Appendix A. Plots of System Verification

The plots for system verification are shown as follows.

Plots of System Verification

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

S01 System Check_H2450_221122

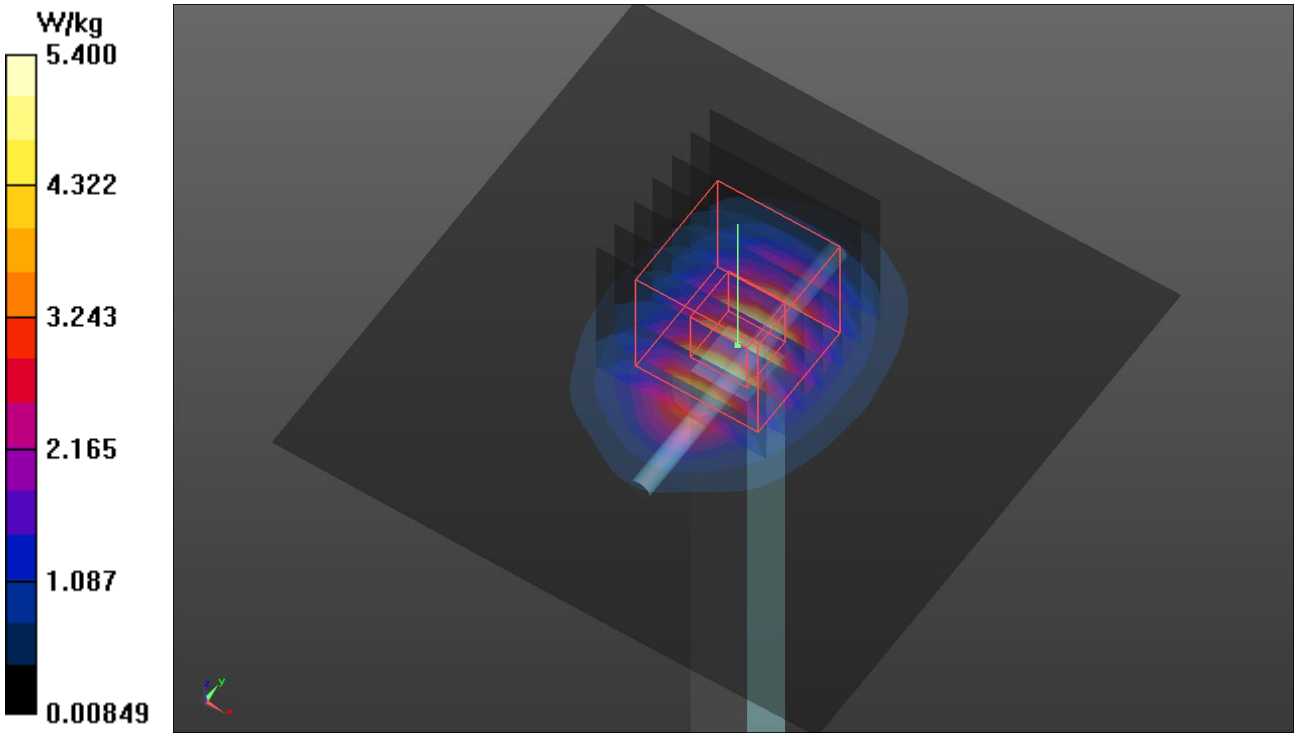
DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: H06T27N4_1122 Medium parameters used: f = 2450 MHz; σ = 1.853 S/m; ε_r = 39.986; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(7.98, 7.98, 7.98) @ 2450 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 5.40 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.13 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 6.77 W/kg
SAR(1 g) = 2.61 W/kg; SAR(10 g) = 1.21 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.38 W/kg



Plots of System Verification

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

S02 System Check_H5250_221122

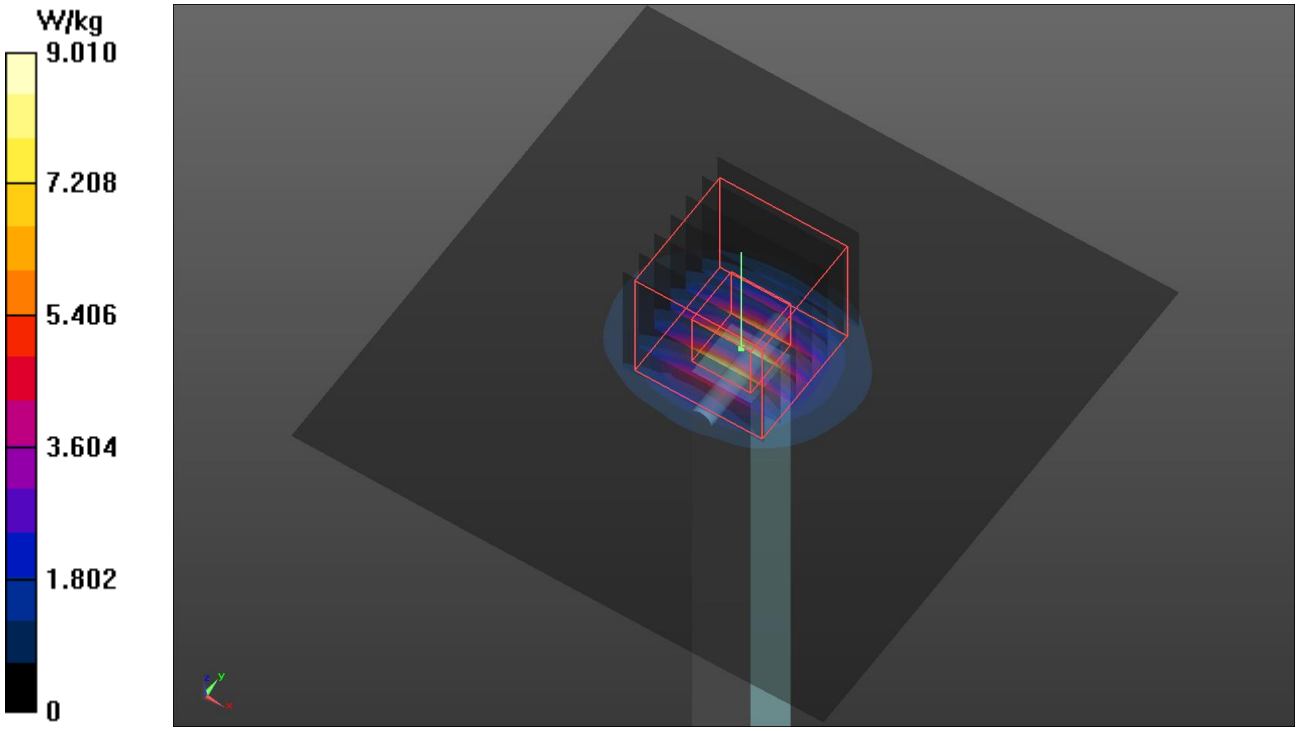
DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

Communication System: UID 0, CW; Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: H50T72N4_1122 Medium parameters used: f = 5250 MHz; σ = 4.476 S/m; ε_r = 34.926; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(5.1, 5.1, 5.1) @ 5250 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.01 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 49.58 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 15.9 W/kg
SAR(1 g) = 3.90 W/kg; SAR(10 g) = 1.12 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 9.94 W/kg



Plots of System Verification

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/29

S03 System Check_H5600_221129

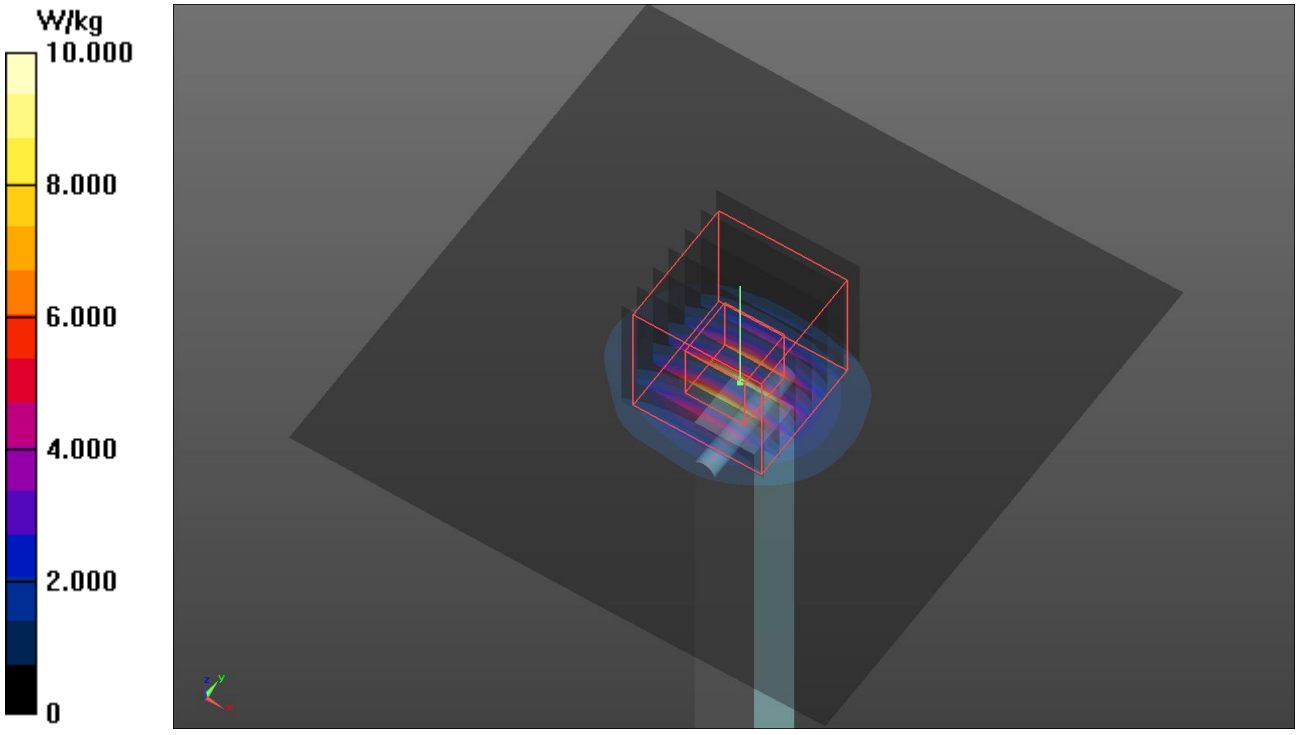
DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

Communication System: UID 0, CW; Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: H51T72N1_1129 Medium parameters used: f = 5600 MHz; σ = 5.173 S/m; ε_r = 34.883; ρ = 1000 kg/m^3
Ambient Temperature：22.2 ℃； Liquid Temperature：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7707; ConvF(5.14, 5.14, 5.14) @ 5600 MHz; Calibrated: 2022/2/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2022/2/23
- Phantom: ELI Phantom_1206; Type: QDOVA001BB;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 10.0 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.13 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 4.21 W/kg; SAR(10 g) = 1.22 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 10.7 W/kg



Plots of System Verification

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/29

S04 System Check_H5750_221129

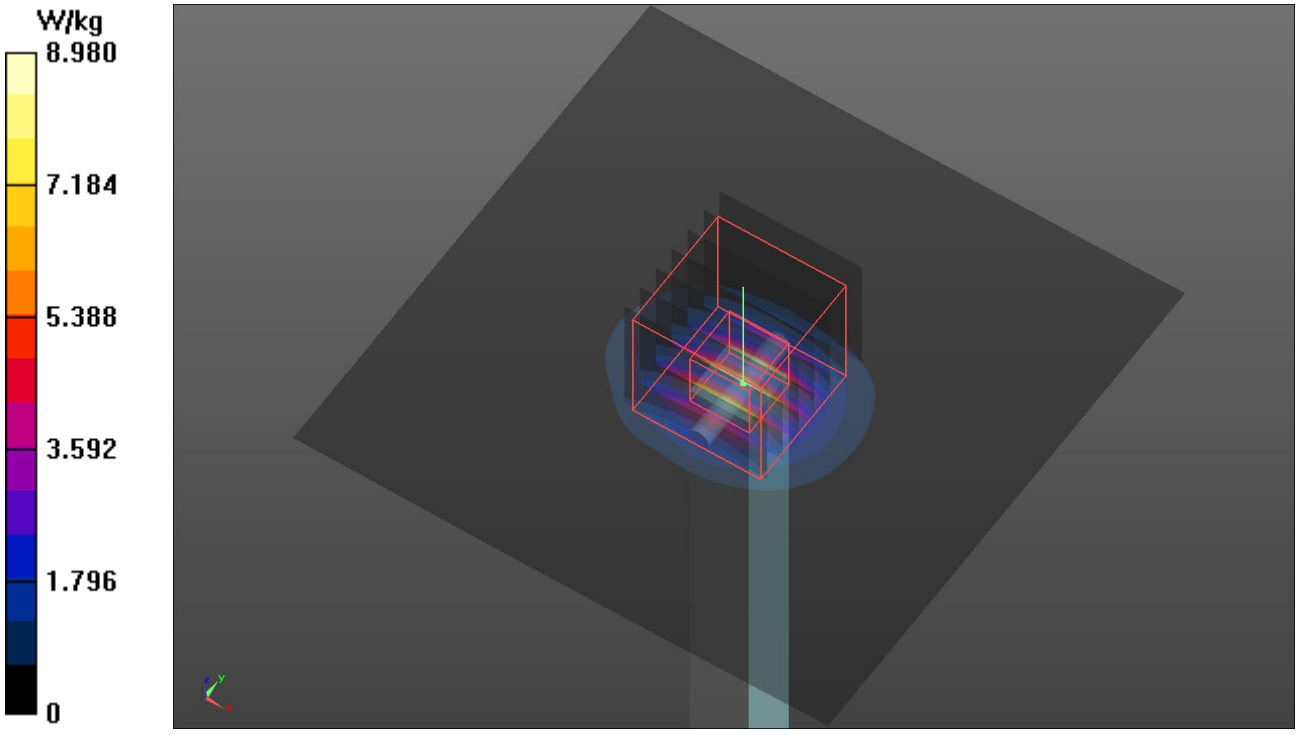
DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

Communication System: UID 0, CW; Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: H51T72N1_1129 Medium parameters used: f = 5750 MHz; σ = 5.354 S/m; ε_r = 34.6; ρ = 1000 kg/m^3
Ambient Temperature：22.2 ℃； Liquid Temperature：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7707; ConvF(5.2, 5.2, 5.2) @ 5750 MHz; Calibrated: 2022/2/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2022/2/23
- Phantom: ELI Phantom_1206; Type: QDOVA001BB;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.98 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 44.77 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 3.69 W/kg; SAR(10 g) = 1.05 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 9.66 W/kg



Plots of System Verification

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

S05 System Check_H2450_221122

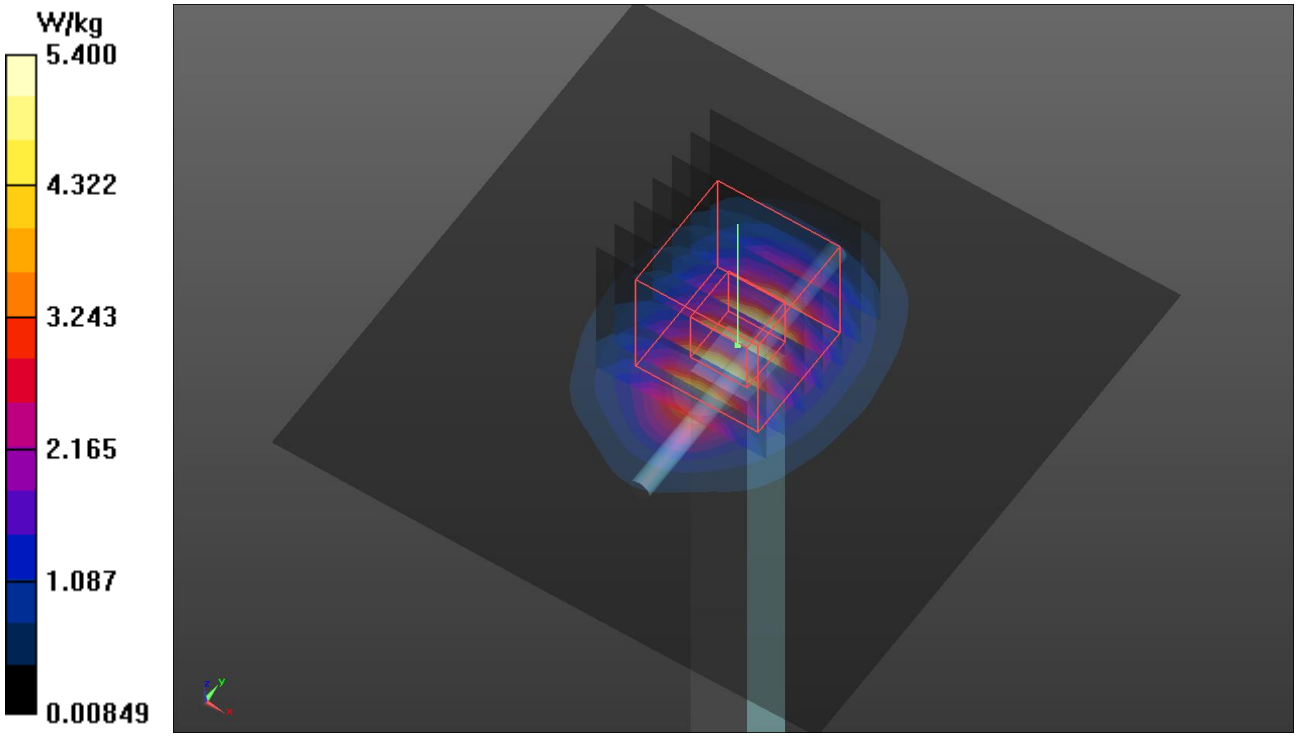
DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: H06T27N4_1122 Medium parameters used: f = 2450 MHz; σ = 1.853 S/m; ε_r = 39.986; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(7.98, 7.98, 7.98) @ 2450 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 5.40 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.13 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 6.77 W/kg
SAR(1 g) = 2.61 W/kg; SAR(10 g) = 1.21 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.38 W/kg



Plots of System Verification

Measurement Report
S06 System Check_H6500_221130
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Dipole,	50.0 x 10.0 x 8.0		Laptop

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat,				6500.0	5.65	5.81	32.9

Hardware Setup

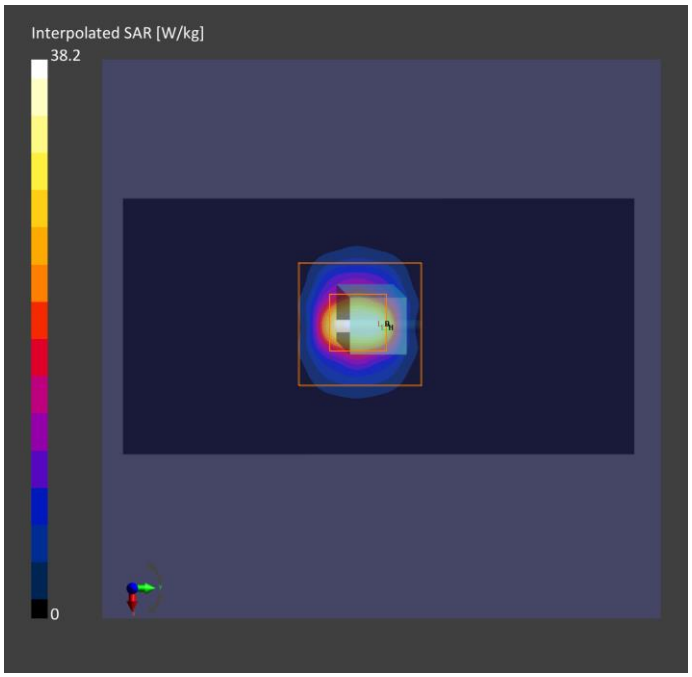
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 2105	H50T71N1 , 2022-Nov-30	EX3DV4 - SN7554, 2022-07-28	DAE4 Sn1341, 2022-07-19

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	45.0 x 90.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	7.5 x 7.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-11-30	2022-11-30
psSAR1g [W/kg]	25.5	29.4
psSAR10g [W/kg]	5.06	5.39
psAPD (1.0cm2, sq) [W/m2]		295
psAPD (4.0cm2, sq) [W/m2]		133
Power Drift [dB]	0.05	0.01
M2/M1 [%]		57.2
Dist 3dB Peak [mm]		8.1



Plots of System Verification

Measurement Report
S06 PD_System Check_10 GHz_2022.11.30
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG, 5G Verification Source 10 GHz	100.0 x 100.0 x 170.0		Laptop

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	FRONT, 5.55	Validation band	CW,	10000.0, 10000	1.0

Hardware Setup

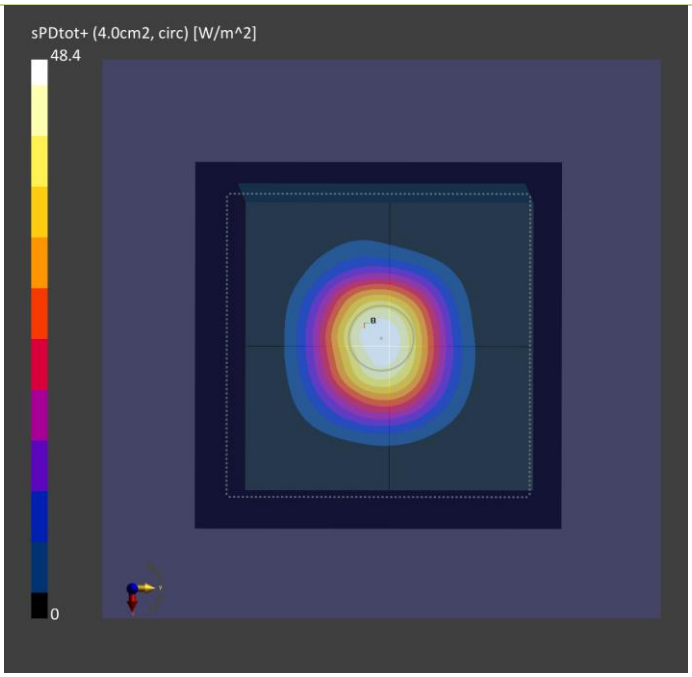
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1029	--Air--	EUmmWV4 - SN9438_F1-55GHz, 2022-07-18	DAE4 Sn1341, 2022-07-19

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	5.55

Measurement Results

	5G Scan
Date	2022-11-30
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	48.1
psPDtot+ [W/m²]	48.4
psPDmod+ [W/m²]	48.6
E_{max} [V/m]	141
Power Drift [dB]	-0.03



Appendix B. Plots of Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination are shown as follows.

Plots of Measurement

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

P01 WLAN2.4G_802.11b_Bottom Side_0mm_Ch11_Tablet_Ant 0_Pulse

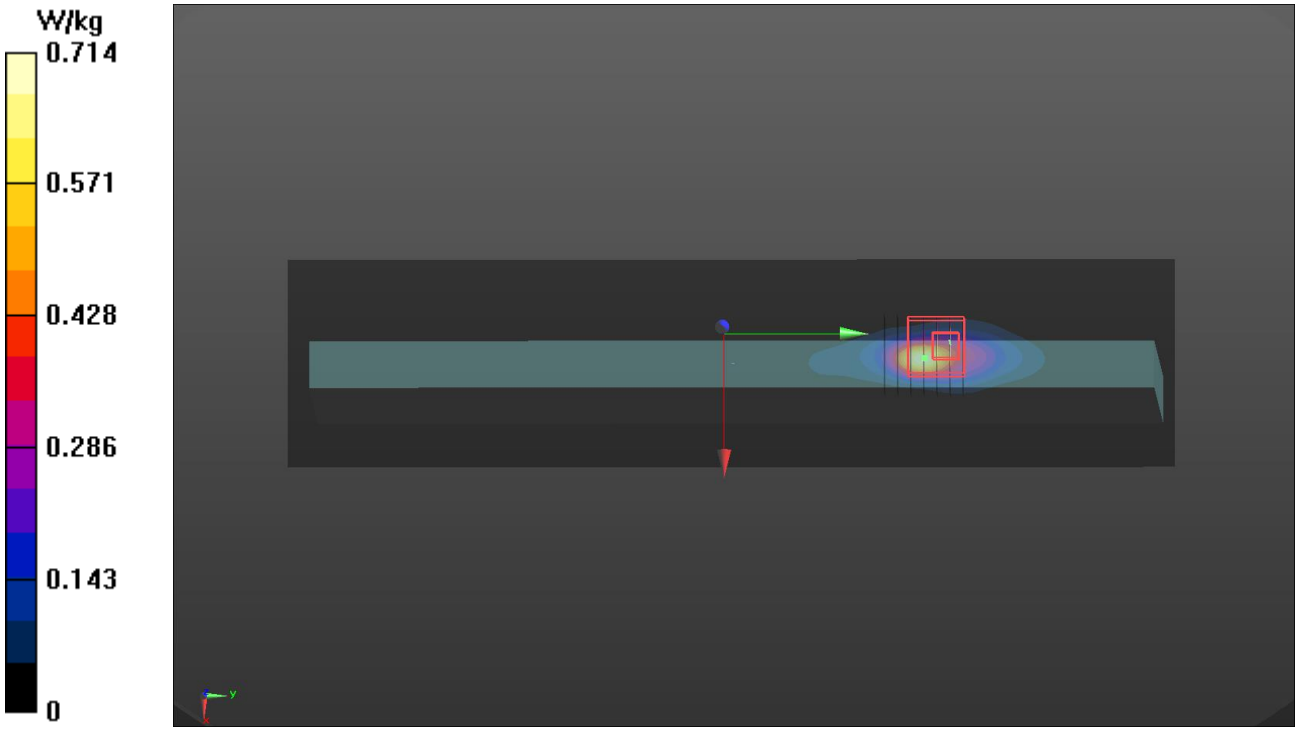
DUT: BEQF-WTW-P22100398

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2462 MHz;Duty Cycle: 1:1.01
Medium: H06T27N4_1122 Medium parameters used: f = 2462 MHz; σ = 1.862 S/m; ε_r = 39.969; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(7.98, 7.98, 7.98) @ 2462 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (71x291x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.714 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.71 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 2.94 W/kg
SAR(1 g) = 0.926 W/kg; SAR(10 g) = 0.299 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 6.5 mm
Ratio of SAR at M2 to SAR at M1 = 34%
Maximum value of SAR (measured) = 2.16 W/kg



Plots of Measurement

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

P02 WLAN5.3G_802.11ac VHT160_Bottom Side_0mm_Ch50_Tablet_Ant 0+1_Pulse

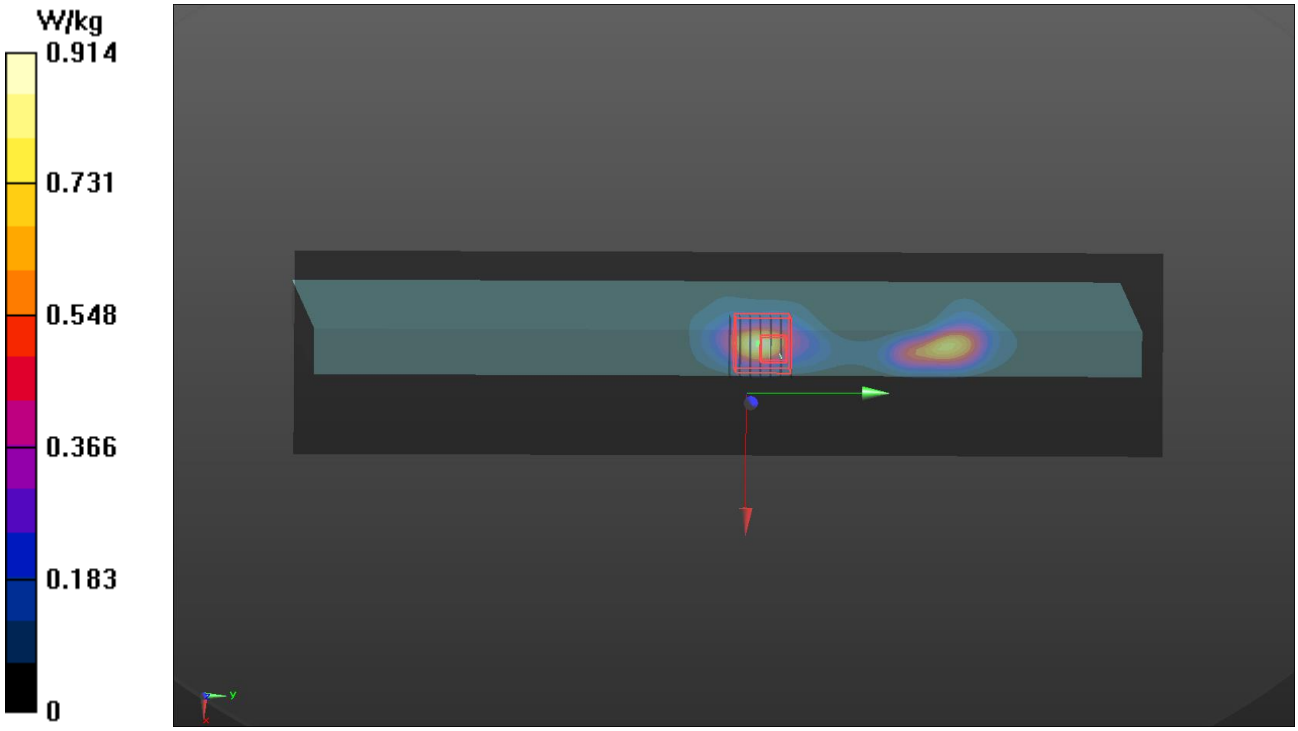
DUT: BEQF-WTW-P22100398

Communication System: UID 10554 - AAD, IEEE 802.11ac WiFi (160MHz, MCS0); Frequency: 5250 MHz;Duty Cycle: 1:1.01
Medium: H50T72N4_1122 Medium parameters used: f = 5250 MHz; σ = 4.476 S/m; ε_r = 34.926; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(5.1, 5.1, 5.1) @ 5250 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (81x341x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.914 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 14.15 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 2.81 W/kg
SAR(1 g) = 0.618 W/kg; SAR(10 g) = 0.160 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 4.3 mm
Ratio of SAR at M2 to SAR at M1 = 65.3%
Maximum value of SAR (measured) = 1.49 W/kg



Plots of Measurement

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/29

P03 WLAN5.6G_802.11ac VHT160_Bottom Side_0mm_Ch114_Tablet_Ant 0+1_Pulse

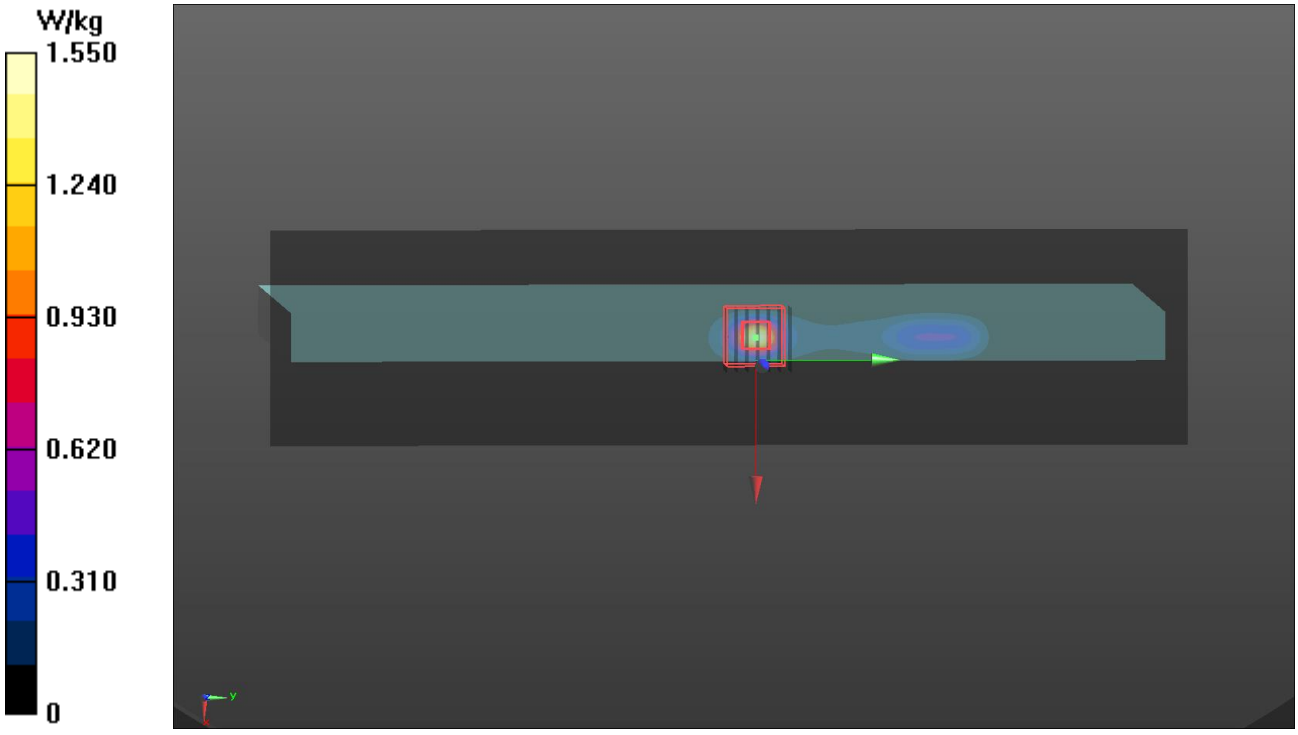
DUT: BEQF-WTW-P22100398

Communication System: UID 10554 - AAD, IEEE 802.11ac WiFi (160MHz, MCS0); Frequency: 5570 MHz;Duty Cycle: 1:1.01
Medium: H51T72N1_1129 Medium parameters used: f = 5570 MHz; σ = 5.135 S/m; ε_r = 34.947; ρ = 1000 kg/m^3
Ambient Temperature：22.2 ℃； Liquid Temperature：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7707; ConvF(5.14, 5.14, 5.14) @ 5570 MHz; Calibrated: 2022/2/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2022/2/23
- Phantom: ELI Phantom_1206; Type: QDOVA001BB;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (81x341x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.55 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.03 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.96 W/kg
SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.117 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 4.8 mm
Ratio of SAR at M2 to SAR at M1 = 57.9%
Maximum value of SAR (measured) = 1.58 W/kg



Plots of Measurement

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/29

P04 WLAN5.8G_802.11ac VHT80_Bottom Side_0mm_Ch155_Tablet_Ant 0_Pulse

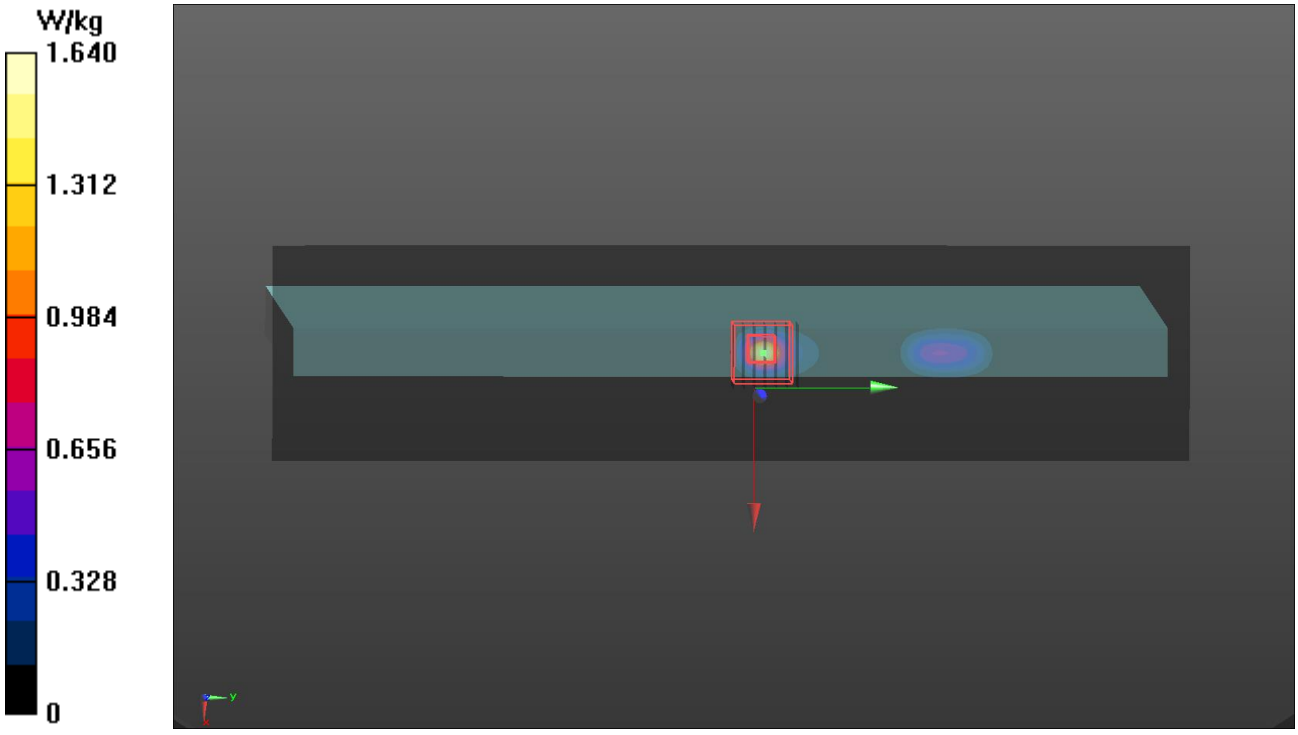
DUT: BEQF-WTW-P22100398

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5775 MHz;Duty Cycle: 1:1.01
Medium: H51T72N1_1129 Medium parameters used: f = 5775 MHz; σ = 5.383 S/m; ε_r = 34.555; ρ = 1000 kg/m^3
Ambient Temperature：22.2 ℃； Liquid Temperature：22.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7707; ConvF(5.2, 5.2, 5.2) @ 5775 MHz; Calibrated: 2022/2/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2022/2/23
- Phantom: ELI Phantom_1206; Type: QDOVA001BB;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (81x341x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.64 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 18.32 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.10 W/kg
SAR(1 g) = 0.501 W/kg; SAR(10 g) = 0.100 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 4.3 mm
Ratio of SAR at M2 to SAR at M1 = 58.2%
Maximum value of SAR (measured) = 1.49 W/kg



Plots of Measurement

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2022/11/22

P05 BT_BDR_Bottom Side_0mm_Ch78_Tablet_Ant 1_Pulse

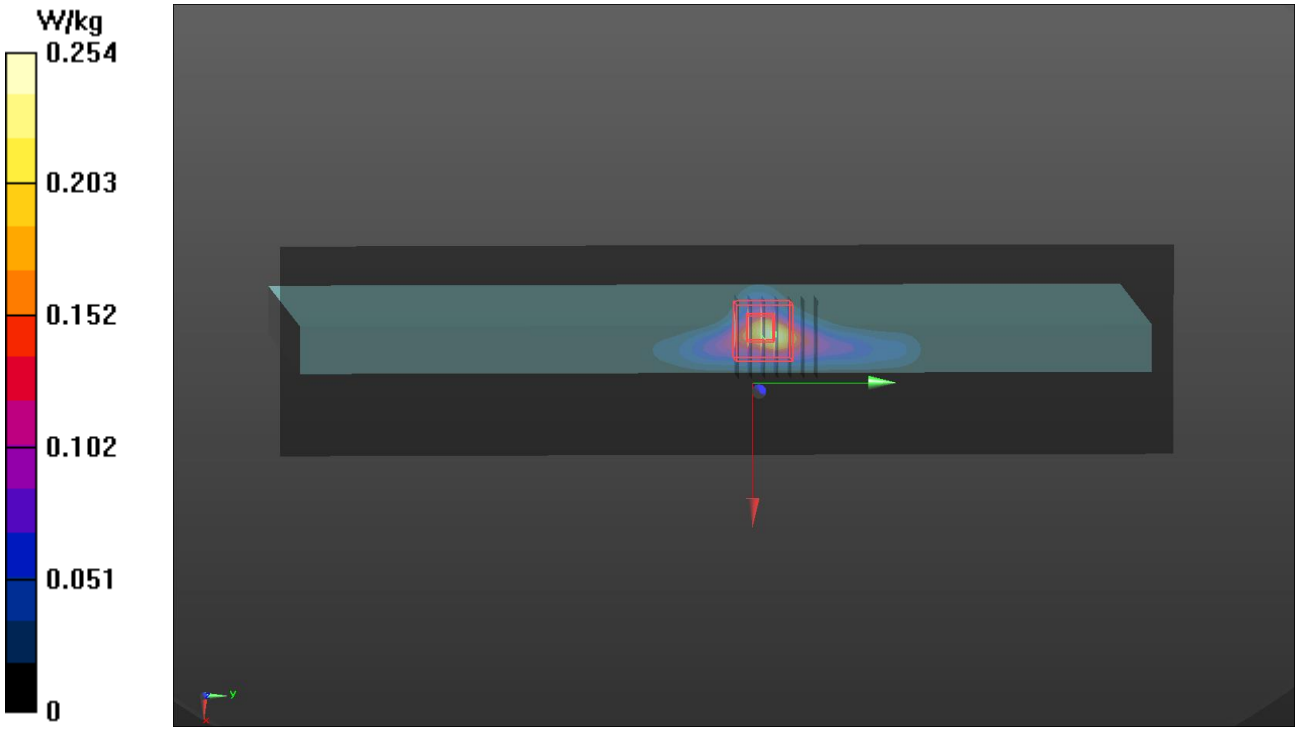
DUT: BEQF-WTW-P22100398

Communication System: UID 10032 - CAA, IEEE 802.15.1 Bluetooth (GFSK, DH5); Frequency: 2480 MHz;Duty Cycle: 1:1.29
Medium: H06T27N4_1122 Medium parameters used: f = 2480 MHz; σ = 1.876 S/m; ε_r = 39.941; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃； Liquid Temperature：23.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3971; ConvF(7.98, 7.98, 7.98) @ 2480 MHz; Calibrated: 2022/1/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2022/1/19
- Phantom: ELI_Phantom_1204; Type: QD OVA 002 Ax; Serial: 1204
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (71x291x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.254 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.001 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.082 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 6.1 mm
Ratio of SAR at M2 to SAR at M1 = 34.1%
Maximum value of SAR (measured) = 1.01 W/kg



Plots of Measurement

Measurement Report for Device
P06 WLAN6G_802.11ax HE160_Bottom_Ch207_Laptop_Ant 1_Pulse
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
BEQF-WTW-P22100398	314.0 x 214.0 x 18.0		Laptop

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BOTTOM, 0.00	U-NII-5	WLAN, 10755-AAC	6985.0, 207	5.65	6.35	32.3

Hardware Setup

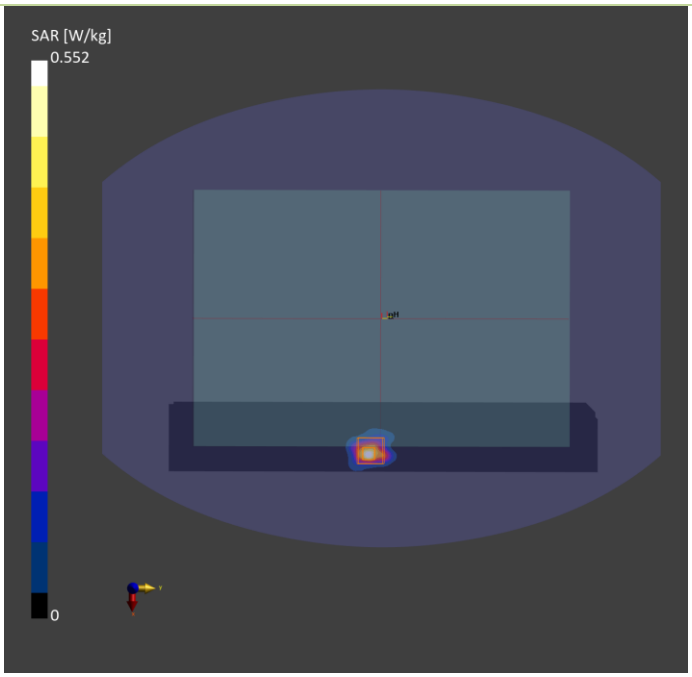
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 2105	H50T71N1, 2022-Nov-30	EX3DV4 - SN7554, 2022-07-28	DAE4 Sn1341, 2022-07-19

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	60.0 x 285.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	7.5 x 7.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2022-11-30	2022-11-09
psSAR1g [W/kg]	0.622	0.654
psSAR10g [W/kg]	0.190	0.185
Power Drift [dB]	0.05	-0.04
M2/M1 [%]		47.6
Dist 3dB Peak [mm]		5.0



Plots of Measurement

Measurement Report
P06 WLAN6G_802.11ax HE160_Bottom_Ch207_Laptop_Ant 1_Pulse
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
BEQF-WTW-P22100398	314.0 x 214.0 x 18.0		Laptop

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	Bottom, 2.00	U-NII-8	WLAN, 10755-AAC	6985.0, 207	1.0

Hardware Setup

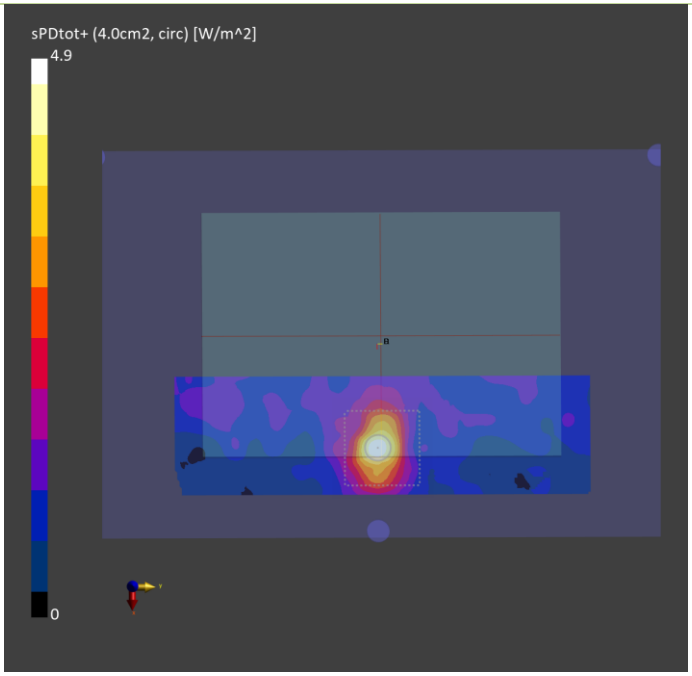
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1029	--Air--	EUmmWV4 - SN9438_F1-55GHz, 2022-07-18	DAE4 Sn1341, 2022-07-19

Scan Setup

	5G Scan
Grid Extents [mm]	86.0 x 86.0
Grid Steps [lambda]	0.0582 x 0.0582
Sensor Surface [mm]	2.0

Measurement Results

	5G Scan
Date	2022-11-30
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	2.88
psPDtot+ [W/m^2]	4.90
psPDmod+ [W/m^2]	5.80
E_{max} [V/m]	74.9
Power Drift [dB]	-0.15



Appendix D. Maximum Target Conducted Power

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

Tune-up Power -Laptop Operating Mode							
WLAN 2.4GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11b	1	2412	19.0	19.0			
	6	2437	19.0	19.0			
	11	2462	19.0	19.0			
	12	2467	14.0	14.0			
	13	2472	12.5	12.5			
802.11g	1	2412	19.0	19.0			
	6	2437	19.0	19.0			
	11	2462	16.0	16.0			
	12	2467	11.0	11.0			
	13	2472	9.0	9.0			
802.11n HT20	1	2412	17.0	17.0	17.0	17.0	20.0
	6	2437	19.0	19.0	19.0	19.0	22.0
	11	2462	15.0	15.0	15.0	15.0	18.0
	12	2467	11.5	11.5	11.5	11.5	14.5
	13	2472	8.5	8.5	8.5	8.5	11.5
802.11n HT40	3	2422	14.0	14.0	14.0	14.0	17.0
	6	2437	17.0	17.0	17.0	17.0	20.0
	9	2452	14.0	14.0	14.0	14.0	17.0
	10	2457	12.0	12.0	12.0	12.0	15.0
	11	2462	10.0	10.0	10.0	10.0	13.0
802.11ax HE20	1	2412	17.5	17.5	17.5	17.5	20.5
	6	2437	19.0	19.0	19.0	19.0	22.0
	11	2462	15.0	15.0	15.0	15.0	18.0
	12	2467	11.0	11.0	11.0	11.0	14.0
	13	2472	8.5	8.5	8.5	8.5	11.5
802.11ax HE40	3	2422	14.0	14.0	14.0	14.0	17.0
	6	2437	17.0	17.0	17.0	17.0	20.0
	9	2452	14.0	14.0	14.0	14.0	17.0
	10	2457	12.0	12.0	12.0	12.0	15.0
	11	2462	10.0	10.0	10.0	10.0	13.0

Tune-up Power -Laptop Operating Mode			
Bluetooth			
Mode	Channel	Frequency	Ant 1 Max Tune-up
BR / EDR	0	2402	10.5
	39	2441	10.5
	78	2480	10.5
LE	0	2402	9.5
	19	2440	9.5
	39	2480	9.5

Tune-up Power -Laptop Operating Mode							
WLAN 5.2GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	36	5180	11.0	11.0			
	40	5200	11.0	11.0			
	44	5220	11.0	11.0			
	48	5240	11.0	11.0			
802.11n HT20	36	5180	11.0	11.0	11.0	11.0	14.0
	40	5200	11.0	11.0	11.0	11.0	14.0
	44	5220	11.0	11.0	11.0	11.0	14.0
	48	5240	11.0	11.0	11.0	11.0	14.0
802.11n HT40	38	5190	11.0	11.0	11.0	11.0	14.0
	46	5230	11.0	11.0	11.0	11.0	14.0
802.11ac VHT80	42	5210	11.0	11.0	11.0	11.0	14.0
802.11ax HE20	36	5180	11.0	11.0	11.0	11.0	14.0
	40	5200	11.0	11.0	11.0	11.0	14.0
	44	5220	11.0	11.0	11.0	11.0	14.0
	48	5240	11.0	11.0	11.0	11.0	14.0
802.11ax HE40	38	5190	11.0	11.0	11.0	11.0	14.0
	46	5230	11.0	11.0	11.0	11.0	14.0
802.11ax HE80	42	5210	11.0	11.0	11.0	11.0	14.0

Tune-up Power -Laptop Operating Mode							
WLAN 5.3GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	52	5260	11.0	11.0			
	56	5280	11.0	11.0			
	60	5300	11.0	11.0			
	64	5320	11.0	11.0			
802.11n HT20	52	5260	11.0	11.0	11.0	11.0	14.0
	56	5280	11.0	11.0	11.0	11.0	14.0
	60	5300	11.0	11.0	11.0	11.0	14.0
	64	5320	11.0	11.0	11.0	11.0	14.0
802.11n HT40	54	5270	11.0	11.0	11.0	11.0	14.0
	62	5310	11.0	11.0	11.0	11.0	14.0
802.11ac VHT80	58	5290	11.0	11.0	11.0	11.0	14.0
802.11ac VHT160	50	5250	11.0	11.0	11.0	11.0	14.0
802.11ax HE20	52	5260	11.0	11.0	11.0	11.0	14.0
	56	5280	11.0	11.0	11.0	11.0	14.0
	60	5300	11.0	11.0	11.0	11.0	14.0
	64	5320	11.0	11.0	11.0	11.0	14.0
802.11ax HE40	54	5270	11.0	11.0	11.0	11.0	14.0
	62	5310	11.0	11.0	11.0	11.0	14.0
802.11ax HE80	58	5290	11.0	11.0	11.0	11.0	14.0
802.11ax HE160	50	5250	11.0	11.0	11.0	11.0	14.0

Tune-up Power -Laptop Operating Mode							
WLAN 5.6GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	100	5500	11.0	11.0			
	116	5580	11.0	11.0			
	120	5600	11.0	11.0			
	124	5620	11.0	11.0			
	132	5660	11.0	11.0			
	140	5700	11.0	11.0			
	144	5720	11.0	11.0			
802.11n HT20	100	5500	11.0	11.0	11.0	11.0	14.0
	116	5580	11.0	11.0	11.0	11.0	14.0
	120	5600	11.0	11.0	11.0	11.0	14.0
	124	5620	11.0	11.0	11.0	11.0	14.0
	132	5660	11.0	11.0	11.0	11.0	14.0
	140	5700	11.0	11.0	11.0	11.0	14.0
	144	5720	11.0	11.0	11.0	11.0	14.0
802.11n HT40	102	5510	11.0	11.0	11.0	11.0	14.0
	110	5550	11.0	11.0	11.0	11.0	14.0
	118	5590	11.0	11.0	11.0	11.0	14.0
	126	5630	11.0	11.0	11.0	11.0	14.0
	134	5670	11.0	11.0	11.0	11.0	14.0
	142	5710	11.0	11.0	11.0	11.0	14.0
802.11ac VHT80	106	5530	11.0	11.0	11.0	11.0	14.0
	122	5610	11.0	11.0	11.0	11.0	14.0
	138	5690	11.0	11.0	11.0	11.0	14.0
802.11ac VHT160	114	5570	11.0	11.0	11.0	11.0	14.0
802.11ax HE20	100	5500	11.0	11.0	11.0	11.0	14.0
	116	5580	11.0	11.0	11.0	11.0	14.0
	120	5600	11.0	11.0	11.0	11.0	14.0
	124	5620	11.0	11.0	11.0	11.0	14.0
	132	5660	11.0	11.0	11.0	11.0	14.0
	140	5700	11.0	11.0	11.0	11.0	14.0
	144	5720	11.0	11.0	11.0	11.0	14.0
802.11ax HE40	102	5510	11.0	11.0	11.0	11.0	14.0
	110	5550	11.0	11.0	11.0	11.0	14.0
	118	5590	11.0	11.0	11.0	11.0	14.0
	126	5630	11.0	11.0	11.0	11.0	14.0
	134	5670	11.0	11.0	11.0	11.0	14.0
	142	5710	11.0	11.0	11.0	11.0	14.0
802.11ax HE80	106	5530	11.0	11.0	11.0	11.0	14.0
	122	5610	11.0	11.0	11.0	11.0	14.0
	138	5690	11.0	11.0	11.0	11.0	14.0
802.11ax HE160	114	5570	11.0	11.0	11.0	11.0	14.0

Tune-up Power -Laptop Operating Mode							
WLAN 5.8GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	149	5745	11.0	11.0			
	153	5765	11.0	11.0			
	157	5785	11.0	11.0			
	161	5805	11.0	11.0			
	165	5825	11.0	11.0			
802.11n HT20	149	5745	11.0	11.0	11.0	11.0	14.0
	153	5765	11.0	11.0	11.0	11.0	14.0
	157	5785	11.0	11.0	11.0	11.0	14.0
	161	5805	11.0	11.0	11.0	11.0	14.0
	165	5825	11.0	11.0	11.0	11.0	14.0
802.11n HT40	151	5755	11.0	11.0	11.0	11.0	14.0
	159	5795	11.0	11.0	11.0	11.0	14.0
802.11ac VHT80	155	5775	11.0	11.0	11.0	11.0	14.0
802.11ax HE20	149	5745	11.0	11.0	11.0	11.0	14.0
	153	5765	11.0	11.0	11.0	11.0	14.0
	157	5785	11.0	11.0	11.0	11.0	14.0
	161	5805	11.0	11.0	11.0	11.0	14.0
	165	5825	11.0	11.0	11.0	11.0	14.0
802.11ax HE40	151	5755	11.0	11.0	11.0	11.0	14.0
	159	5795	11.0	11.0	11.0	11.0	14.0
802.11ax HE80	155	5775	11.0	11.0	11.0	11.0	14.0

Tune-up Power -Laptop Operating Mode							
UNII-5							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	1	5955	5.0	5.0	5.0	5.0	8.0
	5	5975	5.0	5.0	5.0	5.0	8.0
	9	5995	5.0	5.0	5.0	5.0	8.0
	13	6015	5.0	5.0	5.0	5.0	8.0
	17	6035	5.0	5.0	5.0	5.0	8.0
	21	6055	5.0	5.0	5.0	5.0	8.0
	25	6075	5.0	5.0	5.0	5.0	8.0
	29	6095	5.0	5.0	5.0	5.0	8.0
	33	6115	5.0	5.0	5.0	5.0	8.0
	37	6135	5.0	5.0	5.0	5.0	8.0
	41	6155	5.0	5.0	5.0	5.0	8.0
	45	6175	5.0	5.0	5.0	5.0	8.0
	49	6195	5.0	5.0	5.0	5.0	8.0
	53	6215	5.0	5.0	5.0	5.0	8.0
	57	6235	5.0	5.0	5.0	5.0	8.0
	61	6255	5.0	5.0	5.0	5.0	8.0
	65	6275	5.0	5.0	5.0	5.0	8.0
	69	6295	5.0	5.0	5.0	5.0	8.0
	73	6315	5.0	5.0	5.0	5.0	8.0
	77	6335	5.0	5.0	5.0	5.0	8.0
	81	6355	5.0	5.0	5.0	5.0	8.0
	85	6375	5.0	5.0	5.0	5.0	8.0
	89	6395	5.0	5.0	5.0	5.0	8.0
	93	6415	5.0	5.0	5.0	5.0	8.0

Tune-up Power -Laptop Operating Mode							
UNII-5							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE40	3	5965	8.0	8.0	8.0	8.0	11.0
	11	6005	8.0	8.0	8.0	8.0	11.0
	19	6045	8.0	8.0	8.0	8.0	11.0
	27	6085	8.0	8.0	8.0	8.0	11.0
	35	6125	8.0	8.0	8.0	8.0	11.0
	43	6165	8.0	8.0	8.0	8.0	11.0
	51	6205	8.0	8.0	8.0	8.0	11.0
	59	6245	8.0	8.0	8.0	8.0	11.0
	67	6285	8.0	8.0	8.0	8.0	11.0
	75	6325	8.0	8.0	8.0	8.0	11.0
	83	6365	8.0	8.0	8.0	8.0	11.0
	91	6405	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	7	5985	10.5	10.5	10.5	10.5	13.5
	23	6065	10.5	10.5	10.5	10.5	13.5
	39	6145	10.5	10.5	10.5	10.5	13.5
	55	6225	10.5	10.5	10.5	10.5	13.5
	71	6305	10.5	10.5	10.5	10.5	13.5
	87	6385	10.5	10.5	10.5	10.5	13.5
802.11ax HE160	15	6025	10.5	10.5	10.5	10.5	13.5
	47	6185	10.5	10.5	10.5	10.5	13.5
	79	6345	10.5	10.5	10.5	10.5	13.5

Tune-up Power -Laptop Operating Mode							
UNII-6							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	97	6435	5.0	5.0	5.0	5.0	8.0
	101	6455	5.0	5.0	5.0	5.0	8.0
	105	6475	5.0	5.0	5.0	5.0	8.0
	109	6495	5.0	5.0	5.0	5.0	8.0
	113	6515	5.0	5.0	5.0	5.0	8.0
	117	6535	5.0	5.0	5.0	5.0	8.0
802.11ax HE40	99	6445	8.0	8.0	8.0	8.0	11.0
	107	6485	8.0	8.0	8.0	8.0	11.0
	115	6525	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	103	6465	10.5	10.5	10.5	10.5	13.5
	119	6545	10.5	10.5	10.5	10.5	13.5
802.11ax HE160	111	6505	10.5	10.5	10.5	10.5	13.5

Tune-up Power -Laptop Operating Mode							
UNII-7							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	121	6555	5.0	5.0	5.0	5.0	8.0
	125	6575	5.0	5.0	5.0	5.0	8.0
	129	6595	5.0	5.0	5.0	5.0	8.0
	133	6615	5.0	5.0	5.0	5.0	8.0
	137	6635	5.0	5.0	5.0	5.0	8.0
	141	6655	5.0	5.0	5.0	5.0	8.0
	145	6675	5.0	5.0	5.0	5.0	8.0
	149	6695	5.0	5.0	5.0	5.0	8.0
	153	6715	5.0	5.0	5.0	5.0	8.0
	157	6735	5.0	5.0	5.0	5.0	8.0
	161	6755	5.0	5.0	5.0	5.0	8.0
	165	6775	5.0	5.0	5.0	5.0	8.0
	169	6795	5.0	5.0	5.0	5.0	8.0
	173	6815	5.0	5.0	5.0	5.0	8.0
	177	6835	5.0	5.0	5.0	5.0	8.0
	181	6855	5.0	5.0	5.0	5.0	8.0
	185	6875	5.0	5.0	5.0	5.0	8.0
802.11ax HE40	123	6565	8.0	8.0	8.0	8.0	11.0
	131	6605	8.0	8.0	8.0	8.0	11.0
	139	6645	8.0	8.0	8.0	8.0	11.0
	147	6685	8.0	8.0	8.0	8.0	11.0
	155	6725	8.0	8.0	8.0	8.0	11.0
	163	6765	8.0	8.0	8.0	8.0	11.0
	171	6805	8.0	8.0	8.0	8.0	11.0
	179	6845	8.0	8.0	8.0	8.0	11.0
	187	6885	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	135	6625	10.5	10.5	10.5	10.5	13.5
	151	6705	10.5	10.5	10.5	10.5	13.5
	167	6785	10.5	10.5	10.5	10.5	13.5
	183	6865	10.5	10.5	10.5	10.5	13.5
802.11ax HE160	143	6665	10.5	10.5	10.5	10.5	13.5
	175	6825	10.5	10.5	10.5	10.5	13.5

Tune-up Power -Laptop Operating Mode							
UNII-8							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	189	6895	5.0	5.0	5.0	5.0	8.0
	193	6915	5.0	5.0	5.0	5.0	8.0
	197	6935	5.0	5.0	5.0	5.0	8.0
	201	6955	5.0	5.0	5.0	5.0	8.0
	205	6975	5.0	5.0	5.0	5.0	8.0
	209	6995	5.0	5.0	5.0	5.0	8.0
	213	7015	5.0	5.0	5.0	5.0	8.0
	217	7035	5.0	5.0	5.0	5.0	8.0
	221	7055	5.0	5.0	5.0	5.0	8.0
	225	7075	5.0	5.0	5.0	5.0	8.0
	229	7095	5.0	5.0	5.0	5.0	8.0
	233	7115	2.0	2.0	2.0	2.0	5.0
802.11ax HE40	195	6925	8.0	8.0	8.0	8.0	11.0
	203	6965	8.0	8.0	8.0	8.0	11.0
	211	7005	8.0	8.0	8.0	8.0	11.0
	219	7045	8.0	8.0	8.0	8.0	11.0
	227	7085	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	199	6945	10.5	10.5	10.5	10.5	13.5
	215	7025	10.5	10.5	10.5	10.5	13.5
802.11ax HE160	207	6985	10.5	10.5	10.5	10.5	13.5

Tune-up Power -Tablet Operating Mode							
WLAN 2.4GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11b	1	2412	14.0	14.0			
	6	2437	14.0	14.0			
	11	2462	14.0	14.0			
	12	2467	14.0	14.0			
	13	2472	12.5	12.5			
802.11g	1	2412	14.0	14.0			
	6	2437	14.0	14.0			
	11	2462	14.0	14.0			
	12	2467	11.0	11.0			
	13	2472	9.0	9.0			
802.11n HT20	1	2412	14.0	14.0	17.0	17.0	17.0
	6	2437	14.0	14.0	19.0	19.0	17.0
	11	2462	14.0	14.0	15.0	15.0	17.0
	12	2467	11.5	11.5	11.5	11.5	14.5
	13	2472	8.5	8.5	8.5	8.5	11.5
802.11n HT40	3	2422	14.0	14.0	14.0	14.0	17.0
	6	2437	14.0	14.0	17.0	17.0	17.0
	9	2452	14.0	14.0	14.0	14.0	17.0
	10	2457	12.0	12.0	12.0	12.0	15.0
	11	2462	10.0	10.0	10.0	10.0	13.0
802.11ax HE20	1	2412	14.0	14.0	17.5	17.5	17.0
	6	2437	14.0	14.0	19.0	19.0	17.0
	11	2462	14.0	14.0	15.0	15.0	17.0
	12	2467	11.0	11.0	11.0	11.0	14.0
	13	2472	8.5	8.5	8.5	8.5	11.5
802.11ax HE40	3	2422	14.0	14.0	14.0	14.0	17.0
	6	2437	14.0	14.0	17.0	17.0	17.0
	9	2452	14.0	14.0	14.0	14.0	17.0
	10	2457	12.0	12.0	12.0	12.0	15.0
	11	2462	10.0	10.0	10.0	10.0	13.0

Tune-up Power -Tablet Operating Mode					
Bluetooth					
Mode	Channel	Frequency	Ant 0 Max Tune-up	Ant 1 Max Tune-up	
BR / EDR	0	2402		10.5	
	39	2441		10.5	
	78	2480		10.5	
LE	0	2402		9.5	
	19	2440		9.5	
	39	2480		9.5	

Tune-up Power -Tablet Operating Mode							
WLAN 5.2GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	36	5180	11.5	11.5			
	40	5200	11.5	11.5			
	44	5220	11.5	11.5			
	48	5240	11.5	11.5			
802.11n HT20	36	5180	11.5	11.5	11.0	11.0	14.5
	40	5200	11.5	11.5	11.0	11.0	14.5
	44	5220	11.5	11.5	11.0	11.0	14.5
	48	5240	11.5	11.5	11.0	11.0	14.5
802.11n HT40	38	5190	11.5	11.5	11.0	11.0	14.5
	46	5230	11.5	11.5	11.0	11.0	14.5
802.11ac VHT80	42	5210	11.5	11.5	11.0	11.0	14.5
802.11ax HE20	36	5180	11.5	11.5	11.0	11.0	14.5
	40	5200	11.5	11.5	11.0	11.0	14.5
	44	5220	11.5	11.5	11.0	11.0	14.5
	48	5240	11.5	11.5	11.0	11.0	14.5
802.11ax HE40	38	5190	11.5	11.5	11.0	11.0	14.5
	46	5230	11.5	11.5	11.0	11.0	14.5
802.11ax HE80	42	5210	11.5	11.5	11.0	11.0	14.5

Tune-up Power -Tablet Operating Mode							
WLAN 5.3GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	52	5260	11.5	11.5			
	56	5280	11.5	11.5			
	60	5300	11.5	11.5			
	64	5320	11.5	11.5			
802.11n HT20	52	5260	11.5	11.5	11.0	11.0	14.5
	56	5280	11.5	11.5	11.0	11.0	14.5
	60	5300	11.5	11.5	11.0	11.0	14.5
	64	5320	11.5	11.5	11.0	11.0	14.5
802.11n HT40	54	5270	11.5	11.5	11.0	11.0	14.5
	62	5310	11.5	11.5	11.0	11.0	14.5
802.11ac VHT80	58	5290	11.5	11.5	11.0	11.0	14.5
802.11ac VHT160	50	5250	11.5	11.5	11.0	11.0	14.5
802.11ax HE20	52	5260	11.5	11.5	11.0	11.0	14.5
	56	5280	11.5	11.5	11.0	11.0	14.5
	60	5300	11.5	11.5	11.0	11.0	14.5
	64	5320	11.5	11.5	11.0	11.0	14.5
802.11ax HE40	54	5270	11.5	11.5	11.0	11.0	14.5
	62	5310	11.5	11.5	11.0	11.0	14.5
802.11ax HE80	58	5290	11.5	11.5	11.0	11.0	14.5
802.11ax HE160	50	5250	11.5	11.5	11.0	11.0	14.5

Tune-up Power -Tablet Operating Mode							
WLAN 5.6GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	100	5500	11.5	11.5			
	116	5580	11.5	11.5			
	120	5600	11.5	11.5			
	124	5620	11.5	11.5			
	132	5660	11.5	11.5			
	140	5700	11.5	11.5			
	144	5720	11.5	11.5			
802.11n HT20	100	5500	11.5	11.5	11.0	11.0	14.5
	116	5580	11.5	11.5	11.0	11.0	14.5
	120	5600	11.5	11.5	11.0	11.0	14.5
	124	5620	11.5	11.5	11.0	11.0	14.5
	132	5660	11.5	11.5	11.0	11.0	14.5
	140	5700	11.5	11.5	11.0	11.0	14.5
	144	5720	11.5	11.5	11.0	11.0	14.5
802.11n HT40	102	5510	11.5	11.5	11.0	11.0	14.5
	110	5550	11.5	11.5	11.0	11.0	14.5
	118	5590	11.5	11.5	11.0	11.0	14.5
	126	5630	11.5	11.5	11.0	11.0	14.5
	134	5670	11.5	11.5	11.0	11.0	14.5
	142	5710	11.5	11.5	11.0	11.0	14.5
802.11ac VHT80	106	5530	11.5	11.5	11.0	11.0	14.5
	122	5610	11.5	11.5	11.0	11.0	14.5
	138	5690	11.5	11.5	11.0	11.0	14.5
802.11ac VHT160	114	5570	11.5	11.5	11.0	11.0	14.5
802.11ax HE20	100	5500	11.5	11.5	11.0	11.0	14.5
	116	5580	11.5	11.5	11.0	11.0	14.5
	120	5600	11.5	11.5	11.0	11.0	14.5
	124	5620	11.5	11.5	11.0	11.0	14.5
	132	5660	11.5	11.5	11.0	11.0	14.5
	140	5700	11.5	11.5	11.0	11.0	14.5
	144	5720	11.5	11.5	11.0	11.0	14.5
802.11ax HE40	102	5510	11.5	11.5	11.0	11.0	14.5
	110	5550	11.5	11.5	11.0	11.0	14.5
	118	5590	11.5	11.5	11.0	11.0	14.5
	126	5630	11.5	11.5	11.0	11.0	14.5
	134	5670	11.5	11.5	11.0	11.0	14.5
	142	5710	11.5	11.5	11.0	11.0	14.5
802.11ax HE80	106	5530	11.5	11.5	11.0	11.0	14.5
	122	5610	11.5	11.5	11.0	11.0	14.5
	138	5690	11.5	11.5	11.0	11.0	14.5
802.11ax HE160	114	5570	11.5	11.5	11.0	11.0	14.5

Tune-up Power -Tablet Operating Mode							
WLAN 5.8GHz							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11a	149	5745	11.5	11.5			
	153	5765	11.5	11.5			
	157	5785	11.5	11.5			
	161	5805	11.5	11.5			
	165	5825	11.5	11.5			
802.11n HT20	149	5745	11.5	11.5	11.0	11.0	14.5
	153	5765	11.5	11.5	11.0	11.0	14.5
	157	5785	11.5	11.5	11.0	11.0	14.5
	161	5805	11.5	11.5	11.0	11.0	14.5
	165	5825	11.5	11.5	11.0	11.0	14.5
802.11n HT40	151	5755	11.5	11.5	11.0	11.0	14.5
	159	5795	11.5	11.5	11.0	11.0	14.5
802.11ac VHT80	155	5775	11.5	11.5	11.0	11.0	14.5
802.11ax HE20	149	5745	11.5	11.5	11.0	11.0	14.5
	153	5765	11.5	11.5	11.0	11.0	14.5
	157	5785	11.5	11.5	11.0	11.0	14.5
	161	5805	11.5	11.5	11.0	11.0	14.5
	165	5825	11.5	11.5	11.0	11.0	14.5
802.11ax HE40	151	5755	11.5	11.5	11.0	11.0	14.5
	159	5795	11.5	11.5	11.0	11.0	14.5
802.11ax HE80	155	5775	11.5	11.5	11.0	11.0	14.5

Tune-up Power -Tablet Operating Mode							
UNII-5							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	1	5955	5.0	5.0	5.0	5.0	8.0
	5	5975	5.0	5.0	5.0	5.0	8.0
	9	5995	5.0	5.0	5.0	5.0	8.0
	13	6015	5.0	5.0	5.0	5.0	8.0
	17	6035	5.0	5.0	5.0	5.0	8.0
	21	6055	5.0	5.0	5.0	5.0	8.0
	25	6075	5.0	5.0	5.0	5.0	8.0
	29	6095	5.0	5.0	5.0	5.0	8.0
	33	6115	5.0	5.0	5.0	5.0	8.0
	37	6135	5.0	5.0	5.0	5.0	8.0
	41	6155	5.0	5.0	5.0	5.0	8.0
	45	6175	5.0	5.0	5.0	5.0	8.0
	49	6195	5.0	5.0	5.0	5.0	8.0
	53	6215	5.0	5.0	5.0	5.0	8.0
	57	6235	5.0	5.0	5.0	5.0	8.0
	61	6255	5.0	5.0	5.0	5.0	8.0
	65	6275	5.0	5.0	5.0	5.0	8.0
	69	6295	5.0	5.0	5.0	5.0	8.0
	73	6315	5.0	5.0	5.0	5.0	8.0
	77	6335	5.0	5.0	5.0	5.0	8.0
	81	6355	5.0	5.0	5.0	5.0	8.0
	85	6375	5.0	5.0	5.0	5.0	8.0
	89	6395	5.0	5.0	5.0	5.0	8.0
	93	6415	5.0	5.0	5.0	5.0	8.0

Tune-up Power -Tablet Operating Mode							
UNII-5							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE40	3	5965	8.0	8.0	8.0	8.0	11.0
	11	6005	8.0	8.0	8.0	8.0	11.0
	19	6045	8.0	8.0	8.0	8.0	11.0
	27	6085	8.0	8.0	8.0	8.0	11.0
	35	6125	8.0	8.0	8.0	8.0	11.0
	43	6165	8.0	8.0	8.0	8.0	11.0
	51	6205	8.0	8.0	8.0	8.0	11.0
	59	6245	8.0	8.0	8.0	8.0	11.0
	67	6285	8.0	8.0	8.0	8.0	11.0
	75	6325	8.0	8.0	8.0	8.0	11.0
	83	6365	8.0	8.0	8.0	8.0	11.0
	91	6405	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	7	5985	8.5	8.5	10.5	10.5	13.0
	23	6065	8.5	8.5	10.5	10.5	13.0
	39	6145	8.5	8.5	10.5	10.5	13.0
	55	6225	8.5	8.5	10.5	10.5	13.0
	71	6305	8.5	8.5	10.5	10.5	13.0
	87	6385	8.5	8.5	10.5	10.5	13.0
802.11ax HE160	15	6025	8.5	8.5	10.5	10.5	11.5
	47	6185	8.5	8.5	10.5	10.5	11.5
	79	6345	8.5	8.5	10.5	10.5	11.5

Tune-up Power -Tablet Operating Mode							
UNII-6							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	97	6435	5.0	5.0	5.0	5.0	8.0
	101	6455	5.0	5.0	5.0	5.0	8.0
	105	6475	5.0	5.0	5.0	5.0	8.0
	109	6495	5.0	5.0	5.0	5.0	8.0
	113	6515	5.0	5.0	5.0	5.0	8.0
	117	6535	5.0	5.0	5.0	5.0	8.0
802.11ax HE40	99	6445	8.0	8.0	8.0	8.0	11.0
	107	6485	8.0	8.0	8.0	8.0	11.0
	115	6525	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	103	6465	8.5	8.5	10.5	10.5	11.5
	119	6545	8.5	8.5	10.5	10.5	11.5
802.11ax HE160	111	6505	8.5	8.5	10.5	10.5	11.5

Tune-up Power -Tablet Operating Mode							
UNII-7							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	121	6555	5.0	5.0	5.0	5.0	8.0
	125	6575	5.0	5.0	5.0	5.0	8.0
	129	6595	5.0	5.0	5.0	5.0	8.0
	133	6615	5.0	5.0	5.0	5.0	8.0
	137	6635	5.0	5.0	5.0	5.0	8.0
	141	6655	5.0	5.0	5.0	5.0	8.0
	145	6675	5.0	5.0	5.0	5.0	11.0
	149	6695	5.0	5.0	5.0	5.0	11.0
	153	6715	5.0	5.0	5.0	5.0	11.0
	157	6735	5.0	5.0	5.0	5.0	13.0
	161	6755	5.0	5.0	5.0	5.0	14.5
	165	6775	5.0	5.0	5.0	5.0	14.5
	169	6795	5.0	5.0	5.0	5.0	8.0
	173	6815	5.0	5.0	5.0	5.0	8.0
	177	6835	5.0	5.0	5.0	5.0	8.0
	181	6855	5.0	5.0	5.0	5.0	8.0
	185	6875	5.0	5.0	5.0	5.0	8.0
802.11ax HE40	123	6565	8.0	8.0	8.0	8.0	11.0
	131	6605	8.0	8.0	8.0	8.0	11.0
	139	6645	8.0	8.0	8.0	8.0	11.0
	147	6685	8.0	8.0	8.0	8.0	11.0
	155	6725	8.0	8.0	8.0	8.0	11.0
	163	6765	8.0	8.0	8.0	8.0	11.0
	171	6805	8.0	8.0	8.0	8.0	11.0
	179	6845	8.0	8.0	8.0	8.0	11.0
	187	6885	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	135	6625	8.5	8.5	10.5	10.5	11.5
	151	6705	8.5	8.5	10.5	10.5	11.5
	167	6785	8.5	8.5	10.5	10.5	11.5
	183	6865	8.5	8.5	10.5	10.5	11.5
802.11ax HE160	143	6665	8.5	8.5	10.5	10.5	11.5
	175	6825	8.5	8.5	10.5	10.5	11.5

Tune-up Power -Tablet Operating Mode							
UNII-8							
Mode	Channel	Frequency	SISO Ant 0 Max Tune up	SISO Ant 1 Max Tune up	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MIMO Ant 0+1 Max Tune up
802.11ax HE20	189	6895	5.0	5.0	5.0	5.0	8.0
	193	6915	5.0	5.0	5.0	5.0	8.0
	197	6935	5.0	5.0	5.0	5.0	8.0
	201	6955	5.0	5.0	5.0	5.0	8.0
	205	6975	5.0	5.0	5.0	5.0	8.0
	209	6995	5.0	5.0	5.0	5.0	8.0
	213	7015	5.0	5.0	5.0	5.0	8.0
	217	7035	5.0	5.0	5.0	5.0	8.0
	221	7055	5.0	5.0	5.0	5.0	8.0
	225	7075	5.0	5.0	5.0	5.0	8.0
	229	7095	5.0	5.0	5.0	5.0	8.0
	233	7115	2.0	2.0	2.0	2.0	5.0
802.11ax HE40	195	6925	8.0	8.0	8.0	8.0	11.0
	203	6965	8.0	8.0	8.0	8.0	11.0
	211	7005	8.0	8.0	8.0	8.0	11.0
	219	7045	8.0	8.0	8.0	8.0	11.0
	227	7085	8.0	8.0	8.0	8.0	11.0
802.11ax HE80	199	6945	8.5	8.5	10.5	10.5	11.5
	215	7025	8.5	8.5	10.5	10.5	11.5
802.11ax HE160	207	6985	8.5	8.5	10.5	10.5	11.5

Appendix E. Measured Conducted Power Result

The measuring conducted power (Unit: dBm) are shown as below.

Conducted Power - Laptop Operating Mode			
WLAN2.4GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11b	1	2412	18.87
	6	2437	18.68
	11	2462	18.76
	12	2467	13.83
	13	2472	12.28

Conducted Power - Laptop Operating Mode			
WLAN2.4GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11b	1	2412	18.95
	6	2437	18.85
	11	2462	18.93
	12	2467	13.99
	13	2472	12.39

Conducted Power - Laptop Operating Mode					
WLAN2.4GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11n HT20	1	2412	16.62	16.98	19.81
	6	2437	18.71	18.98	21.86
	11	2462	14.58	14.76	17.68
	12	2467	11.01	11.24	14.14
	13	2472	8.23	8.39	11.32

Conducted Power - Laptop Operating Mode			
Bluetooth Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
BR / EDR	0	2402	9.84
	39	2441	10.05
	78	2480	10.33
LE	0	2402	8.55
	19	2440	8.79
	39	2480	9.03

Conducted Power - Laptop Operating Mode			
WLAN 5.3GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT160	50	5250	10.95

Conducted Power - Laptop Operating Mode			
WLAN 5.3GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT160	50	5250	10.96

Conducted Power - Laptop Operating Mode					
WLAN 5.3GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT160	50	5250	10.95	10.94	13.96

Conducted Power - Laptop Operating Mode			
WLAN 5.6GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT160	114	5570	10.96

Conducted Power - Laptop Operating Mode			
WLAN 5.6GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT160	114	5570	10.95

Conducted Power - Laptop Operating Mode					
WLAN 5.6GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT160	114	5570	10.9	10.96	13.94

Conducted Power - Laptop Operating Mode			
WLAN 5.8GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT80	155	5775	10.98

Conducted Power - Laptop Operating Mode			
WLAN 5.8GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT80	155	5775	10.93

Conducted Power - Laptop Operating Mode					
WLAN 5.8GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT80	155	5775	10.96	10.91	13.95

Conducted Power - Laptop Operating Mode			
UNII-5 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	15	6025	10.47
	47	6185	10.49
	79	6345	10.36

UNII-6 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	111	6505	10.46

UNII-7 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	143	6665	10.36
	175	6825	10.48

UNII-8 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	207	6985	10.46

Conducted Power - Laptop Operating Mode			
UNII-5 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	15	6025	10.36
	47	6185	10.39
	79	6345	10.22

UNII-6 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	111	6505	10.25

UNII-7 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	143	6665	10.26
	175	6825	10.3

UNII-8 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	207	6985	10.23

Conducted Power - Laptop Operating Mode					
UNII-5 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	15	6025	10.47	10.36	13.43
	47	6185	10.49	10.39	13.45
	79	6345	10.36	10.22	13.3

UNII-6 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	111	6505	10.46	10.25	13.37

UNII-7 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	143	6665	10.36	10.26	13.32
	175	6825	10.48	10.3	13.4

UNII-8 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	207	6985	10.46	10.23	13.36

Conducted Power - Tablet Operating Mode			
WLAN2.4GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11b	1	2412	13.88
	6	2437	13.98
	11	2462	13.91
	12	2467	13.83
	13	2472	12.28

Conducted Power - Tablet Operating Mode			
WLAN2.4GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11b	1	2412	13.92
	6	2437	13.99
	11	2462	13.89
	12	2467	13.98
	13	2472	12.39

Conducted Power - Tablet Operating Mode					
WLAN2.4GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11n HT40	3	2422	13.85	13.91	16.89
	6	2437	13.95	13.93	16.95
	9	2452	13.88	13.87	16.89
	10	2457	11.59	11.64	14.63
	11	2462	9.55	9.71	12.64

Conducted Power - Tablet Operating Mode			
Bluetooth Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
BR / EDR	0	2402	9.39
	39	2441	9.59
	78	2480	9.81
LE	0	2402	7.93
	19	2440	8.29
	39	2480	8.43

Conducted Power - Tablet Operating Mode			
WLAN 5.3GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT160	50	5250	11.41

Conducted Power - Tablet Operating Mode			
WLAN 5.3GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT160	50	5250	11.48

Conducted Power - Tablet Operating Mode					
WLAN 5.3GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT160	50	5250	11.41	11.48	14.46

Conducted Power - Tablet Operating Mode			
WLAN 5.6GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT160	114	5570	11.34

Conducted Power - Tablet Operating Mode			
WLAN 5.6GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT160	114	5570	11.45

Conducted Power - Tablet Operating Mode					
WLAN 5.6GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT160	114	5570	11.34	11.45	14.41

Conducted Power - Tablet Operating Mode			
WLAN 5.8GHz Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ac VHT80	155	5775	11.34

Conducted Power - Tablet Operating Mode			
WLAN 5.8GHz Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ac VHT80	155	5775	11.41

Conducted Power - Tablet Operating Mode					
WLAN 5.8GHz Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ac VHT80	155	5775	11.34	11.41	14.39

Conducted Power - Tablet Operating Mode			
UNII-5 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	15	6025	8.48
	47	6185	8.44
	79	6345	8.45

UNII-6 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	111	6505	8.39

UNII-7 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	143	6665	8.41
	175	6825	8.45

UNII-8 Ant 0			
Mode	Channel	Frequency	SISO Ant 0 Avg. Power
802.11ax HE160	207	6985	8.38

Conducted Power - Tablet Operating Mode			
UNII-5 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	15	6025	8.47
	47	6185	8.4
	79	6345	8.43

UNII-6 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	111	6505	8.41

UNII-7 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	143	6665	8.42
	175	6825	8.37

UNII-8 Ant 1			
Mode	Channel	Frequency	SISO Ant 1 Avg. Power
802.11ax HE160	207	6985	8.4

Conducted Power - Tablet Operating Mode					
UNII-5 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	15	6025	8.48	8.47	11.49
	47	6185	8.44	8.4	11.43
	79	6345	8.45	8.43	11.45

UNII-6 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	111	6505	8.39	8.41	11.41

UNII-7 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	143	6665	8.41	8.42	11.43
	175	6825	8.45	8.37	11.42

UNII-8 Ant 0+1					
Mode	Channel	Frequency	MIMO Ant 0 Avg. Power	MIMO Ant 1 Avg. Power	MIMO Ant 0+1 Avg. Power
802.11ax HE160	207	6985	8.38	8.4	11.4

Appendix F. SAR and APD / Power Density Test Result

SAR Results for Body Exposure Condition.

Note:
1. SAR testing for WLAN was performed on the maximum power mode.
2. The “< 0.001” means there is no SAR value or the SAR is too low to be measured.
3. Per KDB 388624 APPENDIX OVER6G, the minimumof 5 channels to perform Power Density across U-NII 5,6,7and 8.
4. The measured results of Power Density were scaled by factor 1.545 to reported power density when measurement uncertainty exceed 30%.
5. Power density were performed with the surfaces and edges that antenna located within 25 mm.

SAR Test Result

System & Position						DUT Configuration			SAR							
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Operating Mode	Ant Status	Antenna Manufacturer	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN2.4G	802.11b	Bottom	0	1	Laptop	Ant 0	Pulse	98.56	1.01	19.00	18.87	1.03	-0.18	0.569	0.59
	WLAN2.4G	802.11b	Bottom	0	1	Laptop	Ant 1	Pulse	98.71	1.01	19.00	18.95	1.01	0.08	0.425	0.43
	WLAN2.4G	802.11n HT20	Bottom	0	6	Laptop	Ant 0+1	Pulse	99.20	1.01	22.00	21.86	1.03	0.17	0.756	0.79
	WLAN2.4G	802.11b	Rear Face	0	6	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.98	1.00	0.18	0.298	0.30
	WLAN2.4G	802.11b	Left Side	0	6	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.98	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Right Side	0	6	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.98	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Top Side	0	6	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.98	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Bottom Side	0	6	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.98	1.00	-0.03	0.809	0.82
	WLAN2.4G	802.11b	Rear Face	0	6	Tablet	Ant 1	Pulse	98.71	1.01	14.00	13.99	1.00	0.16	0.207	0.21
	WLAN2.4G	802.11b	Left Side	0	6	Tablet	Ant 1	Pulse	98.71	1.01	14.00	13.99	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Right Side	0	6	Tablet	Ant 1	Pulse	98.71	1.01	14.00	13.99	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Top Side	0	6	Tablet	Ant 1	Pulse	98.71	1.01	14.00	13.99	1.00	0	<0.001	0.00
	WLAN2.4G	802.11b	Bottom Side	0	6	Tablet	Ant 1	Pulse	98.71	1.01	14.00	13.99	1.00	-0.04	0.599	0.60
	WLAN2.4G	802.11n HT40	Rear Face	0	6	Tablet	Ant 0+1	Pulse	98.90	1.01	17.00	16.95	1.01	-0.09	0.318	0.32
	WLAN2.4G	802.11n HT40	Left Side	0	6	Tablet	Ant 0+1	Pulse	98.90	1.01	17.00	16.95	1.01	0.19	0.044	0.04
	WLAN2.4G	802.11n HT40	Right Side	0	6	Tablet	Ant 0+1	Pulse	98.90	1.01	17.00	16.95	1.01	0	<0.001	0.00
	WLAN2.4G	802.11n HT40	Top Side	0	6	Tablet	Ant 0+1	Pulse	98.90	1.01	17.00	16.95	1.01	0	<0.001	0.00
	WLAN2.4G	802.11n HT40	Bottom Side	0	6	Tablet	Ant 0+1	Pulse	98.90	1.01	17.00	16.95	1.01	-0.18	0.721	0.74
	WLAN2.4G	802.11b	Bottom Side	0	1	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.88	1.03	-0.11	0.815	0.85
1	WLAN2.4G	802.11b	Bottom Side	0	11	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.91	1.02	0.07	0.926	0.95
	WLAN2.4G	802.11b	Bottom Side	0	12	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.83	1.04	-0.08	0.778	0.82
	WLAN2.4G	802.11b	Bottom Side	0	13	Tablet	Ant 0	Pulse	98.56	1.01	12.50	12.28	1.05	-0.11	0.594	0.63
	WLAN2.4G	802.11b	Bottom Side	0	11	Tablet	Ant 0	Chilisin	98.56	1.01	14.00	13.91	1.02	0.07	0.911	0.94
	WLAN2.4G	802.11b	Bottom Side	0	1	Tablet	Ant 0	Chilisin	98.56	1.01	14.00	13.88	1.02	0.01	0.874	0.90
	WLAN2.4G	802.11b	Bottom Side	0	6	Tablet	Ant 0	Chilisin	98.56	1.01	14.00	13.98	1.02	-0.02	0.901	0.93
	WLAN2.4G	802.11b	Bottom Side	0	12	Tablet	Ant 0	Chilisin	98.56	1.01	14.00	13.83	1.02	0.09	0.881	0.91
	WLAN2.4G	802.11b	Bottom Side	0	13	Tablet	Ant 0	Chilisin	98.56	1.01	12.50	12.28	1.02	-0.16	0.894	0.92
	WLAN2.4G	802.11b	Bottom Side	0	11	Tablet	Ant 0	Pulse	98.56	1.01	14.00	13.91	1.02	0.07	0.92	0.95

SAR Test Result

System & Position						DUT Configuration			SAR							
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Operating Mode	Ant Status	Antenna Manufacturer	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5.3G	802.11ac VHT160	Bottom	0	50	Laptop	Ant 0	Pulse	94.62	1.06	11.00	10.95	1.01	-0.19	0.538	0.58
	WLAN5.3G	802.11ac VHT160	Bottom	0	50	Laptop	Ant 1	Pulse	96.73	1.03	11.00	10.96	1.01	-0.11	0.501	0.52
	WLAN5.3G	802.11ac VHT160	Bottom	0	50	Laptop	Ant 0+1	Pulse	98.90	1.01	14.00	13.96	1.01	0.05	0.557	0.57
	WLAN5.3G	802.11ac VHT160	Rear Face	0	50	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.41	1.02	-0.12	0.115	0.12
	WLAN5.3G	802.11ac VHT160	Left Side	0	50	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.41	1.02	0.08	0.043	0.05
	WLAN5.3G	802.11ac VHT160	Right Side	0	50	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.41	1.02	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Top Side	0	50	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.41	1.02	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Bottom Side	0	50	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.41	1.02	0.05	0.281	0.30
	WLAN5.3G	802.11ac VHT160	Rear Face	0	50	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.48	1.00	0.19	0.168	0.17
	WLAN5.3G	802.11ac VHT160	Left Side	0	50	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.48	1.00	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Right Side	0	50	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.48	1.00	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Top Side	0	50	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.48	1.00	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Bottom Side	0	50	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.48	1.00	0.12	0.541	0.56
	WLAN5.3G	802.11ac VHT160	Rear Face	0	50	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.46	1.01	0.16	0.242	0.25
	WLAN5.3G	802.11ac VHT160	Left Side	0	50	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.46	1.01	-0.16	0.091	0.09
	WLAN5.3G	802.11ac VHT160	Right Side	0	50	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.46	1.01	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT160	Top Side	0	50	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.46	1.01	0	<0.001	0.00
2	WLAN5.3G	802.11ac VHT160	Bottom Side	0	50	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.46	1.01	0.12	0.618	0.63
	WLAN5.3G	802.11ac VHT160	Bottom Side	0	50	Tablet	Ant 0+1	Chilisin	98.90	1.01	14.50	14.46	1.01	0.18	0.602	0.61

SAR Test Result

System & Position						DUT Configuration			SAR							
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Operating Mode	Ant Status	Antenna Manufacturer	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5.6G	802.11ac VHT160	Bottom	0	114	Laptop	Ant 0	Pulse	94.62	1.06	11.00	10.96	1.01	0.07	0.396	0.42
	WLAN5.6G	802.11ac VHT160	Bottom	0	114	Laptop	Ant 1	Pulse	96.73	1.03	11.00	10.95	1.01	0.06	0.468	0.49
	WLAN5.6G	802.11ac VHT160	Bottom	0	114	Laptop	Ant 0+1	Pulse	98.90	1.01	14.00	13.94	1.01	-0.01	0.503	0.51
	WLAN5.6G	802.11ac VHT160	Rear Face	0	114	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.34	1.04	-0.06	0.214	0.24
	WLAN5.6G	802.11ac VHT160	Left Side	0	114	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.34	1.04	-0.13	0.032	0.04
	WLAN5.6G	802.11ac VHT160	Right Side	0	114	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.34	1.04	0	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Top Side	0	114	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.34	1.04	0	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Bottom Side	0	114	Tablet	Ant 0	Pulse	94.62	1.06	11.50	11.34	1.04	0.03	0.411	0.45
	WLAN5.6G	802.11ac VHT160	Rear Face	0	114	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.45	1.01	0.05	0.08	0.08
	WLAN5.6G	802.11ac VHT160	Left Side	0	114	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.45	1.01	0	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Right Side	0	114	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.45	1.01	0	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Top Side	0	114	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.45	1.01	0	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Bottom Side	0	114	Tablet	Ant 1	Pulse	96.73	1.03	11.50	11.45	1.01	-0.05	0.343	0.36
	WLAN5.6G	802.11ac VHT160	Rear Face	0	114	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.41	1.02	0.07	0.189	0.19
	WLAN5.6G	802.11ac VHT160	Left Side	0	114	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.41	1.02	0.11	0.054	0.06
	WLAN5.6G	802.11ac VHT160	Right Side	0	114	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.41	1.02	0.02	<0.001	0.00
	WLAN5.6G	802.11ac VHT160	Top Side	0	114	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.41	1.02	-0.08	<0.001	0.00
3	WLAN5.6G	802.11ac VHT160	Bottom Side	0	114	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.41	1.02	0.02	0.504	0.52
	WLAN5.6G	802.11ac VHT160	Bottom Side	0	114	Tablet	Ant 0+1	Chilisin	98.90	1.01	14.50	14.41	1.02	-0.03	0.502	0.52

SAR Test Result

System & Position						DUT Configuration			SAR							
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Operating Mode	Ant Status	Antenna Manufacturer	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	Laptop	Ant 0	Pulse	93.02	1.08	11.00	10.98	1.00	0.08	0.416	0.45
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	Laptop	Ant 1	Pulse	93.60	1.07	11.00	10.93	1.02	0.07	0.379	0.41
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	Laptop	Ant 0+1	Pulse	98.90	1.01	14.00	13.95	1.01	-0.01	0.422	0.43
	WLAN5.8G	802.11ac VHT80	Rear Face	0	155	Tablet	Ant 0	Pulse	93.02	1.08	11.50	11.34	1.04	0	0.204	0.23
	WLAN5.8G	802.11ac VHT80	Left Side	0	155	Tablet	Ant 0	Pulse	93.02	1.08	11.50	11.34	1.04	0.03	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Right Side	0	155	Tablet	Ant 0	Pulse	93.02	1.08	11.50	11.34	1.04	-0.04	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Top Side	0	155	Tablet	Ant 0	Pulse	93.02	1.08	11.50	11.34	1.04	-0.07	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Bottom Side	0	155	Tablet	Ant 0	Pulse	93.02	1.08	11.50	11.34	1.04	-0.03	0.465	0.52
	WLAN5.8G	802.11ac VHT80	Rear Face	0	155	Tablet	Ant 1	Pulse	93.60	1.07	11.50	11.41	1.02	0.03	0.066	0.07
	WLAN5.8G	802.11ac VHT80	Left Side	0	155	Tablet	Ant 1	Pulse	93.60	1.07	11.50	11.41	1.02	0.12	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Right Side	0	155	Tablet	Ant 1	Pulse	93.60	1.07	11.50	11.41	1.02	0.06	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Top Side	0	155	Tablet	Ant 1	Pulse	93.60	1.07	11.50	11.41	1.02	0.13	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Bottom Side	0	155	Tablet	Ant 1	Pulse	93.60	1.07	11.50	11.41	1.02	-0.07	0.32	0.35
	WLAN5.8G	802.11ac VHT80	Rear Face	0	155	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.39	1.03	0.05	0.234	0.24
	WLAN5.8G	802.11ac VHT80	Left Side	0	155	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.39	1.03	-0.06	0.068	0.07
	WLAN5.8G	802.11ac VHT80	Right Side	0	155	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.39	1.03	0.06	<0.001	0.00
	WLAN5.8G	802.11ac VHT80	Top Side	0	155	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.39	1.03	-0.09	<0.001	0.00
4	WLAN5.8G	802.11ac VHT80	Bottom Side	0	155	Tablet	Ant 0+1	Pulse	98.90	1.01	14.50	14.39	1.03	0.02	0.501	0.52
	WLAN5.8G	802.11ac VHT80	Bottom Side	0	155	Tablet	Ant 0+1	Chilisin	98.90	1.01	14.50	14.39	1.03	-0.03	0.497	0.52
	BT	BR / EDR	Bottom	0	78	Laptop	Ant 1	Pulse	77.50	1.29	10.50	10.33	1.04	0.16	0.115	0.15
	BT	BR / EDR	Rear Face	0	78	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.81	1.17	0.11	0.173	0.26
	BT	BR / EDR	Left Side	0	78	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.81	1.17	0	<0.001	0.00
	BT	BR / EDR	Right Side	0	78	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.81	1.17	0	<0.001	0.00
	BT	BR / EDR	Top Side	0	78	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.81	1.17	0	<0.001	0.00
5	BT	BR / EDR	Bottom Side	0	78	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.81	1.17	0.07	0.261	0.39
	BT	BR / EDR	Bottom Side	0	0	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.39	1.29	0.08	0.232	0.35
	BT	BR / EDR	Bottom Side	0	39	Tablet	Ant 1	Pulse	77.50	1.29	10.50	9.59	1.23	0.11	0.225	0.32
	BT	BR / EDR	Bottom Side	0	78	Tablet	Ant 1	Chilisin	77.50	1.29	10.50	9.81	1.17	0.04	0.239	0.36

SAR /APD and Power Density Test Result

System & Position						DUT Configuration			SAR										Power Density								
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Operating Mode	Ant Status	Antenna Manufacturer	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)	Measured APD W/m^2 (4cm^2)	Scaled APD W/m^2 (4cm^2)	Grid Step [λ]	iPD [W/m2]	Scaling Factor for Measurement Uncertainty	Averaging Area [cm2]	Power Drift [dB]	Normal psPD [W/m2]	Scaled Normal psPD [W/m2]	Total psPD [W/m2]	Scaled Total psPD [W/m2]
	WLAN6G	802.11ax HE160	Bottom	0	47	Laptop	Ant 0	Pulse	99.10	1.01	10.50	10.49	1.00	-0.1	0.23	0.23	1.98	2	0.0515	12.87	1.545	4.00	0.11	1.31	2.04	2.26	**3.53**
	WLAN6G	802.11ax HE160	Bottom	0	47	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.39	1.03	0.17	0.496	0.52	3.38	3.55	0.0515	21.97	1.545	4.00	0.05	2.23	3.51	3.85	**6.25**
	WLAN6G	802.11ax HE160	Bottom	0	47	Laptop	Ant 0+1	Pulse	98.00	1.02	13.50	13.45	1.01	0.06	0.488	0.50	3.42	3.52	0.0515	22.23	1.545	4.00	-0.14	2.26	3.56	3.9	**6.21**
	WLAN6G	802.11ax HE160	Rear Face	0	15	Tablet	Ant 0	Pulse	99.10	1.01	8.50	8.48	1.00	0.19	0.123	0.12	0.911	0.92	0.0502	5.92	1.545	4.00	-0.03	0.6	0.94	1.04	**1.62**
	WLAN6G	802.11ax HE160	Left Side	0	15	Tablet	Ant 0	Pulse	99.10	1.01	8.50	8.48	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Right Side	0	15	Tablet	Ant 0	Pulse	99.10	1.01	8.50	8.48	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Top Side	0	15	Tablet	Ant 0	Pulse	99.10	1.01	8.50	8.48	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Bottom Side	0	15	Tablet	Ant 0	Pulse	99.10	1.01	8.50	8.48	1.00	0.17	0.266	0.27	1.82	1.84	0.0502	11.83	1.545	4.00	0.01	1.2	1.87	2.07	**3.23**
	WLAN6G	802.11ax HE160	Rear Face	0	15	Tablet	Ant 1	Pulse	98.30	1.02	8.50	8.47	1.01	0.03	0.054	0.06	0.401	0.41	0.0502	2.61	1.545	4.00	0.07	0.26	0.41	0.46	**0.73**
	WLAN6G	802.11ax HE160	Left Side	0	15	Tablet	Ant 1	Pulse	98.30	1.02	8.50	8.47	1.01	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Right Side	0	15	Tablet	Ant 1	Pulse	98.30	1.02	8.50	8.47	1.01	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Top Side	0	15	Tablet	Ant 1	Pulse	98.30	1.02	8.50	8.47	1.01	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Bottom Side	0	15	Tablet	Ant 1	Pulse	98.30	1.02	8.50	8.47	1.01	-0.15	0.242	0.25	1.89	1.95	0.0502	12.29	1.545	4.00	-0.09	1.25	1.97	2.15	**3.42**
	WLAN6G	802.11ax HE160	Rear Face	0	15	Tablet	Ant 0+1	Pulse	98.00	1.02	11.50	11.49	1.00	0.19	0.168	0.17	1.13	1.15	0.0502	7.35	1.545	4.00	0.13	0.75	1.18	1.29	**2.03**
	WLAN6G	802.11ax HE160	Left Side	0	15	Tablet	Ant 0+1	Pulse	98.00	1.02	11.50	11.49	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Right Side	0	15	Tablet	Ant 0+1	Pulse	98.00	1.02	11.50	11.49	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Top Side	0	15	Tablet	Ant 0+1	Pulse	98.00	1.02	11.50	11.49	1.00	0	<0.001	0.00	0	0									
	WLAN6G	802.11ax HE160	Bottom Side	0	15	Tablet	Ant 0+1	Pulse	98.00	1.02	11.50	11.49	1.00	0.1	0.394	0.40	2.03	2.07	0.0441	20.37	1.545	4.00	0.15	2.01	3.17	3.55	5.59
	WLAN6G	802.11ax HE160	Bottom	0	15	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.36	1.03	0.01	0.51	0.54	3.05	3.2	0.0502	23.47	1.545	4.00	-0.03	2.24	3.53	3.82	6.2
	WLAN6G	802.11ax HE160	Bottom	0	79	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.22	1.07	0.11	0.602	0.66	3.76	4.1	0.0529	23.71	1.545	4.00	0.05	2.65	4.18	4.51	7.6
	WLAN6G	802.11ax HE160	Bottom	0	111	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.25	1.06	-0.17	0.614	0.66	4.04	4.37	0.0542	28.25	1.545	4.00	0.12	2.71	4.27	4.6	7.68
	WLAN6G	802.11ax HE160	Bottom	0	143	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.26	1.06	0.17	0.462	0.50	3.2	3.46	0.0555	20.8	1.545	4.00	0.01	2.11	3.33	3.65	6.1
	WLAN6G	802.11ax HE160	Bottom	0	175	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.30	1.05	-0.09	0.484	0.52	3.12	3.34	0.0569	20.28	1.545	4.00	-0.06	2.06	3.25	3.56	5.89
6	WLAN6G	802.11ax HE160	Bottom	0	207	Laptop	Ant 1	Pulse	98.30	1.02	10.50	10.23	1.06	-0.04	0.654	0.71	4.26	4.61	0.0582	30.10	1.545	4.00	-0.15	2.88	4.54	4.9	8.19
	WLAN6G	802.11ax HE160	Bottom	0	207	Laptop	Ant 1	Chilisin	98.30	1.02	10.50	10.23	1.06	0.03	0.632	0.68	3.9	4.22	0.0582	29.08	1.545	4.00	0.02	2.78	4.38	4.73	7.9
									-	1.00	-	-	1		-	-		-									

Appendix G. Verifying the Mechanism Operation of Gravity-sensor

The power verified by LCD angle changed are shown as below..

<Power Reduction by LCD Angle Changed and Verifying Power Level of operating Laptop and Tablet mode on Setp A ~ G>

Test Band：802.11b ch.6 Ant 0 for WLAN 2.4G as Representative Verify

Summary

<A> From lid closed when LCD is 0° which power is subject to Laptop user mode, opening the screen side in 10° each step until the power of Tablet mode is obtained.

Degrees	0	10	20	30	40	50	150	160	170	180	190	200
Power (dBm)	18.5	18.5	18.8	18.8	18.3	18.5	18.5	18.4	18.2	18.2	18.6	13.8

The Power level changed by LCD Triggering Angle is 190°

<B> Close the screen side in 5° each step from Step A, the power of Laptop mode is reobtained.

Degrees	185	190	195	200
Power (dBm)	18.8	18.4	13.7	13.3

<C> Verfying the power changed in 1° at each step.

Degrees	198	199	190	191	192
Power (dBm)	18.6	18.4	18.4	13.5	13.8

<D>Then Keep opening the screen side in 10° each step until fully open when LCD angle.

Degrees	0	10	20	30	40	50	180	190	200	210	220	340	350	360
Power (dBm)	18.5	18.8	18.2	18.8	18.5	18.8	18.7	18.2	13.3	13.8	13.5	13.2	13.8	13.7

<E> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 10° each step until the power subject to operating Laptop mode is obtained.

Degrees	360	350	340	330	320	310	200	190	180
Power (dBm)	13.4	13.2	13.4	13.3	13.8	13.4	13.8	18.6	18.3

<F> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 5° each step until fully closed.

Degrees	360	355	350	345	340	335	330	325	320	315	310	195	190	185	10	5	0
Power (dBm)	13.5	13.3	13.7	13.8	13.2	13.4	13.7	13.4	13.5	13.4	13.2	13.6	18.6	18.5	18.8	18.4	18.6

<G> Closing the screen side in 1° each step until the power subject to operating Laptop mode is obtained and keep closing until fully closed.

Degrees	360	359	358	357	356	355	354	353	352	351	350	192	191	190	199	198	199	198	5	4	3	2	1	0
Power (dBm)	13.5	13.8	13.6	13.6	13.3	13.3	13.8	13.5	13.2	13.6	13.6	13.4	13.6	18.2	18.5	18.7	18.6	18.2	18.6	18.8	18.6	18.8	18.4	18.7

Test Band：802.11ac ch.50 Ant 0 for WLAN 5.3G as Representative Verify

Summary

<A> From lid closed when LCD is 0° which power is subject to Laptop user mode, opening the screen side in 10° each step until the power of Tablet mode is obtained.

Degrees	0	10	20	30	40	50	150	160	170	180	190	200
Power (dBm)	10.8	10.7	10.8	10.2	10.7	10.6	10.8	10.6	10.5	10.4	10.6	10.9

The Power level changed by LCD Triggering Angle is 190°

<B> Close the screen side in 5° each step from Step A, the power of Laptop mode is reobtained.

Degrees	185	190	195	200
Power (dBm)	10.4	10.8	10.8	11.2

<C> Verfying the power changed in 1° at each step.

Degrees	198	199	190	191	192
Power (dBm)	10.4	10.2	10.7	10.8	10.8

<D>Then Keep opening the screen side in 10° each step until fully open when LCD angle.

Degrees	0	10	20	30	40	50	180	190	200	210	220	340	350	360
Power (dBm)	10.8	10.5	10.4	10.3	10.4	10.2	10.5	10.8	11.3	11.3	10.8	11.1	11.3	11.3

<E> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 10° each step until the power subject to operating Laptop mode is obtained.

Degrees	360	350	340	330	320	310	200	190	180
Power (dBm)	11	11.2	11.1	10.9	10.7	10.8	325	10.4	10.7

<F> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 5° each step until fully closed.

Degrees	360	355	350	345	340	335	330	325	320	315	310	195	190	185	10	5	0
Power (dBm)	11.3	10.8	11.2	10.9	10.7	11.2	10.8	10.8	10.9	11.2	10.8	10.8	10.4	10.5	10.6	10.5	10.8

<G> Closing the screen side in 1° each step until the power subject to operating Laptop mode is obtained and keep closing until fully closed.

Degrees	360	359	358	357	356	355	354	353	352	351	350	192	191	190	199	198	199	198	5	4	3	2	1	0
Power (dBm)	11.1	10.8	10.7	10.8	11.2	11	11.1	10.7	11.1	10.9	10.9	10.8	10.8	10.6	10.2	10.4	10.7	10.6	10.3	10.5	10.8	10.5	10.2	10.5

Test Band：802.11ax ch.47 Ant 0 for WLAN 6G as Representative Verify

Summary

<A> From lid closed when LCD is 0° which power is subject to Laptop user mode, opening the screen side in 10° each step until the power of Tablet mode is obtained.

Degrees	0	10	20	30	40	50	150	160	170	180	190	200
Power (dBm)	10.3	10.3	10.0	10.2	9.7	10.2	10.0	9.8	9.7	10.1	9.9	8.1

The Power level changed by LCD Triggering Angle is 190°

<B> Close the screen side in 5° each step from Step A, the power of Laptop mode is reobtained.

Degrees	185	190	195	200
Power (dBm)	9.7	9.9	7.9	8.3

<C> Verfying the power changed in 1° at each step.

Degrees	198	199	190	191	192
Power (dBm)	9.9	10.2	9.7	8.1	8.0

<D>Then Keep opening the screen side in 10° each step until fully open when LCD angle.

Degrees	0	10	20	30	40	50	180	190	200	210	220	340	350	360
Power (dBm)	9.7	10.2	9.9	9.7	10.3	9.9	9.7	10	7.7	7.8	8.3	7.8	8	8.1

<E> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 10° each step until the power subject to operating Laptop mode is obtained.

Degrees	360	350	340	330	320	310	200	190	180
Power (dBm)	7.7	7.7	8.1	8	8.3	8.2	-0.7	10.2	10.1

<F> From fully open when LCD is 360° which the operating mode is Tablet, closing the screen side in 5° each step until fully closed.

Degrees	360	355	350	345	340	335	330	325	320	315	310	195	190	185	10	5	0
Power (dBm)	8.1	7.9	8.1	7.7	8.3	7.8	8.1	7.9	7.9	8.1	7.9	7.9	10.3	10.2	10.1	10.3	9.9

<G> Closing the screen side in 1° each step until the power subject to operating Laptop mode is obtained and keep closing until fully closed.

Degrees	360	359	358	357	356	355	354	353	352	351	350	192	191	190	199	198	199	198	5	4	3	2	1	0
Power (dBm)	8.1	8	8.3	8.1	8.1	8.3	7.8	7.8	8.2	8.2	7.8	7.7	7.9	10	9.7	9.8	9.7	10	10	10.1	10.1	9.7	10.2	10.2

Appendix Z. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, Chi
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: ctl@chinattl.com http://www.chinattl.cn

中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Client **B.V.ADT** **Certificate No: Z21-60284**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 737
Calibration Procedure(s)	FF-Z11-003-01 Calibration Procedures for dipole validation kits
Calibration date:	August 26, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Power sensor NRP8S	104291	23-Sep-20 (CTTL, No.J20X08336)	Sep-21
Reference Probe EX3DV4	SN 7517	03-Feb-21(CTTL-SPEAG,No.Z21-60001)	Feb-22
DAE3	SN 536	06-Nov-20(CTTL-SPEAG,No.Z20-60452)	Nov-21
Secondary Standards	**ID #**	**Cal Date (Calibrated by, Certificate No.)**	**Scheduled Calibration**
Signal Generator E4438C	MY49071430	01-Feb-21 (CTTL, No.J21X00593)	Jan-22
NetworkAnalyzer E5071C	MY46110673	14-Jan-21 (CTTL, No.J21X00232)	Jan-22

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

Issued: August 31, 2021

Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com http://www.chinattl.cn

Glossary:

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

Calibration is Performed According to the Following Standards:

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

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

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

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

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

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

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39 2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.0 ± 6 %	1.77 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.6 W/kg ± 18.8 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.92 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.9 W/kg ± 18.7 % (*k*=2)**

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.0Ω+ 4.29jΩ
Return Loss	- 25.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.067 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

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

DASY5 Validation Report for Head TSL Date: 08.26.2021

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 737

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

Medium parameters used: f = 2450 MHz; σ = 1.772 S/m; ε_r = 40.04; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.34, 7.34, 7.34) @ 2450 MHz; Calibrated: 2021-02-03
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn536; Calibrated: 2020-11-06
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Reference Value = 108.5 V/m; Power Drift = -0.01 dB

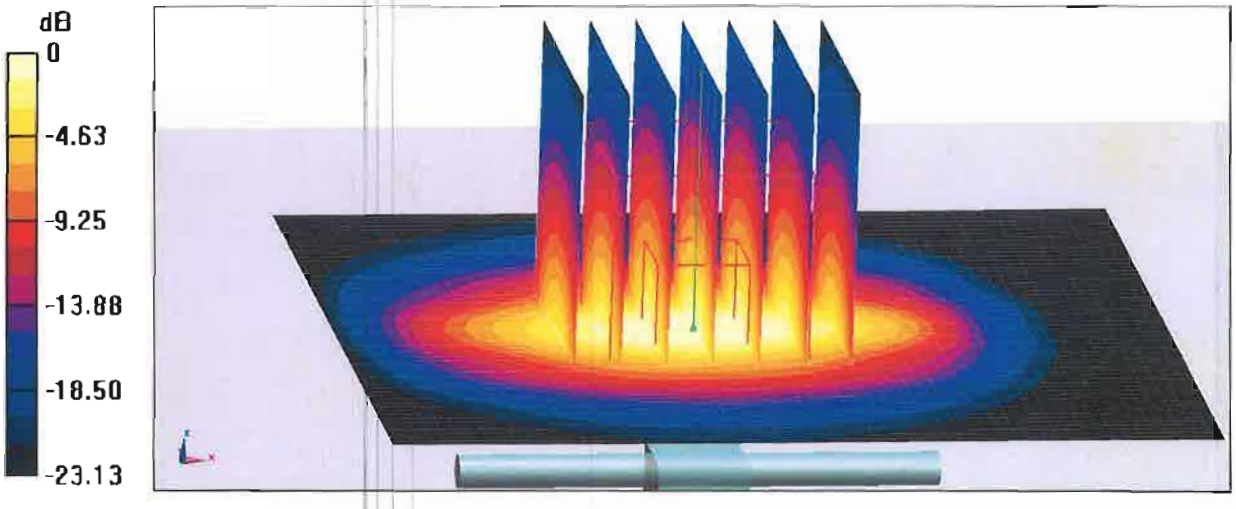
Peak SAR (extrapolated) = 27.8 W/kg

SAR(1 g) = 13 W/kg; SAR(10 g) = 5.92 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 46.7%

Maximum value of SAR (measured) = 22.3 W/kg



0 dB = 22.3 W/kg = 13.48 dBW/kg

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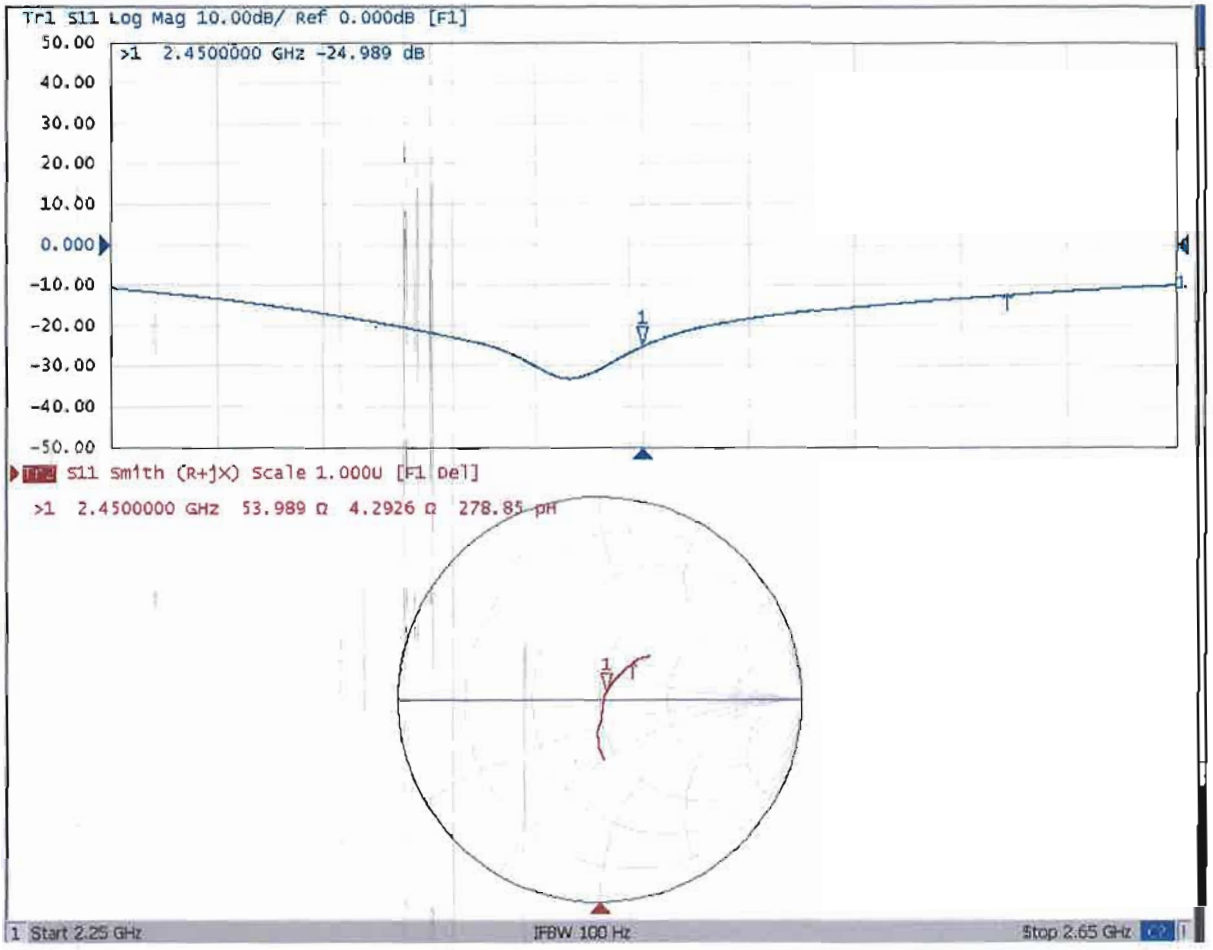
Impedance Measurement Plot for Head TSL

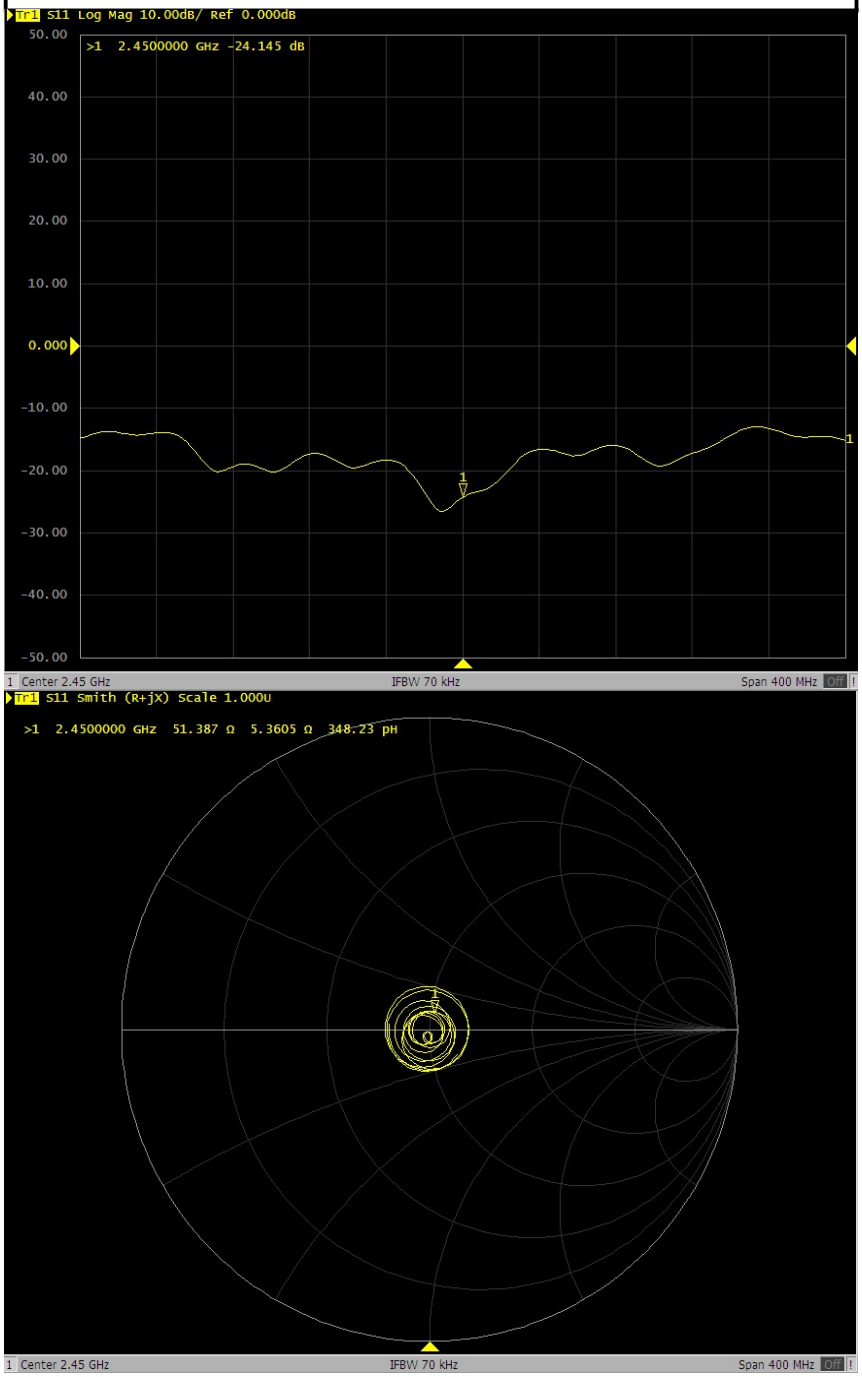


Annual Confirmation of SAR Reference Dipole

Model： D2450V2 S/N： 737 Measurement Date： 2022/8/25

Frequency (MHz)	Type	Item	Previous Measurement	Annual Check	Deviation	Accepted Tolerance	Result
2450	Free Space	Real Impedance	53.989	51.387	-2.602	±5Ω	PASS
		Imaginary Impedance	4.2926	5.3605	1.07	±5Ω	PASS
		Return Loss	-24.989	-24.145	-3.38%	±20%	PASS

2450 MHz，Free Space



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Accreditation No.: SCS 0108

Client **B.V. ADT (Auden)**

Certificate No: D5GHzV2-1019_Mar21

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN:1019

Calibration procedure(s): QA CAL-22.v6
Calibration Procedure for SAR Validation Sources between 3-10 GHz

Calibration date: March 19, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 3503	30-Dec-20 (No. EX3-3503_Dec20)	Dec-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 19, 2021

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.51 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.0 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.4 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	5.01 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.02 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**79.4 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.4 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	54.1 Ω - 6.4 jΩ
Return Loss	- 22.7 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	57.6 Ω - 2.5 jΩ
Return Loss	- 22.6 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	57.9 Ω + 3.1 jΩ
Return Loss	- 22.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 ns

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

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

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 19.03.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1019

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.51 S/m; ε_r = 34.7; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 4.86 S/m; ε_r = 34.2; ρ = 1000 kg/m^3
Medium parameters used: f = 5750 MHz; σ = 5.01 S/m; ε_r = 34; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

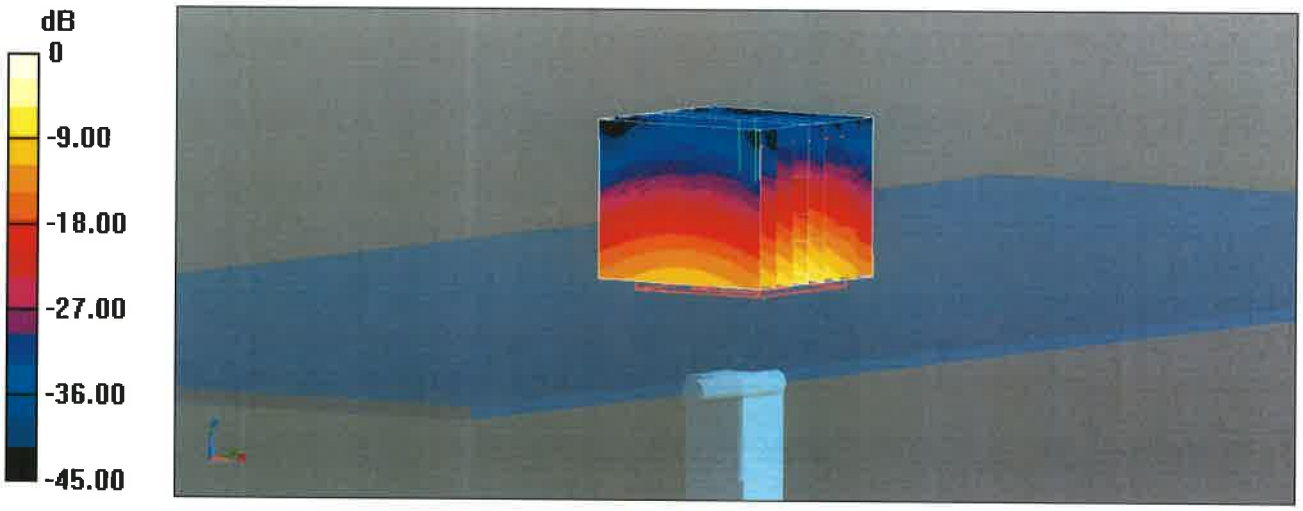
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.5, 5.5, 5.5) @ 5250 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.08, 5.08, 5.08) @ 5750 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 79.20 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 27.6 W/kg
SAR(1 g) = 8.13 W/kg; SAR(10 g) = 2.32 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 70.7%
Maximum value of SAR (measured) = 18.1 W/kg

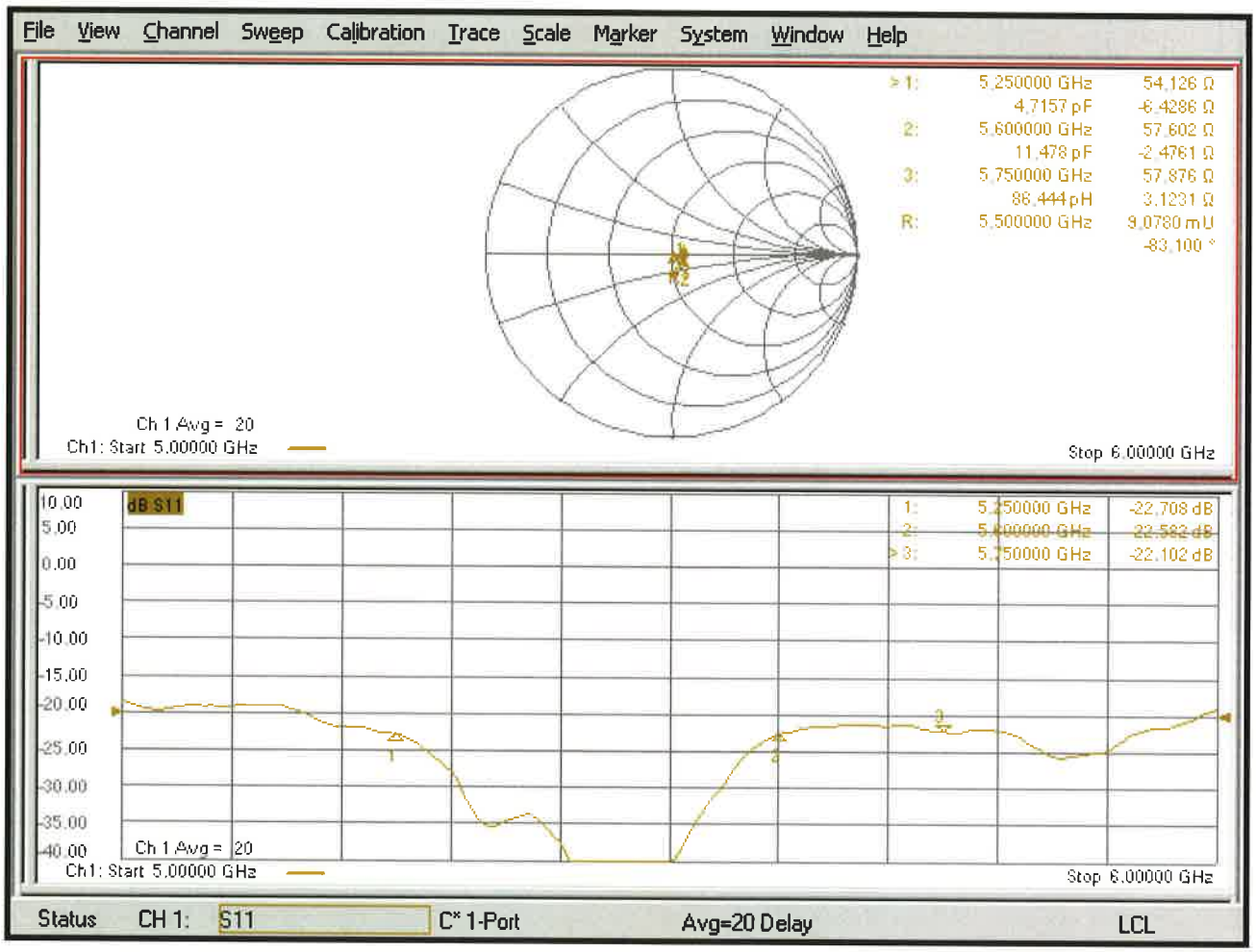
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 77.00 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 31.0 W/kg
SAR(1 g) = 8.32 W/kg; SAR(10 g) = 2.36 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66.9%
Maximum value of SAR (measured) = 19.6 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 74.22 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 31.6 W/kg
SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.27 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 65%
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 19.6 W/kg = 12.92 dBW/kg

Impedance Measurement Plot for Head TSL

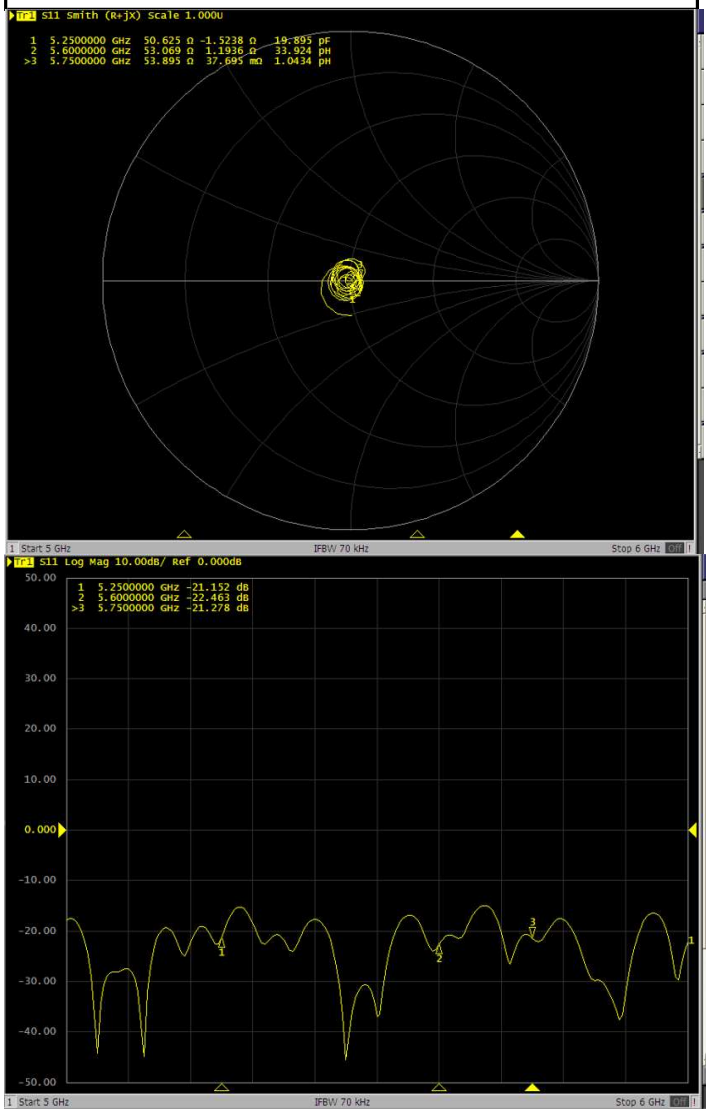


Annual Confirmation of SAR Reference Dipole

Model： D5000V2 S/N： 1019 Measurement Date： 2022/3/18

Frequency (MHz)	Type	Item	Previous Measurement	Annual Check	Deviation	Accepted Tolerance	Result
5250	Free Space	Real Impedance	54.126	50.625	-3.501	±5Ω	PASS
		Imaginary Impedance	-6.4286	-1.5238	4.905	±5Ω	PASS
		Return Loss	-22.708	-21.152	-6.85%	±20%	PASS
Frequency (MHz)	**Type**	**Item**	**Previous Measurement**	**Annual Check**	**Deviation**	**Accepted Tolerance**	**Result**
5600	Free Space	Real Impedance	57.602	53.069	-4.533	±5Ω	PASS
		Imaginary Impedance	-2.4761	1.1936	3.670	±5Ω	PASS
		Return Loss	-22.582	-22.463	-0.53%	±20%	PASS
Frequency (MHz)	**Type**	**Item**	**Previous Measurement**	**Annual Check**	**Deviation**	**Accepted Tolerance**	**Result**
5750	Free Space	Real Impedance	57.876	53.895	-3.981	±5Ω	PASS
		Imaginary Impedance	3.1231	0.0377	-3.085	±5Ω	PASS
		Return Loss	-22.102	-21.278	-3.73%	±20%	PASS

5000 MHz，Free Space



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Accreditation No.: SCS 0108

Client B.V. ADT (Auden)

Certificate No: **D6.5GHzV2-1008_Sep21**

CALIBRATION CERTIFICATE

Object: D6.5GHzV2 - SN:1008

Calibration procedure(s): QA CAL-22.v6
Calibration Procedure for SAR Validation Sources between 3-10 GHz

Calibration date: September 24, 2021

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Power sensor R&S NRP33T	SN: 100967	08-Apr-21 (No. 217-03293)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe EX3DV4	SN: 7405	30-Dec-20 (No. EX3-7405_Dec20)	Dec-21
DAE4	SN: 908	24-Jun-21 (No. DAE4-908_Jun21)	Jun-22

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator Anapico APSIN20G	SN: 669	28-Mar-17 (in house check Dec-18)	In house check: Dec-21
Network Analyzer Keysight E5063A	SN:MY54504221	31-Oct-19 (in house check Oct-19)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 27, 2021

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.

Additional Documentation:

b) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.
- *The absorbed power density (APD):* The absorbed power density is evaluated according to Samaras T, Christ A, Kuster N, "*Compliance assessment of the epithelial or absorbed power density above 6 GHz using SAR measurement systems*", Bioelectromagnetics, 2021 (submitted). The additional evaluation uncertainty of 0.55 dB (rectangular distribution) is considered.

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

Measurement Conditions

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

DASY Version	DASY6	V16.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	5 mm	with Spacer
Zoom Scan Resolution	dx, dy = 3.4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	6500 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	34.5	6.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.6 ± 6 %	6.11 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	29.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**289 W/kg ± 24.7 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	5.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.5 W/kg ± 24.4 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 Ω - 7.6 jΩ
Return Loss	- 22.3 dB

APD (Absorbed Power Density)

APD averaged over 1 cm^2	Condition	
APD measured	100 mW input power	289 W/m^2
APD measured	normalized to 1W	**2890 W/m^2 ± 29.2 % (k=2)**

APD averaged over 4 cm^2	condition	
APD measured	100 mW input power	132 W/m^2
APD measured	normalized to 1W	**1320 W/m^2 ± 28.9 % (k=2)**

General Antenna Parameters and Design

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

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

Additional EUT Data

Manufactured by	SPEAG