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NetServe Framework



Reduced Energy Lighting – White Light Sources

**Off-Road Demonstration Lessons Learnt Report
(Product ID 3)**

Quality Management			
Project No	CS047499	Document Date	1 st February 2011
Client	Highways Agency		
Project Title (1)	Reduced Energy Lighting		
Project Title (2)	White Light Sources		
File Name	Off-Road Demonstration Lessons Learnt Report Version 2.0		
File Path	G:\139\CS047499 HA White Light (399)\Documents\006 - Lessons Learnt Report		
Prepared by	DA	Signature	Signed Electronically
Checked by	TP	Signature	Signed Electronically
Approved by	HS	Signature	Signed Electronically

Document History					
Revision	Details of Revision	Prepared By	Checked By	Approved By	Date of Issue
1.0	Draft	DA	TP	HS	21/01/11
2.0	Final (no revisions made)	DA	TP	HS	01/02/11

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1 INTRODUCTION

1.1 General

This document has been produced under the scope of Highways Agency NetServe Task 399 (1308)ARPS, "Reduced Energy Lighting – White Light Sources", Work Package (WP) 0000, Project Management.

This document details the lessons learnt from the organisation and implementation of the Off-Road Demonstration (ORD) which was held at Moreton-in-March Fire Services College (FSC) between 13 and 15 December 2010.

1.2 Objectives and Scope

The ORD is one of a number of components contributing to a Safety Argument for the introduction of Reduced Energy White Lighting to replace current SON installations. The objective of the ORD was to design and deliver a comparative assessment of CMH¹ lighting against current SON² lighting.

The ORD was successfully undertaken between 13 and 15 December 2010 and all results and conclusions from the ORD and associated activities have been documented in the "Demonstration Report" (Product ID 10).

The objective of this document is to detail the lessons learnt from our experience with undertaking the ORD and efficiencies that could be made in future demonstrations of a similar nature and carried out on behalf of the Highways Agency. The Moreton-in-Marsh ORD was undertaken over three days:

- a) Day 1 (13/12/10) – Advance Works (installation of ORD facility)
- b) Day / Evening 2 (14/12/10) – Quantitative measurements (Thorlux)
- c) Day / Evening 3 (15/12/10) – Qualitative measurements.

1.3 Moreton-in-Marsh FSC test track

Figure 1.3.1 below shows the Moreton-in-Marsh FSC test track and lighting columns used for the ORD Quantitative and Qualitative measurements.



Figure 1.3.1: ORD Test Area

¹ Ceramic Metal Halide (CMH) - Lamp which emits broad spectrum of white light

² SON High Pressure Sodium Lighting

2 LESSONS LEARNT

The lessons learnt are included in this section and have been broken down by day (Sections 2.1 to 2.3) and General (Section 2.4).

2.1 Day 1 (13/12/10) – Advance Works (construction of ORD facility)

Ref	Title	Detail	Lesson learnt
2.1.1	Quality of installation	The installation of the luminaires and brackets took place over a half-day test track booking. On day-time inspection it was noted that a few luminaires were skewed slightly and column doors were not secured.	An additional day for resolving any snagging issues following the installation would have been useful i.e. optimising alignment of luminaires and securing doors etc.
2.1.2	Time for installation	Due to the luminaire and bracket installation being non standard, the first lighting installation at column 1 took a lot longer than expected (3.5 hours).	For future installations, if works are considered to be non standard, an additional period of time should be allowed for a mock installation prior to the actual installation.

2.2 Day / Evening 2 (14/12/10) – Quantitative measurements (Thorlux)

Ref	Title	Detail	Lesson learnt
2.2.1	Conditions for assessment	There had been rainfall during the day meaning that the track was damp for the evening assessments. Ideal conditions for the assessment would have been a dry track.	An additional contingency day could be programmed in the event of adverse weather conditions.
2.2.2	Luminaire burn-in time	Due to the fast-tracked Task programme, there was insufficient time to fully burn-in the new luminaires to meet manufacturer's guidelines of 100 hours.	If the programme permits, 100 hours burn-in time should be allocated prior to the commencement of testing.

2.3 Day / Evening 3 (15/12/10) – Qualitative measurements

Ref	Title	Detail	Lesson learnt
2.3.1	Time to undertake test scenarios	The first few test scenarios took longer than expected as each of the attendees was familiarising themselves with their role. Note: Following the first few test scenarios the time for each test did speed up sufficiently.	In future demonstrations it would be wise to have a pre-meeting with all attendees in attendance and go through each test scenario on a model test track (or via a presentation).

Ref	Title	Detail	Lesson learnt
2.3.2	Access to welfare facilities	There was no access to the near-by toilet block as the facilities were frozen. Nearest welfare facilities were a short drive away at the BA building.	If demonstration has to take place in the winter months then consideration should be made to renting a portable welfare facility. Antibacterial hand wash should also be provided at the cabin.
2.3.3	Positioning of TM vehicles	When positioning the vehicles for the TM scenarios it was difficult to see the chalk that marked the exact positions.	Paint spray is not permitted to be used on the test track. However a low profile removable marker may have provided a better solution than the chalk. Also, the test track should be marked out during the day, rather than at night.
2.3.4	Coned off safety area for pedestrians	When possible pedestrians were positioned behind the safety barrier and adjacent to the cabin. However, when testing was being carried out at the other end of the track this was not possible hence pedestrians were standing on the test track.	It would be prudent to set-up a coned area for pedestrian access only at either end of the test track.
2.3.5	Buffet location	Arrangements had been made with FCS for the buffet to be served in the BA building (special dispensation was gained for out of hours opening of the BA building). However when the buffet arrived the BA building was closed meaning that the buffet was served in the cabin with no mess / welfare facilities.	Liaise with FCS and ensure that the arrangement is upheld. It might be worth requesting the key for the BA building as a back-up plan.
2.3.6	Co-ordination	Co-ordination of all parties involved in the testing scenarios was via hand held walkie talkies. However as these were generally placed inside pockets the 'talk' button would invariably get accidentally pressed blocking communications.	Walkie talkies should be attached to jackets in such a way that the 'talk' button will not get accidentally pressed. Alternatively a mega phone could be used.

Ref	Title	Detail	Lesson learnt
2.3.7	Trip hazards	A larger than expected risk of trip hazards is present in the vicinity of the test track. Burned out vehicles and debris was present in the test track harshoulder. Large rabbit holes, above ground cables etc were present in the verge.	It is worth highlighting this risk on the site Risk Assessment, particularly when working at night.

2.4 General

Ref	Title	Detail	Lesson learnt
2.4.1	Time of year	Winter is not the best time of year for a demonstration due to the high chance of inclement weather, leading to snow, water or ice on the test track and attendees being unable to reach the venue. As it happened the ORD went ahead without a hitch but was lucky to hit a window of good weather after a large amount of snowfall two weeks previous.	When organising a demonstration it is best to avoid the winter months (December to February). Lighting demonstrations should not be undertaken in the mid-summer days due to the short nights.
2.4.2	Fast-tracked programme	The task programme was fast-tracked to allow just five weeks to organise the demonstration from start to finish.	Although the demonstration was successful a three month period to arrange the demonstration would have been more comfortable and would have led to fewer problems.
2.4.3	Pre-existing test facility	It would not have been possible to plan and run this demonstration in the available time (five weeks) without the pre-existing facilities at Moreton-in-Marsh FSC or a similar facility. The delineated roadways, existing lighting columns and power were all key factors.	Big programme savings can be made by taking advantage of pre-existing facilities rather than designing from scratch.