

Measurement Report for Device, CHEEK, Band n38, Channel 515000 (2575.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HBBL 5-10000MHz	CHEEK, 0.00	Band n38	5G NR FR1 TDD, 10900-AAC	2595.000, 519000	7.7	1.94	39.87

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

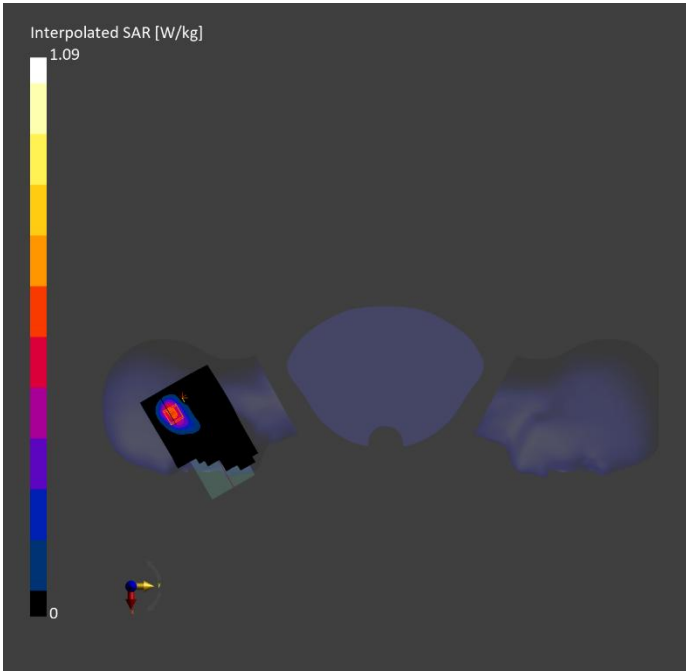
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-07, 09:22	2025-02-07, 09:43
psSAR1g [W/kg]	0.484	0.493
psSAR10g [W/kg]	0.258	0.251
Power Drift [dB]	-0.05	-0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		78.6
Dist 3dB Peak [mm]		13.6

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n41, Channel 501204 (2506.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n41	5G NR FR1 TDD, 10900-AAC	2506.000, 501204	7.7	1.94	39.87

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

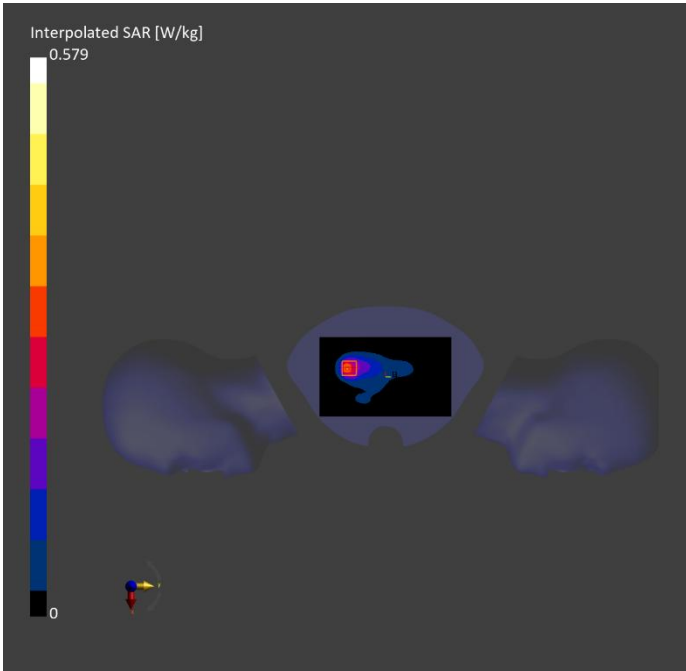
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-07, 13:36	2025-02-07, 13:44
psSAR1g [W/kg]	0.262	0.257
psSAR10g [W/kg]	0.129	0.119
Power Drift [dB]	-0.06	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		77.1
Dist 3dB Peak [mm]		9.9

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n41, Channel 501204 (2506.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HBBL 5-10000MHz	TILT, 0.00	Band n41	5G NR FR1 TDD, 10900-AAC	2506.000 501204	7.7	1.94	39.87

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

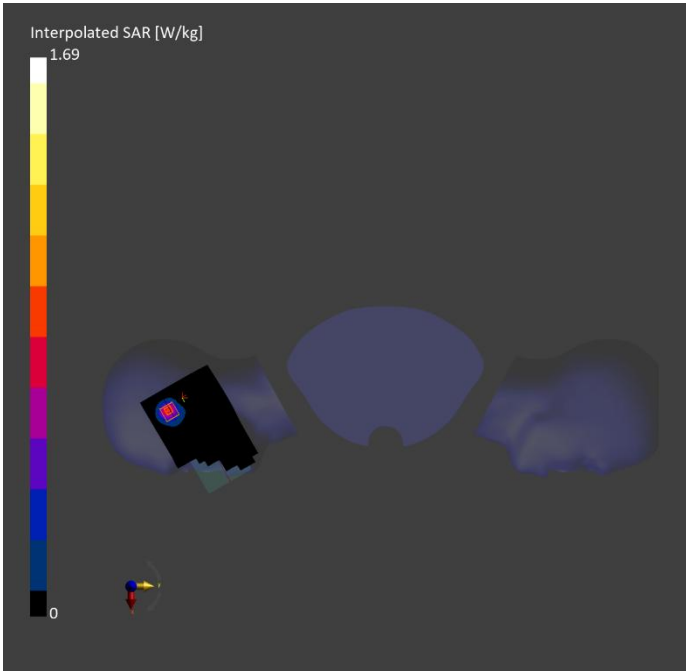
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-07, 11:18	2025-02-07, 11:42
psSAR1g [W/kg]	0.671	0.646
psSAR10g [W/kg]	0.317	0.294
Power Drift [dB]	0.01	-0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		72.7
Dist 3dB Peak [mm]		9.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n66, Channel 349000 (1745.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n66	5G NR FR1 FDD, 10931-AAC	1745.000, 349000	8.72	1.34	41.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

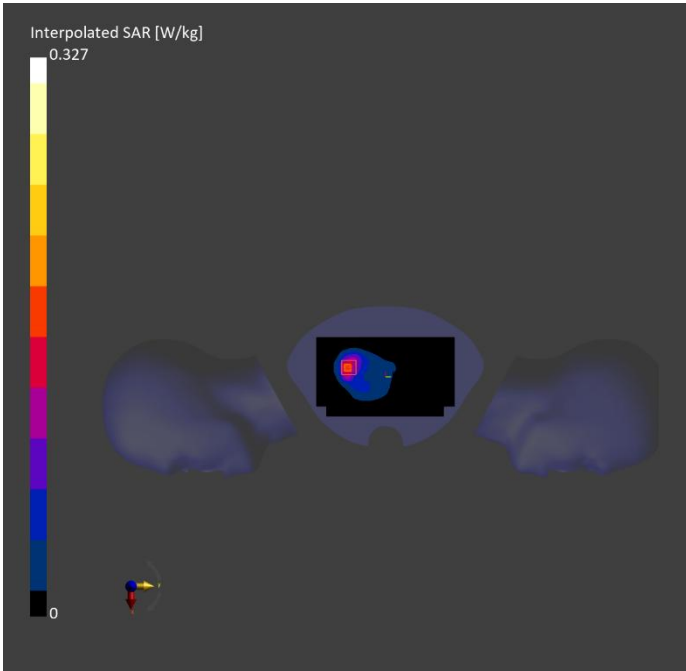
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-19, 16:18	2025-02-19, 16:25
psSAR1g [W/kg]	0.147	0.166
psSAR10g [W/kg]	0.080	0.087
Power Drift [dB]	0.01	0.21
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		77.0
Dist 3dB Peak [mm]		10.3

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n66, Channel 349000 (1745.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HBBL 5-10000MHz	TILT, 0.00	Band n66	5G NR FR1 FDD, 10931-AAC	1745.000, 349000	8.72	1.34	41.70

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

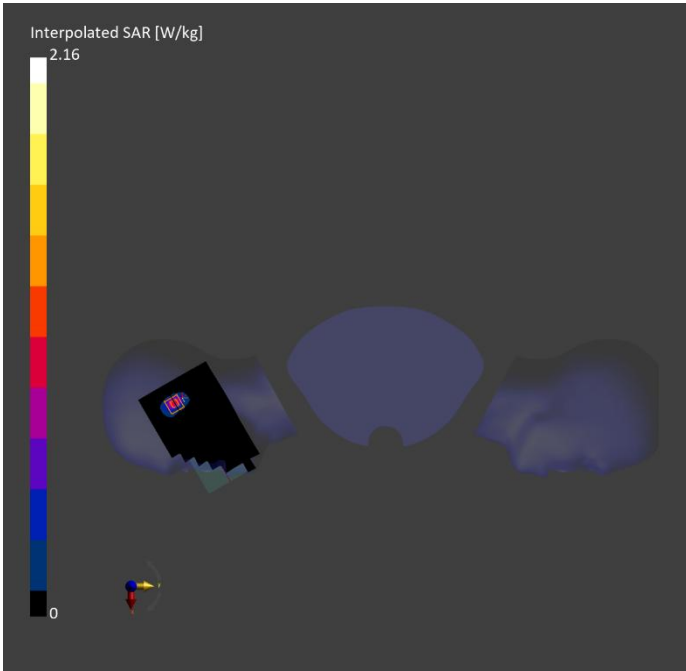
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	All points	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-19, 15:57	2025-02-19, 16:10
psSAR1g [W/kg]	0.788	0.891
psSAR10g [W/kg]	0.360	0.379
Power Drift [dB]	-0.17	-0.13
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		75.9
Dist 3dB Peak [mm]		7.2

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n71, Channel 137600 (688.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n71	5G NR FR1 FDD, 10931-AAC	688.000, 137600	10.45	0.885	43.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

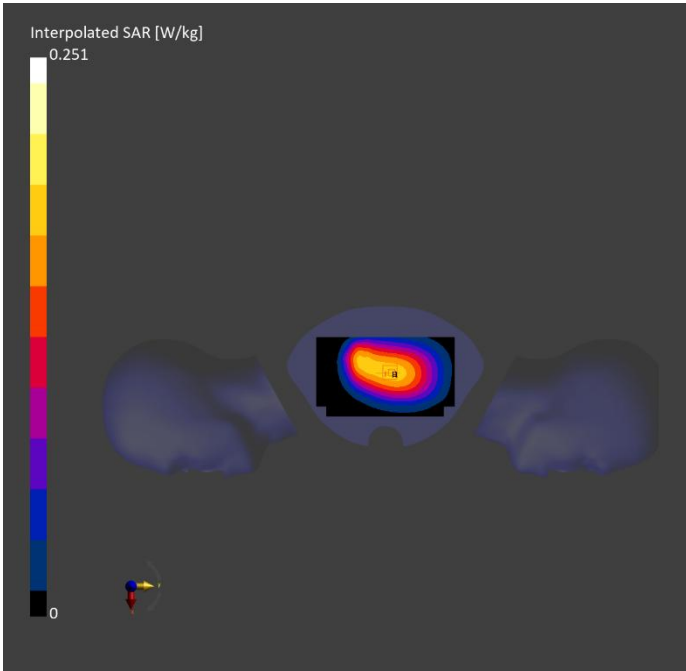
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-07, 17:08	2025-02-07, 17:16
psSAR1g [W/kg]	0.160	0.165
psSAR10g [W/kg]	0.115	0.125
Power Drift [dB]	-0.03	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		83.6
Dist 3dB Peak [mm]		> 15.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n71, Channel 137600 (688.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
RightHead, HBBL 5-10000MHz	TILT, 0.00	Band n71	5G NR FR1 FDD, 10931-AAC	688.000, 137600	10.45	0.885	41.39

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

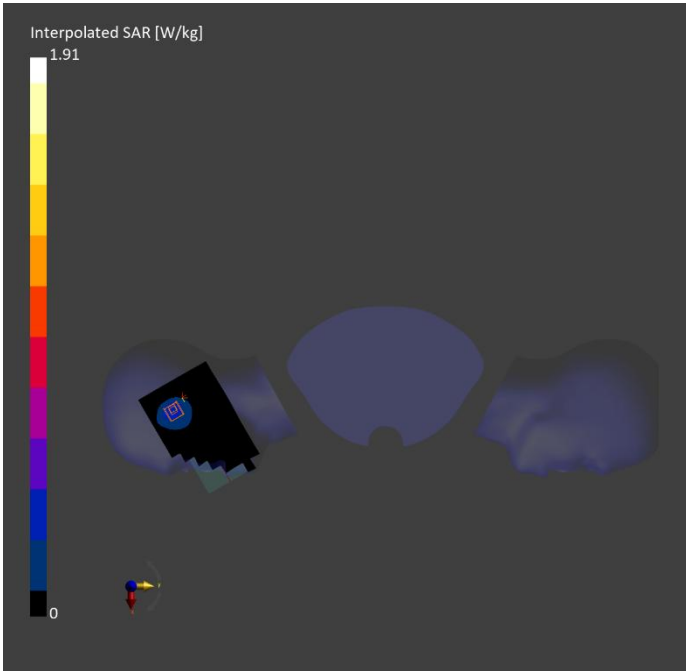
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 210.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAIA	N/A	N/A
Surface Detection	All points	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-07, 15:58	2025-02-07, 16:13
psSAR1g [W/kg]	0.379	0.536
psSAR10g [W/kg]	0.252	0.252
Power Drift [dB]	0.01	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		60.8
Dist 3dB Peak [mm]		6.5

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n77, Channel 630334 (3455.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n77	5G NR FR1 TDD, 10900-AAC	3455.000, 630334	7.0	2.94	39.20

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

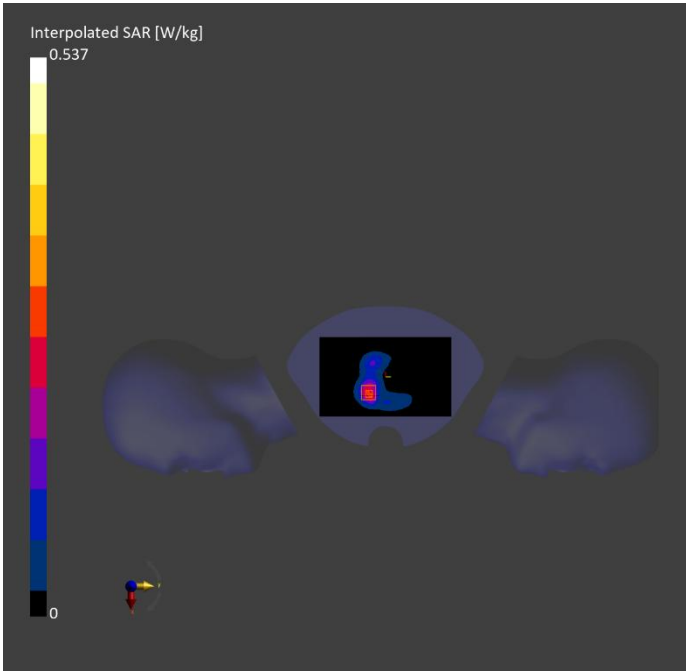
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 09:01	2025-02-10, 09:11
psSAR1g [W/kg]	0.218	0.214
psSAR10g [W/kg]	0.099	0.090
Power Drift [dB]	-0.24	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.8
Dist 3dB Peak [mm]		10.1

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n77, Channel 630334 (3455.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n77	5G NR FR1 TDD, 10900-AAC	3455.000, 630334	7.0	2.94	39.20

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

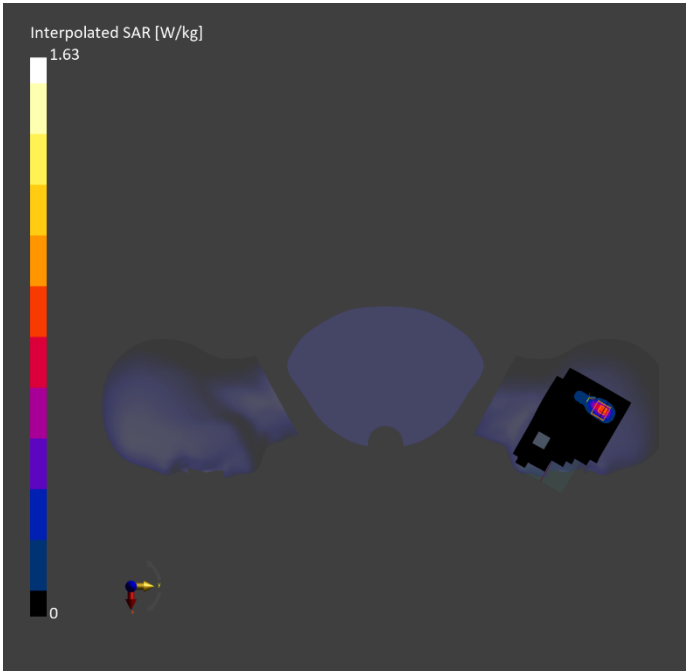
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 09:26	2025-02-10, 09:41
psSAR1g [W/kg]	0.651	0.668
psSAR10g [W/kg]	0.261	0.263
Power Drift [dB]	-0.10	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		76.5
Dist 3dB Peak [mm]		8.1

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n77, Channel 638334 (3575.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n77	5G NR FR1 TDD, 10900-AAC	3575.000, 638334	6.8	2.90	38.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

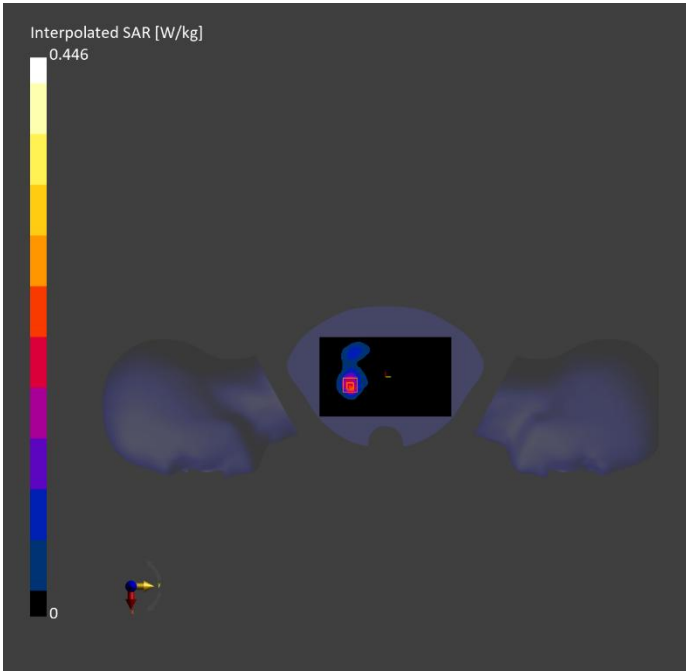
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 11:44	2025-02-10, 11:53
psSAR1g [W/kg]	0.175	0.172
psSAR10g [W/kg]	0.078	0.072
Power Drift [dB]	-0.04	0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.2
Dist 3dB Peak [mm]		9.3

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n77, Channel 638334 (3575.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n77	5G NR FR1 TDD, 10900-AAC	3575.000, 638334	6.8	2.90	38.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

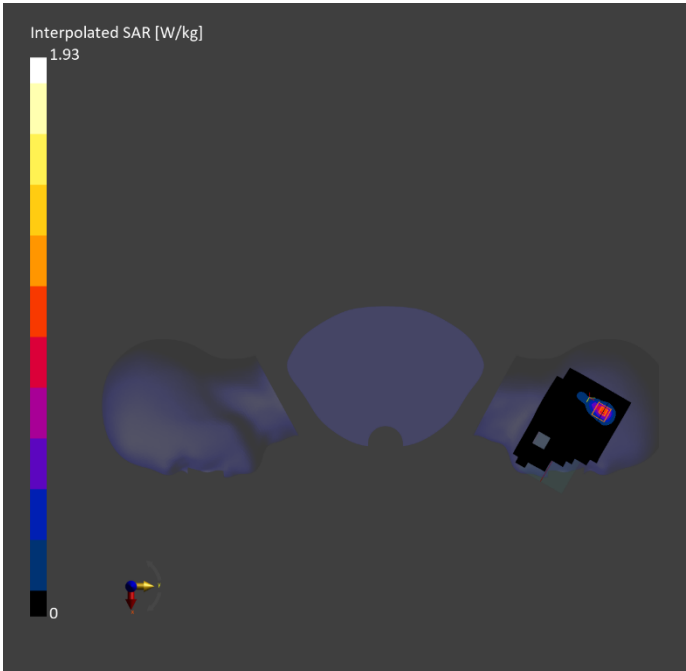
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 13:42	2025-02-10, 13:52
psSAR1g [W/kg]	0.757	0.784
psSAR10g [W/kg]	0.300	0.300
Power Drift [dB]	-0.09	-0.00
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		77.6
Dist 3dB Peak [mm]		8.1

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n77, Channel 656000 (3840.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n77	5G NR FR1 TDD, 10900-AAC	3840.000, 656000	6.7	3.10	38.60

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

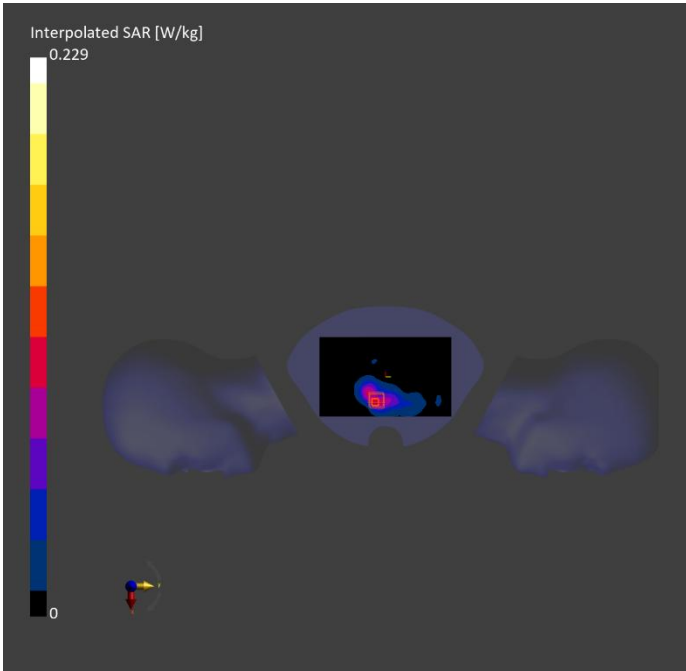
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 14:59	2025-02-10, 15:07
psSAR1g [W/kg]	0.082	0.079
psSAR10g [W/kg]	0.038	0.033
Power Drift [dB]	-0.25	-0.18
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		68.6
Dist 3dB Peak [mm]		9.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n77, Channel 656000 (3840.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n77	5G NR FR1 TDD, 10900-AAC	3840.000, 656000	6.7	3.27	37.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

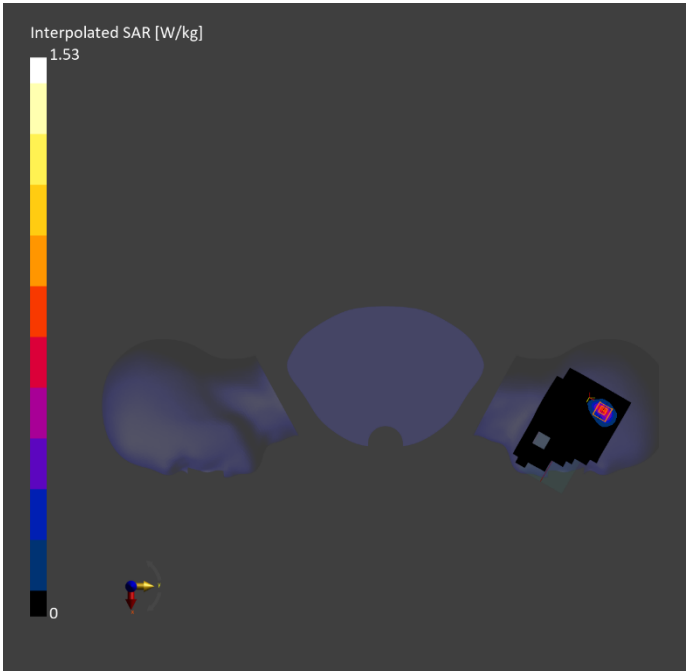
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 14:07	2025-02-10, 14:17
psSAR1g [W/kg]	0.569	0.594
psSAR10g [W/kg]	0.223	0.226
Power Drift [dB]	0.03	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		75.9
Dist 3dB Peak [mm]		8.1

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n78, Channel 631668 (3475.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n78	5G NR FR1 TDD, 10900-AAC	3475.000, 633334	7.0	2.94	39.20

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

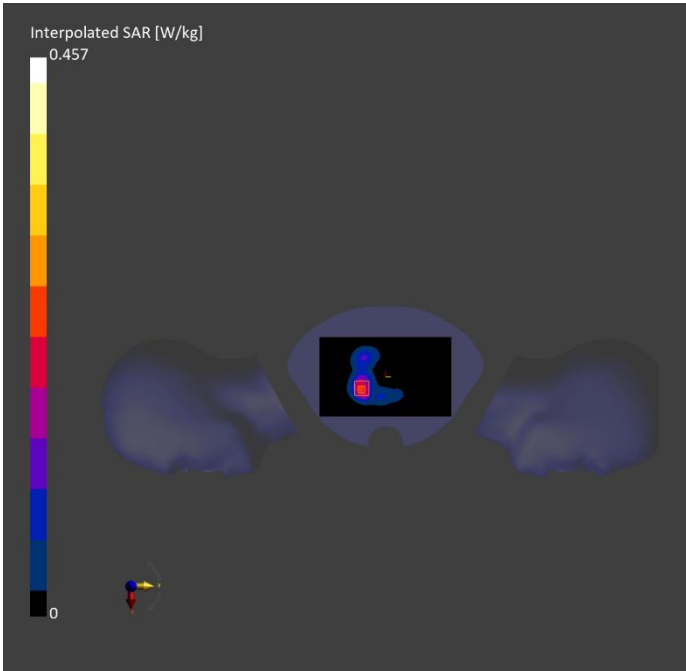
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 17:17	2025-02-10, 17:25
psSAR1g [W/kg]	0.185	0.186
psSAR10g [W/kg]	0.084	0.080
Power Drift [dB]	-0.07	-0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		75.0
Dist 3dB Peak [mm]		10.7

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n78, Channel 631688 (3475.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n78	5G NR FR1 TDD, 10900-AAC	3475.000, 63168	7.0	2.94	39.20

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

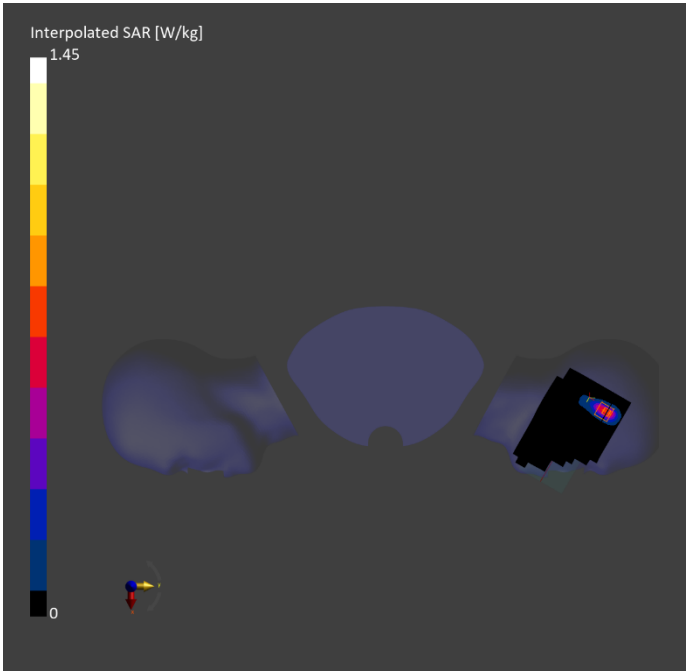
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 18:57	2025-02-10, 19:12
psSAR1g [W/kg]	0.565	0.583
psSAR10g [W/kg]	0.231	0.234
Power Drift [dB]	-0.13	0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.4
Dist 3dB Peak [mm]		7.3

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n78, Channel 638334 (3575.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n78	5G NR FR1 TDD, 10900-AAC	3575.000, 638334	6.8	2.90	38.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

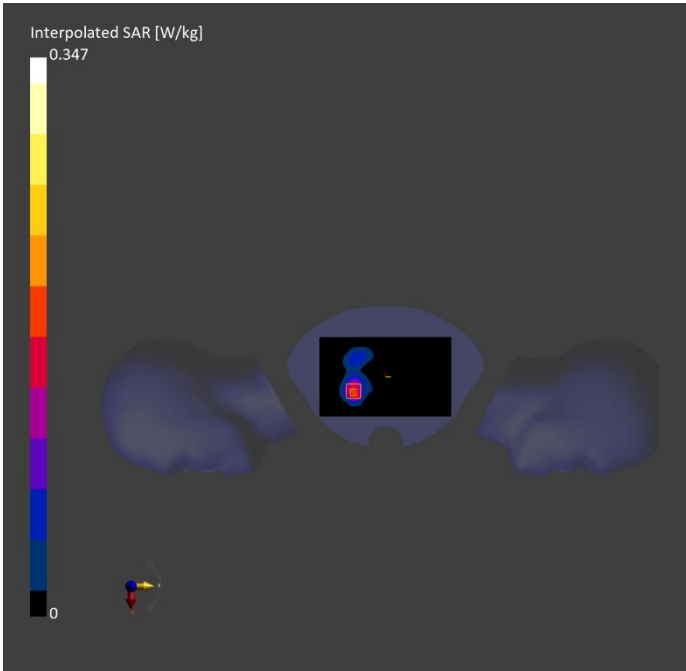
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 20:24	2025-02-10, 20:32
psSAR1g [W/kg]	0.141	0.138
psSAR10g [W/kg]	0.063	0.058
Power Drift [dB]	-0.00	0.03
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.5
Dist 3dB Peak [mm]		9.9

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n78, Channel 638334 (3575.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n78	5G NR FR1 TDD, 10900-AAC	3575.000, 638334	6.8	2.90	38.90

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

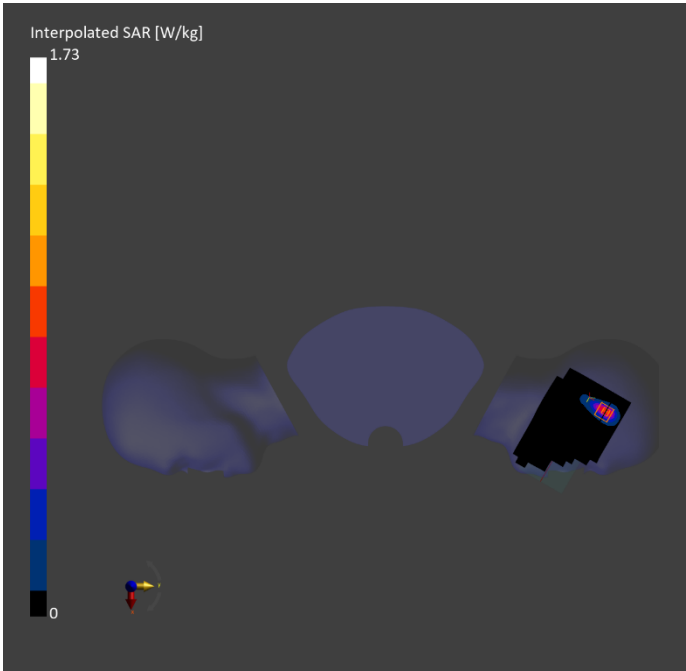
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-10, 19:27	2025-02-10, 19:42
psSAR1g [W/kg]	0.667	0.703
psSAR10g [W/kg]	0.266	0.273
Power Drift [dB]	-0.03	-0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		75.5
Dist 3dB Peak [mm]		7.7

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, BACK, Band n78, Channel 650000 (3750.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

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, HBBL 5-10000MHz	BACK, 10.00	Band n78	5G NR FR1 TDD, 10900-AAC	3750.000, 650000	6.8	3.10	38.60

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

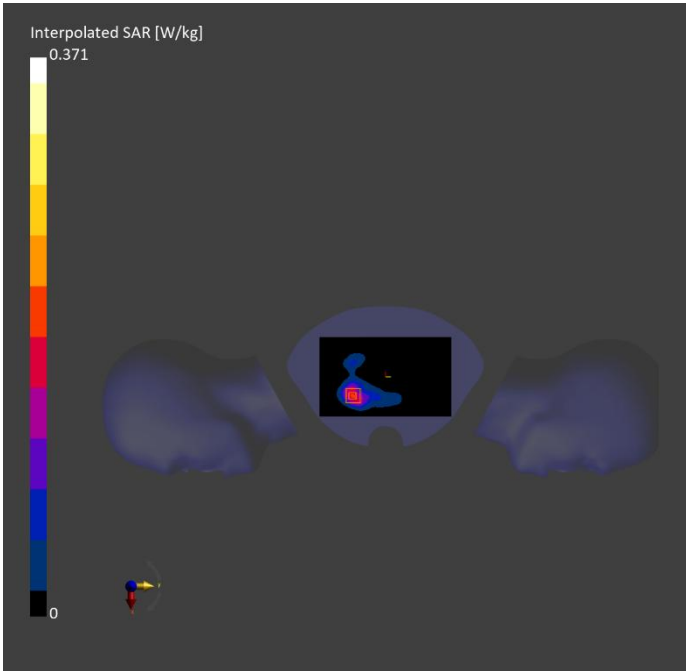
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-11, 10:17	2025-02-11, 10:26
psSAR1g [W/kg]	0.144	0.142
psSAR10g [W/kg]	0.065	0.061
Power Drift [dB]	-0.03	-0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		74.5
Dist 3dB Peak [mm]		9.3

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Measurement Report for Device, TILT, Band n78, Channel 650000 (3750.000MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	165.0 x 75.0 x 8.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HBBL 5-10000MHz	TILT, 0.00	Band n78	5G NR FR1 TDD, 10900-AAC	3750.000, 650000	6.8	3.10	38.60

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1901	HBBL 5-10000MHz , --	EX3DV4 - SN7391, 2024-11-29	DAE4 Sn1495, 2024-07-24

Scan Setup

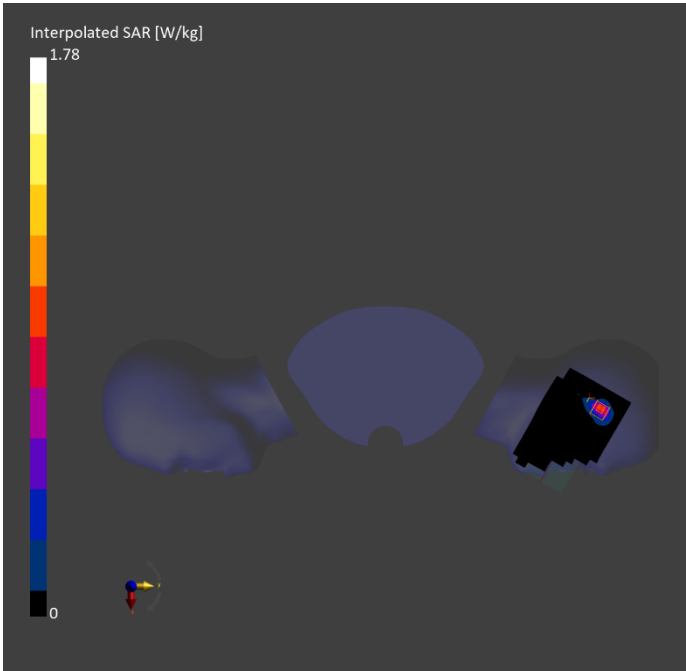
	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-11, 10:41	2025-02-11, 10:51
psSAR1g [W/kg]	0.696	0.701
psSAR10g [W/kg]	0.269	0.262
Power Drift [dB]	-0.07	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		76.5
Dist 3dB Peak [mm]		8.1

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Client: **WSCT**

Certificate No: **24J02Z000416**

CALIBRATION CERTIFICATE

Object **D750V3 - SN: 1151**

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




Calibration date: **August 19, 2024**

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	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7464	22-Jan-24(SPEAG, No. EX-7464_Jan24)	Jan-25
DAE4	SN 1556	03-Jan-24(CTTL-SPEAG, No.24J02Z80002)	Jan-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

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

Issued: August 30, 2024

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with

s p e a g
CALIBRATION LABORATORY



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Tel: +86-10-62304633-2117

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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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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



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Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	41.3 \pm 6 %	0.91 mho/m \pm 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.46 W/kg \pm 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.70 W/kg \pm 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.4Ω- 2.06jΩ
Return Loss	- 32.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.941 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
-----------------	-------

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DASY5 Validation Report for Head TSL

Date: 2024-08-19

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1151

Communication System: UID 0, CW; Frequency: 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.911 \text{ S/m}$; $\epsilon_r = 41.27$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(9.09, 9.18, 9.51) @ 750 MHz; Calibrated: 2024-01-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2024-01-03
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

Reference Value = 54.20 V/m; Power Drift = -0.06 dB

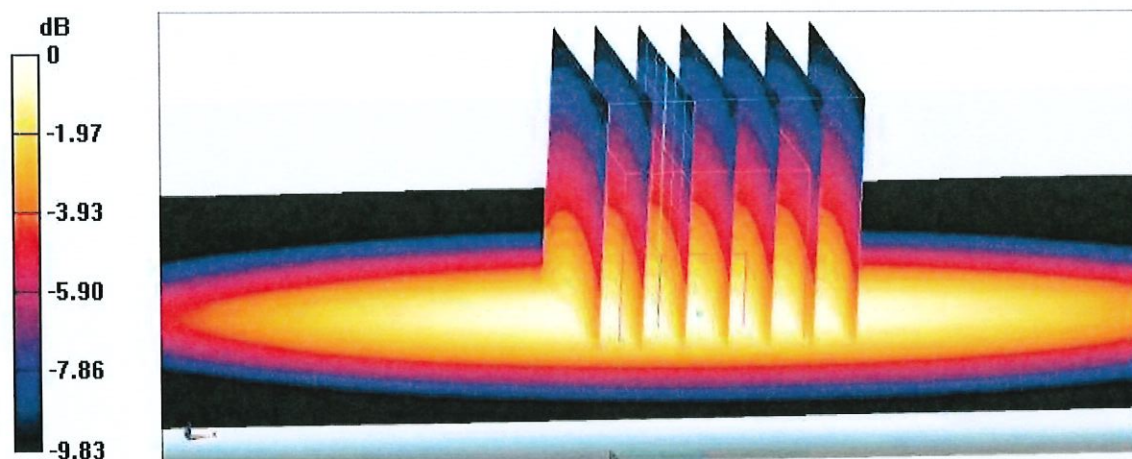
Peak SAR (extrapolated) = 3.11 W/kg

SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.45 W/kg

Smallest distance from peaks to all points 3 dB below = 22.7 mm

Ratio of SAR at M2 to SAR at M1 = 69.2%

Maximum value of SAR (measured) = 2.81 W/kg

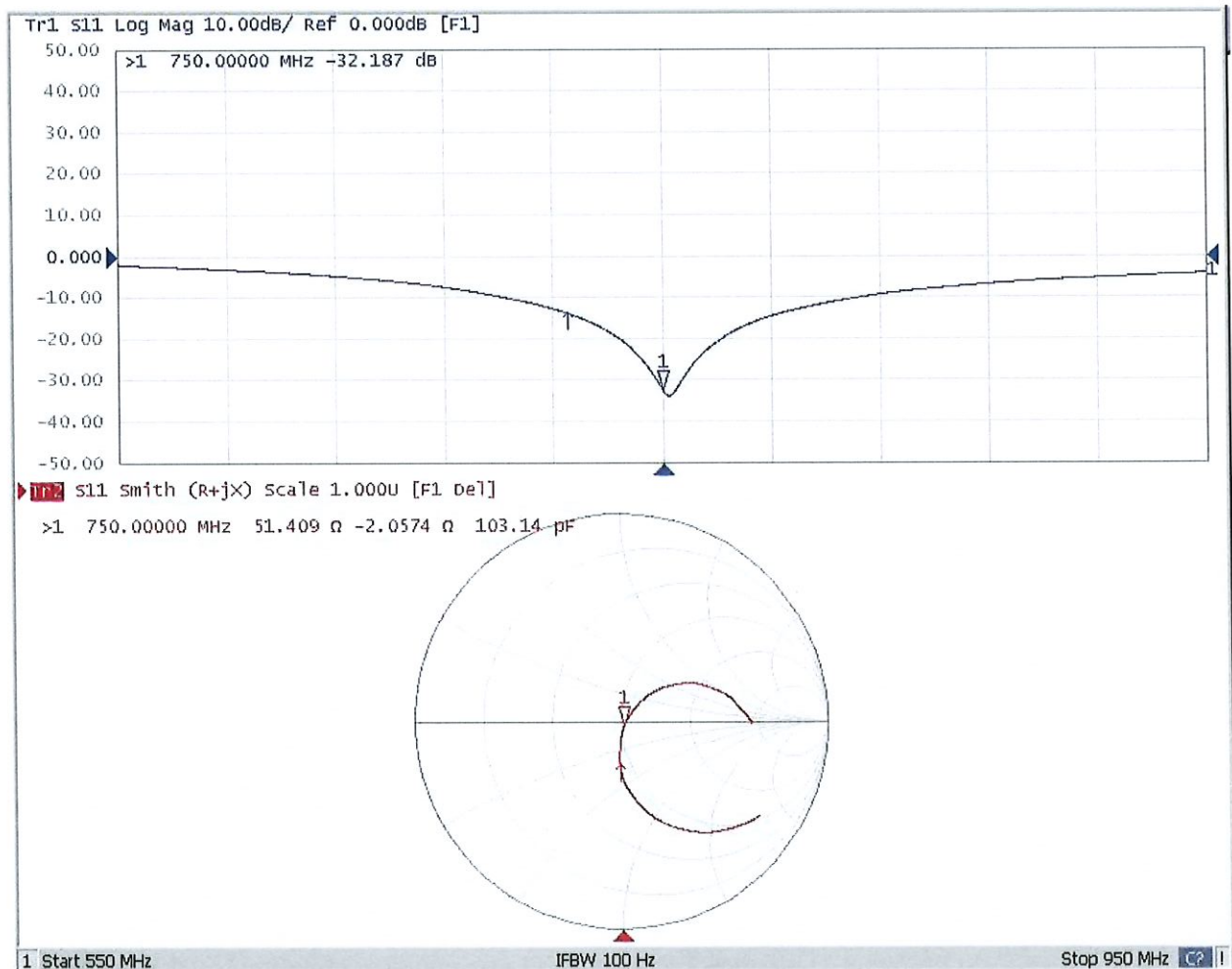


0 dB = 2.81 W/kg = 4.49 dBW/kg



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Impedance Measurement Plot for Head TSL



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http://www.caict.ac.cn

Client

WSCT

Certificate No: 24J02Z000417

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d203**

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




Calibration date: **August 20, 2024**

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	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7464	22-Jan-24(SPEAG, No. EX-7464_Jan24)	Jan-25
DAE4	SN 1556	03-Jan-24(CTTL-SPEAG, No.24J02Z80002)	Jan-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

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

Issued: August 30, 2024

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