# TSMAD/DIPWG

# S-101 Test Strategy

## Preface

Document Version Control: It is the reader's responsibility to ensure they have the latest version of this document. Questions should be directed to the owner of this document, or the project manager.

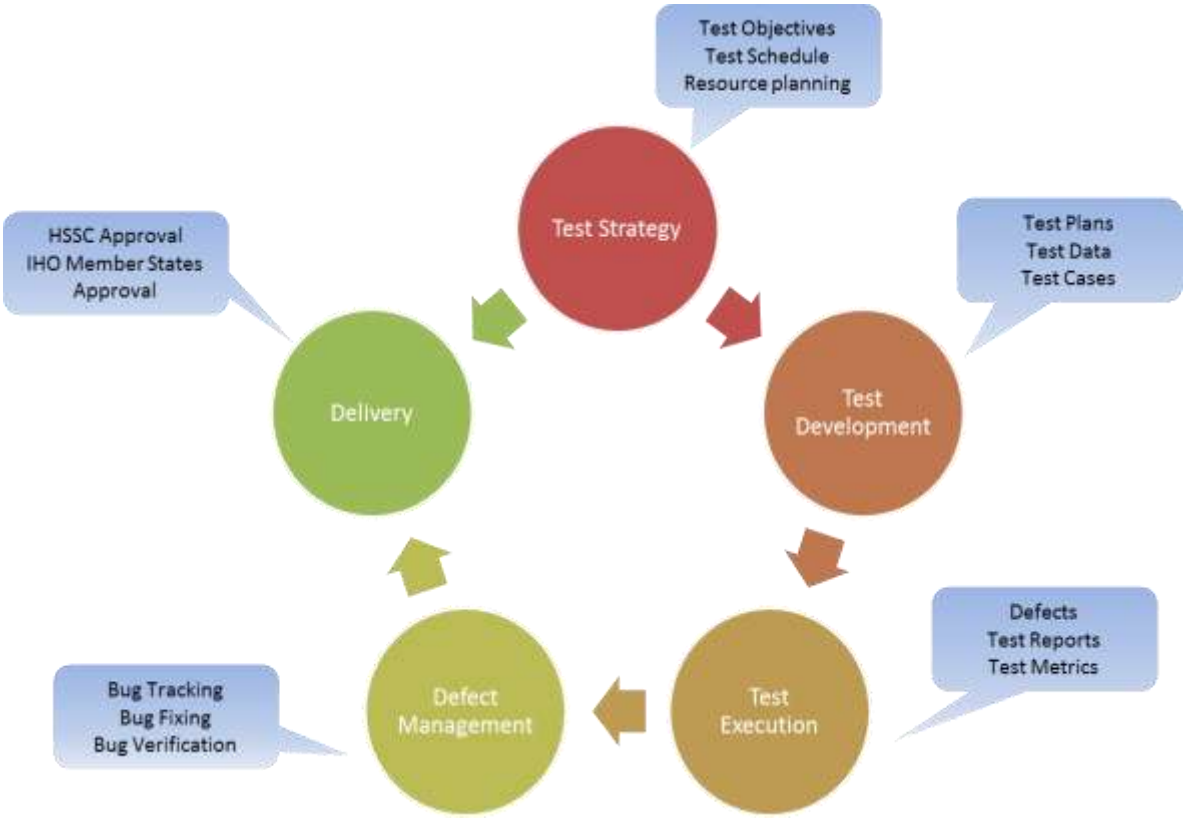
# Revision History

| Date | Version | Description | Author |
|---|---|---|---|
| April 5,2013 | 0.0.0 | Original | Julia Powell |

# Table of Contents

# 1 Introduction

This document outlines the test strategy that will be used for S-100 based product specifications and more specifically S-101. It will outline the goals of the S-101 test bed, including: test processes, defect management, responsibilities, and form the overarching guidance for the S-101 test bed and iterative test process that the IHO will undertake in order to ensure that S-101 will be ready for use when it is approved by the IHO member states.




## 1.1 Scope

The scope of this test strategy will focus on the test bed development for S-101, including the interoperability of other S-100 product specifications. It will outline the type of defect management that will be utilized and the change control process that will enable the S-101 product specification to be updated and iteratively tested.

In alignment with IHO TR 02/2007 the scope of this test strategy only includes testing and verifying the functionality introduced in S-101 and its interoperability with S-100 product specifications.

In order to fully test the functionality of S-101, it will be required to set up an S-100 test bed to include testing of multiple types of products that are intended to be used in conjunction with each other on an S-100 ECDIS.

### 1.2 References

- S-100
- S-101

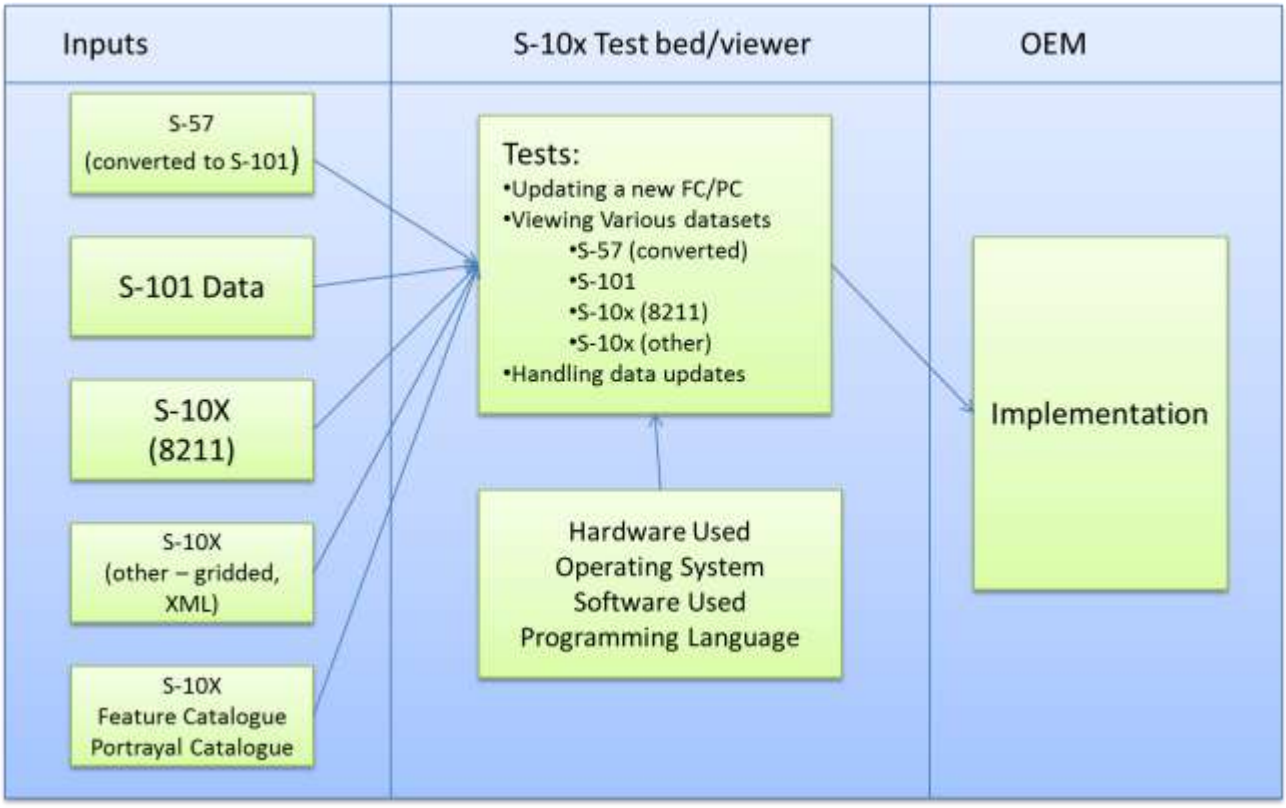
## 2 Testing Objectives

The main objective for this test strategy is to define what the S-100 test bed will entail for testing of the S-101 product specification and determine the levels of testing that will be required ensure that S-101 is a fully capable product specification that can be implemented by the IHO stakeholder community.

Once S-101 has undergone iterative testing to ensure that new functionality works as designed and ECDIS shore and sea trials, it will then be put forward to the IHO for Member State approval to become the new ENC product specification that will eventually replace S-57.

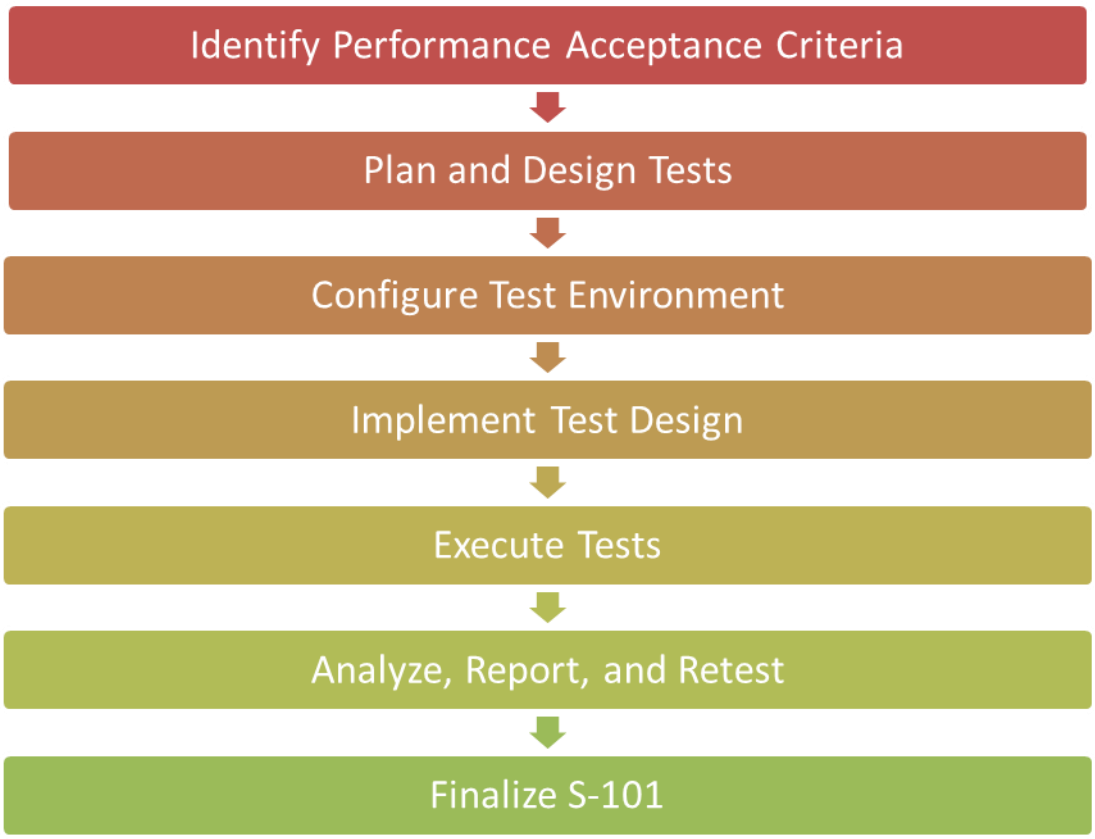
### 2.1 S-100 Test Bed

While S-101 is purpose built product for navigation data, the primary intent of an S-100 based ECDIS is that various products that may be used in navigational decision making can be utilized in a cohesive manner. For example, and S-101 ENC becomes the base navigation layer – but there will be other products such as sailing directions, weather and ice that will overlay the ENC. In order to test this type of functionality and S-100 test bed must be stood up to test the key principles of multiple feature and portrayal catalogue updates for various product specifications and how various products will display in conjunction with an S-101 ENC.



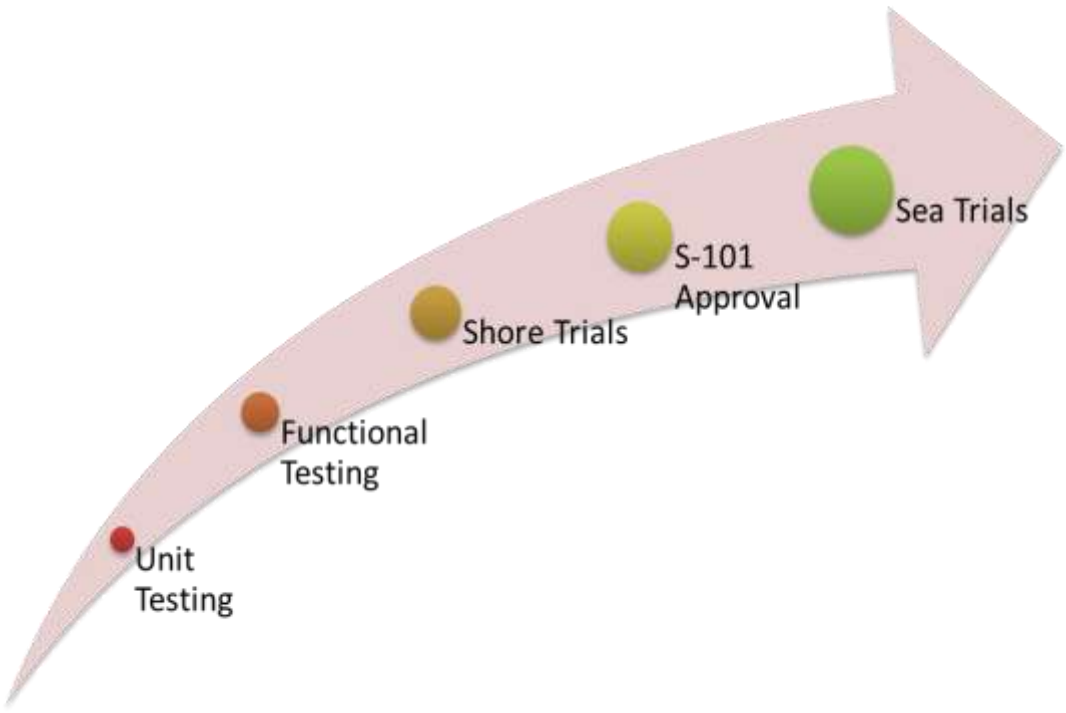

# 3 Testing Approach

The test approach will utilize standard methodologies used in software and system testing. The end result will be a final version of S-101 that will be voted on by Member States of the IHO. The general approach is outlined by the figure below:




## 3.1 Levels of Testing

In order to test S-101 and the interoperability between different S-100 based product specifications the test plan must address the following levels of testing:




- Unit Testing – testing each of the mandatory and optional requirements defined in S-101
- Functional Testing – testing the functionality of the product specification by feeding the test bed inputs and examining the expected outputs. For example, ingesting new feature and portrayal catalogues, S-101 data and examining if the end result portrayed an ENC correctly.
- Shore Trials – Once an S-100 enabled ECDIS is available for shore trials all aspects of the process will be tested. Including, data production, validation and distribution; ECDIS type approval and functionality.
- Sea Trials – similar to the shore trials, but will emulate a real time environment

## 3.2 Requirements

The requirements are documented in the S-101 product specification. Within S-101 the following rules apply:

- “Must” indicates a mandatory requirement.

- "Should" indicates an optional requirement, that is the recommended process to be followed, but is not mandatory.
- "May" means "allowed to" or "could possibly", and is not mandatory.

Additional requirements that are needed to test the interoperability between different S-100 based product specifications will be documented in a separate requirements document.

# 4 Roles and Responsibilities

S-100 and S-101 testing will be managed by TSMAD. TSMAD will provide the test plan and test data with assistance from DIPWG. Testing will be executed jointly by TSMAD and DIPWG and witnessed by the IHO as appropriate.

# 5 Test Feedback Mechanism

TSMAD will establish a test feedback mechanism for stakeholders to provide input and for issue resolution.

# 6 Risks

As with any large scale project there always risks. TSMAD is maintaining a risk register to document the various risks associated with this project. It should be noted, that in order for this project to succeed it is dependent upon the input and resources of both the IHO member states and third party software and hardware providers.