

Testing Appendix

Appendix A. Plots of System Verification

The plots for system verification are shown as follows.

Measurement Report

System Check_H2450_230912

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	2450.0	7.35	1.85	38.5

Hardware Setup

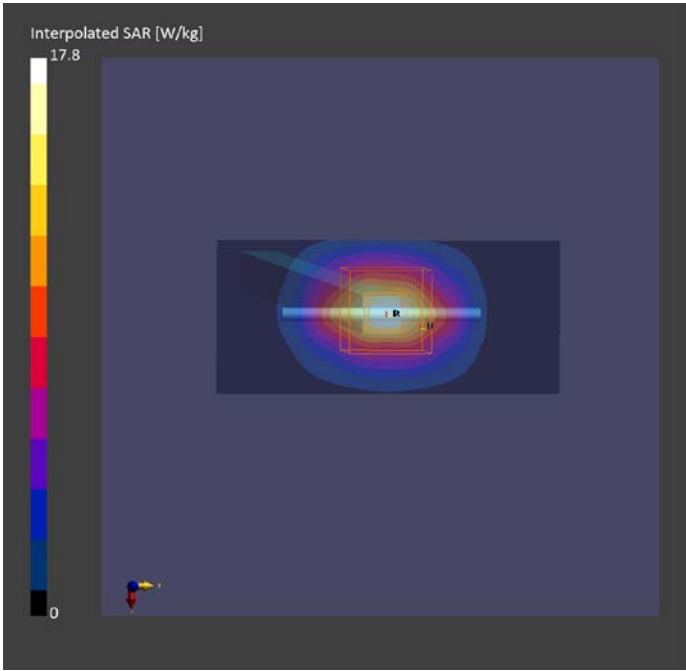
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H2450, 2023-Sep-12	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-12, 10:16	2023-09-12, 10:22
psSAR1g [W/kg]	13.5	13.6
psSAR10g [W/kg]	6.21	6.36
Power Drift [dB]	-0.00	0.01
M2/M1 [%]		78.7
Dist 3dB Peak [mm]		9.0



Measurement Report

System Check_H2450_230913

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	2450.0	7.35	1.81	38.8

Hardware Setup

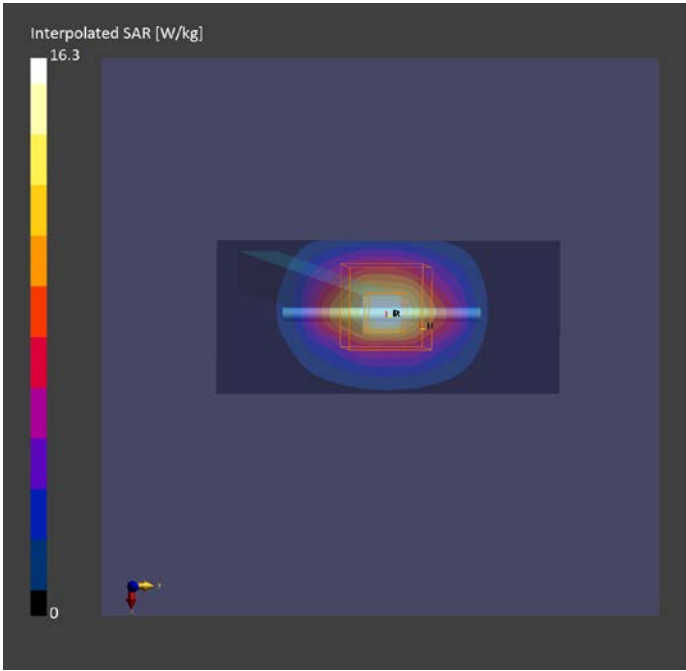
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H2450, 2023-Sep-13	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-13, 09:15	2023-09-13, 09:22
psSAR1g [W/kg]	12.5	12.8
psSAR10g [W/kg]	5.82	5.96
Power Drift [dB]	0.01	0.01
M2/M1 [%]		78.8
Dist 3dB Peak [mm]		9.0



Measurement Report

System Check_H5200_231016

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	5200.0	6.07	4.64	35.9

Hardware Setup

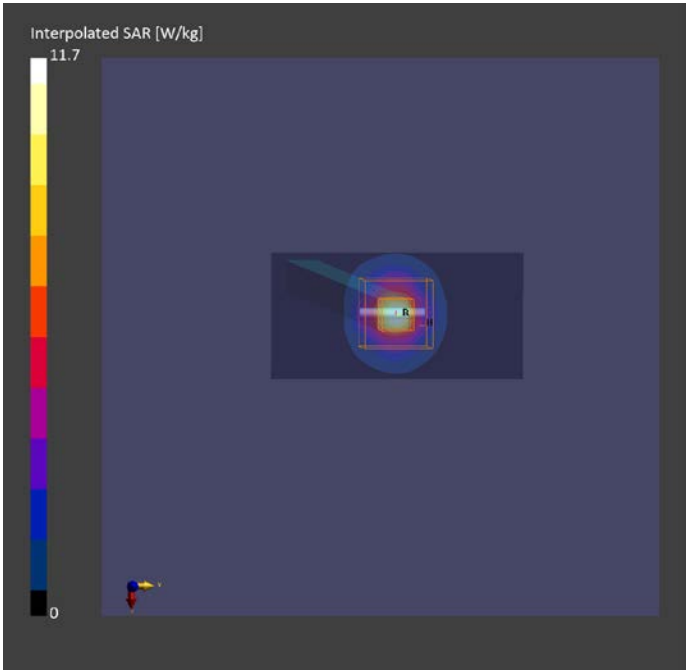
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Oct-16	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-10-16, 10:32	2023-10-16, 10:40
psSAR1g [W/kg]	7.12	7.69
psSAR10g [W/kg]	2.05	2.27
Power Drift [dB]	0.02	0.01
M2/M1 [%]		65.5
Dist 3dB Peak [mm]		7.4



Measurement Report

System Check_H5300_230908

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	5300.0	5.13	4.73	35.8

Hardware Setup

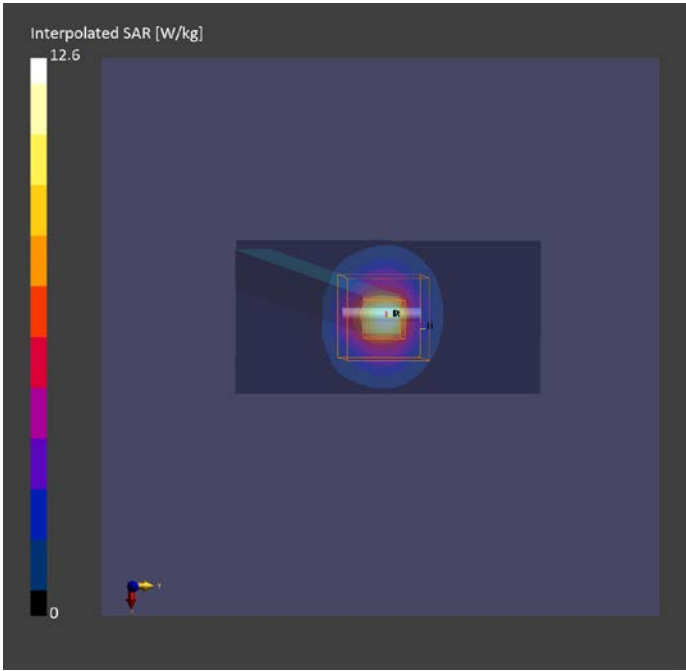
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-08	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-08, 13:08	2023-09-08, 13:18
psSAR1g [W/kg]	7.81	8.37
psSAR10g [W/kg]	2.24	2.36
Power Drift [dB]	0.01	-0.18
M2/M1 [%]		64.2
Dist 3dB Peak [mm]		7.2



Measurement Report

System Check_H5600_230914

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	5600.0	4.82	5.11	35.0

Hardware Setup

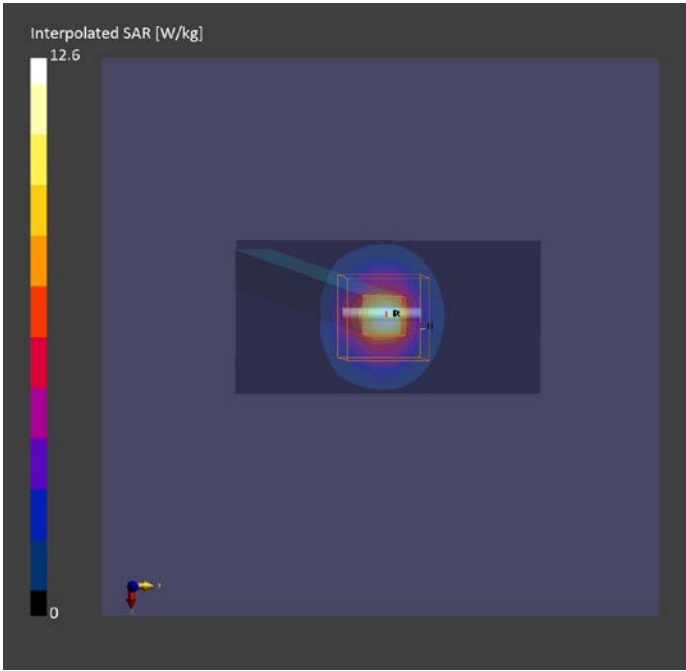
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-14	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-14, 09:36	2023-09-14, 09:47
psSAR1g [W/kg]	7.98	8.59
psSAR10g [W/kg]	2.31	2.49
Power Drift [dB]	0.02	-0.08
M2/M1 [%]		63.0
Dist 3dB Peak [mm]		7.6



Measurement Report

System Check_H5800_230918

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	5800.0	5.0	5.26	34.9

Hardware Setup

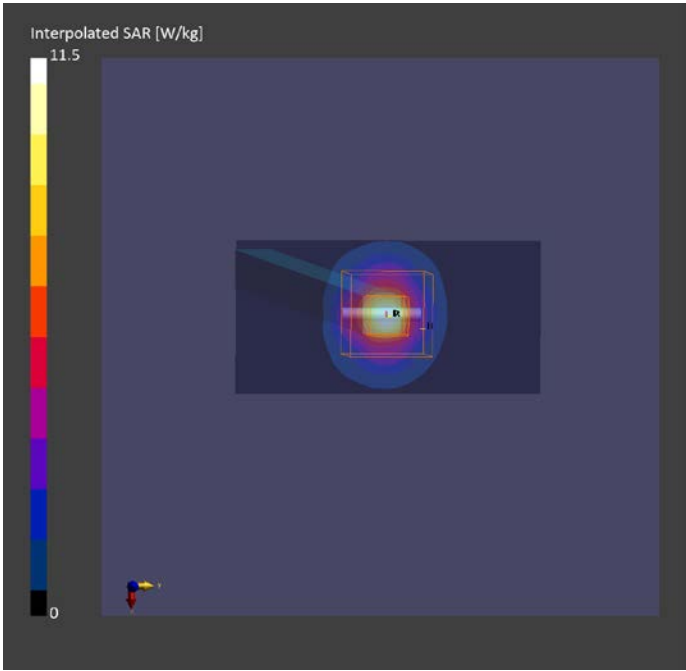
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-18	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-18, 10:43	2023-09-18, 10:50
psSAR1g [W/kg]	7.28	7.78
psSAR10g [W/kg]	2.08	2.25
Power Drift [dB]	0.01	0.02
M2/M1 [%]		59.9
Dist 3dB Peak [mm]		7.4



Measurement Report

System Check_H5800_230919

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	5800.0	5.0	5.37	34.5

Hardware Setup

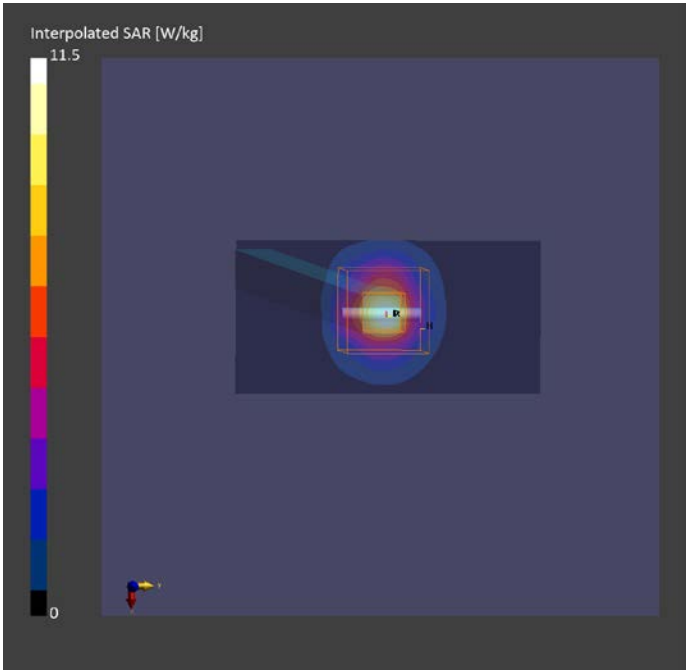
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-19	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-19, 09:49	2023-09-19, 09:57
psSAR1g [W/kg]	7.43	8.14
psSAR10g [W/kg]	2.18	2.36
Power Drift [dB]	0.01	0.01
M2/M1 [%]		61.5
Dist 3dB Peak [mm]		7.6



Measurement Report

System Check_H6500_230915

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	6500.0	5.85	6.01	34.6

Hardware Setup

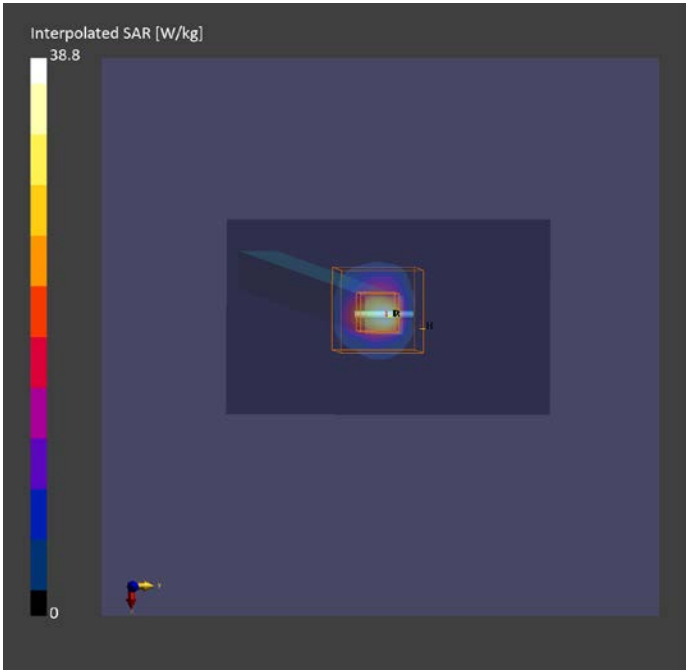
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H6500, 2023-Sep-15	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-15, 10:37	2023-09-15, 10:47
psSAR1g [W/kg]	23.7	29.4
psSAR10g [W/kg]	5.12	5.47
Power Drift [dB]	0.04	-0.05
M2/M1 [%]		51.7
Dist 3dB Peak [mm]		4.8



Measurement Report

System Check_H6500_231008

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	n/a x n/a x n/a		Dipole

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			CW	6500.0	5.1	6.22	34.6

Hardware Setup

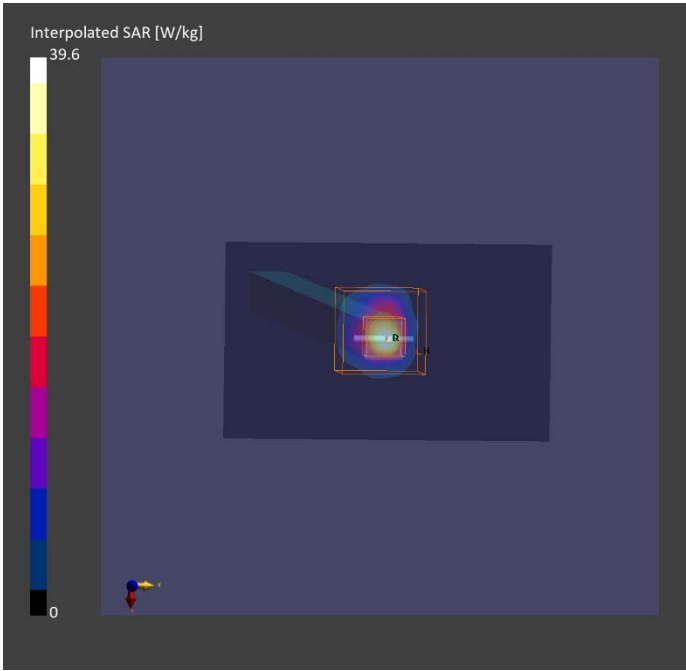
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2184	H6500, 2023-Oct-08	EX3DV4 - SN7762, 2023-07-13	DAE4 Sn1748, 2023-07-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-10-08, 09:17	2023-10-08, 09:25
psSAR1g [W/kg]	22.7	28.1
psSAR10g [W/kg]	4.83	5.27
Power Drift [dB]	0.04	-0.06
M2/M1 [%]		51.2
Dist 3dB Peak [mm]		4.6



Measurement Report

System Check_10GHz_231008

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	100.0 x 100.0 x 172.0		Verification Source 10 GHz

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	Front, 10.00	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

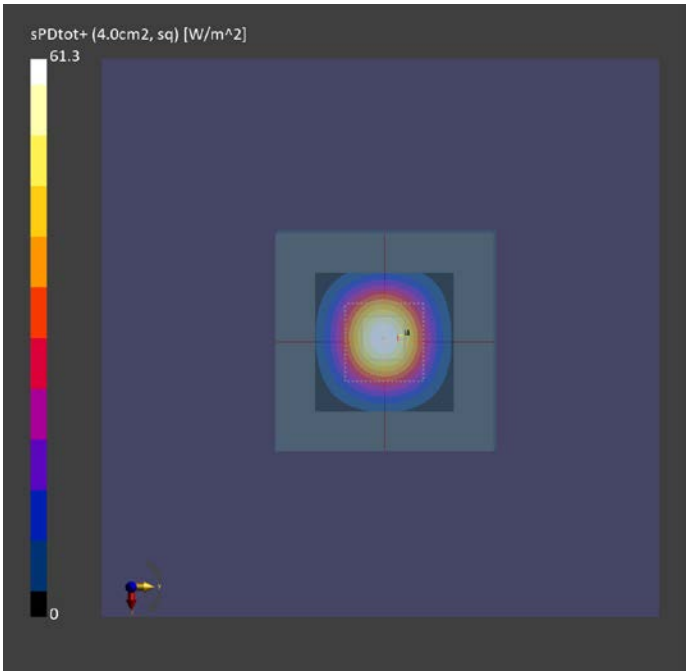
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9671_F1-55GHz, 2023-07-05	DAE4 Sn1748, 2023-07-07

Scan Setup

	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.125 x 0.125
Sensor Surface [mm]	10.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2023-10-08, 16:23
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	60.9
psPDtot+ [W/m²]	61.3
psPDmod+ [W/m²]	61.6
E _{max} [V/m]	158
Power Drift [dB]	0.04



Measurement Report

System Check_10GHz_231009

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	100.0 x 100.0 x 172.0		Verification Source 10 GHz

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	Front, 10.00	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

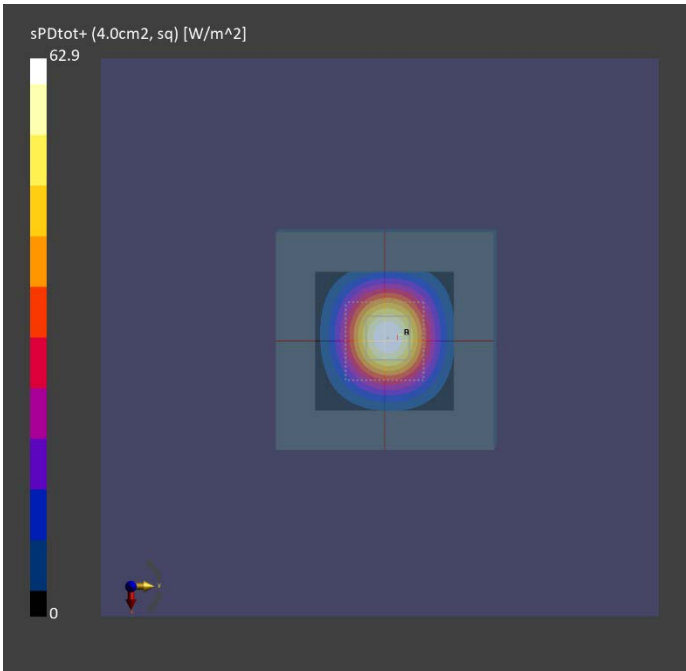
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9671_F1-55GHz, 2023-07-05	DAE4 Sn1748, 2023-07-07

Scan Setup

	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.125 x 0.125
Sensor Surface [mm]	10.0
MAIA	N/A

Measurement Results

	5G Scan
Date	2023-10-09, 08:41
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	62.5
psPDtot+ [W/m²]	62.9
psPDmod+ [W/m²]	63.2
E _{max} [V/m]	161
Power Drift [dB]	-0.08



Testing Appendix

Appendix B. Plots of SAR and Power Density Measurement

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

Measurement Report

P1853 WLAN 2.4G_Bottom_0cm_CH1_Ant 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	BACK, 0.00	WLAN 2.4GHz	WLAN, 10012-CAB	2412.0, 1	7.35	1.81	38.6

Hardware Setup

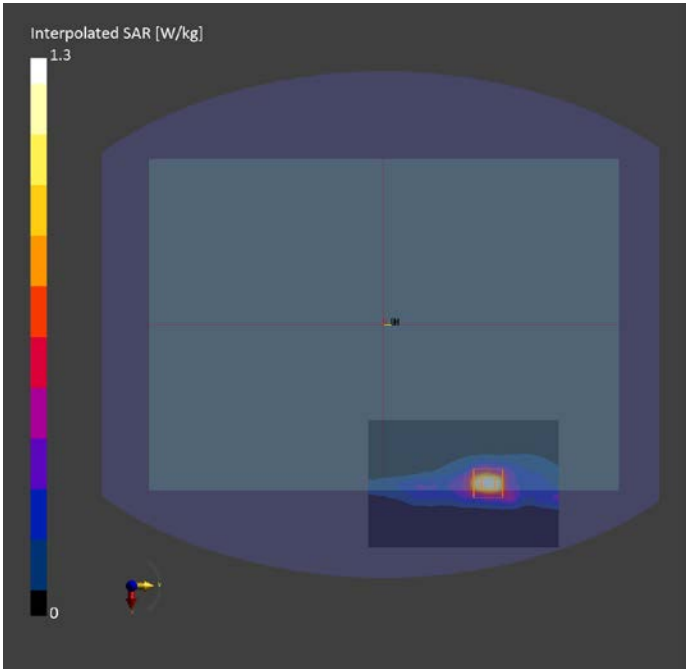
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H2450, 2023-Sep-12	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-12, 15:20	2023-09-12, 15:34
psSAR1g [W/kg]	1.01	1.15
psSAR10g [W/kg]	0.455	0.448
Power Drift [dB]	0.02	0.01
M2/M1 [%]		37.8
Dist 3dB Peak [mm]		7.0



Measurement Report

P1900 WLAN 5.2G_Bottom_0cm_CH155_Ant 2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	WLAN 5GHz	WLAN, 10731-AAC	5210.0, 42	6.07	4.65	35.9

Hardware Setup

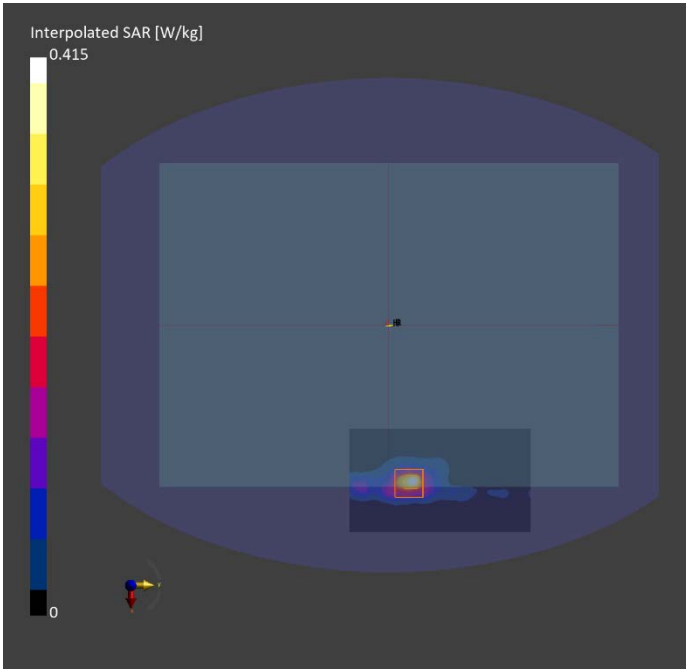
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Oct-16	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 140.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-10-16, 11:35	2023-10-16, 11:45
psSAR1g [W/kg]	0.268	0.289
psSAR10g [W/kg]	0.088	0.086
Power Drift [dB]	0.08	0.03
M2/M1 [%]		61.6
Dist 3dB Peak [mm]		6.4



Measurement Report

P2001 WLAN 5.3G_Bottom_0cm_CH50_Ant 2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	WLAN 5GHz	WLAN, 10755-AAC	5250.0, 50	5.32	4.67	35.8

Hardware Setup

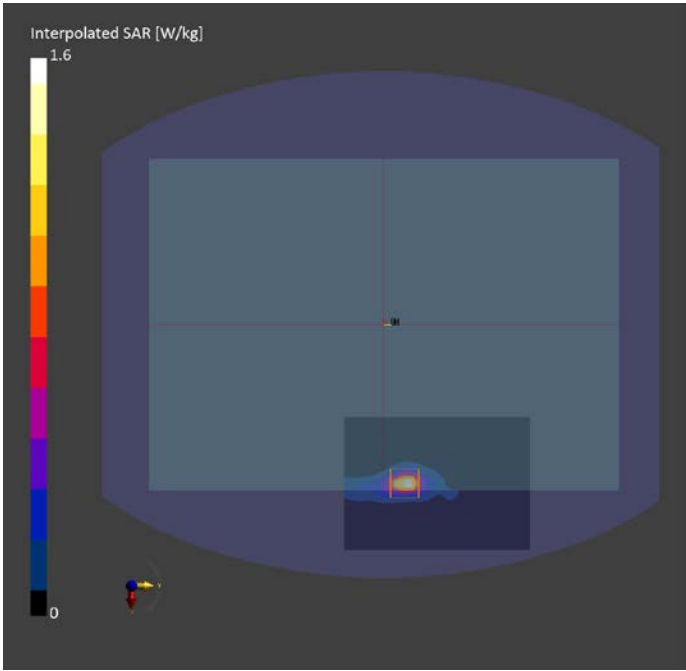
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-08	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 140.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	3.8 x 3.8 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-08, 15:58	2023-09-08, 16:07
psSAR1g [W/kg]	1.01	1.07
psSAR10g [W/kg]	0.297	0.294
Power Drift [dB]	0.08	0.01
M2/M1 [%]		60.4
Dist 3dB Peak [mm]		5.4



Measurement Report

P2151 WLAN 5.6G_Bottom_0cm_CH114_Ant 2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	WLAN 5GHz	WLAN, 10755-AAC	5570.0, 114	4.82	5.07	35.1

Hardware Setup

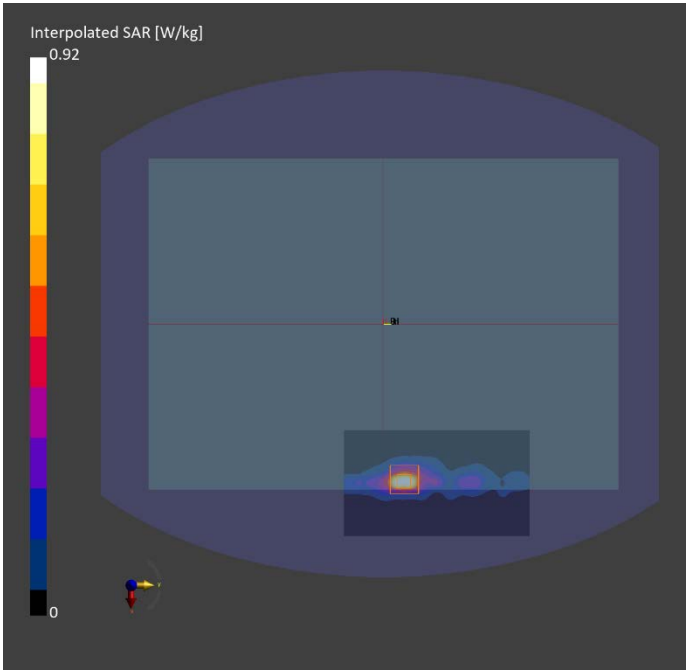
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-14	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 140.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-14, 11:01	2023-09-14, 11:19
psSAR1g [W/kg]	0.644	0.747
psSAR10g [W/kg]	0.205	0.204
Power Drift [dB]	-0.05	0.04
M2/M1 [%]		59.0
Dist 3dB Peak [mm]		5.6



Measurement Report

P2301 WLAN 5.8G_Bottom_0cm_CH155_Ant 2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	WLAN 5GHz	WLAN, 10731-AAC	5775.0, 155	5.0	5.35	34.6

Hardware Setup

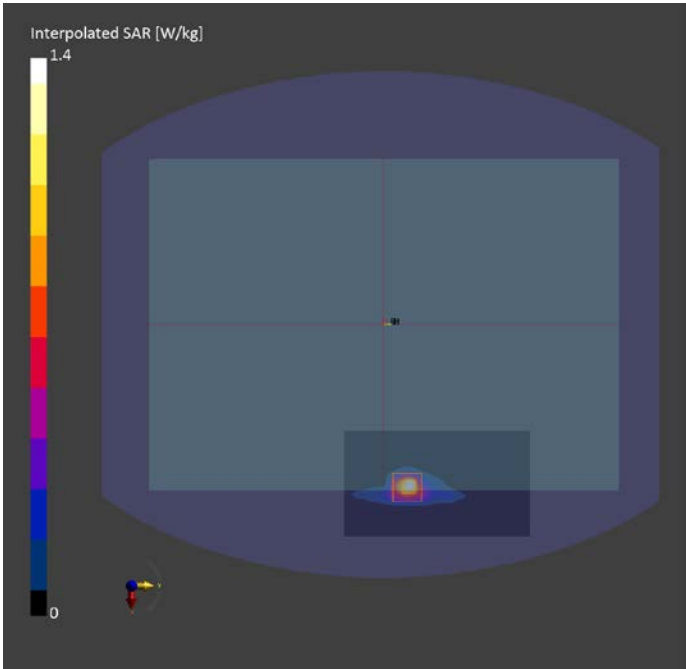
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H5G, 2023-Sep-19	EX3DV4 - SN7300, 2023-05-25	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 140.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-19, 10:53	2023-09-19, 11:03
psSAR1g [W/kg]	0.915	1.29
psSAR10g [W/kg]	0.277	0.309
Power Drift [dB]	-0.03	0.06
M2/M1 [%]		58.4
Dist 3dB Peak [mm]		4.8



Measurement Report

P2452 BT_Bottom_0cm_CH78_Ant 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2480.0, 78	7.35	1.84	38.7

Hardware Setup

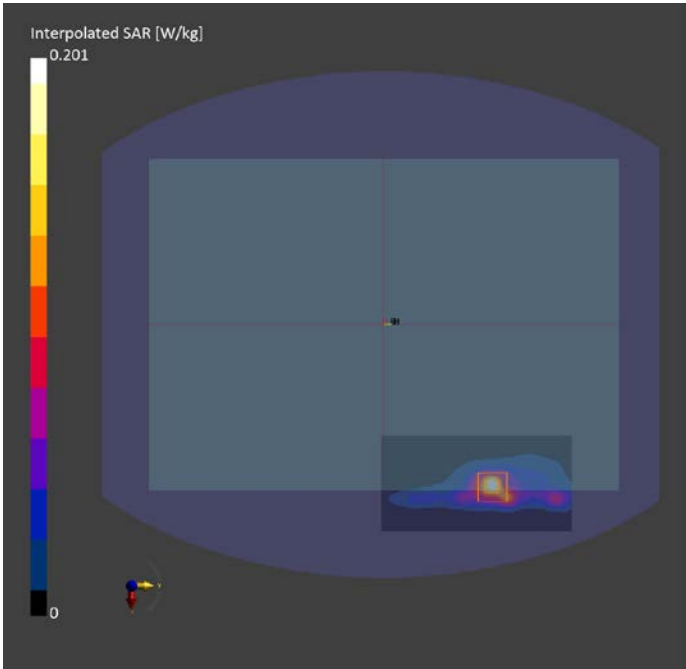
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2185	H2450, 2023-Sep-13	EX3DV4 - SN7763, 2022-09-26	DAE4 Sn1397, 2023-04-26

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	72.0 x 144.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2023-09-13, 16:46	2023-09-13, 16:53
psSAR1g [W/kg]	0.139	0.159
psSAR10g [W/kg]	0.062	0.063
Power Drift [dB]	0.05	-0.01
M2/M1 [%]		36.8
Dist 3dB Peak [mm]		7.0



Measurement Report

P2603 WLAN 6.5G_Bottom_0cm_CH47_Ant2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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	6185.0, 47	5.1	6.00	35.2

Hardware Setup

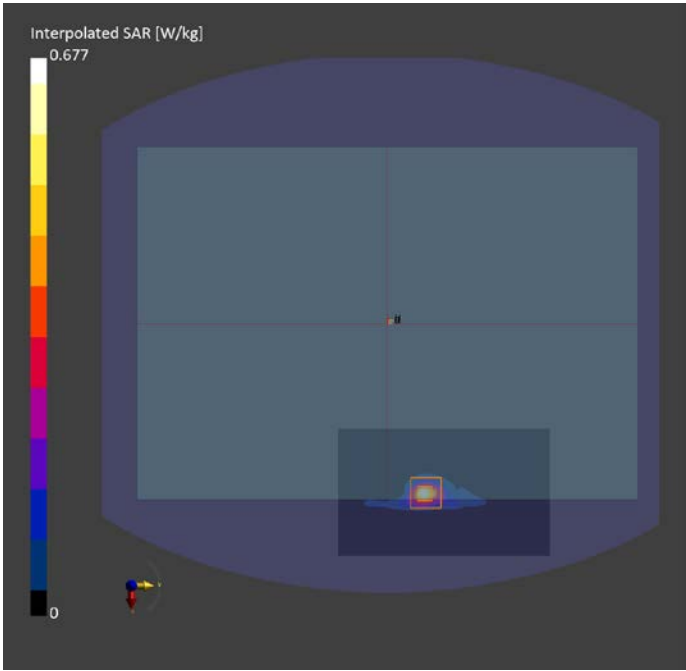
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2184	H6500, 2023-Oct-08	EX3DV4 - SN7762, 2023-07-13	DAE4 Sn1748, 2023-07-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	90.0 x 150.0	27.2 x 27.2 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	2023-10-08, 10:53	2023-10-08, 11:00
psSAR1g [W/kg]	0.423	0.507
psSAR10g [W/kg]	0.113	0.126
psAPD (1.0cm2, sq) [W/m2]		6.91
psAPD (4.0cm2, sq) [W/m2]		3.94
Power Drift [dB]	-0.14	0.18
M2/M1 [%]		55.0
Dist 3dB Peak [mm]		4.8



Measurement Report

P2800 WLAN 6.5G_Bottom_CH15_ANT 2

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
NP960XGK	355.0 x 250.0 x 14.0		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-5	WLAN, 10755-AAC	6025.0, 15	1.0

Hardware Setup

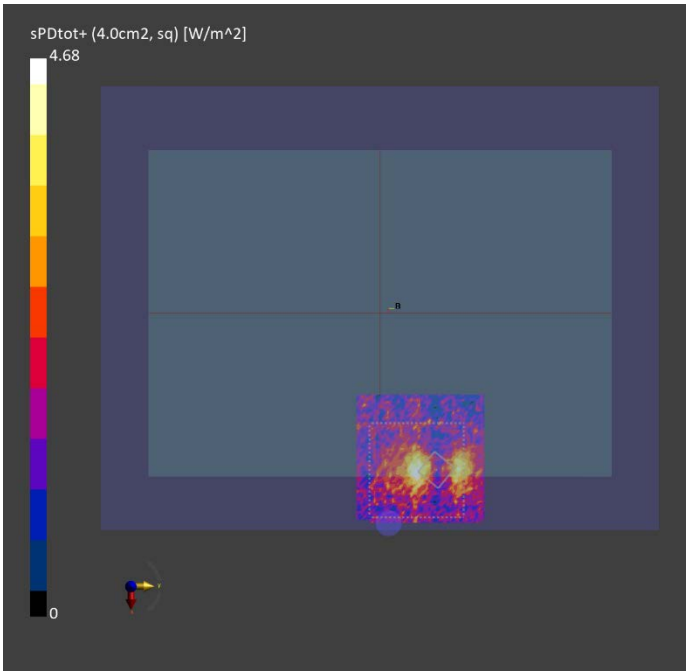
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air	EUmmWV4 - SN9671_F1-55GHz, 2023-07-05	DAE4 Sn1748, 2023-07-07

Scan Setup

5G Scan	
Grid Extents [mm]	100.0 x 100.0
Grid Steps [lambda]	0.04102331270196222 x 0.04102331270196222
Sensor Surface [mm]	2.0
MAIA	Y

Measurement Results

5G Scan	
Date	2023-10-08, 21:49
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	2.30
psPDtot+ [W/m²]	4.68
psPDmod+ [W/m²]	7.69
E _{max} [V/m]	86.1
Power Drift [dB]	-0.08



Testing Appendix

Appendix C. Tissue & System Verification

The measuring results for tissue simulating liquid and system check are shown as below.

Note:

1. For Section 3.3, the dielectric properties of the tissue simulating liquid have been measured within 24 hours before the SAR testing and within $\pm 10\%$ of the target values. Liquid temperature during the SAR testing has kept within $\pm 2^\circ\text{C}$.
2. For Section 3.3, Comparing to the reference SAR value provided by SPEAG in dipole calibration certificate, the deviation of system check results is within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots please refer to Appendix A of this report.
3. For Section 3.4, The SAR measurement system was validated according to procedures in KDB 865664 D01. The validation status in tabulated summary is as below.



SAR Test Record - Tissue & System Verification

Tissue Verification										System Validation					Note		
Tissue Type	Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Targeted Conductivity (σ)	Targeted Permittivity (ϵ_r)	Deviation Conductivity (σ)	Deviation Permittivity (ϵ_r)	Date	Frequency (MHz)	Targeted SAR (W/kg)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
H2450	2450	20.7	1.850	38.500	1.80	39.2	2.78	-1.79	12 Sep, 2023	2450	52.60	13.60	54.40	3.42	716	7763	1397
H2450	2450	21.1	1.810	38.800	1.80	39.2	0.56	-1.02	13 Sep, 2023	2450	52.60	12.80	51.20	-2.66	716	7763	1397
H5G	5200	21.2	4.640	35.900	4.66	36.0	-0.43	-0.28	16 Oct, 2023	5200	77.90	7.69	76.90	-1.28	1018	7300	1397
H5G	5300	20.9	4.730	35.800	4.76	35.9	-0.63	-0.28	08 Sep, 2023	5300	80.50	8.37	83.70	3.98	1018	7763	1397
H5G	5600	20.8	5.110	35.000	4.96	35.6	3.02	-1.69	14 Sep, 2023	5600	80.10	8.59	85.90	7.24	1018	7300	1397
H5G	5800	21.3	5.260	34.900	5.27	35.3	-0.19	-1.13	18 Sep, 2023	5800	79.10	7.78	77.80	-1.64	1018	7300	1397
H5G	5800	21.2	5.370	34.500	5.27	35.3	1.90	-2.27	19 Sep, 2023	5800	79.10	8.14	81.40	2.91	1018	7300	1397
H6500	6500	20.8	6.010	34.600	6.07	34.5	-0.99	0.29	15 Sep, 2023	6500	291.00	29.40	294.00	1.03	1035	7300	1397
H6500	6500	21.3	6.220	34.600	6.07	34.5	2.47	0.29	08 Oct, 2023	6500	291.00	28.10	281.00	-3.44	1035	7762	1748



PD Test Record - System Verification

			System Validation						Note			
Frequency (GHz)	Ambient Temp. (°C)	Date	Frequency (GHz)	Reference Power (100mW)	Normalized PD (W/m^2) Square_4cm^2	Measured PD (W/m^2)	Normalized PD (W/m^2)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N	PD (1cm^2 or 4cm^2)
10	22.8	08 Oct, 2023	10	100	0.62	61.30	0.61	-0.53	1057	9671	1748	4cm^2
10	22.8	09 Oct, 2023	10	100	0.62	62.90	0.63	2.06	1057	9671	1748	4cm^2

Testing Appendix

Appendix D. Maximum Target Conducted Power

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

Conducted Power (Full)			
WLAN2.4GHz Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11b	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	16
	13	2472	16
802.11g	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	15.5
	13	2472	12.5
802.11n HT20	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	15.5
	13	2472	12.5
802.11n HT40	3	2422	16
	6	2437	16
	9	2452	16
	10	2457	13
	11	2462	11.5
802.11ax HE20	1	2412	13.5
	6	2437	16
	11	2462	12.5
	12	2467	10
	13	2472	1
802.11ax HE40	3	2422	11
	6	2437	16
	9	2452	13.5
	10	2457	13
	11	2462	11.5

Conducted Power (Full)			
WLAN2.4GHz Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11b	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	16
	13	2472	16
802.11g	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	15.5
	13	2472	12.5
802.11n HT20	1	2412	16
	6	2437	16
	11	2462	16
	12	2467	15.5
	13	2472	12.5
802.11n HT40	3	2422	15.75
	6	2437	16
	9	2452	16
	10	2457	12.75
	11	2462	10.25
802.11ax HE20	1	2412	16
	6	2437	16
	11	2462	9.5
	12	2467	6.5
	13	2472	0.5
802.11ax HE40	3	2422	14
	6	2437	16
	9	2452	9.5
	10	2457	12.75
	11	2462	10.25

Conducted Power (Full)					
WLAN2.4GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11g	1	2412	10.5	10.5	13.5
	6	2437	10.5	10.5	13.5
	11	2462	10.5	10.5	13.5
	12	2467	9	9	12
	13	2472	6	6	9
802.11n HT20	1	2412	10.5	10.5	13.5
	6	2437	10.5	10.5	13.5
	11	2462	10.5	10.5	13.5
	12	2467	9	9	12
	13	2472	6	6	9
802.11n HT40	3	2422	10	10	13
	6	2437	10.5	10.5	13.5
	9	2452	10.5	10.5	13.5
	10	2457	7	7	10
	11	2462	5	5	8
802.11ax HE20	1	2412	10.5	10.5	13.5
	6	2437	10.5	10.5	13.5
	11	2462	10.5	10.5	13.5
	12	2467	9	9	12
	13	2472	0.5	0.5	3.5
802.11ax HE40	3	2422	10	10	13
	6	2437	10.5	10.5	13.5
	9	2452	10.5	10.5	13.5
	10	2457	7	7	10
	11	2462	5	5	8

Conducted Power (Full)			
Bluetooth Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
BR / EDR	0	2402	11
	39	2441	11
	78	2480	11
LE	0	2402	7
	19	2440	7
	39	2480	7

Conducted Power (Full)			
WLAN 5.2GHz Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	36	5180	12
	40	5200	12
	44	5220	12
	48	5240	12
802.11n HT20	36	5180	12
	40	5200	12
	44	5220	12
	48	5240	12
802.11n HT40	38	5190	12
	46	5230	12
802.11ac VHT20	36	5180	12
	40	5200	12
	44	5220	12
	48	5240	12
802.11ac VHT40	38	5190	12
	46	5230	12
802.11ac VHT80	42	5210	12
802.11ax HE20	36	5180	12
	40	5200	12
	44	5220	12
	48	5240	12
802.11ax HE40	38	5190	12
	46	5230	12
802.11ax HE80	42	5210	12

Conducted Power (Full)			
WLAN 5.2GHz Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	36	5180	15
	40	5200	15
	44	5220	15
	48	5240	15
802.11n HT20	36	5180	15
	40	5200	15
	44	5220	15
	48	5240	15
802.11n HT40	38	5190	15
	46	5230	15
802.11ac VHT20	36	5180	15
	40	5200	15
	44	5220	15
	48	5240	15
802.11ac VHT40	38	5190	15
	46	5230	15
802.11ac VHT80	42	5210	15
802.11ax HE20	36	5180	15
	40	5200	15
	44	5220	15
	48	5240	15
802.11ax HE40	38	5190	15
	46	5230	15
802.11ax HE80	42	5210	15

Conducted Power (Full)					
WLAN 5.2GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11a	36	5180	7.5	7.5	10.5
	40	5200	7.5	7.5	10.5
	44	5220	7.5	7.5	10.5
	48	5240	7.5	7.5	10.5
802.11n HT20	36	5180	7.5	7.5	10.5
	40	5200	7.5	7.5	10.5
	44	5220	7.5	7.5	10.5
	48	5240	7.5	7.5	10.5
802.11n HT40	38	5190	7.5	7.5	10.5
	46	5230	7.5	7.5	10.5
802.11ac VHT20	36	5180	7.5	7.5	10.5
	40	5200	7.5	7.5	10.5
	44	5220	7.5	7.5	10.5
	48	5240	7.5	7.5	10.5
802.11ac VHT40	38	5190	7.5	7.5	10.5
	46	5230	7.5	7.5	10.5
802.11ac VHT80	42	5210	7.5	7.5	10.5
802.11ax HE20	36	5180	7.5	7.5	10.5
	40	5200	7.5	7.5	10.5
	44	5220	7.5	7.5	10.5
	48	5240	7.5	7.5	10.5
802.11ax HE40	38	5190	7.5	7.5	10.5
	46	5230	7.5	7.5	10.5
802.11ax HE80	42	5210	7.5	7.5	10.5

Conducted Power (Full)			
WLAN 5.3GHz Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	52	5260	12
	56	5280	12
	60	5300	12
	64	5320	12
802.11n HT20	52	5260	12
	56	5280	12
	60	5300	12
	64	5320	12
802.11n HT40	54	5270	12
	62	5310	12
802.11ac VHT20	52	5260	12
	56	5280	12
	60	5300	12
	64	5320	12
802.11ac VHT40	54	5270	12
	62	5310	12
802.11ac VHT80	58	5290	12
802.11ac VHT160	50	5250	12
802.11ax HE20	52	5260	12
	56	5280	12
	60	5300	12
	64	5320	12
802.11ax HE40	54	5270	12
	62	5310	12
802.11ax HE80	58	5290	12
802.11ax HE160	50	5250	12

Conducted Power (Full)			
WLAN 5.3GHz Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	52	5260	15
	56	5280	15
	60	5300	15
	64	5320	15
802.11n HT20	52	5260	15
	56	5280	15
	60	5300	15
	64	5320	15
802.11n HT40	54	5270	15
	62	5310	15
802.11ac VHT20	52	5260	15
	56	5280	15
	60	5300	15
	64	5320	15
802.11ac VHT40	54	5270	15
	62	5310	15
802.11ac VHT80	58	5290	15
802.11ac VHT160	50	5250	15
802.11ax HE20	52	5260	15
	56	5280	15
	60	5300	15
	64	5320	15
802.11ax HE40	54	5270	15
	62	5310	15
802.11ax HE80	58	5290	15
802.11ax HE160	50	5250	15

Conducted Power (Full)					
WLAN 5.3GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11a	52	5260	7.5	7.5	10.5
	56	5280	7.5	7.5	10.5
	60	5300	7.5	7.5	10.5
	64	5320	7.5	7.5	10.5
802.11n HT20	52	5260	7.5	7.5	10.5
	56	5280	7.5	7.5	10.5
	60	5300	7.5	7.5	10.5
	64	5320	7.5	7.5	10.5
802.11n HT40	54	5270	7.5	7.5	10.5
	62	5310	7.5	7.5	10.5
802.11ac VHT20	52	5260	7.5	7.5	10.5
	56	5280	7.5	7.5	10.5
	60	5300	7.5	7.5	10.5
	64	5320	7.5	7.5	10.5
802.11ac VHT40	54	5270	7.5	7.5	10.5
	62	5310	7.5	7.5	10.5
802.11ac VHT80	58	5290	7.5	7.5	10.5
802.11ac VHT160	50	5250	7.5	7.5	10.5
802.11ax HE20	52	5260	7.5	7.5	10.5
	56	5280	7.5	7.5	10.5
	60	5300	7.5	7.5	10.5
	64	5320	7.5	7.5	10.5
802.11ax HE40	54	5270	7.5	7.5	10.5
	62	5310	7.5	7.5	10.5
802.11ax HE80	58	5290	7.5	7.5	10.5
802.11ax HE160	50	5250	7.5	7.5	10.5

Conducted Power (Full)			
WLAN 5.6GHz Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	100	5500	12
	116	5580	12
	120	5600	12
	124	5620	12
	132	5660	12
	140	5700	12
	144	5720	12
802.11n HT20	100	5500	12
	116	5580	12
	120	5600	12
	124	5620	12
	128	5640	12
	132	5660	12
	140	5700	12
802.11n HT40	102	5510	12
	110	5550	12
	118	5590	12
	126	5630	12
	128	5640	12
	134	5670	12
	142	5710	12
802.11ac VHT20	100	5500	12
	116	5580	12
	120	5600	12
	124	5620	12
	128	5640	12
	132	5660	12
	140	5700	12
802.11ac VHT40	102	5510	12
	110	5550	12
	118	5590	12
	126	5630	12
	134	5670	12
	142	5710	12
802.11ac VHT80	106	5530	12
	122	5610	12
	138	5690	12
802.11ac VHT160	114	5570	12
802.11ax HE20	100	5500	12
	116	5580	12
	120	5600	12
	124	5620	12
	128	5640	12
	132	5660	12
	140	5700	12
802.11ax HE40	102	5510	12
	110	5550	12
	118	5590	12
	126	5630	12
	134	5670	12
802.11ax HE80	106	5530	12
	122	5610	12
	138	5690	12
802.11ax HE160	114	5570	12

Conducted Power (Full)			
WLAN 5.6GHz Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	100	5500	14
	116	5580	14
	120	5600	14
	124	5620	14
	132	5660	14
	140	5700	14
	144	5720	14
802.11n HT20	100	5500	14
	116	5580	14
	120	5600	14
	124	5620	14
	128	5640	14
	132	5660	14
	140	5700	14
802.11n HT40	102	5510	14
	110	5550	14
	118	5590	14
	126	5630	14
	128	5640	14
	134	5670	14
	142	5710	14
802.11ac VHT20	100	5500	14
	116	5580	14
	120	5600	14
	124	5620	14
	128	5640	14
	132	5660	14
	140	5700	14
802.11ac VHT40	102	5510	14
	110	5550	14
	118	5590	14
	126	5630	14
	134	5670	14
	142	5710	14
802.11ac VHT80	106	5530	14
	122	5610	14
	138	5690	14
802.11ac VHT160	114	5570	14
802.11ax HE20	100	5500	14
	116	5580	14
	120	5600	14
	124	5620	14
	128	5640	14
	132	5660	14
	140	5700	14
802.11ax HE40	102	5510	14
	110	5550	14
	118	5590	14
	126	5630	14
	134	5670	14
802.11ax HE80	106	5530	14
	122	5610	14
	138	5690	14
802.11ax HE160	114	5570	14

Conducted Power (Full)					
WLAN 5.6GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11a	100	5500	7.5	7.5	10.5
	116	5580	7.5	7.5	10.5
	120	5600	7.5	7.5	10.5
	124	5620	7.5	7.5	10.5
	132	5660	7.5	7.5	10.5
	140	5700	7.5	7.5	10.5
	144	5720	7.5	7.5	10.5
802.11n HT20	100	5500	7.5	7.5	10.5
	116	5580	7.5	7.5	10.5
	120	5600	7.5	7.5	10.5
	124	5620	7.5	7.5	10.5
	128	5640	7.5	7.5	10.5
	132	5660	7.5	7.5	10.5
	140	5700	7.5	7.5	10.5
802.11n HT40	144	5720	7.5	7.5	10.5
	102	5510	7.5	7.5	10.5
	110	5550	7.5	7.5	10.5
	118	5590	7.5	7.5	10.5
	126	5630	7.5	7.5	10.5
	128	5640	7.5	7.5	10.5
	134	5670	7.5	7.5	10.5
802.11ac VHT20	142	5710	7.5	7.5	10.5
	100	5500	7.5	7.5	10.5
	116	5580	7.5	7.5	10.5
	120	5600	7.5	7.5	10.5
	124	5620	7.5	7.5	10.5
	128	5640	7.5	7.5	10.5
	132	5660	7.5	7.5	10.5
802.11ac VHT40	140	5700	7.5	7.5	10.5
	144	5720	7.5	7.5	10.5
	102	5510	7.5	7.5	10.5
	110	5550	7.5	7.5	10.5
	118	5590	7.5	7.5	10.5
	126	5630	7.5	7.5	10.5
	134	5670	7.5	7.5	10.5
802.11ac VHT80	142	5710	7.5	7.5	10.5
	106	5530	7.5	7.5	10.5
	122	5610	7.5	7.5	10.5
802.11ac VHT160	138	5690	7.5	7.5	10.5
	114	5570	7.5	7.5	10.5
	100	5500	7.5	7.5	10.5
802.11ax HE20	116	5580	7.5	7.5	10.5
	120	5600	7.5	7.5	10.5
	124	5620	7.5	7.5	10.5
	128	5640	7.5	7.5	10.5
	132	5660	7.5	7.5	10.5
	140	5700	7.5	7.5	10.5
	144	5720	7.5	7.5	10.5
802.11ax HE40	102	5510	7.5	7.5	10.5
	110	5550	7.5	7.5	10.5
	118	5590	7.5	7.5	10.5
	126	5630	7.5	7.5	10.5
	134	5670	7.5	7.5	10.5
802.11ax HE80	142	5710	7.5	7.5	10.5
	106	5530	7.5	7.5	10.5
	122	5610	7.5	7.5	10.5
802.11ax HE160	138	5690	7.5	7.5	10.5
	114	5570	7.5	7.5	10.5

Conducted Power (Full)			
WLAN 5.8GHz Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	149	5745	12
	153	5765	12
	157	5785	12
	161	5805	12
	165	5825	12
802.11n HT20	149	5745	12
	153	5765	12
	157	5785	12
	161	5805	12
	165	5825	12
802.11n HT40	151	5755	12
	159	5795	12
802.11ac VHT20	149	5745	12
	153	5765	12
	157	5785	12
	161	5805	12
	165	5825	12
802.11ac VHT40	151	5755	12
	159	5795	12
802.11ac VHT80	155	5775	12
802.11ax HE20	149	5745	12
	153	5765	12
	157	5785	12
	161	5805	12
	165	5825	12
802.11ax HE40	151	5755	12
	159	5795	12
802.11ax HE80	155	5775	12

Conducted Power (Full)			
WLAN 5.8GHz Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11a	149	5745	13.5
	153	5765	13.5
	157	5785	13.5
	161	5805	13.5
	165	5825	13.5
802.11n HT20	149	5745	13.5
	153	5765	13.5
	157	5785	13.5
	161	5805	13.5
	165	5825	13.5
802.11n HT40	151	5755	13.5
	159	5795	13.5
802.11ac VHT20	149	5745	13.5
	153	5765	13.5
	157	5785	13.5
	161	5805	13.5
	165	5825	13.5
802.11ac VHT40	151	5755	13.5
	159	5795	13.5
802.11ac VHT80	155	5775	13.5
802.11ax HE20	149	5745	13.5
	153	5765	13.5
	157	5785	13.5
	161	5805	13.5
	165	5825	13.5
802.11ax HE40	151	5755	13.5
	159	5795	13.5
802.11ax HE80	155	5775	13.5

Conducted Power (Full)					
WLAN 5.8GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11a	149	5745	7.5	7.5	10.5
	153	5765	7.5	7.5	10.5
	157	5785	7.5	7.5	10.5
	161	5805	7.5	7.5	10.5
	165	5825	7.5	7.5	10.5
802.11n HT20	149	5745	7.5	7.5	10.5
	153	5765	7.5	7.5	10.5
	157	5785	7.5	7.5	10.5
	161	5805	7.5	7.5	10.5
	165	5825	7.5	7.5	10.5
802.11n HT40	151	5755	7.5	7.5	10.5
	159	5795	7.5	7.5	10.5
802.11ac VHT20	149	5745	7.5	7.5	10.5
	153	5765	7.5	7.5	10.5
	157	5785	7.5	7.5	10.5
	161	5805	7.5	7.5	10.5
	165	5825	7.5	7.5	10.5
802.11ac VHT40	151	5755	7.5	7.5	10.5
	159	5795	7.5	7.5	10.5
802.11ac VHT80	155	5775	7.5	7.5	10.5
802.11ax HE20	149	5745	7.5	7.5	10.5
	153	5765	7.5	7.5	10.5
	157	5785	7.5	7.5	10.5
	161	5805	7.5	7.5	10.5
	165	5825	7.5	7.5	10.5
802.11ax HE40	151	5755	7.5	7.5	10.5
	159	5795	7.5	7.5	10.5
802.11ax HE80	155	5775	7.5	7.5	10.5

Conducted Power (Full)			
UNII-5 Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	15	6025	10.5
	47	6185	10.5
	79	6345	10.5

Conducted Power (Full)			
UNII-6 Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	111	6505	10.5

Conducted Power (Full)			
UNII-7 Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	143	6665	10.5
	175	6825	10.5

Conducted Power (Full)			
UNII-8 Ant Aux			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	207	6985	10.5

Conducted Power (Full)			
UNII-5 Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	15	6025	10.5
	47	6185	10.5
	79	6345	10.5

Conducted Power (Full)			
UNII-6 Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	111	6505	10.5

Conducted Power (Full)			
UNII-7 Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	143	6665	10.5
	175	6825	10.5

Conducted Power (Full)			
UNII-8 Ant Main			
Mode	Channel	Frequency	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	207	6985	10.5

Conducted Power (Full)					
UNII-5 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	15	6025	5.5	5.5	8.5
	47	6185	5.5	5.5	8.5
	79	6345	5.5	5.5	8.5

Conducted Power (Full)					
UNII-6 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	111	6505	5.5	5.5	8.5

Conducted Power (Full)					
UNII-7 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	143	6665	5.5	5.5	8.5
	175	6825	5.5	5.5	8.5

Conducted Power (Full)					
UNII-8 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant 0 Tune up	MIMO Ant 1 Tune up	MAX Tune-up Power(dBm) (include tolerance)
802.11ax HE160	207	6985	5.5	5.5	8.5

Testing Appendix

Appendix E. Measured Conducted Power Results

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

Conducted Power (Full)			
WLAN2.4GHz Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11b	1	2412	15.88
	6	2437	15.97
	11	2462	15.93
	12	2467	15.92
	13	2472	15.92
802.11g	1	2412	15.91
	6	2437	15.96
	11	2462	15.95
	12	2467	15.44
	13	2472	12.49
802.11n HT20	1	2412	15.92
	6	2437	15.93
	11	2462	15.88
	12	2467	15.44
	13	2472	12.41
802.11n HT40	3	2422	15.91
	6	2437	15.92
	9	2452	15.92
	10	2457	12.92
	11	2462	11.41
802.11ax HE20	1	2412	13.36
	6	2437	15.94
	11	2462	12.42
	12	2467	10.02
	13	2472	0.95
802.11ax HE40	3	2422	11.03
	6	2437	15.94
	9	2452	13.49
	10	2457	12.96
	11	2462	11.47

Conducted Power (Full)			
WLAN2.4GHz Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11b	1	2412	15.91
	6	2437	15.98
	11	2462	15.95
	12	2467	15.90
	13	2472	15.96
802.11g	1	2412	15.97
	6	2437	15.90
	11	2462	15.97
	12	2467	15.49
	13	2472	12.42
802.11n HT20	1	2412	15.82
	6	2437	15.86
	11	2462	15.93
	12	2467	15.41
	13	2472	12.38
802.11n HT40	3	2422	15.66
	6	2437	15.88
	9	2452	15.86
	10	2457	12.58
	11	2462	10.10
802.11ax HE20	1	2412	15.90
	6	2437	15.91
	11	2462	10.35
	12	2467	6.47
	13	2472	-0.71
802.11ax HE40	3	2422	13.55
	6	2437	15.94
	9	2452	9.23
	10	2457	12.66
	11	2462	10.16

Conducted Power (Full)					
WLAN2.4GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11g	1	2412	10.42	10.41	13.43
	6	2437	10.44	10.49	13.48
	11	2462	10.45	10.46	13.47
	12	2467	8.92	8.98	11.96
	13	2472	5.97	5.94	8.97
802.11n HT20	1	2412	10.41	10.33	13.38
	6	2437	10.37	10.36	13.38
	11	2462	10.36	10.39	13.39
	12	2467	8.87	8.91	11.90
	13	2472	5.89	5.80	8.86
802.11n HT40	3	2422	9.88	9.80	12.85
	6	2437	10.4	10.39	13.41
	9	2452	10.38	10.37	13.39
	10	2457	6.89	6.86	9.89
	11	2462	4.90	4.81	7.87
802.11ax HE20	1	2412	10.49	10.42	13.47
	6	2437	10.46	10.42	13.45
	11	2462	10.43	10.46	13.46
	12	2467	8.94	8.99	11.98
	13	2472	0.41	0.44	3.44
802.11ax HE40	3	2422	9.96	9.88	12.93
	6	2437	10.47	10.45	13.47
	9	2452	10.46	10.46	13.47
	10	2457	6.97	6.93	9.96
	11	2462	4.96	4.89	7.94

Conducted Power (Full)			
Bluetooth Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
BR / EDR	0	2402	10.13
	39	2441	10.70
	78	2480	10.97
LE	0	2402	6.99
	19	2440	6.89
	39	2480	6.82

Conducted Power (Full)			
WLAN 5.2GHz Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	36	5180	11.92
	40	5200	11.93
	44	5220	11.91
	48	5240	11.95
802.11n HT20	36	5180	11.84
	40	5200	11.83
	44	5220	11.86
	48	5240	11.87
802.11n HT40	38	5190	11.87
	46	5230	11.92
802.11ac VHT20	36	5180	11.87
	40	5200	11.87
	44	5220	11.85
	48	5240	11.90
802.11ac VHT40	38	5190	11.90
	46	5230	11.94
802.11ac VHT80	42	5210	11.87
802.11ax HE20	36	5180	11.90
	40	5200	11.91
	44	5220	11.89
	48	5240	11.93
802.11ax HE40	38	5190	11.93
	46	5230	11.95
802.11ax HE80	42	5210	11.97

Conducted Power (Full)			
WLAN 5.2GHz Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	36	5180	13.93
	40	5200	13.92
	44	5220	13.90
	48	5240	13.89
802.11n HT20	36	5180	13.89
	40	5200	13.87
	44	5220	13.91
	48	5240	13.90
802.11n HT40	38	5190	13.92
	46	5230	13.85
802.11ac VHT20	36	5180	13.93
	40	5200	13.91
	44	5220	13.88
	48	5240	13.92
802.11ac VHT40	38	5190	13.94
	46	5230	13.88
802.11ac VHT80	42	5210	13.95
802.11ax HE20	36	5180	13.95
	40	5200	13.92
	44	5220	13.89
	48	5240	13.93
802.11ax HE40	38	5190	13.95
	46	5230	13.92
802.11ax HE80	42	5210	13.97

Conducted Power (Full)					
WLAN 5.2GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11a	36	5180	7.42	7.46	10.45
	40	5200	7.42	7.45	10.45
	44	5220	7.40	7.41	10.42
	48	5240	7.44	7.39	10.43
802.11n HT20	36	5180	7.31	7.38	10.36
	40	5200	7.32	7.36	10.35
	44	5220	7.34	7.35	10.36
	48	5240	7.36	7.40	10.39
802.11n HT40	38	5190	7.36	7.42	10.40
	46	5230	7.42	7.34	10.39
802.11ac VHT20	36	5180	7.34	7.41	10.39
	40	5200	7.36	7.39	10.39
	44	5220	7.34	7.40	10.38
	48	5240	7.39	7.44	10.43
802.11ac VHT40	38	5190	7.39	7.46	10.44
	46	5230	7.44	7.38	10.42
802.11ac VHT80	42	5210	7.46	7.42	10.45
802.11ax HE20	36	5180	7.38	7.45	10.43
	40	5200	7.40	7.42	10.42
	44	5220	7.38	7.41	10.41
	48	5240	7.42	7.48	10.46
802.11ax HE40	38	5190	7.42	7.48	10.46
	46	5230	7.48	7.41	10.46
802.11ax HE80	42	5210	7.39	7.46	10.44

Conducted Power (Full)			
WLAN 5.3GHz Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	52	5260	11.96
	56	5280	11.89
	60	5300	11.90
	64	5320	11.95
802.11n HT20	52	5260	11.86
	56	5280	11.84
	60	5300	11.82
	64	5320	11.89
802.11n HT40	54	5270	11.89
	62	5310	11.93
802.11ac VHT20	52	5260	11.89
	56	5280	11.88
	60	5300	11.85
	64	5320	11.92
802.11ac VHT40	54	5270	11.92
	62	5310	11.95
802.11ac VHT80	58	5290	11.95
802.11ac VHT160	50	5250	11.93
802.11ax HE20	52	5260	11.93
	56	5280	11.87
	60	5300	11.88
	64	5320	11.94
802.11ax HE40	54	5270	11.96
	62	5310	11.96
802.11ax HE80	58	5290	11.97
802.11ax HE160	50	5250	11.99

Conducted Power (Full)			
WLAN 5.3GHz Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	52	5260	13.97
	56	5280	13.94
	60	5300	13.97
	64	5320	13.91
802.11n HT20	52	5260	13.90
	56	5280	13.87
	60	5300	13.92
	64	5320	13.82
802.11n HT40	54	5270	13.87
	62	5310	13.86
802.11ac VHT20	52	5260	13.92
	56	5280	13.89
	60	5300	13.95
	64	5320	13.86
802.11ac VHT40	54	5270	13.91
	62	5310	13.90
802.11ac VHT80	58	5290	13.90
802.11ac VHT160	50	5250	13.94
802.11ax HE20	52	5260	13.96
	56	5280	13.92
	60	5300	13.97
	64	5320	13.89
802.11ax HE40	54	5270	13.95
	62	5310	13.93
802.11ax HE80	58	5290	13.93
802.11ax HE160	50	5250	13.99

Conducted Power (Full)					
WLAN 5.3GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11a	52	5260	7.41	7.42	10.43
	56	5280	7.38	7.43	10.42
	60	5300	7.39	7.48	10.45
	64	5320	7.44	7.42	10.44
802.11n HT20	52	5260	7.35	7.39	10.38
	56	5280	7.31	7.35	10.34
	60	5300	7.28	7.40	10.35
	64	5320	7.34	7.32	10.34
802.11n HT40	54	5270	7.39	7.39	10.40
	62	5310	7.40	7.36	10.39
802.11ac VHT20	52	5260	7.39	7.41	10.41
	56	5280	7.34	7.37	10.37
	60	5300	7.33	7.42	10.39
	64	5320	7.38	7.36	10.38
802.11ac VHT40	54	5270	7.42	7.42	10.43
	62	5310	7.43	7.38	10.42
802.11ac VHT80	58	5290	7.34	7.39	10.38
802.11ac VHT160	50	5250	7.41	7.42	10.43
802.11ax HE20	52	5260	7.43	7.44	10.45
	56	5280	7.38	7.39	10.40
	60	5300	7.36	7.46	10.42
	64	5320	7.42	7.40	10.42
802.11ax HE40	54	5270	7.44	7.44	10.45
	62	5310	7.47	7.42	10.46
802.11ax HE80	58	5290	7.37	7.42	10.41
802.11ax HE160	50	5250	7.48	7.47	10.49

Conducted Power (Full)			
WLAN 5.6GHz Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	100	5500	11.89
	116	5580	11.95
	120	5600	11.86
	124	5620	11.91
	132	5660	11.88
	140	5700	11.90
	144	5720	11.97
802.11n HT20	100	5500	11.92
	116	5580	11.87
	120	5600	11.89
	124	5620	11.91
	128	5640	11.85
	132	5660	11.92
	140	5700	11.90
802.11n HT40	144	5720	11.87
	102	5510	11.92
	110	5550	11.91
	118	5590	11.88
	126	5630	11.90
	128	5640	11.87
	134	5670	11.86
802.11ac VHT20	142	5710	11.92
	100	5500	11.93
	116	5580	11.90
	120	5600	11.87
	124	5620	11.91
	128	5640	11.88
	132	5660	11.86
802.11ac VHT40	140	5700	11.91
	144	5720	11.88
	102	5510	11.94
	110	5550	11.93
	118	5590	11.92
	126	5630	11.87
	134	5670	11.89
802.11ac VHT80	142	5710	11.93
	106	5530	11.90
	122	5610	11.89
802.11ac VHT160	138	5690	11.91
	114	5570	11.95
	100	5500	11.94
802.11ax HE20	116	5580	11.92
	120	5600	11.91
	124	5620	11.86
	128	5640	11.87
	132	5660	11.88
	140	5700	11.93
	144	5720	11.90
802.11ax HE40	102	5510	11.96
	110	5550	11.95
	118	5590	11.90
	126	5630	11.89
	134	5670	11.92
802.11ax HE80	142	5710	11.94
	106	5530	11.92
	122	5610	11.91
802.11ax HE160	138	5690	11.97
	114	5570	11.98

Conducted Power (Full)			
WLAN 5.6GHz Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	100	5500	13.92
	116	5580	13.95
	120	5600	13.89
	124	5620	13.91
	132	5660	13.93
	140	5700	13.96
	144	5720	13.92
802.11n HT20	100	5500	13.84
	116	5580	13.89
	120	5600	13.87
	124	5620	13.91
	128	5640	13.86
	132	5660	13.85
	140	5700	13.88
802.11n HT40	144	5720	13.91
	102	5510	13.88
	110	5550	13.84
	118	5590	13.85
	126	5630	13.87
	128	5640	13.81
	134	5670	13.86
802.11ac VHT20	142	5710	13.87
	100	5500	13.87
	116	5580	13.92
	120	5600	13.89
	124	5620	13.86
	128	5640	13.91
	132	5660	13.85
802.11ac VHT40	140	5700	13.92
	144	5720	13.95
	102	5510	13.91
	110	5550	13.87
	118	5590	13.89
	126	5630	13.86
	134	5670	13.90
802.11ac VHT80	142	5710	13.91
	106	5530	13.86
	122	5610	13.85
802.11ac VHT160	138	5690	13.92
	114	5570	13.93
	100	5500	13.90
802.11ax HE20	116	5580	13.93
	120	5600	13.89
	124	5620	13.91
	128	5640	13.93
	132	5660	13.87
	140	5700	13.94
	144	5720	13.96
802.11ax HE40	102	5510	13.94
	110	5550	13.89
	118	5590	13.88
	126	5630	13.91
	134	5670	13.92
802.11ax HE80	142	5710	13.94
	106	5530	13.90
	122	5610	13.89
802.11ax HE160	138	5690	13.97
	114	5570	13.98

Conducted Power (Full)					
WLAN 5.6GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11a	100	5500	7.41	7.41	10.42
	116	5580	7.44	7.48	10.47
	120	5600	7.39	7.45	10.43
	124	5620	7.42	7.39	10.42
	132	5660	7.38	7.42	10.41
	140	5700	7.45	7.47	10.47
	144	5720	7.46	7.46	10.47
802.11n HT20	100	5500	7.40	7.32	10.37
	116	5580	7.35	7.38	10.38
	120	5600	7.39	7.40	10.41
	124	5620	7.41	7.42	10.43
	128	5640	7.38	7.43	10.42
	132	5660	7.41	7.38	10.41
	140	5700	7.39	7.42	10.42
802.11n HT40	144	5720	7.37	7.38	10.39
	102	5510	7.41	7.34	10.39
	110	5550	7.42	7.32	10.38
	118	5590	7.41	7.38	10.41
	126	5630	7.38	7.42	10.41
	128	5640	7.36	7.39	10.39
	134	5670	7.35	7.36	10.37
802.11ac VHT20	142	5710	7.39	7.35	10.38
	100	5500	7.44	7.35	10.41
	116	5580	7.39	7.42	10.42
	120	5600	7.40	7.43	10.43
	124	5620	7.38	7.44	10.42
	128	5640	7.39	7.42	10.42
	132	5660	7.39	7.39	10.40
802.11ac VHT40	140	5700	7.42	7.45	10.45
	144	5720	7.41	7.42	10.43
	102	5510	7.44	7.37	10.42
	110	5550	7.46	7.36	10.42
	118	5590	7.41	7.38	10.41
	126	5630	7.38	7.42	10.41
	134	5670	7.37	7.40	10.40
802.11ac VHT80	142	5710	7.42	7.38	10.41
	106	5530	7.44	7.35	10.41
	122	5610	7.46	7.36	10.42
802.11ac VHT160	138	5690	7.41	7.38	10.41
	114	5570	7.45	7.43	10.45
802.11ax HE20	100	5500	7.48	7.38	10.44
	116	5580	7.42	7.45	10.45
	120	5600	7.40	7.40	10.41
	124	5620	7.42	7.37	10.41
	128	5640	7.39	7.43	10.42
	132	5660	7.42	7.40	10.42
	140	5700	7.46	7.46	10.47
802.11ax HE40	144	5720	7.44	7.46	10.46
	102	5510	7.48	7.41	10.46
	110	5550	7.49	7.40	10.46
	118	5590	7.43	7.39	10.42
	126	5630	7.42	7.41	10.43
802.11ax HE80	134	5670	7.41	7.43	10.43
	142	5710	7.46	7.42	10.45
	106	5530	7.46	7.37	10.43
802.11ax HE160	122	5610	7.48	7.38	10.44
	138	5690	7.46	7.47	10.48
	114	5570	7.48	7.47	10.49

Conducted Power (Full)			
WLAN 5.8GHz Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	149	5745	11.89
	153	5765	11.91
	157	5785	11.93
	161	5805	11.89
	165	5825	11.96
802.11n HT20	149	5745	11.92
	153	5765	11.90
	157	5785	11.84
	161	5805	11.86
	165	5825	11.90
802.11n HT40	151	5755	11.87
	159	5795	11.83
802.11ac VHT20	149	5745	11.94
	153	5765	11.91
	157	5785	11.86
	161	5805	11.88
	165	5825	11.93
802.11ac VHT40	151	5755	11.91
	159	5795	11.86
802.11ac VHT80	155	5775	11.87
802.11ax HE20	149	5745	11.95
	153	5765	11.93
	157	5785	11.90
	161	5805	11.89
	165	5825	11.96
802.11ax HE40	151	5755	11.94
	159	5795	11.90
802.11ax HE80	155	5775	11.98

Conducted Power (Full)			
WLAN 5.8GHz Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11a	149	5745	13.48
	153	5765	13.42
	157	5785	13.43
	161	5805	13.40
	165	5825	13.48
802.11n HT20	149	5745	13.39
	153	5765	13.41
	157	5785	13.36
	161	5805	13.39
	165	5825	13.40
802.11n HT40	151	5755	13.42
	159	5795	13.39
802.11ac VHT20	149	5745	13.42
	153	5765	13.40
	157	5785	13.39
	161	5805	13.40
	165	5825	13.44
802.11ac VHT40	151	5755	13.46
	159	5795	13.42
802.11ac VHT80	155	5775	13.43
802.11ax HE20	149	5745	13.46
	153	5765	13.43
	157	5785	13.41
	161	5805	13.39
	165	5825	13.46
802.11ax HE40	151	5755	13.48
	159	5795	13.45
802.11ax HE80	155	5775	13.50

Conducted Power (Full)					
WLAN 5.8GHz Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11a	149	5745	6.87	6.98	9.94
	153	5765	6.89	6.89	9.90
	157	5785	6.92	6.92	9.93
	161	5805	6.90	6.91	9.92
	165	5825	6.93	6.94	9.95
802.11n HT20	149	5745	6.91	6.86	9.90
	153	5765	6.81	6.89	9.86
	157	5785	6.79	6.85	9.83
	161	5805	6.84	6.91	9.89
	165	5825	6.88	6.89	9.90
802.11n HT40	151	5755	6.87	6.93	9.91
	159	5795	6.82	6.89	9.87
802.11ac VHT20	149	5745	6.95	6.90	9.94
	153	5765	6.85	6.85	9.86
	157	5785	6.83	6.89	9.87
	161	5805	6.89	6.87	9.89
	165	5825	6.92	6.91	9.93
802.11ac VHT40	151	5755	6.89	6.96	9.94
	159	5795	6.84	6.91	9.89
802.11ac VHT80	155	5775	6.89	6.91	9.91
802.11ax HE20	149	5745	6.99	6.94	9.98
	153	5765	6.91	6.91	9.92
	157	5785	6.88	6.92	9.91
	161	5805	6.89	6.89	9.90
	165	5825	6.95	6.95	9.96
802.11ax HE40	151	5755	6.92	6.99	9.97
	159	5795	6.88	6.93	9.92
802.11ax HE80	155	5775	6.96	6.99	9.99

Conducted Power (Full)			
UNII-5 Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	15	6025	9.57
	47	6185	9.56
	79	6345	9.54

Conducted Power (Full)			
UNII-6 Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	111	6505	9.55

Conducted Power (Full)			
UNII-7 Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	143	6665	9.54
	175	6825	9.56

Conducted Power (Full)			
UNII-8 Ant Aux			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	207	6985	9.57

Conducted Power (Full)			
UNII-5 Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	15	6025	9.59
	47	6185	9.51
	79	6345	9.54

Conducted Power (Full)			
UNII-6 Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	111	6505	9.52

Conducted Power (Full)			
UNII-7 Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	143	6665	9.57
	175	6825	9.57

Conducted Power (Full)			
UNII-8 Ant Main			
Mode	Channel	Frequency	SISO Ant Aux Avg. Power
802.11ax HE160	207	6985	9.576

Conducted Power (Full)					
UNII-5 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11ax HE160	15	6025	5.45	5.50	8.49
	47	6185	5.49	5.45	8.48
	79	6345	5.41	5.40	8.42

Conducted Power (Full)					
UNII-6 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11ax HE160	111	6505	5.44	5.39	8.43

Conducted Power (Full)					
UNII-7 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11ax HE160	143	6665	5.48	5.41	8.46
	175	6825	5.49	5.45	8.48

Conducted Power (Full)					
UNII-8 Ant Aux + Main					
Mode	Channel	Frequency	MIMO Ant Aux Avg. Power	MIMO Ant Main Avg. Power	MIMO Ant Aux+Main Avg. Power
802.11ax HE160	207	6985	5.42	5.48	8.46

Testing Appendix

Appendix F. SAR and Power Density Test Results

SAR and Power Density Results for Body Exposure Condition.

Note:

1. SAR testing for WLAN was performed on the maximum power mode.
2. The "N/A" means there is no SAR value, or the SAR is too low to be measured.
3. Per Apr. 2021 TCB Workshop U-NII 6-7G interim procedures, the incident power density was performed with the highest SAR configuration on U-NII 6-7G bands and measured results were scaled by factor 1.554 to reported power density when measurement uncertainty exceeds 30%.



SAR Test Record - Test Result (Body)

System & Position								SAR							
Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Channel	Ant Status	Data Rate	Duty Cycle	Drift Power	Maximum Tune-up (dBm)	Conducted Power (dBm)	Scaling Factor	Duty Factor	SAR 1g	Scaled 1g SAR
1850	2.4G WLAN	802.11b	Bottom	0	6	Ant 1 (Aux)	1	98.9	-0.02	16.0	15.97	1.01	1.01	1.150	1.170
1851	2.4G WLAN	802.11b	Bottom	0	6	Ant 2 (Main)	1	98.9	-0.01	16.0	15.98	1.00	1.01	0.914	0.928
1852	2.4G WLAN	802.11g	Bottom	0	6	Ant 1+2	1	98.9	0.03	13.5	13.48	1.00	1.01	0.277	0.281
1853	2.4G WLAN	802.11b	Bottom	0	1	Ant 1 (Aux)	1	98.9	0.02	16.0	15.88	1.03	1.01	1.150	1.195
1854	2.4G WLAN	802.11b	Bottom	0	11	Ant 1 (Aux)	1	98.9	0.01	16.0	15.93	1.02	1.01	1.040	1.068
1855	2.4G WLAN	802.11b	Bottom	0	12	Ant 1 (Aux)	1	98.9	-0.01	16.0	15.92	1.02	1.01	1.040	1.071
1856	2.4G WLAN	802.11b	Bottom	0	13	Ant 1 (Aux)	1	98.9	0.01	16.0	15.92	1.02	1.01	1.020	1.050
1857	2.4G WLAN	802.11b	Bottom	0	1	Ant 2 (Main)	1	98.9	0.03	16.0	15.91	1.02	1.01	0.748	0.772
1858	2.4G WLAN	802.11b	Bottom	0	11	Ant 2 (Main)	1	98.9	0.01	16.0	15.95	1.01	1.01	0.804	0.822
1859	2.4G WLAN	802.11b	Bottom	0	12	Ant 2 (Main)	1	98.9	-0.01	16.0	15.90	1.02	1.01	0.812	0.840
1860	2.4G WLAN	802.11b	Bottom	0	13	Ant 2 (Main)	1	98.9	0	16.0	15.96	1.01	1.01	0.808	0.824
1861	2.4G WLAN Repeat	802.11b	Bottom	0	6	Ant 1 (Aux)	1	98.9	-0.01	16.0	15.97	1.01	1.01	1.150	1.170
1862	2.4G WLAN Repeat	802.11b	Bottom	0	1	Ant 1 (Aux)	1	98.9	-0.01	16.0	15.88	1.03	1.01	1.150	1.195
1863	2.4G WLAN Repeat	802.11b	Bottom	0	11	Ant 1 (Aux)	1	98.9	0.01	16.0	15.93	1.02	1.01	1.040	1.068
1864	2.4G WLAN Repeat	802.11b	Bottom	0	12	Ant 1 (Aux)	1	98.9	0.02	16.0	15.92	1.02	1.01	1.030	1.060
1865	2.4G WLAN Repeat	802.11b	Bottom	0	13	Ant 1 (Aux)	1	98.9	0.01	16.0	15.92	1.02	1.01	1.010	1.040
1866	2.4G WLAN Repeat	802.11b	Bottom	0	6	Ant 2 (Main)	1	98.9	0	16.0	15.98	1.00	1.01	0.937	0.951
1867	2.4G WLAN Repeat	802.11b	Bottom	0	11	Ant 2 (Main)	1	98.9	0	16.0	15.95	1.01	1.01	0.804	0.822
1868	2.4G WLAN Repeat	802.11b	Bottom	0	12	Ant 2 (Main)	1	98.9	0.01	16.0	15.90	1.02	1.01	0.809	0.837
1869	2.4G WLAN Repeat	802.11b	Bottom	0	13	Ant 2 (Main)	1	98.9	0.01	16.0	15.96	1.01	1.01	0.819	0.835
1900	5.2G WLAN	802.11ax HE80	Bottom	0	42	Ant 2 (Main)	HE0	98.4	0.03	15.0	13.97	1.27	1.02	0.289	0.372
2000	5.3G WLAN	802.11ax HE160	Bottom	0	50	Ant 1 (Aux)	HE0	98.5	0.16	12.0	11.99	1.00	1.02	0.462	0.470
2001	5.3G WLAN	802.11ax HE160	Bottom	0	50	Ant 2 (Main)	HE0	98.5	0.01	15.0	13.99	1.26	1.02	1.070	1.371
2002	5.3G WLAN	802.11ax HE160	Bottom	0	50	Ant 1+2	HE0	98.5	-0.08	10.5	10.49	1.00	1.02	0.194	0.197
2003	5.3G WLAN Repeat	802.11ax HE160	Bottom	0	50	Ant 2 (Main)	HE0	98.5	0.02	15.0	13.99	1.26	1.02	1.070	1.371
2150	5.6G WLAN	802.11ax HE160	Bottom	0	114	Ant 1 (Aux)	HE0	98.5	-0.04	12.0	11.98	1.00	1.02	0.730	0.744
2151	5.6G WLAN	802.11ax HE160	Bottom	0	114	Ant 2 (Main)	HE0	98.5	0.04	14.0	13.98	1.00	1.02	0.747	0.762
2152	5.6G WLAN	802.11ax HE160	Bottom	0	114	Ant 1+2	HE0	98.5	0.09	10.5	10.49	1.00	1.02	0.318	0.324
2300	5.8G WLAN	802.11ax HE80	Bottom	0	155	Ant 1 (Aux)	HE0	98.4	0.01	12.0	11.98	1.00	1.02	0.858	0.876
2301	5.8G WLAN	802.11ax HE80	Bottom	0	155	Ant 2 (Main)	HE0	98.4	0.06	13.5	13.50	1.00	1.02	1.290	1.311
2302	5.8G WLAN	802.11ax HE80	Bottom	0	155	Ant 1+2	HE0	98.4	-0.01	10.5	9.99	1.12	1.02	0.301	0.344
2303	5.8G WLAN Repeat	802.11ax HE80	Bottom	0	155	Ant 1 (Aux)	HE0	98.4	0	12.0	11.98	1.00	1.02	0.856	0.874
2304	5.8G WLAN Repeat	802.11ax HE80	Bottom	0	155	Ant 2 (Main)	HE0	98.4	0.03	13.5	13.50	1.00	1.02	1.260	1.280
2450	Bluetooth	BR/EDR	Bottom	0	39	Ant 1 (Aux)	DH5	75.7	N/A	11.0	10.70	1.07	1.32	N/A	N/A
2451	Bluetooth	BR/EDR	Bottom	0	0	Ant 1 (Aux)	DH5	75.7	0.05	11.0	10.13	1.22	1.32	0.128	0.207
2452	Bluetooth	BR/EDR	Bottom	0	78	Ant 1 (Aux)	DH5	75.7	-0.01	11.0	10.97	1.01	1.32	0.159	0.211



SAR & APD Test Record - Test Result (Body)

System & Position								SAR								APD	
Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Channel	Ant Status	Data Rate	Duty Cycle	Drift Power	Maximum Tune-up (dBm)	Conducted Power (dBm)	Scaling Factor	Duty Factor	SAR 1g	Scaled 1g SAR	APD W/m ² (4cm ²)	Scaled APD W/m ² (4cm ²)
2600	6E WLAN	802.11ax HE160	Bottom	0	15	Ant 1 (Aux)	HE0	97.88	0.17	10.5	9.57	1.24	1.02	0.325	0.410	1.900	2.397
2601	6E WLAN	802.11ax HE160	Bottom	0	15	Ant 2 (Main)	HE0	97.88	-0.04	10.5	9.59	1.23	1.02	0.445	0.558	2.630	3.298
2602	6E WLAN	802.11ax HE160	Bottom	0	15	Ant 1+2	HE0	97.88	0.09	8.5	8.49	1.00	1.02	0.156	0.159	0.854	0.871
2603	6E WLAN	802.11ax HE160	Bottom	0	47	Ant 2 (Main)	HE0	97.88	0.18	10.5	9.56	1.24	1.02	0.507	0.641	2.970	3.756
2604	6E WLAN	802.11ax HE160	Bottom	0	79	Ant 2 (Main)	HE0	97.88	0.15	10.5	9.54	1.25	1.02	0.417	0.530	2.450	3.112
2605	6E WLAN	802.11ax HE160	Bottom	0	111	Ant 2 (Main)	HE0	97.88	0.12	10.5	9.55	1.24	1.02	0.387	0.490	2.340	2.965
2606	6E WLAN	802.11ax HE160	Bottom	0	143	Ant 2 (Main)	HE0	97.88	0.17	10.5	9.54	1.25	1.02	0.418	0.531	2.450	3.113
2607	6E WLAN	802.11ax HE160	Bottom	0	175	Ant 2 (Main)	HE0	97.88	0.05	10.5	9.56	1.24	1.02	0.354	0.447	2.160	2.730
2608	6E WLAN	802.11ax HE160	Bottom	0	207	Ant 2 (Main)	HE0	97.88	0.17	10.5	9.57	1.24	1.02	0.376	0.475	2.320	2.928



iPD Test Record - Test Result (Body)

System & Position								iPD									
Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Channel	Ant Status	Data Rate	Duty Cycle (%)	Averaging Area (cm²)	Grid Step	Drift Power	iPD (W/m²)	Scaling Factor for Measurement Uncertainty	Normal psPD (W/m²)	Scaled Normal psPD W/m²	Total psPD W/m²	Scaled Total psPD W/m²
2800	6E WLAN	802.11ax HE160	Bottom	≤2	15	Ant 2 (Main)	HE0	97.88	4	0.0410	-0.08	6.68	1.554	2.30	3.57	4.68	7.273
2801	6E WLAN	802.11ax HE160	Bottom	≤2	47	Ant 2 (Main)	HE0	97.88	4	0.0421	-0.01	7.09	1.554	1.67	2.60	3.92	6.092
2802	6E WLAN	802.11ax HE160	Bottom	≤2	79	Ant 2 (Main)	HE0	97.88	4	0.0432	0.16	0.002	1.554	0.17	0.26	1.06	1.647
2803	6E WLAN	802.11ax HE160	Bottom	≤2	111	Ant 2 (Main)	HE0	97.88	4	0.0443	0.06	6.35	1.554	1.20	1.86	2.89	4.491
2804	6E WLAN	802.11ax HE160	Bottom	≤2	143	Ant 2 (Main)	HE0	97.88	4	0.0454	0.04	8.18	1.554	1.34	2.08	3.21	4.988

Testing Appendix

Appendix G. SAR Measurement Variability

SAR repeated measurement are shown as below.

Repeated SAR							
Plot	Band	Mode	Test Position	CH	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio
1861	2.4G WLAN	802.11b_20M	Bottom	6	1.150	1.150	1.00
1862	2.4G WLAN	802.11b_20M	Bottom	1	1.150	1.150	1.00
1863	2.4G WLAN	802.11b_20M	Bottom	11	1.040	1.040	1.00
1864	2.4G WLAN	802.11b_20M	Bottom	12	1.040	1.030	1.01
1865	2.4G WLAN	802.11b_20M	Bottom	13	1.020	1.010	1.01
1866	2.4G WLAN	802.11b_20M	Bottom	6	0.914	0.937	0.98
1867	2.4G WLAN	802.11b_20M	Bottom	11	0.804	0.804	1.00
1868	2.4G WLAN	802.11b_20M	Bottom	12	0.812	0.809	1.00
1869	2.4G WLAN	802.11b_20M	Bottom	13	0.808	0.819	0.99
2003	5.3G WLAN	802.11ax_160MHz	Bottom	50	1.070	1.070	1.00
2303	5.8G WLAN	802.11ax_80MHz	Bottom	155	0.858	0.856	1.00
2304	5.8G WLAN	802.11ax_80MHz	Bottom	155	1.290	1.260	1.02

Testing Appendix

Appendix H. Analysis of Simultaneous Transmission

The analysis of simultaneous transmission SAR are shown as below.

<Possibilities of Simultaneous Transmission>

The simultaneous transmission possibilities for this device are listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
A	WLAN2.4G Ant 2 + BT Ant 1	Yes
B	WLAN5G Ant 1 + BT Ant 1	Yes
C	WLAN5G Ant 2 + BT Ant 1	Yes
D	WLAN5G Ant (1+2) + BT Ant 1	Yes
E	WLAN6G Ant 1 + BT Ant 1	Yes
F	WLAN6G Ant 2 + BT Ant 1	Yes
G	WLAN6G Ant (1+2) + BT Ant 1	Yes

Simultaneous Transmission SAR Evaluation									
Position	Test Gap (cm)	1	2	3	4	5	6	7	8
		WLAN 2.4GHz Ant 2	Max WLAN 5GHz Ant 1	Max WLAN 5GHz Ant 2	Max WLAN 5GHz Ant 1+2	Max WLAN 6GHz Ant 1	Max WLAN 6GHz Ant 2	Max WLAN 6GHz Ant 1+2	Max BT Ant 1
Bottom	0	0.951	0.876	1.371	0.344	0.410	0.641	0.159	0.211

Simultaneous Transmission SAR Evaluation						
A(1+8)	B(2+8)	C(3+8)	D(4+8)	E(5+8)	F(6+8)	G(7+8)
Summing result 1g SAR W/kg	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg
1.162	1.087	1.582	0.555	0.621	0.852	0.370

Notes

1. The WLAN 2.4G and WLAN 5G cannot transmit simultaneously.

Testing Appendix

Appendix I. SAR to Peak Location Separation Ratio Analysis

Since sum of simultaneous transmission SAR is less than the SAR limit for Body SAR1g 1.6 W/kg.
There is no requirement for SAR to Peak Location Separation Ratio Analysis.

Testing Appendix

Appendix J. Total Exposure Ratio Analysis

According to the FCC guidance in Oct. 2022 TCB workshop and IEC TR 63170, the total exposure ratio calculated by taking ratio of maximum reported SAR divided by SAR limit and adding it to maximum measured power density divided by power density limit. Numerical sum of the ratios should be less than 1.

Position	Max Wlan 6GHz 4cm ² (W/m ²)	Max BT Ant 1g SAR W/kg	Total Exposure Ratio
Bottom	7.273	0.211	0.86

Testing Appendix

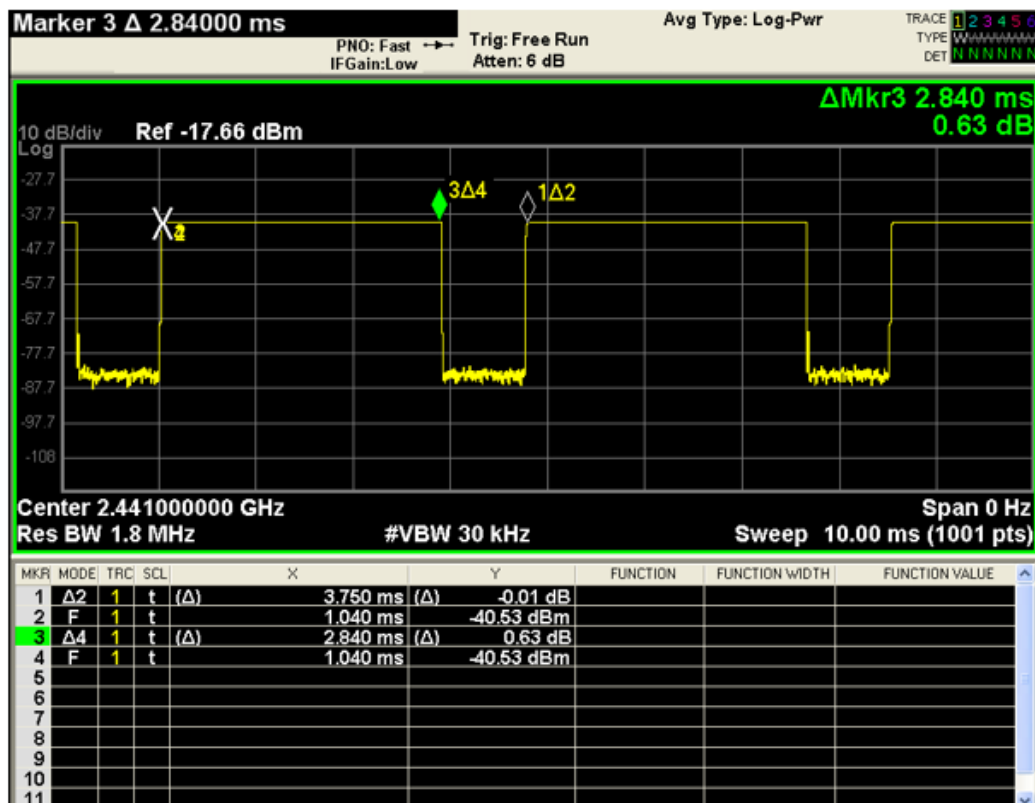
Appendix K. Considerations Related to Bluetooth for Setup and Testing

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

The Bluetooth call box has been used during SAR measurement and the EUT was set to DH5 mode at the maximum output power. Its duty factor was calculated as below and the measured SAR for Bluetooth would be scaled to the 100% transmission duty factor to determine compliance.

The duty factor of Bluetooth signal are shown as below.

<Time-domain Plot for Bluetooth transmission signal>



Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has BEN calculated as following.

$$\text{Duty Cycle (\%)} = (\text{uptime} / \text{total time}) * 100 = (2.840 / 3.750) * 100 = 75.73 \%$$

$$\text{Duty Factor} = \text{total time} / \text{uptime} = 1.32$$