

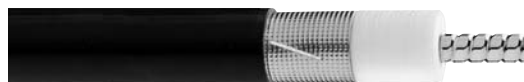
## Wireless Indoor Solutions

### Introduction to RADIAFLEX®

RADIAFLEX® radiating cables facilitate radio communication where the usual free space propagation of electromagnetic waves is hampered, undesired or impossible- in tunnels, mines, buildings, alongside tracks or lines and in large complexes like exhibition grounds or airports.

RFS has a wide range of radiating cables available, each optimized for the following fields of application:

- ALF, RLF series for heavy duty wideband and multiuse applications in tunnels of all kinds; easy system planning.
- RLK series for applications in tunnels and buildings, where low coupling loss variations are required.
- RLV series for tunnel applications, with graded coupling loss (VARIO) performing nearly constant system loss and low amplitude variation.
- RAY series for tunnels and buildings, optimized for high frequencies and digital transmission, where low coupling loss variations are required.
- RCF series for easy installation in buildings and mining, where particularly small bending radii are required and for heavy duty applications.
- RSF series preferable for installations in vehicles where narrow space requires sharp bending radii.
- RHCA series for use in buildings where the highest level of fire retardant standards are required. Plenum rated RHCA cables utilize an air-dielectric design. The dielectric support is wrapped Teflon tube.



#### TYPICAL APPLICATIONS

Analog security and trunk services	In the range of 75 MHz and 150 MHz
Digital security and trunk service	TETRA 380, TETRA 410, TETRA 450, TETRA 800, GSM-R, in the range of 380 MHz and 900 MHz
Digital broadcasting	DAB, DVB, in the ranges of 170 MHz and 240 MHz, and around 1.5 GHz
Digital cellular networks	DAMPS, GSM, DCS, PCN/PCS, UMTS, W-CDMA, in the range of 800 MHz and 2.2 GHz
Wireless LAN, WiFi, Bluetooth	2.4 GHz, 5.2 GHz, 5.8 GHz
WiMAX	3.5 GHz

## Wireless Indoor Solutions

### How to Select the Best Suited RADIAFLEX® Cable for a Given Purpose

All RADIAFLEX® cables belong to one of these sizes. For a given size, all smooth wall RADIAFLEX® cables have the same basic structure of inner conductor, foam dielectric, copper strip outer conductor and jacket, thus allowing identical connectors and clamps to be used (except of the RCF/RSF series and RHCA series with their corrugated outer conductor).

The differences between the cable versions of one given nominal diameter are solely attributable to the configuration of the outer conductor apertures. This configuration determines the kind of interaction between the inner coaxial system and the outside environment, and thus it influences all the cable's important electrical parameters like frequency range, attenuation, coupling loss, reflection factor and susceptibility to environmental conditions (such as lossy walls, accumulation of dust or salt and moisture etc.).

The best suited cable would have optimum values for all of these parameters, and knowing the particular application (service length, frequency range of operation etc.), this best suited cable can be determined. Following are a few indications about that. The comparisons are made for achieving minimum system loss, i.e. minimum of the sum of attenuation and coupling loss, and for maximum useful length.

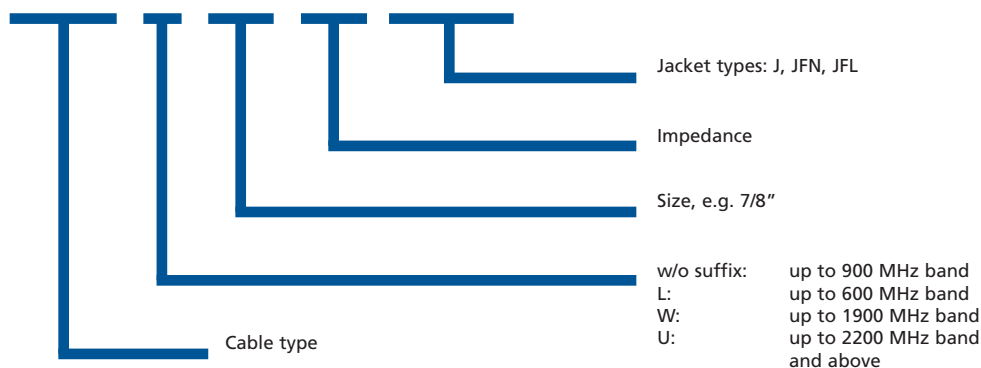
#### EACH RADIAFLEX® CABLE IS CLASSIFIED ACCORDING TO ITS NOMINAL DIELECTRIC DIAMETER

1/2"	11 mm	ALF 12-50	RLK 12-50		RCF/RSF 12-50	RHCA 12-50*
7/8"	23 mm	RLF 78-50	RLK 78-50		RAY 78-50	RCF 78-50
1 1/4"	33 mm	RLF 114-50	RLK 114-50	RLV 114-50	RAY 114-50	RCF 114-50
1 5/8"	44 mm	RLF 158-50	RLK 158-50	RLV 158-50	RAY 158-50	RCF 158-50

For a given nominal diameter, connectors and clamps are the same for any cable type (exemption: types RCF/RSF and RHCA).

\* Plenum rated version (JPL) only.

## RLK U 78-50 XXX A



## Wireless Indoor Solutions

Cable	Nominal Size	System Loss in dB/km (dB/1,000 ft)				
		450 MHz	900 MHz	1800 MHz	2200 MHz	2400 MHz
RCF12-50 ****	1/2 "	124 (84.4)	150 (91.6)	199 (107.9)	217 (114.8)	223 (116.6)
RSF12-50 ****	1/2 "	155 (93.8)	202 (112.3)	264 (129.7)	295 (135.1)	301 (138.2)
RHCA12-50 ****	1/2 "	153 (94.6)	199 (110.7)	271 (131.3)	293 (134.5)	310 (141.8)
RCF78-50 ****	7/8 "	105.5 (84.3)	117 (86.4)	138 (90.7)	148 (93.8)	151 (93.3)
RCF114-50 ****	1 1/4 "	103.2 (87.8)	113.1 (90.1)	128.8 (92.8)	136.2 (95)	140.9 (97.9)
RCF158-50 ****	1 5/8 "	99 (87.9)	106.2 (89.4)	119 (92.6)	123.6 (93.3)	126.5 (94.2)
ALFU12-50 ***	1/2 "	126.5 (90.7)	151 (98.2)	190 (113.4)	204 (117.8)	210 (119.5)
RLF78-50 ***	7/8 "	91.2 (73)	105.2 (77.3)	-	-	-
RLFW78-50 ***	7/8 "	99.8 (81.2)	113.1 (83.8)	147 (92.1)	-	-
RLFU78-50 ***	7/8 "	93.6 (77.4)	106.9 (75.3)	138.7 (82.6)	165.2 (90.7)	185.2 (98.2)
RLF114-50 ***	1 1/4 "	85.7 (71.3)	101.2 (76)	-	-	-
RLFW114-50 ***	1 1/4 "	92.7 (79)	100.5 (79.3)	132.6 (87)	-	-
RLFU114-50 ***	1 1/4 "	86.6 (73)	95.3 (73.5)	120.1 (78.3)	139.7 (83.6)	152.5 (88.2)
RLF158-50 ***	1 5/8 "	81.4 (70.7)	88.8 (72.3)	-	-	-
RLFW158-50 ***	1 5/8 "	89.6 (79.5)	92.5 (76.8)	113.7 (79.1)	-	-
RLFU158-50 ***	1 5/8 "	82.3 (71.7)	90.1 (72.7)	116.2 (77.8)	137.5 (84.3)	156 (90)
RLKW12-50	1/2 "	119.4 (79.5)	148.3 (88.3)	260 (116.8)	-	-
RLKU12-50	1/2 "	125.4 (85.5)	154 (88.6)	277 (124)	310 (132.6)	333 (139.1)
RLKL78-50	7/8 "	88.3 (68.6)	-	-	-	-
RLKW78-50	7/8 "	89.8 (69.8)	109.2 (73.6)	185 (92.6)	-	-
RLKU78-50	7/8 "	98.7 (80.1)	106.7 (78.4)	139 (85.5)	160.4 (91.3)	177 (95.6)
RLKL114-50	1 1/4 "	85 (70.4)	-	-	-	-
RLK114-50	1 1/4 "	78.7 (64.3)	101.8 (70)	-	-	-
RLKW114-50	1 1/4 "	85.2 (71.9)	93.6 (71.6)	130 (77.2)	-	-
RLKU114-50	1 1/4 "	94 (80.8)	97.6 (76.3)	118.12 (79.8)	134.4 (84.1)	144.9 (87.3)
RLKU158-50	1 5/8 "	98.3 (88.4)	90.5 (74.9)	102.5 (75.7)	111.7 (77.8)	116.2 (77.8)
RLV114-50	1 1/4 "	96 *	89*	-	-	-
RLVU114-50	1 1/4 "	103 *	78 *	88 *	90 *	97 *
RLVU114-50B	1 1/4 "	92 *	85 *	86 *	88 *	89 *
RLV158-50	1 5/8 "	94 *	84 *	-	-	-
RLVU158-50	1 5/8 "	99 *	82 *	95 *	97 *	102 *
RLVU158-50B	1 5/8 "	99 *	90 *	94 *	96 *	99 *
RAY78-50	7/8 "	88.7 (70.1)	113 (73.4)	-	-	-
RAY78-50B	7/8 "	90.5 (70.7)	110 ** (75.3) **	-	-	-
RAY114-50	1 1/4 "	84.4 (71.6)	95.4 (69.4)	-	-	-
RAY114-50B	1 1/4 "	88.3 (74.2)	99.1 ** (73.3) **	-	-	-
RAY158-50	1 5/8 "	81.9 (71.5)	89.2 (68.9)	-	-	-
RAYU158-50	1 5/8 "	104.2 (93.6)	100.5 (84.2)	111.7 (83.4)	123.1 (83.1)	148.2 (89)
RAYU158-50T	1 5/8 "	-	84.7 (67.5)	103 (71)	104 (75.5)	-

\* Figures for manufacturing lengths

\*\* Figures for 800 MHz

\*\*\* Due to the cable design single lengths should not be less than 80 m (262 ft).

\*\*\*\* Coupling loss values are given with a tolerance of 10 dB and longitudinal loss values with a tolerance of 5%.

Length @ 120 dB system loss in m (ft)					Type of apertures	Remarks
450 MHz	900 MHz	1800 MHz	2200 MHz	2400 MHz		
930 (3,046)	643 (2,109)	397 (1,303)	340 (1,116)	327 (1,073)	Milled slots	<ul style="list-style-type: none"> <li>Corrugated outer conductor</li> <li>Robust, low bending radii</li> </ul>
602 (1,978)	364 (1,196)	254 (835)	239 (785)	226 (744)		
607 (1,992)	378 (1,240)	249 (816)	241 (791)	215 (705)		
1,475 (4,839)	1,068 (3,507)	735 (2,415)	641 (2,101)	627 (2,055)		
1,757 (5,735)	1,208 (3,960)	830 (2,722)	726 (2,389)	662 (2,169)		
2,313 (7,551)	1,570 (5,135)	1,026 (3,362)	917 (3,008)	860 (2,817)		
874 (2,866)	592 (1,940)	364 (1,198)	323 (1,058)	308 (1,013)	Groups of apertures at large intervals	<ul style="list-style-type: none"> <li>Corrugated outer conductor</li> <li>Robust, low bending radii</li> </ul>
2,099 (6,875)	1,368 (4,472)	-	-	-		
1,754 (5,732)	1,164 (3,828)	658 (2,158)	-	-		
1,957 (6,429)	1,305 (4,956)	768 (2,520)	578 (1,896)	479 (1,571)		
2,657 (8,730)	1,519 (5,000)	-	-	-		
2,386 (7,833)	1,639 (5,376)	808 (2,650)	-	-		
2,704 (8,833)	1,789 (5,895)	998 (3,279)	756 (2,480)	649 (2,128)		
3,506 (11,489)	2,311 (7,534)	-	-	-		
3,082 (10,000)	2,222 (7,353)	1,127 (3,709)	-	-		
3,464 (11,277)	2,191 (7,143)	1,069 (3,512)	771 (2,532)	621 (2,034)		
1,010 (3,314)	672 (2,205)	320 (1,051)	-	-	Groups of apertures at short intervals	Negligible influence of dust/salt/moisture accumulation on cable loss
906 (2,971)	638 (2,098)	286 (940)	255 (838)	237 (776)		
2,120 (6,977)	-	-	-	-		
2,049 (6,705)	1,211 (3,974)	511 (1,675)	-	-		
1,798 (5,926)	1,327 (4,355)	753 (2,468)	594 (1,947)	513 (1,685)		
2,667 (8,750)	-	-	-	-		
2,995 (9,841)	1,397 (4,571)	-	-	-		
2,813 (9,153)	1,835 (6,042)	868 (2,845)	-	-		
2,368 (7,759)	1,732 (5,699)	1,034 (3,393)	801 (2,624)	700 (2,292)		
2,517 (8,182)	2,311 (7,536)	1,455 (4,786)	1,170 (3,851)	1,069 (3,512)		
-	-	-	-	-	Vario cables • Graded groups of apertures	Standard length 1,000 m (3,281 ft)
-	-	-	-	-		Standard length 500 m (1,641 ft)
-	-	-	-	-		Standard length 500 m (1,641 ft)
-	-	-	-	-		Standard length 1,000 m (3,281 ft)
-	-	-	-	-		Standard length 800 m (2,625 ft)
-	-	-	-	-		Standard length 800 m (2,625 ft)
-	-	-	-	-		Standard length 800 m (2,625 ft)
2,172 (7,160)	1,123 (3,678)	-	-	-	Groups of slope slots at short intervals	<ul style="list-style-type: none"> <li>Low coupling loss</li> <li>Optimized for digital transmission</li> </ul>
2,035 (6,667)	1,200 * (3,922) *	-	-	-		
2,935 (9,643)	1,658 (5,439)	-	-	-		
2,562 (8,387)	1,563 * (5,133) *	-	-	-		
3,557 (11,778)	2,055 (6,742)	-	-	-		
2,039 (6,739)	1,830 (5,972)	1,204 (3,952)	946 (3,158)	669 (2,192)		
-	2,429 (8,000)	1,370 (4,500)	1,390 (4,560)	-		

The 1 km (1,000 m) system loss is the sum of the attenuation of 1 km (1,000 m) of cable loss plus the 50% coupling loss figure - see pages 402-440 for the coupling loss of the applicable cable. The 120 dB length is the cable length at which the sum of its attenuation and the 50% coupling loss figure is 120 dB. As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on the free space method. Coupling loss values are given with a tolerance of 5 dB and longitudinal loss values with a tolerance of 5%.

## Wireless Indoor Solutions

### Flame and Fire Retardant Jackets

The standard jacket material of all RADIAFLEX® cable is polyethylene, black. Those cable have the suffix J and meet the requirement of:

- IEC 60 754-1 (halogen-free, <0.2% Chlorine), and
- IEC 60 754-2 (non-corrosive, PH-value > 4.3, conductivity < 100 mSiemens/cm).

Smooth wall RADIAFLEX® cable with the suffix JFN meet the requirements of:

- IEC 60 754-1 and -2 (as above)
- IEC 60 332-1 (flame retardant, 'single cable'), and
- IEC 60 332-3-24 (fire retardant, 'cable bundle').

Cable sizes of 1/2" and 5/8" meet in addition:

- IEC 61 034 (low smoke).

Smooth wall RADIAFLEX® cable with the suffix JFL meet the requirements of:

- IEC 60 754-1 and -2 (as above),
- IEC 60 332-1 and -3-24 (as above), and
- IEC 61 034 (low smoke)

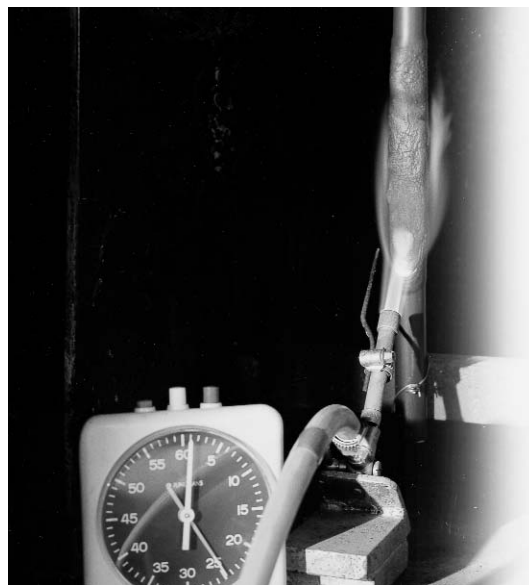
The table on the next page identifies the requirements which are met by both foam-dielectric RADIAFLEX® cable types, with copper foil as outer conductor and the corrugated type.

It may be noted that the "cable bundle" test IEC 60 332-3 is not normally applicable to RADIAFLEX® cables as they are destined not to be installed in bundles.

Corrugated RHCA12-50 JPL Plenum rated cable utilizes an air-dielectric design. The dielectric support is wrapped Teflon tube. This special cable with suffix JPL meets the testing requirements of the UL 910 (Steiner Tunnel) test.



Test IEC 61 034, low smoke.



Test IEC 60 332-1, single cable



## Wireless Indoor Solutions

### Jackets Selection Guide

#### Flame and Fire Retarding Jackets

The below tables show the jacket types which are available to perform the different safety levels.

#### FOR THE RADIAFLEX® CABLE TYPES ALF, RLF, RLK, RLV, AND RAY:

MEETS:	IEC 60 754-1/ -2	IEC 61 034	IEC 60 332-1	IEC 60 332-3-24
REQUIREMENTS:	smoke emission: halogen free, not corrosive	low smoke emission	flame retardant	fire retardant
SUFFIX FOR THE CABLE NAME:				
JA	✓			
JFNA	✓	✓*	✓	✓
JFLA	✓	✓	✓	✓

✓ Jacket Type Available

\*for all 1/2" cable, not for 7/8", 1-1/4" and 1-5/8"

#### FOR THE RADIAFLEX® CABLE TYPES RCF AND RSF:

MEETS:	IEC 60 754-1/ -2	IEC 61 034	IEC 60 332-1	IEC 60 332-3-24
REQUIREMENTS:	smoke emission: halogen free, not corrosive	low smoke emission	flame retardant	fire retardant
SUFFIX FOR THE CABLE NAME:				
J, JA	✓			
JFN, JFNA	✓		✓	
JFL, JFLA	✓	✓	✓	✓

✓ Jacket Type Available

# Wireless Indoor Solutions

## Description of Technical Parameters

### Cable construction

RADIAFLEX® cables are designed to provide broadband wireless coverage for confined areas using trunking, cellular, and data communications.

RADIAFLEX® cables have an inner and outer conductor in coaxial configurations separated by a low loss foam dielectric. The polyethylene foam is applied to the center conductor by gas injection extrusion method. This process consistently produces a low-density, closed cell foam structure with low dielectric losses.

The outer conductor of the RADIAFLEX® cables are made of either an overlapping copper foil (ALF, RLF, RLK, RLV, RAY) or of seam welded and corrugated copper (RCF, RSF).

RADIAFLEX® cables have abrasion resistant black polyethylene jackets. The material is halogen free, UV resistant and non-corrosive. Flame and fire retardancy are standard options.

### Technical parameters

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

- frequency range
- longitudinal loss
- coupling loss
- system loss

### Frequency range

The design of the apertures in the outer conductor influences the frequency for which the cable is optimized. RADIAFLEX® cables are usually classified into three categories: for operation up to 900 MHz, 1900 MHz and 2200 MHz (2650 MHz). Cables optimized for special frequency ranges are available on request.

### Longitudinal loss

The longitudinal loss describes the signal loss in the cable. Longitudinal loss and coupling loss are relating to each other. Lower coupling loss usually results in higher longitudinal loss and vice versa. Both values are frequency dependent.

The longitudinal loss values are given with a tolerance of  $\pm 5\%$

### Coupling loss

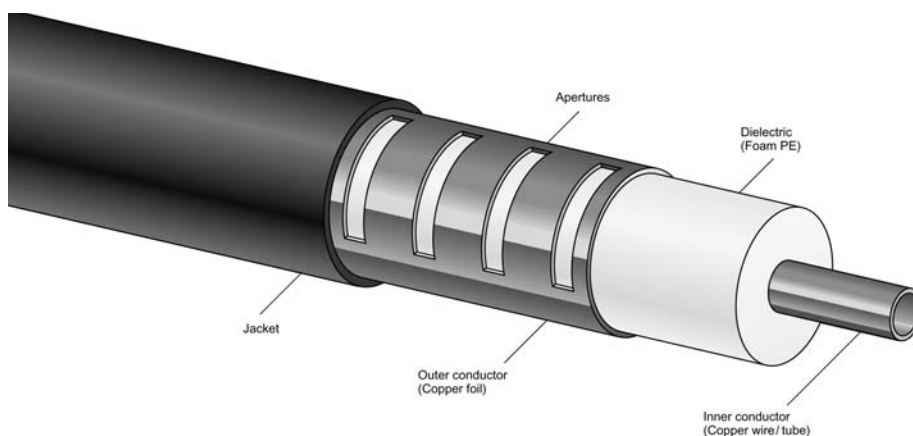
The coupling loss describes the signal loss between the cable and a test receiver at a distance of 2m (6ft). Generally two different physical modes carry the electromagnetic energy from the RADIAFLEX® cable into the air: the coupling mode and the radiating mode. Both modes are used with RADIAFLEX® cable. The kind of mode influences the values of the coupling loss.

The coupling loss values are given with a tolerance of  $\pm 5$  dB ( $\pm 10$  dB for RCF, RSF, RHCA).

### System loss

The system loss is the sum of longitudinal loss and coupling loss. For most of the cables the losses are given separately, whereas the Vario cables (RLV) are shown with system loss figures.

All those parameters as well as other specialties are described in more detail on the next pages.





## Frequency Ranges of RADIAFLEX® Cables

One of the major advantages of radiating cables is their ability to transmit and distribute RF broadband.

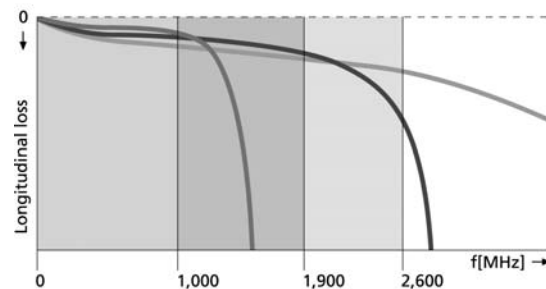
However, the frequency range to be transmitted and distributed depends on the design of the apertures. Physical reasons limit the performance of a radiating cable with regard to the broadband ability. A cable, for example, designed for up to GSM 900 will have better performance values over the defined operation range than a cable which is made for up to 1900 MHz or even for up to UMTS.

RFS categorized their RADIAFLEX® product families in four general sections which fits into the common applications for mobile telecommunication.

- Cables that are suitable for frequencies up to 1000 MHz and cover for example analogue emergency services of 75 MHz and 160 MHz, TETRA, CDMA/TDMA 800 and GSM900. Those cable types do not have any additional suffix to their cable type name.
- Cables that are specifically designed for applications below 600 MHz. Those cable types are indicated with a suffix L.
- Cables that are suitable for frequencies up to 1900 MHz. They cover in addition services like GSM 1800 and PCS 1900. Those cable types are indicated by the suffix W at the end of their cable type name.
- Cables that are suitable for frequencies up to 2200 MHz and more. They cover in addition services like UMTS, W-CDMA, wireless LAN and bluetooth. Those cable types are indicated by the suffix U at the end of their cable type name.

Whenever a certain wavelength interferes with the regular structure of the apertures of a cable, the reflection factor jumps up and with it the longitudinal loss drops to high values. Those stop bands are sharply limited by frequency and cannot be used. They vary from cable type to cable type and are indicated accordingly in the RADIAFLEX® selection guide. However, the design of the apertures are made in such a way that the not usable frequencies are located outside of the applicable frequency bands. In case a special application frequency collides with the stop band a customized cable can be designed to shift the stop band to areas which are not in use.

Due to the specific design the cable types ALF, RLF, RCF, and RSF do not show stop band characteristics.



**Diagram above:**

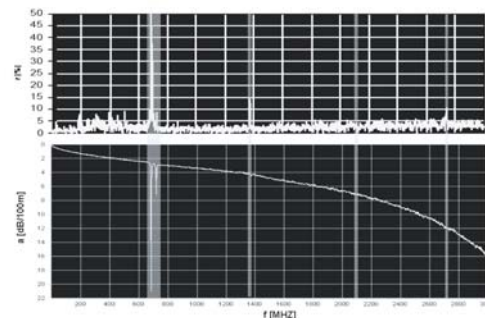
Principal frequency ranges of RADIAFLEX® cables  
 gray line: up to 1000 MHz  
 black line: up to 1900 MHz  
 light gray line: up to 2200 MHz and higher

## Installation of UMTS cables

For frequencies above 1900 MHz the radiation becomes more and more directive. Therefore, RADIAFLEX® cables suitable for UMTS and WLAN are either supplied with a guide (1-1/4" and 1-5/8") or a marking (1/2" to 7/8") on top of the jacket in order to easily allow to adjust the slots to the area to be covered.

**Diagram below:**

Principal stop band characteristic of a U-type of cable. The high stop band lays exactly between the uplink and downlink bands of UMTS and does not influence them. In the example shown below, the said stop band is highly suppressed and invisible.





## Wireless Indoor Solutions

### Coupling Loss Definition and Measurement

The radiation from a RADIAFLEX® cable is quantified by the coupling loss, being the ratio in dB between the signal in the RADIAFLEX® Cable and the signal received by a half-wavelength dipole antenna.

Coupling loss as well as longitudinal attenuation of RADIAFLEX® cables are measured by the free space method according to IEC 61 196-4. The cable is fixed 2 meters (6.5 ft) above ground.

A half-wavelength dipole antenna at a distance of 2 meters (6.5 ft) from the cable is then moved along the cable measuring the radiated signal level. A 6 meters (20ft) distance between antenna and cables (instead of 2 meters) results in coupling loss values that are approx. 5 dB higher than those obtained at 2 meters distance.

The sampled values of coupling loss vary along the cable due to the superposition of signals of varying phase (e.g. inside and outside of the cable). They also vary depending upon the spatial orientation of the half-wavelength dipole antenna.

For measurement repeatability, the coupling loss values in this catalog are therefore understood as average values, with a  $\pm 5$  dB tolerance for smooth-wall radiating cable and a  $\pm 10$  dB tolerance for corrugated radiating cable.

Two coupling loss figures are published:

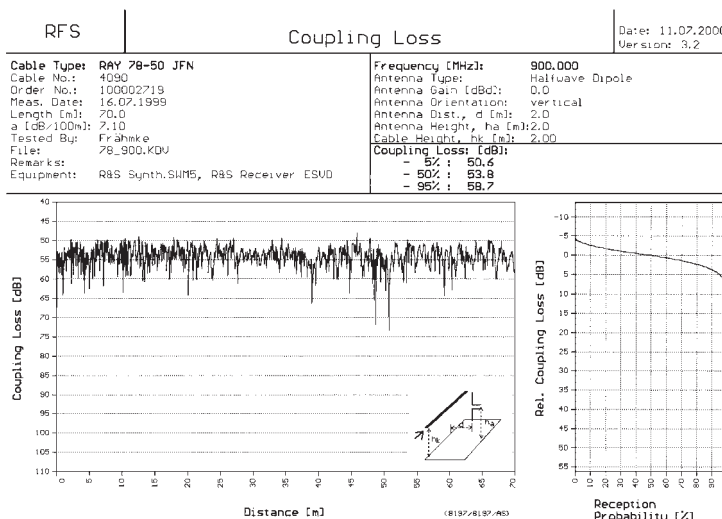
#### 50% reception probability:

50% of all measured samples are better than the stated figure.

#### 95% reception probability:

95% of all measured samples are better than the stated figure.

The 95% value, as well as the difference between the two values, helps the system designer in assessing/calculating availability of the link.



Test document for coupling loss measurements according to IEC 61 196-4

## System Loss in Practical Environments

System loss is the sum of longitudinal loss (attenuation) and coupling loss and is as such used in the table comparing various RADIAFLEX® cable series (see Comparison Table on page 392.)

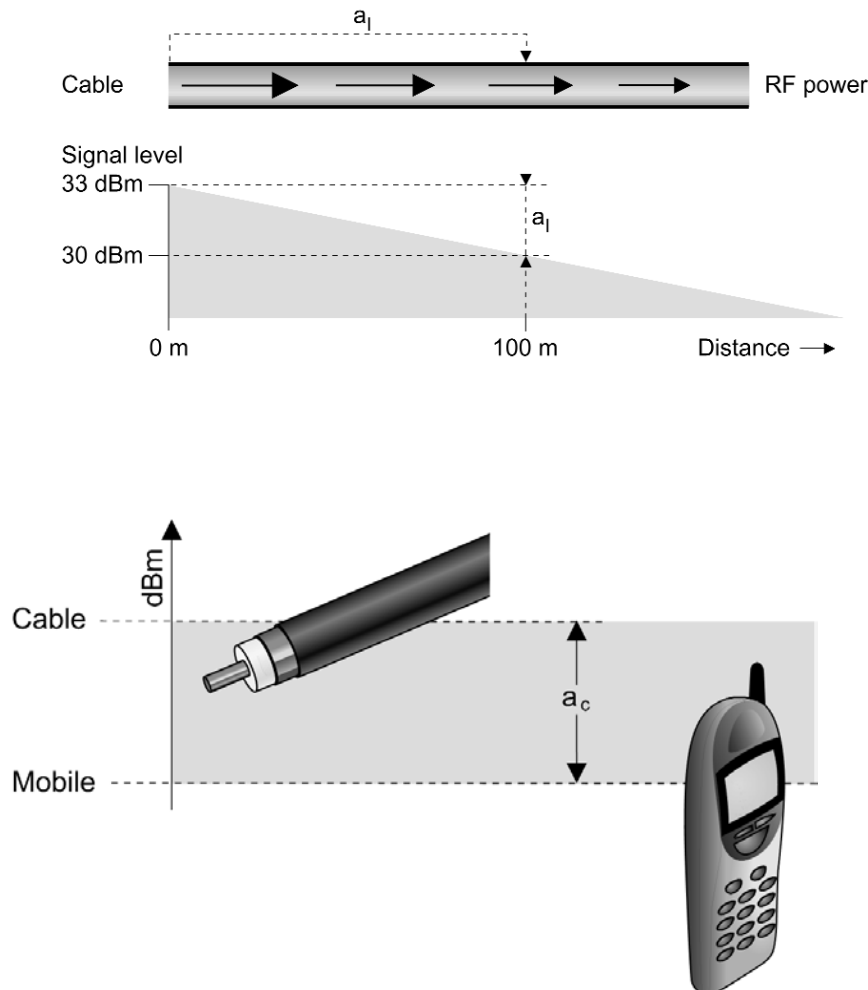
In practical environments (tunnels, buildings, underground garages, etc.), the influence of conducting/reflecting/lossy surfaces has to be considered. This is done by employing the following two measures:

1. Installation with the help of stand-off clamps minimises the influence of lossy walls.
2. A 10 - 15 dB safety margin is adequate to cover the difference between the environment during factory measurement ("free space") and in the actual situation (buildings, unusual tunnel situation etc.)

Normally, the coupling loss in tunnel installations differs from the free space loss since more multipath effects occur. They depend on the tunnel cross section, material etc.

RFS has been collecting data on the effects of various profiles at various frequencies for more than 30 years and can assist the customer in quantifying these effects.

The sum of cable loss ( $a_l$ ) and coupling loss ( $a_c$ ) defines the system loss



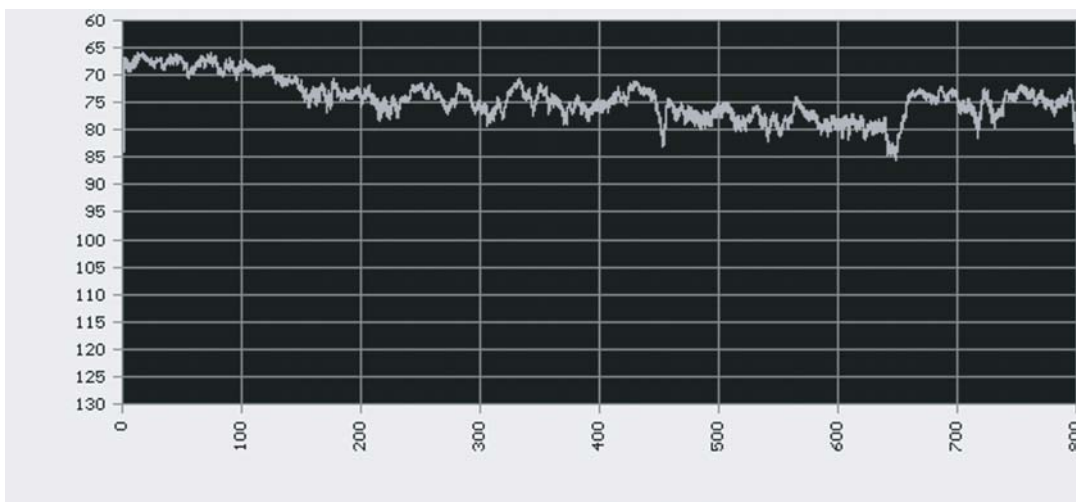
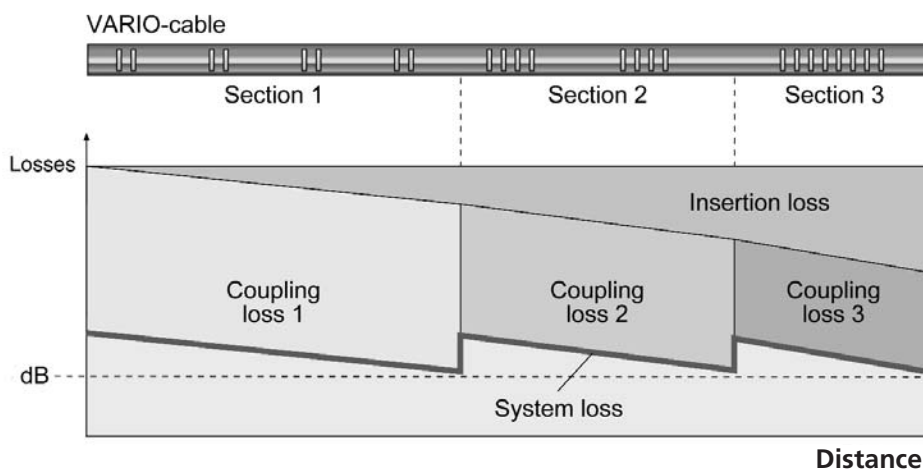
## Wireless Indoor Solutions

### How Does Vario Cable Work?

Since system loss (attenuation plus coupling loss) increases as one moves down the radiating cable, its service length can be considerably increased by decreasing coupling loss gradually to the extent necessary for compensating longitudinal loss (attenuation). This may be done stepwise, and the result is a configuration where the radiating cable consists of sections of decreasing coupling loss.

A particularly attractive feature of this principle is the small dynamic range which is only a fraction of that of "normal" radiating cables.

The dynamic range is of importance for system planning. It is limited by the performance of the active components. Since cable attenuation varies with frequency, the compensation is precise only for one given frequency range. However, the cable performs adequately at those frequencies as well, even when total compensation does not take place (See performance figures in the cable comparison table on page 392.)



Example of a typical system loss measurement of a Vario cable

## A Vario Cable for UMTS Applications

### UMTS coverage in tunnels

The start-ups for UMTS in many countries also require coverage in confined areas. As UMTS will be brought to operation in cities as the first step, there is a strong requirement to provide UMTS coverage in the metro nets as well.

Radiating cables for UMTS (and for wireless LAN) coverage are available. But due to the fact that the frequency range of this service is significantly higher than all the other well known mobile frequency bands, the losses for the UMTS band are higher and the transmitted length drops. Amplifiers have to be used at shorter distances which creates disadvantages:

- The requested higher number of amplifiers results in a higher system price.
- The higher number of amplifiers may complicate the concept of a multi-band system.
- The reduced coverage area may require amplifiers between two metro stations. This makes the maintenance less easy, because it is usually restricted to traffic free time periods during night time.

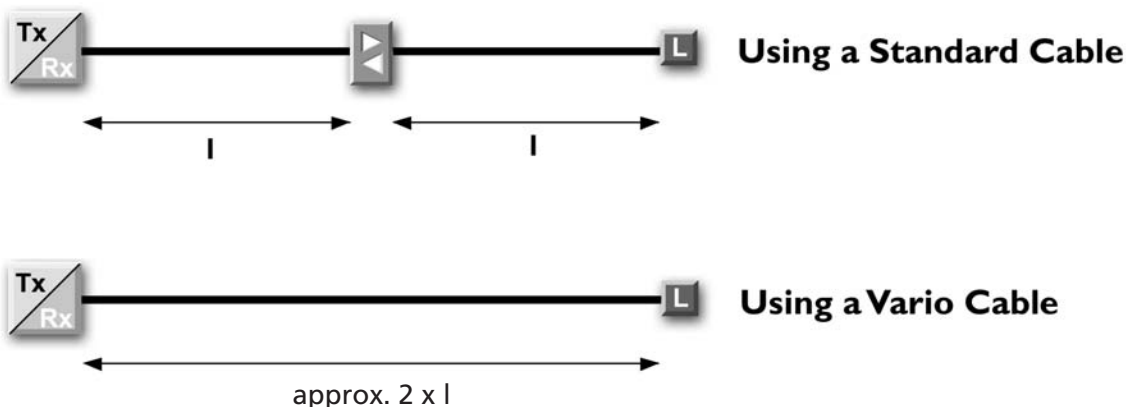
### Solution: The vario cable RLVU158-50

RFS have newly designed the Vario cable RLVU158-50 which supports the economic coverage of UMTS in tunnels – and due to the broadband ability of that cable all the other mobile frequency bands above 380 MHz are covered as well.

The RLVU158-50 provides coverage for UMTS in tunnels at a maximum length of 800 m without the need of amplifying the RF signal in between. Other lengths are available, such as 600 m and 650 m. Which cable length has to be chosen depends on the length of the tunnel and on the minimum system loss required for a given application.

The advantages are clearly visible:

- Compared with a standard cable the RLVU158-50 nearly doubles the transmission length for UMTS in tunnels without the need of amplifiers.
- Therefore, the RLVU158-50 usually allows to design communications systems for UMTS without the need to install active equipment in the tunnel area between two stations. This eases the maintenance of the system.
- The RLVU158-50 is a broadband cable and supports mobile services from TETRA 380 MHz to UMTS 2100 MHz.



# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® RCF Cable



RCF12 SERIES	
Cable Type	RCF/RSF
Size	1/2"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	6000
STRUCTURE	
Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	4.8 (0.19)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	13.8 (0.54)
Diameter over Jacket, mm (in)	16.2 (0.64)
MECHANICAL SPECIFICATIONS	
Minimum Bending Radius, Single Bend, mm (in)	125 (4.9)
Tensile Force, N (lb)	1000 (225)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.6 (2.0)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None
ELECTRICAL SPECIFICATIONS	
Impedance, ohm	50 +/-2
Velocity, %	88
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.57 (0.48)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.23 (0.68)
Stop bands, MHz	None

RCF12-50J/JFN/JFL

PERFORMANCE		
Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	2.20 (0.67)	50/62
150	3.15 (0.96)	59/71
450	5.70 (1.74)	67/79
800	7.83 (2.39)	67/79
870	8.25 (2.51)	66/78
900	8.40 (2.56)	66/78
960	8.65 (2.64)	66/78
1800	13.1 (3.99)	68/80
1900	13.6 (4.15)	69/81
2000	14.0 (4.27)	72/84
2200	14.7 (4.48)	70/82
2400	15.3 (4.66)	70/82
2600	15.9 (4.85)	70/82
5000	24.8 (7.56)	75/87
5200	25.7 (7.83)	75/87
5800	27.6 (8.41)	75/87
6000	29.9 (8.81)	75/87

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RCF12-50J	Standard	0.22 (0.14)
RCF12-50JFN	Flame Retardant	0.26 (0.17)
RCF12-50JFL	Flame/Fire Retardant, Low Smoke	0.26 (0.17)



# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® RSF Cable



### RSF12 SERIES

Cable Type	RCF/RSF
Size	1/2"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	6000

### STRUCTURE

Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	3.6 (0.14)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	12.3 (0.48)
Diameter over Jacket, mm (in)	13.7 (0.54)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	32 (1.3)
Tensile Force, N (lb)	600 (135)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.3 (1.0)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	88
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	2.9 (0.89)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	4.0 (1.22)
Stop bands, MHz	None

RSF12-50J/JFN/JFL

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	3.35 (1.02)	48/59
150	4.85 (1.48)	62/73
450	8.80 (2.68)	67/76
800	12.1 (3.68)	72/84
870	12.67 (3.86)	73/85
900	12.9 (3.93)	73/84
960	13.35 (4.07)	73/85
1800	19.3 (5.87)	71/81
1900	19.7 (5.99)	68/80
2000	20.55 (6.26)	66/77
2200	23.0 (7.01)	65/76
2400	23.4 (7.12)	67/78

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RSF12-50J	Standard	0.21 (0.14)
RSF12-50JFN	Flame Retardant	0.25 (0.16)
RSF12-50JFL	Flame/Fire Retardant, Low Smoke	0.25 (0.16)

# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® RHCA Cable



### RHCA12 SERIES

Cable Type	RHCA
Size	1/2"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	6000

### STRUCTURE

Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	4.8 (0.19)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	14.0 (0.55)
Diameter over Jacket, mm (in)	15.5 (0.61)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	127 (5.0)
Tensile Force, N (lb)	900 (203)
Storage Temperature, °C (°F)	-40 to +85 (-40 to +185)
Operation Temperature, °C (°F)	-40 to +85 (-40 to +185)
Installation Temperature, °C (°F)	-40 to +60 (-40 to +140)
Recommended Clamp Spacing, m (ft)	0.6 (2.0)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	91
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.48 (0.45)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.90 (0.58)
Stop bands, MHz	None

RHCA12-50JPL

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	2.90 (0.83)	51/63
150	4.30 (1.31)	59/70
450	8.40 (2.56)	69/81
800	11.9 (3.63)	74/85
900	12.7 (3.87)	72/84
1800	20.1 (6.13)	70/81
1900	20.8 (6.34)	65/77
2200	22.8 (6.95)	65/77
2400	24.2 (7.38)	68/80

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RHCA12-50JPL	Plenum Rated	0.27 (0.18)





# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RCF Cable, A-series



### RCF78 SERIES

Cable Type	RCF/RSF
Size	7/8"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	25.2 (0.99)
Diameter over Jacket, mm (in)	27.8 (1.09)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	250 (10.0)
Tensile Force, N (lb)	1440 (317)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3.0)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.22 (0.37)
Stop bands, MHz	None

RCF78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.20 (0.37)	56/66
150	1.75 (0.53)	66/75
450	3.05 (0.93)	75/86
800	4.20 (1.28)	73/83
870	4.3 (1.31)	73/83
900	4.40 (1.34)	73/83
960	4.6 (1.4)	73/83
1800	6.80 (2.07)	70/81
1900	7.00 (2.13)	70/81
2000	7.3 (2.23)	71/82
2200	7.80 (2.38)	70/81
2400	8.30 (2.53)	68/80
2600	8.80 (2.68)	68/80

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RCF78-50JA	Standard	0.50 (0.34)
RCF78-50JFNA	Flame Retardant	0.60 (0.40)
RCF78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RCF Cable, A-series



RCF114 SERIES	
Cable Type	RCF/RSF
Size	1-1/4"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	2650
STRUCTURE	
Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.6 (0.54)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	36.0 (1.42)
Diameter over Jacket, mm (in)	39.0 (1.54)
MECHANICAL SPECIFICATIONS	
Minimum Bending Radius, Single Bend, mm (in)	380 (15.0)
Tensile Force, N (lb)	620 (137)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.0 (3.3)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None
ELECTRICAL SPECIFICATIONS	
Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.94 (0.59)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	0.79 (0.24)
Stop bands, MHz	None

RCF114-50JA/JFNA/JFLA

PERFORMANCE		
Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.85 (0.26)	61/71
150	1.22 (0.37)	70/80
450	2.22 (0.68)	81/93
800	3.06 (0.93)	80/92
870	3.26 (0.99)	80/89
900	3.31 (1.01)	80/92
960	3.44 (1.05)	80/89
1800	5.18 (1.58)	77/88
1900	5.35 (1.63)	76/88
2000	5.54 (1.69)	77/88
2200	5.92 (1.80)	77/88
2400	6.19 (1.89)	79/90
2600	6.57 (2.00)	80/91

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RCF114-50JA	Standard	0.85 (0.57)
RCF114-50JFNA	Flame Retardant	0.90 (0.61)
RCF114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.61)

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RCF Cable, A-series



### RCF158 SERIES

Cable Type	RCF/RSF
Size	1-5/8"
Slot Design	Milled (Two-Row)
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Corrugated Copper Tube
Diameter Outer Conductor, mm (in)	46.5 (1.83)
Diameter over Jacket, mm (in)	50.3 (1.98)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (19.7)
Tensile Force, N (lb)	1080 (238)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.2 (4.0)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	None

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.26 (0.38)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	0.55 (0.17)
Stop bands, MHz	None

RCF158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.59 (0.18)	62/74
150	0.86 (0.26)	70/80
450	1.60 (0.49)	83/93
800	2.25 (0.69)	84/94
870	2.37 (0.72)	82/92
900	2.42 (0.74)	82/92
960	2.51 (0.77)	82/92
1800	3.80 (1.16)	81/91
1900	3.94 (1.20)	80/90
2000	4.08 (1.24)	80/90
2200	4.36 (1.33)	80/90
2400	4.65 (1.42)	80/90
2600	4.92 (1.50)	80/90

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RCF158-50JA	Standard	1.20 (0.81)
RCF158-50JFNA	Flame Retardant	1.30 (0.87)
RCF158-50JFLA	Flame/Fire Retardant, Low Smoke	1.30 (0.87)

# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® ALFU Cable, A-series



### ALFU12 SERIES

Cable Type	ALF/RLF
Size	1/2"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	4.4 (0.17)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	11.4 (0.45)
Diameter over Jacket, mm (in)	14.7 (0.58)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	200 (7.9)
Tensile Force, N (lb)	1300 (292)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.5 (1.6)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	88
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	2.0 (0.61)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	4.1 (1.25)
Stop bands, MHz	None

ALFU12-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.95 (0.59)	70/82
150	2.85 (0.87)	70/82
450	5.15 (1.57)	75/87
800	7.05 (2.15)	75/87
900	7.60 (2.32)	75/87
1800	11.0 (3.34)	80/92
1900	11.4 (3.46)	80/92
2000	11.7 (3.57)	80/92
2200	12.4 (3.78)	80/92
2400	13.0 (3.95)	80/92
2600	13.5 (4.11)	80/92

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
ALFU12-50JA	Standard	0.29 (0.20)
ALFU12-50JFNA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)
ALFU12-50JFLA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)



# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLF Cable, A-series



### RLF78 SERIES

Cable Type	ALF/RLF
Size	7/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	None

RLF78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.90 (0.27)	60/70
150	1.36 (0.41)	62/73
450	2.62 (0.80)	65/77
800	3.80 (1.16)	65/76
900	4.02 (1.23)	65/75

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF78-50JA	Standard	0.45 (0.30)
RLF78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLF78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)

WIRELESS  
INDOOR  
SOLUTIONS

5

# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLFW Cable, A-series



<b>RLF78 SERIES</b>	
Cable Type	ALF/RLF
Size	7/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2000
<b>STRUCTURE</b>	
Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)
<b>MECHANICAL SPECIFICATIONS</b>	
Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots
<b>ELECTRICAL SPECIFICATIONS</b>	
Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	None

RLF78-50JA/JFNA/JFLA

<b>PERFORMANCE</b>		
Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.03 (0.31)	70/82
150	1.49 (0.45)	70/81
450	2.68 (0.82)	73/84
800	3.90 (1.19)	73/84
900	4.21 (1.28)	71/82
1800	7.90 (2.41)	68/80
1900	8.71 (2.66)	68/80

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF78-50JA	Standard	0.45 (0.30)
RLF78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLF78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)

# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLFU Cable, A-series



### RLFU78 SERIES

Cable Type	ALF/RLF
Size	7/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2400

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	None

RLFU78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.02 (0.31)	63/73
150	1.48 (0.45)	62/75
450	2.76 (0.84)	66/78
800	3.93 (1.20)	67/77
870	4.10 (1.25)	62/74
900	4.29 (1.13)	64/74
960	4.37 (1.33)	66/77
1800	8.07 (2.46)	58/70
1900	8.81 (2.69)	59/70
2000	9.28 (2.83)	59/70
2200	10.72 (3.27)	58/69
2400	12.52 (3.82)	60/71

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLFU78-50JA	Standard	0.45 (0.30)
RLFU78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLFU78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLF Cable, A-series



### RLF114 SERIES

Cable Type	ALF/RLF
Size	1-1/4"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	None

RLF114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.74 (0.23)	60/70
150	1.04 (0.32)	62/73
450	2.07 (0.63)	65/77
800	3.28 (1.00)	65/75
900	3.62 (1.10)	65/75

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF114-50JA	Standard	0.66 (0.44)
RLF114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLF114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLFW Cable, A-series



### RLF114 SERIES

Cable Type	ALF/RLF
Size	1-1/4"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2000

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	None

RLF114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.76 (0.23)	71/83
150	1.10 (0.33)	70/82
450	1.97 (0.60)	73/85
800	2.97 (0.91)	72/84
900	3.05 (0.93)	70/82
1800	6.56 (2.00)	67/79
1900	7.62 (2.32)	66/78

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF114-50JA	Standard	0.66 (0.44)
RLF114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLF114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLFU Cable, A-series



### RLFU114 SERIES

Cable Type	ALF/RLF
Size	1-1/4"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2400

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	None

RLFU114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.74 (0.23)	67/80
150	1.07 (0.33)	66/76
450	1.96 (0.60)	67/76
800	2.95 (0.90)	66/77
870	3.02 (0.92)	65/77
900	3.13 (0.95)	64/75
960	3.44 (1.05)	64/75
1800	6.01 (1.83)	60/71
1900	6.53 (1.99)	61/72
2000	7.11 (2.17)	60/72
2200	8.07 (2.46)	59/69
2400	9.25 (2.82)	60/71

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLFU114-50JA	Standard	0.66 (0.44)
RLFU114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLFU114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLF Cable, A-series



### RLF158 SERIES

Cable Type	ALF/RLF
Size	1-5/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	None

RLF158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.55 (0.17)	67/78
150	0.78 (0.24)	66/77
450	1.54 (0.47)	66/77
800	2.21 (0.67)	66/77
870	2.52 (0.77)	65/76
900	2.38 (0.73)	65/76
960	2.67 (0.81)	65/76

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF158-50JA	Standard	0.80 (0.54)
RLF158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLF158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLFW Cable, A-series



### RLF158 SERIES

Cable Type	ALF/RLF
Size	1-5/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2000

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	None

RLF158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.57 (0.17)	68/79
150	0.82 (0.25)	73/84
450	1.46 (0.45)	75/86
800	2.03 (0.62)	72/84
900	2.25 (0.68)	70/81
1800	4.97 (1.51)	64/75
1900	5.85 (1.78)	63/74

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLF158-50JA	Standard	0.80 (0.54)
RLF158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLF158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)



# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLFU Cable, A-series



### RLFU158 SERIES

Cable Type	ALF/RLF
Size	1-5/8"
Slot Design	Groups of slots at large intervals
Maximum Frequency, MHz	2400

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	50 (2)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	None

RLFU158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.56 (0.17)	67/78
150	0.81 (0.25)	67/78
450	1.53 (0.47)	67/77
800	2.26 (0.69)	67/77
870	2.47 (0.75)	65/75
900	2.51 (0.77)	65/75
960	2.61 (0.80)	65/75
1800	5.52 (1.68)	61/71
1900	5.95 (1.81)	61/71
2000	6.45 (1.97)	61/71
2200	7.65 (2.33)	61/71
2400	9.50 (2.90)	61/71

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLFU158-50JA	Standard	0.80 (0.54)
RLFU158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLFU158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)

# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® RLKW Cable, A-series



### RLKW12 SERIES

Cable Type	RLK
Size	1/2"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	1950

### STRUCTURE

Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	4.4 (0.17)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	11.4 (0.45)
Diameter over Jacket, mm (in)	14.7 (0.58)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	200 (7.9)
Tensile Force, N (lb)	1300 (292)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.5 (1.6)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	88
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	2.0 (0.61)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	4.1 (1.25)
Stop bands, MHz	115-135, 235-255, 360-380, 475-505, 600-630, 720-750, 805-865, 970-1075, 1340-1460, 1590-1700

RLKW12-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	2.17 (0.66)	49/60
150	3.10 (0.94)	58/67
450	5.74 (1.75)	62/66
800	7.89 (2.40)	62/66
870	8.33 (2.54)	62/69
900	8.63 (2.63)	62/69
960	8.92 (2.72)	62/69
1800	20.6 (6.28)	54/66
1900	21.6 (6.59)	53/65

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKW12-50JA	Standard	0.29 (0.20)
RLKW12-50JFNA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)
RLKW12-50JFLA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)



# RADIAFLEX® Radiating Cable

## 1/2" RADIAFLEX® RLKU Cable, A-series



### RLKU12 SERIES

Cable Type	RLK
Size	1/2"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Clad Aluminum Wire
Diameter Inner Conductor, mm (in)	4.4 (0.17)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	11.4 (0.45)
Diameter over Jacket, mm (in)	14.7 (0.58)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	200 (7.9)
Tensile Force, N (lb)	1300 (292)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.5 (1.6)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	88
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	2.0 (0.61)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	4.1 (1.25)
Stop bands, MHz	650-750, 1330-1430, 2025-2100

RLKU12-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	2.17 (0.66)	53/63
150	3.10 (0.94)	61/72
450	5.74 (1.75)	68/79
800	8.75 (2.67)	59/65
870	9.21 (2.81)	60/66
900	9.40 (2.86)	60/66
960	9.73 (2.97)	60/66
1800	22.0 (6.70)	57/67
1900	22.7 (6.92)	57/67
2000	23.48 (7.16)	56/66
2200	25.5 (7.76)	55/63
2400	27.9 (8.51)	54/63
2600	30.5 (9.30)	54/63

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKU12-50JA	Standard	0.29 (0.20)
RLKU12-50JFNA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)
RLKU12-50JFLA	Flame/Fire Retardant, Low Smoke	0.34 (0.23)

# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLKL Cable, A-series



### RLKL78 SERIES

Cable Type	RLK
Size	7/8"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	600

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	55-65, 115-130, 175-190, 235-250, 295-310, 355-375, 535-555

RLKL78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.00 (0.30)	50/59
150	1.48 (0.45)	56/63
450	2.83 (0.86)	60/69

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKL78-50JA	Standard	0.45 (0.30)
RLKL78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLKL78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)



# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLKW Cable, A-series



### RLKW78 SERIES

Cable Type	RLK
Size	7/8"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	1950

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	115-135, 235-255, 360-380, 475-505, 600-630, 720-750, 805-865, 970-1075, 1340-1460, 1590-1700

RLKW78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.05 (0.32)	52/63
150	1.52 (0.46)	60/68
450	2.88 (0.88)	61/65
800	4.44 (1.35)	61/65
870	5.14 (1.57)	58/64
900	5.12 (1.56)	58/66
960	5.47 (1.67)	58/64
1800	13.3 (4.06)	52/63
1900	14.6 (4.46)	52/63

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKW78-50JA	Standard	0.45 (0.30)
RLKW78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLKW78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)

WIRELESS  
INDOOR  
SOLUTIONS

5

# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RLKU Cable, A-series



### RLKU78 SERIES

Cable Type	RLK
Size	7/8"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2:16 (0.66)
Stop bands, MHz	650-750, 1330-1430, 2025-2100

RLKU78-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.02 (0.31)	56/68
150	1.46 (0.44)	65/77
450	2.67 (0.81)	72/84
800	4.07 (1.24)	69/77
870	4.23 (1.29)	66/74
900	4.07 (1.24)	66/74
960	4.62 (1.41)	66/74
1800	7.70 (2.35)	62/70
1900	8.18 (2.50)	62/70
2000	8.66 (2.64)	63/71
2200	9.94 (3.03)	61/69
2400	11.7 (3.56)	60/68
2600	13.7 (4.18)	60/68

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKU78-50JA	Standard	0.45 (0.30)
RLKU78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RLKU78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLKL Cable, A-series



### RLKL114 SERIES

Cable Type	RLK
Size	1-1/4"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	600

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	55-65, 115-130, 175-190, 235-250, 295-310, 355-375, 535-555

RLKL114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.80 (0.24)	55/66
150	1.00 (0.31)	60/68
450	2.10 (0.64)	64/68

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKL114-50JA	Standard	0.66 (0.44)
RLKL114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLKL114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLK Cable, A-series



### RLK114 SERIES

Cable Type	RLK
Size	1-1/4"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	980

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	325-375, 660-750

RLK114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.73 (0.22)	57/68
150	1.05 (0.32)	66/76
450	2.07 (0.63)	58/63
800	3.83 (1.17)	55/65
870	4.29 (1.31)	58/68
900	4.58 (1.40)	56/66
960	4.93 (1.50)	56/66

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLK114-50JA	Standard	0.66 (0.44)
RLK114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLK114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLKW Cable, A-series



### RLKW114 SERIES

Cable Type	RLK
Size	1-1/4"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	1950

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	115-135, 235-255, 360-380, 475-505, 600-630, 720-750, 805-865, 970-1075, 1340-1460, 1590-1700

RLKW114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.69 (0.21)	57/68
150	1.03 (0.33)	62/68
450	1.92 (0.59)	66/70
800	2.84 (0.87)	64/70
870	3.04 (0.93)	62/67
900	3.16 (0.96)	62/67
960	3.37 (1.03)	62/67
1800	7.60 (2.32)	54/62
1900	8.52 (2.60)	50/58

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKW114-50JA	Standard	0.66 (0.44)
RLKW114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLKW114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLKU Cable, A-series



### RLKU114 SERIES

Cable Type	RLK
Size	1-1/4"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	650-750, 1330-1430, 2025-2100

RLKU114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.70 (0.21)	57/69
150	1.03 (0.31)	66/78
450	1.90 (0.58)	75/87
800	2.86 (0.87)	67/72
870	3.06 (0.93)	67/73
900	3.06 (0.93)	67/72
960	3.27 (1.00)	67/72
1800	5.51 (1.68)	63/68
1900	5.80 (1.77)	63/68
2000	6.15 (1.87)	62/67
2200	7.24 (2.21)	62/67
2400	8.29 (2.53)	62/67
2600	10.0 (3.05)	61/66

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKU114-50JA	Standard	0.66 (0.44)
RLKU114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLKU114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLKU Cable, A-series



### RLKU158 SERIES

Cable Type	RLK
Size	1-5/8"
Slot Design	Groups of vertical slots at short intervals
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	650-750, 1000-1050, 1330-1430, 2025-2100

RLKU158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.54 (0.17)	65/77
150	0.77 (0.24)	74/84
450	1.43 (0.44)	84/92
800	2.10 (0.64)	68/71
870	2.22 (0.68)	68/72
900	2.25 (0.69)	68/72
1800	3.85 (1.17)	64/69
1900	4.06 (1.24)	64/70
2000	4.29 (1.31)	65/71
2200	4.87 (1.48)	63/68
2400	5.52 (1.68)	61/66
2600	6.39 (1.95)	61/66

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLKU158-50JA	Standard	0.80 (0.54)
RLKU158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLKU158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLV Cable, A-series



### RLV114 SERIES

Cable Type	RLV
Size	1-1/4"
Length, m (ft)	1000 (3281)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.54)
Stop bands, MHz	720-840

RLV114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
150	11.1	85/97
450	19.7	96/108
900	34.2	89/97
960	35.5	91/99

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLV114-50JA	Standard	0.66 (0.44)
RLV114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLV114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLVU Cable, A-series



### RLVU114 SERIES

Cable Type	RLV
Size	1-1/4"
Length, m (ft)	500 (1641)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	2400

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.54)
Stop bands, MHz	790-870, 1550-1650

RLVU114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
450	10.0	103/108
900	16.0	78/83
1800	24.0	88/93
2000	26.0	89/94
2200	29.0	90/95
2400	34.0	97/102

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLVU114-50JA	Standard	0.66 (0.44)
RLVU114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RLVU114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

WIRELESS  
INDOOR  
SOLUTIONS

5

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RLVU Cable, A-series



### RLVU114B SERIES

Cable Type	RLV
Size	1-1/4"
Length, m (ft)	500 (1641)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.80 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.54)
Stop bands, MHz	650-750, 1330-1430, 2025-2100

RLVU114-50JAB/JFNAB/JFLAB

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
75	3.6	72/84
150	5.1	80/92
450	9.4	92/103
800	13.6	84/87
870	14.2	84/89
900	14.6	85/90
960	15.0	84/86
1800	23.4	86/91
2000	25.9	85/90
2200	28.7	88/92
2400	32.3	89/93
2600	37	96/101

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLVU114-50JAB	Standard	0.66 (0.44)
RLVU114-50JFNAB	Flame/Fire Retardant	0.90 (0.60)
RLVU114-50JFLAB	Flame/Fire Retardant, Low Smoke	0.90 (0.60)



# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLV Cable, A-series



### RLV158 SERIES

Cable Type	RLV
Size	1-5/8"
Length, m (ft)	1000 (3281)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	720-840

RLV158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
450	16.0	94/105
870	30.0	80/85
900	30.7	83/88
960	31.6	84/89

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLV158-50JA	Standard	0.80 (0.54)
RLV158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLV158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLVU Cable, A-series



### RLVU158 SERIES

Cable Type	RLV
Size	1-5/8"
Length, m (ft)	800 (2625)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	2400

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	790-870, 1000-1050, 1550-1650

RLVU158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
450	11.5	99/111
900	18.1	82/87
1800	29.9	95/100
2000	33.4	96/101
2200	37.8	97/102
2400	44.1	102/107

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLVU158-50JA	Standard	0.80 (0.54)
RLVU158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RLVU158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)



# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RLVU Cable, A-series



### RLVU158B SERIES

Cable Type	RLV
Size	1-5/8"
Length, m (ft)	800 (2625)
Slot Design	Groups of vertical slots of increasing density
Maximum Frequency, MHz	2650

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	650-750, 1330-1430, 2025-2100

RLVU158-50JAB/JFNAB/JFLAB

### PERFORMANCE

Frequency, MHz	Longitudinal Loss of Cable Length, dB	System Loss 50%/95%, dB
75	4.5	76/87
150	6.6	83/95
450	11.9	99/109
800	17.2	85/89
870	18.0	88/93
900	18.4	90/95
960	19.2	90/96
1800	29.7	94/98
2000	32.5	94/97
2200	35.8	96/99
2400	39.5	99/103
2600	44.2	102/106

Data for other cable lengths available upon request.

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RLVU158-50JAB	Standard	0.80 (0.54)
RLVU158-50JFNAB	Flame/Fire Retardant	1.10 (0.74)
RLVU158-50JFLAB	Flame/Fire Retardant, Low Smoke	1.10 (0.74)



# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RAY Cable, A-series



RAY78 SERIES	
Cable Type	RAY
Size	7/8"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	1000
STRUCTURE	
Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)
MECHANICAL SPECIFICATIONS	
Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots
ELECTRICAL SPECIFICATIONS	
Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	240-300, 500-590, 750-860

RAY78-50JA/JFNA/JFLA

PERFORMANCE		
Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.86 (0.26)	57/66
150	1.32 (0.40)	62/73
450	2.67 (0.81)	62/69
870	5.41 (1.65)	56/65
900	5.70 (1.74)	56/63
960	6.46 (1.97)	56/62

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAY78-50JA	Standard	0.45 (0.30)
RAY78-50JFNA	Flame/Fire Retardant	0.60 (0.40)
RAY78-50JFLA	Flame/Fire Retardant, Low Smoke	0.60 (0.40)



# RADIAFLEX® Radiating Cable

## 7/8" RADIAFLEX® RAY Cable, A-series



### RAY78B SERIES

Cable Type	RAY
Size	7/8"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	900

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	9.3 (0.37)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	23.8 (0.94)
Diameter over Jacket, mm (in)	28.5 (1.12)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	350 (13.8)
Tensile Force, N (lb)	2300 (507)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	0.9 (3)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.46 (0.44)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	2.16 (0.66)
Stop bands, MHz	285-350, 580-680

RAY78-50JAB/JFNAB/JFLAB

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	1.03 (0.31)	56/65
150	1.45 (0.44)	64/76
450	2.85 (0.87)	62/68
800	5.00 (1.53)	60/68

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAY78-50JAB	Standard	0.45 (0.30)
RAY78-50JFNAB	Flame/Fire Retardant	0.60 (0.40)
RAY78-50JFLAB	Flame/Fire Retardant, Low Smoke	0.60 (0.40)

WIRELESS  
INDOOR  
SOLUTIONS

5

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RAY Cable, A-series



### RAY114 SERIES

Cable Type	RAY
Size	1-1/4"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.8 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	240-300, 500-590, 750-860

RAY114-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.68 (0.21)	62/72
150	0.97 (0.30)	70/80
450	1.84 (0.56)	66/70
870	3.62 (1.10)	58/67
900	3.74 (1.14)	58/67
960	4.27 (1.30)	58/65

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAY114-50JA	Standard	0.66 (0.44)
RAY114-50JFNA	Flame/Fire Retardant	0.90 (0.60)
RAY114-50JFLA	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

# RADIAFLEX® Radiating Cable

## 1-1/4" RADIAFLEX® RAY Cable, A-series



### RAY114B SERIES

Cable Type	RAY
Size	1-1/4"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	900

### STRUCTURE

Inner Conductor Material	Copper Tube
Diameter Inner Conductor, mm (in)	13.1 (0.52)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	34.0 (1.34)
Diameter over Jacket, mm (in)	38.1 (1.50)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	500 (20.0)
Tensile Force, N (lb)	2000 (440)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.3 (4.25)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Bulge atop slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	0.8 (0.24)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.75 (0.53)
Stop bands, MHz	285-350, 580-680

RAY114-50JAB/JFNAB/JFLAB

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.73 (0.22)	61/70
150	1.04 (0.32)	68/79
450	2.03 (0.62)	68/75
800	3.71 (1.13)	62/69
900	4.62 (1.41)	61/67

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAY114-50JAB	Standard	0.66 (0.44)
RAY114-50JFNAB	Flame/Fire Retardant	0.90 (0.60)
RAY114-50JFLAB	Flame/Fire Retardant, Low Smoke	0.90 (0.60)

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RAY Cable, A-series



### RAY158 SERIES

Cable Type	RAY
Size	1-5/8"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	1000

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	240-300, 500-590, 750-860

RAY158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.56 (0.17)	65/75
150	0.78 (0.24)	72/83
450	1.49 (0.45)	67/72
870	2.85 (0.87)	60/66
900	2.92 (0.89)	60/66
960	3.38 (1.03)	60/66

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAY158-50JA	Standard	0.80 (0.54)
RAY158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RAY158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)



# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RAYU Cable, A-series



### RAYU158 SERIES

Cable Type	RAY
Size	1-5/8"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	2450

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	400-430, 810-850, 1000-1050, 1200-1280, 1610-1690, 2025-2100

RAYU158-50JA/JFNA/JFLA

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
75	0.56 (0.17)	77/88
150	0.92 (0.28)	87/98
450	1.52 (0.46)	89/97
870	2.31 (0.70)	77/82
900	2.35 (0.72)	77/82
960	2.47 (0.75)	77/82
1800	4.07 (1.24)	71/81
1900	4.34 (1.32)	70/81
2000	4.71 (1.43)	69/80
2200	5.71 (1.71)	66/78
2400	8.52 (2.60)	63/75

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAYU158-50JA	Standard	0.80 (0.54)
RAYU158-50JFNA	Flame/Fire Retardant	1.10 (0.74)
RAYU158-50JFLA	Flame/Fire Retardant, Low Smoke	1.10 (0.74)

WIRELESS  
INDOOR  
SOLUTIONS

5

# RADIAFLEX® Radiating Cable

## 1-5/8" RADIAFLEX® RAYU Cable, A-series



### RAYU158T SERIES

Cable Type	RAY
Size	1-5/8"
Slot Design	Groups of slope slots at short intervals
Maximum Frequency, MHz	2200

### STRUCTURE

Inner Conductor Material	Corrugated Copper Tube
Diameter Inner Conductor, mm (in)	17.6 (0.69)
Outer Conductor Material	Overlapping Copper Foil
Diameter Outer Conductor, mm (in)	44.2 (1.74)
Diameter over Jacket, mm (in)	48.2 (1.90)

### MECHANICAL SPECIFICATIONS

Minimum Bending Radius, Single Bend, mm (in)	700 (28.0)
Tensile Force, N (lb)	1200 (270)
Storage Temperature, °C (°F)	-70 to +85 (-94 to +185)
Operation Temperature, °C (°F)	-50 to +85 (-58 to +185)
Installation Temperature, °C (°F)	-25 to +60 (-13 to +140)
Recommended Clamp Spacing, m (ft)	1.5 (5)
Minimum Distance to Wall, mm (in)	80 (3.15)
Indication of Slot Alignment	Guides opposite to slots

### ELECTRICAL SPECIFICATIONS

Impedance, ohm	50 +/-2
Velocity, %	89
Inner Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Outer Conductor dc Resistance, ohm/1000 m (1000 ft)	1.30 (0.40)
Stop bands, MHz	1000-1650

RAYU158-50JAT/JFNAT/JFLAT

### PERFORMANCE

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%/95%, dB
800	2.12 (0.65)	65/69
900	2.47 (0.75)	60/64
1800	4.60 (1.40)	57/60
1900	4.13 (1.26)	60/63
2000	3.90 (1.19)	63/66
2200	4.10 (1.25)	63/68

### CONNECTOR & ACCESSORIES

Connectors	See page 442
Accessories	See page 443

### ORDERING INFORMATION

Model Number	Jacket	Cable Weight, kg/m (lb/ft)
RAYU158-50JAT	Standard	0.80 (0.54)
RAYU158-50JFNAT	Flame/Fire Retardant	1.10 (0.74)
RAYU158-50JFLAT	Flame/Fire Retardant, Low Smoke	1.10 (0.74)