IHO MASS PT S100 Gap Analysis

Member State/Organization	e.g. Norway
S100 Standard Reviewed	e.g. S123
Maturity of Standard	e.g. Reasonably mature at V1.0
S100 Standard Chair	e.g. Mr Ben (mrben@email.com)

S-123

Title: Marine Radio Services Product Specification.

Abstract: Marine radio services product specification describe the means to capture **availability and reliability** of radio stations, radio position fixing systems, radio beacons, services offering navigational warnings and weather forecasts in the maritime domain. This may include details on the service areas, services offered and **instructions for contacting or utilizing these services.**

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Content:	Datasets conforming to this specification will contain all relevant maritime radio service information for the area of coverage. Additionally, there will be relevant metadata data quality, production authority, data sources and publication date.
Spatial Extent:	**Global coverage of maritime areas**.
Specific Purpose:	Describing radio services in the maritime domain for utilization **in ECDIS**, and to **allow the producer to exchange radio services information with interested stakeholders.**

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Issue/Requirement (take from Spreadsheet)	Issue addressed?	More content?	Gap in standard?	Potential Solution/s	Ease to implement?
	☐	☐	☐		Choose an item.
MASS will require the natural language data in publications, charts (pick reports) and MSI to be made **machine readable and interpretable**. Natural language is difficult for machines to read and interpret, we need to move to a feature and attribute model for all aspects of data for MASS. This will also need to cover meta data for the actual data.	☐	☐	x	All S-123 features and information classes are derived from one of the abstract classes FeatureType and InformationType. Especially the Information type may cause the biggest problem for MASS because it gives room for textual information in natural language, that will be difficult for machines to read and interpret. InformationType has attributes for fixed and periodic date ranges, name associated with the individual information object if any, source information, and a textContent attribute that allows **text notes or references to be provided for individual instances** where appropriate. There are three main information types which represent regulations, restrictions, and recommendations respectively, and **a fourth information type for general or unclassifiable information.** The fourth class, **NauticalInformation**, is intended for **general notes or other information that cannot be**	Hard

				categorized as one of the other three classes. S-123 Radio services data products include marine radio stations and services as well as **safety and information broadcasts and radiocommunications.** The scope of the S-123 domain model **therefore includes NAVTEX and weather or ice forecasts and warnings.** It can be difficult to make such kind of information in a coded standard message for a machine to readable and interpret. Suggestion: Discuss if this part of the S-123 should be transported to the S-124 Navigational-warnings See S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 in chapter about *6.2.1.1 Overview of domain features and information types* *6.2.1.2 Regulations, information notes, etc.* *7.2.5.1 Simple Attributes (CharacterString)*	
MASS will require more **frequent or real-time updates** of the data contained in the S100 products, which should be pushed from official sources that the vessels can 'listen' out for and update their navigational database and products automatically irrespective of where they are in the world. **Event driven data updates** and near real time updates will be required for MASS as	☐	x	☐	S-123 gives the producers room to choose the frequencies of updates. It says: **The maintenance and update frequency of MRS datasets should be defined by the producers (official national authority) implementing this specification.** And also:**This should specify the expected frequency of updates**. Suggestion: The S-123 must describe the need of 'event driven data updates' and not let the producers	Moderately

MASS will always need to be up to date.				make a choice of how often to update. The different producers of the world will make different choices reagarding their availble resources. See S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 about *12. Data Maintenance*	
The communication infrastructure necessary to sustain data exchange is not **reliable** and affordable today. Thought needs to be given to data packets sizes for data and updates for MASS.	☐	x	☐	The information about reliability in communication infrastructure will be described in S-123. And it also includes modelling of locations where the availability of a service is intermittent or uncertain, usually dependent on atmospheric and weather conditions which is a challenge to a MASS. But MASS will require 100% communication 24/7/365 and that depends on other things than this standard. Suggestion: none See S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 about *11.2 Dataset size* *11.3 Exchange Set*	Hard
MASS will require more **geographical polygons to describe areas** (such as speed restriction and constraints), with suitable attribution for MASS to interrogate and act appropriately. This information is often	☐	x	☐	S-123 is a feature-based vector product and state global coverage of maritime areas. The standard describes feature as points and areas. And it says: S-123 datasets shall not overlap other S-123 datasets. But it also describes the possibility of fuzzy areas and	Moderately

captured in text boxes, Sailing Directions or Pick Reports in natural language with very little geographic descriptors, making it impossible for MASS to interrogate, read and act upon. These could be created as instructional layers which are geographically location based containing attribution such as name of feature, type of feature, unique number, reason for speed restriction or constraint etc in a machine readable format.				uncategorized additional information which will be a challenge to MASS. Suggestion: none Also see S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 about *6.2.1.9 Generic fuzzy area model* *6.2.1.12 Uncategorized additional information*	
MASS will **require communication zones to be captured as polygons with appropriate attributes.** As an example currently the rules for radio communications are within the Admiralty list of radio signals volumes 1-6, these volumes are particularly difficult for an autonomous vessel to understand.	☐	x	☐	S-123 is a feature-based vector product and state global coverage of maritime areas. The standard describes feature as points and areas. And it says: S-123 datasets shall not overlap other S-123 datasets. But S-123 also describes the possibility of fuzzy areas and uncategorized additional information which is a challenge to a MASS. The S-123 application schema also includes modelling of locations where the availability of a service is intermittent or uncertain, usually dependent on atmospheric and weather conditions which is a challenge to a MASS. Suggestion: none	Moderately

				Also see S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 in chapter about *6.2.1.9 Generic fuzzy area model* *6.2.1.12 Uncategorized additional information*	
MASS will need to know **where reporting points or areas are geographically.** As an example knowing at what point to contact Falmouth Coastguard to say whether you were passing between UK mainland and the Isles of Scilly or not.	☐	x	☐	S-123 is a feature-based vector product and state global coverage of maritime areas. The standard describes feature as points and areas. And it says: S-123 datasets shall not overlap other S-123 datasets. But it also describes the possibility of fuzzy areas and uncategorized additional information which is a challenge to a MASS. Suggestion: none Also see S-123AppA_EN_Data Classification and Encoding Guide_Ed1.0.0 in chapter about *6.2.1.9 Generic fuzzy area model* *6.2.1.12 Uncategorized additional information*	Moderately