



Appendix A

Detailed System Check Results

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| System Performance Check 2450 MHz Head |
| System Performance Check 5750 MHz Head |

Test Laboratory: SGS-SAR Lab

System Performance Check 2450MHz Head

DUT: D2450V2; Type: D2450V2; Serial: 733

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

Medium: HSL2450; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.741$ S/m; $\epsilon_r = 38.95$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.58, 7.58, 7.58); Calibrated: 2019-02-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn414; Calibrated: 2018-12-03
- Phantom: SAM 7; Type: SAM; Serial: 1027
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/d=10mm, Pin=250mW/Area Scan (9x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 20.5 W/kg

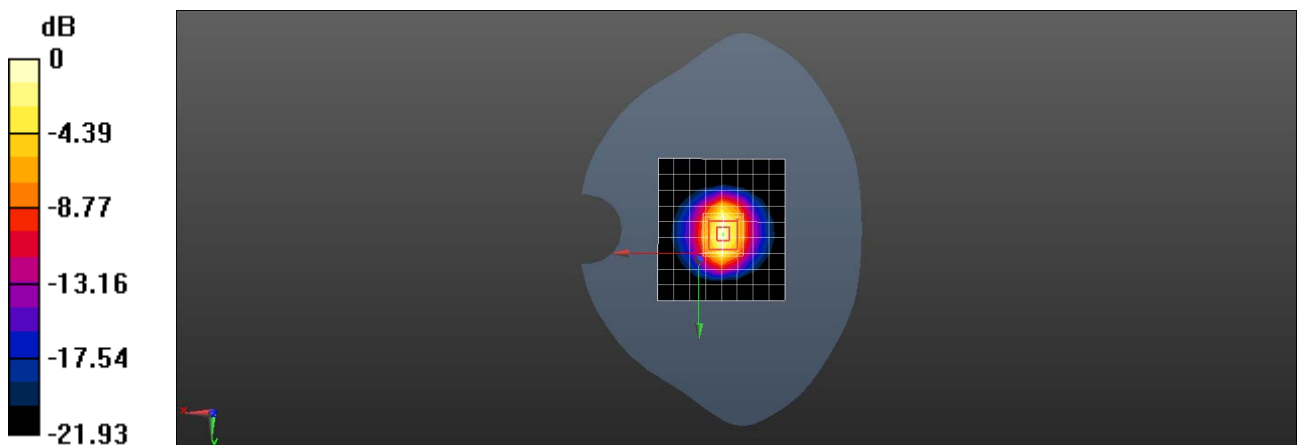
Body/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.88 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 26.0 W/kg

SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.88 W/kg

Maximum value of SAR (measured) = 21.2 W/kg



Test Laboratory: SGS-SAR Lab

System Performance Check 5.75GHz Head

DUT: D5GHzV2; Type: D5GHzV2; Serial: 1165

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

Medium: HSL5G; Medium parameters used: $f = 5750$ MHz; $\sigma = 5.229$ S/m; $\epsilon_r = 34.621$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(4.9, 4.9, 4.9); Calibrated: 2019-02-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2019-09-18
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/d=10mm, Pin=100mW, f=5750 MHz/Area Scan (8x8x1): Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.2 W/kg

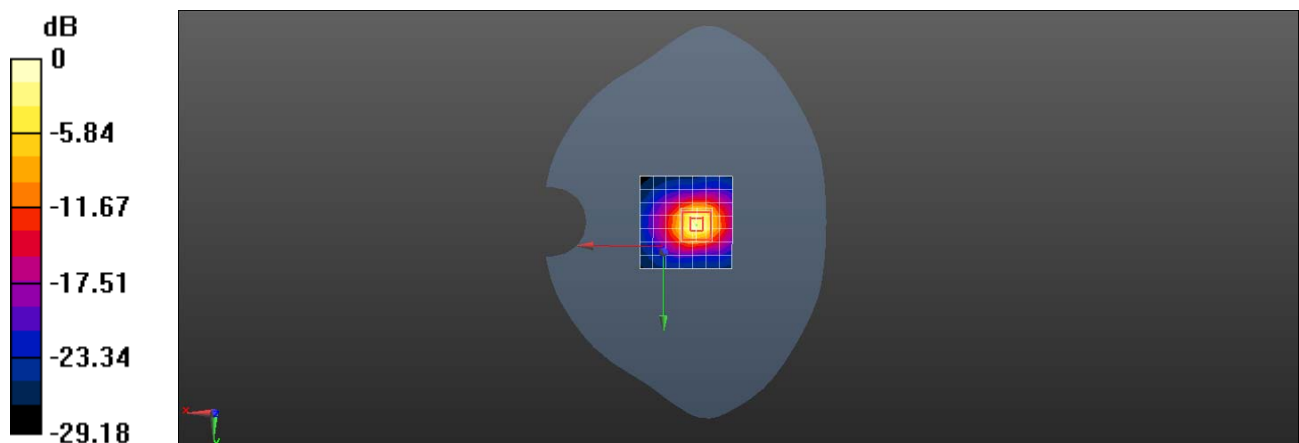
Body/d=10mm, Pin=100mW, f=5750 MHz/Zoom Scan (7x7x17)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 45.88 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 34.5 W/kg

SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.21 W/kg

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



0 dB = 20.6 W/kg = 13.14 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.

Table of SAR System validation summary:

| Frequency (MHz) | Date | Probe SN | Probe Type | Probe CAL Point | PERM (ϵ_r) | COND (σ) | CW Validation | | | MOD.Validation | | |
|-----------------|-----------|----------|------------|-----------------|-----------------------|-------------------|---------------|-----------------|----------------|----------------|--------------|-----|
| | | | | | | | Sensitivity | Probe Linearity | Probe Isotropy | Modulation | Duty. Factor | PAR |
| 750 | 2019/2/29 | 3962 | EX3DV4 | 750 Head | 43.189 | 0.908 | PASS | PASS | PASS | N/A | N/A | N/A |
| 835 | 2019/2/29 | 3962 | EX3DV4 | 835 Head | 42.726 | 0.919 | PASS | PASS | PASS | GMSK | PASS | N/A |
| 1750 | 2019/2/29 | 3962 | EX3DV4 | 1750 Head | 41.867 | 1.378 | PASS | PASS | PASS | N/A | N/A | N/A |
| 1900 | 2019/2/29 | 3962 | EX3DV4 | 1900 Head | 41.844 | 1.383 | PASS | PASS | PASS | GMSK | PASS | N/A |
| 2000 | 2019/2/29 | 3962 | EX3DV4 | 2000 Head | 41.205 | 1.458 | PASS | PASS | PASS | N/A | N/A | N/A |
| 2300 | 2019/2/29 | 3962 | EX3DV4 | 2300 Head | 40.428 | 1.635 | PASS | PASS | PASS | N/A | N/A | N/A |
| 2450 | 2019/2/29 | 3962 | EX3DV4 | 2450 Head | 39.990 | 1.806 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 2600 | 2019/2/29 | 3962 | EX3DV4 | 2600 Head | 39.480 | 1.980 | PASS | PASS | PASS | TDD | PASS | N/A |
| 5250 | 2019/2/29 | 3962 | EX3DV4 | 5250 Head | 36.070 | 4.747 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 5600 | 2019/2/29 | 3962 | EX3DV4 | 5600 Head | 35.130 | 5.127 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 5750 | 2019/2/29 | 3962 | EX3DV4 | 5750 Head | 34.790 | 5.319 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 750 | 2019/2/29 | 3962 | EX3DV4 | 750 Body | 56.876 | 0.933 | PASS | PASS | PASS | N/A | N/A | N/A |
| 835 | 2019/2/29 | 3962 | EX3DV4 | 835 Body | 55.460 | 0.976 | PASS | PASS | PASS | GMSK | PASS | N/A |
| 1750 | 2019/2/29 | 3962 | EX3DV4 | 1750 Body | 53.570 | 1.476 | PASS | PASS | PASS | N/A | N/A | N/A |
| 1900 | 2019/2/29 | 3962 | EX3DV4 | 1900 Body | 53.090 | 1.478 | PASS | PASS | PASS | GMSK | PASS | N/A |
| 2300 | 2019/2/29 | 3962 | EX3DV4 | 2300 Body | 51.260 | 1.784 | PASS | PASS | PASS | N/A | N/A | N/A |
| 2450 | 2019/2/29 | 3962 | EX3DV4 | 2450 Body | 52.770 | 1.960 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 2600 | 2019/2/29 | 3962 | EX3DV4 | 2600 Body | 51.423 | 2.177 | PASS | PASS | PASS | TDD | PASS | N/A |
| 5250 | 2019/2/29 | 3962 | EX3DV4 | 5250 Body | 48.430 | 5.372 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 5600 | 2019/2/29 | 3962 | EX3DV4 | 5600 Body | 47.510 | 5.783 | PASS | PASS | PASS | OFDM | PASS | N/A |
| 5750 | 2019/2/29 | 3962 | EX3DV4 | 5750 Body | 47.170 | 5.949 | PASS | PASS | PASS | OFDM | PASS | N/A |

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.