



**RAIN**<sup>®</sup>  
R F I D

# **RAIN RFID Relevant Standards**

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## Purpose of the Standing Document

This document is intended as an information document. It contains an overview about standards that are relevant for RAIN RFID. The focus is on RFID related standards. It is updated as of the date shown

The document lists standards that are seen as relevant to be monitored for RAIN RFID.

The following types of standards are existing:

<b>CATEGORY</b>	<b>DESCRIPTION</b>
Air interface	Standard describing the air interface communication typically between a reader and a tag
Applications	Standards on application
Architecture	High level standards including architecture
Conformance	Conformance standards for verification of compliance to typically the air interface
Numbering	Standards that define numbering of tag data content
Performance	Performance standards for comparing devices against benchmarks
Others	Not covered in any type yet

A list of standards is available in the table below.

## RAIN-RFID\_TWG\_List of Standards

Category	Number/Name	Title	Status
Air interface	GS1 EPC UHF Gen2	GS1 EPC Radio-Frequency Identity Protocols Generation-2 UHF RFID Specification for RFID Air Interface Protocol for Communications at 860 MHz – 960 MHz	Published
Air interface	ISO/IEC 15963:2009	Information technology -- Radio frequency identification for item management -- Unique identification for RF tags	Revision
Air interface	ISO/IEC 18000-6	Information technology -- Radio frequency identification for item management -- Part 6: Parameters for air interface communications at 860 MHz to 960 MHz General	Published
Air interface	ISO/IEC 18000-63	Information technology -- Radio frequency identification for item management -- Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C	Published
Air interface	ISO/IEC 29143	Information technology -- Automatic identification and data capture techniques -- Air interface specification for Mobile RFID interrogators	Published
Air interface	ISO/IEC 29167-1:2014	Information technology -- Automatic identification and data capture techniques -- Part 1: Security services for RFID air interfaces	Published
Air interface	ISO/IEC 29167-10	Information technology -- Automatic identification and data capture techniques -- Part 10: Crypto suite AES-128 security services for air interface communications	Published
Air interface	ISO/IEC 29167-11	Information technology -- Automatic identification and data capture techniques -- Part 11: Crypto suite PRESENT-80 security services for air interface communications	Published
Air interface	ISO/IEC 29167-12	Information technology -- Automatic identification and data capture techniques -- Part 12: Crypto suite ECC-DH security services for air interface communications	Published
Air interface	ISO/IEC 29167-13	Information technology -- Automatic identification and data capture techniques -- Part 13: Crypto suite Grain-128A security services for air interface communications	Published
Air interface	ISO/IEC 29167-14	Information technology -- Automatic identification and data capture techniques -- Part 14: Crypto suite AES OFB security services for air interface communications	Published
Air interface	ISO/IEC 29167-17	Information technology -- Automatic identification and data capture techniques -- Part 17: Crypto suite cryptoGPS security services for air interface communications	Published
Air interface	ISO/IEC 29167-19	Information technology -- Automatic identification and data capture techniques -- Part 19: Crypto suite RAMON security services for air interface communications	Revision
Air interface	ISO/IEC 29167-21	Information technology -- Automatic identification and data capture techniques -- Part 21: Crypto suite SIMON security services for air interface communications	Development
Air interface	ISO/IEC 29167-22	Information technology -- Automatic identification and data capture techniques -- Part 22: Crypto suite SPECK security services for air interface communications	Development
Air interface	ISO/IEC DIS 22243	Information technology -- Radio frequency identification for item management -- Methods for localization of RFID tags	Development
Air interface	ISO/IEC FDIS 15963-1	Information technology -- Radio frequency identification for item management -- Part 1: Unique identification for RF tags numbering systems	Development
Air interface	ISO/IEC FDIS 15963-2	Information technology -- Radio frequency identification for item management -- Part 2: Unique identification for RF tags registration procedures	Development
Air interface	ISO/IEC TS 29167-15	Information technology -- Automatic identification and data capture techniques -- Part 15: Crypto suite XOR security services for air interface communications	Published
Applications	ISO/IEC 17363:2013	Supply chain applications of RFID -- Freight containers	Published

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Category	Number/Name	Title	Status
Applications	ISO/IEC 17364:2013	Supply chain applications of RFID -- Returnable transport items (RTIs) and returnable packaging items (RPIs)	Published
Applications	ISO/IEC 17365:2013	Supply chain applications of RFID -- Transport units	Published
Applications	ISO/IEC 17366:2013	Supply chain applications of RFID -- Product packaging	Published
Applications	ISO/IEC 17367:2013	Supply chain applications of RFID -- Product tagging	Published
Applications	ISO/IEC AWI 22603	Standard for Electronic Labeling	Development
Applications	ISO/IEC TR 24729-1:2008	Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 1: RFID-enabled labels and packaging supporting ISO/IEC 18000-6C	Published
Applications	ISO/IEC TR 24729-2:2008	Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 2: Recycling and RFID tags	Published
Applications	ISO/IEC TR 24729-3:2009	Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 3: Implementation and operation of UHF RFID Interrogator systems in logistics applications	Published
Applications	ISO/IEC TR 24729-4:2009	Information technology -- Radio frequency identification for item management -- Implementation guidelines -- Part 4: Tag data security	Published
Applications	VDA		Living document
Architecture	GS1 EPC ALE	GS1 EPC Application Level Events (ALE)	Published
Architecture	GS1 EPC DCI	GS1 EPC Discovery Configuration & Initialization (DCI)	Published
Architecture	GS1 EPC LLRP	GS1 EPC Low Level Reader Protocol (LLRP)	Published
Architecture	GS1 EPC RM	GS1 EPC Reader Management (RM)	Published
Architecture	GS1 EPC TDS	GS1 EPC Tag Data Standard (TDS)	Published
Architecture	ISO/IEC 15961-1	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 1: Application interface	Published
Architecture	ISO/IEC 15961-2	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 2: Registration of RFID data constructs	Development
Architecture	ISO/IEC 15961-3	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 3: RFID data constructs	Development
Architecture	ISO/IEC 15962	Information technology -- Radio frequency identification (RFID) for item management -- Data protocol: data encoding rules and logical memory functions	Published
Architecture	ISO/IEC 15963	Information technology -- Radio frequency identification for item management -- Unique identification for RF tags	Revision
Architecture	ISO/IEC 24753	Information technology -- Radio frequency identification (RFID) for item management -- Application protocol: encoding and processing rules for sensors and batteries	Published
Architecture	ISO/IEC 24791-1	Information technology -- Radio frequency identification (RFID) for item management -- Software system infrastructure -- Part 1: Architecture	Published
Architecture	ISO/IEC 24791-2	Information technology -- Radio frequency identification (RFID) for item management -- Software system infrastructure -- Part 2: Data management	Published

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Category	Number/Name	Title	Status
Architecture	ISO/IEC 24791-3	Information technology -- Radio frequency identification (RFID) for item management -- Software system infrastructure -- Part 3: Device management	Published
Architecture	ISO/IEC 24791-5	Information technology -- Radio frequency identification (RFID) for item management -- Software system infrastructure -- Part 5: Device interface	Published
Conformance	GS1 EPC UHF Conf	GS1 EPC UHF RFID Devices Conformance Requirements	Published
Conformance	ISO/IE 18047-6	Information technology -- Radio frequency identification device conformance test methods -- Part 6: Test methods for air interface communications at 860 MHz to 960 MHz	Published
Conformance	ISO/IEC 19823-10	Information technology -- Conformance test methods for security service crypto suites -- Part 10: Crypto suite AES-128	Published
Conformance	ISO/IEC 19823-13	Information technology -- Conformance test methods for security service crypto suites -- Part 13: Cryptographic Suite Grain-128A	Development
Conformance	ISO/IEC 19823-19	Information technology -- Conformance test methods for security service crypto suites -- Part 19: Crypto suite RAMON	Development
Conformance	ISO/IEC 19823-21	Information technology -- Conformance test methods for security service crypto suites -- Part 21: Part 21: Crypto suite SIMON	Development
Conformance	ISO/IEC 19823-22	Information technology -- Conformance test methods for security service crypto suites -- Part 22: Part 22: Crypto suite SPECK	Development
Numbering	ISO/IEC 15961	Information technology -- Radio frequency identification (RFID) for item management -- Data protocol: application interface	Revision
Numbering	ISO/IEC 15961-4:2016	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 4: Application interface commands for battery assist and sensor functionality	Published
Numbering	ISO/IEC 15962	Information technology -- Radio frequency identification (RFID) for item management -- Data protocol: data encoding rules and logical memory functions	Published
Numbering	ISO/IEC 15963	Information technology -- Radio frequency identification for item management -- Unique identification for RF tags	Revision
Numbering	ISO/IEC 20248	Information technology -- Automatic identification and data capture techniques -- Data structures -- Digital signature meta structure	Development
Numbering	ISO/IEC AWI 15961-1	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 1: Application interface	Development
Numbering	ISO/IEC FDIS 15961-2	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 2: Registration of RFID data constructs	Development
Numbering	ISO/IEC FDIS 15961-3	Information technology -- Radio frequency identification (RFID) for item management: Data protocol -- Part 3: RFID data constructs	Development
Others	ISO/IEC 19762:2016	Information technology -- Automatic identification and data capture (AIDC) techniques -- Harmonized vocabulary	Published
Others	ISO/IEC 29160	Information technology -- Radio frequency identification for item management -- RFID Emblem	Revision
Performance	GS1 EPC STM	GS1 EPCglobal static test method	Published
Performance	GS1 EPC TIPP	GS1 EPC Tagged-Item Performance Protocol (TIPP) Tagged-Item Grading	Published

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Category	Number/Name	Title	Status
Performance	ISO/IEC 18046-1	Information technology -- Radio frequency identification device performance test methods -- Part 1: Test methods for system performance	Published
Performance	ISO/IEC 18046-2	Information technology -- Radio frequency identification device performance test methods -- Part 2: Test methods for interrogator performance	Revision
Performance	ISO/IEC 18046-3	Information technology -- Radio frequency identification device performance test methods -- Part 3: Test methods for tag performance	Revision
Performance	ISO/IEC 21277	Information technology -- Radio frequency identification device performance test methods -- Crypto suite	Development
Performance	ISO/IEC 23200	Test Method for RFID Tag Interference Rejection Performance	Development
Regulations	ETSI EN 302 208	Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W and in the band 915 MHz to 921 MHz with power levels up to 4 W; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU	Revision
Regulations	FCC Part 15	Electronic Code of Federal Regulations, Title 47: Telecommunication, PART 15—RADIO FREQUENCY DEVICES	Published
Regulations	GS1 Overview	<a href="https://www.gs1.org/docs/epc/uhf_regulations.pdf">https://www.gs1.org/docs/epc/uhf_regulations.pdf</a>	Living document
Regulations	ISO/IEC TR 20017:2011	Information technology -- Radio frequency identification for item management -- Electromagnetic interference impact of ISO/IEC 18000 interrogator emitters on implantable pacemakers and implantable cardioverter defibrillators	Published
Sensor functionality	ISO/IEC/IEEE 21450:2010	Information technology -- Smart transducer interface for sensors and actuators -- Common functions, communication protocols, and Transducer Electronic Data Sheet (TEDS) formats	Published
Sensor functionality	ISO/IEC/IEEE 21451-1:2010	Information technology -- Smart transducer interface for sensors and actuators -- Part 1: Network Capable Application Processor (NCAP) information model	Published
Sensor functionality	ISO/IEC/IEEE 21451-2:2010	Information technology -- Smart transducer interface for sensors and actuators -- Part 2: Transducer to microprocessor communication protocols and Transducer Electronic Data Sheet (TEDS) formats	Published
Sensor functionality	ISO/IEC/IEEE 21451-4:2010	Information technology -- Smart transducer interface for sensors and actuators -- Part 4: Mixed-mode communication protocols and Transducer Electronic Data Sheet (TEDS) formats	Published
Sensor functionality	ISO/IEC/IEEE 21451-7:2011	Information technology -- Smart transducer interface for sensors and actuators -- Part 7: Transducer to radio frequency identification (RFID) systems communication protocols and Transducer Electronic Data Sheet (TEDS) formats	Published

## ABOUT RAIN RFID ALLIANCE

The RAIN RFID Alliance is an organization supporting the universal adoption of RAIN UHF RFID technology. A wireless technology that connects billions of everyday items to the internet, enabling businesses and consumers to identify, locate, authenticate and engage each item. The technology is based on the EPC Gen2 UHF RFID specification, incorporated into the ISO/IEC 18000-63 standard. For more information, visit [www.RAINRFID.org](http://www.RAINRFID.org). The RAIN Alliance is part of AIM, Inc. AIM is the trusted worldwide industry association for the automatic identification industry, providing unbiased information, educational resources and standards for nearly half a century.



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