

Winmate Inc.
Antenna Specification

Project :M101AD
Version :20240105
Issue Date : 2024/01/05

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9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei City 241458, Taiwan, R.O.C.

1. Antenna Placement

9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei City 241458, Taiwan, R.O.C.

2. WiFi Main Antenna Specification

Winmate Part Number: 90RF0900001X

2.1. Electrical Characteristics

Frequency(MHz): 2400-2500 / 5150-7150

SWR: $\leq 1.62@2400-2500\text{MHz}$

$\leq 2.18@5150-7150\text{MHz}$

Return Loss: $\leq -26.7\text{dB}@2400-2500\text{MHz}$

$\leq -16.6\text{dB}@5150-7150\text{MHz}$

Peak Gain: $2.29\text{dBi}@2400-2500\text{MHz}$

$3.38\text{dBi}@5150-7150\text{MHz}$

Impedance: 50ohm

Polarization: Linear

2.2. Mechanical Characteristics

Cable: 50Ω φ 0.81 RF cable

Connector: MHF4

PCB: FPCB /Thickness 0.2mm

Type:PIFA

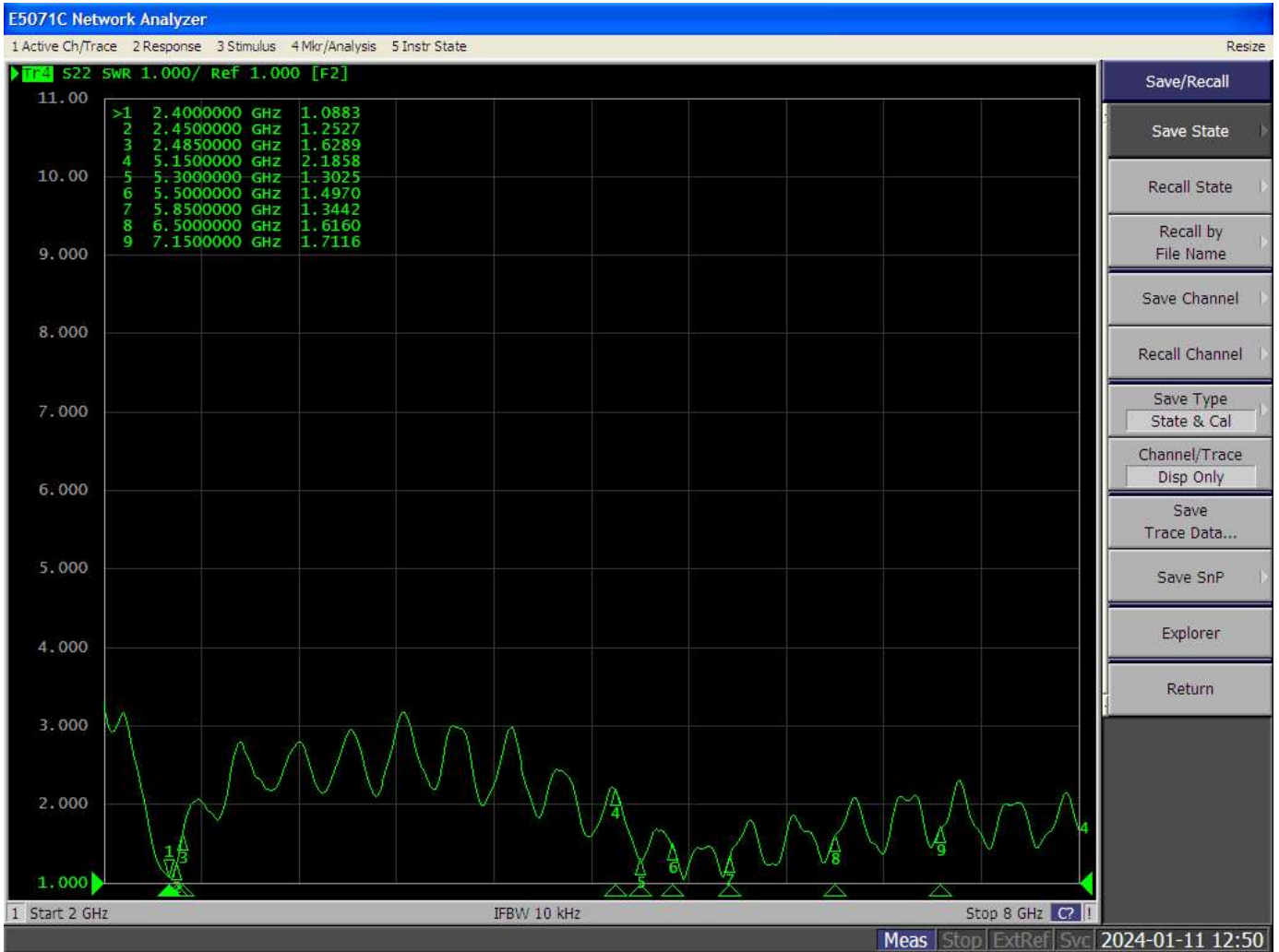
2.3. Environmental Characteristics

Operating Temperature: -30°C to 80°C

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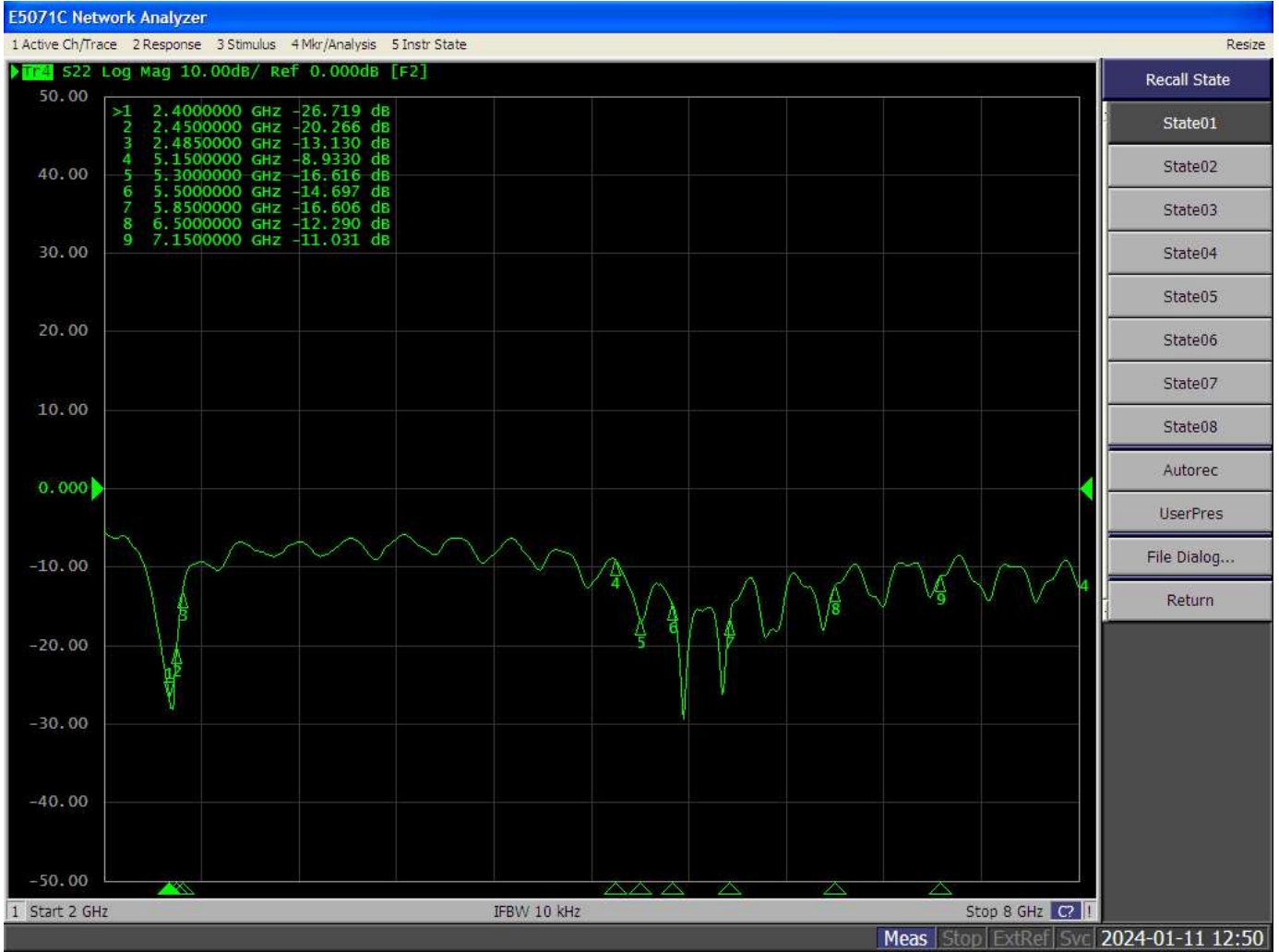
2.4. RF Performance Characteristics

2.4.1. SWR



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2.4.2. Return Loss



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2.4.3. Gain / Efficiency

Frequency	2400	2450	2483.5	2500	5150	5250	5350	5470	5600	5725
Directivity (dBi)	5.11	5.11	5.30	5.47	6.08	6.24	6.12	6.13	5.70	6.06
Efficiency (dB)	-2.82	-3.12	-3.18	-3.23	-4.15	-3.57	-3.33	-3.30	-3.05	-3.34
Efficiency (%)	52.27	48.75	48.10	47.50	38.47	43.96	46.40	46.78	49.60	46.39
Peak Gain (dBi)	2.29	1.99	2.13	2.24	1.94	2.67	2.79	2.83	2.65	2.72

Frequency	5785	5850	5925	6000	6125	6225	6325	6425	6525	6625
Directivity (dBi)	5.81	5.81	6.72	6.84	7.38	7.10	6.28	5.74	5.51	6.65
Efficiency (dB)	-3.26	-3.55	-3.68	-3.70	-3.99	-3.75	-4.68	-4.85	-4.47	-4.76
Efficiency (%)	47.24	44.14	42.89	42.65	39.88	42.16	34.00	32.72	35.71	33.38
Peak Gain (dBi)	2.56	2.26	3.04	3.14	3.38	3.35	1.60	0.89	1.03	1.88

Frequency	6725	6875	6925	7000	7125
Directivity (dBi)	6.44	7.06	6.62	6.36	5.67
Efficiency (dB)	-4.65	-5.00	-4.66	-4.92	-4.89
Efficiency (%)	34.32	31.62	34.17	32.19	32.41
Peak Gain (dBi)	1.80	2.06	1.95	1.44	0.78

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2.4.4. Radiation Patterns

2.4.4.1. Tets Setup

2.5. Drawing

3. WiFi Aux Antenna Specification

Winmate Part Number: 90RF06000021

3.1. Electrical Characteristics

Frequency(MHz): 2400-2500 / 5150-7150

SWR: ≤ 2 @2400-2500MHz

≤ 3 @5150-7150MHz

Return Loss: ≤ -14.1 dB@2400-2500MHz

≤ -14.8 dB@5150-7150MHz

Peak Gain: 1.14dBi@2400-2500MHz

3.85dBi@5150-7150MHz

Impedance: 50ohm

Polarization: Linear

3.2. Mechanical Characteristics

Cable: 50 Ω φ 0.81 RF cable

Connector: MHF4

PCB: FPCB /Thickness 0.2mm

Type: Monopole

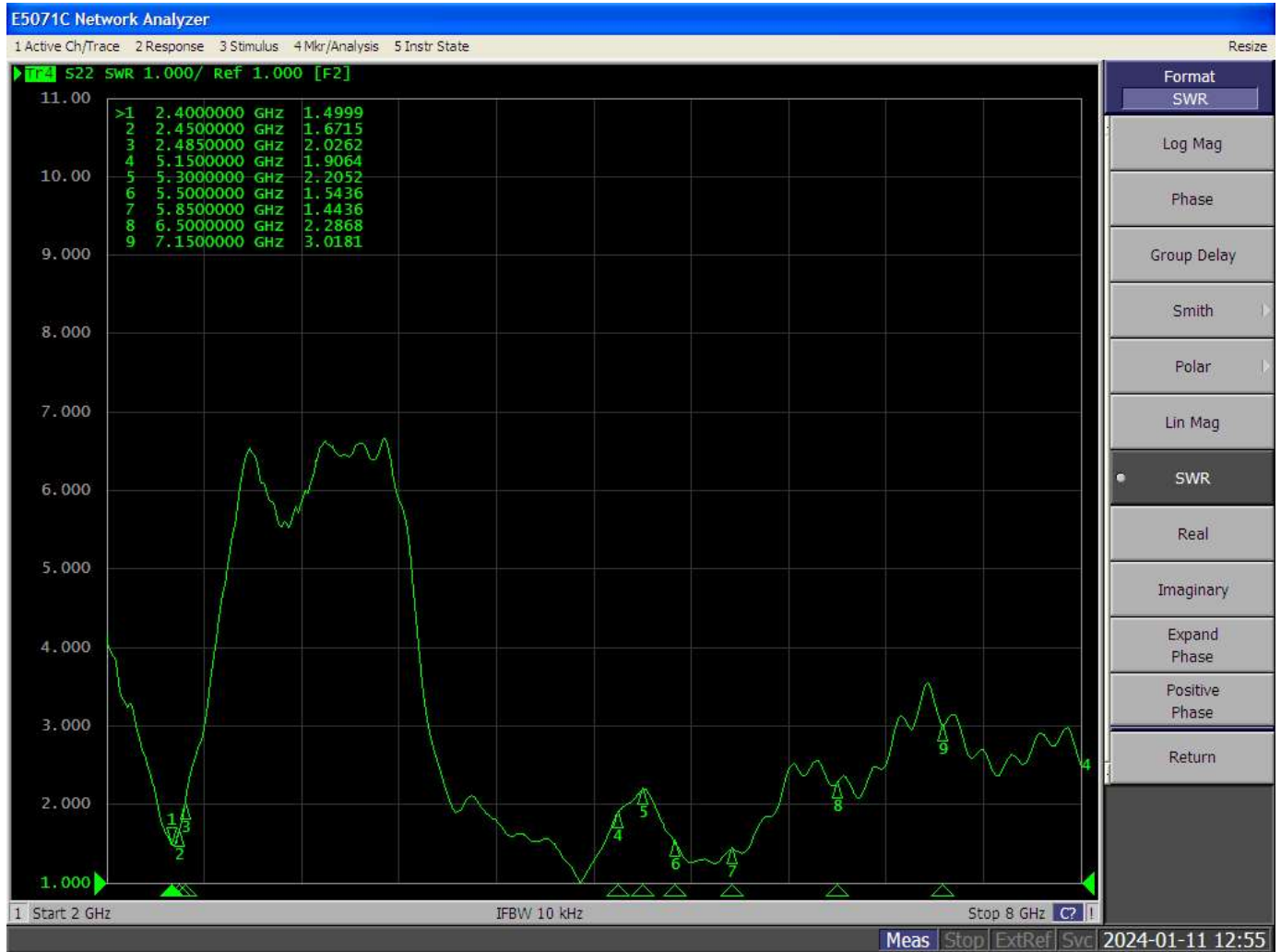
3.3. Environmental Characteristics

Operating Temperature: -30 $^{\circ}$ C to 80 $^{\circ}$ C

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3.4. RF Performance Characteristics

3.4.1. SWR



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3.4.2. Return Loss



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3.4.3. Gain / Efficiency

Frequency	2400	2450	2483.5	2500	5150	5250	5350	5470	5600	5725
Directivity (dBi)	4.72	5.54	6.07	6.01	5.53	5.40	5.52	5.78	6.08	6.74
Efficiency (dB)	-5.12	-5.09	-4.92	-5.11	-3.30	-2.95	-2.70	-2.93	-3.30	-3.35
Efficiency (%)	30.79	30.95	32.19	30.80	46.74	50.73	53.73	50.88	46.75	46.20
Peak Gain (dBi)	-0.39	0.44	1.14	0.89	2.22	2.45	2.82	2.85	2.78	3.39

Frequency	5785	5850	5925	6000	6125	6225	6325	6425	6525	6625
Directivity (dBi)	6.77	6.66	6.66	6.79	6.87	6.29	5.39	5.31	5.09	5.21
Efficiency (dB)	-3.16	-3.25	-3.10	-2.94	-3.13	-3.42	-4.59	-4.80	-4.22	-4.27
Efficiency (%)	48.26	47.35	48.96	50.83	48.60	45.47	34.73	33.14	37.88	37.42
Peak Gain (dBi)	3.60	3.41	3.56	3.85	3.73	2.87	0.80	0.51	0.88	0.94

Frequency	6725	6875	6925	7000	7125
Directivity (dBi)	5.69	4.84	4.86	4.90	5.35
Efficiency (dB)	-4.04	-5.28	-5.00	-5.29	-4.60
Efficiency (%)	39.46	29.64	31.60	29.56	34.65
Peak Gain (dBi)	1.65	-0.44	-0.14	-0.39	0.74

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3.4.4. Radiation Patterns

3.4.4.1. Tets Setup

3.5. Drawing