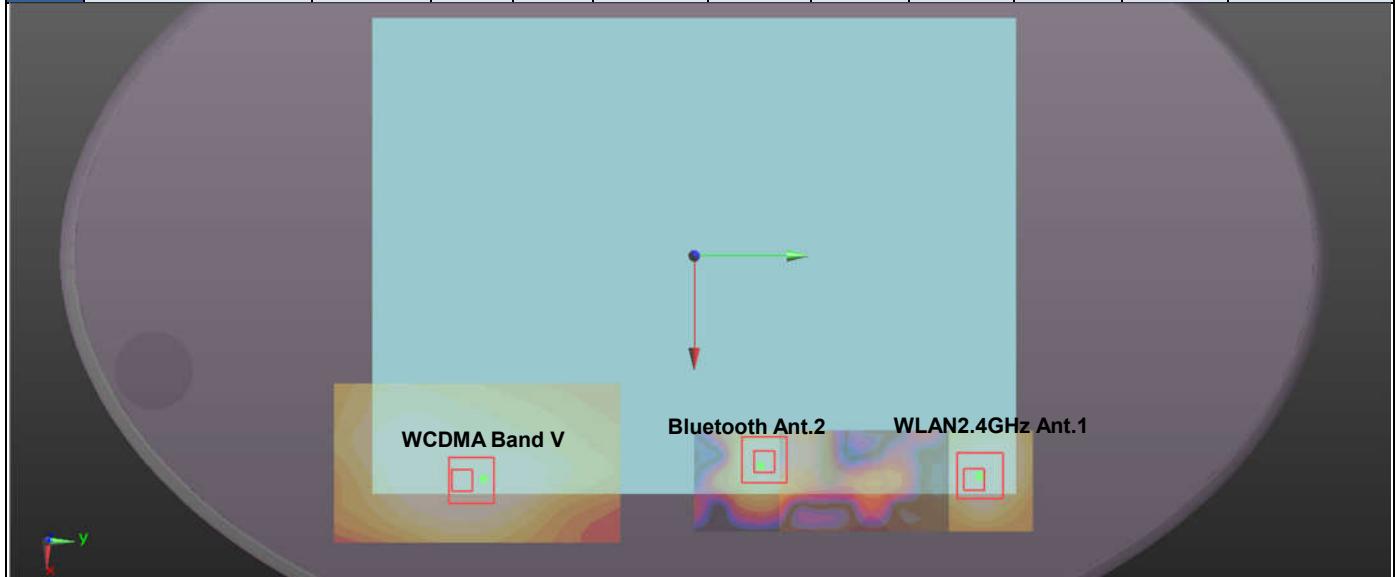


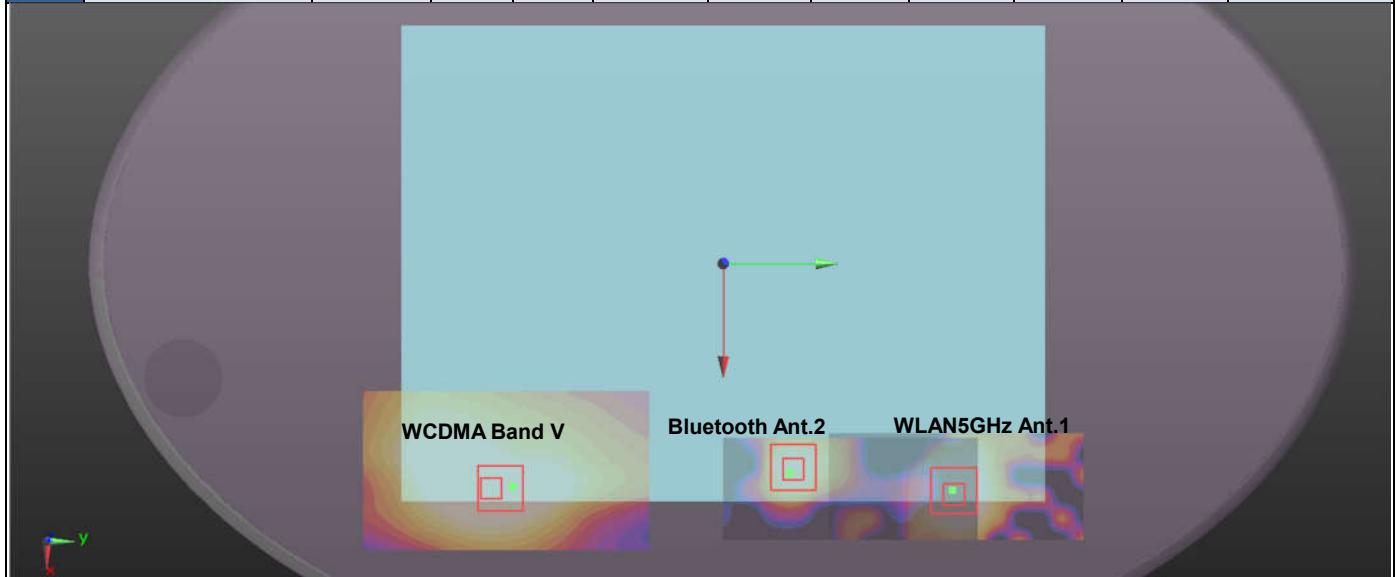


Case #62	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #62	WCDMA Band V	Bottom Face	1.100	0	0.105	-0.108	-0.18	238.08	1.99	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	WCDMA Band V		1.100	0	0.105	-0.108	-0.18	139.43	1.39	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



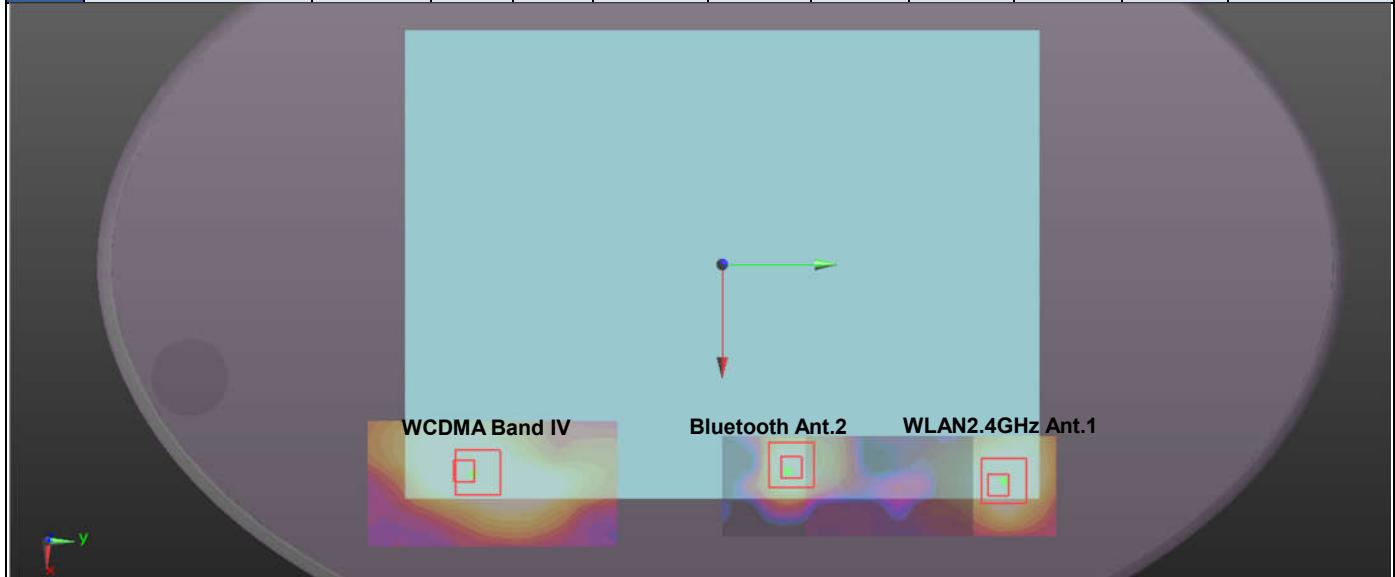


Case #63	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #63	WCDMA Band V	Bottom Face	1.100	0	0.105	-0.108	-0.18	216.09	2.01	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	WCDMA Band V		1.100	0	0.105	-0.108	-0.18	139.43	1.39	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



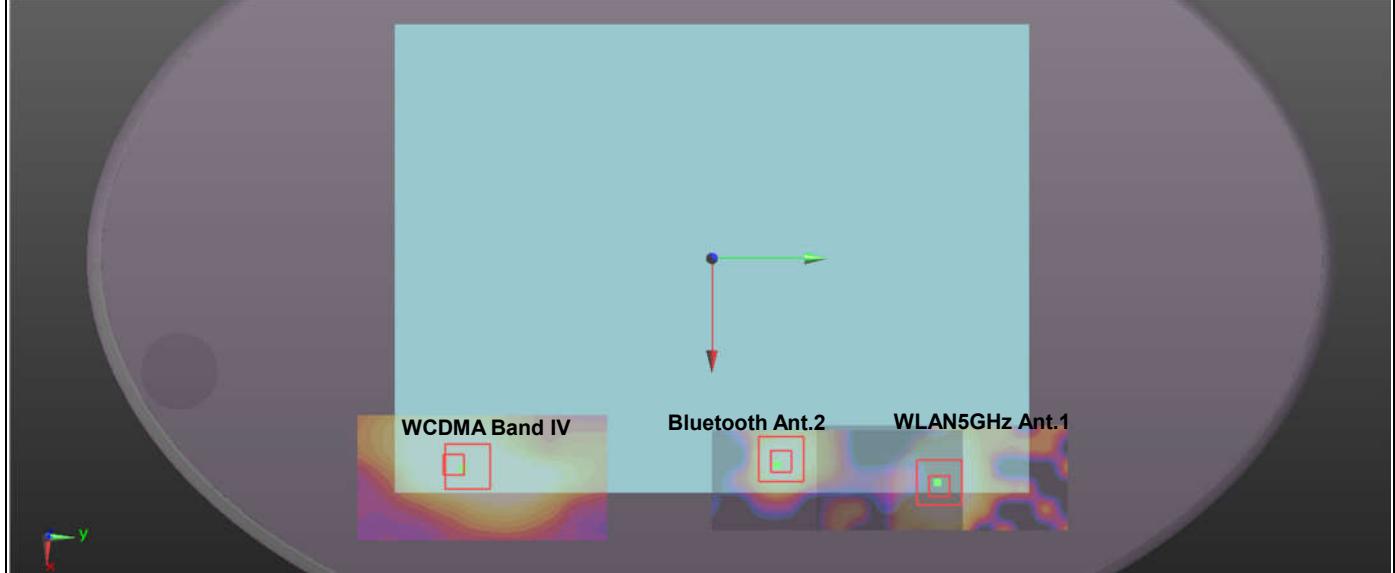


Case #64	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #64	WCDMA Band IV	Bottom Face	1.156	0	0.101	-0.127	-0.179	257.07	2.04	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	WCDMA Band IV		1.156	0	0.101	-0.127	-0.179	158.27	1.45	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



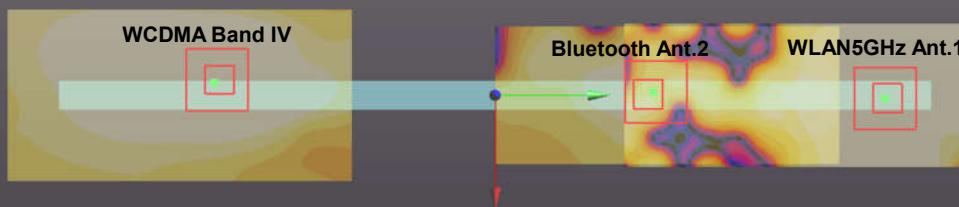


Case #65	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #65	WCDMA Band IV	Bottom Face	1.156	0	0.101	-0.127	-0.179	235.13	2.07	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	WCDMA Band IV		1.156	0	0.101	-0.127	-0.179	158.27	1.45	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



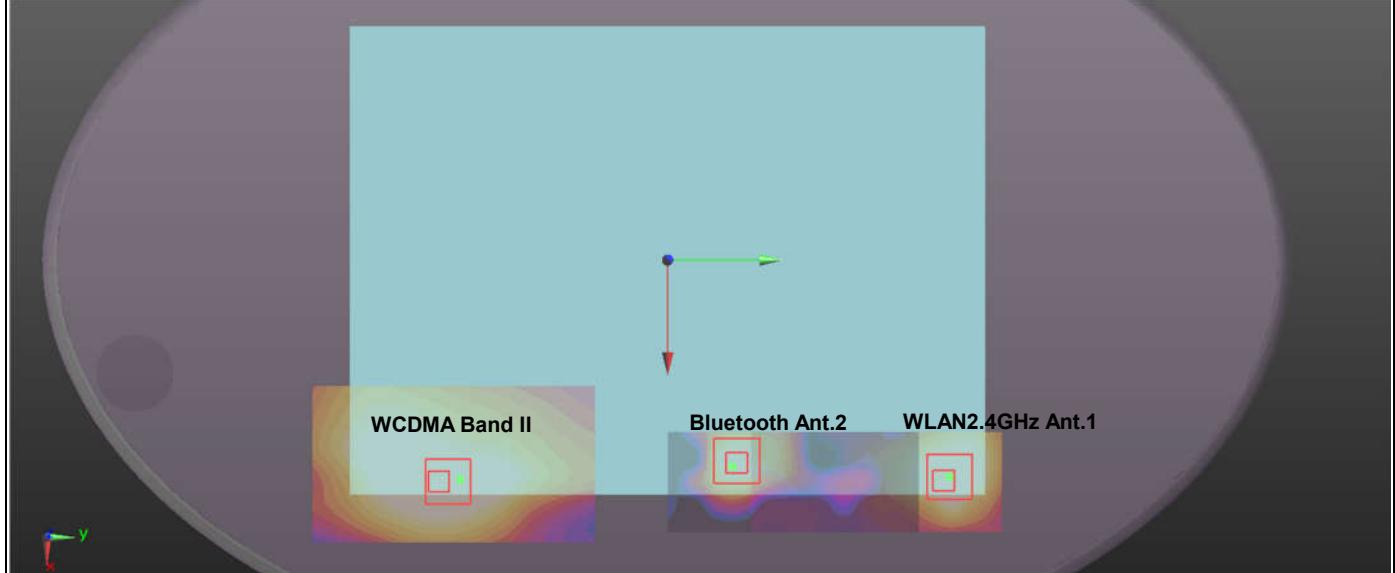


Case #66	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #66	WCDMA Band IV	Edge 1	1.039	0	-0.0045	-0.098	-0.181	234.12	2.04	0.01	Not required
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176				
	WCDMA Band IV		1.039	0	-0.0045	-0.098	-0.181	148.32	1.10	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176	85.83	1.06	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				



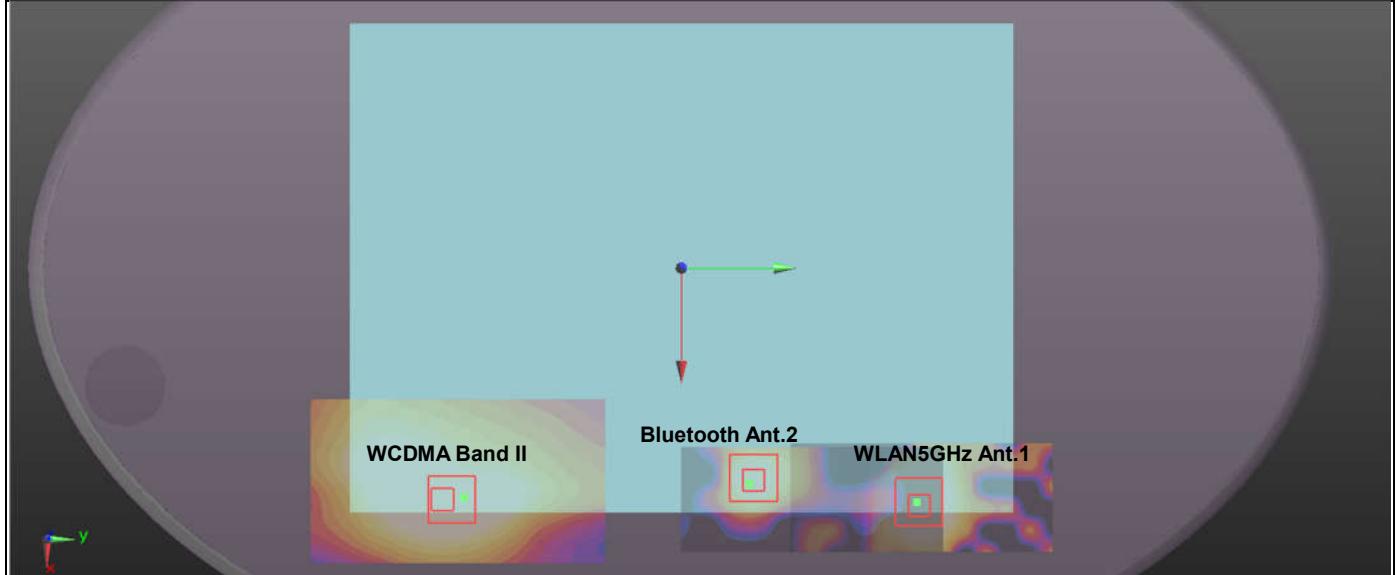


Case #67	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #67	WCDMA Band II	Bottom Face	1.094	0	0.099	-0.127	-0.179	257.10	1.98	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	WCDMA Band II		1.094	0	0.099	-0.127	-0.179	158.25	1.39	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



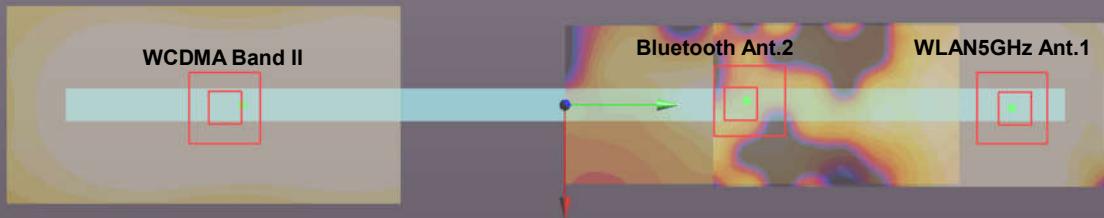


Case #68	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #68	WCDMA Band II	Bottom Face	1.094	0	0.099	-0.127	-0.179	235.19	2.01	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	WCDMA Band II		1.094	0	0.099	-0.127	-0.179	158.25	1.39	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				





Case #69	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #69	WCDMA Band II	Edge 1	1.107	0	-0.0045	-0.098	-0.181	234.12	2.11	0.01	Not required
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176				
	WCDMA Band II		1.107	0	-0.0045	-0.098	-0.181	148.32	1.17	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176	85.83	1.06	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				

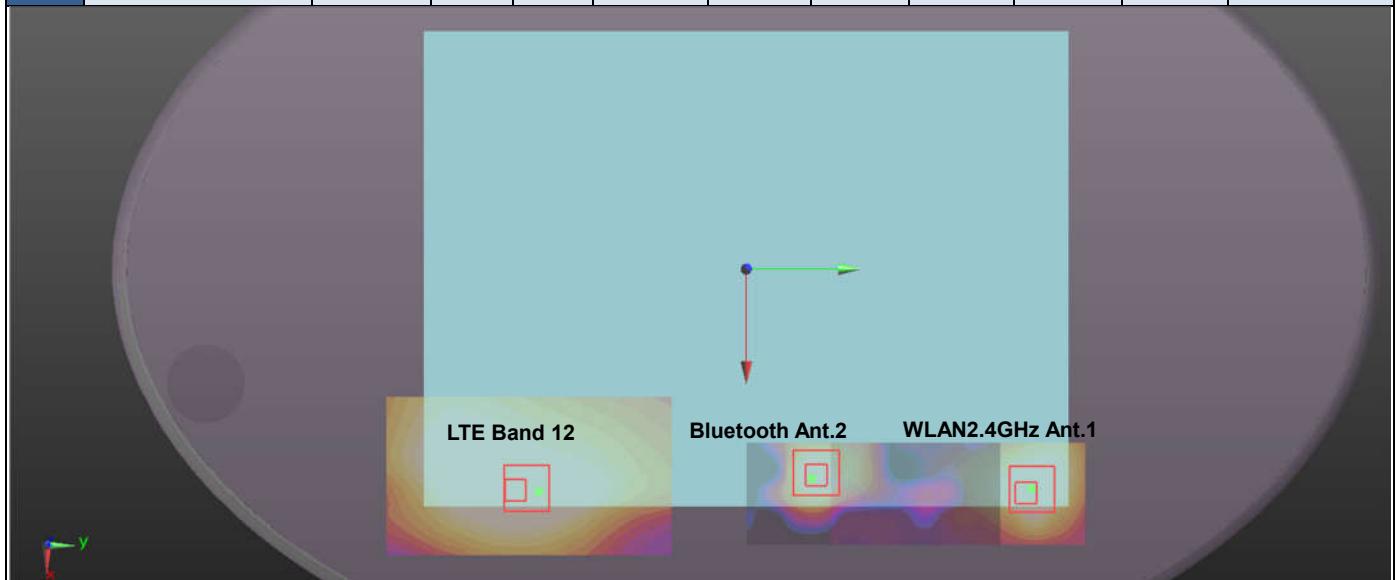




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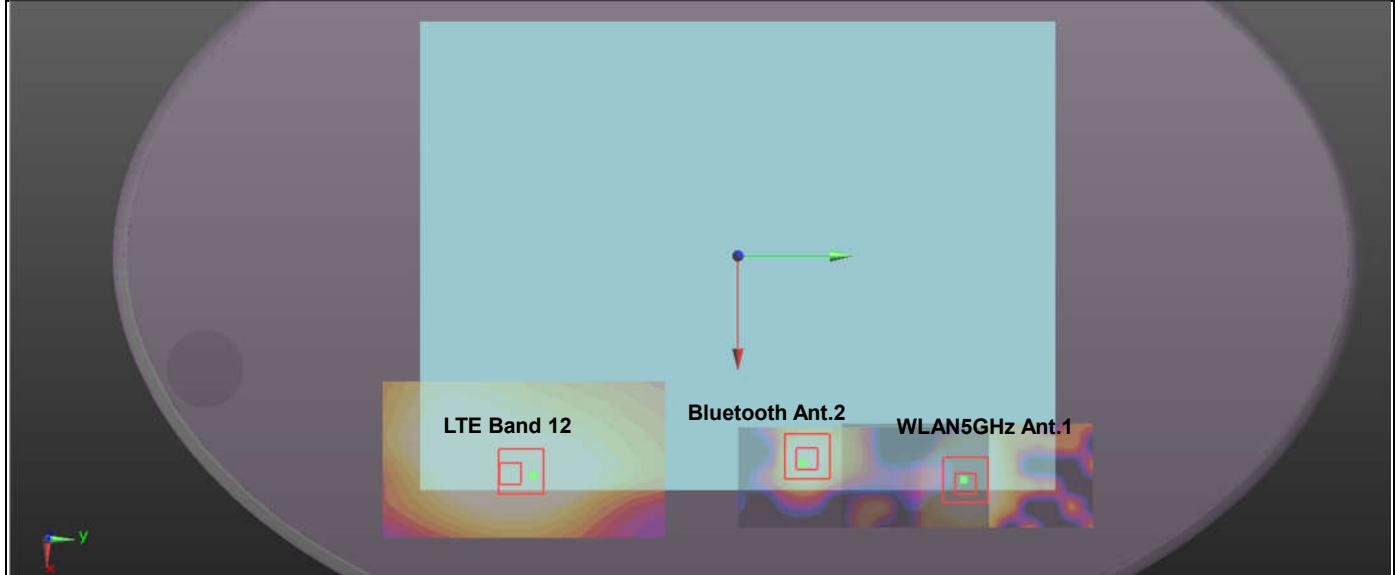
Report No. : FA790812

Case #70	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				
Case #70	LTE Band 12	Bottom Face	1.141	0	0.105	-0.098	-0.18	228.08	2.03	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 12		1.141	0	0.105	-0.098	-0.18	129.45	1.43	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



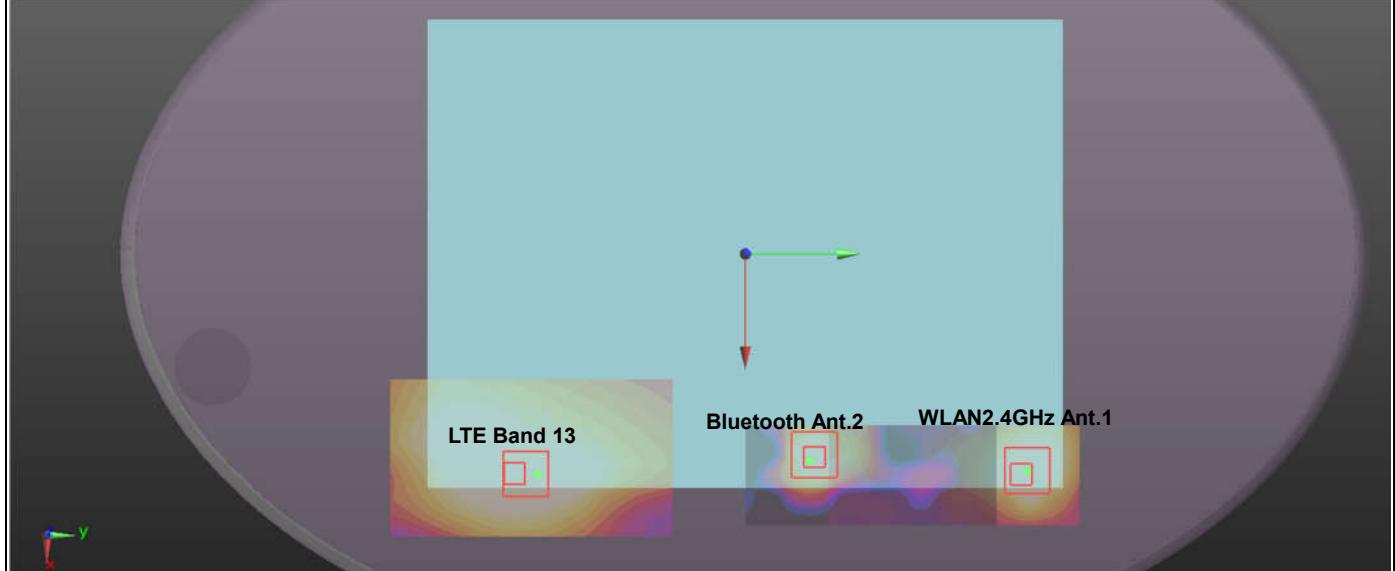


Case #71	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #71	LTE Band 12	Bottom Face	1.141	0	0.105	-0.098	-0.18	206.10	2.05	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 12		1.141	0	0.105	-0.098	-0.18	129.45	1.43	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



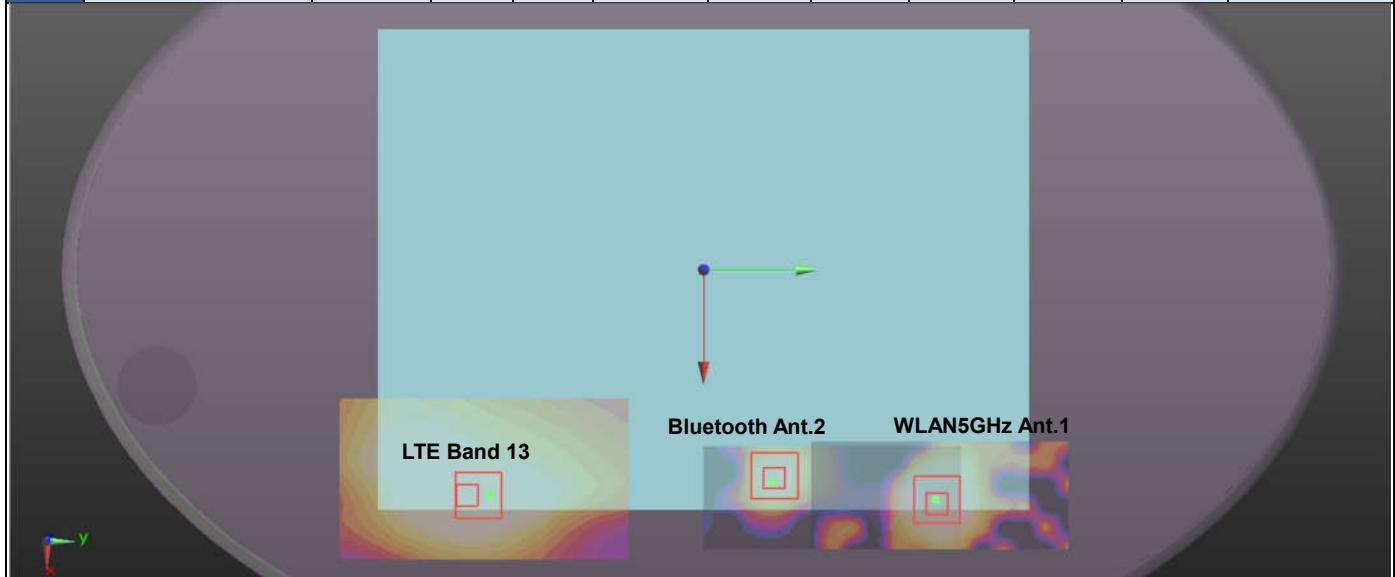


Case #72	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #72	LTE Band 13	Bottom Face	1.230	0	0.105	-0.108	-0.18	238.08	2.12	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 13		1.230	0	0.105	-0.108	-0.18	139.43	1.52	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



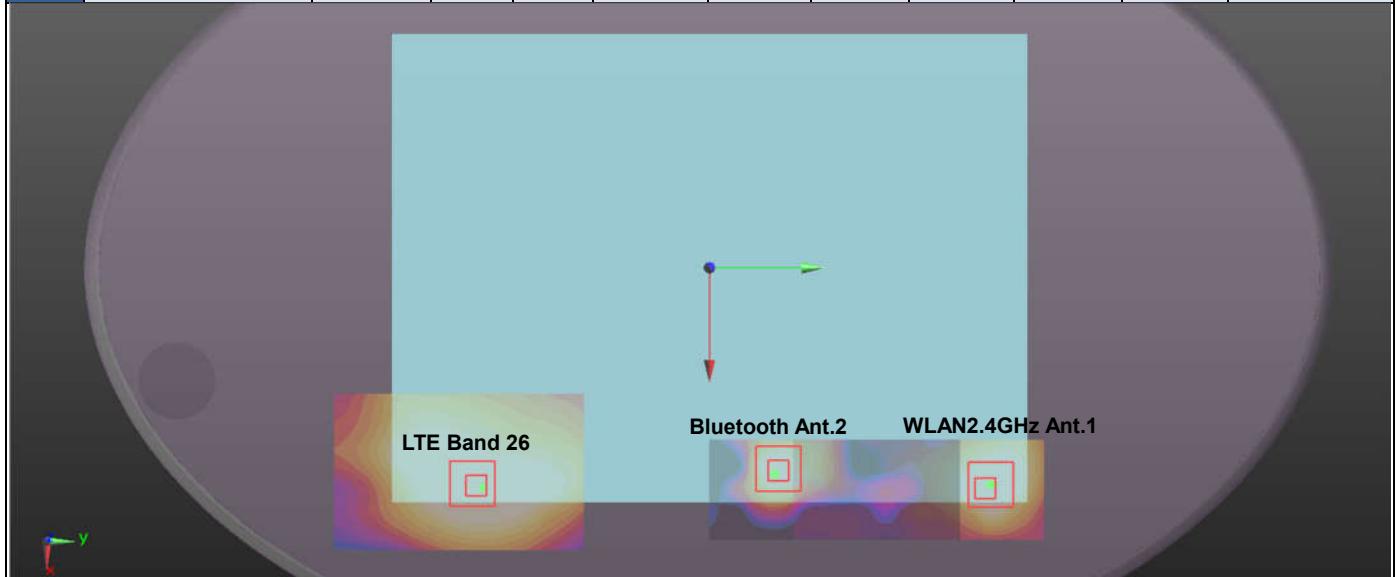


Case #73	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #73	LTE Band 13	Bottom Face	1.230	0	0.105	-0.108	-0.18	216.09	2.14	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 13		1.230	0	0.105	-0.108	-0.18	139.43	1.52	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



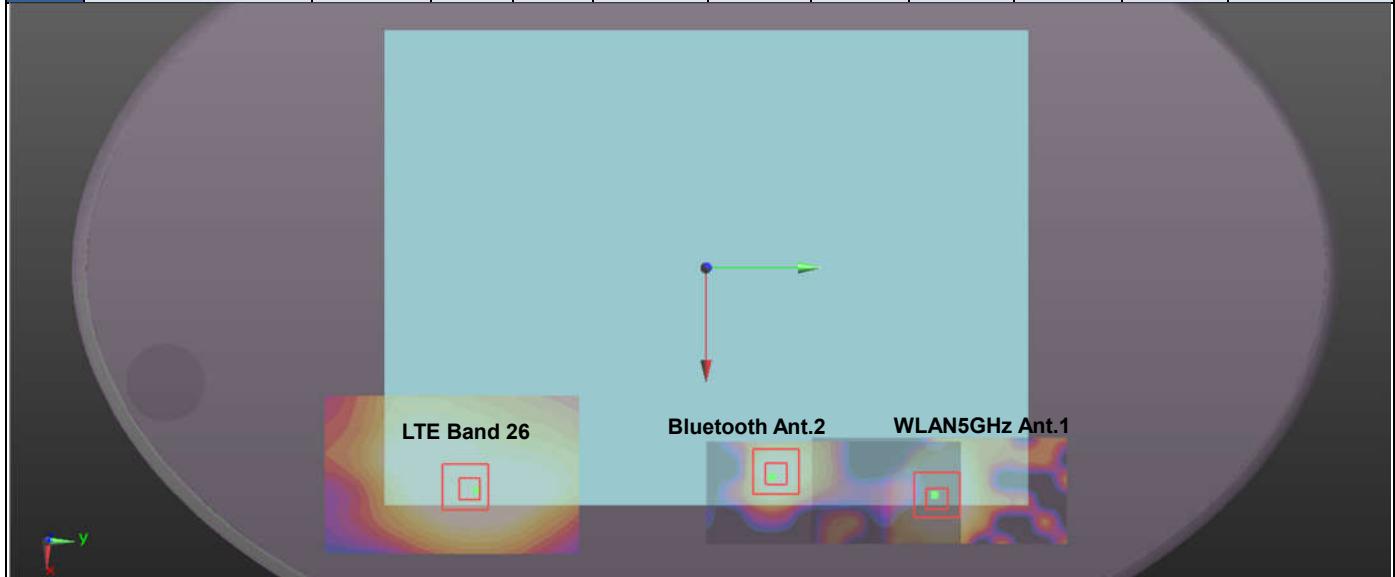


Case #74	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #74	LTE Band 26	Bottom Face	1.028	0	0.105	-0.108	-0.18	238.08	1.92	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 26		1.028	0	0.105	-0.108	-0.18	139.43	1.32	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



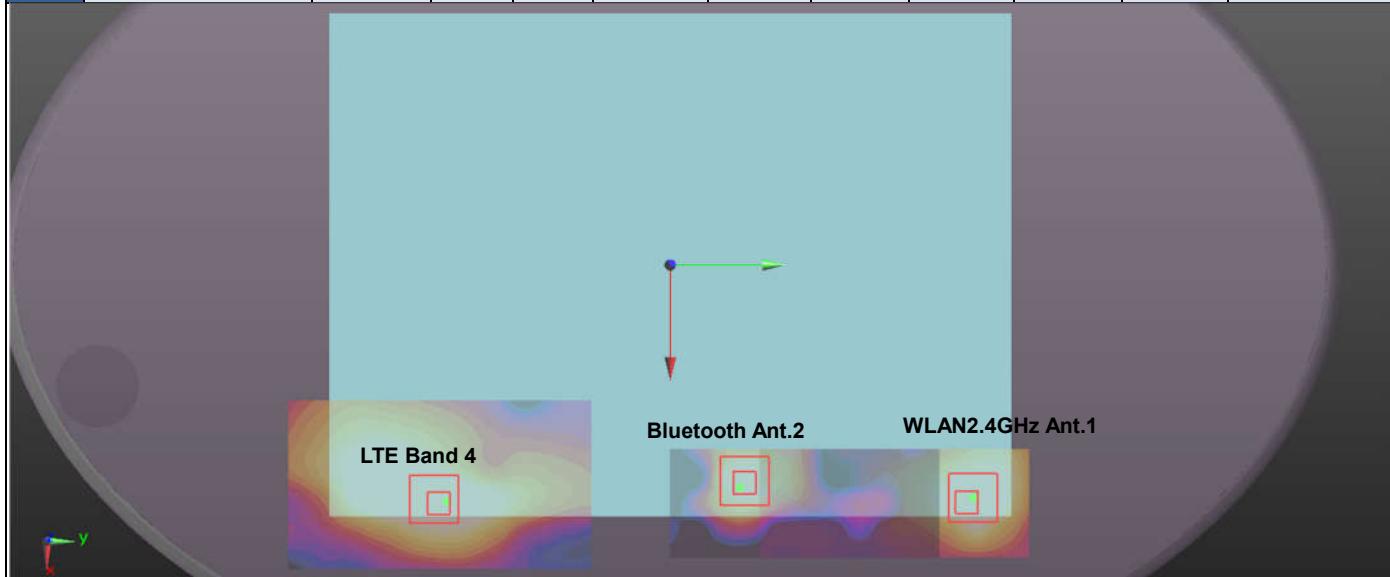


Case #75	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #75	LTE Band 26	Bottom Face	1.028	0	0.105	-0.108	-0.18	216.09	1.94	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 26		1.028	0	0.105	-0.108	-0.18	139.43	1.32	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



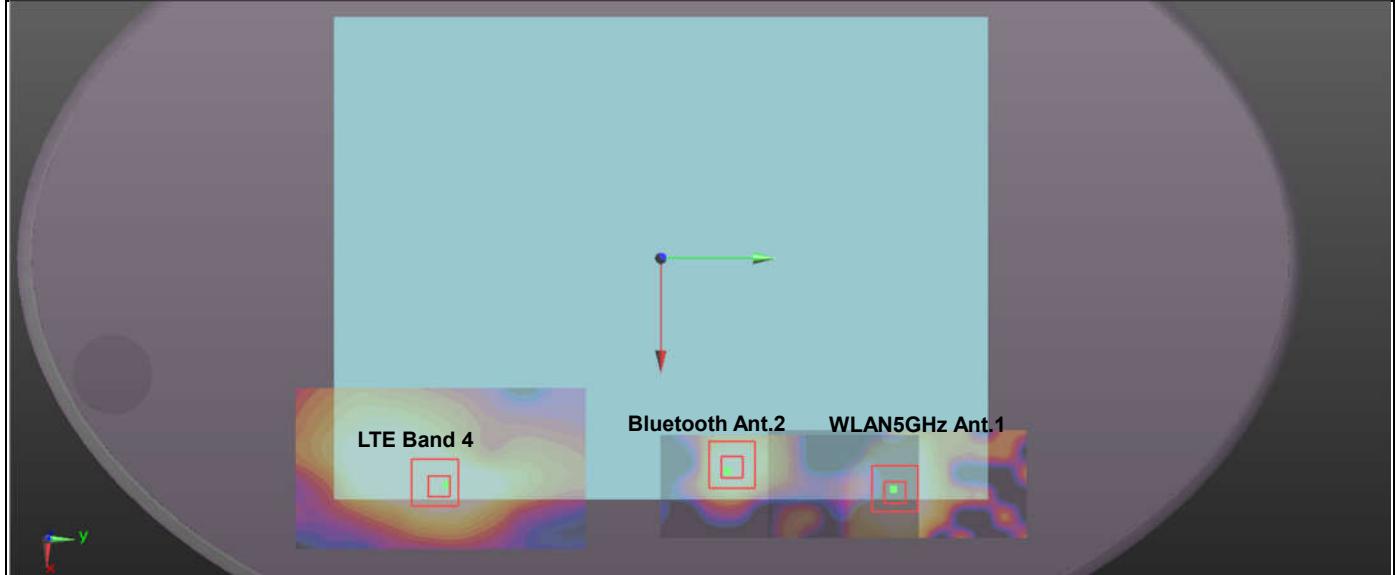


Case #76	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #76	LTE Band 4	Bottom Face	1.089	0	0.105	-0.0995	-0.179	229.56	1.98	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 4		1.089	0	0.105	-0.0995	-0.179	160.43	1.38	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



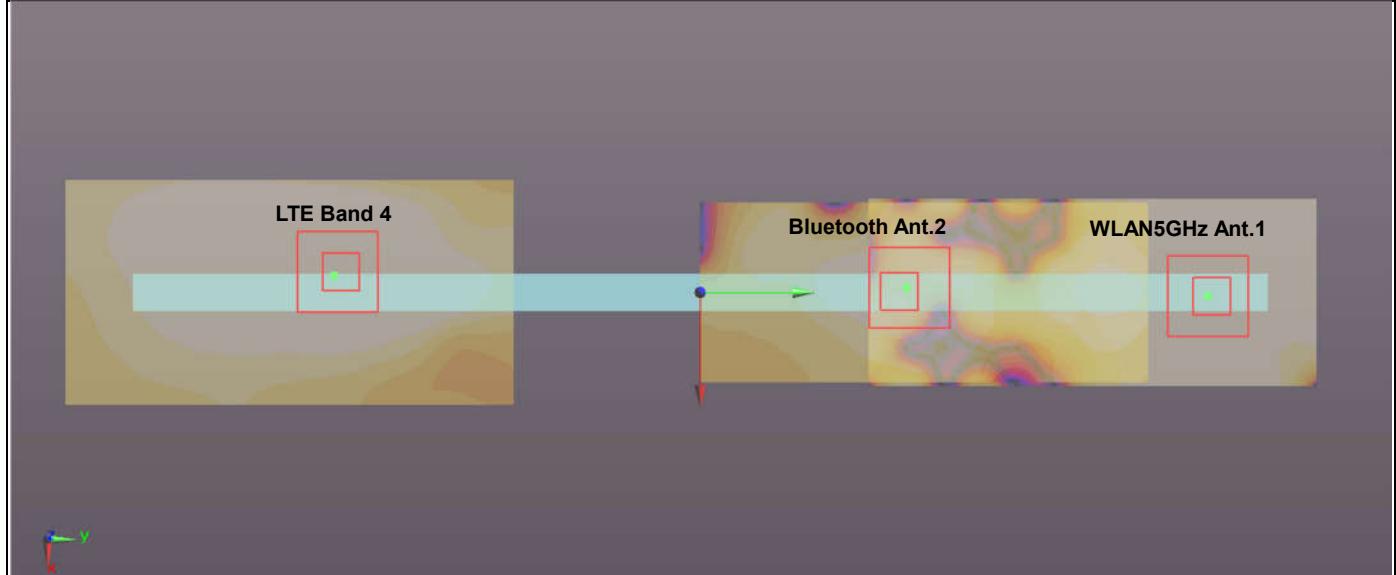


Case #77	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #77	LTE Band 4	Bottom Face	1.089	0	0.105	-0.0995	-0.179	207.57	2.00	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 4		1.089	0	0.105	-0.0995	-0.179	130.91	1.38	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				





Case #78	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #78	LTE Band 4	Edge 1	1.000	0	-0.0045	-0.098	-0.181	234.12	2.00	0.01	Not required
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176				
	LTE Band 4		1.000	0	-0.0045	-0.098	-0.181	148.32	1.06	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176	85.83	1.06	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				





Case #79	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				
Case #79	LTE Band 25	Bottom Face	1.012	0	0.099	-0.127	-0.179	257.10	1.90	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 25		1.012	0	0.099	-0.127	-0.179	158.25	1.30	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



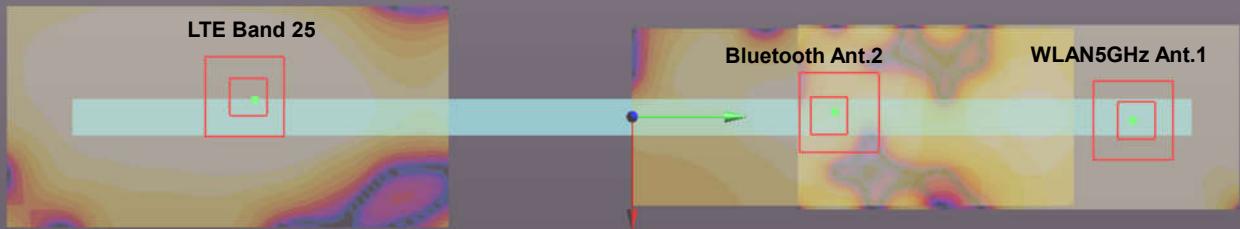


Case #80	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #80	LTE Band 25	Bottom Face	1.012	0	0.099	-0.127	-0.179	235.19	1.92	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 25		1.012	0	0.099	-0.127	-0.179	158.25	1.30	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				





Case #81	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #81	LTE Band 25	Edge 1	0.931	0	-0.0045	-0.103	-0.181	239.12	1.93	0.01	Not required
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176				
	LTE Band 25		0.931	0	-0.0045	-0.103	-0.181	153.32	0.99	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				
	WLAN5GHz Ant.1		0.999	0	0.001	0.136	-0.176	85.83	1.06	0.01	Not required
	Bluetooth Ant.2		0.058	0	-0.0012	0.0502	-0.176				

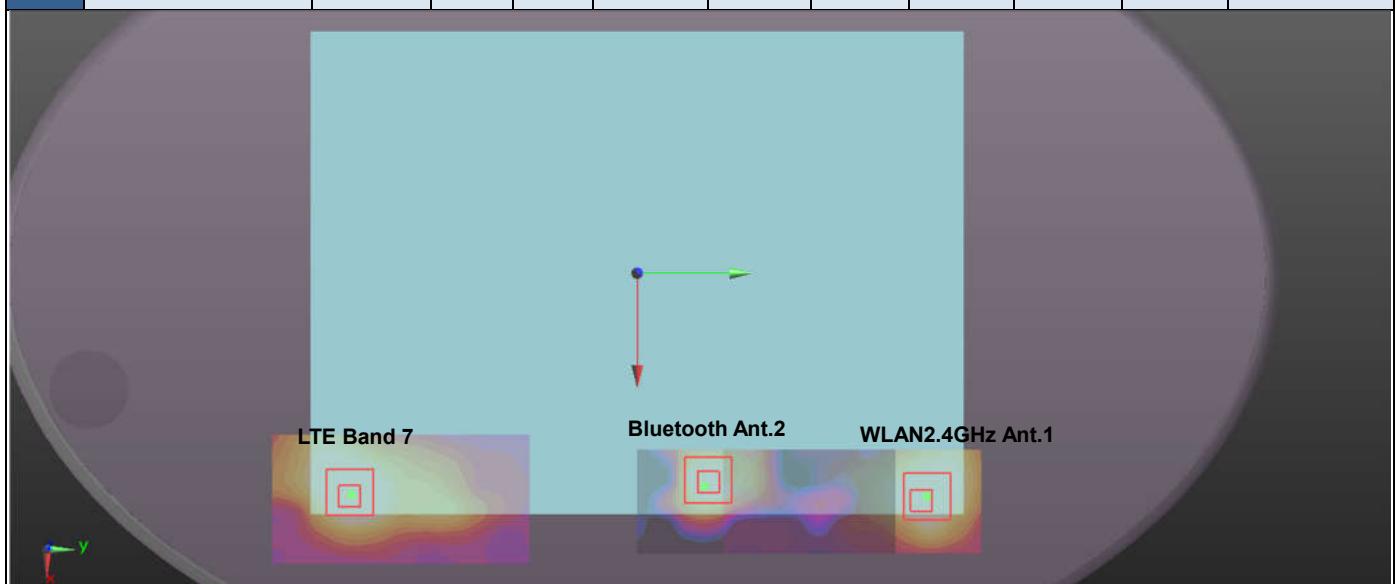




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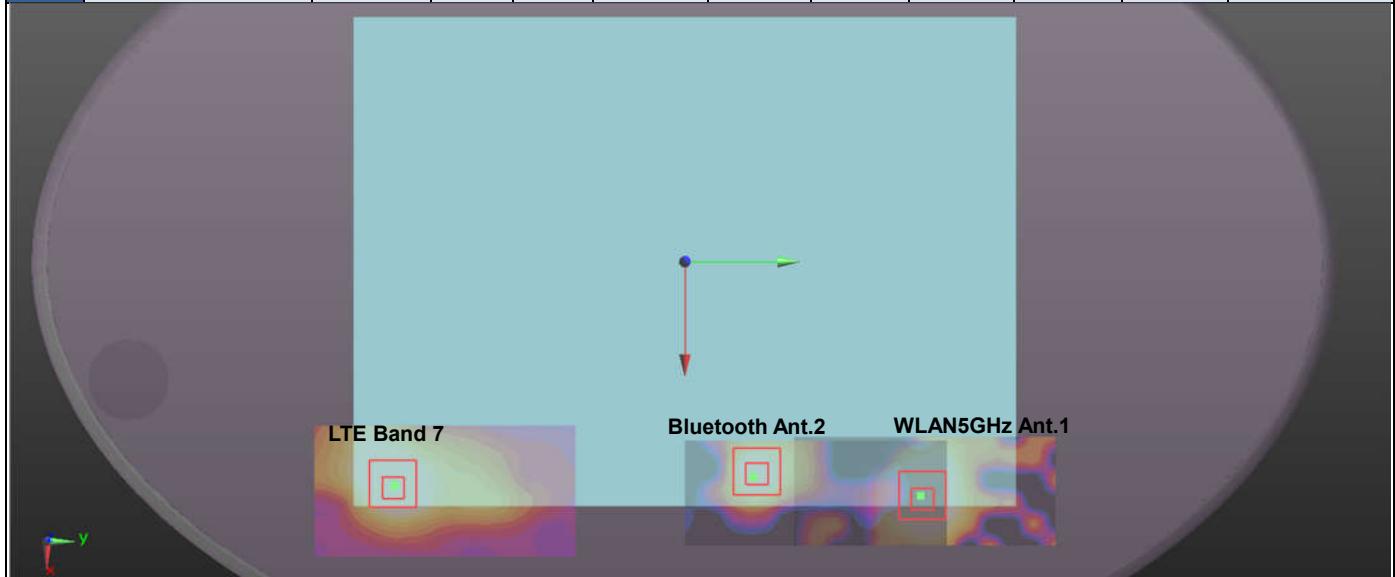
Report No. : FA790812

Case #82	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				
Case #82	LTE Band 7	Bottom Face	1.233	0	0.103	-0.133	-0.179	263.05	2.12	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 7		1.233	0	0.103	-0.133	-0.179	164.30	1.53	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				





Case #83	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #83	LTE Band 7	Bottom Face	1.233	0	0.103	-0.133	-0.179	241.09	2.15	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 7		1.233	0	0.103	-0.133	-0.179	164.30	1.53	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



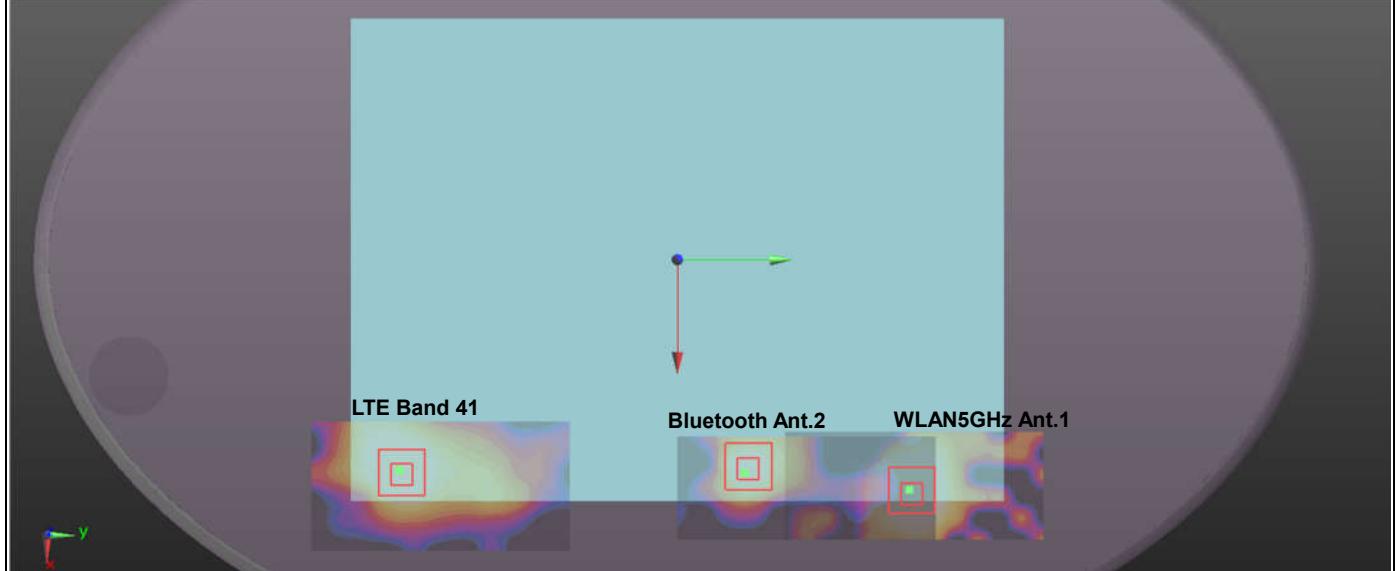


Case #84	Band	Position	SAR	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(W/kg)	(mm)	X	Y	Z				
Case #84	LTE Band 41	Bottom Face	1.256	0	0.0978	-0.129	-0.18	259.14	2.14	0.01	Not required
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174				
	LTE Band 41		1.256	0	0.0978	-0.129	-0.18	160.28	1.55	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN2.4GHz Ant.1		0.888	0	0.104	0.13	-0.174	98.94	1.18	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				





Case #85	Band	Position	SAR (W/kg) (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR	
				X	Y	Z					
Case #85	LTE Band 41	Bottom Face	1.256	0	0.0978	-0.129	-0.18	237.25	2.17	0.01	Not required
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174				
	LTE Band 41		1.256	0	0.0978	-0.129	-0.18	160.28	1.55	0.01	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				
	WLAN5GHz Ant.1		0.912	0	0.107	0.108	-0.174	77.24	1.20	0.02	Not required
	Bluetooth Ant.2		0.292	0	0.0988	0.0312	-0.175				



Test Engineer : Nick Hu



## 17. Uncertainty Assessment

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacturer's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor <sup>(a)</sup>	$1/k^{(b)}$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

- (a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity  
(b)  $k$  is the coverage factor

**Table 17.1. Standard Uncertainty for Assumed Distribution**

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.



Error Description	Uncertainty Value ( $\pm\%$ )	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) ( $\pm\%$ )	Standard Uncertainty (10g) ( $\pm\%$ )
<b>Measurement System</b>							
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
<b>Test Sample Related</b>							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
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
<b>Phantom and Setup</b>							
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
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
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
<b>Combined Std. Uncertainty</b>						11.4%	11.4%
<b>Coverage Factor for 95 %</b>						K=2	K=2
<b>Expanded STD Uncertainty</b>						22.9%	22.7%

Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz



Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
<b>Measurement System</b>							
Probe Calibration	6.55	N	1	1	1	6.6	6.6
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
<b>Test Sample Related</b>							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
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
<b>Phantom and Setup</b>							
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
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
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
<b>Combined Std. Uncertainty</b>						12.5%	12.5%
<b>Coverage Factor for 95 %</b>						K=2	K=2
<b>Expanded STD Uncertainty</b>						25.1%	25.0%

Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz



## 18. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.
- [7] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [8] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [11] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [12] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015



## Appendix A. Plots of System Performance Check

The plots are shown as follows.

**System Check\_Body\_750MHz****DUT: D750V3 - SN:1065**

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: MSL\_750 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.96 \text{ S/m}$ ;  $\epsilon_r = 56.111$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$ 

Maximum value of SAR (interpolated) = 2.70 W/kg

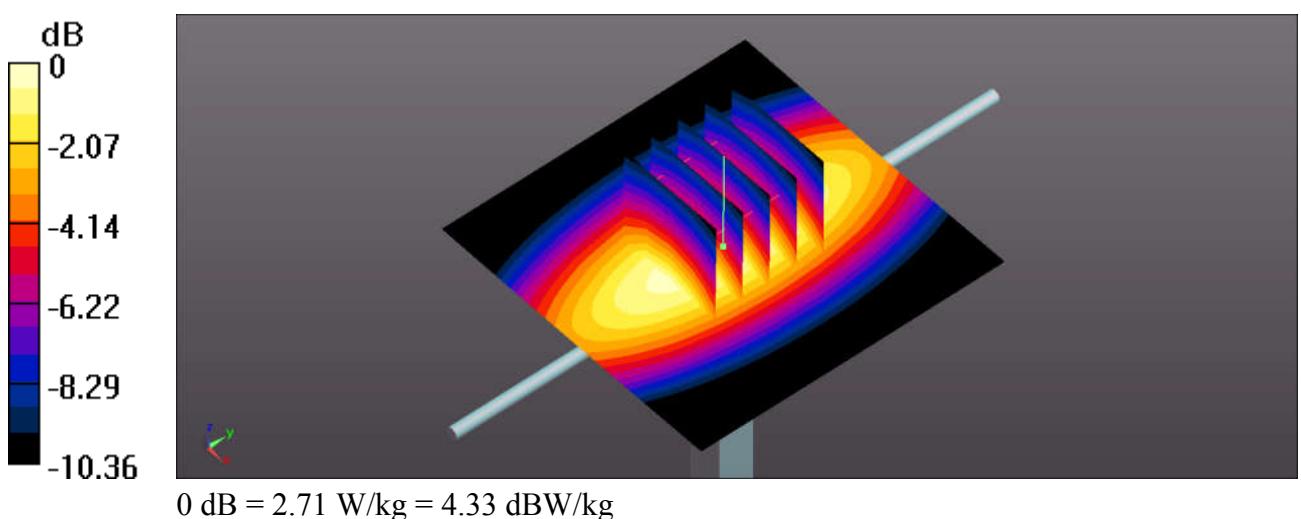
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 49.78 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.13 W/kg

**SAR(1 g) = 2.18 W/kg; SAR(10 g) = 1.46 W/kg**

Maximum value of SAR (measured) = 2.71 W/kg



**System Check\_Body\_835MHz****DUT: D835V2 - SN:4d091**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: MSL\_835 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.965 \text{ S/m}$ ;  $\epsilon_r = 55.211$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

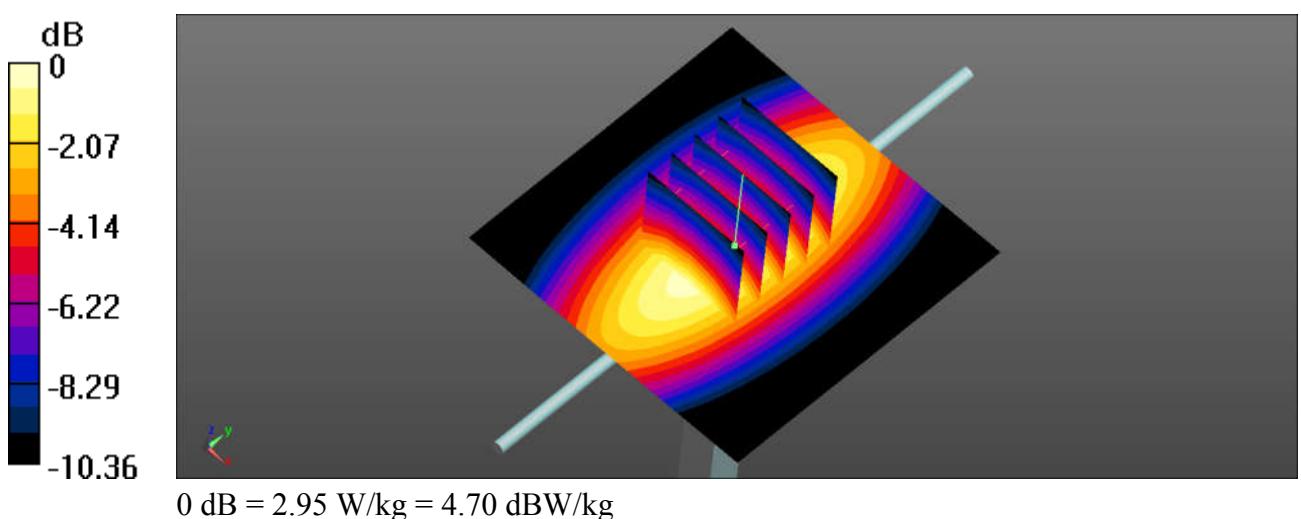
**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 2.93 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 50.78 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.45 W/kg

**SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.54 W/kg**

Maximum value of SAR (measured) = 2.95 W/kg



**System Check\_Body\_1750MHz****DUT: D1750V2 - SN:1069**

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: MSL\_1750 Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.475 \text{ S/m}$ ;  $\epsilon_r = 53.957$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.5 W/kg

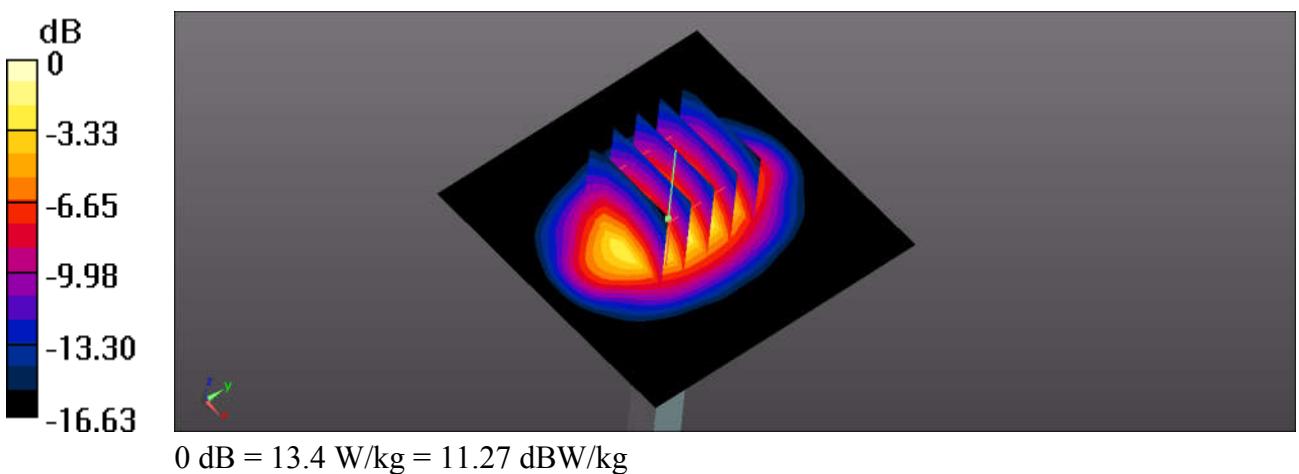
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 85.73 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 16.6 W/kg

**SAR(1 g) = 9.55 W/kg; SAR(10 g) = 5.09 W/kg**

Maximum value of SAR (measured) = 13.4 W/kg



**System Check\_Body\_1900MHz****DUT: D1900V2 - SN:5d118**

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL\_1900 Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.547 \text{ S/m}$ ;  $\epsilon_r = 52.476$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.08, 8.08, 8.08); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.7 W/kg

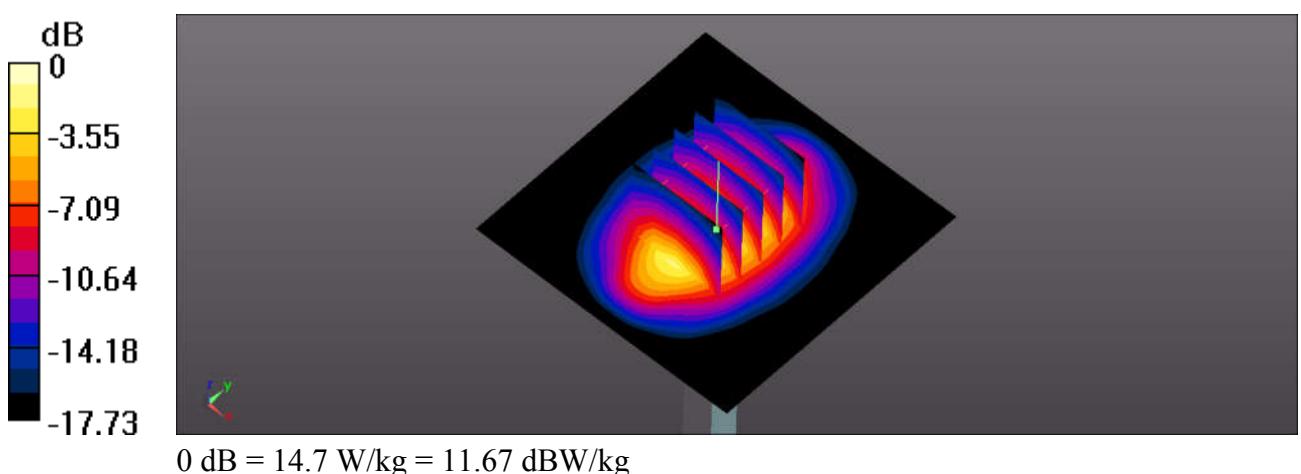
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 86.47 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 18.4 W/kg

**SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.34 W/kg**

Maximum value of SAR (measured) = 14.7 W/kg



**System Check\_Body\_2450MHz****DUT: D2450V2 - SN:840**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL\_2450 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.037$  S/m;  $\epsilon_r = 53.175$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.7, 7.7, 7.7); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 18.7 W/kg

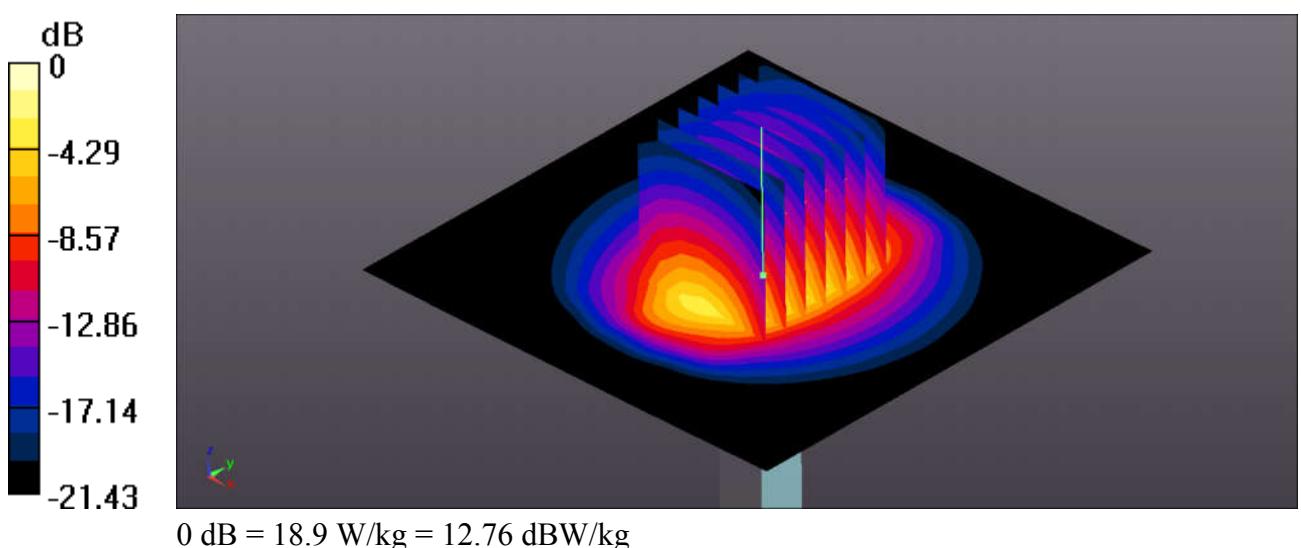
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 84.30 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 25.0 W/kg

**SAR(1 g) = 12.5 W/kg; SAR(10 g) = 5.89 W/kg**

Maximum value of SAR (measured) = 18.9 W/kg



**System Check\_Body\_2600MHz****DUT: D2600V2 - SN:1061**

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: MSL\_2600 Medium parameters used:  $f = 2600 \text{ MHz}$ ;  $\sigma = 2.197 \text{ S/m}$ ;  $\epsilon_r = 50.896$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.59, 7.59, 7.59); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid:  $dx=1.200 \text{ mm}$ ,  $dy=1.200 \text{ mm}$ 

Maximum value of SAR (interpolated) = 20.6 W/kg

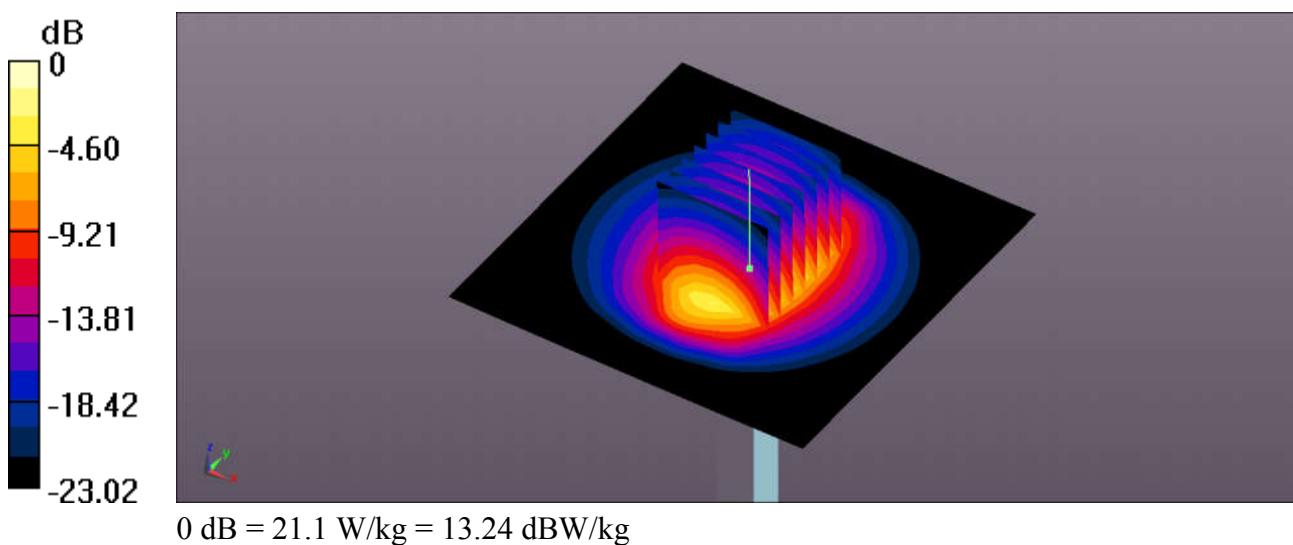
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 84.89 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 28.4 W/kg

**SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.31 W/kg**

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



**System Check\_Body\_5250MHz****DUT: D5GHzV2-SN:1113**

Communication System: UID 0, CW (0); Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: MSL\_5000 Medium parameters used:  $f = 5250 \text{ MHz}$ ;  $\sigma = 5.354 \text{ S/m}$ ;  $\epsilon_r = 48.459$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.72, 4.72, 4.72); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (71x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

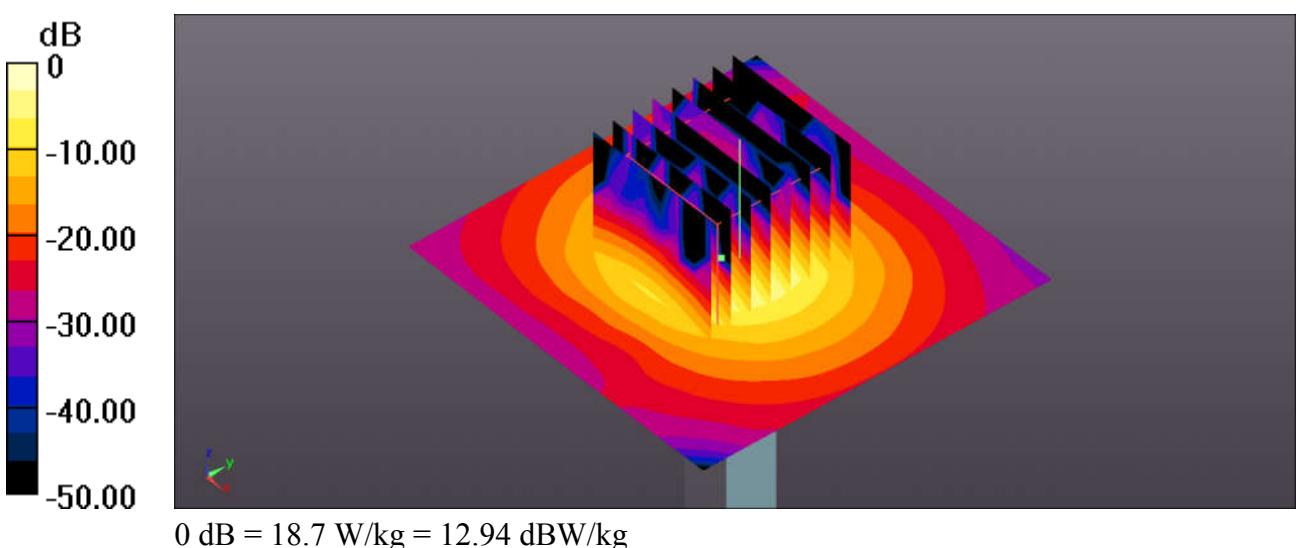
Maximum value of SAR (interpolated) = 18.5 W/kg

**Pin=100mW/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 41.12 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 33.8 W/kg

**SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.18 W/kg**

Maximum value of SAR (measured) = 18.7 W/kg



**System Check\_Body\_5600MHz****DUT: D5GHzV2-SN:1113**

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: MSL\_5000 Medium parameters used:  $f = 5600 \text{ MHz}$ ;  $\sigma = 5.849 \text{ S/m}$ ;  $\epsilon_r = 47.666$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.01, 4.01, 4.01); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (71x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

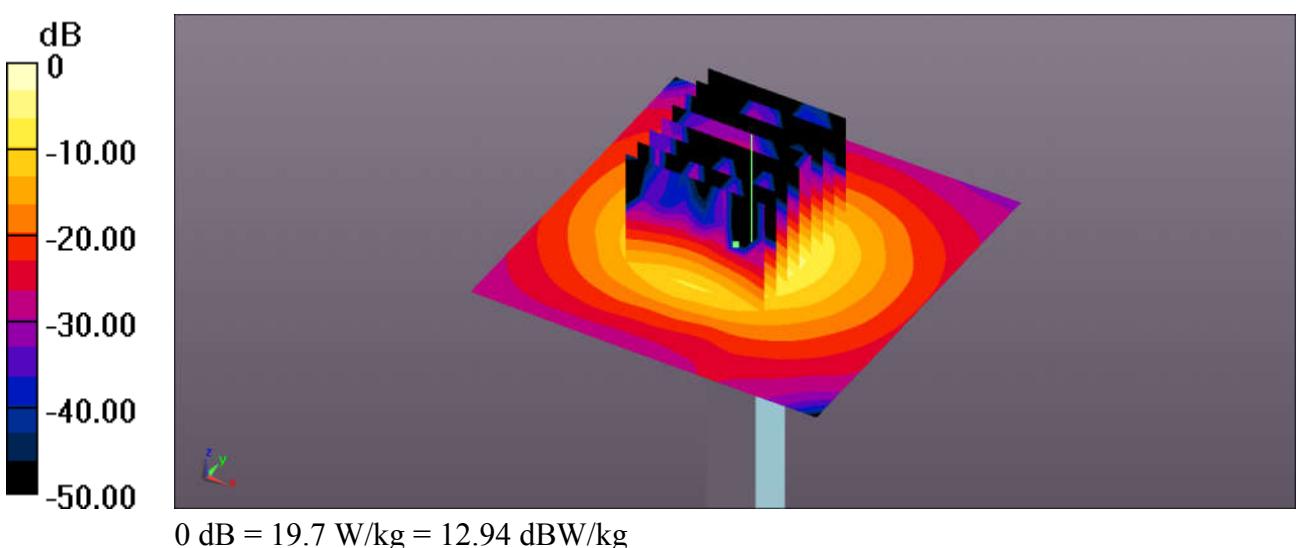
Maximum value of SAR (interpolated) = 19.6 W/kg

**Pin=100mW/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 40.13 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 34.7 W/kg

**SAR(1 g) = 8 W/kg; SAR(10 g) = 2.24 W/kg**

Maximum value of SAR (measured) = 19.7 W/kg



**System Check\_Body\_5750MHz****DUT: D5GHzV2-SN:1113**

Communication System: UID 0, CW (0); Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: MSL\_5000 Medium parameters used:  $f = 5750 \text{ MHz}$ ;  $\sigma = 6.058 \text{ S/m}$ ;  $\epsilon_r = 47.348$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.31, 4.31, 4.31); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (71x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 18.8 W/kg

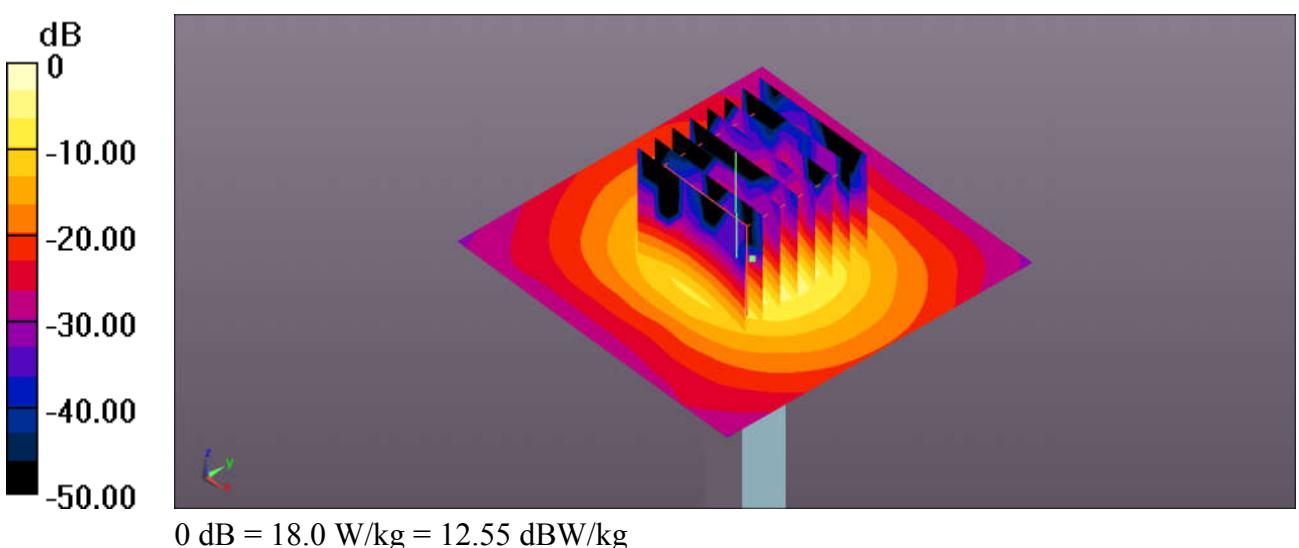
**Pin=100mW/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 37.01 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 33.4 W/kg

**SAR(1 g) = 7.39 W/kg; SAR(10 g) = 2.08 W/kg**

Maximum value of SAR (measured) = 18.0 W/kg





## Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

**01\_WCDMA Band V\_RMC12.2Kbps\_Bottom Face \_0mm\_Ch4233**

Communication System: UID 0, UMTS (0); Frequency: 846.6 MHz; Duty Cycle: 1:1  
Medium: MSL\_850 Medium parameters used:  $f = 846.6$  MHz;  $\sigma = 0.978$  S/m;  $\epsilon_r = 55.083$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

## DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch4233/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.41 W/kg

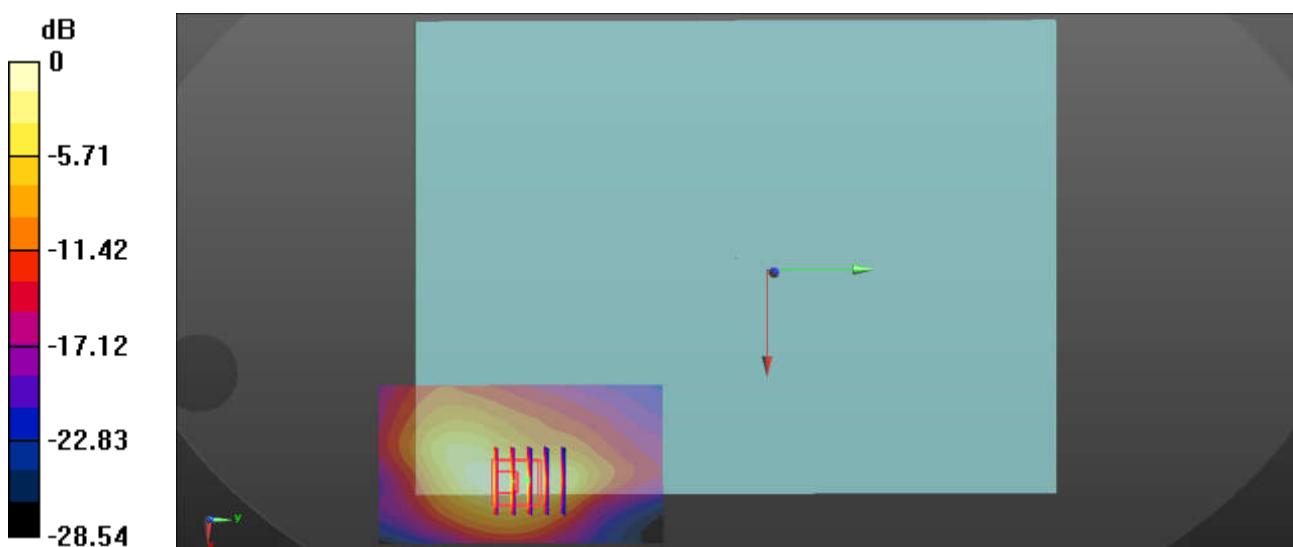
**Ch4233/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.006 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.48 W/kg

**SAR(1 g) = 0.921 W/kg; SAR(10 g) = 0.525 W/kg**

Maximum value of SAR (measured) = 1.30 W/kg



**02\_WCDMA Band IV\_RMC12.2Kbps\_Bottom Face\_12mm\_Ch1413**

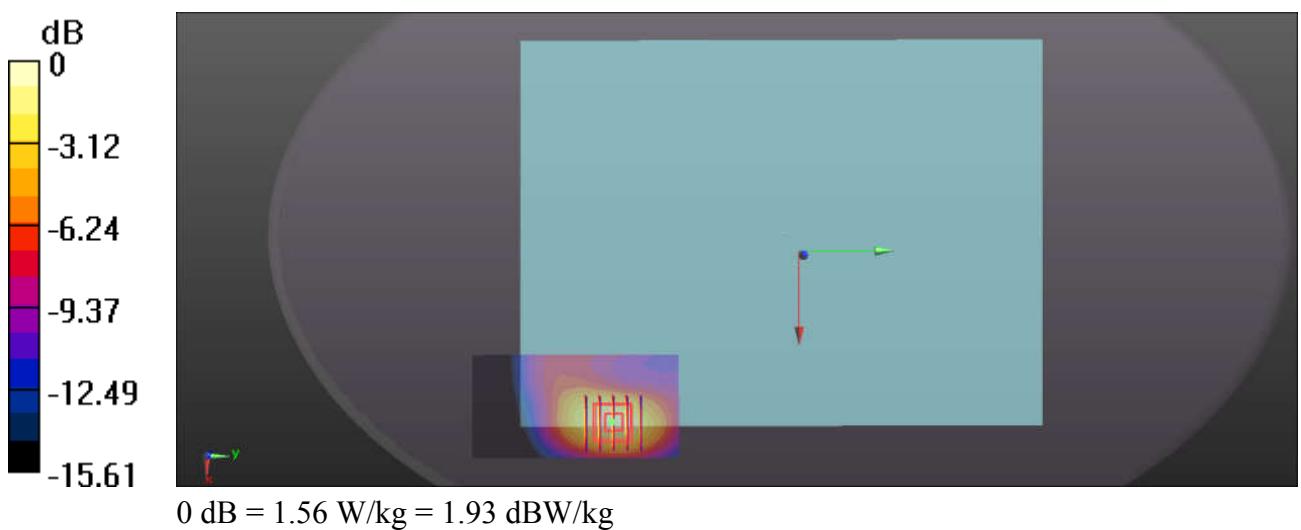
Communication System: UID 0, UMTS (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1  
Medium: MSL\_1750 Medium parameters used:  $f = 1732.6$  MHz;  $\sigma = 1.455$  S/m;  $\epsilon_r = 54.009$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch1413/Area Scan (41x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.46 W/kg

**Ch1413/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 2.173 V/m; Power Drift = -0.07 dB  
Peak SAR (extrapolated) = 1.86 W/kg  
**SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.655 W/kg**  
Maximum value of SAR (measured) = 1.56 W/kg



**03\_WCDMA Band II\_RMC12.2Kbps\_Edge4\_0mm\_Ch9262**

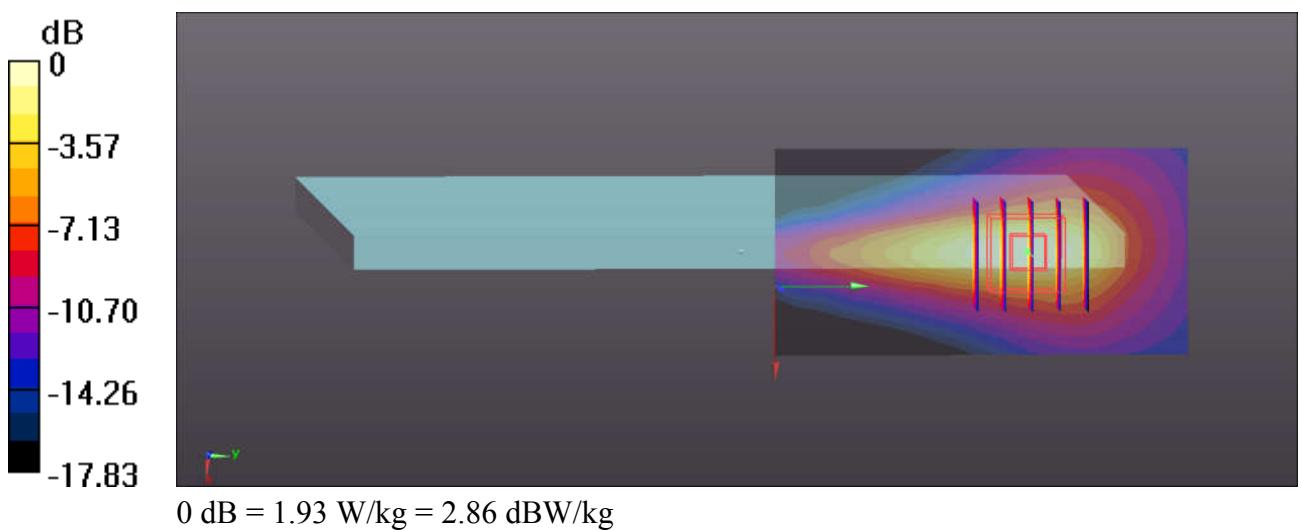
Communication System: UID 0, UMTS (0); Frequency: 1852.4 MHz; Duty Cycle: 1:1  
Medium: MSL\_1900 Medium parameters used:  $f = 1852.4$  MHz;  $\sigma = 1.495$  S/m;  $\epsilon_r = 52.624$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.08, 8.08, 8.08); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch9262/Area Scan (41x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.92 W/kg

**Ch9262/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.463 V/m; Power Drift = -0.04 dB  
Peak SAR (extrapolated) = 2.44 W/kg  
**SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.662 W/kg**  
Maximum value of SAR (measured) = 1.93 W/kg



**04\_LTE Band 12\_10M\_QPSK\_1RB\_0Offset\_Bottom Face\_0mm\_Ch23095**

Communication System: UID 0, FDD\_LTE (0); Frequency: 707.5 MHz; Duty Cycle: 1:1  
Medium: MSL\_750 Medium parameters used:  $f = 707.5$  MHz;  $\sigma = 0.919$  S/m;  $\epsilon_r = 56.547$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

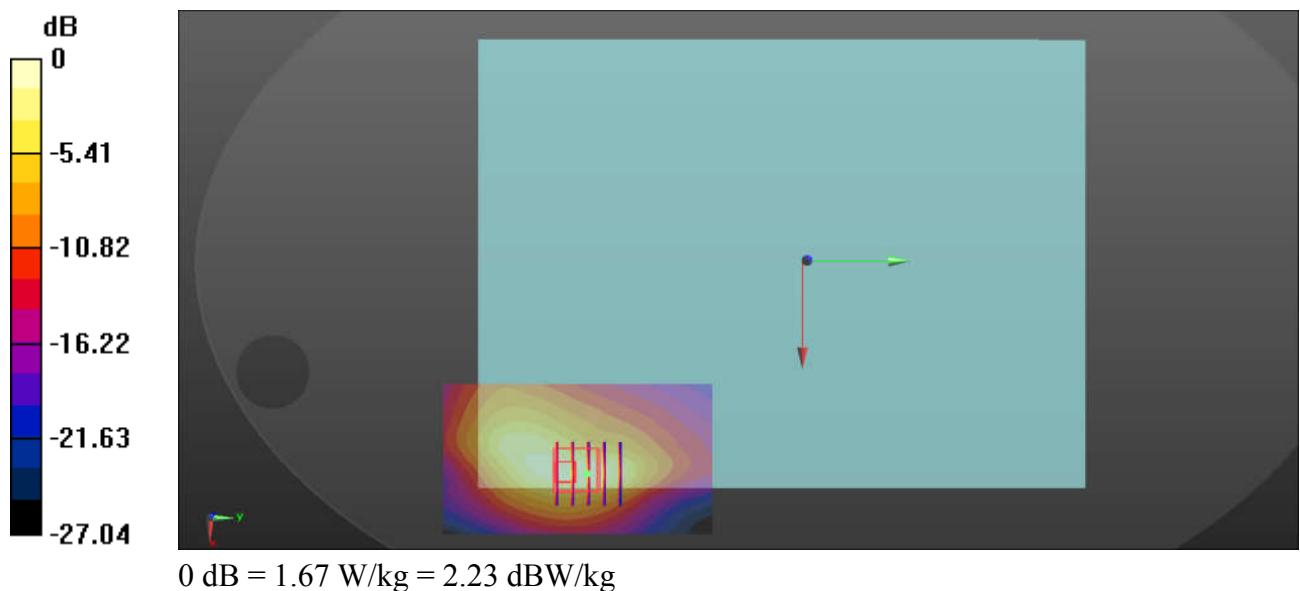
**Ch23095/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.67 W/kg

**Ch23095/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.726 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.69 W/kg

**SAR(1 g) = 0.982 W/kg; SAR(10 g) = 0.572 W/kg**

Maximum value of SAR (measured) = 1.43 W/kg



**05\_LTE Band 13\_10M\_QPSK\_1RB\_0Offset\_Bottom Face\_0mm\_Ch23230**

Communication System: UID 0, FDD\_LTE (0); Frequency: 782 MHz; Duty Cycle: 1:1

Medium: MSL\_850 Medium parameters used:  $f = 782 \text{ MHz}$ ;  $\sigma = 0.913 \text{ S/m}$ ;  $\epsilon_r = 55.659$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

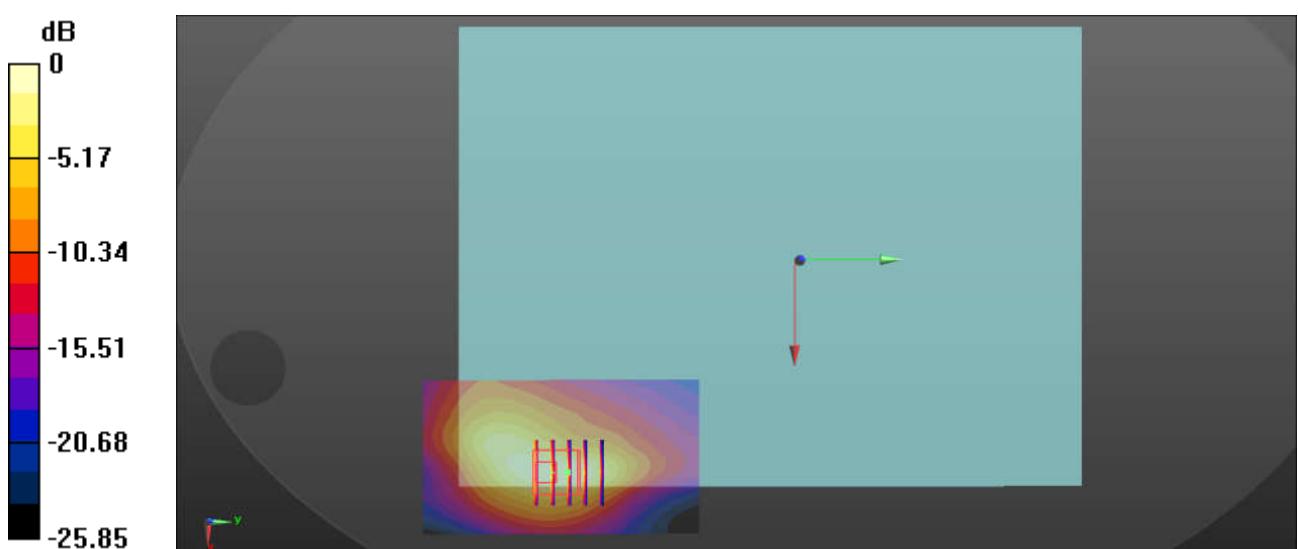
**Ch23230/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.63 W/kg**Ch23230/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.542 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.67 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.597 W/kg**

Maximum value of SAR (measured) = 1.46 W/kg



**06\_LTE Band26\_15M\_QPSK\_36RB\_0Offset\_Bottom Face \_0mm\_Ch26865**

Communication System: UID 0, FDD\_LTE (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: MSL\_850 Medium parameters used:  $f = 831.5 \text{ MHz}$ ;  $\sigma = 0.961 \text{ S/m}$ ;  $\epsilon_r = 55.247$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(9.72, 9.72, 9.72); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

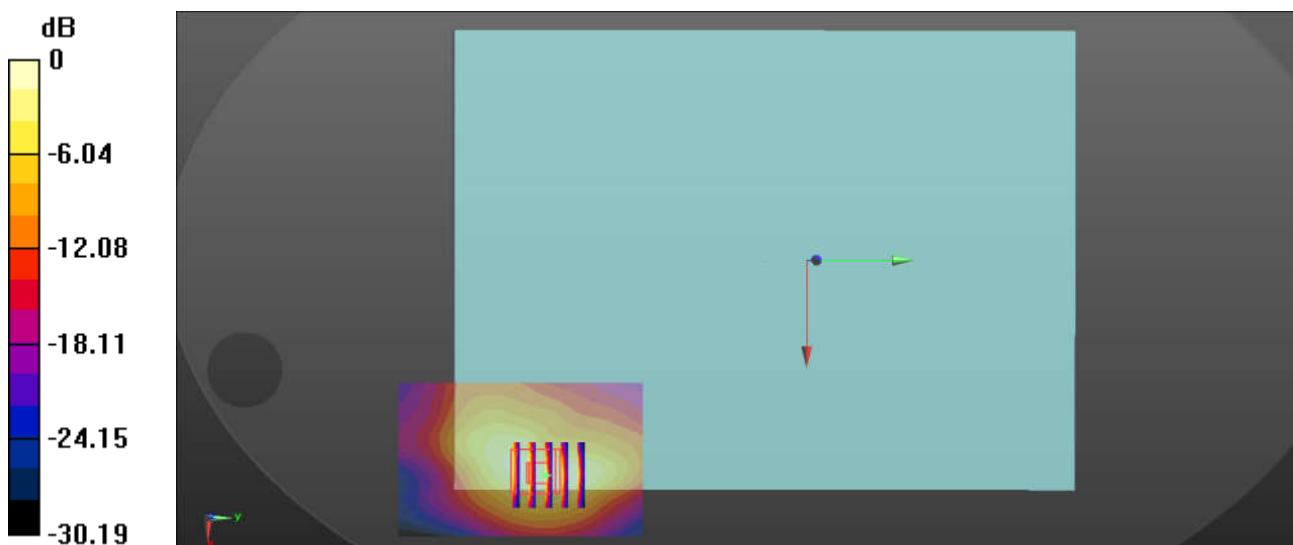
**Ch26865/Area Scan (51x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.30 W/kg**Ch26865/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.387 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.44 W/kg

**SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.507 W/kg**

Maximum value of SAR (measured) = 1.21 W/kg



**07\_LTE Band 4\_20M\_QOSK\_1RB\_0Offset\_Bottom Face\_0mm\_Ch20175**

Communication System: UID 0, FDD\_LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1  
Medium: MSL\_1750 Medium parameters used:  $f = 1732.5$  MHz;  $\sigma = 1.454$  S/m;  $\epsilon_r = 54.011$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °C

## DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.29, 8.29, 8.29); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch20175/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.55 W/kg

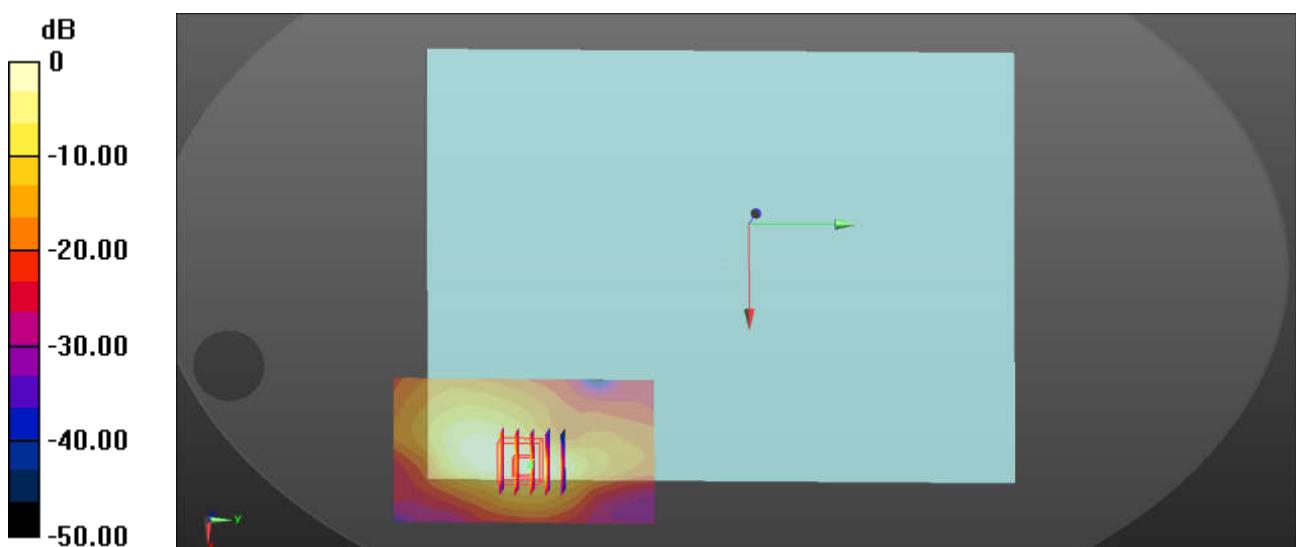
**Ch20175/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.058 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.65 W/kg

**SAR(1 g) = 0.944 W/kg; SAR(10 g) = 0.495 W/kg**

Maximum value of SAR (measured) = 1.39 W/kg



**08\_LTE Band25\_20M\_QPSK\_1RB\_0Offset\_Edge4\_0mm\_Ch26590**

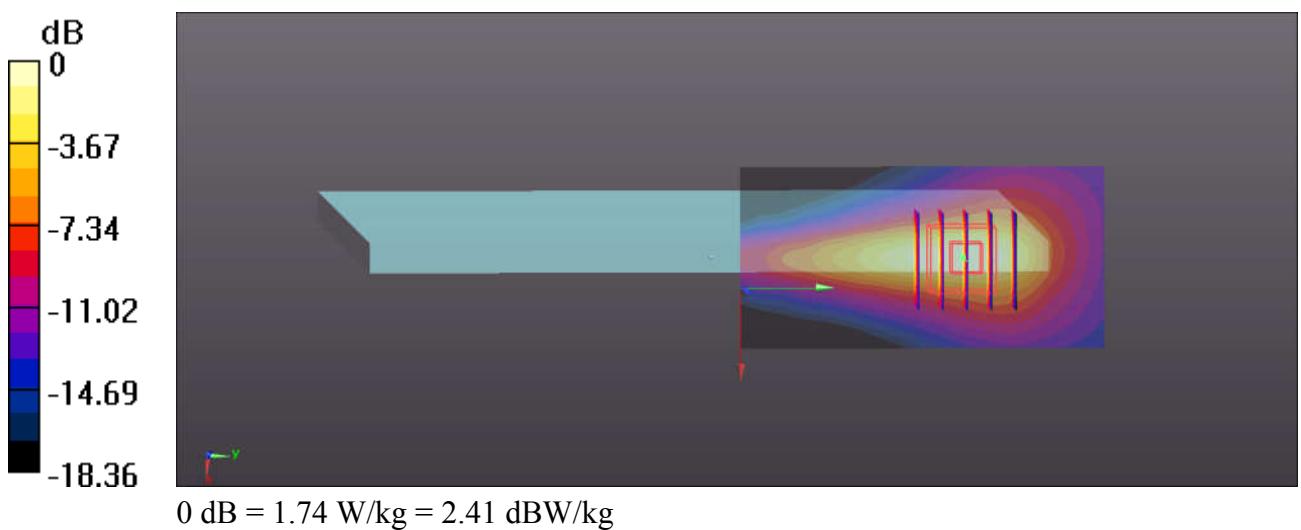
Communication System: UID 0, FDD\_LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1  
Medium: MSL\_1900 Medium parameters used:  $f = 1905 \text{ MHz}$ ;  $\sigma = 1.553 \text{ S/m}$ ;  $\epsilon_r = 52.455$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(8.08, 8.08, 8.08); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch26590/Area Scan (41x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 1.74 W/kg

**Ch26590/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.000 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 2.22 W/kg  
**SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.592 W/kg**  
Maximum value of SAR (measured) = 1.74 W/kg



**09\_LTE Band 7\_20M\_QPSK\_50RB\_0Offset\_Edge4\_0mm\_Ch21350**

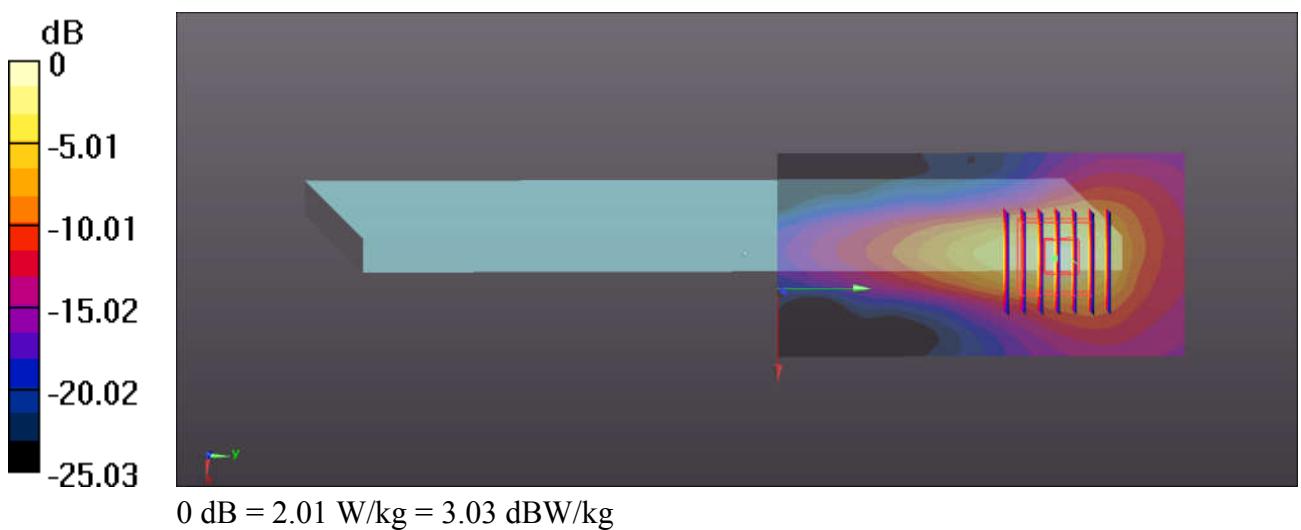
Communication System: UID 0, FDD\_LTE (0); Frequency: 2560 MHz; Duty Cycle: 1:1  
Medium: MSL\_2600 Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.138$  S/m;  $\epsilon_r = 51.043$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.59, 7.59, 7.59); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch21350/Area Scan (51x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 1.64 W/kg

**Ch21350/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 4.514 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 2.99 W/kg  
**SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.456 W/kg**  
Maximum value of SAR (measured) = 2.01 W/kg



**10\_LTE Band41\_20M\_QPSK\_1RB\_0Offset\_Edge4\_0mm\_Ch41490**

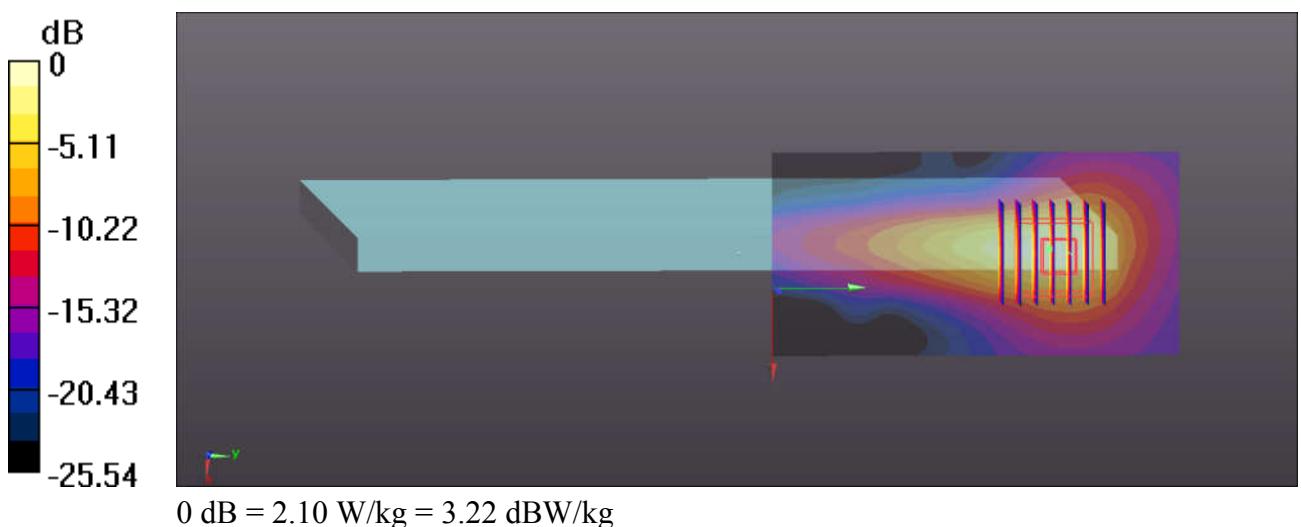
Communication System: UID 0, TDD\_LTE (0); Frequency: 2680 MHz; Duty Cycle: 1:1.59  
Medium: MSL\_2600 Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.308$  S/m;  $\epsilon_r = 50.565$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.59, 7.59, 7.59); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch41490/Area Scan (51x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 1.97 W/kg

**Ch41490/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 4.775 V/m; Power Drift = 0.07 dB  
Peak SAR (extrapolated) = 3.42 W/kg  
**SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.521 W/kg**  
Maximum value of SAR (measured) = 2.10 W/kg



**11\_WLAN2.4GHz\_802.11b 1Mbps\_Bottom Face \_0mm\_Ch1\_Ant 1**

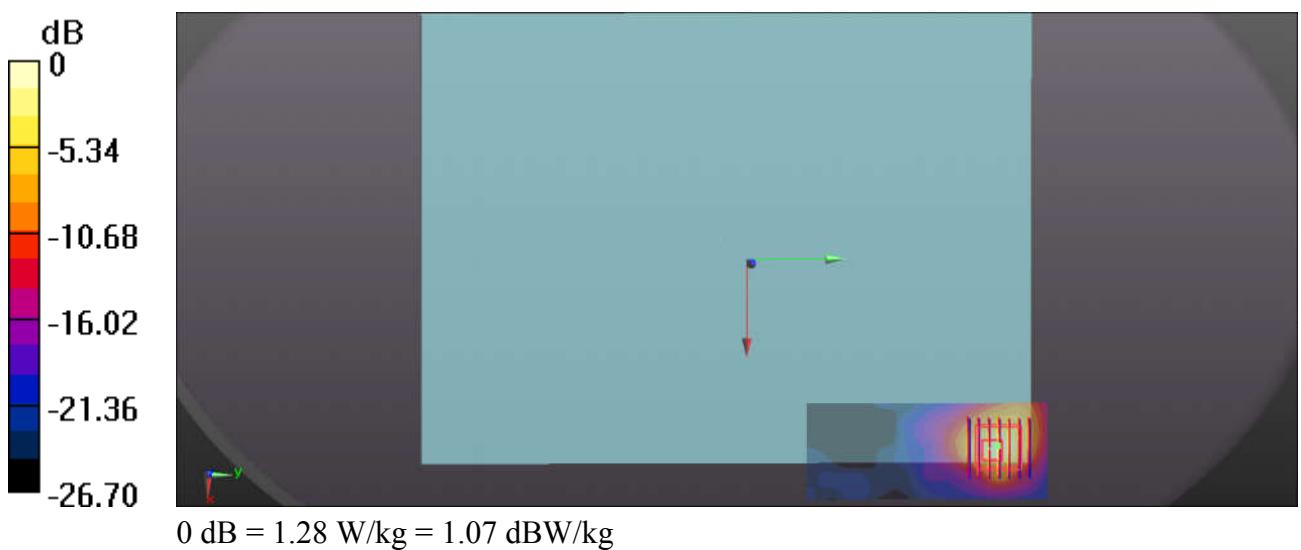
Communication System: UID 0, WIFI (0); Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: MSL\_2450 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.983 \text{ S/m}$ ;  $\epsilon_r = 53.344$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.7, 7.7, 7.7); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch1/Area Scan (41x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 1.19 W/kg

**Ch1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 1.268 V/m; Power Drift = -0.16 dB  
Peak SAR (extrapolated) = 2.00 W/kg  
**SAR(1 g) = 0.784 W/kg; SAR(10 g) = 0.286 W/kg**  
Maximum value of SAR (measured) = 1.28 W/kg



**12\_WLAN2.4GHz\_802.11b 1Mbps\_Bottom Face \_0mm\_Ch6\_Ant 2**

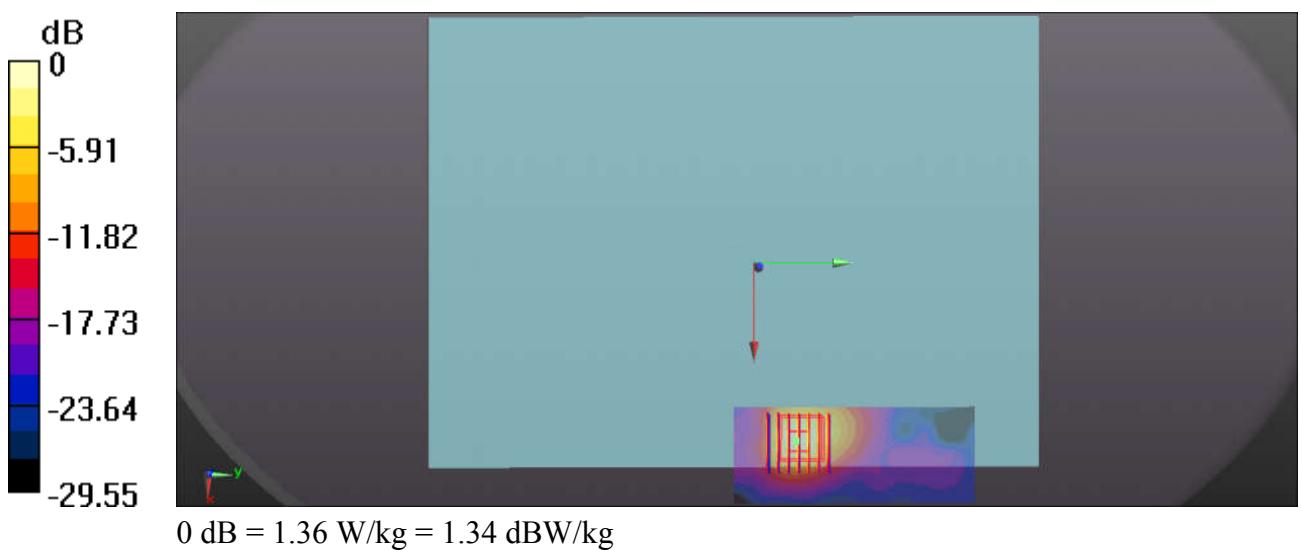
Communication System: UID 0, WIFI (0); Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: MSL\_2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.019 \text{ S/m}$ ;  $\epsilon_r = 53.231$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.7, 7.7, 7.7); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch6/Area Scan (41x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 1.49 W/kg

**Ch6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 1.325 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 1.88 W/kg  
**SAR(1 g) = 0.846 W/kg; SAR(10 g) = 0.347 W/kg**  
Maximum value of SAR (measured) = 1.36 W/kg



**13\_WLAN5.3GHz\_802.11a 6Mbps\_Edge1\_0mm\_Ch52\_Ant 1**

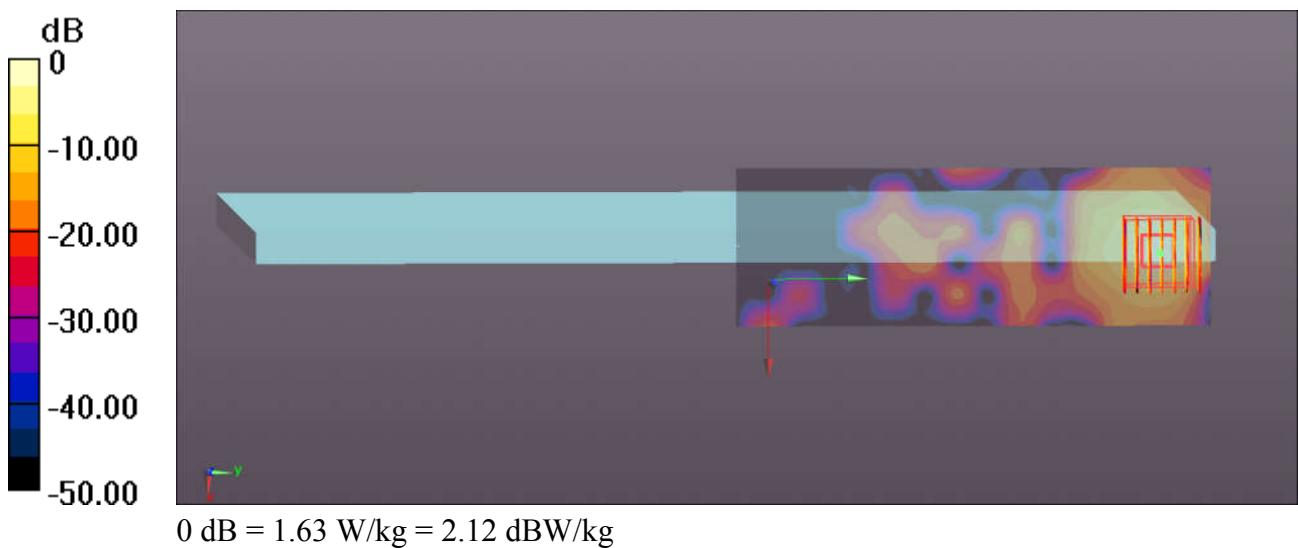
Communication System: UID 0, WIFI (0); Frequency: 5260 MHz; Duty Cycle: 1:1.057  
Medium: MSL\_5000 Medium parameters used:  $f = 5260 \text{ MHz}$ ;  $\sigma = 5.367 \text{ S/m}$ ;  $\epsilon_r = 48.431$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.72, 4.72, 4.72); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch52/Area Scan (51x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.39 W/kg

**Ch52/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 0.6560 V/m; Power Drift = 0.03 dB  
Peak SAR (extrapolated) = 2.77 W/kg  
**SAR(1 g) = 0.595 W/kg; SAR(10 g) = 0.151 W/kg**  
Maximum value of SAR (measured) = 1.63 W/kg



**14\_WLAN5.3GHz\_802.11a 6Mbpss\_Bottom Face \_0mm\_Ch60\_Ant 2**

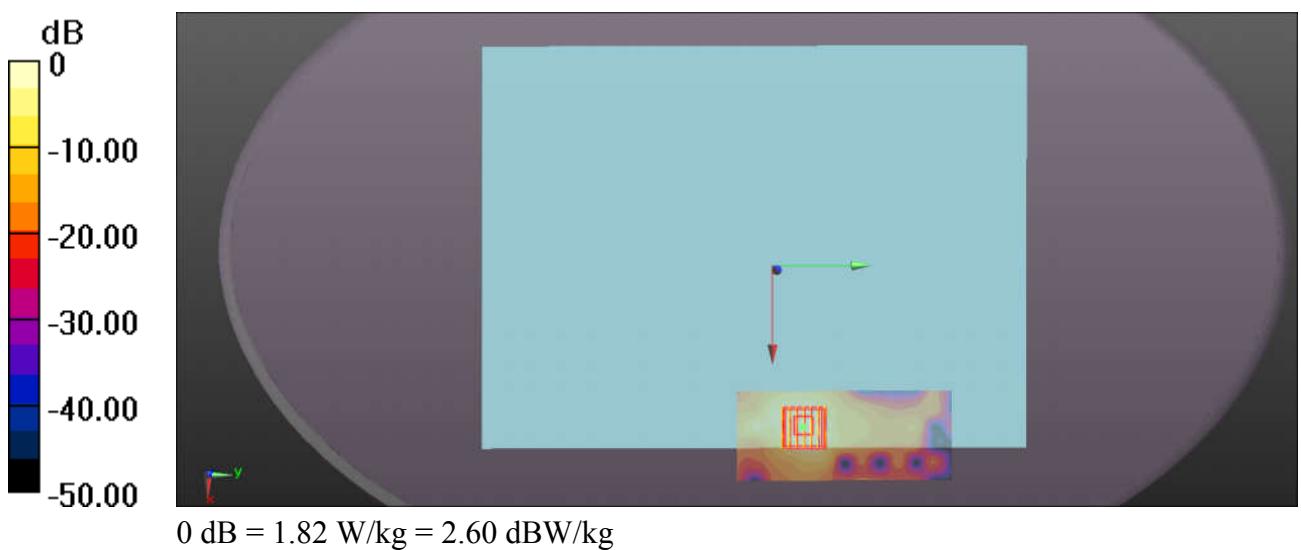
Communication System: UID 0, WIFI (0); Frequency: 5300 MHz; Duty Cycle: 1:1.056  
Medium: MSL\_5000 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.418$  S/m;  $\epsilon_r = 48.319$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.72, 4.72, 4.72); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch60/Area Scan (51x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.86 W/kg

**Ch60/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 1.701 V/m; Power Drift = -0.18 dB  
Peak SAR (extrapolated) = 4.22 W/kg  
**SAR(1 g) = 0.956 W/kg; SAR(10 g) = 0.319 W/kg**  
Maximum value of SAR (measured) = 1.82 W/kg



**15\_WLAN5.5GHz\_802.11a 6Mbps\_Edge1\_0mm\_Ch144\_Ant 1**

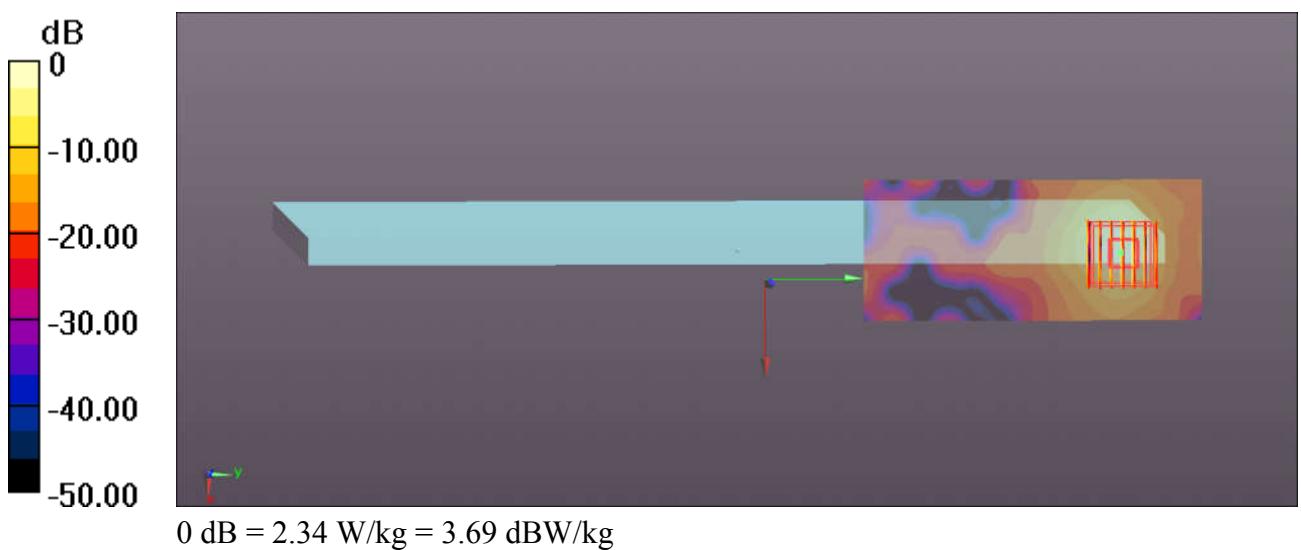
Communication System: UID 0, WIFI (0); Frequency: 5720 MHz; Duty Cycle: 1:1.057  
Medium: MSL\_5000 Medium parameters used:  $f = 5720$  MHz;  $\sigma = 6.02$  S/m;  $\epsilon_r = 47.405$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.31, 4.31, 4.31); Calibrated: 2017.5.26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch144/Area Scan (51x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 2.11 W/kg

**Ch144/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 0.6870 V/m; Power Drift = 0.14 dB  
Peak SAR (extrapolated) = 5.16 W/kg  
**SAR(1 g) = 0.835 W/kg; SAR(10 g) = 0.228 W/kg**  
Maximum value of SAR (measured) = 2.34 W/kg



**16\_WLAN5.5GHz\_802.11a 6Mbps\_Bottom Face\_0mm\_Ch100\_Ant 2**

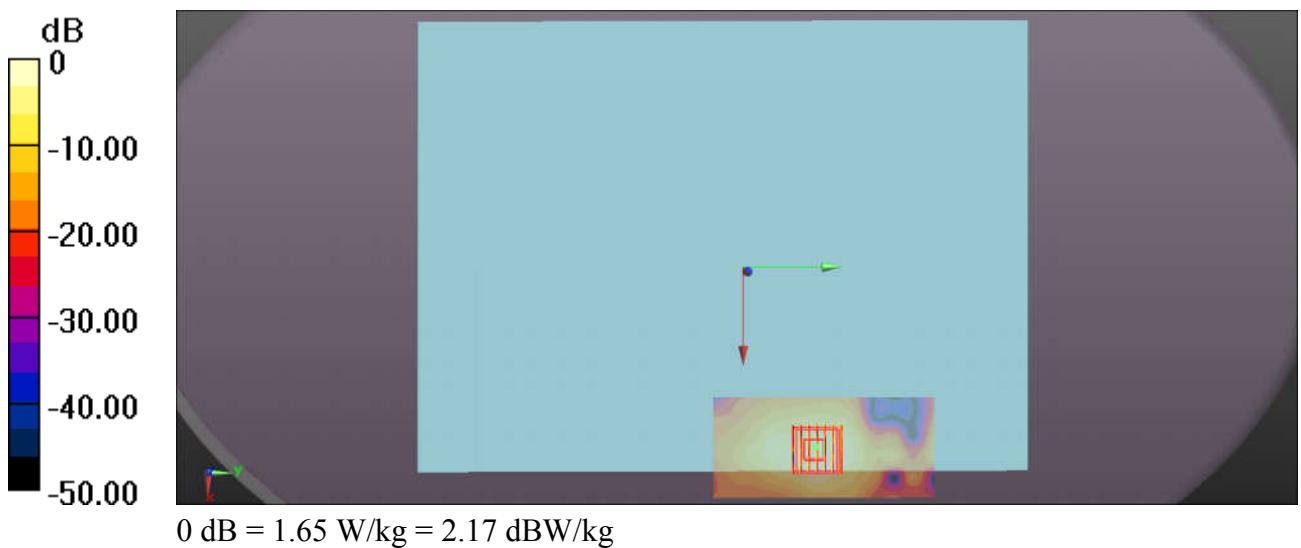
Communication System: UID 0, WIFI (0); Frequency: 5500 MHz; Duty Cycle: 1:1.056  
Medium: MSL\_5000 Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.717$  S/m;  $\epsilon_r = 47.955$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.01, 4.01, 4.01); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch100/Area Scan (51x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.70 W/kg

**Ch100/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 0.8910 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 3.82 W/kg  
**SAR(1 g) = 0.819 W/kg; SAR(10 g) = 0.278 W/kg**  
Maximum value of SAR (measured) = 1.65 W/kg



**17\_WLAN5.8GHz\_802.11a 6Mbps\_Edge1 \_0mm\_Ch149\_Ant 1**

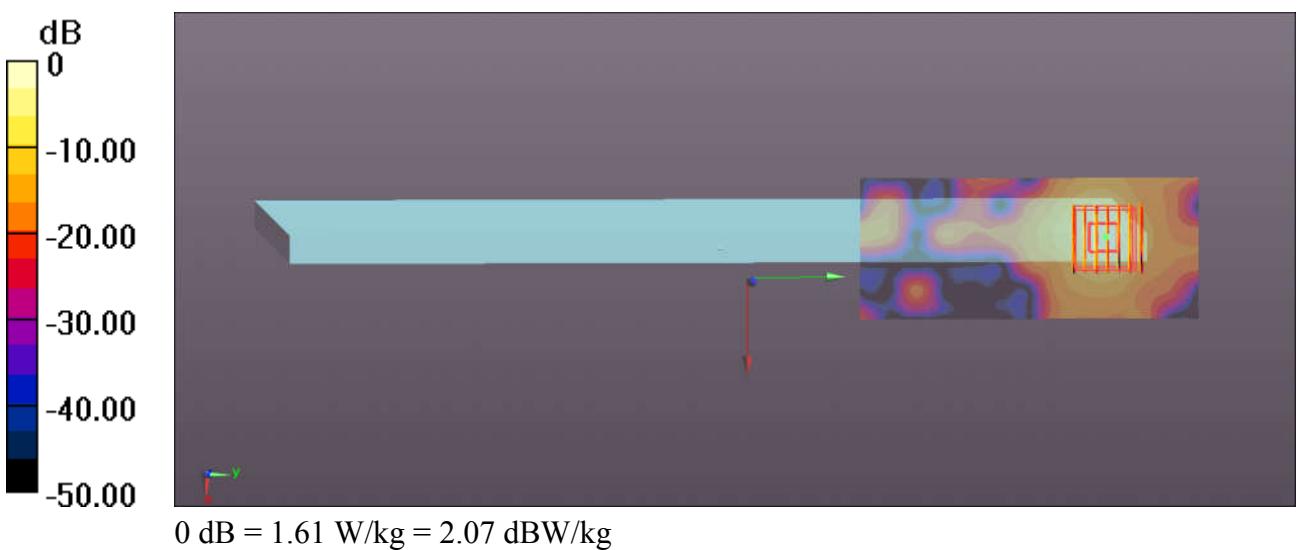
Communication System: UID 0, WIFI (0); Frequency: 5745 MHz; Duty Cycle: 1:1.057  
Medium: MSL\_5000 Medium parameters used:  $f = 5745 \text{ MHz}$ ;  $\sigma = 6.051 \text{ S/m}$ ;  $\epsilon_r = 47.358$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.31, 4.31, 4.31); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch149/Area Scan (51x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.53 W/kg

**Ch149/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 1.168 V/m; Power Drift = -0.04 dB  
Peak SAR (extrapolated) = 3.10 W/kg  
**SAR(1 g) = 0.719 W/kg; SAR(10 g) = 0.194 W/kg**  
Maximum value of SAR (measured) = 1.61 W/kg



**18\_WLAN5.8GHz\_802.11a 6Mbps\_Bottom Face\_0mm\_Ch157\_Ant 2**

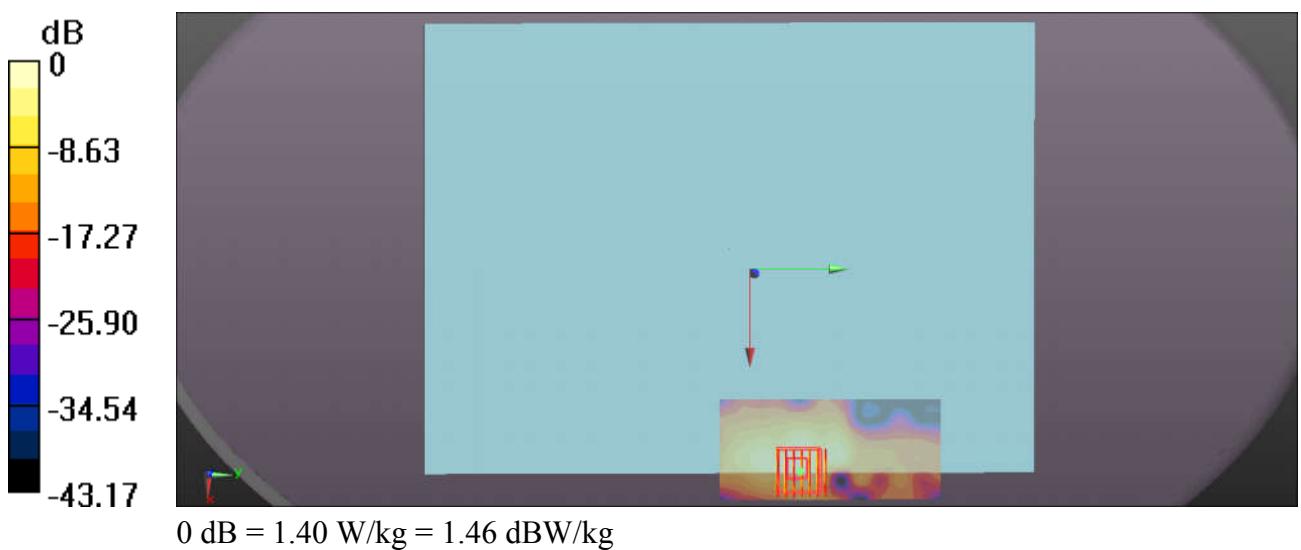
Communication System: UID 0, WIFI (0); Frequency: 5785 MHz; Duty Cycle: 1:1.056  
Medium: MSL\_5000 Medium parameters used:  $f = 5785 \text{ MHz}$ ;  $\sigma = 6.096 \text{ S/m}$ ;  $\epsilon_r = 47.214$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.31, 4.31, 4.31); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch157/Area Scan (51x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.02 W/kg

**Ch157/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 0.9490 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 3.49 W/kg  
**SAR(1 g) = 0.653 W/kg; SAR(10 g) = 0.178 W/kg**  
Maximum value of SAR (measured) = 1.40 W/kg



**19\_Bluetooth\_1Mbps\_Bottom Face\_0mm\_Ch39**

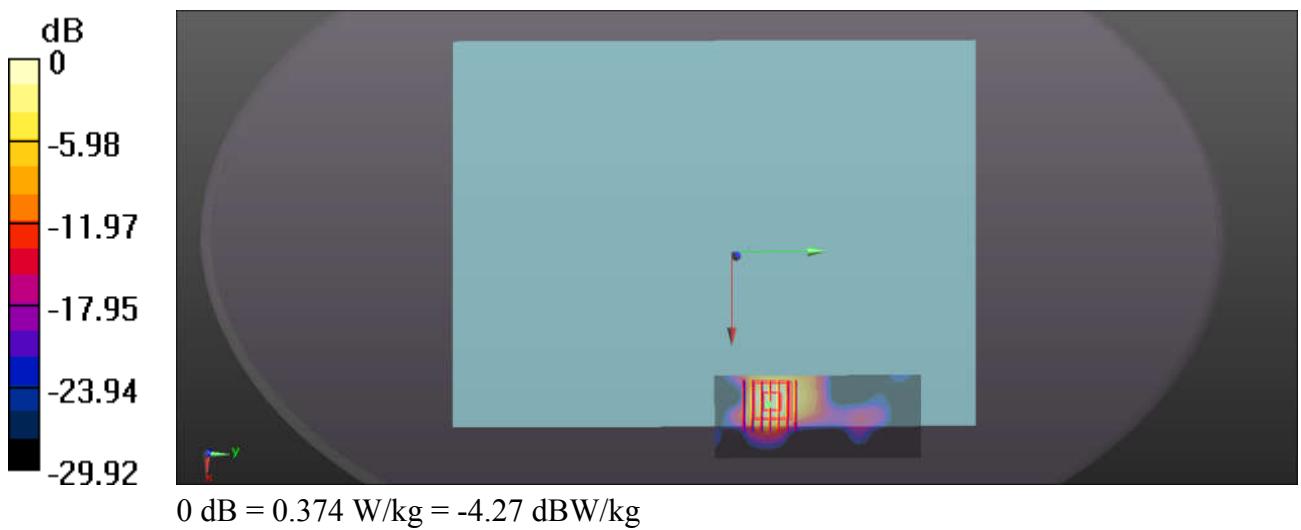
Communication System: UID 0, Bluetooth (0); Frequency: 2441 MHz; Duty Cycle: 1:1.3  
Medium: MSL\_2450 Medium parameters used:  $f = 2441 \text{ MHz}$ ;  $\sigma = 2.025 \text{ S/m}$ ;  $\epsilon_r = 53.215$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(7.7, 7.7, 7.7); Calibrated: 2017.5.26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2017.5.25
- Phantom: SAM4; Type: SAM; Serial: TP-1127
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch39/Area Scan (41x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 0.446 W/kg

**Ch39/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 0.6140 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 0.537 W/kg  
**SAR(1 g) = 0.240 W/kg; SAR(10 g) = 0.099 W/kg**  
Maximum value of SAR (measured) = 0.374 W/kg





## Appendix C. DASY Calibration Certificate

The DASY calibration certificates are shown as follows.



Client

Sportun-CN

Certificate No: Z16-97221

## CALIBRATION CERTIFICATE

Object D750V3 - SN: 1065

Calibration Procedure(s) FD-Z11-003-01  
 Calibration Procedures for dipole validation kits

Calibration date: November 21, 2016

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

### Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	27-Jun-16 (CTTL, No.J16X04771)	Jun-17
Power sensor NRP-Z91	101547	27-Jun-16 (CTTL, No.J16X04771)	Jun-17
Reference Probe EX3DV4	SN 7433	26-Sep-16(SPEAG, No.EX3-7433_Sep16)	Sep-17
DAE4	SN 771	02-Feb-16(CTTL-SPEAG, No.Z16-97011)	Feb-17
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	01-Feb-16 (CTTL, No.J16X00893)	Jan-17
Network Analyzer E5071C	MY46110673	26-Jan-16 (CTTL, No.J16X00894)	Jan-17

Calibrated by:	Name	Function	Signature
	Zhao Jing	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: November 26, 2016

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



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#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

#### Additional Documentation:

- e) DASY4/5 System Handbook

#### Methods Applied and Interpretation of Parameters:

- *Measurement Conditions*: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL*: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss*: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay*: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured*: SAR measured at the stated antenna input power.
- *SAR normalized*: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters*: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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## Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52		52.8.8.1258
Extrapolation	Advanced Extrapolation		
Phantom	Triple Flat Phantom 5.1C		
Distance Dipole Center - TSL	15 mm with Spacer		
Zoom Scan Resolution	dx, dy, dz = 5 mm		
Frequency	750 MHz ± 1 MHz		

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.8 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	---	---

## SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	8.32 mW / g ± 20.8 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.41 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	5.58 mW / g ± 20.4 % (k=2)

## Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.5 ± 6 %	0.95 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	---	---

## SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.16 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	8.71 mW / g ± 20.8 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	5.88 mW / g ± 20.4 % (k=2)



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## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.7Ω- 3.08jΩ
Return Loss	- 29.3dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.9Ω- 2.07jΩ
Return Loss	- 32.5dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.021 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.  
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

Manufactured by	SPEAG
-----------------	-------



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## DASY5 Validation Report for Head TSL

Date: 11.21.2016

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1065**

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.906 \text{ S/m}$ ;  $\epsilon_r = 41.82$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7433; ConvF(10.01, 10.01, 10.01); Calibrated: 9/26/2016;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2/2/2016
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

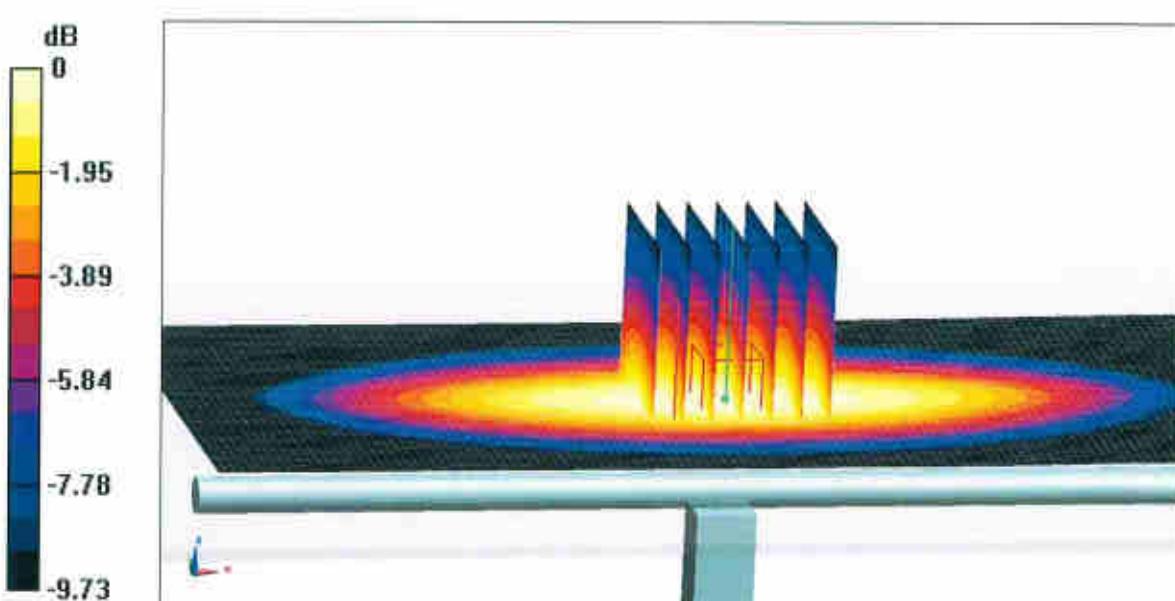
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 55.09 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.09 W/kg

**SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.41 W/kg**

Maximum value of SAR (measured) = 2.65 W/kg

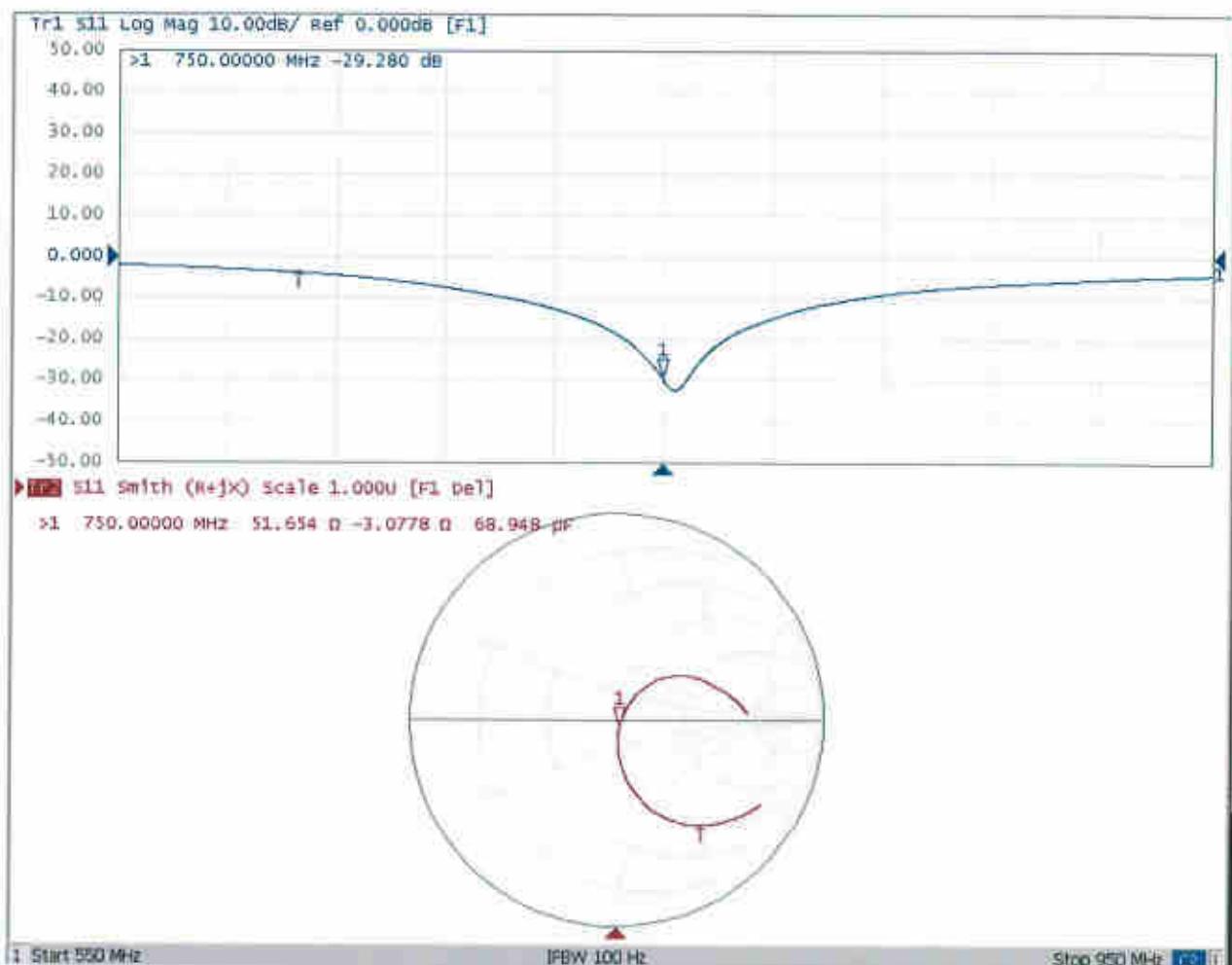


$$0 \text{ dB} = 2.65 \text{ W/kg} = 4.23 \text{ dBW/kg}$$



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### Impedance Measurement Plot for Head TSL





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## DASY5 Validation Report for Body TSL

Date: 11.21.2016

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1065**

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.945 \text{ S/m}$ ;  $\epsilon_r = 54.47$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7433; ConvF(9.83, 9.83, 9.83); Calibrated: 9/26/2016;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2/2/2016
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

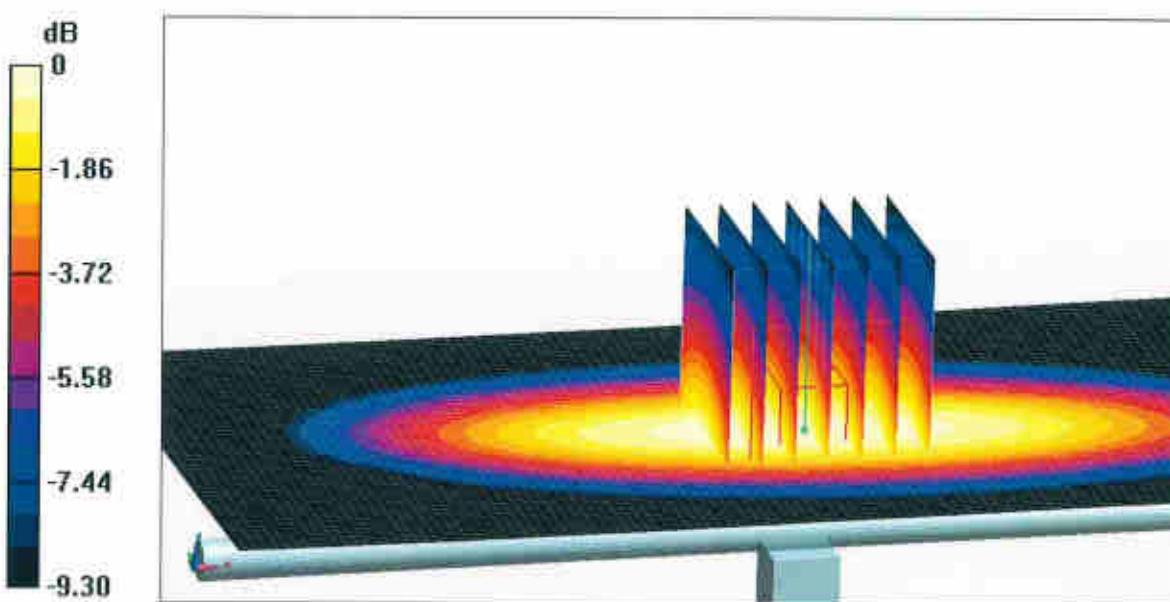
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.84 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.09 W/kg

**SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.46 W/kg**

Maximum value of SAR (measured) = 2.68 W/kg



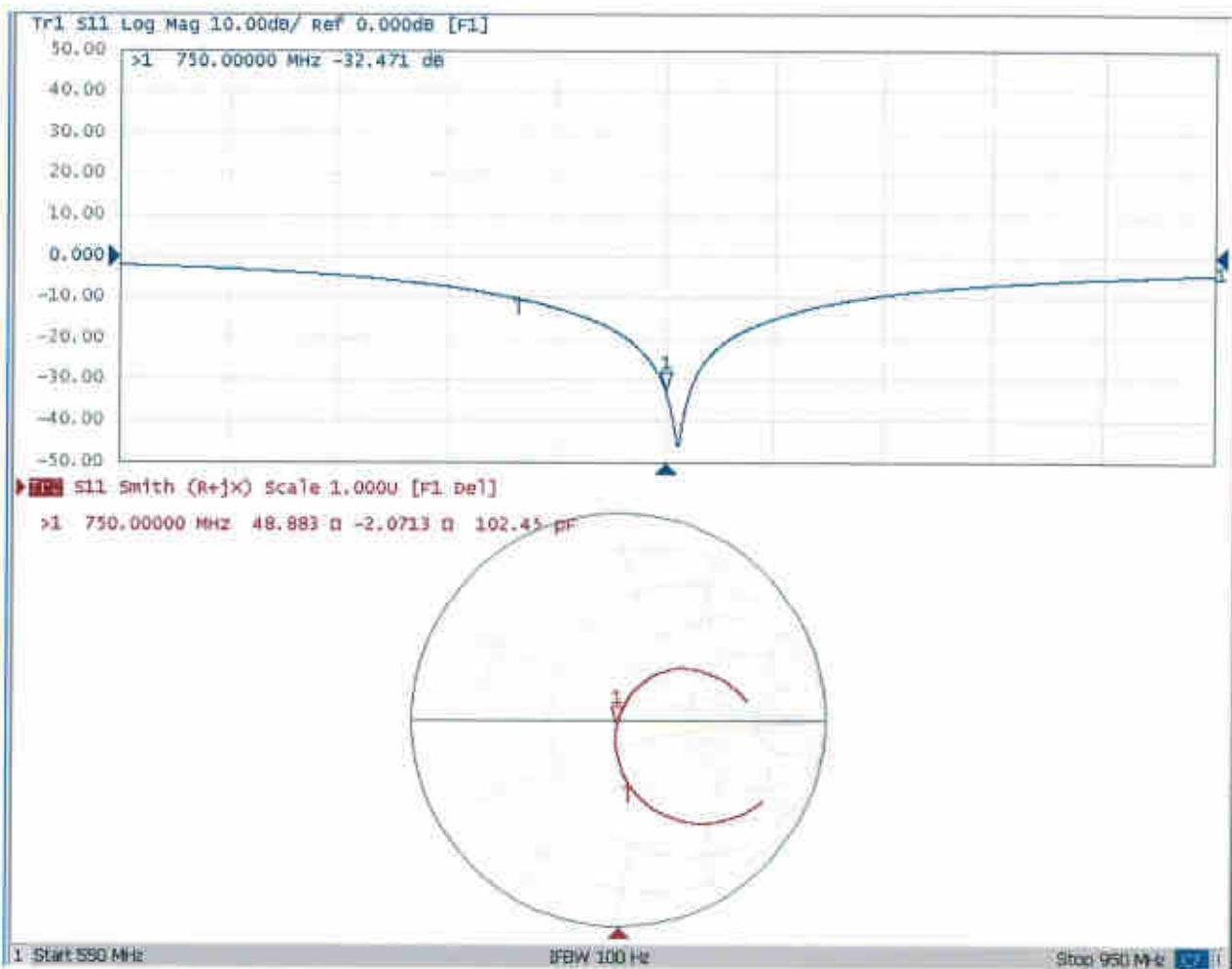
**0 dB = 2.68 W/kg = 4.28 dBW/kg**



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### Impedance Measurement Plot for Body TSL





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 CNAS L0570

Client

Sporton-CN

Certificate No: Z16-97223

## CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d091

Calibration Procedure(s) FD-Z11-003-01  
 Calibration Procedures for dipole validation kits

Calibration date: November 22, 2016

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature( $22\pm3$ )°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Power sensor NRP-Z91	101547	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Reference Probe EX3DV4	SN 7433	26-Sep-16(SPEAG, No.EX3-7433_Sep16)	Sep-17
DAE4	SN 771	02-Feb-16(CTTL-SPEAG, No.Z16-97011)	Feb-17
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	01-Feb-16 (CTTL, No.J16X00893)	Jan-17
Network Analyzer E5071C	MY46110673	26-Jan-16 (CTTL, No.J16X00894)	Jan-17

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: November 26, 2016

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### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

### Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

### Additional Documentation:

- e) DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- *Measurement Conditions*: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL*: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss*: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay*: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured*: SAR measured at the stated antenna input power.
- *SAR normalized*: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters*: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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## Measurement Conditions

DASY system configuration, as far as not given on page 1.

<b>DASY Version</b>	DASY52	
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Triple Flat Phantom 5.1C	
<b>Distance Dipole Center - TSL</b>	15 mm	with Spacer
<b>Zoom Scan Resolution</b>	dx, dy, dz = 5 mm	
<b>Frequency</b>	835 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	41.5	0.90 mho/m
<b>Measured Head TSL parameters</b>	(22.0 ± 0.2) °C	41.4 ± 6 %	0.92 mho/m ± 6 %
<b>Head TSL temperature change during test</b>	<1.0 °C	----	----

## SAR result with Head TSL

SAR averaged over 1 $cm^3$ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.36 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.31 mW /g ± 20.8 % (k=2)
SAR averaged over 10 $cm^3$ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.54 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.09 mW /g ± 20.4 % (k=2)

## Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Body TSL parameters</b>	22.0 °C	55.2	0.97 mho/m
<b>Measured Body TSL parameters</b>	(22.0 ± 0.2) °C	54.2 ± 6 %	0.95 mho/m ± 6 %
<b>Body TSL temperature change during test</b>	<1.0 °C	----	----

## SAR result with Body TSL

SAR averaged over 1 $cm^3$ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.40 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.68 mW /g ± 20.8 % (k=2)
SAR averaged over 10 $cm^3$ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.45 mW /g ± 20.4 % (k=2)



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## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.0Ω- 3.20jΩ
Return Loss	- 29.9dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.8Ω- 1.59jΩ
Return Loss	- 28.7dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.282 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.  
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

Manufactured by	SPEAG
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## DASY5 Validation Report for Head TSL

Date: 11.21.2016

Test Laboratory: CTTL, Beijing, China

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d091**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.916 \text{ S/m}$ ;  $\epsilon_r = 41.41$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7433; ConvF(9.82, 9.82, 9.82); Calibrated: 9/26/2016;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2/2/2016
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7372)

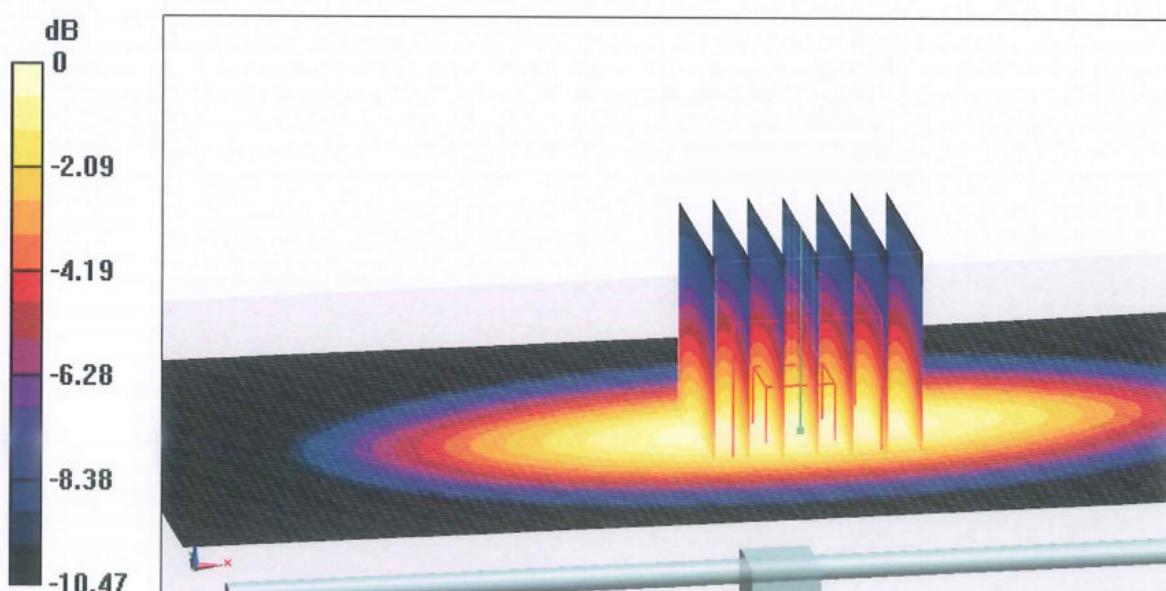
**Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 58.29V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.54 W/kg

**SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.54 W/kg**

Maximum value of SAR (measured) = 3.01 W/kg



**0 dB = 3.01 W/kg = 4.79 dBW/kg**