

Appendix I. SPLSR criteria

SAR to Peak Location Separation Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

SAR₁ is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$\text{square root of } [(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / Ri \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest *reported* SAR for the frequency bands should be used to determine **SAR₁** or **SAR₂**. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

The antennas in all antenna pairs that do not qualify for simultaneous transmission SAR test exclusion must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01

The antennas for the unlicensed transmitters are closely situated. As a result, the associated SAR hotspots are also closely situated. Some of the sum of SAR calculations yielded results over 1.6 W/kg. The SPLSR calculations for these situations were performed by treating the unlicensed SAR values as a single transmitter. The most conservative distance between all the unlicensed hotspots to the licensed hotspot was used for the value of *d* in the SPLSR calculation.

Sum to Peak Location Separation Ratio

According to TCB workshop note, Instead of doing a small volume scan over a co-located antenna pair (Hybrid SPLSR guide), Simultaneous transmission SAR test exclusion may algebraically sum the SAR values of the co-located pair and use that value in SPLSR calculation;

-In the calculation Separation distance must use the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

SPLSR criteria results Rear position

WWAN Band	WWAN/WLAN/BT Bands		Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios		SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios		SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan
					X-axis	Y-axis	1	2					1	2				
WCDMA Band II	1	WCDMA II	1	0.816	-26.4	123.0	1	1 + 2	1.495	42.0	0.04	No	2	1 + 3	1.713	113.2	0.02	No
	2	DTS Ant.1	2	0.679	-88.4	123.0	3	1+4+6	2.014				4	1+5+6	1.903			
	3	DTS MIMO	3	0.897	86.4	116.0		1+4	1.540	99.3	0.02	No		1+5	1.429	102.0	0.02	No
	4	UNII Ant.2	4	0.724	72.6	117.0		1+6	1.290	45.3	0.03	No		1+6	1.290	45.3	0.03	No
	5	UNII MIMO	5	0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1	6	0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
WCDMA Band IV	1	WCDMA IV	7	0.695	-21.5	126.0	1	1 + 2	1.374	47.0	0.03	No	2	1 + 3	1.592	108.4	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.893				4	1+5+6	1.782			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.419	94.5	0.02	No		1+5	1.308	97.2	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.169	50.3	0.03	No		1+6	1.169	50.3	0.03	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
WCDMA Band V	1	WCDMA V	8	0.973	-2.5	130.0	1	1 + 2	1.652	66.3	0.03	No	2	1 + 3	1.870	90.0	0.03	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	2.171				4	1+5+6	2.060			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.697	76.2	0.03	No		1+5	1.586	78.8	0.03	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.447	69.6	0.03	No		1+6	1.447	69.6	0.03	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 7 Maun.1	1	LTE Band 7	9	0.642	-20.4	126.0	1	1 + 2	1.321	48.1	0.03	No	2	1 + 3	1.539	107.3	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.840				4	1+5+6	1.729			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.366	93.4	0.02	No		1+5	1.255	96.1	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.116	51.4	0.02	No		1+6	1.116	51.4	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 7 Sub.2	1	LTE Band 7	10	0.617	-24.6	-124.0	1	1 + 2	1.296	250.9	0.01	No	2	1 + 3	1.514	264.4	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.815				4	1+5+6	1.704			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.341	259.9	0.01	No		1+5	1.230	261.8	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.091	250.4	0.00	No		1+6	1.091	250.4	0.00	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 12	1	LTE Band 12	11	0.546	26.5	123.0	1	1 + 2	1.225	94.9	0.01	No	2	1 + 3	1.443	60.3	0.03	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.744				4	1+5+6	1.633			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.270	46.5	0.03	No		1+5	1.159	49.2	0.03	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.020	98.1	0.01	No		1+6	1.020	98.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 13	1	LTE Band 13	12	0.766	-5.5	127.0	1	1 + 2	1.445	63.0	0.03	No	2	1 + 3	1.663	92.6	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.964				4	1+5+6	1.853			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.490	78.7	0.02	No		1+5	1.379	81.4	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.240	66.3	0.02	No		1+6	1.240	66.3	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										

SPLSR criteria results Rear position (Continued)

WWAN Band	WWAN/WLAN/BT Bands	Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan			
				X-axis	Y-axis													
LTE Band 14	1	LTE Band 14	13	0.737	-5.5	127.0	1	1 + 2	1.416	63.0	0.03	No	2	1 + 3	1.634	92.6	0.02	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.935				4	1+5+6	1.824			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.461	78.7	0.02	No		1+5	1.350	81.4	0.02	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.211	66.3	0.02	No		1+6	1.211	66.3	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 25 Maun.1	1	LTE Band 25	14	0.624	-7.0	131.0	1	1 + 2	1.303	61.9	0.02	No	2	1 + 3	1.521	94.6	0.02	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.822				4	1+5+6	1.711			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.348	80.8	0.02	No		1+5	1.237	83.4	0.02	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.098	65.2	0.02	No		1+6	1.098	65.2	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 25 Sub.2	1	LTE Band 25	15	0.781	-32.0	-128.0	1	1 + 2	1.460	251.6	0.01	No	2	1 + 3	1.678	269.4	0.01	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.979				4	1+5+6	1.868			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.505	264.6	0.01	No		1+5	1.394	266.6	0.01	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.255	251.1	0.01	No		1+6	1.255	251.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 26	1	LTE Band 26	16	0.692	-4.0	133.0	1	1 + 2	1.371	65.2	0.02	No	2	1 + 3	1.589	92.0	0.02	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.890				4	1+5+6	1.779			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.416	78.3	0.02	No		1+5	1.305	80.8	0.02	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.166	68.5	0.02	No		1+6	1.166	68.5	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 30	1	LTE Band 30	17	0.483	-24.0	124.0	1	1 + 2	1.162	44.4	0.03	No	2	1 + 3	1.380	110.7	0.01	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.681				4	1+5+6	1.570			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.207	96.9	0.01	No		1+5	1.096	99.6	0.01	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	0.957	47.6	0.02	No		1+6	0.957	47.6	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 41	1	LTE Band 41	18	0.607	-16.6	121.0	1	1 + 2	1.286	51.8	0.03	No	2	1 + 3	1.504	103.1	0.02	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.805				4	1+5+6	1.694			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.331	89.3	0.02	No		1+5	1.220	92.0	0.01	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.081	55.0	0.02	No		1+6	1.081	55.0	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 66 Maun.1	1	LTE Band 66	19	0.659	-22.0	125.0	1	1 + 2	1.338	46.4	0.03	No	2	1 + 3	1.556	108.8	0.02	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.857				4	1+5+6	1.746			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.383	94.9	0.02	No		1+5	1.272	97.7	0.01	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.133	49.7	0.02	No		1+6	1.133	49.7	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
LTE Band 66 Sub.2	1	LTE Band 66	20	0.748	-32.0	-128.0	1	1 + 2	1.427	251.6	0.01	No	2	1 + 3	1.645	269.4	0.01	No
	2	DTS Ant1		0.679	-88.4	123.0	3	1+4+6	1.946				4	1+5+6	1.835			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.472	264.6	0.01	No		1+5	1.361	266.6	0.01	No
	4	UNII Ant2		0.724	72.6	117.0		1+6	1.222	251.1	0.01	No		1+6	1.222	251.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										

SPLSR criteria results Rear position (Continued)

WWAN Band	WWAN/WLAN/BT Bands	Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios		SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios		SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	
				X-axis	Y-axis	1	2					1	2					
LTE Band 71	1	LTE Band 71	21	0.530	28.5	126.0	1	1 + 2	1.209	96.9	0.01	No	2	1 + 3	1.427	58.8	0.03	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.728			4	1+5+6	1.617				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.254	45.0	0.03		No	1+5	1.143	47.6	0.03	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.004	100.2	0.01		No	1+6	1.004	100.2	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n5	1	NR Band n5	22	0.729	-2.5	132.0	1	1 + 2	1.408	66.5	0.03	No	2	1 + 3	1.626	90.3	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.927			4	1+5+6	1.816				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.453	76.6	0.02		No	1+5	1.342	79.1	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.203	69.8	0.02		No	1+6	1.203	69.8	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n12	1	NR Band n12	23	0.467	28.5	125.0	1	1 + 2	1.146	96.9	0.01	No	2	1 + 3	1.364	58.6	0.03	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.665			4	1+5+6	1.554				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.191	44.8	0.03		No	1+5	1.080	47.4	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	0.941	100.1	0.01		No	1+6	0.941	100.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n25	1	NR Band n25	24	0.606	-25.0	124.0	1	1 + 2	1.285	43.4	0.03	No	2	1 + 3	1.503	111.7	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.804			4	1+5+6	1.693				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.330	97.9	0.02		No	1+5	1.219	100.6	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.080	46.6	0.02		No	1+6	1.080	46.6	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n30	1	NR Band n30	25	0.464	-25.2	124.0	1	1 + 2	1.143	43.2	0.03	No	2	1 + 3	1.361	111.9	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.662			4	1+5+6	1.551				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.188	98.1	0.01		No	1+5	1.077	100.8	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	0.938	46.4	0.02		No	1+6	0.938	46.4	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n41 SRS 1	1	NR Band n41	26	0.811	-27.2	124.0	1	1 + 2	1.490	41.2	0.04	No	2	1 + 3	1.708	113.9	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	2.009			4	1+5+6	1.898				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.535	100.0	0.02		No	1+5	1.424	102.8	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.285	44.4	0.03		No	1+6	1.285	44.4	0.03	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n41 SRS 2	1	NR Band n41	27	0.677	-23.8	-129.0	1	1 + 2	1.356	255.9	0.01	No	2	1 + 3	1.574	268.6	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.875			4	1+5+6	1.764				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.401	264.2	0.01		No	1+5	1.290	266.2	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.151	255.5	0.00		No	1+6	1.151	255.5	0.00	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n41 SRS 3	1	NR Band n41	28	0.582	16.8	-122.0	1	1 + 2	1.261	259.4	0.01	No	2	1 + 3	1.479	248.0	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.780			4	1+5+6	1.669				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.306	245.4	0.01		No	1+5	1.195	247.1	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.056	259.5	0.00		No	1+6	1.056	259.5	0.00	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											
NR Band n41 SRS 3	1	NR Band n41	29	1.190	81.0	-120.0	1	1 + 2	1.869	285.3	0.01	No	2	1 + 3	2.087	236.1	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	2.388			4	1+5+6	2.277				
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.914	237.1	0.01		No	1+5	1.803	238.1	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.664	286.1	0.01		No	1+6	1.664	286.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01		No	5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)											

SPLSR criteria results Rear position (Continued)

WWAN Band	WWAN/WLAN/BT Bands	Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan			
				X-axis	Y-axis													
NR Band n66	1	NR Band n66	30	0.799	-11.5	130.0	1	1 + 2	1.478	57.3	0.03	No	2	1 + 3	1.696	98.9	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.997				4	1+5+6	1.886			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.523	85.1	0.02	No		1+5	1.412	87.7	0.02	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.273	60.6	0.02	No		1+6	1.273	60.6	0.02	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
NR Band n71	1	NR Band n71	31	0.523	-5.0	130.0	1	1 + 2	1.202	63.8	0.02	No	2	1 + 3	1.420	92.5	0.02	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.721				4	1+5+6	1.610			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.247	78.7	0.02	No		1+5	1.136	81.3	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	0.997	67.1	0.01	No		1+6	0.997	67.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
NR Band n77 SRS 2	1	NR Band n77	32	0.681	24.2	-122.0	1	1 + 2	1.360	261.9	0.01	No	2	1 + 3	1.578	246.0	0.01	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.879				4	1+5+6	1.768			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.405	243.9	0.01	No		1+5	1.294	245.4	0.01	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	1.155	262.1	0.00	No		1+6	1.155	262.1	0.00	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										
NR Band n77 SRS 3	1	NR Band n77	33	0.415	84.4	118.0	1	1 + 2	1.094	152.9	0.01	No	2	1 + 3	1.312	2.8	0.53	No
	2	DTS Ant.1		0.679	-88.4	123.0	3	1+4+6	1.613				4	1+5+6	1.502			
	3	DTS MIMO		0.897	86.4	116.0		1+4	1.139	11.8	0.10	No		1+5	1.028	9.0	0.12	No
	4	UNII Ant.2		0.724	72.6	117.0		1+6	0.889	156.1	0.01	No		1+6	0.889	156.1	0.01	No
	5	UNII MIMO		0.613	75.4	118.0		4+6	1.198	144.3	0.01	No		5+6	1.087	147.1	0.01	No
	6	BT Ant.1		0.474	-71.6	122.0		Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)										

SPLSR criteria results R/Left position

WWAN Band	WWAN/WLAN/BT Bands	Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	
				X-axis	Y-axis											
NR Band n77	1	NR Band n77	34	0.794	0.0	-112.0										
	2	DTS Ant.1									1+5+6	1.707				
	3	DTS MIMO									1+5	1.340	226.0	0.01	No	
	5	UNII MIMO	35	0.546	-2.0	114.0	Sum PeakLocation Separation					1+6	1.161	226.0	0.01	No
	6	BT Ant.1	36	0.367	-2.4	114.0						(5+6)	0.913			
	5+6	UNII MIMO + BT Ant.1	37	0.913	-2.0	114.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)									
NR Band n77 SRS 1	1	NR Band n77	38	0.891	0.2	-122.0										
	2	DTS Ant.1									1+5+6	1.804				
	3	DTS MIMO									1+5	1.437	236.0	0.01	No	
	5	UNII MIMO		0.546	-2.0	114.0	Sum PeakLocation Separation					1+6	1.258	236.0	0.01	No
	6	BT Ant.1		0.367	-2.4	114.0						(5+6)	0.913			
	5+6	UNII MIMO + BT Ant.1		0.913	-2.0	114.0	Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)									

SPLSR criteria results R/Right position

WWAN Band	WWAN/WLAN/BT Bands	Figure	Reported SAR (W/kg)	Peak SAR location(mm)		Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan	Simultaneous Tx scenarios	SUM SAR (W/kg)	Calculated Distance (mm)	SPLSR Results	Volume Scan			
				X-axis	Y-axis													
NR Band n41 SRS 3	1	NR Band n41	39	1.141	-1.0	-112.0	1	1 + 2	1.284									
	2	DTS Ant.1		0.143							2	1 + 3	1.913	220.1	0.01	No		
	3	DTS MIMO	40	0.772	4.8	108.0	3	1+4+6	2.017			4	1+5+6	1.897				
	4	UNII Ant.2	41	0.873	3.0	111.0		1+4	2.014	223.0	0.01		No	1+5	1.894	223.0	0.01	No
	5	UNII MIMO	42	0.753	3.0	111.0		1+6	1.144	123.6	0.01		No	1+6	1.144	123.6	0.01	No
	6	BT Ant.1	43	0.003	39.0	5.0		4+6	0.876	111.9	0.01		No	5+6	0.756	111.9	0.01	No
Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)																		
NR Band n77 SRS 2	1	NR Band n77	44	0.929	4.8	-115.0	1	1 + 2	1.072									
	2	DTS Ant.1		0.143							2	1 + 3	1.701	223.0	0.01	No		
	3	DTS MIMO		0.772	4.8	108.0	3	1+4+6	1.805			4	1+5+6	1.685				
	4	UNII Ant.2		0.873	3.0	111.0		1+4	1.802	226.0	0.01		No	1+5	1.682	226.0	0.01	No
	5	UNII MIMO		0.753	3.0	111.0		1+6	0.932	124.8	0.01		No	1+6	0.932	124.8	0.01	No
	6	BT Ant.1		0.003	39.0	5.0		4+6	0.876	111.9	0.01		No	5+6	0.756	111.9	0.01	No
Simultaneous Tx scenarios (1+4/ 1+5/ 1+6) are subset of Simultaneous Tx scenarios (1+4+6/ 1+5+6)																		

Conclusion:

Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to follow procedures with “SPLSR or “Sum-Peak Location Separation Ratio”

Figure (1)

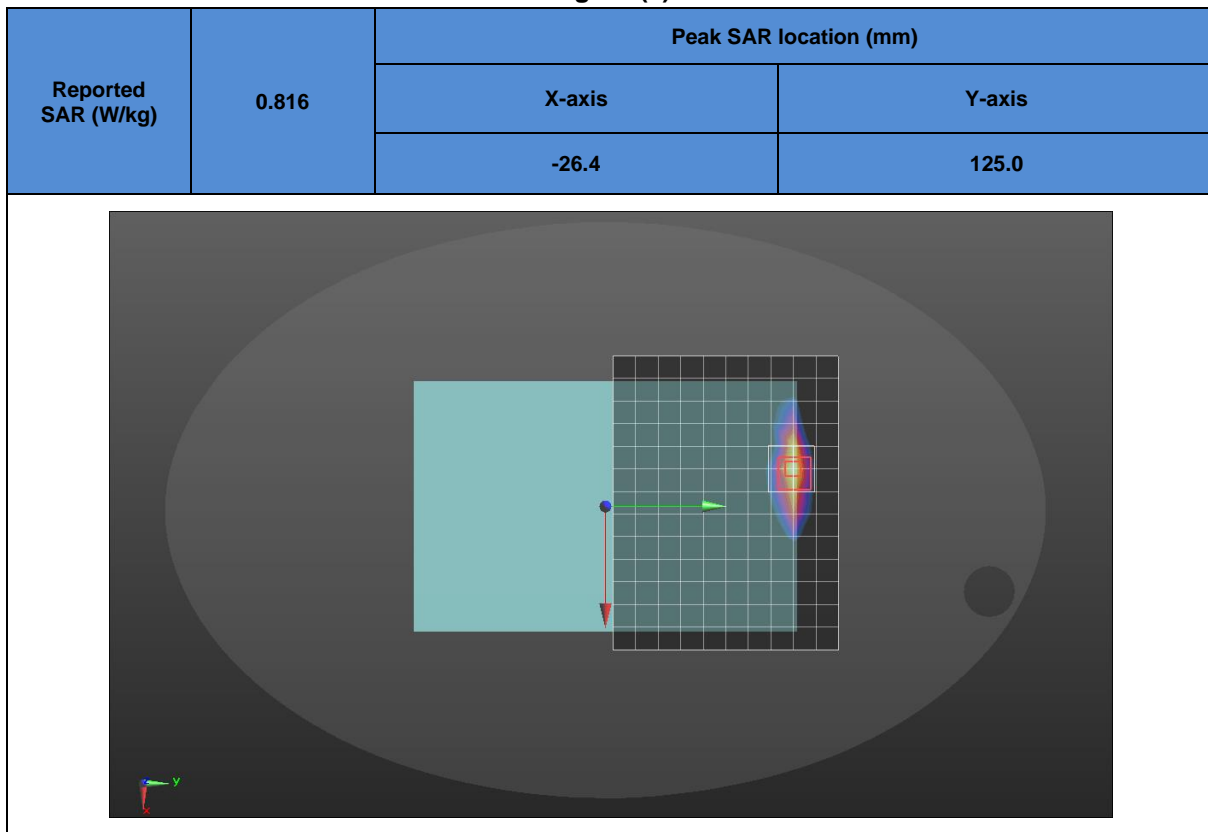


Figure (2)

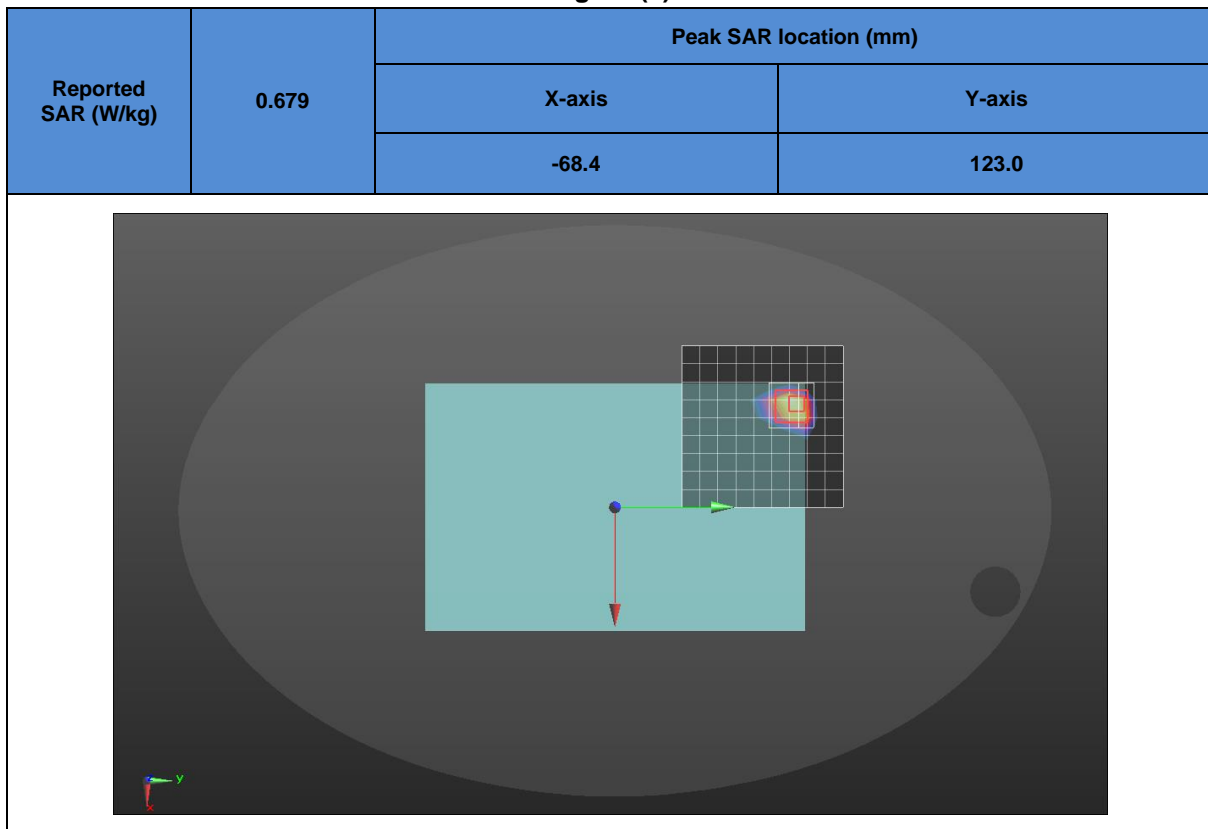


Figure (3)

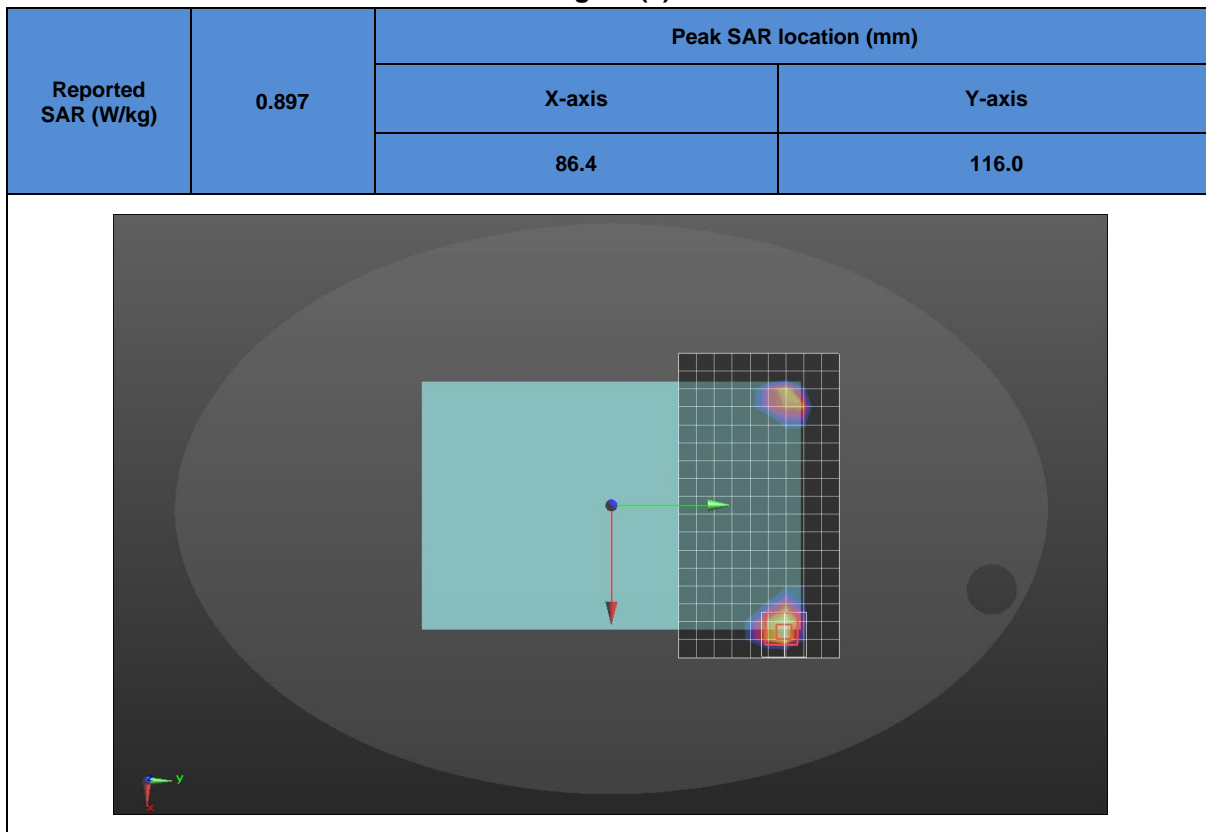


Figure (4)

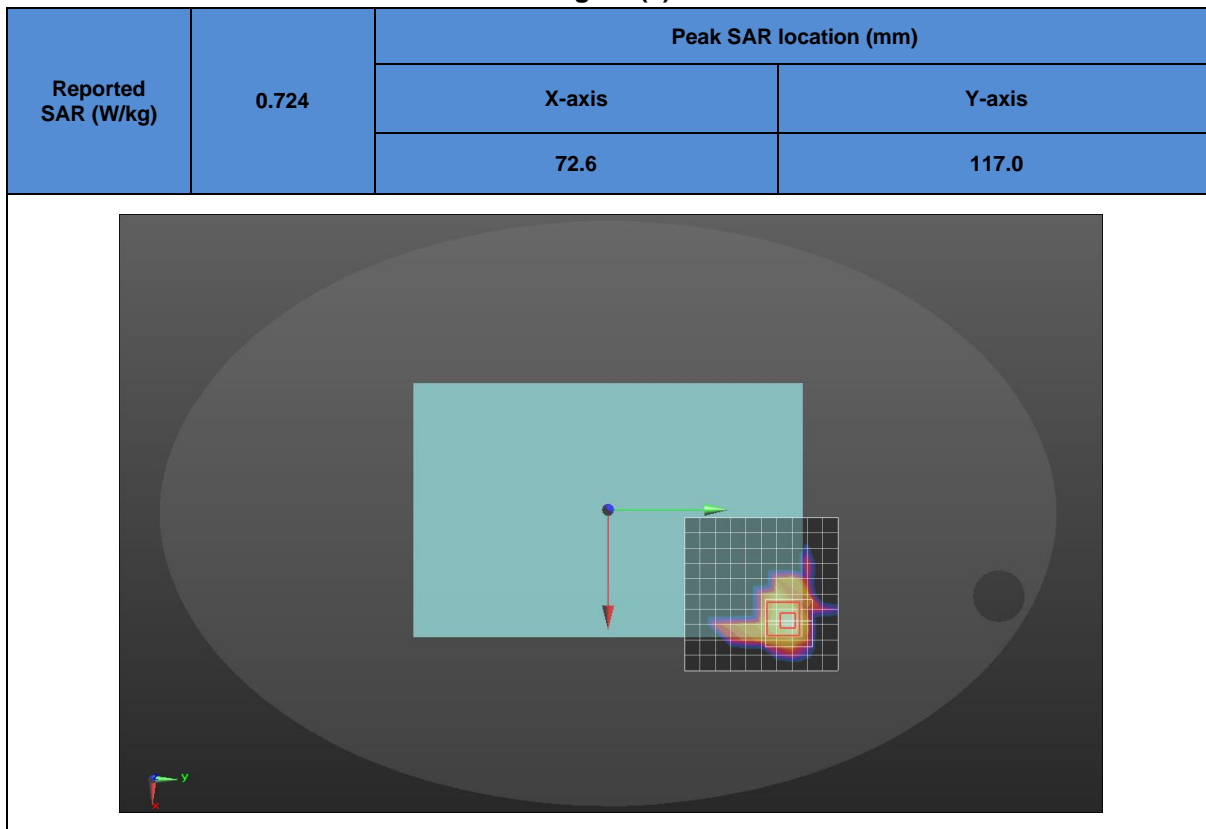


Figure (5)

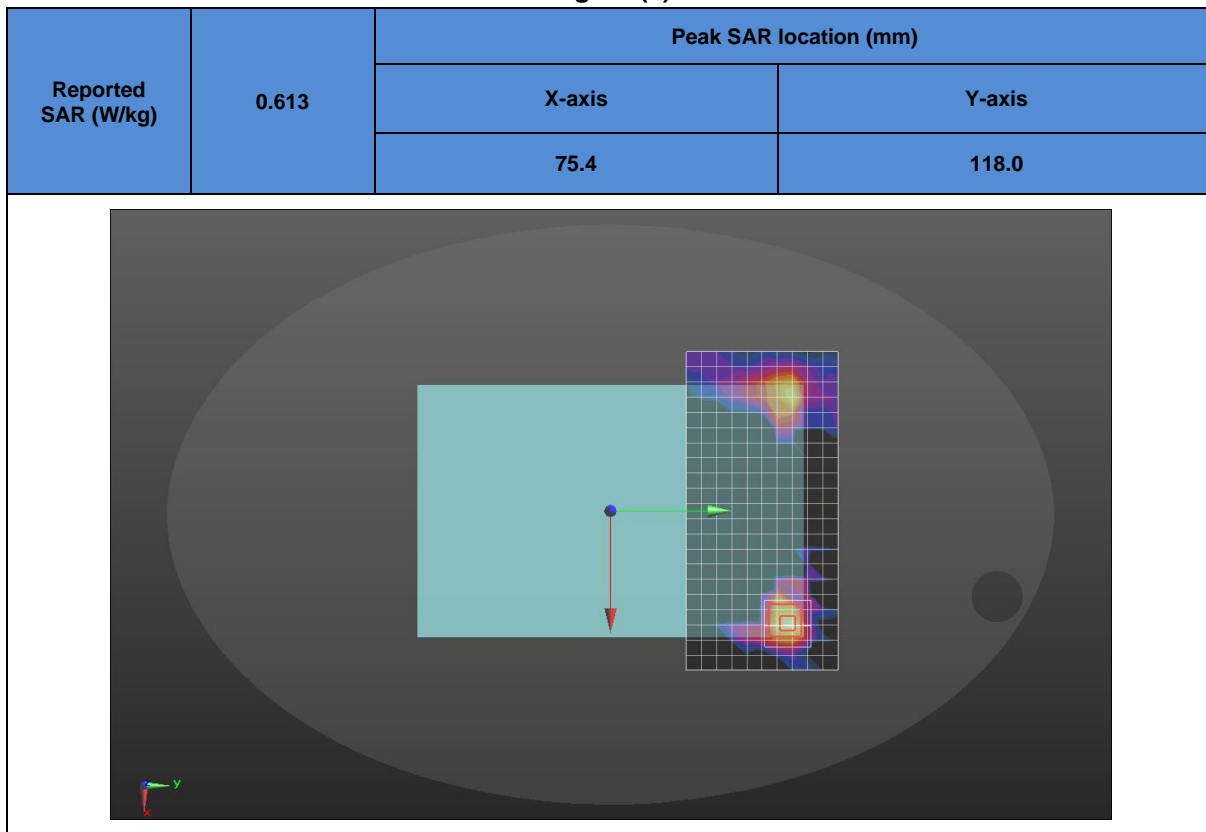


Figure (6)

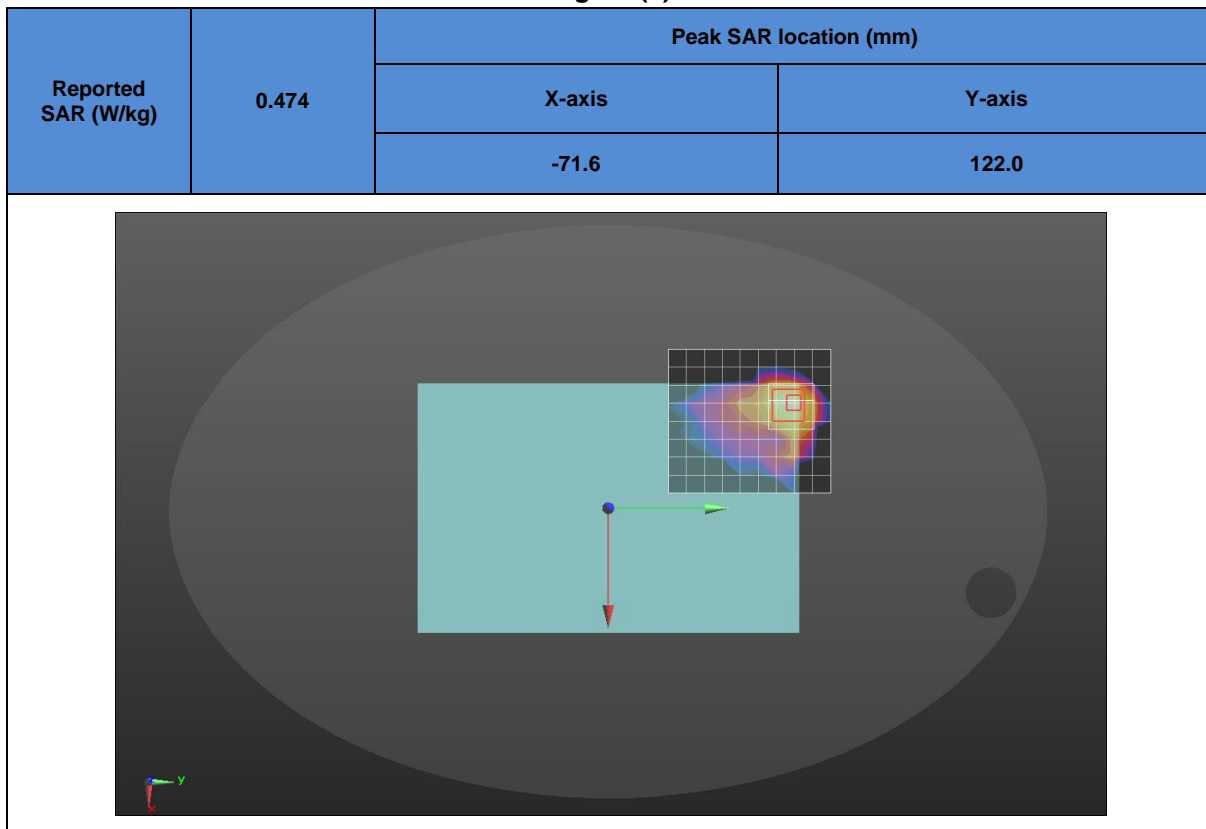


Figure (7)

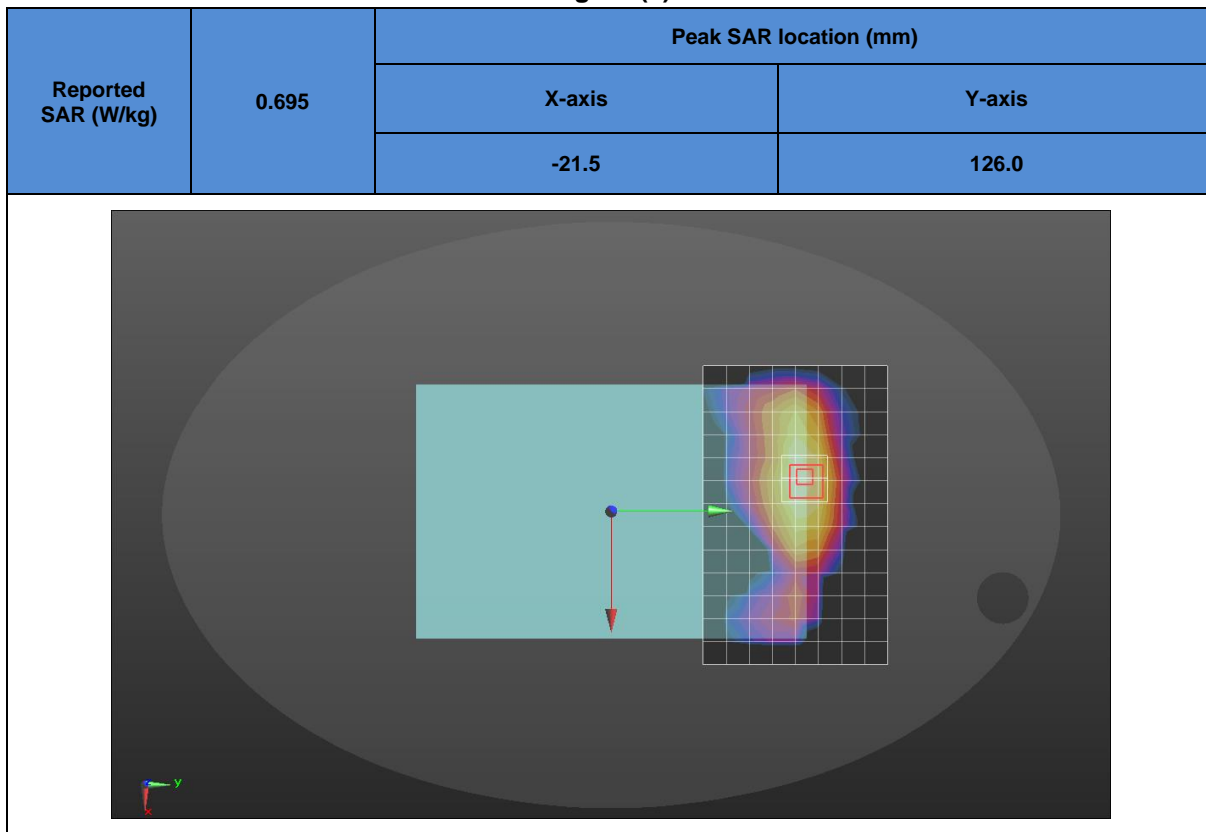


Figure (8)

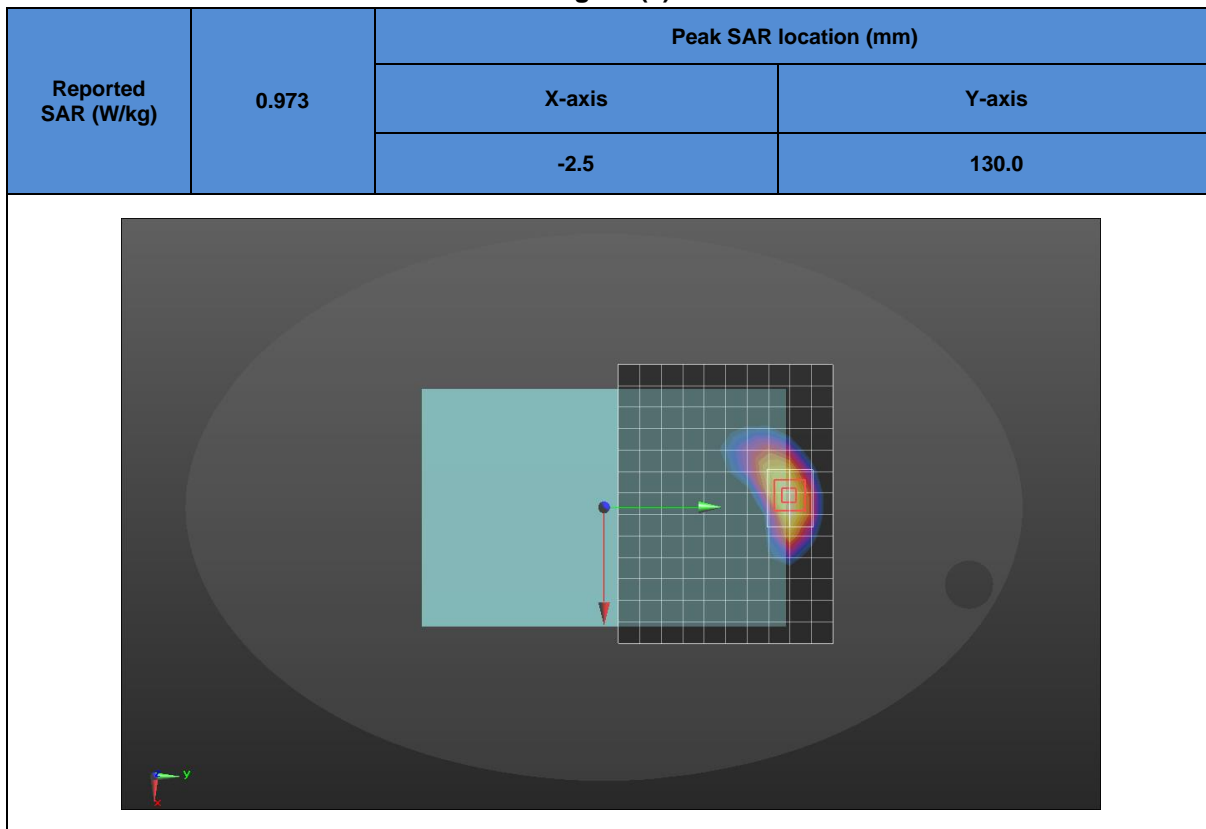


Figure (9)

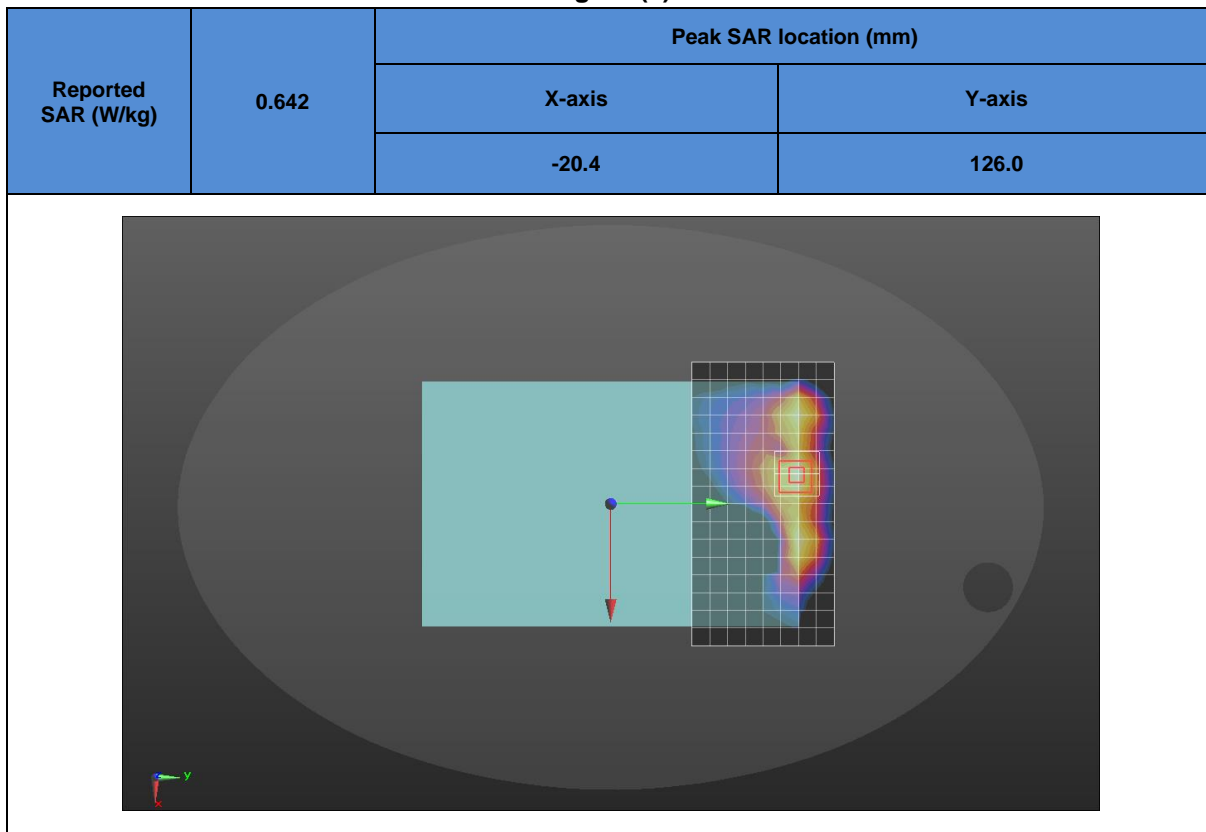


Figure (10)

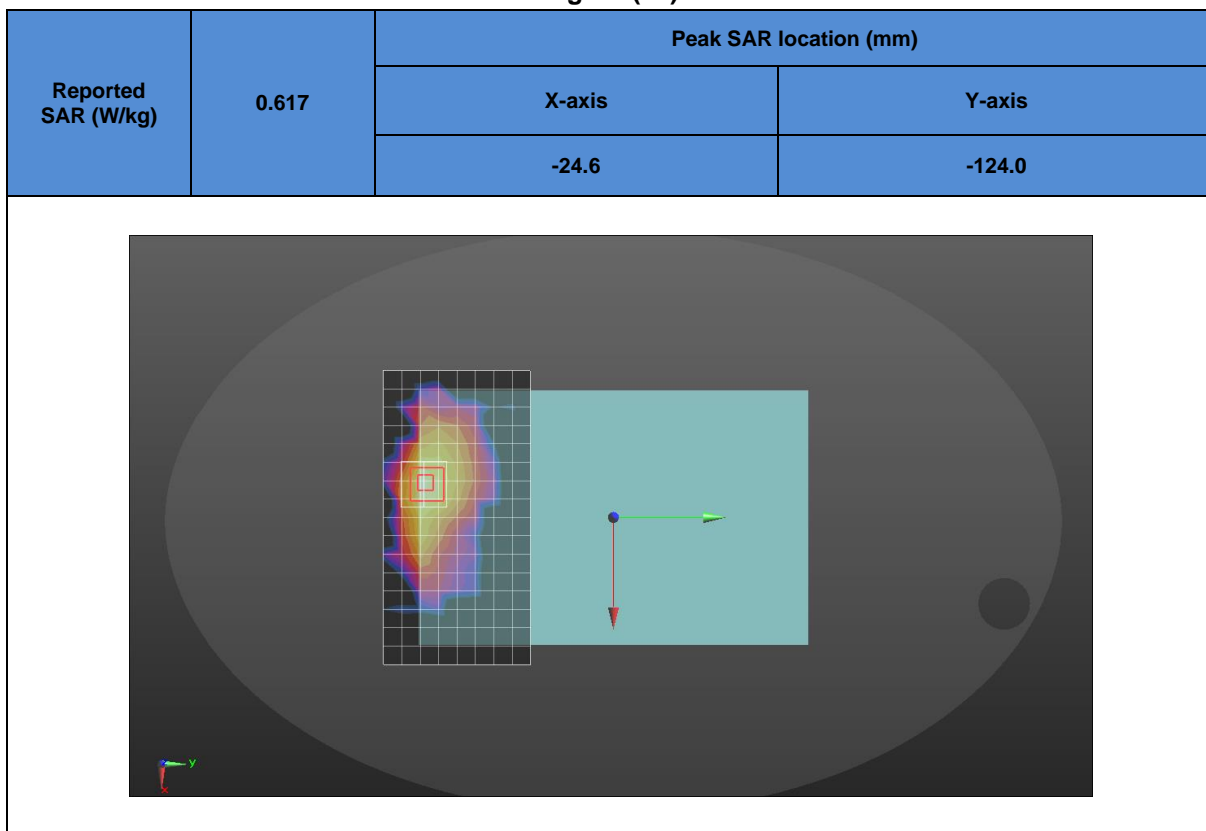


Figure (11)

Reported SAR (W/kg)	0.546	Peak SAR location (mm)	
		X-axis	Y-axis
		26.5	123.0

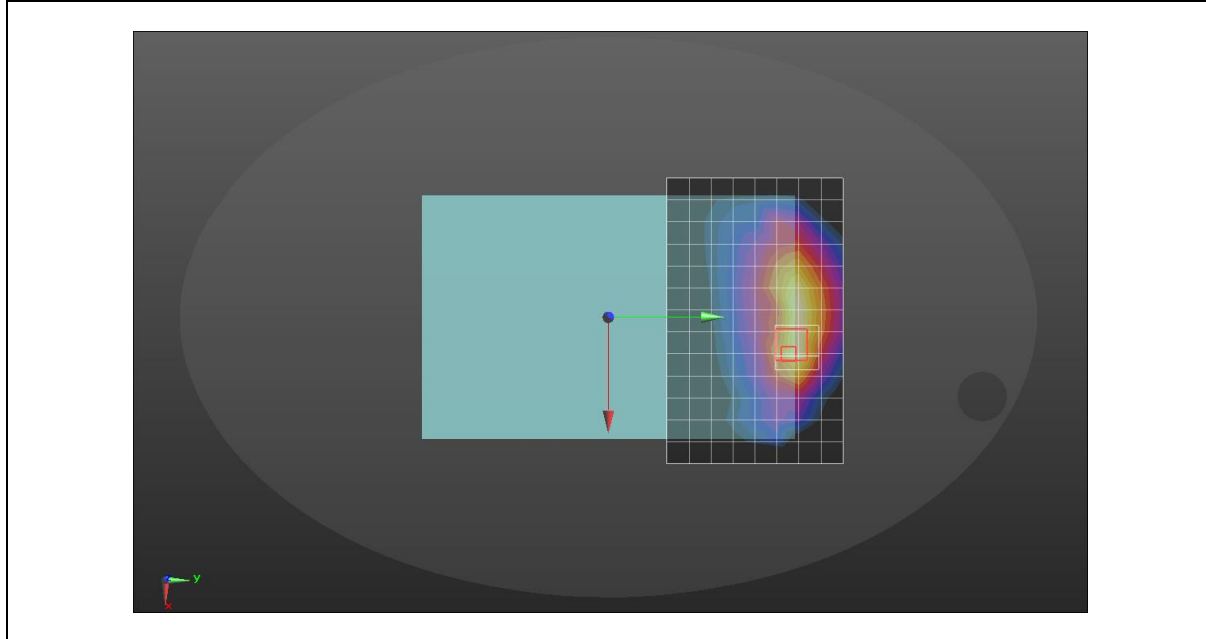


Figure (12)

Reported SAR (W/kg)	0.766	Peak SAR location (mm)	
		X-axis	Y-axis
		-5.5	127.0

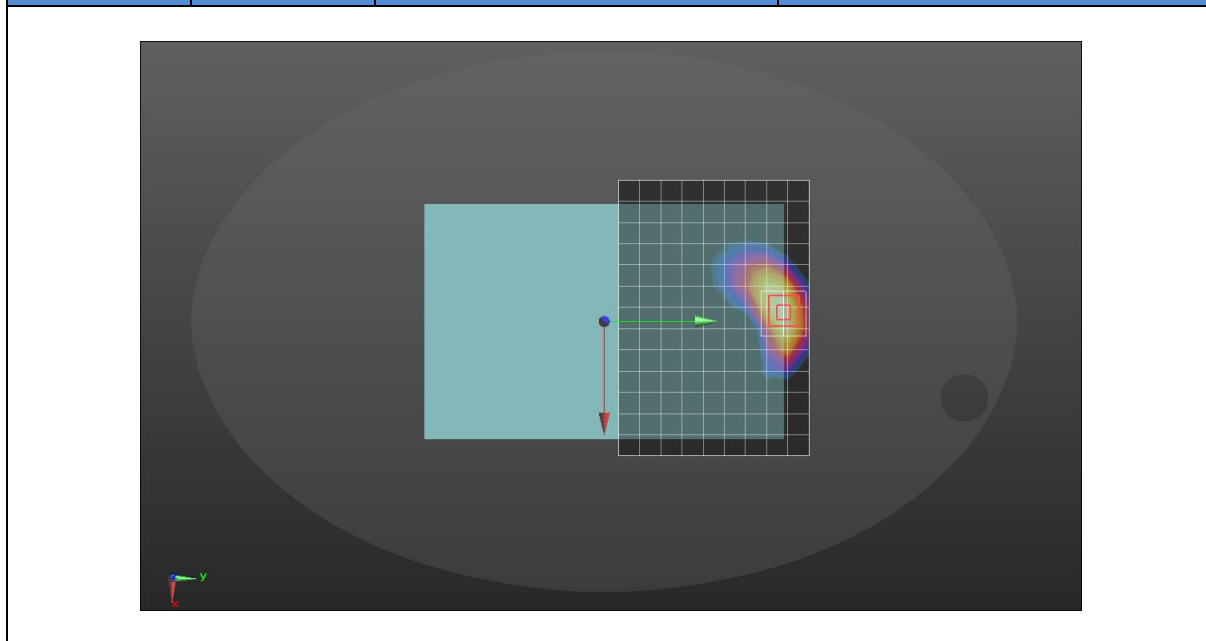


Figure (13)

Reported SAR (W/kg)	0.737	Peak SAR location (mm)	
		X-axis	Y-axis
		-5.5	127.0

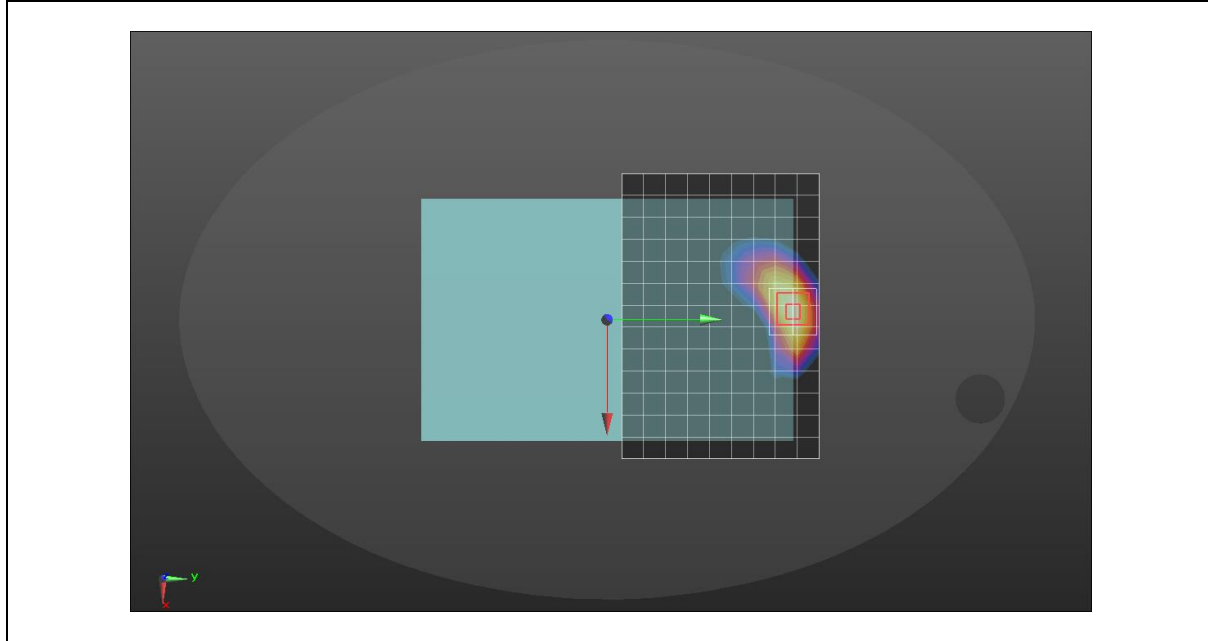


Figure (14)

Reported SAR (W/kg)	0.624	Peak SAR location (mm)	
		X-axis	Y-axis
		-7.0	131.0

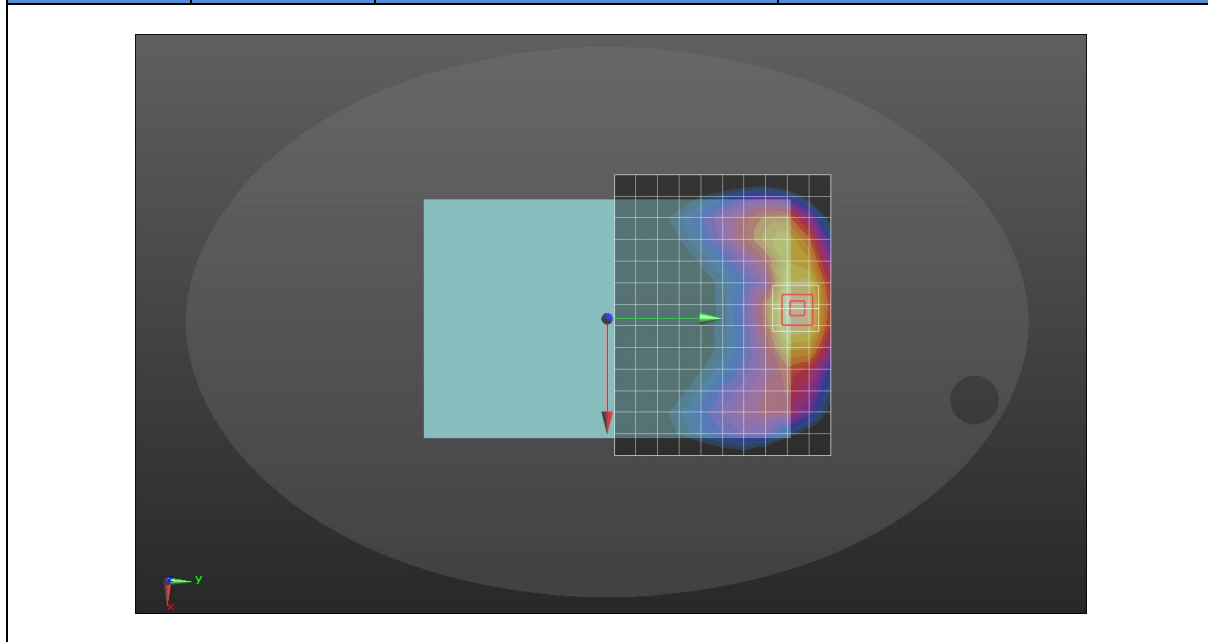


Figure (15)

Reported SAR (W/kg)	0.781	Peak SAR location (mm)	
		X-axis	Y-axis
		-32.0	-126.0

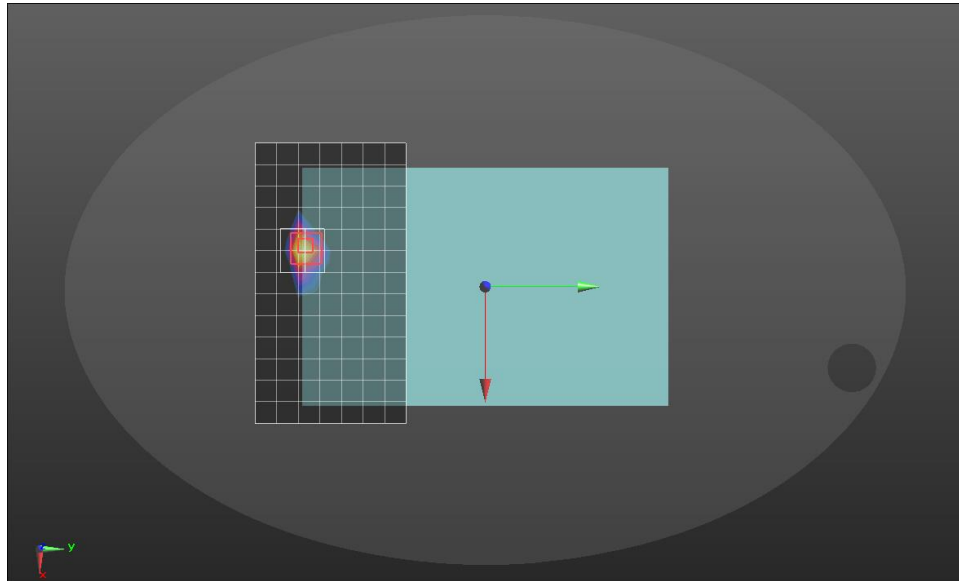


Figure (16)

Reported SAR (W/kg)	0.692	Peak SAR location (mm)	
		X-axis	Y-axis
		-4.0	133.0

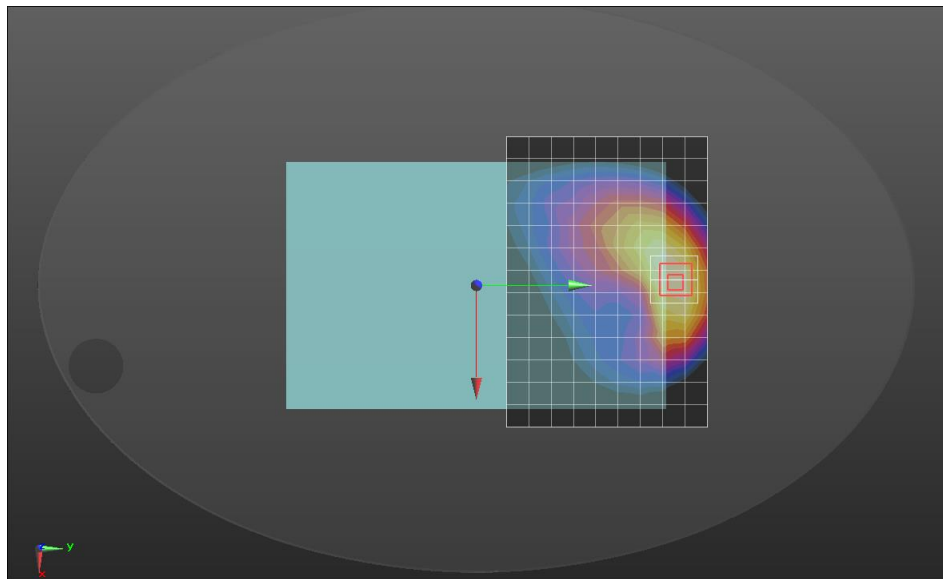


Figure (17)

Reported SAR (W/kg)	0.483	Peak SAR location (mm)	
		X-axis	Y-axis
		-24.0	124.0

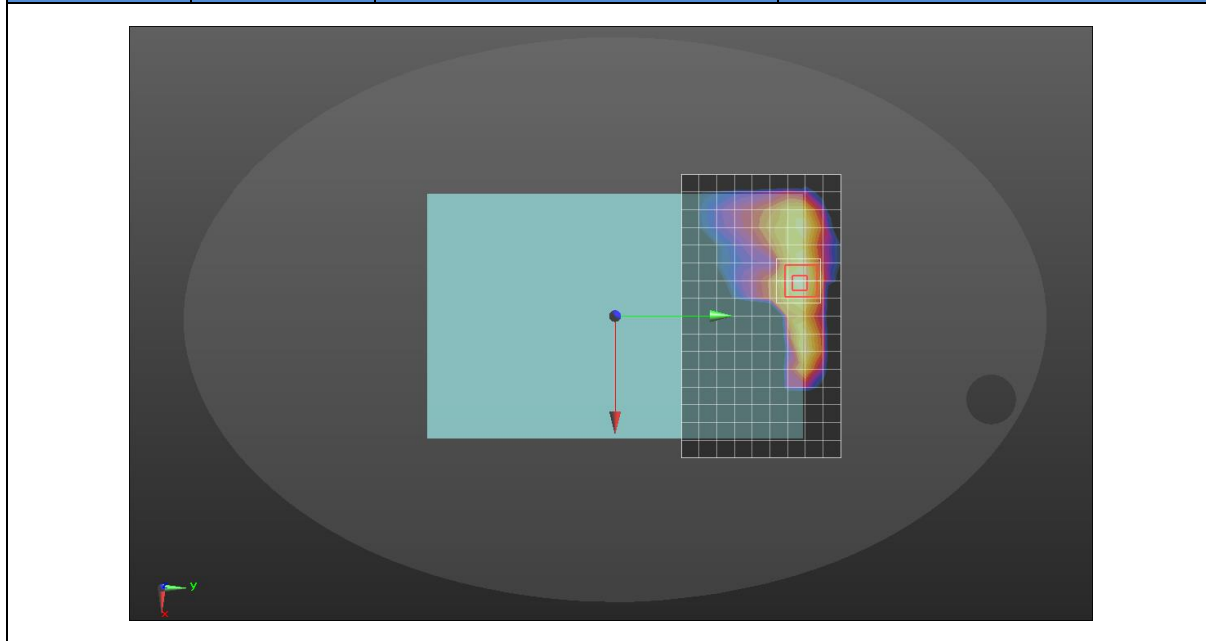


Figure (18)

Reported SAR (W/kg)	0.607	Peak SAR location (mm)	
		X-axis	Y-axis
		-16.6	121.0

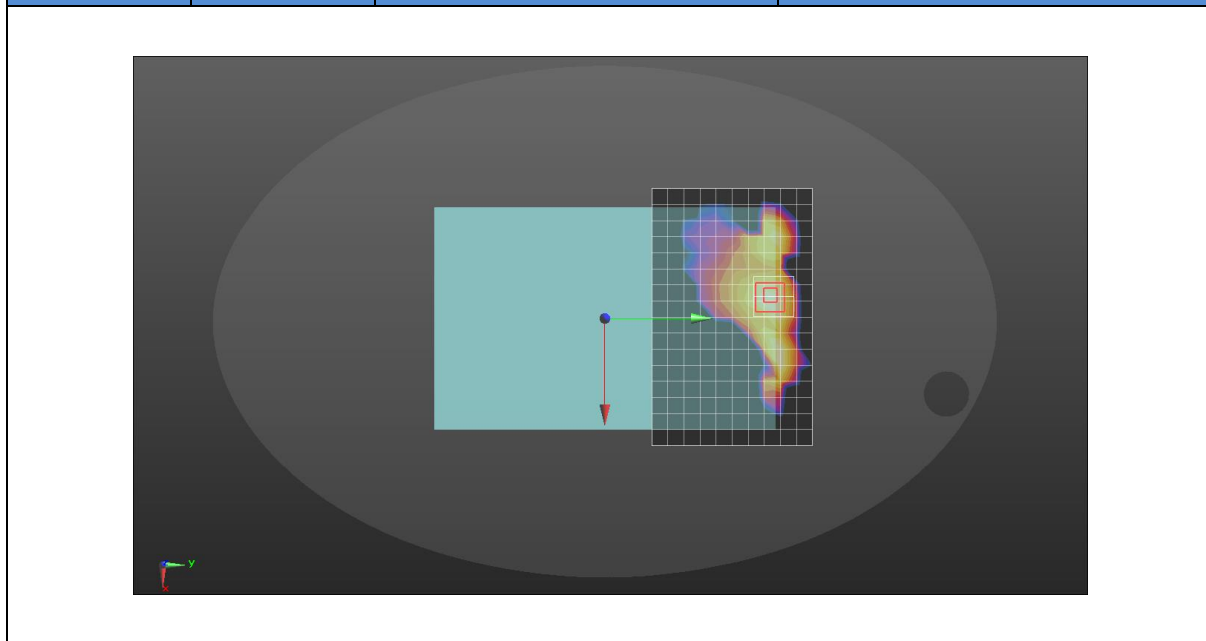


Figure (19)

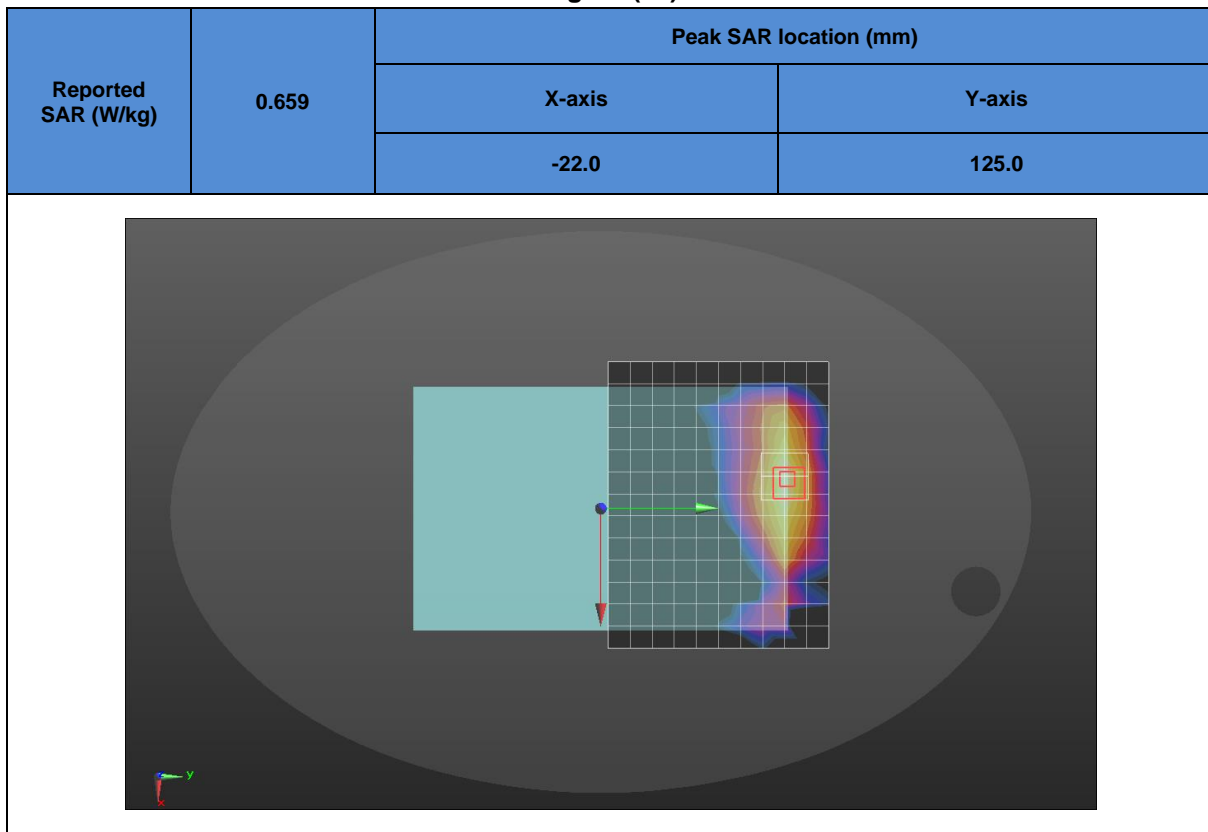


Figure (20)

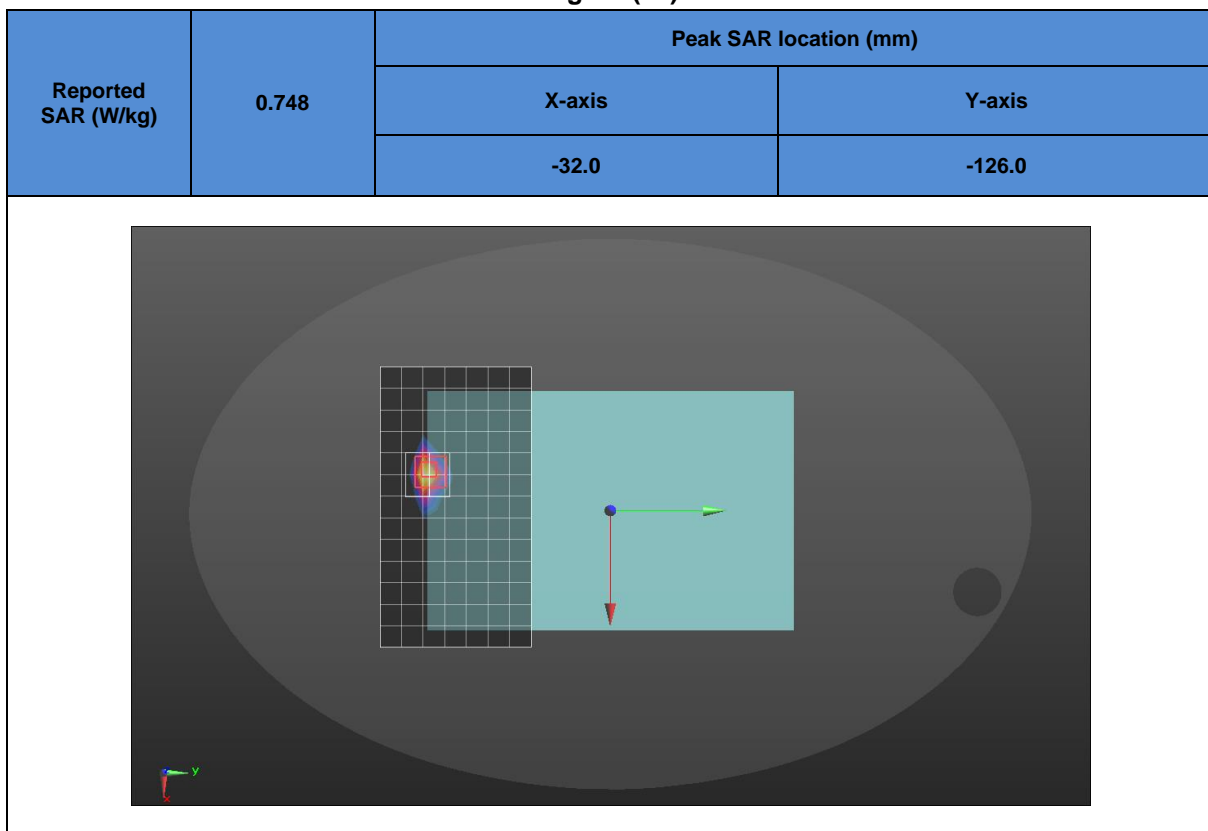


Figure (21)

Reported SAR (W/kg)	0.530	Peak SAR location (mm)	
		X-axis	Y-axis
		28.5	126.0

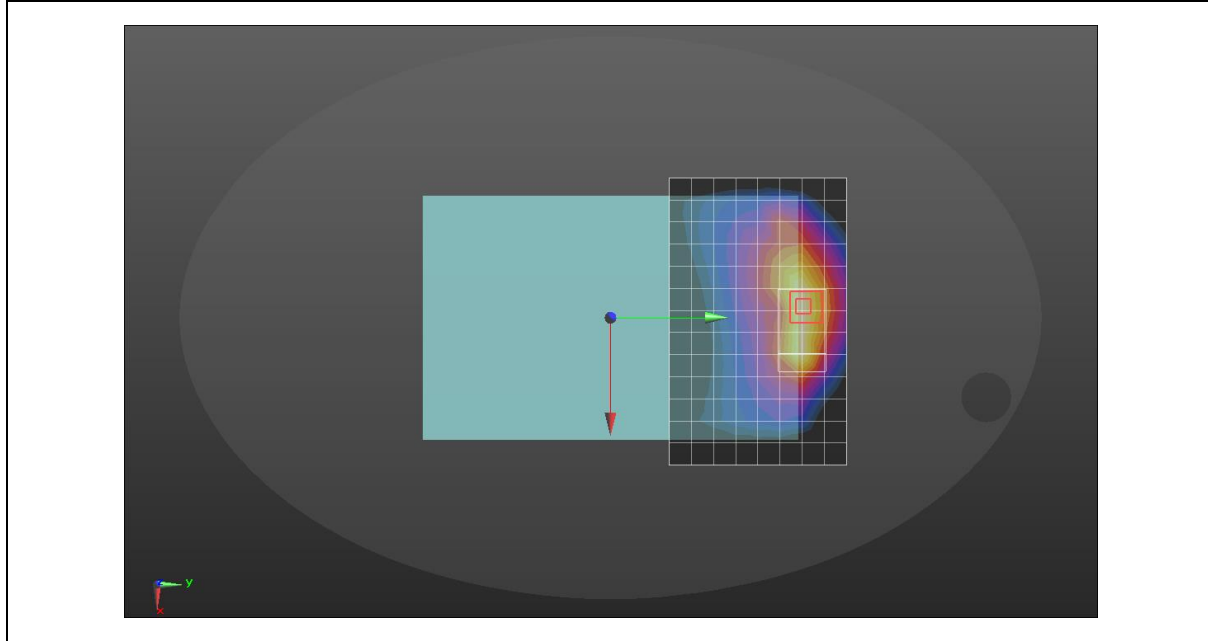


Figure (22)

Reported SAR (W/kg)	0.729	Peak SAR location (mm)	
		X-axis	Y-axis
		-2.5	132.0

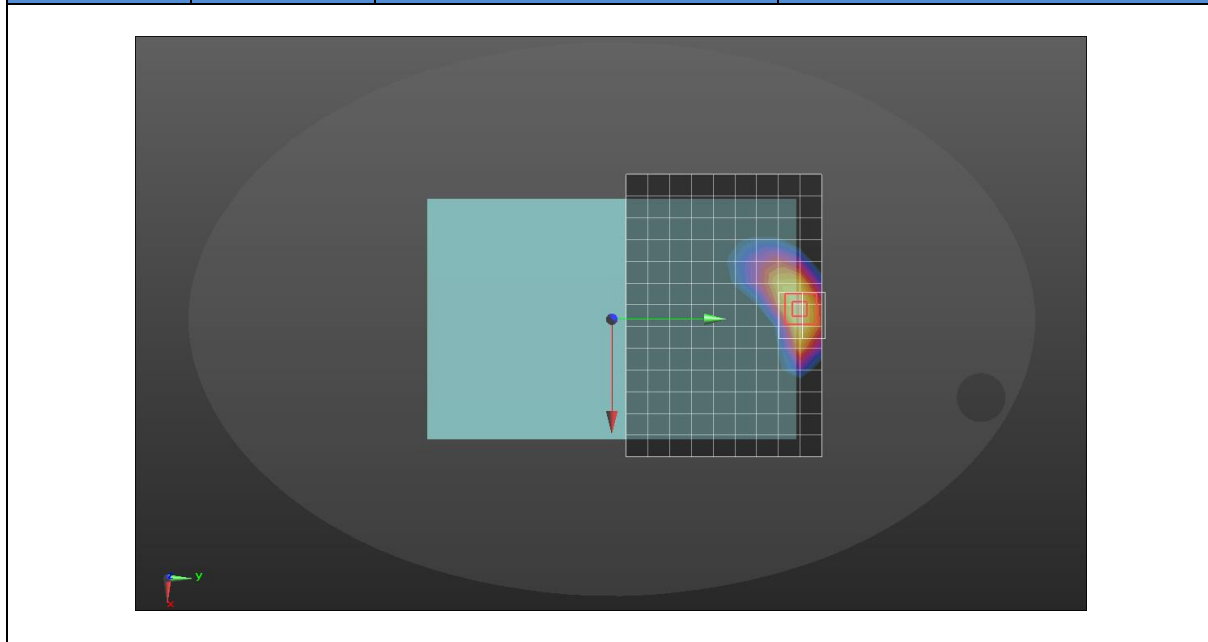


Figure (23)

Reported SAR (W/kg)	0.467	Peak SAR location (mm)	
		X-axis	Y-axis
		28.5	125.0

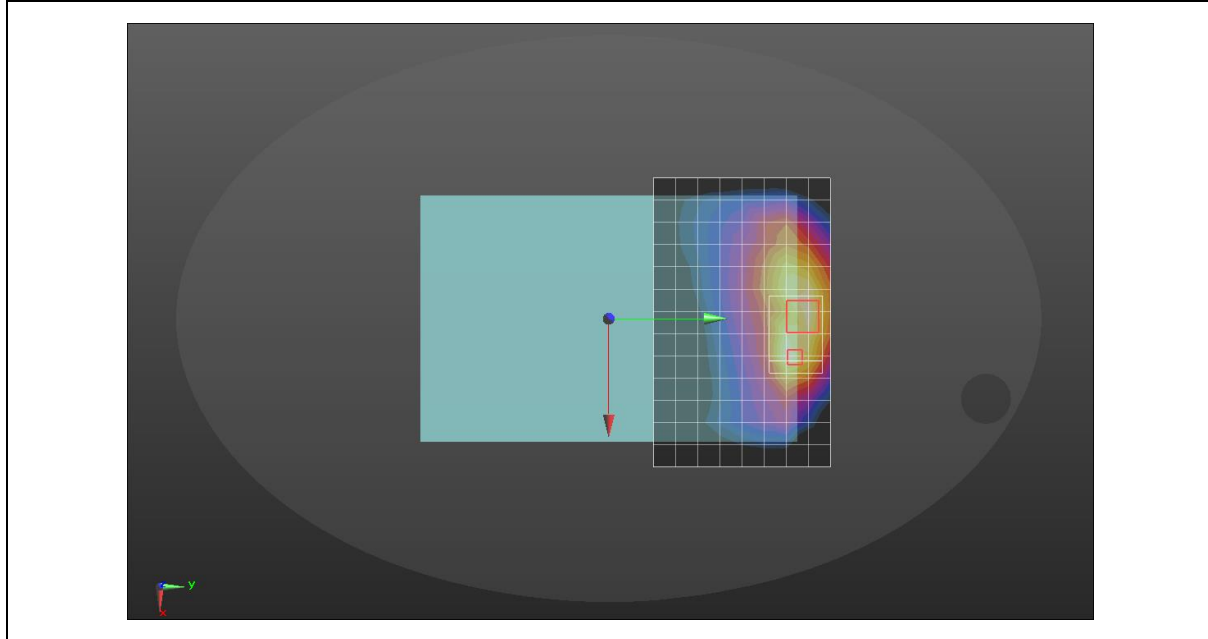


Figure (24)

Reported SAR (W/kg)	0.606	Peak SAR location (mm)	
		X-axis	Y-axis
		-25.0	124.0

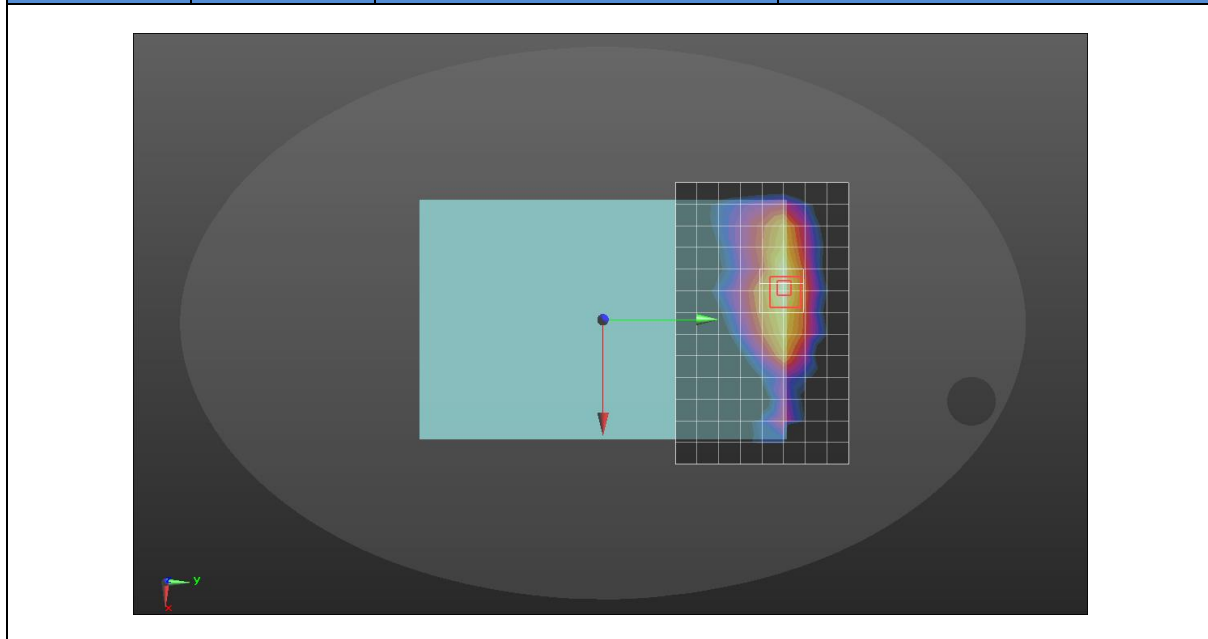


Figure (25)

Reported SAR (W/kg)	0.464	Peak SAR location (mm)	
		X-axis	Y-axis
		-25.2	124.0

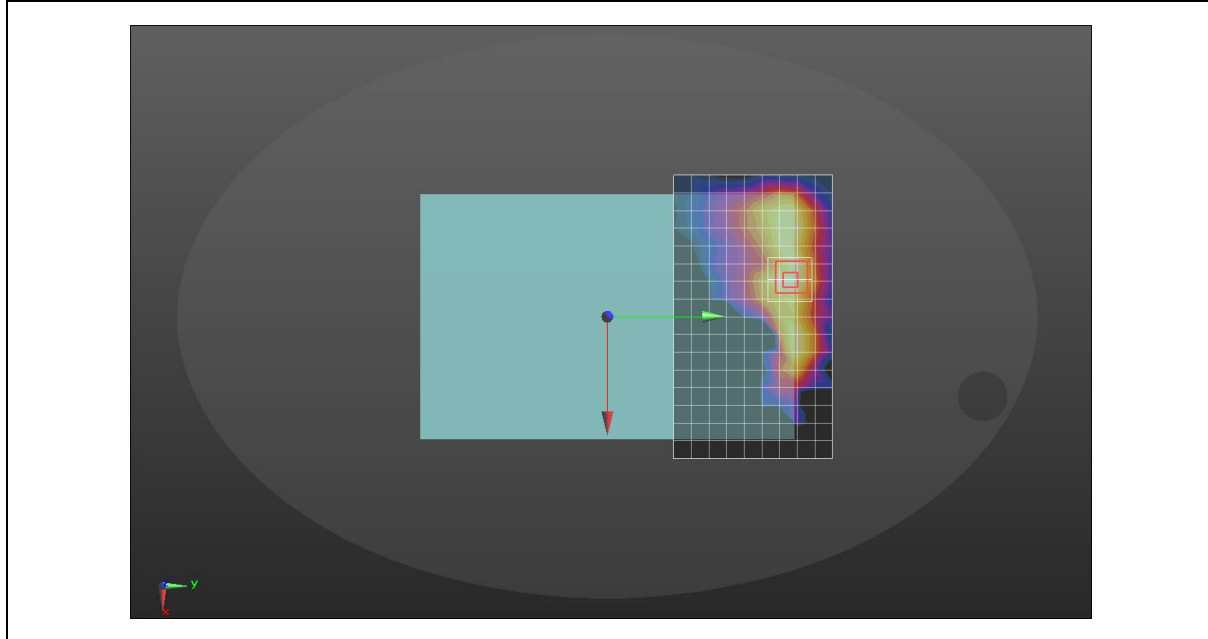


Figure (26)

Reported SAR (W/kg)	0.811	Peak SAR location (mm)	
		X-axis	Y-axis
		-27.2	124.0

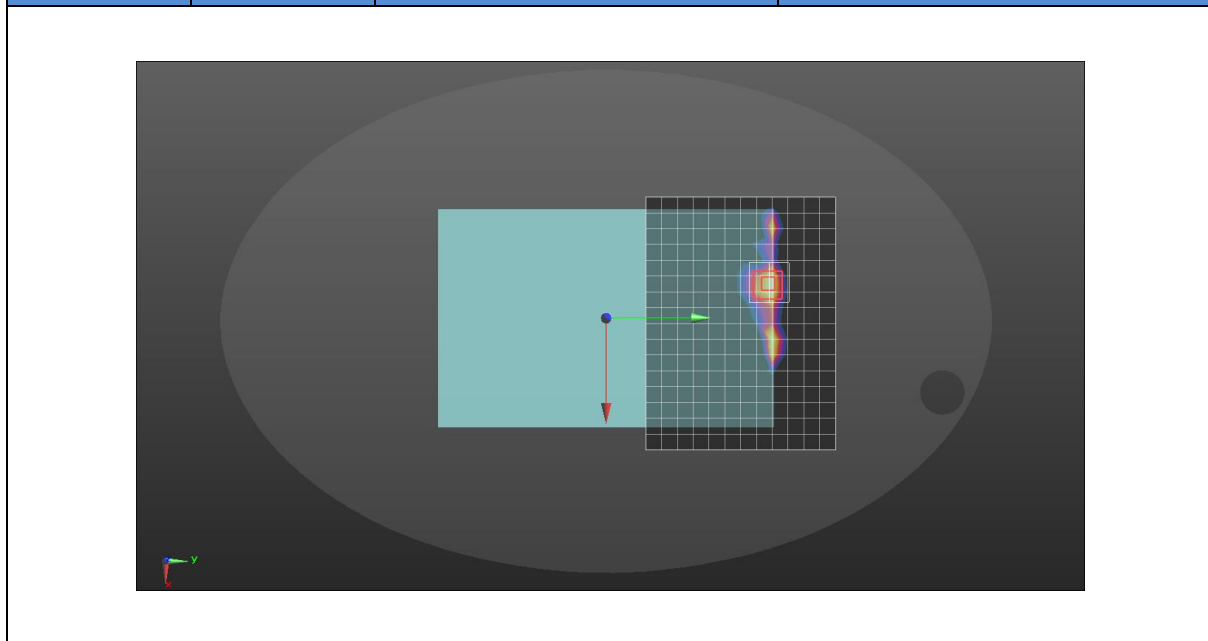


Figure (27)

Reported SAR (W/kg)	0.677	Peak SAR location (mm)	
		X-axis	Y-axis
		-23.8	-129.0

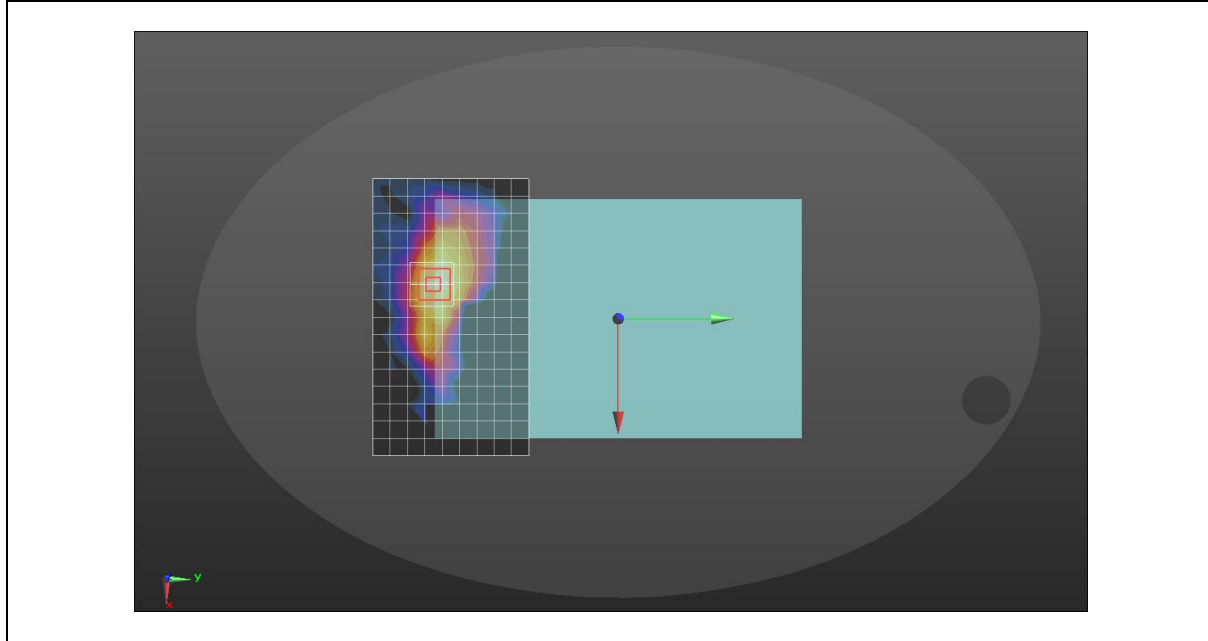


Figure (28)

Reported SAR (W/kg)	0.582	Peak SAR location (mm)	
		X-axis	Y-axis
		16.8	-122.0

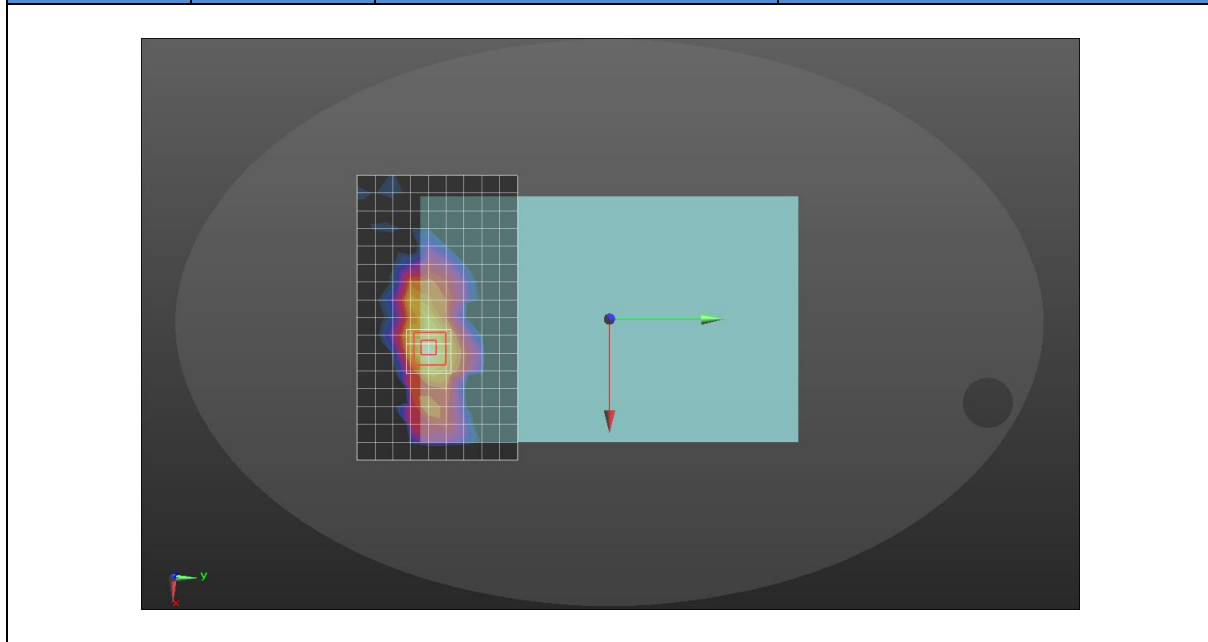


Figure (29)

Reported SAR (W/kg)	1.190	Peak SAR location (mm)	
		X-axis	Y-axis
		81.0	-120.0

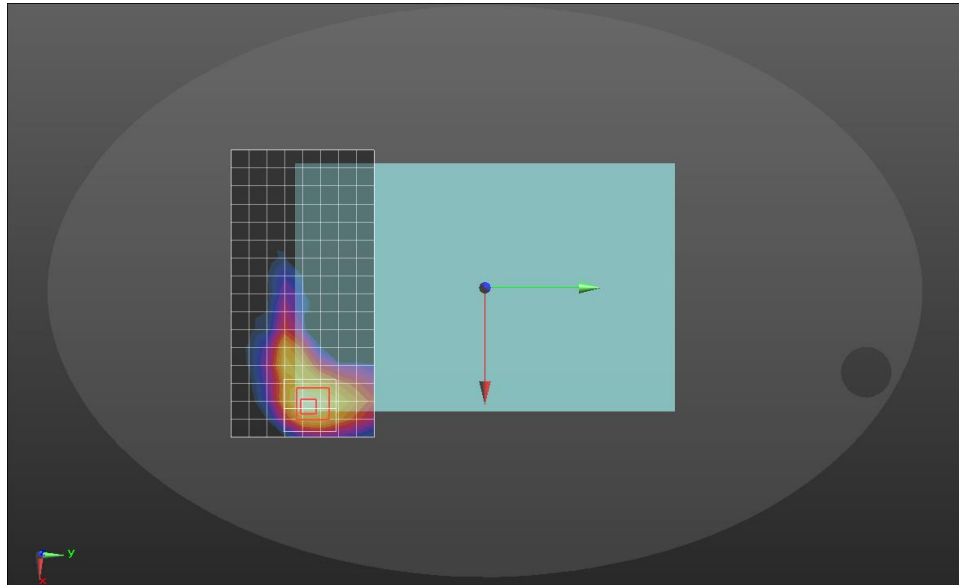


Figure (30)

Reported SAR (W/kg)	0.799	Peak SAR location (mm)	
		X-axis	Y-axis
		-11.5	130.0

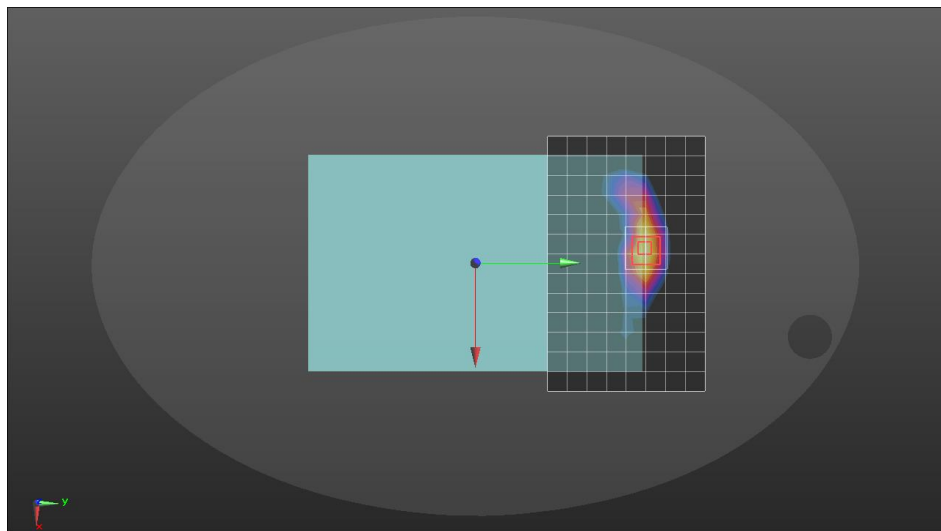


Figure (31)

Reported SAR (W/kg)	0.523	Peak SAR location (mm)	
		X-axis	Y-axis
		-5.0	130.0

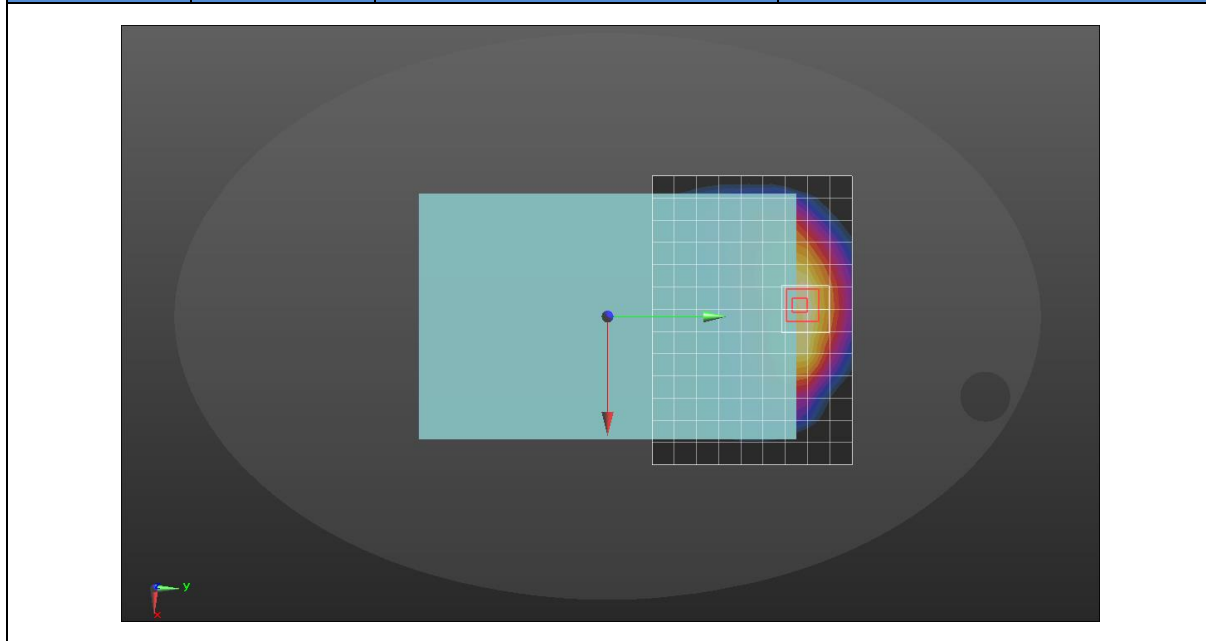


Figure (32)

Reported SAR (W/kg)	0.681	Peak SAR location (mm)	
		X-axis	Y-axis
		24.2	-122.0

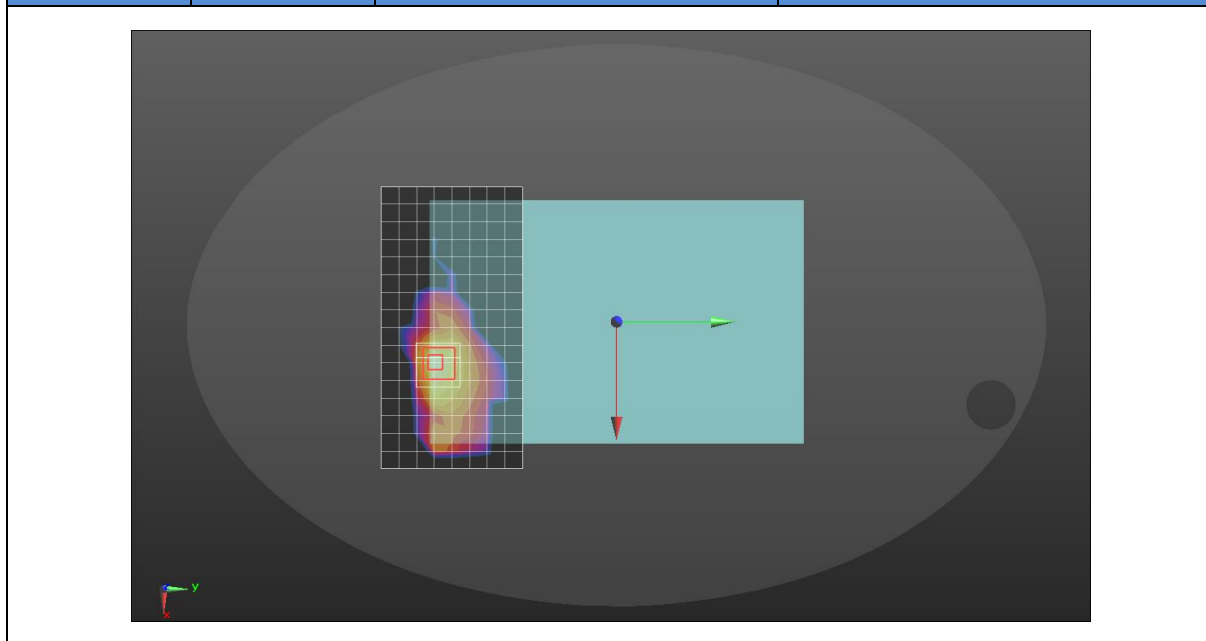


Figure (33)

Reported SAR (W/kg)	0.415	Peak SAR location (mm)	
		X-axis	Y-axis
		84.4	118.0

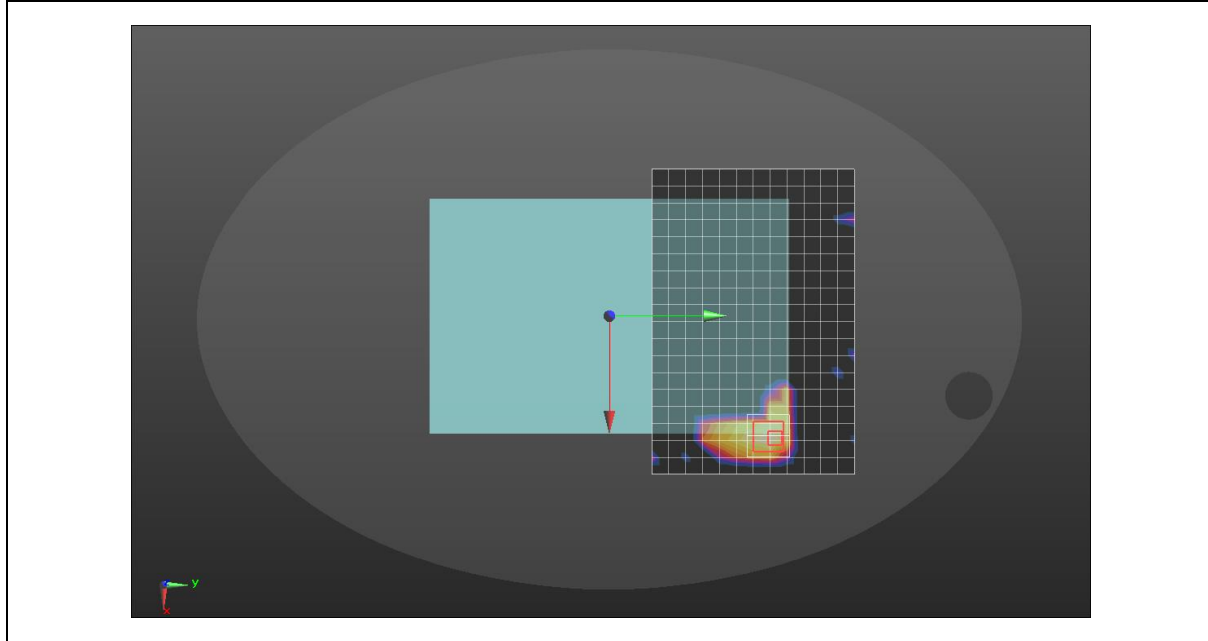


Figure (34)

Reported SAR (W/kg)	0.794	Peak SAR location (mm)	
		X-axis	Y-axis
		0.0	-112.0

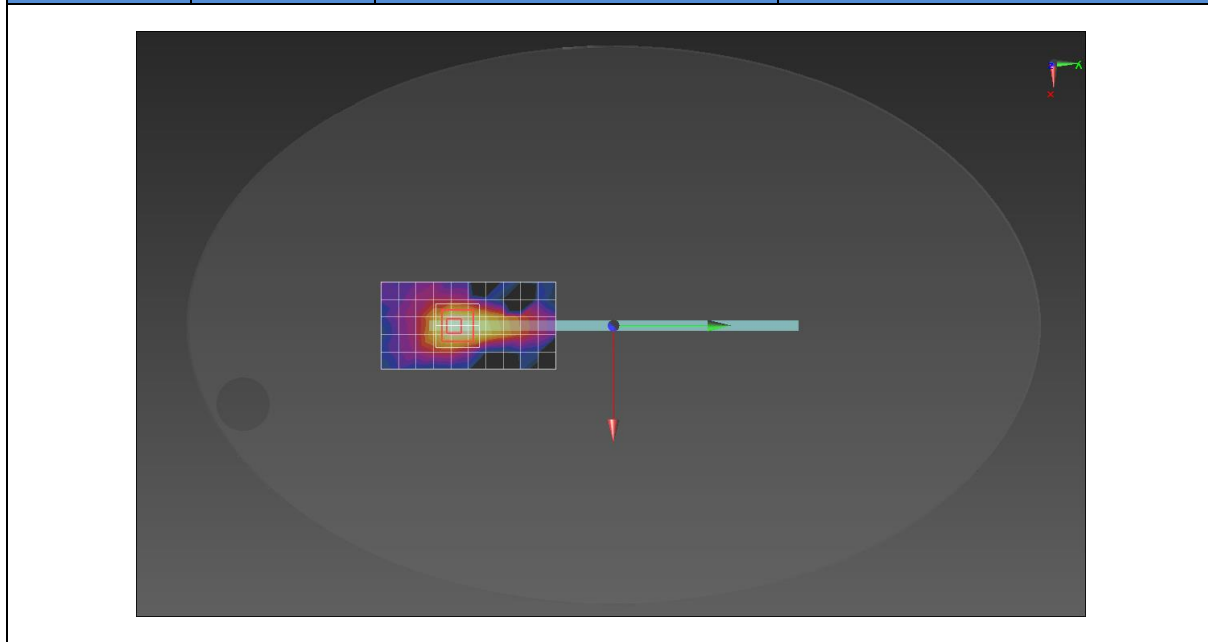


Figure (35)

Reported SAR (W/kg)	0.546	Peak SAR location (mm)	
		X-axis	Y-axis
		-2.0	114.0

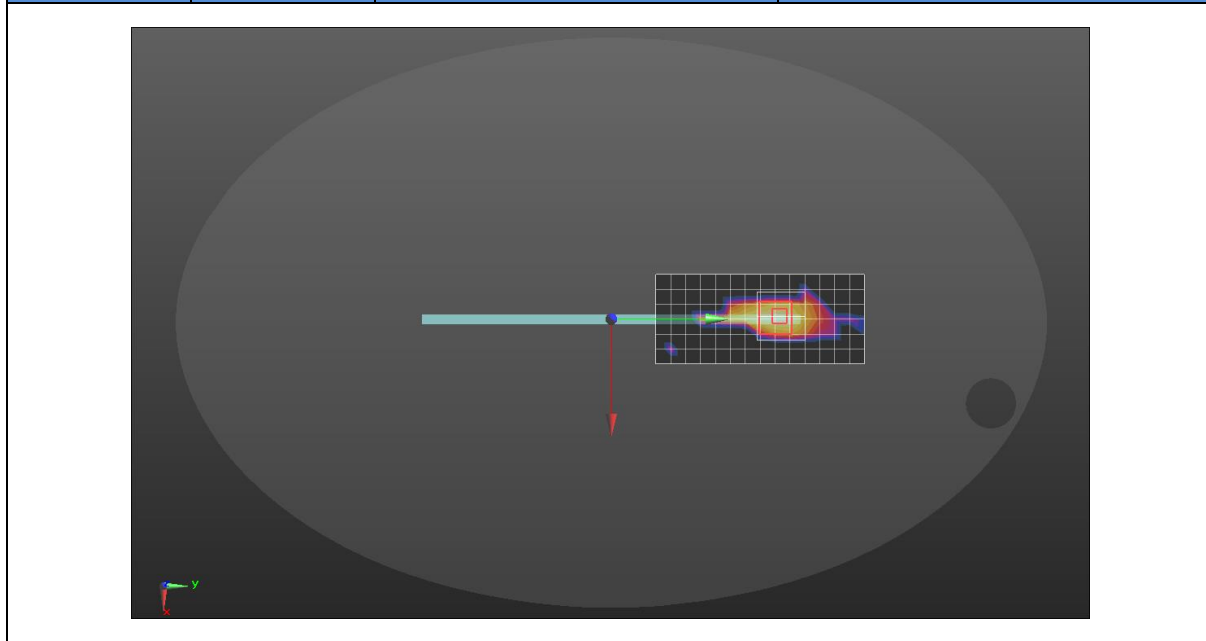


Figure (36)

Reported SAR (W/kg)	0.367	Peak SAR location (mm)	
		X-axis	Y-axis
		-2.4	114.0

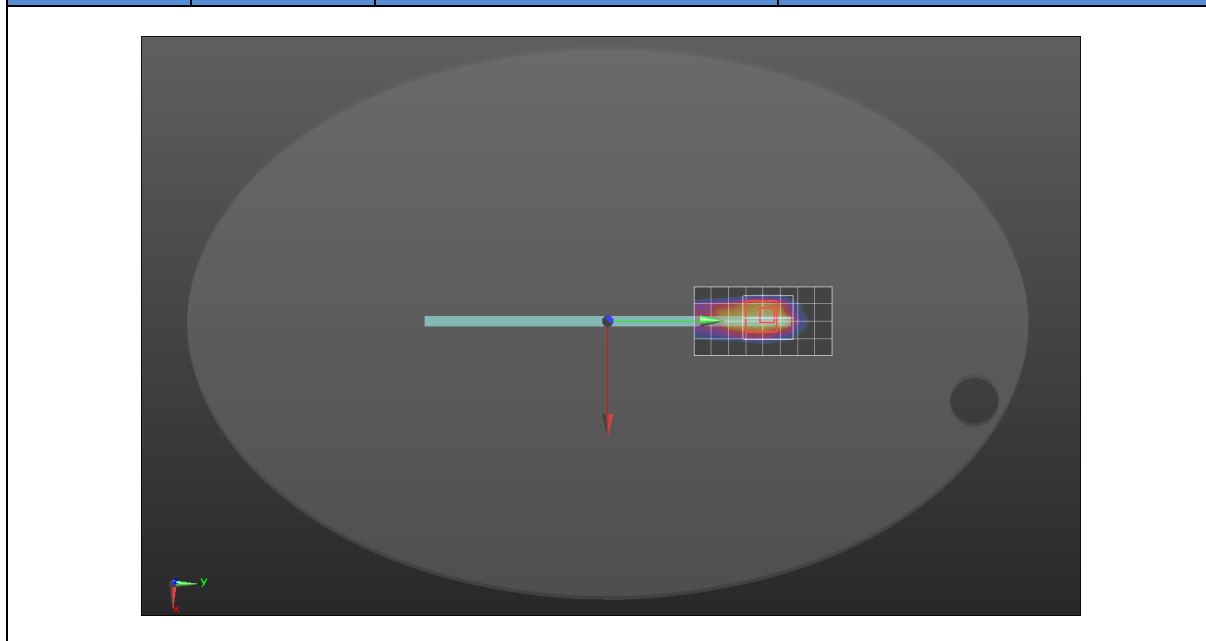


Figure (37)

Reported SAR (W/kg)	0.913	Peak SAR location (mm)	
		X-axis	Y-axis
		-2.0	114.0

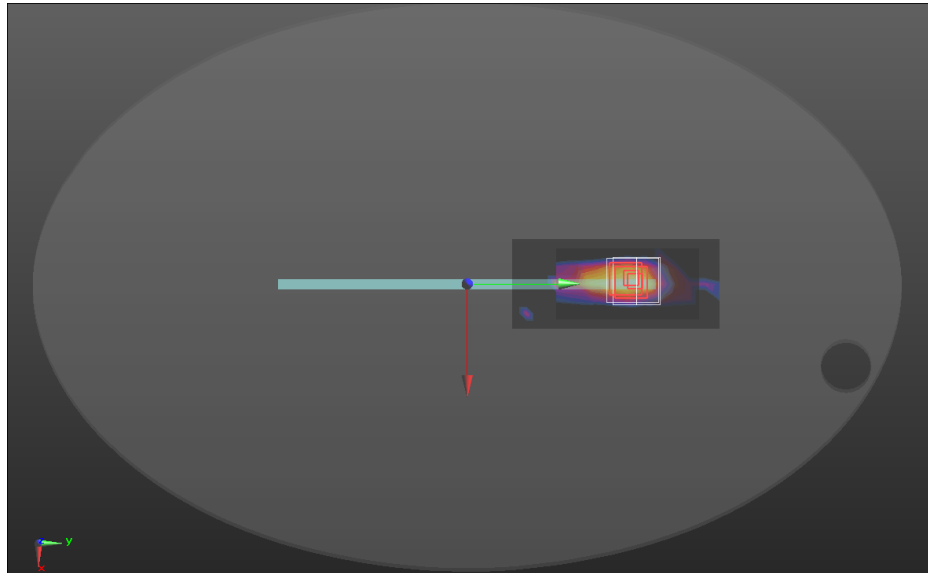


Figure (38)

Reported SAR (W/kg)	0.891	Peak SAR location (mm)	
		X-axis	Y-axis
		0.2	-122.0

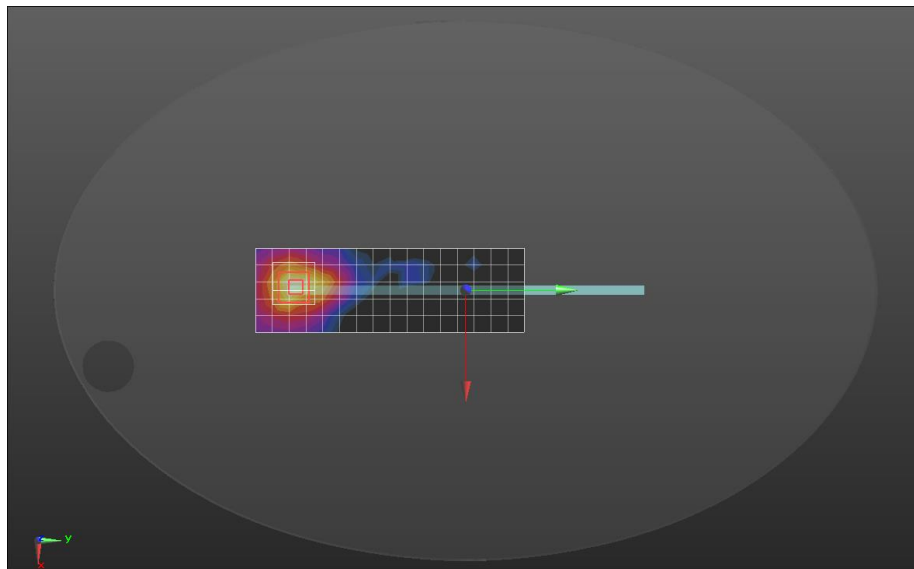


Figure (39)

Reported SAR (W/kg)	1.141	Peak SAR location (mm)	
		X-axis	Y-axis
		-1.0	-112.0

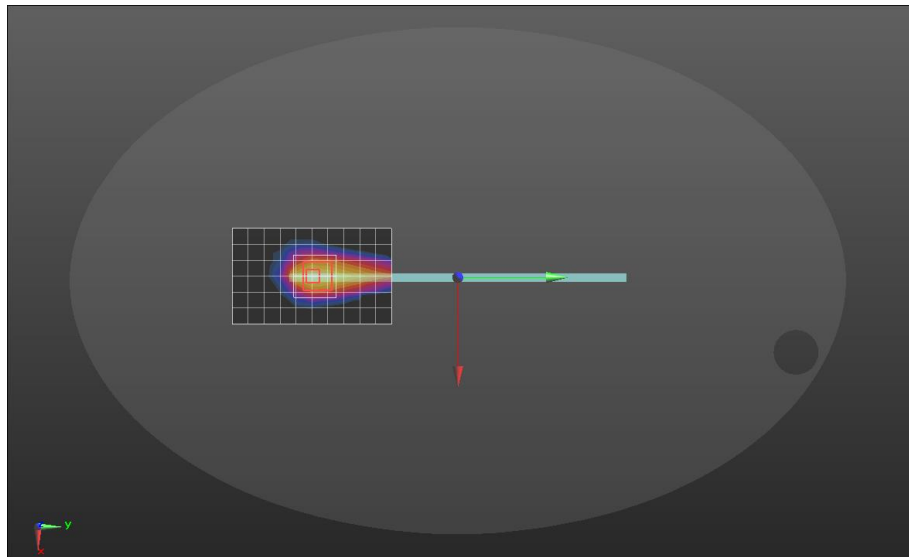


Figure (40)

Reported SAR (W/kg)	0.772	Peak SAR location (mm)	
		X-axis	Y-axis
		4.8	108.0

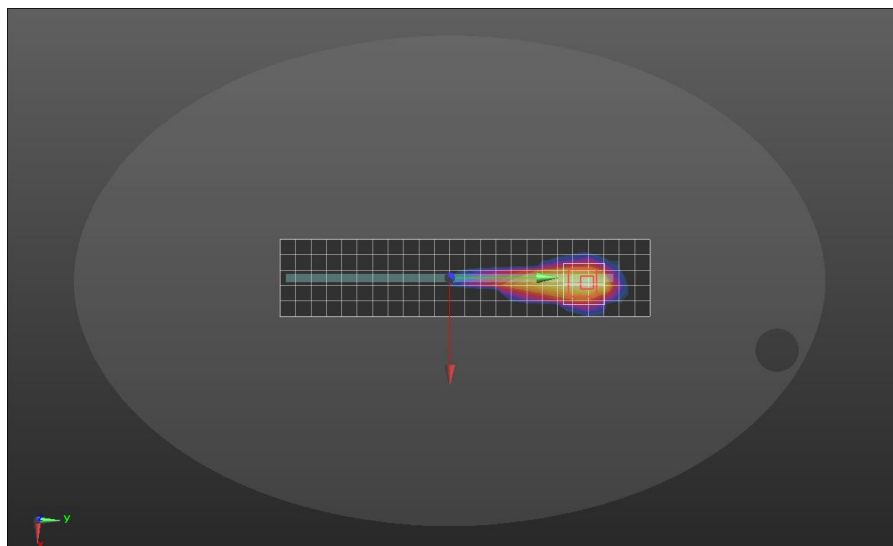


Figure (41)

Reported SAR (W/kg)	0.873	Peak SAR location (mm)	
		X-axis	Y-axis
		3.0	111.0

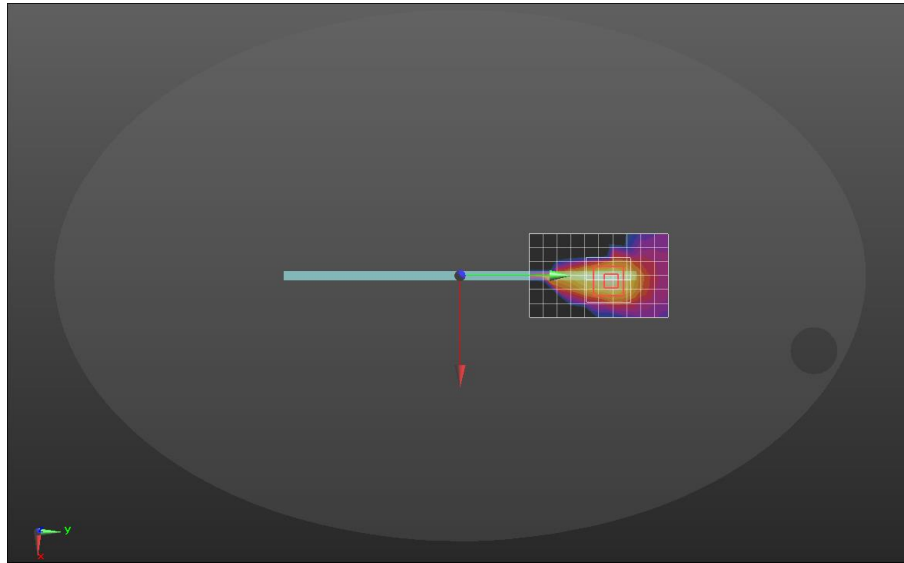


Figure (42)

Reported SAR (W/kg)	0.753	Peak SAR location (mm)	
		X-axis	Y-axis
		3.0	111.0

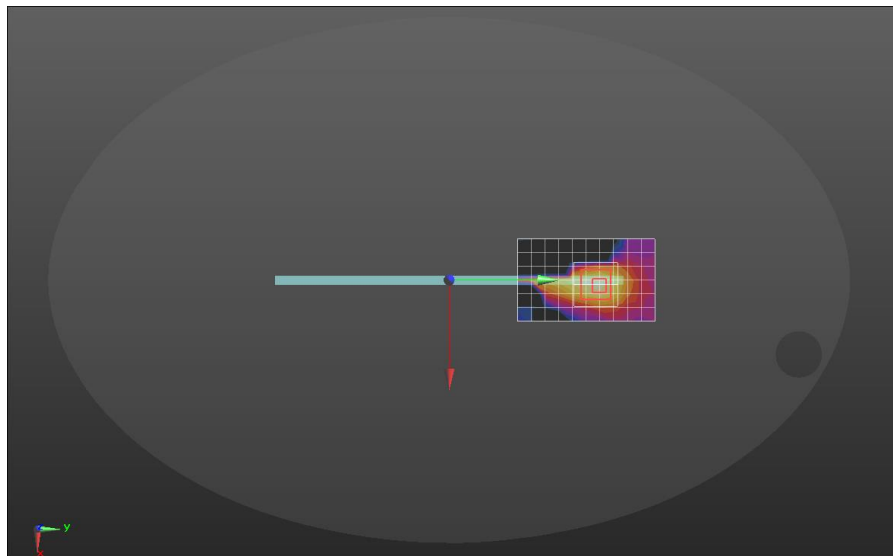


Figure (43)

Reported SAR (W/kg)	0.003	Peak SAR location (mm)	
		X-axis	Y-axis
		39.0	5.0

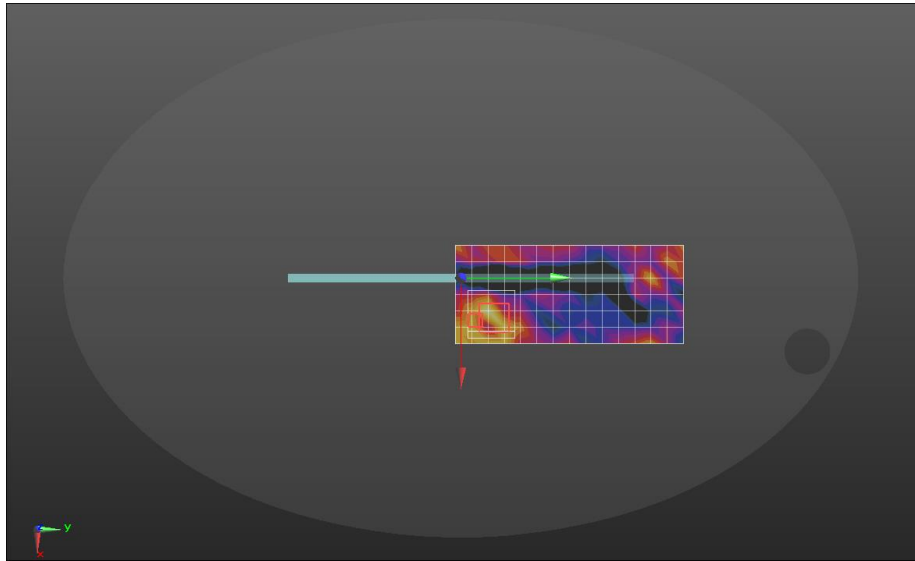
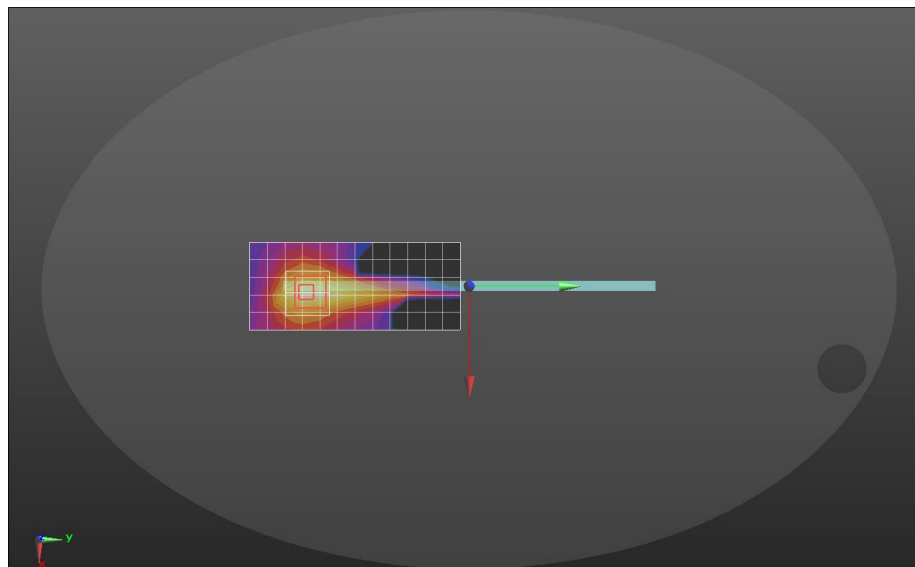


Figure (44)

Reported SAR (W/kg)	0.929	Peak SAR location (mm)	
		X-axis	Y-axis
		4.8	-115.0



-End-