



## CSG-UFFR-100-UFFR

### U.FL Plug to U.FL Plug Cable Assembly

The CSG-UFFR-100-UFFR cable assembly provides a U.FL/MHF1-type connection on 100 mm of 1.37 mm coaxial cable.

Operating from 0 Hz to 6 GHz, the CSG-UFFR- 100-UFFR cable assembly combines superior performance, compact size, and a convenient snap-on mating interface to provide a reliable, easy-to-use cable assembly. Additionally, all Linx coaxial cables and connectors meet RoHS lead free standards and are tested to meet requirements for corrosion resistance, vibration, mechanical and thermal shock.

#### FEATURES

- 0 Hz to 6 GHz operation
- U.FL-type plug (female socket)
  - Gold plated brass
  - Right-angle connection
- U.FL-type plug (female socket) compatible with
  - MHF1
  - AMC
  - UMCC
- 1.37 mm coaxial cable

#### APPLICATIONS

- LPWA
  - LoRaWAN®, Sigfox®
  - WiFi HaLow™ (802.11ah)
- Cellular IoT - LTE-M (Cat-M1), NB-IoT
- Cellular - 5G/4G LTE/3G/2G
- PC, LAN
- ISM - Bluetooth®, ZigBee®
- GNSS - GPS, Galileo, BeiDou, QZSS
- Automotive, Industrial, Commercial, Enterprise

#### TABLE 1. ELECTRICAL SPECIFICATIONS

Parameter	Value
Insertion Loss (dB max)	1.0
VSWR (max)	1.3
Impedance	50 Ω
Insulation Resistance	500 MΩ min.

#### ORDERING INFORMATION

Part Number	Description
CSG-UFFR-100-UFFR	U.FL/MHF1-type plug (female socket) to U.FL/MHF1-type plug (female socket) on 100 mm (3.9 in) of 1.37 mm coaxial cable

Available from Linx Technologies and select distributors and representatives.

## PRODUCT DIMENSIONS

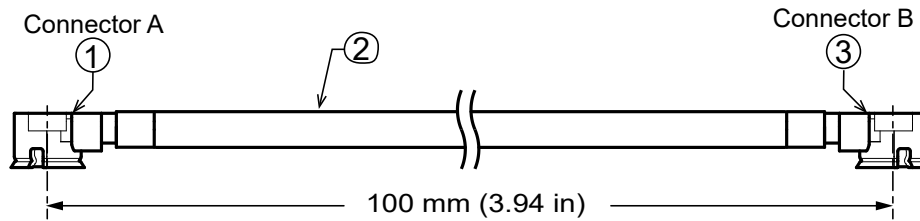


Figure 1. Product Dimensions for the CSG-UFFR-100-UFFR Cable Assembly

## TABLE 2. CABLE ASSEMBLY COMPONENTS

Item #	Description	Material	Finish
1	Connector, U.FL-type plug (female socket)	Brass	Gold
2	1.37 mm coaxial cable	1.37 mm coaxial	Black
3	Connector, U.FL-type plug (female socket)	Brass	Gold

## TABLE 3. CABLE ASSEMBLY MECHANICAL SPECIFICATIONS

Parameter	Connector A U.FL-type plug (female socket)	Connector B U.FL-type plug (female socket)
Fastening Type	Snap-on coupling	Snap-on coupling
Connector Durability	30 cycles min.	30 cycles min.
Weight	0.6 g (0.21 oz)	

## COAXIAL CABLE SPECIFICATIONS

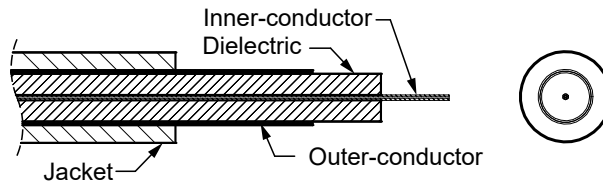


Figure 2. Coaxial Cable Cutaway Diagram

## TABLE 4. COAXIAL CABLE MATERIAL SPECIFICATIONS FOR 1.37 MM CABLE

1.37 mm Coax	Material	Dimensions
Inner-Conductor	Silver plated copper, 7 strand, 32 AWG	Ø0.306 mm (0.012 in)
Dielectric	FEP, clear	Ø0.90 mm (0.035 in)
Outer-Conductor	Silver plated copper braid, coverage 90%	Ø1.13 mm (0.044 in)
Jacket	FEP, black	Ø1.37 mm (0.054 in) ±0.05 mm

**TABLE 5. COAXIAL CABLE ELECTRICAL AND PHYSICAL SPECIFICATIONS FOR 1.37 MM CABLE**

Parameter	Value					
Rated Temp Voltage	200 °C					
Spark Test	2.5 kV					
Insulation	Unaged	Tensile Strength		2500 psi min. (1.76 kg/mm <sup>2</sup> )		
		Elongation		200% min.		
	Aged	Tensile Strength		Unaged min. 75% (168 hrs x 232 °C)		
		Elongation		Unaged min. 75% (168 hrs x 232 °C)		
Jacket	Unaged	Tensile Strength		2500 psi min. (1.76 kg/mm <sup>2</sup> )		
		Elongation		200% min.		
	Aged	Tensile Strength		Unaged min. 75% (168 hrs x 232 °C)		
		Elongation		Unaged min. 75% (168 hrs x 232 °C)		
Nominal Impedance	50 ± 3 Ω					
Nominal Capacitance	96 ± 3 pF/m					
Nominal Velocity of Propagation	70%					
VSWR (0 to 6 GHz)	≤ 1.3					
Flame Test	VW-1 OK					
Attenuation (dB/1M)	1.0 GHz ≤ 1.7	2.0 GHz ≤ 2.5	3.0 GHz ≤ 3.0	4.0 GHz ≤ 3.5	5.0 GHz ≤ 4.0	6.0 GHz ≤ 4.5
Minimum Inside Bend radius	5.5 mm (0.22 in)					

## INSERTION LOSS

Figure 3 shows the Insertion Loss for the CSG-UFFR-100-UFFR cable assemblies. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

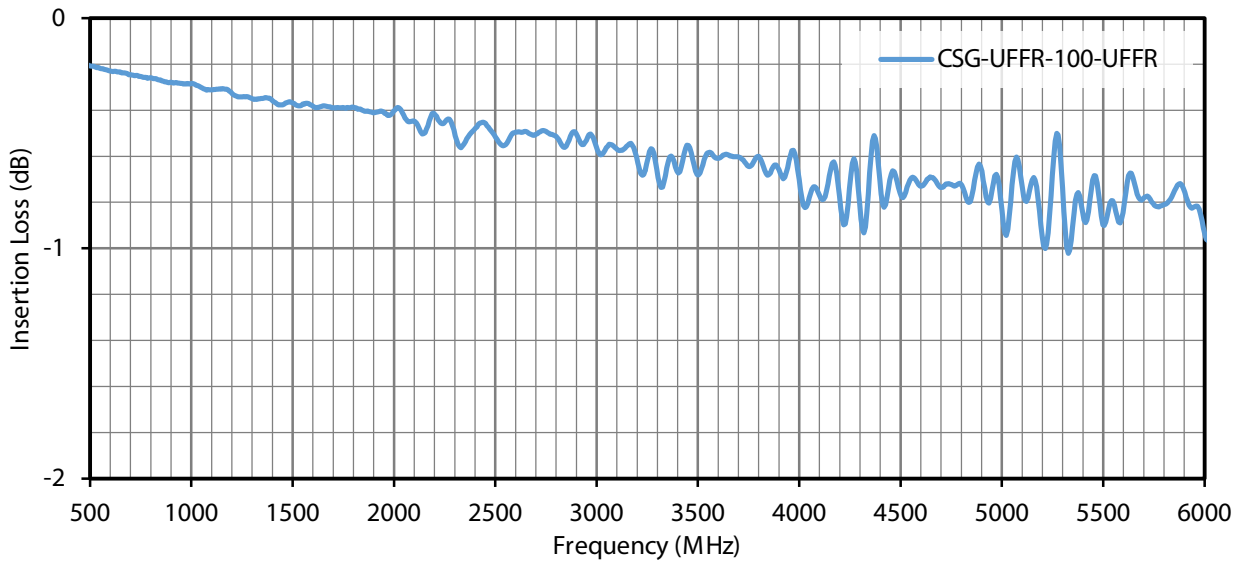


Figure 3. Insertion Loss for the CSG-UFFR-100-UFFR Cable Assemblies

## VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the CSG-UFFR-100-UFFR cable assemblies. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

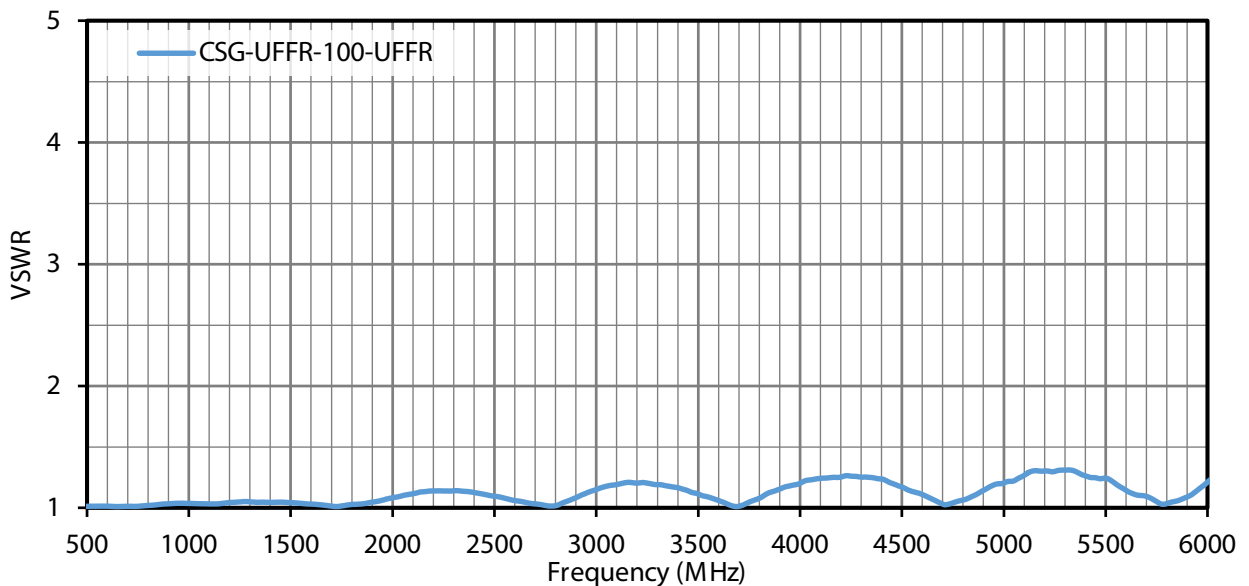


Figure 4. VSWR for the CSG-UFFR-100-UFFR Cable Assemblies

## PACKAGING INFORMATION

The CSG-UFFR-100-UFFR cable assembly is packaged in a clear plastic bag, in quantities of 100. Distribution channels may offer alternative packaging options.

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## CABLE ASSEMBLY DEFINITIONS AND USEFUL FORMULAS

**VSWR** - Voltage Standing Wave Ratio. VSWR is a unitless ratio that describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency. VSWR is easily derived from Return Loss.

$$VSWR = \frac{10^{\left[\frac{\text{Return Loss}}{20}\right]} + 1}{10^{\left[\frac{\text{Return Loss}}{20}\right]} - 1}$$

**Insertion Loss** - The loss of signal power (gain) resulting from the insertion of a device in a transmission line. Insertion loss can be derived from the power transmitted to the load before the insertion of the component  $P_T$  and the power transmitted to the load after the insertion of the component  $P_R$ .

$$\text{Insertion Loss (dB)} = 10 \log_{10} \frac{P_T}{P_R}$$

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