



## ANT-MAG-RPSF-cccc-1 Magnetic Remote Antenna Base

The ANT-MAG-RPSF-cccc-1 is a magnetic externally mounted connector base incorporating a reverse-polarity SMA jack (male pin) 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-RPSF-cccc-1 combines a strong magnetic mount with typical connectors to create new mounting options for most any whip/blade-style connectorized antenna.

### FEATURES

- RP-SMA jack (male pin)
  - 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-RPSF-SMAM-1 | Magnetic remote antenna mount RP-SMA jack (male pin) to SMA plug (male pin) on 1 meter of LMR195 low-loss coaxial cable         |
| ANT-MAG-RPSF-RPSM-1 | Magnetic remote antenna mount RP-SMA jack (male pin) to RP-SMA plug (female socket) on 1 meter of LMR195 low-loss coaxial cable |
| ANT-MAG-RPSF-NM-1   | Magnetic remote antenna mount RP-SMA jack (male pin) to N plug (male pin) on 1 meter of LMR195 low-loss coaxial cable           |
| ANT-MAG-RPSF-TNCM-1 | Magnetic remote antenna mount RP-SMA jack (male pin) 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-RPSF-SMAM | ANT-MAG-RPSF-RPSM | ANT-MAG-RPSF-NM | ANT-MAG-RPSF-TNCM |
| Insertion Loss (dB max) | 1.8               | 2.0               | 1.6             | 1.5               |
| VSWR (max)              | 1.9               | 2.1               | 1.6             | 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**

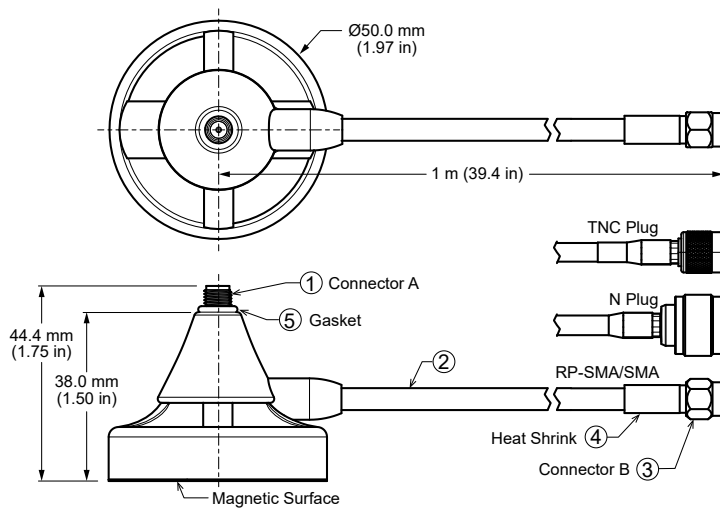


Figure 1: Product Dimensions for the ANT-MAG-RPSF-cccc-1 Cable Assembly

**TABLE 2. CABLE ASSEMBLY COMPONENTS**

| Item # | Description   | Material | Finish |
|--------|---|----------|--------|
| 1      | Connector, RP-SMA jack (male pin) 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<br>RP-SMA jack (male pin) | Connector B<br>(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-RPSF-SMAM-1  | ANT-MAG-RPSF-RPSM-1         | ANT-MAG-RPSF-NP-1    | ANT-MAG-RPSF-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**

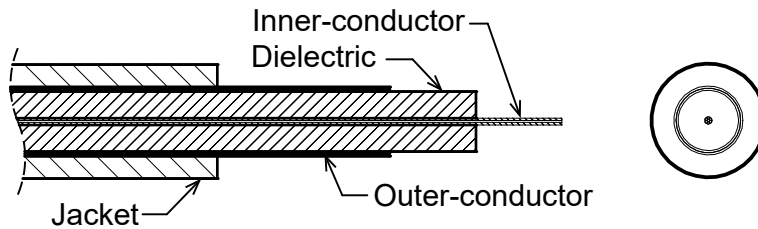


Figure 2: Coaxial Cable Cutaway Diagram

**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-RPSF-cccc-1 cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

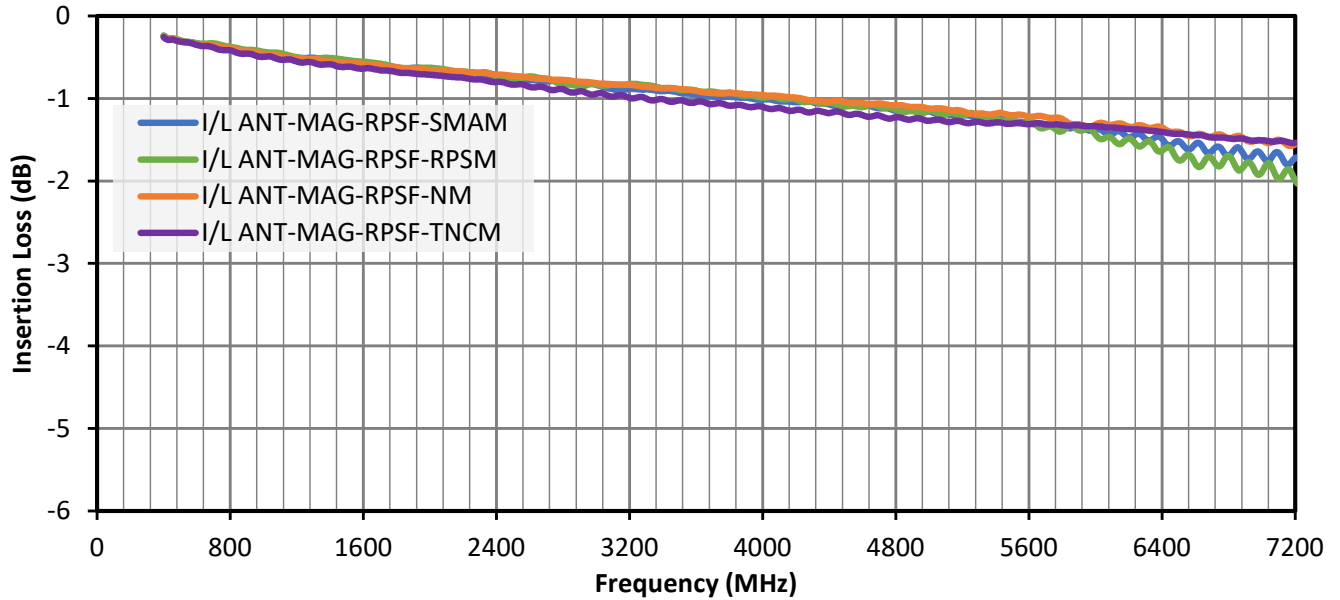


Figure 3: Insertion Loss for the ANT-MAG-RPSF-cccc-1 Cable Assembly

## VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the ANT-MAG-RPSF-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.

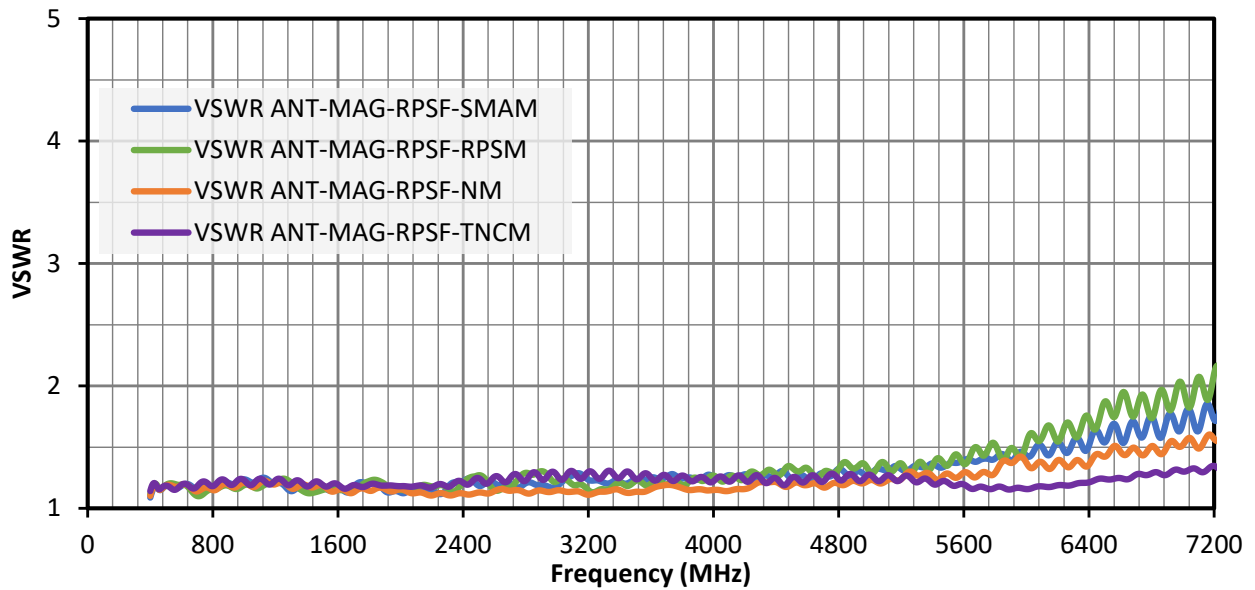


Figure 4: VSWR for the ANT-MAG-RPSF-cccc-1 Cable Assembly

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## PACKAGING INFORMATION

The ANT-MAG-RPSF-cccc-1 magnetic antenna base assembly is packaged in a clear plastic bag, which are 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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