From: ENG Committee
To: ARM

ARM17-6.2.1
09. Mar. 22

LIAISON NOTE

Definitions of Ranges of AtoN Lights

1 Introduction

ENG Committee proposes amendments to the definitions of Luminous and Nominal Range and some more amendments in the definitions proposed for IALA Dictionary in the document *ARM14-7.3.12 WP Task 1.5.3 - New Definitions for IALA Dictionary* and in the wider context of IALA documents.

2 Proposals

2.1 Definition on Luminous and Nominal Range

Based on the current IALA Recommendation R0202 on Luminous Range and for unification of the parameters used in definitions and completeness of the definitions, ENG proposes the definitions in the Table 1 for IALA Dictionary.

Background: The tools of R0202 allow the mariner to estimate the current luminous range in a specific situation with the figures in the Annex (luminous range diagram) of the recommendation. They are based on meteorological visibility V instead of transmissivity T, and usually the diagrams are published in the list of lights with visibility V.

Table 1 Proposed Definitions

Old Definition	Proposed Definition by ARM	Proposed Definition by ENG
Luminous Range **Luminous Range** (of a light) The maximum distance at which a light can be seen, as determined by the **luminous** intensity of the light, the atmospheric transmission factor and the thresho….	**Luminous range (of a light)** The maximum distance at which a light can be seen, as determined by the luminous intensity of the light, the atmospheric transmission factor and the threshold of illuminance on the eye of the observer	**Luminous range (of a light)** The maximum distance at which a light can be seen in a homogenous atmosphere, as determined by the luminous intensity of the light, the meteorological visibility at the time of observation and the required illuminance at the eye of the observer.
Nominal Range (of a light) ...nominal **range** of a light used as an aid to marine navigation is its luminous **range** in a homogeneous atmosphere in which the meteorological visibility …	**Nominal range** The nominal range of a light used as a marine aid to navigation is its luminous range in a homogeneous atmosphere in	**Nominal range** The nominal range of a light used as a marine aid to navigation is its luminous range when the meteorological visibility is 10 M and

	which the meteorological visibility is 10 NM	the illuminance at the eye of the observer is • 0.2×10^{-7} lx for night time observation. • 1×10^{-3} lx for day time observation.

2.2 Replace sea mile with nautical mile

There are still some definitions in IALA Dictionary that use 'sea mile' instead of 'nautical mile'. ENG proposes to replace the word 'sea mile' with 'nautical mile' in IALA Dictionary and in all other IALA documents.

Background: The sea mile is an obsolete unit. Instead, a nautical mile had been defined at the first International Hydrographic Conference held at Monaco in 1929 with a value of exactly 1852 m. The old word 'sea mile' has already been replaced with nautical mile by IALA, when E-200 Part 2 was published in 2008.

Extract from E-200-2 (2008):

> Previous IALA Recommendations and the IALA Dictionary use the "sea mile" as the unit of measure for luminous range, nominal range, and meteorological visibility. This document replaces the sea mile with the nautical mile as the preferred unit of measure and as the unit of measure used in definitions. The difference between a sea mile (about 1853.2 m) and a nautical mile (1852 m) is small, and of no practical consequence for these calculations. The nautical mile has been chosen as the unit of measure because it is used more widely than the sea mile.

2.3 Give a recommendation how to abbreviate nautical mile in IALA documents.

Background: Nautical mile is abbreviated in very different ways. There are documents that use 'NM', 'nM', 'NMS', 'nmi' and even 'nm'. IALA should recommend only one abbreviation.

Some considerations:

- IHO uses 'M' for at nautical charts and in the list of lights, so 'M' should stay or be mentioned at least.
- 'nm' should not be used, because it is the abbreviation of nanometres as a SI-unit. Nanometres are used to describe the spectrum and colour of a light and may occur in the same equation as the luminous range, when considering the spectral dependence of the meteorological visibility.
- NM is an abbreviation for Notices to Mariners in IHO documents and for Admiralty Notices to Mariners.

The ENG Committee recommends the use of 'M' for the nomenclature for nautical miles.

3 Action requested

Consider updating the definitions and the Dictionary as proposed and adopting the proposals as laid out in sections 2.2. and 2.3.