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International

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Information technology — Radio frequency identification for item management —

Part 63: Parameters for air interface communications at 860 MHz to 930 MHz Type C

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Partie 63: Paramètres de communications d'une interface radio entre 860 MHz et 930 MHz, Type C

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

This fourth edition cancels and replaces the third edition (ISO/IEC 18000-63:2021), which has been technically revised.

The main changes are as follows:

— tag selection process has been improved;

— a method to ensure tags are sufficiently energized before selection and communication has been added;

— a method for tag data reading has been provided;

— QueryX and QueryY has been added to make the selection process more topics useful and robust;

— ReadVar and Read-User-Memory-bit (RUM) automate the access to item attributes and the Tag Identifier (TID);

— ResponseBuffer has been made optional.

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A radio frequency identification (RFID) system comprises:

— Interrogators, also known as radio identification (RAIN) Readers, and

— RAIN Tags, also known as RAIN Labels or RAIN Transponders.

This document is also referred as RAIN Air Interface. For more information on RAIN, see Annex S.

A RAIN Interrogator transmits information to a RAIN Tag by modulating an RF signal in the 860 MHz to 930 MHz frequency range. The Tag receives both information and operating energy from this RF signal. Tags are passive, which means that they receive all of their operating energy from the Interrogator's RF signal.

A RAIN Interrogator receives information from a RAIN Tag by transmitting a continuous wave (CW) RF signal to the Tag; the Tag responds by modulating the reflection coefficient of its antenna, thereby backscattering an information signal to the Interrogator. The system is Interrogator-talks-first (ITF), which means that a Tag modulates its antenna reflection coefficient with an information signal only after being directed to do so by an Interrogator.

Interrogators and Tags are not required to talk simultaneously; rather, communications are half-duplex, i.e. Interrogators talk and Tags listen, or vice versa.

The backscatter RFID system described in this document supports the following system capabilities:

— identification and communication with multiple tags in the field;

— selection of a subgroup of tags for identification or with which to communicate;

— reading from and writing to or rewriting data many times to individual tags;

— user-controlled permanently lockable memory;

— data integrity protection;

— Interrogator-to-Tag communications link with error detection;

— Tag-to-Interrogator communications link with error detection;

— support for both passive back-scatter tags with or without batteries.

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