Date: 2020-08-16

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC0 RC3+SO32 1013CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA BC0; Frequency: 824.7 MHz;Duty Cycle: 1:1

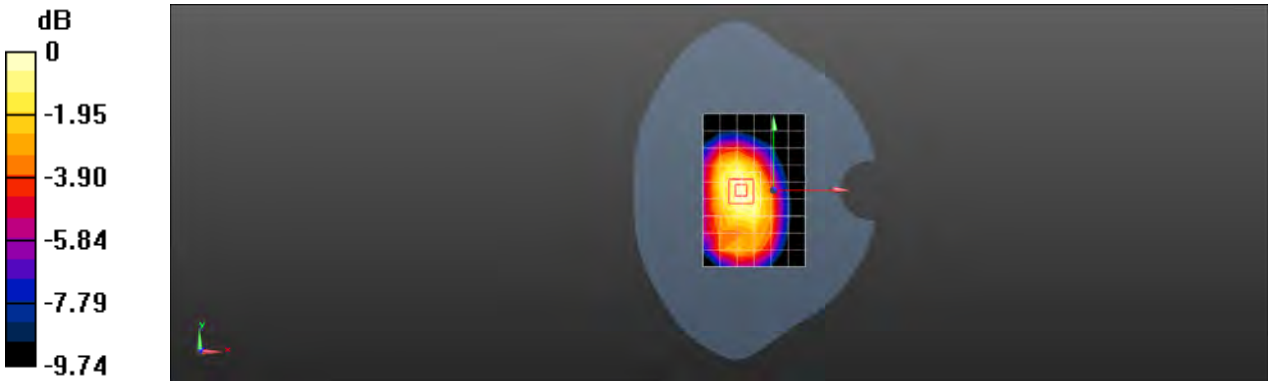
Medium: HSL835;Medium parameters used: f = 825 MHz; σ = 0.932 S/m; ε_r = 41.856; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.830 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.72 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.982 W/kg
SAR(1 g) = 0.740 W/kg; SAR(10 g) = 0.534 W/kg
Maximum value of SAR (measured) = 0.880 W/kg



0 dB = 0.880 W/kg = -0.56 dBW/kg

Date: 2020-08-21

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC1 RC3+SO55 600CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1

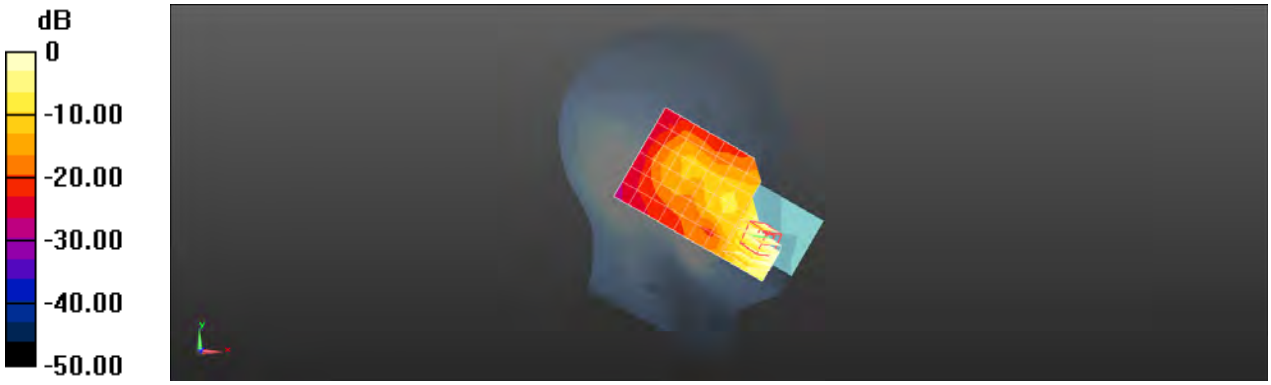
Medium: HSL1900;Medium parameters used: f = 1880 MHz; σ = 1.389 S/m; ε_r = 41.563; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.809 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.059 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.680 W/kg; SAR(10 g) = 0.416 W/kg
Maximum value of SAR (measured) = 0.883 W/kg



0 dB = 0.883 W/kg = -0.54 dBW/kg

Date: 2020-08-21

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC1 RC3+SO32 600CH Back side 19mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1

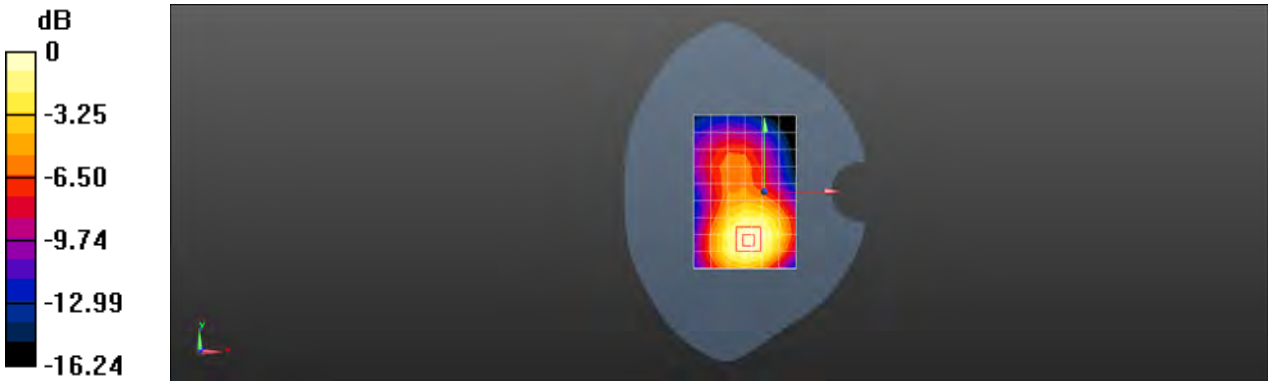
Medium: HSL1900;Medium parameters used: f = 1880 MHz; σ = 1.389 S/m; ε_r = 41.563; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.892 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.13 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.716 W/kg; SAR(10 g) = 0.442 W/kg
Maximum value of SAR (measured) = 0.928 W/kg



0 dB = 0.928 W/kg = -0.32 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC10 RC3+SO55 580CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA (0); Frequency: 820.5 MHz;Duty Cycle: 1:1

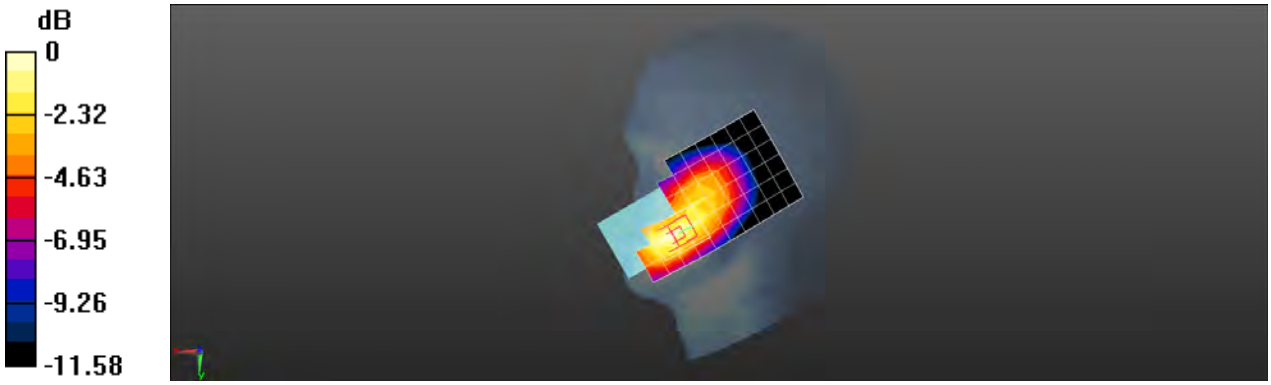
Medium: HSL835;Medium parameters used (interpolated): f = 820.5 MHz; σ = 0.876 S/m; ε_r = 43.156; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.452 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.983 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.587 W/kg
SAR(1 g) = 0.367 W/kg; SAR(10 g) = 0.236 W/kg
Maximum value of SAR (measured) = 0.479 W/kg



0 dB = 0.479 W/kg = -3.20 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC10 RC3+SO32 580CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA BC10; Frequency: 820.5 MHz;Duty Cycle: 1:1

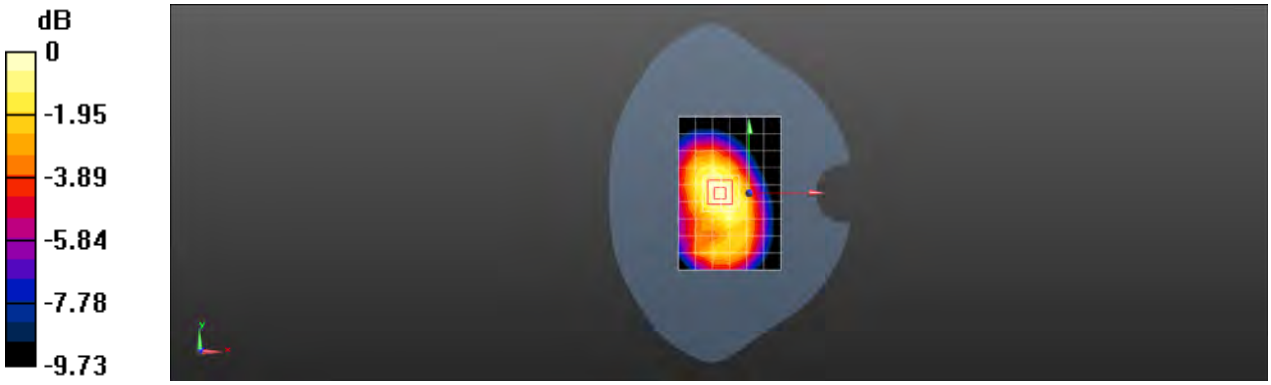
Medium: HSL835;Medium parameters used (interpolated): f = 820.5 MHz; σ = 0.876 S/m; ε_r = 43.156; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.194 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.58 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.174 W/kg; SAR(10 g) = 0.126 W/kg
Maximum value of SAR (measured) = 0.203 W/kg



0 dB = 0.203 W/kg = -6.93 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 CDMA BC10 RC3+SO32 580CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, CDMA BC10; Frequency: 820.5 MHz;Duty Cycle: 1:1

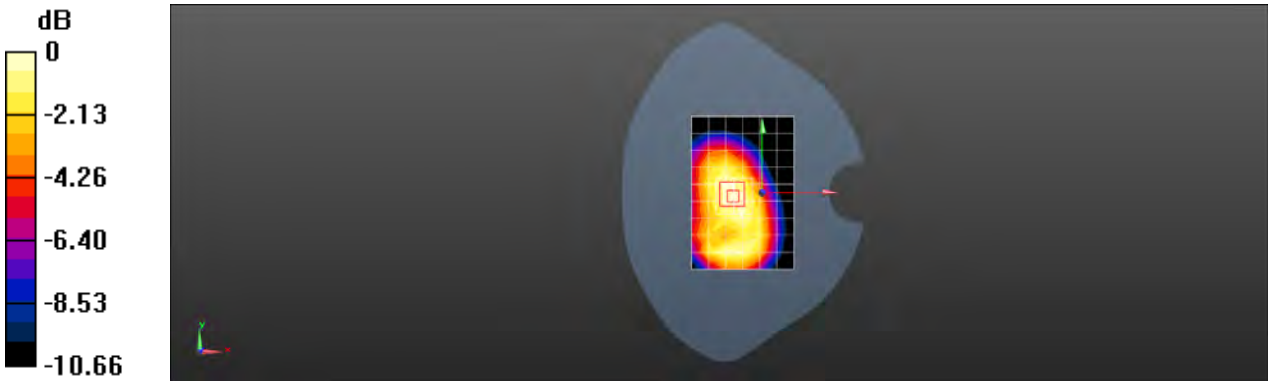
Medium: HSL835;Medium parameters used (interpolated): f = 820.5 MHz; σ = 0.876 S/m; ε_r = 43.156; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.297 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.55 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.357 W/kg
SAR(1 g) = 0.270 W/kg; SAR(10 g) = 0.196 W/kg
Maximum value of SAR (measured) = 0.317 W/kg



0 dB = 0.317 W/kg = -4.99 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 2 20M QPSK 1RB0 18900CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1880 MHz;Duty Cycle: 1:1

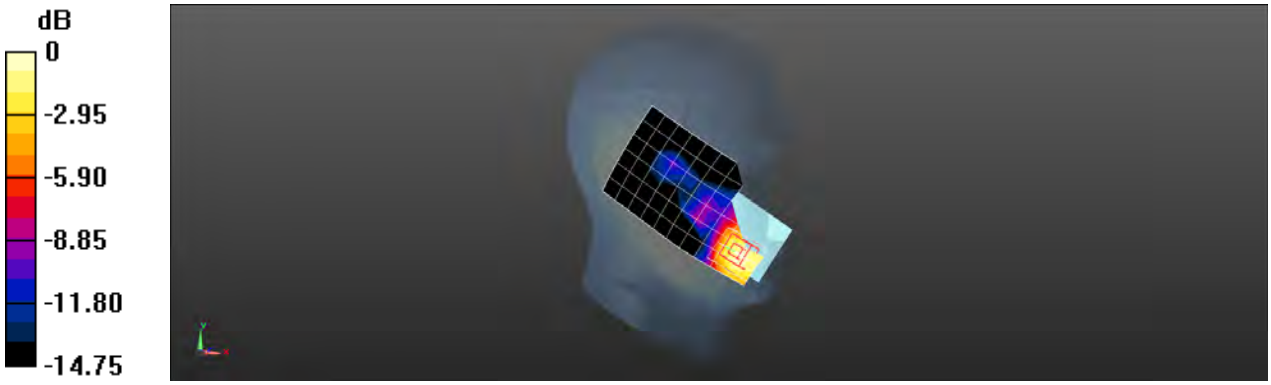
Medium: HSL1900;Medium parameters used: f = 1880 MHz; σ = 1.457 S/m; ε_r = 40.326; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.563 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.582 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.754 W/kg
SAR(1 g) = 0.498 W/kg; SAR(10 g) = 0.322 W/kg
Maximum value of SAR (measured) = 0.626 W/kg



0 dB = 0.626 W/kg = -2.03 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 2 20M QPSK 1RB0 18900CH Back side 19mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1880 MHz;Duty Cycle: 1:1

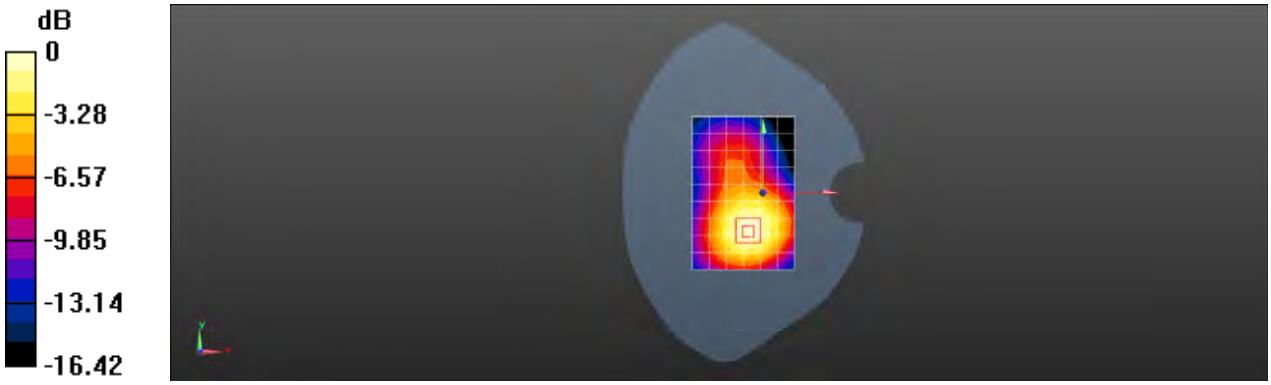
Medium: HSL1900;Medium parameters used: f = 1880 MHz; σ = 1.457 S/m; ε_r = 40.326; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.783 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.79 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.630 W/kg; SAR(10 g) = 0.385 W/kg
Maximum value of SAR (measured) = 0.826 W/kg



0 dB = 0.826 W/kg = -0.83 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 2 20M QPSK 1RB50 18700CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1860 MHz;Duty Cycle: 1:1

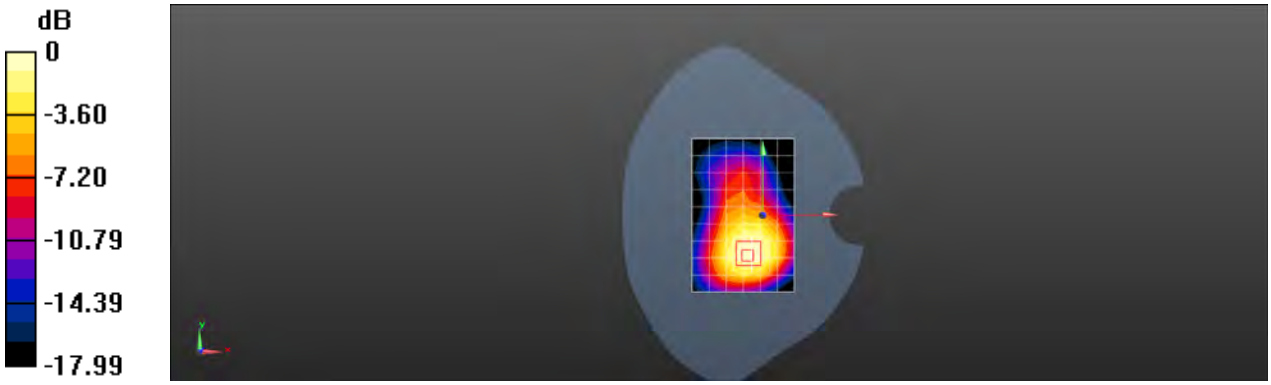
Medium: HSL1900;Medium parameters used: f = 1860 MHz; σ = 1.366 S/m; ε_r = 41.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61) @ 1860 MHz; Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.25 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.99 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.971 W/kg; SAR(10 g) = 0.596 W/kg
Maximum value of SAR (measured) = 1.26 W/kg



0 dB = 1.26 W/kg = 1.00 dBW/kg

Date: 2020-08-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 4 20M QPSK 1RB0 20175CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1

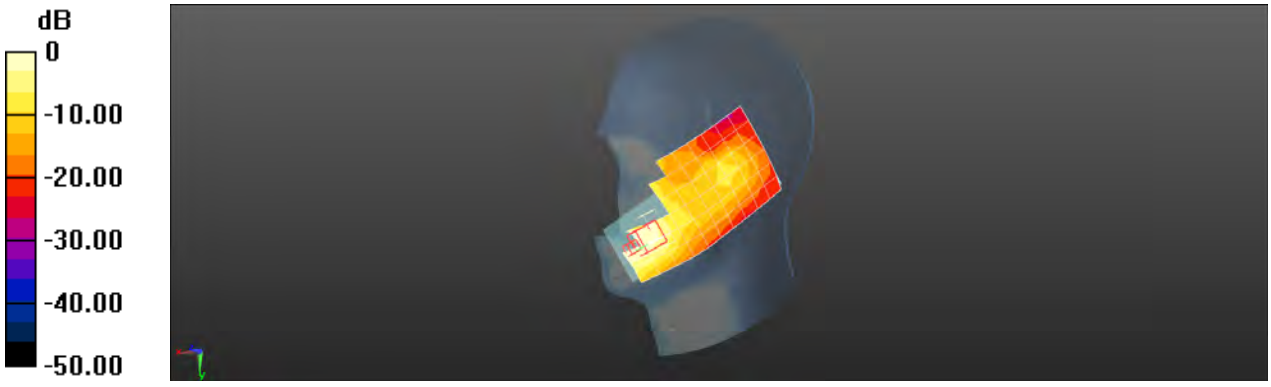
Medium: HSL1750;Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.238 S/m; ε_r = 42.032; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.227 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.725 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.297 W/kg
SAR(1 g) = 0.194 W/kg; SAR(10 g) = 0.111 W/kg
Maximum value of SAR (measured) = 0.239 W/kg



0 dB = 0.239 W/kg = -6.22 dBW/kg

Date: 2020-08-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 4 20M QPSK 1RB0 20175CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1

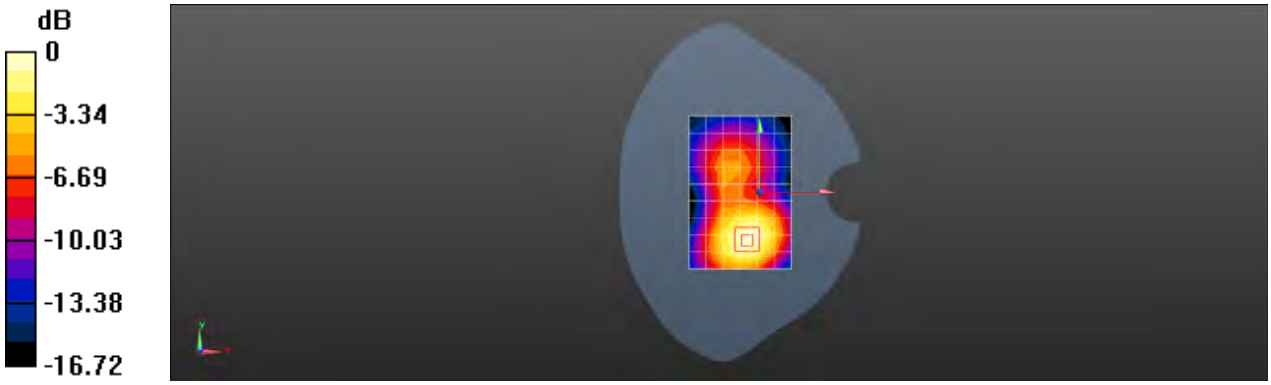
Medium: HSL1750;Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.238 S/m; ε_r = 42.032; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.574 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.407 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.471 W/kg; SAR(10 g) = 0.283 W/kg
Maximum value of SAR (measured) = 0.616 W/kg



0 dB = 0.616 W/kg = -2.10 dBW/kg

Date: 2020-08-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 4 20M QPSK 1RB99 20300CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1745 MHz;Duty Cycle: 1:1

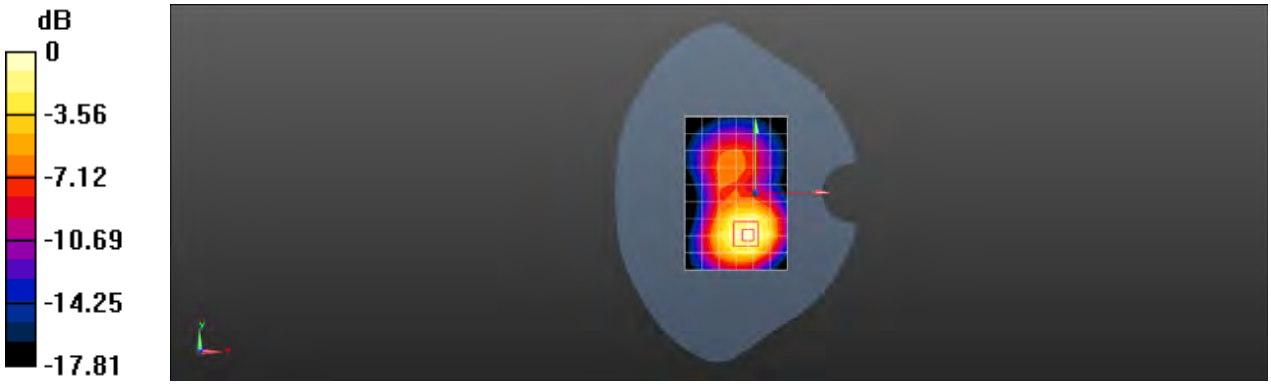
Medium: HSL1750;Medium parameters used: f = 1745 MHz; σ = 1.25 S/m; ε_r = 41.995; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.40 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.13 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.639 W/kg
Maximum value of SAR (measured) = 1.42 W/kg



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

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 5 10M QPSK 1RB0 20450CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 5 10MHz; Frequency: 829 MHz;Duty Cycle: 1:1

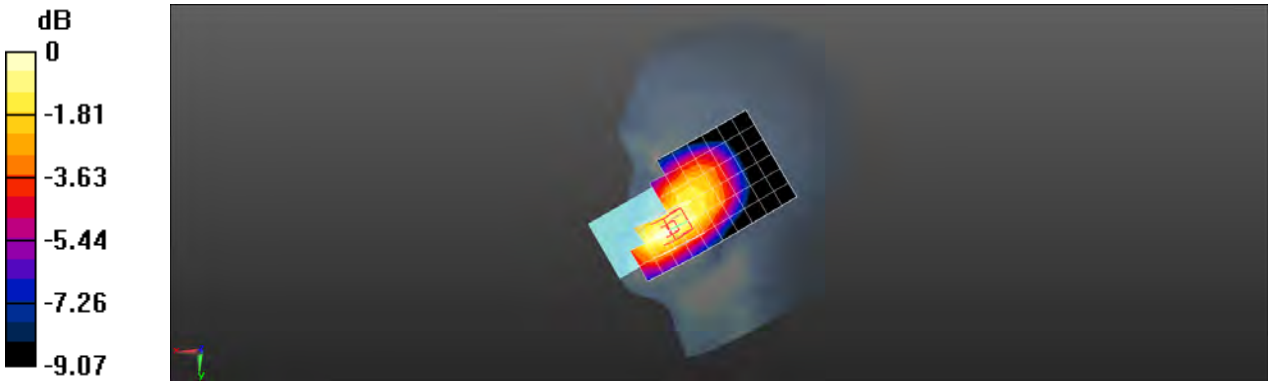
Medium: HSL835;Medium parameters used: f = 829 MHz; σ = 0.881 S/m; ε_r = 43.103; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.378 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.125 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.239 W/kg
Maximum value of SAR (measured) = 0.442 W/kg



0 dB = 0.442 W/kg = -3.55 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 5 10M QPSK 1RB0 20450CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 10MHZ (0); Frequency: 829 MHz;Duty Cycle: 1:1

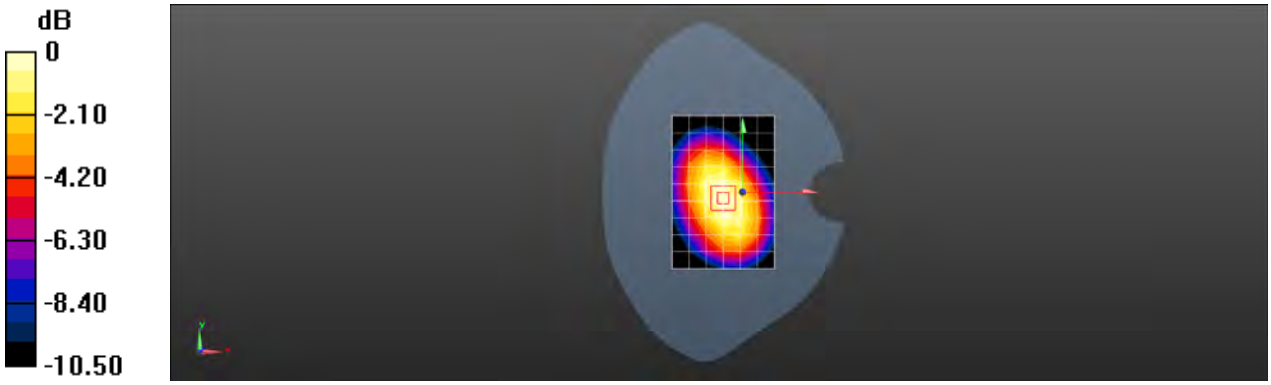
Medium: HSL835;Medium parameters used: f = 829 MHz; σ = 0.881 S/m; ε_r = 43.103; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.926 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.08 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.740 W/kg; SAR(10 g) = 0.515 W/kg
Maximum value of SAR (measured) = 0.901 W/kg



0 dB = 0.901 W/kg = -0.45 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 5 10M QPSK 1RB0 20450CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 10MHZ (0); Frequency: 829 MHz;Duty Cycle: 1:1

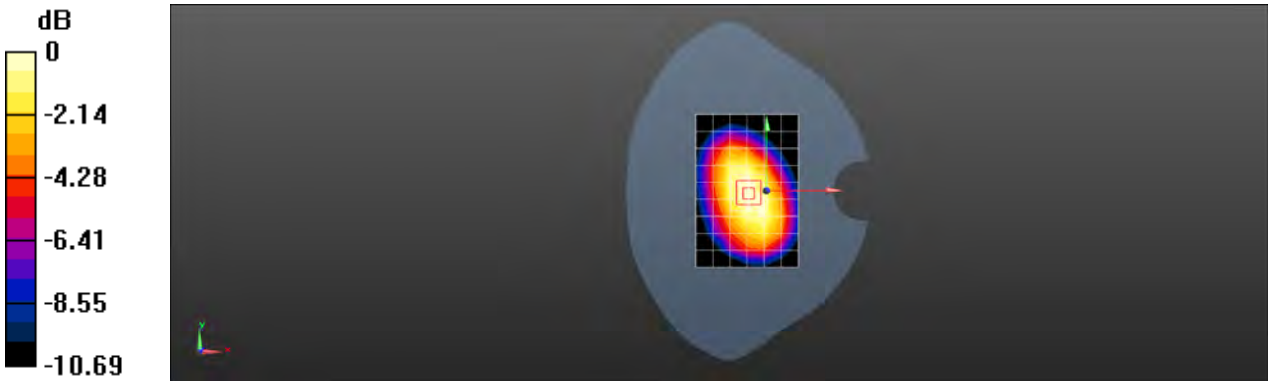
Medium: HSL835;Medium parameters used: f = 829 MHz; σ = 0.881 S/m; ε_r = 43.103; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.16 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.78 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.946 W/kg; SAR(10 g) = 0.654 W/kg
Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 12 10M QPSK 1RB0 23095CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 12 10MHz; Frequency: 707.5 MHz;Duty Cycle: 1:1

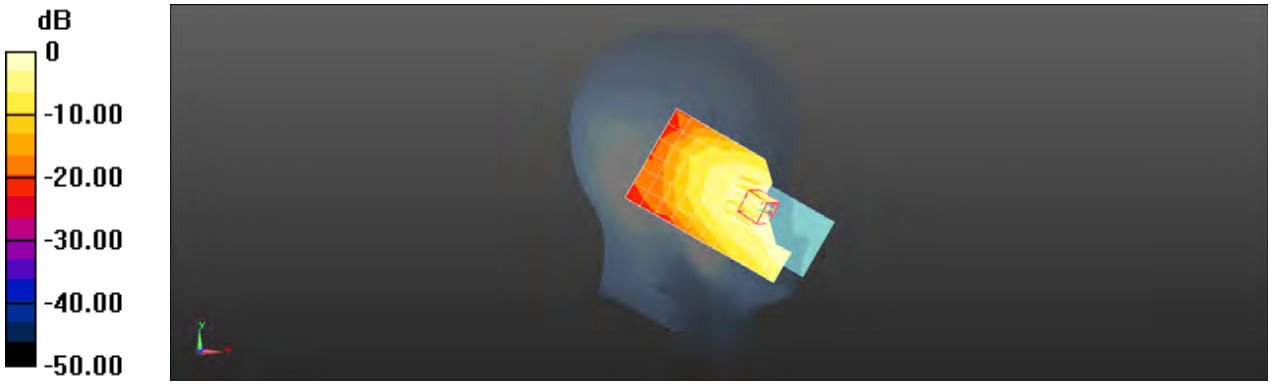
Medium: HSL750;Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.868 S/m; ε_r = 41.442; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.501 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.169 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.587 W/kg
SAR(1 g) = 0.380 W/kg; SAR(10 g) = 0.258 W/kg
Maximum value of SAR (measured) = 0.488 W/kg



0 dB = 0.488 W/kg = -3.12 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 12 10M QPSK 1RB0 23130CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 12 10MHz; Frequency: 711 MHz;Duty Cycle: 1:1

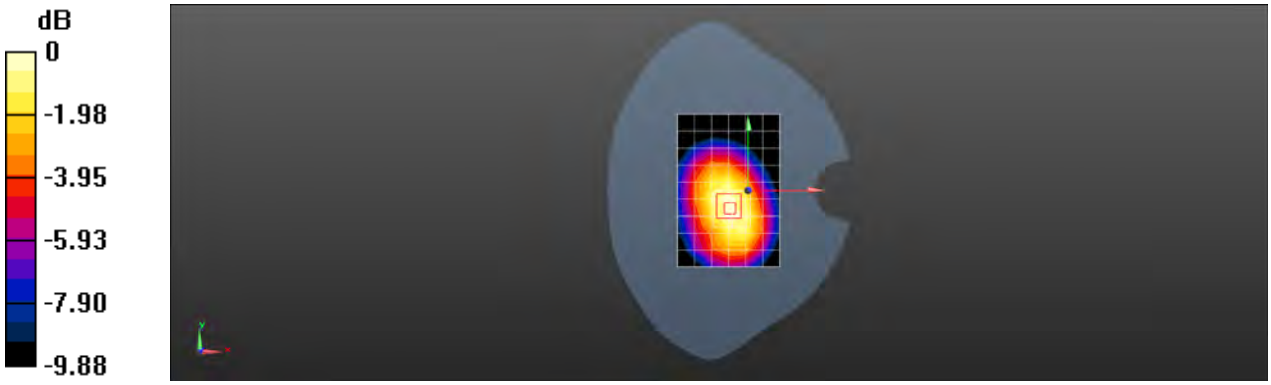
Medium: HSL750;Medium parameters used: f = 711 MHz; σ = 0.872 S/m; ε_r = 41.483; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.811 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.10 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.791 W/kg; SAR(10 g) = 0.567 W/kg
Maximum value of SAR (measured) = 0.838 W/kg



0 dB = 0.838 W/kg = -0.77 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 12 10M QPSK 1RB0 23095CH Back side-repeat 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 12 10MHz; Frequency: 707.5 MHz;Duty Cycle: 1:1

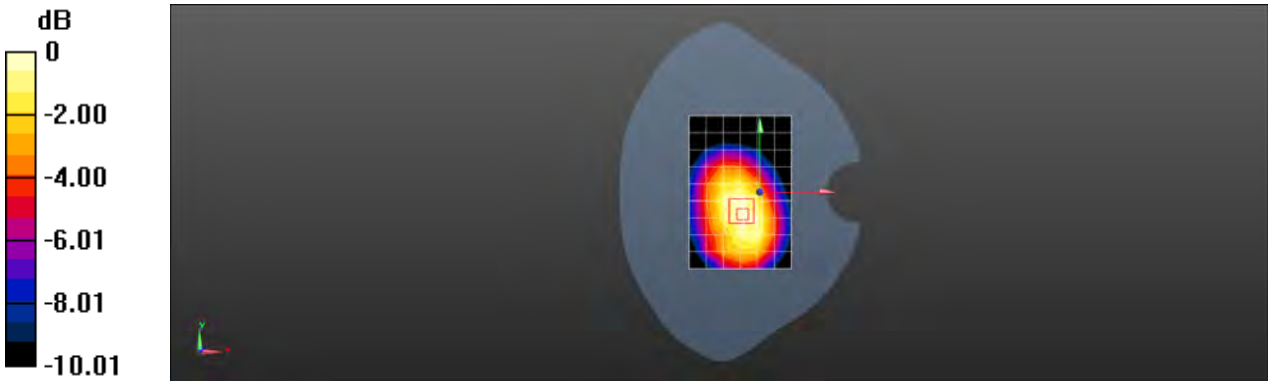
Medium: HSL750;Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.868 S/m; ε_r = 41.442; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.05 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.27 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.984 W/kg; SAR(10 g) = 0.706 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 13 10M QPSK 1RB0 23230CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 13 10MHz; Frequency: 782 MHz;Duty Cycle: 1:1

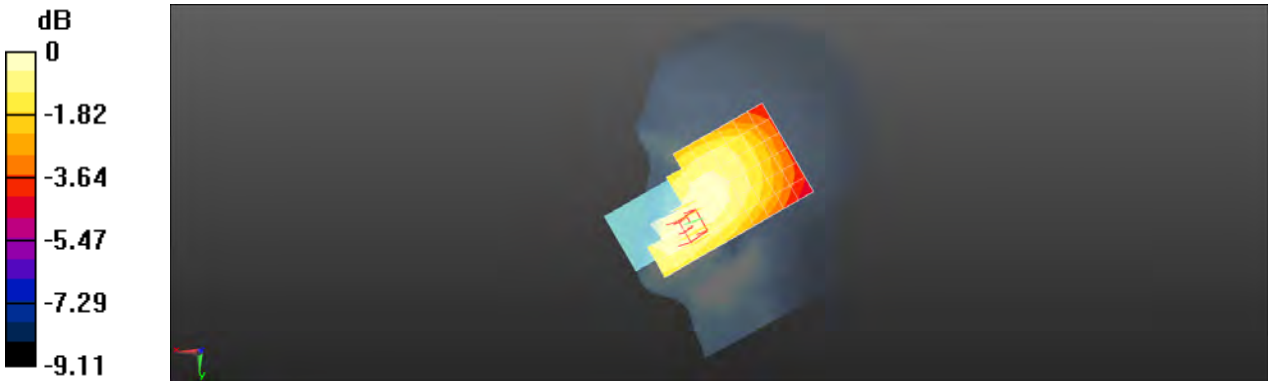
Medium: HSL750;Medium parameters used: f = 782 MHz; σ = 0.879 S/m; ε_r = 40.443; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.772 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.432 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.922 W/kg
SAR(1 g) = 0.621 W/kg; SAR(10 g) = 0.424 W/kg
Maximum value of SAR (measured) = 0.775 W/kg



0 dB = 0.775 W/kg = -1.11 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 13 10M QPSK 1RB0 23230CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 13 10MHz; Frequency: 782 MHz;Duty Cycle: 1:1

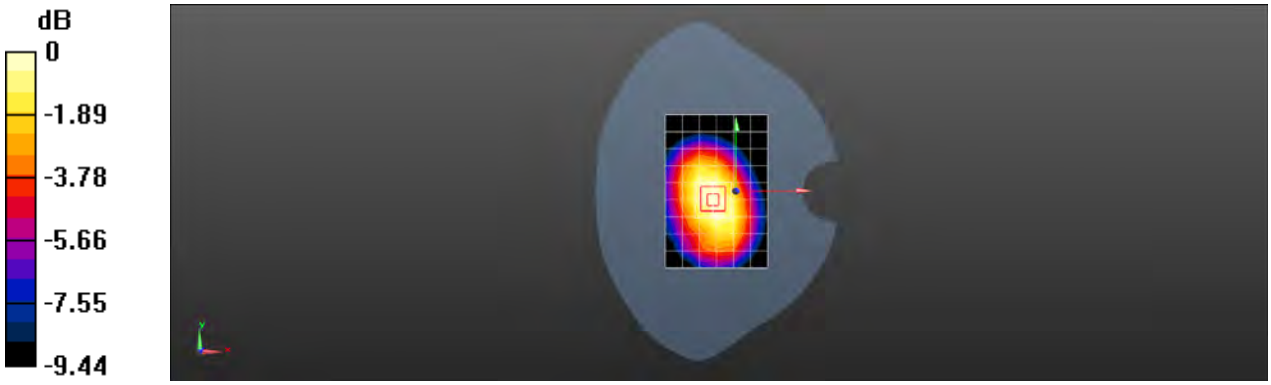
Medium: HSL750;Medium parameters used: f = 782 MHz; σ = 0.879 S/m; ε_r = 40.443; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.918 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.68 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.991 W/kg
SAR(1 g) = 0.748 W/kg; SAR(10 g) = 0.539 W/kg
Maximum value of SAR (measured) = 0.886 W/kg



0 dB = 0.886 W/kg = -0.53 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 13 10M QPSK 1RB0 23230CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE Band 13 10MHz; Frequency: 782 MHz;Duty Cycle: 1:1

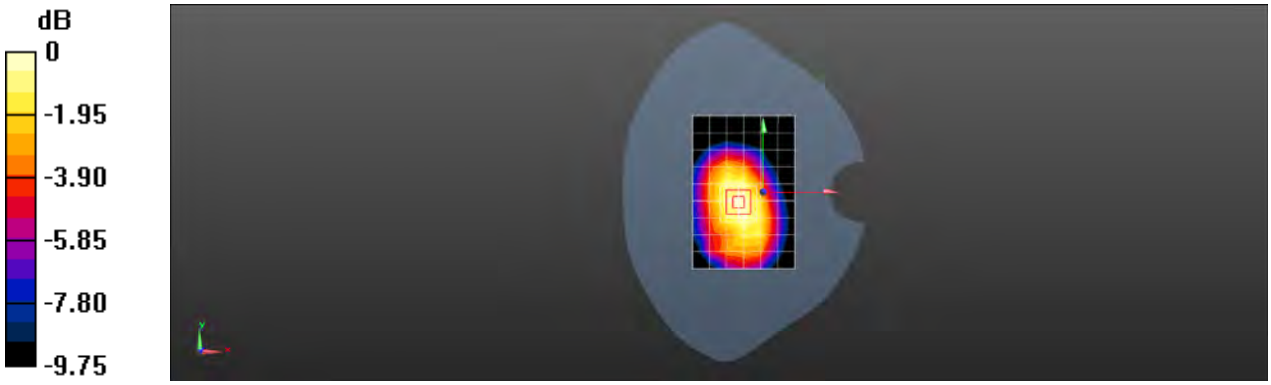
Medium: HSL750;Medium parameters used: f = 782 MHz; σ = 0.879 S/m; ε_r = 40.443; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.975 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.63 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.858 W/kg; SAR(10 g) = 0.619 W/kg
Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 25 20M QPSK 1RB0 26365CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1

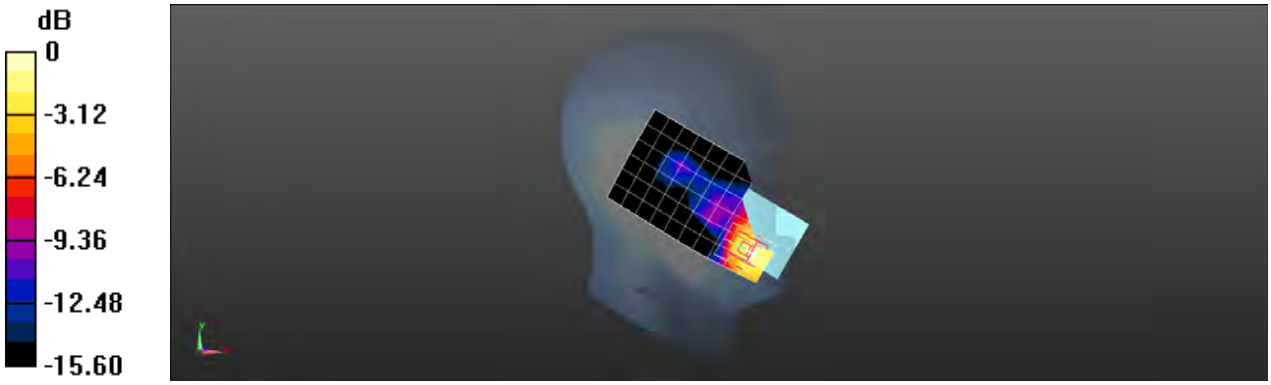
Medium: HSL1900;Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.46 S/m; ε_r = 40.318; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.520 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.480 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.741 W/kg
SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.301 W/kg
Maximum value of SAR (measured) = 0.605 W/kg



0 dB = 0.605 W/kg = -2.18 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 25 20M QPSK 1RB0 26365CH Back side 19mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1

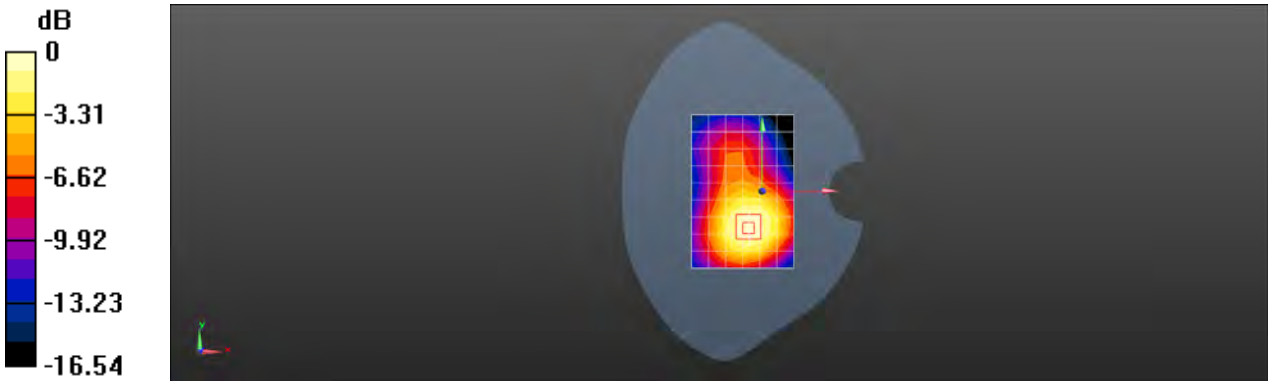
Medium: HSL1900;Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.46 S/m; ε_r = 40.318; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.734 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.01 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.962 W/kg
SAR(1 g) = 0.602 W/kg; SAR(10 g) = 0.371 W/kg
Maximum value of SAR (measured) = 0.786 W/kg



0 dB = 0.786 W/kg = -1.05 dBW/kg

Date: 2020-09-15

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 25 20M QPSK 1RB0 26140CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1860 MHz;Duty Cycle: 1:1

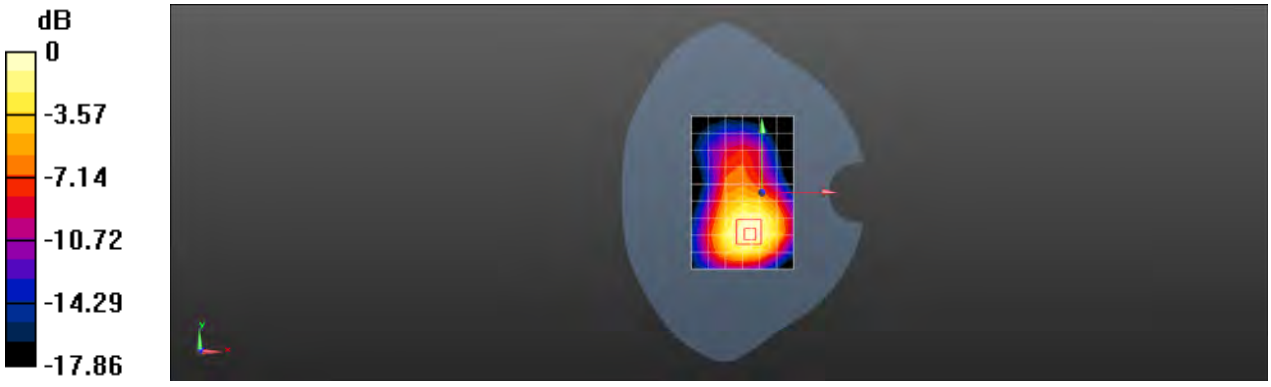
Medium: HSL1900;Medium parameters used: f = 1860 MHz; σ = 1.436 S/m; ε_r = 40.387; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.61, 7.61, 7.61); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.26 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.35 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.991 W/kg; SAR(10 g) = 0.599 W/kg
Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg = 1.11 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 26 15M QPSK 1RB0 26865CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 15MHz (0); Frequency: 831.5 MHz;Duty Cycle: 1:1

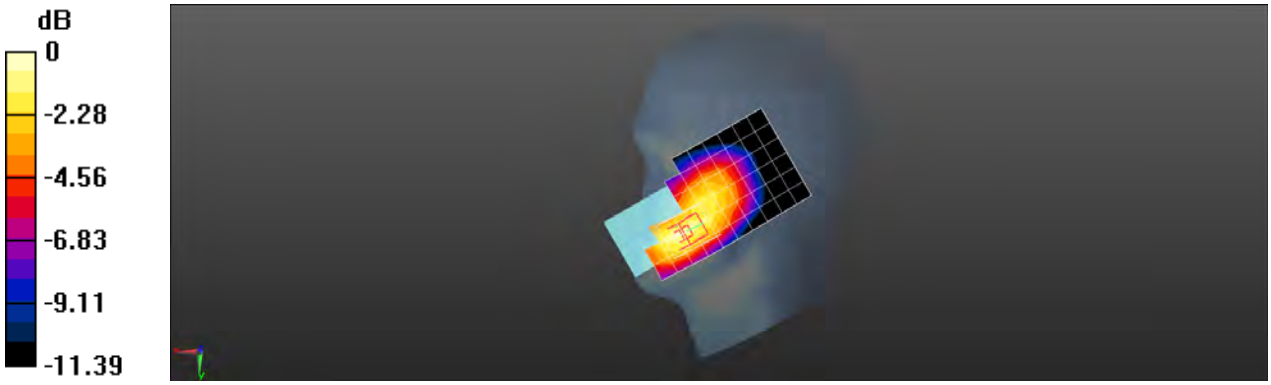
Medium: HSL835;Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.883 S/m; ε_r = 43.084; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.438 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.512 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.609 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.254 W/kg
Maximum value of SAR (measured) = 0.500 W/kg



0 dB = 0.500 W/kg = -3.01 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 26 15M QPSK 1RB0 26865CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 15MHz (0); Frequency: 831.5 MHz;Duty Cycle: 1:1

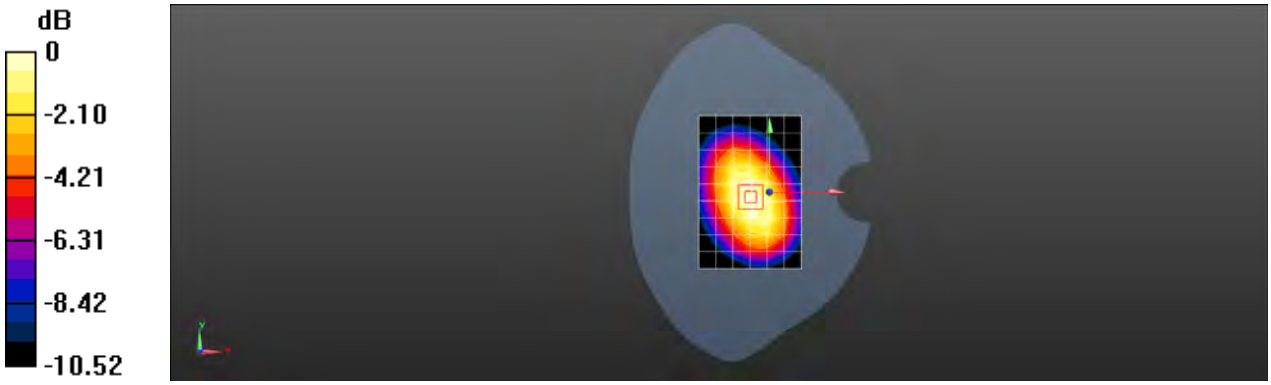
Medium: HSL835;Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.883 S/m; ε_r = 43.084; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.827 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.53 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.952 W/kg
SAR(1 g) = 0.674 W/kg; SAR(10 g) = 0.469 W/kg
Maximum value of SAR (measured) = 0.823 W/kg



0 dB = 0.823 W/kg = -0.85 dBW/kg

Date: 2020-09-02

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 26 15M QPSK 1RB0 26865CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 15MHz (0); Frequency: 831.5 MHz;Duty Cycle: 1:1

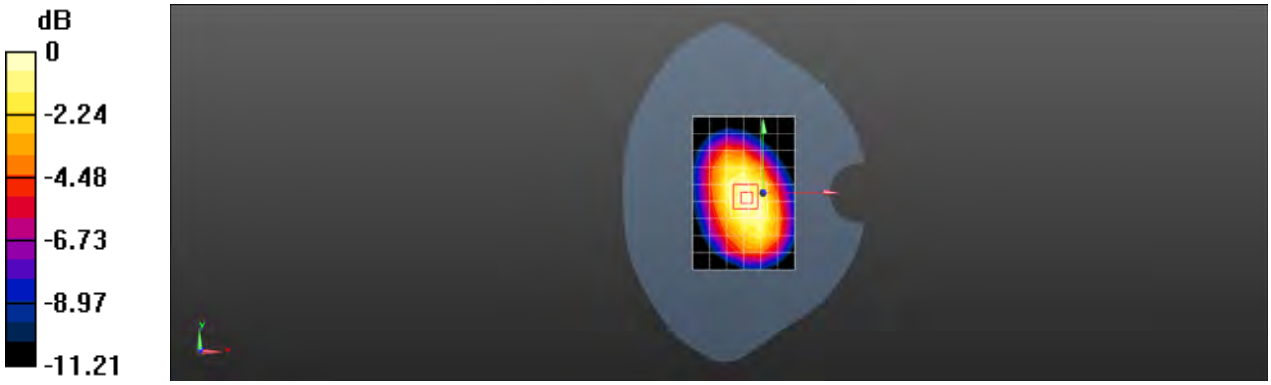
Medium: HSL835;Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.883 S/m; ε_r = 43.084; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.05, 9.05, 9.05); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.847 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.03 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.725 W/kg; SAR(10 g) = 0.504 W/kg
Maximum value of SAR (measured) = 0.879 W/kg



0 dB = 0.879 W/kg = -0.56 dBW/kg

Date: 2020-09-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 41 20M QPSK 1RB0 40620CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-TDD BW 20MHz (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58

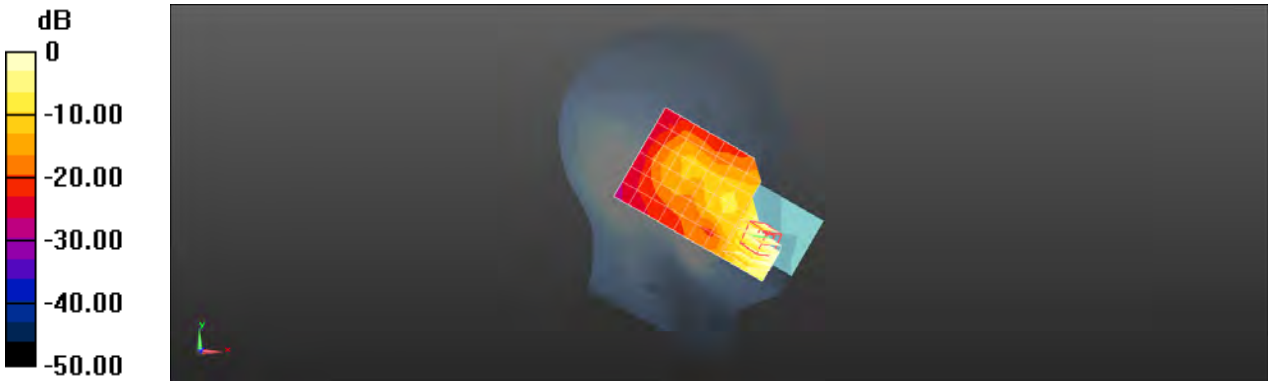
Medium: HSL2600;Medium parameters used: f = 2593 MHz; σ = 2.015 S/m; ε_r = 37.518; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(6.88, 6.88, 6.88); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.172 W/kg

Configuration/Head/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.838 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.094 W/kg
Maximum value of SAR (measured) = 0.207 W/kg



0 dB = 0.207 W/kg = -6.84 dBW/kg

Date: 2020-09-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 41 20M QPSK 1RB0 40620CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-TDD BW 20MHz (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58

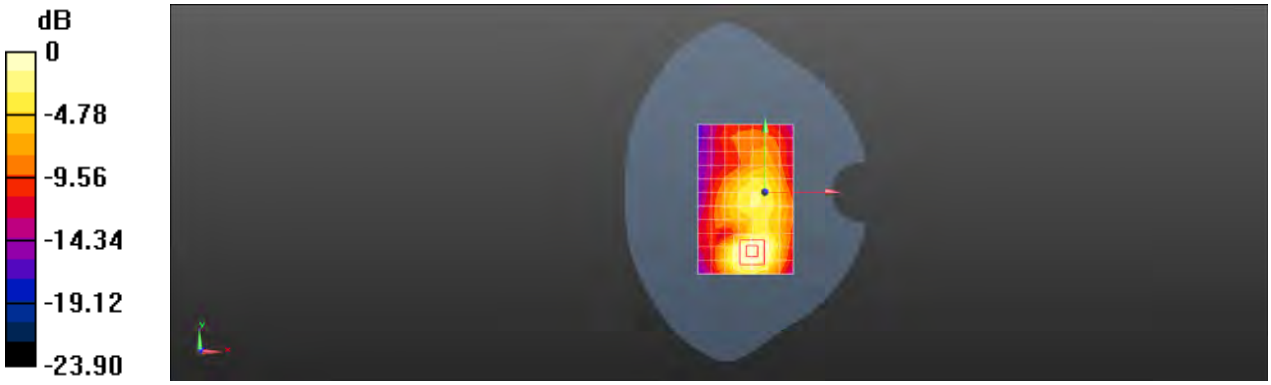
Medium: HSL2600;Medium parameters used: f = 2593 MHz; σ = 2.015 S/m; ε_r = 37.518; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(6.88, 6.88, 6.88); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.496 W/kg

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.681 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.335 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.378 W/kg



0 dB = 0.378 W/kg = -4.23 dBW/kg

Date: 2020-09-27

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 41 20M QPSK 1RB0 40185CH Bottom side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-TDD BW 20MHz (0); Frequency: 2549.5 MHz;Duty Cycle: 1:1.58

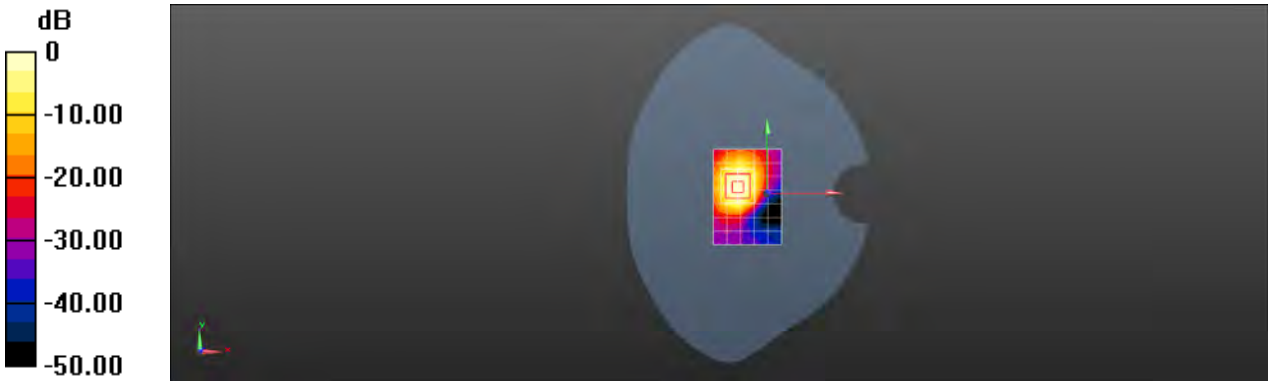
Medium: HSL2600;Medium parameters used (interpolated): f = 2549.5 MHz; σ = 1.966 S/m; ε_r = 37.648; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(6.88, 6.88, 6.88); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.922 W/kg

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.578 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.459 W/kg
Maximum value of SAR (measured) = 0.05 W/kg



0 dB = 1.15 W/kg = 0.61 dBW/kg

Date: 2020-09-22

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 66 20M QPSK 1RB0 132322CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1745 MHz;Duty Cycle: 1:1

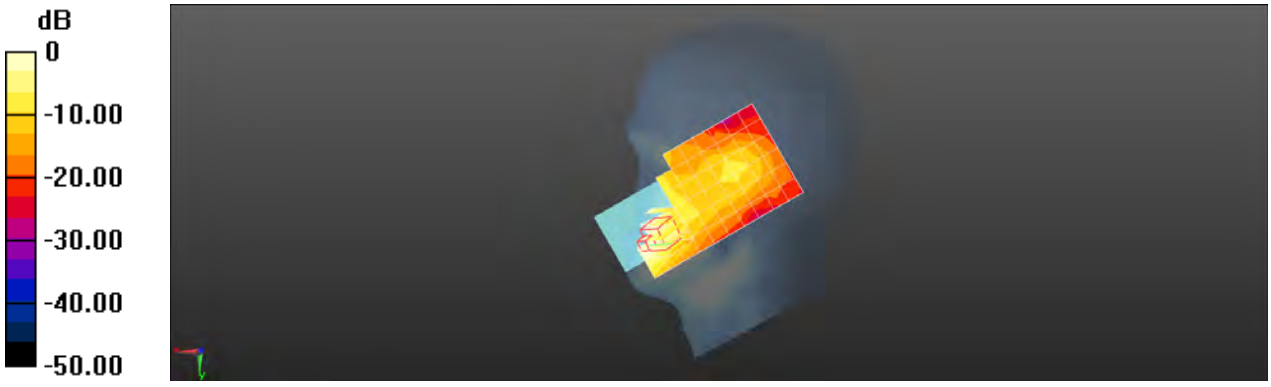
Medium: HSL1750;Medium parameters used: f = 1745 MHz; σ = 1.325 S/m; ε_r = 40.811; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.236 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.856 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.198 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 0.247 W/kg



0 dB = 0.247 W/kg = -6.07 dBW/kg

Date: 2020-09-22

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 66 20M QPSK 1RB0 132322CH Back side 19mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1745 MHz;Duty Cycle: 1:1

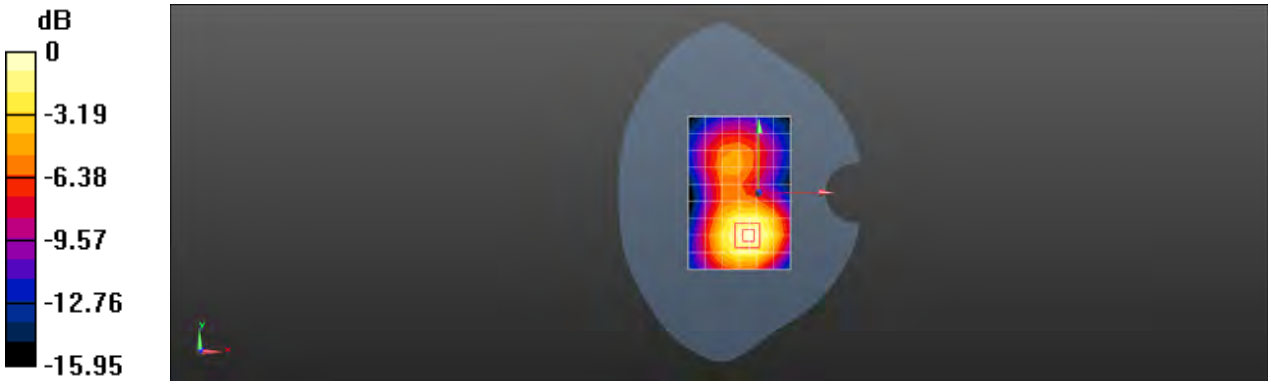
Medium: HSL1750;Medium parameters used: f = 1745 MHz; σ = 1.325 S/m; ε_r = 40.811; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.809 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.64 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.658 W/kg; SAR(10 g) = 0.400 W/kg
Maximum value of SAR (measured) = 0.863 W/kg



0 dB = 0.863 W/kg = -0.64 dBW/kg

Date: 2020-09-22

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 66 20M QPSK 1RB0 132572CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 1770 MHz;Duty Cycle: 1:1

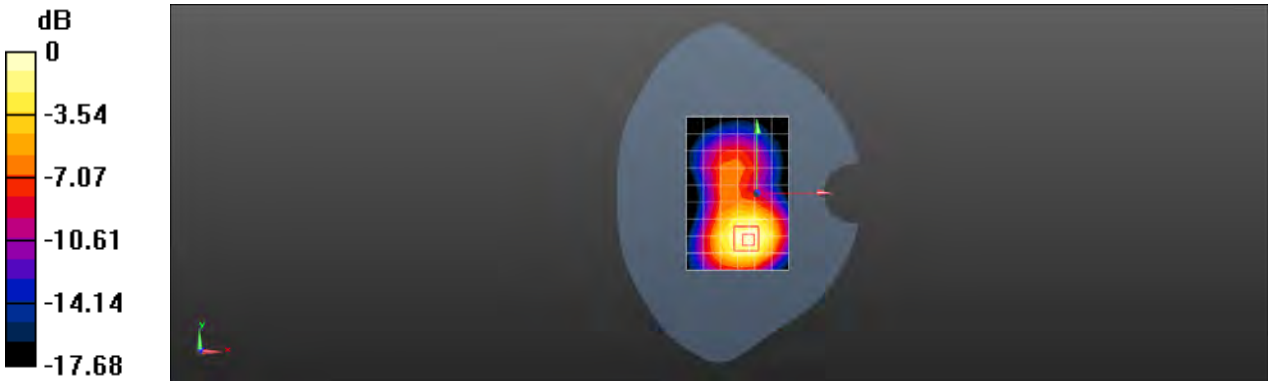
Medium: HSL1750;Medium parameters used: f = 1770 MHz; σ = 1.35 S/m; ε_r = 40.738; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.81, 7.81, 7.81); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.29 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.83 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.602 W/kg
Maximum value of SAR (measured) = 1.33 W/kg



0 dB = 1.33 W/kg = 1.24 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 71 20M QPSK 50RB25 133322CH Left cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 683 MHz;Duty Cycle: 1:1

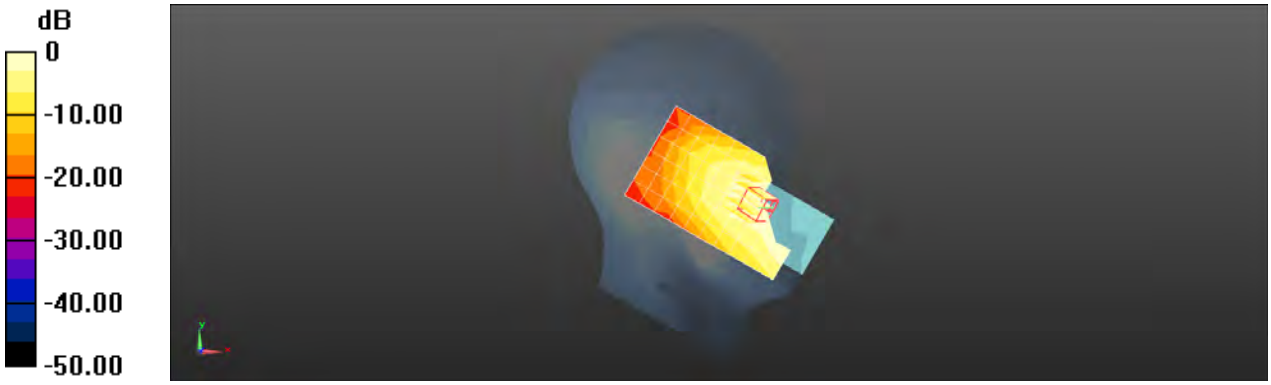
Medium: HSL750;Medium parameters used: f = 683 MHz; σ = 0.847 S/m; ε_r = 43.027; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0695 W/kg

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.766 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0990 W/kg
SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.040 W/kg
Maximum value of SAR (measured) = 0.0812 W/kg



0 dB = 0.0812 W/kg = -10.90 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 71 20M QPSK 50RB25 133322CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 683 MHz;Duty Cycle: 1:1

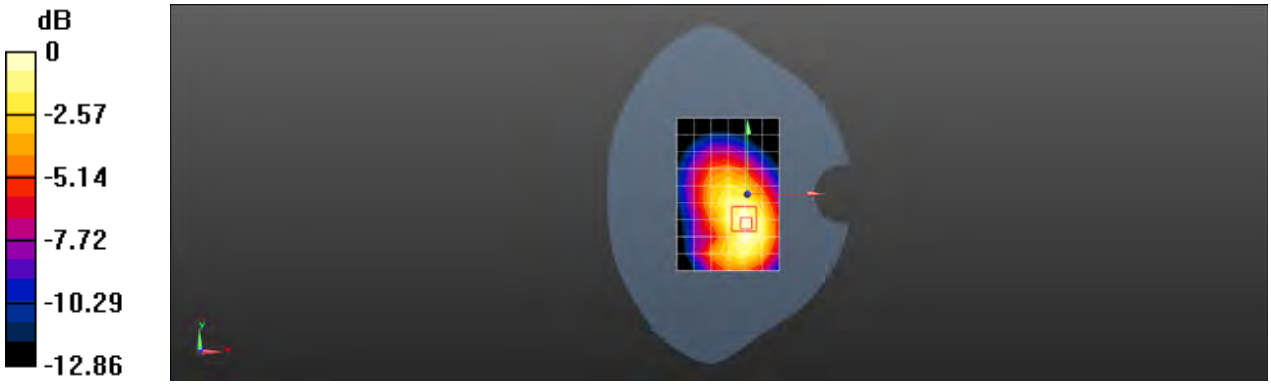
Medium: HSL750;Medium parameters used: f = 683 MHz; σ = 0.847 S/m; ε_r = 43.027; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.147 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.27 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.180 W/kg
SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.076 W/kg
Maximum value of SAR (measured) = 0.148 W/kg



0 dB = 0.148 W/kg = -8.30 dBW/kg

Date: 2020-08-10

Test Laboratory: SGS-SAR Lab

FR150 LTE Band 71 20M QPSK 50RB25 133322CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, LTE-FDD BW 20MHz (0); Frequency: 683 MHz;Duty Cycle: 1:1

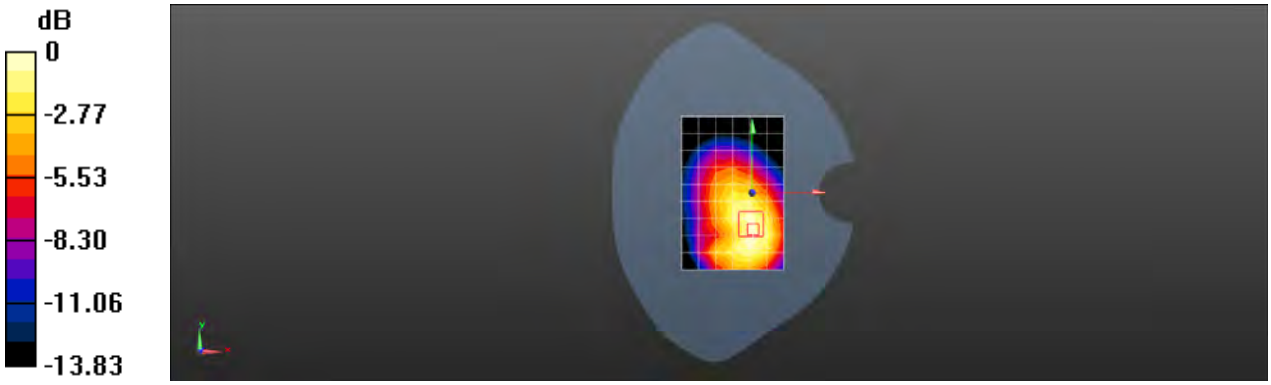
Medium: HSL750;Medium parameters used: f = 683 MHz; σ = 0.847 S/m; ε_r = 43.027; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(9.34, 9.34, 9.34); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.248 W/kg

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.33 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.198 W/kg; SAR(10 g) = 0.125 W/kg
Maximum value of SAR (measured) = 0.261 W/kg



0 dB = 0.261 W/kg = -5.83 dBW/kg

Date: 2020-09-08

Test Laboratory: SGS-SAR Lab

FR150 WIFI 2.4G 802.11b 6CH Right cheek

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2437 MHz;Duty Cycle: 1:1.024

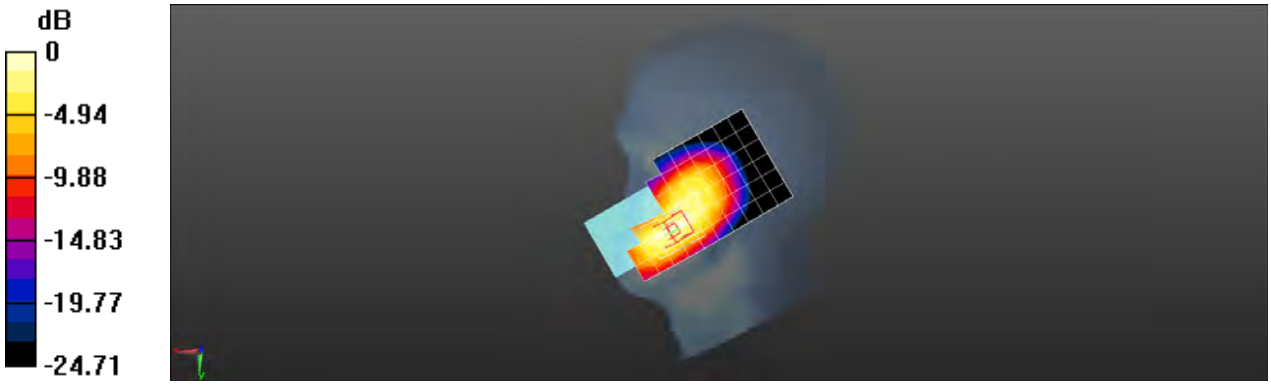
Medium: HSL2450;Medium parameters used: f = 2437 MHz; σ = 1.838 S/m; ε_r = 38.052; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.06, 7.06, 7.06); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Head/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.207 W/kg

Configuration/Head/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.807 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.359 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.106 W/kg
Maximum value of SAR (measured) = 0.206 W/kg



0 dB = 0.206 W/kg = -6.86 dBW/kg

Date: 2020-09-08

Test Laboratory: SGS-SAR Lab

FR150 WIFI 2.4G 802.11b 6CH Back side 15mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2437 MHz;Duty Cycle: 1:1.024

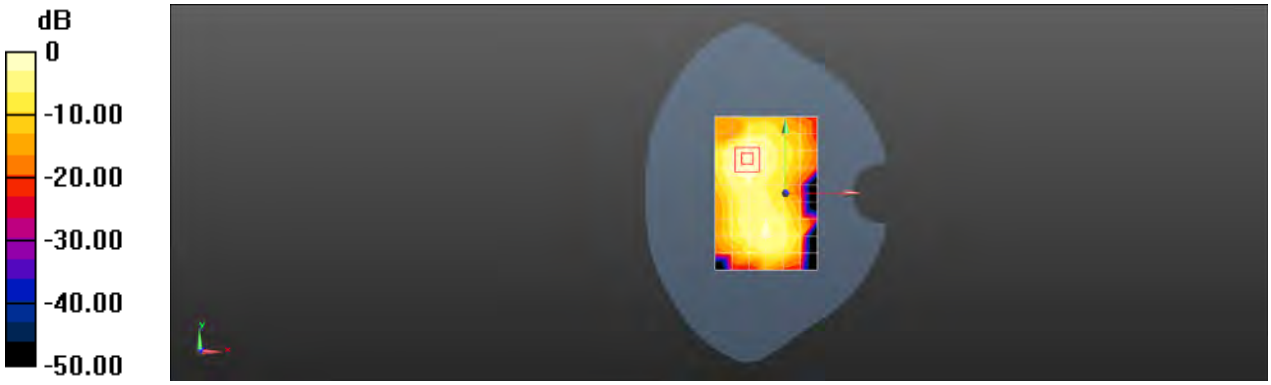
Medium: HSL2450;Medium parameters used: f = 2437 MHz; σ = 1.838 S/m; ε_r = 38.052; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.06, 7.06, 7.06); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.104 W/kg

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.379 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.114 W/kg



0 dB = 0.114 W/kg = -9.43 dBW/kg

Date: 2020-09-08

Test Laboratory: SGS-SAR Lab

FR150 WIFI 2.4G 802.11b 6CH Back side 10mm

DUT: FR150; Type: 4G Feature Phone; Serial: 354783970000322

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2437 MHz;Duty Cycle: 1:1.024

Medium: HSL2450;Medium parameters used: f = 2437 MHz; σ = 1.838 S/m; ε_r = 38.052; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3793; ConvF(7.06, 7.06, 7.06); Calibrated: 2020-05-09
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn896; Calibrated: 2020-06-11
- Phantom: SAM 3; Type: SAM; Serial: 1912
- DASY52 52.8.8(1222); SEMCAD X 14.6.13(7474)

Configuration/Body/Area Scan (8x12x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.181 W/kg

Configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.446 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.310 W/kg
SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.198 W/kg

0 dB = 0.198 W/kg = -7.03 dBW/kg

Appendix C

Calibration certificate

1. Dipole
D750V3-SN 1160(2019-05-22)
D835V2-SN 4d105(2019-12-17)
D1750V2-SN 1149(2019-05-21)
D1900V2-SN 5d028 (2019-12-17)
D2450V2-SN 733(2019-12-17)
D2600V2-SN 1125(2019-05-20)
2. DAE
DAE4-SN 896(2020-06-11)
3. Probe
EX3DV4-SN 3793(2020-05-09)

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Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client SGS Certificate No: Z19-60152

CALIBRATION CERTIFICATE

Object D750V3 - SN: 1160

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

Calibration date: May 22, 2019

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	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1331	06-Feb-19(SPEAG,No.DAE4-1331_Feb19)	Feb-20
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46116073	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: May 25, 2019

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
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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Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
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	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.3 ± 6 %	0.91 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	2.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.39 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.63 W/kg ± 18.7 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	56.9 ± 6 %	0.95 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.12 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.62 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.39 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.63 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	51.8Ω- 3.06jΩ
Return Loss	- 29.1dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.1Ω- 3.83jΩ
Return Loss	- 27.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.897 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

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DASY5 Validation Report for Head TSL Date: 05.22.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1160

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.905 S/m; ε_r = 42.28; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(10.03, 10.03, 10.03) @ 750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

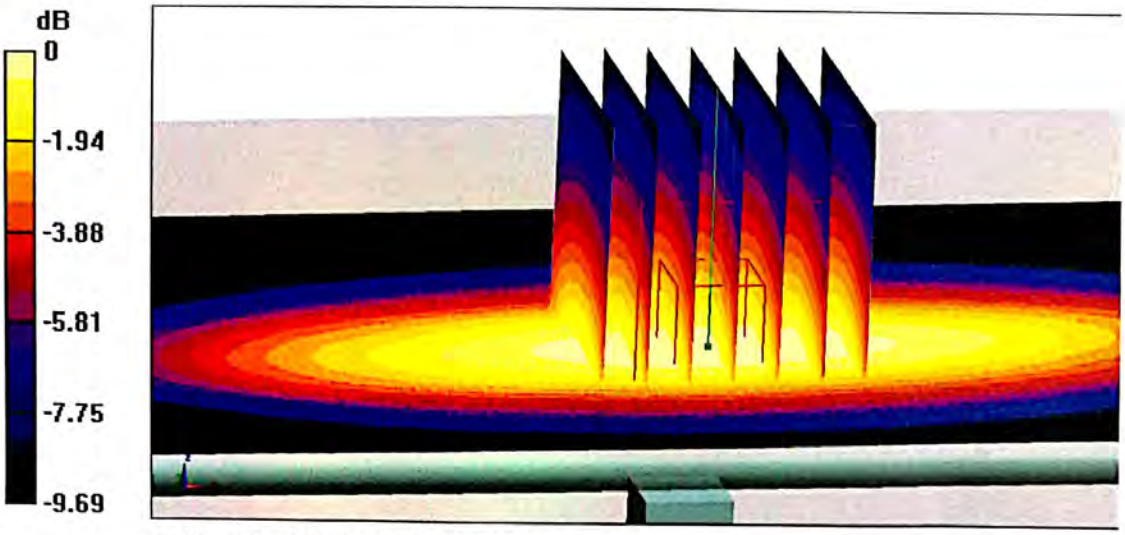
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.91 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.06 W/kg

SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (measured) = 2.76 W/kg



0 dB = 2.76 W/kg = 4.41 dBW/kg

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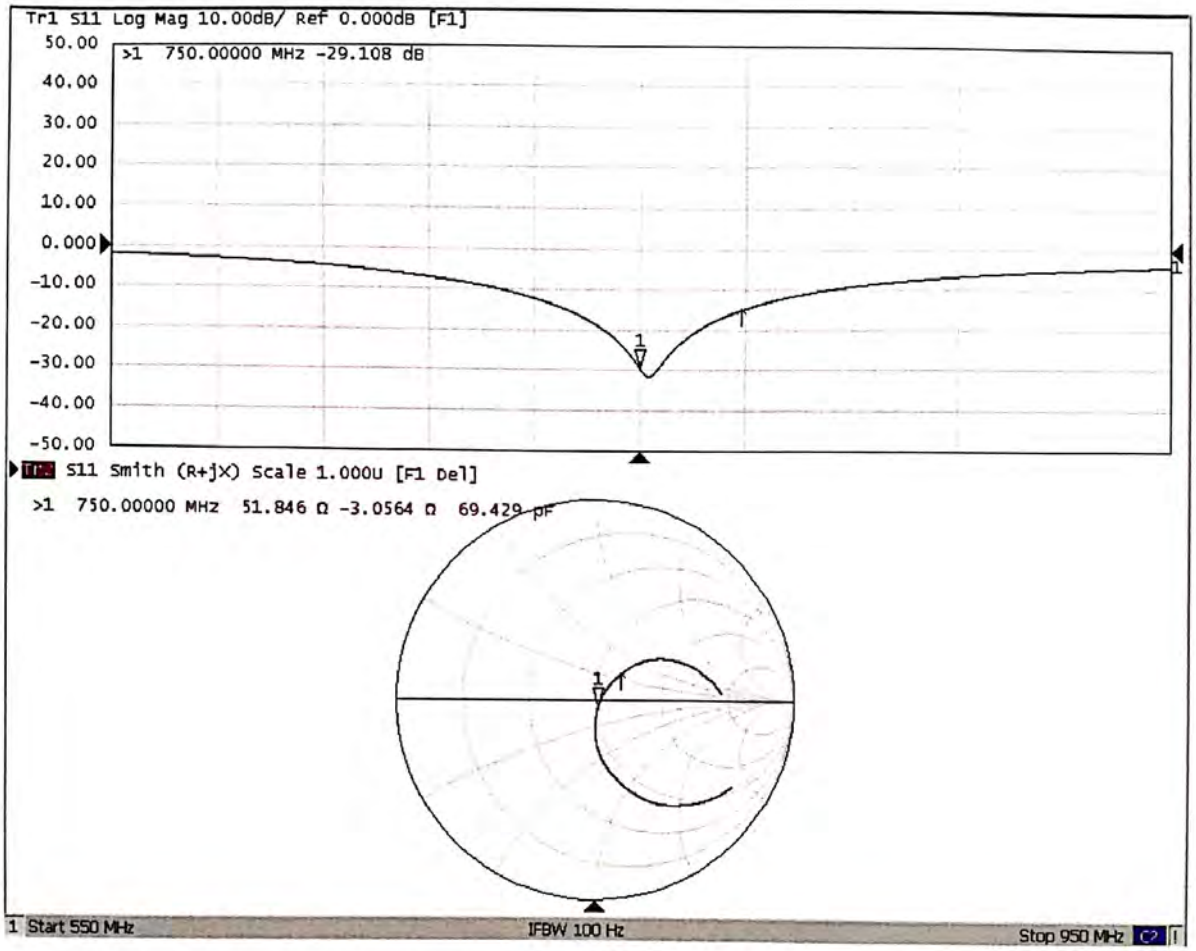
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 05.22.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1160

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.946 S/m; ε_r = 56.92; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.85, 9.85, 9.85) @ 750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

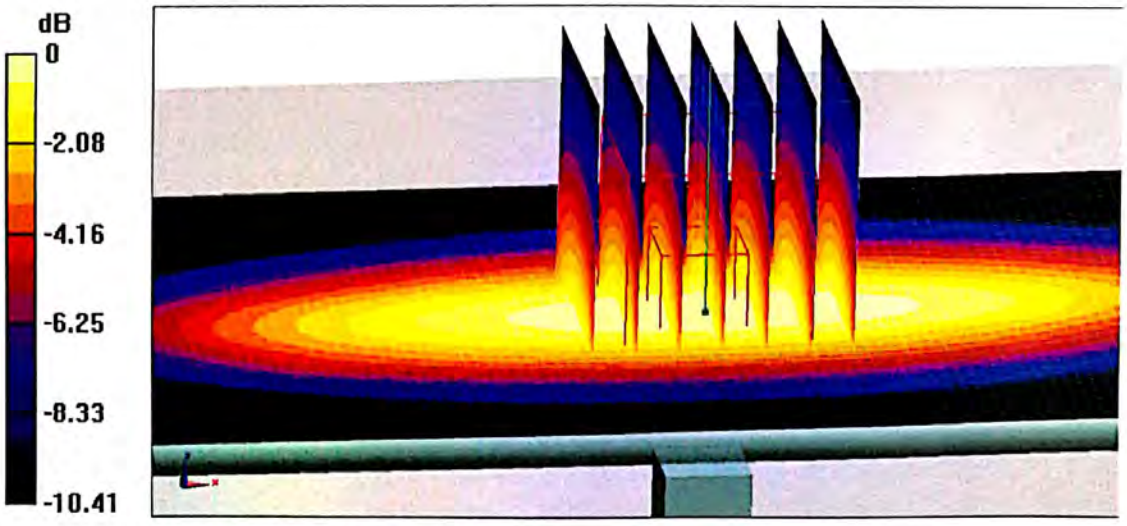
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.99 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (measured) = 2.85 W/kg



0 dB = 2.85 W/kg = 4.55 dBW/kg

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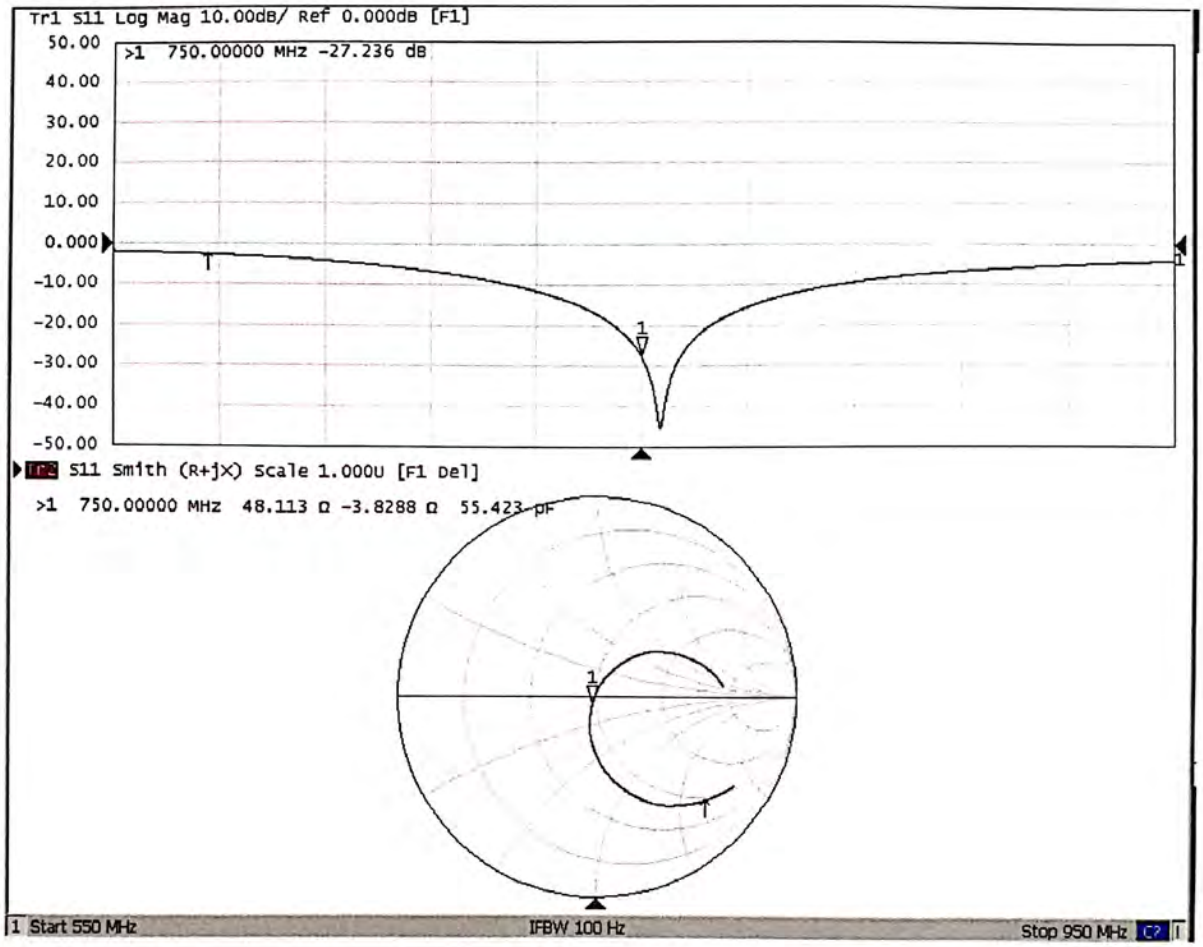
Impedance Measurement Plot for Body TSL



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Client **SGS** **Certificate No: Z19-60472**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d105
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	December 17, 2019

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	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: December 23, 2019

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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	V52.10.3
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	41.4 ± 6 %	0.88 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	2.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.64 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	**6.29 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	49.5Ω- 4.96jΩ
Return Loss	- 26.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.261 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

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DASY5 Validation Report for Head TSL Date: 12.17.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d105

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

Medium parameters used: f = 835 MHz; σ = 0.879 S/m; ε_r = 41.4; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.75, 9.75, 9.75) @ 835 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

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

Reference Value = 58.62 V/m; Power Drift = -0.04 dB

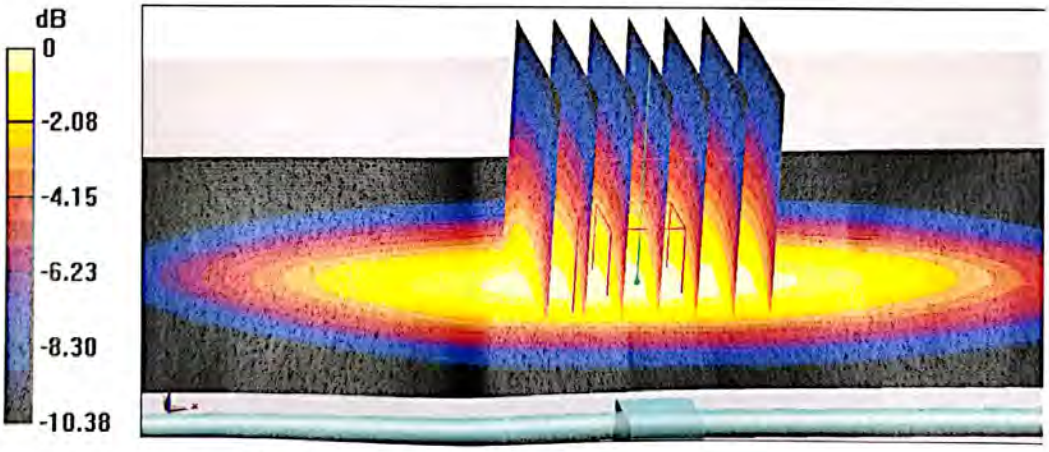
Peak SAR (extrapolated) = 3.58 W/kg

SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.55 W/kg

Smallest distance from peaks to all points 3 dB below = 19.8 mm

Ratio of SAR at M2 to SAR at M1 = 66.2%

Maximum value of SAR (measured) = 3.18 W/kg



0 dB = 3.18 W/kg = 5.02 dBW/kg

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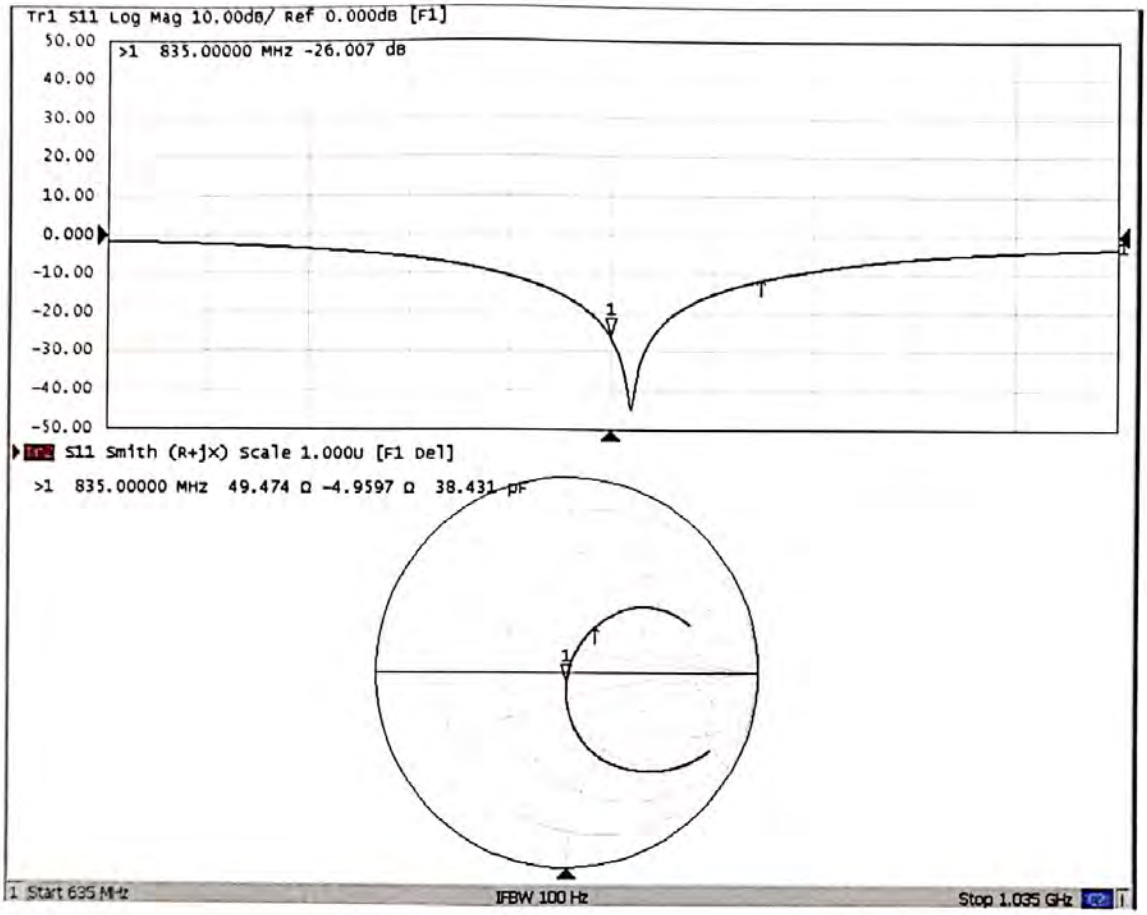
Impedance Measurement Plot for Head TSL



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CNAS L0570

Client **SGS** **Certificate No: Z19-60153**

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1149

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

Calibration date: May 21, 2019

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	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1331	06-Feb-19(SPEAG,No.DAE4-1331_Feb19)	Feb-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: May 25, 2019

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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	52.10.2.1495
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	9.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.3 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.81 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.2 W/kg ± 18.7 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.2 ± 6 %	1.48 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.34 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**37.6 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	4.90 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**19.7 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	47.6Ω+ 0.70 jΩ
Return Loss	- 31.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.9Ω+ 0.29 jΩ
Return Loss	- 25.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.082 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: 05.21.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1149

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

Medium parameters used: f = 1750 MHz; σ = 1.379 S/m; ε_r = 39.84; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.38, 8.38, 8.38) @ 1750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

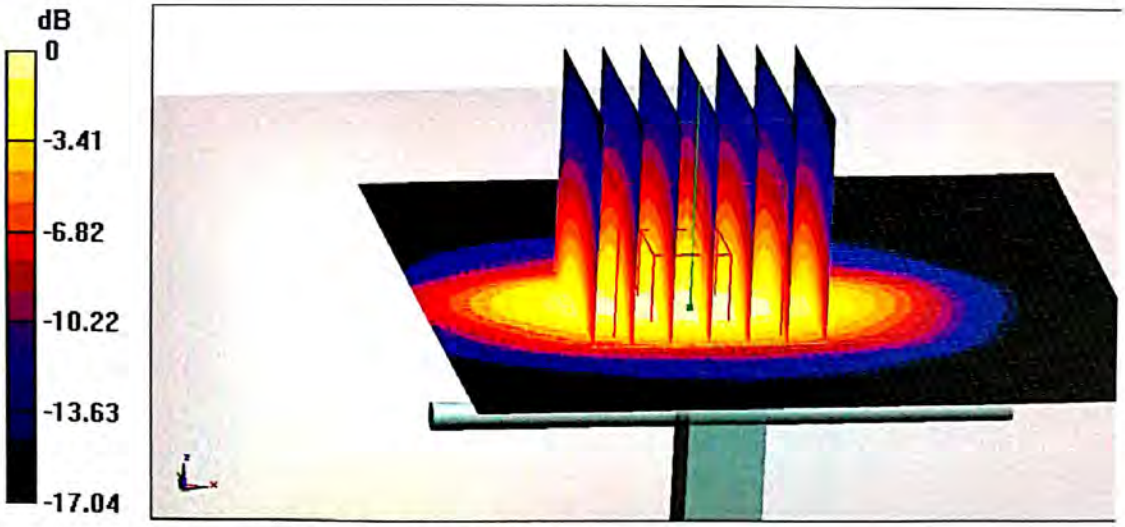
System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.07 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 17.2 W/kg

SAR(1 g) = 9.12 W/kg; SAR(10 g) = 4.81 W/kg

Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.2 W/kg = 11.52 dBW/kg

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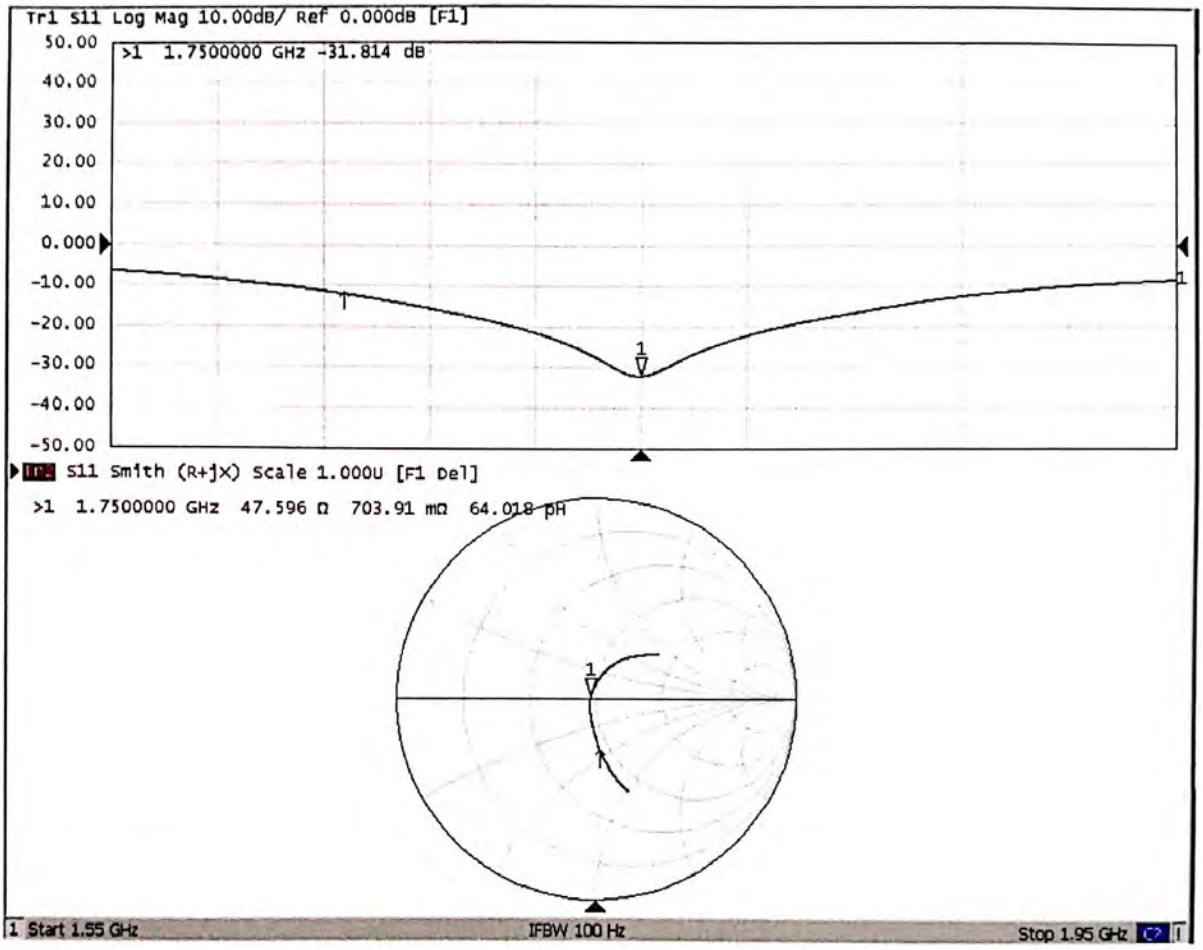
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 05.21.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1149

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

Medium parameters used: f = 1750 MHz; σ = 1.482 S/m; ε_r = 54.22; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.03, 8.03, 8.03) @ 1750 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

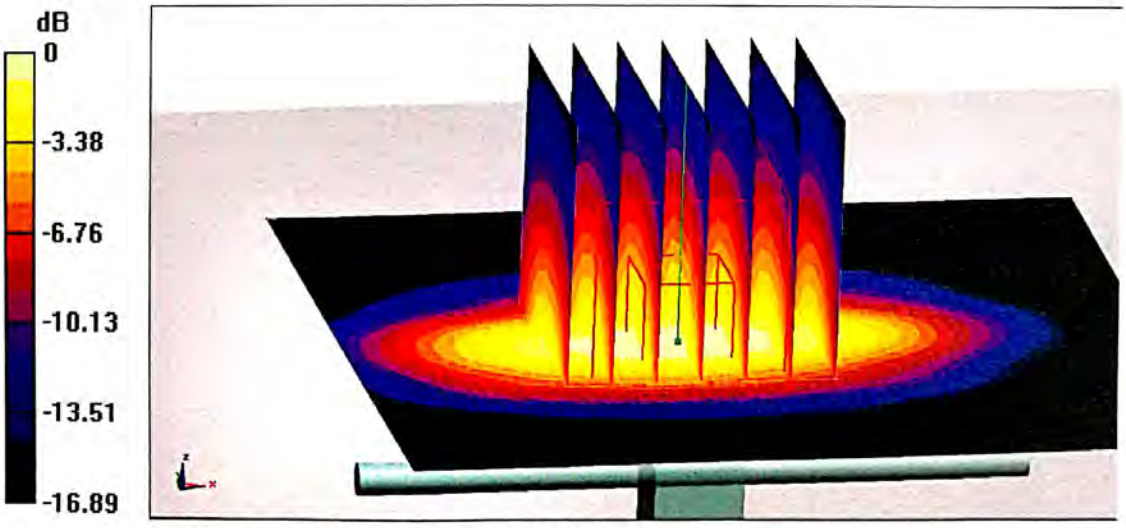
System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.60 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 9.34 W/kg; SAR(10 g) = 4.9 W/kg

Maximum value of SAR (measured) = 14.6 W/kg



0 dB = 14.6 W/kg = 11.64 dBW/kg

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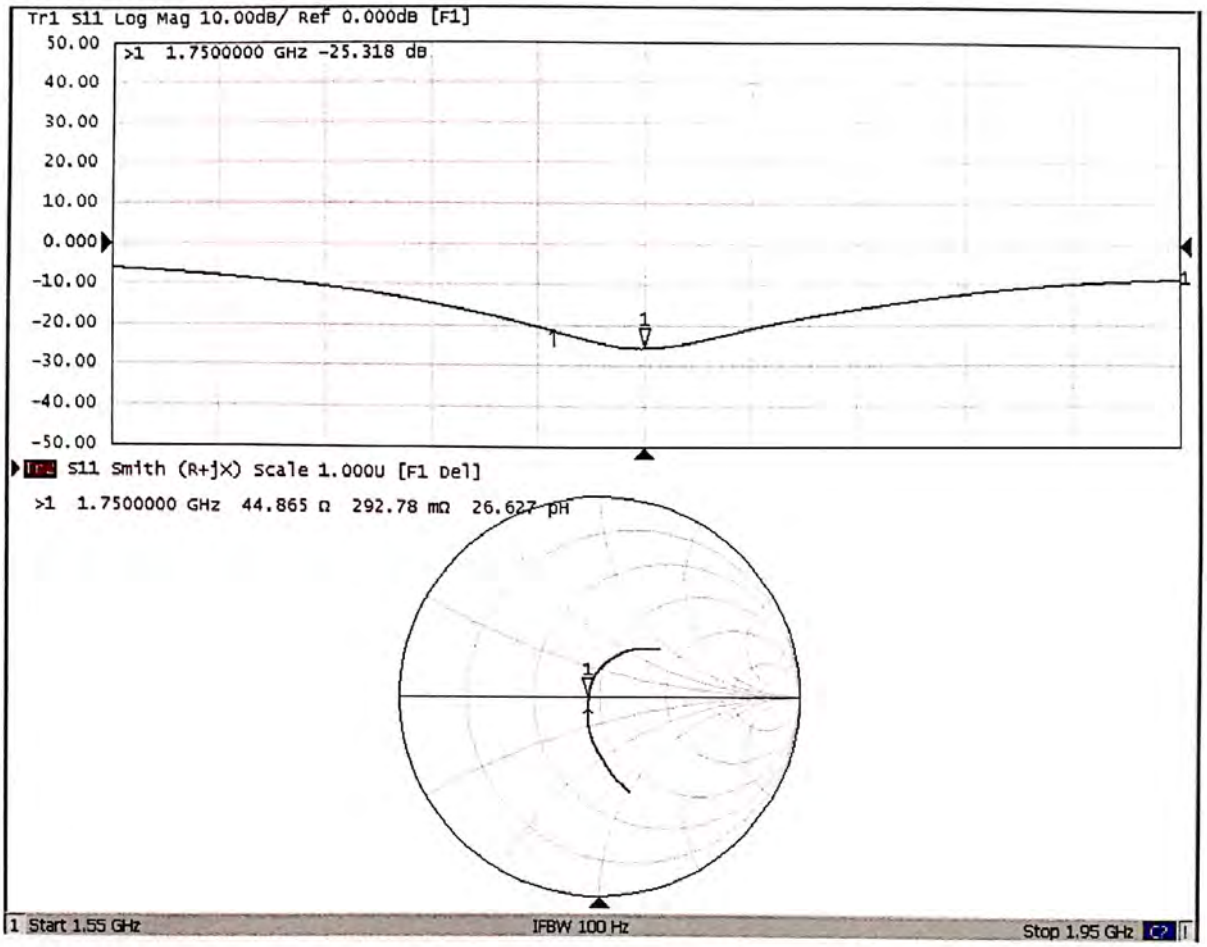
Impedance Measurement Plot for Body TSL



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Client **SGS** **Certificate No: Z19-60473**

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d028

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

Calibration date: December 17, 2019

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	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: December 23, 2019

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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	V52.10.3
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	1900 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	40.5 ± 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	9.75 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.02 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.2 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	51.2Ω+ 7.80jΩ
Return Loss	- 22.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.064 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: 12.17.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d028

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.387 S/m; ε_r = 40.48; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.14, 8.14, 8.14) @ 1900 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

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

Reference Value = 97.62 V/m; Power Drift = 0.02 dB

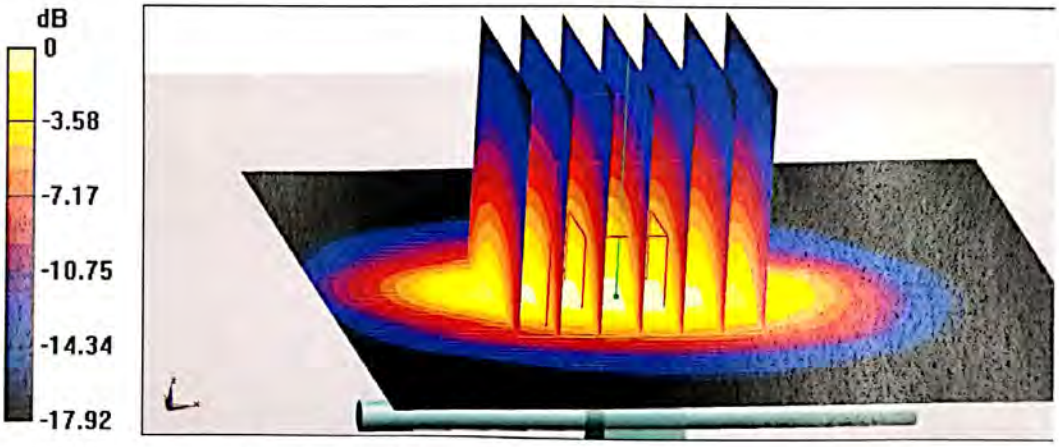
Peak SAR (extrapolated) = 18.8 W/kg

SAR(1 g) = 9.75 W/kg; SAR(10 g) = 5.02 W/kg

Smallest distance from peaks to all points 3 dB below = 9.8 mm

Ratio of SAR at M2 to SAR at M1 = 52.5%

Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg = 11.90 dBW/kg

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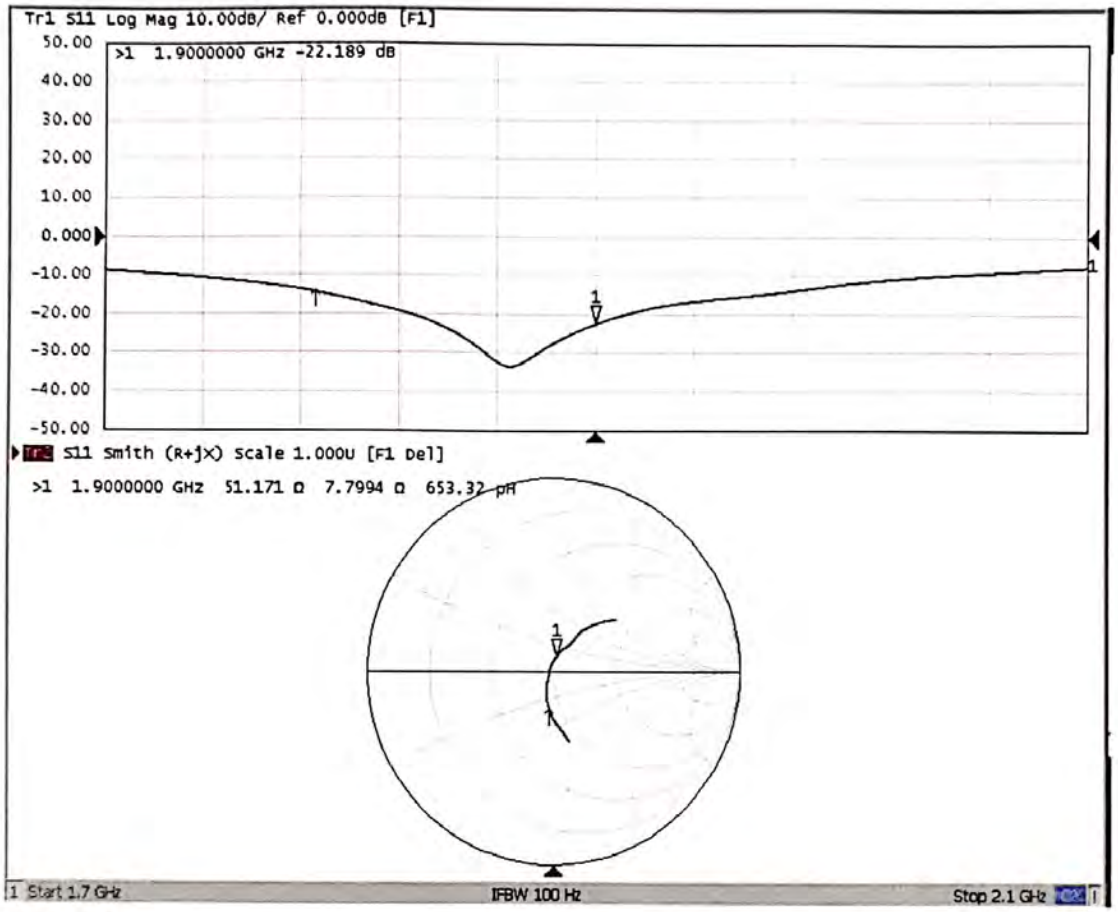
Impedance Measurement Plot for Head TSL



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Client **SGS** **Certificate No: Z19-60474**

CALIBRATION CERTIFICATE

Object D2450V2 - SN: 733

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

Calibration date: December 17, 2019

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	106276	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Power sensor NRP6A	101369	11-Apr-19 (CTTL, No.J19X02605)	Apr-20
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1555	22-Aug-19(CTTL-SPEAG,No.Z19-60295)	Aug-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
NetworkAnalyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: December 23, 2019

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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	V52.10.3
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	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.0 ± 6 %	1.77 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	12.9 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**51.9 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.92 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.8 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	52.2Ω+ 3.88 jΩ
Return Loss	- 27.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.018 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: 12.17.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 733

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.772 S/m; ε_r = 39.01; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.62, 7.62, 7.62) @ 2450 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/22/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

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

Reference Value = 100.5 V/m; Power Drift = -0.07 dB

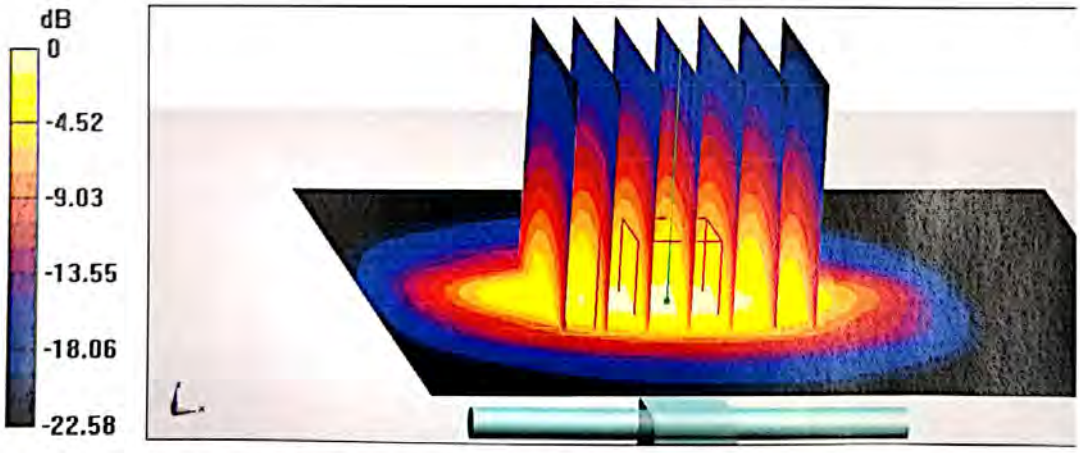
Peak SAR (extrapolated) = 27.3 W/kg

SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.92 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 47.5%

Maximum value of SAR (measured) = 21.8 W/kg



0 dB = 21.8 W/kg = 13.38 dBW/kg

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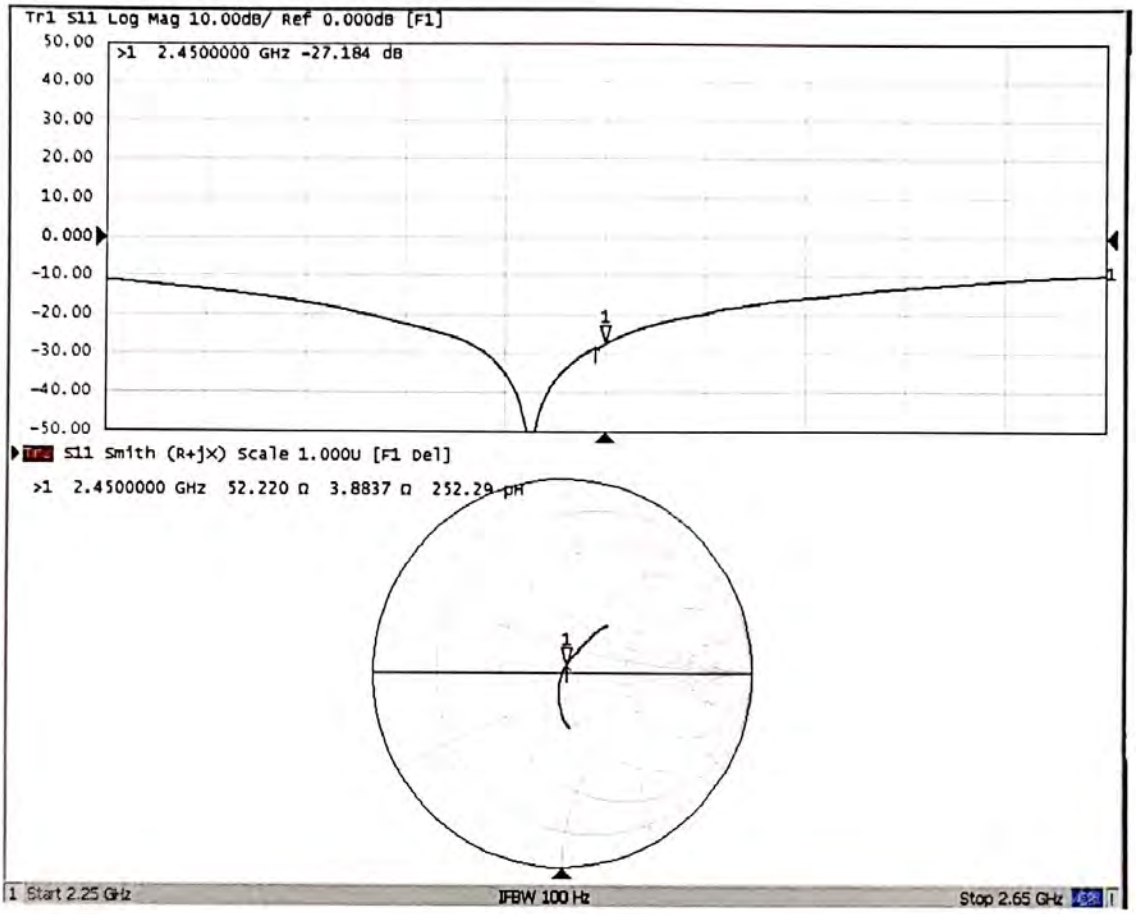
Impedance Measurement Plot for Head TSL



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Client **SGS** **Certificate No: Z19-60155**

CALIBRATION CERTIFICATE

Object	D2600V2 - SN: 1125
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	May 20, 2019

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	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Power sensor NRP8S	104291	20-Aug-18 (CTTL, No.J18X06862)	Aug-19
Reference Probe EX3DV4	SN 3617	31-Jan-19(SPEAG,No.EX3-3617_Jan19)	Jan-20
DAE4	SN 1331	06-Feb-19(SPEAG,No.DAE4-1331_Feb19)	Feb-20
Secondary Standards	**ID #**	**Cal Date(Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	23-Jan-19 (CTTL, No.J19X00336)	Jan-20
Network Analyzer E5071C	MY46110673	24-Jan-19 (CTTL, No.J19X00547)	Jan-20

	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: May 25, 2019

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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	52.10.2.1495
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	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.6 ± 6 %	1.95 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	14.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**56.8 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.9 W/kg ± 18.7 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.9 ± 6 %	2.17 mho/m ± 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**54.0 W/kg ± 18.8 % (k=2)**
SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.90 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.6 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	48.9Ω- 5.00jΩ
Return Loss	- 25.7dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.4Ω- 4.25jΩ
Return Loss	- 24.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.020 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: 05.20.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1125

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2600 MHz; σ = 1.952 S/m; ε_r = 38.59; ρ = 1000 kg/m3

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.19, 7.19, 7.19) @ 2600 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

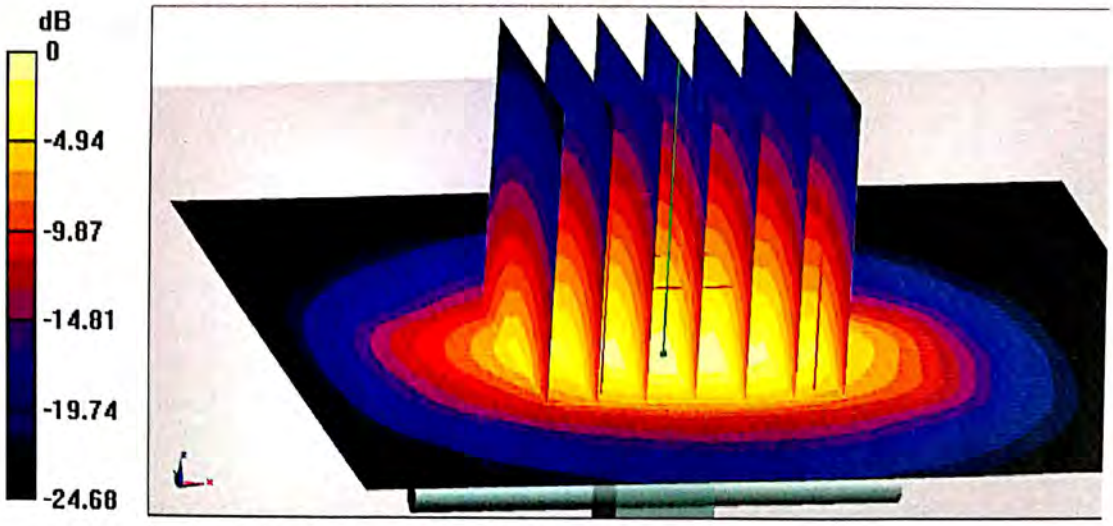
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.31 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.22 W/kg

Maximum value of SAR (measured) = 24.6 W/kg



0 dB = 24.6 W/kg = 13.91 dBW/kg

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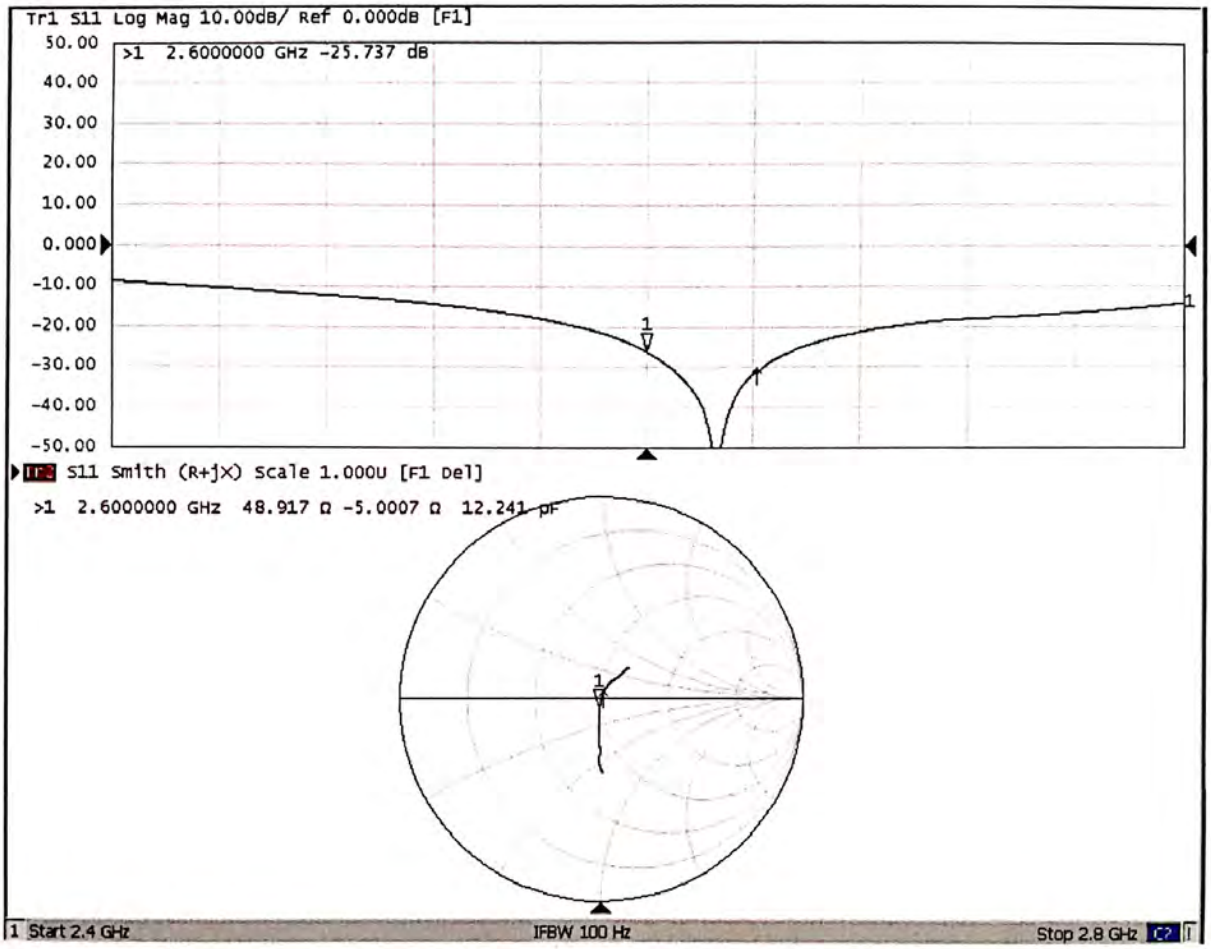
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL Date: 05.20.2019

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1125

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2600 MHz; σ = 2.169 S/m; ε_r = 52.88; ρ = 1000 kg/m3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(7.49, 7.49, 7.49) @ 2600 MHz; Calibrated: 1/31/2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 2/6/2019
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

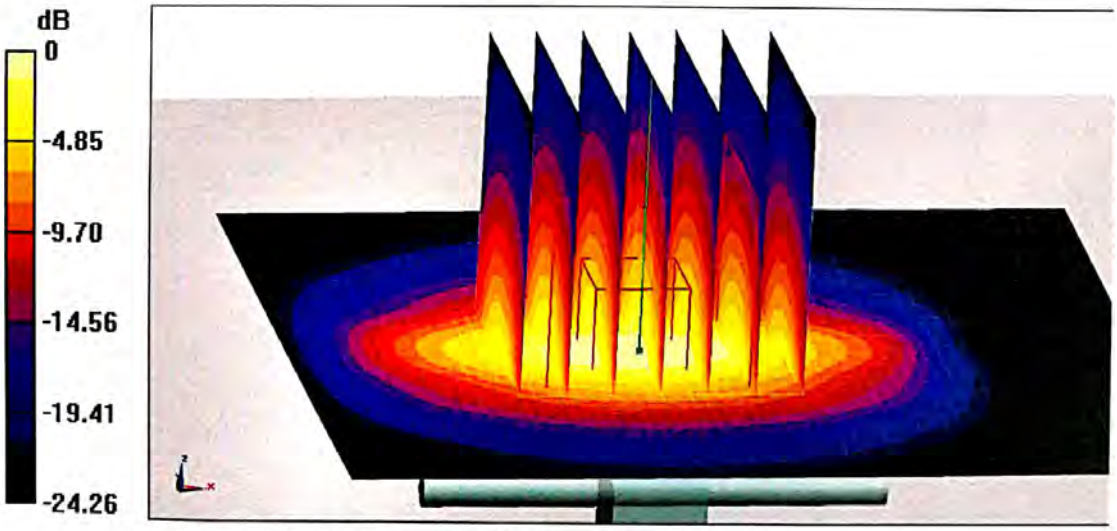
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.11 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 30.4 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 5.9 W/kg

Maximum value of SAR (measured) = 23.6 W/kg



0 dB = 23.6 W/kg = 13.73 dBW/kg

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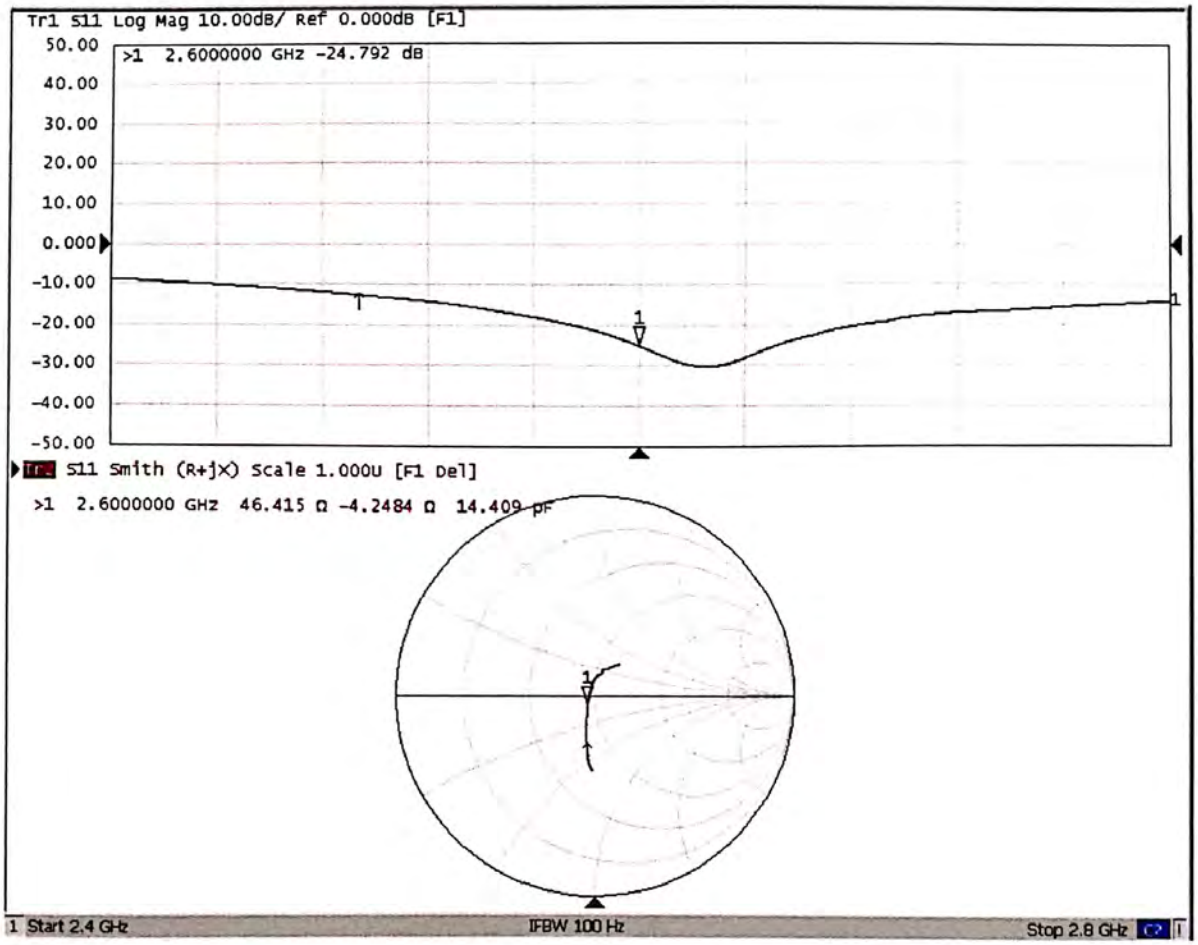
Impedance Measurement Plot for Body TSL



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IMPORTANT NOTICE

USAGE OF THE DAE4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is fixed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:
Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:
Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:
To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client SGS-CN (Auden)

Certificate No: DAE4-896_Jun20

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BJ - SN: 896

Calibration procedure(s): QA CAL-06.v30
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: June 11, 2020

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	03-Sep-19 (No:25949)	Sep-20
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	09-Jan-20 (in house check)	In house check: Jan-21
Calibrator Box V2.1	SE UMS 006 AA 1002	09-Jan-20 (in house check)	In house check: Jan-21

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Laboratory Technician	
Approved by:	Sven Kühn	Deputy Manager	i.V.

Issued: June 11, 2020

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.020 ± 0.02% (k=2)	404.270 ± 0.02% (k=2)	404.201 ± 0.02% (k=2)
Low Range	3.98028 ± 1.50% (k=2)	3.99643 ± 1.50% (k=2)	3.97192 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	37.5 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200031.72	-0.85	-0.00
Channel X	+ Input	20003.84	-1.17	-0.01
Channel X	- Input	-20002.90	3.17	-0.02
Channel Y	+ Input	200032.22	-0.65	-0.00
Channel Y	+ Input	20002.66	-2.27	-0.01
Channel Y	- Input	-20005.59	0.56	-0.00
Channel Z	+ Input	200031.62	-1.12	-0.00
Channel Z	+ Input	20001.63	-3.29	-0.02
Channel Z	- Input	-20006.11	0.11	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.46	-0.47	-0.02
Channel X	+ Input	201.01	0.15	0.07
Channel X	- Input	-198.83	0.16	-0.08
Channel Y	+ Input	2000.11	-0.61	-0.03
Channel Y	+ Input	199.03	-1.65	-0.82
Channel Y	- Input	-200.32	-1.15	0.57
Channel Z	+ Input	2000.58	-0.14	-0.01
Channel Z	+ Input	199.41	-1.29	-0.64
Channel Z	- Input	-200.10	-0.86	0.43

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	12.27	10.72
	- 200	-9.94	-11.49
Channel Y	200	16.61	16.02
	- 200	-17.95	-18.85
Channel Z	200	5.05	5.08
	- 200	-6.58	-6.77

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-1.55	-4.57
Channel Y	200	6.73	-	0.61
Channel Z	200	9.49	4.63	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15563	17646
Channel Y	15995	17799
Channel Z	15649	15511

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.76	-0.05	2.07	0.40
Channel Y	-0.98	-2.24	0.08	0.48
Channel Z	-0.72	-1.67	0.77	0.37

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	–0.01	-8	-9

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CALIBRATION
CNAS L0570

Client **SGS** **Certificate No: Z20-60146**

CALIBRATION CERTIFICAT

Object	EX3DV4 - SN : 3793
Calibration Procedure(s)	FF-Z11-004-01 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	May 09, 2020

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	101919	18-Jun-19(CTTL, No.J19X05125)	Jun-20
Power sensor NRP-Z91	101547	18-Jun-19(CTTL, No.J19X05125)	Jun-20
Power sensor NRP-Z91	101548	18-Jun-19(CTTL, No.J19X05125)	Jun-20
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 3617	30-Jan-20(SPEAG, No.EX3-3617_Jan20/2)	Jan-21
DAE4	SN 1556	4-Feb-20(SPEAG, No.DAE4-1556_Feb20)	Feb-21

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	18-Jun-19(CTTL, No.J19X05127)	Jun-20
Network Analyzer E5071C	MY46110673	10-Feb-20(CTTL, No.J20X00515)	Feb-21

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

Issued: May 11, 2020

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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 the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

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

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z:* A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3793

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	0.49	0.47	0.47	±10.0%
DCP(mV)[B]	101.8	104.6	103.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	161.2	±2.0%
		Y	0.0	0.0	1.0		154.8	
		Z	0.0	0.0	1.0		161.8	

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%.

[A] The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3793

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz][C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unct. (*k*=2)
750	41.9	0.89	9.34	9.34	9.34	0.40	0.80	±12.1%
835	41.5	0.90	9.05	9.05	9.05	0.14	1.28	±12.1%
1750	40.1	1.37	7.81	7.81	7.81	0.24	1.04	±12.1%
1900	40.0	1.40	7.61	7.61	7.61	0.26	1.01	±12.1%
2300	39.5	1.67	7.30	7.30	7.30	0.60	0.69	±12.1%
2450	39.2	1.80	7.06	7.06	7.06	0.40	0.91	±12.1%
2600	39.0	1.96	6.88	6.88	6.88	0.50	0.80	±12.1%
3300	38.2	2.71	6.54	6.54	6.54	0.44	0.93	±13.3%
3500	37.9	2.91	6.51	6.51	6.51	0.44	0.94	±13.3%
3700	37.7	3.12	6.30	6.30	6.30	0.46	0.95	±13.3%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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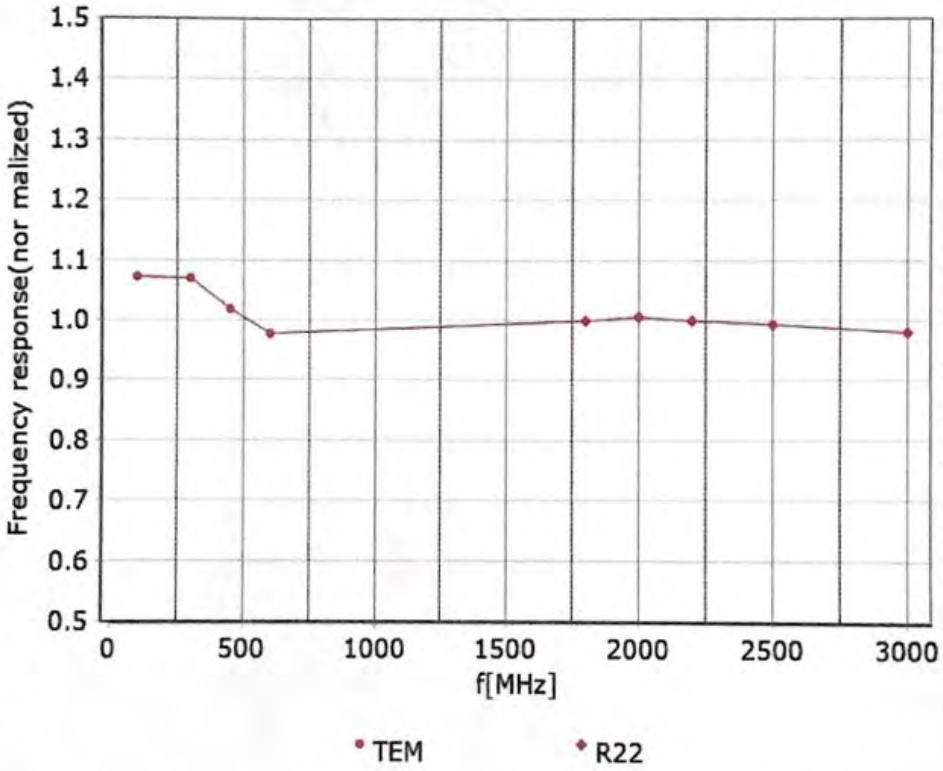
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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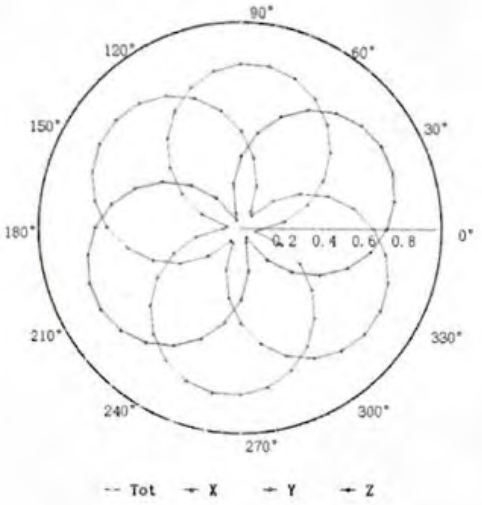
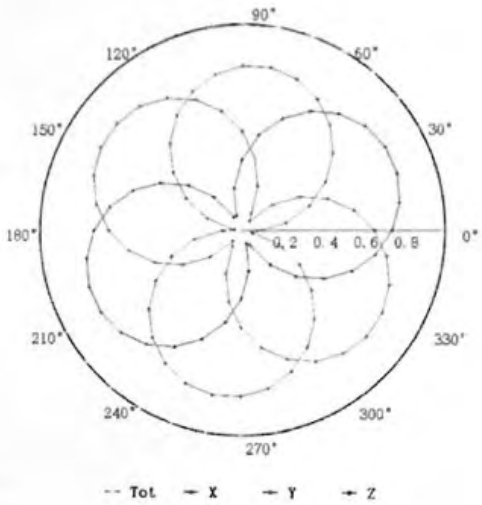
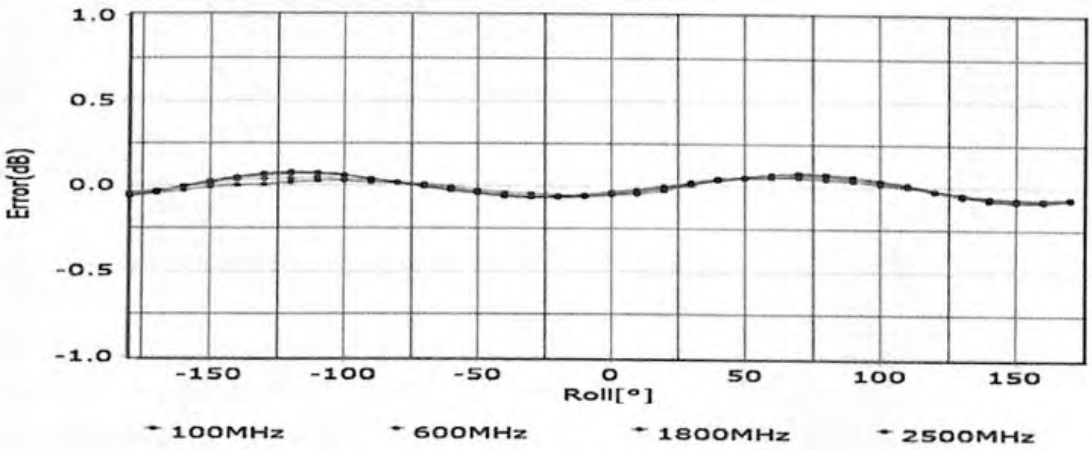
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

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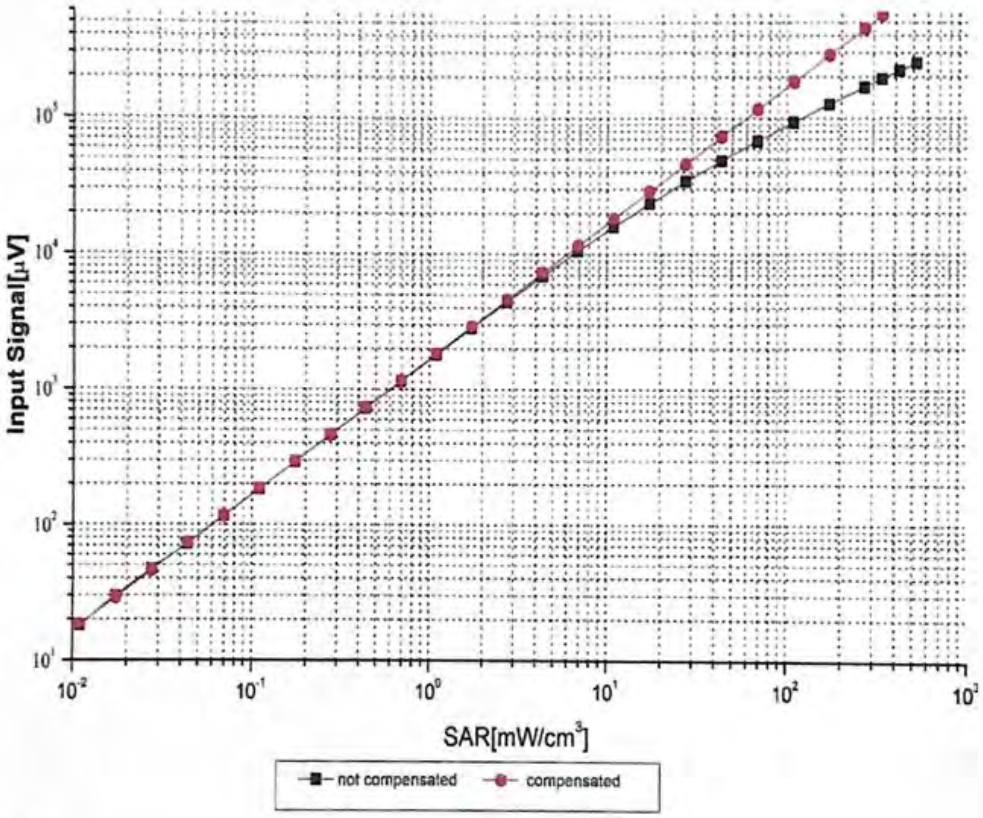
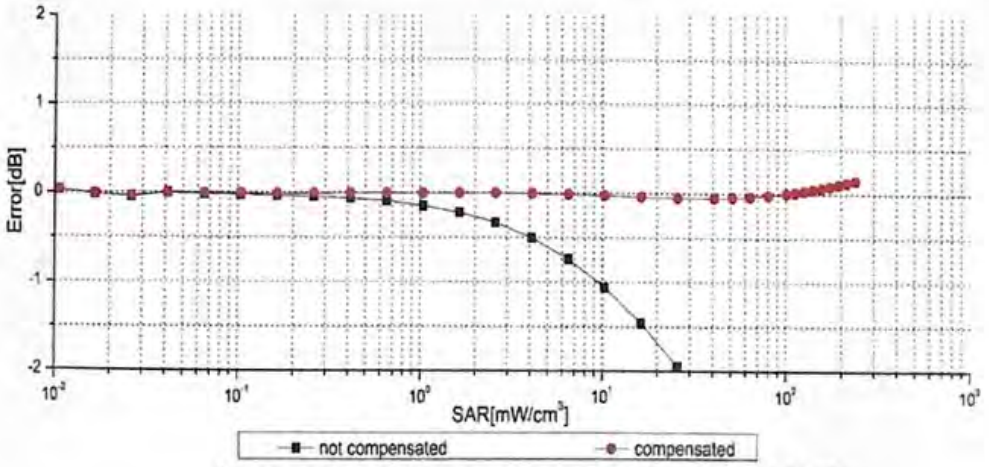
Dynamic Range f(SAR_{head})
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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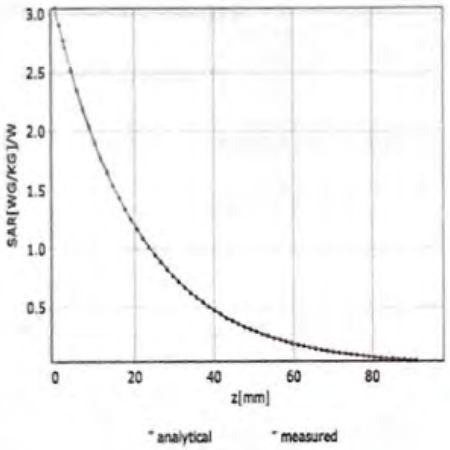
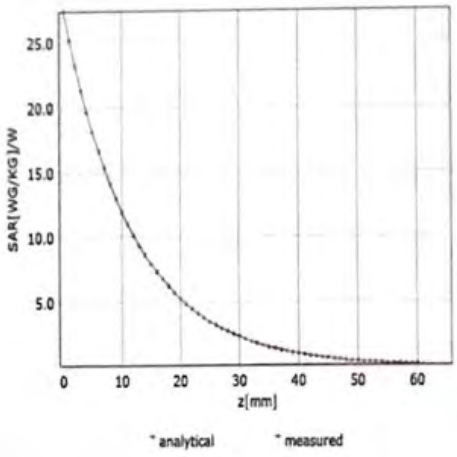
Conversion Factor Assessment

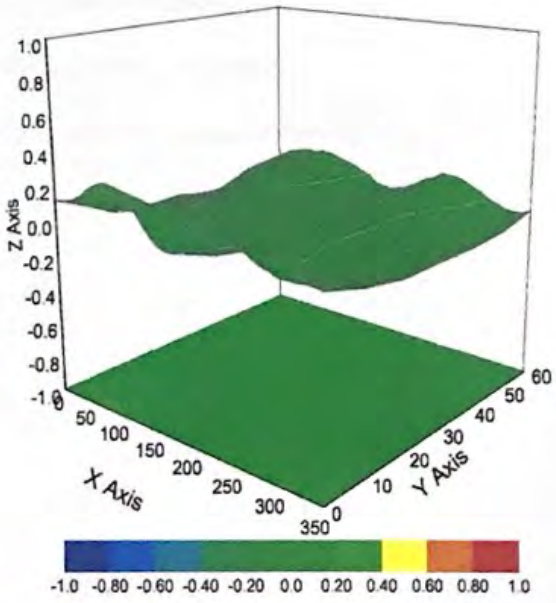
f=750 MHz,WGLS R9(H_convF)



f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3793

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	115.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	10mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

Dipole D750V3 SN 1160				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-22	-29.1	/	51.8	/
2020-05-21	-29.4	1.03%	52.2	0.4Ω

Dipole D1750V2 SN 1149				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-21	-31.8	/	47.6	/
2020-05-20	-32.3	1.57%	48.9	1.3Ω

Dipole D2600V2 SN 1125				
Head Liquid				
Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
2019-05-20	-25.7	/	48.9	/
2020-05-19	-26.6	3.50%	50.8	1.9Ω

Appendix E

Conducted RF Output Power Table

Measurement of RF conducted Power
1 Conducted Power of Main Antenna
1.1 Conducted Power of GSM
1.2 Conducted Power of WCDMA
1.3 Conducted Power of CDMA
1.4 Conducted Power of LTE
2 Conducted Power of WiFi and BT
2.1 Conducted Power of WiFi
2.2 Conducted Power of BT

Measurement of RF conducted Power

1 Conducted Power of Main Antenna

1.1 Conducted Power of GSM

GSM 850										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GSM(GMSK)	GSM	31.35	**31.57**	31.77	32.50	-9.19	22.16	22.38	22.58	23.31
GPRS/EGPRS (GMSK)	1 TX Slot	31.30	31.49	31.56	32.50	-9.19	22.11	22.30	22.37	23.31
	2 TX Slots	30.31	30.44	30.61	31.50	-6.18	24.13	24.26	24.43	25.32
	3 TX Slots	27.94	28.41	28.52	29.50	-4.42	23.52	23.99	24.10	25.08
	4 TX Slots	26.95	**27.31**	27.42	28.50	-3.17	23.78	24.14	24.25	**25.33**
EGPRS(8PSK)	1 TX Slot	24.21	24.45	24.70	25.50	-9.19	15.02	15.26	15.51	16.31
	2 TX Slots	22.85	22.85	22.97	24.00	-6.18	16.67	16.67	16.79	17.82
	3 TX Slots	19.95	19.95	20.30	21.00	-4.42	15.53	15.53	15.88	16.58
	4 TX Slots	18.94	18.94	19.32	20.00	-3.17	15.77	15.77	16.15	16.83
GSM 1900										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GSM(GMSK)	GSM	28.88	**29.06**	29.18	30.00	-9.19	19.69	19.87	19.99	20.81
GPRS/EGPRS (GMSK)	1 TX Slot	28.79	29.03	29.15	30.00	-9.19	19.60	19.84	19.96	20.81
	2 TX Slots	27.62	27.82	28.20	29.00	-6.18	21.44	21.64	22.02	22.82
	3 TX Slots	25.66	25.79	26.07	27.00	-4.42	21.24	21.37	21.65	22.58
	4 TX Slots	**24.51**	**24.76**	**24.93**	26.00	-3.17	21.34	21.59	21.76	**22.83**
EGPRS(8PSK)	1 TX Slot	24.27	24.41	24.71	25.50	-9.19	15.08	15.22	15.52	16.31
	2 TX Slots	23.23	23.40	23.72	24.50	-6.18	17.05	17.22	17.54	18.32
	3 TX Slots	21.12	21.33	21.60	22.50	-4.42	16.70	16.91	17.18	18.08
	4 TX Slots	20.04	20.23	20.54	21.50	-3.17	16.87	17.06	17.37	18.33

Table 1： Conducted Power of GSM

1.2 Conducted Power of WCDMA

WCDMA Band II Sensor off					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	**24.11**	**24.12**	**24.15**	25.00
	12.2kbps AMR	24.02	23.98	24.12	25.00
HSDPA	Subtest 1	23.04	23.05	23.12	23.80
	Subtest 2	22.99	23.03	23.09	23.80
	Subtest 3	22.61	22.58	22.57	23.30
	Subtest 4	22.52	22.53	22.60	23.30
HSUPA	Subtest 1	23.10	23.11	23.09	23.80
	Subtest 2	21.07	21.00	21.11	21.80
	Subtest 3	22.12	22.04	22.06	22.80
	Subtest 4	21.14	21.00	21.12	21.80
	Subtest 5	23.04	23.09	23.05	23.80
DC-HSDPA	Subtest 1	23.00	22.97	23.07	23.80
	Subtest 2	22.95	23.01	23.07	23.80
	Subtest 3	22.53	22.55	22.49	23.30
	Subtest 4	22.49	22.45	22.54	23.30
WCDMA Band II Sensor on					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	**21.00**	**20.96**	**21.11**	22.00
	12.2kbps AMR	20.94	20.93	21.06	22.00
HSDPA	Subtest 1	20.20	20.21	20.26	20.80
	Subtest 2	20.11	20.15	20.21	20.80
	Subtest 3	19.74	19.76	19.70	20.30
	Subtest 4	19.66	19.68	19.77	20.30
HSUPA	Subtest 1	20.25	20.26	20.22	20.80
	Subtest 2	18.23	18.12	18.24	18.80
	Subtest 3	19.30	19.21	19.19	19.80
	Subtest 4	18.29	18.12	18.27	18.80
	Subtest 5	20.17	20.23	20.23	20.80
DC-HSDPA	Subtest 1	20.17	20.14	20.23	20.80
	Subtest 2	20.04	20.11	20.13	20.80
	Subtest 3	19.68	19.70	19.65	20.30
	Subtest 4	19.61	19.64	19.71	20.30

WCDMA Band IV Sensor off					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	**23.14**	**23.13**	**23.12**	24.00
	12.2kbps AMR	23.05	23.09	23.11	24.00
HSDPA	Subtest 1	21.87	21.94	21.99	22.80
	Subtest 2	21.84	21.85	21.97	22.80
	Subtest 3	21.43	21.39	21.42	22.30
	Subtest 4	21.35	21.38	21.44	22.30
HSUPA	Subtest 1	21.92	21.96	21.90	22.80
	Subtest 2	19.94	19.81	19.93	20.80
	Subtest 3	20.94	20.84	20.91	21.80
	Subtest 4	19.96	19.85	19.99	20.80
	Subtest 5	21.84	21.93	21.88	22.80
DC-HSDPA	Subtest 1	21.81	21.92	21.92	22.80
	Subtest 2	21.80	21.83	21.93	22.80
	Subtest 3	21.38	21.31	21.39	22.30
	Subtest 4	21.32	21.33	21.41	22.30
WCDMA Band IV Sensor on					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
WCDMA	12.2kbps RMC	**20.36**	**20.38**	**20.35**	21.00
	12.2kbps AMR	20.32	20.30	20.29	21.00
HSDPA	Subtest 1	19.29	19.36	19.43	19.80
	Subtest 2	19.26	19.30	19.38	19.80
	Subtest 3	18.84	18.80	18.85	19.30
	Subtest 4	18.78	18.77	18.88	19.30
HSUPA	Subtest 1	19.35	19.39	19.32	19.80
	Subtest 2	17.38	17.20	17.36	17.80
	Subtest 3	18.33	18.26	18.32	18.80
	Subtest 4	17.39	17.24	17.39	17.80
	Subtest 5	19.28	19.34	19.29	19.80
DC-HSDPA	Subtest 1	19.21	19.29	19.40	19.80
	Subtest 2	19.22	19.22	19.30	19.80
	Subtest 3	18.80	18.74	18.78	19.30
	Subtest 4	18.74	18.71	18.81	19.30

WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	**23.85**	**23.88**	**23.79**	25.00
	12.2kbps AMR	23.84	23.79	23.80	25.00
HSDPA	Subtest 1	22.95	22.99	23.03	23.80
	Subtest 2	22.89	22.95	22.98	23.80
	Subtest 3	22.54	22.50	22.48	23.30
	Subtest 4	22.43	22.46	22.53	23.30
HSUPA	Subtest 1	23.02	23.05	22.98	23.80
	Subtest 2	21.01	20.89	21.01	21.80
	Subtest 3	22.01	21.93	21.97	22.80
	Subtest 4	21.03	20.91	21.04	21.80
	Subtest 5	22.94	23.04	22.94	23.80
DC-HSDPA	Subtest 1	22.90	22.93	22.96	23.80
	Subtest 2	22.86	22.88	22.96	23.80
	Subtest 3	22.46	22.44	22.45	23.30
	Subtest 4	22.39	22.42	22.51	23.30

Table 2： Conducted Power of WCDMA

1.3 Conducted Power of CDMA

CDMA BC0				
Channel	1013	384	777	Tune up
1XRTT RC1 SO55	23.62	23.84	23.67	24.80
1XRTT RC3 SO55	23.65	**23.82**	23.69	24.80
1XRTT RC3 SO32 (FCH)	**23.64**	**23.86**	**23.66**	24.80
1XRTT RC3 SO32 (+ SCH)	23.74	23.85	23.66	24.80
1XEVDO RTAP 153.6Kbps	23.65	23.73	23.60	24.80
1XEVDO RETAP 4096Bits	23.69	23.82	23.72	24.80
CDMA BC1 Sensor off				
Channel	25	600	1175	Tune up
1XRTT RC1 SO55	24.05	24.06	24.24	24.80
1XRTT RC3 SO55	24.08	**24.03**	24.21	24.80
1XRTT RC3 SO32 (FCH)	**24.11**	**24.03**	**24.18**	24.80
1XRTT RC3 SO32 (+ SCH)	24.09	24.09	24.23	24.80
1XEVDO RTAP 153.6Kbps	**24.07**	**24.07**	**24.26**	24.80
1XEVDO RETAP 4096Bits	**24.09**	**24.05**	**24.23**	24.80
CDMA BC1 Sensor on				
Channel	25	600	1175	Tune up
1XRTT RC1 SO55	20.04	19.98	19.99	20.80
1XRTT RC3 SO55	20.07	20.09	20.01	20.80
1XRTT RC3 SO32 (FCH)	19.99	**20.07**	20.08	20.80
1XRTT RC3 SO32 (+ SCH)	20.03	20.04	20.05	20.80
1XEVDO RTAP 153.6Kbps	20.15	**20.13**	20.18	20.80
1XEVDO RETAP 4096Bits	20.17	**20.17**	**20.21**	20.80
CDMA BC10				
Channel	476	580	684	Tune up
1XRTT RC1 SO55	23.13	23.10	23.09	24.80
1XRTT RC3 SO55	23.14	**23.11**	23.13	24.80
1XRTT RC3 SO32 (FCH)	23.31	**23.21**	23.15	24.80
1XRTT RC3 SO32 (+ SCH)	23.28	23.13	23.17	24.80
1XEVDO RTAP 153.6Kbps	**23.33**	**23.31**	23.29	24.80
1XEVDO RETAP 4096Bits	23.32	**23.32**	23.27	24.80

Table 3： Conducted Power of CDMA

1.4 Conducted Power of LTE

LTE Band 2 Sensor off				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	22.70	22.44	22.64	24.00
		1	2	22.59	22.45	23.05	24.00
		1	5	22.61	22.49	22.87	24.00
		3	0	22.61	22.53	22.75	24.00
		3	2	22.56	22.60	22.97	24.00
		3	3	22.52	22.57	22.90	24.00
		6	0	21.64	21.73	21.87	23.00
	16QAM	1	0	21.13	21.54	21.55	23.00
		1	2	21.29	21.61	21.57	23.00
		1	5	21.13	21.59	21.33	23.00
		3	0	21.63	21.82	21.85	23.00
		3	2	21.74	21.77	21.81	23.00
		3	3	21.67	21.82	21.63	23.00
		6	0	20.50	20.67	20.66	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	22.52	22.41	22.62	24.00
		1	7	22.60	22.49	22.75	24.00
		1	14	22.27	22.38	22.60	24.00
		8	0	21.50	21.60	21.76	23.00
		8	4	21.61	21.62	21.88	23.00
		8	7	21.54	21.59	21.66	23.00
		15	0	21.55	21.58	21.82	23.00
	16QAM	1	0	21.21	21.30	21.90	23.00
		1	7	21.18	21.29	22.23	23.00
		1	14	21.19	21.30	21.45	23.00
		8	0	20.50	20.67	20.80	22.00
		8	4	20.62	20.76	20.87	22.00
		8	7	20.55	20.62	20.93	22.00
		15	0	20.67	20.71	20.99	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	22.58	22.52	22.73	24.00
		1	13	22.70	22.54	22.80	24.00
		1	24	22.34	22.46	22.68	24.00
		12	0	21.58	21.66	21.87	23.00
		12	6	21.67	21.73	21.99	23.00
		12	13	21.60	21.64	21.76	23.00
		25	0	21.61	21.66	21.91	23.00
	16QAM	1	0	21.05	21.08	21.97	23.00
		1	13	21.27	21.15	22.29	23.00
		1	24	21.16	21.39	21.54	23.00
		12	0	20.59	20.78	20.91	22.00
		12	6	20.68	20.85	20.94	22.00
		12	13	20.62	20.68	21.01	22.00
		25	0	20.72	20.80	21.06	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	22.71	22.76	23.27	24.00
		1	25	23.03	23.02	23.21	24.00
		1	49	22.77	22.93	22.80	24.00
		25	0	21.91	21.94	22.17	23.00
		25	13	21.86	21.94	22.20	23.00
		25	25	21.80	21.85	22.08	23.00
		50	0	21.90	21.96	22.15	23.00
	16QAM	1	0	22.01	22.02	22.29	23.00
		1	25	22.38	22.43	22.35	23.00
		1	49	21.91	21.77	22.03	23.00
		25	0	21.02	20.90	21.23	22.00
		25	13	20.88	20.90	21.27	22.00
		25	25	20.83	20.79	21.11	22.00
		50	0	21.05	20.95	21.13	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	22.64	22.65	22.94	24.00
		1	38	22.77	22.86	**23.36**	24.00
		1	74	22.73	22.94	23.05	24.00
		36	0	21.96	22.02	22.26	23.00
		36	18	22.01	22.00	22.41	23.00
		36	39	22.01	22.06	22.23	23.00
		75	0	22.02	21.98	22.30	23.00
	16QAM	1	0	21.96	22.03	21.92	23.00
		1	38	22.41	22.48	22.70	23.00
		1	74	22.04	21.64	22.05	23.00
		36	0	20.96	20.98	21.21	22.00
		36	18	21.03	21.17	21.38	22.00
		36	39	21.06	21.01	21.33	22.00
		75	0	21.05	21.14	21.25	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	22.79	**23.29**	23.05	24.00
		1	50	**23.20**	22.96	**23.19**	24.00
		1	99	23.03	22.95	23.14	24.00
		50	0	22.38	**22.46**	22.33	23.00
		50	25	22.24	22.15	22.41	23.00
		50	50	22.23	22.09	22.43	23.00
		100	0	22.16	22.14	22.32	23.00
	16QAM	1	0	21.74	21.70	21.46	23.00
		1	50	22.07	21.90	22.45	23.00
		1	99	21.70	21.89	22.28	23.00
		50	0	21.29	21.29	21.43	22.00
		50	25	21.27	21.28	21.48	22.00
		50	50	21.19	21.16	21.40	22.00
		100	0	21.19	21.23	21.40	22.00

LTE Band 2 Sensor on				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	21.19	21.32	21.37	22.50
		1	2	21.19	21.41	21.52	22.50
		1	5	21.17	21.42	21.47	22.50
		3	0	21.32	21.44	21.70	22.50
		3	2	21.40	21.52	21.73	22.50
		3	3	21.35	21.43	21.63	22.50
		6	0	20.42	20.34	20.66	21.50
	16QAM	1	0	20.53	19.55	20.26	21.50
		1	2	20.48	19.61	20.59	21.50
		1	5	19.55	19.63	19.92	21.50
		3	0	20.26	20.23	20.27	21.50
		3	2	20.13	20.46	20.45	21.50
		3	3	20.28	20.17	20.32	21.50
		6	0	19.35	19.20	19.57	20.50
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	21.07	20.98	21.58	22.50
		1	7	21.09	21.37	21.58	22.50
		1	14	21.29	21.40	21.52	22.50
		8	0	20.40	20.40	20.59	21.50
		8	4	20.44	20.39	20.51	21.50
		8	7	20.48	20.35	20.49	21.50
		15	0	20.38	20.36	20.57	21.50
	16QAM	1	0	20.32	20.10	20.13	21.50
		1	7	20.14	19.91	20.53	21.50
		1	14	20.27	20.21	20.36	21.50
		8	0	19.30	19.19	19.45	20.50
		8	4	19.37	19.36	19.52	20.50
		8	7	19.44	19.21	19.52	20.50
		15	0	19.36	19.38	19.62	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18625	18900	19175	
5MHz	QPSK	1	0	21.13	21.36	21.44	22.50
		1	13	21.31	21.22	21.58	22.50
		1	24	21.35	21.08	21.33	22.50
		12	0	20.35	20.33	20.66	21.50
		12	6	20.40	20.40	20.58	21.50
		12	13	20.41	20.36	20.53	21.50
		25	0	20.44	20.40	20.60	21.50
	16QAM	1	0	19.97	19.77	20.76	21.50
		1	13	19.69	19.69	20.77	21.50
		1	24	20.59	20.38	20.49	21.50
		12	0	19.34	19.23	19.65	20.50
		12	6	19.36	19.37	19.72	20.50
		12	13	19.38	19.50	19.70	20.50
		25	0	19.34	19.31	19.52	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18650	18900	19150	
10MHz	QPSK	1	0	20.99	21.09	21.33	22.50
		1	25	21.17	21.26	**21.74**	22.50
		1	49	21.01	21.09	21.39	22.50
		25	0	20.32	20.40	20.58	21.50
		25	13	20.28	20.36	20.55	21.50
		25	25	20.24	20.25	20.53	21.50
		50	0	20.31	20.34	20.49	21.50
	16QAM	1	0	19.72	19.81	20.21	21.50
		1	25	20.83	19.94	20.25	21.50
		1	49	20.37	19.68	20.12	21.50
		25	0	19.17	19.33	19.76	20.50
		25	13	19.21	19.34	19.77	20.50
		25	25	19.28	19.39	19.59	20.50
		50	0	19.35	19.39	19.48	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18675	18900	19125	
15MHz	QPSK	1	0	21.36	21.30	21.18	22.50
		1	38	21.44	21.42	21.65	22.50
		1	74	21.35	21.33	21.50	22.50
		36	0	20.29	20.42	20.66	21.50
		36	18	20.35	20.35	20.61	21.50
		36	39	20.36	20.25	20.53	21.50
		75	0	20.28	20.35	20.56	21.50
	16QAM	1	0	19.99	20.16	20.17	21.50
		1	38	19.74	19.73	20.03	21.50
		1	74	19.99	20.10	20.02	21.50
		36	0	19.18	19.34	19.63	20.50
		36	18	19.30	19.41	19.59	20.50
		36	39	19.14	19.14	19.59	20.50
		75	0	19.24	19.36	19.54	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	21.10	**21.50**	21.07	22.50
		1	50	**21.20**	21.34	**21.45**	22.50
		1	99	21.05	21.23	21.16	22.50
		50	0	20.30	**20.58**	20.51	21.50
		50	25	20.28	20.40	20.50	21.50
		50	50	20.33	20.29	20.57	21.50
		100	0	20.26	20.39	20.31	21.50
	16QAM	1	0	19.87	19.90	20.36	21.50
		1	50	20.13	20.83	21.03	21.50
		1	99	20.46	20.32	20.47	21.50
		50	0	19.25	19.28	19.37	20.50
		50	25	19.21	19.32	19.57	20.50
		50	50	19.34	19.30	19.50	20.50
		100	0	19.25	19.31	19.39	20.50

LTE Band 4 Sensor off				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	23.70	23.81	23.84	25.00
		1	2	23.91	23.91	23.91	25.00
		1	5	23.87	23.84	23.97	25.00
		3	0	23.67	23.72	23.87	25.00
		3	2	23.48	23.66	23.81	25.00
		3	3	23.65	23.63	23.76	25.00
		6	0	22.73	22.75	22.82	24.00
	16QAM	1	0	22.29	22.09	22.27	24.00
		1	2	22.85	22.27	22.23	24.00
		1	5	22.84	22.85	22.10	24.00
		3	0	22.78	22.94	22.95	24.00
		3	2	22.85	22.83	22.97	24.00
		3	3	22.63	22.94	22.72	24.00
		6	0	21.67	21.64	21.92	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	24.02	24.05	23.76	25.00
		1	7	24.25	23.82	24.14	25.00
		1	14	23.93	23.98	24.03	25.00
		8	0	22.96	22.86	22.98	24.00
		8	4	22.94	22.90	22.96	24.00
		8	7	22.85	22.88	22.89	24.00
		15	0	22.88	22.96	22.93	24.00
	16QAM	1	0	22.91	23.01	22.70	24.00
		1	7	22.80	23.13	22.73	24.00
		1	14	22.93	23.05	22.94	24.00
		8	0	22.00	22.04	22.08	23.00
		8	4	22.02	22.01	22.10	23.00
		8	7	22.00	21.96	22.07	23.00
		15	0	21.92	22.01	21.84	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	23.80	23.69	24.02	25.00
		1	13	23.96	23.80	24.20	25.00
		1	24	23.75	23.81	24.10	25.00
		12	0	22.91	22.92	23.09	24.00
		12	6	22.94	23.09	23.08	24.00
		12	13	22.87	22.95	23.05	24.00
		25	0	22.87	22.92	23.10	24.00
	16QAM	1	0	22.35	22.37	23.21	24.00
		1	13	22.56	22.40	22.95	24.00
		1	24	22.65	22.14	22.65	24.00
		12	0	21.82	21.87	22.13	23.00
		12	6	21.87	21.85	22.21	23.00
		12	13	21.80	21.82	22.00	23.00
		25	0	21.81	21.99	22.14	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	24.07	23.75	24.12	25.00
		1	25	23.98	24.15	24.14	25.00
		1	49	23.78	23.93	**24.37**	25.00
		25	0	23.05	23.02	23.31	24.00
		25	13	23.09	23.02	23.30	24.00
		25	25	22.90	23.07	23.12	24.00
		50	0	22.99	23.05	23.26	24.00
	16QAM	1	0	23.49	22.78	23.87	24.00
		1	25	23.46	23.12	23.88	24.00
		1	49	22.87	23.02	22.86	24.00
		25	0	21.98	22.09	22.27	23.00
		25	13	22.03	22.09	22.47	23.00
		25	25	21.84	21.96	22.27	23.00
		50	0	22.19	22.06	22.35	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	23.91	23.84	24.26	25.00
		1	38	23.99	23.97	24.14	25.00
		1	74	23.98	23.96	24.29	25.00
		36	0	23.11	23.14	23.46	24.00
		36	18	23.26	23.20	23.46	24.00
		36	39	23.12	23.10	23.31	24.00
		75	0	23.07	23.06	23.33	24.00
	16QAM	1	0	23.28	22.79	23.29	24.00
		1	38	23.62	23.06	23.83	24.00
		1	74	22.66	22.86	23.40	24.00
		36	0	22.18	22.06	22.24	23.00
		36	18	22.11	22.06	22.43	23.00
		36	39	22.19	22.10	22.21	23.00
		75	0	22.03	22.12	22.41	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	**24.22**	**24.28**	24.08	25.00
		1	50	24.11	24.21	**24.27**	25.00
		1	99	24.20	24.04	24.26	25.00
		50	0	23.16	**23.38**	23.37	24.00
		50	25	23.13	23.22	23.34	24.00
		50	50	23.16	23.21	23.26	24.00
		100	0	23.22	23.03	23.39	24.00
	16QAM	1	0	22.80	23.10	22.94	24.00
		1	50	23.72	23.78	23.94	24.00
		1	99	23.46	22.74	23.11	24.00
		50	0	22.26	22.05	22.34	23.00
		50	25	22.14	22.28	22.32	23.00
		50	50	22.06	22.19	22.25	23.00
		100	0	22.15	22.10	22.29	23.00

LTE Band 4 Sensor on				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	21.48	21.21	21.48	22.50
		1	2	21.53	21.24	21.40	22.50
		1	5	21.35	21.37	21.43	22.50
		3	0	21.40	21.47	21.67	22.50
		3	2	21.37	21.70	21.62	22.50
		3	3	21.49	21.47	21.64	22.50
		6	0	20.61	20.42	20.41	21.50
	16QAM	1	0	20.84	20.86	20.11	21.50
		1	2	20.87	19.93	20.94	21.50
		1	5	20.48	20.19	20.22	21.50
		3	0	20.55	20.34	20.44	21.50
		3	2	20.33	20.54	20.32	21.50
		3	3	20.22	20.30	20.48	21.50
		6	0	19.36	19.22	19.37	20.50
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	21.54	21.38	21.47	22.50
		1	7	21.58	21.54	21.52	22.50
		1	14	21.55	21.43	21.57	22.50
		8	0	20.47	20.41	20.50	21.50
		8	4	20.49	20.45	20.63	21.50
		8	7	20.45	20.60	20.51	21.50
		15	0	20.42	20.41	20.53	21.50
	16QAM	1	0	20.18	20.27	20.41	21.50
		1	7	20.24	20.10	20.59	21.50
		1	14	20.30	20.48	20.30	21.50
		8	0	19.34	19.71	19.43	20.50
		8	4	19.51	19.55	19.61	20.50
		8	7	19.52	19.43	19.60	20.50
		15	0	19.45	19.55	19.48	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	21.36	21.22	21.63	22.50
		1	13	21.42	21.36	21.62	22.50
		1	24	21.41	21.31	21.43	22.50
		12	0	20.42	20.36	20.70	21.50
		12	6	20.46	20.43	20.64	21.50
		12	13	20.42	20.39	20.65	21.50
		25	0	20.43	20.36	20.60	21.50
	16QAM	1	0	20.82	20.68	20.44	21.50
		1	13	20.65	20.22	20.12	21.50
		1	24	19.96	20.41	20.34	21.50
		12	0	19.33	19.51	19.43	20.50
		12	6	19.44	19.60	19.42	20.50
		12	13	19.29	19.56	19.57	20.50
		25	0	19.37	19.48	19.49	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	21.31	21.07	21.51	22.50
		1	25	21.62	21.45	**21.75**	22.50
		1	49	21.39	21.32	21.68	22.50
		25	0	20.41	20.39	20.58	21.50
		25	13	20.41	20.41	20.61	21.50
		25	25	20.34	20.36	20.52	21.50
		50	0	20.54	20.31	20.64	21.50
	16QAM	1	0	19.97	20.30	20.67	21.50
		1	25	20.90	20.90	21.15	21.50
		1	49	20.36	20.18	20.45	21.50
		25	0	19.55	19.41	19.50	20.50
		25	13	19.50	19.47	19.57	20.50
		25	25	19.37	19.27	19.43	20.50
		50	0	19.30	19.32	19.63	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	21.30	21.07	21.52	22.50
		1	38	21.23	21.34	21.42	22.50
		1	74	21.29	21.24	21.63	22.50
		36	0	20.47	20.39	20.51	21.50
		36	18	20.42	20.36	20.63	21.50
		36	39	20.31	20.34	20.61	21.50
		75	0	20.36	20.34	20.51	21.50
	16QAM	1	0	20.19	20.22	20.10	21.50
		1	38	20.51	20.15	20.44	21.50
		1	74	20.35	20.31	19.79	21.50
		36	0	19.31	19.52	19.67	20.50
		36	18	19.29	19.37	19.60	20.50
		36	39	19.40	19.48	19.55	20.50
		75	0	19.35	19.33	19.50	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	21.18	**21.51**	21.28	22.50
		1	50	**21.39**	21.41	21.31	22.50
		1	99	21.06	21.20	**21.42**	22.50
		50	0	**20.44**	**20.61**	20.25	21.50
		50	25	20.39	20.41	**20.51**	21.50
		50	50	20.29	20.29	20.46	21.50
		100	0	20.37	20.37	20.32	21.50
	16QAM	1	0	19.98	19.97	20.40	21.50
		1	50	20.81	20.52	20.71	21.50
		1	99	20.16	20.24	19.96	21.50
		50	0	19.53	19.36	19.59	20.50
		50	25	19.24	19.46	19.59	20.50
		50	50	19.22	19.34	19.43	20.50
		100	0	19.25	19.45	19.51	20.50

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643	Tune up
1.4MHz	QPSK	1	0	23.81	23.86	23.91	25.00
		1	2	23.93	23.99	24.01	25.00
		1	5	23.97	23.77	23.78	25.00
		3	0	23.63	23.72	23.68	24.00
		3	2	23.70	23.75	23.64	24.00
		3	3	23.76	23.76	23.52	24.00
		6	0	22.67	22.88	22.80	24.00
	16QAM	1	0	22.09	23.03	22.99	24.00
		1	2	22.19	23.09	23.12	24.00
		1	5	22.09	22.97	22.90	24.00
		3	0	22.86	22.89	22.93	23.00
		3	2	22.83	22.91	22.71	23.00
		3	3	22.79	22.85	22.70	23.00
		6	0	21.90	21.98	21.90	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	23.65	23.65	23.78	25.00
		1	7	23.95	24.12	24.19	25.00
		1	14	23.92	24.03	23.73	25.00
		8	0	22.96	23.09	23.00	24.00
		8	4	22.97	23.08	22.97	24.00
		8	7	23.05	23.08	22.90	24.00
		15	0	22.91	23.03	23.01	24.00
	16QAM	1	0	22.20	23.34	22.97	24.00
		1	7	22.37	23.13	22.54	24.00
		1	14	22.34	23.35	22.35	24.00
		8	0	22.10	22.18	22.11	23.00
		8	4	22.11	22.20	22.02	23.00
		8	7	22.19	22.10	22.09	23.00
		15	0	22.10	22.06	22.17	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20425	20525	20625	
5MHz	QPSK	1	0	23.59	23.69	23.76	25.00
		1	13	23.86	23.97	23.82	25.00
		1	24	23.76	23.83	23.71	25.00
		12	0	22.93	23.03	23.02	24.00
		12	6	23.08	23.05	22.92	24.00
		12	13	22.98	22.99	22.95	24.00
		25	0	23.00	23.07	23.07	24.00
	16QAM	1	0	22.32	22.94	23.00	24.00
		1	13	22.10	23.00	22.93	24.00
		1	24	22.58	22.85	22.28	24.00
		12	0	22.07	22.16	21.97	23.00
		12	6	22.22	22.10	21.97	23.00
		12	13	22.12	22.14	21.74	23.00
		25	0	21.95	22.22	22.04	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20450	20525	20600	
10MHz	QPSK	1	0	**24.35**	**24.16**	**24.33**	25.00
		1	25	23.71	23.72	23.83	25.00
		1	49	23.80	23.78	23.94	25.00
		25	0	**23.25**	23.13	23.16	24.00
		25	13	23.00	**23.21**	**23.17**	24.00
		25	25	23.13	23.06	23.04	24.00
		50	0	23.15	23.19	23.15	24.00
	16QAM	1	0	22.78	23.07	23.03	24.00
		1	25	23.55	23.34	23.60	24.00
		1	49	22.96	22.63	22.79	24.00
		25	0	22.05	22.09	22.04	23.00
		25	13	22.07	22.20	22.03	23.00
		25	25	22.03	22.12	22.21	23.00
		50	0	21.94	22.09	22.25	23.00

LTE Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23017	Channel 23095	Channel 23173	Tune up
1.4MHz	QPSK	1	0	23.98	23.91	23.88	25.00
		1	2	24.00	24.03	24.01	25.00
		1	5	23.97	23.98	23.98	25.00
		3	0	23.74	23.81	23.70	24.00
		3	2	23.88	23.88	23.78	24.00
		3	3	23.82	23.87	23.80	24.00
		6	0	23.09	23.13	23.06	24.00
	16QAM	1	0	22.95	22.40	22.01	24.00
		1	2	22.18	22.79	22.24	24.00
		1	5	22.19	22.74	22.18	24.00
		3	0	22.58	22.82	22.77	23.00
		3	2	22.88	22.79	22.84	23.00
		3	3	22.82	22.96	22.89	23.00
		6	0	21.83	21.95	21.88	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 23025	Channel 23095	Channel 23165	Tune up
3MHz	QPSK	1	0	24.08	23.89	23.84	25.00
		1	7	24.15	24.17	24.03	25.00
		1	14	23.83	24.10	23.86	25.00
		8	0	23.12	23.13	23.07	24.00
		8	4	22.98	23.18	23.09	24.00
		8	7	22.96	23.17	23.10	24.00
		15	0	23.03	23.10	23.09	24.00
	16QAM	1	0	22.16	22.84	23.05	24.00
		1	7	22.61	23.26	23.22	24.00
		1	14	22.29	22.02	23.09	24.00
		8	0	21.88	22.18	21.91	23.00
		8	4	21.83	22.34	22.24	23.00
		8	7	21.80	22.20	22.42	23.00
		15	0	21.90	22.23	22.12	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23035	23095	23155	
5MHz	QPSK	1	0	23.76	23.86	23.70	25.00
		1	13	23.85	**24.25**	23.93	25.00
		1	24	23.90	24.05	23.86	25.00
		12	0	23.05	23.20	23.04	24.00
		12	6	22.96	23.20	23.13	24.00
		12	13	23.00	23.21	23.02	24.00
		25	0	23.01	23.12	23.05	24.00
	16QAM	1	0	22.06	22.97	22.62	24.00
		1	13	22.98	23.15	23.07	24.00
		1	24	22.61	22.23	22.95	24.00
		12	0	21.91	22.05	22.00	23.00
		12	6	21.94	22.07	22.01	23.00
		12	13	21.89	22.08	22.09	23.00
		25	0	22.00	22.17	22.13	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23060	23095	23130	
10MHz	QPSK	1	0	**24.17**	**24.19**	**24.04**	25.00
		1	25	23.77	23.71	23.82	25.00
		1	49	23.99	23.91	23.80	25.00
		25	0	23.02	**23.29**	**23.23**	24.00
		25	13	**23.27**	23.17	23.23	24.00
		25	25	23.23	23.22	23.21	24.00
		50	0	23.15	**23.29**	23.26	24.00
	16QAM	1	0	23.02	22.59	22.81	24.00
		1	25	23.12	23.72	22.82	24.00
		1	49	22.96	22.88	22.92	24.00
		25	0	22.00	22.13	22.15	23.00
		25	13	22.32	22.14	22.13	23.00
		25	25	22.27	22.17	22.22	23.00
		50	0	22.24	22.11	22.20	23.00

LTE Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 23205	Channel 23230	Channel 23255	Tune up
5MHz	QPSK	1	0	24.07	24.01	23.71	25.00
		1	13	24.33	24.30	24.21	25.00
		1	24	24.15	24.25	24.21	25.00
		12	0	23.17	23.20	23.22	24.00
		12	6	23.24	23.15	23.26	24.00
		12	13	23.08	23.18	23.22	24.00
		25	0	23.12	23.12	23.26	24.00
	16QAM	1	0	23.22	23.01	22.31	24.00
		1	13	23.32	22.51	22.61	24.00
		1	24	22.59	22.60	22.28	24.00
		12	0	21.98	22.16	22.06	23.00
		12	6	22.09	22.01	22.01	23.00
		12	13	22.03	22.03	21.99	23.00
		25	0	22.06	22.15	22.22	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel 23230	Channel	Tune up
10MHz	QPSK	1	0	/	**24.37**	/	25.00
		1	25	/	24.25	/	25.00
		1	49	/	23.98	/	25.00
		25	0	/	**23.35**	/	24.00
		25	13	/	23.12	/	24.00
		25	25	/	23.33	/	24.00
		50	0	/	23.10	/	24.00
	16QAM	1	0	/	23.20	/	24.00
		1	25	/	23.25	/	24.00
		1	49	/	23.15	/	24.00
		25	0	/	22.18	/	23.00
		25	13	/	22.12	/	23.00
		25	25	/	22.34	/	23.00
		50	0	/	22.17	/	23.00

LTE Band 25				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 26047	Channel 26365	Channel 26683	Tune up
1.4MHz	QPSK	1	0	22.58	22.63	22.75	24.00
		1	2	22.63	22.73	22.75	24.00
		1	5	22.74	22.68	22.75	24.00
		3	0	22.73	22.78	22.94	24.00
		3	2	22.79	22.81	22.76	24.00
		3	3	22.76	22.80	22.82	24.00
		6	0	21.85	21.80	22.00	23.00
	16QAM	1	0	21.69	21.23	21.73	23.00
		1	2	21.91	21.01	21.77	23.00
		1	5	21.85	21.15	21.95	23.00
		3	0	21.58	21.25	21.71	23.00
		3	2	21.81	21.60	21.74	23.00
		3	3	21.69	21.63	21.72	23.00
		6	0	20.65	20.78	20.56	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 26055	Channel 26365	Channel 26675	Tune up
3MHz	QPSK	1	0	22.72	22.62	23.05	24.00
		1	7	22.88	22.79	23.15	24.00
		1	14	22.69	22.73	22.77	24.00
		8	0	21.83	21.78	21.96	23.00
		8	4	21.90	21.90	21.87	23.00
		8	7	21.82	21.97	21.79	23.00
		15	0	21.78	21.90	21.92	23.00
	16QAM	1	0	21.14	21.03	22.10	23.00
		1	7	21.51	21.43	21.82	23.00
		1	14	21.16	21.32	22.09	23.00
		8	0	21.02	20.89	21.12	22.00
		8	4	21.02	21.04	21.02	22.00
		8	7	21.01	21.10	20.75	22.00
		15	0	20.96	20.90	21.03	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26065	26365	26665	
5MHz	QPSK	1	0	22.63	22.52	23.01	24.00
		1	13	22.83	22.82	23.11	24.00
		1	24	22.84	22.63	23.33	24.00
		12	0	21.87	21.71	22.06	23.00
		12	6	21.90	21.83	21.98	23.00
		12	13	21.82	21.91	21.92	23.00
		25	0	21.84	21.80	21.97	23.00
	16QAM	1	0	21.14	21.06	21.57	23.00
		1	13	21.09	21.31	21.77	23.00
		1	24	21.15	21.24	21.33	23.00
		12	0	20.78	20.72	20.76	22.00
		12	6	20.81	20.66	20.77	22.00
		12	13	20.83	20.73	21.07	22.00
		25	0	21.05	20.92	21.11	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26090	26365	26640	
10MHz	QPSK	1	0	22.81	22.84	22.71	24.00
		1	25	22.94	22.99	**23.40**	24.00
		1	49	22.95	23.00	23.10	24.00
		25	0	21.97	21.98	21.98	23.00
		25	13	21.95	22.01	22.19	23.00
		25	25	21.94	22.08	21.93	23.00
		50	0	21.98	22.00	21.97	23.00
	16QAM	1	0	21.48	21.79	21.66	23.00
		1	25	21.57	21.95	22.43	23.00
		1	49	21.64	22.02	21.83	23.00
		25	0	21.15	20.90	21.03	22.00
		25	13	21.07	20.97	21.24	22.00
		25	25	21.04	21.00	21.36	22.00
		50	0	21.03	20.91	21.06	22.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26115	26365	26615	
15MHz	QPSK	1	0	22.92	23.03	23.14	24.00
		1	38	23.09	22.96	23.29	24.00
		1	74	23.12	23.07	23.19	24.00
		36	0	22.05	22.10	22.16	23.00
		36	18	22.05	22.02	22.11	23.00
		36	39	22.15	22.08	22.24	23.00
		75	0	22.06	22.01	22.19	23.00
	16QAM	1	0	21.86	21.94	21.95	23.00
		1	38	21.53	22.50	22.02	23.00
		1	74	22.00	21.82	21.71	23.00
		36	0	20.99	21.14	21.12	22.00
		36	18	21.01	21.07	21.17	22.00
		36	39	21.01	21.14	21.13	22.00
		75	0	21.22	21.06	21.17	22.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26140	26365	26590	
20MHz	QPSK	1	0	22.78	**23.34**	**23.33**	24.00
		1	50	**23.16**	23.23	23.25	24.00
		1	99	22.83	22.75	22.62	24.00
		50	0	22.14	**22.20**	22.18	23.00
		50	25	22.19	22.05	22.15	23.00
		50	50	22.18	22.11	22.17	23.00
		100	0	22.14	22.06	22.26	23.00
	16QAM	1	0	22.02	21.73	21.97	23.00
		1	50	22.66	22.18	22.66	23.00
		1	99	21.86	22.10	22.01	23.00
		50	0	21.06	21.04	21.22	22.00
		50	25	21.14	21.11	21.12	22.00
		50	50	21.13	21.09	21.06	22.00
		100	0	21.08	21.11	21.28	22.00

LTE Band 25 Sensor on				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 26047	Channel 26365	Channel 26683	Tune up
1.4MHz	QPSK	1	0	21.38	21.20	21.27	22.50
		1	2	21.39	21.30	21.27	22.50
		1	5	21.36	21.32	21.34	22.50
		3	0	21.56	21.33	21.40	22.50
		3	2	21.52	21.41	21.42	22.50
		3	3	21.49	21.41	21.42	22.50
		6	0	20.40	20.35	20.55	21.50
	16QAM	1	0	20.56	19.67	20.83	21.50
		1	2	19.90	19.61	20.43	21.50
		1	5	20.15	19.64	20.73	21.50
		3	0	20.45	20.09	20.34	21.50
		3	2	20.56	20.40	20.33	21.50
		3	3	20.52	20.33	20.31	21.50
		6	0	19.42	19.18	19.37	20.50
Bandwidth	Modulation	RB size	RB offset	Channel 26055	Channel 26365	Channel 26675	Tune up
3MHz	QPSK	1	0	21.22	21.36	21.51	22.50
		1	7	21.38	21.27	**21.69**	22.50
		1	14	21.23	21.43	21.55	22.50
		8	0	20.40	20.35	20.53	21.50
		8	4	20.55	20.47	20.49	21.50
		8	7	20.37	20.56	20.53	21.50
		15	0	20.44	20.45	20.53	21.50
	16QAM	1	0	20.82	20.66	20.31	21.50
		1	7	20.96	20.30	20.01	21.50
		1	14	20.14	19.76	20.12	21.50
		8	0	19.51	19.29	19.53	20.50
		8	4	19.59	19.50	19.49	20.50
		8	7	19.48	19.56	19.66	20.50
		15	0	19.32	19.40	19.55	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26065	26365	26665	
5MHz	QPSK	1	0	21.15	20.99	21.44	22.50
		1	13	21.42	21.25	21.51	22.50
		1	24	21.39	21.24	21.45	22.50
		12	0	20.35	20.25	20.53	21.50
		12	6	20.35	20.34	20.53	21.50
		12	13	20.38	20.43	20.49	21.50
		25	0	20.31	20.42	20.56	21.50
	16QAM	1	0	20.04	20.02	19.88	21.50
		1	13	20.03	19.98	20.29	21.50
		1	24	19.52	20.11	19.91	21.50
		12	0	19.32	19.18	19.53	20.50
		12	6	19.39	19.31	19.56	20.50
		12	13	19.40	19.36	19.52	20.50
		25	0	19.48	19.52	19.63	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26090	26365	26640	
10MHz	QPSK	1	0	21.13	21.08	21.10	22.50
		1	25	21.50	21.44	21.56	22.50
		1	49	21.29	21.04	21.27	22.50
		25	0	20.32	20.33	20.31	21.50
		25	13	20.32	20.36	20.50	21.50
		25	25	20.32	20.43	20.44	21.50
		50	0	20.27	20.39	20.47	21.50
	16QAM	1	0	19.75	20.14	20.44	21.50
		1	25	20.21	20.10	20.64	21.50
		1	49	19.92	19.99	20.33	21.50
		25	0	19.31	19.39	19.41	20.50
		25	13	19.45	19.50	19.56	20.50
		25	25	19.34	19.44	19.40	20.50
		50	0	19.45	19.40	19.57	20.50

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26115	26365	26615	
15MHz	QPSK	1	0	21.33	21.29	21.35	22.50
		1	38	21.36	21.39	21.42	22.50
		1	74	21.35	21.24	21.24	22.50
		36	0	20.35	20.38	20.43	21.50
		36	18	20.38	20.35	20.40	21.50
		36	39	20.50	20.35	20.52	21.50
		75	0	20.43	20.37	20.39	21.50
	16QAM	1	0	20.16	20.21	20.33	21.50
		1	38	20.78	20.93	20.83	21.50
		1	74	20.25	20.41	19.92	21.50
		36	0	19.30	19.34	19.31	20.50
		36	18	19.39	19.27	19.26	20.50
		36	39	19.43	19.36	19.50	20.50
		75	0	19.44	19.46	19.42	20.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				26140	26365	26590	
20MHz	QPSK	1	0	**21.57**	**21.64**	**21.60**	22.50
		1	50	21.00	20.87	20.96	22.50
		1	99	21.52	21.55	21.57	22.50
		50	0	20.43	**20.48**	20.38	21.50
		50	25	20.46	20.37	20.30	21.50
		50	50	**20.47**	20.35	**20.46**	21.50
		100	0	20.47	20.40	20.45	21.50
	16QAM	1	0	20.20	20.04	19.54	21.50
		1	50	20.89	19.88	20.27	21.50
		1	99	20.57	20.03	20.74	21.50
		50	0	19.27	19.40	19.21	20.50
		50	25	19.48	19.33	19.30	20.50
		50	50	19.58	19.35	19.23	20.50
		100	0	19.41	19.36	19.49	20.50

LTE Band 26				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 26697	Channel 26865	Channel 27033	Tune up
1.4MHz	QPSK	1	0	23.74	23.82	23.89	25.00
		1	2	24.01	23.92	24.04	25.00
		1	5	24.00	23.93	23.91	25.00
		3	0	23.81	23.56	23.60	24.00
		3	2	23.92	23.54	23.58	24.00
		3	3	23.88	23.49	23.57	24.00
		6	0	23.11	23.11	23.09	24.00
	16QAM	1	0	22.38	23.03	22.84	24.00
		1	2	22.79	23.09	22.71	24.00
		1	5	22.87	23.09	22.49	24.00
		3	0	22.62	22.77	22.82	23.00
		3	2	22.82	22.72	22.71	23.00
		3	3	22.79	22.67	22.69	23.00
		6	0	21.91	21.91	21.92	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 26705	Channel 26865	Channel 27025	Tune up
3MHz	QPSK	1	0	23.72	23.81	23.91	25.00
		1	7	24.13	23.99	23.91	25.00
		1	14	24.03	23.91	23.67	25.00
		8	0	23.14	23.23	23.15	24.00
		8	4	23.16	23.06	23.04	24.00
		8	7	23.16	23.02	23.05	24.00
		15	0	23.11	23.03	23.09	24.00
	16QAM	1	0	22.85	22.94	22.84	24.00
		1	7	23.24	22.68	22.72	24.00
		1	14	23.09	23.05	22.40	24.00
		8	0	22.27	22.44	22.19	23.00
		8	4	22.15	22.56	22.21	23.00
		8	7	22.17	22.12	22.11	23.00
		15	0	22.32	22.14	22.17	23.00

Bandwidth	Modulation	RB size	RB offset	Channel 26715	Channel 26865	Channel 27015	Tune up
5MHz	QPSK	1	0	23.67	23.71	23.71	25.00
		1	13	23.96	23.77	23.82	25.00
		1	24	23.86	23.80	23.76	25.00
		12	0	23.17	23.12	23.06	24.00
		12	6	23.16	23.10	23.06	24.00
		12	13	23.10	22.99	22.98	24.00
		25	0	23.12	23.10	23.10	24.00
	16QAM	1	0	22.95	22.99	22.97	24.00
		1	13	23.06	23.47	22.91	24.00
		1	24	23.03	22.88	22.42	24.00
		12	0	22.30	22.26	22.30	23.00
		12	6	22.29	22.24	22.22	23.00
		12	13	22.12	22.13	21.98	23.00
		25	0	22.08	22.06	21.99	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 26750	Channel 26865	Channel 26990	Tune up
10MHz	QPSK	1	0	23.73	23.81	23.77	25.00
		1	25	24.07	24.02	24.28	25.00
		1	49	23.78	23.80	23.95	25.00
		25	0	23.04	23.09	23.10	24.00
		25	13	23.14	23.14	23.16	24.00
		25	25	23.03	23.05	23.02	24.00
		50	0	23.16	23.06	23.10	24.00
	16QAM	1	0	22.81	22.39	23.15	24.00
		1	25	22.84	23.30	22.75	24.00
		1	49	22.59	23.11	22.45	24.00
		25	0	22.11	22.03	22.44	23.00
		25	13	22.16	22.10	22.07	23.00
		25	25	22.15	22.16	22.20	23.00
		50	0	22.21	22.03	22.20	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 26775	Channel 26865	Channel 26965	Tune up
15MHz	QPSK	1	0	**24.32**	**24.35**	24.15	25.00
		1	38	24.17	24.22	**24.19**	25.00
		1	74	24.05	24.02	23.87	25.00
		36	0	**23.25**	**23.34**	**23.31**	24.00
		36	18	23.20	23.24	23.27	24.00
		36	39	23.24	23.17	23.21	24.00
		75	0	23.24	23.25	23.22	24.00
	16QAM	1	0	23.00	22.89	23.03	24.00
		1	38	23.01	23.06	22.95	24.00
		1	74	23.05	22.98	22.60	24.00
		36	0	22.21	22.34	22.16	23.00
		36	18	22.20	22.30	22.26	23.00
		36	39	22.26	22.12	22.26	23.00
		75	0	22.26	22.18	22.23	23.00

LTE Band 41 class 3 Sensor off				Conducted Power(dBm)					
Bandwidth	Modulation	RB size	RB offset	Channel 39675	Channel 40148	Channel 40620	Channel 41093	Channel 41565	Tune up
5MHz	QPSK	1	0	22.60	22.66	22.77	22.84	22.63	24.00
		1	13	22.77	22.89	22.95	22.94	22.81	24.00
		1	24	22.64	22.75	22.84	22.76	22.63	24.00
		12	0	21.70	21.90	22.06	22.20	21.90	23.00
		12	6	22.09	21.99	22.16	22.42	21.93	23.00
		12	13	21.82	22.16	22.08	22.40	21.88	23.00
		25	0	22.08	22.21	22.06	22.42	21.92	23.00
	16QAM	1	0	21.47	21.72	21.84	21.57	21.44	23.00
		1	13	21.47	21.77	21.89	21.88	21.39	23.00
		1	24	21.58	21.41	21.91	21.87	21.71	23.00
		12	0	20.80	20.99	20.86	21.20	20.96	22.00
		12	6	20.71	21.08	21.14	21.25	21.07	22.00
		12	13	20.81	20.96	20.89	21.06	21.13	22.00
		25	0	20.96	21.06	20.92	21.22	21.13	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 39700	Channel 40160	Channel 40620	Channel 41080	Channel 41540	Tune up
10MHz	QPSK	1	0	22.64	22.86	22.69	22.69	22.97	24.00
		1	25	23.08	23.21	23.27	23.15	23.30	24.00
		1	49	22.89	23.00	22.83	22.99	23.07	24.00
		25	0	22.11	22.33	22.26	22.19	22.42	23.00
		25	13	22.17	22.10	22.33	22.28	22.21	23.00
		25	25	22.06	22.10	21.96	22.11	22.18	23.00
		50	0	21.76	22.17	21.98	21.83	22.23	23.00
	16QAM	1	0	21.51	21.59	21.67	21.56	21.70	23.00
		1	25	21.51	21.97	21.84	21.62	22.04	23.00
		1	49	21.44	21.84	21.65	21.53	21.92	23.00
		25	0	20.69	20.89	21.20	20.80	21.00	22.00
		25	13	21.12	21.23	21.20	21.20	21.30	22.00
		25	25	21.12	21.22	20.99	21.23	21.28	22.00
		50	0	21.11	21.21	21.19	21.21	21.30	22.00

Bandwidth	Modulation	RB size	RB offset	Channel 39725	Channel 40173	Channel 40620	Channel 41068	Channel 41515	Tune up
15MHz	QPSK	1	0	22.70	23.07	23.18	23.12	23.02	24.00
		1	38	23.07	23.25	23.46	23.43	23.36	24.00
		1	74	22.95	23.01	23.19	23.08	23.07	24.00
		36	0	22.25	22.36	22.51	22.68	22.44	23.00
		36	18	22.24	22.39	22.47	22.66	22.45	23.00
		36	39	21.87	22.13	22.47	22.45	22.15	23.00
		75	0	22.11	22.13	22.45	22.60	22.24	23.00
	16QAM	1	0	21.73	21.81	21.95	22.24	21.85	23.00
		1	38	21.51	21.78	22.02	22.12	21.64	23.00
		1	74	21.69	21.82	21.98	21.82	21.59	23.00
		36	0	21.17	21.25	21.30	21.39	21.34	22.00
		36	18	21.15	21.18	21.38	21.39	21.37	22.00
		36	39	21.23	21.15	21.38	21.39	21.07	22.00
		75	0	21.19	21.36	21.50	21.50	21.31	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 39750	Channel 40185	Channel 40620	Channel 41055	Channel 41490	Tune up
20MHz	QPSK	1	0	22.76	23.02	**23.56**	23.25	23.07	24.00
		1	50	**23.27**	**23.38**	23.52	**23.54**	**23.39**	24.00
		1	99	22.96	23.00	23.25	23.31	23.09	24.00
		50	0	22.39	22.48	**22.77**	22.71	22.62	23.00
		50	25	22.32	22.46	22.60	22.62	22.56	23.00
		50	50	22.42	22.39	22.58	22.55	22.24	23.00
		100	0	22.26	22.44	22.54	22.62	22.47	23.00
	16QAM	1	0	21.68	21.85	22.16	22.10	22.11	23.00
		1	50	21.83	22.46	22.08	22.29	21.92	23.00
		1	99	21.79	21.88	21.94	21.85	21.59	23.00
		50	0	21.15	21.41	21.45	21.57	21.46	22.00
		50	25	21.27	21.13	21.25	21.30	21.42	22.00
		50	50	21.17	21.35	21.43	21.52	21.38	22.00
		100	0	21.10	21.36	21.48	21.58	21.41	22.00

LTE Band 41 class 3 Sensor on				Conducted Power(dBm)					
Bandwidth	Modulation	RB size	RB offset	Channel 39675	Channel 40148	Channel 40620	Channel 41093	Channel 41565	Tune up
5MHz	QPSK	1	0	17.36	17.66	17.58	17.63	17.48	19.00
		1	13	17.48	17.70	17.80	17.74	17.48	19.00
		1	24	17.42	17.48	17.70	17.54	17.33	19.00
		12	0	16.53	16.84	16.86	16.79	16.59	18.00
		12	6	16.58	16.93	16.95	16.82	16.60	18.00
		12	13	16.52	16.77	16.91	16.72	16.56	18.00
		25	0	16.52	16.85	16.88	16.74	16.53	18.00
	16QAM	1	0	16.22	16.75	16.79	16.27	16.27	18.00
		1	13	16.24	16.36	16.76	16.35	16.23	18.00
		1	24	16.42	16.66	16.40	16.26	16.21	18.00
		12	0	15.50	15.78	15.92	15.80	15.59	17.00
		12	6	15.44	15.86	16.00	15.71	15.60	17.00
		12	13	15.56	15.81	15.96	15.61	15.58	17.00
		25	0	15.53	16.05	16.17	15.81	15.57	17.00
Bandwidth	Modulation	RB size	RB offset	Channel 39700	Channel 40160	Channel 40620	Channel 41080	Channel 41540	Tune up
10MHz	QPSK	1	0	17.33	17.58	17.67	17.74	17.41	19.00
		1	25	17.69	17.85	17.95	17.81	17.65	19.00
		1	49	17.47	17.66	17.85	17.62	17.44	19.00
		25	0	16.61	16.98	17.08	16.86	16.73	18.00
		25	13	16.76	16.95	17.04	16.83	16.70	18.00
		25	25	16.74	16.87	17.07	16.76	16.59	18.00
		50	0	16.58	16.92	17.12	16.90	16.70	18.00
	16QAM	1	0	16.11	16.69	16.78	16.39	16.41	18.00
		1	25	16.25	16.60	16.70	16.59	16.38	18.00
		1	49	16.58	16.39	16.78	16.30	16.43	18.00
		25	0	15.61	16.16	16.10	16.06	15.77	17.00
		25	13	15.94	16.05	16.05	16.04	15.93	17.00
		25	25	16.02	15.96	16.06	15.96	15.72	17.00
		50	0	15.66	15.84	15.95	15.84	15.84	17.00

Bandwidth	Modulation	RB size	RB offset	Channel 39725	Channel 40173	Channel 40620	Channel 41068	Channel 41515	Tune up
15MHz	QPSK	1	0	17.30	17.66	17.77	17.91	17.51	19.00
		1	38	17.49	17.69	17.99	17.77	17.53	19.00
		1	74	17.53	17.63	17.85	17.56	17.55	19.00
		36	0	16.57	17.08	17.08	16.97	16.84	18.00
		36	18	16.68	17.05	17.03	17.02	16.80	18.00
		36	39	16.80	17.04	16.98	16.82	16.68	18.00
		75	0	16.59	17.08	17.05	16.91	16.77	18.00
	16QAM	1	0	16.29	16.85	16.87	16.82	16.26	18.00
		1	38	16.33	16.83	16.63	16.72	16.25	18.00
		1	74	16.27	16.47	16.81	16.63	16.11	18.00
		36	0	15.50	16.03	16.04	15.86	15.57	17.00
		36	18	15.62	16.01	15.88	15.81	15.72	17.00
		36	39	15.64	16.01	15.95	15.82	15.61	17.00
		75	0	15.58	15.98	16.04	15.93	15.54	17.00
Bandwidth	Modulation	RB size	RB offset	Channel 39750	Channel 40185	Channel 40620	Channel 41055	Channel 41490	Tune up
20MHz	QPSK	1	0	**17.71**	**17.91**	**18.04**	**17.94**	**17.66**	19.00
		1	50	17.20	17.51	17.67	17.63	17.48	19.00
		1	99	17.43	17.58	17.65	17.55	17.39	19.00
		50	0	**16.84**	**17.04**	**17.08**	17.00	16.77	18.00
		50	25	16.73	16.98	17.06	16.97	16.74	18.00
		50	50	16.81	16.95	17.07	16.82	16.65	18.00
		100	0	16.67	17.01	17.02	16.99	16.65	18.00
	16QAM	1	0	16.06	16.42	16.51	16.75	16.21	18.00
		1	50	16.67	16.76	16.70	16.52	16.59	18.00
		1	99	16.48	16.37	16.69	16.54	16.15	18.00
		50	0	15.61	16.07	16.07	15.92	15.81	17.00
		50	25	15.91	16.14	15.98	15.89	15.70	17.00
		50	50	15.80	16.05	16.09	15.84	15.72	17.00
		100	0	15.66	16.01	16.04	15.92	15.62	17.00

LTE Band 41 class 2 Sensor off				Conducted Power(dBm)					
Bandwidth	Modulation	RB size	RB offset	Channel 39675	Channel 40148	Channel 40620	Channel 41093	Channel 41565	Tune up
5MHz	QPSK	1	0	25.26	25.46	25.58	25.43	25.47	26.50
		1	13	25.63	25.78	25.88	25.90	25.78	26.50
		1	24	25.32	25.70	25.45	25.49	24.96	26.50
		12	0	24.52	24.78	24.99	24.83	24.82	25.50
		12	6	24.59	24.75	24.83	24.80	24.73	25.50
		12	13	24.58	24.73	24.82	24.68	24.46	25.50
		25	0	24.74	24.70	24.78	24.73	24.66	25.50
	16QAM	1	0	24.27	24.46	24.33	24.11	24.62	25.50
		1	13	24.84	24.86	25.15	24.72	24.99	25.50
		1	24	24.43	24.53	24.23	24.19	24.35	25.50
		12	0	23.53	23.80	24.03	23.69	23.67	24.50
		12	6	23.66	23.74	24.09	23.69	23.62	24.50
		12	13	23.58	23.65	23.82	23.65	23.45	24.50
		25	0	23.61	23.66	23.79	23.75	23.56	24.50
Bandwidth	Modulation	RB size	RB offset	Channel 39700	Channel 40160	Channel 40620	Channel 41080	Channel 41540	Tune up
10MHz	QPSK	1	0	25.33	25.54	25.64	25.51	25.55	26.50
		1	25	25.71	25.91	25.91	25.97	25.89	26.50
		1	49	25.40	25.77	25.51	25.59	25.06	26.50
		25	0	24.65	24.89	25.06	24.88	24.89	25.50
		25	13	24.72	24.86	24.89	24.94	24.78	25.50
		25	25	24.64	24.84	24.82	24.79	24.59	25.50
		50	0	24.81	24.80	24.88	24.82	24.75	25.50
	16QAM	1	0	24.39	24.54	24.45	24.15	24.71	25.50
		1	25	24.90	24.92	25.19	24.81	25.02	25.50
		1	49	24.48	24.64	24.32	24.25	24.43	25.50
		25	0	23.60	23.91	24.12	23.71	23.78	24.50
		25	13	23.70	23.76	24.16	23.81	23.65	24.50
		25	25	23.65	23.75	23.86	23.73	23.50	24.50
		50	0	23.69	23.74	23.93	23.80	23.69	24.50

Bandwidth	Modulation	RB size	RB offset	Channel 39725	Channel 40173	Channel 40620	Channel 41068	Channel 41515	Tune up
15MHz	QPSK	1	0	25.35	25.52	25.68	25.53	25.52	26.50
		1	38	25.69	25.88	25.93	25.95	25.89	26.50
		1	74	25.43	25.75	25.51	25.54	25.06	26.50
		36	0	24.62	24.88	25.06	24.89	24.87	25.50
		36	18	24.67	24.84	24.93	24.90	24.81	25.50
		36	39	24.68	24.81	24.88	24.78	24.54	25.50
		75	0	24.79	24.79	24.84	24.84	24.76	25.50
	16QAM	1	0	24.38	24.57	24.44	24.20	24.69	25.50
		1	38	24.94	24.91	25.20	24.82	25.06	25.50
		1	74	24.49	24.61	24.30	24.29	24.42	25.50
		36	0	23.61	23.87	24.13	23.76	23.76	24.50
		36	18	23.71	23.80	24.15	23.76	23.70	24.50
		36	39	23.63	23.76	23.89	23.71	23.50	24.50
		75	0	23.71	23.76	23.87	23.82	23.63	24.50
Bandwidth	Modulation	RB size	RB offset	Channel 39750	Channel 40185	Channel 40620	Channel 41055	Channel 41490	Tune up
20MHz	QPSK	1	0	**25.76**	**25.97**	**26.07**	**26.06**	**25.98**	26.50
		1	50	25.40	25.61	25.73	25.60	25.61	26.50
		1	99	25.49	25.82	25.61	25.65	25.14	26.50
		50	0	24.70	24.96	**25.15**	24.98	24.95	25.50
		50	25	24.77	24.93	25.00	24.99	24.87	25.50
		50	50	24.73	24.90	24.93	24.85	24.65	25.50
		100	0	24.90	24.86	24.93	24.92	24.85	25.50
	16QAM	1	0	24.49	24.63	24.53	24.25	24.77	25.50
		1	50	25.00	25.00	25.29	24.89	25.12	25.50
		1	99	24.54	24.72	24.41	24.36	24.52	25.50
		50	0	23.68	23.96	24.20	23.82	23.87	24.50
		50	25	23.77	23.87	24.22	23.87	23.76	24.50
		50	50	23.74	23.83	23.95	23.81	23.58	24.50
		100	0	23.78	23.83	23.98	23.91	23.74	24.50

LTE Band 41 class 2 Sensor on				Conducted Power(dBm)					
Bandwidth	Modulation	RB size	RB offset	Channel 39675	Channel 40148	Channel 40620	Channel 41093	Channel 41565	Tune up
5MHz	QPSK	1	0	20.27	20.32	20.57	20.46	20.11	21.50
		1	13	20.44	20.90	20.85	20.71	20.44	21.50
		1	24	20.12	20.33	20.52	20.31	20.22	21.50
		12	0	19.32	19.81	19.83	19.72	19.42	20.50
		12	6	19.43	19.74	19.79	19.73	19.41	20.50
		12	13	19.33	19.69	19.69	19.65	19.21	20.50
		25	0	19.31	19.66	19.83	19.70	19.41	20.50
	16QAM	1	0	18.84	19.18	19.54	19.35	19.06	20.50
		1	13	19.35	19.97	20.01	20.10	19.59	20.50
		1	24	19.04	19.03	19.75	18.62	19.02	20.50
		12	0	18.41	18.94	18.93	18.77	18.62	19.50
		12	6	18.59	18.95	19.17	18.60	18.48	19.50
		12	13	18.53	18.79	18.57	18.32	18.46	19.50
		25	0	18.30	18.86	18.71	18.64	18.50	19.50
Bandwidth	Modulation	RB size	RB offset	Channel 39700	Channel 40160	Channel 40620	Channel 41080	Channel 41540	Tune up
10MHz	QPSK	1	0	20.14	20.42	20.64	20.52	20.16	21.50
		1	25	20.54	20.95	20.93	20.79	20.49	21.50
		1	49	20.19	20.44	20.62	20.38	20.27	21.50
		25	0	19.40	19.89	19.92	19.83	19.48	20.50
		25	13	19.54	19.80	19.86	19.78	19.46	20.50
		25	25	19.44	19.74	19.78	19.73	19.31	20.50
		50	0	19.37	19.77	19.92	19.76	19.48	20.50
	16QAM	1	0	18.93	19.29	19.64	19.41	19.12	20.50
		1	25	19.44	20.02	20.06	20.20	19.65	20.50
		1	49	19.10	19.09	19.86	18.70	19.12	20.50
		25	0	18.51	18.99	19.04	18.84	18.72	19.50
		25	13	18.69	19.06	19.26	18.70	18.54	19.50
		25	25	18.58	18.87	18.68	18.38	18.53	19.50
		50	0	18.36	18.95	18.81	18.72	18.59	19.50

Bandwidth	Modulation	RB size	RB offset	Channel 39725	Channel 40173	Channel 40620	Channel 41068	Channel 41515	Tune up
15MHz	QPSK	1	0	20.23	20.52	20.75	20.59	20.27	21.50
		1	38	20.60	21.05	20.98	20.89	20.58	21.50
		1	74	20.26	20.53	20.72	20.44	20.33	21.50
		36	0	19.46	19.97	20.00	19.93	19.55	20.50
		36	18	19.63	19.91	19.96	19.85	19.53	20.50
		36	39	19.50	19.82	19.87	19.78	19.40	20.50
		75	0	19.46	19.84	20.00	19.84	19.56	20.50
	16QAM	1	0	18.99	19.38	19.74	19.47	19.19	20.50
		1	38	19.52	20.10	20.06	20.28	19.72	20.50
		1	74	19.20	19.19	19.91	18.80	19.22	20.50
		36	0	18.59	19.06	19.14	18.90	18.78	19.50
		36	18	18.78	19.15	19.32	18.77	18.65	19.50
		36	39	18.66	18.93	18.77	18.47	18.64	19.50
		75	0	18.44	19.04	18.87	18.79	18.64	19.50
Bandwidth	Modulation	RB size	RB offset	Channel 39750	Channel 40185	Channel 40620	Channel 41055	Channel 41490	Tune up
20MHz	QPSK	1	0	**20.65**	**21.10**	**21.18**	**20.96**	**20.64**	21.50
		1	50	20.33	20.60	20.84	20.67	20.37	21.50
		1	99	20.36	20.60	20.82	20.54	20.40	21.50
		50	0	19.56	20.04	**20.08**	19.98	19.62	20.50
		50	25	19.68	20.00	20.01	19.95	19.61	20.50
		50	50	19.56	19.91	19.97	19.83	19.51	20.50
		100	0	19.51	19.93	20.06	19.91	19.62	20.50
	16QAM	1	0	19.07	19.49	19.79	19.53	19.25	20.50
		1	50	19.62	20.15	20.12	20.35	19.82	20.50
		1	99	19.31	19.26	19.96	18.87	19.31	20.50
		50	0	18.65	19.16	19.19	18.98	18.85	19.50
		50	25	18.87	19.23	19.39	18.88	18.76	19.50
		50	50	18.73	19.00	18.86	18.55	18.74	19.50
		100	0	18.53	19.14	18.92	18.85	18.70	19.50

LTE Band 66 Sensor off				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 131979	Channel 132322	Channel 132665	Tune up
1.4MHz	QPSK	1	0	23.81	23.87	23.91	25.00
		1	2	23.96	23.98	24.01	25.00
		1	5	23.94	23.90	24.05	25.00
		3	0	23.95	24.00	24.16	25.00
		3	2	23.98	24.11	24.27	25.00
		3	3	24.13	24.10	24.23	25.00
		6	0	23.01	23.04	23.08	25.00
	16QAM	1	0	22.35	22.15	22.32	24.00
		1	2	22.96	22.38	22.31	24.00
		1	5	22.90	22.94	22.18	24.00
		3	0	22.84	23.03	23.01	24.00
		3	2	22.92	22.90	23.03	24.00
		3	3	22.72	23.02	22.79	24.00
		6	0	21.77	21.71	22.03	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	24.07	24.13	23.85	25.00
		1	7	24.35	23.88	24.20	25.00
		1	14	24.03	24.03	24.14	25.00
		8	0	23.06	22.93	23.08	24.00
		8	4	23.03	22.96	23.02	24.00
		8	7	22.93	22.98	22.96	24.00
		15	0	22.93	23.05	23.01	24.00
	16QAM	1	0	23.00	23.11	22.78	24.00
		1	7	22.89	23.22	22.83	24.00
		1	14	23.03	23.10	23.01	24.00
		8	0	22.09	22.10	22.18	23.00
		8	4	22.13	22.10	22.16	23.00
		8	7	22.07	22.05	22.15	23.00
		15	0	21.99	22.10	21.89	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	23.87	23.80	24.13	25.00
		1	13	24.01	23.87	24.28	25.00
		1	24	23.82	23.88	24.16	25.00
		12	0	23.00	22.98	23.19	24.00
		12	6	23.02	23.15	23.15	24.00
		12	13	22.92	23.02	23.14	24.00
		25	0	22.95	23.01	23.21	24.00
	16QAM	1	0	22.43	22.48	23.29	24.00
		1	13	22.63	22.47	23.03	24.00
		1	24	22.70	22.20	22.71	24.00
		12	0	21.89	21.93	22.23	23.00
		12	6	21.98	21.90	22.30	23.00
		12	13	21.85	21.91	22.07	23.00
		25	0	21.89	22.09	22.20	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	24.15	23.80	24.18	25.00
		1	25	24.06	24.24	24.19	25.00
		1	49	23.87	23.98	**24.47**	25.00
		25	0	23.12	23.11	23.39	24.00
		25	13	23.16	23.12	23.37	24.00
		25	25	23.01	23.18	23.23	24.00
		50	0	23.05	23.11	23.34	24.00
	16QAM	1	0	23.55	22.89	23.95	24.00
		1	25	23.51	23.22	23.97	24.00
		1	49	22.93	23.09	22.92	24.00
		25	0	22.09	22.16	22.32	23.00
		25	13	22.12	22.15	22.54	23.00
		25	25	21.93	22.05	22.32	23.00
		50	0	22.29	22.11	22.43	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	23.98	23.94	24.32	25.00
		1	38	24.07	24.04	24.22	25.00
		1	74	24.03	24.01	24.34	25.00
		36	0	23.16	23.19	23.52	24.00
		36	18	23.31	23.29	23.56	24.00
		36	39	23.23	23.17	23.40	24.00
		75	0	23.14	23.16	23.38	24.00
	16QAM	1	0	23.39	22.87	23.35	24.00
		1	38	23.69	23.16	23.89	24.00
		1	74	22.75	22.92	23.48	24.00
		36	0	22.25	22.13	22.30	23.00
		36	18	22.16	22.16	22.51	23.00
		36	39	22.28	22.20	22.29	23.00
		75	0	22.11	22.22	22.52	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	**24.31**	**24.44**	24.19	25.00
		1	50	24.21	24.29	**24.34**	25.00
		1	99	24.27	24.14	24.17	25.00
		50	0	23.21	23.33	23.50	24.00
		50	25	23.24	**23.54**	23.46	24.00
		50	50	23.22	23.29	23.36	24.00
		100	0	23.30	23.10	23.48	24.00
	16QAM	1	0	22.86	23.19	23.00	24.00
		1	50	23.83	23.88	23.99	24.00
		1	99	23.54	22.83	23.20	24.00
		50	0	22.35	22.12	22.50	23.00
		50	25	22.25	22.34	22.37	23.00
		50	50	22.16	22.30	22.44	23.00
		100	0	22.25	22.16	22.37	23.00

LTE Band 66 Sensor on				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 131979	Channel 132322	Channel 132665	Tune up
1.4MHz	QPSK	1	0	21.11	21.26	21.28	22.00
		1	2	21.25	21.35	21.29	22.00
		1	5	21.10	21.28	21.23	22.00
		3	0	21.20	21.32	21.20	22.00
		3	2	21.12	21.16	21.15	22.00
		3	3	21.18	21.27	21.15	22.00
		6	0	20.18	20.42	20.31	22.00
	16QAM	1	0	20.28	20.46	20.40	21.00
		1	2	20.24	20.57	20.63	21.00
		1	5	20.15	20.41	20.37	21.00
		3	0	20.21	20.68	20.36	21.00
		3	2	20.22	20.62	20.31	21.00
		3	3	20.27	20.70	20.14	21.00
		6	0	19.07	19.29	19.36	20.00
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	21.13	21.45	21.38	22.00
		1	7	21.11	21.49	21.23	22.00
		1	14	21.16	21.34	21.23	22.00
		8	0	20.26	20.58	20.45	21.00
		8	4	20.23	20.52	20.41	21.00
		8	7	20.21	20.49	20.27	21.00
		15	0	20.22	20.53	20.37	21.00
	16QAM	1	0	20.47	20.75	20.68	21.00
		1	7	20.54	20.57	20.59	21.00
		1	14	20.40	20.67	20.55	21.00
		8	0	19.26	19.77	19.61	20.00
		8	4	19.21	19.73	19.60	20.00
		8	7	19.52	19.76	19.74	20.00
		15	0	19.35	19.65	19.35	20.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	21.18	21.32	21.16	22.00
		1	13	21.08	21.40	21.34	22.00
		1	24	21.00	21.35	21.25	22.00
		12	0	20.11	20.55	20.42	21.00
		12	6	20.10	20.52	20.41	21.00
		12	13	20.15	20.51	20.24	21.00
		25	0	20.12	20.48	20.32	21.00
	16QAM	1	0	19.63	19.93	19.81	21.00
		1	13	19.69	20.04	19.87	21.00
		1	24	19.61	20.00	19.80	21.00
		12	0	19.00	19.45	19.06	20.00
		12	6	18.94	19.42	19.02	20.00
		12	13	19.00	19.31	19.08	20.00
		25	0	19.11	19.45	19.42	20.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	21.11	21.34	21.20	22.00
		1	25	21.10	21.39	21.23	22.00
		1	49	21.00	21.36	21.22	22.00
		25	0	20.19	20.50	20.37	21.00
		25	13	20.14	20.46	20.33	21.00
		25	25	20.17	20.47	20.31	21.00
		50	0	20.13	20.47	20.29	21.00
	16QAM	1	0	20.37	20.75	20.41	21.00
		1	25	20.65	20.75	20.67	21.00
		1	49	20.41	20.73	20.57	21.00
		25	0	19.24	19.55	19.43	20.00
		25	13	19.23	19.53	19.40	20.00
		25	25	19.23	19.52	19.37	20.00
		50	0	19.25	19.40	19.28	20.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	20.92	21.13	21.26	22.00
		1	38	21.03	21.17	21.22	22.00
		1	74	21.03	21.15	21.18	22.00
		36	0	20.19	20.40	20.34	21.00
		36	18	20.12	20.37	20.32	21.00
		36	39	20.20	20.43	20.38	21.00
		75	0	20.19	20.33	20.40	21.00
	16QAM	1	0	20.14	20.53	20.79	21.00
		1	38	20.25	20.39	20.55	21.00
		1	74	20.27	20.17	20.58	21.00
		36	0	19.19	19.33	19.27	20.00
		36	18	19.12	19.32	19.25	20.00
		36	39	19.20	19.32	19.28	20.00
		75	0	19.19	19.48	19.28	20.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	**21.59**	**21.69**	**21.66**	22.00
		1	50	20.90	21.15	21.20	22.00
		1	99	21.08	21.23	21.02	22.00
		50	0	20.18	20.51	20.35	21.00
		50	25	20.16	**20.53**	20.32	21.00
		50	50	**20.24**	20.50	**20.37**	21.00
		100	0	20.11	20.55	20.35	21.00
	16QAM	1	0	20.56	20.71	20.92	21.00
		1	50	20.95	20.96	20.93	21.00
		1	99	20.54	20.65	20.41	21.00
		50	0	19.23	19.58	19.25	20.00
		50	25	19.21	19.53	19.22	20.00
		50	50	19.22	19.39	19.24	20.00
		100	0	19.24	19.41	19.30	20.00

LTE Band 71				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 133147	Channel 133297	Channel 133447	Tune up
5MHz	QPSK	1	0	24.33	23.94	24.25	25.00
		1	13	24.14	24.20	24.20	25.00
		1	24	24.23	23.93	24.10	25.00
		12	0	23.26	23.23	22.89	24.00
		12	6	23.13	22.98	23.15	24.00
		12	13	23.25	23.11	23.34	24.00
		25	0	23.36	22.89	23.35	24.00
	16QAM	1	0	23.34	23.38	23.23	24.00
		1	13	23.35	23.31	23.02	24.00
		1	24	23.13	23.40	23.27	24.00
		12	0	22.27	22.53	22.72	23.00
		12	6	22.53	22.02	22.09	23.00
		12	13	22.07	22.34	22.25	23.00
		25	0	22.24	22.08	22.44	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 133172	Channel 133297	Channel 133422	Tune up
10MHz	QPSK	1	0	24.32	24.20	24.35	25.00
		1	25	24.10	23.93	24.02	25.00
		1	49	23.92	24.18	**24.39**	25.00
		25	0	22.92	23.07	23.29	24.00
		25	13	23.38	23.35	23.30	24.00
		25	25	23.22	22.94	23.35	24.00
		50	0	22.89	23.24	23.36	24.00
	16QAM	1	0	23.40	22.96	23.20	24.00
		1	25	23.14	22.90	23.38	24.00
		1	49	23.13	23.10	23.20	24.00
		25	0	22.62	21.99	22.16	23.00
		25	13	22.32	22.70	22.49	23.00
		25	25	22.58	22.40	22.47	23.00
		50	0	22.51	22.68	22.08	23.00

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133197	133297	133397	
15MHz	QPSK	1	0	24.32	24.02	24.16	25.00
		1	38	23.95	24.23	24.36	25.00
		1	74	24.01	24.09	24.27	25.00
		36	0	23.25	23.17	23.26	24.00
		36	18	23.15	22.89	23.21	24.00
		36	39	22.95	23.29	22.96	24.00
		75	0	22.98	23.23	22.98	24.00
	16QAM	1	0	23.18	23.08	22.92	24.00
		1	38	23.28	23.24	23.32	24.00
		1	74	23.24	22.92	23.10	24.00
		36	0	22.70	22.04	22.00	23.00
		36	18	22.21	22.27	22.44	23.00
		36	39	22.44	22.74	22.46	23.00
		75	0	22.43	22.22	22.52	23.00
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				133222	133322	133372	
20MHz	QPSK	1	0	**24.30**	**24.34**	24.01	25.00
		1	50	23.89	24.12	**24.32**	25.00
		1	99	23.94	24.10	23.99	25.00
		50	0	23.18	22.92	22.99	24.00
		50	25	22.95	**23.28**	22.93	24.00
		50	50	22.90	22.94	22.99	24.00
		100	0	23.06	22.93	23.13	24.00
	16QAM	1	0	23.10	22.92	22.96	24.00
		1	50	23.25	22.98	22.93	24.00
		1	99	23.26	23.36	23.08	24.00
		50	0	22.64	22.46	22.75	23.00
		50	25	22.42	22.60	22.19	23.00
		50	50	22.20	22.80	22.18	23.00
		100	0	22.23	22.01	22.01	23.00

Table 4： Conducted Power of LTE

2 Conducted Power of WiFi and BT

2.1 Conducted Power of WiFi

Mode	Channel	Frequency(MHz)	Data Rate(Mbps)	Average Power (dBm)	tune up	SAR Test
802.11b	1	2412	1	17.12	18.00	NO
	6	2437		**17.64**	18.00	Yes
	11	2462		17.61	18.00	NO
802.11g	1	2412	6	10.59	12.00	NO
	6	2437		10.19	12.00	NO
	11	2462		11.22	12.00	NO
802.11n HT20 SISO	1	2412	MCS0	9.58	11.00	NO
	6	2437		9.23	11.00	NO
	11	2462		10.33	11.00	NO
802.11n HT40 SISO	3	2422	MCS0	9.45	11.00	NO
	6	2437		9.11	11.00	NO
	9	2452		9.24	11.00	NO

Table 5： Conducted Power of WiFi

2.2 Conducted Power of BT

BT			Average Conducted Power(dBm)	Tune up (dBm)
Modulation	Channel	Frequency(MHz)		
GFSK	0	2402	7.34	9.00
	39	2441	8.86	9.00
	78	2480	7.72	9.00
π/4DQPSK	0	2402	4.35	6.00
	39	2441	5.81	6.00
	78	2480	4.74	6.00
8DPSK	0	2402	4.38	6.00
	39	2441	5.85	6.00
	78	2480	4.74	6.00
BLE			Average Conducted Power(dBm)	Tune up (dBm)
Modulation	Channel	Frequency(MHz)		
GFSK	0	2402	-3.06	-1.00
	19	2440	-1.25	-1.00
	39	2480	-2.42	-1.00

Table 6： Conducted Power of BT