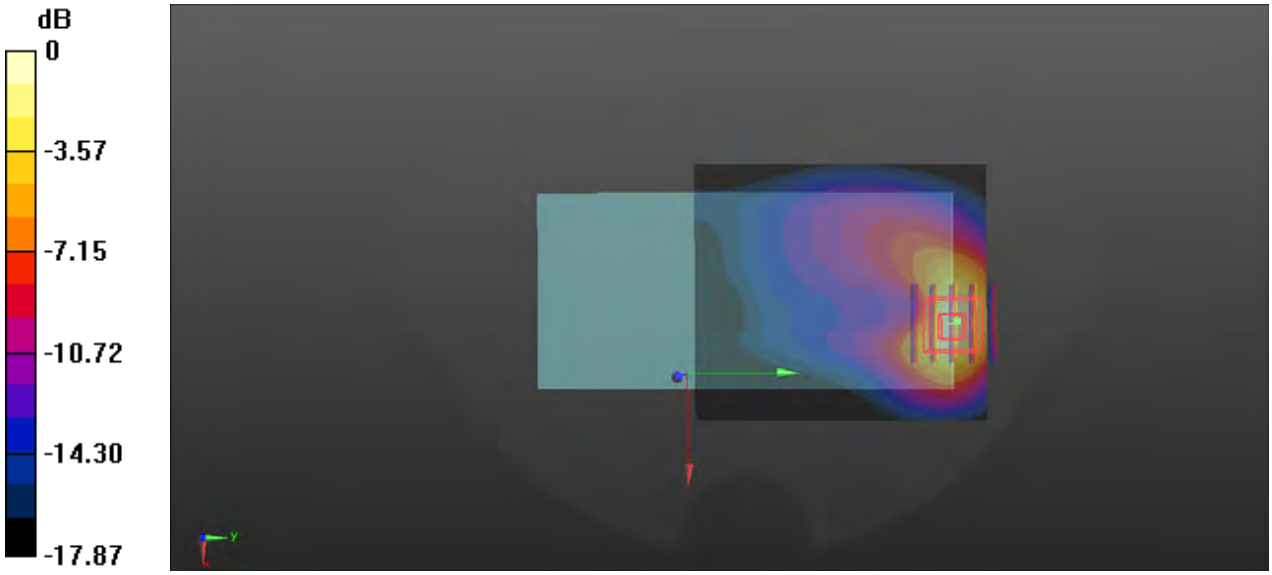
P19 WCDMA IV_RMC12.2K_Rear Face_1cm_Ch1413_Ant2

Communication System: WCDMA; Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1733 MHz; σ = 1.395 S/m; ε_r = 41.523; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1732.6 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.830 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.875 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.816 W/kg



0 dB = 0.816 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/7

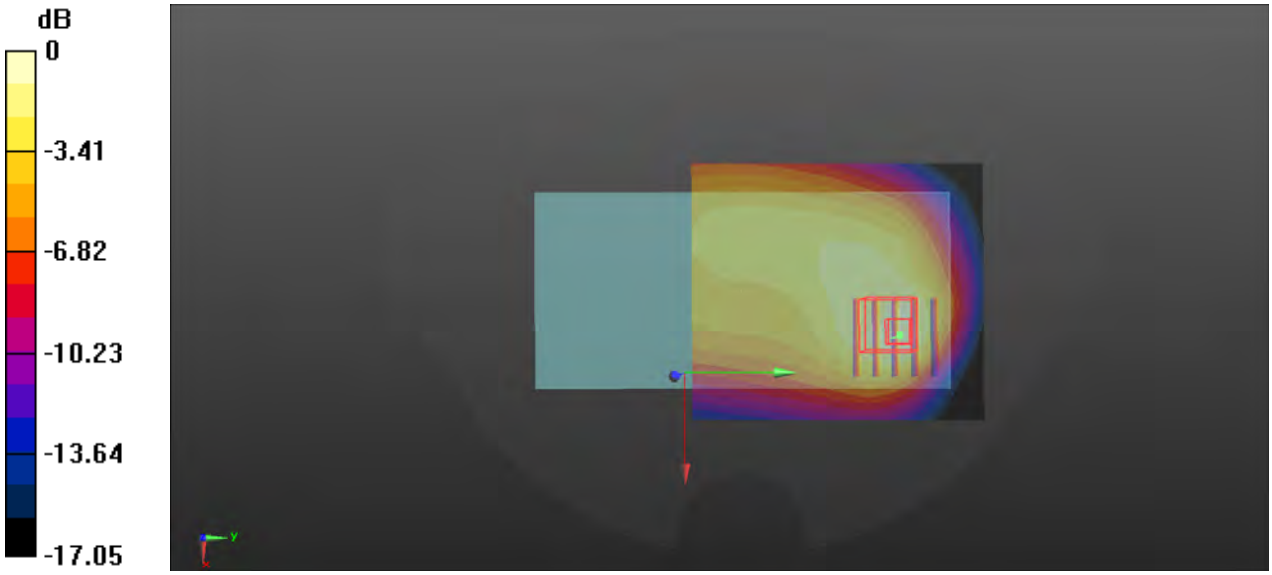
P20 WCDMA V_RMC12.2K_Rear Face_1cm_Ch4182_Ant2

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL835_0907 Medium parameters used: f = 836.4 MHz; σ = 0.899 S/m; ε_r = 43.072; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(10.88, 10.88, 10.88) @ 836.4 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.570 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.56 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.683 W/kg
SAR(1 g) = 0.351 W/kg; SAR(10 g) = 0.198 W/kg
Maximum value of SAR (measured) = 0.530 W/kg



0 dB = 0.530 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

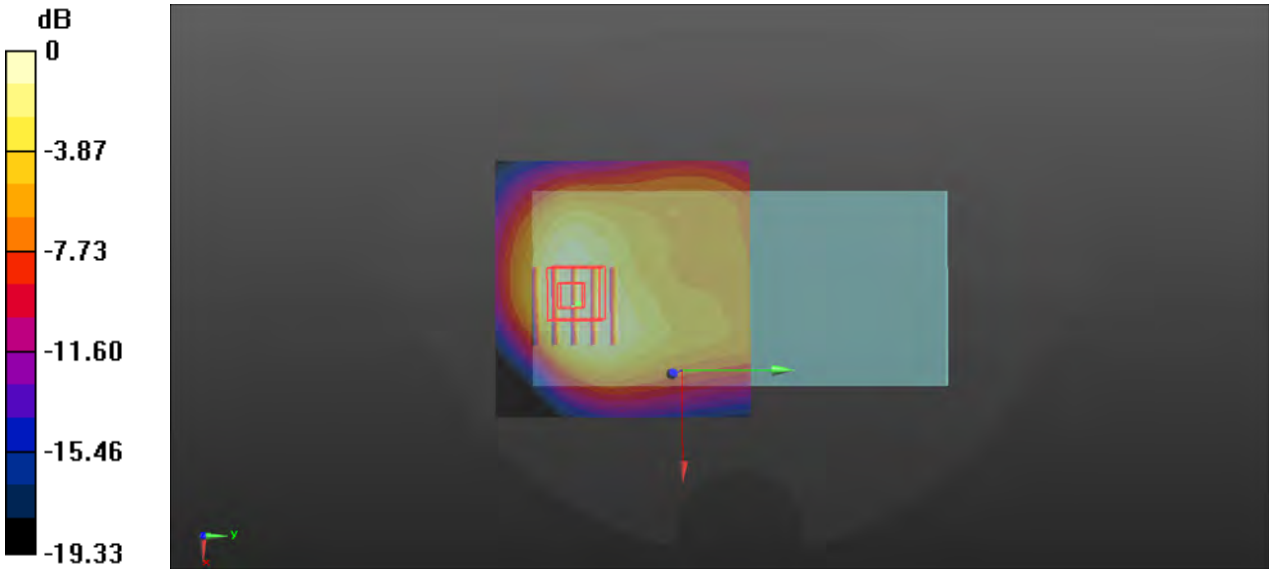
P21 LTE 2_QPSK20M_Rear Face_1cm_Ch18700_50RB_OS0_Ant1

Communication System: LTE; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: HSL1900_0909 Medium parameters used: f = 1860 MHz; σ = 1.356 S/m; ε_r = 40.299; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1860 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.829 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.02 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.917 W/kg
SAR(1 g) = 0.544 W/kg; SAR(10 g) = 0.314 W/kg
Maximum value of SAR (measured) = 0.746 W/kg



0 dB = 0.746 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/7

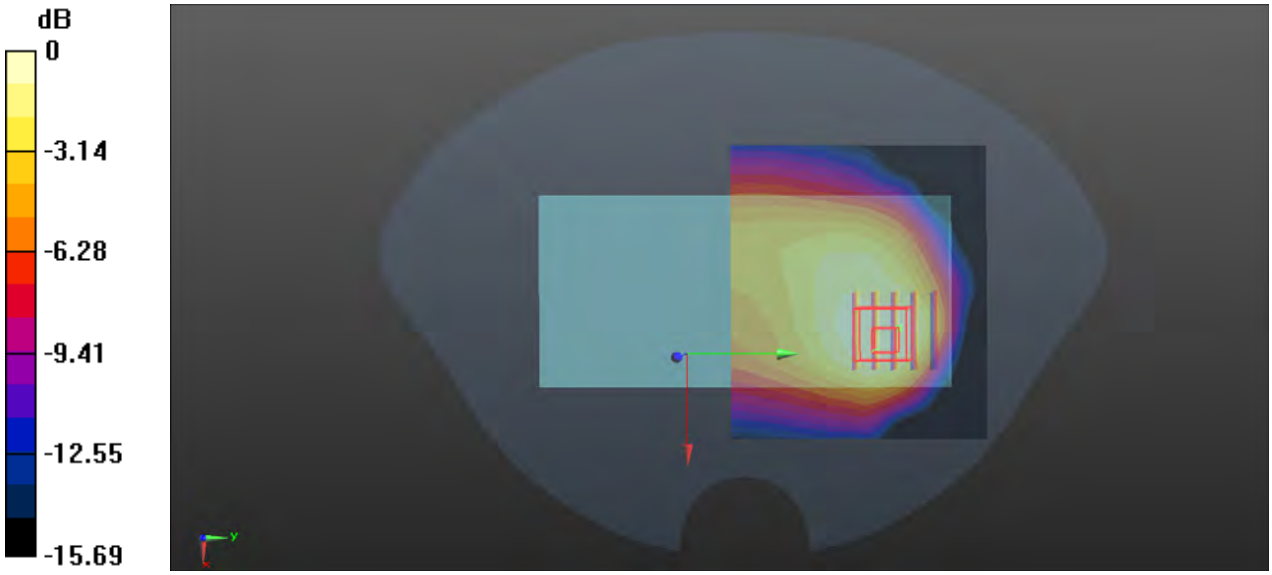
P22 LTE 5_QPSK10M_Rear Face_1cm_Ch20525_1RB_OS24_Ant2

Communication System: LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: HSL835_0907 Medium parameters used: f = 836.5 MHz; σ = 0.899 S/m; ε_r = 43.071; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(10.88, 10.88, 10.88) @ 836.5 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (81x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.502 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.34 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.220 W/kg
Maximum value of SAR (measured) = 0.449 W/kg



0 dB = 0.449 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/11

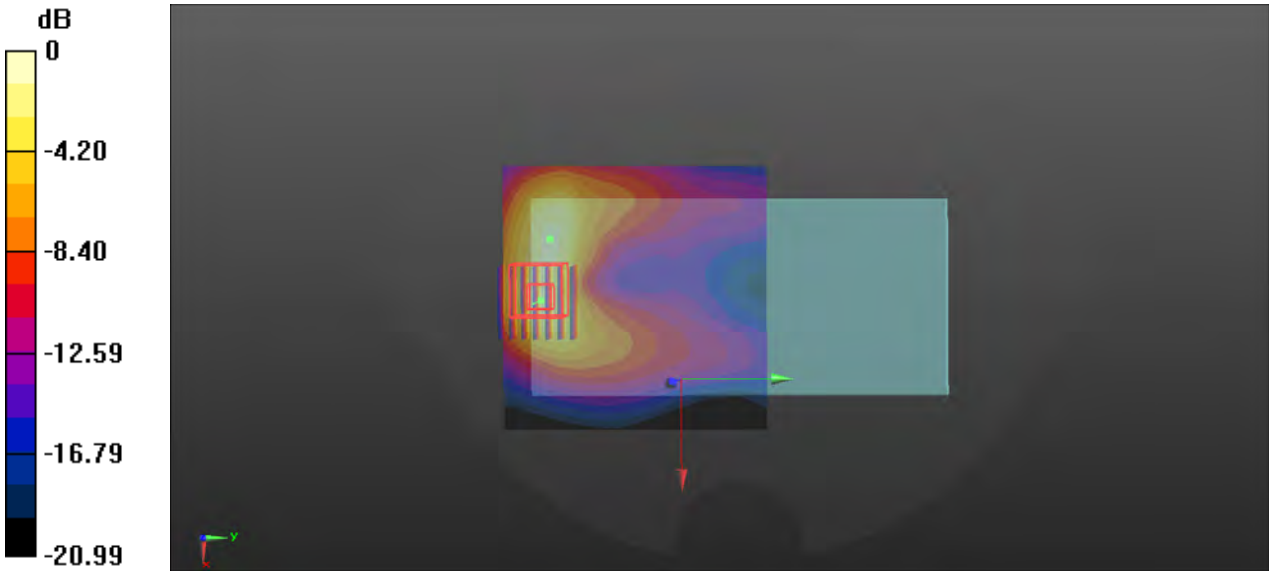
P23 LTE 7_QPSK20M_Rear Face_1cm_Ch21350_50RB_OS25_Ant1

Communication System: LTE; Frequency: 2560 MHz;Duty Cycle: 1:1
Medium: HSL2600_0911 Medium parameters used: f = 2560 MHz; σ = 1.87 S/m; ε_r = 39.425; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2560 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.01 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.114 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.671 W/kg; SAR(10 g) = 0.321 W/kg
Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.09 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/11

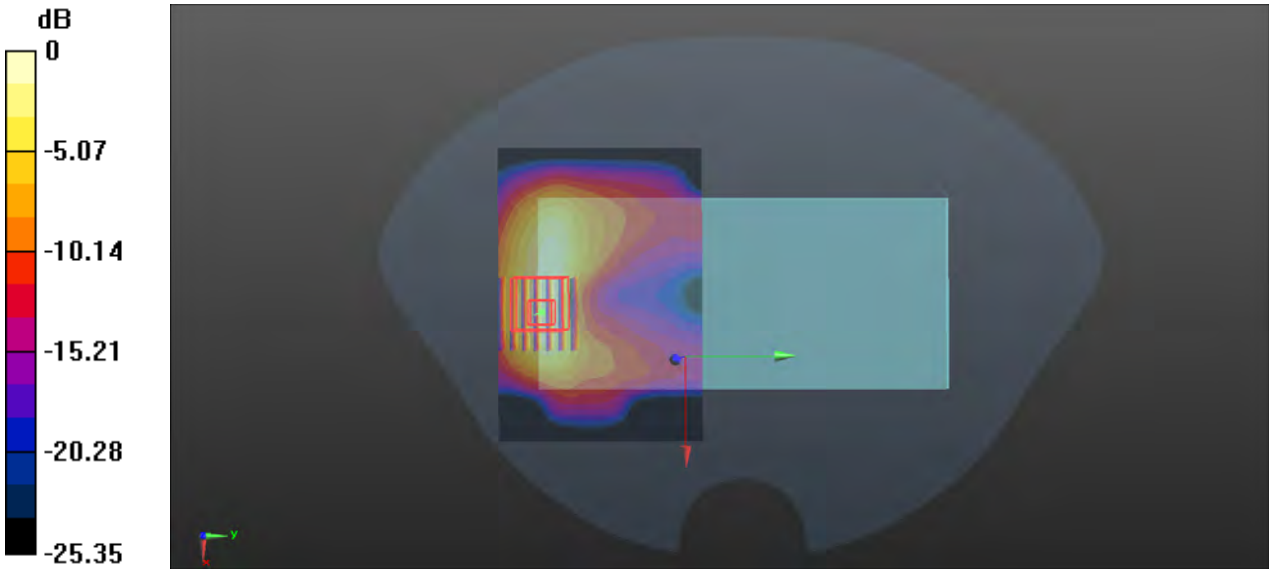
P24 LTE 41_QPSK20M_Rear Face_1cm_Ch39750_50RB_OS25_Ant1

Communication System: LTE TDD; Frequency: 2506 MHz;Duty Cycle: 1:1.59
Medium: HSL2600_0911 Medium parameters used: f = 2506 MHz; σ = 1.828 S/m; ε_r = 39.498; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2506 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (101x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.553 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.9050 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.721 W/kg
SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.175 W/kg
Maximum value of SAR (measured) = 0.554 W/kg



0 dB = 0.554 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/8

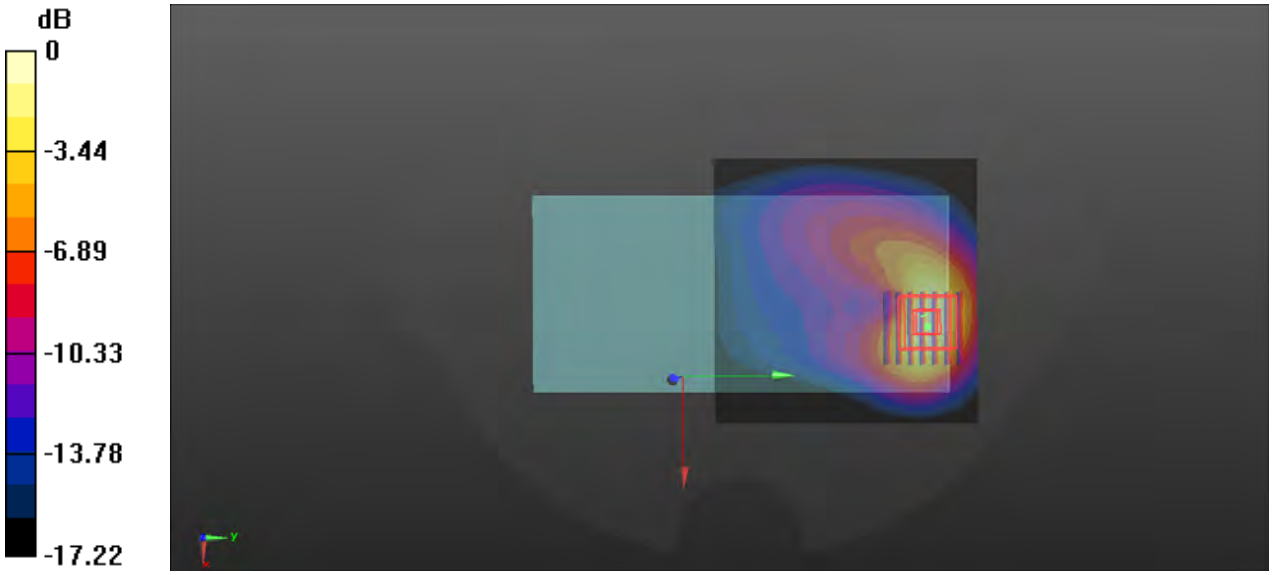
P25 LTE 66_QPSK20M_Rear Face_1cm_Ch132322_50RB_OS25_Ant2

Communication System: LTE; Frequency: 1745 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1745 MHz; σ = 1.406 S/m; ε_r = 41.47; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1745 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.683 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.130 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.842 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.238 W/kg
Maximum value of SAR (measured) = 0.692 W/kg



0 dB = 0.692 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/10

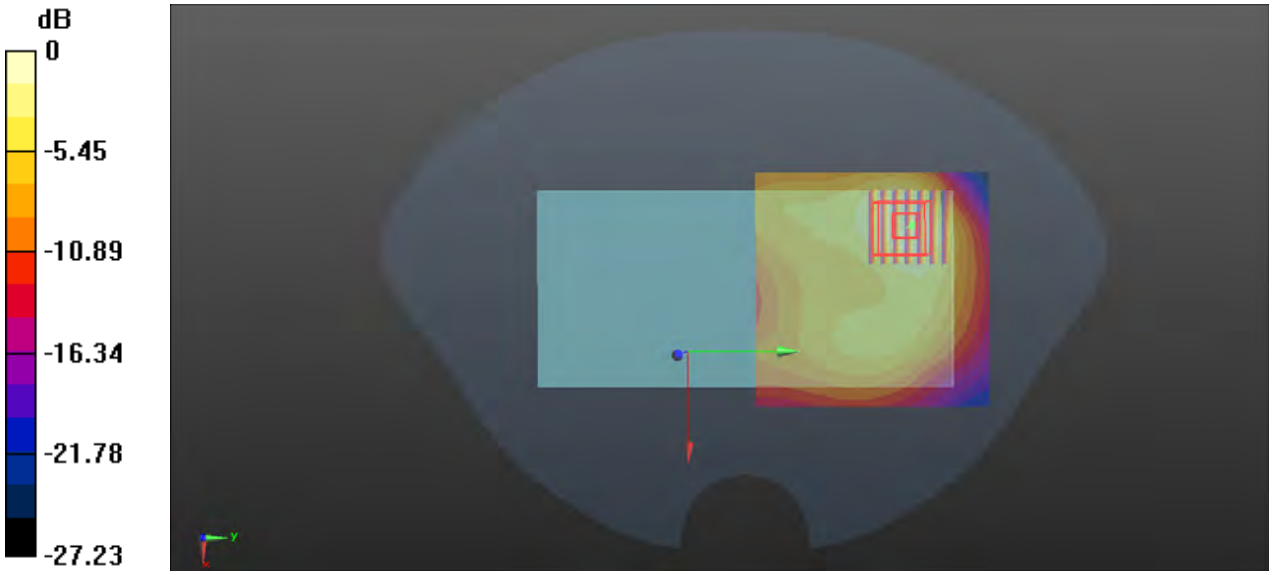
P26 WLAN2.4G_802.11b_Rear Face_1cm_Ch11_Ant3

Communication System: 802.11 b; Frequency: 2462 MHz;Duty Cycle: 1:1.005
Medium: HSL2450_0910 Medium parameters used: f = 2462 MHz; σ = 1.858 S/m; ε_r = 38; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.11, 8.11, 8.11) @ 2462 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.627 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.802 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.873 W/kg
SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.211 W/kg
Maximum value of SAR (measured) = 0.636 W/kg



0 dB = 0.636 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/12

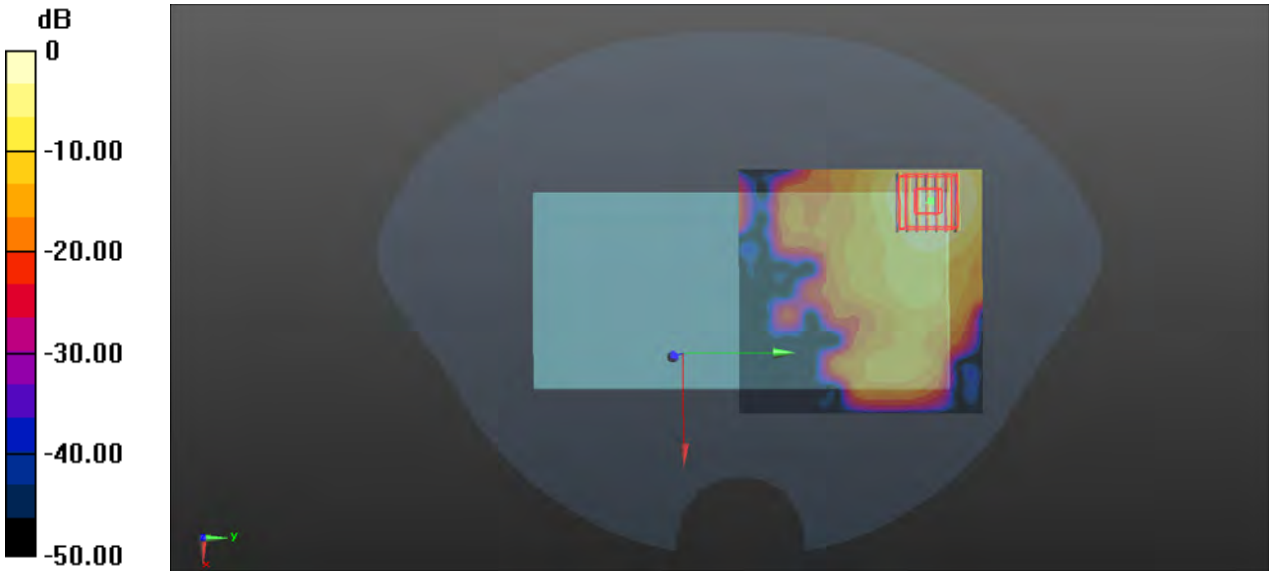
P27 WLAN5G_802.11ac VHT80_Rear Face_1cm_Ch58_Ant3

Communication System: 802.11ac_VHT80; Frequency: 5290 MHz;Duty Cycle: 1:1.156
Medium: HSL5G_0912 Medium parameters used: f = 5290 MHz; σ = 4.778 S/m; ε_r = 36.477; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.7, 5.7, 5.7) @ 5290 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.775 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.398 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.768 W/kg



0 dB = 0.768 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/12

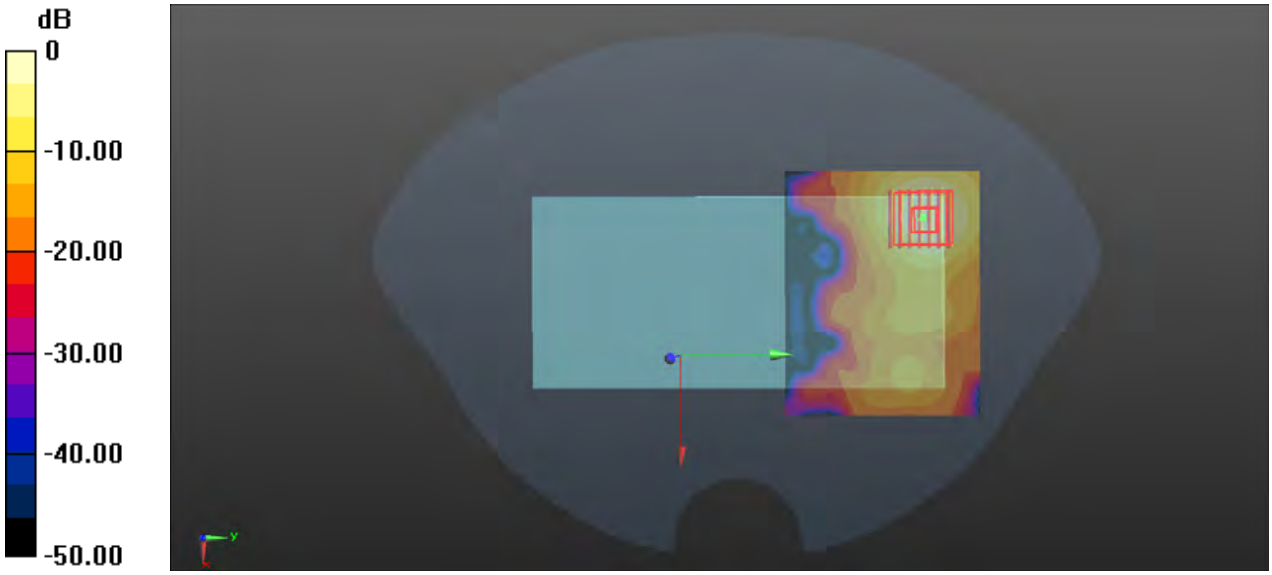
P28 WLAN5G_802.11a_Rear Face_1cm_Ch116_Ant3

Communication System: 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1.036
Medium: HSL5G_0912 Medium parameters used: f = 5580 MHz; σ = 5.126 S/m; ε_r = 35.957; ρ = 1000 kg/m^3
Ambient Temperature：23.6℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.1, 5.1, 5.1) @ 5580 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (101x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.27 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.5360 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.44 W/kg
SAR(1 g) = 0.536 W/kg; SAR(10 g) = 0.209 W/kg
Maximum value of SAR (measured) = 1.26 W/kg



0 dB = 1.26 W/kg

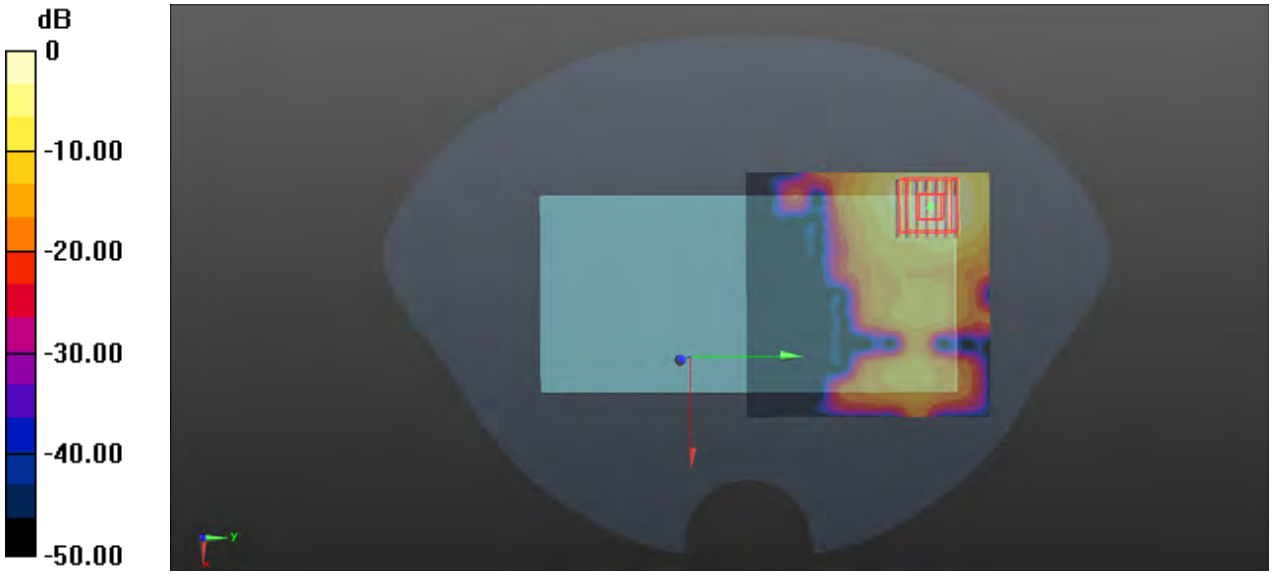
P29 WLAN5G_802.11ac_VHT80_Rear Face_1cm_Ch155_Ant3

Communication System: 802.11ac_VHT80; Frequency: 5775 MHz;Duty Cycle: 1:1.156
Medium: HSL5G_0912 Medium parameters used: f = 5775 MHz; σ = 5.357 S/m; ε_r = 35.611; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.4℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.21, 5.21, 5.21) @ 5775 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.900 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.2600 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.160 W/kg
Maximum value of SAR (measured) = 0.966 W/kg



0 dB = 0.966 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab

Date: 2023/9/10

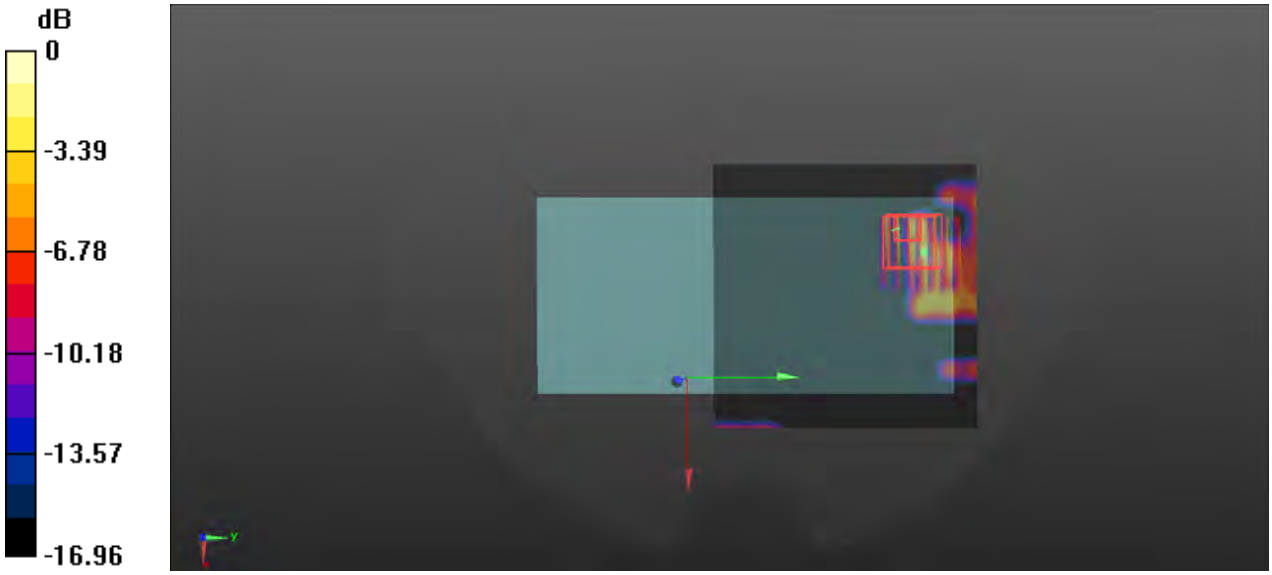
P30 BT_GFSK_Rear Face_1cm_Ch39_Ant3

Communication System: BT; Frequency: 2441 MHz;Duty Cycle: 1:1.302
Medium: HSL2450_0910 Medium parameters used: f = 2441 MHz; σ = 1.833 S/m; ε_r = 38.103; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃; Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.11, 8.11, 8.11) @ 2441 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.00932 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.008 W/kg; SAR(10 g) = 0.0034 W/kg
Maximum value of SAR (measured) = 0.0115 W/kg



0 dB = 0.0115 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/7

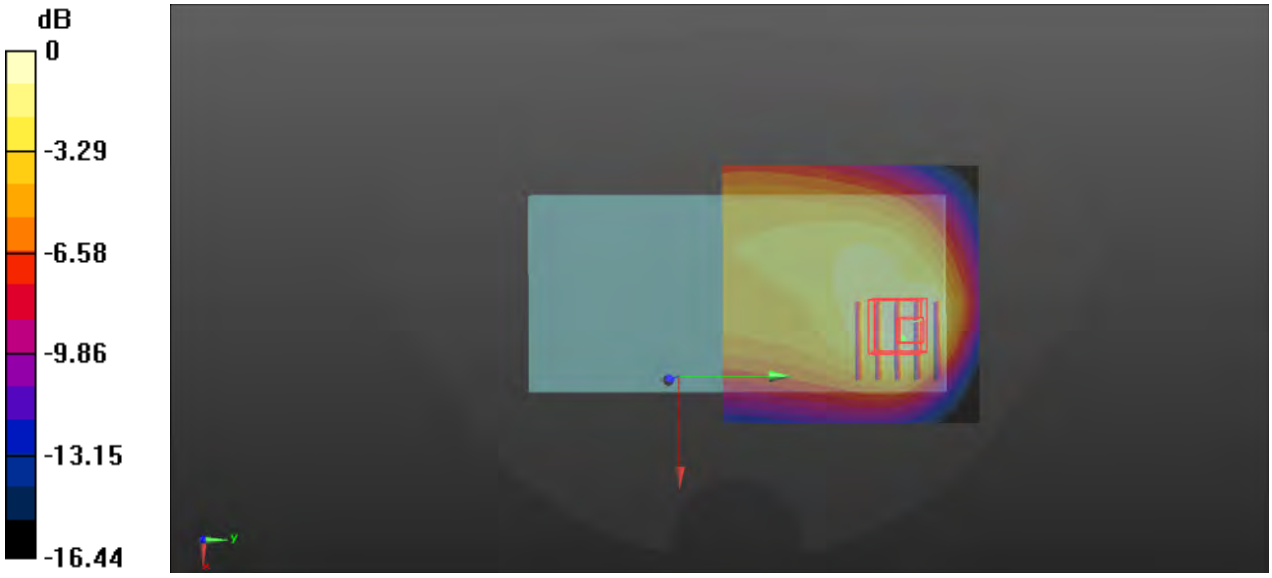
P31 GSM 850_GPRS4Tx Slot_Rear Face_1cm_Ch251_Ant2

Communication System: GPRS 4Tx-slot; Frequency: 848.8 MHz;Duty Cycle: 1:2.08
Medium: HSL835_0907 Medium parameters used: f = 849 MHz; σ = 0.911 S/m; ε_r = 42.926; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(10.88, 10.88, 10.88) @ 848.8 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.646 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.95 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.849 W/kg
SAR(1 g) = 0.431 W/kg; SAR(10 g) = 0.244 W/kg
Maximum value of SAR (measured) = 0.624 W/kg



0 dB = 0.624 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

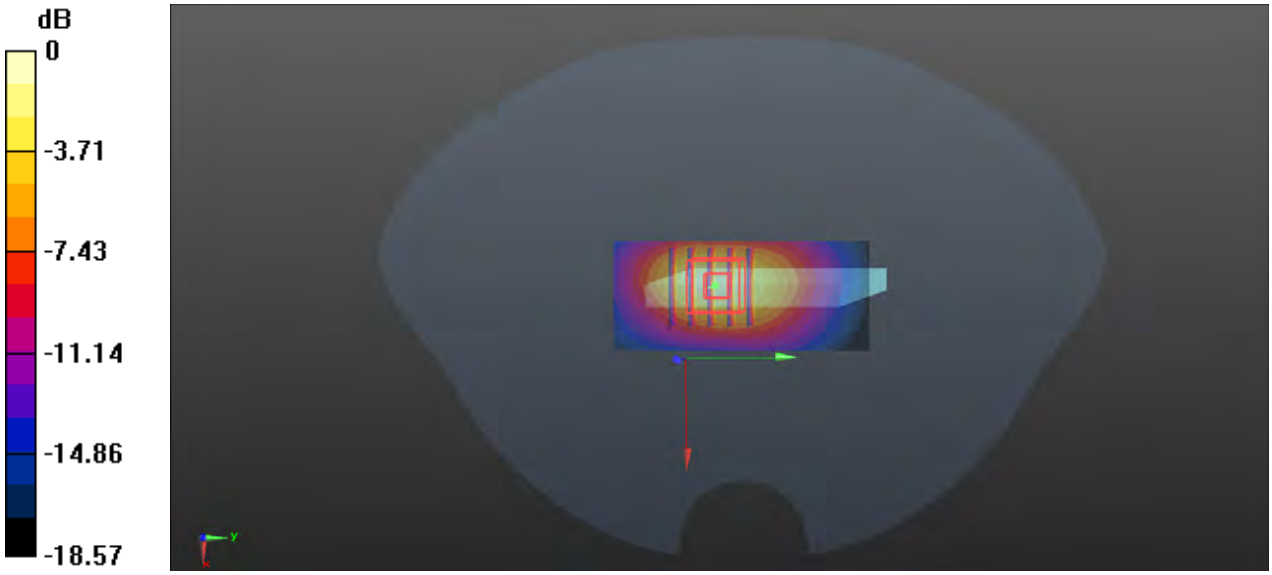
P32 GSM1900_GPRS 4Tx Slot_Top Side_1cm_Ch512_Ant2

Communication System: GPRS 4Tx-slot; Frequency: 1850.2 MHz;Duty Cycle: 1:2.08
Medium: HSL1900_0909 Medium parameters used: f = 1850.2 MHz; σ = 1.355 S/m; ε_r = 40.285; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1850.2 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.724 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.34 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.604 W/kg; SAR(10 g) = 0.295 W/kg
Maximum value of SAR (measured) = 0.760 W/kg



0 dB = 0.760 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

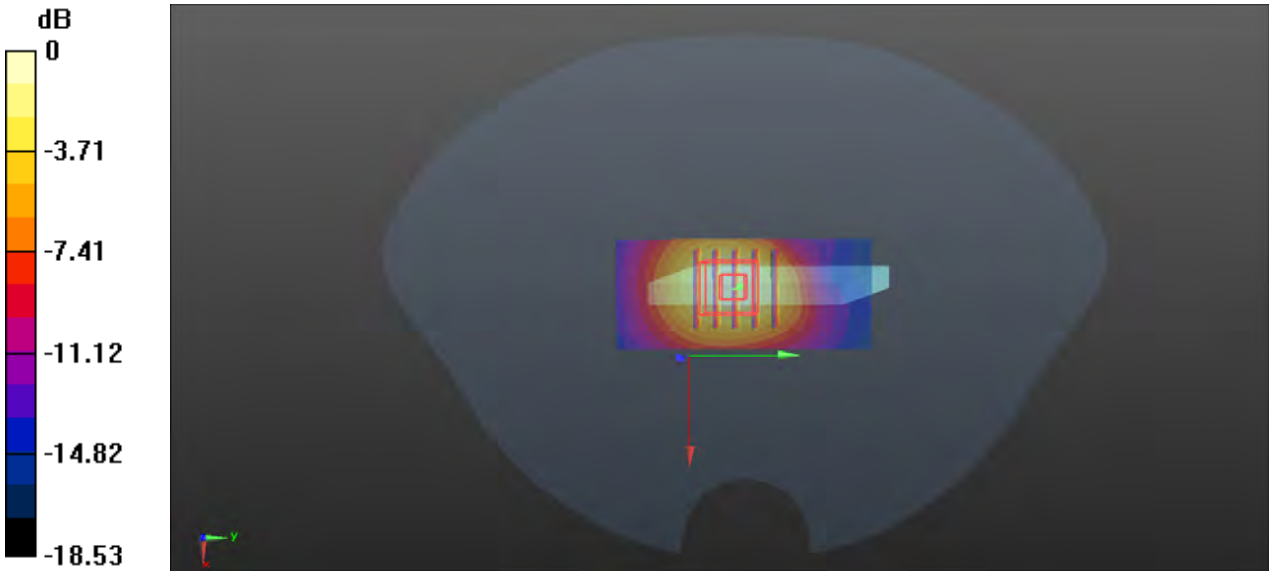
P33 WCDMA II_RMC12.2K_Bottom Side_1cm_Ch9262_Ant1

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: HSL1900_0909 Medium parameters used: f = 1852.4 MHz; σ = 1.355 S/m; ε_r = 40.289; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1852.4 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.691 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.59 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.911 W/kg
SAR(1 g) = 0.546 W/kg; SAR(10 g) = 0.295 W/kg
Maximum value of SAR (measured) = 0.652 W/kg



0 dB = 0.652 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/8

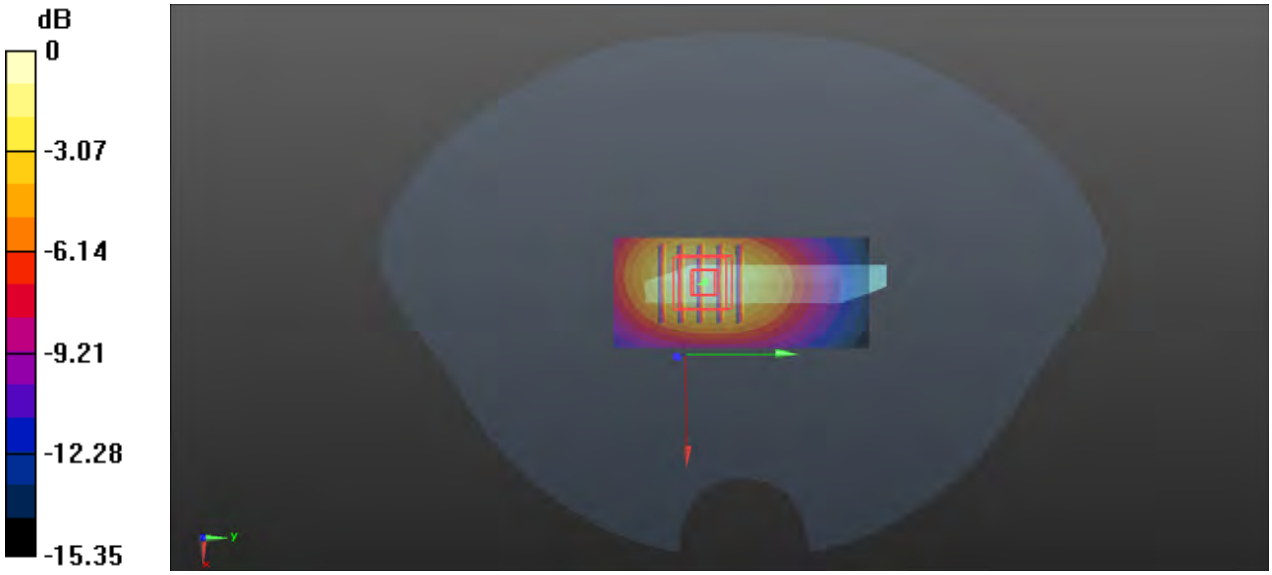
P34 WCDMA IV_RMC12.2K_Top Side_1.9cm_Ch1413_Ant2

Communication System: WCDMA; Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1733 MHz; σ = 1.395 S/m; ε_r = 41.523; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1732.6 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.988 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.88 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.748 W/kg; SAR(10 g) = 0.432 W/kg
Maximum value of SAR (measured) = 0.986 W/kg



0 dB = 0.986 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/7

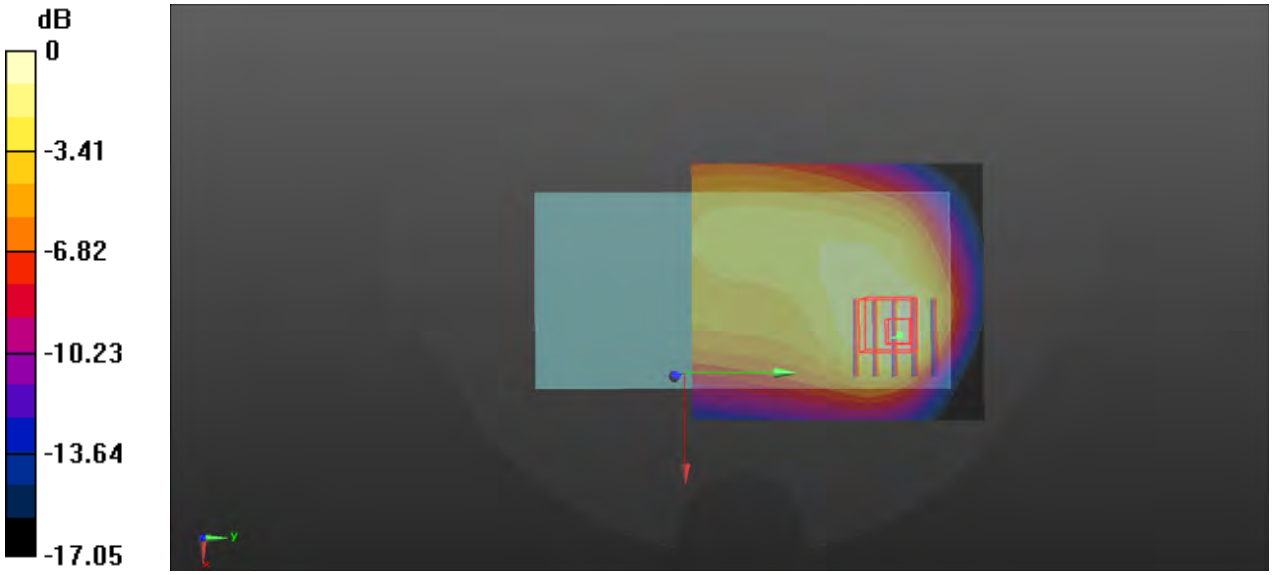
P35 WCDMA V_RMC12.2K_Rear Face_1cm_Ch4182_Ant2

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL835_0907 Medium parameters used: f = 836.4 MHz; σ = 0.899 S/m; ε_r = 43.072; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(10.88, 10.88, 10.88) @ 836.4 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.570 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.56 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.683 W/kg
SAR(1 g) = 0.351 W/kg; SAR(10 g) = 0.198 W/kg
Maximum value of SAR (measured) = 0.530 W/kg



0 dB = 0.530 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

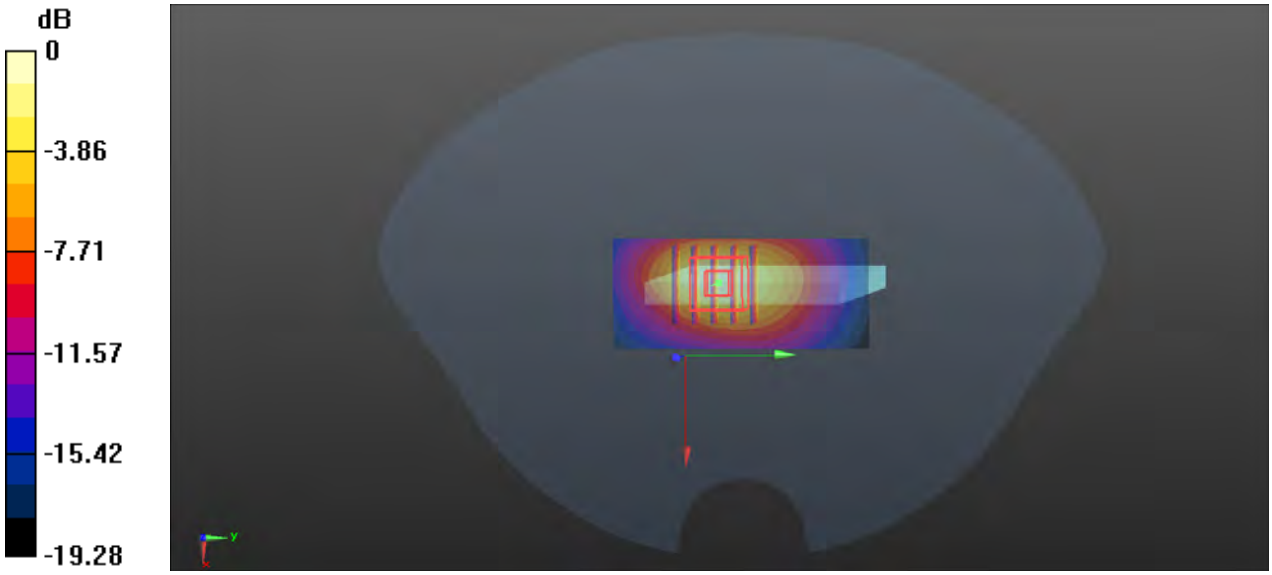
P36 LTE 2_QPSK20M_Top Side_1cm_Ch19100_50RB_OS0_Ant2

Communication System: LTE; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900_0909 Medium parameters used: f = 1900 MHz; σ = 1.373 S/m; ε_r = 40.283; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1900 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.696 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.30 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.522 W/kg; SAR(10 g) = 0.258 W/kg
Maximum value of SAR (measured) = 0.726 W/kg



0 dB = 0.726 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/7

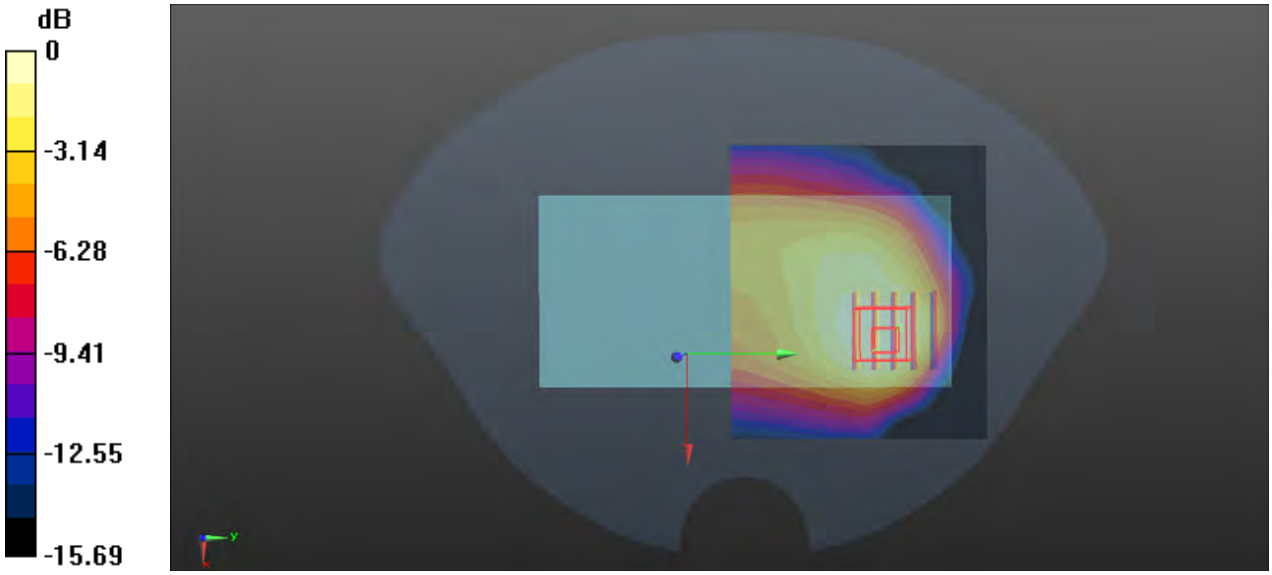
P37 LTE 5_QPSK10M_Rear Face_1cm_Ch20525_1RB_OS24_Ant2

Communication System: LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: HSL835_0907 Medium parameters used: f = 836.5 MHz; σ = 0.899 S/m; ε_r = 43.071; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(10.88, 10.88, 10.88) @ 836.5 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (81x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.502 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.34 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.220 W/kg
Maximum value of SAR (measured) = 0.449 W/kg



0 dB = 0.449 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/11

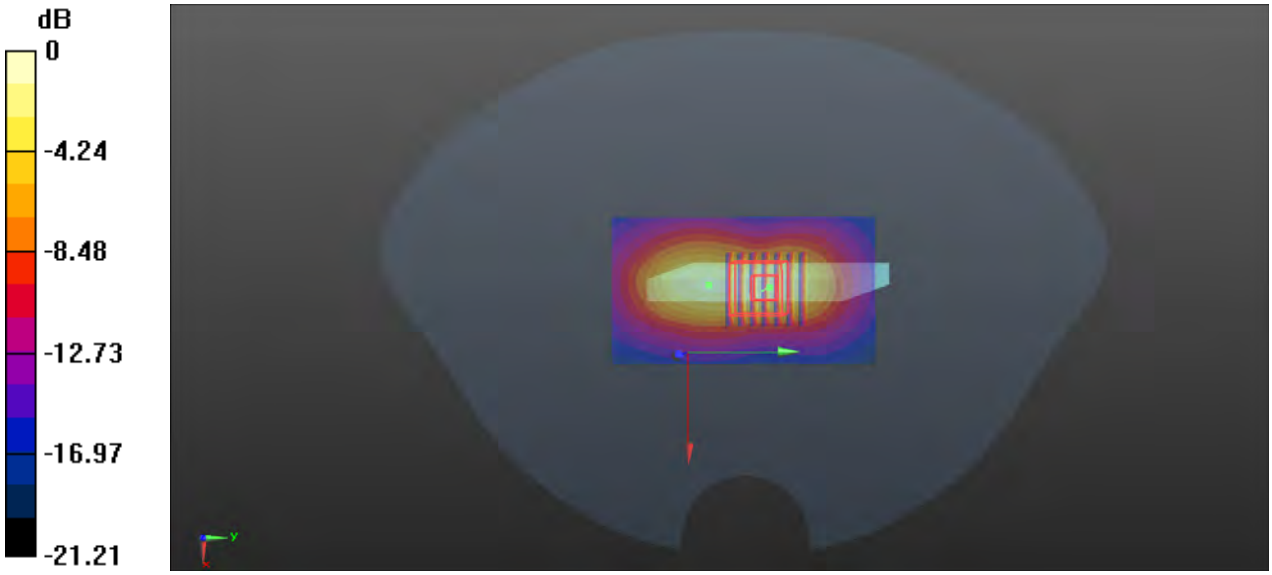
P38 LTE 7_QPSK20M_Bottom Side_1cm_Ch21350_50RB_OS25_Ant1

Communication System: LTE; Frequency: 2560 MHz;Duty Cycle: 1:1
Medium: HSL2600_0911 Medium parameters used: f = 2560 MHz; σ = 1.87 S/m; ε_r = 39.425; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2560 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (51x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.84 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.773 W/kg; SAR(10 g) = 0.357 W/kg
Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.17 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/11

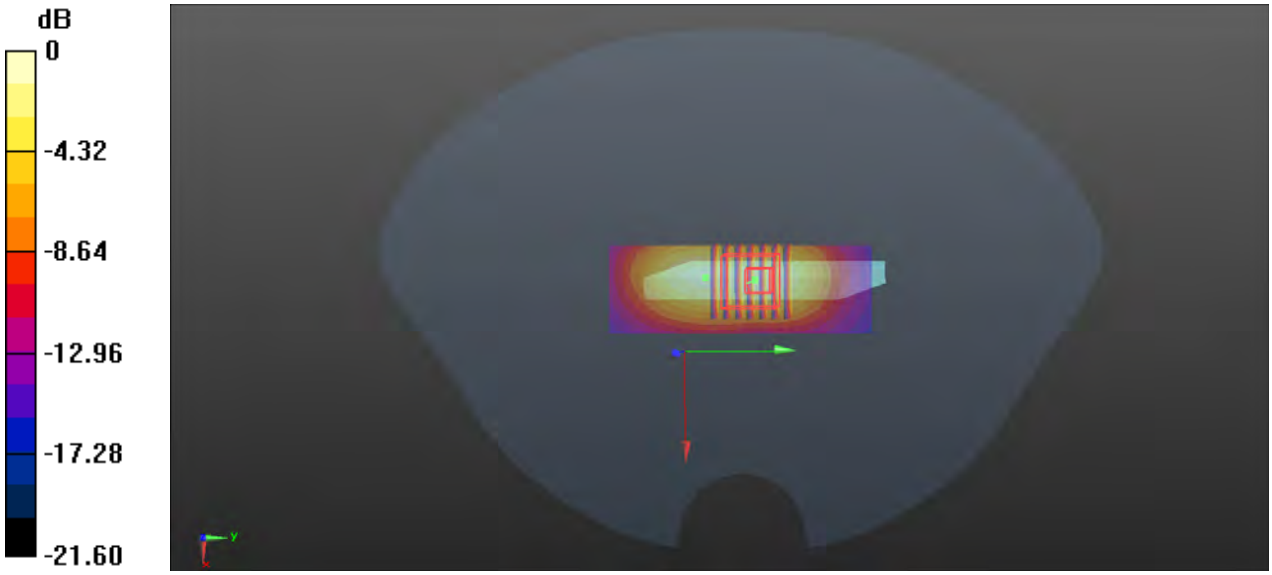
P39 LTE 41_QPSK20M_Bottom Side_1cm_Ch40185_1RB_OS50_Ant1

Communication System: LTE_TDD; Frequency: 2549.5 MHz;Duty Cycle: 1:1.59
Medium: HSL2600_0911 Medium parameters used: f = 2549.5 MHz; σ = 1.861 S/m; ε_r = 39.444; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2549.5 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.05 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.21 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.730 W/kg; SAR(10 g) = 0.323 W/kg
Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/8

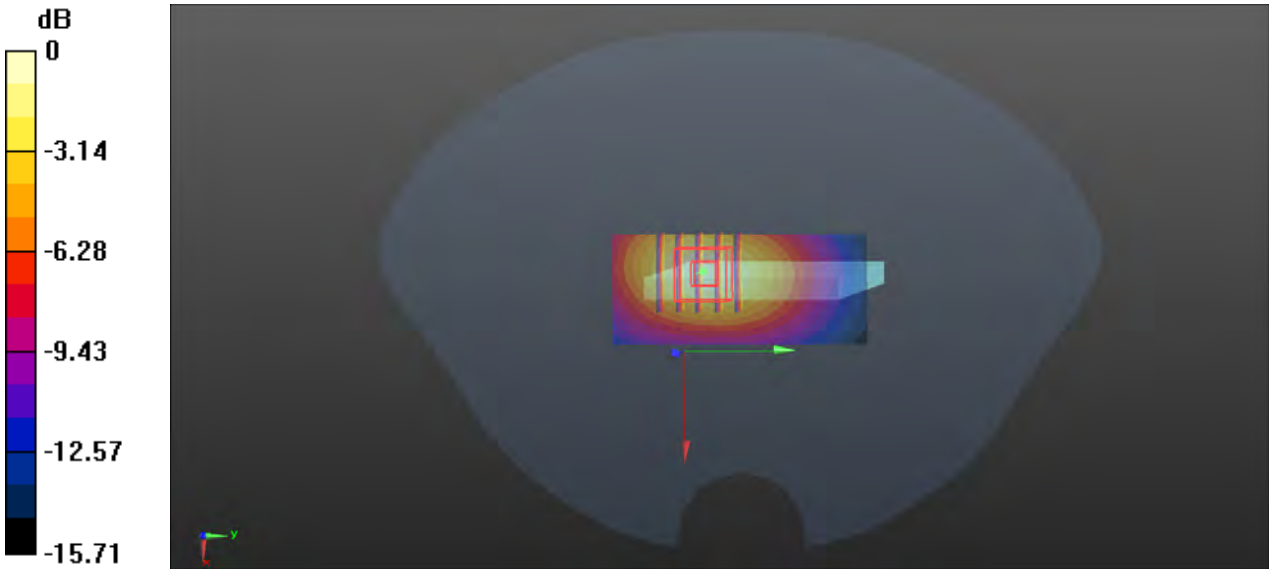
P40 LTE 66_QPSK20M_Top Side_1.9cm_Ch132322_1RB_OS50_Ant2

Communication System: LTE; Frequency: 1745 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1745 MHz; σ = 1.406 S/m; ε_r = 41.47; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1745 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.753 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.45 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.567 W/kg; SAR(10 g) = 0.327 W/kg
Maximum value of SAR (measured) = 0.750 W/kg



0 dB = 0.750 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/10

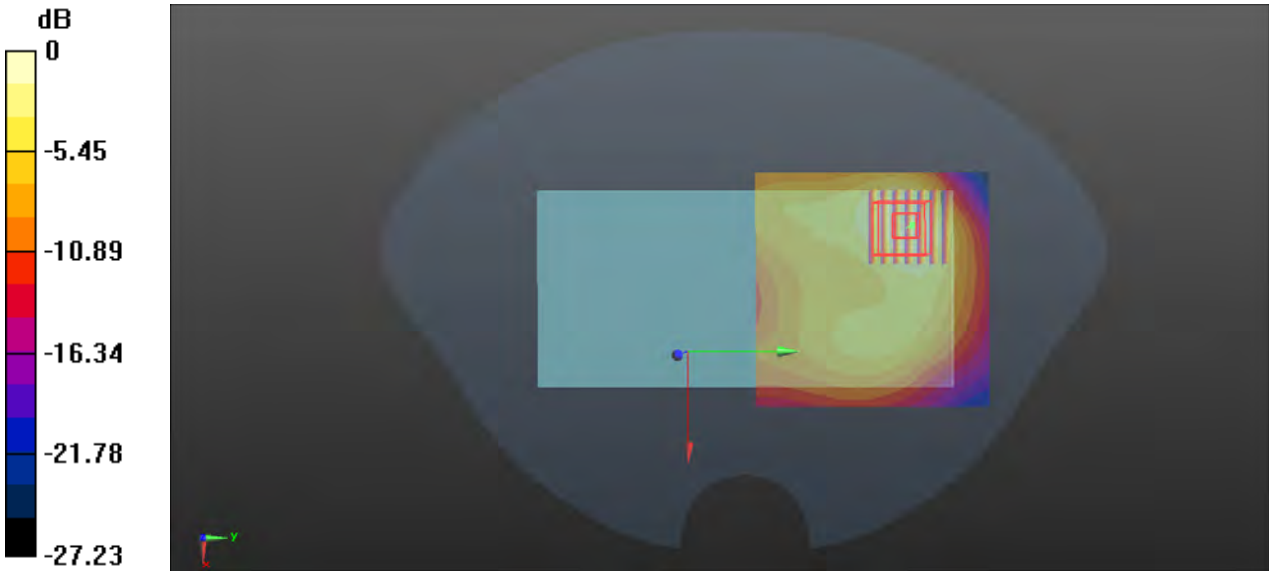
P41 WLAN2.4G_802.11b_Rear Face_1cm_Ch11_Ant3

Communication System: 802.11 b; Frequency: 2462 MHz;Duty Cycle: 1:1.005
Medium: HSL2450_0910 Medium parameters used: f = 2462 MHz; σ = 1.858 S/m; ε_r = 38; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.11, 8.11, 8.11) @ 2462 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.627 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.802 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.873 W/kg
SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.211 W/kg
Maximum value of SAR (measured) = 0.636 W/kg



0 dB = 0.636 W/kg

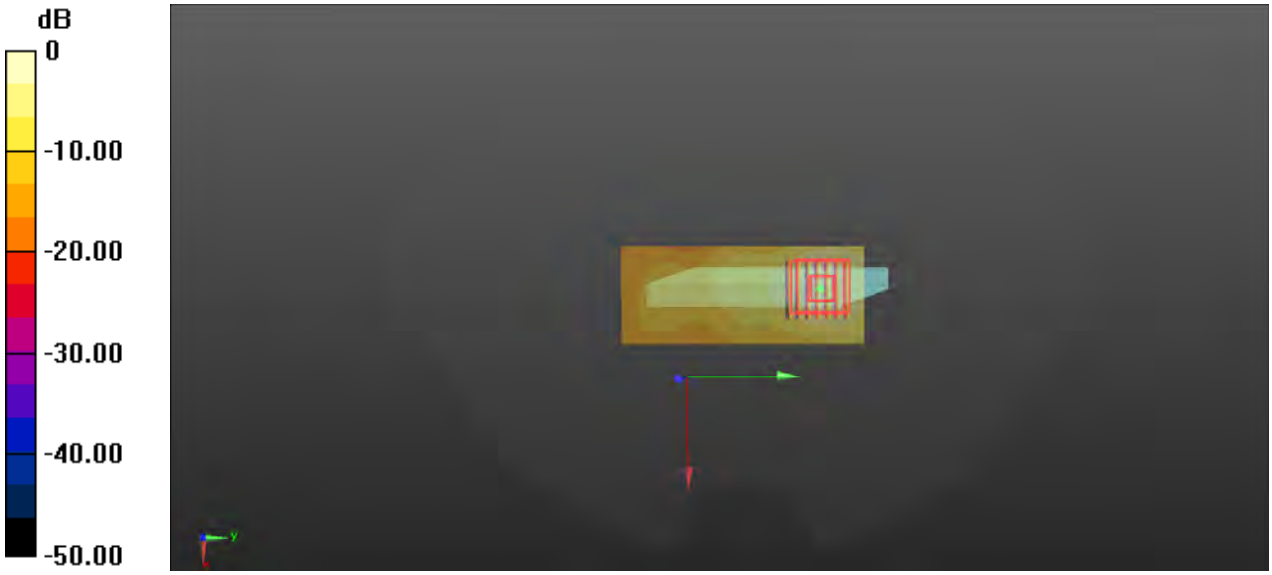
P42 WLAN5G_802.11n HT40_Top Side_1cm_Ch38_Ant3

Communication System: 802.11n_HT40; Frequency: 5190 MHz;Duty Cycle: 1:1.062
Medium: HSL5G_0912 Medium parameters used: f = 5190 MHz; σ = 4.656 S/m; ε_r = 36.627; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.7, 5.7, 5.7) @ 5190 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.770 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 6.586 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.140 W/kg
Maximum value of SAR (measured) = 0.786 W/kg



0 dB = 0.786 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/12

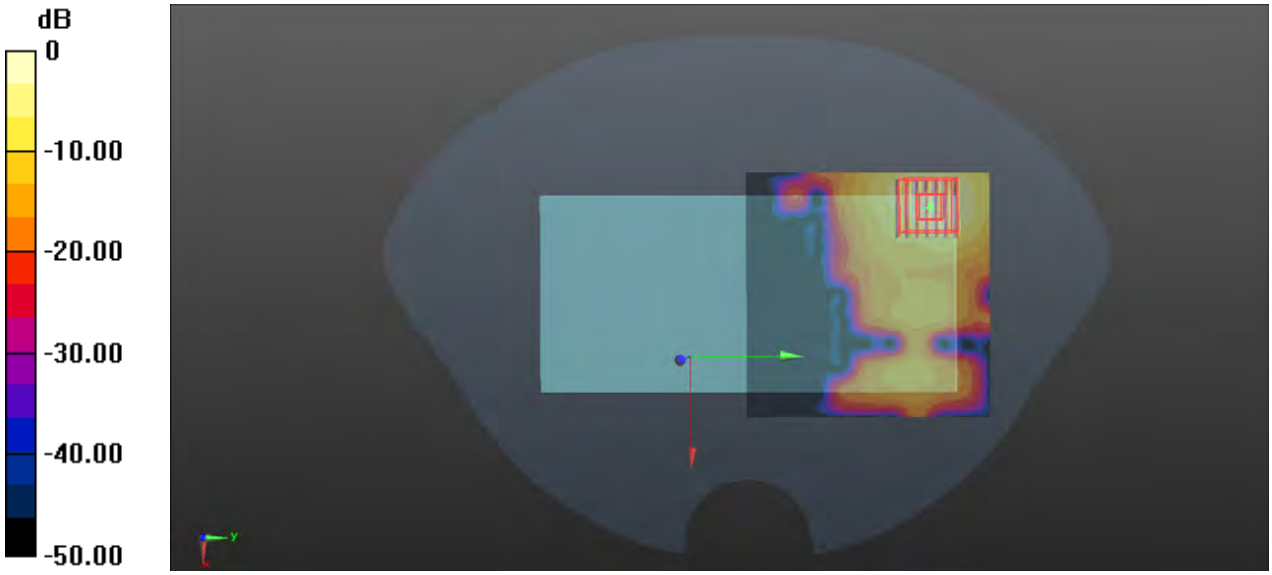
P43 WLAN5G_802.11ac_VHT80_Rear Face_1cm_Ch155_Ant3

Communication System: 802.11ac_VHT80; Frequency: 5775 MHz;Duty Cycle: 1:1.156
Medium: HSL5G_0912 Medium parameters used: f = 5775 MHz; σ = 5.357 S/m; ε_r = 35.611; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.4℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.21, 5.21, 5.21) @ 5775 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.900 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.2600 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.160 W/kg
Maximum value of SAR (measured) = 0.966 W/kg



0 dB = 0.966 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab

Date: 2023/9/10

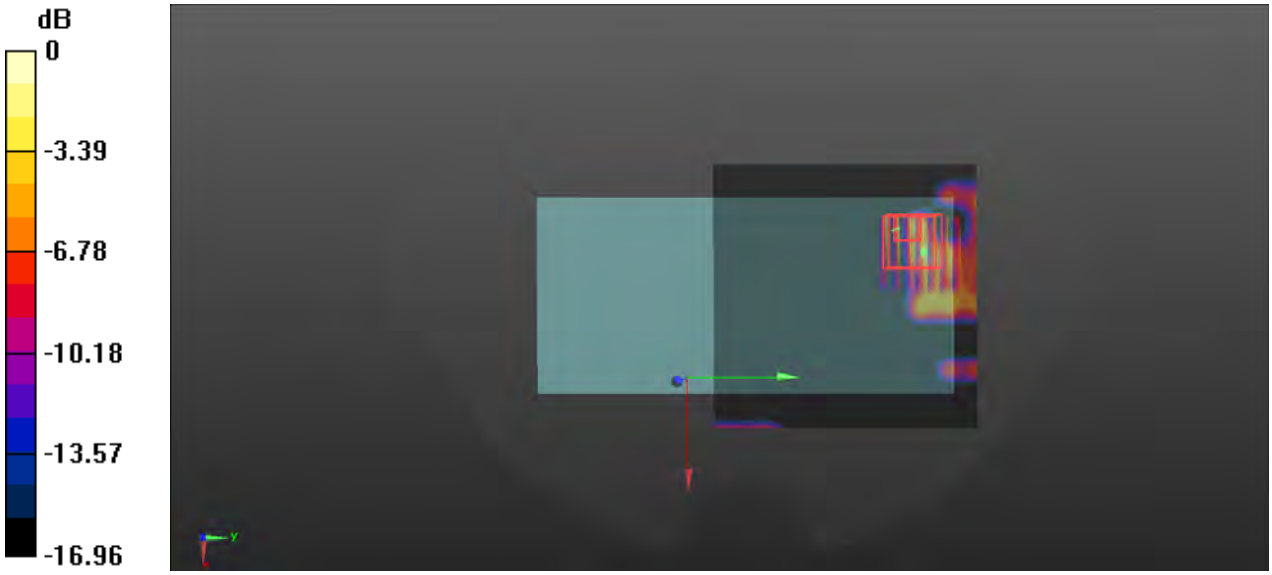
P44 BT_GFSK_Rear Face_1cm_Ch39_Ant3

Communication System: BT; Frequency: 2441 MHz;Duty Cycle: 1:1.302
Medium: HSL2450_0910 Medium parameters used: f = 2441 MHz; σ = 1.833 S/m; ε_r = 38.103; ρ = 1000 kg/m^3
Ambient Temperature：23.3℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.11, 8.11, 8.11) @ 2441 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.00932 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.0160 W/kg
SAR(1 g) = 0.008 W/kg; SAR(10 g) = 0.0034 W/kg
Maximum value of SAR (measured) = 0.0115 W/kg



0 dB = 0.0115 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

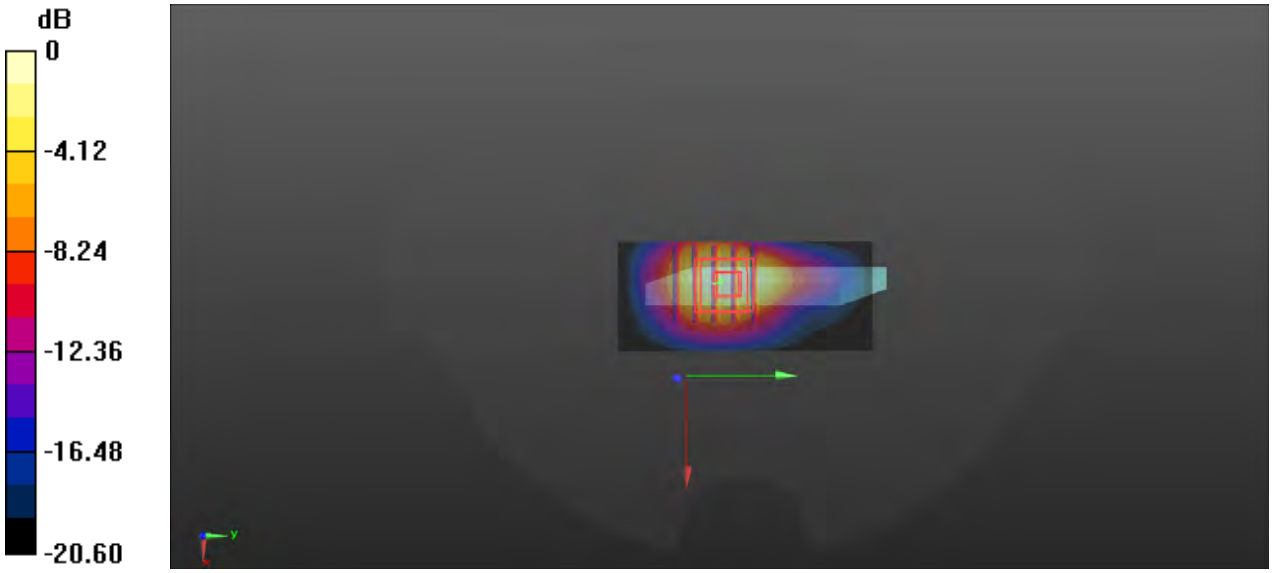
P45 GSM 1900_GPRS 4Tx Slot_Bottom Side_0cm_Ch512_Ant1

Communication System: GPRS 4Tx-slot; Frequency: 1850.2 MHz;Duty Cycle: 1:2.08
Medium: HSL1900_0909 Medium parameters used: f = 1850.2 MHz; σ = 1.355 S/m; ε_r = 40.285; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1850.2 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (31x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 5.13 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.79 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 6.06 W/kg
SAR(1 g) = 2.89 W/kg; SAR(10 g) = 1.43 W/kg
Maximum value of SAR (measured) = 4.71 W/kg



0 dB = 4.71 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

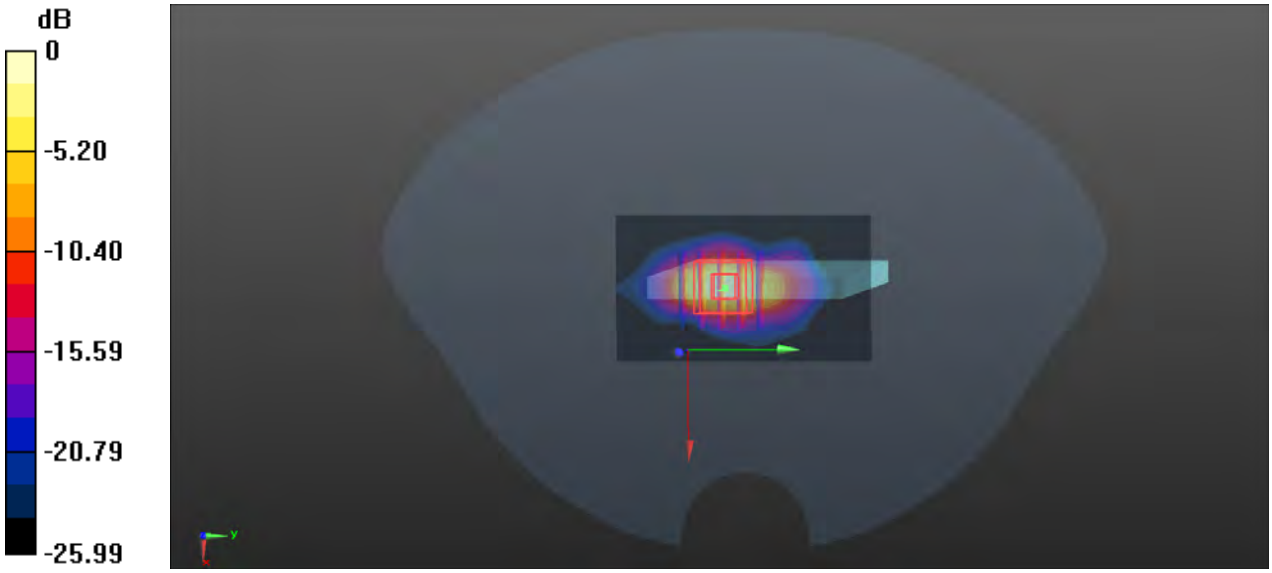
P46 WCDMA II_RMC12.2K_Top Side_0cm_Ch9400_Ant2

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL1900_0909 Medium parameters used: f = 1880 MHz; σ = 1.419 S/m; ε_r = 40.531; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1880 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 7.27 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 68.93 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 8.84 W/kg
SAR(1 g) = 3.97 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 7.04 W/kg



0 dB = 7.04 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/8

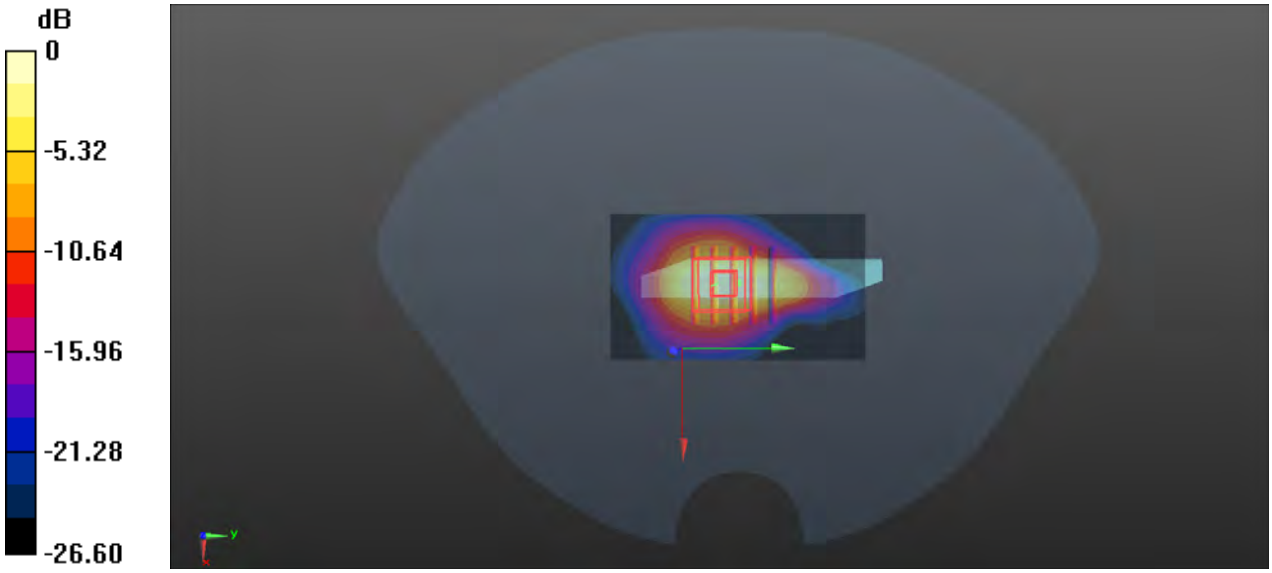
P47 WCDMA IV_RMC12.2K_Bottom Side_0cm_Ch1312_Ant1

Communication System: WCDMA; Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1712.4 MHz; σ = 1.375 S/m; ε_r = 41.606; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1712.4 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.59 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.03 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 5.33 W/kg
SAR(1 g) = 2.83 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 4.22 W/kg



0 dB = 4.22 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/9

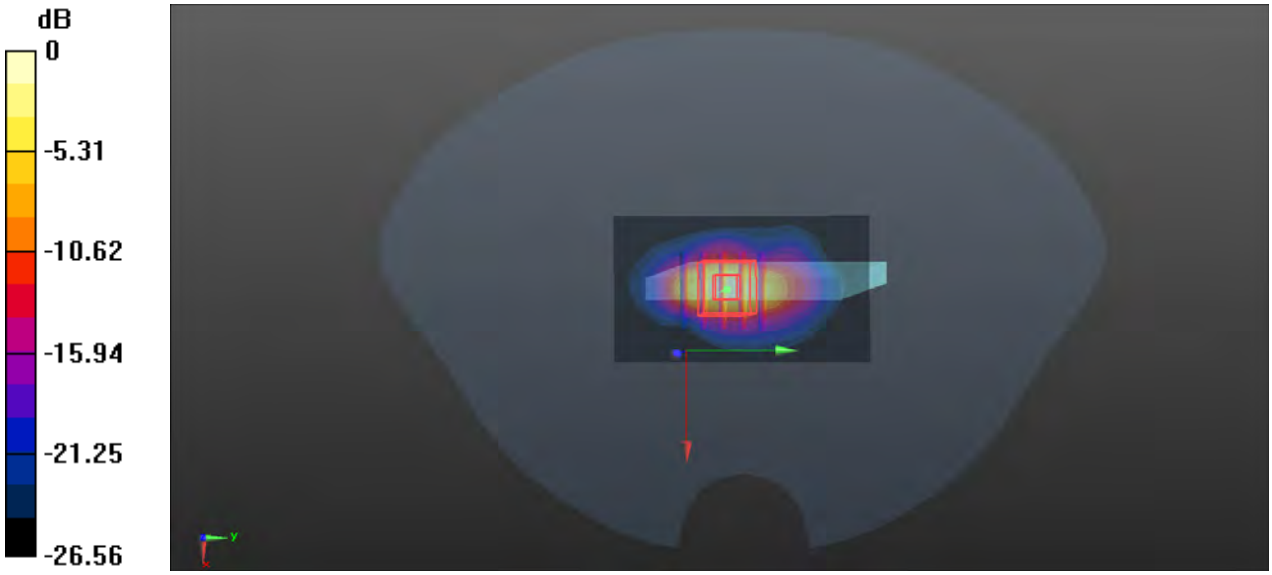
P48 LTE 2_QPSK20M_Top Side_0cm_Ch19100_50RB_OS0_Ant2

Communication System: LTE; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL1900_0909 Medium parameters used: f = 1900 MHz; σ = 1.439 S/m; ε_r = 40.46; ρ = 1000 kg/m^3
Ambient Temperature：23.4℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(8.68, 8.68, 8.68) @ 1900 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 7.69 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 71.82 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 9.70 W/kg
SAR(1 g) = 4.29 W/kg; SAR(10 g) = 1.65 W/kg
Maximum value of SAR (measured) = 7.65 W/kg



0 dB = 7.65 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/11

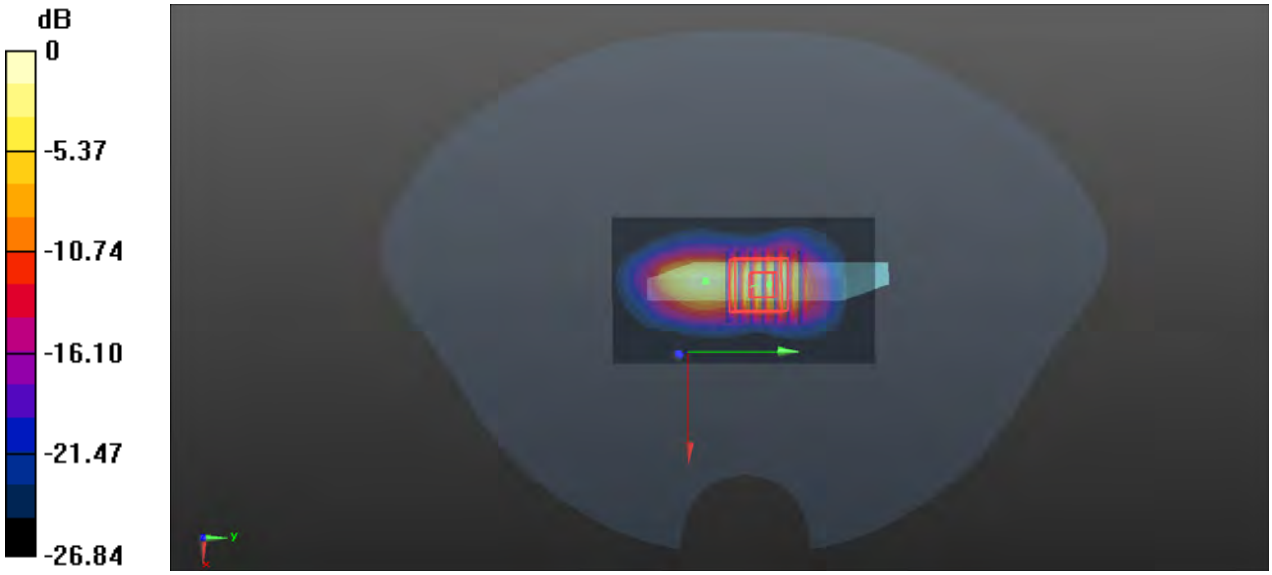
P49 LTE 7_QPSK20M_Bottom Side_0cm_Ch20850_50RB_OS25_Ant1

Communication System: LTE; Frequency: 2510 MHz;Duty Cycle: 1:1
Medium: HSL2600_0911 Medium parameters used: f = 2510 MHz; σ = 1.831 S/m; ε_r = 39.494; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2510 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (51x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 7.89 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 65.57 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 5.3 W/kg; SAR(10 g) = 1.74 W/kg
Maximum value of SAR (measured) = 11.0 W/kg



0 dB = 11.0 W/kg

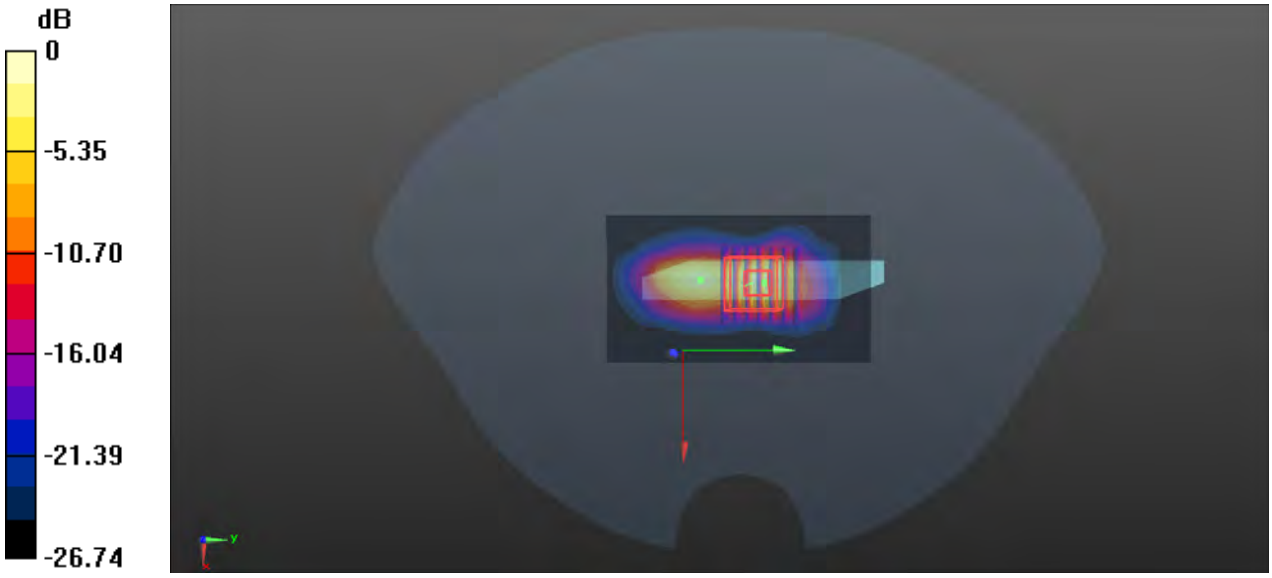
P50 LTE 41_QPSK20M_Bottom Side_0cm_Ch39750_50RB_OS25_Ant1

Communication System: LTE TDD; Frequency: 2506 MHz;Duty Cycle: 1:1.59
Medium: HSL2600_0911 Medium parameters used: f = 2506 MHz; σ = 1.828 S/m; ε_r = 39.498; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.2℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(7.85, 7.85, 7.85) @ 2506 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (51x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 6.87 W/kg

- Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.76 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 4.6 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 9.59 W/kg



0 dB = 9.59 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab Date: 2023/9/8

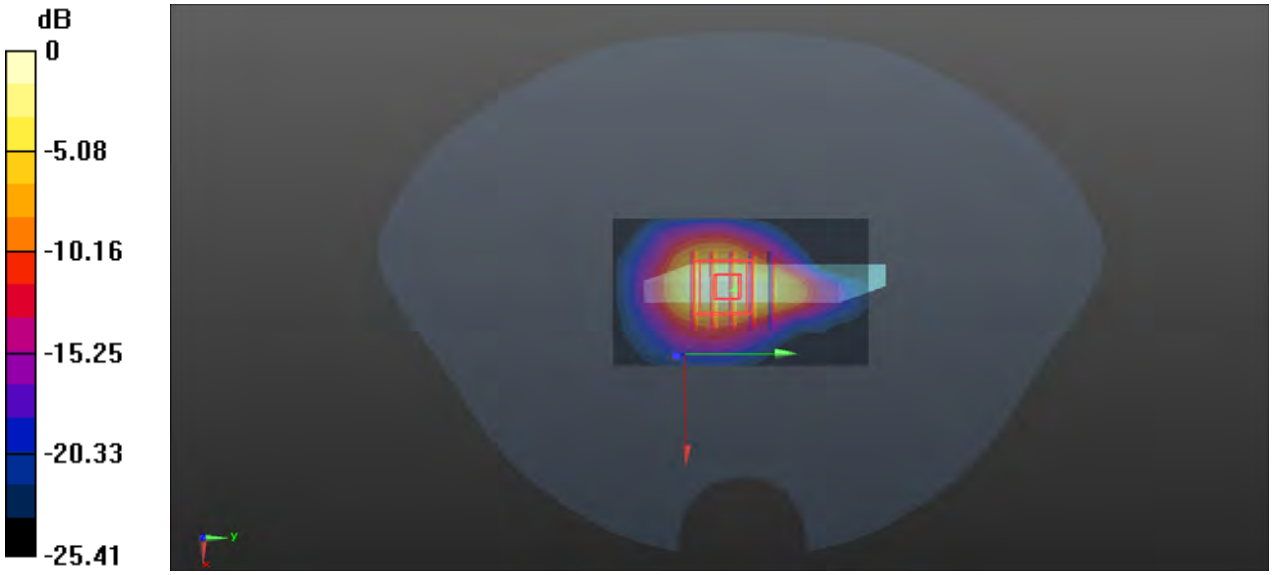
P51 LTE 66_QPSK20M_Bottom Side_0cm_Ch132322_50RB_OS25_Ant1

Communication System: LTE; Frequency: 1745 MHz;Duty Cycle: 1:1
Medium: HSL1750_0908 Medium parameters used: f = 1745 MHz; σ = 1.406 S/m; ε_r = 41.47; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.7℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(9.05, 9.05, 9.05) @ 1745 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.67 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.18 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 5.63 W/kg
SAR(1 g) = 2.96 W/kg; SAR(10 g) = 1.41 W/kg
Maximum value of SAR (measured) = 4.37 W/kg



0 dB = 4.37 W/kg

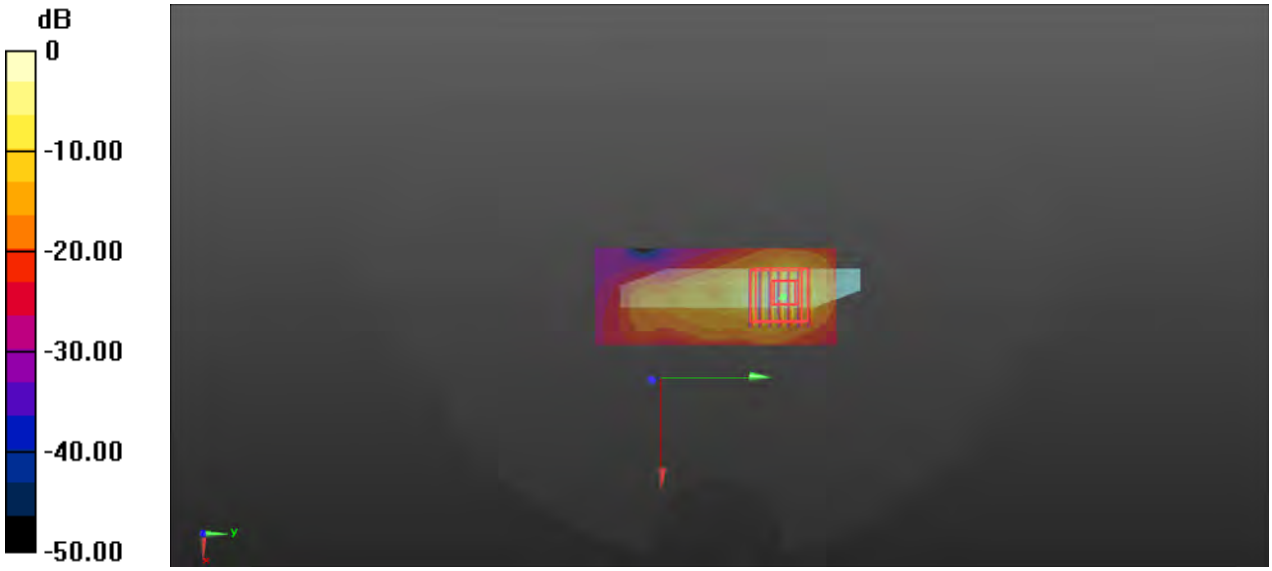
P52 WLAN5G_802.11ac VHT80_Top Side_0cm_Ch58_Ant3

Communication System: 802.11ac_VHT80; Frequency: 5290 MHz;Duty Cycle: 1:1.156
Medium: HSL5G_0912 Medium parameters used: f = 5290 MHz; σ = 4.778 S/m; ε_r = 36.477; ρ = 1000 kg/m^3
Ambient Temperature：23.5℃； Liquid Temperature：22.3℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.7, 5.7, 5.7) @ 5290 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (41x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.44 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 9.388 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 3.38 W/kg; SAR(10 g) = 0.750 W/kg
Maximum value of SAR (measured) = 8.07 W/kg



0 dB = 8.07 W/kg

Test Laboratory: ritt 7 Layers SAR/HAC Testing Lab

Date: 2023/9/12

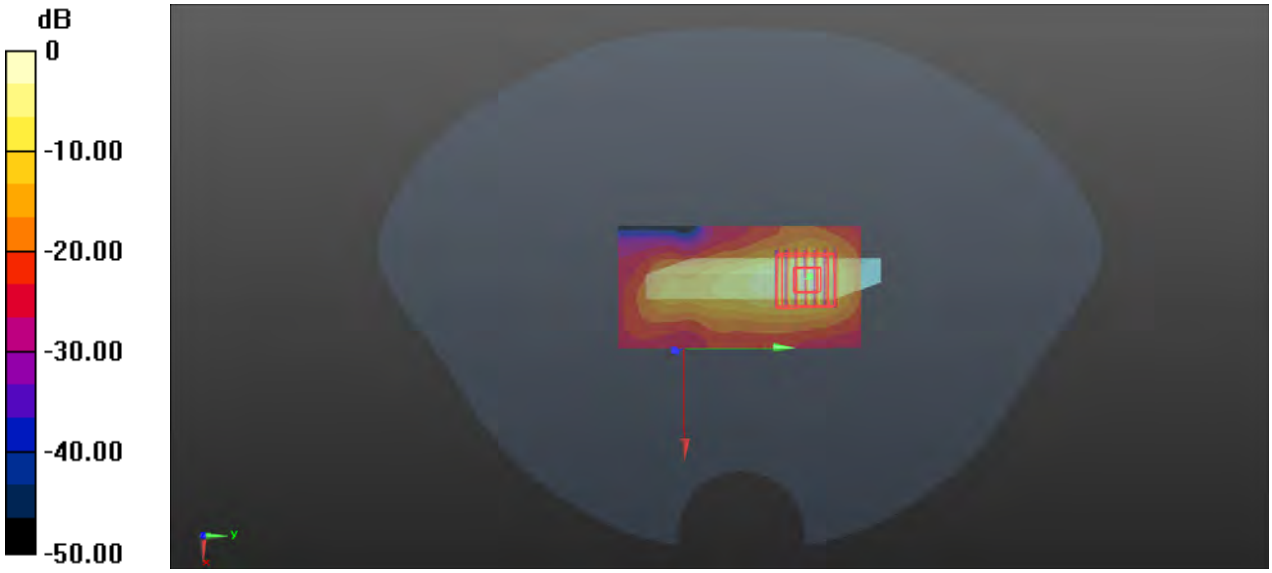
P53 WLAN5G_802.11a_Top Side_0cm_Ch116_Ant3

Communication System: 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1.036
Medium: HSL5G_0912 Medium parameters used: f = 5580 MHz; σ = 5.126 S/m; ε_r = 35.957; ρ = 1000 kg/m^3
Ambient Temperature：23.6℃； Liquid Temperature：22.6℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7612; ConvF(5.1, 5.1, 5.1) @ 5580 MHz; Calibrated: 2023/02/28
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 2023/02/08
- Phantom: Twin-SAM; Type: QD 000 P41 Ax; Serial: 2018
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

- Area Scan (51x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.27 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 16.54 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 20.8 W/kg
SAR(1 g) = 3.59 W/kg; SAR(10 g) = 0.800 W/kg
Maximum value of SAR (measured) = 8.51 W/kg



0 dB = 8.51 W/kg

Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.

In Collaboration with
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CALIBRATION LABORATORY
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, Chi
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中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client 7layers **Certificate No: Z21-60421**

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d265

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: October 18, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-22
DAE4	SN 1556	15-Jan-21(SPEAG,No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: October 24, 2021

In Collaboration with
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CALIBRATION LABORATORY

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E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016

c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010

d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.60 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.25 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.9Ω- 2.16jΩ
Return Loss	- 32.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.304 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 10.18.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d265

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.886 S/m; ε_r = 40.9; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(9.81, 9.81, 9.81) @ 835 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.24 V/m; Power Drift = -0.01 dB

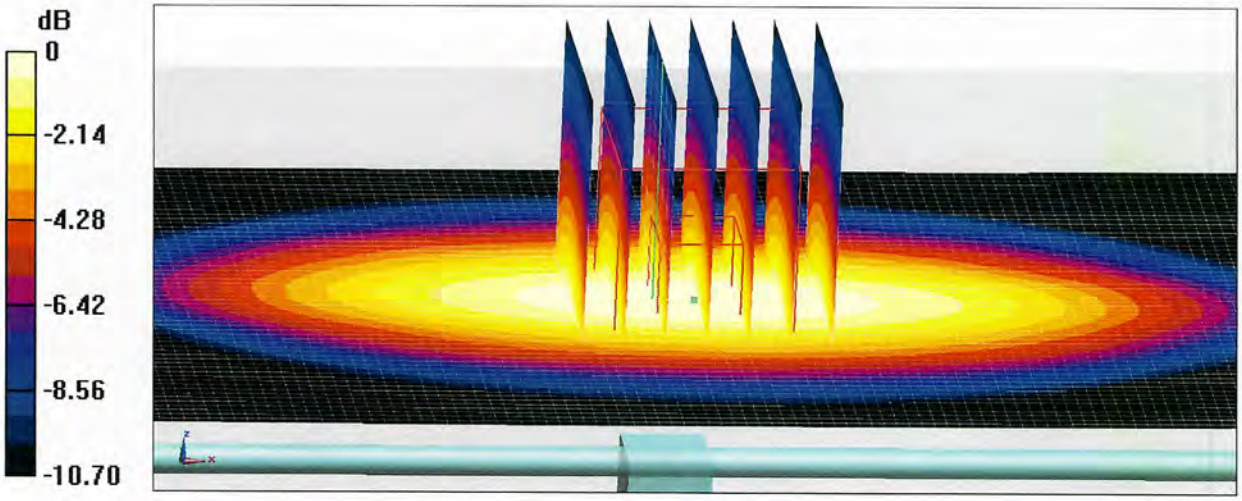
Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.55 W/kg

Smallest distance from peaks to all points 3 dB below = 19.2 mm

Ratio of SAR at M2 to SAR at M1 = 64.7%

Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.21 W/kg = 5.07 dBW/kg

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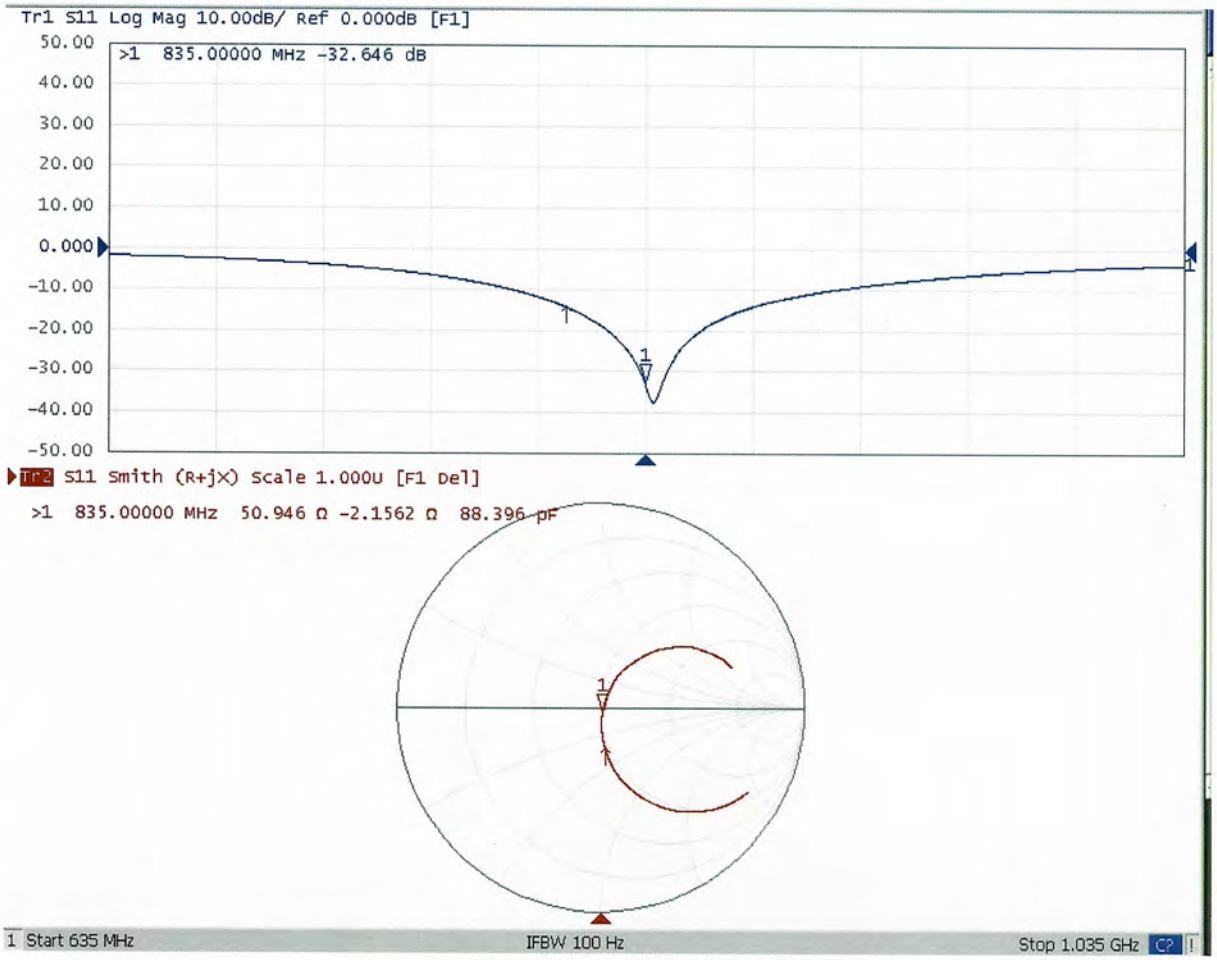
Impedance Measurement Plot for Head TSL



D835V2 - SN: 4d265 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

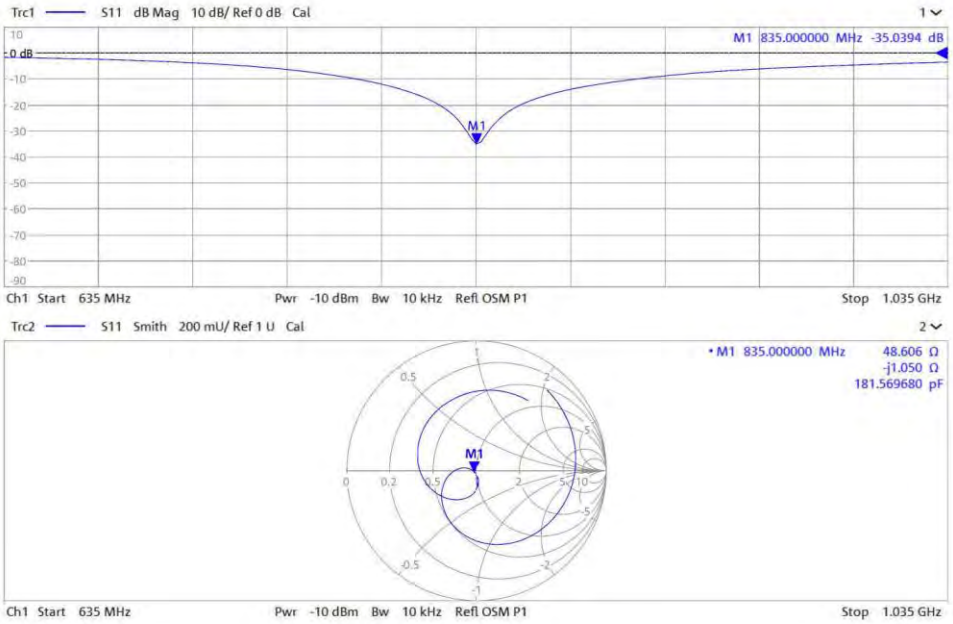
D835V2 - SN: 4d265						
835MHz Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.18.2021	-32.6		50.9		-2.16	
10.17.2022	-35.0	7.48	48.6	-2.29	-1.1	1.11

<Justification of the extended calibration>

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 835MHz _2022.10.17



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校准
CALIBRATION
CNAS L0570

Client **7layers** **Certificate No: Z21-60422**

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1176

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: October 19, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-22
DAE4	SN 1556	15-Jan-21(SPEAG,No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: October 24 2021

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.8 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.6 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.83 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.2 W/kg ± 18.7 % (k=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.0Ω- 2.09jΩ
Return Loss	- 33.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.129 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 10.19.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1176

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.382 S/m; ε_r = 39.76; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(8.22, 8.22, 8.22) @ 1750 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.37 V/m; Power Drift = 0.01 dB

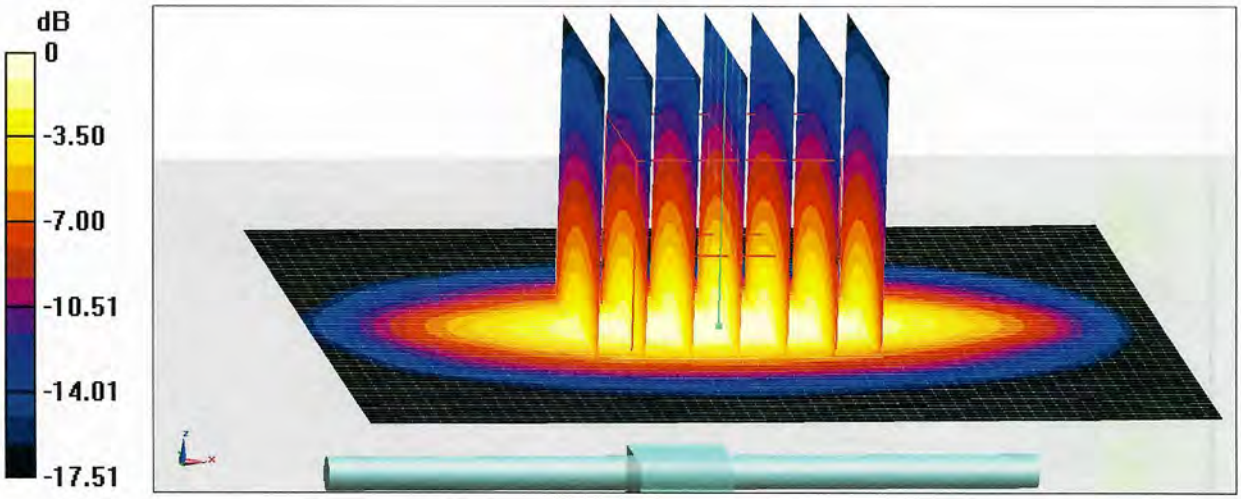
Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.21 W/kg; SAR(10 g) = 4.83 W/kg

Smallest distance from peaks to all points 3 dB below = 10.2 mm

Ratio of SAR at M2 to SAR at M1 = 53%

Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg = 11.58 dBW/kg

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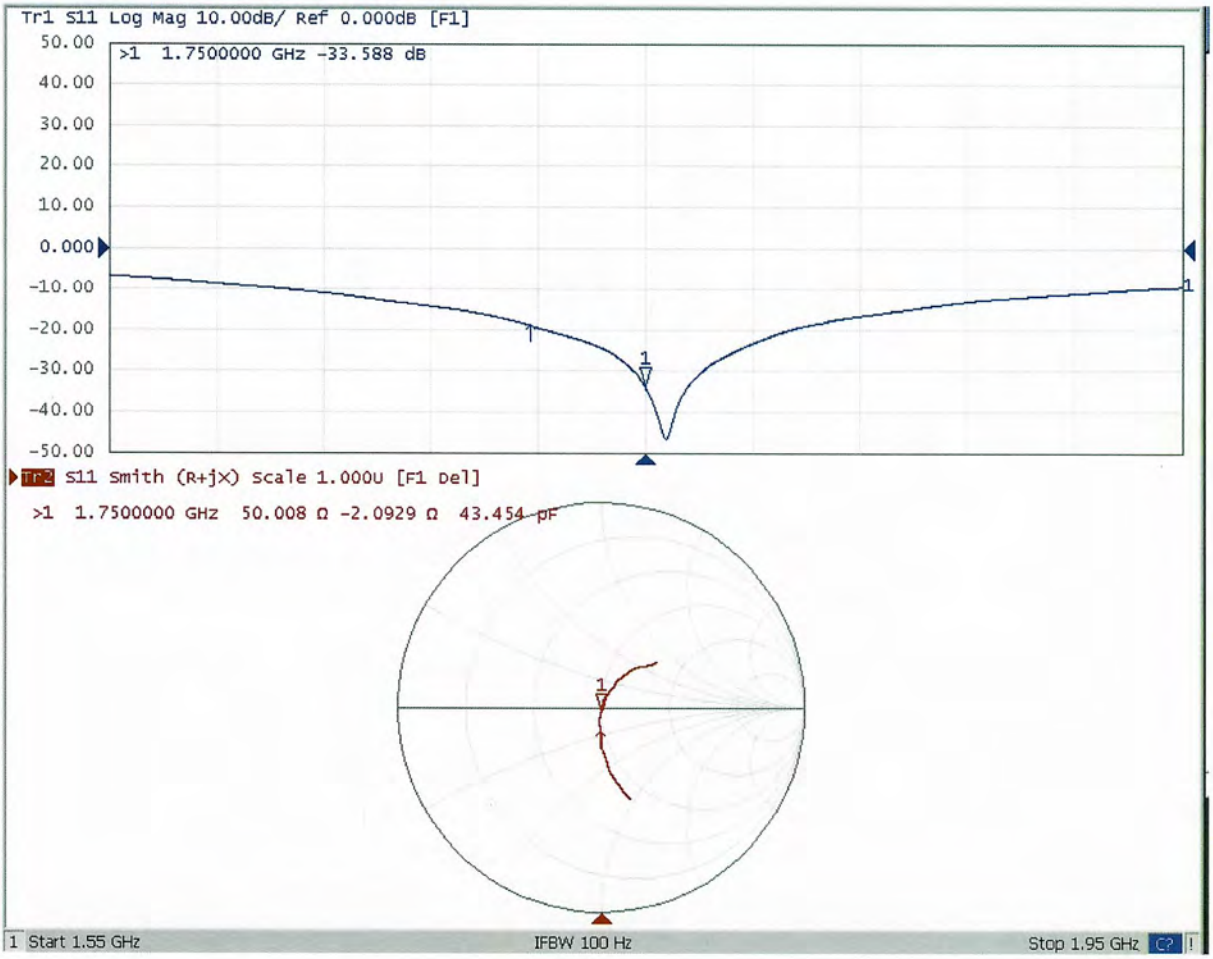
Impedance Measurement Plot for Head TSL



D1750V2 - SN: 1176 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

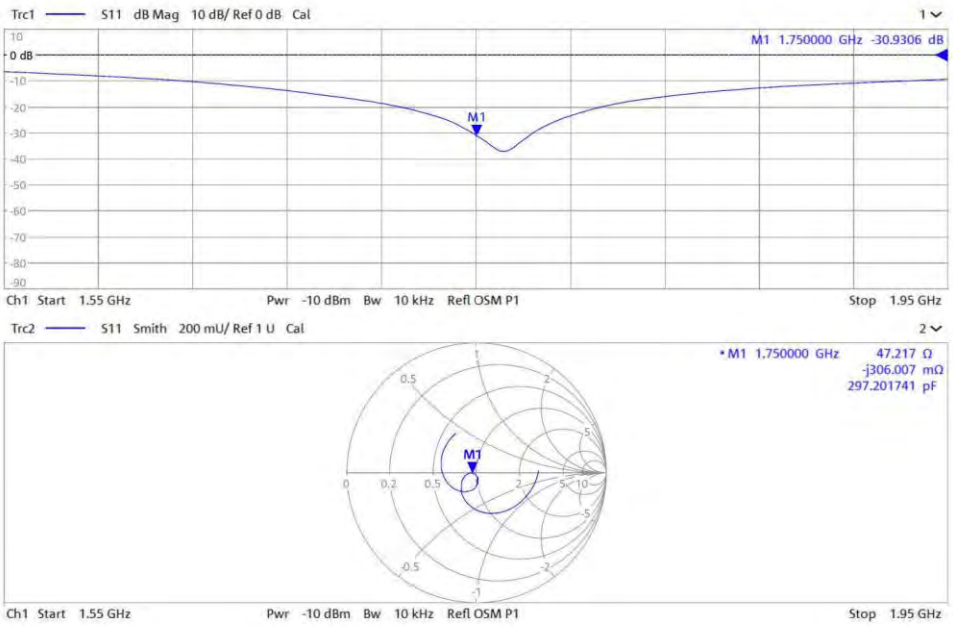
D1750V2 - SN: 1176						
1750MHz Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.19.2021	-33.6		50		-2.09	
10.18.2022	-30.9	-7.94	47.2	-2.78	-0.3	1.78

<Justification of the extended calibration>

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 1750MHz _2022.10.18



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CNAS L0570

Client **7layers** **Certificate No: Z21-60423**

CALIBRATION CERTIFICATE

Object D1950V3 - SN: 1229

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: October 28, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-22
DAE4	SN 1556	15-Jan-21(SPEAG,No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: October 31, 2021

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lossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1950 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.3 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.08 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.3 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.5Ω+ 2.19jΩ
Return Loss	- 33.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.102 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

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DASY5 Validation Report for Head TSL Date: 10.28.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN: 1229

Communication System: UID 0, CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1950 MHz; σ = 1.39 S/m; ε_r = 38.86; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.81, 7.81, 7.81) @ 1950 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2021-01-15
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.9 V/m; Power Drift = 0.06 dB

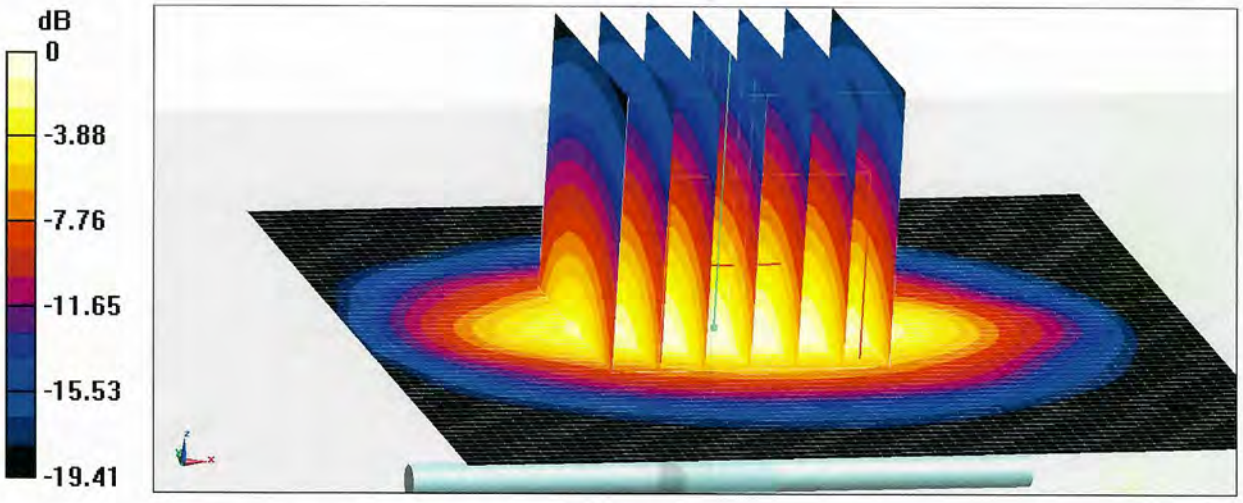
Peak SAR (extrapolated) = 20.0 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.08 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 50.6%

Maximum value of SAR (measured) = 16.3 W/kg



0 dB = 16.3 W/kg = 12.12 dBW/kg

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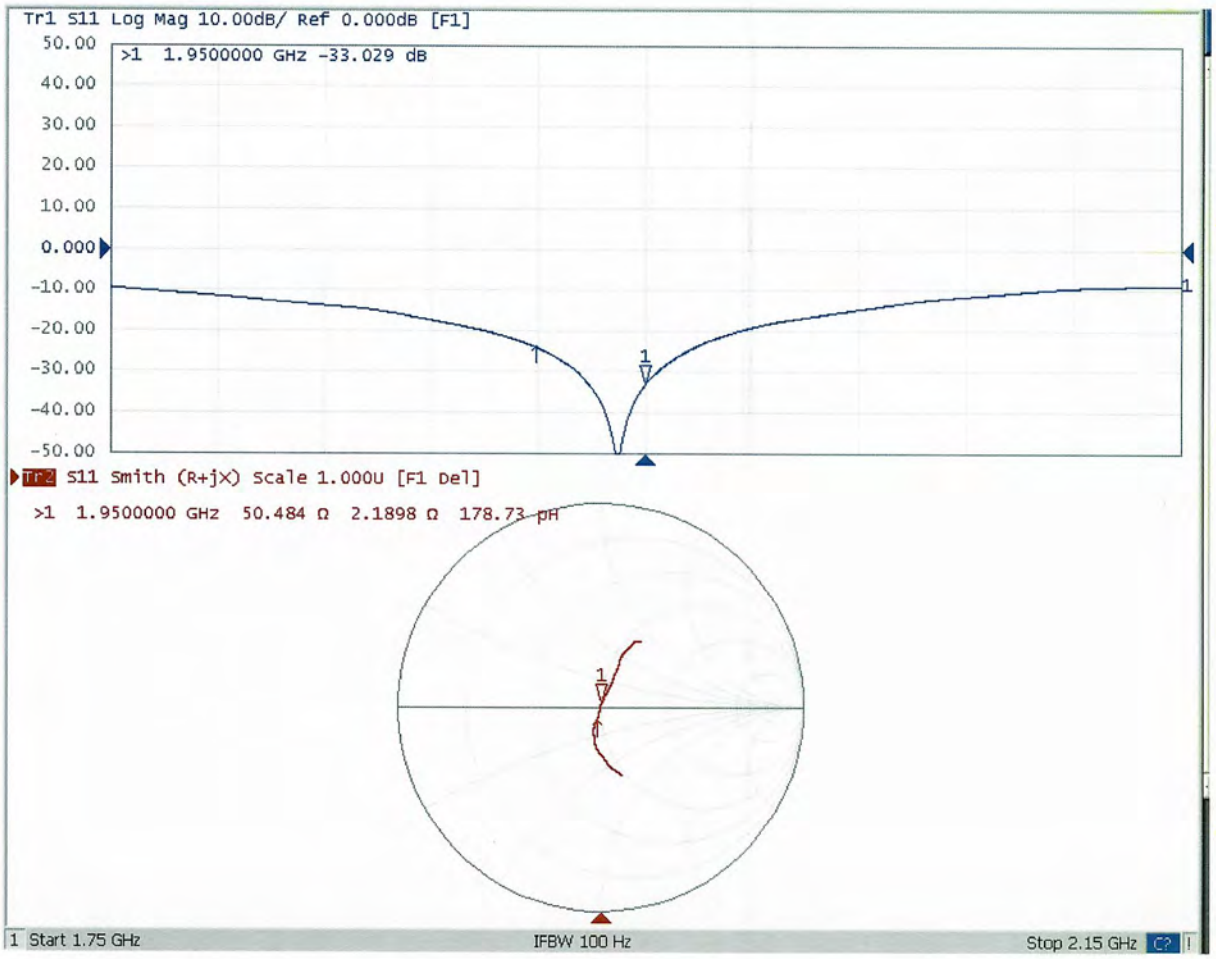
Impedance Measurement Plot for Head TSL



D1950V3 - SN: 1229 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

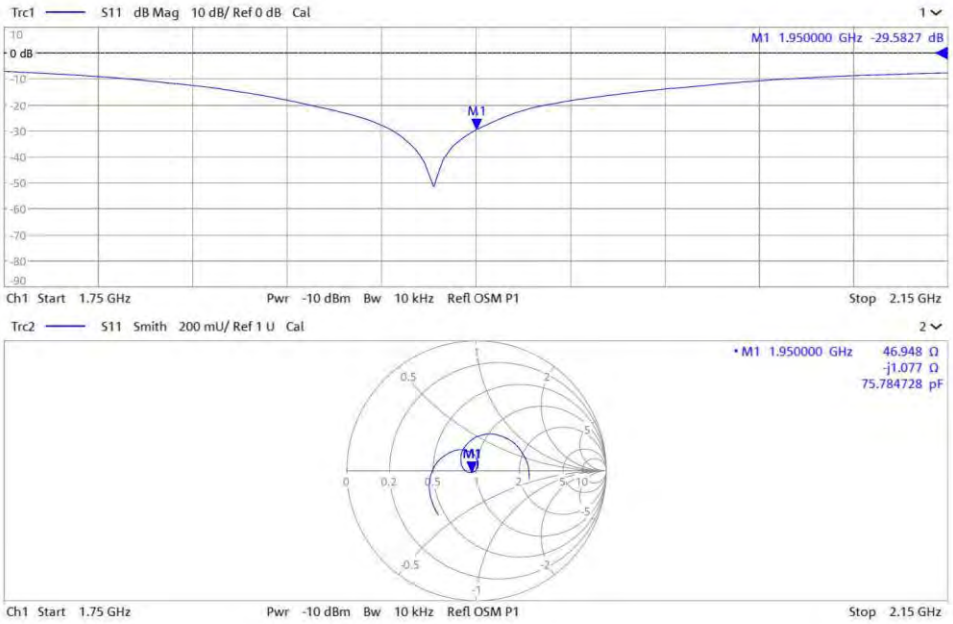
D1950V3 - SN: 1229						
1950MHz Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.28.2021	-33		50.5		2.19	
10.27.2022	-29.6	-10.36	46.9	-3.55	-1.1	-3.27

<Justification of the extended calibration>

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 1950MHz _2022.10.27



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CNAS L0570

Client 7layers Certificate No: Z21-60425

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 1048
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	October 21, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Power sensor NRP8S	104291	24-Sep-21 (CTTL, No.J21X08326)	Sep-22
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-22
DAE4	SN 1556	15-Jan-21(SPEAG,No.DAE4-1556_Jan21)	Jan-22
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: October 27, 2021