

NTCIP 1209 v02

National Transportation Communications for ITS Protocol

Object Definitions for Transportation Sensor Systems (TSS)

A Joint Standard of AASHTO, ITE, and NEMA



NTCIP Standards Publication

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American Association of State Highway and Transportation Officials (AASHTO)
Institute of Transportation Engineers (ITE)
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National Electrical Manufacturers Association (NEMA)
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209-3801

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At the time that NTCIP 1209 v02 was prepared, the following individuals were members of the NTCIP TSS Working Group:

- | | |
|----------------------|------------------|
| • Ralph Boaz (Chair) | • Lynne Randolph |
| • Terry Haukom | • Mike Robertson |
| • Kyle Irvin | • Robert Ung |
| • Allen Jacobs | • Keith Vennel |
| • Peter Ragsdale | • Jo Versavel |

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FOREWORD

NTCIP 1209 v02 defines the Transportation Sensor System (TSS) data elements that are supported by the National Transportation Communications for ITS Protocol (NTCIP). A TSS is defined as any system capable of detecting and communicating certain traffic parameters using NTCIP.

The effort to develop NTCIP began with the 3-TS Transportation Management Systems and Associated Control Devices Section of the National Electrical Manufacturers Association (NEMA). Their original desire was to address a user need for extending the TS 2 standards for traffic control hardware to include standardized systems communication. Under the guidance of the Federal Highway Administration's (FHWA) NTCIP Steering Group, the NEMA effort was expanded to include the development of communications standards for all transportation field devices that could be used in Intelligent Transportation Systems (ITS) networks.

In September 1996, a formal agreement was reached among NEMA, ITE, and AASHTO to jointly develop, approve, and maintain NTCIP standards. Under guidance of a Joint AASHTO / ITE / NEMA Committee on NTCIP, a Working Group was created to develop data element definitions for Advanced Systems Sensors. The first meeting of the Working Group was in August 1997. Discussions within the Working Group lead to renaming of the Working Group to Transportation Sensor Systems.

The predecessor of NTCIP 1209 v02, NTCIP 1209:2005, *NTCIP Data Element Definitions for Transportation Sensor Systems*, defined data elements in ASN.1 using the SNMP Object Type Macro for devices that sense the presence or similar characteristics of vehicles. These definitions are intended for detection devices that range from smart inductive loop amplifiers to technologies such as machine vision.

For more information about NTCIP standards, visit the NTCIP website at www.ntcip.org.

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Approvals

NTCIP 1209 v02 was separately balloted and approved by AASHTO, ITE, and NEMA after recommendation by the Joint Committee on the NTCIP. Each organization has approved NTCIP 1209 v02 as the following standard type, as of the date:

AASHTO—Standard Specification; June 2012
ITE—Software Standard; June 2011
NEMA—Standard; April 2011

History

A brief history of NTCIP 1209 v02 follows:

NTCIP 1209:2005 v01.19—Between 1999 and 2002, two user comment drafts were issued for review. In 2003, v01.18 was accepted as a Recommended Standard of the Joint Committee. In 2005, and after disposition of ballot comments, v01.18e was Jointly Approved. In November 2005, NTCIP 1209 v01.19 was published as NTCIP 1209:2005.

NTCIP 1209 v02—Between 2004 and 2007, the TSS WG developed drafts with additional Systems Engineering content, and support for machine vision detection technology. In August 2007, the User Comment Draft NTCIP 1209 v02.10 was issued for user review and comment. In April 2008, after disposition of user comments, the NTCIP 1209 v02.15 was accepted as a Recommended Standard. In October 2010, after lifting a hold imposed by Normative References, NTCIP 1209 v02.17 was edited for SDO balloting and approval. In December 2010, NTCIP 1209 v02.17 was issued with NTCIP Standards Bulletin B0141. Following balloting and editing, NTCIP 1209 v02.18 was published.

Compatibility of Versions

To distinguish NTCIP 1209 v02 (as published) from previous drafts, NTCIP 1209 v02 also includes NTCIP 1209 v02.18 on each page header. All NTCIP Standards Publications have a major and minor version number for configuration management. The version number syntax is "v00.00a," with the major version number before the period, and the minor version number and edition letter (if any) after the period.

NTCIP 1209 v02 is designated, and should be cited as, NTCIP 1209 v02. Anyone using NTCIP 1209 v02 should seek information about the version number that is of interest to them in any given circumstance. The MIB, the PRL, and the PICS should all reference the version number of the standards publication that was the source of the excerpted material.

Conformant systems based on later, or higher, version numbers MAY NOT be compatible with conformant systems based on earlier, or lower, version numbers. Anyone using NTCIP 1209 v02 should also consult NTCIP 8004 v02 for specific guidelines on compatibility.

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Section 1 GENERAL

1.1 SCOPE

Communication between an ITS Management Center or portable computer and a Transportation Sensor System (TSS) is accomplished by using NTCIP Application Layer services to convey requests to access or modify values of TSS data elements resident in the TSS via an NTCIP network. An NTCIP message consists of a specific Application Layer service and a set of data elements. An NTCIP message may be conveyed using any NTCIP defined class of service that has been specified to be compatible with the Simple Transportation Management Framework (STMF).

The scope of NTCIP 1209 v02 is limited to the functionality related to TSS within a transportation environment. NTCIP 1209 v02 defines data elements that are specific to TSS and also defines standardized data element groups that can be used for conformance statements. The limits and descriptions of the parameters are established to give the user maximum flexibility to operate TSS that either existed when NTCIP 1209 v02 was developed or may exist in the future.

1.2 REFERENCES

Normative references contain provisions that, through reference in NTCIP 1209 v02, constitute provisions of NTCIP 1209 v02. Other references in NTCIP 1209 v02 might provide a complete understanding of the entire protocol and the relations between all parts of the protocol. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on NTCIP 1209 v02 are encouraged to investigate the possibility of applying the most recent editions of the standard listed.

1.2.1 Normative References

AASHTO / ITE / NEMA NTCIP 1103 v02	<i>Transportation Management Protocols (TMP)</i> published July 2010
AASHTO / ITE / NEMA NTCIP 1201 v03	<i>Global Object (GO) Definitions</i> published March 2011
AASHTO / ITE / NEMA NTCIP 2301 v02	<i>Simple Transportation Management Framework (STMF) Application Profile (AP) (AP-STMF)</i> published July 2010
IAB STD 16	(RFC 1155) <i>Structure and Identification of Management Information for TCP/IP-based Internets</i> , M. Rose; K. McCloghrie; May 1990, (RFC 1212) <i>Concise MIB Definitions</i> , M. Rose; K. McCloghrie; March 1991
ISO/IEC 8824-1:2008	<i>Information Technology—Abstract Syntax Notation One (ASN.1): Specification of Basic Notation</i>
NEMA TS 2-2003 (R2008)	<i>Traffic Controller Assemblies with NTCIP Requirements Version 2.06</i>