

# IHO MASS PT S100 Gap Analysis

<b>Member State/Organization</b>	China
<b>S100 Standard Reviewed</b>	S-104 S-111
<b>Maturity of Standard</b>	V1.0.0
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Issue/Requirement (take from Spreadsheet)	Issue addressed?	More content?	Gap in standard?	Potential Solution/s	Ease to implement?
<p>MASS will require certainty of tidal heights and surface currents at a given point and time, particularly in congested water space and shallower waters. Bramble bank in UK was used as an example, being shoalier by 0.5m could lead to a grounding. Predicted and forecast tidal height and surface currents are essential but certainty factors surrounding the predictive nature is important for decision making and risk profiling a route for MASS.</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>This requirement can be divided into two aspects. Firstly, the MASS navigation system requires the acquisition of tidal level and current information at a specific position and time range. S-104 is planned to provide tidal level information for sailing ships, and S-111 is also designed to provide current information for sailing ships. According to S-100 roadmap and IMO arrangement, The S-104 and S-111 will be produced and made available during the transitional period from 2026 to 2029. This</p>	<p>Choose an item.</p>

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			<p>requirement should be met by IHO communities. The second aspect is mainly about the accuracy of prediction data of tidal level and tidal current. In S-104 and S-111 product specifications, a module has been designed to contain the certainty of data, which divides the uncertainty of data into four categories: tidal level uncertainty, tidal current uncertainty, horizontal position uncertainty, vertical position uncertainty and time uncertainty. Data uncertainty data are derived from tide level and tidal current observations, forecast models, from station observation criteria for tidal levels, or from data calculation processes. The source of uncertain data and its representation in the standard are specified. If the producer of S-104 and S-111 data collects and codes</p>	
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				<p>uncertainty data in accordance with the standard, the data user can obtain the uncertainty of S-104 and S-111. In order to improve the reliability of tidal level and tidal data, it is necessary to improve the accuracy of prediction and calculation in terms of tide gauge construction, data observation and data calculation. For example, by setting more tide gauges in tidal level-sensitive water or using more refined tidal models will ensure the reliability of data. In summary, requirement 1 can be met, and S-104 and S-111 can meet the requirements of MASS.</p>	
<p>MASS will require real time tidal data which is crucial in shallower waters.</p>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<p>This requirement is same with requirement 1, dynamic water level information, tide current, the trend and forecast information can be coded in the S-104, S-111, and provide for MASS through the appropriate</p>	<p>Choose an item.</p>

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				<p>channels. The data can be forecast data file, load in advance in the MASS navigation system or through real-time data flow transmission to the MASS, either way, S-104 and S-111 provided standards for coding and schemata of tide level and tide data, and this requirement can be met without any gap.</p> <p>In addition, S-104 and S-111 also are lack of technical specifications for online data exchange, which need to be further aligned with S-100 5.0.0 Part 14 to meet the real-time data exchange requirements.</p>	
<p>MASS will need to understand the drift of Buoys, the length of chain and tidal range can mean Buoys could be several metres out of position, humans can understand this MASS will need to know that a Buoy may have a tolerance of position if they are using them for navigation purposes.</p>	<p>✓</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p>The requirement of this item is mainly about the influence of current on buoy' s position. MASS need to predict the moving range of buoy, firstly ,as I know, there is no readily available and reliable channel to get the information buoy chain' s length,</p>	<p>Choose an item.</p>

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				<p>maybe in S-125? Secondly, the position of buoys are affected by tide, current, wind, passing ships, There may be a big offset with the designed position of the buoy and the real position of buoy. Maybe the perception of the buoy position range can be solved by other manner and technical means. For example, the AIS, radar transponder on the buoy or by computer vision technology may be more reliable and simple. This requirement does not require any change from the S-104 and S-111 standards perspective.</p>	
<p>MASS will require dynamic data on surface currents.</p>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<p>This requirement is same with requirement 1, dynamic water level information, tide current, the trend and forecast information can be coded in the S-104, S-111, and provide for MASS through the appropriate channels. The data can be forecast data</p>	<p>Choose an item.</p>

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				<p>file, load in advance in the MASS navigation system or through real-time data flow transmission to the MASS, either way, S-104 and S-111 provided standards for coding and schemata of tide level and tide data, and this requirement can be met without any gap.</p> <p>In addition, S-104 and S-111 also are lack of technical specifications for online data exchange, which need to be further aligned with S-100 5.0.0 Part 14 to meet the real-time data exchange requirements.</p>	
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