

Attachment A.

The high level, international strategic business requirement is for assets to be visible and manageable across all industry sectors in a consistent and coherent manner, based on part marking. A fundamental problem is that, whilst many international industries are using a set of ISO data standards (including machine readable encoding) to mark assets uniquely to enable them to be tracked, another major international community, aerospace, has developed and is using its own standard, primarily because it instituted global unique asset tracking before most other sectors. One option for achieving the strategic requirement is to adopt a revolutionary approach and demand that aerospace change over to the ISO standards – whilst initially attractive in theory, the cost, legal and practical implications make this unworkable. The solution to the strategic requirement is therefore dependent upon creating an evolutionary approach that permits the different communities to interoperate as soon as possible, while providing the environment which encourages convergence in the long term as standards continue to evolve in response to future business needs and as technological capabilities develop.

This evolutionary approach to interoperability only becomes viable through expanding the capabilities of existing standards. Such an approach requires that the standards for machine readable encoding have adequate interoperability for any implementation (technology, symbology etc):

- § The syntax defined in ISO/IEC 15434 includes Format Headers that support a range of data formats. An additional Format Header is required to support the unique requirements of part marking. In doing so, ISO/IEC 15434 should recognize the TEI options in the proposed ISO/WD 21849 so that these can interoperate with AIs and DIs that also exist in ISO/WD 21849.
- § The semantics defined in ISO/IEC 15418 and Spec 2000 will then be supported by a single syntax in ISO/IEC 15434. ISO/IEC 15418 will become a normative reference in ISO/WD 21849 for the AI and DI constructs required.

The existing format header codes recognize their origins in the industrial and retail commercial sectors. This revised concept of marking a part with a unique asset identifier (UID) through life as defined in ISO/WD 21849 transcends all sectors by providing a universal, unambiguous and identical data element that is a key to accessing supplementary data in whatever format it is held. Taken further, the new format header code also enables a mechanism to link between different UID representations and to quickly locate related data in any compliant format code, and provides a means for maintaining data validity and integrity. A new format header code for part marking is therefore justified to support the interoperability of AIs, DIs, and TEIs.

The unique requirements for part marking stem from the permanent nature of the direct part mark and the need to have a single unambiguous identifier (UID) that exists unchanged over the life of the asset. It is not the method of application of the mark, rather the data content of the mark, that is to be enabled by this proposal. The construct

of the UID accommodates the different ways in which industrial/government sectors establish the unique serialization of the assets involved. The current alternate methods of serialization require the use of existing data qualifiers (AIs, DIs and TEIs) in an interoperable environment.

It is recognized that the optimal technical solution is a single format code using a single set of semantics. The economic constraints of the commercial airlines and the supporting aerospace industry supply chain preclude wholesale migration to the existing ISO/IEC standards. The reality of the business requirement for the UID to interoperate across multiple industrial sectors is an overarching imperative that rises above the existing ISO/IEC 15434 structure.

The new definition of UID permits a TEI, DI or AI representation, and therefore the qualifiers for the components of the UID need to be supported in ISO/IEC 15434 and relevant semantic standards. This capability also offers the opportunity to support additional TEIs, DIs and AIs for supplementary data.

This capability can be implemented in the label/mark and in the database(s) of user organisations to ensure consistency in shared asset management data using COTS hardware. The capability can be used throughout the supply chain because all elements of this proposed work item are available in the public domain.

In conclusion, the UID capability supported by this NP is the cornerstone of the multi-industry, international, global part mark essential to meeting multi-industry and government business needs. The proposed work items is required to enable global interoperation of the different possible encodings of the UID, recognizing the investment in existing industrial implementations.