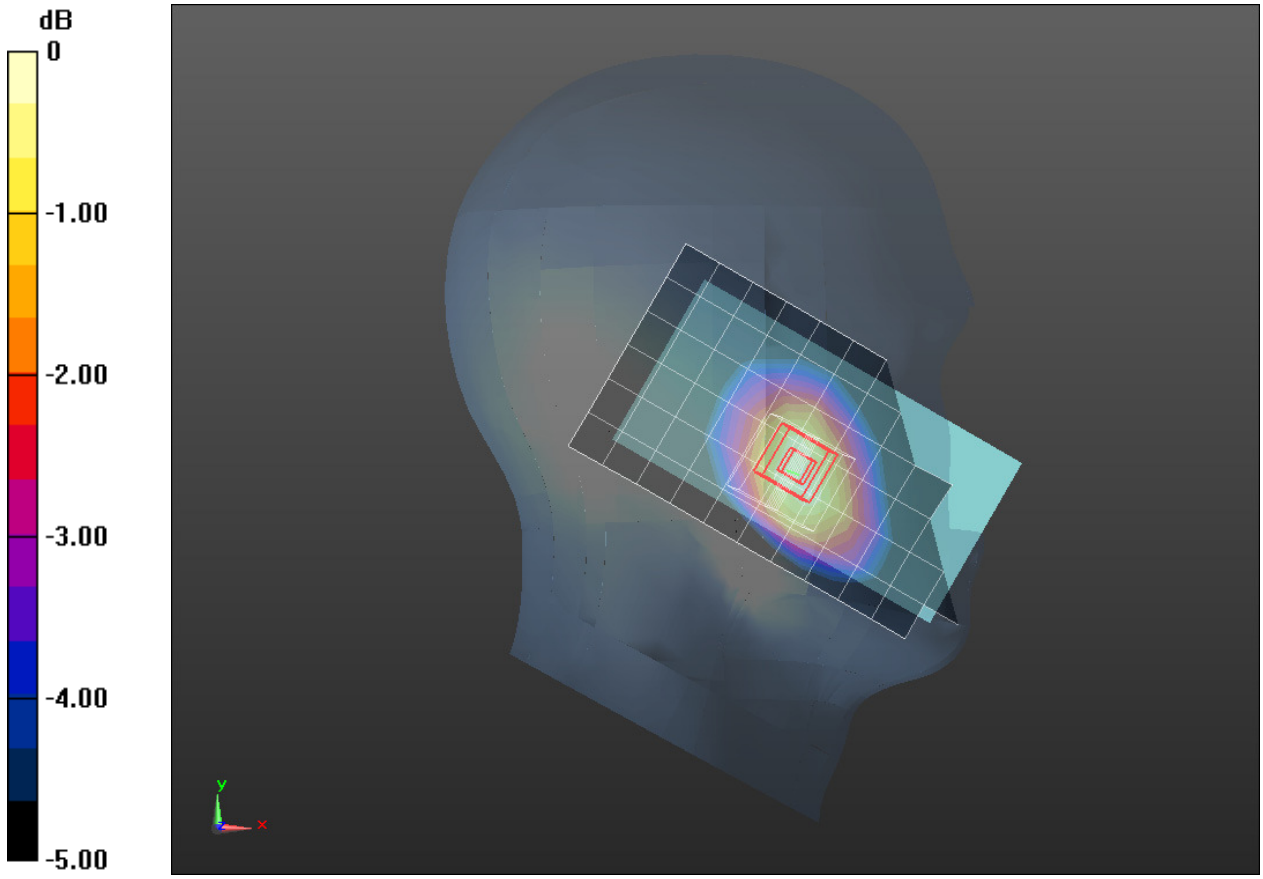
Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-17

GSM 850

Frequency: 824.4 MHz; Duty Cycle: 1:4.00037; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 825 MHz; σ = 0.891 S/m; ε_r = 40.449; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(9.99, 9.99, 9.99); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM (20deg probe tilt) with CRP v5.0(Right); Type: QD000P40CD; Serial: TP:1846

LHS/Touch_GPRS 2 slots_ch 128/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.869 W/kg

LHS/Touch_GPRS 2 slots_ch 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.83 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.994 W/kg
SAR(1 g) = 0.790 W/kg; SAR(10 g) = 0.591 W/kg
Maximum value of SAR (measured) = 0.920 W/kg



0 dB = 0.920 W/kg = −0.36 dBW/kg

Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-15

GSM 850

Frequency: 836.6 MHz; Duty Cycle: 1:4.00037; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.009 S/m; ε_r = 54.213; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(10.07, 10.07, 10.07); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1166

Rear/GPRS 2 slots_ch 190/Area Scan (13x8x1): Measurement grid: dx=15mm, dy=15mm

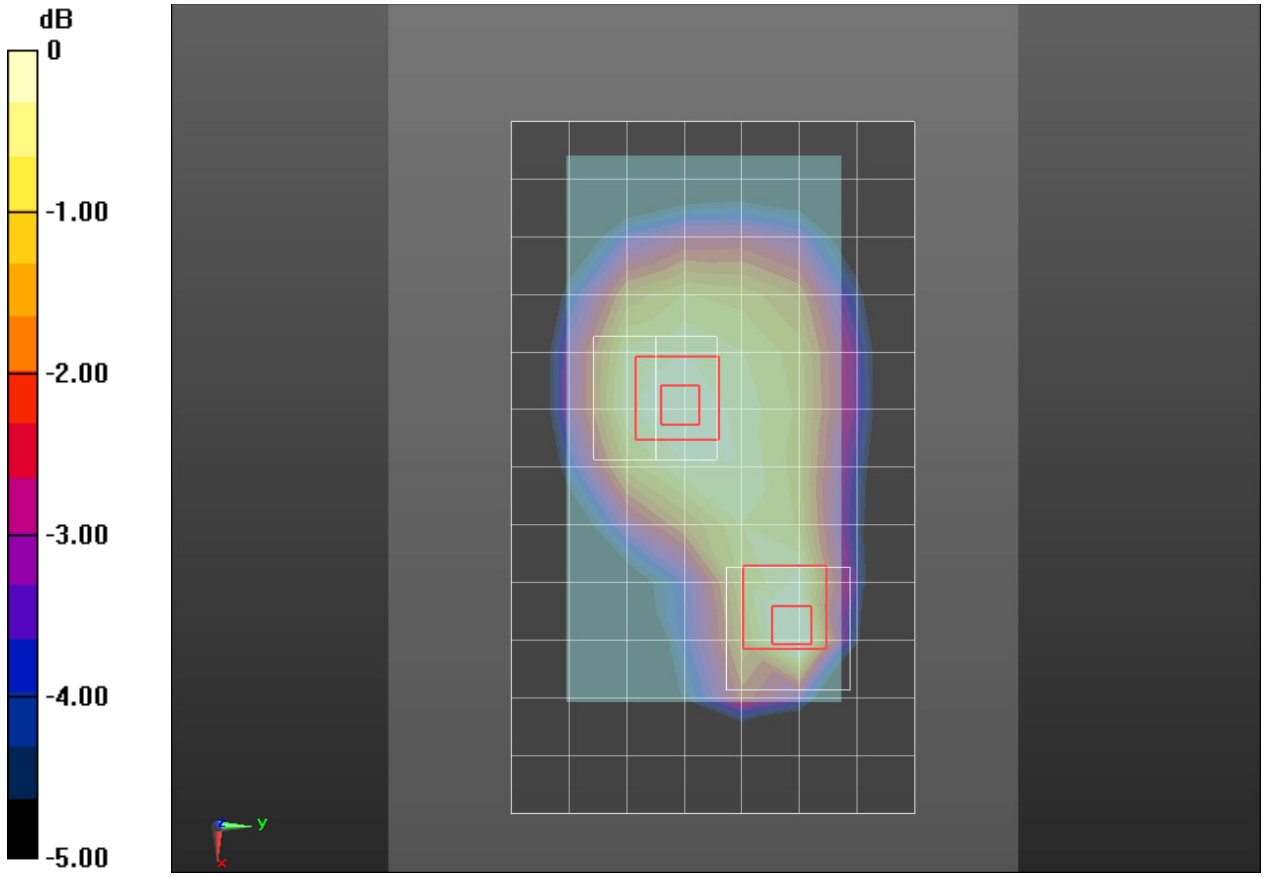
Maximum value of SAR (measured) = 0.930 W/kg

Rear/GPRS 2 slots_ch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.21 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.697 W/kg; SAR(10 g) = 0.434 W/kg
Maximum value of SAR (measured) = 0.947 W/kg

Rear/GPRS 2 slots_ch 190/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.21 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.876 W/kg
SAR(1 g) = 0.685 W/kg; SAR(10 g) = 0.518 W/kg
Maximum value of SAR (measured) = 0.789 W/kg



0 dB = 0.789 W/kg = −1.03 dBW/kg

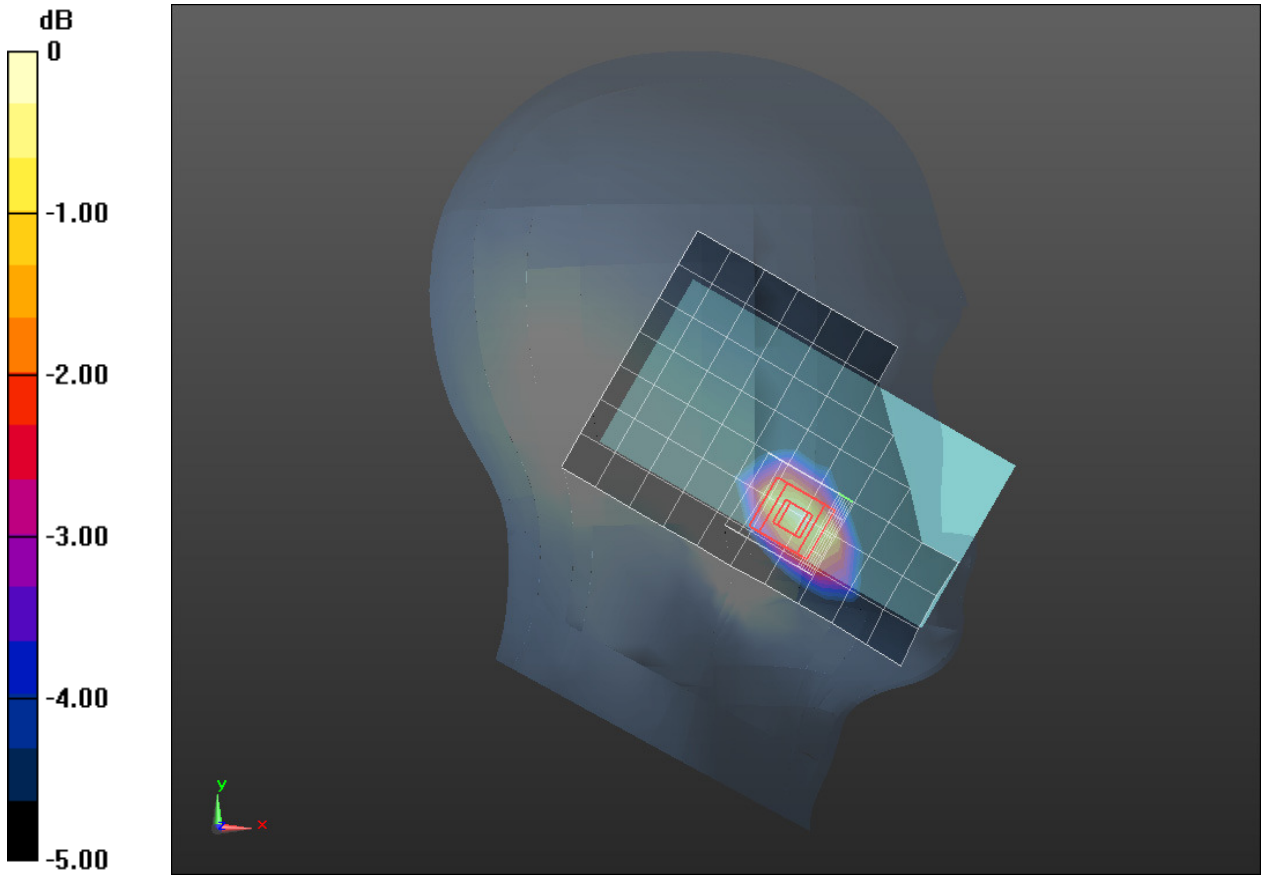
Test Laboratory: UL Korea, Ltd. Suwon Laboratory Date: 2015-12-17

GSM 1900

Frequency: 1880 MHz; Duty Cycle: 1:4.00037; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; σ = 1.435 S/m; ε_r = 38.177; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1494; Calibrated: 2015-11-11
- Probe: EX3DV4 - SN7330; ConvF(8.07, 8.07, 8.07); Calibrated: 2015-02-12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM Phantom CRP v5.0(Right); Type: QD000P40CD; Serial: TP:1855

LHS/Touch_GPRS 2 slots_ch 661/Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.490 W/kg

LHS/Touch_GPRS 2 slots_ch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.32 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.611 W/kg
SAR(1 g) = 0.380 W/kg; SAR(10 g) = 0.223 W/kg
Maximum value of SAR (measured) = 0.498 W/kg



0 dB = 0.498 W/kg = −3.03 dBW/kg

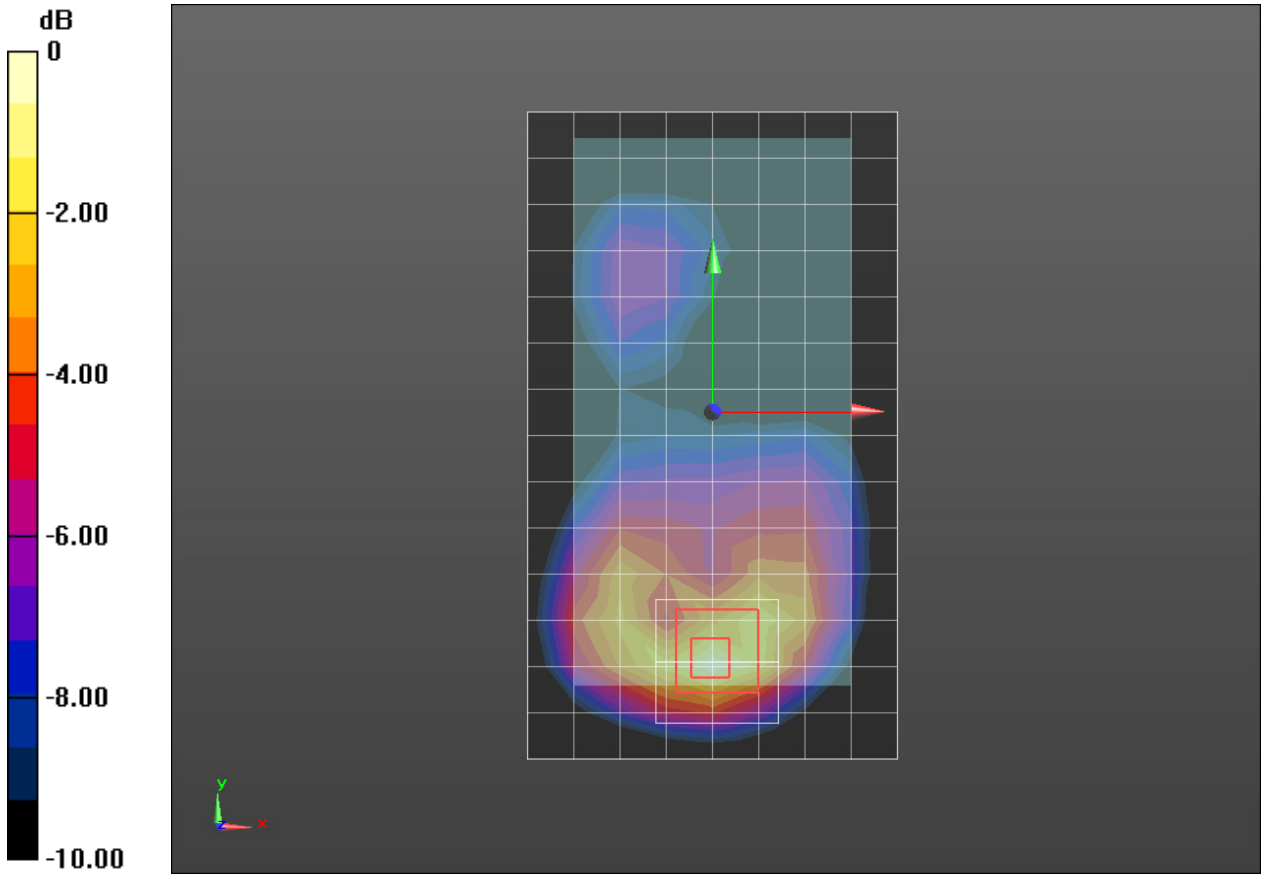
Test Laboratory: UL Korea, Ltd. Suwon Laboratory Date: 2015-12-15

GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:4.00037; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; σ = 1.555 S/m; ε_r = 52.24; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1494; Calibrated: 2015-11-11
- Probe: EX3DV4 - SN7330; ConvF(7.82, 7.82, 7.82); Calibrated: 2015-02-12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:xxxx

Front/GPRS 2 slots_ch661/Area Scan (15x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 1.31 W/kg

Front/GPRS 2 slots_ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.45 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.937 W/kg; SAR(10 g) = 0.486 W/kg
Maximum value of SAR (measured) = 1.32 W/kg



0 dB = 1.32 W/kg = 1.21 dBW/kg

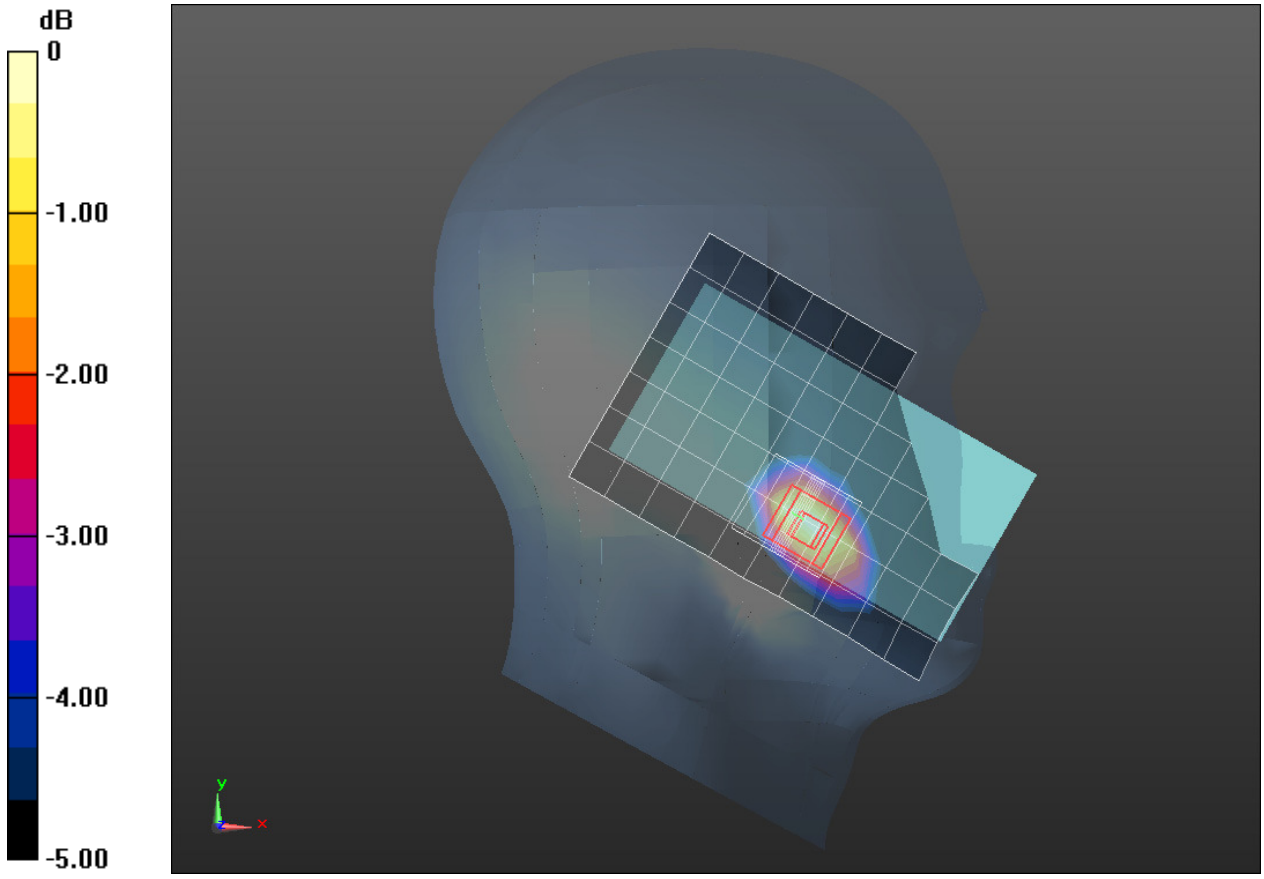
Test Laboratory: UL Korea, Ltd. Suwon Laboratory Date: 2015-12-18

WCDMA Band 2

Frequency: 1880 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used: f = 1880 MHz; σ = 1.435 S/m; ε_r = 38.177; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1494; Calibrated: 2015-11-11
- Probe: EX3DV4 - SN7330; ConvF(8.07, 8.07, 8.07); Calibrated: 2015-02-12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM Phantom CRP v5.0(Right); Type: QD000P40CD; Serial: TP:1855

LHS/Touch_Rel.99 ch 9400/Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.685 W/kg

LHS/Touch_Rel.99 ch 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.73 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.864 W/kg
SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.309 W/kg
Maximum value of SAR (measured) = 0.672 W/kg



0 dB = 0.672 W/kg = −1.73 dBW/kg

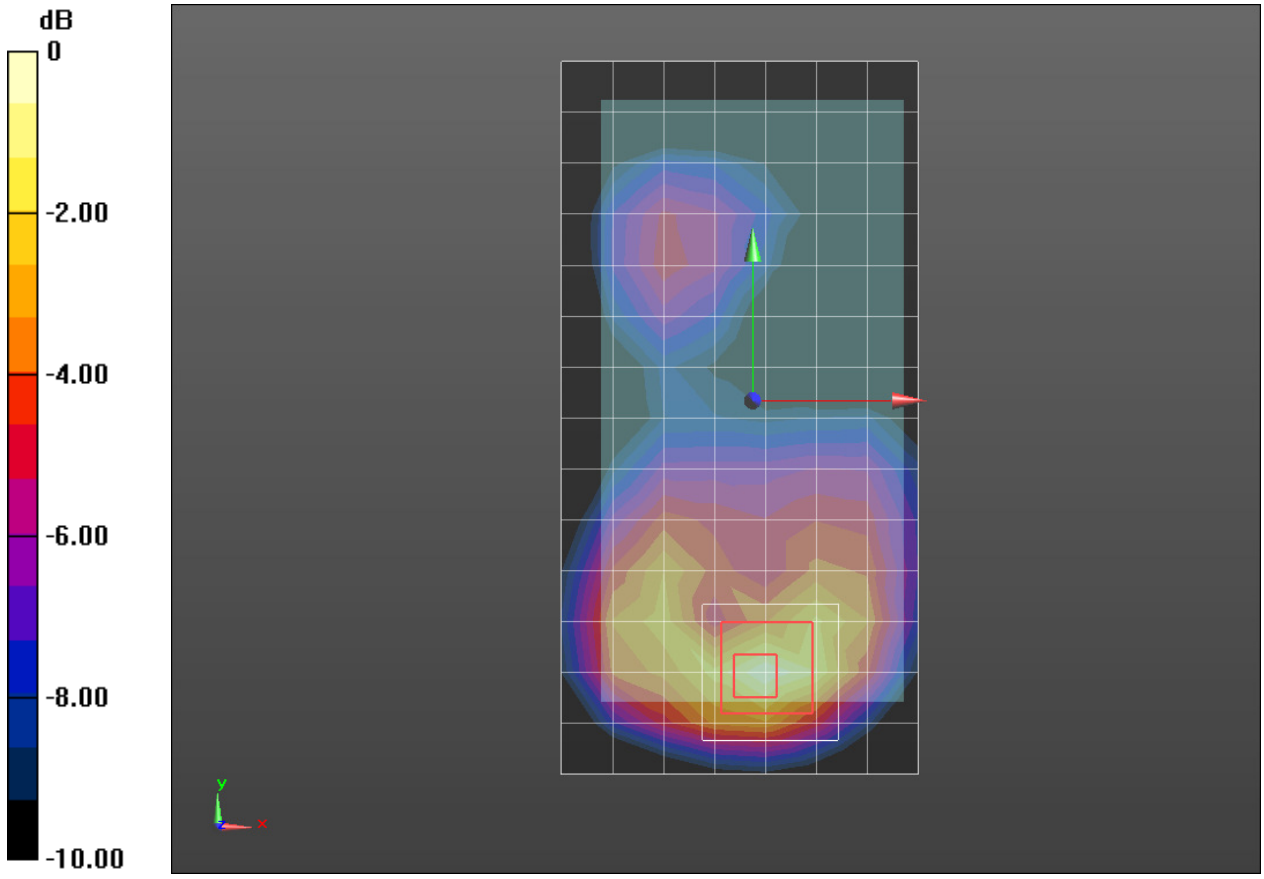
Test Laboratory: UL Korea, Ltd. Suwon Laboratory Date: 2015-12-15

WCDMA Band 2

Frequency: 1907.6 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.585 S/m; ε_r = 52.104; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1494; Calibrated: 2015-11-11
- Probe: EX3DV4 - SN7330; ConvF(7.82, 7.82, 7.82); Calibrated: 2015-02-12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:xxxx

Front/RMC Rel.99 ch9538 2/Area Scan (15x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 1.43 W/kg

Front/RMC Rel.99 ch9538 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.91 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.527 W/kg
Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg = 1.52 dBW/kg

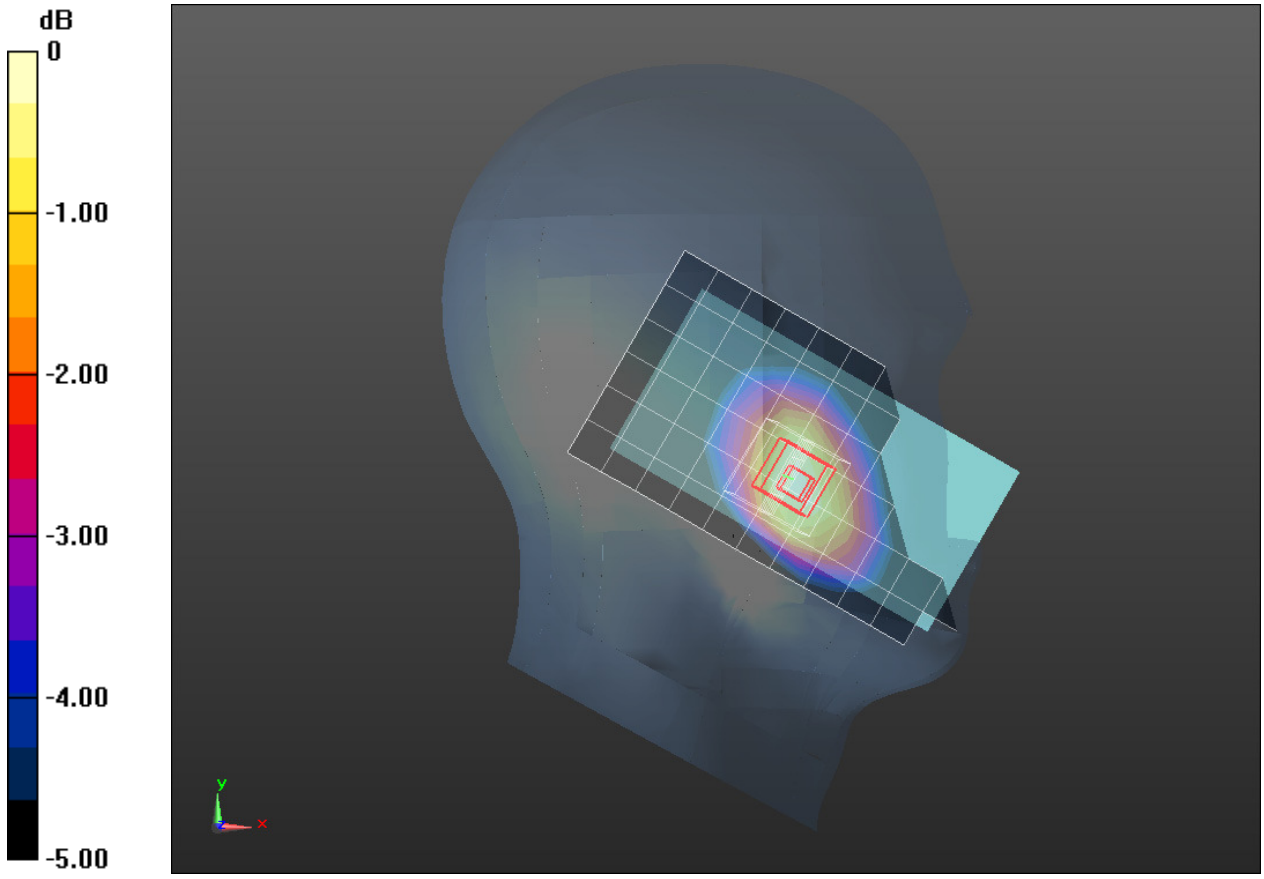
Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-18

WCDMA Band 5

Frequency: 836.6 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 S/m; ε_r = 40.32; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(9.99, 9.99, 9.99); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM (20deg probe tilt) with CRP v5.0(Right); Type: QD000P40CD; Serial: TP:1846

LHS/Touch_RMC Rel .99_ch 4183/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.495 W/kg

LHS/Touch_RMC Rel .99_ch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.97 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.332 W/kg
Maximum value of SAR (measured) = 0.518 W/kg



0 dB = 0.518 W/kg = −2.86 dBW/kg

Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-15

WCDMA Band 5

Frequency: 836.6 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.009 S/m; ε_r = 54.213; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(10.07, 10.07, 10.07); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1166

Rear/RMC Rel.99 ch4183/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

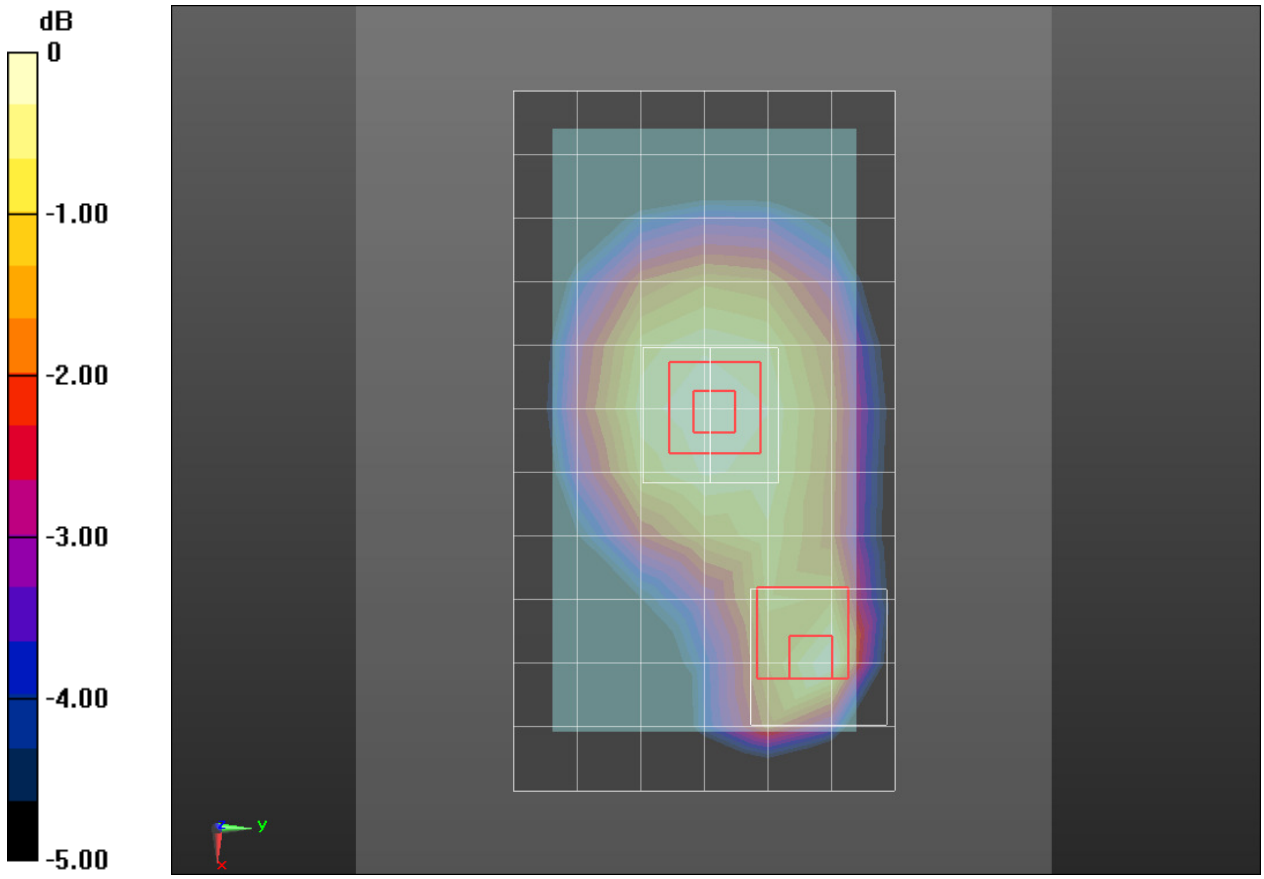
Maximum value of SAR (measured) = 0.565 W/kg

Rear/RMC Rel.99 ch4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.25 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.747 W/kg
SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.282 W/kg
Maximum value of SAR (measured) = 0.603 W/kg

Rear/RMC Rel.99 ch4183/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.25 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.598 W/kg
SAR(1 g) = 0.486 W/kg; SAR(10 g) = 0.372 W/kg
Maximum value of SAR (measured) = 0.553 W/kg



0 dB = 0.553 W/kg = −2.57 dBW/kg

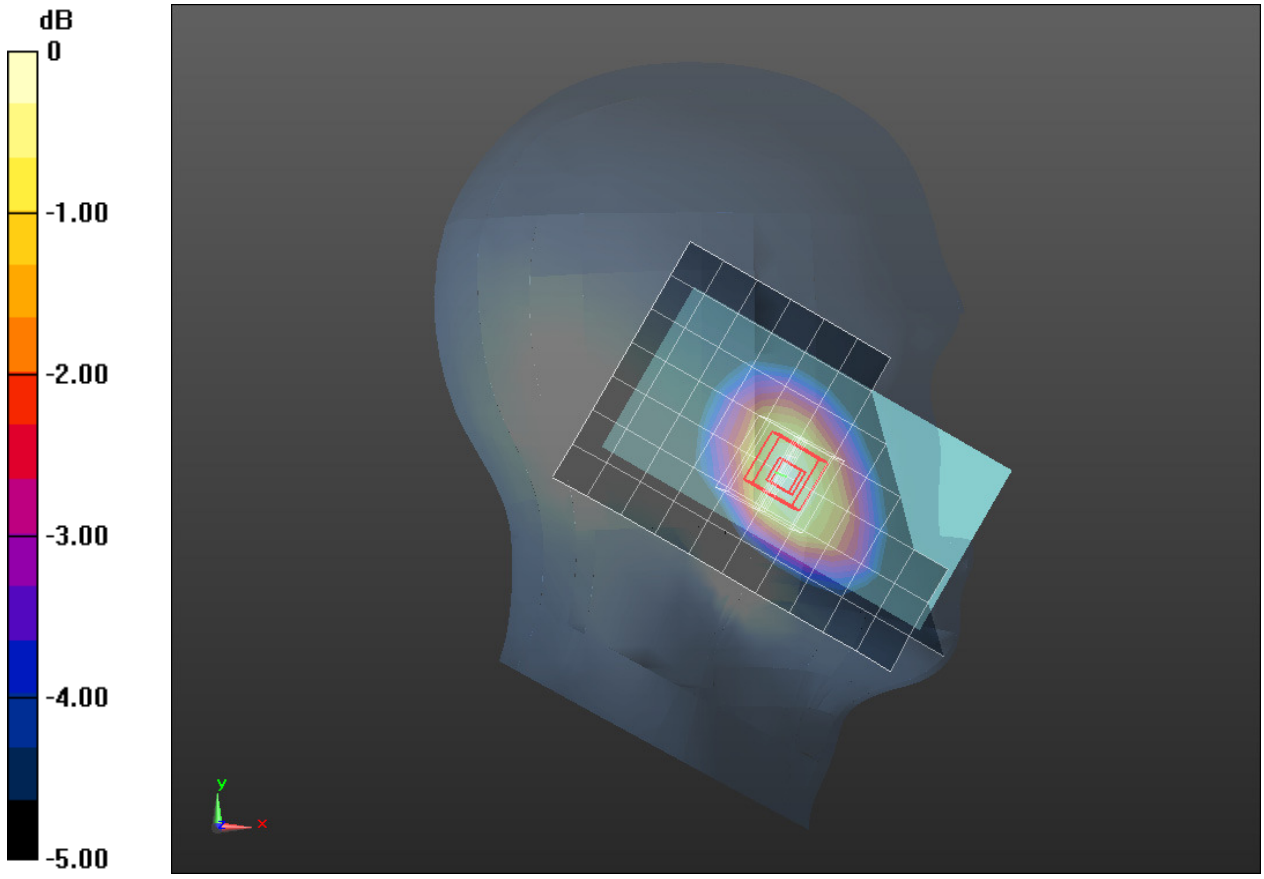
Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-18

LTE Band 5

Frequency: 836.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.903 S/m; ε_r = 40.321; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(9.99, 9.99, 9.99); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM (20deg probe tilt) with CRP v5.0(Right); Type: QD000P40CD; Serial: TP:1846

LHS/Touch_QPSK RB 1/49 ch20525/Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.627 W/kg

LHS/Touch_QPSK RB 1/49 ch20525/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.82 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.676 W/kg
SAR(1 g) = 0.523 W/kg; SAR(10 g) = 0.390 W/kg
Maximum value of SAR (measured) = 0.614 W/kg



0 dB = 0.614 W/kg = −2.12 dBW/kg

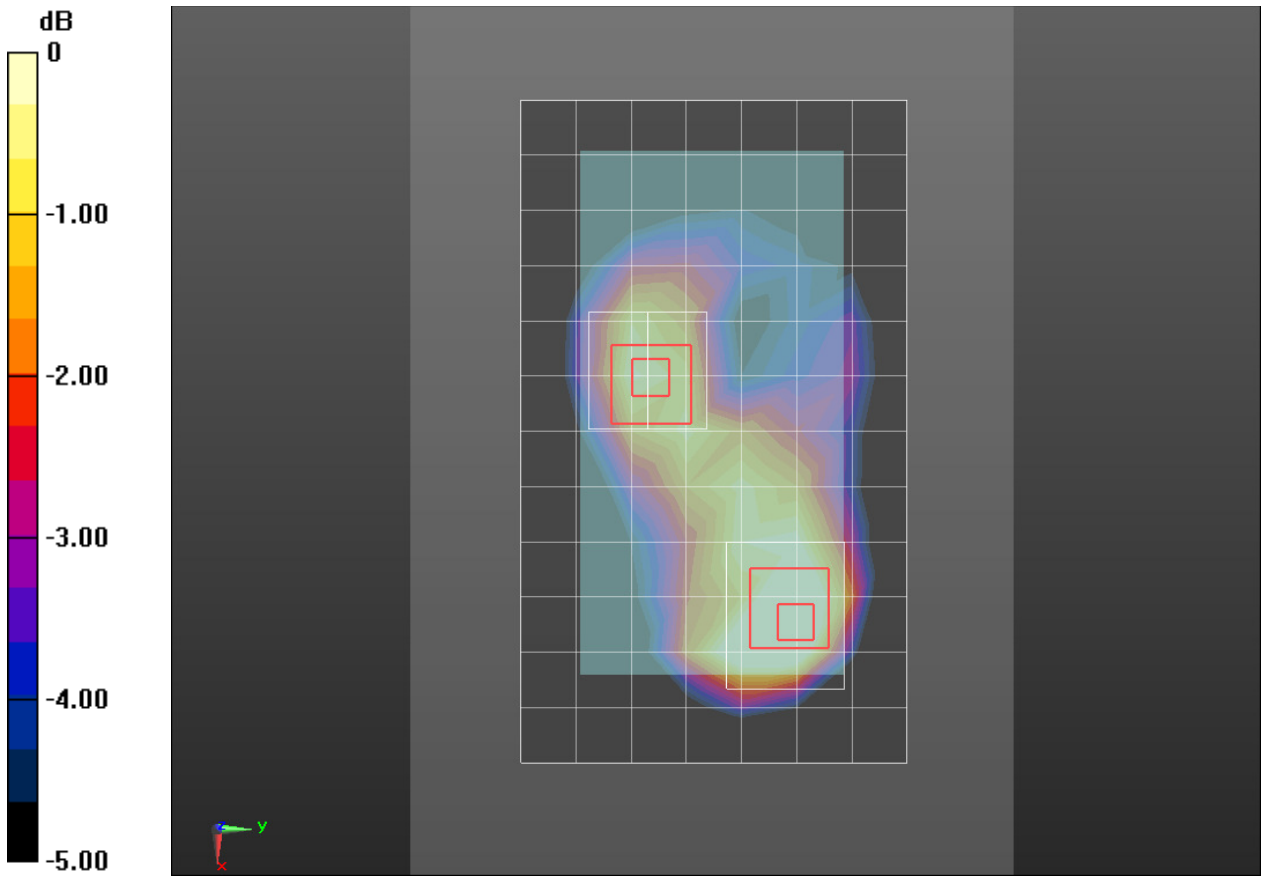
LTE Band 5

Frequency: 836.5 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 836.5 MHz; σ = 1.009 S/m; ε_r = 54.214; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(10.07, 10.07, 10.07); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1166

Rear/QPSK RB 1/49 ch20525/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.687 W/kg

Rear/QPSK RB 1/49 ch20525/Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.04 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.958 W/kg
SAR(1 g) = 0.559 W/kg; SAR(10 g) = 0.332 W/kg
Maximum value of SAR (measured) = 0.762 W/kg

Rear/QPSK RB 1/49 ch20525/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.04 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.577 W/kg
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.280 W/kg
Maximum value of SAR (measured) = 0.503 W/kg



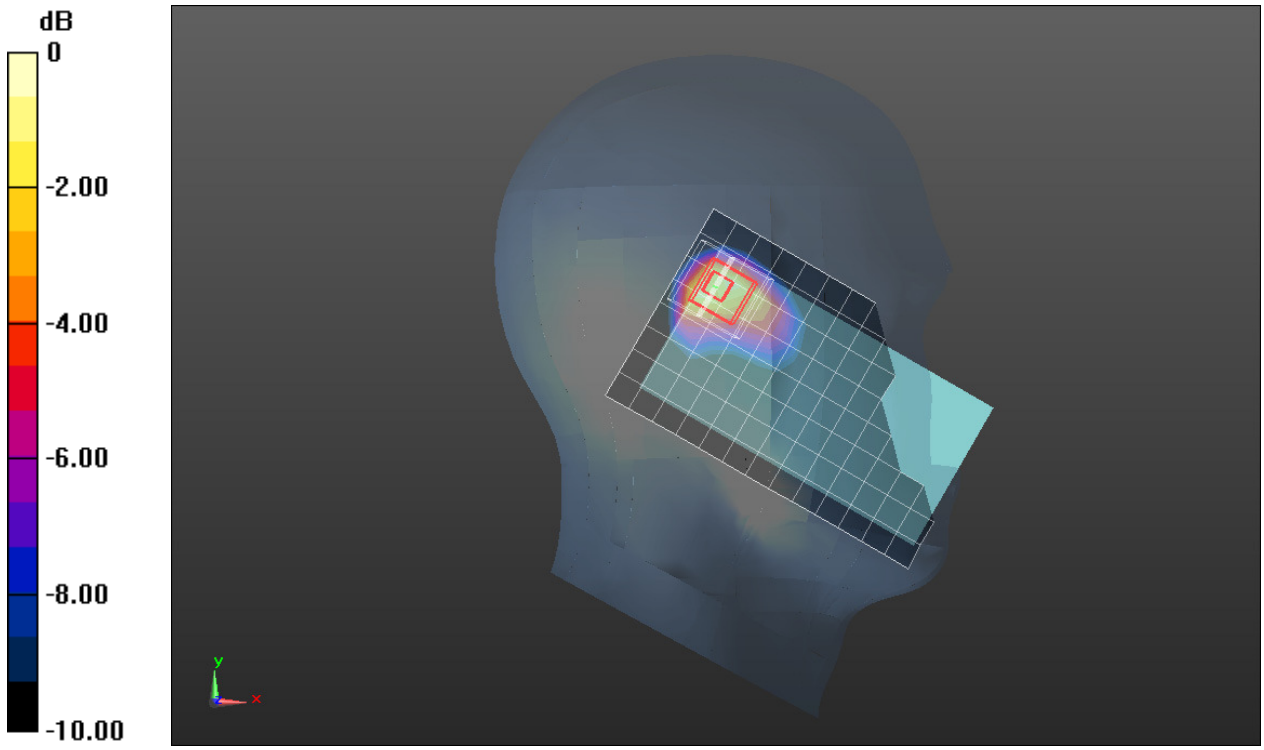
0 dB = 0.503 W/kg = −2.98 dBW/kg

Wi-Fi 2.4GHz

Frequency: 2412 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.829 S/m; ε_r = 40.931; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1447; Calibrated: 2015-09-23
- Probe: EX3DV4 - SN7314; ConvF(7.18, 7.18, 7.18); Calibrated: 2015-09-25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: SAM (20deg probe tilt) with CRP v5.0(Right); Type: QD000P40CD; Serial: TP:xxxx

LHS/Touch_802.11b_ch 1/Area Scan (9x15x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.397 W/kg

LHS/Touch_802.11b_ch 1/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.313 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.131 W/kg
Maximum value of SAR (measured) = 0.447 W/kg



0 dB = 0.447 W/kg = -3.50 dBW/kg

Test Laboratory: UL Korea Ltd. Suwon Laboratory Date: 2015-12-16

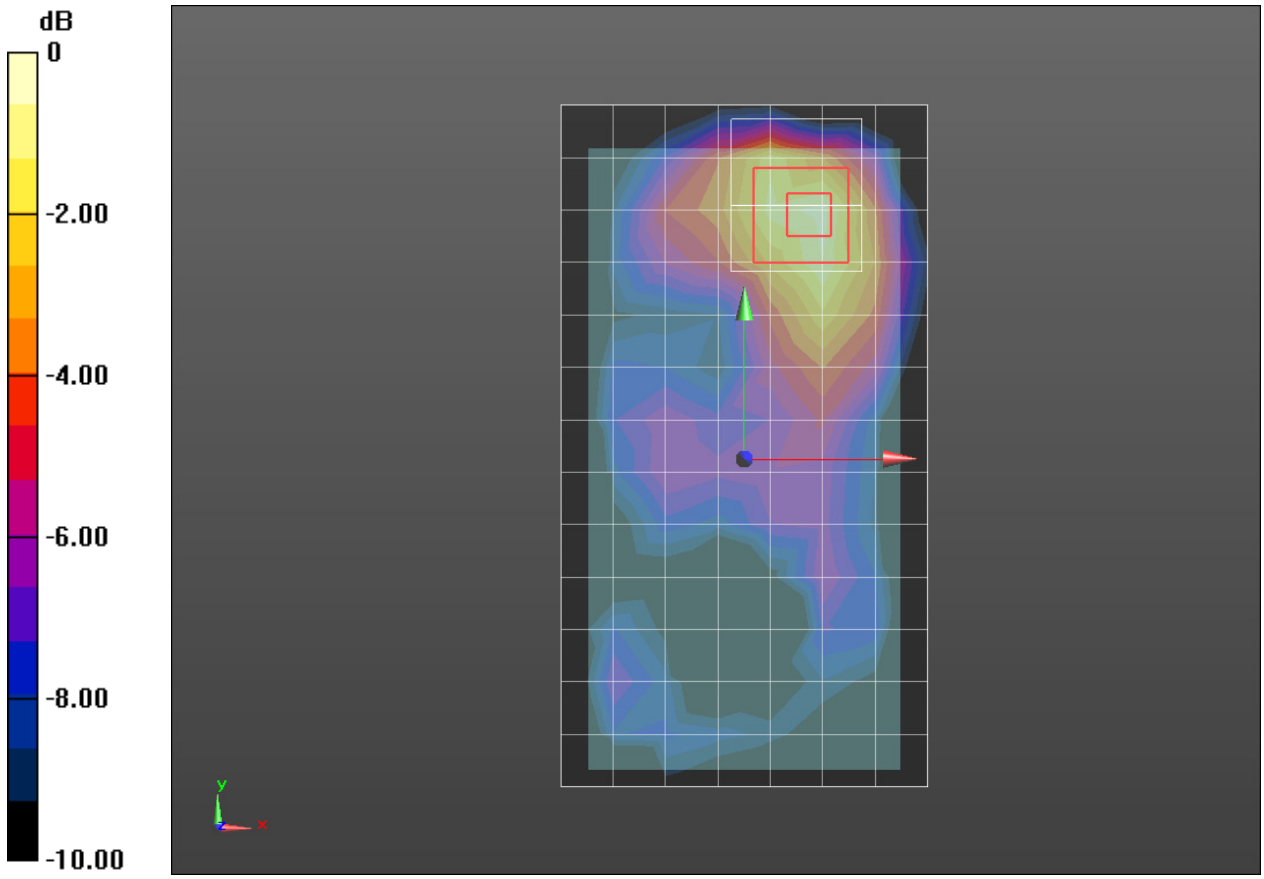
Wi-Fi 2.4GHz

Frequency: 2412 MHz; Duty Cycle: 1:1; Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.915 S/m; ε_r = 52.007; ρ = 1000 kg/m^3
DASY5 Configuration:
- Area Scan Setting: Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Electronics: DAE4 Sn1468; Calibrated: 2015-09-15
- Probe: EX3DV4 - SN7376; ConvF(7.37, 7.37, 7.37); Calibrated: 2015-09-02;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:xxxx

Front/802.11b_ch 1 Max Power/Area Scan (8x14x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0427 W/kg

Front/802.11b_ch 1 Max Power/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.537 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0840 W/kg
SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.017 W/kg

Maximum value of SAR (measured) = 0.0462 W/kg



0 dB = 0.0462 W/kg = −13.35 dBW/kg