

Winmate Inc.

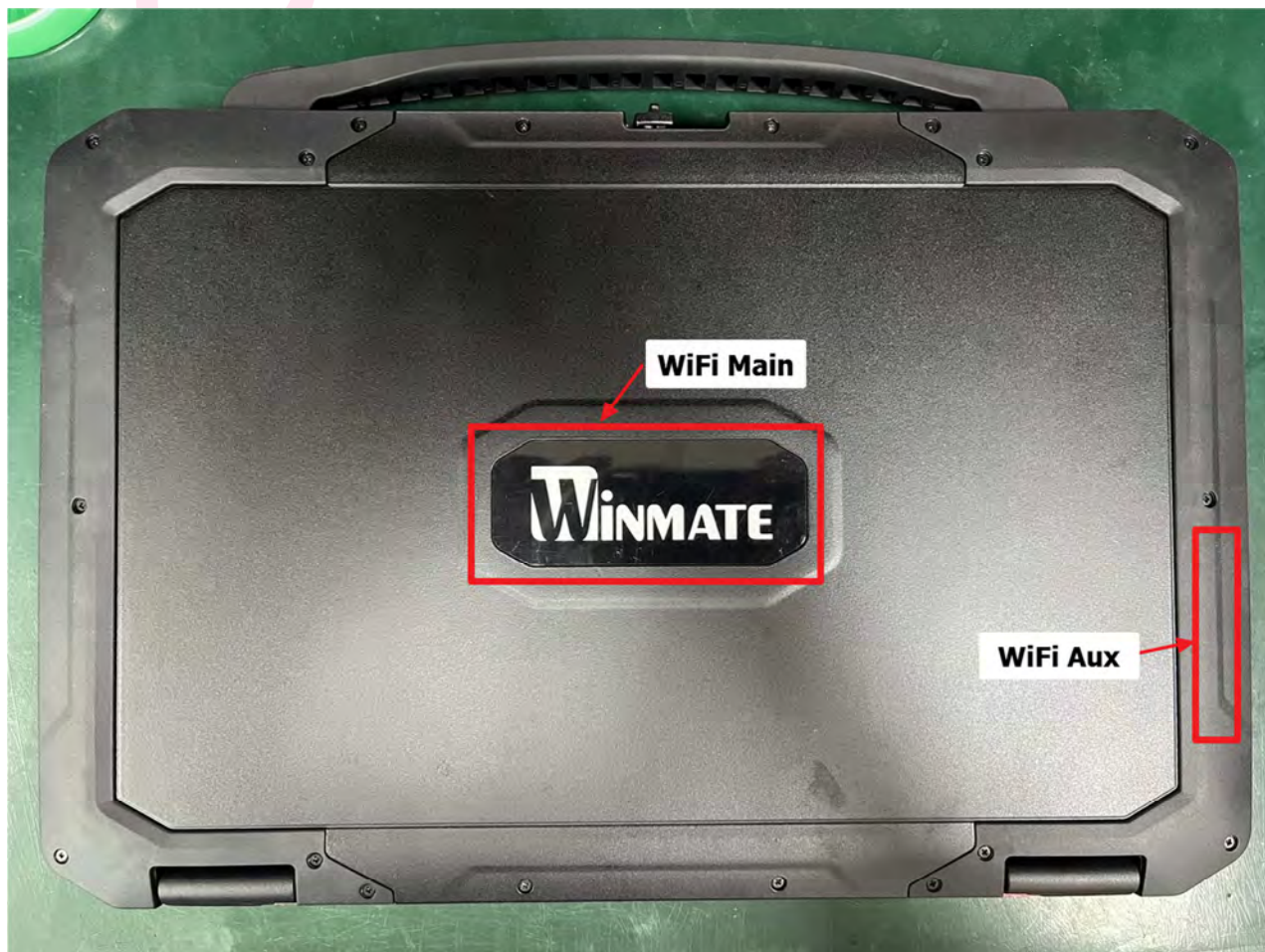
AntennaSpecification

Project :L156AD
Version :20240801
Issue Date : 2024/08/01

Contents

1. ANTENNA PLACEMENT	3
2. WI-FI MAIN ANTENNA SPECIFICATION.....	4
2.1. ELECTRICAL CHARACTERISTICS	4
2.2. MECHANICAL CHARACTERISTICS	4
2.3. ENVIRONMENTAL CHARACTERISTICS.....	4
2.4. RF PERFORMANCE CHARACTERISTICS.....	5
2.4.1. SWR.....	5
2.4.2. RETURN LOSS	6
2.4.3. GAIN / EFFICIENCY	7
2.4.4. RADIATION PATTERNS	8
2.4.4.1.TETS SETUP	8
2.5. DRAWING	9
3. WIFI AUX ANTENNA SPECIFICATION	10
3.1. ELECTRICAL CHARACTERISTICS	10
3.2. MECHANICAL CHARACTERISTICS	10
3.3. ENVIRONMENTAL CHARACTERISTICS.....	10
3.4. RF PERFORMANCE CHARACTERISTICS.....	11
3.4.1 SWR.....	11
3.4.2 RETURN LOSS.....	12
3.4.3. GAIN / EFFICIENCY	13
3.4.4. RADIATION PATTERNS	14
3.4.4.1.TETS SETUP	14
3.5. DRAWING	15

1. Antenna Placement



2. Wi-Fi Main Antenna Specification

Winmate Part Number: 90RF05000025

2.1. Electrical Characteristics

Frequency(MHz): 2400-2500

SWR: $\leq 1.11@2400-2500\text{MHz}$

Return Loss: $\leq -35.60\text{dB}@2400-2500\text{MHz}$

Peak Gain: $2.62\text{dBi}@2400-2500\text{MHz}$

Impedance: 50ohm

Polarization: Linear

2.2. Mechanical Characteristics

Cable: 50Ω $\varnothing$ 0.81 RF cable

Connector: MHF4

PCB: FR4 /Thickness 0.4mm

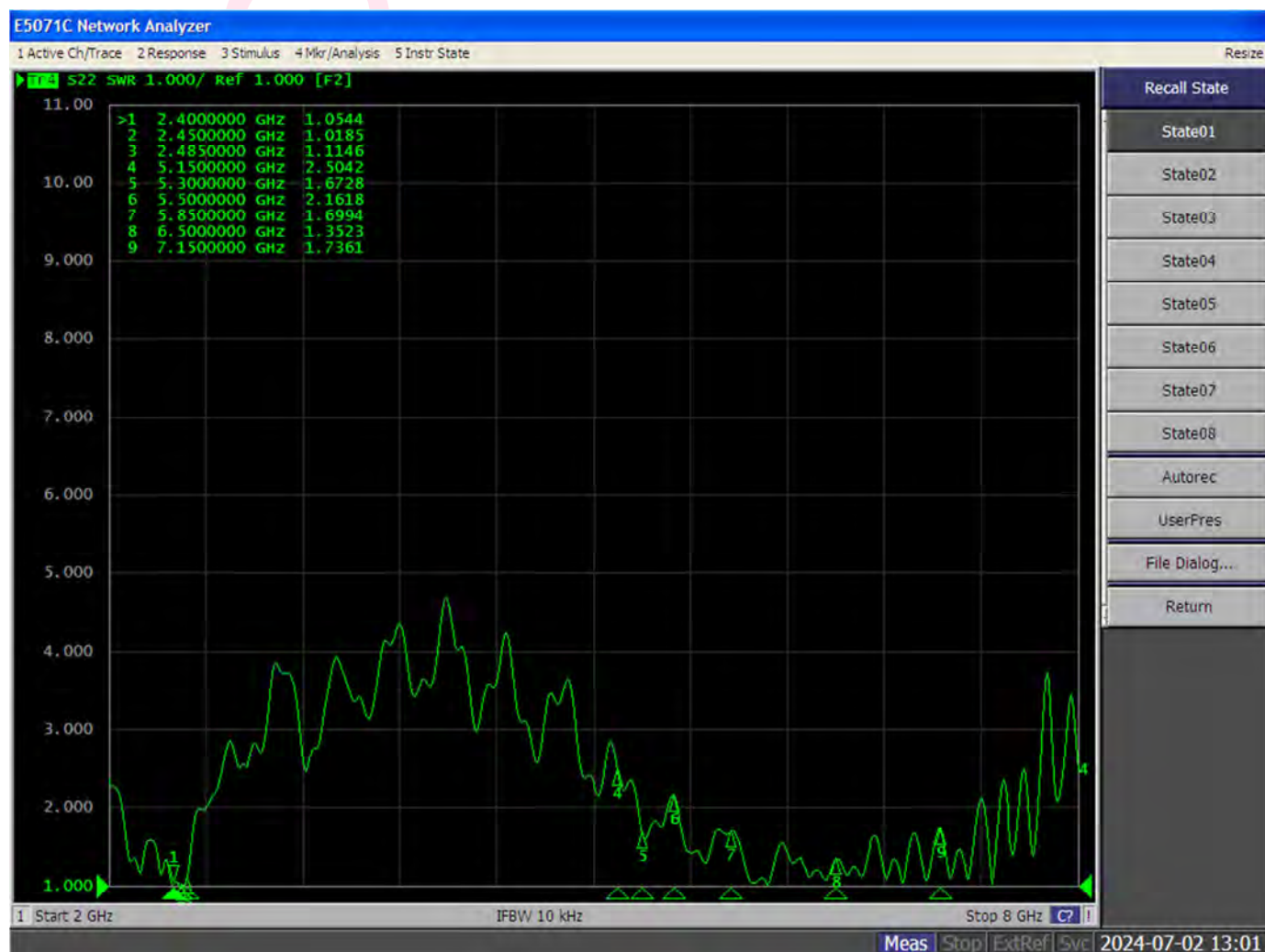
Type:PIFA

2.3. Environmental Characteristics

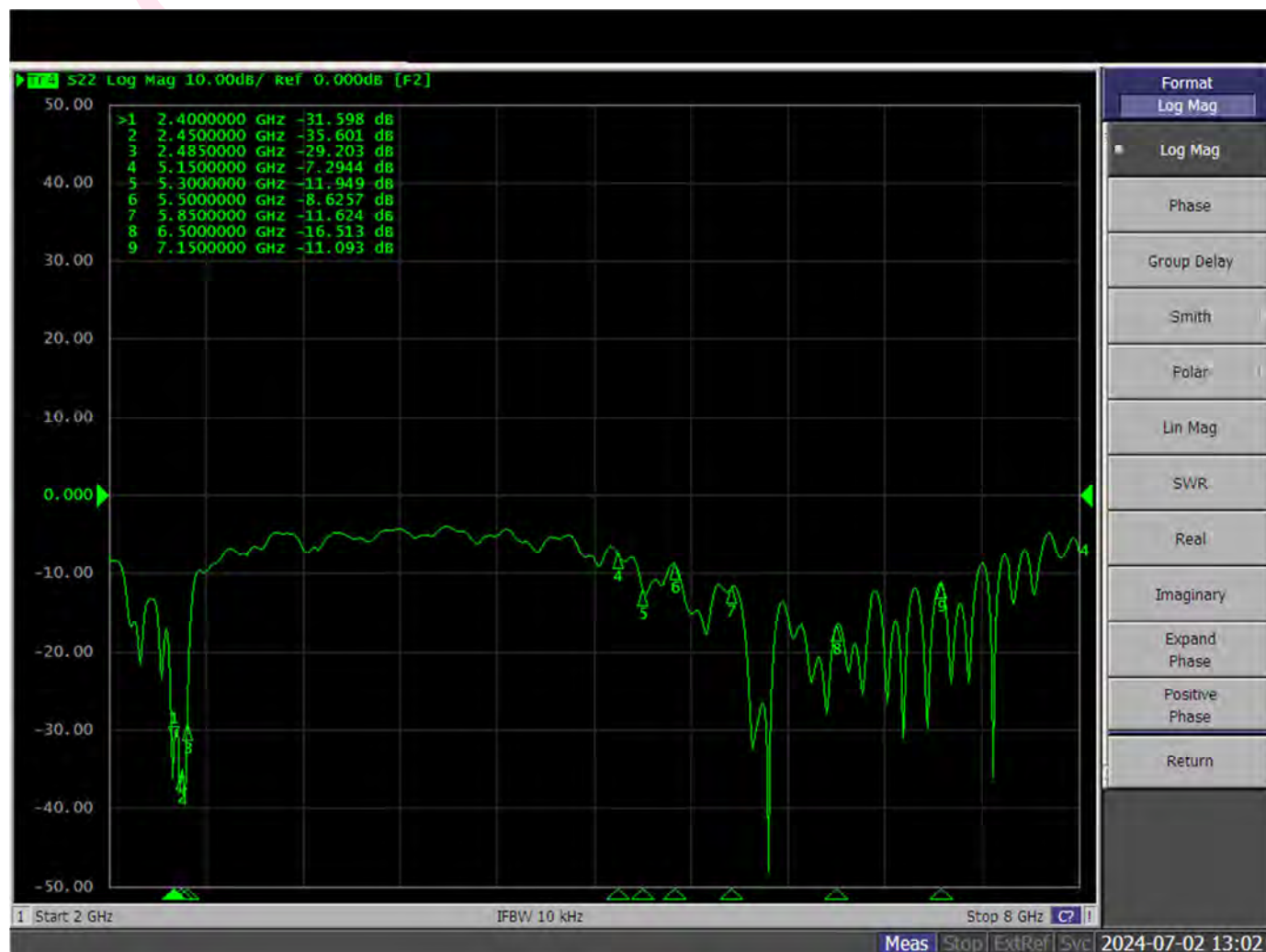
Operating Temperature: -30°C to 80°C

2.4. RF Performance Characteristics

2.4.1. SWR



2.4.2. Return Loss

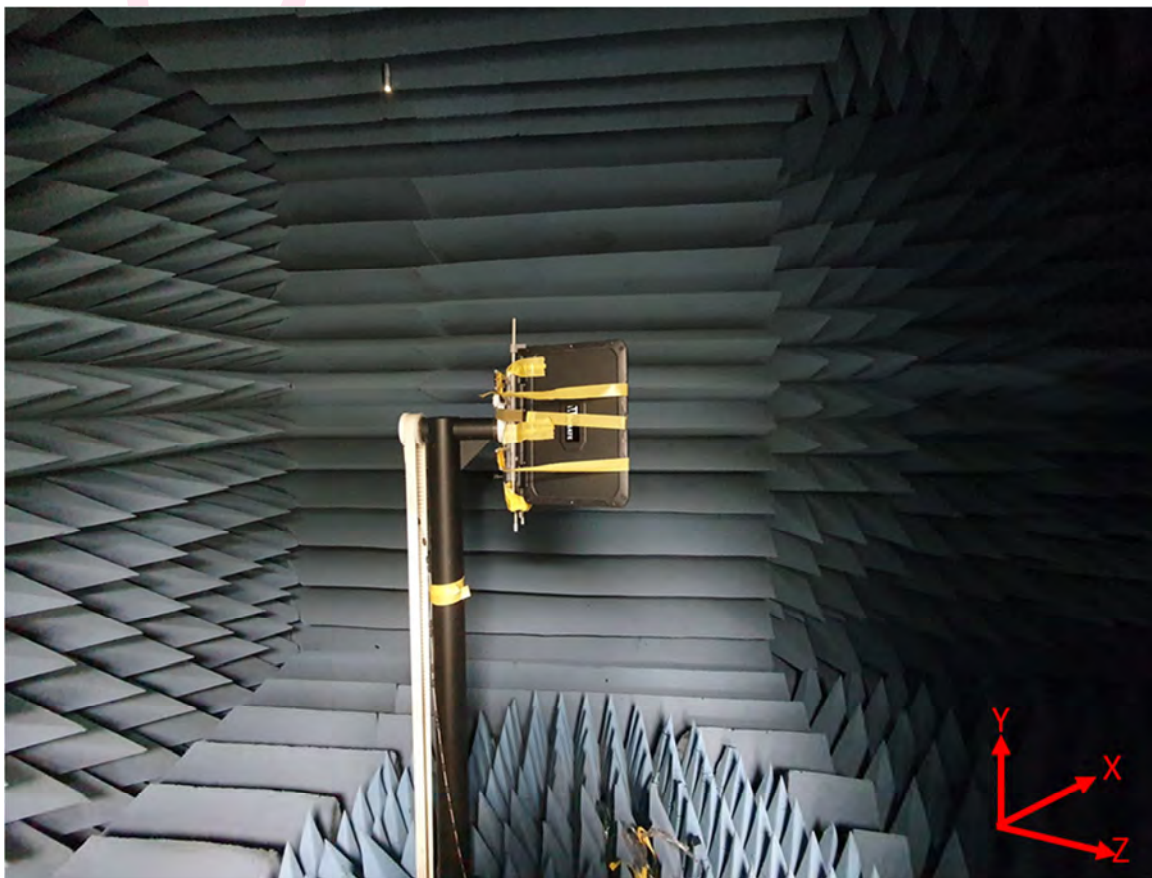


2.4.3. Gain / Efficiency

Frequency	2400	2450	2483.5	2500
Directivity (dBi)	6.02	5.94	5.60	5.42
Efficiency (dB)	-5.92	-3.86	-3.23	-2.94
Efficiency (%)	25.59	41.13	47.51	50.87
Peak Gain (dBi)	0.21	2.30	2.41	2.62

2.4.4. Radiation Patterns

2.4.4.1. Tets Setup

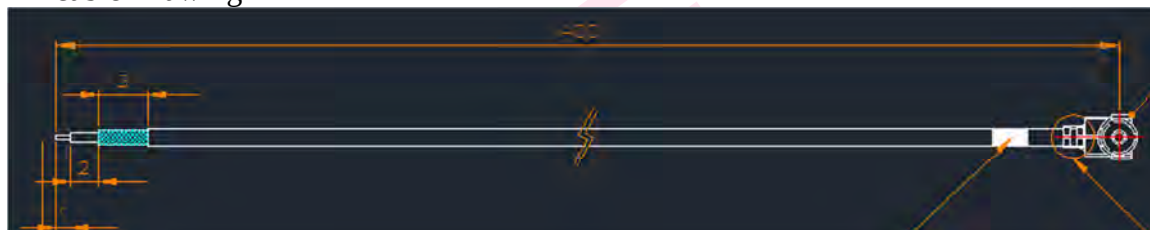


2.5. Drawing

WiFi Main Antenna Layout Drawing



RF cable Drawing



Antenna Assembly



Winmate Part Number: 90RF05000025

3. WiFi Aux Antenna Specification

Winmate Part Number: 90RF0600001U

3.1. Electrical Characteristics

Frequency(MHz): 2400-2500

SWR: $\leq 2.06@2400-2500\text{MHz}$

Return Loss: $\leq -20.6@2400-2500\text{MHz}$

Peak Gain: 2.49dBi@2400-2500MHz

Impedance: 50ohm

Polarization: Linear

3.2. Mechanical Characteristics

Cable: 50 Ω $\varnothing$ 0.81 RF cable

Connector: MHF4

PCB: FPCB /Thickness 0.4mm

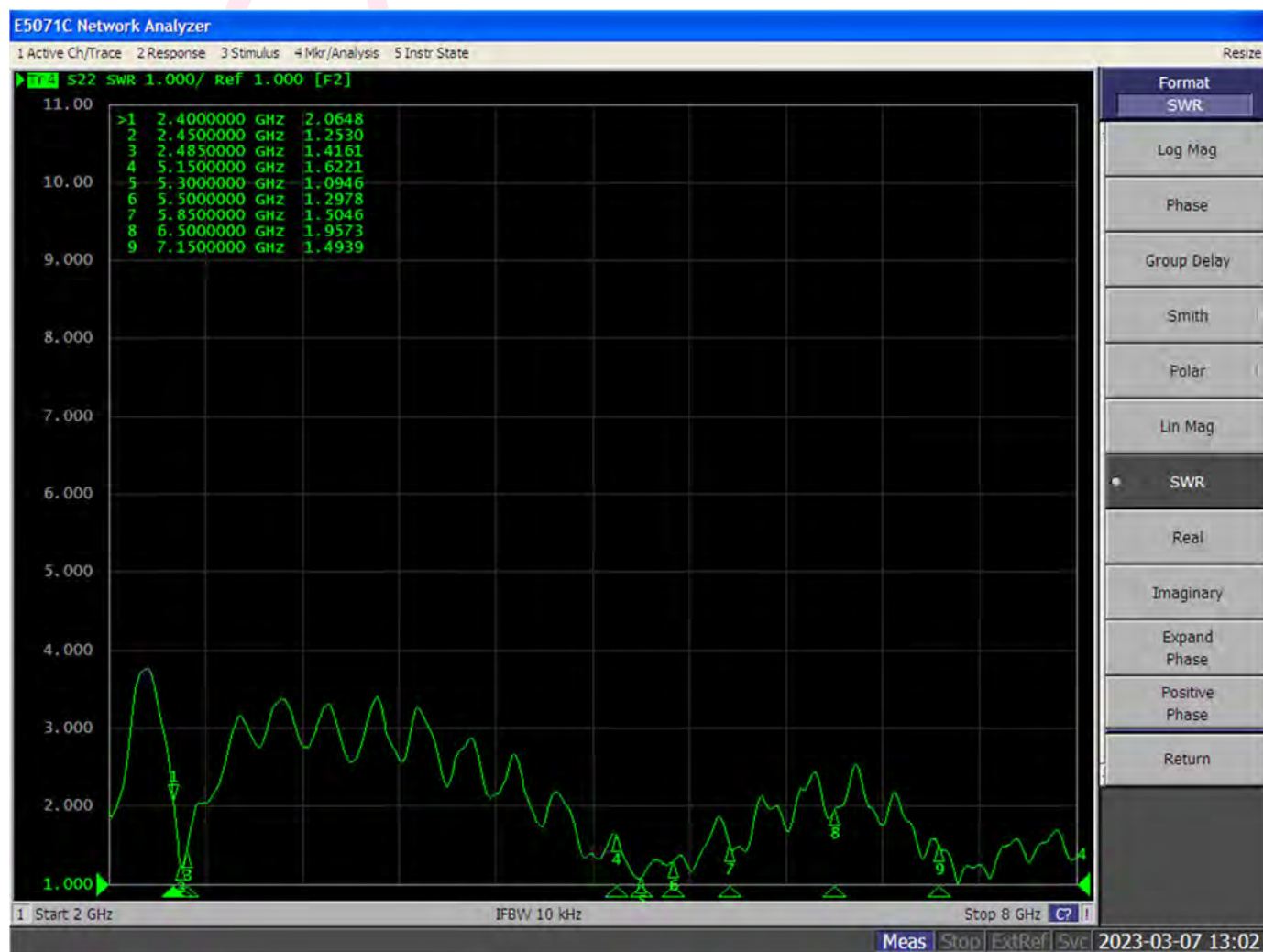
Type: Monopole

3.3. Environmental Characteristics

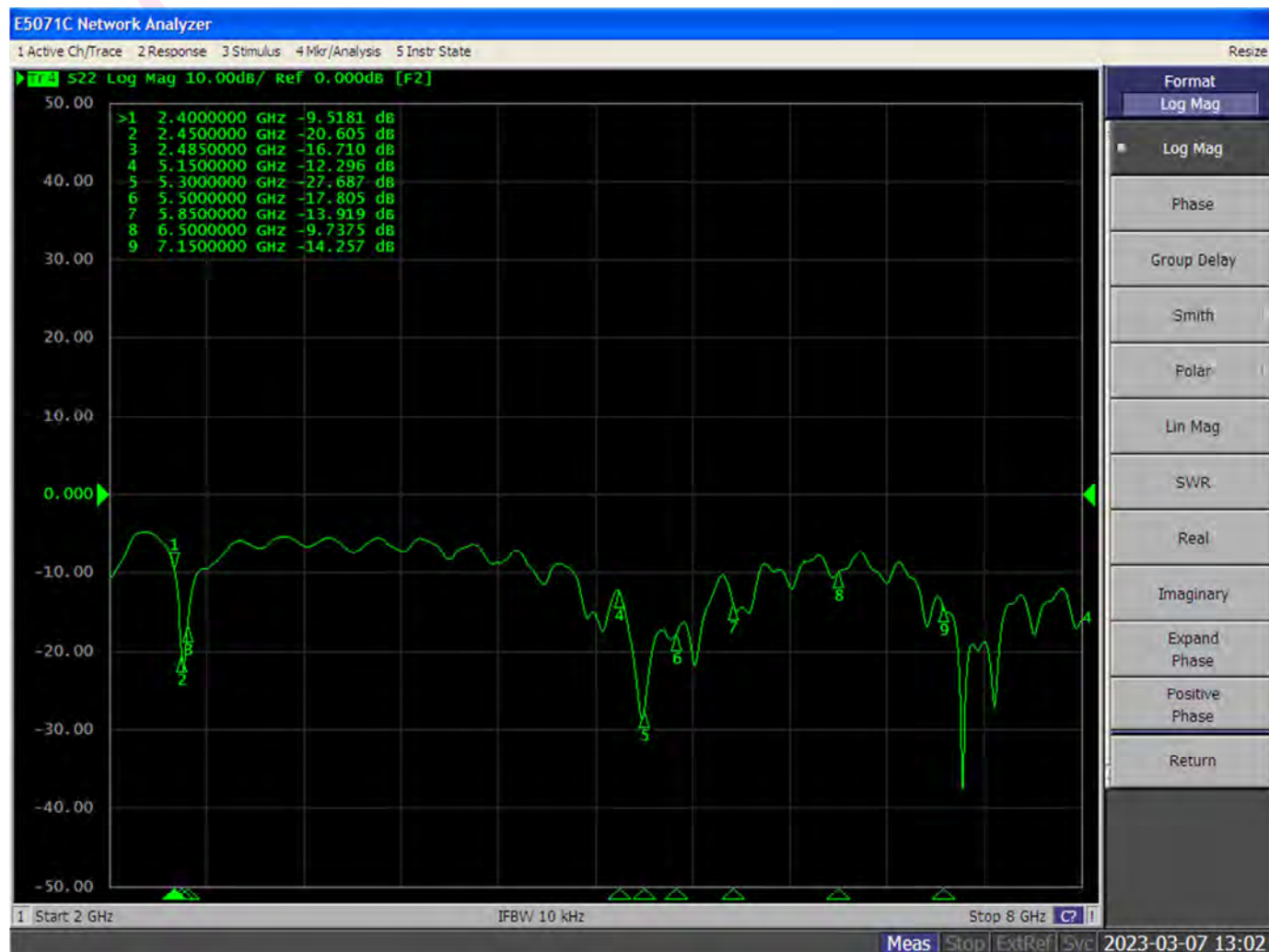
Operating Temperature: -30°C to 80°C

3.4. RF Performance Characteristics

3.4.1 SWR



3.4.2 Return Loss

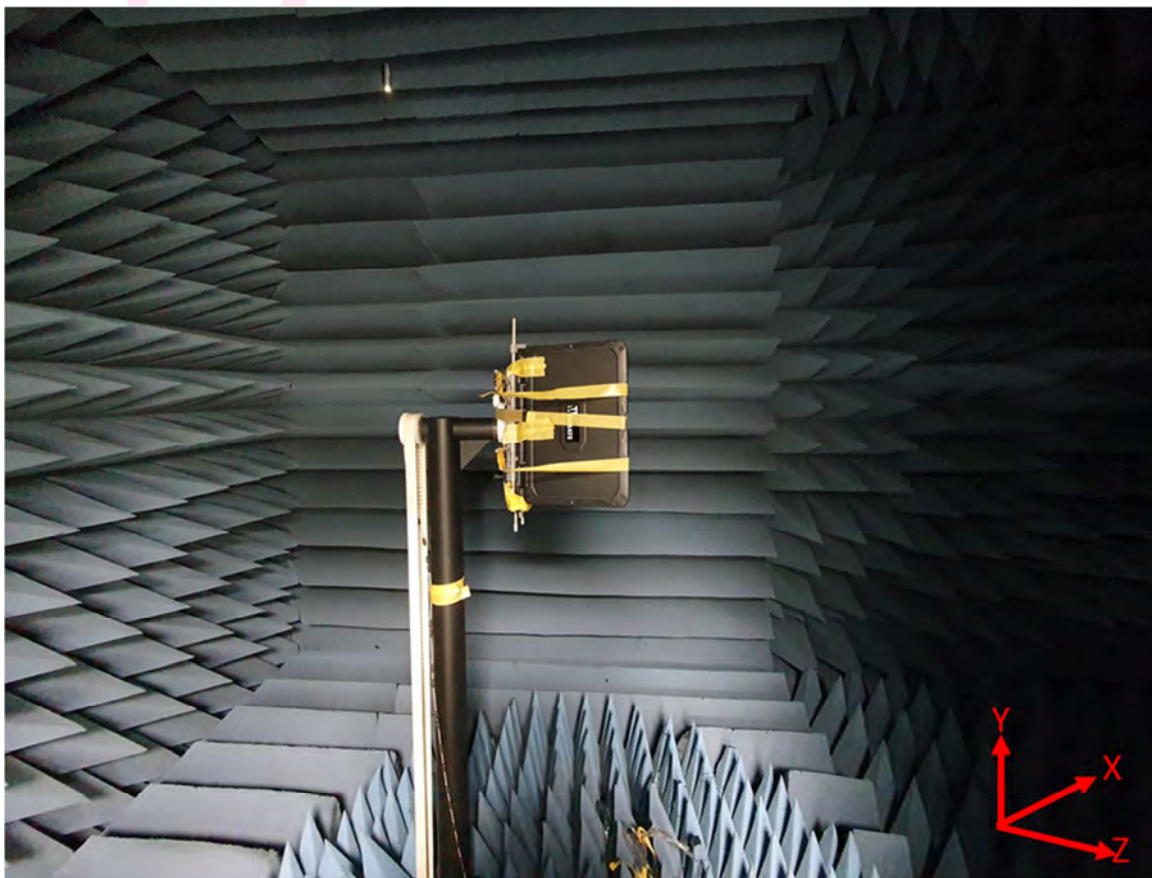


3.4.3. Gain / Efficiency

Frequency	2400	2450	2483.5	2500
Directivity (dBi)	6.02	5.94	5.60	5.42
Efficiency (dB)	-5.92	-3.86	-3.23	-2.94
Efficiency (%)	25.59	41.13	47.51	50.87
Peak Gain (dBi)	0.11	2.08	2.36	2.49

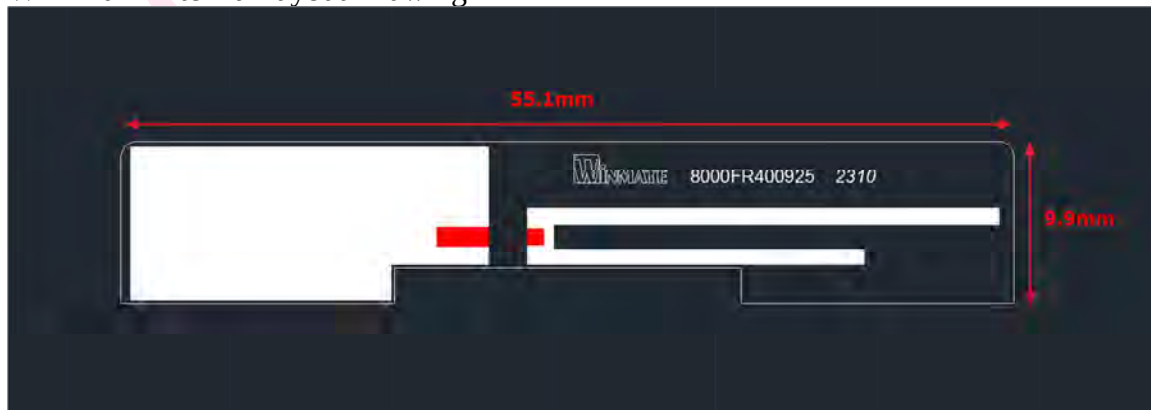
3.4.4. Radiation Patterns

3.4.4.1. Tets Setup

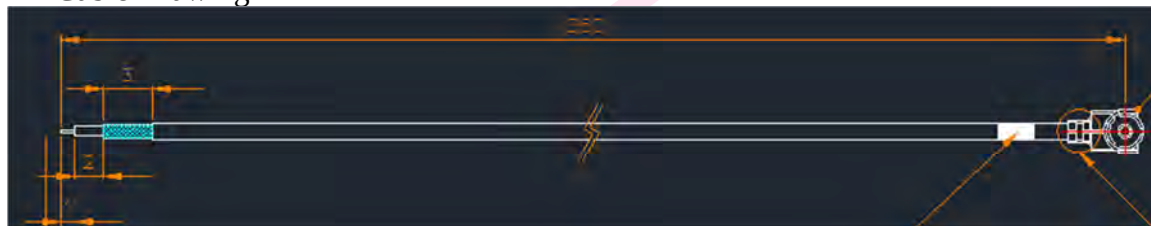


3.5. Drawing

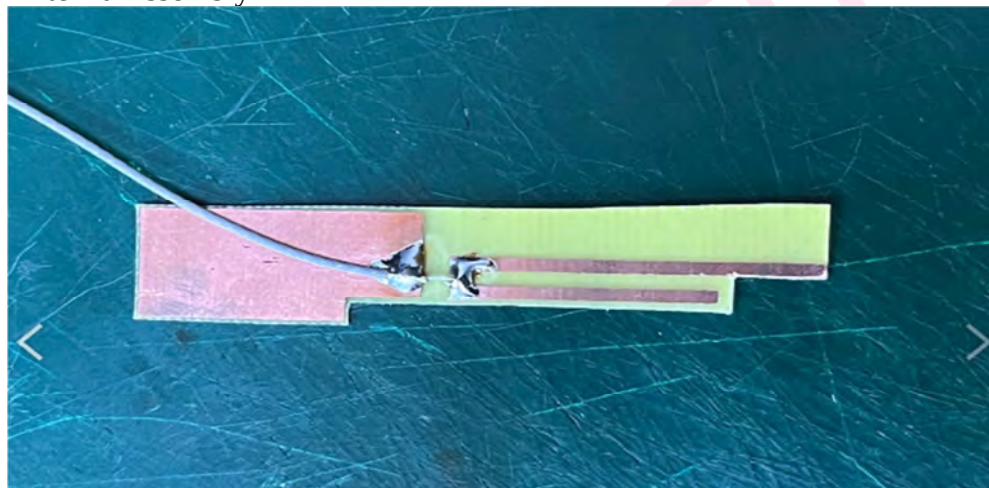
WiFi Aux Antenna Layout Drawing



RF Cable Drawing



Antenna Assembly



Winmate Part Number: 90RF0600001V