

FCC SAR Test Report

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Bottom side	1.19				1.19	1.19
LTE Band 41	Front	0.57	0.12	0.31	0.02	0.69	0.89
	Back	0.66	0.07	0.50	0.02	0.73	1.18
	Left side	0.17				0.17	0.17
	Right side	0.09	0.12	1.10	0.03	0.21	1.22
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.70				0.70	0.70
LTE Band 66	Front	0.43	0.12	0.31	0.02	0.55	0.75
	Back	1.02	0.07	0.50	0.02	1.09	1.54
	Left side	0.19				0.19	0.19
	Right side	0.09	0.12	1.10	0.03	0.21	1.22
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.61				0.61	0.61
LTE Band 71	Front	0.29	0.12	0.31	0.02	0.41	0.62
	Back	0.49	0.07	0.50	0.02	0.56	1.01
	Left side	0.13				0.13	0.13
	Right side	0.29	0.12	1.10	0.03	0.41	1.42
	Top side		0.04	0.15	0.01	0.04	0.16
	Bottom side	0.16				0.16	0.16

<Extremity>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 7	Front Face			0.54		0.00	0.54
	Rear Face			1.03		0.00	1.03
	Right Side			1.42		0.00	1.42
	Top Side			0.23		0.00	0.23
	Bottom Side	1.77				1.77	1.77

Note: Except for verified data, all of the data use for the Simultaneous Transmission analysis on this report was copied from the original report (W7L-P21080006SA02, FCC ID: HD5-CT45PL1N2).

<SAR to Peak Location Separation Ratio Analysis>

The simultaneous transmitting antennas in each operating mode and exposure condition combination are considered one pair at a time to determine the SPLSR. When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following formula.

$$\text{Peak Location Separation Distance} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

Where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the area or zoom scans.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna. Due to curvatures on the SAM phantom, when SAR is estimated for one of the antennas in an antenna pair, the measured peak SAR location will be translated onto the test device to determine the peak location separation for the antenna pair.

The SPLSR is determined by the following formula.

$$\text{SPLSR} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{R_i}$$

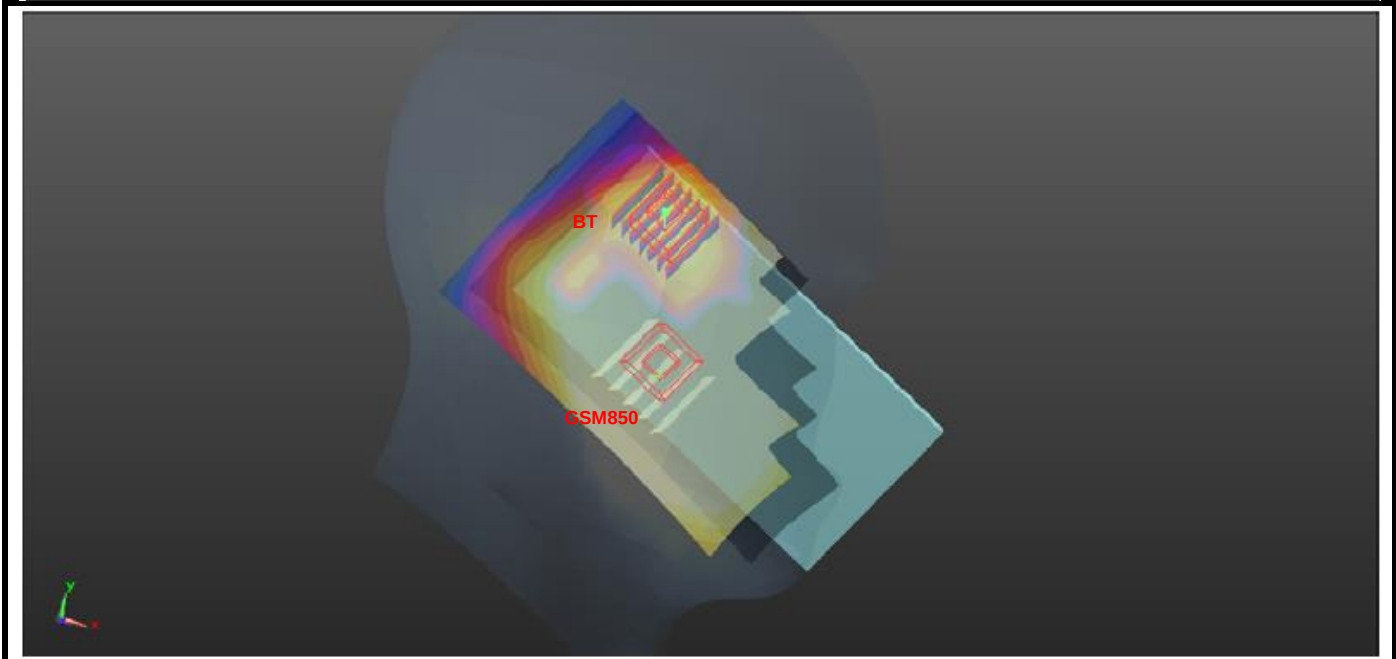
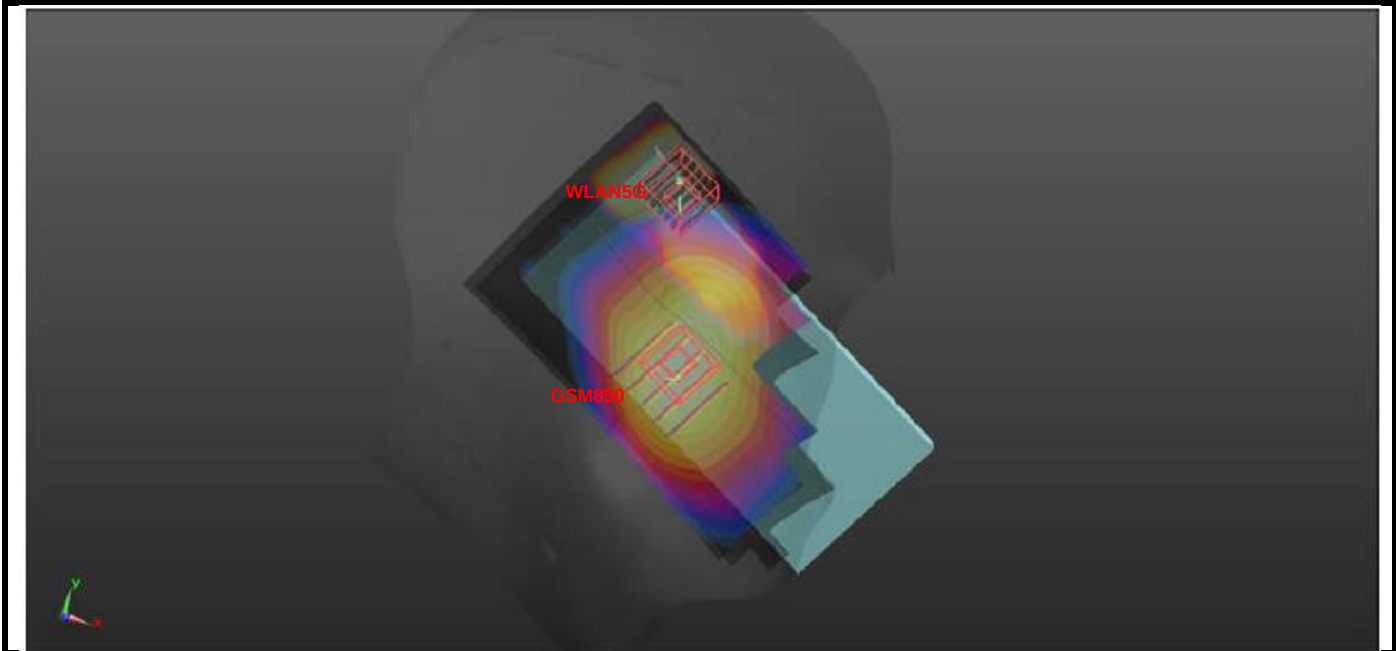
Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

When the SPLSR is ≤ 0.04 , the simultaneous transmission SAR is not required. Otherwise, the enlarged zoom scan and volume scan post-processing procedures will be performed.

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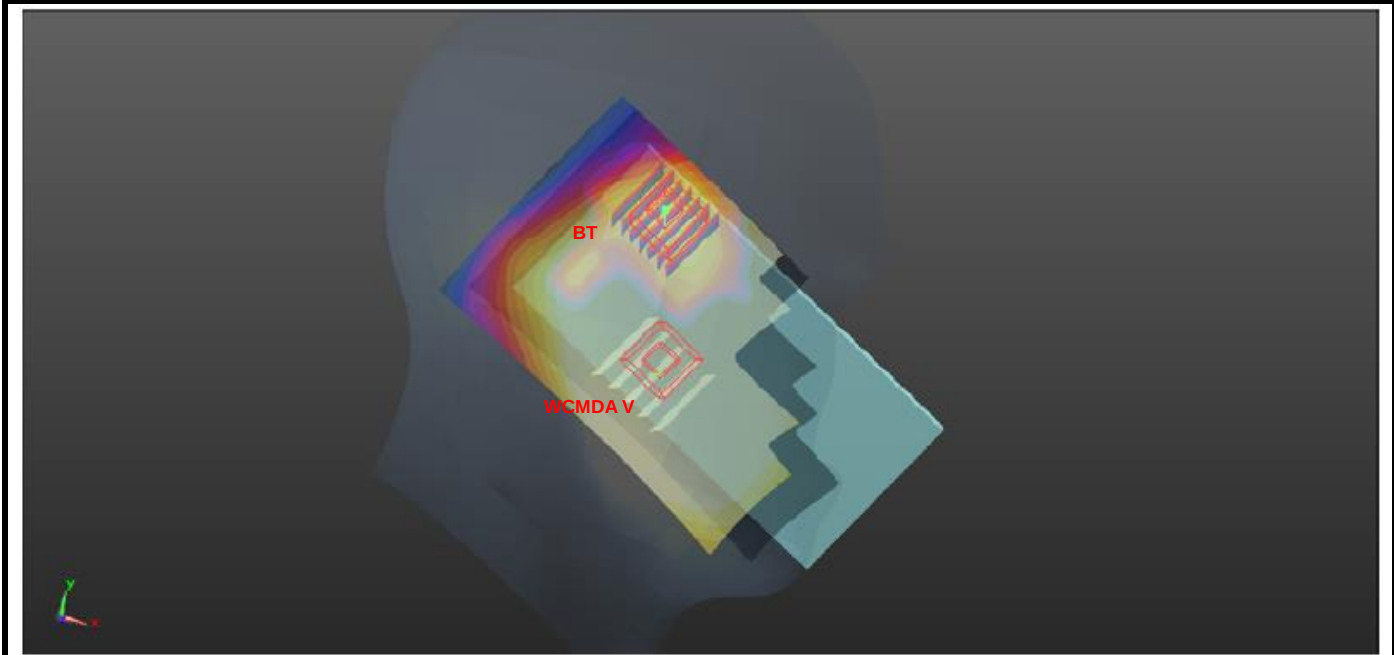
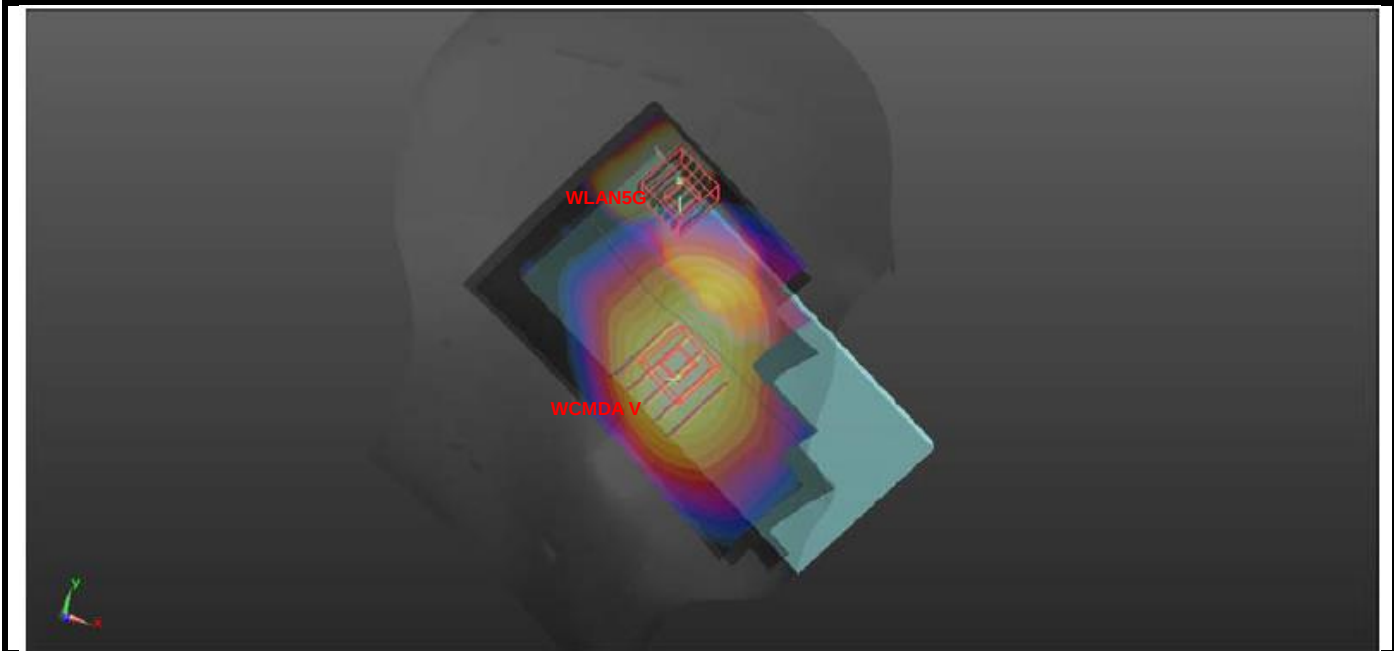
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
GSM850	Left Cheek	0.34	0	0.0575	0.258	-0.174	74.1	1.59	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
GSM850	Left Cheek	0.34	0	0.0575	0.258	-0.174	66.6	0.44	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



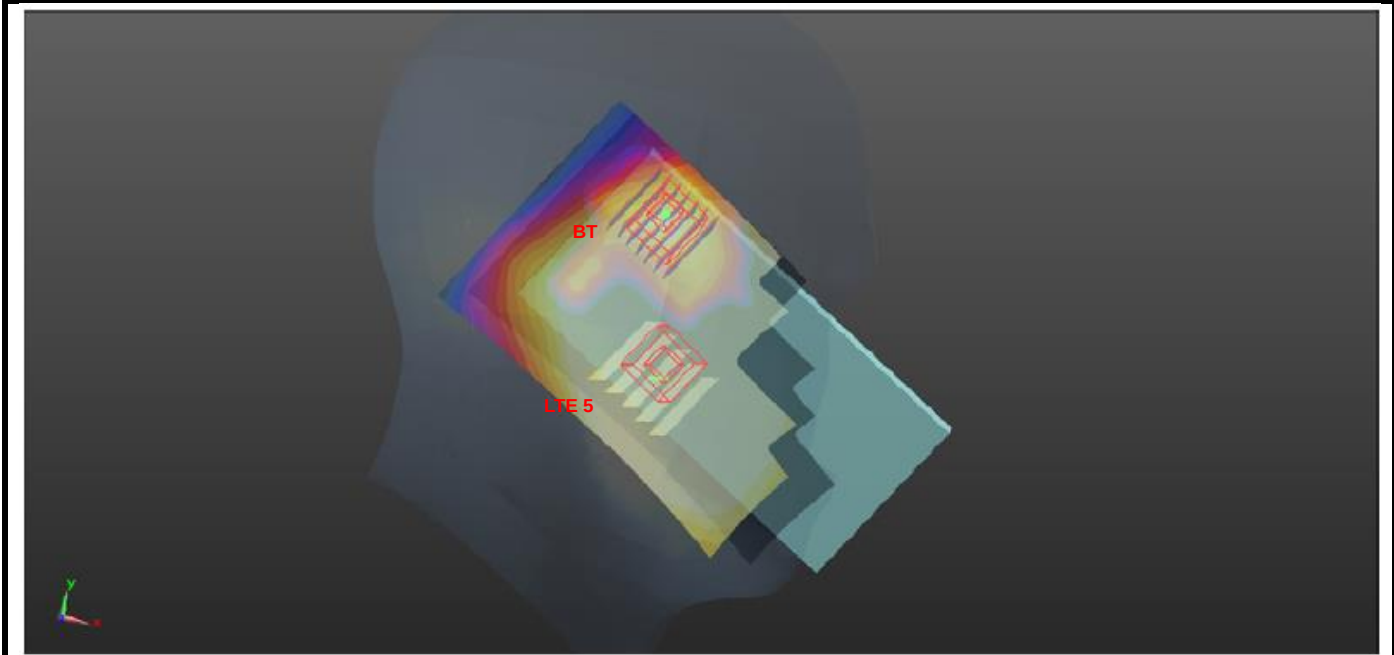
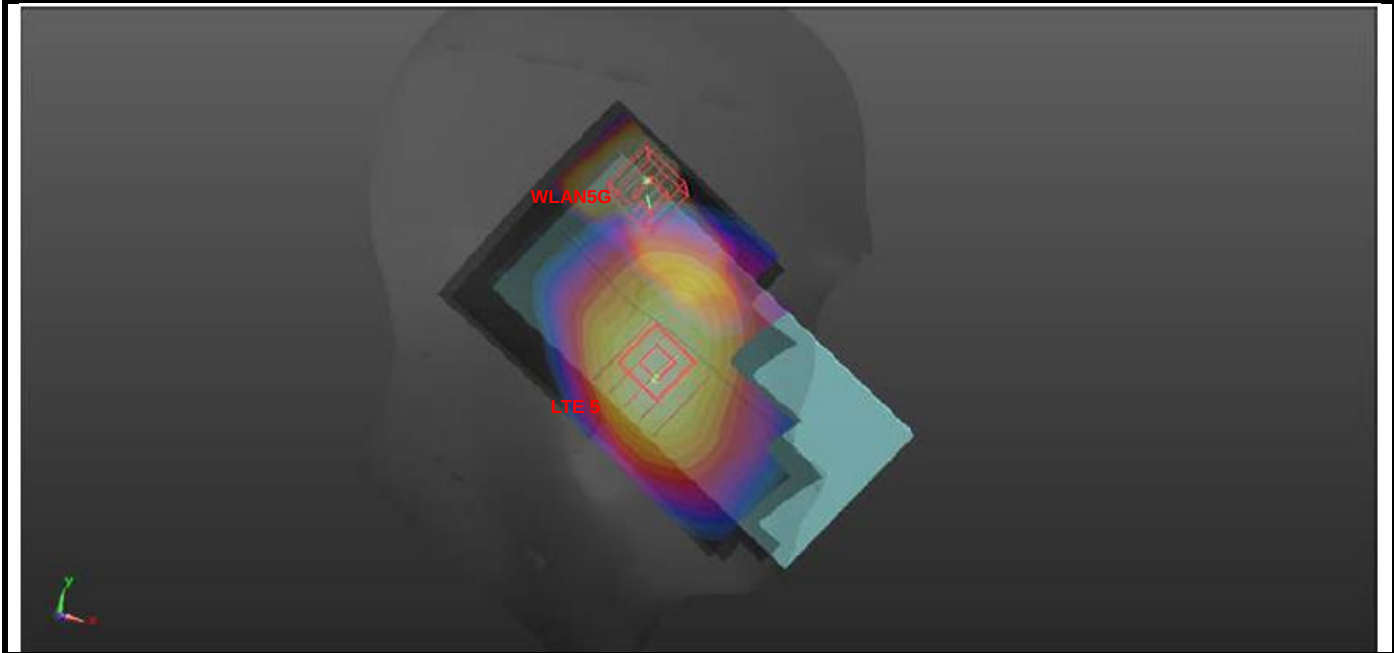
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA V	Left Cheek	0.42	0	0.0547	0.269	-0.176	62.8	1.67	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
WCDMA V	Left Cheek	0.42	0	0.0547	0.269	-0.176	55.2	0.52	0.01	Not required
BT		0.10	0	0.0431	0.323	-0.175				



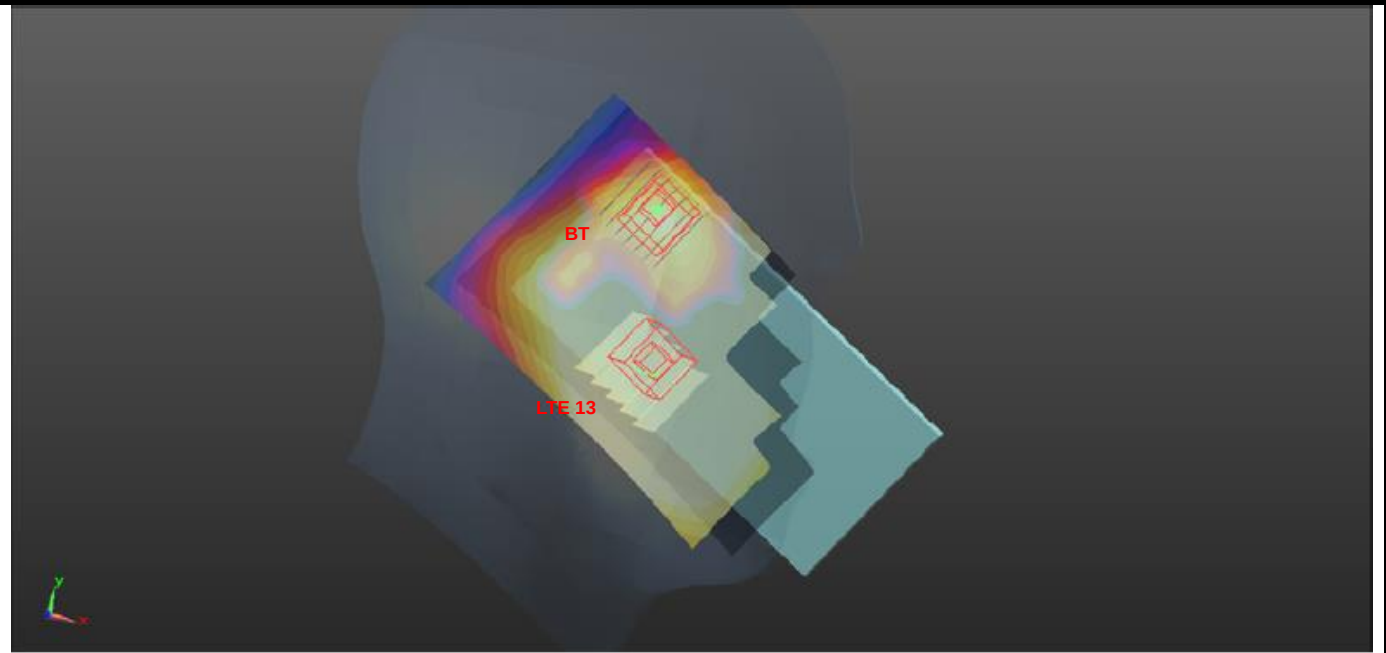
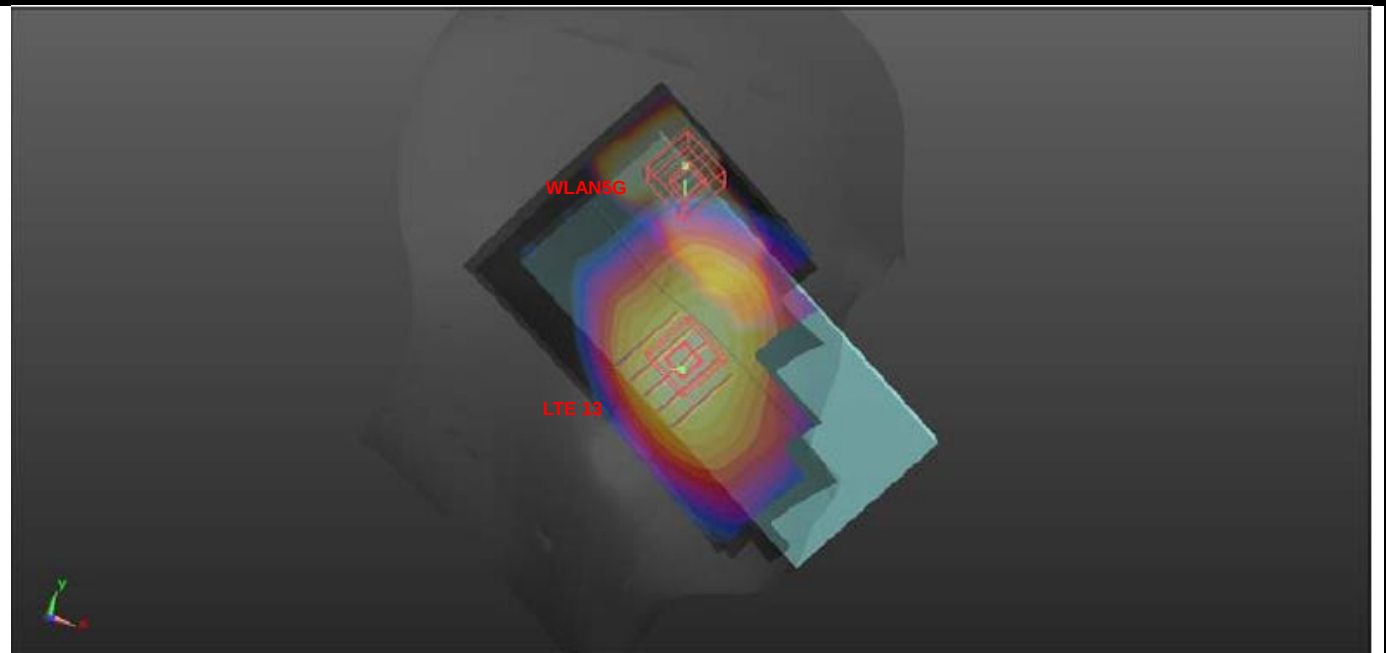
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
LTE Band 5	Left Cheek	0.59	0	0.0576	0.258	-0.174	74.1	1.84	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 5	Left Cheek	0.59	0	0.0576	0.258	-0.174	66.6	0.69	0.01	Not required
BT		0.10	0	0.0431	0.323	-0.175				



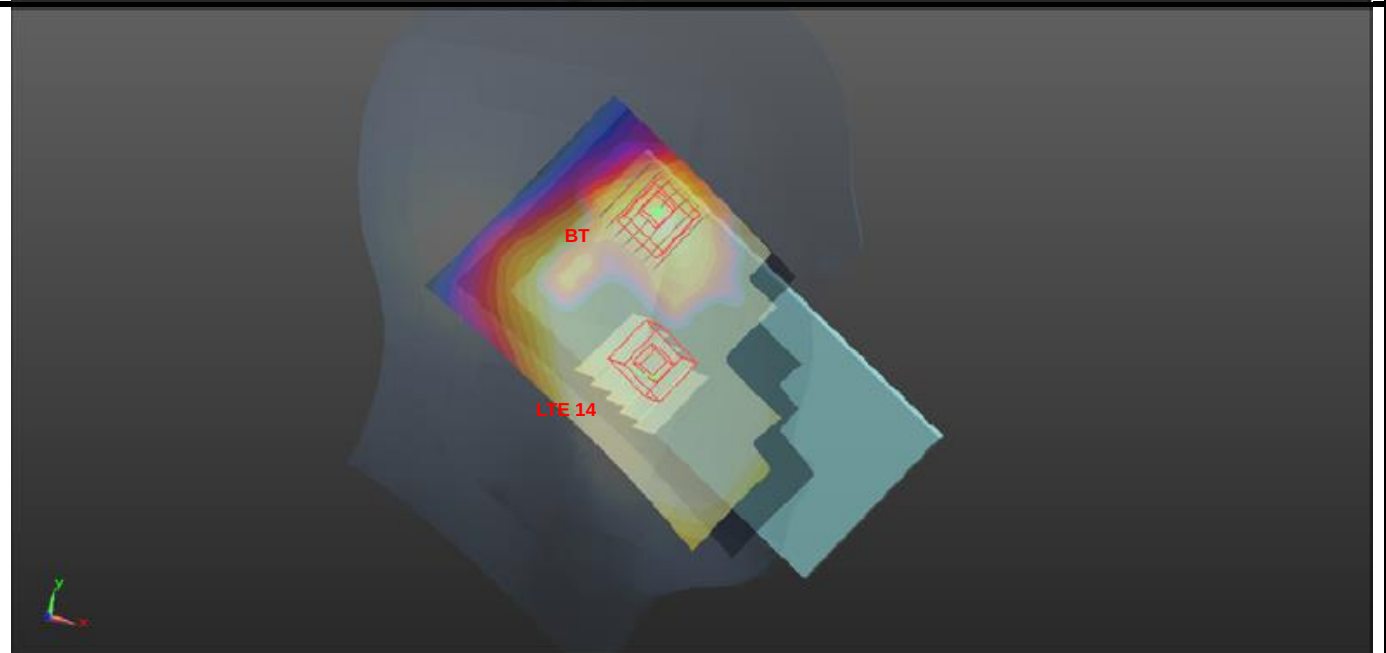
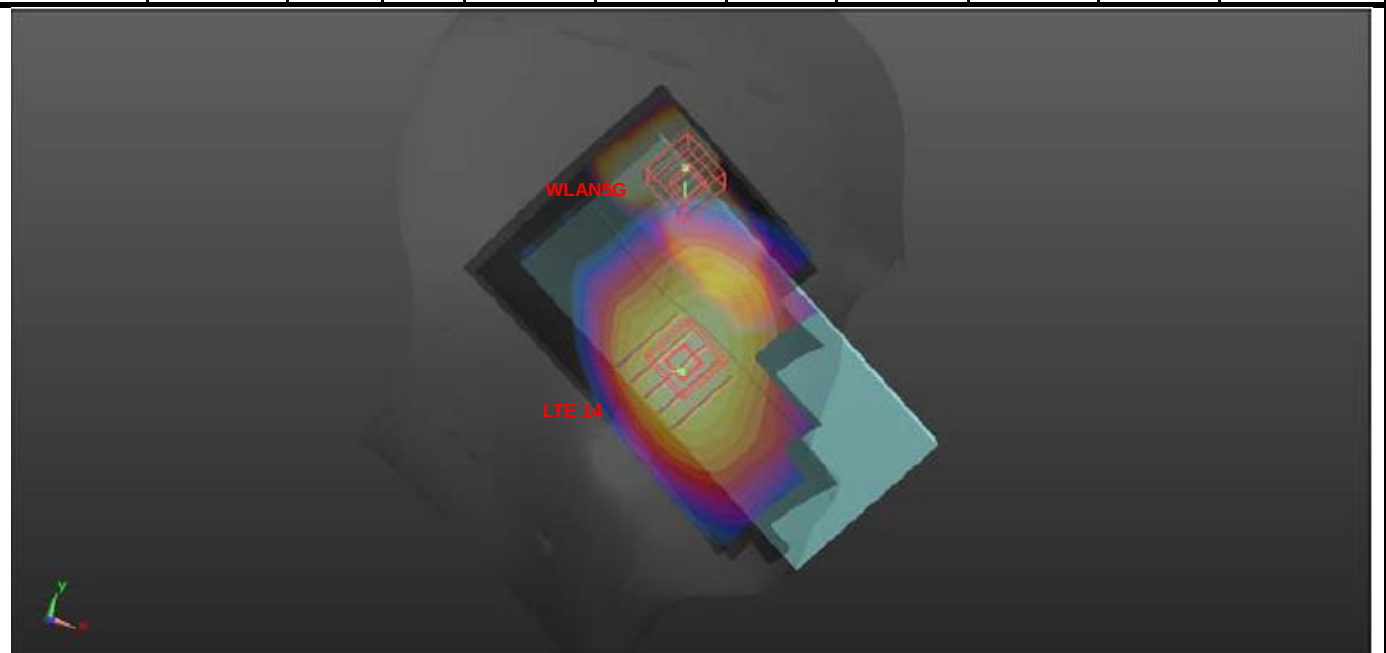
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 13	Left Cheek	0.36	0	0.0589	0.258	-0.174	74.5	1.61	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 13	Left Cheek	0.36	0	0.0589	0.258	-0.174	66.9	0.46	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



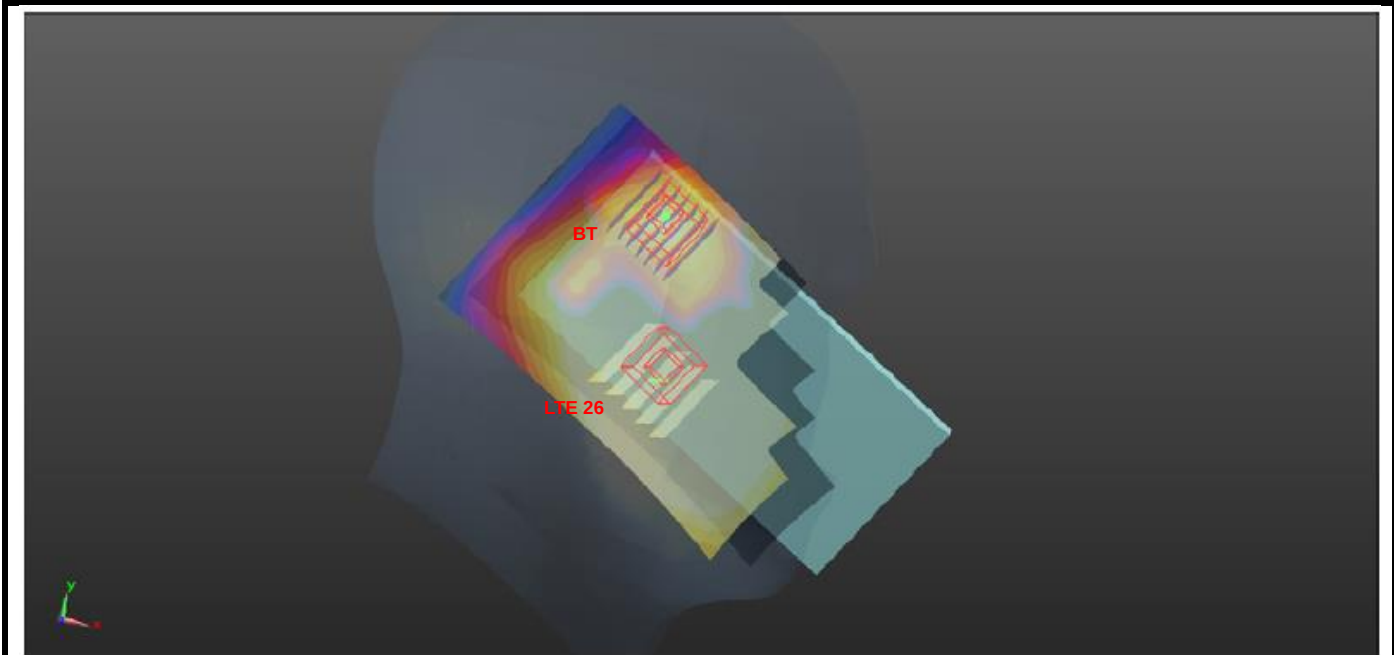
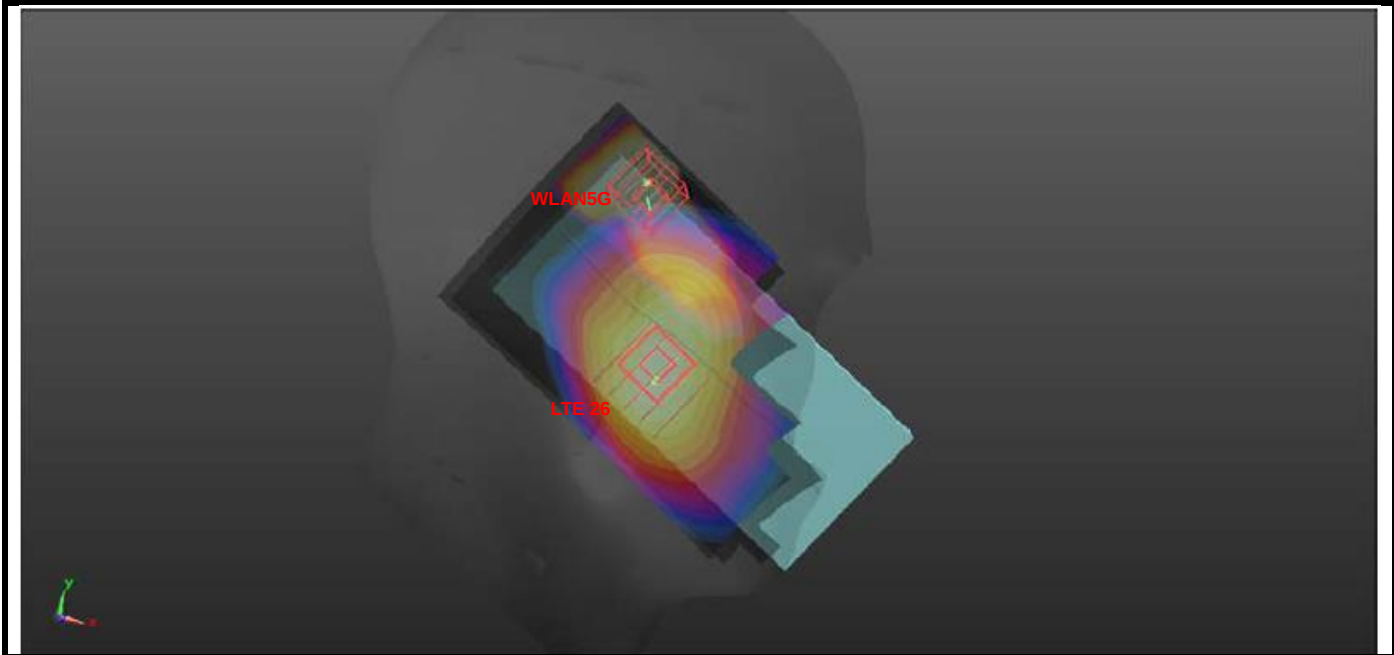
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
LTE Band 14	Left Cheek	0.33	0	0.0589	0.258	-0.174	74.5	1.58	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 14	Left Cheek	0.33	0	0.0589	0.258	-0.174	66.9	0.43	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



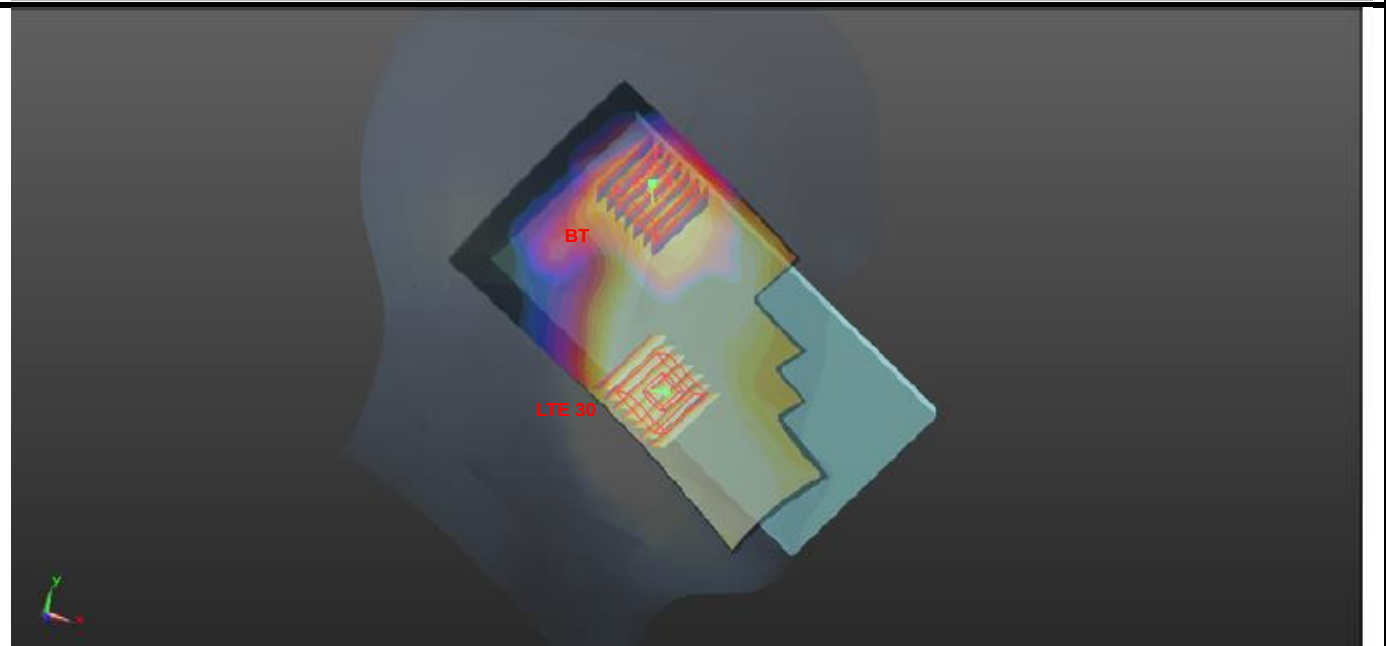
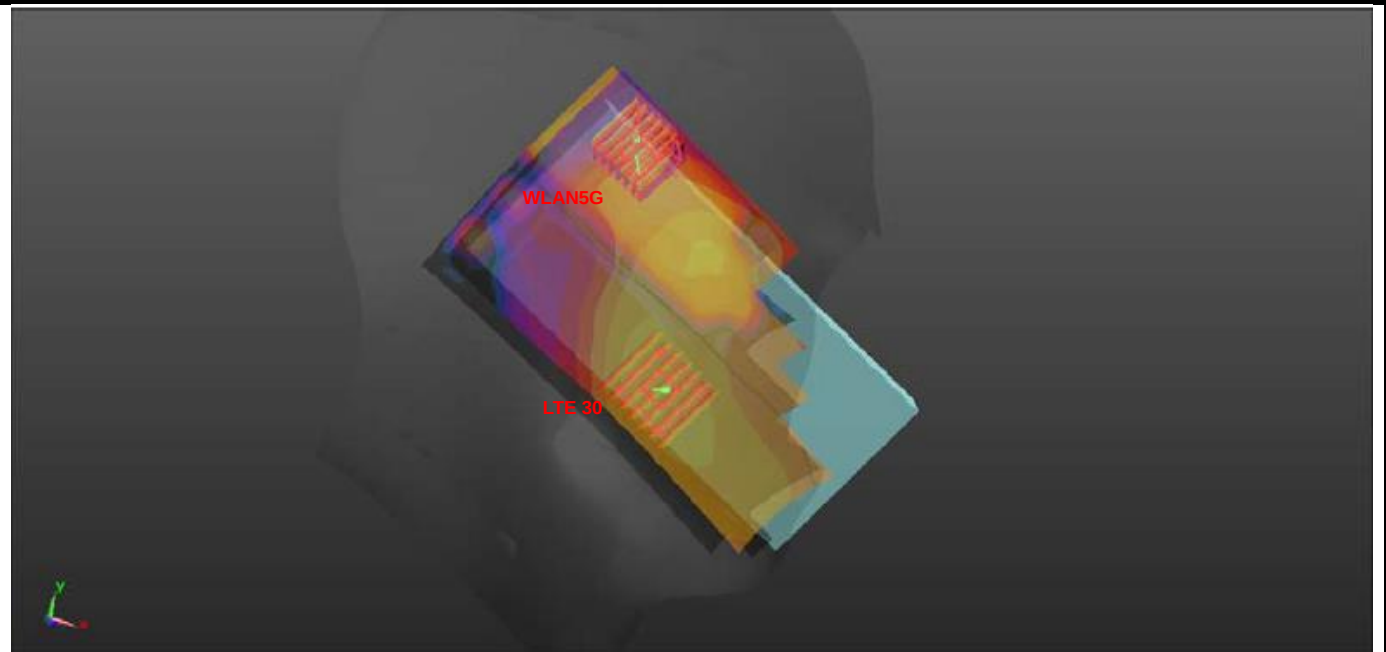
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 26	Left Cheek	0.29	0	0.0676	0.273	-0.171	64.3	1.54	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 26	Left Cheek	0.29	0	0.0676	0.273	-0.171	55.8	0.39	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



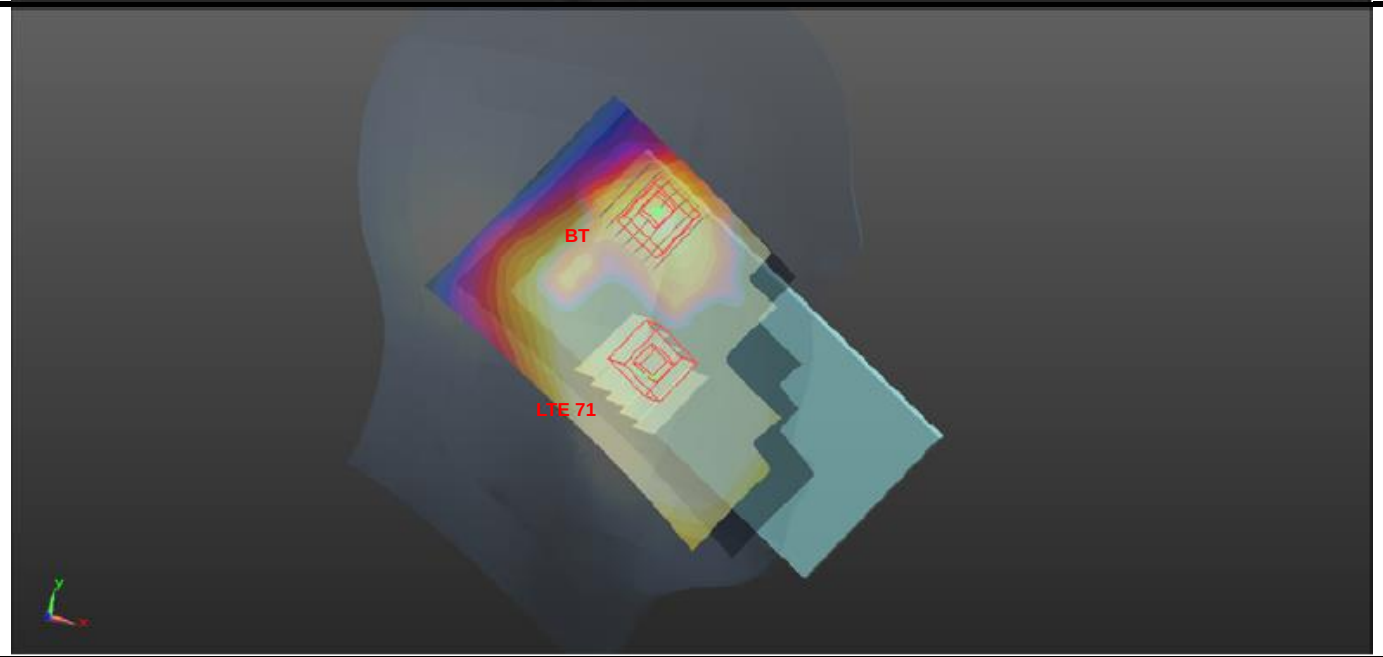
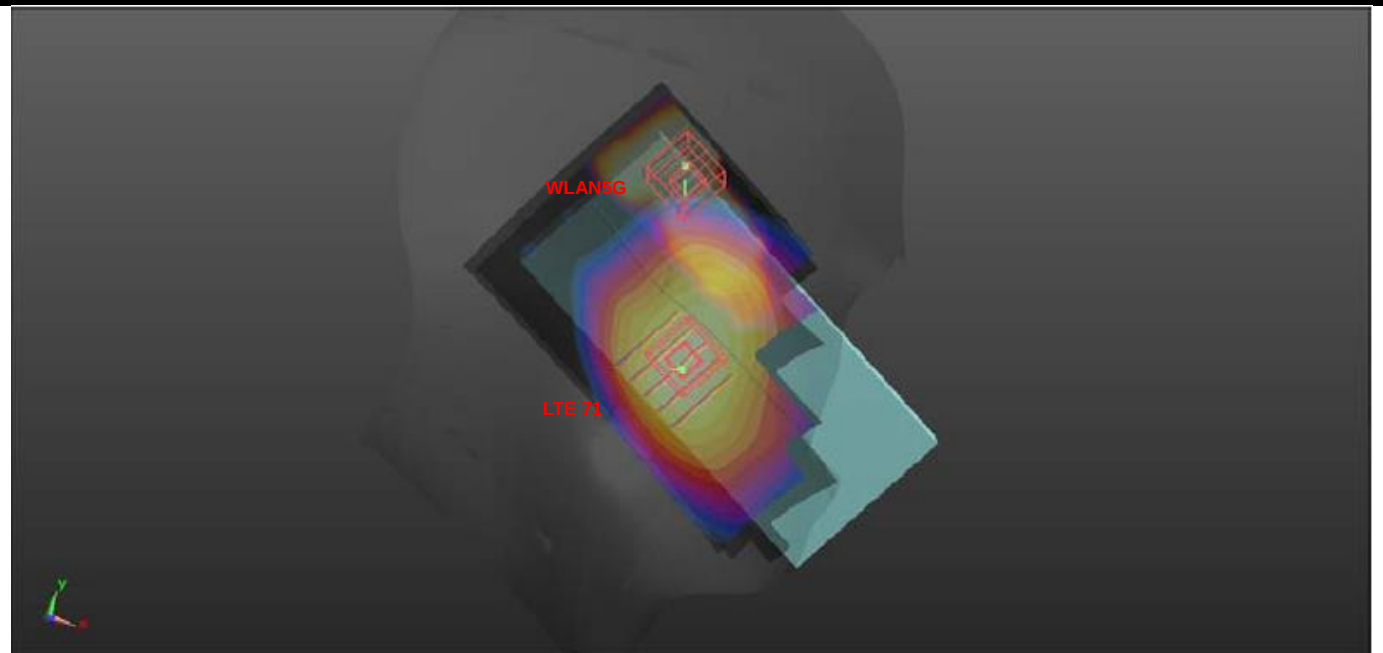
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
LTE Band 30	Left Cheek	0.28	0	0.0696	0.247	-0.169	88.7	1.53	0.02	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 30	Left Cheek	0.28	0	0.0696	0.247	-0.169	80.7	0.38	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



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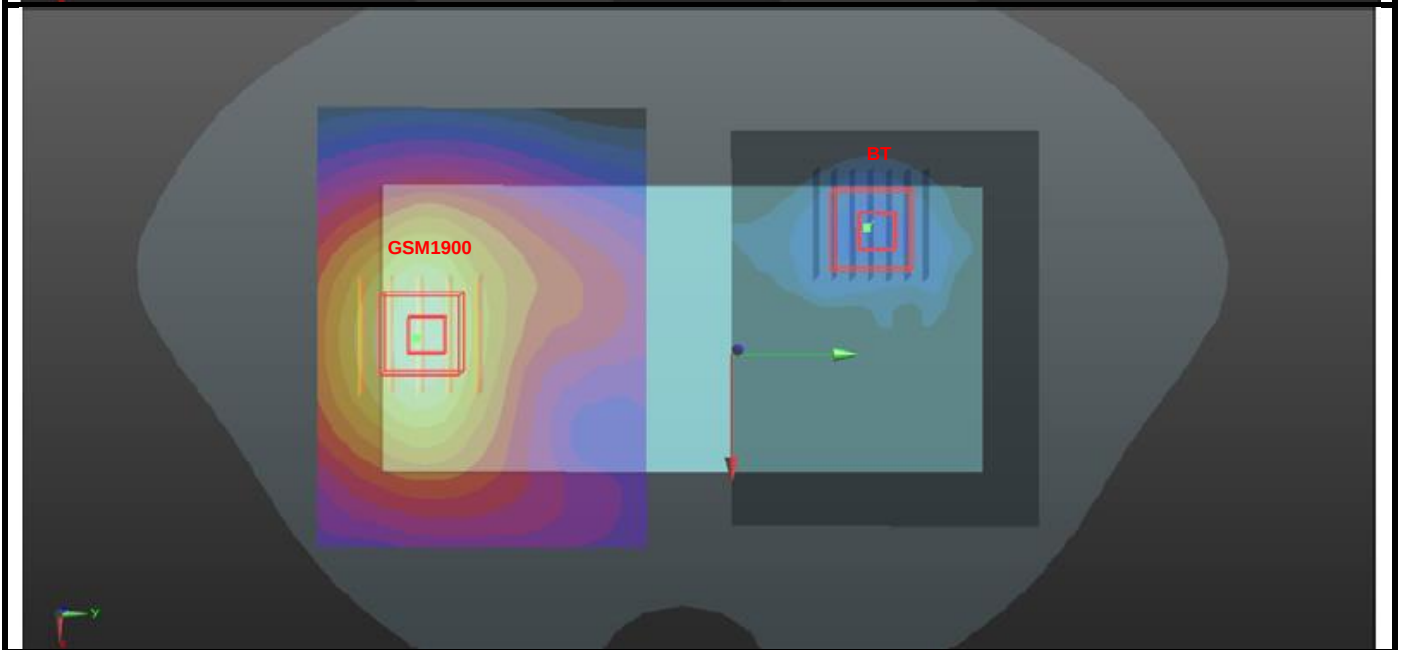
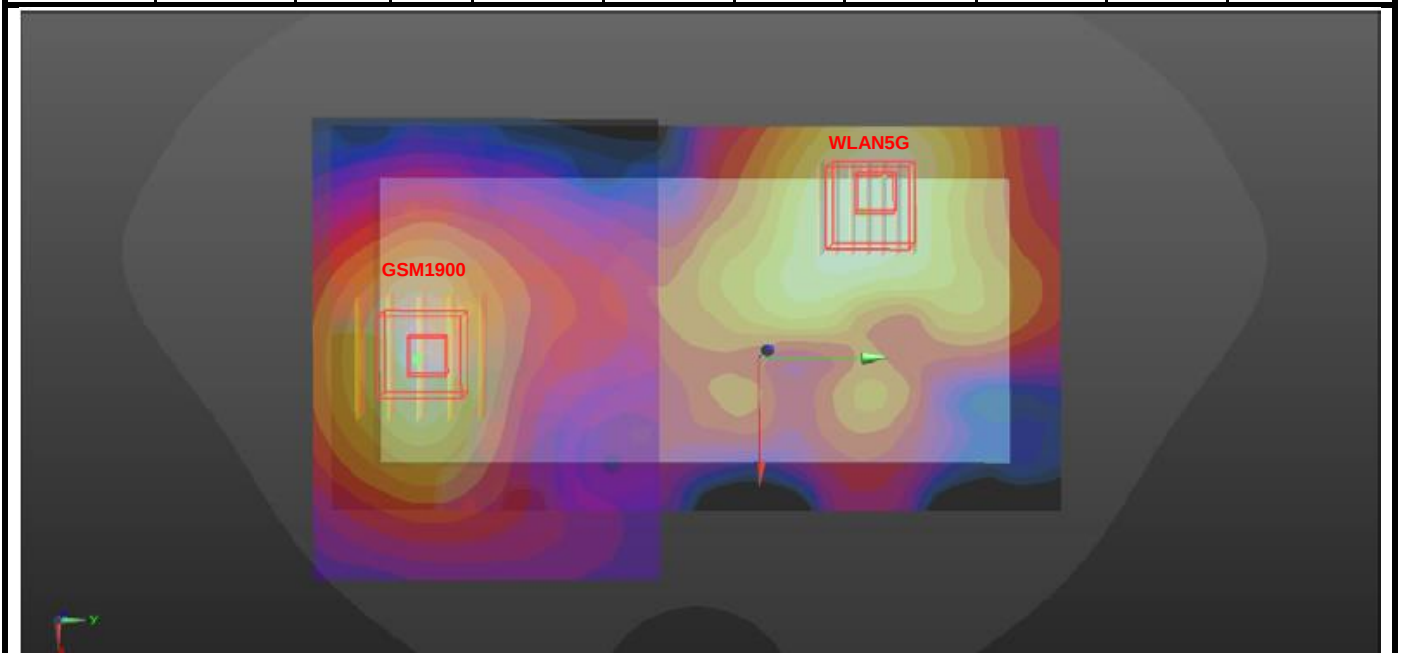
Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE Band 71	Left Cheek	0.31	0	0.0603	0.257	-0.174	75.9	1.56	0.03	Not required
WLAN5G		1.25	0	0.0363	0.329	-0.175				
LTE Band 71	Left Cheek	0.31	0	0.0603	0.257	-0.174	68.2	0.41	0.00	Not required
BT		0.10	0	0.0431	0.323	-0.175				



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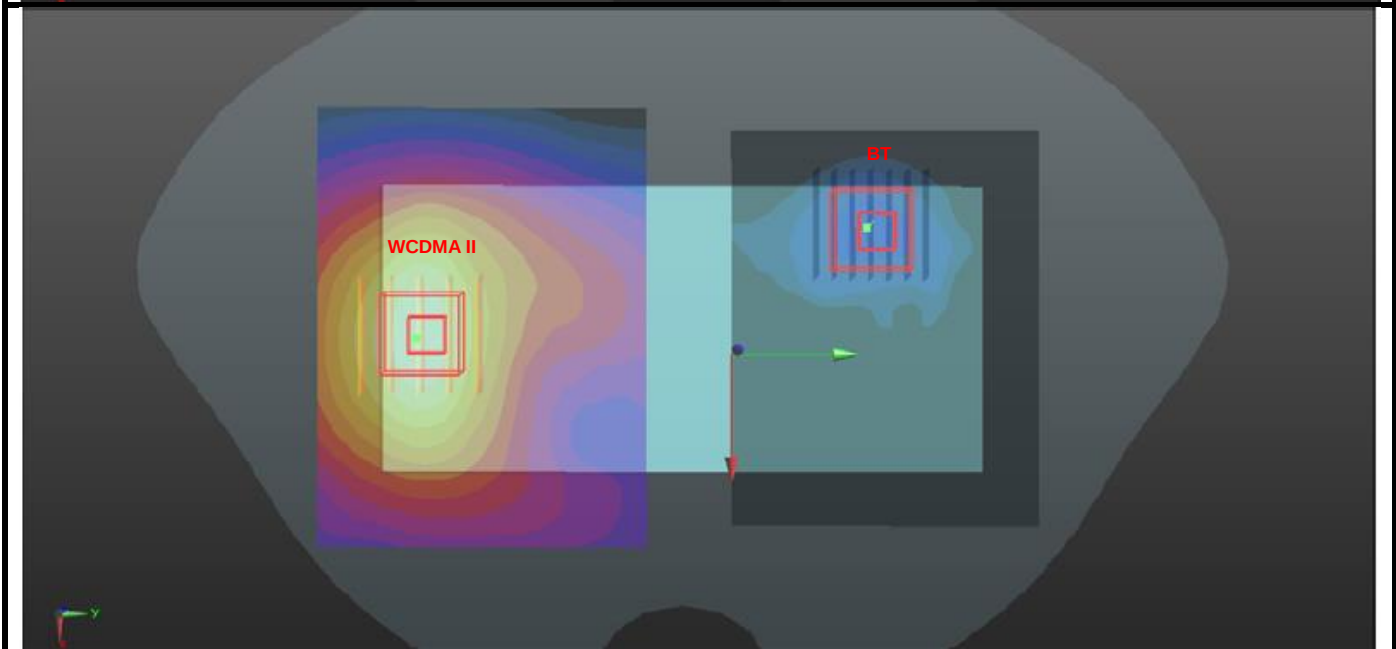
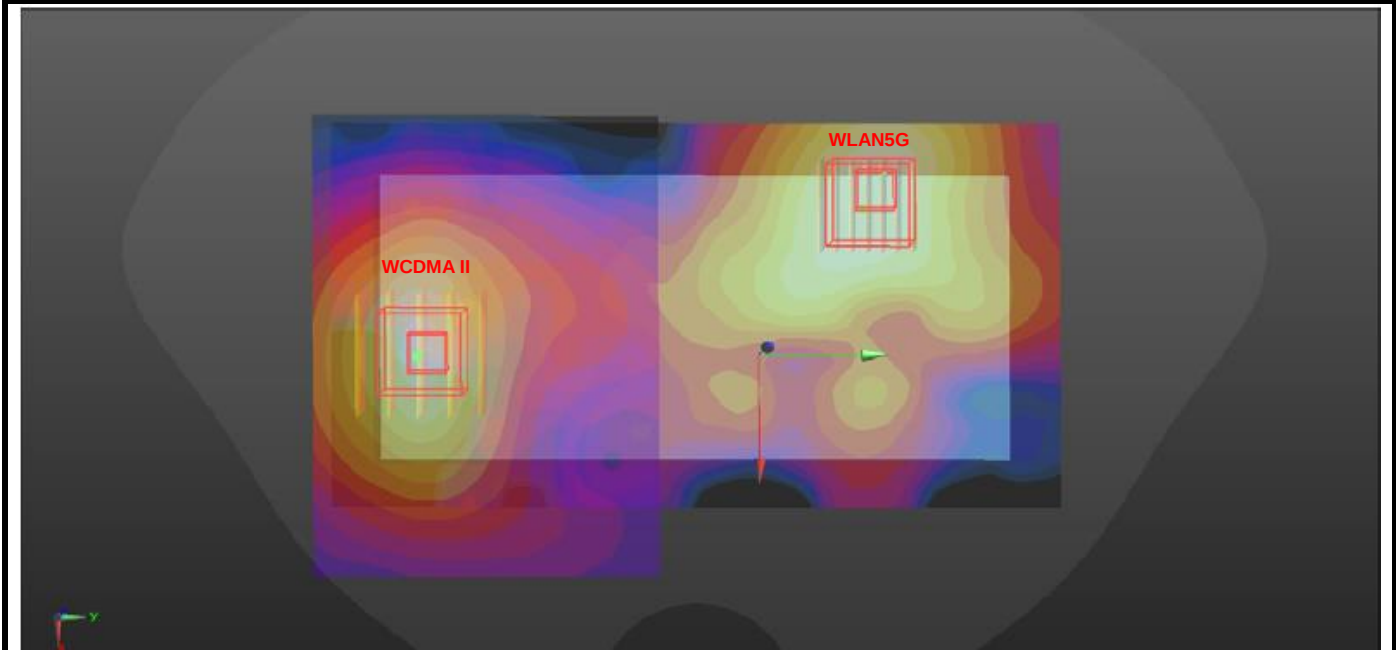
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
GSM1900	Rear Face	1.19	10	-0.014	-0.073	-0.203	129.9	1.69	0.02	Not required
WLAN5G		0.50	10	-0.061	0.048	-0.207				
GSM1900	Rear Face	1.19	10	-0.014	-0.073	-0.203	126.9	1.21	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



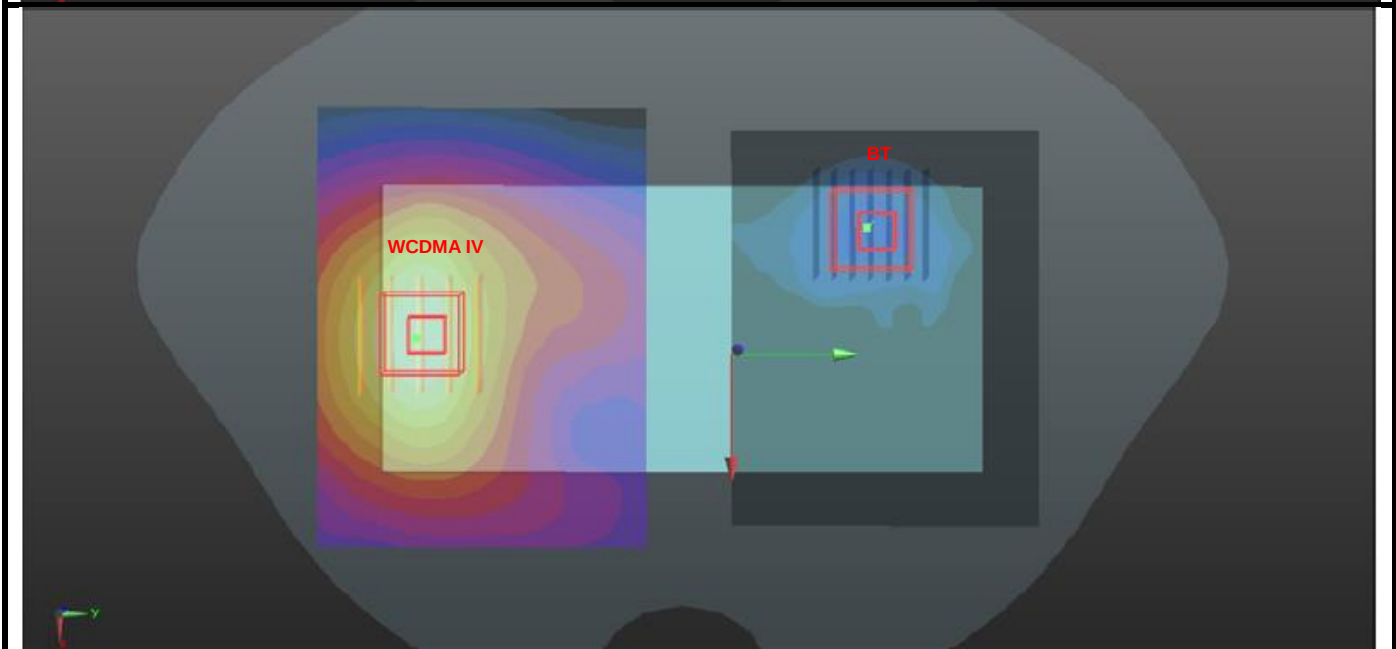
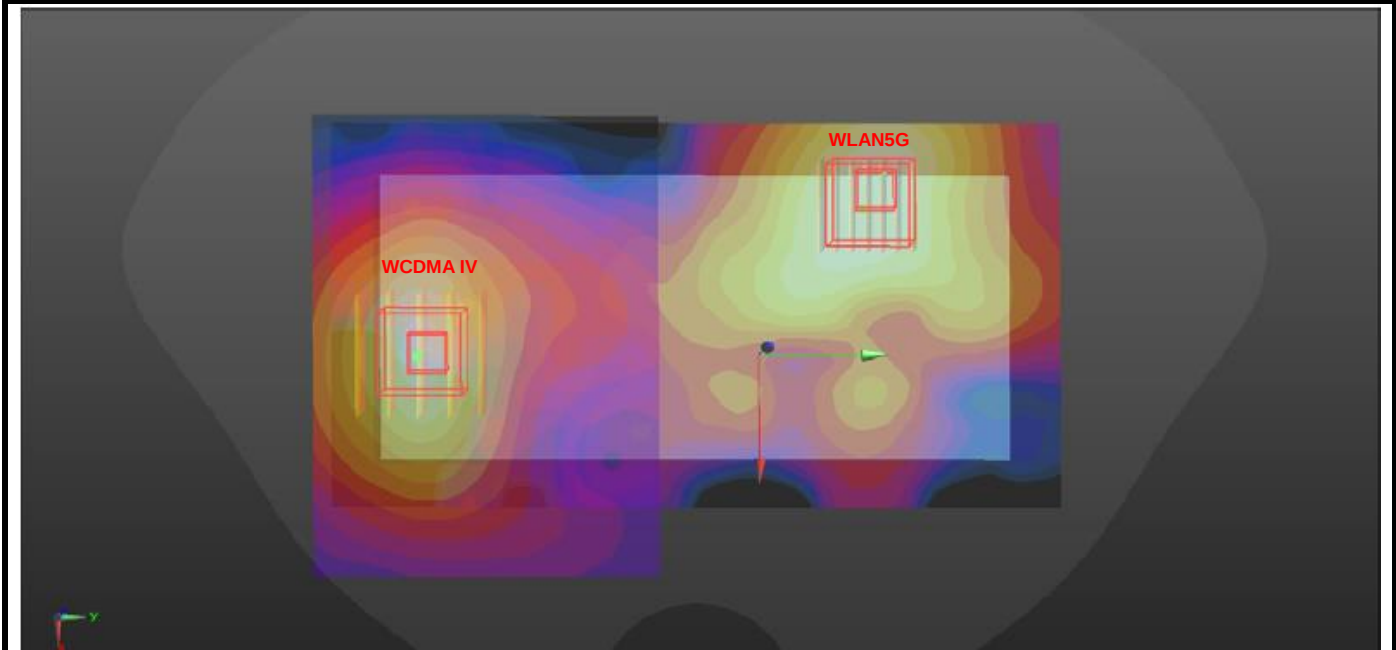
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA II	Rear Face	1.19	10	-0.0155	-0.07	-0.203	126.5	1.69	0.02	Not required
WLAN5G		0.50	10	-0.061	0.048	-0.207				
WCDMA II	Rear Face	1.19	10	-0.0155	-0.07	-0.203	123.7	1.21	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



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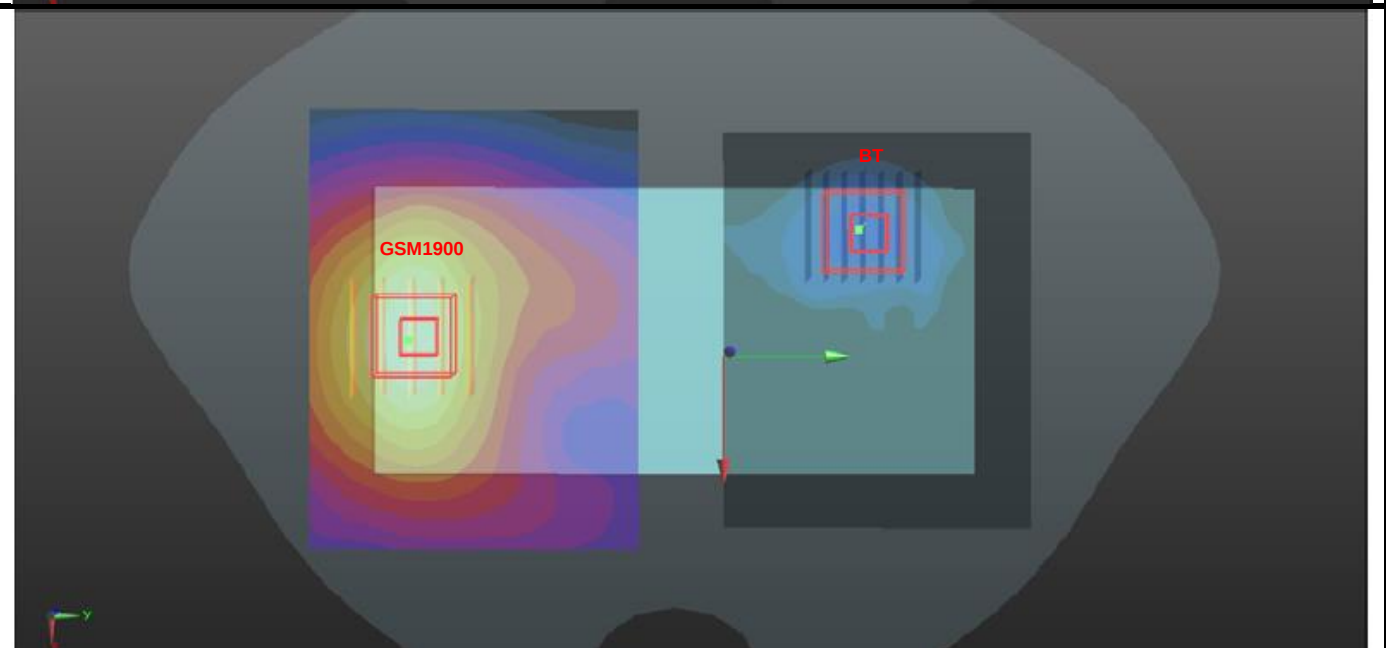
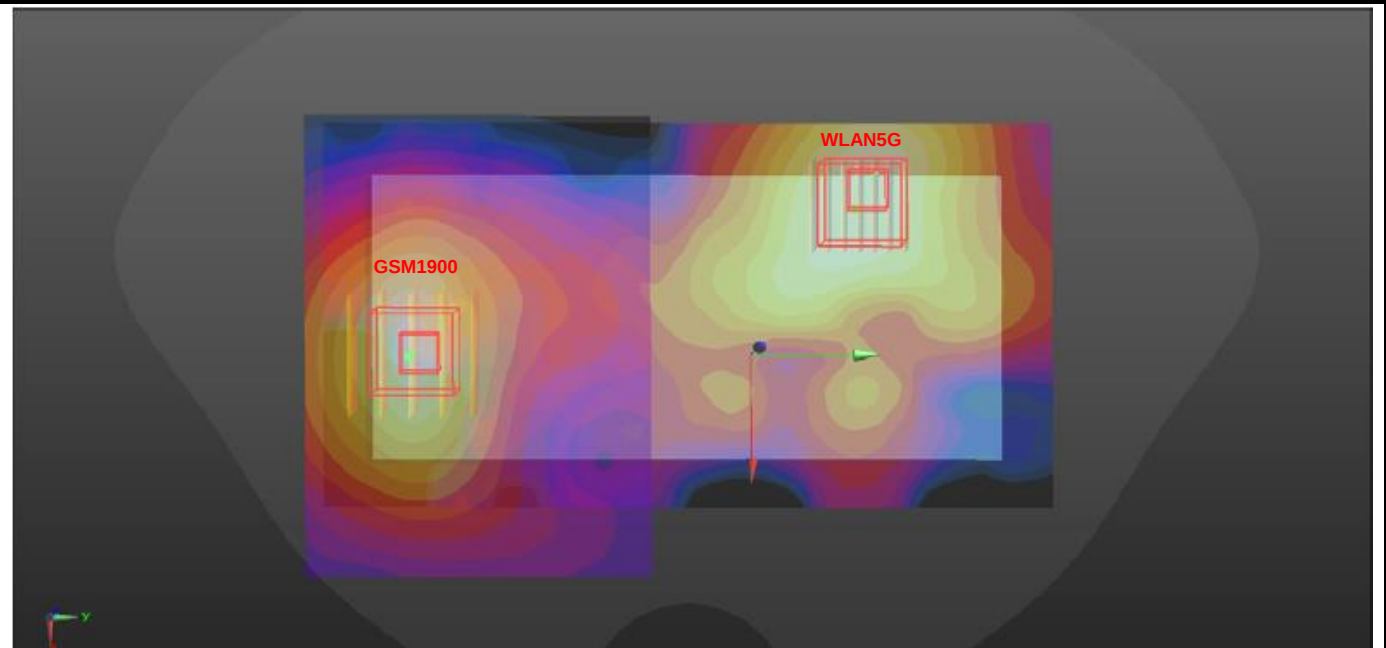
Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA IV	Rear Face	1.18	10	-0.0215	-0.0655	-0.204	120.2	1.68	0.02	Not required
WLAN5G		0.50	10	-0.061	0.048	-0.207				
WCDMA IV	Rear Face	1.18	10	-0.0215	-0.0655	-0.204	118.0	1.20	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



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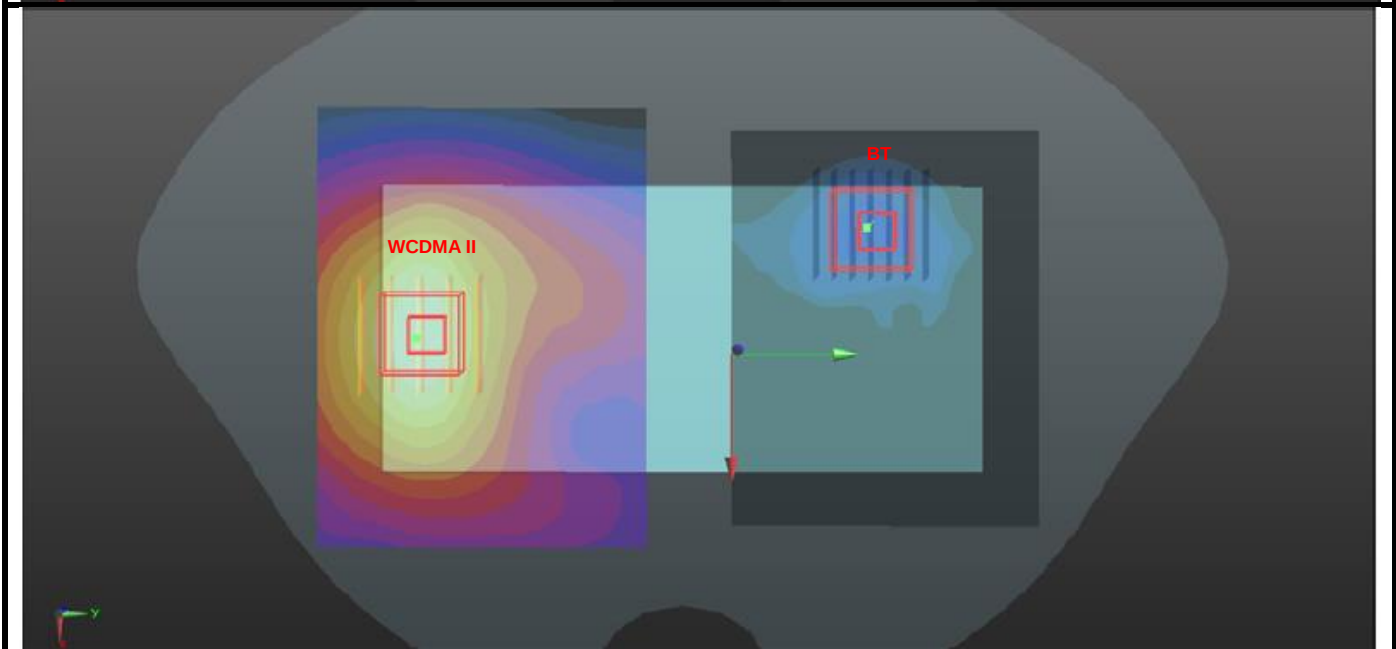
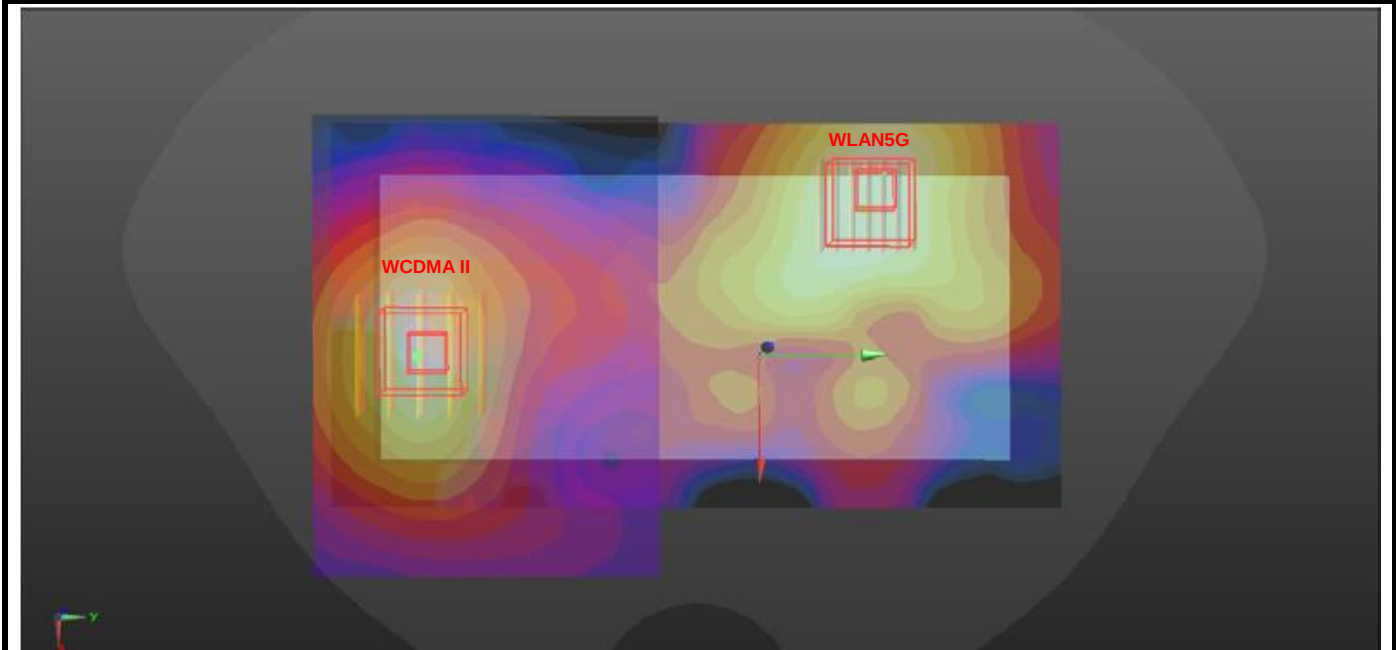
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
GSM1900	Rear Face	1.19	10	-0.014	-0.073	-0.203	129.9	1.76	0.02	Not required
WLAN5G		0.57	10	-0.061	0.048	-0.207				
GSM1900	Rear Face	1.19	10	-0.014	-0.073	-0.203	126.9	1.21	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



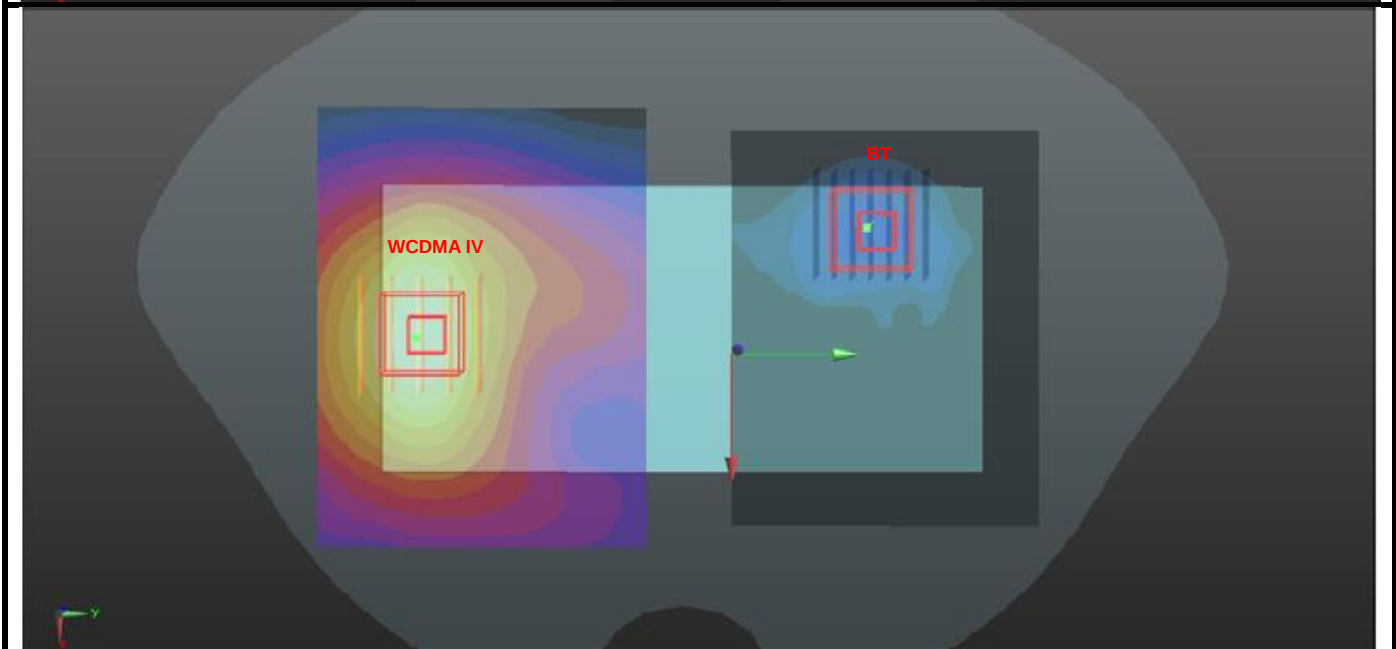
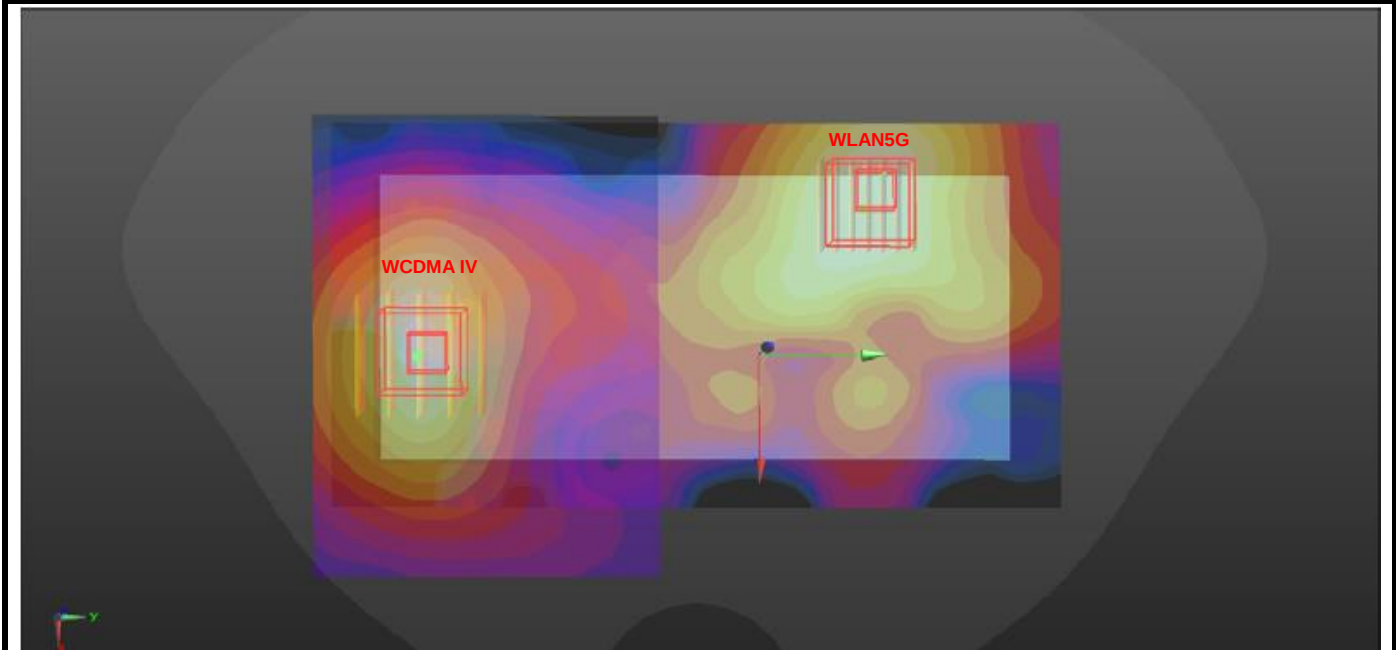
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA II	Rear Face	1.19	10	-0.0155	-0.07	-0.203	126.5	1.76	0.02	Not required
WLAN5G		0.57	10	-0.061	0.048	-0.207				
WCDMA II	Rear Face	1.19	10	-0.0155	-0.07	-0.203	123.7	1.21	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



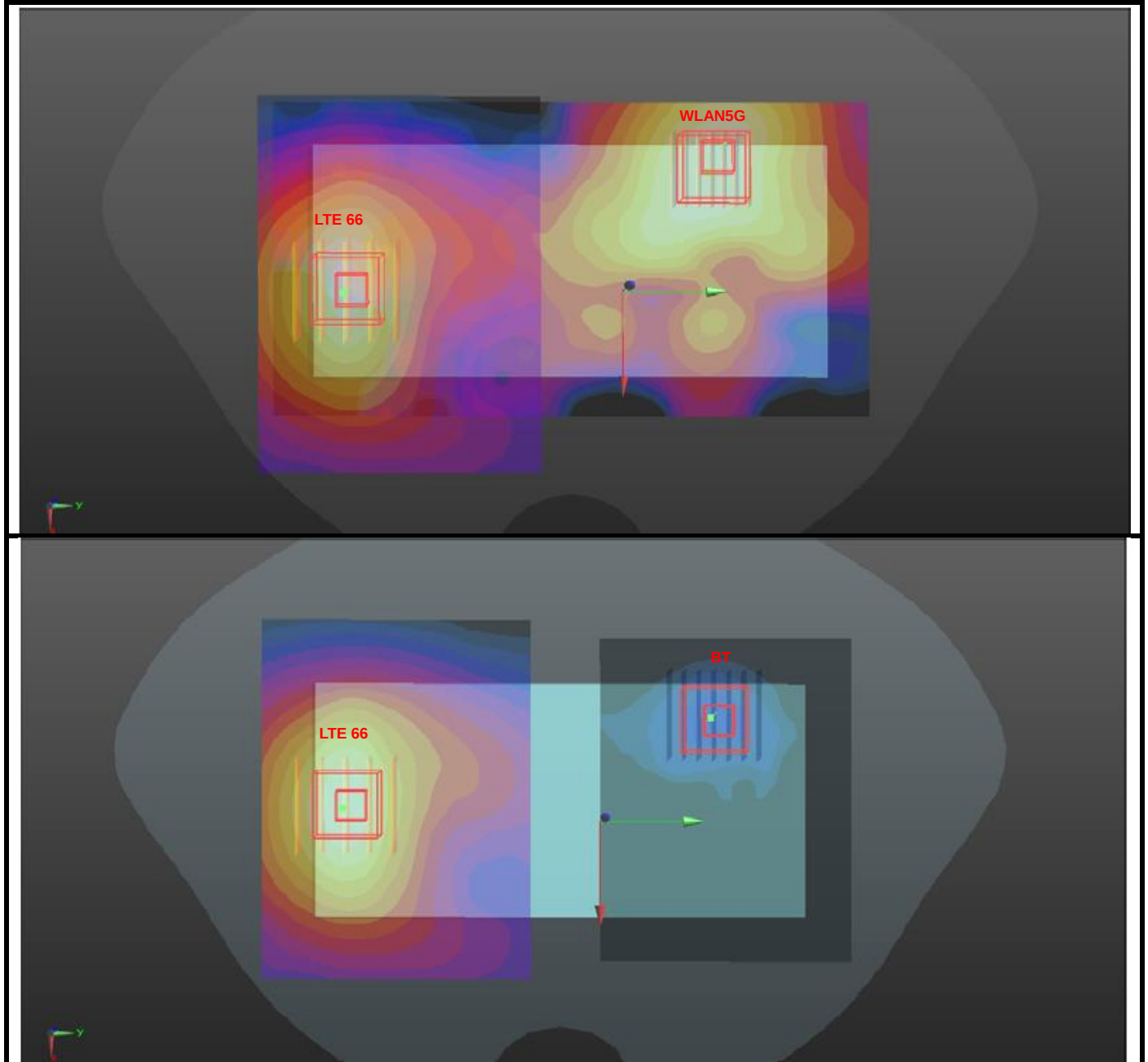
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA IV	Rear Face	1.18	10	-0.0215	-0.0655	-0.204	120.2	1.75	0.02	Not required
WLAN5G		0.57	10	-0.061	0.048	-0.207				
WCDMA IV	Rear Face	1.18	10	-0.0215	-0.0655	-0.204	118.0	1.20	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
LTE Band 66	Rear Face	1.17	10	-0.0155	-0.07	-0.203	126.5	1.74	0.02	Not required
WLAN5G		0.57	10	-0.061	0.048	-0.207				
LTE Band 66	Rear Face	1.17	10	-0.0155	-0.07	-0.203	123.7	1.19	0.01	Not required
BT		0.02	10	-0.0446	0.0502	-0.204				



Test Engineer : Rikou Lu, and Dennis Ye

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1078	Jul. 21, 2021	1 Year
System Validation Dipole	SPEAG	D835V2	4d092	Jul. 23, 2021	1 Year
System Validation Dipole	SPEAG	D1750V2	1111	Apr. 14, 2021	1 Year
System Validation Dipole	SPEAG	D1900V2	5d142	Jun. 25, 2021	1 Year
System Validation Dipole	SPEAG	D2300V2	1091	Jan. 12, 2021	1 Year
System Validation Dipole	SPEAG	D2450V2	735	Dec. 22, 2020	1 Year
System Validation Dipole	SPEAG	D2600V2	1077	Apr. 15, 2021	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1203	Dec. 22, 2020	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7612	Sep. 28, 2020	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1633	Sep. 28, 2020	1 Year
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25, 2021	1 Year
Wireless Communication Test Set	Agilent	E5515C	MY50260600	Jun. 02, 2021	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214638	Jun. 03, 2021	1 Year
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510355	Jun. 03, 2021	1 Year
MXG Analog Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 09, 2021	1 Year
Power Meter	Agilent	N1914A	MY52180044	Mar. 02, 2021	1 Year
Power Sensor	Agilent	E9304A H18	MY52050011	Feb. 25, 2021	1 Year
Power Meter	ANRITSU	ML2495A	1506002	Apr. 07, 2021	1 Year
Power Sensor	ANRITSU	MA2411B	1339353	May. 07, 2021	1 Year
Temp. & Humi. Recorder	CLOCK	HTC-1	157248	Jun. 02, 2021	1 Year
Electronic Thermometer	YONGFA	YF-160A	120100323	Jun. 02, 2021	1 Year
Coupler	Woken	0110A056020-10	COM27RW1A3	Jun. 02, 2021	1 Year

6. Measurement Uncertainty

DASY5 Uncertainty Budget								
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)	(Vi) Veff
Measurement System								
Probe Calibration	6.0	N	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary Effects	1.0	R	1.732	1	1	0.6	0.6	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6	∞
Modulation Response	3.2	R	1.732	1	1	1.8	1.8	∞
Readout Electronics	0.3	N	1	1	1	0.3	0.3	∞
Response Time	0.0	R	1.732	1	1	0.0	0.0	∞
Integration Time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2	∞
Probe Positioning	2.9	R	1.732	1	1	1.7	1.7	∞
Max. SAR Eval.	2.0	R	1.732	1	1	1.2	1.2	∞
Test Sample Related								
Device Positioning	3.0	N	1	1	1	3.0	3.0	35
Device Holder	3.6	N	1	1	1	3.6	3.6	12
Power Drift	5.0	R	1.732	1	1	2.9	2.9	∞
Power Scaling	0.0	R	1.732	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	6.1	R	1.732	1	1	3.5	3.5	∞
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0	∞
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1	5
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0	∞
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0	∞
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0	5
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4	∞
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1	∞
Combined Std. Uncertainty						11.4%	11.4%	1013
Coverage Factor for 95 %						K=2	K=2	
Expanded STD Uncertainty						22.9%	22.7%	

Uncertainty budget for frequency range 30 MHz to 3 GHz

FCC SAR Test Report

DASY5 Uncertainty Budget								
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)	(Vi) Veff
Measurement System								
Probe Calibration	6.55	N	1	1	1	6.5	6.5	∞
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6	∞
Modulation Response	3.2	R	1.732	1	1	1.8	1.8	∞
Readout Electronics	0.3	N	1	1	1	0.3	0.3	∞
Response Time	0.0	R	1.732	1	1	0.0	0.0	∞
Integration Time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2	∞
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9	∞
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3	∞
Test Sample Related								
Device Positioning	3.0	N	1	1	1	3.0	3.0	35
Device Holder	3.6	N	1	1	1	3.6	3.6	12
Power Drift	5.0	R	1.732	1	1	2.9	2.9	∞
Power Scaling	0.0	R	1.732	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8	∞
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0	∞
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1	5
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0	∞
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0	∞
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0	5
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8	∞
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4	∞
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1	∞
Combined Std. Uncertainty						12.5%	12.5%	1458
Coverage Factor for 95 %						K=2	K=2	
Expanded STD Uncertainty						25.0%	24.9%	

Uncertainty budget for frequency range 3 GHz to 6 GHz

7. Information on the Testing Laboratories

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: www.bureauveritas.com

The road map of all our labs can be found in our web site also.

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Appendix A. SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

System Check_HSL750_210907**DUT: Dipole:750 MHz;Type:D750V3;SN:1067**

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1

Medium: HSL750_0907 Medium parameters used: $f = 750$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 41.542$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(11.02, 11.02, 11.02) @ 750 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.78 W/kg

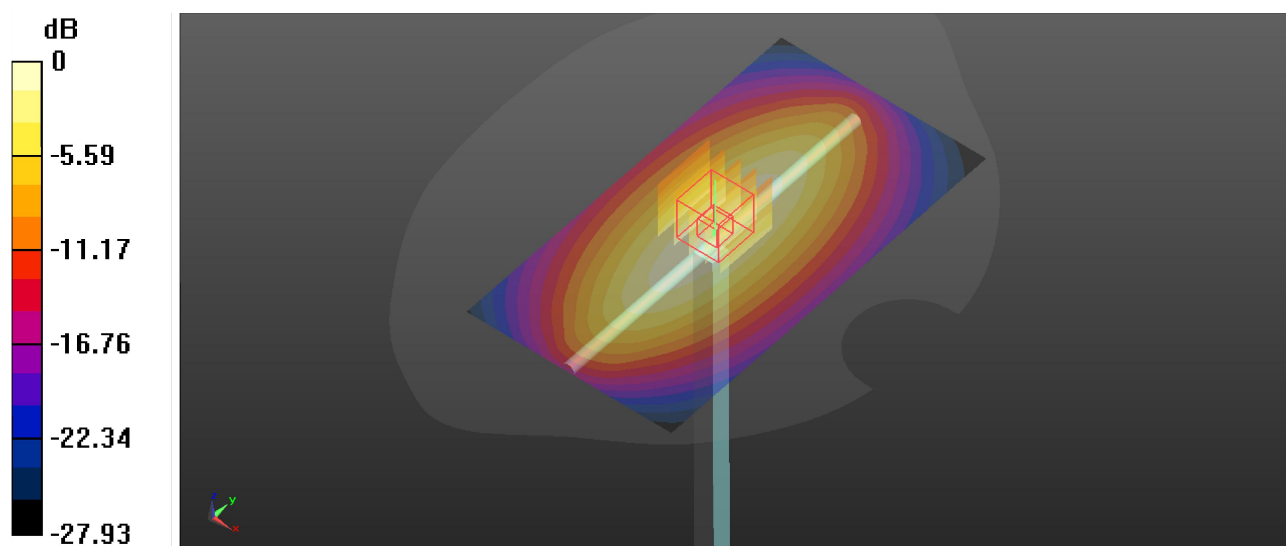
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 53.91 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.15 W/kg

SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.35 W/kg

Maximum value of SAR (measured) = 2.80 W/kg



0 dB = 2.80 W/kg

System Check_HSL835_210907**DUT: Dipole:835 MHz;Type:D835V2**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL835_0907 Medium parameters used: $f = 835$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 40.759$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.73, 10.73, 10.73) @ 835 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.08 W/kg

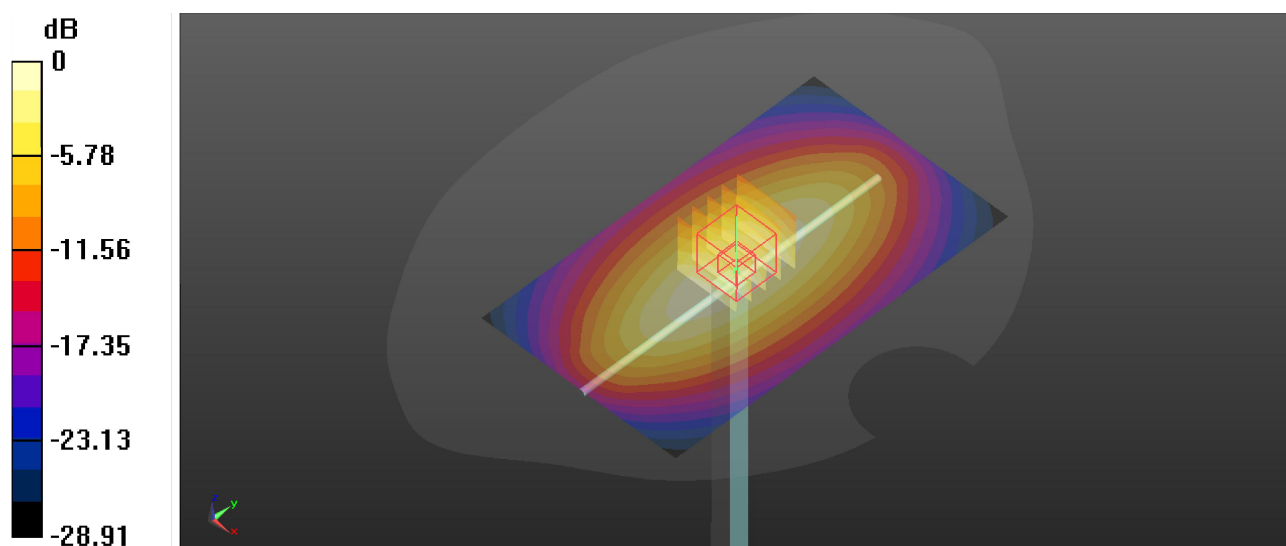
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 59.24 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.49 W/kg

SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 3.13 W/kg



0 dB = 3.13 W/kg

System Check_HSL1750_210906**DUT: Dipole:1750 MHz;Type:D1750V2**

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1

Medium: HSL1750_0906 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.325$ S/m; $\epsilon_r = 40.765$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(9.08, 9.08, 9.08) @ 1750 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.9 W/kg

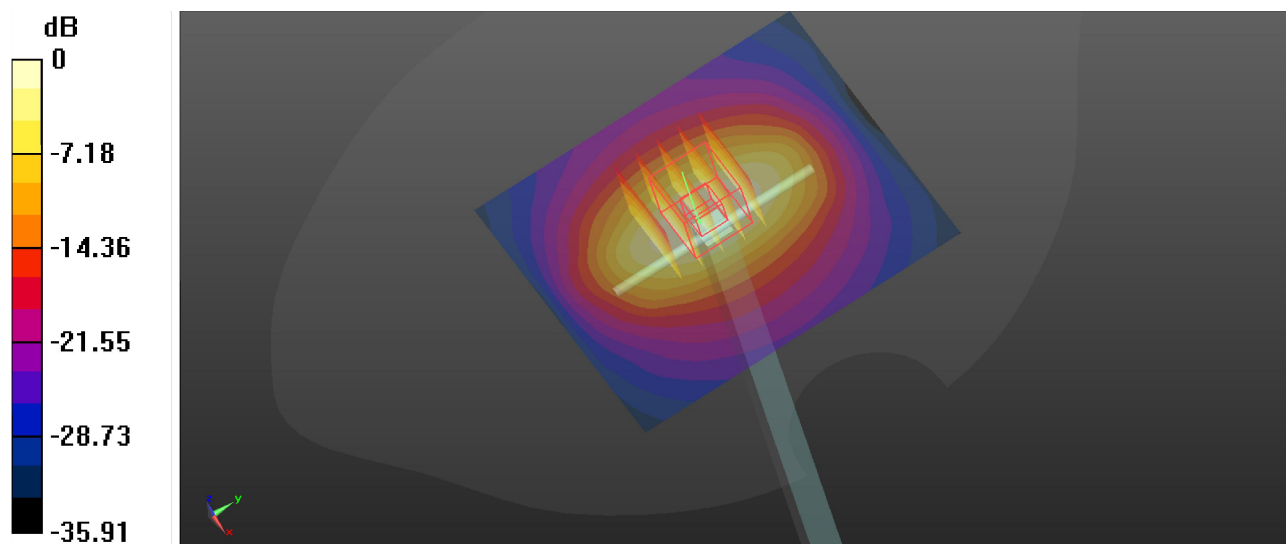
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 103.7 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.21 W/kg; SAR(10 g) = 4.83 W/kg

Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg

System Check_HSL1900_210906**DUT: Dipole:1900MHz;Type:D1900V2**

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium: HSL1900_0906 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.374$ S/m; $\epsilon_r = 39.599$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9) @ 1900 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 16.5 W/kg

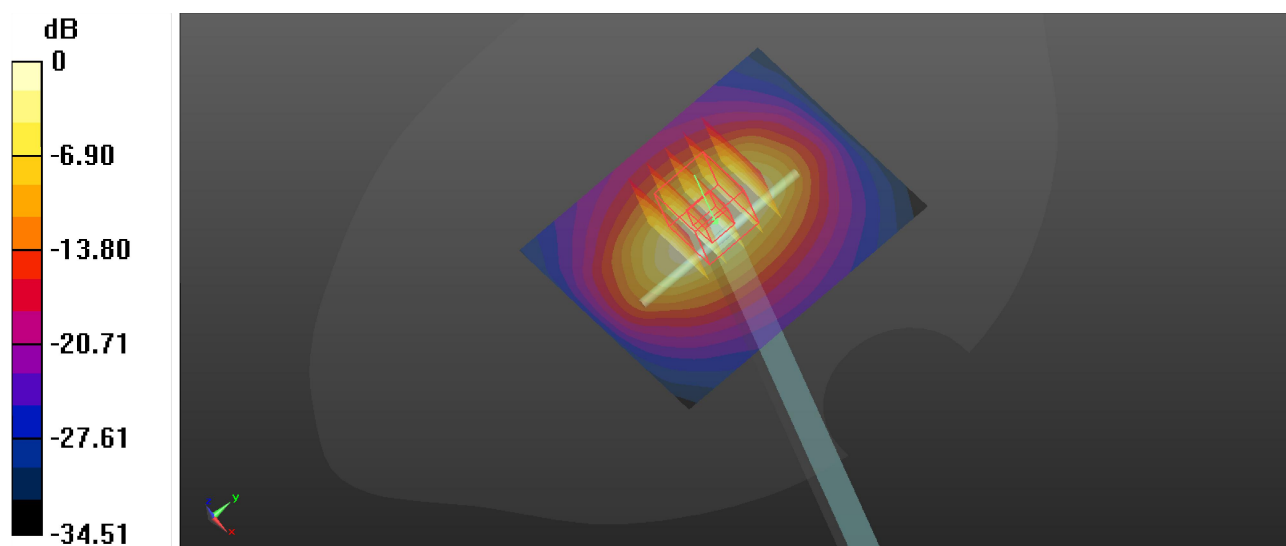
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 95.91 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 18.6 W/kg

SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.15 W/kg

Maximum value of SAR (measured) = 15.6 W/kg



0 dB = 15.6 W/kg

System Check_HSL2300_210908**DUT: Dipole:2300 MHz;Type:D2300V2**

Communication System: CW; Frequency: 2300 MHz;Duty Cycle: 1:1

Medium: HSL2300_0908 Medium parameters used: $f = 2300$ MHz; $\sigma = 1.665$ S/m; $\epsilon_r = 39.075$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.39, 8.39, 8.39) @ 2300 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (81x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 20.9 W/kg

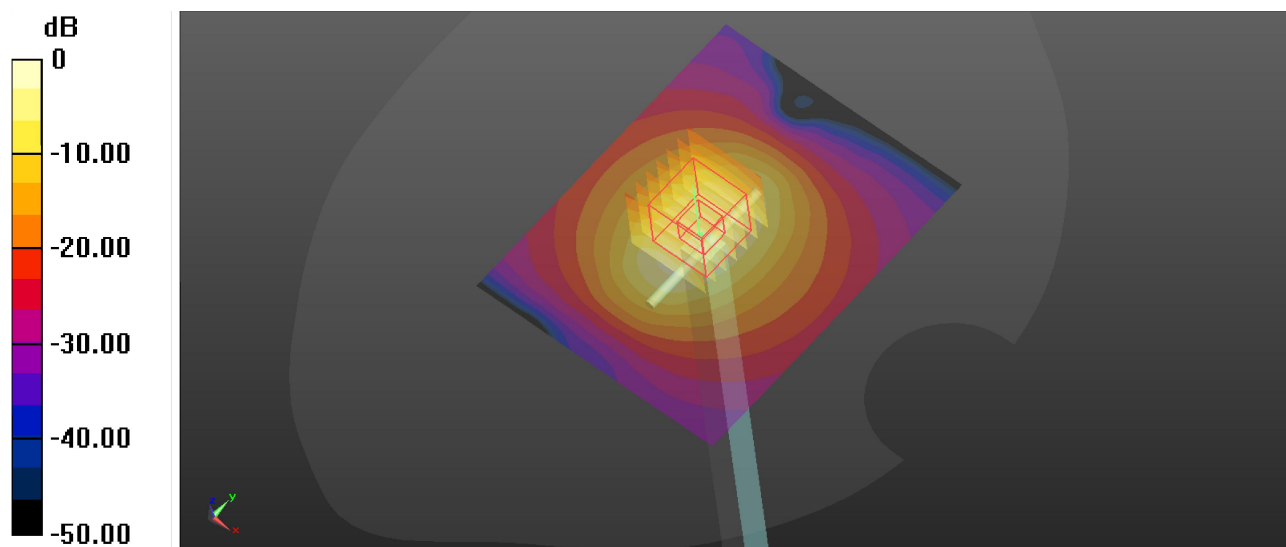
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.58 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 25.1 W/kg

SAR(1 g) = 12.4 W/kg; SAR(10 g) = 5.97 W/kg

Maximum value of SAR (measured) = 20.4 W/kg



0 dB = 20.4 W/kg

System Check_HSL2450_210908**DUT: Dipole:2450 MHz;Type:D2450V2**

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium: HSL2450_0908 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.782$ S/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8, 8, 8) @ 2450 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

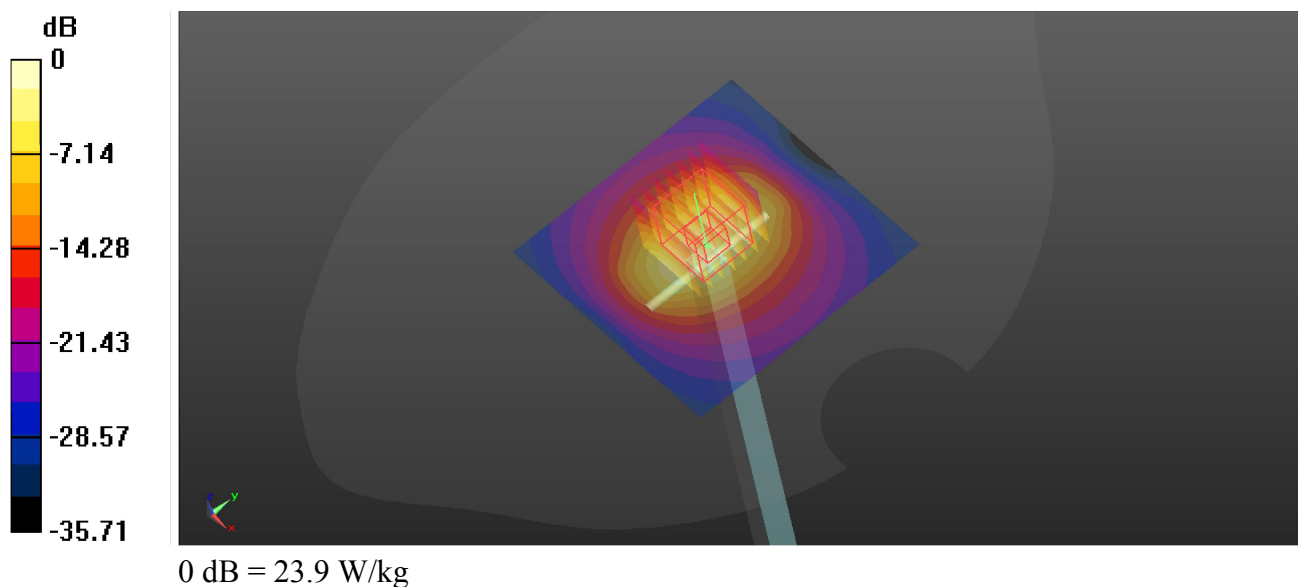
Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.5 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 111.6 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 29.4 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.34 W/kg

Maximum value of SAR (measured) = 23.9 W/kg



System Check_HSL2600_210908**DUT: Dipole:2600 MHz;Type:D2600V2**

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1

Medium: HSL2600_0908 Medium parameters used: $f = 2600$ MHz; $\sigma = 1.984$ S/m; $\epsilon_r = 37.444$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.82, 7.82, 7.82) @ 2600 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

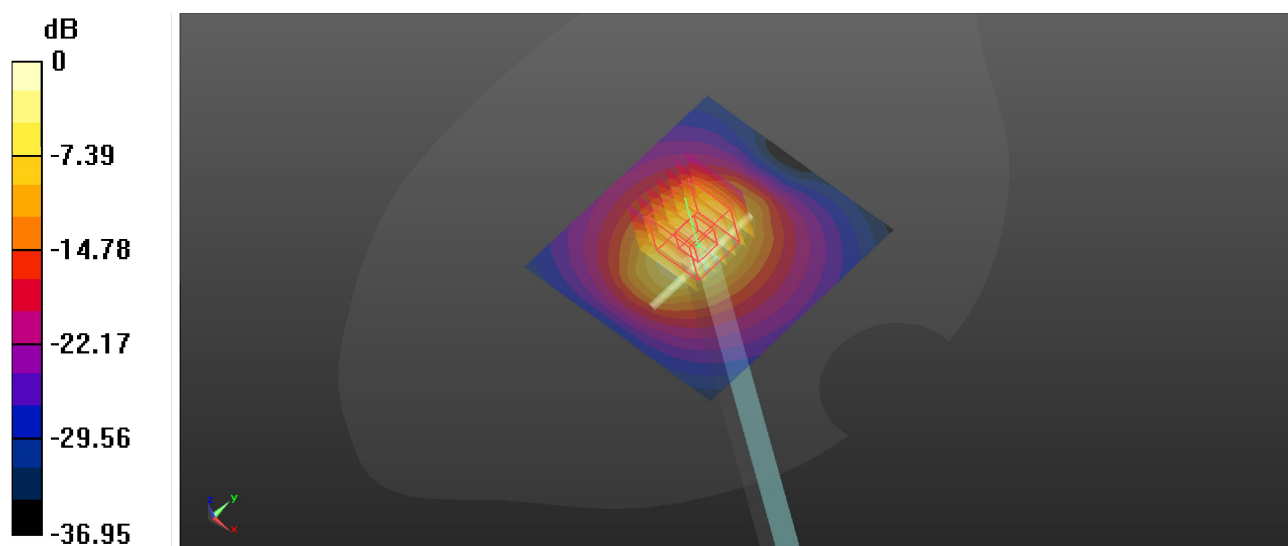
Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 25.2 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.2 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 32.3 W/kg

SAR(1 g) = 14.8 W/kg; SAR(10 g) = 6.53 W/kg

Maximum value of SAR (measured) = 25.9 W/kg



0 dB = 25.9 W/kg

System Check_HSL5250_210908**DUT: Dipole 5GHzV2;Type:D5GHzV2**

Communication System: CW; Frequency: 5250 MHz;Duty Cycle: 1:1

Medium: HSL5G_0908 Medium parameters used: $f = 5250$ MHz; $\sigma = 4.638$ S/m; $\epsilon_r = 37.088$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.46, 5.46, 5.46) @ 5250 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 19.0 W/kg

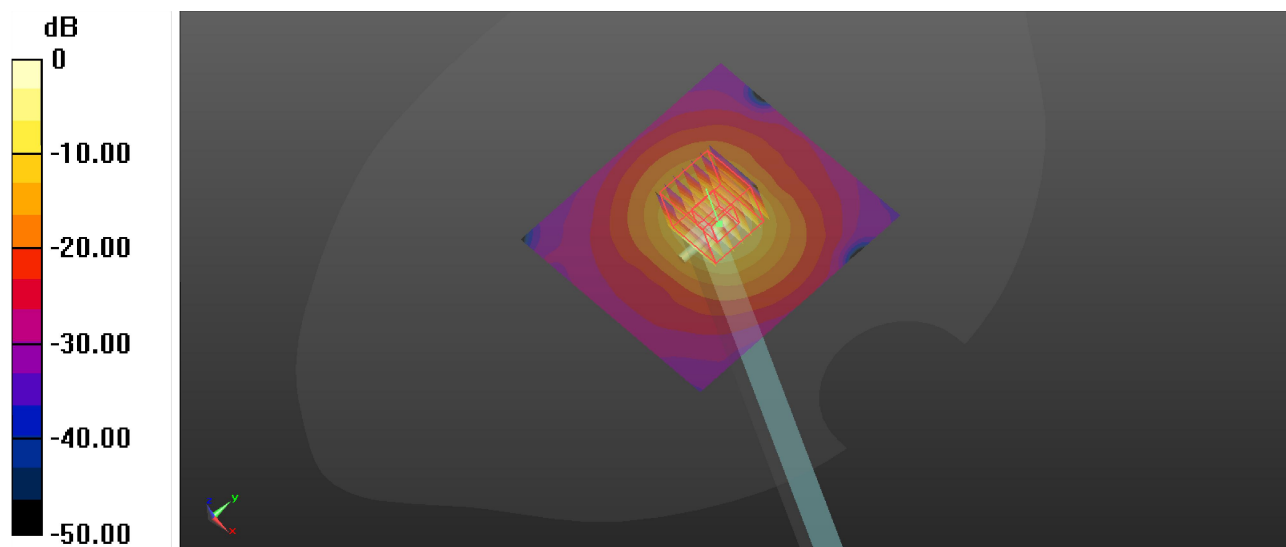
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.18 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 32.2 W/kg

SAR(1 g) = 8.27 W/kg; SAR(10 g) = 2.37 W/kg

Maximum value of SAR (measured) = 20.5 W/kg



0 dB = 20.5 W/kg

System Check_HSL5600_210908**DUT: Dipole 5GHzV2;Type:D5GHzV2**

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: HSL5G_0908 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.048$ S/m; $\epsilon_r = 36.534$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.1, 5.1, 5.1) @ 5600 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 21.1 W/kg

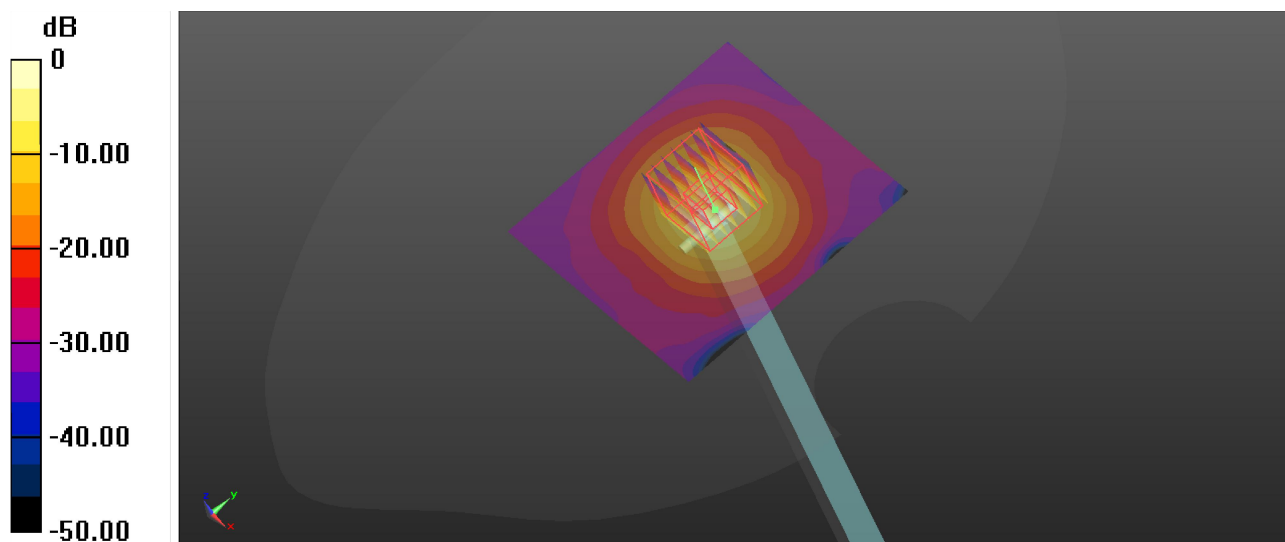
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 64.02 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 38.4 W/kg

SAR(1 g) = 8.64 W/kg; SAR(10 g) = 2.52 W/kg

Maximum value of SAR (measured) = 23.0 W/kg



0 dB = 23.0 W/kg

System Check_HSL5750_210908**DUT: Dipole 5GHzV2;Type:D5GHzV2**

Communication System: CW ; Frequency: 5750 MHz;Duty Cycle: 1:1

Medium: HSL5G_0908 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.22$ S/m; $\epsilon_r = 36.277$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.05, 5.05, 5.05) @ 5750 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 21.0 W/kg

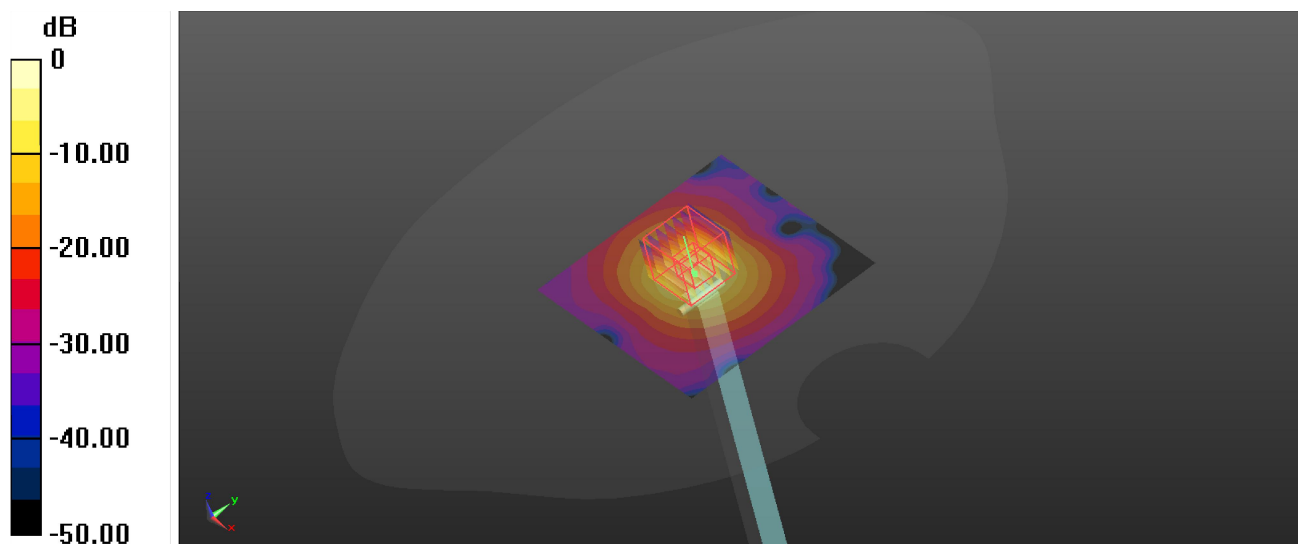
Pin=100mW/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 52.18 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 37.7 W/kg

SAR(1 g) = 8.26 W/kg; SAR(10 g) = 2.34 W/kg

Maximum value of SAR (measured) = 21.7 W/kg



0 dB = 21.7 W/kg

Appendix B. SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

P01 GSM850_GPRS10_Right Cheek_Ch128

Communication System: GPRS10; Frequency: 824.2 MHz; Duty Cycle: 1:4.15

Medium: HSL835_0907 Medium parameters used : $f = 824.2$ MHz; $\sigma = 0.901$ S/m; $\epsilon_r = 40.121$; $\rho = 1000$ kg/m³

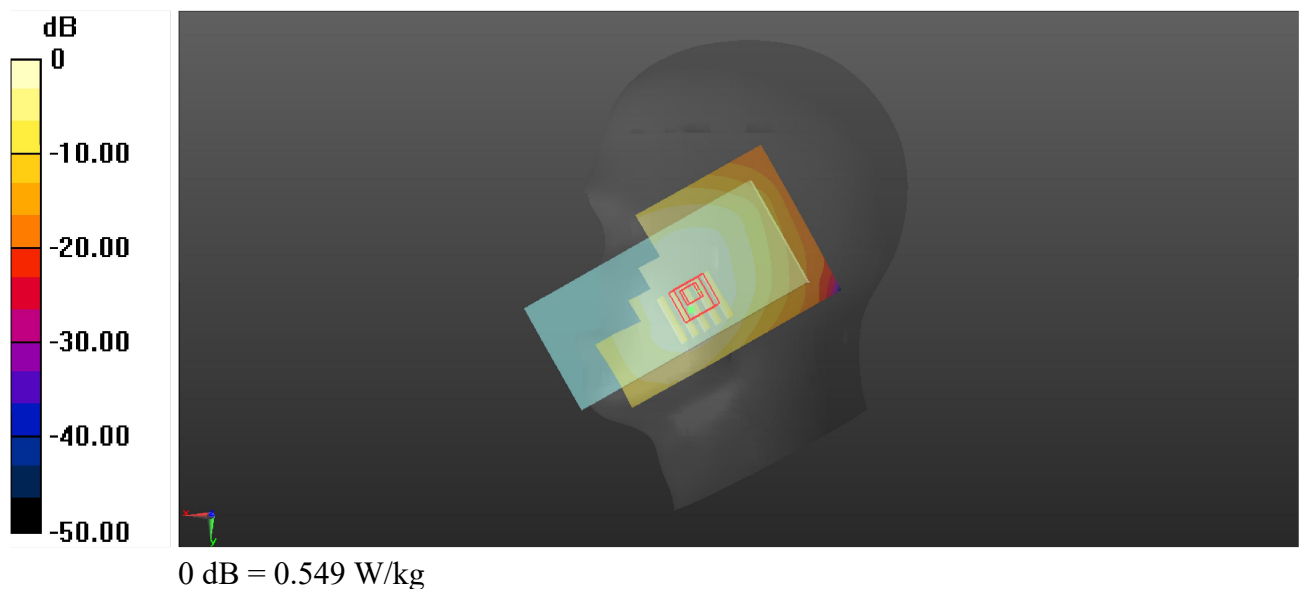
Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.73, 10.73, 10.73) @ 824.2 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

-Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.551 W/kg

-Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 5.925 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.604 W/kg
SAR(1 g) = 0.464 W/kg; SAR(10 g) = 0.342 W/kg
Maximum value of SAR (measured) = 0.549 W/kg



P02 GSM1900_GPRS11_Right Cheek_Ch810

Communication System: GPRS11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.77

Medium: HSL1900_0906 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 38.663$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9) @ 1909.8 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

-Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.149 W/kg

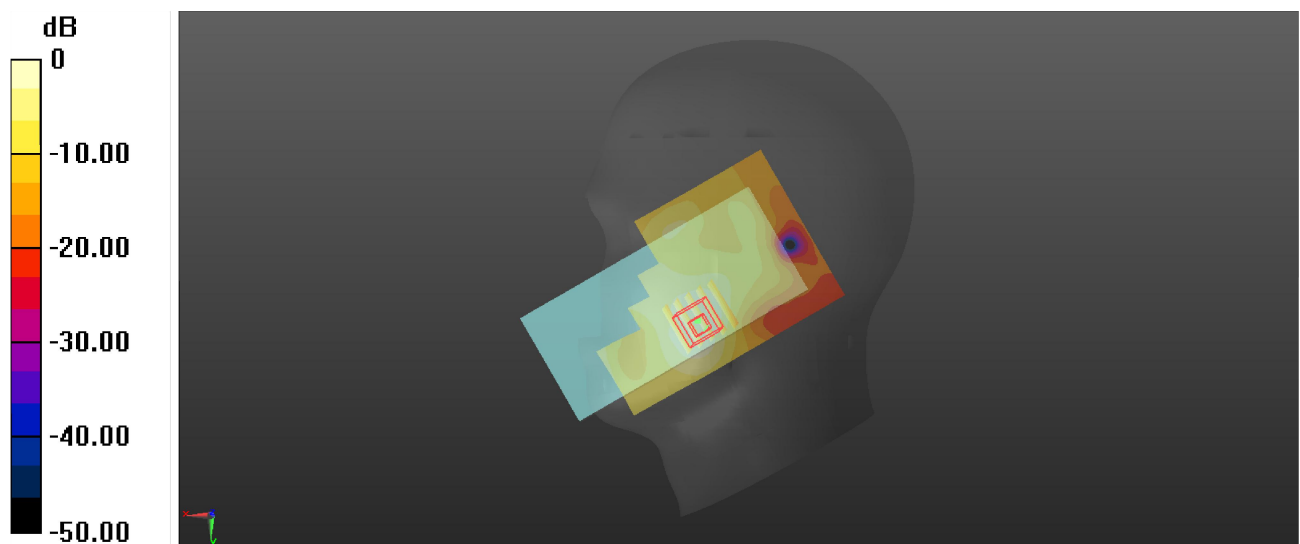
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 2.109 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.180 W/kg

SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.063 W/kg

Maximum value of SAR (measured) = 0.148 W/kg



0 dB = 0.148 W/kg

P03 WCDMA II_RMC12.2K_Right Cheek_Ch9538

Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: HSL1900_0906 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.452$ S/m; $\epsilon_r = 38.67$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9) @ 1907.6 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.419 W/kg

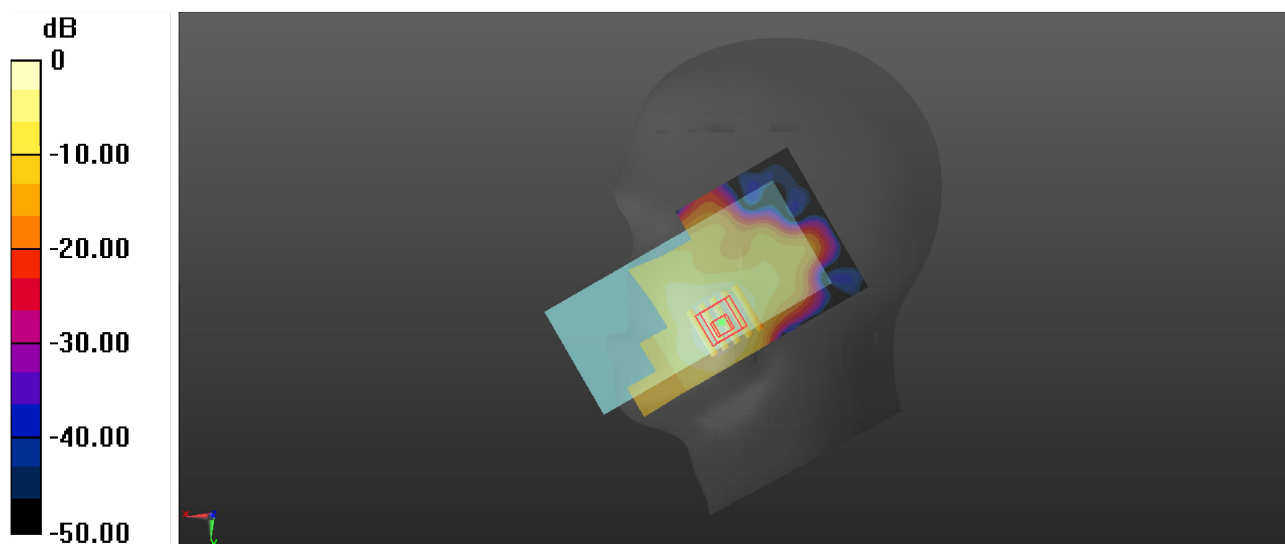
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 2.922 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.464 W/kg

SAR(1 g) = 0.275 W/kg; SAR(10 g) = 0.163 W/kg

Maximum value of SAR (measured) = 0.378 W/kg



0 dB = 0.378 W/kg

P04 WCDMA IV_RMC12.2K_Right Cheek_Ch1312

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: HSL1750_0906 Medium parameters used : $f = 1712.4$ MHz; $\sigma = 1.32$ S/m; $\epsilon_r = 40.911$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(9.08, 9.08, 9.08) @ 1712.4 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.326 W/kg

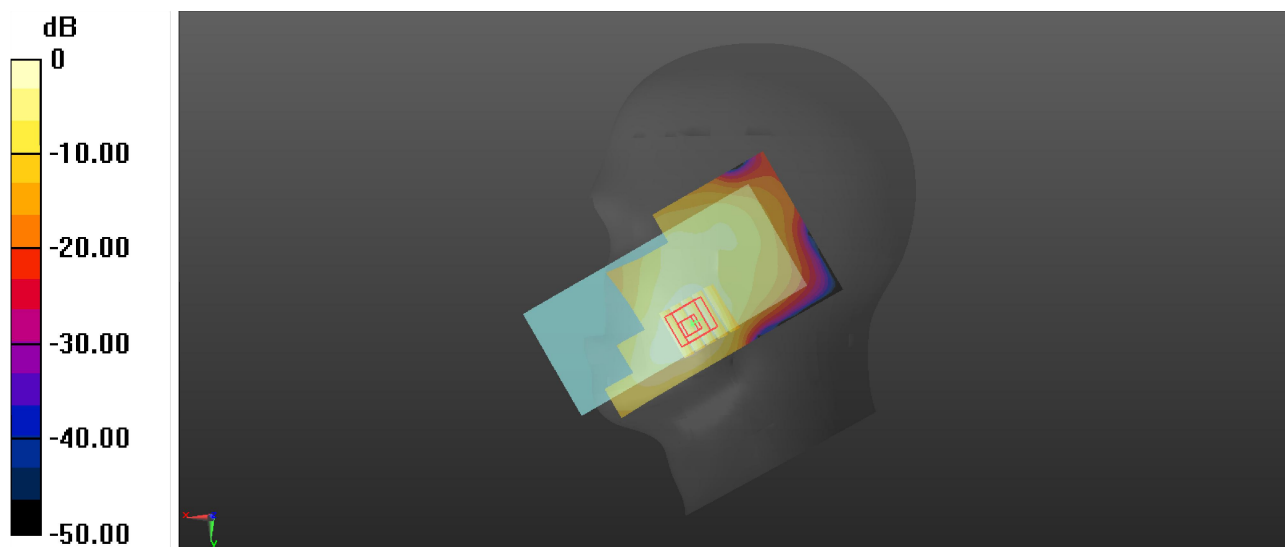
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.012 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.374 W/kg

SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.146 W/kg

Maximum value of SAR (measured) = 0.317 W/kg



0 dB = 0.317 W/kg

P05 WCDMA V_RMC12.2K_Right Cheek_Ch4132

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL835_0907 Medium parameters used : $f = 826.4$ MHz; $\sigma = 0.902$ S/m; $\epsilon_r = 40.11$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.73, 10.73, 10.73) @ 826.4 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- **Area Scan (51x101x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.483 W/kg

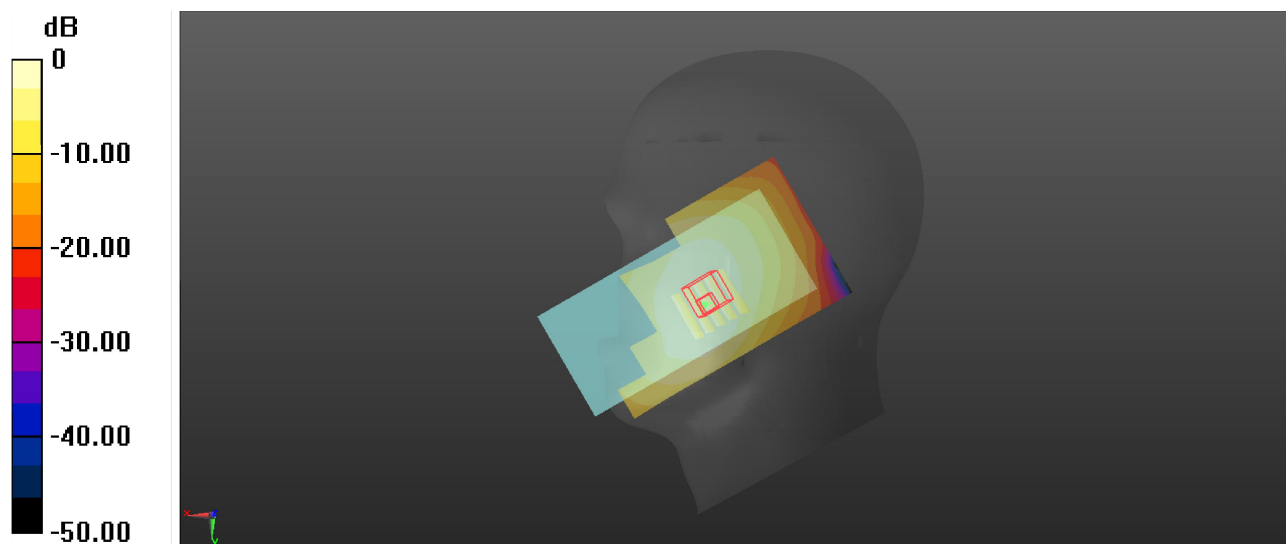
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.189 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.535 W/kg

SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.257 W/kg

Maximum value of SAR (measured) = 0.490 W/kg



0 dB = 0.490 W/kg

P06 LTE 5_QPSK10M_Left Cheek_Ch20525_1RB_OS49

Communication System: LTE ; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: HSL835_0907 Medium parameters used : $f = 836.5$ MHz; $\sigma = 0.905$ S/m; $\epsilon_r = 40.083$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.73, 10.73, 10.73) @ 836.5 MHz; Calibrated: 9/28/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 9/28/2020
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

-Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.514 W/kg

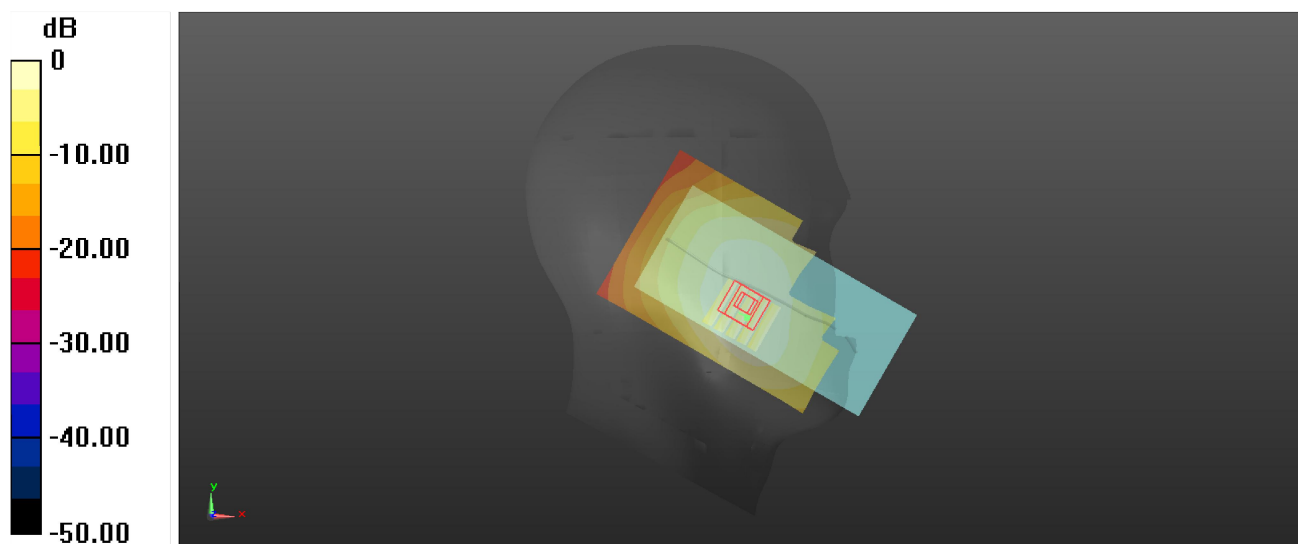
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 6.640 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.553 W/kg

SAR(1 g) = 0.420 W/kg; SAR(10 g) = 0.313 W/kg

Maximum value of SAR (measured) = 0.504 W/kg



0 dB = 0.504 W/kg