
Standard Development Report
for
NTCIP 1202 v03
Object Definitions for Actuated Signal
Controllers (ASC) Interface

October 28, 2018

The following Standard Development Report (SDR) is made in accordance with the Institute of Transportation Engineers (ITE) procedures for National Transportation Communications for ITS (Intelligent Transportation Systems) Protocol (NTCIP) family of standards.

1 LATEST VERSION OF THE DRAFT PROPOSED STANDARD

Appendix I refers to the attached Recommended Standard (RS) NTCIP 1202 v03, *Object Definitions for Actuated Signal Controllers (ASC) Interface*, (v03.26, referenced hereafter as draft v03)). The previously approved and published version was NTCIP 1202 v02 (designated as both NTCIP 1202:2005 and NTCIP 1202 v02.19f).

2 SUMMARY STATUS

Draft NTCIP 1202 v03 has been accepted as a Recommended Standard of the NTCIP Joint Committee (JC). Draft RS NTCIP 1202 v03 defines NTCIP 1202 v03 as part of that larger family and is designed to define an interoperable and interchangeable interface between a transportation management system and an ASC, while still allowing for extensions beyond NTCIP 1202 v03 to allow for new functions as needed. This approach is expected to support the deployment of ASC from one or more vendors in a consistent and resource-efficient way.

Draft RS NTCIP 1202 v03 is distributed to the Institute of Transportation Engineers (ITE), the American Association of State Highway and Transportation Officials (AASHTO), and the National Electrical Manufacturers Association (NEMA) for their respective balloting and approval processes. After all three standards development organizations (SDOs) have individually approved the standard; NTCIP 1202 v03 will be considered a Jointly Approved Standard and published.

3 STATUS REPORT

In November, 2005, NTCIP 1202 v02 was published as an Approved Standard of the NTCIP JC. Since that time, circa April, 2013, a new project (development of NTCIP 1202 v03) was initiated with key objectives:

- a) Develop the NTCIP 1202 v03 standard assessing issues and integrating lessons learned from current deployments of the NTCIP 1202 standard into a Concept of Operation (ConOps), requirements, and design.
- b) Use a Systems Engineering Process (SEP) to ensure the completeness and correctness of NTCIP 1202 v03 standard and associated documents, and to ensure traceability and logical consistency.
- c) Address backward compatibility (multi-version interoperability) issues in NTCIP 1202 v03, as a consideration for systems that conform to NTCIP 1202:2005.
- d) Accommodate additional user needs, functional requirements, and System Design Description (SDD) related to additional functionalities that may be identified during Concept of Operations (Development), for example, support for a connected vehicle environment.

Draft NTCIP 1202 v03 was developed under the auspices of the NTCIP Actuated Signal Control (ASC) Working Group (WG), and followed a Systems Engineering Process (SEP) to advance the project to the Recommended Standard (RS) stage.

Draft RS NTCIP 1202 v03 represents a significantly improved and enhanced document over NTCIP 1202 v02.

Circa December, 2017, the NTCIP ASC WG voted to send draft NTCIP 1202 v03 to the NTCIP JC for review as a Proposed Recommend Standard (pRS), via the required 2/3 plurality vote. On xxxx, 2017, the NTCIP JC accepted the document as a Recommended Standard via the required 2/3 plurality vote (outside of a meeting). The two negative votes were addressed.

4 COMMENTS LISTING

The adjudicated user comments from the development of draft RS NTCIP 1202 v03 are attached and referenced in Appendix II.

5 COMMITTEE OBJECTIVES

The objective of the NTCIP JC and the NTCIP ASC WG is to produce a Jointly Approved NTCIP 1202 v03 that incorporates additional functionality, as well as comments and related deployment experience from NTCIP 1202 v02, as well as other enhancements. This distribution of draft RS NTCIP 1202 v03 is for balloting and approval within ITE and the other SDOs making up the NTCIP program.

6 COMMITTEE MEMBERS

Draft RS NTCIP 1202 v03 was developed under the oversight of the NTCIP 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). Draft RS NTCIP 1202 v03 was developed under the auspices of the NTCIP ASC WG, a subordinate unit of the NTCIP JC.

NTCIP ASC Working Group (Voting Members Only are listed)

Douglas Tarico, Intelight (Co-Chair)
John Thai, City of Anaheim (Co-Chair)
Kevin Balke, Texas A&M University
Ralph Boaz, Pillar Consulting
Patrick Chan, Consensus Systems Technologies
Matthew DeWitt, FL DOT Florida Dept. of Transportation
Scott Evans, Eberle Design, Inc.
Greg Mizell, Econolite Control Products, Inc.
Peter Ragsdale, Intelight Inc.
Robert Rausch, TransCore, ITS, LLC
Mark Simpson, Peek

NTCIP Joint Committee (Voting Members Only are listed)

Voting-NEMA

Russ Brookshire, Parsons
Bryan Mulligan, Applied Information, Inc.
Mark Simpson, Peek Traffic Corporation
Andrew Valdez, Siemens Industry, Inc.

Voting-ITE

John Thai, City of Anaheim (Chair)
Patrick Chan, Consensus Systems Technologies
Stephen Dellenback, Southwest Research Institute
Michael Forbis, Washington State DOT
Raman Patel, RK Patel Associates, Inc.

Voting-AASHTO

Jeffrey Morgan, FL DOT
Edward Seymour, Texas Transportation Institute
Brian Simi, CA DOT (CalTrans) Division of Traffic Operations
Doug Spencer, OR DOT
Ray Starr, MN DOT
Robert Terry, NYS DOT-Off of Traffic Safety & Mobility

7 OTHER MATERIAL OF INTEREST

The documents listed below are consistent with those listed in draft RS NTCIP 1202 v03. Newer versions with minor revisions may be available.

Identifier	Title
NTCIP 1103 v03	<i>Transportation Management Protocols (TMP)</i> , AASHTO / ITE / NEMA, published December 2016
NTCIP 1201 v03	<i>Global Object (GO) Definitions</i> , AASHTO / ITE / NEMA, published March 2011
NTCIP 1204 v03	<i>Environmental Sensor Station Interface Standard</i> , AASHTO / ITE / NEMA, published September 2014 (with errata)
NTCIP 1217 v01	<i>SAE / NTCIP CV Objects</i> , SAE Note: NTCIP 1217 v01 is a MIB (only—not a “document”). NTCIP 1217 v01 contains only those SAE J2735-derived objects referenced in NTCIP 1202 v03. Available from SAE.
NTCIP 2103 v02	<i>Point-to-Point Protocol over RS-232 Subnetwork Profile</i> , AASHTO / ITE / NEMA, published December 2008
NTCIP 2301 v02	<i>Simple Transportation Management Framework (STMF) Application Profile (AP) (AP-STMF)</i> , AASHTO / ITE / NEMA, published July 2010
NTCIP 8004 v02	<i>Structure and Identification of Management Information (SMI)</i> , AASHTO / ITE / NEMA, published June 2010
IETF RFC 1628	<i>UPS Management Information Base</i> Published May 1994
SAE J2735_201603 MIB (NTCIP 1217 v01 MIB)	<i>Dedicated Short Range Communications (DSRC) Message Set Dictionary™</i> , SAE, published March 2016 Note: this document is the MIB extracted from NTCIP 1202 v03, containing only those objects referenced to SAE J2735_201603. This MIB is referred to in NTCIP 1202 v03 as “NTCIP 1217 v01 MIB”.
SAE J2945/1_201603	<i>On-Board System Requirements for V2V Safety Communications</i> , SAE Published March 2016
DSRC Roadside Unit (RSU) Specifications Document v4.1	<i>DSRC Roadside Unit (RSU) Specifications Document v4.1</i> , USDOT, Saxton Transportation Operations Laboratory, Submitted October 31, 2016, Version 1

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

Draft RS NTCIP 1202 v03 has been accepted as a Recommended Standard of the NTCIP Joint Committee (JC). Draft RS NTCIP 1202 v03 specifies the logical interface between an Actuated Signal Controller (ASC) and the host systems that control them. NTCIP 1202 v03 describes the supported ASC functionality in terms of user needs and requirements; however, the nature of the interface is determined in part by the operational nature of the devices being controlled, and therefore NTCIP 1202 v03 touches on such operational issues on occasion.

Overview

NTCIP 1202 v03 standardizes the communications interface by identifying the various operational needs of the users (Section 2) and subsequently identifying the necessary requirements (Section 3) that support each need. NTCIP 1202 v03 then defines the NTCIP standardized communications interface used to fulfill these requirements by identifying the dialogs (Section 4) and related data concepts (Section 5) that support each requirement. Traceability among the various sections is defined by the Protocol Requirements List (Section 3.3) and the Requirements Traceability Matrix (Annex A). Conformance requirements for NTCIP 1202 v03 are provided in Section 3.3. NTCIP 1202 v03 only addresses a subset of the requirements needed for procurement. It does not address requirements related to the performance of the traffic detectors (e.g., accuracy, the supported detection range, the time it takes to detect conditions, etc.), hardware components, mounting details, etc.

In addition, NTCIP 1202 v03 standardizes the communications interface between an ASC and a RoadSide Unit (RSU). A RSU is any connected vehicle field device that is used to broadcast messages to, and receive messages from, nearby vehicles using wireless communications.

An implementation of NTCIP 1202 v03 requires lower level services to structure, encode, and exchange the data concepts defined by NTCIP 1202 v03. NTCIP 1202 v03 assumes that the data concepts are exchanged by one of the protocols defined in NTCIP 2301 v02.

Document Organization

Draft RS NTCIP 1202 v03 includes the following sections:

- a) Section 1 General [Informative]
- b) Section 2 Concept of Operations [Normative]
- c) Section 3 Functional Requirements [Normative]
- d) Section 4 Dialogs [Normative]
- e) Section 5 Management Information Base (MIB) [Normative]
- f) Section 6 Block Object Definitions
- g) Section 7 SAE/NTCIP Object Definitions

NTCIP 1202 v03 also contains four normative and four informative annexes:

- a) Annex A Requirements Traceability Matrix (RTM) [Normative] traces requirements to dialogs and data concepts (messages, data frames, and data elements) used to fulfill one or more requirements.
- b) Annex B Object Tree [Informative] provides a graphical representation of the major nodes of the ISO tree as defined by NTCIP 1202 v03.

- c) Annex C Test Procedures [Normative] is a placeholder for test procedures that may be developed as part of a future revision.
- d) Annex D Documentation of Revisions [Informative] identifies the significant revisions in NTCIP 1202 v03 that have been made since previous versions of NTCIP 1202.
- e) Annex E User Requests [Informative] identifies features that were suggested for NTCIP 1202 v03, but are either supported by mechanisms that may not be readily obvious, or are not supported by NTCIP 1202 v03.
- f) Annex F Generic Concepts and Definitions provides generic concepts and definitions, including a section on *connected vehicle* implementations.
- g) Annex G SNMP Interface [Normative] contains the definitions for the generic SNMP interface including the definitions to perform GET, SET, and GET NEXT commands.
- h) Annex H NTCIP 1201 v03- and NTCIP 1103 v03-Derived Functional Requirements and Dialogs [Normative] serves as a reference for NTCIP 1202 v03. Eventually this reference information may be moved to successors of NTCIP 1201 v03 and NTCIP 1103 v03.

APPENDICES

Appendix I

Draft Recommended Standard NTCIP 1202 v03

Is attached to this SDR as NTCIP 1202v0326 WithRevs 20181028.pdf, as well as NTCIP 1202v0326 NoRevs 20181028.pdf (same document, with and without track changes).

Appendix II

Comments Report from the Development of Draft Recommended Standard NTCIP 1202 v03

Is attached to this SDR as NTCIP 1202 v03-20 ASC JC UCD Consol 20181028.pdf