

PS500L-31G-F

Low Loss Phase Stable RF Coaxial Cable (31 GHz)



- **Frequency Range:** DC to 31 GHz
- **Inner Conductor:** 1/1.29 mm Solid Silver Copper
- **Dielectric:** Low Density PTFE (77% VP)
- **Phase Stability:** ± 0.2 °/GHz under bending
- **Protective Jacket:** High Temp Aqua FEP (-55~+165°C)

1. MECHANICAL & STRUCTURAL SPECIFICATIONS

Layer	Material	Construction Details	Nom. O.D. (mm)
Inner Conductor	Silver Plated Copper	1 / 1.29 mm (Solid)	1.29 mm
Insulation	LD-PTFE	Low Density Dielectric	3.80 mm
Inner Shield	Flat Silver Plated Copper Tape	100% Coverage Wrapping	4.00 mm
Outer Shield	Round Silver Plated Copper Braid	High Shielding Braiding	4.40 mm
Outer Jacket	Aqua FEP	High Temp Fluoropolymer	5.00 mm

2. PHYSICAL & ENVIRONMENTAL CHARACTERISTICS

Min. Static Bending Radius	18.40 mm	Cable Weight	0.068 kg/m
Min. Dynamic Bending Radius	50.00 mm	Operating Temp Range	-55 °C to +165 °C

3. ELECTRICAL PERFORMANCE PARAMETERS

Impedance	50 Ω	Max Operating Frequency	31 GHz
Velocity of Propagation	77%	Screening Effectiveness	> 90 dB
Capacitance	88 pF/m	Dielectric Withstanding Voltage	2000 V @ DC
Phase Stability vs. Bending	± 0.2 °/GHz	Phase Stability vs. Temp (-45~+85°C)	≤ 1500 PPM

4. ATTENUATION & POWER HANDLING CHART (@25°C & SEA LEVEL)

Insertion Loss Calculation: $IL = K1 * \sqrt{F_MHz} + K2 * F_MHz$
Constants: $K1 = 0.749173771$ | $K2 = 0.001179495$

Frequency (MHz)	Nom. Attenuation (dB/m)	Nom. Attenuation (dB/100m)	Max Power Handling (W)
500	0.17	17.34	
1000	0.25	24.87	833
2400	0.40	39.53	524
3000	0.45	44.57	465
6000	0.65	65.11	318
8000	0.76	76.44	271
10000	0.87	86.71	239
12400	0.98	98.05	211
18000	1.22	121.74	170
20000	1.30	129.54	160
26500	1.53	153.21	135