Appendix B. – SAR Test Plots

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 04/27/2021
Plot No.: 1

DUT: SM-G990U; Type: Bar;

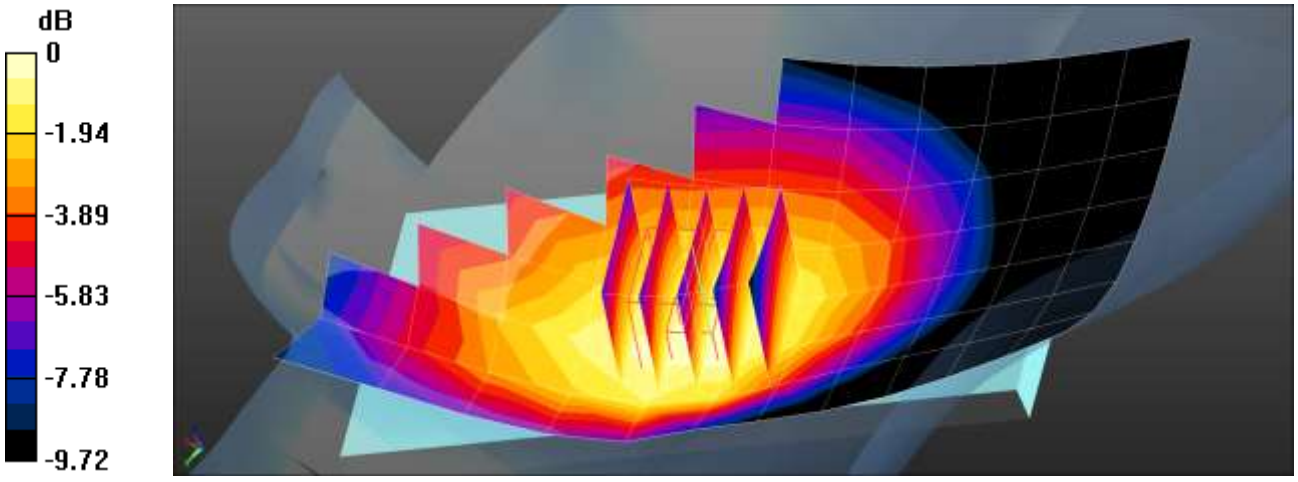
Communication System: UID 0, CDMA 835MHz FCC (0); Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.916 S/m; ε_r = 41.975; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 836.52 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC0 Head Right Touch SO55 RC3/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.241 W/kg

CDMA BC0 Head Right Touch SO55 RC3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.516 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.217 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 0.251 W/kg



0 dB = 0.251 W/kg = −6.00 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.1℃
Ambient Temperature:	21.1℃
Test Date:	04/26/2021
Plot No.:	2

DUT: SM-G990U; Type: Bar;

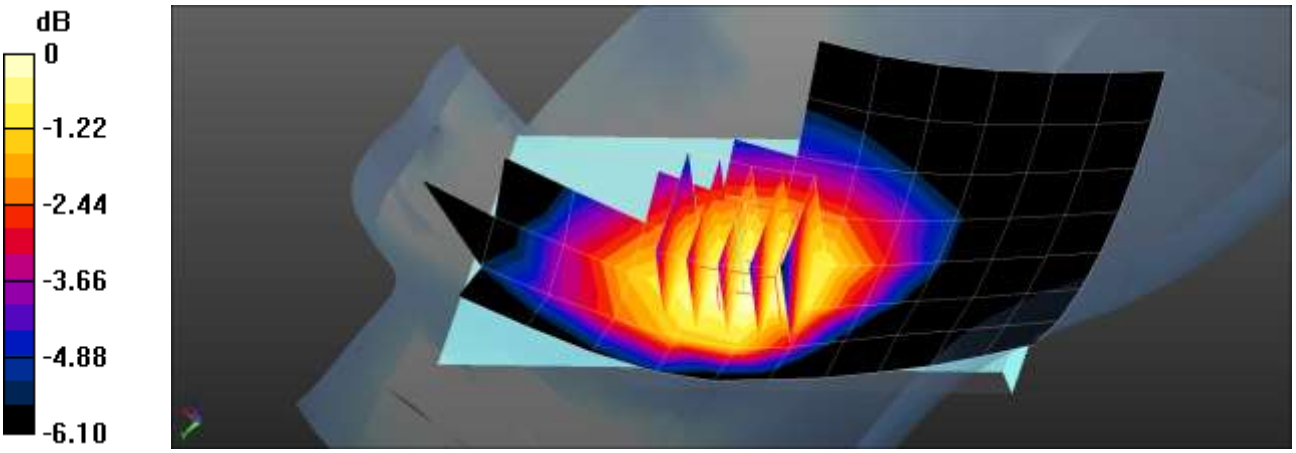
Communication System: UID 0, CDMA BC1 (0); Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.392 S/m; ε_r = 40.778; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1908.75 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC1 Head Right Touch EVDO Rev.A 1175ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.350 W/kg

CDMA BC1 Head Right Touch EVDO Rev.A 1175ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.590 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.378 W/kg
SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.292 W/kg
Maximum value of SAR (measured) = 0.361 W/kg



0 dB = 0.361 W/kg = −4.42 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0℃
Ambient Temperature:	21.1℃
Test Date:	04/28/2021
Plot No.:	3

DUT: SM-G990U; Type: Bar;

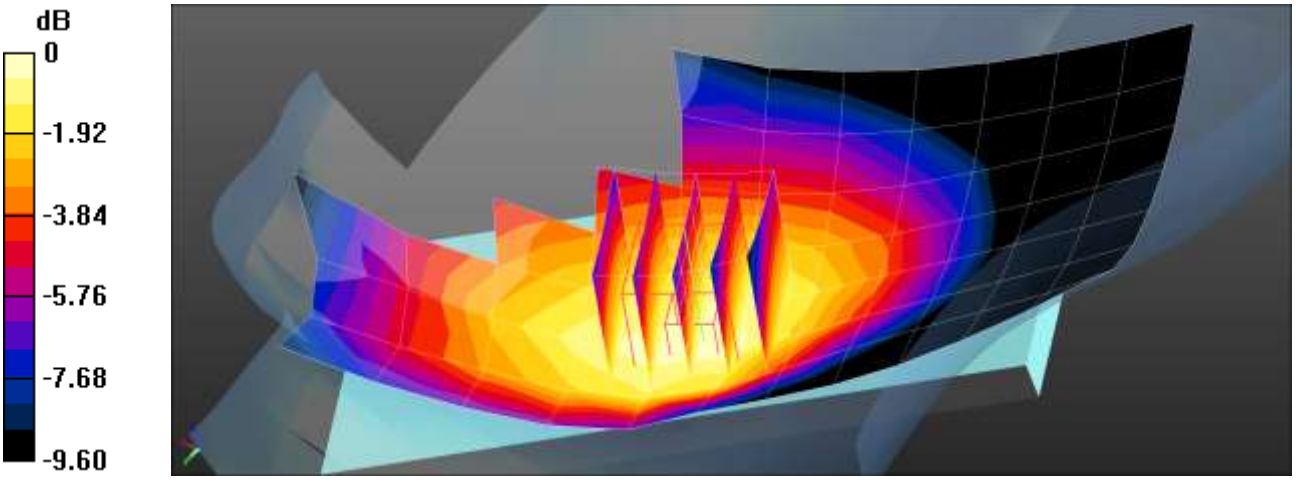
Communication System: UID 0, CDMA BC10 (FCC) (0); Frequency: 820 MHz;Duty Cycle: 1:1
Medium parameters used: f = 820 MHz; σ = 0.9 S/m; ε_r = 42.291; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 820 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC10 Head Right Touch SO55 RC3/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.229 W/kg

CDMA BC10 Head Right Touch SO55 RC3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.706 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.156 W/kg
Maximum value of SAR (measured) = 0.236 W/kg



0 dB = 0.236 W/kg = −6.27 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.9℃
Ambient Temperature:	20.2℃
Test Date:	04/22/2021
Plot No.:	4

DUT: SM-G990U; Type: Bar;

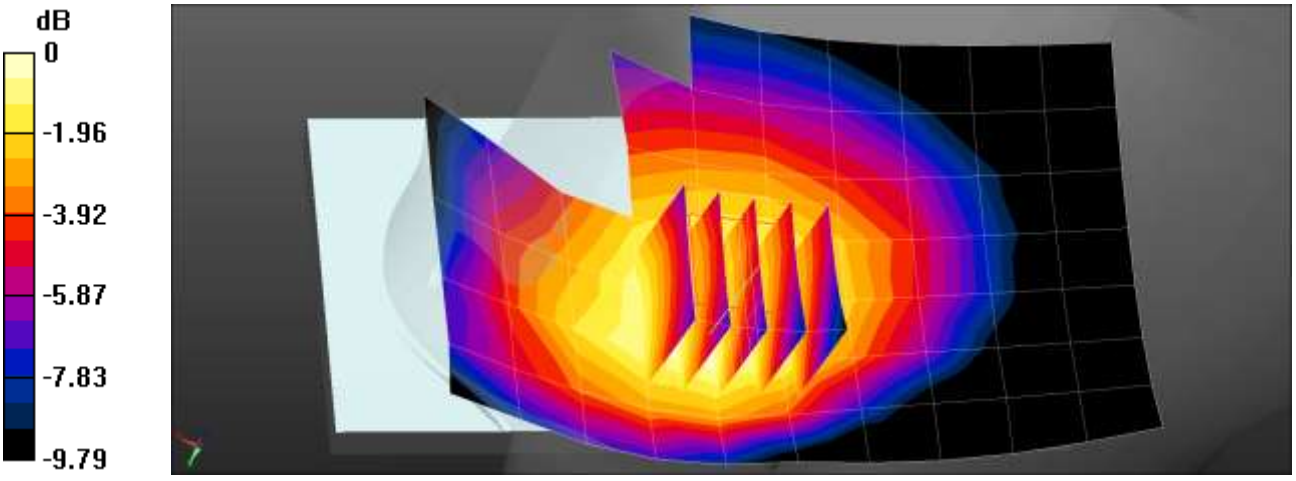
Communication System: UID 0, GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM850 Head Right Touch 190ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.216 W/kg

GSM850 Head Right Touch 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.901 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.240 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.150 W/kg
Maximum value of SAR (measured) = 0.223 W/kg



0 dB = 0.223 W/kg = −6.52 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7℃
Ambient Temperature:	20.7℃
Test Date:	04/20/2021
Plot No.:	5

DUT: SM-G990U; Type: Bar;

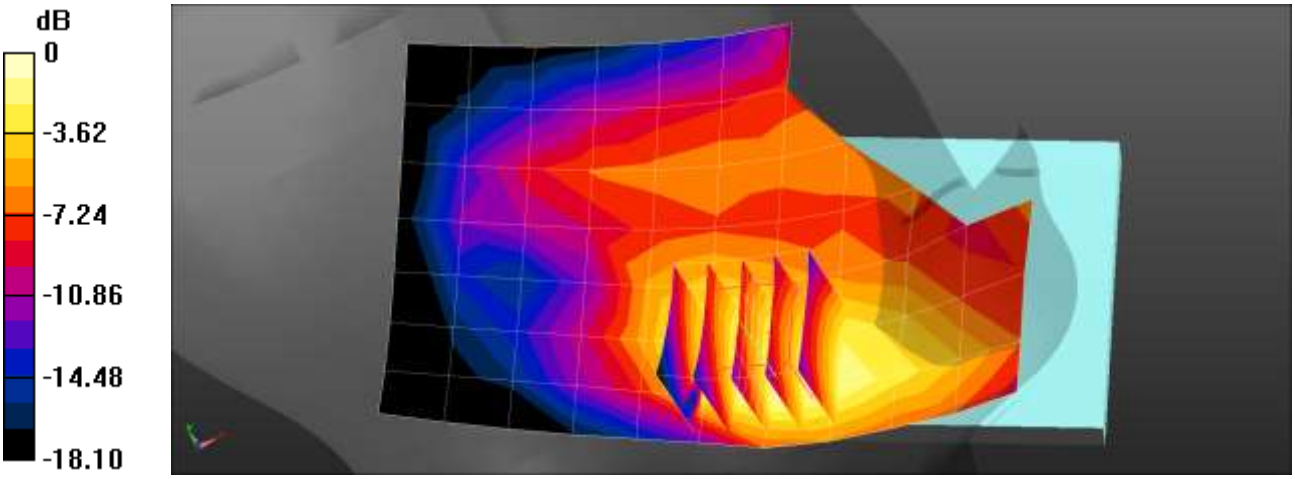
Communication System: UID 0, GSM 1900 3Tx (0); Frequency: 1880 MHz;Duty Cycle: 1:2.77013
Medium parameters used: f = 1880 MHz; σ = 1.396 S/m; ε_r = 40.576; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1880 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM1900 Head Left Touch 661ch 3Tx/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.174 W/kg

GSM1900 Head Left Touch 661ch 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.843 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.096 W/kg
Maximum value of SAR (measured) = 0.195 W/kg



0 dB = 0.195 W/kg = −7.10 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.9℃
Ambient Temperature: 20.2℃
Test Date: 04/22/2021
Plot No.: 6

DUT: SM-G990U; Type: Bar;

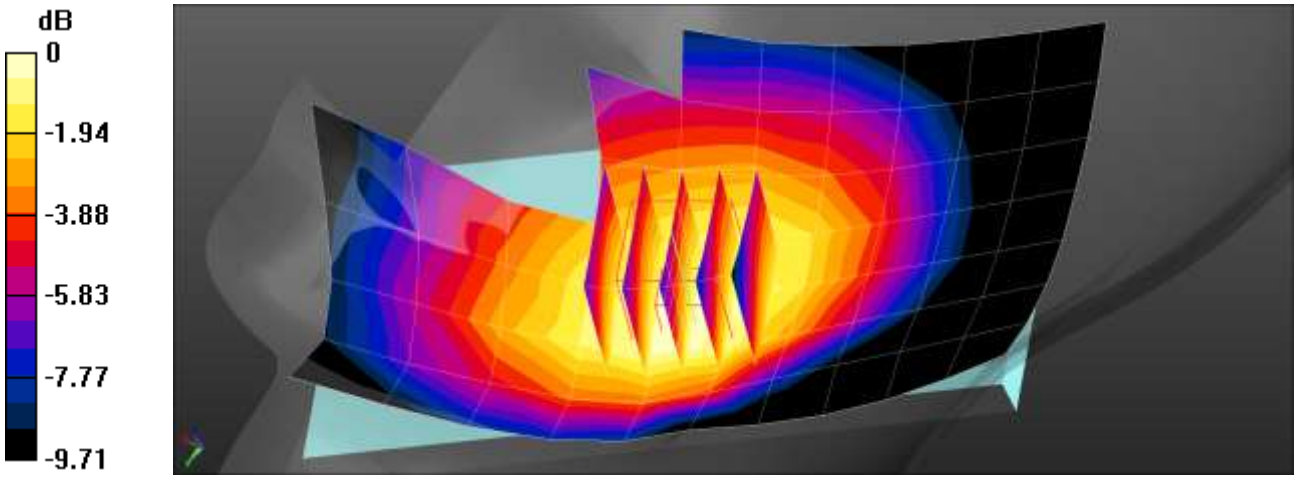
Communication System: UID 0, UMTS850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

UMTS850 Head Right Touch 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.217 W/kg

UMTS850 Head Right Touch 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.812 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.246 W/kg
SAR(1 g) = 0.194 W/kg; SAR(10 g) = 0.152 W/kg
Maximum value of SAR (measured) = 0.229 W/kg



0 dB = 0.229 W/kg = −6.40 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 04/21/2021
Plot No.: 7

DUT: SM-G990U; Type: Bar;

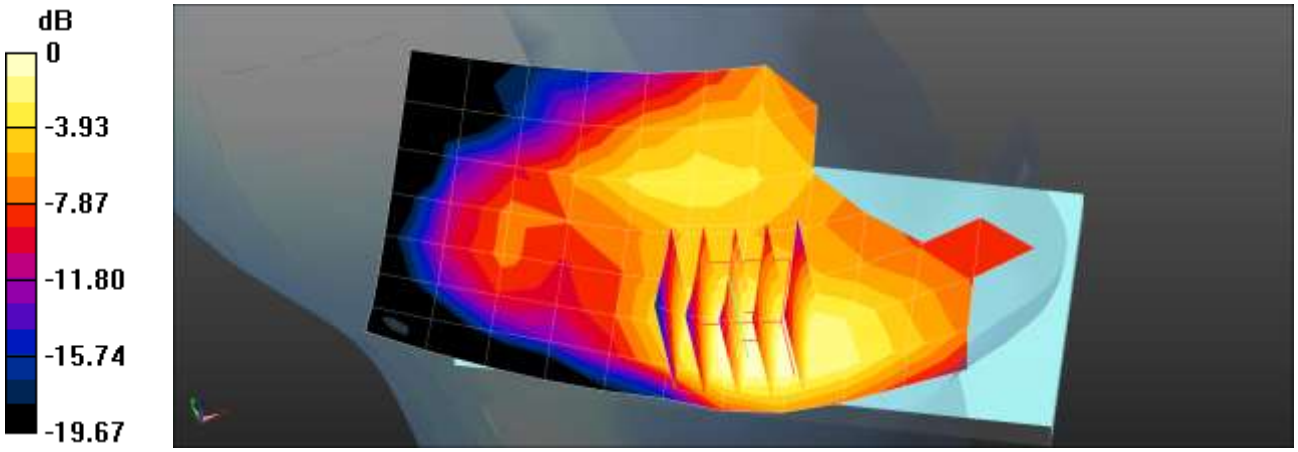
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.363 S/m; ε_r = 41.665; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.56, 8.56, 8.56) @ 1732.4 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

WCDMA B4 Head Left Touch 1412ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.141 W/kg

WCDMA B4 Head Left Touch 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.837 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.165 W/kg



0 dB = 0.165 W/kg = −7.83 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.4℃
Ambient Temperature: 22.5℃
Test Date: 04/20/2021
Plot No.: 8

DUT: SM-G990U; Type: Bar;

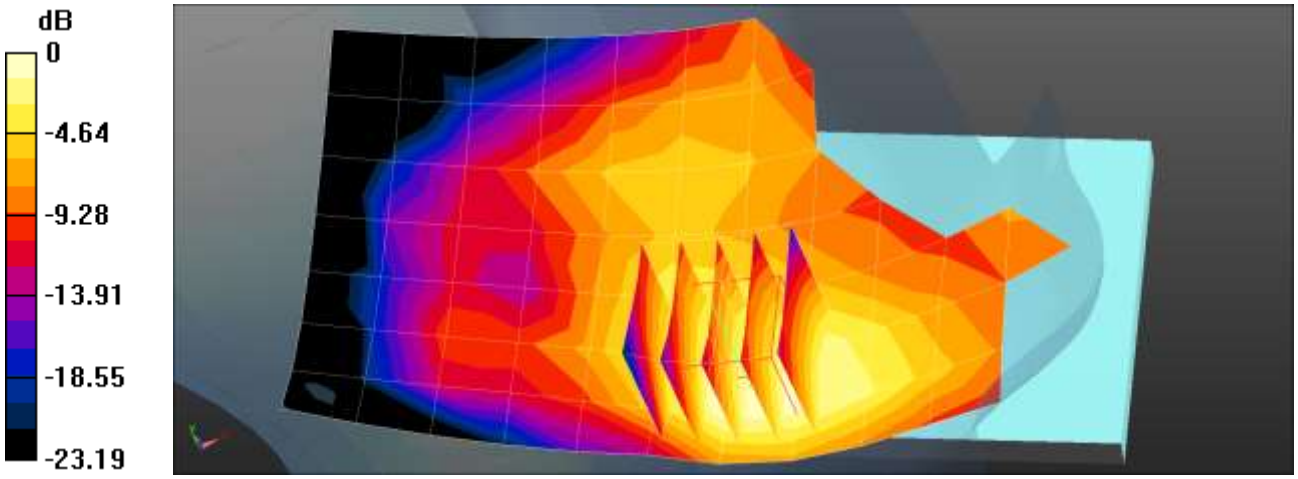
Communication System: UID 0, UMTS1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.388 S/m; ε_r = 40.491; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1880 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

UMTS B2 Head Left Touch 9400ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.172 W/kg

UMTS B2 Head Left Touch 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.318 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.097 W/kg
Maximum value of SAR (measured) = 0.201 W/kg



0 dB = 0.201 W/kg = −6.97 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.1℃
Test Date:	04/22/2021
Plot No.:	9

DUT: SM-G990U; Type: Bar;

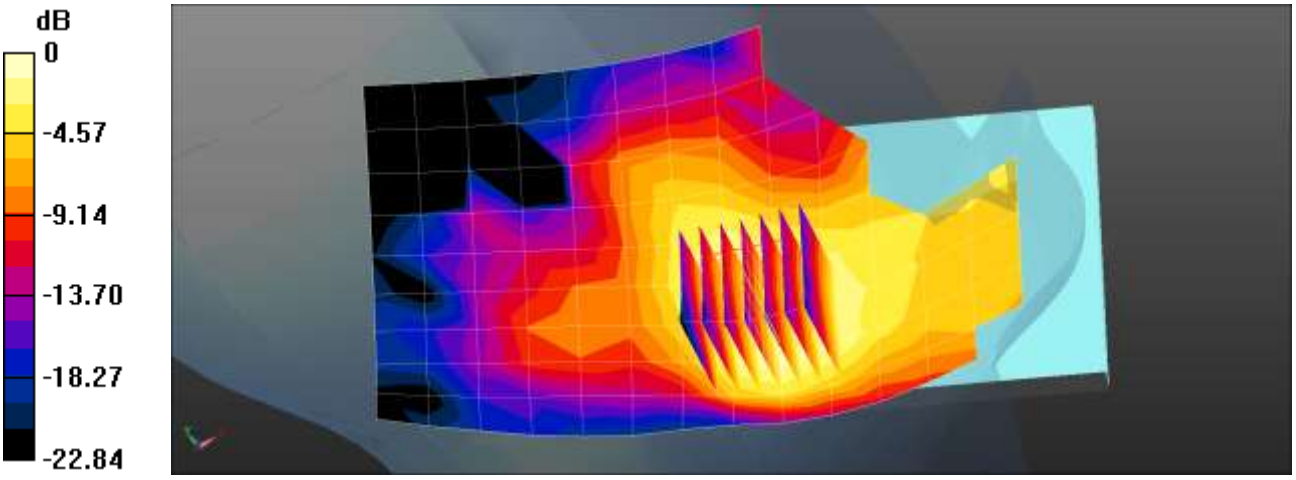
Communication System: UID 0, LTE Band 7 (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.972 S/m; ε_r = 40.074; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2560 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 7 Head Left Touch QPSK 20MHz 1RB 99offset 21350ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.155 W/kg

LTE Band 7 Head Left Touch QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.577 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.188 W/kg
SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.065 W/kg
Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = −8.01 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.0℃
Test Date:	04/19/2021
Plot No.:	10

DUT: SM-G990U; Type: Bar;

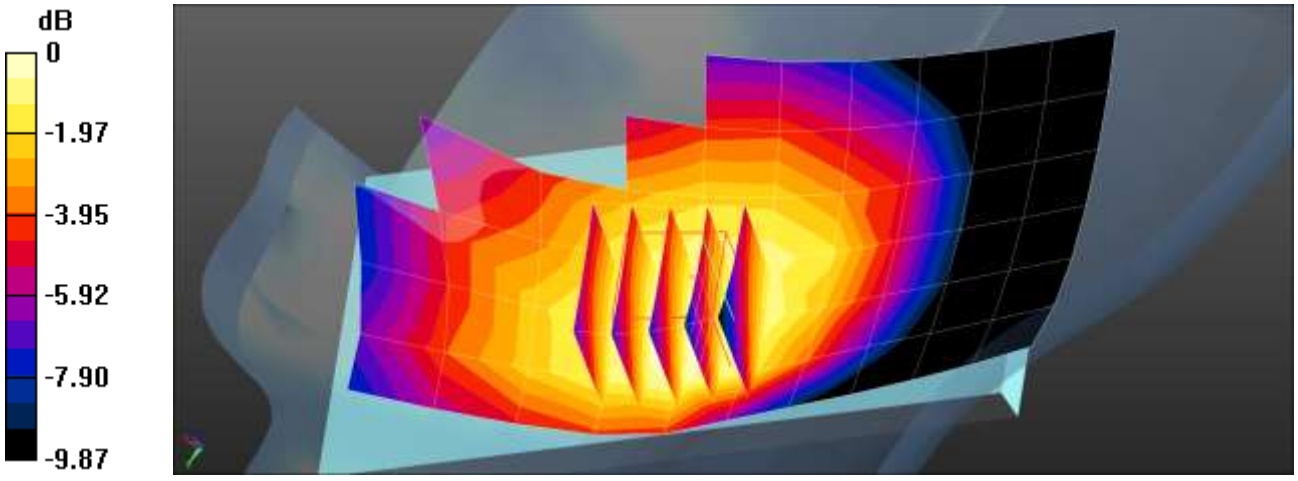
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.929 S/m; ε_r = 44.163; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 707.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_2020_06_09
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 12 Head Right Touch 10MHz QPSK 1RB 0offset 23095ch/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.157 W/kg

LTE Band 12 Head Right Touch 10MHz QPSK 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.099 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.168 W/kg
SAR(1 g) = 0.140 W/kg; SAR(10 g) = 0.110 W/kg
Maximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = −8.01 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.4℃
Ambient Temperature:	23.5℃
Test Date:	04/20/2021
Plot No.:	11

DUT: SM-G990U; Type: Bar;

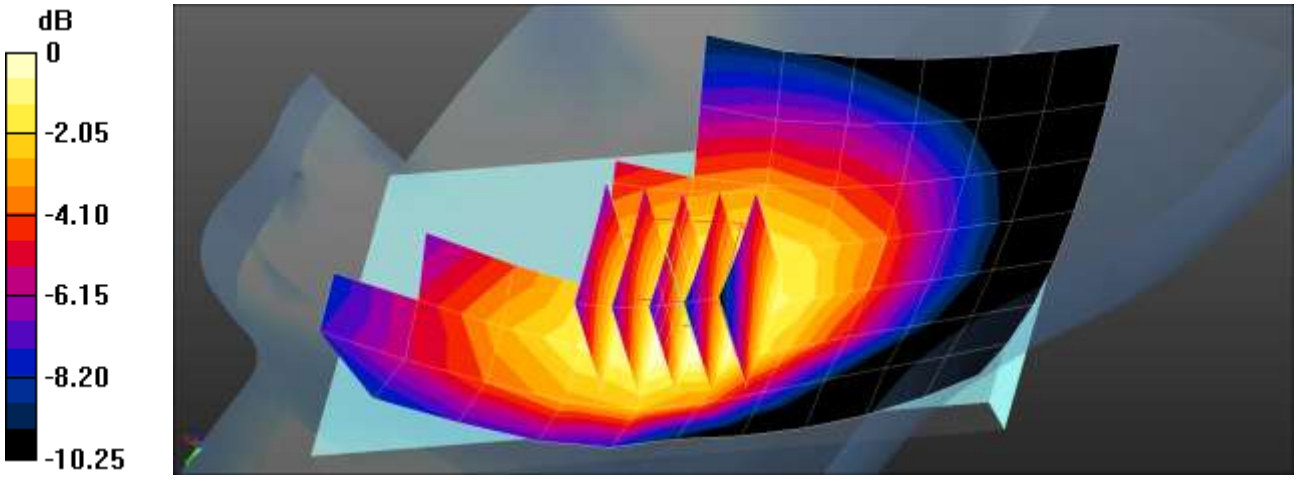
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.933 S/m; ε_r = 43.327; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 782 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 13 Head Right Touch 10MHz QPSK 1RB 24offset 23230ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.185 W/kg

LTE Band 13 Head Right Touch 10MHz QPSK 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.059 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.166 W/kg; SAR(10 g) = 0.128 W/kg
Maximum value of SAR (measured) = 0.194 W/kg



0 dB = 0.194 W/kg = −7.12 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.4℃
Ambient Temperature:	22.4℃
Test Date:	04/21/2021
Plot No.:	12

DUT: SM-G990U; Type: Bar;

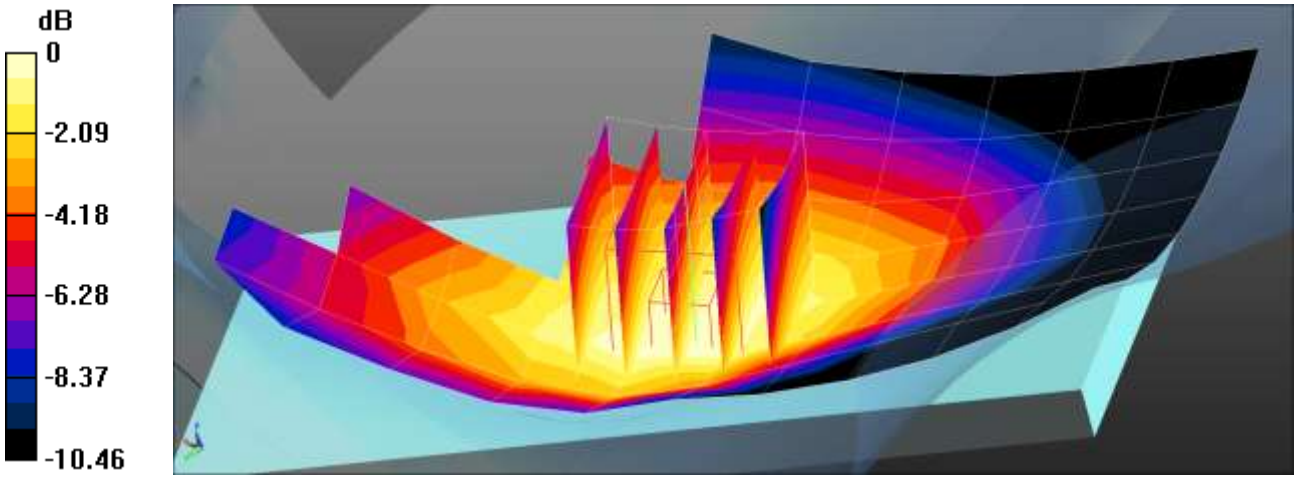
Communication System: UID 0, LTE 14 (0); Frequency: 793 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 793 MHz; σ = 0.938 S/m; ε_r = 42.613; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 793 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 14 Head Right Touch 10MHz QPSK 1RB 0offset 23330ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.214 W/kg

LTE Band 14 Head Right Touch 10MHz QPSK 1RB 0offset 23330ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.288 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.147 W/kg
Maximum value of SAR (measured) = 0.222 W/kg



0 dB = 0.222 W/kg = −6.54 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/13/2021
Plot No.:	13

DUT: SM-G990U; Type: Bar;

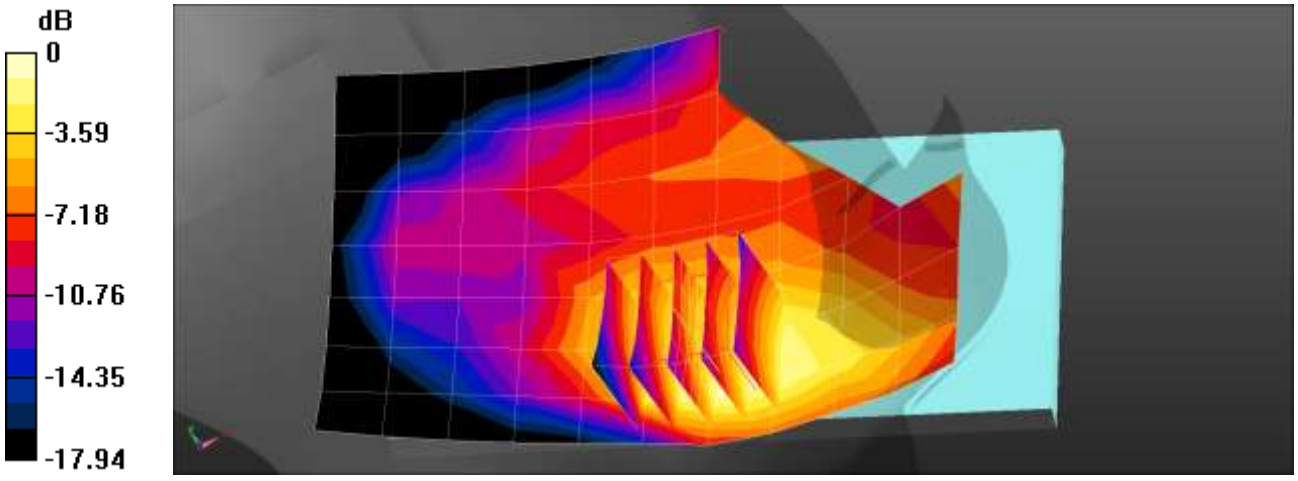
Communication System: UID 0, LTE Band25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.424 S/m; ε_r = 41.049; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1882.5 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 25 Head Left Touch QPSK 20MHz 1RB 0offset 26365ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.197 W/kg

LTE Band 25 Head Left Touch QPSK 20MHz 1RB 0offset 26365ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.978 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.267 W/kg
SAR(1 g) = 0.178 W/kg; SAR(10 g) = 0.115 W/kg
Maximum value of SAR (measured) = 0.234 W/kg



0 dB = 0.234 W/kg = −6.31 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.9℃
Ambient Temperature: 19.9℃
Test Date: 04/22/2021
Plot No.: 14

DUT: SM-G990U; Type: Bar;

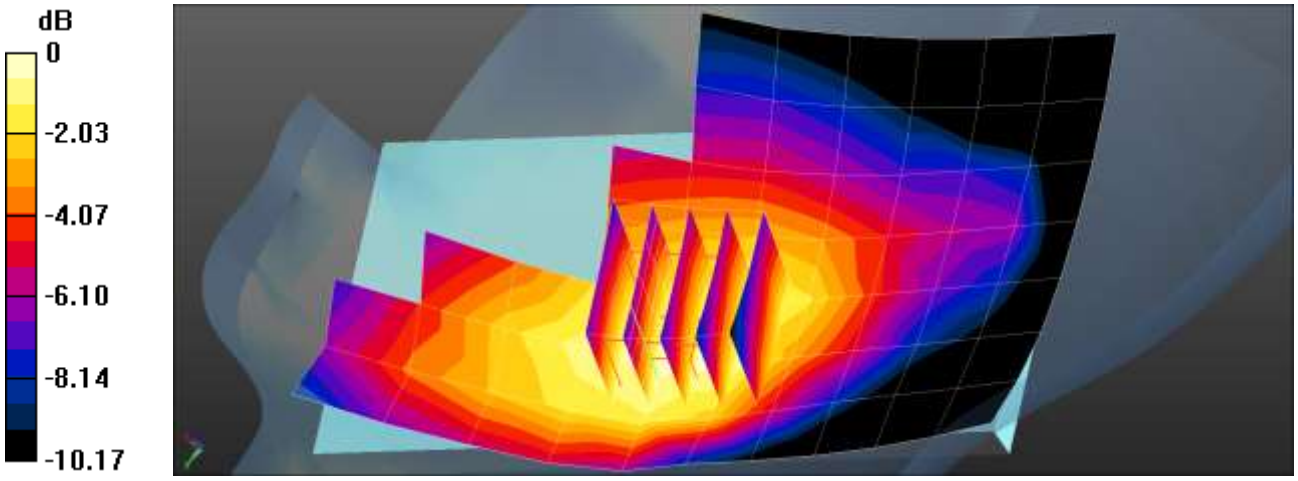
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.915 S/m; ε_r = 42.032; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.75, 9.75, 9.75) @ 836.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 836.5 MHz, 20525CH, 1RB, 49 Offset / SCC: 843.7 MHz, 20597 CH, 1RB, 0Offset
LTE Band 5 Head Right Touch 10MHz QPSK 1RB 49offset 20525ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.267 W/kg

LTE Band 5 Head Right Touch 10MHz QPSK 1RB 49offset 20525ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.312 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.175 W/kg
Maximum value of SAR (measured) = 0.279 W/kg



0 dB = 0.279 W/kg = −5.54 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.1℃
Ambient Temperature: 22.2℃
Test Date: 05/03/2021
Plot No.: 15

DUT: SM-G990U; Type: Bar;

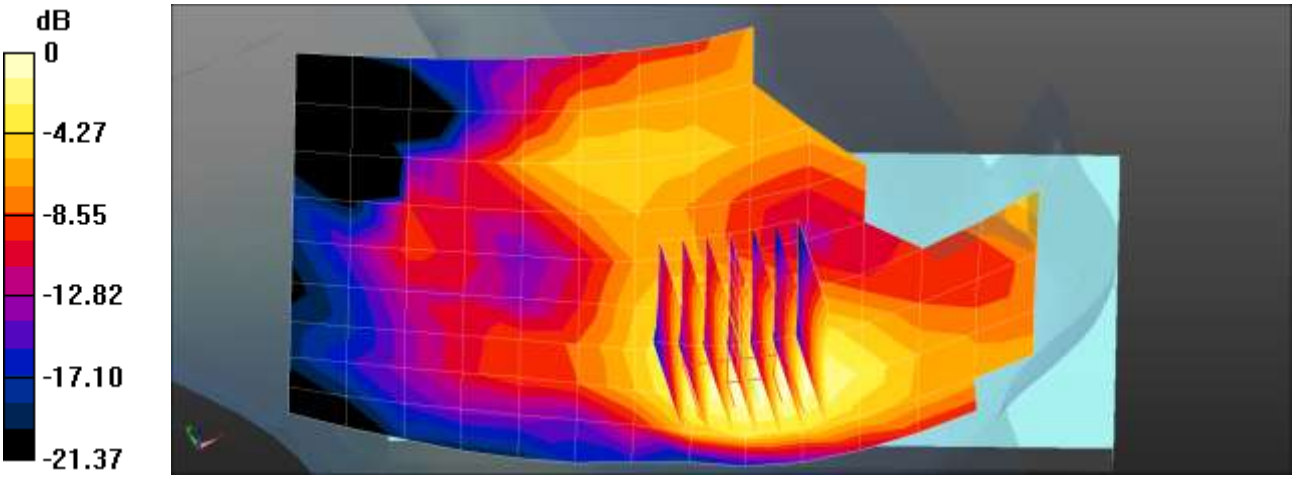
Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.73 S/m; ε_r = 40.654; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 30 Head Left Touch QPSK 10MHz 1RB 24offset 27710ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.136 W/kg

LTE Band 30 Head Left Touch QPSK 10MHz 1RB 24offset 27710ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.877 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.056 W/kg
Maximum value of SAR (measured) = 0.136 W/kg



0 dB = 0.136 W/kg = −8.66 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.3℃
Ambient Temperature: 21.4℃
Test Date: 05/06/2021
Plot No.: 16

DUT: SM-G990U; Type: Bar;

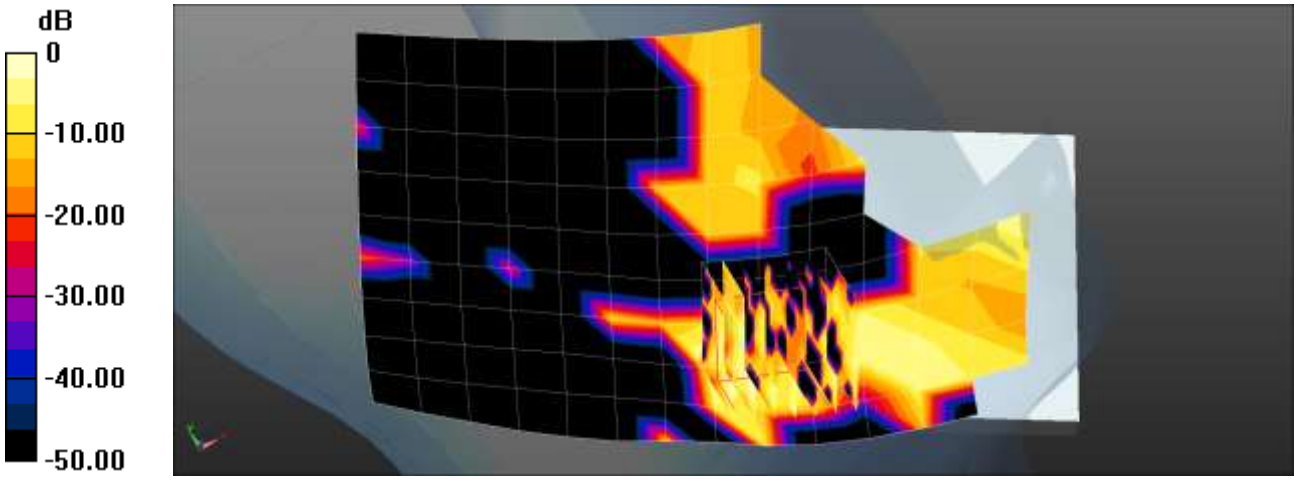
Communication System: UID 0, LTE TDD Band (0); Frequency: 2310 MHz;Duty Cycle: 1:1.58052
Medium parameters used: f = 2310 MHz; σ = 1.723 S/m; ε_r = 40.616; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Head Left Touch QPSK 10MHz 1RB 24offset 38750ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.00630 W/kg

LTE Band 40 Head Left Touch QPSK 10MHz 1RB 24offset 38750ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0200 W/kg
SAR(1 g) = 0.00464 W/kg; SAR(10 g) = 0.00124 W/kg
Maximum value of SAR (measured) = 0.00731 W/kg



0 dB = 0.00731 W/kg = -21.36 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 05/07/2021
Plot No.: 17

DUT: SM-G990U; Type: Bar;

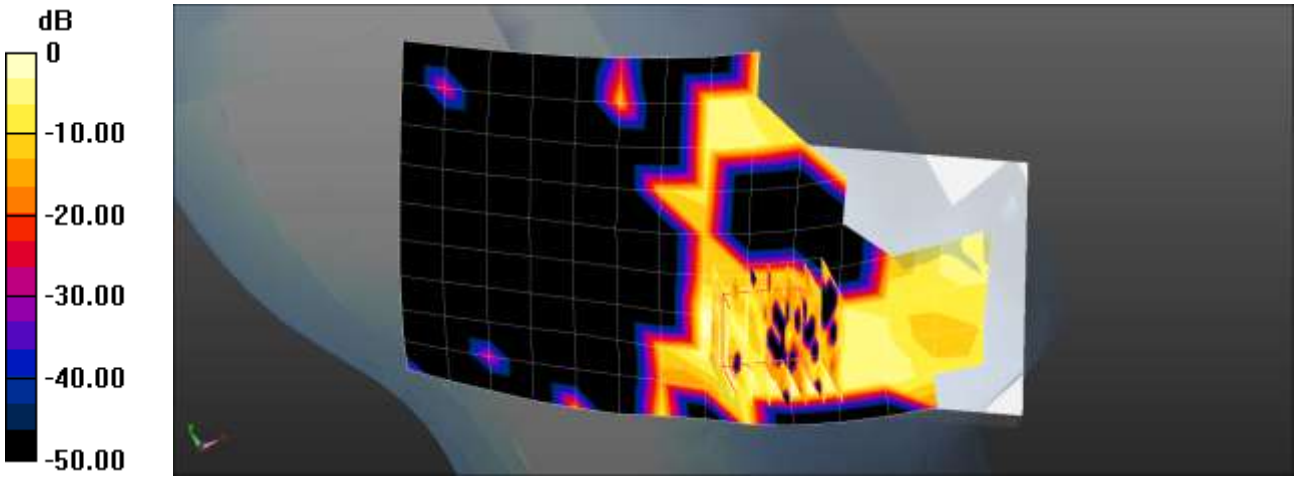
Communication System: UID 0, LTE TDD Band (0); Frequency: 2355 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2355 MHz; σ = 1.772 S/m; ε_r = 40.334; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2355 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Head Left Touch QPSK 10MHz 1RB 24offset 39200ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.00604 W/kg

LTE Band 40 Head Left Touch QPSK 10MHz 1RB 24offset 39200ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0130 W/kg
SAR(1 g) = 0.0048 W/kg; SAR(10 g) = 0.00133 W/kg
Maximum value of SAR (measured) = 0.00833 W/kg



0 dB = 0.00604 W/kg = -22.19 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.4℃
Ambient Temperature:	21.4℃
Test Date:	04/26/2021
Plot No.:	18

DUT: SM-G990U; Type: Bar;

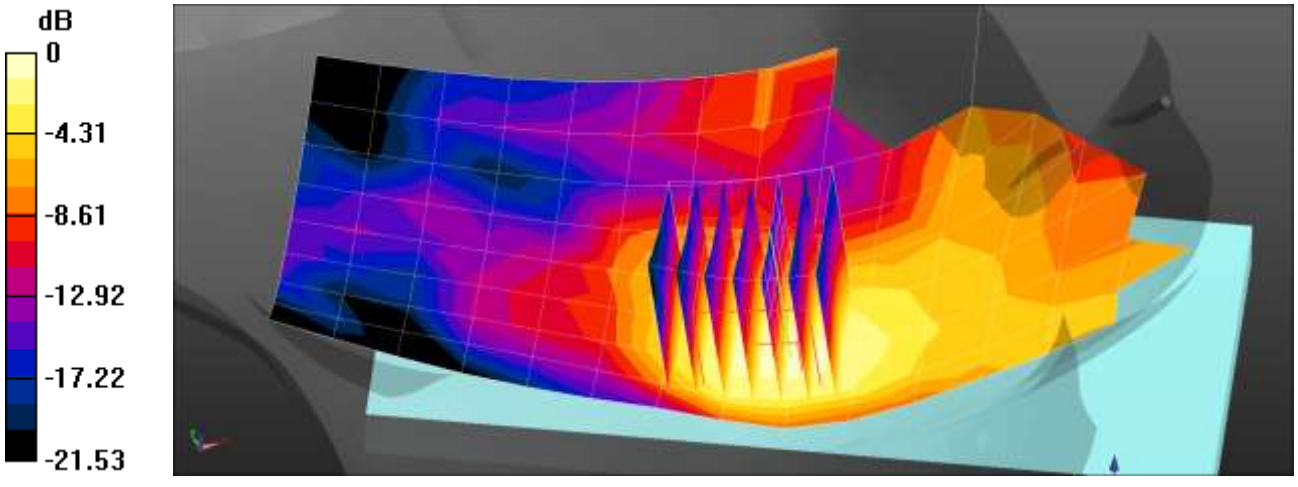
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:2.31047
Medium parameters used (interpolated): f = 2593 MHz; σ = 2.001 S/m; ε_r = 39.843; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2593 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2020-05-25
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Bnad 41 Head Left Touch QPSK 20MHz 1RB 99offset 40620ch/Area Scan (9x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.134 W/kg

LTE Bnad 41 Head Left Touch QPSK 20MHz 1RB 99offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.743 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.111 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.140 W/kg



0 dB = 0.140 W/kg = −8.54 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.1℃
Ambient Temperature: 22.1℃
Test Date: 05/12/2021
Plot No.: 19

DUT: SM-G990U; Type: Bar;

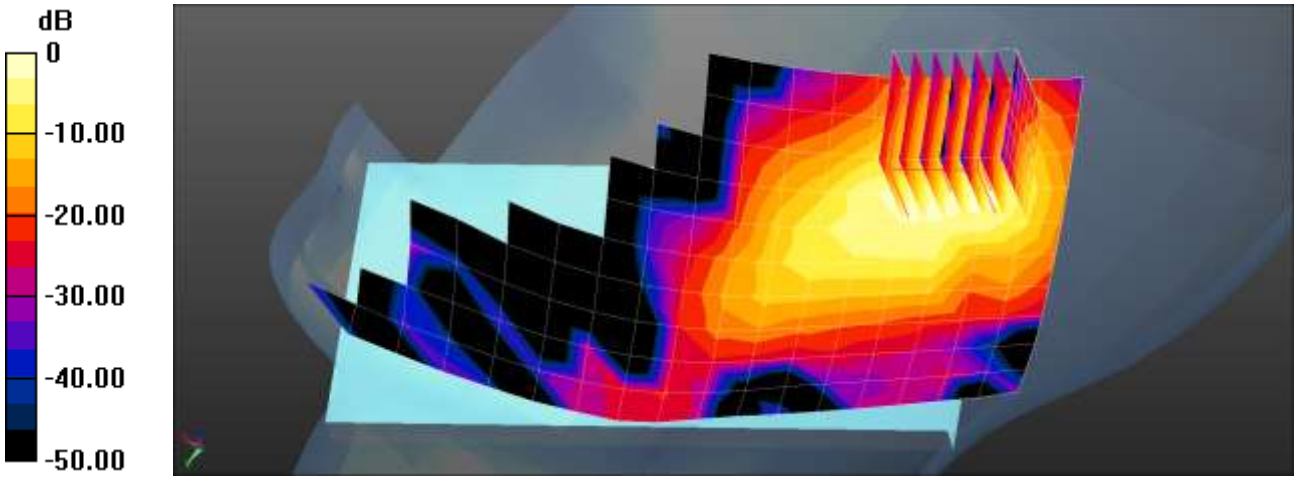
Communication System: UID 0, LTE Band 48 (0); Frequency: 3603.3 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 3603.3 MHz; σ = 3.087 S/m; ε_r = 39.221; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3603.3 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

PCC 3603.3 MHz, 55773 Ch / SCC 3623.1 MHz, 55971Ch
LTE Band 48 Head Right Touch QPSK 20MHz 1RB 99offset 55773ch/Area Scan (11x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.929 W/kg

LTE Band 48 Head Right Touch QPSK 20MHz 1RB 99offset 55773ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 2.278 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.521 W/kg; SAR(10 g) = 0.224 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 0.929 W/kg = −0.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/21/2021
Plot No.:	20

DUT: SM-G990U; Type: Bar;

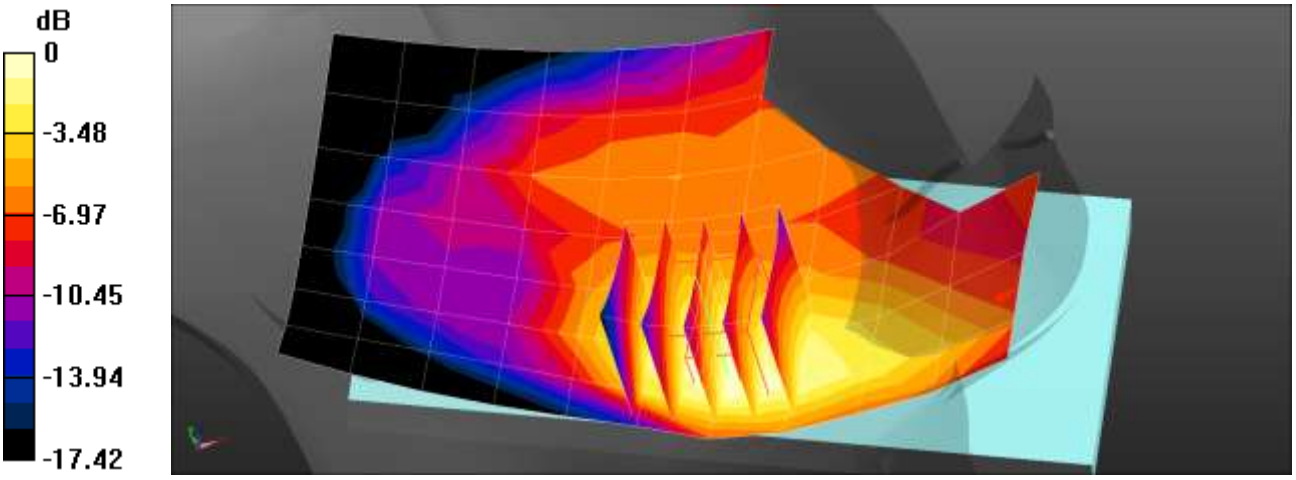
Communication System: UID 0, LTE Band66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.431 S/m; ε_r = 40.934; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1770 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 66 Head Left Touch QPSK 20MHz 1RB 0offset 132572ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.211 W/kg

LTE Band 66 Head Left Touch QPSK 20MHz 1RB 0offset 132572ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.114 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.193 W/kg; SAR(10 g) = 0.129 W/kg
Maximum value of SAR (measured) = 0.249 W/kg



0 dB = 0.249 W/kg = −6.04 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7℃
Ambient Temperature:	19.7℃
Test Date:	04/23/2021
Plot No.:	21

DUT: SM-G990U; Type: Bar;

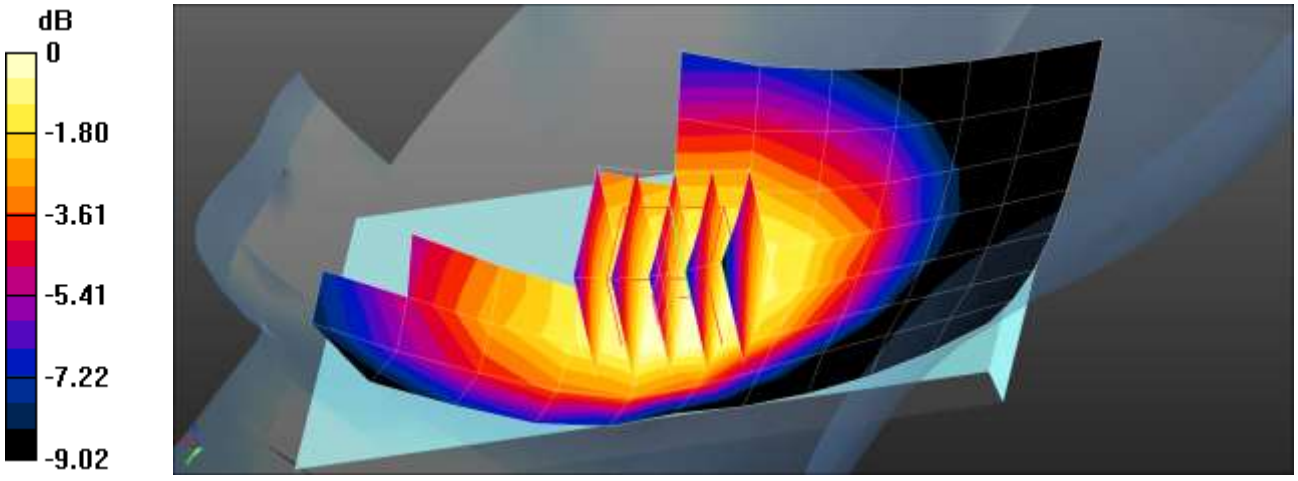
Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 680.5 MHz; σ = 0.92 S/m; ε_r = 44.133; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 680.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 71 Head Right Touch 20MHz QPSK 1RB 0offset 133297ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.112 W/kg

LTE Band 71 Head Right Touch 20MHz QPSK 1RB 0offset 133297ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.580 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.123 W/kg
SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.086 W/kg
Maximum value of SAR (measured) = 0.118 W/kg



0 dB = 0.118 W/kg = −9.28 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.1℃
Test Date:	04/29/2021
Plot No.:	22

DUT: SM-G990U; Type: Bar;

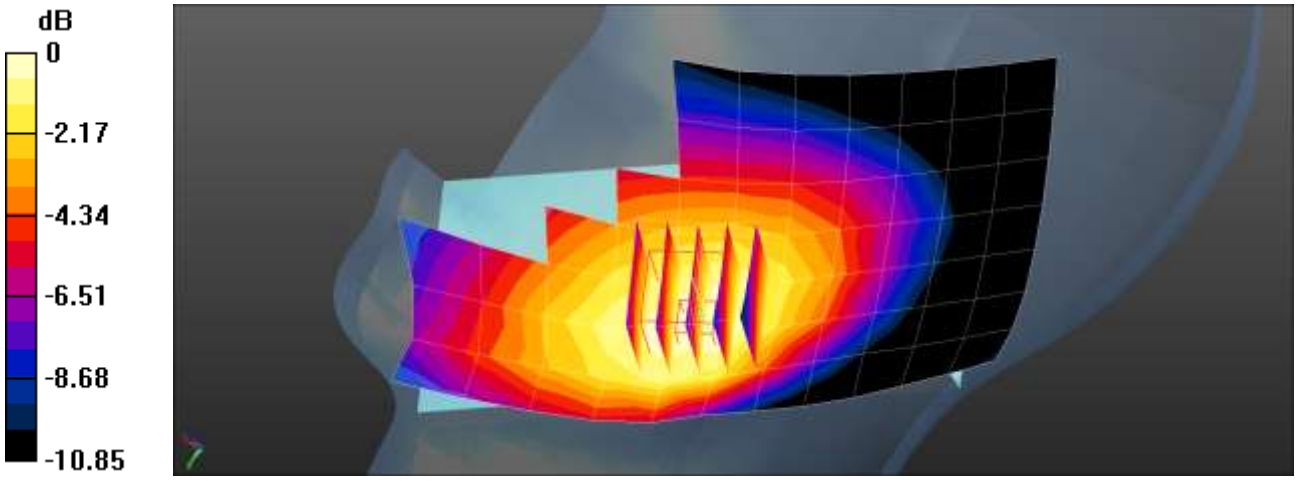
Communication System: UID 0, NR n5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.94 S/m; ε_r = 43.017; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.02, 6.02, 6.02) @ 836.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n5 Head Right Touch DFT-s QPSK 20MHz 1RB 53offset 167300ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.192 W/kg

NR Band n5 Head Right Touch DFT-s QPSK 20MHz 1RB 53offset 167300ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.940 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.171 W/kg; SAR(10 g) = 0.129 W/kg
Maximum value of SAR (measured) = 0.189 W/kg



0 dB = 0.189 W/kg = −7.24 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 04/30/2021
Plot No.: 23

DUT: SM-G990U; Type: Bar;

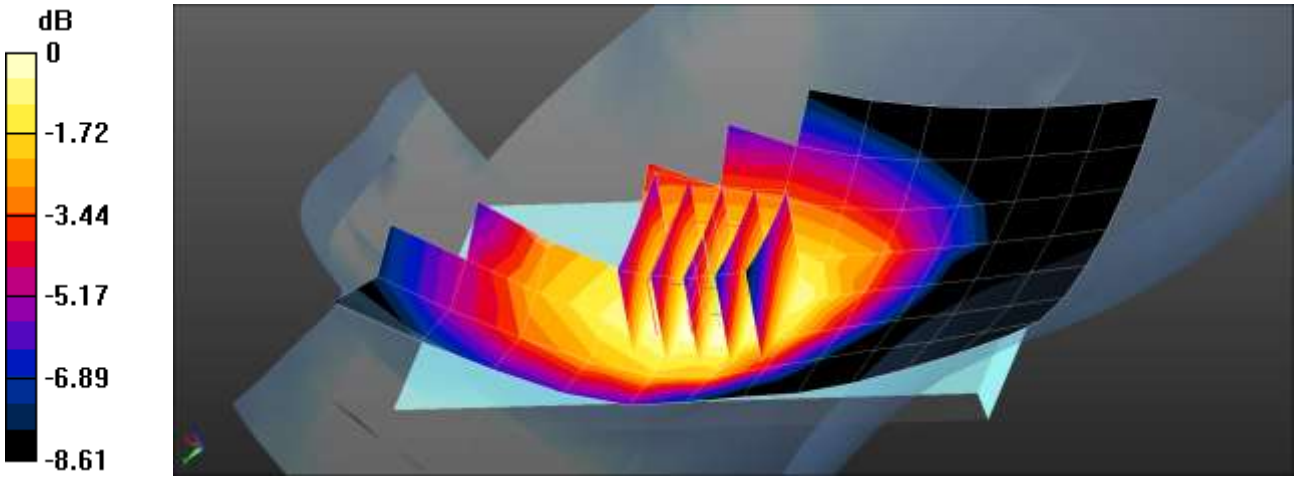
Communication System: UID 0, NR n12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 800 MHz; σ = 0.911 S/m; ε_r = 43.568; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 707.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.119 W/kg

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.581 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.138 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.093 W/kg
Maximum value of SAR (measured) = 0.124 W/kg



0 dB = 0.124 W/kg = −9.07 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.6℃
Ambient Temperature: 21.7℃
Test Date: 05/03/2021
Plot No.: 24

DUT: SM-G990U; Type: Bar;

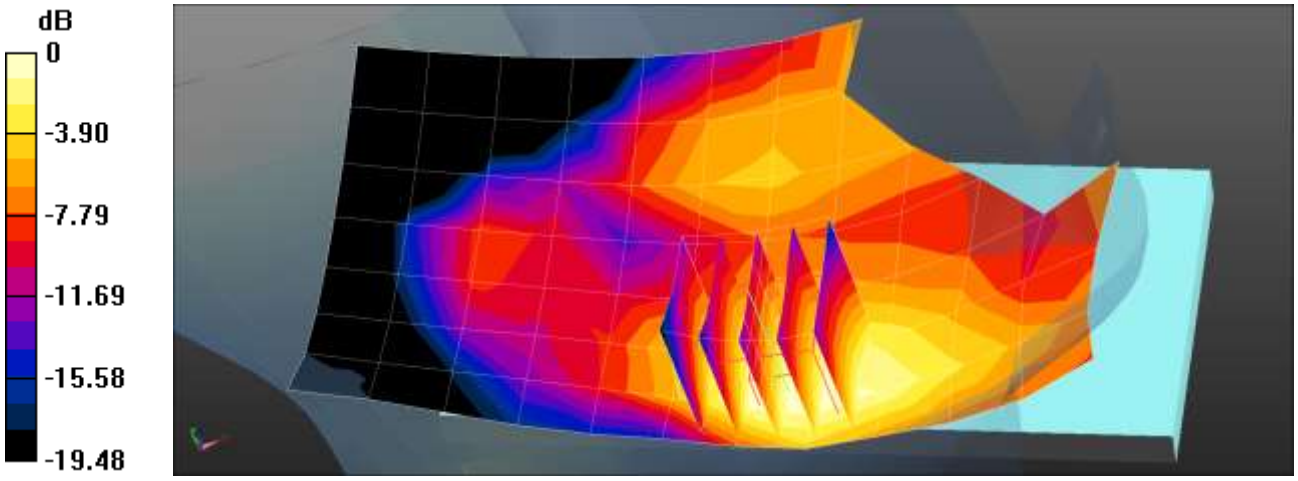
Communication System: UID 0, n25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.414 S/m; ε_r = 41.209; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1882.5 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n25 Head Left Touch DFT-s QPSK 40MHz 108RB 54offset 376500ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.209 W/kg

NR Band n25 Head Left Touch DFT-s QPSK 40MHz 108RB 54offset 376500ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.339 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.155 W/kg; SAR(10 g) = 0.095 W/kg
Maximum value of SAR (measured) = 0.216 W/kg



0 dB = 0.216 W/kg = −6.66 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.9℃
Test Date: 05/21/2021
Plot No.: 25

DUT: SM-G990U; Type: Bar;

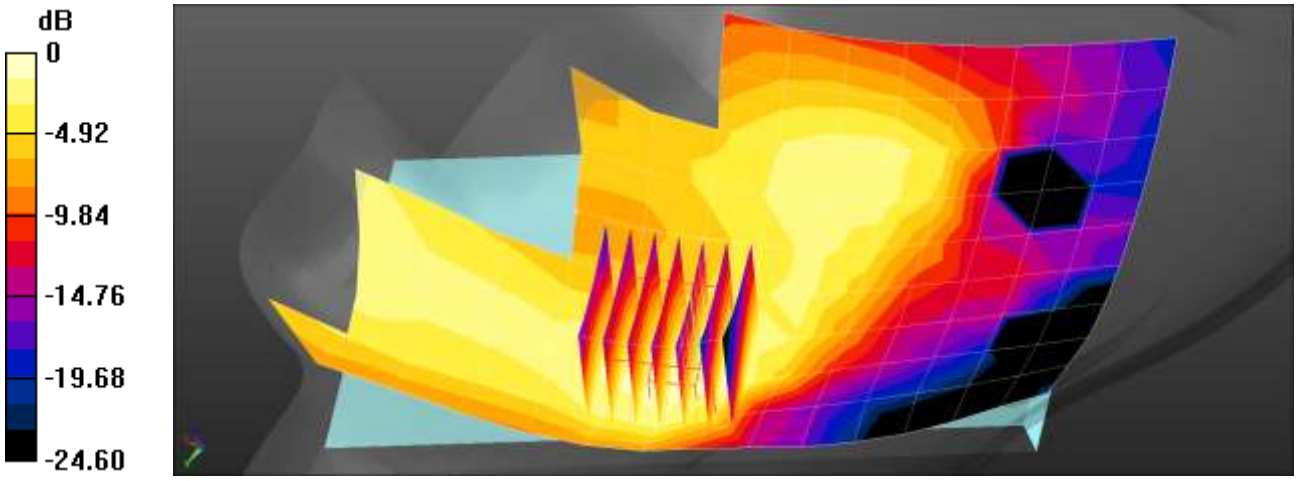
Communication System: UID 0, n30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.71 S/m; ε_r = 40.628; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2310 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 30 Head Right Touch DFT-s QPSK 10MHz 25RB 14offset 462000ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.133 W/kg

NR Band 30 Head Right Touch DFT-s QPSK 10MHz 25RB 14offset 462000ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.347 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.191 W/kg
SAR(1 g) = 0.107 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.130 W/kg



0 dB = 0.130 W/kg = −8.86 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2℃
Ambient Temperature:	21.2℃
Test Date:	05/10/2021
Plot No.:	26

DUT: SM-G990U; Type: Bar;

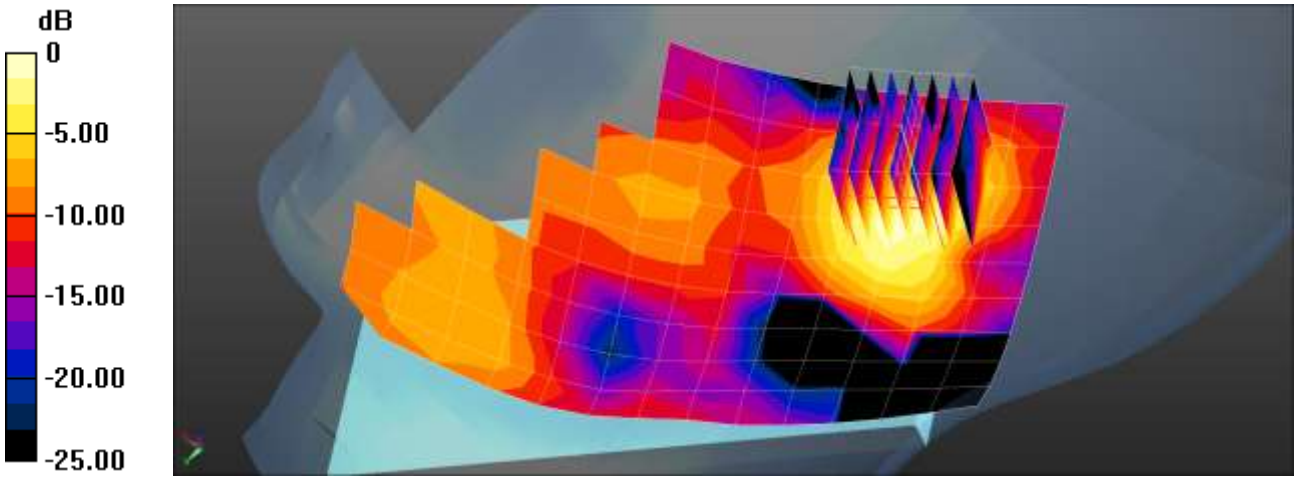
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 1.999 S/m; ε_r = 39.871; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Head Right Tilt DFT-s QPSK 100MHz 135RB 69offset 518598ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0760 W/kg

NR Band 41 Head Right Tilt DFT-s QPSK 100MHz 135RB 69offset 518598ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.692 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.027 W/kg
Maximum value of SAR (measured) = 0.0829 W/kg



0 dB = 0.0829 W/kg = −10.81 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.5℃
Ambient Temperature:	22.6℃
Test Date:	05/11/2021
Plot No.:	27

DUT: SM-G990U; Type: Bar;

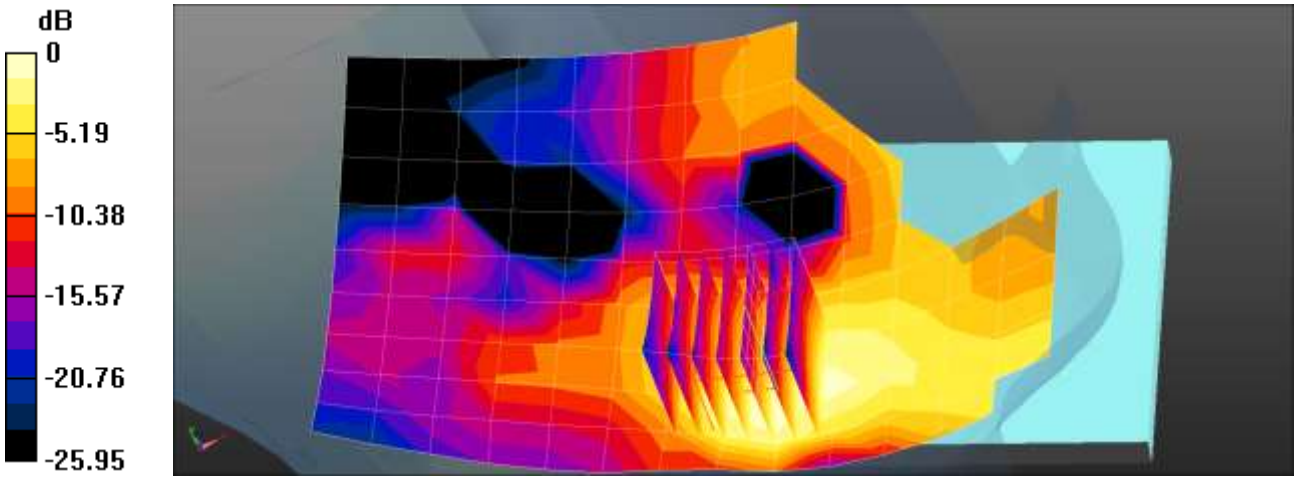
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 2.009 S/m; ε_r = 40.274; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Head Left Touch DFT-s QPSK 100MHz 135RB 69offset 518598ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.132 W/kg

NR Band 41 Head Left Touch DFT-s QPSK 100MHz 135RB 69offset 518598ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.141 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.086 W/kg; SAR(10 g) = 0.045 W/kg
Maximum value of SAR (measured) = 0.129 W/kg



0 dB = 0.129 W/kg = −8.89 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.9℃
Test Date: 05/07/2021
Plot No.: 28

DUT: SM-G990U; Type: Bar;

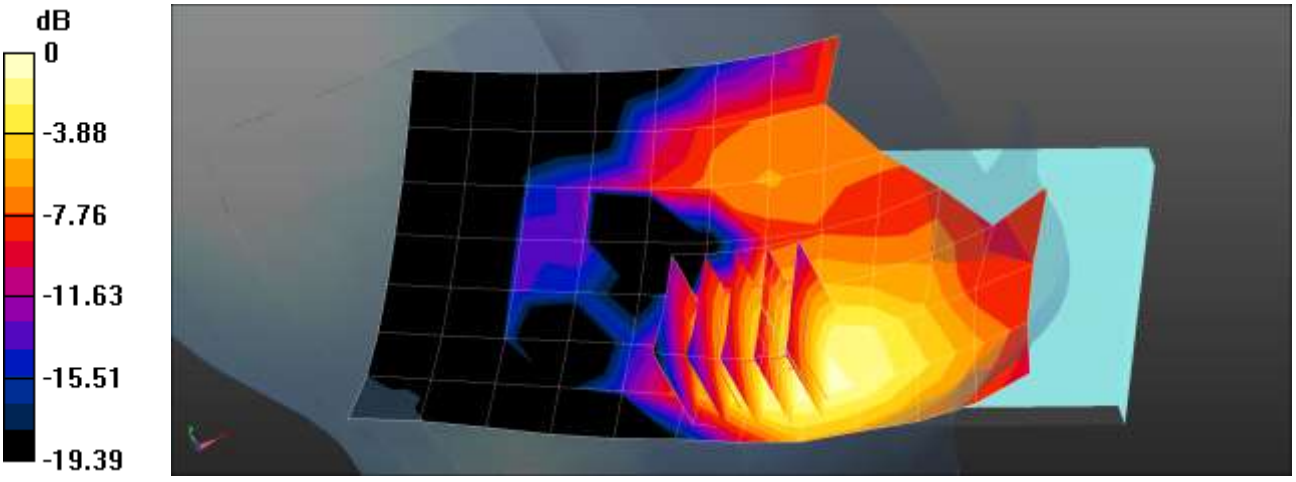
Communication System: UID 0, n66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.397 S/m; ε_r = 41.847; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1745 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n66 Head Left Touch DFT-s QPSK 40MHz 108RB 54offset 349000ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.112 W/kg

NR Band n66 Head Left Touch DFT-s QPSK 40MHz 108RB 54offset 349000ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.305 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.151 W/kg
SAR(1 g) = 0.098 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.133 W/kg



0 dB = 0.133 W/kg = −8.76 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 05/11/2021
Plot No.: 29

DUT: SM-G990U; Type: Bar;

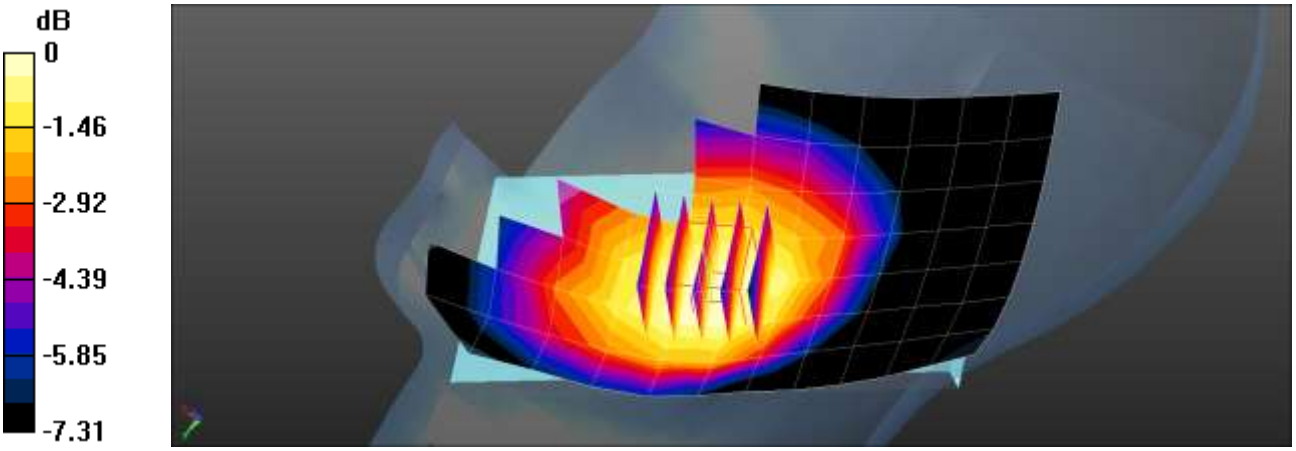
Communication System: UID 0, NR n71 (0); Frequency: 680.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 680.5 MHz; σ = 0.89 S/m; ε_r = 44.236; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 680.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_20170913
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n71 Head Right Touch DFT-s QPSK 20MHz 1RB 1offset 136100ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0886 W/kg

NR Band n71 Head Right Touch DFT-s QPSK 20MHz 1RB 1offset 136100ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.492 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0990 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.069 W/kg
Maximum value of SAR (measured) = 0.0914 W/kg



0 dB = 0.0914 W/kg = −10.39 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.4℃
Ambient Temperature:	20.5℃
Test Date:	05/14/2021
Plot No.:	30

DUT: SM-G990U; Type: Bar;

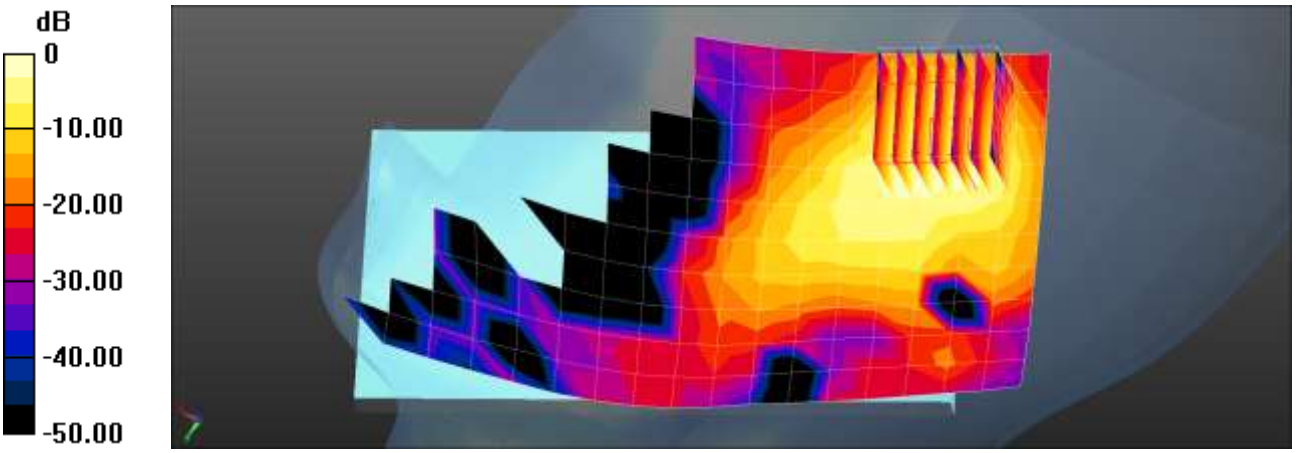
Communication System: UID 0, NR Band 77 (0); Frequency: 3750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3750 MHz; σ = 3.22 S/m; ε_r = 38.84; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3750 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 1RB 137offset 650000ch/Area Scan (11x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.18 W/kg

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 1RB 137offset 650000ch/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 5.305 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 2.03 W/kg
SAR(1 g) = 0.661 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 1.30 W/kg



0 dB = 1.18 W/kg = 0.73 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.1℃
Ambient Temperature:	21.1℃
Test Date:	05/12/2021
Plot No.:	31

DUT: SM-G990U; Type: Bar;

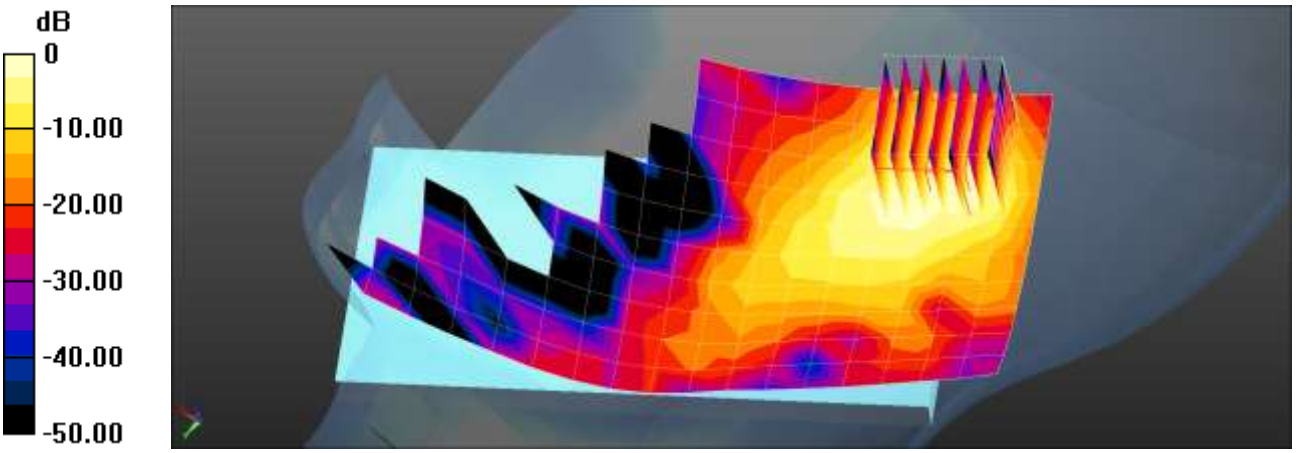
Communication System: UID 0, NR Band 77 (0); Frequency: 3930 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3930 MHz; σ = 3.37 S/m; ε_r = 38.631; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.5, 6.5, 6.5) @ 3930 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 1RB 137offset 662000ch/Area Scan (11x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.980 W/kg

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 1RB 137offset 662000ch/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 5.431 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.72 W/kg
SAR(1 g) = 0.561 W/kg; SAR(10 g) = 0.244 W/kg
Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 0.980 W/kg = −0.09 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.1℃
Ambient Temperature:	21.1℃
Test Date:	05/12/2021
Plot No.:	32

DUT: SM-G990U; Type: Bar;

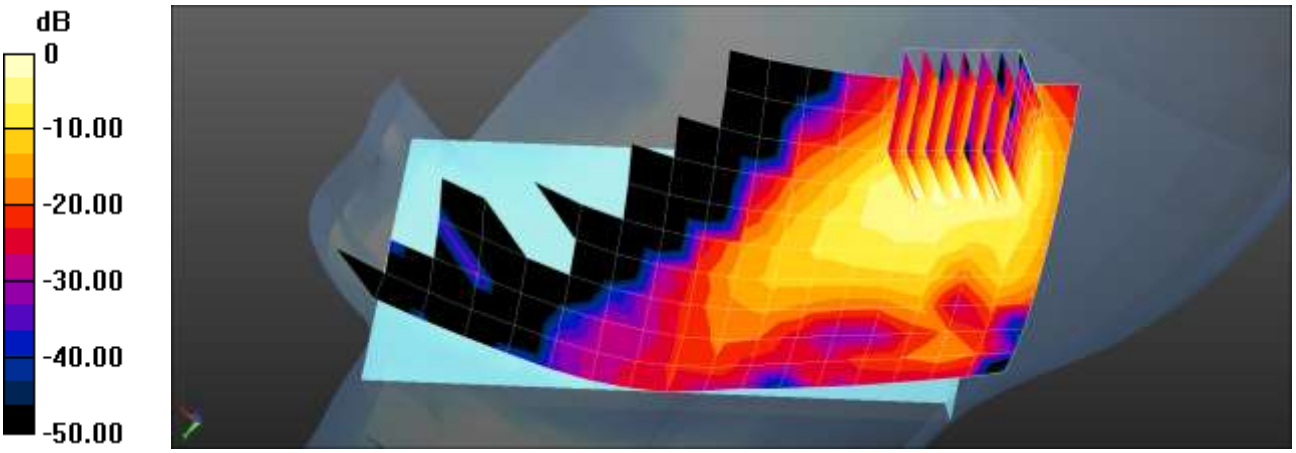
Communication System: UID 0, NR Band 77 (0); Frequency: 3750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3750 MHz; σ = 3.248 S/m; ε_r = 38.628; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3750 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 135RB 138offset 650000ch/Area Scan (11x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.06 W/kg

NR Band 77 Head Right Touch DFT-s QPSK 100MHz 135RB 138offset 650000ch/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 4.659 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.221 W/kg
Maximum value of SAR (measured) = 0.987 W/kg



0 dB = 1.06 W/kg = 0.23 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3℃
Ambient Temperature:	20.3℃
Test Date:	05/19/2021
Plot No.:	33

DUT: SM-G990U; Type: Bar;

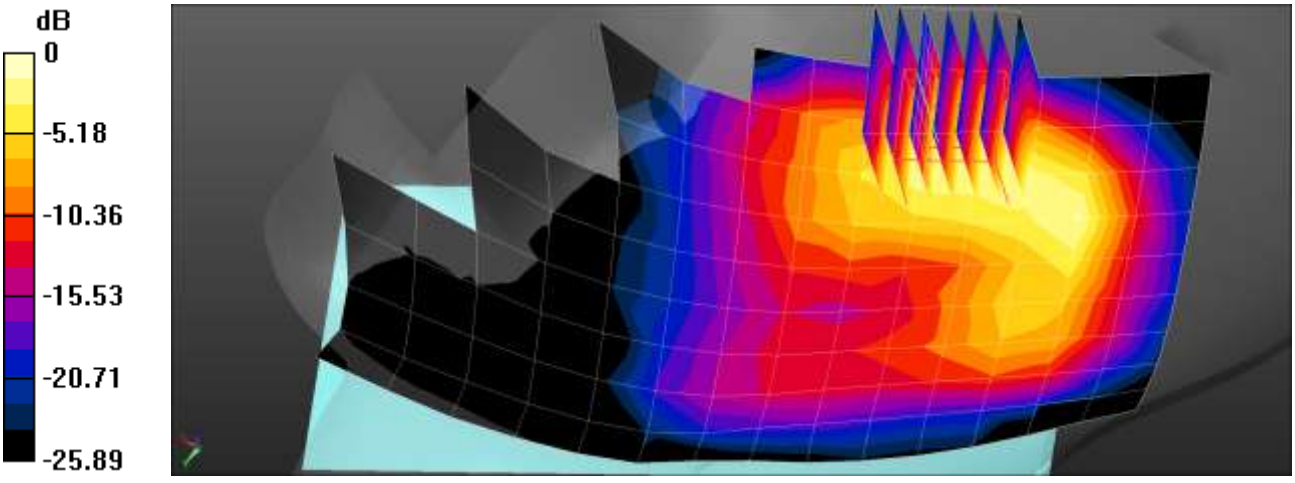
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.852 S/m; ε_r = 40.679; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2462 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11g Head Right Touch 11ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.614 W/kg

802.11g Head Right Touch 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.38 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.902 W/kg
SAR(1 g) = 0.307 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.635 W/kg



0 dB = 0.635 W/kg = −1.97 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3℃
Ambient Temperature:	20.3℃
Test Date:	05/19/2021
Plot No.:	34

DUT: SM-G990U; Type: Bar;

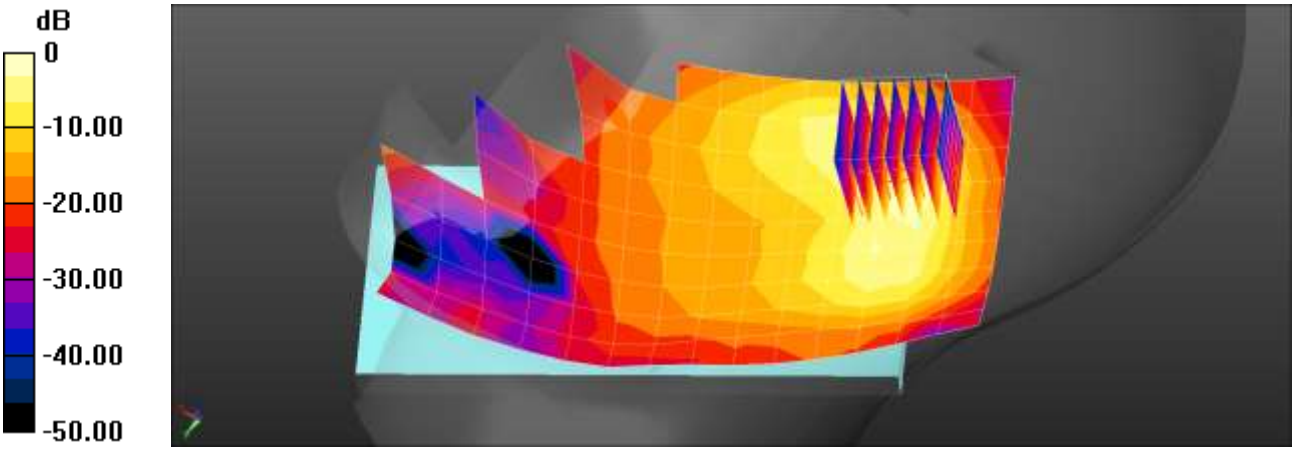
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.852 S/m; ε_r = 40.679; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2462 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11g Head Right Tilt 11ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.460 W/kg

802.11g Head Right Tilt 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.26 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.800 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.126 W/kg
Maximum value of SAR (measured) = 0.613 W/kg



0 dB = 0.455 W/kg = −3.42 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.2℃
Ambient Temperature: 20.2℃
Test Date: 05/13/2021
Plot No.: 35

DUT: SM-G990U; Type: Bar;

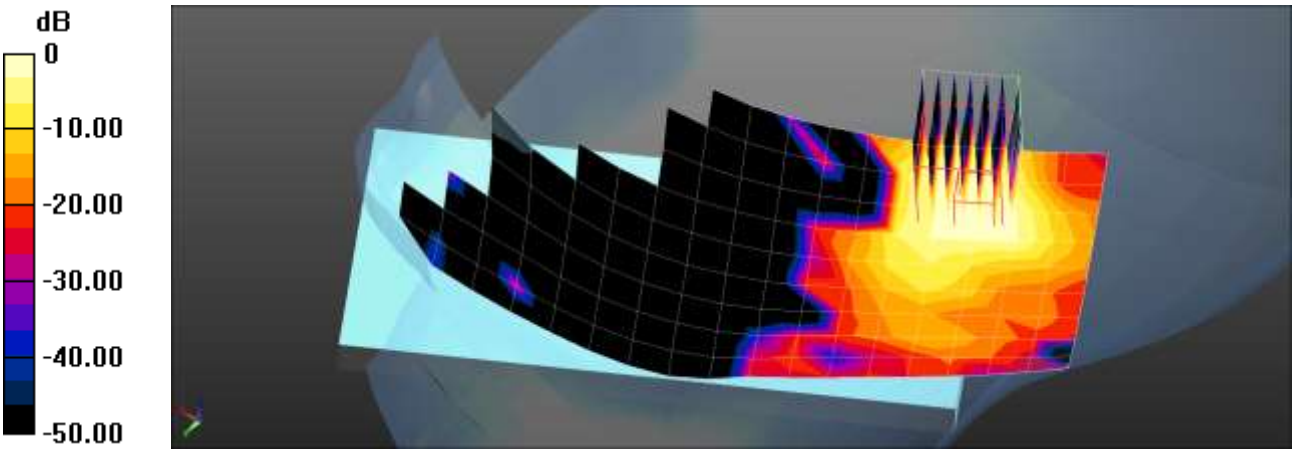
Communication System: UID 0, WiFI5GHz ac80 (0); Frequency: 5290 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5290 MHz; σ = 4.677 S/m; ε_r = 36.25; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.3, 5.3, 5.3) @ 5290 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11ac80 Head Right Touch MCS0 58ch/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.821 W/kg

802.11ac80 Head Right Touch MCS0 58ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.451 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.912 W/kg
SAR(1 g) = 0.204 W/kg; SAR(10 g) = 0.074 W/kg
Maximum value of SAR (measured) = 0.503 W/kg



0 dB = 0.460 W/kg = −3.37 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.8℃
Ambient Temperature: 19.8℃
Test Date: 05/14/2021
Plot No.: 36

DUT: SM-G990U; Type: Bar;

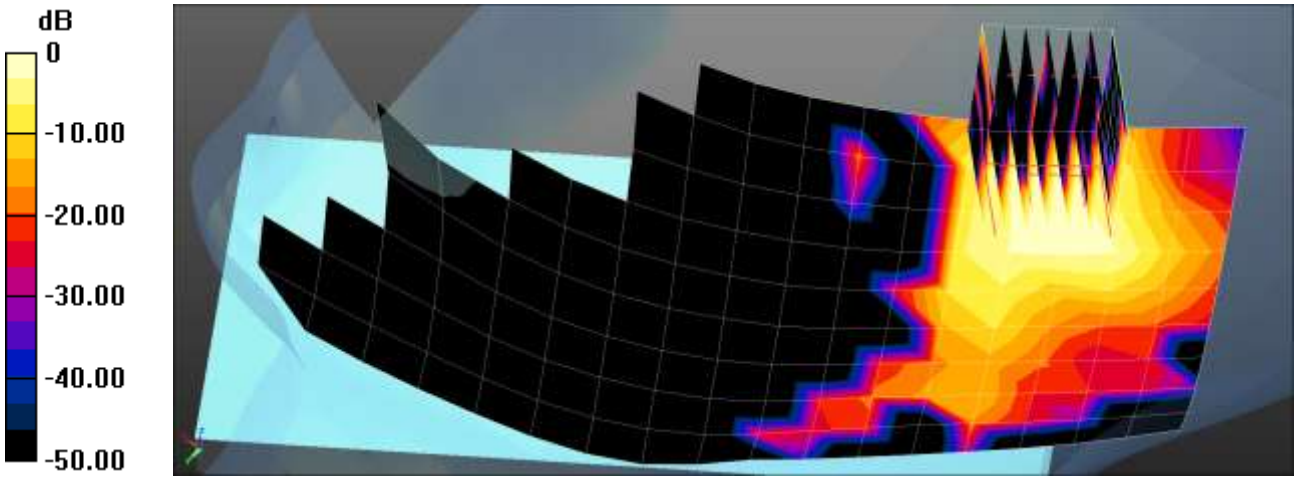
Communication System: UID 0, WiFI5GHz ac80 (0); Frequency: 5610 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5610 MHz; σ = 4.889 S/m; ε_r = 35.893; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(4.9, 4.9, 4.9) @ 5610 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11ac80 Head Right Touch MCS0 122ch/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.510 W/kg

802.11ac80 Head Right Touch MCS0 122ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.698 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.941 W/kg
SAR(1 g) = 0.206 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.523 W/kg



0 dB = 0.510 W/kg = −2.92 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.1℃
Ambient Temperature: 20.1℃
Test Date: 05/25/2021
Plot No.: 37

DUT: SM-G990U; Type: Bar;

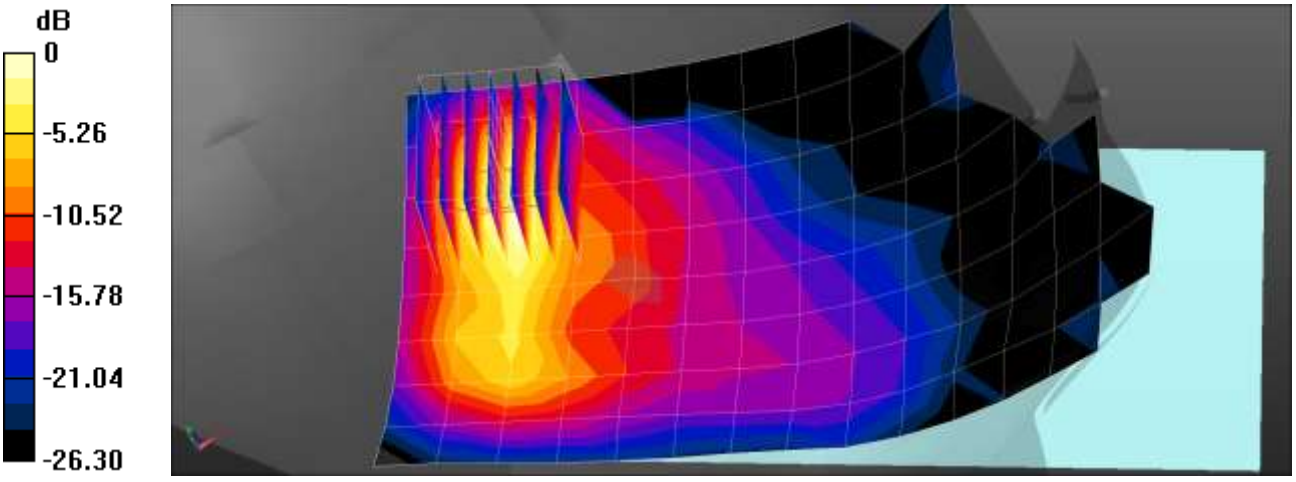
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.881 S/m; ε_r = 37.634; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2480 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Bluetooth Head Left Tilt 78ch/Area Scan (9x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.447 W/kg

Bluetooth Head Left Tilt 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.14 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.818 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.595 W/kg



0 dB = 0.595 W/kg = −2.25 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.0℃
Test Date:	04/27/2021
Plot No.:	38

DUT: SM-G990U; Type: Bar;

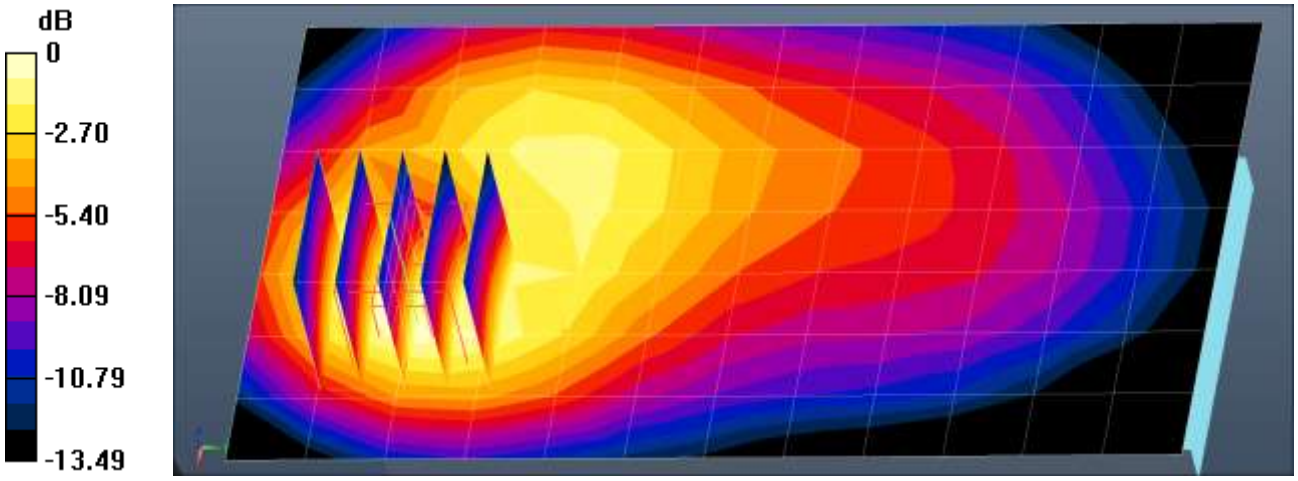
Communication System: UID 0, CDMA 835MHz FCC (0); Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.916 S/m; ε_r = 41.975; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 836.52 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC0 Body Worn Rear 384ch SO32 RC3/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.465 W/kg

CDMA BC0 Body Worn Rear 384ch SO32 RC3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.67 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.586 W/kg
SAR(1 g) = 0.367 W/kg; SAR(10 g) = 0.225 W/kg
Maximum value of SAR (measured) = 0.504 W/kg



0 dB = 0.504 W/kg = −2.98 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.1℃
Ambient Temperature: 21.1℃
Test Date: 04/26/2021
Plot No.: 39

DUT: SM-G990U; Type: Bar;

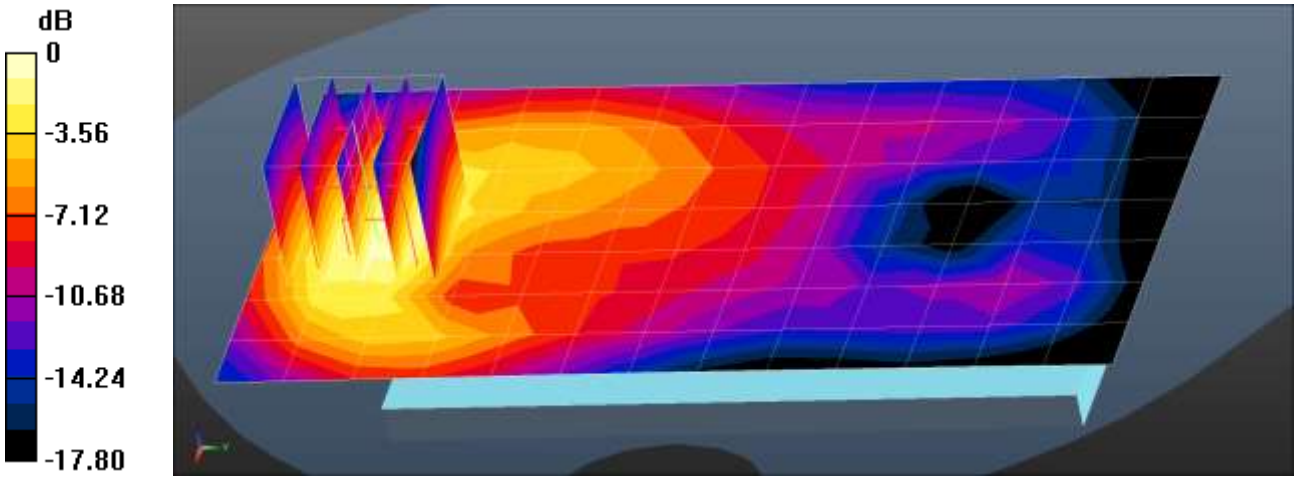
Communication System: UID 0, CDMA BC1 (0); Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.346 S/m; ε_r = 41.058; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1851.25 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC1 Body worn Rear SO32 RC3 25ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.714 W/kg

CDMA BC1 Body worn Rear SO32 RC3 25ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.686 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.973 W/kg
SAR(1 g) = 0.599 W/kg; SAR(10 g) = 0.353 W/kg
.Maximum value of SAR (measured) = 0.844 W/kg



0 dB = 0.844 W/kg = −0.74 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.1℃
Ambient Temperature: 21.1℃
Test Date: 04/26/2021
Plot No.: 40

DUT: SM-G990U; Type: Bar;

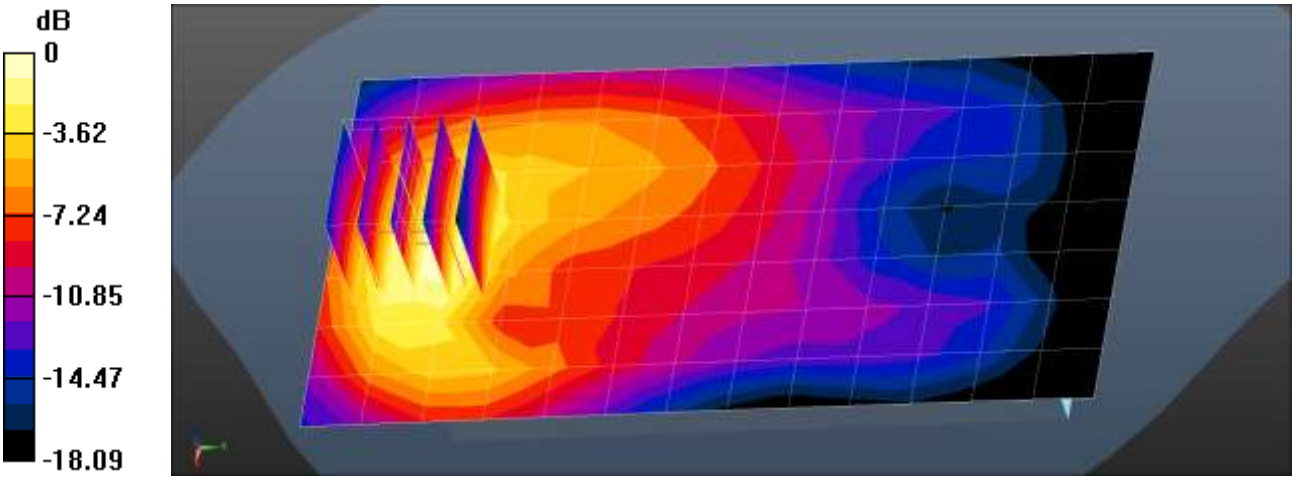
Communication System: UID 0, CDMA BC1 (0); Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.392 S/m; ε_r = 40.778; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1908.75 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC1 Body worn Rear SO32 RC3 1175ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.863 W/kg

CDMA BC1 Body worn Rear SO32 RC3 1175ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.209 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.678 W/kg; SAR(10 g) = 0.395 W/kg
Maximum value of SAR (measured) = 0.966 W/kg



0 dB = 0.966 W/kg = −0.15 dBW

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.0℃
Ambient Temperature: 21.1℃
Test Date: 04/28/2021
Plot No.: 41

DUT: SM-G990U; Type: Bar;

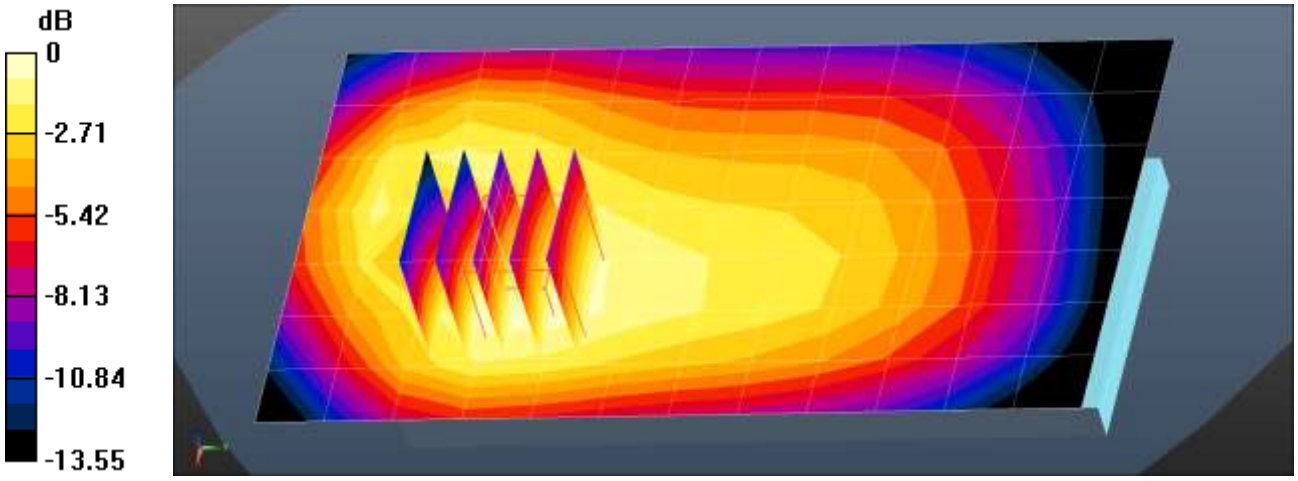
Communication System: UID 0, BC10 (0); Frequency: 820 MHz;Duty Cycle: 1:1
Medium parameters used: f = 820 MHz; σ = 0.9 S/m; ε_r = 42.291; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 820 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC10 Body Worn Front 560ch SO32 RC3/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.347 W/kg

CDMA BC10 Body Worn Front 560ch SO32 RC3/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.42 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.400 W/kg
SAR(1 g) = 0.296 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.368 W/kg



0 dB = 0.368 W/kg = −4.34 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0℃
Ambient Temperature:	21.1℃
Test Date:	04/28/2021
Plot No.:	42

DUT: SM-G990U; Type: Bar;

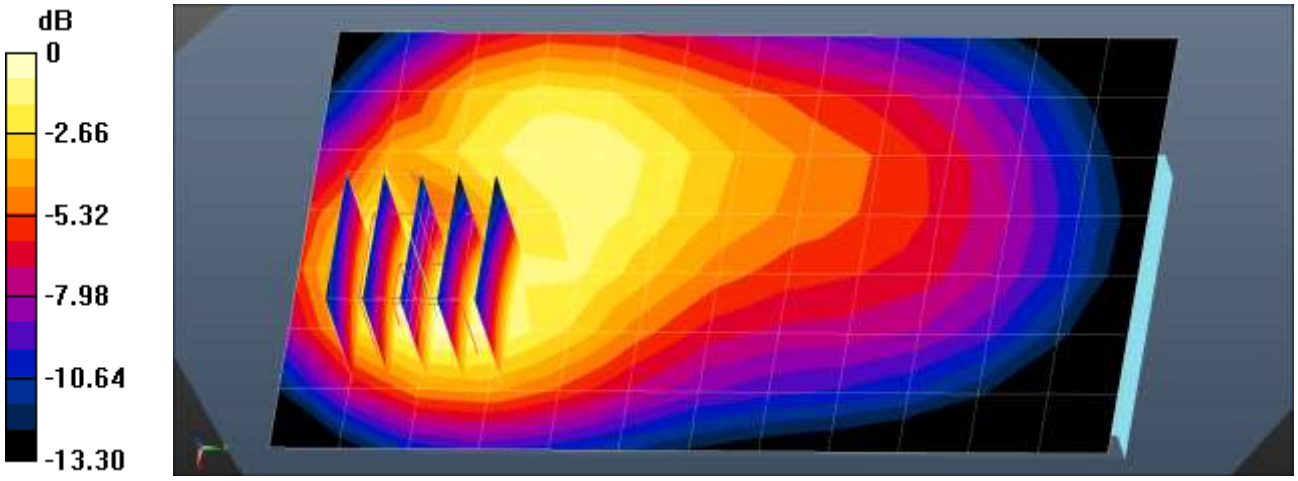
Communication System: UID 0, BC10 (0); Frequency: 820 MHz;Duty Cycle: 1:1
Medium parameters used: f = 820 MHz; σ = 0.9 S/m; ε_r = 42.291; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 820 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC10 Body Worn Rear 560ch EVDO Rev.A/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.348 W/kg

CDMA BC10 Body Worn Rear 560ch EVDO Rev.A/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.25 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.443 W/kg
SAR(1 g) = 0.277 W/kg; SAR(10 g) = 0.170 W/kg
Maximum value of SAR (measured) = 0.376 W/kg



0 dB = 0.376 W/kg = −4.25 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.9℃
Ambient Temperature: 20.2℃
Test Date: 04/22/2021
Plot No.: 43

DUT: SM-G990U; Type: Bar;

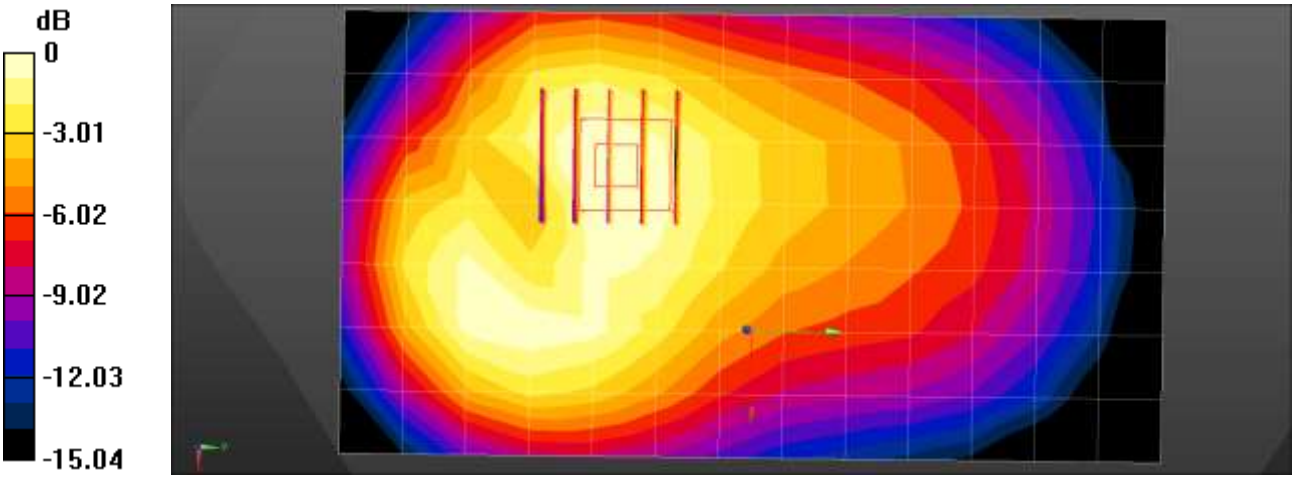
Communication System: UID 0, GSM 850 2Tx (0); Frequency: 836.6 MHz;Duty Cycle: 1:4.14954
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM850 Body Rear 190ch 2Tx/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.439 W/kg

GSM850 Body Rear 190ch 2Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.45 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.498 W/kg
SAR(1 g) = 0.355 W/kg; SAR(10 g) = 0.249 W/kg
Maximum value of SAR (measured) = 0.448 W/kg



0 dB = 0.448 W/kg = −3.49 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.7℃
Ambient Temperature: 20.7℃
Test Date: 04/20/2021
Plot No.: 44

DUT: SM-G990U; Type: Bar;

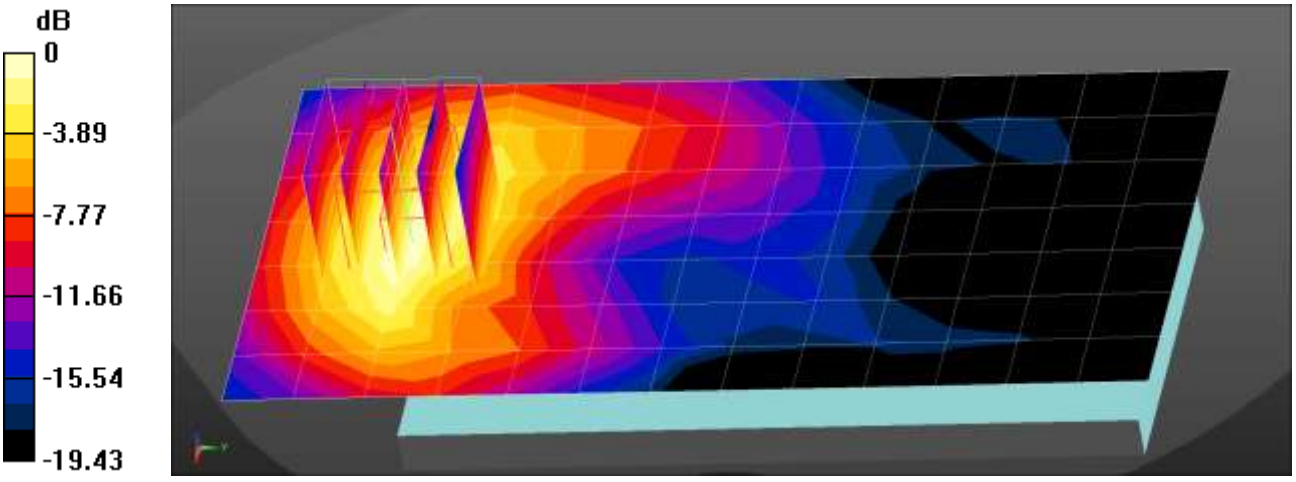
Communication System: UID 0, GSM 1900 3Tx (0); Frequency: 1880 MHz;Duty Cycle: 1:2.77013
Medium parameters used: f = 1880 MHz; σ = 1.396 S/m; ε_r = 40.576; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1880 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM1900 Body Worn Rear 3Tx 661ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.583 W/kg

GSM1900 Body Worn Rear 3Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.065 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.698 W/kg
SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.261 W/kg
Maximum value of SAR (measured) = 0.605 W/kg



0 dB = 0.605 W/kg = −2.18 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.9℃
Ambient Temperature:	20.2℃
Test Date:	04/22/2021
Plot No.:	45

DUT: SM-G990U; Type: Bar;

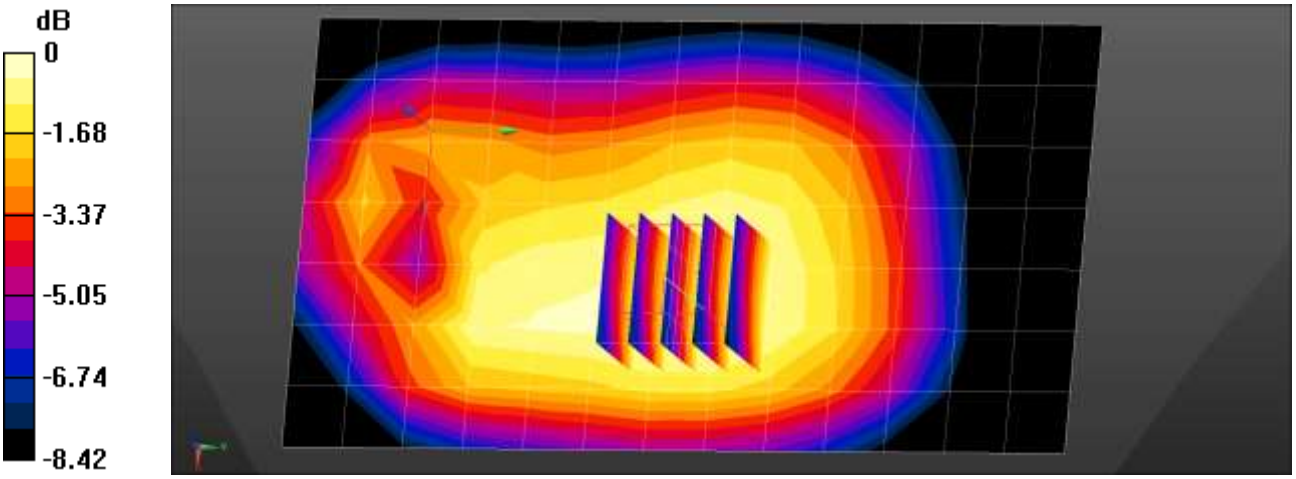
Communication System: UID 0, UMTS850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

UMTS850 Body-worn Front 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.259 W/kg

UMTS850 Body-worn Front 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.85 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.289 W/kg
SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.168 W/kg
Maximum value of SAR (measured) = 0.266 W/kg



0 dB = 0.266 W/kg = −5.75 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.6℃
Ambient Temperature: 21.7℃
Test Date: 05/03/2021
Plot No.: 46

DUT: SM-G990U; Type: Bar;

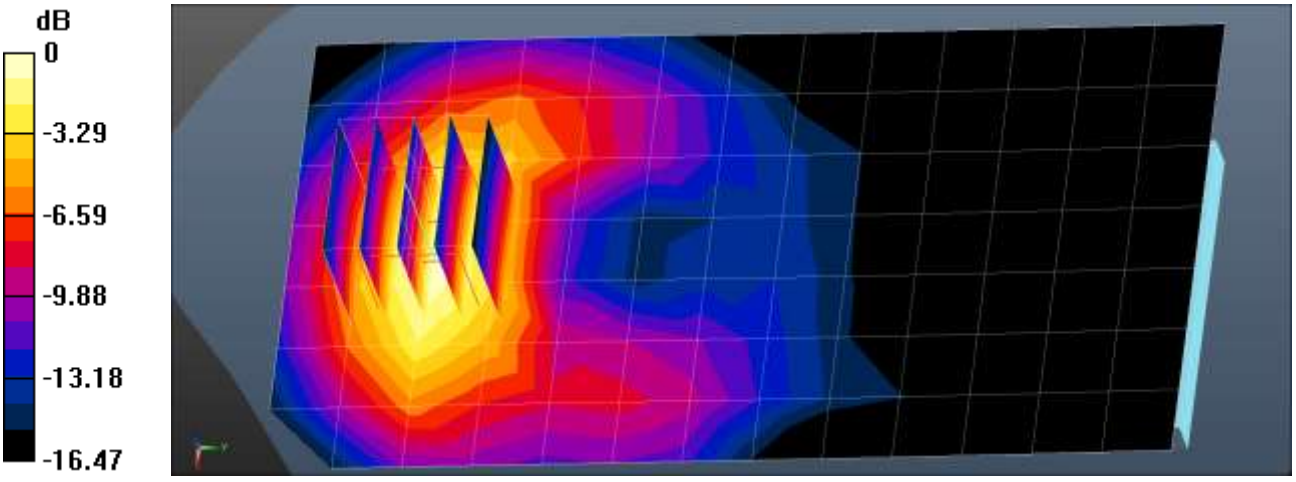
Communication System: UID 0, WCDMA IV (0); Frequency: 1752.8 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1752.8 MHz; σ = 1.38 S/m; ε_r = 42.023; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1752.8 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

WCDMA Body-worn Rear Band 4 Rear 1513ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.07 W/kg

WCDMA Body-worn Rear Band 4 Rear 1513ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.518 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.781 W/kg; SAR(10 g) = 0.441 W/kg
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg = 0.49 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0℃
Ambient Temperature:	21.1℃
Test Date:	05/04/2021
Plot No.:	47

DUT: SM-G990U; Type: Bar;

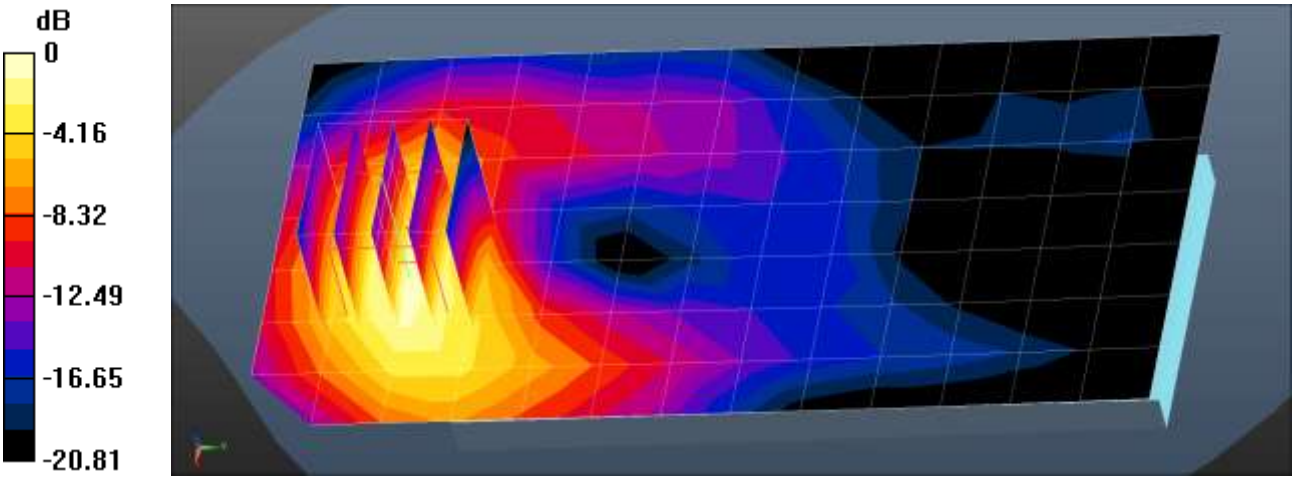
Communication System: UID 0, UMTS1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.417 S/m; ε_r = 41.49; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1880 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 2 Body-worn Front 9400ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.977 W/kg

UMTS Band 2 Body-worn Front 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.524 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.658 W/kg; SAR(10 g) = 0.359 W/kg
Maximum value of SAR (measured) = 0.977 W/kg



0 dB = 0.977 W/kg = −0.10 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 04/22/2021
Plot No.: 48

DUT: SM-G990U; Type: Bar;

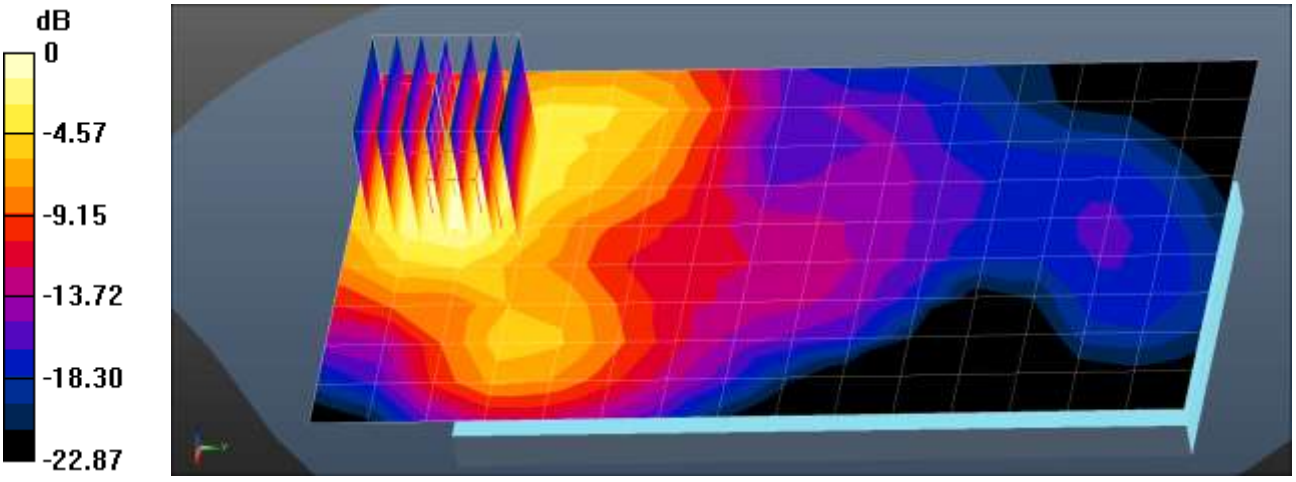
Communication System: UID 0, LTE Band 7 (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.972 S/m; ε_r = 40.074; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2560 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 7 Body-worn Rear QPSK 20MHz 1RB 99offset 21350ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.763 W/kg

LTE Band 7 Body-worn Rear QPSK 20MHz 1RB 99offset 21350ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.687 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.998 W/kg
SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.253 W/kg
Maximum value of SAR (measured) = 0.811 W/kg



0 dB = 0.811 W/kg = −0.91 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.0℃
Test Date:	04/19/2021
Plot No.:	49

DUT: SM-G990U; Type: Bar;

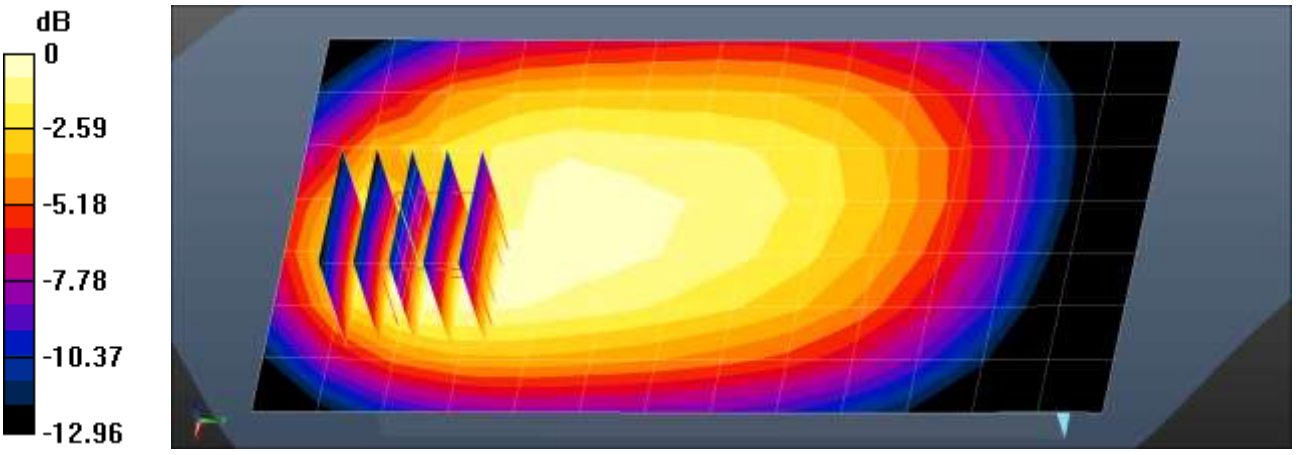
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.929 S/m; ε_r = 44.163; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 707.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_2020_06_09
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 12 Body-worn Rear 10MHz QPSK 1RB 0offset 23095ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.241 W/kg

LTE Band 12 Body-worn Rear 10MHz QPSK 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.52 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.119 W/kg
Maximum value of SAR (measured) = 0.256 W/kg



0 dB = 0.256 W/kg = −5.92 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.0℃
Test Date:	04/19/2021
Plot No.:	50

DUT: SM-G990U; Type: Bar;

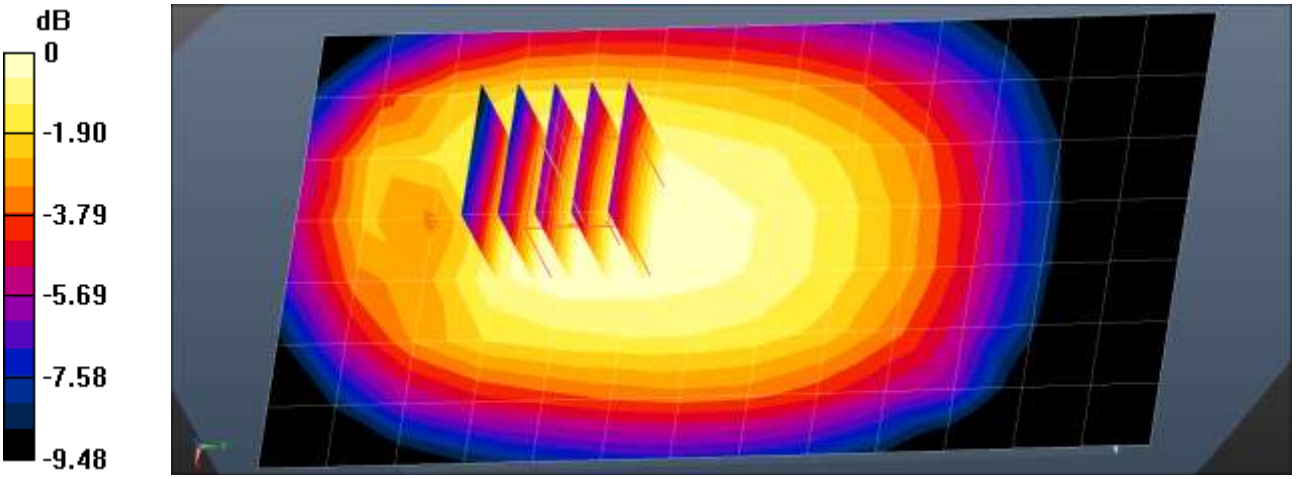
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.929 S/m; ε_r = 44.163; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 707.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_2020_06_09
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 12 Body-worn Front 10MHz QPSK 1RB 0offset 23095ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.203 W/kg

LTE Band 12 Body-worn Front 10MHz QPSK 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.65 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.217 W/kg
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.201 W/kg



0 dB = 0.201 W/kg = −6.97 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.4℃
Ambient Temperature:	23.5℃
Test Date:	04/20/2021
Plot No.:	51

DUT: SM-G990U; Type: Bar;

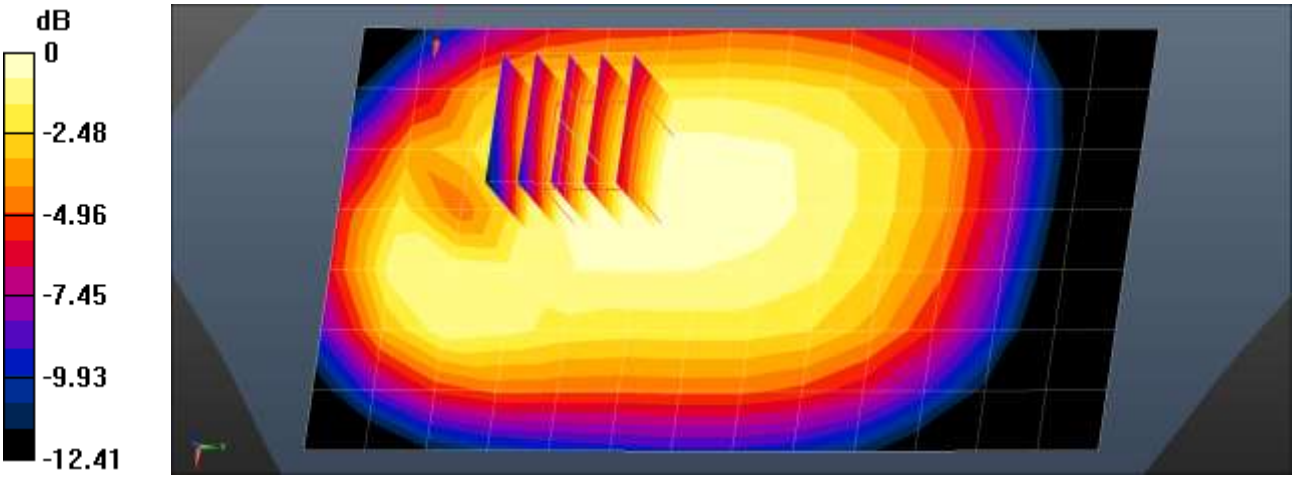
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.933 S/m; ε_r = 43.327; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 782 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 13 Body-worn Rear 10MHz QPSK 1RB 24offset 23230ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.265 W/kg

LTE Band 13 Body-worn Rear 10MHz QPSK 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.92 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.293 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.171 W/kg
Maximum value of SAR (measured) = 0.270 W/kg



0 dB = 0.270 W/kg = −5.69 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.4℃
Ambient Temperature:	22.4℃
Test Date:	04/21/2021
Plot No.:	52

DUT: SM-G990U; Type: Bar;

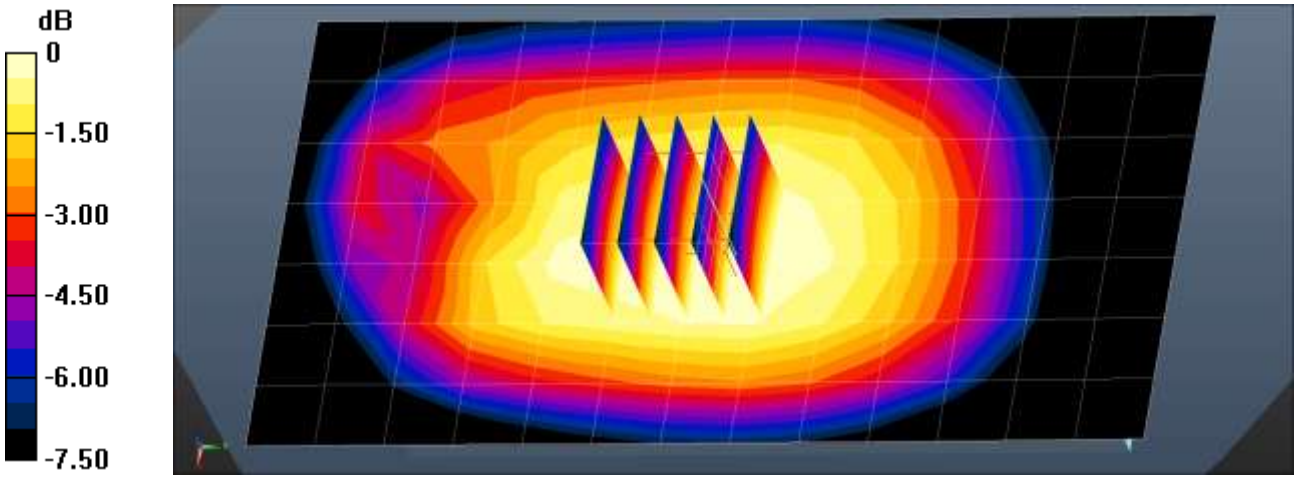
Communication System: UID 0, LTE 14 (0); Frequency: 793 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 793 MHz; σ = 0.938 S/m; ε_r = 42.613; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 793 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 14 Body-worn Front 10MHz QPSK 1RB 0offset 23330ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.321 W/kg

LTE Band 14 Body-worn Front 10MHz QPSK 1RB 0offset 23330ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.43 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.272 W/kg; SAR(10 g) = 0.211 W/kg
Maximum value of SAR (measured) = 0.320 W/kg



0 dB = 0.320 W/kg = −4.95 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/13/2021
Plot No.:	53

DUT: SM-G990U; Type: Bar;

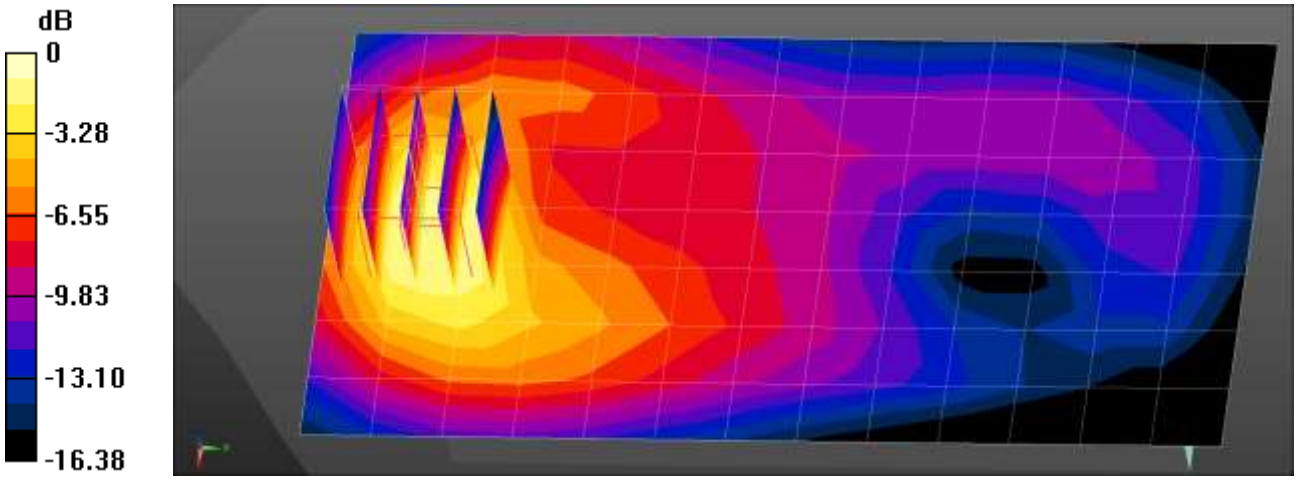
Communication System: UID 0, LTE Band25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.424 S/m; ε_r = 41.049; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1882.5 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 25 Body-worn Front QPSK 20MHz 1RB 0offset 26365ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.675 W/kg

LTE Band 25 Body-worn Front QPSK 20MHz 1RB 0offset 26365ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.327 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.998 W/kg
SAR(1 g) = 0.614 W/kg; SAR(10 g) = 0.361 W/kg
Maximum value of SAR (measured) = 0.864 W/kg



0 dB = 0.864 W/kg = −0.63 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1℃
Ambient Temperature:	22.2℃
Test Date:	05/03/2021
Plot No.:	54

DUT: SM-G990U; Type: Bar;

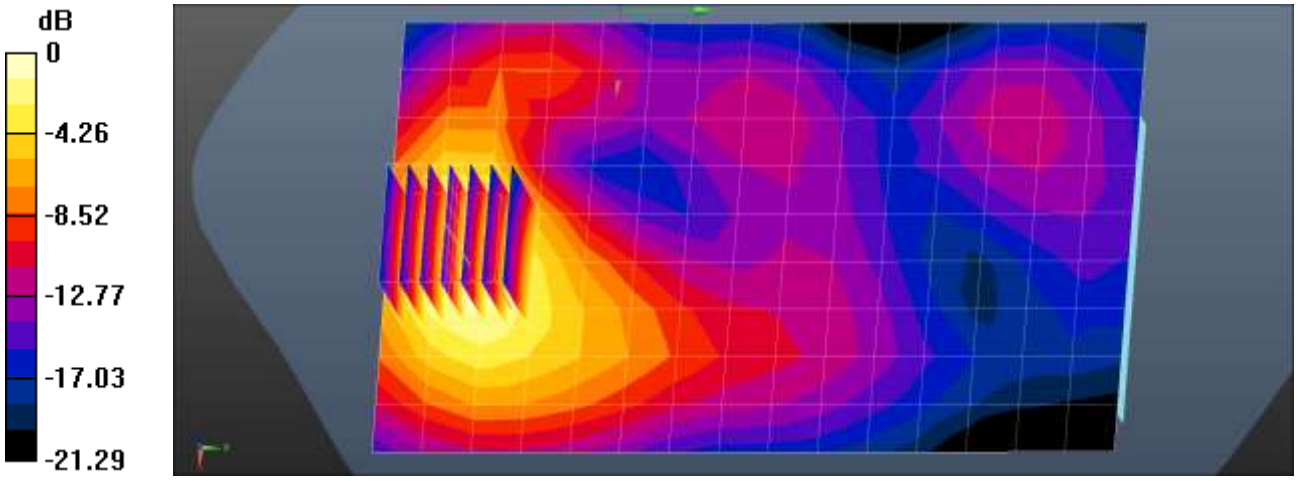
Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.73 S/m; ε_r = 40.654; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 30 Body worn Front QPSK 10MHz 1RB 24offset 27710ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.900 W/kg

LTE Band 30 Body worn Front QPSK 10MHz 1RB 24offset 27710ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.627 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.621 W/kg; SAR(10 g) = 0.334 W/kg
Maximum value of SAR (measured) = 0.955 W/kg



0 dB = 0.955 W/kg = −0.20 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3℃
Ambient Temperature:	21.4℃
Test Date:	05/06/2021
Plot No.:	55

DUT: SM-G990U; Type: Bar;

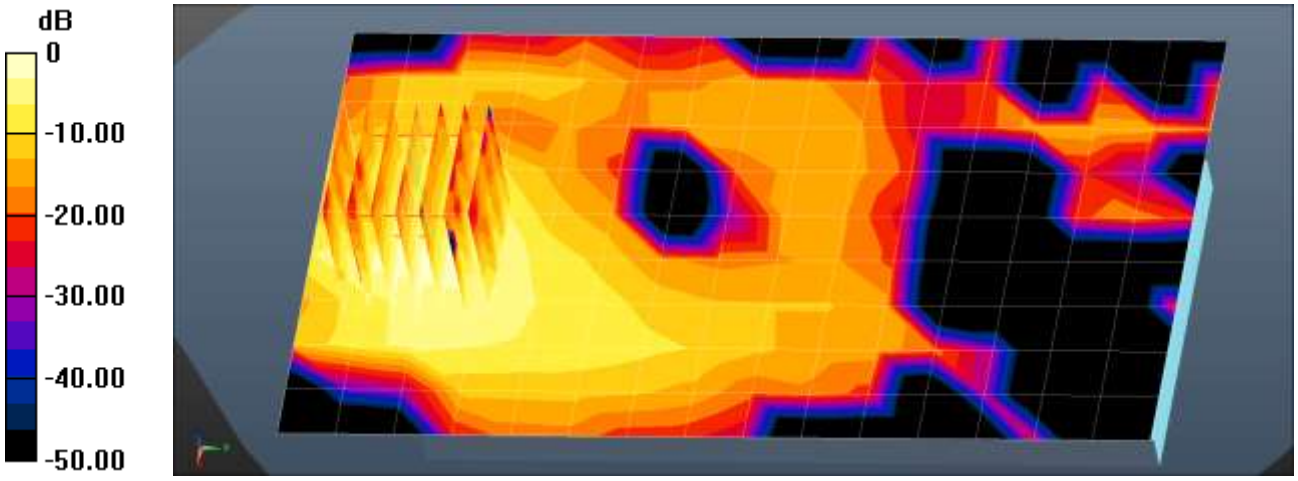
Communication System: UID 0, LTE TDD Band (0); Frequency: 2310 MHz;Duty Cycle: 1:1.58052
Medium parameters used: f = 2310 MHz; σ = 1.723 S/m; ε_r = 40.616; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Body worn Front QPSK 10MHz 1RB 24offset 38750ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0601 W/kg

LTE Band 40 Body worn Front QPSK 10MHz 1RB 24offset 38750ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.3030 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0790 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0609 W/kg



0 dB = 0.0609 W/kg = −12.15 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 05/07/2021
Plot No.: 56

DUT: SM-G990U; Type: Bar;

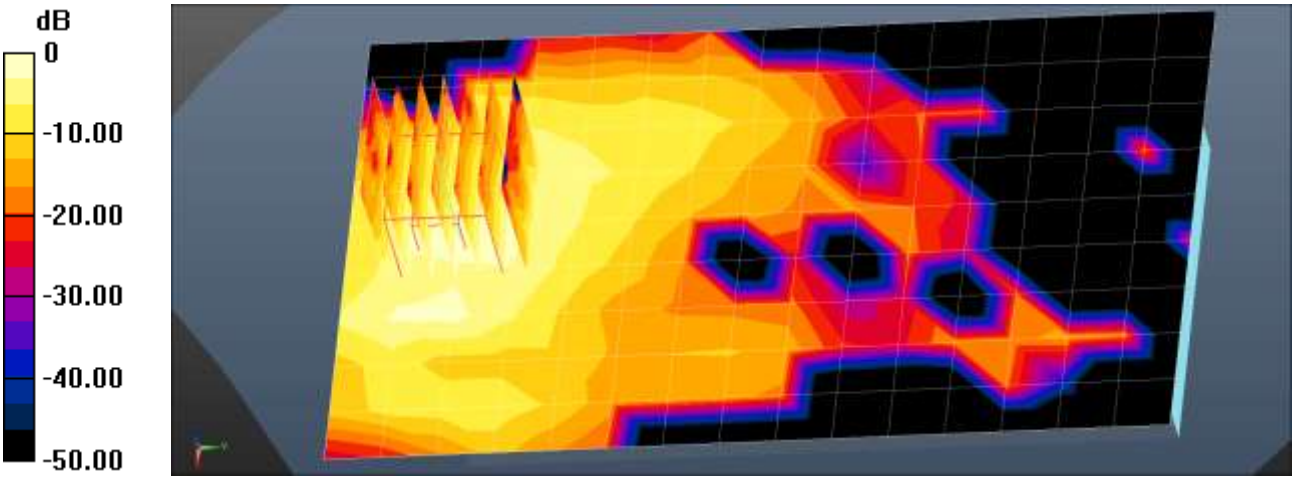
Communication System: UID 0, LTE TDD Band (0); Frequency: 2355 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2355 MHz; σ = 1.772 S/m; ε_r = 40.334; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2355 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Body-worn Rear QPSK 10MHz 25RB 12offset 39200ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0582 W/kg

LTE Band 40 Body-worn Rear QPSK 10MHz 25RB 12offset 39200ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.7360 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.0760 W/kg
SAR(1 g) = 0.040 W/kg; SAR(10 g) = 0.021 W/kg
Maximum value of SAR (measured) = 0.0607 W/kg



0 dB = 0.0607 W/kg = −12.17 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7℃
Ambient Temperature:	19.7℃
Test Date:	04/23/2021
Plot No.:	57

DUT: SM-G990U; Type: Bar;

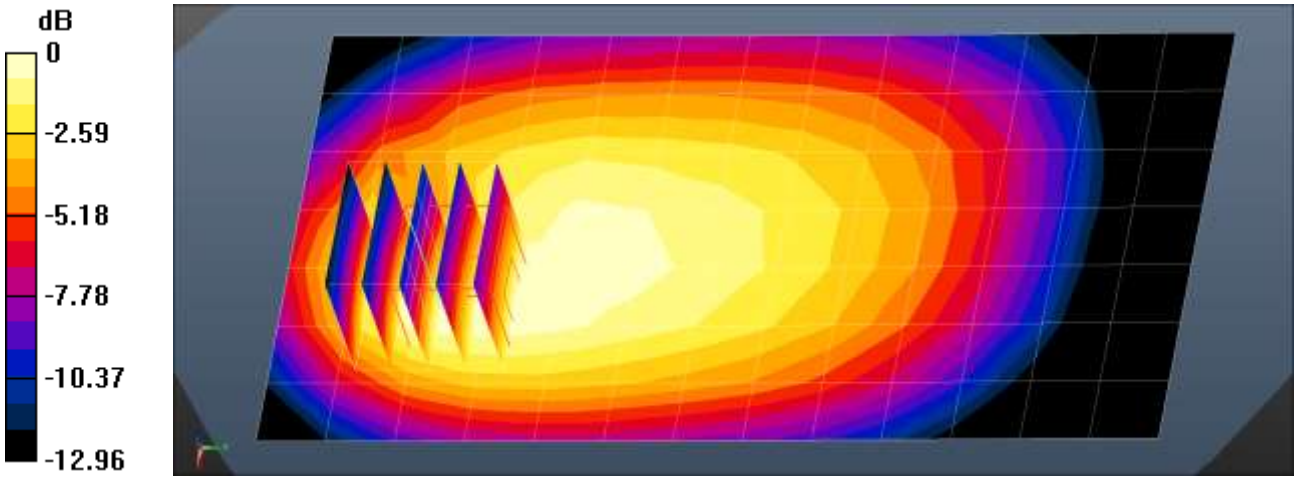
Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 680.5 MHz; σ = 0.92 S/m; ε_r = 44.133; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 680.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 71 Body-worn Rear 20MHz QPSK 1RB 0offset 133297ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.214 W/kg

LTE Band 71 Body-worn Rear 20MHz QPSK 1RB 0offset 133297ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.87 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.262 W/kg
SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.111 W/kg
Maximum value of SAR (measured) = 0.224 W/kg



0 dB = 0.224 W/kg = −6.50 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.2℃
Ambient Temperature:	22.3℃
Test Date:	04/26/2021
Plot No.:	58

DUT: SM-G990U; Type: Bar;

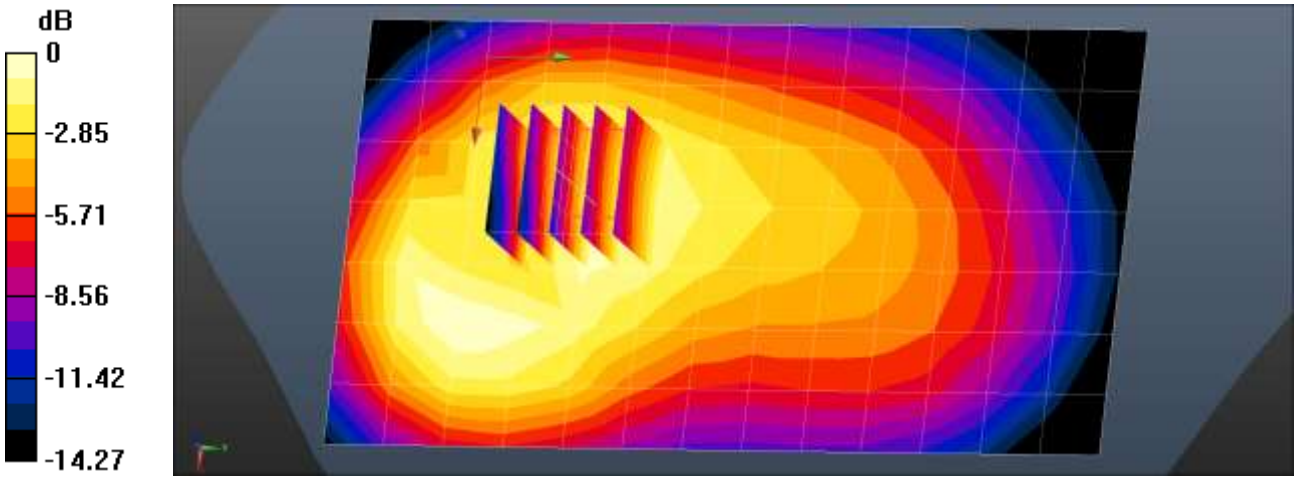
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.915 S/m; ε_r = 42.032; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.75, 9.75, 9.75) @ 836.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 836.5 MHz, 20525CH, 1RB, 49 Offset / SCC: 843.7 MHz, 20597 CH, 1RB, 0Offset
LTE Band 5 Body-worn Rear 10MHz QPSK 1RB 49offset 20525ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.494 W/kg

LTE Band 5 Body-worn Rear 10MHz QPSK 1RB 49offset 20525ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.18 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.545 W/kg
SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.254 W/kg
Maximum value of SAR (measured) = 0.485 W/kg



0 dB = 0.485 W/kg = −3.14 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.8℃
Ambient Temperature:	21.9℃
Test Date:	05/10/2021
Plot No.:	59

DUT: SM-G990U; Type: Bar;

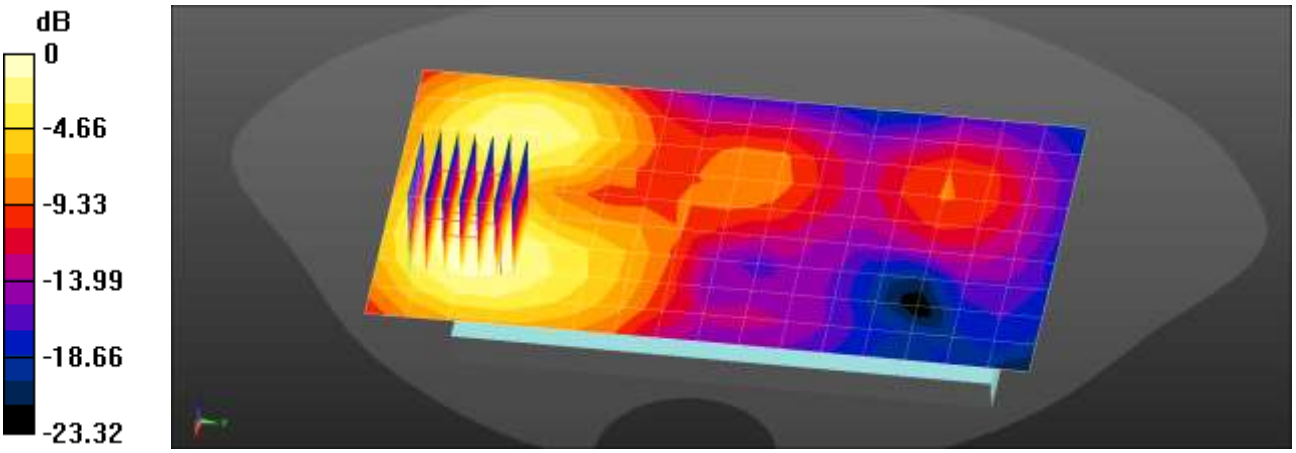
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2593 MHz; σ = 1.948 S/m; ε_r = 39.929; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2593 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 2506 MHz, 39750 Ch / 2612.8 MHz, 40818 Ch
LTE Band 41 Body-worn Front QPSK 20MHz 1RB 99offset 40620ch/Area Scan (10x17x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.373 W/kg

LTE Band 41 Body-worn Front QPSK 20MHz 1RB 99offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.448 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.576 W/kg
SAR(1 g) = 0.294 W/kg; SAR(10 g) = 0.154 W/kg
Maximum value of SAR (measured) = 0.370 W/kg



0 dB = 0.373 W/kg = −4.29 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.8℃
Ambient Temperature:	21.9℃
Test Date:	05/10/2021
Plot No.:	60

DUT: SM-G990U; Type: Bar;

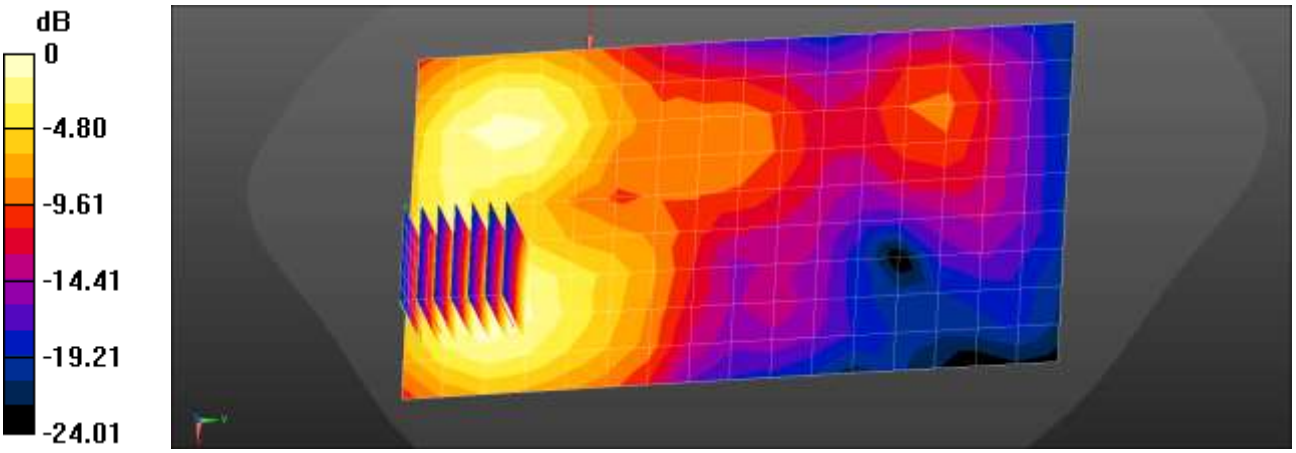
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:2.31047
Medium parameters used (interpolated): f = 2593 MHz; σ = 1.948 S/m; ε_r = 39.929; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2593 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 2506 MHz, 39750 Ch / 2612.8 MHz, 40818 Ch
LTE Band 41 Body-worn Front QPSK 20MHz 1RB 99offset 40620ch/Area Scan (10x17x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.341 W/kg

LTE Band 41 Body-worn Front QPSK 20MHz 1RB 99offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.709 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.588 W/kg
SAR(1 g) = 0.300 W/kg; SAR(10 g) = 0.157 W/kg
Maximum value of SAR (measured) = 0.377 W/kg



0 dB = 0.341 W/kg = −4.68 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1℃
Ambient Temperature:	22.1℃
Test Date:	05/12/2021
Plot No.:	61

DUT: SM-G990U; Type: Bar;

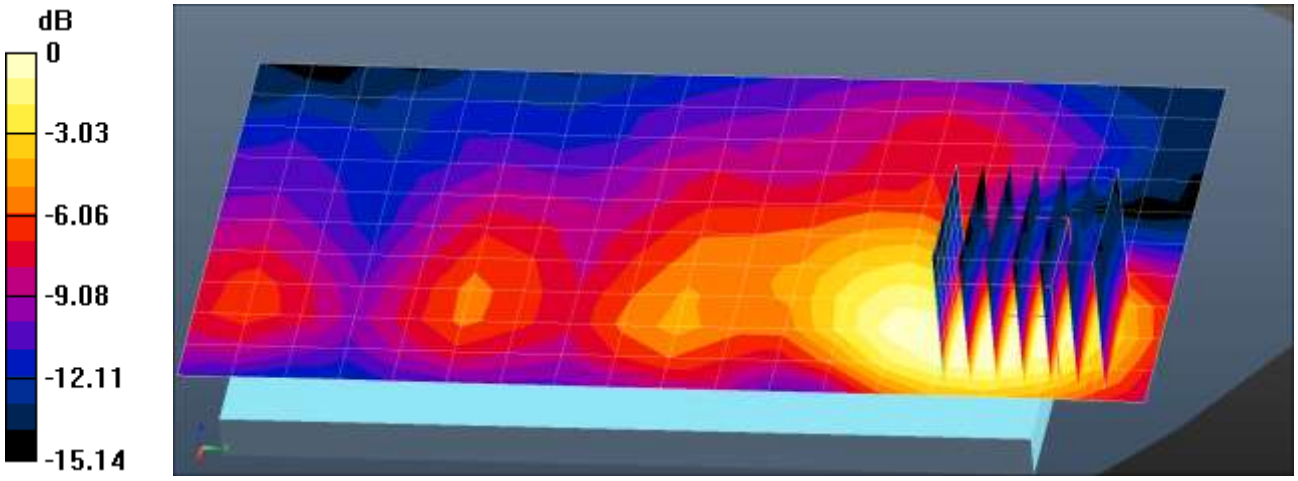
Communication System: UID 0, LTE Band 48 (0); Frequency: 3560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3560 MHz; σ = 3.027 S/m; ε_r = 39.378; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.87, 6.87, 6.87) @ 3560 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 48 Body Rear QPSK 20MHz 1RB 99offset 55340ch/Area Scan (11x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.272 W/kg

LTE Band 48 Body Rear QPSK 20MHz 1RB 99offset 55340ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 4.380 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.389 W/kg
SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.084 W/kg
Maximum value of SAR (measured) = 0.292 W/kg



0 dB = 0.272 W/kg = −5.65 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.6℃
Ambient Temperature: 20.7℃
Test Date: 05/21/2021
Plot No.: 62

DUT: SM-G990U; Type: Bar;

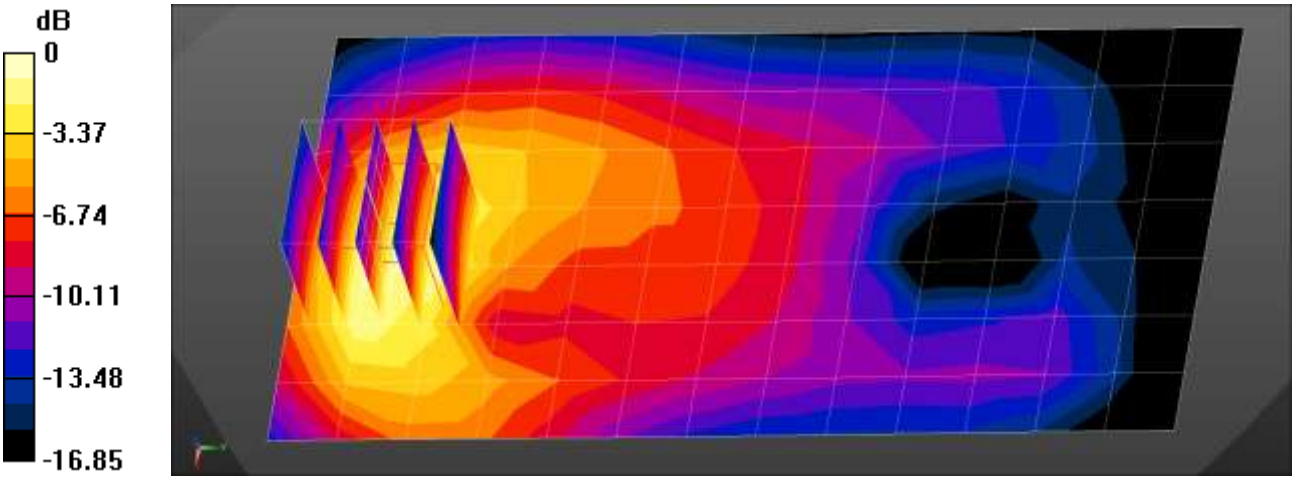
Communication System: UID 0, LTE Band66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.431 S/m; ε_r = 40.934; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1770 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 66 Body-Worn Rear QPSK 20MHz 1RB 0offset 132572ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.481 W/kg

LTE Band 66 Body-Worn Rear QPSK 20MHz 1RB 0offset 132572ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.501 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.673 W/kg
SAR(1 g) = 0.412 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.581 W/kg



0 dB = 0.581 W/kg = −2.36 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 04/29/2021
Plot No.: 63

DUT: SM-G990U; Type: Bar;

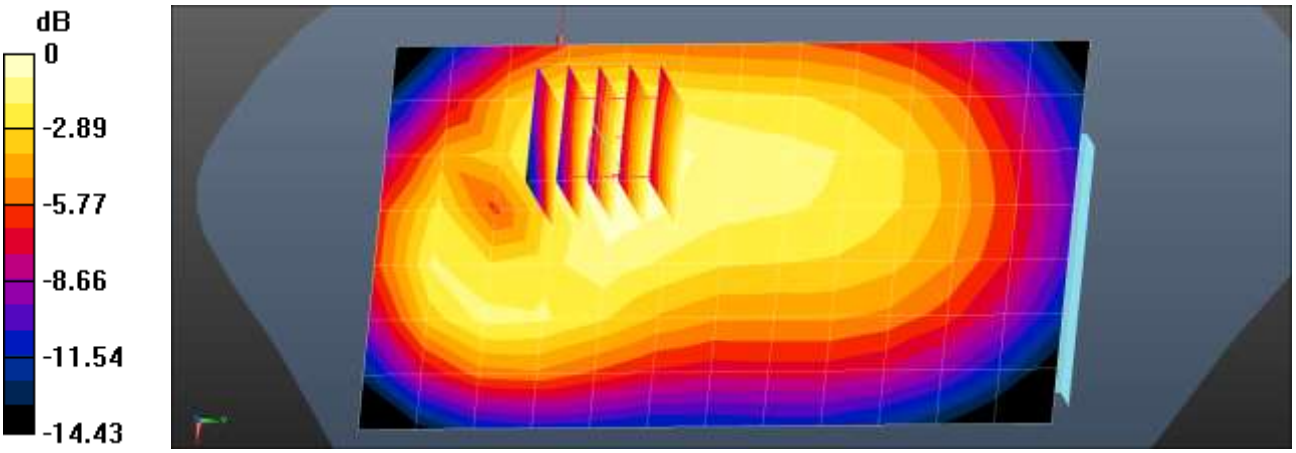
Communication System: UID 0, NR n5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.94 S/m; ε_r = 43.017; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.02, 6.02, 6.02) @ 836.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n5 Body Rear DFT-s QPSK 20MHz 1RB 53offset 167300ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.229 W/kg

NR Band n5 Body Rear DFT-s QPSK 20MHz 1RB 53offset 167300ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.62 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.279 W/kg
SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.149 W/kg
Maximum value of SAR (measured) = 0.233 W/kg



0 dB = 0.233 W/kg = −6.33 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.0℃
Test Date:	04/30/2021
Plot No.:	64

DUT: SM-G990U; Type: Bar;

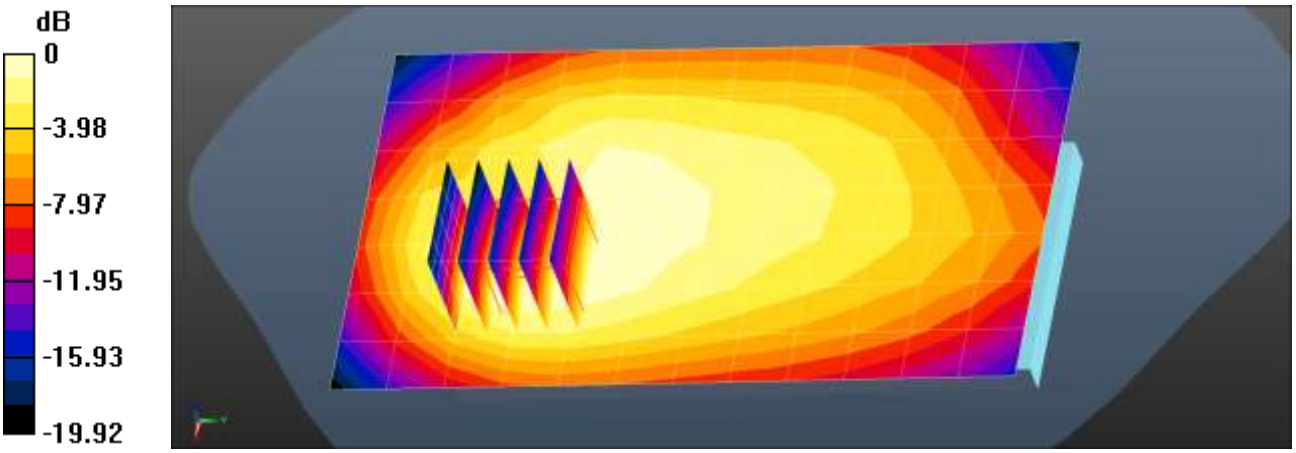
Communication System: UID 0, NR n12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 800 MHz; σ = 0.911 S/m; ε_r = 43.568; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 707.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.199 W/kg

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.69 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.276 W/kg
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.112 W/kg
Maximum value of SAR (measured) = 0.203 W/kg



0 dB = 0.199 W/kg = −7.02 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6℃
Ambient Temperature:	21.7℃
Test Date:	05/03/2021
Plot No.:	65

DUT: SM-G990U; Type: Bar;

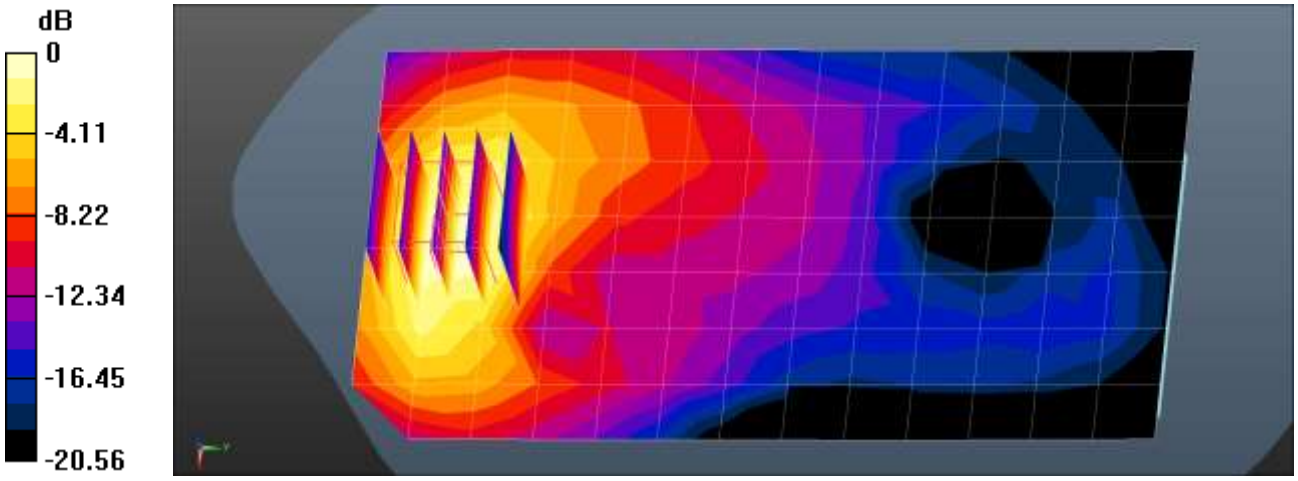
Communication System: UID 0, n25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.414 S/m; ε_r = 41.209; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1882.5 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n25 Body Rear DFT-s QPSK 40MHz 1RB 108offset 376500ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.579 W/kg

NR Band n25 Body Rear DFT-s QPSK 40MHz 1RB 108offset 376500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.440 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.842 W/kg
SAR(1 g) = 0.488 W/kg; SAR(10 g) = 0.277 W/kg
Maximum value of SAR (measured) = 0.715 W/kg



0 dB = 0.715 W/kg = −1.46 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.6℃
Ambient Temperature: 21.7℃
Test Date: 05/03/2021
Plot No.: 66

DUT: SM-G990U; Type: Bar;

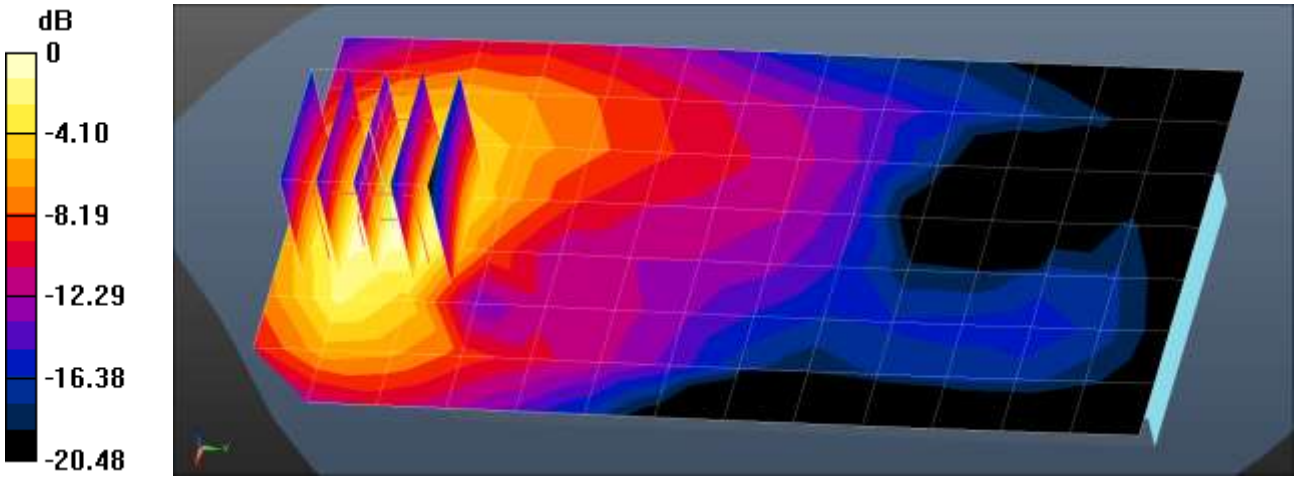
Communication System: UID 0, n25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.414 S/m; ε_r = 41.209; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1882.5 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n25 Body Rear DFT-s QPSK 40MHz 108RB 54offset 376500ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.595 W/kg

NR Band n25 Body Rear DFT-s QPSK 40MHz 108RB 54offset 376500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.906 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.883 W/kg
SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 0.749 W/kg



0 dB = 0.749 W/kg = −1.26 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.9℃
Test Date: 05/21/2021
Plot No.: 67

DUT: SM-G990U; Type: Bar;

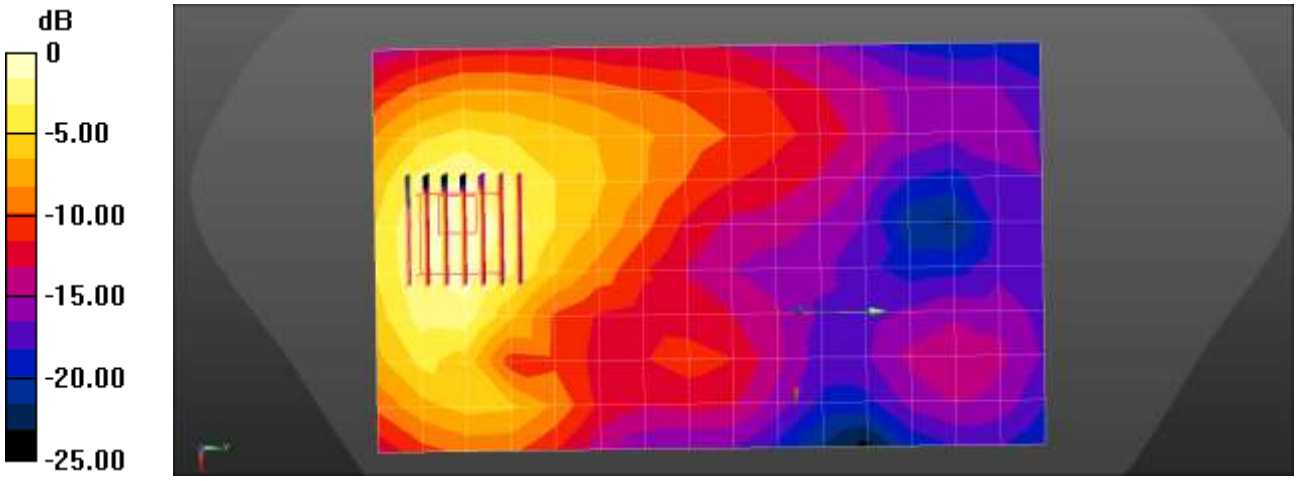
Communication System: UID 0, n30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.71 S/m; ε_r = 40.628; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2310 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 30 BodyWorn Rear DFT-s QPSK 10MHz 1RB 26offset 462000ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.638 W/kg

NR Band 30 BodyWorn Rear DFT-s QPSK 10MHz 1RB 26offset 462000ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.682 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.563 W/kg; SAR(10 g) = 0.295 W/kg
Maximum value of SAR (measured) = 0.643 W/kg



0 dB = 0.643 W/kg = −1.92 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2℃
Ambient Temperature:	21.2℃
Test Date:	05/10/2021
Plot No.:	68

DUT: SM-G990U; Type: Bar;

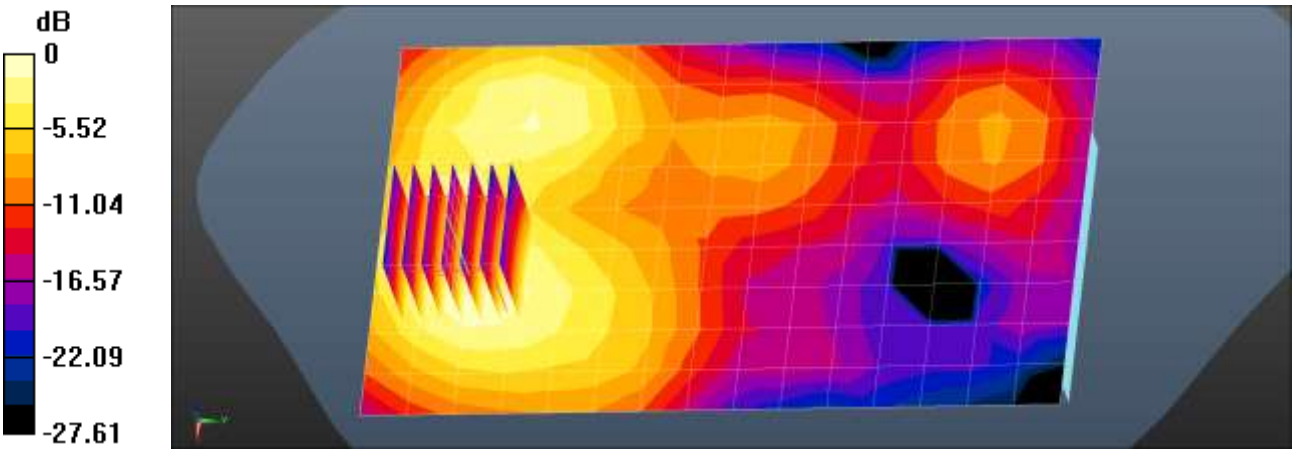
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 1.999 S/m; ε_r = 39.871; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Bodyworn Front DFT-s QPSK 100MHz 135RB 69offset 518598ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.297 W/kg

NR Band 41 Bodyworn Front DFT-s QPSK 100MHz 135RB 69offset 518598ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.129 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.193 W/kg; SAR(10 g) = 0.100 W/kg
Maximum value of SAR (measured) = 0.308 W/kg



0 dB = 0.308 W/kg = −5.11 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.5℃
Ambient Temperature: 22.6℃
Test Date: 05/11/2021
Plot No.: 69

DUT: SM-G990U; Type: Bar;

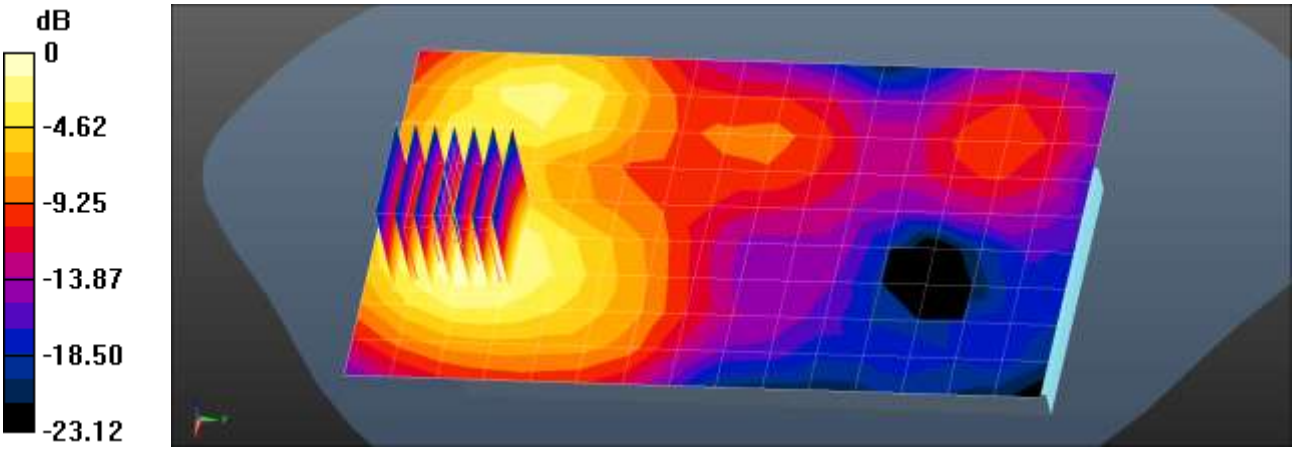
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 2.009 S/m; ε_r = 40.274; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Bodyworn Front DFT-s QPSK 100MHz 135RB 69offset 518598ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.445 W/kg

NR Band 41 Bodyworn Front DFT-s QPSK 100MHz 135RB 69offset 518598ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.348 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.294 W/kg; SAR(10 g) = 0.154 W/kg
Maximum value of SAR (measured) = 0.468 W/kg



0 dB = 0.468 W/kg = −3.30 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.8℃
Ambient Temperature:	21.9℃
Test Date:	05/07/2021
Plot No.:	70

DUT: SM-G990U; Type: Bar;

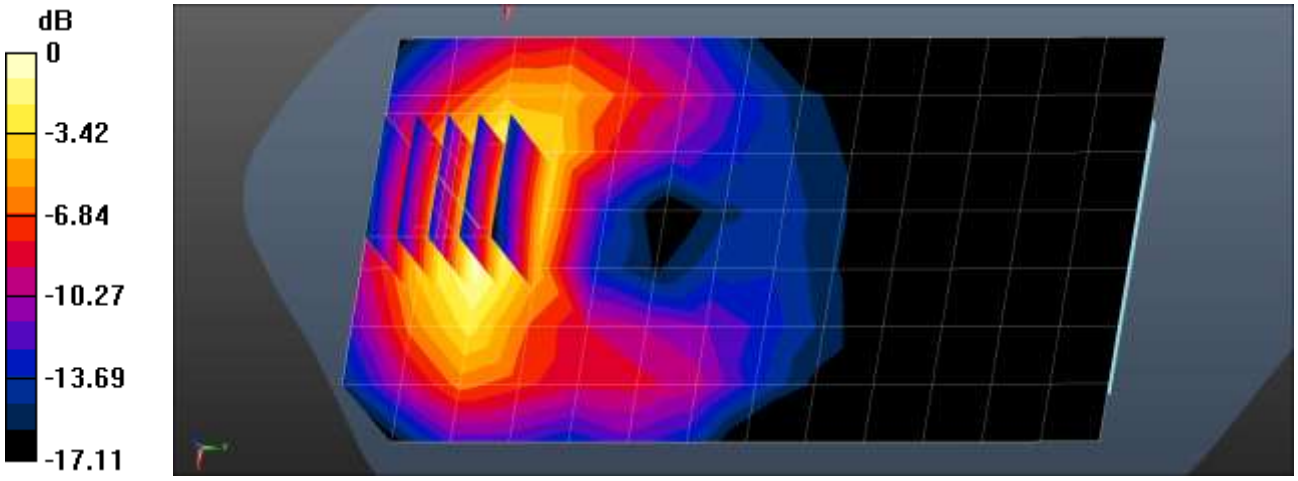
Communication System: UID 0, n66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.397 S/m; ε_r = 41.847; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1745 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n66 BodyWorn Rear DFT-s QPSK 40MHz 108RB 54offset 349000ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.831 W/kg

NR Band n66 BodyWorn Rear DFT-s QPSK 40MHz 108RB 54offset 349000ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.574 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.984 W/kg
SAR(1 g) = 0.592 W/kg; SAR(10 g) = 0.338 W/kg
Maximum value of SAR (measured) = 0.837 W/kg



0 dB = 0.837 W/kg = −0.77 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.0℃
Test Date:	05/11/2021
Plot No.:	71

DUT: SM-G990U; Type: Bar;

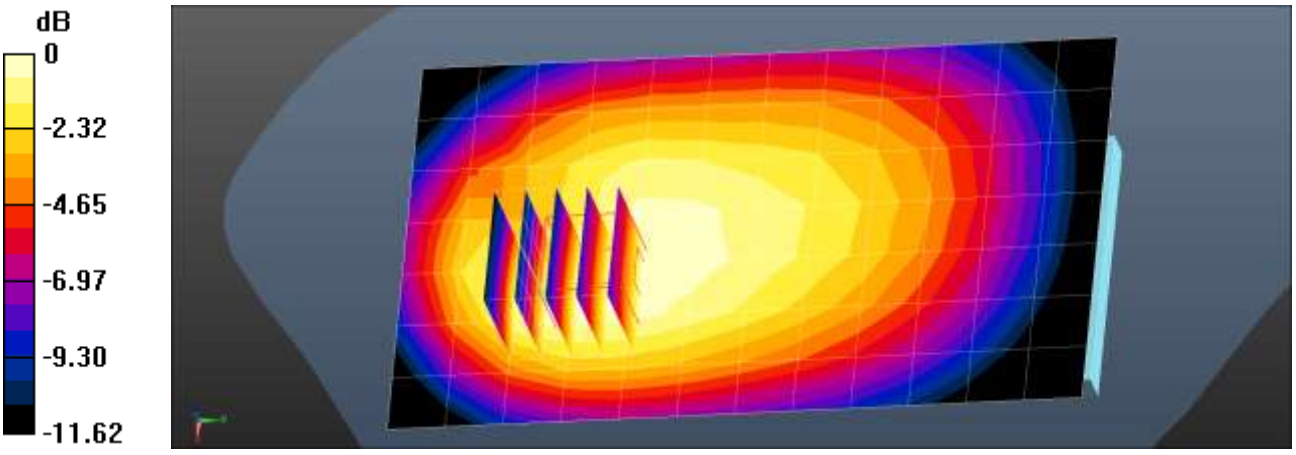
Communication System: UID 0, NR n71 (0); Frequency: 680.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 680.5 MHz; σ = 0.89 S/m; ε_r = 44.236; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 680.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n71 Body Rear DFT-s QPSK 20MHz 1RB 1offset 136100ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.166 W/kg

NR Band n71 Body Rear DFT-s QPSK 20MHz 1RB 1offset 136100ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.34 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.104 W/kg
Maximum value of SAR (measured) = 0.170 W/kg



0 dB = 0.170 W/kg = −7.70 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.5℃
Ambient Temperature:	22.6℃
Test Date:	04/29/2021
Plot No.:	72

DUT: SM-G990U; Type: Bar;

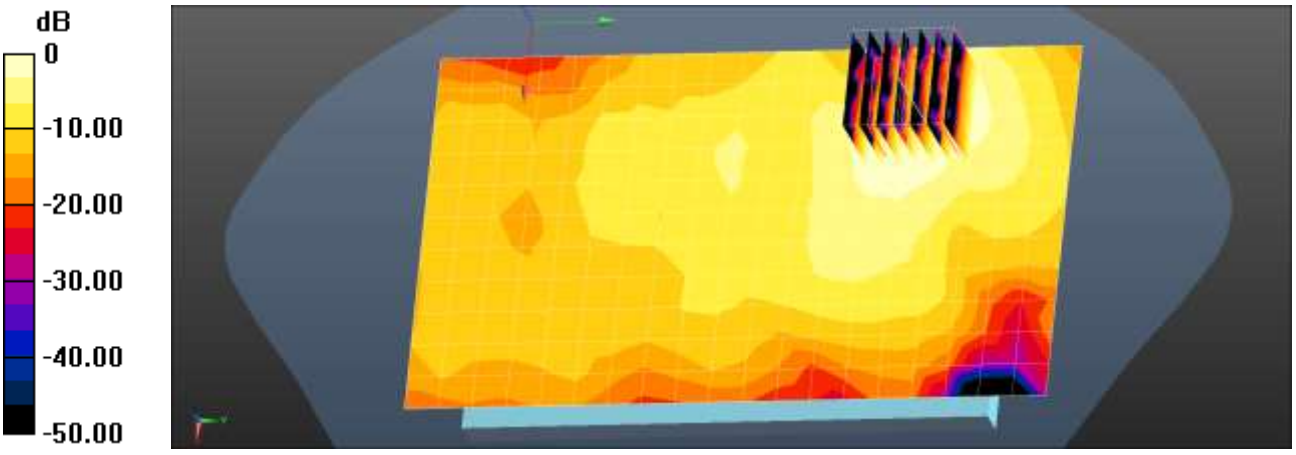
Communication System: UID 0, NR n77 Duty100% (0); Frequency: 3930 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3930 MHz; σ = 3.37 S/m; ε_r = 38.553; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(6.73, 6.73, 6.73) @ 3930 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Body Front DFT's 100MHz QPSK 1RB 137offset 662000ch/Area Scan (12x20x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.288 W/kg

NR Band 77 Body Front DFT's 100MHz QPSK 1RB 137offset 662000ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 2.750 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.240 W/kg
SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.173 W/kg



0 dB = 0.173 W/kg = −7.62 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.5℃
Ambient Temperature: 22.5℃
Test Date: 05/13/2021
Plot No.: 73

DUT: SM-G990U; Type: Bar;

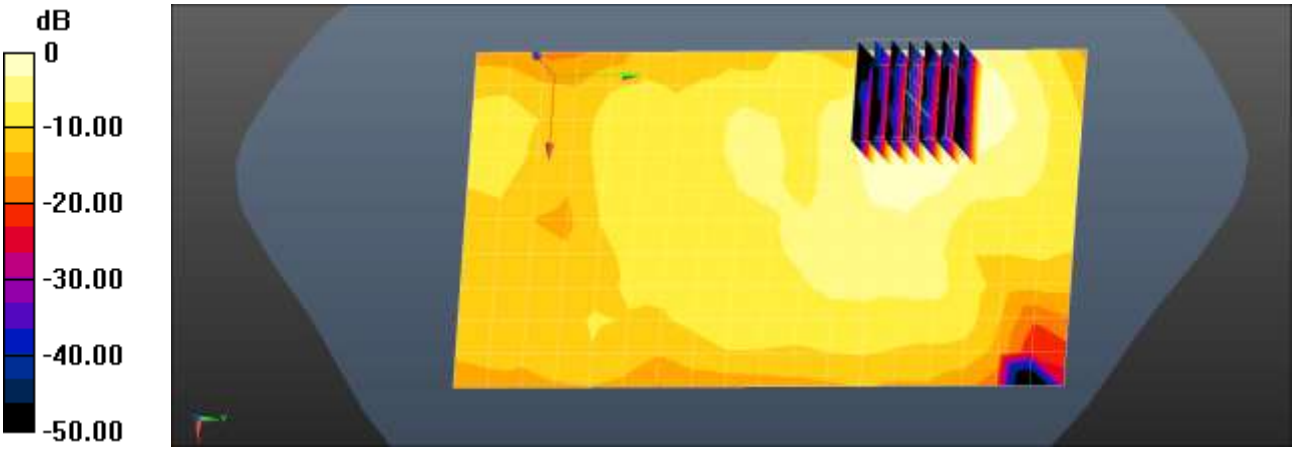
Communication System: UID 0, NR Band 77 (0); Frequency: 3930 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3930 MHz; σ = 3.297 S/m; ε_r = 39.065; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.5, 6.5, 6.5) @ 3930 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 BodyWorn Front DFT-s QPSK 100MHz 1RB 137offset 662000ch/Area Scan (11x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.135 W/kg

NR Band 77 BodyWorn Front DFT-s QPSK 100MHz 1RB 137offset 662000ch/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 4.057 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.363 W/kg
SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.063 W/kg
Maximum value of SAR (measured) = 0.260 W/kg



0 dB = 0.260 W/kg = −5.85 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3℃
Ambient Temperature:	20.4℃
Test Date:	05/17/2021
Plot No.:	74

DUT: SM-G990U; Type: Bar;

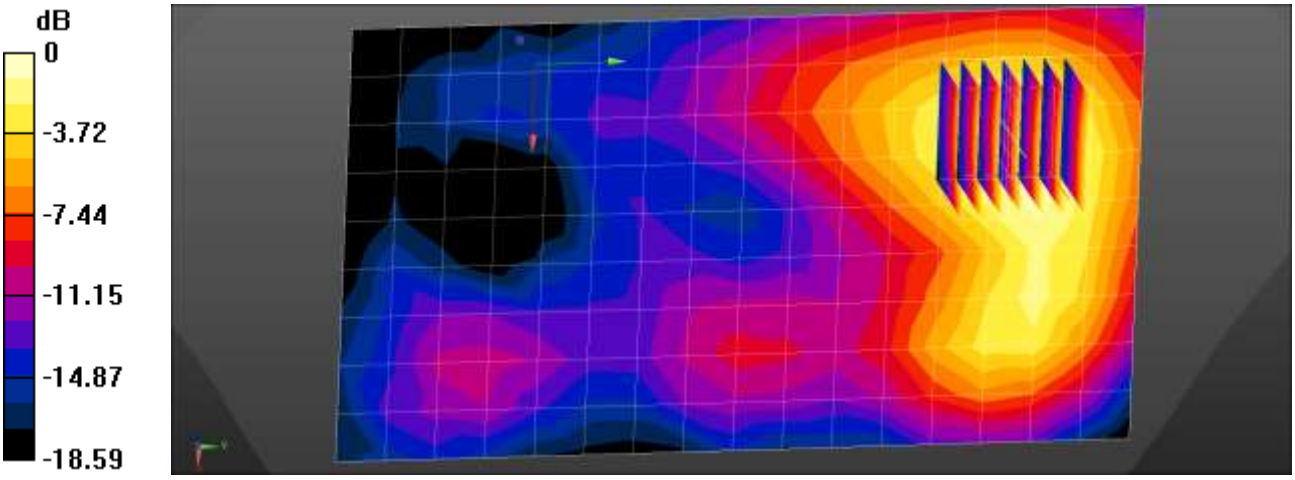
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.829 S/m; ε_r = 40.699; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2437 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11b Body Rear 6ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.597 W/kg

802.11b Body Rear 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.442 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.345 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.107 W/kg
Maximum value of SAR (measured) = 0.286 W/kg



0 dB = 0.286 W/kg = −5.44 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.5℃
Ambient Temperature:	19.6℃
Test Date:	05/18/2021
Plot No.:	75

DUT: SM-G990U; Type: Bar;

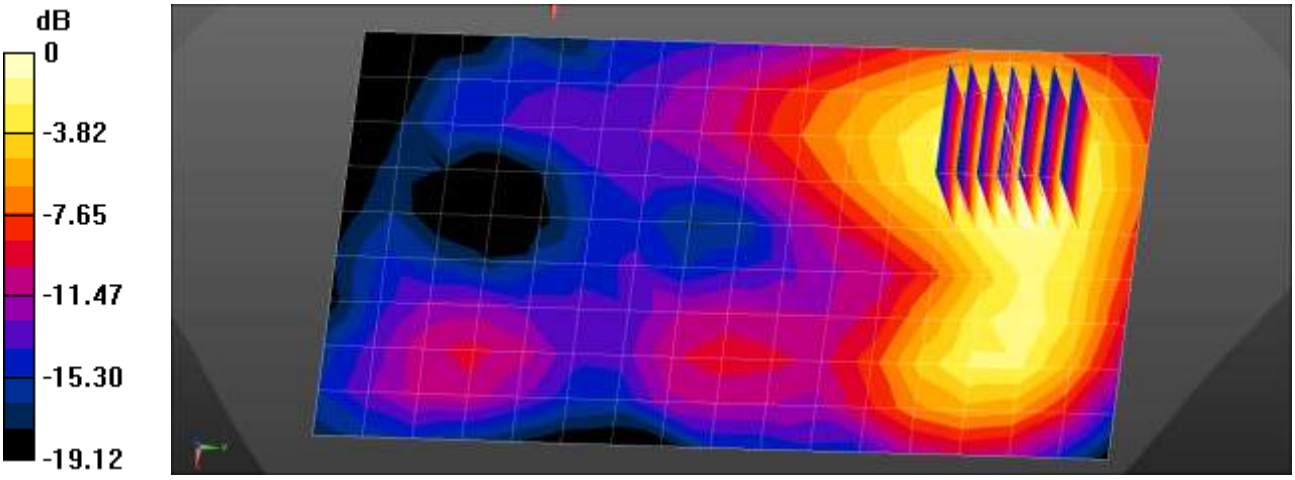
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.825 S/m; ε_r = 40.808; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2437 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11b Body Rear 6ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.199 W/kg

802.11b Body Rear 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.507 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.131 W/kg



0 dB = 0.131 W/kg = −8.83 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.8℃
Ambient Temperature:	19.8℃
Test Date:	05/14/2021
Plot No.:	76

DUT: SM-G990U; Type: Bar;

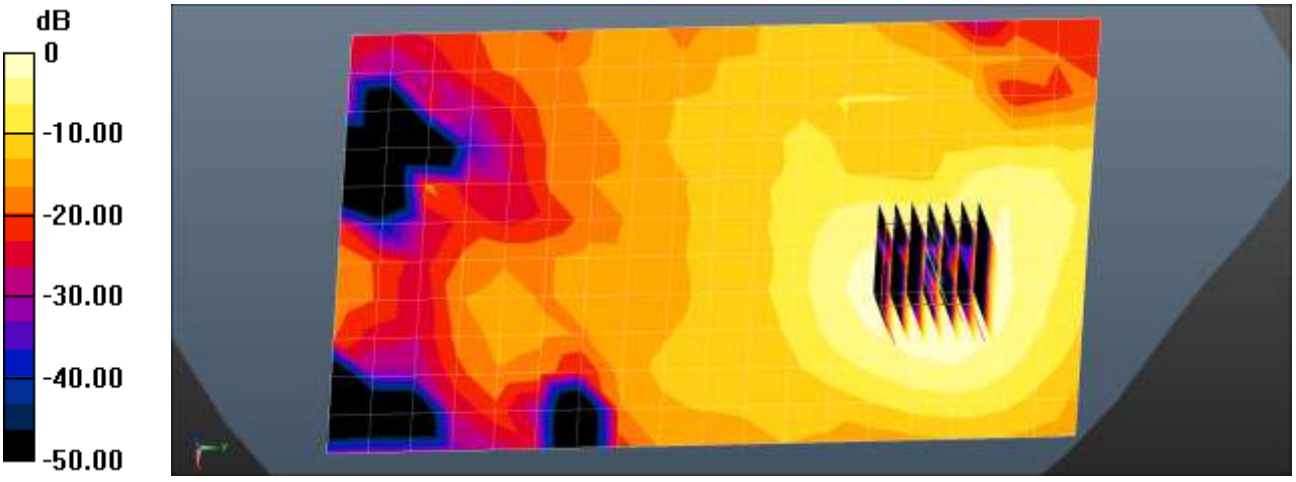
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5720 MHz; σ = 5.16 S/m; ε_r = 35.631; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.04, 5.04, 5.04) @ 5720 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11a Body-worn Rear 6Mbps 144ch/Area Scan (12x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.551 W/kg

802.11a Body-worn Rear 6Mbps 144ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.291 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.104 W/kg
Maximum value of SAR (measured) = 0.600 W/kg



0 dB = 0.600 W/kg = −2.22 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.1℃
Test Date:	05/24/2021
Plot No.:	77

DUT: SM-G990U; Type: Bar;

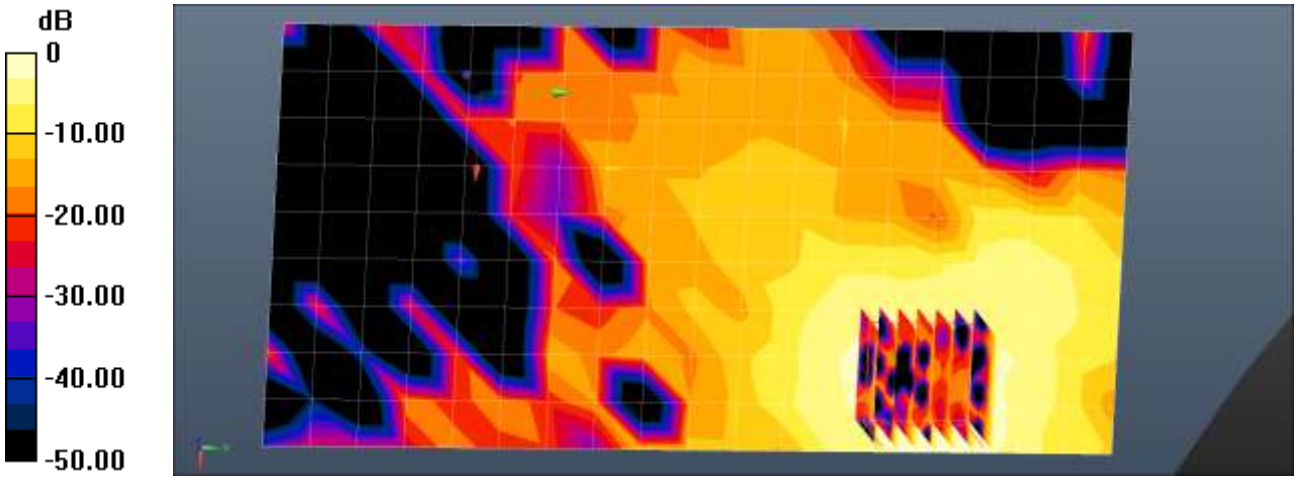
Communication System: UID 0, WiFI5GHz ac80 (0); Frequency: 5775 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5775 MHz; σ = 5.07 S/m; ε_r = 37.047; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(5.53, 5.53, 5.53); Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11ac80 Body Rear MCS0 155ch/Area Scan (10x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.193 W/kg

802.11ac80 Body Rear MCS0 155ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.134 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.034 W/kg
Maximum value of SAR (measured) = 0.198 W/kg



0 dB = 0.193 W/kg = −7.14 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.1℃
Ambient Temperature: 20.1℃
Test Date: 05/25/2021
Plot No.: 78

DUT: SM-G990U; Type: Bar;

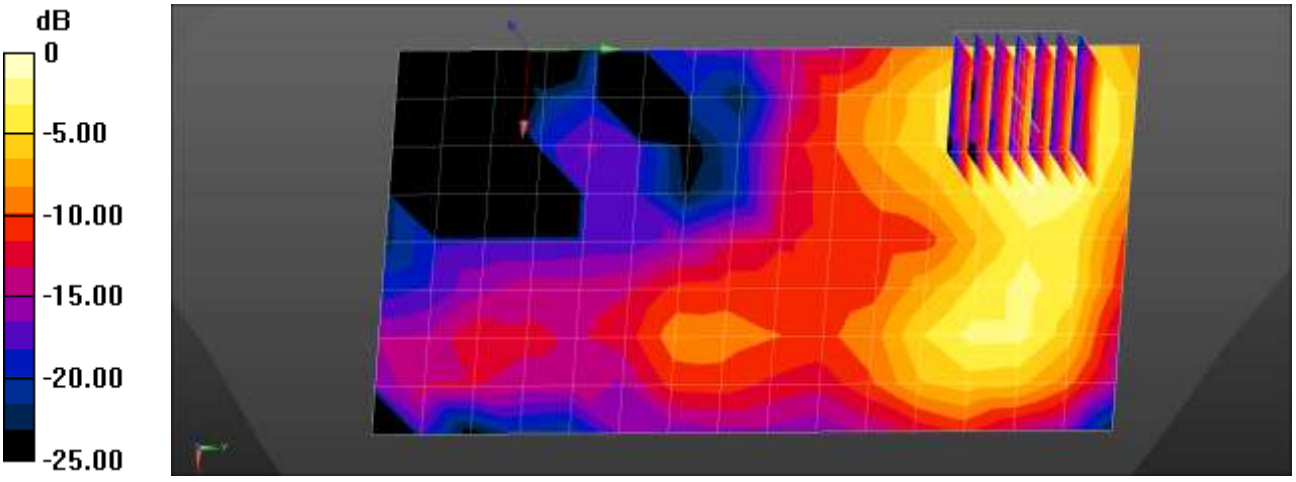
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.881 S/m; ε_r = 37.634; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2480 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Bluetooth Body-worn Rear 78ch/Area Scan (9x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0597 W/kg

Bluetooth Body-worn Rear 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.4370 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0760 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.0617 W/kg



0 dB = 0.0617 W/kg = −12.10 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 04/27/2021
Plot No.: 79

DUT: SM-G990U; Type: Bar;

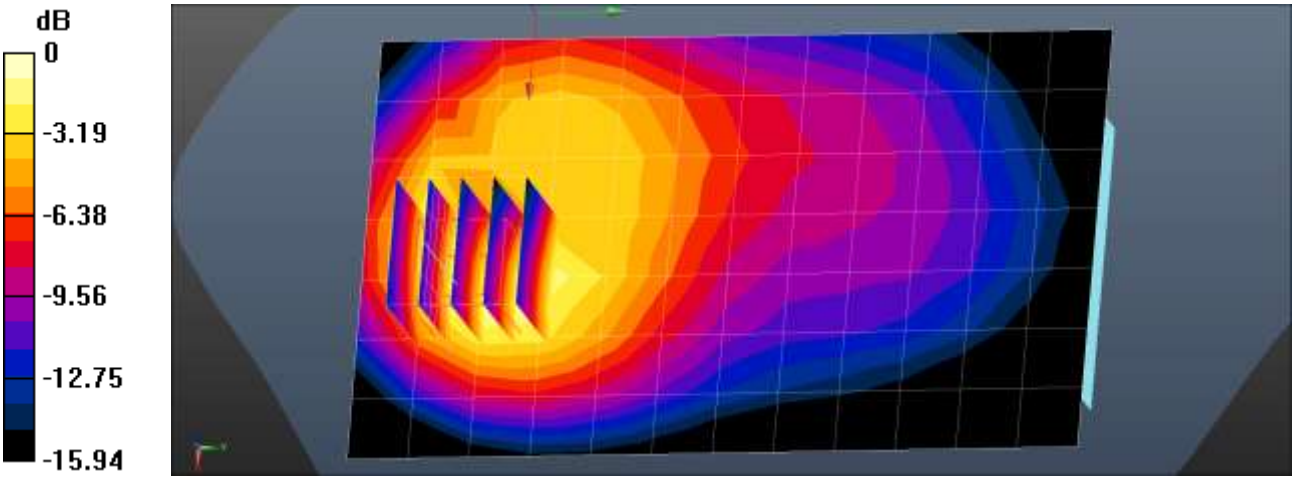
Communication System: UID 0, CDMA 835MHz FCC (0); Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.916 S/m; ε_r = 41.975; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 836.52 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC0 Body Rear 384ch EVDO Rev.0/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.911 W/kg

CDMA BC0 Body Rear 384ch EVDO Rev.0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.83 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.641 W/kg; SAR(10 g) = 0.369 W/kg
Maximum value of SAR (measured) = 0.927 W/kg



0 dB = 0.927 W/kg = −0.33 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.1℃
Ambient Temperature: 21.1℃
Test Date: 04/26/2021
Plot No.: 80

DUT: SM-G990U; Type: Bar;

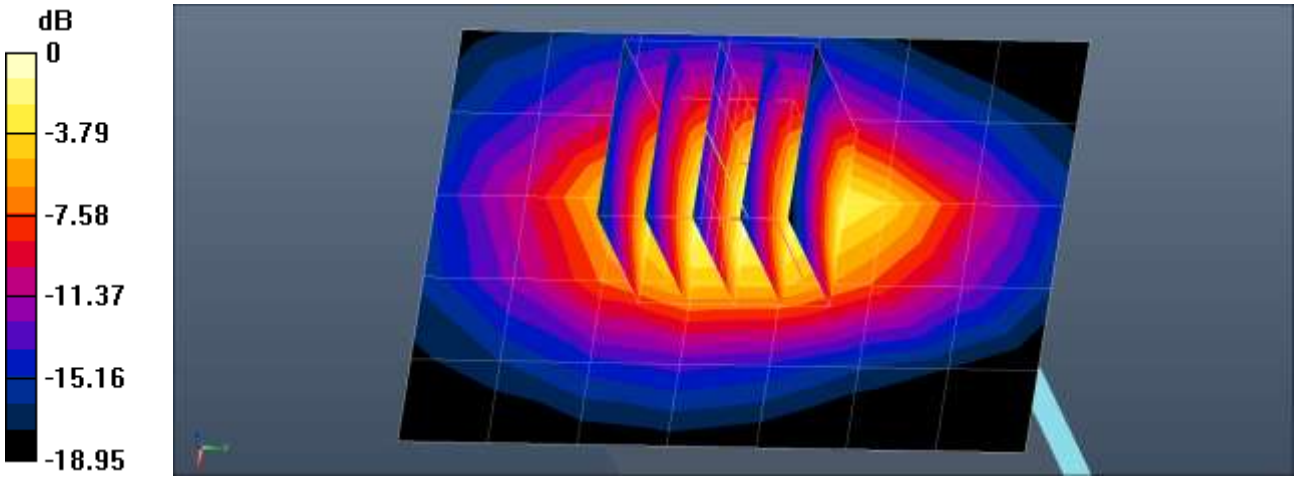
Communication System: UID 0, CDMA BC1 (0); Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.392 S/m; ε_r = 40.778; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1908.75 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC1 Body Bottom EVDO Rev0 1175ch/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.23 W/kg

CDMA BC1 Body Bottom EVDO Rev0 1175ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.45 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 0.951 W/kg; SAR(10 g) = 0.499 W/kg
Maximum value of SAR (measured) = 1.46 W/kg



0 dB = 1.46 W/kg = 1.64 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.0℃
Ambient Temperature: 21.1℃
Test Date: 04/28/2021
Plot No.: 81

DUT: SM-G990U; Type: Bar;

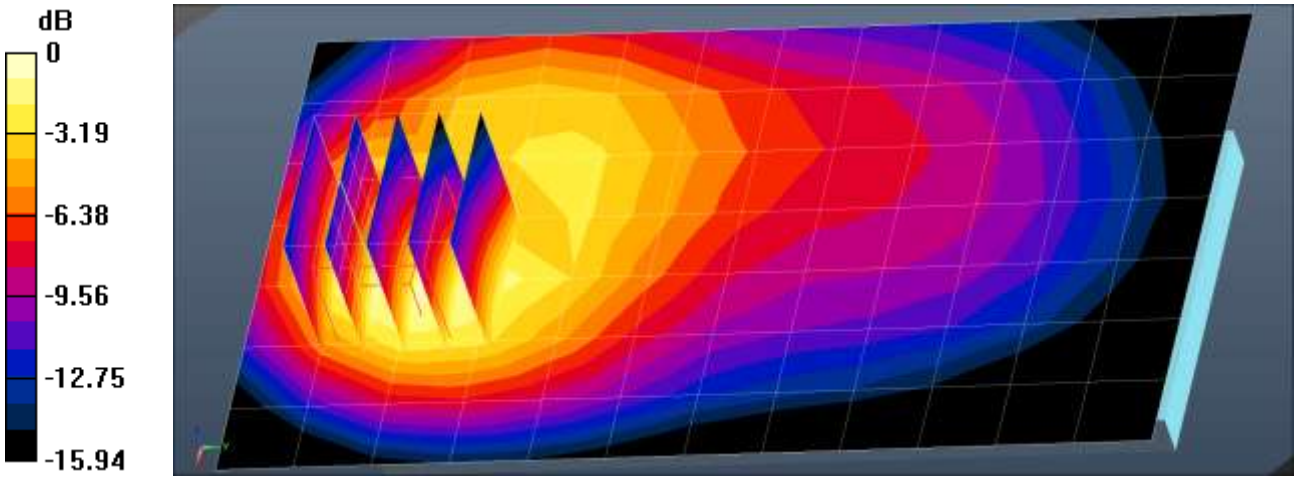
Communication System: UID 0, BC10 (0); Frequency: 820 MHz;Duty Cycle: 1:1
Medium parameters used: f = 820 MHz; σ = 0.9 S/m; ε_r = 42.291; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 820 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC10 Body Rear 560ch EVDO Rev.0/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.807 W/kg

CDMA BC10 Body Rear 560ch EVDO Rev.0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.33 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.331 W/kg
Maximum value of SAR (measured) = 0.845 W/kg



0 dB = 0.845 W/kg = −0.73 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.9℃
Ambient Temperature:	20.2℃
Test Date:	04/22/2021
Plot No.:	82

DUT: SM-G990U; Type: Bar;

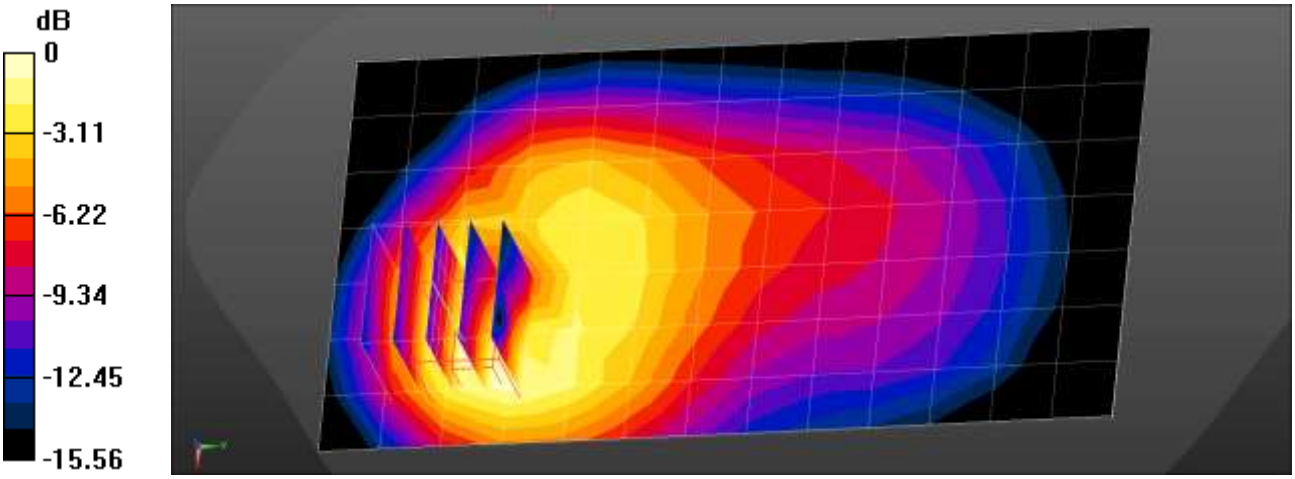
Communication System: UID 0, GSM 850 2Tx (0); Frequency: 836.6 MHz;Duty Cycle: 1:4.14954
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM850 Body Rear 190ch 2Tx/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.962 W/kg

GSM850 Body Rear 190ch 2Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.71 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.693 W/kg; SAR(10 g) = 0.414 W/kg
Maximum value of SAR (measured) = 1.01 W/kg



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

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.7℃
Ambient Temperature: 20.7℃
Test Date: 04/20/2021
Plot No.: 83

DUT: SM-G990U; Type: Bar;

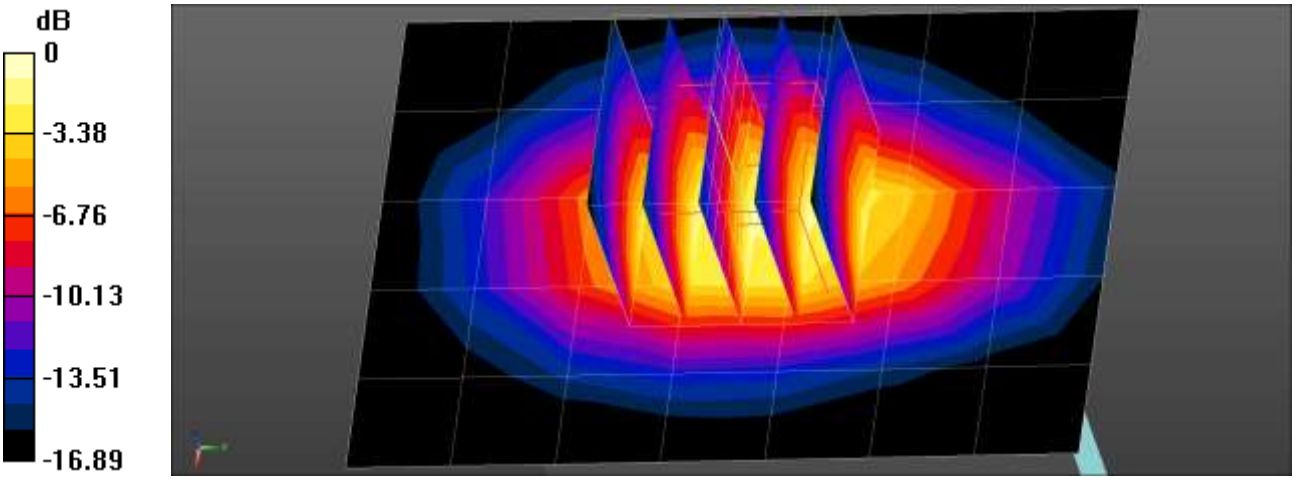
Communication System: UID 0, GSM 1900 2Tx (0); Frequency: 1880 MHz;Duty Cycle: 1:4.14954
Medium parameters used: f = 1880 MHz; σ = 1.396 S/m; ε_r = 40.576; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1880 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM1900 Body Bottom 2Tx 661ch/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.553 W/kg

GSM1900 Body Bottom 2Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.52 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.866 W/kg
SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.734 W/kg



0 dB = 0.734 W/kg = −1.34 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.9℃
Ambient Temperature: 20.2℃
Test Date: 04/22/2021
Plot No.: 84

DUT: SM-G990U; Type: Bar;

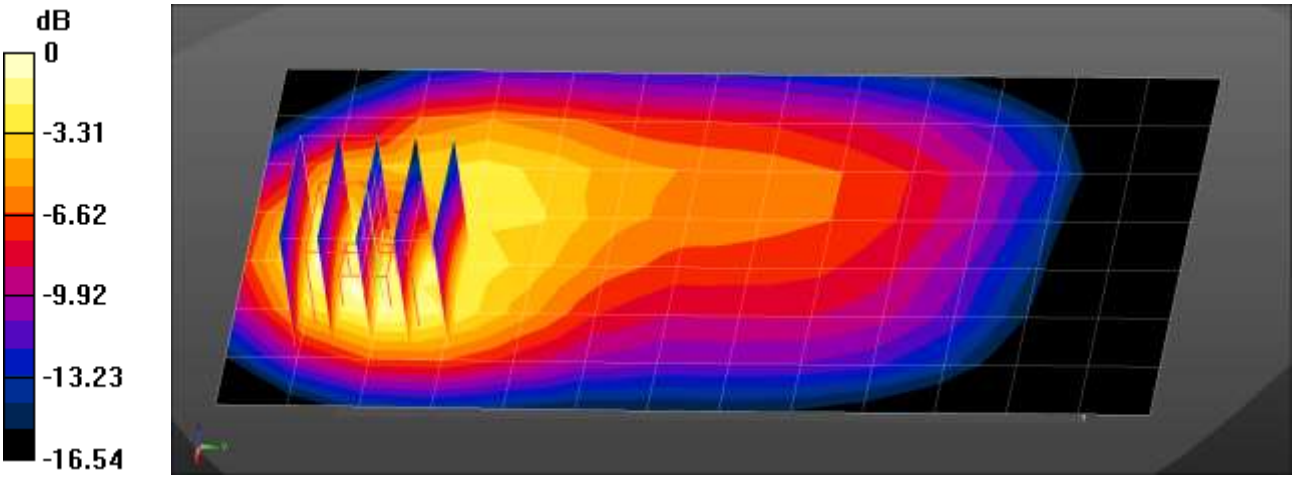
Communication System: UID 0, UMTS850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 S/m; ε_r = 42.978; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 836.6 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

UMTS850 Body Rear 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.754 W/kg

UMTS850 Body Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.16 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.609 W/kg; SAR(10 g) = 0.341 W/kg
Maximum value of SAR (measured) = 0.917 W/kg



0 dB = 0.917 W/kg = −0.38 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6℃
Ambient Temperature:	21.7℃
Test Date:	05/03/2021
Plot No.:	85

DUT: SM-G990U; Type: Bar;

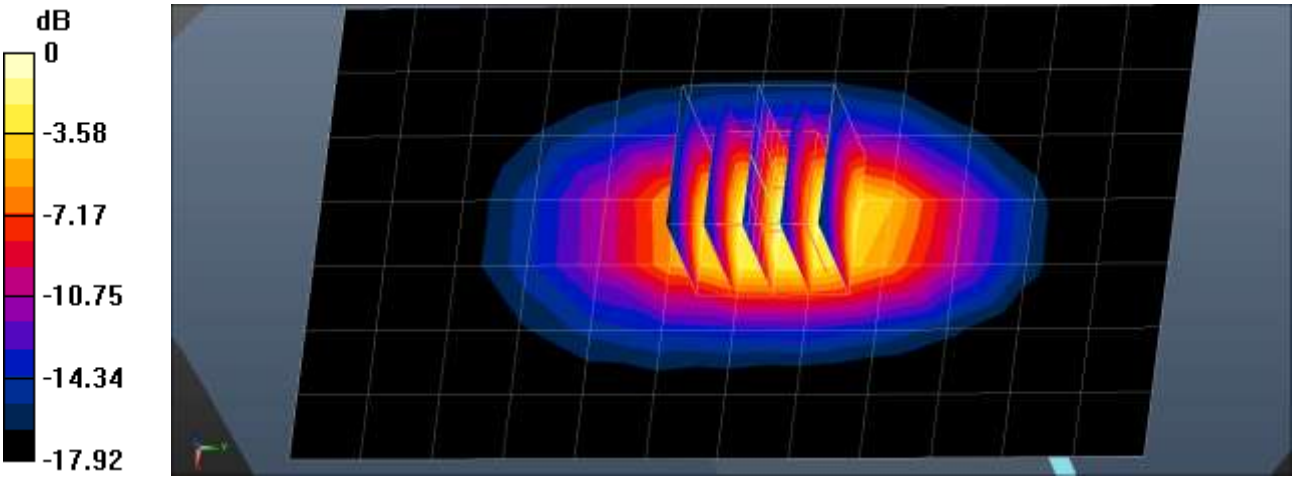
Communication System: UID 0, UMTS IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.361 S/m; ε_r = 42.08; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1732.4 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 4 Bottom 1412ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.634 W/kg

UMTS Band 4 Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.45 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.631 W/kg; SAR(10 g) = 0.330 W/kg
Maximum value of SAR (measured) = 0.953 W/kg



0 dB = 0.953 W/kg = −0.21 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.0℃
Ambient Temperature: 21.1℃
Test Date: 05/04/2021
Plot No.: 86

DUT: SM-G990U; Type: Bar;

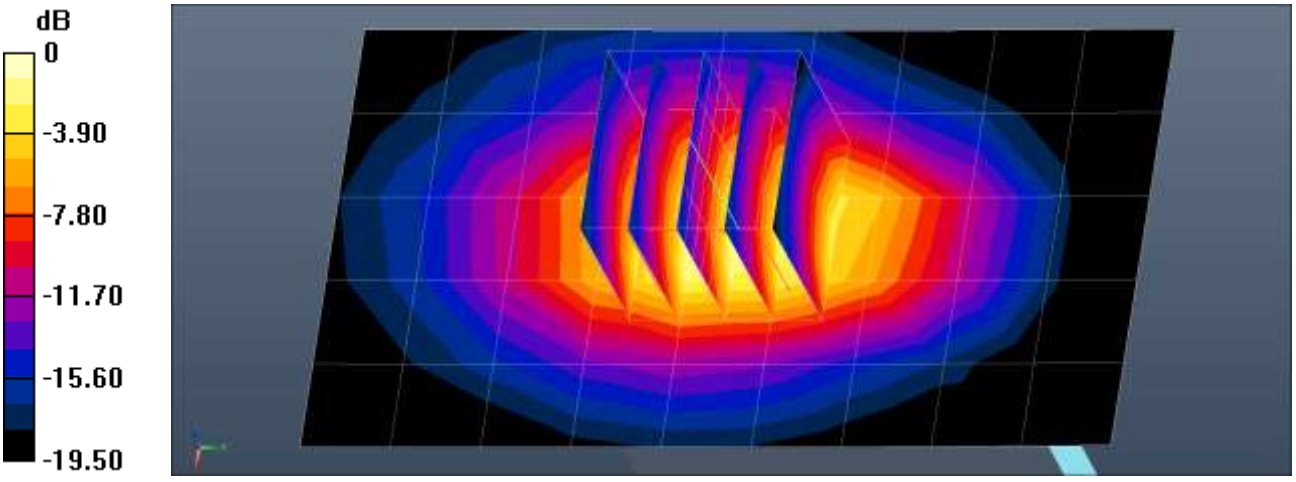
Communication System: UID 0, UMTS1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.417 S/m; ε_r = 41.49; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1880 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 2 Bottom 9400ch/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.785 W/kg

UMTS Band 2 Bottom 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.25 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.732 W/kg; SAR(10 g) = 0.378 W/kg
Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg = 0.53 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.1℃
Test Date:	04/22/2021
Plot No.:	87

DUT: SM-G990U; Type: Bar;

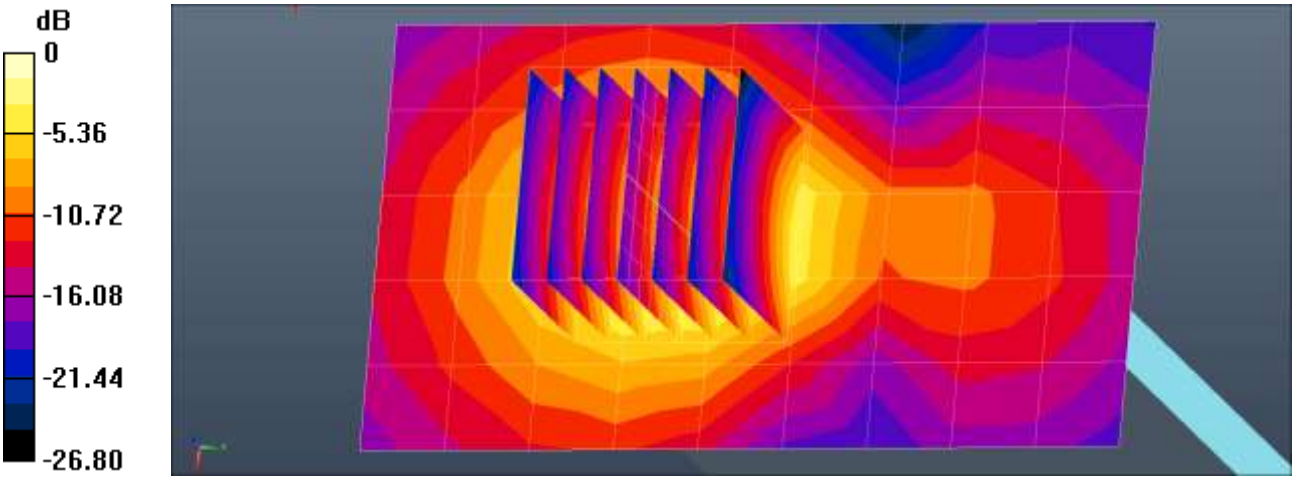
Communication System: UID 0, LTE Band 7 (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.972 S/m; ε_r = 40.074; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2560 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 7 Body Bottom QPSK 20MHz 100RB 0offset 21350ch/Area Scan (6x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.981 W/kg

LTE Band 7 Body Bottom QPSK 20MHz 100RB 0offset 21350ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.56 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.764 W/kg; SAR(10 g) = 0.353 W/kg
Maximum value of SAR (measured) = 1.26 W/kg



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

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.0℃
Ambient Temperature: 20.0℃
Test Date: 04/19/2021
Plot No.: 88

DUT: SM-G990U; Type: Bar;

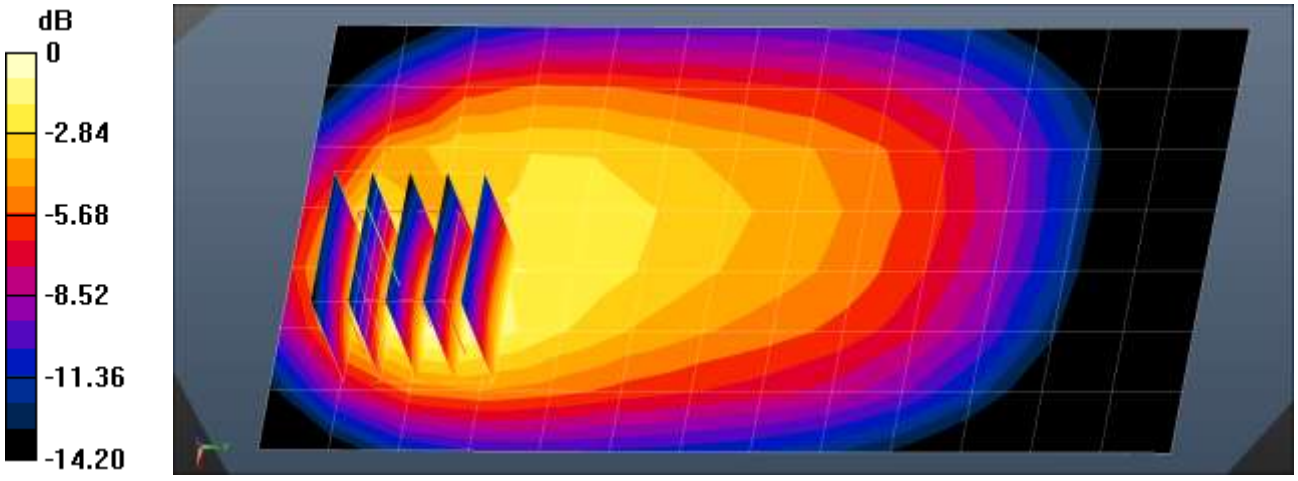
Communication System: UID 0, LTE 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.929 S/m; ε_r = 44.163; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 707.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 12 Body Rear 10MHz QPSK 1RB 0offset 23095ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.424 W/kg

LTE Band 12 Body Rear 10MHz QPSK 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.38 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.605 W/kg
SAR(1 g) = 0.323 W/kg; SAR(10 g) = 0.184 W/kg
Maximum value of SAR (measured) = 0.477 W/kg



0 dB = 0.477 W/kg = −3.21 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.4℃
Ambient Temperature:	23.5℃
Test Date:	04/20/2021
Plot No.:	89

DUT: SM-G990U; Type: Bar;

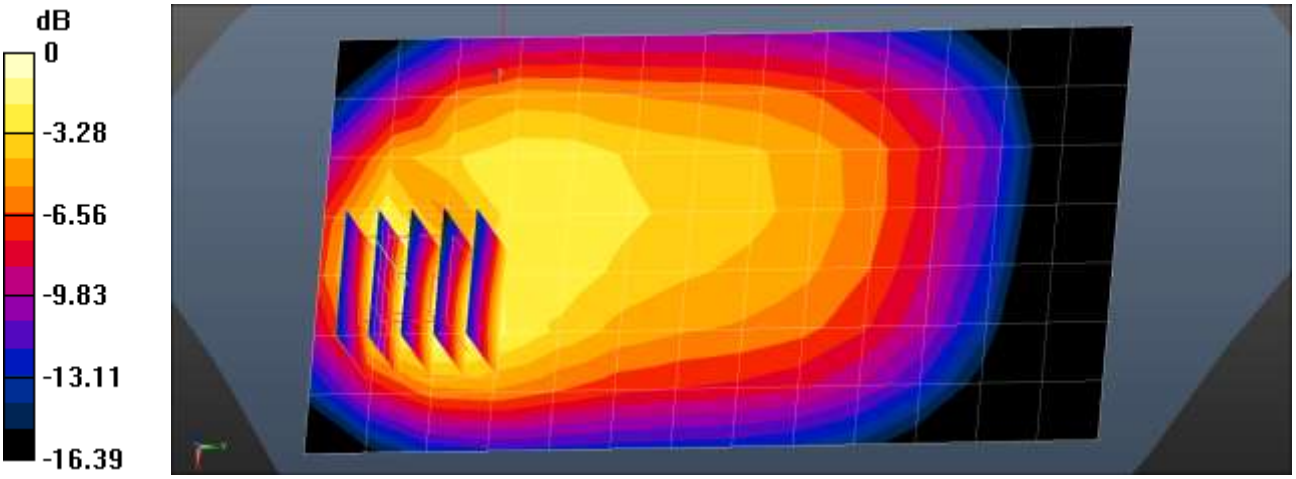
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.933 S/m; ε_r = 43.327; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 782 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 13 Body Rear 10MHz QPSK 1RB 24offset 23230ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.481 W/kg

LTE Band 13 Body Rear 10MHz QPSK 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.64 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.737 W/kg
SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.587 W/kg



0 dB = 0.587 W/kg = −2.31 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.4℃
Ambient Temperature: 22.4℃
Test Date: 04/21/2021
Plot No.: 90

DUT: SM-G990U; Type: Bar;

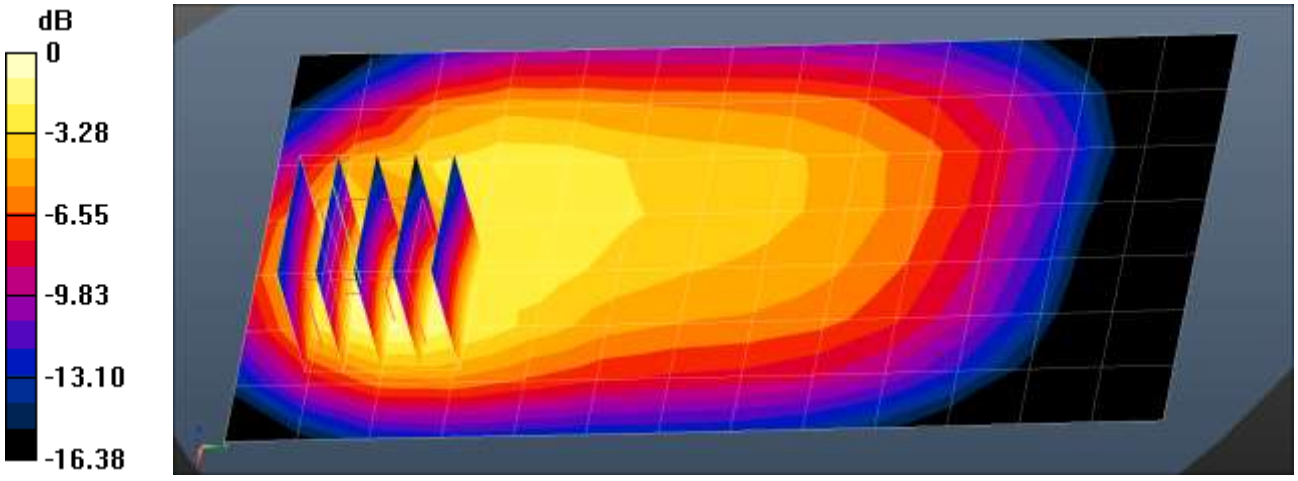
Communication System: UID 0, LTE 14 (0); Frequency: 793 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 793 MHz; σ = 0.938 S/m; ε_r = 42.613; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 793 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 14 Body Rear 10MHz QPSK 1RB 0offset 23330ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.580 W/kg

LTE Band 14 Body Rear 10MHz QPSK 1RB 0offset 23330ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.34 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.905 W/kg
SAR(1 g) = 0.485 W/kg; SAR(10 g) = 0.269 W/kg
Maximum value of SAR (measured) = 0.724 W/kg



0 dB = 0.724 W/kg = −1.40 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/13/2021
Plot No.:	91

DUT: SM-G990U; Type: Bar;

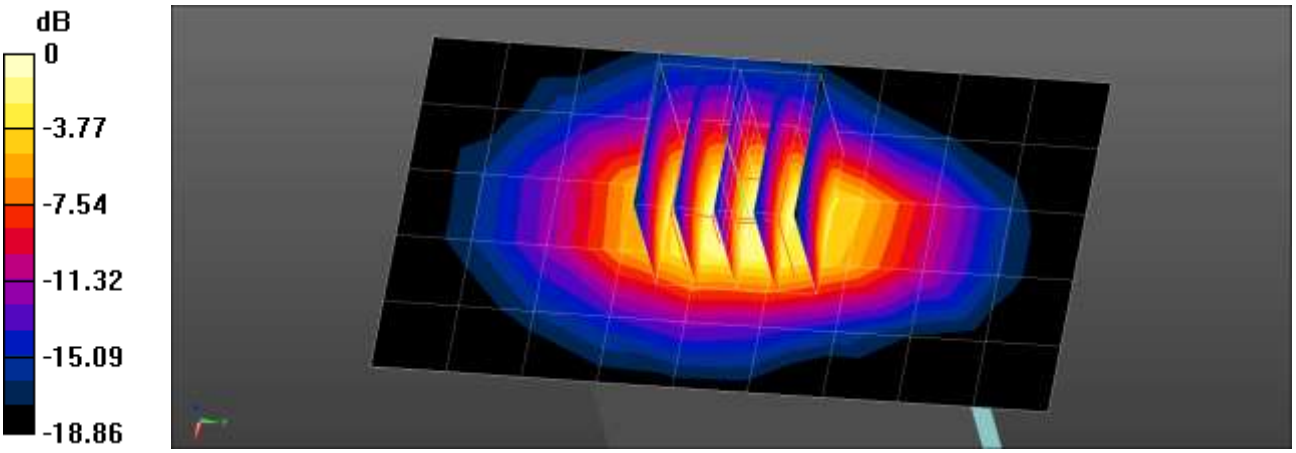
Communication System: UID 0, LTE Band25 (0); Frequency: 1905 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1905 MHz; σ = 1.442 S/m; ε_r = 40.975; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1905 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 25 Body Bottom QPSK 20MHz 1RB 0offset 26590ch/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.775 W/kg

LTE Band 25 Body Bottom QPSK 20MHz 1RB 0offset 26590ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.34 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.728 W/kg; SAR(10 g) = 0.379 W/kg
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg = 0.49 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/13/2021
Plot No.:	92

DUT: SM-G990U; Type: Bar;

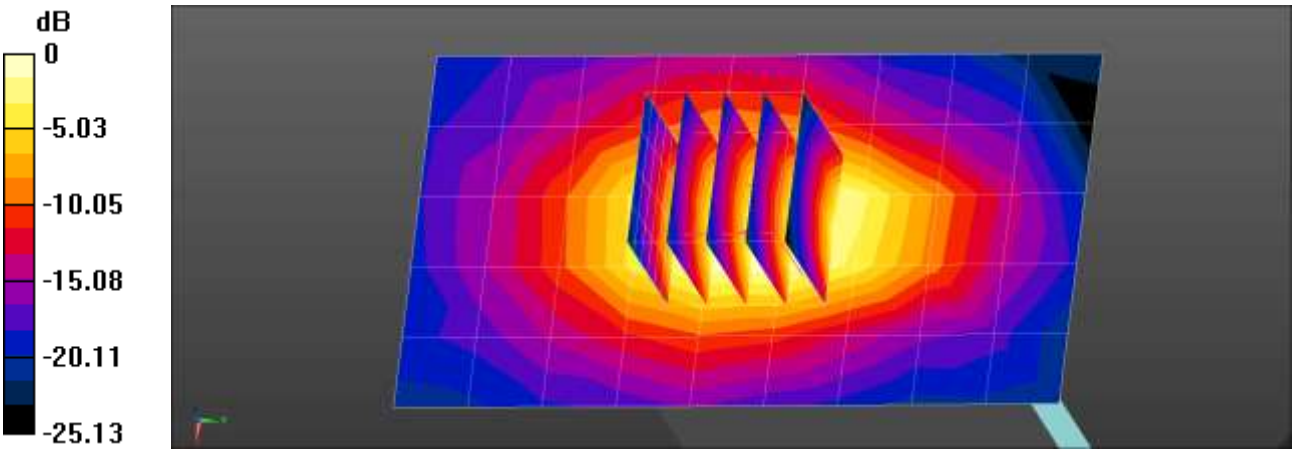
Communication System: UID 0, LTE Band25 (0); Frequency: 1905 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1905 MHz; σ = 1.442 S/m; ε_r = 40.975; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1905 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 25 Body Bottom QPSK 20MHz 50RB 25offset 26590ch/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.779 W/kg

LTE Band 25 Body Bottom QPSK 20MHz 50RB 25offset 26590ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.68 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.389 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 0.779 W/kg = −1.09 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.2℃
Ambient Temperature: 22.3℃
Test Date: 04/26/2021
Plot No.: 93

DUT: SM-G990U; Type: Bar;

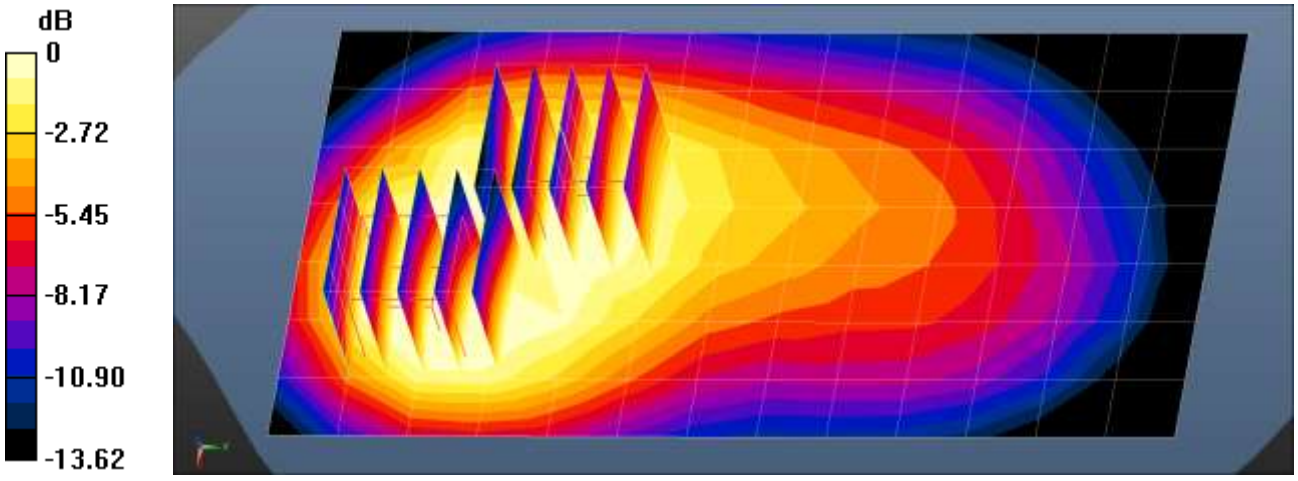
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.915 S/m; ε_r = 42.032; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.75, 9.75, 9.75) @ 836.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 836.5MHz, 20525Ch/ SCC 843.7MHz, 20597Ch.

LTE Band 5 Body Rear 10MHz QPSK 1RB 49offset 20525ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.967 W/kg
LTE Band 5 Body Rear 10MHz QPSK 1RB 49offset 20525ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.93 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.653 W/kg; SAR(10 g) = 0.376 W/kg
Maximum value of SAR (measured) = 0.949 W/kg
LTE Band 5 Body Rear 10MHz QPSK 1RB 49offset 20525ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.93 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.741 W/kg
SAR(1 g) = 0.503 W/kg; SAR(10 g) = 0.342 W/kg
Maximum value of SAR (measured) = 0.651 W/kg



0 dB = 0.651 W/kg = −1.86 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.1℃
Ambient Temperature: 22.2℃
Test Date: 05/03/2021
Plot No.: 94

DUT: SM-G990U; Type: Bar;

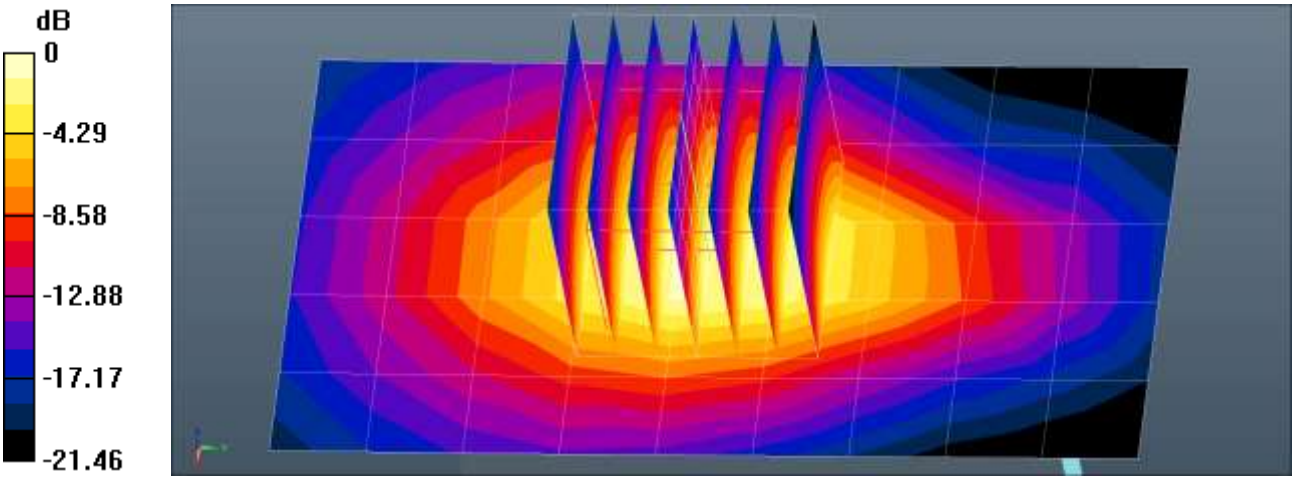
Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.73 S/m; ε_r = 40.654; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 30 Body Bottom QPSK 10MHz 50RB 0offset 27710ch/Area Scan (6x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.998 W/kg

LTE Band 30 Body Bottom QPSK 10MHz 50RB 0offset 27710ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.06 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.821 W/kg; SAR(10 g) = 0.405 W/kg
Maximum value of SAR (measured) = 1.32 W/kg



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

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.3℃
Ambient Temperature: 21.4℃
Test Date: 05/06/2021
Plot No.: 95

DUT: SM-G990U; Type: Bar;

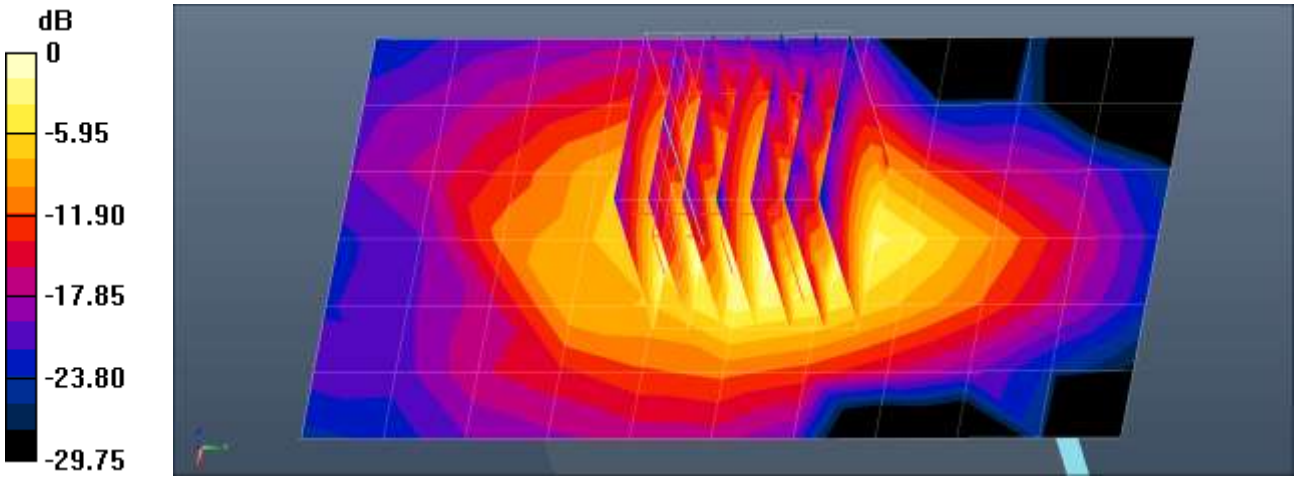
Communication System: UID 0, LTE TDD Band (0); Frequency: 2310 MHz;Duty Cycle: 1:1.58052
Medium parameters used: f = 2310 MHz; σ = 1.723 S/m; ε_r = 40.616; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Body Bottom QPSK 10MHz 25RB 12offset 38750ch/Area Scan (7x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.265 W/kg

LTE Band 40 Body Bottom QPSK 10MHz 25RB 12offset 38750ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.80 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.329 W/kg
SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.260 W/kg



0 dB = 0.260 W/kg = −5.85 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 05/07/2021
Plot No.: 96

DUT: SM-G990U; Type: Bar;

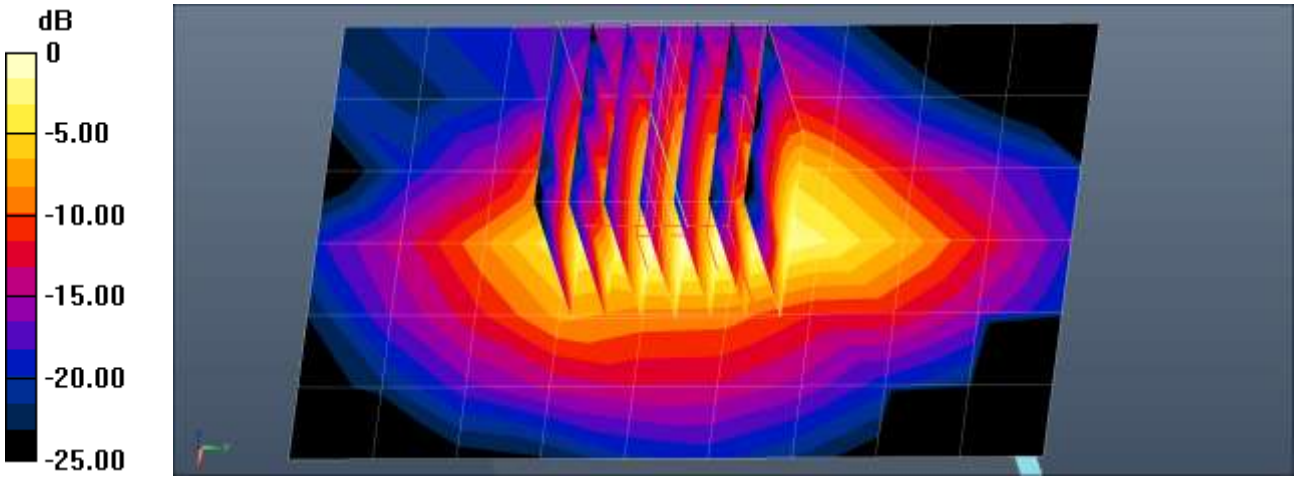
Communication System: UID 0, LTE TDD Band (0); Frequency: 2355 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2355 MHz; σ = 1.772 S/m; ε_r = 40.334; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2355 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Body Bottom QPSK 10MHz 1RB 24offset 39200ch/Area Scan (7x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.284 W/kg

LTE Band 40 Body Bottom QPSK 10MHz 1RB 24offset 39200ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.38 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.183 W/kg; SAR(10 g) = 0.077 W/kg
Maximum value of SAR (measured) = 0.296 W/kg



0 dB = 0.296 W/kg = −5.29 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.0℃
Ambient Temperature:	22.1℃
Test Date:	05/07/2021
Plot No.:	97

DUT: SM-G990U; Type: Bar;

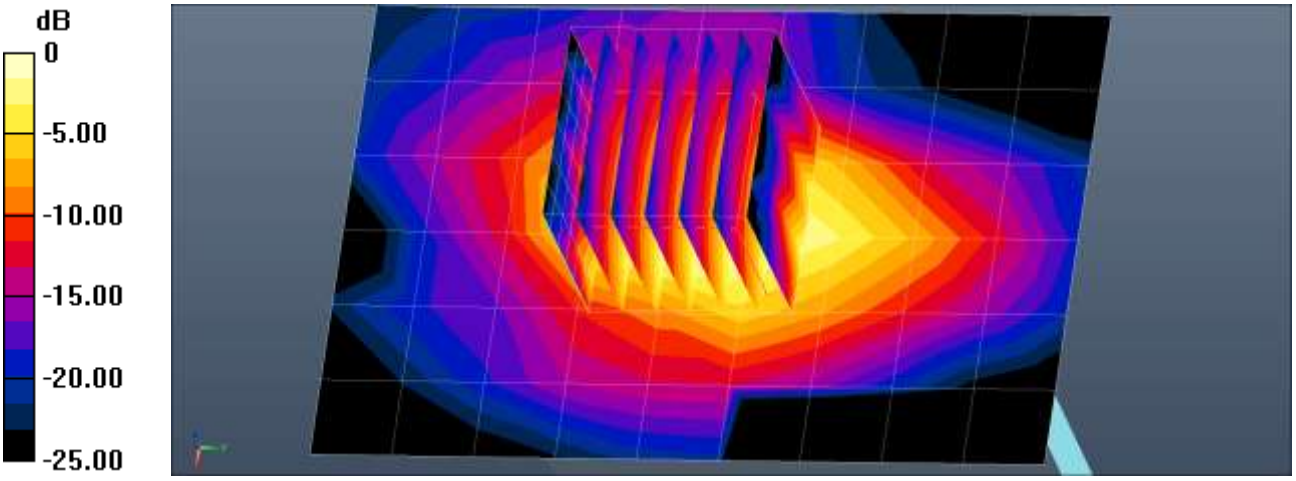
Communication System: UID 0, LTE TDD Band (0); Frequency: 2355 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2355 MHz; σ = 1.772 S/m; ε_r = 40.334; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2355 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 40 Body Bottom QPSK 10MHz 25RB 12offset 39200ch/Area Scan (7x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.294 W/kg

LTE Band 40 Body Bottom QPSK 10MHz 25RB 12offset 39200ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.43 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.089 W/kg
Maximum value of SAR (measured) = 0.304 W/kg



0 dB = 0.304 W/kg = −5.17 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.9℃
Test Date: 05/10/2021
Plot No.: 98

DUT: SM-G990U; Type: Bar;

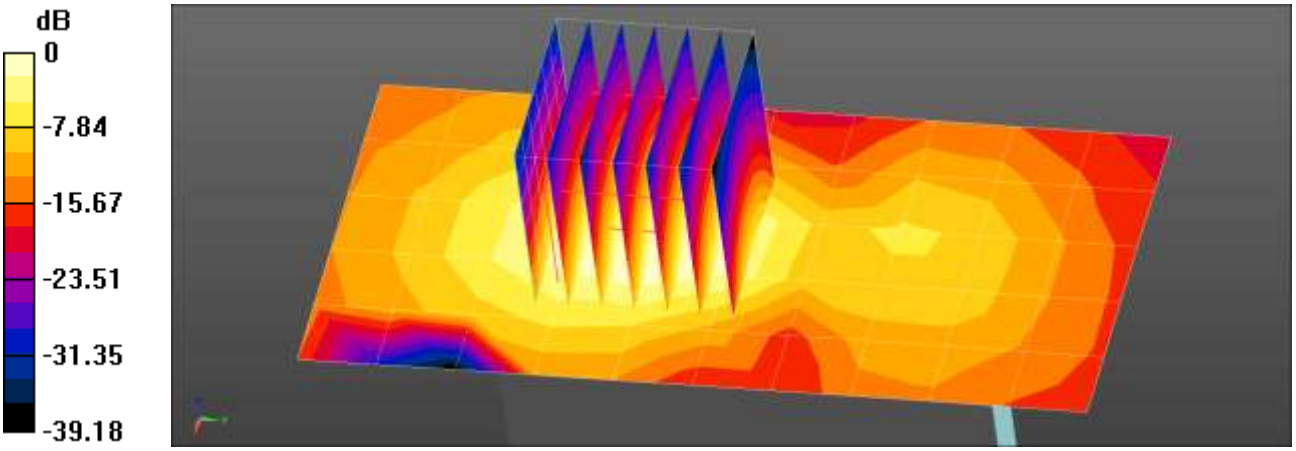
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2593 MHz; σ = 2.001 S/m; ε_r = 39.843; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2593 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2020-05-25
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 41 Body Bottom QPSK 20MHz 1RB 99offset 40620ch/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.488 W/kg

LTE Band 41 Body Bottom QPSK 20MHz 1RB 99offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.11 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.215 W/kg
Maximum value of SAR (measured) = 0.638 W/kg



0 dB = 0.488 W/kg = −3.11 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.1℃
Ambient Temperature: 22.1℃
Test Date: 05/12/2021
Plot No.: 99

DUT: SM-G990U; Type: Bar;

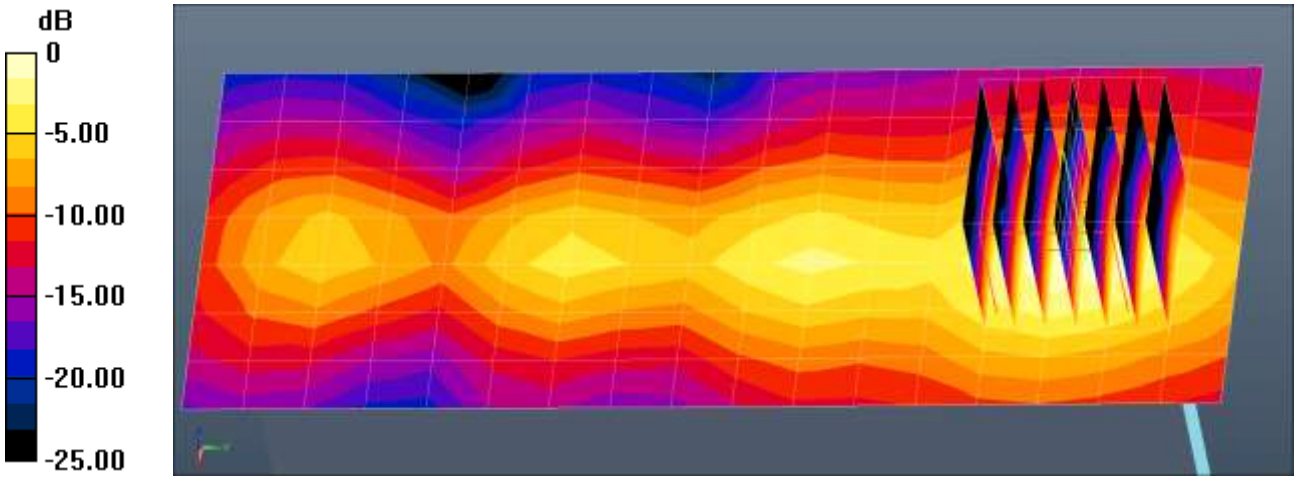
Communication System: UID 0, LTE Band 48 (0); Frequency: 3603.3 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 3603.3 MHz; σ = 3.087 S/m; ε_r = 39.221; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3603.3 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 48 Body Left QPSK 20MHz 50RB 49offset 55773ch/Area Scan (8x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.449 W/kg

LTE Band 48 Body Left QPSK 20MHz 50RB 49offset 55773ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 6.739 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.619 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.093 W/kg
Maximum value of SAR (measured) = 0.447 W/kg



0 dB = 0.447 W/kg = −3.50 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6℃
Ambient Temperature:	20.7℃
Test Date:	05/21/2021
Plot No.:	100

DUT: SM-G990U; Type: Bar;

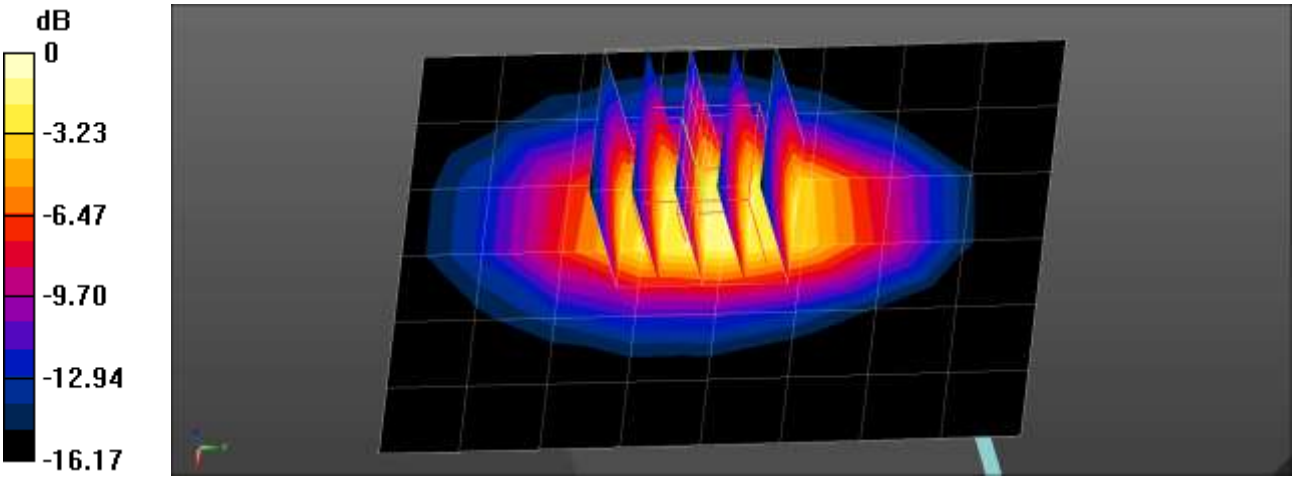
Communication System: UID 0, LTE Band66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.431 S/m; ε_r = 40.934; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1770 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 66 Body Bottom QPSK 20MHz 1RB 49offset 132572ch/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.807 W/kg

LTE Band 66 Body Bottom QPSK 20MHz 1RB 49offset 132572ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.80 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.787 W/kg; SAR(10 g) = 0.431 W/kg
Maximum value of SAR (measured) = 1.15 W/kg



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

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.6℃
Ambient Temperature: 20.7℃
Test Date: 05/21/2021
Plot No.: 101

DUT: SM-G990U; Type: Bar;

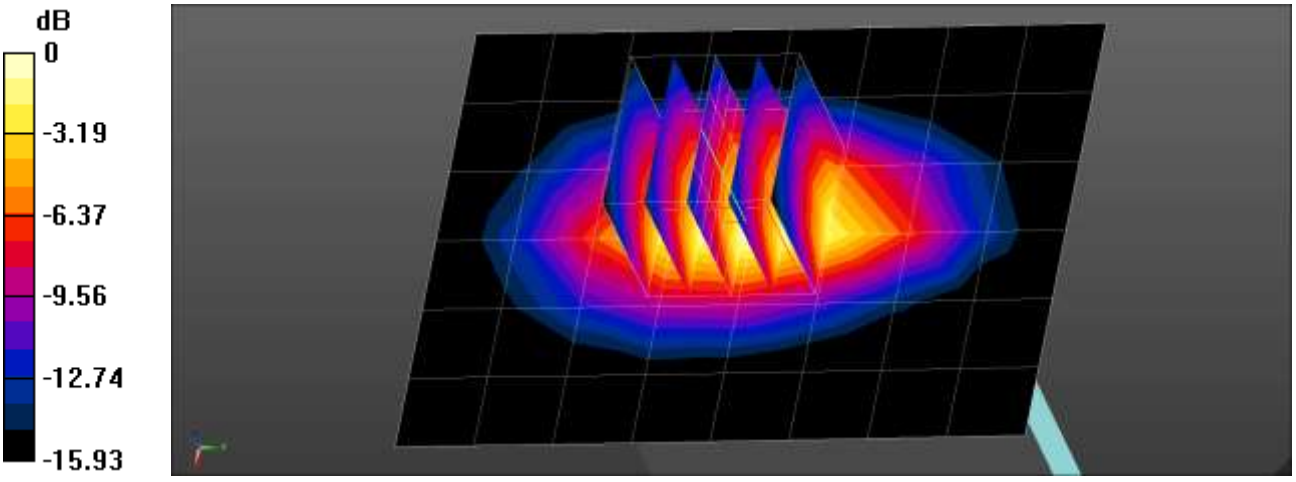
Communication System: UID 0, LTE Band66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.398 S/m; ε_r = 41.096; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1745 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 66 Body Bottom QPSK 20MHz 50RB 49offset 132322ch/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.10 W/kg

LTE Band 66 Body Bottom QPSK 20MHz 50RB 49offset 132322ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.17 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.798 W/kg; SAR(10 g) = 0.440 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.16 W/kg = 0.64 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.7℃
Ambient Temperature: 19.7℃
Test Date: 04/23/2021
Plot No.: 102

DUT: SM-G990U; Type: Bar;

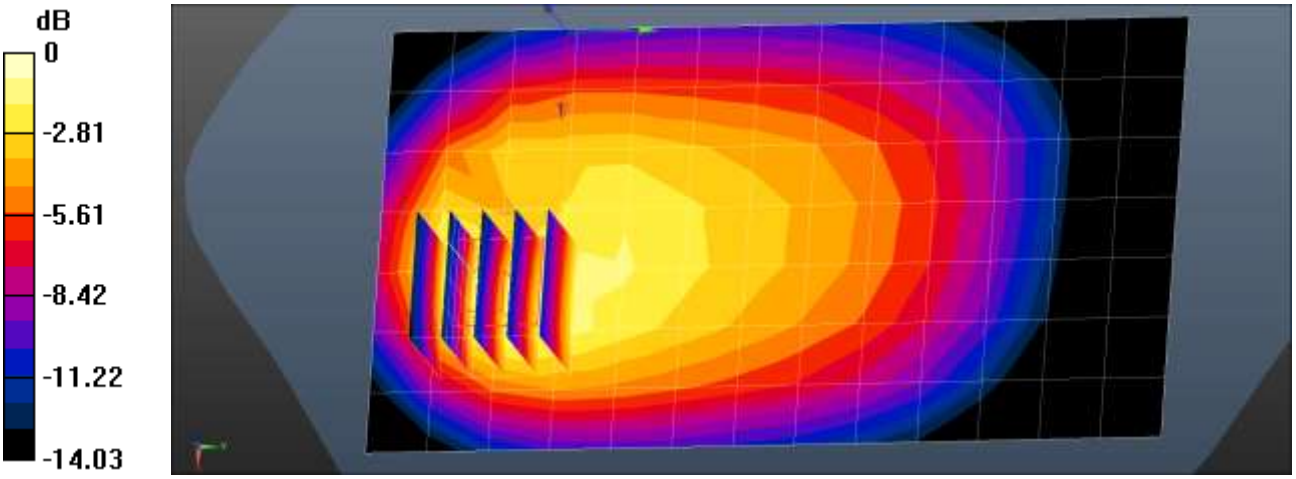
Communication System: UID 0, LTE Band 71 (0); Frequency: 680.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 680.5 MHz; σ = 0.92 S/m; ε_r = 44.133; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 680.5 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0_
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 71 Body Rear 20MHz QPSK 1RB 0offset 133297ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.355 W/kg

LTE Band 71 Body Rear 20MHz QPSK 1RB 0offset 133297ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.10 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.554 W/kg
SAR(1 g) = 0.293 W/kg; SAR(10 g) = 0.172 W/kg
Maximum value of SAR (measured) = 0.428 W/kg



0 dB = 0.428 W/kg = −3.69 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 04/29/2021
Plot No.: 103

DUT: SM-G990U; Type: Bar;

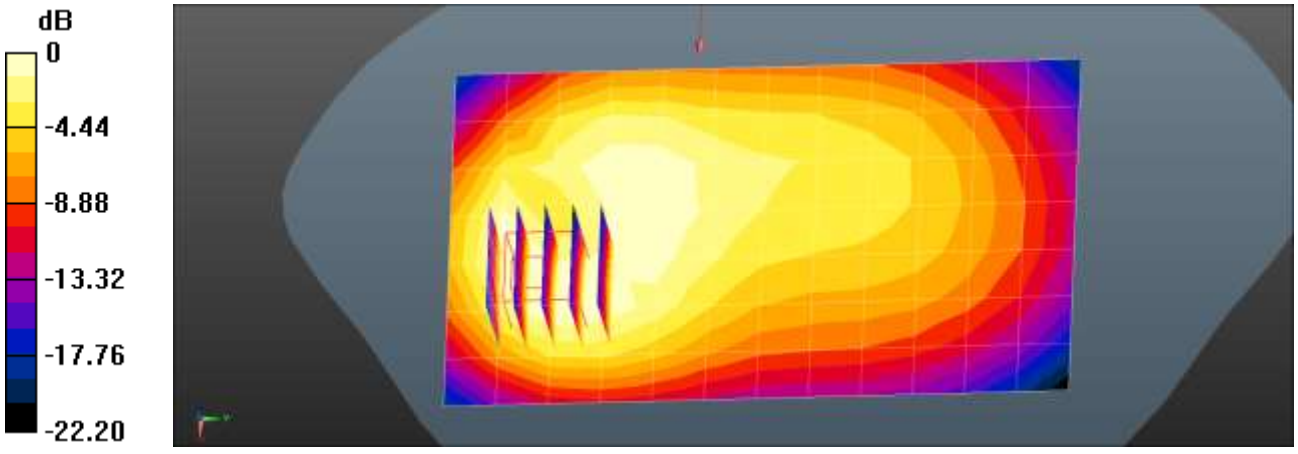
Communication System: UID 0, NR n5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.94 S/m; ε_r = 43.017; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.02, 6.02, 6.02) @ 836.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n5 Body Rear DFT-s QPSK 20MHz 1RB 53offset 167300ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.367 W/kg

NR Band n5 Body Rear DFT-s QPSK 20MHz 1RB 53offset 167300ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.31 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.573 W/kg
SAR(1 g) = 0.330 W/kg; SAR(10 g) = 0.195 W/kg
Maximum value of SAR (measured) = 0.406 W/kg



0 dB = 0.367 W/kg = −4.35 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 04/30/2021
Plot No.: 104

DUT: SM-G990U; Type: Bar;

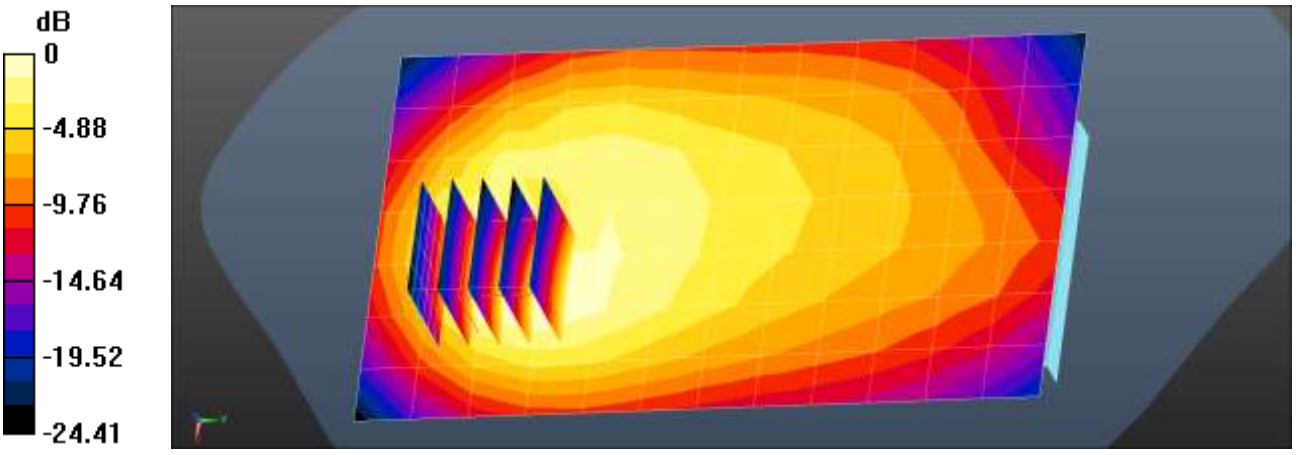
Communication System: UID 0, NR n12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used: f = 800 MHz; σ = 0.911 S/m; ε_r = 43.568; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 707.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.428 W/kg

NR Band n12 Body Rear DFT-s QPSK 15MHz 1RB 1offset 141500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.82 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.731 W/kg
SAR(1 g) = 0.391 W/kg; SAR(10 g) = 0.222 W/kg
Maximum value of SAR (measured) = 0.497 W/kg



0 dB = 0.428 W/kg = −3.68 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.6℃
Ambient Temperature: 21.7℃
Test Date: 05/03/2021
Plot No.: 105

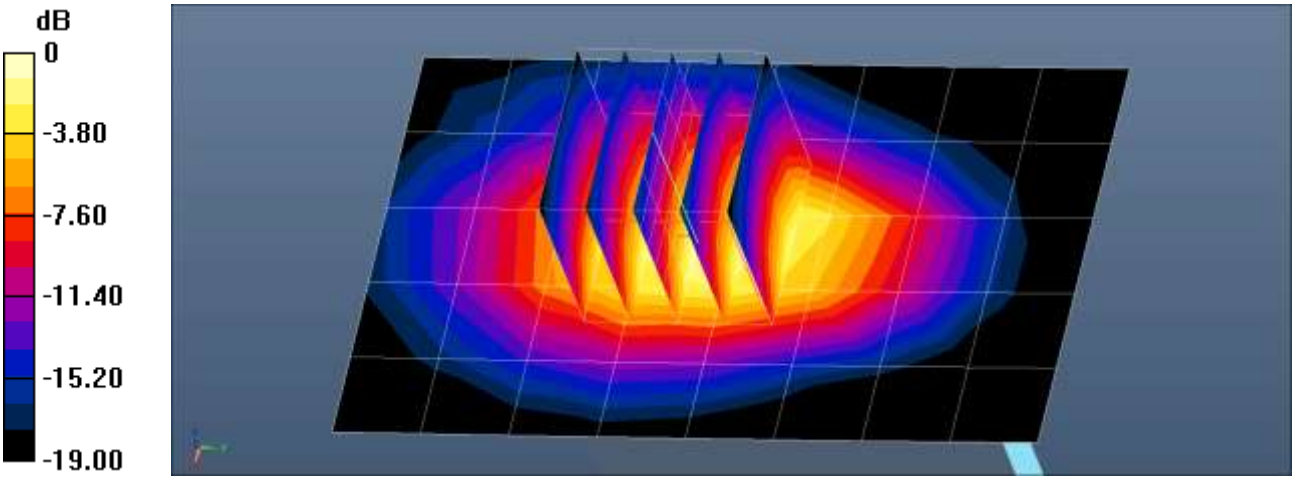
DUT: SM-G990U; Type: Bar;

Communication System: UID 0, n25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.414 S/m; ε_r = 41.209; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1882.5 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n25 Body Bottom CP QPSK 40MHz 1RB 1offset 376500ch/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.866 W/kg
NR Band n25 Body Bottom CP QPSK 40MHz 1RB 1offset 376500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.79 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.738 W/kg; SAR(10 g) = 0.381 W/kg
Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg = 0.53 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.8℃
Ambient Temperature:	21.9℃
Test Date:	05/21/2021
Plot No.:	106

DUT: SM-G990U; Type: Bar;

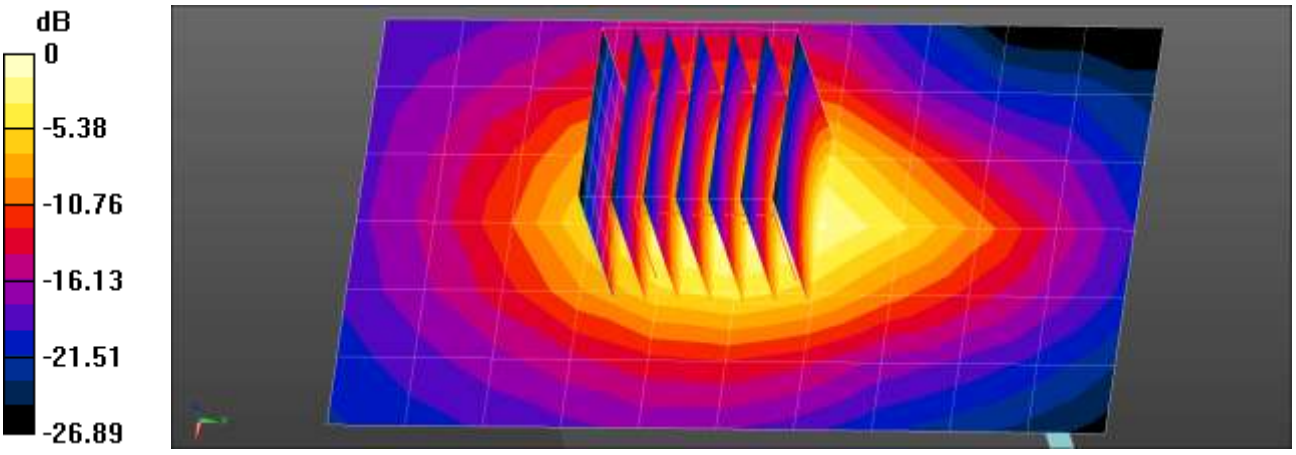
Communication System: UID 0, n30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.71 S/m; ε_r = 40.628; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2310 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

NR Bnad 30 Body Bottom CP QPSK 10MHz 1RB 1offset 462000ch/Area Scan (7x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 1.28 W/kg

NR Bnad 30 Body Bottom CP QPSK 10MHz 1RB 1offset 462000ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.26 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 0.983 W/kg; SAR(10 g) = 0.474 W/kg
Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.28 W/kg = 1.07 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2℃
Ambient Temperature:	21.2℃
Test Date:	05/10/2021
Plot No.:	107

DUT: SM-G990U; Type: Bar;

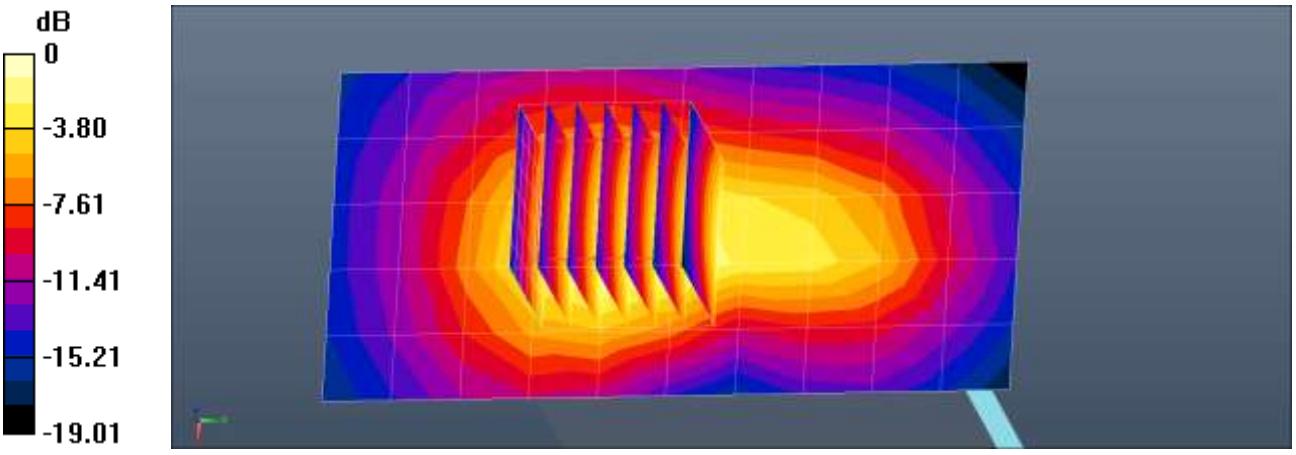
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 1.999 S/m; ε_r = 39.871; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Body Bottom DFT-s QPSK 100MHz 1RB 137offset 518598ch/Area Scan (6x11x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 1.15 W/kg

NR Band 41 Body Bottom DFT-s QPSK 100MHz 1RB 137offset 518598ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.39 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.363 W/kg
Maximum value of SAR (measured) = 1.30 W/kg



0 dB = 1.15 W/kg = 0.59 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2℃
Ambient Temperature:	21.2℃
Test Date:	05/10/2021
Plot No.:	108

DUT: SM-G990U; Type: Bar;

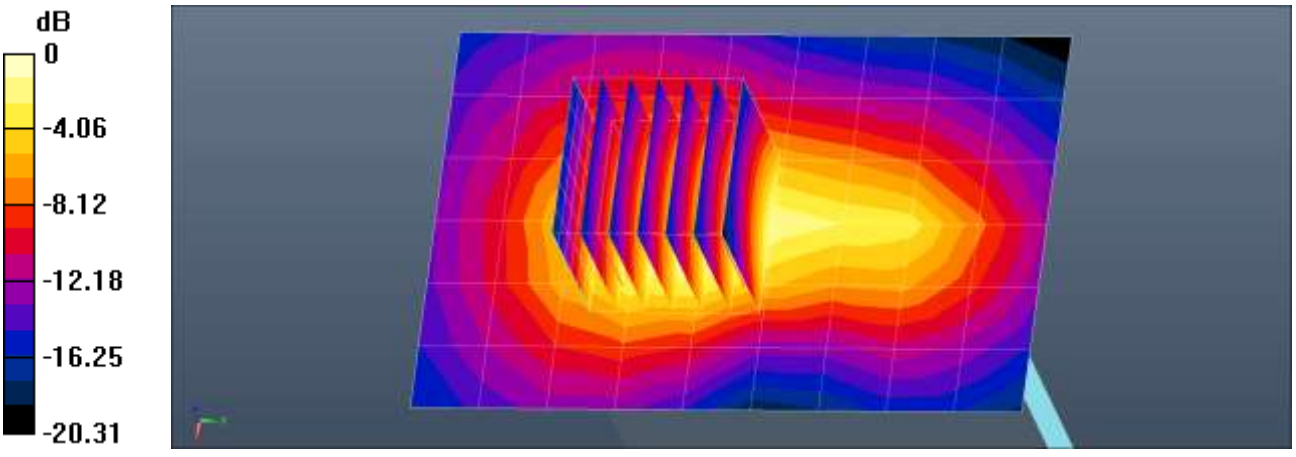
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 1.999 S/m; ε_r = 39.871; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Body Bottom DFT-s QPSK 100MHz 135RB 69offset 518598ch/Area Scan (7x10x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 1.23 W/kg

NR Band 41 Body Bottom DFT-s QPSK 100MHz 135RB 69offset 518598ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.15 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.749 W/kg; SAR(10 g) = 0.354 W/kg
Maximum value of SAR (measured) = 1.25 W/kg



0 dB = 1.23 W/kg = 0.90 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.5℃
Ambient Temperature: 22.6℃
Test Date: 05/11/2021
Plot No.: 109

DUT: SM-G990U; Type: Bar;

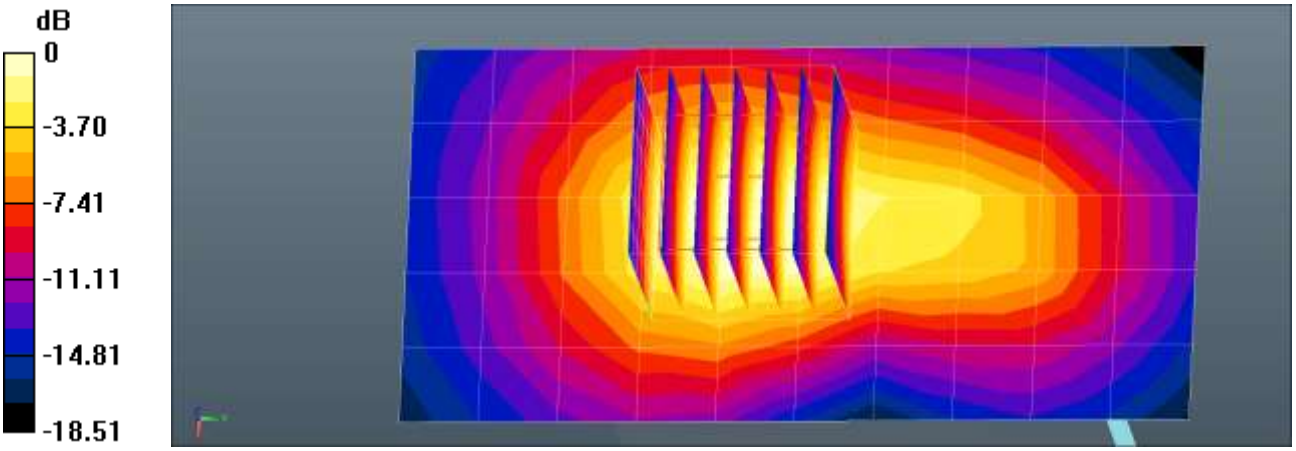
Communication System: UID 0, NR n41 (0); Frequency: 2592.99 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2592.99 MHz; σ = 2.009 S/m; ε_r = 40.274; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2592.99 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 41 Body Bottom DFT-s QPSK 100MHz 1RB 137offset 518598ch/Area Scan (6x11x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.836 W/kg

NR Band 41 Body Bottom DFT-s QPSK 100MHz 1RB 137offset 518598ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.04 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.610 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 0.836 W/kg = −0.78 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.9℃
Test Date: 05/07/2021
Plot No.: 110

DUT: SM-G990U; Type: Bar;

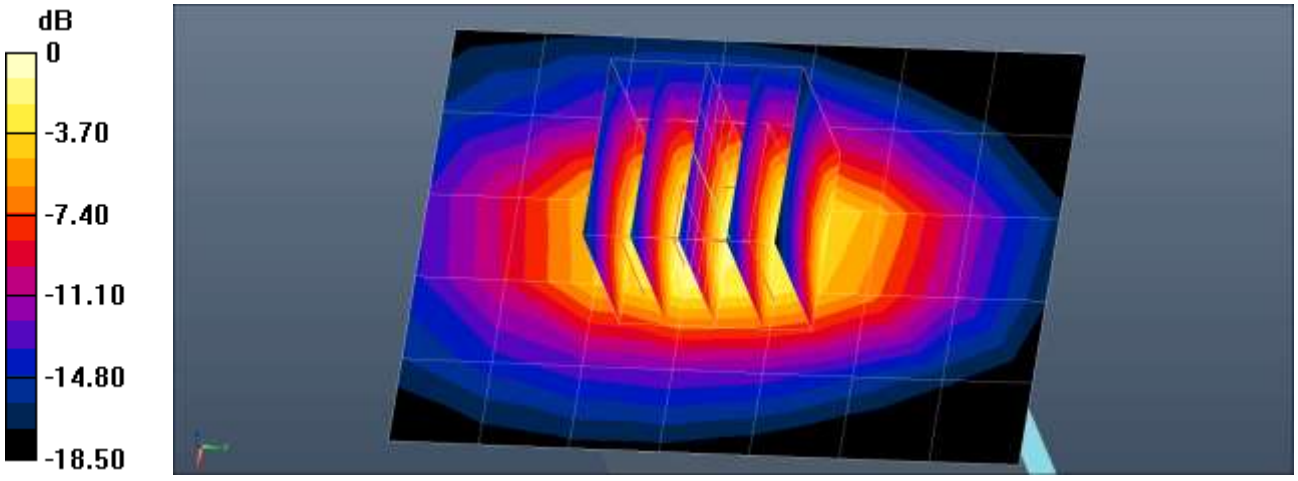
Communication System: UID 0, n66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.397 S/m; ε_r = 41.847; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1745 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n66 Body Bottom DFT-s QPSK 40MHz 108RB 54offset 349000ch/Area Scan (6x8x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.899 W/kg

NR Band n66 Body Bottom DFT-s QPSK 40MHz 108RB 54offset 349000ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.79 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.827 W/kg; SAR(10 g) = 0.436 W/kg
Maximum value of SAR (measured) = 1.24 W/kg



0 dB = 1.24 W/kg = 0.93 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 05/11/2021
Plot No.: 111

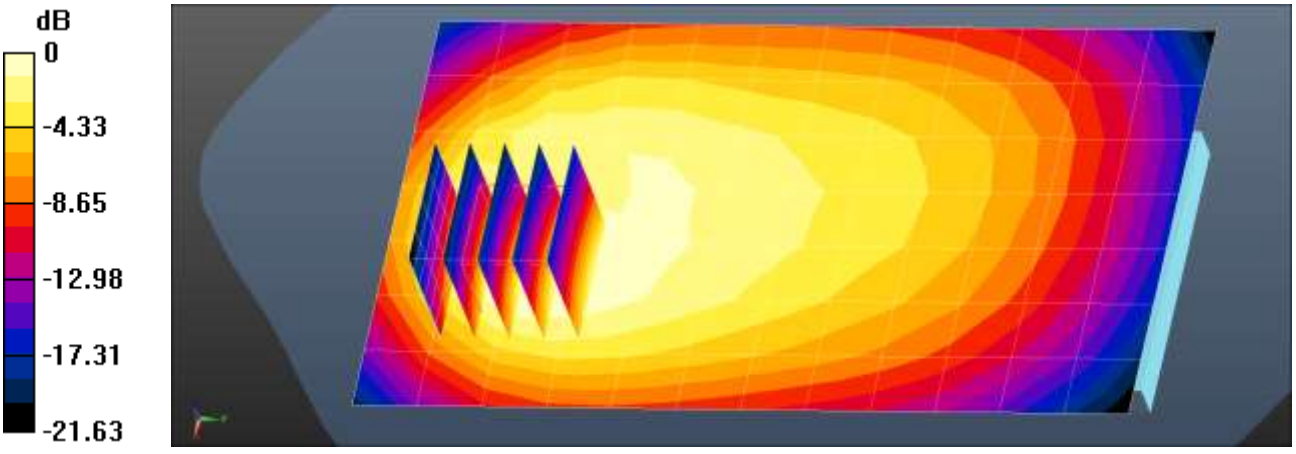
DUT: SM-G990U; Type: Bar;

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.24, 6.24, 6.24) @ 680.5 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: SAM_Right_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n71 Body Rear DFT-s QPSK 20MHz 1RB 1offset 136100ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.305 W/kg

NR Band n71 Body Rear DFT-s QPSK 20MHz 1RB 1offset 136100ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.66 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.588 W/kg
SAR(1 g) = 0.311 W/kg; SAR(10 g) = 0.178 W/kg
Maximum value of SAR (measured) = 0.380 W/kg



0 dB = 0.305 W/kg = −5.15 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.5℃
Ambient Temperature:	22.6℃
Test Date:	04/29/2021
Plot No.:	112

DUT: SM-G990U; Type: Bar;

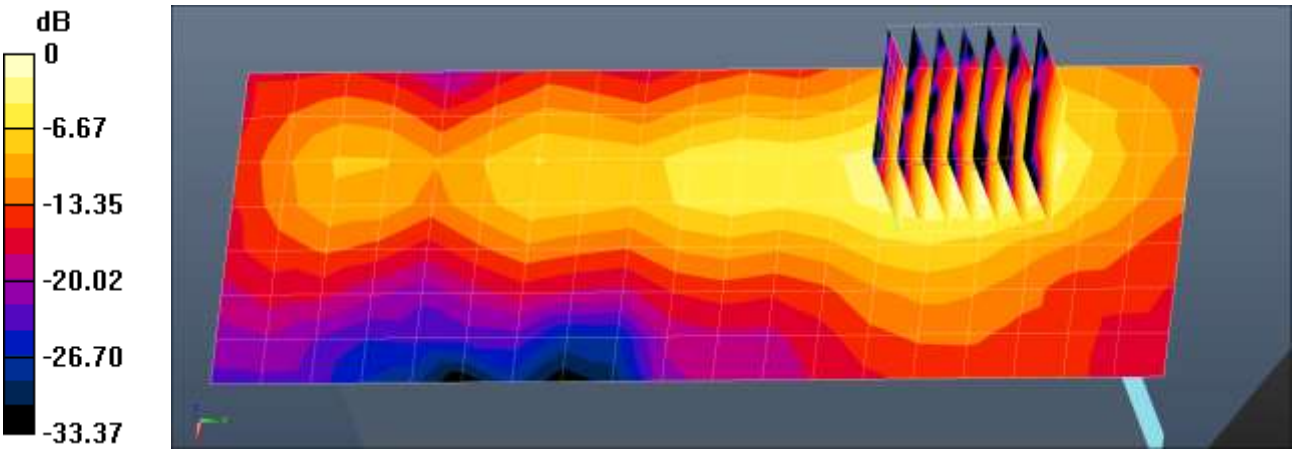
Communication System: UID 0, NR n77 Duty100% (0); Frequency: 3930 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3930 MHz; σ = 3.37 S/m; ε_r = 38.553; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(6.73, 6.73, 6.73) @ 3930 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Body Left DFT's 100MHz QPSK 135RB 69offset 662000ch/Area Scan (8x20x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.124 W/kg

NR Band 77 Body Left DFT's 100MHz QPSK 135RB 69offset 662000ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 4.979 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.860 W/kg
SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.101 W/kg
Maximum value of SAR (measured) = 0.574 W/kg



0 dB = 0.514 W/kg = −2.89 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.3℃
Ambient Temperature: 20.4℃
Test Date: 10/21/2021
Plot No.: 113

DUT: SM-G990U; Type: Bar;

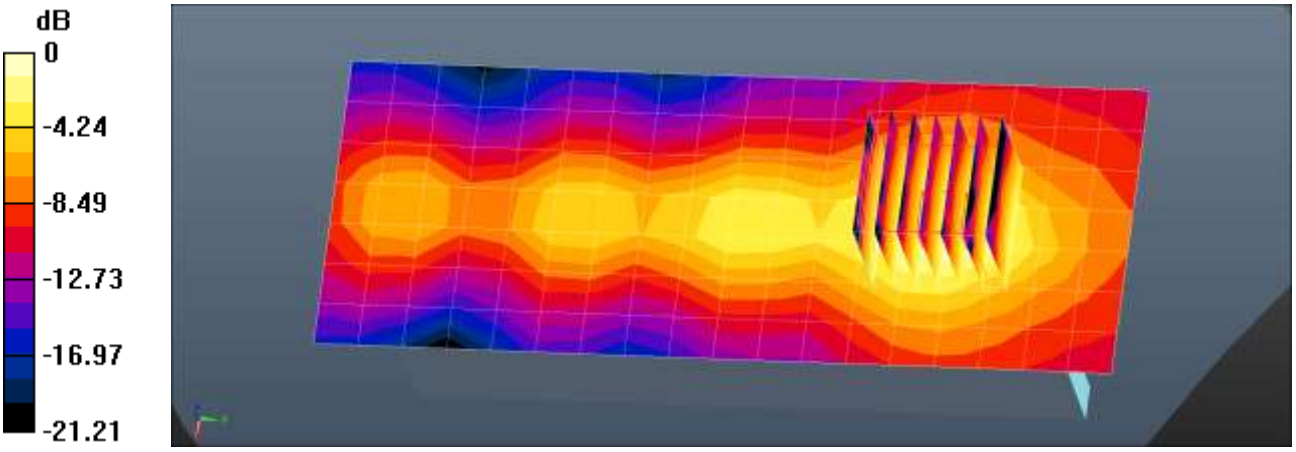
Communication System: UID 0, NR Band 77 (0); Frequency: 3750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3750 MHz; σ = 3.239 S/m; ε_r = 39.073; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3750 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 77 Body Left DFT-s QPSK 100MHz 1RB 137offset 650000ch/Area Scan (8x19x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.613 W/kg

NR Band 77 Body Left DFT-s QPSK 100MHz 1RB 137offset 650000ch/Zoom Scan (7x7x8)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 9.447 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.372 W/kg; SAR(10 g) = 0.155 W/kg
Maximum value of SAR (measured) = 0.724 W/kg



0 dB = 0.655 W/kg = −1.84 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.5℃
Ambient Temperature:	22.5℃
Test Date:	05/13/2021
Plot No.:	114

DUT: SM-G990U; Type: Bar;

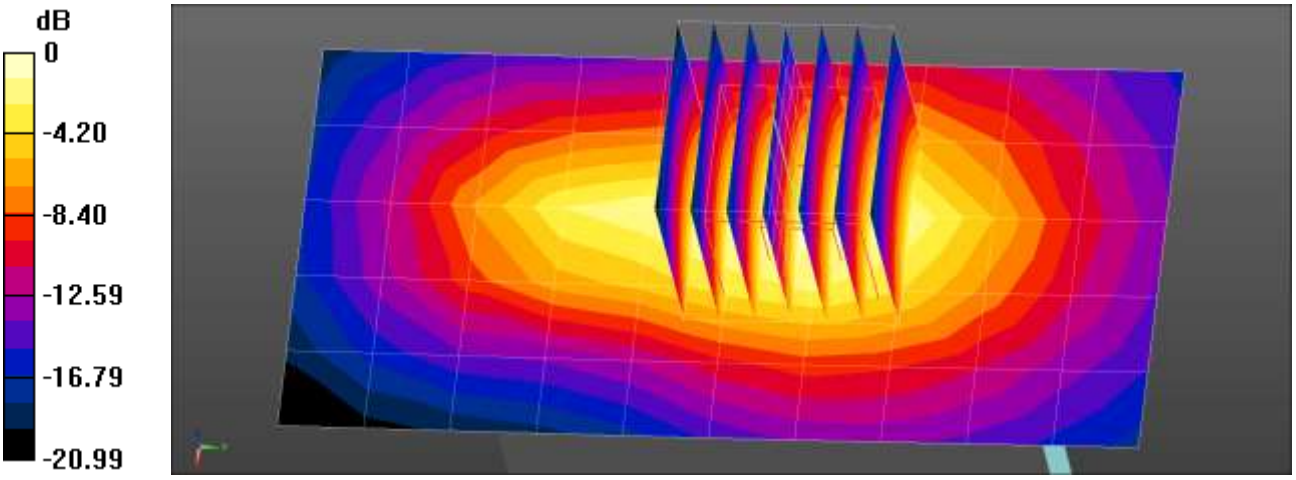
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.829 S/m; ε_r = 40.699; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2437 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11b Body Top 6ch/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.970 W/kg

802.11b Body Top 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.03 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.728 W/kg; SAR(10 g) = 0.360 W/kg
Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3℃
Ambient Temperature:	20.4℃
Test Date:	05/17/2021
Plot No.:	115

DUT: SM-G990U; Type: Bar;

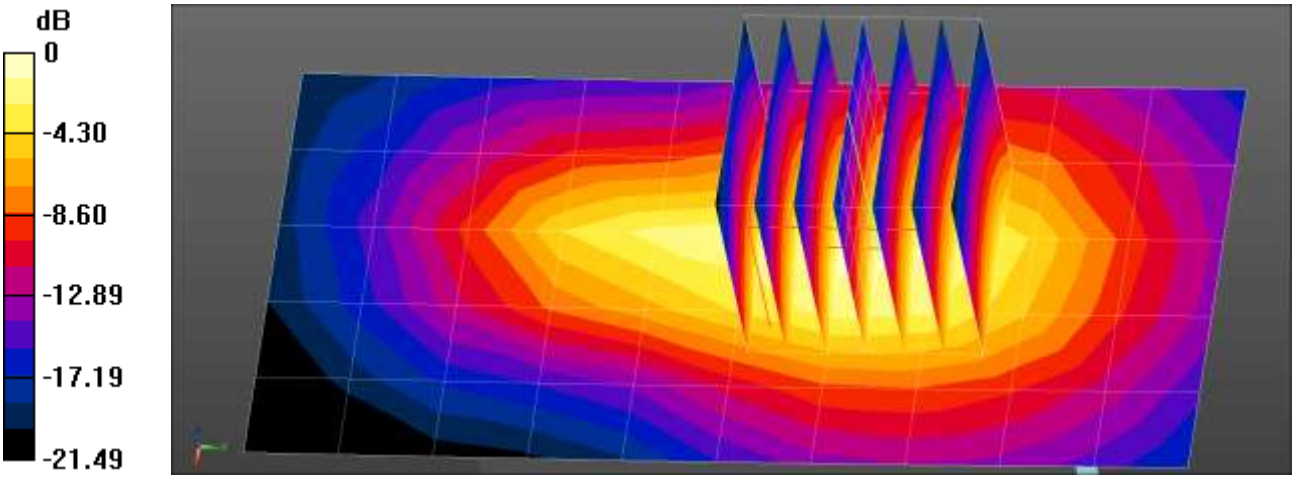
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.825 S/m; ε_r = 40.808; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2437 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

802.11b Body Top 6ch/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.537 W/kg

802.11b Body Top 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.58 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.773 W/kg
SAR(1 g) = 0.380 W/kg; SAR(10 g) = 0.186 W/kg
Maximum value of SAR (measured) = 0.619 W/kg



0 dB = 0.619 W/kg = −2.08 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.3℃
Ambient Temperature: 20.4℃
Test Date: 05/17/2021
Plot No.: 116

DUT: SM-G990U; Type: Bar;

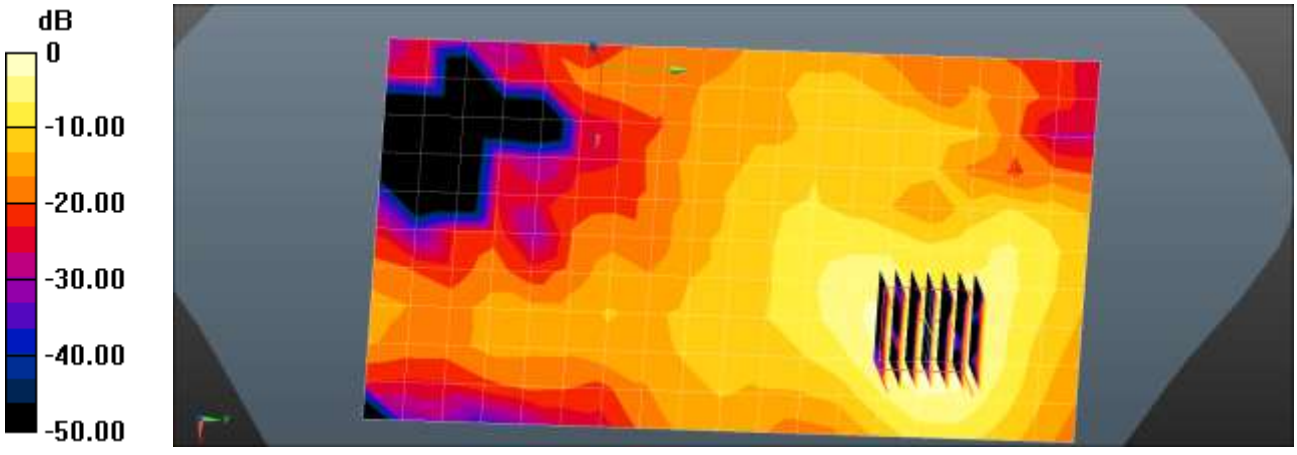
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.051 S/m; ε_r = 35.885; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.04, 5.04, 5.04) @ 5745 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11a Body Rear 6Mbps 149ch/Area Scan (11x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.888 W/kg

802.11a Body Rear 6Mbps 149ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.104 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 0.408 W/kg; SAR(10 g) = 0.147 W/kg
Maximum value of SAR (measured) = 0.969 W/kg



0 dB = 0.969 W/kg = −0.14 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.1℃
Test Date:	05/24/2021
Plot No.:	117

DUT: SM-G990U; Type: Bar;

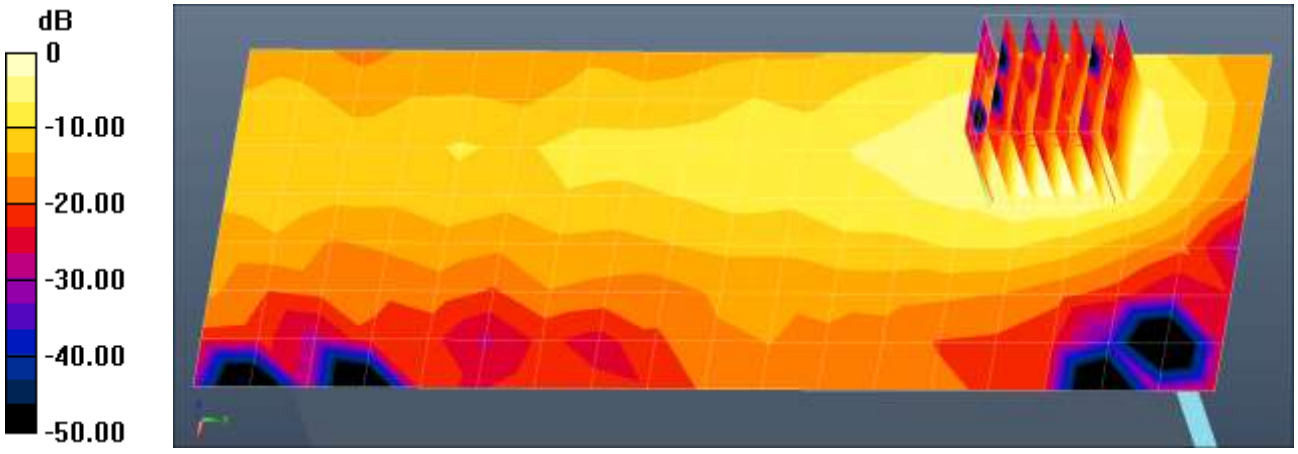
Communication System: UID 0, WiFI5GHz ac80 (0); Frequency: 5775 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5775 MHz; σ = 5.07 S/m; ε_r = 37.047; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(5.53, 5.53, 5.53) :Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11ac80 Body Left MCS0 155ch/Area Scan (8x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.505 W/kg

802.11ac80 Body Left MCS0 155ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.911 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.923 W/kg
SAR(1 g) = 0.215 W/kg; SAR(10 g) = 0.076 W/kg
Maximum value of SAR (measured) = 0.514 W/kg



0 dB = 0.505 W/kg = −2.96 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.1℃
Ambient Temperature:	20.1℃
Test Date:	05/25/2021
Plot No.:	118

DUT: SM-G990U; Type: Bar;

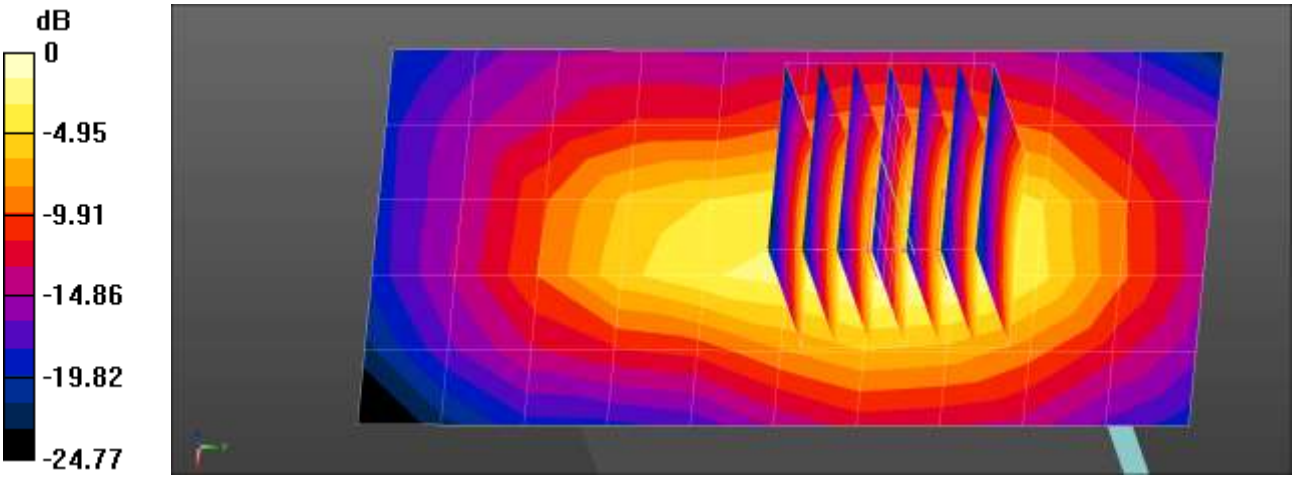
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.881 S/m; ε_r = 37.634; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2480 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Bluetooth Body Top 78ch/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.192 W/kg

Bluetooth Body Top 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.947 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.296 W/kg
SAR(1 g) = 0.137 W/kg; SAR(10 g) = 0.064 W/kg
Maximum value of SAR (measured) = 0.232 W/kg



0 dB = 0.232 W/kg = −6.35 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.6℃
Ambient Temperature: 20.6℃
Test Date: 04/27/2021
Plot No.: 119

DUT: SM-G990U; Type: Bar;

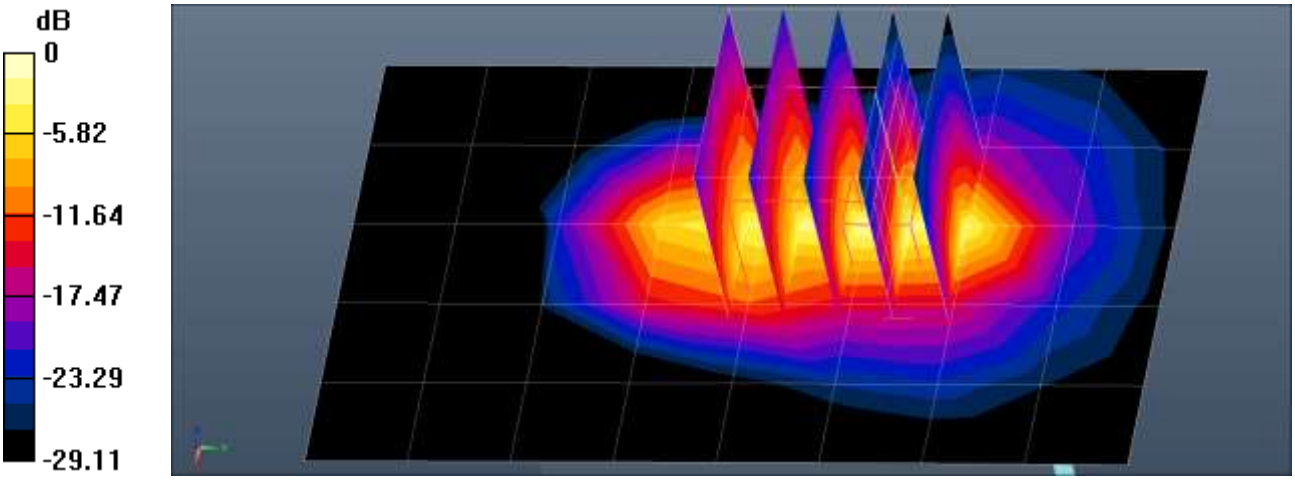
Communication System: UID 0, CDMA BC1 (0); Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.457 S/m; ε_r = 40.366; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1908.75 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

CDMA BC1 Body Bottom EVDO Rev0 1175ch/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 6.40 W/kg

CDMA BC1 Body Bottom EVDO Rev0 1175ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.51 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 13.1 W/kg
SAR(1 g) = 3.68 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



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

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.6℃
Ambient Temperature: 20.7℃
Test Date: 04/21/2021
Plot No.: 120

DUT: SM-G990U; Type: Bar;

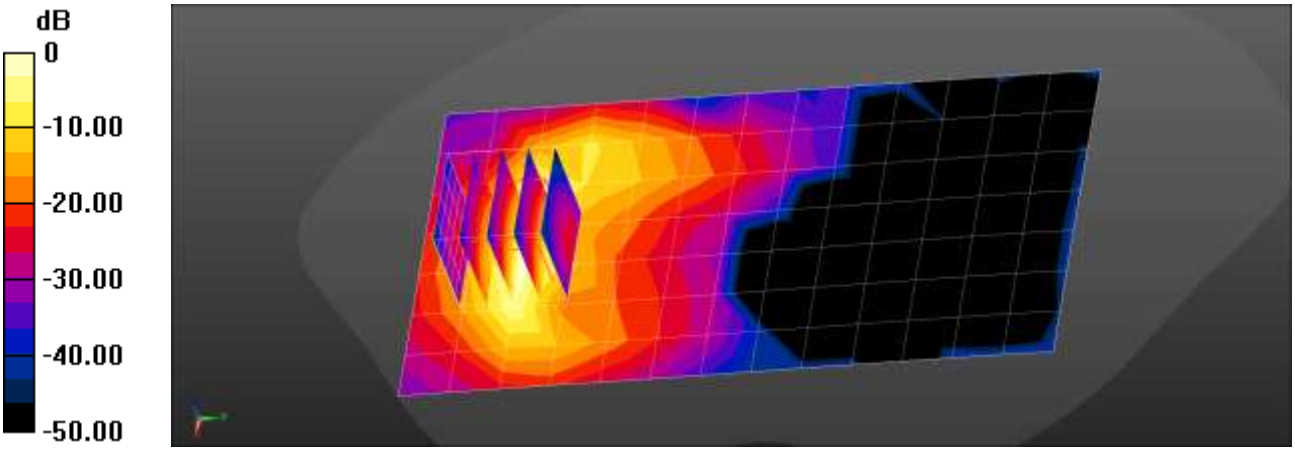
Communication System: UID 0, GSM 1900 2Tx (0); Frequency: 1880 MHz;Duty Cycle: 1:4.14954
Medium parameters used: f = 1880 MHz; σ = 1.313 S/m; ε_r = 41.544; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1880 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

GSM1900 Body Front 2Tx 661ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.13 W/kg

GSM1900 Body Front 2Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 4.14 W/kg
SAR(1 g) = 1.88 W/kg; SAR(10 g) = 0.821 W/kg
Maximum value of SAR (measured) = 3.25 W/kg



0 dB = 3.13 W/kg = 4.96 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6℃
Ambient Temperature:	21.7℃
Test Date:	05/03/2021
Plot No.:	121

DUT: SM-G990U; Type: Bar;

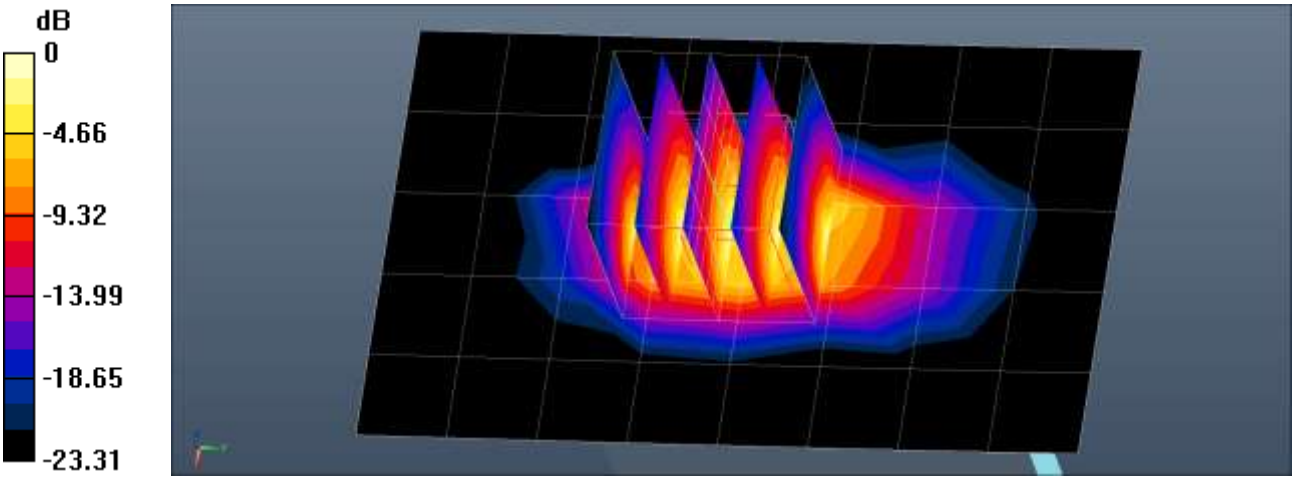
Communication System: UID 0, UMTS IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.361 S/m; ε_r = 42.08; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1732.4 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 4 Bottom 1412ch/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.96 W/kg

UMTS Band 4 Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 69.21 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 8.21 W/kg
SAR(1 g) = 3.54 W/kg; SAR(10 g) = 1.56 W/kg
Maximum value of SAR (measured) = 6.46 W/kg



0 dB = 6.46 W/kg = 8.10 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.0℃
Ambient Temperature: 21.1℃
Test Date: 05/24/2021
Plot No.: 122

DUT: SM-G990U; Type: Bar;

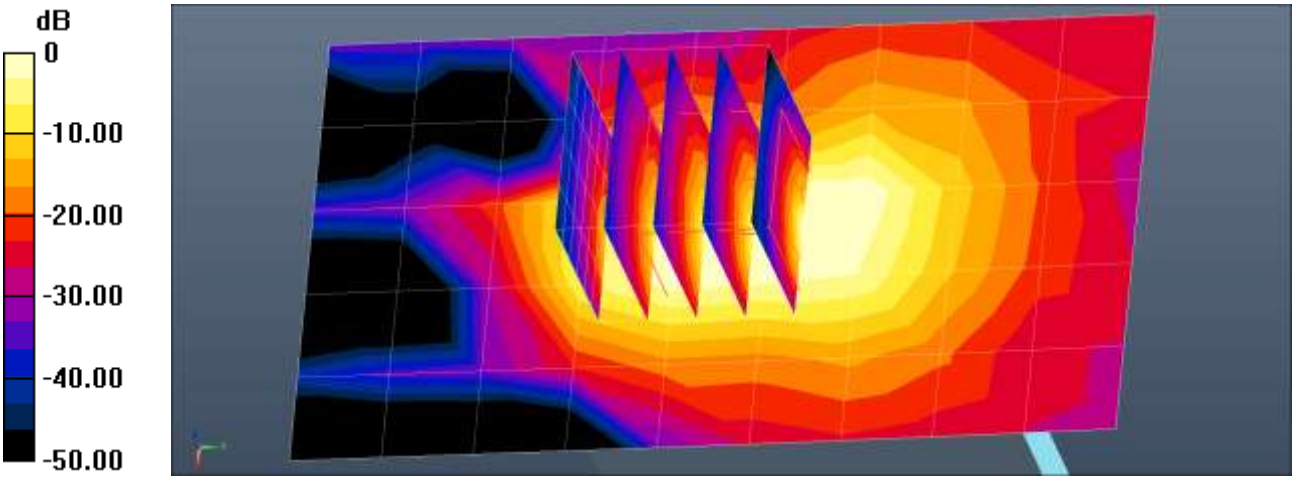
Communication System: UID 0, UMTS1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.417 S/m; ε_r = 41.49; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1880 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

UMTS Band 2 Bottom 9400ch/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.65 W/kg

UMTS Band 2 Bottom 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 65.24 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 3.56 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 9.22 W/kg



0 dB = 2.65 W/kg = 4.24 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.1℃
Ambient Temperature: 21.1℃
Test Date: 04/23/2021
Plot No.: 123

DUT: SM-G990U; Type: Bar;

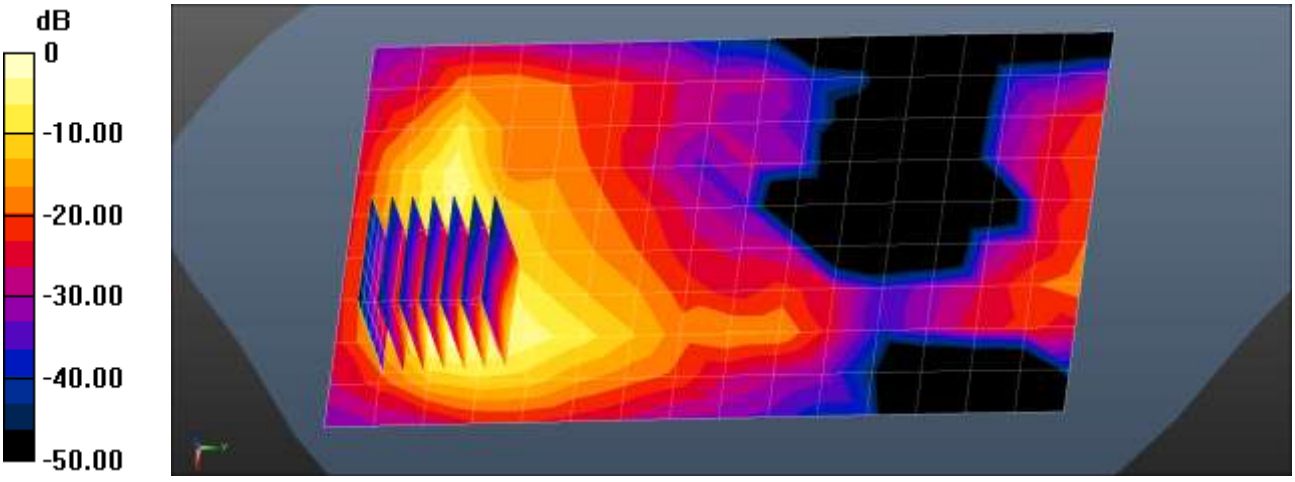
Communication System: UID 0, LTE Band 7 (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 2.01 S/m; ε_r = 40.029; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2560 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 7 Body Rear QPSK 20MHz 1RB 0offset 21350ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 6.79 W/kg

LTE Band 7 Body Rear QPSK 20MHz 1RB 0offset 21350ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.663 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 13.8 W/kg
SAR(1 g) = 4.42 W/kg; SAR(10 g) = 1.62 W/kg
Maximum value of SAR (measured) = 9.85 W/kg



0 dB = 6.79 W/kg = 8.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.1℃
Ambient Temperature:	21.1℃
Test Date:	04/23/2021
Plot No.:	124

DUT: SM-G990U; Type: Bar;

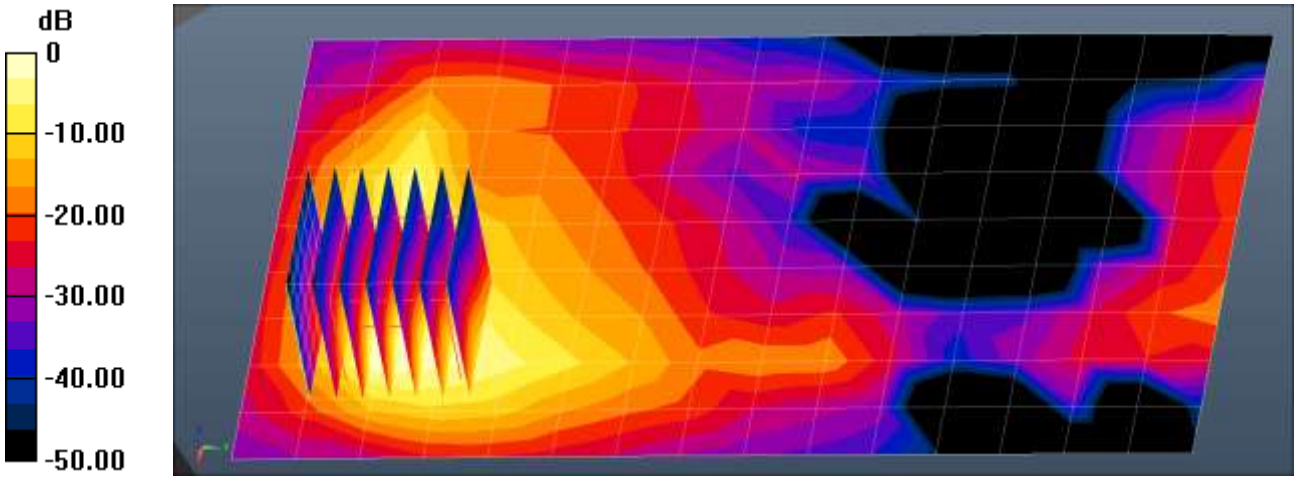
Communication System: UID 0, LTE Band 7 (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2535 MHz; σ = 1.969 S/m; ε_r = 40.138; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2535 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 7 Body Rear QPSK 20MHz 50RB 25offset 21100ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 7.17 W/kg

LTE Band 7 Body Rear QPSK 20MHz 50RB 25offset 21100ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.127 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 13.8 W/kg
SAR(1 g) = 4.43 W/kg; SAR(10 g) = 1.64 W/kg
Maximum value of SAR (measured) = 9.71 W/kg



0 dB = 7.17 W/kg = 8.56 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9℃
Ambient Temperature:	20.9℃
Test Date:	05/14/2021
Plot No.:	125

DUT: SM-G990U; Type: Bar;

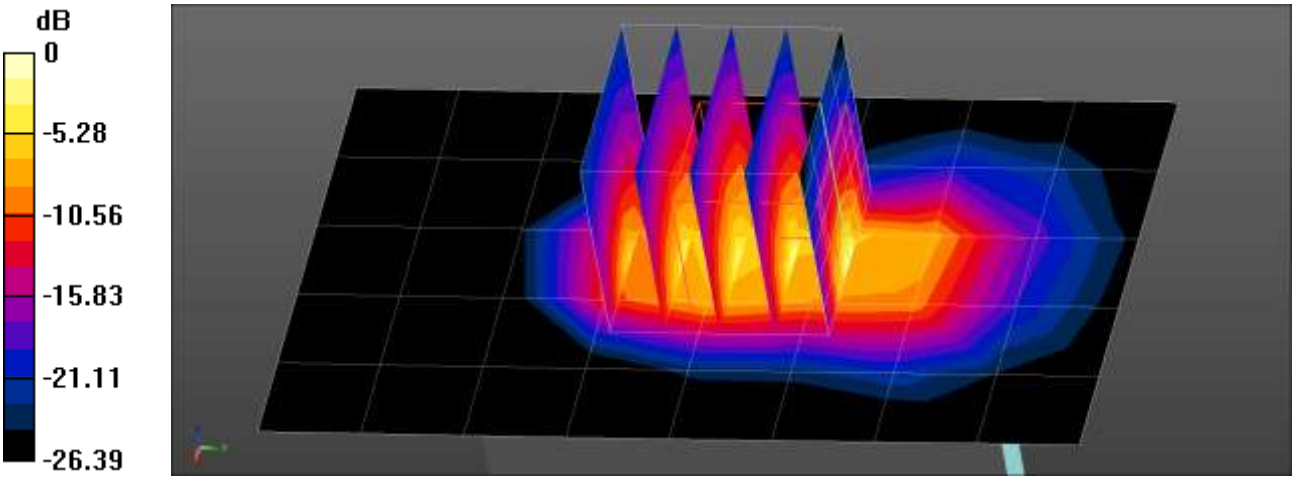
Communication System: UID 0, LTE Band25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.424 S/m; ε_r = 41.489; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1882.5 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 25 Body Bottom QPSK 20MHz 1RB 99offset 26365ch/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.61 W/kg

LTE Band 25 Body Bottom QPSK 20MHz 1RB 99offset 26365ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 65.59 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 3.48 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 9.35 W/kg



0 dB = 9.35 W/kg = 9.71 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.7℃
Ambient Temperature:	21.7℃
Test Date:	05/04/2021
Plot No.:	126

DUT: SM-G990U; Type: Bar;

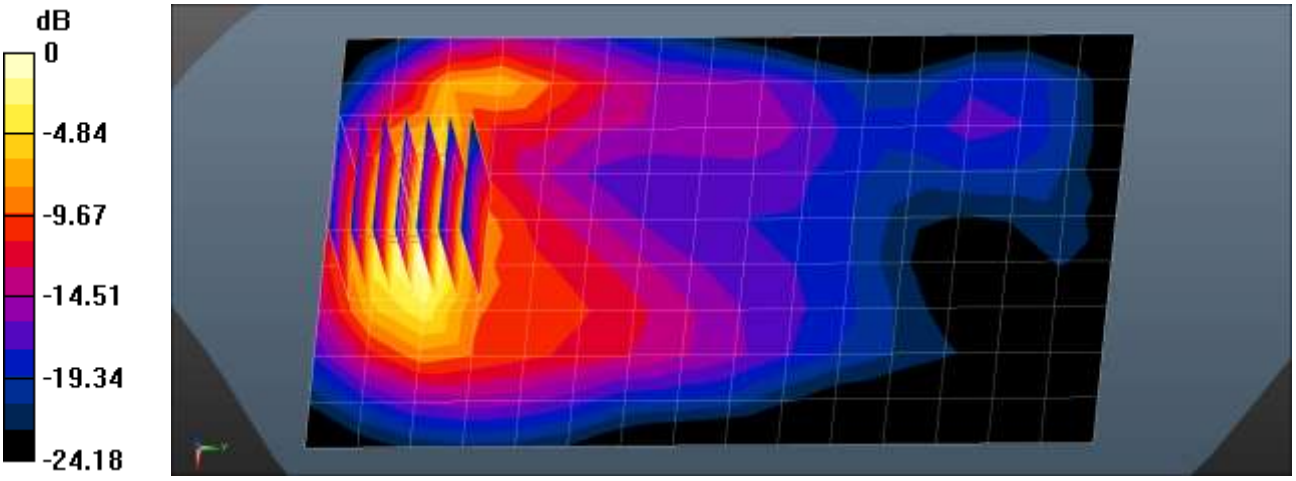
Communication System: UID 0, LTE Band 30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.722 S/m; ε_r = 40.628; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2310 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 30 Body Front QPSK 10MHz 1RB 24offset 27710ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.39 W/kg

LTE Band 30 Body Front QPSK 10MHz 1RB 24offset 27710ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.450 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 6.50 W/kg
SAR(1 g) = 2.93 W/kg; SAR(10 g) = 1.33 W/kg
Maximum value of SAR (measured) = 5.14 W/kg



0 dB = 5.14 W/kg = 7.11 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 20.5℃
Ambient Temperature: 20.6℃
Test Date: 04/28/2021
Plot No.: 127

DUT: SM-G990U; Type: Bar;

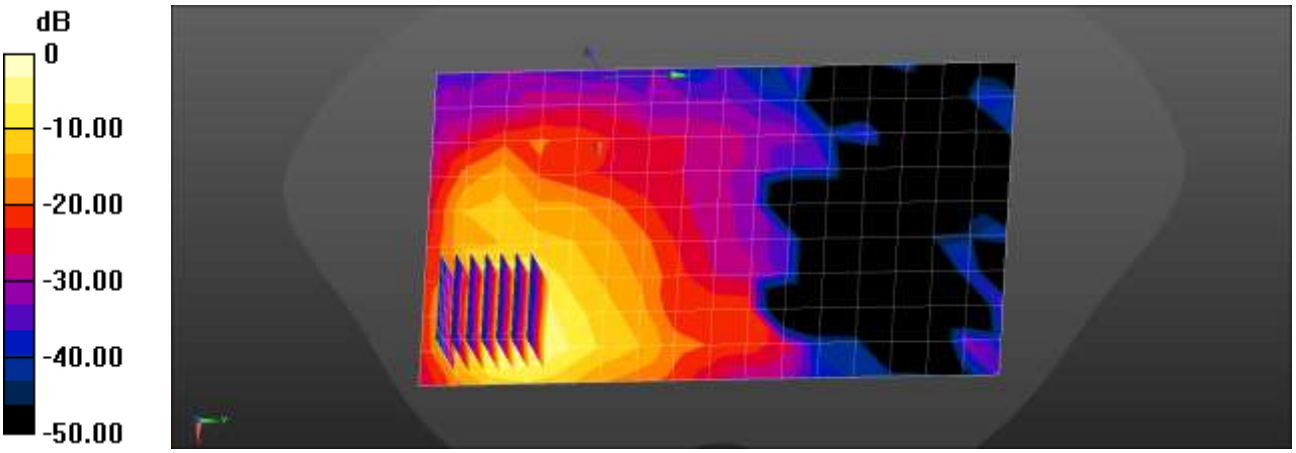
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2593 MHz; σ = 1.948 S/m; ε_r = 39.929; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2593 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

PCC: 2593 MHz, 40620 ch / SCC: 2612.8 MHz, 40818 Ch

LTE Band 41 Body Rear QPSK 20MHz 1RB 99offset 40620ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.32 W/kg
LTE Band 41 Body Rear QPSK 20MHz 1RB 99offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.812 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 11.8 W/kg
SAR(1 g) = 3.41 W/kg; SAR(10 g) = 1.3 W/kg
Maximum value of SAR (measured) = 4.89 W/kg



0 dB = 4.32 W/kg = 6.36 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.0℃
Ambient Temperature:	20.0℃
Test Date:	05/24/2021
Plot No.:	128

DUT: SM-G990U; Type: Bar;

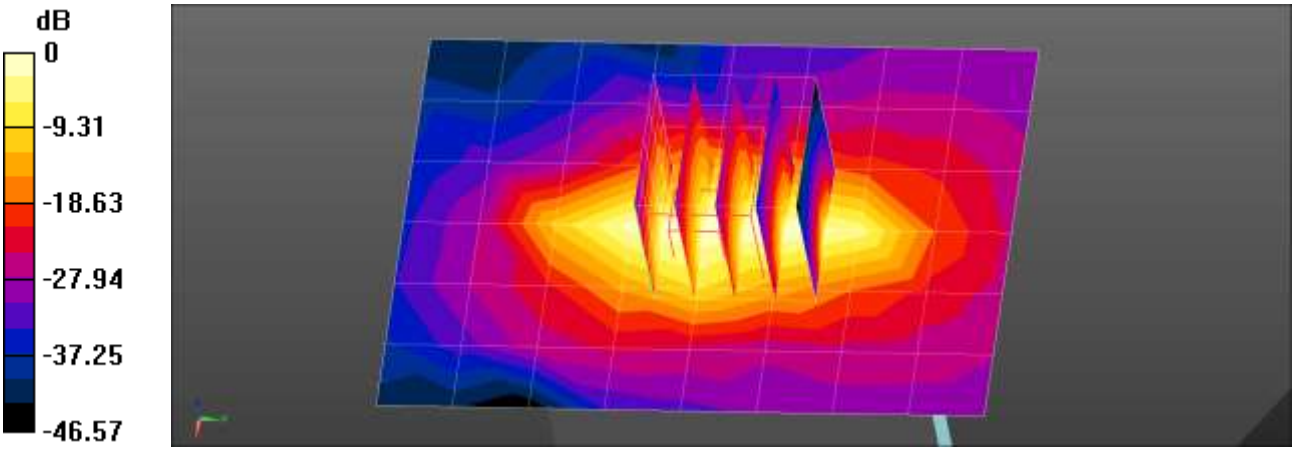
Communication System: UID 0, LTE Band66 (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.395 S/m; ε_r = 41.433; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1720 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

LTE Band 66 Body Bottom QPSK 20MHz 1RB 99offset 132072ch/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 7.00 W/kg

LTE Band 66 Body Bottom QPSK 20MHz 1RB 99offset 132072ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 73.20 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 10.8 W/kg
SAR(1 g) = 4.14 W/kg; SAR(10 g) = 1.8 W/kg
Maximum value of SAR (measured) = 8.08 W/kg



0 dB = 7.00 W/kg = 8.45 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.1℃
Test Date: 05/26/2021
Plot No.: 129

DUT: SM-G990U; Type: Bar;

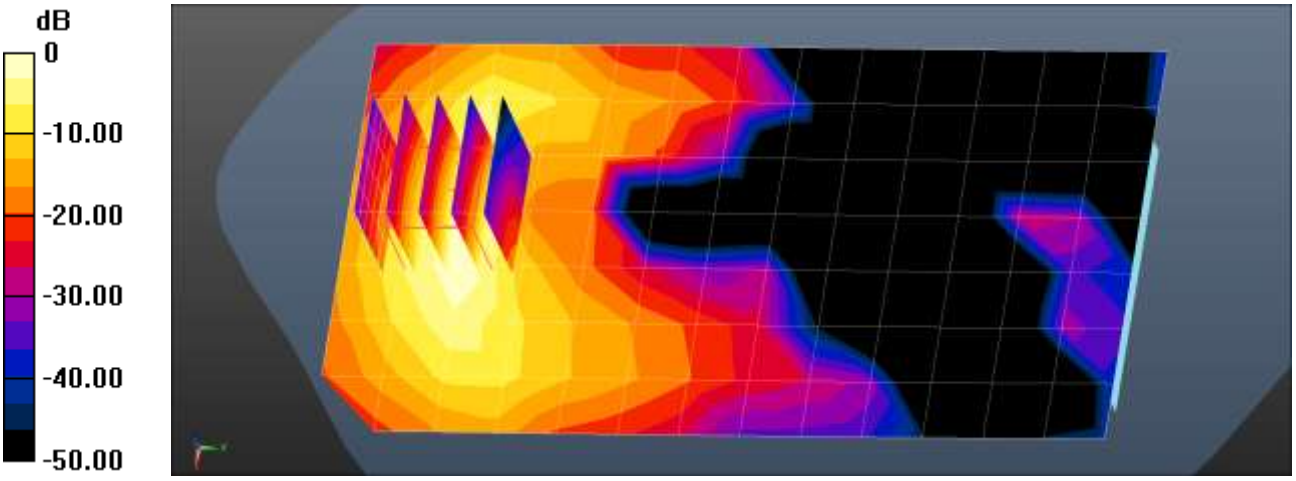
Communication System: UID 0, n25 (0); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.422 S/m; ε_r = 41.498; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1882.5 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n25 Body Front DFT-s QPSK 40MHz 1RB 108offset 376500ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.86 W/kg

NR Band n25 Body Front DFT-s QPSK 40MHz 1RB 108offset 376500ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 1.81 W/kg; SAR(10 g) = 0.859 W/kg
Maximum value of SAR (measured) = 2.72 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.4℃
Ambient Temperature:	22.4℃
Test Date:	05/24/2021
Plot No.:	130

DUT: SM-G990U; Type: Bar;

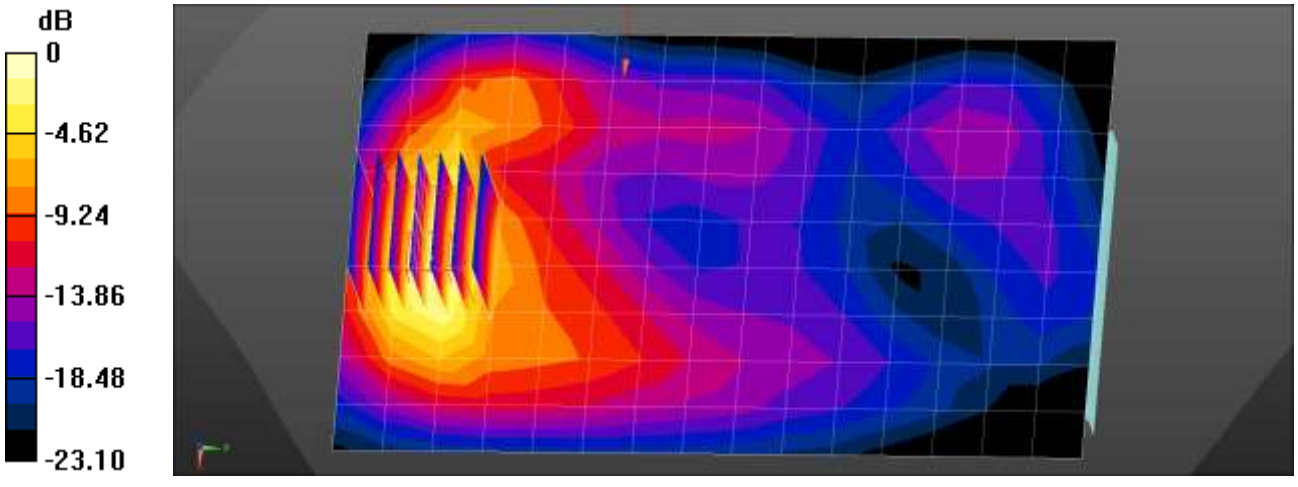
Communication System: UID 0, n30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.673 S/m; ε_r = 40.686; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2310 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 30 Body Front DFT-s QPSK 10MHz 1RB 26offset 462000ch/Area Scan (10x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.80 W/kg

NR Band 30 Body Front DFT-s QPSK 10MHz 1RB 26offset 462000ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.403 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 4.76 W/kg
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.06 W/kg
Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.01 W/kg = 4.79 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.4℃
Ambient Temperature:	22.4℃
Test Date:	05/24/2021
Plot No.:	131

DUT: SM-G990U; Type: Bar;

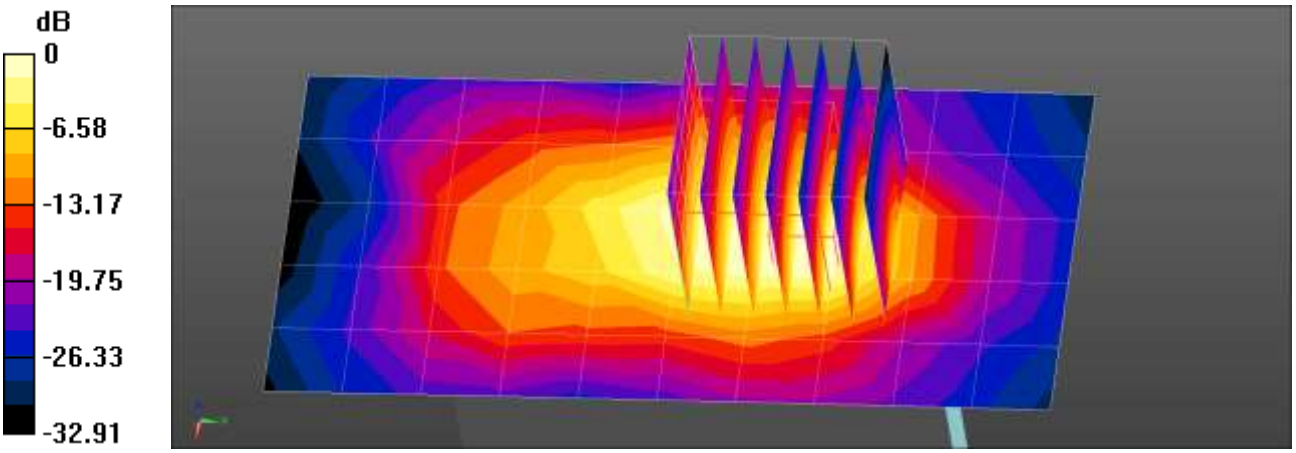
Communication System: UID 0, n30 (0); Frequency: 2310 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.673 S/m; ε_r = 40.686; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2310 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band 30 Body Bottom DFT-s QPSK 10MHz 1RB 26offset 462000ch/Area Scan (6x11x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.62 W/kg

NR Band 30 Body Bottom DFT-s QPSK 10MHz 1RB 26offset 462000ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 40.99 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 2.99 W/kg; SAR(10 g) = 1.14 W/kg
Maximum value of SAR (measured) = 4.78 W/kg



0 dB = 2.62 W/kg = 4.18 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.8℃
Ambient Temperature:	21.8℃
Test Date:	05/10/2021
Plot No.:	132

DUT: SM-G990U; Type: Bar;

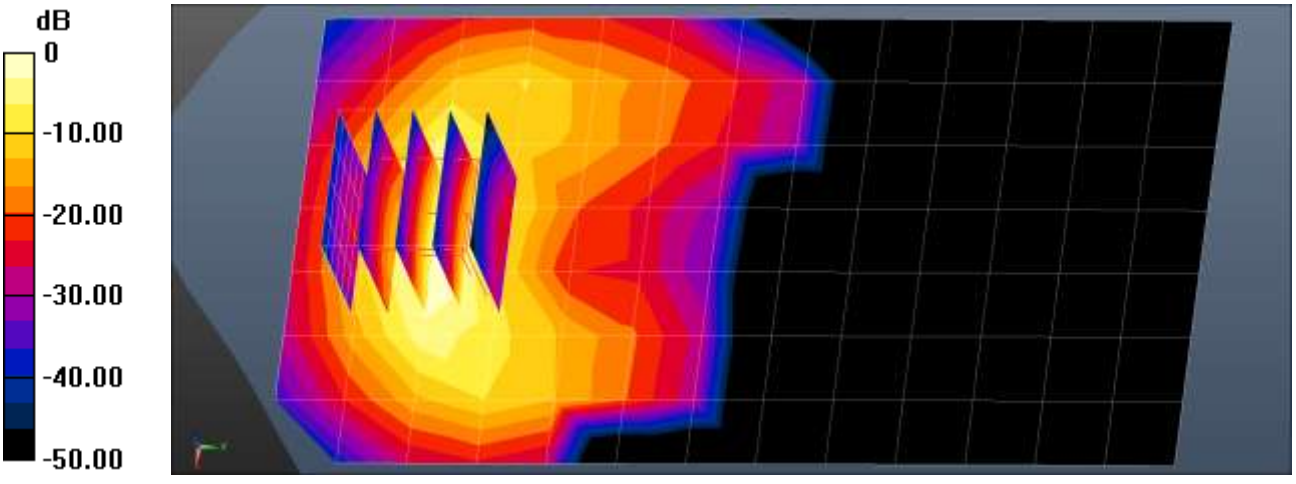
Communication System: UID 0, n66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.36 S/m; ε_r = 41.385; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1745 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n66 Body Front DFT-s QPSK 40MHz 108RB 54offset 349000ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 18.8 W/kg

NR Band n66 Body Front DFT-s QPSK 40MHz 108RB 54offset 349000ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 7.29 W/kg
SAR(1 g) = 2.64 W/kg; SAR(10 g) = 1.1 W/kg
Maximum value of SAR (measured) = 4.38 W/kg



0 dB = 2.81 W/kg = 4.49 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 21.8℃
Ambient Temperature: 21.8℃
Test Date: 05/10/2021
Plot No.: 133

DUT: SM-G990U; Type: Bar;

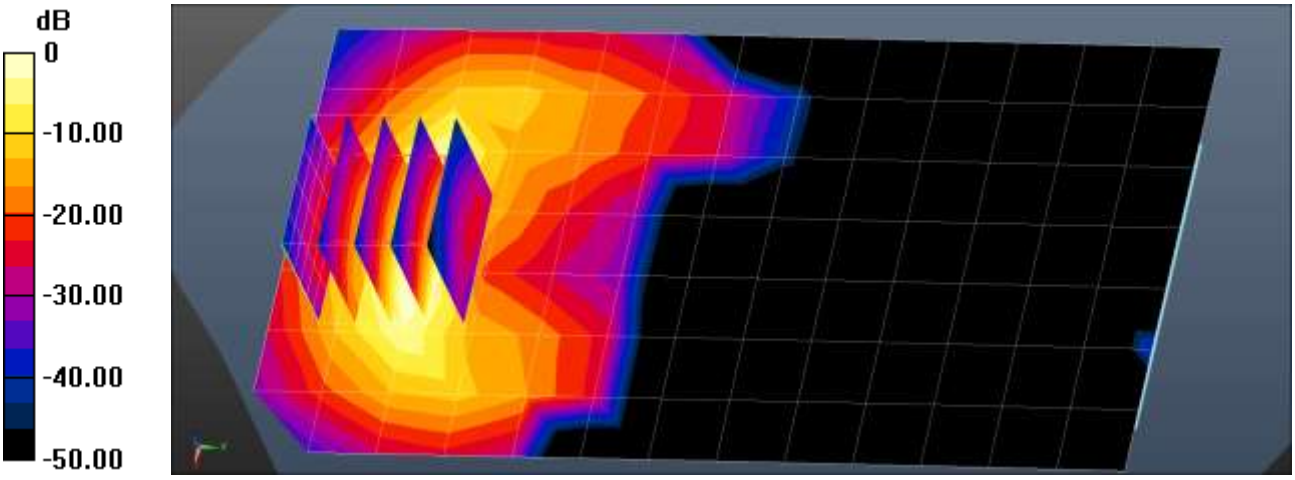
Communication System: UID 0, n66 (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.36 S/m; ε_r = 41.385; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1745 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left_
- Measurement SW: DASY52, Version 52.10 (4)

NR Band n66 Body Front CP QPSK 40MHz 1RB 1offset 349000ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.79 W/kg

NR Band n66 Body Front CP QPSK 40MHz 1RB 1offset 349000ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 6.82 W/kg
SAR(1 g) = 2.53 W/kg; SAR(10 g) = 1.09 W/kg
Maximum value of SAR (measured) = 3.70 W/kg



0 dB = 4.13 W/kg = 6.16 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 19.8℃
Ambient Temperature: 19.8℃
Test Date: 05/14/2021
Plot No.: 134

DUT: SM-G990U; Type: Bar;

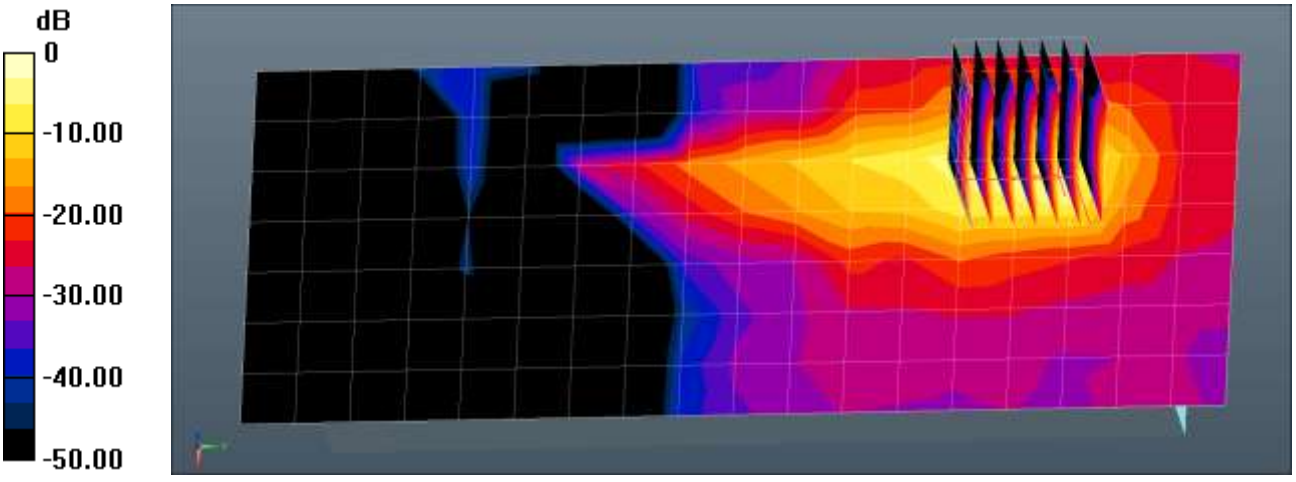
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5720 MHz; σ = 5.16 S/m; ε_r = 35.631; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.04, 5.04, 5.04) @ 5720 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11a Body Left 6Mbps 144ch/Area Scan (8x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 15.7 W/kg

802.11a Body Left 6Mbps 144ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.372 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 82.8 W/kg
SAR(1 g) = 9.51 W/kg; SAR(10 g) = 1.93 W/kg
Maximum value of SAR (measured) = 31.3 W/kg



0 dB = 15.7 W/kg = 11.95 dBW/kg

Test Laboratory: HCT CO., LTD
EUT Type: Mobile Phone
Liquid Temperature: 22.0℃
Ambient Temperature: 22.0℃
Test Date: 05/20/2021
Plot No.: 135

DUT: SM-G990U; Type: Bar;

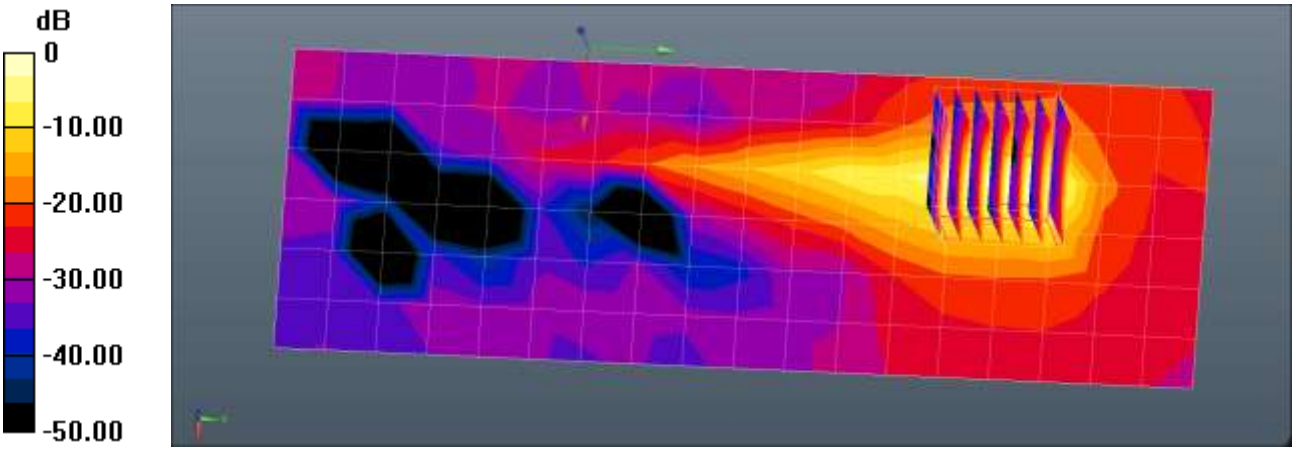
Communication System: UID 0, WiFI5GHz ac80 (0); Frequency: 5290 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5290 MHz; σ = 4.684 S/m; ε_r = 36.453; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(5.53, 5.53, 5.53) @ 5290 MHz; Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

802.11ac80 Body Left MCS0 58ch/Area Scan (7x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.56 W/kg

802.11ac80 Body Left MCS0 58ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.394 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 2.45 W/kg; SAR(10 g) = 0.513 W/kg
Maximum value of SAR (measured) = 8.10 W/kg



0 dB = 5.56 W/kg = 7.45 dBW/kg

Appendix C. – Dipole Verification Plots

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.0 ℃
Test Date: 04/19/2021
DUT: Dipole 750 MHz D750V3; Type: D750V3;

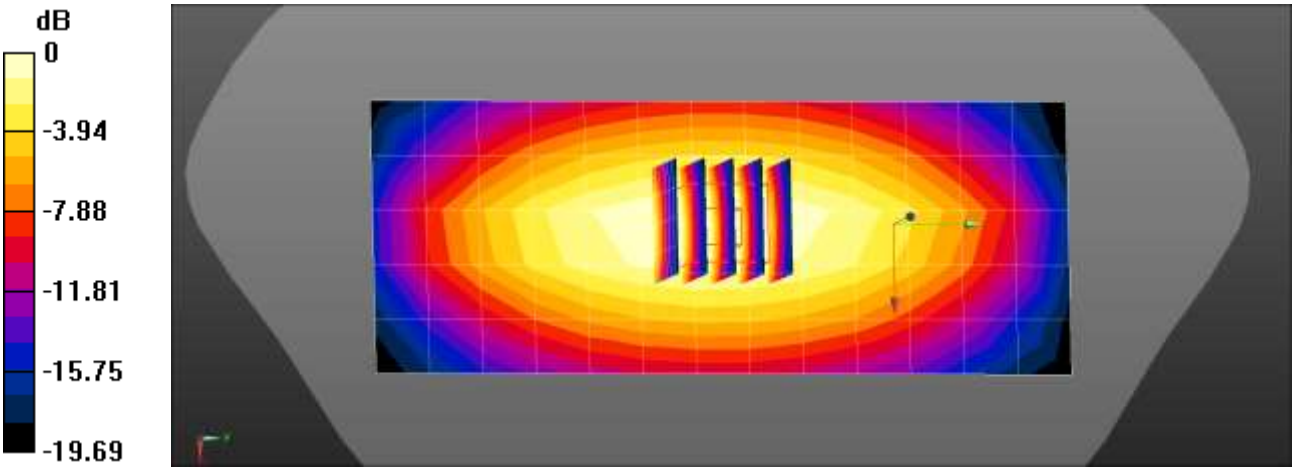
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.931 S/m; ε_r = 43.548; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

750MHz Head Verification/Area Scan (6x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.486 W/kg

750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.05 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.589 W/kg
SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.535 W/kg



0 dB = 0.486 W/kg = −3.13 dBW/kg

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.7 ℃
Test Date: 04/23/2021
DUT: Dipole 750 MHz D750V3; Type: D750V3;

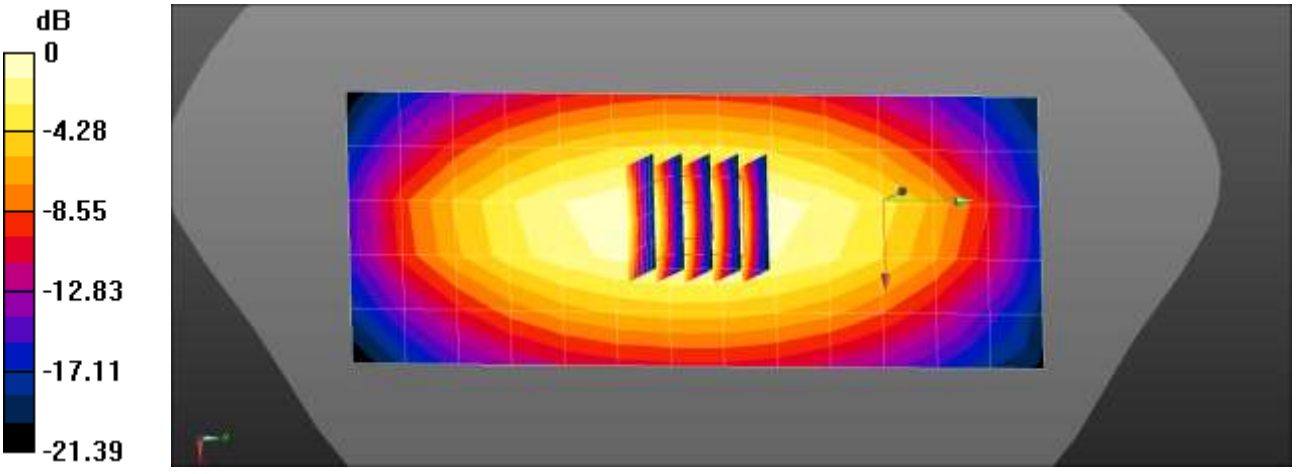
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.918 S/m; ε_r = 43.786; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

750MHz Head Verification/Area Scan (6x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.490 W/kg

750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.78 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.600 W/kg
SAR(1 g) = 0.419 W/kg; SAR(10 g) = 0.281 W/kg
Maximum value of SAR (measured) = 0.546 W/kg



0 dB = 0.490 W/kg = −3.10 dBW/kg

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 23.4 ℃
Test Date: 04/20/2021
DUT: Dipole 750 MHz D750V3; Type: D750V3;

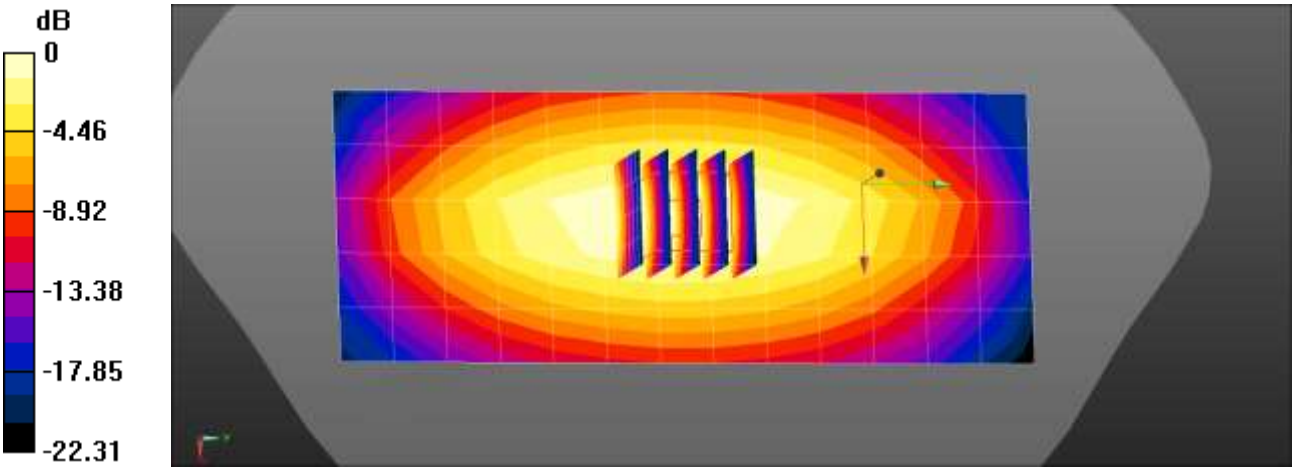
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.924 S/m; ε_r = 43.94; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

750MHz Head Verification/Area Scan (6x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.493 W/kg

750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.83 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.602 W/kg
SAR(1 g) = 0.420 W/kg; SAR(10 g) = 0.281 W/kg
Maximum value of SAR (measured) = 0.549 W/kg



0 dB = 0.493 W/kg = −3.07 dBW/kg

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.4℃
Test Date: 04/21/2021
DUT: Dipole 750 MHz D750V3; Type: D750V3;

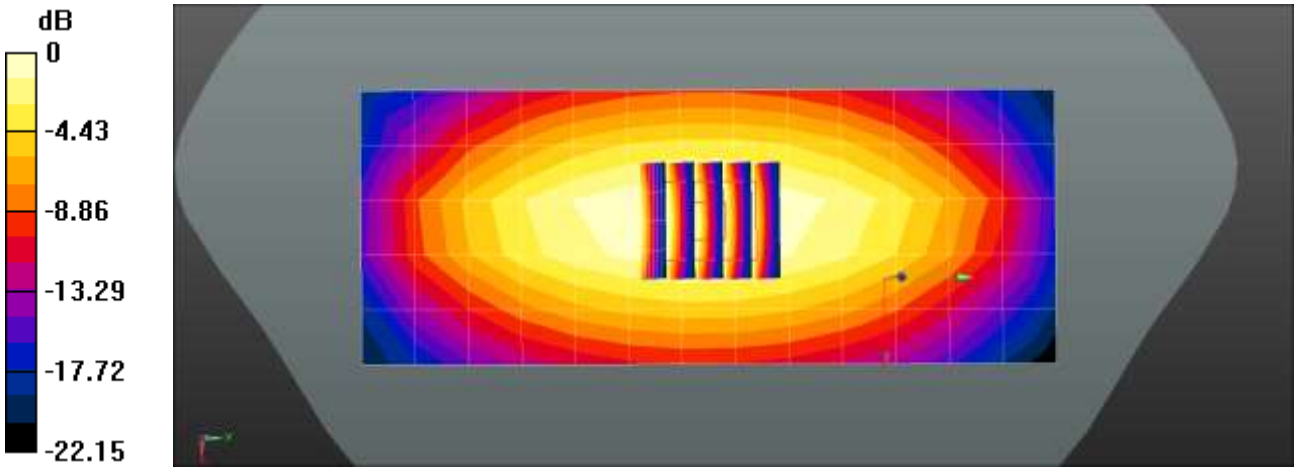
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.912 S/m; ε_r = 43.276; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.95, 9.95, 9.95) @ 750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

750MHz Head Verification/Area Scan (6x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.487 W/kg

750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.74 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.596 W/kg
SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.541 W/kg



0 dB = 0.487 W/kg = −3.12 dBW/kg

■ Verification Data (835 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.0 ℃
Test Date: 04/28/2021

DUT: Dipole 835 MHz D835V2; Type: D835V2;

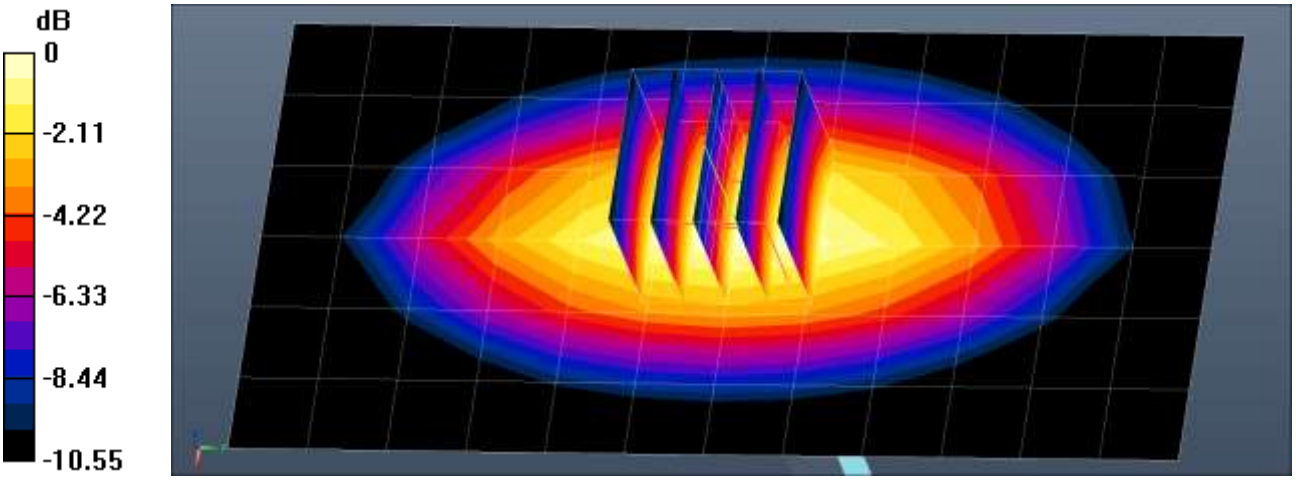
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.914 S/m; ε_r = 42.019; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 835 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/835MHz Head Verification/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.621 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.80 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.712 W/kg
SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.318 W/kg
Maximum value of SAR (measured) = 0.639 W/kg



0 dB = 0.639 W/kg = −1.94 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 04/27/2021

DUT: Dipole 835 MHz D835V2; Type: D835V2;

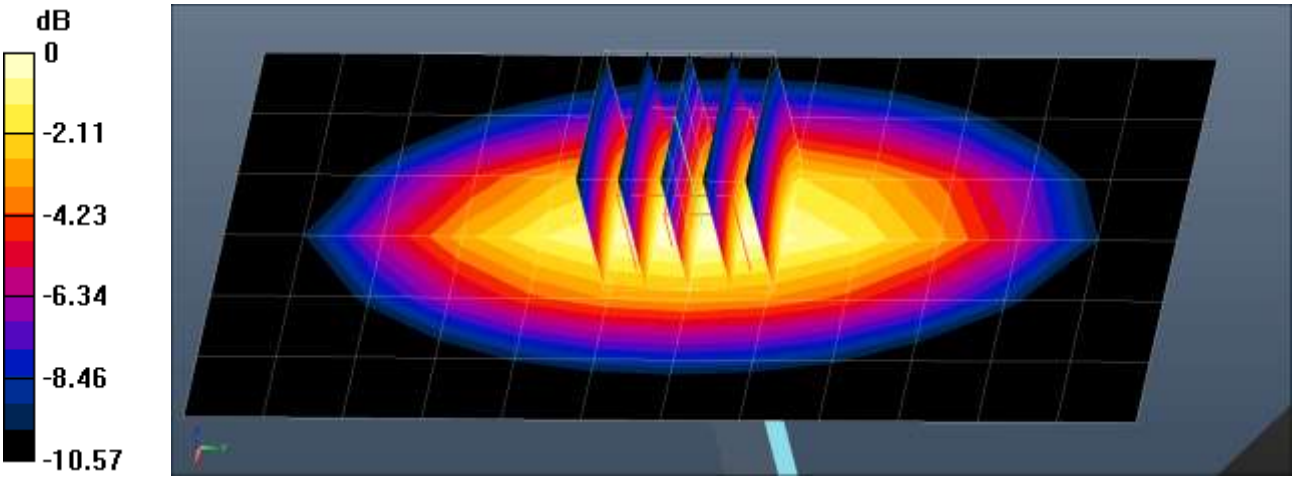
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.915 S/m; ε_r = 41.999; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 835 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/835MHz Head Verification/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.624 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.80 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.713 W/kg
SAR(1 g) = 0.481 W/kg; SAR(10 g) = 0.318 W/kg
Maximum value of SAR (measured) = 0.639 W/kg



0 dB = 0.639 W/kg = −1.94 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.9 ℃
Test Date: 04/22/2021
DUT: Dipole 835 MHz D835V2; Type: D835V2;

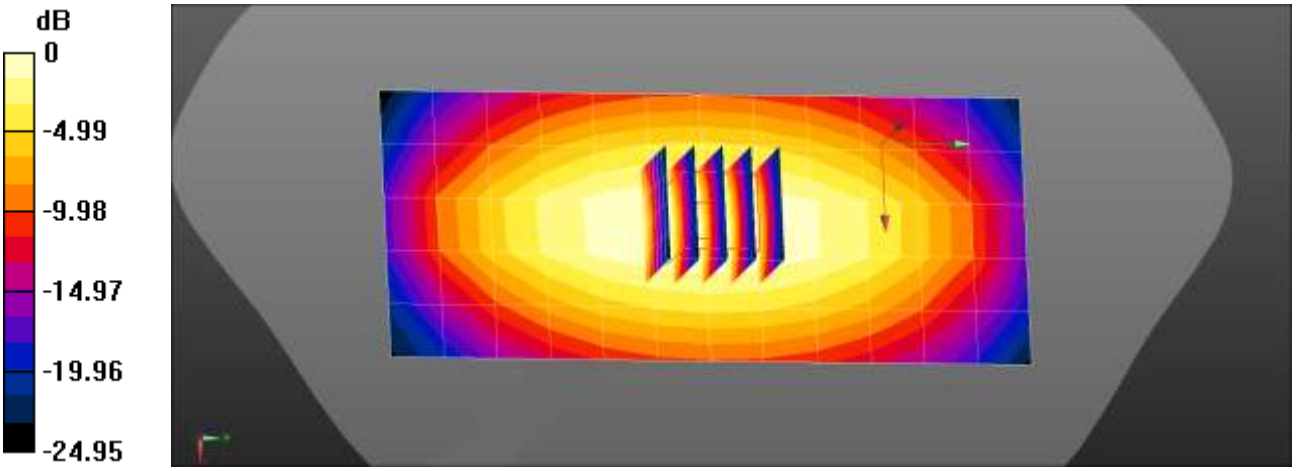
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.936 S/m; ε_r = 42.987; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.04, 9.04, 9.04) @ 835 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

835MHz Head Verification/Area Scan (6x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.532 W/kg

835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.38 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.719 W/kg
SAR(1 g) = 0.469 W/kg; SAR(10 g) = 0.303 W/kg
Maximum value of SAR (measured) = 0.635 W/kg



0 dB = 0.532 W/kg = −2.74 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.9 ℃
Test Date: 04/22/2021
DUT: Dipole 835 MHz; Type: D835V2;

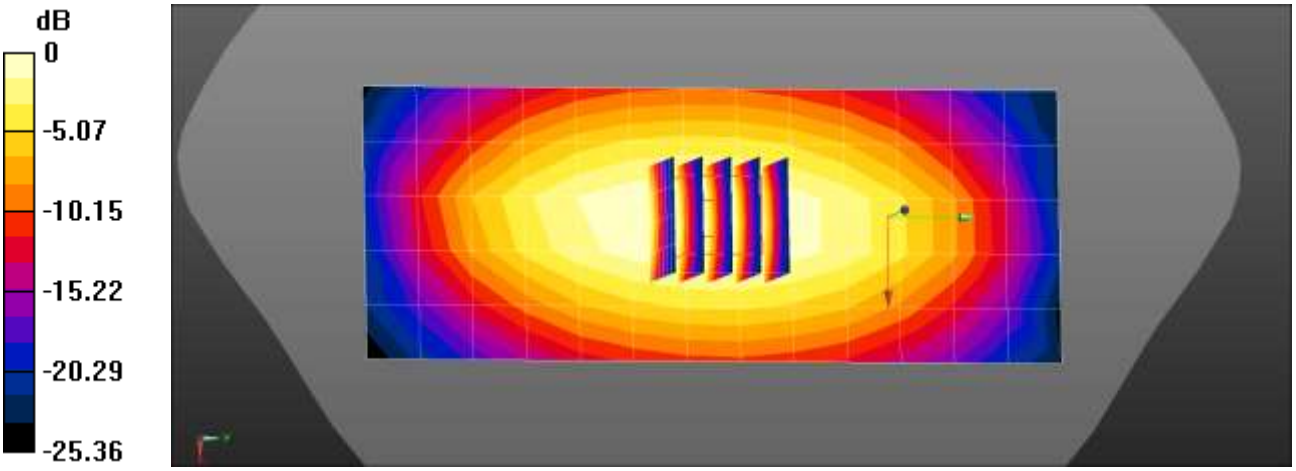
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.913 S/m; ε_r = 42.055; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(9.75, 9.75, 9.75) @ 835 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

835MHz Head Verification/Area Scan (6x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.558 W/kg

835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.92 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.483 W/kg; SAR(10 g) = 0.315 W/kg
Maximum value of SAR (measured) = 0.648 W/kg



0 dB = 0.558 W/kg = −2.53 dBW/kg

■ Verification Data (1 800 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 04/21/2021

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

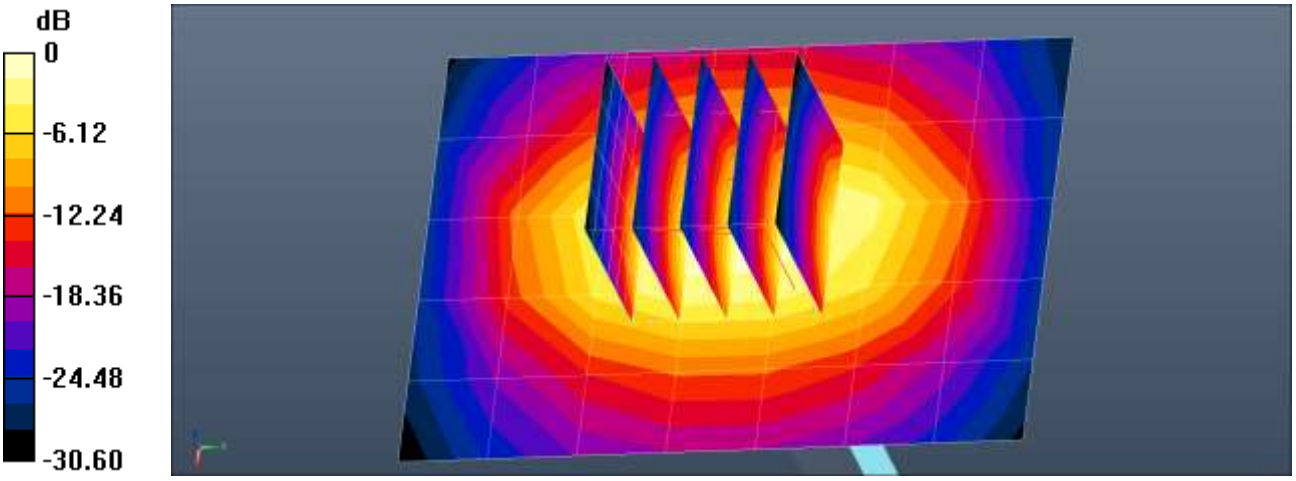
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.436 S/m; ε_r = 41.39; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.56, 8.56, 8.56) @ 1800 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.38 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 45.60 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 1.91 W/kg; SAR(10 g) = 1 W/kg
Maximum value of SAR (measured) = 3.02 W/kg



0 dB = 2.38 W/kg = 3.76 dBW/kg

■ **Verification Data (1 800 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.6 ℃
Test Date: 05/03/2021

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

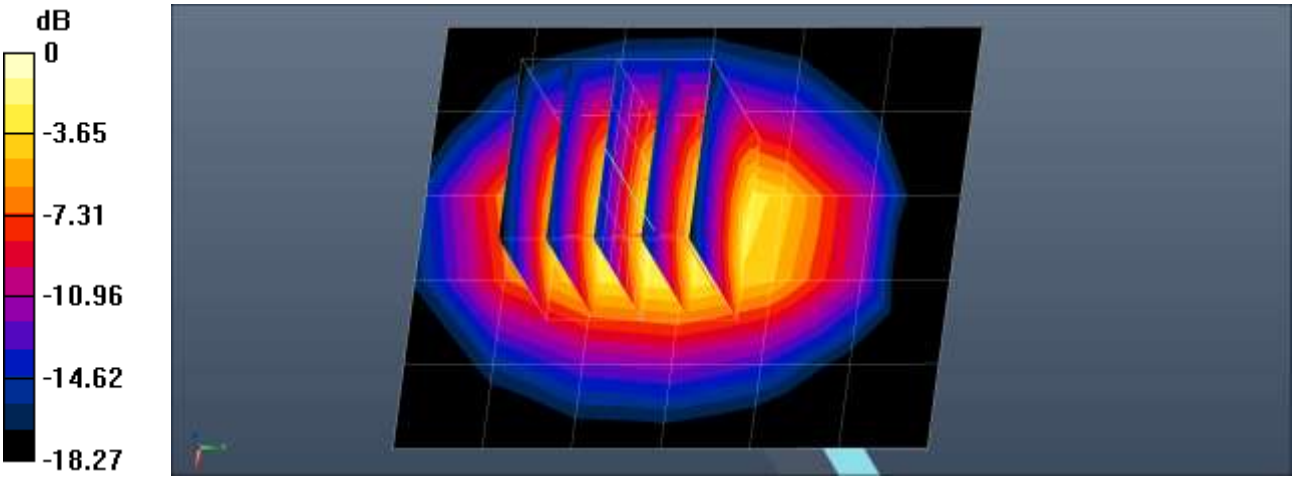
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.423 S/m; ε_r = 41.908; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1800 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.31 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.26 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 1.96 W/kg; SAR(10 g) = 1.02 W/kg
Maximum value of SAR (measured) = 3.08 W/kg



0 dB = 3.08 W/kg = 4.89 dBW/kg

■ **Verification Data (1 800 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.6 ℃
Test Date: 05/21/2021

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

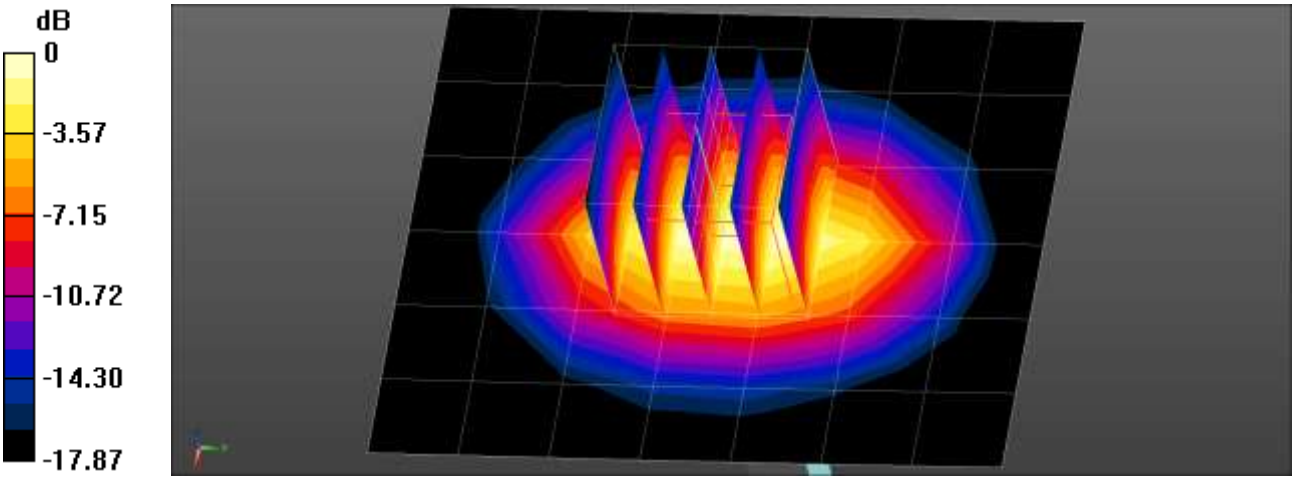
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.46 S/m; ε_r = 40.798; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1800 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.68 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 45.54 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.40 W/kg
SAR(1 g) = 1.8 W/kg; SAR(10 g) = 0.952 W/kg
Maximum value of SAR (measured) = 2.80 W/kg



0 dB = 2.80 W/kg = 4.47 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.1 ℃
Test Date: 04/26/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

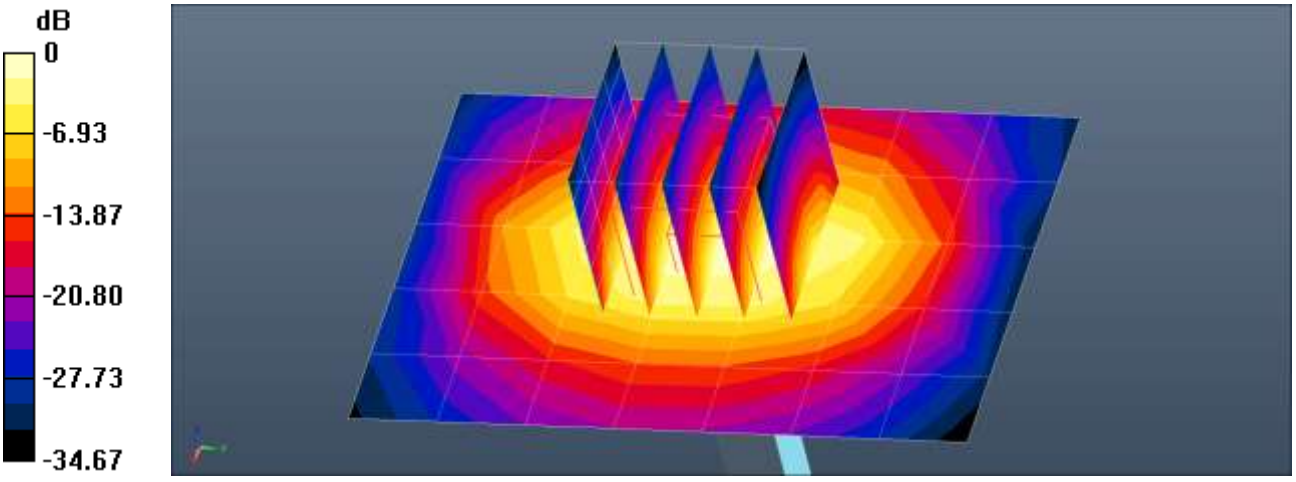
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.387 S/m; ε_r = 40.844; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1900 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.64 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.13 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 1.98 W/kg; SAR(10 g) = 1.02 W/kg
Maximum value of SAR (measured) = 3.12 W/kg



0 dB = 2.64 W/kg = 4.22 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.7 ℃
Test Date: 04/20/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

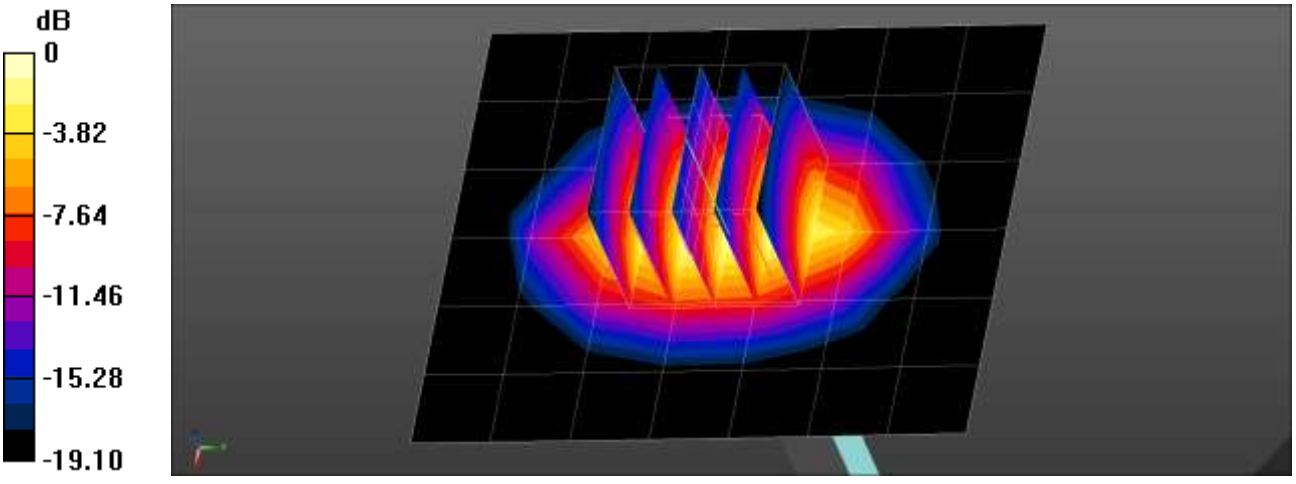
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.425 S/m; ε_r = 40.523; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1900 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.20 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.55 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 4.18 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 3.39 W/kg



0 dB = 3.39 W/kg = 5.30 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.4 ℃
Test Date: 04/20/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

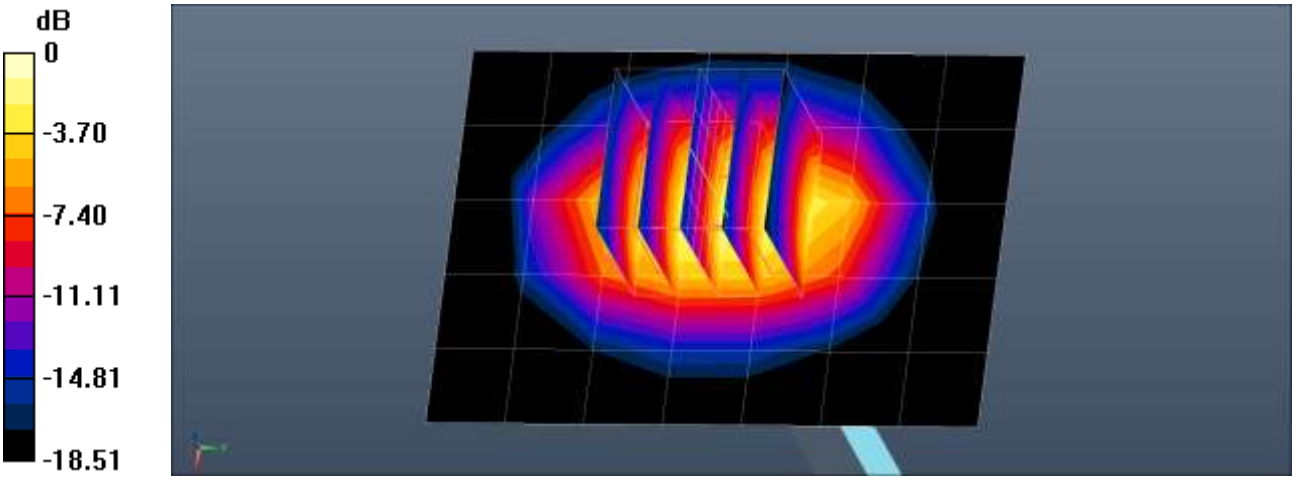
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.419 S/m; ε_r = 40.45; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19) @ 1900 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.72 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.32 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 3.83 W/kg
SAR(1 g) = 2.04 W/kg; SAR(10 g) = 1.05 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



0 dB = 3.20 W/kg = 5.05 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.0 ℃
Test Date:	05/04/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

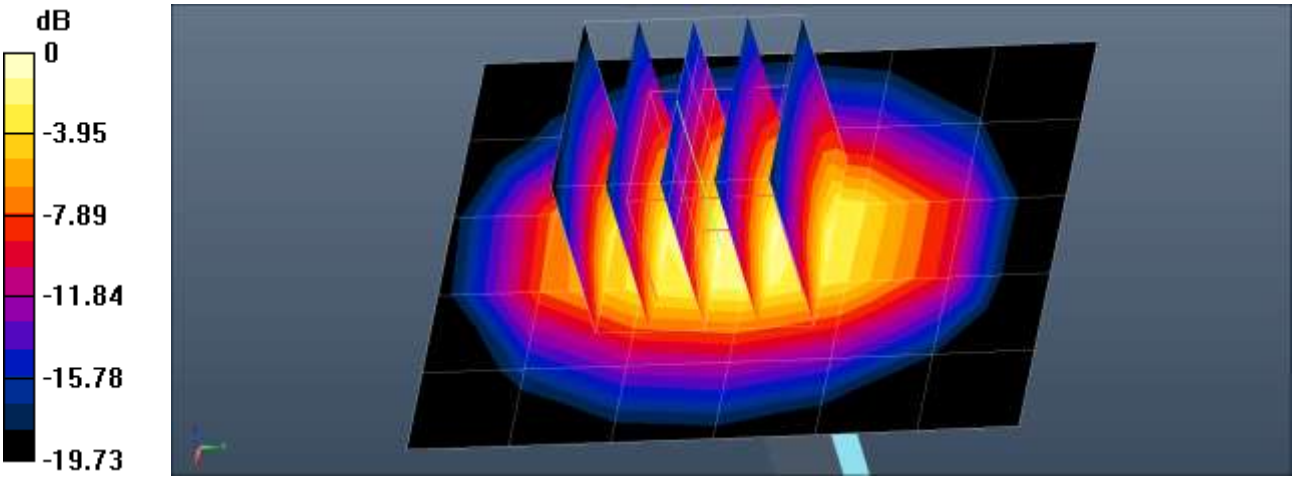
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.397 S/m; ε_r = 40.958; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1900 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.35 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.36 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 4.16 W/kg
SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.07 W/kg
Maximum value of SAR (measured) = 3.38 W/kg



0 dB = 3.38 W/kg = 5.29 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	05/13/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

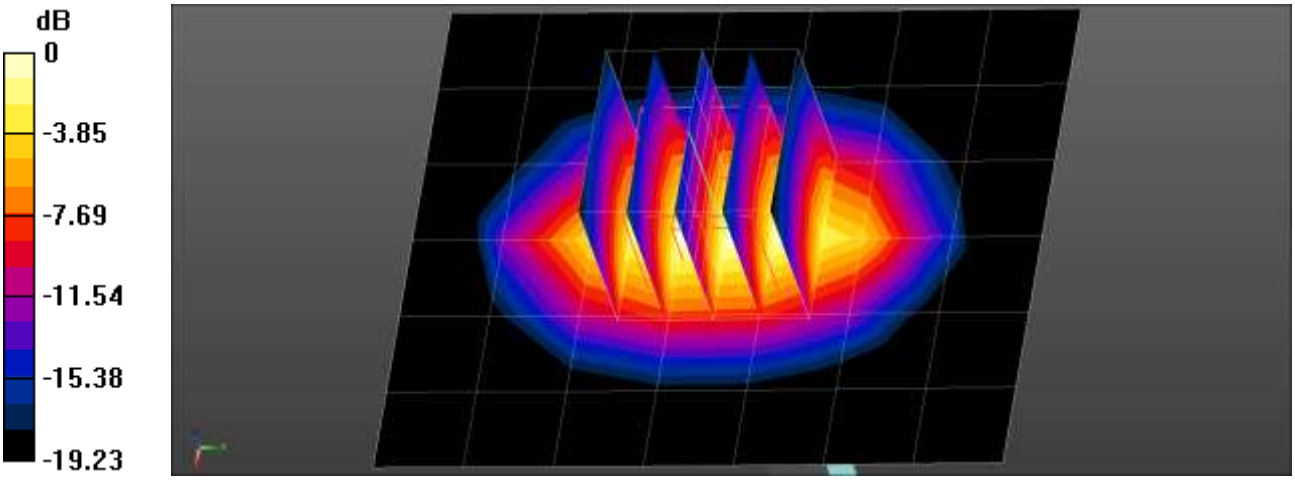
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.437 S/m; ε_r = 40.984; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1900 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.24 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.39 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.31 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.48 W/kg



0 dB = 3.48 W/kg = 5.42 dBW/kg

■ Verification Data (2 300 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.1 ℃
Test Date: 05/03/2021
DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

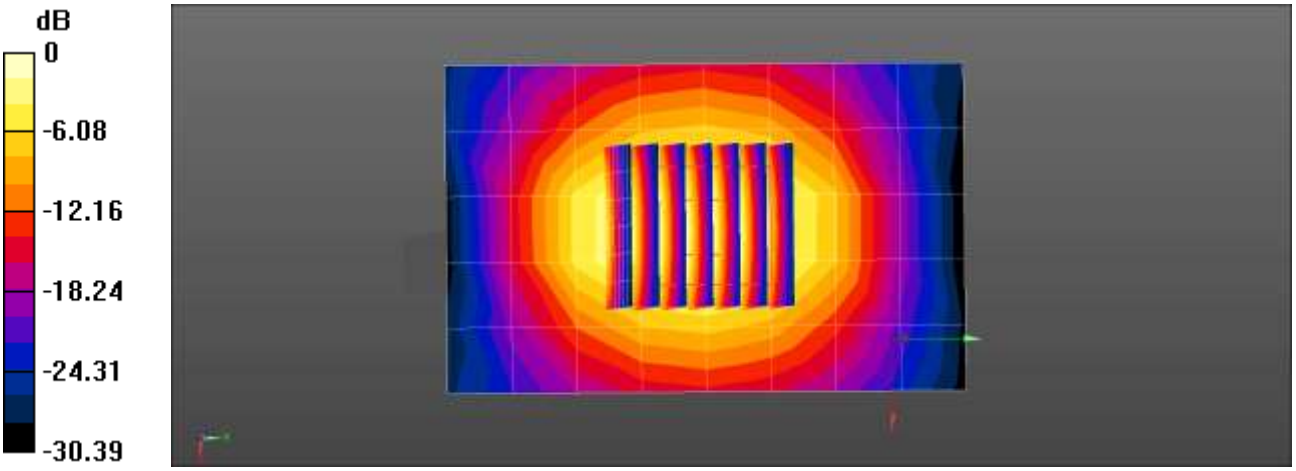
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.698 S/m; ε_r = 40.689; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2300 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

2300MHz Head Verification/Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.50 W/kg

2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.29 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 5.19 W/kg
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 3.25 W/kg



0 dB = 2.50 W/kg = 3.98 dBW/kg

■ **Verification Data (2 300 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.3 ℃
Test Date: 05/06/2021

DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

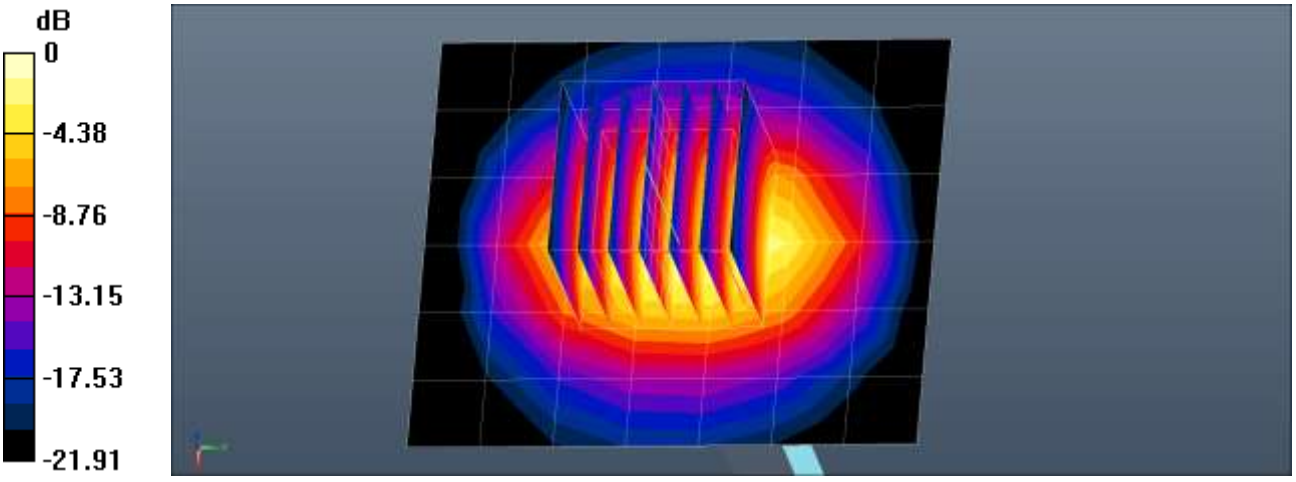
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.706 S/m; ε_r = 40.711; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2300 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2300MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.96 W/kg

Dipole/2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.14 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 5.33 W/kg
SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 4.22 W/kg



0 dB = 4.22 W/kg = 6.25 dBW/kg

■ **Verification Data (2 300 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 05/07/2021

DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

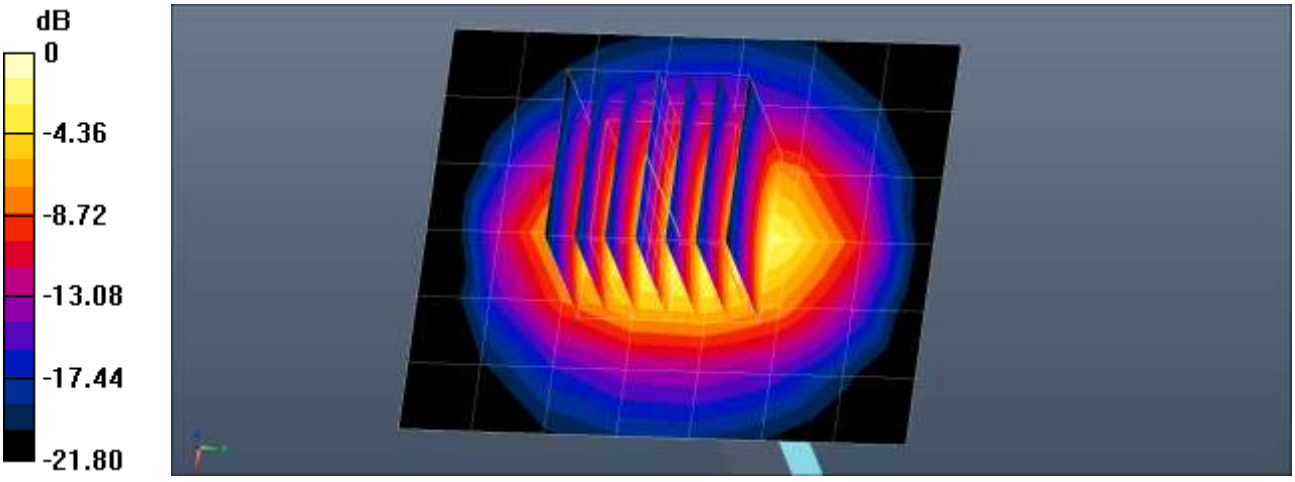
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.705 S/m; ε_r = 40.691; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2300 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2300MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.99 W/kg

Dipole/2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.40 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 5.38 W/kg
SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 4.25 W/kg



0 dB = 4.25 W/kg = 6.28 dBW/kg

■ **Verification Data (2 450 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.3 ℃
Test Date: 05/19/2021

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2;

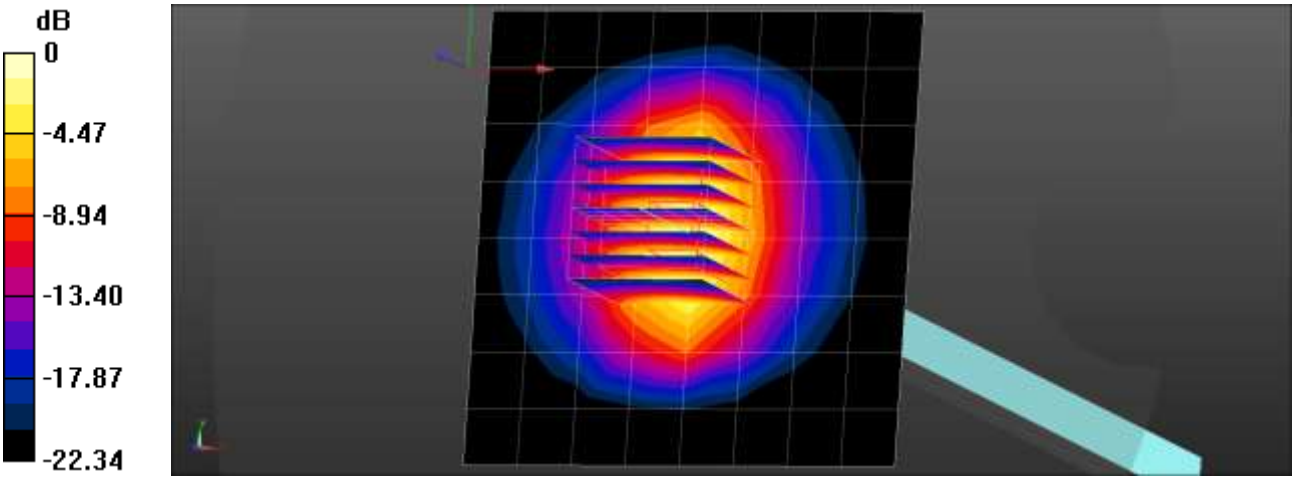
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.839 S/m; ε_r = 40.759; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2450MHz Head Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.96 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.96 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 5.07 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.1 W/kg
Maximum value of SAR (measured) = 4.04 W/kg



0 dB = 4.04 W/kg = 6.06 dBW/kg

■ Verification Data (2 450 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.3 ℃
Test Date: 05/19/2021

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2;

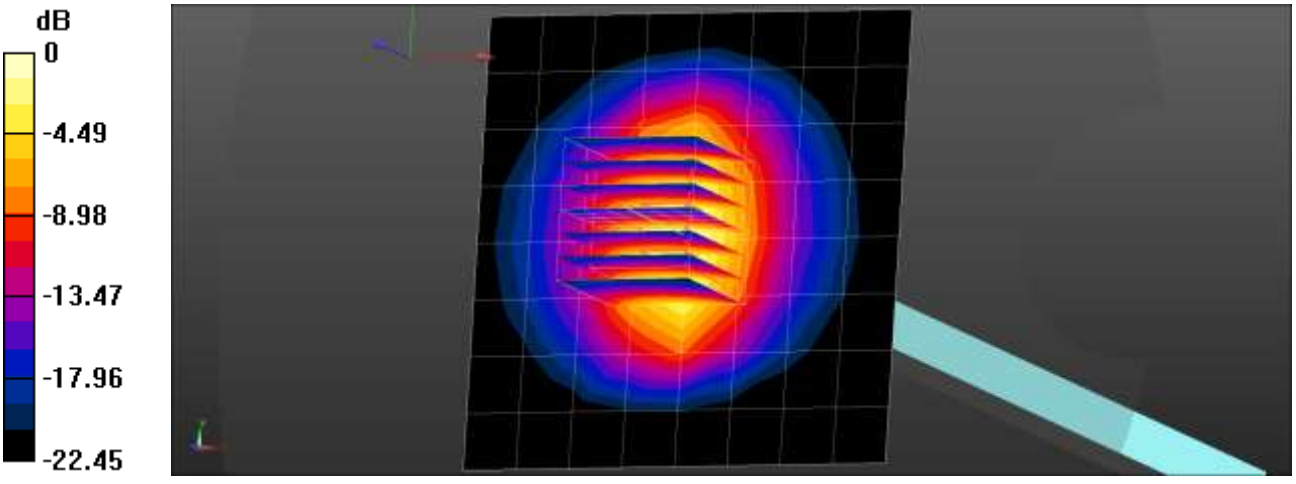
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.836 S/m; ε_r = 40.77; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2450MHz Head Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.99 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.16 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 5.13 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.1 W/kg
Maximum value of SAR (measured) = 4.09 W/kg



0 dB = 4.09 W/kg = 6.12 dBW/kg

■ **Verification Data (2 450 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.5 ℃
Test Date: 05/18/2021

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2;

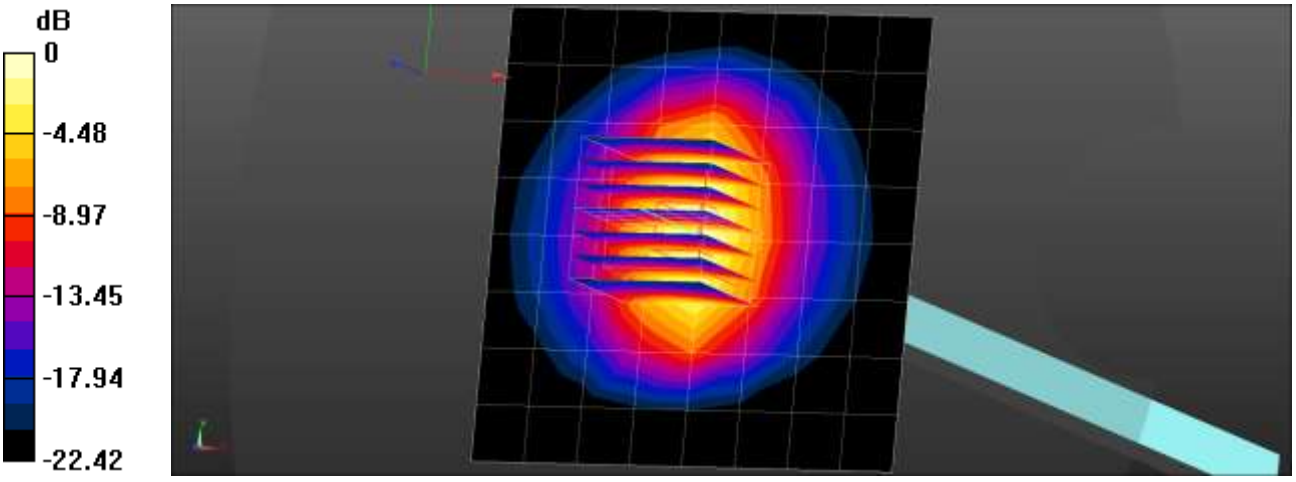
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.849 S/m; ε_r = 40.589; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2450MHz Head Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.02 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.22 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 5.14 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.11 W/kg
Maximum value of SAR (measured) = 4.10 W/kg



0 dB = 4.10 W/kg = 6.13 dBW/kg

■ **Verification Data (2 450 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.1 ℃
Test Date: 05/25/2021

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2;

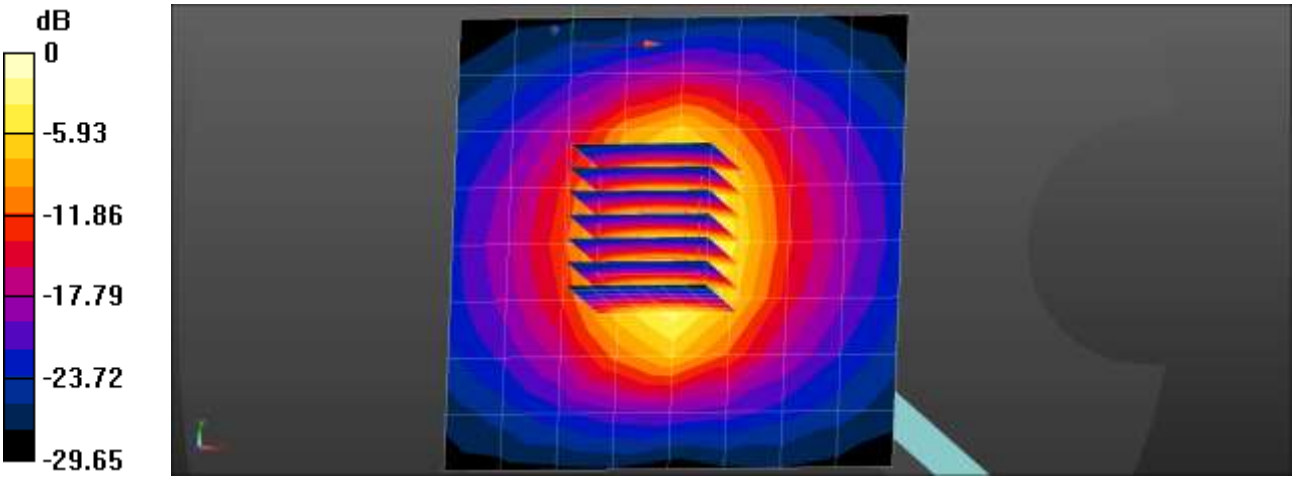
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.833 S/m; ε_r = 37.733; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2450MHz Head Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.39 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.80 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 5.73 W/kg
SAR(1 g) = 2.57 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 4.51 W/kg



0 dB = 4.39 W/kg = 6.43 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 04/22/2021

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

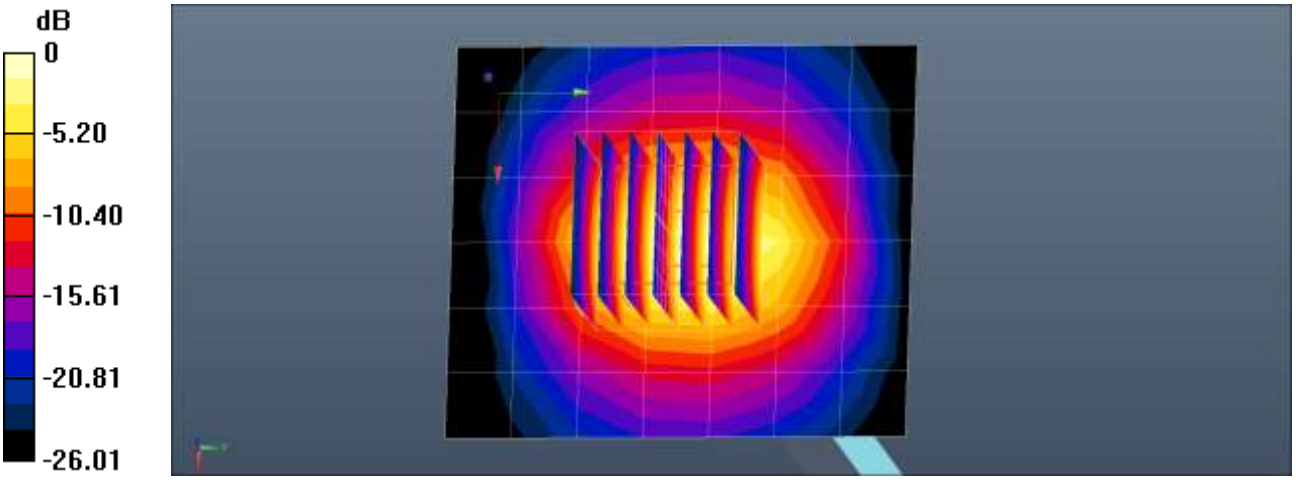
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.013 S/m; ε_r = 39.772; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2600 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2600MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.70 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.77 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 6.59 W/kg
SAR(1 g) = 2.82 W/kg; SAR(10 g) = 1.23 W/kg
Maximum value of SAR (measured) = 5.03 W/kg



0 dB = 5.03 W/kg = 7.02 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.4 ℃
Test Date: 04/26/2021
DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

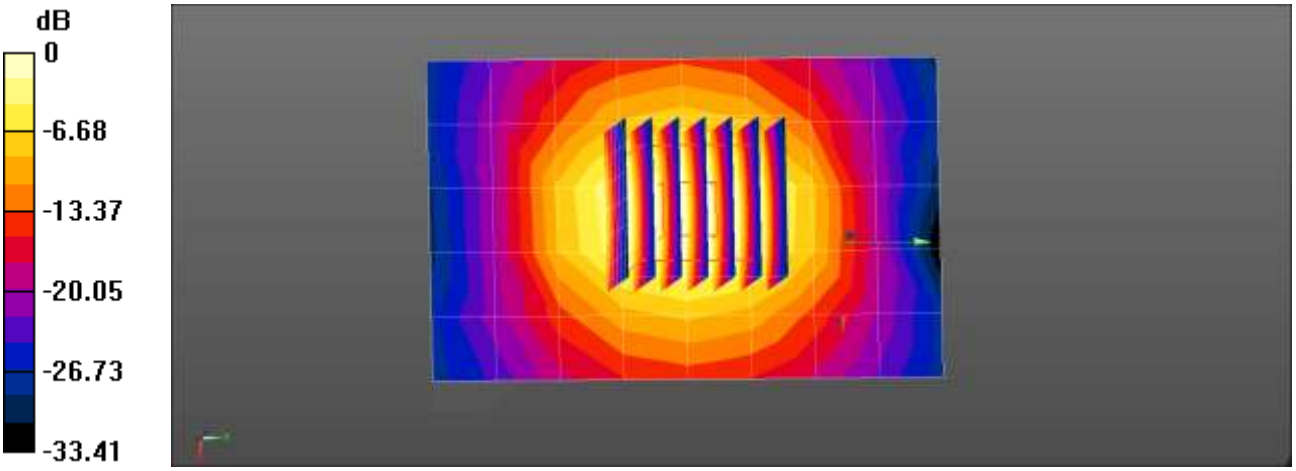
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.011 S/m; ε_r = 39.74; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2600 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2020-05-25
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

2600MHz Head Verification/Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.89 W/kg

2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 44.00 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 6.08 W/kg
SAR(1 g) = 2.69 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 3.62 W/kg



0 dB = 2.89 W/kg = 4.62 dBW/kg

■ Verification Data (2 600 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.8 ℃
Test Date: 05/10/2021
DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

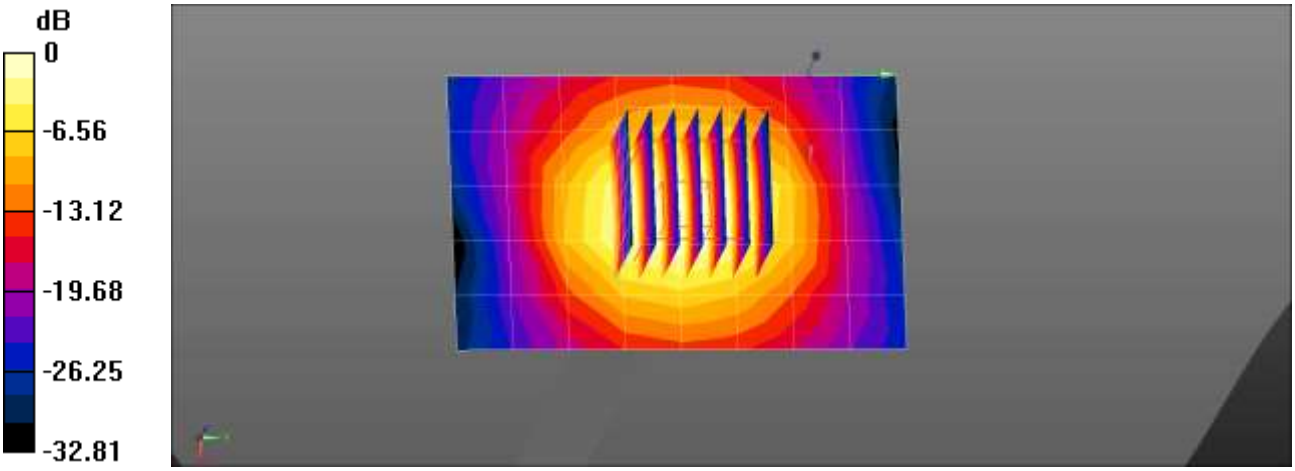
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.96 S/m; ε_r = 39.849; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.5, 4.5, 4.5) @ 2600 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

2600MHz Head Verification/Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.89 W/kg

2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.26 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 6.18 W/kg
SAR(1 g) = 2.73 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 3.68 W/kg



0 dB = 2.89 W/kg = 4.60 dBW/kg

■ **Verification Data (3 500 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.1 ℃
Test Date: 05/12/2021

DUT: D3500V2 - SN1040; Type: D3500V2;

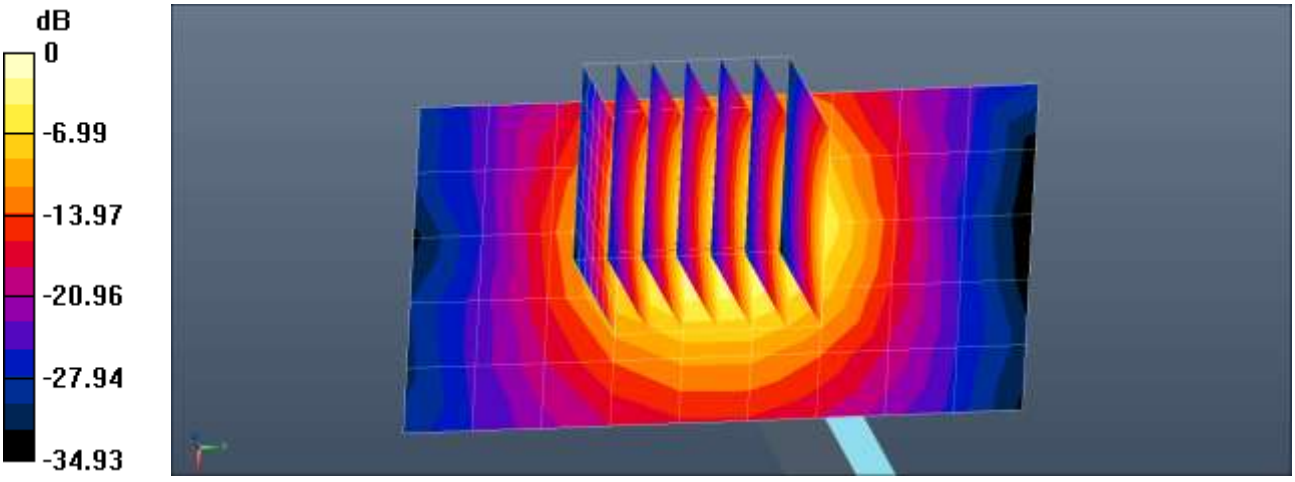
Communication System: UID 0, CW (0); Frequency: 3500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3500 MHz; σ = 2.991 S/m; ε_r = 39.359; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.87, 6.87, 6.87) @ 3500 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3500MHz Head Verification/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.41 W/kg

Dipole/3500MHz Head Verification/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 42.68 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 8.74 W/kg
SAR(1 g) = 3.2 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 6.35 W/kg



0 dB = 5.41 W/kg = 7.34 dBW/kg

■ **Verification Data (3 900 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.2 ℃
Test Date: 05/13/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

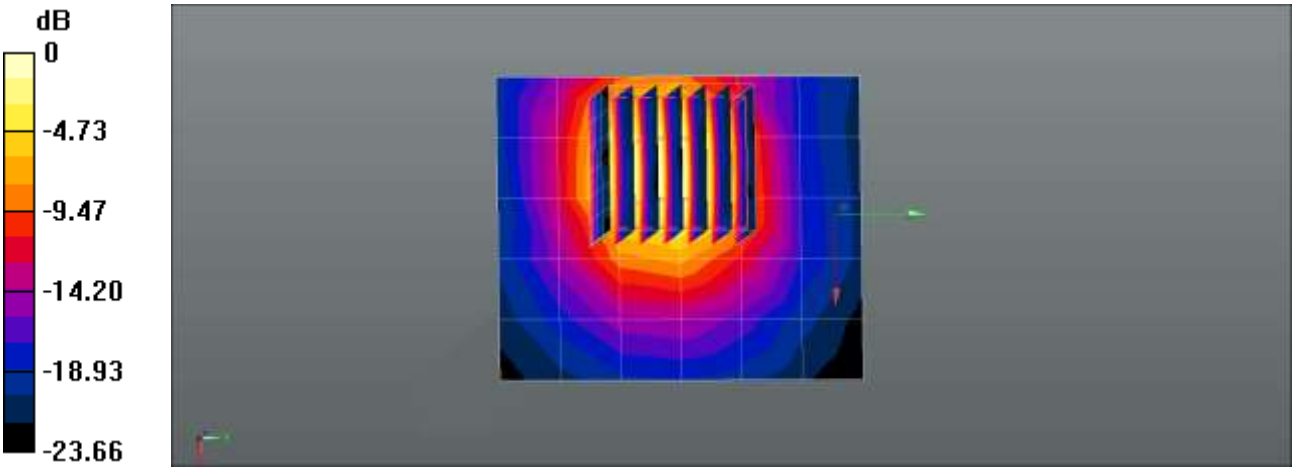
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.592 S/m; ε_r = 36.202; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.3, 5.3, 5.3) @ 5250 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5250MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.58 W/kg

5250MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 30.62 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 4.02 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 10.2 W/kg



0 dB = 7.58 W/kg = 8.80 dBW/kg

■ **Verification Data (5 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.8 ℃
Test Date: 05/14/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

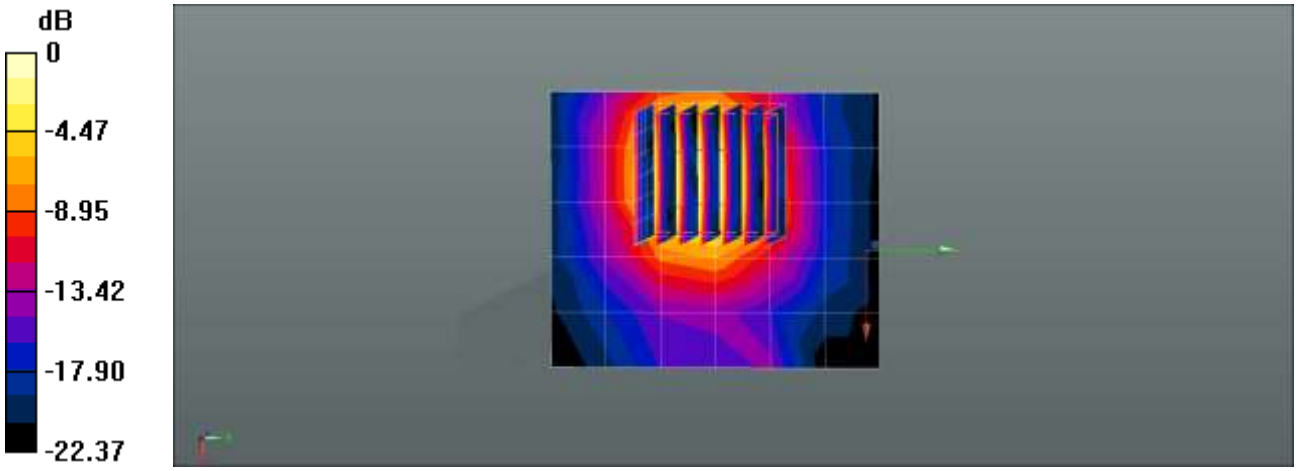
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.919 S/m; ε_r = 35.957; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(4.9, 4.9, 4.9) @ 5600 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5600MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.72 W/kg

5600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 30.35 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 4.05 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 10.5 W/kg



0 dB = 7.72 W/kg = 8.87 dBW/kg

■ **Verification Data (5 750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.3 ℃
Test Date: 05/17/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

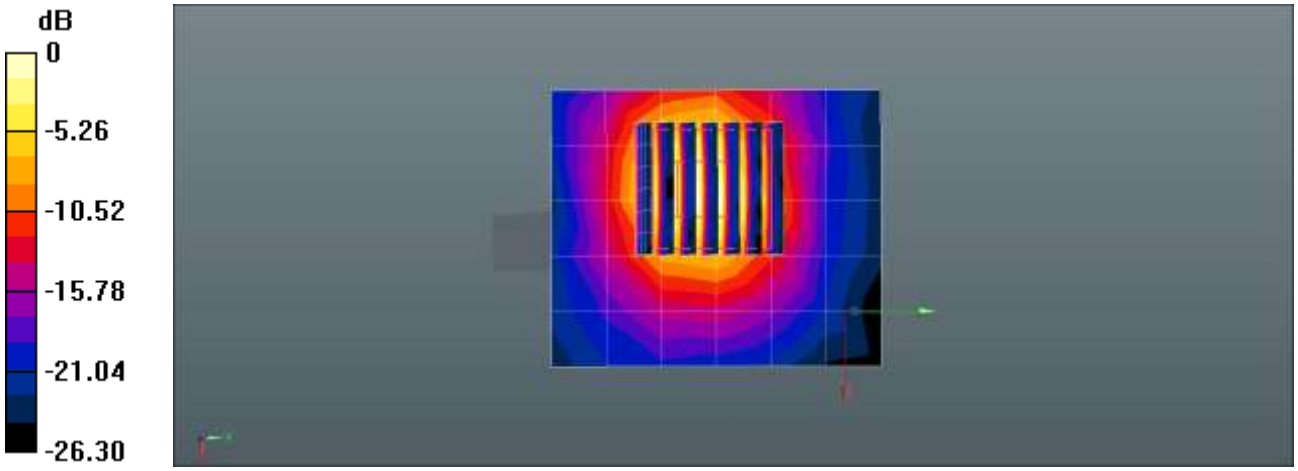
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.051 S/m; ε_r = 36.075; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.04, 5.04, 5.04) @ 5750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5750MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.01 W/kg

5750MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 34.31 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 3.87 W/kg; SAR(10 g) = 1.09 W/kg
Maximum value of SAR (measured) = 10.4 W/kg



0 dB = 9.01 W/kg = 9.55 dBW/kg

■ Verification Data (5 250 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.6 ℃
Test Date: 05/18/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

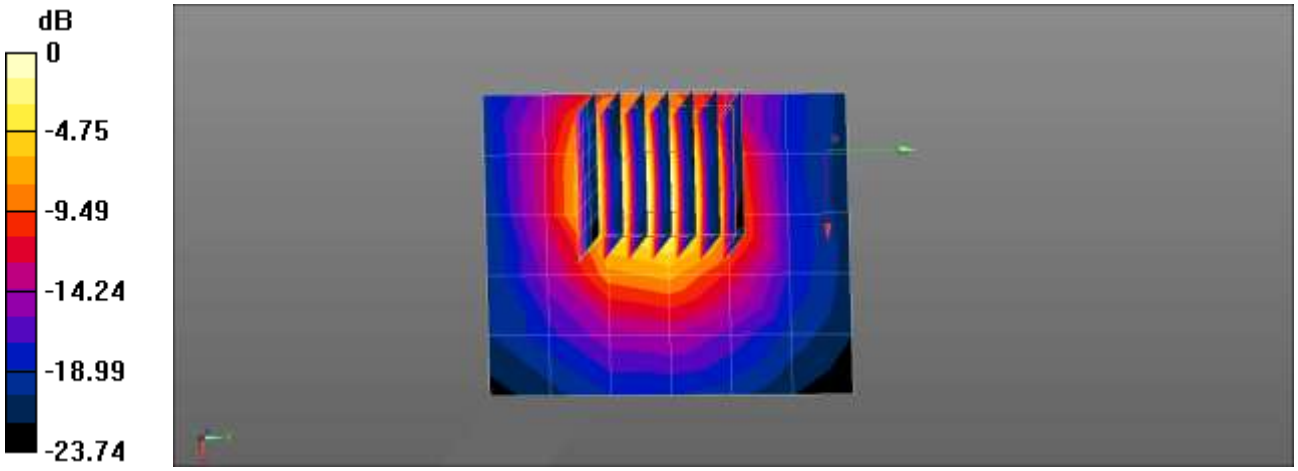
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.57 S/m; ε_r = 36.26; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.3, 5.3, 5.3) @ 5250 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5250MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.63 W/kg

5250MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 30.79 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 4.02 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 10.2 W/kg



0 dB = 7.63 W/kg = 8.83 dBW/kg

■ **Verification Data (5 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.6 ℃
Test Date: 05/18/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

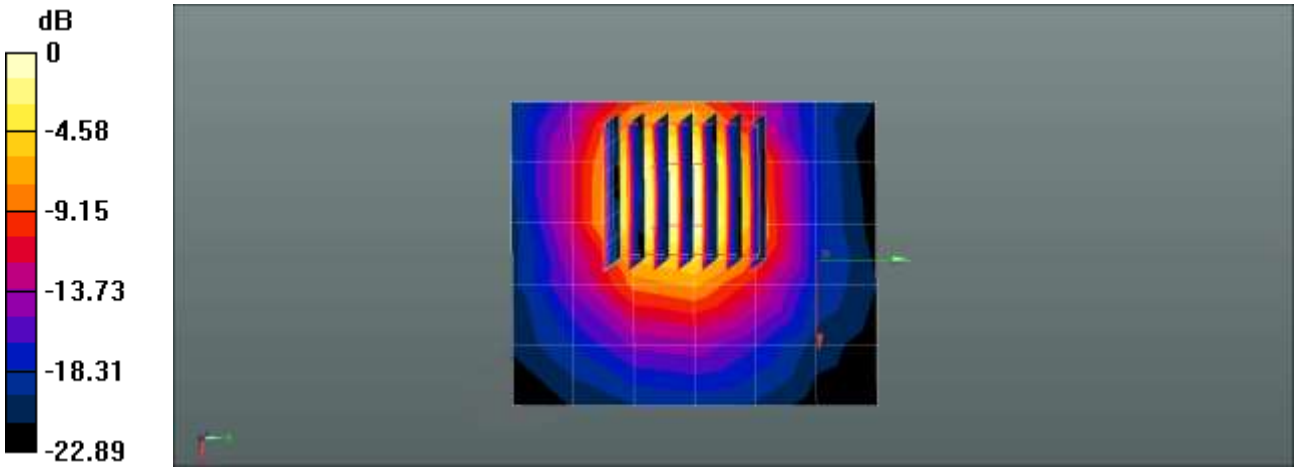
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.89 S/m; ε_r = 36.077; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(4.9, 4.9, 4.9) @ 5600 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5600MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.75 W/kg

5600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 30.28 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4.01 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 7.75 W/kg = 8.89 dBW/kg

■ **Verification Data (5 750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 19.6 ℃
Test Date: 05/18/2021
DUT: Dipole D5GHzV2; Type: D5GHzV2;

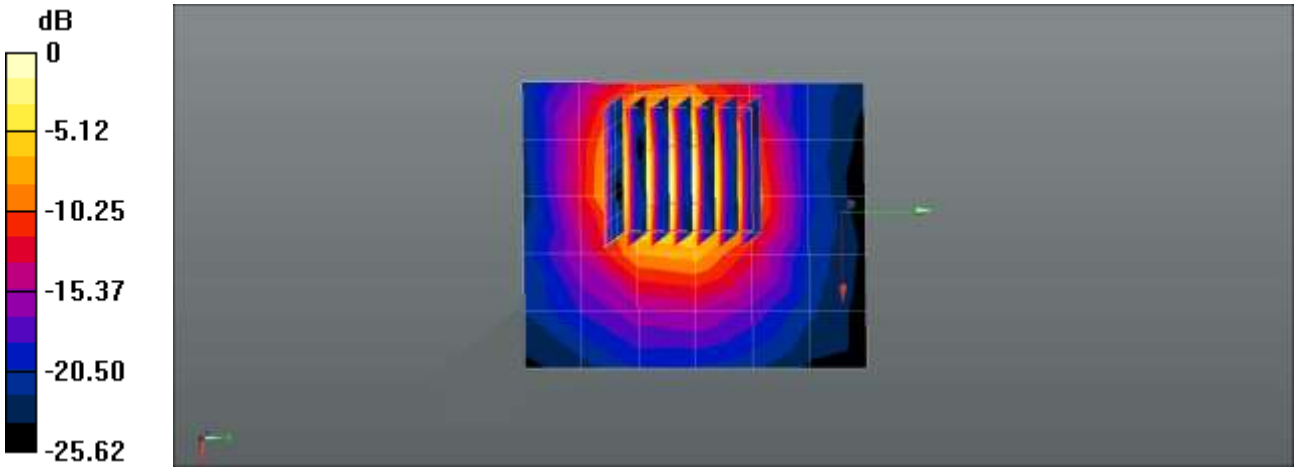
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.072 S/m; ε_r = 35.989; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.04, 5.04, 5.04) @ 5750 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

5750MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.54 W/kg

5750MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 31.15 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 19.3 W/kg
SAR(1 g) = 3.95 W/kg; SAR(10 g) = 1.1 W/kg
\Maximum value of SAR (measured) = 10.5 W/kg



0 dB = 8.54 W/kg = 9.32 dBW/kg

■ **Verification Data (5 250 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 05/20/2021

DUT: Dipole D5GHzV2; Type: D5GHzV2;

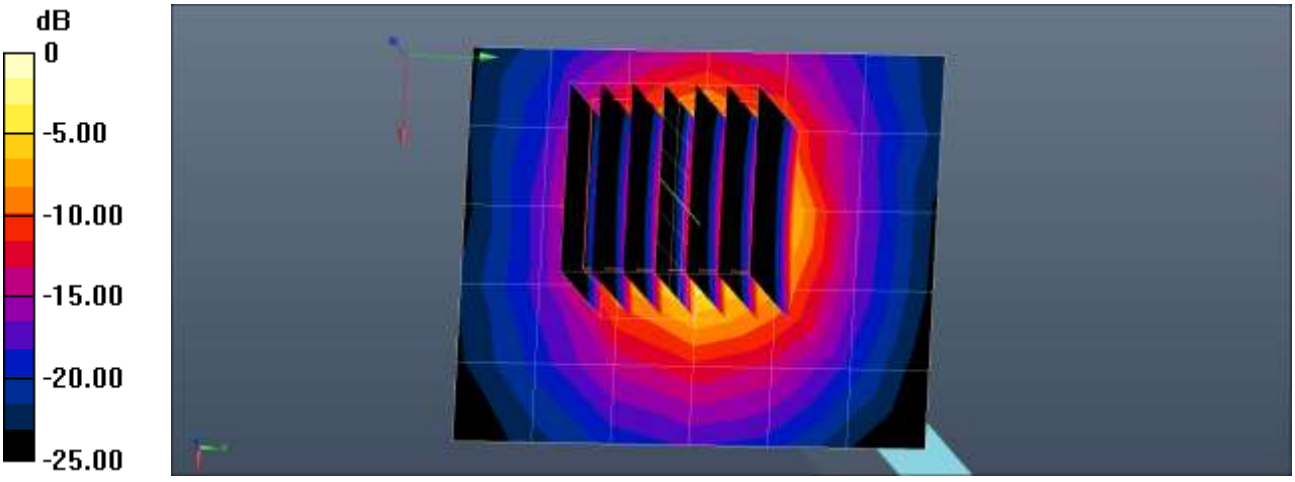
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.62 S/m; ε_r = 36.189; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(5.75, 5.75, 5.75) @ 5250 MHz; Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/5250MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 10.1 W/kg

Dipole/5250MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 46.56 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 4.03 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.2 W/kg



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

■ **Verification Data (5 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.0 ℃
Test Date: 05/21/2021

DUT: Dipole D5GHzV2; Type: D5GHzV2;

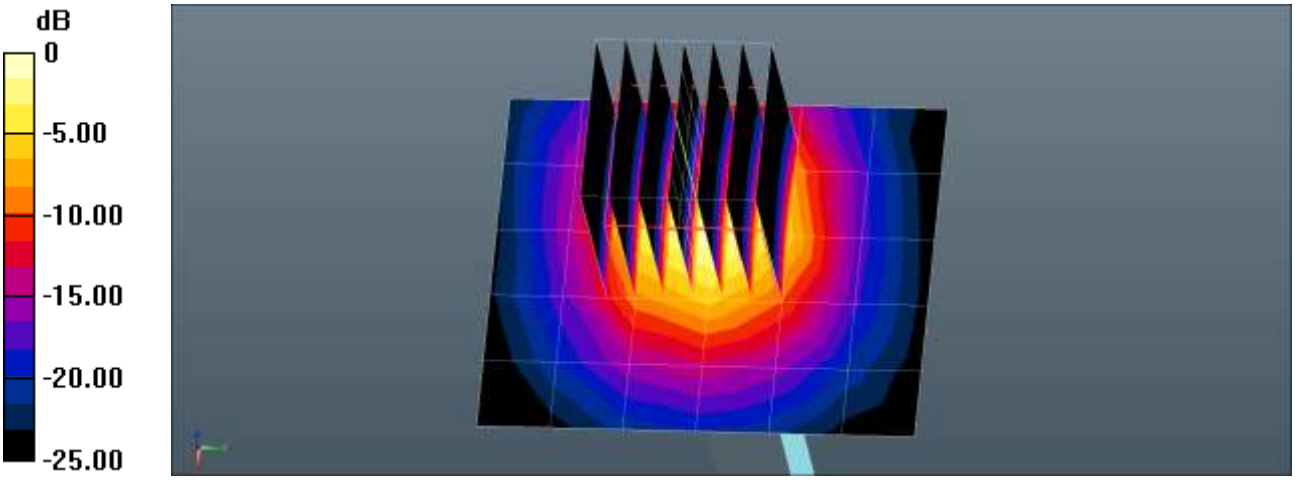
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.892 S/m; ε_r = 36.993; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(4.83, 4.83, 4.83) @ 5600 MHz; Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/5600MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 10.6 W/kg

Dipole/5600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 39.93 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 4.2 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 10.8 W/kg



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

■ **Verification Data (5 750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.0 ℃
Test Date: 05/24/2021

DUT: Dipole D5GHzV2; Type: D5GHzV2;

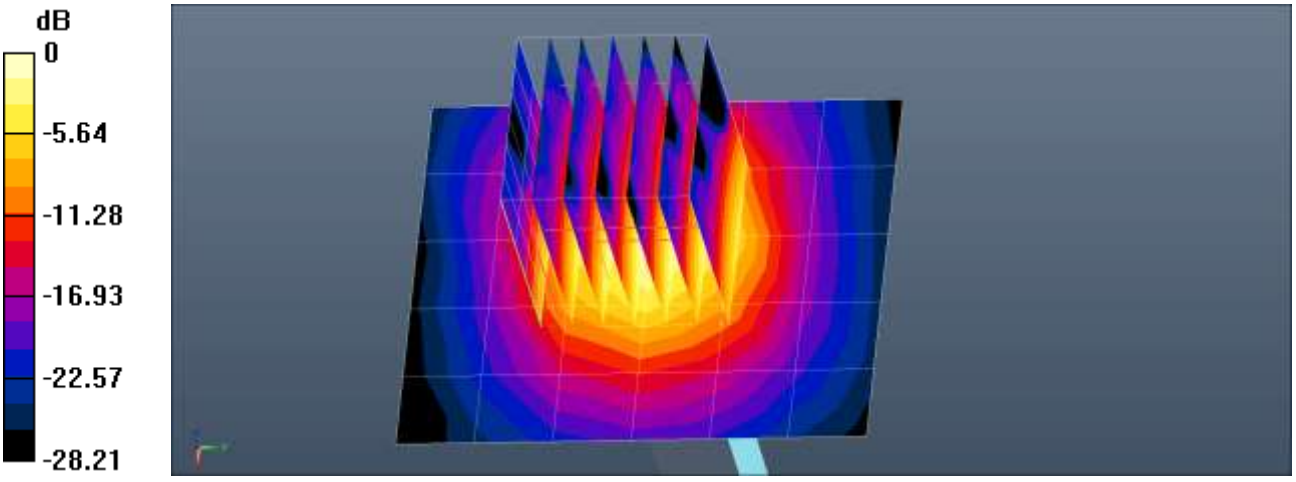
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.113 S/m; ε_r = 36.91; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7352; ConvF(5.05, 5.05, 5.05) @ 5750 MHz; Calibrated: 2020-10-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2020-08-07
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/5750MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 10.9 W/kg

Dipole/5750MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 44.89 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 20.2 W/kg
SAR(1 g) = 4.11 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 11.1 W/kg



0 dB = 10.9 W/kg = 10.39 dBW/kg

NR Band

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 04/30/2021

DUT: Dipole 750 MHz D750V3; Type: D750V3;

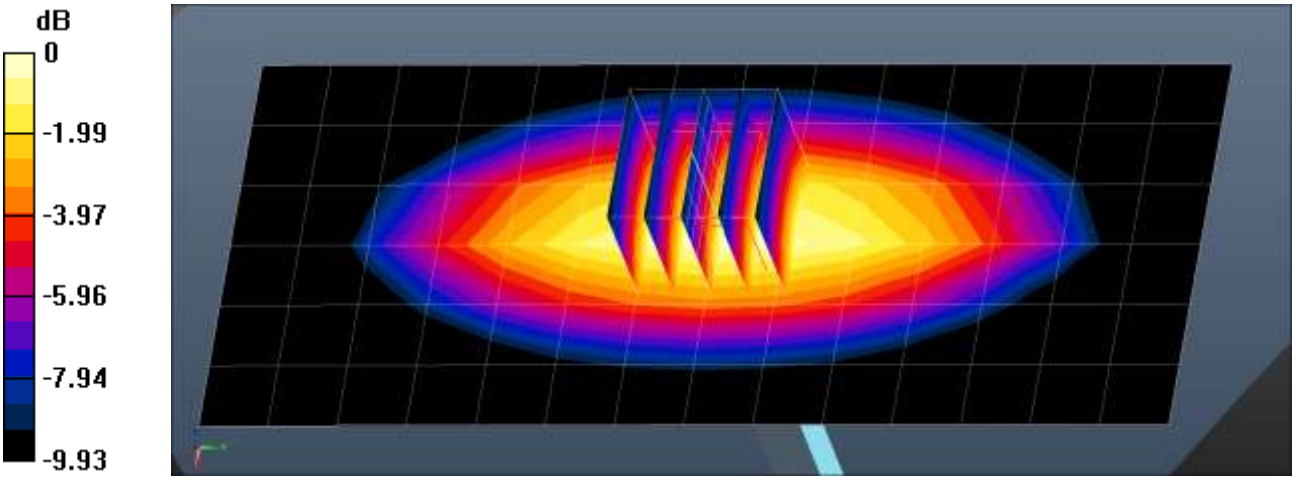
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.936 S/m; ε_r = 43.202; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.4, 10.4, 10.4) @ 750 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/750MHz Head Verification/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.564 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.15 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.645 W/kg
SAR(1 g) = 0.452 W/kg; SAR(10 g) = 0.303 W/kg
Maximum value of SAR (measured) = 0.588 W/kg



0 dB = 0.588 W/kg = −2.31 dBW/kg

■ **Verification Data (750 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 05/11/2021

DUT: Dipole 750 MHz D750V3; Type: D750V3;

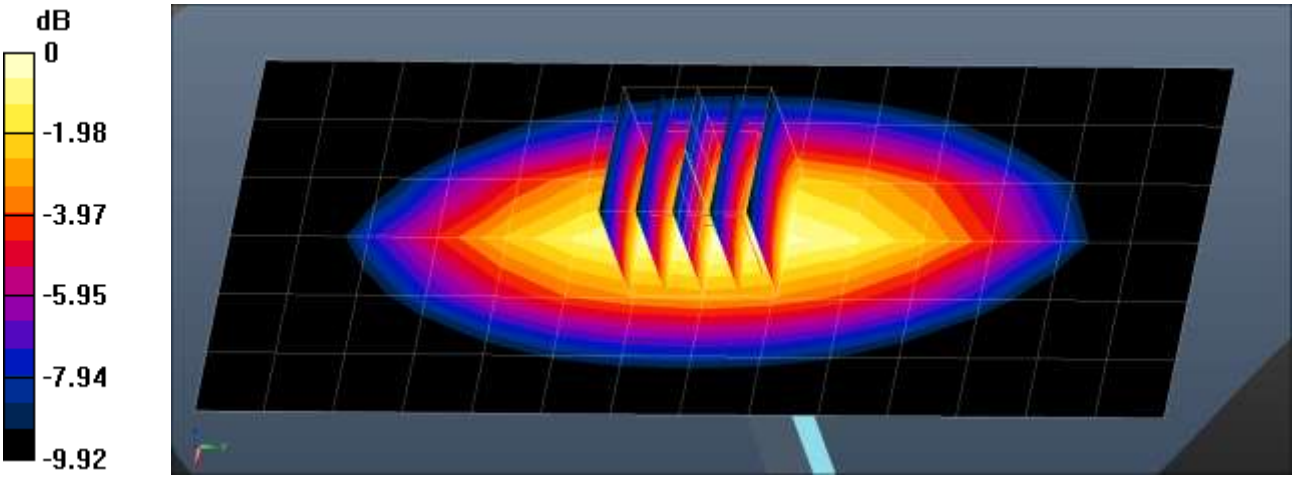
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.884 S/m; ε_r = 43.786; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.4, 10.4, 10.4) @ 750 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/750MHz Head Verification/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.559 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.72 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.291 W/kg
Maximum value of SAR (measured) = 0.568 W/kg



0 dB = 0.568 W/kg = −2.46 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	22.0 ℃
Test Date:	04/29/2021

DUT: Dipole 835 MHz D835V2; Type: D835V2;

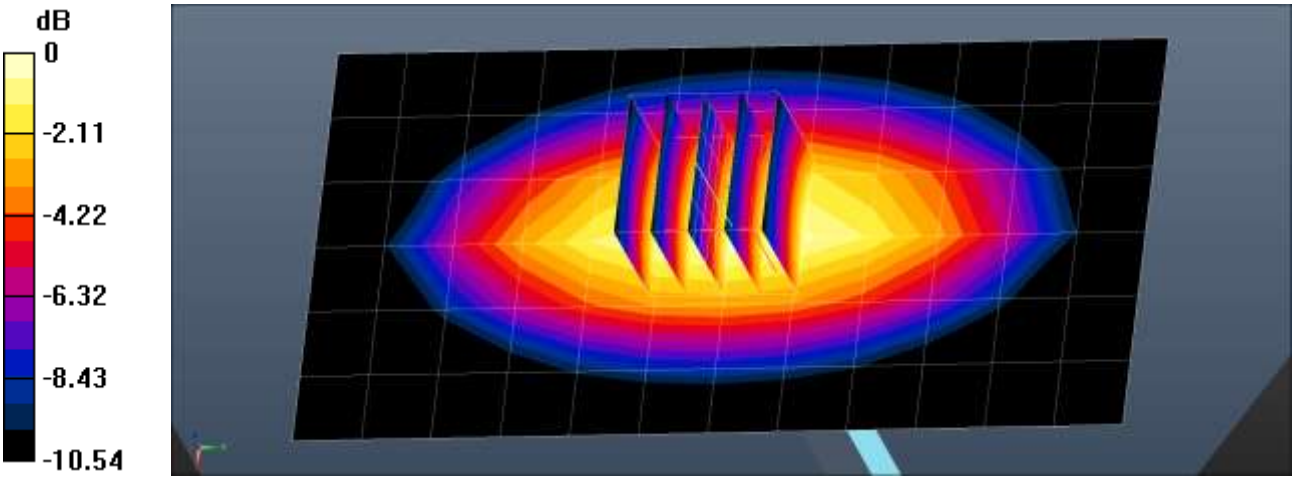
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.939 S/m; ε_r = 43.025; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(10.14, 10.14, 10.14) @ 835 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/835MHz Head Verification/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.643 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.80 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.730 W/kg
SAR(1 g) = 0.496 W/kg; SAR(10 g) = 0.328 W/kg
Maximum value of SAR (measured) = 0.655 W/kg



0 dB = 0.655 W/kg = −1.84 dBW/kg

■ Verification Data (1 800 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.8 ℃
Test Date: 05/07/2021

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2;

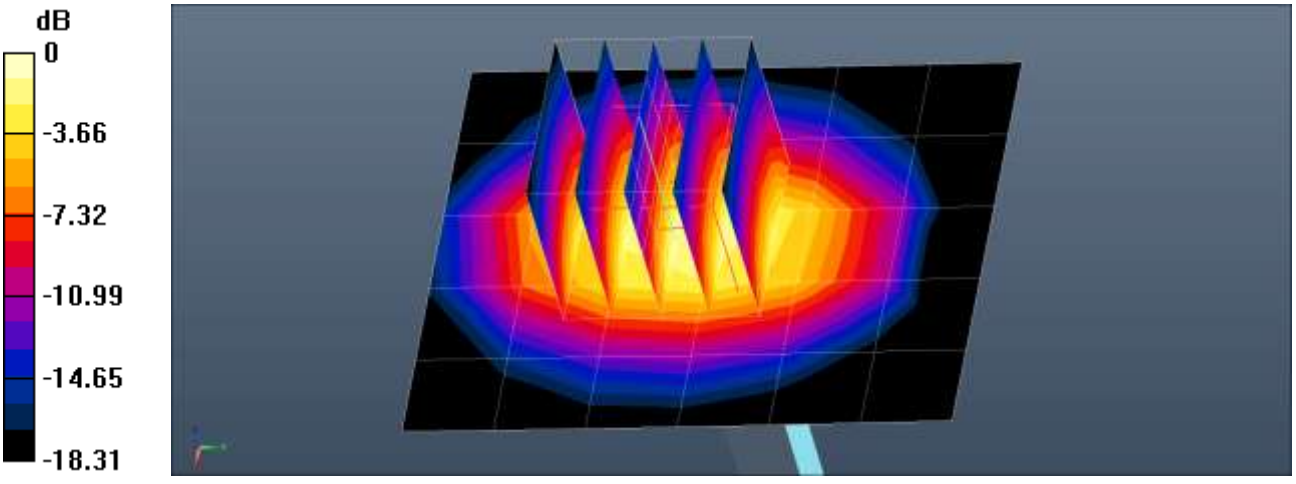
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.46 S/m; ε_r = 41.698; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(9.12, 9.12, 9.12) @ 1800 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.32 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.26 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.77 W/kg
SAR(1 g) = 2 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.14 W/kg



0 dB = 3.14 W/kg = 4.97 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.6 ℃
Test Date: 05/03/201

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

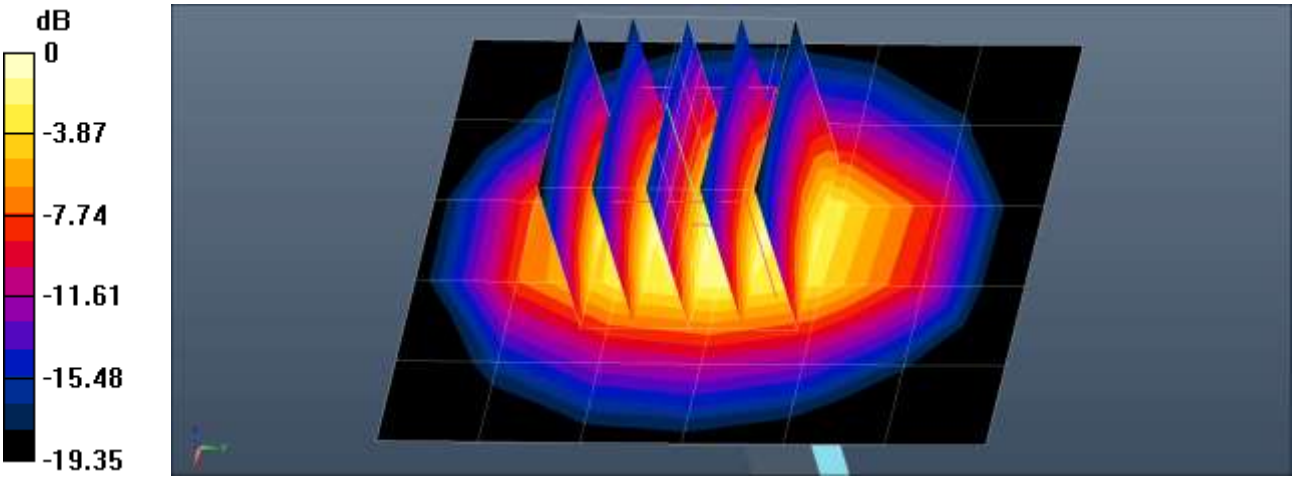
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.427 S/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1900 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (6x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.33 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.59 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 4.03 W/kg
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.29 W/kg



0 dB = 3.29 W/kg = 5.17 dBW/kg

■ Verification Data (2 300 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.8 ℃
Test Date: 05/21/2021
DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

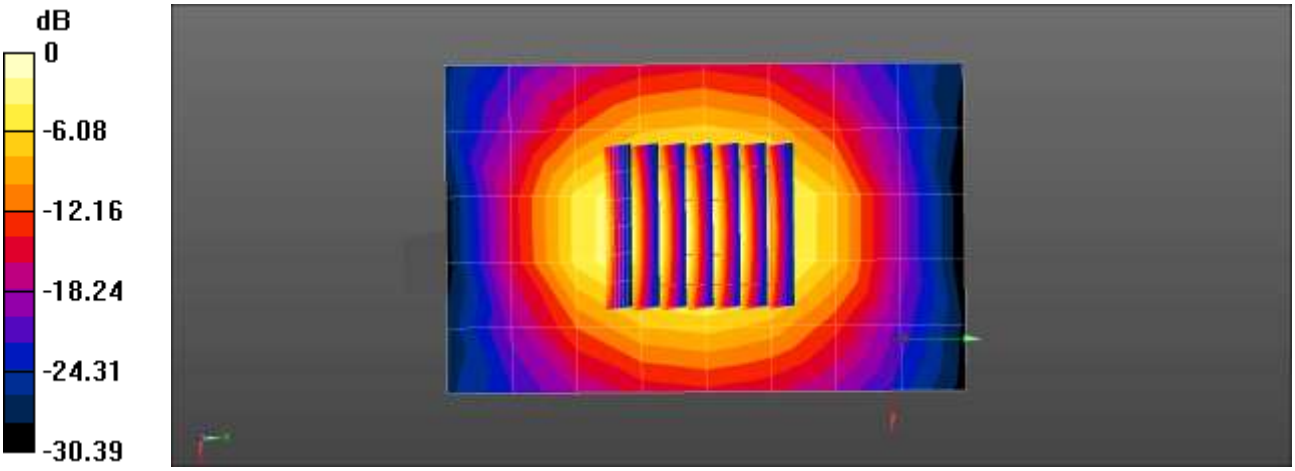
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.698 S/m; ε_r = 40.689; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2300 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

2300MHz Head Verification/Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.50 W/kg

2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.29 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 5.19 W/kg
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 3.25 W/kg



0 dB = 2.50 W/kg = 3.98 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	05/10/2021

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

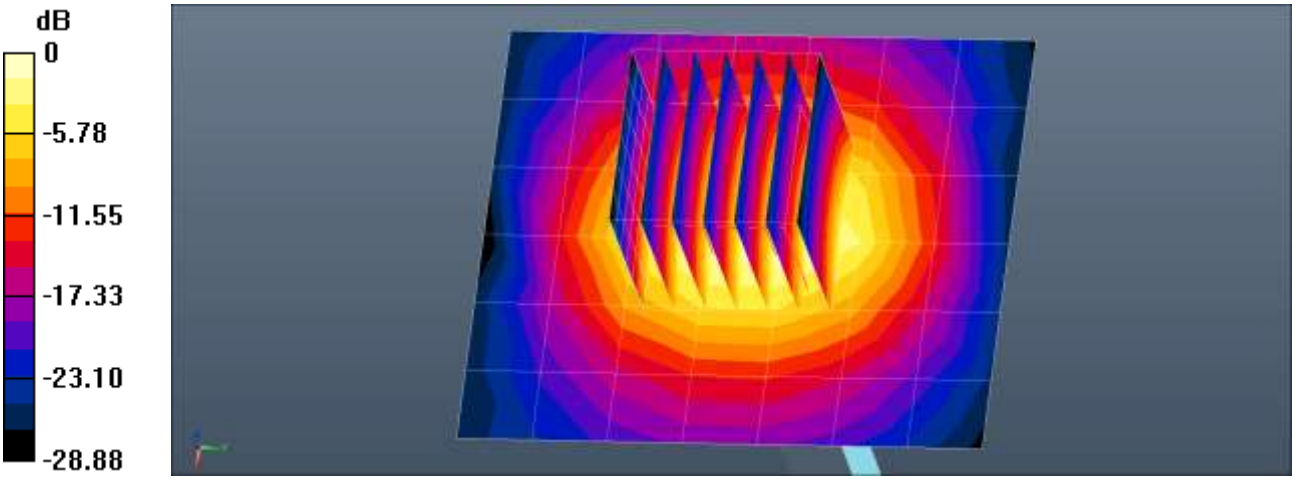
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.013 S/m; ε_r = 39.772; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2600 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2600MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.11 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.61 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 6.17 W/kg
SAR(1 g) = 2.67 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 4.76 W/kg



0 dB = 4.11 W/kg = 6.14 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.5 ℃
Test Date: 05/11/2021

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

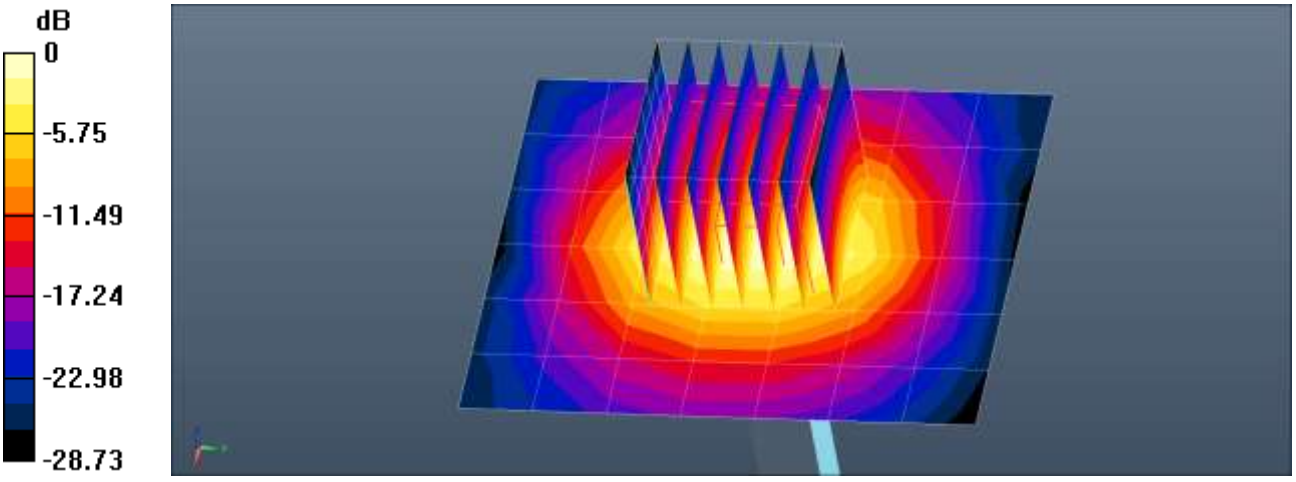
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.018 S/m; ε_r = 40.279; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2600 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2600MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.22 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.98 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 6.21 W/kg
SAR(1 g) = 2.68 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 4.80 W/kg



0 dB = 4.22 W/kg = 6.25 dBW/kg

■ **Verification Data (3 700 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.5 ℃
Test Date: 04/29/2021
DUT: Dipole 3700 MHz D3700V2; Type: D3700V2;

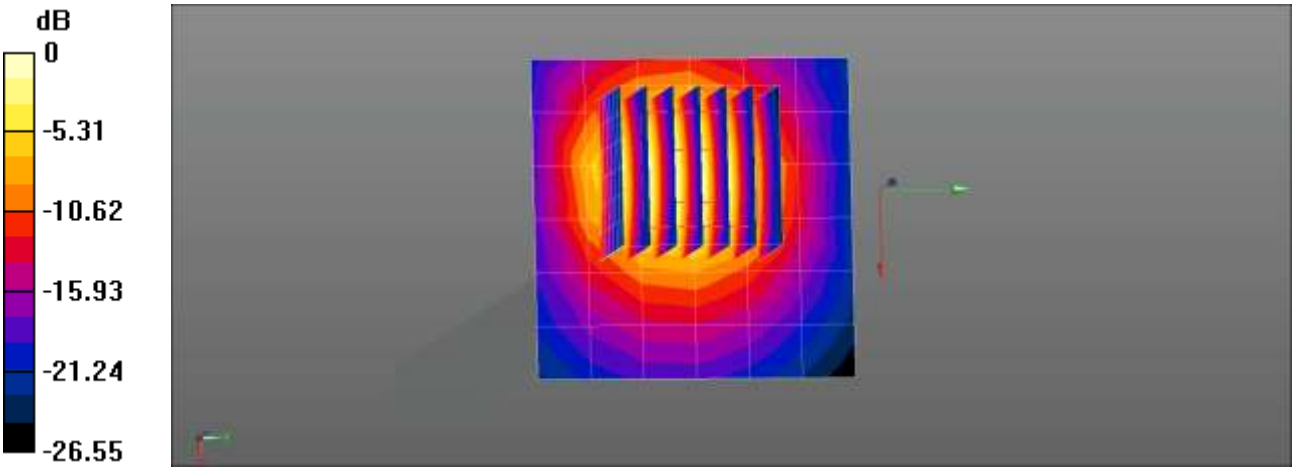
Communication System: UID 0, CW (0); Frequency: 3700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3700 MHz; σ = 3.2 S/m; ε_r = 38.594; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(6.94, 6.94, 6.94) @ 3700 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

3700MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 6.02 W/kg

3700MHz Head Verification/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 37.60 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 8.78 W/kg
SAR(1 g) = 3.12 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 6.34 W/kg



0 dB = 6.02 W/kg = 7.80 dBW/kg

■ **Verification Data (3 700 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.5 ℃
Test Date: 05/13/2021

DUT: Dipole 3700 MHz D3700V2; Type: D3700V2;

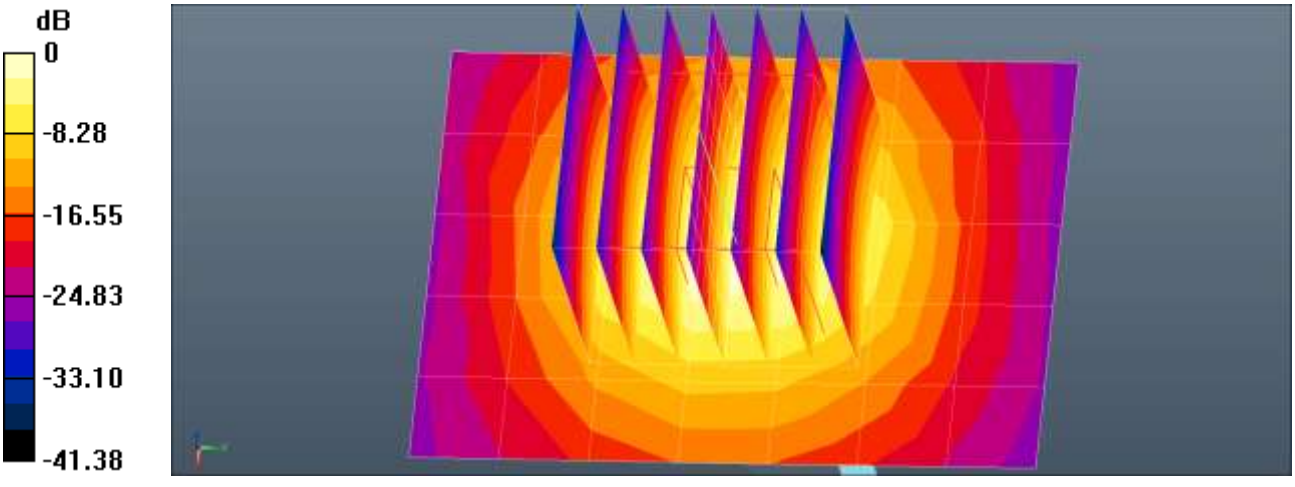
Communication System: UID 0, CW (0); Frequency: 3700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3700 MHz; σ = 3.197 S/m; ε_r = 38.965; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3700 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3700MHz Head Verification(n77 PC2 Body)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.19 W/kg

Dipole/3700MHz Head Verification(n77 PC2 Body)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 46.59 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 9.00 W/kg
SAR(1 g) = 3.09 W/kg; SAR(10 g) = 1.1 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 41.1%
Maximum value of SAR (measured) = 6.41 W/kg



0 dB = 6.41 W/kg = 8.07 dBW/kg

■ Verification Data (3 700 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.1 ℃
Test Date: 05/12/2021

DUT: Dipole 3700 MHz D3700V2; Type: D3700V2;

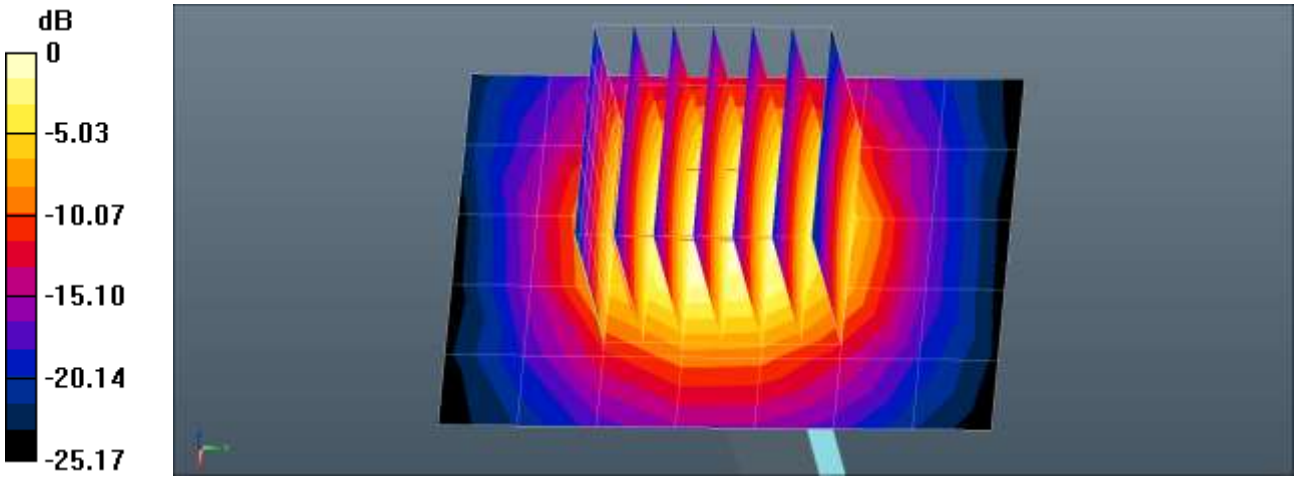
Communication System: UID 0, CW (0); Frequency: 3700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3700 MHz; σ = 3.197 S/m; ε_r = 38.965; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3700 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3700MHz Head Verification(n77 PC2 Head)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.12 W/kg

Dipole/3700MHz Head Verification(n77 PC2 Head)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 46.54 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 9.01 W/kg
SAR(1 g) = 3.09 W/kg; SAR(10 g) = 1.1 W/kg
Maximum value of SAR (measured) = 6.36 W/kg



0 dB = 5.12 W/kg = 7.09 dBW/kg

■ **Verification Data (3 700 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.4 ℃
Test Date: 05/14/2021

DUT: Dipole 3700 MHz D3700V2; Type: D3700V2;

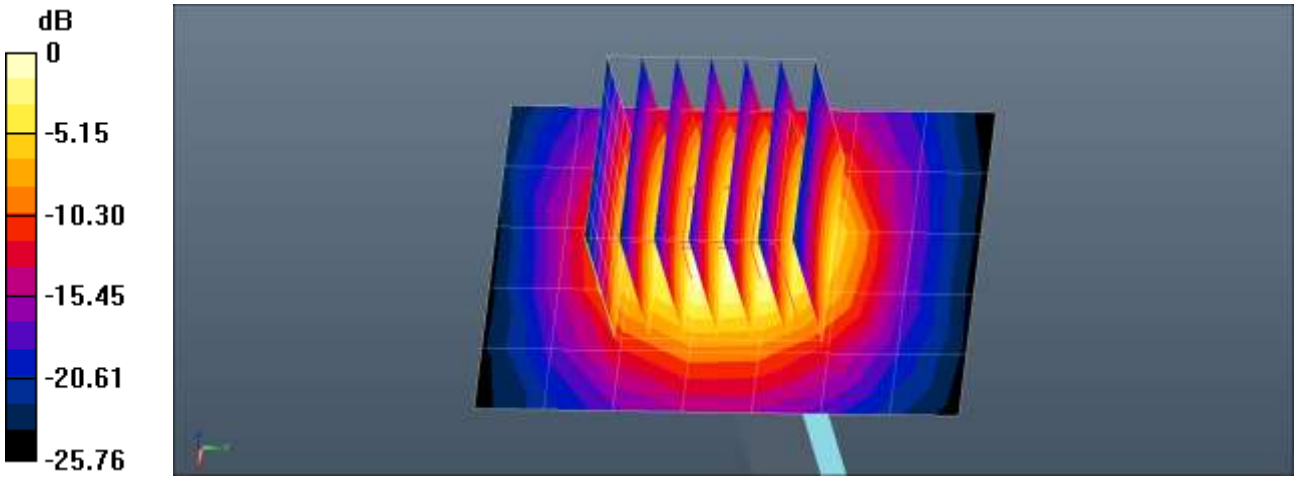
Communication System: UID 0, CW (0); Frequency: 3700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3700 MHz; σ = 3.177 S/m; ε_r = 38.729; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.77, 6.77, 6.77) @ 3700 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3700MHz Head Verification(n77 PC2 Body)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.20 W/kg

Dipole/3700MHz Head Verification(n77 PC2 Body)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 46.31 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 8.92 W/kg
SAR(1 g) = 3.09 W/kg; SAR(10 g) = 1.11 W/kg
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 41.4%
Maximum value of SAR (measured) = 6.35 W/kg



0 dB = 5.20 W/kg = 7.16 dBW/kg

■ **Verification Data (3 900 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.5 ℃
Test Date: 04/29/2021

DUT: D3900V2 - SN1019; Type: D3900V2;

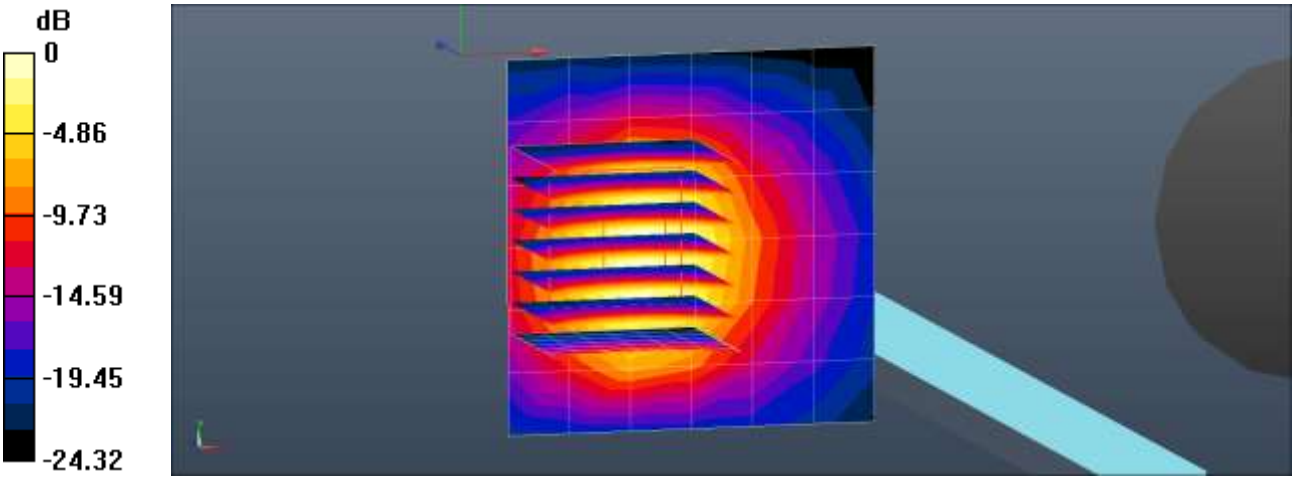
Communication System: UID 0, CW (0); Frequency: 3900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3900 MHz; σ = 3.362 S/m; ε_r = 38.582; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3903; ConvF(6.73, 6.73, 6.73) @ 3900 MHz; Calibrated: 2021-03-24
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1629; Calibrated: 2020-08-11
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3900MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 5.87 W/kg

Dipole/3900MHz Head Verification/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 35.95 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 8.92 W/kg
SAR(1 g) = 3.29 W/kg; SAR(10 g) = 1.21 W/kg
Maximum value of SAR (measured) = 6.59 W/kg



0 dB = 5.87 W/kg = 7.69 dBW/kg

■ Verification Data (3 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.5 ℃
Test Date: 05/13/2021

DUT: Dipole 3900 MHz D3900V2; Type: D3900V2;

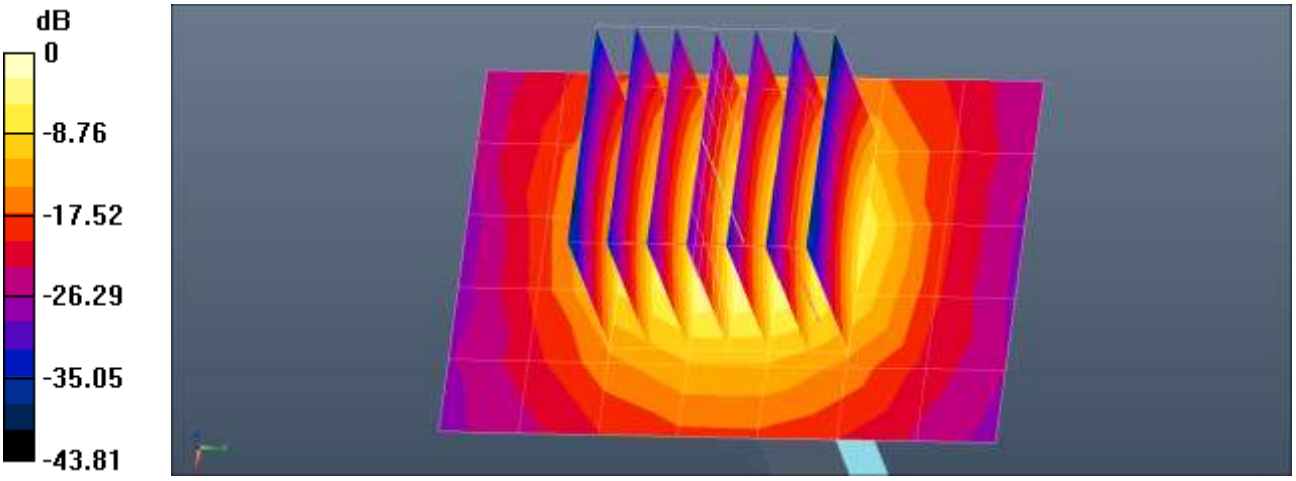
Communication System: UID 0, CW (0); Frequency: 3900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3900 MHz; σ = 3.284 S/m; ε_r = 39.211; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.5, 6.5, 6.5) @ 3900 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3900MHz Head Verification(n77 PC2 Body)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 6.24 W/kg

Dipole/3900MHz Head Verification(n77 PC2 Body)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 50.76 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 11.1 W/kg
SAR(1 g) = 3.66 W/kg; SAR(10 g) = 1.24 W/kg
Maximum value of SAR (measured) = 7.79 W/kg



0 dB = 7.79 W/kg = 8.92 dBW/kg

■ **Verification Data (3 900 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	22.1 ℃
Test Date:	05/12/2021

DUT: Dipole 3900 MHz D3900V2; Type: D3900V2;

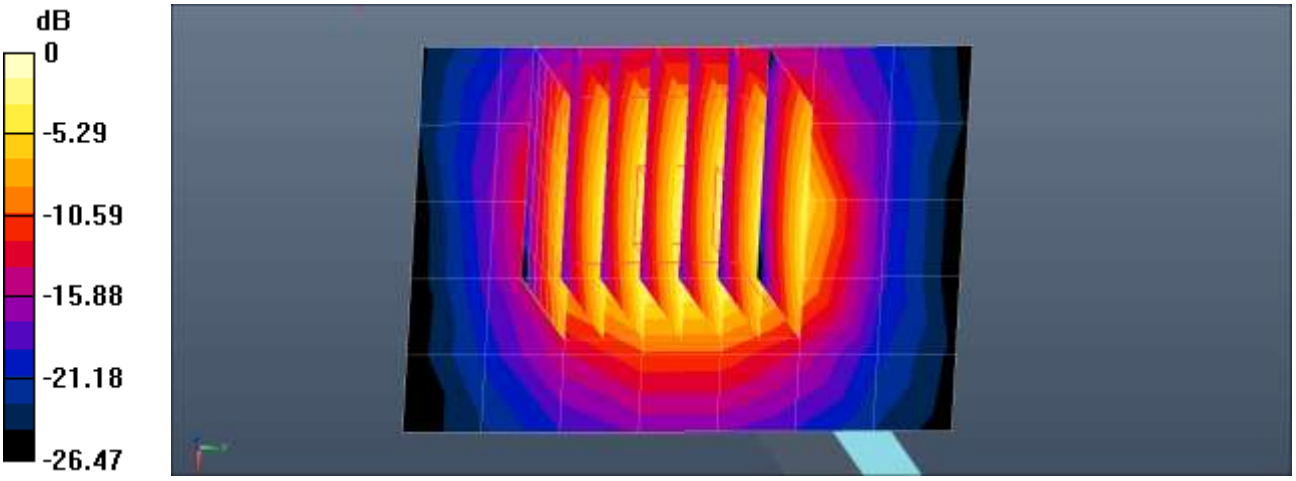
Communication System: UID 0, CW (0); Frequency: 3900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3900 MHz; σ = 3.364 S/m; ε_r = 38.656; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.5, 6.5, 6.5) @ 3900 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3900MHz Head Verification(n77 PC2 Head)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 6.46 W/kg

Dipole/3900MHz Head Verification(n77 PC2 Head)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 51.20 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 3.77 W/kg; SAR(10 g) = 1.28 W/kg
Maximum value of SAR (measured) = 8.04 W/kg



0 dB = 6.46 W/kg = 8.10 dBW/kg

■ **Verification Data (3 900 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.4 ℃
Test Date: 05/14/2021

DUT: Dipole 3900 MHz D3900V2; Type: D3900V2;

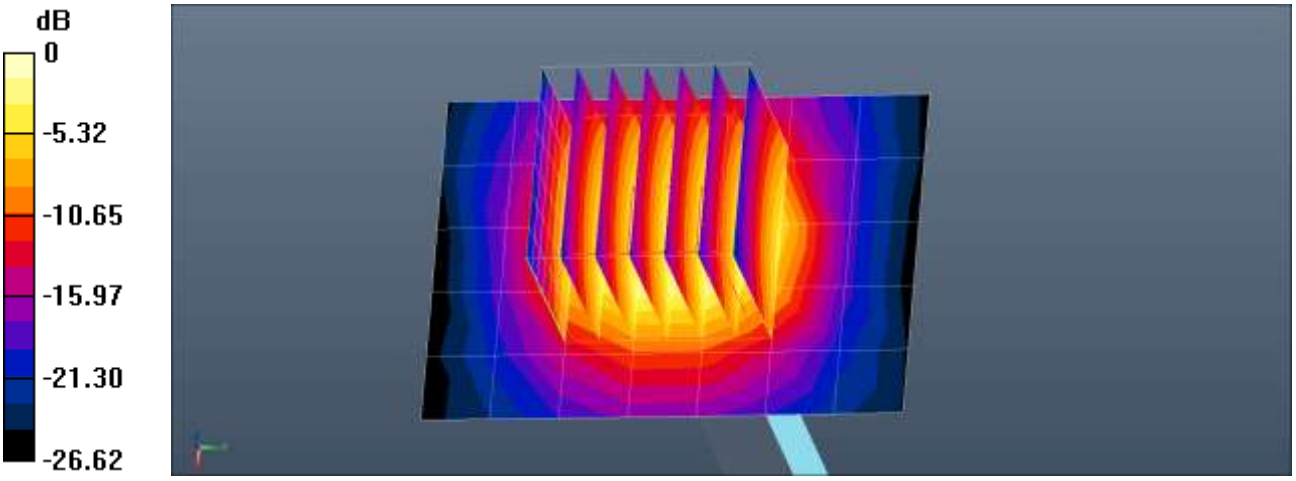
Communication System: UID 0, CW (0); Frequency: 3900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3900 MHz; σ = 3.266 S/m; ε_r = 38.958; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(6.5, 6.5, 6.5) @ 3900 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/3900MHz Head Verification(n77 PC3 Head)/Area Scan (6x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 6.20 W/kg

Dipole/3900MHz Head Verification(n77 PC3 Head)/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 50.98 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 11.2 W/kg
SAR(1 g) = 3.68 W/kg; SAR(10 g) = 1.25 W/kg
Maximum value of SAR (measured) = 7.87 W/kg



0 dB = 6.20 W/kg = 7.92 dBW/kg

Extremity SAR

■ **Verification Data (1 800 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.0 ℃
Test Date: 05/24/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

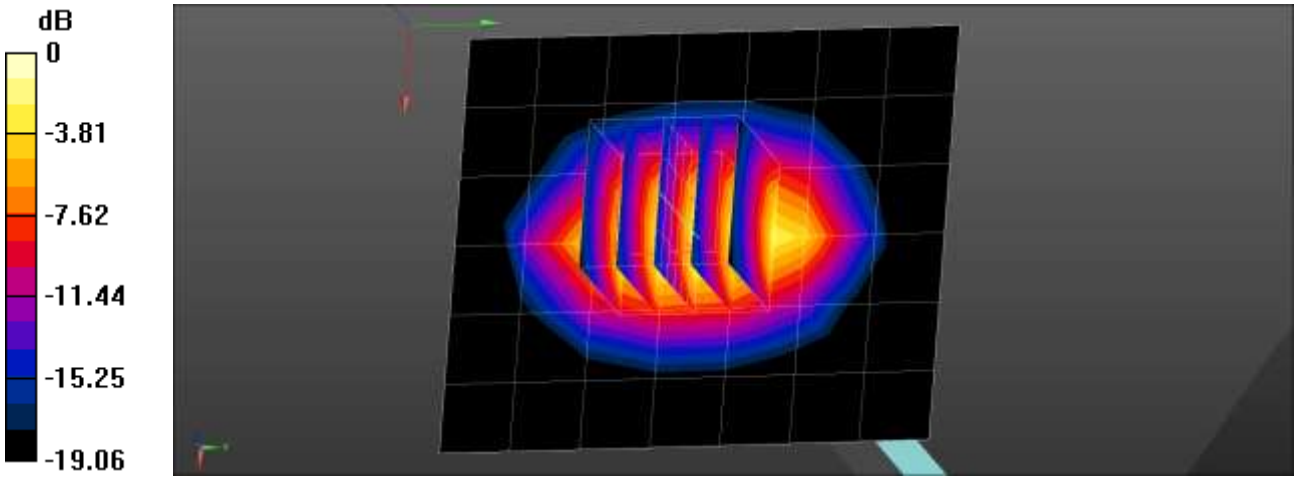
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.459 S/m; ε_r = 41.198; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(8.06, 8.06, 8.06) @ 1800 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1800MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.21 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.24 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 4.17 W/kg
SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.40 W/kg



0 dB = 3.40 W/kg = 5.31 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.6 ℃
Test Date: 04/21/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

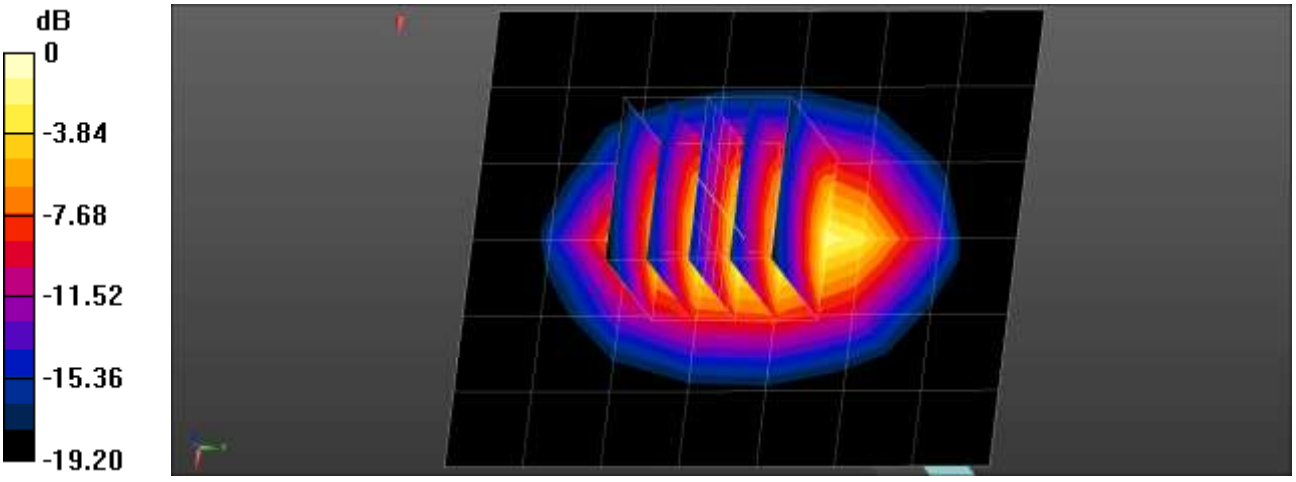
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.34 S/m; ε_r = 41.484; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1900 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.33 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.06 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 4.36 W/kg
SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.05 W/kg
Maximum value of SAR (measured) = 3.52 W/kg



0 dB = 3.52 W/kg = 5.47 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.8 ℃
Test Date: 05/14/2021

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

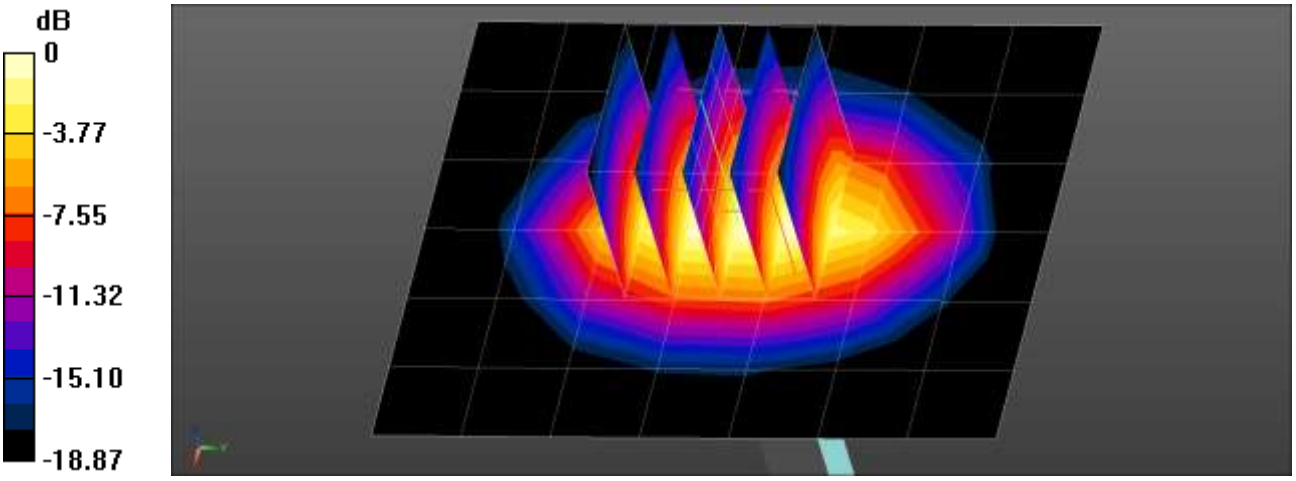
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.449 S/m; ε_r = 41.456; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.83, 7.83, 7.83) @ 1900 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V8.0 (Right-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/1900MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.01 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.63 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.93 W/kg
SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 3.23 W/kg



0 dB = 3.23 W/kg = 5.09 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.0 ℃
Test Date: 05/06/2021
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2;

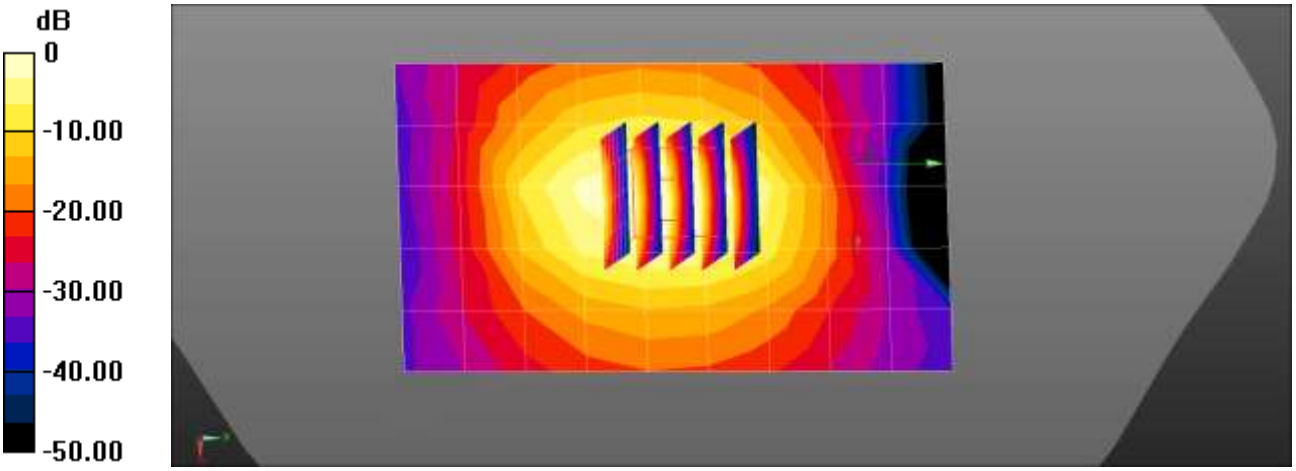
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.452 S/m; ε_r = 41.447; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7622; ConvF(8.78, 8.78, 8.78) @ 1900 MHz; Calibrated: 2020-11-06
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn504; Calibrated: 2021-02-19
- Phantom: SAM_Left
- Measurement SW: DASY52, Version 52.10 (4)

1900MHz Head Verification/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.79 W/kg

1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.13 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 3.90 W/kg
SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.06 W/kg
Maximum value of SAR (measured) = 3.25 W/kg



0 dB = 2.79 W/kg = 4.45 dBW/kg

■ **Verification Data (2 300 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 22.4 ℃
Test Date: 05/24/2021
DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

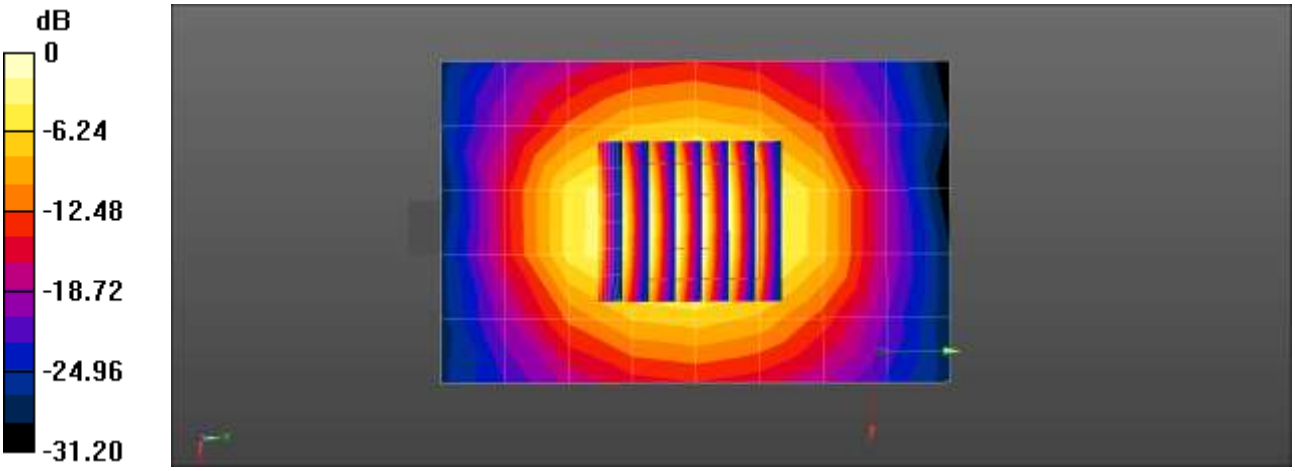
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.673 S/m; ε_r = 40.733; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.87, 4.87, 4.87) @ 2300 MHz; Calibrated: 2020-07-31
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn466; Calibrated: 2021-04-23
- Phantom: Twin-SAM V8.0
- Measurement SW: DASY52, Version 52.10 (4)

2300MHz Head Verification/Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.44 W/kg

2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.28 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 5.14 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



0 dB = 2.44 W/kg = 3.87 dBW/kg

■ **Verification Data (2 300 ㎒ Head)**

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.7 ℃
Test Date: 05/04/2021

DUT: Dipole 2300 MHz D2300V2; Type: D2300V3;

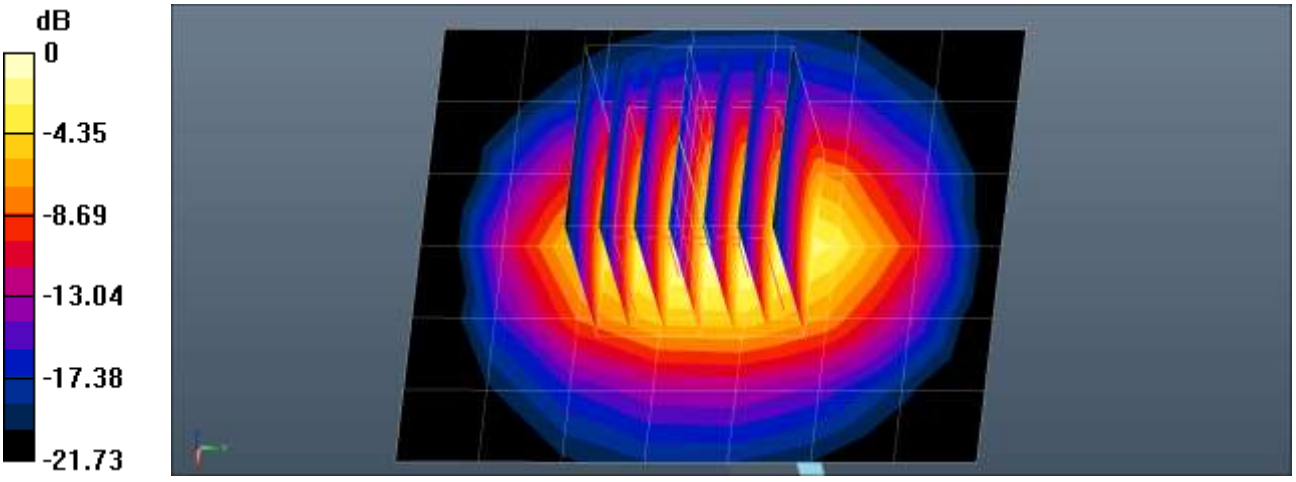
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.722 S/m; ε_r = 40.693; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.64, 7.64, 7.64) @ 2300 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2300MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.99 W/kg

Dipole/2300MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.38 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 5.40 W/kg
SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 4.25 W/kg



0 dB = 4.25 W/kg = 6.28 dBW/kg

■ Verification Data (2 6000 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.1 ℃
Test Date:	04/23/2021

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

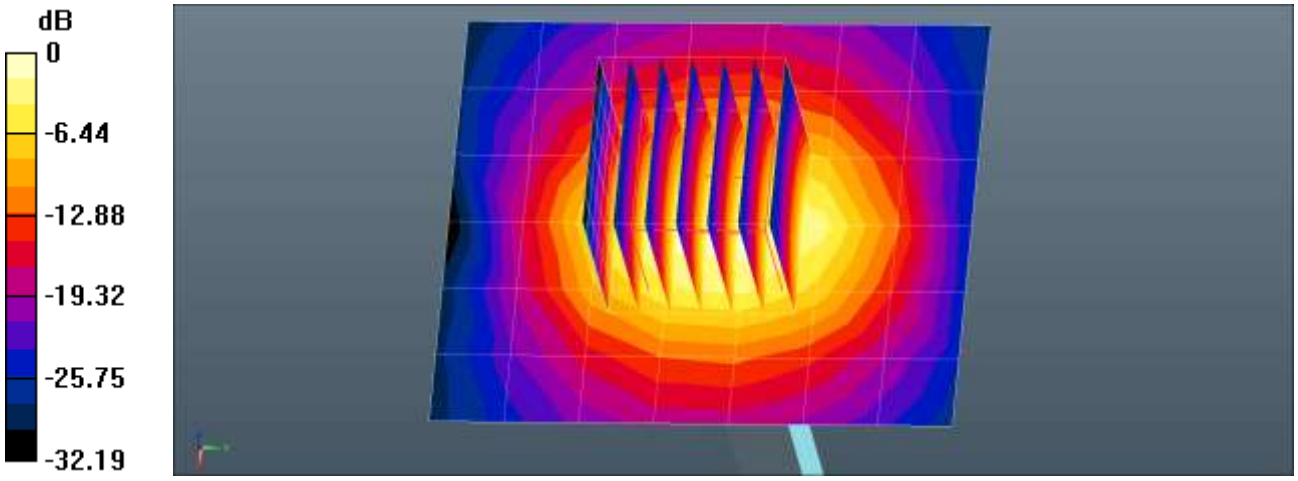
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.042 S/m; ε_r = 39.796; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.34, 7.34, 7.34) @ 2600 MHz; Calibrated: 2020-09-28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn868; Calibrated: 2020-09-29
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2600MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.71 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.52 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 6.65 W/kg
SAR(1 g) = 2.87 W/kg; SAR(10 g) = 1.25 W/kg
Maximum value of SAR (measured) = 5.09 W/kg



0 dB = 4.71 W/kg = 6.73 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.5 ℃
Test Date:	04/28/2021

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2;

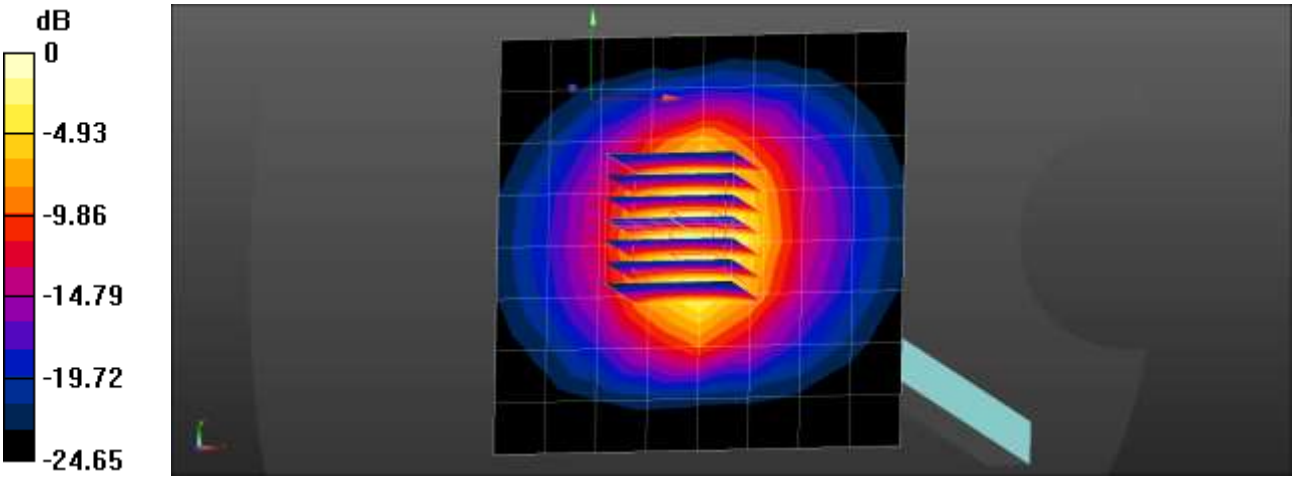
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.957 S/m; ε_r = 39.825; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.22, 7.22, 7.22) @ 2600 MHz; Calibrated: 2020-11-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn446; Calibrated: 2020-07-29
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (4)

Dipole/2600MHz Head Verification/Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 5.01 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.44 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 6.50 W/kg
SAR(1 g) = 2.81 W/kg; SAR(10 g) = 1.23 W/kg
Maximum value of SAR (measured) = 5.05 W/kg



0 dB = 5.05 W/kg = 7.03 dBW/kg

Appendix E. – SAR Tissue Characterization

Per FCC KCB 865664 D02v01r02, SAR system validation status should be document to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2013 and FCC KDB 865664 D01v01r04. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.
A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
3	3903	EX3DV4	Head	750	1014	2020-06-25	42.1	0.92	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	835	4d266	2020-09-22	41.5	0.89	PASS	PASS	PASS	GMSK	PASS	N/A
2	3797	EX3DV4	Head	835	4d266	2020-12-25	41.6	0.90	PASS	PASS	PASS	GMSK	PASS	N/A
3	3903	EX3DV4	Head	835	4d266	2020-08-20	41.5	0.89	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	1750	2d007	2020-09-27	40.2	1.49	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	1750	2d007	2020-09-28	40.1	1.41	PASS	PASS	PASS	N/A	N/A	N/A
2	3797	EX3DV4	Head	1750	2d007	2020-12-20	40.2	1.38	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	1900	5d032	2020-09-04	40.1	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
2	3797	EX3DV4	Head	1900	5d032	2020-12-19	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	1900	5d032	2020-09-04	40.1	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
7	7622	EX3DV4	Head	1900	5d032	2020-09-15	40.1	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
2	3797	EX3DV4	Head	1900	5d032	2020-12-19	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	2300	1010	2020-09-04	40.1	1.42	PASS	PASS	PASS	TDD	PASS	NA
2	3797	EX3DV4	Head	2450	1049	2020-12-20	39.2	1.83	PASS	PASS	PASS	OFDM	N/A	PASS
4	3968	EX3DV4	Head	2600	1015	2020-09-29	39.1	1.94	PASS	PASS	PASS	NA	N/A	NA
5	3076	ES3DV3	Head	2600	1015	2020-09-25	38.7	1.95	PASS	PASS	PASS	TDD	PASS	NA
4	3968	EX3DV4	Head	3500	1040	2020-09-29	39.1	1.94	PASS	PASS	PASS	TDD	PASS	NA
3	3903	EX3DV4	Head	5250	1253	2020-09-15	35.7	4.70	PASS	PASS	PASS	OFDM	N/A	PASS
3	3903	EX3DV4	Head	5600	1253	2020-09-15	35.3	5.05	PASS	PASS	PASS	OFDM	N/A	PASS
3	3903	EX3DV4	Head	5750	1253	2020-09-15	35.6	5.24	PASS	PASS	PASS	OFDM	N/A	PASS
8	7352	EX3DV4	Head	5250	1253	2020-09-15	35.7	4.70	PASS	PASS	PASS	OFDM	N/A	PASS
8	7352	EX3DV4	Head	5600	1253	2020-09-15	35.3	5.05	PASS	PASS	PASS	OFDM	N/A	PASS
8	7352	EX3DV4	Head	5750	1253	2020-09-15	35.6	5.24	PASS	PASS	PASS	OFDM	N/A	PASS
7	7622	EX3DV4	Head	750	1014	2020-09-25	41.8	0.89	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	835	4d266	2020-09-22	41.5	0.89	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	1750	2d007	2020-09-28	40.1	1.41	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	1900	5d032	2020-09-15	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
5	3076	ES3DV3	Head	2300	1010	2020-10-25	39.8	1.41	PASS	PASS	PASS	N/A	N/A	N/A

4	3968	EX3DV4	Head	2600	1015	2020-09-29	39.1	1.94	PASS	PASS	PASS	NA	N/A	NA
3	3903	EX3DV4	Head	3700	1066	2020-12-08	37.5	3.13	PASS	PASS	PASS	TDD	PASS	N/A
4	3968	EX3DV4	Head	3700	1066	2020-09-29	39.1	1.94	PASS	PASS	PASS	NA	N/A	NA
4	3968	EX3DV4	Head	3900	1019	2020-09-29	39.1	1.94	PASS	PASS	PASS	NA	N/A	NA
8	7352	EX3DV4	Head	5250	1253	2020-09-15	35.7	4.70	PASS	PASS	PASS	OFDM	N/A	PASS
8	7352	EX3DV4	Head	5600	1253	2020-09-15	35.3	5.05	PASS	PASS	PASS	OFDM	N/A	PASS
3	3903	EX3DV4	Head	5250	1253	2020-09-15	35.7	4.70	PASS	PASS	PASS	OFDM	N/A	PASS
3	3903	EX3DV4	Head	5600	1253	2020-09-15	35.3	5.05	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary 1g

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
7	7622	EX3DV4	Head	1750	2d007	2020-09-28	40.1	1.41	PASS	PASS	PASS	N/A	N/A	N/A
2	3797	EX3DV4	Head	1750	2d007	2020-12-20	40.2	1.38	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	1900	5d032	2020-09-04	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
7	7622	EX3DV4	Head	1900	5d032	2020-09-15	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
2	3797	EX3DV4	Head	1900	5d032	2020-12-19	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
5	3076	ES3DV3	Head	2300	1010	2020-10-25	39.8	1.41	PASS	PASS	PASS	N/A	N/A	N/A
4	3968	EX3DV4	Head	2600	1015	2020-09-04	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
2	3797	EX3DV4	Head	2600	1015	2020-12-26	39.1	1.94	PASS	PASS	PASS	N/A	N/A	N/A

SAR System Validation Summary – Extremity SAR Considerations

Note;
All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04. SAR system were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664 D01v01r04.