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Measurement Conditions

DASY system configuration, as far as not given on page 1 DASY Version DASY52 52.10.4 Extrapolation Advanced Extrapolation Triple Flat Phantom 5.1C Phantom Distance Dipole Center - TSL 10 mm with Spacer Graded Ratio = 1.4 (Z direction) Zoom Scan Resolution dx, dy = 4 mm, dz = 1.4 mm 3900 MHz ± 1 MHz Frequency

Head TSL parameters at 3900MHz

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.5	3.32 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.8 ± 6 %	3.31 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C		

SAR result with Head TSL at 3900MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition		
SAR measured	100 mW input power	6.88 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	68.6 W/kg ± 24.4 % (<i>k</i> =2)	
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition		
SAR measured	100 mW input power	2.41 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	24.0 W/kg ± 24.2 % (<i>k</i> =2)	

Certificate No: 23J02Z80064

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	CALIBRATION LABORATORY	
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Appendix (Add Antenna Paran	litional assessments outsineters with Head TSL at 39	de the scope of CNAS L0570) 00MHz
Impedance, trar	nsformed to feed point	46.3Ω- 5.34jΩ
Return Loss		- 23.4dB
General Anten	na Parameters and Design	
Electrical Delay	(one direction)	1.008 ns
The division is used		able. The conter conductor of the feeding line is directly
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APPENDIX D RETURN LOSS&IMPEDANCE MEASUREMENT

Equipment Details:

Description:	Dipole
Manufacturer:	Speag
Model Number:	D750V3
Serial Number:	1229
Calibration Date:	2024/03/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and procedures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz" 1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	27.796 dB	29.503 dB	-5.786%	±20%;≥20dB	Pass
750	Head	Real Impedance	49.557 Ω	53.314 Ω	3.757 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	-5.432 Ω	-0.992 Ω	4.44 Ω	\leq 5 Ω	Pass

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Dipole, 750MHz, 1229

Description:	Dipole
Manufacturer:	Speag
Model Number:	D900V2
Serial Number:	132
Calibration Date:	2024/09/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and procedures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	21.803 dB	22.005 dB	-0.92%	±20%;≥20dB	Pass
900	Head	Real Impedance	49.421 Ω	47.694 Ω	1.727 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	-8.084 Ω	-7.428 Ω	0.656 Ω	\leq 5 Ω	Pass

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Dipole, 900MHz, 132

Description:	Dipole
Manufacturer:	Speag
Model Number:	D1750V2
Serial Number:	1199
Calibration Date:	2024/03/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and procedures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz" 1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	26.929 dB	26.017 dB	3.505%	±20%;≥20dB	Pass
1750	Head	Real Impedance	45.532 Ω	46.939 Ω	1.407 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	-1.154 Ω	3.765 Ω	4.919 Ω	\leq 5 Ω	Pass



Dipole, 1750MHz, 1199

Description:	Dipole
Manufacturer:	Speag
Model Number:	D2600V2
Serial Number:	1207
Calibration Date:	2024/03/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and procedures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each	Time
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	30.923 dB	27.361 dB	13.019%	±20%;≥20dB	Pass
2600	Head	Real Impedance	48.396 Ω	45.943 Ω	2.453 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	-0.109 Ω	-0.667 Ω	0.558 Ω	\leq 5 Ω	Pass



Dipole, 2600MHz, 1207

Description:	Dipole
Manufacturer:	Speag
Model Number:	D3500V2
Serial Number:	1113
Calibration Date:	2024/09/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and proc30.9edures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each	Time
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	21.690 dB	25.749 dB	-15.76%	±20%;≥20dB	Pass
3500 Hea	Head	Real Impedance	51.012 Ω	49.726 Ω	1.286 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	8.282 Ω	5.144 Ω	3.138 Ω	\leq 5 Ω	Pass



Dipole, 3500MHz, 1113

Description:	Dipole
Manufacturer:	Speag
Model Number:	D3700V2
Serial Number:	1084
Calibration Date:	2024/09/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and proc30.9edures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each	Time
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	21.247 dB	22.509 dB	-5.61%	±20%;≥20dB	Pass
3700 Hea	Head	Real Impedance	42.779 Ω	43.404 Ω	0.625 Ω	\leq 5 Ω	Pass
		Imaginary Impedance	3.543 Ω	2.341 Ω	1.202 Ω	\leq 5 Ω	Pass



Dipole, 3700MHz, 1084

Description:	Dipole
Manufacturer:	Speag
Model Number:	D3900V2
Serial Number:	1058
Calibration Date:	2024/09/26
Calibrated By:	Bob Lu
Signature:	Bob Lu

All Calibration have been conducted in the closed laboratory facility: Lab Temperature 18°C-25°C and humidity < 70%

The calibration methods and proc30.9edures used were as detailed in:

KDB Publication Number: "KDB865664 D01 SAR Measurement 100 MHz to 6 GHz"

1. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.

2. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

Calibrated Equipment:

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each	Time
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
		Return Loss	21.070 dB	23.417 dB	-10.02%	±20%;≥20dB	Pass
3900 Head	Real Impedance	50.044 Ω	46.285 Ω	3.759 Ω	\leq 5 Ω	Pass	
	Imaginary Impedance	-8.893 Ω	-5.342 Ω	3.551 Ω	\leq 5 Ω	Pass	

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Dipole, 3900MHz, 1058