	802.11a	-	Bottom Side	0	100	1	15.0	14.83	-0.04	0.892	1.04	0.93
	802.11n	HT20	Rear Face	0	100	0+1	17.5	17.499	0.06	0.488	1.00	0.49
	802.11n	HT20	Left Side	0	100	0+1	17.5	17.499	0.04	0.55	1.00	0.55
	802.11n	HT20	Bottom Side	0	100	0+1	17.5	17.499	0.04	0.879	1.00	0.88
	802.11a	-	Bottom Side	0	116	1	15.0	14.75	0.03	0.871	1.06	0.92
	802.11n	HT20	Bottom Side	0	104	0+1	17.5	17.387	0.04	0.855	1.03	0.88
	802.11a	-	Bottom Side	0	100	1	15.0	14.83	-0.04	0.871	1.04	0.91
	802.11a	-	Rear Face	0	149	0	17.0	16.62	0.11	0.077	1.09	0.08
	802.11a	-	Left Side	0	149	0	17.0	16.62	0.15	0.356	1.09	0.39
	802.11a	-	Bottom Side	0	149	0	17.0	16.62	-0.07	0.078	1.09	0.09
	802.11a	-	Rear Face	0	149	1	15.5	15.28	-0.09	0.696	1.05	0.73
	802.11a	-	Bottom Side	0	149	1	15.5	15.28	-0.04	0.752	1.05	0.79
	802.11n	HT20	Rear Face	0	149	0+1	18.0	17.793	0.13	0.647	1.05	0.68
	802.11n	HT20	Left Side	0	149	0+1	18.0	17.793	-0.14	0.346	1.05	0.36
16	802.11n	HT20	Bottom Side	0	149	0+1	18.0	17.793	-0.14	0.735	1.05	0.77

4.7.3 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium maybe used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20, or when the original or repeated measurement is >= 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
WCDMA II	Rear Face	9538	1.19	1.13	1.05	N/A	N/A	N/A	N/A
WCDMA IV	Left Side	1513	0.89	0.88	1.01	N/A	N/A	N/A	N/A
LTE 4	Left Side	20175	0.87	0.86	1.01	N/A	N/A	N/A	N/A
LTE 7	Left Side	21100	1.20	1.18	1.02	N/A	N/A	N/A	N/A
LTE 25	Rear Face	26355	0.97	0.96	1.01	N/A	N/A	N/A	N/A
WIFI 5G	Bottom Side	40	0.91	0.91	1.00	N/A	N/A	N/A	N/A
WIFI 5G	Bottom Side	100	0.93	0.91	1.02	N/A	N/A	N/A	N/A

4.7.4 Simultaneous Multi-band Transmission Evaluation

<Estimated SAR Calculation>

According to KDB 447498 D01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR was estimated according to following formula to result in substantially conservative SAR values of <= 0.4 W/kg to determine simultaneous transmission SAR test exclusion.

$$\text{Estimated SAR} = \frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \frac{\sqrt{f_{(\text{GHz})}}}{7.5}$$

If the minimum test separation distance is < 5 mm, a distance of 5 mm is used for estimated SAR calculation. When the test separation distance is > 50 mm, the 0.4 W/kg is used for SAR-1g.

Mode / Band	Frequency (GHz)	Max. Tune-up Power (dBm)	Test Position	Separation Distance (mm)	Estimated SAR (W/kg)
BT (DSS)	2.48	3.0	Body	0	0.083

Note:

1. The separation distance is determined from the outer housing of the EUT to the user.
2. When standalone SAR testing is not required, an estimated SAR can be applied to determine simultaneous transmission SAR test exclusion.

<SAR Summation Analysis>

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR_{1g} of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit(SAR_{1g} 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR_{1g} is greater than the SAR limit (SAR_{1g} 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	WCDMA II + WLAN (DTS)	Body	Rear Face	1.19	0.76	**1.95**	**Analyzed as below**
			Left Side	0.38	0.22	0.60	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.03	0.40	0.43	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
2	WCDMA II + WLAN (NII)	Body	Rear Face	1.19	0.73	**1.92**	**Analyzed as below**
			Left Side	0.38	0.60	0.98	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.03	0.40	0.43	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
3	WCDMA II + BT(DSS)	Body	Rear Face	1.19	0.07	1.26	∑SAR < 1.6, Not required
			Left Side	0.38	0.07	0.45	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.03	0.07	0.10	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
4	WCDMA IV + WLAN (DTS)	Body	Rear Face	0.76	0.76	1.52	∑SAR < 1.6, Not required
			Left Side	0.89	0.22	1.11	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
5	WCDMA IV + WLAN (NII)	Body	Rear Face	0.76	0.73	1.49	∑SAR < 1.6, Not required
			Left Side	0.89	0.60	1.49	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
6	WCDMA IV	Body	Rear Face	0.76	0.07	0.83	∑SAR < 1.6, Not required

	+ BT(DSS)		Left Side	0.89	0.07	0.96	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.02	0.07	0.09	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
7	WCDMA V + WLAN (DTS)	Body	Rear Face	0.29	0.76	1.05	∑SAR < 1.6, Not required
			Left Side	0.35	0.22	0.57	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.06	0.40	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
8	WCDMA V + WLAN (NII)	Body	Rear Face	0.29	0.73	1.02	∑SAR < 1.6, Not required
			Left Side	0.35	0.60	0.95	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.06	0.40	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
9	WCDMA V + BT(DSS)	Body	Rear Face	0.29	0.07	0.36	∑SAR < 1.6, Not required
			Left Side	0.35	0.07	0.42	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.06	0.07	0.13	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
10	LTE 4 + WLAN (DTS)	Body	Rear Face	0.70	0.76	1.46	∑SAR < 1.6, Not required
			Left Side	0.87	0.22	1.09	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
11	LTE 4 + WLAN (NII)	Body	Rear Face	0.70	0.73	1.43	∑SAR < 1.6, Not required
			Left Side	0.87	0.60	1.47	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
12	LTE 4 + BT(DSS)	Body	Rear Face	0.70	0.07	0.77	∑SAR < 1.6, Not required
			Left Side	0.87	0.07	0.94	∑SAR < 1.6, Not required

			Right Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required
			Top Side	0.02	0.07	0.09	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
13	LTE 5 + WLAN (DTS)	Body	Rear Face	0.36	0.76	1.12	ΣSAR < 1.6, Not required
			Left Side	0.32	0.22	0.54	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.07	0.40	0.47	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	ΣSAR < 1.6, Not required
14	LTE 5 + WLAN (NII)	Body	Rear Face	0.36	0.73	1.09	ΣSAR < 1.6, Not required
			Left Side	0.32	0.60	0.92	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.07	0.40	0.47	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	ΣSAR < 1.6, Not required
15	LTE 5 + BT(DSS)	Body	Rear Face	0.36	0.07	0.43	ΣSAR < 1.6, Not required
			Left Side	0.32	0.07	0.39	ΣSAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required
			Top Side	0.07	0.07	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
16	LTE 7 + WLAN (DTS)	Body	Rear Face	0.23	0.76	0.99	ΣSAR < 1.6, Not required
			Left Side	1.20	0.22	1.42	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.04	0.40	0.44	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	ΣSAR < 1.6, Not required
17	LTE 7 + WLAN (NII)	Body	Rear Face	0.23	0.73	0.96	ΣSAR < 1.6, Not required
			Left Side	1.20	0.60	**1.80**	**Analyzed as below**
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.04	0.40	0.44	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	ΣSAR < 1.6, Not required
18	LTE 7 + BT(DSS)	Body	Rear Face	0.23	0.07	0.30	ΣSAR < 1.6, Not required
			Left Side	1.20	0.07	1.27	ΣSAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

			Top Side	0.04	0.07	0.11	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
19	LTE 12 + WLAN (DTS)	Body	Rear Face	0.23	0.76	0.99	∑SAR < 1.6, Not required
			Left Side	0.22	0.22	0.44	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
20	LTE 12 + WLAN (NII)	Body	Rear Face	0.23	0.73	0.96	∑SAR < 1.6, Not required
			Left Side	0.22	0.60	0.82	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
21	LTE 12 + BT(DSS)	Body	Rear Face	0.23	0.07	0.30	∑SAR < 1.6, Not required
			Left Side	0.22	0.07	0.29	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.02	0.07	0.09	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
22	LTE 13 + WLAN (DTS)	Body	Rear Face	0.33	0.76	1.09	∑SAR < 1.6, Not required
			Left Side	0.32	0.22	0.54	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.03	0.40	0.43	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
23	LTE 13 + WLAN (NII)	Body	Rear Face	0.33	0.73	1.06	∑SAR < 1.6, Not required
			Left Side	0.32	0.60	0.92	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.03	0.40	0.43	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
24	LTE 13 + BT(DSS)	Body	Rear Face	0.33	0.07	0.40	∑SAR < 1.6, Not required
			Left Side	0.32	0.07	0.39	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.03	0.07	0.10	∑SAR < 1.6, Not required

			Bottom Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
25	LTE 25 + WLAN (DTS)	Body	Rear Face	0.97	0.76	**1.73**	**Analyzed as below**
			Left Side	0.39	0.22	0.61	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	ΣSAR < 1.6, Not required
26	LTE 25 + WLAN (NII)	Body	Rear Face	0.97	0.73	1.70	ΣSAR < 1.6, Not required
			Left Side	0.39	0.60	0.99	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	ΣSAR < 1.6, Not required
27	LTE 25 + BT(DSS)	Body	Rear Face	0.97	0.07	1.04	ΣSAR < 1.6, Not required
			Left Side	0.39	0.07	0.46	ΣSAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required
			Top Side	0.02	0.07	0.09	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
28	LTE 26 + WLAN (DTS)	Body	Rear Face	0.30	0.76	1.06	ΣSAR < 1.6, Not required
			Left Side	0.36	0.22	0.58	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.06	0.40	0.46	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	ΣSAR < 1.6, Not required
29	LTE 26 + WLAN (NII)	Body	Rear Face	0.30	0.73	1.03	ΣSAR < 1.6, Not required
			Left Side	0.36	0.60	0.96	ΣSAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	ΣSAR < 1.6, Not required
			Top Side	0.06	0.40	0.46	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	ΣSAR < 1.6, Not required
30	LTE 26 + BT(DSS)	Body	Rear Face	0.30	0.07	0.37	ΣSAR < 1.6, Not required
			Left Side	0.36	0.07	0.43	ΣSAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required
			Top Side	0.06	0.07	0.13	ΣSAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	ΣSAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
31	LTE 30 + WLAN (DTS)	Body	Rear Face	0.30	0.76	1.06	∑SAR < 1.6, Not required
			Left Side	0.49	0.22	0.71	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.04	0.40	0.44	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
32	LTE 30 + WLAN (NII)	Body	Rear Face	0.30	0.73	1.03	∑SAR < 1.6, Not required
			Left Side	0.49	0.60	1.09	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.04	0.40	0.44	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
33	LTE 30 + BT(DSS)	Body	Rear Face	0.30	0.07	0.37	∑SAR < 1.6, Not required
			Left Side	0.49	0.07	0.56	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.04	0.07	0.11	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
34	LTE 41 + WLAN (DTS)	Body	Rear Face	0.17	0.76	0.93	∑SAR < 1.6, Not required
			Left Side	0.54	0.22	0.76	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.33	0.73	∑SAR < 1.6, Not required
35	LTE 41 + WLAN (NII)	Body	Rear Face	0.17	0.73	0.90	∑SAR < 1.6, Not required
			Left Side	0.54	0.60	1.14	∑SAR < 1.6, Not required
			Right Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
			Top Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.93	1.33	∑SAR < 1.6, Not required
36	LTE 41 + BT(DSS)	Body	Rear Face	0.17	0.07	0.24	∑SAR < 1.6, Not required
			Left Side	0.54	0.07	0.61	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.02	0.07	0.09	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	0.47	∑SAR < 1.6, Not required

<SAR to Peak Location Separation Ratio Analysis>

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

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

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

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

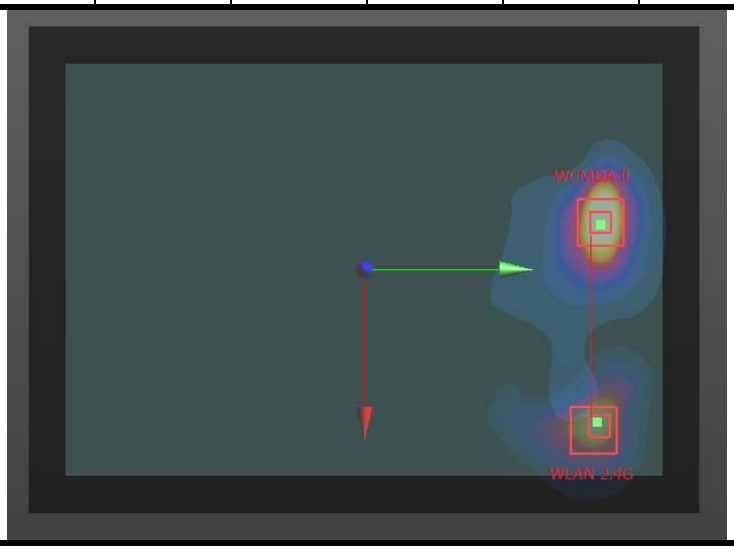
The SPLSR is determined by the following formula.

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

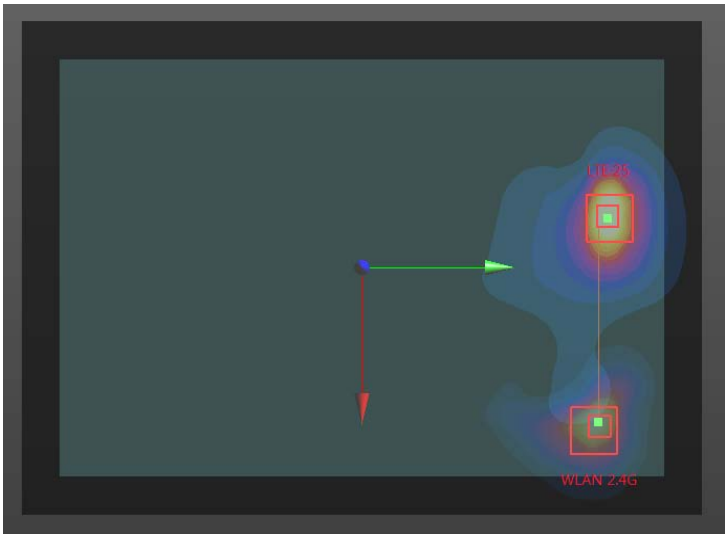
Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

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

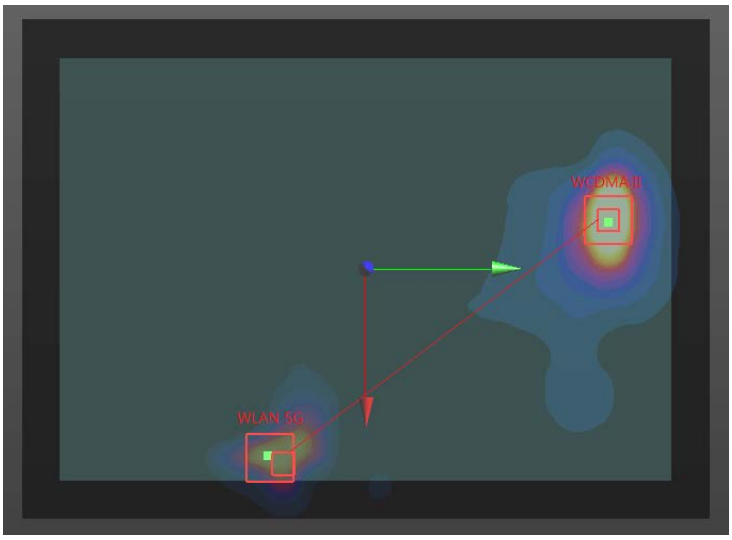
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA II	Body	Rear Face	1.19	-21.0	111.0	2.0	93.2	0.029	SPLSR < 0.04,
WLAN 2.4G			0.76	72.1	114.3	3.2			Not required



Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 25	Body	Rear Face	0.97	-24.1	114.0	1.9	96.2	0.024	SPLSR < 0.04,
WLAN 2.4G			0.76	72.1	114.3	3.2			Not required

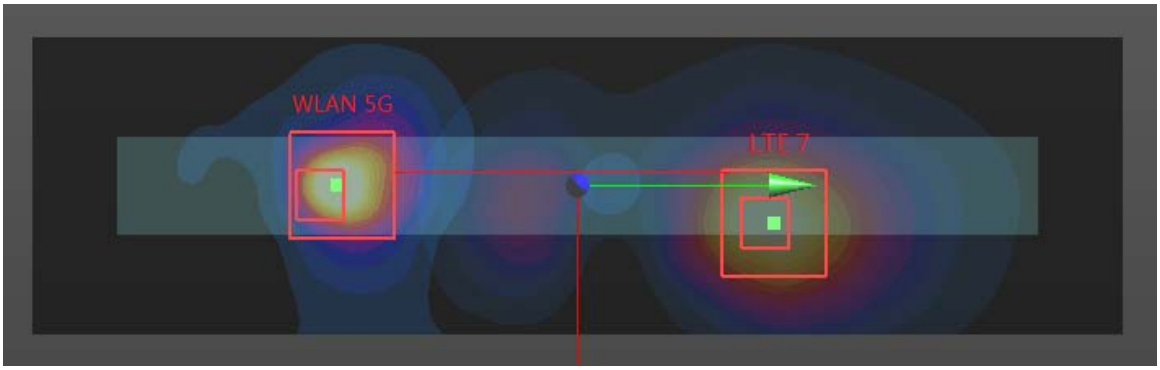


Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA II	Body	Rear Face	1.19	-21.0	111.0	2.0	181.6	0.015	SPLSR < 0.04,
WLAN 5G			0.73	86.4	-35.4	3.0			Not required



Conditions	Exposure	Test	SAR	Coordinates	Peak	SPLSR	Simultaneous

	Condition	Position	Value (W/kg)	x	y	z	Location Separation Distance (R_i, mm)		Transmission SAR Test
LTE 7	Body	Left Side	1.20	7.5	35.7	1.5	90.2	0.027	SPLSR < 0.04,
WLAN 5G			0.60	1.6	-54.3	2.0			Not required



Test Engineer：Lexian Wu

5. *Calibration of Test Equipment*

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1067	Aug. 27, 2017	1 Year
System Validation Dipole	SPEAG	D835V2	4d139	Aug. 27, 2017	1 Year
System Validation Dipole	SPEAG	D900V2	1d139	Aug. 27, 2017	1 Year
System Validation Dipole	SPEAG	D1750V2	1071	Aug. 26, 2017	1 Year
System Validation Dipole	SPEAG	D1900V2	5d159	Aug. 26, 2017	1 Year
System Validation Dipole	SPEAG	D2300V2	1053	Aug. 30, 2017	1 Year
System Validation Dipole	SPEAG	D2450V2	893	Aug. 29, 2017	1 Year
System Validation Dipole	SPEAG	D2600V2	1110	Aug. 29, 2017	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1133	Sep. 18, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3970	Nov. 02, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1418	Oct. 09, 2017	1 Year
Wideband Radio Communication Tester	R&S	CMW500	140822	May. 19, 2018	1 Year
ENA Series Network Analyzer	Agilent	E5071B	MY42404246	May. 19, 2018	1 Year
Signal Analyzer	Agilent	N9010A	My53470879	May. 19, 2018	1Year
Signal Generator	Agilent	N5181A	MY50145187	May. 19, 2018	1 Year
Power Meter	BOONTON	4232A	10539	May. 19, 2018	1 Year
Power Sensor	BOONTON	51011EMC	34236/34238	May. 19, 2018	1 Year
Temp. & Humi. Recorder	CLOCK	HTC-1	EE-334	Jul. 14, 2018	1 Year
Electronic Thermometer	FeiHong	HY	TP101	May. 19, 2018	1 Year
Coupler	Woken	0110A056020	COM27RW1A3	Sep. 27, 2017	1 Year

6. *Measurement Uncertainty*

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.05	6.05	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Probe Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mech. Restrictions	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Power Drift of Measured SAR	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Algorithm for Correcting SAR for Deviations in Permittivity and Conductivity	1.2 / 0.97	Normal	1	1	0.84	1.2	0.8	∞
Liquid Conductivity (Meas.)	1.0	Normal	1	0.78	0.71	0.8	0.7	25
Liquid Permittivity (Meas.)	0.5	Normal	1	0.23	0.26	0.1	0.1	25
Liquid Conductivity– Temperature Uncertainty	2.2	Rectangular	√3	0.78	0.71	1.0	0.9	∞
Liquid Permittivity– Temperature Uncertainty	1.9	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Combined Standard Uncertainty						±12.1%	± 11.4 %	
Expanded Uncertainty (K=2)						**±24.2%**	**±22.8%**	

Uncertainty budget for frequency range 300 MHz to 3 GHz

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.65	6.65	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Probe Modulation Response	2.4	Rectangular	√3	1	1	1.4	1.4	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mech. Restrictions	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Power Drift of Measured SAR	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.6	Rectangular	√3	1	1	4.4	4.4	∞
Algorithm for Correcting SAR for Deviations in Permittivity and Conductivity	1.2 / 0.97	Normal	1	1	0.84	1.2	0.8	∞
Liquid Conductivity (Meas.)	1.0	Normal	1	0.78	0.71	0.8	0.7	25
Liquid Permittivity (Meas.)	0.5	Normal	1	0.23	0.26	0.1	0.1	25
Liquid Conductivity– Temperature Uncertainty	2.2	Rectangular	√3	0.78	0.71	1.0	0.9	∞
Liquid Permittivity– Temperature Uncertainty	1.9	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Combined Standard Uncertainty						±13.2%	±12.5	
Expanded Uncertainty (K=2)						**±26.4%**	**±25.0%**	

Uncertainty budget for frequency range 3 GHz to 6 GHz

7. *Information on the Testing Laboratories*

We, EMTEK (SHENZHEN) CO., LTD., were founded in 2000 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Site Description

EMC Lab. : Accredited by CNAS,2016.10.24
The certificate is valid until 2022.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
The Certificate Registration Number is L2291.

Accredited by TUV Rheinland Shenzhen 2016.5.19
The Laboratory has been assessed according to the requirements ISO/IEC 17025.

Accredited by FCC, August 03, 2017
Designation Number: CN1204
Test Firm Registration Number: 882943
Accredited by A2LA, July 31, 2017
The Certificate Registration Number is 4321.01.

Accredited by Industry Canada, November 24, 2015
The Certificate Registration Number is 4480A

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

Add: Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
TEL: 86-755-26954280
FAX: 86-755-26954282

Email: csg@emtek.com.cn
Web Site: www.emtek.com.cn

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

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Appendix A. SAR Plots of System Verification

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

Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

System Check_B750_180708

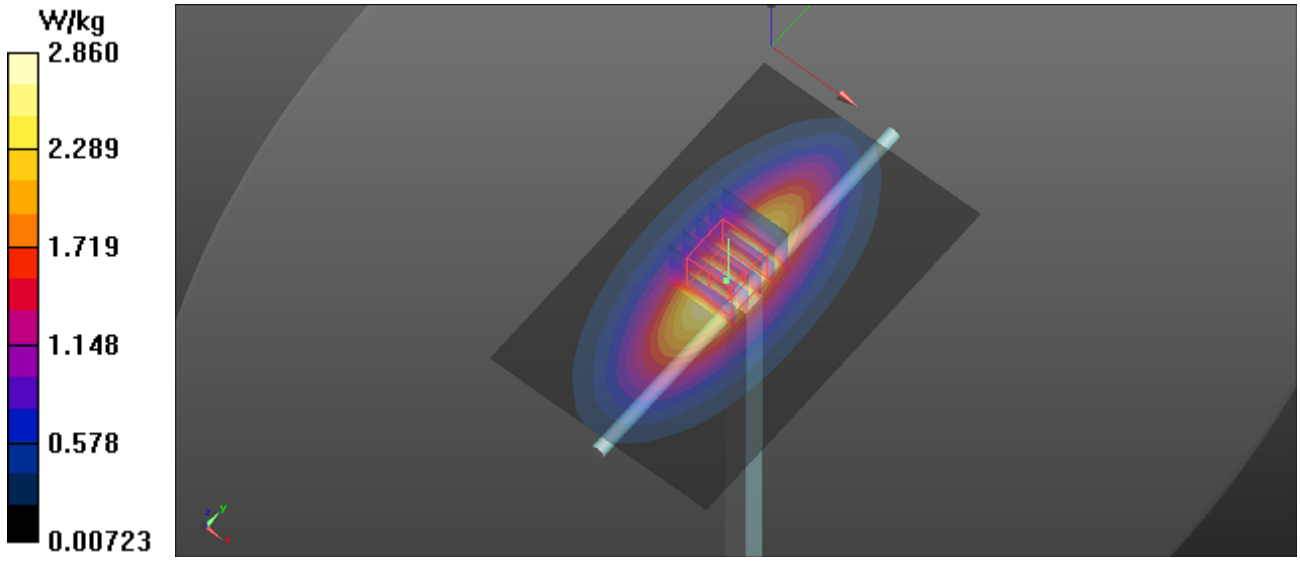
DUT: Dipole:750 MHz;Type:D750V3;SN:1067

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: B750_0708 Medium parameters used: f = 750 MHz; σ = 0.976 S/m; ε_r = 56.163; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.35, 10.35, 10.35); Calibrated: 2017/11/02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.89 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.452 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 3.30 W/kg
SAR(1 g) = 2.31 W/kg; SAR(10 g) = 1.57 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

System Check_B835_180708

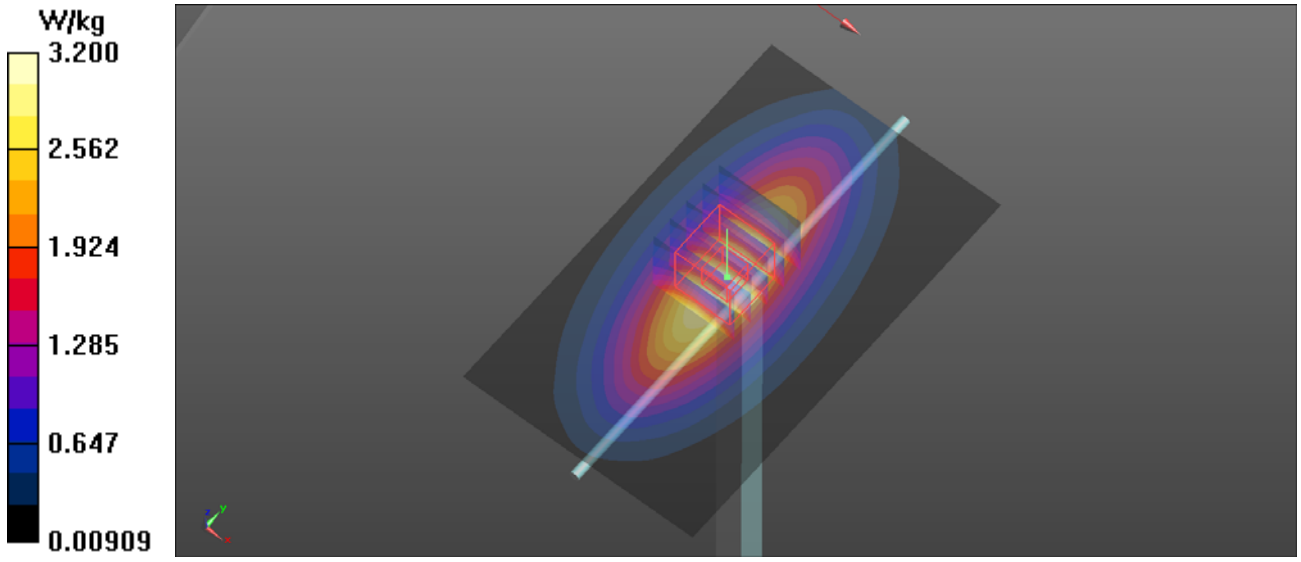
DUT: Dipole:835 MHz; Type:D835V2; SN:4d139

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: B835_0708 Medium parameters used: f = 835 MHz; σ = 0.98 S/m; ε_r = 55.833; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.16, 10.16, 10.16); Calibrated: 2017/11/02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.20 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.181 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.70 W/kg
SAR(1 g) = 2.56 W/kg; SAR(10 g) = 1.70 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/09

System Check_B1750_180709

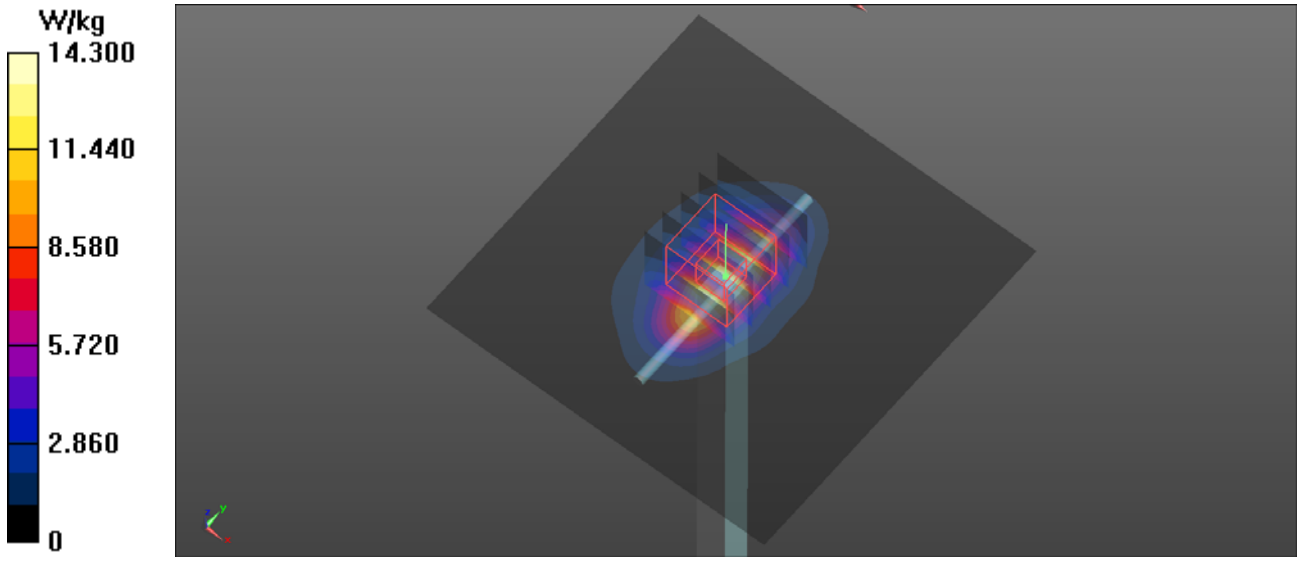
DUT: Dipole 1750 MHz;Type:D1750V2; SN:1071

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: B1750_0709 Medium parameters used: f = 1750 MHz; σ = 1.468 S/m; ε_r = 53.903; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.32, 8.32, 8.32); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=2.000 mm, dy=2.000 mm
Maximum value of SAR (interpolated) = 14.3 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 98.7 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 9.72 W/kg; SAR(10 g) = 5.14 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/10

System Check_B1900_180710

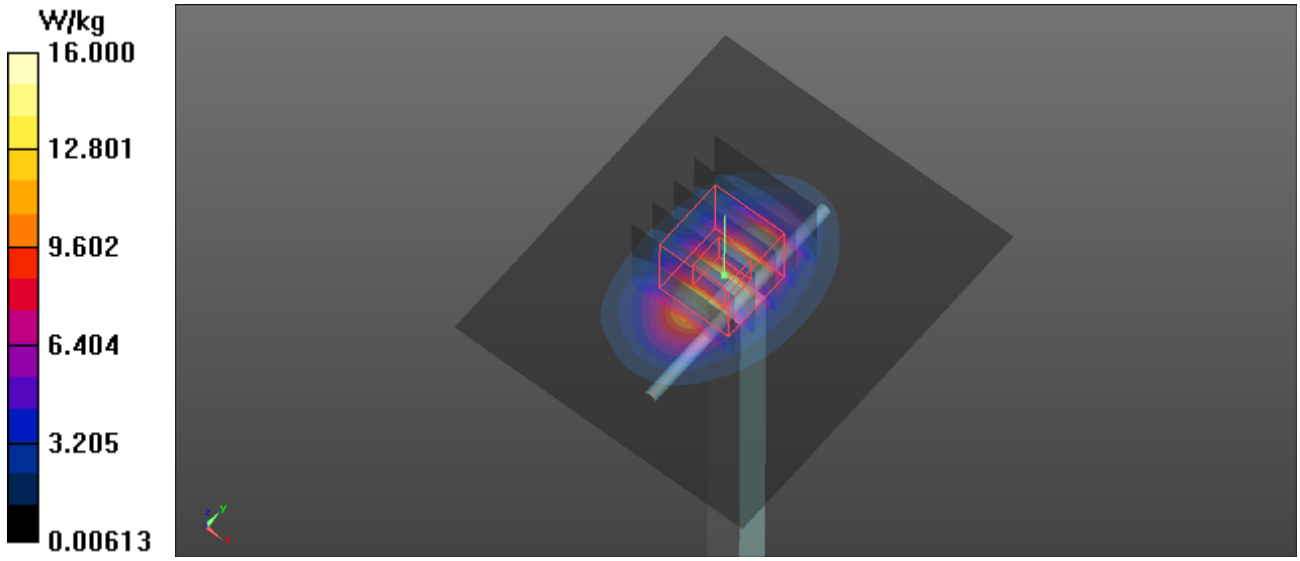
DUT: Dipole 1900 MHz;Type:D1900V2; SN:5d159

Communication System: CW; Frequency: 2000 MHz;Duty Cycle: 1:1
Medium: B1900_0710 Medium parameters used: f = 1920 MHz; σ = 1.572 S/m; ε_r = 53.005; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.1, 8.1, 8.1); Calibrated: 2017/11/02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 16.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 100.8 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 18.8 W/kg
SAR(1 g) = 10.47 W/kg; SAR(10 g) = 5.47 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/17

System Check_B2450_180717

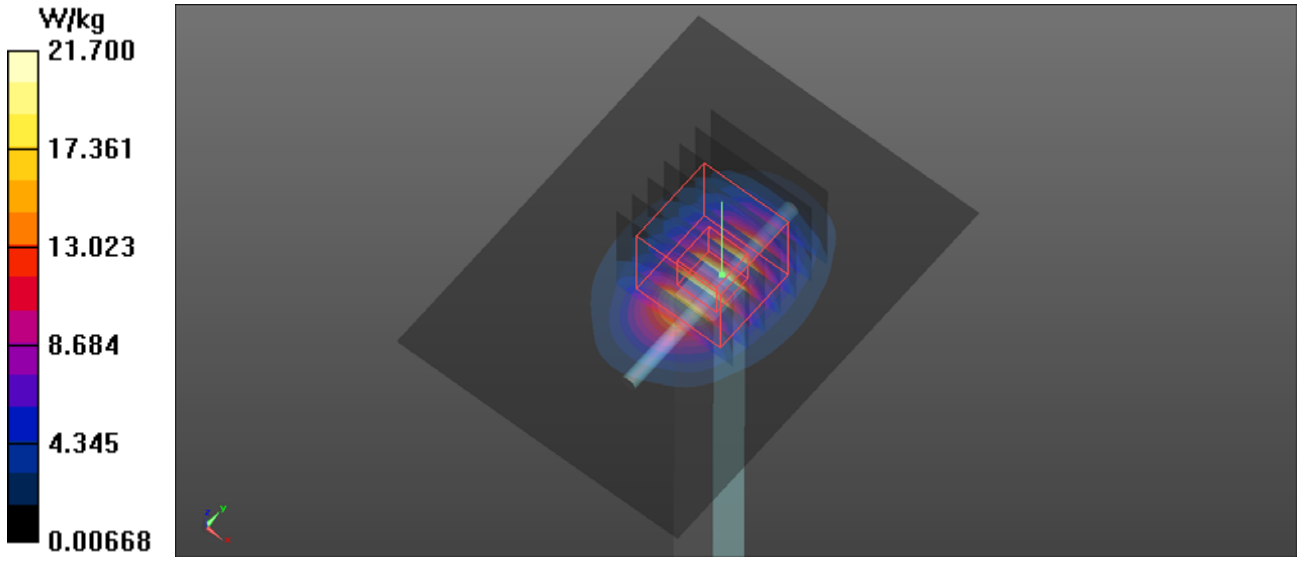
DUT: Dipole 2450 MHz; Type:D2450V2; SN:835

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: B2450_0717 Medium parameters used: f = 2450 MHz; σ = 2.024 S/m; ε_r = 53.364; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.83, 7.83, 7.83); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 21.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 103.5 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 25.8 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.02 W/kg
Maximum value of SAR (measured) = 20.9 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/16

System Check_B2600_180716

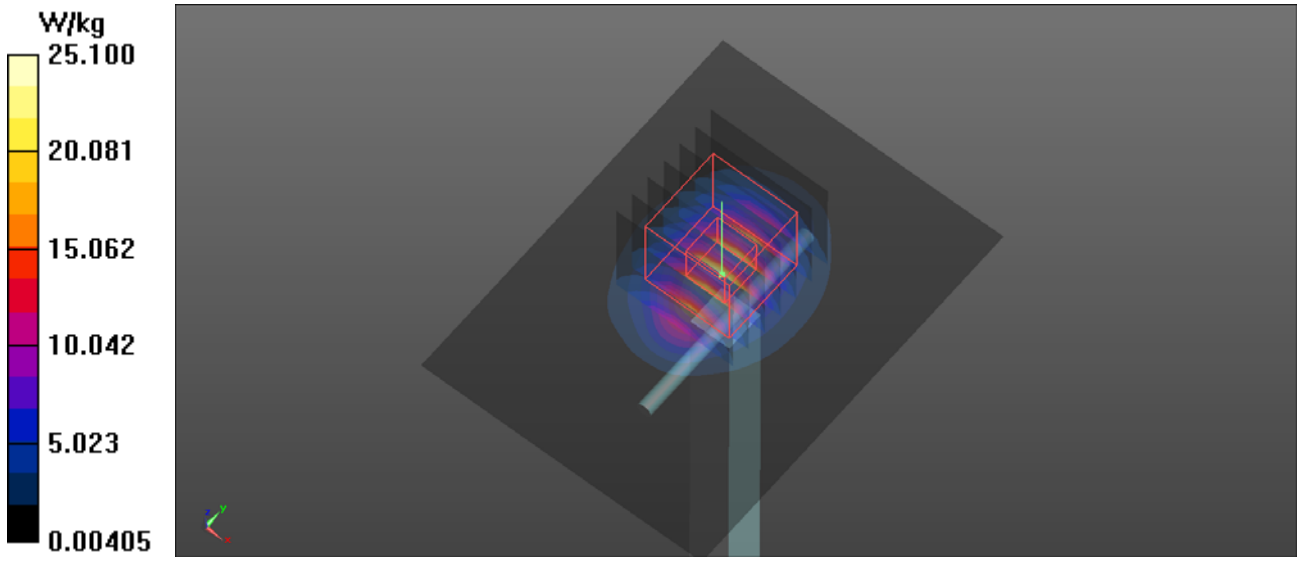
DUT: Dipole 2600 MHz; Type:D2600V2; SN:1058

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: B2600_0716 Medium parameters used: f = 2600 MHz; σ = 2.208 S/m; ε_r = 52.423; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.49, 7.49, 7.49); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 25.1 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.5 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 29.7 W/kg
SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.27 W/kg
Maximum value of SAR (measured) = 23.9 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/18

System Check_B5200_180718

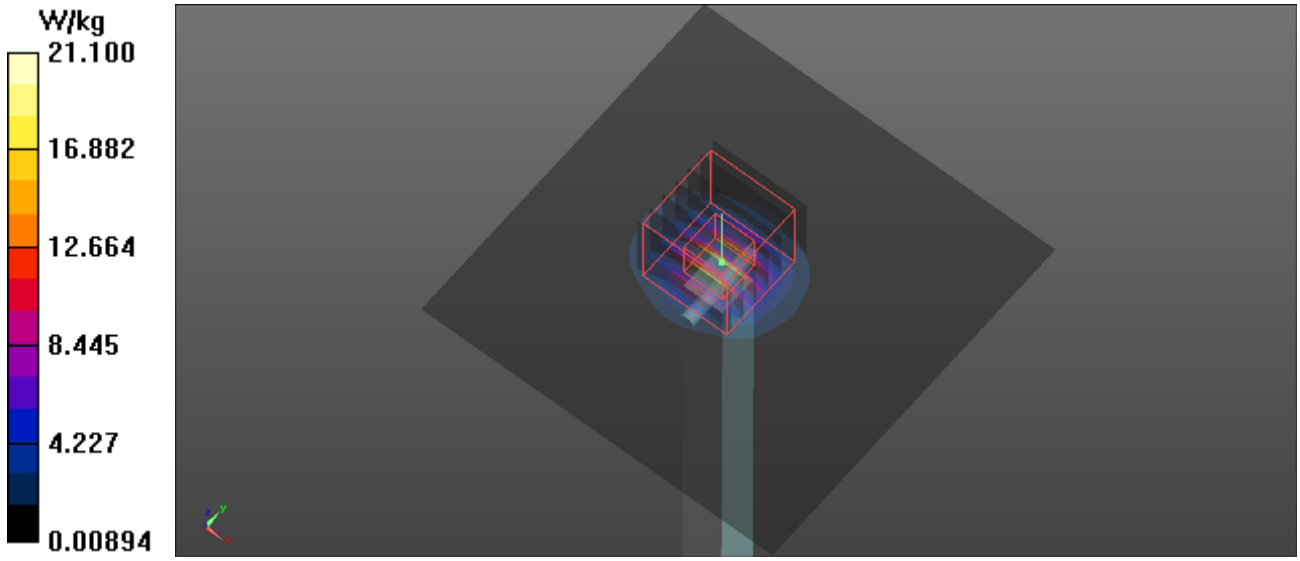
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: B5G_0718 Medium parameters used: f = 5200 MHz; σ = 5.137 S/m; ε_r = 48.164; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(5.19, 5.19, 5.19); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 21.1 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 64.075 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 36.7 W/kg
SAR(1 g) = 8.41 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 22.2 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/18

System Check_B5300_180718

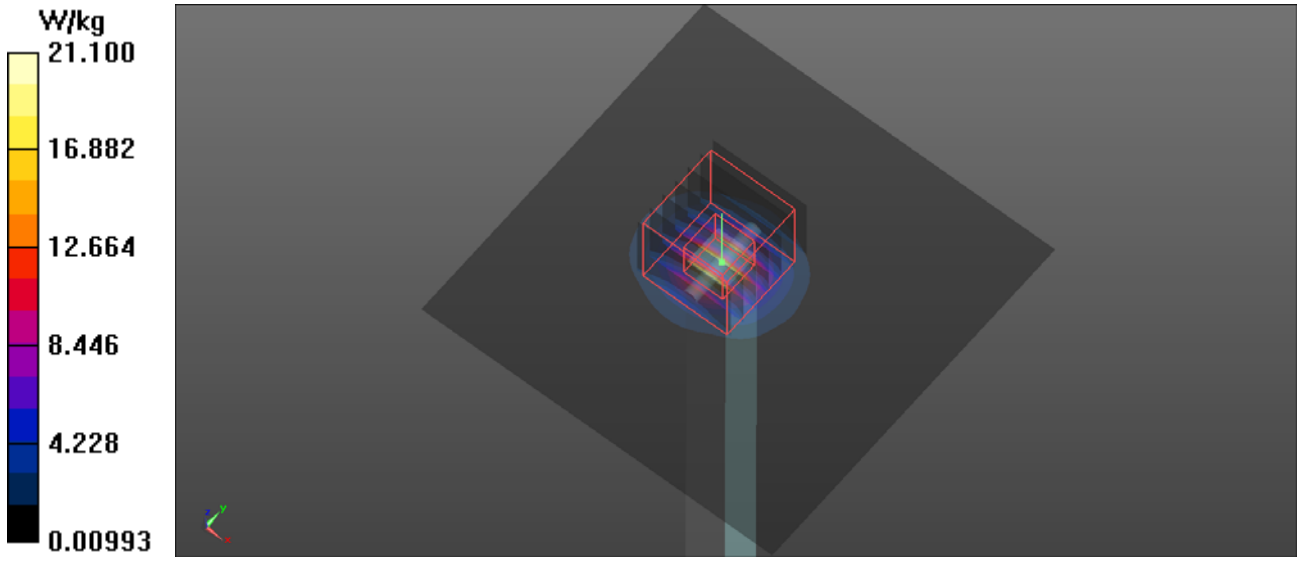
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: B5G_0718 Medium parameters used: f = 5300 MHz; σ = 5.251 S/m; ε_r = 47.988; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(4.73, 4.73, 4.73); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 21.1 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 63.350 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 36.4 W/kg
SAR(1 g) = 8.4 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 22.1 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/19

System Check_B5600_180719

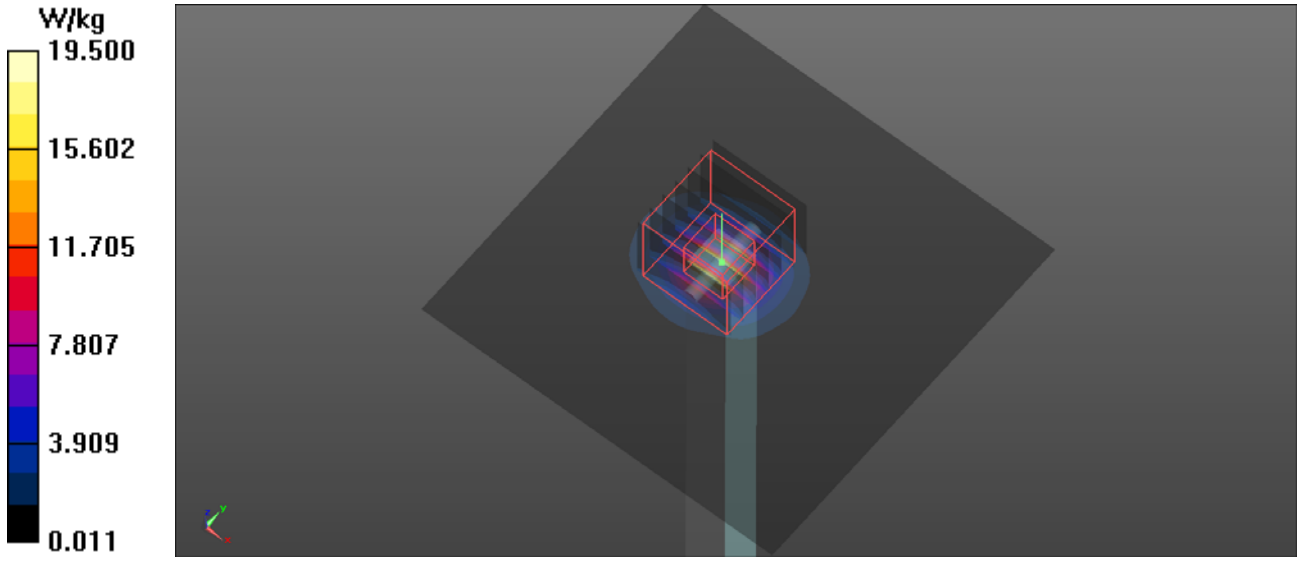
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: B5G_0719 Medium parameters used: f = 5600 MHz; σ = 5.644 S/m; ε_r = 47.452; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃； Liquid Temperature：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(4.31, 4.31, 4.31); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.5 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 58.819 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 32.9 W/kg
SAR(1 g) = 7.85 W/kg; SAR(10 g) = 2.18W/kg
Maximum value of SAR (measured) = 20.48 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/20

System Check_B5800_180720

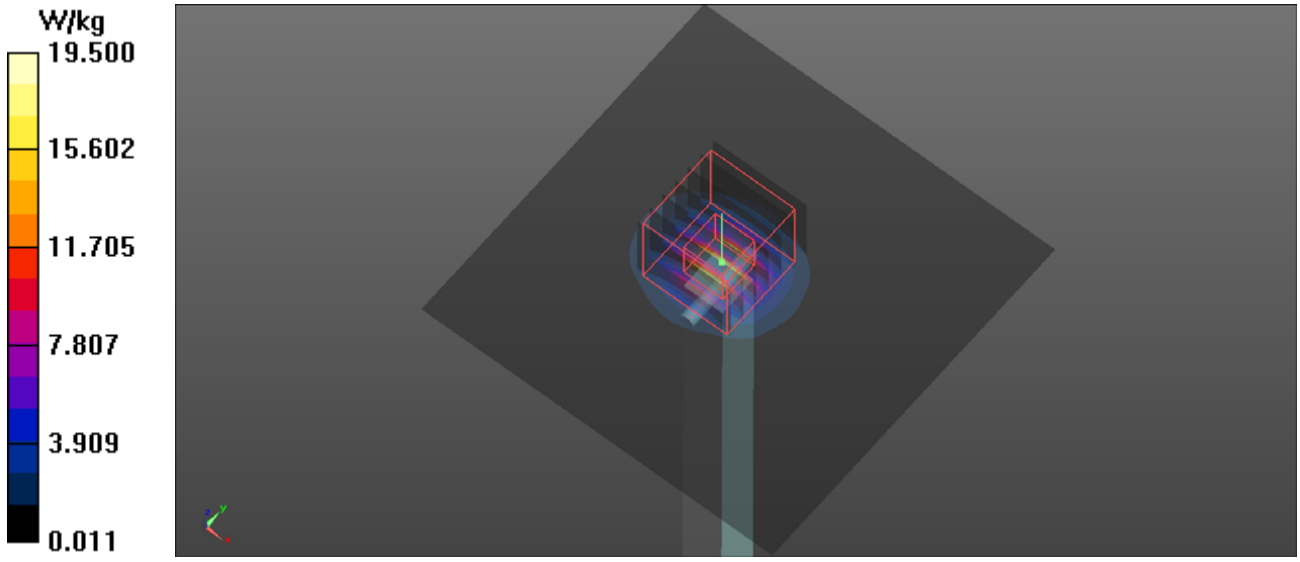
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1040

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: B5G_0720 Medium parameters used: f = 5800 MHz; σ = 5.868 S/m; ε_r = 46.994; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(4.4, 4.4, 4.4); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.5 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 57.599 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 7.9 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 20.41 W/kg



Appendix B. SAR Plots of SAR Measurement

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

Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/10

P01 WCDMA II_RMC12.2K_Rear Face_1cm_Ch9538

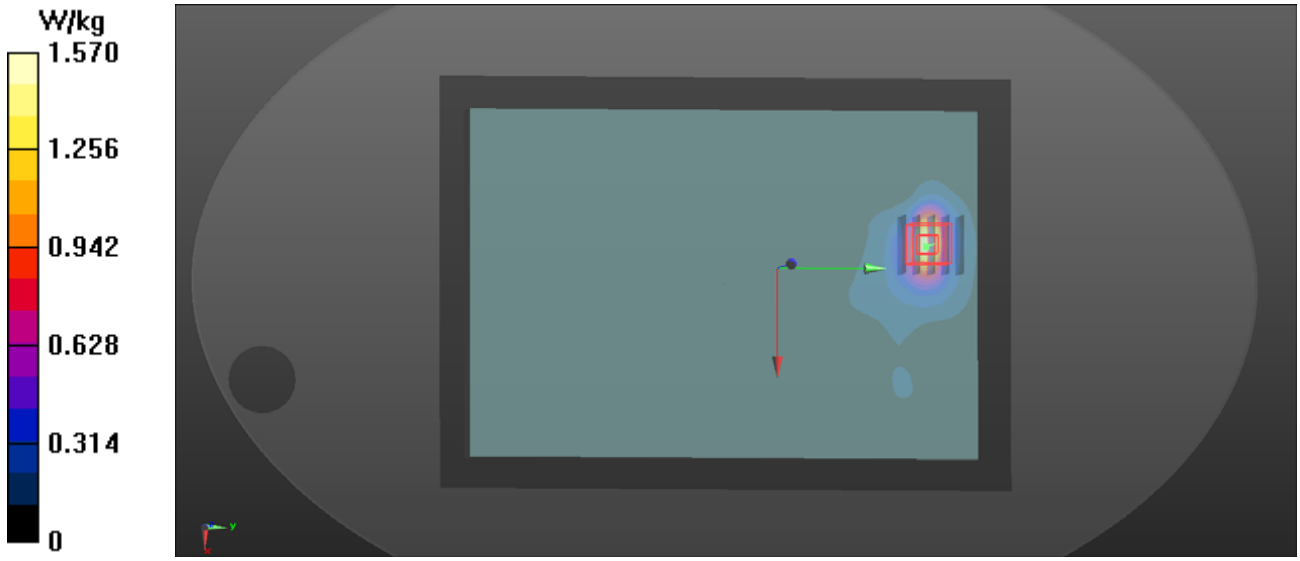
DUT: xTablet A1150

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: B1900_0710 Medium parameters used: f = 1908 MHz; σ = 1.561 S/m; ε_r = 52.992; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.1, 8.1, 8.1); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.57 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.977 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.06 W/kg
SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.575 W/kg
Maximum value of SAR (measured) = 1.75 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/09

P02 WCDMA IV_RMC12.2K_Left Side_0.5cm_Ch1413

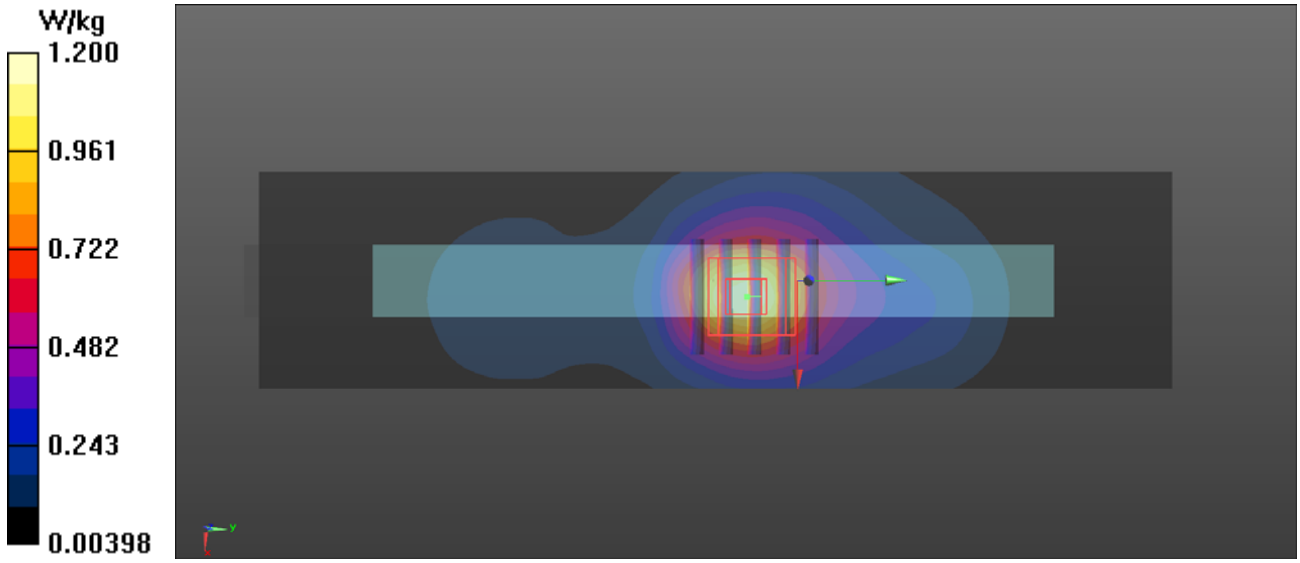
DUT: xTablet A1150

Communication System: WCDMA; Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium: B1750_0709 Medium parameters used: f = 1733 MHz; σ = 1.452 S/m; ε_r = 53.943; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.32, 8.32, 8.32); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x171x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.969 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.860 W/kg; SAR(10 g) = 0.526 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

P03 WCDMA V_RMC12.2K_Left Side_0.5cm_Ch4132

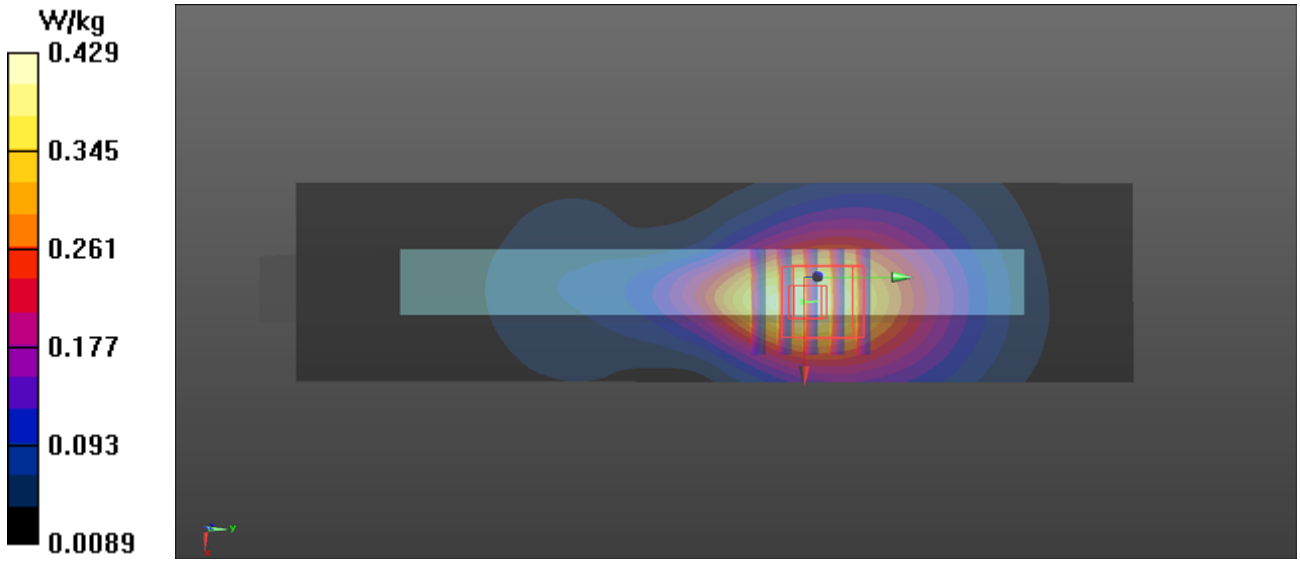
DUT: xTablet A1150

Communication System: WCDMA; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: B835_0708 Medium parameters used : f = 826.4 MHz; σ = 0.971 S/m; ε_r = 55.921; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.16, 10.16, 10.16); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x171x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.429 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.355 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.555 W/kg
SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.427 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/09

P04 LTE 4_QPSK20M_Left side_0.5cm_Ch20175_1RB_OS0

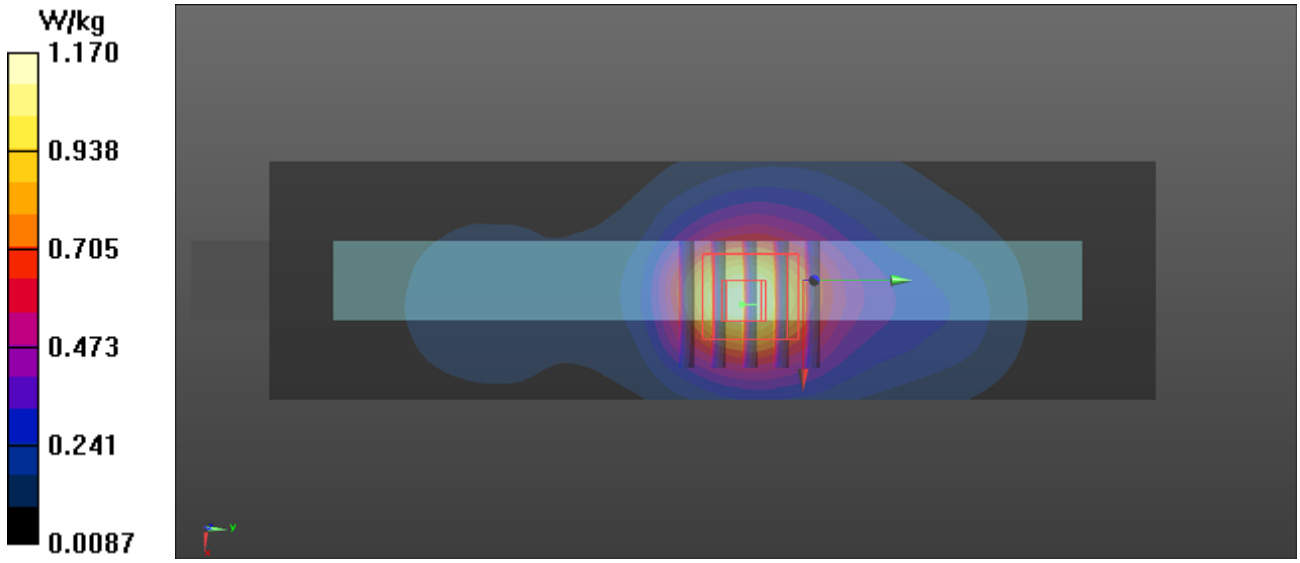
DUT: xTablet A1150

Communication System: LTE; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: B1750_0709 Medium parameters used : f = 1732.5 MHz; σ = 1.451 S/m; ε_r = 53.944; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.32, 8.32, 8.32); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.067 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.843 W/kg; SAR(10 g) = 0.517 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

P05 LTE 5_QPSK10M_Rear face_1cm_Ch20525_1RB_OS0

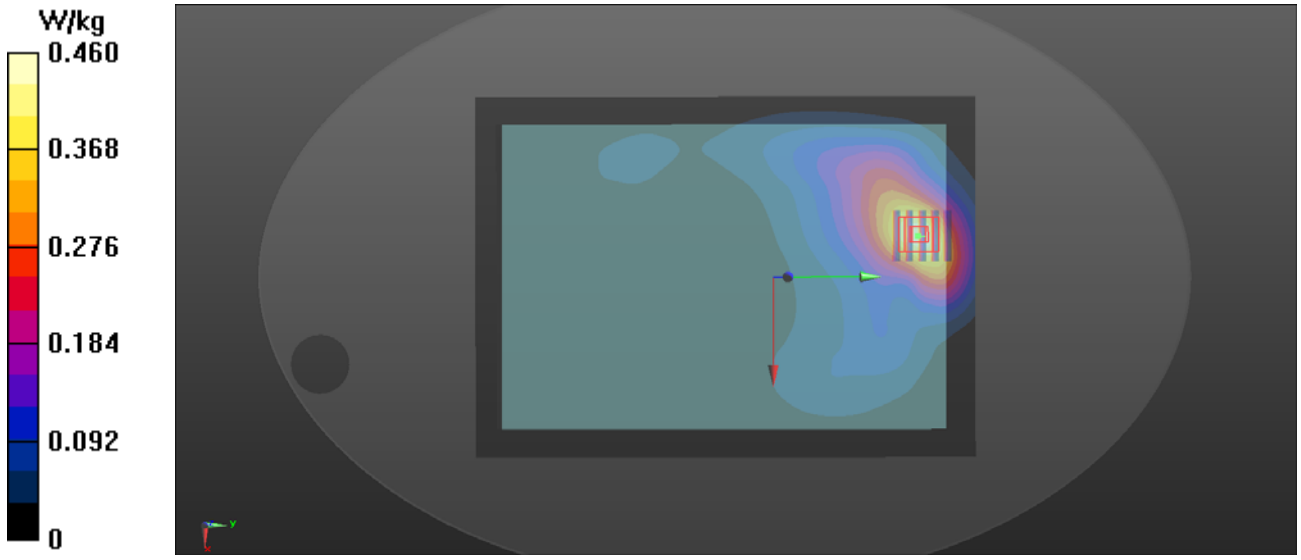
DUT: xTablet A1150

Communication System: LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: B835_0708 Medium parameters used: f = 836.5 MHz; σ = 0.982 S/m; ε_r = 55.817; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.16, 10.16, 10.16); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.460 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.346 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.352 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.460 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/16

P06 LTE 7_QPSK20M_Left side_0.5cm_Ch21100_1RB_OS0

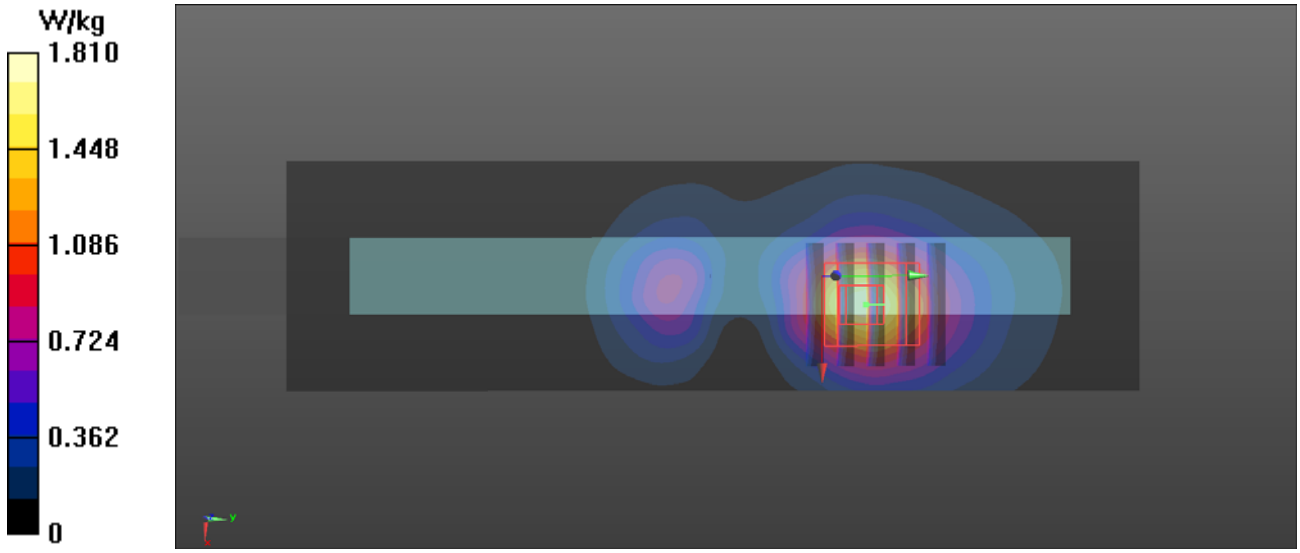
DUT: xTablet A1150

Communication System: LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: B2600_0716 Medium parameters used: f = 2535 MHz; σ = 2.124 S/m; ε_r = 52.658; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.83, 7.83, 7.83); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.81 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.156 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.588 W/kg
Maximum value of SAR (measured) = 1.73 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

P07 LTE 12_QPSK10M_Rear face_1cm_Ch23095_1RB_OS0

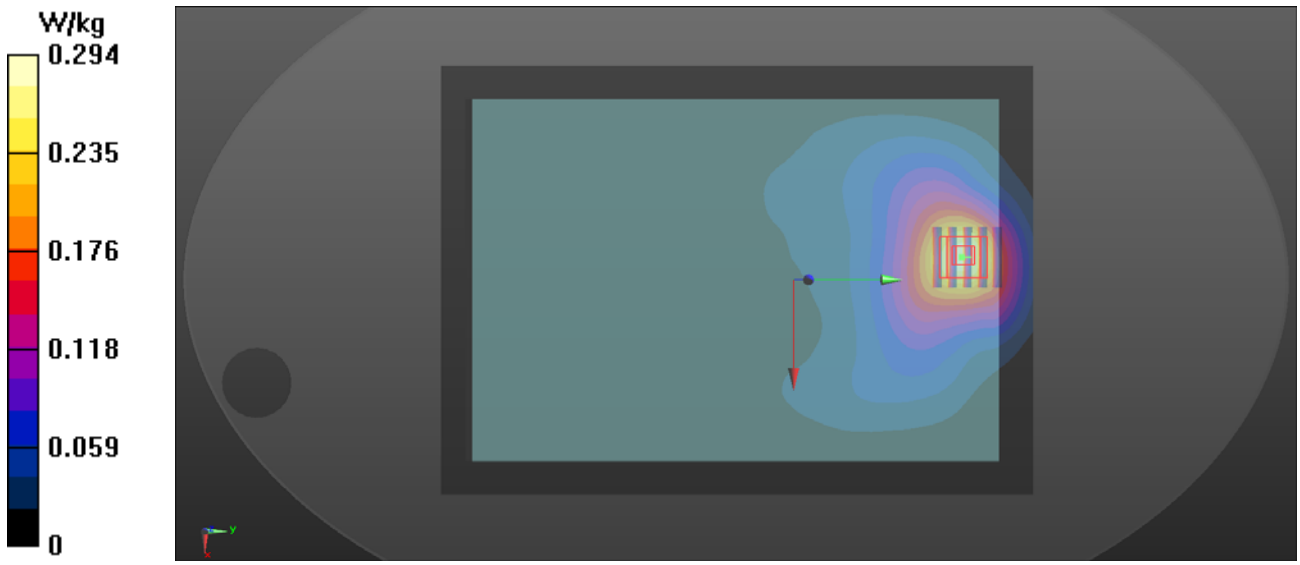
DUT: xTablet A1150

Communication System: LTE; Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: B750_0708 Medium parameters used : f = 707.5 MHz; σ = 0.94 S/m; ε_r = 56.489; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.35, 10.35, 10.35); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.294 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.320 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.331 W/kg
SAR(1 g) = 0.228 W/kg; SAR(10 g) = 0.157 W/kg
Maximum value of SAR (measured) = 0.294 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

P08 LTE 13_QPSK10M_Rear face_1cm_Ch23230_1RB_OS0

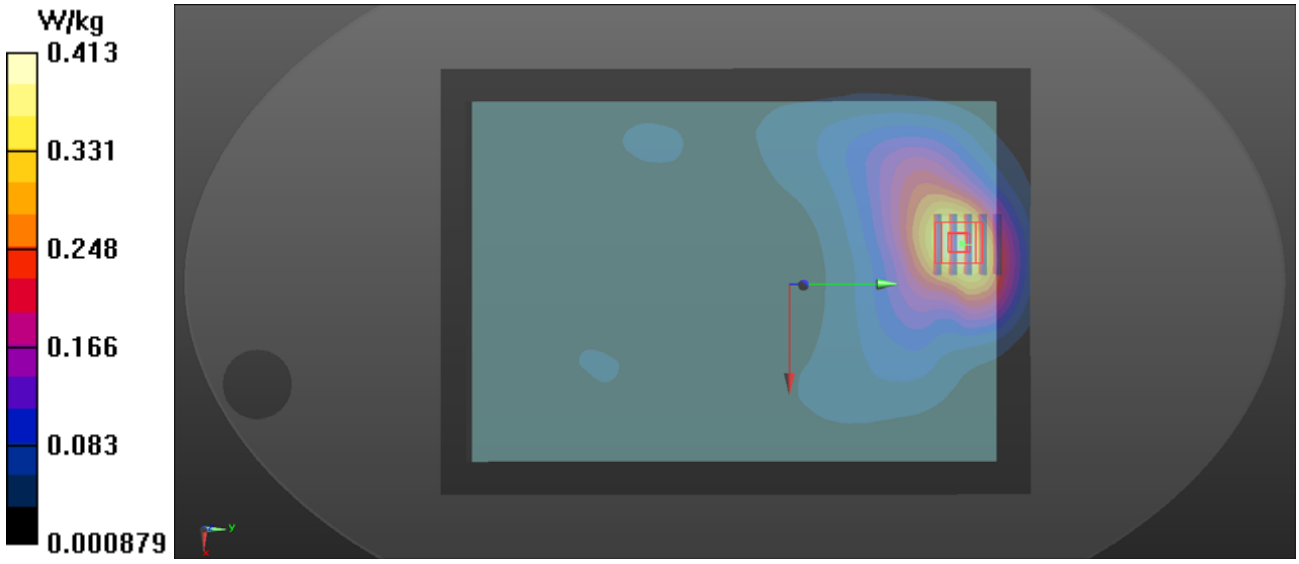
DUT: xTablet A1150

Communication System: LTE (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium: B750_0708 Medium parameters used: f = 782 MHz; σ = 1.001 S/m; ε_r = 55.856; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.35, 10.35, 10.35); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.413 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.429 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.463 W/kg
SAR(1 g) = 0.320 W/kg; SAR(10 g) = 0.221 W/kg
Maximum value of SAR (measured) = 0.409 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/08

P10 LTE 26_QPSK15M_Left side_0.5cm_Ch26915_1RB_OS0

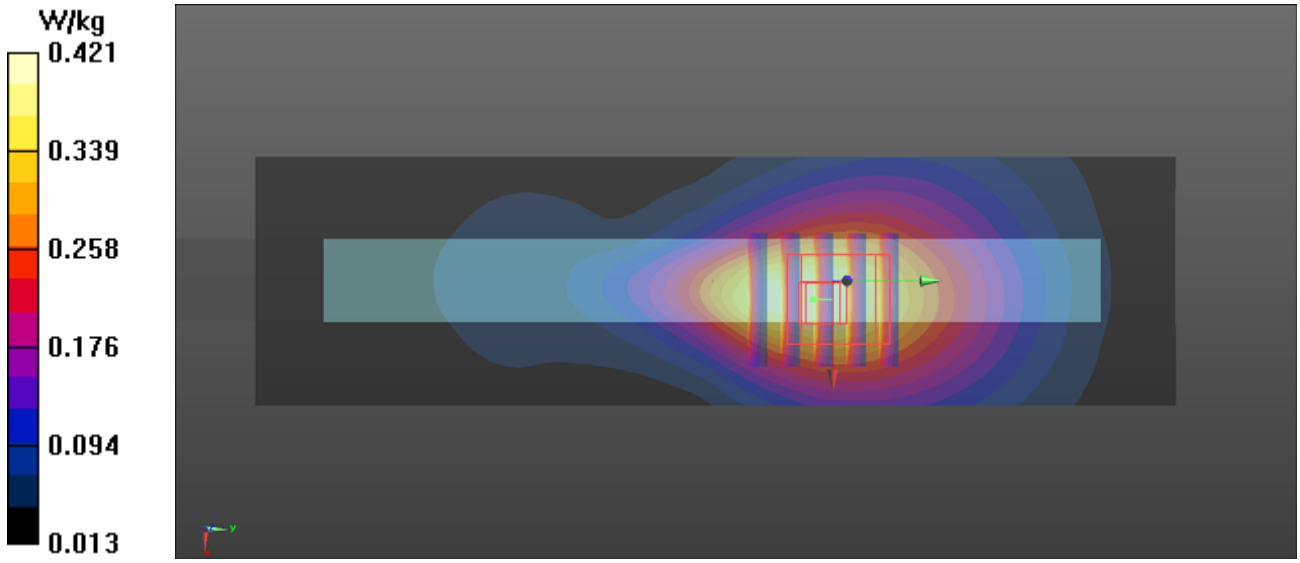
DUT: xTablet A1150

Communication System: LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: B750_0708 Medium parameters used : f = 836.5 MHz; σ = 0.982 S/m; ε_r = 55.817; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(10.16, 10.16, 10.16); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.421 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.877 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.490 W/kg
SAR(1 g) = 0.342 W/kg; SAR(10 g) = 0.252 W/kg
Maximum value of SAR (measured) = 0.435 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/16

P11 LTE 30_QPSK10M_Left side_0cm_Ch27710_1RB_OS0_P_Sensor-ON

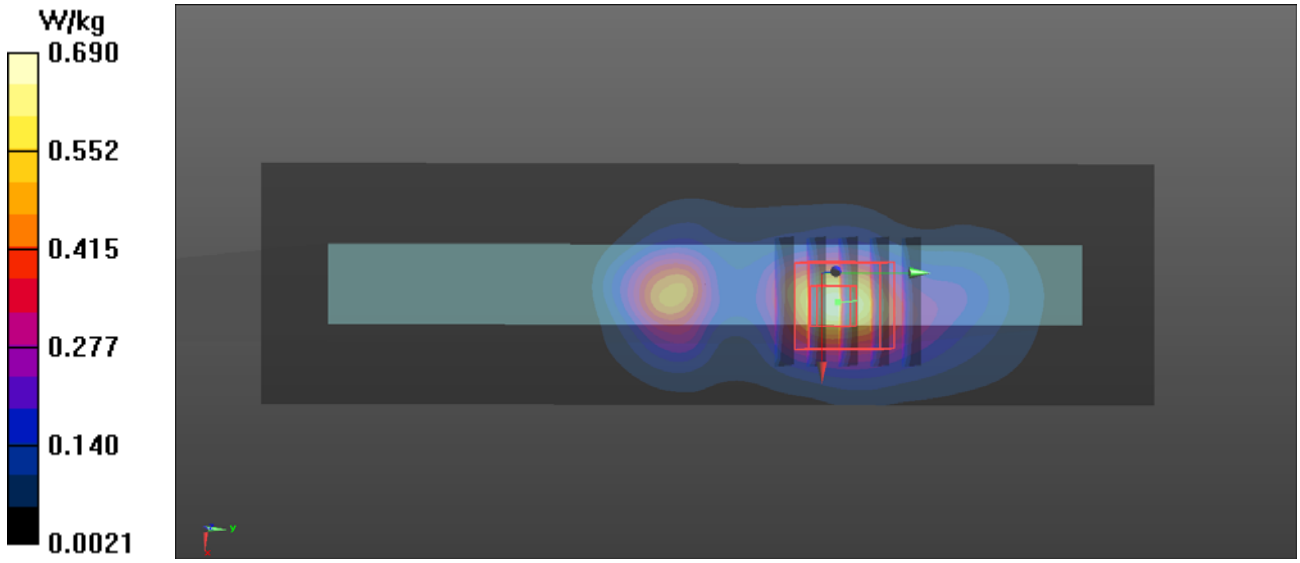
DUT: xTablet A1150

Communication System: LTE; Frequency: 2310 MHz;Duty Cycle: 1:1
Medium: B2300_0716 Medium parameters used: f = 2310 MHz; σ = 1.812 S/m; ε_r = 52.616; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.8, 7.8, 7.8); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.690 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.306 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.911 W/kg
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.232 W/kg
Maximum value of SAR (measured) = 0.742 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/16

P12 LTE 41_QPSK20M_Left side_0.5cm_Ch40620_1RB_OS0

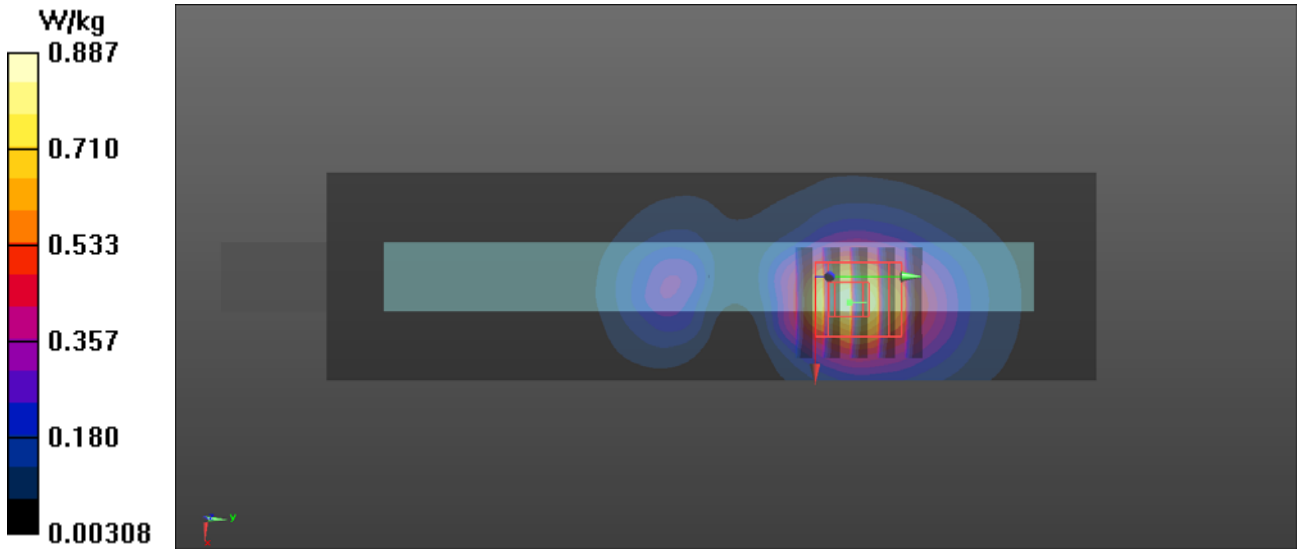
DUT: xTablet A1150

Communication System: LTE; Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: B2600_0716 Medium parameters used: f = 2535 MHz; σ = 2.124 S/m; ε_r = 52.658; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.83, 7.83, 7.83); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.887 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.209 V/m; Power Drift = -0.37 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.275 W/kg
Maximum value of SAR (measured) = 0.817 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/17

P13 802.11b_Rear Face_0cm_Ch11_Antenna-0

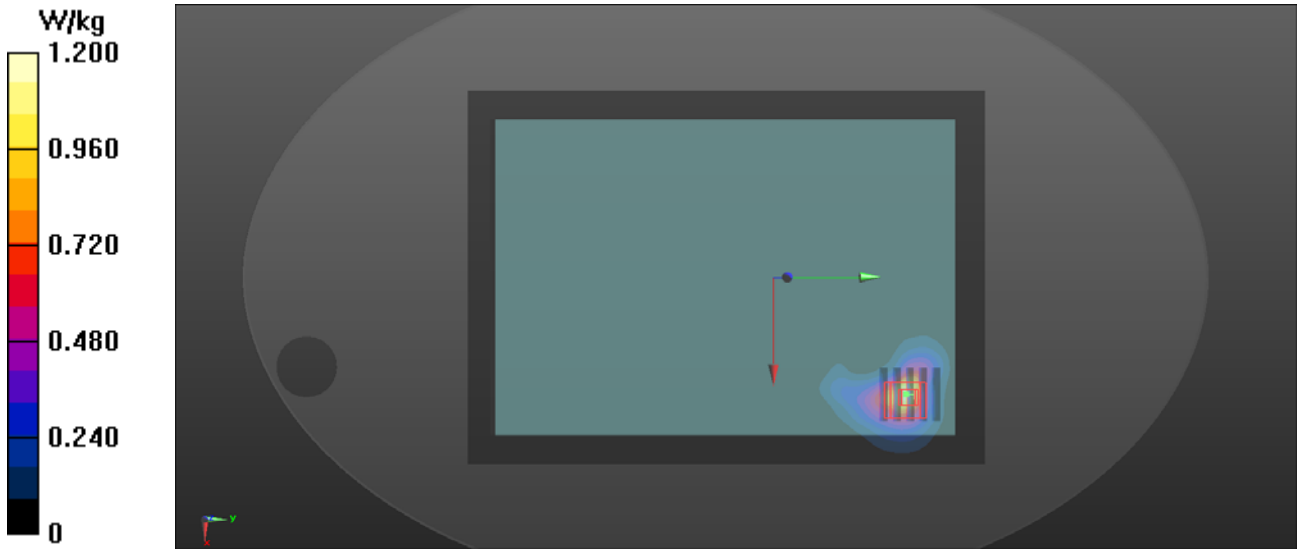
DUT: xTablet A1150

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: B2450_0717 Medium parameters used: f = 2462 MHz; σ = 2.041 S/m; ε_r = 53.319; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(7.83, 7.83, 7.83); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.079 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.753 W/kg; SAR(10 g) = 0.355 W/kg
Maximum value of SAR (measured) = 1.20 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/18

P14 802.11a_Bottom Side_0cm_Ch40_Antenna-1

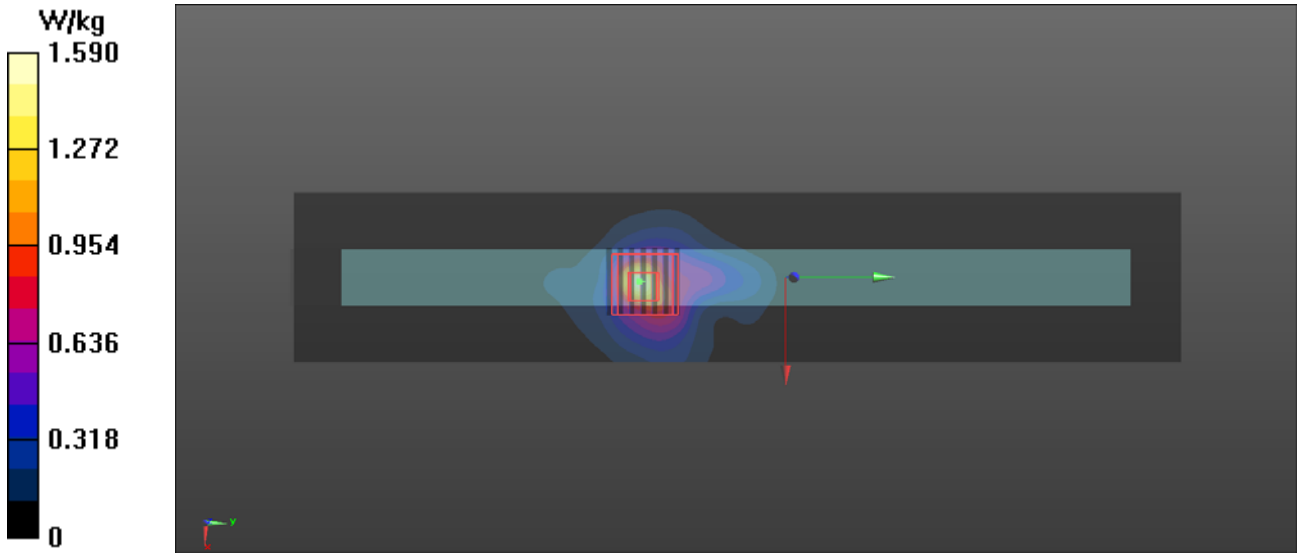
DUT: xTablet A1150

Communication System: 802.11a; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: B5G_0718 Medium parameters used: f = 5200 MHz; σ = 5.137 S/m; ε_r = 48.164; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(5.19, 5.19, 5.19); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (61x321x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.59 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 7.152 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 3.26 W/kg
SAR(1 g) = 0.828 W/kg; SAR(10 g) = 0.275 W/kg
Maximum value of SAR (measured) = 1.96 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/19

P15 802.11a_Bottom Side_0cm_Ch100_Antenna-1

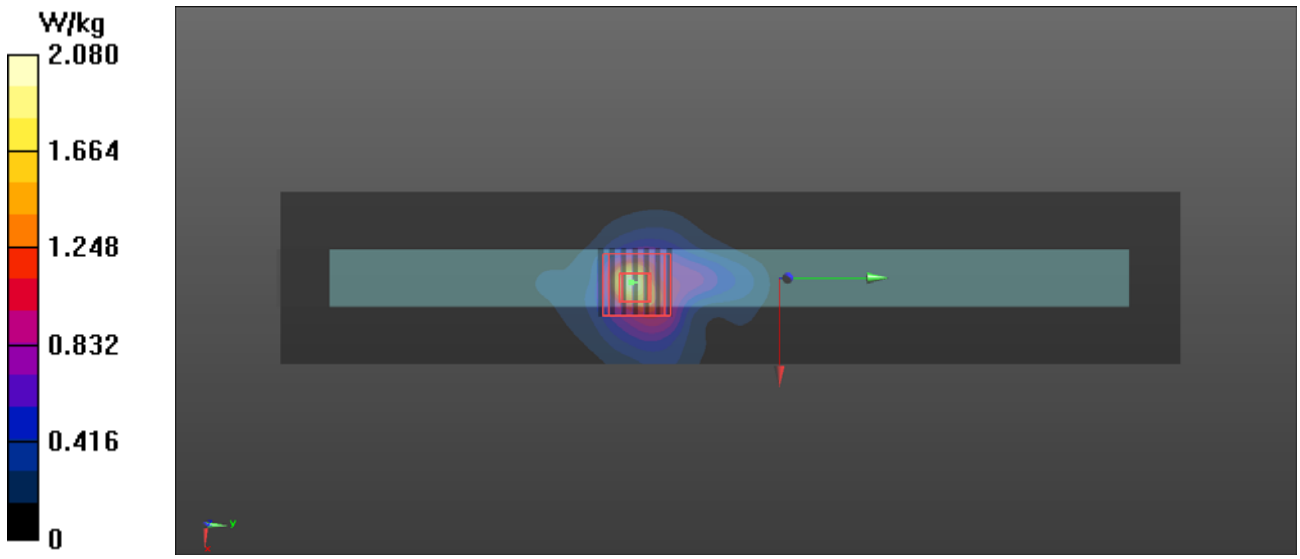
DUT: xTablet A1150

Communication System: 802.11a; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: B5G_0719 Medium parameters used: f = 5500 MHz; σ = 5.512 S/m; ε_r = 47.661; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃； Liquid Temperature：22.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(4.42, 4.42, 4.42); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (61x321x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 2.04 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 11.314 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.53 W/kg
SAR(1 g) = 0.892 W/kg; SAR(10 g) = 0.302 W/kg
Maximum value of SAR (measured) = 2.08 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/20

P16 802.11a_Bottom Side_0cm_Ch149_Antenna-1

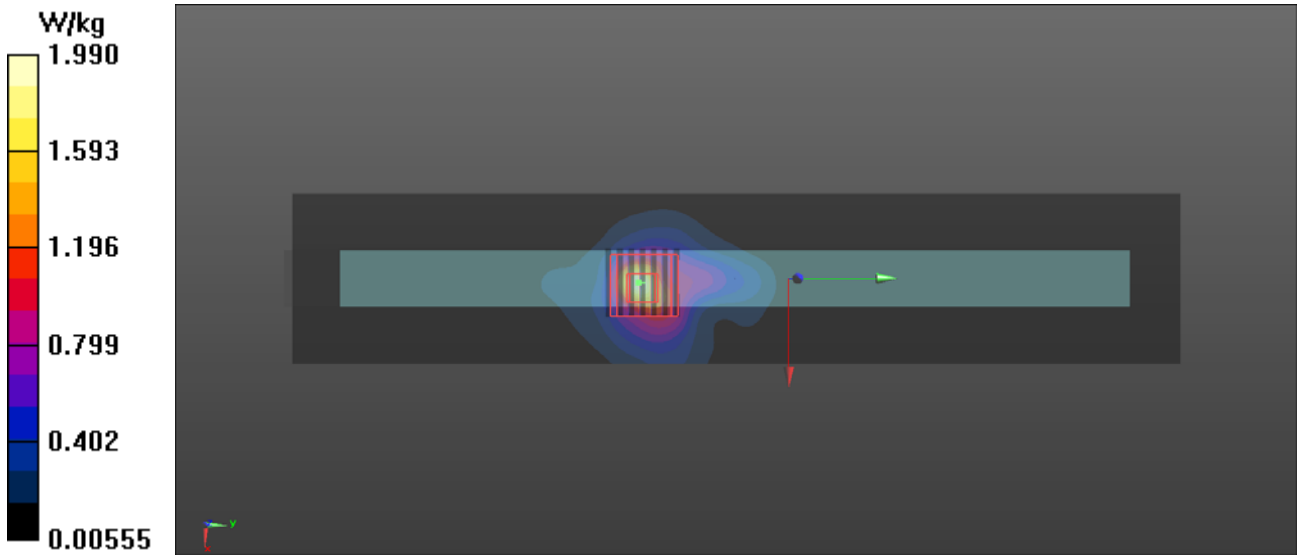
DUT: xTablet A1150

Communication System: 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: B5G_0720 Medium parameters used: f = 5745 MHz; σ = 5.783 S/m; ε_r = 47.248; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃； Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(4.4, 4.4, 4.4); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (61x321x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.99 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 14.040 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.05 W/kg
SAR(1 g) = 0.752 W/kg; SAR(10 g) = 0.266 W/kg
Maximum value of SAR (measured) = 2.01 W/kg



Test Laboratory: Shenzhen EMTEK Co.,Ltd. Date: 2018/07/10

P09 LTE 25_QPSK20M_Rear face_1cm_Ch26365_1RB_OS0

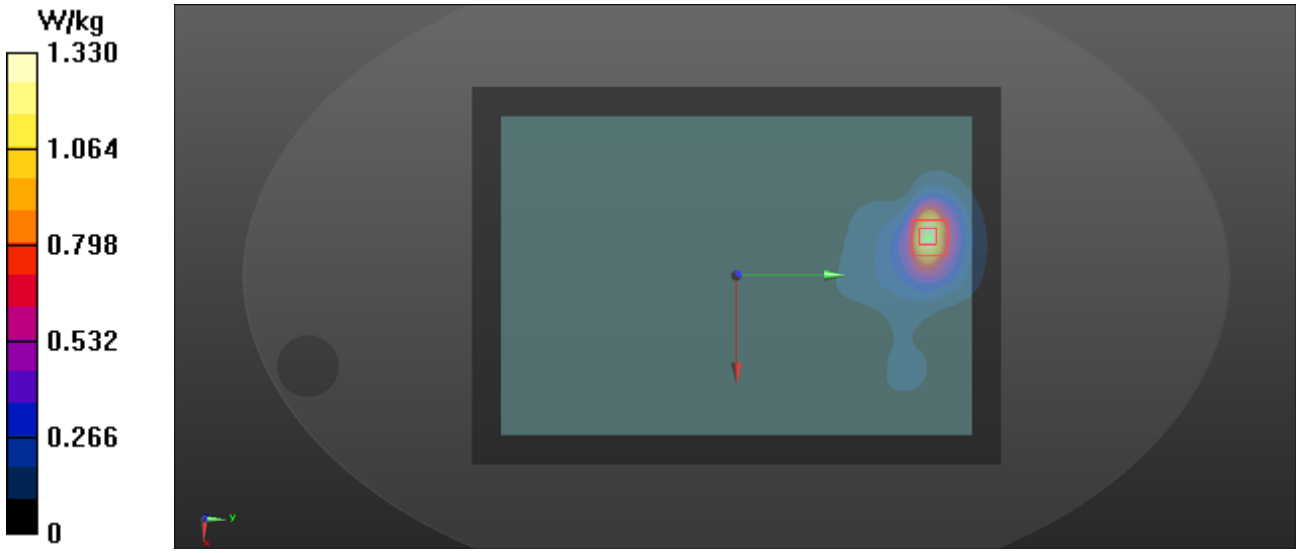
DUT: xTablet A1150

Communication System: LTE; Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium: B1900_0710 Medium parameters used : f = 1882.5 MHz; σ = 1.532 S/m; ε_r = 53.045; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃； Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3970; ConvF(8.1, 8.1, 8.1); Calibrated: 2017/11/02;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1418; Calibrated: 2017/10/09
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1231
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (151x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.33 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.317 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.918 W/kg; SAR(10 g) = 0.505 W/kg
Maximum value of SAR (measured) = 1.34 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The calibration certificates are shown as follows.

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client ADT-CN (Auden)

Certificate No: D5GHzV2-1133_Sep17

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN:1133

Calibration procedure(s): QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: September 18, 2017

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 (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	31-Dec-16 (No. EX3-3503_Dec16)	Dec-17
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 18, 2017

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,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, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "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%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.7 ± 6 %	4.59 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	-----	-----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**78.5 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.24 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.5 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.2 ± 6 %	4.95 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.19 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.1 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.9 ± 6 %	5.17 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.99 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.8 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.0 ± 6 %	5.49 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.72 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.4 ± 6 %	5.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.94 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**78.8 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.0 ± 6 %	6.24 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.78 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	49.9 Ω - 5.7 jΩ
Return Loss	- 24.9 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.0 Ω + 1.2 jΩ
Return Loss	- 28.0 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	56.2 Ω - 2.2 jΩ
Return Loss	- 24.2 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	49.0 Ω - 4.2 jΩ
Return Loss	- 27.3 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	55.8 Ω + 1.2 jΩ
Return Loss	- 25.0 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	55.9 Ω - 1.6 jΩ
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.208 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
Manufactured on	May 07, 2012

DASY5 Validation Report for Head TSL

Date: 15.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1133

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5250 MHz; σ = 4.59 S/m; ε_r = 36.7; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 4.95 S/m; ε_r = 36.2; ρ = 1000 kg/m^3
Medium parameters used: f = 5800 MHz; σ = 5.17 S/m; ε_r = 35.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

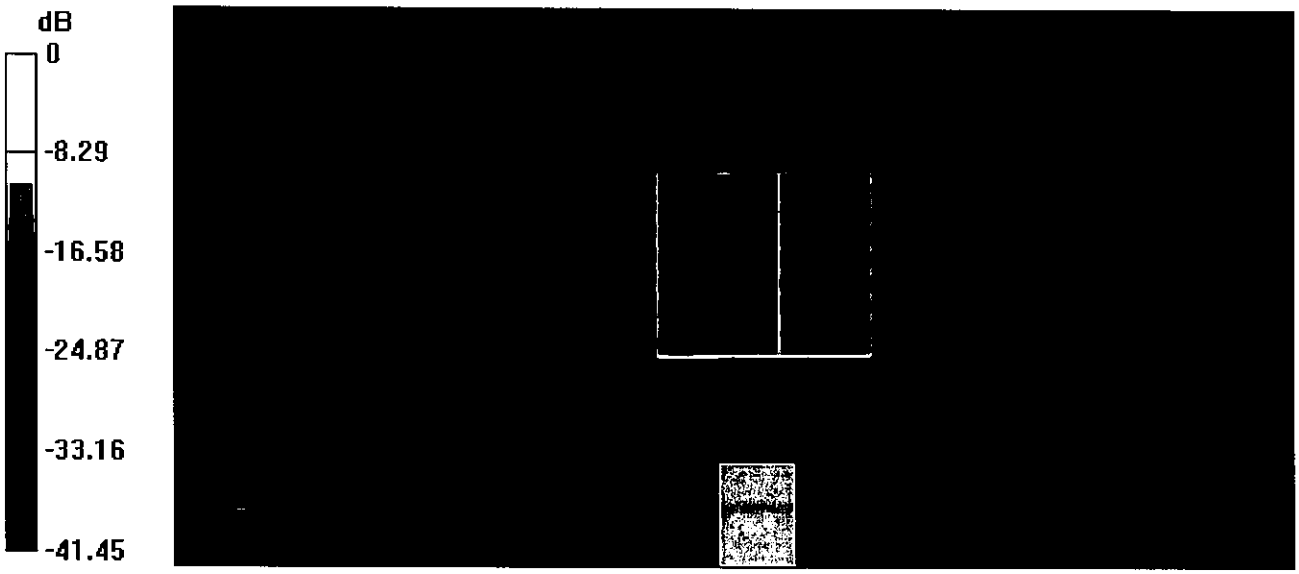
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.58, 5.58, 5.58); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.01, 5.01, 5.01); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.75 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 18.1 W/kg

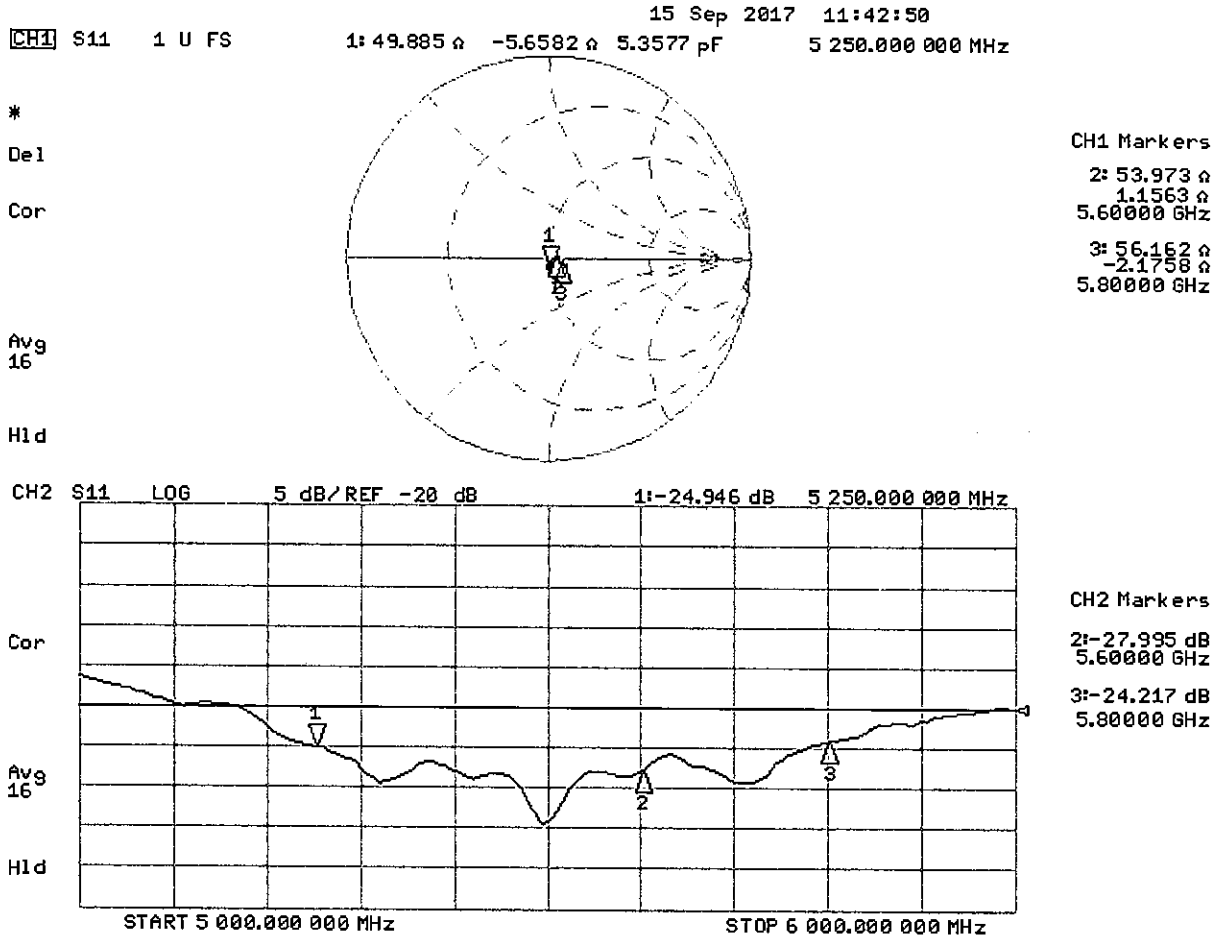
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.66 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 31.6 W/kg
SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.34 W/kg
Maximum value of SAR (measured) = 19.6 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.73 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 31.8 W/kg
SAR(1 g) = 7.99 W/kg; SAR(10 g) = 2.27 W/kg
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 18.1 W/kg = 12.58 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 18.09.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1133

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5250 MHz; σ = 5.49 S/m; ε_r = 47.0; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 5.96 S/m; ε_r = 46.4; ρ = 1000 kg/m^3
Medium parameters used: f = 5800 MHz; σ = 6.24 S/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

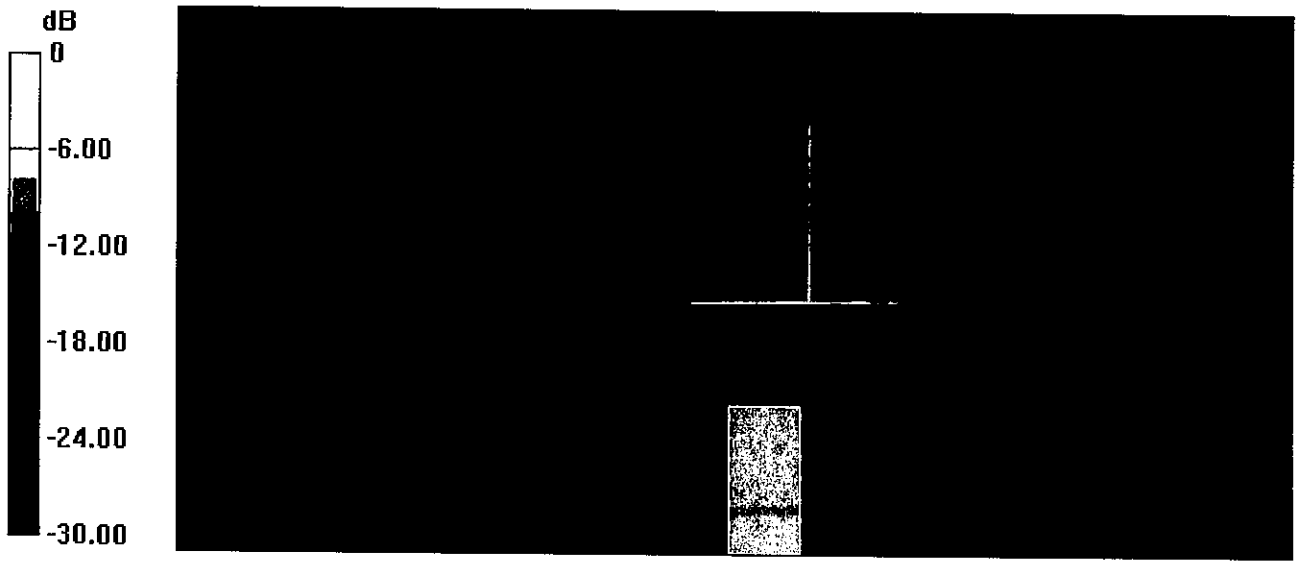
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.14, 5.14, 5.14); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.48, 4.48, 4.48); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 60.67 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 17.8 W/kg

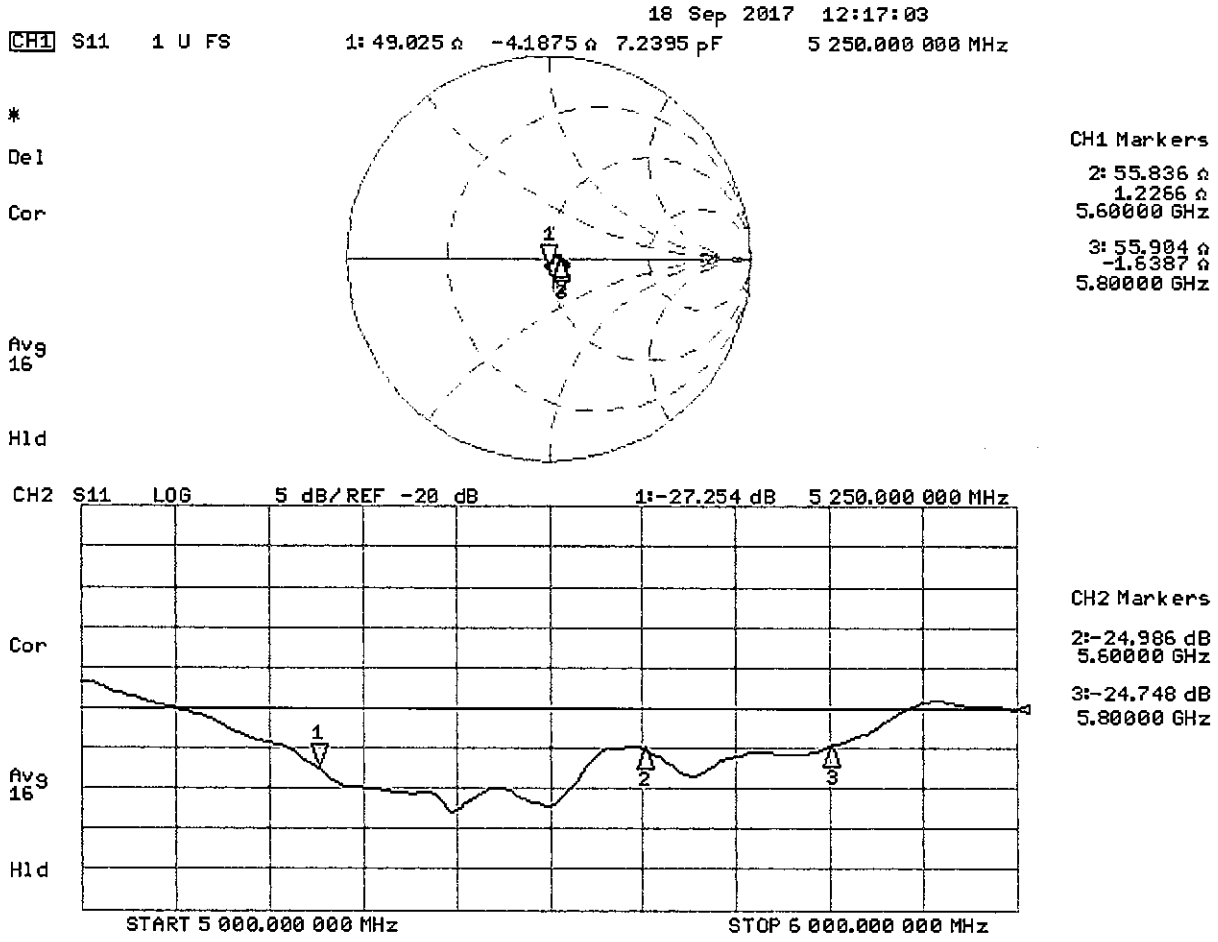
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 60.84 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 33.0 W/kg
SAR(1 g) = 7.94 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.93 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 34.0 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 17.8 W/kg = 12.50 dBW/kg

Impedance Measurement Plot for Body TSL



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CNAS L0570

Client ADT_CN Certificate No: Z17-97117

CALIBRATION CERTIFICATE

Object D750V3 - SN: 1067

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

Calibration date: August 27, 2017

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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	102083	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Power sensor NRV-Z5	100595	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Reference Probe EX3DV4	SN 3617	23-Jan-17(SPEAG,No.EX3-3617_Jan17)	Jan-18
DAE4	SN 1331	19-Jan-17(CTTL-SPEAG,No.Z17-97015)	Jan-18
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	13-Jan-17 (CTTL, No.J17X00286)	Jan-18
Network Analyzer E5071C	MY46110673	13-Jan-17 (CTTL, No.J17X00285)	Jan-18

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: August 30, 2017

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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, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

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	52.10.0.1446
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	41.7 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	<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	2.07 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**8.30 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.35 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**5.41 mW /g ± 18.7 % (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	55.7 ± 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^3 (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	**8.70 mW /g ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.45 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**5.83 mW /g ±18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.5Ω- 4.34jΩ
Return Loss	- 27.2dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.4Ω- 4.65jΩ
Return Loss	- 26.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.138 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: 08.27.2017

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1067

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

Medium parameters used: f = 750 MHz; σ = 0.886 S/m; ε_r = 41.66; ρ = 1000 kg/m^3

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(10.05, 10.05, 10.05); Calibrated: 1/23/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 1/19/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.10 (0); SEMCAD X Version 14.6.10 (7417)

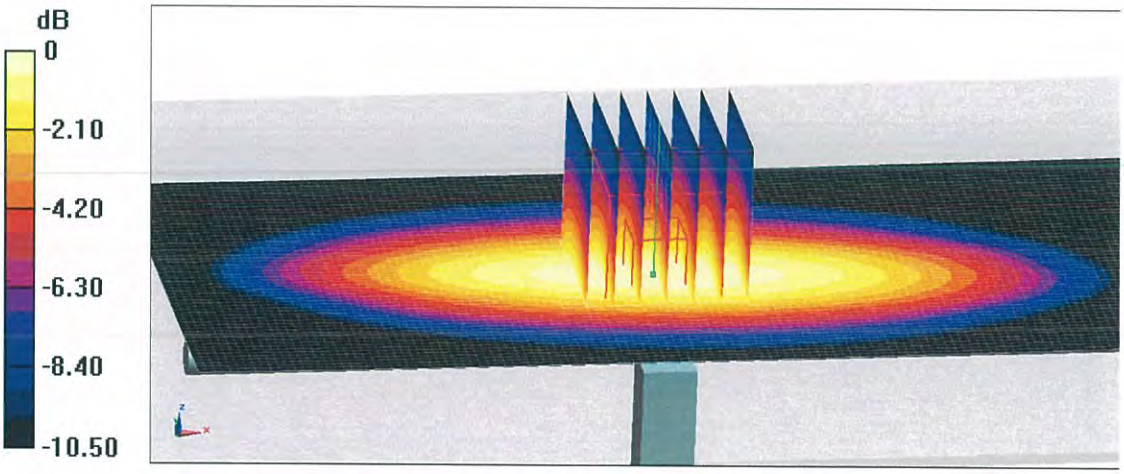
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.94 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.20 W/kg

SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.35 W/kg

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



0 dB = 2.80 W/kg = 4.47 dBW/kg

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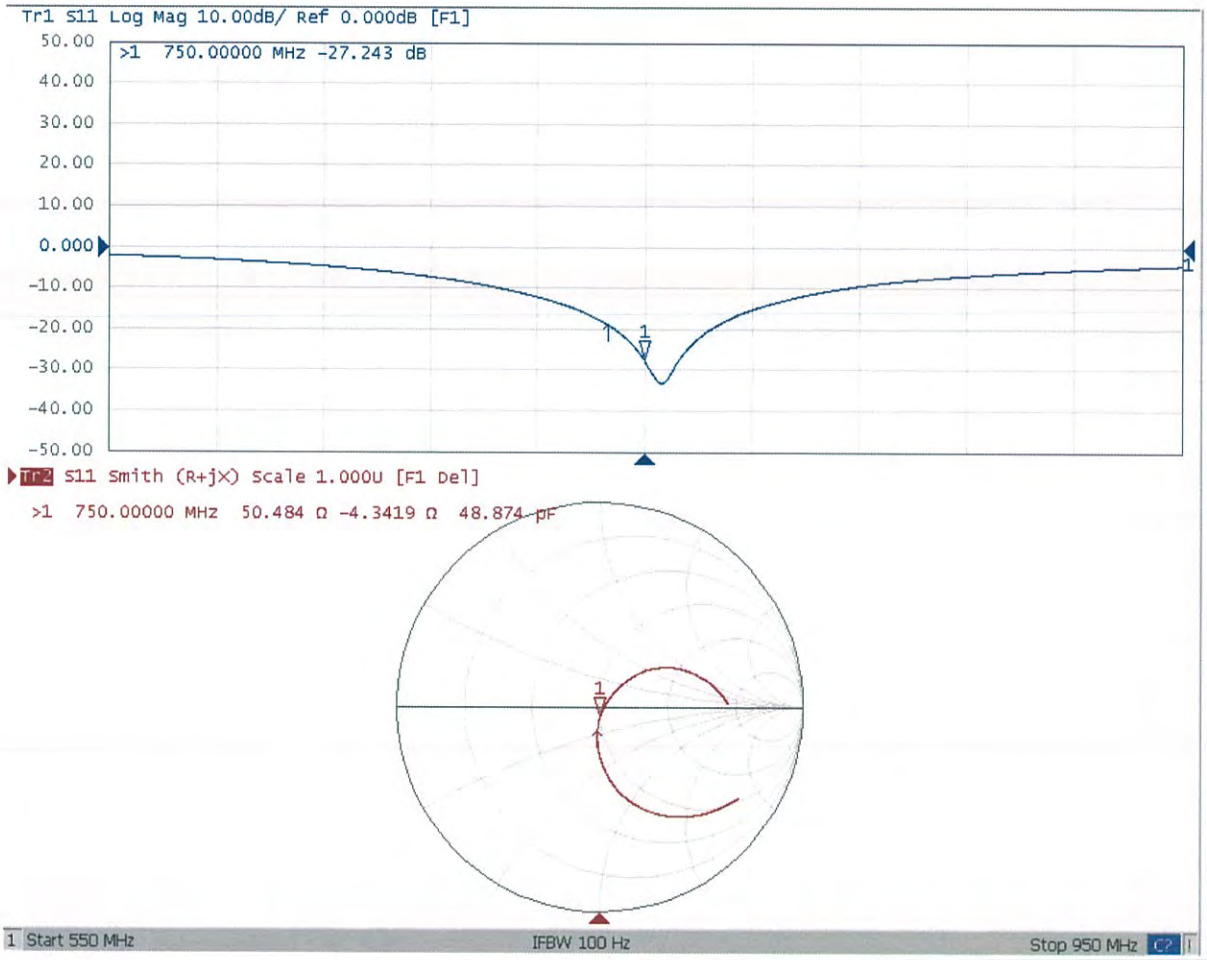
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 08.27.2017

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1067

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

Medium parameters used: f = 750 MHz; σ = 0.952 S/m; ε_r = 55.68; ρ = 1000 kg/m^3

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.8, 9.8, 9.8); Calibrated: 1/23/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 1/19/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.10 (0); SEMCAD X Version 14.6.10 (7417)

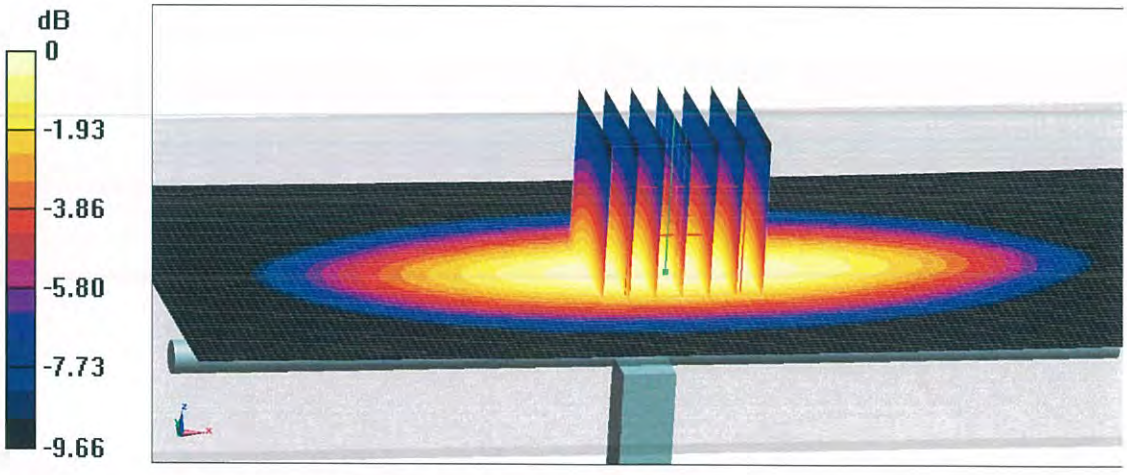
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.96 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.21 W/kg

SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.45 W/kg

Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

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Impedance Measurement Plot for Body TSL