



Radio Frequency Systems  
**TALLEY**  
You Connect the World. We Make it Easy.®



**DRAGONSKIN™ 1/2" FIRE-RESISTANT UL 2196 CERTIFIED STANDALONE COAXIAL CABLE, MEETS NFPA 72 & NFPA 1221 SURVIVABILITY, MAINTAINS IN-BUILDING COMMUNICATIONS DURING FIRES, MADE IN THE USA**

Standalone coaxible cable that is certified to meet the UL 2196 Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables.



## FEATURES/BENEFITS

### FIRST UL LISTED STANDALONE COMMUNICATIONS CABLE MEETING

#### NFPA 72 AND 1221 SURVIVABILITY STANDARD

VERIFIES THE CABLE SURVIVES 2 HOURS AT TEMPERATURES UP TO 1,850 DEGREES F AND THE WATER SPRAY TEST WITHOUT CONDUIT OR ADDITIONAL WRAPPING

### ENABLES CELLULAR AND PUBLIC SAFETY RADIO COMMUNICATIONS TO AND FROM ALL FLOORS OF A BURNING BUILDING

ENSURES EMERGENCY RESPONDERS AND BUILDING OCCUPANTS HAVE RELIABLE ACCESS TO COMMUNICATIONS DURING SEVERE FIRES

### NO CONDUIT OR CABLE WRAPPING REQUIRED

REDUCES CABLE SIZE AND WEIGHT; SIMPLIFIES INSTALLATION

### CATVP PLENUM-CERTIFIED

MEETS CERTIFICATION FOR USE IN THE ENVIRONMENTAL AIR HANDLING SPACE IN BUILDINGS

### COAXIAL CABLE FEATURES SOLID INNER AND OUTER CONDUCTORS

VIRTUALLY ELIMINATES INTERMODULATION

### MAINTAINS MINIMUM BENDING RADIUS AT ALL TIMES

ACCELERATES INSTALLATIONS, ESPECIALLY IN SMALLER SPACES AND OLDER BUILDINGS

### USES STANDARD RFS CONNECTORS AND INSTALLATION TECHNIQUES

ELIMINATES THE NEED FOR SPECIALIZED PARTS OR EXPERTISE

## TECHNICAL FEATURES

APPLICATIONS		
APPLICATIONS		Ideal for public safety applications with the most stringent fire codes
STRUCTURE		
Cable Type		Air-Dielectric, Corrugated
Size		1/2"
Inner Conductor	mm (in)	4.8 (0.19) Copper Wire
Dielectric	mm (in)	11.81 (0.465)
Outer Conductor	mm (in)	13.8 (0.54) Corrugated Copper
Jacket	mm (in)	18 (0.71) Plenum-Rated / Color Red
ELECTRICAL SPECIFICATIONS		
Impedance	$\Omega$	50 +/-2
Maximum Frequency	GHz	1 (RFS will extend it to a higher frequency during the next phase)
Velocity	%	85
Capacitance	pF/m (pF/ft)	70.6 (21.5)
Inductance	$\mu$ H/m ( $\mu$ H/ft)	0.19 (0.058)
Peak Power Rating	kW	40
RF Peak Voltage	Volts	2000
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	$\Omega$ /1000 m ( $\Omega$ /1000 ft)	0.96 (0.29)
Outer Conductor dc Resistance	$\Omega$ /1000 m ( $\Omega$ /1000 ft)	1.31 (0.4)
Maximum Return Loss	dB (VSWR)	14 (1.5)
MECHANICAL SPECIFICATIONS		
Cable Weight, Nominal	kg/m (lb/ft)	0.51 (0.34)
Minimum Bending Radius, Single Bend	mm (in)	178 (7)
Minimum Bending Radius, Repeated Bends	mm (in)	254 (10)
Bending Moment	Nm (lb*ft)	8.7 (6.4)
Tensile Strength	N (lb)	890 (200)
Clamp Spacing	m (ft)	0.61 (2.0)
Crush Strength	kg/cm (lb/in)	31.25 (175.0)

\*Patent-Pending



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## ATTENUATION AND POWER RATING

FREQUENCY [MHZ]	ATTENUATION [DB/100FT]	ATTENUATION [DB/100M]	AVERAGE POWER [KW]
150	0.93	3.05	2.36
450	1.73	5.68	1.27
700	2.25	7.39	0.97
800	2.44	8.01	0.90
900	2.63	8.64	0.83
1000	2.79	9.16	0.78

Attenuation at 1010°C (1850°F) Tolerance +/- 5% max, Additional .185 dB (800 MHz) per ft of DragonSkin being affected by fire.

## ATTENUATION CALCULATIONS

PUBLIC SAFETY BAND	LINK BUDGET AT LENGTH (DB)*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH (DB)*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH (DB)*	DESIGN GOAL COMPLIANT	LINK BUDGET AT LENGTH (DB)*	DESIGN GOAL COMPLIANT
	0' AFFECTED BY FIRE		10' AFFECTED BY FIRE		30' AFFECTED BY FIRE		50' AFFECTED BY FIRE	
700 MHz	30	YES	CALCULATION SUM(0.0225*10)+1.85+(.5 X 2)		CALCULATION SUM(0.0225*30)+(1.85*3)+(1.5 X 2)		CALCULATION SUM(0.0225*50)+(1.85*5)+(1.5 X 2)	
			26.9	YES	22.8	YES	18.6	YES
800 MHz	30	YES	CALCULATION SUM(0.0244*10)+1.85+(.5 X 2)		CALCULATION SUM(0.0244*30)+(1.85*3)+(1.5 X 2)		CALCULATION SUM(0.0244*50)+(1.85*5)+(1.5 X 2)	
			26.9	YES	22.7	YES	18.5	YES
450 MHz	30	YES	CALCULATION SUM(0.0173*10)+1.85+(.5 X 2)		CALCULATION SUM(0.0173*30)+(1.85*3)+(1.5 X 2)		CALCULATION SUM(0.0173*50)+(1.85*5)+(1.5 X 2)	
			27.0	YES	22.9	YES	18.9	YES

Compliance/Design Parameters: Composite signal +30 dBm at DL Port, Minimum signal strength of -95 dBm in 90% of the area/ 100% of Critical Areas. Loss at Length is Link Budget value at the input of the antenna considering no other loss (e.g. splitters, couplers, etc).

\*Link Budget at Length Calculation = BDA Output - Connector Loss (.5 x 2) - (1.85 dB Insertion Loss x # of 10 ft sections) + Standard DragonSkin Attenuation) x (number of ft affected by fire)

## TESTING AND ENVIRONMENTAL

SPECIFICATIONS	
Fire Performance	Flame Retardant, Plenum-rated, CATVP, UL2196 (2hours).
Flame Retardant Jacket Specifications	Meets/Exceeds Steiner Tunnel Test Method NFPA-262. NEC820-53 (a), CATVP, UL2196 (2hours).
Regulatory Compliance	NEC Article 820 CATVP Cable to UL1655, Circuit integrity UL Listed to UL2196, CATVP, NFPA-262, NFPA130, NFPA 72, NFPA 1221 2019 (section 5.5.1.1), Canadian CSA C.22.2/FT6, UL R40176, E239351, UL System FHIT 1250
Installation Temperature	-20 to 60 (-4 to 140) °C (°F)
Storage Temperature	-40 to 75 (-40 to 167) °C (°F)
Operation Temperature	-40 TO 1,010 (-40 TO 1,850) °C (°F)

\*Patent-Pending. All values nominal unless tolerances provided; information contained in the present datasheet is subject to confirmation at time of ordering. Contact RFS for inquiries outside of North America. © 2020 Radio Frequency Systems. DragonSkin™ is a trademark and RFS® is a registered trademark of Radio Frequency Systems.

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