



## CSS-SGAF-050-STTN

### SMA Bulkhead Jack to Unterminated End Cable Assembly

The CSS-SGAF-050-STTN cable assembly provides an SMA bulkhead jack (female socket) to an unterminated, trimmed and tinned connection with a 50 mm length of 0.047 semi-rigid coaxial cable.

Operating from 0 Hz to 8 GHz, the CSS-SGAF- 050-STTN cable assembly combines superior performance, compact size, and a convenient threaded 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 8 GHz operation
- SMA jack (female socket)
  - Gold plated
  - Gold plated brass washer and 1/4"-36UNS hex nut provided
- Unterminated end, trimmed and tinned
- 0.047 semi-rigid coaxial cable

#### APPLICATIONS

- LPWA
- 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)	0.6
VSWR (max)	1.5
Impedance	50 $\Omega$
Insulation Resistance	500 M $\Omega$ min.

#### ORDERING INFORMATION

Part Number	Description
CSS-SGAF-050-STTN	SMA bulkhead jack (female socket) to unterminated/trimmed end on 50 mm (2.0 in) of 0.047 semi-rigid coaxial cable

Available from Linx Technologies and select distributors and representatives.

PRODUCT DIMENSIONS

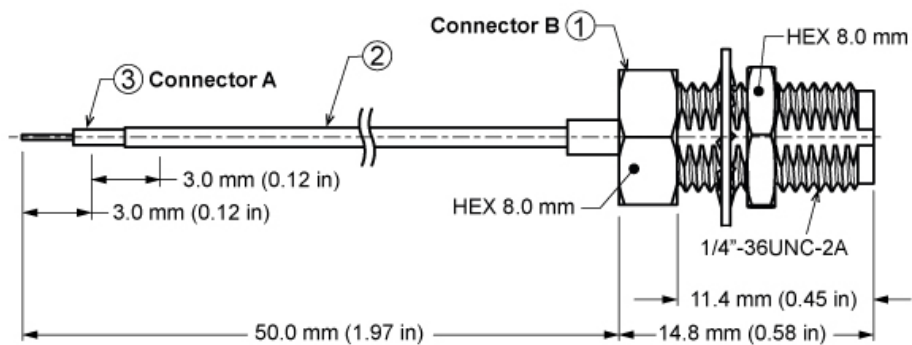


Figure 1. Product Dimensions for the CSS-SGAF-050-STTN Cable Assembly

TABLE 2. CABLE ASSEMBLY COMPONENTS

Item #	Description	Material	Finish
1	Connector, SMA bulkhead jack (female socket) hex nut and washer	Brass	Gold
2	0.047 coaxial cable	0.047 coaxial	Black
3	Unterminated connection, trimmed	-	Gold

TABLE 3. CABLE ASSEMBLY MECHANICAL SPECIFICATIONS

Parameter	Connector A Unterminated, trimmed coax	Connection B SMA bulkhead jack (female socket)
Fastening Type	Solder	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	-	500 cycles min.
Weight	3.6 g (0.13 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).

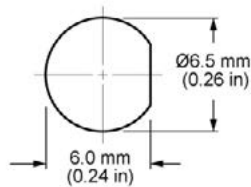


Figure 2. Recommended Mounting Hole Dimensions for the CSS-SGAF-050-STTN Cable Assembly

COAXIAL CABLE SPECIFICATIONS

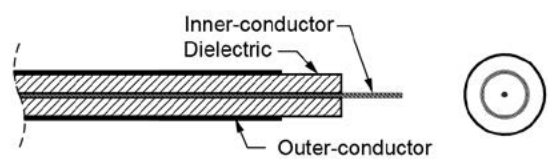


Figure 3. Coaxial Cable Cutaway Diagram

TABLE 4. COAXIAL CABLE MATERIAL SPECIFICATIONS FOR 1.13 MM CABLE

Parameter	Material	Dimensions
Inner-Conductor	Silver plated copper, 1 strand, 0.28 mm	Ø0.028 mm (0.011 in)
Dielectric	PTFE, natural	Ø0.92 mm (0.036 in)
Outer-Conductor	Silver plated seamless copper tube (wall thickness 1.12 mm)	Ø3.16 mm (0.124 in)

TABLE 5. COAXIAL CABLE ELECTRICAL AND PHYSICAL SPECIFICATIONS FOR 0.047 SEMI-RIGID CABLE

Parameter	Value
Nominal Impedance	50 Ω
Nominal Capacitance	98 pF/m
Operating Temperature Range	-55 ° C to +125 °C
Minimum Inside Bend radius	6.35 mm (0.25 in)
Spark Test	3.0 kV

## INSERTION LOSS

Figure 4 shows the Insertion Loss for CSS-SGAF-050-STTN cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

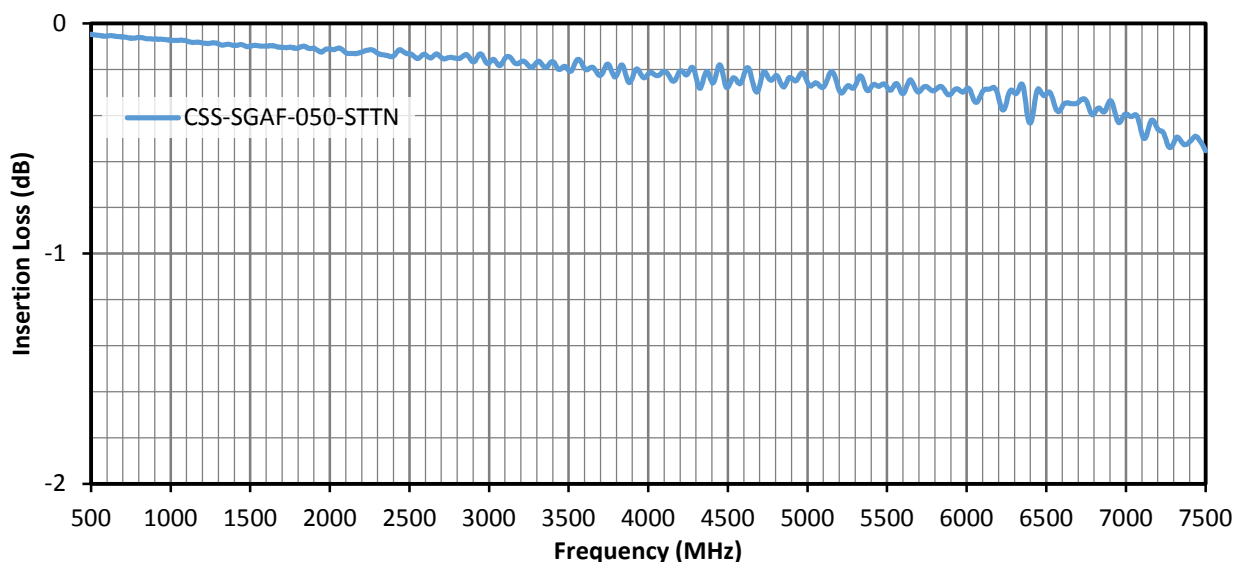


Figure 4. Insertion Loss for the CSS-SGAF-050-STTN Cable Assembly

## VSWR

Figure 5 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the CSI-SGAF-050-STTN cable assembly. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

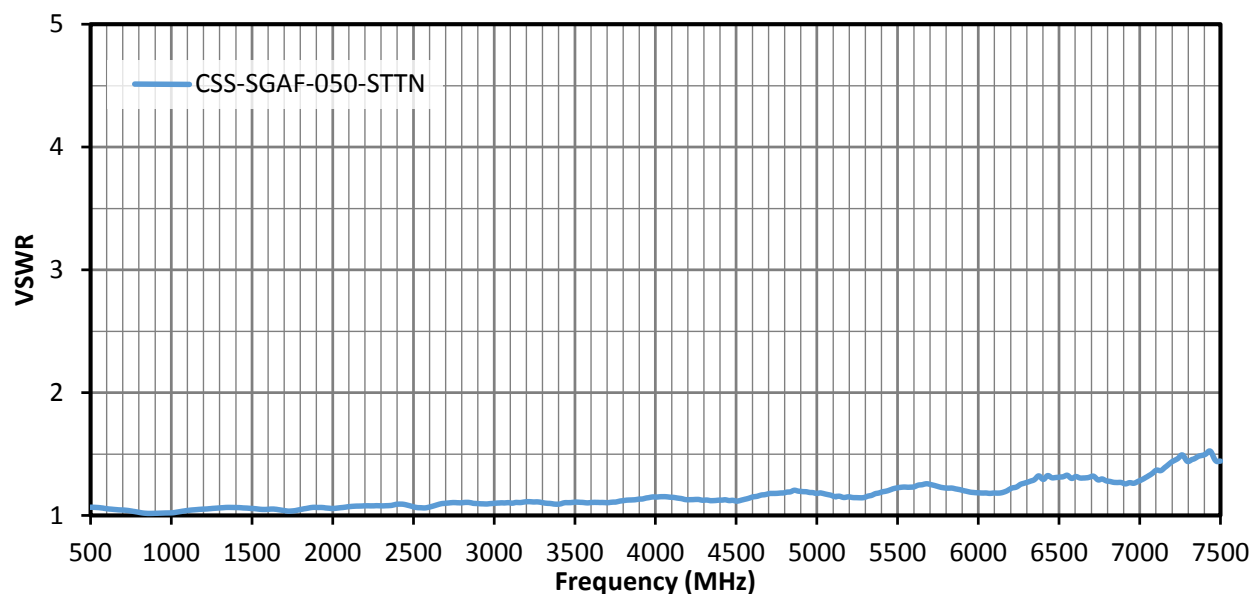


Figure 5. VSWR for the CSS-SGAF-050-STTN Cable Assembly

## PACKAGING INFORMATION

The CSS-SGAF-050-STTN cable assembly is packaged in a clear plastic bag, in quantities of 10. 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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