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

Appendix I contains Recommended Standard (RS) ATC 5201 Standard v06 (v06.24) also known as the Advanced Transportation Controller Standard. This title uses a new document identifier “ATC 5201” where “ATC” reflects its publication by the ATC Joint Committee and “5201” is a numerical identifier assigned to this standard. The previously approved version of this standard was ATC Standard v5.2b.

2 SUMMARY STATUS

ATC 5201 Standard v06.24 has been accepted as a Recommended Standard of the ATC Joint Committee (JC). The standard contains the detailed design and requirements for ATC 5201 conforming transportation controller devices. It is being distributed to the members of the Institute of Transportation Engineers (ITE), the American Association of State Highway and Transportation Officials (AASHTO), and the National Electrical Manufacturers Association (NEMA) for formal balloting and approval. After all three standards development organizations (SDOs) have individually approved the standard; it will be considered a Jointly Approved Standard and published.

3 STATUS REPORT

In June 2006, ATC Standard v5.2b was published as an Approved Standard of the ATC JC. Since that time, there have been 303 comments submitted and adjudicated by the Controller WG in the development of ATC 5201 Standard v06. This provided valuable feedback in identifying areas of ATC Standard 5.2b that needed correction, further definition or enhancement. The full comment report is included in Appendix II. Most comment dispositions are clarifications to or enhancements of the existing standard’s elements. Specific areas where the standard was enhanced are as follows:

a) Additional front matter and context material was added to help users of the standard;
b) Provisions were made for optional Secure Digital (SD) card and controller area network (CAN) bus interfaces;
c) CoreMark benchmarks are now used as a measure of central processing unit (CPU) performance;
d) User interface elements and their physical locations on ATC units have been clarified;
e) Synchronous serial port features that have been unused by the industry are now optional;
f) Both Model 2070-like communications expansion slots are now optional; and

ATC 5201 Standard v06 represents a significantly improved and clarified document over ATC Standard 5.2b.

On September 2, 2015 the Controller WG submitted ATC 5201 Standard v06.23 to the ATC JC for review as a Proposed Recommend Standard (pRS). The ATC JC accepted the document as a Recommended Standard following their teleconference on September 28, 2015 and the subsequent email ballot of 14 yeas, 0 nays, and 0 abstentions.

4 COMMENTS LISTING

The adjudicated user comments from the development of ATC 5201 Standard v06 are found in Appendix II.
5 COMMITTEE OBJECTIVES

The objective of the ATC JC and the Controller WG is to produce a Jointly Approved Standard ATC 5201 Standard v06 that has incorporated comments and corrections from the deployments of ATC Standard 5.2b and further enhancements as deemed necessary by the Controller WG. This distribution of Recommended Standard ATC 5201 Standard v06 is for balloting and approval of this standard within ITE and the other SDOs making up the ATC program.

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 Controller Working Group (WG), a technical subcommittee of the ATC JC.

Controller Working Group

- Ralph Boaz, Pillar Consulting
- George Chen, Los Angeles Department of Transportation
- Gary Duncan, Econolite
- Michael Gallagher, Intelight
- Robin Harrison, Peek Traffic
- Herasmo Iniguez, Caltrans
- Dave Miller, Siemens
- Clyde Neel, Naztec
- Peter Ragsdale, Self
- Bob Rausch, TransCore
- Mohamed Talas, New York City Department of Transportation
- Douglas Tarico, McCain
- John Thai, City of Anaheim

ATC Joint Committee

- James Cheeks, District of Columbia Department of Transportation
- Doug Crawford, Intelight
- Ray Deer, Peek Traffic
- Kleinjan Deetlefs, McCain
- Gary Duncan, Econolite
- Scott Evans, Eberle Design
- Andrew Mao, Texas Department of Transportation
- Dave Miller, Siemens
- Guillermo Ramos, New York State Department of Transportation
- Robert Rausch, TransCore
- Ed Seymour, Texas Transportation Institute
- Mohamed Talas, New York City Department of Transportation
- John Thai, City of Anaheim
- John Wyatt, Intelligent Devices

7 OTHER MATERIAL OF INTEREST
The documents listed below are consistent with those listed within ATC 5201 Standard v06. 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.


[NOTE: The actual date of Joint Approval for this standard is projected to be completed by August 2012. The ballot by members of AASHTO, ITE and NEMA has completed in favor of the standard.]

*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 Advanced Transportation 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 Standard 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 controllers designed for two different existing cabinet standards can utilize ATC 5201 Standard v06.

![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 5201 Standard v06 used in existing Cabinet Systems.

Document Organization

ATC 5201 Standard v06 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, context and representative usage of ATC units. Section 3, “Functional Requirements,” identifies high level requirements of an ATC unit based on the representative usage described in Section 2. Sections 4-10, contain the detailed requirements and specifications of the ATC 5201 Standard v06.
Appendix I

Recommended Standard ATC 5201 Standard v06.24
Appendix II

Comments Report from the Development of ATC 5201 Standard v06