APPENDIX D RETURN LOSS&IMPEDANCE MEASUREMENT

Equipment Details:

Description: Dipole
Manufacturer: Speag
Model Number: D2450V2
Serial Number: 1103
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℃-25℃ and humidity < 70%

Calibrated Equipment:

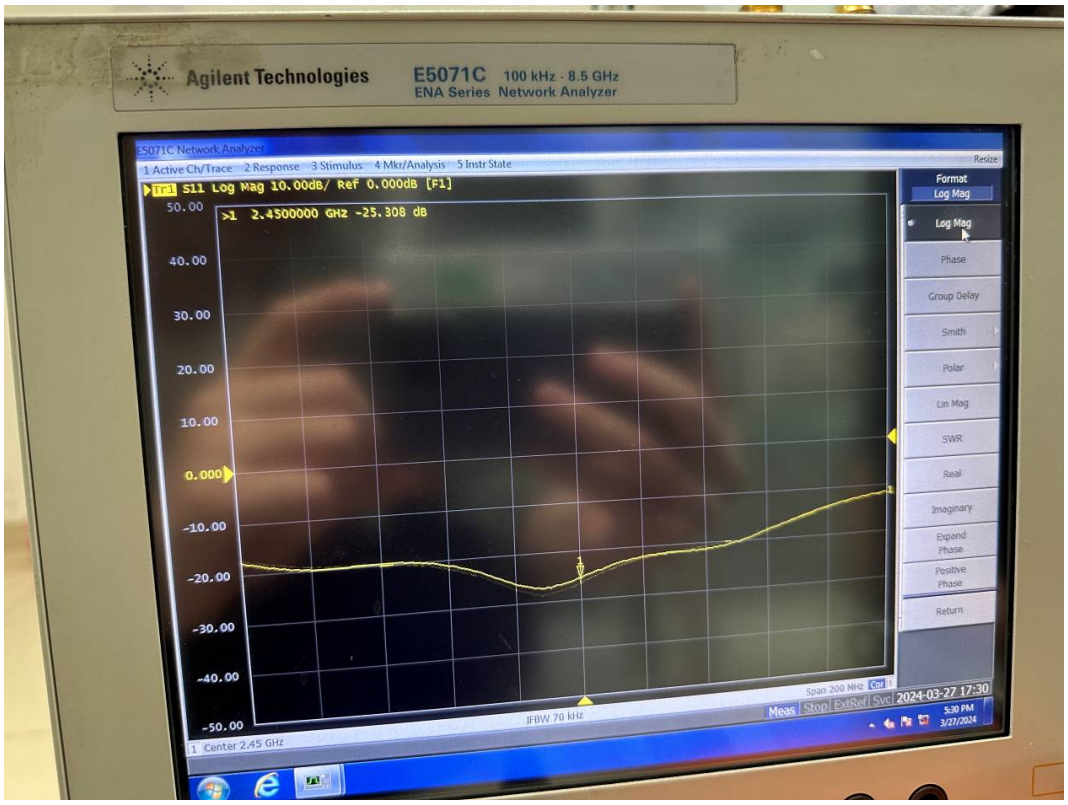
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50Ω	51026	NCR	NCR

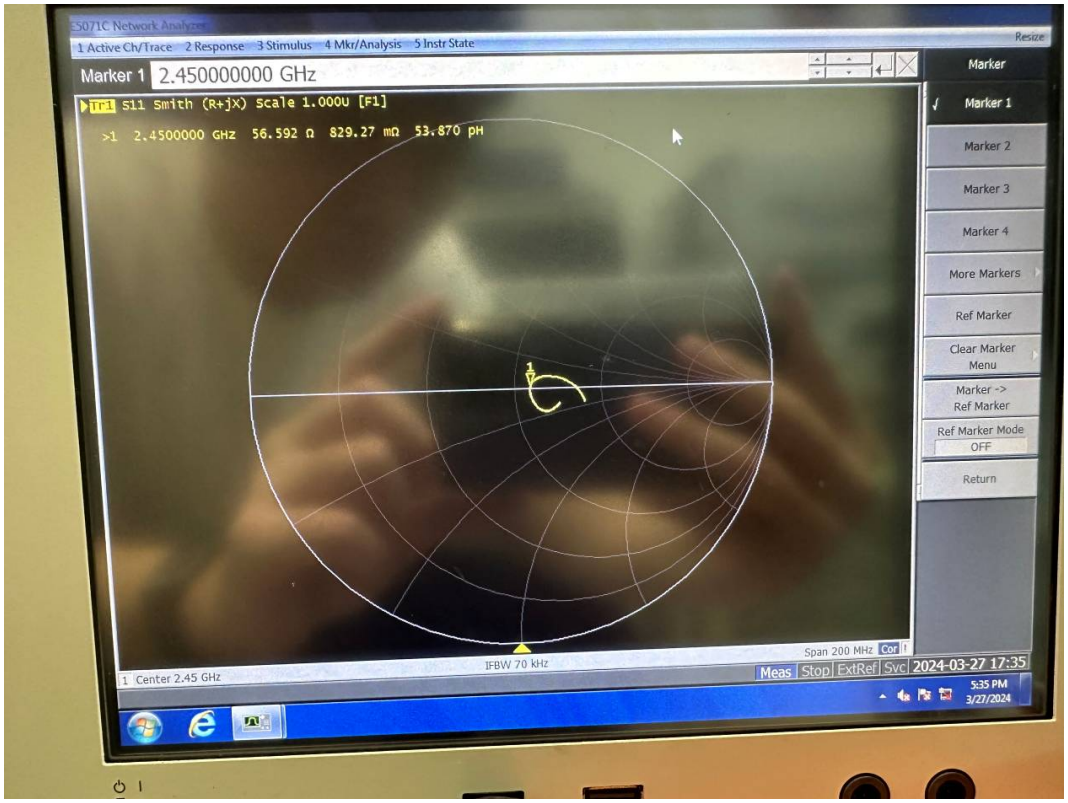
Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
2450	Head	Return Loss	25.308 dB	24.161 dB	4.747 %	±20%;≥20dB	Pass
		Real Impedance	56.592 Ω	53.467 Ω	3.125 Ω	≤5Ω	Pass
		Imaginary Impedance	0.829 Ω	5.400 Ω	-4.571 Ω	≤5Ω	Pass

Note: Return Loss Deviation = (Measured-Target)/Target×100%

Dipole, 2450MHz, 1103





Equipment Details:

Description: Dipole
Manufacturer: Speag
Model Number: D2450V2
Serial Number: 1103
Calibration Date: 2025/03/26
Calibrated By: Bob Lu
Signature: Bob Lu

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

Calibrated Equipment:

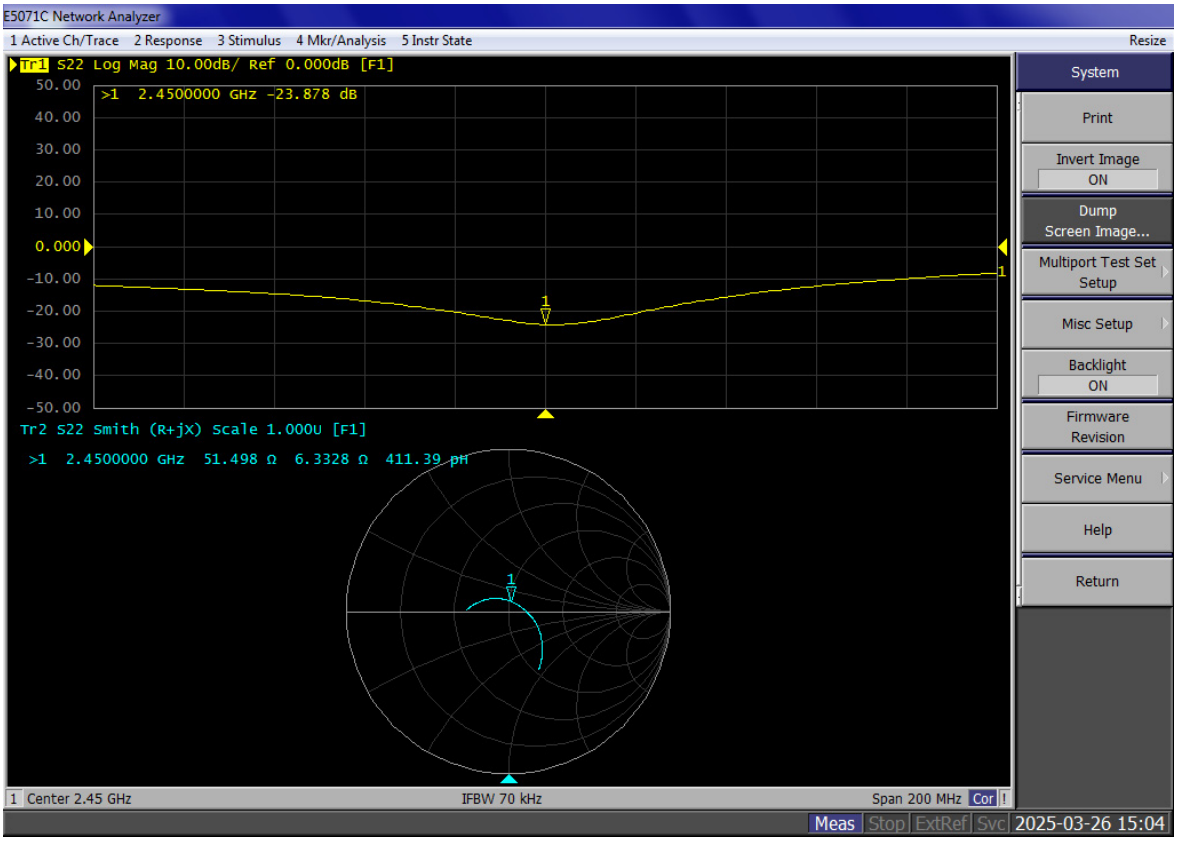
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50Ω	51026	NCR	NCR

Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
2450	Head	Return Loss	23.878 dB	24.161 dB	-1.171 %	±20%;≥20dB	Pass
		Real Impedance	51.498 Ω	53.467 Ω	1.969 Ω	≤5Ω	Pass
		Imaginary Impedance	6.333 Ω	5.400 Ω	0.933 Ω	≤5Ω	Pass

Note: Return Loss Deviation = (Measured-Target)/Target×100%

Dipole, 2450MHz, 1103



Equipment Details:

Description: Dipole
Manufacturer: Speag
Model Number: D5GHzV2
Serial Number: 1374
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℃-25℃ and humidity < 70%

Calibrated Equipment:

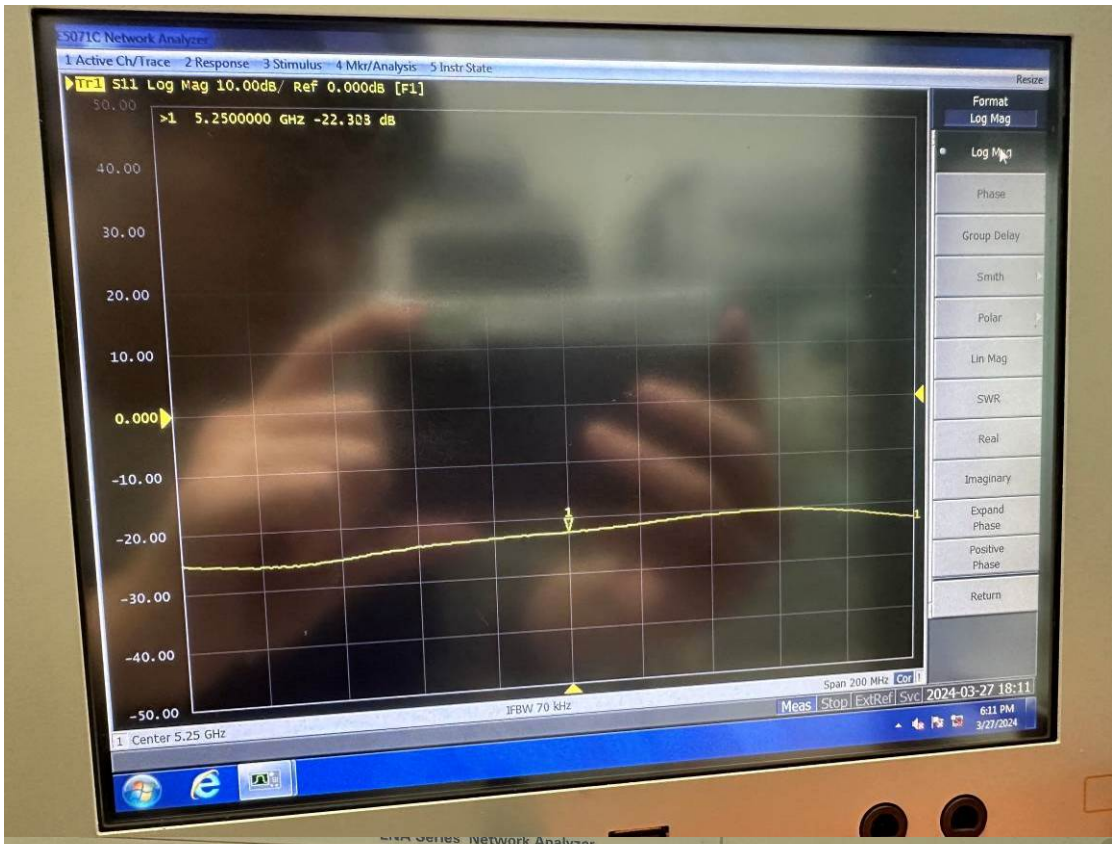
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2023/06/08	2024/06/07
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

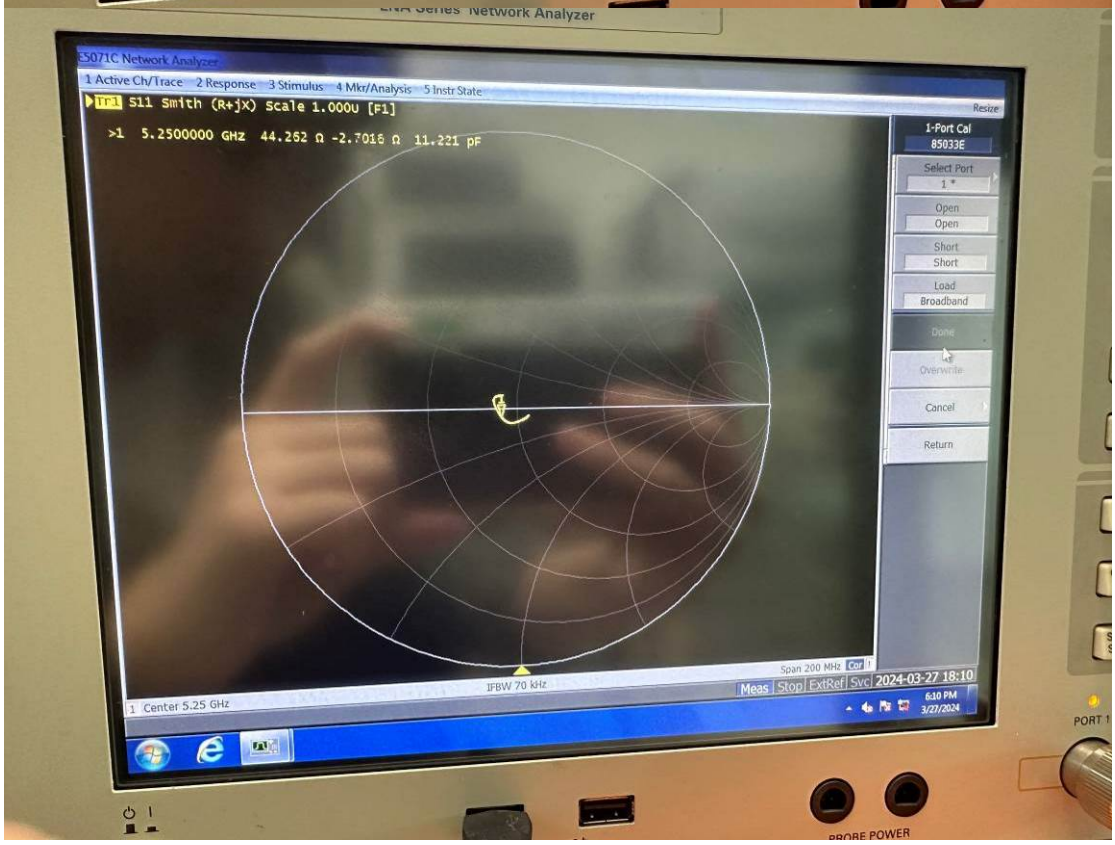
Test Data:

Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
5250	Head	Return Loss	22.303 dB	23.781 dB	-6.215 %	±20%; ≥20dB	Pass
		Real Impedance	44.252 Ω	45.776 Ω	1.524 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	-2.702 Ω	-4.545 Ω	1.843 Ω	≤ 5 Ω	Pass
5600	Head	Return Loss	34.639 dB	35.868 dB	3.426%	±20%; ≥20dB	Pass
		Real Impedance	47.686 Ω	43.421 Ω	4.265 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	-0.211 Ω	1.492 Ω	1.703 Ω	≤ 5 Ω	Pass
5800	Head	Return Loss	29.943 dB	27.331 dB	9.557 %	±20%; ≥20dB	Pass
		Real Impedance	50.363 Ω	54.232 Ω	-3.869 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	-2.534 Ω	1.475 Ω	-4.009 Ω	≤ 5 Ω	Pass

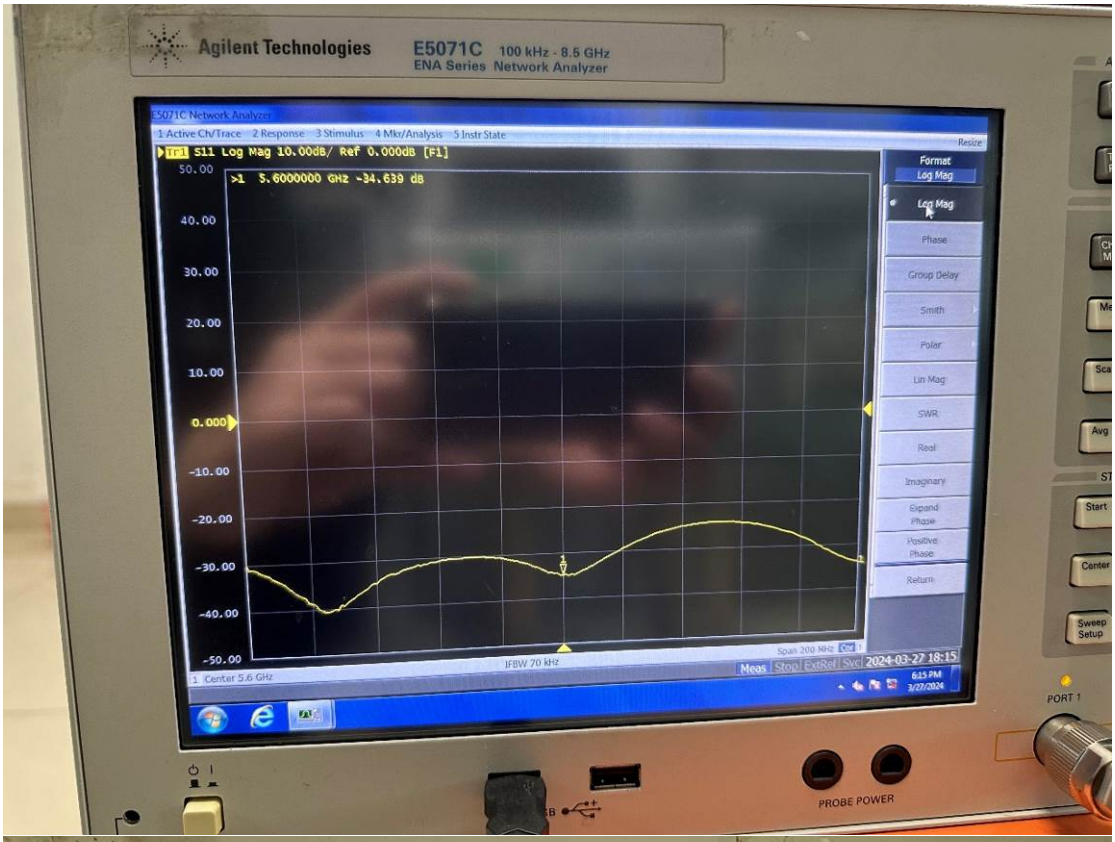
Note: Return Loss Deviation = (Measured-Target)/Target×100%

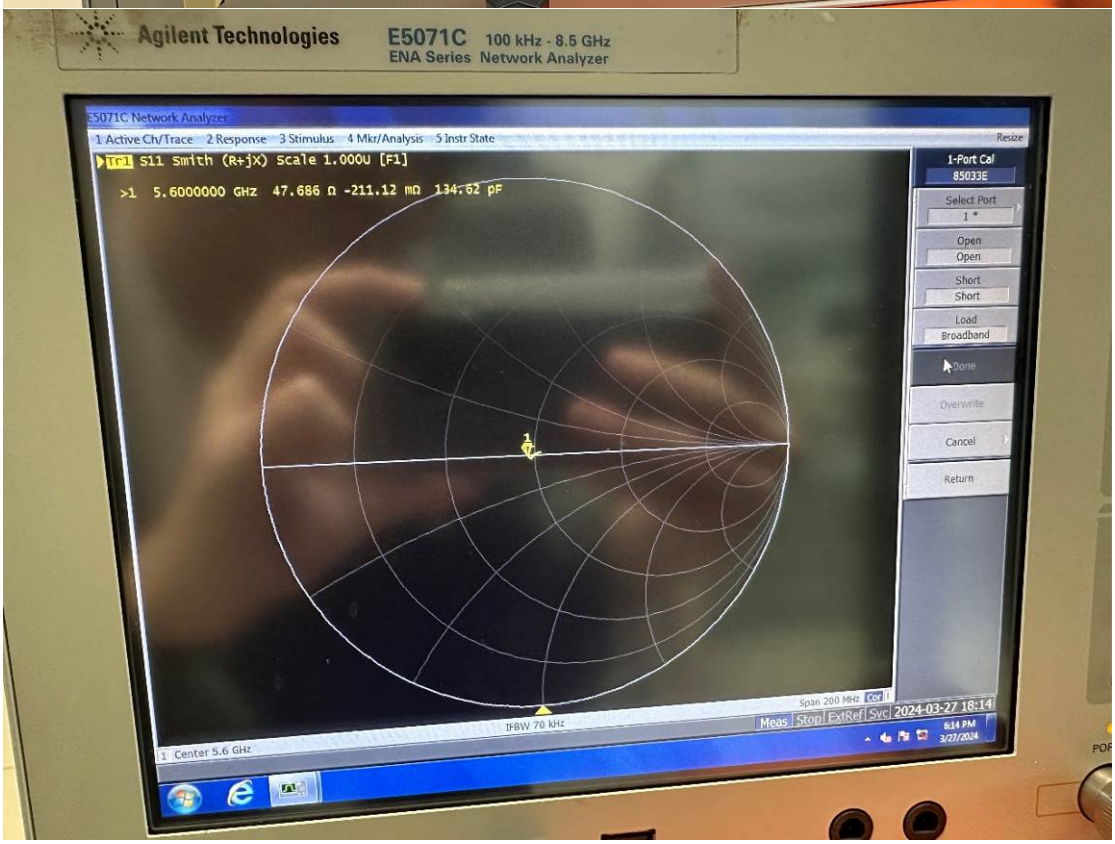
Dipole, 5250MHz, 1374



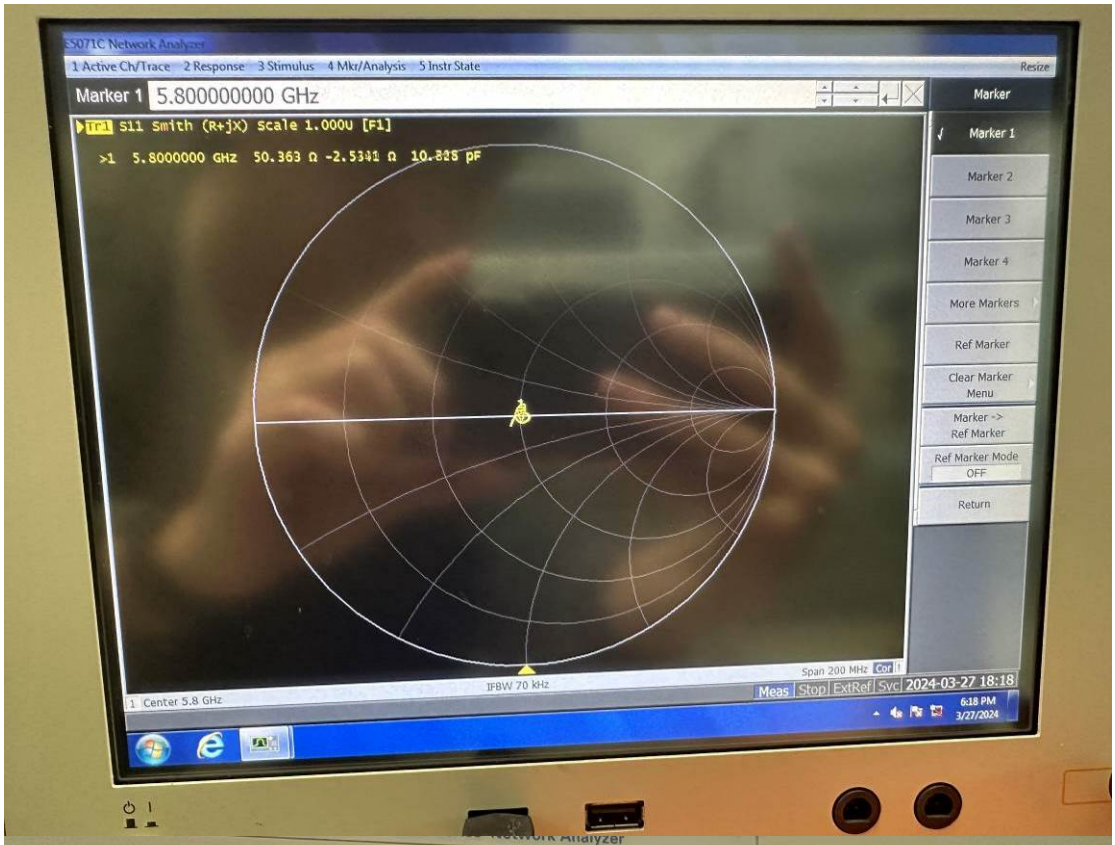


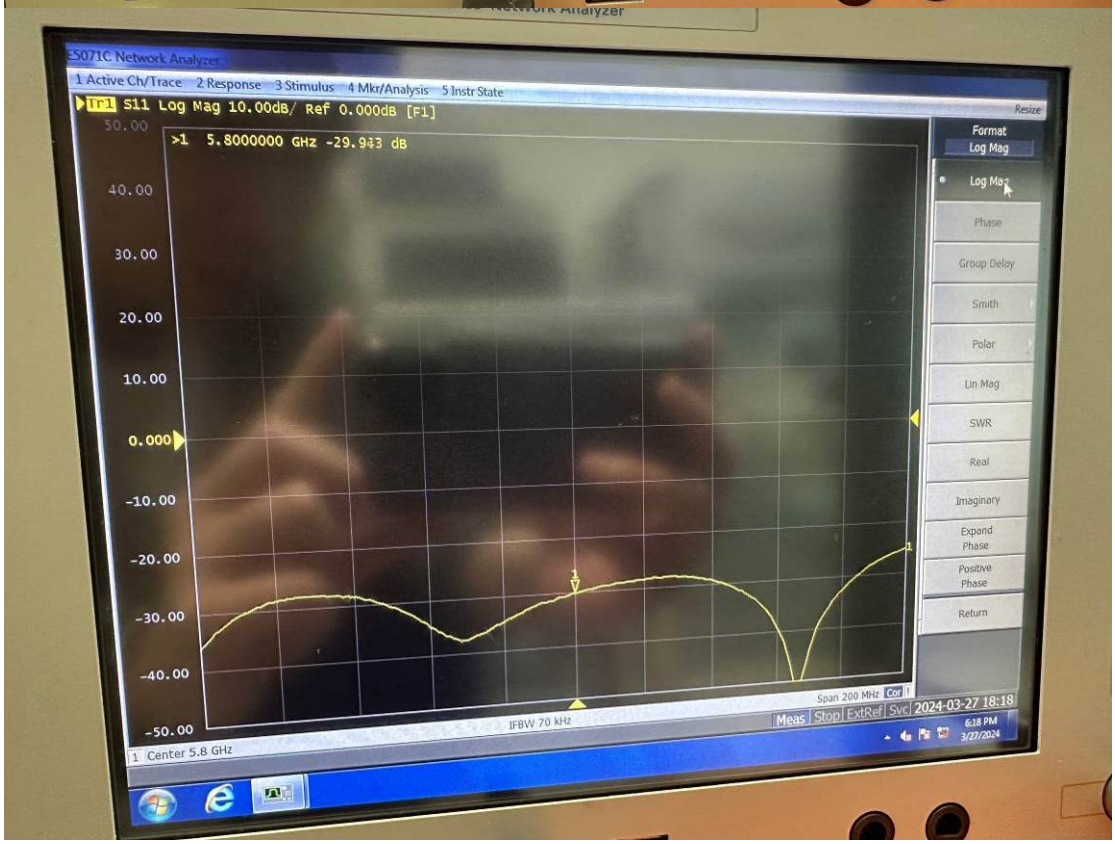
Dipole, 5600MHz, 1374





Dipole, 5800MHz, 1374





Equipment Details:

Description: Dipole
Manufacturer: Speag
Model Number: D5GHzV2
Serial Number: 1374
Calibration Date: 2025/03/26
Calibrated By: Bob Lu
Signature: Bob Lu

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

Calibrated Equipment:

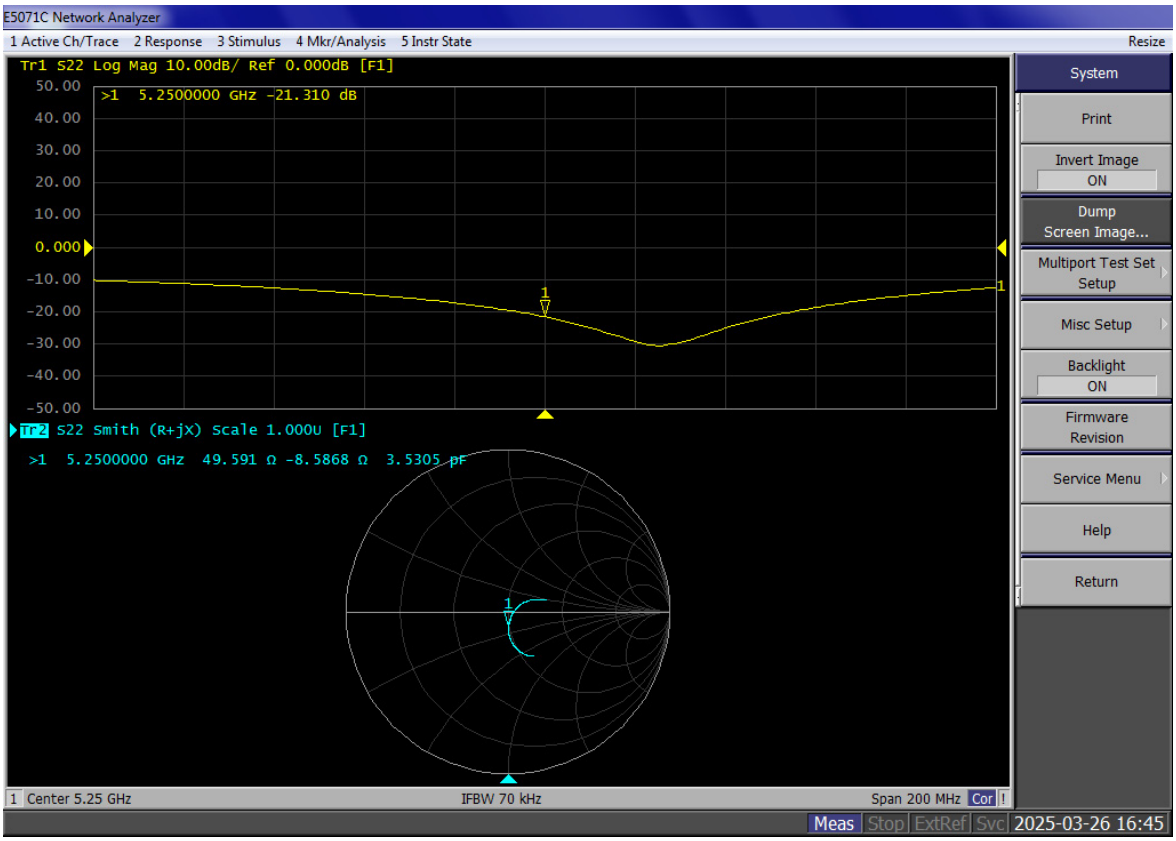
Equipment	Model	S/N	Calibration Date	Calibration Due Date
Simulated Tissue Liquid Head	HBBL600-10000V6	2200808-2	Each Time	
SAM Twin Phantom	SAM-Twin V8.0	1962	NCR	NCR
Network Analyzer	E5071C	SER MY46519680	2024/05/21	2025/05/20
Network Analyzer Calibration Kit	50 Ω	51026	NCR	NCR

Test Data:

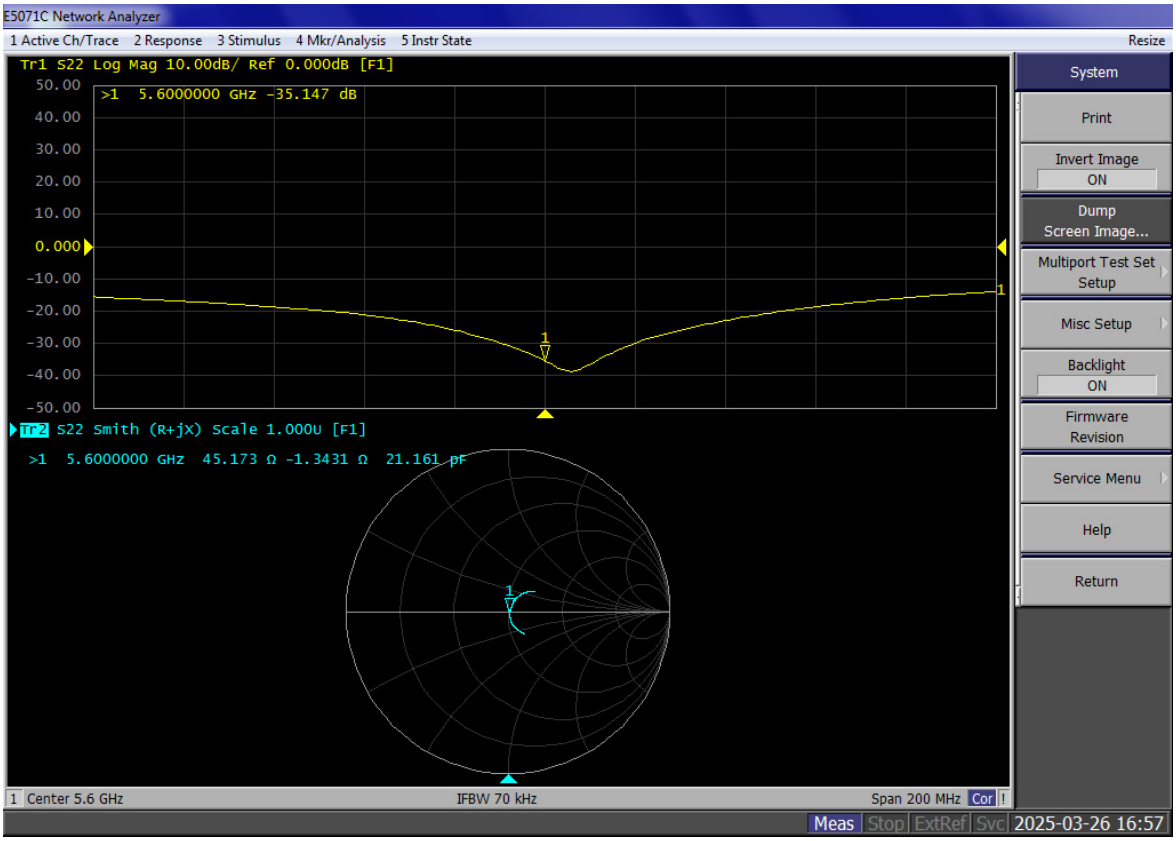
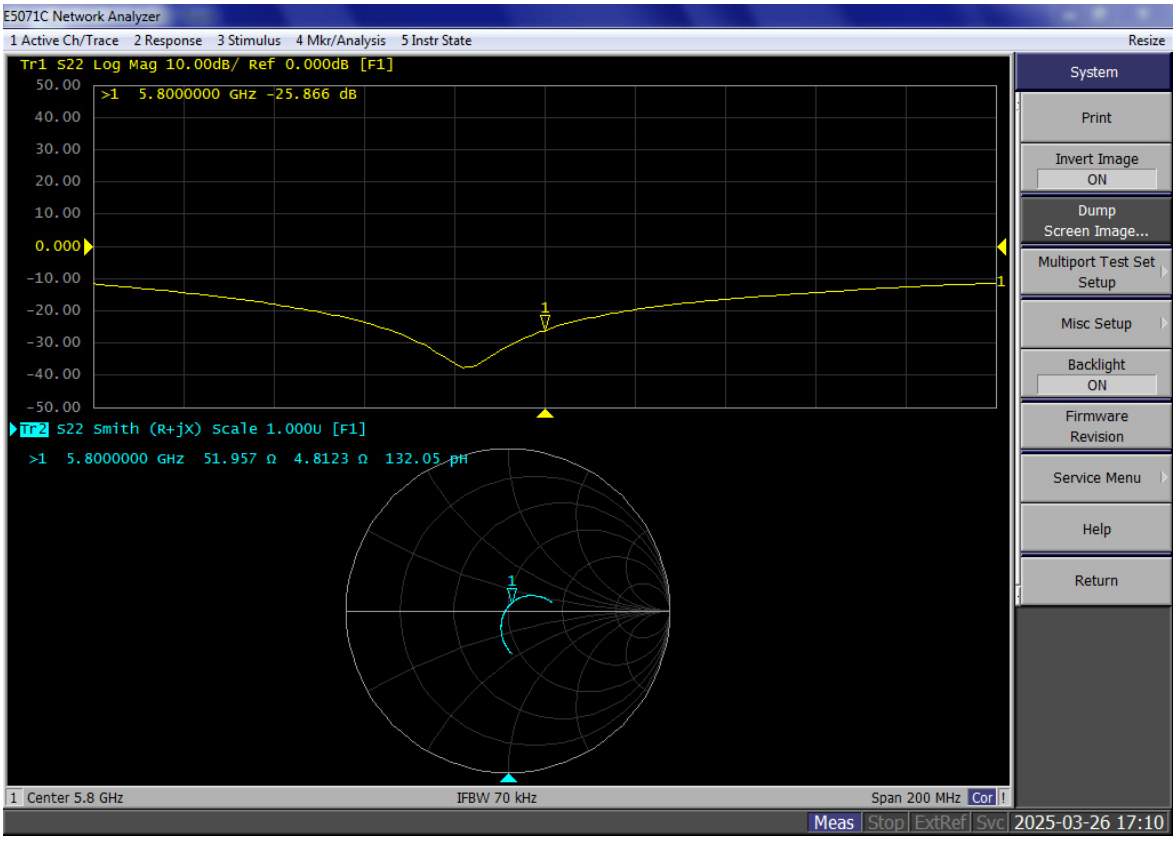
Frequency (MHz)	Simulated Liquid	Parameter	Measured Value	Target Value	Deviation	Reference Range	Results
5250	Head	Return Loss	21.310 dB	23.781 dB	-10.391 %	±20%; ≥20dB	Pass
		Real Impedance	49.591 Ω	45.776 Ω	3.815 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	-8.589 Ω	-4.545 Ω	4.044 Ω	≤ 5 Ω	Pass
5600	Head	Return Loss	35.147 dB	35.868 dB	-2.010 %	±20%; ≥20dB	Pass
		Real Impedance	45.173 Ω	43.421 Ω	1.752 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	-1.343 Ω	1.492 Ω	2.835 Ω	≤ 5 Ω	Pass
5800	Head	Return Loss	25.866 dB	27.331 dB	-5.360 %	±20%; ≥20dB	Pass
		Real Impedance	51.957 Ω	54.232 Ω	2.275 Ω	≤ 5 Ω	Pass
		Imaginary Impedance	4.812 Ω	1.475 Ω	3.337 Ω	≤ 5 Ω	Pass

Note: Return Loss Deviation = (Measured-Target)/Target×100%

Dipole, 5250MHz, 1374



Dipole, 5600MHz, 1374



Dipole, 5800MHz, 1374