 Input paper: ENG3-9.5

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM **x** ENG **□** PAP **x** Input

**□** ENAV **□** VTS **□** Information

Agenda item 9

Technical Domain / Task Number TD#1 - Light and vision physics, Visual Signalling

Author(s) / Submitter(s) Frank Hermann

German Traffic Technologies Centre

Optical filter material for marine signal lights

**SUMMARY**

Optical filters were used in marine signal lights for many years to achieve an appropriate signal colour. Due to the innovation in LED technology the question arises whether filtering white light is still a useful method to produce a signal colour.

The German Traffic Technologies Centre investigated optical filter material in combination with modern light sources and checked whether the resulting colours fit to the recommended IALA colour regions.

The results are:

* Filtering LED light does make sense for high intensity marine signal lights.
* To determine whether a filter produces a colour inside the recommended regions, both the transmission spectrum of the filter and the energy spectrum of the light source have to be measured.
* A list of filters is presented and the information whether the filters give an acceptable colour with a specific light source.

The detailed results are presented in a test report.

**Purpose of the document**

ENG Committee may consider the test report for the revision of several guidelines or recommendations. As the market for optical filter is decreasing, it could be worth to put a list of filters and information about their performance on IALA Wiki to change information between IALA members.

**Related documents**

IALA Recommendation E-200-1 On Marine Signal Lights - Colours

IALA Guideline 1049 Use of Modern Light Sources in Traditional Lighthouse Optics

IALA Guideline 1041 on Sector Lights

IALA Guideline 1048 LED Technologies and their use in Signal Lights

**ANNEX**

Test report: Use of optical filters with different light sources