

Cable Assembly Family Sheet

Commercial & Military
Lab-Flex AF Series

Sheet 1 of 2
Rev A



Features

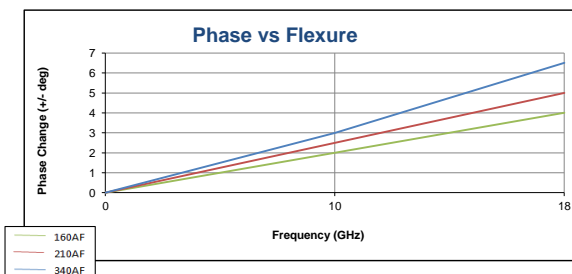
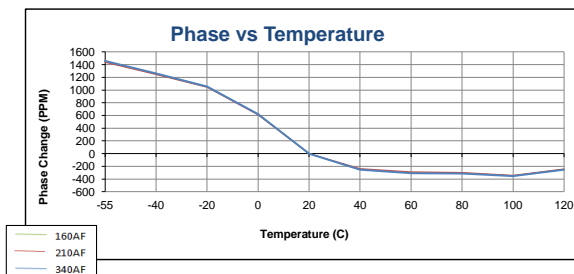
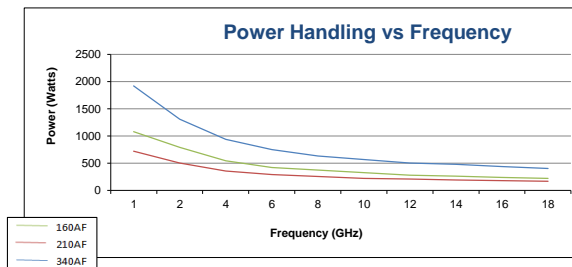
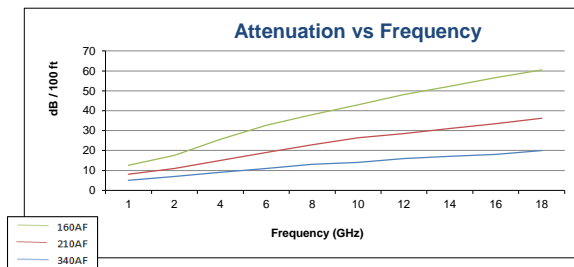
- Designs up to 18 GHz
- Tested and Qualified to MIL-T-81 490
- Hermetically sealed cables and connector interfaces
- Crush-proof Cable Design
- Abrasion Resistant Jacket
- Cable designed for superior electrical performance in harsh environments
- 3 cable diameters available
- Superior Phase Stability (over flexure and temperature)

Applications

- Aircraft Antenna Systems
- Aircraft Radar Systems
- Aircraft Communications Systems
- Shipboard Systems
- Ground-based Communication Systems

Overview

Our AF Series is an upgraded version of our popular Lab-Flex® cable which has been modified to handle all of the harsh environments associated with most airborne, shipboard and ground-based applications. Our proprietary cable assembly design utilizes a redundant sealing system to ensure moisture resistance to both cable and connector interfaces. This design has been fully qualified to meet or exceed all the requirements of MIL-T-81490. It also employs a very durable dielectric design which is able to withstand crushing or kinking. The electrically optimized, triple-shielded cable design is protected by a Nomex® jacket which provides abrasion resistance during installation and general use of the assembly.



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Airborne/EW Microwave Cable Assemblies

Severe Environment, Hermetically Sealed
Assemblies Flight Qualified Performance

Summary of qualification testing for severe environment
airborne cable assemblies

Available cable types: 160AF, 210AF, 340AF

Available Connectors: TNC, SMA, Type N, SC

Qualification

Lab-Flex® AF cable assembly designs have been qualified and meet or exceed all electrical, mechanical & environmental requirements of MIL-T-81490. Their rugged cable and connector designs have been optimized for superior performance and long life in all commercial and military airborne applications

Full Qualification test results are available upon request.

EXAMINATION OR TEST	APPLICABLE STANDARD	STATUS
Design & Construction	MIL-T-81490 para. 4.7.1	Compliant
Marking	MIL-T-81490 para. 4.7.1	Compliant
Workmanship	MIL-T-81490 para. 4.7.2	Compliant
Insertion Loss	MIL-T-81490 para. 4.7.3	Compliant
VSWR	MIL-T-81490 para. 4.7.4	Compliant
Impedance	MIL-T-81490 para. 4.7.5	Compliant
Vapor Leakage	MIL-STD-202F	Compliant
Velocity of Propagation	MIL-T-81490 para. 4.7.7	Compliant
Impact Shock	MIL-T-81490 para. 4.7.14	Compliant
RF Leakage	MIL-STD-1344	Compliant
Thermal Shock	MIL-STD-810D 503.2	Compliant
Power Handling	MIL-T-8490 para 4.7.13	Compliant
Flexure	MIL-T-8490 para 4.7.15	Compliant
Torque	MIL-T-8490 para 4.7.16	Compliant
Tensile Load	MIL-T-8490 para 4.7.17	Compliant
Concentrated Load	MIL-T-8490 para 4.7.18	Compliant
Abrasion	MIL-T-8490 para 4.7.19	Compliant
Sand & Dust	MIL-STD-810D 510.2	Compliant
High Potential	MIL-STD-202F 301	Compliant
Explosive Atmosphere	MIL-STD-810D 511	Compliant
Temperature	MIL-T-81490 para. 4.7.9	Compliant
Humidity	MIL-STD-810D 507	Compliant
Vibration	MIL-STD-810D 514.3	Compliant
Salt-Fog	MIL-STD-810D 509	Compliant
Mechanical Shock	MIL-STD-810D 516.3	Compliant
Corona Extinction	MIL-C-17	Compliant
Dielectric Withstanding	MIL-C-17	Compliant

QUICK SPECS FOR LAB-FLEX AF SERIES		
AF Series Cable	Diameter (inches)	Max Frequency
Lab-Flex 160AF	0.16	18
Lab-Flex 210AF	0.21	18
Lab-Flex 340AF	0.34	18

General Specifications

LAB-FLEX AF CABLE CODE	160AF	210AF	340AF
Diameter (in)	0.16	0.21	0.34
Frequency, Max (GHz)	18	18	18
Loss @ 5 GHz (dB/100ft)	30	21	10.2
Electrical Data			
Impedance, Nominal (Ohms)	50	50	50
Velocity of Propagation (%)	78	80	81
Shielding Effectiveness @ 18 GHz (dB/ft)	>90	>90	>90
Capacitance (pF/ft)	26	25	24.75
Delay (ns/ft)	1.3	1.3	1.25
Mechanical Data			
Weight (lbs/100ft)	2.8	4.8	9.3
Temperature Range (°C)	-56 to +200	-55 to +200	-65 to +200
Minimum Band Radius	0.75	1	1.75
Construction Data			
Inner Conductor	Solid SC	Solid SC	Solid SC
Dielectric	Expanded PTFE	Expanded PTFE	Expanded PTFE
First Outer Shield	Flat Braid SC	Flat Braid SC	Flat Braid SC
Second Outer Shield	Foil Tape	Foil Tape	Foil Tape
Third Outer Shield	Braid SC	Braid SC	Braid SC
Jacket	Nomex®	Nomex®	Nomex®

*Nomex® is a Registered Trademark of Dupont.