



BSI Standards Publication

Coding for radio frequency identification (RFID) tyre tags

National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Coding for radio frequency identification (RFID) tyre tags

*Codage de tags d'identification des pneumatiques par radio
fréquence (RFID)*





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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document describes data construction best practices, processes and methods for tyre identification, verification, traceability and product characteristics. An extensive effort has been undertaken to make data interchangeable between 2D (e.g. Data Matrix/QR Code) optical symbols and electronic media like RFID to permit the user to select the appropriate technology with a minimum impact on information technologies (IT) infrastructures. These technologies complement each other and may be used jointly or separately as the application can require. This document is focused on the application of RFID to achieve these ends.

The provisions in this document are intended to express the minimum requirements for passive RFID tags and are not intended to limit the development of the technology in the future.

This document also provides guidance to tyre manufacturers on using RFID tags for tyre identification during the manufacturing process or in the aftermarket (i.e. RFID patch application) in tyres, service life and for other purposes. Tyre dealers and retreaders may also use RFID tags for inventory and retread control of tyres, and fleets may use them for tyre record keeping, tyre performance analysis, maintenance and inventory control.

The use of an RFID tag in tyre application follows strict rules in order that the data format can be used globally within the tyre and transportation industries.

This standardization will allow for interoperability and the use of interchangeable hardware and software from multiple suppliers resulting in greater efficiencies.

This document:

- specifies the air interface standards required between the RFID interrogator (also known as a reader) and RFID tag;
- specifies the use of industry recognized GS1 codes;
- clarifies the role of the company prefix;
- specifies the semantics and data syntax to be used in the data construction for MB01;
- provides a unique item identifier for traceability (UII, stored in MB01);
- provides information on the use of the UII in MB01 as the link to database infrastructures;
- specifies the option for user memory bank (MB11).

This document is based on the requirements in the following:

- technology: only passive ultra high frequency (UHF) RFID tags are used;
- global interface: the air interface protocol is ISO/IEC 18000-63, which is equivalent to GS1 EPC Gen2 V2.0.1.

A unique item identifier (UII) is not the same as a part number, a DOT tire identification number (TIN), a CCC code, a branded ID, or other names for tyres. Foremost in making an ideal UII is to know who made the part. Because of this, the UII is often referred to as the “birth record”. A constraint with internally-derived numbering schemes is that they are only unique to the domain owner; they may have duplicates within the “world”, and rarely communicate intelligently who the owner actually is (outside of their domain). In order to clearly identify who, there must be a globally recognized register of companies. That is where GS1 play a key role.

The international role of the GS1 is to register companies and issue assigned company prefixes, much the same way that cell phones have assigned company IDs as provided by international telecommunications agencies.