The following Standard Development Report (SDR) is made in accordance with the Institute of Transportation Engineers (ITE) procedures for the Advanced Transportation Controller Application Programming Interface Standard.
1 LATEST VERSION OF THE DRAFT PROPOSED STANDARD

Appendix I contains User Comment Draft (UCD) ATC 2070 Standard Version 03.01, Advanced Transportation Controller (ATC) Standard for the Model 2070 Controller (also known as ATC 2070 Standard V3). The previously approved version of this standard was ATC 2070 Standard v01.05, Advanced Transportation Controller (ATC) Standard for the Type 2070 Controller (also known as ATC 2070 Standard V1).

2 SUMMARY STATUS

As part of the ATC standards maintenance efforts, ATC 2070 Standard v03.01 is being distributed to the members of ITE and other standard development organizations (SDOs) for formal review. This is based on the recommendation of the ATC Joint Committee (JC). Comments from potential users of the standard are solicited. The standard contains the detailed design and requirements for ATC 2070 transportation controller devices. Following this comment period, the comments received will be adjudicated by the ATC Controller Working Group (WG), the ATC 2070 Standard will be updated accordingly, and the standard will be moved through the Recommended and Approved stages of the standards development process to Publication. Inquiries, comments or proposed changes to this standard should be submitted to:

ITS Standards Manager
Institute of Transportation Engineers
1627 I (eye) Street, NW, Suite 600
Washington, DC 20006
Voice: (202) 785-0060
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3 STATUS REPORT

In the early 1990s, the State of California Department of Transportation (Caltrans) began a project to develop a specification for a Model 2070 traffic controller as a replacement for the Model 170 controller series. This work had matured enough so that the ATC JC elected to include the Model 2070 controller in the ATC family of standards. Portions of the Caltrans Transportation Electrical Equipment Specifications (TEES) 1999 plus errata that applied to the Model 2070 controller were generalized into the national standard ATC 2070 v01.05. This standard was an official standard of the ATC JC but it is now out of date and not recommended for new designs. The term “Type 2070” was used in earlier versions of the ATC 2070 Standard. This has been replaced with the term “Model 2070” to be consistent with the Caltrans TEES.

ATC 2070 v03 represents the latest and most widely used Model 2070 elements. In an effort to maintain harmony with the Caltrans specifications and consistency in deployments nationally, sections of this standard and the detailed mechanical drawings have been extracted directly from the Caltrans TEES 2009 plus published errata. Some editorial, formatting changes, and section numbering have been made as deemed appropriate by the Controller WG.

On June 29, 2011, the Controller WG submitted ATC 2070 Standard v03.01 to the ATC JC for review as a proposed UCD standard. The ATC JC accepted the document as a formal UCD for distribution to the SDOs at their meeting on July 21, 2011 (10 yeas, no nays, and no abstentions).
4 COMMENTS LISTING

Formal comments are being solicited from the SDOs at this time. Prior internal Controller WG comments are found in Appendix II. Any open or deferred WG comments will be resubmitted during this User Comment Period.

5 COMMITTEE OBJECTIVES

The objective of this project of the Controller WG is to establish an ATC 2070 Standard that is consistent with the Caltrans TEES 1999 plus currently published errata. Only the most widely used elements and features of the Model 2070 are included in order to promote uniformity in deployments nationally.

6 COMMITTEE MEMBERS

This standard has been developed under the oversight of the ATC Joint Committee (JC) which is made up of representatives from the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the National Electrical Manufacturers Association (NEMA). The work in developing this standard was performed by the ATC Controller Working Group (WG), a technical subcommittee of the ATC JC.

Controller Working Group

Ralph Boaz, Pillar Consulting
George Chen, LADOT
Gary Duncan, Econolite
Robin Harrison, Peek
Herasmo Iniguez, Caltrans
Ron Johnson, Harris County, TX
Dave Miller, Siemens
Clyde Neel, Naztec
Peter Ragsdale, Self
Bob Rausch, TransCore
Mohamed Talas, NYCDOT
Douglas Tarico, McCain
John Thai, City of Anaheim
Robert Welborn, City of Houston

ATC Joint Committee

Ray Deer, Peek Traffic
Kleinian Deetlefs, McCain
Scott Evans, Eberle Design
Craig Gardner, Intelight
Dave Holstein, Ohio Department of Transportation
Andrew Mao, Harris County, Texas
Jeff McRae, California Department of Transportation
Dave Miller, Siemens ITS
Kenneth Montgomery, Georgia Department of Transportation
Guillermo Ramos, New York State Department of Transportation
Robert Rausch, TransCore
Ed Seymour, Texas Transportation Institute
7 OTHER MATERIAL OF INTEREST

The documents listed below are consistent with those listed within the ATC 2070 Standard. Newer versions with minor revisions may be available.

_ATC Standard for the Type 2070 Controller v01.05_, ATC JC, 29 March 2001. Available from the Institute of Transportation Engineers.

_Caltrans Transportation Electrical Equipment Specifications (TEES)_ , California Department of Transportation, 12 March 2009. Available from the California Department of Transportation.

_ITS Standard Specification for Roadside Cabinets v01.02.17b_, ATC JC, 16 November 2006. Available from the Institute of Transportation Engineers.


_NEMA Standards Publication TS 2-2003 v02.06 Traffic Controller Assemblies with NTCIP Requirements_. Available from the National Electrical Manufacturers Association.

8 DECLARATION REGARDING OTHER KNOWN NATIONAL AND INTERNATIONAL STANDARDS

This statement confirms that other known national and international standards have been examined with regard to harmonization and duplication of content, and no significant conflicts with another known standard have been identified.

9 ABSTRACT OF THE STANDARD

Purpose

The Advanced Transportation Controller (ATC) Standards are intended to provide an open architecture hardware and software platform that can support a wide variety of Intelligent Transportation Systems (ITS) applications including traffic management, safety, security and other applications. The ATC Standards are being developed and maintained under the direction of the ATC Joint Committee (JC) which is made up of representatives from the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE) and the National Electrical Manufacturers Association (NEMA).

This standard defines the ATC Model 2070 transportation controller (ATC 2070). It has been prepared by the ATC Controller Working Group (WG), a technical subcommittee of the ATC JC. It establishes a common understanding of the specifications for the ATC 2070 for:

a) The local, state and federal transportation agencies who specify and use ATC 2070 equipment;

b) Manufacturers who produce ATC 2070 equipment;

c) Software developers who develop application programs for ATC 2070 equipment; and
d) The public who benefit from the application programs that run on ATC 2070 equipment and who directly or indirectly pays for these products.

Overview

The ATC 2070 has specific requirements on internal and physical characteristics to ensure uniformity across manufacturers. It features a multi-tasking operating system, module level interchangeability and expandability so that modules can be added after the initial purchase to provide more features. Its open architecture design allows software to be purchased independently of the hardware. This enables the ATC 2070 to be used for traditional traffic applications such as traffic control, data collection, and ramp metering or any other applications requiring an on-street computing platform. Figure 1 and Figure 2 show an example 2070 configuration from the front and back views respectively.

As a national specification, additional modules were created so that the ATC 2070 could be used in the most prevalent cabinet systems including the Caltrans Model 332 (type), NEMA TS 1, NEMA TS 2 Type 1 and Type 2, and ITS Cabinets. This includes cabinet systems that require discrete wiring throughout the cabinet (i.e. Model 332 (type), NEMA TS 1 and NEMA TS 2 Type 2) and cabinet systems that have serial-based communications to the elements of the cabinet (i.e. NEMA TS 2 Type 1 and ITS Cabinets). Figure 3 illustrates the ATC 2070 being rack mounted in a Model 332 cabinet system and shelf mounted in a NEMA TS 2 Type 1 cabinet system.

Figure 1. Front view of the Model 2070 controller unit with a 2070-3B Front Panel.
Figure 2. Rear view of a Model 2070 controller unit with various plug-in modules.

Figure 3. 2070 Controllers used in rack mount and shelf mount cabinet systems.
Document Organization

This standard is made up of three sections and appendices. Section 1, “Introduction,” provides an overview of the entire document. Section 2, “Overall Description,” provides the background information and context necessary for the requirements. Section 3, “Specific Requirements,” contains the detailed requirements and specifications for the ATC 2070. Appendix A contains detailed engineering drawings.
APPENDIXES
Appendix II

Prior Internal Controller Working Group Comments