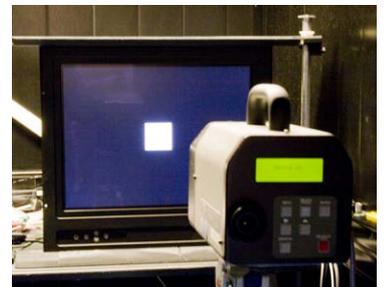
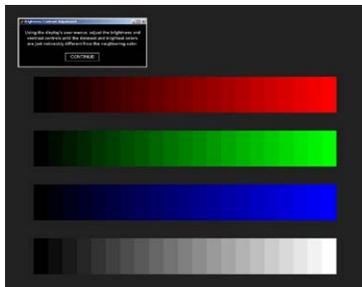


COLOR CALIBRATION

by Hatteland Technology for your ECDIS 2020 rev. 4A4



ECDIS TYPE APPROVAL PROCESS

Hatteland Technology can provide completely Type Approved ECDIS calibrated displays or provide support services at any stage of the process.

Computer and Display must have passed EN60945/E10 testing

RGB files are created using selected system hardware. It must include conformance test reports

One RGB file per unit or verification process established

Audit from class, eg DNV

Manufacturing, all units have to pass tests and /or color calibration process

Have you got Command of Color?

With Hatteland Technology's color calibration we can help you provide fail-safe, secure products. Systems integrators the world over already put trust in Hatteland Technology to deliver quality marine displays and computers and we are now extending our offering to deliver color calibration for your ECDIS.

Hatteland Technology's in-house expertise can help you meet IMO requirements for ECDIS with a straightforward service that can take care of all of your color calibration needs.

We take a 'one-stop-shop' approach to color calibration. With our extensive technical knowledge and dedicated color calibration facilities, we can take ownership of the IMO regulations for your systems by transferring competency, supporting implementation, assisting type approvals or providing approved displays.

With the calibration, testing and approval side of your ECDIS business taken care of by Hatteland Technology, you can be sure of the safety, compliance & compatibility and serviceability of your systems. This enables you to focus on system development for your customers.

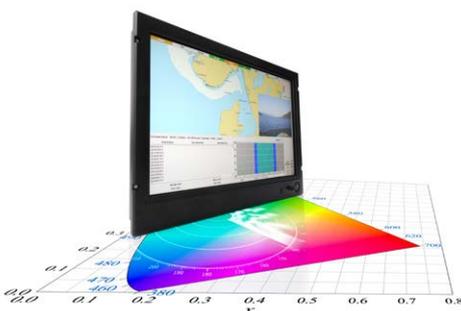
Calibration or Verification

Hatteland Technology has the ability to perform in-house measurements to support both calibration and verification methods.

The first method is a test of a monitor as part of an integrated system, often referred to as ECDIS 'calibration'. In this test, a unique color correction table is created for each monitor, which is stored in the monitor's flash memory. The ECDIS software must download the table and use it to set the output from the ECDIS computer.

In the ECDIS verification method, the color correction table is created only once for a system. To check that displays with identical type numbers are within the requirements, a verification process is performed by measuring on five colors from the DAY table.

By offering a range of methods to ensure your displays are properly calibrated, Hatteland Technology can become an integral part of your manufacturing process at any stage, fitting in with your requirements when it suits you best.



16,777,216 Colors to Choose From

The challenge of color calibration that Hatteland Tehchnology overcomes is to make sure all 3 x 63 colors defined in an ECDIS are correctly displayed on the surface of the LCD. There are over 16 million colors to choose from, but with color calibration from Hatteland Technology you can be sure of the fail-safe and secure nature of your ECDIS displays.

According to the C&S specifications for ECDIS, appendix 2, annex B, both parts of the system [display and computer] need the correct RGB values for that specific display to ensure the images are shown correctly.



Hatteland Technology offers color calibration as either part of a complete Type Approved product delivery ready to be integrated straight into your systems, or as a support service to be utilized at any stage of your manufacturing and service processes. RS-232 / RS-422 / R-S485 is standard interface solution. Other solutions for communication between our MMD display and computer system are available as OEM / custom solution.

FUTURE PROOF

By making color calibration from Hatteland Technology an integral part of your ECDIS manufacturing process, you can give a promise to your customers that your systems are future proof for any hardware modifications.

Correct color calibration allows new system components to be installed with ease, as once calibration is complete, displays and computers within an ECDIS can be interchangeable.

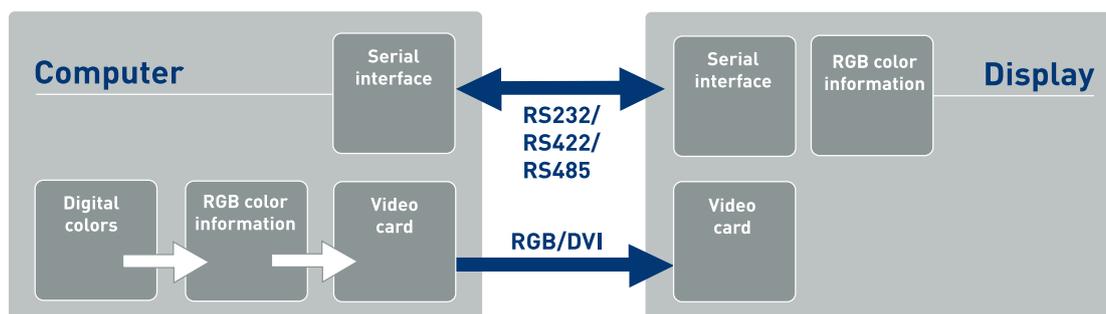
This ensures smooth servicing and maintenance, and long life of your systems as new displays and computers are integrated over what could be decades of use of your systems onboard.

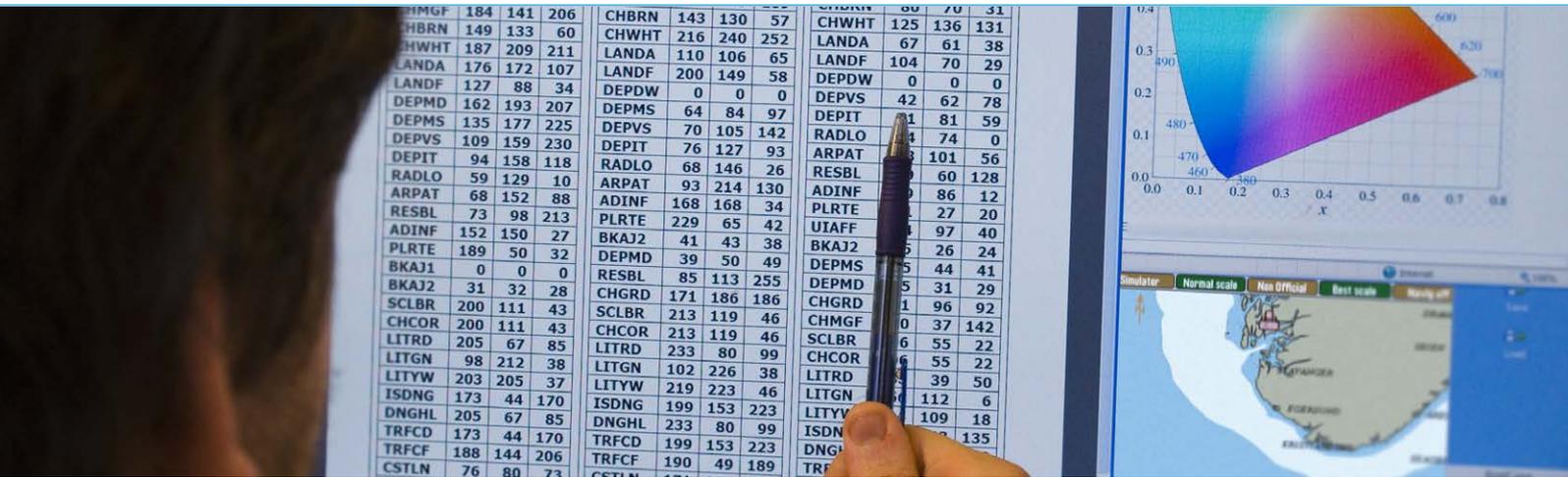
Imagine having only one set of colors that could be used with all your ECDIS monitors, regardless of the graphical adapter, size of the screen or interface that you would like to use.

Hatteland Technology is planning to introduce a new service that will revolutionize the approach to color handling in ECDIS systems.

One color table that could be used with all Hatteland Technology monitors (MMD) and any available computer.

Sophisticated gamma correction algorithms used on Hatteland Technology's video controllers allow for all this to come true in the near future.





Why Choose Color Calibration by Hatteland Technology?

- With our extensive technical knowledge and experience, we can deliver the best quality type-approved ECDIS displays fulfilling IMO requirements;
- All configurations meet the requirements set in IEC 62288, IEC 62388, IEC 61174 and IEC 60945.
- Hatteland Technology ECDIS calibration overcomes all problems associated with different display properties, to ensure correct matching between the standards and the actual products.
- Calibration service is supplied with detailed implementation instructions and extensive support.
- Hatteland Technology calibration is the most flexible system, and that can even be used with several types of graphic adapters at a time.

Color Calibration Delivers...

- Unique part number on each display for each set of display/computer (system)
- Unique RGB table generated for each set of display/computer
- Unique test procedure for each individual display part number
- Unique RGB table for each display is created, your system is color calibrated

Dedicated - Skilled - Trusted

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