

Appendix B - System Performance Check Plots

Date: 2022/12/19

System Performance Check at 2450 MHz

DUT: D2450V2_SN712

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.746 \text{ S/m}$; $\epsilon_r = 39.377$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(7.44, 7.44, 7.44) @ 2450 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 2450MHz/Area Scan (81x81x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$
 Maximum value of SAR (interpolated) = 4.20 W/kg

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 50.66 V/m; Power Drift = -0.18 dB

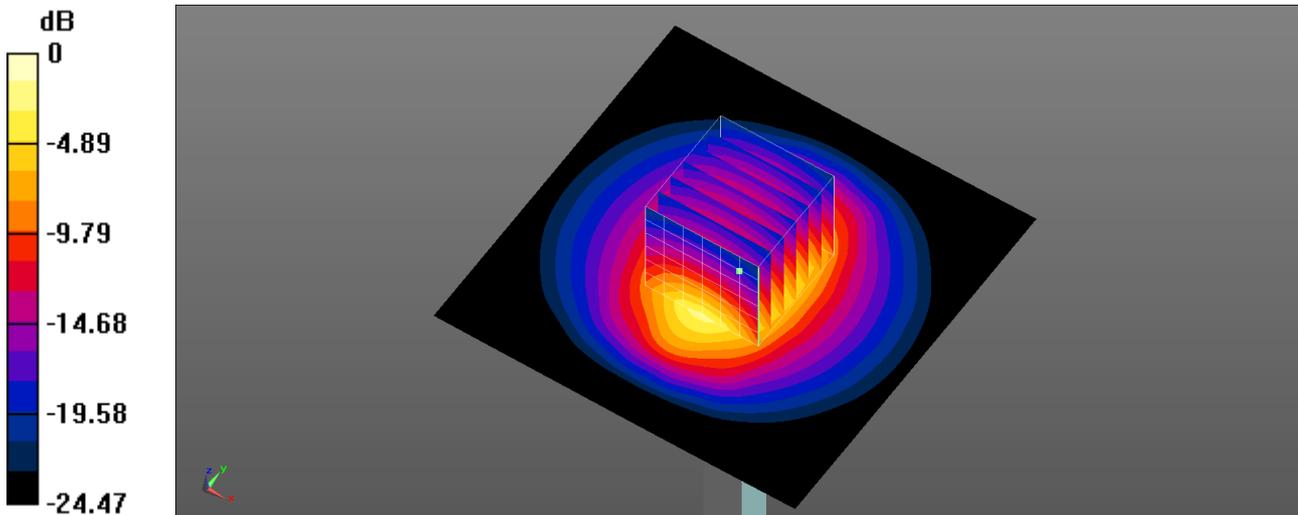
Peak SAR (extrapolated) = 5.20 W/kg

SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.16 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 48.4%

Maximum value of SAR (measured) = 4.19 W/kg



0 dB = 4.19 W/kg = 6.22 dBW/kg

Date: 2022/12/20

System Performance Check at 5250 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5250 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5250$ MHz; $\sigma = 4.825$ S/m; $\epsilon_r = 36.643$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(5.01, 5.01, 5.01) @ 5250 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5250MHz/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.86 W/kg

System Performance Check at 5250MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 51.83 V/m; Power Drift = -0.02 dB

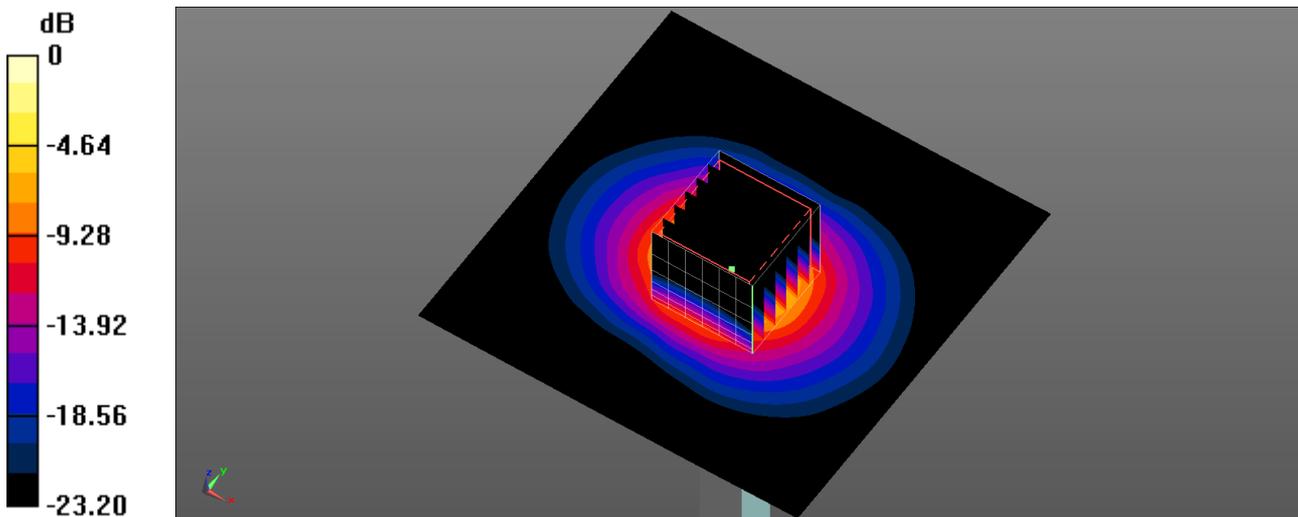
Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 4.2 W/kg; SAR(10 g) = 1.21 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 62.2%

Maximum value of SAR (measured) = 10.2 W/kg



0 dB = 10.2 W/kg = 10.09 dBW/kg

Date: 2022/12/28

System Performance Check at 5250 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5250 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5250 \text{ MHz}$; $\sigma = 4.806 \text{ S/m}$; $\epsilon_r = 36.541$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(5.01, 5.01, 5.01) @ 5250 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASYS2, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5250MHz/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
 Maximum value of SAR (interpolated) = 10.2 W/kg

System Performance Check at 5250MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 52.14 V/m; Power Drift = -0.01 dB

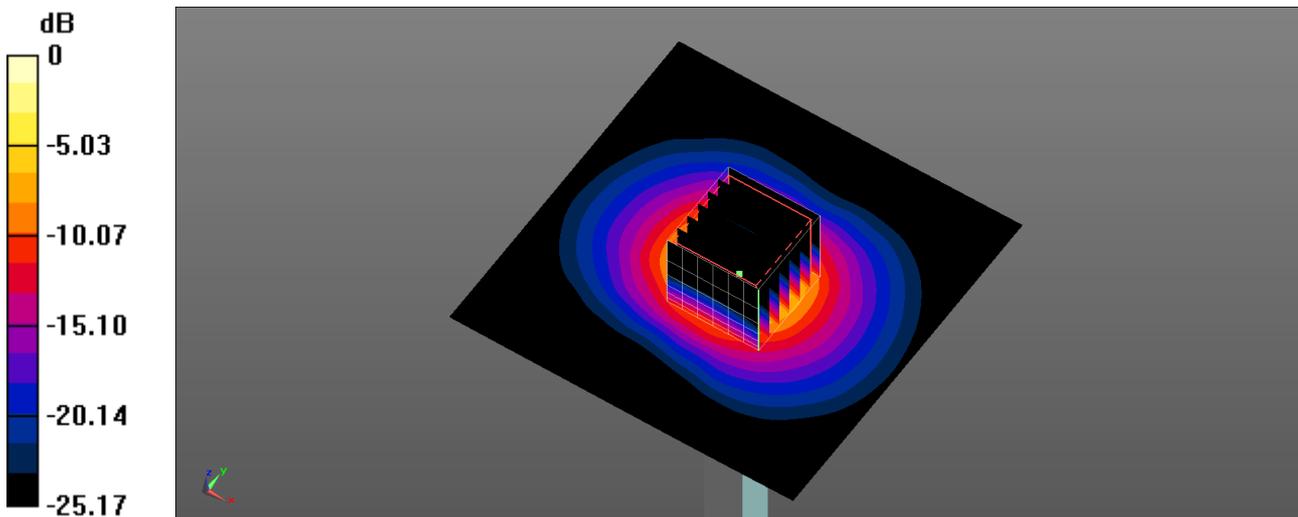
Peak SAR (extrapolated) = 18.6 W/kg

SAR(1 g) = 4.26 W/kg; SAR(10 g) = 1.21 W/kg

Smallest distance from peaks to all points 3 dB below = 7.9 mm

Ratio of SAR at M2 to SAR at M1 = 62.1%

Maximum value of SAR (measured) = 10.6 W/kg



0 dB = 10.6 W/kg = 10.25 dBW/kg

Date: 2022/12/20

System Performance Check at 5600 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.194$ S/m; $\epsilon_r = 35.977$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(4.61, 4.61, 4.61) @ 5600 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5600MHz/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
 Maximum value of SAR (interpolated) = 10.4 W/kg

System Performance Check at 5600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 50.18 V/m; Power Drift = -0.13 dB

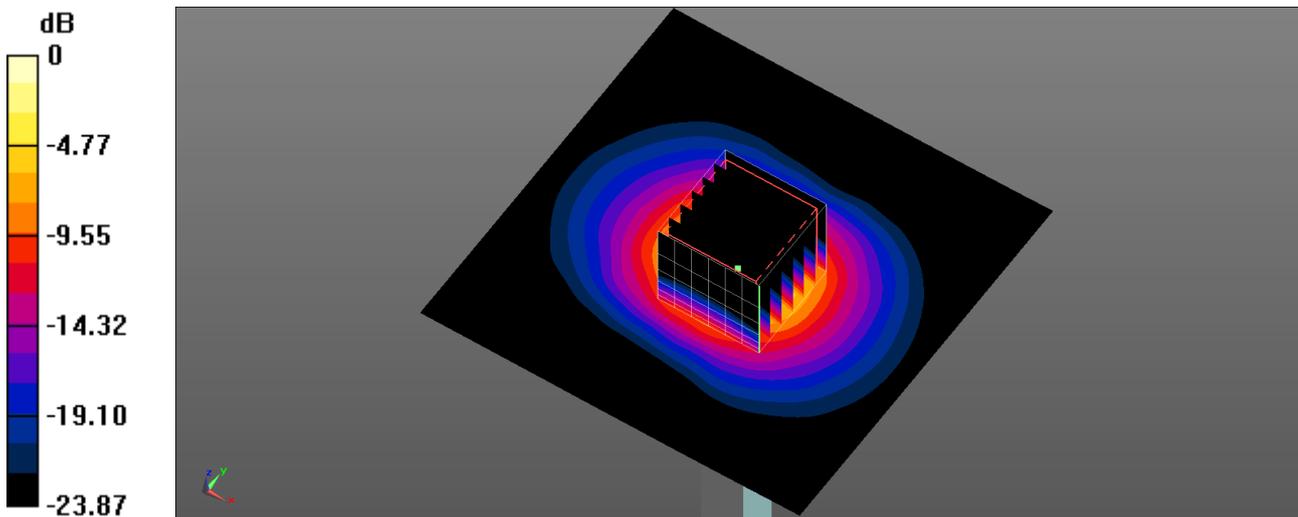
Peak SAR (extrapolated) = 19.9 W/kg

SAR(1 g) = 4.24 W/kg; SAR(10 g) = 1.22 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 59.2%

Maximum value of SAR (measured) = 10.8 W/kg



0 dB = 10.8 W/kg = 10.33 dBW/kg

Date: 2022/12/28

System Performance Check at 5600 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.173$ S/m; $\epsilon_r = 35.875$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(4.61, 4.61, 4.61) @ 5600 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5600MHz/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
 Maximum value of SAR (interpolated) = 10.9 W/kg

System Performance Check at 5600MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 51.12 V/m; Power Drift = -0.04 dB

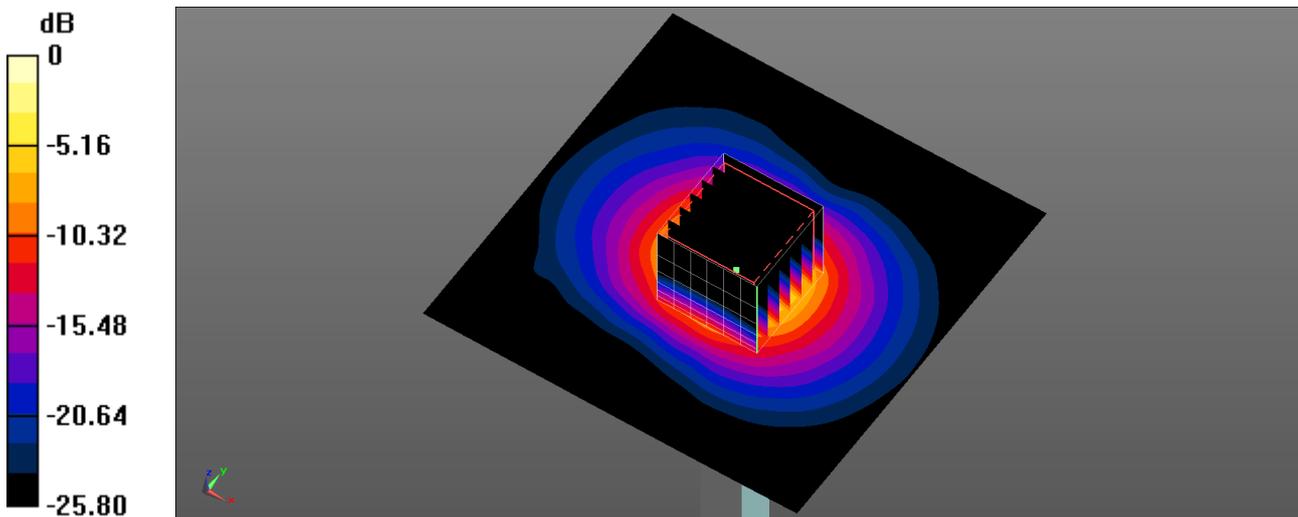
Peak SAR (extrapolated) = 20.85 W/kg

SAR(1 g) = 4.39 W/kg; SAR(10 g) = 1.24 W/kg

Smallest distance from peaks to all points 3 dB below = 7.6 mm

Ratio of SAR at M2 to SAR at M1 = 59.1%

Maximum value of SAR (measured) = 11.22 W/kg



0 dB = 11.22 W/kg = 10.5 dBW/kg

Date: 2022/12/20

System Performance Check at 5750 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5750 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5750 \text{ MHz}$; $\sigma = 5.337 \text{ S/m}$; $\epsilon_r = 35.681$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(4.65, 4.65, 4.65) @ 5750 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5750MHz/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
 Maximum value of SAR (interpolated) = 10.0 W/kg

System Performance Check at 5750MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 47.68 V/m; Power Drift = -0.19 dB

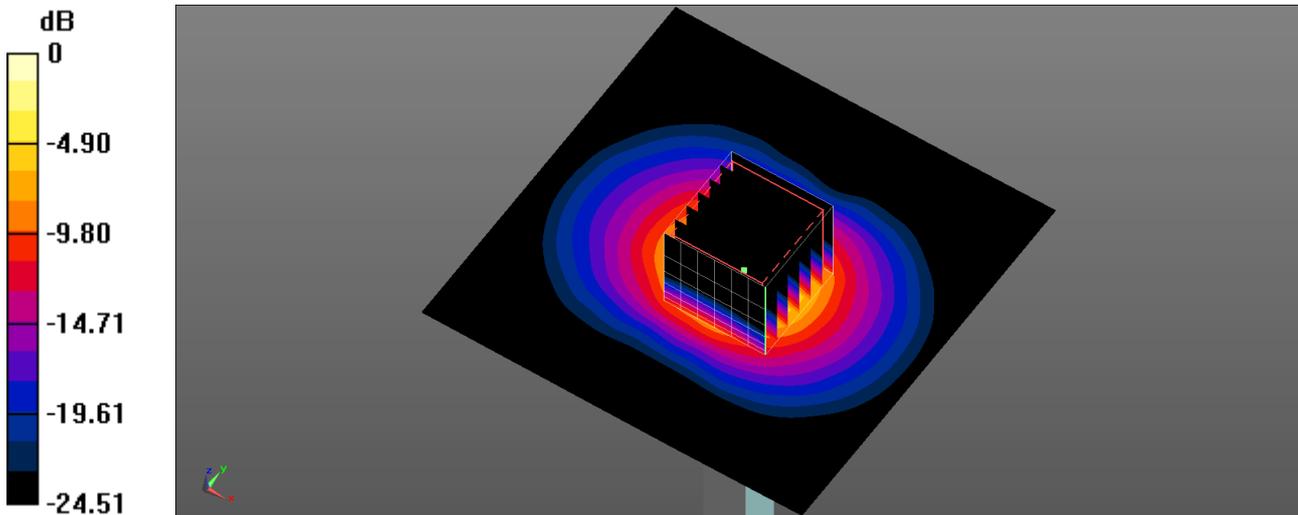
Peak SAR (extrapolated) = 19.3 W/kg

SAR(1 g) = 3.98 W/kg; SAR(10 g) = 1.14 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 58.8%

Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 10.3 W/kg = 10.13 dBW/kg

Date: 2022/12/28

System Performance Check at 5750 MHz

DUT: D5GHzV2_SN1358

Communication System: UID 0, CW (0); Frequency: 5750 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5750 \text{ MHz}$; $\sigma = 5.317 \text{ S/m}$; $\epsilon_r = 35.579$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3977; ConvF(4.65, 4.65, 4.65) @ 5750 MHz; Calibrated: 2022/7/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5750MHz/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
 Maximum value of SAR (interpolated) = 9.56 W/kg

System Performance Check at 5750MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 48.26 V/m; Power Drift = -0.04 dB

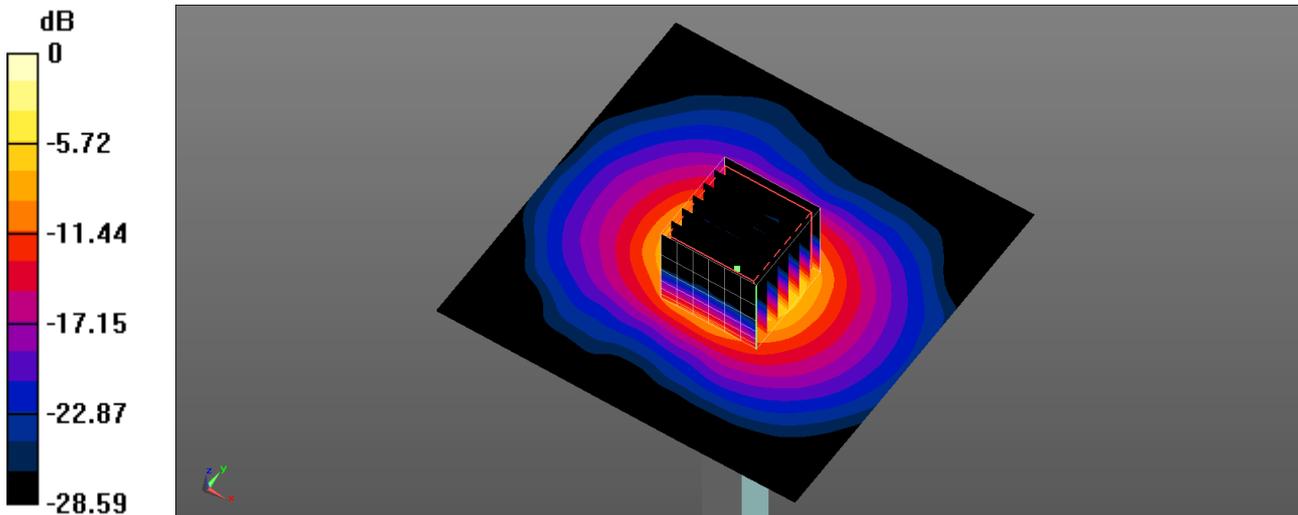
Peak SAR (extrapolated) = 18.7 W/kg

SAR(1 g) = 3.87 W/kg; SAR(10 g) = 1.11 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 58.5%

Maximum value of SAR (measured) = 9.97 W/kg



0 dB = 9.97 W/kg = 9.99 dBW/kg

Date: 2022/12/20

System Performance Check at 5800 MHz

DUT: D5GHzV2_SN1040

Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.391 \text{ S/m}$; $\epsilon_r = 35.594$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7756; ConvF(4.6, 4.6, 4.6) @ 5800 MHz; Calibrated: 2022/8/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5800MHz/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
 Maximum value of SAR (interpolated) = 9.86 W/kg

System Performance Check at 5800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 48.66 V/m; Power Drift = -0.08 dB

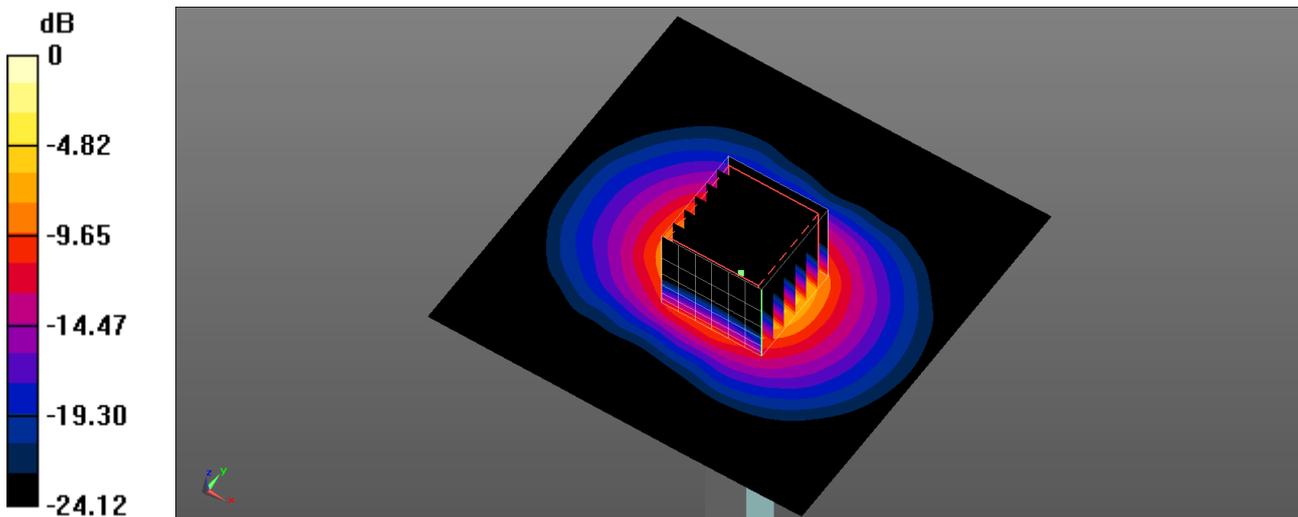
Peak SAR (extrapolated) = 19.3 W/kg

SAR(1 g) = 3.99 W/kg; SAR(10 g) = 1.15 W/kg

Smallest distance from peaks to all points 3 dB below = 8.2 mm

Ratio of SAR at M2 to SAR at M1 = 58.5%

Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 10.3 W/kg = 10.13 dBW/kg

Date: 2022/12/28

System Performance Check at 5800 MHz

DUT: D5GHzV2_SN1040

Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.37 \text{ S/m}$; $\epsilon_r = 35.492$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7756; ConvF(4.6, 4.6, 4.6) @ 5800 MHz; Calibrated: 2022/8/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 2022/7/19
- Phantom: ELI; Type: QD OVA 001 BB; Serial: 1036
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check at 5800MHz/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
 Maximum value of SAR (interpolated) = 9.37 W/kg

System Performance Check at 5800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 46.49 V/m; Power Drift = -0.14 dB

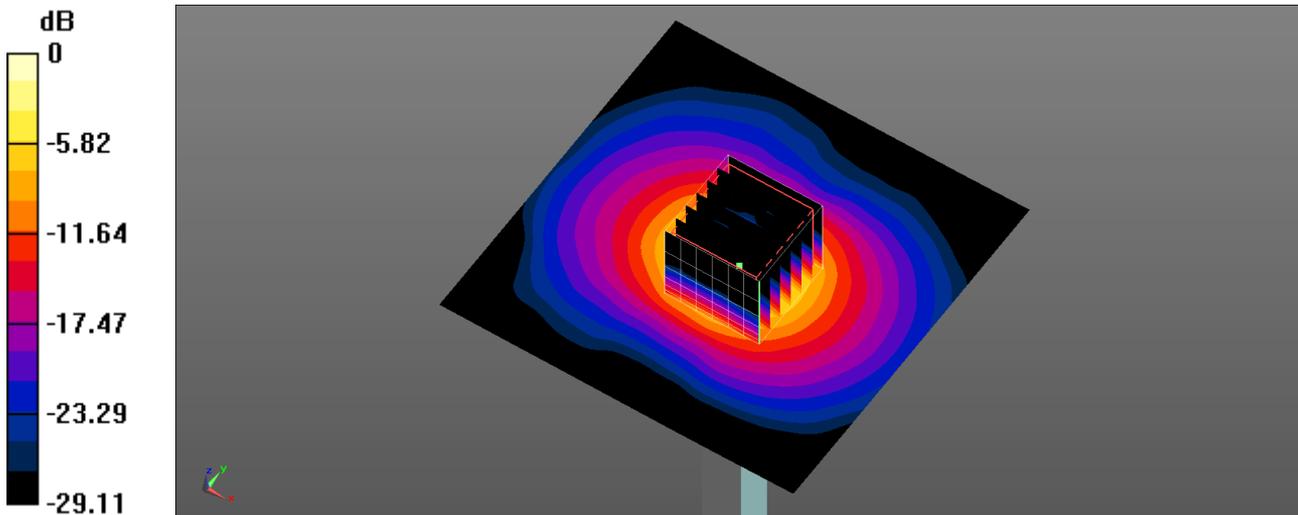
Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 3.76 W/kg; SAR(10 g) = 1.09 W/kg

Smallest distance from peaks to all points 3 dB below = 8.2 mm

Ratio of SAR at M2 to SAR at M1 = 59%

Maximum value of SAR (measured) = 9.71 W/kg



0 dB = 9.71 W/kg = 9.87 dBW/kg

System Performance Check Report Summary

Dipole	Frequency [MHz]
D6.5GHzV2 - SN1016	6500.0

Exposure Conditions

Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat,	0		, 0--	6500.0, 0	5.5	5.95	33.8

Hardware Setup

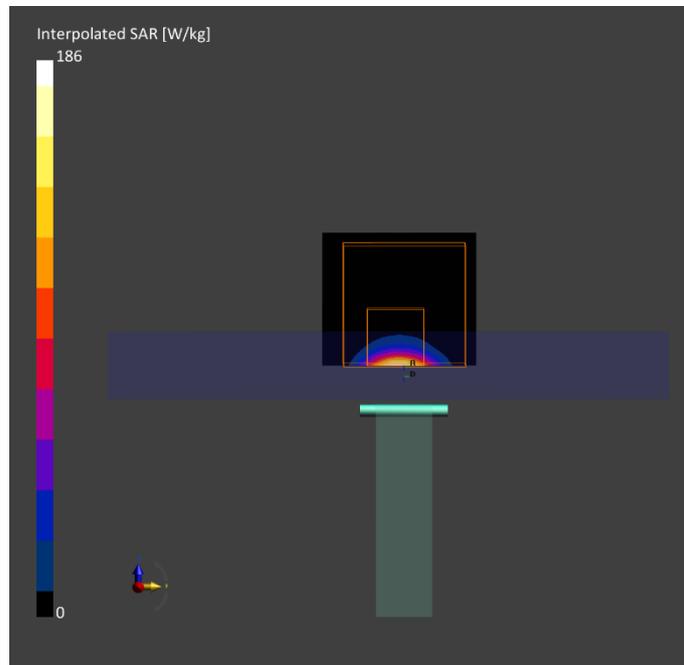
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 1175	HSL6G	EX3DV4 - SN3847, 2022-03-24	DAE4 Sn541, 2022-03-23

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-12-22	2022-12-22
psSAR1g [W/Kg]	24.5	28.1
psSAR10g [W/Kg]	4.83	5.27
psPDab (1.0cm2, sq) [W/m2]		281
psPDab (4.0cm2, sq) [W/m2]		129
Power Drift [dB]	0.05	0.08
TSL Correction	Positive only	Positive only
M2/M1 [%]		47.8
Dist 3dB Peak [mm]		4.4



Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 100.0	SN: 2003	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	10.00	Validation band	CW,	10000.0, 10000	1.0

Hardware Setup

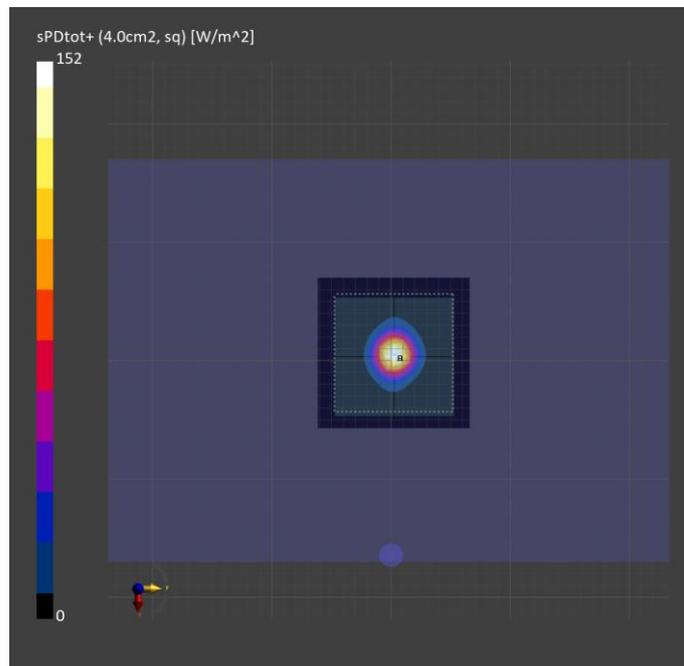
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 5G Phantom	Air	EUmmWV4 - SN9639_F1-55GHz, 2022-08-24	DAE4 Sn541, 2022-03-23

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2022-12-23
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	147
psPDtot+ [W/m ²]	154
psPDmod+ [W/m ²]	158
E _{max} [V/m]	282
H _{max} [A/m]	0.721
Power Drift [dB]	0.14



Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 100.0	SN: 2003	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	10.00	Validation band	CW,	10000.0, 10000	1.0

Hardware Setup

Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 5G Phantom	Air	EUmmWV4 - SN9639_F1-55GHz, 2022-08-24	DAE4 Sn541, 2022-03-23

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2022-12-26
Avg. Area [cm ²]	4.00
psPDn+ [W/m ²]	146
psPDtot+ [W/m ²]	149
psPDmod+ [W/m ²]	152
E _{max} [V/m]	276
H _{max} [A/m]	0.755
Power Drift [dB]	0.11

