ITEM 683.97950201 – ROADSIDE TRANSPONDER READER SYSTEM

DESCRIPTION. Under this item the Contractor shall furnish and install a roadside transponder reader as shown in the contract documents or as directed by the Engineer.

MATERIALS.

Required is a modern design TDMA roadside transponder reader that is fully operational with all current industry-standard TDMA transponders used in commercial vehicle electronic screening applications. The unit must contain such features as built-in multi-lane support, software-controlled transmit output power and digital squelch. The unit must also possess a small physical size, low power consumption and a high level of integration.

The roadside transponder reader shall at a minimum, have the following characteristics:

- Fully interoperable/functional with all current industry-standard TDMA transponders used in commercial vehicle electronic screening programs.
- Compatible with CVISN site applications.
- Contains an integrated antenna four lanes switching unit.
- Features software controlled transmit power and digital squelch for each lane.
- Compact dimensions for easy installation in any size roadside cabinet.
- Resistant to extreme temperature changes. Operating temperature: -40 degrees Celsius to +60 degrees Celsius.
- Constant read range/communication zone throughout the temperature operating range which precludes the need to recalibrate the zone due to the change of seasons.
- Digital input/outputs (open collector) with over current protection built-in.
- Advanced auto-function feature.
- Three serial communication ports for Host, Maintenance and Aux interface.
- Software configurable RS-232/422 host interface.
- Rugged and sealed enclosure.
- Very low power consumption.
- High level of integration that will allow reader to be used as a platform for future applications beyond the current systems of weigh station bypass, Electronic Toll Collection (ETC), and expedited border crossing etc.

CONSTRUCTION DETAILS. Under this item, the contractor shall furnish and install the roadside transponder reader. It shall be installed in accordance with manufacturer’s guidelines. All equipment shall be designed for ease of installation and maintenance. The reader shall be mounted at the locations shown by the contract documents and as ordered by the engineer or designee.

Transponder reader equipment shall be mounted in a NYSDOT approved outdoor enclosure. All component parts shall be readily accessible for inspection and maintenance. All wires and cables from the transponder reader antenna shall be encased in conduit or fed through the pole from the mounting location to the cabinet. Wires and cables shall be connected on the transponder reader antenna and then again in the cabinet.
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The coaxial cable shall be continuous from antenna to the surge protector located in the reader cabinet without any intermediate splices or connectors. Cable slack of 1 ft shall be left at the antenna location and cable slack of 1 ft shall be left at the reader cabinet for each coaxial cable. A weatherproof and permanent label shall be attached to the coaxial cable end in the reader cabinet end so that each cable can be identified as to antenna. The Contractor shall submit a label sample and labeling procedure to the Engineer for approval prior to installation of any coaxial cable or reader.

Surge protectors shall be installed in the equipment cabinet between the antennas and the tag reader. The surge protectors shall be grounded in accordance with the manufacturer’s recommendations.

The Contractor shall integrate the antenna(s) shown in the contract documents with reader.

METHOD OF MEASUREMENT. The work will be measured as the number of roadside transponder reader systems furnished, installed and integrated.

BASIS OF PAYMENT. The unit price bid for the Roadside Transponder Reader System shall include the cost of all labor, materials and equipment necessary to satisfactorily perform the work, except that conduit excavation and backfill, conduit, pullboxes, roadside cabinet, standard mounting poles and work zone traffic control will be paid for separately. Installation shall include procurement, mounting of system, connection of cables and wires to the reader in the cabinet, and testing.