



The Global Language of Business

GS1 standards for the implementation of the Marine Equipment Directive

GS1 has developed a specific GS1 Application Identifier for EU Marine Equipment Directive certificates.



What is the EU Marine Equipment Directive?

Marine equipment must meet very high-quality standards for the safe operation of a ship, for life-saving capabilities and for the protection of the marine environment. International maritime safety conventions require that flag states ensure the equipment carried onboard complies with certain safety requirements related to design, construction and performance. They must also issue the relevant certificates demonstrating this compliance.

In response, detailed performance and testing standards for certain types of marine equipment have been developed by the International Maritime Organisation (IMO) and by international and European standardisation bodies.

Directive 2014/90/EU of the European Parliament and of the Council—known as the Marine Equipment Directive or MED—specifies common rules for the certification of marine equipment with the intent to eliminate differences in the interpretation and implementation of international standards.

The main aim of MED is to ensure, as much as possible, that marine equipment on EU-flagged ships is designed and constructed to appropriate standards. Since marine equipment is placed onboard ships around the world at the time of construction or repair, EU member states are required to ensure that only compliant equipment is installed on ships flying their flags. Furthermore, this obligation must be fulfilled through the issuance, endorsement or renewal of certificates associated with these ships.

The technical aspects of key requirements have become the responsibility of EMSA, the European Marine Safety Agency. The certification and approval of specified marine equipment is performed by Notified Bodies and results in the allocation of a MED-ID. As a sign of this approval, a “wheel mark” logo is applied to the products.

What is an e-tag ?



Article 11 of the Marine Equipment Directive allows for the use of electronic tags or “e-tags.” The Implementing Regulation (EU) 2018/608 specifies the

technical criteria for these e-tags, supplementing the wheel mark logo. The e-tag can be either an RFID (Radio Frequency Identification) transponder or a GS1 DataMatrix barcode, that is permanently applied to the ship’s equipment and contains information on the MED-ID certificate.

For manufacturers, customers, market surveillance authorities and other interested parties, e-tags are the key to database applications containing additional information about the products and certificates.



For more information about the Marine Equipment Directive and Notified Bodies, visit eur-lex.europa.eu and www.mared.org.



GS1 helped develop an essential building block of the MED-ID.

GS1 in collaboration with industry has developed a specific GS1 Application Identifier for certificates that meets the requirements of the MED (Implementing Regulation [EU] 2018/608, Annex, 1.1.a). In a standardised structure, information about the issuing body (Notified Body) and the certificate number are stored and encoded in an EPC-enabled RFID tag or a GS1 DataMatrix barcode.

Basic structure of the identification number

The Certificate Reference is considered an attribute of a trade item or an asset. These objects are uniquely identified with a Global Trade Item Number® (GTIN®, formerly called an EAN) or through a Global Individual Asset Identifier (GIAI).

Under the Marine Equipment Directive, the manufacturer of the marine equipment is usually the applicant for the certificate. Therefore, in the following illustrations we focus on providing information that is encoded in the GTIN.

How is the Certificate Reference structured?

In the updated 2019 GS1 General Specifications document, the Application Identifier 723s Certificate Reference will be included. The “s” stands for numbers 0 to 9, so that each article could potentially be “linked” in the future with up to 10 certificates. (The same product could potentially be governed by multiple regulation and certification schemes.) Under the Marine Equipment Directive, each product can currently have a maximum of two different MED-IDs.

The generic structure of the Application Identifier for certificates is outlined in Figure 1. The Application Identifier “723s” is followed by two alphanumeric characters that specify the certification scheme. These two characters are designated by GS1. This is followed by up to 28 alphanumeric characters that refer to the certificate number.

In Figure 2, under the framework of the Marine Equipment Directive, “EM” stands for the certification scheme of the European Marine Equipment Directive.

This is followed by the MED-ID, consisting of a one-digit code for the conformity assessment module (Annex II of Directive 2014/90 / EU), then a four-digit code identifying the Notified Body, and finally, the actual certificate number issued by the Notified Body. The certification ID can include up to 20 alphanumeric digits, according to the Implementing Regulation (EU 2018/608).



GS1 Application Identifier	Certification scheme	Certification reference
7 2 3 s	X ₁ X ₂	X ₃ - variable length - X ₃₀

Figure 1: Generic structure of the Certificate Reference in GS1 General Specifications

GS1 Application Identifier	Certification scheme	Module	Notified body	Certification ID
7 2 3 s	E M	X ₃	X ₄ X ₅ X ₆ X ₇	X ₈ - variable length - X ₃₀

Figure 2: Structure of the Certificate Reference under the Marine Equipment Directive

GTIN and the new Certificate Reference: a powerful combination

The Certificate Reference is an attribute of the article identifier (GTIN) or the asset identifier (GIAI); it cannot be used as a standalone number. The combination of the article identifier and certificate number offers numerous advantages for manufacturers, shipyards, shipowners and authorities.

- The GTIN or GIAI makes the article or asset globally unique and identifiable.
- Using the GTIN, the product manufacturer can provide supplementary product information such as product master data and information on installation and/or maintenance instructions.
- The GTIN enables more efficient processes when placing spare parts orders for replacements, including predictive replenishment.
- Suppliers can meet e-commerce platforms' increasing demand to use the GTIN as the unique identifier for products.
- The Certificate Reference can provide access to the product information in the MarED database. Detailed information on the status of the certificate can be found there.
- Connecting to European Commission databases (e.g., RAPEX, ICSMS) and other global databases makes market surveillance and recalls more efficient.

Added benefit through serialisation

By adding a unique serial number, an anonymous item can be turned into a uniquely identifiable "instance" of a product worldwide. This enables the manufacturer and other stakeholders to offer additional services.

- Through track and trace capabilities, the traceability of the product and equipment can be achieved, upstream or downstream.
- Serialisation is a prerequisite for the authentication of products, as a protection against counterfeiting.
- Maintenance, repair and overhaul activities can be efficiently documented and preventative maintenance made possible: a lifecycle data file can thus be created for each single item.
- The serialised GTIN or GIAI can be a key identifier, enabling remote maintenance activities.



Below is an example of the data structure in a GS1 DataMatrix barcode or in an EPC/RFID tag, including additional information.

(01) 9507000009107 - *Product identifier*

(21) ABC123456789XYZ - *Serial number*

(7231) EMB0474MED083918CS/001
- *Certificate-reference 1*

(7232)EMD0474MED025718MI/002
- *Certificate-reference 2*

(17) 190415 - *Best Before Date of product*

Additional benefits of GS1 standards include:

- In planning, procurement and logistics, order accuracy is significantly improved, so that the right product (based on a qualitative product description and its attributes) is ordered and received at the right moment, at the right place.
- GS1 standards—globally unique identifiers of locations, services, documents, assets, financial transactions and events—enable full lifecycle traceability of each single product for increased performance and optimal maintenance.

For more information about GS1 standards, visit www.gs1.org.

You can also contact your local GS1 Member Organisation listed at www.gs1.org/contact to learn more about GS1 standards and their support of the Marine Equipment Directive.



About GS1

GS1 is a neutral, not-for-profit organisation that develops and maintains the most widely used global standards for efficient business communication. We are best known for the barcode, named by the BBC as one of “the 50 things that made the world economy”. GS1 standards improve the efficiency, safety and visibility of supply chains across physical and digital channels in 25 sectors. Our scale and reach—local Member Organisations in 112 countries, 1.5 million user companies and 6 billion transactions every day—help ensure that GS1 standards create a common language that supports systems and processes across the globe. Find out more at www.gs1.org.

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