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 5201 Advanced Transportation Controller Standard Version 06.32 (ATC 5201 v06.32). It is an update version to the current Jointly Approved ATC 5201 v06.25. Jointly Approved means that the standard had been formally balloted and approved separately by the three cooperating standard development organizations (SDOs): the American Association of State Highway and Transportation Officials (AASHTO), the Institute of Transportation Engineers (ITE), and the National Electrical Manufacturers Association (NEMA).

2 SUMMARY STATUS

As part of the ATC standards maintenance efforts, ATC 5201 v06.32 is being distributed to the members of ITE and other standard development organizations (SDOs) for formal review. This action is based on the recommendation of the ATC Joint Committee (JC), the steering committee for the ATC program. Comments from potential users of the standard are solicited. The standard contains the detailed design and requirements for ATC transportation controller devices. Following this comment period, the comments received will be adjudicated by the ATC Controller Working Group (WG), ATC 5201 v06.32 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
Fax: (202) 785-0609
Email: standards@ite.org

Comments are requested using the fields described in Appendix III.

3 STATUS REPORT

ATC 5201 Standard v06.25 was published as a Jointly Approved standard of the ATC JC on January 12, 2018. The work on the standard had been completed in October of 2015 but an appeal was filed against its adoption during the ballot period that followed. The appeal was eventually rescinded and the standard was published in January 2018. During the delay, a new maintenance effort on the standard began in the summer of 2017. Comments were solicited from the ATC Controller Working Group which is made up of members from state and local transportation agencies, manufacturers, software developers and consultants. There were 57 comments submitted. Of those 57, 54 comments were adjudicated and closed. There were 3 comments that remained on the list that could not be closed due to the scope of the effort.

The improvements to the standard are mainly corrections and additions focused on removing ambiguities and barriers to software portability and hardware compatibility. There are also increases to memory sizes and to the minimum Linux kernel version to be more contemporary. ATC 5201 v06.32 represents an improved and clarified document over ATC Standard v06.25.

On May 30, 2018, the Controller WG submitted ATC 5201 v06.31 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 during their web conference on June 21, 2018 with 15 yeas, 0 nays, and 0 abstentions. There were 3 JC
members not available for the vote. The minor version number on the document was then advanced for administrative purposes to create ATC 5201 v06.32.

4 COMMENTS LISTING

The adjudicated user comments used in the creation of ATC Standard v06.32 are found in Appendix II.

5 COMMITTEE OBJECTIVES

The objective of this project is to produce a new version of the ATC Standard that has incorporated comments and corrections from the deployment of ATC Standard v06.25 and further enhancements as deemed necessary by the ATC WG. The distribution of ATC 5201 v06.32 as a User Comment Draft is a step in this process by soliciting user comments from the members of the SDOs.

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
Mike Gallagher, Intelight
Robin Harrison, Peek Traffic
Herasmo Iniguez, California DOT
Dave Miller, Siemens
Clyde Neel, Naztec
Bob Rausch, TransCore
Faisal Saleem, Maricopa County, AZ
Mohamed Talas, NYCDOT
Douglas Tarico, McCain
John Thai, City of Anaheim

ATC Joint Committee

Doug Crawford, Intelight
Alan Davis, Georgia DOT
Ray Deer, Peek Traffic
Kleinjan Deetlefs, McCain
Gary Duncan, Econolite
Scott Evans, Eberle Design
Daniel Farley, Pennsylvania DOT
Matt Luker, Utah DOT
Andrew Mao, Texas DOT
Dave Miller, Siemens
7 OTHER MATERIAL OF INTEREST

The documents listed below are consistent with those listed within ATC 5201 v06.32. Newer versions with minor revisions may be available.

Application Programming Interface (API) Standard for the Advanced Transportation Controller (ATC) v02.17, ATC JC, 1 September 2011. Available from the Institute of Transportation Engineers.

Model 2070 Controller Standard Version 3, ATC JC, August 2012. 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.


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 other known standards 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 a transportation field device known as an ATC controller. It has been prepared by the Controller Working Group (WG), a technical subcommittee of the ATC JC. It establishes a common understanding of the specifications for an ATC for:

a) Local, state and federal transportation agencies who specify and use ATC equipment;
b) Manufacturers who produce ATC equipment;
c) Software developers who develop application programs for ATC equipment; and
d) The public who benefit from the application programs that run on ATC equipment and who directly or indirectly pays for these products.

Overview

ATC 5201 V06 uses a transportation controller architecture where the computational components of the controller reside on a single small printed circuit board (PCB), called the “Engine Board,” with standardized connectors and pinout. It is made up of a central processing unit (CPU), Linux operating system (O/S), memory, external and internal interfaces, and other associated hardware necessary to create an embedded transportation computing platform (see Figure 1). The Engine Board plugs into a “Host Module” which supplies power and physical connection to the input/output (I/O) facilities of the controller. While the interface to the Engine Board is completely specified, the Host Module may be of various shapes and sizes to accommodate innumerable transportation controller designs and cabinet architectures. Figure 2 illustrates how the engine board and host board can be used in different types of transportation controllers. Figure 3 shows how a controller compliant with two different existing cabinet standards can utilize the ATC Standard.

![Figure 1. Block diagram of the ATC Engine Board.](image-url)
Figure 2. ATC Engine Board used in Host Boards for different types of transportation controllers.
Figure 3. ATC Standard used in existing Cabinet Systems.

Document Organization

ATC 5201 v06.32 is made up of ten sections and three 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, “Functional Requirements” identifies the requirements of an ATC based on the “Representative Usage” described in Section 2. Sections 4-10, contain the detailed requirements and specifications for ATC units. Appendices A-C contain the Linux operating system specifications, device driver interface specifications, and a short historical background on transportation controllers, respectively.
Appendix I

User Comment Draft ATC 5201 v06.32
Appendix II

Adjudicated User Comments for ATC 5201 v06.25
Appendix III

Comment Submission Requirements

Comments should be submitted using the fields as shown below.

Document Name/Ver: ATC 5201 v06.32
Reviewer Name: First and last name.
Reviewer Organization: Current employer or "self" if representing only as an individual.
Comment Date: Submission date for the set of comments.
CID#: A numerical value unique for the commenter’s comments. (e.g. 1, 2, 3).
CType: Type of comment one of Technical/Editorial/Other.
Page: Page # or #s for which the comment applies. “General” can be used if pertains to entire document.
Section/Paragraph: Section # for which the comment applies. May add paragraph # or leave field blank as appropriate.
Comment: State the issue or concern.
Suggested Resolution: If possible please state a proposed solution to the issue or concern. Comments with proposed solutions can help the working group address the issue more effectively even if it is not resolved in the exact way as proposed.

Comments may also be submitted in a tabular form as shown below (column widths can be adjusted):

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