Pierre Auger Observatory

Communications Task

Surface Detector Radio Communications Antenna Feeder Cable Specification Document

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Introduction
This document details the specification for the external co-axial cable that connects the surface detector electronics enclosure to the surface detector radio communications antenna.

General Description
The co-axial cable carries the 915MHz radio signal between the Subscriber Unit Wireless LAN digital radio and the radio antenna. The cable has an N-type connector at each end and is secured to the antenna mast by a series of 3 stainless steel cable clips. Once fitted to a surface detector, the cable connectors are protected from the elements by 12cm long sections of adhesive-lined heat-shrinkable tubing that provides a reliable water-proof seal at each end of the cable.

Cable Length
The cable should have a total length, including connectors of 2.9 meters with a tolerance of +/- 2.5 cm.

Cable Type
The following cable should be used: Andrew Corp. 50 ohm 3/8” Heliax foam dielectric cable, Andrew Part Number LDF2-50. Note that 2.85 meters of cable are required per cable assembly.

Connector Type
The following connectors should be used: Andrew Corp. 50 ohm Male N-Type connector, Andrew Part Number L2PNM. Note that 2 connectors are required per cable assembly.

Cable Securing Clips
The following securing clips, (also known as cable hangers), should be used to secure the cable to the antenna mast; Andrew Corp. 3/8” Heliax cable hangers, Andrew Part Number 43211A (kit of 10). Note that 3 cable hangers are required per cable assembly.

Environmental Protection of the Cable
The following heat-shrinkable sleeving should be used at each end of the cable (after fitting) to moisture seal the cable connectors; Raychem Corp. Atum 24/8 double-wall adhesive-lined black heatshrink sleeving, Raychem Part Number Atum-24/8-0 (sold in 1.2 meter tube lengths in a standard pack of 24 tubes). Note that 2 x 12cm lengths of sleeving are required per cable assembly.

Serial Numbering
After assembly, the cable must have a standardised Auger serial number attached to it. Precise format and position TBD.