Appendix A. System Check Plots

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System Performance Check
System validation

Date: 2021-11-10

Place of testing: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D2450-EX

DUT: Dipole; Type: D2450V2; Serial: 869

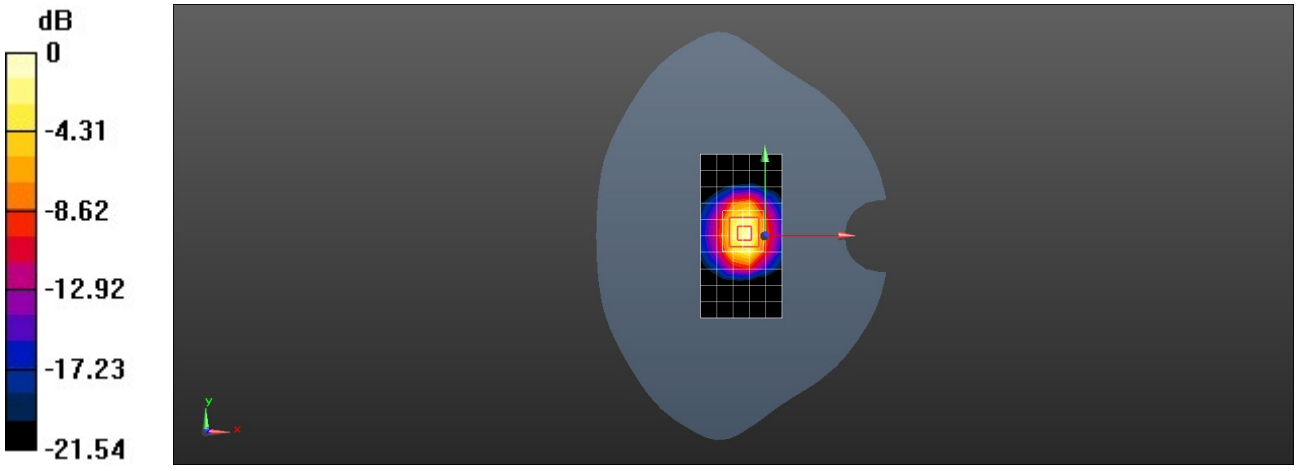
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.743 S/m; ε_r = 37.374; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 2021-07-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1492; Calibrated: 2021-07-28
- Phantom: SAM1; Type: SAM; Serial: 1475
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/d=10mm, Pin=250mW, f=2450 MHz/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 18.4 W/kg

Configuration/d=10mm, Pin=250mW, f=2450 MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 117.6 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.27 W/kg
Smallest distance from peaks to all points 3 dB below = 8.9 mm
Ratio of SAR at M2 to SAR at M1 = 50.3%
Maximum value of SAR (measured) = 21.9 W/kg



0 dB = 21.9 W/kg = 13.41 dBW/kg

System Validation

Per FCC KDB 865664 D02, SAR system verification is required to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles are used with the required tissue-equivalent media for system validation, according to the procedures outlined in FCC KDB 865664 D01 and IEEE 1528-2013.Since SAR probe calibrations are frequency dependent, each probe calibration point must be validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

a tabulated summary of the system validation status, measurement frequencies, SAR probes, calibrated signal type(s) and tissue dielectric parameters has been included.

FREQ.	DATE	PROBE SN	PROBE TYPE	PROBE CAL POINT		PERM	COND	CW VALIDATION			MOD.VALIDATION		
[Mhz]						(εr)	(σ)	SENSI-TIVITY	PROBE LINARITY	PROBE ISOTROPY	MOD. TYPE	DUTY. FACTORE	PAR
750	2021-08-27	3744	EX3DV4	750	Head	40.26	0.885	PASS	PASS	PASS	N/A	N/A	N/A
835	2021-08-27	3744	EX3DV4	850	Head	40.09	0.916	PASS	PASS	PASS	GMSK	PASS	N/A
1750	2021-08-27	3744	EX3DV4	1750	Head	39.03	1.360	PASS	PASS	PASS	NA	NA	N/A
1900	2021-08-27	3744	EX3DV4	1900	Head	38.81	1.454	PASS	PASS	PASS	GMSK	PASS	N/A
2000	2021-08-27	3744	EX3DV4	2000	Head	39.22	1.448	PASS	PASS	PASS	N/A	N/A	N/A
2300	2021-08-27	3744	EX3DV4	2300	Head	38.87	1.651	PASS	PASS	PASS	TDD	PASS	N/A
2450	2021-08-27	3744	EX3DV4	2450	Head	38.63	1.761	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
2600	2021-08-27	3744	EX3DV4	2600	Head	38.38	1.871	PASS	PASS	PASS	TDD	PASS	N/A
3300	2021-08-27	3744	EX3DV4	3300	Head	38.22	2.637	PASS	PASS	PASS	TDD	PASS	N/A
3500	2021-08-27	3744	EX3DV4	3500	Head	37.84	2.816	PASS	PASS	PASS	TDD	PASS	N/A
3700	2021-08-27	3744	EX3DV4	3700	Head	37.53	2.997	PASS	PASS	PASS	TDD	PASS	N/A
3900	2021-08-27	3744	EX3DV4	3900	Head	37.19	3.194	PASS	PASS	PASS	TDD	PASS	N/A
4100	2021-08-30	3744	EX3DV4	4100	Head	38.70	3.399	PASS	PASS	PASS	TDD	PASS	N/A
4500	2021-08-30	3744	EX3DV4	4400	Head	37.97	3.846	PASS	PASS	PASS	TDD	PASS	N/A
4700	2021-08-30	3744	EX3DV4	4600	Head	37.58	4.076	PASS	PASS	PASS	TDD	PASS	N/A
4900	2021-08-30	3744	EX3DV4	4950	Head	37.18	4.306	PASS	PASS	PASS	TDD	PASS	N/A
5250	2021-08-30	3744	EX3DV4	5250	Head	35.36	4.816	PASS	PASS	PASS	OFDM/TDD	PASS	N/A
5600	2021-08-30	3744	EX3DV4	5600	Head	34.74	5.206	PASS	PASS	PASS	OFDM/TDD	PASS	N/A
5750	2021-08-30	3744	EX3DV4	5750	Head	34.48	5.407	PASS	PASS	PASS	OFDM/TDD	PASS	N/A

Table of SAR System validation summary:

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664D01 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5dB), such as OFDM according to KDB 865664.