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STN	**Letectvo a kozmonautika** **Pasívne UHF RFID používané v letectve**	**STN** **EN 4905** 31 1411

Aerospace series - Passive UHF RFID for airborne use

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/24

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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 4905

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ICS 35.040.50; 35.240.60; 49.035

Supersedes EN 4817:2012

English Version

Aerospace series - Passive UHF RFID for airborne use

Série aérospatiale - RFID UHF passive pour une utilisation aéroportée

Luft- und Raumfahrt - Passive UHF-RFID für den Einsatz in der Luft

This European Standard was approved by CEN on 16 July 2023.

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European foreword

This document (EN 4905:2023) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 4817:2012.

The main change between this document and EN 4817:2012 is that this document has been developed to define UHF passive RFID tags able to work under on-board conditions, be interoperable worldwide and conform to ATA Spec 2000, Chapter 9-5 requirements.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

In order to improve:

— spare parts logistics;

— optimized maintenance process;

— component repair operations or replacements based on expiration date;

— as-flying configuration management process;

— cargo/catering operation;

in the aeronautical industry, an efficient data capture and storage tool, attached to the parts for their entire life and usable worldwide is highly desired.

Radio Frequency Identification (RFID) is considered as the best candidate for all stakeholders: suppliers, OEM (Original Equipment Manufacturers), aircraft manufacturers, airlines, MROs (Maintenance, Repair and Overhaul), etc., for more accurate, faster and more automatic processes for data capture.

The key characteristics of RFID are mainly the ability to store data onto an object, to read and write at the point of action, to be able to point and link with existing databases and for UHF RFID in particular the ability to be read from a distance and in batches.

The RFID label consists of an integrated circuit attached to a substrate with an integrated antenna and, when applicable, covered with a human-readable printed film and/or machine-readable 2D or data matrix barcode.

Standardization of these RFID tags for aeronautical industry adoption of RFID technology will provide key benefits in processes configuration management and for the maintenance of airborne components compared to paper records, bar code or classical human readable nameplates.

1 Scope

This document is applicable to new manufactured tags after publication of this document.

This document aims to:

— provide specification for RFID tag manufacturers to design and manufacture passive UHF RFID tags for the aeronautical industry;

— identify required performances for UHF RFID tags in order to be read/written during ground operations only, while being subject to the global flight environment;

— identify functional and environmental validation tests to be performed on passive UHF RFID tags with associated pass/fail criteria as well as associated test methods;

— check functionalities and resistance to environment for airborne passive UHF RFID tags.

This document does not apply to:

— the reader (interrogator – readers). It will be addressed appropriately by individual applicants;

— active RFID devices or battery assisted passive (BAP) RFID devices;

— RFID tags designed to operate outside the 860 MHz to 960 MHz frequency range.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defence Organizations*

ATA Spec 2000,[1] *Chapter 9 — Automated Identification and Data Capture* — Ch. 9-4 (Barcode) & 9.5 (RFID)

ATA Spec 2000,[1] *Annex 11 — The format of user memory in EPCGlobal Class 1, Generation 2 RFID transponders*

EPC™ Radio-Frequency Identity Protocols Generation-2 UHF RFID Standard, *Specification for RFID Air Interface Protocol for Communications at 860 MHz — 960 MHz*

EUROCAE ED-14-RTCA DO-160,[2] *Environmental conditions and test procedures for airborne equipment*

Interoperability Test System for EPC Compliant Class-1 Generation-2 UHF RFID, *Devices — Interoperability test methodology*

ISO 105-X12,[3] *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

[1] Published by: ATA National (US), International Air Transport Association of America, https://www.airlines.org/.

[2] Published by: The European Organisation for Civil Aviation Equipment, https://www.eurocae.net/.

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*

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*

MIL-STD-202,[4] *Department of Defense Test Method Standard: Electronic and Electrical Component Parts*

MIL-STD-810G,[4] *Department of Defense Test Method Standard: Environmental Engineering Considerations and Laboratory Tests*

FAA 14 CFR Part 45,[5] *Aeronautics and Space — Part 45: Identification and Registration Marking*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

[3] Published by: ISO International Organization for Standardization, https://www.iso.org/.

[4] Published by: DoD National (US) Mil. Department of Defense, https://www.defense.gov/.

[5] Published by: FAA National (US) Federal Aviation Administration https://www.faa.gov/.