

AIW-515 Specification



Brand name	Advantech
Product name	AIW-515
Advantech P/N	1751000765-01
Manufacturer Part Number	RFA-27-T281U-2M
Manufacture	ARISTOTLE
Manufacture Address	5F., No. 27, Xinmin St., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)
Description	• External outdoor 2-in-1 Wi-Fi antenna • Tri-band 2.4&5&6 GHz • Magnetic mounting • Dimension: 126.8 x 56.8 x 52mm³ with IP67 housing • 2M cable length
Version	3.0
Date	2025/09/03

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1. Revision History

Version	Date	Change Notification	Description
1.0	2025/02/06	Initial version	
2.0	2025/04/16	Antenna - S Parameter Test Data	增加客戶料號,test data, XYZ架設圖片
3.0	2025/09/03	Antenna Setup	增加/修改天線安裝方式



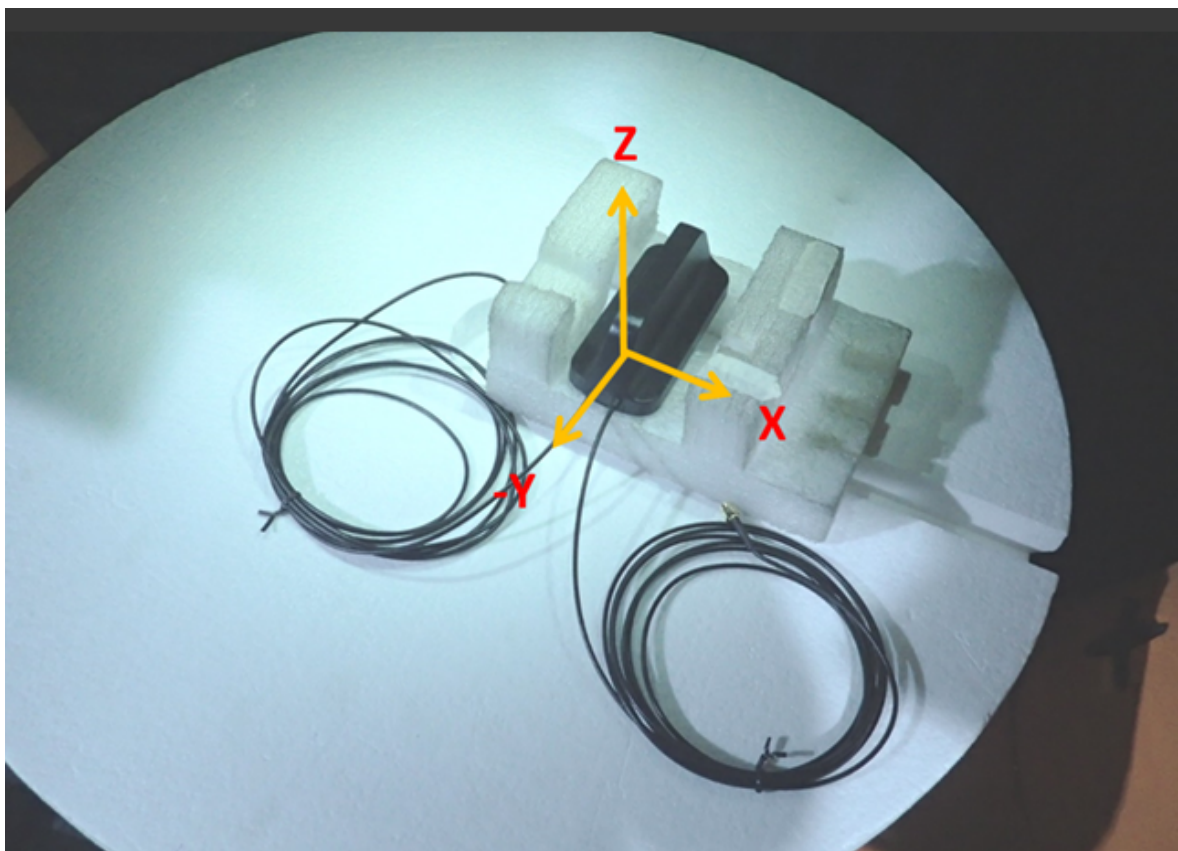
2. Specification

Sample Photo	
 Antenna Dimension: 126.8 x 56.8 x 52mm³	
Electrical Characteristics	
Frequency	2400 – 2500 MHz, 5150 – 5850 MHz, 5925 – 7125 MHz
V.S.W. R	ANT0: <= 2.0 @ 2400 – 2500 MHz <= 2.0 @ 5150 – 5850 MHz <= 2.0 @ 5925 – 7125 MHz ANT1: <= 2.0 @ 2400 – 2500 MHz <= 2.0 @ 5150 – 5850 MHz <= 2.0 @ 5925 – 7125 MHz
Peak Gain	ANT0: 1.56 dBi @ 2400 – 2500 MHz 2.36 dBi @ 5150 – 5850 MHz 1.89 dBi @ 5925 – 7125 MHz ANT1: 1.58 dBi @ 2400 – 2500 MHz 3.02 dBi @ 5150 – 5850 MHz 2.87 dBi @ 5925 – 7125 MHz
Efficiency	ANT0: 54% @ 2400 – 2500 MHz 39% @ 5150 – 5850 MHz 33% @ 5925 – 7125 MHz ANT1: 55% @ 2400 – 2500 MHz 40% @ 5150 – 5850 MHz 32% @ 5925 – 7125 MHz
Polarization	Linear
Radiation Pattern	Omni-direction
Impedance	50 ohm
Application	Wi-Fi 5 & 6 & 6E & 7, BT, Zigbee
Antenna Type	PIFA
Material & Mechanical Characteristics	
Antenna Dimension	126.8 x 56.8 x 52mm ³
Material of Plastic	PC
Cable length	2 M
Antenna housing color	Black

Antenna Setup	Magnetic mounting (option: adhesive-backed)
Cable Type	ULA100
Connector Type	RP-SMA Male x2

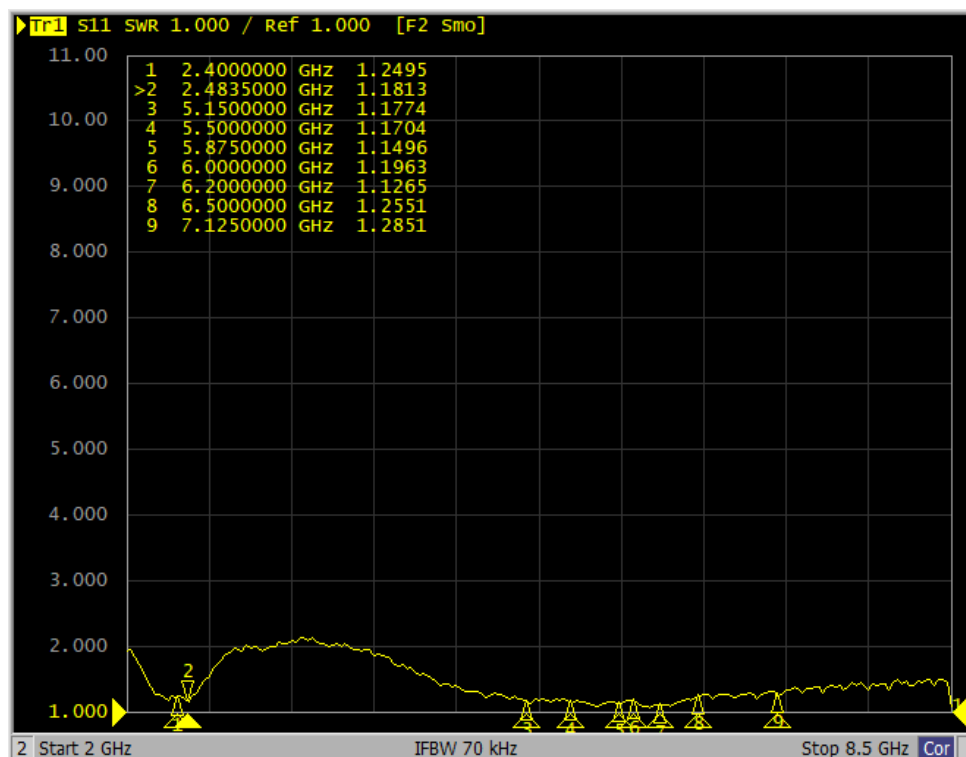
Environmental	
Operation Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C
Ingress Protection	IP67

Chamber Measurement Setup

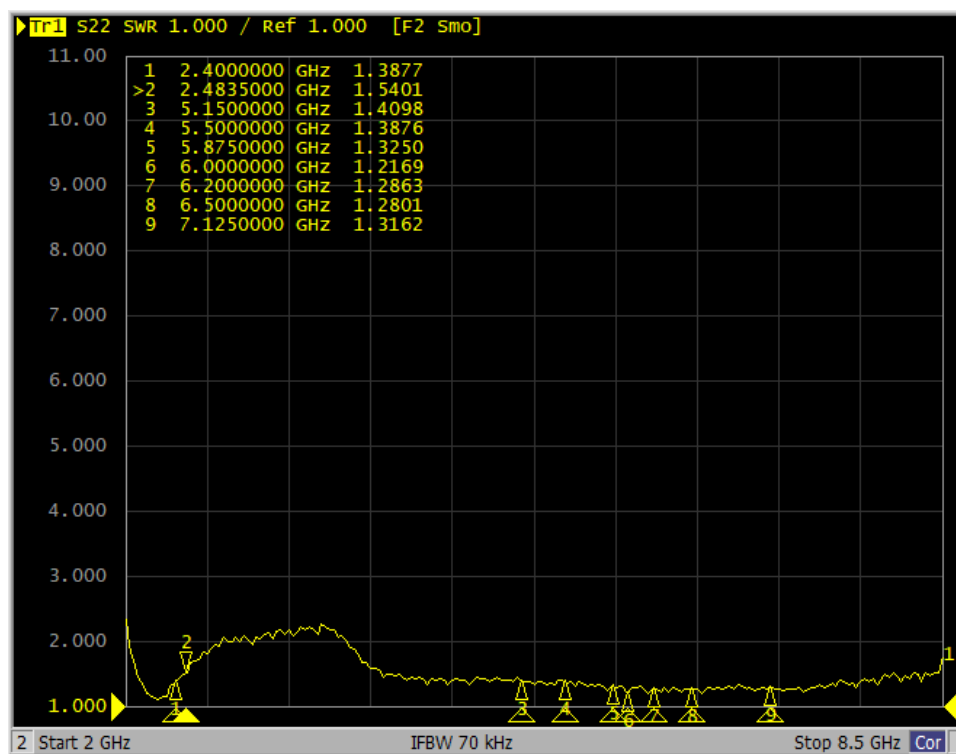


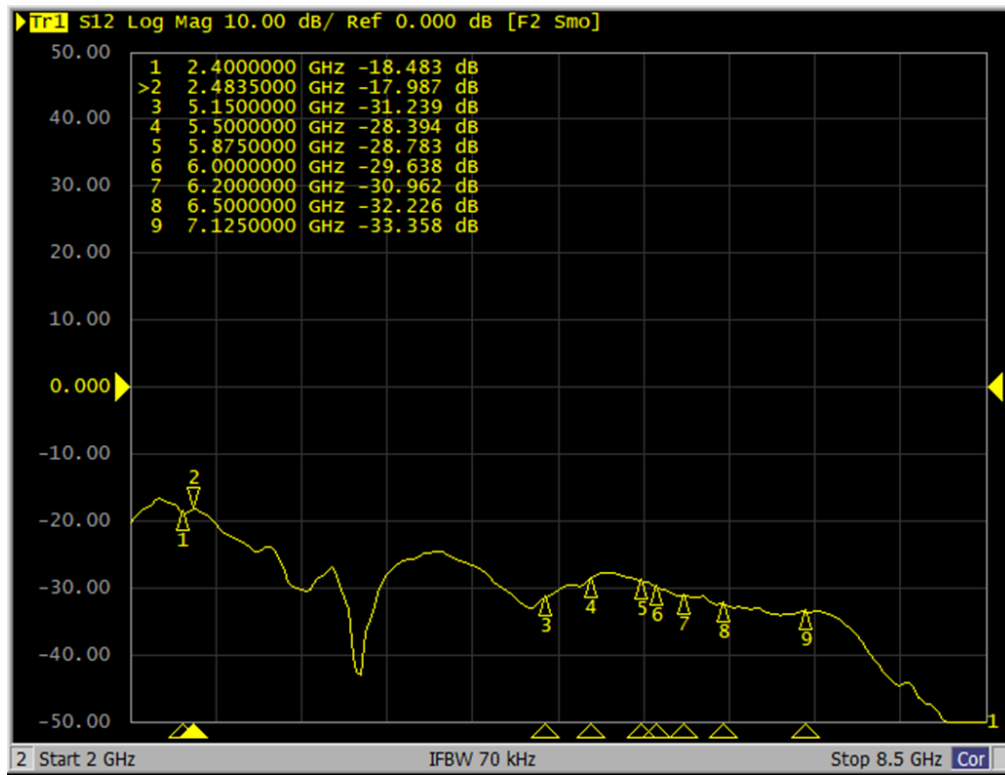
3. Antenna - S Parameter Test Data

ANT0



ANT1

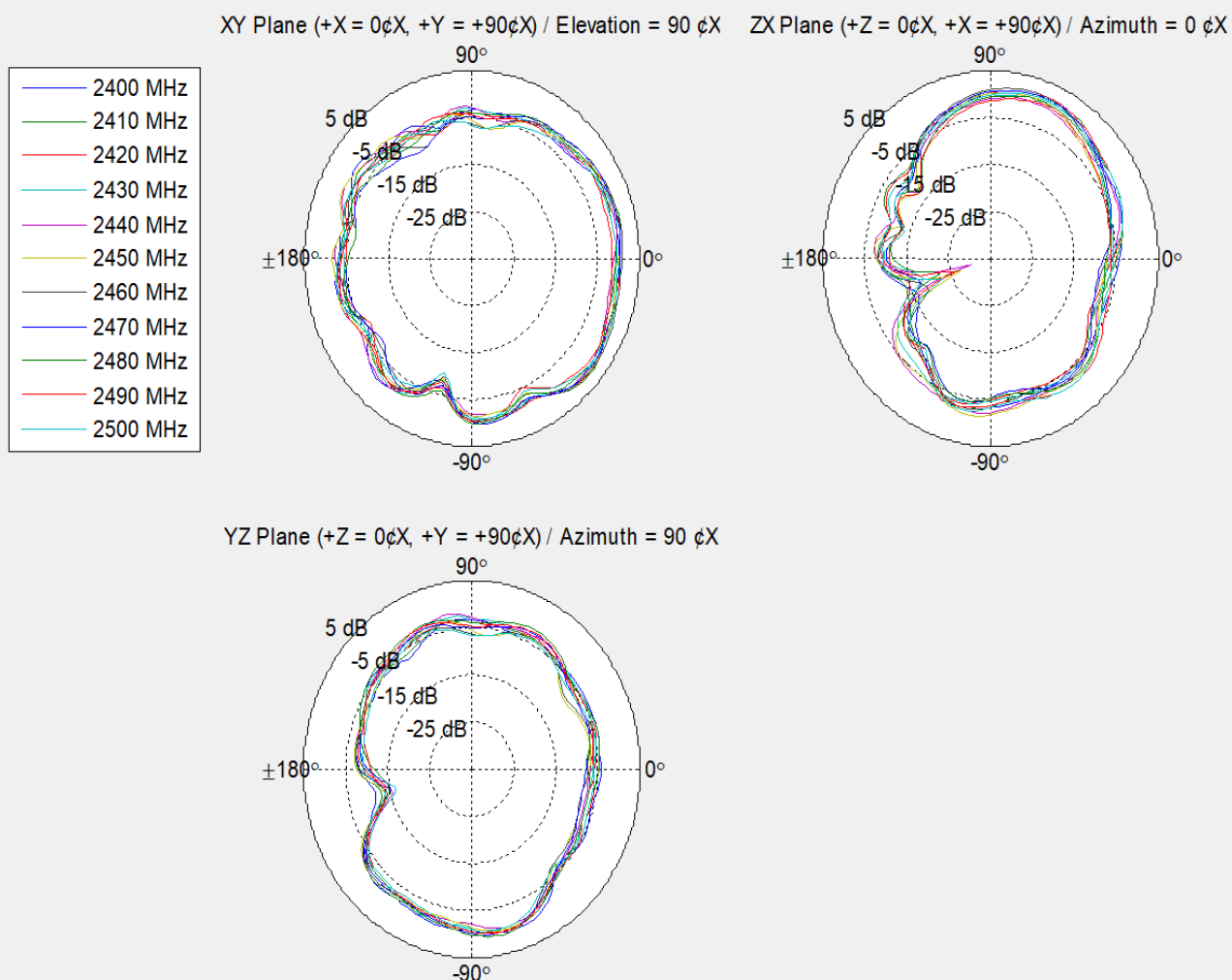




4. Antenna – Gain & Radiation Pattern Test Data

ANT0

2G Band = 2400 - 2500 MHz % 2G BAND



ANT0

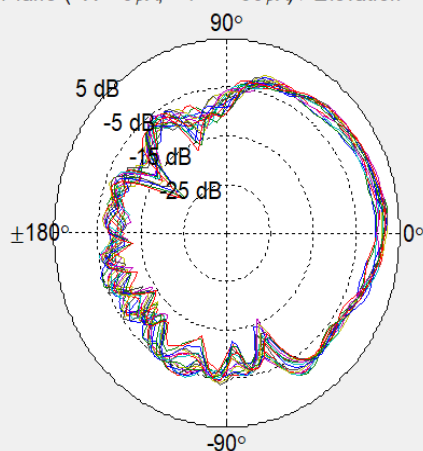
Frequency(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain(dBi)	1.32	1.50	1.31	1.56	1.46	1.22	1.41	1.51	1.55	1.20	1.21
Efficiency(%)	58.17	58.41	56.53	55.20	54.54	53.17	53.38	53.93	52.86	53.08	52.47
Efficiency(dB)	-2.35	-2.34	-2.48	-2.58	-2.63	-2.74	-2.73	-2.68	-2.77	-2.75	-2.80

ANT0

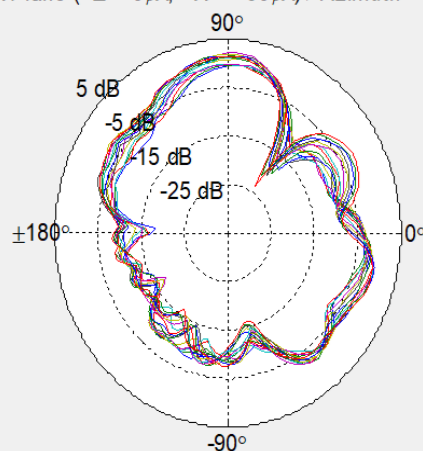
5G Band = 4900 - 5975 MHz

5200 MHz
5250 MHz
5300 MHz
5350 MHz
5400 MHz
5450 MHz
5500 MHz
5550 MHz
5600 MHz
5650 MHz
5700 MHz
5750 MHz
5800 MHz
5850 MHz
5900 MHz

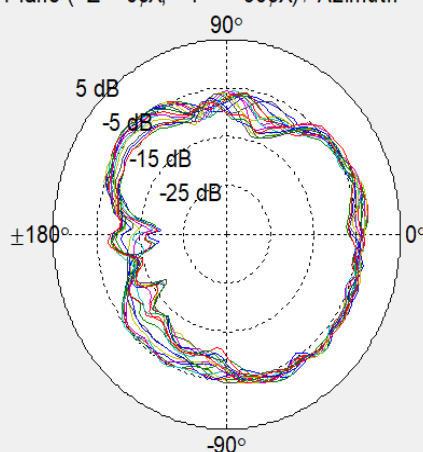
XY Plane (+X = 0°X, +Y = +90°X) / Elevation = 90°X



ZX Plane (+Z = 0°X, +X = +90°X) / Azimuth = 0°X



YZ Plane (+Z = 0°X, +Y = +90°X) / Azimuth = 90°X



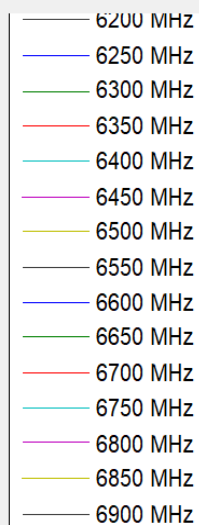
ANT0

Frequency(MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700
Peak Gain(dBi)	0.47	0.52	0.60	1.64	1.89	1.88	1.76	1.62	2.33	2.05	1.57	2.36
Efficiency(%)	40.35	40.53	42.20	42.76	41.23	39.16	37.66	38.10	40.08	38.51	37.81	39.13
Efficiency(dB)	-3.94	-3.92	-3.75	-3.69	-3.85	-4.07	-4.24	-4.19	-3.97	-4.14	-4.22	-4.07

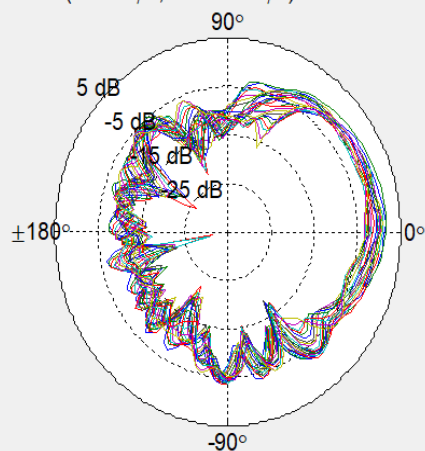
Frequency(MHz)	5750	5800	5850
Peak Gain(dBi)	2.22	2.14	1.95
Efficiency(%)	38.20	36.40	36.68
Efficiency(dB)	-4.18	-4.39	-4.36

ANT0

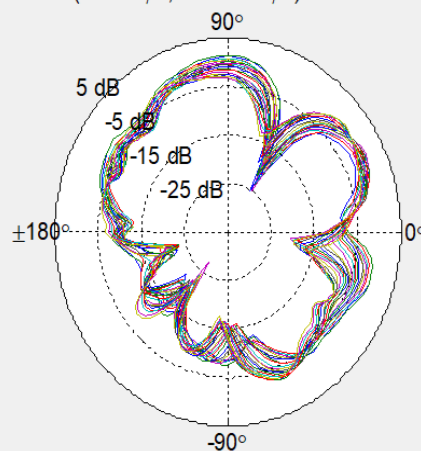
6G Band = 5900 - 8500 MHz



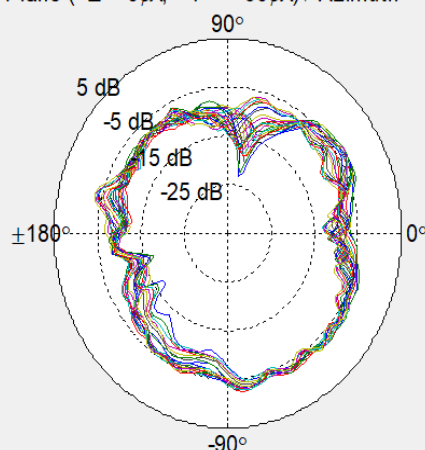
XY Plane (+X = 0°X, +Y = +90°X) / Elevation = 90°X



ZX Plane (+Z = 0°X, +X = +90°X) / Azimuth = 0°X



YZ Plane (+Z = 0°X, +Y = +90°X) / Azimuth = 90°X



ANT0

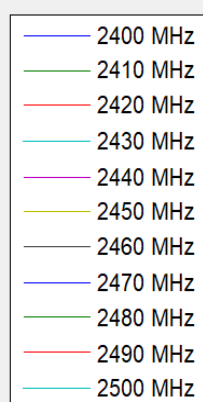
Frequency(MHz)	5950	6000	6050	6100	6150	6200	6250	6300	6350	6400	6450
Peak Gain(dBi)	1.89	0.83	0.93	0.48	0.74	0.14	0.73	0.54	1.52	1.06	0.84
Efficiency(%)	32.80	33.83	33.84	34.19	34.62	34.36	33.95	34.75	33.81	34.49	34.51
Efficiency(dB)	-4.84	-4.71	-4.71	-4.66	-4.61	-4.64	-4.69	-4.59	-4.71	-4.62	-4.62

Frequency(MHz)	6500	6550	6600	6650	6700	6750	6800	6850	6900	6950	7000
Peak Gain(dBi)	1.01	1.19	0.94	1.33	1.34	1.57	0.95	1.17	0.82	0.99	0.62
Efficiency(%)	33.75	33.67	33.11	32.40	32.54	31.89	31.09	30.68	30.87	30.00	30.34
Efficiency(dB)	-4.72	-4.73	-4.80	-4.89	-4.88	-4.96	-5.07	-5.13	-5.10	-5.23	-5.18

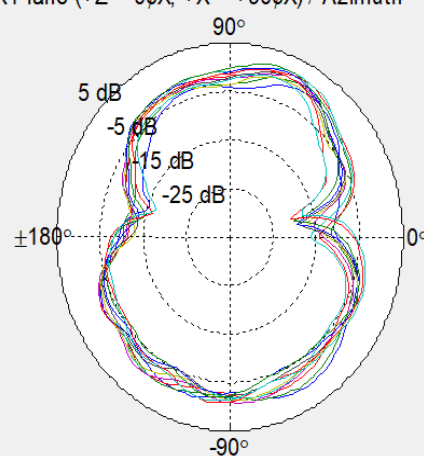
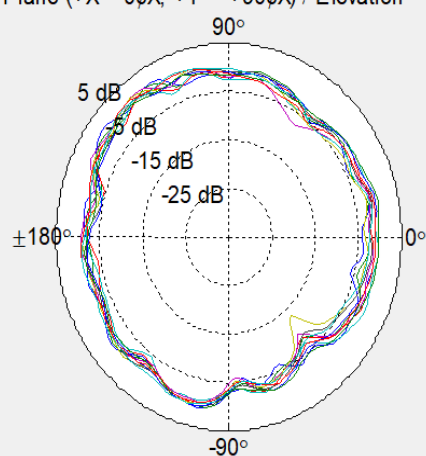
Frequency(MHz)	7050	7100
Peak Gain(dBi)	0.65	0.56
Efficiency(%)	29.63	29.37
Efficiency(dB)	-5.28	-5.32

ANT1

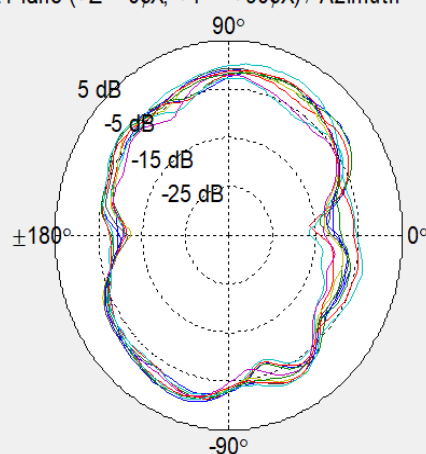
2G Band = 2400 - 2500 MHz % 2G BAND



XY Plane (+X = 0°X, +Y = +90°X) / Elevation = 90° X ZX Plane (+Z = 0°X, +X = +90°X) / Azimuth = 0° X



YZ Plane (+Z = 0°X, +Y = +90°X) / Azimuth = 90° X

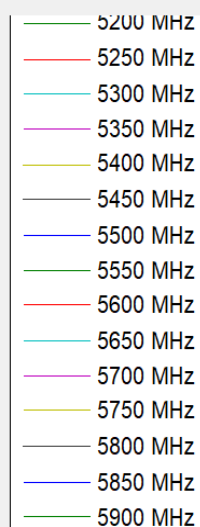


ANT1

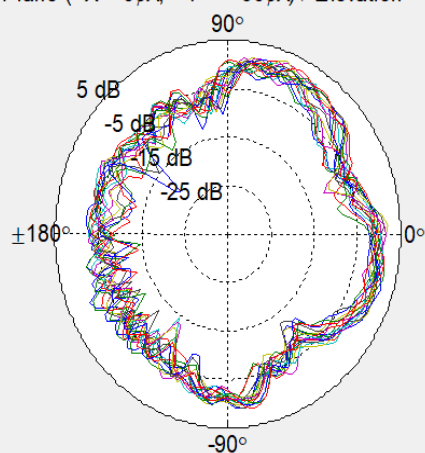
Frequency(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain(dBi)	1.55	1.31	1.21	1.14	1.53	1.51	1.24	0.94	1.35	1.42	1.58
Efficiency(%)	56.25	56.61	55.25	53.59	52.56	54.57	56.26	57.01	55.91	54.05	55.22
Efficiency(dB)	-2.50	-2.47	-2.58	-2.71	-2.79	-2.63	-2.50	-2.44	-2.52	-2.67	-2.58

ANT1

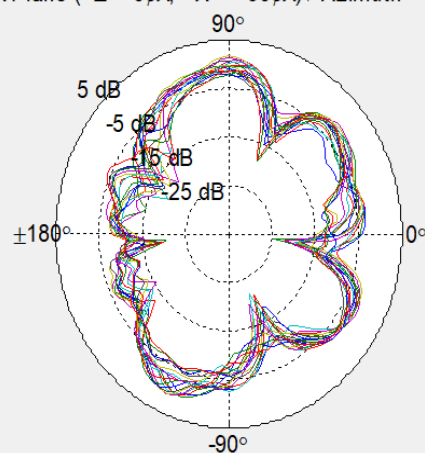
5G Band = 4900 - 5975 MHz



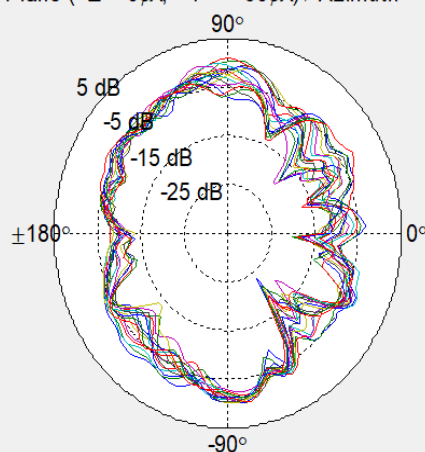
XY Plane (+X = 0°X, +Y = +90°X) / Elevation = 90°X



ZX Plane (+Z = 0°X, +X = +90°X) / Azimuth = 0°X



YZ Plane (+Z = 0°X, +Y = +90°X) / Azimuth = 90°X



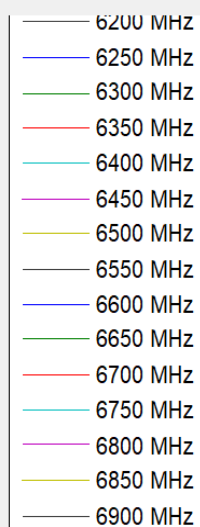
ANT1

Frequency(MHz)	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700
Peak Gain(dBi)	1.00	1.05	1.39	1.78	1.99	1.99	1.98	2.23	2.27	2.74	2.42	3.02
Efficiency(%)	39.31	40.53	40.23	40.52	40.02	43.25	41.08	41.52	42.81	39.82	38.66	39.09
Efficiency(dB)	-4.06	-3.92	-3.95	-3.92	-3.98	-3.64	-3.86	-3.82	-3.68	-4.00	-4.13	-4.08

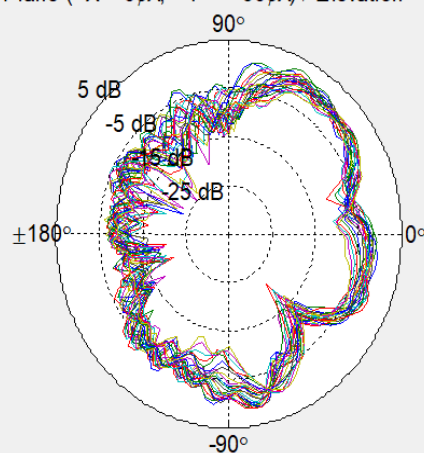
Frequency(MHz)	5800	5850	5900
Peak Gain(dBi)	2.10	2.16	2.34
Efficiency(%)	36.51	37.04	34.56
Efficiency(dB)	-4.38	-4.31	-4.61

ANT1

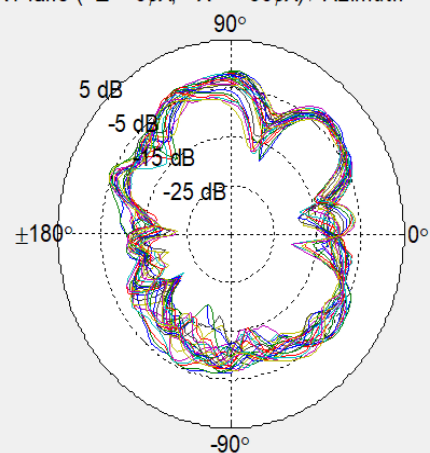
6G Band = 5900 - 8500 MHz



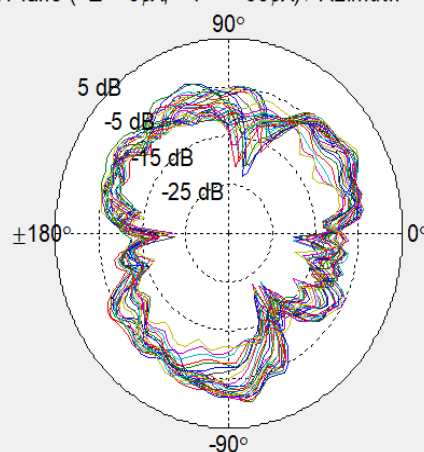
XY Plane (+X = 0°X, +Y = +90°X) / Elevation = 90°X



ZX Plane (+Z = 0°X, +X = +90°X) / Azimuth = 0°X



YZ Plane (+Z = 0°X, +Y = +90°X) / Azimuth = 90°X



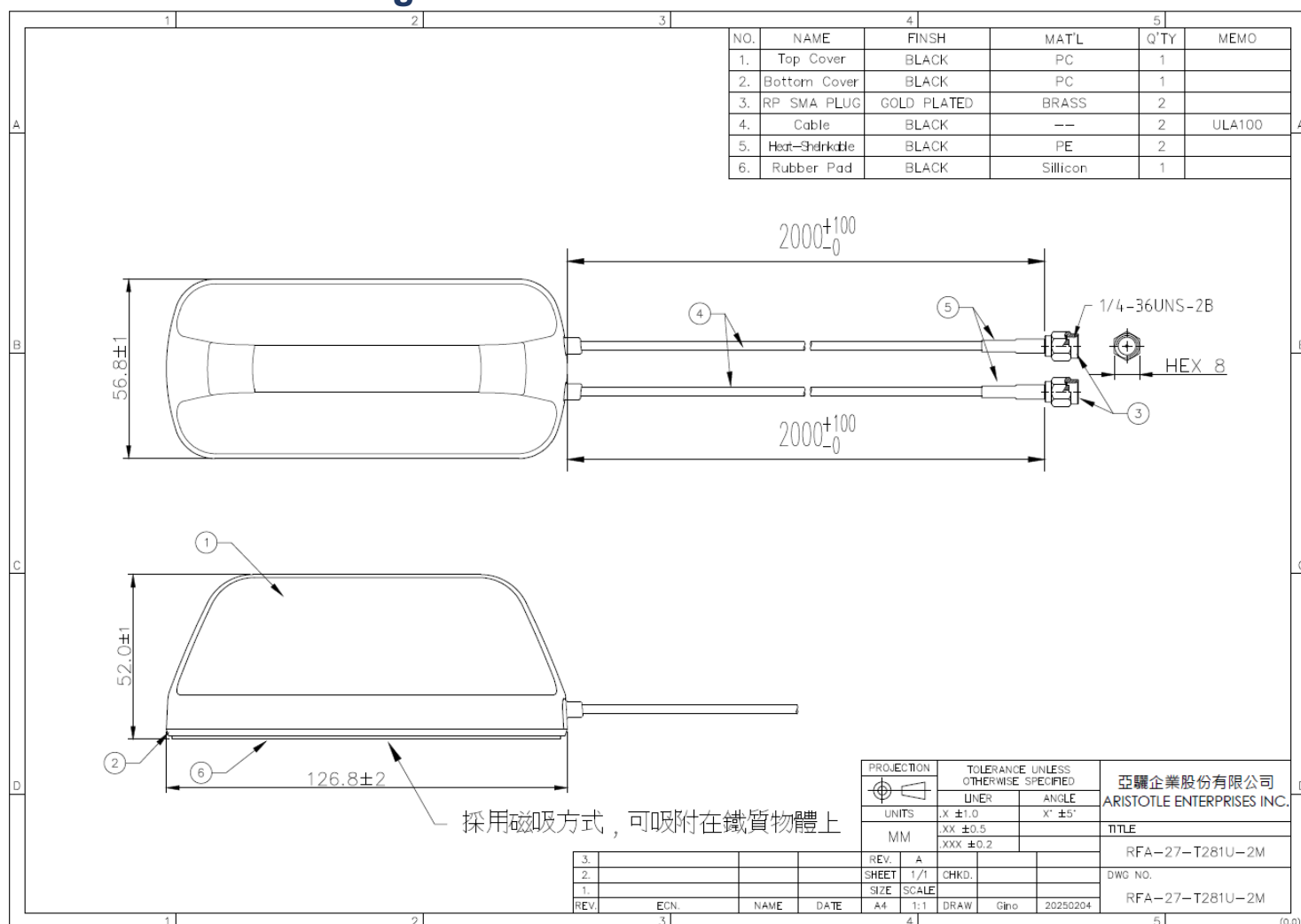
ANT1

Frequency(MHz)	5950	6000	6050	6100	6150	6200	6250	6300	6350	6400	6450	5950
Peak Gain(dBi)	2.87	1.90	1.70	1.56	2.13	2.31	1.85	1.70	1.82	0.98	0.97	2.87
Efficiency(%)	33.41	31.07	32.76	33.41	33.69	33.34	32.55	32.12	33.14	32.58	31.67	33.41
Efficiency(dB)	-4.76	-5.08	-4.85	-4.76	-4.73	-4.77	-4.87	-4.93	-4.80	-4.87	-4.99	-4.76

Frequency(MHz)	6500	6550	6600	6650	6700	6750	6800	6850	6900	6950	7000	6500
Peak Gain(dBi)	0.91	0.66	0.78	0.98	0.80	0.54	1.34	1.20	1.17	1.03	1.17	0.91
Efficiency(%)	32.49	31.32	30.48	30.02	31.51	31.53	31.44	31.23	31.08	30.59	30.37	32.49
Efficiency(dB)	-4.88	-5.04	-5.16	-5.23	-5.02	-5.01	-5.02	-5.05	-5.08	-5.14	-5.18	-4.88

Frequency(MHz)	7050	7100
Peak Gain(dBi)	1.13	1.08
Efficiency(%)	31.26	29.88
Efficiency(dB)	-5.05	-5.25

5. Mechanical Drawing



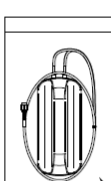
6. Packing Drawing

產品包裝規範 PACKING CRITERION

Part Number	1751000765-01	Name	AIW-515
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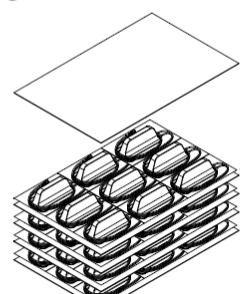
1 2 3 4 5
 A B C D

① 小包裝 1PCS



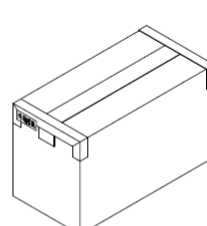
夾鏈袋

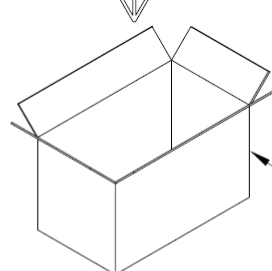
② 大包裝 36PCS—1箱



每層小包裝9PCS
共4層

③ 封箱





外箱

				PROJECTION		TOLERANCE UNLESS OTHERWISE SPECIFIED		亞矽企業股份有限公司 ARISTOTLE ENTERPRISES INC.		
						UNER ANGLE X ±1.0 X° ±5'				
				UNITS		MM		TITLE RFA-27-T281U-2M		
				XX ±0.5 XXX ±0.2						
3.				REV.	A			DWG. NO. RFA-27-T281U-2M_包裝 SOP		
2.				SHEET	1/2					
1.				SIZE	A4					
REV.	ECN.	NAME	DATE	A4	1:1	DRAW	Gjro	20250205		

(0.0)

