

CSI-SGFI-150-UFFR

SMA Bulkhead Jack to U.FL Plug Cable Assembly

The CSI-SGFI-150-UFFR cable assembly provides an SMA bulkhead jack (female socket) to MHF1/U.FL-type plug (female socket) connection on 150 mm of 1.13 mm coaxial cable.

Operating from 0 Hz to 6 GHz, the CSI-SGFI-150-UFFR cable assembly combines superior performance, compact size, and convenient snap-on and threaded mating interfaces 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
- SMA jack (female socket)
 - Gold plated
 - Silicone O-ring, gold plated brass washer and 1/4"-36UNS hex nut provided
- U.FL-type plug (female socket) compatible with:
 - MHF1, AMC, UMCC

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)	1.8
VSWR (max)	2.0
Impedance	50 Ω
Insulation Resistance	500 MΩ min.

Ordering Information

Part Number	Description
CSI-SGFI-150-UFFR	SMA bulkhead jack (female socket) to U.FL/MHF1-type plug (female socket) on 150 mm (5.91 in) of 1.13 mm coaxial cable

Available from Linx Technologies and select distributors and representatives.

Product Dimensions

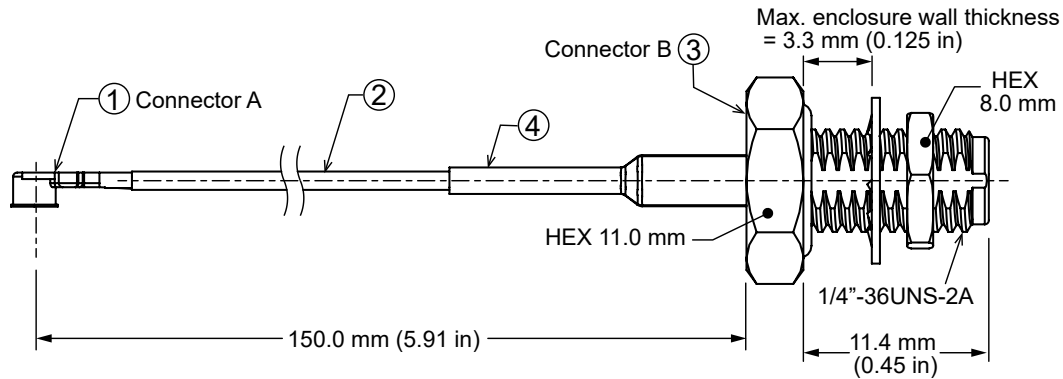


Figure 1. Product Dimensions for the CSI-SGFI-150-UFFR Cable Assembly

Table 2. Cable Assembly Components

Item #	Description	Material	Finish
1	Connector, U.FL-type plug (female socket)	Brass	Gold
2	1.13 mm coaxial cable	1.13 mm cable	Black
3	Connector, SMA bulkhead jack (female socket) with gasket, hex nut and washer	Brass	Gold
4	Heat Shrink Tubing	PTFE	Black

Table 3. Cable Assembly Mechanical Specifications

Parameter	Connector A U.FL-type plug (female socket)	Connector B SMA bulkhead jack (female socket)
Fastening Type	Snap-on coupling	1/4"-36 UNS-2A threaded coupling
Recommended Torque	-	0.9 N m (8.0 in lbs)
Coupling Nut Retention	-	60 lbs. min.
Connector Durability	30 cycles min.	500 cycles min.
Weight	5.2 g (0.18 oz)	

Recommended Mounting

Figure 2 shows the recommended mounting hole dimensions for the SMA connector (bulkhead) end of the cable assembly. The hex nut torque should not exceed 10.0 in/lbs max or damage may occur to threads. The max enclosure wall thickness = 3.3 mm (0.13 in).

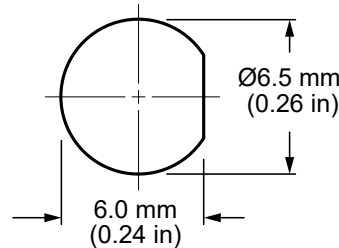


Figure 2. Recommended Mounting Hole Dimensions for the CSI-SGFI-150-UFFR Cable Assembly

Coaxial Cable Specifications

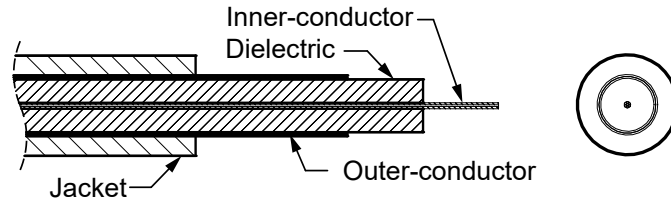


Figure 3. Coaxial Cable Cutaway Diagram

Table 4. Coaxial Cable Material Specifications for 1.13 mm Cable

Parameter	Material	Dimensions
Inner-Conductor	Silver plated copper, 7 strand, 0.08 mm	Ø0.08 mm (0.003 in)
Dielectric	FEP, clear	Ø0.70 mm (0.028 in)
Outer-Conductor	Silver plated copper braid, 4 x 0.05, coverage 90.0%	Ø0.92 mm (0.036 in)
Jacket	FEP, black	Ø1.13 mm (0.04 in) ±0.05 mm

Table 5. Coaxial Cable Electrical and Physical Specifications for 1.13 mm Cable

Parameter	Value				
Nominal Impedance	50 ± 2 Ω				
Nominal Capacitance	98 pF/m				
Nominal Velocity of Propagation	70%				
VSWR (0 to 10 GHz)	≤ 1.3 @0 GHz to 6 GHz, ≤ 1.4 @6 GHz to 8 GHz, ≤ 1.5 @8 GHz to 10 GHz				
Attenuation (dB/1M)	1 GHz 2.2	2 GHz 3.1	3 GHz 3.8	4 GHz 4.4	5 GHz 4.9
Minimum Inside Bend radius	4.5 mm (0.18 in)				

Insertion Loss

Figure 4 shows the Insertion Loss for CSI-SGFI-150-UFFR cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

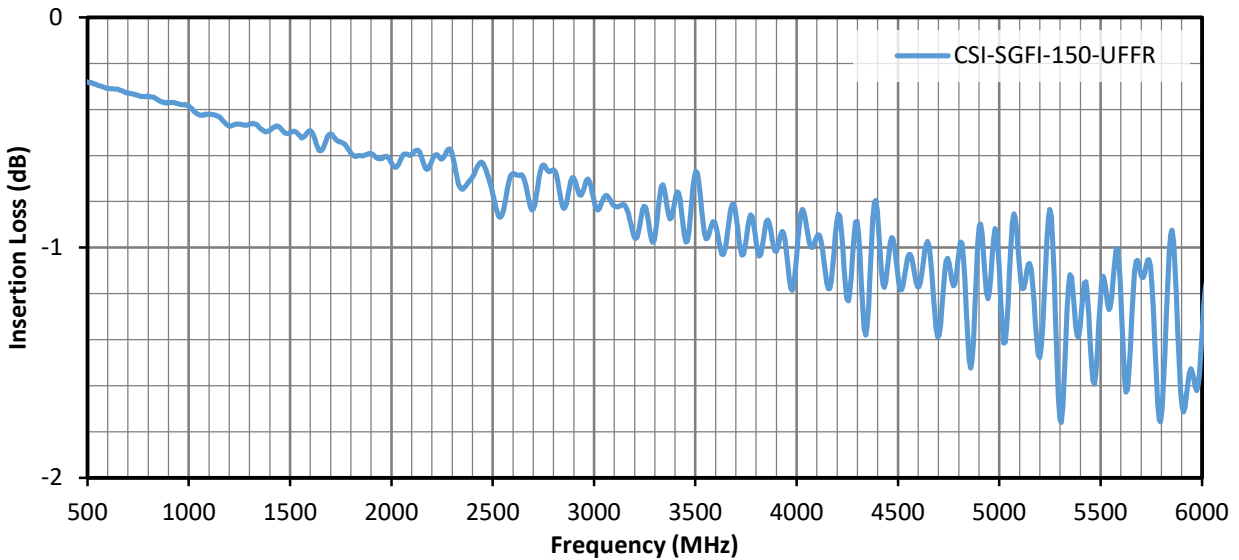


Figure 4. Insertion Loss for the CSI-SGFI-150-UFFR Cable Assembly

VSWR

Figure 5 provides the voltage standing wave ratio (VSWR) across the cable assembly’s bandwidth for the CSI-SGFI-150-UFFR cable assembly. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

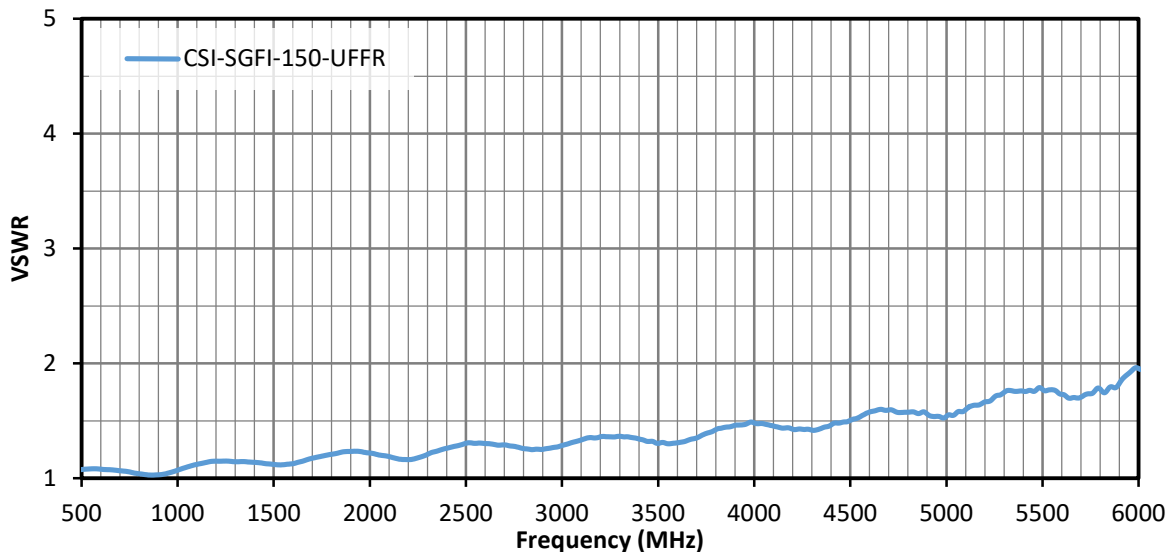


Figure 5. VSWR for the CSI-SGFI-150-UFFR Cable Assembly

Packaging Information

The CSI-SGFI-150-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.

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

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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