

Winmate Inc.

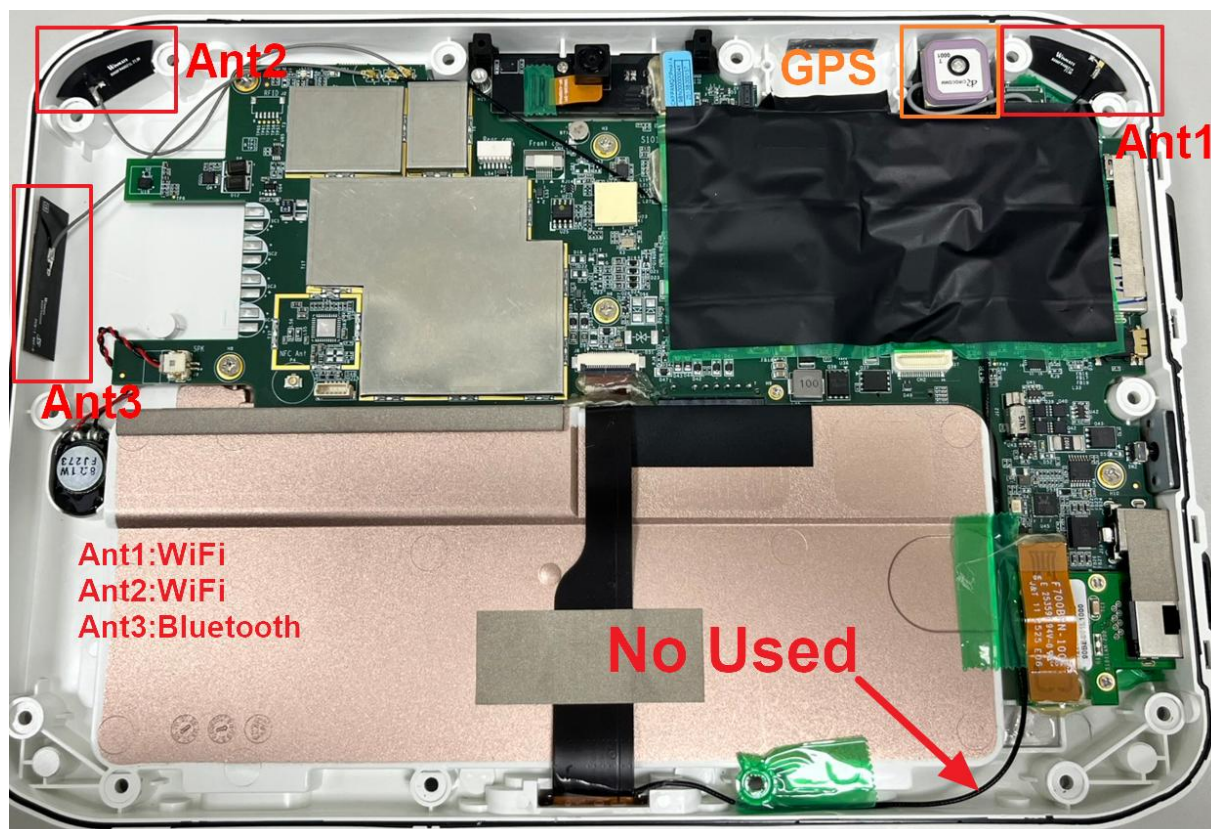
AntennaSpecification

Project: MD10W2
Version: 20251224
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1. Antenna Placement



2. Ant1 Antenna Specification

Winmate Part Number: 90RF0500002G

2.1. Electrical Characteristics

Frequency(MHz): 2400-2500 / 5150-5895

SWR: $\leq 1.70@2400-2500\text{MHz}$

$\leq 2.31@5150-5895\text{MHz}$

Return Loss: $\leq -16.1\text{dB}@2400-2500\text{MHz}$

$\leq -13.7\text{dB}@5150-5895\text{MHz}$

Peak Gain: $2.16\text{dBi}@2400-2500\text{MHz}$

$0.95\text{dBi}@5150-5895\text{MHz}$

Impedance: 50ohm

Polarization: Linear

2.2. Mechanical Characteristics

Cable: 50 Ω ϕ 0.81 RF cable

Connector: MHF4

PCB: FR4 /Thickness 0.4mm

Type: Monopole

2.3. Environmental Characteristics

Operating Temperature: -30°C to 80°C

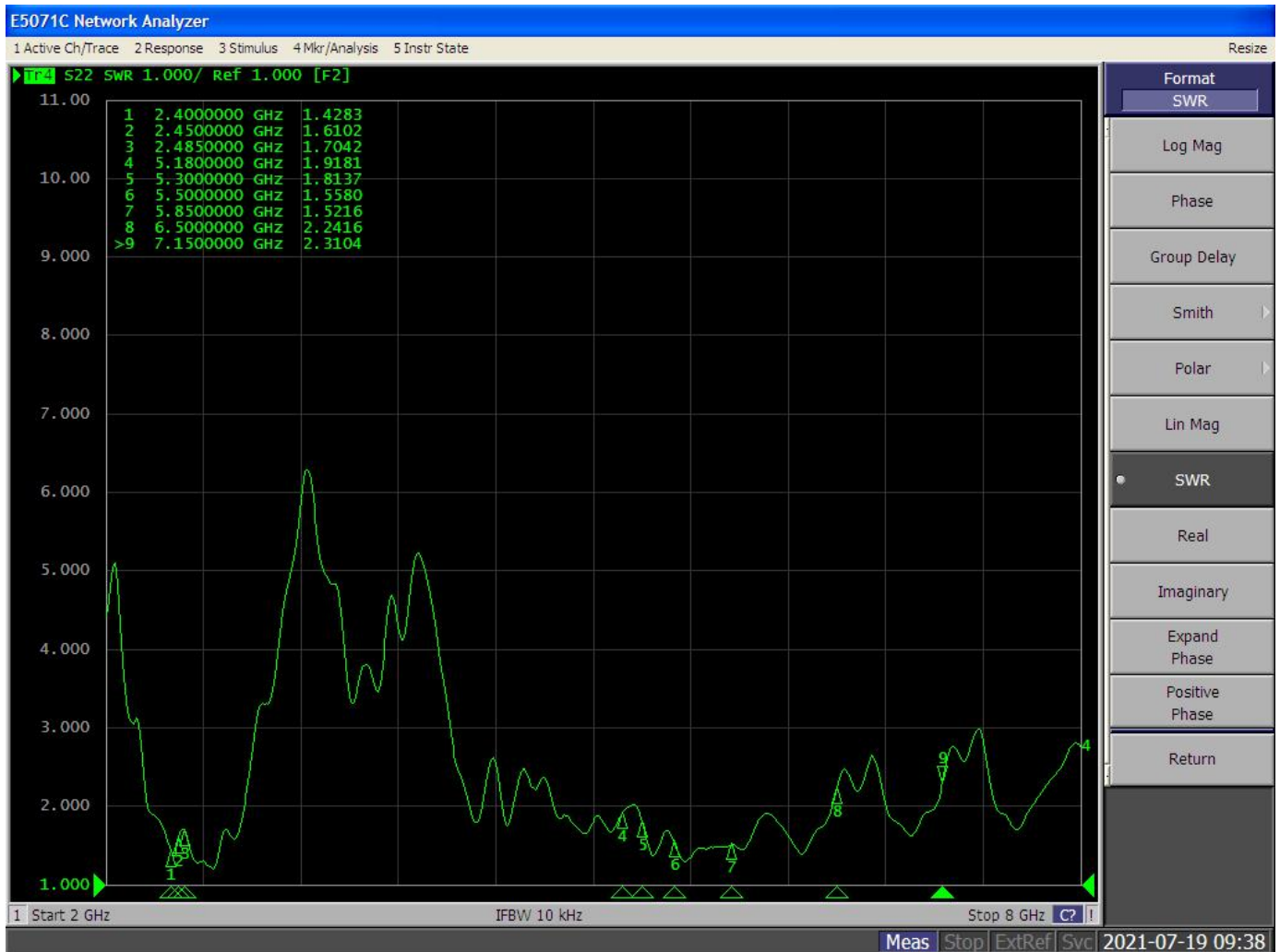
2.4. Manufacturer Information

Antenna manufacturer: Winmate Inc.

Address: No. 18, Zhongxing S. St., Sanchong Dist., New Taipei City 241417, Taiwan R.O.C.

2.5. RF Performance Characteristics

2.5.1. SWR



2.5.2. Return Loss



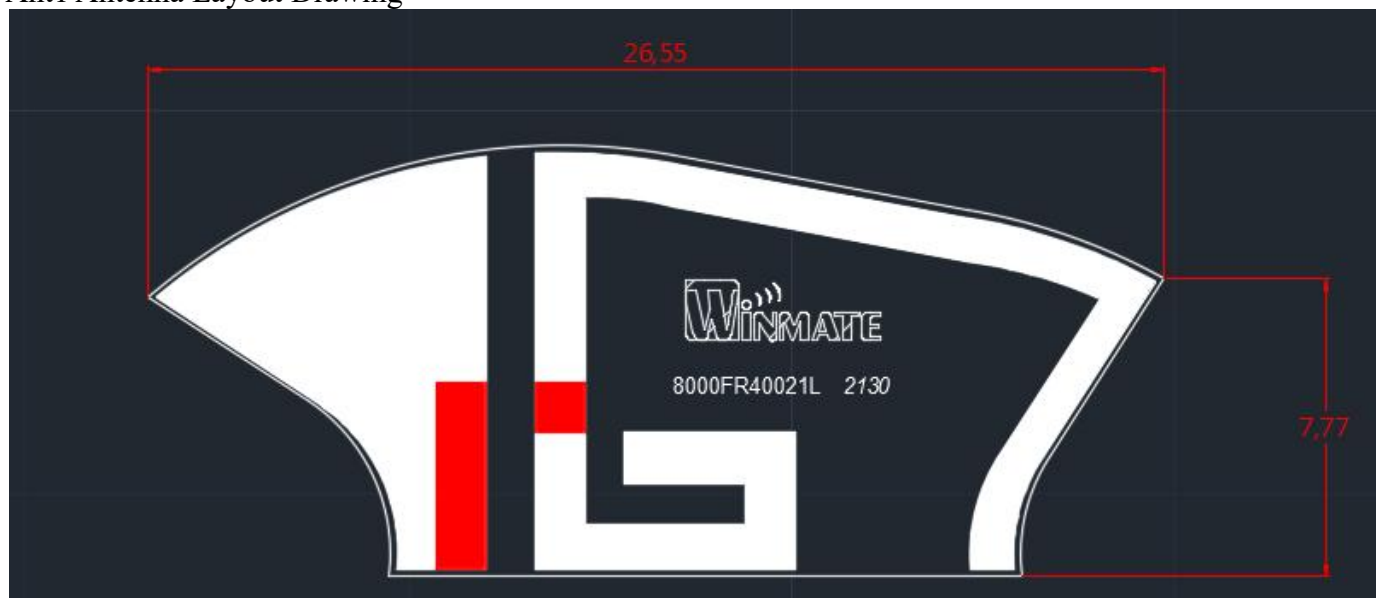
2.5.3. Gain / Efficiency

Frequency	2400	2427	2450	2472	2500	5150	5250	5350	5470	5540
Directivity (dBi)	4.67	4.64	4.56	4.73	4.68	4.92	5.09	4.65	4.88	4.92
Efficiency (dB)	-2.57	-2.48	-2.50	-2.74	-2.58	-5.21	-5.32	-4.39	-4.98	-4.54
Efficiency (%)	55.34	56.45	56.29	53.19	55.26	30.16	29.39	36.41	31.77	35.15
Peak Gain (dBi)	2.10	2.16	2.07	1.99	2.11	-0.29	-0.23	0.26	-0.10	0.38

Frequency	5600	5725	5850	5895						
Directivity (dBi)	5.09	4.89	5.11	5.49						
Efficiency (dB)	-4.14	-4.43	-4.62	-4.34						
Efficiency (%)	38.53	36.02	34.48	38.40						
Peak Gain (dBi)	0.95	0.45	0.49	0.16						

2.6. Drawing

Ant1 Antenna Layout Drawing



RF cable Drawing



Antenna Assembly



Winmate Part Number: 90RF0500002G

3. Ant2 Antenna Specification

Winmate Part Number: 90RF06000028

3.1. Electrical Characteristics

Frequency(MHz): 2400-2500 / 5150-5895

SWR: $\leq 1.66@2400-2500\text{MHz}$

$\leq 1.87@5150-5895\text{MHz}$

Return Loss: $\leq -19.4\text{dB}@2400-2500\text{MHz}$

$\leq -15.7\text{dB}@5150-5895\text{MHz}$

Peak Gain: $2.61\text{dBi}@2400-2500\text{MHz}$

$2.68\text{dBi}@5150-5895\text{MHz}$

Impedance: 50ohm

Polarization: Linear

3.2. Mechanical Characteristics

Cable: 50 Ω ϕ 0.81 RF cable

Connector: MHF4

PCB: FR4 /Thickness 0.4mm

Type: Monopole

3.3. Environmental Characteristics

Operating Temperature: -30°C to 80°C

3.4. Manufacturer Information

Antenna manufacturer: Winmate Inc.

Address: No. 18, Zhongxing S. St., Sanchong Dist., New Taipei City 241417, Taiwan R.O.C.

3.5. RF Performance Characteristics

3.5.1 SWR



3.5.2 Return Loss



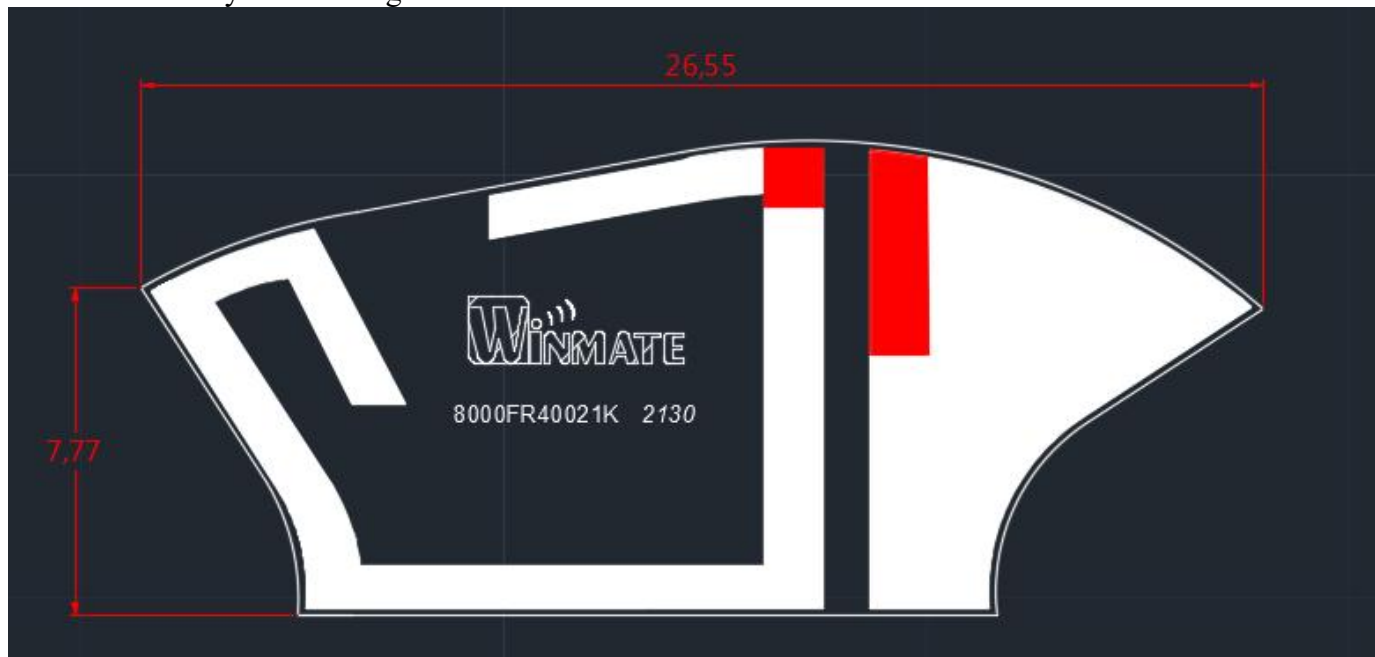
3.5.3. Gain / Efficiency

Frequency	2400	2427	2450	2472	2500	5150	5250	5350	5470	5540
Directivity (dBi)	7.03	7.09	6.93	6.81	7.11	4.87	5.48	5.51	5.12	5.29
Efficiency (dB)	-4.83	-4.72	-4.71	-4.70	-4.00	-2.25	-2.88	-2.32	-2.64	-2.09
Efficiency (%)	32.87	33.76	33.84	33.89	39.78	59.57	51.47	58.67	54.48	61.75
Peak Gain (dBi)	2.19	2.38	2.22	2.11	2.61	2.62	2.60	2.39	2.48	2.20

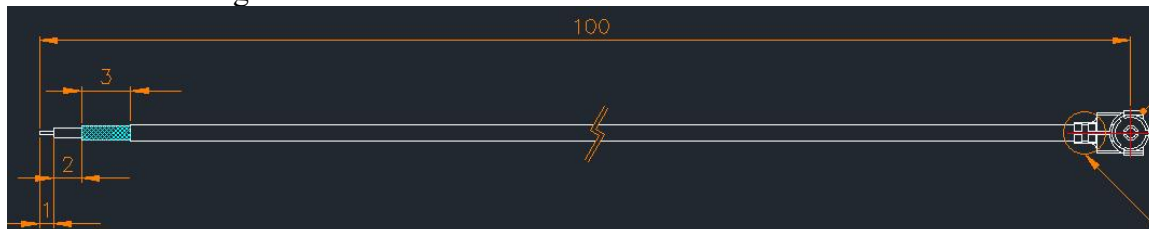
Frequency	5600	5725	5850	5895						
Directivity (dBi)	5.64	5.56	5.56	5.59						
Efficiency (dB)	-1.75	-2.38	-2.45	-2.48						
Efficiency (%)	66.81	57.81	56.89	56.44						
Peak Gain (dBi)	2.59	2.68	2.51	2.10						

3.6. Drawing

Ant2 Antenna Layout Drawing



RF Cable Drawing



Antenna Assembly



Winmate Part Number: 90RF06000028

4. Ant3 Antenna Specification

Winmate Part Number: 90RF0600002B

4.1. Electrical Characteristics

Frequency(MHz): 2400-2500

SWR: $\leq 2.32@2400-2500\text{MHz}$

Return Loss: $\leq -7.9\text{dB}@2400-2500\text{MHz}$

Peak Gain: $1.00\text{dBi}@2400-2500\text{MHz}$

Impedance: 50ohm

Polarization: Linear

4.2. Mechanical Characteristics

Cable: 50 Ω ϕ 0.81 RF cable

Connector: MHF4

PCB: FR4 /Thickness 0.4mm

Type: Monopole

4.3. Environmental Characteristics

Operating Temperature: -30°C to 80°C

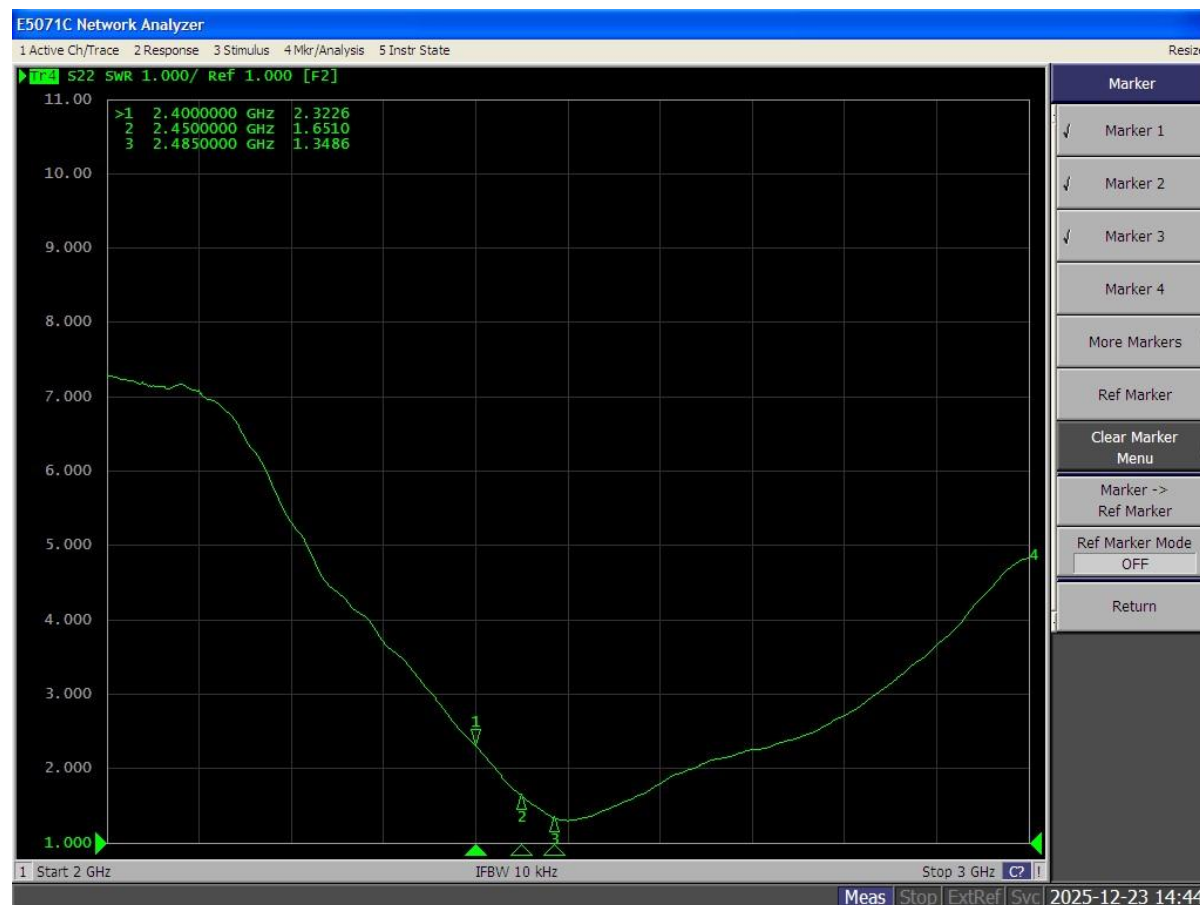
4.4. Manufacturer Information

Antenna manufacturer: Winmate Inc.

Address: No. 18, Zhongxing S. St., Sanchong Dist., New Taipei City 241417, Taiwan R.O.C.

4.5. RF Performance Characteristics

4.5.1 SWR



4.5.2 Return Loss

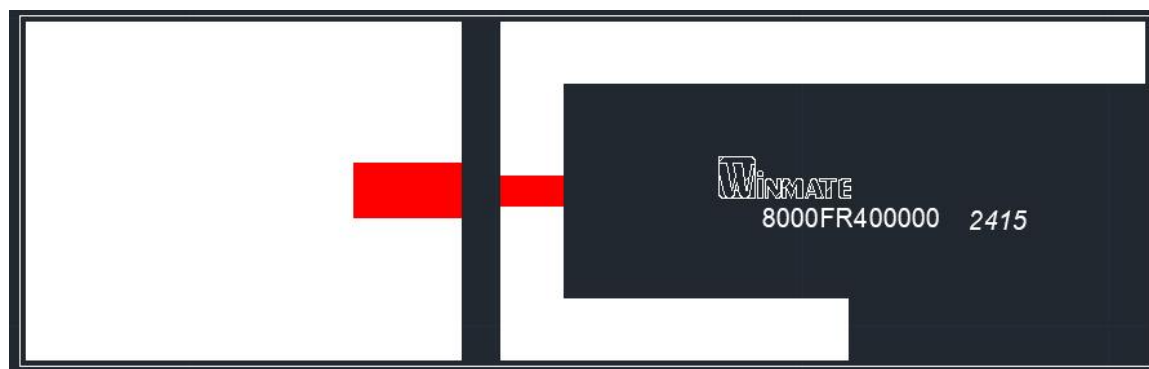


4.5.3. Gain / Efficiency

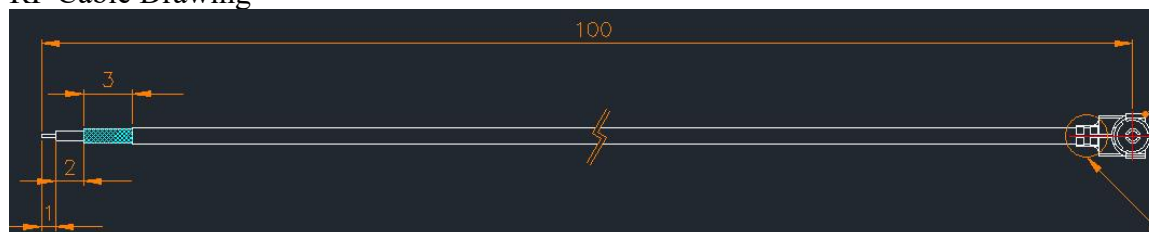
Frequency	2400	2427	2450	2472	2500					
Directivity (dBi)	4.80	5.03	5.16	5.61	4.80					
Efficiency (dB)	-4.45	-4.75	-4.54	-4.61	-4.45					
Efficiency (%)	35.90	33.52	35.12	34.57	35.90					
Peak Gain (dBi)	0.35	0.29	0.61	1.00	0.35					

4.6. Drawing

Ant3 Antenna Layout Drawing



RF Cable Drawing



Antenna Assembly

Winmate Part Number: 90RF0600002B