



## ANT-MAG-SMAF-cccc-1

### Magnetic Remote Antenna Base

The ANT-MAG-SMAF-cccc-1 is a magnetic externally mounted connector base incorporating 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.

### 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, 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			
Insertion Loss (dB max)	ANT-MAG-SMAF-SMAM	ANT-MAG-SMAF-RPSM	ANT-MAG-SMAF-NM	ANT-MAG-SMAF-TNCM
	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

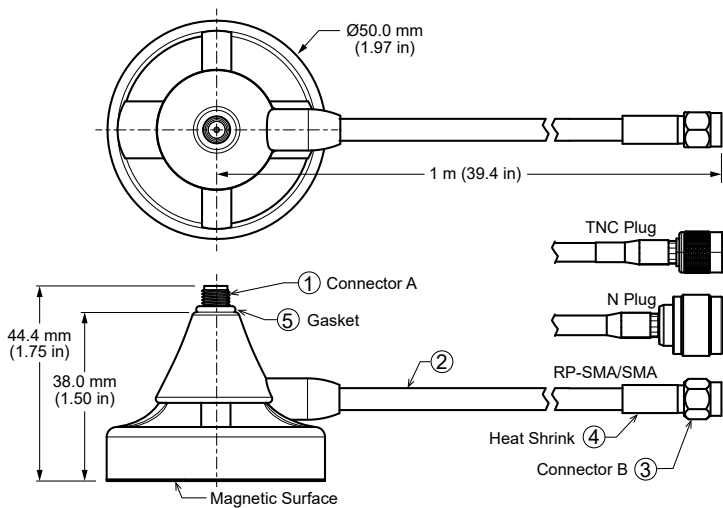


Figure 1: Product Dimensions for the ANT-MAG-SMAF-cccc-1 Cable Assembly

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

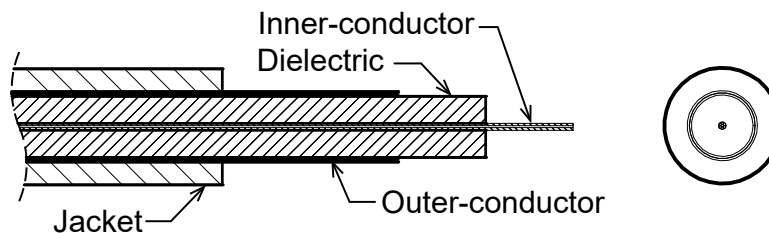


Figure 2: Coaxial Cable Cutaway Diagram

**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 <sup>2</sup> )
		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 <sup>2</sup> )
		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.

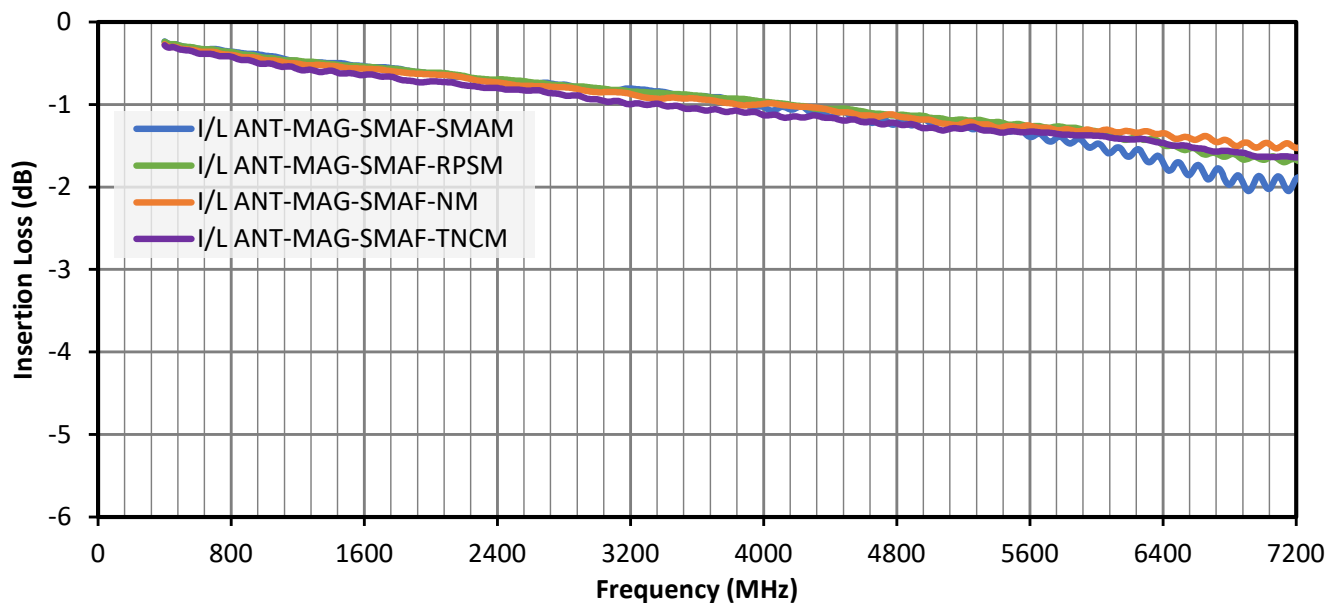


Figure 3: Insertion Loss for the ANT-MAG-SMAF-cccc-1 Cable Assembly

## 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.

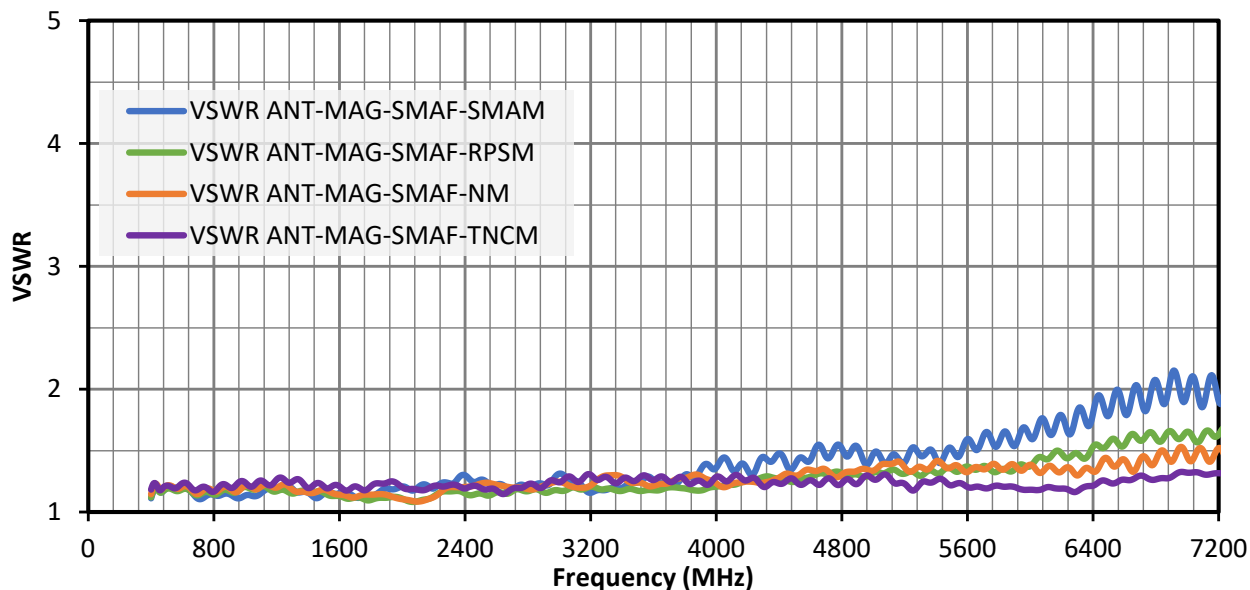


Figure 4: VSWR for the ANT-MAG-SMAF-cccc-1 Cable Assembly

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## 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.

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

**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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