The Global Language of Business

EPC Tag Data Standard (TDS) 2.0

GS1's EPC Tag Data Standard (TDS) defines the Electronic Product Code (EPC), including its correspondence to GS1 keys and other codes. TDS also specifies data that is carried on EPC-encoded RAIN RFID tags, including the EPC, User Memory data, control information, and tag manufacture information.

TDS 2.0 is a major update that caters to emerging requirements and provides many new features, including:

- Twelve new EPC schemes to simplify encoding/decoding and improve barcode-RFID interoperability
- A new, date-prioritised, serialised GTIN scheme, "DSGTIN+", in which a critical date value appears before the GTIN within the binary encoding
- Optional encoding of supplementary AIDC data after the EPC, within the EPC/UII memory bank
- A decision tree to help implementations determine the most efficient variable-length encoding method
- Optimisation of Protocol Control (PC) and Extended Protocol Control (XPC) bits
- Updates to Packed Objects
- User Memory support for ISO/IEC 20248

TDS 2.0 support for encoding of AIDC data in EPC/UII memory – as an optional alternative to User Memory – enables Gen2 Inventory backscatter of AIDC data, satisfying use case requirements for optimised capture from RAIN RFID tags. At the same time, TDS 2.0 continues to support the use of Packed Objects (added to TDS 1.5 in 2010) to encode AIDC data in User Memory. EPC schemes defined in TDS 1.13 continue to be supported in TDS 2.0.

"TDS 2.0 reduces barriers for adoption by simplifying RFID encoding. Eliminating the need for users to know GCP length is just one of the game-changing enhancements in GS1's major overhaul of TDS. Further aligning with the global demand for interoperability between data systems and the increasing use of attribute-rich data carriers, support for on-tag encoding of supplemental GS1 Application Identifiers (AIs) has been given a substantial boost."

Jeanne Duckett
Senior Manager, Food Traceability Solutions, Avery Dennison

Increased native interoperability of GS1 barcodes with RAIN RFID tags

With a greater demand for improved accuracy and performance of visibility applications in the evolving supply chain, TDS 2.0 offers a range of benefits to supply chain stakeholders:

- Finding the right products faster is increasingly important in RFID deployments, such as Expiry Date on fresh foods and healthcare products
- Native interoperability with barcoded GS1 element strings and GS1 Digital Link URIs
- Simplified tag encoding of supplementary data based on GS1 Application Identifiers (AIs), such as Expiration Date and Batch/Lot Number
- More efficient removal of recalled products
- Expedited search for expiring products, improving the freshness of perishables and enabling more efficient first-in/first-out logistics
- Date-prioritised serialised DSGTIN+ is particularly useful for perishable goods, stock rotation and management of goods with a limited remaining shelf life
- Continuing support for previous EPC encoding schemes, defined in earlier versions of TDS and unchanged in TDS 2.0
- Removal of EPC Partition values in new EPC schemes defined in TDS 2.0 eliminates the need to know GCP length – no more worrying about where to put “the dot” in the EPC

For more information on TDS 2.0, please visit https://www.gs1.org/standards/tds

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