



Customized Cable Kit Installation Guide

Introduction

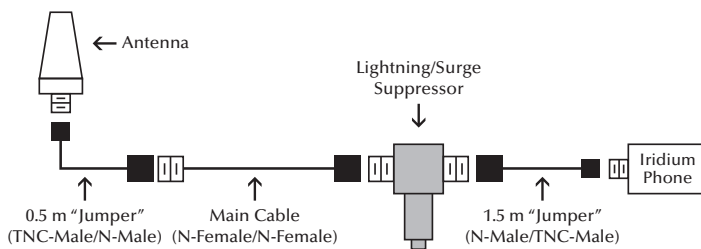
This guide contains installation procedures for the Customized Cable Kit (SKN6121). This kit, when used with an appropriate “main” cable, is designed to connect an Iridium phone to the Fixed Mast Antenna (AT1621-14W) or similar antenna. Iridium offers an 8-meter main cable (C2-NMNF-8M) for use with the Customized Cable Kit. Custom-length main cables can be obtained from many alternate suppliers.

The Customized Cable Kit contains the following:

- 0.5 m flexible “Jumper” cable.
- 1.5 m flexible “Jumper” cable.
- Lightning/Surge Suppressor.

The Customized Cable Kit is suitable for both marine and terrestrial applications and is designed to meet the 3 dB Iridium System performance requirement when installed according to the instructions in this guide. Figure 1 shows a typical terrestrial application.

Figure 1: Typical Terrestrial Antenna Application



Antenna Installation

The Fixed Mast Antenna is a helical antenna contained within a weatherproof housing. It is intended to be mast mounted without any type of ground plane. For proper performance in the Iridium System:

- The antenna must have a clear line of sight to the sky in all directions, from the horizon up.
- The antenna must be mounted vertically.
- The antenna must be positioned such that it is reasonably clear of nearby obstructions. Obstructions can create areas of poor system coverage, decreasing or possibly eliminating the user’s ability to operate the phone with predictability.

Cable Selection

Any cable solution must have a 50 ohm impedance and must meet the “3 dB” Iridium system performance requirement. Specifically, the total insertion loss for the entire cable run (including jumpers and any lightning/surge suppressor) must be less than or equal to 3.0 dB over the Iridium operating frequency band of 1616 to 1626.5 MHz.

The insertion loss of the Custom Cable Kit is approximately 1.5 dB. Iridium offers an 8-meter “main” cable (C2-NMNF-8M) that has an insertion loss of approximately 1.5 dB. Together, these cables yield an end-to-end solution that meets the “3 dB” requirement. Alternatively, the user can purchase custom cable lengths from other suitable sources. Two suggested sources are Times Microwave (www.timesmicrowave.com) and Andrew Corporation (www.andrew.com). Tables 1 and 2 list a selection of coaxial cables that meet the 3 dB requirement when used with the Custom Cable Kit.

Table 1: Times Microwave “Main” Cables

Cable Type	Loss (dB/m)	Max Length when used with Customized Cable Kit	
		(m)	(ft)
LMR240	0.3373	4.4	14.6
LMR400	0.1754	8.6	28.1
LMR600	0.1136	13.2	43.3
LMR900	0.0769	19.5	64.0
LMR1200	0.0579	25.9	85.0
LMR1700	0.0435	34.5	113.2
1.625” LDF	0.0360	41.7	136.7
2.25” LDF	0.0303	49.5	162.4

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Table 2: Andrew Corporation “Main” Cables

Cable Type	Loss (dB/m)	Max Length when used with Customized Cable Kit	
		(m)	(ft)
FSJ1	0.2620	5.7	18.8
C2FP	0.1800	8.3	27.3
LDF4	0.1030	14.6	47.8
LDF4.5	0.0734	20.4	67.0
LDF5	0.0587	25.6	83.8
LDF6	0.0431	34.8	114.2
LDF7	0.0372	40.3	132.3
LDF12	0.0312	48.1	157.7

Before installing cables other than those listed, consult the manufacturers of those cables for more information related to cable performance. Any replacement cable used for the “main” section of coaxial cable specified in Tables 1 or 2 must have an insertion loss of less than or equal to 1.5 dB.

Cable Installation

When installing the cables, follow these guidelines:

- Route and restrain cables to prevent them from vibrating or moving under normal conditions, which could result in damage to the antenna, the phone, or the coaxial cable connections.
- Route the cable between the antenna and the phone so that the cable does not create an obstruction. Ensure that the antenna is mounted so that it will not become detached from its supporting structure under normal external forces.

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- Wherever the cables contact structures, protect the cables from chafing or abrasion.
- When you must bend a cable, avoid kinking it, and ensure that each bend radius follows the cable supplier's recommended limits.
- Use coaxial sealant, shrink wrap tubing, electrical tape, or another suitable product to seal all cable connections appropriately to prevent moisture and corrosion damage from weather exposure. **Note:** A bad connection may corrode, causing performance problems.

Lightning Protection

Antennas mounted in fixed installations can be exposed to lightning strikes in certain environments. Although it is not possible to protect the Iridium phone, the antenna, or surrounding and/or connected equipment or structures from damage from a direct lightning strike, you should implement appropriate protection to minimize damage to equipment and structures and to prevent bodily damage from lightning. Such protection is typically provided by incorporating a specialized lightning/surge suppressor like the one included in the Customized Cable Kit. Install the suppressor at either of the following locations:

- The nearest point at which the cable enters a building structure.
- Where the cable first passes close to a grounded structure.

Install and ground the suppressor according to the installation instructions supplied by the suppressor manufacturer. If you use antenna cables from an alternate source, you should still incorporate a device into the antenna cable system to provide protection from lightning strikes and power surges. If you are uncertain about selecting an appropriate method for protection against lightning strikes and power surges, employ the services of a professional antenna installer.

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