Paper for Consideration by TSMAD/DIPWG

S-57 to S-101 Minimum and Maximum Display Scale Mapping Group Update

Submitted by:	S-101 Display Scale Mapping Group
Executive Summary:	This paper is intended to provide a brief update on the work that has progressed since TSMAD 25 regarding the harmonization of a S-57 to S-101 Display Scale Mapping
Related Documents:	S-101 product specification
Related Projects:	S-101

Introduction / Background

At TSMAD 25 a paper was introduced (4.6.8) requesting that TSMAD stand up a small sub-group to refine the mappings for the convertor. The intent of these mappings are to take the various values that are in CSCL and M_CSCL and provide a standard mapping to both minimum and maximum display scale for a converted S-101 ENC.

Analysis/Discussion

The group's first task was to provide recommendations for the initial mapping. It should be noted that there will be an override function for HO's to determine their own mapping, as long as one of the standardized values are used for minim and maximum display scale.

The group's responses are as follows:

IC-ENC S-57 Scale Ranges (M_CSCL and CSCL)	AU S-57 Scale Ranges (M_CSCL and CSCL)	US S-101 Maximum Display Scale	AU S-101 Maximum Display Scale	IC-ENC S-101 Maximum Display Scale	US S-101 Minimum Display Scale	AU S-101 Minimum Display Scale	IC-ENC S-101 Minimum Display Scale
1 - 4000	0 – 3,999	1	0	1	12,000	22,000	12000
4000 - 7999	4,000 – 7,999	4,000	4,000	2000	22,000	22,000	22000
8000 - 11999	8,000 – 11,999	8,000	8,000	4000	45,000	45,000	45000
12000 - 21999	12,000 – 21,999	12,000	12,000	8000	90,000	90,000	90000
22000 - 44999	22,000 – 44,999	22,000	22,000	12000	90,000	90,000	180000
45000 - 89999	45,000 – 89,999	45,000	45,000	22000	180,000	180,000	350000
90000 - 179999	90,000 – 179,999	90,000	90,000	45000	350,000	700,000	700000
180000 - 349999	180,000 – 349,999	180,000	180,000	90000	700,000	700,000	1500000
350000 - 699999	350,000 – 699,999	350,000	350,000	180000	1,500,000	1,500,000	3000000
700000 - 1499999	700,000 – 1,499,999	700,000	700,000	350000	3,000,000	3,000,000	10000000
1500000 - 2999999	1,500,000 – 2,999,999	1,500,000	1,500,000	700000	3,000,000	3,000,000	20000000
3000000-	3,000,000 - ??????	3,000,000	3,000,000	1500000	3,000,000	3,000,000	50000000

The areas that are shaded in green represent consensus within the subwg, however, there was little consensus in the values that the data should be mapped to for maximum and minimum display scale.

One of the concepts that needs to be determined is does the Maximum display scale also represent the data compilation scale? Or does it represent the maximum scale that the data should be used to safely navigate with? Once TSMAD has this discussion, it may lead to a better understanding as to how these mappings should occur.

Traditionally CSCL and M_CSCL also represented the scale that the data was compiled at, although there are cases where some Hydrographic Offices populate these values at half compilation scale based on an earlier TSMAD recommendation. It should be noted that the HO's may still retain the concept of a data compilation scale within their production systems.

In addition, Transas pointed out the following in an email to the working group:

Please do not forget that ECDIS is supposed to provide a data coverage display at any display scale. What if at certain scale the display is not covered by the cells with appropriate min/max display scales? There are a lot of overview cells of scale 1:1,500,000 that covers maybe 90 % of the oceans that will never loaded at display scale larger than 350,000. I can see at least two scenarios that can cause problems for the mariner.

1. User is in the middle of the ocean and he sees several AIS targets (looks at his route, radar overlay, etc.). He zooms in his display and overview cell (the only available) disappears from his screen.
2. User approaching the coast and there are overview cell 1:1,500,000 and approach cell 1:75,000. Their min/max display scales do not overlap that means only one cell in time will be loaded.

I'm probably missing something, but I think we need more comprehensive explanation of the display mechanism. HO should define M_CSCL in their charts in such a way so some chart coverage is always displayed at any display scale.

While this may or may not directly affect the work of the mapping team, these scenarios should be considered as a test case for the data loading and unloading algorithm.

Conclusions

While this work is not set to conclude until the end of the year, the working group wanted to report out on progress and seek TSMADs advice on the following question:

Should Maximum Display Scale be equated to Compilation Scale of the Data, or is this legacy terminology?

Action Required of TSMAD

The TSMAD is invited to:

a. note the progress of the working group
b. discuss the question proposed in the conclusion

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1500000 - 2999999	1,500,000 – 2,999,999	1,500,000	1,500,000	700000	3,000,000	3,000,000	20000000
3000000-	3,000,000 - ??????	3,000,000	3,000,000	1500000	3,000,000	3,000,000	50000000