

# American National Standard

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(R2019)

*Information technology - Sensor networks -  
Services and interfaces supporting  
collaborative information processing in  
intelligent sensor networks*

**Developed by**



*Where IT all begins*



## INCITS/ISO/IEC 2005:2013[2014]

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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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## Introduction

Sensor networks have been widely deployed in different application domains including environment monitoring, transportation, manufacturing, chemical process, healthcare, home and buildings, and many other domains. Wired/wireless sensor networks can be regarded as an extension of the Internet interfacing the physical world. Intelligent sensor networks are increasingly attractive in a wide range of applications to meet challenges from intrinsic environment complexity, large orders of magnitude network scaling and dynamic application requirements. Intelligent sensor networks are developed to provide new system capabilities such as environment self-adaptability, dynamic task supporting and autonomous system maintenance. Collaborative information processing (CIP), which closely integrates information processing algorithms with collaboration mechanisms, is an essential technology enabling the intelligent sensor networks to enhance efficiency and to improve quality and reliability of information processing and its outputs in real application scenarios. This standard specifies services and interfaces supporting CIP in the intelligent sensor networks.

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# Information technology — Sensor networks — Services and interfaces supporting collaborative information processing in intelligent sensor networks

## 1 Scope

This international standard specifies services and interfaces supporting collaborative information processing (CIP) in intelligent sensor networks which includes:

- CIP functionalities and CIP functional model
- Common services supporting CIP
- Common service interfaces to CIP

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 7498-1:1994, *Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **actuator**

device that provides a physical output in response to a input signal in a predetermined way

[SOURCE: ISO/IEC 29182-2]

### 3.2

#### **collaborative information processing**

form of information processing in which multiple sensor network elements collaborate, in order to enhance efficiency and improve the quality and reliability of the output

[SOURCE: ISO/IEC 29182-2]

### 3.3

#### **data registration**

process of transforming different sets of data into one coordinate system

### 3.4

#### **data grouping**

process of identifying a time interval common among different data sources and grouping data obtained in the time interval

### 3.5

#### **event**

anything that happens or is contemplated as happening at an instant or over an interval of time