Investment Information

SIEMENS

NetworkRail

What's happening?

# Location Box Light
# Siemens Rail Automation

## *Background:*

Location Boxes (Loc) are large steel cubicles used to house trackside signalling equipment, usually located at the cess. Apart from signalling equipment, two filament lamps are installed at the top, providing light to trackside workers. The installed filament light bulbs apart from being ineffective are going to be out of stock in the near future. Therefore SRA, investigated in the use of an alternative light source inside the location boxes (fig.1). A number of different lighting options were examined as part of the initiative

Fig.1 Typical Location Box

## *First "Alternative"*

An initial solution that was investigated was to move the light bulbs to a different position within the Loc and replace them with a more efficient lighting source. Optimal design had the lights mounted at the sides of the Loc instead of the top (fig2). As a lighting source, both strips of LED lights and fluorescent tube lights were examined. Fluorescent tubes were susceptible to cold weather and produced a lot of EMC issues, where LED lights remain a more reliable but expensive option.

Fig.2 Indicative positions for LED strips and fluorescent tubes

However, due to the interior structure of location boxes and the intensity in which signalling equipment is mounted, any ensuing benefits from the use of LED lights are overshadowed.

## *Different approach*

As a result a second design was examined, where the light would not be in a fixed position within the Loc. Instead it would be handheld and easily moved, enabling trackside workers to bright the area of their interest. Products that offer that option are:

- Handheld torch that charges when returned to its holder.
- Hand wound rechargeable battery torch
- Wired lamp

Products that were independent from the Loc, (torches) created problems, where they could be used for work outside the Loc and eventually disappearing from their holder. Therefore a wired lamp seemed the most promising option. It offers a long cord that can be plugged in a fixed port within the Loc enabling workers to move and brighten the required area. The design which SRA examined had the wired lamp in a holder at the interior of the right door, where enough space is available (fig.3).

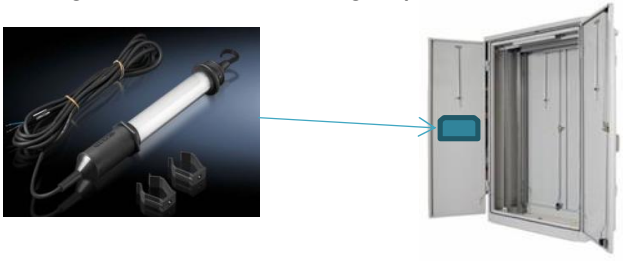

Fig.3 wired lamp and purposed position for the lamps holder.

**Contact**: Evangelos.Tsiapalas@siemens.com, Graduate Development Engineer, Siemens Rail Automation 

## *Problems - Things to consider*

A design with the use of a wired lamp although was a promising solution caused a number of issues with the signalling equipment within the Loc. It produced a lot of EMC issues, which makes it unsuitable for signalling equipment like SSI or Object Controllers that are usually found in a Loc.

Another parameter that was considered was the misuse where the lamp would point directly to operating railway tracks and hinder drivers sighting. In order to avoid similar issues a dimmer illumination may need to be considered.

However the biggest issue is cost. Any suggested solution would have to get approval from the costumer as well as funding. Common practise is for Network Rail's to reduce cost and avoid any further expenses to those already agreed. SRA cannot further progress and propose a specific design for lights unless it acquires further NR approval and funding.

## *Conclusions*

The existing light units cost a few pence whereas anything else costs significantly more and needs to be available for the life of the project (30 years). Action must be taken, as in a few years conventional light bulb stock would cease to exist but generally projects are never interested in the long term.