dragonskin™

RFS Technologies
an Amphenol Company

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.

UL CERTIFIED SAFETY US R40176

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 CERTIFICATON 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) PVC, Plenum-Rated / Color Red
ELECTRICAL SPECIFICATIONS		
Impedance	Ω	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	µH/m (µH/ft)	0.19 (0.058)
Peak Power Rating	kW	40
RF Peak Voltage	Volts	2000
Jacket Spark	Volt RMS	8000
Inner Conductor dc Resistance	Ω/1000 m (Ω/1000 ft)	0.96 (0.29)
Outer Conductor dc Resistance	Ω/1000 m (Ω/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

PRODUCT DATASHEET

Revision: G | Revision Date: May18.2023

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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)+(.5 X 2)		CALCULATION SUM(0.0225*50)+(1.85*5)+(.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)+(.5 X 2)		CALCULATION SUM(0.0244*50)+(1.85*5)+(.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)+(.5 X 2)		CALCULATION SUM(0.0173*50)+(1.85*5)+(.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)

VEX FILES: DOWNLOAD