# CELLFLEX® Foam and HELIFLEX® Air Cables

## Introduction

| | Cable Type | Jacket Options | Nominal Size Inch | Diameter Over Jacket mm (in) | Cable Weight kg/m (lb/ft) | Minimum Bending Radius[1] mm (in) | Attenuation at 1000MHz[2] dB/100 m (dB/100ft) | Mean Power Rating at 1000 MHz[3] kW |
|---|---|---|---|---|---|---|---|---|
| **CELLFLEX** | | | | | | | | |
| Superflexible Cables | SCF14-50 | J; JFN | 1/4" | 7.8(0.31) | 0.07(0.05) | 25(1.0) | 19.5(5.94) | 0.339 |
| | SCF38-50 | J; JFN; JGR | 3/8" | 10.2(0.4) | 0.12(0.08) | 25(1.0) | 14.1(4.29) | 0.560 |
| | SCF12-50 | J; JFN; JGR | 1/2" | 13.7(0.54) | 0.21(0.14) | 32(1.25) | 11.2(3.41) | 0.770 |
| Ultraflexible Cables | UCF78-50A | J; JFN | 7/8" | 27.5(1.08) | 0.43(0.29) | 90(4) | 4.44(1.35) | 2.27 |
| | UCF114-50A-P*[7] | J; JFN | 1-1/4" | 39.4(1.55) | 0.86(0.58) | 150(6) | 3.14(0.957) | 3.52 |
| | UCF114-50A-A*[7] | J; JFN | 1-1/4" | 39.4(1.55) | 0.86(0.58) | 150(6) | 3.02(0.921) | 3.56 |
| Low Loss Cables | LCF14-50 | J; JFN | 1/4" | 10(0.39) | 0.13(0.09) | 40(2) | 14.48(4.41) | 0.55 |
| | LCF38-50 | J; JFN | 3/8" | 11.2(0.44) | 0.12(0.08) | 50(2) | 11.33(3.45) | 0.64 |
| | LCF12-50 | J; JFN; JGR | 1/2" | 16.2(0.64) | 0.22(0.15) | 70(3) | 7.20(2.19) | 1.18 |
| | LCF58-50 | J; JFN | 5/8" | 21.4(0.84) | 0.37(0.25) | 90(4) | 5.59(1.70) | 1.67 |
| | LCF78-50A-P*[7] | J; JFN; JGR | 7/8" | 28.0(1.10) | 0.51(0.34) | 120(5) | 3.93(1.20) | 2.66 |
| | LCF78-50A-A*[7] | J; JFN; JGR | 7/8" | 28.0(1.10) | 0.51(0.34) | 120(5) | 3.78(1.15) | 2.61 |
| | LCFS114-50A-P*[7] | J; JFN; JGR | 1-1/4" | 39.0(1.54) | 0.86(0.58) | 200(8) | 2.94(0.896) | 3.60 |
| | LCFS114-50A-A*[7] | J; JFN; JGR | 1-1/4" | 39.0(1.54) | 0.86(0.58) | 200(8) | 2.85(0.870) | 3.87 |
| | LCF158-50A-P*[7] | J; JFN | 1-5/8" | 50.3(1.98) | 1.19(0.80) | 200(8) | 2.39(0.729) | 4.86 |
| | LCF158-50A-A*[7] | J; JFN | 1-5/8" | 50.3(1.98) | 1.19(0.80) | 200(8) | 2.25(0.685) | 4.99 |
| | LCF214-50A | J; JFN | 2-1/4" | 59.9(2.36) | 1.70(1.14) | 280(11) | 2.11(0.643) | 6.61 |
| **RGFLEX** | | | | | | | | |
| RF Type | RF174-50 | JF | 5/64" | 2.7(0.11) | 0.012(0.008) | 14(0.55) | 42(1.65) | – |
| RG Type | RG58-50 | JF | 9/64" | 5.0(0.197) | 0.037(0.024) | 25.4(1) | 100(3.94) | – |
| | RG223-50 | JF | 5/32" | 5.4(0.213) | 0.055(0.121) | 30(1.18) | 55(2.165) | – |
| | RG213-50 | JF | 5/16" | 10.31(0.41) | 0.155(0.103) | 50.0(1.97) | 205(8.0) | – |
| | RG214-50 | JF | 3/8" | 10.8(0.425) | 0.185(0.408) | 55.0(2.165) | 110(4.33) | – |
| RGC Type | RGC58-50 | J | 9/64" | 5.0(0.197) | 0.030(0.020) | 25.4(1) | 100(3.94) | – |
| | RGC213-50 | J | 5/16" | 10.34(0.407) | 0.120(0.080) | 50.0(1.97) | 205(8.07) | – |
| | RGC8-50 | J | 5/16" | 10.24(0.403) | 0.133(0.088) | 25.4(1) | 60(2.36) | – |
| **HELIFLEX** | | | | | | | | |
| Standard Cables | HCA38-50 | J; JB | 3/8" | 13.9(0.55) | 0.31(0.21) | 50(2) | 9.10(2.77) | 0.769 |
| | HCA12-50 | JPL | 1/2" | 15.7(0.62) | 0.27(0.18) | 120(5) | 7.77(2.37) | 2.09 |
| | HCA58-50 | J; JB | 5/8" | 21.4(0.84) | 0.70(0.47) | 80(3) | 5.66(1.72) | 1.46 |
| | HCA78-50 | J; JB; JPL | 7/8" | 28.3(1.11) | 0.68(0.46) | 100(4) | 3.94(1.20) | 2.58 |
| | HCA118-50 | J; JB | 1-1/8" | 36.4(1.43) | 1.10(0.74) | 130(5) | 3.09(0.94) | 3.72 |
| | HCA158-50 | J; JB; JPL | 1-5/8" | 50.4(1.984) | 1.30(0.89) | 180(7) | 2.01(0.61) | 6.11 |
| | HCA214-50 | J | 2-1/4" | 60.5(2.37) | 1.7(1.15) | 210(8) | 1.93(0.588) | 6.63 |
| | HCA295-50 | J; JB; JFN | 3" | 71.0(2.795) | 2.6 (1.75) | 270 (11) | 1.47(0.448) | 11.2 |
| | HCA300-50 | J; JFN | 3" | 76.7(3.02) | 2.6(1.78) | 270(11) | 1.48(0.452) | 11.4 |
| | HCA318-50 | J; JB | 3-1/8" | 90.5(3.56) | 3.3(2.25) | 380(15) | 1.26(0.380) | 17 |
| | HCA418-50 | J; JB; JFN | 4-1/8" | 115.1(4.53) | 5.4(3.63) | 500(20) | 0.96(0.292)[4] | 25.1 |
| | HCA500-50 | J; JB; JFN | 5" | 147.2(5.79) | 8.65(5.78) | 800(31) | 0.69(0.210)[4] | 42.0[4] |
| | HCA618-50 | J; JFN | 6-1/8" | 169.0(6.65) | 11.0(7.39) | 1000(39) | 0.61(0.186)[5] | 54.0[4] |
| | HCA800-50 | J; JB | 8" | 223.0(8.78) | 18.6(12.5) | 1400(55) | 0.42(0.128)[5] | 103[5] |
| Increased Mean Power Cables | HCA38-50 | JT | 3/8" | 13.9(0.55) | 0.31(0.21) | 50(2) | 9.31(2.84) | 1.13 |
| | HCA78-50 | JT | 7/8" | 28.3(1.11) | 0.68(0.46) | 100(4) | 3.94(1.20) | 2.58 |
| | HCA118-50 | JT | 1-1/8" | 36.4(1.43) | 1.10(0.74) | 130(5) | 3.09(0.94) | 3.72 |
| | HCA158-50 | JT | 1-5/8" | 50.4(1.984) | 1.30(0.89) | 180(7) | 2.23(0.680) | 8.21 |
| | HCA500-50 | JT | 5" | 147.2(5.79) | 8.65(5.78) | 800(31) | 0.728(0.222)[4] | 63.6[4] |
| | HCA618-50 | JT | 6-1/8" | 169.0(6.65) | 11.0(7.39) | 1000(39) | 0.61(0.186)[4] | 54.0[4] |
| | HCA800-50 | JT; JBT | 8" | 223.0(8.78) | 18.5(12.4) | 1400(55) | 0.37(0.113)[5] | 139[5] |
| | HCA900-50 | No Jacket | 9'' | | 9.6(6.48) | 1700(67) | 0.41(0.125)[6] | 245[6] |

Note [1] Single Bend
Note [2] Attenuation @ 20° C (68° F)
Note [3] Mean power rating @ 40° C (104 °F)
Note [4] At 860 MHz
Note [5] At 650 MHz
Note [6] At 500 MHz
Note [7] For CELLFLEX premium attenuation and VSWR codes see page 29

# CELLFLEX® Foam and HELIFLEX® Air Cables

## Why choose cables from RFS?

Feeder cables from RFS are used as a reliable backbone for cellular radio systems including GSM, PCN/PCS, CDMA, AMPS, PDC or ETACS. RFS has a variety of coaxial cable types for many telecommunications system original equipment manufacturers (OEMs), system installers or designers. CELLFLEX low loss foam dielectric cables are manufactured by the gas injection extrusion method and the proprietary UNIWEMA welding and corrugation process.
Foam dielectric cables combine excellent electrical characteristics with robust mechanical performance. HELIFLEX air dielectric cables combine select dielectric materials for low-power or high-power applications and feature the same proprietary UNIWEMA manufacturing process. RFS braided shield coaxial cables offer cost-effective solutions for less demanding applications while maintaining system integrity and performance.

### Product Spectrum

CELLFLEX foam dielectric cables are offered as low loss cables, superflexible cables and ultraflexible cables. Diameters range from 1/4" up to 2-1/4".
The characteristic impedance of all cables is 50 Ohm.

### Characteristics of CELLFLEX cables

CELLFLEX foam dielectric cables combine a remarkable flexibility with high strength and superior electrical performance. The cable construction allows easy handling and easy preparation for attachment of connectors together with high resistance to connector pull-off.

CELLFLEX foam dielectric cables have the following characteristics:

- High flexibility
- High crush resistance
- Low attenuation
- High power rating
- Longitudinal uniformity
- Small reflection factor
- High screening effectiveness
- Resistant to hostile environments

Low loss cables use foam with very low dielectric losses resulting in low attenuation of RF power.

Superflexible cables are highly bendable due to the mechanical construction of the cable.

Ultraflexible cables use a specific inner conductor design resulting in the highest flexibility of copper cables available on the market.

LCF12-50

LCF78-50

HCA38-50

### Characteristics of RFS RG cables

RFS braided shield RG cables use a double-shielded design consisting of an aluminum wrap under a tin-plated copper braid. The jacket material is a black polyethylene material for high resistance to abrasion. The dielectric is a foam polyethylene material to provide low attenuation and reliable electrical performance.

All RFS braided shield RG cables are designed to incorporate the following features:

- Very high flexibility
- Low attenuation
- High screening effectiveness

### Characteristics of HELIFLEX Cables

HELIFLEX air dielectric cables consist of an inner conductor and an outer conductor. By using a dielectric helix (made of high density polyethylene) the inner conductor is centered to the outer conductor. The shape of the dielectric is either rectangular or in the case of small diameter cables, trapezoidal. Larger cables use a low material content helix with T-shaped supports. Cables for the highest power transmission use three-legged teflon spacers, which are positioned periodically along the cable.

All HELIFLEX air dielectric cables are designed to incorporate the following features:

- High flexibility
- High crush resistance
- Low attenuation
- High power rating
- Longitudinal uniformity

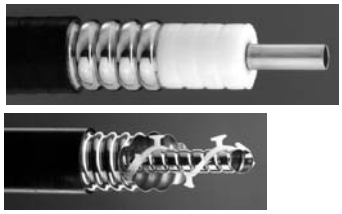
# CELLFLEX® Foam and HELIFLEX® Air Cables

## Applications

Used as antenna feeders, cabling of antenna arrays, radio equipment interconnections, jumper assemblies or indoor applications, CELLFLEX® foam dielectric cables provide a reliable and technically superior solution for many wireless applications.

CELLFLEX® foam dielectric cables are often specified in communications and electronic systems.

- Microwave communications systems
- Landmobile systems
- Cellular systems
- Rural telephone systems
- HF systems
- Broadband
- Wireless



HELIFLEX® cables are designed for applications where high flexibility and crush resistance are required.

The attenuation of HELIFLEX® cables is much lower when compared to the foam dielectric cables. HELIFLEX® cables are used extensively worldwide for the transmission of large RF power.

- Feeder cables for broadcast stations
- AM / FM
- Analog and digital TV
- MDS / MMDS

| CELLFLEX | CABLE TYPE | INNER CONDUCTOR | DIELECTRIC | OUTER CONDUCTOR |
|---|---|---|---|---|
| Superflexible Cables | SCF14-50 | Copper-Clad Aluminum Wire | PE-Foam | Helically Corrugated Copper Tube |
| | SCF38-50 | Copper-Clad Aluminum Wire | PE-Foam | Helically Corrugated Copper Tube |
| | SCF12-50 | Copper-Clad Aluminum Wire | PE-Foam | Helically Corrugated Copper Tube |
| Ultraflexible Cables | UCF78-50A | Corrugated Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| | UCF114-50A | Corrugated Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| Low Loss Cables | LCF14-50 | Copper-Clad Aluminum Wire | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF38-50 | Copper-Clad Aluminum Wire | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF12-50 | Copper-Clad Aluminum Wire | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF58-50 | Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF78-50A | Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| | LCFS114-50A | Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF158-50A | Corrugated Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| | LCF214-50A | Corrugated Copper Tube | PE-Foam | Annularly Corrugated Copper Tube |
| **RG TYPE CABLES** | | | | |
| | RF174-50 | Stranded Copper Wire | PE-Solid | Tinned Copper Braid |
| | RG58-50 | Stranded Tinned Copper Wire | PE-Solid | Tinned Copper Braid |
| | RG223-50 | Silver Plated Copper Wire | PE-Solid | Dual Silver Plated Copper Braid |
| | RG213-50 | Stranded Copper Wire | PE-Solid | Copper Braid |
| | RG214-50 | Stranded Silver Plated Copper Wire | PE-Solid | Dual Silver Plated Copper Braid |
| | RGC58-50 | Bare Copper | PE-Foam | Tinned Copper Braid and Aluminum Shield |
| | RGC213-50 | Bare Copper | PE Foam | Tinned Copper Braid and Aluminum Shield |
| | RGC8-50 | Bare Copper | PE-Foam | Tinned Copper Braid and Aluminum Shield |
| **HELIFLEX** | | | | |
| Standard Cables | HCA38-50 | Copper Wire | PE-Helix | Helically Corrugated Copper Tube |
| | HCA12-50 | Copper-Clad Aluminum Wire | Teflon Helix | Annularly Corrugated Copper Tube |
| | HCA58-50 | Copper Wire | PE-Helix | Helically Corrugated Copper Tube |
| | HCA78-50 | Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA118-50 | Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA158-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA214-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA295-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA300-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA318-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA418-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA500-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA618-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| | HCA800-50 | Corrugated Copper Tube | PE-Helix | Helically Corrugated Copper Tube |
| Increased Mean Power Cables | HCA38-50 | Copper Wire | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA78-50 | Copper Tube | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA118-50 | Copper Tube | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA158-50 | Corrugated Copper Tube | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA500-50 | Corrugated Copper Tube | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA618-50 | Corrugated Copper Tube | PTFE-Helix | Helically Corrugated Copper Tube |
| | HCA800-50 | Corrugated Copper Tube | PTFE Spacer | Helically Corrugated Copper Tube |
| | HCA900-50 | Corrugated Copper Tube | PTFE Spacer | Helically Corrugated Aluminum Tube |

# CELLFLEX® Foam and HELIFLEX® Air Cables

## Technical Parameters

The most important parameters to consider when specifying a cable are:

- Characteristic impedance
- Return loss
- Attenuation
- Mean power rating
- Bending radius
- Bending moment

### Cable Construction

All CELLFLEX® foam and HELIFLEX® air dielectric cables are designed to maximize technical and mechanical performance in typical installations.

CELLFLEX® foam and HELIFLEX® air dielectric cables have an inner and outer conductor in coaxial configurations that are separated by a dielectric material (foam or web material). For CELLFLEX® foam cables, the polyethylene foam is applied to the center conductor by the gas injection extrusion method. This state-of-the-art process consistently produces a low-density, closed cell foam structure with low dielectric losses. The polymer dielectric is non-hygroscopic, environmentally friendly, and adheres well enough to the center conductor to avoid conductor migration during and after installation. CELLFLEX® cables are available in sizes from 1/4" to 2-1/4" in diameter.

The outer conductor of CELLFLEX® and HELIFLEX® cables are seam welded and corrugated with our proprietary UNIWEMA process. CELLFLEX® cables of the LCF and UCF types are annularly corrugated as opposed to the HCA (except HCA12, which is annularly corrugated) and SCF (Superflexible) types that are helically corrugated. The corrugations of these cables are deeper and shorter pitched for higher flexibility when compared to LCF and UCF cables.

SCF type cables are typically used for jumpers at the bottom and top of the main trunk. The conductor materials are typically high conductivity copper or copper clad aluminum for the center conductor.

A comprehensive range of HELIFLEX® air dielectric cables are available in a range of sizes; from 3/8" up to 9" in diameter. The characteristic impedance of all cables is 50 Ohm.

Instead of using a PE helix the high power cable types are manufactured with a PTFE helix or PTFE spacers. For nominal sizes below 2-1/4", the jacket is made of PVC instead of PE. These cables feature an increased mean power rating. HELIFLEX® cables with this increased mean power rating are offered in a limited number of sizes only. Plenum-rated

HELIFLEX® cables feature PVDF jacket material to comply with UL 910 (Steiner tunnel) specification and are suited for CATVP applications.

All standard CELLFLEX® and HELIFLEX® cables have abrasion resistant black PE jackets. The material is halogen free, UV resistant and non-corrosive.

## CELLFLEX® A-Series

Design and process modifications to the LCF78, UCF78, LCFS114, UCF114 (old LCF114), LCF158 and LCF214 cables have optimized the attenuation performance. These changes allow improved electrical performance without sacrificing any mechanical performance properties. The cables are available with standard "J" and flame-retardant "JFN" jacket materials. The cables are marked with an "A" suffix after the model name, to distinguish them from the previous version. Existing accessories are totally compatible.

RAPID FIT™ connectors are upgraded to improve VSWR and make them reverse-compatible to the previous cables. Electrical tests show outstanding VSWR and passive intermodulation (3rd order) values. Cable prep tooling is compatible with the improved connectors on both previous designs and A-Series cables.

## Premium Attenuation

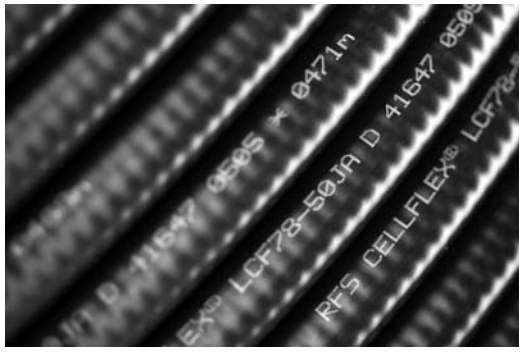
CELLFLEX A-Series cables in the popular sizes 7/8", 1-1/4" and 1-5/8" are also available in a further enhanced premium attenuation version to offer lowest possible attenuation especially at higher frequencies. The respective RAPID FIT™ connectors are compatible with both A-Series variants.

## World-Class Precision Manufacturing

RFS coaxial cables are manufactured in RFS various production facilities on proprietary machines designed and built by the RFS Organization. A special process, invented by RFS parent company, welds a continuous seam in a tube formed from metal strip. The tube is then corrugated, creating a flexible sheath of armor around the cable interior or outer conductor. All cables are manufactured under stringent quality control, in a sophisticated, climate controlled environment which insures uniform product quality and performance year-round.

### Continuous Factory Testing

All cables undergo continuous vacuum and statistical quality control testing during production that ensures foam integrity and product quality. Each cable assembly is inspected and electrically tested to confirm performance.




### Traceability

Each cable run has sequential marking on its side that contains:

- Precise length marking
- Factory marked product codes and order number
- Production lot tracer code

### FEATURES AND BENEFITS:

#### Low Attenuation

The low attenuation of RFS coaxial cable results in highly efficient signal transfer in your RF system.

#### Complete Shielding

The solid outer conductor of RFS coaxial cable creates a continuous RFI/EMI shield that minimizes system interference.

#### Low VSWR

Special low VSWR versions of RFS coaxial cables contribute to low system noise.

#### Outstanding Intermodulation Performance

RFS coaxial cable's solid inner and outer conductors virtually eliminate intermods. Intermodulation performance is also confirmed with state-of-the-art equipment at the RFS factory.

#### High Power Rating

Due to their low attenuation, outstanding heat transfer properties and temperature stabilized dielectric materials, RFS cable provides safe long term operating life at high transmit power levels.

## Jacket Options

The standard jacket material is black polyethylene, denoted by the "J" suffix. Gray polyethylene jacket material is denoted by the "JGR" suffix. These cables are:

- Abrasion-resistant
- Halogen-free
- Non-corrosive
- Ultraviolet resistant
- Meet the requirements according to:
  - IEC 60754-1
  - IEC 60754-2

The optional jacket material for HELIFLEX® is black polyethylene with a bitumen flooding compound. These cables use the suffix JB. These cables are:

- Abrasion-resistant
- Ultraviolet resistant
- Self-healing

Cables with flame and fire retardant jackets use the suffix JFN. These cables are:

- Abrasion-resistant
- Halogen-free
- Non-corrosive
- Flame-retardant
- Fire-retardant
- Ultraviolet resistant
- Meet the requirements according to:
  - IEC 60754-1
  - IEC 60754-2
  - IEC 60332-1
  - UL 1581-1991 Sect. 1080 VW 1 Flame Test
  - IEC 60332-3-24
  - UL 1581-1991 Sect. 1160 Vertical Tray Flame Test
  - IEC 61034 (up to 2-1/4).

RG cables use the jacket option JF for a polyvinyl chloride jacket. These cables are:

- Abrasion-resistant
- Flame-retardant
- Fire-retardant
- Ultraviolet resistant
- Meet the requirements according to:
  - IEC 60332-1

Cables rated for plenum applications have PVDF jackets and use the suffix JPL. These unique cables are:

- Abrasion-resistant
- Flame-retardant
- Fire-retardant
- Meet the requirements according to:
  - UL 910
  - NEC 820-53(a) CATVP
  - NFPA-262

Flame and fire retardant jackets are specified according to tests defined by IEC or UL.

- IEC 60754-1 Test of gases emitted during the combustion of materials from cables: Determination of the amount of halogen acid gas (< 0.2% Chlorine)
- IEC 60754-2 Test of gases emitted during the combustion of materials from cables: Determination of degree of acidity of gases (PH-value > 4.3, conductivity < 100 m Siemens/cm)
- IEC 60332-1 Flame test on single cable
- IEC 60332-3.C Fire test on bunched cables
- IEC 61034 smoke emission test
- UL 1581-1991 Section 1080 VW 1 Flame Test: Flame test on single cable
- UL 1581-1991 Section 1160 Vertical Tray Flame Test: Fire test on bunched cable
- IEC 60754-1 and IEC 60754-2 means that the jacket is halogen-free and non-corrosive.
- IEC 60332-1 means that the jacket is flame retardant.
- IEC 60332-3-24 means that the jacket is fire retardant.
- IEC 61034 means that the jacket produces low smoke levels.
- UL 1581-1991 Section 1080 VW 1 Flame Test: means that the jacket is flame retardant
- UL 1581-1991 Section 1160 Vertical Tray Flame Test: means that the jacket is fire retardant
- UL 910 refers to the Steiner Tunnel Test, measuring flame spread and smoke density
- NFPA 262 is derived from and surpasses UL 910

Special flame retardant jacketing is available for all CELLFLEX®coaxial transmission line products. The jacketing meets the testing requirements of Underwriters Laboratories UL 1666, and qualifies for the NEC CATVR type rating code (NEC Section 820-51(b) Type CATVR-NEC 1996). Flame retardant jacketing contains UV stabilizer for added protection against direct sunlight.

CELLFLEX® and HELIFLEX® cables are available in several jacket materials and power ratings, depending on the cable type, as listed below. Refer to the specific cable data pages for the model numbers of available jacket options.

### Jacket Options

| Model Number | Jacket Type/Power | Installation Temperature °C(°F) | Operation Temperature °C(°F) | Storage Temperature °C(°F) |
|---|---|---|---|---|
| J, JGR | Standard, Grey (RAL 7004) | -40 to +60 (-40 to +140) | -50 to +85 (-58 to +185) | -70 to +85 (-94 to +185) |
| JT | High Power | -40 to +60 (-40 to +140) | -50 to +85 (-58 to +185) | -70 to +85 (-94 to +185) |
| JB | Standard, Self-Healing | -10 to +60 (14 to +140) | -40 to +85 (-40 to +185) | -70 to +85 (-94 to +185) |
| JBT | Standard, Self-Healing, High Power | -10 to +60 (14 to +140) | -40 to +85 (-40 to +185) | -70 to +85 (-94 to +185) |
| JF, JFN | Flame Retardant | -25 to +60 (-13 to +140) | -50 to +85 (-58 to +185) | -40 to +85 (-40 to +185) |
| JPL | Plenum rated | -40 to +60 (-40 to +140) | -40 to +85 (-40 to +185) | -40 to +85 (-40 to +185) |

## Standard or Premium Performance

Cables with standard performance fulfill the common requirements of typical applications. Our quality management system is in accordance with ISO 9000, it guarantees an excellent electrical and mechanical performance of every meter.

In case of more stringent requirements for the reflection factor, choose the premium performance cables. RFS offers a complete line of low VSWR cables in a full variety of types, frequencies and VSWR performance. These cables are selected to provide the lowest possible VSWR over a specified operating bandwidth. Please specify the operating frequency range when ordering the premium versions. Standard cables feature a minimum of -18 dB Return Loss (1.29:1 VSWR) within most global telecommunication frequency ranges, and up to -24 dB (1.135:1 VSWR) for specific bands in some markets. Contact your local sales representative for more details of VSWR performance on cable types available in your area.

### How to Choose the Optimum Cable

The power handling capability and allowable attenuation for the specific application determines the cable size to use.

In case of critical bending radii or repeated bending, the bending radius of the cable is a primary selection criterium.

If no specific requirements are stated, choose a standard flexible cable from the LCF series.

For applications that require tight bending, choose superflexible cables.

For mobile applications with several hundreds of re-reelings, choose the ultraflexible cable.

Cables are delivered in standard bulk lengths or are customer's specification. For standard bulk lengths refer to the shipping information.

Phase stabilized cables provide repeatable phase-temperature characteristics in multiple element antenna applications and broadcast sampling line systems. The stabilization is achieved through factory temperature cycling techniques which relieve the mechanical stress introduced during the manufacturing process.

### HELIFLEX Cable Return Loss Data

#### General Purpose Cables

If no specific requirements are stated, and the connector face dimensions are about the same as the cable dimensions, the following values can be expected:

| 40 - 970 MHz | RF | RL (dB) | VSWR |
|---|---|---|---|
| Typical value | 3-5% | 30.5-26.0 | 1.062-1.105 |
| Maximum Value | 7% | 23.1 | 1.151 |

### Broadcast and Television Grade Cables

Cable can be selected for certain frequency ranges with values as follows:

| Maximum Frequency Range | RF | RL (dB) | VSWR |
|---|---|---|---|
| 40 - 300 MHz | 5% | 26.0 | 1.105 |
| 40 - 68 MHz | 4% | 28.0 | 1.083 |
| 87 - 108 MHz | 4% | 28.0 | 1.083 |
| 174 - 230 MHz | 4% | 28.0 | 1.083 |
| 300 - 970 MHz | 5% | 26.0 | 1.105 |
| 410 - 470 MHz | 5% | 26.0 | 1.105 |
| 470 - 862 MHz* | 4% | 28.0 | 1.083 |

*For customer-specified sub-channel, see page 662.

### Microwave Grade Cables

Cable can be selected for certain frequency bands with the following values:

| Maximum Frequency Range | Cable Size | RF | RL (dB) | VSWR |
|---|---|---|---|---|
| 950 - 1850 MHz | 5/8" | 7% | 23.1 | 1.151 |
| | 7/8" | 7% | 23.1 | 1.151 |
| | 1-1/8" | 7% | 23.1 | 1.151 |
| | 1-5/8" | 7% | 23.1 | 1.151 |
| 1700 - 2300 MHz | 7/8" | 7% | 23.1 | 1.151 |
| | 1-5/8" | 7% | 23.1 | 1.151 |
| 2300 - 2700 MHz | 7/8" | 7% | 23.1 | 1.151 |
| 1700 - 2300 MHz | 7/8" | 5% | 26.0 | 1.105 |
| | 1-5/8" | 5% | 26.0 | 1.105 |
| 2300 - 2700 MHz | 7/8" | 5% | 26.0 | 1.105 |
| | 1-5/8" | 7% | 23.1 | 1.151 |

### CELLFLEX Cable Return Loss

| PREMIUM CODE | | FREQUENCY RANGE | ASSEMBLED VERSION RETURN LOSS (VSWR) {REFLECTION COEFFICIENT} |
|---|---|---|---|
| Standard Attenuation | Premium Attenuation | | |
| no code | A0 | Specify when ordering | 18.0dB (1.288:1) {12.6%} |
| P1 | A1 | 410 - 470 MHz | 23.0dB (1.152:1) {7.1%} |
| P2 | A2 | 806 - 960 MHz | 24.0dB (1.135:1) {6.3%} |
| P3 | A3 | 1425 - 1535 MHz | 24.0dB (1.135:1) {6.3%} |
| P4 | A4 | 1700 - 1880 MHz | 24.0dB (1.135:1) {6.3%} |
| P5 | A5 | 1850 - 1990 MHz | 28.0dB (1.083:1) {4.0%} |
| P6 | A6 | 1900 - 2200 MHz | 24.0dB (1.135:1) {6.3%} |
| P7 | A7 | 824 - 960 MHz and 1850 - 1990 MHz | 24.0dB (1.135:1) {6.3%} |
| P8 | A8 | 890 - 960 MHz and 1710 - 2200 MHz | 23.0dB (1.152:1) {7.1%} |