Datasheet

ANT-MAG-SMAF-cccc-1
Magnetic Remote Antenna Base

The ANT-MAG-SMAF-cccc-1 is a magnetic externally mounted connector base incorprating an SMA jack (female socket) on a 1 meter length of LMR195 low-loss coaxial cable terminating in an SMA plug (male pin), RP-SMA jack (female socket), N plug (male pin) or TNC plug (male pin) connector.

The ANT-MAG-SMAF-cccc-1 combines a strong magnetic mount with typical connectors to create new mounting options for most any whip/blade-style connectorized antenna.

ANT-MAG-SMAF-SMAM-1 Shown

Features

- SMA jack (female socket)
  - Integrated magnetic base securely attaches to ferrous metallic surfaces and allows for repositioning
  - Gold plated body and center contact
  - Silicone gasket provided to aid seal to antenna
- Connector options (cabled end)
  - SMA plug (male pin)
  - Reverse-polarity SMA plug (female socket)
  - N plug (male pin)
  - TNC plug (male pin)
- LMR195 low-loss coaxial cable
  - Compliant to VW-1
- ABS housing and PVC Base materials
  - Compliant to UL 940V-0
- IP67 rated (connectors, base and coax)

Applications

- Cellular IoT – LTE-M (Cat-M1), NB-IoT
- Cellular – 5G/4G LTE/3G/2G
- LPWA
  - LoRaWAN®, Sigfox®, WiFi HaLow™ (802.11ah)
- ISM – Bluetooth®, ZigBee®
- GNSS – GPS, Galileo, GLONASS, BeiDou, QZSS
- Remote control, monitoring and sensing
- Internet of Things (IoT) devices
- Automotive, Industrial, Commercial, Enterprise

Ordering Information

Part Number	Description
ANT-MAG-SMAF-SMAM-1	Magnetic remote antenna mount SMA jack (female socket) to SMA plug (male pin) on 1 meter of LMR195 low-loss coaxial cable
ANT-MAG-SMAF-RPSM-1	Magnetic remote antenna mount SMA jack (female socket) to RP-SMA plug (female socket) on 1 meter of LMR195 low-loss coaxial cable
ANT-MAG-SMAF-NM-1	Magnetic remote antenna mount SMA jack (female socket) to N plug (male pin) on 1 meter of LMR195 low-loss coaxial cable
ANT-MAG-SMAF-TNCM-1	Magnetic remote antenna mount SMA jack (female socket) to TNC plug (male pin) on 1 meter of LMR195 low-loss coaxial cable

Available from Linx Technologies and select distributors and representatives.

Table 1. Electrical Specifications

Parameter	Value			
	ANT-MAG-SMAF-SMAM	ANT-MAG-SMAF-RPSM	ANT-MAG-SMAF-NM	ANT-MAG-SMAF-TNCM
Insertion Loss (dB max)	2.1	1.7	1.5	1.6
VSWR (max)	2.2	1.7	1.5	1.3
Impedance	50 Ω			
Insulation Resistance	500 MΩ min.			
Max. Power Rating	10 W			
Operating Temp. Range	-40 °C to +105 °C			

Product Dimensions

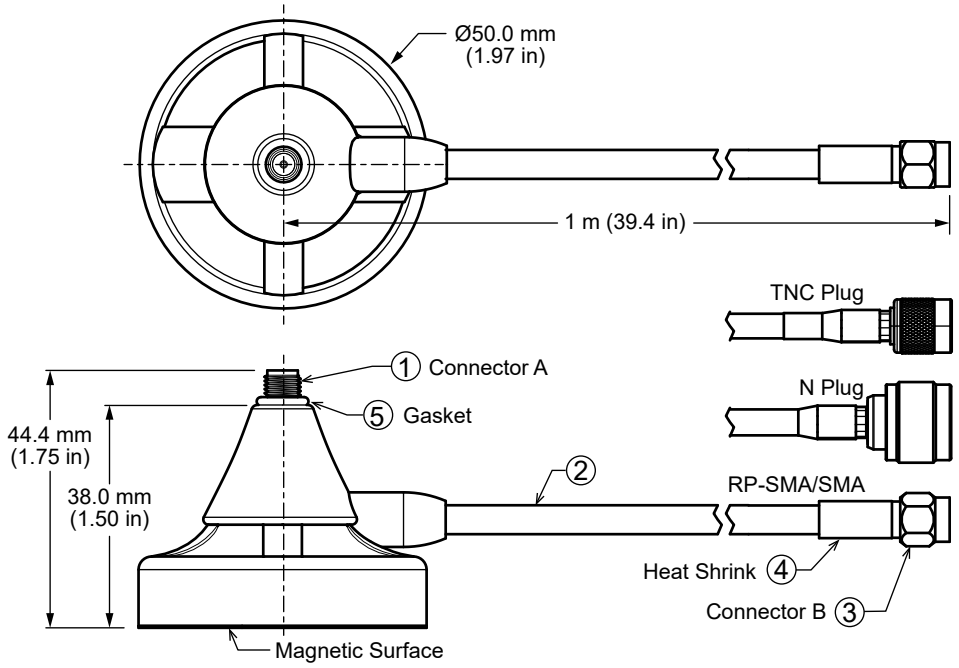

Figure 1. Product Dimensions for the ANT-MAG-SMAF-cccc-1 Cable Assembly

Table 2. Cable Assembly Components

Item #	Description	Material	Finish
1	Connector, SMA jack (female socket) right-angle magnetic base	Brass	Gold
2	LMR195 coaxial cable	LMR195	–
3	See Table for cable-end connector options	–	–
4	Heat Shrink Tubing	PTFE	–
5	Gasket	Silicone	–

Table 3. Cable Assembly Mechanical Specifications

Parameter	Connector A SMA jack (female socket)	Connector B (See Table 4)
Fastening Type	1/4”-36 UNS-2A threaded coupling	A
Recommended Torque	0.9 N m (8.0 in lbs)	B
Coupling Nut Retention	60 lbs. min.	C
Connector Durability	500 cycles min.	D
Weight		E

Table 4. Cable-End Connector (Connector B) Parameters

	SMA plug (male pin)	RP-SMA plug (female socket)	N plug (male pin)	TNC plug (male pin)
	ANT-MAG-SMAF-SMAM-1	ANT-MAG-SMAF-RPSM-1	ANT-MAG-SMAF-NP-1	ANT-MAG-SMAF-TNC-1
A	1/4”-36 UNS-2B	1/4”-36 UNS-2B	5/8”-24UNEF	7/16”-28UNEF
B	0.9 N m (8.0 in lbs)	0.9 N m (8.0 in lbs)	0.9 N m (8.0 in lbs)	1.14 N·m (10.0 in·lbs)
C	60 lbs. min.	60 lbs. min.	60 lbs. min.	100 lbs min.
D	500 cycles min.	500 cycles min.	500 cycles min.	500 cycles min.
E	127.5 g (4.50 oz)	127.3 g (4.50 oz)	148.2 g (5.23 oz)	126.8 g (4.47 oz)

Coaxial Cable Specifications

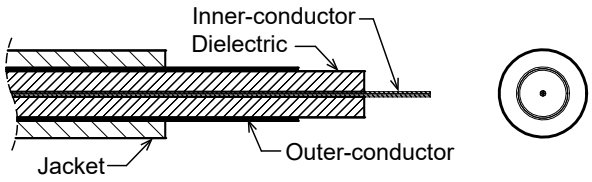

Figure 2. Coaxial Cable Cutaway Diagram

Table 5. Coaxial Cable Material Specifications for LMR195

LMR195 Coax	Material	Dimensions
Inner-Conductor	Copper, single strand	Ø0.95 mm (0.040 in)
Dielectric	Foam-PE	Ø2.95 mm (0.120 in)
Outer-Conductor	Aluminum mylar over copper braid, Coverage 85%	Ø3.19 mm (0.130 in)
Jacket	PVC, Black	Ø5.00 mm (0.200 in)

Table 6. Coaxial Cable Electrical and Physical Specifications for LMR195

Parameter	Value		
Rated Temp Voltage	105 °C 30 V		
Conductor Resistance	25.3 Ω/km max @20 °C		
Insulation Resistance	100 M Ω-km min.		
Dielectric Strength	AC 500 V/Minute		
Spark Test	1.5 kV		
Insulation	Unaged	Tensile Strength	1500 psi min. (1.76 kg/mm^2)
		Elongation	200% min.
	Aged	Tensile Strength	Unaged min. 70% (168 hrs x 232 °C)
		Elongation	Unaged min. 65% (168 hrs x 232 °C)
Jacket	Unaged	Tensile Strength	2500 psi min. (1.76 kg/mm^2)
		Elongation	200% min.
	Aged	Tensile Strength	Unaged min. 70% (168 hrs x 232 °C)
		Elongation	Unaged min. 65% (168 hrs x 232 °C)
Nominal Impedance	50 ± 3 Ω		
Minimum Inside Bend radius	12.7 mm (0.5 in)		

Insertion Loss

Figure 3 shows the Insertion Loss for ANT-MAG-SMAF-cccc-1 cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

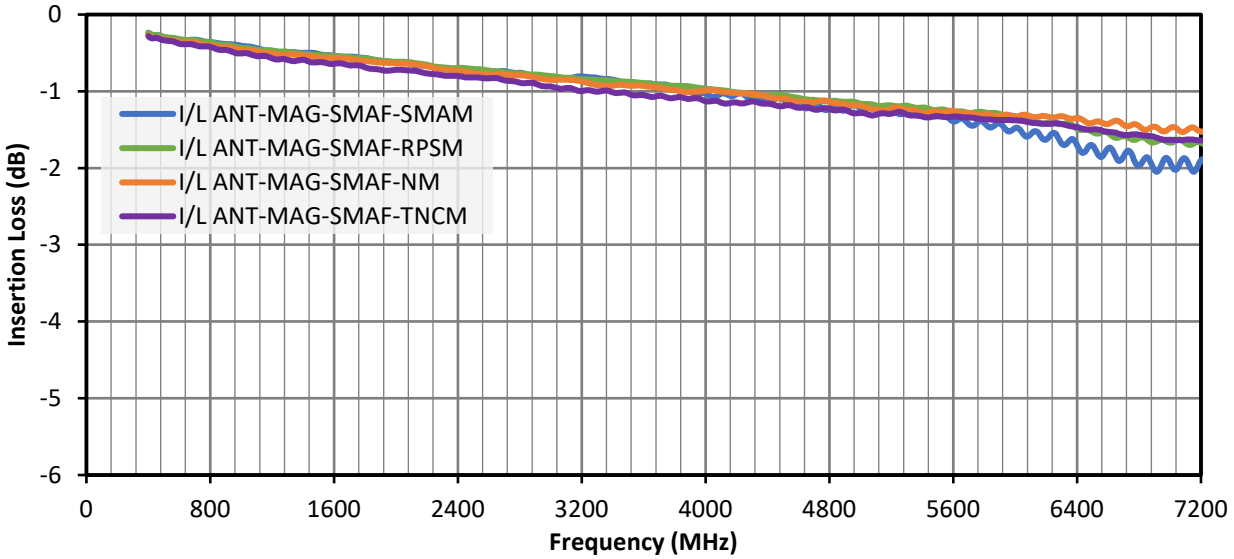

Figure 3. Insertion Loss for the ANT-MAG-SMAF-cccc-1 Cable Assembly

VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the ANT-MAG-SMAF-cccc-1 cable assembly. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

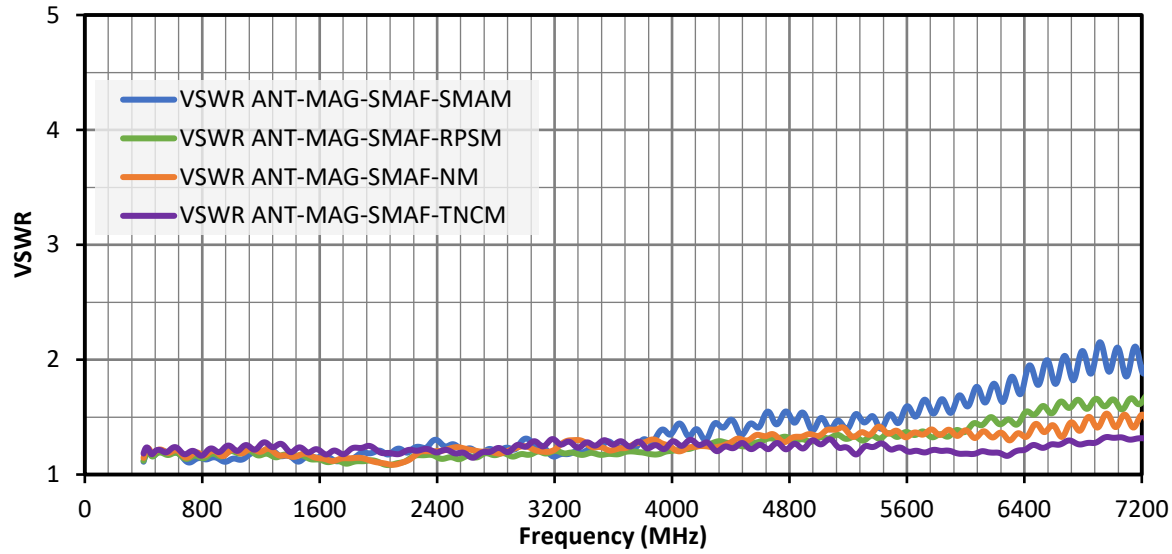

Figure 4. VSWR for the ANT-MAG-SMAF-cccc-1 Cable Assembly

Packaging Information

The ANT-MAG-SMAF-cccc-1 magnetic antenna base assembly is packaged in a clear plastic bag, which is sealed in labeled plastic bags of 10 pcs. Antennas are packaged in boxes in quantities of 100 pcs. Distribution channels may offer alternative packaging options.

Connector & Adapter Definitions and Useful Formulas

VSWR - Voltage Standing Wave Ratio. VSWR is a unitless ratio that describes how efficiently power is transmitted through the connector. 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.

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