SWEDISH MARITIME ADMINISTRATION
Operations

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Our reference

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Report on the use of extended light source-light pole

In Swedish waters Swedish Maritime Administration (SMA) operates a significant number of floodlighted marks and beacons. A majority is fitted with ordinary light fittings for mercury or sodium vapour lamps are used to illuminate the mark. The drawback of this method is the confusion of disturbing background lighting from roads and bridges, especially at port entrances or other heavily populated areas (See fig. 1,2).

Nevertheless the economic aspects, floodlighted lighthouses are today an appreciated feature by the mariners, regarded as more important than the traditional flashing light. SMA seldom gets reports on main light failures, but failures on floodlighted beacons are instantly reported.

To meet the demands above and to increase the conspicuity in areas with disturbing background lighting (see fig. 3,4) as for example at break water lights, an additional feature is needed. Since we have a large number of this type of lighting situation in Sweden we also need to match the economical demands.

An existing light to meet these demands was not to be found, so we started a development work on our own at SMA.

The outcome is a lighting pole with an illuminated area of 200 x 6000mm = 1.2 m^2. The pole is an 8m steel framework hot-dip galvanised lighting mast. The light consists of 1800 LED`s. The power consumption is 150W at 220V AC (fig.5).

The distinguishing factor for these light poles is the use of lateral colours red/green and the distinct vertical length. In a fairway many red/green fixed or flashing lights can be observed, but few that stick out like an illuminated sore thumb. For daytime use the pole is fitted vertical narrow day-mark boards at each side of the pole (see fig 5). The boards are lined with 3M Fluorescent sheeting red or green.

The calculated service life is at least 8 years and no maintenance is needed. After 8 years the whole LED-light source can be changed in a few hours. The investment cost is approx 1100€ for LED and mast, excl. installation.

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Due to the LED-technique it's possible to flash the whole lighted area, which further increase the conspicuity with respect to background light. This feature is used particular in leading line applications with character: Rear **Oc** and Front **Q** in order to avoid dangerous mirror effects.

This application is suitable as leading lights in port area with its special appearance. The range of visibility is at least 2M (see fig. 6).

Practical tests are to be carried out at the channel of Trollhättan this spring both as leading lights and lateral mark.

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Appendix, extended light source-light pole

Fig 1

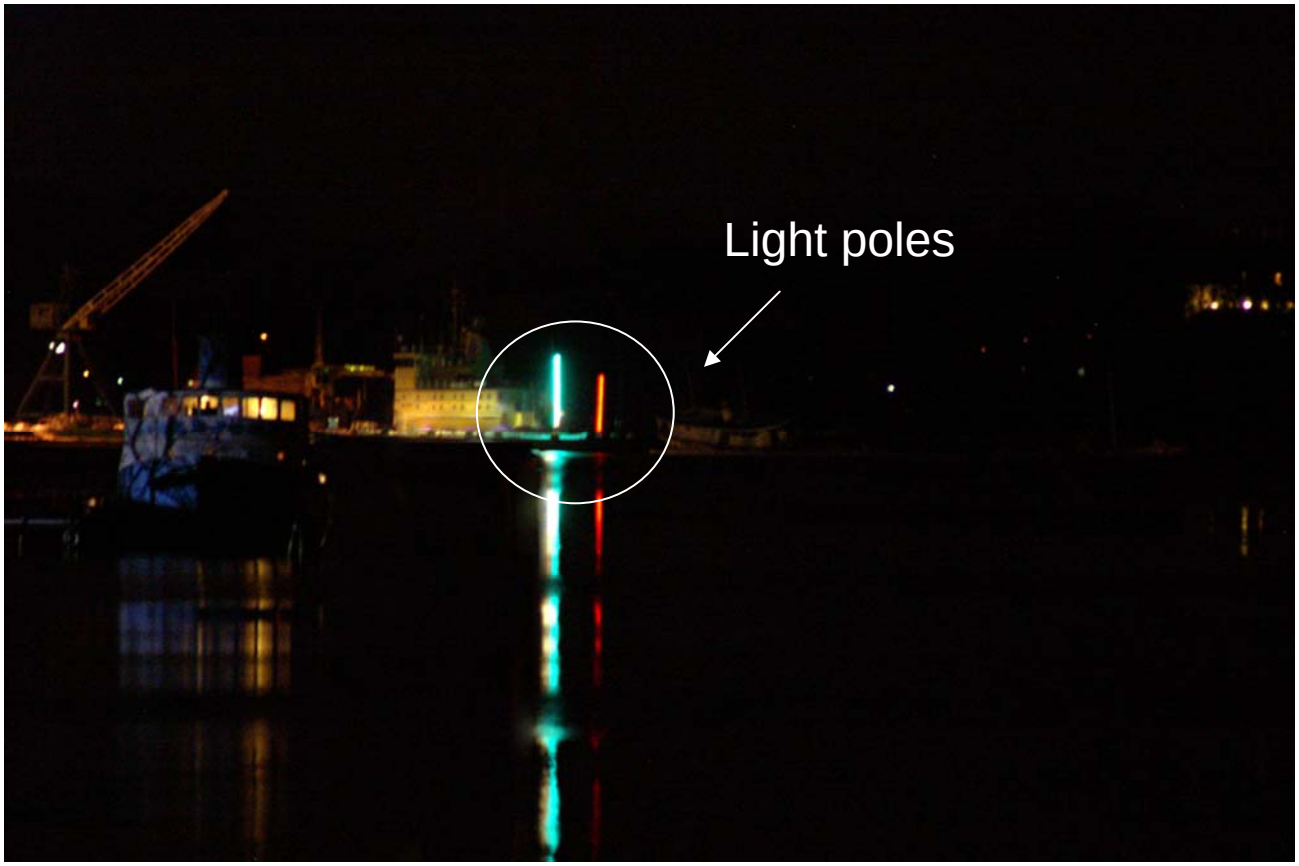
Fig 2

Fig 3

Fig 4

Fig 5

Fig 6



The conspicuity is great, the green 8m pole looks more intense than the red 6m pole, understandably so, due to it has been optimized in the direction toward the bridge. It will be used in a leading line application. The red 6m is unmistakable with its Q R character. Unfortunately the gangway lights on our ship Fyrbyggaren was on, but it gives a good impression with background light. Distance 1600m, telephoto lens 300mm. It was so dark that the moored ships and the shipyard crane to the left was not visible for a naked eye.