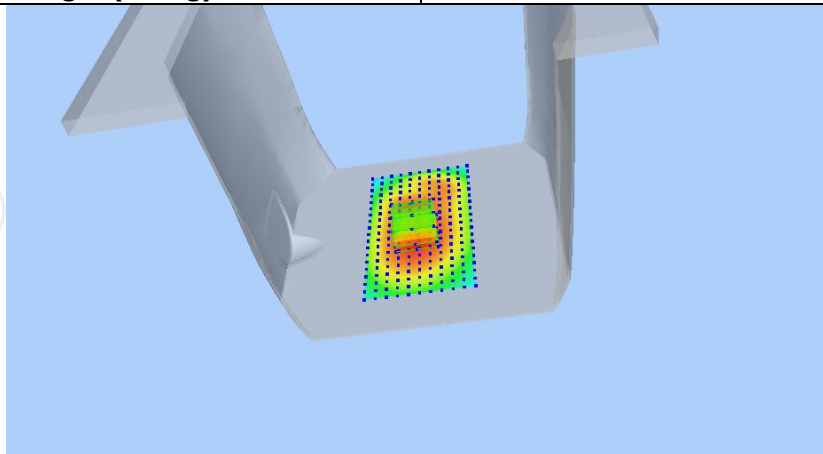


VOLUME SAR

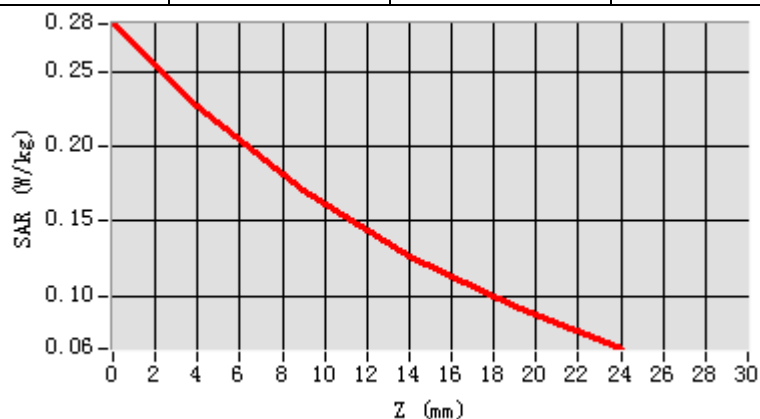


Maximum location: X=-2.00, Y=-9.00 SAR Peak: 0.28 W/kg

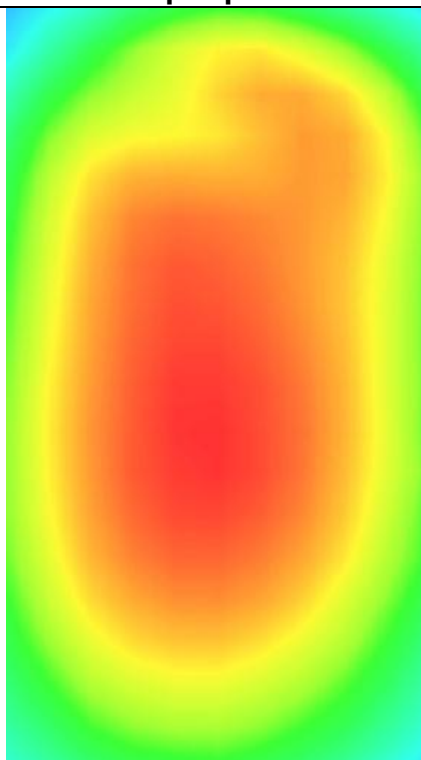
SAR 10g (W/Kg)	0.157407
SAR 1g (W/Kg)	0.218518



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



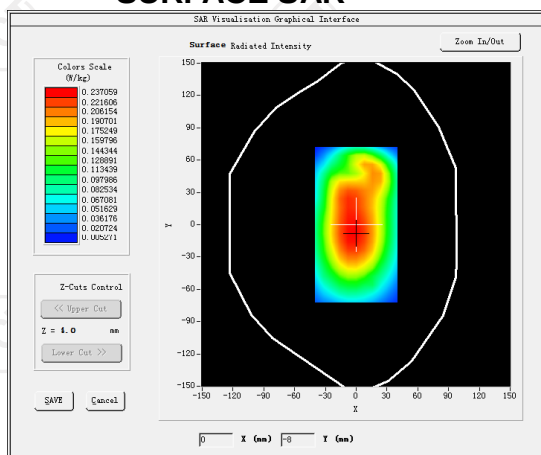
MEASUREMENT 3

High Band SAR (Channel 20600):

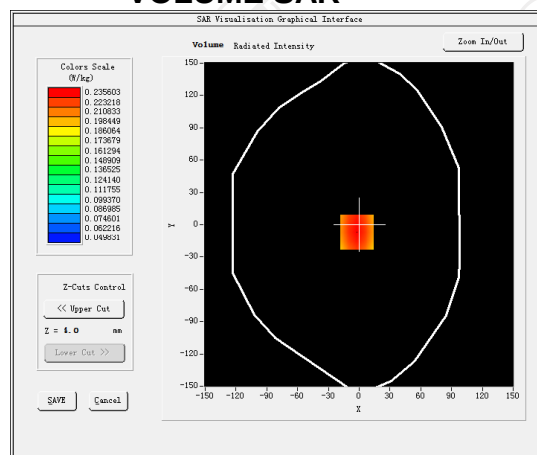
Date: 09/18/2020

Frequency (MHz)	844.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	-1.190000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back((hotspot 10mm)</u>
Band	<u>LTE band 5(1 RB#0)</u>

SURFACE SAR

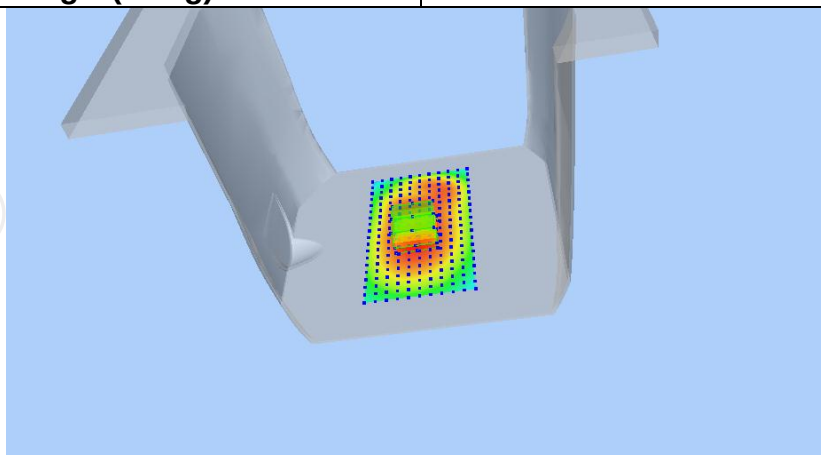


VOLUME SAR

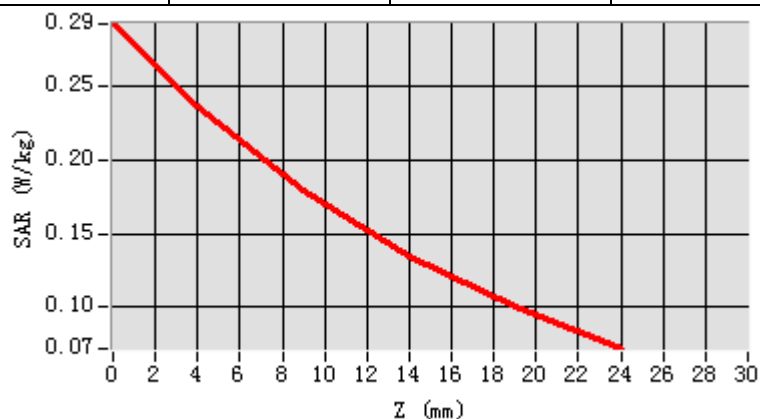


Maximum location: X=-2.00, Y=-7.00 SAR Peak: 0.29 W/kg

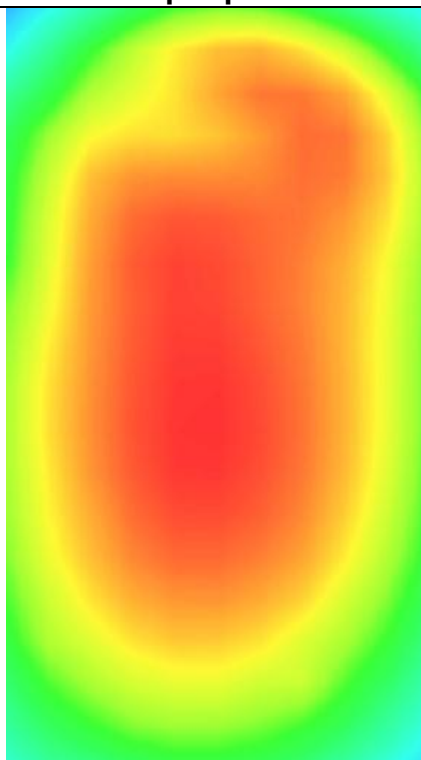
SAR 10g (W/Kg)	0.165419
SAR 1g (W/Kg)	0.227376



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



LTE Band 12

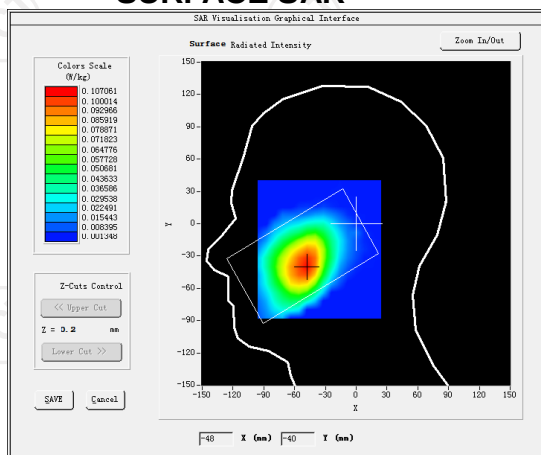
MEASUREMENT 1

Hight Band SAR (Channel 23130):

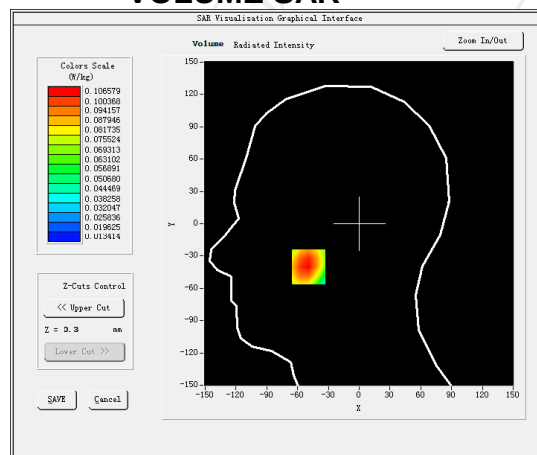
Date: 09/18/2020

Frequency (MHz)	711.000000
Relative permittivity (real part)	41.432976
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.862835
Variation (%)	-1.570000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 41/18 EPGO331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7, dx=8mm dy=8mm</u> <u>dz=5mm, Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 12(1 RB#0)</u>

SURFACE SAR



VOLUME SAR



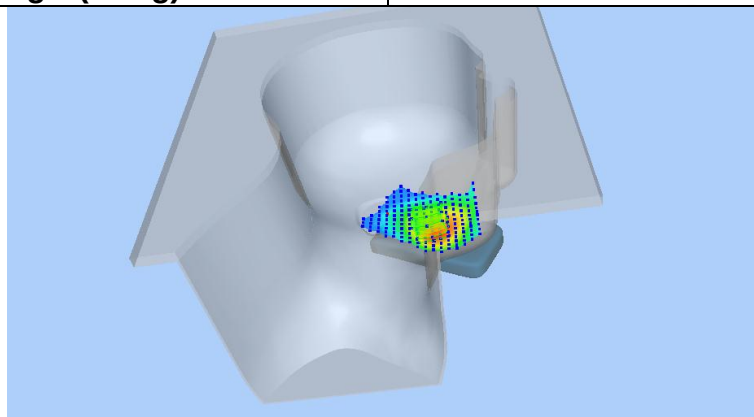
Maximum location: X=-39.00, Y=-41.00 SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)

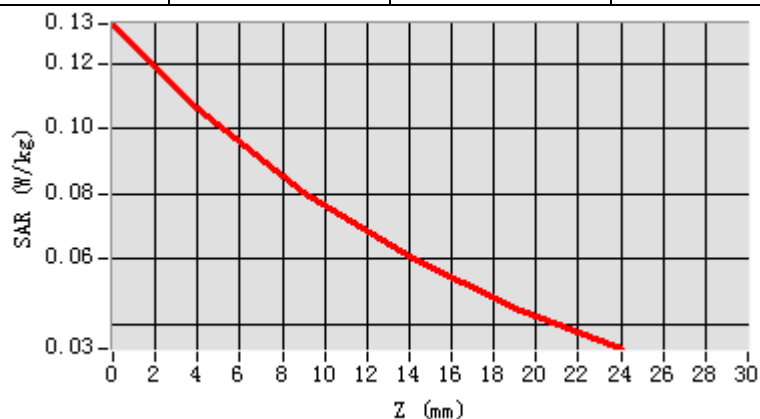
0.072366

SAR 1g (W/Kg)

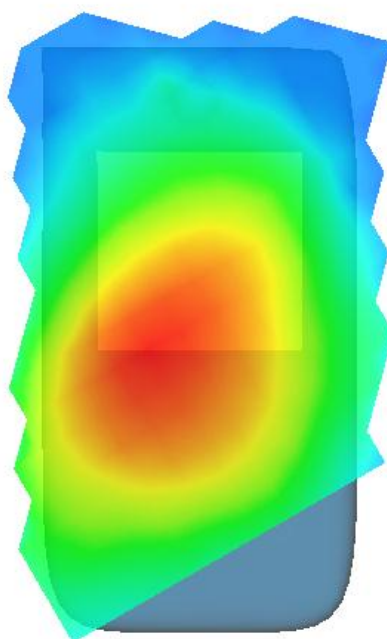
0.103483



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1331	0.1051	0.0707	0.0606	0.0451



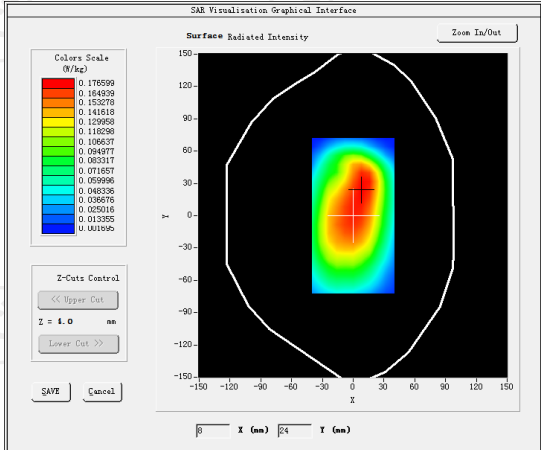
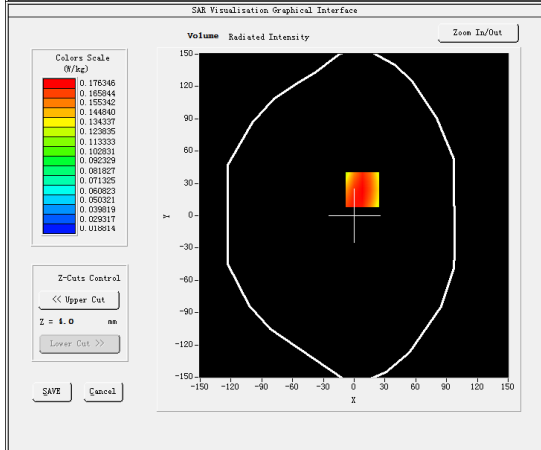
Hot spot position

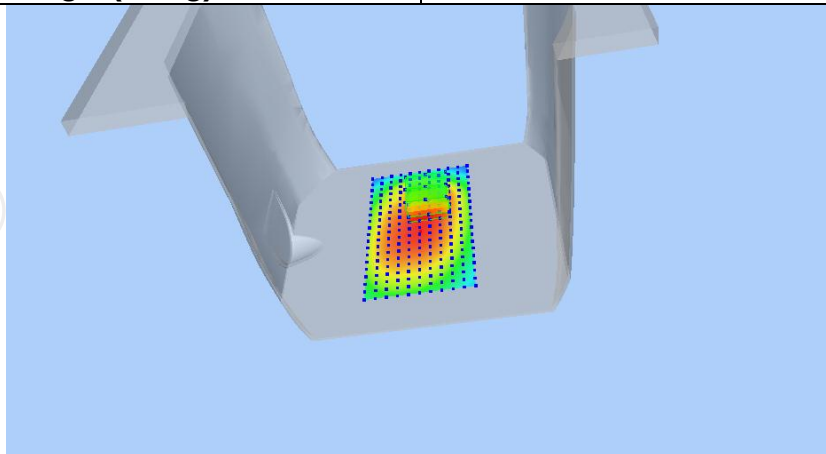


MEASUREMENT 2

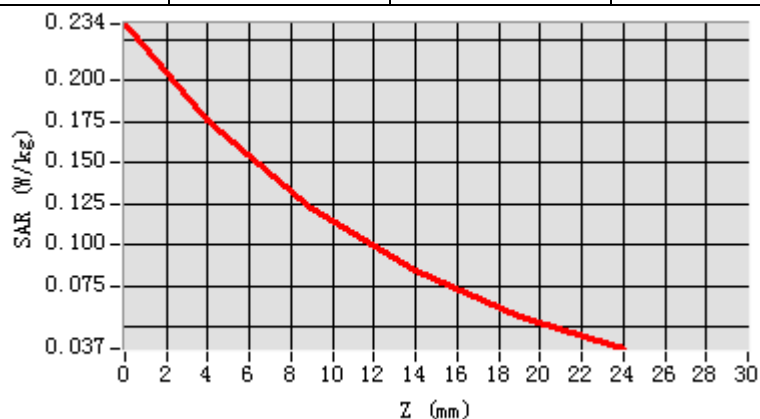
Hight Band SAR (Channel 23130):

Date: 09/18/2020

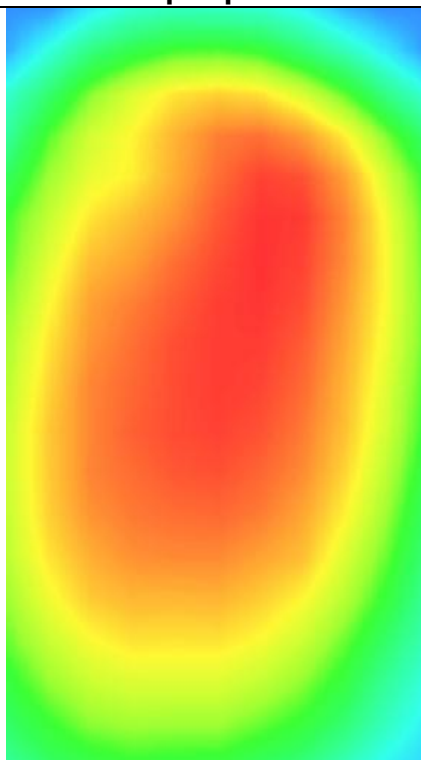
Frequency (MHz)	711.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	-2.820000
Crest Factor	
Probe Conversion factor	
E-Field Probe:	
Area Scan	
ZoomScan	
Phantom	
Device Position	
Band	
SURFACE SAR	
VOLUME SAR	
Maximum location: X=6.00, Y=14.00 SAR Peak: 0.15 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



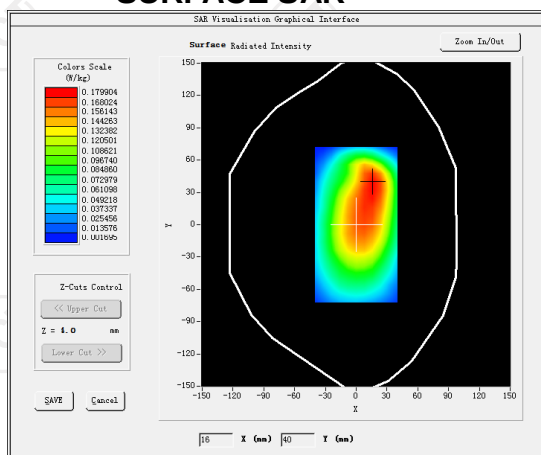
MEASUREMENT 3

Hight Band SAR (Channel 23130):

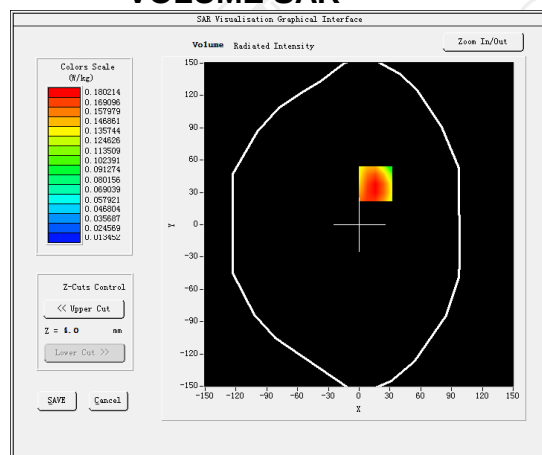
Date: 09/18/2020

Frequency (MHz)	711.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	0.060000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 12(1 RB#0)</u>

SURFACE SAR

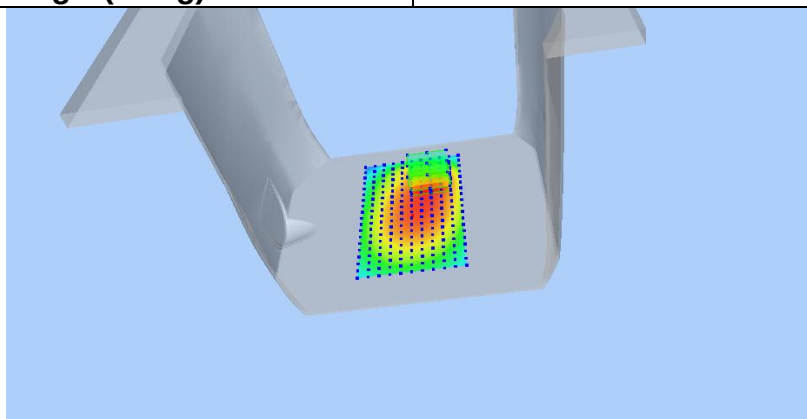


VOLUME SAR

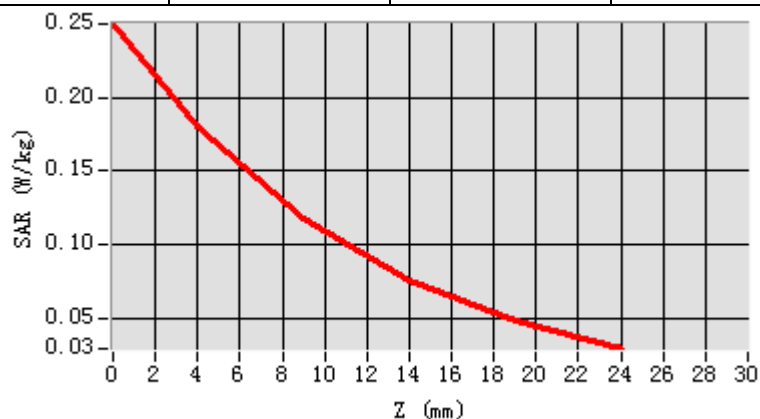


Maximum location: X=6.00, Y=28.00 SAR Peak: 0.15 W/kg

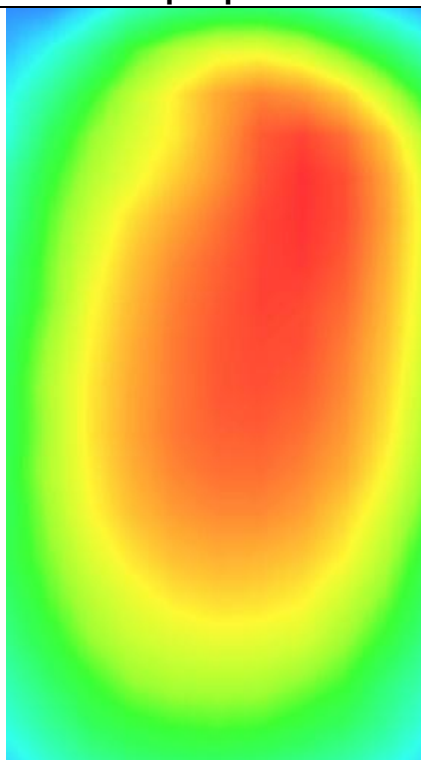
SAR 10g (W/Kg)	0.119621
SAR 1g (W/Kg)	0.382340



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



LTE Band 13

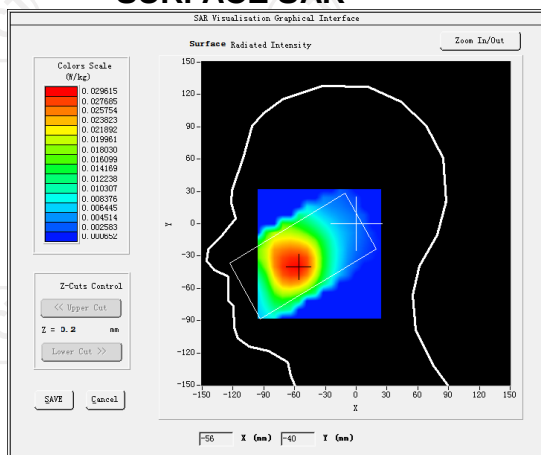
MEASUREMENT 1

Middle Band SAR (Channel 23230):

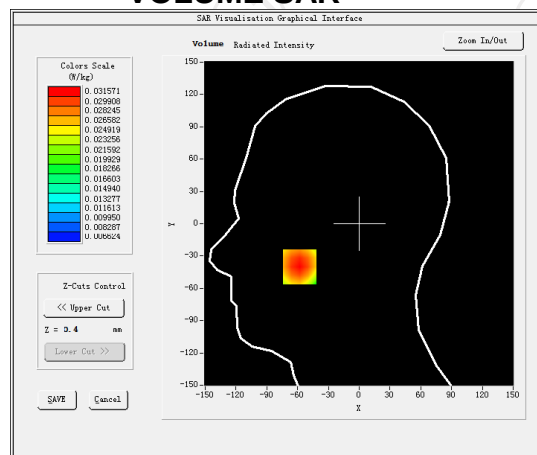
Date: 09/18/2020

Frequency (MHz)	782.000000
Relative permittivity (real part)	41.432976
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.862835
Variation (%)	-3.460000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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#0)

SURFACE SAR



VOLUME SAR



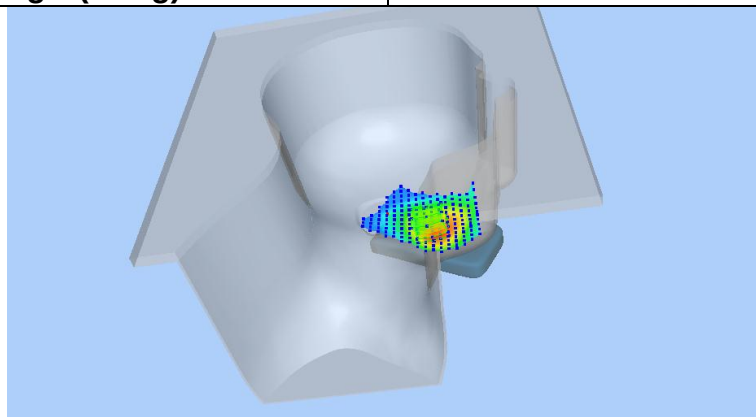
Maximum location: X=-49.00, Y=-40.00 SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)

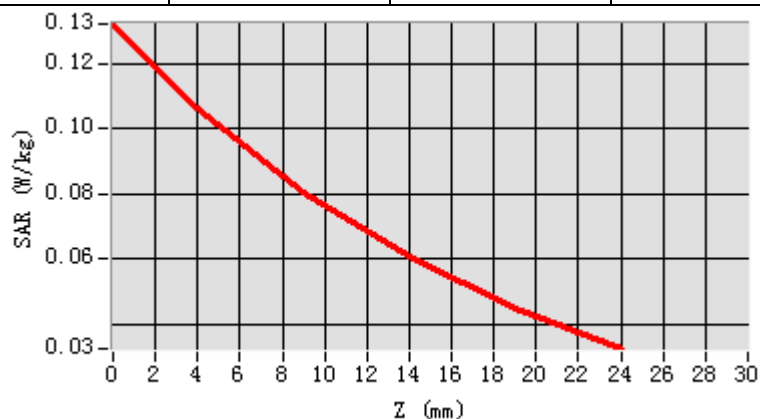
0.073466

SAR 1g (W/Kg)

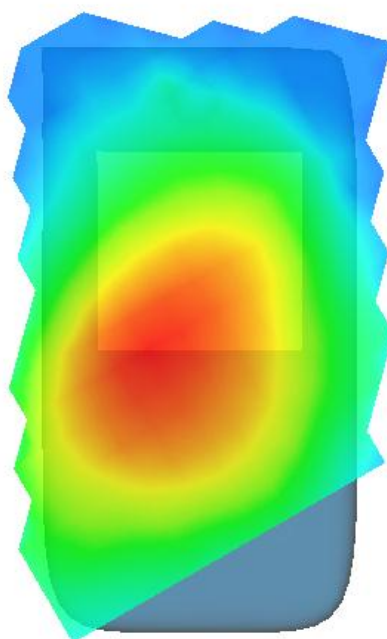
0.134583



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1321	0.1066	0.0808	0.0608	0.0452



Hot spot position



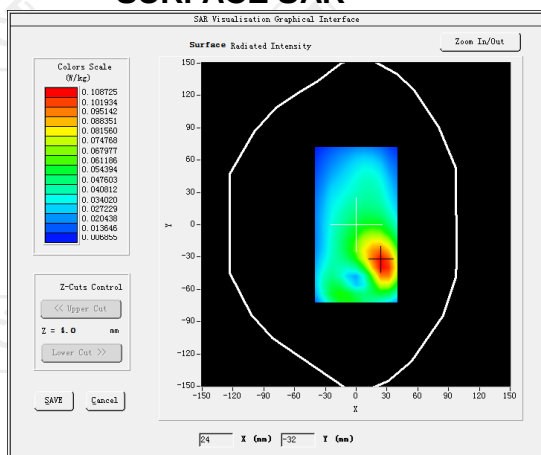
MEASUREMENT 2

Middle Band SAR (Channel 23230):

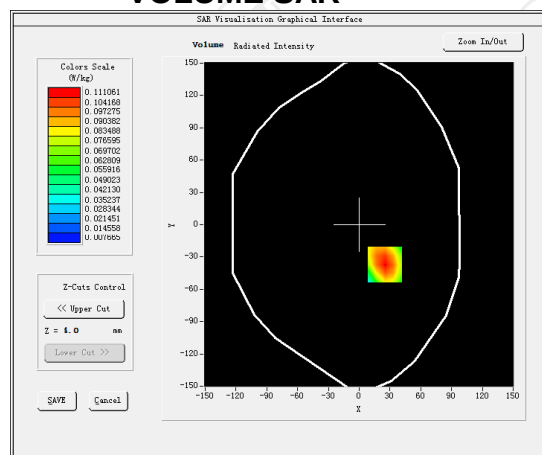
Date: 09/18/2020

Frequency (MHz)	782.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	-1.820000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	LTE band 12(1 RB#0)

SURFACE SAR

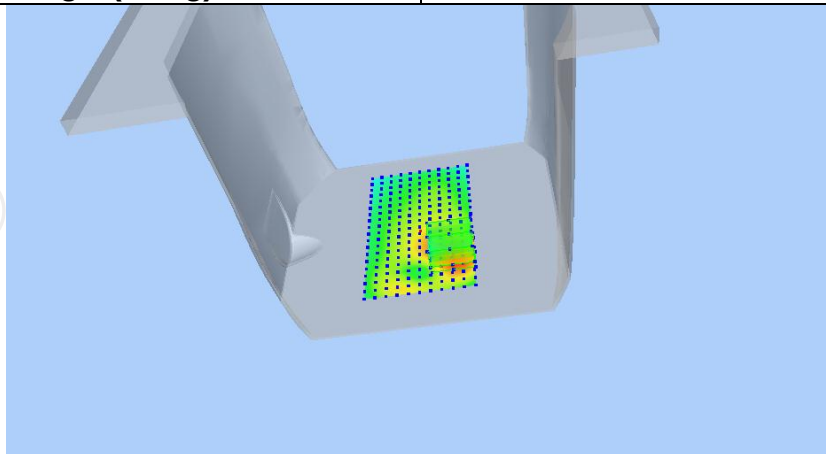


VOLUME SAR

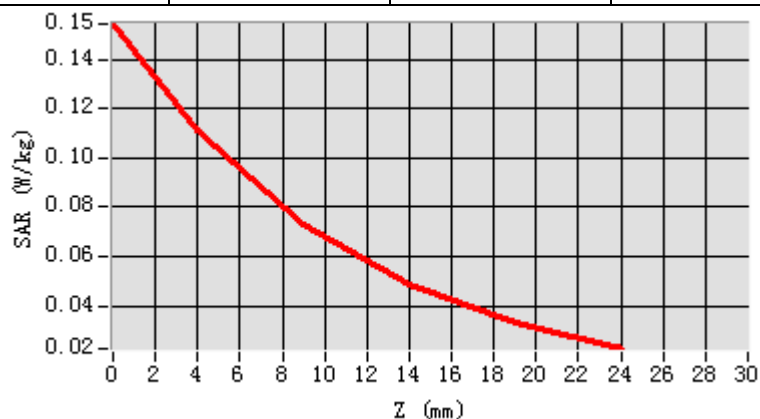


Maximum location: X=25.00, Y=-37.00 SAR Peak: 0.15 W/kg

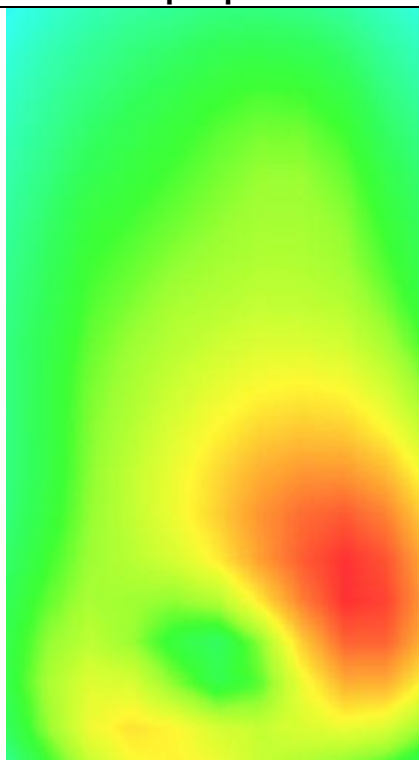
SAR 10g (W/Kg)	0.070729
SAR 1g (W/Kg)	0.111487



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1543	0.1111	0.0732	0.0489	0.0335



Hot spot position



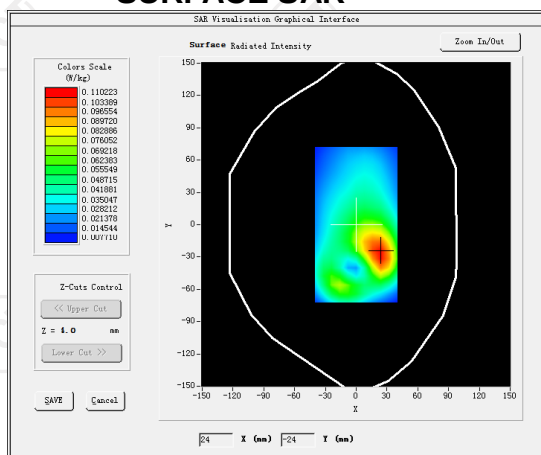
MEASUREMENT 3

Middle Band SAR (Channel 23230):

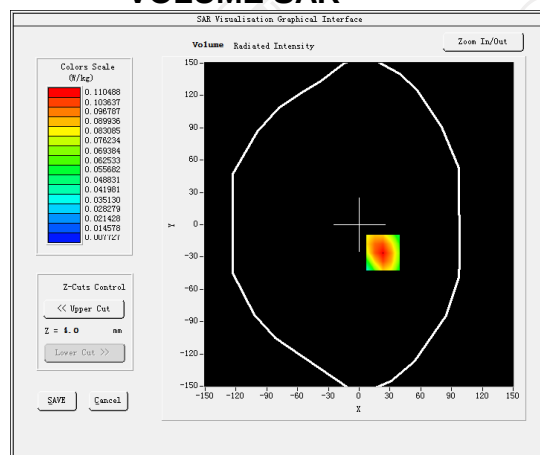
Date: 09/18/2020

Frequency (MHz)	782.000000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	12.468860
Conductivity (S/m)	0.934272
Variation (%)	-0.650000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 12(1 RB#0)</u>

SURFACE SAR

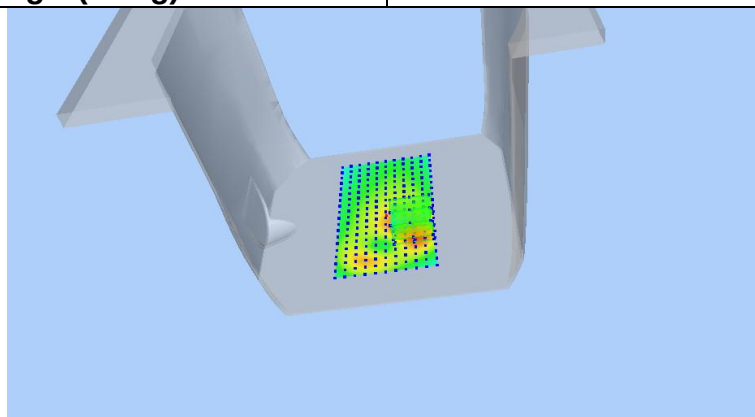


VOLUME SAR

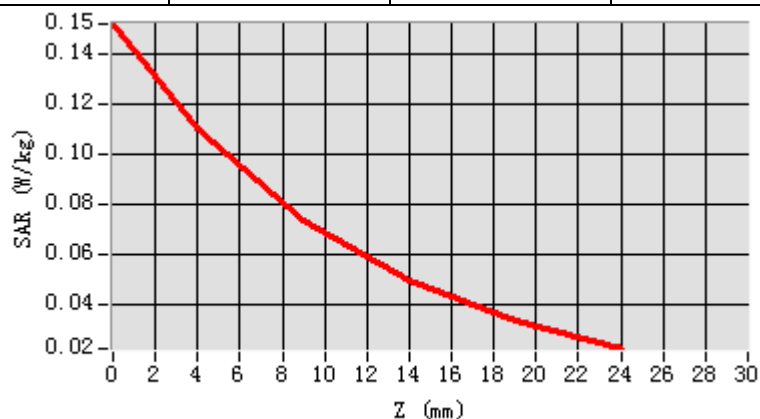


Maximum location: X=23.00, Y=-26.00 SAR Peak: 0.15 W/kg

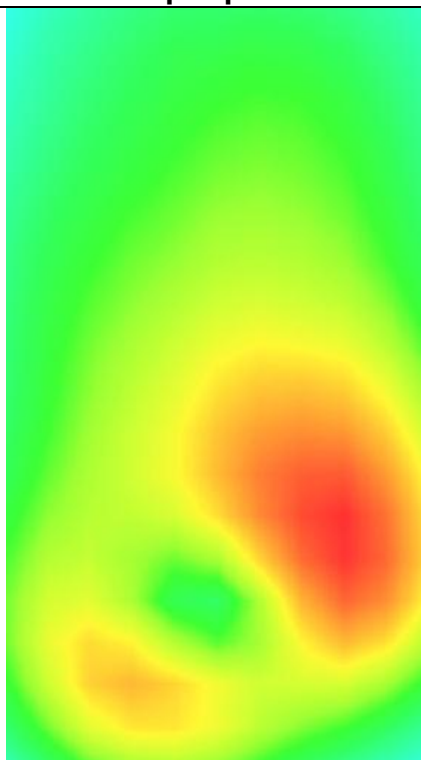
SAR 10g (W/Kg)	0.070423
SAR 1g (W/Kg)	0.160953



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1518	0.1105	0.0738	0.0496	0.0339



Hot spot position

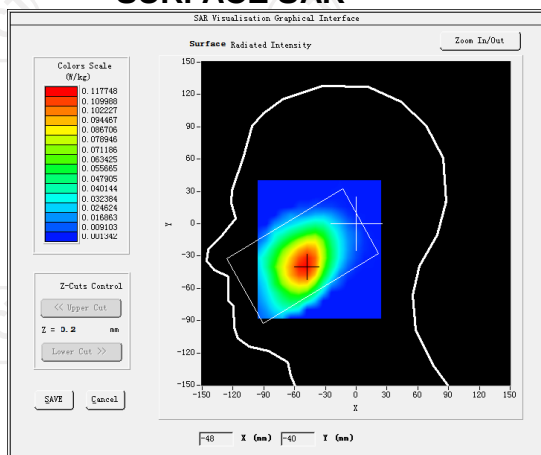


LTE Band 17

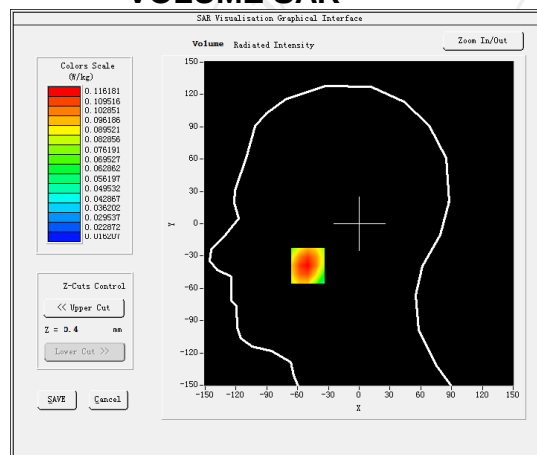
MEASUREMENT 1

Lower Band SAR (Channel 23780):		Date: 09/18/2020
Frequency (MHz)	709.000000	
Relative permittivity (real part)	41.430182	
Relative permittivity (imaginary part)	12.468765	
Conductivity (S/m)	0.859210	
Variation (%)	0.720000	
Crest Factor	1.0	
Probe Conversion factor	1.80	
E-Field Probe:	SSE2 (SN 41/18 EPG0331)	
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



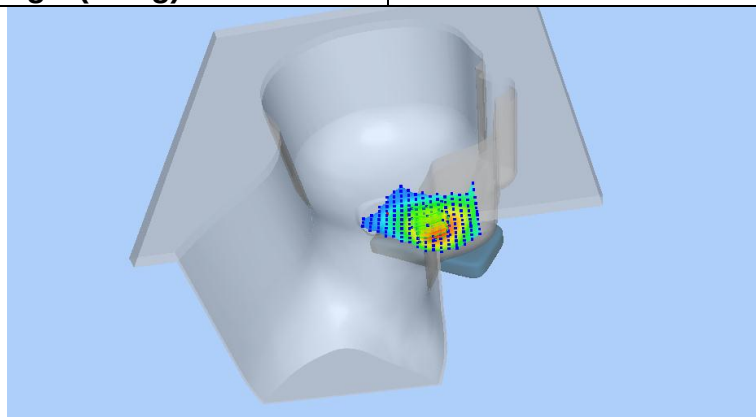
Maximum location: X=-50.00, Y=-39.00 SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)

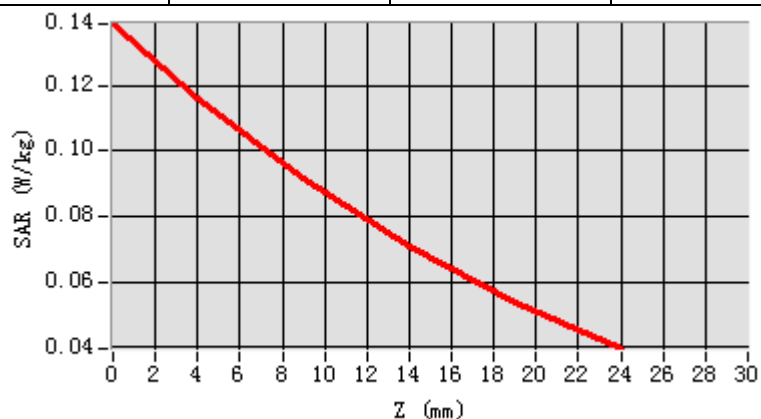
0.081643

SAR 1g (W/Kg)

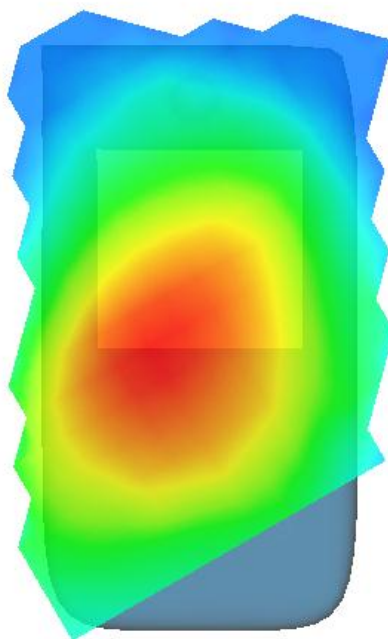
0.113733



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



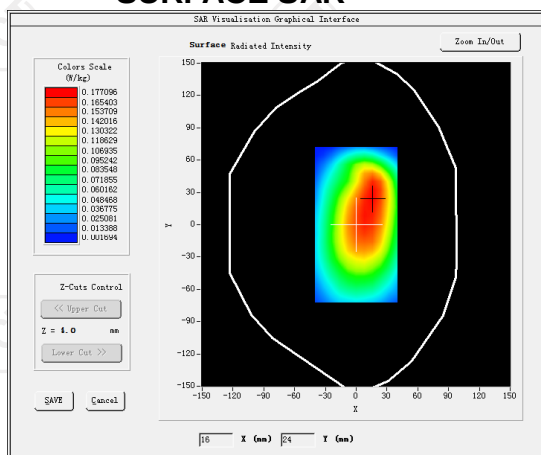
MEASUREMENT 2

Lower Band SAR (Channel 23780):

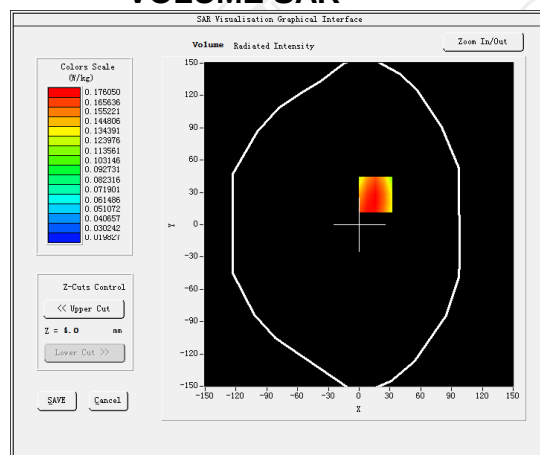
Date: 09/18/2020

Frequency (MHz)	709.000000
Relative permittivity (real part)	55.263812
Relative permittivity (imaginary part)	12.468867
Conductivity (S/m)	0.930822
Variation (%)	0.290000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	LTE band 17(1 RB#24)

SURFACE SAR

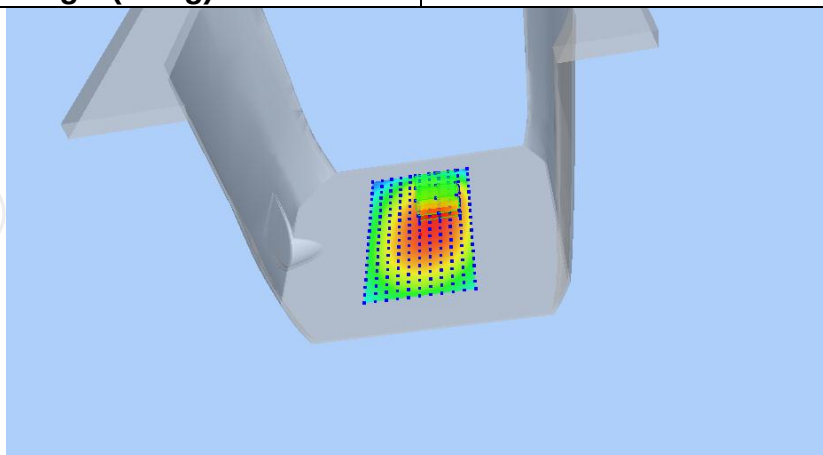


VOLUME SAR

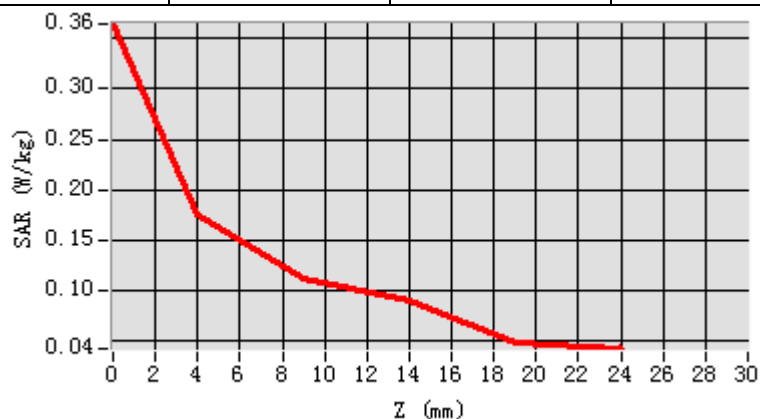


Maximum location: X=16.00, Y=28.00 SAR Peak: 0.23 W/kg

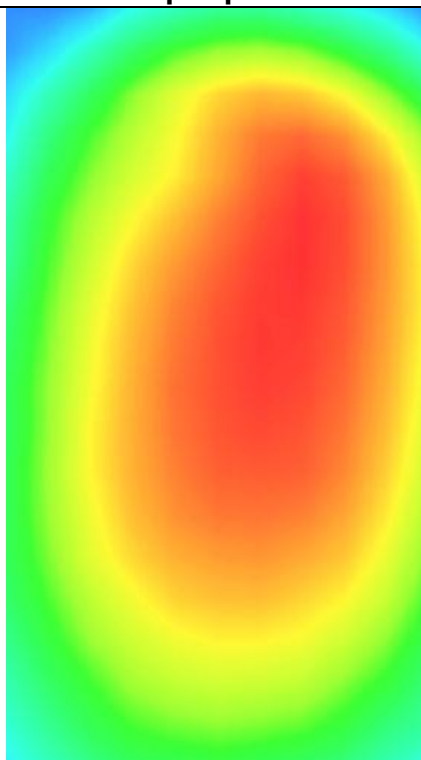
SAR 10g (W/Kg)	0.122715
SAR 1g (W/Kg)	0.180877



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



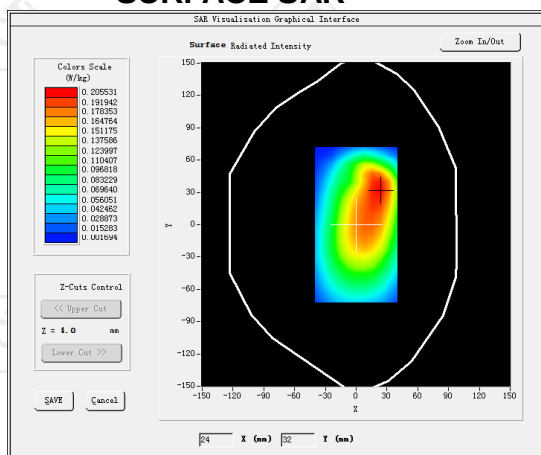
MEASUREMENT 3

Lower Band SAR (Channel 23780):

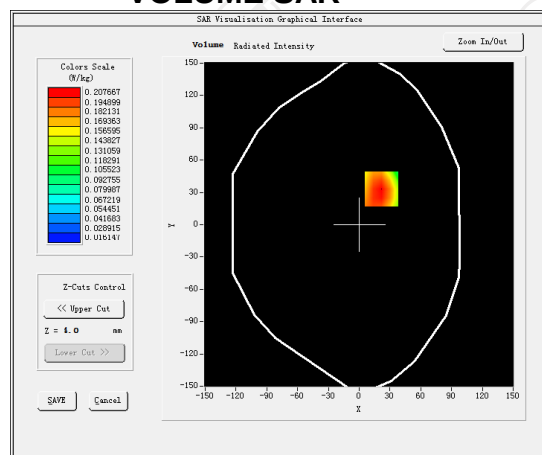
Date: 09/18/2020

Frequency (MHz)	709.000000
Relative permittivity (real part)	55.263812
Relative permittivity (imaginary part)	12.468867
Conductivity (S/m)	0.881392
Variation (%)	0.170000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 17(1 RB#24)</u>

SURFACE SAR



VOLUME SAR



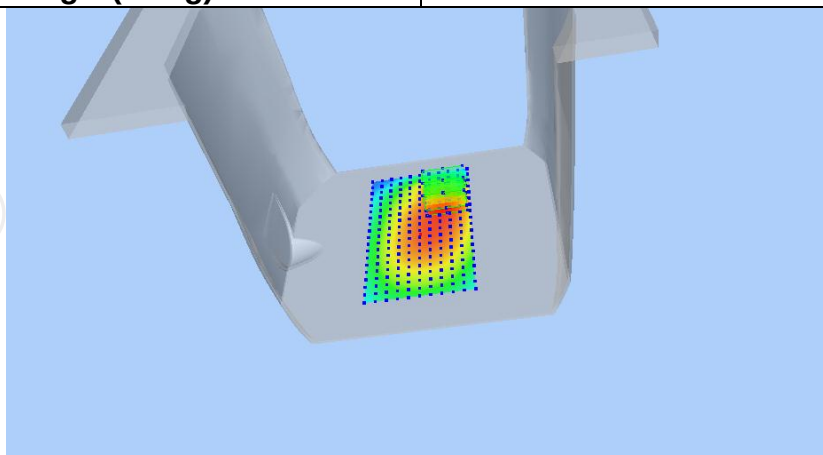
Maximum location: X=22.00, Y=33.00 SAR Peak: 0.29 W/kg

SAR 10g (W/Kg)

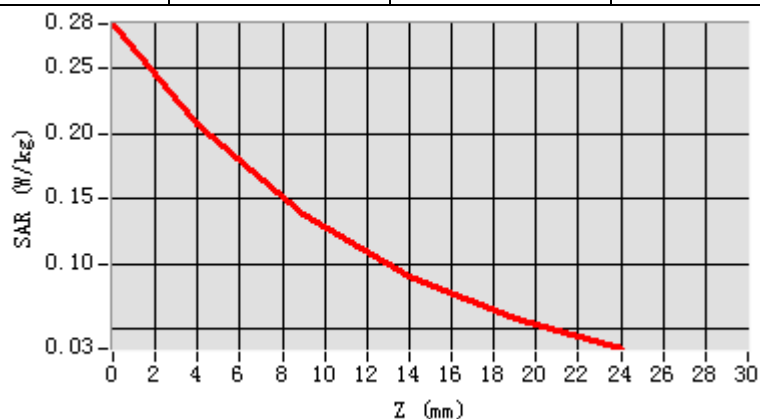
0.138321

SAR 1g (W/Kg)

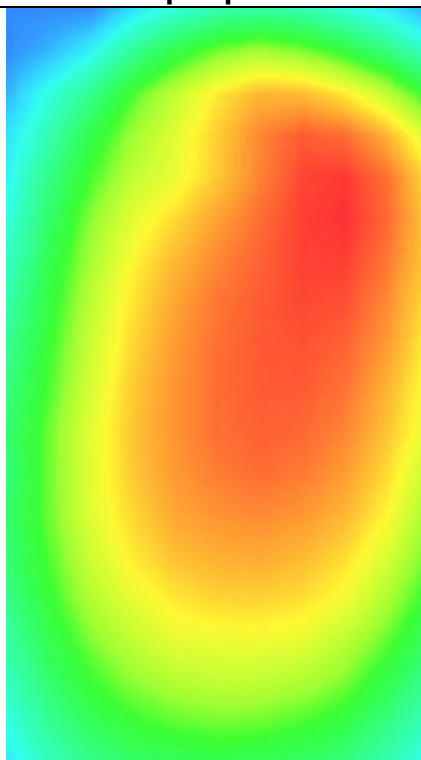
0.211390



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



LTE Band 25

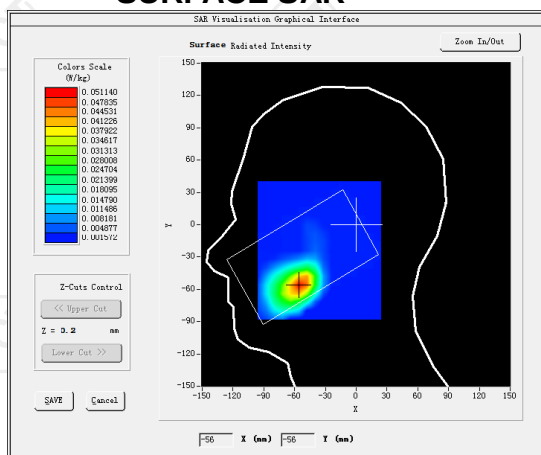
MEASUREMENT 1

Lower Band SAR (Channel 26140):

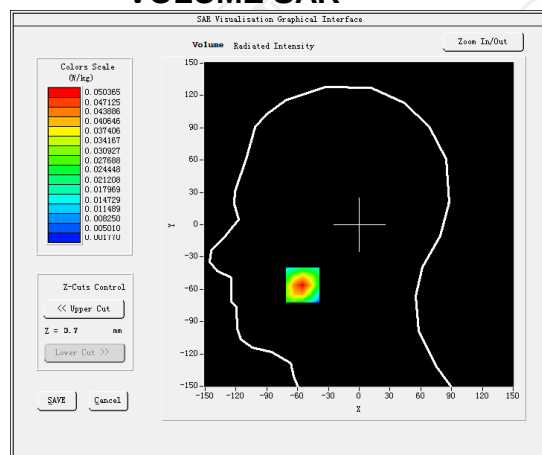
Date: 09/20/2020

Frequency (MHz)	1860.000000
Relative permittivity (real part)	39.065208
Relative permittivity (imaginary part)	14.607628
Conductivity (S/m)	1.342108
Variation (%)	-1.250000
Crest Factor	1.0
Probe Conversion factor	2.08
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Left head</u>
Device Position	<u>Cheek</u>
Band	<u>LTE band 25 (1 RB#0)</u>

SURFACE SAR



VOLUME SAR



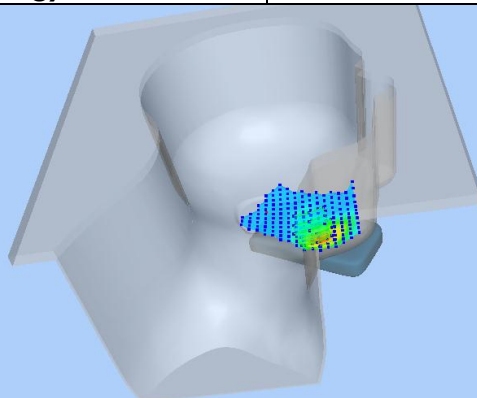
Maximum location: X=-32.00, Y=-14.00 SAR Peak: 0.53 W/kg

SAR 10g (W/Kg)

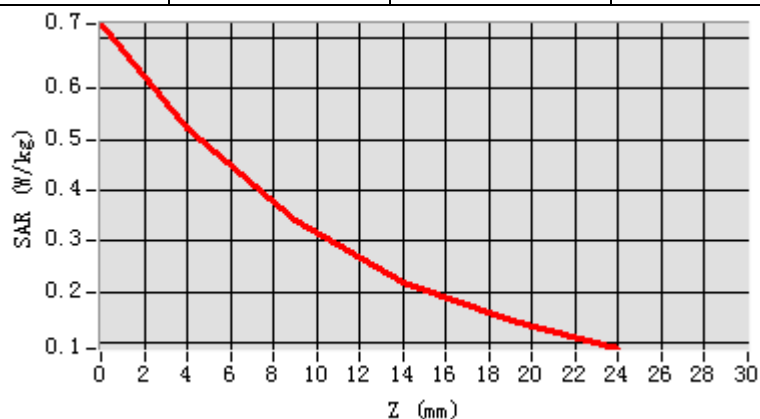
0.100930

SAR 1g (W/Kg)

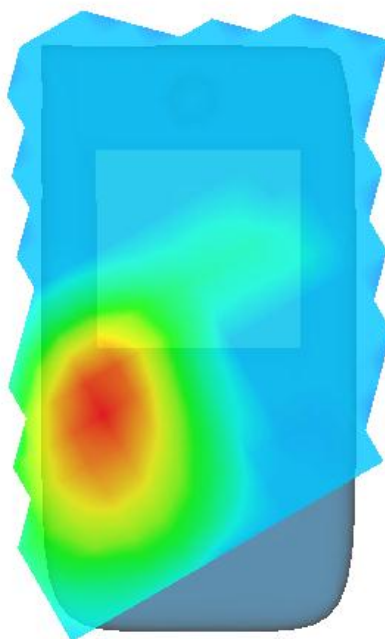
0.333160



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7280	0.5221	0.3395	0.2200	0.1423



Hot spot position



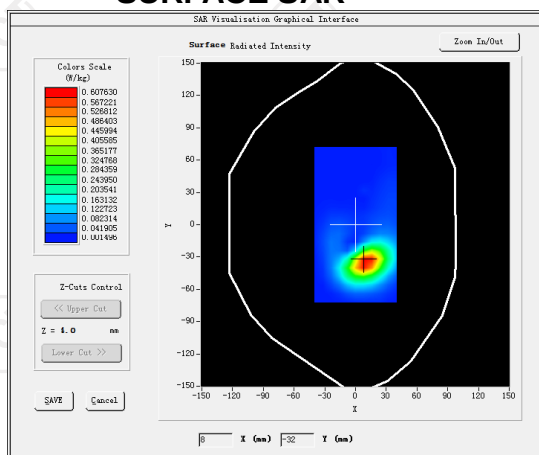
MEASUREMENT 2

Lower Band SAR (Channel 26140):

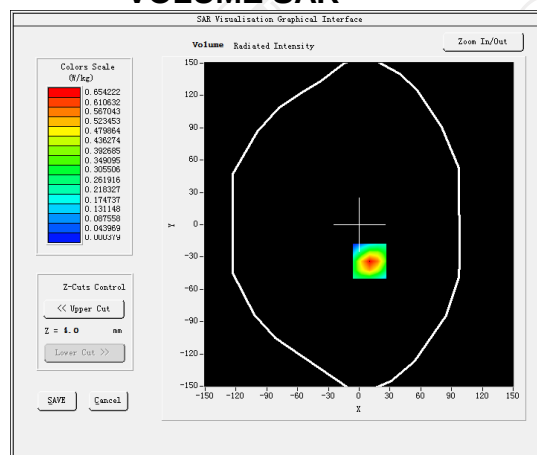
Date: 09/20/2020

Frequency (MHz)	1860.000000
Relative permittivity (real part)	53.291337
Relative permittivity (imaginary part)	15.232400
Conductivity (S/m)	1.531736
Variation (%)	-0.130000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	LTE band 25 (1 RB#0)

SURFACE SAR

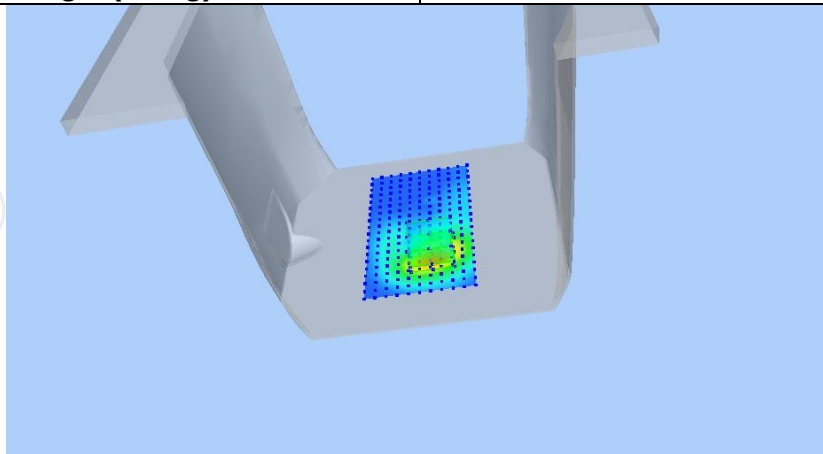


VOLUME SAR

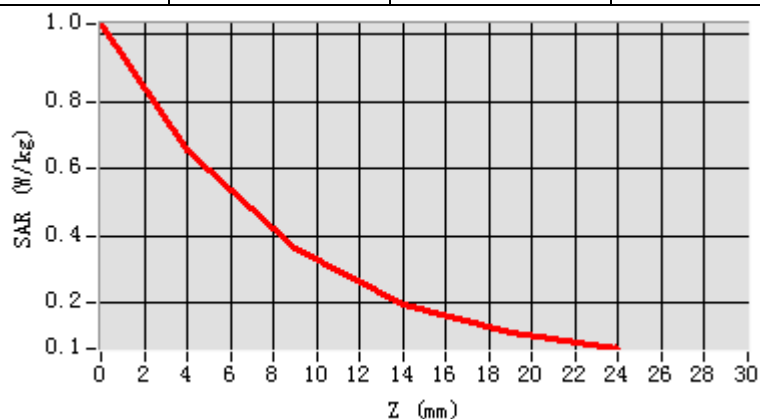


Maximum location: X=20.00, Y=-32.00 SAR Peak: 1.02 W/kg

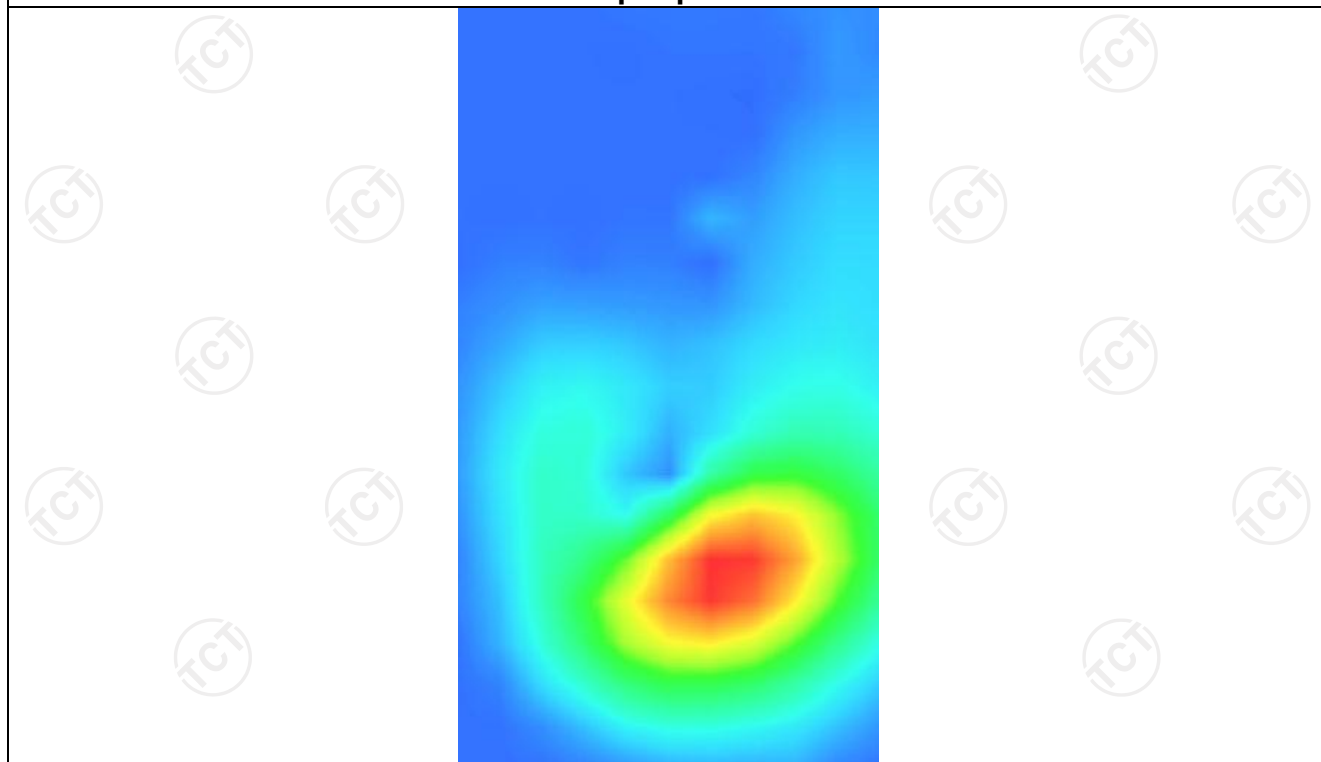
SAR 10g (W/Kg)	0.300142
SAR 1g (W/Kg)	0.601212



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.0328	0.6542	0.3586	0.1964	0.1115



Hot spot position



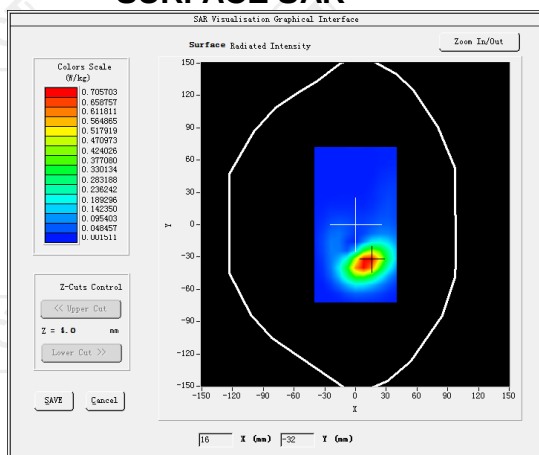
MEASUREMENT 3

Lower Band SAR (Channel 26140):

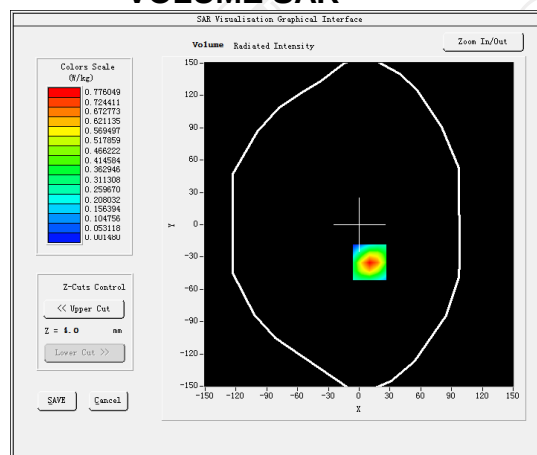
Date: 09/20/2020

Frequency (MHz)	1860.000000
Relative permittivity (real part)	53.291337
Relative permittivity (imaginary part)	15.232400
Conductivity (S/m)	1.531736
Variation (%)	-0.270000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 25 (1 RB#0)</u>

SURFACE SAR

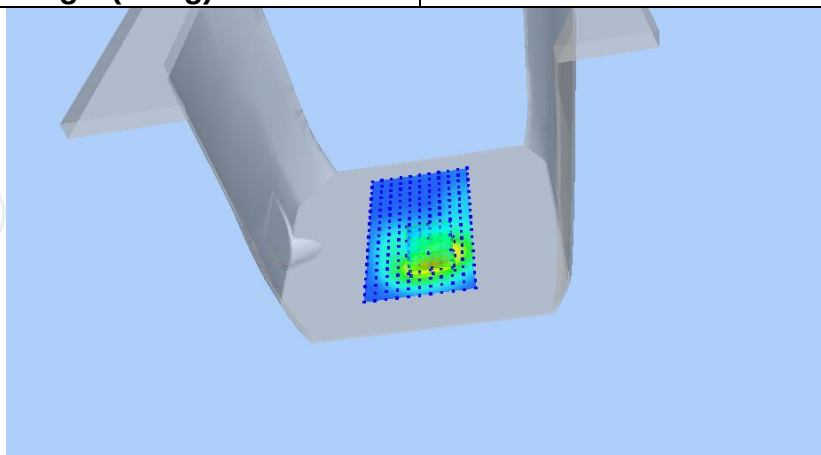


VOLUME SAR

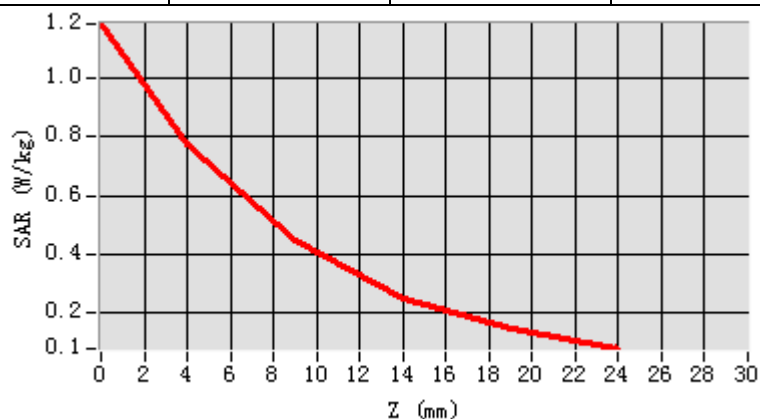


Maximum location: X=9.00, Y=-30.00 SAR Peak: 1.00 W/kg

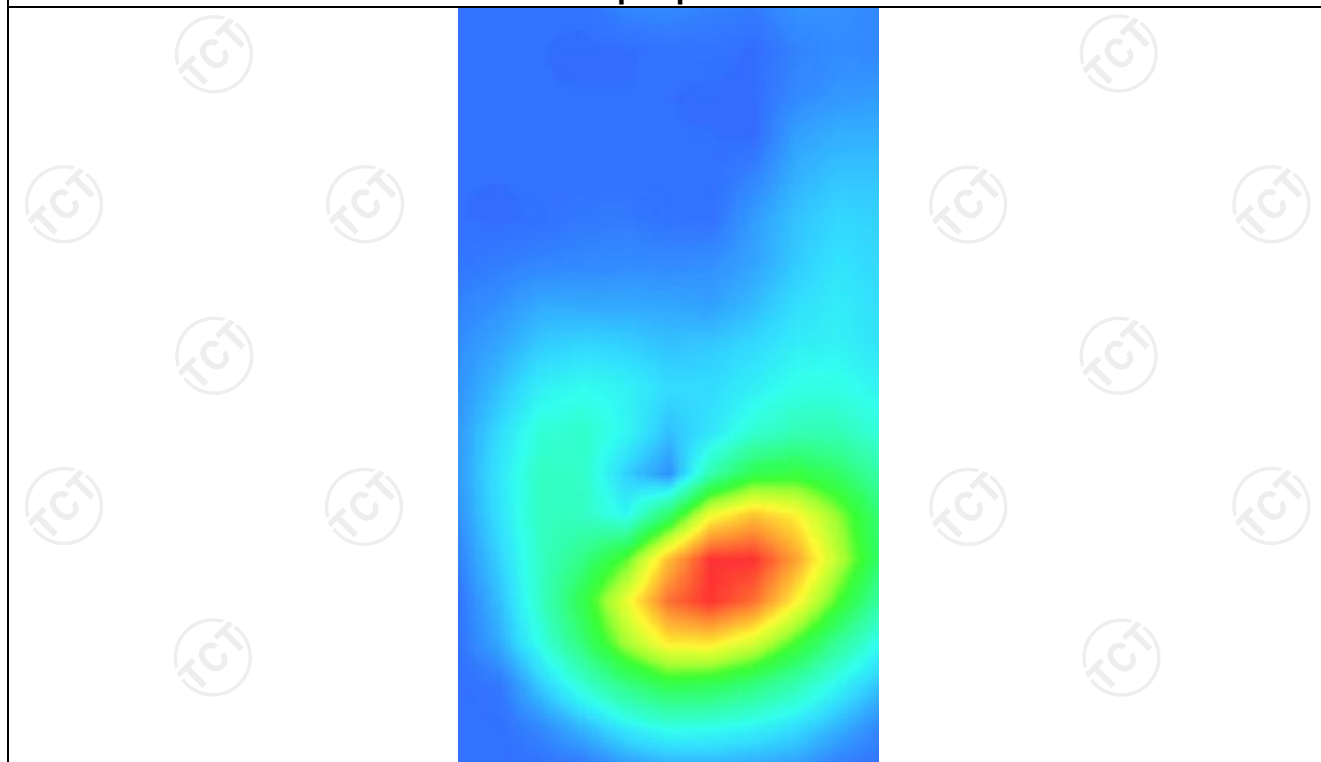
SAR 10g (W/Kg)	0.352250
SAR 1g (W/Kg)	0.711180



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.1879	0.7760	0.4425	0.2492	0.1412



Hot spot position



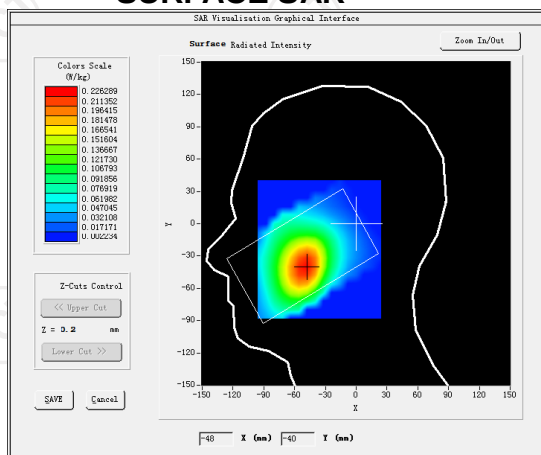
LTE Band 26

MEASUREMENT 1

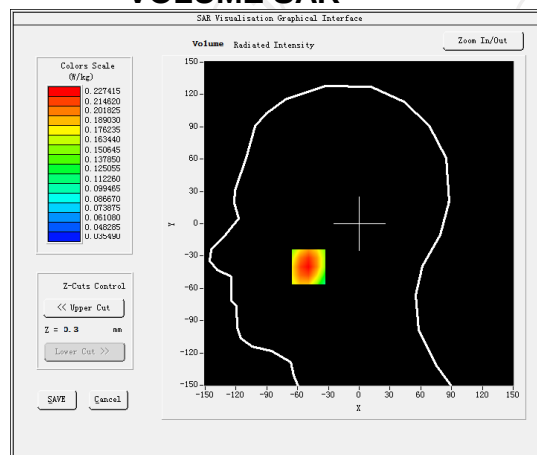
Hight Band SAR (Channel 26965): Date: 09/18/2020

Frequency (MHz)	841.500000
Relative permittivity (real part)	41.422976
Relative permittivity (imaginary part)	18.468860
Conductivity (S/m)	0.882835
Variation (%)	1.320000
Crest Factor	1.0
Probe Conversion factor	1.80
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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



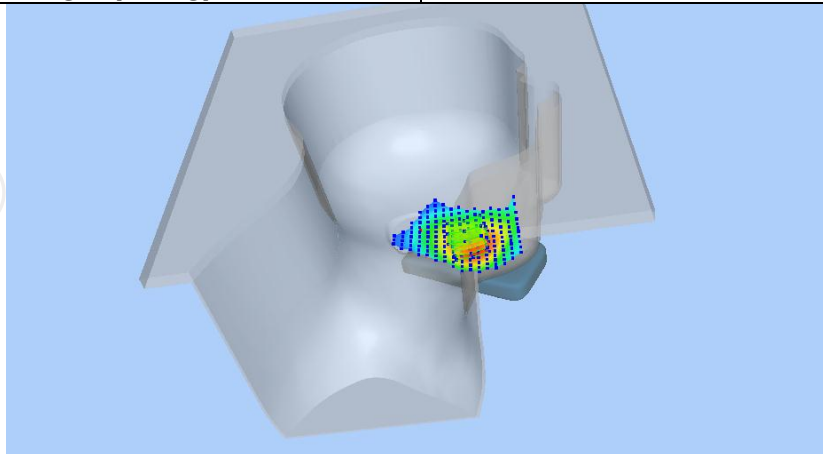
Maximum location: X=-40.00, Y=-41.00 SAR Peak: 0.17 W/kg

SAR 10g (W/Kg)

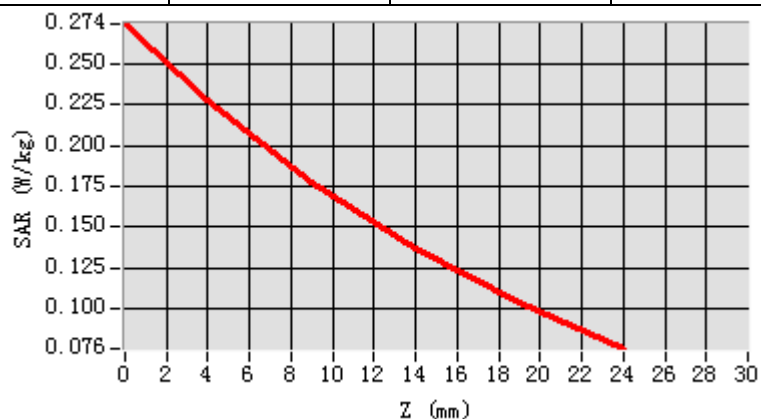
0.157551

SAR 1g (W/Kg)

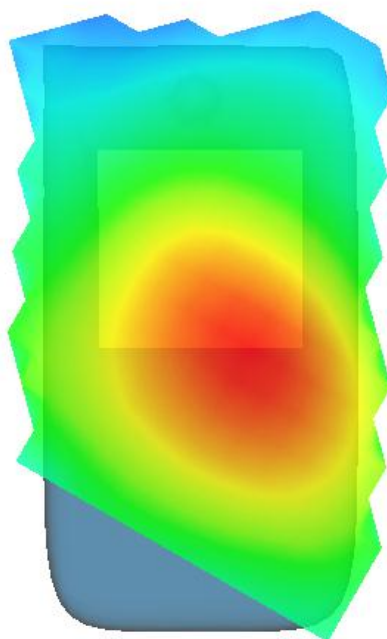
0.215212



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



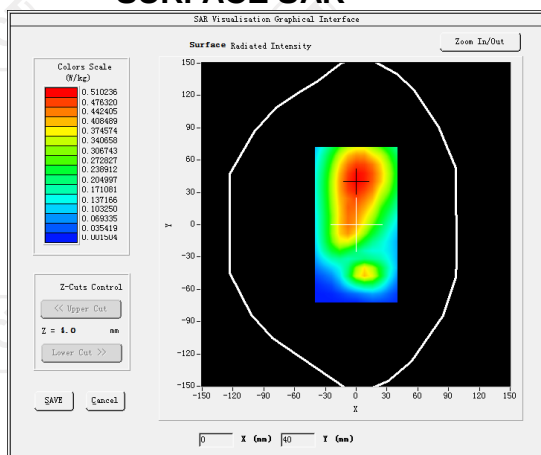
MEASUREMENT 2

Hight Band SAR (Channel 26965):

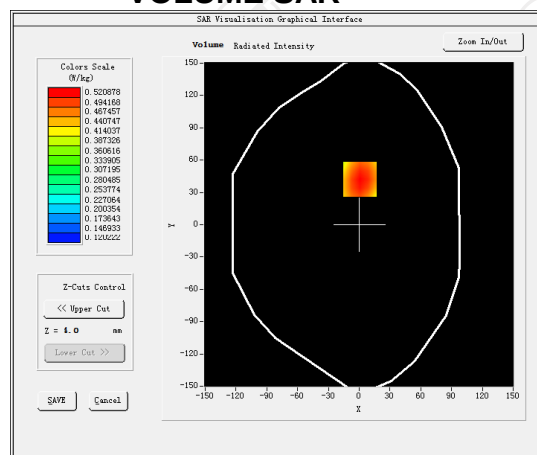
Date: 09/18/2020

Frequency (MHz)	841.500000
Relative permittivity (real part)	55.240832
Relative permittivity (imaginary part)	21.468860
Conductivity (S/m)	0.944272
Variation (%)	1.100000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	<u>Validation plane</u>
Device Position	<u>Body back(10mm)</u>
Band	<u>LTE band 26(1 RB#0)</u>

SURFACE SAR

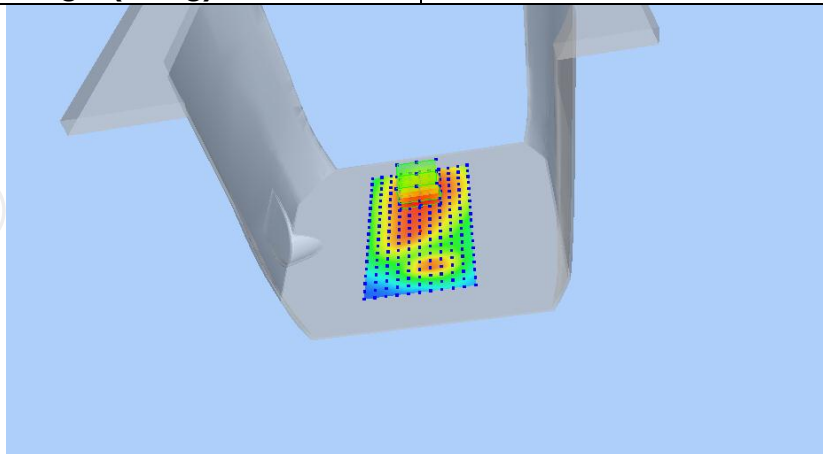


VOLUME SAR

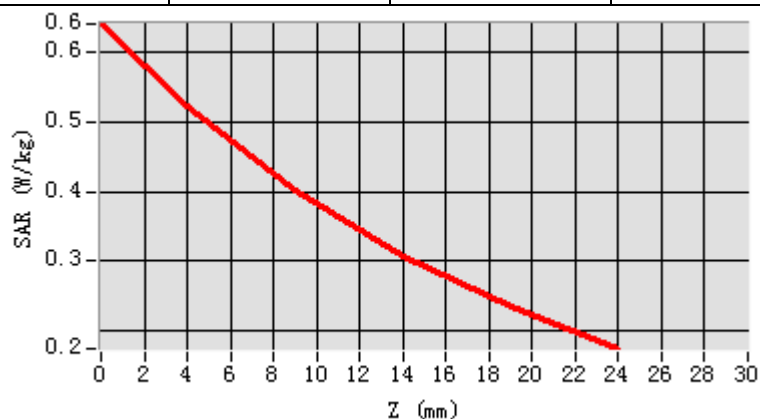


Maximum location: X=2.00, Y=32.00 SAR Peak: 0.52 W/kg

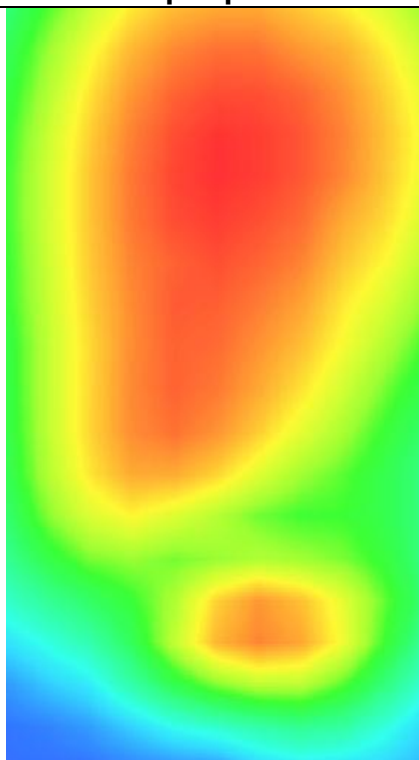
SAR 10g (W/Kg)	0.371244
SAR 1g (W/Kg)	0.501571



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



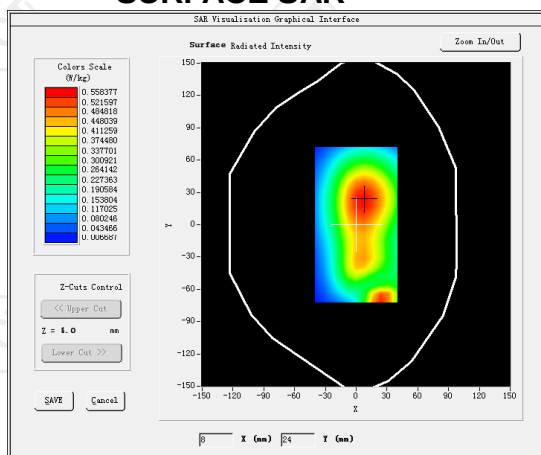
MEASUREMENT 3

Hight Band SAR (Channel 26965):

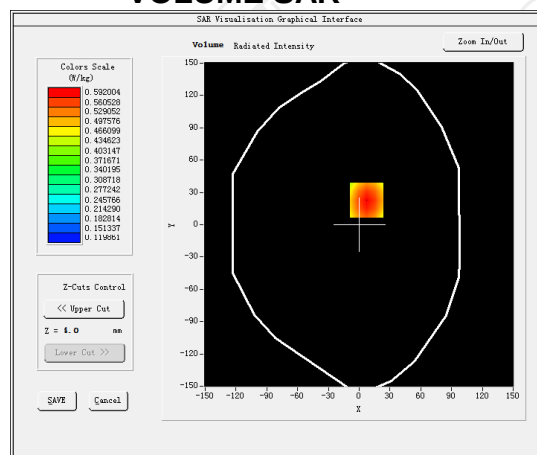
Date: 09/18/2020

Frequency (MHz)	841.500000
Relative permittivity (real part)	55.260832
Relative permittivity (imaginary part)	21.468860
Conductivity (S/m)	0.944272
Variation (%)	-1.260000
Crest Factor	1.0
Probe Conversion factor	1.86
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	<u>Body back(hotspot 10mm)</u>
Band	<u>LTE band 26(1 RB#0)</u>

SURFACE SAR

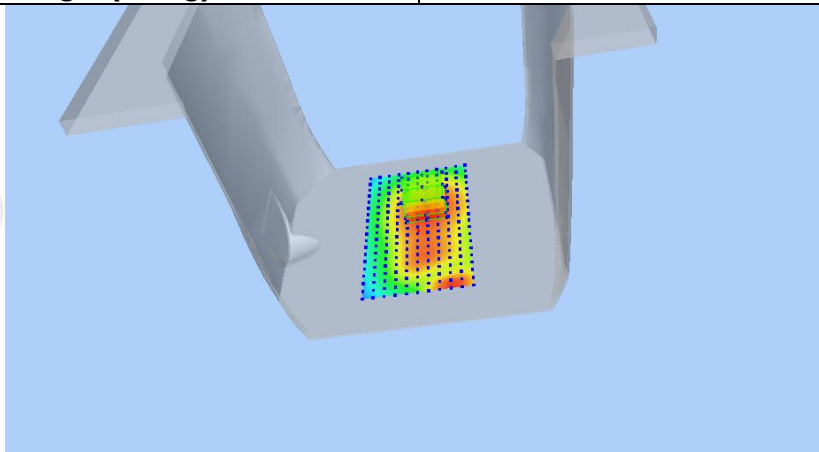


VOLUME SAR

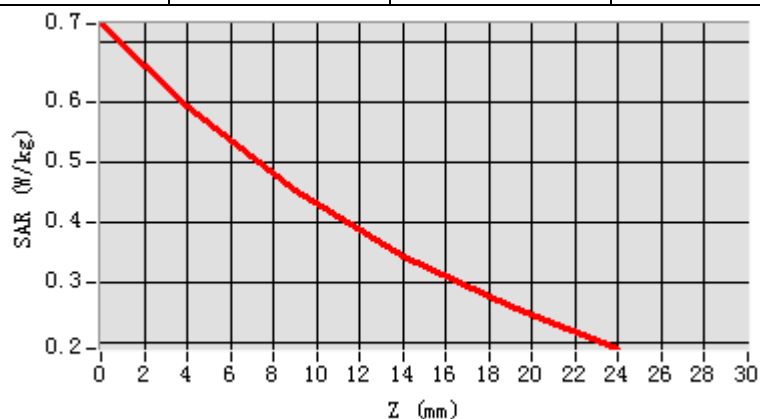


Maximum location: X=6.00, Y=12.00 SAR Peak: 0.70 W/kg

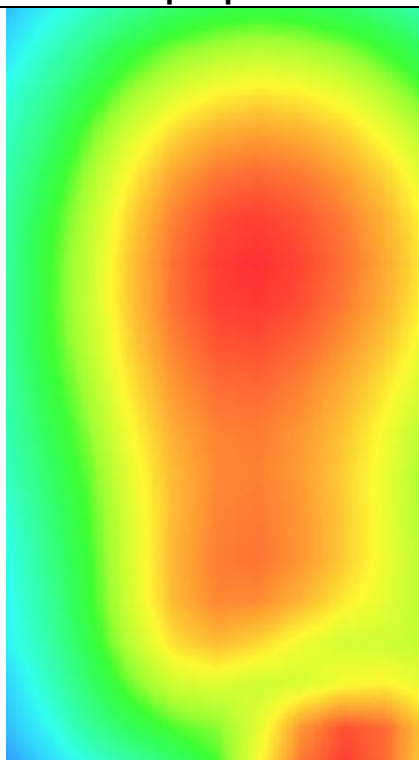
SAR 10g (W/Kg)	0.411566
SAR 1g (W/Kg)	0.568731



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7311	0.5944	0.4521	0.3422	0.2562



Hot spot position



LTE Band 41

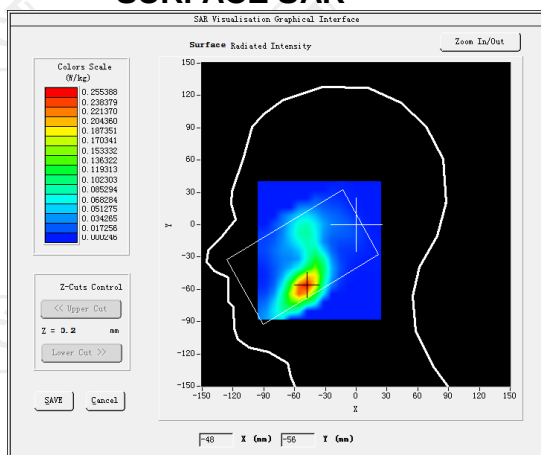
MEASUREMENT 1

Lower Band SAR (Channel 39750):

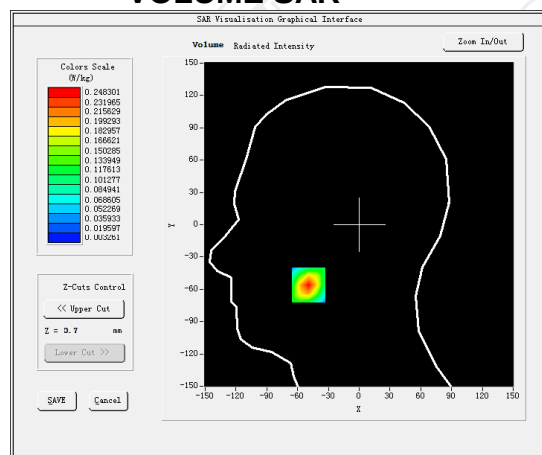
Date: 09/29/2020

Frequency (MHz)	2506.000000
Relative permittivity (real part)	38.862831
Relative permittivity (imaginary part)	13.546209
Conductivity (S/m)	1.932611
Variation (%)	-0.570000
Crest Factor	1.0
Probe Conversion factor	4.36
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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	LTE band 41(1 RB#0)

SURFACE SAR



VOLUME SAR



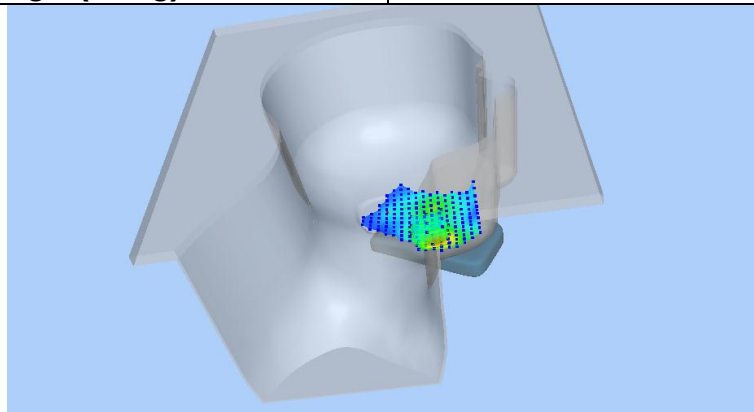
Maximum location: X=-19.00, Y=-26.00 SAR Peak: 0.41 W/kg

SAR 10g (W/Kg)

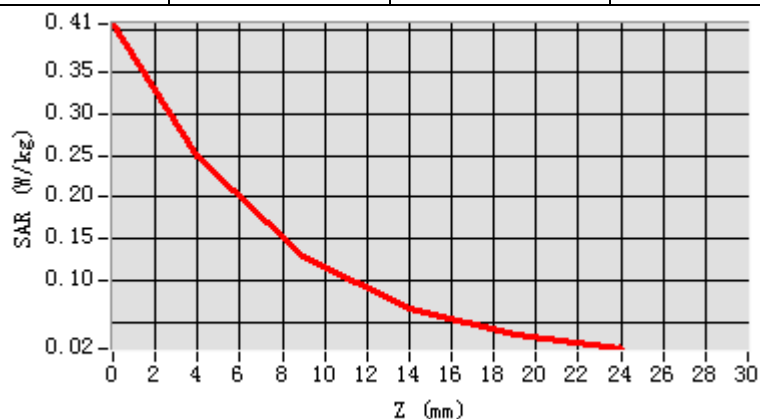
0.111552

SAR 1g (W/Kg)

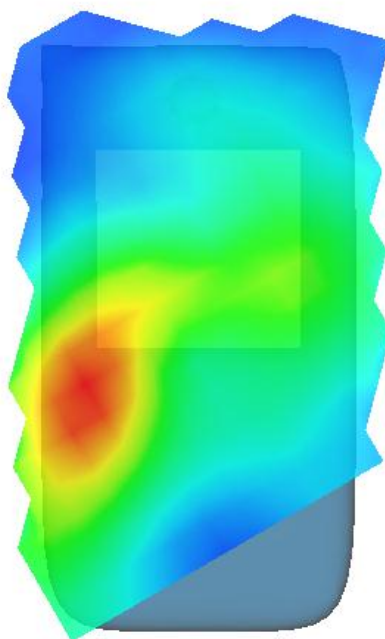
0.233455



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4061	0.2471	0.1272	0.0656	0.0355



Hot spot position



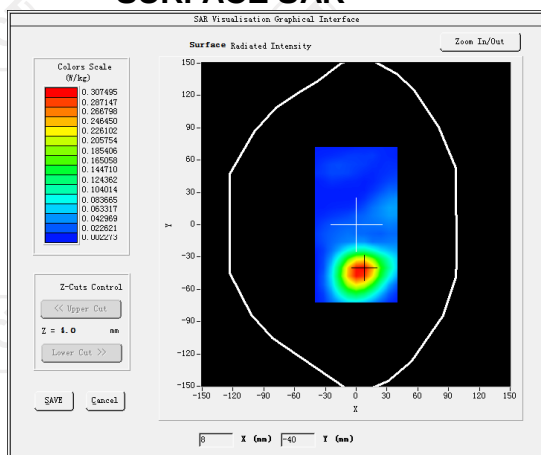
MEASUREMENT 2

Lower Band SAR (Channel 39750):

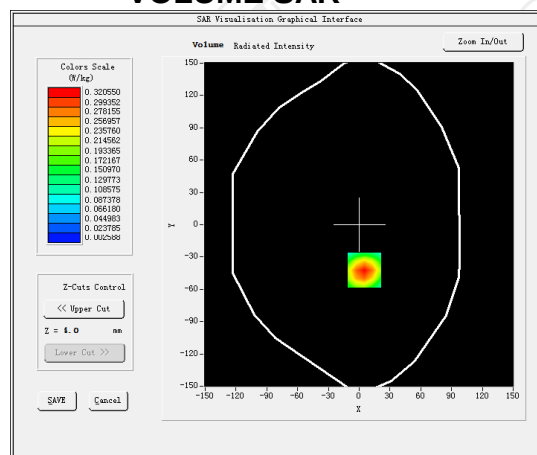
Date: 09/29/2020

Frequency (MHz)	2593.000000
Relative permittivity (real part)	51.960667
Relative permittivity (imaginary part)	14.938428
Conductivity (S/m)	2.102536
Variation (%)	-3.690000
Crest Factor	1.0
Probe Conversion factor	4.50
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	<u>LTE band 41(1 RB#0)</u>

SURFACE SAR

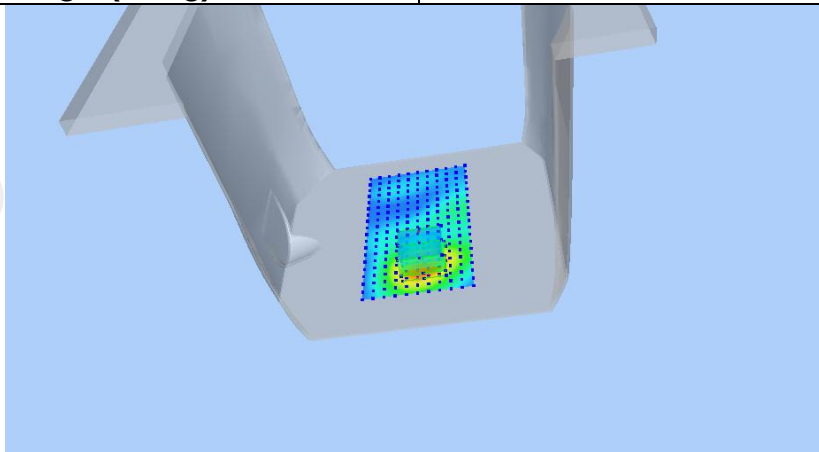


VOLUME SAR

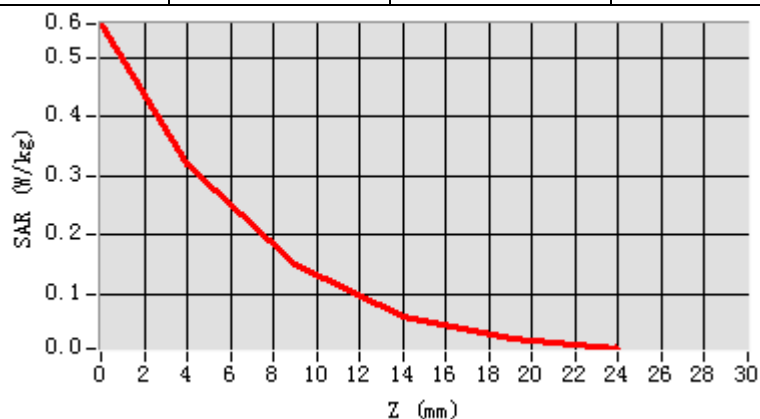


Maximum location: X=5.00, Y=-42.00 SAR Peak: 0.56 W/kg

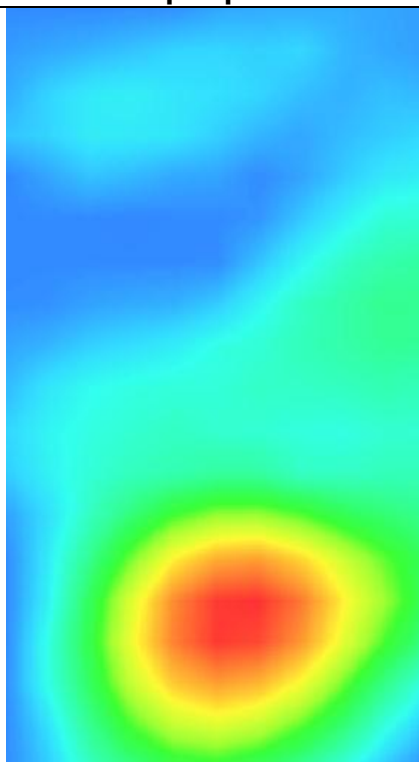
SAR 10g (W/Kg)	0.144922
SAR 1g (W/Kg)	0.301120



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.5568	0.3206	0.1482	0.0630	0.0249



Hot spot position



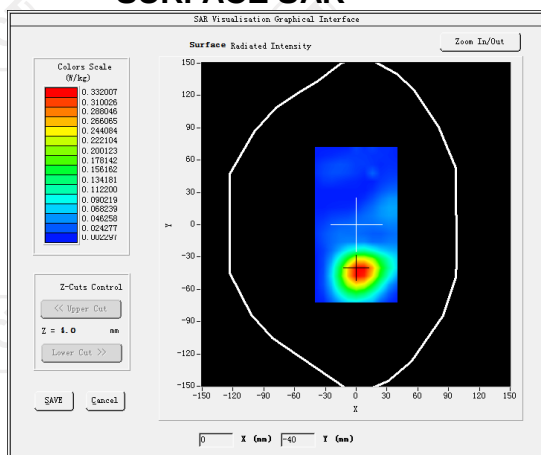
MEASUREMENT 3

Lower Band SAR (Channel 39750):

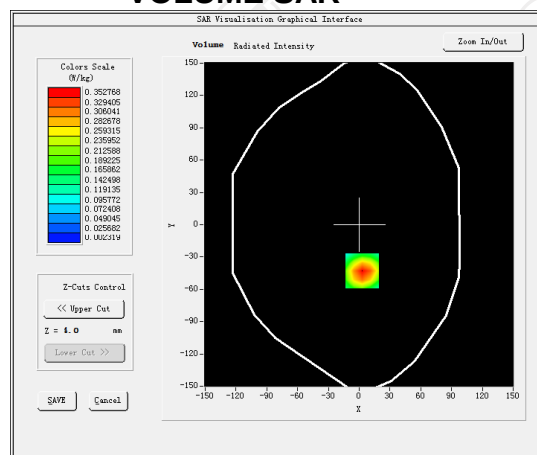
Date: 09/29/2020

Frequency (MHz)	2593.000000
Relative permittivity (real part)	51.960667
Relative permittivity (imaginary part)	14.938428
Conductivity (S/m)	2.102536
Variation (%)	-1.810000
Crest Factor	1.0
Probe Conversion factor	4.50
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back((hotspot10mm)
Band	<u>LTE band 41(1 RB#0)</u>

SURFACE SAR

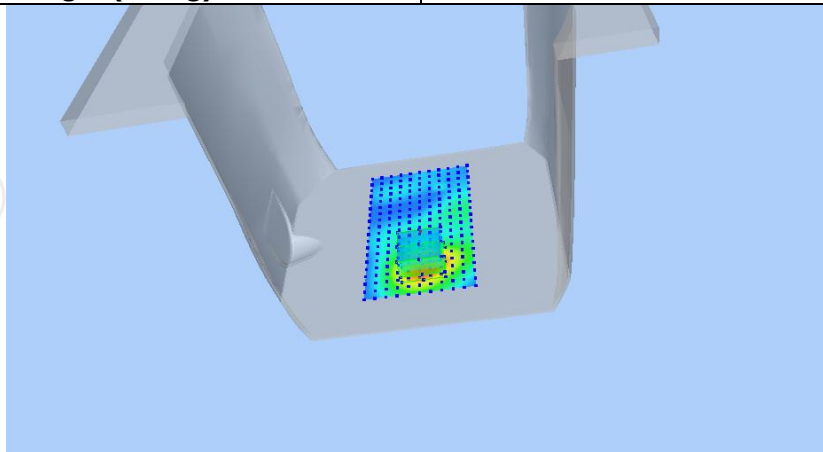


VOLUME SAR

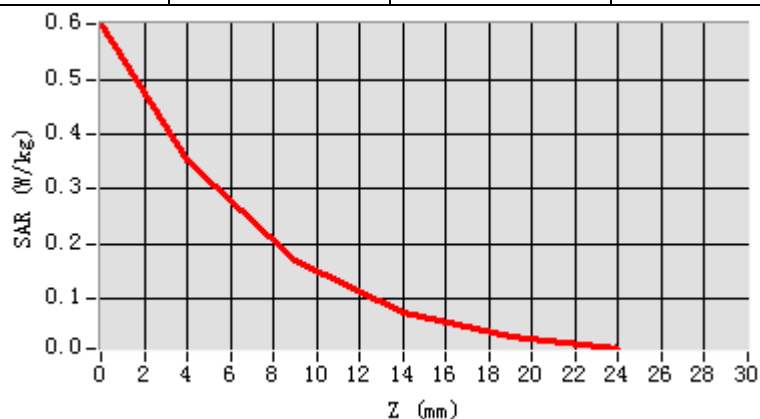


Maximum location: X=4.00, Y=-40.00 SAR Peak: 0.60 W/kg

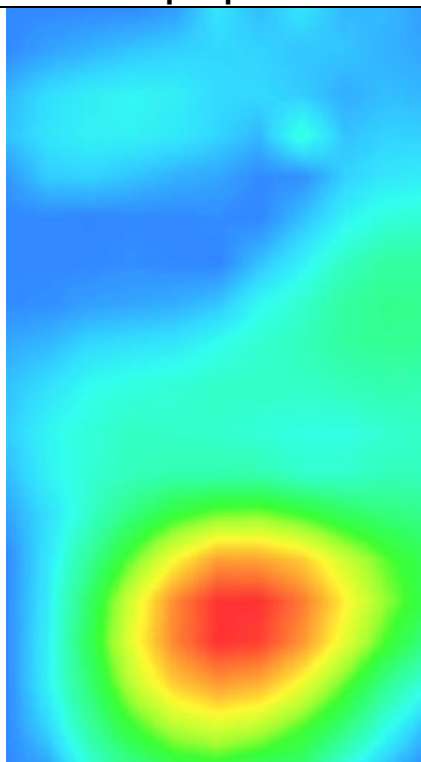
SAR 10g (W/Kg)	0.157130
SAR 1g (W/Kg)	0.331301



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6005	0.3517	0.1663	0.0719	0.0279



Hot spot position

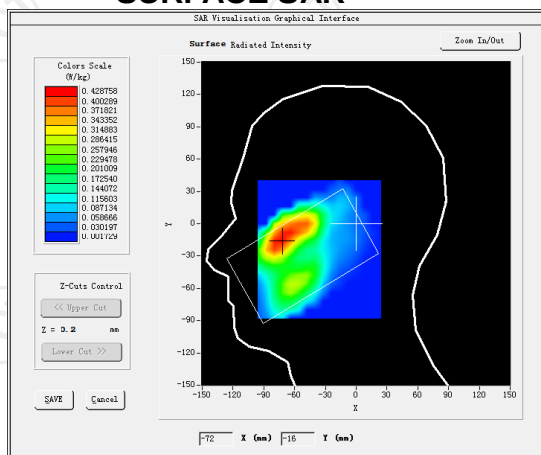


LTE Band 66

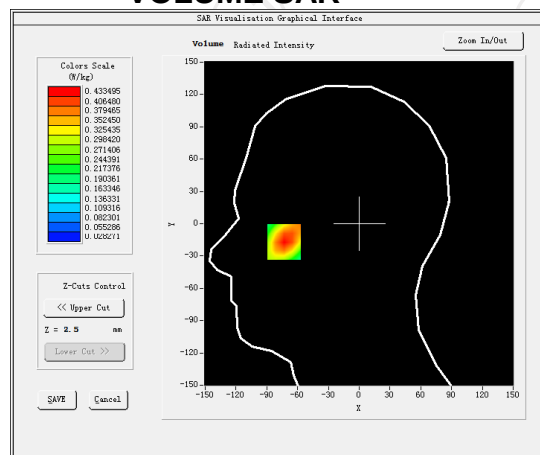
MEASUREMENT 1

Middle Band SAR (Channel 132422):		Date: 09/20/2020
Frequency (MHz)	1755.000000	
Relative permittivity (real part)	39.111249	
Relative permittivity (imaginary part)	12.468850	
Conductivity (S/m)	1.340792	
Variation (%)	-1.110000	
Crest Factor	1.0	
Probe Conversion factor	2.08	
E-Field Probe:	SSE2 (SN 41/18 EPG0331)	
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#0)	

SURFACE SAR



VOLUME SAR



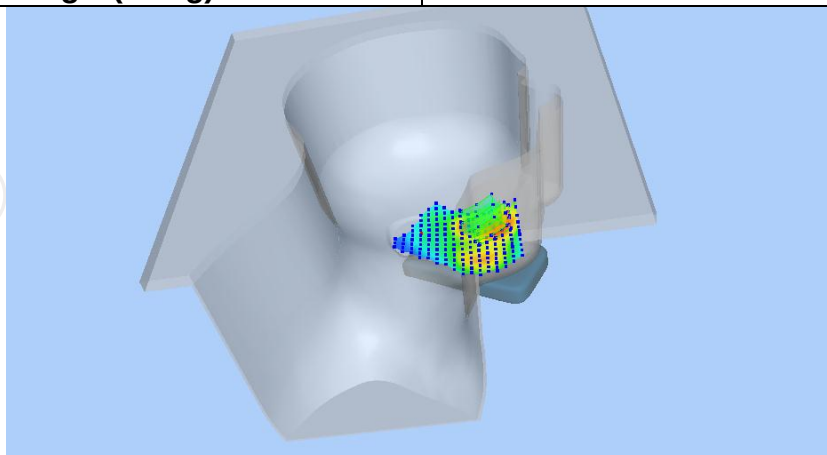
Maximum location: X=-70.00, Y=-25.00 SAR Peak: 0.61 W/kg

SAR 10g (W/Kg)

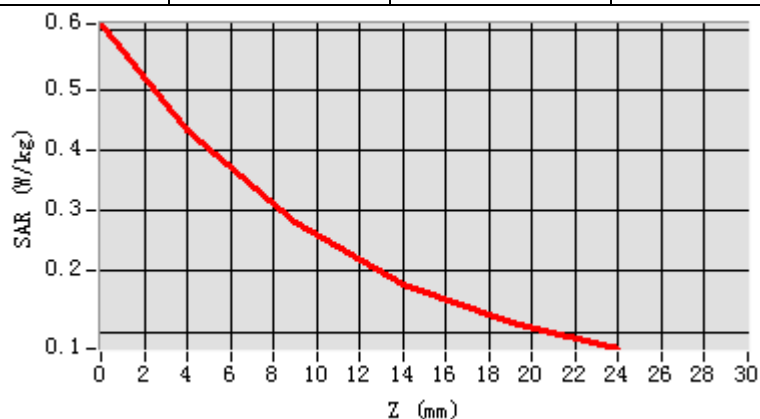
0.253224

SAR 1g (W/Kg)

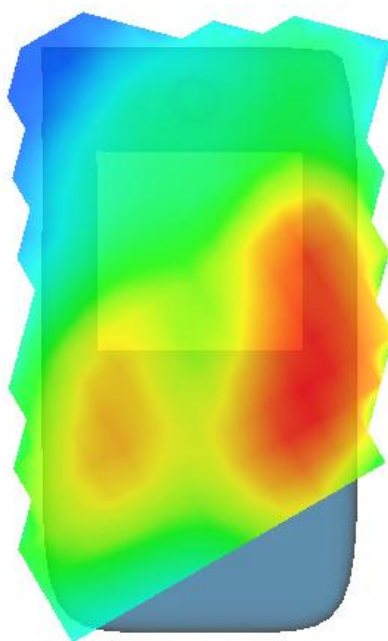
0.407750



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.6081	0.4324	0.2778	0.1788	0.1150



Hot spot position



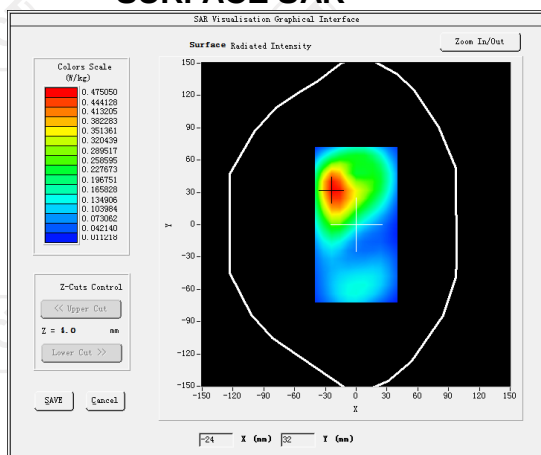
MEASUREMENT 2

Middle Band SAR (Channel 132422):

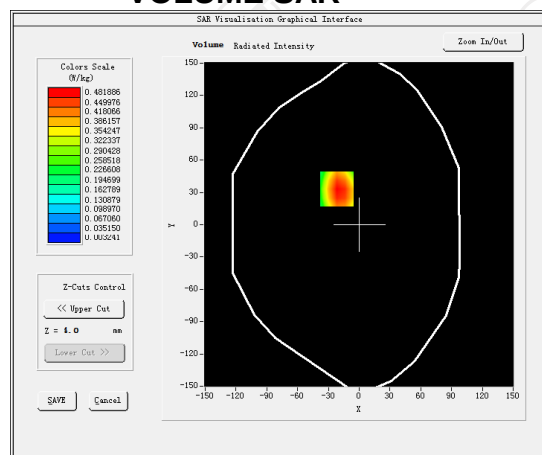
Date: 09/20/2020

Frequency (MHz)	1755.000000
Relative permittivity (real part)	53.341249
Relative permittivity (imaginary part)	15.168850
Conductivity (S/m)	1.492592
Variation (%)	-0.300000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	LTE band 66(1 RB#0)

SURFACE SAR

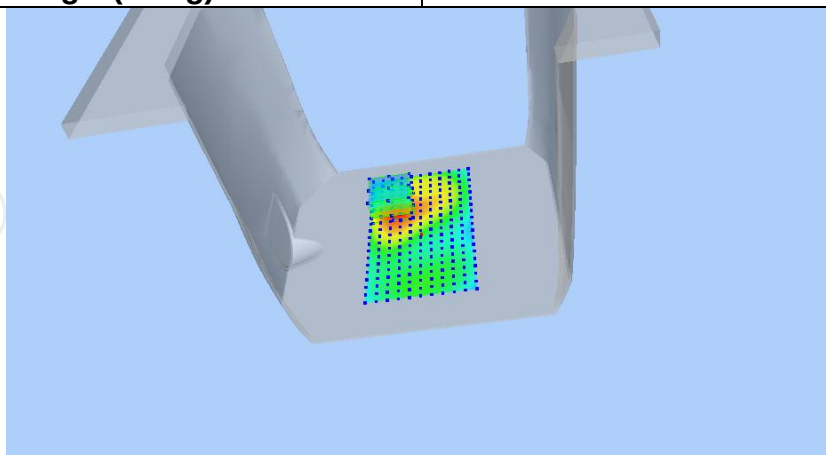


VOLUME SAR

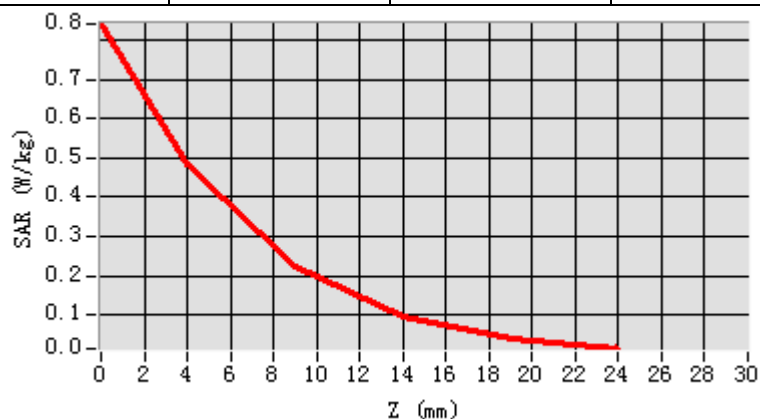


Maximum location: X=-20.00, Y=30.00 SAR Peak: 0.85 W/kg

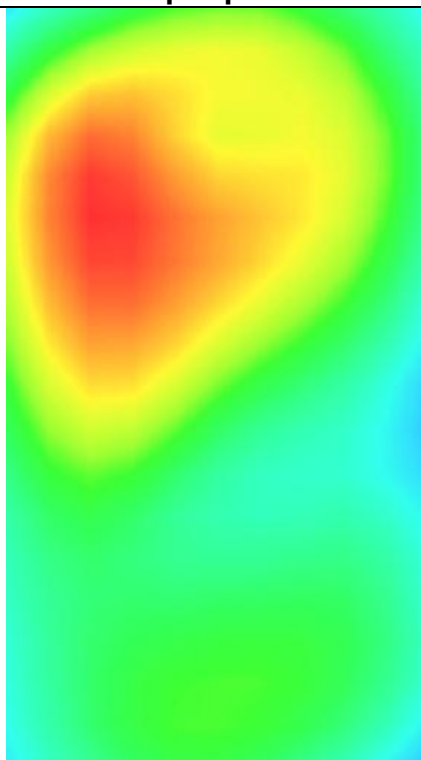
SAR 10g (W/Kg)	0.236850
SAR 1g (W/Kg)	0.462112



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.8401	0.4819	0.2230	0.0970	0.0421



Hot spot position



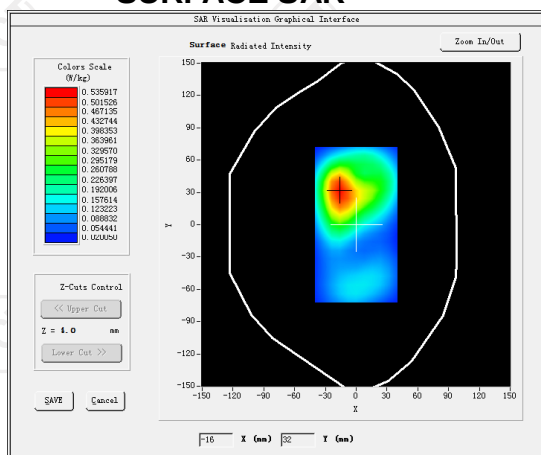
MEASUREMENT 3

Middle Band SAR (Channel 132422):

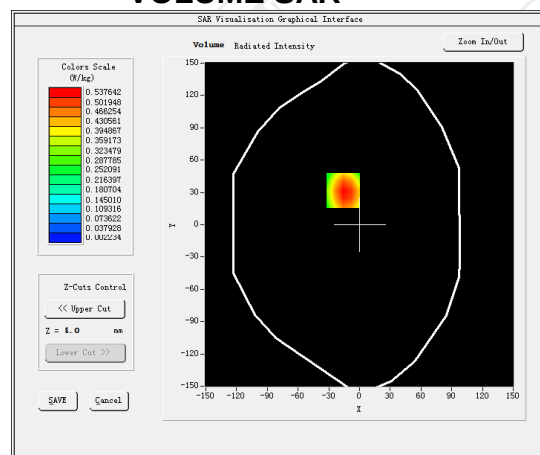
Date: 09/20/2020

Frequency (MHz)	1755.000000
Relative permittivity (real part)	53.341249
Relative permittivity (imaginary part)	15.168850
Conductivity (S/m)	1.492592
Variation (%)	1.290000
Crest Factor	1.0
Probe Conversion factor	2.16
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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 66(1 RB#49)

SURFACE SAR

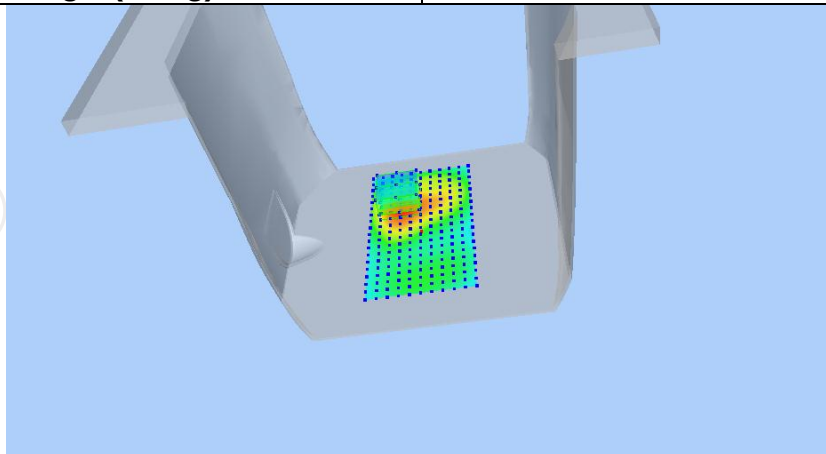


VOLUME SAR

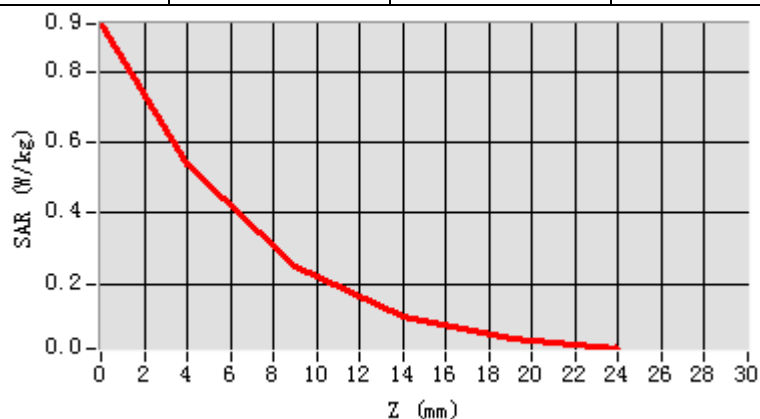


Maximum location: X=-14.00, Y=30.00 SAR Peak: 0.94 W/kg

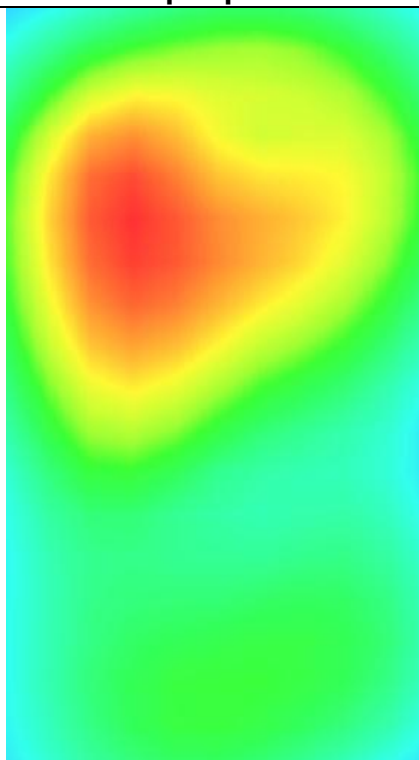
SAR 10g (W/Kg)	0.265146
SAR 1g (W/Kg)	0.517124



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.9355	0.5376	0.2491	0.1082	0.0456



Hot spot position



WLAN 2.4

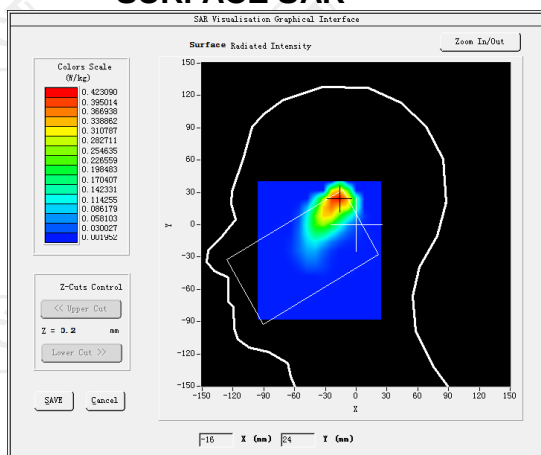
MEASUREMENT 1

Middle Band SAR (Channel 06):

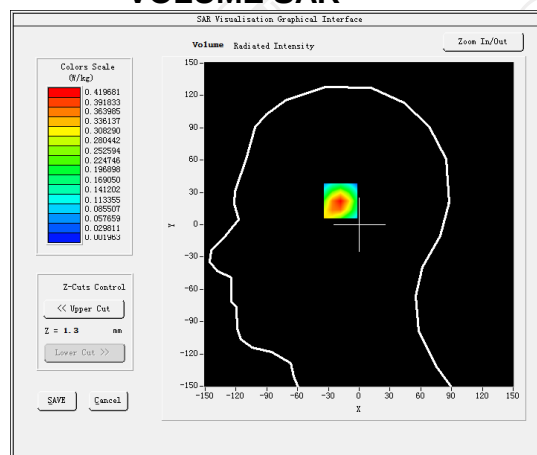
Date: 09/27/2020

Frequency (MHz)	2437.000000
Relative permittivity (real part)	37.852831
Relative permittivity (imaginary part)	13.546209
Conductivity (S/m)	1.812611
Variation (%)	-1.360000
Crest Factor	1.0
Probe Conversion factor	2.31
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
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

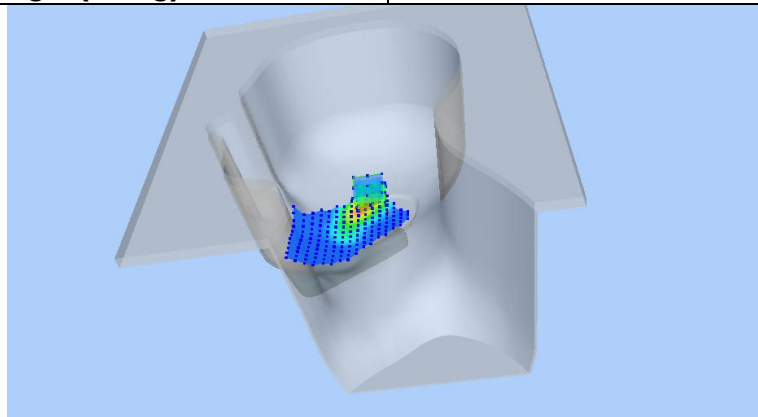


VOLUME SAR

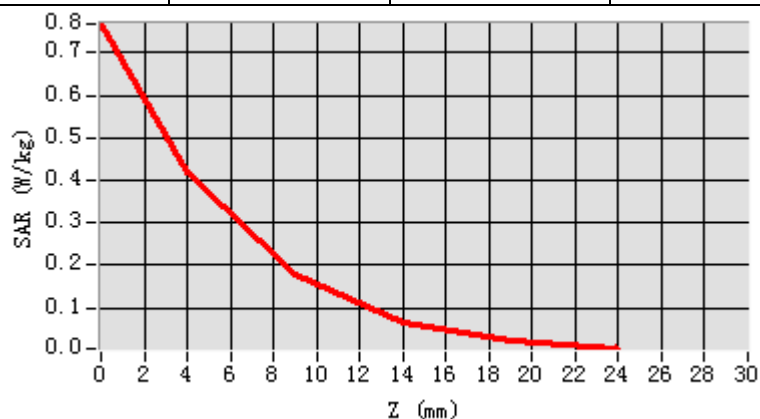


Maximum location: X=-17.00, Y=24.00 SAR Peak: 0.78 W/kg

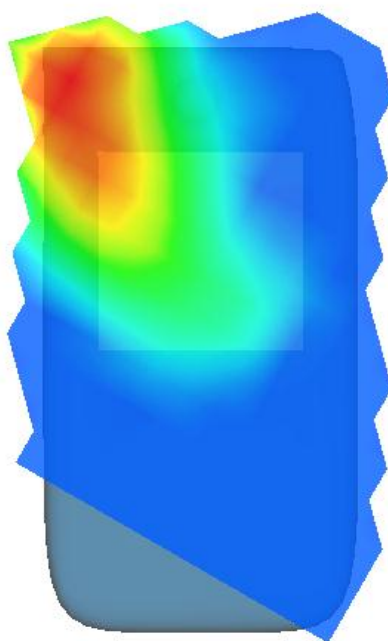
SAR 10g (W/Kg)	0.080066
SAR 1g (W/Kg)	0.195053



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



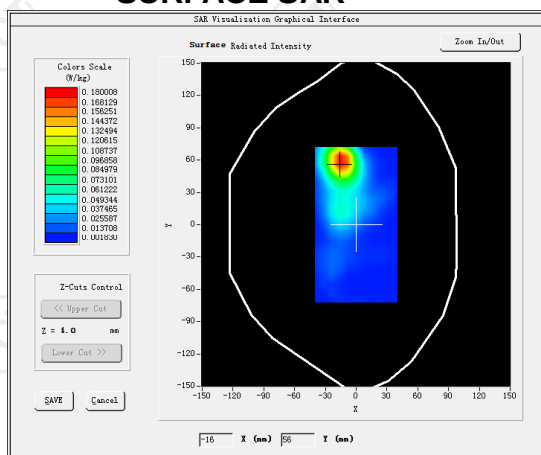
MEASUREMENT 2

Middle Band SAR (Channel 06):

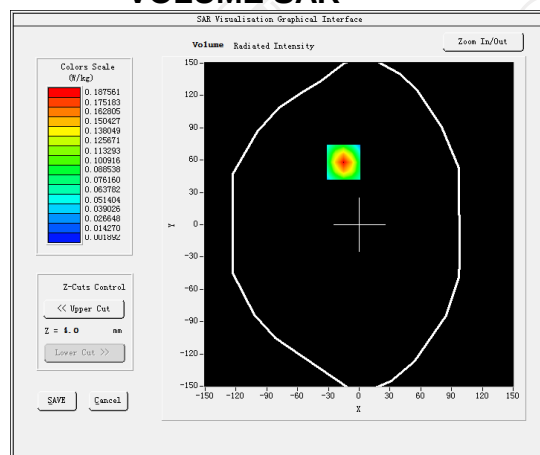
Date: 09/27/2020

Frequency (MHz)	2437.000000
Relative permittivity (real part)	54.630667
Relative permittivity (imaginary part)	14.318428
Conductivity (S/m)	1.982536
Variation (%)	4.010000
Crest Factor	1.0
Probe Conversion factor	2.37
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	IEEE 802.11b ISM

SURFACE SAR

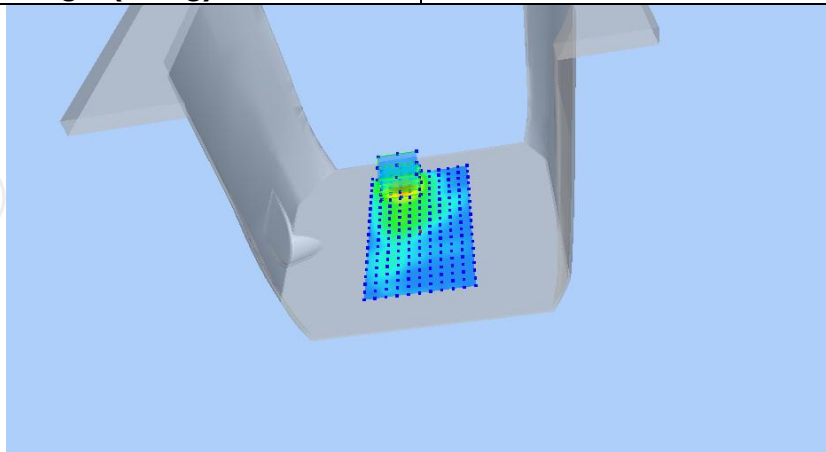


VOLUME SAR

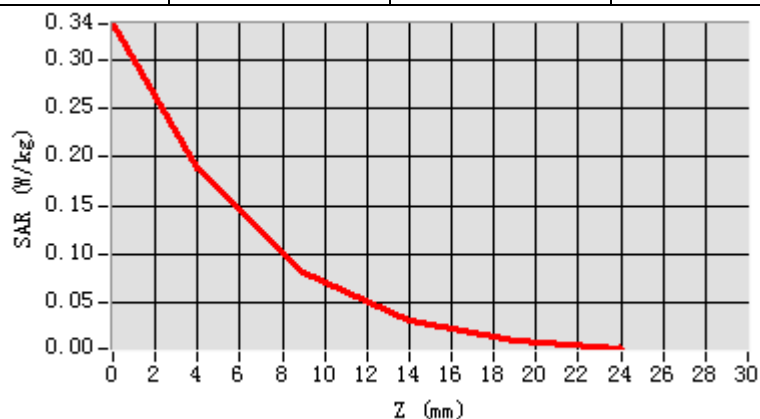


Maximum location: X=-15.00, Y=58.00 SAR Peak: 0.34 W/kg

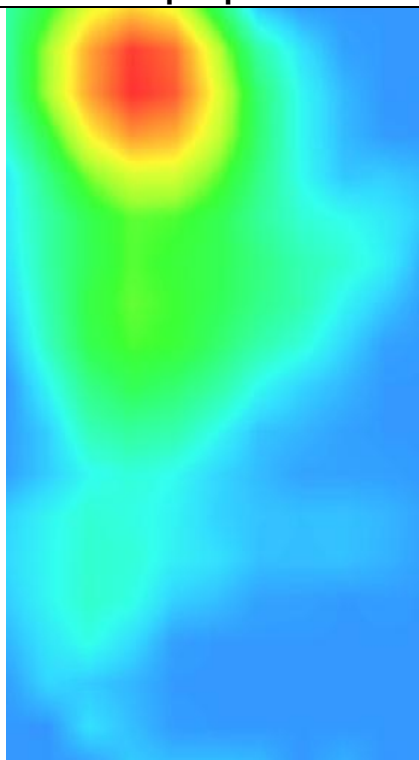
SAR 10g (W/Kg)	0.077530
SAR 1g (W/Kg)	0.173292



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



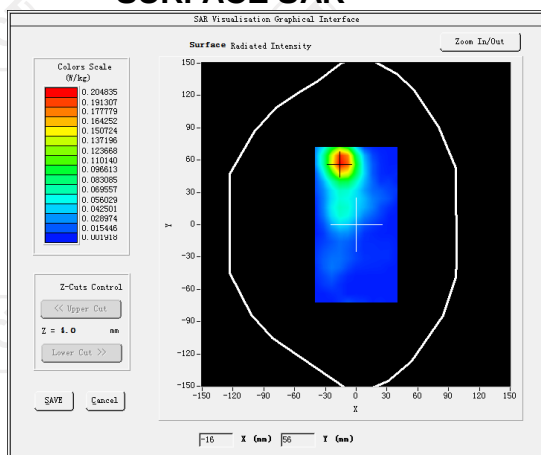
MEASUREMENT 3

Middle Band SAR (Channel 06):

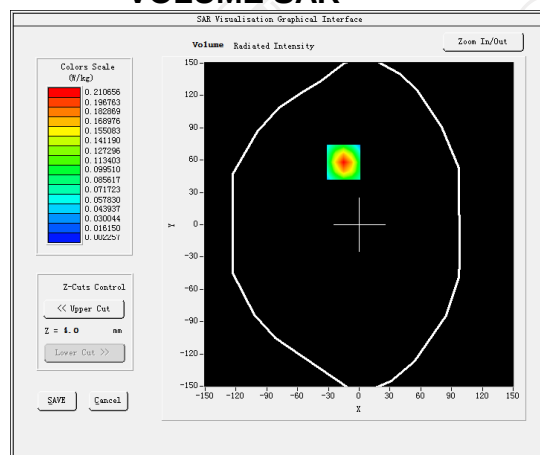
Date: 09/27/2020

Frequency (MHz)	2437.000000
Relative permittivity (real part)	54.630667
Relative permittivity (imaginary part)	14.318428
Conductivity (S/m)	1.982536
Variation (%)	-4.110000
Crest Factor	1.0
Probe Conversion factor	2.37
E-Field Probe:	SSE2 (SN 41/18 EPG0331)
Area Scan	<u>dx=8mm dy=8mm, h= 5.00 mm</u>
ZoomScan	<u>5x5x7,dx=8mm dy=8mm</u> <u>dz=5mm,Complete/ndx=8mm dy=8mm, h=</u> <u>5.00 mm</u>
Phantom	Validation plane
Device Position	Body back(10mm)
Band	<u>IEEE 802.11b ISM(hotspot)</u>

SURFACE SAR

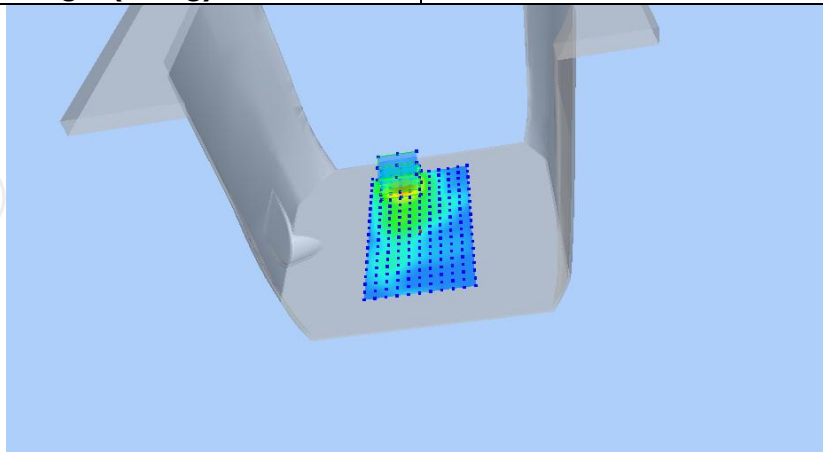


VOLUME SAR

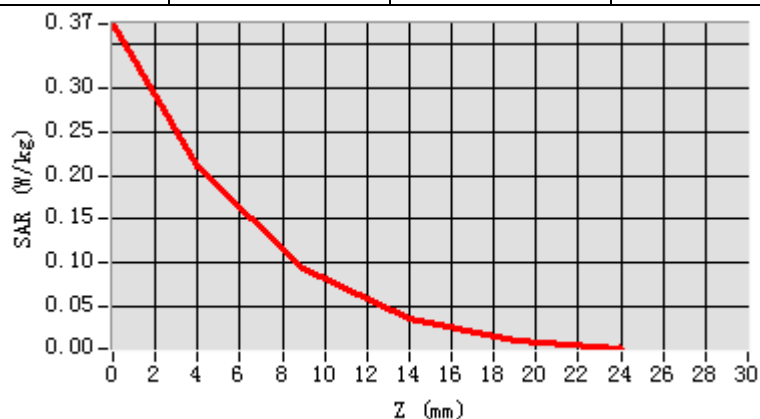


Maximum location: X=-15.00, Y=58.00 SAR Peak: 0.37 W/kg

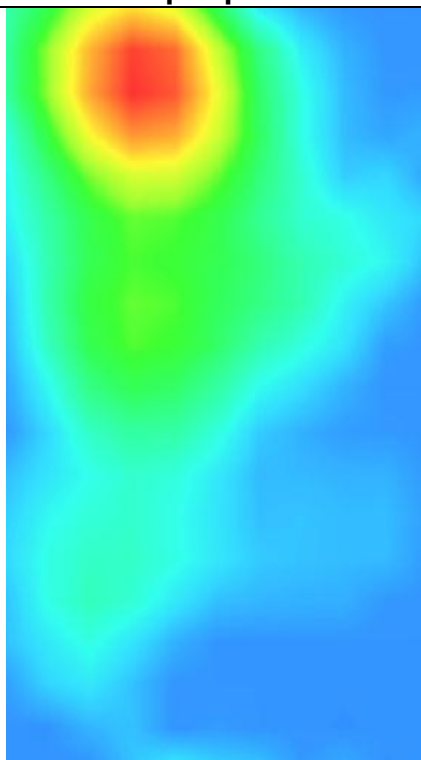
SAR 10g (W/Kg)	0.087182
SAR 1g (W/Kg)	0.193788



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



13. Appendix A: EUT Photos



Liquid depth



The Body Liquid of 835MHz (15.4cm)



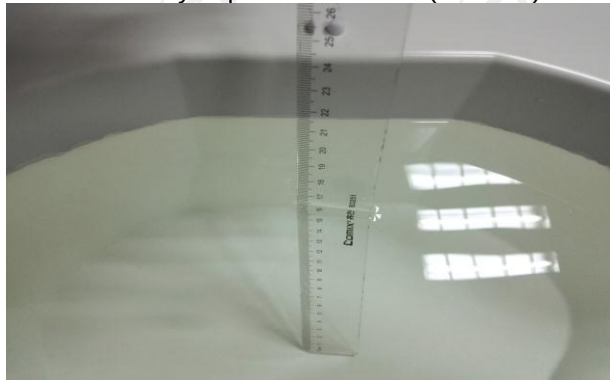
The Body Liquid of 1800MHz (15.2 cm)



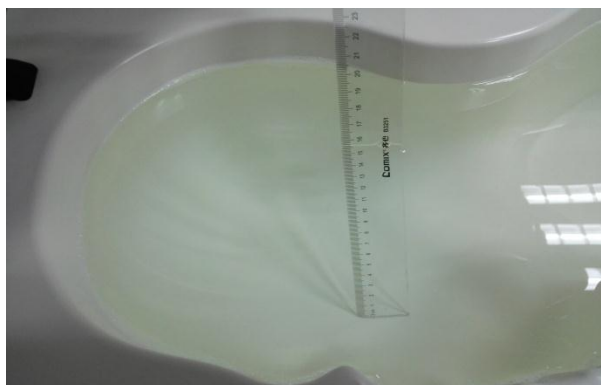
The Body Liquid of 1900MHz (16.4 cm)



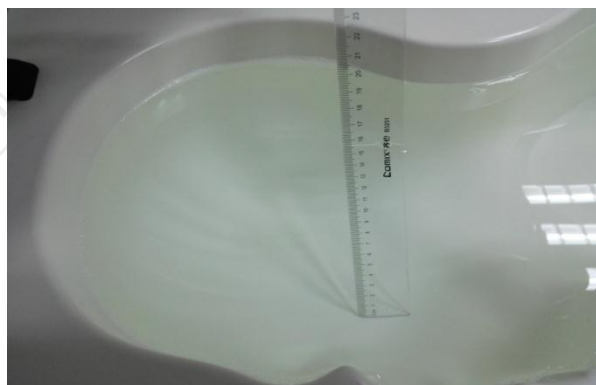
The Body Liquid of 2450MHz (15.3cm)



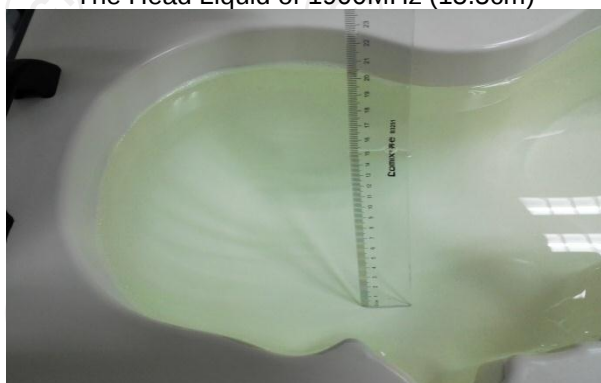
The Body Liquid of 2600MHz (16.5cm)



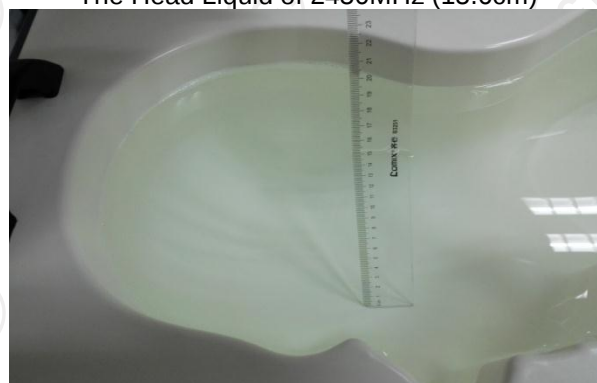
The Head Liquid of 1900MHz (15.5cm)



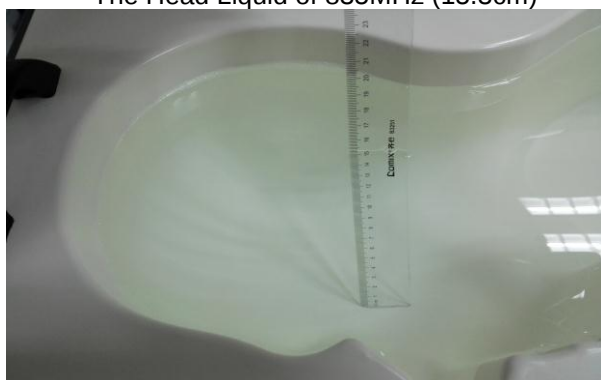
The Head Liquid of 2450MHz (15.6cm)



The Head Liquid of 835MHz (15.3cm)



The Head Liquid of 1800MHz (15.2cm)



The Head Liquid of 1800MHz (15.2cm)

14. Appendix C: Probe Calibration Certificate

COMOSAR E-FIELD Probe



COMOSAR E-Field Probe Calibration Report

Ref : ACR.241.1.20.SATU.A

Shenzhen Tongce Testing Lab.

1B/F., Building 1, Yibaolai Industrial Park,
Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

MVG COMOSAR DOSIMETRIC E-FIELD PROBE

SERIAL NO.: SN 41/18 EPG0331

Calibrated at MVG US

2105 Barrett Park Dr. - Kennesaw, GA 30144



Calibration Date: 08/02/2020

Summary:

This document presents the method and results from an accredited COMOSAR Dosimetric E-Field Probe calibration performed in MVG USA using the CALISAR / CALIBAIR test bench, for use with a COMOSAR system only. All calibration results are traceable to national metrology institutions.



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.241.1.20.SATU.A

	<i>Name</i>	<i>Function</i>	<i>Date</i>	<i>Signature</i>
<i>Prepared by :</i>	Jérôme LUC	Product Manager	8/02/2020	<i>JS</i>
<i>Checked by :</i>	Jérôme LUC	Product Manager	8/02/2020	<i>JS</i>
<i>Approved by :</i>	Kim RUTKOWSKI	Quality Manager	8/02/2020	<i>Kim Rutkowski</i>

	<i>Customer Name</i>
<i>Distribution :</i>	Shenzhen Tongce Testing Lab

<i>Issue</i>	<i>Date</i>	<i>Modifications</i>
A	8/02/2020	Initial release

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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 41/18 EPG0331
Product Condition (new / used)	Used
Frequency Range of Probe	0.4 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.181 M Ω Dipole 2: R2=0.193 M Ω Dipole 3: R3=0.195 M Ω

A yearly calibration interval is recommended.

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

MVG's COMOSAR E field Probes are built in accordance to the IEEE 1528, OET 65 Bulletin C 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, OET 65 Bulletin C, CENELEC EN50361 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.

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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 - 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°).

3.5 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.

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 (%)
Incident or forward power	3.00%	Rectangular	$\sqrt{3}$	1	1.732%
Reflected power	3.00%	Rectangular	$\sqrt{3}$	1	1.732%
Liquid conductivity	5.00%	Rectangular	$\sqrt{3}$	1	2.887%
Liquid permittivity	4.00%	Rectangular	$\sqrt{3}$	1	2.309%
Field homogeneity	3.00%	Rectangular	$\sqrt{3}$	1	1.732%
Field probe positioning	5.00%	Rectangular	$\sqrt{3}$	1	2.887%

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COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.241.1.20.SATU.A

Field probe linearity	3.00%	Rectangular	$\sqrt{3}$	1	1.732%
Combined standard uncertainty					5.831%
Expanded uncertainty 95 % confidence level k = 2					12.0%

5 CALIBRATION MEASUREMENT RESULTS

Calibration Parameters	
Liquid Temperature	21 °C
Lab Temperature	21 °C
Lab Humidity	45 %

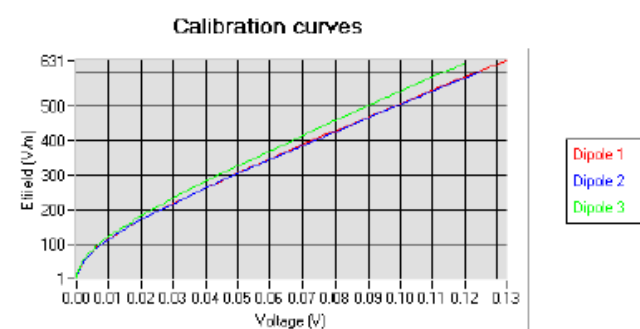
5.1 SENSITIVITY IN AIR

Normx dipole 1 ($\mu\text{V}/(\text{V}/\text{m})^2$)	Normy dipole 2 ($\mu\text{V}/(\text{V}/\text{m})^2$)	Normz dipole 3 ($\mu\text{V}/(\text{V}/\text{m})^2$)
0.86	0.78	0.74

DCP dipole 1 (mV)	DCP dipole 2 (mV)	DCP dipole 3 (mV)
95	93	91

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

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



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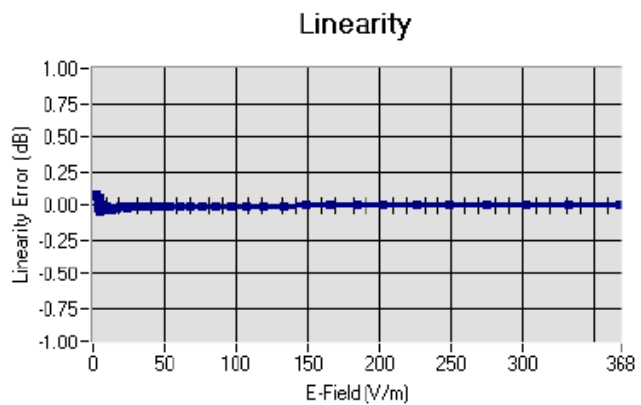
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COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.241.1.20.SATU.A

5.2 LINEARITY



Linearity: $\pm 1.92\%$ ($\pm 0.08\text{dB}$)

5.3 SENSITIVITY IN LIQUID

Liquid	Frequency (MHz $\pm 100\text{MHz}$)	Permittivity	Epsilon (S/m)	ConvF
HL450	450	45.43	0.86	1.85
BL450	450	58.80	0.90	1.92
HL750	750	40.76	0.93	1.71
BL750	750	56.70	0.98	1.78
HL850	835	40.86	0.92	1.80
BL850	835	56.35	0.99	1.86
HL900	900	41.94	0.93	1.91
BL900	900	54.62	0.98	1.96
HL1800	1800	40.86	1.29	2.08
BL1800	1800	52.27	1.47	2.16
HL1900	1900	39.67	1.38	2.23
BL1900	1900	52.84	1.59	2.32
HL2000	2000	38.71	1.42	2.03
BL2000	2000	52.03	1.52	2.10
HL2450	2450	38.72	1.80	2.31
BL2450	2450	54.91	1.97	2.37
HL2600	2600	39.98	1.89	2.16
BL2600	2600	54.42	2.18	2.23
HL3500	3500	37.96	2.87	2.21
BL3500	3500	53.40	3.28	2.28
HL5200	5200	36.68	4.45	2.01
BL5200	5200	49.02	5.46	2.08
HL5400	5400	36.08	4.69	1.94
BL5400	5400	49.55	5.53	1.99
HL5600	5600	35.34	4.95	2.07
BL5600	5600	47.60	5.77	2.12
HL5800	5800	34.81	5.08	2.06
BL5800	5800	47.81	6.12	2.13

LOWER DETECTION LIMIT: 9mW/kg

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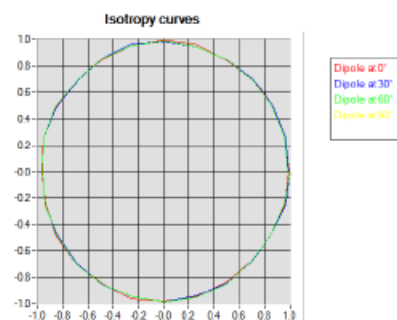
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5.4 ISOTROPY

HL 850 MHz

- Axial isotropy: 0.04 dB
- Hemispherical isotropy: 0.07 dB



HL 1900 MHz

- Axial isotropy: 0.04 dB
- Hemispherical isotropy: 0.08 dB

