

P21451-7

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Type of Project: Revision to IEEE Standard 21451-7-2011

PAR Request Date: 04-May-2018

PAR Approval Date: 14-Jun-2018

PAR Expiration Date: 31-Dec-2022

Status: PAR for a Revision to an existing IEEE Standard

Root Project: 21451-7-2011

1.1 Project Number: P21451-7

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Smart transducer interface for sensors and actuators - Transducers to radio frequency identification (RFID) systems communication protocols and Transducer Electronic Data Sheets (TEDS) for Internet of Things

Changes in title: ~~Information technology~~ Smart transducer interface for sensors and actuators - ~~Part 7:~~ Transducers to radio frequency identification (RFID) systems communication protocols and ~~transducer~~ **Transducer electronic** ~~Electronic data sheet~~ **Electronic data sheet** ~~Sheets~~ (TEDS) ~~formats~~ **for Internet of Things**

3.1 Working Group: Sensor and RFID Integration Working Group (IM/ST/SRFID)

Contact Information for Working Group Chair

Name: William Miller

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Contact Information for Working Group Vice-Chair

Name: Kang Lee

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3.2 Sponsoring Society and Committee: IEEE Instrumentation and Measurement Society/TC9 - Sensor Technology (IM/ST)

Contact Information for Sponsor Chair

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Contact Information for Standards Representative

None

3.3 Joint Sponsor: IEEE Industrial Electronics Society/Industrial Electronics Society Standards Committee (IES/IES)

Contact Information for Sponsor Chair

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 12/2019

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 02/2021

5.1 Approximate number of people expected to be actively involved in the development of this project: 25

5.2 Scope: This standard defines communication methods and data formats for transducers (sensors and actuators) communicating with Radio Frequency IDentification (RFID) tags and systems, including the use of a Jabber ID with integral transducers. It also defines new

Changes in scope: This ~~part~~ **standard** ~~of ISO/IEC/IEEE 21451~~ defines communication methods and data formats for transducers (sensors and actuators) communicating with **Radio Frequency IDentification (RFID)** tags. ~~This and parts~~ **systems, including the use of** ~~ISO/IEC/IEEE a~~

Transducer Electronic Data Sheet (TEDS) formats based on the IEEE 1451 series of standards and protocols for accessing TEDS and transducer data. It also defines a command structure and specifies communication methods to work in the Internet of Things (IoT) environments.

~~21451~~Jabber ID with integral transducers. It also defines new Transducer Electronic Data Sheet (TEDS) formats based on the ~~ISO/IEC/IEEE 21451~~1451 series of standards and protocols for accessing TEDS and transducer data. It ~~adopts~~also necessarydefines interfaces and protocols to facilitate the use of technically differentiated, existing technology solutions. It does not specify transducer design or signal conditioning. There is currently no openly defined independent interface standard between transducers and RFID tags. Each vendor builds its own interface. Without such a standard,command transducerstructure interfacing and integration~~specifies~~to~~communication~~ RFID tags and systems are time-consuming and all vendors' duplicated efforts are economically unproductive. The purpose of this part of ISO/IEC/IEEE 21451 is to provide interfaces and methods for interfacing transducers to RFIDwork tagsin and reporting transducer data within the RFIDInternet infrastructure.of ItThings also(IoT) provides the means for device and equipment interoperabilityenvironments.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: The purpose of this standard is to provide methods for interfacing transducers and RFID tags, and over an Internet of Things (IoT) infrastructure, which includes a local network and the Internet, for securely reporting and control of the devices with data integrity in the IoT environments.

~~Changes in purpose: As~~The purpose of this ~~project~~standard is ~~being~~to jointlyprovide developedmethods withfor ISO/IECinterfacing JTCtransducers 1/SCand 31RFID tags, theand documentover willan notInternet containof Things (IoT) infrastructure, which includes a purposelocal elausenetwork and the Internet, for securely reporting and control of the devices with data integrity in the IoT environments.

5.5 Need for the Project: RFID technologies are rapidly emerging as the means of tracking products and assets. Standards are being developed to address these needs. Sensors can provide information about the condition of the products. And there is a great need to provide sensor data as part of the supply chain reporting. However there is a lack of openly defined standard interfaces between sensors and RFID tags. Since the IEEE 1451 suite of smart transducer interfaces for sensors and actuators are recognized sensor interface standards in industry, this project can fill that gap by providing such sensor-to-RFID tag interfaces to meet industry need.

5.6 Stakeholders for the Standard: The stakeholders include sensor/network manufacturers, RFID tag/system manufacturers, system integrators, sensor/RFID system users, retailers, shipping container manufacturers, shippers/carriers.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes: This revision PAR is requested because we would like to revise the standard to work with Internet of Things. The Title (2.1), Scope (5.2), Purpose (5.4), and Need (5.5) are modified accordingly. In addition, this project is not revised jointly with ISO/IEC JTC1 SC31 as previously done, thus we are submitting a request to the NesCom Administrator to change the project number to P1451.7 following traditional IEEE-SA designation, instead of dual logo designation of 21451-7. IEEE 1451 is Standard for Smart Transducer Interface for Sensors and Actuators.