PURPOSE OF THE DOCUMENT

This document is a Standards User Comment Draft (StdUCD) for the ATC 5301 Advanced Transportation Controller Cabinet (ATCC) standard. The first version of the ITS Standard Specification for Roadside Cabinets v01.02.17b (V1) was published on 9/26/2006 after successful ballot by AASHTO, ITE and NEMA. This version was not widely deployed. Since adopted standards need to be either reaffirmed or revisited after five years, the ITS Cabinet Working Group (WG) decided that it needed a major revision due to significant additions to User Needs including and technology:

- USDOE ban on the sale of incandescent bulbs
- EPA mercury waste regulations
- Proposed State legislation to eliminate shock hazard inside electrical cabinets
- Proposed State legislation to eliminate shock hazard of field wires
- Proposed State legislation to eliminate arc flash hazard under NFPA 70E
- Need to replace internal cabinet subassemblies while intersection is in flash for worker safety
- Low power features to facilitate alternate power sources such as solar, wind and battery

KEY TO REVIEWER’S UNDERSTANDING THE StdUCD

The LEGEND box of StdUCD Figure 1 and Figure 2 is important to the reviewer’s understanding. Figures 1 and 2 differ in that Figure 1 depicts an ATCC which drives High Voltage (120 VAC) signal head outputs, while Figure 2 depicts ATCC which drives Low Voltage (48 VDC) signal head outputs. However, both are intended to drive low power LED signal heads.

In all ATCC configurations, the standard controls signal names, electrical characteristics and communications protocols to be identical among manufacturers for simplification of training, electrical maintenance and software interoperability. The WG captured needs for interchangeable plug-in components. Solid box indicates components where size, connector and pin assignments are controlled by the standard, while solid oval and lines indicate interfaces with connectors and pin assignments controlled by standard. The WG also considered agency requests to adapt the mechanical layout and cabling to local needs during procurement, such as rack or shelf mounting. Hatched oval and lines indicate interfaces where connector and pin assignment are not controlled by the standard, while hatched boxes indicate functions where size, connector and pin assignment are not controlled by the standard. Several StdUCD sections include example mechanical configurations, such as power supplies. In this case, other mechanical configurations are allowed, provided the signal names and electrical characteristics of each signal conform to the standard.

StdUCD DEVELOPMENT WORKFLOW

Beginning in 2008, a Systems Engineering Process (SEP) has been underway to develop the ATCC from the User Needs workshop of ITS owner/operators held in Austin TX, resulting in the completion of User Needs, Concept of Operations and Requirements. Unique to this project, a Requirements Management process established a Requirements Baseline, whereupon each Requirement was reviewed and traced to three different ATCC manufacturer configurations. Baseline Requirements were then modified, added or deleted with advice and consent of both WG End Users and WG Manufacturers. This process resulted in:

- Unanimous WG agreement to balance standardized components vs. local needs and innovation
- Avoidance of interoperability issues requiring reconciliation after the ATC 5301 publication
• Needs to Requirements Traceability Workbook that will extend traceability to the Standard

It should be noted that this StdUCD is being circulated throughout the traffic control industry to solicit review of the proposed design – which includes the specific elements which are fully defined in terms of form, fit, function, & electrical characteristics. Two devices which are shown to conform to this standard should be interchangeable in all applications within the ATCC.

Reviewers are asked to review all aspects of this standard including but not limited to the concept of operations, the division between what the standard mandates in terms of interchangeability and what is left to the individual agencies or states to specify. Note that there are several manufacturers who are demonstrating or supplying products generally conforming to the ATCC standard; however their internal wiring is not interchangeable and the rack assemblies may or may not be interchangeable depending on the internal construction and wiring. As noted above, the goal of this standard is to insure that the plug-in active modules (HDSP, Flasher, CMU, SIU) are fully interchangeable while the input files, output files, and power supplies and controls are interoperable although not interchangeable.

During your review, you are required to enter your comments into a comment spread sheet highlighting the specific page, section, line, etc. in question and providing your specific wording to correct the issue. Comments of a general nature without specific re-wording recommendations will be summarily dismissed by the working group.

Time is of essence. All comments must be received on or before Sunday, September 17, 2017.