Appendix A. System Check Plots

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Date: 2018-4-9

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D835-EX-Head

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d059

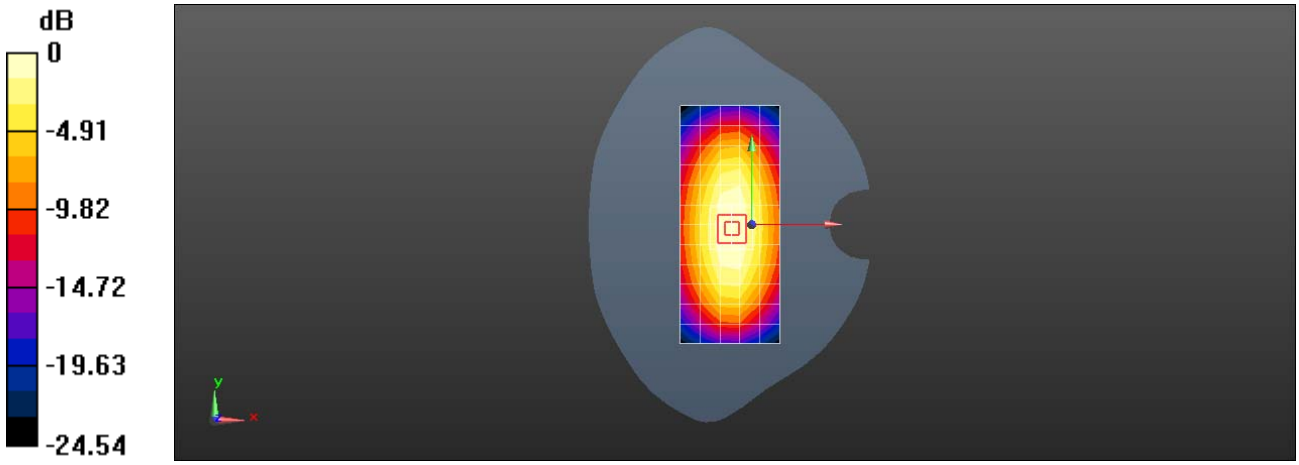
Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.907 S/m; ε_r = 42.327; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7489; ConvF(10.39, 10.39, 10.39); Calibrated: 2018-1-9;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn905; Calibrated: 2017-6-20
- Phantom: SAM1; Type: SAM; Serial: TP-1475
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=15mm, Pin=250mW/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.53 W/kg

Configuration/d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.98 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 2.84 W/kg



0 dB = 2.53 W/kg = 4.03 dBW/kg

Date: 2018-4-10

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D1900-EX-Head

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d143

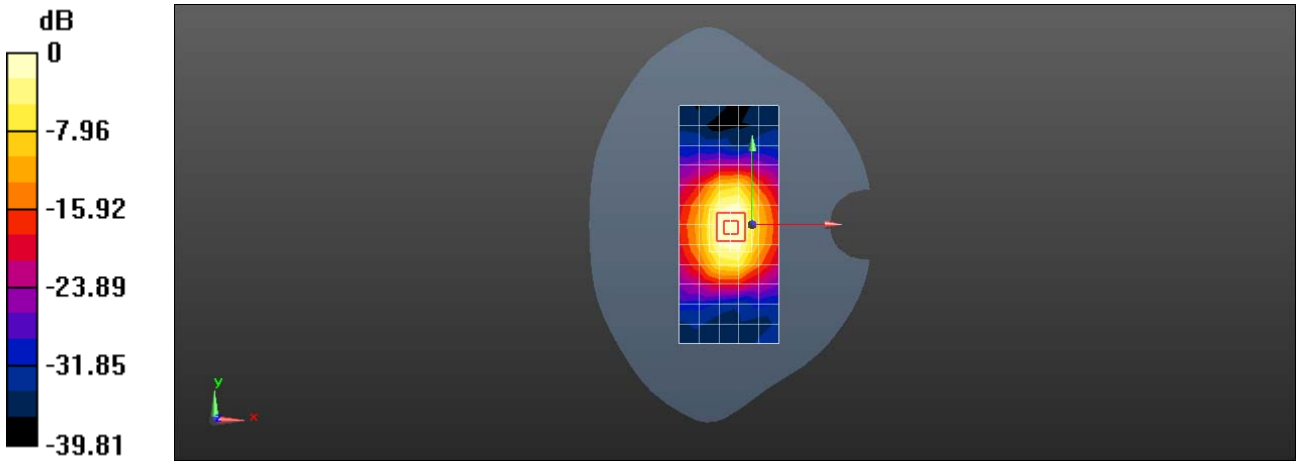
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.425 S/m; ε_r = 41.099; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(8, 8, 8); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM3; Type: SAM; Serial: TP-1597
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=15mm, pin=250mW/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.3 W/kg

Configuration/d=15mm, pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 107.8 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 9.86 W/kg; SAR(10 g) = 5.1 W/kg
Maximum value of SAR (measured) = 15.3 W/kg



0 dB = 11.3 W/kg = 10.53 dBW/kg

Date: 2018-4-11

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D2450-EX-Head

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:860

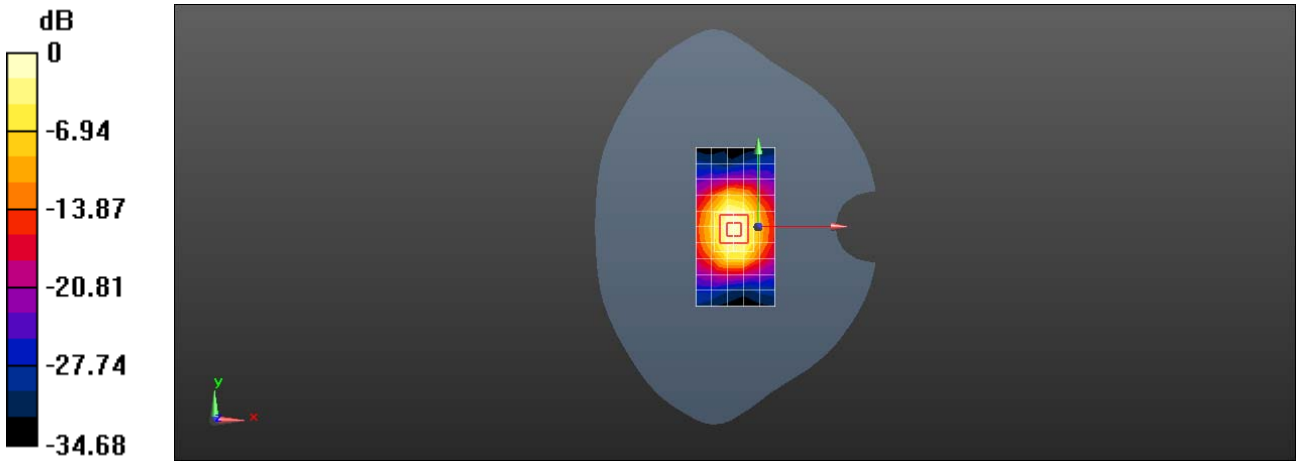
Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.866 S/m; ε_r = 40.129; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.3, 7.3, 7.3); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM3; Type: SAM; Serial: TP-1597
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=10mm, Pin=250mW/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 17.5 W/kg

Configuration/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 111.4 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 27.2 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.13 W/kg
Maximum value of SAR (measured) = 22.0 W/kg



0 dB = 17.5 W/kg = 12.43 dBW/kg

Date: 2018-4-10

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D2600-EX-Head

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1021

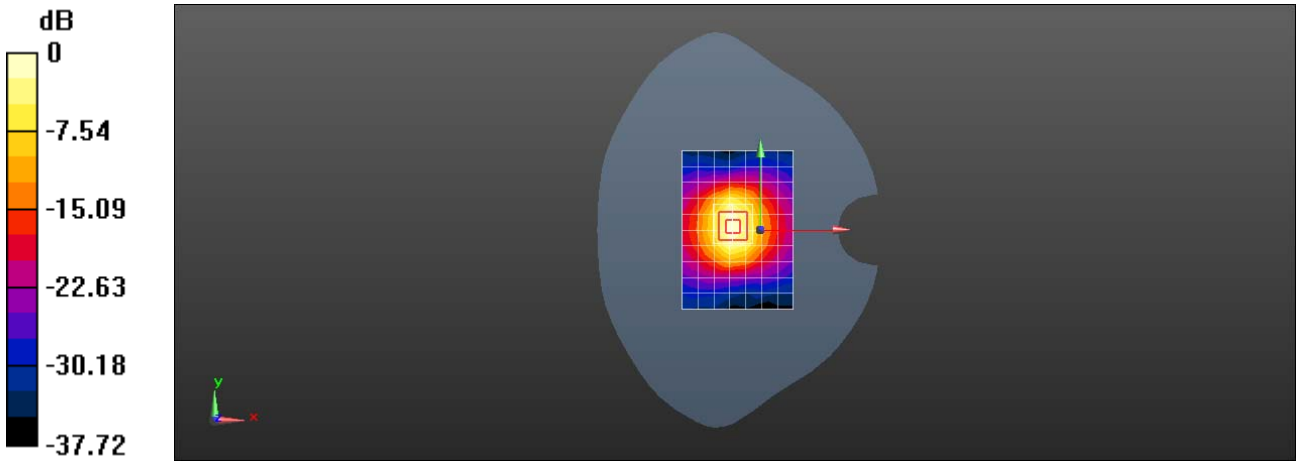
Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.986 S/m; ε_r = 39.454; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.07, 7.07, 7.07); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM3; Type: SAM; Serial: TP-1597
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=10mm, Pin=250mW/Area Scan (8x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 22.0 W/kg

Configuration/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.0 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 30.8 W/kg
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.38 W/kg
Maximum value of SAR (measured) = 24.3 W/kg



0 dB = 22.0 W/kg = 13.42 dBW/kg

Date: 2018-4-9

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D835-EX-Body

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:4d059

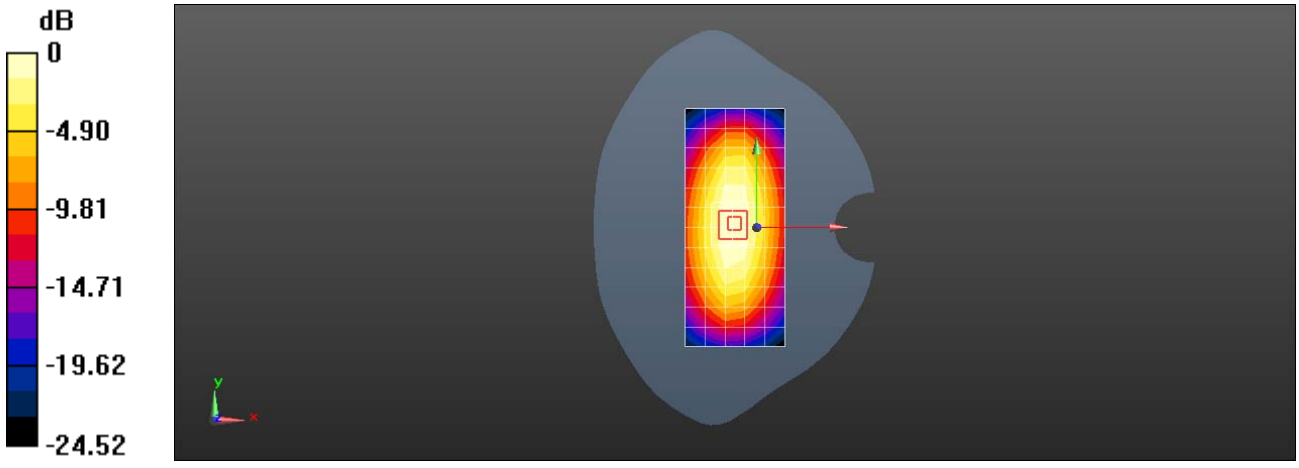
Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.93 S/m; ε_r = 53.409; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7489; ConvF(10.8, 10.8, 10.8); Calibrated: 2018-1-9;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn905; Calibrated: 2017-6-20
- Phantom: SAM2; Type: SAM; Serial: TP:1474
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=15mm, Pin=250mW/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.35 W/kg

Configuration/d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.47 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 3.70 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (measured) = 2.85 W/kg



0 dB = 2.35 W/kg = 3.71 dBW/kg

Date: 2018-4-10

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D1900-EX-Body

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:5d143

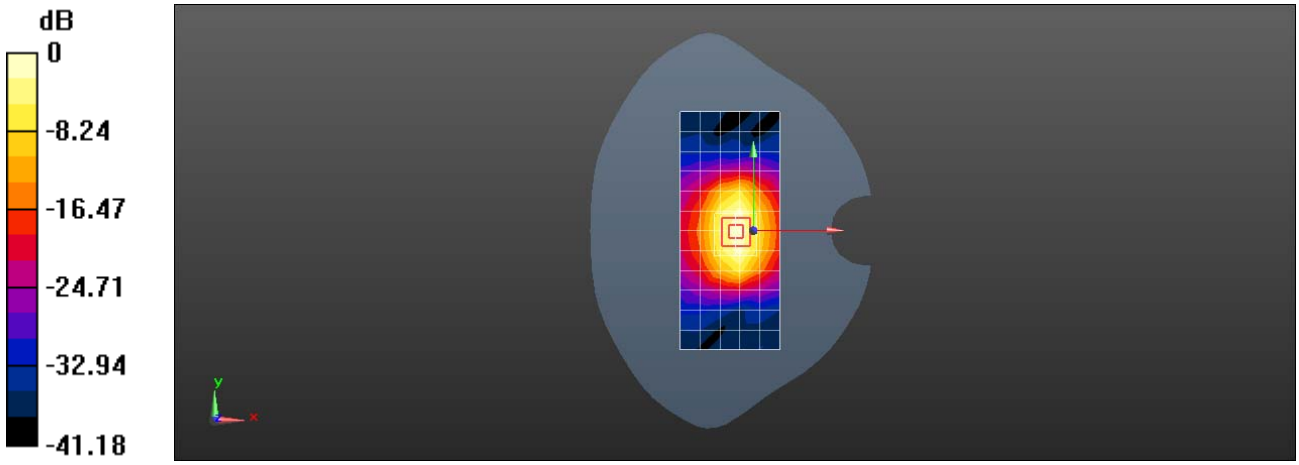
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.519 S/m; ε_r = 51.82; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.7, 7.7, 7.7); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM4; Type: SAM; Serial: TP-1620
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=15mm, pin=250mW/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 13.6 W/kg

Configuration/d=15mm, pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 97.65 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 9.87 W/kg; SAR(10 g) = 5.48 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Date: 2018-4-11

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D2450-EX-Body

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:860

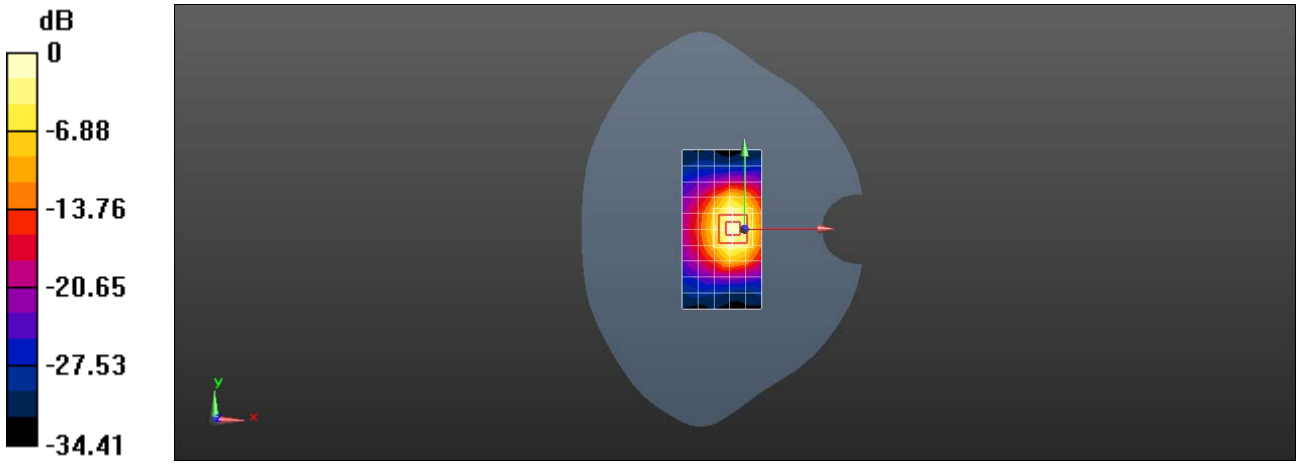
Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.921 S/m; ε_r = 51.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.29, 7.29, 7.29); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM4; Type: SAM; Serial: TP-1620
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=10mm, Pin=250mW/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 19.1 W/kg

Configuration/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 74.99 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 25.0 W/kg
SAR(1 g) = 12.8 W/kg; SAR(10 g) = 6.32 W/kg
Maximum value of SAR (measured) = 20.6 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg

Date: 2018-4-8

Test Laboratory: HUAWEI SAR/HAC Lab

SystemPerformanceCheck-D2600-EX-Body

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1021

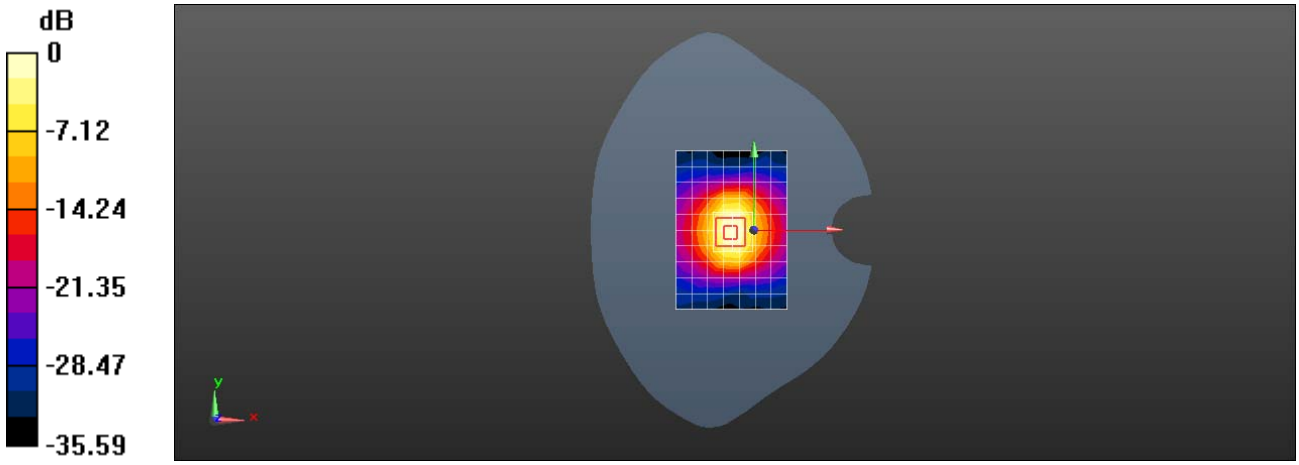
Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.143 S/m; ε_r = 51.692; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3744; ConvF(7.12, 7.12, 7.12); Calibrated: 2017-7-24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1236; Calibrated: 2017-7-21
- Phantom: SAM4; Type: SAM; Serial: TP-1620
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=10mm, Pin=250mW/Area Scan (8x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 17.8 W/kg

Configuration/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.2 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 25.6 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.31 W/kg
Maximum value of SAR (measured) = 20.5 W/kg



0 dB = 17.8 W/kg = 12.50 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:

FREQ. [Mhz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL POINT		PERM (εr)	COND (σ)	CW VALIDATION			MOD.VALIDATION		
								SENSI-TIVITY	PROBE LINARITY	PROBE ISOTROPY	MOD. TYPE	DUTY. FACTORE	PAR
750	2017/10/23	3744	EX3DV4	750	Head	41.53	0.890	PASS	PASS	PASS	N/A	N/A	N/A
835	2017/10/16	3744	EX3DV4	835	Head	41.41	0.913	PASS	PASS	PASS	GMSK	PASS	N/A
900	2017/09/27	3744	EX3DV4	900	Head	41.16	0.982	PASS	PASS	PASS	GMSK	PASS	N/A
1750	2017/10/14	3744	EX3DV4	1750	Head	38.80	1.407	PASS	PASS	PASS	NA	NA	N/A
1900	2017/11/02	3744	EX3DV4	1900	Head	39.23	1.375	PASS	PASS	PASS	GMSK	PASS	N/A
2000	2017/09/28	3744	EX3DV4	2000	Head	38.87	1.444	PASS	PASS	PASS	N/A	N/A	N/A
2300	2017/11/04	3744	EX3DV4	2300	Head	39.69	1.740	PASS	PASS	PASS	N/A	N/A	N/A
2450	2017/11/25	3744	EX3DV4	2450	Head	39.03	1.845	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
2600	2017/11/22	3744	EX3DV4	2600	Head	38.55	1.968	PASS	PASS	PASS	TDD	PASS	N/A
750	2017/10/25	3744	EX3DV4	750	Body	53.50	0.950	PASS	PASS	PASS	N/A	N/A	N/A
835	2017/10/18	3744	EX3DV4	835	Body	53.65	0.971	PASS	PASS	PASS	GMSK	PASS	N/A
1750	2017/10/12	3744	EX3DV4	1750	Body	51.43	1.440	PASS	PASS	PASS	N/A	N/A	N/A
1900	2017/08/26	3744	EX3DV4	1900	Body	52.47	1.553	PASS	PASS	PASS	GMSK	PASS	N/A
2300	2017/11/03	3744	EX3DV4	2300	Body	51.30	1.799	PASS	PASS	PASS	N/A	N/A	N/A
2450	2017/11/18	3744	EX3DV4	2450	Body	53.20	1.878	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
2600	2017/08/26	3744	EX3DV4	2600	Body	50.58	2.182	PASS	PASS	PASS	TDD	PASS	N/A

Table of SAR System validation summary:

FREQ. [Mhz]	DATE	PROBE SN	PROBE TYPE	PROBE CAL POINT		PERM (εr)	COND (σ)	CW VALIDATION			MOD.VALIDATION		
								SENSI-TIVITY	PROBE LINARITY	PROBE ISOTROPY	MOD. TYPE	DUTY. FACTORE	PAR
750	2018/2/8	7489	EX3DV4	750	Head	41.04	0.874	PASS	PASS	PASS	N/A	N/A	N/A
835	2018/2/8	7489	EX3DV4	835	Head	40.80	0.902	PASS	PASS	PASS	GMSK	PASS	N/A
900	2018/2/8	7489	EX3DV4	900	Head	38.87	1.313	PASS	PASS	PASS	GMSK	PASS	N/A
1750	2018/2/8	7489	EX3DV4	1750	Head	38.87	1.313	PASS	PASS	PASS	NA	NA	N/A
1900	2018/2/8	7489	EX3DV4	1900	Head	38.67	1.410	PASS	PASS	PASS	GMSK	PASS	N/A
2000	2018/2/8	7489	EX3DV4	2000	Head	38.51	1.469	PASS	PASS	PASS	N/A	N/A	N/A
2300	2018/2/8	7489	EX3DV4	2300	Head	38.11	1.672	PASS	PASS	PASS	N/A	N/A	N/A
2450	2018/2/8	7489	EX3DV4	2450	Head	37.91	1.785	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
2600	2018/2/8	7489	EX3DV4	2600	Head	37.75	1.905	PASS	PASS	PASS	TDD	PASS	N/A
5250	2018/2/8	7489	EX3DV4	5250	Head	35.52	4.674	PASS	PASS	PASS	OFDM	PASS	N/A
5600	2018/2/8	7489	EX3DV4	5600	Head	34.89	5.071	PASS	PASS	PASS	OFDM	PASS	N/A
5750	2018/2/8	7489	EX3DV4	5750	Head	34.64	5.237	PASS	PASS	PASS	OFDM	PASS	N/A
750	2018/2/8	7489	EX3DV4	750	Body	55.56	0.942	PASS	PASS	PASS	N/A	N/A	N/A
835	2018/2/8	7489	EX3DV4	835	Body	55.35	0.974	PASS	PASS	PASS	GMSK	PASS	N/A
1750	2018/2/8	7489	EX3DV4	1750	Body	53.56	1.454	PASS	PASS	PASS	N/A	N/A	N/A
1900	2018/2/8	7489	EX3DV4	1900	Body	53.38	1.574	PASS	PASS	PASS	GMSK	PASS	N/A
2300	2018/2/8	7489	EX3DV4	2300	Body	52.84	1.893	PASS	PASS	PASS	N/A	N/A	N/A
2450	2018/2/8	7489	EX3DV4	2450	Body	52.63	2.032	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
2600	2018/2/8	7489	EX3DV4	2600	Body	52.46	2.178	PASS	PASS	PASS	TDD	PASS	N/A
5250	2018/2/8	7489	EX3DV4	5250	Body	47.45	5.479	PASS	PASS	PASS	OFDM	PASS	N/A
5600	2018/2/8	7489	EX3DV4	5600	Body	46.74	5.984	PASS	PASS	PASS	OFDM	PASS	N/A
5750	2018/2/8	7489	EX3DV4	5750	Body	46.44	6.210	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.