

FCC SAR Test Report

4.6.2 SAR Results for Body Exposure Condition (Separation Distance is 0 cm Gap)

<GSM / WCDMA>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	WCDMA II	RMC12.2K	Rear Face	0	9262	22.5	21.94	0.05	0.479	1.14	0.54
	WCDMA II	RMC12.2K	Left Side	0	9262	22.5	21.94	0.06	0.075	1.14	0.09
	WCDMA II	RMC12.2K	Right Side	0	9262	22.5	21.94	0.04	0.094	1.14	0.11
	WCDMA II	RMC12.2K	Top Side	0	9262	22.5	21.94	0	0.002	1.14	0.00
	WCDMA II	RMC12.2K	Bottom Side	0	9262	22.5	21.94	-0.03	0.955	1.14	1.09
	WCDMA II	RMC12.2K	Bottom Side	0	9400	22.5	21.87	-0.02	0.957	1.16	1.11
1	WCDMA II	RMC12.2K	Bottom Side	0	9538	22.5	21.75	-0.1	0.982	1.19	1.17
	WCDMA IV	RMC12.2K	Rear Face	0	1312	22.5	21.78	0.02	0.321	1.18	0.38
	WCDMA IV	RMC12.2K	Left Side	0	1312	22.5	21.78	-0.02	0.225	1.18	0.27
	WCDMA IV	RMC12.2K	Right Side	0	1312	22.5	21.78	0.06	0.008	1.18	0.01
	WCDMA IV	RMC12.2K	Top Side	0	1312	22.5	21.78	0	0.001	1.18	0.00
	WCDMA IV	RMC12.2K	Bottom Side	0	1312	22.5	21.78	-0.06	0.780	1.18	0.92
	WCDMA IV	RMC12.2K	Bottom Side	0	1413	22.5	21.75	-0.03	0.837	1.19	0.99
2	WCDMA IV	RMC12.2K	Bottom Side	0	1513	22.5	21.72	-0.04	0.856	1.20	1.02
	WCDMA V	RMC12.2K	Rear Face	0	4233	22.5	21.79	0.18	0.439	1.18	0.52
	WCDMA V	RMC12.2K	Left Side	0	4233	22.5	21.79	0.02	0.033	1.18	0.04
	WCDMA V	RMC12.2K	Right Side	0	4233	22.5	21.79	0.03	0.032	1.18	0.04
	WCDMA V	RMC12.2K	Top Side	0	4233	22.5	21.79	0.01	0.009	1.18	0.01
3	WCDMA V	RMC12.2K	Bottom Side	0	4233	22.5	21.79	-0.08	0.984	1.18	1.16
	WCDMA V	RMC12.2K	Bottom Side	0	4132	22.5	21.67	-0.02	0.862	1.21	1.04
	WCDMA V	RMC12.2K	Bottom Side	0	4182	22.5	21.70	-0.03	0.918	1.20	1.09

<FDD-LTE>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	RB	offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	Rear Face	0	18700	1	50	22.5	21.98	0.03	0.493	1.13	0.56
	LTE 2	QPSK20M	Left Side	0	18700	1	50	22.5	21.98	0	0.074	1.13	0.08
	LTE 2	QPSK20M	Right Side	0	18700	1	50	22.5	21.98	0.07	0.099	1.13	0.11
	LTE 2	QPSK20M	Top Side	0	18700	1	50	22.5	21.98	0	0.002	1.13	0.00
	LTE 2	QPSK20M	Bottom Side	0	18700	1	50	22.5	21.98	-0.07	0.947	1.13	1.07
	LTE 2	QPSK20M	Rear Face	0	18700	50	25	21.5	20.97	0.05	0.412	1.13	0.47
	LTE 2	QPSK20M	Left Side	0	18700	50	25	21.5	20.97	0.09	0.058	1.13	0.07
	LTE 2	QPSK20M	Right Side	0	18700	50	25	21.5	20.97	-0.09	0.079	1.13	0.09
	LTE 2	QPSK20M	Top Side	0	18700	50	25	21.5	20.97	0	0.002	1.13	0.00
	LTE 2	QPSK20M	Bottom Side	0	18700	50	25	21.5	20.97	-0.07	0.700	1.13	0.79
	LTE 2	QPSK20M	Bottom Side	0	18900	1	50	22.5	21.92	-0.04	0.955	1.14	1.09
4	LTE 2	QPSK20M	Bottom Side	0	19100	1	50	22.5	21.79	-0.09	1.000	1.18	1.18
	LTE 2	QPSK20M	Bottom Side	0	18700	100	0	21.5	20.85	0.02	0.697	1.16	0.81
	LTE 4	QPSK20M	Rear Face	0	20175	1	50	22.5	21.74	0.08	0.366	1.19	0.44
	LTE 4	QPSK20M	Left Side	0	20175	1	50	22.5	21.74	0.01	0.033	1.19	0.04
	LTE 4	QPSK20M	Right Side	0	20175	1	50	22.5	21.74	0.05	0.008	1.19	0.01
	LTE 4	QPSK20M	Top Side	0	20175	1	50	22.5	21.74	0.05	0.003	1.19	0.00
	LTE 4	QPSK20M	Bottom Side	0	20175	1	50	22.5	21.74	-0.02	0.867	1.19	1.03
	LTE 4	QPSK20M	Rear Face	0	20175	50	25	21.5	20.75	0.07	0.286	1.19	0.34
	LTE 4	QPSK20M	Left Side	0	20175	50	25	21.5	20.75	0.05	0.026	1.19	0.03
	LTE 4	QPSK20M	Right Side	0	20175	50	25	21.5	20.75	0.06	0.006	1.19	0.01
	LTE 4	QPSK20M	Top Side	0	20175	50	25	21.5	20.75	0.01	0.002	1.19	0.00
	LTE 4	QPSK20M	Bottom Side	0	20175	50	25	21.5	20.75	-0.03	0.664	1.19	0.79
	LTE 4	QPSK20M	Bottom Side	0	20050	1	50	22.5	21.72	-0.02	0.850	1.20	1.02
5	LTE 4	QPSK20M	Bottom Side	0	20300	1	50	22.5	21.69	-0.05	0.904	1.21	1.09
	LTE 4	QPSK20M	Bottom Side	0	20175	100	0	21.5	20.74	0.09	0.674	1.19	0.80
	LTE 5	QPSK10M	Rear Face	0	20450	1	24	22.5	21.73	0.07	0.409	1.19	0.49
	LTE 5	QPSK10M	Left Side	0	20450	1	24	22.5	21.73	0.01	0.032	1.19	0.04
	LTE 5	QPSK10M	Right Side	0	20450	1	24	22.5	21.73	0.02	0.028	1.19	0.03
	LTE 5	QPSK10M	Top Side	0	20450	1	24	22.5	21.73	0.09	0.007	1.19	0.01
	LTE 5	QPSK10M	Bottom Side	0	20450	1	24	22.5	21.73	-0.05	0.845	1.19	1.01

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Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	RB	offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	LTE 5	QPSK10M	Rear Face	0	20450	25	12	21.5	20.72	0	0.325	1.20	0.39
	LTE 5	QPSK10M	Left Side	0	20450	25	12	21.5	20.72	0.04	0.026	1.20	0.03
	LTE 5	QPSK10M	Right Side	0	20450	25	12	21.5	20.72	0.05	0.022	1.20	0.03
	LTE 5	QPSK10M	Top Side	0	20450	25	12	21.5	20.72	0	0.006	1.20	0.01
	LTE 5	QPSK10M	Bottom Side	0	20450	25	12	21.5	20.72	-0.06	0.660	1.20	0.79
	LTE 5	QPSK10M	Bottom Side	0	20525	1	24	22.5	21.68	-0.09	0.906	1.21	1.09
6	LTE 5	QPSK10M	Bottom Side	0	20600	1	24	22.5	21.71	-0.07	0.908	1.20	1.09
	LTE 5	QPSK10M	Bottom Side	0	20450	50	0	21.5	20.70	0.01	0.651	1.20	0.78
	LTE 12	QPSK10M	Rear Face	0	23130	1	24	24.0	23.12	0.12	0.373	1.22	0.46
	LTE 12	QPSK10M	Left Side	0	23130	1	24	24.0	23.12	0.05	0.026	1.22	0.03
	LTE 12	QPSK10M	Right Side	0	23130	1	24	24.0	23.12	-0.04	0.016	1.22	0.02
	LTE 12	QPSK10M	Top Side	0	23130	1	24	24.0	23.12	0	0.004	1.22	0.01
	LTE 12	QPSK10M	Bottom Side	0	23130	1	24	24.0	23.12	0.04	0.888	1.22	1.09
	LTE 12	QPSK10M	Rear Face	0	23130	25	25	23.0	22.17	0.14	0.292	1.21	0.35
	LTE 12	QPSK10M	Left Side	0	23130	25	25	23.0	22.17	0.02	0.022	1.21	0.03
	LTE 12	QPSK10M	Right Side	0	23130	25	25	23.0	22.17	0.01	0.013	1.21	0.02
	LTE 12	QPSK10M	Top Side	0	23130	25	25	23.0	22.17	0.03	0.003	1.21	0.00
	LTE 12	QPSK10M	Bottom Side	0	23130	25	25	23.0	22.17	-0.12	0.600	1.21	0.73
	LTE 12	QPSK10M	Bottom Side	0	23060	1	24	24.0	23.09	0.04	0.871	1.23	1.07
7	LTE 12	QPSK10M	Bottom Side	0	23095	1	24	24.0	23.07	-0.02	0.893	1.24	1.11
	LTE 12	QPSK10M	Bottom Side	0	23130	50	0	23.0	22.14	0.07	0.620	1.22	0.76
	LTE 13	QPSK10M	Rear Face	0	23230	1	24	22.5	21.86	0.02	0.361	1.16	0.42
	LTE 13	QPSK10M	Left Side	0	23230	1	24	22.5	21.86	0	0.037	1.16	0.04
	LTE 13	QPSK10M	Right Side	0	23230	1	24	22.5	21.86	0	0.025	1.16	0.03
	LTE 13	QPSK10M	Top Side	0	23230	1	24	22.5	21.86	0.11	0.003	1.16	0.00
8	LTE 13	QPSK10M	Bottom Side	0	23230	1	24	22.5	21.86	0	0.684	1.16	0.79
	LTE 13	QPSK10M	Rear Face	0	23230	25	12	21.5	20.82	0.07	0.276	1.47	0.41
	LTE 13	QPSK10M	Left Side	0	23230	25	12	21.5	20.82	0.04	0.027	1.17	0.03
	LTE 13	QPSK10M	Right Side	0	23230	25	12	21.5	20.82	0	0.021	1.17	0.02
	LTE 13	QPSK10M	Top Side	0	23230	25	12	21.5	20.82	0.08	0.002	1.17	0.00
	LTE 13	QPSK10M	Bottom Side	0	23230	25	12	21.5	20.82	-0.04	0.583	1.17	0.68

<WLAN / BT >

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	WLAN2.4G	802.11b	Rear Face	0	1	99.05	16.5	15.22	0	0.428	1.01	1.34	0.58
	WLAN2.4G	802.11b	Right Side	0	1	99.05	16.5	15.22	-0.06	0.192	1.01	1.34	0.26
	WLAN2.4G	802.11b	Top Side	0	1	99.05	16.5	15.22	0.01	0.624	1.01	1.34	0.85
9	WLAN2.4G	802.11b	Top Side	0	6	99.05	16.5	15.08	0.11	0.680	1.01	1.39	0.95
	WLAN2.4G	802.11b	Top Side	0	11	99.05	16.5	15.04	0.13	0.581	1.01	1.40	0.82
	WLAN5G	802.11a	Rear Face	0	36	99.12	14.5	14.10	0	0.236	1.01	1.10	0.26
	WLAN5G	802.11a	Right Side	0	36	99.12	14.5	14.10	0.06	0.093	1.01	1.10	0.10
	WLAN5G	802.11a	Top Side	0	36	99.12	14.5	14.10	-0.1	1.030	1.01	1.10	1.14
10	WLAN5G	802.11a	Top Side	0	40	99.12	14.5	14.00	0.06	1.180	1.01	1.12	1.34
	WLAN5G	802.11a	Top Side	0	44	99.12	14.5	13.92	-0.08	1.150	1.01	1.14	1.33
	WLAN5G	802.11a	Top Side	0	48	99.12	14.5	13.99	0.08	1.100	1.01	1.12	1.25
	WLAN5G	802.11a	Rear Face	0	52	99.12	14.5	13.91	0.01	0.215	1.01	1.15	0.25
	WLAN5G	802.11a	Right Side	0	52	99.12	14.5	13.91	-0.05	0.069	1.01	1.15	0.08
	WLAN5G	802.11a	Top Side	0	52	99.12	14.5	13.91	-0.09	0.944	1.01	1.15	1.09
11	WLAN5G	802.11a	Top Side	0	56	99.12	14.5	13.85	-0.09	1.130	1.01	1.16	1.32
	WLAN5G	802.11a	Top Side	0	60	99.12	14.5	13.89	-0.07	1.100	1.01	1.15	1.28
	WLAN5G	802.11a	Top Side	0	64	99.12	14.5	13.87	0.03	1.070	1.01	1.16	1.25
	WLAN5G	802.11a	Rear Face	0	116	99.12	15.0	14.20	0.09	0.353	1.01	1.20	0.43
	WLAN5G	802.11a	Right Side	0	116	99.12	15.0	14.20	0.04	0.123	1.01	1.20	0.15
12	WLAN5G	802.11a	Top Side	0	116	99.12	15.0	14.20	0	0.556	1.01	1.20	0.67
13	WLAN5G	802.11a	Rear Face	0	165	91.41	15.0	14.12	0	0.658	1.09	1.22	0.88
	WLAN5G	802.11a	Right Side	0	165	91.41	15.0	14.12	0.06	0.317	1.09	1.22	0.42
	WLAN5G	802.11a	Top Side	0	165	91.41	15.0	14.12	-0.09	0.549	1.09	1.22	0.74
	WLAN5G	802.11a	Rear Face	0	149	91.41	15.0	14.08	0.04	0.548	1.09	1.24	0.74
	WLAN5G	802.11a	Rear Face	0	157	91.41	15.0	14.10	-0.06	0.597	1.09	1.23	0.80

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Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	BT	GFSK	Rear Face	0	39	76.59	9.0	8.56	0	0.106	1.31	1.11	0.15
	BT	GFSK	Right Side	0	39	76.59	9.0	8.56	0.07	0.031	1.31	1.11	0.04
14	BT	GFSK	Top Side	0	39	76.59	9.0	8.56	0.17	0.146	1.31	1.11	0.21

4.6.3 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 may be 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
LTE 12	Bottom Side	23095	0.893	0.868	1.03	N/A	N/A	N/A	N/A
WCDMA V	Bottom Side	4233	0.984	0.971	1.03	N/A	N/A	N/A	N/A
LTE 4	Bottom Side	20300	0.904	0.888	1.02	N/A	N/A	N/A	N/A
LTE 2	Bottom Side	19100	1.000	0.991	1.01	N/A	N/A	N/A	N/A
WLAN5G	Top Side	40	1.180	1.15	1.03	N/A	N/A	N/A	N/A

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4.6.4 Simultaneous Multi-band Transmission Evaluation

<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.

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	3+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
WCDMA II	Rear Face at 0mm	0.54	0.58	0.88	0.15	1.13	1.42	0.70	1.03	1.58
	Left Side at 0mm	0.09				0.09	0.09	0.09	0.00	0.09
	Right Side at 0mm	0.11	0.26	0.42	0.04	0.37	0.53	0.15	0.46	0.57
	Top Side at 0mm	0.00	0.95	1.34	0.21	0.95	1.34	0.21	1.55	1.55
	Bottom Side at 0mm	1.17				1.17	1.17	1.17	0.00	1.17
WCDMA IV	Rear Face at 0mm	0.38	0.58	0.88	0.15	0.96	1.26	0.53	1.03	1.41
	Left Side at 0mm	0.27				0.27	0.27	0.27	0.00	0.27
	Right Side at 0mm	0.01	0.26	0.42	0.04	0.27	0.43	0.05	0.46	0.47
	Top Side at 0mm	0.00	0.95	1.34	0.21	0.95	1.34	0.21	1.55	1.55
	Bottom Side at 0mm	1.02				1.02	1.02	1.02	0.00	1.02
WCDMA V	Rear Face at 0mm	0.52	0.58	0.88	0.15	1.10	1.40	0.67	1.03	1.55
	Left Side at 0mm	0.04				0.04	0.04	0.04	0.00	0.04
	Right Side at 0mm	0.04	0.26	0.42	0.04	0.30	0.46	0.08	0.46	0.50
	Top Side at 0mm	0.01	0.95	1.34	0.21	0.96	1.35	0.22	1.55	1.56
	Bottom Side at 0mm	1.16				1.16	1.16	1.16	0.00	1.16

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WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	3+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
LTE Band 2	Rear Face at 0mm	0.56	0.58	0.88	0.15	1.14	1.44	0.71	1.03	1.59
	Left Side at 0mm	0.08				0.08	0.08	0.08	0.00	0.08
	Right Side at 0mm	0.11	0.26	0.42	0.04	0.37	0.53	0.16	0.46	0.58
	Top Side at 0mm	0.00	0.95	1.34	0.21	0.95	1.34	0.21	1.55	1.55
	Bottom Side at 0mm	1.18				1.18	1.18	1.18	0.00	1.18
LTE Band 4	Rear Face at 0mm	0.44	0.58	0.88	0.15	1.02	1.32	0.59	1.03	1.47
	Left Side at 0mm	0.04				0.04	0.04	0.04	0.00	0.04
	Right Side at 0mm	0.01	0.26	0.42	0.04	0.27	0.43	0.05	0.46	0.47
	Top Side at 0mm	0.00	0.95	1.34	0.21	0.96	1.34	0.21	1.55	1.55
	Bottom Side at 0mm	1.09				1.09	1.09	1.09	0.00	1.09
LTE Band 5	Rear Face at 0mm	0.49	0.58	0.88	0.15	1.07	1.37	0.64	1.03	1.52
	Left Side at 0mm	0.04				0.04	0.04	0.04	0.00	0.04
	Right Side at 0mm	0.03	0.26	0.42	0.04	0.29	0.45	0.08	0.46	0.50
	Top Side at 0mm	0.01	0.95	1.34	0.21	0.96	1.34	0.22	1.55	1.56
	Bottom Side at 0mm	1.09				1.09	1.09	1.09	0.00	1.09
LTE Band 12 / 17	Rear Face at 0mm	0.46	0.58	0.88	0.15	1.04	1.34	0.61	1.03	1.49
	Left Side at 0mm	0.03				0.03	0.03	0.03	0.00	0.03
	Right Side at 0mm	0.02	0.26	0.42	0.04	0.28	0.44	0.06	0.46	0.48
	Top Side at 0mm	0.01	0.95	1.34	0.21	0.96	1.34	0.22	1.55	1.55
	Bottom Side at 0mm	1.11				1.11	1.11	1.11	0.00	1.11
LTE Band 13	Rear Face at 0mm	0.42	0.58	0.88	0.15	1.00	1.30	0.57	1.03	1.45
	Left Side at 0mm	0.04				0.04	0.04	0.04	0.00	0.04
	Right Side at 0mm	0.03	0.26	0.42	0.04	0.29	0.45	0.07	0.46	0.49
	Top Side at 0mm	0.00	0.95	1.34	0.21	0.96	1.34	0.21	1.55	1.55
	Bottom Side at 0mm	0.79				0.79	0.79	0.79	0.00	0.79

Test Engineer : Gengdong Deng, and Dennis Ye

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1078	Jun. 21, 2021	1 Year
System Validation Dipole	SPEAG	D835V2	4d092	Jun. 23, 2021	1 Year
System Validation Dipole	SPEAG	D1750V2	1111	Apr. 14, 2021	1 Year
System Validation Dipole	SPEAG	D1900V2	5d142	Jun. 25, 2021	1 Year
System Validation Dipole	SPEAG	D2450V2	735	Dec. 22, 2020	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1203	Dec. 22, 2020	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7515	Jun. 22, 2021	1 Year
Data Acquisition Electronics	SPEAG	DAE4	905	Nov. 30, 2020	1 Year
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25, 2021	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214638	Jun. 03, 2021	1 Year
Spectrum Analyzer	KEYSIGHT	N9010A	MY54510355	Jun. 03, 2021	1Year
MXG Analog Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 09, 2021	1 Year
Power Meter	Agilent	N1914A	MY52180044	Mar. 02, 2021	1 Year
Power Sensor	Agilent	E9304A H18	MY52050011	Feb. 25, 2021	1 Year
Power Meter	ANRITSU	ML2495A	1506002	Apr. 07, 2021	1 Year
Power Sensor	ANRITSU	MA2411B	1339353	May. 07, 2021	1 Year
Temp. & Humi. Recorder	CLOCK	HTC-1	157248	Jun. 02, 2021	1 Year
Electronic Thermometer	YONGFA	YF-160A	120100323	Jun. 02, 2021	1 Year
Coupler	Woken	0110A056020-10	COM27RW1A3	Jun. 02, 2021	1 Year

6. Measurement Uncertainty

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

Uncertainty budget for frequency range 30 MHz to 3 GHz

FCC SAR Test Report

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

Uncertainty budget for frequency range 3 GHz to 6 GHz

7. Information on the Testing Laboratories

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

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

Add: No. B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industry Park, Nanshan District, Shenzhen, Guangdong, China

Tel: 86-755-8869-6566

Fax: 86-755-8869-6577

Email: customerservice.sw@cn.bureauveritas.com

Web Site: www.bureauveritas.com

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

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Appendix A. SAR Plots of System Verification

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

System Check_HSL750_210922

DUT: Dipole:750 MHz;Type:D750V3

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

Medium: HSL750_0922 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.876 \text{ S/m}$; $\epsilon_r = 41.326$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3°C ; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(10.09, 10.09, 10.09); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x131x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 2.53 W/kg

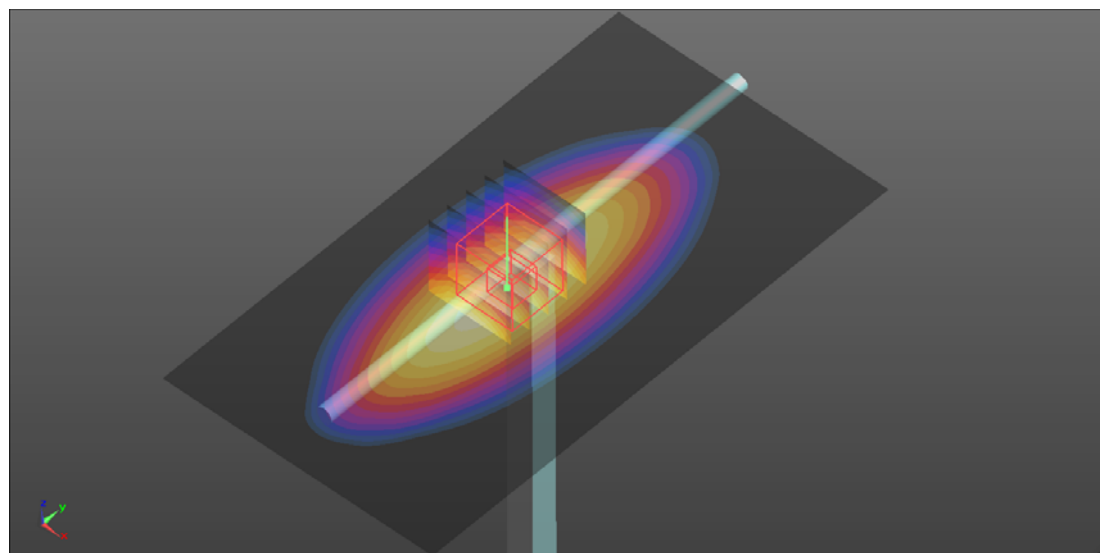
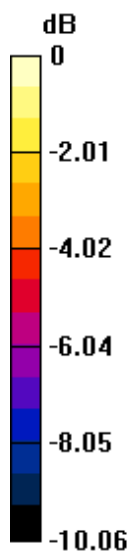
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.127 V/m ; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.86 W/kg

SAR(1 g) = 2 W/kg ; SAR(10 g) = 1.33 W/kg

Maximum value of SAR (measured) = 2.60 W/kg



0 dB = 2.60 W/kg

System Check_HSL835_210923

DUT: Dipole:835 MHz;Type:D835V2

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

Medium: HSL835_0923 Medium parameters used: $f = 835$ MHz; $\sigma = 0.903$ S/m; $\epsilon_r = 41.498$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(9.74, 9.74, 9.74); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

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

Maximum value of SAR (interpolated) = 3.18 W/kg

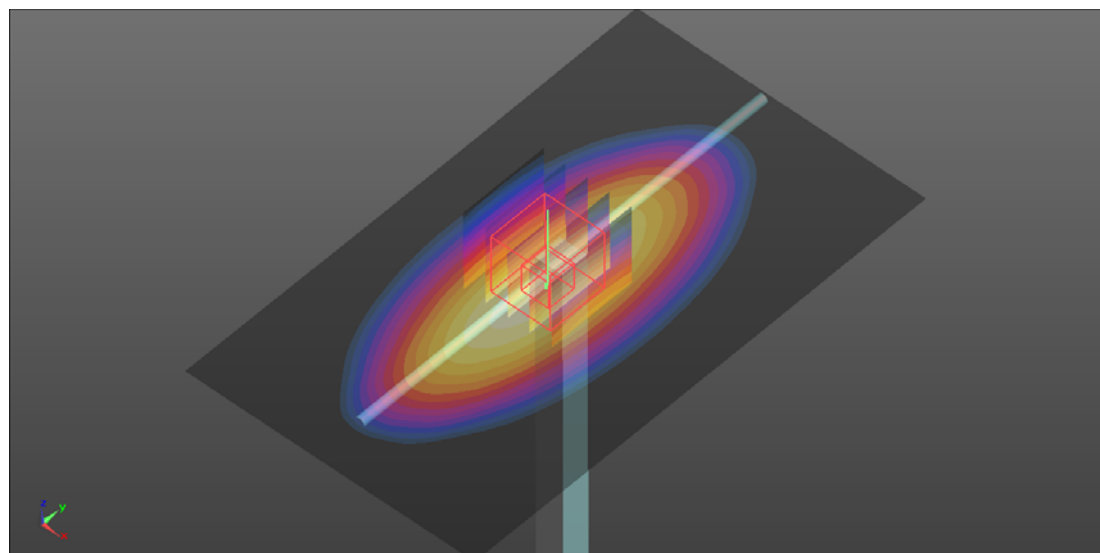
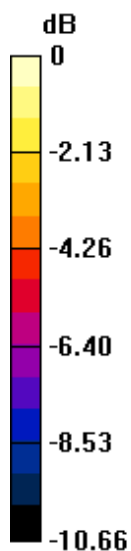
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 59.441 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (measured) = 3.24 W/kg



0 dB = 3.24 W/kg

System Check_HSL1750_210924

DUT: Dipole 1750 MHz;Type:D1750V2

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

Medium: HSL1750_0924 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 38.482$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.53, 8.53, 8.53); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.3 W/kg

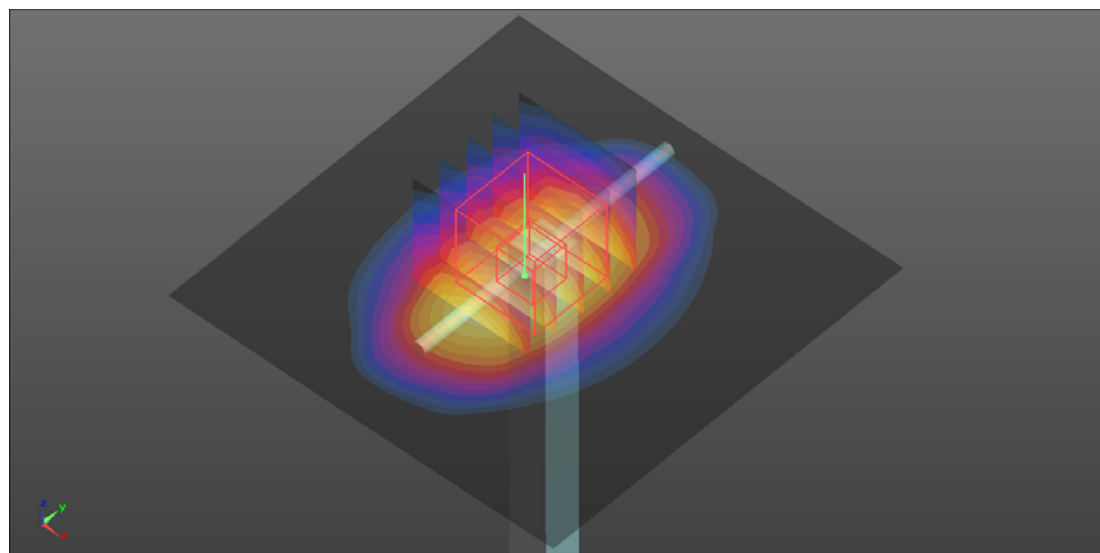
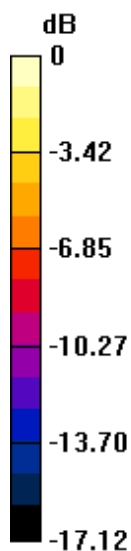
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 98.738 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.64 W/kg; SAR(10 g) = 5.13 W/kg

Maximum value of SAR (measured) = 14.8 W/kg



0 dB = 14.8 W/kg

System Check_HSL1900_210926

DUT: Dipole:1900MHz;Type:D1900V2

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

Medium: HSL1900_0926 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.373$ S/m; $\epsilon_r = 40.283$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- 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) = 16.5 W/kg

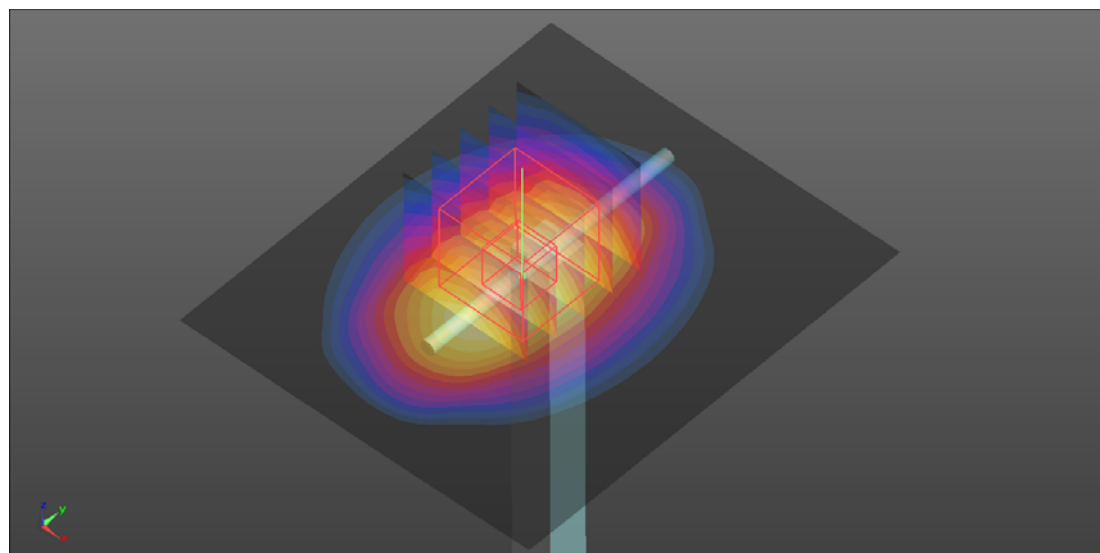
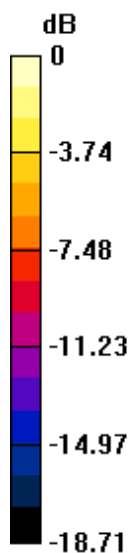
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 95.907 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 18.6 W/kg

SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.14 W/kg

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



0 dB = 15.6 W/kg

System Check_HSL2450_210927**DUT: Dipole:2450 MHz;Type:D2450V2**

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

Medium: HSL2450_0927 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.795$ S/m; $\epsilon_r = 38.822$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

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

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

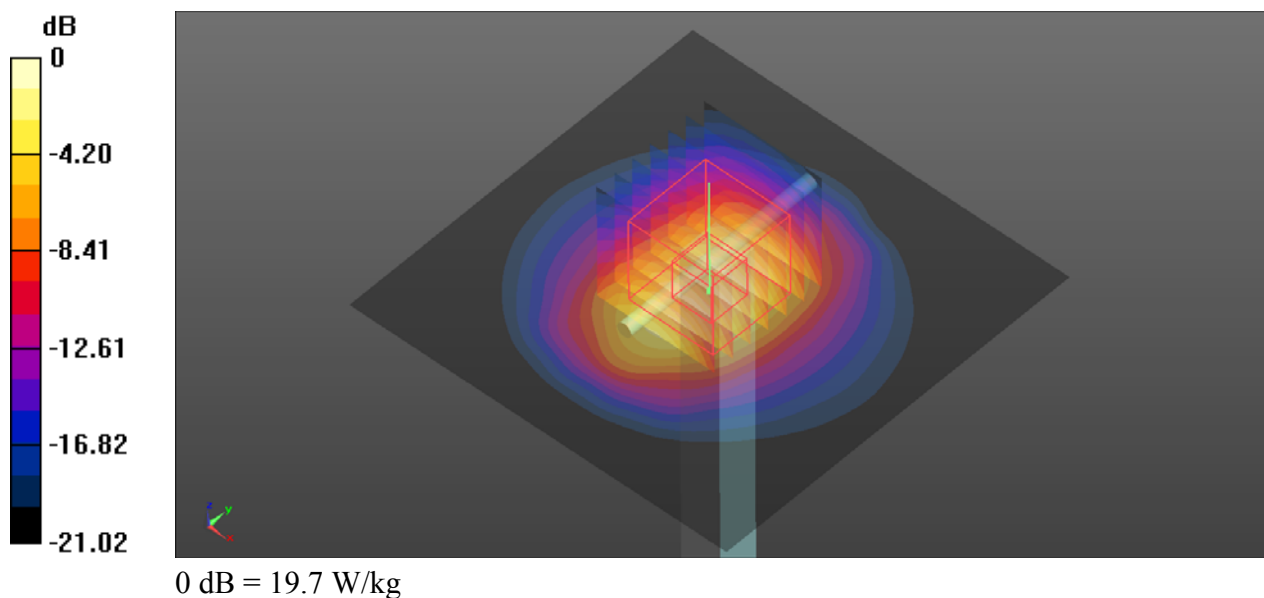
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 110.4 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 23.8 W/kg

SAR(1 g) = 12.2 W/kg; SAR(10 g) = 5.72 W/kg

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



System Check_HSL5250_210928**DUT: Dipole 5GHzV2;Type:D5GHzV2**

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

Medium: HSL5G_0928 Medium parameters used: $f = 5250$ MHz; $\sigma = 4.741$ S/m; $\epsilon_r = 36.265$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(5.54, 5.54, 5.54); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- 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) = 19.4 W/kg

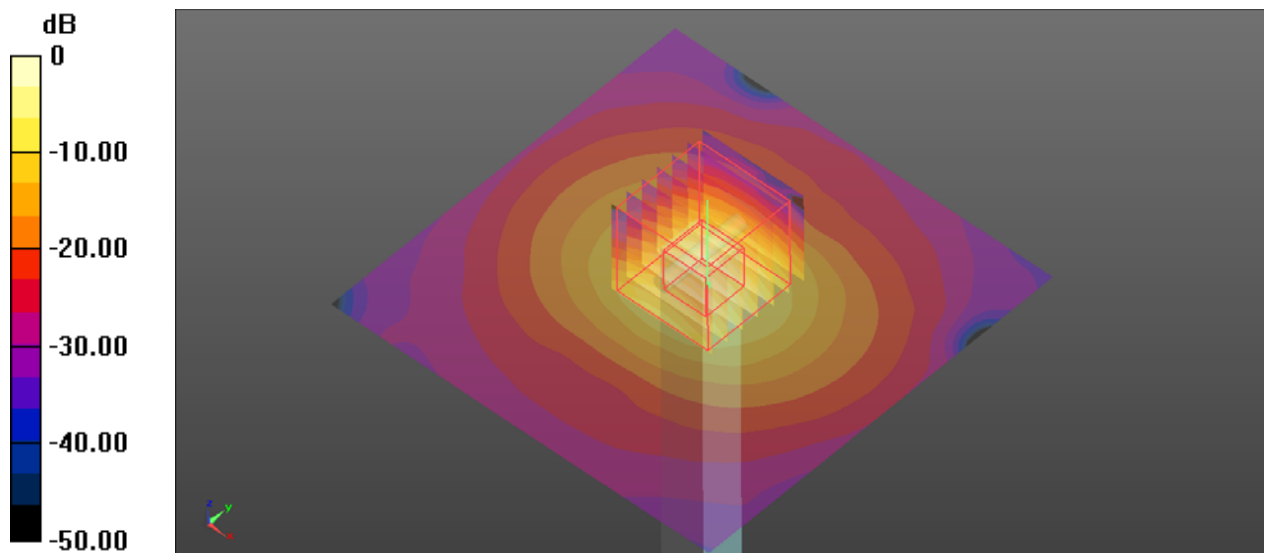
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.176 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 8.46 W/kg; SAR(10 g) = 2.42 W/kg

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



0 dB = 20.9 W/kg

System Check_HSL5600_210929

DUT: Dipole 5GHzV2;Type:D5GHzV2

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

Medium: HSL5G_0929 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.099$ S/m; $\epsilon_r = 35.754$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.85, 4.85, 4.85); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- 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) = 18.6 W/kg

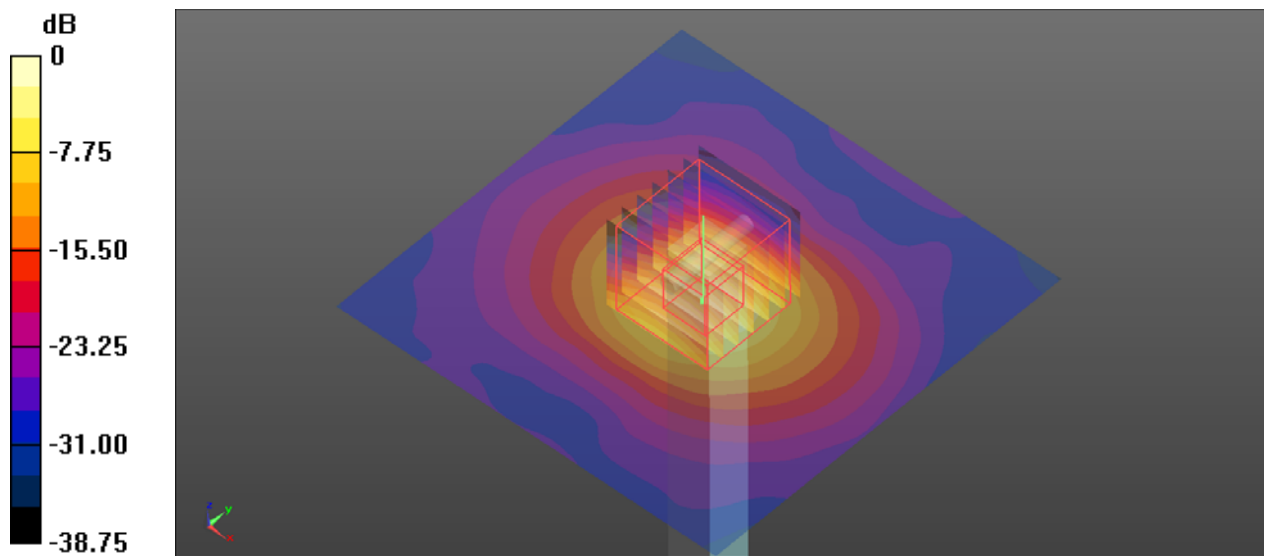
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.750 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 32.5 W/kg

SAR(1 g) = 7.53 W/kg; SAR(10 g) = 2.18 W/kg

Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.3 W/kg

System Check_HSL5750_210930

DUT: Dipole 5GHzV2;Type:D5GHzV2

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

Medium: HSL5G_0930 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.266$ S/m; $\epsilon_r = 35.534$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.86, 4.86, 4.86); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- 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) = 17.9 W/kg

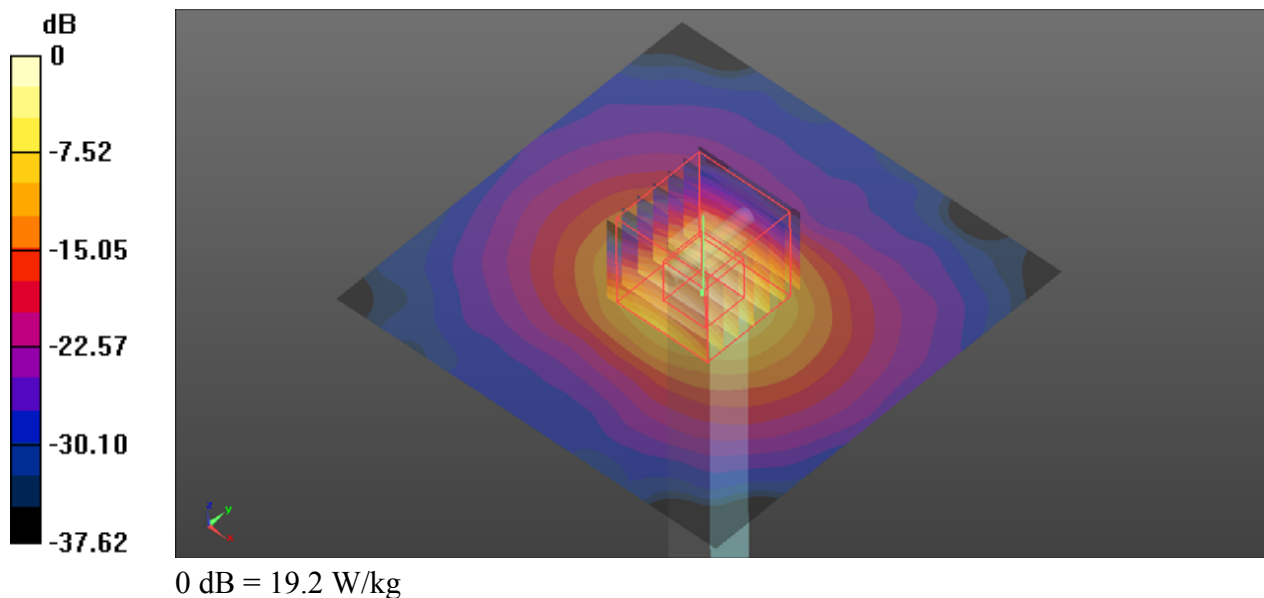
Pin=100mW/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 56.672 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 33.4 W/kg

SAR(1 g) = 7.34 W/kg; SAR(10 g) = 2.1 W/kg

Maximum value of SAR (measured) = 19.2 W/kg



Appendix B. SAR Plots of SAR Measurement

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

P01 WCDMA II_RMC12.2K_Bottom Side_0cm_Ch9538

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900_0926 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40.301$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x121x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

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

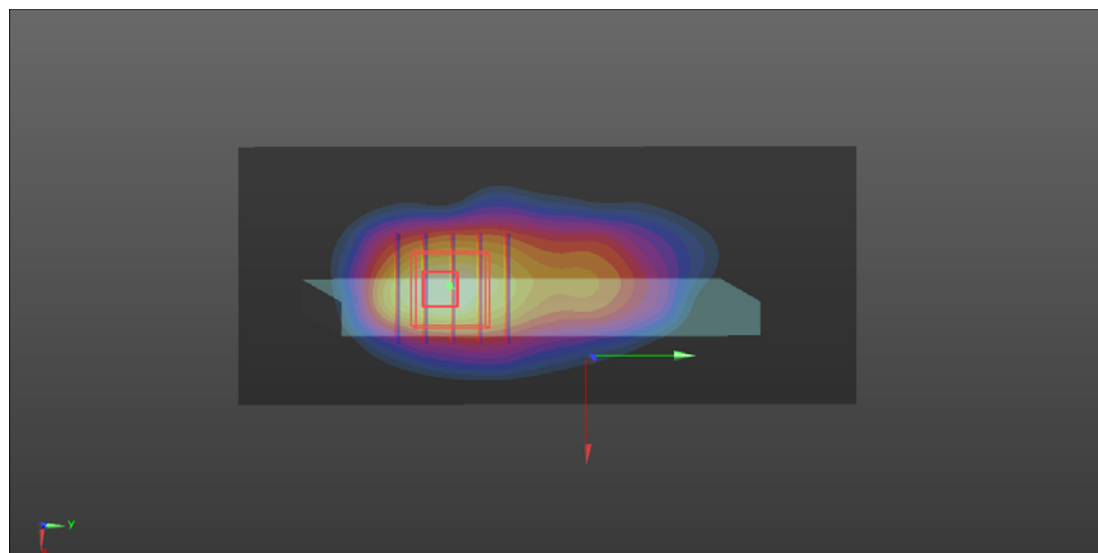
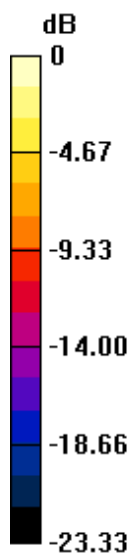
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 12.435 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 2.51 W/kg

SAR(1 g) = 0.982 W/kg; SAR(10 g) = 0.392 W/kg

Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg

P02 WCDMA IV_RMC12.2K_Bottom Side_0cm_Ch1513

Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: HSL1750_0924 Medium parameters used: $f = 1753$ MHz; $\sigma = 1.386$ S/m; $\epsilon_r = 38.466$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.53, 8.53, 8.53); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.01 W/kg

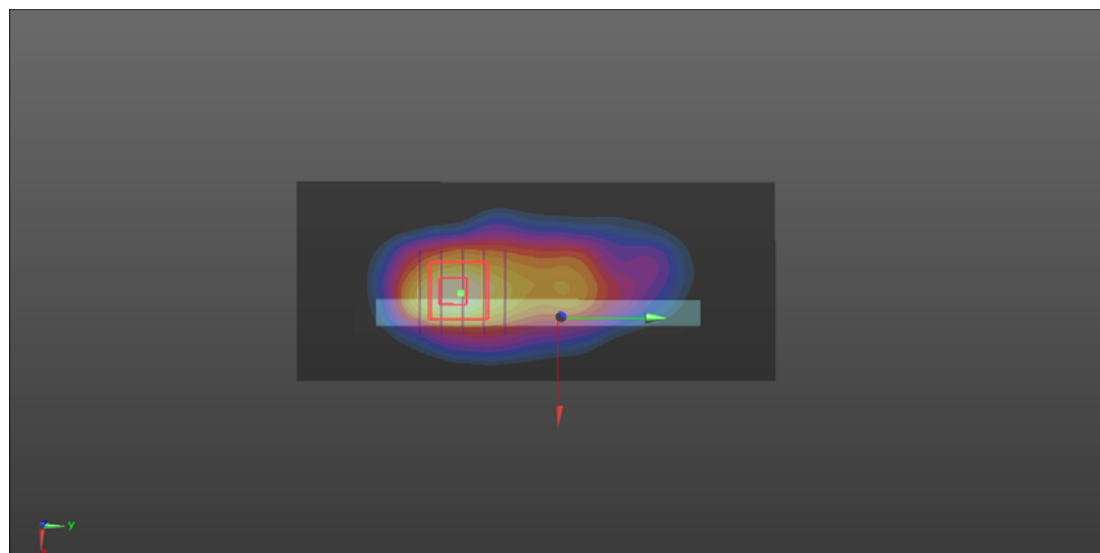
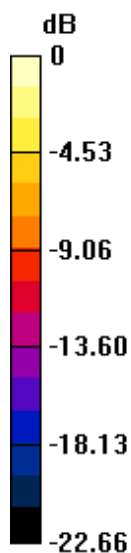
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.716 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.21 W/kg

SAR(1 g) = 0.856 W/kg; SAR(10 g) = 0.342 W/kg

Maximum value of SAR (measured) = 0.973 W/kg



0 dB = 0.973 W/kg

P03 WCDMA V_RMC12.2K_Bottom Side_0cm_Ch4233

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL835_0923 Medium parameters used: $f = 847$ MHz; $\sigma = 0.908$ S/m; $\epsilon_r = 41.405$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(9.74, 9.74, 9.74); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (51x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.16 W/kg

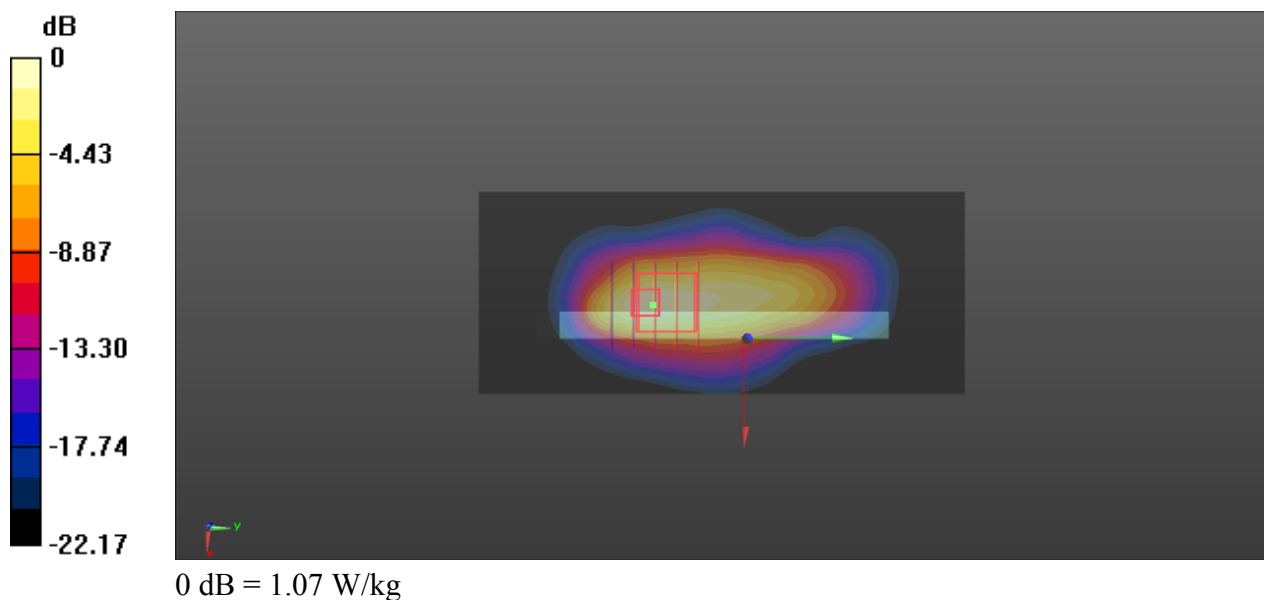
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.596 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.10 W/kg

SAR(1 g) = 0.984 W/kg; SAR(10 g) = 0.432 W/kg

Maximum value of SAR (measured) = 1.07 W/kg



P04 LTE 2_QPSK20M_Bottom Side_0cm_Ch19100_1RB_OS50

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

Medium: HSL1900_0926 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.373$ S/m; $\epsilon_r = 40.283$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.18 W/kg

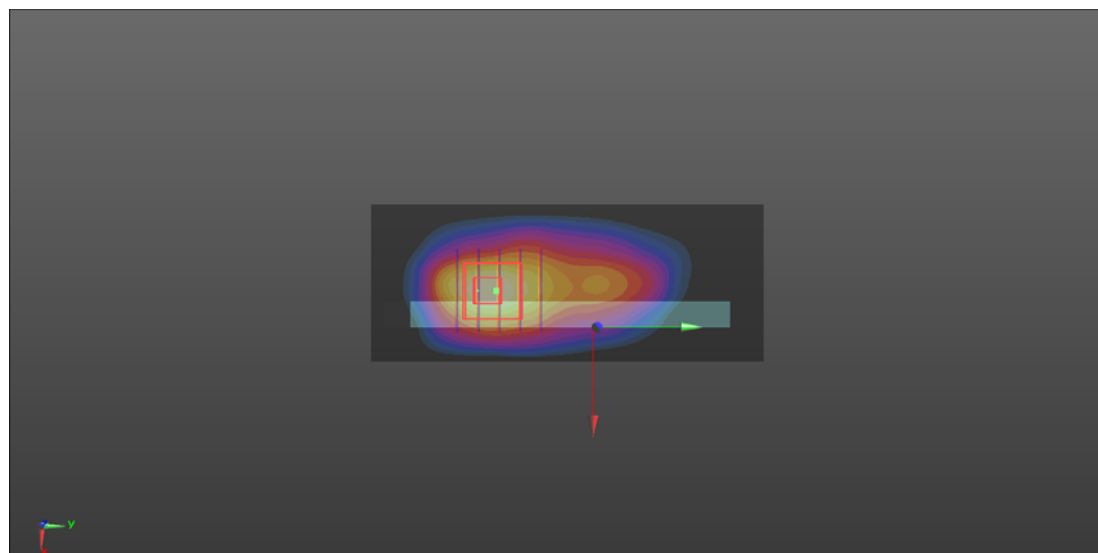
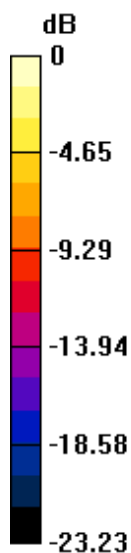
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.478 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 2.68 W/kg

SAR(1 g) = 1 W/kg; SAR(10 g) = 0.402 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg

P05 LTE 4_QPSK20M_Bottom Side_0cm_Ch20300_1RB_OS50

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: HSL1750_0924 Medium parameters used: $f = 1745$ MHz; $\sigma = 1.38$ S/m; $\epsilon_r = 38.505$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(8.53, 8.53, 8.53); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x101x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.04 W/kg

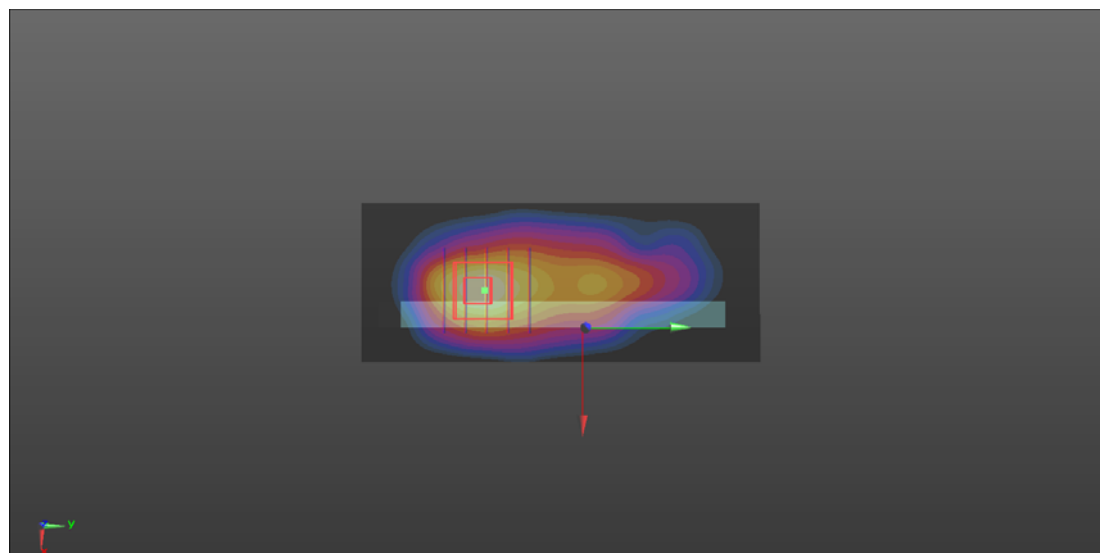
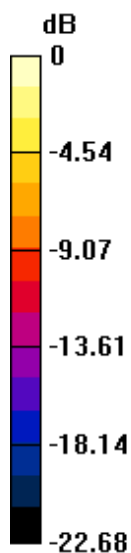
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.387 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 2.33 W/kg

SAR(1 g) = 0.904 W/kg; SAR(10 g) = 0.362 W/kg

Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg

P06 LTE 5_QPSK10M_Bottom Side_0cm_Ch20600_1RB_OS24

Communication System: LTE; Frequency: 844 MHz; Duty Cycle: 1:1

Medium: HSL835_0923 Medium parameters used: $f = 844$ MHz; $\sigma = 0.907$ S/m; $\epsilon_r = 41.428$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(9.74, 9.74, 9.74); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.16 W/kg

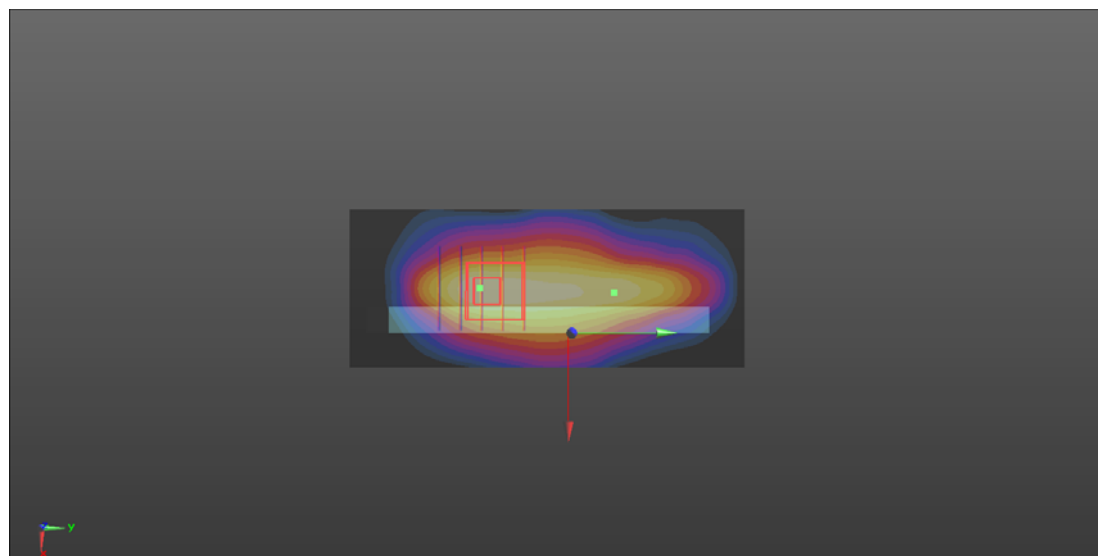
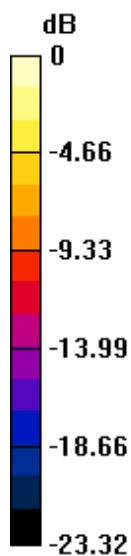
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.383 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 2.47 W/kg

SAR(1 g) = 0.908 W/kg; SAR(10 g) = 0.407 W/kg

Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg

P07 LTE 12_QPSK10M_Bottom Side_0cm_Ch23095_1RB_OS24

Communication System: LTE; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: HSL750_0922 Medium parameters used: $f = 707.5$ MHz; $\sigma = 0.866$ S/m; $\epsilon_r = 41.387$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(10.09, 10.09, 10.09); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.07 W/kg

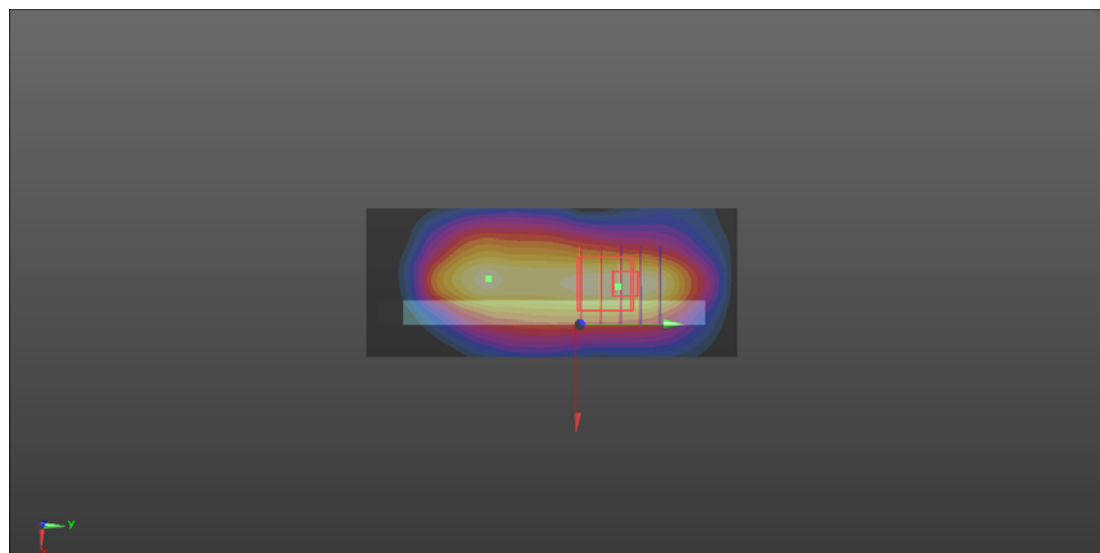
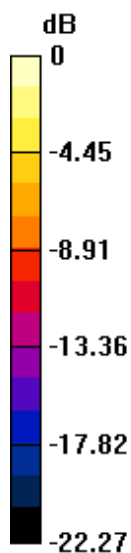
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.072 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.02 W/kg

SAR(1 g) = 0.893 W/kg; SAR(10 g) = 0.381 W/kg

Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.02 W/kg

P08 LTE 13_QPSK10M_Bottom Side_0cm_Ch23230_1RB_OS24

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: HSL750_0922 Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.884 \text{ S/m}$; $\epsilon_r = 41.291$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3°C ; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(10.09, 10.09, 10.09); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x101x1):** Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.866 W/kg

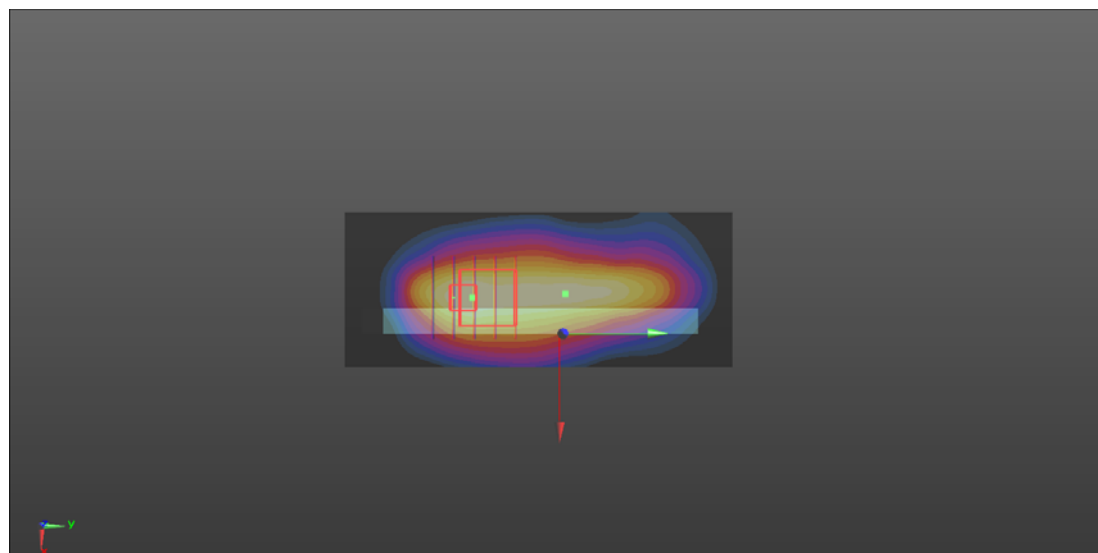
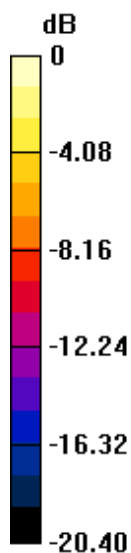
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.013 V/m ; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 2.05 W/kg

SAR(1 g) = 0.684 W/kg ; SAR(10 g) = 0.318 W/kg

Maximum value of SAR (measured) = 0.761 W/kg



0 dB = 0.761 W/kg

P09 WLAN2.4G_802.11b_Top Side_0cm_Ch6

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1.01

Medium: HSL2450_0927 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.781$ S/m; $\epsilon_r = 38.872$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- Area Scan (41x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

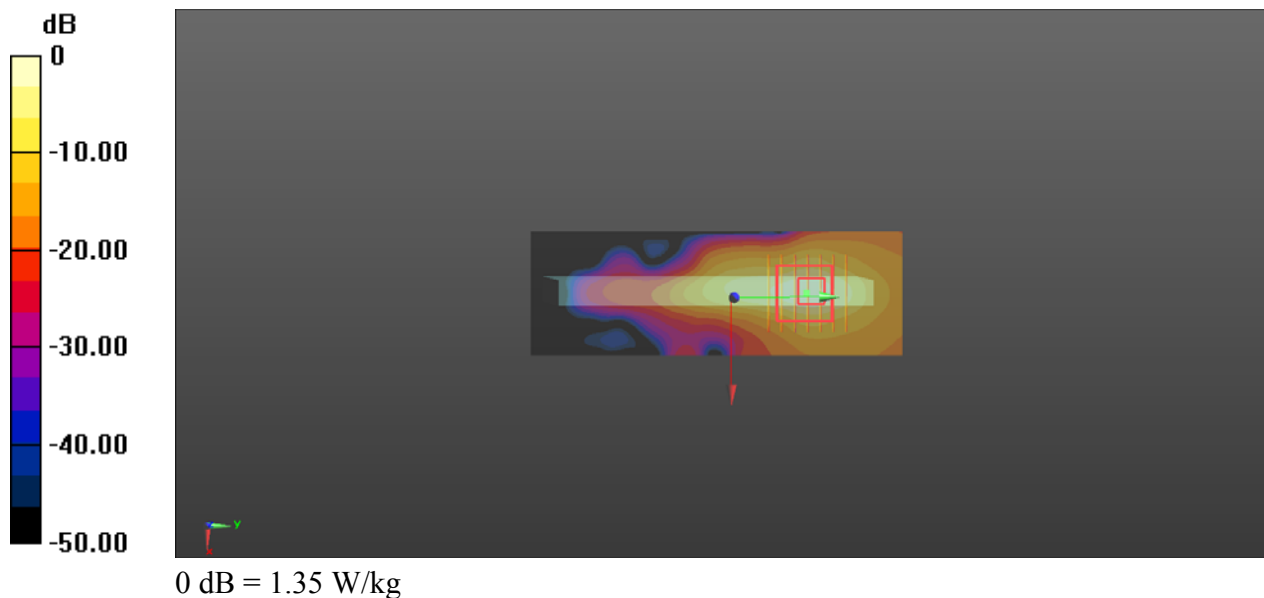
- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.314 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.01 W/kg

SAR(1 g) = 0.680 W/kg; SAR(10 g) = 0.238 W/kg

Maximum value of SAR (measured) = 1.35 W/kg



P10 WLAN5G_802.11a_Top Side_0cm_Ch40

Communication System: 802.11a; Frequency: 5200 MHz; Duty Cycle: 1:1.01

Medium: HSL5G_0928 Medium parameters used: $f = 5200$ MHz; $\sigma = 4.691$ S/m; $\epsilon_r = 36.347$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(5.54, 5.54, 5.54); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x141x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

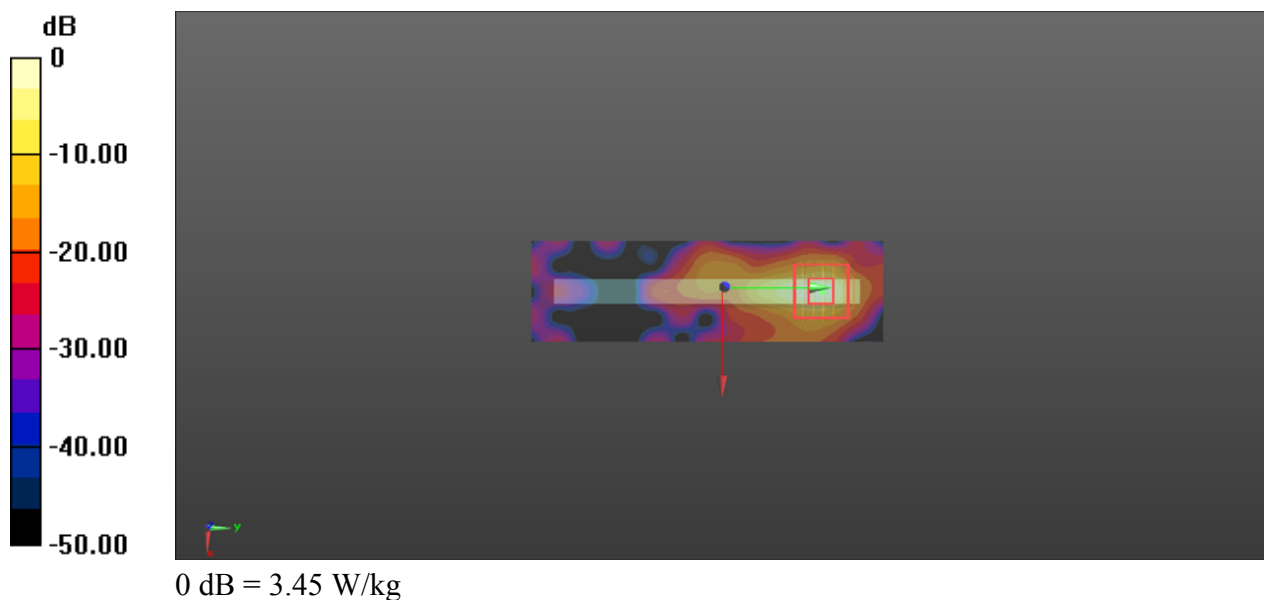
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.747 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 6.30 W/kg

SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.246 W/kg

Maximum value of SAR (measured) = 3.45 W/kg



P11 WLAN5G_802.11a_Top Side_0cm_Ch56

Communication System: 802.11a; Frequency: 5280 MHz; Duty Cycle: 1:1.01

Medium: HSL5G_0928 Medium parameters used: $f = 5280$ MHz; $\sigma = 4.769$ S/m; $\epsilon_r = 36.217$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(5.54, 5.54, 5.54); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x141x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.93 W/kg

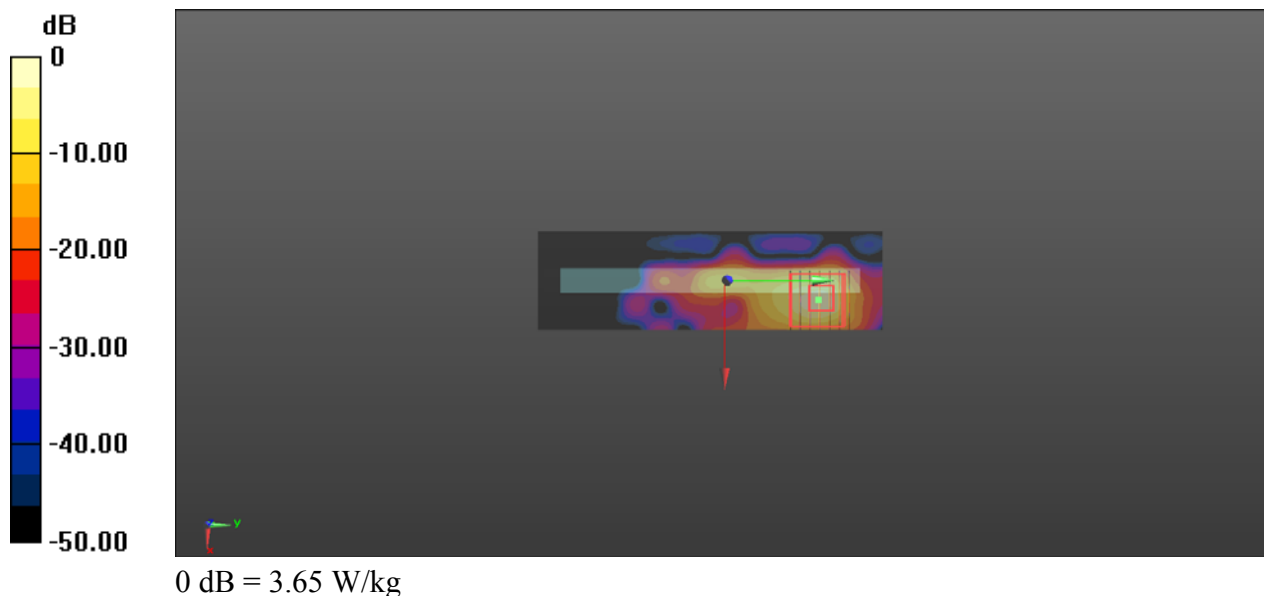
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.383 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 6.71 W/kg

SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.233 W/kg

Maximum value of SAR (measured) = 3.65 W/kg



P12 WLAN5G_802.11a_Top Side_0cm_Ch116

Communication System: 802.11a; Frequency: 5580 MHz; Duty Cycle: 1:1.01

Medium: HSL5G_0929 Medium parameters used: $f = 5580$ MHz; $\sigma = 5.079$ S/m; $\epsilon_r = 35.777$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.85, 4.85, 4.85); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x141x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.16 W/kg

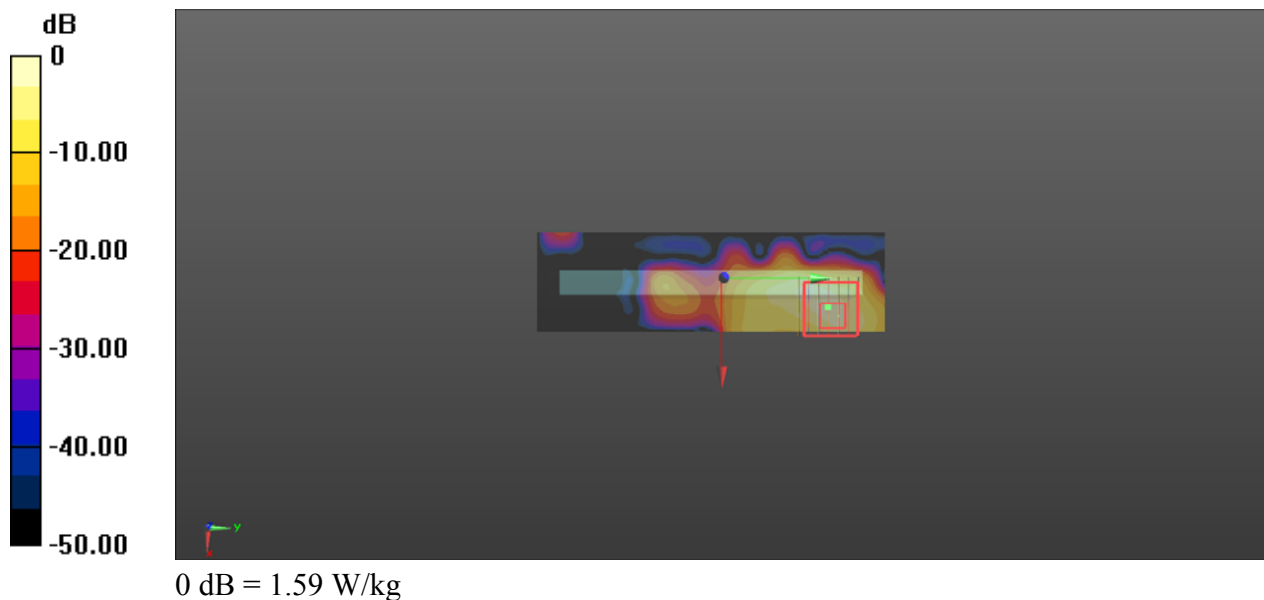
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 2.45 W/kg

SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.143 W/kg

Maximum value of SAR (measured) = 1.59 W/kg



P13 WLAN5G_802.11a_Rear Face_0cm_Ch165

Communication System: 802.11a; Frequency: 5825 MHz; Duty Cycle: 1:1.09

Medium: HSL5G_0930 Medium parameters used: $f = 5825$ MHz; $\sigma = 5.337$ S/m; $\epsilon_r = 35.434$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(4.86, 4.86, 4.86); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (91x101x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 3.02 W/kg

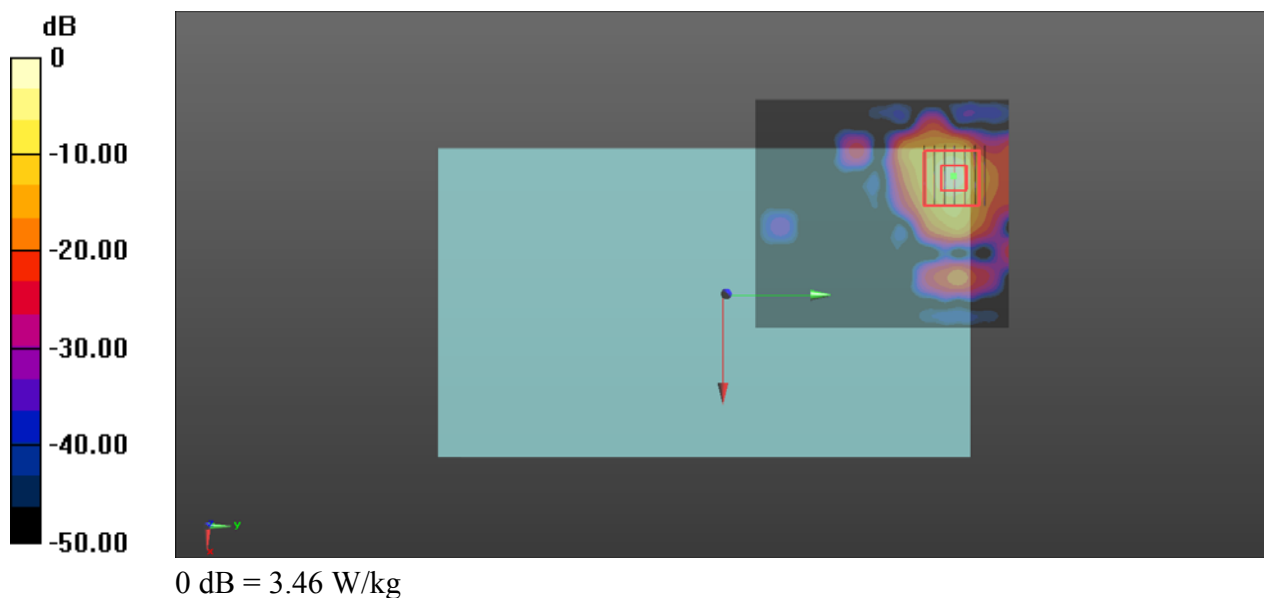
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 5.78 W/kg

SAR(1 g) = 0.658 W/kg; SAR(10 g) = 0.133 W/kg

Maximum value of SAR (measured) = 3.46 W/kg



P14 BT_GFSK_Top Side_0cm_Ch39

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1.31

Medium: HSL2450_0927 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.785$ S/m; $\epsilon_r = 38.856$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7515; ConvF(7.34, 7.34, 7.34); Calibrated: 2020/11/30;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2021/6/22
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1214
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

- **Area Scan (41x121x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.251 W/kg

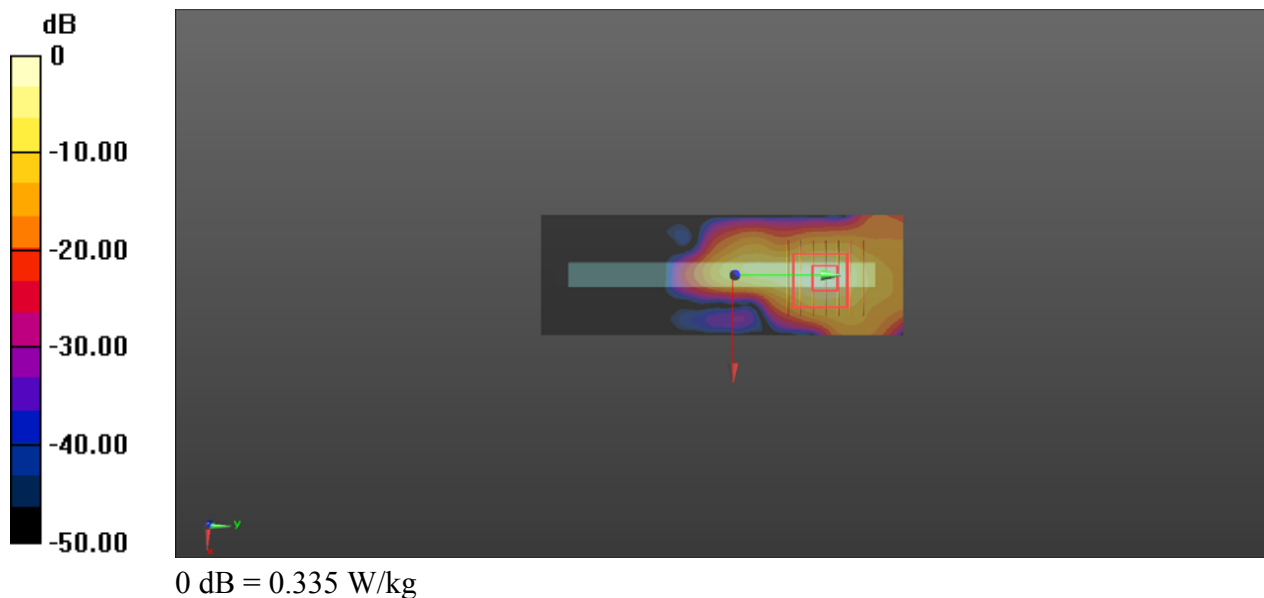
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.209 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.470 W/kg

SAR(1 g) = 0.146 W/kg; SAR(10 g) = 0.049 W/kg

Maximum value of SAR (measured) = 0.335 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.