

SEAFARERS COLOR VISION ASSESSMENT

an update on work in progress



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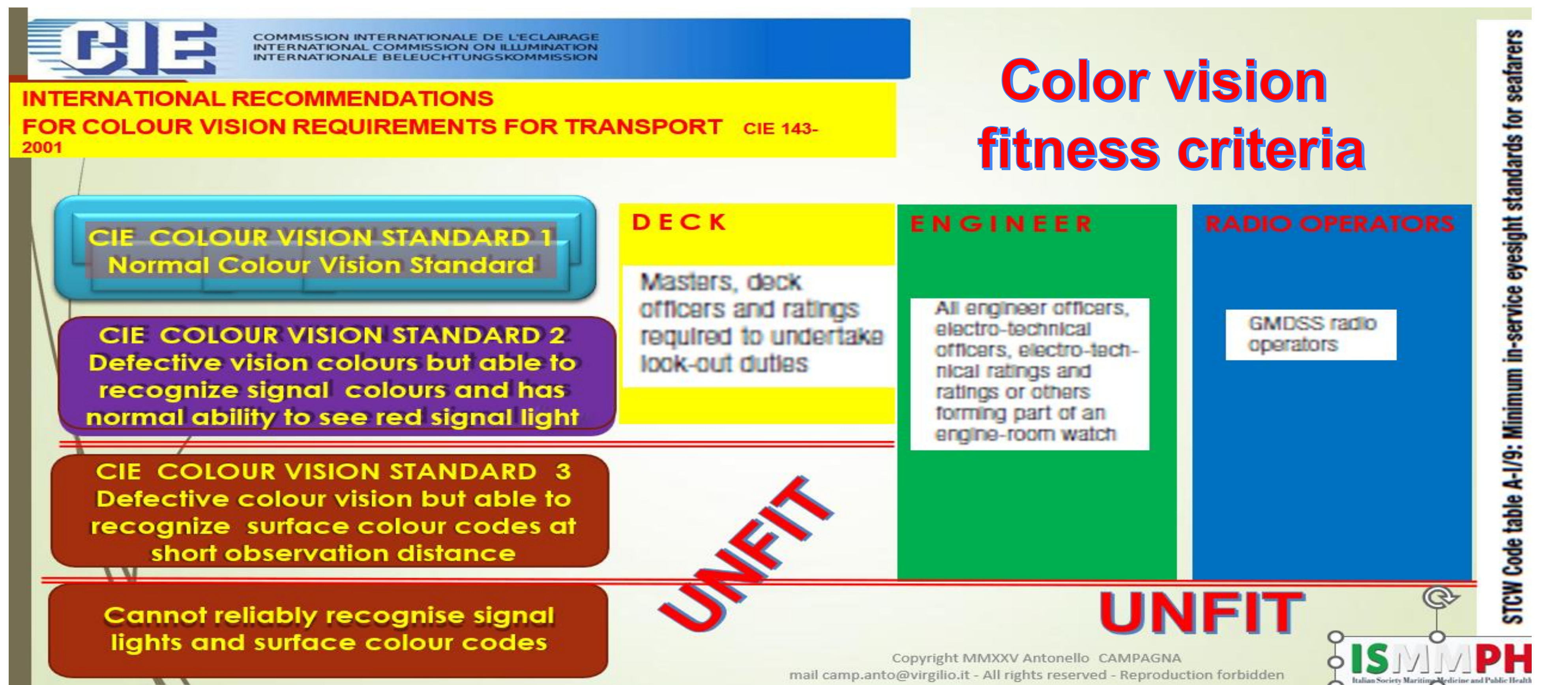
INTRODUCTION

Adequate **Color discrimination** is very important for seafarers.

Lookout duties, analysis of visual patterns seen and the use of instrumentation and visual displays need color discrimination, often in conditions of poor visibility both during the day and at night.

In addition **denotative colour codes** are used, especially in engineering, **for cabling, gas cylinders and for visual warning and alarm systems**

We present the **seafarers medical examination color vision assessment protocol adopted by Liguria Health Port Authority**



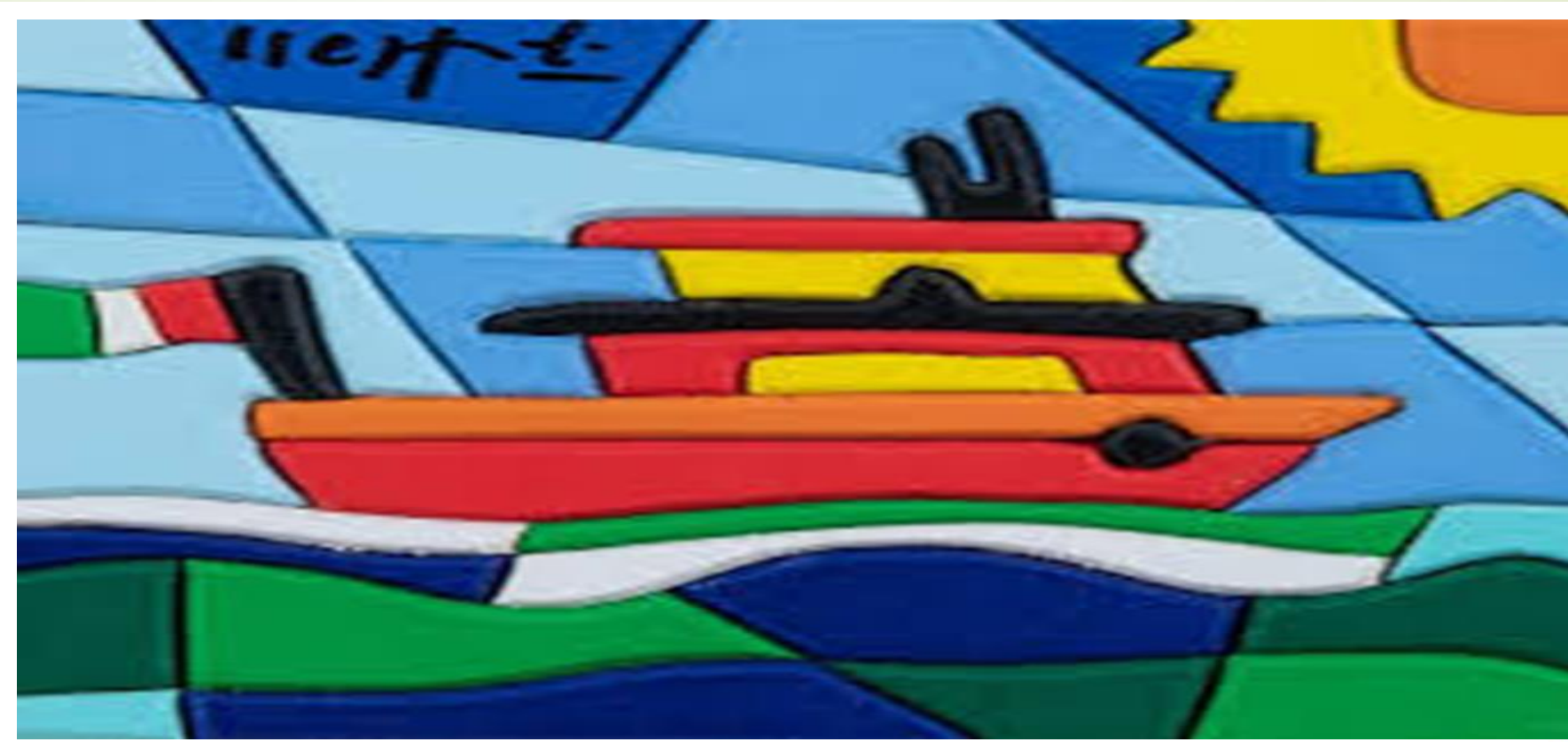
METHODS

The **color vision screening** is conducted using the **Ishihara test 38 isochromatic plates edition**. A pilot phase with also the use of **Hardy Rand Rittler plates (HRR) 4th edition** is ongoing.

Second level test are the **Color Assessment and Diagnosis (CAD) test** (for Deck positions) and **Farnsworth D15 or CAD** (for engine positions). The list of Italian CAD Centers is provided.

OTHER POSITIONS: DOCTOR, ENTERTAINMENT, CATERING, HOTEL

SCREENING TEST WITH ISHIHARA PLATES AND HRR PLATES
IF FAILURE FIT WITHOUT RESTRICTIONS BUT ANNOTATION ON THE CERTIFICATE



Cad centers in Italy



DISCUSSION

The seafarer's medical examination performed according to STCW reg I/9 must ensure that the seafarer meets the color vision standards provided by CIE 143:2001 International recommendations for color vision requirements in transport. Several of the tests described in CIE 143:2001 are no longer commercially available; this includes the Medmont test and the Holmes Wright B Lantern test (HWB).

According to literature evidences and ISMMPH national guidelines, Liguria health Porth Authority has **adopted as second level test the Cad**. Regarding the **color vision screening CAD or CVS are not adopted** since not available in every seafarer doctor office - A pilot test is ongoing with the **use in addition to Ishihara plates test of the HRR Test plates 4th ed. to reduce false negative** (It is unlikely that a CVD subject will pass both plates tests and only Ishihara plates test cannot detect all acquired and **Yellow / blue color vision defects**).

CONCLUSION



There is the need for a **NEW INTERNATIONAL SEAFARER'S COLOR VISION TESTING GUIDANCE**. Key important points under discussion that would be dealt with in an IMHA dedicated consensus conference are

- a multicenter study **TO SET CAD THRESHOLDS PATTERN VALUES SPECIFIC FOR SEAFARERS**
- To set INTERNATIONAL COMMON **COLOR VISION CRITERIA for seafarers already serving**
- a color vision testing protocol for **SEAFARERS' POSITIONS NOT COVERED UNDER STCW CONVENTION**
- Introduction of **USE OF AO HRR PLATES TEST IN ADDITION TO ISHIHARA'S TEST IN SCREENING PHASE.**
- **REVISION** of the current section **"VISION STANDARDS" OF ILO/IMO GUIDELINES**
- Last but not least advocation actions to **USE ALSO IN MARITIME SECTOR LESS COLOR CONNOTATIVE SIGNALS**

REFERENCES

- CIE 143/2001 (International Commission of Illumination) **International recommendations for colour vision requirement for transport**
- ILO/IMO Vision Standards (STCW table I/9 in **Guidelines on the Medical examination of seafarers 2013**
- Campagna A. **Assessment of seafarers Color Vision according to CIE and ILO guidelines** in 8th Spanish French maritime medicine International Congress Proceedings Barcelona 2014
- Campagna A. **Testing of Seafarers Color Vision** in 16th IMHA Symposium of Maritime Health Proceedings Athens 2023
- Barbour J.L., Rodriguez Carmona M. **Color vision requirements in visually demanding occupations** British Medical Bulletin 2017. 122:51-77
- Koefoed VF, Miles T, et Al **Color vision classification - comparing CAD and CIE 143:2001 International recommendations for color vision requirements in transport.** Acta Ophthalmol. 2020 Nov;98(7):726-735. doi:10.1111/aos.14450.

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