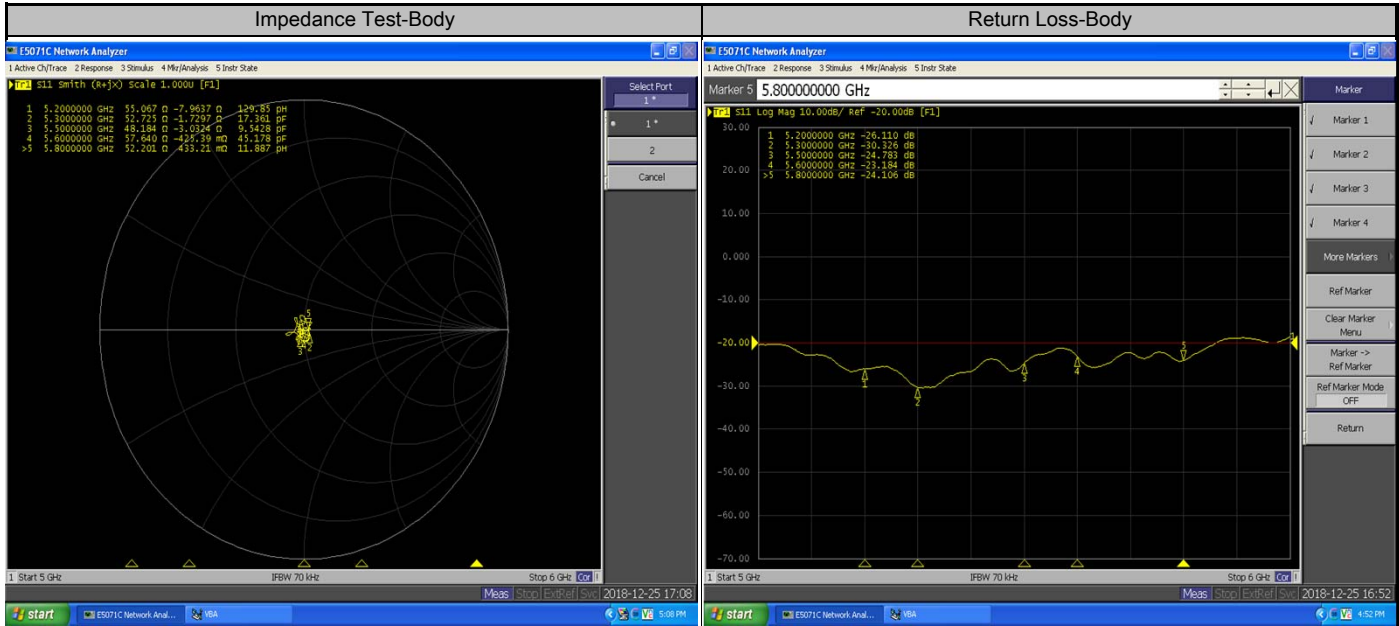




Validation Report for Head TSL of 5.5GHz

Test Laboratory: BTL Inc. Date: 2018/12/25

System Check_H5500_7396

DUT: Dipole D5GHzV2;SN:1160

Communication System: UID 0, CW (0); Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.112$ S/m; $\epsilon_r = 34.912$; $\rho = 996$ kg/m³

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

DASY Configuration

- Probe: EX3DV4 - SN7396; ConnE(4.94, 4.94, 4.94) @ 5500 MHz; Calibrated: 2018/5/29
- Sensor-Surface: 2mm (Mechanical Surface Detection); $z = 1.0, 23.0$
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

↓

Area Scan (6x6x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (interpolated) = 18.5 W/kg

↓

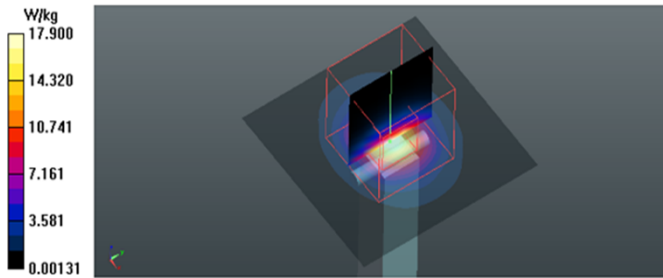
Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 42.15 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 38.9 W/kg

SAR(1 g) = 8.32 W/kg; SAR(10 g) = 2.33 W/kg

Maximum value of SAR (measured) = 17.9 W/kg



Validation Report for Head TSL of 5.6GHz

Test Laboratory: BTL Inc. Date: 2018/12/25

System Check_H5600_7396

DUT: Dipole D5GHzV2;SN:1160

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.235$ S/m; $\epsilon_r = 34.669$; $\rho = 996$ kg/m³

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

DASY Configuration

- Probe: EX3DV4 - SN7396; ConnE(4.94, 4.94, 4.94) @ 5600 MHz; Calibrated: 2018/5/29
- Sensor-Surface: 2mm (Mechanical Surface Detection); $z = 1.0, 23.0$
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

↓

Area Scan (6x6x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (interpolated) = 17.4 W/kg

↓

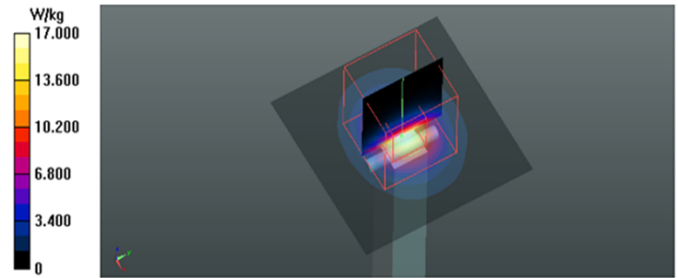
Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 40.04 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 37.1 W/kg

SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.2 W/kg

Maximum value of SAR (measured) = 17.0 W/kg



Validation Report for Head TSL of 5.8GHz

Test Laboratory: BTL Inc. Date: 2018/12/25⁺System Check_H5800_7396⁺DUT: Dipole D5GHzV2;SN:1160;⁺

Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1 ↓
Medium parameters used: $f = 5800$ MHz; $\sigma = 5.479$ S/m; $\epsilon_r = 34.208$; $\rho = 996$ kg/m³ ↓
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C⁺

DASY Configuration:⁺

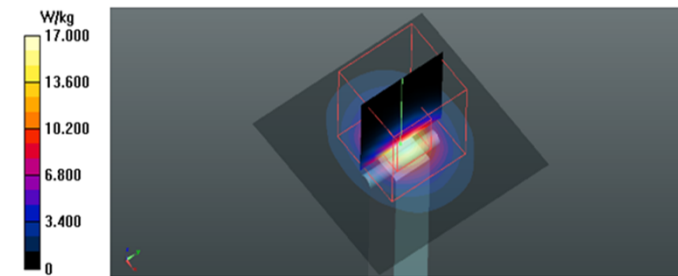
- Probe: EX3DV4 - SN7396; ConvE(5.05, 5.05, 5.05) @ 5800 MHz; Calibrated: 2018/5/29 ⁺
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$ ⁺
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 ⁺
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896 ⁺
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)⁺

↓

Area Scan (6x6x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm ↓
Maximum value of SAR (interpolated) = 17.5 W/kg ↓

↓

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm ↓
Reference Value = 39.17 V/m; Power Drift = -0.06 dB ↓
Peak SAR (extrapolated) = 37.5 W/kg ↓
SAR(1 g) = 7.89 W/kg; SAR(10 g) = 2.21 W/kg ↓
Maximum value of SAR (measured) = 17.0 W/kg



Validation Report for Body TSL of 5.2GHz

Test Laboratory: BTL Inc. Date: 2018/12/25⁺System Check_B5200_7396⁺DUT: Dipole D5GHzV2;SN:1160;⁺

Communication System: UID 0, CW (0); Frequency: 5200 MHz; Duty Cycle: 1:1 ↓
Medium parameters used: $f = 5200$ MHz; $\sigma = 5.372$ S/m; $\epsilon_r = 47.807$; $\rho = 996$ kg/m³ ↓
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C⁺

DASY Configuration:⁺

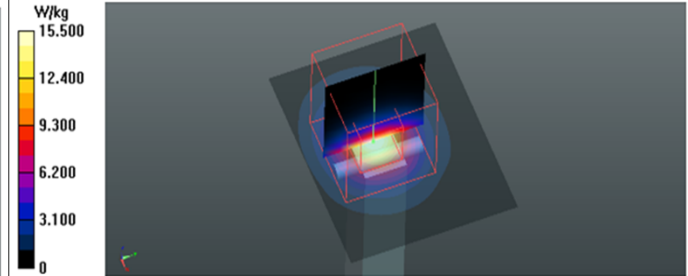
- Probe: EX3DV4 - SN7396; ConvE(5.3, 5.3, 5.3) @ 5200 MHz; Calibrated: 2018/5/29 ⁺
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$ ⁺
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 ⁺
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896 ⁺
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)⁺

↓

Area Scan (6x5x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm ↓
Maximum value of SAR (interpolated) = 15.9 W/kg ↓

↓

Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm ↓
Reference Value = 35.81 V/m; Power Drift = 0.06 dB ↓
Peak SAR (extrapolated) = 31.3 W/kg ↓
SAR(1 g) = 7.28 W/kg; SAR(10 g) = 2.06 W/kg ↓
Maximum value of SAR (measured) = 15.5 W/kg



Validation Report for Body TSL of 5.3GHz

Test Laboratory: BTL Inc. Date: 2018/12/25⁺System Check_B5300_7396⁺DUT: Dipole D5GHZV2;SN:1160;⁺

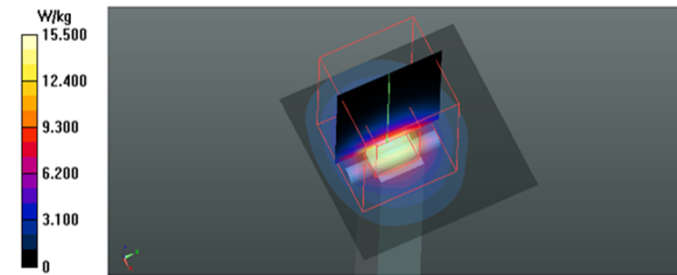
Communication System: UID 0, CW (0); Frequency: 5300 MHz; Duty Cycle: 1:1 ↓
Medium parameters used: $f = 5300$ MHz; $\sigma = 5.507$ S/m; $\epsilon_r = 47.625$; $\rho = 996$ kg/m³ ↓
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C⁺

DASY Configuration:⁺

- Probe: EX3DV4 - SN7396; ConvE(5.05, 5.05, 5.05) @ 5300 MHz; Calibrated: 2018/5/29 ⁺
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$ ⁺
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 ⁺
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896 ⁺
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)⁺

↓
Area Scan (5x5x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm ↓
Maximum value of SAR (interpolated) = 14.7 W/kg ↓

↓
Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm ↓
Reference Value = 34.45 V/m; Power Drift = 0.06 dB ↓
Peak SAR (extrapolated) = 30.9 W/kg ↓
SAR(1 g) = 7.16 W/kg; SAR(10 g) = 2 W/kg ↓
Maximum value of SAR (measured) = 15.5 W/kg



Validation Report for Body TSL of 5.5GHz

Test Laboratory: BTL Inc. Date: 2018/12/25⁺System Check_B5500_7396⁺DUT: Dipole D5GHZV2;SN:1160;⁺

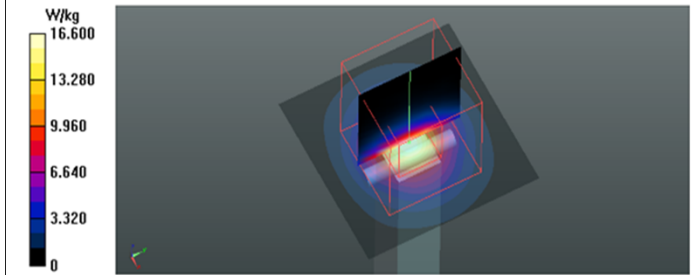
Communication System: UID 0, CW (0); Frequency: 5500 MHz; Duty Cycle: 1:1 ↓
Medium parameters used: $f = 5500$ MHz; $\sigma = 5.797$ S/m; $\epsilon_r = 47.264$; $\rho = 996$ kg/m³ ↓
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C⁺

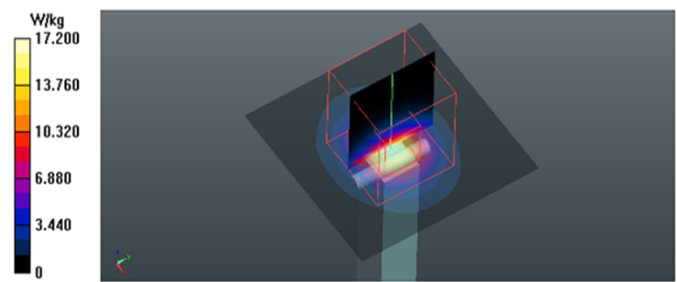
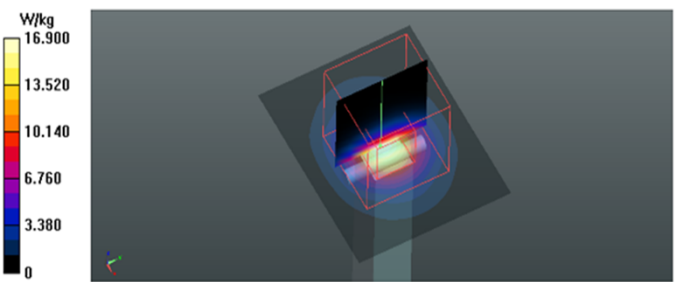
DASY Configuration:⁺

- Probe: EX3DV4 - SN7396; ConvE(4.38, 4.38, 4.38) @ 5500 MHz; Calibrated: 2018/5/29 ⁺
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$ ⁺
- Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 ⁺
- Phantom: SAM Right; Type: Twin SAM; Serial: 1896 ⁺
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)⁺

↓
Area Scan (5x5x1): Interpolated grid: $dx=10$ mm, $dy=10$ mm ↓
Maximum value of SAR (interpolated) = 16.4 W/kg ↓

↓
Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm ↓
Reference Value = 38.51 V/m; Power Drift = -0.17 dB ↓
Peak SAR (extrapolated) = 33.9 W/kg ↓
SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.16 W/kg ↓
Maximum value of SAR (measured) = 16.6 W/kg



Validation Report for Body TSL of 5.6GHz	Validation Report for Body TSL of 5.8GHz
Test Laboratory: BTL Inc. Date: 2018/12/25[Ⓢ] System Check_B5600_7396[Ⓢ] DUT: Dipole D5GHzV2;SN:1160[Ⓢ] Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1[Ⓢ] Medium parameters used: f = 5600 MHz; σ = 5.947 S/m; ϵ_r = 47.073; ρ = 996 kg/m³ [Ⓢ] Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C[Ⓢ] DASY Configuration:[Ⓢ] • Probe: EX3DV4 - SN7396; ConyE(4.38, 4.38, 4.38) @ 5600 MHz; Calibrated: 2018/5/29 [Ⓢ] • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 [Ⓢ] • Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 [Ⓢ] • Phantom: SAM Right; Type: Twin SAM; Serial: 1896 [Ⓢ] • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)[Ⓢ] ↓ Area Scan (6x6x1): Interpolated grid: dx=10 mm, dy=10 mm[Ⓢ] Maximum value of SAR (interpolated) = 16.5 W/kg[Ⓢ] ↓ Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm[Ⓢ] Reference Value = 38.11 V/m; Power Drift = -0.17 dB[Ⓢ] Peak SAR (extrapolated) = 35.4 W/kg[Ⓢ] SAR(1 g) = 7.92 W/kg; SAR(10 g) = 2.2 W/kg[Ⓢ] Maximum value of SAR (measured) = 17.2 W/kg 	Test Laboratory: BTL Inc. Date: 2018/12/25[Ⓢ] System Check_B5800_7396[Ⓢ] DUT: Dipole D5GHzV2;SN:1160[Ⓢ] Communication System: UID 0, CW (0); Frequency: 5800 MHz; Duty Cycle: 1:1[Ⓢ] Medium parameters used: f = 5800 MHz; σ = 6.239 S/m; ϵ_r = 46.673; ρ = 996 kg/m³ [Ⓢ] Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C[Ⓢ] DASY Configuration:[Ⓢ] • Probe: EX3DV4 - SN7396; ConyE(4.5, 4.5, 4.5) @ 5800 MHz; Calibrated: 2018/5/29 [Ⓢ] • Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 23.0 [Ⓢ] • Electronics: DAE4 Sn1390; Calibrated: 2018/5/11 [Ⓢ] • Phantom: SAM Right; Type: Twin SAM; Serial: 1896 [Ⓢ] • DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)[Ⓢ] ↓ Area Scan (6x5x1): Interpolated grid: dx=10 mm, dy=10 mm[Ⓢ] Maximum value of SAR (interpolated) = 16.6 W/kg[Ⓢ] ↓ Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm[Ⓢ] Reference Value = 37.07 V/m; Power Drift = -0.19 dB[Ⓢ] Peak SAR (extrapolated) = 35.6 W/kg[Ⓢ] SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.16 W/kg[Ⓢ] Maximum value of SAR (measured) = 16.9 W/kg 

Calibrator: *Rot - Liang*

Approver: *Herbert Lim*