Recommendation for the use of EPC and ISO RFID symbols

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1   Introduction

RAIN RFID (aka UHF passive RFID) is widely used for the automatic identification of items, including consumer products. In order to inform consumers of the presence of Electronic Product Code (EPC)-encoded RAIN tag, GS1 created the EPC symbol to be printed on RFID labels. This symbol is extensively used by industry.

The ISO/IEC JTC1/SC31 standards organizations also developed a set of symbols to visually identify the different RFID technologies (RAIN RFID, HF/NFC, LF and active RFID). There is also a generic ISO/IEC RFID symbol that has been promoted by the European Commission (EC) as a form of consumer notification. EC guidance broadly refers to "RFID" tag presence needing to be identified[1]. As a means to "comply" with the European Recommendation[2], numerous retailers involved in the European market make use of the ISO RFID generic emblem (ISO 7000-3010)[3].

This document is designed to reduce confusion in the market about use per guidance provided.

There are two symbols discussed below:

The ISO RFID symbol, which is designed to indicate the presence of a range of RFID tag types.

- ☐ As per ISO/IEC 29160:2012, this symbol was standardized at a minimum size of 14x13mm.

- ☐ The GS1 EPC symbol, which is designed to specifically indicate encoding of a RAIN RFID tag in compliance with GS1's EPC Tag Data Standard (**TDS**), using GS1's EPC UHF Gen2 Air Interface Protocol for interrogator/tag communications.

- ☐ This symbol is currently standardised at a minimum size of 4x4mm.

2   The Challenge

Due to the EC guidance, many brands are now requiring the ISO RFID symbol for the European marketplace. However, the tag manufacturers are confused about how to proceed, as the ISO RFID symbol is not officially recognised in the US where requirements have historically included use of the GS1 EPC symbol. The EPC symbol provides more specificity on the type of tag technology and the standards-compliant data encoded into the tag whereas the ISO symbol is generic. Some brands are putting both symbols on tags to avoid product rejection, but the combination of the two symbols (when printed at their minimum-allowable sizes) takes up a lot of tag area.

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[1] Per section 3 of EN 16570:2014
[2] Per 2009/387/EC
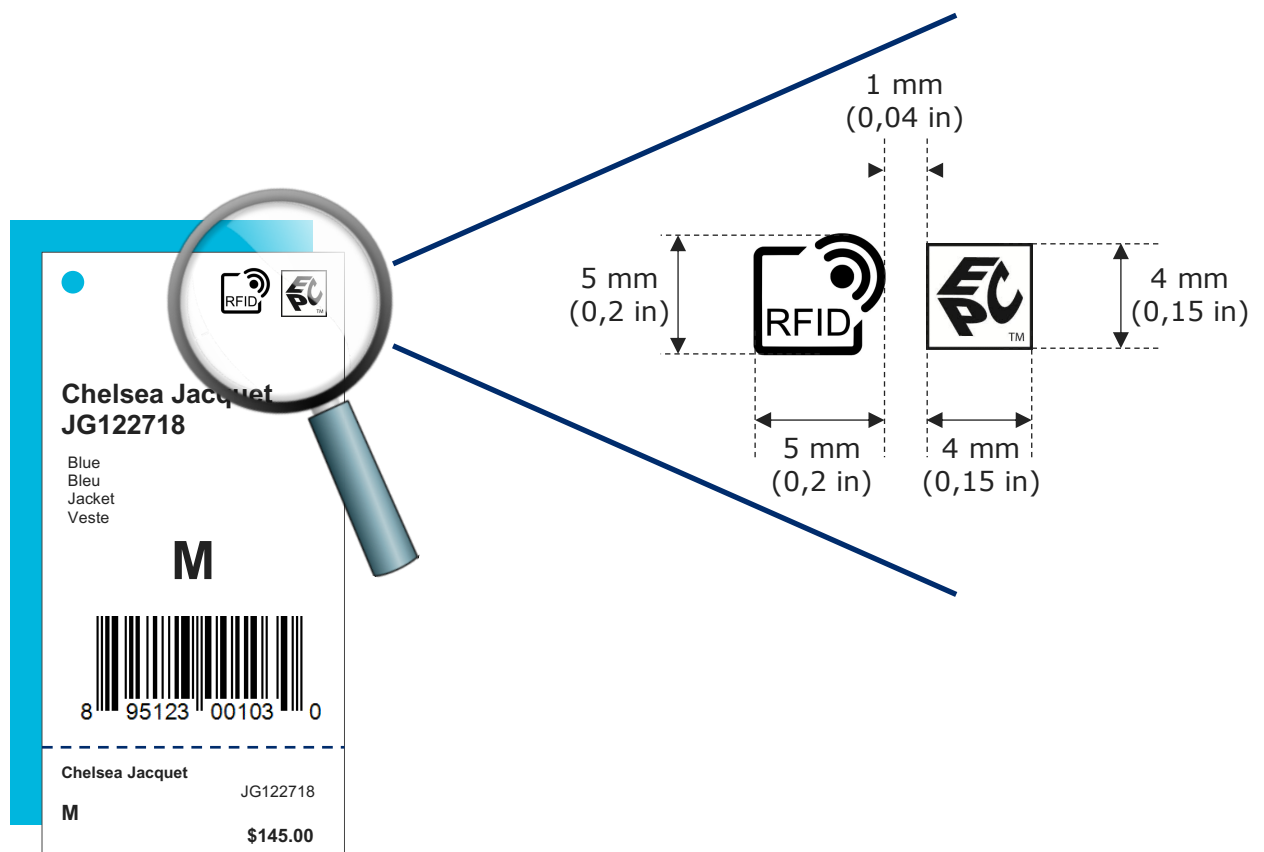[3] https://www.iso.org/obp/ui#iso:grs:7000:3010

3   The Recommendation

Per GS1 request, the ISO RFID generic symbol minimum size has been reduced to 5x5mm[4]. This revision allows both symbols to co-exist in a footprint that is smaller than the previously-required 13x14 mm area for the ISO RFID symbol alone.

GS1 recommends placing the symbols next to each other, with a minimum 1mm separation, on the same horizontal plane. If printing combined symbols larger than the minimum size, please refer to the spacing guidelines[5] to ensure those criteria are met.

- Place the symbols in an area where the consumer would view product information (such as a price tag).

- Position the ISO RFID symbol to the left of the EPC symbol.

- If other wireless technologies are also included (such as NFC), related symbols may be added to the horizontal plane, using the relevant size and spacing guidelines. It is suggested to add such indicators to the right side of the EPC symbol.

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[4] This is per ISO/IEC 29160:2020. ISO/IEC 29160:2020 is a revision of ISO/IEC 29160:2012 and is available at https://www.iso.org/standard/75130.html

[5] The GS1 EPC symbol and usage guidelines may be found here: https://www.gs1.org/standards/rfid