### OUTDOOR RATED NETWORK CABLE

Updated: 12/01/2023

Description

This work shall consist of furnishing an outdoor-rated 24 AWG, 4-pair data cable. Each cable link that is routed to an external device outside of the area serving ITS cabinet shall be protected by a lightning protection device on the switch side of the link cable for equipment protection. Contractor shall also provide an outdoor rated Ethernet extender to connect to ITS devices and power and connect to PTZ CCTV cameras located throughout the project.

Materials

Shielded polyolefin cable with four 24 AWG twisted pair conductors.

Jacket Material: PE

Conductor Material: Bare Copper

Drain Wire Material: Tinned Copper

Insulation Material: Polyolefin

Separator Material: Polyolefin

Shield (Tape) Material: Alumnimum/Poly

Cable shall meet the following electrical criteria:

ANSI/TIA Category: 6A

Maximum dc Resistance Unbalance: 5 percent

Maximum dc Resistance: 9.38 ohms/100 m

Mutual Capacitance: 6.0 nF/100 m @ 1 kHz

Nominal Velocity of Propagation (NVP): 62 percent

Maximum Operating Frequency: 250 MHz

Transmission Standards: ANSI/TIA-568-C.2, CENELEC EN 50288-6-1, ISO/IEC 11801 Class E (A)

Cable Connectors shall be RJ-45 compatible and be rated for Category 6A performance. Shall be two piece connectors containing mechanical separators for conductors. RJ-45 Connector shall be suitable for drain wire to be mounted to body of connector.

Cable shall have an operating temperature from -40 degrees Celsius to 70 degrees Celsius, with an insulation temperature from 0 degrees Celsius to 60 degrees Celsius.

Cable shall be type F/UTP (unshielded) with 4 pairs.

Conductor gauge shall be 24 AWG and of solid type. 8 conductors shall be provided.

Maximum pull tension of cable shall be 11 kg.

Nominal cable diameter over jacket shall be no greater than 8.255 millimeters.

A RJ-45 grounded lighting protection device shall be installed on the switch side of the OUTDOOR RATED NETWORK CABLE. Lightning protection device shall meet 3,000W/pair (10/1000us impulse) dissipation for all 8 pins and shall comply with IEEE std. 802.3af and 802.3at for PoE. Lightning protection device shall have a UL497B approval.

For any OUTDOOR RATED NETWORK CABLE which runs longer than 300 feet (as measured along the length of cable) a RJ-45 External Ethernet and POE extender with 60W pass thru shall be provided and have performance specifications meeting or exceeding the Original Equipment Manufacturer (OEM) specifications of the equipment on either end of the network cable (ITS device and Ethernet Switch) being connected on either end. The cost associated for providing such an extender shall be included in the cost of OUTDOOR RATED NETWORK CABLE.

Cable Testing

Cable shall be tested for Verification and Qualification standards (In accordance with TIA and ISO standards) including but not limited to:

Bandwidth Test: Passing values in 10BASE-T,100BASE-TX, and Gigabit

Continuity and Wiremap: Passing values

A report indicating the results of these tests, date of test, description of each cable, and printed and signed name of Tester and the agency the tester works under shall be included in duplicate and copies of report shall be provided within the cabinet/switch side of the cable run.

Basis of Payment

This work will be paid for at the contract unit price per FOOT for OUTDOOR RATED NETWORK CABLE which price shall include all equipment, labor, and materials necessary to complete this work as specified including mounting hardware, extenders, and terminating connectors.