Simultaneous Multi-band Transmission Evaluation:

Application Simultaneous Transmission information:

NO	Simultaneous state	Portable Handset	
		Body-worn	Hotspot
1	GSM (Data) + WLAN 2.4GHz (data)	Yes	Yes
2	GSM (Data) + Bluetooth(data)	Yes	Yes
3	WCDMA+ WLAN 2.4GHz (data)	Yes	Yes
4	WCDMA+ Bluetooth(data)	Yes	Yes
5	LTE + WLAN 2.4GHz (data)	Yes	Yes
6	LTE + Bluetooth(data)	Yes	Yes

NOTE:

1. WIFI and BT share the same antenna, and cannot transmit simultaneously.
2. Simultaneous with every transmitter must be the same test position.
3. KDB 447498 D01, BT SAR is excluded as below table.
4. KDB 447498 D01, for handsets the test separation distance is determined by the smallest distance between the outer surface of the device and the user; which is 5mm for body-worn SAR.
5. According to KDB 447498 D01 4.3.1, Standalone SAR test exclusion is as follow:
   For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
   [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] • [√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR[30], where
   - f(GHz) is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest mW and mm before calculation[31]
   - The result is rounded to one decimal place for comparison
   - The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

   The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.
6. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
7. According to KDB 447498 D01 4.3.2, simultaneous transmission SAR test exclusion is as follow:
   (1) Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.
   (2) Any transmitters and antennas should be considered when calculating simultaneous mode.
   (3) For mobile phone and PC, it's the sum of all transmitters and antennas at the same mode with same position in each applicable exposure condition
   (4)When the standalone SAR test exclusion of section 4.3.2 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following to det
   (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;
   where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

8. When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by (SAR1 + SAR2)1.5/Ri, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

Estimated SAR		Max Power including Tune-up Tolerance		Separation Distance (mm)	Estimated SAR (W/kg)
		dBm	mW		
BT	Body	2	1.585	5	0.067

Sum of the SAR for GSM 850 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		GSM 850	WI-Fi DTS Band	Bluetooth		
Body-worn (Data)	Rear	0.633		0.067	0.700	No
		0.633	0.079		0.712	No
	Front	0.440		0.067	0.507	No
		0.440	0.041		0.481	No
Body-worn (Hotspot)	Edge 4	0.453	0.039		0.492	No
	Edge 4	0.453		0.067	0.520	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.

·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for GSM 1900 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		PCS 1900	WI-Fi DTS Band	Bluetooth		
Body-worn (Data)	Rear	1.423		0.067	1.490	No
		1.423	0.079		1.502	No
	Front	0.919		0.067	0.986	No
		0.919	0.041		0.960	No
Body-worn (Hotspot)	Edge 4	0.605	0.039		0.644	No
	Edge 4	0.605		0.067	0.672	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for WCDMA Band II &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band II	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	1.489	0.079		1.568	No
	Front	0.506	0.041		0.547	No
	Edge 4	0.446	0.039		0.485	No
	Rear	1.489		0.067	1.556	No
	Front	0.506		0.067	0.573	No
	Edge 4	0.446		0.067	0.513	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for WCDMA Band V &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		WCDMA Band V	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	0.477	0.079		0.556	No
	Front	0.419	0.041		0.460	No
	Edge 4	0.423	0.039		0.462	No
	Rear	0.477		0.067	0.544	No
	Front	0.419		0.067	0.486	No
	Edge 4	0.423		0.067	0.490	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 2 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 2	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	1.492	0.079		1.571	No
	Front	0.935	0.041		0.976	No
	Edge 4	0.518	0.039		0.557	No
	Rear	1.492		0.067	1.559	No
	Front	0.935		0.067	1.002	No
	Edge 4	0.518		0.067	0.585	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 5 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 5	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	0.626	0.079		0.705	No
	Front	0.483	0.041		0.524	No
	Edge 4	0.573	0.039		0.612	No
	Rear	0.626		0.067	0.693	No
	Front	0.483		0.067	0.550	No
	Edge 4	0.573		0.067	0.640	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 7 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 7	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	1.392	0.079		1.471	No
	Front	0.018	0.041		0.059	No
	Edge 4	0.077	0.039		0.116	No
	Rear	1.392		0.067	1.459	No
	Front	0.018		0.067	0.085	No
	Edge 4	0.077		0.067	0.144	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 12 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 12	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	0.186	0.079		0.265	No
	Front	0.015	0.041		0.056	No
	Edge 4	0.017	0.039		0.056	No
	Rear	0.186		0.067	0.253	No
	Front	0.015		0.067	0.082	No
	Edge 4	0.017		0.067	0.084	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 17 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 17	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	0.621	0.079		0.700	No
	Front	0.354	0.041		0.395	No
	Edge 4	0.448	0.039		0.487	No
	Rear	0.621		0.067	0.688	No
	Front	0.354		0.067	0.421	No
	Edge 4	0.448		0.067	0.515	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 40 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 40	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	0.179	0.079		0.258	No
	Front	0.014	0.041		0.055	No
	Edge 4	0.016	0.039		0.055	No
	Rear	0.179		0.067	0.246	No
	Front	0.014		0.067	0.081	No
	Edge 4	0.016		0.067	0.083	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

Sum of the SAR for LTE Band 41 &Wi-Fi & BT:

RF Exposure Conditions	Test Position	Simultaneous Transmission Scenario			Σ1-g SAR (W/Kg)	SPLSR (Yes/No)
		LTE Band 41	Wi-Fi DTS Band	Bluetooth		
Body-worn	Rear	1.497	0.079		**1.576**	No
	Front	0.035	0.041		0.076	No
	Edge 4	0.119	0.039		0.158	No
	Rear	1.497		0.067	1.564	No
	Front	0.035		0.067	0.102	No
	Edge 4	0.119		0.067	0.186	No

Note:

·According to KDB 447498 D01 General RF Exposure Guidance, when the simultaneous transmission SAR is less than1.6 W/Kg, SPLSR assessment is not required.
·SPLSR mean is “The SAR to Peak Location Separation Ratio “

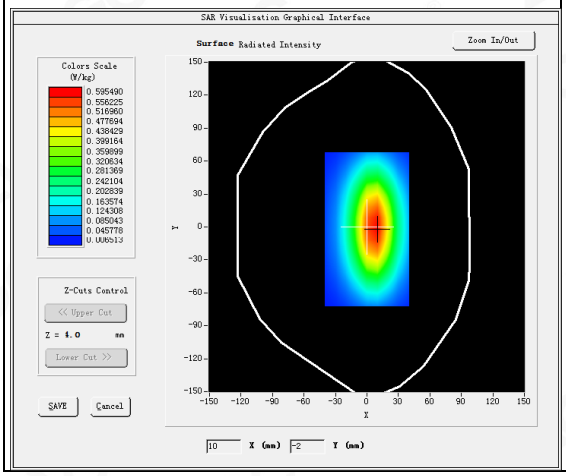
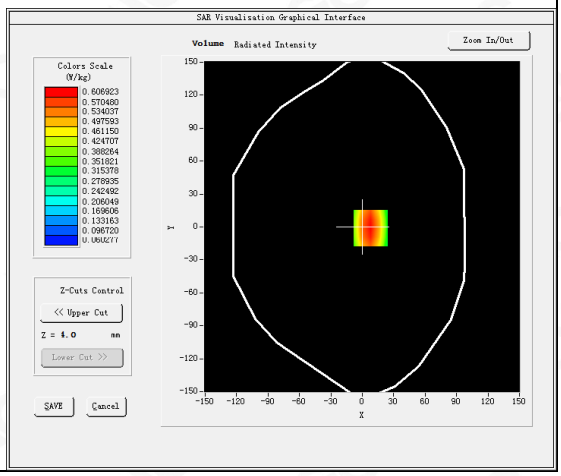
APPENDIX A. SAR SYSTEM CHECK DATA

Test Laboratory: AGC Lab **Date: July 16,2019**
System Check Body 750 MHz
DUT: Dipole 750 MHz Type: SID 750
Communication System CW; Communication System Band: D750 (750.0 MHz); Duty Cycle: 1:1; Conv.F=5.40
Frequency: 750 MHz; Medium parameters used: f = 750 MHz; σ =0.96 mho/m; ε r =55.36; ρ = 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):20.9, Liquid temperature (℃): 20.7

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

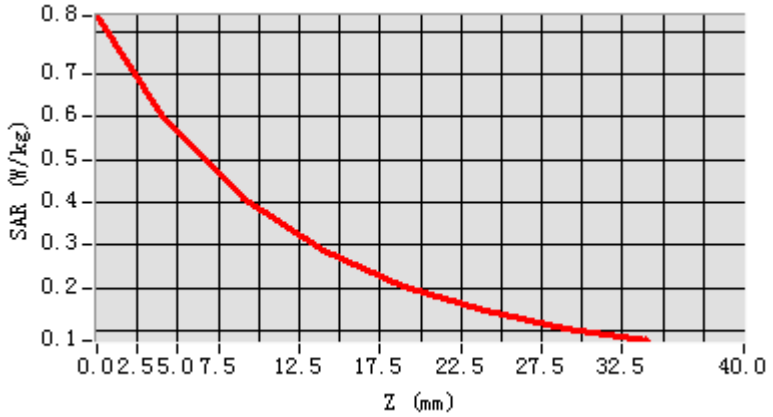
Configuration/System Check 750MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 750MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

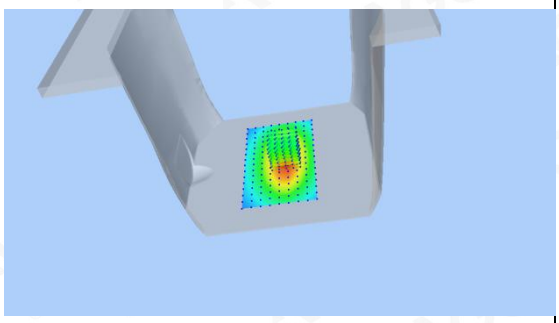
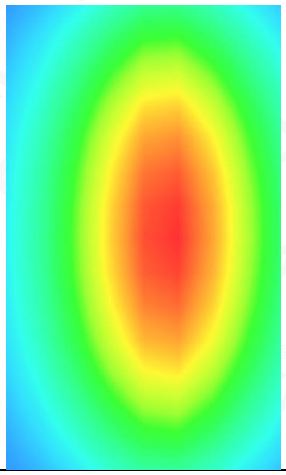
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-1.00
SAR Peak: 0.84 W/kg

SAR 10g (W/Kg)	0.376481
SAR 1g (W/Kg)	0.583909

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8362	0.6069	0.4108	0.2854	0.2030	0.1450	0.1050



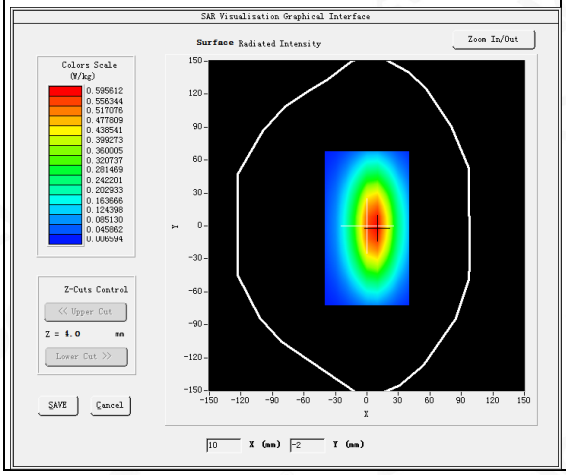
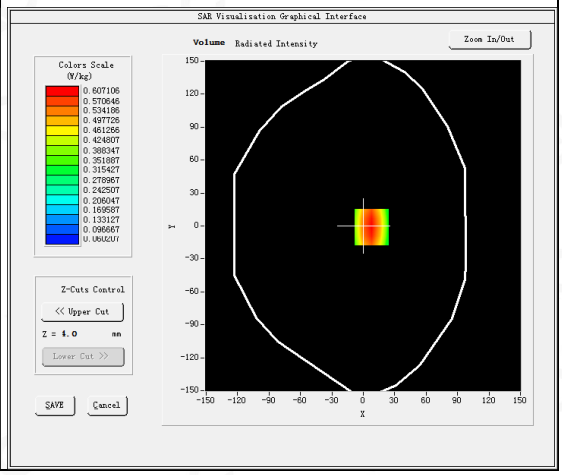
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**
System Check Body 835 MHz
DUT: Dipole 835 MHz Type: SID 835
Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1; Conv.F=5.49
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ =0.96 mho/m; ε r =54.56; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):21.8, Liquid temperature (℃): 21.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

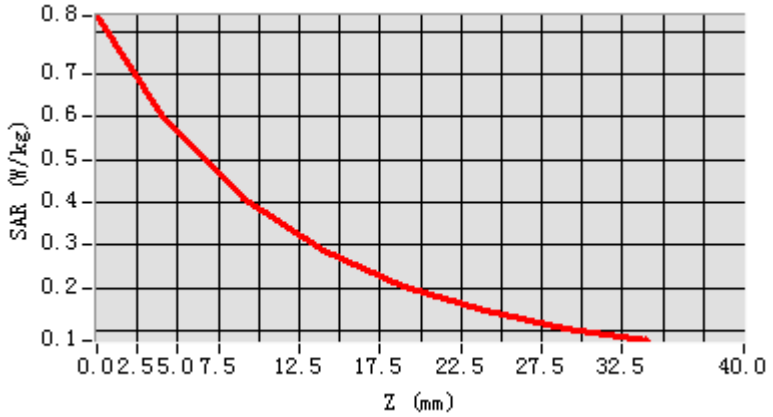
Configuration/System Check 835MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 835MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

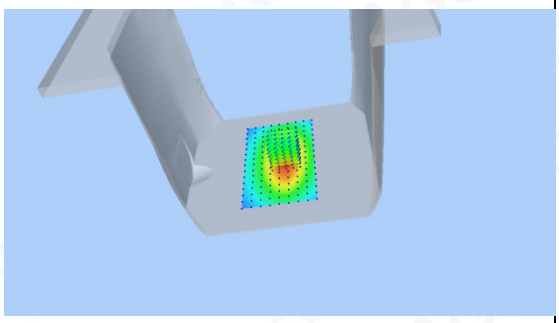
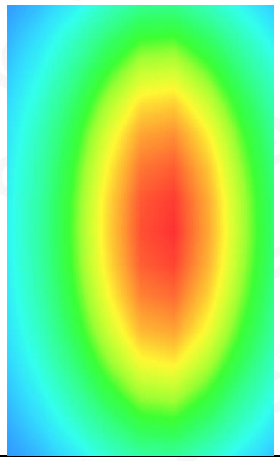
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-1.00
SAR Peak: 0.84 W/kg

SAR 10g (W/Kg)	0.409415
SAR 1g (W/Kg)	0.612116

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8428	0.6183	0.4248	0.2934	0.2175	0.1581	0.1645



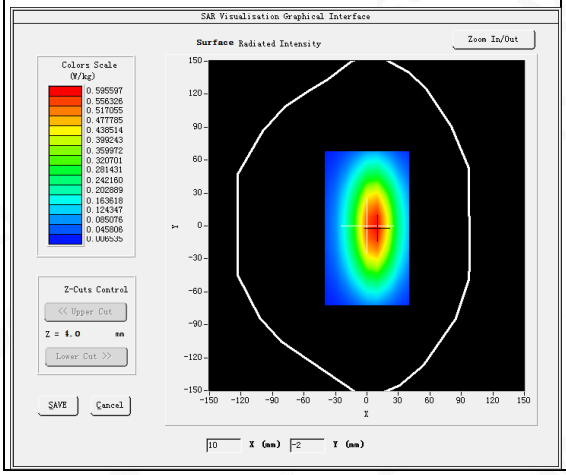
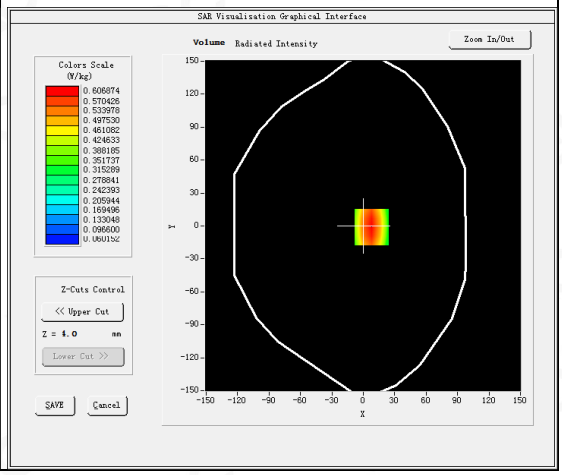
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 03,2019**
System Check Body 835 MHz
DUT: Dipole 835 MHz Type: SID 835
Communication System CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1; Conv.F=5.49
Frequency: 835 MHz; Medium parameters used: f = 835 MHz; σ =0.96 mho/m; ε r =54.62; ρ = 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

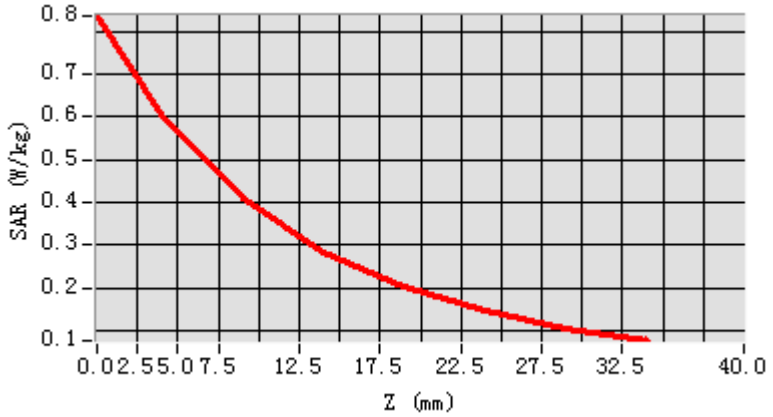
Configuration/System Check 835MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 835MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

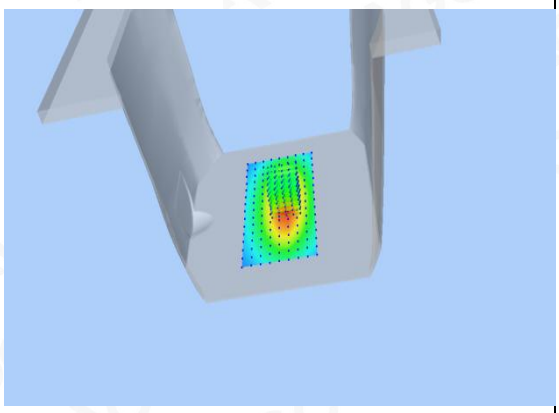
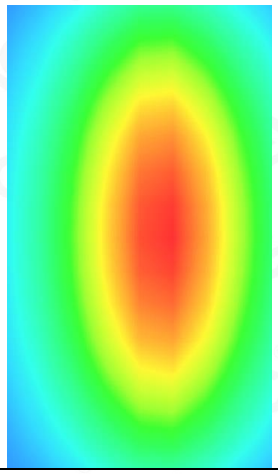
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=-1.00
SAR Peak: 0.84 W/kg

SAR 10g (W/Kg)	0.398680
SAR 1g (W/Kg)	0.602413

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8415	0.6185	0.4235	0.2913	0.2158	0.1543	0.1154



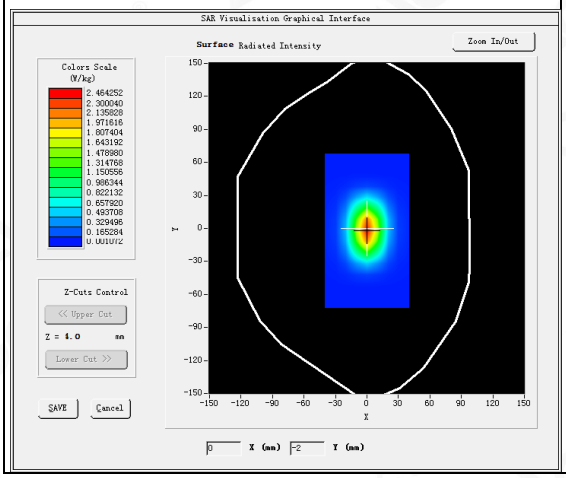
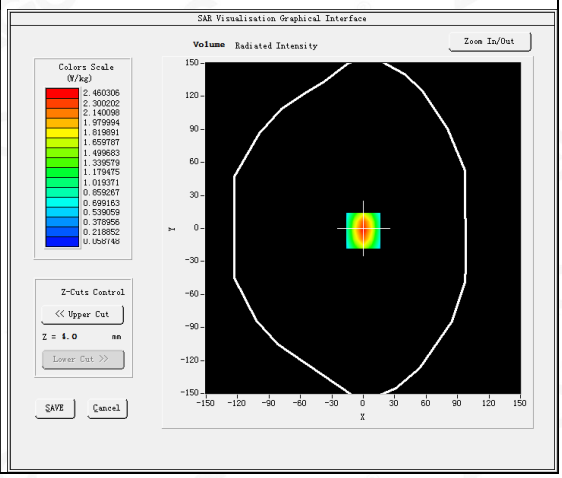
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**
System Check Body 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1; Conv.F=5.39
Frequency: 1900 MHz; Medium parameters used: f = 1850 MHz; σ =1.51 mho/m; εr =52.64; ρ = 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):21.8, Liquid temperature (℃): 21.5

SATIMO Configuration:
Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159

- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

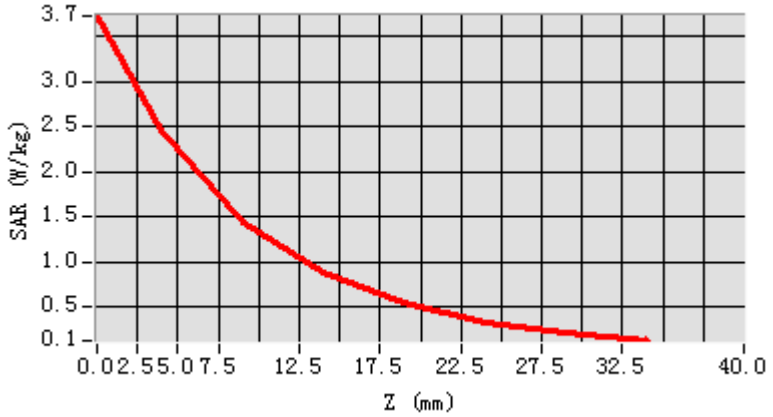
Configuration/System Check 1900MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 1900MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

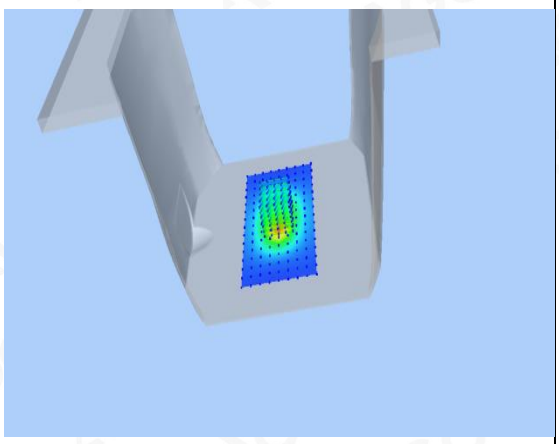
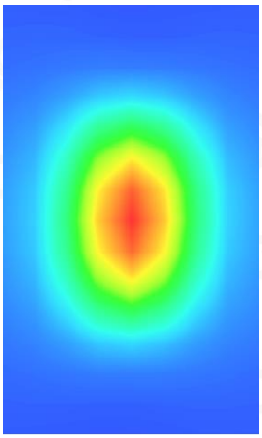
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-2.00
SAR Peak: 3.70 W/kg

SAR 10g (W/Kg)	1.282168
SAR 1g (W/Kg)	2.542687

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	3.7223	2.4636	1.4441	0.8839	0.5408	0.3381	0.2036



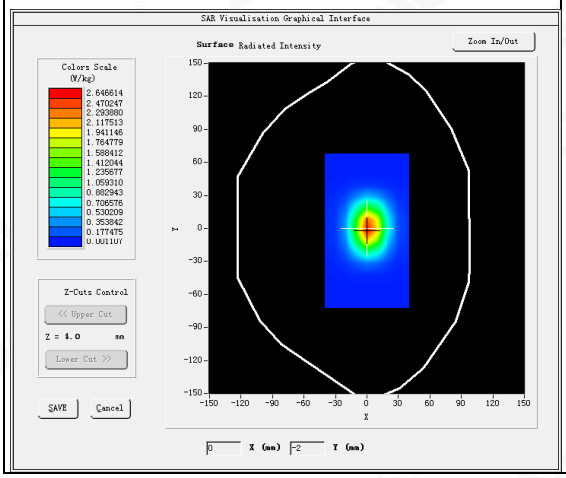
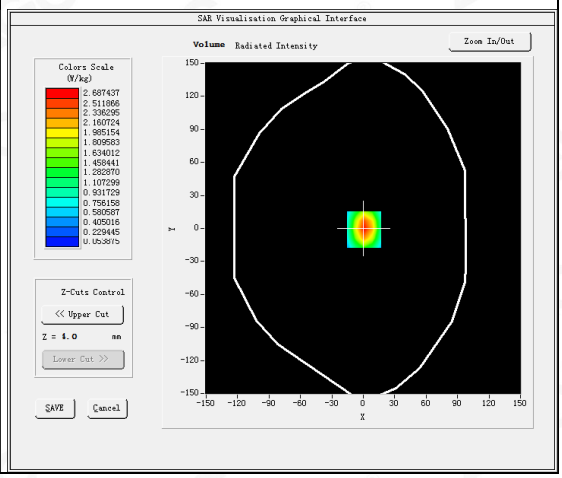
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 03,2019**
System Check Body 1900MHz
DUT: Dipole 1900 MHz; Type: SID 1900
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle:1:1; Conv.F=5.39
Frequency: 1900 MHz; Medium parameters used: f = 1850 MHz; σ =1.48 mho/m; εr =52.64; ρ = 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:
Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159

- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

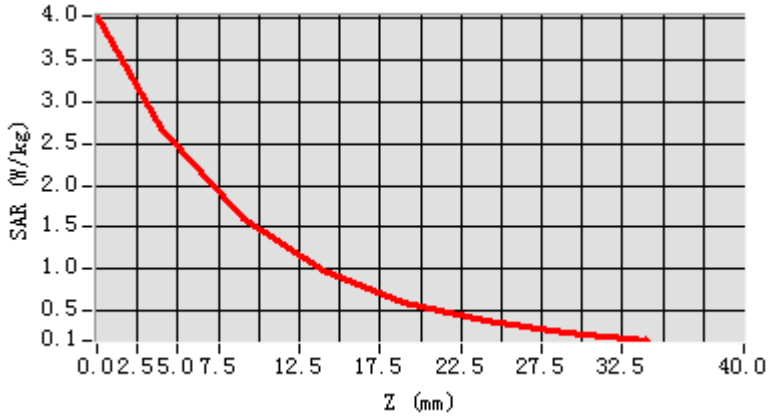
Configuration/System Check 1900MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 1900MHz Body/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

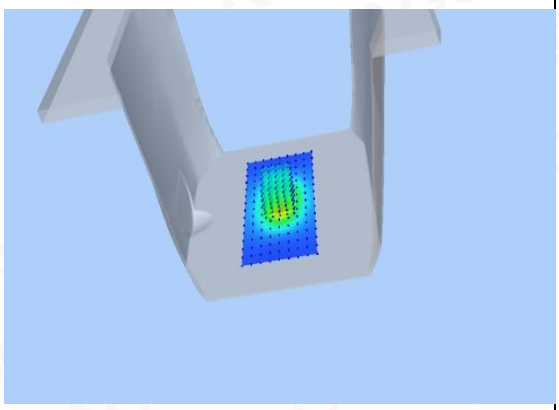
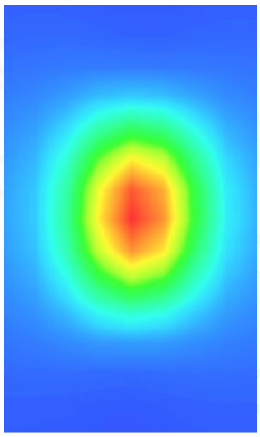
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-1.00
SAR Peak: 4.05 W/kg

SAR 10g (W/Kg)	1.312492
SAR 1g (W/Kg)	2.481597

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	4.0308	2.6846	1.5954	0.9829	0.5937	0.3682	0.2264



3D screen shot	Hot spot position
	

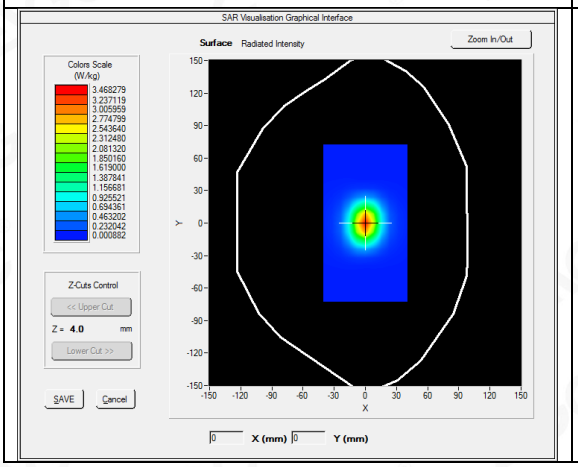
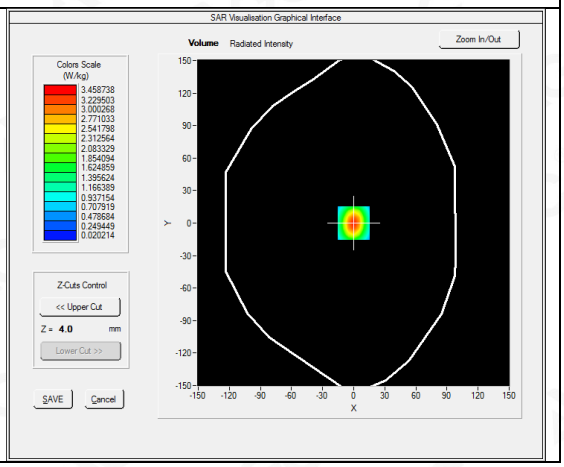
Test Laboratory: AGC Lab **Date: July 13,2019**
System Check Body 2300MHz
DUT: Dipole 2300 MHz; Type: SID 2300
Communication System: CW; Communication System Band: D2300 (2300 MHz); Duty Cycle: 1:1; Conv.F=5.31
Frequency: 2300 MHz; Medium parameters used: f = 2300 MHz; σ =1.79 mho/m; ε_r =52.36; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):22.2 Liquid temperature (℃): 21.9

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/System Check 2300 Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 2300 Body/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm

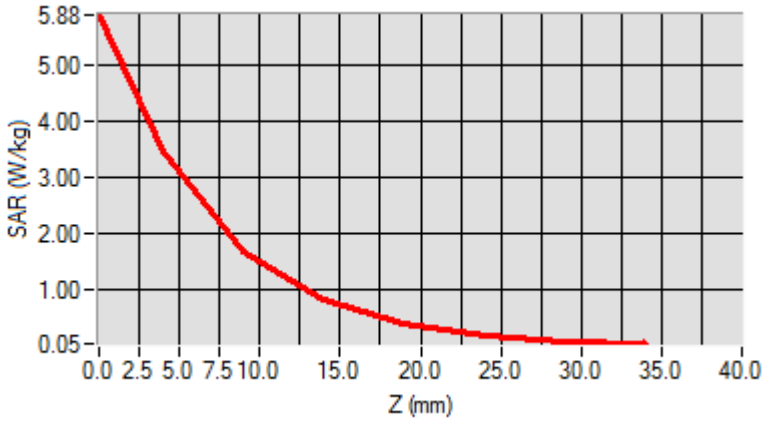
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	SAM twin phantom
Device Position	Flat
Band	CW 2300
Channels	Middle
Signal	Crest factor: 1.0

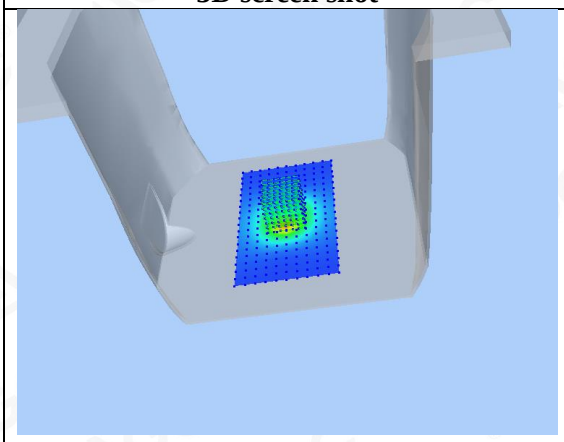
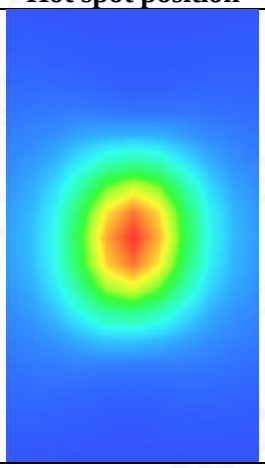
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00
SAR Peak: 5.81 W/kg

SAR 10g (W/Kg)	1.462183
SAR 1g (W/Kg)	3.151667

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	5.8814	3.4526	1.6837	0.8317	0.4157	0.2137	0.1084



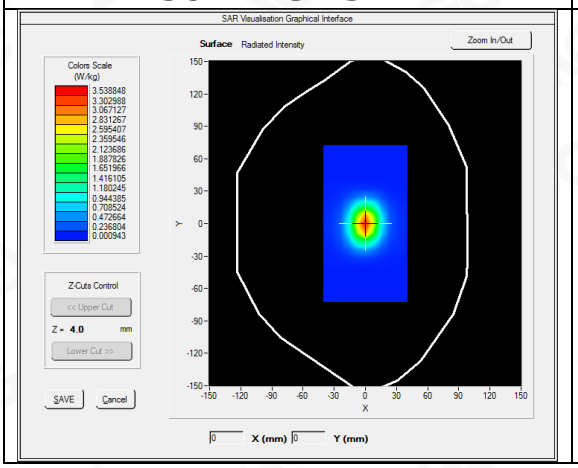
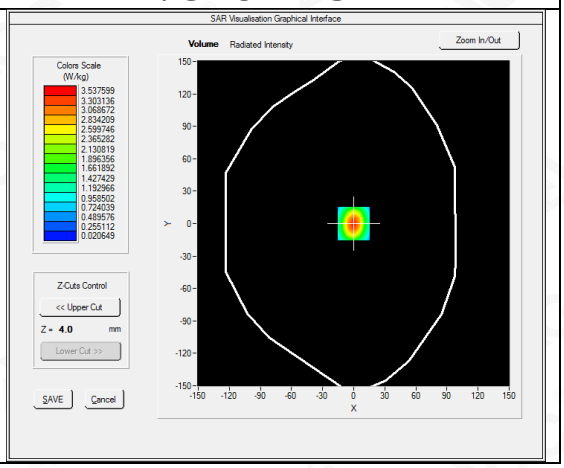
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 09,2019**
System Check Body 2450 MHz
DUT: Dipole 2450 MHz Type: SID 2450
Communication System CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1; Conv.F=5.04
Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ =1.92 mho/m; εr =52.64; ρ = 1000 kg/m³ ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃):20.6, Liquid temperature (℃): 20.3

SATIMO Configuration

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

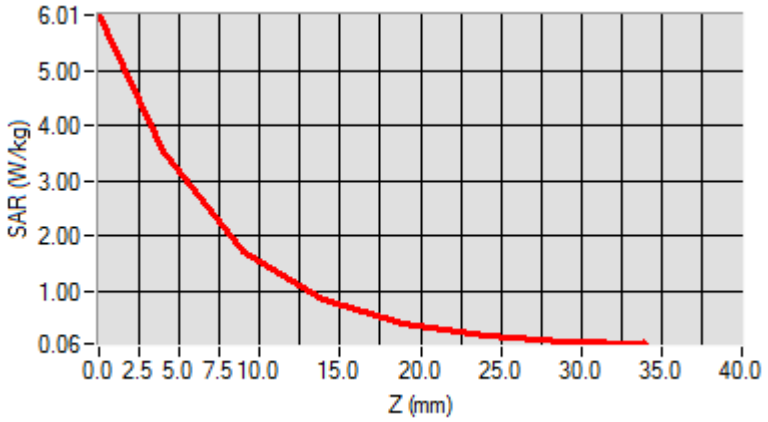
Configuration/System Check 2450MHz Body/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/System Check 2450MHz Body/Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm

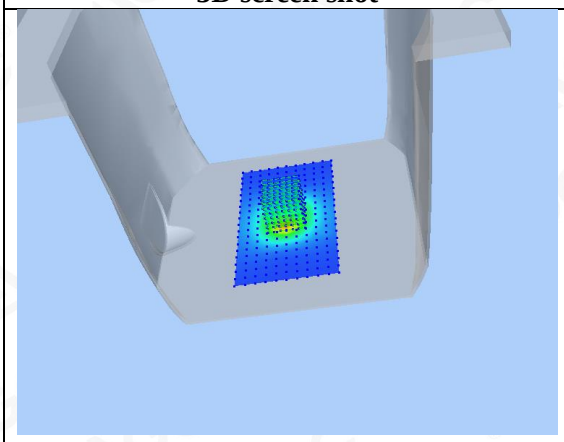
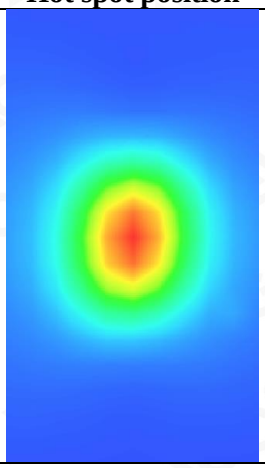
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00
SAR Peak: 5.94 W/kg

SAR 10g (W/Kg)	1.499753
SAR 1g (W/Kg)	3.446582

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.0526	3.5325	1.7284	0.8682	0.4225	0.2164	0.1257



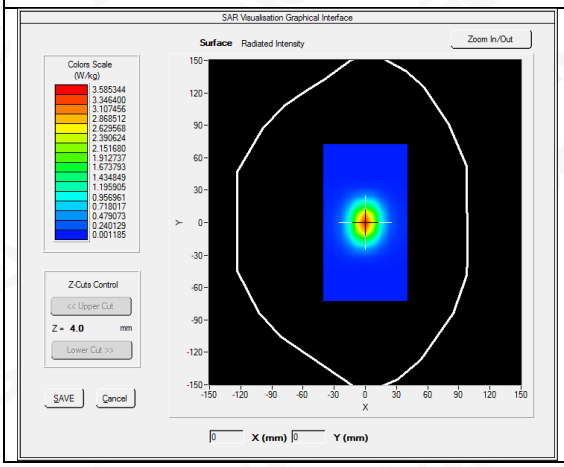
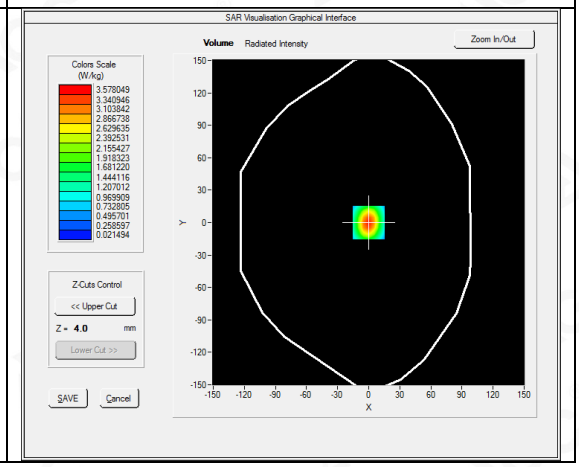
3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
System Check Body 2600MHz
DUT: Dipole 2600 MHz; Type: SID 2600
Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Duty Cycle: 1:1; Conv.F=4.68
Frequency:2600 MHz; Medium parameters used: f = 2600 MHz; σ =2.16 mho/m; ε r =52.00; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section; Input Power=18dBm
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

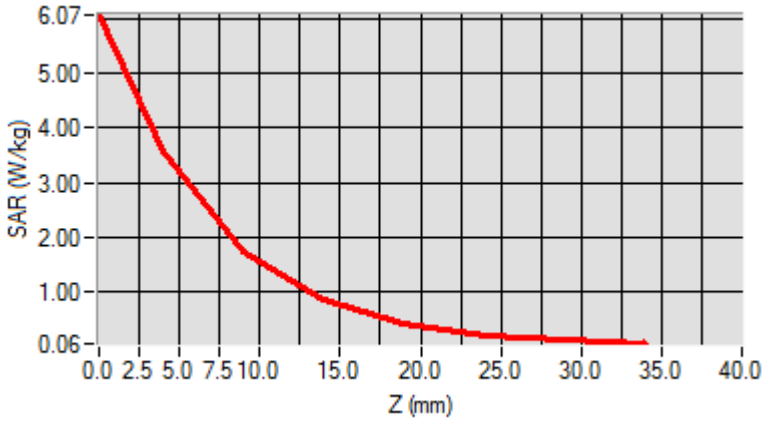
Configuration/System Check 2600 Body/Area Scan: Measurement grid: dx=8mm,dy=8mm
Configuration/System Check 2600 Body /Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm

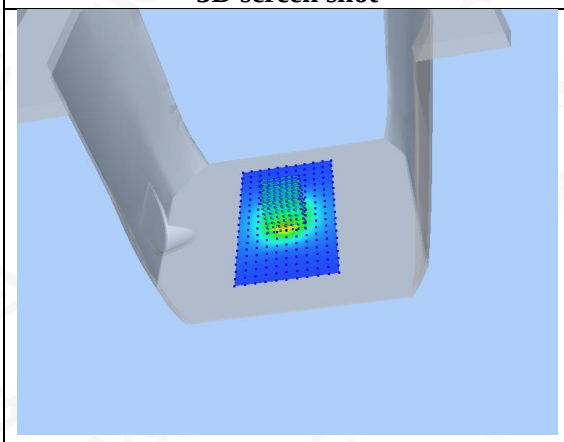
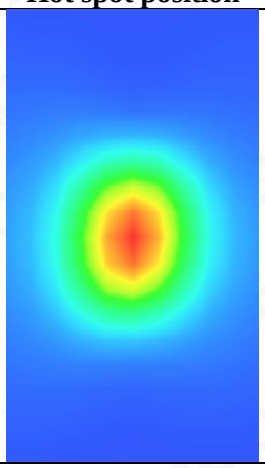
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00
SAR Peak: 5.99 W/kg

SAR 10g (W/Kg)	1.572548
SAR 1g (W/Kg)	3.590341

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.0636	3.5787	1.7473	0.8656	0.4375	0.2293	0.1148



3D screen shot	Hot spot position
	

APPENDIX B. SAR MEASUREMENT DATA

Test Laboratory: AGC Lab **Date: July 17,2019**
GPRS 850 Mid- Body- Back (3up)
DUT: Portable Translator; Type: HYP10

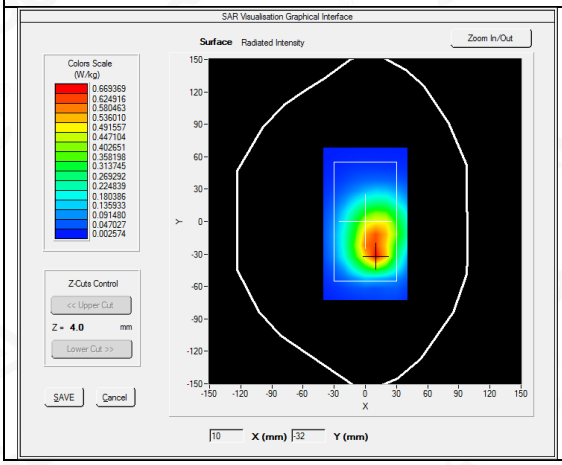
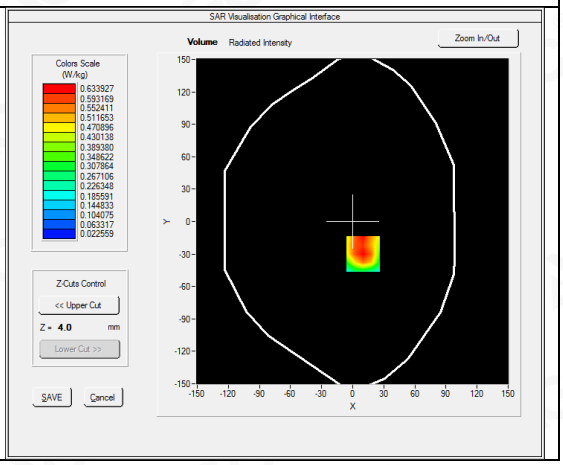
Communication System: GPRS-3 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.7; Conv.F=5.49; Frequency: 836.6 MHz; Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; εr = 54.22; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/GPRS 850 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/GPRS 850 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

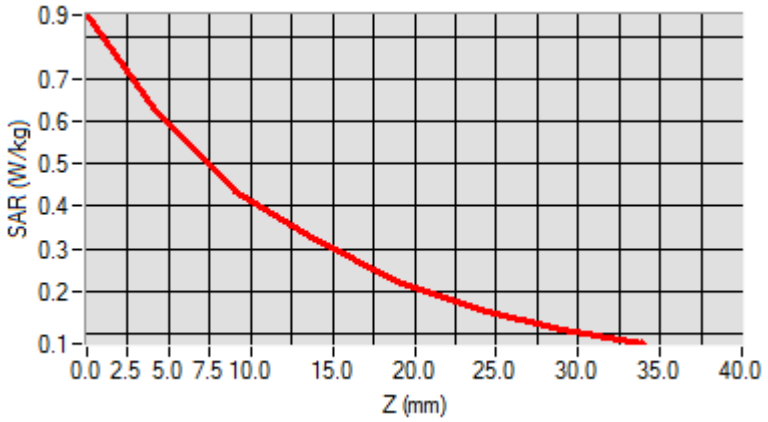
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	GSM 850
Channels	Middle
Signal	TDMA (Crest factor: 2.7)

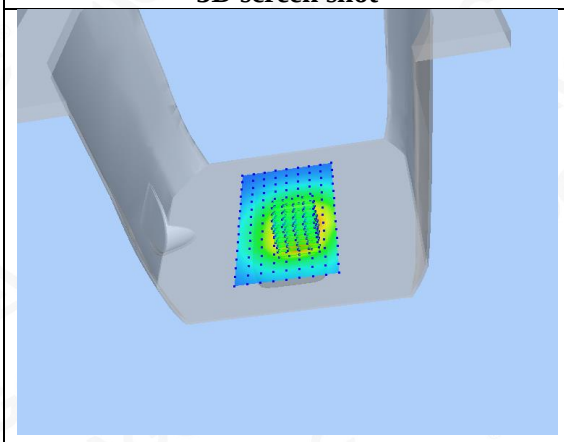
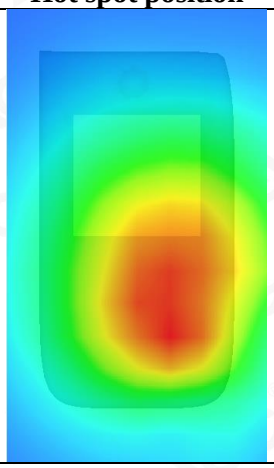
SURFACE SAR	VOLUME SAR
	

Maximum location: X=10.00, Y=-30.00
SAR Peak: 0.92 W/kg

SAR 10g (W/Kg)	0.406075
SAR 1g (W/Kg)	0.619228

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8539	0.6339	0.4374	0.3214	0.2223	0.1533	0.1090



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**
GPRS 1900 Mid-Body-Back (3up)
DUT: Portable Translator; Type: HYP10

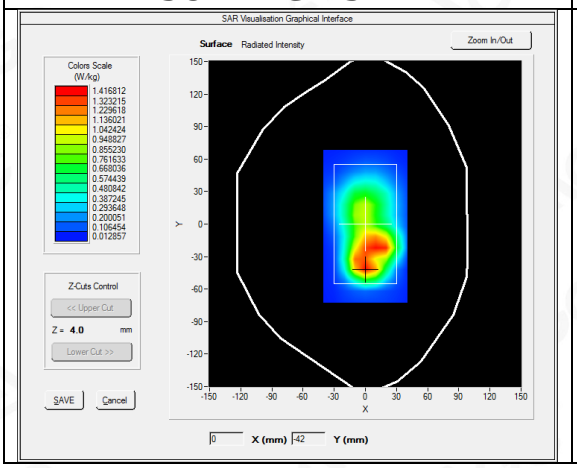
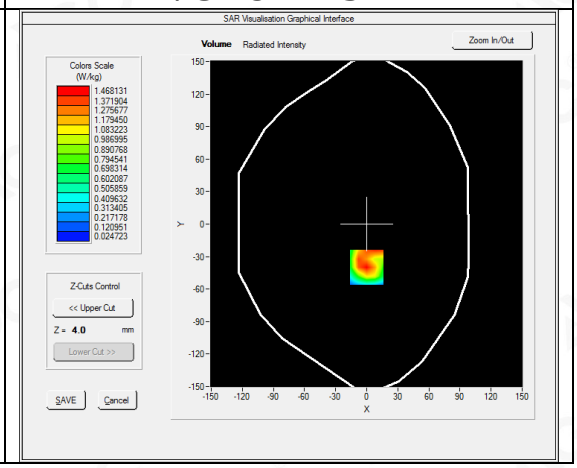
Communication System: GPRS-3Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.7; Conv.F=5.39;
Frequency: 1880 MHz; Medium parameters used: f = 1850 MHz; σ = 1.50 mho/m; ε r =53.17; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.5

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/GPRS1900 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/GPRS1900 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

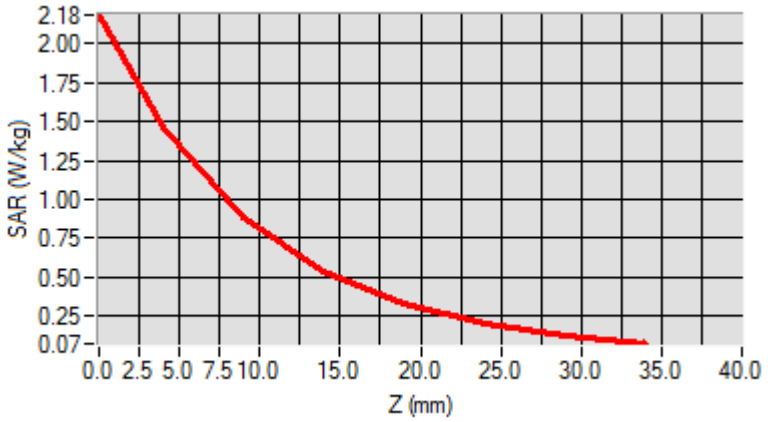
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 2.7)

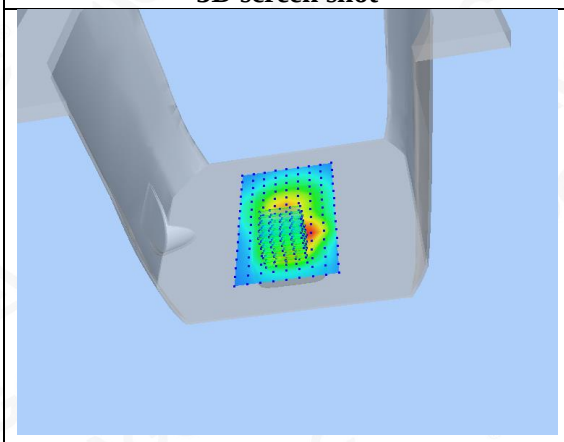
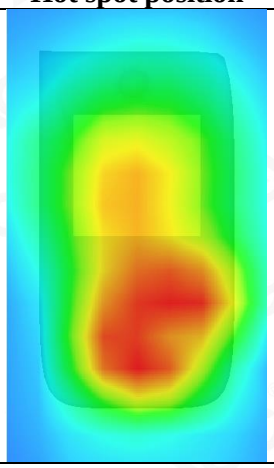
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-40.00
SAR Peak: 2.30 W/kg

SAR 10g (W/Kg)	0.737397
SAR 1g (W/Kg)	1.391196

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.1840	1.4681	0.8787	0.5402	0.3272	0.2010	0.1243



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**
WCDMA Band II Mid-Body-Towards Grounds (RMC 12.2kbps)
DUT: Portable Translator; Type: HYP10

Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.39;
Frequency: 1880 MHz; Medium parameters used: f = 1850 MHz; σ =1.50 mho/m; ε r =53.17; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.5

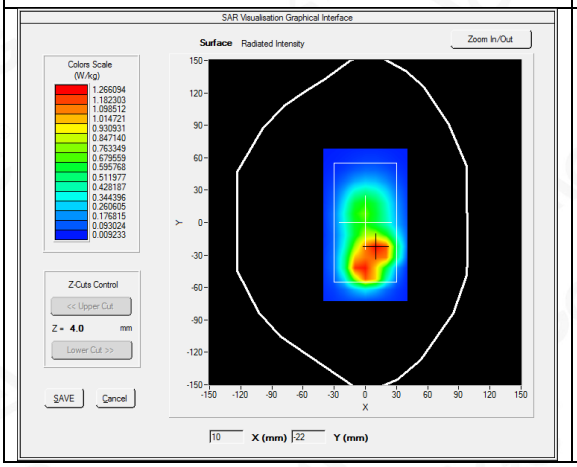
SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

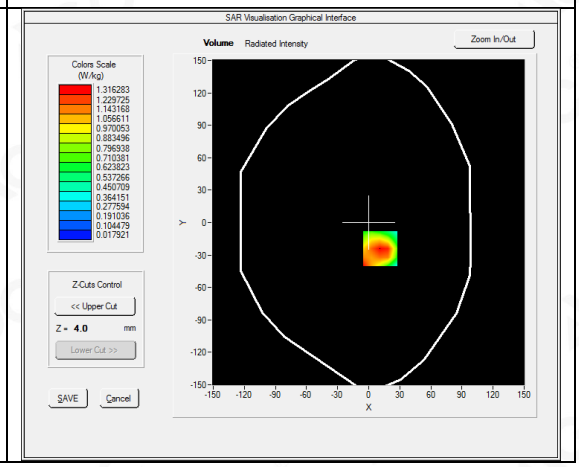
Configuration/ WCDMA band II Mid-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA band II Mid-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA band II
Channels	Middle
Signal	CDMA (Crest factor: 1.0)

SURFACE SAR



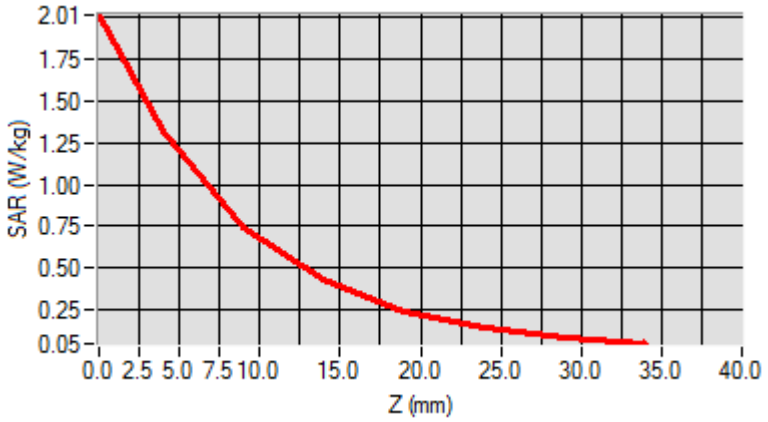
VOLUME SAR

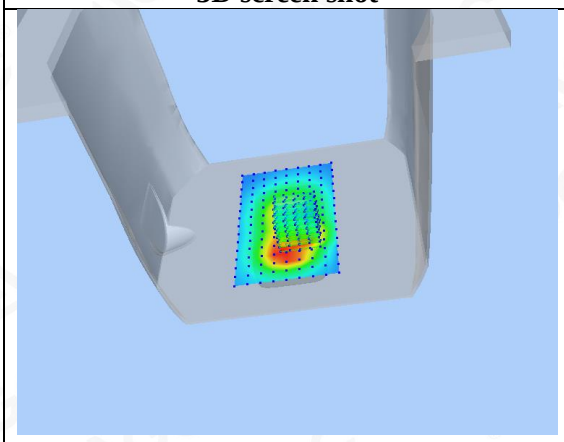
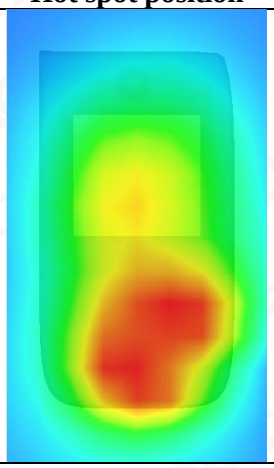


Maximum location: X=11.00, Y=-24.00
SAR Peak: 2.21 W/kg

SAR 10g (W/Kg)	0.667273
SAR 1g (W/Kg)	1.268398

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.0148	1.3163	0.7494	0.4260	0.2393	0.1379	0.0803



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**

WCDMA Band Ⅴ Mid-Body-Towards Grounds (RMC)

DUT: Portable Translator; Type: HYP10

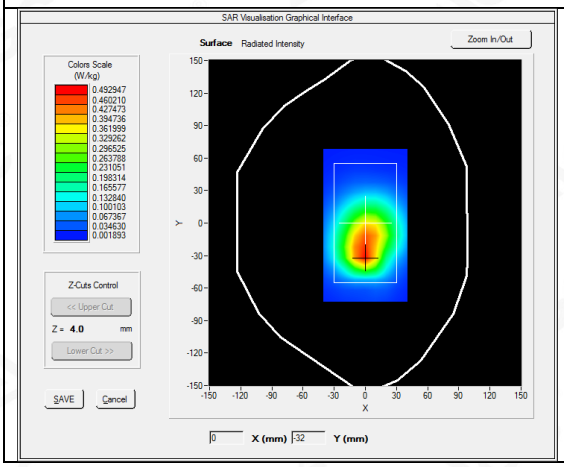
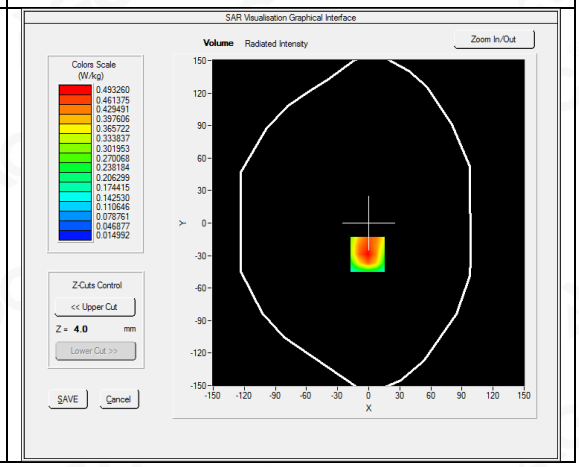
Communication System: UMTS; Communication System Band: BAND V UTRA/FDD; Duty Cycle:1: 1; Conv.F=5.49; Frequency: 836.6 MHz; Medium parameters used: f = 835MHz; σ =0.97 mho/m; ε r =54.22; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ WCDMA Band V Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA Band V Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

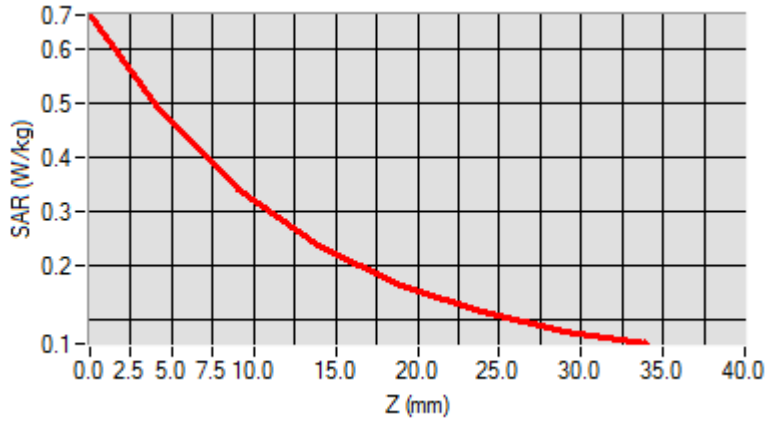
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA Band V
Channels	Middle
Signal	CDMA (Crest factor: 1.0)

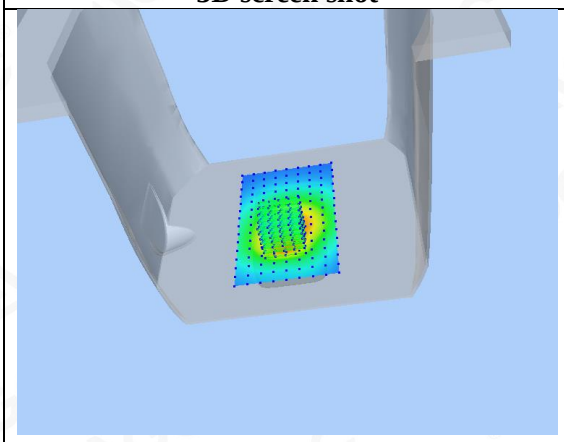
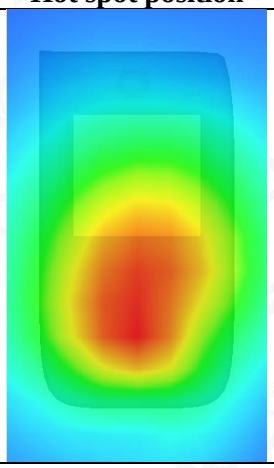
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=-29.00
SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.305430
SAR 1g (W/Kg)	0.475487

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6613	0.4933	0.3398	0.2343	0.1615	0.1117	0.0775



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 03,2019**
LTE Band 2 Low-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

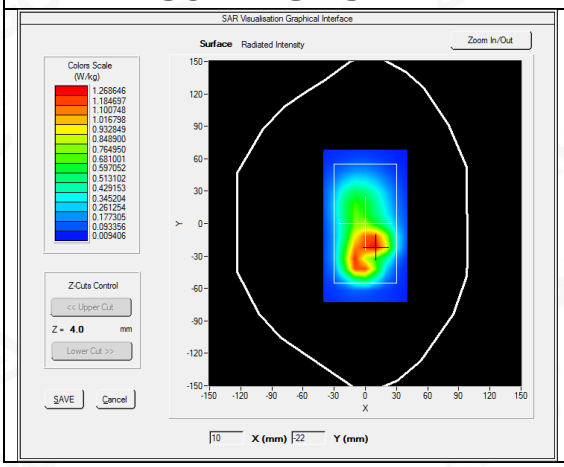
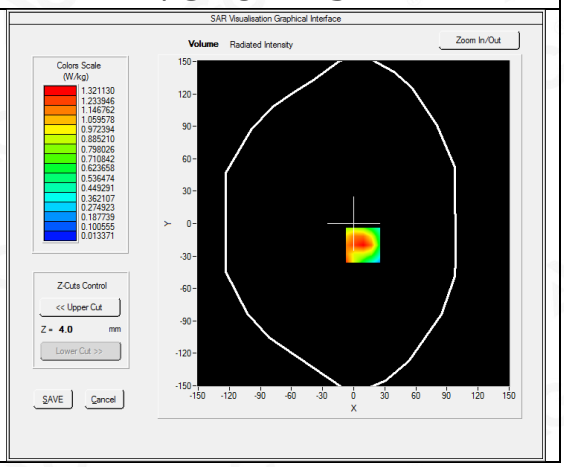
Communication System: LTE; Communication System Band: LTE Band 2; Duty Cycle:1:1; Conv.F=5.39; Frequency:1860MHz; Medium parameters used: f = 1850 MHz; σ = 1.46 mho/m; ε r =53.91; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 2 Low-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 2 Low-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

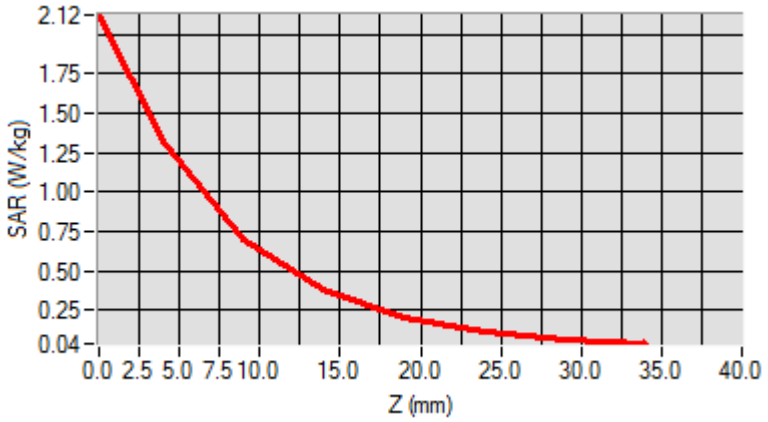
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 2
Channels	Low
Signal	OFDM (Crest factor: 1.0)

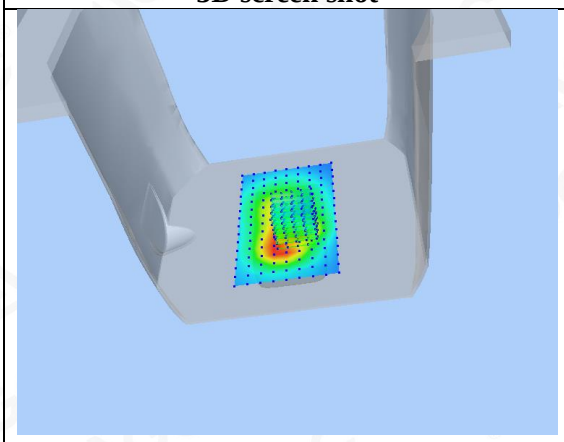
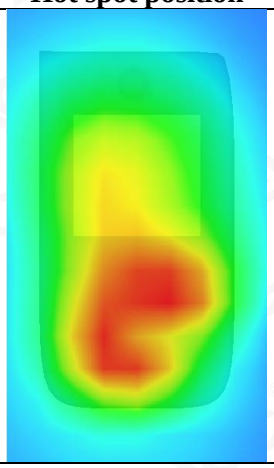
SURFACE SAR	VOLUME SAR
	

Maximum location: X=9.00, Y=-20.00
SAR Peak: 2.11 W/kg

SAR 10g (W/Kg)	0.676012
SAR 1g (W/Kg)	1.255388

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.1206	1.3211	0.7045	0.3792	0.2067	0.1158	0.0664



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 03,2019**
LTE Band 5 Mid-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

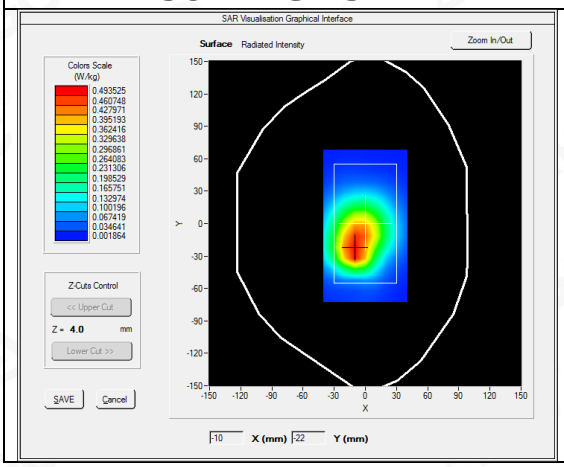
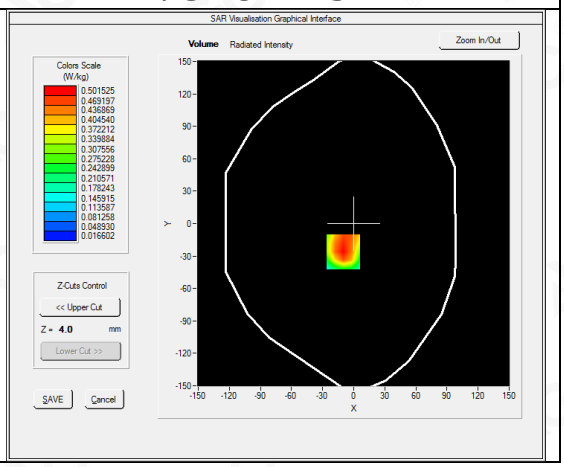
Communication System: LTE; Communication System Band: LTE Band 5; Duty Cycle:1:1; Conv.F=5.49
Frequency:836.5 MHz; Medium parameters used: f = 835 MHz; σ =0.97mho/m; εr =54.06; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 5 Mid-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 5 Mid-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

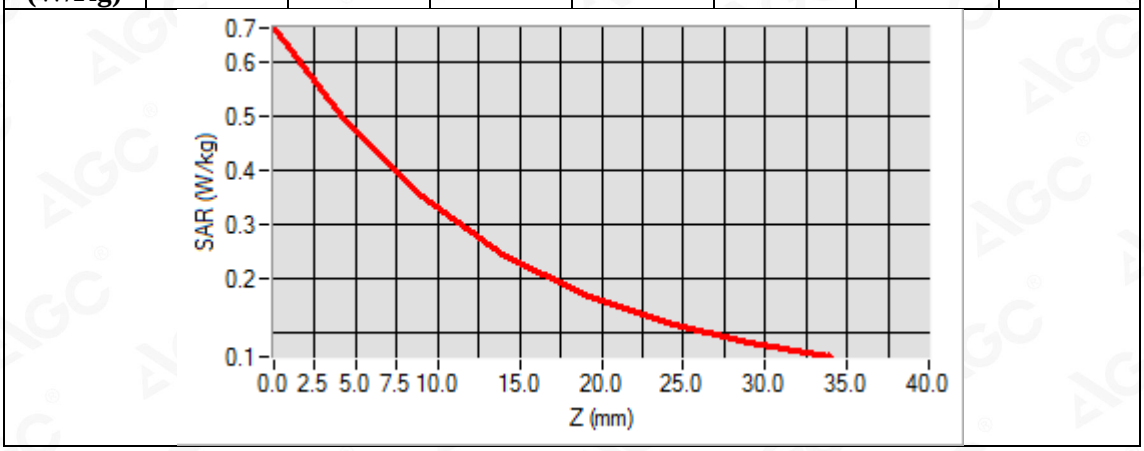
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 5
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

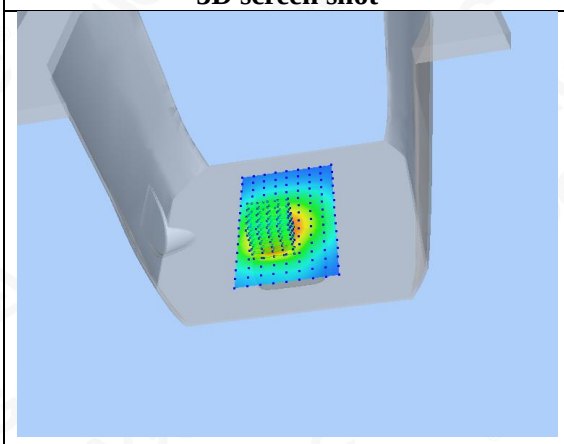
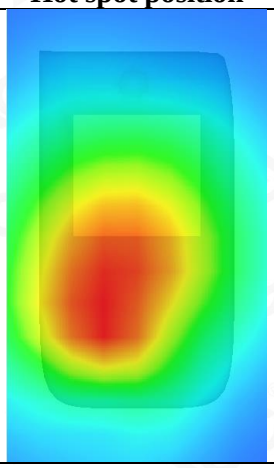
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-26.00
SAR Peak: 0.71 W/kg

SAR 10g (W/Kg)	0.318430
SAR 1g (W/Kg)	0.485833

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6623	0.5015	0.3506	0.2454	0.1701	0.1176	0.0824



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 7 Low-Body-Back (1RB#0)
DUT: Portable Translator; Type: HYP10

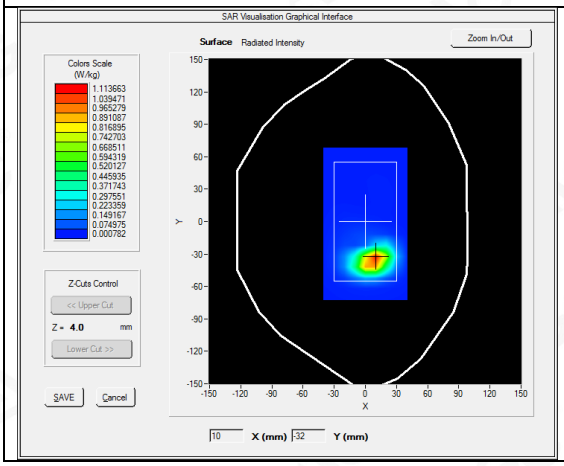
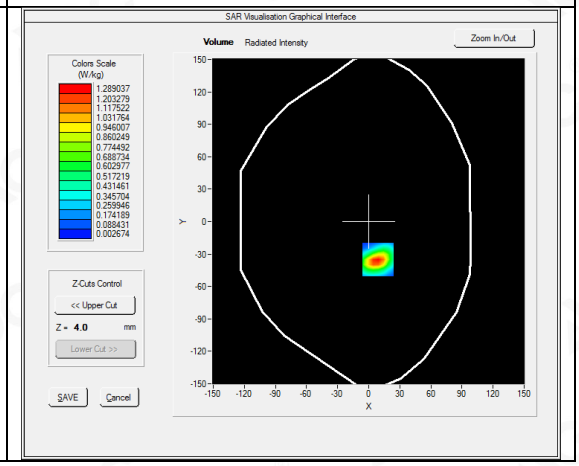
Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=4.68
Frequency: 2510MHz; Medium parameters used: f =2600 MHz; σ =2.10 mho/m; ε r =54.23; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE BAND 7 Low-Body-Back /Area Scan: Measurement grid: dx=10mm, y=10mm
Configuration/ LTE BAND 7 Low-Body-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm

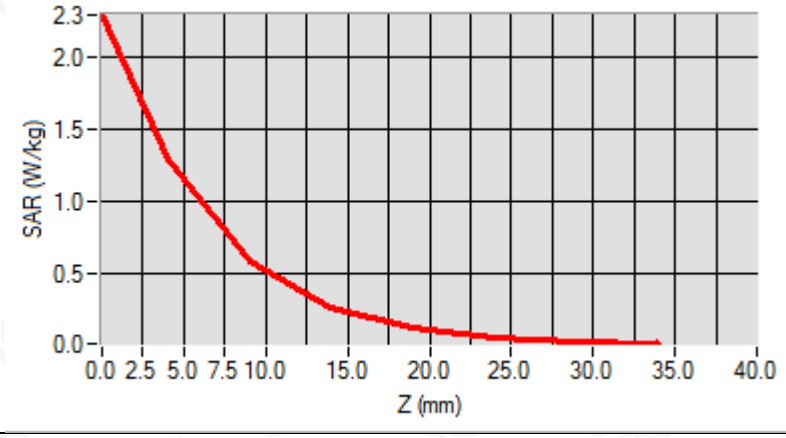
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 7
Channels	Low
Signal	OFDM (Crest factor: 1.0)

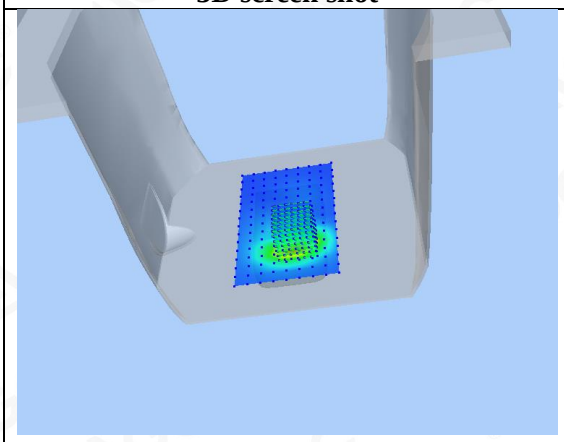
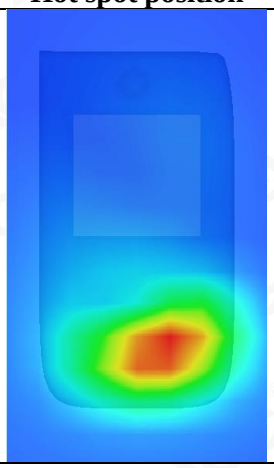
SURFACE SAR	VOLUME SAR
	

Maximum location: X=9.00, Y=-35.00
SAR Peak: 2.30 W/kg

SAR 10g (W/Kg)	0.473929
SAR 1g (W/Kg)	1.162359

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.2837	1.2890	0.5816	0.2647	0.1245	0.0592	0.0285



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 12 Mid-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

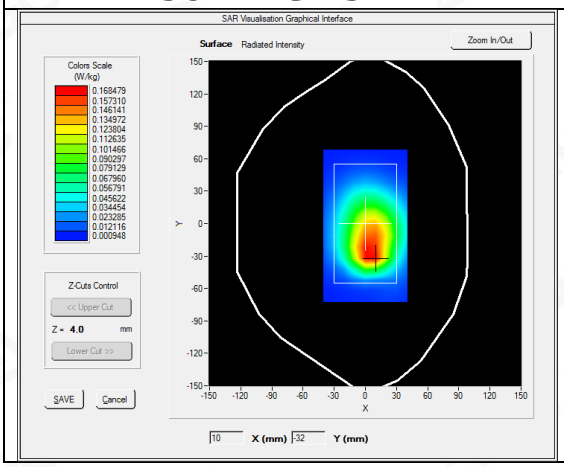
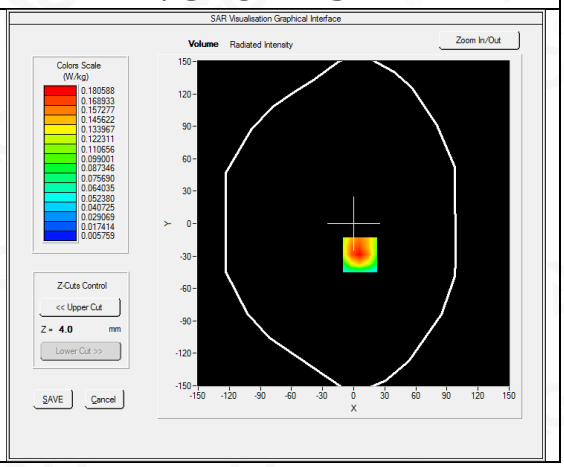
Communication System: LTE; Communication System Band: LTE Band 12; Duty Cycle:1:1; Conv.F=5.40;
Frequency: 707.5 MHz; Medium parameters used: f = 750 MHz; σ =0.93 mho/m; ε_r =56.38; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.7

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 12 Mid-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 12 Mid-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

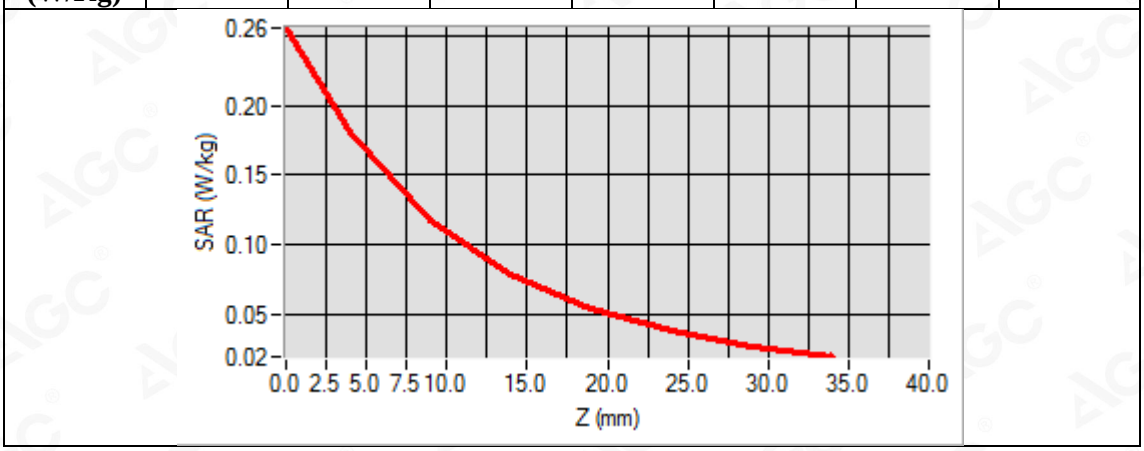
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 12
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

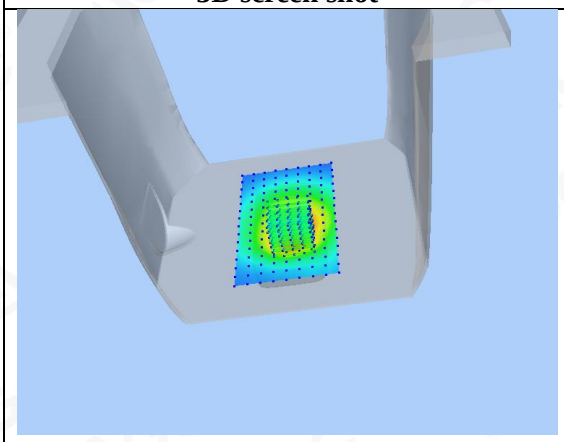
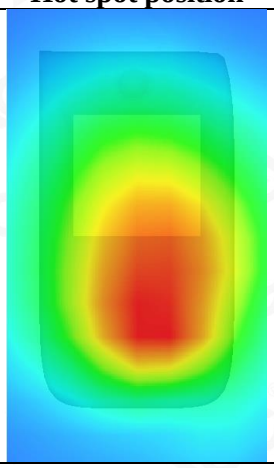
SURFACE SAR	VOLUME SAR
	

Maximum location: X=6.00, Y=-29.00
SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	0.112426
SAR 1g (W/Kg)	0.177943

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2562	0.1806	0.1172	0.0786	0.0535	0.0375	0.0263



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 17 Mid-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

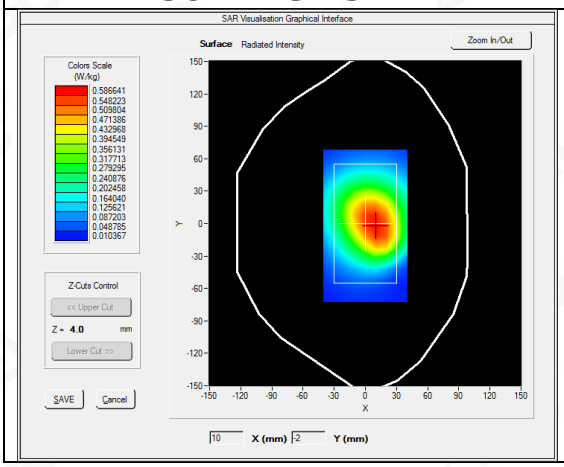
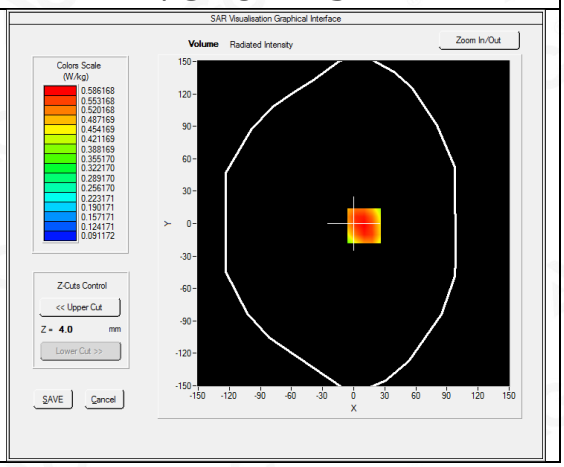
Communication System: LTE; Communication System Band: LTE Band 17; Duty Cycle:1:1; Conv.F=5.40;
Frequency: 710 MHz; Medium parameters used: f = 750 MHz; σ =0.94 mho/m; ε r =56.13; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.7

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 17 Mid-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 17 Mid-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

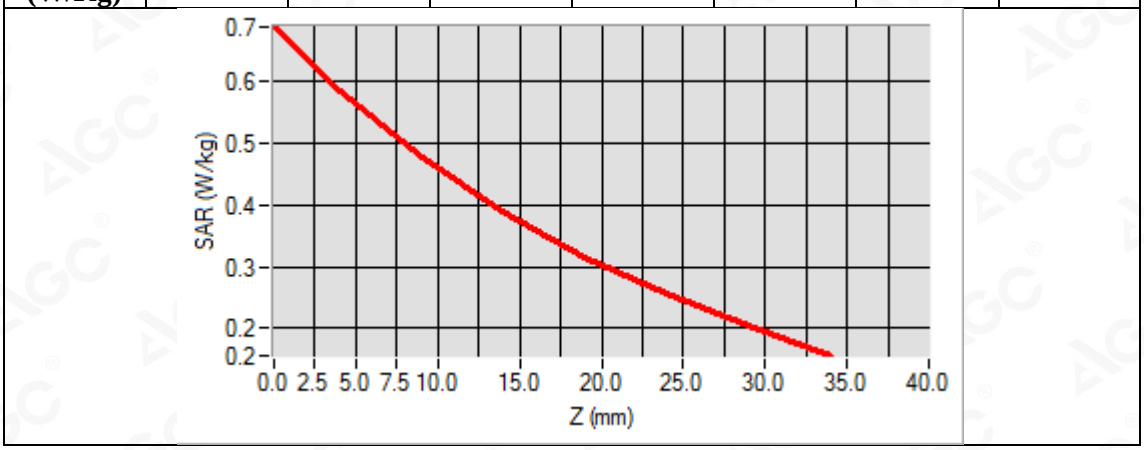
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 17
Channels	Middle
Signal	OFDM (Crest factor: 1.0)

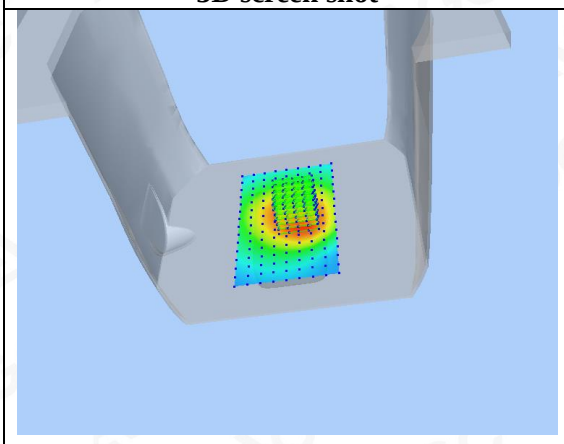
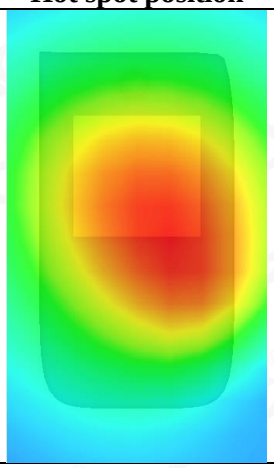
SURFACE SAR	VOLUME SAR
	

Maximum location: X=10.00, Y=-2.00
SAR Peak: 0.70 W/kg

SAR 10g (W/Kg)	0.459047
SAR 1g (W/Kg)	0.600263

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6888	0.5862	0.4778	0.3910	0.3163	0.2548	0.2026



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 13,2019**
LTE Band 40 Mid-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

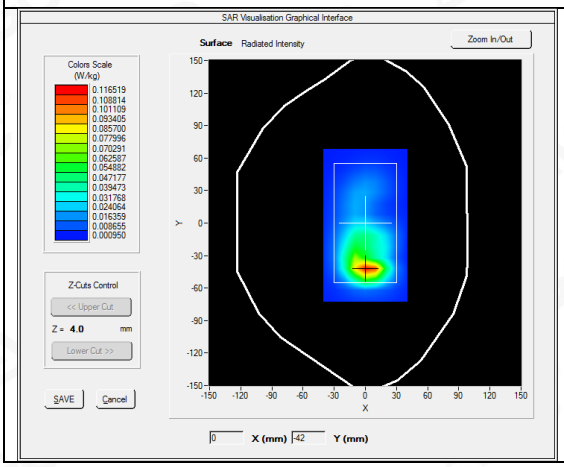
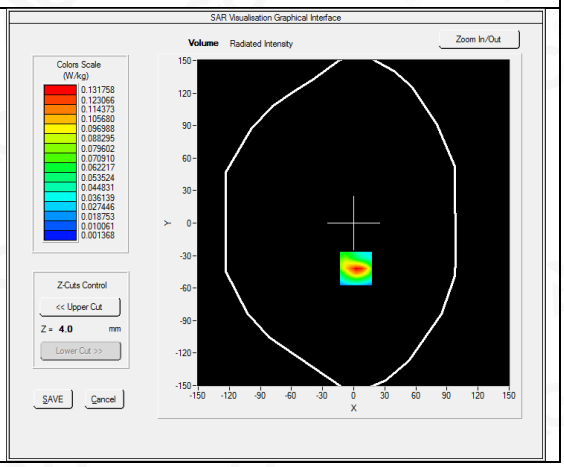
Communication System: LTE; Communication System Band: LTE Band 40; Duty Cycle:1:1.58; Conv.F=5.31
Frequency: 2350 MHz; Medium parameters used: f = 2300 MHz; σ=1.82 mho/m; εr =51.62; ρ= 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 22.2 Liquid temperature (℃): 21.9

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 40 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 40 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm, dy=8mm, dz=5mm;

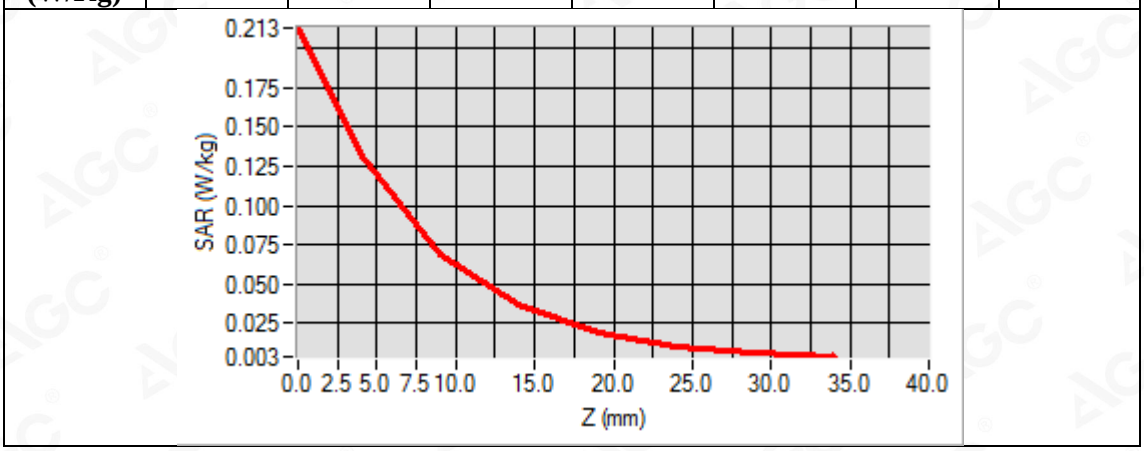
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 40
Channels	Middle
Signal	Crest factor: 1.58

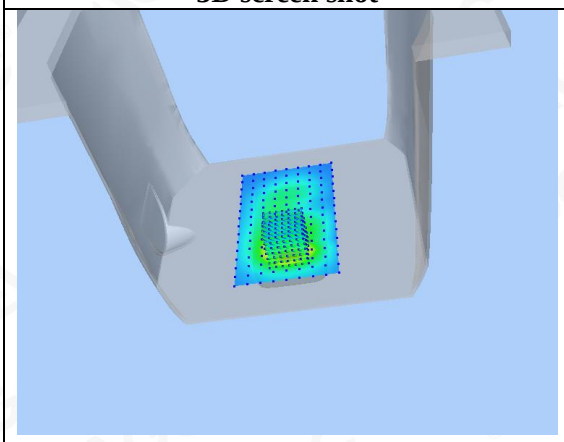
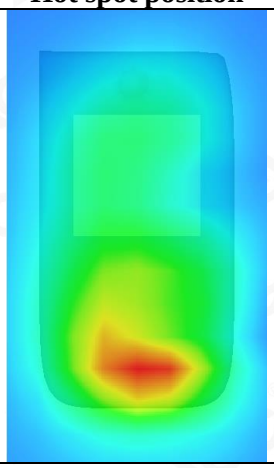
SURFACE SAR	VOLUME SAR
	

Maximum location: X=2.00, Y=-42.00
SAR Peak: 0.21 W/kg

SAR 10g (W/Kg)	0.053191
SAR 1g (W/Kg)	0.115172

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2133	0.1318	0.0692	0.0366	0.0193	0.0103	0.0055



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 41 Mid-Body-Back(1RB#0)
DUT: Portable Translator; Type: HYP10

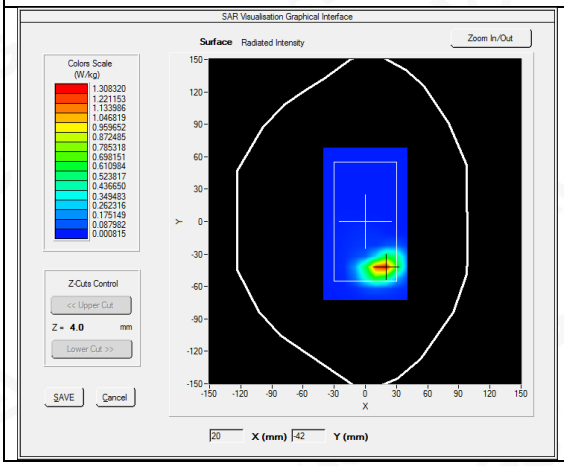
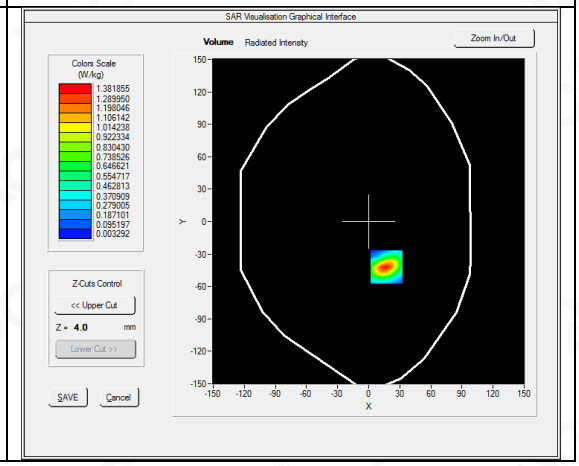
Communication System: LTE; Communication System Band: LTE Band 41; Duty Cycle:1:1.58; Conv.F=4.68
Frequency: 2593MHz; Medium parameters used: f =2600 MHz; σ =2.15 mho/m; ε r =52.67; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE BAND 41 Mid-Body-Back /Area Scan: Measurement grid: dx=10mm, y=10mm
Configuration/ LTE BAND 41 Mid-Body-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm

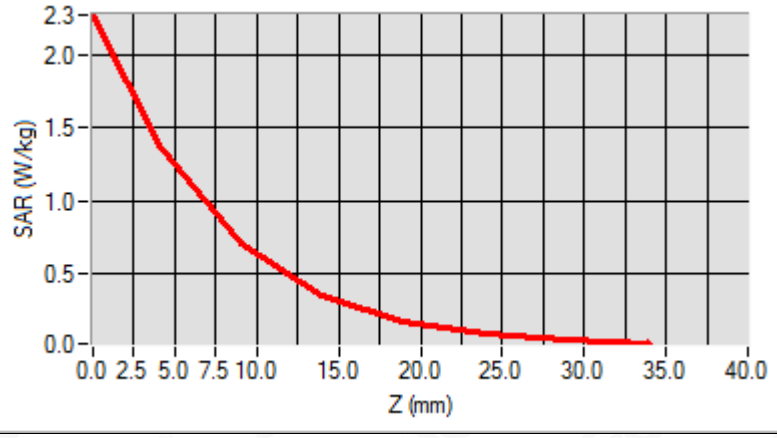
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 41
Channels	Middle
Signal	OFDM (Crest factor: 1.58)

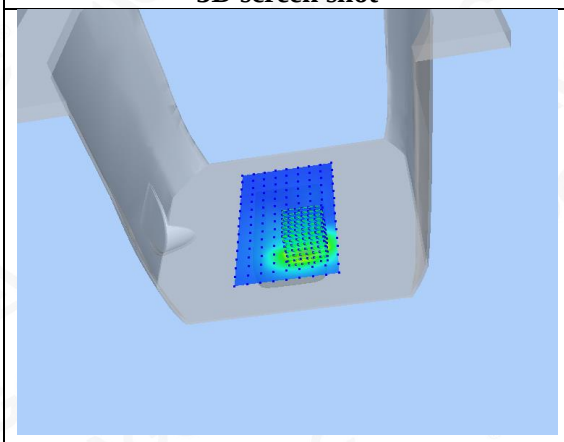
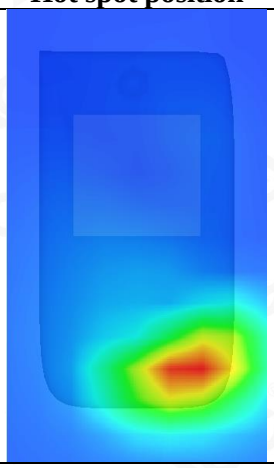
SURFACE SAR	VOLUME SAR
	

Maximum location: X=17.00, Y=-42.00
SAR Peak: 2.26 W/kg

SAR 10g (W/Kg)	0.529402
SAR 1g (W/Kg)	1.218861

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.2671	1.3819	0.7051	0.3502	0.1742	0.0856	0.0424



3D screen shot	Hot spot position
	

WIFI MODE

Test Laboratory: AGC Lab **Date: July 09,2019**
802.11b Mid-Body-Worn- Back
DUT: Portable Translator; Type: HYP10

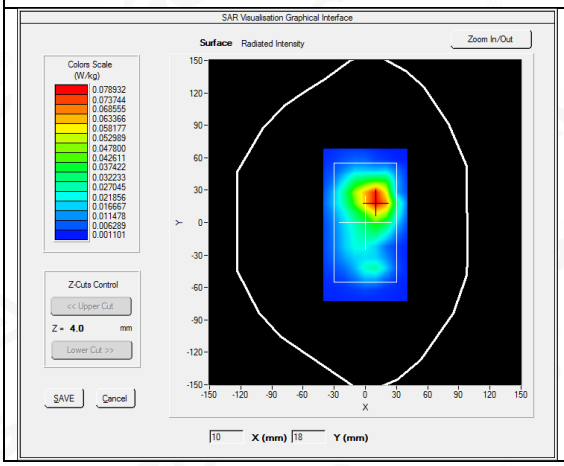
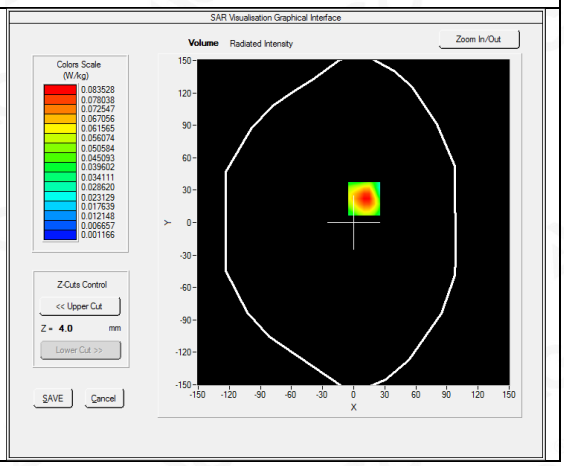
Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Conv.F=5.04;
Frequency: 2437 MHz; Medium parameters used: f = 2450 MHz; σ =1.91mho/m; εr =53.71; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃):20.6, Liquid temperature (℃): 20.3

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/802.11b Mid- Body- Back /Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/802.11b Mid- Body- Back /Zoom Scan: Measurement grid: dx=5mm,dy=5mm, dz=5mm;

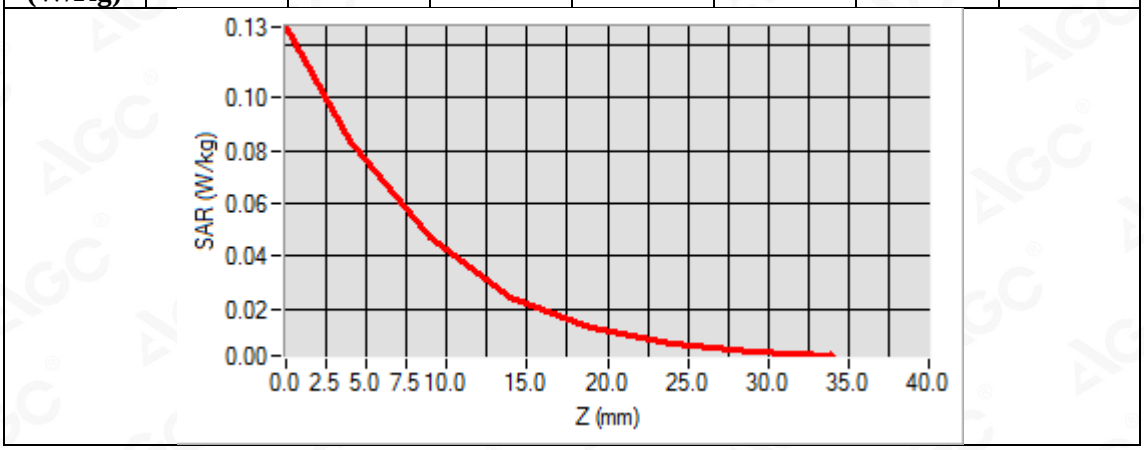
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	2450MHz
Channels	Middle
Signal	Crest factor: 1.0

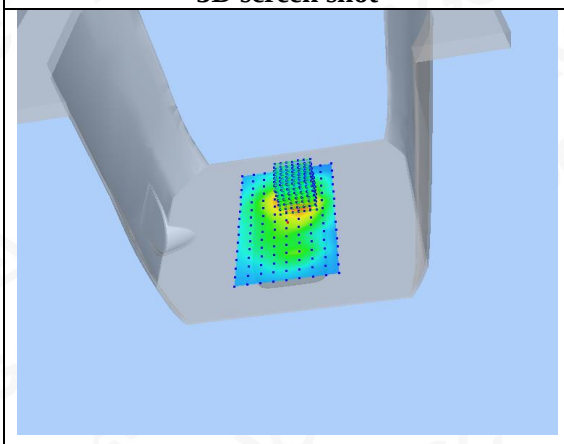
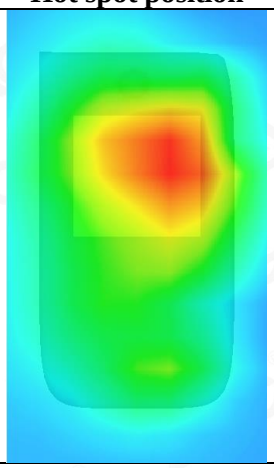
SURFACE SAR	VOLUME SAR
	

Maximum location: X=10.00, Y=22.00
SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)	0.040834
SAR 1g (W/Kg)	0.078192

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1270	0.0835	0.0471	0.0245	0.0128	0.0066	0.0039



3D screen shot	Hot spot position
	

Repeated SAR
Test Laboratory: AGC Lab **Date: July 17,2019**
GPRS 1900 Mid-Body-Back (3up)
DUT: Portable Translator; Type: HYP10

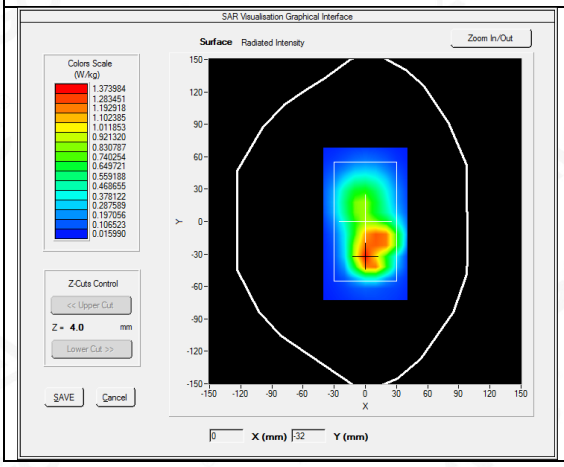
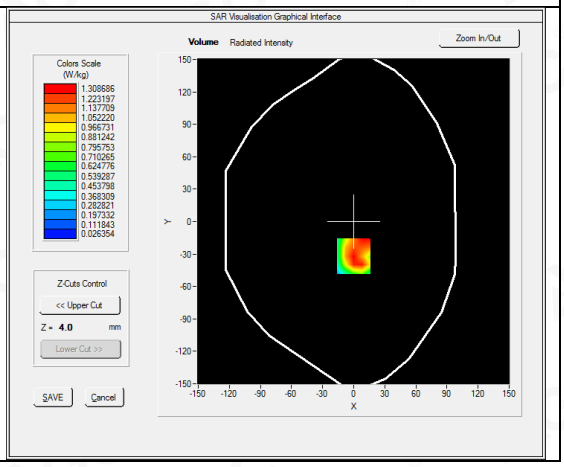
Communication System: GPRS-3Slot; Communication System Band: PCS 1900; Duty Cycle: 1:2.7; Conv.F=5.39;
Frequency: 1880 MHz; Medium parameters used: f = 1850 MHz; σ = 1.50 mho/m; ε_r =53.17; ρ = 1000 kg/m^3 ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.5

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/GPRS1900 Mid-Body-Back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/GPRS1900 Mid-Body-Back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5mm;

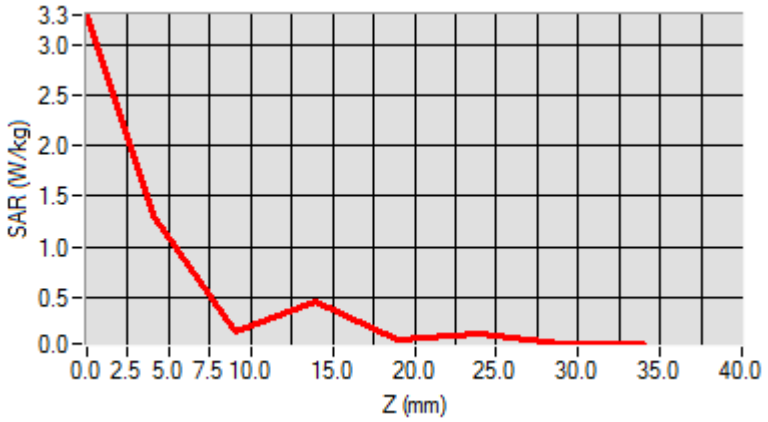
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	PCS 1900
Channels	Middle
Signal	TDMA (Crest factor: 2.7)

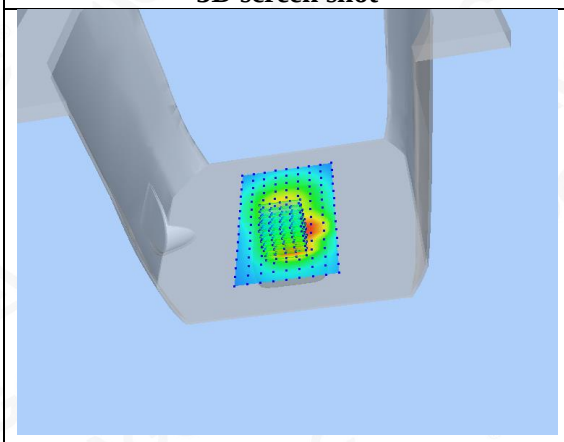
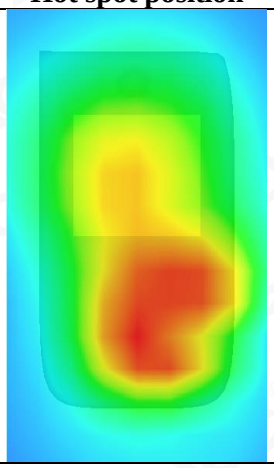
SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-32.00
SAR Peak: 1.99 W/kg

SAR 10g (W/Kg)	0.697164
SAR 1g (W/Kg)	1.268168

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	3.2914	1.3087	0.1551	0.4633	0.0797	0.1431	0.0387



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 17,2019**
WCDMA Band II Mid-Body-Towards Grounds (RMC 12.2kbps)
DUT: Portable Translator; Type: HYP10

Communication System: UMTS; Communication System Band: Band II UTRA/FDD ;Duty Cycle:1:1; Conv.F=5.39;
Frequency: 1880 MHz; Medium parameters used: f = 1850 MHz; σ =1.50 mho/m; ε r =53.17; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 21.8, Liquid temperature (℃): 21.5

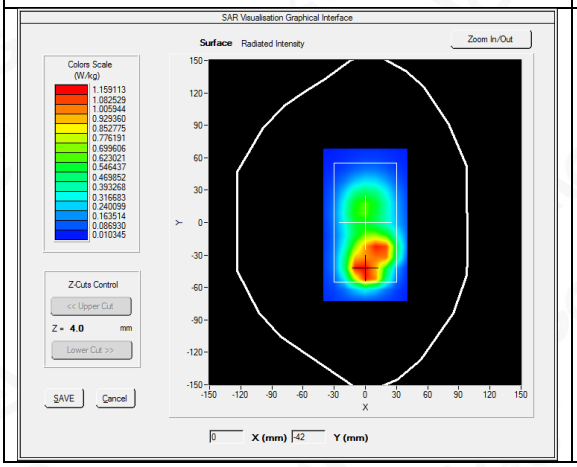
SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

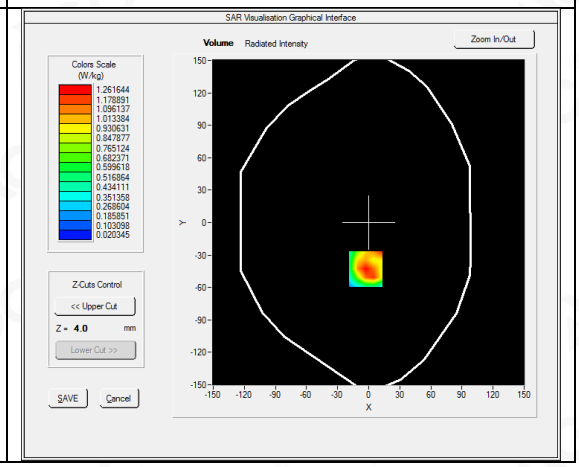
Configuration/ WCDMA band II Mid-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ WCDMA band II Mid-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body Back
Band	WCDMA band II
Channels	Middle
Signal	CDMA (Crest factor: 1.0)

SURFACE SAR



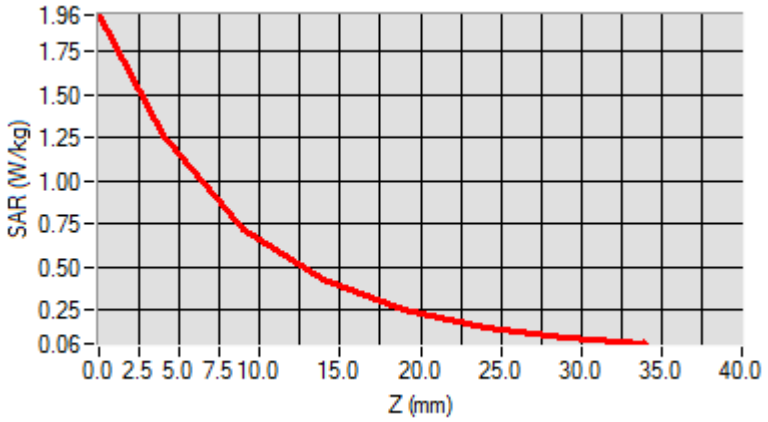
VOLUME SAR

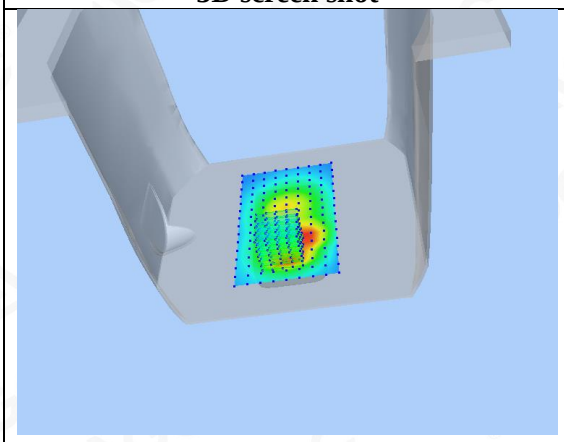
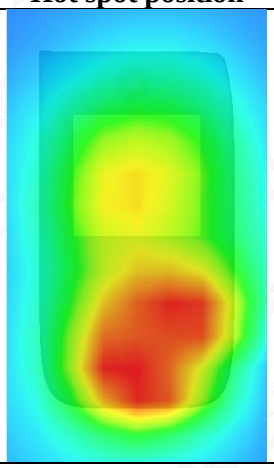


Maximum location: X=-3.00, Y=-43.00
SAR Peak: 1.99 W/kg

SAR 10g (W/Kg)	0.623453
SAR 1g (W/Kg)	1.211140

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.9644	1.2616	0.7139	0.4270	0.2535	0.1518	0.0917



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 03,2019**
LTE Band 2 Low-Body-Back (1 RB#0)
DUT: Portable Translator; Type: HYP10

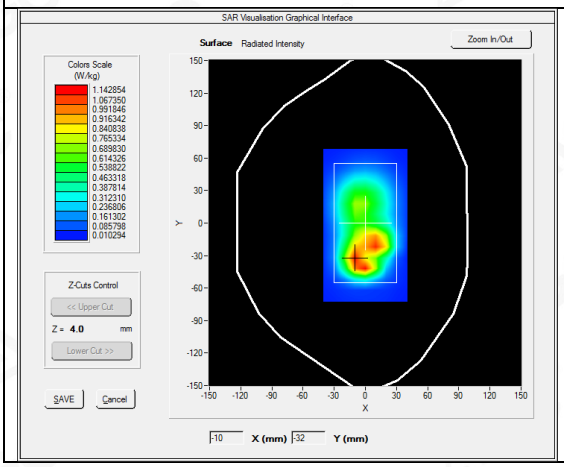
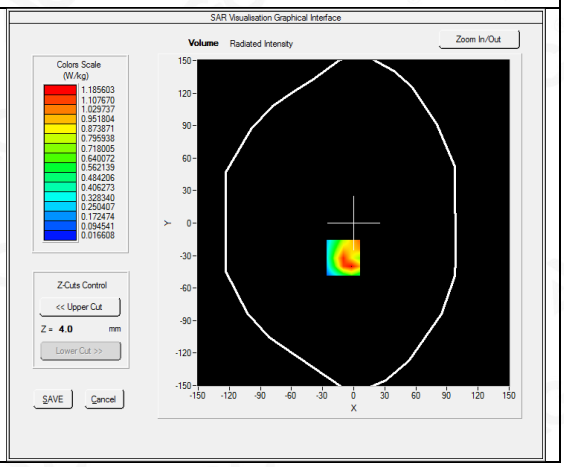
Communication System: LTE; Communication System Band: LTE Band 2; Duty Cycle:1:1; Conv.F=5.39; Frequency:1860MHz; Medium parameters used: f = 1850 MHz; σ = 1.46 mho/m; ε r =53.91; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE Band 2 Low-Body-back/Area Scan: Measurement grid: dx=8mm, dy=8mm
Configuration/ LTE Band 2 Low-Body-back/Zoom Scan: Measurement grid: dx=8mm,dy=8mm, dz=5m;

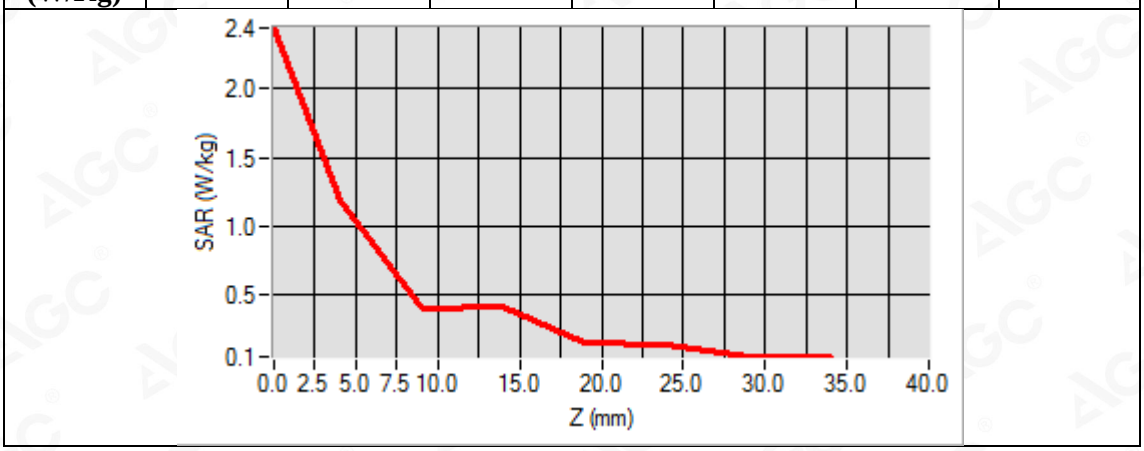
Area Scan	surf_sam_plan.txt, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE Band 2
Channels	Low
Signal	OFDM (Crest factor: 1.0)

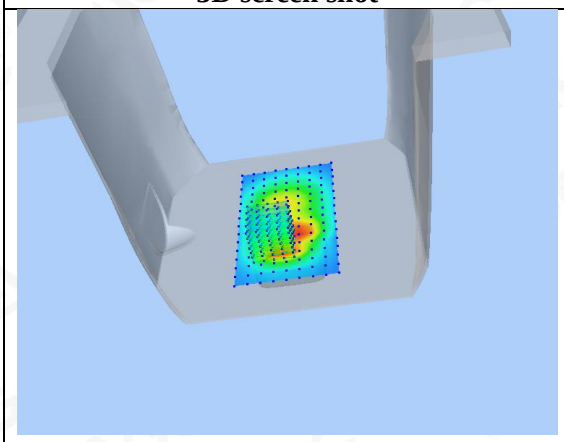
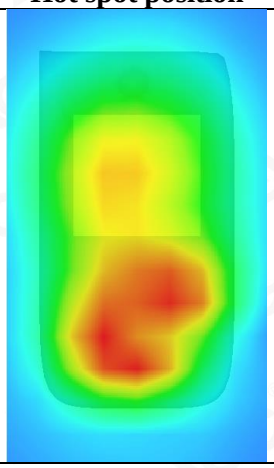
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-32.00
SAR Peak: 1.93 W/kg

SAR 10g (W/Kg)	0.569671
SAR 1g (W/Kg)	1.121605

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.4423	1.1856	0.3967	0.4224	0.1497	0.1481	0.0545



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 7 Low-Body-Back (1RB#0)
DUT: Portable Translator; Type: HYP10

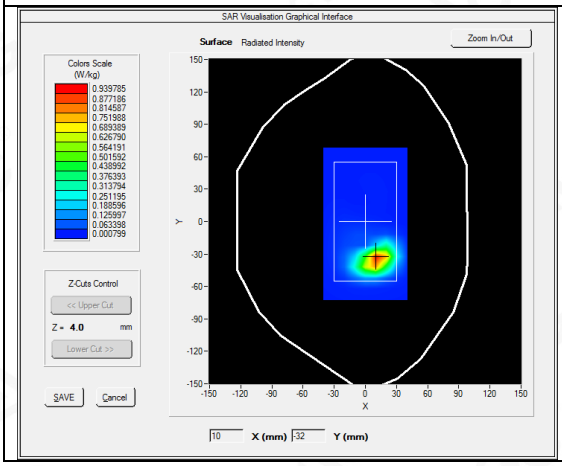
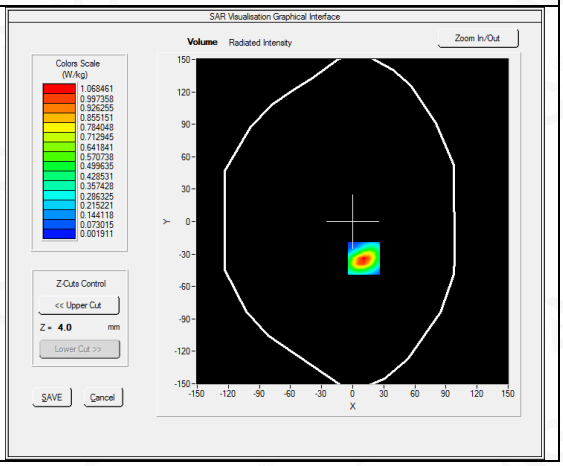
Communication System: LTE; Communication System Band: LTE Band 7; Duty Cycle:1:1; Conv.F=4.68
Frequency: 2510MHz; Medium parameters used: f =2600 MHz; σ =2.10 mho/m; ε r =54.23; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE BAND 7 Low-Body-Back /Area Scan: Measurement grid: dx=10mm, y=10mm
Configuration/ LTE BAND 7 Low-Body-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm

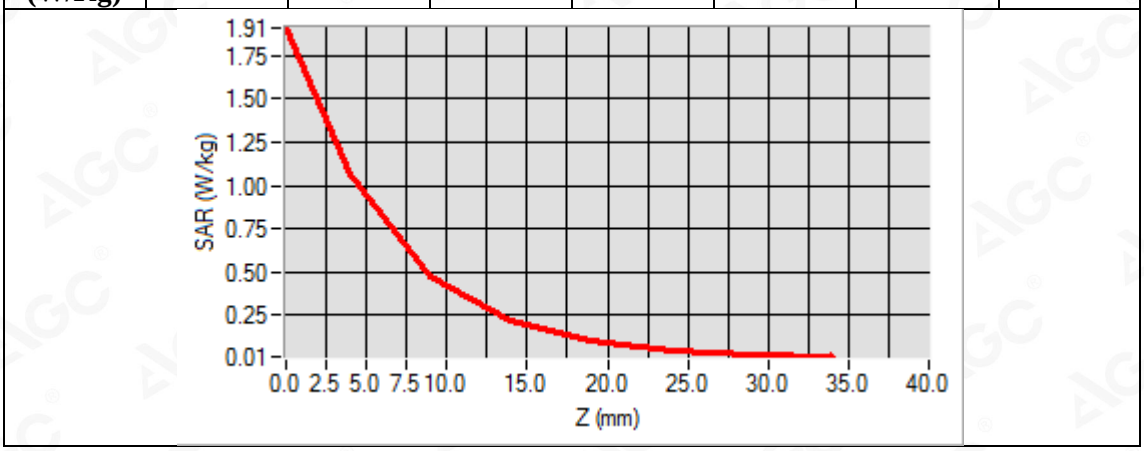
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 7
Channels	Low
Signal	OFDM (Crest factor: 1.0)

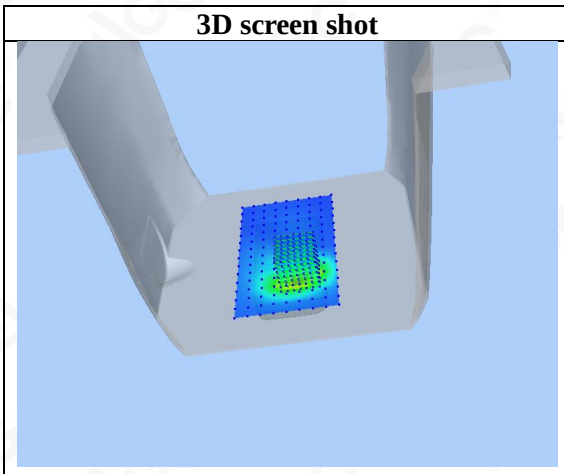
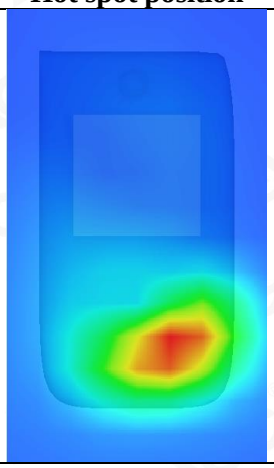
SURFACE SAR	VOLUME SAR
	

Maximum location: X=11.00, Y=-34.00
SAR Peak: 1.92 W/kg

SAR 10g (W/Kg)	0.389271
SAR 1g (W/Kg)	0.971246

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.9103	1.0674	0.4726	0.2165	0.1005	0.0455	0.0217



3D screen shot	Hot spot position
	

Test Laboratory: AGC Lab **Date: July 16,2019**
LTE Band 41 Mid-Body-Back(1RB#0)
DUT: Portable Translator; Type: HYP10

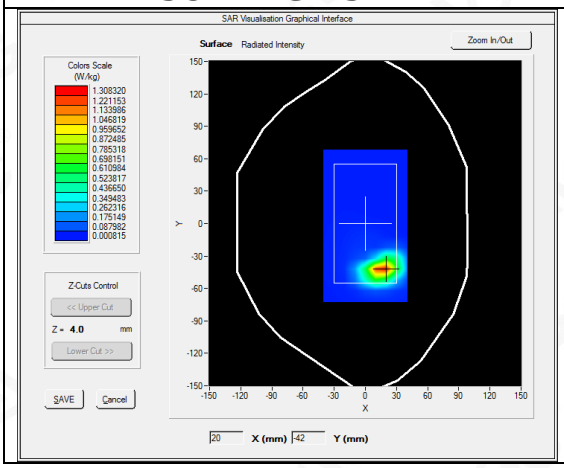
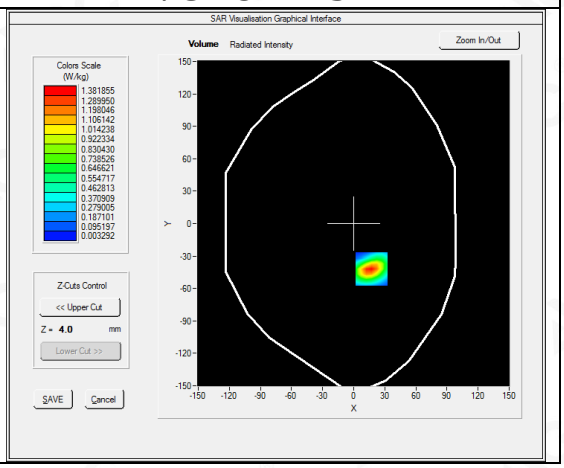
Communication System: LTE; Communication System Band: LTE Band 41; Duty Cycle:1:1.58; Conv.F=4.68
Frequency: 2593MHz; Medium parameters used: f =2600 MHz; σ =2.15 mho/m; ε r =52.67; ρ = 1000 kg/m³ ;
Phantom section: Flat Section
Ambient temperature (℃): 20.9, Liquid temperature (℃): 20.6

SATIMO Configuration:

- Probe: SSE5; Calibrated: Aug. 08,2018; Serial No.: SN 22/12 EP159
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: SAM twin phantom
- Measurement SW: OpenSAR V4_02_35

Configuration/ LTE BAND 41 Mid-Body-Back /Area Scan: Measurement grid: dx=10mm, y=10mm
Configuration/ LTE BAND 41 Mid-Body-Back /Zoom Scan: Measurement grid: dx=5mm, dy=5mm, dz=5mm

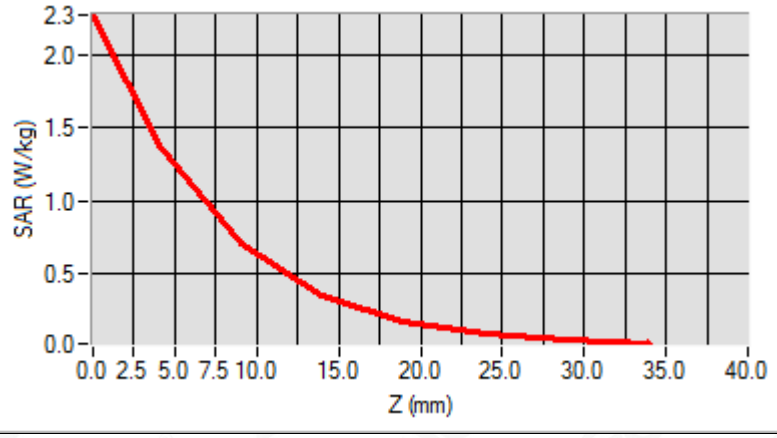
Area Scan	surf_sam_plan.txt, h= 5.00 mm
ZoomScan	7x7x7,dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Body Back
Band	LTE BAND 41
Channels	Middle
Signal	OFDM (Crest factor: 1.58)

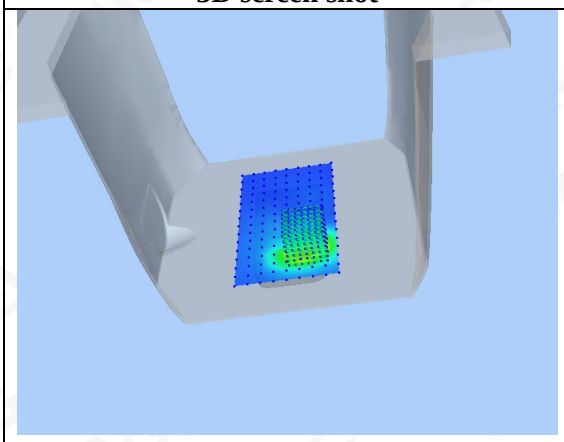
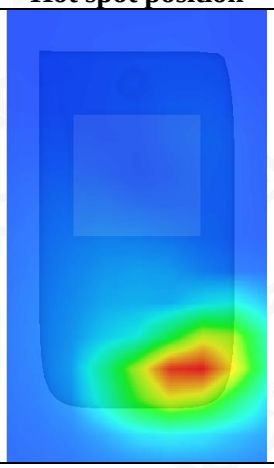
SURFACE SAR	VOLUME SAR
	

Maximum location: X=17.00, Y=-42.00
SAR Peak: 2.26 W/kg

SAR 10g (W/Kg)	0.528116
SAR 1g (W/Kg)	1.217326

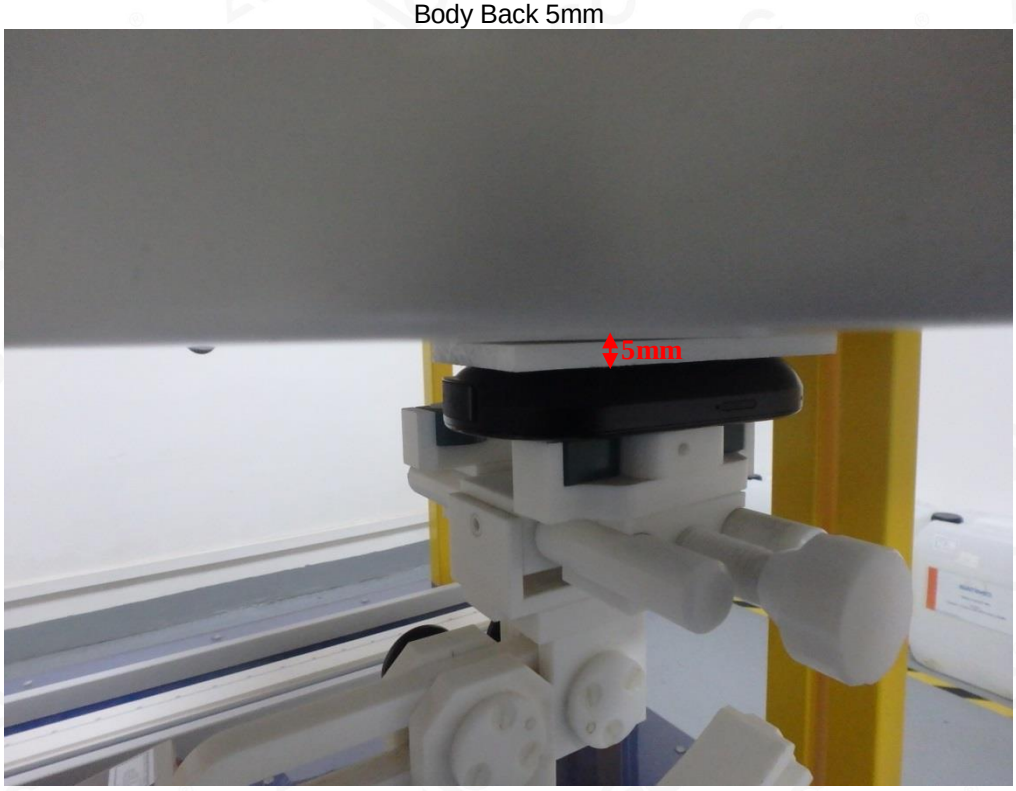
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.2652	1.3801	0.7042	0.3492	0.1731	0.0835	0.0403



3D screen shot	Hot spot position
	

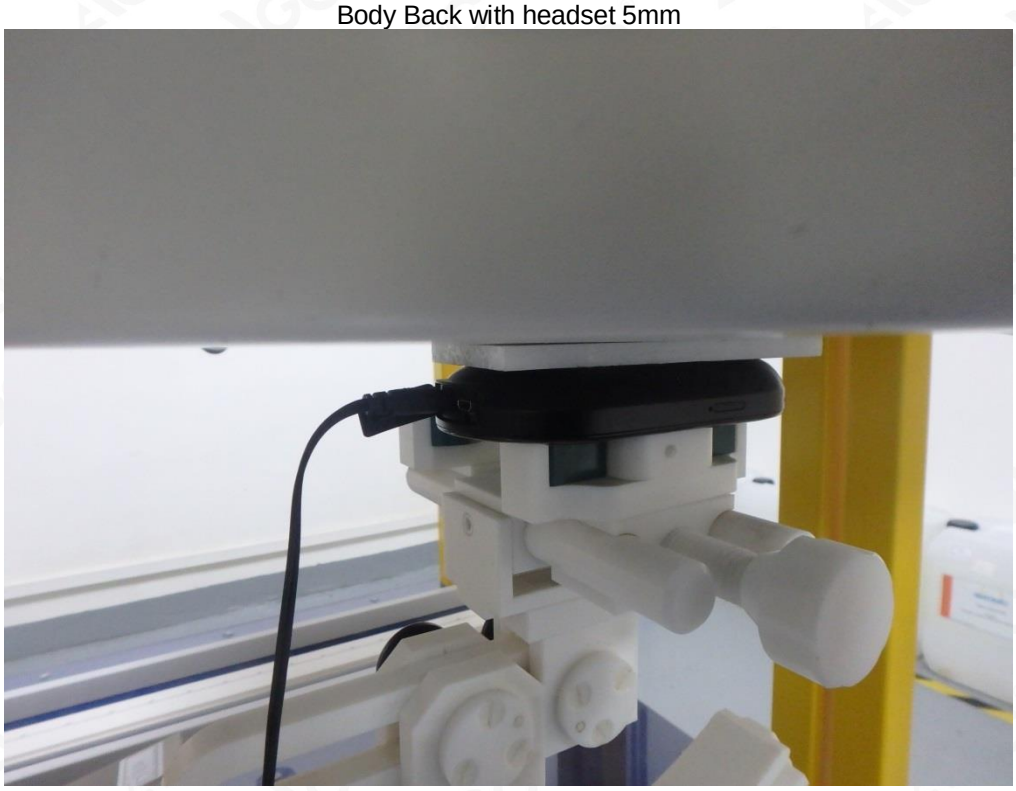
APPENDIX C. TEST SETUP PHOTOGRAPHS

Body Back 5mm

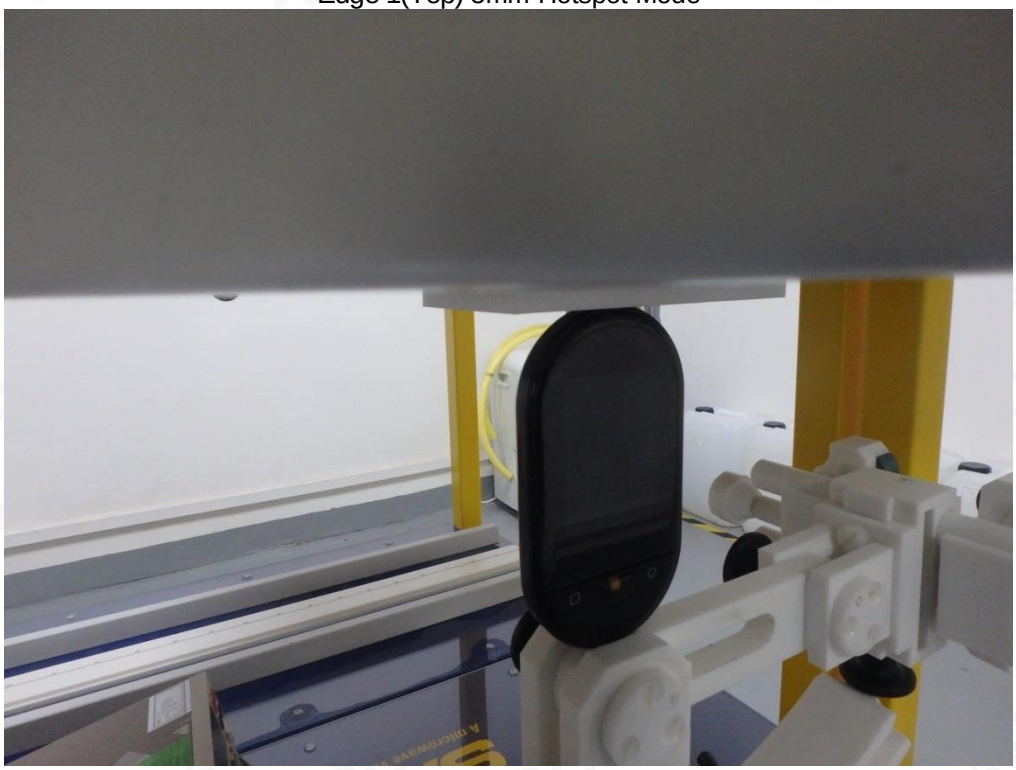


Body Front 5mm

Body Back with headset 5mm



Edge 1(Top) 5mm-Hotspot Mode



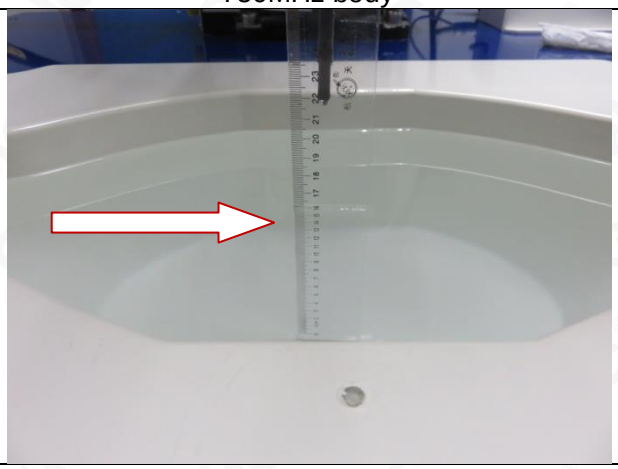
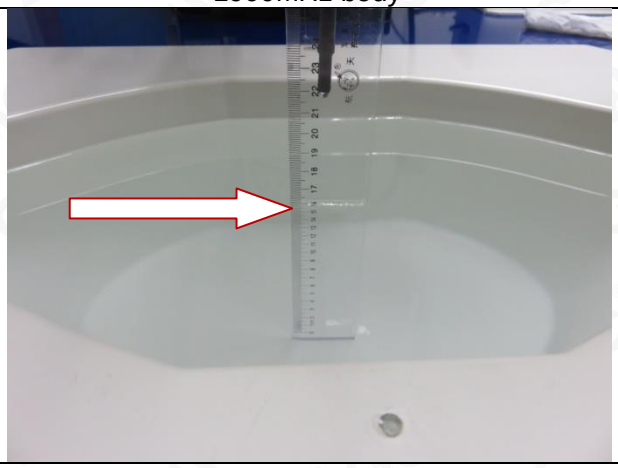
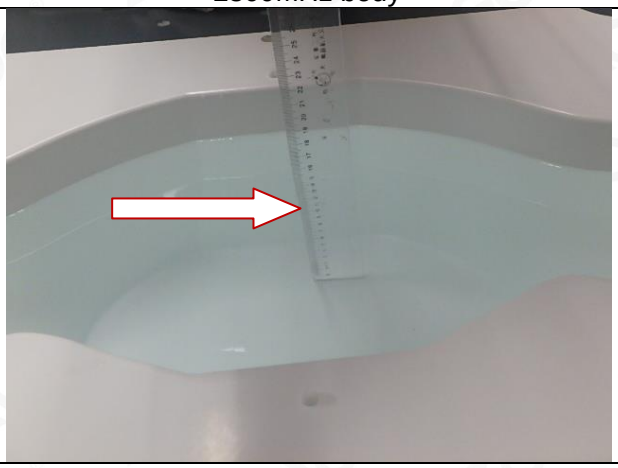
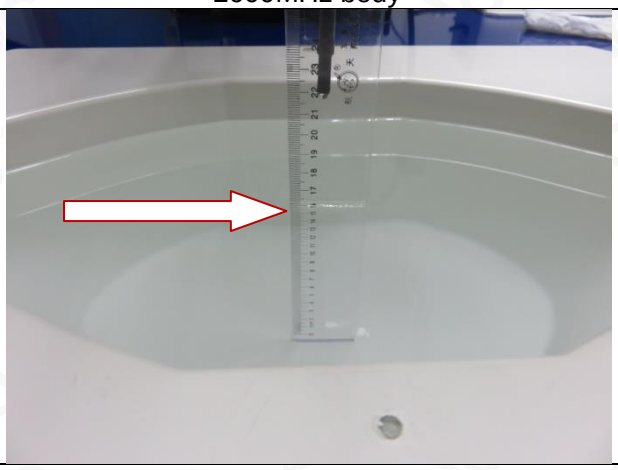
Edge 2 (Right) 5mm-Hotspot Mode

Edge 3 (Bottom) 5mm-Hotspot Mode

Edge 4(Left) 5mm-Hotspot Mode

DEPTH OF THE LIQUID IN THE PHANTOM—ZOOM IN

Note：The position used in the measurement were according to IEEE 1528-2013

750MHz body	835MHz body
	
1900MHz body	2300MHz body
	
2450MHz body	2600MHz body
	

APPENDIX D. CALIBRATION DATA

Refer to Attached files.