



Part Number: AR158FV50-1D

### Features

- Air-Dielectric design
- Cable Sizes 7/8” through 1-5/8” Diameters, Aluminum Outer Conductor, Jacketed to Meet Customers’ Low Smoke, Non-Halogenated Fire-Retardant Wireless Applications, Black Jacket
- Optimized for use 150 MHz through 4000 MHz

### Performance Standards

- NFPA-70, Article 810, Communication Systems, UL1685-12, UL-444, CMG-LS
- NFPA-130, Fixed Guideway Transit and Passenger Rail Systems
- Canada CSA 22.2 / FT4, IEEE 1202
- IEC 60332-1, IEC 60332-3C
- TL9000 H-V - All Cables designed and manufactured under this quality management system
- RoHS 2011/65/EU Compliant

### Scope

Trilogy® radiating cables are meticulously engineered to excel in environments where conventional cables may fall short. These cables possess the distinctive capability to emit radio frequency signals along their length, rendering them particularly suitable for applications such as subterranean tunnels, expansive buildings, and transportation systems where comprehensive signal coverage is imperative.

The sophisticated construction of radiating cables includes precise perforations that facilitate controlled RF leakage, thereby ensuring consistent signal strength across extensive areas. Designed to withstand harsh conditions, these cables offer exceptional durability and adaptability, further reinforced by adherence to TL9000 H-V standards.

Its low coupling loss and superior attenuation characteristics make it ideal for environments where maximum data transmission speed and reliability are paramount. The use of an air dielectric disc design ensures there is zero water migration, maintaining signal integrity and quality. Additionally, the cable is domestically manufactured and complies with Title 49, reinforcing its adherence to the Buy America standards.

#### Physical Dimensions

Center Diameter, in (mm)	0.727 (18.47)
Diameter Over Dielectric, in (mm)	1.881 (47.78)
Diameter Over Outer Conductor, in (mm)	1.897 (48.18)
Maximum Diameter Over Jacket, in (mm)	1.997 (50.72)
Center Conductor	Solid Copper Tube
Outer Conductor	Dual Slotted Solid Aluminum Tube

#### Mechanical Characteristics

Minimum Bend Radius, in (mm) - Single	20 (508)
Cable Weight, lb/ft (kg/m)	0.83 (1.23)
Tensile Strength, lb (kg)	1,500 (682)
Flat Plate Crush, lb/in (kg/mm)	150 (2.68)
Recommended Install Temp., °F (°C)	-10° to 170° (-23° to 77°)
Recommended Install Temp., °F (°C)	-40° to 170° (-40° to 77°)
Recommended Install Temp., °F (°C)	-40° to 185° (-40° to 85°)



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Electrical Characteristics	
Maximum Frequency, GHz	2.7
Peak Power Rating, KW	306
Capacitance, pF/ft (m)	22.3 (73.16)
Inductance, $\mu$ H/ft (m)	0.056 (0.184)
VSWR min. (dB)	1.38 (16.0)
VSWR in-band, (dB)	1.30 (17.7)
Impedance, Ohms	$50 \pm 2$
Velocity of Propagation	91%
Stop Bands, MHz	1386 - 1393

Electrical Performance			
Frequency MHz	Attenuation dB/100 ft    dB/100 m		Coupling Loss 95%, dB
150	0.22	0.73	76 (78)
450	0.46	1.50	77 (79)
700	0.54	1.76	79 (80)
800	0.55	1.81	75 (77)
900	0.58	1.91	75 (77)
960	0.61	1.98	72 (75)
1700	1.08	3.54	70 (73)
1800	1.13	3.71	67 (71)
1900	1.16	3.82	65 (69)
2000	1.20	3.95	67 (70)
2100	1.26	4.14	65 (69)
2200	1.35	4.42	73 (74)
2400	1.57	5.14	66 (69)
2600	1.90	6.25	63 (67)
2700	2.14	7.03	63 (67)

### Notes:

- Coupling Loss and Attenuation Values are measured in accordance with the IEC 61196-4 Free Space Test Method
- Coupling Loss values are measured with a radial (below 330 MHz) or orthogonal (above 330 MHz) orientated dipole antenna
- The Coupling Loss values in parentheses are the mean values of all three spatial orientations (radial, parallel and orthogonal) of dipole antenna
- Coupling Loss Tolerance of  $\pm 10$  dB at 6 ft (2m), 95%
- Attenuation Tolerance of  $\pm 10\%$  at 68°F
- As is the case with all radiating cables, performance in RF confined areas may differ from values in a free space.