

Paper for Consideration by DIPWG

Incorporation of Selected Sections of S-52 into S-101

Submitted by:	DIPWG Chair
Executive Summary:	The current structure of the S-52 Standard is outlined. Each part of S-52 is reviewed for inclusion in S-101 and recommendations are made to make it either, 1.) part of a different (non S-101) document, 2.) into a separate annex to S-101, or 3.), part of the portrayal section of S-101. Separate recommendations are also made to stand up an ad hoc group to edit the portions of S-52 that will become part of S-101 and to request assistance from the OEMs in reviewing and updating the calibration annexes of S-52.
Related Documents:	S-52, S-65, S-100, S-101, Portrayal Register
Related Projects:	Development of the S-100 Portrayal Register

Introduction / Background

Action Item 19 from the May 2009, Joint TSMAD18-DIPWG1 meeting in Ottawa was to, "Make recommendations as to what portion of S-52 should be incorporated into S-101." This action is related to, but separate from the development of the S-100 Portrayal Register. The Portrayal Register is essentially of a list of symbols and a set of rules that associate specific S-101 objects with a particular symbol. Section 9 of the S-101, *IHO Geospatial Standard for Hydrographic Data*, will hold all the other IHO specified information needed to define the portrayal of S-101 encoded ENC data.

Analysis/Discussion

The S-52 *Specification for Chart Content and Display Aspects of ECDIS*, Edition 6.0 is comprised of the 11 major parts shown in Figure 1, below.

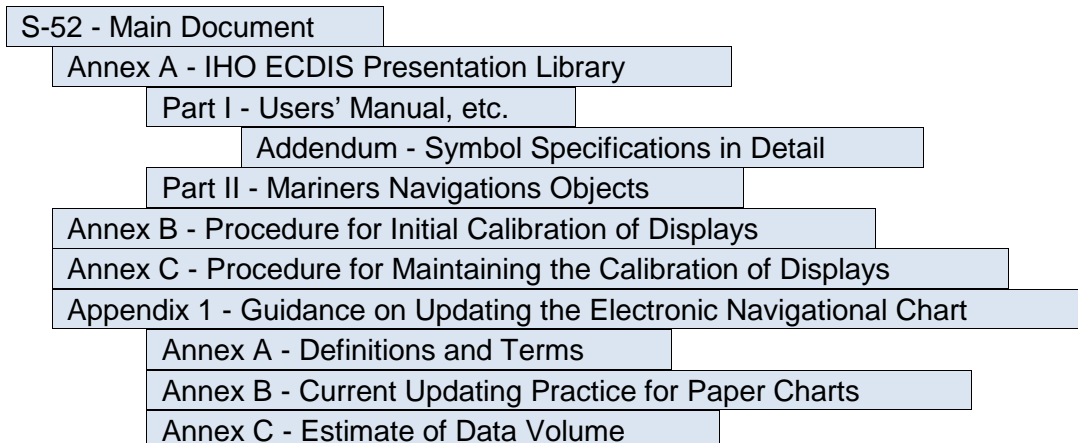


Figure 1.

Parts of S-52 *not* to include in S-101

Of these 11 parts, five can immediately be eliminated for consideration for inclusion in S-101. The first is the Addendum to the S-52, Annex A, Part I, "Paper based description of symbols for use on ECDIS." The content of this section will be completely incorporated into the S-100 Portrayal Register. The other four parts are the S-52, Appendix 1, "Guidance on Updating the Electronic Navigational Chart" and its three annexes. These sections are related to updating ENCs, not their portrayal. The recommendation by both the DIPWG and the ENC Updating Working Group (EUWG) to move the S-52, Appendix 1 into S-65, *ENC Production Guidance*, was accepted by the HSSC at their Oct 2009 meeting in Singapore and HSSC-1, Action 35 directed that the, "ENC Updating Working Group (EUWG) [is] to develop a revised version of Appendix 1 to S-52 'Guidance for ENC Updating', for inclusion in S-65."

Severable Parts of S-52

There are three parts of S-52 that cover topics that are related to portrayal, but do not explicitly describe the portrayal of ENC data. If it is determined to move any of these parts forward into S-101, it is recommended that they remain separate from the main document and be implemented as Annexes. One such part is the S-52, Annex A, Part II, "Mariners Navigational Objects." A note at the top of the Part II table of contents states, "(To be superseded by IEC standards 61174, 3rd edition, and 62288, 1st edition when they are published)" IEC 61174 Ed. 3.0 was published on 26 Sep 2008 and IEC 62288 Ed. 1.0 was published on 25 Jul 2008. It is unclear whether the note in the table of contents was intended to prompt a revision of Part II or indicate that it would no longer be needed, as it would be redundant with IEC 61174 and IEC 62288. DIPWG and TSMAD should clarify the prospects for the future of this part.

Two S-52 parts that are closely related are the S-52, Annex B, "Procedure for Initial Calibration of Displays" and S-52, Annex C, "Procedure for Maintaining the Calibration of Displays." It is recommended that these two parts be merged into one annex with two sections for S-101.

Also, these annexes were first written when CRTs were the dominant computer display technology. It is recommended that the content of these parts be carefully review by OEMs to determine if the procedures may generally be applied to other technologies, such as Liquid Crystal Diode (LCD), plasma displays and even evolving display types, such as Organic Light Emitting Diode (OLED) displays, which may come to be implemented in ECDIS during the lifetime of S-101.

Parts of S-52 to Include in S-101, Section 9

Three parts of S-52 remain to be discussed. These are highlighted with white text in Figure 2, below. The recommended dispositions of the other eight parts are shown on the right side of the figure.

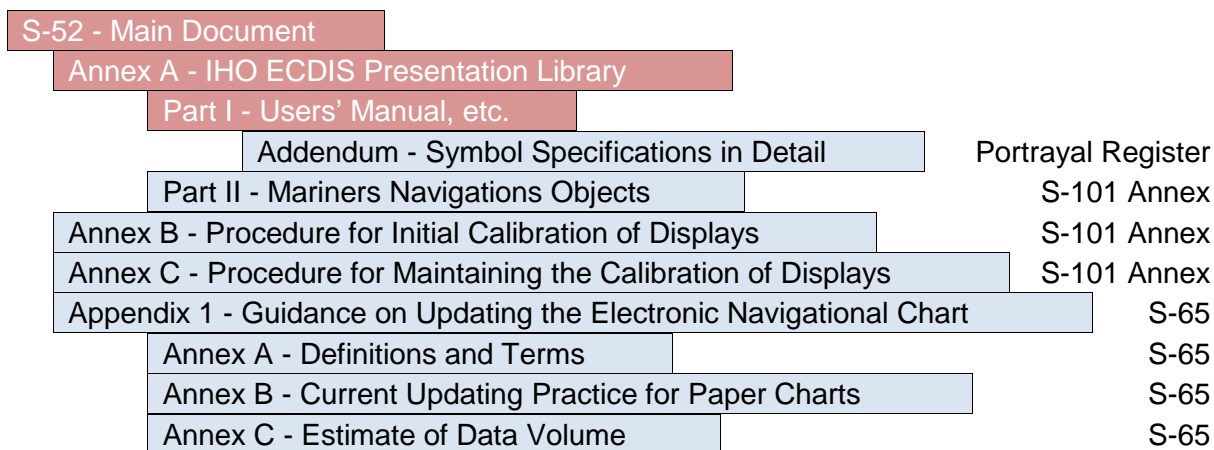


Figure 2.

Edition 6.0 of S-52 (March 2010) incorporated the former S-52, Appendix 2 into the S-52 main document. The current main document and the Annex A, Part I constitute "the meat" of the portrayal specification. The actual Annex A itself is merely a container in which to hold the separate Part I (and its addendum) and Part II. Thus, there are really only two remaining parts of S-52 to decide what to do with, the S-52 main document and Part I.

It is recommended that the S-52 main document and Part I become the basis of the S-101, Section 9, "Portrayal." The look-up tables and conditional symbology procedures within Part I should be extracted and implemented as part of the Portrayal Register, but the remaining portions of Part I should become part of S-101.

Annex A of this paper presents the tables of contents from the S-52 main document and Part I. It is recommended that TSMAD and DIPWG form an ad hoc correspondence sub-working group and these tables of contents be used as a "punch list" to systematically review each of these sections and to edit them into one unified set of portrayal guidance that will become Section 9 of S-101.

Recommendations

1. S-52 main document and Part I (excluding its look-up tables and CSPs) become the basis of S-101, Section 9, "Portrayal."
2. TSMAD and DIPWG form an ad hoc correspondence sub-working group to systematically review each section of the S-52 main document and Part I (excluding its look-up tables and CSPs) and edit them into one unified set of portrayal guidance that will become Section 9 of S-101.
3. S-52, Annex A, Part II, "Mariners Navigations Objects" be implemented as a separate annex to S-101.
4. S-52, Annex B, "Procedure for Initial Calibration of Displays" and S-52, Annex C, "Procedure for Maintaining the Calibration of Displays," be merged into one document with two sections and implemented as a single separate annex to S-101.
5. S-52, Annex B, "Procedure for Initial Calibration of Displays" and S-52, Annex C, "Procedure for Maintaining the Calibration of Displays," be carefully reviewed by OEMs to determine if the procedures may generally be applied to technologies other than CRTs, such as LCD, plasma displays and evolving display types, such as OLED displays, which may come to be implemented in ECDIS during the lifetime of S-101.
6. Addendum to S-52, Annex A, Part I along with the look-up tables and CSPs within Part I be implemented as parts of the Portrayal Register

Actions Required of TSMAD and DIPWG

The DIPWG is invited to:

1. Agree to the recommended future dispositions of the various components of S-52 vis-à-vis S-101, the Portrayal Register and S-65.
2. Form an ad hoc correspondence sub-working group to systematically review each section of the S-52 main document and Part I (excluding its look-up tables and CSPs) and to edit them into one unified set of portrayal guidance that will become Section 9 of S-101.
3. Request assistance from OEMs for the review S-52 Annex B and Annex C to determine if the procedures may generally be applied to technologies other than CRTs.

Clarify the meaning of the note at the top of the Part II table of contents, which states, "(To be superseded by IEC standards 61174, 3rd edition, and 62288, 1st edition when they are published)," in light of both of these editions having been published.

Annex A
Tables of Contents from the S-52 Main Document and S-52, Annex A, Part I

S-52 (main document), Edition 6.0 – March 2010
Specifications for Chart Content and Display Aspects of ECDIS

- 1 INTRODUCTION**
 - 1.1 Aims and Background
 - 1.2 Concept and limitations of ECDIS
 - 1.3 Function and Use of S-52
 - 1.4 Structure of the Specifications
- 2 CONSIDERATIONS; ORGANISING THE DISPLAY**
 - 2.1 General Considerations
 - 2.2 Operational Considerations
 - 2.3 Organising the Information for Display
- 3 SPECIFICATIONS FOR SYMBOLISING AREAS, LINES & POINTS AND FOR TEXT**
 - 3.1 General
 - 3.2 New Symbols for ECDIS
 - 3.3 Existing Chart Symbols
 - 3.4 Text, Diagrams etc.
- 4 SPECIFICATIONS FOR COLOURS**
 - 4.1 General
 - 4.2 Colour Assignment
- 5 SPECIFICATIONS FOR THE DISPLAY SCREEN**
 - 5.1 Physical display requirements
 - 5.2 Additional Requirements

S-52, Annex A, Edition 3.4 (Part I) – January 2008
IHO ECDIS Presentation Library

- 1. INTRODUCTION**
 - 1.1 Status of the Presentation Library
 - 1.2 S-57 and the Presentation Model for ECDIS
 - 1.3 Structure of the Presentation Model for ECDIS
 - 1.4 Supply and amendment of the Presentation Library
- 2. BASIC CONCEPT OF A 'DISPLAY GENERATOR' FOR AN ECDIS SYSTEM**
- 3. THE ELEMENTS OF THE PRESENTATION LIBRARY - AN OVERVIEW**
 - 3.1 The Colour Coding Scheme
 - 3.2 The Library of Symbols, Fill Styles and Line Styles
 - 3.3 Symbology Instructions
 - 3.4 Conditional Symbology Procedures
 - 3.5 The Look-Up Tables and other symbolizing instructions
 - 3.6 Mariners' ECDIS Chart 1 and Colour Differentiation Test diagrams
 - 3.7 Catalogue of Mariners' Navigational Object Classes
 - 3.8 Test Edition of the Presentation Library
- 4. DESCRIPTION OF THE COLOUR CODING SYSTEM**
 - 4.1 The Colour Scheme
 - 4.2 Notes on the Sections of the Colour Scheme

5. THE VECTOR SYMBOL DESCRIPTION LANGUAGE

- 5.1 Size and Orientation of a Vector-Symbol
- 5.2 Usage of a Complex Line Style
- 5.3 Samples of Formats
- 5.4 Colours and Descriptions for Symbols

6. THE RASTER-SYMBOL DESCRIPTION FORMAT

7. DESCRIPTION OF THE SYMBOLOGY INSTRUCTIONS

- 7.1 Symbology Instruction for Text Labels
- 7.2 Symbology Instruction for Point Objects
- 7.3 Symbology Instruction for Line Objects
- 7.5 Calls to Conditional Symbology Procedures

8. SOME DETAILS FOR THE DESIGNER OF THE ECDIS DISPLAY GENERATOR

- 8.1 Data Consistency Requirements
- 8.2 Display Generator Requirements
- 8.3 How to use the Look-Up Tables
- 8.4 Display of objects depending on date or on display scale
- 8.5 IMO presentation instructions which cannot be handled by Look-up Tables
- 8.6 HO-specified display features
- 8.7 Displaying of manual and automatic updates and added chart information
- 8.8 Cursor Pick and interface panel display

9. SUPPLY AND AMENDMENT OF THE DIGITAL PRESENTATION LIBRARY

- 9.1 Amending the digital Presentation Library
- 9.2 Internal Structure of the Transfer File

10. DIGITAL PRESENTATION LIBRARY FORMAT DESCRIPTION

- 10.1 Format of the Library Identification Module
- 10.2 Format of the Look-Up Table Entry Module
- 10.3 Format of the Symbology Procedure Module
- 10.4 Format of the Colour Table Module
- 10.5 Format of the Pattern Module
- 10.6 Format of the Symbol Module
- 10.7 Format of the Complex Linestyle Module

11. LOOK-UP TABLE LISTINGS

- 11.1 Look-Up Table Listing for Object Type Point 'P'
- 11.2 Look-up Table Listing for Object Type Line 'L'
- 11.3 Look-up Table Listing for Object Type Area 'A'

12. SYMBOLOGY PROCEDURE DIAGRAMS

- 12.1 Introduction
- 12.2 Conditional Symbology Procedures

13. TABLES

- 13.1 Colour tables
- 13.2 Viewing groups
- 13.3 Text groupings
- 13.4 Abbreviations

14. SYMBOL LIBRARY FOR USE ON ECDIS

- 14.1 Introduction
- 14.2 Symbol Diagrams
- 14.3 Particular Instructions for symbolising points
- 14.4 Particular Instructions for symbolising lines
- 14.5 Particular Instructions for symbolising areas
- 14.6 Examples of symbol diagrams

15. ECDIS CHART 1, SYMBOL PLOTS & COLOUR TEST DIAGRAMS

- 15.1 Introduction
- 15.2 ECDIS Chart 1
- 15.3 List of symbol names & meanings arranged numerically
- 15.4 Colour Differentiation Test Diagram
- 15.5 Plots of symbols arranged alphabetically
- 15.6 List of symbol names & meanings arranged alphabetically

16. REFERENCES

18. CONTENTS OF THE DIGITAL PRESENTATION LIBRARY DISKS AND CD-ROM

- 18.1 Digital Presentation Library
- 18.2 Test Edition of the Presentation Library
- 18.3 Look-up Table sets
- 18.4 Colour Tables
- 18.5 Symbols, Patterns and Linestyles
- 18.6 Program LITDSN – Light Description
- 18.7 Official Presentation Library
- 18.8 ECDIS Chart 1
- 18.9 Colour Differentiation Test Diagram

19. USE OF COLOUR CALIBRATION SOFTWARE, DIGITAL CHART 1, & COLOUR TEST DIAGRAM

- 19.1 Introduction
- 19.2 Software to Convert CIE Colour Coordinates to RGB values for a specific CRT Monitor
- 19.3 Specification for ECDIS Chart 1 and the Colour Test Diagram
- 19.4 Displaying the Colour Test Diagram
- 19.5 Grey Scale