Datasheet

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, GLONASS, 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

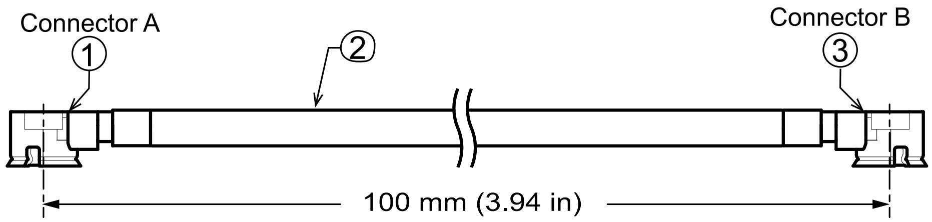

Figure 1. Product Dimensions for the CSG-UFFR-100-UFFR Cable Assembly

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

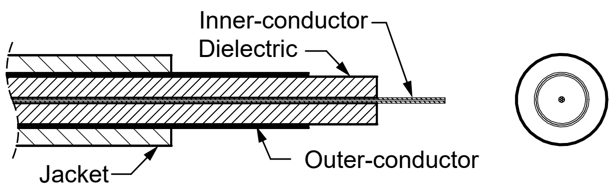

Figure 2. Coaxial Cable Cutaway Diagram

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

<table>
<tr><th>Parameter</th><th colspan="6">Value</th></tr>
<tr><td>Rated Temp Voltage</td><td colspan="6">200 °C</td></tr>
<tr><td>Spark Test</td><td colspan="6">2.5 kV</td></tr>
<tr><td rowspan="4">Insulation</td><td rowspan="2">Unaged</td><td>Tensile Strength</td><td colspan="4">2500 psi min. (1.76 kg/mm^2)</td></tr>
<tr><td>Elongation</td><td colspan="4">200% min.</td></tr>
<tr><td rowspan="2">Aged</td><td>Tensile Strength</td><td colspan="4">Unaged min. 75% (168 hrs x 232 °C)</td></tr>
<tr><td>Elongation</td><td colspan="4">Unaged min. 75% (168 hrs x 232 °C)</td></tr>
<tr><td rowspan="4">Jacket</td><td rowspan="2">Unaged</td><td>Tensile Strength</td><td colspan="4">2500 psi min. (1.76 kg/mm^2)</td></tr>
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<tr><td>Elongation</td><td colspan="4">Unaged min. 75% (168 hrs x 232 °C)</td></tr>
<tr><td>Nominal Impedance</td><td colspan="6">50 ± 3 Ω</td></tr>
<tr><td>Nominal Capacitance</td><td colspan="6">96 ± 3 pF/m</td></tr>
<tr><td>Nominal Velocity of Propagation</td><td colspan="6">70%</td></tr>
<tr><td>VSWR (0 to 6 GHz)</td><td colspan="6">≤ 1.3</td></tr>
<tr><td>Flame Test</td><td colspan="6">VW-1 OK</td></tr>
<tr><td>Attenuation (dB/1M)</td><td>1.0 GHz
≤ 1.7</td><td>2.0 GHz
≤ 2.5</td><td>3.0 GHz
≤ 3.0</td><td>4.0 GHz
≤ 3.5</td><td>5.0 GHz
≤ 4.0</td><td>6.0 GHz
≤ 4.5</td></tr>
<tr><td>Minimum Inside Bend radius</td><td colspan="6">5.5 mm (0.22 in)</td></tr>
</table>

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.

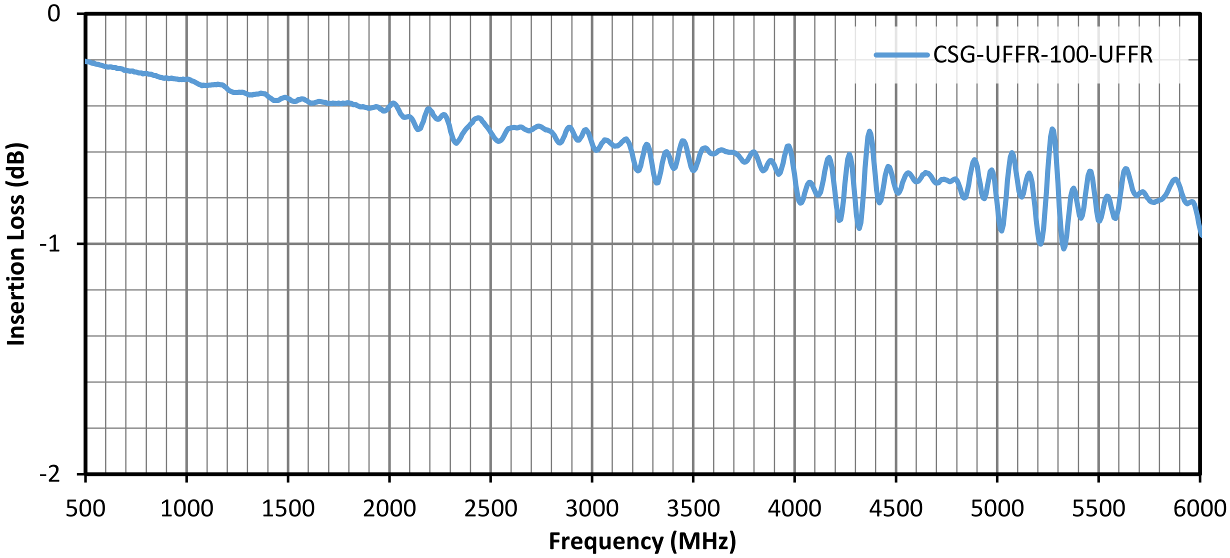

Figure 3. Insertion Loss for the CSG-UFFR-100-UFFR Cable Assemblies

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.

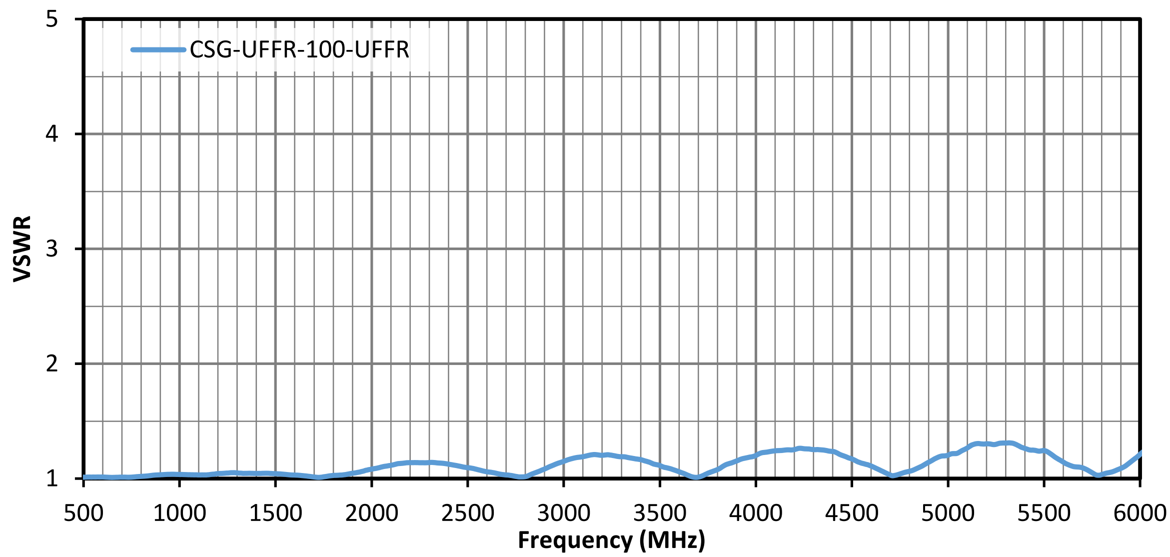

Figure 4. VSWR for the CSG-UFFR-100-UFFR Cable Assemblies

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.

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.

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

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.

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

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